Robinson+Cole

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Also admitted in Massachusetts
and New York

June 17, 2021

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**
160 West Street, Cromwell, 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 and remote radio heads attached to a monopine tower and related equipment on the ground, near the base of the tower. The tower and Cellco's use of the tower were approved by the Council in November 2007 (Docket No. 338). A copy of Docket No. 338 Decision and Order is included in Attachment 1.

Cellco now intends to modify its facility by replacing nine (9) of its existing antennas with three (3) Samsung MT6407-77A antennas and six (6) JAHH-65B-R3B antennas and nine (9) of its existing remote radio heads ("RRHs") with six (6) new RRHs on its existing antenna platform. A set of project plans showing Cellco's proposed facility modifications and new antennas and RRHs specifications 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 Cromwell's Chief Elected Official and Land Use Officer.

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 replacement antennas will be installed on Cellco's existing antenna platform.

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. A General Power Density table for the modified facility is included in Attachment 3. 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 ("SA") and Mount Analysis ("MA"), the existing tower, tower foundation and antenna mounting structure can support Cellco's proposed modifications. Copies of the SA and MA are included in Attachment 4. Also included in Attachment 4 is a separate letter prepared by the consulting engineers responsible for the preparation of the SA and MA, respectively, verifying that the antenna model described in the SA as a VZS01 Antenna, is the Samsung 64T64R model antenna and RRH that will be installed on the tower.

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:
Antony J. Salvatore, Cromwell Town Manger
Stuart Popper, Director of Planning and Development
160 West Street LLC, Property Owner
Aleksey Tyurin

ATTACHMENT 1

DOCKET NO. 338 – Sprint Nextel Corporation application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a telecommunications facility located at 160 West Street, Cromwell, Connecticut.	}	Connecticut Siting Council November 29, 2007

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Sprint Nextel Corporation, hereinafter referred to as the Certificate Holder, for the construction, maintenance and operation of a wireless telecommunications facility at 160 West Street in Cromwell, Connecticut.

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

1. The tower shall be designed and constructed as a simulated pine tree no taller than 80 feet above ground level, sufficient to accommodate the antennas of Sprint Nextel Corporation, Cellco Partnership d/b/a Verizon Wireless and other entities. Such design shall attempt to mimic the existing pine trees adjacent to the site to the greatest extent possible.

2. The tower shall be relocated 20 to 40 feet to the south.

3. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Cromwell for comment, and all parties and intervenors, and interested parties, as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
    a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, and landscaping; and
    b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
    c) Photo-simulations of the selected tree tower design from the site property and adjacent residential neighborhood.

4. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

5. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

6. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

7. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town of Cromwell public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.

8. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed and providing wireless services within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline.

9. Any request for extension of the time period referred to in Condition 8 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of Cromwell. Any proposed modifications to this Decision and Order shall likewise be so served.

10. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.

11. The Certificate Holder shall remove any nonfunctioning antenna, and associated antenna mounting equipment, within 60 days of the date the antenna ceased to function.

12. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction and the commencement of site operation.

Pursuant to General Statutes § 16-50p, the Council hereby directs that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in the Hartford Courant and The Middletown Press.

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

The parties and intervenors to this proceeding are:

Applicant	**Its Representative**
Sprint Nextel Corporation	Thomas J. Regan, Esq. Brown Rudnick Berlack Israels LLP CityPlace I, 185 Asylum Street Hartford, CT 06103

Intervenor	**Its Representative**
Cellco Partnership d/b/a Verizon Wireless	Kenneth C. Baldwin, Esq. Robinson & Cole LLP 280 Trumbull Street Hartford, CT 06103-3597

ATTACHMENT 2

WIRELESS COMMUNICATIONS FACILITY

CROMWELL CT
160 WEST STREET
CROMWELL, CT 06416

DRAWING INDEX

SITE DIRECTIONS

START: 20 ALEXANDER DRIVE
WALLINGFORD, CONNECTICUT 06492

END: 160 WEST STREET
CROMWELL, CT 06416

1.	HEAD SOUTH TOWARDS ALEXANDER DRIVE	279 FT
2.	SLIGHT RIGHT TOWARDS ALEXANDER DRIVE	289 FT
3.	TURN RIGHT TOWARDS ALEXANDER DRIVE	167 FT
4.	TURN RIGHT ONTO ALEXANDER DRIVE	0.3 MI
5.	TURN RIGHT ONTO BARNES INDUSTRIAL RD S.	0.1 MI
6.	TURN RIGHT ONTO CT-68 W	1.6 MI
7.	CONTINUE STRAIGHT ONTO CT-68E	0.2 MI
8.	TAKE SHARP LEFT TO MERGE ONTO I-91N	0.3 MI
9.	MERGE ONTO I-91N	10.4 MI
10.	TAKE EXIT 22-22N-22S TO MERGE ONTO CT-9S TOWARD MIDDLETOWN	1.7 MI
11.	TAKE EXIT 19 FOR CT-372/WEST STREET TOWARD CROMWELL	0.3 MI
12.	TURN LEFT ONTO CT-372E, DESTINATION ON LEFT	0.3 MI

LOCATION MAP
SCALE : 1" = 2000'-0"

SITE INFORMATION

VZ SITE NAME: CROMWELL CT
VZ PROJ FUZE I.D.: 16232021
VZ LOCATION CODE: 467921
VZ PROJECT CODE: 20212217981
LOCATION: 160 WEST STREET
CROMWELL, CT 06416

PROJECT SCOPE: REFER TO NOTES ON C-1 FOR SCOPE OF WORK.

