Robinson+Cole

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Also admitted in Massachusetts and New York

May 22, 2024

Via Electronic Mail

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

Re: **Notice of Exempt Modification – Facility Modification**
141 (a/k/a 131) Gifford Road, Bozrah, Connecticut

Dear Attorney Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains an existing wireless telecommunications facility at the above-referenced property address (the "Property"). The facility consists of antennas on an existing tower and associated equipment on the ground, near the base of the tower. The tower was approved by the Town of Bozrah in February of 1999. Cellco's shared use of the tower was approved by the Siting Council ("Council") in December of 2000 (TS-VER-013-001117). A copy of the Town's tower approval and Council's tower share approval are included in Attachment 1.

Cellco now intends to modify its facility by removing six (6) antennas and six (6) remote radio heads ("RRHs") and installing nine (9) new antennas and six (6) new RRHs utilizing its existing antenna support structure and antenna mounts. A set of project plans showing Cellco's proposed facility modifications and the specifications for Cellco's new antennas and RRHs are included in Attachment 2.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Bozrah's Chief Elected Official and Land Use Officer. A copy of this letter is also being sent to the owner of the Property.

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 tower. Cellco's new antennas and RRHs will be installed at the same height on the tower.

2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, 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 installation of Cellco's new antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. Included in Attachment 3 is a Calculated Radio Frequency Emissions Report demonstrating that the proposed modified facility will comply with the FCC safety standards. The modified facility will be capable of providing Cellco's 5G wireless service.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. According to the attached Structural Analysis Report ("SA") and Antenna Mount Analysis Report ("MA"), the existing tower, tower foundation, antenna supports and antenna mounts, with certain modifications, can support Cellco's proposed modifications. Copies of the SA and MA are included in Attachment 4.

A copy of the parcel map and Property owner information is included in Attachment 5. A Certificate of Mailing verifying that this filing was sent to municipal officials and the property owner is included in Attachment 6.

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

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
Glenn Pianka, Bozrah First Selectman
Jennifer Lindo, Zoning Enforcement Officer
NGA Capital LLC, Property Owner
Aleksey Tyurin

ATTACHMENT 1

TOWN OF BOZRAH
PLANNING & ZONING COMMISSION
TOWN HALL, 1 RIVER ROAD
BOZRAH, CONNECTICUT 06334

Notice of Decision

At their regular meeting of February 11, 1999 the Bozrah Planning & Zoning Commission rendered the following decisions:

Fargo Family Partnership, Stockhouse Road. Subdivision creating two building lots on Stockhouse Road which is zoned for Industrial use. **ACTION - Approved.**

SBA Inc., Boca Roton, Florida. Application for a special permit to construct a 196' telecommunications tower at 131 Gifford Lane on property owned by John and Betty Orr. **ACTION - Approved with conditions.**

Town of Bozrah. Proposal to extend a 16" water main northeasterly along Stockhouse Road. This application is submitted in accordance with Section 8-24 of the Connecticut General Statutes as a municipal improvement. **ACTION - The Commission approved the plan and strongly supports the proposal to extend this water main along Stockhouse Road.**

Seymour Adelman, Chairman
Stephen Seder, Vice-Chairman
Planning & Zoning Commission

****

PLEASE PUBLISH THE "BULLETIN" "ONCE AS SOON AS POSSIBLE".

cc:: First Selectman
Applicant by "Certified Mail"
Bulletin Board
Town Clerk
File

Post-it® Fax Note 7671	Date 2/12/99	# of pages ▶ 1
To R. Barlow, First Selectman	From R. Seder
Co./Dept. Town of Bozrah	Co. SCCOG
Phone #	Phone # 889-2324
Fax # 887-5449	Fax # 889-1222

TRANSMISSION VERIFICATION REPORT

TIME : 02/12/1999 10:09
NAME : SCCOG
FAX : 860-889-1222
TEL : 860-889-2324

DATE, TIME	02/12 10:09
FAX NO. /NAME	BULLETIN
DURATION	00:00:37
PAGE(S)	01
RESULT	OK
MODE	STANDARD ECM

TOWN OF BOZRAH
BOZRAH, CONNECTICUT

DRIVEWAY PERMIT

ISSUED TO SBA, Inc. DATE _____

ADDRESS 125 Shaw Street, New London CT 06320

FOR: driveway/acess road to telecommunications site at 131 Gifford Lane

YOUR REQUEST TO CONSTRUCT A DRIVEWAY ON LOT NO. 119

MAP NO. 7 TO: Gifford Lane

WHICH IS TOWN PROPERTY, IS GRANTED SUBJECT TO THE FOLLOWING PROVISIONS:

1. THE DRIVEWAY SHALL BE CONSTRUCTED IN SUCH A MANNER THAT IT DOES NOT INTERFERE WITH THE EXISTING DRAINAGE, THE MOVEMENT OF TRAFFIC, OR THE REMOVAL OF SNOW FROM

2. THE DRIVEWAY SHALL BE CONSTRUCTED IN SUCH A MANNER THAT IT DOES NOT PERMIT THE RUNOFF OF WATER FROM TO ENTER INTO THE PROPERTY OF THE OWNER THEREBY CREATING A NUISANCE TO TH TOWN AND THE OWNER.

3. THE OWNER AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CLAIMS OF DAMAGE RESULTING FROM THE CONSTRUCTION OF THE DRIVEWAY.

4. THE DRIVEWAY SHALL BE STABILIZED FOR A SUFFICIENT DISTANCE IN FROM TO PROPERTY TO PREVENT EROSION ON TO TOWN PROPERTY AND SHALL BE DESIGNED IN MANNER TO CONFINE THE SURFACE WATER TO THE GUTTER AREAS AND PERMIT FREE FLOWAGE OF THE WATER IN THE WATERWAYS.

5. IF THE DRIVEWAY IS TO BE HARDTOPPED AT A LATER DATE ALLOWANCES MUST BE MADE FOR THE ADDITIONAL CHANGE OF GRADE WHERE THE DRIVEWAY CONNECTS WI EXISTING WATERWAYS OR TRAVELLED PORTION OF THE TOWN ROAD.

6. THE DISTURBED AREAS WITHIN THE TOWN'S RIGHT-OF-WAY SHALL BE REPAIRED BY THE OWNER OR THE CONTRACTOR

7. WHERE EXISTING EXCAVATIONS OR FILLS WITHIN THE TOWN'S RIGHT-OF-WAY ENDANGER THE LIFE OF EXISTING TREES OR OTHER GROWTHS OR STONES EXIST AS OBSTACLES TO THE ACCESS OR EGRESS TO PROPERTY, SUCH OBSTACLES, TREES, OR GROWTHS, SHALL BE REMOVED AT THE OWNER'S EXPENSE.

K McNary

APPLICANT

FIRST SELECTMAN

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square
New Britain, Connecticut 06051
Phone: (860) 827-2935
Fax: (860) 827-2950

December 19, 2000

Sandy M. Carter
Verizon Wireless
20 Alexander Drive
P.O. Box 5029
Wallingford, CT 06492

RE: **TS-VER-013-001117** - Cellco Partnership d/b/a Verizon Wireless request for an order to approve tower sharing at an existing telecommunications facility located at 131 Gifford Lane, Bozrah, Connecticut.

Dear Ms. Carter:

At a public meeting held December 14, 2000, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility may require an explicit request to this agency pursuant to General Statutes § 16-50aa or notice pursuant to Regulations of Connecticut State Agencies Section 16-50j-73, as applicable. Such request or notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction.

The proposed shared use is to be implemented as specified in your letter dated November 16, 2000.

Thank you for your attention and cooperation.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/FOC/laf

c: Honorable Keith J. Robbins, First Selectman, Town of Bozrah
Ester McNany, SBA, Inc.
Julie M. Cashin, Esq., Hurwitz & Sagarin, LLC
J. Brendan Sharkey, VoiceStream Wireless Corporation

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ATTACHMENT 2

ANTENNA MOUNT REINFORCEMENT NOTE:
PRIOR TO THE COMMENCEMENT OF THE UPGRADE WORK SHOWN ON THESE DRAWINGS, THE EXISTING VERIZON TRI-SECTOR ANTENNA MOUNTING FRAME LOCATED ON THE EXISTING SELF-SUPPORT TOWER SHALL BE REINFORCED AS PER THE MOUNT MODIFICATION DRAWINGS PREPARED BY COLLIERS ENGINEERING & DESIGN (PROJECT #20777639).

SBA APPROVED

By Stephen Roth at 11:46:32 AM, 4/16/2024

verizon

20 ALEXANDER DRIVE, 2nd FLOOR
WALLINGFORD, CT 06492

BOZRAH EAST CT

161 GIFFORD LANE
BOZRAH, CT 06334
NEW LONDON COUNTY

PROJECT TYPE: UPGRADE TO EXISTING WIRELESS TELECOMMUNICATIONS INSTALLATION ON EXISTING 196'± SELF-SUPPORT TOWER

SUPPORTING DOCUMENTS

RADIO FREQUENCY (RF) DESIGN DATE: 02/27/24

ANTENNA MOUNT STRUCTURAL ANALYSIS DATE: 02/06/24 (BY COLLIERS ENGINEERING & DESIGN)

ANTENNA SUPPORT STRUCTURE (196'± SELF-SUPPORT TOWER) STRUCTURAL ANALYSIS DATE: 02/14/24 (BY SBA COMMUNICATIONS CORPORATION)

SITE INFORMATION

VERIZON LOCATION CODE:	467314
VERIZON SITE NAME:	BOZRAH EAST CT
SBA SITE NUMBER:	CT01166-S
SBA SITE NAME:	BOZRAH EAST CT
SBA COLLO APP NUMBER:	246014, V1
MDG LOCATION ID:	5000244619
FUZE PROJECT ID:	16244580
SITE ADDRESS:	161 GIFFORD LANE BOZRAH, CT 06334
PROPERTY OWNER:	NATHAN G. ADELMAN 38 BOZRAH STREET BOZRAH, CT 06334-1300
TOWER OWNER:	SBA TOWERS, LLC 8051 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561 226-9523
COUNTY	NEW LONDON COUNTY, CT
ZONING DISTRICT:	(R-1) RESIDENTIAL 1
STRUCTURE TYPE:	SELF-SUPPORT TOWER
STRUCTURE HEIGHT:	196'±
STRUCTURE HEIGHT W/APPURTENANCE:	200'±
GROUND ELEVATION:	451'±
TOTAL AMSL:	651'±
SITE CONTROL POINT:	CENTER OF EXISTING SELF-SUPPORT TOWER N 41°33'09.06" (41.5525°) (NAD'83) W 72°06'02.55" (72.1007°) (NAD'83)
ARCHITECT/ENGINEER:	CHAPPELL ENGINEERING ASSOCIATES, LLC 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752

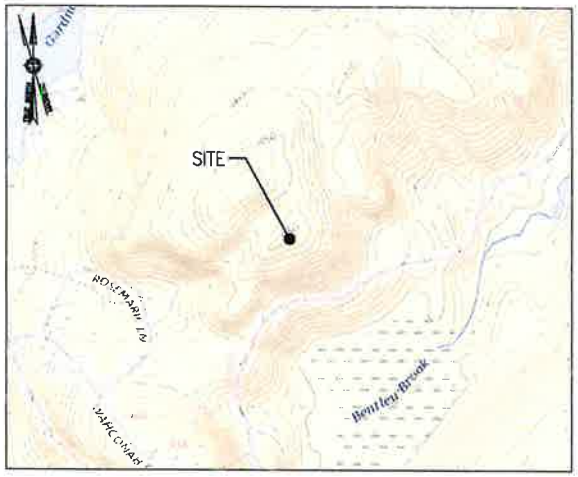
GENERAL NOTES

1. CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACES THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
2. NEW CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
   - BUILDING CODE: 2022 CONNECTICUT STATE BUILDING CODE
   - ELECTRICAL CODE: 2020 NATIONAL ELECTRICAL CODE
   - STRUCTURAL CODE: TIA/EIA-222-H STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS

AT LEAST 72 HOURS PRIOR TO DIGGING, THE CONTRACTOR IS REQUIRED TO CALL DIG SAFE AT 811

VICINITY MAP

SCALE: 1"=1000'



DRIVING DIRECTIONS

FROM WALLINGFORD, TAKE CT-15 NORTH TOWARD HARTFORD. CONTINUE STRAIGHT ONTO US-5 NORTH/BERLIN TURNPIKE. TURN RIGHT ONTO RAMP FOR CT-9 SOUTH TOWARD MIDDLETOWN. MERGE ONTO CT-9 SOUTH. TAKE EXIT 29A FOR I-91 NORTH TOWARD HARTFORD/SPRINGFIELD. TAKE EXIT ONTO CT-3 NORTH TOWARD GLASTONBURY. USE RIGHT LANE TO MERGE ONTO CT-2 EAST TOWARD NORWICH. TAKE EXIST 23 FOR CT-163 TOWARD BOZRAH/MONTVILLE. CONTINUE ONTO CT-163 SOUTH/BOZRAH STREET. TURN LEFT ONTO GAGER ROAD. THEN LEFT ONTO GIFFORD LANE. THE SITE IS LOCATED ON THE LEFT HAND SIDE.

SHEET INDEX

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DO NOT SCALE DRAWINGS

ALL PLANS, EXISTING DIMENSIONS AND CONDITIONS AT THE PROPOSED PROJECT SITE SHALL BE VERIFIED IN THE FIELD DURING THE CONSTRUCTION PHASE. THE PROJECT OWNER'S REPRESENTATIVE SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES IMMEDIATELY PRIOR TO PROCEEDING WITH THE PROPOSED WORK AFFECTED BY SUCH DISCREPANCIES. IN THE EVENT OF LACK OF SUCH NOTIFICATION, SUCH DISCREPANCIES SHALL BECOME THE RESPONSIBILITY OF THE PREVAILING CONTRACTOR RESPONSIBLE FOR CONSTRUCTION.

PROJECT DESCRIPTION

1. THIS IS AN UNMANNED AND RESTRICTED ACCESS EQUIPMENT INSTALLATION AND WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNAL FOR THE PURPOSE OF PROVIDING PUBLIC WIRELESS TELECOMMUNICATIONS SERVICE.
2. THIS FACILITY DOES NOT, NOR WILL IT CONSUME UNRECOVERABLE ENERGY.
3. NO PORTABLE WATER SUPPLY IS OR WILL BE PROVIDED AT THIS LOCATION.
4. NO WASTE WATER IS OR WILL BE GENERATED AT THIS LOCATION.
5. NO SOLID WASTE IS OR WILL BE GENERATED AT THIS LOCATION.

SCOPE OF WORK

REMOVE:
- (3) MOUNT TIEBACKS
- (12) ANTENNAS
- (6) RADIOS
- (2) JUNCTION BOXES (6 CVP)

INSTALL:
- MOUNT REINFORCEMENTS
- (6) ANTENNAS
- (6) RADIOS
- (1) JUNCTION BOX (12 CVP)

verizon
20 ALEXANDER DRIVE, 2ND FLOOR
WALLINGFORD, CT 06492
(203) 741-7336

SBA
SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
(508) 251-0720

CHAPPELL ENGINEERING ASSOCIATES, LLC
M.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST, SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com

STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED
PROFESSIONAL CIVIL ENGINEER
4/16/2024

CHECKED BY: JMF

APPROVED BY: JMF

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	04/11/24	ISSUED FOR CONSTRUCTION	CMC
0	04/02/24	ISSUED FOR REVIEW	CMC

PROJECT NAME & ADDRESS
BOZRAH EAST CT
161 GIFFORD LANE
BOZRAH, CT 06334

VZW LOCATION CODE:	467314
MDG LOCATION ID:	5000244619
FUZE PROJECT ID:	16244580

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T01

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR – VERIZON WIRELESS
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – VERIZON WIRELESS
   OEM – ORIGINAL EQUIPMENT MANUFACTURER

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR 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 CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR 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.

4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

5. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.

11. SUBCONTRACTOR 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.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. THE SUBCONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE SUBCONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.

14. SUBCONTRACTOR SHALL NOTIFY CHAPPELL ENGINEERING ASSOCIATES, LLC. 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACK FILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS & POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEERING REVIEW.

15. CONSTRUCTION SHALL COMPLY WITH VERIZON WIRELESS NETWORK STANDARD (NSTD)123 TO THE MAXIMUM EXTENT FEASIBLE UNLESS PRECLUDED OR LIMITED BY DESIGN SHOWN ON THESE DRAWINGS.

16. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

17. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK OR EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

18. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

SITE WORK GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.

2. 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 ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR 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 & EXCAVATION.

3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.

4. IF NECESSARY, REMNISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

5. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.

6. 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.

7. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.

8. 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 ENGINEERING, OWNER AND/OR LOCAL UTILITIES.

9. 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 IN THE PROJECT SPECIFICATIONS.

10. SUBCONTRACTOR 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.

11. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE VERIZON WIRELESS SPECIFICATION FOR SITE SIGNAGE.

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.

2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (4000PSI) MAY BE USED. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301 CODE REQUIREMENTS

3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.

4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST EARTH.....3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER .....2 IN.
   #5 AND SMALLER & WWF .....1½ IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALL .....¾ IN.
   BEAMS AND COLUMNS .....1½ IN.

5. A CHAMFER ¾" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR ENGINEERING APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY RAMSET/REDHEAD OR APPROVED EQUAL.

7. CONCRETE CYLINDER TEST IS NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER;
   (A) RESULTS OF CONCRETE CYLINDER TEST PERFORMED AT THE SUPPLIERS PLANT.
   (B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.
FOR 50 GREATER THAN 50 CUBIC YARDS THE CC SHALL PERFORM THE CONCRETE CYLINDER TEST.

8. AS AN ALTERNATIVE TO ITEM 7. TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.

9. EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS AND VERIZON WIRELESS SPECIFICATION 23252-000-3PS-GET-00001 UNLESS OTHERWISE NOTED. STRUCTURAL STEEL SHALL BE ASTM-A-36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".

2. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION. PAINTED SURFACES SHALL BE TOUCHED UP.

3. BOLTED CONNECTIONS SHALL USE BEARING TYPE ASTM A325 BOLTS (¾"ø) AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.

4. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE ½" DIA. ASTM A 307 BOLTS UNLESS NOTED OTHERWISE.

5. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHORS SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO THE MANUFACTURERS RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY RAMSET/REDHEAD OR APPROVED EQUAL.

6. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL.

7. ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

1. EXCAVATE AS REQUIRED TO REMOVE VEGETATION AND TOPSOIL TO EXPOSE NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.

2. COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.

3. AS AN ALTERNATE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.

4. COMPACTED SUBBASE SHALL BE UNIFORM AND LEVELED. PROVIDE 6" MINIMUM CRUSHED STONE OR GRAVEL COMPACTED IN 3" LIFTS ABOVE COMPACTED SOIL. GRAVEL SHALL BE NATURAL OR CRUSHED WITH 100% PASSING 1" SIEVE.

5. AS AN ALTERNATE TO ITEMS 2 AND 3, THE SUBGRADE SOILS WITH 5 PASSES OR A MEDIUM SIZED VIBRATORY PLATE COMPACTOR (SUCH AS WACKER DPU 30/3H) OR HAND-OPERATED SINGLE DRUM VIBRATORY ROLLER (SUCH AS BOMAG BW 55E). ANY SOFT AREAS THAT ARE ENCOUNTERED SHOULD BE REMOVED AND REPLACED WITH A WELL-GRADED GRANULAR FILL AND COMPACTED AS STATED ABOVE.

COMPACTION EQUIPMENT:

1. HAND OPERATED DOUBLE DRUM, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR.

CONSTRUCTION NOTES:

1. FIELD VERIFICATION:
SUBCONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, VERIZON WIRELESS ANTENNA PLATFORM LOCATION AND ANTENNAS TO BE REPLACED.

2. COORDINATION OF WORK:
SUBCONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH CONTRACTOR.

3. CABLE LADDER RACK:
SUBCONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BTS LOCATION.

ELECTRICAL INSTALLATION NOTES:

1. WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.

2. SUBCONTRACTOR SHALL MODIFY EXISTING CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLING TO THE NEW BTS EQUIPMENT. SUBCONTRACTOR SHALL SUBMIT MODIFICATIONS TO CONTRACTOR FOR APPROVAL.

3. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TELCORDIA.

4. CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.

5. EACH END OF EVERY POWER, GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC & OSHA, AND MATCH EXISTING INSTALLATION REQUIREMENTS.

6. POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, ¾ INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC & OSHA AND MATCH EXISTING INSTALLATION REQUIREMENTS

7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANEL BOARD AND CIRCUIT ID'S).

8. PANEL BOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.

9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.

10. POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

12. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #3 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.

13. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.

14. 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 AT NO LESS THAN 75°C (90°C IF AVAILABLE).

15. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.

16. NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.

17. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40, OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

18. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

19. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE

20. RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.

21. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

22. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.

23. CABINETS, BOXES, AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.

24. CABINETS, BOXES, AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.

25. WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE RAINTIGHT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.

26. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS

27. 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 RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

28. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

29. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

30. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.

31. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.

32. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.

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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED
PROFESSIONAL CIVIL ENGINEER
4/2/2024

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	04/1/24	ISSUED FOR CONSTRUCTION	GJC
0	04/02/24	ISSUED FOR REVIEW	GJC

PROJECT NAME & ADDRESS

BOZRAH EAST CT

131 GIFFORD LANE
BOZRAH, CT 06334

VZW LOCATION CODE:	467314
MDG LOCATION ID:	16084819
FUZE PROJECT ID:	16084819

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN01

SITE PLAN
SCALE: 1" = 50'-0"
1
A01
0 50' 100' 150'

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4/1/2024

CHECKED BY: JMT
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SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	04/1/24	ISSUED FOR CONSTRUCTION	CMC
0	04/08/24	ISSUED FOR REVIEW	CMC

PROJECT NAME & ADDRESS
BOZRAH EAST CT
131 GIFFORD LANE
BOZRAH, CT 06334

VZW LOCATION CODE:	467314
MDG LOCATION ID:	16044610
FUZE PROJECT ID:	16044610

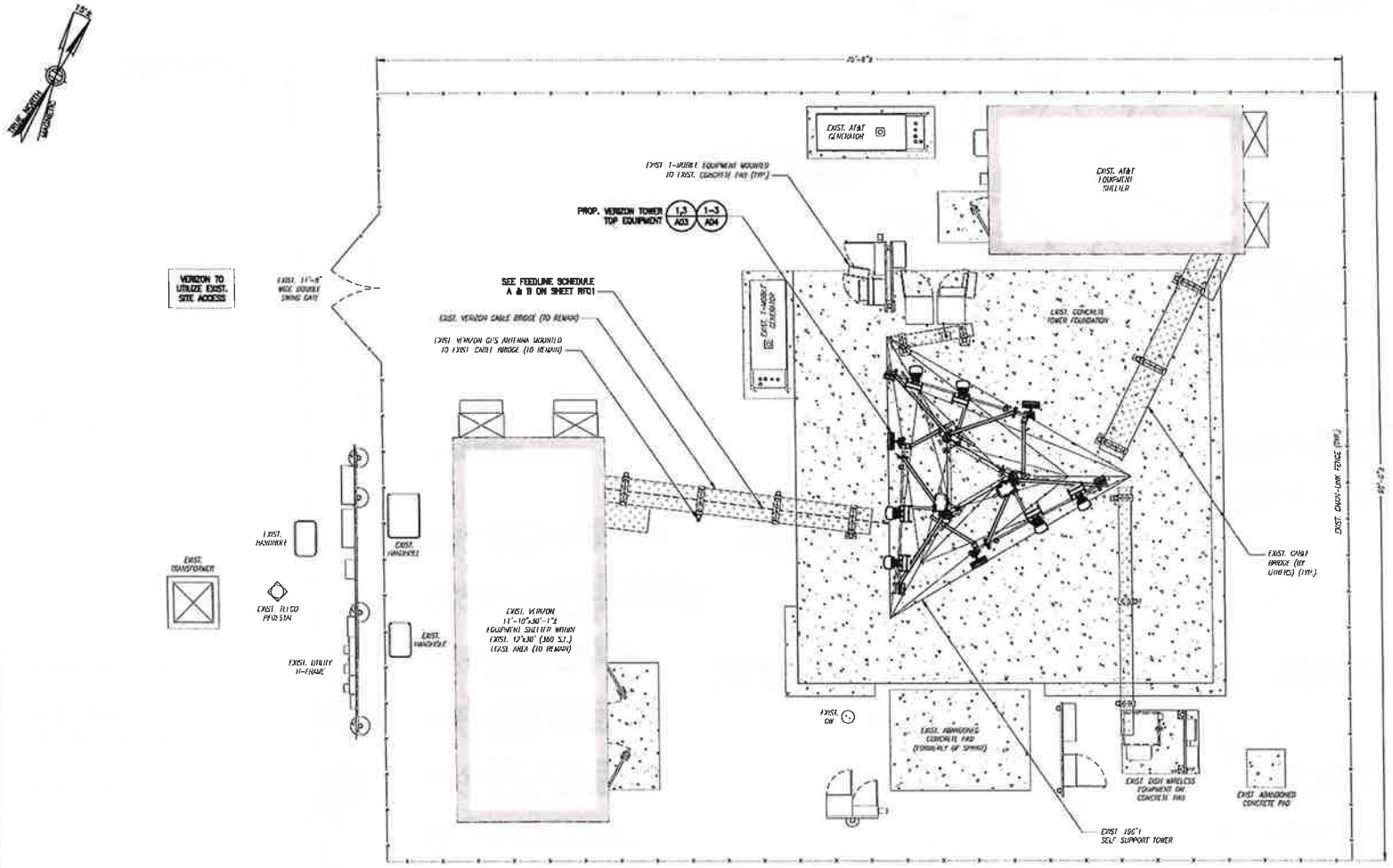
SHEET TITLE
SITE PLAN

SHEET NUMBER
A01

SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.

SPECIAL CONSTRUCTION NOTE (SBA-PROVIDED ANTENNA MOUNT STRUCTURAL MOD SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT THE VERIZON RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

ANTENNA MOUNT REINFORCEMENT NOTE:
PRIOR TO THE COMMENCEMENT OF THE UPGRADE WORK SHOWN ON THESE DRAWINGS, THE EXISTING VERIZON TRI-SECTOR ANTENNA MOUNTING FRAME LOCATED ON THE EXISTING SELF-SUPPORT TOWER SHALL BE REINFORCED AS PER THE MOUNT MODIFICATION DRAWINGS PREPARED BY COLLIERS ENGINEERING & DESIGN (PROJECT #20777639).



COMPOUND PLAN
SCALE: 1/4" = 1'-0"
1 A02
0 4'-0" 8'-0" 12'-0"

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STATE OF CONNECTICUT
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LICENSED PROFESSIONAL CIVIL ENGINEER
4/8/2024

CHECKED BY: AJT
APPROVED BY: AJT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	04/11/24	ISSUED FOR CONSTRUCTION	CMC
0	04/02/24	ISSUED FOR REVIEW	CMC

PROJECT NAME & ADDRESS
BOZRAH EAST CT
131 GIFFORD LANE
BOZRAH, CT 06334

VZW LOCATION CODE:	467314
MDG LOCATION ID:	BU#####619
FUZE PROJECT ID:	1##4###

SHEET TITLE
COMPOUND PLAN

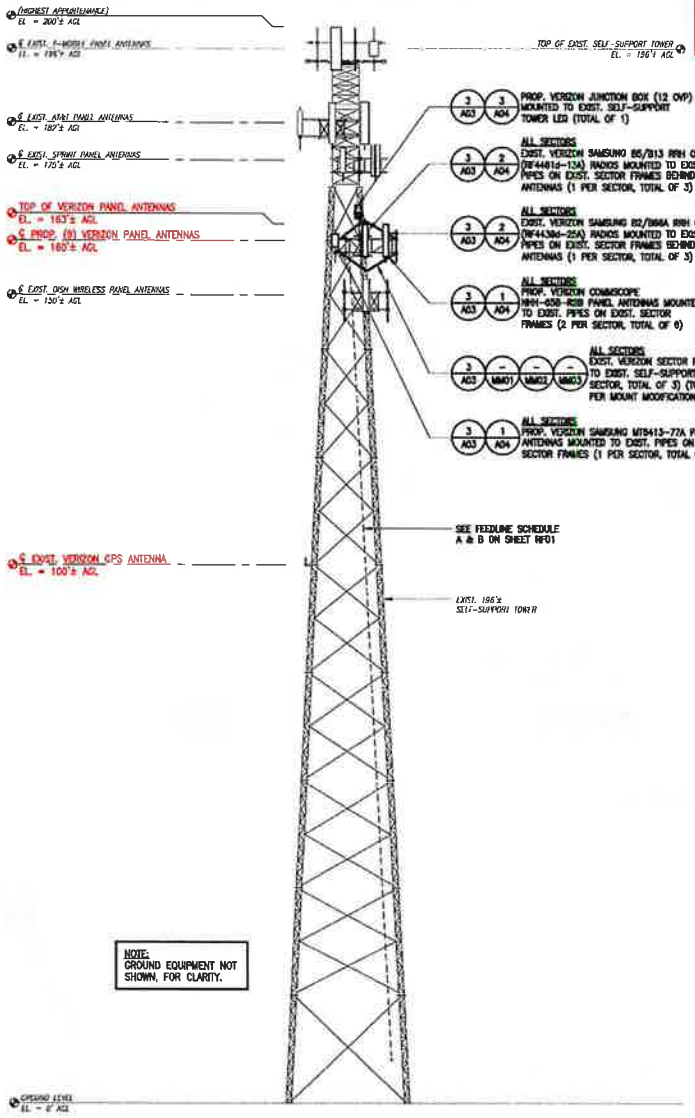
SHEET NUMBER
A02

SPECIAL CONSTRUCTION NOTE (SBA-PROVIDED ANTENNA MOUNT STRUCTURAL MOD SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT THE VERIZON RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.

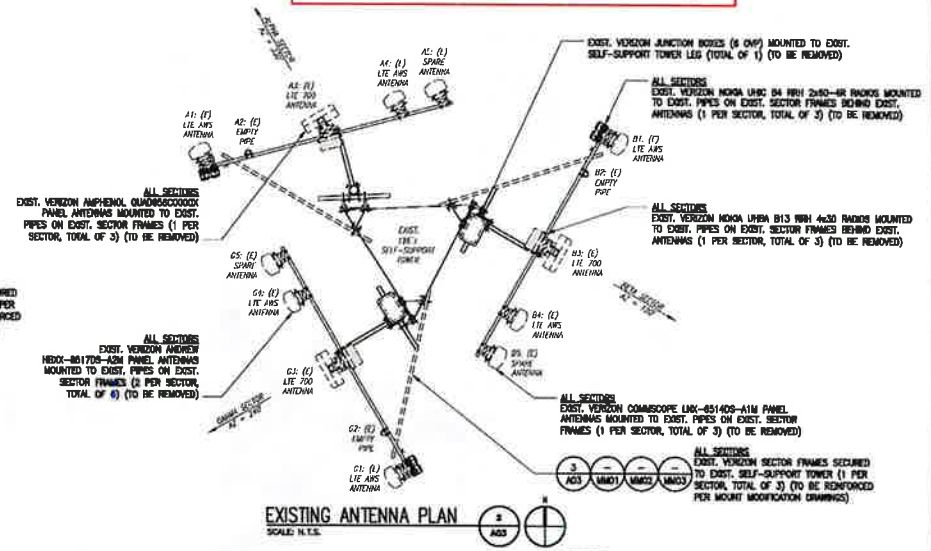
RAD CENTER NOTE:
VERIZON ANTENNA AND MOUNT RAD CENTER SHOWN IN ELEVATION ARE ACCORDING TO STRUCTURAL ANALYSIS DONE BY OTHERS AND MAY DIFFER FROM RAD CENTER ON RFDS PROVIDED BY VERIZON.

ANTENNA MOUNT REINFORCEMENT NOTE:
PRIOR TO THE COMMENCEMENT OF THE UPGRADE WORK SHOWN ON THESE DRAWINGS, THE EXISTING VERIZON TRI-SECTOR ANTENNA MOUNTING FRAME LOCATED ON THE EXISTING SELF-SUPPORT TOWER SHALL BE REINFORCED AS PER THE MOUNT MODIFICATION DRAWINGS PREPARED BY COLLIERS ENGINEERING & DESIGN (PROJECT #20777639).

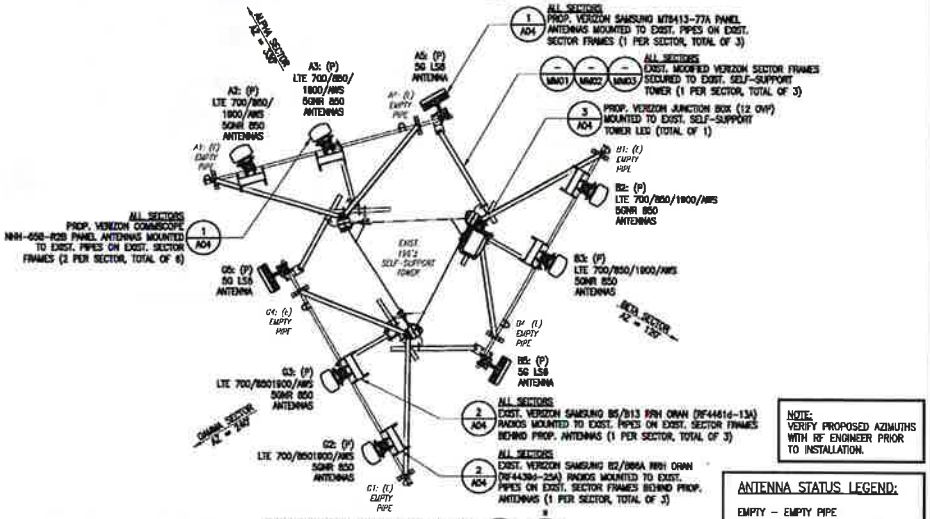


NOTE:
GROUND EQUIPMENT NOT SHOWN, FOR CLARITY.

TOWER ELEVATION
SCALE: 3/32" =1'-0" (1 A03)
0 10'-8" 21'-4" 32'-0"



EXISTING ANTENNA PLAN (2 A03)
SCALE: N.T.S.



PROPOSED ANTENNA PLAN (3 A03)
SCALE: N.T.S.

NOTE:
VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION.

ANTENNA STATUS LEGEND:
EMPTY – EMPTY PIPE
(E) – EXISTING
(P) – INSTALL
(F) – FUTURE

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4/8/2024

CHECKED BY: JMT
APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	04/11/24	ISSUED FOR CONSTRUCTION	CLC
0	04/02/24	ISSUED FOR REVIEW	CLC

PROJECT NAME & ADDRESS
BOZRAH EAST CT
131 GIFFORD LANE
BOZRAH, CT 06334

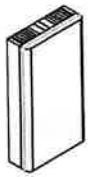
VZW LOCATION CODE:	467314
MDG LOCATION ID:	88008144919
FUZE PROJECT ID:	11814889

SHEET TITLE
TOWER ELEVATION & ANTENNA PLANS

SHEET NUMBER
A03

COMMSCOPE NHH-65B-R2B ANTENNA

DIMENSIONS: 72.0"H x 11.9"W x 7.1"D
WEIGHT: 43.7 lbs
QUANTITY: 2 PER SECTOR, TOTAL OF 6
SECTORS: ALPHA, BETA, GAMMA



SAMSUNG MT6413-77A ANTENNA

DIMENSIONS: 28.0"H x 15.0"W x 9.5"D
WEIGHT: 57.3 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3
SECTORS: ALPHA, BETA, GAMMA

ANTENNA DETAILS

SCALE: N.T.S.

1 / A04

SAMSUNG RF4439d-25A B2/B66A RADIO

DIMENSIONS: 15.0"H x 16.0"W x 10.0"D
WEIGHT: 74.7 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3
SECTORS: ALPHA, BETA, GAMMA

SAMSUNG RF4461d-13A B5/B13 RADIO

DIMENSIONS: 15.0"H x 15.0"W x 10.2"D
WEIGHT: 79.1 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3
SECTORS: ALPHA, BETA, GAMMA

RADIO DETAILS

SCALE: N.T.S.

2 / A04

Procedure

Mounting Procedures

4.1 A mounting base is delivered with the unit. The base allows either wall/radiator or pole mounted installation. See picture to identify the holes for each installation method.

4.2 *Option 1: Pole Mount*
Using supplied hardware, mount bracket to 2" to 4" diameter pole

4.3 *Option 2: Unistrut*

4.4 *Option 3: Monopole*
Use 1" stainless steel bands (not supplied) through slots on bracket to mount to Monopole.

Glands/Insert Definitions

5.1 See picture to identify Base Gland Assembly Designations

Assembled in unit as shipped:

Qty	Connector Size	Pos.	Insert P/N	Insert Hole	Cable Type
2	M75	A	196-0753	40mm	6x9 7/8
4	M75	B	196-0754	3x 32.5mm 1x 40mm	6x9 7/8

Included in kit shipped with unit:

Qty	Connector Size	Insert P/N	Insert Hole	Cable Type	Purpose	Pos.
3	M75	196-0753	40mm	6x12 RL	2 glands fill 1 each 6x12 Hyb	B
2	M75	196-0754	2x 24.5mm	2x 12 DC	2 glands fill 2 each 6x12 round DC	B
1	M75	196-0755	6x 13.5mm	2x12 Fiber	1 gland 12 x 12 fiber trunk	B
1	M75	196-0757	2x 9.5mm	7 x 1/4	1 gland 8 fill 2 ethernet cable	B

FIBER JUNCTION BOX

DIMENSIONS: 20.59"H x 16.0"W x 12.6"D
WEIGHT: 32.0 lbs
QUANTITY: TOTAL OF 1

TYPICAL FIBER JUNCTION BOX DETAILS

SCALE: N.T.S.

3 / A04

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4/8/2024

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	04/11/24	ISSUED FOR CONSTRUCTION	CMC
0	04/02/24	ISSUED FOR REVIEW	CMC

PROJECT NAME & ADDRESS

BOZRAH EAST CT

131 GIFFORD LANE
BOZRAH, CT 06334

VZW LOCATION CODE: 467314

MDG LOCATION ID: BX05844619

FUZE PROJECT ID: 13844619

SHEET TITLE

SITE DETAILS

SHEET NUMBER

A04

EXISTING EQUIPMENT CONFIGURATION

SECTOR	EQUIPMENT MAKE & MODEL	QTY	AZIMUTH (TRUE NORTH)	ANTENNA RAD	BAND	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	EQUIPMENT STATUS	H (IN)	W (IN)	D (IN)	WEIGHT (LBS)	HYBRID CABLE SIZE & QTY
ALPHA	ANDREW HBXX-6516DS-A2M PANEL ANTENNA	1	330°	160'± AGL	LTE AWS	0°	2°	ETRE	74.9	12.0	6.5	43.0	EXIST. (12) 1 5/8" COAXIAL CABLES EXIST. (2) 6x12 HYBRID CABLES
	RAMBLER QUADBSCBDDDA PANEL ANTENNA	1	330°	160'± AGL	LTE 700	0°	3°	ETRE	74.4	20.5	7.2	54.6	
	ANDREW HBXX-6516DS-A2M PANEL ANTENNA	1	330°	150'± AGL	LTE AWS	0°	3°	ETRE	74.9	12.0	6.5	43.0	
	COMMSCOPE LNX-6514DS-A1M PANEL ANTENNA	1	330°	150'± AGL	SPARE	-	-	ETRE	72.9	11.9	7.1	51.3	
BETA	ANDREW HBXX-6516DS-A2M PANEL ANTENNA	1	120°	160'± AGL	LTE AWS	0°	3°	ETRE	74.9	12.0	6.5	43.0	
	RAMBLER QUADBSCBDDDA PANEL ANTENNA	1	120°	160'± AGL	LTE 700	0°	12°	ETRE	74.4	20.5	7.2	54.6	
	ANDREW HBXX-6516DS-A2M PANEL ANTENNA	1	120°	160'± AGL	LTE AWS	0°	3°	ETRE	74.9	12.0	6.5	43.0	
	COMMSCOPE LNX-6514DS-A1M PANEL ANTENNA	1	120°	160'± AGL	SPARE	-	-	ETRE	72.9	11.9	7.1	51.3	
GAMMA	ANDREW HBXX-6516DS-A2M PANEL ANTENNA	1	240°	160'± AGL	LTE AWS	0°	3°	ETRE	74.9	12.0	6.5	43.0	
	RAMBLER QUADBSCBDDDA PANEL ANTENNA	1	240°	160'± AGL	LTE 700	0°	2°	ETRE	74.4	20.5	7.2	54.6	
	ANDREW HBXX-6516DS-A2M PANEL ANTENNA	1	240°	160'± AGL	LTE AWS	0°	3°	ETRE	74.9	12.0	6.5	43.0	
	COMMSCOPE LNX-6514DS-A1M PANEL ANTENNA	1	240°	160'± AGL	SPARE	-	-	ETRE	72.9	11.9	7.1	51.3	
ALL	NOKIA AHFIL B13 4RH 4x30 RADIOS	3	-	-	-	-	-	ETRE	21.6	12.0	7.2	50.0	
	NOKIA AHC B4 4RH 2x60-4P RADIOS	3	-	-	-	-	-	ETRE	36.9	10.6	5.7	52.0	
	6 OVP	3	-	-	-	-	-	ETRE	29.6	16.5	12.6	32.0	

NOTES:
1. "ETRE" DENOTES "EXISTING TO REMAIN".
2. "ETRE" DENOTES "EXISTING TO BE REMOVED".
3. WEIGHTS LISTED ARE WITHOUT MOUNTING BRACKETS.
4. INFORMATION IS BASED ON RFDS DATED 02/27/24.

FINAL EQUIPMENT CONFIGURATION

SECTOR	EQUIPMENT MAKE & MODEL	QTY	AZIMUTH (TRUE NORTH)	ANTENNA RAD	BAND	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	EQUIPMENT STATUS	H (IN)	W (IN)	D (IN)	WEIGHT (LBS)	HYBRID CABLE SIZE & QTY
ALPHA	COMMSCOPE NHH-65B-R2B ANTENNA	1	330°	160'± AGL	LTE 700/850/1900/AWS 5GNR 850	0°/0°/0°/0°	2°/2°/0°/0°	NEW	72.0	11.9	7.1	43.7	EXIST. (12) 1-5/8" COAXIAL CABLES EXIST. (2) 6x12 HYBRID CABLES
	COMMSCOPE NHH-65B-R2B ANTENNA	1	330°	160'± AGL	LTE 700/850/1900/AWS 5GNR 850	0°/0°/0°/0°	2°/2°/0°/0°	NEW	72.0	11.9	7.1	43.7	
	SAMSUNG MT8413-77A ANTENNA	1	330°	160'± AGL	5G LSB	0°	1°	NEW	28.9	15.8	5.5	57.3	
BETA	COMMSCOPE NHH-65B-R2B ANTENNA	1	120°	160'± AGL	LTE 700/850/1900/AWS 5GNR 850	0°/0°/0°/0°	2°/2°/0°/0°	NEW	72.0	11.9	7.1	43.7	
	COMMSCOPE NHH-65B-R2B ANTENNA	1	120°	160'± AGL	LTE 700/850/1900/AWS 5GNR 850	0°/0°/0°/0°	2°/2°/0°/0°	NEW	72.0	11.9	7.1	43.7	
	SAMSUNG MT8413-77A ANTENNA	1	120°	160'± AGL	5G LSB	0°	1°	NEW	28.9	15.8	5.5	57.3	
GAMMA	COMMSCOPE NHH-65B-R2B ANTENNA	1	240°	160'± AGL	LTE 700/850/1900/AWS 5GNR 850	0°/0°/0°/0°	2°/2°/0°/0°	NEW	72.0	11.9	7.1	43.7	
	COMMSCOPE NHH-65B-R2B ANTENNA	1	240°	160'± AGL	LTE 700/850/1900/AWS 5GNR 850	0°/0°/0°/0°	2°/2°/0°/0°	NEW	72.0	11.9	7.1	43.7	
	SAMSUNG MT8413-77A ANTENNA	1	240°	160'± AGL	5G LSB	0°	1°	NEW	28.9	15.8	5.5	57.3	
ALL	SAMSUNG B25/B66A RF4439d-25A RADIOS	3	-	-	-	-	-	NEW	15.0	15.0	10.0	74.7	
	SAMSUNG B5/B13 RF4461d-13A RADIOS	3	-	-	-	-	-	NEW	18.0	15.0	10.2	79.1	
	12 OVP	1	-	-	-	-	-	NEW	29.6	16.5	12.6	32.0	

NOTES:
1. "ETRE" DENOTES "EXISTING TO REMAIN".
2. "ETRE" DENOTES "EXISTING TO BE REMOVED".
3. WEIGHTS LISTED ARE WITHOUT MOUNTING BRACKETS.
4. INFORMATION IS BASED ON RFDS DATED 02/27/24.

FEEDLINE SCHEDULE

SCHEDULE	FEEDLINES	LOCATION
A	EXISTING TO REMAIN: (1) 1/2" COAXIAL CABLE FOR GPS ANTENNA (12) 1-5/8" COAXIAL CABLES (2) 6x12 HYBRID CABLES EXISTING TO BE REMOVED: NONE	ROUTED PER STRUCTURAL ANALYSIS
B	PROPOSED: NONE	

NOTE:
EXISTING VERIZON EQUIPMENT FEEDLINE INVENTORY BASED ON OBSERVED FIELD CONDITIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER.

verizon
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WESTBOROUGH, MA 01581
(508) 251-0720

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MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com

STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 28997
LICENSED
PROFESSIONAL CIVIL ENGINEER
4/11/2024

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	04/11/24	ISSUED FOR CONSTRUCTION	CMC
0	04/02/24	ISSUED FOR REVIEW	CMC

PROJECT NAME & ADDRESS
BOZRAH EAST CT
131 GIFFORD LANE
BOZRAH, CT 06334

VZW LOCATION CODE: 487314
MDG LOCATION ID: [redacted]
FUZE PROJECT ID: [redacted]

SHEET TITLE
RF DATA

SHEET NUMBER
RF01

N/A

RF PLUMBING DIAGRAM
SCALE: N.T.S.

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STATE OF CONNECTICUT
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No. 25997
LICENSED
PROFESSIONAL CIVIL ENGINEER
4/8/2024

CHECKED BY:	JMT
APPROVED BY:	JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	04/11/24	ISSUED FOR CONSTRUCTION	CMC
0	04/02/24	ISSUED FOR REVIEW	CMC

PROJECT NAME & ADDRESS

BOZRAH EAST CT

131 GIFFORD LANE
BOZRAH, CT 06334

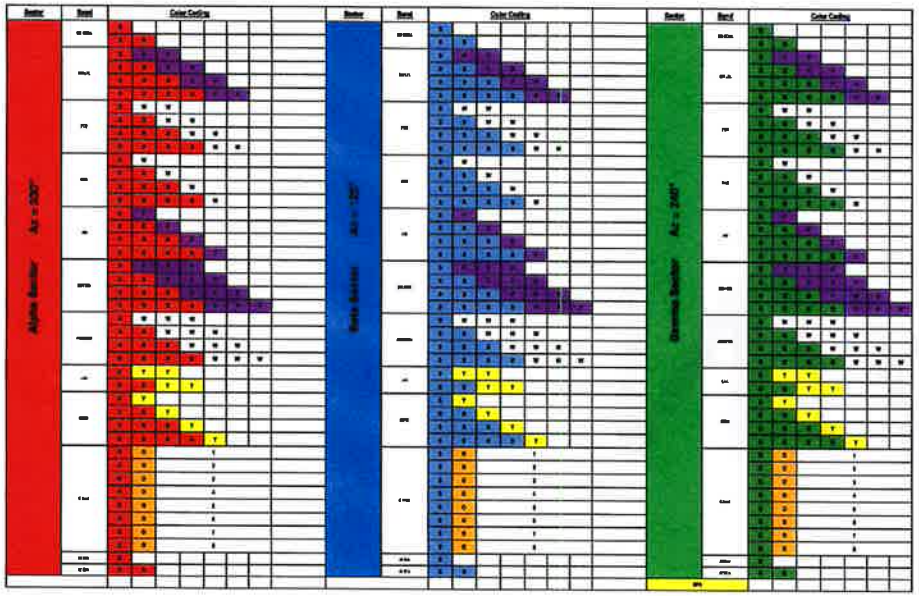
VZW LOCATION CODE:	467314
MDG LOCATION ID:	BOX0244618
FUZE PROJECT ID:	16844699

SHEET TITLE

RF PLUMBING DIAGRAM

SHEET NUMBER

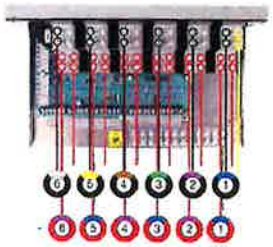
RF02



Hybrid Cable on Towers

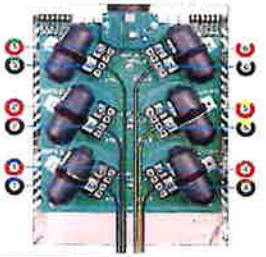
Hybrid Cable 1

Sector	Identification Color	-48V	RTN
700 Alpha	Blue		
AWS Alpha	Violet		
PCS Alpha	Green		
850 Alpha	Brown		
Spare	Yellow		
Spare	White		



Hybrid Cable 2

Sector	Identification Color	-48V	RTN
700 Beta	Blue		
AWS Beta	Violet		
PCS Beta	Green		
850 Beta	Brown		
Spare	Yellow		
Spare	White		



CABLE NOTE:
SEE FEEDLINE SCHEDULE A & B ON SHEET RF01
FOR EXISTING & PROPOSED CABLE QUANTITIES.

LINE COLOR CODE SPECIFICATIONS (1 / RF03)
SCALE: N.T.S.

HYBRID CABLE COLOR CODE SPECIFICATIONS (2 / RF03)
SCALE: N.T.S.

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4/8/2024

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	04/11/24	ISSUED FOR CONSTRUCTION	CMC
0	04/08/24	ISSUED FOR REVIEW	CMC

PROJECT NAME & ADDRESS

BOZRAH EAST CT

131 GIFFORD LANE
BOZRAH, CT 06334

VZW LOCATION CODE: 467314
MDG LOCATION ID: [illegible]
FUZE PROJECT ID: [illegible]

SHEET TITLE

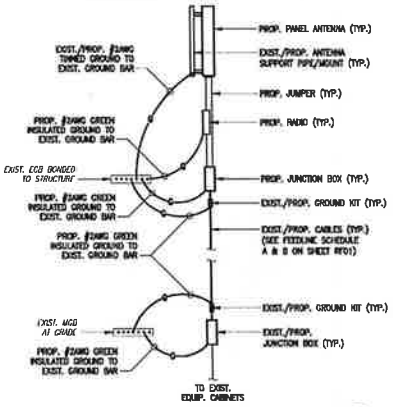
RF COLOR CODE SPECIFICATIONS

SHEET NUMBER

RF03

GROUNDING GENERAL NOTES

1. ALL EXTERIOR CONDUCTORS SHALL BE #2 AWG, SOLID, BARE, TINNED COPPER, UNLESS OTHERWISE NOTED. MINIMUM BEND RADIUS SHALL BE EIGHT (8) INCHES.
2. ALL WIRE-TO-WIRE CONNECTIONS SHALL BE THREE-CLAMP, C TAP COMPRESSION (TABB #54740 ORANGE OR EQUIVALENT). ALL GROUND BAR CONNECTIONS SHALL BE TWO-HOLE, LONG-BARREL TYPE COMPRESSION LUGS (TABB OR EQUIVALENT). ALL OTHER CONNECTIONS TO STEEL SURFACES SHALL USE LUG-TYPE CONNECTORS.
3. MECHANICALLY BOND ANTENNA MOUNTS WITH #2 AWG, BARE, STRANDED CONDUCTORS.
4. ALL GROUNDING WORK SHALL COMPLY WITH VERIZON WIRELESS STANDARDS.
5. CONNECT GROUND CONDUCTOR TO EXISTING GROUNDING SYSTEM. ATTACH TO WALLS, PARAPET, CABLE TRAY, ETC. WITH A CLAMPS AS NECESSARY. REMOVE PAINT, FIREPROOFING, WALL SCALE, ETC. TO ACHIEVE GOOD CAD WELD GROUND CONNECTION.
6. CONNECT TO HALO GROUND USING C-TAP (#54730).
7. CONNECT TO ENCLOSURES USING BLUE GROUND LUGS.
8. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC (CADWELD) CONNECTIONS.
9. ALL GROUND CONNECTIONS BELOW GRADE SHALL BE EXOTHERMIC (CADWELD).
10. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR & EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
11. ALL EXOTHERMIC CONNECTIONS TO THE GROUND RODS SHALL START AT THE TOP & HAVE A VERTICAL SEPARATION OF 6" FOR EVERY ADDITIONAL CONNECTION.
12. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
13. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
14. MAXIMUM RESISTANCE OF THE COMPLETED GROUND SYSTEM SHALL NOT EXCEED 5 OHMS. TESTING SHALL BE PERFORMED IN ACCORDANCE WITH PROJECT SPECIFICATION FOR FACILITY GROUNDING, USING FALL OF POTENTIAL METHOD.
15. ANTENNA GROUND KITS SHALL BE FURNISHED BY VERIZON & INSTALLED BY CONTRACTOR.



TYP. ANTENNA GROUNDING RISER

SCALE: N.T.S. — 1 / E01

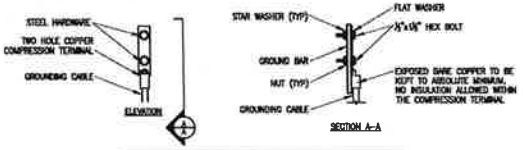
LEGEND

GROUNDING SYMBOLS

- GROUND ROD/TEST (OBSERVATION) WELL
- GROUND ROD
- CADWELD TYPE CONNECTION
- COMPRESSION TYPE CONNECTION
- GROUNDING WIRE
- (102) REPRESENTS DETAIL NUMBER

ABBREVIATIONS

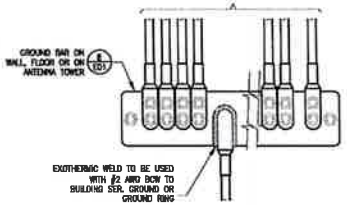
AWG	AMERICAN WIRE GAUGE
BCW	BARE COPPER WIRE
GPS	GLOBAL POSITIONING SYSTEM
PCS	PERSONAL COMMUNICATION SYSTEM
RWY	RACEWAY
TYP.	TYPICAL
RGS	RIGID GALVANIZED STEEL
EMT	ELECTRICAL METALLIC TUBING
DWG	DRAWING
EMT	INTERIOR GROUND RING (HALO)
GEN	GENERATOR
GR	GROWTH
CGBE	COAX GROUND BAR EXTERNAL
CIGBE	COAX ISOLATED GROUND BAR EXTERNAL
MGB	MASTER GROUND BAR
PVC	RIGID (SCH. 40) POLYVINYL CHLORIDE CONDUIT
EBH	ETHERNET BACK HAUL



NOTE:
1. "DOUBLING UP" OR "STACKING " OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

TYP. GROUND BAR CONNECTION

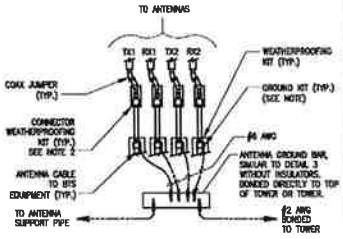
SCALE: N.T.S. — 2 / E01



NOTE:
GROUND BARS AT THE BOTTOM OF TOWER SHALL ONLY USE EXOTHERMIC WELDS.

INSTALLATION OF GROUND WIRE TO GROUND BAR

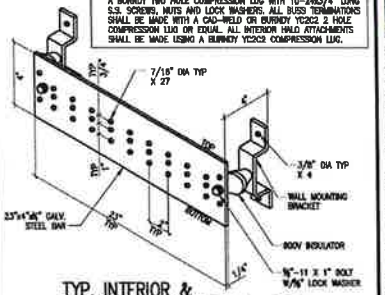
SCALE: N.T.S. — 3 / E01



CONN. OF GROUND WIRE TO GROUND BAR (TOWER)

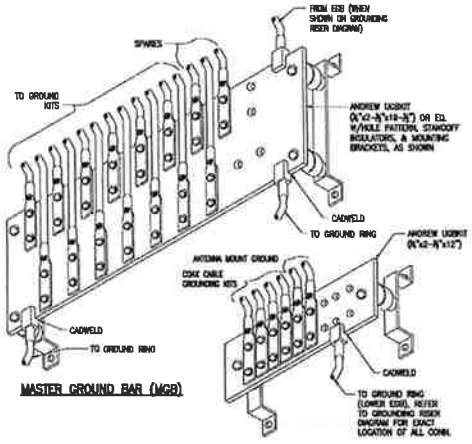
SCALE: N.T.S. — 4 / E01

NOTES:
1. SURFACE PREPERATION: ALL CONNECTIONS MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE MADE BARE TO ENSURE PROPER CONTACT. NO WASHERS SHALL BE ALLOWED BETWEEN THE ITEMS BEING GROUNDED. ALL CONNECTIONS SHALL HAVE AN ANTI-OXIDANT AGENT APPLIED PRIOR TO INSTALLATION.
2. BUSS PREPERATION: ALL GALV. STEEL BUSSES SHALL BE CLEANED, POLISHED AND AN ANTI-OXIDANT APPLIED. NO FINGERPRINTS OR DISCOLORED STEEL WILL BE PERMITTED.
3. TERMINATIONS: ALL EQUIPMENT TERMINATIONS SHALL BE MADE WITH A BURNDY TWO HOLE COMPRESSION LUG WITH 10-24x3/4" LONG S.S. SCREWS, NUTS AND LOCK WASHERS. ALL BUSS TERMINATIONS SHALL BE MADE WITH A CAD-WELD OR BURNDY YC2C2 2 HOLE COMPRESSION LUG OR EQUAL. ALL INTERIOR HALO ATTACHMENTS SHALL BE MADE USING A BURNDY YC2C2 COMPRESSION LUG.



TYP. INTERIOR & EXTERIOR GROUND BAR

SCALE: N.T.S. — 5 / E01

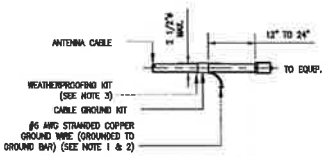


MASTER GROUND BAR (MGB)

EQUIPMENT GROUND BAR (EGB)

GROUND BAR DETAILS

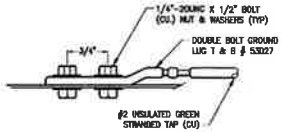
SCALE: N.T.S. — 6 / E01



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

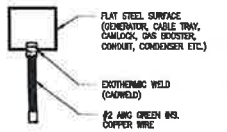
CONN. OF CABLE GROUND KIT TO ANTENNA CABLE

SCALE: N.T.S. — 7 / E01



TYP. EQUIPMENT GROUND CONNECTION

SCALE: N.T.S. — 8 / E01



TYP. CADWELD #2 GREEN TO FLAT STEEL SURFACE

SCALE: N.T.S. — 9 / E01

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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25987
LICENSED
PROFESSIONAL CIVIL ENGINEER
4/11/2024

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV	DATE	DESCRIPTION	BY
1	04/11/24	ISSUED FOR CONSTRUCTION	CMC
0	04/02/24	ISSUED FOR REVIEW	CMC

PROJECT NAME & ADDRESS

BOZRAH EAST CT

131 GIFFORD LANE
BOZRAH, CT 06334

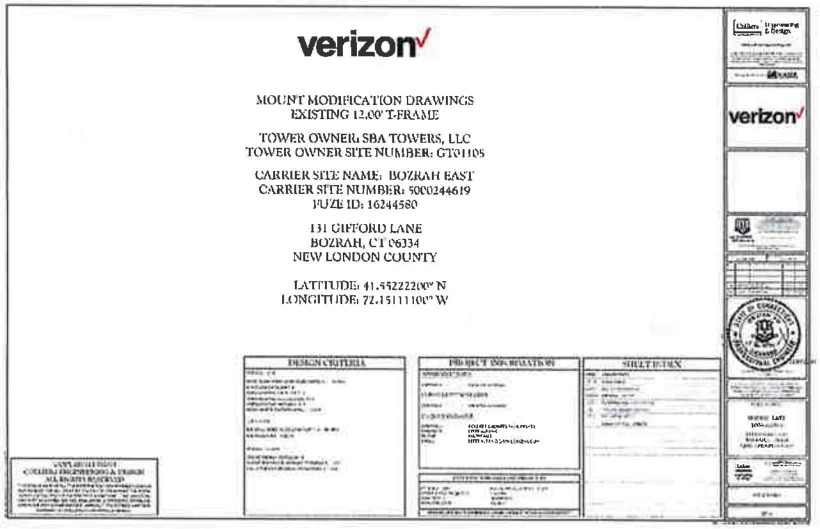
VZW LOCATION CODE:	487314
MDG LOCATION ID:	88080444619
FUZE PROJECT ID:	16844888

SHEET TITLE

GROUNDING NOTES & DETAILS

SHEET NUMBER

E01



verizon

MOUNT MODIFICATION DRAWINGS
EXISTING 12.00' T-FRAME

TOWER OWNER: SBA TOWERS, LLC
TOWER OWNER SITE NUMBER: CT01105

CARRIER SITE NAME: BOZRAH EAST
CARRIER SITE NUMBER: 5000244619
FUZE ID: 16244580

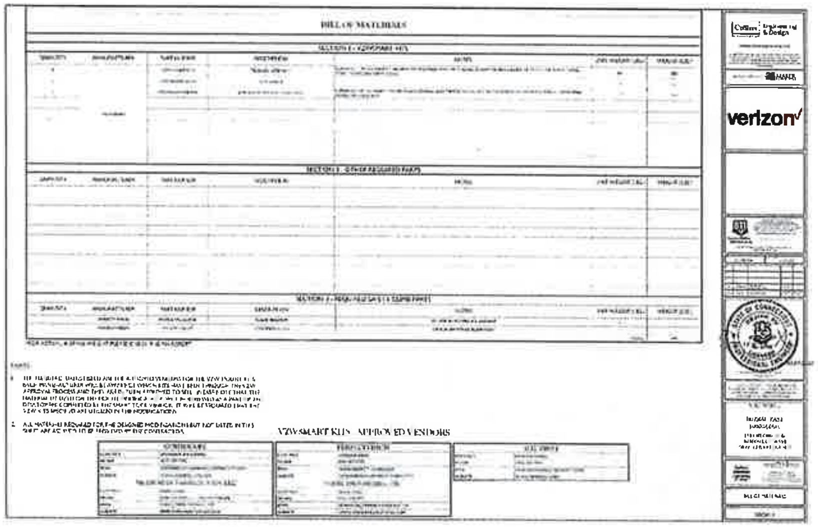
131 GIFFORD LANE
BOZRAH, CT 06334
NEW LONDON COUNTY

LATITUDE: 41.55222200° N
LONGITUDE: 72.15111100° W

DESIGN CRITERIA

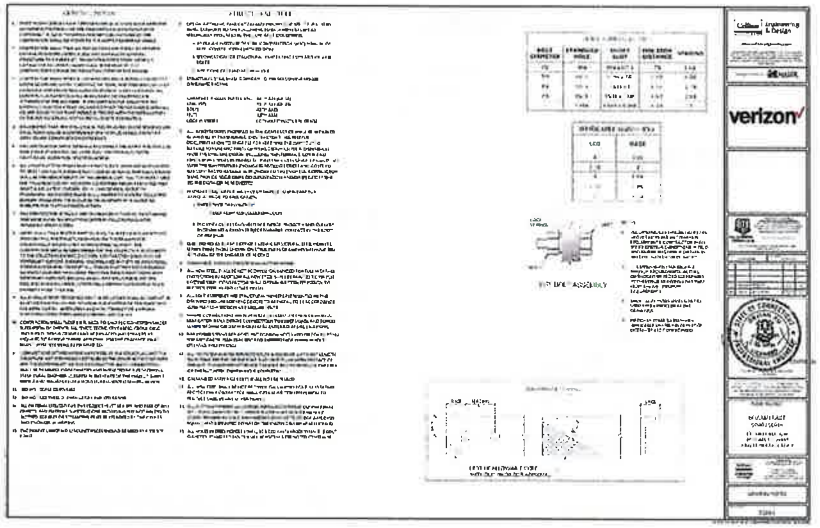
PROJECT INFORMATION

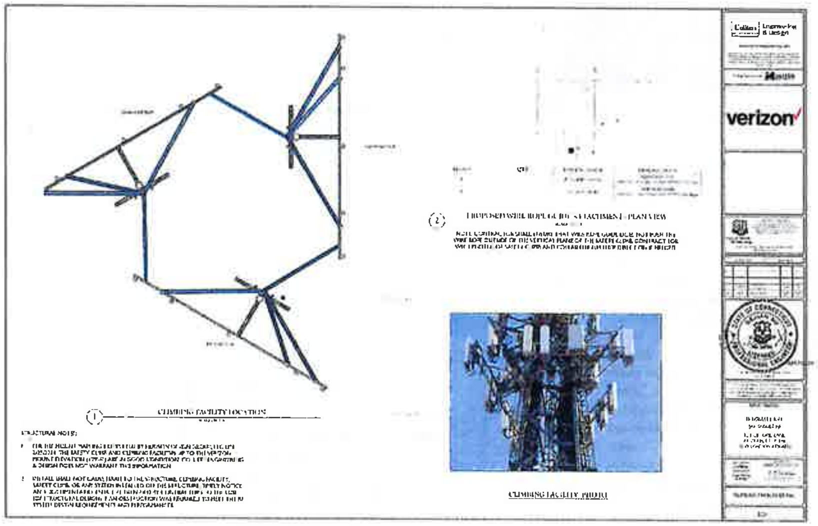
SHEET INDEX



BILL OF MATERIALS

VZW SMART KITS - APPROVED VENDORS





CLIMBING FACILITY LOCATION

CLIMBING FACILITY PHOTO

verizon

20 ALEXANDER DRIVE, 2ND FLOOR
WALLINGFORD, CT 06492
(203) 741-7338

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JAMES M. FITZGERALD
No. 25997

4/11/2024

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	04/11/24	ISSUED FOR CONSTRUCTION	CMC
0	04/02/24	ISSUED FOR REVIEW	CMC

PROJECT NAME & ADDRESS

BOZRAH EAST CT

131 GIFFORD LANE
BOZRAH, CT 06334

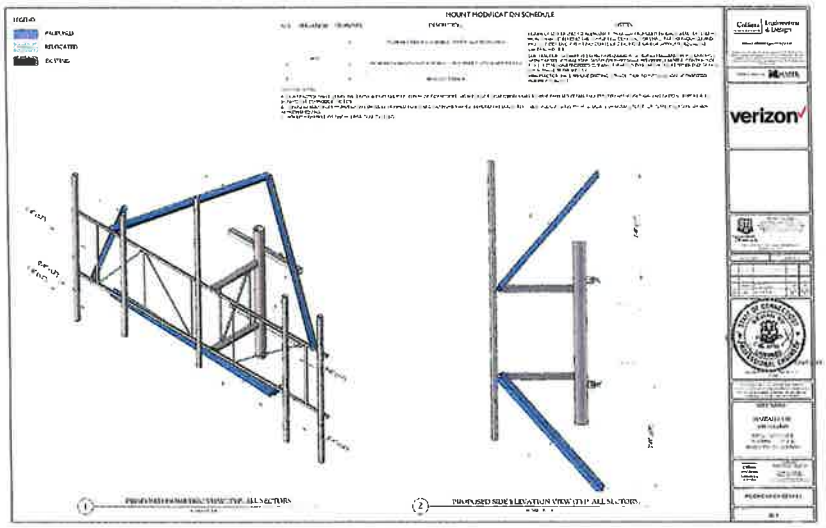
VZW LOCATION CODE: 467314
MDG LOCATION ID: 5000244619
FUZE PROJECT ID: 16244580

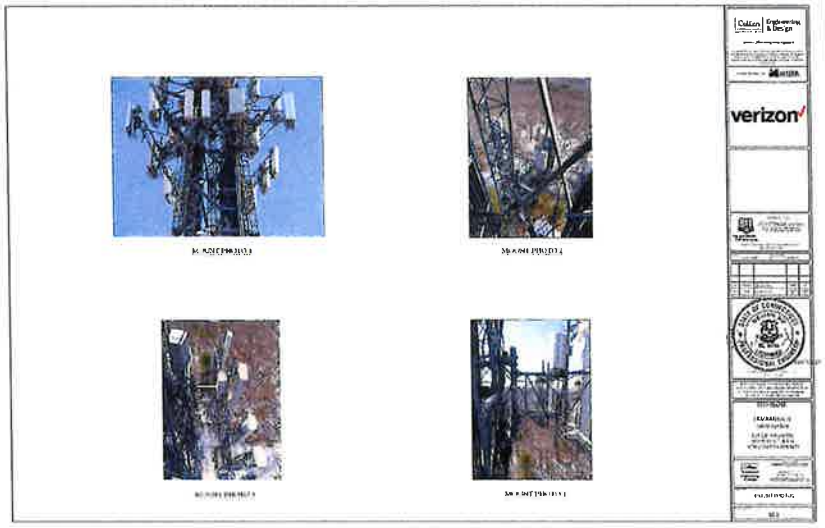
SHEET TITLE

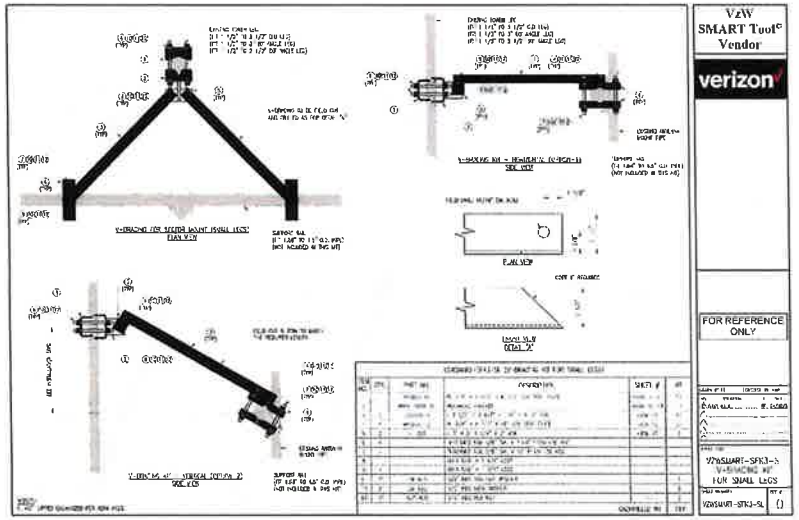
MOUNT MODIFICATION DRAWINGS I

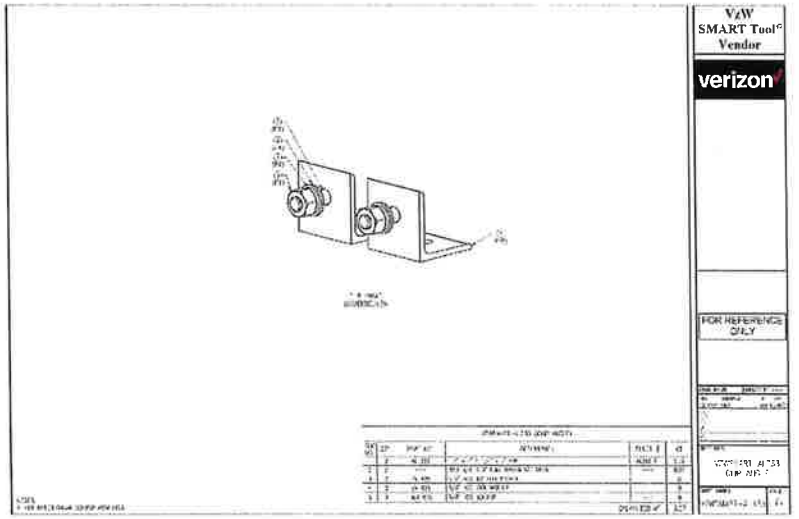
SHEET NUMBER

MM01









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SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	04/11/24	ISSUED FOR CONSTRUCTION	CMC
0	04/02/24	ISSUED FOR REVIEW	CMC

PROJECT NAME & ADDRESS

BOZRAH EAST CT

131 CIFFORD LANE
BOZRAH, CT 06334

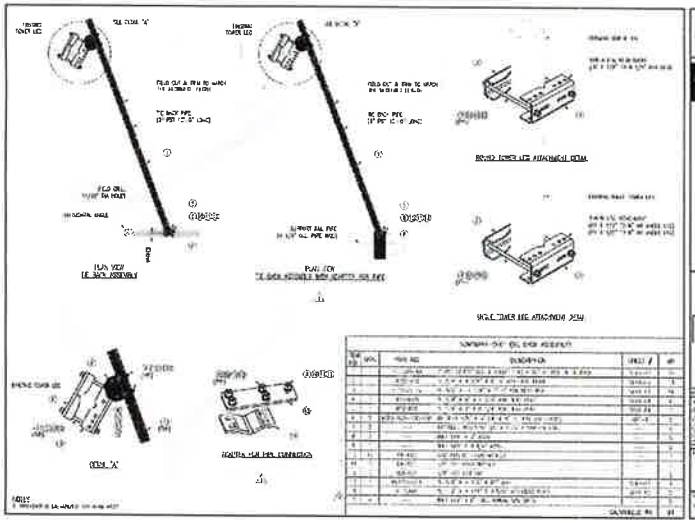
VZW LOCATION CODE:	467314
MDG LOCATION ID:	16884619
FUZE PROJECT ID:	16884619

SHEET TITLE

MOUNT MODIFICATION DRAWINGS II

SHEET NUMBER

MM02



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SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	04/11/24	ISSUED FOR CONSTRUCTION	CMC
0	04/02/24	ISSUED FOR REVIEW	CMC

PROJECT NAME & ADDRESS

BOZRAH EAST CT

131 GIFFORD LANE
BOZRAH, CT 06334

VZW LOCATION CODE:	482914
MDG LOCATION ID:	88888444818
FUZE PROJECT ID:	10044888

SHEET TITLE

MOUNT MODIFICATION DRAWINGS III

SHEET NUMBER

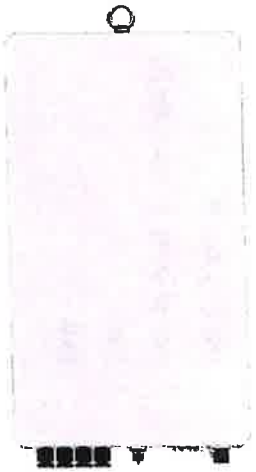
MM03

C-band 64T64R

SAMSUNG

Gen 2

Gen 2 : Higher conducted power radio with reduced size/volume/weight vs Gen 1 and also SOC embedded for flexibility to support new features



※ Preliminary Design: External appearance and mechanical design can be subject to change

Gen 2. 64T64R C-band MMU Dimensions	
Size (WxHxD)	**400 x 734 x 140 mm (15.75 x 28.90 x 5.51 inch)**
Weight	**26kg (57.3 lb)**

Item	Gen 2 64T64R (MT6413-77A)
Air Technology	NR n77/TDD
Frequency	3700 – 3980 MHz
IBW	200 MHz
OBW	200 MHz
Carrier Bandwidth	20(HW ready)/40/60/80/100 MHz
# of Carriers	2 carriers
Layer	DL : 16L, UL : 16RX (8L)
RF Chain	64T64R
Antenna Configuration	4V16H with 192 AE
EIRP	80.5 dBm @320W (55 dBm + 25.5 dBi)
Conductive Power	320W
Spectrum Analyzer	TX/RX support
RX Sensitivity	Typical -97.8dBm @(1Rx, 18.36MHz with 30kHz,51RBs)
Modulation	DL 256QAM support, (DL 1024QAM with 1~2dB power back-off)
Function Split	DL/UL option 7-2x
Input Power	-48 VDC (-38 VDC to -57 VDC)
Power Consumption	1,287W (100% load, room temp.)
Size (WHD)	**400 x 734 x 140 mm (15.75 x 28.90 x 5.51 inch)**
Volume	**41.1L**
Weight	**26kg (57.3 lb)**
Operating Temperature	-40°C - 55°C (w/o solar load)
Cooling	Natural convection
Unwanted Emission	3GPP 38.104 FCC 47 CFR 27.53 : < -13dBm/MHz < -40 dBm/MHz @ above 4 GHz <-50 dBm /MHz @ 4,040 ~ 4,050 MHz, <-60 dBm /MHz @ above 4,050 MHz
Optic Interface	15km, 4 ports (25Gbps x 4), SFP28, single mode, Bi-di (Option: Duplex)
Mounting Options	Pole, wall
NB-IoT	Not support
External Alarm	4RX
Fronthaul Interface	eCPRI

NHH-65B-R2B

6-port sector antenna, 2x 698–896 and 4x 1695–2360 MHz, 65° HPBW, 2x RET. Both high bands share the same electrical tilt.