MAP/LOT: 31/14A

ZONING DISTRICT: LB (LOCAL BUSINESS)

LATITUDE: 41° 36' 21.57" N (41.605992° N)

LONGITUDE: 72° 40' 13.37" W (72.670381° W)

SITE COORDINATES AND GROUND ELEVATION OBTAINED FROM GOOGLE EARTH.

GROUND ELEVATION: 130'± AMSL

PROPERTY OWNER: 160 WEST STREET LLC
213 COURT STREET
MIDDLETOWN, CT 06457

APPLICANT: CELLCO PARTNERSHIP
d/b/a VERIZON WIRELESS
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

LEGAL/REGULATORY COUNSEL: ROBINSON & COLE, LLP
KENNETH C. BALDWIN, ESQ.
280 TRUMBULL STREET
HARTFORD, CT 06103

ENGINEER CONTACT: ALL-POINTS TECHNOLOGY CORP., P.C.
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385
(860) 663-1697

Cellco Partnership d/b/a
verizon
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CONSTRUCTION DOCUMENTS

NO	DATE	REVISION
0	02/02/21	FOR REVIEW: JRM
1	05/20/21	FOR FILING: JRM
2		
3		
4		
5		
6		

STATE OF CONNECTICUT
MICHAEL TRODDEN
33313
LICENSED
PROFESSIONAL ENGINEER

DESIGN PROFESSIONALS OF RECORD

PROF: MICHAEL S. TRODDEN P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXT. SUITE 311 WATERFORD, CT 06385

OWNER: 160 WEST STREET LLC
ADDRESS: 213 COURT STREET MIDDLETOWN, CT 06457

CROMWELL CT

SITE ADDRESS: 160 WEST STREET CROMWELL, CT 06416

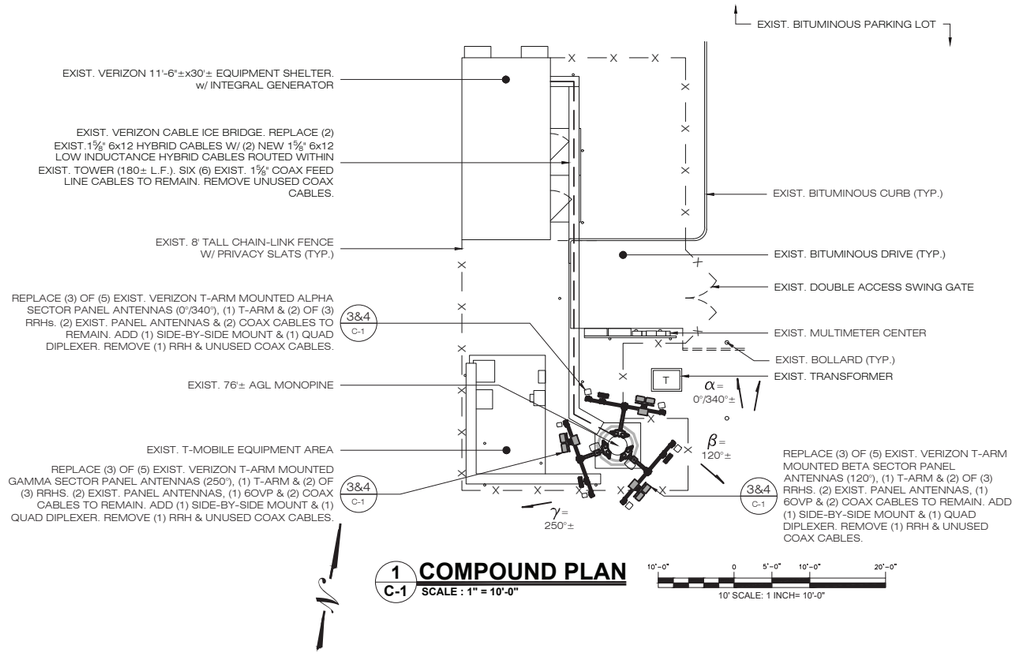
APT FILING NUMBER: CT141_11890

DRAWN BY: DRA
DATE: 02/02/21 CHECKED BY: JRM

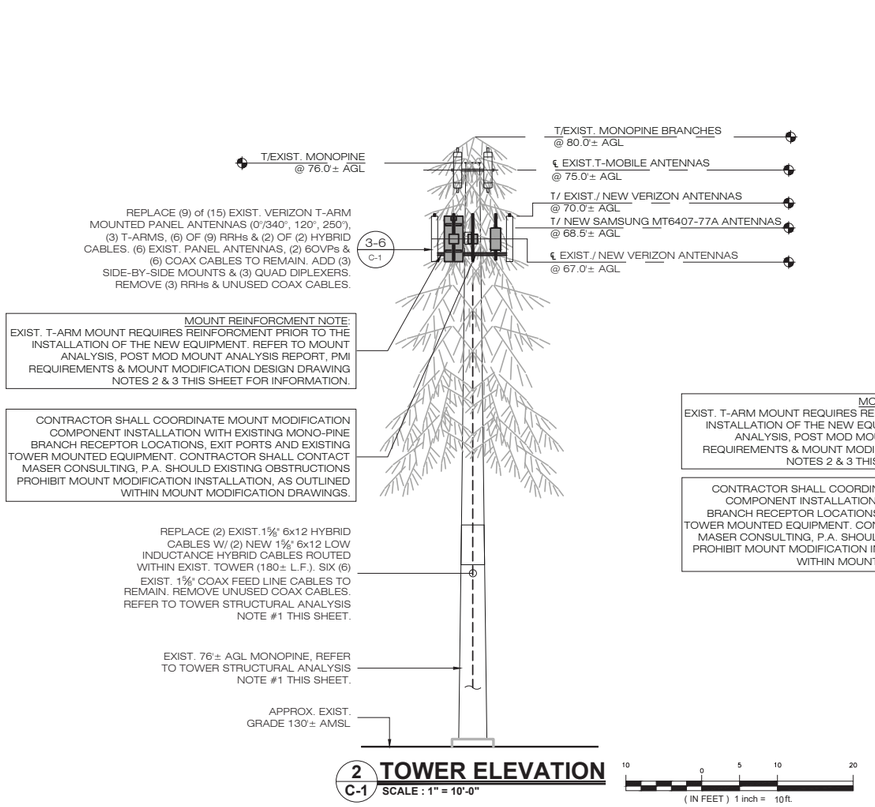
VZ PROJECT CODE: 20212217981
VZ LOCATION CODE: 467921
VZ FUZE ID: 16232021

SHEET TITLE:
TITLE SHEET

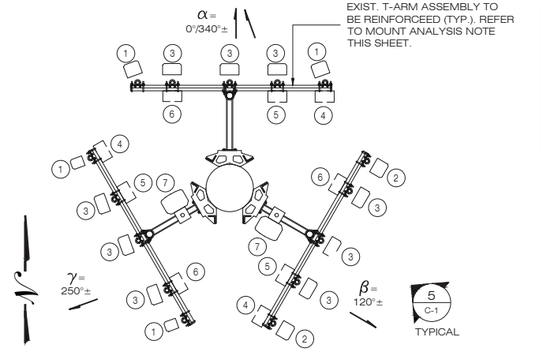
SHEET NUMBER:
T-1



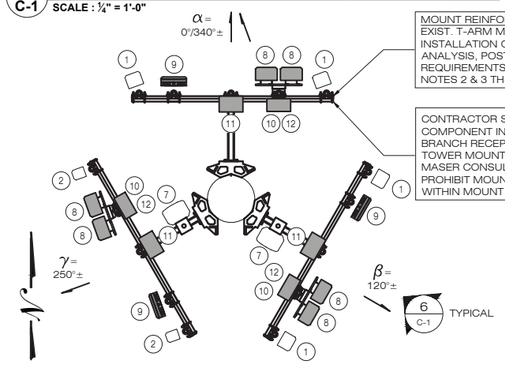
1 C-1 COMPOUND PLAN
SCALE : 1" = 10'-0"



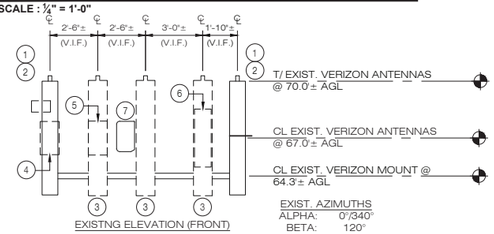
2 C-1 TOWER ELEVATION
SCALE : 1" = 10'-0"



3 C-1 EQUIP. CONFIGURATION PLAN (EXIST.)
SCALE : ¼" = 1'-0"



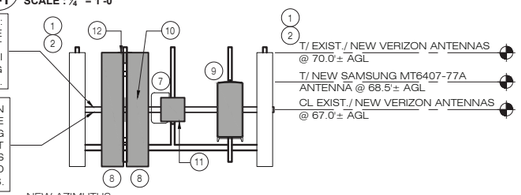
4 C-1 EQUIP. CONFIGURATION PLAN (NEW)
SCALE : ¼" = 1'-0"



5 C-1 EQUIP. MOUNTING CONFIG. (EXIST.)
SCALE : ¼" = 1'-0"

MOUNT REINFORCMENT NOTE: EXIST. T-ARM MOUNT REQUIRES REINFORCMENT PRIOR TO THE INSTALLATION OF THE NEW EQUIPMENT. REFER TO MOUNT ANALYSIS, POST MOD MOUNT ANALYSIS REPORT, PMI REQUIREMENTS & MOUNT MODIFICATION DESIGN DRAWING NOTES 2 & 3 THIS SHEET FOR INFORMATION.

CONTRACTOR SHALL COORDINATE MOUNT MODIFICATION COMPONENT INSTALLATION WITH EXISTING MONO-PINE BRANCH RECEPTOR LOCATIONS, EXIT PORTS AND EXISTING TOWER MOUNTED EQUIPMENT. CONTRACTOR SHALL CONTACT MASER CONSULTING, P.A. SHOULD EXISTING OBSTRUCTIONS PROHIBIT MOUNT MODIFICATION INSTALLATION, AS OUTLINED WITHIN MOUNT MODIFICATION DRAWINGS.