- Interleaved dipole technology providing for attractive, low wind load mechanical package
- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- Separate RS-485 RET input/output for low and high band
- One RET for low band and one RET for both high bands to ensure same tilt level for 4x Rx or 4x MIMO

General Specifications

Antenna Type	Sector
Band	Multiband
Color	Light gray
Grounding Type	RF connector body grounded to reflector and mounting bracket
Performance Note	Outdoor usage | Wind loading figures are validated by wind tunnel measurements described in white paper WP-112534-EN
Radome Material	Fiberglass, UV resistant
Radiator Material	Low loss circuit board
Reflector Material	Aluminum
RF Connector Interface	4.3-10 Female
RF Connector Location	Bottom
RF Connector Quantity, high band	4
RF Connector Quantity, low band	2
RF Connector Quantity, total	6

Remote Electrical Tilt (RET) Information

RET Interface	8-pin DIN Female | 8-pin DIN Male
RET Interface, quantity	2 female | 2 male
Input Voltage	10–30 Vdc
Internal Bias Tee	Port 1 | Port 3
Internal RET	High band (1) | Low band (1)
Power Consumption, idle state, maximum	2 W
Power Consumption, normal conditions, maximum	13 W

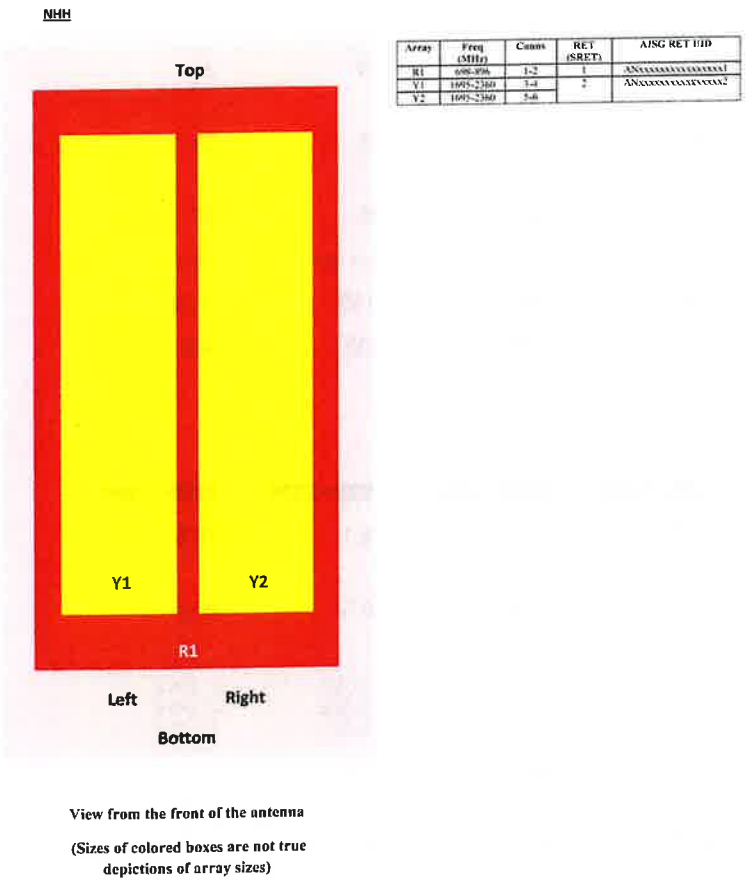
NHH-65B-R2B

Protocol	3GPP/AISG 2.0 (Single RET)

Dimensions

Width	301 mm | 11.85 in
Depth	180 mm | 7.087 in
Length	1828 mm | 71.969 in
Net Weight, without mounting kit	19.8 kg | 43.651 lb

Array Layout



Array	Freq (MHz)	Conns	RET (SRET)	AISG RET HD
R1	698-896	1-2	1	AXxxxxxxxxxxxxxxx1
Y1	1695-2360	3-4	2	AXxxxxxxxxxxxxxxx2
Y2	1695-2360	5-6		

View from the front of the antenna

(Sizes of colored boxes are not true depictions of array sizes)

Electrical Specifications

Impedance	50 ohm
Operating Frequency Band	1695 – 2360 MHz | 698 – 896 MHz

NHH-65B-R2B

Polarization	±45°
Total Input Power, maximum	900 W @ 50 °C

Electrical Specifications

Frequency Band, MHz	**698–806**	**806–896**	**1695–1880**	**1850–1990**	**1920–2200**	**2300–2360**
Gain, dBi	14.9	15	17.7	17.9	18.4	18.7
Beamwidth, Horizontal, degrees	65	60	71	69	64	57
Beamwidth, Vertical, degrees	12.4	11.2	5.7	5.2	4.9	4.6
Beam Tilt, degrees	0–14	0–14	0–7	0–7	0–7	0–7
USLS (First Lobe), dB	13	14	18	18	19	18
Front-to-Back Ratio at 180°, dB	30	29	31	30	29	31
Isolation, Cross Polarization, dB	25	25	25	25	25	25
Isolation, Inter-band, dB	30	30	30	30	30	30
VSWR | Return loss, dB	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port at 50°C, maximum, watts	300	300	300	300	300	300

Electrical Specifications, BASTA

Frequency Band, MHz	**698–806**	**806–896**	**1695–1880**	**1850–1990**	**1920–2200**	**2300–2360**
Gain by all Beam Tilts, average, dBi	14.5	14.5	17.3	17.7	18.1	18.5
Gain by all Beam Tilts Tolerance, dB	±0.6	±1.1	±0.4	±0.4	±0.5	±0.3
Gain by Beam Tilt, average, dBi	0 ° | 14.4 7 ° | 14.6 14 ° | 14.3	0 ° | 14.7 7 ° | 14.7 14 ° | 14.1	0 ° | 17.2 4 ° | 17.3 7 ° | 17.3	0 ° | 17.6 4 ° | 17.7 7 ° | 17.7	0 ° | 18.0 4 ° | 18.2 7 ° | 18.1	0 ° | 18.3 4 ° | 18.5 7 ° | 18.6
Beamwidth, Horizontal Tolerance, degrees	±2	±2.1	±3	±4.1	±6.5	±2.9
Beamwidth, Vertical Tolerance, degrees	±0.7	±0.7	±0.3	±0.2	±0.3	±0.2
USLS, beampeak to 20° above beampeak, dB	13	14	16	16	17	15
Front-to-Back Total Power at 180° ± 30°, dB	23	22	27	27	25	25
CPR at Boresight, dB	22	21	23	23	22	19

NHH-65B-R2B

CPR at Sector, dB	10	7	16	13	11	4

Mechanical Specifications

Effective Projective Area (EPA), frontal	0.26 m² | 2.799 ft²
Effective Projective Area (EPA), lateral	0.22 m² | 2.368 ft²
Wind Loading @ Velocity, frontal	278.0 N @ 150 km/h (62.5 lbf @ 150 km/h)
Wind Loading @ Velocity, lateral	230.0 N @ 150 km/h (51.7 lbf @ 150 km/h)
Wind Loading @ Velocity, maximum	537.0 N @ 150 km/h (120.7 lbf @ 150 km/h)
Wind Loading @ Velocity, rear	282.0 N @ 150 km/h (63.4 lbf @ 150 km/h)
Wind Speed, maximum	241 km/h | 149.75 mph

Packaging and Weights

Width, packed	409 mm | 16.102 in
Depth, packed	299 mm | 11.772 in
Length, packed	1952 mm | 76.85 in
Weight, gross	32.3 kg | 71.209 lb

Regulatory Compliance/Certifications

Agency	**Classification**
CHINA-ROHS	Below maximum concentration value
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system
ROHS	Compliant

Included Products

BSAMNT-3	–	Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance

SAMSUNG

AWS/PCS MACRO RADIO

DUAL-BAND AND HIGH POWER FOR MACRO COVERAGE

Samsung's future proof dual-band radio is designed to help effectively increase the coverage areas in wireless networks. This AWS/PCS 4T4R dual-band radio has 4Tx/4Rx to 2Tx/2Rx RF chains options and a total output power of 320W, making it ideal for macro sites.

Model Code	RF4439d-25A

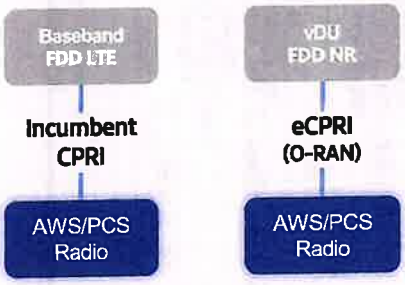
Homepage
samsungnetworks.com

Youtube
www.youtube.com/samsung5g

Points of Differentiation

Continuous Migration

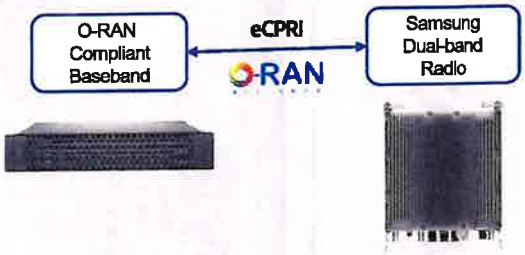
Samsung's AWS/PCS macro radio can support each incumbent CPRI interface as well as advanced eCPRI interfaces. This feature provides installable options for both legacy LTE networks and added NR networks.



O-RAN Compliant

A standardized O-RAN radio can help in implementing cost-effective networks, which are capable of sending more data without compromising additional investments.

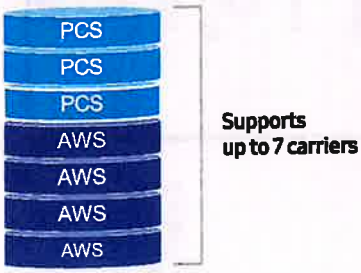
Samsung's state-of-the-art O-RAN technology will help accelerate the effort toward constructing a solid O-RAN ecosystem.



Optimum Spectrum Utilization

The number of required carriers varies according to site (region). Supporting many carriers is essential for using all frequencies that the operator has available.

The new AWS/PCS dual-band radio can support up to 3 carriers in the PCS (1.9GHz) band and 4 carriers in the AWS (2.1GHz) band, respectively.



Brand New Features in a Compact Size

Samsung's AWS/PCS macro radio offers several features, such as dual connectivity for baseband for both CDU and vDU, O-RAN capability, more carriers and an enlarged PCS spectrum, combined into an incumbent radio volume of 36.8L.

- **2 FH connectivity**
- **O-RAN capability**
- **More carriers and spectrum**

Same as an incumbent radio volume

Technical Specifications

Item	Specification
Tech	LTE / NR
Brand	B25(PCS), B66(AWS)
Frequency Band	DL: 1930 – 1995MHz, UL: 1850 – 1915MHz DL: 2110 – 2200MHz, UL: 1710 – 1780MHz
RF Power	(B25) 4 × 40W or 2 × 60W (B66) 4 × 60W or 2 × 80W
IBW/OBW	(B25) 65MHz / 30MHz (B66) DL 90MHz, UL 70MHz / 60MHz
Installation	Pole, Wall
Size/ Weight	14.96 x 14.96 x 10.04inch (36.8L) / 74.7lb

700/850 4T4R Macro 320W ORU - New Filter (RF4461d-13A)

SAMSUNG

Specifications

Item	Specification	
Air Interface	LTE, NR(HW resource ready)	
Band	Band13 (700MHz)	Band5 (850MHz)
Frequency	DL: 746~756MHz UL: 777~787MHz	DL: 869~894MHz UL: 824~849MHz
IBW	10MHz	25MHz
OBW	10MHz	25MHz
Carrier Bandwidth	LTE/NR 5*/10MHz	LTE 5/10MHz NR 5/10/15/20MHz
# of carriers	2C*	3C
Total # of carriers	4C + B13 (SDL) 1C	
RF Chain	4T4R/2T4R/2T2R/1T2R 2T2R+2T2R bi-sector	
RF Output Power	Total : 320W 4 x 40W or 2 x 60W	4 x 40W or 2 x 60W
Spectrum Analyzer	TX/RX Support	
RX Sensitivity	Typ. -104.5dBm @1Rx (25RBs 5MHz)	
Modulation	256QAM support, (1024QAM with 1~2dB power back-off)	
Input Power	-48VDC (-38VDC to -57VDC)	
Power Consumption	1,165 Watt @ 100% RF load, room temperature	
Size (WHD)	380 x 380 x 260 mm (14.96 x 14.96 x 10.23 inch)	
Volume	37.5 L	
Weight (W/o Solar Shield & finger guard)	35.9 kg (79.1 lb)	
Operating Temperature	-40℃ (-40°F) ~ 55℃ (131°F) (Without solar load)	
Cooling	Natural convection	
Unwanted Emission	3GPP 36.104 FCC 47 CFR 27.53 c), f) -	3GPP 36.104 FCC 47 CFR 22.917 -69 dBm/100 kHz per path @ 896 ~901MHz
CPRI Cascade	Not supported	
Optic Interface	20km, 2 ports (9.8Gbps x 2), SFP+, single mode, Duplex (Option: Bi-di)	
RET & TMA Interface	AISG 3.0	
Bias-T	4 ports (2 ports per band)	
Mounting Options	Pole, wall	
NB-IoT	2GB+2IB or 4IB	2SA+2GB or 2GB+2IB or 4GB
PIM Cancellation	Support	
# of antenna port	4	
External Alarm	4	
Fronthaul Interface	Opt. 8 CPRI / Opt. 7-2x selectable (not simultaneous support)	
CPRI compression	Not Support	

* 5MHz supporting in B13(700MHz) depends on 3GPP std. and UE capability.
External filters in interferer and victim sides for Mexican boarder to support 5MHz service need to be considered
** Finger guard is not needed.

ATTACHMENT 3

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Auburn, NH 03032
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support@csquaredsystems.com

Calculated Radio Frequency Emissions Report

verizon

Bozrah East

131 Gifford Lane, Bozrah, CT

May 13, 2024

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3. RF Exposure Prediction Methods 2
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1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modification of Verizon's antenna arrays mounted at 160.1' AGL on the existing 195-foot lattice tower located at 131 Gifford Lane in Bozrah, CT. The coordinates of the monopole tower are 41° 33' 09.03" N, 72° 09' 02.56" W.

Verizon is proposing the following:

1) Install nine (9) antennas, three (3) per sector to support its commercial LTE network.

This report considers the planned antenna configuration for Verizon[1] and the existing antennas for T-Mobile[2], AT&T[3] and DISH[4] to derive the resulting % MPE of its proposed installation.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment C of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment C contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

---

[1] As referenced to Verizon's Radio Frequency Design Sheet updated 02/27/2024.

[2] As referenced to T-Mobile's Exempt Modification Application - 131 Gifford Lane, Bozrah, CT 06334, dated June 8th, 2022.

[3] As referenced to AT&T's "New Cingular Wireless PCS, LLC (AT&T) CT2223 Modification Application" - 131 Gifford Lane, Bozrah, CT 06334, dated January 29th, 2020.

[4] As referenced to DISH's Tower Share Application - 131 Gifford Lane, Bozrah, CT 06334, dated December 13th, 2023.

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left(\frac{1.6^2 \times 1.64 \times \text{ERP}}{4\pi \times R^2}\right) \text{X Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance = $\sqrt{(H^2 + V^2)}$

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Off Beam Loss is determined by the selected antenna patterns

Ground reflection factor of 1.6

These calculations assume that the antennas are operating at 100 percent capacity, that all antenna channels are transmitting simultaneously, and that the radio transmitters are operating at full power. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the final installations.

4. Antenna Inventory

Table 1 below outlines Verizon's proposed antenna configuration for the site. The associated data sheets and antenna patterns for these specific antenna models are included in Attachments C.

Operator	Sector / Call Sign	TX Freq (MHz)	Power at Antenna (Watts)	Ant Gain (dBi)	Power EIRP (Watts)	Antenna Model	Beam Width	Mech. Tilt	Length (ft)	Antenna Centerline Height (ft)
Verizon	Alpha / 330°	700	160	14.9	4944	NHH-65B-R2B	65	0	5.99	160.1
		850	160	15	5060		60			
		1900	160	17.9	9866		69			
		2100	240	18.4	16604		64			
		3700	320	25.5	113540	MT6413-77A	-	0	3.42	160.1
	Beta / 120°	700	160	14.9	4944	NHH-65B-R2B	65	0	5.99	160.1
		850	160	15	5060		60			
		1900	160	17.9	9866		69			
		2100	240	18.4	16604		64			
		3700	320	25.5	113540	MT6413-77A	-	0	3.42	160.1
	Gamma / 240°	700	160	14.9	4944	NHH-65B-R2B	65	0	5.99	160.1
		850	160	15	5060		60			
		1900	160	17.9	9866		69			
		2100	240	18.4	16604		64			
		3700	320	25.5	113540	MT6413-77A	-	0	3.42	160.1

Table 1: Proposed Antenna Inventory[5] [6]

[5] Antenna heights are in reference to Verizon's Radio Frequency Design Sheet updated 02/27/2024.

[6] Transmit power assumes 0 dB of cable loss.

5. Calculation Results

The calculated power density results are shown in Figure 1 below. For completeness, the calculations for this analysis range from 0 feet horizontal distance (directly below the antennas) to a value of 3,000 feet horizontal distance from the site. In addition to the other worst-case scenario considerations that were previously mentioned, the power density calculations to each horizontal distance point away from the antennas was completed using a local maximum off beam antenna gain (within ± 5 degrees of the true mathematical angle) to incorporate a realistic worst-case scenario.

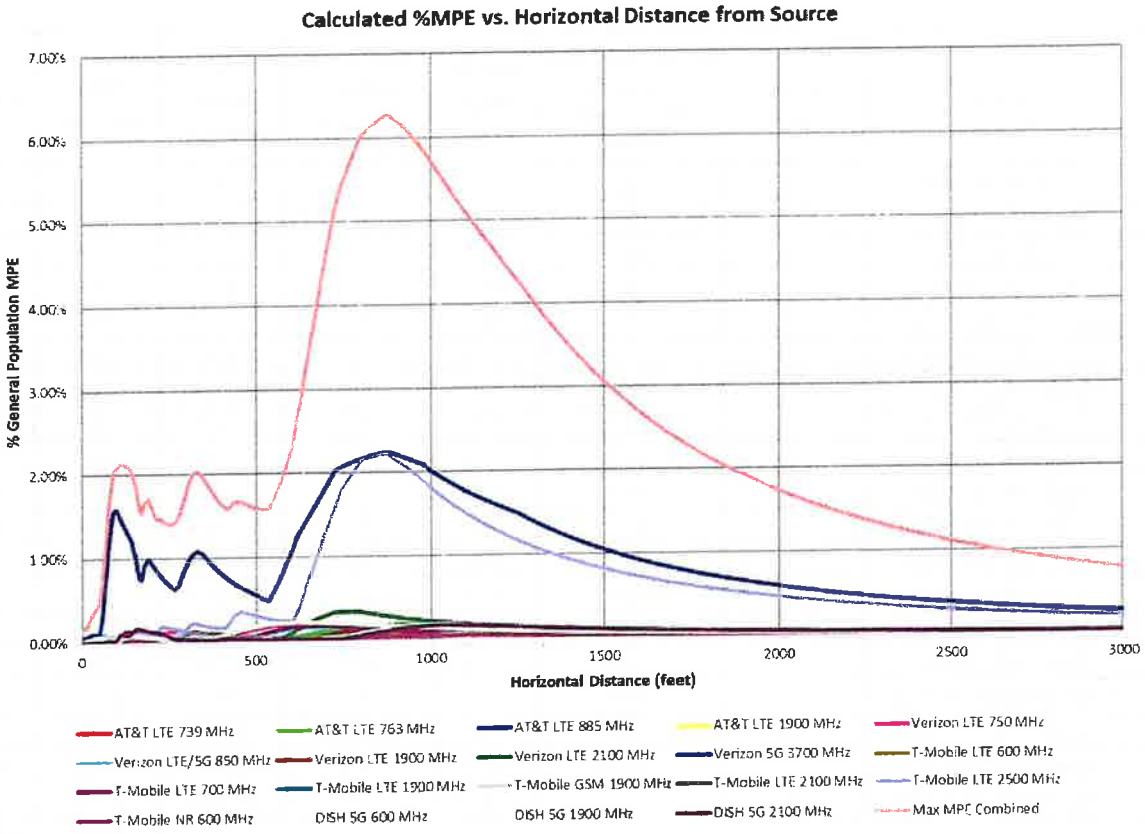


Figure 1: Graph of General Population % MPE vs. Distance

The highest percent of MPE (6.28% of the General Population limit) is calculated to occur at a horizontal distance of 871 feet from antennas. Please note that the percent of MPE calculations close to the site take into account off beam loss, which is determined from the vertical pattern of the antennas used. Therefore, RF power density levels may increase as the distance from the site increases. At distances of approximately 1500 feet and beyond, one would now be in the main beam of the antenna pattern and off beam loss is no longer considered. Beyond this point, RF levels become calculated solely on distance from the site and the percent of MPE decreases significantly as distance from the site increases.

Table 2 below lists percent of MPE values as well as the associated parameters that were included in the calculations. The highest percent of MPE value was calculated to occur at a horizontal distance of 871 feet from the site (reference Figure 1).

As stated in Section 3, all calculations assume that the antennas are operating at 100 percent capacity, that all antenna channels are transmitting simultaneously, and that the radio transmitters are operating at full power. Obstructions (trees, buildings etc.) that would normally attenuate the signal are not taken into account. In addition, a six foot height offset was considered in this analysis to account for average human height. As a result, the predicted signal levels are significantly higher than the actual signal levels will be from the final configuration. The results presented in Figure 1 and Table 2 assume level ground elevation from the base of the tower out to the horizontal distances calculated.

Carrier	Number of Transmitters	Power out of Base Station Per Transmitter (Watts)	Antenna Height (Feet)	Distance to the Base of Antennas (Feet)	Power Density (mW/cm^2)	Limit (mW/cm^2)	% MPE
DISH 5G 600 MHz	1	120.0	150.0	871	0.000676	0.400	0.17%
DISH 5G 1900 MHz	1	160.0	150.0	871	0.001304	1.000	0.13%
DISH 5G 2100 MHz	1	160.0	150.0	871	0.001023	1.000	0.10%
Verizon LTE 750 MHz	1	160.0	160.1	871	0.000752	0.500	0.15%
Verizon LTE/5G 850 MHz	1	160.0	160.1	871	0.000784	0.567	0.14%
Verizon LTE 1900 MHz	1	160.0	160.1	871	0.001493	1.000	0.15%
Verizon LTE 2100 MHz	1	240.0	160.1	871	0.002840	1.000	0.28%
Verizon 5G 3700 MHz	1	320.0	160.1	871	0.022357	1.000	2.24%
AT&T LTE 739 MHz	1	160.0	182.0	871	0.000626	0.493	0.13%
AT&T LTE 763 MHz	1	160.0	182.0	871	0.000909	0.509	0.18%
AT&T LTE 885 MHz	1	160.0	182.0	871	0.000624	0.590	0.11%
AT&T LTE 1900 MHz	1	160.0	182.0	871	0.000235	1.000	0.02%
T-Mobile LTE 600 MHz	2	30.0	191.0	871	0.000325	0.400	0.08%
T-Mobile NR 600 MHz	1	80.0	191.0	871	0.000433	1.000	0.04%
T-Mobile LTE 700 MHz	2	30.0	191.0	871	0.000549	0.467	0.12%
T-Mobile GSM 1900 MHz	4	30.0	191.0	871	0.000117	1.000	0.01%
T-Mobile LTE 1900 MHz	2	60.0	191.0	871	0.000117	1.000	0.01%
T-Mobile LTE 2100 MHz	2	60.0	191.0	871	0.000059	1.000	0.01%
T-Mobile LTE 2500 MHz	1	240.0	191.0	871	0.022093	1.000	2.21%
						Total	**6.28%**

Table 2: Maximum Percent of General Population Exposure Values

6. Conclusion

The above analysis verifies that RF exposure levels from the site with Verizon's proposed antenna configuration will be well below the maximum permissible levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Using the conservative calculation methods and parameters detailed above, the maximum cumulative percent of MPE in consideration of all transmitters is calculated to be **6.28% of the FCC limit (General Population/Uncontrolled)**. This maximum cumulative percent of MPE value is calculated to occur 871 feet away from the site.

7. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.

Reviewed/Approved By: Martin Lavin
Senior RF Engineer
C Squared Systems, LLC

May 13, 2024
Date

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

IEEE C95.1-2005, IEEE Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz IEEE-SA Standards Board

IEEE C95.3-2002 (R2008), IEEE Recommended Practice for Measurements and Computations of Radio Frequency Electromagnetic Fields With Respect to Human Exposure to Such Fields, 100 kHz-300 GHz IEEE-SA Standards Board

Verizon's Radio Frequency Design Sheet updated 02/27/2024.

T-Mobile's Exempt Modification Application - 131 Gifford Lane, Bozrah, CT 06334, dated June 8th, 2022.

AT&T's "New Cingular Wireless PCS, LLC (AT&T) CT2223 Modification Application" - 131 Gifford Lane, Bozrah, CT 06334, dated January 29th, 2020.

DISH's Tower Share Application - 131 Gifford Lane, Bozrah, CT 06334, dated December 13th, 2023.

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure[7]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $|E|^2$, $|H|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population/Uncontrolled Exposure[8]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $|E|^2$, $|H|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

Table 3: FCC Limits for Maximum Permissible Exposure

[7] Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

[8] General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

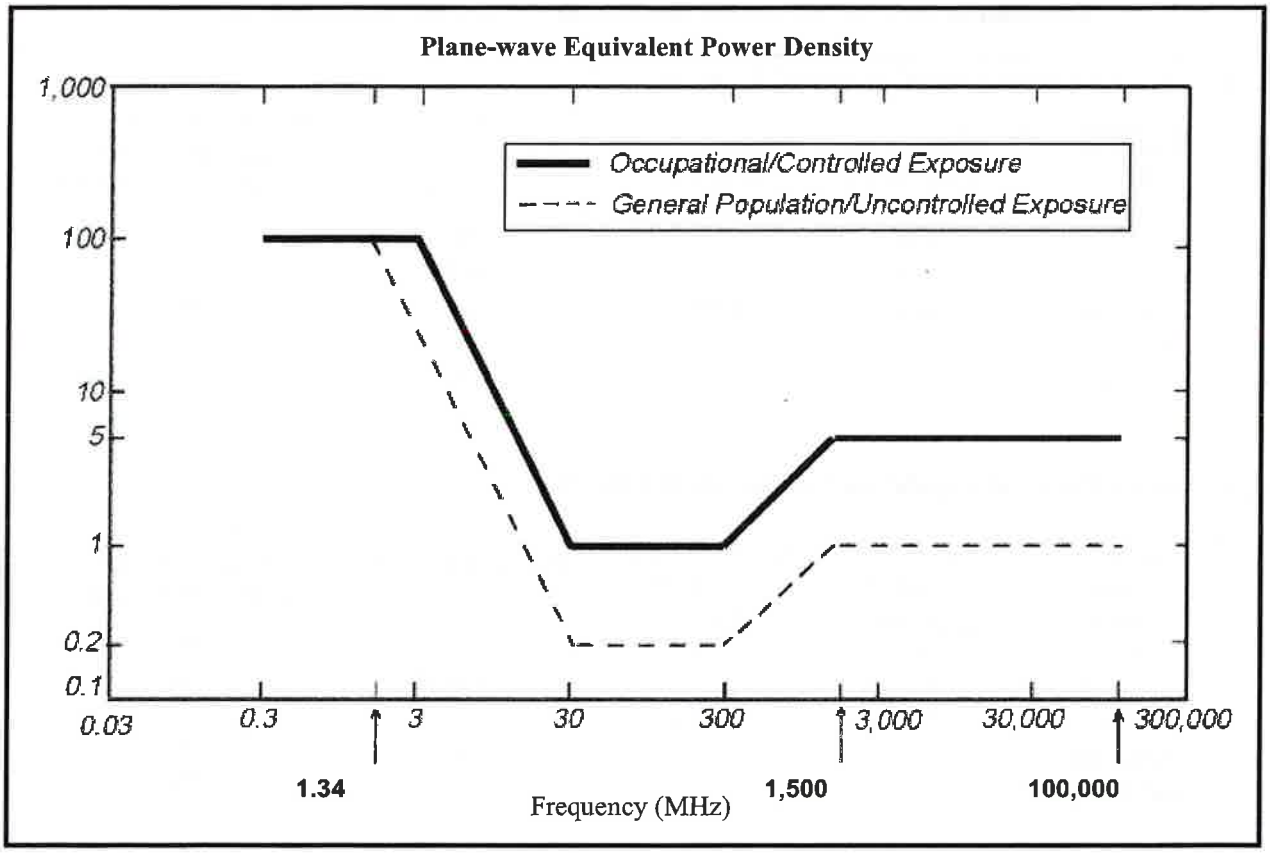
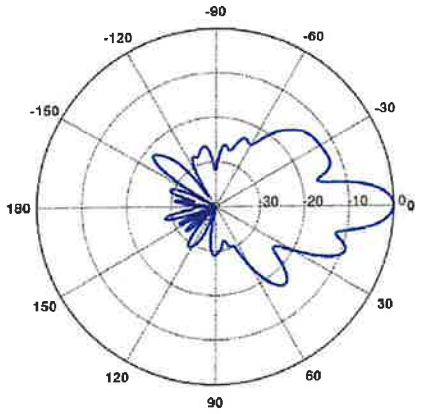


Figure 2: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: Verizon Antenna Model Data Sheets and Electrical Patterns

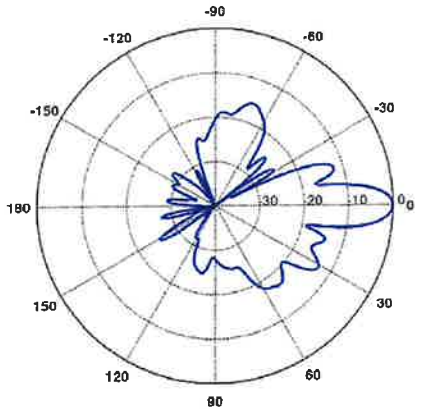
750 MHz

Manufacturer:	COMMSCOPE
Model #:	NHH-65B-R2B
Frequency Band:	698-806 MHz
Gain:	14.9 dBi
Vertical Beamwidth:	12.4°
Horizontal Beamwidth:	65°
Polarization:	±45°
Dimensions (L x W x D):	71.9" x 7.1" x 11.85"



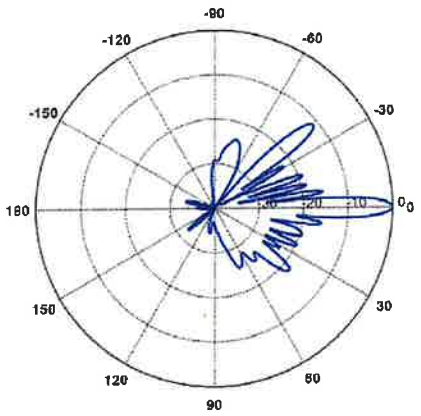
885 MHz

Manufacturer:	COMMSCOPE
Model #:	NHH-65B-R2B
Frequency Band:	806-896 MHz
Gain:	15.0 dBi
Vertical Beamwidth:	11.2°
Horizontal Beamwidth:	65°
Polarization:	±45°
Dimensions (L x W x D):	71.9" x 7.1" x 11.85"



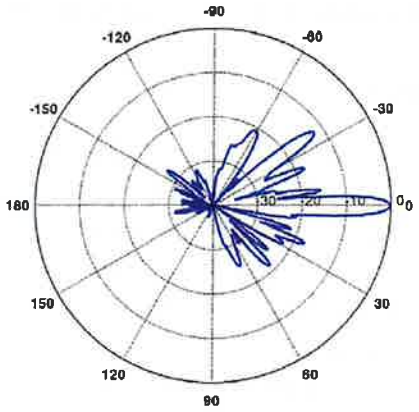
1900 MHz

Manufacturer:	COMMSCOPE
Model #:	NHH-65B-R2B
Frequency Band:	1850-1990 MHz
Gain:	17.9 dBi
Vertical Beamwidth:	5.2°
Horizontal Beamwidth:	69°
Polarization:	±45°
Dimensions (L x W x D):	71.9" x 7.1" x 11.85"



2100 MHz

Manufacturer:	COMMSCOPE
Model #:	NHH-65B-R2B
Frequency Band:	1920-2200 MHz
Gain:	18.4 dBi
Vertical Beamwidth:	4.9°
Horizontal Beamwidth:	64°
Polarization:	±45°
Dimensions (L x W x D):	71.9" x 7.1" x 11.85"



ATTACHMENT 4

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Structural Analysis Report

Client: Verizon

Client Site ID / Name: 5000244619 / BOZRAH EAST CT
Application #: 246314, v1

SBA Site ID / Name: CT01105-S / BOZRAH

196' Self Supporting Tower

131 Gifford Lane
Bozrah, CT 06334-1318
Lat: 41.552517 Long: -72.150708

Project number: CT01105-VZW-031424

Analysis Results

Tower	84.6%	Pass
Foundation	58.0%	Pass

Change in tower stress due to mount modification / replacement	N/A

Prepared by:

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March 14, 2024

03/14/24

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March 14, 2024

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  Coax Layout .....
  tnxTower Report .....
  Foundation Analysis Report .....

Introduction

The purpose of this report is to summarize the analysis results on the 196' Self Supporting Tower to support the proposed antennas and transmissions lines in addition to those currently installed.

Table 1 List of Documents Used

Item	Document
Tower Design	Pirod, File # A-115466, dated 4/1/1999
Foundation Design	Pirod, File # A-115466, dated 4/1/1999
Geotechnical report	Jaworski Geotech, Inc., Project # C98492G, dated 12/14/1998
Modification drawings	N/A
Mount Analysis	N/A
Latest SA Report	SBA Project # CT01105-DSW-082423, dated 8/31/2023

Analysis Criteria

Table 2 Code Related Data

Jurisdiction (State/County/City)	Connecticut / New London / Bozrah
Governing Codes	ANSI/TIA-222-H, 2022 CSBC, 2021 IBC
Ultimate Wind Speed (3-Sec gust)	123 mph
Wind Speed with Ice (3-Sec gust)	50 mph
Service Wind Speed (3-Sec gust)	60 mph
Ice Thickness	1 in
Risk category	II
Exposure Category	B
Topographic Category	1
Crest Height	0 ft.
Ground Elevation	449 ft.
Seismic Parameter S_s	0.197
Seismic Parameter S_1	0.054

This structural analysis is based upon the tower being classified as a Risk category II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Appurtenance Loading

Existing Loading:

Table 3 Existing Appurtenances

Mount Elev. (ft)	CL Elev. (ft)	Type	Qty	Manufacturer	Model	Feed Line Size	Mount Type Qty.	Carrier
191	191	Panel	3	EMS	RR90-17-02DP	(8) 1-5/8" (3) 1.9" Fiber	Modified Low Profile Platform	T-Mobile
		Panel	3	RFS	APXVAALL24_43-U-NA20			
		Panel	3	Ericsson	AIR6419 B41			
		Diplexer	3	Commscope	SDX1926Q-43			
		RRU	3	Ericsson	4449 B71+B85			
		RRU	3	Ericsson	4460 B25 + B66			
		RRU	3	Ericsson	4415 B66A			
182	182	Panel	3	Powerwave	7770	(12) 1-5/8" (4) 3/4" DC (3) 3/8" RET (2) 5/8" Fiber	(3) Sector Frame	AT&T
		Panel	3	CCI	HPA-65R-BUU-H8			
		Panel	3	CCI	DMP65R-BU8DA			
		TMA	6	Powerwave	LGP21401			
		Diplexer	6	Powerwave	LGP21902			
		RRU	3	Ericsson	4449 B5/B12			
		RRU	3	Ericsson	RRUS 12			
		RRU	3	Ericsson	RRUS 11			
		RRU	3	Ericsson	RRUS 32			
		RRU	3	Ericsson	RRUS A2			
		OVP	1	Raycap	DC6-48-60-18-8F			
		OVP	1	Raycap	DC6-48-60-0-8C-EV			
175	175	Panel	3	RFS	APXVTM14-C-I20	(4) 1-1/4" Fiber	(3) Sector Frame w/ Support Rail	T-Mobile Sprint
		Panel	3	Commscope	NNVV-65B-R4			
		RRU	3	ALU	1900 MHz			
		RRU	6	ALU	800 MHz			
		RRU	3	ALU	TD-RRH 8X20-25			
162	162	Panel	3	Commscope	LNX-6514DS-A1M	(12) 1-5/8" (3) 1-5/8" Hybrid	(3) Modified Sector Frame w/ Support Rail	Verizon
		Panel	6	Andrew	SBNHH-1D65B			
		Panel	3	Samsung	MT6407-77A			
		RRU	3	Samsung	B2/B66A RRH-BR049 (RFV01U-D1A)			
		RRU	3	Samsung	B5/B13 RRH-BR04C (RFV01U-D2A)			
		OVP	3	Raycap	DB-B1-6C-12AB-0Z			
150	150	Panel	3	Commscope	FFVV-65B-R2	(1) 1.6" Hybrid	(3) Sector Frames	Dish Wireless
		RRU	3	Samsung	RF4450t-71A			
		RRU	3	Samsung	RF4451d-70A			
		OVP	1	Raycap	RDIDC-9181-PF-48			
100	100	GPS	1	Alcatel Lucent	KS24019-L112A	(1) 1/2"	Direct Mount	Verizon
30	30	Omni	2	Andrew	PC1N0F-0190B-002M (E-911 Equipment)	(2) 1/2"	Direct Mount	T-Mobile

Note: AT&T loading includes FirstNET equipment

Proposed Loading:

Information pertaining to proposed antennas and transmission lines were based upon the Application #: 246314, v1 from Verizon and is listed in Table 4.

Table 4 Proposed Appurtenances

Mount Elev. (ft)	CL Elev. (ft)	Type	Qty	Manufacturer	Model	Feed Line Size	Mount Type Qty.	Carrier
160.1	162	Diplexer	6	RFS	FD9R6004/2CL-3CL	(12) 1-5/8" (2) 1-1/4" Hybrid	(3) Modified Sector Frame w/ Support Rail	Verizon
	160.1	Panel	6	Commscope	NHH-65B-R2B			
		Panel	3	Andrew	LNX-6514DS-A1M			
		Panel	3	Samsung	MT6413-77A			
		RRU	3	Samsung	B2/B66A RRH ORAN (RF4439d-25A)			
		RRU	3	Samsung	RF4461d-13A			
		RRU	3	Alcatel-Lucent	RRH2x60-700			
		OVP	1	RFS	DB-T1-6Z-8AB-0Z			
		OVP	1	Raycap	RVZDC-6627-PF-48			
100	100	GPS	1	Alcatel Lucent	KS24019-L112A	(1) 1/2"	Direct Mount	

Analysis Results

Tower

The results of the structural analysis are shown below in table 5. Additional information for the tower analysis is provided within the Appendix.

Table 5 Tower Analysis Summary

Structural Component	% capacity	Analysis Result
Leg	73.0	Pass
Diagonal	84.6	Pass
Horizontal	8.5	Pass
Top girt	4.8	Pass
Bottom girt	12.3	Pass
Bolt	84.6	Pass
Anchor Bolt	37.5	Pass

Foundation

The results of the foundation analysis are shown below in table 6. Additional information for the foundation analysis is provided within the Appendix.

Table 6 Foundation Analysis Summary

Structural Component	Max Usage (%)	Analysis Result
Foundation	58.0	Pass

Conclusions

Based on the analysis results, the existing tower and foundation were found to be sufficient to safely support the equipment listed in this analysis. No modification to the tower and foundation is needed at this time.

Installation Requirements

This analysis was performed under the assumption that the carrier will place the proposed equipment and feed lines at the installation height listed in Table 4 and in accordance with the coax layout shown. TMAs and RRUs are to be installed on existing mounts behind tenant's antennas unless otherwise noted. No equipment is to be installed directly in the climbing path. All equipment is to be installed per mount manufacturer specifications. In case site conditions do not allow for the required installation parameters to be met the carrier must notify SBA Communications Corporation engineers for approval of an alternative placement.

Assumptions and Limitations

Assumptions

This analysis was completed based on the following assumptions:

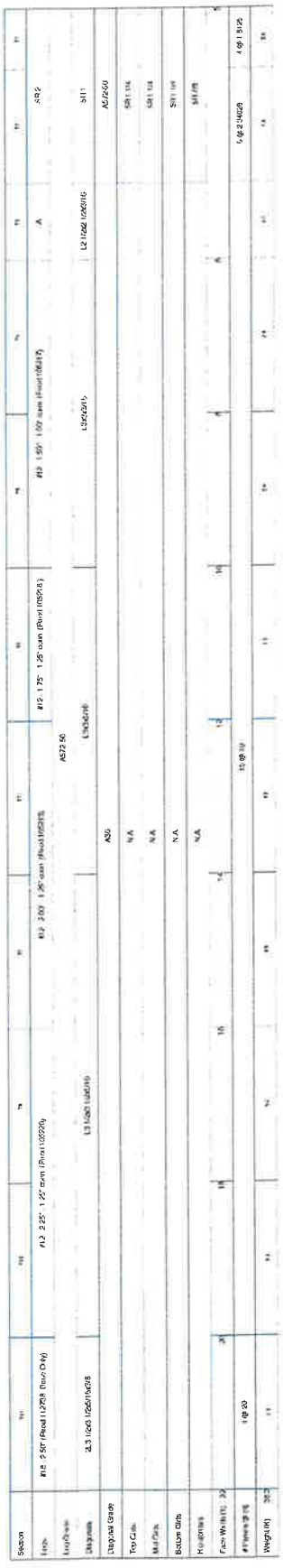
- Tower and foundation were built in accordance to manufacturer specifications.
- Tower and foundation has been properly maintained in accordance with the manufacturer's specifications
- All existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion
- Welds and bolts are assumed able to carry their intended original design loads.
- The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Table 3 and 4.
- This analysis may be affected if any assumptions are not valid or have been made in error. SBA should be notified to determine the effect on the structural integrity of the tower.

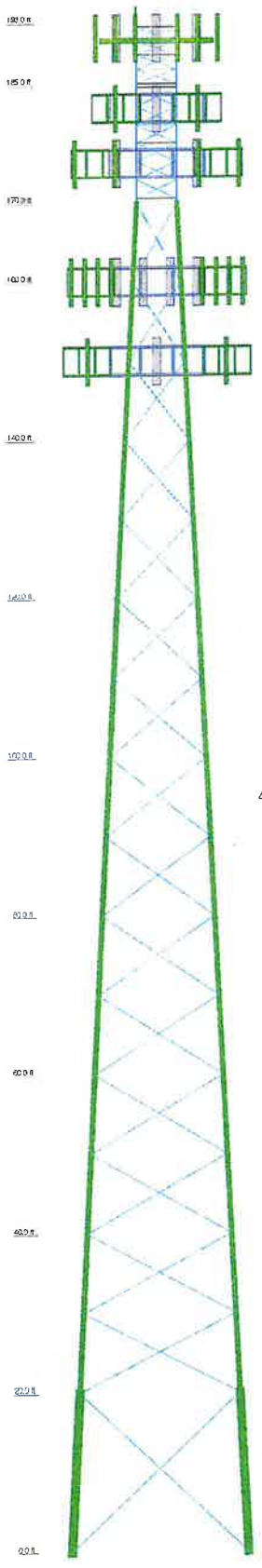
Limitations

The computer generated analysis performed by the tower software is limited to theoretical capacities of the towers structural members and does not account for any missing or damaged members or connections. The tower and foundation are assumed to have been properly designed, fabricated, installed and maintained, barring any conflicting findings from the most recent inspection.

SBA Communications Corporation has used its due diligence to verify the information provided to perform this analysis. It is unreasonable to perform a more detailed inspection of a tower and its components. This report is not a condition assessment of the tower or foundation.

Appendix





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	190	1900 MHz RRH (65° 1° 45°)	175
SL1	180	(2) 800 MHz RRH (120° 240° 0°)	175
RR90-17-00DP (5x8x0.5) w/ mount pipe	170	(2) 800 MHz RRH (120° 240° 0°)	175
RR90-17-00DP (5x8x0.5) w/ mount pipe	160	(2) 700 MHz RRH (120° 240° 0°)	175
A7XVAAL-24-43-XA20 (5.56/4x5.1) w/ mount pipe	150	TD-RRH8x20-25 (45° 1° 5.5/16.7')	175
A7XVAAL-24-43-XA20 (5.56/4x5.1) w/ mount pipe	140	TD-RRH8x20-25 (225° 1° 5.5/16.7')	175
A7XVAAL-24-43-XA20 (5.56/4x5.1) w/ mount pipe	130	TD-RRH8x20-25 (315° 1° 5.5/16.7')	175
A7XVAAL-24-43-XA20 (5.56/4x5.1) w/ mount pipe	120	Safety Frame w/ Support Rib	175
A7PDV1-96-41 (5.2x0.240) w/ mount pipe	110	Safety Frame w/ Support Rib	175
A7PDV1-96-41 (5.2x0.240) w/ mount pipe	100	Safety Frame w/ Support Rib	175
A7PDV1-96-41 (5.2x0.240) w/ mount pipe	90	(3) V-Brace	175
5230-326D+43 (64.1 x0.2)	80	SL2	160
5230-326D+43 (64.1 x0.2)	70	RRZ32-A637-65-43 (3.56x4.5x12 ft)	160
5230-326D+43 (64.1 x0.2)	60	T-Frame	160
4449 BP - 326 (17.3x0.5 x1.0)	50	T-Frame	160
4449 BP - 326 (17.3x0.5 x1.0)	40	T-Frame	160
4449 BP - 326 (17.3x0.5 x1.0)	30	4-Stubs	160
4450 326-326 (13x0.5 x1.0)	20	4-Stubs	160
4450 326-326 (13x0.5 x1.0)	10	4-Stubs	160
4450 326-326 (13x0.5 x1.0)	0	(3) 8448 BR 326 (7' 10in) 1.65x13.4x6.2	160
4415 326A (1.65x13.4x6.2)	10	LNX-6514DS-A4M (72.7in) 8dT [1 w/ mount pipe]	160
4415 326A (1.65x13.4x6.2)	20	LNX-6514DS-A4M (72.7in) 8dT [1 w/ mount pipe]	160
4415 326A (1.65x13.4x6.2)	30	LNX-6514DS-A4M (72.7in) 8dT [1 w/ mount pipe]	160
7' Low Profile Platform	40	V86417A [2] 5x5.75x0.5 [1 w/ Mount Pipe	150
RR90-17-00DP (5x8x0.5) w/ mount pipe	50	V86417A [2] 5x5.75x0.5 [1 w/ Mount Pipe	150
SL2	60	V86417A [2] 5x5.75x0.5 [1 w/ Mount Pipe	150
7770 354*142 w/ mount pipe	70	(3) FD9R6004/2C-3CL (3.5x5.5x0.5)	150
HPA-65R-BUU-H5 (96.4"x 8.5"x7.4") w/ mount pipe	80	(3) FD9R6004/2C-3CL (3.5x5.5x0.5)	150
HPA-65R-BUU-H5 (96.4"x 8.5"x7.4") w/ mount pipe	90	(3) FD9R6004/2C-3CL (3.5x5.5x0.5)	150
HPA-65R-BUU-H5 (96.4"x 8.5"x7.4") w/ mount pipe	100	B28SAARRH ORAN RF4478-2EA (14.96x4.96x9.0 lb)	150
DMP65R-BUDDA (96.4x20.7x7.7) w/ mount pipe	110	B28SAARRH ORAN RF4478-2EA (14.96x4.96x9.0 lb)	150
DMP65R-BUDDA (96.4x20.7x7.7) w/ mount pipe	120	B28SAARRH ORAN RF4478-2EA (14.96x4.96x9.0 lb)	150
DMP65R-BUDDA (96.4x20.7x7.7) w/ mount pipe	130	RF4478-1-3A [14.96x4.96x6.2 lb]	150
(3) LGP21401 (14.4"x6.2"x2.6")	140	RF4478-1-3A [14.96x4.96x6.2 lb]	150
(3) LGP21401 (14.4"x6.2"x2.6")	150	RF4478-1-3A [14.96x4.96x6.2 lb]	150
(3) LGP21401 (14.4"x6.2"x2.6")	160	RR-2x6-0-700 [39in*4]	150
(3) LGP21903 (6.3x4.4x2)	170	RR-2x6-0-700 [39in*4]	150
(3) LGP21903 (6.3x4.4x2)	180	RR-2x6-0-700 [39in*4]	150
(3) LGP21903 (6.3x4.4x2)	190	(3) 8448 BR 326 (7' 10in) 1.65x13.4x6.2 [1 w/ Mount Pipe	150
4449 BP-326 (17.3x0.5 x1.0)	190	(3) 8448 BR 326 (7' 10in) 1.65x13.4x6.2 [1 w/ Mount Pipe	150
4449 BP-326 (17.3x0.5 x1.0)	190	DB-P-X20AAV-V7-0 (4in*3)	150
4449 BP-326 (17.3x0.5 x1.0)	190	SL1	150
RRUS 12 (20.4"x 8.5"x7.1")	190	RWV65-R2 (35.5x11.16x7.1) w/ Mount pipe	150
RRUS 12 (20.4"x 8.5"x7.1")	190	RWV65-R2 (35.5x11.16x7.1) w/ Mount pipe	150
RRUS 11 (18.7"x 17" x 7.2")	190	RFV45G-7HA [15.5x7.5x7]	150
RRUS 11 (18.7"x 17" x 7.2")	190	RFV45G-7HA [15.5x7.5x7]	150
RRUS 11 (18.7"x 17" x 7.2")	190	RFV45G-7HA [15.5x7.5x7]	150
RRUS 32 (20.9x 8.3x8.5")	190	RFV45G-7HA [15x7.5x7.5]	150
RRUS 32 (20.9x 8.3x8.5")	190	RFV45G-7HA [15x7.5x7.5]	150
RRUS 32 B30 (20.9x 8.3x8.5")	190	RFV45G-7HA [15x7.5x7.5]	150
RRUS A2 (15.4"x5.1"x3.0")	190	RDIDC-9181-PF-48 [15.5x6.5x4.5 lb]	150
RRUS A2 (15.4"x5.1"x3.0")	190	Commscope MTC3975R5	150
RRUS A2 (15.4"x5.1"x3.0")	190	Commscope MTC3975R5	150
DB-B-H-6C-18-T (22"x8.5"x11")	190	Commscope MTC3975R5	150
DB-B-H-6C-18-T (22"x8.5"x11")	190	(3) Empty Mount Pipe	150
(Commscope P/N: MTC3975)	190	(3) Empty Mount Pipe	150
(Commscope P/N: MTC3975)	190	(3) Empty Mount Pipe	150
(Commscope P/N: MTC3975)	190	RWV65-R2 (35.5x11.16x7.1) w/ Mount pipe	150
7770.55 w/ 6' w/ mount pipe	190	SL5	140
7770.55 w/ 6' w/ mount pipe	190	SL5	130
A7PDV1V-6C-43D (5.3"x8.0"x6.3") w/ mount pipe	175	4501 SL 12A (5x5)	120
A7PDV1V-6C-43D (5.3"x8.0"x6.3") w/ mount pipe	175	SL7	100
A7PDV1V-6C-43D (5.3"x8.0"x6.3") w/ mount pipe	175	SL5	83
7WWV-65B-R4 (72x10.6x7.5) w/ mount pipe	175	SL3	62
7WWV-65B-R4 (72x10.6x7.5) w/ mount pipe	175	SL10	42
7WWV-65B-R4 (72x10.6x7.5) w/ mount pipe	175	P21K2F-01305-E00V (3.5x1.5)	22
1900 MHz RRH (25° 6° 1° 4")	175	P21K2F-01305-E00V (3.5x1.5)	10
1900 MHz RRH (25° 6° 1° 4")	175	SL11	0

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	#12 - 1.25" - 1.00" conn. (Round (OD) 14")		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 123 mph basic wind in accordance with the TIA-222-H Standard
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 84.6%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 380 K
SHEAR: 45 K

UPLIFT: -323 K
SHEAR: 37 K

AXIAL 86 K
SHEAR 4 K
MOMENT 530 kip-ft
TORQUE 0 kip-ft
SEISMIC

AXIAL 158 K
SHEAR 15 K
MOMENT 1812 kip-ft
TORQUE 4 kip-ft
50 mph WIND - 1.0000 in ICE

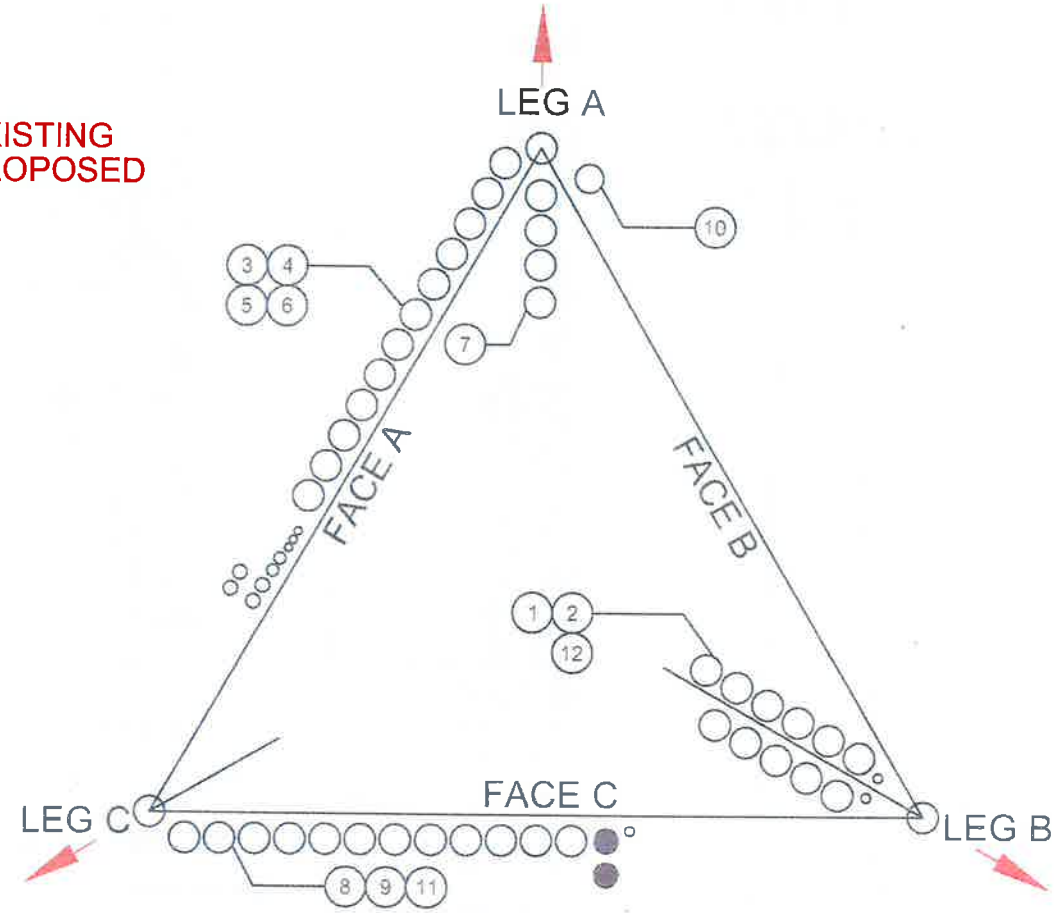
AXIAL 83 K
SHEAR 58 K
MOMENT 6869 kip-ft
TORQUE 16 kip-ft
REACTIONS - 123 mph WIND

SBA Communications
8051 Congress Avenue
Boca Raton, Florida
Phone: (561) 981-7368
FAX

Project:	CT01105-VZW-031424
Drawn by:	Binnam Parrera
Approved:	
Date:	03/14/24
Scale:	NTS
Drawing No:	S-1

COAX LAYOUT

○ EXISTING
● PROPOSED



CT01105-S					
#	CARRIER	SIZE	QTY.	ELEVATION	NOTES
1	T-Mobile	1-5/8"	8	191	
2	T-Mobile	1.9"	3	191	Fiber
3	AT&T	1-5/8"	12	182	
4	AT&T	3/4"	4	182	DC Power
5	AT&T	3/8"	3	182	RET
6	AT&T	5/8"	2	182	Fiber
7	TMS	1-1/4"	4	175	Fiber
8	Verizon	1-5/8"	12	160	
9	Verizon	1-1/4"	2	160	Hybrid [Proposed]
10	Dish	1.6"	1	150	Hybrid
11	Verizon	1/2"	1	100	GPS
12	T-Mobile	1/2"	2	30	

Tower Input Data

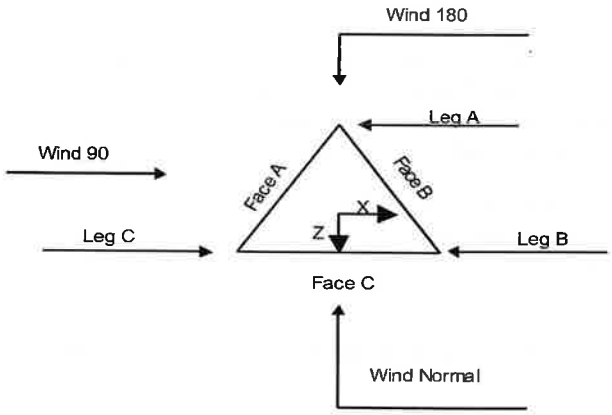
The main tower is a 3x free standing tower with an overall height of 193.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 5.00 ft at the top and 22.00 ft at the base.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in New London County, Connecticut.
Tower base elevation above sea level: 449.80 ft.
Basic wind speed of 123 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Assume Legs Pinned
	Consider Moments - Horizontals	√	Assume Rigid Index Plate
	Consider Moments - Diagonals	√	Use Clear Spans For Wind Area
	Use Moment Magnification	√	Use Clear Spans For KL/r
√	Use Code Stress Ratios		Retension Guys To Initial Tension
√	Use Code Safety Factors - Guys	√	Bypass Mast Stability Checks
	Escalate Ice	√	Use Azimuth Dish Coefficients
	Always Use Max Kz	√	Project Wind Area of Appurtenances
	Use Special Wind Profile		Alternative Appurt. EPA Calculation
√	Include Bolts In Member Capacity		Autocalc Torque Arm Areas
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination
√	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs
	Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules

√	Calculate Redundant Bracing Forces		Include Shear-Torsion Interaction
	Ignore Redundant Members in FEA		Always Use Sub-Critical Flow
√	SR Leg Bolts Resist Compression		Use Top Mounted Sockets
	All Leg Panels Have Same Allowable		Pole Without Linear Attachments
	Offset Girt At Foundation		Pole With Shroud Or No Appurtenances
√	Consider Feed Line Torque		Outside and Inside Corner Radii Are Known
√	Include Angle Block Shear Check		
	Use TIA-222-H Bracing Resist. Exemption		
	Use TIA-222-H Tension Splice Exemption		
	Poles		



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	193.00-185.00			5.00	1	8.00
T2	185.00-170.00			5.00	1	15.00
T3	170.00-160.00			5.00	1	10.00
T4	160.00-140.00			6.00	1	20.00
T5	140.00-120.00			8.00	1	20.00
T6	120.00-100.00			10.00	1	20.00
T7	100.00-80.00			12.00	1	20.00
T8	80.00-60.00			14.00	1	20.00
T9	60.00-40.00			16.00	1	20.00
T10	40.00-20.00			18.00	1	20.00
T11	20.00-0.00			20.00	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	193.00-185.00	1.81	X Brace	No	Steps	7.0000	2.0000
T2	185.00-170.00	2.34	X Brace	No	Steps	4.5000	7.0000
T3	170.00-160.00	10.00	X Brace	No	No	0.0000	0.0000
T4	160.00-140.00	10.00	X Brace	No	No	0.0000	0.0000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T5	140.00-120.00	10.00	X Brace	No	No	0.0000	0.0000
T6	120.00-100.00	10.00	X Brace	No	No	0.0000	0.0000
T7	100.00-80.00	10.00	X Brace	No	No	0.0000	0.0000
T8	80.00-60.00	10.00	X Brace	No	No	0.0000	0.0000
T9	60.00-40.00	10.00	X Brace	No	No	0.0000	0.0000
T10	40.00-20.00	10.00	X Brace	No	No	0.0000	0.0000
T11	20.00-0.00	20.00	X Brace	No	No	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 193.00-185.00	Solid Round	2	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T2 185.00-170.00	Solid Round	2	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T3 170.00-160.00	Truss Leg	#12 - 1.25" - 1.00" conn. (Pirod 105244)	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T4 160.00-140.00	Truss Leg	#12 - 1.50" - 1.00" conn. (Pirod 105217)	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T5 140.00-120.00	Truss Leg	#12 - 1.50" - 1.00" conn. (Pirod 105217)	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T6 120.00-100.00	Truss Leg	#12 - 1.75" - 1.25" conn. (Pirod 105218)	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)
T7 100.00-80.00	Truss Leg	#12 - 2.00" - 1.25" conn. (Pirod 105219)	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)
T8 80.00-60.00	Truss Leg	#12 - 2.00" - 1.25" conn. (Pirod 105219)	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)
T9 60.00-40.00	Truss Leg	#12 - 2.25" - 1.25" conn. (Pirod 105220)	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)
T10 40.00-20.00	Truss Leg	#12 - 2.25" - 1.25" conn. (Pirod 105220)	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)
T11 20.00-0.00	Truss Leg	#18 - 2.50" (Pirod 112738-Base Only)	A572-50 (50 ksi)	Double Equal Angle	2L3 1/2x3 1/2x5/16x3/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 193.00-185.00	Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round	1 1/4	A572-50 (50 ksi)
T2 185.00-170.00	Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round	1 1/4	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 193.00-185.00	1	Solid Round	1 1/4	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T2 185.00-170.00	1	Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round	7/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 193.00-185.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T2 185.00-170.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T3 170.00-160.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T4 160.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T5 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T6 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T7 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T8 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T9 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T10 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T11 20.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	Mid-Pt	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 193.00-185.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 185.00-170.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 170.00-160.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 160.00-140.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X	X Brace Diags Y	K Factors[1] K Single Diags X	K Single Diags Y	K Factors[1] Girts X	Girts Y	K Factors[1] Horiz. X	Horiz. Y	K Factors[1] Sec. Horiz. X	Sec. Horiz. Y	K Factors[1] Inner Brace X	Inner Brace Y
T5	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
140.00-120.00				1	1	1	1	1	1	1	1	1	1	1	1
T6	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
120.00-100.00				1	1	1	1	1	1	1	1	1	1	1	1
T7	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
100.00-80.00				1	1	1	1	1	1	1	1	1	1	1	1
T8	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
80.00-60.00				1	1	1	1	1	1	1	1	1	1	1	1
T9	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
60.00-40.00				1	1	1	1	1	1	1	1	1	1	1	1
T10	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1	1	1	1	1	1
T11	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
20.00-0.00				1	1	1	1	1	1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Truss-Leg K Factors: Truss-Legs Used As Leg Members — Leg Panels	X Brace Diagonals	Z Brace Diagonals	Truss-Legs Used As Inner Members — Leg Panels	X Brace Diagonals	Z Brace Diagonals
T3	1	0.5	0.85	1	0.5	0.7
170.00-160.00						
T4	1	0.5	0.85	1	0.5	0.7
160.00-140.00						
T5	1	0.5	0.85	1	0.5	0.7
140.00-120.00						
T6	1	0.5	0.85	1	0.5	0.7
120.00-100.00						
T7	1	0.5	0.85	1	0.5	0.7
100.00-80.00						
T8	1	0.5	0.85	1	0.5	0.7
80.00-60.00						
T9	1	0.5	0.85	1	0.5	0.7
60.00-40.00						
T10	1	0.5	0.85	1	0.5	0.7
40.00-20.00						
T11	1	0.5	0.85	1	0.5	1
20.00-0.00						

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 193.00-185.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75
T2 185.00-170.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75
T3 170.00-160.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 160.00-140.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 140.00-120.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 120.00-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 100.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 193.00-185.00	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T2 185.00-170.00	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T3 170.00-160.00	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T4 160.00-140.00	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T5 140.00-120.00	0.0000	0.75 (3)	0.0000	0.75 (3)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)							0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T6 120.00-100.00	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T7 100.00-80.00	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T8 80.00-60.00	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T9 60.00-40.00	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T10 40.00-20.00	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T11 20.00-0.00	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)

	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)

Tower Section Geometry *(cont'd)*

Tower Elevation	Connection Offsets							
	Diagonal				K-Bracing			
	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.
ft	in	in	in	in	in	in	in	in
T1 193.00-185.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T2 185.00-170.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T3 170.00-160.00	5.0000	10.7500	5.0000	10.7500	0.0000	0.0000	0.0000	0.0000
T4 160.00-140.00	5.0000	10.7500	5.0000	10.7500	0.0000	0.0000	0.0000	0.0000
T5 140.00-120.00	5.0000	10.7500	5.0000	10.7500	0.0000	0.0000	0.0000	0.0000
T6 120.00-100.00	5.0000	10.7500	5.0000	10.7500	0.0000	0.0000	0.0000	0.0000
T7 100.00-80.00	5.0000	12.2500	5.0000	12.2500	0.0000	0.0000	0.0000	0.0000
T8 80.00-60.00	5.0000	12.2500	5.0000	12.2500	0.0000	0.0000	0.0000	0.0000
T9 60.00-40.00	5.0000	12.2500	5.0000	12.2500	0.0000	0.0000	0.0000	0.0000
T10 40.00-20.00	5.0000	12.2500	5.0000	12.2500	0.0000	0.0000	0.0000	0.0000
T11 20.00-0.00	6.5000	15.2500	6.5000	15.2500	0.0000	0.0000	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 193.00-185.00	Sleeve DS	0.6250 A325N	5	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 185.00-170.00	Flange	1.0000 A325N	6	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 170.00-160.00	Flange	1.0000 A325N	6	1.0000 A325N	1	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T4 160.00-140.00	Flange	1.0000 A325N	6	1.0000 A325N	1	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T5 140.00-120.00	Flange	1.0000 A325N	6	1.0000 A325N	1	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T6 120.00-100.00	Flange	1.0000 A325N	6	1.0000 A325N	1	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T7 100.00-80.00	Flange	1.2500 A325N >1"	6	1.2500 A325N	1	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T8 80.00-60.00	Flange	1.2500 A325N >1"	6	1.2500 A325N	1	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T9 60.00-40.00	Flange	1.2500 A325N >1"	6	1.2500 A325N	1	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T10 40.00-20.00	Flange	1.2500 A325N >1"	12	1.2500 A325N	1	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0
T11 20.00-0.00	Flange	0.0000 A325N	0	1.0000 A325N	2	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.0000 A325N	0	1.2500 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
Safety Line (3/8")	B	No	No	Ar (CaAa)	193.00 - 8.00	0.0000	0.5	1	1	0.3750	0.3750		0.18
***													
Feedline Ladder (Af)	A	No	No	Af (CaAa)	182.00 - 5.00	0.0000	0.25	1	1	3.0000	1.5000		8.40
1 5/8	A	No	No	Ar (CaAa)	182.00 - 5.00	0.0000	0	12	12	0.5000	1.9800		1.04
3/4" DC Power	A	No	No	Ar (CaAa)	182.00 - 5.00	0.0000	0	4	2	0.5000	0.9950		0.47
3/8" Fiber	A	No	No	Ar (CaAa)	182.00 - 5.00	0.0000	0	3	3	0.5000	0.4400		0.08
5/8"	A	No	No	Ar (CaAa)	182.00 - 5.00	0.0000	0	2	1	0.5000	0.8800		0.40
***													
Feedline Ladder (Af)	B	No	No	Af (CaAa)	175.00 - 5.00	-5.0000	0	1	1	3.0000	1.5000		8.40
LDF6-50A (1-1/4 FOAM)	B	No	No	Ar (CaAa)	175.00 - 5.00	-5.0000	0	4	4	0.5000	1.5500		0.66
***													
Feedline Ladder (Af)	C	No	No	Af (CaAa)	162.00 - 5.00	0.0000	0	1	1	3.0000	1.5000		8.40
1 5/8	C	No	No	Ar (CaAa)	162.00 - 5.00	0.0000	0	12	10	0.5000	1.9800		1.04
1-1/4" Hybrid	C	No	No	Ar (CaAa)	162.00 - 5.00	0.0000	0	2	2	1.5500	1.5500		0.66
1/2	C	No	No	Ar (CaAa)	100.00 - 5.00	0.0000	0	1	1	0.5000	0.5800		0.25

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
***													
1 5/8	C	No	No	Ar (CaAa)	191.00 - 5.00	-5.0000	0	8	4	0.5000	1.9800		1.04
1.9" Fiber	C	No	No	Ar (CaAa)	191.00 - 5.00	-5.0000	0	3	2	0.5000	1.9000		1.04
1/2	C	No	No	Ar (CaAa)	30.00 - 5.00	-5.0000	0	2	1	0.5000	0.5800		0.25
***													
Feedline Ladder (Af)	C	No	No	Af (CaAa)	193.00 - 5.00	0.0000	0	1	1	3.0000	1.5000		8.40
***													
Feedline Ladder (Af)	B	No	No	Af (CaAa)	150.00 - 5.00	0.0000	0	1	1	3.0000	1.5000		8.40
1.6" Hybrid	B	No	No	Ar (CaAa)	150.00 - 5.00	0.0000	0	1	1	0.5000	1.9800		1.04

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	193.00-185.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.300	0.000	0.00
		C	0.000	0.000	14.924	0.000	0.14
T2	185.00-170.00	A	0.000	0.000	39.984	0.000	0.29
		B	0.000	0.000	4.912	0.000	0.06
		C	0.000	0.000	36.060	0.000	0.30
T3	170.00-160.00	A	0.000	0.000	33.320	0.000	0.24
		B	0.000	0.000	9.075	0.000	0.11
		C	0.000	0.000	29.912	0.000	0.24
T4	160.00-140.00	A	0.000	0.000	66.640	0.000	0.48
		B	0.000	0.000	22.630	0.000	0.32
		C	0.000	0.000	106.800	0.000	0.84
T5	140.00-120.00	A	0.000	0.000	66.640	0.000	0.48
		B	0.000	0.000	27.110	0.000	0.41
		C	0.000	0.000	106.800	0.000	0.84
T6	120.00-100.00	A	0.000	0.000	66.640	0.000	0.48
		B	0.000	0.000	27.110	0.000	0.41
		C	0.000	0.000	106.800	0.000	0.84
T7	100.00-80.00	A	0.000	0.000	66.640	0.000	0.48
		B	0.000	0.000	27.110	0.000	0.41
		C	0.000	0.000	107.960	0.000	0.85
T8	80.00-60.00	A	0.000	0.000	66.640	0.000	0.48
		B	0.000	0.000	27.110	0.000	0.41
		C	0.000	0.000	107.960	0.000	0.85
T9	60.00-40.00	A	0.000	0.000	66.640	0.000	0.48
		B	0.000	0.000	27.110	0.000	0.41
		C	0.000	0.000	107.960	0.000	0.85
T10	40.00-20.00	A	0.000	0.000	66.640	0.000	0.48
		B	0.000	0.000	27.110	0.000	0.41
		C	0.000	0.000	109.120	0.000	0.85
T11	20.00-0.00	A	0.000	0.000	49.980	0.000	0.36
		B	0.000	0.000	20.220	0.000	0.31
		C	0.000	0.000	82.710	0.000	0.64

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight K
T1	193.00-185.00	A	1.191	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.205	0.000	0.02
		C		0.000	0.000	21.222	0.000	0.36
T2	185.00-170.00	A	1.183	0.000	0.000	80.699	0.000	1.00
		B		0.000	0.000	13.296	0.000	0.17
		C		0.000	0.000	50.515	0.000	0.82
T3	170.00-160.00	A	1.175	0.000	0.000	67.118	0.000	0.83
		B		0.000	0.000	21.047	0.000	0.29
		C		0.000	0.000	43.449	0.000	0.68
T4	160.00-140.00	A	1.163	0.000	0.000	133.895	0.000	1.65
		B		0.000	0.000	51.068	0.000	0.77
		C		0.000	0.000	165.304	0.000	2.47
T5	140.00-120.00	A	1.147	0.000	0.000	133.391	0.000	1.63
		B		0.000	0.000	59.830	0.000	0.94
		C		0.000	0.000	164.730	0.000	2.45
T6	120.00-100.00	A	1.128	0.000	0.000	132.811	0.000	1.61
		B		0.000	0.000	59.403	0.000	0.93
		C		0.000	0.000	164.069	0.000	2.43
T7	100.00-80.00	A	1.106	0.000	0.000	132.128	0.000	1.59
		B		0.000	0.000	58.900	0.000	0.92
		C		0.000	0.000	168.872	0.000	2.45
T8	80.00-60.00	A	1.078	0.000	0.000	131.292	0.000	1.56
		B		0.000	0.000	58.285	0.000	0.90
		C		0.000	0.000	167.809	0.000	2.41
T9	60.00-40.00	A	1.042	0.000	0.000	130.206	0.000	1.53
		B		0.000	0.000	57.484	0.000	0.88
		C		0.000	0.000	166.427	0.000	2.37
T10	40.00-20.00	A	0.991	0.000	0.000	128.626	0.000	1.47
		B		0.000	0.000	56.320	0.000	0.85
		C		0.000	0.000	169.982	0.000	2.34
T11	20.00-0.00	A	0.887	0.000	0.000	94.122	0.000	1.03
		B		0.000	0.000	39.865	0.000	0.60
		C		0.000	0.000	128.134	0.000	1.68

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	193.00-185.00	0.2765	3.9604	0.7756	2.8722
T2	185.00-170.00	-3.4682	-1.4645	-2.6288	-1.0462
T3	170.00-160.00	-2.5835	-1.6654	-1.9555	-1.2889
T4	160.00-140.00	-2.0405	-0.2812	-1.5239	-0.1024
T5	140.00-120.00	-2.0249	-0.5184	-1.3018	-0.3016
T6	120.00-100.00	-2.2549	-0.5405	-1.4409	-0.3200
T7	100.00-80.00	-2.5224	-0.3753	-1.6222	0.1862
T8	80.00-60.00	-2.6771	-0.3736	-1.7560	0.1976
T9	60.00-40.00	-2.8668	-0.3782	-1.9060	0.1922
T10	40.00-20.00	-3.0599	-0.1439	-2.0516	0.7245
T11	20.00-0.00	-2.7938	0.0610	-2.0837	0.8899

tnxTower	Job	Page
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SBA Communications 8051 Congress Avenue Boca Raton, Florida Phone: (561) 981-7388 FAX:	Project CT01105-VZW-031424	Date 10:49:02 03/14/24
	Client	Designed by Breann Parreira

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	Safety Line (3/8")	185.00 - 193.00	0.6000	0.4916
T1	18	1 5/8	185.00 - 191.00	0.6000	0.4916
T1	19	1.9" Fiber	185.00 - 191.00	0.6000	0.4916
T1	22	Feedline Ladder (Af)	185.00 - 193.00	0.6000	0.4916
T2	1	Safety Line (3/8")	170.00 - 185.00	0.6000	0.5867
T2	3	Feedline Ladder (Af)	170.00 - 182.00	0.6000	0.5867
T2	4	1 5/8	170.00 - 182.00	0.6000	0.5867
T2	5	3/4" DC Power	170.00 - 182.00	0.6000	0.5867
T2	6	3/8" Fiber	170.00 - 182.00	1.0000	1.0000
T2	7	5/8"	170.00 - 182.00	0.6000	0.5867
T2	9	Feedline Ladder (Af)	170.00 - 175.00	0.6000	0.5867
T2	10	LDF6-50A (1-1/4 FOAM)	170.00 - 175.00	0.6000	0.5867
T2	18	1 5/8	170.00 - 185.00	0.6000	0.5867
T2	19	1.9" Fiber	170.00 - 185.00	0.6000	0.5867
T2	22	Feedline Ladder (Af)	170.00 - 185.00	0.6000	0.5867
T3	1	Safety Line (3/8")	160.00 - 170.00	0.6000	0.4337
T3	3	Feedline Ladder (Af)	160.00 - 170.00	0.6000	0.4337
T3	4	1 5/8	160.00 - 170.00	0.6000	0.4337
T3	5	3/4" DC Power	160.00 - 170.00	0.6000	0.4337
T3	6	3/8" Fiber	160.00 - 170.00	1.0000	1.0000
T3	7	5/8"	160.00 - 170.00	0.6000	0.4337
T3	9	Feedline Ladder (Af)	160.00 - 170.00	0.6000	0.4337
T3	10	LDF6-50A (1-1/4 FOAM)	160.00 - 170.00	0.6000	0.4337
T3	12	Feedline Ladder (Af)	160.00 - 162.00	0.6000	0.4337
T3	13	1 5/8	160.00 - 162.00	0.6000	0.4337
T3	15	1-1/4" Hybrid	160.00 - 162.00	0.6000	0.4337
T3	18	1 5/8	160.00 - 170.00	0.6000	0.4337
T3	19	1.9" Fiber	160.00 - 170.00	0.6000	0.4337

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T3	22	Feedline Ladder (Af)	160.00 - 170.00	0.6000	0.4337
T4	1	Safety Line (3/8")	140.00 - 160.00	0.6000	0.5033
T4	3	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.5033
T4	4	1 5/8	140.00 - 160.00	0.6000	0.5033
T4	5	3/4" DC Power	140.00 - 160.00	0.6000	0.5033
T4	6	3/8" Fiber	140.00 - 160.00	1.0000	1.0000
T4	7	5/8"	140.00 - 160.00	0.6000	0.5033
T4	9	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.5033
T4	10	LDF6-50A (1-1/4 FOAM)	140.00 - 160.00	0.6000	0.5033
T4	12	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.5033
T4	13	1 5/8	140.00 - 160.00	0.6000	0.5033
T4	15	1-1/4" Hybrid	140.00 - 160.00	0.6000	0.5033
T4	18	1 5/8	140.00 - 160.00	0.6000	0.5033
T4	19	1.9" Fiber	140.00 - 160.00	0.6000	0.5033
T4	22	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.5033
T4	24	Feedline Ladder (Af)	140.00 - 150.00	0.6000	0.5033
T4	25	1.6" Hybrid	140.00 - 150.00	0.6000	0.5033
T5	1	Safety Line (3/8")	120.00 - 140.00	0.6000	0.5919
T5	3	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.5919
T5	4	1 5/8	120.00 - 140.00	0.6000	0.5919
T5	5	3/4" DC Power	120.00 - 140.00	0.6000	0.5919
T5	6	3/8" Fiber	120.00 - 140.00	1.0000	1.0000
T5	7	5/8"	120.00 - 140.00	0.6000	0.5919
T5	9	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.5919
T5	10	LDF6-50A (1-1/4 FOAM)	120.00 - 140.00	0.6000	0.5919
T5	12	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.5919
T5	13	1 5/8	120.00 - 140.00	0.6000	0.5919
T5	15	1-1/4" Hybrid	120.00 - 140.00	0.6000	0.5919
T5	18	1 5/8	120.00 - 140.00	0.6000	0.5919
T5	19	1.9" Fiber	120.00 - 140.00	0.6000	0.5919
T5	22	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.5919

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T5	24	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.5919
T5	25	1.6" Hybrid	120.00 - 140.00	0.6000	0.5919
T6	1	Safety Line (3/8")	100.00 - 120.00	0.6000	0.6000
T6	3	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T6	4	1 5/8	100.00 - 120.00	0.6000	0.6000
T6	5	3/4" DC Power	100.00 - 120.00	0.6000	0.6000
T6	6	3/8" Fiber	100.00 - 120.00	1.0000	1.0000
T6	7	5/8"	100.00 - 120.00	0.6000	0.6000
T6	9	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T6	10	LDF6-50A (1-1/4 FOAM)	100.00 - 120.00	0.6000	0.6000
T6	12	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T6	13	1 5/8	100.00 - 120.00	0.6000	0.6000
T6	15	1-1/4" Hybrid	100.00 - 120.00	0.6000	0.6000
T6	18	1 5/8	100.00 - 120.00	0.6000	0.6000
T6	19	1.9" Fiber	100.00 - 120.00	0.6000	0.6000
T6	22	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T6	24	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T6	25	1.6" Hybrid	100.00 - 120.00	0.6000	0.6000
T7	1	Safety Line (3/8")	80.00 - 100.00	0.6000	0.6000
T7	3	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T7	4	1 5/8	80.00 - 100.00	0.6000	0.6000
T7	5	3/4" DC Power	80.00 - 100.00	0.6000	0.6000
T7	6	3/8" Fiber	80.00 - 100.00	1.0000	1.0000
T7	7	5/8"	80.00 - 100.00	0.6000	0.6000
T7	9	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T7	10	LDF6-50A (1-1/4 FOAM)	80.00 - 100.00	0.6000	0.6000
T7	12	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T7	13	1 5/8	80.00 - 100.00	0.6000	0.6000
T7	15	1-1/4" Hybrid	80.00 - 100.00	0.6000	0.6000
T7	16	1/2	80.00 - 100.00	0.6000	0.6000
T7	18	1 5/8	80.00 - 100.00	0.6000	0.6000
T7	19	1.9" Fiber	80.00 - 100.00	0.6000	0.6000
T7	22	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T7	24	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T7	25	1.6" Hybrid	80.00 - 100.00	0.6000	0.6000
T8	1	Safety Line (3/8")	60.00 - 80.00	0.6000	0.6000
T8	3	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T8	4	1 5/8	60.00 - 80.00	0.6000	0.6000
T8	5	3/4" DC Power	60.00 - 80.00	0.6000	0.6000
T8	6	3/8" Fiber	60.00 - 80.00	1.0000	1.0000
T8	7	5/8"	60.00 - 80.00	0.6000	0.6000
T8	9	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T8	10	LDF6-50A (1-1/4 FOAM)	60.00 - 80.00	0.6000	0.6000
T8	12	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T8	13	1 5/8	60.00 - 80.00	0.6000	0.6000
T8	15	1-1/4" Hybrid	60.00 - 80.00	0.6000	0.6000
T8	16	1/2	60.00 - 80.00	0.6000	0.6000
T8	18	1 5/8	60.00 - 80.00	0.6000	0.6000
T8	19	1.9" Fiber	60.00 - 80.00	0.6000	0.6000
T8	22	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T8	24	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T8	25	1.6" Hybrid	60.00 - 80.00	0.6000	0.6000
T9	1	Safety Line (3/8")	40.00 - 60.00	0.6000	0.6000
T9	3	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T9	4	1 5/8	40.00 - 60.00	0.6000	0.6000
T9	5	3/4" DC Power	40.00 - 60.00	0.6000	0.6000
T9	6	3/8" Fiber	40.00 - 60.00	1.0000	1.0000
T9	7	5/8"	40.00 - 60.00	0.6000	0.6000
T9	9	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T9	10	LDF6-50A (1-1/4 FOAM)	40.00 - 60.00	0.6000	0.6000
T9	12	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T9	13	1 5/8	40.00 - 60.00	0.6000	0.6000
T9	15	1-1/4" Hybrid	40.00 - 60.00	0.6000	0.6000
T9	16	1/2	40.00 - 60.00	0.6000	0.6000
T9	18	1 5/8	40.00 - 60.00	0.6000	0.6000
T9	19	1.9" Fiber	40.00 - 60.00	0.6000	0.6000
T9	22	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T9	24	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T9	25	1.6" Hybrid	40.00 - 60.00	0.6000	0.6000
T10	1	Safety Line (3/8")	20.00 - 40.00	0.6000	0.6000
T10	3	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T10	4	1 5/8	20.00 - 40.00	0.6000	0.6000
T10	5	3/4" DC Power	20.00 - 40.00	0.6000	0.6000
T10	6	3/8" Fiber	20.00 - 40.00	1.0000	1.0000
T10	7	5/8"	20.00 - 40.00	0.6000	0.6000
T10	9	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T10	10	LDF6-50A (1-1/4 FOAM)	20.00 - 40.00	0.6000	0.6000
T10	12	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T10	13	1 5/8	20.00 - 40.00	0.6000	0.6000
T10	15	1-1/4" Hybrid	20.00 - 40.00	0.6000	0.6000
T10	16	1/2	20.00 - 40.00	0.6000	0.6000
T10	18	1 5/8	20.00 - 40.00	0.6000	0.6000
T10	19	1.9" Fiber	20.00 - 40.00	0.6000	0.6000
T10	20	1/2	20.00 - 30.00	0.6000	0.6000
T10	22	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T10	24	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T10	25	1.6" Hybrid	20.00 - 40.00	0.6000	0.6000
T11	1	Safety Line (3/8")	8.00 - 20.00	0.6000	0.6000
T11	3	Feedline Ladder (Af)	5.00 - 20.00	0.6000	0.6000
T11	4	1 5/8	5.00 - 20.00	0.6000	0.6000
T11	5	3/4" DC Power	5.00 - 20.00	0.6000	0.6000
T11	6	3/8" Fiber	5.00 - 20.00	1.0000	1.0000
T11	7	5/8"	5.00 - 20.00	0.6000	0.6000
T11	9	Feedline Ladder (Af)	5.00 - 20.00	0.6000	0.6000
T11	10	LDF6-50A (1-1/4 FOAM)	5.00 - 20.00	0.6000	0.6000
T11	12	Feedline Ladder (Af)	5.00 - 20.00	0.6000	0.6000
T11	13	1 5/8	5.00 - 20.00	0.6000	0.6000
T11	15	1-1/4" Hybrid	5.00 - 20.00	0.6000	0.6000
T11	16	1/2	5.00 - 20.00	0.6000	0.6000
T11	18	1 5/8	5.00 - 20.00	0.6000	0.6000
T11	19	1.9" Fiber	5.00 - 20.00	0.6000	0.6000
T11	20	1/2	5.00 - 20.00	0.6000	0.6000
T11	22	Feedline Ladder (Af)	5.00 - 20.00	0.6000	0.6000
T11	24	Feedline Ladder (Af)	5.00 - 20.00	0.6000	0.6000
T11	25	1.6" Hybrid	5.00 - 20.00	0.6000	0.6000

User Defined Loads - Seismic

Description	Elevation	Offset From Centroid	Azimuth Angle	E_v	E_{hx}	E_{hz}	E_h
	ft	ft	°	K	K	K	K
SL1	193.00	0.00	0.0000	0.20	0.00	0.00	0.44
SL2	185.00	0.00	0.0000	0.34	0.00	0.00	0.79
SL3	170.00	0.00	0.0000	0.18	0.00	0.00	0.34
SL4	160.00	0.00	0.0000	0.32	0.00	0.00	0.62
SL5	140.00	0.00	0.0000	0.18	0.00	0.00	0.27
SL6	120.00	0.00	0.0000	0.22	0.00	0.00	0.28
SL7	100.00	0.00	0.0000	0.25	0.00	0.00	0.27
SL8	80.00	0.00	0.0000	0.26	0.00	0.00	0.22
SL9	60.00	0.00	0.0000	0.30	0.00	0.00	0.19
SL10	40.00	0.00	0.0000	0.30	0.00	0.00	0.11
SL11	20.00	0.00	0.0000	0.39	0.00	0.00	0.07

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Lightning Rod	C	From Leg	0.00 0.00 0.00	0.0000	193.00	No Ice 1/2" Ice 1" Ice	0.25 0.66 0.97	0.25 0.66 0.97	0.03 0.03 0.04
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RR90-17-02DP [56x8x2.75] w/ mount pipe	A	From Leg	3.00 0.00 0.00	0.0000	191.00	No Ice 1/2" Ice 1" Ice	5.31 6.01 6.57	4.27 5.44 6.28	0.06 0.11 0.17
RR90-17-02DP [56x8x2.75] w/ mount pipe	B	From Leg	3.00 0.00 0.00	0.0000	191.00	No Ice 1/2" Ice 1" Ice	5.31 6.01 6.57	4.27 5.44 6.28	0.06 0.11 0.17
RR90-17-02DP [56x8x2.75] w/ mount pipe	C	From Leg	3.00 0.00 0.00	0.0000	191.00	No Ice 1/2" Ice 1" Ice	5.31 6.01 6.57	4.27 5.44 6.28	0.06 0.11 0.17
APXVAALL24-43-U-NA20 [95.9x24x8.5] w/ mount pipe	A	From Leg	3.00 0.00 0.00	0.0000	191.00	No Ice 1/2" Ice 1" Ice	20.24 20.89 21.55	11.03 12.46 13.56	0.17 0.31 0.45
APXVAALL24-43-U-NA20 [95.9x24x8.5] w/ mount pipe	B	From Leg	3.00 0.00 0.00	0.0000	191.00	No Ice 1/2" Ice 1" Ice	20.24 20.89 21.55	11.03 12.46 13.56	0.17 0.31 0.45
APXVAALL24-43-U-NA20 [95.9x24x8.5] w/ mount pipe	C	From Leg	3.00 0.00 0.00	0.0000	191.00	No Ice 1/2" Ice 1" Ice	20.24 20.89 21.55	11.03 12.46 13.56	0.17 0.31 0.45
AIR6419 B41 (36.3x20.9x9) w/ mount pipe	A	From Leg	3.00 0.00 0.00	0.0000	191.00	No Ice 1/2" Ice 1" Ice	7.75 8.59 9.22	5.18 6.26 7.00	0.13 0.20 0.27

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
AIR6419 B41 (36.3x20.9x9) w/ mount pipe	B	From Leg	3.00 0.00 0.00	0.0000	191.00	No Ice 1/2" Ice 1" Ice	7.75 8.59 9.22	5.18 6.26 7.00	0.13 0.20 0.27
AIR6419 B41 (36.3x20.9x9) w/ mount pipe	C	From Leg	3.00 0.00 0.00	0.0000	191.00	No Ice 1/2" Ice 1" Ice	7.75 8.59 9.22	5.18 6.26 7.00	0.13 0.20 0.27
SDX1926Q-43 [6.9x4.1x2.9]	A	From Leg	3.00 0.00 0.00	0.0000	191.00	No Ice 1/2" Ice 1" Ice	0.24 0.30 0.37	0.17 0.22 0.29	0.06 0.06 0.07
SDX1926Q-43 [6.9x4.1x2.9]	B	From Leg	3.00 0.00 0.00	0.0000	191.00	No Ice 1/2" Ice 1" Ice	0.24 0.30 0.37	0.17 0.22 0.29	0.06 0.06 0.07
SDX1926Q-43 [6.9x4.1x2.9]	C	From Leg	3.00 0.00 0.00	0.0000	191.00	No Ice 1/2" Ice 1" Ice	0.24 0.30 0.37	0.17 0.22 0.29	0.06 0.06 0.07
4449 B71 + B85 (17.9x13.1x10.6)	A	From Leg	3.00 0.00 0.00	0.0000	191.00	No Ice 1/2" Ice 1" Ice	1.95 2.13 2.31	1.58 1.74 1.91	0.08 0.09 0.12
4449 B71 + B85 (17.9x13.1x10.6)	B	From Leg	3.00 0.00 0.00	0.0000	191.00	No Ice 1/2" Ice 1" Ice	1.95 2.13 2.31	1.58 1.74 1.91	0.08 0.09 0.12
4449 B71 + B85 (17.9x13.1x10.6)	C	From Leg	3.00 0.00 0.00	0.0000	191.00	No Ice 1/2" Ice 1" Ice	1.95 2.13 2.31	1.58 1.74 1.91	0.08 0.09 0.12
4460 B25+B66 (17x15.11x11.85)	A	From Leg	3.00 0.00 0.00	0.0000	191.00	No Ice 1/2" Ice 1" Ice	2.14 2.32 2.51	1.68 1.84 2.01	0.11 0.13 0.16
4460 B25+B66 (17x15.11x11.85)	B	From Leg	3.00 0.00 0.00	0.0000	191.00	No Ice 1/2" Ice 1" Ice	2.14 2.32 2.51	1.68 1.84 2.01	0.11 0.13 0.16
4460 B25+B66 (17x15.11x11.85)	C	From Leg	3.00 0.00 0.00	0.0000	191.00	No Ice 1/2" Ice 1" Ice	2.14 2.32 2.51	1.68 1.84 2.01	0.11 0.13 0.16
4415 B66A [16.5x13.4x6.2]	A	From Leg	3.00 0.00 0.00	0.0000	191.00	No Ice 1/2" Ice 1" Ice	1.84 2.01 2.19	0.86 0.98 1.12	0.05 0.06 0.08
4415 B66A [16.5x13.4x6.2]	B	From Leg	3.00 0.00 0.00	0.0000	191.00	No Ice 1/2" Ice 1" Ice	1.84 2.01 2.19	0.86 0.98 1.12	0.05 0.06 0.08
4415 B66A [16.5x13.4x6.2]	C	From Leg	3.00 0.00 0.00	0.0000	191.00	No Ice 1/2" Ice 1" Ice	1.84 2.01 2.19	0.86 0.98 1.12	0.05 0.06 0.08
(1) Low Profile Platform	A	None		0.0000	191.00	No Ice 1/2" Ice 1" Ice	27.65 34.74 41.83	27.65 34.74 41.83	2.17 2.83 3.50
***									
7770 [55x11x5] w/ mount pipe	A	From Leg	3.00 0.00 0.00	0.0000	182.00	No Ice 1/2" Ice 1" Ice	6.49 7.21 7.78	5.23 6.41 7.25	0.08 0.14 0.20
7770 [55x11x5] w/ mount pipe	B	From Leg	3.00 0.00 0.00	0.0000	182.00	No Ice 1/2" Ice 1" Ice	6.49 7.21 7.78	5.23 6.41 7.25	0.08 0.14 0.20
7770 [55x11x5] w/ mount pipe	C	From Leg	3.00 0.00 0.00	0.0000	182.00	No Ice 1/2" Ice 1" Ice	6.49 7.21 7.78	5.23 6.41 7.25	0.08 0.14 0.20
HPA-65R-BUU-H8 (92.4"x14.8"x7.4") w/ mount	A	From Leg	3.00 0.00	0.0000	182.00	No Ice 1/2" Ice	13.11 13.72	9.46 10.86	0.10 0.19

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
pipe			0.00				1" Ice	14.33	12.11	0.30
HPA-65R-BUU-H8 (92.4"x14.8"x7.4") w/ mount pipe	B	From Leg	3.00	0.0000	182.00		No Ice	13.11	9.46	0.10
			0.00				1/2" Ice	13.72	10.86	0.19
			0.00				1" Ice	14.33	12.11	0.30
HPA-65R-BUU-H8 (92.4"x14.8"x7.4") w/ mount pipe	C	From Leg	3.00	0.0000	182.00		No Ice	13.11	9.46	0.10
			0.00				1/2" Ice	13.72	10.86	0.19
			0.00				1" Ice	14.33	12.11	0.30
DMP65R-BU8DA [96x20.7x7.7] w/ mount pipe	A	From Leg	3.00	0.0000	182.00		No Ice	17.87	10.42	0.14
			0.00				1/2" Ice	18.50	11.85	0.26
			0.00				1" Ice	19.14	12.94	0.40
DMP65R-BU8DA [96x20.7x7.7] w/ mount pipe	B	From Leg	3.00	0.0000	182.00		No Ice	17.87	10.42	0.14
			0.00				1/2" Ice	18.50	11.85	0.26
			0.00				1" Ice	19.14	12.94	0.40
DMP65R-BU8DA [96x20.7x7.7] w/ mount pipe	C	From Leg	3.00	0.0000	182.00		No Ice	17.87	10.42	0.14
			0.00				1/2" Ice	18.50	11.85	0.26
			0.00				1" Ice	19.14	12.94	0.40
(2) LGP21401 (14.4"x9.2"x2.6")	A	From Leg	3.00	0.0000	182.00		No Ice	1.10	0.35	0.01
			0.00				1/2" Ice	1.24	0.44	0.02
			0.00				1" Ice	1.38	0.54	0.03
(2) LGP21401 (14.4"x9.2"x2.6")	B	From Leg	3.00	0.0000	182.00		No Ice	1.10	0.35	0.01
			0.00				1/2" Ice	1.24	0.44	0.02
			0.00				1" Ice	1.38	0.54	0.03
(2) LGP21401 (14.4"x9.2"x2.6")	C	From Leg	3.00	0.0000	182.00		No Ice	1.10	0.35	0.01
			0.00				1/2" Ice	1.24	0.44	0.02
			0.00				1" Ice	1.38	0.54	0.03
(2) LGP21902 [6.3x4.4x3]	A	From Leg	3.00	0.0000	182.00		No Ice	0.23	0.16	0.01
			0.00				1/2" Ice	0.29	0.21	0.01
			0.00				1" Ice	0.36	0.28	0.01
(2) LGP21902 [6.3x4.4x3]	B	From Leg	3.00	0.0000	182.00		No Ice	0.23	0.16	0.01
			0.00				1/2" Ice	0.29	0.21	0.01
			0.00				1" Ice	0.36	0.28	0.01
(2) LGP21902 [6.3x4.4x3]	C	From Leg	3.00	0.0000	182.00		No Ice	0.23	0.16	0.01
			0.00				1/2" Ice	0.29	0.21	0.01
			0.00				1" Ice	0.36	0.28	0.01
4449 B5/B12 (17.9x13.19x9.44)	A	From Leg	3.00	0.0000	182.00		No Ice	0.21	0.15	0.07
			0.00				1/2" Ice	0.30	0.22	0.08
			0.00				1" Ice	0.39	0.29	0.09
4449 B5/B12 (17.9x13.19x9.44)	B	From Leg	3.00	0.0000	182.00		No Ice	0.21	0.15	0.07
			0.00				1/2" Ice	0.30	0.22	0.08
			0.00				1" Ice	0.39	0.29	0.09
4449 B5/B12 (17.9x13.19x9.44)	C	From Leg	3.00	0.0000	182.00		No Ice	0.21	0.15	0.07
			0.00				1/2" Ice	0.30	0.22	0.08
			0.00				1" Ice	0.39	0.29	0.09
RRUS 12 (20.4"x18.5"x7.5")	A	From Leg	3.00	0.0000	182.00		No Ice	3.15	1.29	0.05
			0.00				1/2" Ice	3.36	1.44	0.07
			0.00				1" Ice	3.59	1.60	0.10
RRUS 12 (20.4"x18.5"x7.5")	B	From Leg	3.00	0.0000	182.00		No Ice	3.15	1.29	0.05
			0.00				1/2" Ice	3.36	1.44	0.07
			0.00				1" Ice	3.59	1.60	0.10
RRUS 12 (20.4"x18.5"x7.5")	C	From Leg	3.00	0.0000	182.00		No Ice	3.15	1.29	0.05
			0.00				1/2" Ice	3.36	1.44	0.07
			0.00				1" Ice	3.59	1.60	0.10
RRUS 11 (19.7 x 17" x 7.2")	A	From Leg	3.00	0.0000	182.00		No Ice	2.79	1.19	0.05
			0.00				1/2" Ice	3.00	1.34	0.07
			0.00				1" Ice	3.21	1.50	0.10
RRUS 11 (19.7 x 17" x 7.2")	B	From Leg	3.00	0.0000	182.00		No Ice	2.79	1.19	0.05
			0.00				1/2" Ice	3.00	1.34	0.07

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
				0.00			1" Ice	3.21	1.50	0.10
RRUS 11 (19.7 x 17" x 7.2")	C	From Leg	3.00	0.00	0.0000	182.00	No Ice	2.79	1.19	0.05
							1/2" Ice	3.00	1.34	0.07
				0.00			1" Ice	3.21	1.50	0.10
RRUS 32 [29.9x13.3x9.5]	A	From Leg	3.00	0.00	0.0000	182.00	No Ice	3.31	2.42	0.08
							1/2" Ice	3.56	2.64	0.10
				0.00			1" Ice	3.81	2.86	0.14
RRUS 32 [29.9x13.3x9.5]	B	From Leg	3.00	0.00	0.0000	182.00	No Ice	3.31	2.42	0.08
							1/2" Ice	3.56	2.64	0.10
				0.00			1" Ice	3.81	2.86	0.14
RRUS 32 [29.9x13.3x9.5]	C	From Leg	3.00	0.00	0.0000	182.00	No Ice	3.31	2.42	0.08
							1/2" Ice	3.56	2.64	0.10
				0.00			1" Ice	3.81	2.86	0.14
RRUS A2 (16.4"x15.1"x3.3")	A	From Leg	3.00	0.00	0.0000	182.00	No Ice	2.06	0.49	0.02
							1/2" Ice	2.24	0.60	0.03
				0.00			1" Ice	2.43	0.72	0.05
RRUS A2 (16.4"x15.1"x3.3")	B	From Leg	3.00	0.00	0.0000	182.00	No Ice	2.06	0.49	0.02
							1/2" Ice	2.24	0.60	0.03
				0.00			1" Ice	2.43	0.72	0.05
RRUS A2 (16.4"x15.1"x3.3")	C	From Leg	3.00	0.00	0.0000	182.00	No Ice	2.06	0.49	0.02
							1/2" Ice	2.24	0.60	0.03
				0.00			1" Ice	2.43	0.72	0.05
DC6-48-60-18-8F (24"x18.5"x11")	A	From Leg	3.00	0.00	0.0000	182.00	No Ice	2.20	3.70	0.03
							1/2" Ice	2.40	3.94	0.06
				0.00			1" Ice	2.60	4.19	0.10
DC6-48-60-0-8C-EV [31.4x10.24x10.24]	B	From Leg	3.00	0.00	0.0000	182.00	No Ice	2.74	2.74	0.03
							1/2" Ice	2.96	2.96	0.05
				0.00			1" Ice	3.20	3.20	0.08
(Commscope P/N: MTC3615)	A	From Leg	3.00	0.00	0.0000	182.00	No Ice	27.10	12.02	0.52
							1/2" Ice	34.40	17.38	0.80
				0.00			1" Ice	41.70	22.74	1.09
(Commscope P/N: MTC3615)	B	From Leg	3.00	0.00	0.0000	182.00	No Ice	27.10	12.02	0.52
							1/2" Ice	34.40	17.38	0.80
				0.00			1" Ice	41.70	22.74	1.09
(Commscope P/N: MTC3615)	C	From Leg	3.00	0.00	0.0000	182.00	No Ice	27.10	12.02	0.52
							1/2" Ice	34.40	17.38	0.80
				0.00			1" Ice	41.70	22.74	1.09
***										
(2) NHH-65B-R2B [71.97x11.85x7.1] w/ Mount Pipe	A	From Leg	4.00	0.00	0.0000	160.00	No Ice	8.52	7.24	0.10
							1/2" Ice	9.19	8.52	0.17
				0.00			1" Ice	9.82	9.65	0.25
(2) NHH-65B-R2B [71.97x11.85x7.1] w/ Mount Pipe	B	From Leg	4.00	0.00	0.0000	160.00	No Ice	8.52	7.24	0.10
							1/2" Ice	9.19	8.52	0.17
				0.00			1" Ice	9.82	9.65	0.25
(2) NHH-65B-R2B [71.97x11.85x7.1] w/ Mount Pipe	C	From Leg	4.00	0.00	0.0000	160.00	No Ice	8.52	7.24	0.10
							1/2" Ice	9.19	8.52	0.17
				0.00			1" Ice	9.82	9.65	0.25
LNX-6514DS-AIM [72.7x11.9x7.1] w/ mount pipe	A	From Leg	4.00	0.00	0.0000	160.00	No Ice	8.73	7.71	0.09
							1/2" Ice	9.39	8.99	0.16
				0.00			1" Ice	9.98	9.95	0.25
LNX-6514DS-AIM [72.7x11.9x7.1] w/ mount pipe	B	From Leg	4.00	0.00	0.0000	160.00	No Ice	8.73	7.71	0.09
							1/2" Ice	9.39	8.99	0.16
				0.00			1" Ice	9.98	9.95	0.25
LNX-6514DS-AIM [72.7x11.9x7.1] w/ mount pipe	C	From Leg	4.00	0.00	0.0000	160.00	No Ice	8.73	7.71	0.09
							1/2" Ice	9.39	8.99	0.16
				0.00			1" Ice	9.98	9.95	0.25
MT6413 77A	A	From Leg	4.00		0.0000	160.00	No Ice	5.40	3.76	0.10

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
[28.9x15.75x5.51] w/ Mount Pipe			0.00				1/2" Ice	6.23	4.78	0.15
			0.00				1" Ice	6.83	5.47	0.21
MT6413 77A	B	From Leg	4.00	0.0000	160.00		No Ice	5.40	3.76	0.10
[28.9x15.75x5.51] w/ Mount Pipe			0.00				1/2" Ice	6.23	4.78	0.15
			0.00				1" Ice	6.83	5.47	0.21
MT6413 77A	C	From Leg	4.00	0.0000	160.00		No Ice	5.40	3.76	0.10
[28.9x15.75x5.51] w/ Mount Pipe			0.00				1/2" Ice	6.23	4.78	0.15
			0.00				1" Ice	6.83	5.47	0.21
(2) FD9R6004/2CL-3CL [6.5x5.8x1.5]	A	From Leg	4.00	0.0000	160.00		No Ice	0.31	0.09	0.00
			0.00				1/2" Ice	0.39	0.13	0.01
			0.00				1" Ice	0.47	0.19	0.01
(2) FD9R6004/2CL-3CL [6.5x5.8x1.5]	B	From Leg	4.00	0.0000	160.00		No Ice	0.31	0.09	0.00
			0.00				1/2" Ice	0.39	0.13	0.01
			0.00				1" Ice	0.47	0.19	0.01
(2) FD9R6004/2CL-3CL [6.5x5.8x1.5]	C	From Leg	4.00	0.0000	160.00		No Ice	0.31	0.09	0.00
			0.00				1/2" Ice	0.39	0.13	0.01
			0.00				1" Ice	0.47	0.19	0.01
B2/B66A RRH ORAN RF4439d-25A [14.96x14.96x10.04]	A	From Leg	4.00	0.0000	160.00		No Ice	1.87	1.25	0.07
			0.00				1/2" Ice	2.03	1.39	0.09
			0.00				1" Ice	2.21	1.54	0.11
B2/B66A RRH ORAN RF4439d-25A [14.96x14.96x10.04]	B	From Leg	4.00	0.0000	160.00		No Ice	1.87	1.25	0.07
			0.00				1/2" Ice	2.03	1.39	0.09
			0.00				1" Ice	2.21	1.54	0.11
B2/B66A RRH ORAN RF4439d-25A [14.96x14.96x10.04]	C	From Leg	4.00	0.0000	160.00		No Ice	1.87	1.25	0.07
			0.00				1/2" Ice	2.03	1.39	0.09
			0.00				1" Ice	2.21	1.54	0.11
RF4461d-13A [14.96x14.96x10.24]	A	From Leg	4.00	0.0000	160.00		No Ice	1.87	1.28	0.08
			0.00				1/2" Ice	2.03	1.42	0.10
			0.00				1" Ice	2.21	1.57	0.12
RF4461d-13A [14.96x14.96x10.24]	B	From Leg	4.00	0.0000	160.00		No Ice	1.87	1.28	0.08
			0.00				1/2" Ice	2.03	1.42	0.10
			0.00				1" Ice	2.21	1.57	0.12
RF4461d-13A [14.96x14.96x10.24]	C	From Leg	4.00	0.0000	160.00		No Ice	1.87	1.28	0.08
			0.00				1/2" Ice	2.03	1.42	0.10
			0.00				1" Ice	2.21	1.57	0.12
RRH2x60-700 [37x11x5]	A	From Leg	4.00	0.0000	160.00		No Ice	3.50	1.82	0.06
			0.00				1/2" Ice	3.76	2.05	0.08
			0.00				1" Ice	4.03	2.29	0.11
RRH2x60-700 [37x11x5]	B	From Leg	4.00	0.0000	160.00		No Ice	3.50	1.82	0.06
			0.00				1/2" Ice	3.76	2.05	0.08
			0.00				1" Ice	4.03	2.29	0.11
RRH2x60-700 [37x11x5]	C	From Leg	4.00	0.0000	160.00		No Ice	3.50	1.82	0.06
			0.00				1/2" Ice	3.76	2.05	0.08
			0.00				1" Ice	4.03	2.29	0.11
DB-T1-6Z-8AB-0Z [24x24x10]	A	From Leg	4.00	0.0000	160.00		No Ice	4.80	2.00	0.04
			0.00				1/2" Ice	5.07	2.19	0.08
			0.00				1" Ice	5.35	2.39	0.12
RVZDC-6627-PF-48 (29.5x16.5x12.6)	B	From Leg	4.00	0.0000	160.00		No Ice	4.06	3.10	0.03
			0.00				1/2" Ice	4.32	3.34	0.07
			0.00				1" Ice	4.58	3.58	0.11
T-Frame	A	From Leg	4.00	0.0000	160.00		No Ice	10.25	7.90	0.32
			0.00				1/2" Ice	15.26	11.61	0.45
			0.00				1" Ice	20.27	15.32	0.59
T-Frame	B	From Leg	4.00	0.0000	160.00		No Ice	10.25	7.90	0.32
			0.00				1/2" Ice	15.26	11.61	0.45
			0.00				1" Ice	20.27	15.32	0.59
T-Frame	C	From Leg	4.00	0.0000	160.00		No Ice	10.25	7.90	0.32

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00					1/2" Ice	15.26	11.61	0.45
			0.00					1" Ice	20.27	15.32	0.59
Kickers	A	From Leg	4.00			0.0000	160.00	No Ice	8.36	8.36	0.23
			0.00					1/2" Ice	10.80	10.80	0.30
			0.00					1" Ice	13.24	13.24	0.37
Kickers	A	From Leg	4.00			0.0000	160.00	No Ice	8.36	8.36	0.23
			0.00					1/2" Ice	10.80	10.80	0.30
			0.00					1" Ice	13.24	13.24	0.37
Kickers	A	From Leg	4.00			0.0000	160.00	No Ice	8.36	8.36	0.23
			0.00					1/2" Ice	10.80	10.80	0.30
			0.00					1" Ice	13.24	13.24	0.37
KS24019-L112A [8x2x2]	A	None				0.0000	100.00	No Ice	0.14	0.14	0.01
								1/2" Ice	0.20	0.20	0.01
								1" Ice	0.26	0.26	0.01
******											
APXVTM14-C-I20 (56.3"x12.6"x6.3") w/ mount pipe	A	From Leg	3.00			0.0000	175.00	No Ice	7.29	5.91	0.10
			0.00					1/2" Ice	8.01	7.10	0.17
			0.00					1" Ice	8.59	7.95	0.24
APXVTM14-C-I20 (56.3"x12.6"x6.3") w/ mount pipe	B	From Leg	3.00			0.0000	175.00	No Ice	7.29	5.91	0.10
			0.00					1/2" Ice	8.01	7.10	0.17
			0.00					1" Ice	8.59	7.95	0.24
APXVTM14-C-I20 (56.3"x12.6"x6.3") w/ mount pipe	C	From Leg	3.00			0.0000	175.00	No Ice	7.29	5.91	0.10
			0.00					1/2" Ice	8.01	7.10	0.17
			0.00					1" Ice	8.59	7.95	0.24
NNVV-65B-R4 [72x19.6x7.8] w/ mount pipe	A	From Leg	3.00			0.0000	175.00	No Ice	12.85	8.05	0.12
			0.00					1/2" Ice	13.55	9.34	0.22
			0.00					1" Ice	14.17	10.29	0.33
NNVV-65B-R4 [72x19.6x7.8] w/ mount pipe	B	From Leg	3.00			0.0000	175.00	No Ice	12.85	8.05	0.12
			0.00					1/2" Ice	13.55	9.34	0.22
			0.00					1" Ice	14.17	10.29	0.33
NNVV-65B-R4 [72x19.6x7.8] w/ mount pipe	C	From Leg	3.00			0.0000	175.00	No Ice	12.85	8.05	0.12
			0.00					1/2" Ice	13.55	9.34	0.22
			0.00					1" Ice	14.17	10.29	0.33
1900 MHz RRH (25"x11.1"x11.4")	A	From Leg	3.00			0.0000	175.00	No Ice	2.31	2.38	0.06
			0.00					1/2" Ice	2.52	2.58	0.08
			0.00					1" Ice	2.73	2.79	0.11
1900 MHz RRH (25"x11.1"x11.4")	B	From Leg	3.00			0.0000	175.00	No Ice	2.31	2.38	0.06
			0.00					1/2" Ice	2.52	2.58	0.08
			0.00					1" Ice	2.73	2.79	0.11
1900 MHz RRH (25"x11.1"x11.4")	C	From Leg	3.00			0.0000	175.00	No Ice	2.31	2.38	0.06
			0.00					1/2" Ice	2.52	2.58	0.08
			0.00					1" Ice	2.73	2.79	0.11
(2) 800 MHz RRH (19.7"x13"x10.8")	A	From Leg	3.00			0.0000	175.00	No Ice	2.13	1.77	0.05
			0.00					1/2" Ice	2.32	1.95	0.07
			0.00					1" Ice	2.51	2.13	0.10
(2) 800 MHz RRH (19.7"x13"x10.8")	B	From Leg	3.00			0.0000	175.00	No Ice	2.13	1.77	0.05
			0.00					1/2" Ice	2.32	1.95	0.07
			0.00					1" Ice	2.51	2.13	0.10
(2) 800 MHz RRH (19.7"x13"x10.8")	C	From Leg	3.00			0.0000	175.00	No Ice	2.13	1.77	0.05
			0.00					1/2" Ice	2.32	1.95	0.07
			0.00					1" Ice	2.51	2.13	0.10
TD-RRH8x20-25 (26.1"x18.6"x6.7")	A	From Leg	3.00			0.0000	175.00	No Ice	4.05	1.53	0.07
			0.00					1/2" Ice	4.30	1.71	0.10
			0.00					1" Ice	4.56	1.90	0.13
TD-RRH8x20-25 (26.1"x18.6"x6.7")	B	From Leg	3.00			0.0000	175.00	No Ice	4.05	1.53	0.07
			0.00					1/2" Ice	4.30	1.71	0.10
			0.00					1" Ice	4.56	1.90	0.13

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
TD-RRH8x20-25 (26.1"x18.6"x6.7")	C	From Leg	3.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice 1" Ice	4.05 4.30 4.56	1.53 1.71 1.90	0.07 0.10 0.13
Sector Frame w/ Support Rail	A	From Leg	3.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice 1" Ice	8.50 12.26 16.02	9.75 13.18 16.61	0.36 0.48 0.61
Sector Frame w/ Support Rail	B	From Leg	3.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice 1" Ice	8.50 12.26 16.02	9.75 13.18 16.61	0.36 0.48 0.61
Sector Frame w/ Support Rail	C	From Leg	3.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice 1" Ice	8.50 12.26 16.02	9.75 13.18 16.61	0.36 0.48 0.61
(3) V-Brace	C	None		0.0000	175.00	No Ice 1/2" Ice 1" Ice	6.70 13.84 20.97	6.70 13.84 20.97	0.23 0.56 0.88
***									
PC1N0F-0190B-002M [3.9x1.6]	A	From Leg	3.00 0.00 0.00	0.0000	30.00	No Ice 1/2" Ice 1" Ice	0.03 0.06 0.10	0.03 0.06 0.10	0.01 0.01 0.01
PC1N0F-0190B-002M [3.9x1.6]	B	From Leg	3.00 0.00 0.00	0.0000	30.00	No Ice 1/2" Ice 1" Ice	0.03 0.06 0.10	0.03 0.06 0.10	0.01 0.01 0.01
***									
FVV-65B-R3 (96.5x11.85x7.13) w/ Mount pipe	A	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	11.42 12.04 12.67	9.63 11.05 12.32	0.08 0.17 0.27
FVV-65B-R3 (96.5x11.85x7.13) w/ Mount pipe	B	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	11.42 12.04 12.67	9.63 11.05 12.32	0.08 0.17 0.27
FVV-65B-R3 (96.5x11.85x7.13) w/ Mount pipe	C	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	11.42 12.04 12.67	9.63 11.05 12.32	0.08 0.17 0.27
RF4450t-71A [16.5x15x11]	A	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.51 1.67 1.83	0.09 0.12 0.14
RF4450t-71A [16.5x15x11]	B	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.51 1.67 1.83	0.09 0.12 0.14
RF4450t-71A [16.5x15x11]	C	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.51 1.67 1.83	0.09 0.12 0.14
RF4451d-70A [15x15x8.9]	A	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22	1.11 1.25 1.39	0.06 0.08 0.10
RF4451d-70A [15x15x8.9]	B	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22	1.11 1.25 1.39	0.06 0.08 0.10
RF4451d-70A [15x15x8.9]	C	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	1.88 2.05 2.22	1.11 1.25 1.39	0.06 0.08 0.10
RDIDC-9181-PF-48 [16.57x14.57x8.15]	A	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	2.01 2.19 2.37	1.13 1.27 1.41	0.02 0.04 0.06
Commscope MTC3975083	A	From Leg	3.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	10.60 16.40 22.20	8.10 12.60 17.10	0.41 0.54 0.66
Commscope MTC3975083	B	From Leg	3.00	0.0000	150.00	No Ice	10.60	8.10	0.41

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	16.40	12.60	0.54
			0.00			1" Ice	22.20	17.10	0.66
Commscope MTC3975083	C	From Leg	3.00	0.0000	150.00	No Ice	10.60	8.10	0.41
			0.00			1/2" Ice	16.40	12.60	0.54
			0.00			1" Ice	22.20	17.10	0.66
(2) Empty Mount Pipe	A	From Leg	3.00	0.0000	150.00	No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
(2) Empty Mount Pipe	B	From Leg	3.00	0.0000	150.00	No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
(2) Empty Mount Pipe	C	From Leg	3.00	0.0000	150.00	No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05

Truss-Leg Properties

Section Designation	Area in^2	Area Ice in^2	Self Weight K	Ice Weight K	Equiv. Diameter in	Equiv. Diameter Ice in	Leg Area in^2
#12 - 1.25" - 1.00" conn. (Pirod 105244)	999.6067	2632.6682	0.59	0.36	6.9417	18.2824	3.6816
#12 - 1.50" - 1.00" conn. (Pirod 105217)	1907.4792	5512.2974	0.62	0.67	6.6232	19.1399	5.3014
#12 - 1.50" - 1.00" conn. (Pirod 105217)	1907.4792	5486.8299	0.62	0.66	6.6232	19.0515	5.3014
#12 - 1.75" - 1.25" conn. (Pirod 105218)	2269.1322	6102.1483	0.76	0.63	7.8789	21.1880	7.2158
#12 - 2.00" - 1.25" conn. (Pirod 105219)	2260.7557	5628.3939	1.03	0.64	7.8498	19.5430	9.4248
#12 - 2.00" - 1.25" conn. (Pirod 105219)	2260.7557	5588.0059	1.03	0.62	7.8498	19.4028	9.4248
#12 - 2.25" - 1.25" conn. (Pirod 105220)	2387.7320	5603.4756	1.20	0.61	8.2907	19.4565	11.9282
#12 - 2.25" - 1.25" conn. (Pirod 105220)	2387.7320	5535.5406	1.20	0.57	8.2907	19.2206	11.9282
#18 - 2.50" (Pirod 112738- Base Only)	3724.8211	6903.2459	1.82	0.76	12.9334	23.9696	14.7262

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

Comb. No.	Description
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service
51	1.2 Dead+1.0 Ev+1.0 Eh 0 deg
52	0.9 Dead-1.0 Ev+1.0 Eh 0 deg
53	1.2 Dead+1.0 Ev+1.0 Eh 30 deg
54	0.9 Dead-1.0 Ev+1.0 Eh 30 deg
55	1.2 Dead+1.0 Ev+1.0 Eh 60 deg
56	0.9 Dead-1.0 Ev+1.0 Eh 60 deg
57	1.2 Dead+1.0 Ev+1.0 Eh 90 deg
58	0.9 Dead-1.0 Ev+1.0 Eh 90 deg
59	1.2 Dead+1.0 Ev+1.0 Eh 120 deg
60	0.9 Dead-1.0 Ev+1.0 Eh 120 deg
61	1.2 Dead+1.0 Ev+1.0 Eh 150 deg
62	0.9 Dead-1.0 Ev+1.0 Eh 150 deg
63	1.2 Dead+1.0 Ev+1.0 Eh 180 deg
64	0.9 Dead-1.0 Ev+1.0 Eh 180 deg
65	1.2 Dead+1.0 Ev+1.0 Eh 210 deg

Comb. No.	Description
66	0.9 Dead-1.0 Ev+1.0 Eh 210 deg
67	1.2 Dead+1.0 Ev+1.0 Eh 240 deg
68	0.9 Dead-1.0 Ev+1.0 Eh 240 deg
69	1.2 Dead+1.0 Ev+1.0 Eh 270 deg
70	0.9 Dead-1.0 Ev+1.0 Eh 270 deg
71	1.2 Dead+1.0 Ev+1.0 Eh 300 deg
72	0.9 Dead-1.0 Ev+1.0 Eh 300 deg
73	1.2 Dead+1.0 Ev+1.0 Eh 330 deg
74	0.9 Dead-1.0 Ev+1.0 Eh 330 deg

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	193 - 185	5.617	50	0.2344	0.0427
T2	185 - 170	5.221	50	0.2335	0.0409
T3	170 - 160	4.472	50	0.2177	0.0290
T4	160 - 140	3.836	50	0.2143	0.0183
T5	140 - 120	2.744	50	0.1911	0.0068
T6	120 - 100	1.894	50	0.1508	0.0020
T7	100 - 80	1.264	44	0.1168	0.0017
T8	80 - 60	0.778	44	0.0899	0.0018
T9	60 - 40	0.426	44	0.0619	0.0016
T10	40 - 20	0.188	44	0.0398	0.0010
T11	20 - 0	0.042	44	0.0173	0.0004

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
193.00	Lightning Rod	50	5.617	0.2344	0.0427	32789
191.00	RR90-17-02DP [56x8x2.75] w/ mount pipe	50	5.516	0.2346	0.0424	32789
185.00	SL2	50	5.221	0.2335	0.0409	30211
182.00	7770 [55x11x5] w/ mount pipe	50	5.079	0.2311	0.0394	180560
175.00	APXVTM14-C-I20 (56.3"x12.6"x6.3") w/ mount pipe	50	4.743	0.2227	0.0340	10414
170.00	SL3	50	4.472	0.2177	0.0290	7377
160.00	(2) NHH-65B-R2B [71.97x11.85x7.1] w/ Mount Pipe	50	3.836	0.2143	0.0183	15232
150.00	FVV-65B-R3 (96.5x11.85x7.13) w/ Mount pipe	50	3.251	0.2063	0.0110	15431
140.00	SL5	50	2.744	0.1911	0.0068	23300
120.00	SL6	50	1.894	0.1508	0.0020	19679
100.00	KS24019-L112A [8x2x2]	44	1.264	0.1168	0.0017	39037
80.00	SL8	44	0.778	0.0899	0.0018	33855
60.00	SL9	44	0.426	0.0619	0.0016	41525
40.00	SL10	44	0.188	0.0398	0.0010	59590
30.00	PC1N0F-0190B-002M [3.9x1.6]	44	0.102	0.0283	0.0007	45349
20.00	SL11	44	0.042	0.0173	0.0004	37751

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	193 - 185	23.568	24	0.9814	0.1799
T2	185 - 170	21.910	24	0.9776	0.1724
T3	170 - 160	18.775	24	0.9105	0.1221
T4	160 - 140	16.117	24	0.8959	0.0769
T5	140 - 120	11.540	24	0.8017	0.0286
T6	120 - 100	7.971	24	0.6340	0.0085
T7	100 - 80	5.321	12	0.4916	0.0073
T8	80 - 60	3.273	12	0.3783	0.0078
T9	60 - 40	1.791	12	0.2606	0.0066
T10	40 - 20	0.789	12	0.1672	0.0044
T11	20 - 0	0.178	12	0.0728	0.0017

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
193.00	Lightning Rod	24	23.568	0.9814	0.1799	7854
191.00	RR90-17-02DP [56x8x2.75] w/ mount pipe	24	23.147	0.9823	0.1787	7854
185.00	SL2	24	21.910	0.9776	0.1724	7232
182.00	7770 [55x11x5] w/ mount pipe	24	21.317	0.9674	0.1661	42914
175.00	APXVTM14-C-I20 (56.3"x12.6"x6.3") w/ mount pipe	24	19.910	0.9320	0.1434	2501
170.00	SL3	24	18.775	0.9105	0.1221	1771
160.00	(2) NHH-65B-R2B [71.97x11.85x7.1] w/ Mount Pipe	24	16.117	0.8959	0.0769	3681
150.00	FVV-65B-R3 (96.5x11.85x7.13) w/ Mount pipe	24	13.668	0.8632	0.0464	3725
140.00	SL5	24	11.540	0.8017	0.0286	5622
120.00	SL6	24	7.971	0.6340	0.0085	4698
100.00	KS24019-L112A [8x2x2]	12	5.321	0.4916	0.0073	9308
80.00	SL8	12	3.273	0.3783	0.0078	8051
60.00	SL9	12	1.791	0.2606	0.0066	9866
40.00	SL10	12	0.789	0.1672	0.0044	14155
30.00	PC1N0F-0190B-002M [3.9x1.6]	12	0.428	0.1191	0.0030	10780
20.00	SL11	12	0.178	0.0728	0.0017	8977

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	193	Leg	A325N	0.6250	5	1.61	27.61	0.058 ✓	1	Bolt DS
T2	185	Leg	A325N	1.0000	6	6.04	54.52	0.111 ✓	1	Bolt Tension
T3	170	Leg	A325N	1.0000	6	7.12	54.52	0.131 ✓	1	Bolt Tension

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
		Diagonal	A325N	1.0000	1	7.44	10.66	0.698 ✓	1	Member Block Shear
T4	160	Leg	A325N	1.0000	6	15.46	54.52	0.284 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	9.88	11.68	0.846 ✓	1	Member Block Shear
T5	140	Leg	A325N	1.0000	6	22.74	54.52	0.417 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	8.97	11.68	0.768 ✓	1	Member Block Shear
T6	120	Leg	A325N	1.0000	6	28.89	54.52	0.530 ✓	1	Bolt Tension
		Diagonal	A325N	1.0000	1	8.29	19.47	0.426 ✓	1	Member Block Shear
T7	100	Leg	A325N >1"	1.2500	6	34.36	76.32	0.450 ✓	1	Bolt Tension
		Diagonal	A325N	1.2500	1	7.99	20.30	0.394 ✓	1	Member Block Shear
T8	80	Leg	A325N >1"	1.2500	6	39.47	76.32	0.517 ✓	1	Bolt Tension
		Diagonal	A325N	1.2500	1	8.31	23.70	0.351 ✓	1	Member Block Shear
T9	60	Leg	A325N >1"	1.2500	6	44.24	76.32	0.580 ✓	1	Bolt Tension
		Diagonal	A325N	1.2500	1	8.61	23.70	0.363 ✓	1	Member Block Shear
T10	40	Leg	A325N >1"	1.2500	12	24.52	76.32	0.321 ✓	1	Bolt Tension
		Diagonal	A325N	1.2500	1	10.15	23.70	0.428 ✓	1	Member Block Shear
T11	20	Diagonal	A325N	1.0000	2	8.56	35.53	0.241 ✓	1	Member Block Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	193 - 185	2	8.00	0.17	4.0 K=1.00	3.1416	-8.06	141.21	0.057 [1] ✓
T2	185 - 170	2	15.00	2.34	56.2 K=1.00	3.1416	-41.00	112.25	0.365 [1] ✓
T3	170 - 160	#12 - 1.25" - 1.00" conn. (Pirod 105244)	10.02	10.02	45.4 K=1.00	3.6816	-51.52	142.49	0.362 [1] ✓
T4	160 - 140	#12 - 1.50" - 1.00" conn. (Pirod 105217)	20.03	10.02	37.8 K=1.00	5.3014	-109.48	214.86	0.510 [1] ✓
T5	140 - 120	#12 - 1.50" - 1.00" conn. (Pirod 105217)	20.03	10.02	37.8 K=1.00	5.3014	-156.86	214.86	0.730 [1] ✓
T6	120 - 100	#12 - 1.75" - 1.25" conn. (Pirod 105218)	20.03	10.02	32.4 K=1.00	7.2158	-198.66	300.68	0.661 [1] ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T7	100 - 80	#12 - 2.00" - 1.25" conn. (Pirod 105219)	20.03	10.02	28.4 K=1.00	9.4248	-236.82	399.87	0.592 [1] ✓
T8	80 - 60	#12 - 2.00" - 1.25" conn. (Pirod 105219)	20.03	10.02	28.4 K=1.00	9.4248	-272.73	399.87	0.682 [1] ✓
T9	60 - 40	#12 - 2.25" - 1.25" conn. (Pirod 105220)	20.03	10.02	25.2 K=1.00	11.9282	-307.34	512.38	0.600 [1] ✓
T10	40 - 20	#12 - 2.25" - 1.25" conn. (Pirod 105220)	20.03	10.02	25.2 K=1.00	11.9282	-343.08	512.38	0.670 [1] ✓
T11	20 - 0	#18 - 2.50" (Pirod 112738-Base Only)	20.03	20.03	32.6 K=1.00	14.7262	-353.37	613.14	0.576 [1] ✓

[1] $P_u / \phi P_n$ controls

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in^2	V_u K	ϕV_n K	Stress Ratio
T3	170 - 160	0.5	1.48	121.0	165.67	0.1963	1.49	3.29	0.453 ✓
T4	160 - 140	0.5	1.47	120.0	238.56	0.1963	1.97	3.34	0.590 ✓
T5	140 - 120	0.5	1.47	120.0	238.56	0.1963	1.22	3.34	0.365 ✓
T6	120 - 100	0.5	1.46	119.0	324.71	0.1963	0.96	3.38	0.285 ✓
T7	100 - 80	0.625	1.45	94.4	424.12	0.3068	1.18	6.96	0.170 ✓
T8	80 - 60	0.625	1.45	94.4	424.12	0.3068	0.72	6.96	0.103 ✓
T9	60 - 40	0.625	1.43	93.6	536.77	0.3068	0.67	7.01	0.095 ✓
T10	40 - 20	0.625	1.43	93.6	536.77	0.3068	3.49	7.01	0.499 ✓
T11	20 - 0	0.75	1.73	93.9	662.68	0.4418	1.29	14.36	0.090 ✓