6 C-1 EQUIP. MOUNTING CONFIG. (NEW)
SCALE : ¼" = 1'-0"

SCOPE OF WORK (ALL) SECTORS

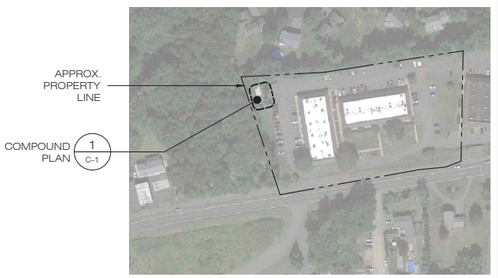
1. EXIST. ANTENNA (TO REMAIN) (ALPHA & GAMMA) MODEL: ANDREW DB846F65ZAXY
2. EXIST. ANTENNA (TO BE REMAIN) (BETA) MODEL: DECIBEL DB846H80E-SX
3. EXIST. ANTENNA (TO BE REPLACED) MODEL: ANDREW SBNHH-1D65B
4. EXIST. RRH (TO BE REMOVED) MODEL: NOKIA B25 RRH 4x30-1900
5. EXIST. RRH (TO BE REPLACED) MODEL: NOKIA B13 RRH 4x30-700
6. EXIST. RRH (TO BE REPLACED) MODEL: NOKIA B4 2x60W AWS RRH
7. EXIST. 6 OVP (TO REMAIN) (BETA & GAMMA) MODEL: RAYCAP RRFDC3315-PF-48
8. NEW ANTENNA MODEL: ANDREW JAHH-65B-R3B MOUNTED ON NEW COMMSCOPE SIDE-BY-SIDE (P/N BSAMNT-SBS-2-2)
9. NEW SAMSUNG MT6407-77A ANTENNA MOUNTED TO EXIST. PIPE MAST
10. NEW DUAL BAND RRH MODEL: SAMSUNG B13/B5 RRH-BR04C (RFV01U-D2A)
11. NEW DUAL BAND RRH MODEL: SAMSUNG B66/B2A RRH-BR049 (RFV01U-D1A)
12. NEW QUAD DIPLEXER MODEL: COMMSCOPE CBC78T-DS-43-2X

GENERAL ABBREVIATION LIST:

ABP	ABOVE BASE PLATE
AGL	ABOVE GROUND LEVEL
AMSL	ABOVE MEAN SEA LEVEL
AWS	ADVANCED WIRELESS SERVICE
HDG	HOT DIP GALVANIZED
OVP	OVER VOLTAGE PROTECTION
RRH	REMOTE RADIO HEAD
V.I.F.	VERIFY IN FIELD
W.P.	WORK POINT
A.F.R.	ABOVE FINISH ROOF

NOTES:

1. REFER TO TOWER STRUCTURAL ANALYSIS REPORT PREPARED BY TOWER ENGINEERING SOLUTIONS DATED 04/21/21 AVAILABLE UNDER SEPARATE COVER.
2. REFER TO MOUNT ANALYSIS REPORT PREPARED BY MASER CONSULTING, P.A., PROJECT #20777624A MARKED REV0, DATED 01/26/21 AVAILABLE UNDER SEPARATE COVER.
3. REFER TO POST MOD MOUNT ANALYSIS REPORT, PMI REQUIREMENTS & MOUNT MODIFICATION DESIGN DRAWINGS PREPARED BY MASER CONSULTING, P.A., PROJECT #20777624A DATED 02/25/21. AVAILABLE UNDER SEPARATE COVER
4. BASE MAPPING FROM FIELD MEASUREMENTS TAKEN BY ALL-POINTS TECH. CORP., P.C. ON 12/20/20.
5. PROJECT SCOPE INCLUDES THE FOLLOWING:
   - REINFORCEMENT OF (3) OF (3) EXIST. T-ARMS. DESIGN BY OTHERS (REFER TO NOTE 2 ABOVE) AVAILABLE UNDER SEPARATE COVER.
   - INSTALLATION OF (3) SIDE-BY-SIDE ASSEMBLIES.
   - REPLACEMENT OF (9) OF (15) EXIST. PANEL ANTENNAS, INCLUDING (3) SAMSUNG MT6407-77A ANTENNAS.
   - REPLACEMENT OF (6) OF (9) EXIST. RRHs w/ DUAL BAND RRHs.
   - ADDITION OF (3) QUAD DIPLEXERS.
   - REPLACEMENT OF (2) EXIST. 1⅝" 6x12 HYBRID FEED LINE CABLES w/ (2) NEW 1⅝" 6x12 LOW INDUCTANCE HYBRID FEED LINE CABLES.
6. ALL EXPOSED STEEL AND HARDWARE TO BE HOT DIP GALV. (HDG). PAINT TO MATCH EXIST. (WHERE APPLICABLE)
7. CAP & WEATHERPROOF ALL UN-USED CABLE ENTRY PORTS (WHERE APPLICABLE).
8. MOUNT & GROUND ALL NEW EQUIPMENT IN ACCORDANCE WITH NEC (NFPA-70), NESC AND MANUFACTURERS SPECIFICATION.
9. SECURE ALL NEW ANTENNA CABLES PER MANUFACTURER RECOMMENDATIONS.
10. BOND NEW ANTENNA MOUNTING PIPES TO ANTENNA SECTOR GROUND BAR w/ # 2 AWG, BCW, (WHERE APPLICABLE).
11. ANTENNA CONFIGURATIONS SHOWN HEREIN ARE FRONT ELEVATIONS.
12. ANTENNA SPACING DIMENSIONS ARE TO THE CENTER OF THE EXIST. ANTENNA AND PROP. ANTENNA FACE.
13. REFER TO THE FINAL RFDS PROVIDED BY VERIZON FOR THE LATEST INFORMATION REGARDING EQUIPMENT MODELS, REQUIRED CABLING & DOWN-TILT INFORMATION.
14. REPAIR/REPLACE EXIST. MONOPINE BRANCHES UPON INSTALLATION OF ALL ANTENNAS/EQUIPMENT.
15. CONTRACTOR SHALL INSTALL NEW SIDE-BY-SIDE & DUAL-MOUNT BRACKETS PER ANTENNA MOUNT MANUFACTURER RECOMMENDATIONS, INCLUDING VERIFICATION OF MINIMUM PIPE MAST DIAMETER REQUIRED TO INSTALL NEW MOUNT BRACKETS. CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD SHOULD EXIST. PIPE MAST REQUIRE REPLACEMENT TO SUPPORT THE NEW MOUNT BRACKETS.



LOCATION PLAN
SCALE: 1" = 200'

Cellco Partnership d/b/a
verizon
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CONSTRUCTION DOCUMENTS

NO	DATE	REVISION
0	02/02/21	FOR REVIEW: JRM
1	05/20/21	FOR FILING: JRM
2		
3		
4		
5		
6		

STATE OF CONNECTICUT · MICHAEL TRODDEN · 33313 · LICENSED PROFESSIONAL ENGINEER

DESIGN PROFESSIONALS OF RECORD

PROF: MICHAEL S. TRODDEN P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXT. SUITE 311 WATERFORD, CT 06385

OWNER: 160 WEST STREET LLC
ADDRESS: 213 COURT STREET MIDDLETOWN, CT 06457

CROMWELL CT

SITE ADDRESS: 160 WEST STREET CROMWELL, CT 06416

APT FILING NUMBER: CT141_11890

DRAWN BY: DRA
DATE: 02/02/21 CHECKED BY: JRM

VZ PROJECT CODE: 20212217981
VZ LOCATION CODE: 467921
VZ FUZE ID: 16232021

SHEET TITLE: PLANS & ELEVATIONS

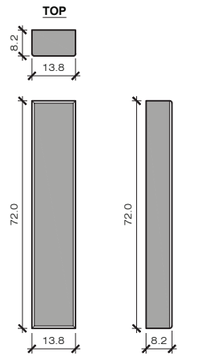
SHEET NUMBER: C-1

EQUIPMENT DATA

EQUIPMENT SPECIFICATIONS

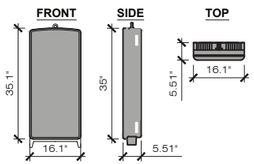
SECTOR	ANTENNA MAKE/MODEL		QTY	AZIMUTH	EQUIPMENT STATUS	HEIGHT (IN)	WIDTH (IN)	DEPTH (IN)	WEIGHT (LBS)
ALPHA	850-CDMA:	ANDREW DB846F65ZAXY	1	340°	ETR	72.0	10.0	8.5	20.9(2)
	700/1900/2100:	COMMSCOPE JAHH-65B-R3B	1	0°	NEW	72.0	13.8	8.2	68.6(2)
	700/1900/2100:	COMMSCOPE JAHH-65B-R3B	1	0°	NEW	72.0	13.8	8.2	68.6(2)
		SAMSUNG MT6407-77A	1	0°	NEW	35.1(5)	16.1(5)	5.51(5)	87.1(2)(5)
	850-CDMA:	ANDREW DB846F65ZAXY	1	340°	ETR	72.0	10.0	8.5	20.9(2)
BETA	850-CDMA:	DECIBEL DB846H80E-SX	1	120°	ETR	72.0	6.5	8.0	16.0(2)
	700/1900/2100:	COMMSCOPE JAHH-65B-R3B	1	120°	NEW	72.0	13.8	8.2	68.6(2)
	700/1900/2100:	COMMSCOPE JAHH-65B-R3B	1	120°	NEW	72.0	13.8	8.2	68.6(2)
		SAMSUNG MT6407-77A	1	120°	NEW	35.1(5)	16.1(5)	5.51(5)	87.1(2)(5)
	850-CDMA:	DECIBEL DB846H80E-SX	1	120°	ETR	72.0	6.5	8.0	16.0(2)
GAMMA	850-CDMA:	ANDREW DB846F65ZAXY	1	250°	ETR	72.0	10.0	8.5	20.9(2)
	700/1900/2100:	COMMSCOPE JAHH-65B-R3B	1	250°	NEW	72.0	13.8	8.2	68.6(2)
	700/1900/2100:	COMMSCOPE JAHH-65B-R3B	1	250°	NEW	72.0	13.8	8.2	68.6(2)
		SAMSUNG MT6407-77A	1	250°	NEW	35.1(5)	16.1(5)	5.51(5)	87.1(2)(5)
	850-CDMA:	ANDREW DB846F65ZAXY	1	250°	ETR	72.0	10.0	8.5	20.9(2)
	APPURTENANCE MAKE/MODEL								
	SAMSUNG B2/B66A RRH-BR049 (RFV01U-D1A)		3	-	NEW	14.9	14.9	10.04	97.5
	SAMSUNG B5/B13 RRH-BR04C (RFV01U-D2A)		3	-	NEW	14.9	14.9	8.14	82.0
	RAYCAP RXXDC-3315-PF-48		3	-	ETR	28.9	15.7	10.3	32
	COMMSCOPE CBC78T-DS-43-2X		3	-	NEW	6.4	6.9	9.6	20.7