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	193 - 185	1	5.32	2.57	111.0 K=0.90	0.7854	-2.23	14.35	0.155 [1] ✓
T2	185 - 170	1	5.52	2.67	115.3 K=0.90	0.7854	-6.92	13.35	0.518 [1] ✓
T3	170 - 160	L2 1/2x2 1/2x3/16	9.89	5.19	125.8 K=1.00	0.9020	-8.06	16.32	0.494 [1] ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	160 - 140	L3x3x3/16	10.80	5.55	113.9 K=1.02	1.0900	-10.36	22.98	0.451 [1] ✔
T5	140 - 120	L3x3x3/16	11.98	6.10	122.8 K=1.00	1.0900	-9.04	20.56	0.440 [1] ✔
T6	120 - 100	L3x3x5/16	13.35	6.76	137.7 K=1.00	1.7800	-8.79	26.86	0.327 [1] ✔
T7	100 - 80	L3x3x5/16	14.68	7.36	149.9 K=1.00	1.7800	-8.47	22.66	0.374 [1] ✔
T8	80 - 60	L3 1/2x3 1/2x5/16	16.29	8.16	141.8 K=1.00	2.0900	-8.76	29.73	0.295 [1] ✔
T9	60 - 40	L3 1/2x3 1/2x5/16	17.97	8.99	156.4 K=1.00	2.0900	-8.77	24.45	0.358 [1] ✔
T10	40 - 20	L3 1/2x3 1/2x5/16	18.84	9.43	163.9 K=1.00	2.0900	-9.89	22.26	0.444 [1] ✔
T11	20 - 0	2L3 1/2x3 1/2x5/16x3/8 2L 'a' > 74.1952 in - 209	26.44	13.56	150.3 K=1.00	4.1800	-19.73	48.15	0.410 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	193 - 185	7/8	5.00	4.83	185.6 K=0.70	0.6013	-0.33	3.94	0.085 [1] ✔
T2	185 - 170	7/8	5.00	4.83	185.6 K=0.70	0.6013	-0.15	3.94	0.038 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	193 - 185	1 1/4	5.00	4.83	129.9 K=0.70	1.2272	-0.23	16.42	0.014 [1] ✔
T2	185 - 170	1 1/4	5.00	4.83	129.9 K=0.70	1.2272	-0.79	16.42	0.048 [1] ✔

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	193 - 185	1 1/4	5.00	4.83	129.9 K=0.70	1.2272	-0.79	16.42	0.048 [1] ✔
T2	185 - 170	1 1/4	5.00	4.83	129.9 K=0.70	1.2272	-2.03	16.42	0.123 [1] ✔

[1] P_u / ϕP_n controls

Mid Girt Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	193 - 185	1 1/4	5.00	4.83	129.9 K=0.70	1.2272	-0.41	16.35	0.025 [1] ✔
T2	185 - 170	1 1/4	5.00	4.83	129.9 K=0.70	1.2272	-0.31	16.42	0.019 [1] ✔

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	193 - 185	2	8.00	0.17	4.0	1.6775	4.52	81.78	0.055 [1] [#] ✔
T2	185 - 170	2	15.00	0.58	14.0	3.1416	36.22	141.37	0.256 [1] ✔
T3	170 - 160	#12 - 1.25" - 1.00" conn. (Pirod 105244)	10.02	10.02	45.4	3.6816	42.71	165.67	0.258 [1] ✔
T4	160 - 140	#12 - 1.50" - 1.00" conn. (Pirod 105217)	20.03	10.02	37.8	5.3014	92.78	238.56	0.389 [1] ✔
T5	140 - 120	#12 - 1.50" - 1.00" conn. (Pirod 105217)	20.03	10.02	37.8	5.3014	136.44	238.56	0.572 [1] ✔
T6	120 - 100	#12 - 1.75" - 1.25" conn. (Pirod 105218)	20.03	10.02	32.4	7.2158	173.37	324.71	0.534 [1] ✔
T7	100 - 80	#12 - 2.00" - 1.25" conn. (Pirod 105219)	20.03	10.02	28.4	9.4248	206.19	424.12	0.486 [1] ✔
T8	80 - 60	#12 - 2.00" - 1.25" conn. (Pirod 105219)	20.03	10.02	28.4	9.4248	236.85	424.12	0.558 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T9	60 - 40	#12 - 2.25" - 1.25" conn. (Pirod 105220)	20.03	10.02	25.2	11.9282	265.44	536.77	0.495 [1] ✓
T10	40 - 20	#12 - 2.25" - 1.25" conn. (Pirod 105220)	20.03	10.02	25.2	11.9282	294.28	536.77	0.548 [1] ✓
T11	20 - 0	#18 - 2.50" (Pirod 112738-Base Only)	20.03	20.03	32.6	14.7262	304.23	662.68	0.459 [1] ✓

[1] P_u / ϕP_n controls
[#] Based on net area of leg in section below

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	ϕP_n K	A in^2	V_u K	ϕV_n K	Stress Ratio
T3	170 - 160	0.5	1.48	121.0	165.67	0.1963	1.49	3.29	0.453 ✓
T4	160 - 140	0.5	1.47	120.0	238.56	0.1963	1.97	3.34	0.590 ✓
T5	140 - 120	0.5	1.47	120.0	238.56	0.1963	1.22	3.34	0.365 ✓
T6	120 - 100	0.5	1.46	119.0	324.71	0.1963	0.96	3.38	0.285 ✓
T7	100 - 80	0.625	1.45	94.4	424.12	0.3068	1.18	6.96	0.170 ✓
T8	80 - 60	0.625	1.45	94.4	424.12	0.3068	0.72	6.96	0.103 ✓
T9	60 - 40	0.625	1.43	93.6	536.77	0.3068	0.67	7.01	0.095 ✓
T10	40 - 20	0.625	1.43	93.6	536.77	0.3068	3.49	7.01	0.499 ✓
T11	20 - 0	0.75	1.73	93.9	662.68	0.4418	1.29	14.36	0.090 ✓

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	193 - 185	1	5.32	2.57	123.4	0.7854	2.18	35.34	0.062 [1] ✓
T2	185 - 170	1	5.52	2.67	128.1	0.7854	6.84	35.34	0.193 [1] ✓
T3	170 - 160	L2 1/2x2 1/2x3/16	9.89	5.19	83.2	0.5183	7.44	22.55	0.330 [1] ✓
T4	160 - 140	L3x3x3/16	10.80	5.55	73.6	0.6593	9.88	28.68	0.344 [1] ✓
T5	140 - 120	L3x3x3/16	11.36	5.81	76.9	0.6593	8.97	28.68	0.313 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T6	120 - 100	L3x3x5/16	13.35	6.76	90.7	1.0713	8.29	46.60	0.178 [1]
T7	100 - 80	L3x3x5/16	14.68	7.36	99.0	1.0127	7.99	44.05	0.181 [1]
T8	80 - 60	L3 1/2x3 1/2x5/16	16.29	8.16	93.4	1.2452	8.31	54.17	0.153 [1]
T9	60 - 40	L3 1/2x3 1/2x5/16	17.97	8.99	102.7	1.2452	8.61	54.17	0.159 [1]
T10	40 - 20	L3 1/2x3 1/2x5/16	19.72	9.86	112.4	1.2452	10.15	54.17	0.187 [1]
T11	20 - 0	2L3 1/2x3 1/2x5/16x3/8 2L 'a' > 74.1952 in - 212	26.44	13.56	153.9	2.6077	17.13	113.43	0.151 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	193 - 185	7/8	5.00	4.83	265.1	0.6013	0.38	19.48	0.020 [1]
T2	185 - 170	7/8	5.00	4.83	265.1	0.6013	0.31	19.48	0.016 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	193 - 185	1 1/4	5.00	4.83	185.6	1.2272	0.18	55.22	0.003 [1]
T2	185 - 170	1 1/4	5.00	4.83	185.6	1.2272	0.79	55.22	0.014 [1]

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	193 - 185	1 1/4	5.00	4.83	185.6	1.2272	0.83	55.22	0.015 [1] ✔
T2	185 - 170	1 1/4	5.00	4.83	185.6	1.2272	2.08	55.22	0.038 [1] ✔

[1] $P_u / \phi P_n$ controls

Mid Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	193 - 185	1 1/4	5.00	4.83	185.6	1.2272	0.44	39.76	0.011 [1] ✔
T2	185 - 170	1 1/4	5.00	4.83	185.6	1.2272	0.54	55.22	0.010 [1] ✔

[1] $P_u / \phi P_n$ controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	193 - 185	Leg	2	1	-8.06	141.21	5.7 5.8 (b)	Pass
T2	185 - 170	Leg	2	41	-41.00	112.25	36.5	Pass
T3	170 - 160	Leg	#12 - 1.25" - 1.00" conn. (Pirod 105244)	91	-50.90	142.49	45.3	Pass
T4	160 - 140	Leg	#12 - 1.50" - 1.00" conn. (Pirod 105217)	101	-79.65	214.86	59.0	Pass
T5	140 - 120	Leg	#12 - 1.50" - 1.00" conn. (Pirod 105217)	117	-156.86	214.86	73.0	Pass
T6	120 - 100	Leg	#12 - 1.75" - 1.25" conn. (Pirod 105218)	132	-198.66	300.68	66.1	Pass
T7	100 - 80	Leg	#12 - 2.00" - 1.25" conn. (Pirod 105219)	147	-236.82	399.87	59.2	Pass
T8	80 - 60	Leg	#12 - 2.00" - 1.25" conn. (Pirod 105219)	162	-272.73	399.87	68.2	Pass
T9	60 - 40	Leg	#12 - 2.25" - 1.25" conn. (Pirod 105220)	177	-307.34	512.38	60.0	Pass
T10	40 - 20	Leg	#12 - 2.25" - 1.25" conn. (Pirod 105220)	192	-343.08	512.38	67.0	Pass
T11	20 - 0	Leg	#18 - 2.50" (Pirod 112738- Base Only)	207	-353.37	613.14	57.6	Pass
T1	193 - 185	Diagonal	1	14	-2.23	14.35	15.5	Pass
T2	185 - 170	Diagonal	1	52	-6.92	13.35	51.8	Pass
T3	170 - 160	Diagonal	L2 1/2x2 1/2x3/16	96	-8.06	16.32	49.4 69.8 (b)	Pass
T4	160 - 140	Diagonal	L3x3x3/16	105	-10.36	22.98	45.1 84.6 (b)	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T5	140 - 120	Diagonal	L3x3x3/16	120	-9.04	20.56	44.0	Pass
T6	120 - 100	Diagonal	L3x3x5/16	135	-8.79	26.86	76.8 (b) 32.7	Pass
T7	100 - 80	Diagonal	L3x3x5/16	150	-8.47	22.66	42.6 (b) 37.4	Pass
T8	80 - 60	Diagonal	L3 1/2x3 1/2x5/16	165	-8.76	29.73	39.4 (b) 29.5	Pass
T9	60 - 40	Diagonal	L3 1/2x3 1/2x5/16	180	-8.77	24.45	35.1 (b) 35.8	Pass
T10	40 - 20	Diagonal	L3 1/2x3 1/2x5/16	202	-9.89	22.26	36.3 (b) 44.4	Pass
T11	20 - 0	Diagonal	2L3 1/2x3 1/2x5/16x3/8	209	-19.73	48.15	41.0	Pass
T1	193 - 185	Horizontal	7/8	32	-0.33	3.94	8.5	Pass
T2	185 - 170	Horizontal	7/8	84	-0.15	3.94	3.8	Pass
T1	193 - 185	Top Girt	1 1/4	5	-0.23	16.42	1.4	Pass
T2	185 - 170	Top Girt	1 1/4	43	-0.79	16.42	4.8	Pass
T1	193 - 185	Bottom Girt	1 1/4	9	-0.79	16.42	4.8	Pass
T2	185 - 170	Bottom Girt	1 1/4	47	-2.03	16.42	12.3	Pass
T1	193 - 185	Mid Girt	1 1/4	11	-0.41	16.35	2.5	Pass
T2	185 - 170	Mid Girt	1 1/4	48	-0.31	16.42	1.9	Pass
							Summary	
						Leg (T5)	73.0	Pass
						Diagonal (T4)	84.6	Pass
						Horizontal (T1)	8.5	Pass
						Top Girt (T2)	4.8	Pass
						Bottom Girt (T2)	12.3	Pass
						Mid Girt (T1)	2.5	Pass
						Bolt Checks	84.6	Pass
						RATING =	**84.6**	**Pass**

Loading for Seismic Analysis - Rev H (2.7.7.1 Equivalent Lateral Force Procedure) *V3.0 - 03/13/2020*

Project# : CT01105-VZW-031424

Analysis complete

Tower Data	
Tower type :	SST
Height (ft) :	193
Base face width (ft) :	22
Number of sections :	11

Structure Date	
Risk category :	II
Site class :	D (default)
Seismic Date	
Short period (S_s):	0.197
1sec period (S_1) :	0.054
Long period transition (T_L) (Fig B-19):	6

I =	1.00
F_a =	1.60
F_v =	2.40
T (sec) =	0.83
R =	3.00
Ke =	1.17
C_s =	0.05
V_s (kip) =	3.60
Ts (sec) =	0.41

Note:

1: Get self weight & add weight (feedline) from "Mast Forces table (tnxTower Reports)"

2: Get appurtenance weight from "Appurt. Pressure table (tnxTower Reports)"

3: Get the guy weight from "WEIGHTAUXDATA" excel file from the tnx out put files

								Tnx User Forces	
Section	Top Elev	Top width	Self Weight	Add Weight (feedline)	Appurtenance Weight	Guy Weight	Total Weight	E_h (F_x)	*E_v
	ft	ft	kip	kip	kip	kip	kip	kip	kip
1	193	5	0.7	0.14	3.825		4.67	**0.44**	**0.20**
2	185	5	1.3	0.64	6.13		8.07	**0.79**	**0.34**
3	170	5	1.07	0.59	2.58		4.24	**0.34**	**0.18**
4	160	6	2.43	1.64	3.54		7.61	**0.62**	**0.32**
5	140	8	2.49	1.73			4.22	**0.27**	**0.18**
6	120	10	3.4	1.73			5.13	**0.28**	**0.22**
7	100	12	4.09	1.74	0.01		5.84	**0.27**	**0.25**
8	80	14	4.45	1.74			6.19	**0.22**	**0.26**
9	60	16	5.41	1.74			7.15	**0.19**	**0.30**
10	40	18	5.29	1.74	0.02		7.05	**0.11**	**0.30**
11	20	20	7.89	1.31			9.20	**0.07**	**0.39**
		11.8	*38.52*	*14.74*	*16.1*		*69.36*	*3.60*	

V3.6 - 08/10/2021

Self Support Anchor Bolt Check

Project Information

SBA Project # :	CT01105-VZW-031424
Code :	II

Leg Reaction

Uplift(kips):	323	Shear (kips) :	37
Comp(kips):	380	Shear (kips) :	45

Grout

- [x] 5,000 psi Grout Present
- [x] Use Section 15.7 exemption

Strength Reduction Factors

Tension :	0.75
Compression :	0.90
Shear :	0.75
Flexure :	0.9

Bolt Capacity : 37.5% ***Pass***

Bolt Information

Quantity :	6
Diameter (in) :	2
Assumed lar (in) :	3
Bolt Fy (ksi) :	105
Bolt Fu (AISC Table 2-6) (ksi):	125
# of threads (AISC Table 7-17) :	4.5

TES Tower Engineering Solutions	Mat Foundation Design for Self Supporting Tower			Date
				3/14/2024
	Customer Name:	SBA Communications Corp	TIA Standard:	TIA-222-H
	Site Name:	Bozrah	Structure Height (Ft.):	193
	Site Nmber:	CT01105-S	Engineer Name:	B. Parreira
	Engr. Number:		Engineer Login ID:	

Foundation Info Obtained from: Drawings/Calculations

Analysis or Design? Analysis

Number of Tower Legs: 3 Legs

Base Reactions (Factored):

(1). Individual Leg:

Axial Load (Kips):	380.0	Uplift Force (Kips):	323.0
Shear Force (Kips):	45.0		

(2). Tower Base:

Total Vertical Load (Kips):	82.0	Total Shear Force (Kips):	58.0
Moment (Kips-ft):	6927.0		

Foundation Geometries:

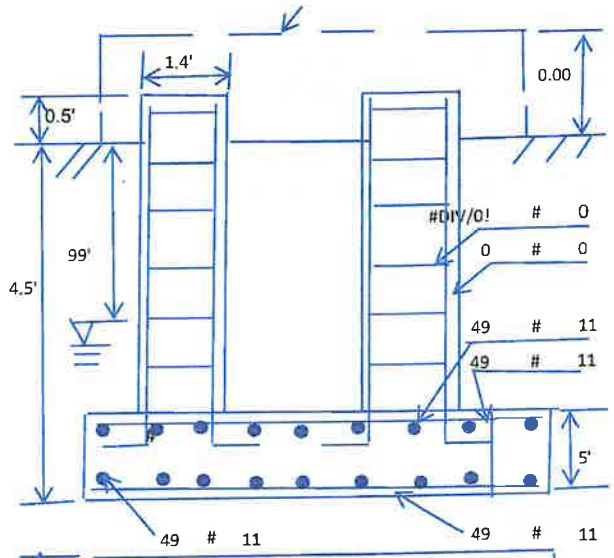
Leg distance (Center-to-Center ft.):		22.0	Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	Round	1.3	Pier Height A. G. (ft.):	0.50
Tower center to mat center (ft):		3.18	Depth of Base BG (ft.):	4.5
Length of Pad (ft.):		32.5	Width of Pad (ft.):	32.5
Thickness of Pad (ft):		5.00		

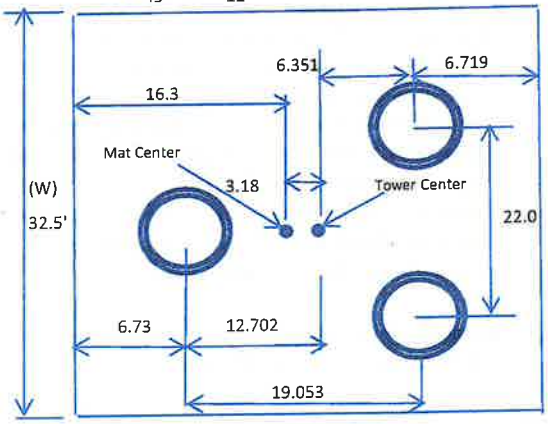
Material Properties and Reabr Info:

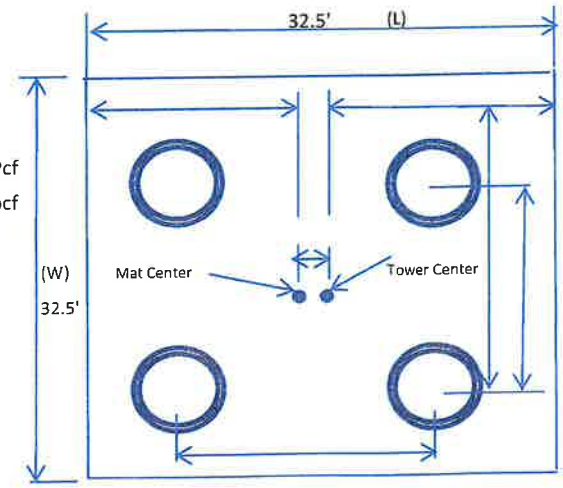
Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)		Tie steel yield (ksi):		
Vertical Rebar Size #:		Tie / Stirrup Size #:		
Qty. of Vertical Rebars:		Tie Spacing (in):		
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	11	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	49	Qty. of Rebar in Pad (W):	49	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	49	Qty. of Rebar in Pad (W):	49	

Soil Design Parameters:

Soil Unit Weight (pcf):	120.0	Soil Buoyant Weight:	50.0	Pcf
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf
Ultimate Bearing Pressure (psf):	40000	Consider ties in concrete shear strength:		
Consider Soil Lateral Resistance ?	No			







Factor 1.35 for P/M, per G.R. 1.35

Foundation Analysis and Design:	Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75		
Total Dry Soil Volume (cu. Ft.):		2.10	Total Dry Soil Weight (Kips):	0.25		
Total Buoyant Soil Volume (cu. Ft.):		0.00	Total Buoyant Soil Weight (Kips):	0.00		
Total Effective Soil Weight (Kips):		0.25	Weight from the Concrete Block at Top (K):	0.00		
Total Dry Concrete Volume (cu. Ft.):		5283.34	Total Dry Concrete Weight (Kips):	792.50		
Total Buoyant Concrete Volume (cu. Ft.):		0.00	Total Buoyant Concrete Weight (Kips):	0.00		
Total Effective Concrete Weight (Kips):		792.50	Total Vertical Load on Base (Kips):	874.75		
Check Soil Capacities:					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):		2435.21	< Allowable Factored Soil Bearing (psf):	30000	0.08	OK!
Allowable Foundation Overturning Resistance (kips-ft.):		12926.5	> Design Factored Momont (kips-ft):	7507	0.58	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):		1.72	OK!			
Check the capacities of Reinforceing Concrete:						
Strength reduction factor (Flexure and axial tension):		0.90	Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compresion):		0.65	Wind Load Factor on Concrete Design:	1.00		

(2).Concrete Pad:

One-Way Design Shear Capacity (L or W Direction, Kips):	2083.5	>	One-Way Factored Shear (L/W-Dir Kips)	297.3	0.14	OK!
One-Way Design Shear Capacity (Diagonal Dir., Kips):	1788.3	>	One-Way Factored Shear (Dia. Dir, Kips	430.8	0.24	OK!
Lower Steel Pad Reinforcement Ratio (L or W-Direct.):	0.0035		Lower Steel Reinf. Ratio (Dia. Dir.):	0.0030		
Lower Steel Pad Moment Capacity (L or W-Dir. Kips-ft):	18775.5	>	Moment at Bottom (L-Direct. K-Ft):	1769.9	0.09	OK!
Lower Steel Pad Moment Capacity (Dia. Direction,K-ft):	18855.2	>	Moment at Bottom (Dia. Dir. K-Ft):	3104.2	0.16	OK!
Upper Steel Pad Reinforcement Ratio (L or W -Direction):	0.0035		Upper Steel Reinf. Ratio (Dia. Dir.):	0.0030		
Upper Steel Pad Moment Capacity (L or W-Dir., Kips-ft):	18775.5	>	Moment at the top (L-Dir Kips-Ft):	901.2	0.05	OK!
Upper Steel Pad Moment Capacity (Dia. Direction, K-ft):	18855.2	>	Moment at the top (Dia. Dir., K-Ft):	1228.3	0.07	OK!
Punching Failure Capacity From Down Load (Kips):	2425.9	>	Punch. Failure Factored Shear (K):	380.0	0.16	OK!
Punching Failure Capacity From Uplift (Kips):	2224.5	>	Punch. Failure Factored Shear (K):	323.0	0.15	OK!

(3). Check Max. eccentricity of Loading:

The maximum eccentricity of Loading:	8.58	ft.	Allowable eccentricity (0.45 W, ft.):	14.625	OK!

Reinforce Concrete Pad by enlarging the size of pier (Yes/No): No

ANTENNA MOUNT REINFORCEMENT NOTE:
PRIOR TO THE COMMENCEMENT OF THE UPGRADE WORK SHOWN ON THESE DRAWINGS, THE EXISTING VERIZON TRI-SECTOR ANTENNA MOUNTING FRAME LOCATED ON THE EXISTING SELF-SUPPORT TOWER SHALL BE REINFORCED AS PER THE MOUNT MODIFICATION DRAWINGS PREPARED BY COLLIERS ENGINEERING & DESIGN (PROJECT #20777639).

SBA APPROVED
By Stephen Roth at 11:46:32 AM, 4/16/2024

verizon

20 ALEXANDER DRIVE, 2nd FLOOR
WALLINGFORD, CT 06492

BOZRAH EAST CT

161 GIFFORD LANE
BOZRAH, CT 06334
NEW LONDON COUNTY

PROJECT TYPE: UPGRADE TO EXISTING WIRELESS TELECOMMUNICATIONS INSTALLATION ON EXISTING 196'± SELF-SUPPORT TOWER

SUPPORTING DOCUMENTS

RADIO FREQUENCY (RF) DESIGN DATE: 02/27/24

ANTENNA MOUNT STRUCTURAL ANALYSIS DATE: 02/06/24 (BY COLLIERS ENGINEERING & DESIGN)

ANTENNA SUPPORT STRUCTURE (196'± SELF-SUPPORT TOWER) STRUCTURAL ANALYSIS DATE: 03/14/24 (BY SBA COMMUNICATIONS CORPORATION)

SITE INFORMATION

VERIZON LOCATION CODE:	467314
VERIZON SITE NAME:	BOZRAH EAST CT
SBA SITE NUMBER:	CT01105-S
SBA SITE NAME:	BOZRAH EAST CT
SBA COLLO APP NUMBER:	248314, V1
MDG LOCATION ID:	500024461B
FUZE PROJECT ID:	16244580
SITE ADDRESS:	161 GIFFORD LANE BOZRAH, CT 06334
PROPERTY OWNER:	NATHAN G. ADELMAN 30 BOZRAH STREET BOZRAH, CT 06334-1300
TOWER OWNER:	SBA TOWERS, LLC 8051 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9525
COUNTY	NEW LONDON COUNTY, CT
ZONING DISTRICT:	(R-1) RESIDENTIAL-1
STRUCTURE TYPE:	SELF-SUPPORT TOWER
STRUCTURE HEIGHT:	196'±
STRUCTURE HEIGHT W/APPURTENANCE:	200'±
GROUND ELEVATION:	451'±
TOTAL AMSL:	651'±
SITE CONTROL POINT:	CENTER OF EXISTING SELF-SUPPORT TOWER N 41°33'-09.00" (41.5525°) (NAD 83) W 72°-07'-02.50" (72.1007°) (NAD 83)
ARCHITECT/ENGINEER:	CHAPPELL ENGINEERING ASSOCIATES, LLC 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752

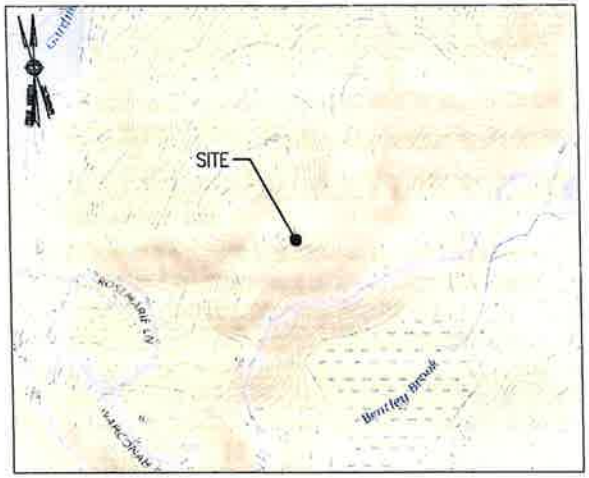
GENERAL NOTES

1. CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACES THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
2. NEW CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
   - BUILDING CODE: 2022 CONNECTICUT STATE BUILDING CODE
   - ELECTRICAL CODE: 2020 NATIONAL ELECTRICAL CODE
   - STRUCTURAL CODE: TIA/EIA-222-H STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS

AT LEAST 72 HOURS PRIOR TO DIGGING, THE CONTRACTOR IS REQUIRED TO CALL DIG SAFE AT 811

VICINITY MAP

SCALE: 1"=1000'



DRIVING DIRECTIONS

FROM WALLINGFORD, TAKE CT-15 NORTH TOWARD HARTFORD. CONTINUE STRAIGHT ONTO US-5 NORTH/BERLIN TURNPIKE. TURN RIGHT ONTO RAMP FOR CT-9 SOUTH TOWARD MIDDLETOWN. MERGE ONTO CT-9 SOUTH. TAKE EXIT 29A FOR I-91 NORTH TOWARD HARTFORD/SPRINGFIELD. TAKE EXIT ONTO CT-9 NORTH TOWARD GLASTONBURY. USE RIGHT LANE TO MERGE ONTO CT-2 EAST TOWARD NORWICH. TAKE EXIT 2C FOR CT-163 TOWARD BOZRAH/MONTVILLE. CONTINUE ONTO CT-163 SOUTH/BOZRAH STREET. TURN LEFT ONTO GAGER ROAD. TURN LEFT ONTO GIFFORD LANE. THE SITE IS LOCATED ON THE LEFT HAND SIDE.

SHEET INDEX

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A04	SITE DETAILS	1
RF01	RF DATA	1
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RF03	RF COLOR CODE SPECIFICATIONS	1
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DO NOT SCALE DRAWINGS

ALL PLANS, EXISTING DIMENSIONS AND CONDITIONS AT THE PROPOSED PROJECT SITE SHALL BE VERIFIED IN THE FIELD DURING THE CONSTRUCTION PHASE. THE PROJECT OWNER'S REPRESENTATIVE SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES IMMEDIATELY PRIOR TO PROCEEDING WITH THE PROPOSED WORK AFFECTED BY SUCH DISCREPANCIES. IN THE EVENT OF LACK OF SUCH NOTIFICATION, SUCH DISCREPANCIES SHALL BECOME THE RESPONSIBILITY OF THE PREVAILING CONTRACTOR RESPONSIBLE FOR CONSTRUCTION.

PROJECT DESCRIPTION

1. THIS IS AN UNMANNED AND RESTRICTED ACCESS EQUIPMENT INSTALLATION AND WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNAL FOR THE PURPOSE OF PROVIDING PUBLIC WIRELESS TELECOMMUNICATIONS SERVICE.
2. THIS FACILITY DOES NOT, NOR WILL IT CONSUME UNRECOVERABLE ENERGY.
3. NO PORTABLE WATER SUPPLY IS OR WILL BE PROVIDED AT THIS LOCATION.
4. NO WASTE WATER IS OR WILL BE GENERATED AT THIS LOCATION.
5. NO SOLID WASTE IS OR WILL BE GENERATED AT THIS LOCATION.

SCOPE OF WORK

REMOVE:
- (3) MOUNT TIEBACKS
- (12) ANTENNAS
- (6) RADIOS
- (2) JUNCTION BOXES (6 CVP)

INSTALL:
- MOUNT REINFORCEMENTS
- (6) ANTENNAS
- (6) RADIOS
- (1) JUNCTION BOX (12 CVP)

verizon
20 ALEXANDER DRIVE, 2ND FLOOR
WALLINGFORD, CT 06492
(203) 741-7336

SBA
SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
(508) 251-0720

CHAPPELL ENGINEERING ASSOCIATES, LLC
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST, SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com

STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25897
LICENSED
PROFESSIONAL CIVIL ENGINEER
4/16/2024

CHECKED BY: JMF
APPROVED BY: JMF

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	04/11/24	ISSUED FOR CONSTRUCTION	CSC
0	04/02/24	ISSUED FOR REVIEW	CSC

PROJECT NAME & ADDRESS
BOZRAH EAST CT
161 GIFFORD LANE
BOZRAH, CT 06334

VZW LOCATION CODE:	467314
MDG LOCATION ID:	500024461B
FUZE PROJECT ID:	16244580

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T01

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR – VERIZON WIRELESS
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – VERIZON WIRELESS
   OEM – ORIGINAL EQUIPMENT MANUFACTURER

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR 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 CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY BEARING THE PERFORMANCE OF THE WORK.

4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

5. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.

11. SUBCONTRACTOR 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.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. THE SUBCONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE SUBCONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.

14. SUBCONTRACTOR SHALL NOTIFY CHAPPELL ENGINEERING ASSOCIATES, LLC. 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACK FILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS & POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEERING REVIEW.

15. CONSTRUCTION SHALL COMPLY WITH VERIZON WIRELESS NETWORK STANDARD #NSTD123 TO THE MAXIMUM EXTENT FEASIBLE UNLESS PRECLUDED OR LIMITED BY DESIGN SHOWN ON THESE DRAWINGS.

16. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

17. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

18. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

SITE WORK GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.

2. 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 ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING HOLES AROUND OR NEAR UTILITIES. SUBCONTRACTOR 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 & EXCAVATION.

3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.

4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

5. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.

6. 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.

7. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.

8. 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 ENGINEERING, OWNER AND/OR LOCAL UTILITIES.

9. 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 IN THE PROJECT SPECIFICATIONS.

10. SUBCONTRACTOR 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.

11. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE VERIZON WIRELESS SPECIFICATION FOR SITE SIGNAGE.

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.

2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (4000PSI) MAY BE USED. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301 CODE REQUIREMENTS

3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE, WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.

4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST EARTH.....3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER .....2 IN.
   #5 AND SMALLER & WWF .....1½ IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALL .....¾ IN.
   BEAMS AND COLUMNS .....1½ IN.

5. A CHAMFER ¾" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.6.

6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR ENGINEERING APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY RAWLET/REDHEAD OR APPROVED EQUAL.

7. CONCRETE CYLINDER TEST IS NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC1905.6.2.3) IN THAT EXCEPT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER;
   (A) RESULTS OF CONCRETE CYLINDER TEST PERFORMED AT THE SUPPLIERS PLANT.
   (B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.
FOR GREATER THAN 50 CUBIC YARDS THE QC SHALL PERFORM THE CONCRETE CYLINDER TEST.

8. AS AN ALTERNATIVE TO ITEM 7. TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.

9. EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS AND VERIZON WIRELESS SPECIFICATION 25252-000-3PS-GET-00001 UNLESS OTHERWISE NOTED. STRUCTURAL STEEL SHALL BE ASTM-A-36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".

2. ALL WELDING SHALL BE PERFORMED USING E7XXX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION. PAINTED SURFACES SHALL BE TOUCHED UP.

3. BOLTED CONNECTIONS SHALL USE BEARING TYPE ASTM A325 BOLTS (¾"Ø) AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.

4. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE ⅝" DIA. ASTM A 307 BOLTS UNLESS NOTED OTHERWISE.

5. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHORS SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO THE MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY RAWLET/REDHEAD OR APPROVED EQUAL.

6. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL.

7. ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

1. EXCAVATE AS REQUIRED TO REMOVE VEGETATION AND TOPSOIL TO EXPOSE NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.

2. COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.

3. AS AN ALTERNATE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.

4. COMPACTED SUBBASE SHALL BE UNIFORM AND LEVELED. PROVIDE 8" MINIMUM CRUSHED STONE OR GRAVEL COMPACTED IN 3" LIFTS ABOVE COMPACTED SOIL. GRAVEL SHALL BE NATURAL OR CRUSHED WITH 100% PASSING #1 SIEVE.

5. AS AN ALTERNATE TO ITEMS 2 AND 3, THE SUBGRADE SOILS WITH 5 PASSES OR A MEDIUM SIZED VIBRATORY PLATE COMPACTOR (SUCH AS BOMAG BPR 30/38) OR HAND-OPERATED SINGLE DRUM VIBRATORY ROLLER (SUCH AS BOMAG BW 35C). AND SOFT AREAS THAT ARE ENCOUNTERED SHOULD BE REMOVED AND REPLACED WITH A WELL-GRADED GRANULAR FILL AND COMPACTED AS STATED ABOVE.

COMPACTION EQUIPMENT:

1. HAND OPERATED DOUBLE DRUM, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR.

CONSTRUCTION NOTES:

1. FIELD VERIFICATION:
SUBCONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, VERIZON WIRELESS ANTENNA PLATFORM LOCATION AND ANTENNAS TO BE REPLACED.

2. COORDINATION OF WORK:
SUBCONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH CONTRACTOR.

3. CABLE LADDER RACK:
SUBCONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BTS LOCATION.

ELECTRICAL INSTALLATION NOTES:

1. WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.

2. SUBCONTRACTOR SHALL MODIFY EXISTING CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLING TO THE NEW BTS EQUIPMENT. SUBCONTRACTOR SHALL SUBMIT MODIFICATIONS TO CONTRACTOR FOR APPROVAL.

3. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TELCORDIA.

4. CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.

5. EACH END OF EVERY POWER, GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC & OSHA, AND MATCH EXISTING INSTALLATION REQUIREMENTS.

6. POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, ¾ INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC & OSHA AND MATCH EXISTING INSTALLATION REQUIREMENTS

7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANEL BOARD AND CIRCUIT ID'S).

8. PANEL BOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.

9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.

10. POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELLED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELLED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

12. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #3 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.

13. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.

14. 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 AT NO LESS THAN 75°C (90°C IF AVAILABLE).

15. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.

16. NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.

17. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40, OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

18. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

19. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE

20. RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND, DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.

21. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

22. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.

23. CABINETS, BOXES, AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.

24. CABINETS, BOXES, AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.

25. WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE HOFFMAN TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.

26. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS

27. 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 RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

28. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

29. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

30. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.

31. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.

32. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.

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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 29997
LICENSED
PROFESSIONAL CIVIL ENGINEER
4/6/2024

CHECKED BY: JMF

APPROVED BY: JMF

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	04/11/24	ISSUED FOR CONSTRUCTION	CMC
0	04/02/24	ISSUED FOR REVIEW	CMC

PROJECT NAME & ADDRESS

BOZRAH EAST CT

131 GIFFORD LANE
BOZRAH, CT 06334

VZW LOCATION CODE: 467314

MDG LOCATION ID: 10004004619

FUZE PROJECT ID: 10004004619

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN01

SITE PLAN
SCALE: 1" = 50'-0"
1
A01
0 50' 100' 150'

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20 ALEXANDER DRIVE, 2ND FLOOR
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4/3/2024

CHECKED BY: JMT
APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	04/11/24	ISSUED FOR CONSTRUCTION	CMC
0	04/02/24	ISSUED FOR REVIEW	CMC

PROJECT NAME & ADDRESS
BOZRAH EAST CT
131 GIFFORD LANE
BOZRAH, CT 06334

VZW LOCATION CODE:	457314
MDG LOCATION ID:	[illegible]
FUZE PROJECT ID:	[illegible]

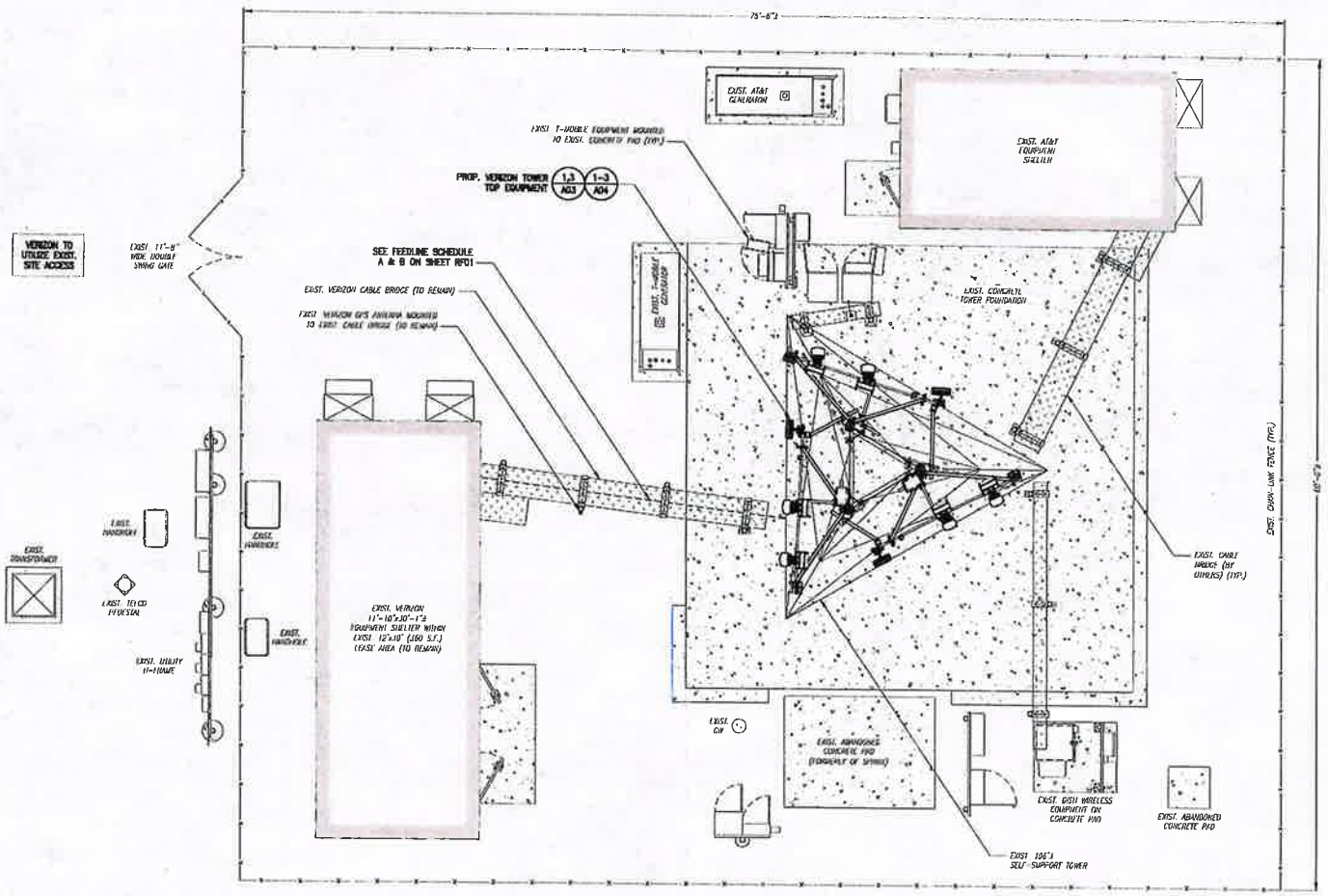
SHEET TITLE
SITE PLAN

SHEET NUMBER
A01

SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.

SPECIAL CONSTRUCTION NOTE (SBA-PROVIDED ANTENNA MOUNT STRUCTURAL MOD SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT THE VERIZON RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

ANTENNA MOUNT REINFORCEMENT NOTE:
PRIOR TO THE COMMENCEMENT OF THE UPGRADE WORK SHOWN ON THESE DRAWINGS, THE EXISTING VERIZON TRI-SECTOR ANTENNA MOUNTING FRAME LOCATED ON THE EXISTING SELF-SUPPORT TOWER SHALL BE REINFORCED AS PER THE MOUNT MODIFICATION DRAWINGS PREPARED BY COLLIERS ENGINEERING & DESIGN (PROJECT #20777639).



COMPOUND PLAN
SCALE: 1/4" = 1'-0"
0 4'-0" 8'-0" 12'-0"
1 A02

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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25967
LICENSED PROFESSIONAL CIVIL ENGINEER
4/11/2024

CHECKED BY: JMT
APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	04/11/24	ISSUED FOR CONSTRUCTION	CHC
0	04/02/24	ISSUED FOR REVIEW	CHC

PROJECT NAME & ADDRESS
BOZRAH EAST CT
131 GIFFORD LANE
BOZRAH, CT 06334

VZW LOCATION CODE: 487314
MDG LOCATION ID: [illegible]
FUZE PROJECT ID: [illegible]

SHEET TITLE
COMPOUND PLAN

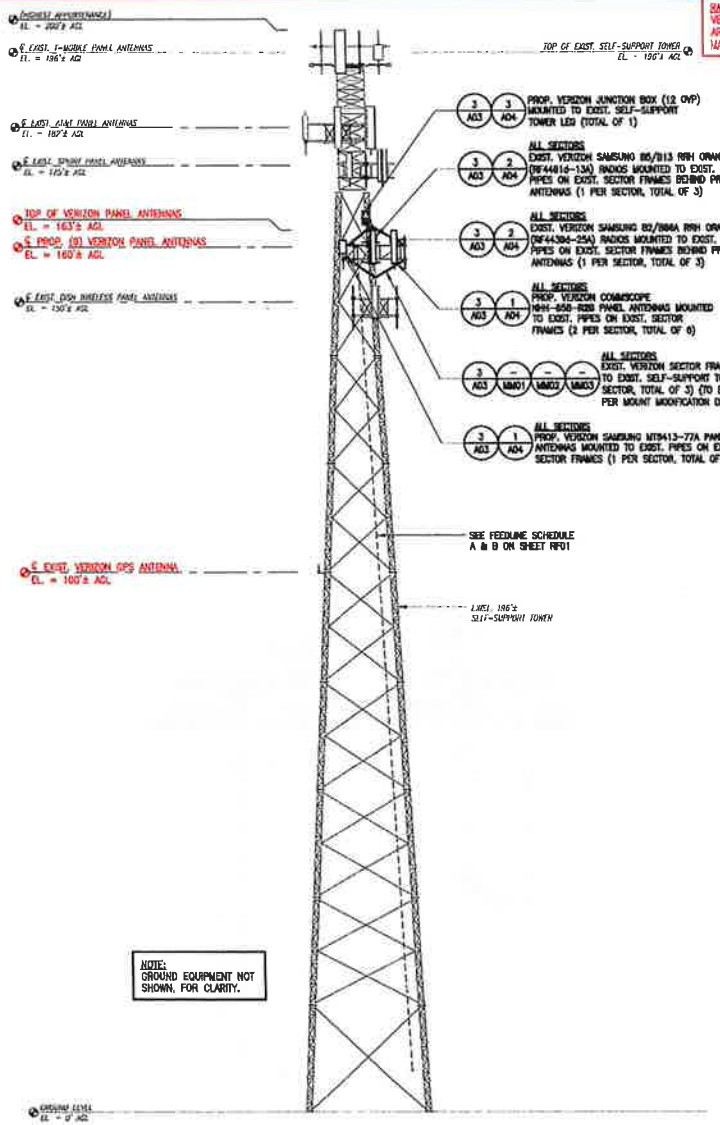
SHEET NUMBER
A02

SPECIAL CONSTRUCTION NOTE (SBA-PROVIDED ANTENNA MOUNT STRUCTURAL MOD SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT THE VERIZON RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.

RAD CENTER NOTE:
VERIZON ANTENNA AND MOUNT RAD CENTER SHOWN IN ELEVATION ARE ACCORDING TO STRUCTURAL ANALYSIS DONE BY OTHERS AND MAY DIFFER FROM RAD CENTER ON RFDS PROVIDED BY VERIZON.

ANTENNA MOUNT REINFORCEMENT NOTE:
PRIOR TO THE COMMENCEMENT OF THE UPGRADE WORK SHOWN ON THESE DRAWINGS, THE EXISTING VERIZON TRI-SECTOR ANTENNA MOUNTING FRAME LOCATED ON THE EXISTING SELF-SUPPORT TOWER SHALL BE REINFORCED AS PER THE MOUNT MODIFICATION DRAWINGS PREPARED BY COLLIERS ENGINEERING & DESIGN (PROJECT #20777639).



NOTE:
GROUND EQUIPMENT NOT SHOWN, FOR CLARITY.

TOWER ELEVATION
SCALE: 3/32" = 1'-0"
0 10'-8" 21'-4" 32'-0"

3 A03 3 A04 PROP. VERIZON JUNCTION BOX (12 CWP) MOUNTED TO EXIST. SELF-SUPPORT TOWER LEG (TOTAL OF 1)

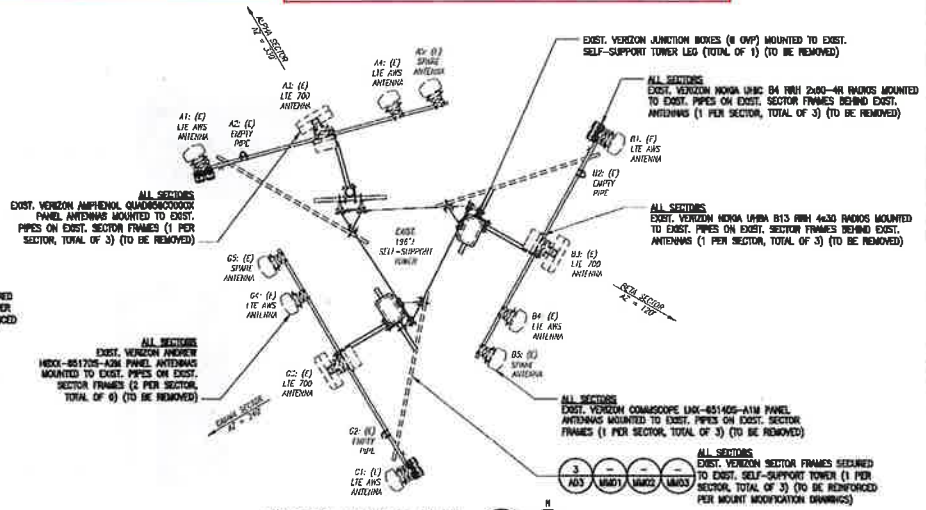
3 A03 2 A04 ALL SECTORS
EXIST. VERIZON SAMSUNG B5/B13 RRH ORAN (RF4461d-13A) RADIOS MOUNTED TO EXIST. PIPES ON EXIST. SECTOR FRAMES BEHIND PROP. ANTENNAS (1 PER SECTOR, TOTAL OF 3)

3 A03 2 A04 ALL SECTORS
EXIST. VERIZON SAMSUNG B2/B66A RRH ORAN (RF4439d-25A) RADIOS MOUNTED TO EXIST. PIPES ON EXIST. SECTOR FRAMES BEHIND PROP. ANTENNAS (1 PER SECTOR, TOTAL OF 3)

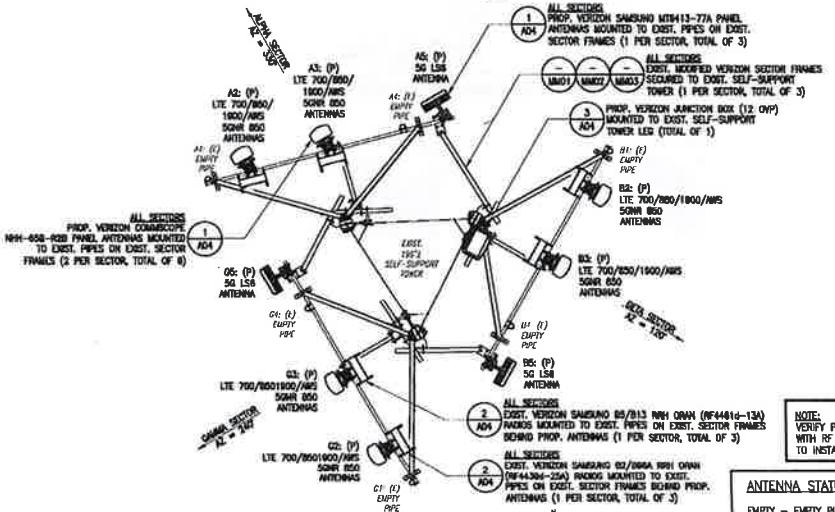
3 A03 1 A04 ALL SECTORS
PROP. VERIZON COMMSCOPE NHH-65B-R2B PANEL ANTENNAS MOUNTED TO EXIST. PIPES ON EXIST. SECTOR FRAMES (2 PER SECTOR, TOTAL OF 6)

3 A03 MM01 MM02 MM03 ALL SECTORS
EXIST. VERIZON SECTOR FRAMES SECURED TO EXIST. SELF-SUPPORT TOWER (1 PER SECTOR, TOTAL OF 3) (TO BE REINFORCED PER MOUNT MODIFICATION DRAWINGS)

3 A03 1 A04 ALL SECTORS
PROP. VERIZON SAMSUNG MT6413-77A PANEL ANTENNAS MOUNTED TO EXIST. PIPES ON EXIST. SECTOR FRAMES (1 PER SECTOR, TOTAL OF 3)



EXISTING ANTENNA PLAN
SCALE: N.T.S.



PROPOSED ANTENNA PLAN
SCALE: N.T.S.

NOTE:
VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION.

ANTENNA STATUS LEGEND:
EMPTY – EMPTY PIPE
(E) – EXISTING
(P) – INSTALL
(F) – FUTURE

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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25987
LICENSED PROFESSIONAL CIVIL ENGINEER
4/1/2024

CHECKED BY: JMT
APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	04/11/24	ISSUED FOR CONSTRUCTION	CAC
0	04/02/24	ISSUED FOR REVIEW	CAC

PROJECT NAME & ADDRESS
BOZRAH EAST CT
131 GIFFORD LANE
BOZRAH, CT 06334

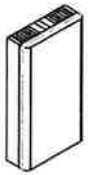
VZW LOCATION CODE: 467314
MDG LOCATION ID: [redacted]
FUZE PROJECT ID: [redacted]

SHEET TITLE
TOWER ELEVATION & ANTENNA PLANS

SHEET NUMBER
A03

COMMSCOPE NHH-65B-R2B ANTENNA

DIMENSIONS: 72.0"H x 11.9"W x 7.1"D
WEIGHT: 43.7 lbs
QUANTITY: 2 PER SECTOR, TOTAL OF 6
SECTORS: ALPHA, BETA, GAMMA



SAMSUNG MT6413-77A ANTENNA

DIMENSIONS: 28.9"H x 15.6"W x 8.5"D
WEIGHT: 57.3 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3
SECTORS: ALPHA, BETA, GAMMA

ANTENNA DETAILS
SCALE: N.T.S.
1 / A04

SAMSUNG RF4439d-25A B2/B66A RADIO

DIMENSIONS: 15.0"H x 15.0"W x 10.0"D
WEIGHT: 74.7 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3
SECTORS: ALPHA, BETA, GAMMA

SAMSUNG RF4461d-13A B5/B13 RADIO

DIMENSIONS: 15.0"H x 15.0"W x 10.2"D
WEIGHT: 79.1 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3
SECTORS: ALPHA, BETA, GAMMA

RADIO DETAILS
SCALE: N.T.S.
2 / A04

Procedure

Mounting Procedures

4.1 A mounting frame is delivered with the unit. The frame allows either wall/standoff or pole mounted installation. See sections in Identify the holes for each installation method.

4.2 Option 1: Pole Mount
Using required hardware, mount bracket to 2" to 4" diameter pole.

4.3 Option 2: Wallmount

4.4 Option 3: Monopole
Use 1" stainless steel bands (not supplied) through slots on bracket to mount to Monopole.

- Pole Mount
- Unistrut
- Monopole

Breakdown Definitions

5.1 See picture to identify the x Fits of Assembly Elements

Assembled in unit as shipped

Qty	Connector Size	Pos	Insert P/N	Insert Hole	Cable Type
2	M25	A	859-0186	42 mm	6x9.5" fit
4	M25	B	859-0187	3x 45.3 mm	fit

Included in kit shipped with unit

Qty	Connector Size	Insert P/N	Insert Hole	Cable Type	Purpose	Pos
2	M25	859-0187	42mm	6x9.5" fit	2 sleeve fit 4 conn 6x9.5" fit	B
2	M25	859-0187	3x 45.3mm	6x9.5" fit	2 sleeve fit 4 conn 6x9.5" fit	B
1	M25	859-0186	3x 45.3mm	6x9.5" fit	1 gasket fit 4 conn 6x9.5" fit	B
1	M25	859-0187	3x 45.3mm	fit	1 gasket fit 4 conn fit	B

FIBER JUNCTION BOX
DIMENSIONS: 29.56"H x 16.5"W x 12.6"D
WEIGHT: 32.0 lbs
QUANTITY: TOTAL OF 1

TYPICAL FIBER JUNCTION BOX DETAILS
SCALE: N.T.S.
3 / A04

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STATE OF CONNECTICUT
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No. 25997
LICENSED
PROFESSIONAL CIVIL ENGINEER
4/3/2024

CHECKED BY: JMT
APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	04/11/24	ISSUED FOR CONSTRUCTION	CMC
0	04/02/24	ISSUED FOR REVIEW	CMC

PROJECT NAME & ADDRESS

BOZRAH EAST CT

131 GIFFORD LANE
BOZRAH, CT 06334

VZW LOCATION CODE: 467314
MDG LOCATION ID: [redacted]
FUZE PROJECT ID: [redacted]

SHEET TITLE

SITE DETAILS

SHEET NUMBER

A04

EXISTING EQUIPMENT CONFIGURATION

SECTOR	EQUIPMENT MAKE & MODEL	QTY	AZIMUTH (TRUE NORTH)	ANTENNA RAD	BAND	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	EQUIPMENT STATUS	H (IN)	W (IN)	D (IN)	WEIGHT (LBS)	HYBRID CABLE SIZE & QTY
ALPHA	ANDREW HBXX-6516DS-A2M PANEL ANTENNA	1	330°	160'± AGL	LTE AWS	0°	2°	ETRE	74.9	12.0	6.5	43.0	EXIST. (12) 1-5/8" COAXIAL CABLES EXIST. (2) 6x12 HYBRID CABLES
ANTENNA QUADSSCCOOOX PANEL ANTENNA	1	330°	160'± AGL	LTE 700	0°	2°	ETRE	74.4	20.5	7.2	54.6	
ANDREW HBXX-6516DS-A2M PANEL ANTENNA	1	330°	160'± AGL	LTE AWS	0°	2°	ETRE	74.9	12.0	6.5	43.0	
COMMSCOPE LNX-6514DS-A1M PANEL ANTENNA	1	330°	160'± AGL	SPARE	-	-	ETRE	72.9	11.9	7.1	31.3	
BETA	ANDREW HBXX-6516DS-A2M PANEL ANTENNA	1	120°	160'± AGL	LTE AWS	0°	2°	ETRE	74.9	12.0	6.5	43.0	
ANTENNA QUADSSCCOOOX PANEL ANTENNA	1	120°	160'± AGL	LTE 700	0°	12°	ETRE	74.4	20.5	7.2	54.6	
ANDREW HBXX-6516DS-A2M PANEL ANTENNA	1	120°	160'± AGL	LTE AWS	0°	2°	ETRE	74.9	12.0	6.5	43.0	
COMMSCOPE LNX-6514DS-A1M PANEL ANTENNA	1	120°	160'± AGL	SPARE	-	-	ETRE	72.9	11.9	7.1	31.3	
GAMMA	ANDREW HBXX-6516DS-A2M PANEL ANTENNA	1	240°	160'± AGL	LTE AWS	0°	2°	ETRE	74.9	12.0	6.5	43.0	
ANTENNA QUADSSCCOOOX PANEL ANTENNA	1	240°	160'± AGL	LTE 700	0°	2°	ETRE	74.4	20.5	7.2	54.6	
ANDREW HBXX-6516DS-A2M PANEL ANTENNA	1	240°	160'± AGL	LTE AWS	0°	2°	ETRE	74.9	12.0	6.5	43.0	
COMMSCOPE LNX-6514DS-A1M PANEL ANTENNA	1	240°	160'± AGL	SPARE	-	-	ETRE	72.9	11.9	7.1	31.3	
ALL	NOKIA AHLB 1017 MHz 4x30 RADIOS	3	-	-	-	-	-	ETRE	21.4	17.0	7.2	54.0	
NOKIA AHFC 64 MHz 2x60-4R RADIOS	3	-	-	-	-	-	ETRE	20.8	16.6	5.7	55.0	
8 OVP	3	-	-	-	-	-	ETRE	29.6	16.5	12.6	32.0	

NOTES:
1. "ETR" DENOTES "EXISTING TO REMAIN".
2. "ETRE" DENOTES "EXISTING TO BE REMOVED".
3. WEIGHTS LISTED ARE WITHOUT MOUNTING BRACKETS.
4. INFORMATION IS BASED ON RFDS DATED 02/27/24.

FINAL EQUIPMENT CONFIGURATION

SECTOR	EQUIPMENT MAKE & MODEL	QTY	AZIMUTH (TRUE NORTH)	ANTENNA RAD	BAND	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	EQUIPMENT STATUS	H (IN)	W (IN)	D (IN)	WEIGHT (LBS)	HYBRID CABLE SIZE & QTY
ALPHA	COMMSCOPE NHH-65B-R2B ANTENNA	1	330°	160'± AGL	LTE 700/850/1900/AWS 5GNR 850	0°/0°/0°/0°	2°/2°/0°/0°	NEW	72.0	11.9	7.1	43.7	EXIST. (12) 1-5/8" COAXIAL CABLES EXIST. (2) 6x12 HYBRID CABLES
COMMSCOPE NHH-65B-R2B ANTENNA	1	330°	160'± AGL	LTE 700/850/1900/AWS 5GNR 850	0°/0°/0°/0°	2°/2°/0°/0°	NEW	72.0	11.9	7.1	43.7	
SAMSUNG MT6413-77A ANTENNA	1	330°	160'± AGL	5G LSB	0°	1°	NEW	28.9	15.8	8.5	57.3	
BETA	COMMSCOPE NHH-65B-R2B ANTENNA	1	120°	160'± AGL	LTE 700/850/1900/AWS 5GNR 850	0°/0°/0°/0°	2°/2°/0°/0°	NEW	72.0	11.9	7.1	43.7	
COMMSCOPE NHH-65B-R2B ANTENNA	1	120°	160'± AGL	LTE 700/850/1900/AWS 5GNR 850	0°/0°/0°/0°	2°/2°/0°/0°	NEW	72.0	11.9	7.1	43.7	
SAMSUNG MT6413-77A ANTENNA	1	120°	160'± AGL	5G LSB	0°	1°	NEW	28.9	15.8	8.5	57.3	
GAMMA	COMMSCOPE NHH-65B-R2B ANTENNA	1	240°	160'± AGL	LTE 700/850/1900/AWS 5GNR 850	0°/0°/0°/0°	2°/2°/0°/0°	NEW	72.0	11.9	7.1	43.7	
COMMSCOPE NHH-65B-R2B ANTENNA	1	240°	160'± AGL	LTE 700/850/1900/AWS 5GNR 850	0°/0°/0°/0°	2°/2°/0°/0°	NEW	72.0	11.9	7.1	43.7	
SAMSUNG MT6413-77A ANTENNA	1	240°	160'± AGL	5G LSB	0°	1°	NEW	28.9	15.8	8.5	57.3	
ALL	SAMSUNG B25/B66A RF4439d-25A RADIOS	3	-	-	-	-	-	NEW	15.0	15.0	10.0	74.7	
SAMSUNG B5/B13 RF4461d-13A RADIOS	3	-	-	-	-	-	NEW	15.0	15.0	10.2	79.1	
12 OVP	1	-	-	-	-	-	NEW	29.6	16.5	12.6	32.0	

NOTES:
1. "ETR" DENOTES "EXISTING TO REMAIN".
2. "ETRE" DENOTES "EXISTING TO BE REMOVED".
3. WEIGHTS LISTED ARE WITHOUT MOUNTING BRACKETS.
4. INFORMATION IS BASED ON RFDS DATED 02/27/24.

FEEDLINE SCHEDULE

SCHEDULE	FEEDLINES	LOCATION
A	EXISTING TO REMAIN: (1) 1/2" COAXIAL CABLE FOR GPS ANTENNA (12) 1-5/8" COAXIAL CABLES (2) 6x12 HYBRID CABLES EXISTING TO BE REMOVED: NONE	ROUTED PER STRUCTURAL ANALYSIS
B	PROPOSED: NONE	

NOTE:
EXISTING VERIZON EQUIPMENT FEEDLINE INVENTORY BASED ON OBSERVED FIELD CONDITIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER.

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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED
PROFESSIONAL CIVIL ENGINEER
4/11/2024

CHECKED BY: JMF
APPROVED BY: JMF

SUBMITTALS

REV	DATE	DESCRIPTION	BY
1	04/11/24	ISSUED FOR CONSTRUCTION	CLC
0	04/02/24	ISSUED FOR REVIEW	CLC

PROJECT NAME & ADDRESS
BOZRAH EAST CT
131 GIFFORD LANE
BOZRAH, CT 06334

VZW LOCATION CODE: 482314
MDG LOCATION ID: [redacted]
FUZE PROJECT ID: [redacted]

SHEET TITLE
RF DATA

SHEET NUMBER
RF01

N/A

RF PLUMBING DIAGRAM (1 / RF02)
SCALE: N.T.S.

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STATE OF CONNECTICUT
JAMES M. FITZGERALD
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4/8/2024

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	04/1/24	ISSUED FOR CONSTRUCTION	GMC
0	04/02/24	ISSUED FOR REVIEW	GMC

PROJECT NAME & ADDRESS

BOZRAH EAST CT

101 GIFFORD LANE
BOZRAH, CT 06334

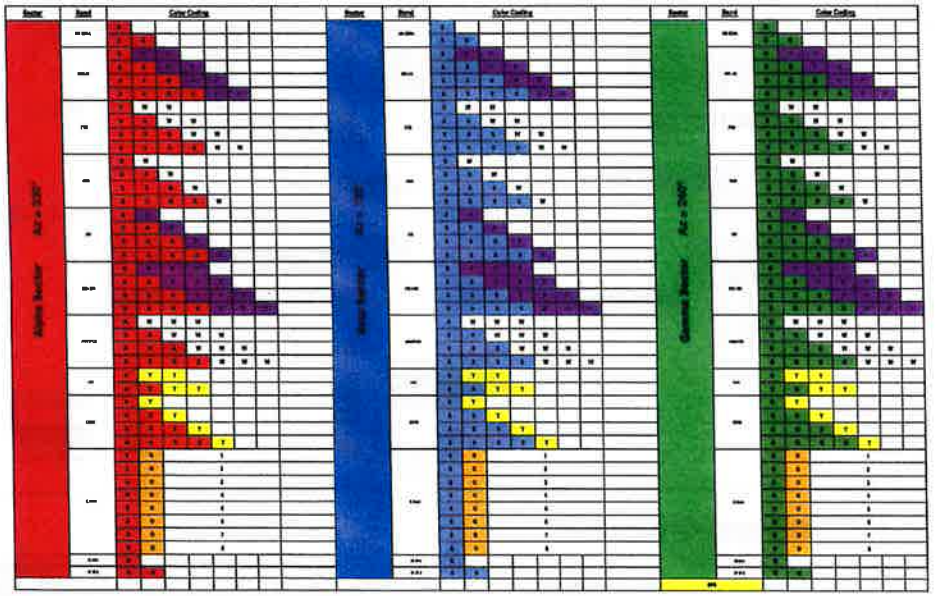
VZW LOCATION CODE:	467314
MDG LOCATION ID:	[illegible]
FUZE PROJECT ID:	[illegible]

SHEET TITLE

RF PLUMBING DIAGRAM

SHEET NUMBER

RF02



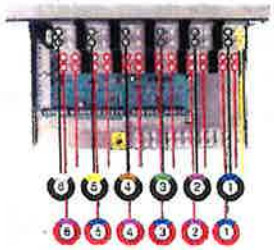
CABLE NOTE:
SEE FEEDLINE SCHEDULE A & B ON SHEET RF01
FOR EXISTING & PROPOSED CABLE QUANTITIES.

LINE COLOR CODE SPECIFICATIONS (1 / RF03)
SCALE: N.T.S.

Hybrid Cable on Towers

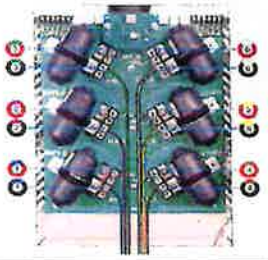
Hybrid Cable 1

Sector	Identification Color	-48V	RTN
700 Alpha			
AWS Alpha			
PCS Alpha			
850 Alpha			
Spare	Yellow		
Spare	White		



Hybrid Cable 2

Sector	Identification Color	-48V	RTN
700 Beta			
AWS Beta			
PCS Beta			
850 Beta			
Spare	Yellow		
Spare	White		



HYBRID CABLE COLOR CODE SPECIFICATIONS (2 / RF03)
SCALE: N.T.S.

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CHECKED BY: JMT
APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
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0	04/02/24	ISSUED FOR REVIEW	CMC

PROJECT TYPE & ADDRESS
BOZRAH EAST CT
101 GIFFORD LANE
BOZRAH, CT 06334

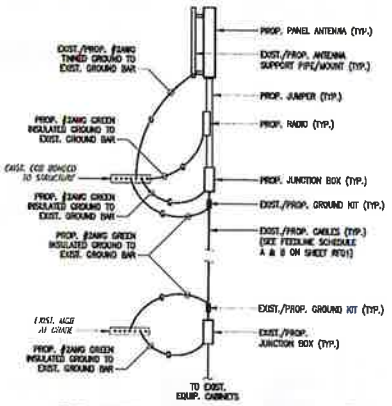
VZW LOCATION CODE: 487314
MDG LOCATION ID: [illegible]
FUZE PROJECT ID: [illegible]

SHEET TITLE
RF COLOR CODE SPECIFICATIONS

SHEET NUMBER
RF03

GROUNDING GENERAL NOTES

1. ALL EXTERIOR CONDUCTORS SHALL BE #2 AWG, SOLID, BARE, TINNED COPPER, UNLESS OTHERWISE NOTED. MINIMUM BEND RADIUS SHALL BE EIGHT (8) INCHES.
2. ALL WIRE-TO-WIRE CONNECTIONS SHALL BE THREE-CLAMP, C TAP COMPRESSION (TAB #64740 ORANGE OR EQUIVALENT). ALL GROUND BAR CONNECTIONS SHALL BE TWO-HOLE, LONG-BARREL TYPE COMPRESSION LUGS (TAB OR EQUIVALENT). ALL OTHER CONNECTIONS TO STEEL SURFACES SHALL USE LUG-TYPE CONNECTORS.
3. MECHANICALLY BOND ANTENNA MOUNTS WITH #2 AWG, BARE, STRANDED CONDUCTORS.
4. ALL GROUNDING WORK SHALL COMPLY WITH VERIZON WIRELESS STANDARDS.
5. CONNECT GROUND CONDUCTOR TO EXISTING GROUNDING SYSTEM. ATTACH TO WALLS, PARAPET, CABLE TRAY, ETC. WITH A CLAMPS AS NECESSARY. REMOVE PAINT, FIREPROOFING, MAY SCALE, ETC. TO ACHIEVE GOOD CAD WELD GROUND CONNECTION.
6. CONNECT TO HALO GROUND USING C-TAP (#64730).
7. CONNECT TO ENCLOSURES USING BLUE GROUND LUGS.
8. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC (CADWELD) CONNECTIONS.
9. ALL GROUND CONNECTIONS BELOW GRADE SHALL BE EXOTHERMIC (CADWELD).
10. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR & EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
11. ALL EXOTHERMIC CONNECTIONS TO THE GROUND RODS SHALL START AT THE TOP & HAVE A VERTICAL SEPARATION OF 6" FOR EVERY ADDITIONAL CONNECTION.
12. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
13. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
14. MAXIMUM RESISTANCE OF THE COMPLETED GROUND SYSTEM SHALL NOT EXCEED 5 OHMS. TESTING SHALL BE PERFORMED IN ACCORDANCE WITH PROJECT SPECIFICATION FOR FACILITY GROUNDING, USING FALL OF POTENTIAL METHOD.
15. ANTENNA GROUND KITS SHALL BE FURNISHED BY VERIZON & INSTALLED BY CONTRACTOR.