(1) 'ETR' DENOTES EXIST. TO REMAIN
(2) WEIGHT WITHOUT MOUNTING BRACKET.
(3) ANTENNA DATA BASED ON RFDS DATED 11/25/20
(4) EQUIPMENT CONFIGURATION INDICATED ABOVE VIEWED FROM FRONT.
(5) NOT TO EXCEED



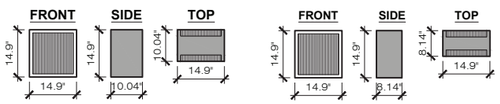
COMMSCOPE JAHH-65B-R3B
HxWxD=72.0"x13.8"x8.2 (68.6 Lbs)

2 B-1 NEW ANTENNA DETAIL
SCALE : ½" = 1'-0"



SAMSUNG MT6407-77A
HxWxD=35.1"x16.1"x5.51"
WT=87.1 Lbs
(NOT TO EXCEED)

3 B-1 NEW ANTENNA DETAIL
SCALE : ½" = 1'-0"

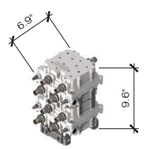


SAMSUNG DUAL HIGH BAND B2/B66A
RRH-BR049 (RFV01U-D1A)
RRH PCS/AWS
REMOTE RADIO HEAD (RRH)
WxDxH=14.9"x14.9"x10.04" (97.5 Lbs)

SAMSUNG DUAL HIGH BAND B5/B13
RRH-BR04C (RFV01U-D2A)
RRH 850/700
REMOTE RADIO HEAD (RRH)
WxDxH=14.9"x14.9"x8.14" (82.0 Lbs)

NOTE: WEIGHTS INCLUDE SOLAR SHEILD & MOUNTING BRACKET

4 B-1 RRH EQUIPMENT DETAILS
SCALE : ½" = 1'-0"

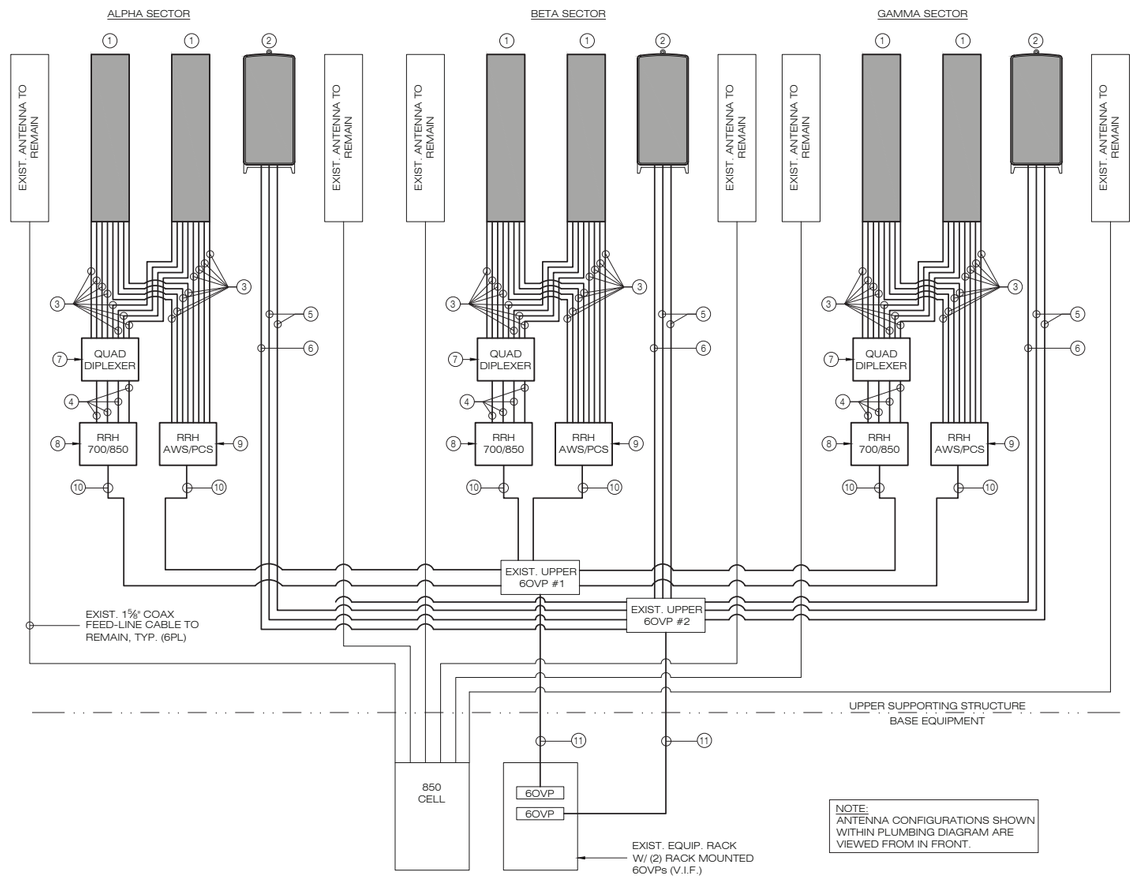


COMMSCOPE CBC78T-DS-43-2X
QUAD DIPLEXER
HxWxD=6.4"x6.9"x9.6" (20.7 Lbs)

5 B-1 QUAD DIPLEXER
SCALE: 1" = 1'-0"

BILL OF MATERIALS				
		QUANTITY	LENGTH	COMMENTS
(1)	700/850/1900/2100	6		(COMMSCOPE JAHH-65B-R3B) MOUNTED TO PIPE MAST VIA NEW SBS MOUNT (COMMSCOPE BSAMNT-SBS-2-2)
(2)	SAMSUNG MT6407-77A	3		
(3)	1/2" JUMPER CABLE	48	15 FT	ROUTE FROM AWS/PCS RRH & QUAD DIPLEXER TO ANTENNAS
(4)	1/2" JUMPER CABLE	12	6 FT	ROUTE FROM 700/850 RRH TO QUAD DIPLEXER
(5)	ANTENNA LINK CABLES	6	15 M	ROUTE FROM UPPER OVP TO ANTENNAS
(6)	ANTENNA POWER CABLES	3	15 M	PROPRIETARY POWER CABLE FROM UPPER OVP TO ANTENNAS
(7)	QUAD DIPLEXER	3		COMMSCOPE CBC78T-43-2X QUAD DIPLEXER
(8)	AWS/PCS RRH	3		SAMSUNG B2/B66 RRH-BR049 (RFV01U-D1A) MOUNTED TO EXIST. PIPE MAST
(9)	700/850 RRH	3		SAMSUNG B5/B13 RRH-BR04C (RFV01U-D2A) MOUNTED TO EXIST. PIPE MAST
(10)	RRH CABLES	6	15M	PROPRIETARY POWER & FIBER CABLES
(11)	HYBRID CABLE	1	180'± FT	6x12 LOW INDUCTANCE HYBRID CABLE (1⅝"Ø)

NOTES:
1. INFORMATION SHOWN HEREON IS FOR USE BY VERIZON EQUIPMENT OPERATIONS.
2. INFORMATION IS BASED ON RFDS DATED 11/25/20.
3. * DENOTES EQUIPMENT DESIGNATED "FOR LEASING ONLY" (WHERE APPLICABLE)
4. INSTALL ALARM BOARDS AT ALL OVPs WHERE REQUIRED. COORDINATE w/ VERIZON EQUIPMENT ENGINEERING.
5. INSTALL UP-CONVERTER(S) LOCATED AT BASE OVPs WHERE REQUIRED. COORDINATE w/ VERIZON EQUIPMENT ENGINEERING AS NECESSARY.
6. COORDINATE ANTENNA CABLING REQUIREMENTS WITH VERIZON ENGINEERING.
7. CONTRACTOR SHALL INSTALL NEW SIDE-BY-SIDE & DUAL-MOUNT BRACKETS PER ANTENNA MOUNT MANUFACTURER RECOMMENDATIONS, INCLUDING VERIFICATION OF MINIMUM PIPE MAST DIAMETER REQUIRED TO INSTALL NEW MOUNT BRACKETS. CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD SHOULD EXIST. PIPE MAST REQUIRE REPLACEMENT TO SUPPORT THE NEW MOUNT BRACKETS.



NOTE:
ANTENNA CONFIGURATIONS SHOWN WITHIN PLUMBING DIAGRAM ARE VIEWED FROM IN FRONT.

1 B-1 PLUMBING DIAGRAM
SCALE : ½" = 1'-0"

Cellco Partnership d/b/a
verizon
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

ALL-POINTS TECHNOLOGY CORPORATION
567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

CONSTRUCTION DOCUMENTS

NO	DATE	REVISION
0	02/02/21	FOR REVIEW: JRM
1	05/20/21	FOR FILING: JRM
2		
3		
4		
5		
6		

STATE OF CONNECTICUT
MICHAEL TRODDEN
33313
LICENSED
PROFESSIONAL ENGINEER

DESIGN PROFESSIONALS OF RECORD

PROF: MICHAEL S. TRODDEN P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXT. SUITE 311 WATERFORD, CT 06385

OWNER: 160 WEST STREET LLC
ADDRESS: 213 COURT STREET MIDDLETOWN, CT 06457

CROMWELL CT

SITE ADDRESS: 160 WEST STREET CROMWELL, CT 06416

APT FILING NUMBER: CT141_11890

DRAWN BY: DRA

DATE: 02/02/21 CHECKED BY: JRM

VZ PROJECT CODE: 20212217981

VZ LOCATION CODE: 467921

VZ FUZE ID: 16232021

SHEET TITLE:
RF BILL OF MATERIALS & DETAILS

SHEET NUMBER:
B-1

DESIGN BASIS:

GOVERNING CODES/DESIGN STANDARDS:

2015 INTERNATIONAL BUILDING CODE (IBC) AS AMENDED BY THE 2018 CONNECTICUT STATE BUILDING CODE
ASCE 7-10
TIA-222-G (TOWER) (BY OTHERS)