TYP. ANTENNA GROUNDING RISER (1/E01)
SCALE: N.T.S.

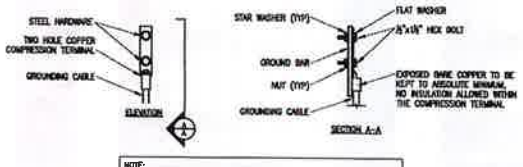
LEGEND

GROUNDING SYMBOLS

- ⊠ GROUND ROD/TEST (OBSERVATION) WELL
- ⊗ GROUND ROD
- ▲ CADWELD TYPE CONNECTION
- ● COMPRESSION TYPE CONNECTION
- ---- GROUNDING WIRE
- (1/E01) REPRESENTS DETAIL NUMBER

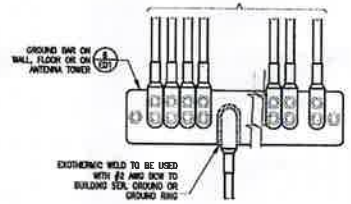
ABBREVIATIONS

AWG	AMERICAN WIRE GAUGE
BCW	BARE COPPER WIRE
GPS	GLOBAL POSITIONING SYSTEM
PCS	PERSONAL COMMUNICATION SYSTEM
RWY	RACEWAY
TYP.	TYPICAL
RGS	RIGID GALVANIZED STEEL
EMT	ELECTRICAL METALLIC TUBING
DWG	DRAWING
IGR	INTERIOR GROUND RING (HALO)
GEN	GENERATOR
GR	GROWTH
CCBE	COAX GROUND BAR EXTERNAL
CIGBE	COAX ISOLATED GROUND BAR EXTERNAL
MGB	MASTER GROUND BAR
PVC	RIGID (SCH. 40) POLYVINYL CHLORIDE CONDUIT
EBH	ETHERNET BACK HAUL



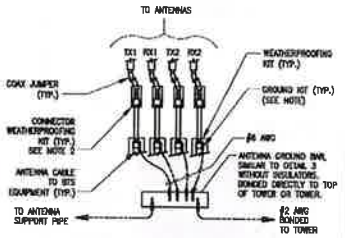
NOTE:
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

TYP. GROUND BAR CONNECTION (2/E01)
SCALE: N.T.S.



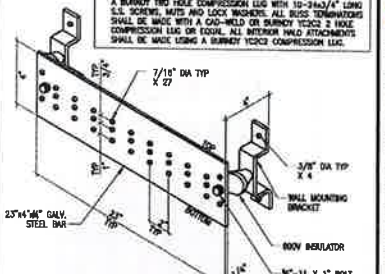
NOTE:
GROUND BARS AT THE BOTTOM OF TOWER SHALL ONLY USE EXOTHERMIC WELDS.

INSTALLATION OF GROUND WIRE TO GROUND BAR (3/E01)
SCALE: N.T.S.



CONN. OF GROUND WIRE TO GROUND BAR (TOWER) (4/E01)
SCALE: N.T.S.

NOTES:
1. SURFACE PREPARATION: ALL CONNECTIONS MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE MADE BARE TO ENSURE PROPER CONTACT. NO WASHERS SHALL BE ALLOWED BETWEEN THE ITEMS BEING GROUNDED. ALL CONNECTIONS SHALL HAVE AN ANTI-OXIDANT AGENT APPLIED PRIOR TO INSTALLATION.
2. BUSS PREPARATION: ALL GALV. STEEL BUSSES SHALL BE CLEANED, POLISHED AND AN ANTI-OXIDANT APPLIED. NO ENCRUSTMENTS OR DISCOLORED STEEL WILL BE PERMITTED.
3. TERMINATIONS: ALL EQUIPMENT TERMINATIONS SHALL BE MADE WITH A BURNDY TWO HOLE COMPRESSION LUG WITH 10-24x3/4" LONG S.S. SCREWS, NUTS AND LOCK WASHERS. ALL BUSS TERMINATIONS SHALL BE MADE WITH A CAD-WELD OR BURNDY YC2C2 2 HOLE COMPRESSION LUG OR EQUAL. ALL INTERIOR HALO ATTACHMENTS SHALL BE MADE USING A BURNDY YC2C2 COMPRESSION LUG.



TYP. INTERIOR & EXTERIOR GROUND BAR (5/E01)
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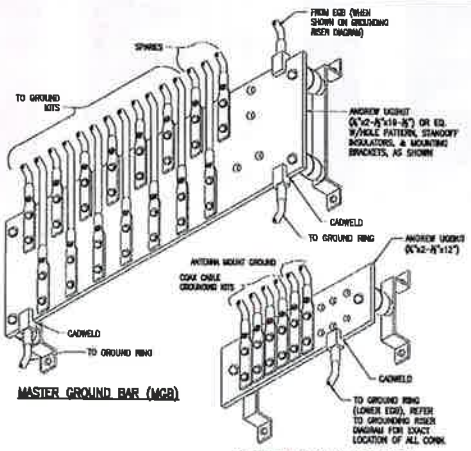
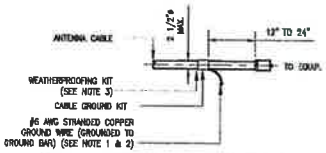
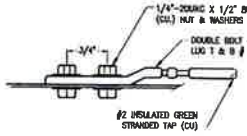


GROUND BAR DETAILS (6/E01)
SCALE: N.T.S.

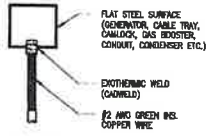


NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND & ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE & PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE SUPPLIED WITH KIT. COLD SHRINK SHALL NOT BE USED.

CONN. OF CABLE GROUND KIT TO ANTENNA CABLE (7/E01)
SCALE: N.T.S.



TYP. EQUIPMENT GROUND CONNECTION (8/E01)
SCALE: N.T.S.



TYP. CADWELD #2 GREEN TO FLAT STEEL SURFACE (9/E01)
SCALE: N.T.S.

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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25987
LICENSED
PROFESSIONAL CIVIL ENGINEER
4/1/2024

CHECKED BY: JMF
APPROVED BY: JMF

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	04/1/24	ISSUED FOR CONSTRUCTION	CMC
0	04/02/24	ISSUED FOR REVIEW	CMC

PROJECT NAME & ADDRESS
BOZRAH EAST CT
131 GIFFORD LANE
BOZRAH, CT 06334

VZW LOCATION CODE: 457314
MDG LOCATION ID: [illegible]
FUZE PROJECT ID: [illegible]

SHEET TITLE
GROUNDING NOTES & DETAILS

SHEET NUMBER
E01

verizon

MOUNT MODIFICATION DRAWINGS
EXISTING 12.00' T-FRAME

TOWER OWNER: SBA TOWERS, LLC
TOWER OWNER SITE NUMBER: GT01105

CARRIER SITE NAME: BOZRAH EAST
CARRIER SITE NUMBER: 5000344619
FUZE ID: 16244580

131 GIFFORD LANE
BOZRAH, CT 06334
NEW LONDON COUNTY

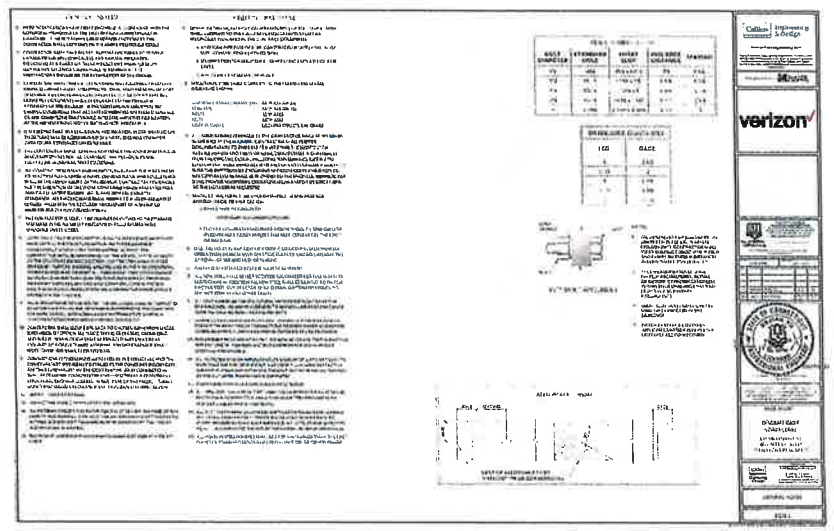
LATITUDE: 41.55222200° N
LONGITUDE: 72.15111100° W

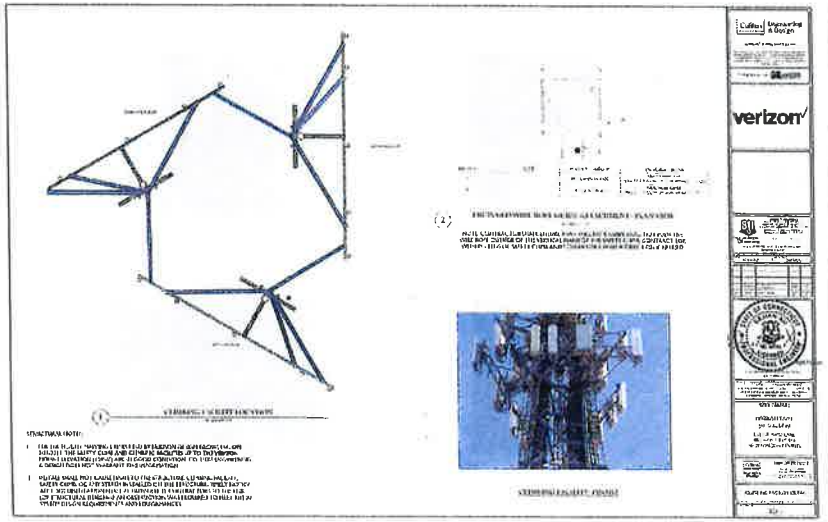
DESIGN CRITERIA

PROJECT INFORMATION

SHEET INDEX

BILL OF MATERIALS





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4/1/2024

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

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1	04/11/24	ISSUED FOR CONSTRUCTION	CHC
0	04/02/24	ISSUED FOR REVIEW	CHC

PROJECT NAME & ADDRESS

BOZRAH EAST CT

131 GIFFORD LANE
BOZRAH, CT 06334

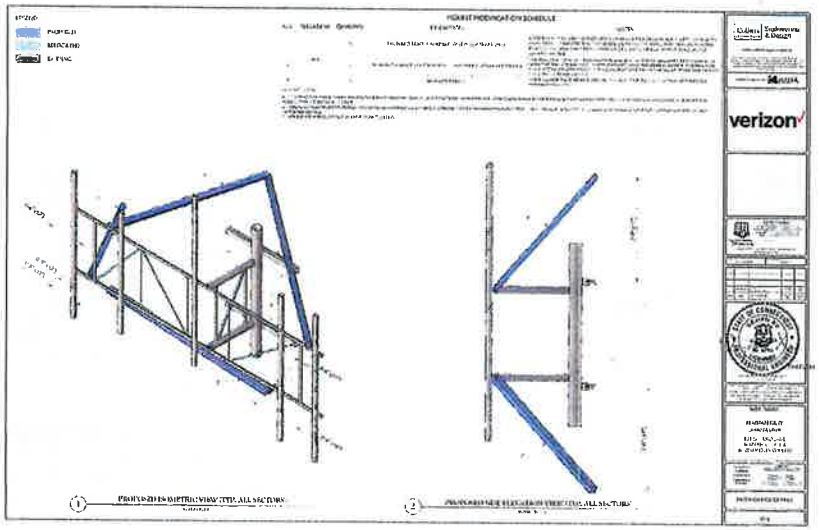
VZW LOCATION CODE:	457214
MDG LOCATION ID:	5000344619
FUZE PROJECT ID:	16244580

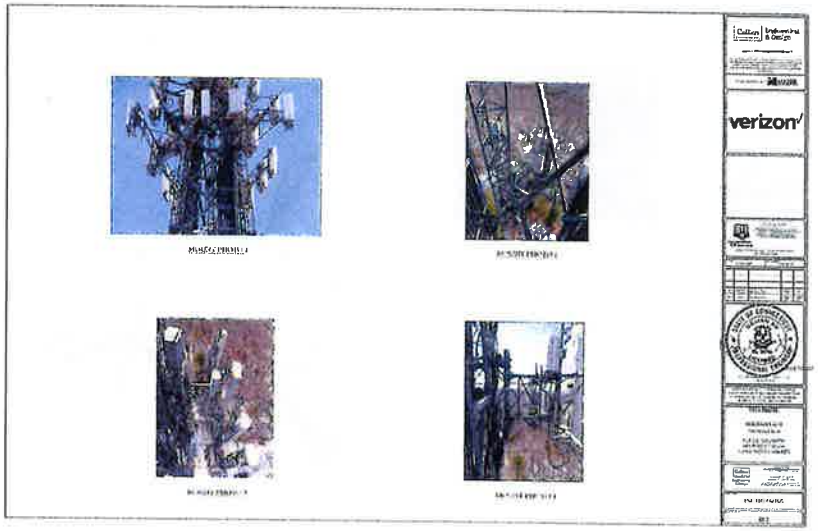
SHEET TITLE

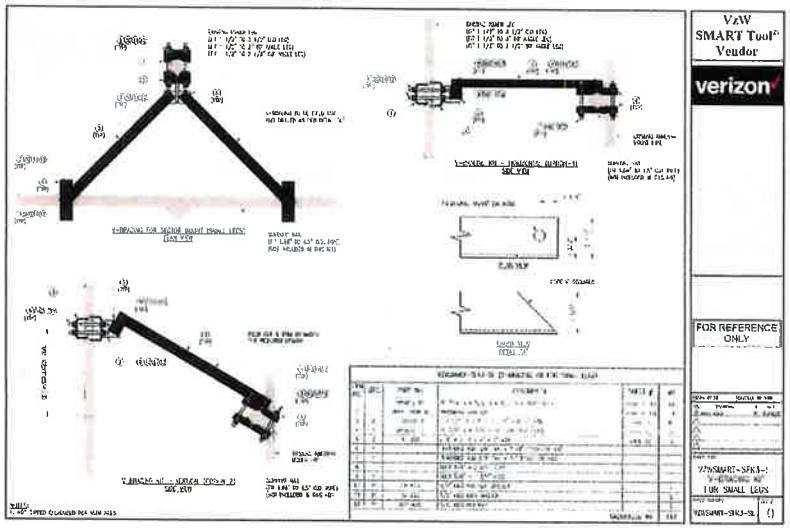
MOUNT MODIFICATION DRAWINGS I

SHEET NUMBER

MM01







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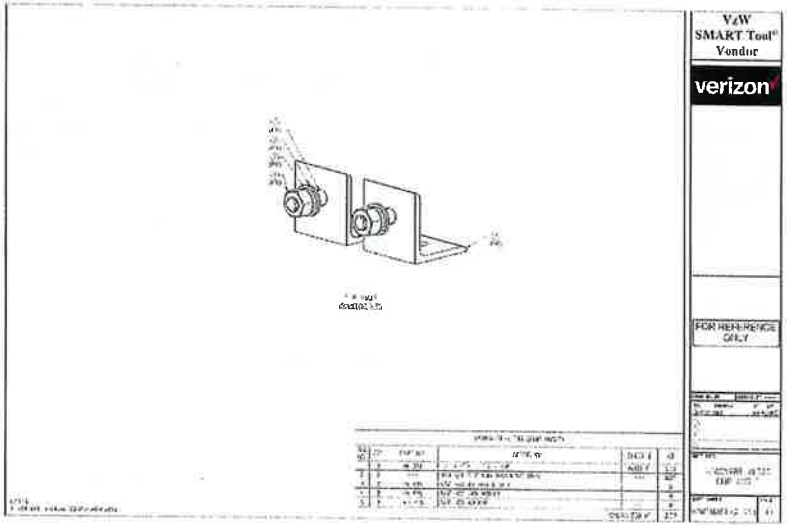

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BOZRAH EAST CT

131 GIFFORD LANE
BOZRAH, CT 06334

VZW LOCATION CODE: 467316

MDG LOCATION ID: [illegible]

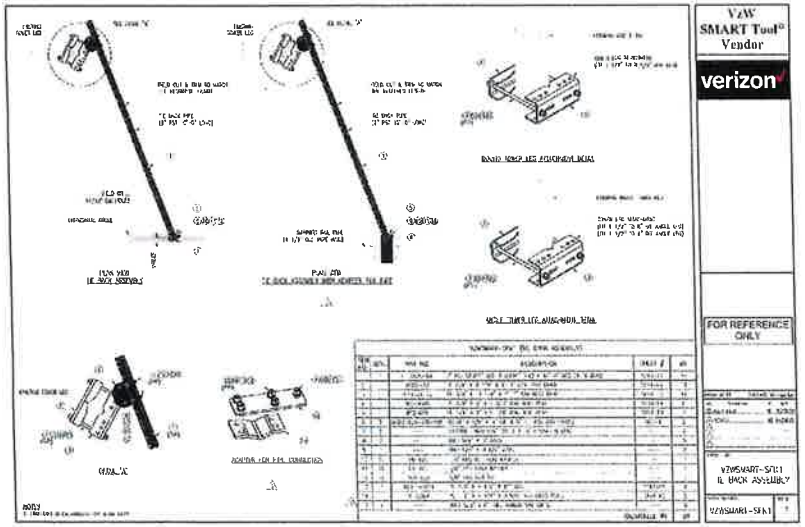
FUZE PROJECT ID: [illegible]

SHEET TITLE

MOUNT MODIFICATION DRAWINGS II

SHEET NUMBER

MM02



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VZWSMART-SFC1 IL BACK ASSEMBLY

VZWSMART-SFC1

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4/11/2024

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	04/11/24	ISSUED FOR CONSTRUCTION	CMC
0	04/02/24	ISSUED FOR REVIEW	CMC

PROJECT NAME & ADDRESS

BOZRAH EAST CT

131 GIFFORD LANE
BOZRAH, CT 06334

VZW LOCATION CODE:	497314
MDG LOCATION ID:	BOSDM4618
FUZE PROJECT ID:	16864889

SHEET TITLE

MOUNT MODIFICATION DRAWINGS III

SHEET NUMBER

MM03

Colliers Engineering & Design,
Architecture, Landscape Architecture,
Surveying, CT P.C.
1055 Washington Boulevard
Stamford, CT 06901
203.324.0800
peter.albano@collierseng.com

Post-Modification Antenna Mount Analysis Report and PMI Requirements

Mount Fix

SMART Tool Project #: 10220763
Colliers Engineering & Design Project #: 20777639A (Rev. 1)

February 5, 2024

Site Information	*Site ID:*	*5000244619-VZW / Bozrah East*
	Site Name:	*Bozrah East*
	Carrier Name:	*Verizon Wireless*
	Address:	*131 Gifford Lane* *Bozrah, Connecticut 06334* *New London County*
	Latitude:	*41.552222°*
	Longitude:	*-72.151111°*
Structure Information	*Tower Type:*	*190-Ft Self Support*
	Mount Type:	*12.00-Ft T-Frame*

FUZE ID # 16244580

Analysis Results

T-Frame: **64.7% Pass w/ Modifications***

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

******Contractor PMI Requirements:***
Included at the end of this MA report
Available & Submitted via portal at https://pmi.vzwsmart.com
For additional questions and support, please reach out to:
pmisupport@colliersengineering.com

Report Prepared By: Grant Walters

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
Radio Frequency Data Sheet (RFDS)	*Verizon RFDS Site ID: 323458, dated October 10, 2023*
Mount Mapping Report	*Hudson Design Group, LLC Site ID: 467314, dated February 25, 2021*
Previous Mount Analysis	*Colliers Engineering & Design Project #: 20777639 (Rev 1) Dated January 17, 2024*
Mount Modification Drawings	*Colliers Engineering & Design Project #: 20777639 Dated February 5, 2024*

Analysis Criteria:

Codes and Standards:	ANSI/TIA-222-H 2022 Connecticut State Building Code (CSBC), Effective October 1, 2022	
Wind Parameters:	Basic Wind Speed (Ultimate 3-sec. Gust), V_{ULT}:	125 mph
	Ice Wind Speed (3-sec. Gust):	50 mph
	Design Ice Thickness:	1.00 in
	Risk Category:	II
	Exposure Category:	B
	Topographic Category:	1
	Topographic Feature Considered:	N/A
	Topographic Method:	N/A
	Ground Elevation Factor, K_e:	0.983
Seismic Parameters:	S_S:	0.197 g
	S_1:	0.054 g
Maintenance Parameters:	Wind Speed (3-sec. Gust):	30 mph
	Maintenance Load, Lv:	250 lbs.
	Maintenance Load, Lm:	500 lbs.
Analysis Software:	RISA-3D (V21)	

Final Loading Configuration:

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

Mount Elevation (ft)	Equipment Elevation (ft)	Quantity	Manufacturer	Model	Status
159.50	160.10	6	Commscope	NHH-65B-R2B	Added
		3	Samsung	MT6413-77A	
		3	Samsung	RF4439d-25A	
		3	Samsung	RF4461d-13A	
		1	RFS	DB-B1-6C-12AB-0Z	
		2	Raycap	RRFDC-3315-PF-48*	Retained

* Equipment is flush mounted directly to the Self Support. They are not mounted on the T-Frame mounts and are not included in this mount analysis.

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

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

Standard Conditions:

1. All engineering services are performed on the basis that the information provided to Colliers Engineering & Design 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 Colliers Engineering & Design to verify deviation will not adversely impact the analysis.

2. Mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.

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

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

3. For mount analyses completed from other data sources (including new replacement mounts) and not specifically mapped in accordance with the NSTD-446 Standard, the mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.

4. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.

5. The mount was checked up to, and including, the bolts that fasten it to the mount collar/attachment and threaded rod connections in collar members if applicable. Local deformation and interaction between the mount collar/attachment and the supporting tower structure are outside the scope of this analysis.

6. All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Colliers Engineering & Design 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 Colliers Engineering & Design.

Analysis Results:

Component	Utilization %	Pass/Fail
V-Brace	6.0%	Pass
Mount Pipe	14.1%	Pass
Tie Back	20.8%	Pass
Face Horizontal	64.7%	Pass
Face Bracing	18.1%	Pass
Face Vertical End	8.9%	Pass
Tower Connection	11.0%	Pass
Rear Face Standoff	9.3%	Pass
Rear Standoff Pipe	4.2%	Pass
Standoff Diagonal	7.0%	Pass
Standoff Vertical	4.3%	Pass
Standoff Horizontal	10.6%	Pass
Mount Connection	14.3%	Pass

Structure Rating – *(Controlling Utilization of all Components)*	**64.7%**

Mount Connection Envelope Reactions:

Connection Description	Elev. AGL (Ft)	Node Label	Envelope Wind Reactions				Envelope Wind + Ice Reactions			
			Axial (Lbs)	Lateral (Lbs)	Moment (K-Ft)	Torsion (K-Ft)	Axial (Lbs)	Lateral (Lbs)	Moment (K-Ft)	Torsion (K-Ft)
Sector A Bottom Left Standoff	158	N41	268	462	0.000	0.000	385	617	0.000	0.000
Sector A Bottom Right Standoff	158	N43	270	450	0.000	0.000	396	632	0.000	0.000
Sector A Top Left Standoff	161	N40A	215	423	0.000	0.000	334	649	0.000	0.000
Sector A Top Right Standoff	161	N42	191	446	0.000	0.000	330	640	0.000	0.000
Sector A Top Reinforcement	164	N84	735	747	0.004	0.004	424	336	0.001	0.001
Sector A Bottom Reinforcement	155	N89	870	821	0.005	0.004	527	423	0.002	0.001

Notes:
- Axial loads act along the axis of the tower leg
- Lateral reactions act perpendicular to the tower leg
- Moment loads introduce bending moment to the tower leg
- Torsion loads introduce twisting moment to the tower leg
- Batch solutions by individual load cases are included at the end of this document

BASELINE mount weight per SBA agreement: 1915.53 lbs

Increase in mount weight due to Verizon loading change per SBA agreement: 972.00

The weights listed above include 3 sector(s).

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

Ice Thickness (In)	Mount Pipes Excluded		Mount Pipes Included	
	Front (EPA)a (Sq. Ft.)	Side (EPA)a (Sq. Ft.)	Front (EPA)a (Sq. Ft.)	Side (EPA)a (Sq. Ft.)
0	24.0	13.9	32.6	22.4
0.5	36.1	21.1	48.2	33.2
1	46.5	26.6	62.3	42.4

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

Requirements:

The existing mounts will be **SUFFICIENT** for the final loading configuration (attachment 2) after the modifications detailed in attachment 3 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. **Contractor Required PMI Report Deliverables**
2. Antenna Placement Diagrams
3. Mount Modification Drawings
4. Mount Photos
5. Mount Mapping Report (for reference only)
6. Analysis Calculations

Mount Desktop – Post Modification Inspection (PMI) Report Requirements

Documents & Photos Required from Contractor – Mount Modification

Electronic pdf version of this can be downloaded at https://pmi.vzwsmart.com
For additional questions and support, please reach out to pmisupport@colliersengineering.com

MDG #: 5000244619 SMART Project #: 10220763 Fuze Project ID: 16244580

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

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

Base Requirements:

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

Photo Requirements:

- *Photos taken at ground level*
  - Photo of Gate Signs showing the tower owner, site name, and number.
  - Overall tower structure after installation of the modifications.
  - Photos of the mount after installation of the modifications; if the mounts are at different rad elevations, pictures must be provided for all elevations that the modifications were installed

- *Photos taken at Mount Elevation*
  - Photos showing the safety climb wire rope above and below the mount prior to modification.
  - Photos showing the climbing facility and safety climb if present.

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

Material Certification:

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

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

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

OR

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

Antenna & Equipment Placement and Geometry Confirmation:

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

OR

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

Comments:

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

☐ Yes ☐ No

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

Issue:

Contractor to install new OVP on Alpha sector mast pipe

Response:

Special Instruction Confirmation:

☐ The contractor has read and acknowledges the above special instructions.

Comments:

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

☐ Yes ☐ No

Contractor certifies no new damage created during the current installation:

☐ Yes ☐ No

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

☐ Safety Climb in Good Condition ☐ Safety Climb Damaged

Comments:

Certifying Individual:

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

Structure: 5000244619-VZW - Bozrah East

Sector: **A**

Structure Type: Self Support

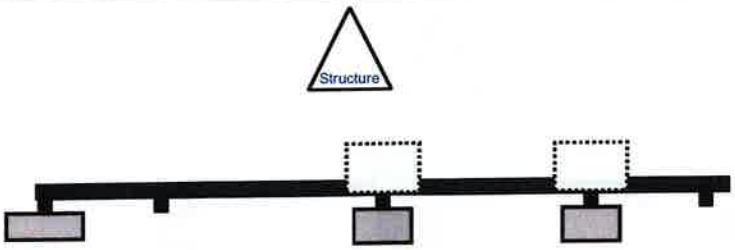
Mount Elev: 159.50

10220763

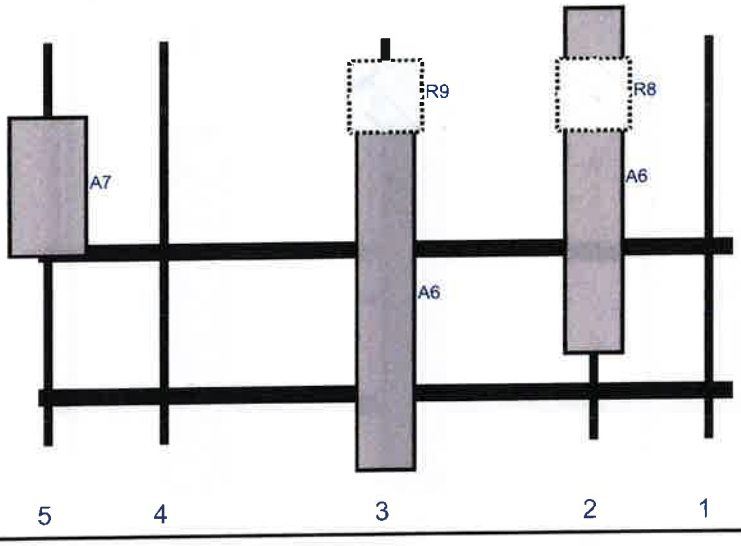
2/1/2024

Colliers Engineering & Design

Plan View



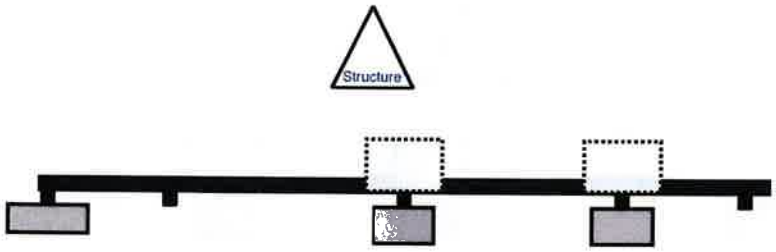
Front View - Looking at Structure



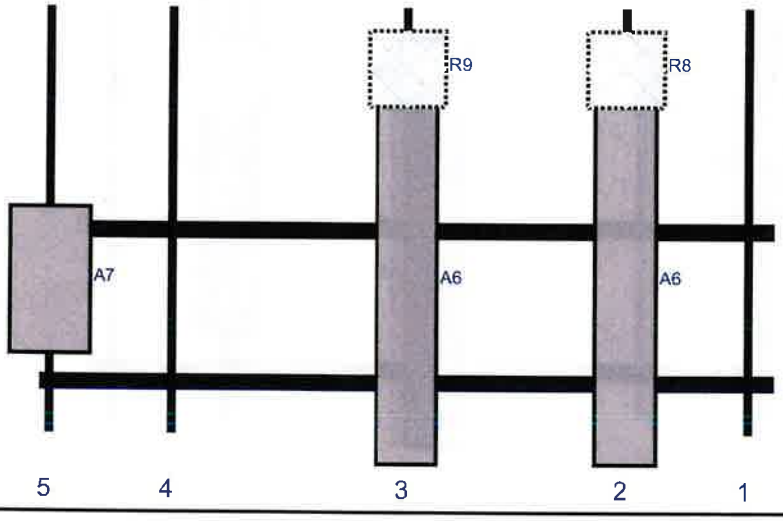
5 4 3 2 1

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
A6	NHH-65B-R2B	72	11.9	115	2	a	Front	30	0	Added	
R8	RF4439d-25A	15	15	115	2	a	Behind	12	0	Added	
A6	NHH-65B-R2B	72	11.9	72	3	a	Front	54	0	Added	
R9	RF4461d-13A	15	15	72	3	a	Behind	12	0	Added	
A7	MT6413-77A	28.9	15.8	2	5	a	Front	30	0	Added	

Plan View

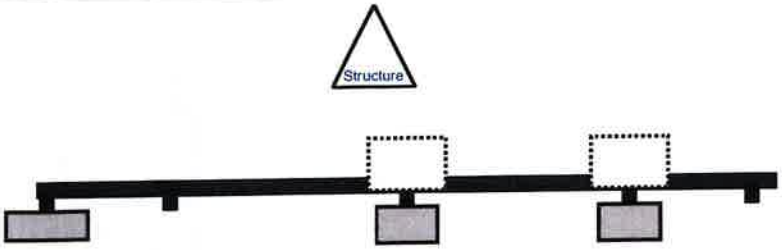


Front View - Looking at Structure

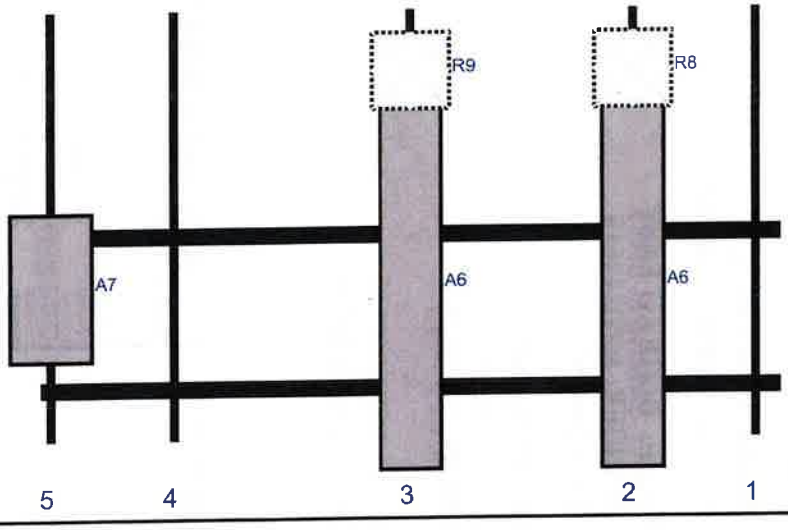


Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A6	NHH-65B-R2B	72	11.9	115	2	a	Front	54	0	Added	
R8	RF4439d-25A	15	15	115	2	a	Behind	12	0	Added	
A6	NHH-65B-R2B	72	11.9	72	3	a	Front	54	0	Added	
R9	RF4461d-13A	15	15	72	3	a	Behind	12	0	Added	
A7	MT6413-77A	28.9	15.8	2	5	a	Front	54	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
A6	NHH-65B-R2B	72	11.9	115	2	a	Front	54	0	Added	
R8	RF4439d-25A	15	15	115	2	a	Behind	12	0	Added	
A6	NHH-65B-R2B	72	11.9	72	3	a	Front	54	0	Added	
R9	RF4461d-13A	15	15	72	3	a	Behind	12	0	Added	
A7	MT6413-77A	28.9	15.8	2	5	a	Front	54	0	Added	

verizon

MOUNT MODIFICATION DRAWINGS
EXISTING 12.00' T-FRAME

TOWER OWNER: SBA TOWERS, LLC
TOWER OWNER SITE NUMBER: GT01105

CARRIER SITE NAME: BOZRAH EAST
CARRIER SITE NUMBER: 5000244619
FUZE ID: 16244580

131 GIFFORD LANE
BOZRAH, CT 06334
NEW LONDON COUNTY

LATITUDE: 41.55222200° N
LONGITUDE: 72.15111100° W

DESIGN CRITERIA

WIND LOADS

BASIC WIND SPEED (3 SECOND GUST), V = 125 MPH
EXPOSURE CATEGORY B
TOPOGRAPHIC CATEGORY: 1
TOPOGRAPHIC CONSIDERED: N/A
TOPOGRAPHIC METHOD: N/A
MEAN BASE ELEVATION (AMSL) = 463.0'

ICE LOADS

ICE WIND SPEED (3 SECOND GUST), V = 50 MPH
ICE THICKNESS = 1.00 IN

SEISMIC LOADS

SEISMIC DESIGN CATEGORY B
SHORT TERM MCER GROUND MOTION, S_s = .197
LONG TERM MCER GROUND MOTION, S_1 = .054

PROJECT INFORMATION

APPLICANT/LESSEE

COMPANY: VERIZON WIRELESS

CLIENT REPRESENTATIVE

COMPANY: VERIZON WIRELESS

PROJECT MANAGER

COMPANY: COLLIERS ENGINEERING & DESIGN
CONTACT: PETER ALBANO
PHONE: 856.797.0412
E-MAIL: PETER.ALBANO@COLLIERSENG.COM

CONTRACTOR PMI REQUIREMENTS

PMI LOCATION:	HTTPS://PMI.VZWSMART.COM
SMART TOOL PROJECT #:	10220763
VZW MDG #:	5000244619
ANALYSIS DATE:	2/5/2024

PMI REQUIREMENTS EMBEDDED WITHIN MOUNT MODIFICATION REPORT

SHEET INDEX

SHEET	DESCRIPTION
ST-1	TITLE SHEET
SBOM-1	BILL OF MATERIALS
SGN-1	GENERAL NOTES
SCF-1	CLIMBING FACILITY DETAIL
SS-1	MODIFICATION DETAILS
SS-2	MOUNT PHOTOS
	SPECIFICATION SHEETS

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REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
0	02/05/24	ISSUED FOR CONSTRUCTION	BH	PA

COLLIERS ENGINEERING & DESIGN CT, P.C.
CT #C-0001111

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

SITE NAME:
BOZRAH EAST
5000244619
131 GIFFORD LANE
BOZRAH, CT 06334
NEW LONDON COUNTY

STAMPED

Colliers Engineering & Design
Stamford, CT 06901
Phone: 203.324.0600
COLLIERS ENGINEERING & DESIGN CT, P.C.
CONNECTICUT LICENSE #0001111

SHEET TITLE
TITLE SHEET

SHEET NUMBER
ST-1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

BILL OF MATERIALS

SECTION 1 - VZWSMART KITS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
3	VZWSMART	VZWSMART-SFK1	TIE BACK ASSEMBLY	CONTRACTOR TO VERIFY THE LENGTH REQUIRED AND TRIM AS NECESSARY IN ACCORDANCE WITH THE 'STRUCTURAL STEEL' NOTES ON SHEET SGN-1.	84	252
6		VZWSMART-AL333	CLIP ANGLE		3	18
6		VZWSMART-SFK3-SL	V-BRACING KIT FOR SMALL LEGS	CONTRACTOR TO VERIFY THE LENGTH REQUIRED AND TRIM AS NECESSARY IN ACCORDANCE WITH THE 'STRUCTURAL STEEL' NOTES ON SHEET SGN-1.	117	702

SECTION 2 - OTHER REQUIRED PARTS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)

SECTION 3 - REQUIRED SAFETY CLIMB PARTS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
1	PERFECT VISON	PV-CLAMP-LW-0106	CLAMP BRACKET	OR EOR APPROVED EQUIVALENT	-	-
1	PERFECT VISION	PV-CMX-CG-SM	WIRE ROPE GUIDE	OR EOR APPROVED EQUIVALENT	-	-
					TOTAL:	972

*FOR ACTUAL INSTALL WEIGHT PLEASE CHECK THE MA REPORT

NOTES:

1. THE MANUFACTURERS LISTED ARE THE APPROVED VENDORS FOR THE VZW MOUNT KITS. EACH MANUFACTURER WILL BE AWARE OF WHICH KITS HAVE BEEN THROUGH THE VZW APPROVAL PROCESS AND THEY ARE IN TURN APPROVED TO SELL. PLEASE NOTE THAT THE MATERIAL UTILIZED ON THE MOUNT MODIFICATIONS WILL BE REVIEWED AS A PART OF THE DESKTOP PMI COMPLETED BY THE SMART TOOL VENDOR. IT WILL BE REQUIRED THAT THE VZW KITS SPECIFIED ARE UTILIZED IN THE MODIFICATIONS.
2. ALL MATERIALS REQUIRED FOR THE DESIGNED MODIFICATIONS BUT NOT LISTED IN THIS SHEET ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.

VZWSMART KITS - APPROVED VENDORS

COMMSCOPE	
CONTACT	SALVADOR ANGUIANO
PHONE	(817) 304-7492
EMAIL	SALVADOR.ANGUIANO@COMMSCOPE.COM
WEBSITE	WWW.COMMSCOPE.COM

METROSITE FABRICATORS, LLC	
CONTACT	KENT RAMEY
PHONE	(706) 335-7045 (O), (706) 982-9788 (M)
EMAIL	KENT@METROSITELLC.COM
WEBSITE	METROSITEFABRICATORS.COM

PERFECTVISION	
CONTACT	WIRELESS SALES
PHONE	(844) 887-6722
EMAIL	WWW.PERFECT-VISION.COM
WEBSITE	WIRELESSSALES@PERFECT-VISION.COM

SABRE INDUSTRIES, INC.	
CONTACT	ANGIE WELCH
PHONE	(866) 428-6937
EMAIL	AKWELCH@SABREINDUSTRIES.COM
WEBSITE	WWW.SABRESITESOLUTIONS.COM

SITE PRO 1	
CONTACT	PAULA BOSWELL
PHONE	(972) 236-9843
EMAIL	PAULA.BOSWELL@VALMONT.COM
WEBSITE	WWW.SITEPRO1.COM

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FOR STATE SPECIFIC DIGSAFE PHONE NUMBERS VISIT WWW.CALL811.COM

SCALE: AS SHOWN | SITE NUMBER: 327773659

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
0	10/03/24	ISSUED FOR CONSTRUCTION	GMH	EM

SITE NAME:
BOZRAH EAST
5000244619
131 GIFFORD LANE
BOZRAH, CT 06334
NEW LONDON COUNTY

Colliers Engineering & Design
STAMFORD
Stamford, CT 06901
Phone: 203.224.0806
COLLIERS ENGINEERING & DESIGN CT, P.C.
DOING BUSINESS AS MASER CONSULTING P.C.

SHEET TITLE: BILL OF MATERIALS

SHEET NUMBER: SBOM-1

GENERAL NOTES

1. THESE MODIFICATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE TELECOMMUNICATIONS INDUSTRY STANDARD TIA-222-H. MATERIALS AND SERVICES PROVIDED BY THE CONTRACTOR SHALL CONFORM TO THE ABOVE MENTIONED CODES.
2. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT DAMAGE TO EXISTING STRUCTURES. ANY DAMAGE TO EXISTING STRUCTURES AS A RESULT OF THE CONTRACTOR'S WORK OR FROM DAMAGE DUE TO OTHER CAUSES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
3. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS BEFORE BEGINNING WORK, ORDERING MATERIAL, AND PREPARING OF SHOP DRAWINGS. ANY DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER. IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT REPRESENTED ON THESE DRAWINGS, OR ANY CONDITIONS THAT WOULD INTERFERE WITH THE INSTALLATION OF THE MODIFICATIONS, NOTIFY THE ENGINEER IMMEDIATELY.
4. IT IS ASSUMED THAT ANY STRUCTURAL MODIFICATION WORK SPECIFIED ON THESE PLANS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TOWER CONSTRUCTION EXPERIENCE.
5. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES, AND PROCEDURES.
6. 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/TIA-322 (LATEST EDITION), OSHA, AND GENERAL INDUSTRY STANDARDS. ALL RIGGING PLANS SHALL ADHERE TO ANSI/TIA-322 (LATEST EDITION) INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION.
7. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PROGRAMS IN ACCORDANCE WITH APPLICABLE SAFETY CODES.
8. WORK SHALL ONLY BE PERFORMED DURING CALM DRY DAYS (WINDS LESS THAN 30-MPH). THE STRUCTURE SHOWN ON THE DRAWINGS IS STRUCTURALLY SOUND ONLY IN THE COMPLETED FORM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STRENGTH AND STABILITY OF THE STRUCTURE DURING ERECTION. CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT, SHORING, BRACING AND ANY OTHER STRUCTURAL SYSTEMS AS REQUIRED TO RESIST ALL FORCES THAT MAY OCCUR DURING HANDLING AND ERECTION UNTIL THE STRUCTURE IS FULLY COMPLETED. TEMPORARY SUPPORTS, BRACING AND OTHER STRUCTURAL SYSTEMS REQUIRED DURING CONSTRUCTION SHALL REMAIN THE CONTRACTOR'S PROPERTY AFTER THEIR USE.
9. ALL INSTALLATIONS PERFORMED ON THIS STRUCTURE SHALL BE COMPLETED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE STANDARD FOR INSTALLATION, ALTERATION AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS, ANSI/TIA-322.
10. CONTRACTOR SHALL SECURE SITE BACK TO EXISTING CONDITION UNDER SUPERVISION OF OWNER. ALL FENCE, STONE, GEOFABRIC, GROUNDING, AND SURROUNDING GRADE SHALL BE REPLACED AND REPAIRED AS REQUIRED TO ACHIEVE OWNER APPROVAL. POSITIVE DRAINAGE AWAY FROM TOWER SITE SHALL BE MAINTAINED.
11. CONNECTIONS BETWEEN ITEMS SUPPORTED BY THE STRUCTURE AND THE STRUCTURE NOT SPECIFICALLY DETAILED IN THE CONTRACT DOCUMENTS ARE THE RESPONSIBILITY OF THE CONTRACTOR. SUCH CONNECTIONS SHALL BE DESIGNED, COORDINATED AND INSPECTED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF THE PROJECT. SUBMIT SIGNED AND SEALED CALCULATIONS DURING SHOP DRAWING REVIEW.
12. DO NOT SCALE DRAWINGS.
13. DO NOT USE THESE DRAWINGS FOR ANY OTHER SITE.
14. ALL MATERIAL UTILIZED FOR THIS PROJECT MUST BE NEW AND FREE OF ANY DEFECTS. ANY MATERIAL SUBSTITUTIONS, INCLUDING BUT NOT LIMITED TO ALTERED SIZE AND/OR STRENGTHS, MUST BE APPROVED BY THE OWNER AND ENGINEER IN WRITING.
15. THE MOUNT UNDER NO CIRCUMSTANCES SHOULD BE USED AS A TIE OFF POINT.

STRUCTURAL STEEL

1. DESIGN, DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING PUBLICATIONS EXCEPT AS SPECIFICALLY INDICATED IN THE CONTRACT DOCUMENTS.
   a. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION (15TH EDITION)
   b. SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS
   c. AISC CODE OF STANDARD PRACTICE
2. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING UNLESS OTHERWISE SHOWN:

CHANNELS, ANGLES, PLATES, ETC.	ASTM A36 (GR 36)
STEEL PIPE	ASTM A53 (GR 35)
BOLTS	ASTM A325
NUTS	ASTM A563
LOCK WASHERS	LOCKING STRUCTURAL GRADE

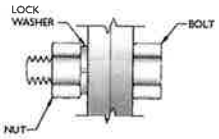
3. ALL SUBSTITUTIONS PROPOSED BY THE CONTRACTOR SHALL BE APPROVED IN WRITING BY THE ENGINEER. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENGINEER FOR VERIFYING THE SUBSTITUTE IS SUITABLE FOR USE AND MEETS ORIGINAL DESIGN CRITERIA. DIFFERENCES FROM THE ORIGINAL DESIGN, INCLUDING MAINTENANCE, REPAIR AND REPLACEMENT, SHALL BE NOTED. ESTIMATES OF COSTS/CREDITS ASSOCIATED WITH THE SUBSTITUTION (INCLUDING RE-DESIGN COSTS AND COSTS TO SUB-CONTRACTORS) SHALL BE PROVIDED TO THE ENGINEER. CONTRACTOR SHALL PROVIDE ADDITIONAL DOCUMENTATION AND/OR SPECIFICATIONS TO THE ENGINEER AS REQUESTED.
4. PROVIDE STRUCTURAL STEEL SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
   a. SUBMIT SHOP DRAWINGS TO
      PETER.ALBANO@COLLIERSENG.COM
   b. PROVIDE COLLIERS ENGINEERING & DESIGN PROJECT # AND COLLIERS ENGINEERING & DESIGN PROJECT ENGINEER CONTACT IN THE BODY OF THE EMAIL.
5. DRILL NO HOLES IN ANY NEW OR EXISTING STRUCTURAL STEEL MEMBERS OTHER THAN THOSE SHOWN ON STRUCTURAL DRAWINGS WITHOUT THE APPROVAL OF THE ENGINEER OF RECORD.
6. GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
7. ALL NEW STEEL SHALL BE HOT BE DIPPED GALVANIZED FOR FULL WEATHER PROTECTION. IN ADDITION ALL NEW STEEL SHALL BE PAINTED TO MATCH EXISTING STEEL. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION TO PROTECT STEEL BY ANY OTHER MEANS.
8. ALL BOLT ASSEMBLIES FOR STRUCTURAL MEMBERS REPRESENTED IN THIS DRAWING REQUIRE LOCKING DEVICES TO BE INSTALLED IN ACCORDANCE WITH TIA-222-H SECTION 4.9.2 REQUIREMENTS.
9. WHERE CONNECTIONS ARE NOT FULLY DETAILED ON THESE DRAWINGS, FABRICATOR SHALL DESIGN CONNECTIONS TO RESIST LOADS AND FORCES WHERE SHOWN ON DRAWINGS AND AS OUTLINED IN SPECIFICATIONS.
10. FOR MEMBERS BEING REPLACED, PROVIDE NEW BOLTS AND MATCH EXISTING SIZE AND GRADE. MAINTAIN AISC REQUIREMENTS FOR MINIMUM BOLT DISTANCE AND SPACING.
11. ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT IS AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.
12. GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
13. ALL NEW STEEL SHALL BE HOT BE DIPPED GALVANIZED FOR FULL WEATHER PROTECTION. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION TO PROTECT STEEL BY ANY OTHER MEANS.
14. ALL EXISTING PAINTED/GALVANIZED SURFACES DAMAGED DURING REHAB INCLUDING AREAS UNDER STIFFENER PLATES SHALL BE WIRE BRUSHED CLEAN, REPAIRED BY COLD GALVANIZING (ZINC COTE, OR EOR APPROVED EQUAL), AND REPAINTED TO MATCH THE EXISTING FINISH (IF APPLICABLE).
15. ALL HOLES IN STEEL MEMBERS SHALL BE SIZED 1/16" LARGER THAN THE BOLT DIAMETER. STANDARD HOLES SHALL BE USED UNLESS NOTED OTHERWISE.

BOLT SCHEDULE (IN.)

BOLT DIAMETER	STANDARD HOLE	SHORT SLOT	MIN. EDGE DISTANCE	SPACING
1/2	9/16	9/16 x 11/16	7/8	1 1/2
5/8	11/16	11/16 x 7/8	1 1/8	1 7/8
3/4	13/16	13/16 x 1	1 1/4	2 1/4
7/8	15/16	15/16 x 1 1/8	1 1/2	2 5/8
1	1 1/16	1 1/16 x 1 5/16	1 3/4	3

WORKABLE GAGES (IN.)

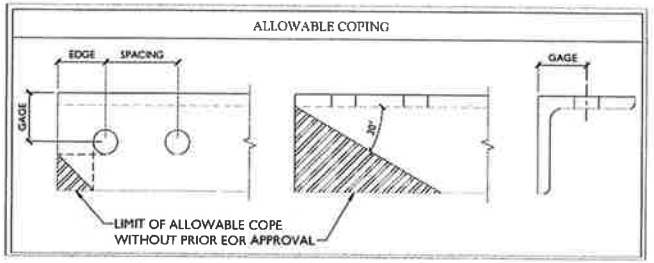
LEG	GAGE
4	2 1/2
3 1/2	2
3	1 3/4
2 1/2	1 3/8
2	1 1/8



TYP. BOLT ASSEMBLY

NOTES:

1. ALL DIMENSIONS REPRESENTED IN THE ABOVE TABLES ARE AISC MINIMUM REQUIREMENTS. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY ENGINEER IF DISTANCES ARE LESS THAN THOSE PROVIDED.
2. THE DIMENSIONS PROVIDED ARE MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS OF PROPOSED MEMBERS WITHIN THESE DRAWINGS MAY VARY FROM THE AISC MINIMUM REQUIREMENTS.
3. SHORT SLOT HOLES SHALL ONLY BE USED WHEN DEPICTED IN THE DRAWINGS
4. MATCH EXISTING GAGES WHEN APPLICABLE, UNLESS MINIMUM EDGE DISTANCES ARE COMPROMISED.



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SCALE	JOB NUMBER
AS SHOWN	207760.16

REV	DATE	DESCRIPTION	BY	CHECKED BY
6	12/05/24	REVISED FOR CONSTRUCTION	DMW	BM

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C.T. LIC. 0028158

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

SITE NAME:

BOZRAH EAST
5000244619

131 GIFFORD LANE
BOZRAH, CT 06334
NEW LONDON COUNTY

Colliers Engineering & Design

STAMFORD
100 Washington Boulevard
Stamford, CT 06901
Phone: (203) 324-6800
COLLIERS ENGINEERING & DESIGN (CT), P.C.
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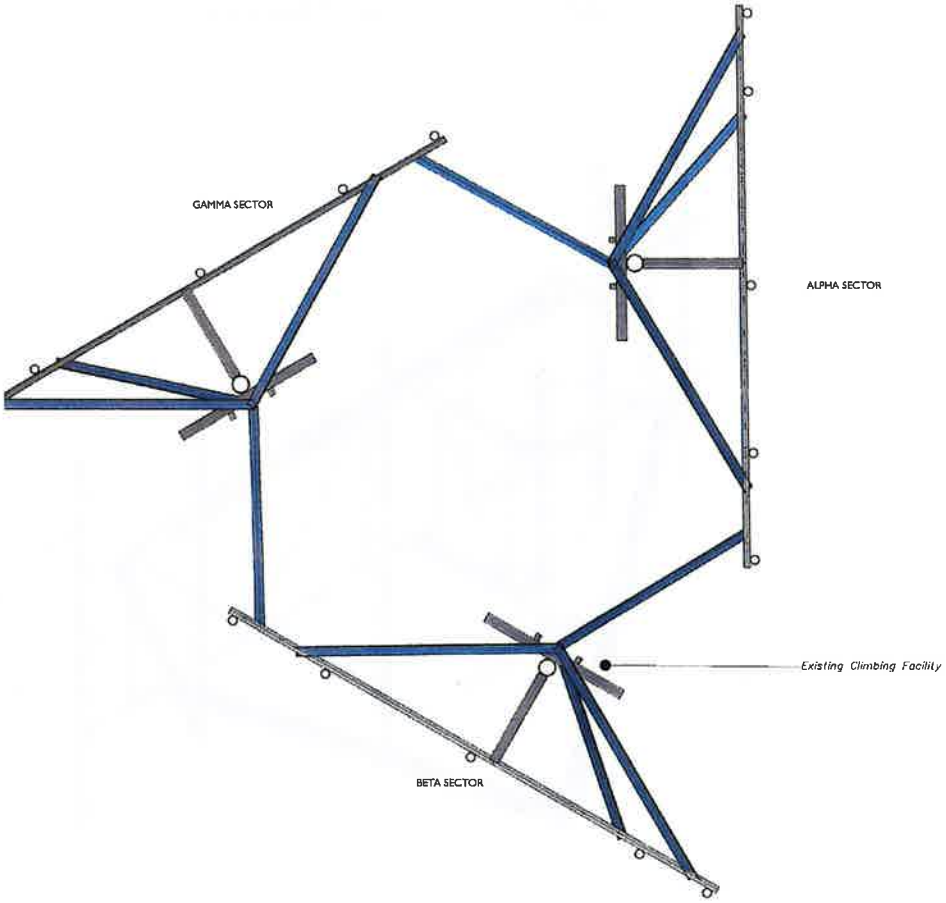
GENERAL NOTES

SGN-1

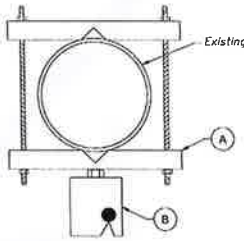
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



1 CLIMBING FACILITY LOCATION
SCALE : N.T.S.

STRUCTURAL NOTES:

1. PER THE MOUNT MAPPING COMPLETED BY HUDSON DESIGN GROUP, LLC ON 2/25/2021, THE SAFETY CLIMB AND CLIMBING FACILITIES UP TO THE VERIZON MOUNT ELEVATION (159'-6") ARE IN GOOD CONDITION. COLLIERS ENGINEERING & DESIGN DOES NOT WARRANT THIS INFORMATION.
2. INSTALL SHALL NOT CAUSE HARM TO THE STRUCTURE, CLIMBING FACILITY, SAFETY CLIMB, OR ANY SYSTEM INSTALLED ON THE STRUCTURE. TIMELY NOTICE AND DOCUMENTATION SHALL BE PROVIDED BY CONTRACTORS TO THE EOR (OF STRUCTURAL DESIGN) IF AN OBSTRUCTION WAS REQUIRED TO MEET THE RF SYSTEM DESIGN REQUIREMENTS AND PERFORMANCES.



ITEM #	QTY	PART NUMBER	DESCRIPTIONS
A	1	PV-CLAMP-LW.0106	CLAMP BRACKET (PERFECT VISION OR EOR APPROVED EQ.)
B	1	PV-CMX-CG-SM	WIRE ROPE GUIDE (PERFECT VISION OR EOR APPROVED EQ.)

2 PROPOSED WIRE ROPE GUIDE ATTACHMENT - PLAN VIEW
SCALE : N.T.S.

NOTE: CONTRACTOR SHALL ENSURE THAT WIRE ROPE GUIDE DOES NOT PUSH THE WIRE ROPE OUTSIDE OF THE VERTICAL PLANE OF THE SAFETY CLIMB. CONTRACT EOR WITH PHOTOS OF SAFETY CLIMB AND COLLAR FOR FURTHER DIRECTION IF NEEDED.

CLIMBING FACILITY PHOTO

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SCALE	SITE NUMBER
AS SHOWN	26777639

REV	DATE	DESCRIPTION	BY & INITIALS	CHECKED & INITIALS
0	03/03/21	ISSUED FOR CONSTRUCTION		

SITE NAME:
BOZRAH EAST
5000244619
131 GIFFORD LANE
BOZRAH, CT 06334
NEW LONDON COUNTY

Colliers Engineering & Design
STAMFORD
Stamford, CT 06901
Phone: 203 324 6800
COLLIERS ENGINEERING & DESIGN (CT), P.C.
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CLIMBING FACILITY DETAIL

SCF-1

LEGEND:

- PROPOSED
- RELOCATED
- EXISTING

MOUNT MODIFICATION SCHEDULE

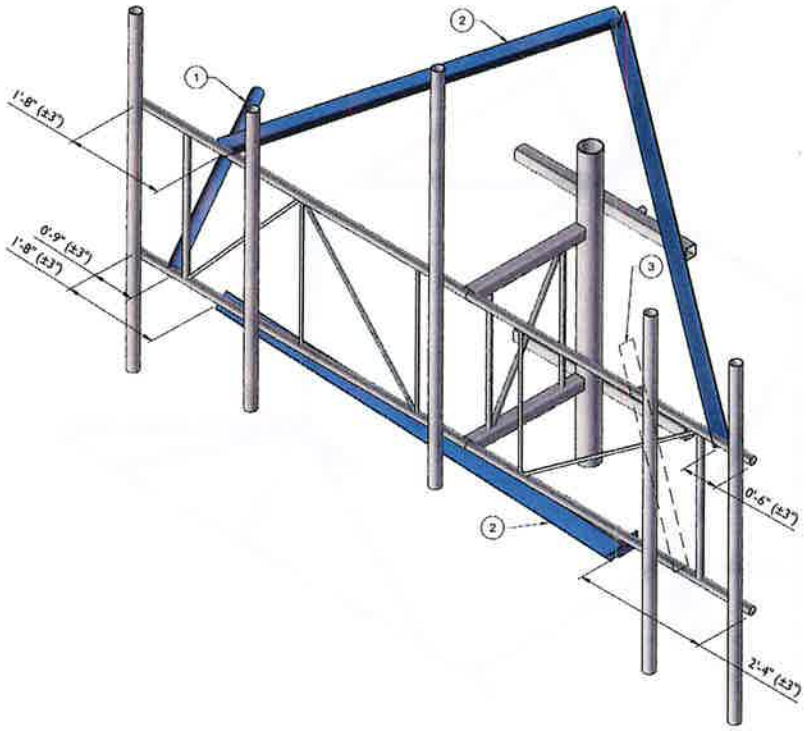
NO.	ELEVATION	QUANTITY	DESCRIPTION	NOTES
1	159'-6"	3	PROPOSED TIEBACK ASSEMBLY (PART #: VZWSMART-SFK1)	CONNECT OTHER END TO ADJACENT TOWER LEG. PROPOSED TIE-BACK SHALL EXTEND NO MORE THAN 12" BEYOND THE TOWER LEG. CONTRACTOR SHALL TRIM AS REQUIRED AND PROTECT CUT END WITH TWO COATS OF ZINC KOTE, OR EOR APPROVED EQUAL. SEE GENERAL NOTE B.
2		6	PROPOSED V-BRACING KIT FOR SMALL LEGS (PART #: VZWSMART-SFK3-SL)	CONTRACTOR TO VERIFY THE LENGTH REQUIRED AND TRIM AS NECESSARY IN ACCORDANCE WITH THE 'STRUCTURAL STEEL' NOTES ON SHEET SGN-1. SEE GENERAL NOTE B. CONTRACTOR SHALL INSTALL ONE PROPOSED CLIP ANGLE (PART #:VZWSMART-AL333) AT EITHER END OF EACH LONG ANGLE IN THE SFK1 KIT.
3		3	REMOVED TIEBACK	CONTRACTOR SHALL REMOVE EXISTING TIEBACK PRIOR TO INSTALLATION OF PROPOSED MODIFICATION KITS.

GENERAL NOTES:

A. CONTRACTOR SHALL VERIFY THAT NEW & EXISTING STEEL IS FREE OF CORROSION. VISIBLE MINOR CORROSION SHALL BE WIRE BRUSHED CLEAN AND TREATED WITH COLD GALVANIZATION. REPORT ANY SIGNIFICANT CORROSION TO EOR

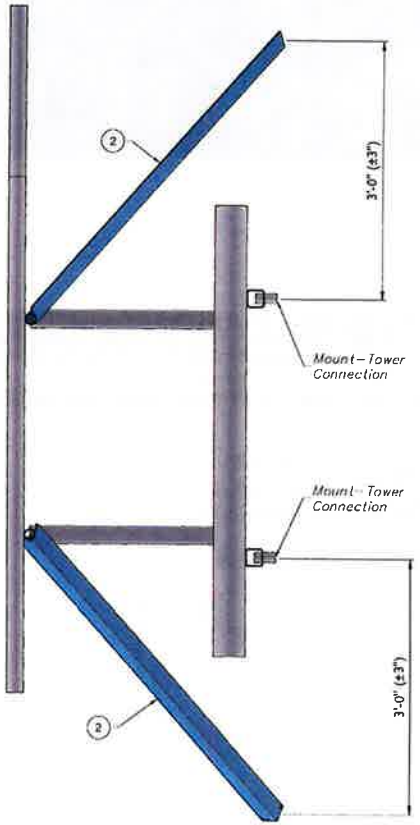
B. THREADED ROD FROM PROPOSED KITS SHALL BE TRIMMED TO EXTEND NO MORE THAN 3" BEYOND THE LOCK NUT. TREAT ALL CUT ENDS WITH (2) COATS OF COLD GALVANIZATION (ZINC KOTE, OR EOR APPROVED EQUAL).

C. MOUNT MEMBERS NOT SHOWN FOR CLARITY U.N.O.



1 PROPOSED ISOMETRIC VIEW (TYP. ALL SECTORS)

SCALE : N.T.S.



2 PROPOSED SIDE ELEVATION VIEW (TYP. ALL SECTORS)

SCALE : N.T.S.

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MODIFICATION DETAILS

SS-1

MOUNT PHOTO 1

MOUNT PHOTO 2

MOUNT PHOTO 3

MOUNT PHOTO 4

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SCALE: AS SHOWN	JOB NUMBER: 3677X.35

NO	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
0	03/03/24	ISSUED FOR ZONING REVIEW	QMC	BC

SITE NAME:

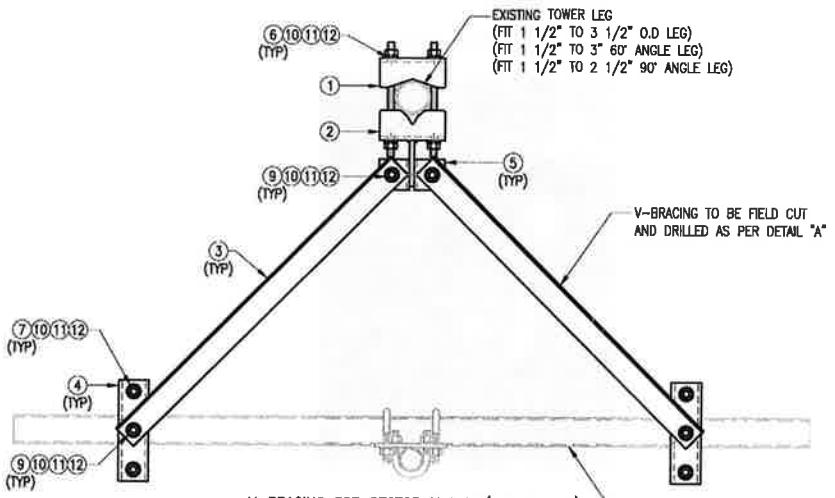
BOZRAH EAST
5000244619

131 GIFFORD LANE
BOZRAH, CT 06334
NEW LONDON COUNTY

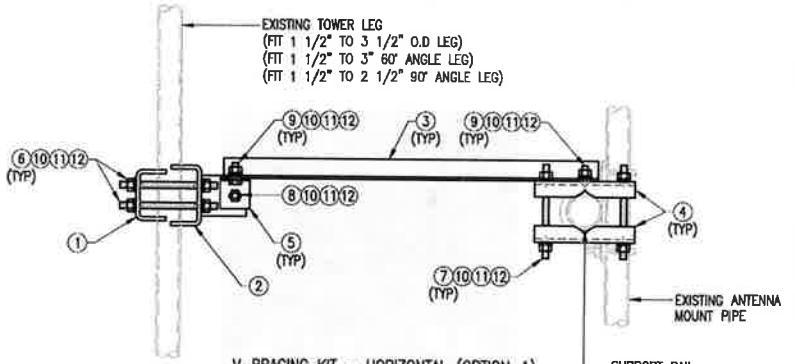
STAMFORD
1000 Washington Boulevard
Stamford, CT 06901
Phone: 203.324.0800
COLLIERSENGINEERING.COM

MOUNT PHOTOS

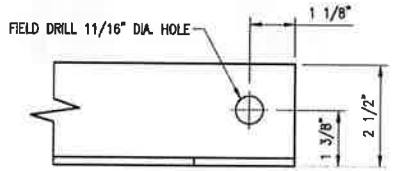
SS-2



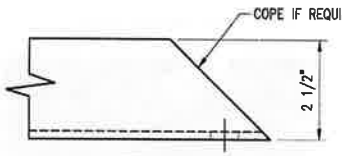
V-BRACING FOR SECTOR MOUNT (SMALL LEGS)
PLAN VIEW



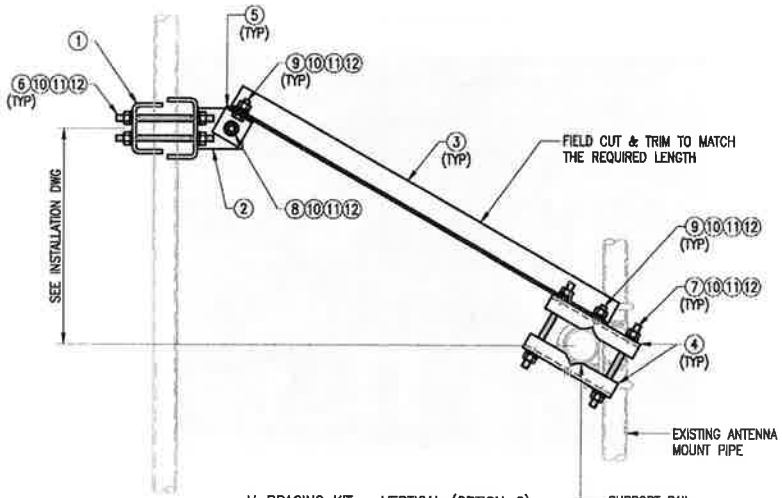
V-BRACING KIT - HORIZONTAL (OPTION-1)
SIDE VIEW



PLAN VIEW



FRONT VIEW
DETAIL "A"



V-BRACING KIT - VERTICAL (OPTION-2)
SIDE VIEW

NOTES:
1. HOT-DIPPED GALVANIZED PER ASTM A123.

VZWSMART-SFK3-SL (V-BRACING KIT FOR SMALL LEGS)

ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	1	BP9625-65	PL 3/8" X 9 5/8" X 6 1/2" A36 BENT PLATE	VBSM-SL-F1	12
2	1	BRKW-VBSM-SL	WELDMENT BRACKET	VBSM-SL-F3	11
3	2	L252525-8	L 2 1/2" X 2 1/2" X 1/4" X 8'-0" A36	VBSM-F5	67
4	1	BP6875-10	PL 3/8" X 6 7/8" X 10" A36 BENT PLATE	VBSM-F2	20
5	2	AI-333	L 3" X 3" X 1/4" X 3" A36	VBSM-F2	5
6	4	---	THREADED ROD 5/8" DIA. X 1'-0" F1554-36 HDG	---	---
7	4	---	THREADED ROD 5/8" DIA. X 10" F1554-36 HDG	---	---
8	1	---	BOLT 5/8" X 2 1/4" A325	---	---
9	4	---	BOLT 5/8" X 1 3/4" A325	---	---
10	21	FW-625	5/8" HDG USS FLAT WASHER	---	7
11	21	LW-625	5/8" HDG LOCK WASHER	---	0
12	21	NUT-625	5/8" HDG HEX NUT	---	2
				GALVANIZED WT	117

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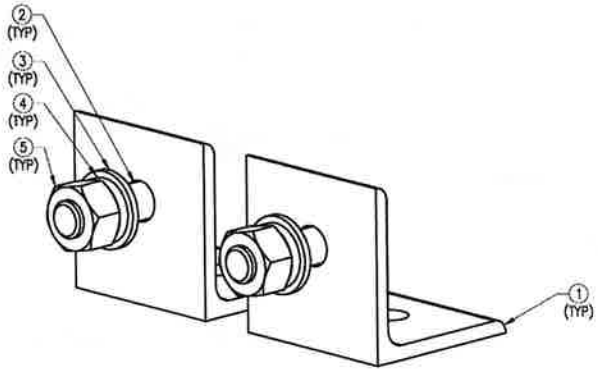
DRAWN BY: BT | CHECKED BY: HMA

REV	DESCRIPTION	BY	DATE
1	FIRST ISSUE	BT	04/10/21

SHEET TITLE:
VZWSMART-SFK3-SL
V-BRACING KIT
FOR SMALL LEGS

SHEET NUMBER: VZWSMART-SFK3-SL
REV #: 0



CLIP ANGLE
ISOMETRIC VIEW

VZWSMART-AL333 (CLIP ANGLE)					
ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	2	AL-333	L 3" X 3" X 1/4" X 3" A36	AL333-F1	2.50
2	2	---	BOLT 5/8" X 2" FULL THREAD SAE GR-5	---	0.77
3	2	FW-625	5/8" HDG USS FLAT WASHER	---	0
4	2	LW-625	5/8" HDG LOCK WASHER	---	0
5	2	NUT-625	5/8" HDG HEX NUT	---	0
				GALVANIZED WT	3.27

NOTES:
1. HOT-DIPPED GALVANIZED PER ASTM A123.

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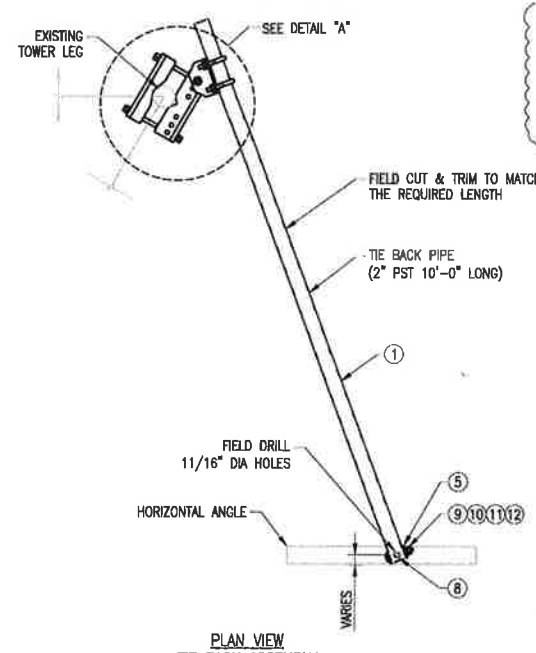
DRAWN BY: JBM | CHECKED BY: ---

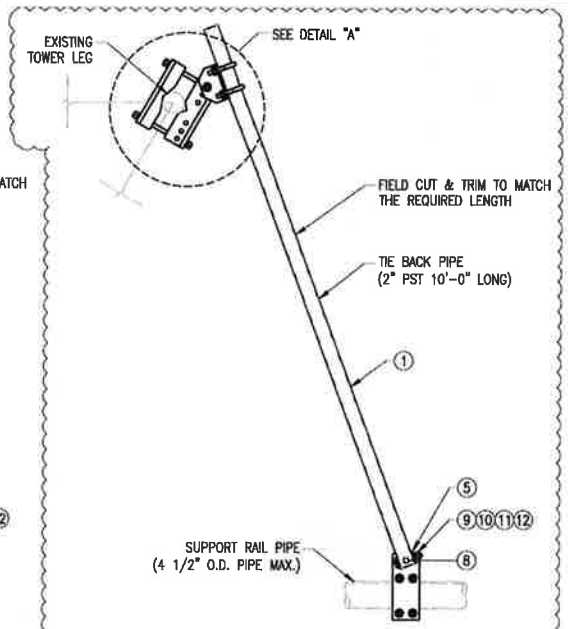
REV	DESCRIPTION	BY	DATE
0	FIRST ISSUE	JBM	10/08/21

SHEET TITLE:
VZWSMART-AL333
CLIP ANGLE

SHEET NUMBER: VZWSMART-AL333 | REV #: 0

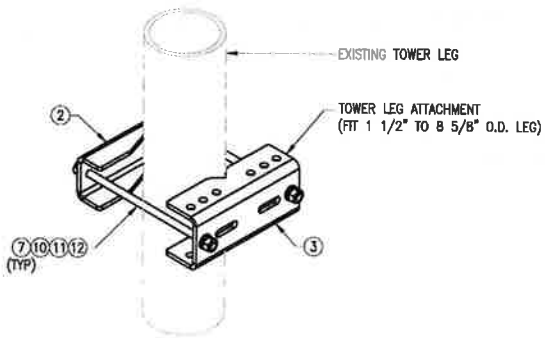


PLAN VIEW
TIE BACK ASSEMBLY

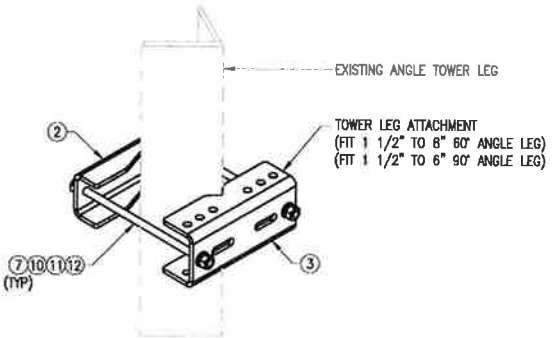


PLAN VIEW
TIE BACK ASSEMBLY WITH ADAPTER FOR PIPE

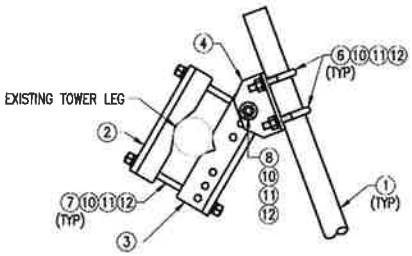
1



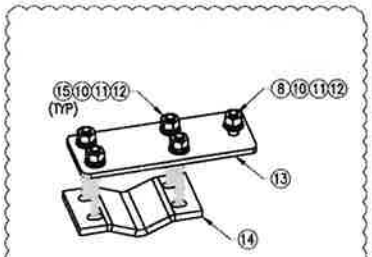
ROUND TOWER LEG ATTACHMENT DETAIL



ANGLE TOWER LEG ATTACHMENT DETAIL



DETAIL "A"



ADAPTER FOR PIPE CONNECTION

1

NOTES:
1. HOT-DIPPED GALVANIZED PER ASTM A123.

VZWSMART-SFK1 (TIE BACK ASSEMBLY)

ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	1	PST2375-10	2" PST (2.375" O.D. X 0.154" THK) X 10'-0" A53 GR-B 35KSI	SFK1-F1	38
2	1	BP825-12	PL 3/8" X 8 1/4" X 1'-0" A36 BENT PLATE	SFK1-F2	11
3	1	BP11125-12	PL 3/8" X 11 1/8" X 1'-0" A36 BENT PLATE	SFK1-F3	14
4	1	BP6-9375	PL 3/8" X 6" X 9 3/8" A36 BENT PLATE	SFK1-F4	6
5	1	BP2-875	PL 1/4" X 2" X 8 3/4" A36 BENT PLATE	SFK1-F4	1
6	2	MS02-625-300-500	RU-BOLT 5/8" X 3" I.W. X 5" I.L. A36 (OR EQUIV.)	RDC-1	2
7	2	---	THREADED ROD 5/8" DIA. X 1'-6" F1554-36 HDG	---	0
8	2	---	BOLT 5/8" X 2" A325	---	0
9	1	---	BOLT 5/8" X 4 1/4" A325	---	0
10	15	FW-625	5/8" HDG USS FLAT WASHER	---	1
11	15	LW-625	5/8" HDG LOCK WASHER	---	0
12	15	NUT-625	5/8" HDG HEX NUT	---	2
13	1	PL375-4511	PL 3/8" X 4 1/2" X 11" A36	SFK1-F1	4
14	1	V-CLAMP	PL 1/2" X 4 1/4" X 8 5/8" A36 BEND PLATE	SFK1-F5	5
15	4	---	BOLT 5/8" X 6" FULL THREAD SAE GR 5	---	0
			GALVANIZED WT		84

1

VzW SMART Tool© Vendor

verizon

FOR REFERENCE ONLY

DRAWN BY: BT	CHECKED BY: HMA/KW

REV	DESCRIPTION	BY	DATE
1	FIRST ISSUE	BT	05/08/20
1	REVISED	BT	04/10/21

SHEET TITLE:
VZWSMART-SFK1
TIE BACK ASSEMBLY

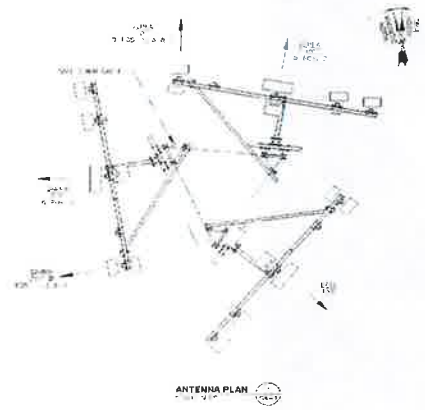
SHEET NUMBER:	REV #:
VZWSMART-SFK1	1

V3.0 Updated on 8-31-2020

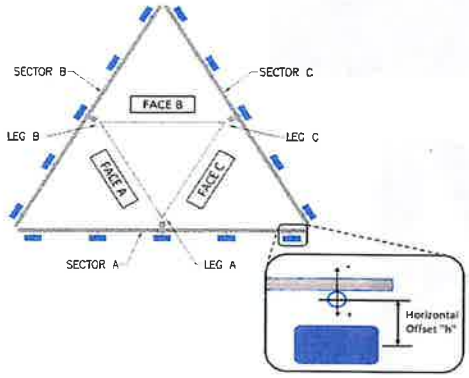
Antenna Mount Mapping Form (PATENT PENDING)

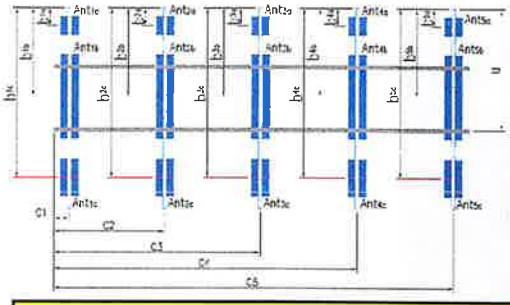
FCC # 1065431

Tower Owner:	SBA TOWERS	**Mapping Date:**	2.25.2021
Site Name:	BOZRAH EAST CT	**Tower Type:**	Self Support
Site Number or ID:	467314	**Tower Height (FL):**	190
Mapping Contractor:	HUDSON DESIGN GROUP, LLC	**Mount Elevation (FL):**	160.5



ANTENNA PLAN





Antenna Layout (Looking Out From Tower)

Mount Pipe Configuration and Geometries [Unit = Inches]

Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "d"	Horizontal Offset "C1, C2, C3, etc."	Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "d"	Horizontal Offset "C1, C2, C3, etc."
A1	PIPE 2" STD. X 72" LONG	50.00	2.00	C1	PIPE 2" STD. X 72" LONG	50.00	2.00
A2	PIPE 2" STD. X 84" LONG	74.00	72.00	C2	PIPE 2" STD. X 84" LONG	74.00	72.00
A3	PIPE 2" STD. X 60" LONG	44.00	115.00	C3	PIPE 2" STD. X 60" LONG	44.00	115.00
A4	PIPE 2" STD. X 72" LONG	50.00	139.00	C4	PIPE 2" STD. X 72" LONG	50.00	139.00
A5				C5			
A6				C6			
B1	PIPE 2" STD. X 72" LONG	50.00	2.00	D1			
B2	PIPE 2" STD. X 84" LONG	74.00	72.00	D2			
B3	PIPE 2" STD. X 60" LONG	44.00	115.00	D3			
B4	PIPE 2" STD. X 72" LONG	50.00	139.00	D4			
B5				D5			
B6				D6			

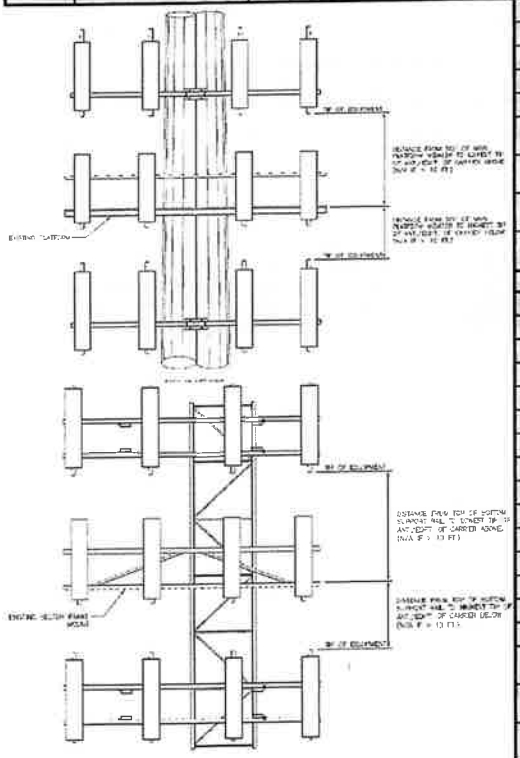
Distance between bottom rail and mount CL elevation (dim d). Unit is inches. See 'Mount Elev Ref' tab for details. :	15.00
Distance from top of bottom support rail to lowest tip of ant./eqpt. of Carrier above. (N/A if > 10 ft.) :	
Distance from top of bottom support rail to highest tip of ant./eqpt. of Carrier below. (N/A if > 10 ft.) :	
Please enter additional infomation or comments below.	

Tower Face Width at Mount Elev. (ft.):	6.83	Tower Leg Size or Pole Shaft Diameter at Mount Elev. (in.):	13.25

	Enter antenna model. If not labeled, enter "Unknown".						Mounting Locations [Units are inches and degrees]			Photos of antennas
Ants. Items	Antenna Models if Known	Width (in.)	Depth (in.)	Height (in.)	Coax Size and Qty	Antenna Center-line (Ft.)	Vertical Distances "b_{1a}, b_{2a}, b_{3a}, b_{1b}..." (inches)	Horiz. Offset "h" (Use "-" if Ant. is behind)	Antenna Azimuth (Degrees)	Photo Numbers
Sector A										
Ant_{1a}										
Ant_{1b}	HBXX-6517DS-A2M	12.00	6.50	75.00		160.583	34.00	10.00	0.00	22,74
Ant_{1c}	B4 RRH 2X60-4R	11.00	5.50	36.00		160.75	32.00	-7.00		23,74
Ant_{2a}	RFS DIPLEXER					165.417				26
Ant_{2b}	QUAD 656C0000G	20.50	7.50	74.00		161.333	49.00	10.00	10.00	24,75
Ant_{2c}	B13 RRH 4X30	12.00	9.00	21.50		161.917	42.00	-7.00		25,75
Ant_{3a}										
Ant_{3b}	HBXX-6517DS-A2M	12.00	6.50	75.00		160.75	26.00	10.00	0.00	76
Ant_{3c}	RFS DIPLEXER					162.917				
Ant_{4a}										
Ant_{4b}	UNKNOWN	12.00	7.00	73.00		160.583	34.00	10.00	0.00	29,77
Ant_{4c}										
Ant_{5a}										
Ant_{5b}										
Ant_{5c}										
Ant on Standoff										
Ant on Standoff										
Ant on Tower										
Ant on Tower										

Mount Azimuth (Degree) for Each Sector				Tower Leg Azimuth (Degree) for Each Sector	
Sector A:	10.00	Deg	Leg A:	65.00	Deg
Sector B:	135.00	Deg	Leg B:	185.00	Deg
Sector C:	260.00	Deg	Leg C:	305.00	Deg
Sector D:		Deg	Leg D:		Deg

Climbing Facility Information		
Location:	305.00 Deg	Sector C
Climbing Facility	Corrosion Type:	Good condition.
	Access:	Climbing path was unobstructed.
	Condition:	Good condition.



Sector B										
Ant_{1a}										
Ant_{1b}	HBXX-6517DS-A2M	12.00	6.50	75.00		160.583	34.00	10.00	135.00	78
Ant_{1c}	B4 RRH 2X60-4R	11.00	5.50	36.00		160.75	32.00	-7.00		75
Ant_{2a}	RFS DIPLEXER					165.417				
Ant_{2b}	QUAD 656C0000G	20.50	7.50	74.00		161.333	49.00	10.00	135.00	79
Ant_{2c}	B13 RRH 4X30	12.00	9.00	21.50		161.917	42.00	-7.00		79
Ant_{3a}	RFS DIPLEXER					162.917				80
Ant_{3b}	HBXX-6517DS-A2M	12.00	6.50	75.00		160.75	26.00	10.00	135.00	80
Ant_{3c}										
Ant_{4a}										
Ant_{4b}	UNKNOWN	12.00	7.00	73.00		160.583	34.00	10.00	135.00	80
Ant_{4c}										
Ant_{5a}										
Ant_{5b}										
Ant_{5c}										
Ant on Standoff										
Ant on Standoff										
Ant on Tower	(2) RRFDC-3315	15.00	10.00	28.00						82,83
Ant on Tower										
Sector C										
Ant_{1a}										
Ant_{1b}	HBXX-6517DS-A2M	12.00	6.50	75.00		160.583	34.00	10.00	260.00	84
Ant_{1c}	B4 RRH 2X60-4R	11.00	5.50	36.00		160.75	32.00	-7.00		84
Ant_{2a}	RFS DIPLEXER					165.417				85
Ant_{2b}	QUAD 656C0000G	20.50	7.50	74.00		161.333	49.00	10.00	270.00	85
Ant_{2c}	B13 RRH 4X30	12.00	9.00	21.50		161.917	42.00	-7.00		85
Ant_{3a}										
Ant_{3b}	HBXX-6517DS-A2M	12.00	6.50	75.00		160.75	26.00	10.00	260.00	86
Ant_{3c}	RFS DIPLEXER					162.917				86
Ant_{4a}										
Ant_{4b}	UNKNOWN	12.00	7.00	73.00		160.583	34.00	10.00	260.00	86
Ant_{4c}										
Ant_{5a}										
Ant_{5b}										
Ant_{5c}										
Ant on Standoff										
Ant on Standoff										
Ant on Tower										
Ant on Tower										
Sector D										
Ant_{1a}										
Ant_{1b}										
Ant_{1c}										
Ant_{2a}										
Ant_{2b}										
Ant_{2c}										
Ant_{3a}										
Ant_{3b}										
Ant_{3c}										
Ant_{4a}										
Ant_{4b}										
Ant_{4c}										
Ant_{5a}										
Ant_{5b}										
Ant_{5c}										
Ant on Standoff										
Ant on Standoff										
Ant on Tower										
Ant on Tower										

Observed Safety and Structural Issues During the Mount Mapping		
Issue #	Description of Issue	Photo #

1	(12) 1-5/8" COAX AND (2) 1-1/4" HYBRID CABLES	59,60
2	TOWER TAG (FADED): 5 31 99, A# 115466, U 22, 0X1193	51
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.

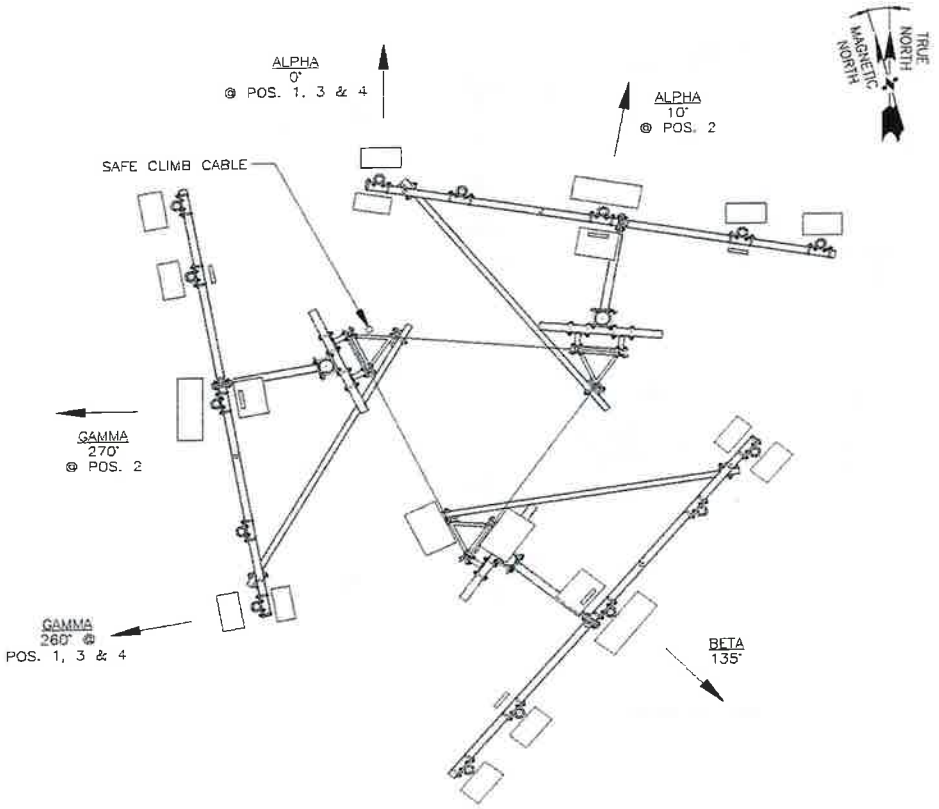
V3.0 Updated on 8-31-2020

Antenna Mount Mapping Form (PATENT PENDING)

FCC # 1065431

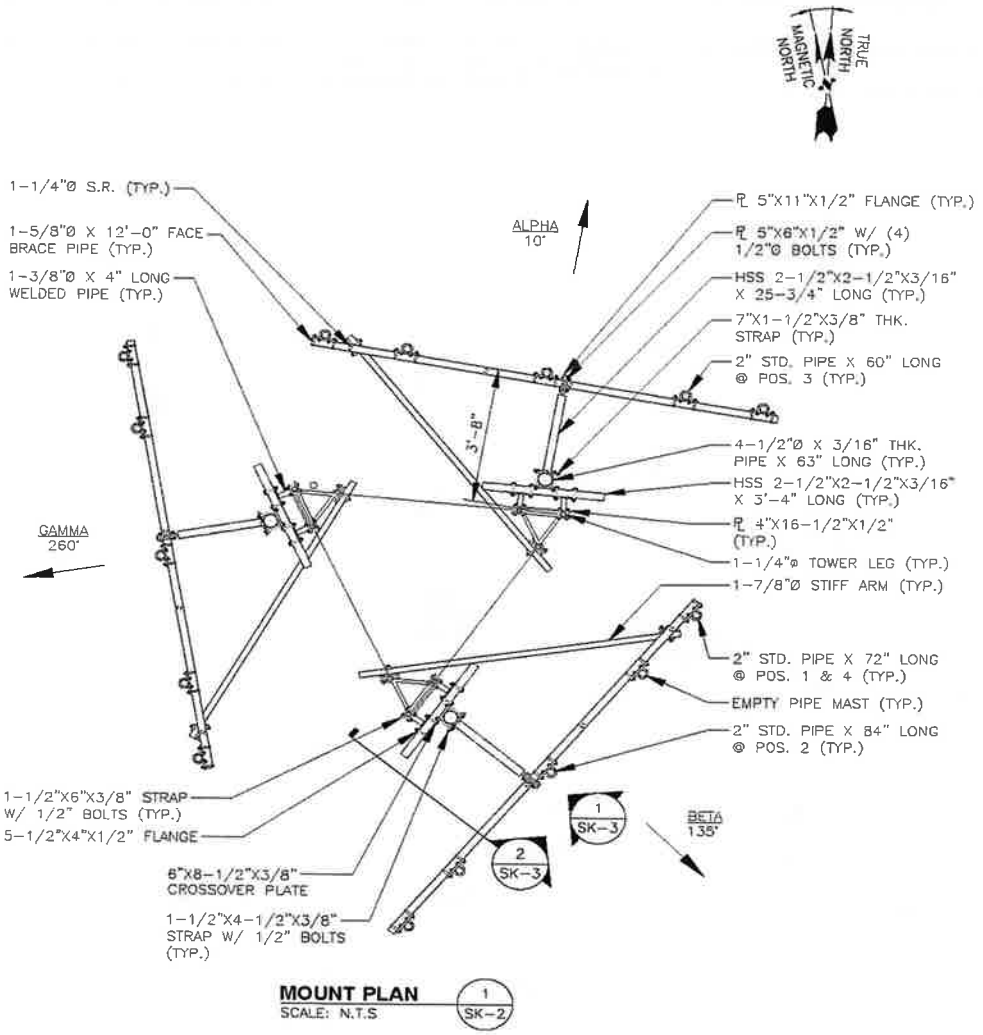
Tower Owner:	SBA TOWERS	Mapping Date:	2.25.2021
Site Name:	BOZRAH EAST CT	Tower Type:	Self Support
Site Number or ID:	467314	Tower Height (Ft.):	190
Mapping Contractor:	HUDSON DESIGN GROUP, LLC	Mount Elevation (Ft.):	160.5

Please Insert Sketches of the Antenna Mount



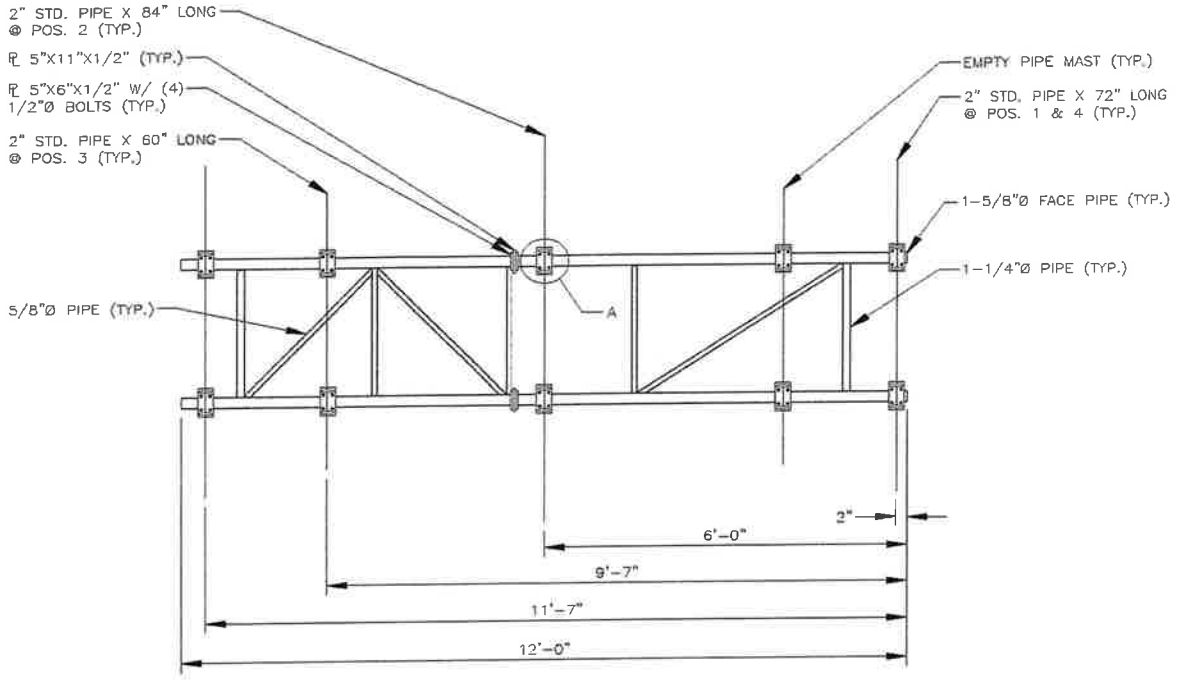
ANTENNA PLAN (1 / SK-1)
SCALE: N.T.S

Please Insert Sketches of the Antenna Mount, cont'd

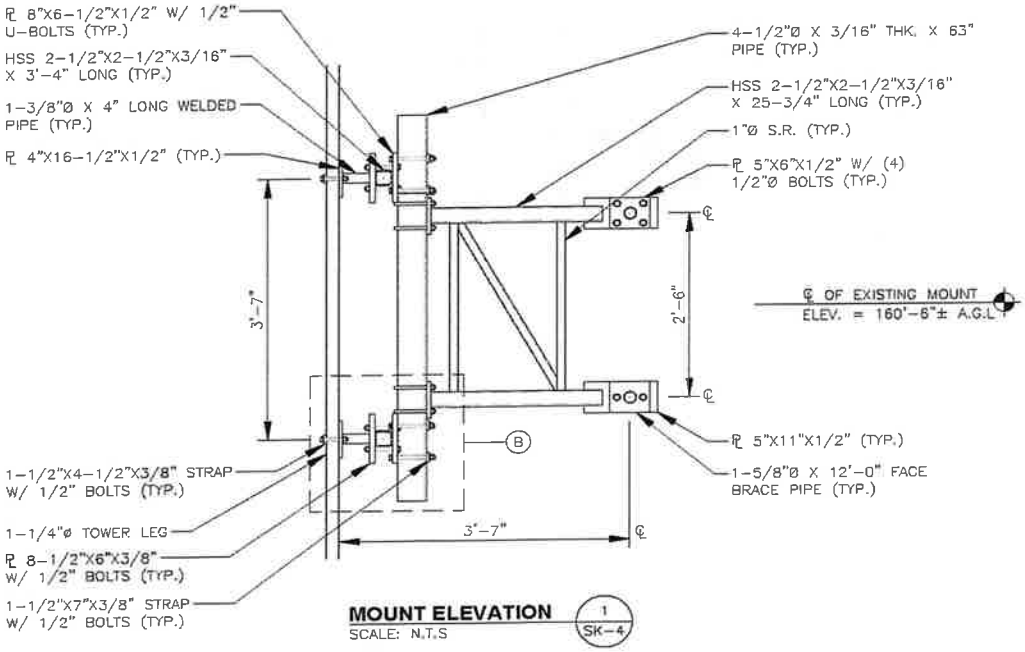


MOUNT PLAN (1 SK-2)
SCALE: N.T.S

Please Insert Sketches of the Antenna Mount, cont'd

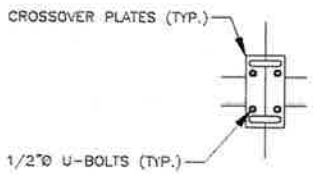


FRONT ELEVATION (1 / SK-3)
SCALE: N.T.S

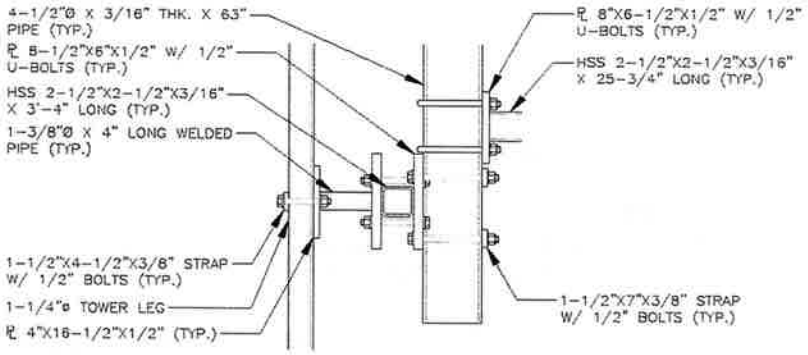


MOUNT ELEVATION (1 / SK-4)
SCALE: N.T.S

Please Insert Sketches of the Antenna Mount, cont'd

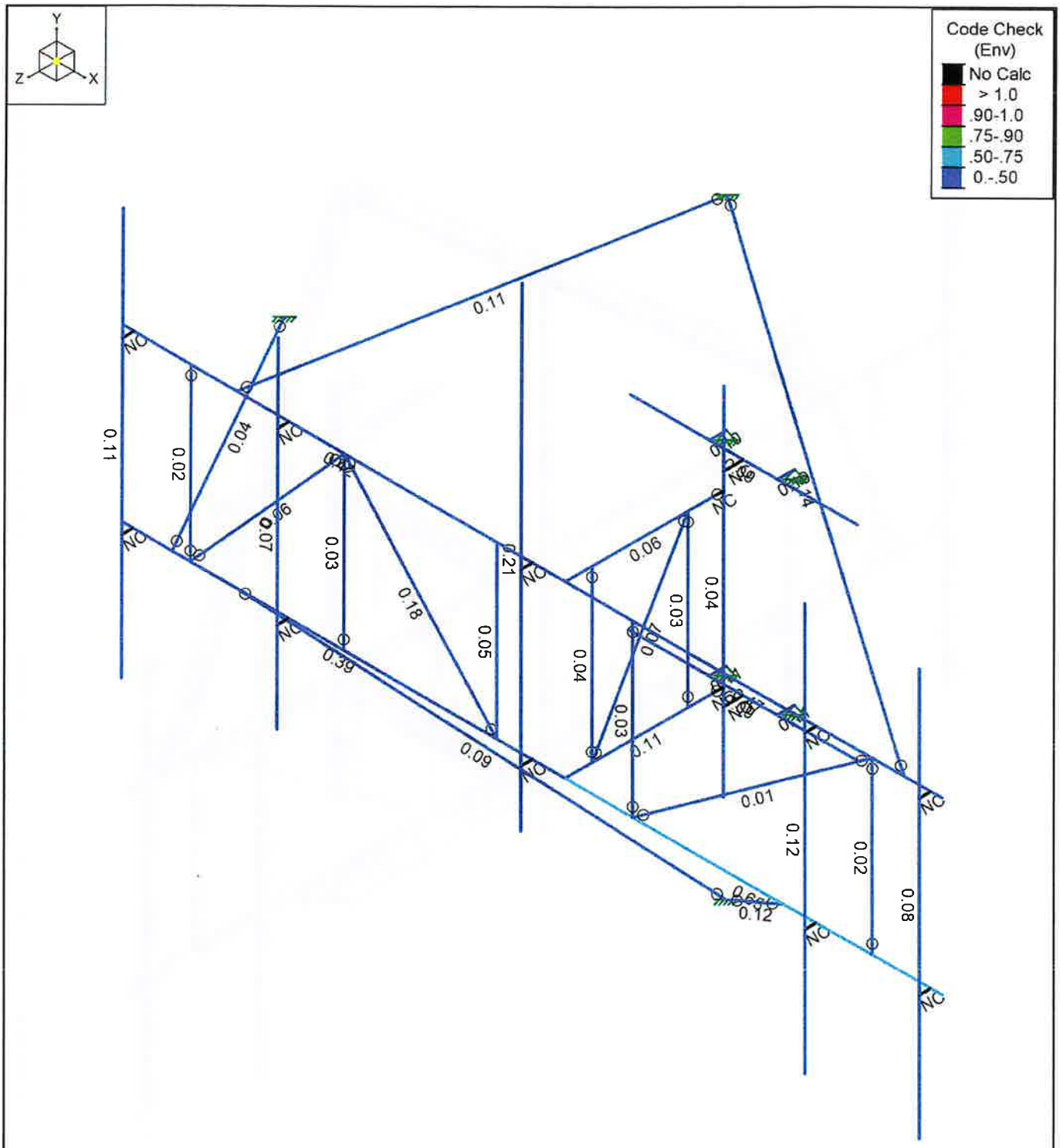


DETAIL A



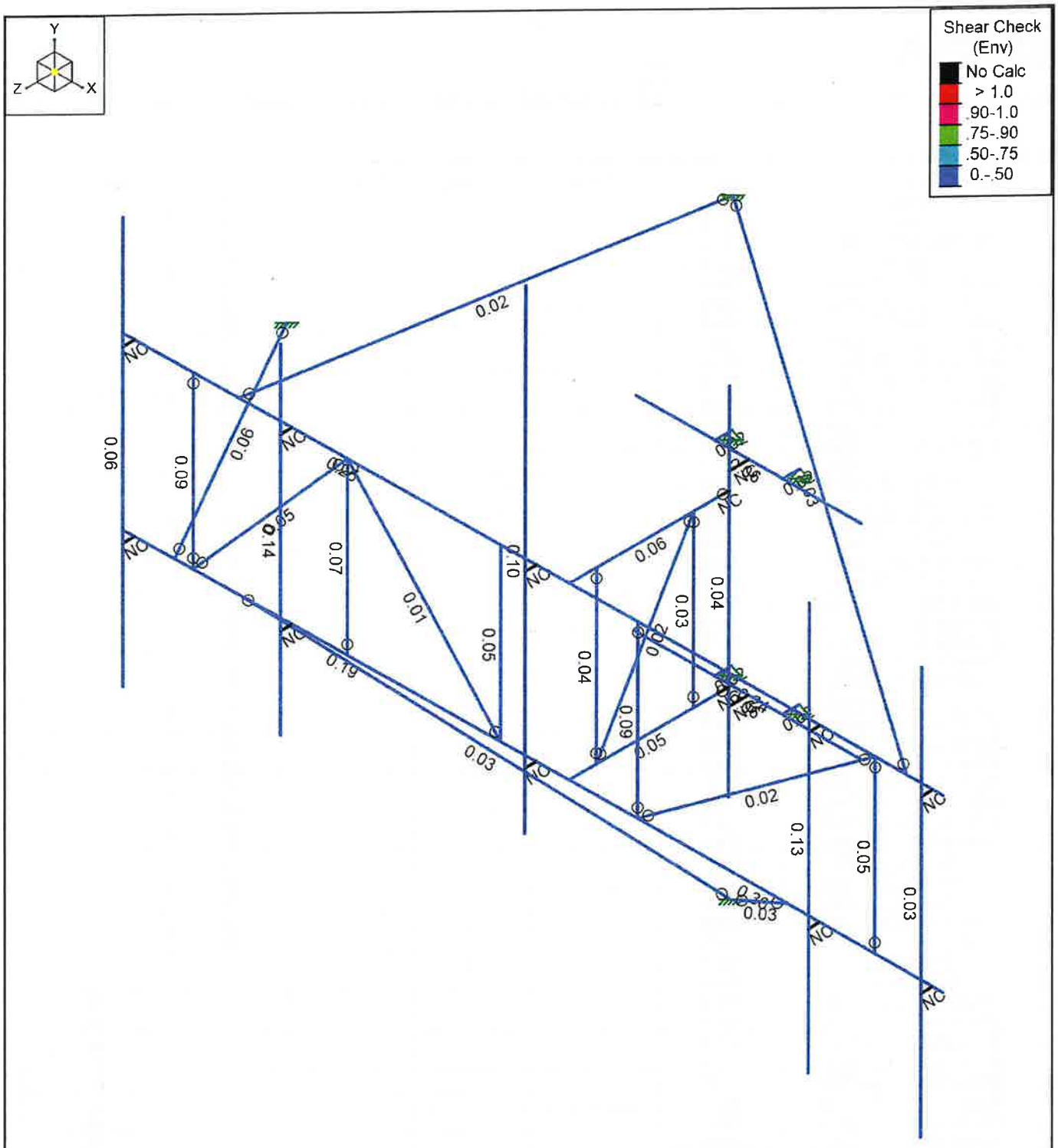
DETAIL B

RISA	Colliers Engineering & De…	5000244619-VZW_MT_LOT_SectorA_H	SK-1
	NL		Feb 05, 2024 at 02:28 PM
	Project No. 10220763		5000244619-VZW_MT_LOT…



Member Code Checks Displayed (Enveloped)

RISA	Colliers Engineering & De...	5000244619-VZW_MT_LOT_SectorA_H	SK-2
	NL		Feb 05, 2024 at 02:28 PM
	Project No. 10220763		5000244619-VZW_MT_LOT...



Member Shear Checks Displayed (Enveloped)

RISA	Colliers Engineering & De...	5000244619-VZW_MT_LOT_SectorA_H	SK-3
	NL		Feb 05, 2024 at 02:29 PM
	Project No. 10220763		5000244619-VZW_MT_LOT...

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Point	Distributed
1	Antenna D	None				24	
2	Antenna Di	None				24	
3	Antenna Wo (0 Deg)	None				24	
4	Antenna Wo (30 Deg)	None				24	
5	Antenna Wo (60 Deg)	None				24	
6	Antenna Wo (90 Deg)	None				24	
7	Antenna Wo (120 Deg)	None				24	
8	Antenna Wo (150 Deg)	None				24	
9	Antenna Wo (180 Deg)	None				24	
10	Antenna Wo (210 Deg)	None				24	
11	Antenna Wo (240 Deg)	None				24	
12	Antenna Wo (270 Deg)	None				24	
13	Antenna Wo (300 Deg)	None				24	
14	Antenna Wo (330 Deg)	None				24	
15	Antenna Wi (0 Deg)	None				24	
16	Antenna Wi (30 Deg)	None				24	
17	Antenna Wi (60 Deg)	None				24	
18	Antenna Wi (90 Deg)	None				24	
19	Antenna Wi (120 Deg)	None				24	
20	Antenna Wi (150 Deg)	None				24	
21	Antenna Wi (180 Deg)	None				24	
22	Antenna Wi (210 Deg)	None				24	
23	Antenna Wi (240 Deg)	None				24	
24	Antenna Wi (270 Deg)	None				24	
25	Antenna Wi (300 Deg)	None				24	
26	Antenna Wi (330 Deg)	None				24	
27	Antenna Wm (0 Deg)	None				24	
28	Antenna Wm (30 Deg)	None				24	
29	Antenna Wm (60 Deg)	None				24	
30	Antenna Wm (90 Deg)	None				24	
31	Antenna Wm (120 Deg)	None				24	
32	Antenna Wm (150 Deg)	None				24	
33	Antenna Wm (180 Deg)	None				24	
34	Antenna Wm (210 Deg)	None				24	
35	Antenna Wm (240 Deg)	None				24	
36	Antenna Wm (270 Deg)	None				24	
37	Antenna Wm (300 Deg)	None				24	
38	Antenna Wm (330 Deg)	None				24	
39	Structure D	None		-1			
40	Structure Di	None					33
41	Structure Wo (0 Deg)	None					66
42	Structure Wo (30 Deg)	None					66
43	Structure Wo (60 Deg)	None					66
44	Structure Wo (90 Deg)	None					66
45	Structure Wo (120 Deg)	None					66
46	Structure Wo (150 Deg)	None					66
47	Structure Wo (180 Deg)	None					66
48	Structure Wo (210 Deg)	None					66
49	Structure Wo (240 Deg)	None					66
50	Structure Wo (270 Deg)	None					66
51	Structure Wo (300 Deg)	None					66
52	Structure Wo (330 Deg)	None					66
53	Structure Wi (0 Deg)	None					66
54	Structure Wi (30 Deg)	None					66
55	Structure Wi (60 Deg)	None					66

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Point	Distributed
56	Structure Wi (90 Deg)	None					66
57	Structure Wi (120 Deg)	None					66
58	Structure Wi (150 Deg)	None					66
59	Structure Wi (180 Deg)	None					66
60	Structure Wi (210 Deg)	None					66
61	Structure Wi (240 Deg)	None					66
62	Structure Wi (270 Deg)	None					66
63	Structure Wi (300 Deg)	None					66
64	Structure Wi (330 Deg)	None					66
65	Structure Wm (0 Deg)	None					66
66	Structure Wm (30 Deg)	None					66
67	Structure Wm (60 Deg)	None					66
68	Structure Wm (90 Deg)	None					66
69	Structure Wm (120 Deg)	None					66
70	Structure Wm (150 Deg)	None					66
71	Structure Wm (180 Deg)	None					66
72	Structure Wm (210 Deg)	None					66
73	Structure Wm (240 Deg)	None					66
74	Structure Wm (270 Deg)	None					66
75	Structure Wm (300 Deg)	None					66
76	Structure Wm (330 Deg)	None					66
77	Lm1	None				1	
78	Lm2	None				1	
79	Lv1	None				1	
80	Lv2	None				1	
81	Antenna Ev	None				24	
82	Antenna Eh (0 Deg)	None				16	
83	Antenna Eh (90 Deg)	None				16	
84	Structure Ev	ELY		-0.042			
85	Structure Eh (0 Deg)	ELZ			-0.105		
86	Structure Eh (90 Deg)	ELX	0.105				

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.2D+1.0Wo (0 Deg)	Yes	Y	1	1.2	39	1.2	3	1	41	1						
2	1.2D+1.0Wo (30 Deg)	Yes	Y	1	1.2	39	1.2	4	1	42	1						
3	1.2D+1.0Wo (60 Deg)	Yes	Y	1	1.2	39	1.2	5	1	43	1						
4	1.2D+1.0Wo (90 Deg)	Yes	Y	1	1.2	39	1.2	6	1	44	1						
5	1.2D+1.0Wo (120 Deg)	Yes	Y	1	1.2	39	1.2	7	1	45	1						
6	1.2D+1.0Wo (150 Deg)	Yes	Y	1	1.2	39	1.2	8	1	46	1						
7	1.2D+1.0Wo (180 Deg)	Yes	Y	1	1.2	39	1.2	9	1	47	1						
8	1.2D+1.0Wo (210 Deg)	Yes	Y	1	1.2	39	1.2	10	1	48	1						
9	1.2D+1.0Wo (240 Deg)	Yes	Y	1	1.2	39	1.2	11	1	49	1						
10	1.2D+1.0Wo (270 Deg)	Yes	Y	1	1.2	39	1.2	12	1	50	1						
11	1.2D+1.0Wo (300 Deg)	Yes	Y	1	1.2	39	1.2	13	1	51	1						
12	1.2D+1.0Wo (330 Deg)	Yes	Y	1	1.2	39	1.2	14	1	52	1						
13	1.2D + 1.0Di + 1.0Wi (0 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	15	1	53	1		
14	1.2D + 1.0Di + 1.0Wi (30 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	16	1	54	1		
15	1.2D + 1.0Di + 1.0Wi (60 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	17	1	55	1		
16	1.2D + 1.0Di + 1.0Wi (90 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	18	1	56	1		
17	1.2D + 1.0Di + 1.0Wi (120 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	19	1	57	1		
18	1.2D + 1.0Di + 1.0Wi (150 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	20	1	58	1		
19	1.2D + 1.0Di + 1.0Wi (180 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	21	1	59	1		
20	1.2D + 1.0Di + 1.0Wi (210 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	22	1	60	1		
21	1.2D + 1.0Di + 1.0Wi (240 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	23	1	61	1		

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
22	1.2D + 1.0Di + 1.0Wi (270 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	24	1	62	1				
23	1.2D + 1.0Di + 1.0Wi (300 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	25	1	63	1				
24	1.2D + 1.0Di + 1.0Wi (330 Deg)	Yes	Y	1	1.2	39	1.2	2	1	40	1	26	1	64	1				
25	1.2D + 1.5Lm1 + 1.0Wm (0 Deg)	Yes	Y	1	1.2	39	1.2	77	1.5	27	1	65	1						
26	1.2D + 1.5Lm1 + 1.0Wm (30 Deg)	Yes	Y	1	1.2	39	1.2	77	1.5	28	1	66	1						
27	1.2D + 1.5Lm1 + 1.0Wm (60 Deg)	Yes	Y	1	1.2	39	1.2	77	1.5	29	1	67	1						
28	1.2D + 1.5Lm1 + 1.0Wm (90 Deg)	Yes	Y	1	1.2	39	1.2	77	1.5	30	1	68	1						
29	1.2D + 1.5Lm1 + 1.0Wm (120 Deg)	Yes	Y	1	1.2	39	1.2	77	1.5	31	1	69	1						
30	1.2D + 1.5Lm1 + 1.0Wm (150 Deg)	Yes	Y	1	1.2	39	1.2	77	1.5	32	1	70	1						
31	1.2D + 1.5Lm1 + 1.0Wm (180 Deg)	Yes	Y	1	1.2	39	1.2	77	1.5	33	1	71	1						
32	1.2D + 1.5Lm1 + 1.0Wm (210 Deg)	Yes	Y	1	1.2	39	1.2	77	1.5	34	1	72	1						
33	1.2D + 1.5Lm1 + 1.0Wm (240 Deg)	Yes	Y	1	1.2	39	1.2	77	1.5	35	1	73	1						
34	1.2D + 1.5Lm1 + 1.0Wm (270 Deg)	Yes	Y	1	1.2	39	1.2	77	1.5	36	1	74	1						
35	1.2D + 1.5Lm1 + 1.0Wm (300 Deg)	Yes	Y	1	1.2	39	1.2	77	1.5	37	1	75	1						
36	1.2D + 1.5Lm1 + 1.0Wm (330 Deg)	Yes	Y	1	1.2	39	1.2	77	1.5	38	1	76	1						
37	1.2D + 1.5Lm2 + 1.0Wm (0 Deg)	Yes	Y	1	1.2	39	1.2	78	1.5	27	1	65	1						
38	1.2D + 1.5Lm2 + 1.0Wm (30 Deg)	Yes	Y	1	1.2	39	1.2	78	1.5	28	1	66	1						
39	1.2D + 1.5Lm2 + 1.0Wm (60 Deg)	Yes	Y	1	1.2	39	1.2	78	1.5	29	1	67	1						
40	1.2D + 1.5Lm2 + 1.0Wm (90 Deg)	Yes	Y	1	1.2	39	1.2	78	1.5	30	1	68	1						
41	1.2D + 1.5Lm2 + 1.0Wm (120 Deg)	Yes	Y	1	1.2	39	1.2	78	1.5	31	1	69	1						
42	1.2D + 1.5Lm2 + 1.0Wm (150 Deg)	Yes	Y	1	1.2	39	1.2	78	1.5	32	1	70	1						
43	1.2D + 1.5Lm2 + 1.0Wm (180 Deg)	Yes	Y	1	1.2	39	1.2	78	1.5	33	1	71	1						
44	1.2D + 1.5Lm2 + 1.0Wm (210 Deg)	Yes	Y	1	1.2	39	1.2	78	1.5	34	1	72	1						
45	1.2D + 1.5Lm2 + 1.0Wm (240 Deg)	Yes	Y	1	1.2	39	1.2	78	1.5	35	1	73	1						
46	1.2D + 1.5Lm2 + 1.0Wm (270 Deg)	Yes	Y	1	1.2	39	1.2	78	1.5	36	1	74	1						
47	1.2D + 1.5Lm2 + 1.0Wm (300 Deg)	Yes	Y	1	1.2	39	1.2	78	1.5	37	1	75	1						
48	1.2D + 1.5Lm2 + 1.0Wm (330 Deg)	Yes	Y	1	1.2	39	1.2	78	1.5	38	1	76	1						
49	1.2D + 1.5Lv1	Yes	Y	1	1.2	39	1.2	79	1.5										
50	1.2D + 1.5Lv2	Yes	Y	1	1.2	39	1.2	80	1.5										
51	1.4D	Yes	Y	1	1.4	39	1.4												
52	1.2D + 1.0Ev + 1.0Eh (0 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	1	83		ELZ	1	ELX	
53	1.2D + 1.0Ev + 1.0Eh (30 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	0.866	83	0.5	ELZ	0.866	ELX	0.5
54	1.2D + 1.0Ev + 1.0Eh (60 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	0.5	83	0.866	ELZ	0.5	ELX	0.866
55	1.2D + 1.0Ev + 1.0Eh (90 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82		83	1	ELZ		ELX	1
56	1.2D + 1.0Ev + 1.0Eh (120 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	-0.5	83	0.866	ELZ	-0.5	ELX	0.866
57	1.2D + 1.0Ev + 1.0Eh (150 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	-0.866	83	0.5	ELZ	-0.866	ELX	0.5
58	1.2D + 1.0Ev + 1.0Eh (180 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	-1	83		ELZ	-1	ELX	
59	1.2D + 1.0Ev + 1.0Eh (210 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	-0.866	83	-0.5	ELZ	-0.866	ELX	-0.5
60	1.2D + 1.0Ev + 1.0Eh (240 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	-0.5	83	-0.866	ELZ	-0.5	ELX	-0.866
61	1.2D + 1.0Ev + 1.0Eh (270 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82		83	-1	ELZ		ELX	-1
62	1.2D + 1.0Ev + 1.0Eh (300 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	0.5	83	-0.866	ELZ	0.5	ELX	-0.866
63	1.2D + 1.0Ev + 1.0Eh (330 Deg)	Yes	Y	1	1.2	39	1.2	81	1	ELY	1	82	0.866	83	-0.5	ELZ	0.866	ELX	-0.5
64	0.9D - 1.0Ev + 1.0Eh (0 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	1	83		ELZ	1	ELX	
65	0.9D - 1.0Ev + 1.0Eh (30 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	0.866	83	0.5	ELZ	0.866	ELX	0.5
66	0.9D - 1.0Ev + 1.0Eh (60 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	0.5	83	0.866	ELZ	0.5	ELX	0.866
67	0.9D - 1.0Ev + 1.0Eh (90 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82		83	1	ELZ		ELX	1
68	0.9D - 1.0Ev + 1.0Eh (120 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	-0.5	83	0.866	ELZ	-0.5	ELX	0.866
69	0.9D - 1.0Ev + 1.0Eh (150 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	-0.866	83	0.5	ELZ	-0.866	ELX	0.5
70	0.9D - 1.0Ev + 1.0Eh (180 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	-1	83		ELZ	-1	ELX	
71	0.9D - 1.0Ev + 1.0Eh (210 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	-0.866	83	-0.5	ELZ	-0.866	ELX	-0.5
72	0.9D - 1.0Ev + 1.0Eh (240 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	-0.5	83	-0.866	ELZ	-0.5	ELX	-0.866
73	0.9D - 1.0Ev + 1.0Eh (270 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82		83	-1	ELZ		ELX	-1
74	0.9D - 1.0Ev + 1.0Eh (300 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	0.5	83	-0.866	ELZ	0.5	ELX	-0.866
75	0.9D - 1.0Ev + 1.0Eh (330 Deg)	Yes	Y	1	0.9	39	0.9	81	-1	ELY	-1	82	0.866	83	-0.5	ELZ	0.866	ELX	-0.5

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	Rear Standoff Pipe	PIPE 4.0	None	None	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
2	Standoff Horizontal	HSS2.5X2.5X3	Beam	Tube	A500 Gr.B Rect	Typical	1.54	1.35	1.35	2.25
3	Standoff Vertical	SR 1	None	None	A36 Gr.36	Typical	0.785	0.049	0.049	0.098
4	Standoff Diagonal	SR 1	None	None	A36 Gr.36	Typical	0.785	0.049	0.049	0.098
5	Face Horizontal	PIPE 1.25	None	None	A53 Gr.B	Typical	0.625	0.184	0.184	0.368
6	Mount Pipe	PIPE 2.0	None	None	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
7	Tie Back	PIPE 1.25	None	None	A53 Gr.B	Typical	0.625	0.184	0.184	0.368
8	Face Bracing	SR 0.625	None	None	A36 Gr.36	Typical	0.307	0.007	0.007	0.015
9	Face Vertical End	PIPE 1.0	None	None	A53 Gr.B	Typical	0.469	0.083	0.083	0.166
10	Rear Face Standoff	HSS2.5X2.5X3	None	None	A500 Gr.B Rect	Typical	1.54	1.35	1.35	2.25
11	Tower Connection	SR 1.375	None	None	A36 Gr.36	Typical	1.485	0.175	0.175	0.351
12	Proposed Mount Pipe	PIPE 2.5	None	None	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
13	V-Brace	L2.5X2.5X4	Column	Single Angle	A36 Gr.36	Typical	1.19	0.692	0.692	0.026

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e⁵°F⁻¹]	Density [k/ft³]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	M6	N11	N13		Standoff Horizontal	Beam	Tube	A500 Gr.B Rect	Typical
2	M12	N31	N33		Standoff Horizontal	Beam	Tube	A500 Gr.B Rect	Typical
3	M18	N14	N34		Standoff Vertical	None	None	A36 Gr.36	Typical
4	M19	N15	N35		Standoff Vertical	None	None	A36 Gr.36	Typical
5	M20	N15	N34		Standoff Diagonal	None	None	A36 Gr.36	Typical
6	M30	N54	N55		Rear Standoff Pipe	None	None	A53 Gr.B	Typical
7	M31	N13	N53		RIGID	None	None	RIGID	Typical
8	M32	N33	N56		RIGID	None	None	RIGID	Typical
9	M19A	N29	N31A		RIGID	None	None	RIGID	Typical
10	M20A	N28	N30		RIGID	None	None	RIGID	Typical
11	M21	N34A	N32A		Rear Face Standoff	None	None	A500 Gr.B Rect	Typical
12	M22	N35A	N33A		Rear Face Standoff	None	None	A500 Gr.B Rect	Typical
13	M23	N37A	N41		Tower Connection	None	None	A36 Gr.36	Typical
14	M24	N39A	N43		Tower Connection	None	None	A36 Gr.36	Typical
15	M25A	N36A	N40A		Tower Connection	None	None	A36 Gr.36	Typical
16	M26A	N38A	N42		Tower Connection	None	None	A36 Gr.36	Typical
17	M29	N11	N45		Face Horizontal	None	None	A53 Gr.B	Typical
18	M30A	N31	N50		Face Horizontal	None	None	A53 Gr.B	Typical
19	M31A	N46	N51		Face Bracing	None	None	A36 Gr.36	Typical
20	M32A	N47	N52		Face Bracing	None	None	A36 Gr.36	Typical
21	M33	N48	N53A		Face Vertical End	None	None	A53 Gr.B	Typical
22	M34	N51	N47		Face Bracing	None	None	A36 Gr.36	Typical
23	M35	N47	N53A		Face Bracing	None	None	A36 Gr.36	Typical
24	M34A	N57	N61		Face Bracing	None	None	A36 Gr.36	Typical
25	M35A	N56A	N60		Face Vertical End	None	None	A53 Gr.B	Typical
26	M36	N56A	N61		Face Bracing	None	None	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
27	M37	N55A	N11		Face Horizontal	None	None	A53 Gr.B	Typical
28	M38	N59	N31		Face Horizontal	None	None	A53 Gr.B	Typical
29	M30B	N46B	N48A		RIGID	None	None	RIGID	Typical
30	M31B	N47A	N49		RIGID	None	None	RIGID	Typical
31	M36A	N58	N60A		RIGID	None	None	RIGID	Typical
32	M37A	N59A	N61A		RIGID	None	None	RIGID	Typical
33	MP1A	N62	N64		Mount Pipe	None	None	A53 Gr.B	Typical
34	MP5A	N63	N65		Mount Pipe	None	None	A53 Gr.B	Typical
35	M39	N66	N68		RIGID	None	None	RIGID	Typical
36	M40	N67	N69		RIGID	None	None	RIGID	Typical
37	MP3A	N70	N71		Mount Pipe	None	None	A53 Gr.B	Typical
38	M42	N72	N74		RIGID	None	None	RIGID	Typical
39	M43	N73	N75		RIGID	None	None	RIGID	Typical
40	MP2A	N76	N77		Mount Pipe	None	None	A53 Gr.B	Typical
41	M45	N78	N80		RIGID	None	None	RIGID	Typical
42	M46	N79	N81		RIGID	None	None	RIGID	Typical
43	MP4A	N82	N83		Mount Pipe	None	None	A53 Gr.B	Typical
44	M47	N85	N84		V-Brace	Column	Single Angle	A36 Gr.36	Typical
45	M49	N90	N89	270	V-Brace	Column	Single Angle	A36 Gr.36	Typical
46	M48	N86	N84	270	V-Brace	Column	Single Angle	A36 Gr.36	Typical
47	M50	N91	N89		V-Brace	Column	Single Angle	A36 Gr.36	Typical
48	M51	N92	N93		Tie Back	None	None	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	T/C Only	Physical	Deflection Ratio Options	Seismic DR
1	M6				Yes	N/A	None
2	M12				Yes	N/A	None
3	M18	BenPIN	BenPIN		Yes	** NA **	None
4	M19	BenPIN	BenPIN		Yes	** NA **	None
5	M20	BenPIN	BenPIN		Yes	** NA **	None
6	M30				Yes	** NA **	None
7	M31		OOOOXO		Yes	** NA **	None
8	M32		OOOOXO		Yes	** NA **	None
9	M19A				Yes	** NA **	None
10	M20A				Yes	** NA **	None
11	M21				Yes	** NA **	None
12	M22				Yes	** NA **	None
13	M23				Yes	** NA **	None
14	M24				Yes	** NA **	None
15	M25A				Yes	** NA **	None
16	M26A				Yes	** NA **	None
17	M29				Yes	** NA **	None
18	M30A				Yes	** NA **	None
19	M31A				Yes	** NA **	None
20	M32A	BenPIN	BenPIN		Yes	** NA **	None
21	M33	BenPIN	BenPIN		Yes	** NA **	None
22	M34	BenPIN	BenPIN		Yes	** NA **	None
23	M35	BenPIN	BenPIN		Yes	** NA **	None
24	M34A	BenPIN	BenPIN		Yes	** NA **	None
25	M35A	BenPIN	BenPIN		Yes	** NA **	None
26	M36	BenPIN	BenPIN	Euler Buckling	Yes	** NA **	None
27	M37				Yes	** NA **	None
28	M38				Yes	** NA **	None
29	M30B				Yes	** NA **	None
30	M31B				Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	T/C Only	Physical	Deflection Ratio Options	Seismic DR
31	M36A				Yes	** NA **	None
32	M37A				Yes	** NA **	None
33	MP1A				Yes	** NA **	None
34	MP5A				Yes	** NA **	None
35	M39				Yes	** NA **	None
36	M40				Yes	** NA **	None
37	MP3A				Yes	** NA **	None
38	M42				Yes	** NA **	None
39	M43				Yes	** NA **	None
40	MP2A				Yes	** NA **	None
41	M45				Yes	** NA **	None
42	M46				Yes	** NA **	None
43	MP4A				Yes	** NA **	None
44	M47	BenPIN	BenPIN		Yes	** NA **	None
45	M49	BenPIN	BenPIN		Yes	** NA **	None
46	M48	BenPIN	BenPIN		Yes	** NA **	None
47	M50	BenPIN	BenPIN		Yes	** NA **	None
48	M51	BenPIN	BenPIN		Yes	** NA **	None

Member Point Loads (BLC 1 : Antenna D)

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	Y	-21.85	0.5
2	MP2A	My	-0.015	0.5
3	MP2A	Mz	0	0.5
4	MP2A	Y	-21.85	4.5
5	MP2A	My	-0.015	4.5
6	MP2A	Mz	0	4.5
7	MP3A	Y	-21.85	2.5
8	MP3A	My	-0.015	2.5
9	MP3A	Mz	0	2.5
10	MP3A	Y	-21.85	6.5
11	MP3A	My	-0.015	6.5
12	MP3A	Mz	0	6.5
13	MP5A	Y	-28.65	1.5
14	MP5A	My	-0.019	1.5
15	MP5A	Mz	0	1.5
16	MP5A	Y	-28.65	3.5
17	MP5A	My	-0.019	3.5
18	MP5A	Mz	0	3.5
19	MP2A	Y	-74.7	1
20	MP2A	My	0.025	1
21	MP2A	Mz	0	1
22	MP3A	Y	-79.1	1
23	MP3A	My	0.026	1
24	MP3A	Mz	0	1

Member Point Loads (BLC 2 : Antenna Di)

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	Y	-61.561	0.5
2	MP2A	My	-0.041	0.5
3	MP2A	Mz	0	0.5
4	MP2A	Y	-61.561	4.5
5	MP2A	My	-0.041	4.5

Member Point Loads (BLC 2 : Antenna Di) (Continued)

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
6	MP2A	Mz	0	4.5
7	MP3A	Y	-61.561	2.5
8	MP3A	My	-0.041	2.5
9	MP3A	Mz	0	2.5
10	MP3A	Y	-61.561	6.5
11	MP3A	My	-0.041	6.5
12	MP3A	Mz	0	6.5
13	MP5A	Y	-30.261	1.5
14	MP5A	My	-0.02	1.5
15	MP5A	Mz	0	1.5
16	MP5A	Y	-30.261	3.5
17	MP5A	My	-0.02	3.5
18	MP5A	Mz	0	3.5
19	MP2A	Y	-45.633	1
20	MP2A	My	0.015	1
21	MP2A	Mz	0	1
22	MP3A	Y	-46.116	1
23	MP3A	My	0.015	1
24	MP3A	Mz	0	1

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

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	0	0.5
2	MP2A	Z	-103.123	0.5
3	MP2A	Mx	0	0.5
4	MP2A	X	0	4.5
5	MP2A	Z	-103.123	4.5
6	MP2A	Mx	0	4.5
7	MP3A	X	0	2.5
8	MP3A	Z	-103.123	2.5
9	MP3A	Mx	0	2.5
10	MP3A	X	0	6.5
11	MP3A	Z	-103.123	6.5
12	MP3A	Mx	0	6.5
13	MP5A	X	0	1.5
14	MP5A	Z	-60.012	1.5
15	MP5A	Mx	0	1.5
16	MP5A	X	0	3.5
17	MP5A	Z	-60.012	3.5
18	MP5A	Mx	0	3.5
19	MP2A	X	0	1
20	MP2A	Z	-58.873	1
21	MP2A	Mx	0	1
22	MP3A	X	0	1
23	MP3A	Z	-71.027	1
24	MP3A	Mx	0	1

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

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	44.202	0.5
2	MP2A	Z	-76.56	0.5
3	MP2A	Mx	-0.029	0.5
4	MP2A	X	44.202	4.5

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

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
5	MP2A	Z	-76.56	4.5
6	MP2A	Mx	-0.029	4.5
7	MP3A	X	44.202	2.5
8	MP3A	Z	-76.56	2.5
9	MP3A	Mx	-0.029	2.5
10	MP3A	X	44.202	6.5
11	MP3A	Z	-76.56	6.5
12	MP3A	Mx	-0.029	6.5
13	MP5A	X	25.14	1.5
14	MP5A	Z	-43.543	1.5
15	MP5A	Mx	-0.017	1.5
16	MP5A	X	25.14	3.5
17	MP5A	Z	-43.543	3.5
18	MP5A	Mx	-0.017	3.5
19	MP2A	X	27.015	1
20	MP2A	Z	-46.792	1
21	MP2A	Mx	0.009	1
22	MP3A	X	32.689	1
23	MP3A	Z	-56.619	1
24	MP3A	Mx	0.011	1

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

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	51.068	0.5
2	MP2A	Z	-29.484	0.5
3	MP2A	Mx	-0.034	0.5
4	MP2A	X	51.068	4.5
5	MP2A	Z	-29.484	4.5
6	MP2A	Mx	-0.034	4.5
7	MP3A	X	51.068	2.5
8	MP3A	Z	-29.484	2.5
9	MP3A	Mx	-0.034	2.5
10	MP3A	X	51.068	6.5
11	MP3A	Z	-29.484	6.5
12	MP3A	Mx	-0.034	6.5
13	MP5A	X	26.685	1.5
14	MP5A	Z	-15.407	1.5
15	MP5A	Mx	-0.018	1.5
16	MP5A	X	26.685	3.5
17	MP5A	Z	-15.407	3.5
18	MP5A	Mx	-0.018	3.5
19	MP2A	X	38.404	1
20	MP2A	Z	-22.172	1
21	MP2A	Mx	0.013	1
22	MP3A	X	46.833	1
23	MP3A	Z	-27.039	1
24	MP3A	Mx	0.016	1

Member Point Loads (BLC 6 : Antenna Wo (90 Deg))

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	44.25	0.5
2	MP2A	Z	0	0.5
3	MP2A	Mx	-0.029	0.5

Member Point Loads (BLC 6 : Antenna Wo (90 Deg)) (Continued)

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
4	MP2A	X	44.25	4.5
5	MP2A	Z	0	4.5
6	MP2A	Mx	-0.029	4.5
7	MP3A	X	44.25	2.5
8	MP3A	Z	0	2.5
9	MP3A	Mx	-0.029	2.5
10	MP3A	X	44.25	6.5
11	MP3A	Z	0	6.5
12	MP3A	Mx	-0.029	6.5
13	MP5A	X	21.08	1.5
14	MP5A	Z	0	1.5
15	MP5A	Mx	-0.014	1.5
16	MP5A	X	21.08	3.5
17	MP5A	Z	0	3.5
18	MP5A	Mx	-0.014	3.5
19	MP2A	X	39.502	1
20	MP2A	Z	0	1
21	MP2A	Mx	0.013	1
22	MP3A	X	48.428	1
23	MP3A	Z	0	1
24	MP3A	Mx	0.016	1

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

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	51.068	0.5
2	MP2A	Z	29.484	0.5
3	MP2A	Mx	-0.034	0.5
4	MP2A	X	51.068	4.5
5	MP2A	Z	29.484	4.5
6	MP2A	Mx	-0.034	4.5
7	MP3A	X	51.068	2.5
8	MP3A	Z	29.484	2.5
9	MP3A	Mx	-0.034	2.5
10	MP3A	X	51.068	6.5
11	MP3A	Z	29.484	6.5
12	MP3A	Mx	-0.034	6.5
13	MP5A	X	26.685	1.5
14	MP5A	Z	15.407	1.5
15	MP5A	Mx	-0.018	1.5
16	MP5A	X	26.685	3.5
17	MP5A	Z	15.407	3.5
18	MP5A	Mx	-0.018	3.5
19	MP2A	X	38.404	1
20	MP2A	Z	22.172	1
21	MP2A	Mx	0.013	1
22	MP3A	X	46.833	1
23	MP3A	Z	27.039	1
24	MP3A	Mx	0.016	1

Member Point Loads (BLC 8 : Antenna Wo (150 Deg))

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	44.202	0.5
2	MP2A	Z	76.56	0.5

Member Point Loads (BLC 8 : Antenna Wo (150 Deg)) (Continued)

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
3	MP2A	Mx	-0.029	0.5
4	MP2A	X	44.202	4.5
5	MP2A	Z	76.56	4.5
6	MP2A	Mx	-0.029	4.5
7	MP3A	X	44.202	2.5
8	MP3A	Z	76.56	2.5
9	MP3A	Mx	-0.029	2.5
10	MP3A	X	44.202	6.5
11	MP3A	Z	76.56	6.5
12	MP3A	Mx	-0.029	6.5
13	MP5A	X	25.14	1.5
14	MP5A	Z	43.543	1.5
15	MP5A	Mx	-0.017	1.5
16	MP5A	X	25.14	3.5
17	MP5A	Z	43.543	3.5
18	MP5A	Mx	-0.017	3.5
19	MP2A	X	27.015	1
20	MP2A	Z	46.792	1
21	MP2A	Mx	0.009	1
22	MP3A	X	32.689	1
23	MP3A	Z	56.619	1
24	MP3A	Mx	0.011	1

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

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	0	0.5
2	MP2A	Z	103.123	0.5
3	MP2A	Mx	0	0.5
4	MP2A	X	0	4.5
5	MP2A	Z	103.123	4.5
6	MP2A	Mx	0	4.5
7	MP3A	X	0	2.5
8	MP3A	Z	103.123	2.5
9	MP3A	Mx	0	2.5
10	MP3A	X	0	6.5
11	MP3A	Z	103.123	6.5
12	MP3A	Mx	0	6.5
13	MP5A	X	0	1.5
14	MP5A	Z	60.012	1.5
15	MP5A	Mx	0	1.5
16	MP5A	X	0	3.5
17	MP5A	Z	60.012	3.5
18	MP5A	Mx	0	3.5
19	MP2A	X	0	1
20	MP2A	Z	58.873	1
21	MP2A	Mx	0	1
22	MP3A	X	0	1
23	MP3A	Z	71.027	1
24	MP3A	Mx	0	1

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

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	-44.202	0.5
2	MP2A	Z	76.56	0.5
3	MP2A	Mx	0.029	0.5
4	MP2A	X	-44.202	4.5
5	MP2A	Z	76.56	4.5
6	MP2A	Mx	0.029	4.5
7	MP3A	X	-44.202	2.5
8	MP3A	Z	76.56	2.5
9	MP3A	Mx	0.029	2.5
10	MP3A	X	-44.202	6.5
11	MP3A	Z	76.56	6.5
12	MP3A	Mx	0.029	6.5
13	MP5A	X	-25.14	1.5
14	MP5A	Z	43.543	1.5
15	MP5A	Mx	0.017	1.5
16	MP5A	X	-25.14	3.5
17	MP5A	Z	43.543	3.5
18	MP5A	Mx	0.017	3.5
19	MP2A	X	-27.015	1
20	MP2A	Z	46.792	1
21	MP2A	Mx	-0.009	1
22	MP3A	X	-32.689	1
23	MP3A	Z	56.619	1
24	MP3A	Mx	-0.011	1

Member Point Loads (BLC 11 : Antenna Wo (240 Deg))

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	-51.068	0.5
2	MP2A	Z	29.484	0.5
3	MP2A	Mx	0.034	0.5
4	MP2A	X	-51.068	4.5
5	MP2A	Z	29.484	4.5
6	MP2A	Mx	0.034	4.5
7	MP3A	X	-51.068	2.5
8	MP3A	Z	29.484	2.5
9	MP3A	Mx	0.034	2.5
10	MP3A	X	-51.068	6.5
11	MP3A	Z	29.484	6.5
12	MP3A	Mx	0.034	6.5
13	MP5A	X	-26.685	1.5
14	MP5A	Z	15.407	1.5
15	MP5A	Mx	0.018	1.5
16	MP5A	X	-26.685	3.5
17	MP5A	Z	15.407	3.5
18	MP5A	Mx	0.018	3.5
19	MP2A	X	-38.404	1
20	MP2A	Z	22.172	1
21	MP2A	Mx	-0.013	1
22	MP3A	X	-46.833	1
23	MP3A	Z	27.039	1
24	MP3A	Mx	-0.016	1

Member Point Loads (BLC 12 : Antenna Wo (270 Deg))

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	-44.25	0.5
2	MP2A	Z	0	0.5
3	MP2A	Mx	0.029	0.5
4	MP2A	X	-44.25	4.5
5	MP2A	Z	0	4.5
6	MP2A	Mx	0.029	4.5
7	MP3A	X	-44.25	2.5
8	MP3A	Z	0	2.5
9	MP3A	Mx	0.029	2.5
10	MP3A	X	-44.25	6.5
11	MP3A	Z	0	6.5
12	MP3A	Mx	0.029	6.5
13	MP5A	X	-21.08	1.5
14	MP5A	Z	0	1.5
15	MP5A	Mx	0.014	1.5
16	MP5A	X	-21.08	3.5
17	MP5A	Z	0	3.5
18	MP5A	Mx	0.014	3.5
19	MP2A	X	-39.502	1
20	MP2A	Z	0	1
21	MP2A	Mx	-0.013	1
22	MP3A	X	-48.428	1
23	MP3A	Z	0	1
24	MP3A	Mx	-0.016	1

Member Point Loads (BLC 13 : Antenna Wo (300 Deg))

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	-51.068	0.5
2	MP2A	Z	-29.484	0.5
3	MP2A	Mx	0.034	0.5
4	MP2A	X	-51.068	4.5
5	MP2A	Z	-29.484	4.5
6	MP2A	Mx	0.034	4.5
7	MP3A	X	-51.068	2.5
8	MP3A	Z	-29.484	2.5
9	MP3A	Mx	0.034	2.5
10	MP3A	X	-51.068	6.5
11	MP3A	Z	-29.484	6.5
12	MP3A	Mx	0.034	6.5
13	MP5A	X	-26.685	1.5
14	MP5A	Z	-15.407	1.5
15	MP5A	Mx	0.018	1.5
16	MP5A	X	-26.685	3.5
17	MP5A	Z	-15.407	3.5
18	MP5A	Mx	0.018	3.5
19	MP2A	X	-38.404	1
20	MP2A	Z	-22.172	1
21	MP2A	Mx	-0.013	1
22	MP3A	X	-46.833	1
23	MP3A	Z	-27.039	1
24	MP3A	Mx	-0.016	1

Member Point Loads (BLC 14 : Antenna Wo (330 Deg))

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	-44.202	0.5
2	MP2A	Z	-76.56	0.5
3	MP2A	Mx	0.029	0.5
4	MP2A	X	-44.202	4.5
5	MP2A	Z	-76.56	4.5
6	MP2A	Mx	0.029	4.5
7	MP3A	X	-44.202	2.5
8	MP3A	Z	-76.56	2.5
9	MP3A	Mx	0.029	2.5
10	MP3A	X	-44.202	6.5
11	MP3A	Z	-76.56	6.5
12	MP3A	Mx	0.029	6.5
13	MP5A	X	-25.14	1.5
14	MP5A	Z	-43.543	1.5
15	MP5A	Mx	0.017	1.5
16	MP5A	X	-25.14	3.5
17	MP5A	Z	-43.543	3.5
18	MP5A	Mx	0.017	3.5
19	MP2A	X	-27.015	1
20	MP2A	Z	-46.792	1
21	MP2A	Mx	-0.009	1
22	MP3A	X	-32.689	1
23	MP3A	Z	-56.619	1
24	MP3A	Mx	-0.011	1

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

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	0	0.5
2	MP2A	Z	-27.121	0.5
3	MP2A	Mx	0	0.5
4	MP2A	X	0	4.5
5	MP2A	Z	-27.121	4.5
6	MP2A	Mx	0	4.5
7	MP3A	X	0	2.5
8	MP3A	Z	-27.121	2.5
9	MP3A	Mx	0	2.5
10	MP3A	X	0	6.5
11	MP3A	Z	-27.121	6.5
12	MP3A	Mx	0	6.5
13	MP5A	X	0	1.5
14	MP5A	Z	-13.189	1.5
15	MP5A	Mx	0	1.5
16	MP5A	X	0	3.5
17	MP5A	Z	-13.189	3.5
18	MP5A	Mx	0	3.5
19	MP2A	X	0	1
20	MP2A	Z	-13.632	1
21	MP2A	Mx	0	1
22	MP3A	X	0	1
23	MP3A	Z	-13.632	1
24	MP3A	Mx	0	1

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

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	12.51	0.5
2	MP2A	Z	-21.667	0.5
3	MP2A	Mx	-0.008	0.5
4	MP2A	X	12.51	4.5
5	MP2A	Z	-21.667	4.5
6	MP2A	Mx	-0.008	4.5
7	MP3A	X	12.51	2.5
8	MP3A	Z	-21.667	2.5
9	MP3A	Mx	-0.008	2.5
10	MP3A	X	12.51	6.5
11	MP3A	Z	-21.667	6.5
12	MP3A	Mx	-0.008	6.5
13	MP5A	X	5.643	1.5
14	MP5A	Z	-9.774	1.5
15	MP5A	Mx	-0.004	1.5
16	MP5A	X	5.643	3.5
17	MP5A	Z	-9.774	3.5
18	MP5A	Mx	-0.004	3.5
19	MP2A	X	6.298	1
20	MP2A	Z	-10.908	1
21	MP2A	Mx	0.002	1
22	MP3A	X	6.319	1
23	MP3A	Z	-10.944	1
24	MP3A	Mx	0.002	1

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

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	18.027	0.5
2	MP2A	Z	-10.408	0.5
3	MP2A	Mx	-0.012	0.5
4	MP2A	X	18.027	4.5
5	MP2A	Z	-10.408	4.5
6	MP2A	Mx	-0.012	4.5
7	MP3A	X	18.027	2.5
8	MP3A	Z	-10.408	2.5
9	MP3A	Mx	-0.012	2.5
10	MP3A	X	18.027	6.5
11	MP3A	Z	-10.408	6.5
12	MP3A	Mx	-0.012	6.5
13	MP5A	X	6.478	1.5
14	MP5A	Z	-3.74	1.5
15	MP5A	Mx	-0.004	1.5
16	MP5A	X	6.478	3.5
17	MP5A	Z	-3.74	3.5
18	MP5A	Mx	-0.004	3.5
19	MP2A	X	9.114	1
20	MP2A	Z	-5.262	1
21	MP2A	Mx	0.003	1
22	MP3A	X	9.221	1
23	MP3A	Z	-5.324	1
24	MP3A	Mx	0.003	1

Member Point Loads (BLC 18 : Antenna Wi (90 Deg))

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	18.713	0.5
2	MP2A	Z	0	0.5
3	MP2A	Mx	-0.012	0.5
4	MP2A	X	18.713	4.5
5	MP2A	Z	0	4.5
6	MP2A	Mx	-0.012	4.5
7	MP3A	X	18.713	2.5
8	MP3A	Z	0	2.5
9	MP3A	Mx	-0.012	2.5
10	MP3A	X	18.713	6.5
11	MP3A	Z	0	6.5
12	MP3A	Mx	-0.012	6.5
13	MP5A	X	5.577	1.5
14	MP5A	Z	0	1.5
15	MP5A	Mx	-0.004	1.5
16	MP5A	X	5.577	3.5
17	MP5A	Z	0	3.5
18	MP5A	Mx	-0.004	3.5
19	MP2A	X	9.488	1
20	MP2A	Z	0	1
21	MP2A	Mx	0.003	1
22	MP3A	X	9.653	1
23	MP3A	Z	0	1
24	MP3A	Mx	0.003	1

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

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	18.027	0.5
2	MP2A	Z	10.408	0.5
3	MP2A	Mx	-0.012	0.5
4	MP2A	X	18.027	4.5
5	MP2A	Z	10.408	4.5
6	MP2A	Mx	-0.012	4.5
7	MP3A	X	18.027	2.5
8	MP3A	Z	10.408	2.5
9	MP3A	Mx	-0.012	2.5
10	MP3A	X	18.027	6.5
11	MP3A	Z	10.408	6.5
12	MP3A	Mx	-0.012	6.5
13	MP5A	X	6.478	1.5
14	MP5A	Z	3.74	1.5
15	MP5A	Mx	-0.004	1.5
16	MP5A	X	6.478	3.5
17	MP5A	Z	3.74	3.5
18	MP5A	Mx	-0.004	3.5
19	MP2A	X	9.114	1
20	MP2A	Z	5.262	1
21	MP2A	Mx	0.003	1
22	MP3A	X	9.221	1
23	MP3A	Z	5.324	1
24	MP3A	Mx	0.003	1

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

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	12.51	0.5
2	MP2A	Z	21.667	0.5
3	MP2A	Mx	-0.008	0.5
4	MP2A	X	12.51	4.5
5	MP2A	Z	21.667	4.5
6	MP2A	Mx	-0.008	4.5
7	MP3A	X	12.51	2.5
8	MP3A	Z	21.667	2.5
9	MP3A	Mx	-0.008	2.5
10	MP3A	X	12.51	6.5
11	MP3A	Z	21.667	6.5
12	MP3A	Mx	-0.008	6.5
13	MP5A	X	5.643	1.5
14	MP5A	Z	9.774	1.5
15	MP5A	Mx	-0.004	1.5
16	MP5A	X	5.643	3.5
17	MP5A	Z	9.774	3.5
18	MP5A	Mx	-0.004	3.5
19	MP2A	X	6.298	1
20	MP2A	Z	10.908	1
21	MP2A	Mx	0.002	1
22	MP3A	X	6.319	1
23	MP3A	Z	10.944	1
24	MP3A	Mx	0.002	1

Member Point Loads (BLC 21 : Antenna Wi (180 Deg))

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	0	0.5
2	MP2A	Z	27.121	0.5
3	MP2A	Mx	0	0.5
4	MP2A	X	0	4.5
5	MP2A	Z	27.121	4.5
6	MP2A	Mx	0	4.5
7	MP3A	X	0	2.5
8	MP3A	Z	27.121	2.5
9	MP3A	Mx	0	2.5
10	MP3A	X	0	6.5
11	MP3A	Z	27.121	6.5
12	MP3A	Mx	0	6.5
13	MP5A	X	0	1.5
14	MP5A	Z	13.189	1.5
15	MP5A	Mx	0	1.5
16	MP5A	X	0	3.5
17	MP5A	Z	13.189	3.5
18	MP5A	Mx	0	3.5
19	MP2A	X	0	1
20	MP2A	Z	13.632	1
21	MP2A	Mx	0	1
22	MP3A	X	0	1
23	MP3A	Z	13.632	1
24	MP3A	Mx	0	1

Member Point Loads (BLC 22 : Antenna Wi (210 Deg))

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	-12.51	0.5
2	MP2A	Z	21.667	0.5
3	MP2A	Mx	0.008	0.5
4	MP2A	X	-12.51	4.5
5	MP2A	Z	21.667	4.5
6	MP2A	Mx	0.008	4.5
7	MP3A	X	-12.51	2.5
8	MP3A	Z	21.667	2.5
9	MP3A	Mx	0.008	2.5
10	MP3A	X	-12.51	6.5
11	MP3A	Z	21.667	6.5
12	MP3A	Mx	0.008	6.5
13	MP5A	X	-5.643	1.5
14	MP5A	Z	9.774	1.5
15	MP5A	Mx	0.004	1.5
16	MP5A	X	-5.643	3.5
17	MP5A	Z	9.774	3.5
18	MP5A	Mx	0.004	3.5
19	MP2A	X	-6.298	1
20	MP2A	Z	10.908	1
21	MP2A	Mx	-0.002	1
22	MP3A	X	-6.319	1
23	MP3A	Z	10.944	1
24	MP3A	Mx	-0.002	1

Member Point Loads (BLC 23 : Antenna Wi (240 Deg))

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	-18.027	0.5
2	MP2A	Z	10.408	0.5
3	MP2A	Mx	0.012	0.5
4	MP2A	X	-18.027	4.5
5	MP2A	Z	10.408	4.5
6	MP2A	Mx	0.012	4.5
7	MP3A	X	-18.027	2.5
8	MP3A	Z	10.408	2.5
9	MP3A	Mx	0.012	2.5
10	MP3A	X	-18.027	6.5
11	MP3A	Z	10.408	6.5
12	MP3A	Mx	0.012	6.5
13	MP5A	X	-6.478	1.5
14	MP5A	Z	3.74	1.5
15	MP5A	Mx	0.004	1.5
16	MP5A	X	-6.478	3.5
17	MP5A	Z	3.74	3.5
18	MP5A	Mx	0.004	3.5
19	MP2A	X	-9.114	1
20	MP2A	Z	5.262	1
21	MP2A	Mx	-0.003	1
22	MP3A	X	-9.221	1
23	MP3A	Z	5.324	1
24	MP3A	Mx	-0.003	1

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

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	-18.713	0.5
2	MP2A	Z	0	0.5
3	MP2A	Mx	0.012	0.5
4	MP2A	X	-18.713	4.5
5	MP2A	Z	0	4.5
6	MP2A	Mx	0.012	4.5
7	MP3A	X	-18.713	2.5
8	MP3A	Z	0	2.5
9	MP3A	Mx	0.012	2.5
10	MP3A	X	-18.713	6.5
11	MP3A	Z	0	6.5
12	MP3A	Mx	0.012	6.5
13	MP5A	X	-5.577	1.5
14	MP5A	Z	0	1.5
15	MP5A	Mx	0.004	1.5
16	MP5A	X	-5.577	3.5
17	MP5A	Z	0	3.5
18	MP5A	Mx	0.004	3.5
19	MP2A	X	-9.488	1
20	MP2A	Z	0	1
21	MP2A	Mx	-0.003	1
22	MP3A	X	-9.653	1
23	MP3A	Z	0	1
24	MP3A	Mx	-0.003	1

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

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	-18.027	0.5
2	MP2A	Z	-10.408	0.5
3	MP2A	Mx	0.012	0.5
4	MP2A	X	-18.027	4.5
5	MP2A	Z	-10.408	4.5
6	MP2A	Mx	0.012	4.5
7	MP3A	X	-18.027	2.5
8	MP3A	Z	-10.408	2.5
9	MP3A	Mx	0.012	2.5
10	MP3A	X	-18.027	6.5
11	MP3A	Z	-10.408	6.5
12	MP3A	Mx	0.012	6.5
13	MP5A	X	-6.478	1.5
14	MP5A	Z	-3.74	1.5
15	MP5A	Mx	0.004	1.5
16	MP5A	X	-6.478	3.5
17	MP5A	Z	-3.74	3.5
18	MP5A	Mx	0.004	3.5
19	MP2A	X	-9.114	1
20	MP2A	Z	-5.262	1
21	MP2A	Mx	-0.003	1
22	MP3A	X	-9.221	1
23	MP3A	Z	-5.324	1
24	MP3A	Mx	-0.003	1

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

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	-12.51	0.5
2	MP2A	Z	-21.667	0.5
3	MP2A	Mx	0.008	0.5
4	MP2A	X	-12.51	4.5
5	MP2A	Z	-21.667	4.5
6	MP2A	Mx	0.008	4.5
7	MP3A	X	-12.51	2.5
8	MP3A	Z	-21.667	2.5
9	MP3A	Mx	0.008	2.5
10	MP3A	X	-12.51	6.5
11	MP3A	Z	-21.667	6.5
12	MP3A	Mx	0.008	6.5
13	MP5A	X	-5.643	1.5
14	MP5A	Z	-9.774	1.5
15	MP5A	Mx	0.004	1.5
16	MP5A	X	-5.643	3.5
17	MP5A	Z	-9.774	3.5
18	MP5A	Mx	0.004	3.5
19	MP2A	X	-6.298	1
20	MP2A	Z	-10.908	1
21	MP2A	Mx	-0.002	1
22	MP3A	X	-6.319	1
23	MP3A	Z	-10.944	1
24	MP3A	Mx	-0.002	1

Member Point Loads (BLC 27 : Antenna Wm (0 Deg))

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	0	0.5
2	MP2A	Z	-5.94	0.5
3	MP2A	Mx	0	0.5
4	MP2A	X	0	4.5
5	MP2A	Z	-5.94	4.5
6	MP2A	Mx	0	4.5
7	MP3A	X	0	2.5
8	MP3A	Z	-5.94	2.5
9	MP3A	Mx	0	2.5
10	MP3A	X	0	6.5
11	MP3A	Z	-5.94	6.5
12	MP3A	Mx	0	6.5
13	MP5A	X	0	1.5
14	MP5A	Z	-3.457	1.5
15	MP5A	Mx	0	1.5
16	MP5A	X	0	3.5
17	MP5A	Z	-3.457	3.5
18	MP5A	Mx	0	3.5
19	MP2A	X	0	1
20	MP2A	Z	-3.391	1
21	MP2A	Mx	0	1
22	MP3A	X	0	1
23	MP3A	Z	-4.091	1
24	MP3A	Mx	0	1

Member Point Loads (BLC 28 : Antenna Wm (30 Deg))

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	2.546	0.5
2	MP2A	Z	-4.41	0.5
3	MP2A	Mx	-0.002	0.5
4	MP2A	X	2.546	4.5
5	MP2A	Z	-4.41	4.5
6	MP2A	Mx	-0.002	4.5
7	MP3A	X	2.546	2.5
8	MP3A	Z	-4.41	2.5
9	MP3A	Mx	-0.002	2.5
10	MP3A	X	2.546	6.5
11	MP3A	Z	-4.41	6.5
12	MP3A	Mx	-0.002	6.5
13	MP5A	X	1.448	1.5
14	MP5A	Z	-2.508	1.5
15	MP5A	Mx	-0.000965	1.5
16	MP5A	X	1.448	3.5
17	MP5A	Z	-2.508	3.5
18	MP5A	Mx	-0.000965	3.5
19	MP2A	X	1.556	1
20	MP2A	Z	-2.695	1
21	MP2A	Mx	0.000519	1
22	MP3A	X	1.883	1
23	MP3A	Z	-3.261	1
24	MP3A	Mx	0.000628	1

Member Point Loads (BLC 29 : Antenna Wm (60 Deg))

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	2.942	0.5
2	MP2A	Z	-1.698	0.5
3	MP2A	Mx	-0.002	0.5
4	MP2A	X	2.942	4.5
5	MP2A	Z	-1.698	4.5
6	MP2A	Mx	-0.002	4.5
7	MP3A	X	2.942	2.5
8	MP3A	Z	-1.698	2.5
9	MP3A	Mx	-0.002	2.5
10	MP3A	X	2.942	6.5
11	MP3A	Z	-1.698	6.5
12	MP3A	Mx	-0.002	6.5
13	MP5A	X	1.537	1.5
14	MP5A	Z	-0.887	1.5
15	MP5A	Mx	-0.001	1.5
16	MP5A	X	1.537	3.5
17	MP5A	Z	-0.887	3.5
18	MP5A	Mx	-0.001	3.5
19	MP2A	X	2.212	1
20	MP2A	Z	-1.277	1
21	MP2A	Mx	0.000737	1
22	MP3A	X	2.698	1
23	MP3A	Z	-1.557	1
24	MP3A	Mx	0.000899	1

Member Point Loads (BLC 30 : Antenna Wm (90 Deg))

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	2.549	0.5
2	MP2A	Z	0	0.5
3	MP2A	Mx	-0.002	0.5
4	MP2A	X	2.549	4.5
5	MP2A	Z	0	4.5
6	MP2A	Mx	-0.002	4.5
7	MP3A	X	2.549	2.5
8	MP3A	Z	0	2.5
9	MP3A	Mx	-0.002	2.5
10	MP3A	X	2.549	6.5
11	MP3A	Z	0	6.5
12	MP3A	Mx	-0.002	6.5
13	MP5A	X	1.214	1.5
14	MP5A	Z	0	1.5
15	MP5A	Mx	-0.000809	1.5
16	MP5A	X	1.214	3.5
17	MP5A	Z	0	3.5
18	MP5A	Mx	-0.000809	3.5
19	MP2A	X	2.275	1
20	MP2A	Z	0	1
21	MP2A	Mx	0.000758	1
22	MP3A	X	2.789	1
23	MP3A	Z	0	1
24	MP3A	Mx	0.00093	1

Member Point Loads (BLC 31 : Antenna Wm (120 Deg))

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	2.942	0.5
2	MP2A	Z	1.698	0.5
3	MP2A	Mx	-0.002	0.5
4	MP2A	X	2.942	4.5
5	MP2A	Z	1.698	4.5
6	MP2A	Mx	-0.002	4.5
7	MP3A	X	2.942	2.5
8	MP3A	Z	1.698	2.5
9	MP3A	Mx	-0.002	2.5
10	MP3A	X	2.942	6.5
11	MP3A	Z	1.698	6.5
12	MP3A	Mx	-0.002	6.5
13	MP5A	X	1.537	1.5
14	MP5A	Z	0.887	1.5
15	MP5A	Mx	-0.001	1.5
16	MP5A	X	1.537	3.5
17	MP5A	Z	0.887	3.5
18	MP5A	Mx	-0.001	3.5
19	MP2A	X	2.212	1
20	MP2A	Z	1.277	1
21	MP2A	Mx	0.000737	1
22	MP3A	X	2.698	1
23	MP3A	Z	1.557	1
24	MP3A	Mx	0.000899	1

Member Point Loads (BLC 32 : Antenna Wm (150 Deg))

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	2.546	0.5
2	MP2A	Z	4.41	0.5
3	MP2A	Mx	-0.002	0.5
4	MP2A	X	2.546	4.5
5	MP2A	Z	4.41	4.5
6	MP2A	Mx	-0.002	4.5
7	MP3A	X	2.546	2.5
8	MP3A	Z	4.41	2.5
9	MP3A	Mx	-0.002	2.5
10	MP3A	X	2.546	6.5
11	MP3A	Z	4.41	6.5
12	MP3A	Mx	-0.002	6.5
13	MP5A	X	1.448	1.5
14	MP5A	Z	2.508	1.5
15	MP5A	Mx	-0.000965	1.5
16	MP5A	X	1.448	3.5
17	MP5A	Z	2.508	3.5
18	MP5A	Mx	-0.000965	3.5
19	MP2A	X	1.556	1
20	MP2A	Z	2.695	1
21	MP2A	Mx	0.000519	1
22	MP3A	X	1.883	1
23	MP3A	Z	3.261	1
24	MP3A	Mx	0.000628	1

Member Point Loads (BLC 33 : Antenna Wm (180 Deg))

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	0	0.5
2	MP2A	Z	5.94	0.5
3	MP2A	Mx	0	0.5
4	MP2A	X	0	4.5
5	MP2A	Z	5.94	4.5
6	MP2A	Mx	0	4.5
7	MP3A	X	0	2.5
8	MP3A	Z	5.94	2.5
9	MP3A	Mx	0	2.5
10	MP3A	X	0	6.5
11	MP3A	Z	5.94	6.5
12	MP3A	Mx	0	6.5
13	MP5A	X	0	1.5
14	MP5A	Z	3.457	1.5
15	MP5A	Mx	0	1.5
16	MP5A	X	0	3.5
17	MP5A	Z	3.457	3.5
18	MP5A	Mx	0	3.5
19	MP2A	X	0	1
20	MP2A	Z	3.391	1
21	MP2A	Mx	0	1
22	MP3A	X	0	1
23	MP3A	Z	4.091	1
24	MP3A	Mx	0	1

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

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	-2.546	0.5
2	MP2A	Z	4.41	0.5
3	MP2A	Mx	0.002	0.5
4	MP2A	X	-2.546	4.5
5	MP2A	Z	4.41	4.5
6	MP2A	Mx	0.002	4.5
7	MP3A	X	-2.546	2.5
8	MP3A	Z	4.41	2.5
9	MP3A	Mx	0.002	2.5
10	MP3A	X	-2.546	6.5
11	MP3A	Z	4.41	6.5
12	MP3A	Mx	0.002	6.5
13	MP5A	X	-1.448	1.5
14	MP5A	Z	2.508	1.5
15	MP5A	Mx	0.000965	1.5
16	MP5A	X	-1.448	3.5
17	MP5A	Z	2.508	3.5
18	MP5A	Mx	0.000965	3.5
19	MP2A	X	-1.556	1
20	MP2A	Z	2.695	1
21	MP2A	Mx	-0.000519	1
22	MP3A	X	-1.883	1
23	MP3A	Z	3.261	1
24	MP3A	Mx	-0.000628	1

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

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	-2.942	0.5
2	MP2A	Z	1.698	0.5
3	MP2A	Mx	0.002	0.5
4	MP2A	X	-2.942	4.5
5	MP2A	Z	1.698	4.5
6	MP2A	Mx	0.002	4.5
7	MP3A	X	-2.942	2.5
8	MP3A	Z	1.698	2.5
9	MP3A	Mx	0.002	2.5
10	MP3A	X	-2.942	6.5
11	MP3A	Z	1.698	6.5
12	MP3A	Mx	0.002	6.5
13	MP5A	X	-1.537	1.5
14	MP5A	Z	0.887	1.5
15	MP5A	Mx	0.001	1.5
16	MP5A	X	-1.537	3.5
17	MP5A	Z	0.887	3.5
18	MP5A	Mx	0.001	3.5
19	MP2A	X	-2.212	1
20	MP2A	Z	1.277	1
21	MP2A	Mx	-0.000737	1
22	MP3A	X	-2.698	1
23	MP3A	Z	1.557	1
24	MP3A	Mx	-0.000899	1

Member Point Loads (BLC 36 : Antenna Wm (270 Deg))

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	-2.549	0.5
2	MP2A	Z	0	0.5
3	MP2A	Mx	0.002	0.5
4	MP2A	X	-2.549	4.5
5	MP2A	Z	0	4.5
6	MP2A	Mx	0.002	4.5
7	MP3A	X	-2.549	2.5
8	MP3A	Z	0	2.5
9	MP3A	Mx	0.002	2.5
10	MP3A	X	-2.549	6.5
11	MP3A	Z	0	6.5
12	MP3A	Mx	0.002	6.5
13	MP5A	X	-1.214	1.5
14	MP5A	Z	0	1.5
15	MP5A	Mx	0.000809	1.5
16	MP5A	X	-1.214	3.5
17	MP5A	Z	0	3.5
18	MP5A	Mx	0.000809	3.5
19	MP2A	X	-2.275	1
20	MP2A	Z	0	1
21	MP2A	Mx	-0.000758	1
22	MP3A	X	-2.789	1
23	MP3A	Z	0	1
24	MP3A	Mx	-0.00093	1

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

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	-2.942	0.5
2	MP2A	Z	-1.698	0.5
3	MP2A	Mx	0.002	0.5
4	MP2A	X	-2.942	4.5
5	MP2A	Z	-1.698	4.5
6	MP2A	Mx	0.002	4.5
7	MP3A	X	-2.942	2.5
8	MP3A	Z	-1.698	2.5
9	MP3A	Mx	0.002	2.5
10	MP3A	X	-2.942	6.5
11	MP3A	Z	-1.698	6.5
12	MP3A	Mx	0.002	6.5
13	MP5A	X	-1.537	1.5
14	MP5A	Z	-0.887	1.5
15	MP5A	Mx	0.001	1.5
16	MP5A	X	-1.537	3.5
17	MP5A	Z	-0.887	3.5
18	MP5A	Mx	0.001	3.5
19	MP2A	X	-2.212	1
20	MP2A	Z	-1.277	1
21	MP2A	Mx	-0.000737	1
22	MP3A	X	-2.698	1
23	MP3A	Z	-1.557	1
24	MP3A	Mx	-0.000899	1

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

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	-2.546	0.5
2	MP2A	Z	-4.41	0.5
3	MP2A	Mx	0.002	0.5
4	MP2A	X	-2.546	4.5
5	MP2A	Z	-4.41	4.5
6	MP2A	Mx	0.002	4.5
7	MP3A	X	-2.546	2.5
8	MP3A	Z	-4.41	2.5
9	MP3A	Mx	0.002	2.5
10	MP3A	X	-2.546	6.5
11	MP3A	Z	-4.41	6.5
12	MP3A	Mx	0.002	6.5
13	MP5A	X	-1.448	1.5
14	MP5A	Z	-2.508	1.5
15	MP5A	Mx	0.000965	1.5
16	MP5A	X	-1.448	3.5
17	MP5A	Z	-2.508	3.5
18	MP5A	Mx	0.000965	3.5
19	MP2A	X	-1.556	1
20	MP2A	Z	-2.695	1
21	MP2A	Mx	-0.000519	1
22	MP3A	X	-1.883	1
23	MP3A	Z	-3.261	1
24	MP3A	Mx	-0.000628	1

Member Point Loads (BLC 77 : Lm1)

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	M30A	Y	-500	%8

Member Point Loads (BLC 78 : Lm2)

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	M38	Y	-500	%45

Member Point Loads (BLC 79 : Lv1)

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	M38	Y	-250	0

Member Point Loads (BLC 80 : Lv2)

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	M30A	Y	-250	%100

Member Point Loads (BLC 81 : Antenna Ev)

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	Y	-0.918	0.5
2	MP2A	My	-0.000612	0.5
3	MP2A	Mz	0	0.5
4	MP2A	Y	-0.918	4.5
5	MP2A	My	-0.000612	4.5

Member Point Loads (BLC 81 : Antenna Ev) (Continued)

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
6	MP2A	Mz	0	4.5
7	MP3A	Y	-0.918	2.5
8	MP3A	My	-0.000612	2.5
9	MP3A	Mz	0	2.5
10	MP3A	Y	-0.918	6.5
11	MP3A	My	-0.000612	6.5
12	MP3A	Mz	0	6.5
13	MP5A	Y	-1.204	1.5
14	MP5A	My	-0.000803	1.5
15	MP5A	Mz	0	1.5
16	MP5A	Y	-1.204	3.5
17	MP5A	My	-0.000803	3.5
18	MP5A	Mz	0	3.5
19	MP2A	Y	-3.139	1
20	MP2A	My	0.001	1
21	MP2A	Mz	0	1
22	MP3A	Y	-3.324	1
23	MP3A	My	0.001	1
24	MP3A	Mz	0	1

Member Point Loads (BLC 82 : Antenna Eh (0 Deg))

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	Z	-2.296	0.5
2	MP2A	Mx	0	0.5
3	MP2A	Z	-2.296	4.5
4	MP2A	Mx	0	4.5
5	MP3A	Z	-2.296	2.5
6	MP3A	Mx	0	2.5
7	MP3A	Z	-2.296	6.5
8	MP3A	Mx	0	6.5
9	MP5A	Z	-3.01	1.5
10	MP5A	Mx	0	1.5
11	MP5A	Z	-3.01	3.5
12	MP5A	Mx	0	3.5
13	MP2A	Z	-7.848	1
14	MP2A	Mx	0	1
15	MP3A	Z	-8.311	1
16	MP3A	Mx	0	1

Member Point Loads (BLC 83 : Antenna Eh (90 Deg))

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
1	MP2A	X	2.296	0.5
2	MP2A	Mx	-0.002	0.5
3	MP2A	X	2.296	4.5
4	MP2A	Mx	-0.002	4.5
5	MP3A	X	2.296	2.5
6	MP3A	Mx	-0.002	2.5
7	MP3A	X	2.296	6.5
8	MP3A	Mx	-0.002	6.5
9	MP5A	X	3.01	1.5
10	MP5A	Mx	-0.002	1.5
11	MP5A	X	3.01	3.5
12	MP5A	Mx	-0.002	3.5

Member Point Loads (BLC 83 : Antenna Eh (90 Deg)) (Continued)

	Member Label	Direction	Magnitude [lb, k-ft]	Location [(ft, %)]
13	MP2A	X	7.848	1
14	MP2A	Mx	0.003	1
15	MP3A	X	8.311	1
16	MP3A	Mx	0.003	1

Member Area Loads

No Data to Print...

Envelope Node Reactions

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N41	max	225.818	23	385.338	23	574.479	24	0	75	0	75	0	75
2		min	16.934	5	66.681	5	38.673	6	0	1	0	1	0	1
3	N43	max	-39.489	6	395.69	24	591.818	36	0	75	0	75	0	75
4		min	-246.194	36	82.31	6	57.851	6	0	1	0	1	0	1
5	N40A	max	-60.494	1	333.965	23	-109.234	1	0	75	0	75	0	75
6		min	-241.156	19	83.638	5	-601.998	19	0	1	0	1	0	1
7	N42	max	246.746	32	329.794	23	-68.215	2	0	75	0	75	0	75
8		min	21.182	2	105.66	68	-598.11	32	0	1	0	1	0	1
9	N84	max	423.852	11	735.105	8	571.947	1	0.005	48	0.004	9	0.004	3
10		min	-396.888	5	-521.178	1	-695.963	7	0	7	-0.004	3	-0.004	9
11	N89	max	344.415	47	870.076	2	801.512	2	0.004	45	0.004	3	0.003	3
12		min	-273.778	50	-611.229	8	-626.584	8	-0.003	3	-0.004	9	-0.003	9
13	N93	max	241.899	9	29.202	9	406.815	9	0.02	9	0.002	9	0.033	9
14		min	-245.871	3	-20.764	3	-407.654	3	-0.021	3	-0.002	3	-0.035	3
15	Totals:	max	966.656	9	1905.959	21	1608.014	1						
16		min	-966.656	3	629.031	66	-1608.006	7						

Node Reactions

	LC	Node Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	1	N41	127.967	207.579	351.685	0	0	0
2	1	N43	-125.084	238.686	349.457	0	0	0
3	1	N40A	-60.494	172.207	-109.234	0	0	0
4	1	N42	50.666	167.66	-99.483	0	0	0
5	1	N84	29.789	-521.178	571.947	0.001	-0.001	0.001
6	1	N89	4.33	611.61	588.892	-0.001	0.001	0.001
7	1	N93	-27.175	3.22	-45.25	-0.004	0	-0.007
8	1	Totals:	-0.002	879.785	1608.014			
9	1	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
10	2	N41	70.42	122.247	209.083	0	0	0
11	2	N43	-82.642	174.304	218.435	0	0	0
12	2	N40A	-68.464	114.313	-110.603	0	0	0
13	2	N42	21.182	131.722	-68.215	0	0	0
14	2	N84	-273.939	-515.829	553.28	0.001	-0.004	0.004
15	2	N89	-176.296	870.076	801.512	-0.003	0.004	0.003
16	2	N93	-212.595	-17.057	-352.462	-0.019	-0.002	-0.032
17	2	Totals:	-722.334	879.776	1251.03			
18	2	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
19	3	N41	40.139	85.228	123.344	0	0	0
20	3	N43	-65.094	135.372	148.745	0	0	0
21	3	N40A	-89.525	92.566	-170.012	0	0	0
22	3	N42	25.268	115.905	-107.579	0	0	0
23	3	N84	-383.23	-277.196	306.256	0.001	-0.004	0.004
24	3	N89	-248.343	748.667	664.912	-0.003	0.004	0.003

Node Reactions (Continued)

	LC	Node Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
25	3	N93	-245.871	-20.764	-407.654	-0.021	-0.002	-0.035
26	3	Totals:	-966.656	879.777	558.013			
27	3	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
28	4	N41	30.708	81.92	97.48	0	0	0
29	4	N43	-60.83	122.086	131.201	0	0	0
30	4	N40A	-112.082	93.392	-233.226	0	0	0
31	4	N42	48.51	116.302	-167.988	0	0	0
32	4	N84	-384.338	-52.644	78.176	0	-0.004	0.003
33	4	N89	-259.282	535.722	449.305	-0.003	0.003	0.003
34	4	N93	-213.791	-16.997	-355.016	-0.018	-0.002	-0.029
35	4	Totals:	-951.104	879.781	-0.066			
36	4	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
37	5	N41	16.934	66.681	59.138	0	0	0
38	5	N43	-45.607	98.861	87.908	0	0	0
39	5	N40A	-129.649	83.638	-283.751	0	0	0
40	5	N42	70.999	112.114	-226.738	0	0	0
41	5	N84	-396.888	144.341	-123.015	0	-0.003	0.003
42	5	N89	-262.023	391.637	292.944	-0.002	0.003	0.002
43	5	N93	-218.934	-17.489	-363.786	-0.017	-0.002	-0.029
44	5	Totals:	-965.167	879.783	-557.299			
45	5	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
46	6	N41	17.218	67.828	38.673	0	0	0
47	6	N43	-39.489	82.31	57.851	0	0	0
48	6	N40A	-142.611	84.804	-345.051	0	0	0
49	6	N42	100.304	112.842	-306.998	0	0	0
50	6	N84	-302.812	442.196	-424.486	0	-0.002	0.002
51	6	N89	-188.807	101.22	5.631	-0.001	0.002	0.001
52	6	N93	-165.276	-11.412	-275.279	-0.012	-0.001	-0.02
53	6	Totals:	-721.471	879.788	-1249.66			
54	6	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
55	7	N41	57.388	127.988	117.392	0	0	0
56	7	N43	-69.152	113.581	129.733	0	0	0
57	7	N40A	-146.451	126.51	-396.325	0	0	0
58	7	N42	140.407	136.64	-389.375	0	0	0
59	7	N84	-5.32	724.353	-695.963	0	0.001	-0.001
60	7	N89	-1.821	-357.829	-415.251	0.001	-0.001	-0.001
61	7	N93	24.951	8.558	41.783	0.003	0	0.005
62	7	Totals:	0.002	879.8	-1608.006			
63	7	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
64	8	N41	111.987	207.521	254.449	0	0	0
65	8	N43	-111.117	174.08	257.748	0	0	0
66	8	N40A	-135.987	179.539	-388.451	0	0	0
67	8	N42	166.906	168.795	-413.462	0	0	0
68	8	N84	301.802	735.105	-683.502	0	0.004	-0.003
69	8	N89	181.353	-611.229	-626.584	0.004	-0.004	-0.003
70	8	N93	207.389	25.996	348.776	0.017	0.002	0.029
71	8	Totals:	722.333	879.808	-1251.026			
72	8	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
73	9	N41	141.961	244.592	339.713	0	0	0
74	9	N43	-128.798	212.556	327.469	0	0	0
75	9	N40A	-115.566	201.596	-329.999	0	0	0
76	9	N42	162.585	184.18	-374.138	0	0	0
77	9	N84	411.586	499.414	-436.528	0	0.004	-0.004
78	9	N89	252.989	-491.733	-491.339	0.004	-0.004	-0.003
79	9	N93	241.899	29.202	406.815	0.02	0.002	0.033

Node Reactions (Continued)

	LC	Node Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
80	9	Totals:	966.656	879.807	-558.007			
81	9	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
82	10	N41	152.519	250.301	367.589	0	0	0
83	10	N43	-133.115	227.252	345.949	0	0	0
84	10	N40A	-94.361	202.91	-269.989	0	0	0
85	10	N42	140.518	185.219	-316.833	0	0	0
86	10	N84	411.277	268.76	-205.407	0	0.003	-0.003
87	10	N89	262.862	-281.16	-276.233	0.003	-0.003	-0.003
88	10	N93	211.404	26.522	354.998	0.017	0.002	0.028
89	10	Totals:	951.104	879.803	0.074			
90	10	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
91	11	N41	166.811	266.754	407.009	0	0	0
92	11	N43	-148.602	251.272	390.107	0	0	0
93	11	N40A	-77.783	213.817	-221.434	0	0	0
94	11	N42	118.359	190.093	-259.406	0	0	0
95	11	N84	423.852	69.282	-2.991	0.001	0.003	-0.003
96	11	N89	265.295	-138.547	-120.548	0.003	-0.003	-0.002
97	11	N93	217.234	27.131	364.57	0.017	0.002	0.028
98	11	Totals:	965.167	879.802	557.307			
99	11	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
100	12	N41	168.014	268.422	430.451	0	0	0
101	12	N43	-155.197	269.905	422.092	0	0	0
102	12	N40A	-65.84	214.924	-162.932	0	0	0
103	12	N42	90.455	191.283	-182.403	0	0	0
104	12	N84	328.44	-236.524	300.847	0.001	0.002	-0.002
105	12	N89	190.904	149.463	165.861	0.002	-0.002	-0.001
106	12	N93	164.695	22.325	275.753	0.012	0.001	0.02
107	12	Totals:	721.471	879.797	1249.669			
108	12	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
109	13	N41	212.638	364.588	550.661	0	0	0
110	13	N43	-225.734	385.63	565.269	0	0	0
111	13	N40A	-217.412	318.886	-519.089	0	0	0
112	13	N42	198.38	320.733	-498.892	0	0	0
113	13	N84	15.999	62.509	32.788	0.001	0	0
114	13	N89	25.207	448.484	355.934	0	0	0
115	13	N93	-9.079	5.123	-15.156	-0.001	0	-0.001
116	13	Totals:	-0.001	1905.953	471.515			
117	13	COG (ft):	X: 2.488	Y: -0.678	Z: 1.561			
118	14	N41	195.75	340.498	508.469	0	0	0
119	14	N43	-212.914	367.642	526.081	0	0	0
120	14	N40A	-219.868	302.785	-519.24	0	0	0
121	14	N42	189.066	310.647	-488.784	0	0	0
122	14	N84	-72.77	58.105	32.429	0.001	-0.001	0.001
123	14	N89	-31.287	526.823	421.56	0	0.001	0.001
124	14	N93	-63.906	-0.55	-106.538	-0.005	-0.001	-0.008
125	14	Totals:	-215.928	1905.95	373.978			
126	14	COG (ft):	X: 2.488	Y: -0.678	Z: 1.561			
127	15	N41	185.579	328.087	479.072	0	0	0
128	15	N43	-205.26	355.791	500.106	0	0	0
129	15	N40A	-225.449	295.764	-535.095	0	0	0
130	15	N42	189.455	305.935	-498.697	0	0	0
131	15	N84	-111.443	118.433	-30.028	0.001	-0.001	0.001
132	15	N89	-57.722	504.183	394.16	-0.001	0.001	0.001
133	15	N93	-80.087	-2.242	-133.487	-0.006	-0.001	-0.01
134	15	Totals:	-304.927	1905.95	176.032			

Node Reactions (Continued)

	LC	Node Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
135	15	COG (ft):	X: 2.488	Y: -0.678	Z: 1.561			
136	16	N41	181.218	325.573	466.765	0	0	0
137	16	N43	-201.508	350.893	489.291	0	0	0
138	16	N40A	-232.369	295.498	-554.451	0	0	0
139	16	N42	196.6	306.065	-517.347	0	0	0
140	16	N84	-117.217	184.469	-95.499	0.001	-0.001	0.001
141	16	N89	-64.597	445.058	334.832	0	0.001	0.001
142	16	N93	-74.131	-1.605	-123.604	-0.005	-0.001	-0.009
143	16	Totals:	-312.003	1905.951	-0.013			
144	16	COG (ft):	X: 2.488	Y: -0.678	Z: 1.561			
145	17	N41	177.179	322.791	455.223	0	0	0
146	17	N43	-196.732	345.183	475.956	0	0	0
147	17	N40A	-237.936	294.307	-570.95	0	0	0
148	17	N42	204.362	306.024	-537.013	0	0	0
149	17	N84	-116.847	249.529	-159.664	0.001	-0.001	0.001
150	17	N89	-64.106	389.329	278.15	0	0.001	0.001
151	17	N93	-70.475	-1.212	-117.545	-0.005	0	-0.008
152	17	Totals:	-304.554	1905.952	-175.845			
153	17	COG (ft):	X: 2.488	Y: -0.678	Z: 1.561			
154	18	N41	178.215	325.595	451.165	0	0	0
155	18	N43	-195.488	342.572	468.644	0	0	0
156	18	N40A	-240.89	296.695	-588.047	0	0	0
157	18	N42	213.535	307.654	-561.074	0	0	0
158	18	N84	-82.968	338.789	-247.646	0.001	-0.001	0.001
159	18	N89	-38.802	293.647	185.659	0	0	0
160	18	N93	-49.317	1.001	-82.321	-0.003	0	-0.005
161	18	Totals:	-215.713	1905.954	-373.621			
162	18	COG (ft):	X: 2.488	Y: -0.678	Z: 1.561			
163	19	N41	190.549	343.763	474.998	0	0	0
164	19	N43	-204.006	352.63	489.717	0	0	0
165	19	N40A	-241.156	309.515	-601.998	0	0	0
166	19	N42	225.722	315.294	-585.419	0	0	0
167	19	N84	3.829	418.164	-322.967	0.001	0	0
168	19	N89	18.712	159.903	63.557	0.001	0	0
169	19	N93	6.35	6.689	10.617	0.002	0	0.003
170	19	Totals:	0.001	1905.957	-471.495			
171	19	COG (ft):	X: 2.488	Y: -0.678	Z: 1.561			
172	20	N41	207.183	367.344	516.704	0	0	0
173	20	N43	-216.773	370.278	528.626	0	0	0
174	20	N40A	-238.486	325.19	-601.278	0	0	0
175	20	N42	234.766	325.051	-594.887	0	0	0
176	20	N84	92.897	423.948	-323.146	0.001	0.001	-0.001
177	20	N89	75.435	82.036	-1.935	0.002	-0.001	-0.001
178	20	N93	60.907	12.114	101.959	0.006	0.001	0.01
179	20	Totals:	215.929	1905.959	-373.957			
180	20	COG (ft):	X: 2.488	Y: -0.678	Z: 1.561			
181	21	N41	217.268	379.674	545.967	0	0	0
182	21	N43	-224.457	382.041	554.593	0	0	0
183	21	N40A	-232.937	332.172	-585.428	0	0	0
184	21	N42	234.304	329.668	-584.864	0	0	0
185	21	N84	131.706	364.135	-260.792	0.001	0.001	-0.001
186	21	N89	101.899	104.561	25.346	0.002	-0.001	-0.001
187	21	N93	77.144	13.71	129.166	0.007	0.001	0.012
188	21	Totals:	304.927	1905.959	-176.011			
189	21	COG (ft):	X: 2.488	Y: -0.678	Z: 1.561			

Node Reactions (Continued)

	LC	Node Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
190	22	N41	221.705	382.384	558.425	0	0	0
191	22	N43	-228.234	387.053	565.509	0	0	0
192	22	N40A	-226.145	332.62	-566.359	0	0	0
193	22	N42	227.246	329.649	-566.466	0	0	0
194	22	N84	137.395	297.656	-195.074	0.001	0.001	-0.001
195	22	N89	108.698	163.444	84.598	0.002	-0.001	-0.001
196	22	N93	71.337	13.152	119.401	0.006	0.001	0.011
197	22	Totals:	312.003	1905.959	0.034			
198	22	COG (ft):	X: 2.488	Y: -0.678	Z: 1.561			
199	23	N41	225.818	385.338	570.117	0	0	0
200	23	N43	-233.041	392.876	578.953	0	0	0
201	23	N40A	-220.68	333.965	-550.091	0	0	0
202	23	N42	219.556	329.794	-547.003	0	0	0
203	23	N84	136.971	232.186	-130.731	0.001	0.001	-0.001
204	23	N89	108.152	218.987	141.213	0.001	-0.001	-0.001
205	23	N93	67.777	12.812	113.407	0.006	0.001	0.01
206	23	Totals:	304.554	1905.958	175.865			
207	23	COG (ft):	X: 2.488	Y: -0.678	Z: 1.561			
208	24	N41	224.94	382.813	574.479	0	0	0
209	24	N43	-234.315	395.69	586.433	0	0	0
210	24	N40A	-217.803	331.796	-533.245	0	0	0
211	24	N42	210.542	328.359	-523.284	0	0	0
212	24	N84	102.912	142.098	-42.501	0.001	0.001	-0.001
213	24	N89	82.714	314.458	233.642	0.001	-0.001	0
214	24	N93	46.723	10.742	78.117	0.004	0	0.007
215	24	Totals:	215.713	1905.956	373.642			
216	24	COG (ft):	X: 2.488	Y: -0.678	Z: 1.561			
217	25	N41	211.897	377.444	556.218	0	0	0
218	25	N43	-244.407	357.434	587.589	0	0	0
219	25	N40A	-217.72	320.251	-559.594	0	0	0
220	25	N42	239.86	304.307	-579.723	0	0	0
221	25	N84	41.131	87.501	-44.294	0.001	0	0
222	25	N89	-28.642	177.022	135.978	0	0	0
223	25	N93	-2.119	5.833	-3.54	0.002	0	0.003
224	25	Totals:	0	1629.791	92.633			
225	25	COG (ft):	X: 2.255	Y: -1.439	Z: 1.748			
226	26	N41	208.704	372.695	548.188	0	0	0
227	26	N43	-241.923	353.838	580.068	0	0	0
228	26	N40A	-218.287	317.05	-559.879	0	0	0
229	26	N42	238.192	302.34	-578.061	0	0	0
230	26	N84	23.543	87.344	-45.21	0.001	0	0
231	26	N89	-39.122	191.77	148.197	0	0	0
232	26	N93	-12.713	4.753	-21.231	0.001	0	0.002
233	26	Totals:	-41.606	1629.791	72.07			
234	26	COG (ft):	X: 2.255	Y: -1.439	Z: 1.748			
235	27	N41	206.965	370.556	543.254	0	0	0
236	27	N43	-240.905	351.604	576.044	0	0	0
237	27	N40A	-219.478	315.783	-563.267	0	0	0
238	27	N42	238.432	301.436	-580.322	0	0	0
239	27	N84	17.232	101.015	-59.437	0.001	0	0
240	27	N89	-43.26	184.843	140.373	0	0	0
241	27	N93	-14.668	4.554	-24.496	0.001	0	0.001
242	27	Totals:	-55.682	1629.791	32.15			
243	27	COG (ft):	X: 2.255	Y: -1.439	Z: 1.748			
244	28	N41	206.374	370.296	541.693	0	0	0

Node Reactions (Continued)

	LC	Node Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
245	28	N43	-240.674	350.796	575.022	0	0	0
246	28	N40A	-220.723	315.769	-566.803	0	0	0
247	28	N42	239.756	301.417	-583.733	0	0	0
248	28	N84	17.208	114.126	-72.653	0.001	0	0
249	28	N89	-43.859	172.65	127.968	0	0	0
250	28	N93	-12.866	4.738	-21.488	0.001	0	0.002
251	28	Totals:	-54.783	1629.791	0.007			
252	28	COG (ft):	X: 2.255	Y: -1.439	Z: 1.748			
253	29	N41	205.558	369.381	539.445	0	0	0
254	29	N43	-239.795	349.433	572.507	0	0	0
255	29	N40A	-221.699	315.172	-569.649	0	0	0
256	29	N42	241.048	301.154	-587.085	0	0	0
257	29	N84	16.482	125.545	-84.271	0.001	0	0
258	29	N89	-44.008	164.4	118.985	0	0	0
259	29	N93	-13.183	4.706	-22.019	0.001	0	0.002
260	29	Totals:	-55.596	1629.791	-32.087			
261	29	COG (ft):	X: 2.255	Y: -1.439	Z: 1.748			
262	30	N41	205.508	369.364	538.16	0	0	0
263	30	N43	-239.455	348.418	570.746	0	0	0
264	30	N40A	-222.393	315.173	-573.082	0	0	0
265	30	N42	242.724	301.139	-591.645	0	0	0
266	30	N84	21.937	142.932	-101.693	0.001	0	0
267	30	N89	-39.753	147.747	102.46	0	0	0
268	30	N93	-10.126	5.018	-16.916	0.001	0	0.002
269	30	Totals:	-41.557	1629.791	-71.97			
270	30	COG (ft):	X: 2.255	Y: -1.439	Z: 1.748			
271	31	N41	207.762	372.838	542.647	0	0	0
272	31	N43	-241.239	350.209	574.973	0	0	0
273	31	N40A	-222.603	317.599	-576.061	0	0	0
274	31	N42	245.088	302.502	-596.472	0	0	0
275	31	N84	39.106	159.275	-117.304	0.001	0	0
276	31	N89	-28.98	121.232	78.158	0.001	0	0
277	31	N93	0.866	6.136	1.447	0.002	0	0.004
278	31	Totals:	0	1629.792	-92.611			
279	31	COG (ft):	X: 2.255	Y: -1.439	Z: 1.748			
280	32	N41	210.945	377.569	550.658	0	0	0
281	32	N43	-243.722	353.792	582.484	0	0	0
282	32	N40A	-222.027	320.784	-575.754	0	0	0
283	32	N42	246.746	304.456	-598.11	0	0	0
284	32	N84	56.706	159.485	-116.409	0.001	0	0
285	32	N89	-18.491	106.5	65.944	0.001	0	0
286	32	N93	11.45	7.207	19.137	0.003	0	0.005
287	32	Totals:	41.606	1629.792	-72.048			
288	32	COG (ft):	X: 2.255	Y: -1.439	Z: 1.748			
289	33	N41	212.683	379.708	555.591	0	0	0
290	33	N43	-244.741	356.024	586.508	0	0	0
291	33	N40A	-220.838	322.052	-572.37	0	0	0
292	33	N42	246.505	305.359	-595.849	0	0	0
293	33	N84	63.018	145.825	-102.182	0.001	0	0
294	33	N89	-14.355	113.421	73.763	0.001	0	0
295	33	N93	13.409	7.404	22.411	0.003	0	0.005
296	33	Totals:	55.682	1629.792	-32.128			
297	33	COG (ft):	X: 2.255	Y: -1.439	Z: 1.748			
298	34	N41	213.277	379.976	557.158	0	0	0
299	34	N43	-244.972	356.837	587.533	0	0	0

Node Reactions (Continued)

	LC	Node Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
300	34	N40A	-219.598	322.074	-568.844	0	0	0
301	34	N42	245.185	305.383	-592.448	0	0	0
302	34	N84	63.037	132.693	-88.956	0.001	0	0
303	34	N89	-13.759	125.606	86.166	0.001	0	0
304	34	N93	11.612	7.223	19.406	0.003	0	0.005
305	34	Totals:	54.783	1629.792	0.015			
306	34	COG (ft):	X: 2.255	Y: -1.439	Z: 1.748			
307	35	N41	214.095	380.895	559.41	0	0	0
308	35	N43	-245.852	358.202	590.051	0	0	0
309	35	N40A	-218.625	322.674	-566.004	0	0	0
310	35	N42	243.894	305.649	-589.101	0	0	0
311	35	N84	63.763	121.265	-77.334	0.001	0	0
312	35	N89	-13.611	133.851	95.147	0.001	0	0
313	35	N93	11.932	7.256	19.94	0.003	0	0.005
314	35	Totals:	55.596	1629.792	32.109			
315	35	COG (ft):	X: 2.255	Y: -1.439	Z: 1.748			
316	36	N41	214.15	380.921	560.705	0	0	0
317	36	N43	-246.194	359.225	591.818	0	0	0
318	36	N40A	-217.934	322.681	-562.581	0	0	0
319	36	N42	242.223	305.669	-584.552	0	0	0
320	36	N84	58.303	103.852	-59.903	0.001	0	0
321	36	N89	-17.87	150.496	111.668	0.001	0	0
322	36	N93	8.879	6.948	14.836	0.003	0	0.004
323	36	Totals:	41.557	1629.792	71.992			
324	36	COG (ft):	X: 2.255	Y: -1.439	Z: 1.748			
325	37	N41	26.485	158.043	103.716	0	0	0
326	37	N43	-76.56	226.122	157.688	0	0	0
327	37	N40A	-108.838	158.402	-237.422	0	0	0
328	37	N42	62.698	209.251	-187.162	0	0	0
329	37	N84	-227.272	300.672	-229.842	0.005	-0.002	0.002
330	37	N89	328.418	571.716	493.903	0.004	0.002	0.002
331	37	N93	-4.93	5.551	-8.238	0.003	0	0.005
332	37	Totals:	0.001	1629.757	92.644			
333	37	COG (ft):	X: 3.893	Y: -1.439	Z: 1.748			
334	38	N41	26.218	155.718	102.229	0	0	0
335	38	N43	-75.994	224.923	155.719	0	0	0
336	38	N40A	-111.744	157.017	-243.215	0	0	0
337	38	N42	62.965	209.178	-190.671	0	0	0
338	38	N84	-244.466	297.06	-227.599	0.005	-0.002	0.002
339	38	N89	316.919	581.382	501.517	0.004	0.002	0.002
340	38	N93	-15.504	4.481	-25.899	0.002	0	0.004
341	38	Totals:	-41.605	1629.758	72.081			
342	38	COG (ft):	X: 3.893	Y: -1.439	Z: 1.748			
343	39	N41	25.567	154.434	99.691	0	0	0
344	39	N43	-75.64	223.531	153.676	0	0	0
345	39	N40A	-113.827	156.391	-248.654	0	0	0
346	39	N42	63.879	208.937	-194.792	0	0	0
347	39	N84	-250.599	309.452	-240.604	0.005	-0.002	0.002
348	39	N89	312.416	572.732	492.037	0.004	0.002	0.002
349	39	N93	-17.476	4.281	-29.194	0.002	0	0.003
350	39	Totals:	-55.681	1629.758	32.16			
351	39	COG (ft):	X: 3.893	Y: -1.439	Z: 1.748			
352	40	N41	24.918	154.079	97.966	0	0	0
353	40	N43	-75.327	222.627	152.47	0	0	0
354	40	N40A	-115.047	156.308	-252.087	0	0	0

Node Reactions (Continued)

	LC	Node Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
355	40	N42	65.125	208.839	-198.046	0	0	0
356	40	N84	-250.607	322.64	-253.835	0.005	-0.002	0.002
357	40	N89	311.854	560.803	479.776	0.004	0.002	0.002
358	40	N93	-15.698	4.462	-26.226	0.002	0	0.004
359	40	Totals:	-54.782	1629.758	0.017			
360	40	COG (ft):	X: 3.893	Y: -1.439	Z: 1.748			
361	41	N41	24.488	153.446	96.553	0	0	0
362	41	N43	-74.665	221.544	150.627	0	0	0
363	41	N40A	-116.35	155.924	-255.665	0	0	0
364	41	N42	66.639	208.794	-202.036	0	0	0
365	41	N84	-251.265	333.612	-265	0.005	-0.002	0.002
366	41	N89	311.589	552.009	470.227	0.004	0.002	0.002
367	41	N93	-16.031	4.428	-26.782	0.002	0	0.004
368	41	Totals:	-55.595	1629.758	-32.077			
369	41	COG (ft):	X: 3.893	Y: -1.439	Z: 1.748			
370	42	N41	24.181	153.161	94.648	0	0	0
371	42	N43	-74.1	220.263	148.281	0	0	0
372	42	N40A	-116.865	155.727	-258.618	0	0	0
373	42	N42	68.09	208.568	-206.067	0	0	0
374	42	N84	-245.814	351.313	-282.651	0.005	-0.002	0.002
375	42	N89	315.956	535.991	454.175	0.004	0.002	0.002
376	42	N93	-13.003	4.736	-21.727	0.002	0	0.004
377	42	Totals:	-41.556	1629.758	-71.96			
378	42	COG (ft):	X: 3.893	Y: -1.439	Z: 1.748			
379	43	N41	24.036	154.591	93.722	0	0	0
380	43	N43	-74.254	220.032	147.855	0	0	0
381	43	N40A	-115.183	156.625	-257.083	0	0	0
382	43	N42	68.812	208.331	-206.579	0	0	0
383	43	N84	-228.936	370.498	-300.798	0.005	-0.002	0.001
384	43	N89	327.582	513.839	433.72	0.004	0.002	0.002
385	43	N93	-2.057	5.841	-3.438	0.003	0	0.006
386	43	Totals:	0.001	1629.758	-92.601			
387	43	COG (ft):	X: 3.893	Y: -1.439	Z: 1.748			
388	44	N41	24.301	156.9	95.205	0	0	0
389	44	N43	-74.82	221.222	149.823	0	0	0
390	44	N40A	-112.279	157.998	-251.287	0	0	0
391	44	N42	68.536	208.393	-203.057	0	0	0
392	44	N84	-211.726	374.153	-303.044	0.005	-0.001	0.001
393	44	N89	339.09	504.189	426.104	0.004	0.002	0.002
394	44	N93	8.504	6.901	14.218	0.004	0	0.007
395	44	Totals:	41.607	1629.758	-72.038			
396	44	COG (ft):	X: 3.893	Y: -1.439	Z: 1.748			
397	45	N41	24.951	158.184	97.739	0	0	0
398	45	N43	-75.173	222.613	151.863	0	0	0
399	45	N40A	-110.199	158.624	-245.851	0	0	0
400	45	N42	67.619	208.633	-198.933	0	0	0
401	45	N84	-205.589	361.772	-290.038	0.005	-0.001	0.001
402	45	N89	343.593	512.833	435.58	0.004	0.002	0.002
403	45	N93	10.48	7.099	17.522	0.005	0	0.008
404	45	Totals:	55.682	1629.758	-32.117			
405	45	COG (ft):	X: 3.893	Y: -1.439	Z: 1.748			
406	46	N41	25.6	158.545	99.465	0	0	0
407	46	N43	-75.485	223.52	153.069	0	0	0
408	46	N40A	-108.98	158.712	-242.421	0	0	0
409	46	N42	66.377	208.735	-195.683	0	0	0

Node Reactions (Continued)

	LC	Node Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
410	46	N84	-205.587	348.568	-276.805	0.005	-0.001	0.001
411	46	N89	344.152	524.756	447.843	0.004	0.002	0.002
412	46	N93	8.708	6.922	14.559	0.004	0	0.007
413	46	Totals:	54.784	1629.757	0.026			
414	46	COG (ft):	X: 3.893	Y: -1.439	Z: 1.748			
415	47	N41	26.03	159.182	100.878	0	0	0
416	47	N43	-76.147	224.606	154.912	0	0	0
417	47	N40A	-107.679	159.1	-238.845	0	0	0
418	47	N42	64.862	208.782	-191.694	0	0	0
419	47	N84	-204.929	337.589	-265.64	0.005	-0.001	0.001
420	47	N89	344.415	533.544	457.391	0.004	0.002	0.002
421	47	N93	9.044	6.956	15.119	0.004	0	0.007
422	47	Totals:	55.596	1629.757	32.12			
423	47	COG (ft):	X: 3.893	Y: -1.439	Z: 1.748			
424	48	N41	26.338	159.475	102.787	0	0	0
425	48	N43	-76.713	225.892	157.26	0	0	0
426	48	N40A	-107.161	159.304	-235.892	0	0	0
427	48	N42	63.415	209.013	-187.669	0	0	0
428	48	N84	-210.387	319.867	-247.991	0.005	-0.002	0.001
429	48	N89	340.044	549.553	473.442	0.004	0.002	0.002
430	48	N93	6.022	6.653	10.066	0.004	0	0.007
431	48	Totals:	41.557	1629.757	72.003			
432	48	COG (ft):	X: 3.893	Y: -1.439	Z: 1.748			
433	49	N41	156.223	246.796	388.945	0	0	0
434	49	N43	-156.31	286.66	391.78	0	0	0
435	49	N40A	-189.199	220.651	-443.773	0	0	0
436	49	N42	150.242	245.994	-404.315	0	0	0
437	49	N84	-198.234	88.43	-48.989	0.001	-0.002	0.002
438	49	N89	237.928	160.268	117.416	0	0.002	0.001
439	49	N93	-0.653	5.98	-1.089	-0.007	-0.001	-0.011
440	49	Totals:	-0.003	1254.779	-0.024			
441	49	COG (ft):	X: 4.108	Y: -1.118	Z: 1.664			
442	50	N41	139.534	251.68	349.241	0	0	0
443	50	N43	-139.731	235.517	348.386	0	0	0
444	50	N40A	-131.165	214.779	-338.832	0	0	0
445	50	N42	146.129	202.365	-353.972	0	0	0
446	50	N84	259.812	177.43	-126.914	0.001	0.003	-0.002
447	50	N89	-273.778	167.058	123.474	0.001	-0.002	-0.002
448	50	N93	-0.797	5.97	-1.335	0.007	0.001	0.011
449	50	Totals:	0.003	1254.799	0.048			
450	50	COG (ft):	X: 0.509	Y: -1.118	Z: 1.664			
451	51	N41	108.192	196.108	273.682	0	0	0
452	51	N43	-113.219	205.427	279.428	0	0	0
453	51	N40A	-120.968	174.657	-295.517	0	0	0
454	51	N42	111.694	177.555	-285.77	0	0	0
455	51	N84	13.838	118.547	-71.899	0.001	0	0
456	51	N89	1.019	147.131	101.009	0	0	0
457	51	N93	-0.556	7	-0.928	0	0	0
458	51	Totals:	0	1026.424	0.005			
459	51	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
460	52	N41	98.352	177.099	250.269	0	0	0
461	52	N43	-101.507	187.01	254.074	0	0	0
462	52	N40A	-104.831	157.084	-253.072	0	0	0
463	52	N42	96.196	159.474	-244.104	0	0	0
464	52	N84	13.143	76.426	-35.611	0	0	0

Node Reactions (Continued)

	LC	Node Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
465	52	N89	-0.069	147.382	107.093	0	0	0
466	52	N93	-1.284	6.129	-1.614	0	0	-0.001
467	52	Totals:	0	910.604	77.035			
468	52	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
469	53	N41	95.098	173.47	243.947	0	0	0
470	53	N43	-100.849	184.518	249.945	0	0	0
471	53	N40A	-106.25	154.776	-254.073	0	0	0
472	53	N42	94.071	157.97	-242.018	0	0	0
473	53	N84	-3.19	74.494	-34.276	0	0	0
474	53	N89	-7.978	160.054	118.007	0	0	0
475	53	N93	-9.418	5.321	-14.821	-0.001	0	-0.002
476	53	Totals:	-38.516	910.604	66.71			
477	53	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
478	54	N41	92.083	169.978	237.321	0	0	0
479	54	N43	-100.083	181.419	245.269	0	0	0
480	54	N40A	-107.958	152.512	-257.245	0	0	0
481	54	N42	93.288	156.343	-243.013	0	0	0
482	54	N84	-15.376	80.789	-40.851	0	0	0
483	54	N89	-13.506	164.813	121.306	0	0	0
484	54	N93	-15.158	4.751	-24.272	-0.002	0	-0.003
485	54	Totals:	-66.71	910.604	38.515			
486	54	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
487	55	N41	90.117	167.564	232.17	0	0	0
488	55	N43	-99.413	178.545	241.303	0	0	0
489	55	N40A	-109.498	150.9	-261.743	0	0	0
490	55	N42	94.061	155.03	-246.827	0	0	0
491	55	N84	-20.156	93.61	-53.573	0	0	0
492	55	N89	-15.175	160.383	116.108	0	0	0
493	55	N93	-16.968	4.572	-27.439	-0.002	0	-0.003
494	55	Totals:	-77.032	910.604	-0.001			
495	55	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
496	56	N41	89.727	166.873	229.876	0	0	0
497	56	N43	-99.021	176.668	239.107	0	0	0
498	56	N40A	-110.455	150.374	-266.359	0	0	0
499	56	N42	96.182	154.384	-252.438	0	0	0
500	56	N84	-16.246	109.522	-69.033	0	0	0
501	56	N89	-12.536	147.95	103.805	0	0	0
502	56	N93	-14.361	4.834	-23.475	-0.001	0	-0.002
503	56	Totals:	-66.709	910.604	-38.515			
504	56	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
505	57	N41	91.014	168.087	231.047	0	0	0
506	57	N43	-99.009	176.286	239.269	0	0	0
507	57	N40A	-110.571	151.068	-269.85	0	0	0
508	57	N42	99.082	154.575	-258.337	0	0	0
509	57	N84	-4.695	124.271	-83.09	0	0	0
510	57	N89	-6.295	130.854	87.699	0	0	0
511	57	N93	-8.041	5.464	-13.443	-0.001	0	-0.001
512	57	Totals:	-38.516	910.605	-66.707			
513	57	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
514	58	N41	93.633	170.875	235.366	0	0	0
515	58	N43	-99.381	177.498	241.741	0	0	0
516	58	N40A	-109.815	152.795	-271.279	0	0	0
517	58	N42	101.981	155.549	-262.939	0	0	0
518	58	N84	11.407	133.924	-91.986	0	0	0
519	58	N89	1.876	113.674	72.1	0	0	0

Node Reactions (Continued)

	LC	Node Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
520	58	N93	0.3	6.291	-0.029	0	0	0
521	58	Totals:	0	910.605	-77.026			
522	58	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
523	59	N41	96.881	174.492	241.676	0	0	0
524	59	N43	-100.037	179.981	245.862	0	0	0
525	59	N40A	-108.389	155.092	-270.264	0	0	0
526	59	N42	104.101	157.044	-265.011	0	0	0
527	59	N84	27.745	135.892	-93.332	0	0	0
528	59	N89	9.789	101.014	61.19	0	0	0
529	59	N93	8.427	7.092	13.176	0.001	0	0.001
530	59	Totals:	38.516	910.606	-66.701			
531	59	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
532	60	N41	99.89	177.972	248.291	0	0	0
533	60	N43	-100.802	183.071	250.531	0	0	0
534	60	N40A	-106.68	157.347	-267.083	0	0	0
535	60	N42	104.876	158.663	-264.003	0	0	0
536	60	N84	39.939	129.637	-86.766	0	0	0
537	60	N89	15.321	96.26	57.89	0	0	0
538	60	N93	14.165	7.656	22.635	0.001	0	0.002
539	60	Totals:	66.709	910.606	-38.506			
540	60	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
541	61	N41	101.856	180.388	253.442	0	0	0
542	61	N43	-101.472	185.944	254.499	0	0	0
543	61	N40A	-105.145	158.961	-262.591	0	0	0
544	61	N42	104.101	159.975	-260.189	0	0	0
545	61	N84	44.722	116.82	-74.044	0	0	0
546	61	N89	16.989	100.685	63.083	0	0	0
547	61	N93	15.979	7.833	25.81	0.001	0	0.002
548	61	Totals:	77.031	910.606	0.01			
549	61	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
550	62	N41	102.253	181.091	255.749	0	0	0
551	62	N43	-101.866	187.831	256.702	0	0	0
552	62	N40A	-104.194	159.499	-257.99	0	0	0
553	62	N42	101.985	160.629	-254.592	0	0	0
554	62	N84	40.807	100.873	-58.574	0	0	0
555	62	N89	14.346	113.106	75.382	0	0	0
556	62	N93	13.379	7.577	21.847	0.001	0	0.001
557	62	Totals:	66.709	910.605	38.525			
558	62	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
559	63	N41	100.971	179.889	254.589	0	0	0
560	63	N43	-101.879	188.222	256.547	0	0	0
561	63	N40A	-104.079	158.813	-254.507	0	0	0
562	63	N42	99.092	160.447	-248.706	0	0	0
563	63	N84	29.248	86.083	-44.506	0	0	0
564	63	N89	8.102	130.196	91.49	0	0	0
565	63	N93	7.061	6.954	11.809	0	0	0
566	63	Totals:	38.516	910.605	66.716			
567	63	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
568	64	N41	68.679	123.304	175.205	0	0	0
569	64	N43	-70.449	130.655	177.428	0	0	0
570	64	N40A	-71.644	109.15	-171.999	0	0	0
571	64	N42	65.556	110.745	-165.708	0	0	0
572	64	N84	9.342	43.932	-15.914	0	0	0
573	64	N89	-0.355	107.037	79.376	0	0	0
574	64	N93	-1.129	4.209	-1.355	0	0	-0.001

Node Reactions (Continued)

	LC	Node Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
575	64	Totals:	0	629.031	77.034			
576	64	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
577	65	N41	65.417	119.67	168.873	0	0	0
578	65	N43	-69.793	128.157	173.296	0	0	0
579	65	N40A	-73.05	106.837	-172.983	0	0	0
580	65	N42	63.44	109.238	-163.628	0	0	0
581	65	N84	-6.99	42.009	-14.583	0	0	0
582	65	N89	-8.274	119.72	90.299	0	0	0
583	65	N93	-9.265	3.4	-14.565	-0.001	0	-0.002
584	65	Totals:	-38.516	629.031	66.709			
585	65	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
586	66	N41	62.399	116.177	162.242	0	0	0
587	66	N43	-69.028	125.055	168.621	0	0	0
588	66	N40A	-74.751	104.572	-176.148	0	0	0
589	66	N42	62.662	107.61	-164.626	0	0	0
590	66	N84	-19.175	48.305	-21.16	0	0	0
591	66	N89	-13.809	124.482	93.602	0	0	0
592	66	N93	-15.007	2.828	-24.018	-0.001	0	-0.002
593	66	Totals:	-66.709	629.031	38.514			
594	66	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
595	67	N41	60.434	113.766	157.094	0	0	0
596	67	N43	-68.359	122.185	164.655	0	0	0
597	67	N40A	-76.293	102.964	-180.648	0	0	0
598	67	N42	63.435	106.3	-168.44	0	0	0
599	67	N84	-23.954	61.121	-33.879	0	0	0
600	67	N89	-15.478	120.046	88.4	0	0	0
601	67	N93	-16.817	2.649	-27.185	-0.002	0	-0.003
602	67	Totals:	-77.032	629.031	-0.002			
603	67	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
604	68	N41	60.049	113.081	154.808	0	0	0
605	68	N43	-67.966	120.315	162.463	0	0	0
606	68	N40A	-77.259	102.444	-185.276	0	0	0
607	68	N42	65.551	105.66	-174.049	0	0	0
608	68	N84	-20.043	77.02	-49.332	0	0	0
609	68	N89	-12.834	107.599	76.088	0	0	0
610	68	N93	-14.209	2.911	-23.218	-0.001	0	-0.002
611	68	Totals:	-66.709	629.031	-38.517			
612	68	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
613	69	N41	61.345	114.303	155.991	0	0	0
614	69	N43	-67.953	119.944	162.629	0	0	0
615	69	N40A	-77.389	103.146	-188.785	0	0	0
616	69	N42	68.442	105.858	-179.944	0	0	0
617	69	N84	-8.492	91.754	-63.382	0	0	0
618	69	N89	-6.583	90.485	59.967	0	0	0
619	69	N93	-7.886	3.543	-13.184	-0.001	0	-0.001
620	69	Totals:	-38.516	629.032	-66.708			
621	69	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
622	70	N41	63.972	117.098	160.323	0	0	0
623	70	N43	-68.323	121.166	165.104	0	0	0
624	70	N40A	-76.648	104.88	-190.233	0	0	0
625	70	N42	71.331	106.837	-184.542	0	0	0
626	70	N84	7.61	101.392	-72.27	0	0	0
627	70	N89	1.6	73.289	44.356	0	0	0
628	70	N93	0.457	4.371	0.234	0	0	0
629	70	Totals:	0	629.032	-77.027			

Node Reactions (Continued)

	LC	Node Label	X [lb]	Y [lb]	Z [lb]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
630	70	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
631	71	N41	67.227	120.72	166.643	0	0	0
632	71	N43	-68.977	123.655	169.228	0	0	0
633	71	N40A	-75.235	107.181	-189.233	0	0	0
634	71	N42	73.443	108.335	-186.609	0	0	0
635	71	N84	23.947	103.35	-73.611	0	0	0
636	71	N89	9.524	60.617	33.437	0	0	0
637	71	N93	8.586	5.174	13.442	0.001	0	0.001
638	71	Totals:	38.516	629.033	-66.703			
639	71	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
640	72	N41	70.239	124.201	173.262	0	0	0
641	72	N43	-69.741	126.747	173.898	0	0	0
642	72	N40A	-73.532	109.437	-186.06	0	0	0
643	72	N42	74.214	109.954	-185.597	0	0	0
644	72	N84	36.141	97.094	-67.044	0	0	0
645	72	N89	15.062	55.861	30.133	0	0	0
646	72	N93	14.326	5.739	22.901	0.001	0	0.002
647	72	Totals:	66.709	629.033	-38.507			
648	72	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
649	73	N41	72.205	126.614	178.411	0	0	0
650	73	N43	-70.41	129.617	177.864	0	0	0
651	73	N40A	-71.996	111.047	-181.567	0	0	0
652	73	N42	73.44	111.264	-181.783	0	0	0
653	73	N84	40.922	84.283	-54.324	0	0	0
654	73	N89	16.731	60.292	35.33	0	0	0
655	73	N93	16.139	5.916	26.077	0.001	0	0.002
656	73	Totals:	77.032	629.033	0.009			
657	73	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
658	74	N41	72.596	127.311	180.71	0	0	0
659	74	N43	-70.805	131.496	180.064	0	0	0
660	74	N40A	-71.036	111.579	-176.954	0	0	0
661	74	N42	71.328	111.912	-176.187	0	0	0
662	74	N84	37.006	68.348	-38.86	0	0	0
663	74	N89	14.082	72.726	47.639	0	0	0
664	74	N93	13.538	5.66	22.112	0.001	0	0.002
665	74	Totals:	66.709	629.032	38.523			
666	74	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			
667	75	N41	71.306	126.101	179.538	0	0	0
668	75	N43	-70.82	131.877	179.905	0	0	0
669	75	N40A	-70.907	110.885	-173.453	0	0	0
670	75	N42	68.444	111.724	-170.306	0	0	0
671	75	N84	25.447	53.574	-24.8	0	0	0
672	75	N89	7.828	89.834	63.76	0	0	0
673	75	N93	7.218	5.036	12.071	0	0	0.001
674	75	Totals:	38.516	629.032	66.714			
675	75	COG (ft):	X: 2.389	Y: -0.523	Z: 1.508			

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	M6	HSS2.5X2.5X3	0.059	0	38	0.065	2.145	y	39	60595.95	63756	4.554	4.554	3	H1-1b
2	M12	HSS2.5X2.5X3	0.106	0	48	0.055	0.38	y	33	60595.95	63756	4.554	4.554	3	H1-1b
3	M18	SR 1	0.043	2.513	24	0.036	2.513		3	17464.602	25434	0.423	0.423	1	H1-1b*
4	M19	SR 1	0.035	2.513	36	0.029	2.513		9	17464.602	25434	0.423	0.423	1	H1-1b*
5	M20	SR 1	0.07	0	35	0.021	2.885		3	15498.516	25434	0.423	0.423	1	H1-1b*
6	M30	PIPE 4.0	0.039	1.367	24	0.042	1.094		20	85371.279	93240	10.631	10.631	1	H1-1b

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
7	M21	HSS2.5X2.5X3	0.087	1.667	32	0.056	2.153	z	20	56389.724	63756	4.554	4.554	1.896	H1-1b
8	M22	HSS2.5X2.5X3	0.093	1.667	36	0.06	1.181	z	24	56389.724	63756	4.554	4.554	1.9	H1-1b
9	M23	SR 1.375	0.107	0	23	0.021	0.25		23	47918.012	48110.533	1.103	1.103	1	H1-1b
10	M24	SR 1.375	0.11	0	24	0.021	0.25		24	47918.012	48110.533	1.103	1.103	1	H1-1b
11	M25A	SR 1.375	0.098	0	21	0.019	0.25		21	47918.012	48110.533	1.103	1.103	1	H1-1b
12	M26A	SR 1.375	0.097	0	21	0.019	0.25		21	47918.012	48110.533	1.103	1.103	1	H1-1b
13	M29	PIPE 1.25	0.423	4.008	8	0.245	0		12	6788.737	19687.5	0.801	0.801	1	H1-1b
14	M30A	PIPE 1.25	0.387	4.076	8	0.194	0.543		9	6788.737	19687.5	0.801	0.801	1	H1-1b
15	M31A	SR 0.625	0.05	0	12	0.052	2.513		9	4339.949	9940.19	0.104	0.104	1	H1-1b
16	M32A	SR 0.625	0.028	1.257	7	0.069	2.513		9	3796.321	9940.19	0.104	0.104	1	H1-1b
17	M33	PIPE 1.0	0.024	2.513	2	0.089	2.513		3	12986.749	14773.5	0.465	0.465	1	H1-1b*
18	M34	SR 0.625	0.181	0	49	0.009	3.373		9	2107.395	9940.19	0.104	0.104	1	H1-1b*
19	M35	SR 0.625	0.06	1.687	14	0.051	3.373		2	2107.395	9940.19	0.104	0.104	1	H1-1b
20	M34A	SR 0.625	0.028	1.257	9	0.085	2.513		38	3796.321	9940.19	0.104	0.104	1	H1-1b
21	M35A	PIPE 1.0	0.017	0	8	0.045	2.513		43	12986.749	14773.5	0.465	0.465	1	H1-1b*
22	M36	SR 0.625	0.007	4.311	5	0.015	4.311		1	1290.637	9940.19	0.104	0.104	1	H1-1b*
23	M37	PIPE 1.25	0.468	5.523	48	0.245	5.523		38	9174.192	19687.5	0.801	0.801	1	H1-1b
24	M38	PIPE 1.25	0.647	5.523	37	0.304	2.359		38	9174.192	19687.5	0.801	0.801	1	H1-1b
25	MP1A	PIPE 2.0	0.079	4.125	49	0.027	1.688		43	20866.733	32130	1.872	1.872	1	H1-1b
26	MP5A	PIPE 2.0	0.106	4.125	50	0.059	4.125		3	20866.733	32130	1.872	1.872	1	H1-1b
27	MP3A	PIPE 2.0	0.208	3.646	1	0.097	6.125		3	17855.085	32130	1.872	1.872	1	H1-1b
28	MP2A	PIPE 2.0	0.118	1.688	48	0.125	4.125		38	20866.733	32130	1.872	1.872	1	H1-1b
29	MP4A	PIPE 2.0	0.071	1.198	8	0.141	3.646		9	23808.54	32130	1.872	1.872	1	H1-1b
30	M47	L2.5X2.5X4	0.108	3.066	1	0.023	6.132	y	3	11535.888	38556	1.114	2.142	1.136	H2-1
31	M49	L2.5X2.5X4	0.115	2.852	2	0.026	5.704	z	48	13332.194	38556	1.114	2.181	1.136	H2-1
32	M48	L2.5X2.5X4	0.141	3.489	1	0.028	6.977	z	38	8909.503	38556	1.114	2.068	1.136	H2-1
33	M50	L2.5X2.5X4	0.093	3.126	5	0.031	6.125	y	9	11562.486	38556	1.114	2.143	1.136	H2-1
34	M51	PIPE 1.25	0.042	4.74	9	0.06	4.74		3	11218.243	19687.5	0.801	0.801	1	H1-1b*

VzW SMART Tool© Vendor

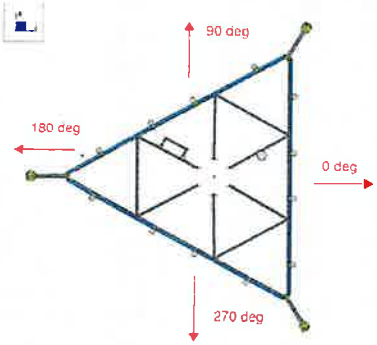
Client:	Verizon Wireless	Date:	2/5/2024
Site Name:	Bozrah East		
MDG #:	5000244619		
Fuze ID #:	16244580	Page:	1

Version 2.00

I. Mount-to-Tower Connection Check

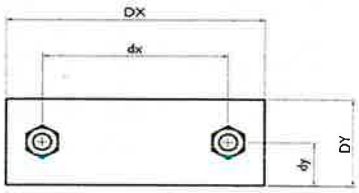
Custom Orientation Required — **Yes**

Nodes (labeled per Risa)	Orientation (per graphic of typical platform)
N42	0
N40A	0
N43	0
N41	0



Tower Connection Bolt Checks — **Yes**

Bolt Orientation — **Parallel**



Bolt Quantity per Reaction:	2 (Horizontal)
d_x (in) *(Delta X of typ. bolt config. sketch)*:	4
d_y (in) *(Delta Y of typ. bolt config. sketch)*:	2
Bolt Type:	A307
Bolt Diameter (in):	0.5
Required Tensile Strength / bolt (kips):	0.2
Required Shear Strength / bolt (kips):	0.6
Tensile Capacity / bolt (kips):	6.6
Shear Capacity / bolt (kips):	4.0
Bolt Overall Utilization:	14.3%

Tower Connection Baseplate Checks — **No**

verizon

MOUNT MODIFICATION DRAWINGS
EXISTING 12.00' T-FRAME

TOWER OWNER: SBA TOWERS, LLC
TOWER OWNER SITE NUMBER: GT01105

CARRIER SITE NAME: BOZRAH EAST
CARRIER SITE NUMBER: 5000244619
FUZE ID: 16244580

131 GIFFORD LANE
BOZRAH, CT 06334
NEW LONDON COUNTY

LATITUDE: 41.55222200° N
LONGITUDE: 72.15111100° W

DESIGN CRITERIA

WIND LOADS

BASIC WIND SPEED (3 SECOND GUST), V = 125 MPH
EXPOSURE CATEGORY B
TOPOGRAPHIC CATEGORY: 1
TOPOGRAPHIC CONSIDERED: N/A
TOPOGRAPHIC METHOD: N/A
MEAN BASE ELEVATION (AMSL) = 463.0'

ICE LOADS

ICE WIND SPEED (3 SECOND GUST), V = 50 MPH
ICE THICKNESS = 1.00 IN

SEISMIC LOADS

SEISMIC DESIGN CATEGORY B
SHORT TERM MCER GROUND MOTION, S_s = .197
LONG TERM MCER GROUND MOTION, S_1 = .054

PROJECT INFORMATION

APPLICANT/LESSEE

COMPANY: VERIZON WIRELESS

CLIENT REPRESENTATIVE

COMPANY: VERIZON WIRELESS

PROJECT MANAGER

COMPANY: COLLIERS ENGINEERING & DESIGN
CONTACT: PETER ALBANO
PHONE: 856.797.0412
E-MAIL: PETER.ALBANO@COLLIERSENG.COM

CONTRACTOR PMI REQUIREMENTS

PMI LOCATION:	HTTPS://PMI.VZWSMART.COM
SMART TOOL PROJECT #:	10220763
VZW MDG #:	5000244619
ANALYSIS DATE:	2/5/2024

PMI REQUIREMENTS EMBEDDED WITHIN MOUNT MODIFICATION REPORT

SHEET INDEX

SHEET	DESCRIPTION
ST-1	TITLE SHEET
SBOM-1	BILL OF MATERIALS
SGN-1	GENERAL NOTES
SCF-1	CLIMBING FACILITY DETAIL
SS-1	MODIFICATION DETAILS
SS-2	MOUNT PHOTOS
	SPECIFICATION SHEETS

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1	02/05/24	PER MOD REPORT	CMD	EAL

STATE OF CONNECTICUT
DEJIAN XU
No. 33733
LICENSED PROFESSIONAL ENGINEER
02/07/2024

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SITE NAME:
BOZRAH EAST
5000244619
131 GIFFORD LANE
BOZRAH, CT 06334
NEW LONDON COUNTY

Colliers Engineering & Design
STAMFORD
Stamford, CT 06902
Phone: 203.324.6611
www.collierseng.com

TITLE SHEET

ST-1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION

BILL OF MATERIALS

SECTION 1 - VZWSMART KITS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
3	VZWSMART	VZWSMART-SFK1	TIE BACK ASSEMBLY	CONTRACTOR TO VERIFY THE LENGTH REQUIRED AND TRIM AS NECESSARY IN ACCORDANCE WITH THE 'STRUCTURAL STEEL' NOTES ON SHEET SGN-1.	84	252
6		VZWSMART-ALD33	CLIP ANGLE		3	18
6		VZWSMART-SFK3-SL	V-BRACING KIT FOR SMALL LEGS	CONTRACTOR TO VERIFY THE LENGTH REQUIRED AND TRIM AS NECESSARY IN ACCORDANCE WITH THE 'STRUCTURAL STEEL' NOTES ON SHEET SGN-1.	117	702

SECTION 2 - OTHER REQUIRED PARTS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)

SECTION 3 - REQUIRED SAFETY CLIMB PARTS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES	UNIT WEIGHT (LBS.)	WEIGHT (LBS.)
1	PERFECT VISON	PV-CLAMP-LW-0106	CLAMP BRACKET	OR EOR APPROVED EQUIVALENT	-	-
1	PERFECT VISION	PV-CMX-CG-SM	WIRE ROPE GUIDE	OR EOR APPROVED EQUIVALENT	-	-
					TOTAL:	972

*FOR ACTUAL INSTALL WEIGHT PLEASE CHECK THE MA REPORT

NOTES:

1. THE MANUFACTURERS LISTED ARE THE APPROVED VENDORS FOR THE VZW MOUNT KITS. EACH MANUFACTURER WILL BE AWARE OF WHICH KITS HAVE BEEN THROUGH THE VZW APPROVAL PROCESS AND THEY ARE IN TURN APPROVED TO SELL. PLEASE NOTE THAT THE MATERIAL UTILIZED ON THE MOUNT MODIFICATIONS WILL BE REVIEWED AS A PART OF THE DESKTOP PMI COMPLETED BY THE SMART TOOL VENDOR. IT WILL BE REQUIRED THAT THE VZW KITS SPECIFIED ARE UTILIZED IN THE MODIFICATIONS.
2. ALL MATERIALS REQUIRED FOR THE DESIGNED MODIFICATIONS BUT NOT LISTED IN THIS SHEET ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.

VZWSMART KITS - APPROVED VENDORS

COMMSCOPE	
CONTACT	SALVADOR ANGUIANO
PHONE	(817) 304-7492
EMAIL	SALVADOR.ANGUIANO@COMMSCOPE.COM
WEBSITE	WWW.COMMSCOPE.COM

METROSITE FABRICATORS, LLC	
CONTACT	KENT RAMEY
PHONE	(706) 335-7045 (O), (706) 982-9788 (M)
EMAIL	KENT@METROSITELLC.COM
WEBSITE	METROSITEFABRICATORS.COM

PERFECTVISION	
CONTACT	WIRELESS SALES
PHONE	(844) 887-6723
EMAIL	WWW.PERFECT-VISION.COM
WEBSITE	WIRELESSSALES@PERFECT-VISION.COM

SABRE INDUSTRIES, INC.	
CONTACT	ANGIE WELCH
PHONE	(866) 428-6937
EMAIL	AKWELCH@SABREINDUSTRIES.COM
WEBSITE	WWW.SABRESITESOLUTIONS.COM

SITE PRO 1	
CONTACT	PAULA BOSWELL
PHONE	(972) 236-9843
EMAIL	PAULA.BOSWELL@VALMONT.COM
WEBSITE	WWW.SITEPRO1.COM

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STATE OF CONNECTICUT
DEJIAN XU
No. 33733
LICENSED PROFESSIONAL ENGINEER
02/07/2024

SITE NAME:
BOZRAH EAST
5000244619
131 GIFFORD LANE
BOZRAH, CT 06334
NEW LONDON COUNTY

Colliers Engineering & Design
STAMFORD
1055 Washington Boulevard
Stamford, CT 06901
Phone: 203.324.6937

BILL OF MATERIALS

SBOM-1

GENERAL NOTES

1. THESE MODIFICATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE TELECOMMUNICATIONS INDUSTRY STANDARD TIA-222-H. MATERIALS AND SERVICES PROVIDED BY THE CONTRACTOR SHALL CONFORM TO THE ABOVE MENTIONED CODES.
2. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT DAMAGE TO EXISTING STRUCTURES. ANY DAMAGE TO EXISTING STRUCTURES AS A RESULT OF THE CONTRACTOR'S WORK OR FROM DAMAGE DUE TO OTHER CAUSES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
3. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS BEFORE BEGINNING WORK, ORDERING MATERIAL, AND PREPARING OF SHOP DRAWINGS. ANY DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER. IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT REPRESENTED ON THESE DRAWINGS, OR ANY CONDITIONS THAT WOULD INTERFERE WITH THE INSTALLATION OF THE MODIFICATIONS, NOTIFY THE ENGINEER IMMEDIATELY.
4. IT IS ASSUMED THAT ANY STRUCTURAL MODIFICATION WORK SPECIFIED ON THESE PLANS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TOWER CONSTRUCTION EXPERIENCE.
5. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES, AND PROCEDURES.
6. 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/TIA-322 (LATEST EDITION), OSHA, AND GENERAL INDUSTRY STANDARDS. ALL RIGGING PLANS SHALL ADHERE TO ANSI/TIA-322 (LATEST EDITION) INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION.
7. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PROGRAMS IN ACCORDANCE WITH APPLICABLE SAFETY CODES.
8. WORK SHALL ONLY BE PERFORMED DURING CALM DRY DAYS (WINDS LESS THAN 30-MPH). THE STRUCTURE SHOWN ON THE DRAWINGS IS STRUCTURALLY SOUND ONLY IN THE COMPLETED FORM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STRENGTH AND STABILITY OF THE STRUCTURE DURING ERECTION. CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT, SHORING, BRACING AND ANY OTHER STRUCTURAL SYSTEMS AS REQUIRED TO RESIST ALL FORCES THAT MAY OCCUR DURING HANDLING AND ERECTION UNTIL THE STRUCTURE IS FULLY COMPLETED. TEMPORARY SUPPORTS, BRACING AND OTHER STRUCTURAL SYSTEMS REQUIRED DURING CONSTRUCTION SHALL REMAIN THE CONTRACTOR'S PROPERTY AFTER THEIR USE.
9. ALL INSTALLATIONS PERFORMED ON THIS STRUCTURE SHALL BE COMPLETED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE STANDARD FOR INSTALLATION, ALTERATION AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS, ANSI/TIA-322.
10. CONTRACTOR SHALL SECURE SITE BACK TO EXISTING CONDITION UNDER SUPERVISION OF OWNER. ALL FENCE, STONE, GEOFABRIC, GROUNDING, AND SURROUNDING GRADE SHALL BE REPLACED AND REPAIRED AS REQUIRED TO ACHIEVE OWNER APPROVAL. POSITIVE DRAINAGE AWAY FROM TOWER SITE SHALL BE MAINTAINED.
11. CONNECTIONS BETWEEN ITEMS SUPPORTED BY THE STRUCTURE AND THE STRUCTURE NOT SPECIFICALLY DETAILED IN THE CONTRACT DOCUMENTS ARE THE RESPONSIBILITY OF THE CONTRACTOR. SUCH CONNECTIONS SHALL BE DESIGNED, COORDINATED AND INSPECTED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF THE PROJECT. SUBMIT SIGNED AND SEALED CALCULATIONS DURING SHOP DRAWING REVIEW.
12. DO NOT SCALE DRAWINGS.
13. DO NOT USE THESE DRAWINGS FOR ANY OTHER SITE.
14. ALL MATERIAL UTILIZED FOR THIS PROJECT MUST BE NEW AND FREE OF ANY DEFECTS. ANY MATERIAL SUBSTITUTIONS, INCLUDING BUT NOT LIMITED TO ALTERED SIZE AND/OR STRENGTHS, MUST BE APPROVED BY THE OWNER AND ENGINEER IN WRITING.
15. THE MOUNT UNDER NO CIRCUMSTANCES SHOULD BE USED AS A TIE OFF POINT.

STRUCTURAL STEEL

1. DESIGN, DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING PUBLICATIONS EXCEPT AS SPECIFICALLY INDICATED IN THE CONTRACT DOCUMENTS.
   a. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION (15TH EDITION)
   b. SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS
   c. AISC CODE OF STANDARD PRACTICE
2. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING UNLESS OTHERWISE SHOWN:

CHANNELS, ANGLES, PLATES, ETC.	ASTM A36 (GR 36)
STEEL PIPE	ASTM A53 (GR 35)
BOLTS	ASTM A325
NUTS	ASTM A563
LOCK WASHERS	LOCKING STRUCTURAL GRADE

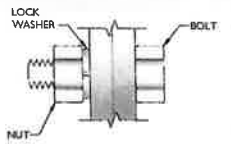
3. ALL SUBSTITUTIONS PROPOSED BY THE CONTRACTOR SHALL BE APPROVED IN WRITING BY THE ENGINEER. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENGINEER FOR VERIFYING THE SUBSTITUTE IS SUITABLE FOR USE AND MEETS ORIGINAL DESIGN CRITERIA. DIFFERENCES FROM THE ORIGINAL DESIGN, INCLUDING MAINTENANCE, REPAIR AND REPLACEMENT, SHALL BE NOTED. ESTIMATES OF COSTS/CREDITS ASSOCIATED WITH THE SUBSTITUTION (INCLUDING RE-DESIGN COSTS AND COSTS TO SUB-CONTRACTORS) SHALL BE PROVIDED TO THE ENGINEER. CONTRACTOR SHALL PROVIDE ADDITIONAL DOCUMENTATION AND/OR SPECIFICATIONS TO THE ENGINEER AS REQUESTED.
4. PROVIDE STRUCTURAL STEEL SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
   a. SUBMIT SHOP DRAWINGS TO
      PETER.ALBANO@COLLIERSENG.COM
   b. PROVIDE COLLIERS ENGINEERING & DESIGN PROJECT # AND COLLIERS ENGINEERING & DESIGN PROJECT ENGINEER CONTACT IN THE BODY OF THE EMAIL.
5. DRILL NO HOLES IN ANY NEW OR EXISTING STRUCTURAL STEEL MEMBERS OTHER THAN THOSE SHOWN ON STRUCTURAL DRAWINGS WITHOUT THE APPROVAL OF THE ENGINEER OF RECORD.
6. GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
7. ALL NEW STEEL SHALL BE HOT BE DIPPED GALVANIZED FOR FULL WEATHER PROTECTION. IN ADDITION ALL NEW STEEL SHALL BE PAINTED TO MATCH EXISTING STEEL. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION TO PROTECT STEEL BY ANY OTHER MEANS.
8. ALL BOLT ASSEMBLIES FOR STRUCTURAL MEMBERS REPRESENTED IN THIS DRAWING REQUIRE LOCKING DEVICES TO BE INSTALLED IN ACCORDANCE WITH TIA-222-H SECTION 4.9.2 REQUIREMENTS.
9. WHERE CONNECTIONS ARE NOT FULLY DETAILED ON THESE DRAWINGS, FABRICATOR SHALL DESIGN CONNECTIONS TO RESIST LOADS AND FORCES WHERE SHOWN ON DRAWINGS AND AS OUTLINED IN SPECIFICATIONS.
10. FOR MEMBERS BEING REPLACED, PROVIDE NEW BOLTS AND MATCH EXISTING SIZE AND GRADE. MAINTAIN AISC REQUIREMENTS FOR MINIMUM BOLT DISTANCE AND SPACING.
11. ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT IS AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.
12. GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.
13. ALL NEW STEEL SHALL BE HOT BE DIPPED GALVANIZED FOR FULL WEATHER PROTECTION. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION TO PROTECT STEEL BY ANY OTHER MEANS.
14. ALL EXISTING PAINTED/GALVANIZED SURFACES DAMAGED DURING REHAB (INCLUDING AREAS UNDER STIFFENER PLATES) SHALL BE WIRE BRUSHED CLEAN, REPAIRED BY COLD GALVANIZING (ZINC COTE, OR EOR APPROVED EQUAL), AND REPAINTED TO MATCH THE EXISTING FINISH (IF APPLICABLE).
15. ALL HOLES IN STEEL MEMBERS SHALL BE SIZED 1/16" LARGER THAN THE BOLT DIAMETER. STANDARD HOLES SHALL BE USED UNLESS NOTED OTHERWISE.

BOLT SCHEDULE (IN.)

BOLT DIAMETER	STANDARD HOLE	SHORT SLOT	MIN. EDGE DISTANCE	SPACING
1/2	9/16	9/16 x 1 1/16	7/8	1 1/2
5/8	11/16	11/16 x 7/8	1 1/8	1 7/8
3/4	13/16	13/16 x 1	1 1/4	2 1/4
7/8	15/16	15/16 x 1 1/8	1 1/2	2 5/8
1	1 1/16	1 1/16 x 1 5/16	1 3/4	3

WORKABLE GAGES (IN.)

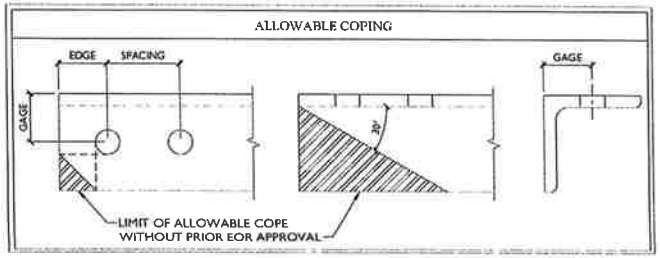
LEG	GAGE
4	2 1/2
3 1/2	2
3	1 3/4
2 1/2	1 3/8
2	1 1/8



TYP. BOLT ASSEMBLY

NOTES:

1. ALL DIMENSIONS REPRESENTED IN THE ABOVE TABLES ARE AISC MINIMUM REQUIREMENTS. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY ENGINEER IF DISTANCES ARE LESS THAN THOSE PROVIDED.
2. THE DIMENSIONS PROVIDED ARE MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS OF PROPOSED MEMBERS WITHIN THESE DRAWINGS MAY VARY FROM THE AISC MINIMUM REQUIREMENTS.
3. SHORT SLOT HOLES SHALL ONLY BE USED WHEN DEPICTED IN THE DRAWINGS
4. MATCH EXISTING GAGES WHEN APPLICABLE, UNLESS MINIMUM EDGE DISTANCES ARE COMPROMISED.



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STATE OF CONNECTICUT
DEJIAN XU
No. 33733
LICENSED PROFESSIONAL ENGINEER
01/09/2024
COLLIERS ENGINEERING & DESIGN CT, P.C.
CT #CAM0019

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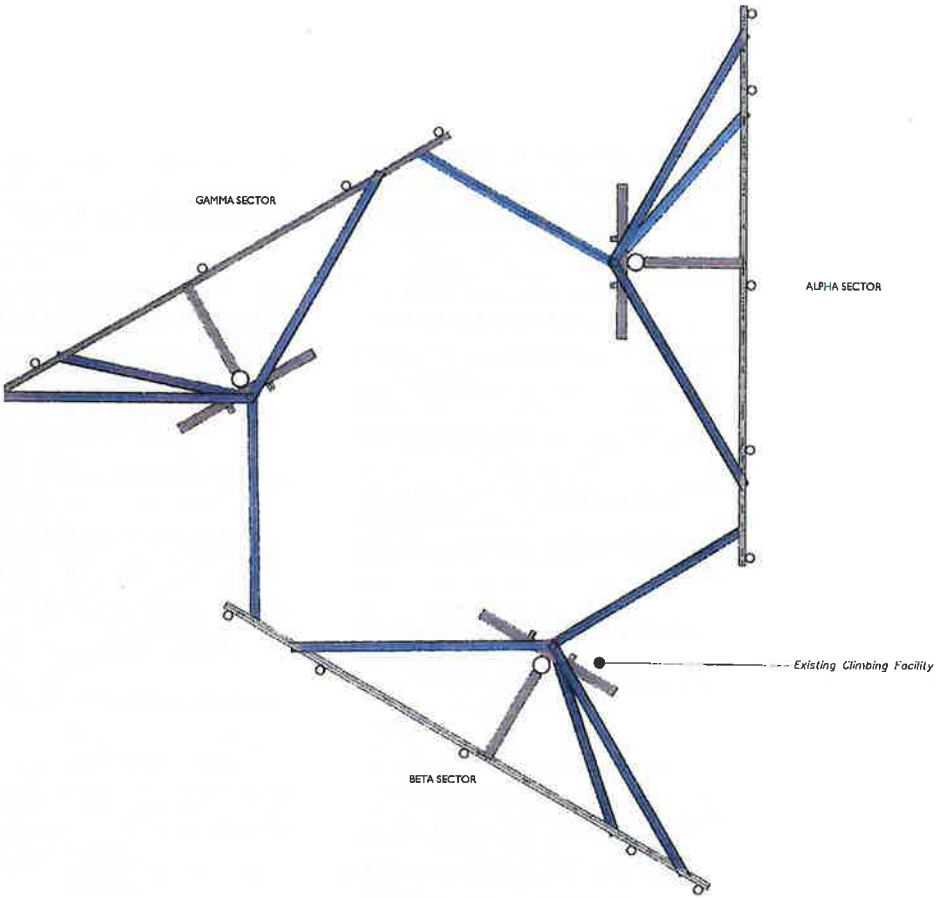
SITE NAME:
BOZRAH EAST
5000244619
131 GIFFORD LANE
BOZRAH, CT 06334
NEW LONDON COUNTY

Colliers Engineering & Design
STAMFORD
Glastonbury, CT 06033
Phone: 860.494.2555
Fax: 860.657.7179
www.colliersengineering.com

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
SGN-1

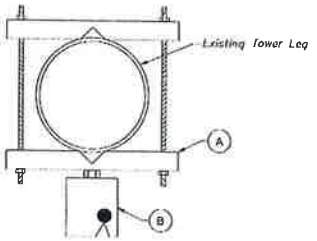
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION



1 CLIMBING FACILITY LOCATION
SCALE : N.T.S.

STRUCTURAL NOTES:

1. PER THE MOUNT MAPPING COMPLETED BY HUDSON DESIGN GROUP, LLC ON 2/25/2021, THE SAFETY CLIMB AND CLIMBING FACILITIES UP TO THE VERIZON MOUNT ELEVATION (159'-6") ARE IN GOOD CONDITION. COLLIERS ENGINEERING & DESIGN DOES NOT WARRANT THIS INFORMATION.
2. INSTALL SHALL NOT CAUSE HARM TO THE STRUCTURE, CLIMBING FACILITY, SAFETY CLIMB, OR ANY SYSTEM INSTALLED ON THE STRUCTURE. TIMELY NOTICE AND DOCUMENTATION SHALL BE PROVIDED BY CONTRACTORS TO THE EOR (OF STRUCTURAL DESIGN) IF AN OBSTRUCTION WAS REQUIRED TO MEET THE RF SYSTEM DESIGN REQUIREMENTS AND PERFORMANCES.



ITEM #	QTY	PART NUMBER	DESCRIPTIONS
A	1	PV-CLAMP-LW-0106	CLAMP BRACKET (PERFECT VISION OR EOR APPROVED EQ)
B	1	PV-CMX-CG-SM	WIRE ROPE GUIDE (PERFECT VISION OR EOR APPROVED EQ)

2 PROPOSED WIRE ROPE GUIDE ATTACHMENT - PLAN VIEW
SCALE : N.T.S.

NOTE: CONTRACTOR SHALL ENSURE THAT WIRE ROPE GUIDE DOES NOT PUSH THE WIRE ROPE OUTSIDE OF THE VERTICAL PLANE OF THE SAFETY CLIMB. CONTRACT EOR WITH PHOTOS OF SAFETY CLIMB AND COLLAR FOR FURTHER DIRECTION IF NEEDED.

CLIMBING FACILITY PHOTO

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02/07/2024

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SITE NAME:
BOZRAH EAST
5000244619
131 GIFFORD LANE
BOZRAH, CT 06334
NEW LONDON COUNTY

Colliers Engineering & Design
Stamford, CT 06901
Phone: 203.324.6800

CLIMBING FACILITY DETAIL

SCF-1

LEGEND:

- PROPOSED
- RELOCATED
- EXISTING

MOUNT MODIFICATION SCHEDULE

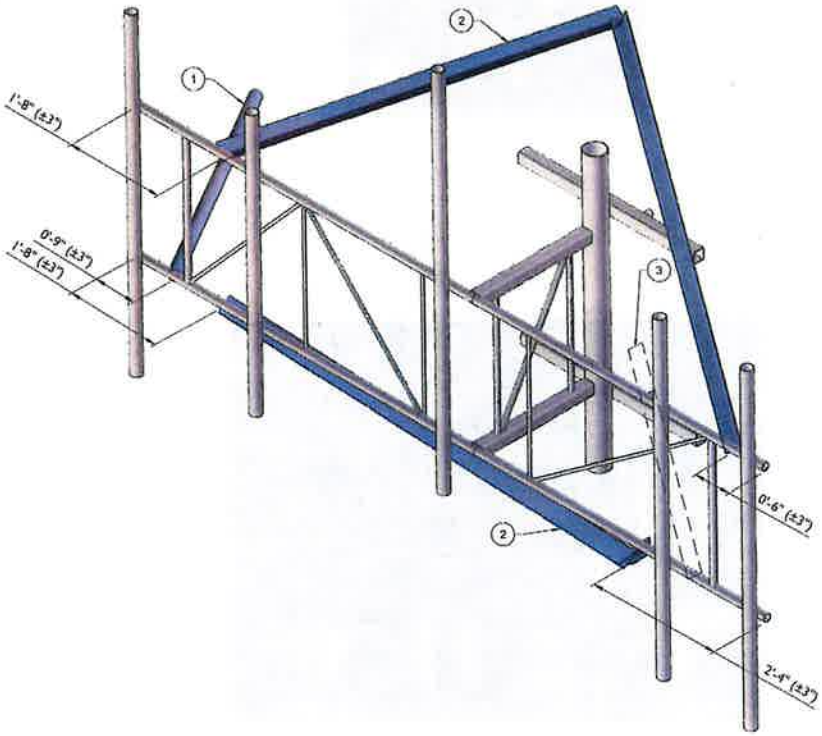
NO.	ELEVATION	QUANTITY	DESCRIPTION	NOTES
1	159'-6"	3	PROPOSED TIEBACK ASSEMBLY (PART #: VZWSMART-SFK1)	CONNECT OTHER END TO ADJACENT TOWER LEG. PROPOSED TIE-BACK SHALL EXTEND NO MORE THAN 12" BEYOND THE TOWER LEG. CONTRACTOR SHALL TRIM AS REQUIRED AND PROTECT CUT END WITH TWO COATS OF ZINC KOTE, OR EOR APPROVED EQUAL. SEE GENERAL NOTE B.
2		6	PROPOSED V-BRACING KIT FOR SMALL LEGS (PART # VZWSMART-SFK3-SL)	CONTRACTOR TO VERIFY THE LENGTH REQUIRED AND TRIM AS NECESSARY IN ACCORDANCE WITH THE 'STRUCTURAL STEEL' NOTES ON SHEET SGN-1. SEE GENERAL NOTE B. CONTRACTOR SHALL INSTALL ONE PROPOSED CLIP ANGLE (PART #:VZWSMART-AL333) AT EITHER END OF EACH LONG ANGLE IN THE SFK3 KIT.
3		3	REMOVED TIEBACK	CONTRACTOR SHALL REMOVE EXISTING TIEBACK PRIOR TO INSTALLATION OF PROPOSED MODIFICATION KITS.

GENERAL NOTES:

A. CONTRACTOR SHALL VERIFY THAT NEW & EXISTING STEEL IS FREE OF CORROSION. VISIBLE MINOR CORROSION SHALL BE WIRE BRUSHED CLEAN AND TREATED WITH COLD GALVANIZATION. REPORT ANY SIGNIFICANT CORROSION TO EOR

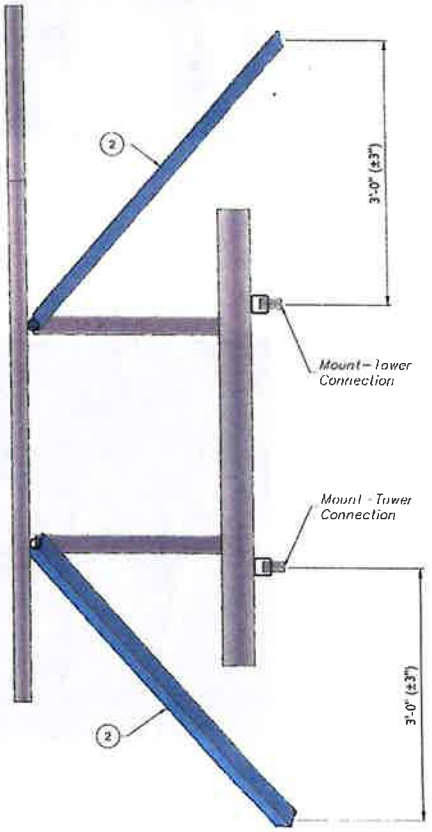
B. THREADED ROD FROM PROPOSED KITS SHALL BE TRIMMED TO EXTEND NO MORE THAN 3" BEYOND THE LOCK NUT. TREAT ALL CUT ENDS WITH (2) COATS OF COLD GALVANIZATION (ZINC KOTE, OR EOR APPROVED EQUAL).

C. MOUNT MEMBERS NOT SHOWN FOR CLARITY U.N.O.



1 PROPOSED ISOMETRIC VIEW (TYP. ALL SECTORS)

SCALE : N.T.S.



2 PROPOSED SIDE ELEVATION VIEW (TYP. ALL SECTORS)

SCALE : N.T.S.

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PROJECT NO./PHASE
ALL STATE UTILITIES NOTIFICATION 72 HOURS PRIOR TO EXCAVATION, CONTRACTOR SHALL CONTACT ALL UTILITIES REQUIRING THEM TO LOCATE AND MARK THEIR SUBSURFACE INSTALLATIONS IN THE AREA OF EXCAVATION.
FOR STATE SPECIFIC DIGSAFE PHONE NUMBERS VISIT WWW.CALL811.COM

SCALE	JOB NUMBER
AS SHOWN	20777626

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
0	12/15/14	ISSUED FOR FINAL SIGNATURE	QMH	EA

STATE OF CONNECTICUT
DEJIAN XU
No. 33733
LICENSED PROFESSIONAL ENGINEER
02/07/2024

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

SITE NAME:

BOZRAH EAST
5000244619
131 GIFFORD LANE
BOZRAH, CT 06334
NEW LONDON COUNTY

Colliers Engineering & Design
STAMFORD
100 Washington Boulevard
Stamford, CT 06902
Phone: 203.324.6611
colliersengineering.com

SHEET TITLE
MODIFICATION DETAILS

SHEET NUMBER
SS-1

MOUNT PHOTO 1

MOUNT PHOTO 2

MOUNT PHOTO 3

MOUNT PHOTO 4

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AS SHOWN

STATE OF CONNECTICUT
DEJIAN XU
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SITE NAME:

BOZRAH EAST
5000244619

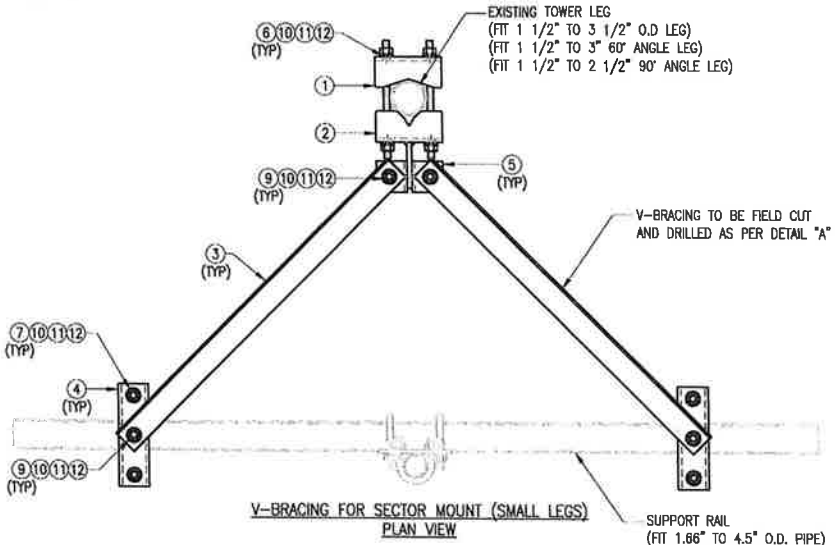
131 GIFFORD LANE
BOZRAH, CT 06334
NEW LONDON COUNTY

Colliers Engineering & Design

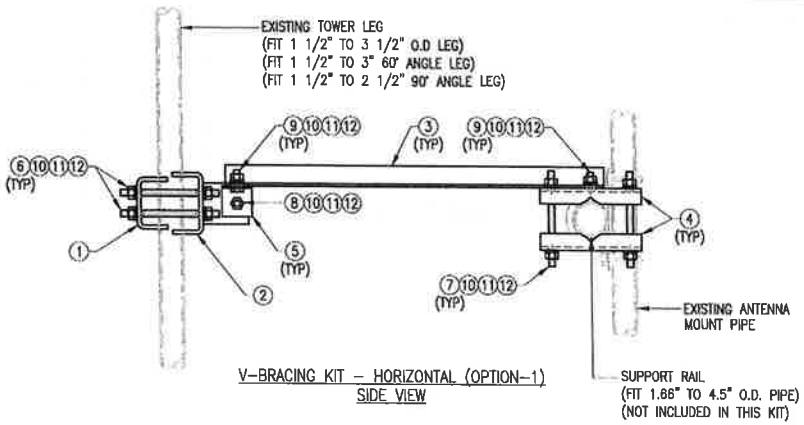
Stamford, CT 06901
Phone: 203.324.6800

MOUNT PHOTOS

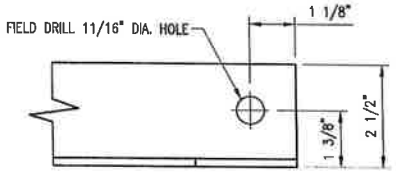
SS-2



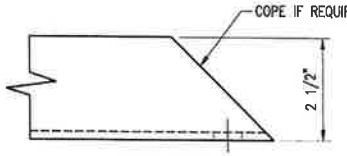
V-BRACING FOR SECTOR MOUNT (SMALL LEGS)
PLAN VIEW



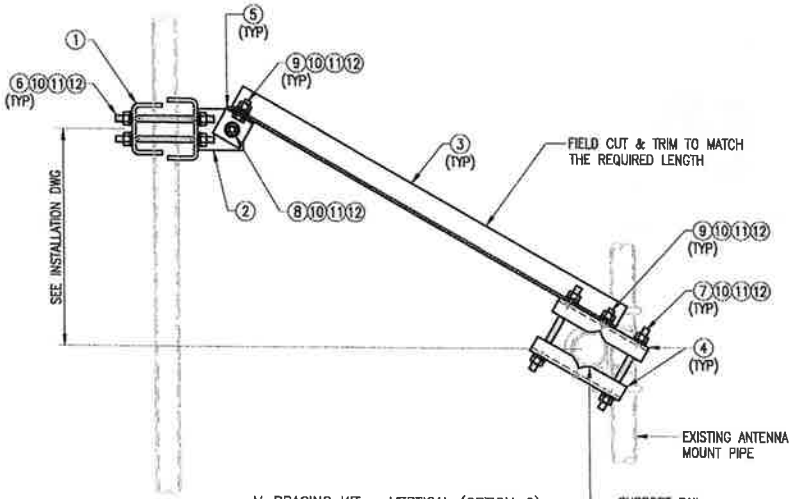
V-BRACING KIT – HORIZONTAL (OPTION-1)
SIDE VIEW



PLAN VIEW



FRONT VIEW
DETAIL "A"



V-BRACING KIT – VERTICAL (OPTION-2)
SIDE VIEW

NOTES:
1. HOT-DIPPED GALVANIZED PER ASTM A123.

VZWSMART-SFK3-SL (V-BRACING KIT FOR SMALL LEGS)

ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	1	BP9625-65	PL 3/8" X 9 5/8" X 6 1/2" A36 BENT PLATE	VBSM-SL-F1	12
2	1	BRKW-VBSM-SL	WELDMENT BRACKET	VBSM-SL-F3	11
3	2	L252525-8	L 2 1/2" X 2 1/2" X 1/4" X 8'-0" A36	VBSM-F5	67
4	4	BP8875-10	PL 3/8" X 6 7/8" X 10" A36 BENT PLATE	VBSM-F2	20
5	2	AL-333	L 3" X 3" X 1/4" X 3" A36	VBSM-F2	3
6	4	---	THREADED ROD 5/8" DIA. X 1'-0" F1554-36 HDG	---	---
7	4	---	THREADED ROD 5/8" DIA. X 10" F1554-36 HDG	---	---
8	1	---	BOLT 5/8" X 2 1/4" A325	---	---
9	4	---	BOLT 5/8" X 1 3/4" A325	---	---
10	21	FW-625	5/8" HDG USS FLAT WASHER	---	2
11	21	LW-625	5/8" HDG LOCK WASHER	---	0
12	21	NUT-625	5/8" HDG HEX NUT	---	2
				GALVANIZED WT	117

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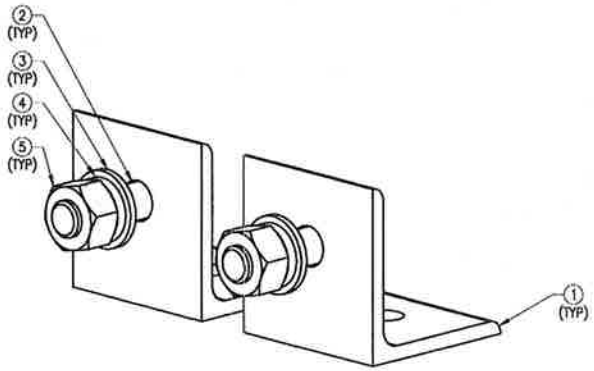
DRAWN BY: BT | CHECKED BY: HMA

REV	DESCRIPTION	BY	DATE
1	FIRST ISSUE	BT	04/10/21

SHEET TITLE:
VZWSMART-SFK3-SL
V-BRACING KIT
FOR SMALL LEGS

SHEET NUMBER: VZWSMART-SFK3-SL | REV #: 0



CLIP ANGLE
ISOMETRIC VIEW

VZWSMART-AL333 (CLIP ANGLE)					
ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	2	AL-333	L 3" X 3" X 1/4" X 3" A36	AL333-F1	2.50
2	2	---	BOLT 5/8" X 2" FULL THREAD SAE GR-5	---	0.77
3	2	FW-625	5/8" HDG USS FLAT WASHER	---	0
4	2	LW-625	5/8" HDG LOCK WASHER	---	0
5	2	NUT-625	5/8" HDG HEX NUT	---	0
				GALVANIZED WT	3.27

NOTES:
1. HOT-DIPPED GALVANIZED PER ASTM A123.

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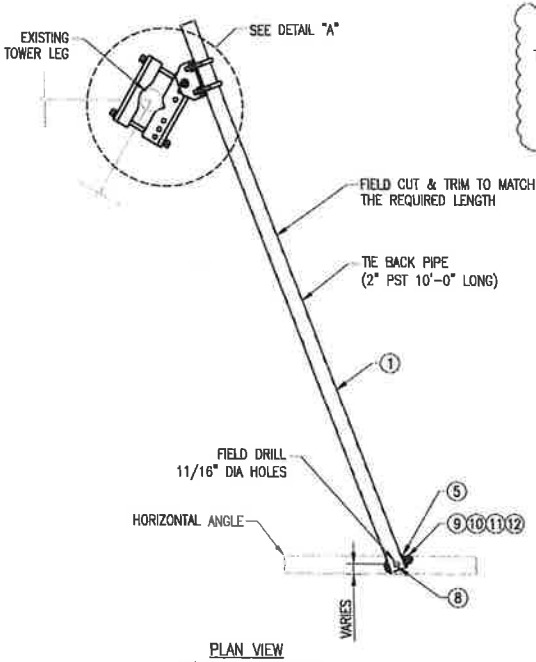
DRAWN BY: JBM | CHECKED BY: ---

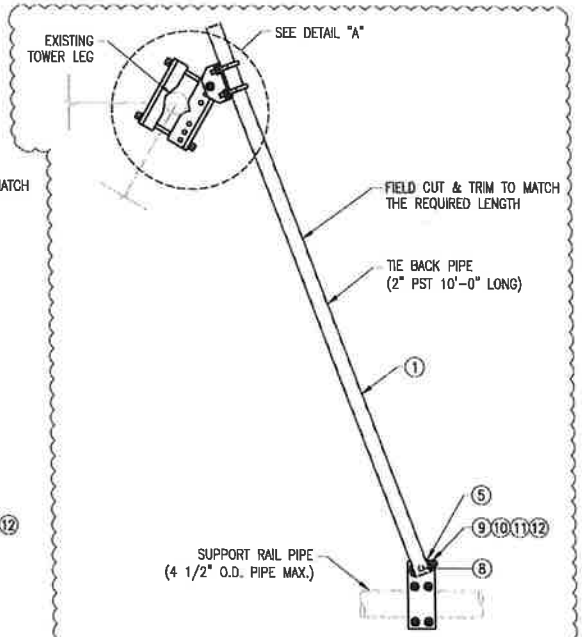
REV	DESCRIPTION	BY	DATE
1	FIRST ISSUE	JBM	10/08/21
2			
3			
4			

SHEET TITLE:
VZWSMART-AL333
CLIP ANGLE

SHEET NUMBER: VZWSMART-AL333 | REV #: 0

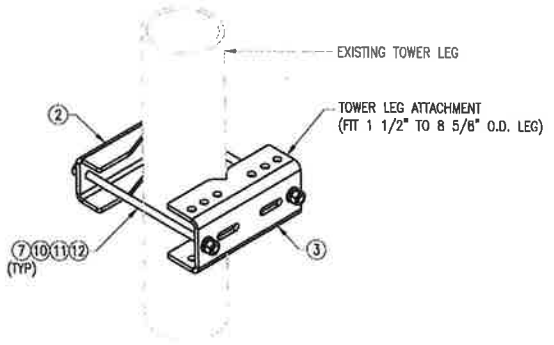


PLAN VIEW
TIE BACK ASSEMBLY

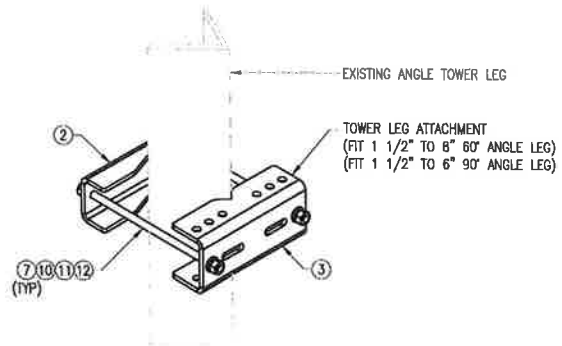


PLAN VIEW
TIE BACK ASSEMBLY WITH ADAPTER FOR PIPE

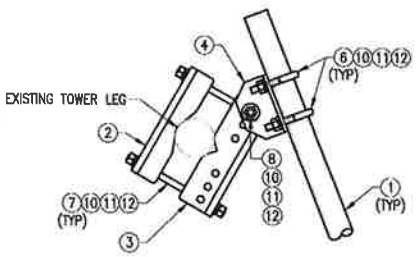
1



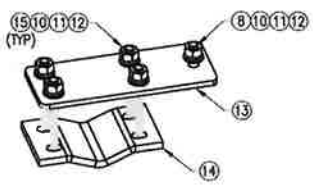
ROUND TOWER LEG ATTACHMENT DETAIL



ANGLE TOWER LEG ATTACHMENT DETAIL



DETAIL "A"



ADAPTER FOR PIPE CONNECTION

1

VZWSMART-SFK1 (TIE BACK ASSEMBLY)

ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	1	PSI2375-10	2" PSI (2.375" O.D. X 0.154" THK) X 10'-0" A53 GR-B 35KSI	SFK1-F1	38
2	1	BP825-12	PL 3/8" X 8 1/4" X 1'-0" A36 BENT PLATE	SFK1-F2	11
3	1	BP11125-12	PL 3/8" X 11 1/8" X 1'-0" A36 BENT PLATE	SFK1-F3	14
4	1	BP6-9375	PL 3/8" X 6" X 9 3/8" A36 BENT PLATE	SFK1-F4	6
5	1	BP2-875	PL 1/4" X 2" X 8 3/4" A36 BENT PLATE	SFK1-F4	1
6	2	MS02-625-300-500	RU-BOLT 5/8" X 3" I.W. X 5" I.L. A36 (OR EQUIV.)	RBC-1	2
7	2	---	THREADED ROD 5/8" DIA. X 1'-6" F1554-36 HDG	---	0
8	2	---	BOLT 5/8" X 2" A325	---	0
9	1	---	BOLT 5/8" X 4 1/4" A325	---	0
10	15	FW-625	5/8" HDG USS FLAT WASHER	---	1
11	15	LW-625	5/8" HDG LOCK WASHER	---	0
12	15	NUT-625	5/8" HDG HEX NUT	---	2
13	1	PL375-4511	PL 3/8" X 4 1/2" X 11" A36	SFK1-F1	4
14	1	V-CLAMP	PL 1/2" X 4 1/4" X 8 5/8" A36 BEND PLATE	SFK1-F5	5
15	4	---	BOLT 5/8" X 6" FULL THREAD SAE GR 5	---	0
				GALVANIZED WT	84

1

NOTES:
1. HOT-DIPPED GALVANIZED PER ASTM A123.

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DRAWN BY: BT | CHECKED BY: HMA/KW

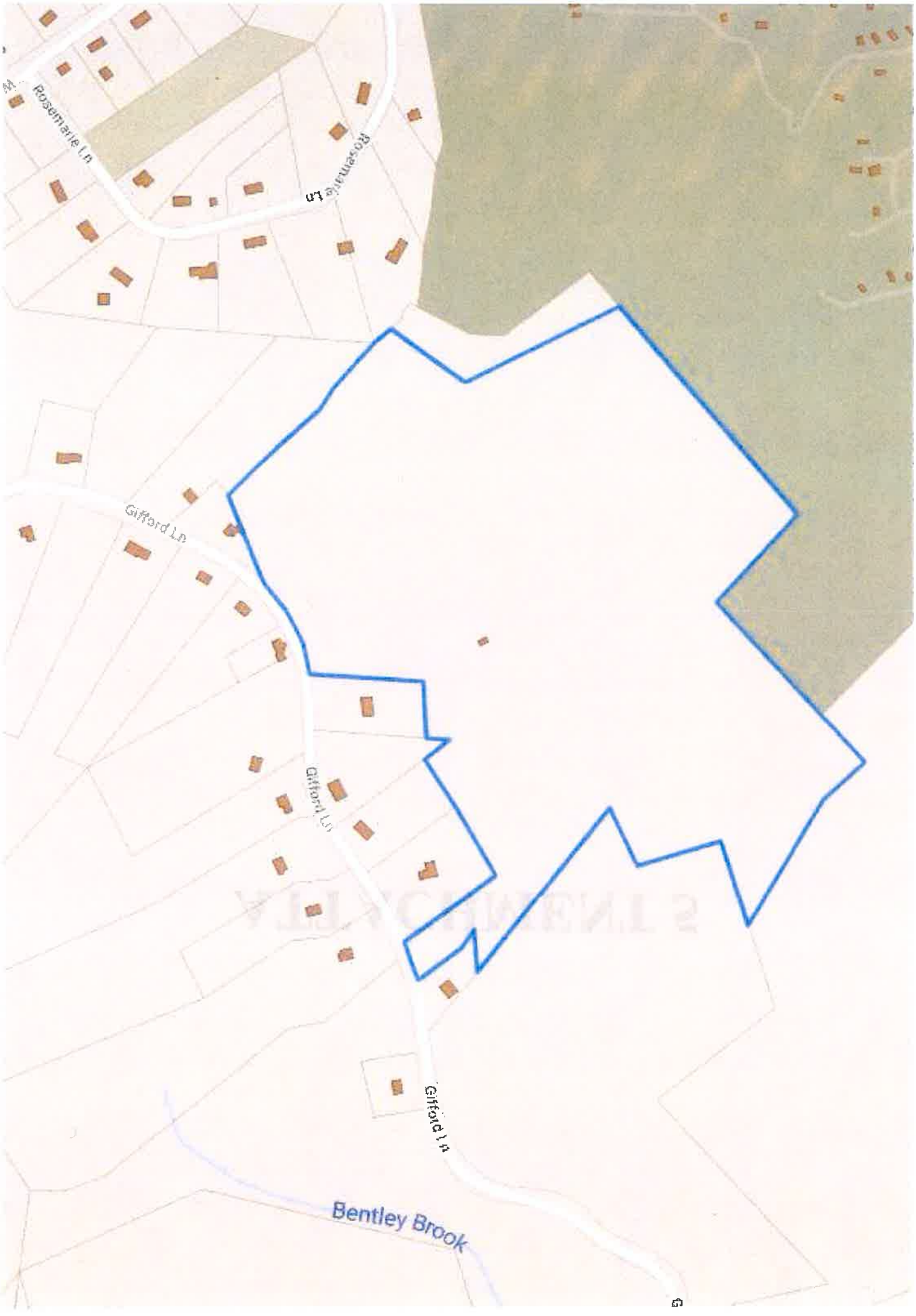
REV	DESCRIPTION	BY	DATE
1	FIRST ISSUE	BT	05/08/20
1	REVISED	BT	04/10/21

SHEET TITLE:
VZWSMART-SFK1
TIE BACK ASSEMBLY

SHEET NUMBER: VZWSMART-SFK1

REV #: 1

ATTACHMENT 5


Rosemarie Ln
Rosemarie Ln
Gifford Ln
Gifford Ln
Gifford Ln
Bentley Brook

ıll information is for assessment purposes only. sessments are calculated at 70% of the estimated tober 1, 2017 market value which was the date of the last revaluation as completed by eQuality Valuation Services, LLC.

Information on the Property Records for the Municipality of Bozrah was last updated on 10/22/2021.

Parcel Information

:ation:	141 GIFFORD LA	Property Use:	Vacant Land	Primary Use:	Residential Vacant Land
ique ID:	24000633	Map Block Lot:	07/119	Acres:	61.21
0 Acres:	61.21	Zone:	R-1	Volume / Page:	0090/0519
velopers Map / Lot:		Census:	7131		

Value Information

	Appraised Value	Assessed Value
nd	89,244	17,140
ildings	0	0
tached Outbuildings	0	0
tal	89,244	17,140

Owner's Information

Owner's Data

NGA CAPITAL LLC
38 BOZRAH ST
BOZRAH, CT 06334

ATTACHMENT 6

Verizon/Bozrah East

UNITED STATES POSTAL SERVICE®

Certificate of Mailing — Firm

Name and Address of Sender	TOTAL NO. of Pieces Listed by Sender	TOTAL NO. of Pieces Received at Post Office™	Affix Stamp Here *Postmark with Date of Receipt.*
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	Postmaster, per *(name of receiving employee)*		

USPS® Tracking Number / Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.	Glenn Pianka, First Selectman Town of Bozrah 1 River Road Bozrah, CT 06334				
2.	Jennifer Lindo, Zoning Enforcement Officer Town of Bozrah 1 River Road Bozrah, CT 06334				
3.	NGA Capital LLC 38 Bozrah Street Bozrah, CT 06334				
4.					
5.					
6.					

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