01 GENERAL:

ABBREVIATIONS USED IN THESE SPECIFICATIONS INCLUDE THE FOLLOWING:

ACI	AMERICAN CONCRETE INSTITUTE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
AWS	AMERICAN WELDING SOCIETY
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASTM	AMERICAN STANDARDS AND TESTING METHODS
CRSI	CONCRETE REINFORCING STEEL INSTITUTE
ICC-ES	INTERNATIONAL CODE COUNCIL EVALUATION SERVICE
TIA	TELECOMMUNICATIONS INDUSTRY ASSOCIATION
UL	UNDERWIRTERS LABORATORIES
NEC	NATIONAL ELECTRICAL CODE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

EVERY INDIVIDUAL TRADE, DISCIPLINE, AND CONTRACTOR SHALL INCLUDE THESE GENERAL SPECIFICATIONS.

THE ENGINEER IS NOT RESPONSIBLE FOR NOR A GUARANTOR OF THE INSTALLING CONTRACTORS WORK, ADEQUACY OF ANY SITE COMPONENT, SUPERVISION OF ANY WORK, AND SAFETY IN, ON, OR ABOUT THE WORK SITE.

ANY REFERENCE HEREIN TO AN OR EQUAL ITEM, THAT EQUAL ITEM SHALL BE PRE-APPROVED BY THE CONSTRUCTION MANAGER BEFORE INSTALLATION

ALL TRADES SHALL COORDINATE THEIR WORK WITH ALL OTHER TRADES AND OTHER WORK AND CONDITIONS AS APNEWRIATE OR REQUIRED TO AVOID CONFLICTS. RESOLVE AND COORDINATE ALL CONFLICTS WITH ALL AFFECTED WORK AND SITE OPERATIONS. COORDINATION WITH THE SITE SHALL BE WITH THE OWNER, OR OWNER'S SPECIFIED REPRESENTATIVE, FOR EVERYTHING RELATED TO THE INSTALLATION OF THIS PROJECT.

ALL WORK SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE EDITIONS OF ALL APPLICABLE CODES AND SHALL BE ACCEPTABLE TO ALL AUTHORITIES HAVING JURISDICTION (AHJ). WHERE A CONFLICT EXISTS BETWEEN CODES, PLANS, SPECIFICATIONS, AND/OR AHJ, THE MORE STRINGENT AUTHORITY SHALL APPLY. WHERE CONFLICT EXISTS BETWEEN PLANS AND SPECIFICATIONS, PLAN SHALL APPLY. WHERE CONFLICT EXISTS BETWEEN PLAN SHEETS, CONSTRUCTION MANAGER SHALL BE CONSULTED PRIOR TO COMMENCING ANY WORK.

CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR A COMPLETE AND NEWERLY OPERATIVE AND USABLE SYSTEM THROUGHOUT AND AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN AND/OR OTHERWISE REQUIRED.

CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, INSTALLATIONS, AND EQUIPMENT IN THE FIELD PRIOR TO BID, FABRICATION, AND INSTALLATION OF ANY WORK.

CONTRACTORS SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. THE ENGINEER SHALL BE NOTIFIED FOR INSPECTIONS PRIOR TO CLOSING PENETRATIONS AND OF ANY CONDITIONS WHICH PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

CONTRACTOR SHALL VISIT THE SITE TO MANAGE AND GAIN APPROVAL FOR ALL TENANT DISRUPTIONS, POWER OUTAGES, WORK SCHEDULES, DEFINITION OF WORK AREA AND WORK STORAGE, NEWER BUILDING/SITE ACCESS, NOISE AND CLEANLINESS REQUIREMENTS WITH THE BUILDING/SITE MANAGEMENT PRIOR TO ALL WORK. ANY DISRUPTIONS SHALL BE KEPT TO A MINIMUM AND SHALL BE IMPLEMENTED ONLY UPON WRITTEN APPROVAL OF THE OWNER.

THE CONTRACTOR SHALL SAFEGUARD AGAINST CREATING ANY HAZARD AFFECTING TENANT EGRESS OR COMPROMISING SITE SECURITY MEASURES.

PRIOR TO ALL BELOW-GRADE WORK AND ANY SURFACE WORK IN A NEW AREA FOR STRUCTURES OR VEHICLES, CONTRACTOR SHALL ENGAGE A MARKOUT SERVICE TO IDENTIFY ANY UNDERGROUND STRUCTURES, CONDUITS, AND PIPELINES IN THE AREA. ALL EXISTING SEWER, WATER, GAS, ELECTRIC, FIBER OPTIC, AND OTHER UNDERGROUND UTILITIES IDENTIFIED OR ENCOUNTERED, SHALL BE PROTECTED AT ALL TIMES. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN DIGGING OR EXCAVATING IN ANY MANNER AROUND OR NEAR SUCH UTILITIES. CONTRACTOR IS RESPONSIBLE FOR REPAIRS, REPLACEMENT, AND ALL DAMAGES DUE TO DAMAGE OF UTILITIES BY HIS OPERATIONS.

ALL EXISTING AND NEW EQUIPMENT AND MATERIAL LOCATIONS, ROUTING, ORIENTATION, MOUNTING, SPECIFICATIONS AND GENERAL INSTALLED CHARACTERISTICS SHALL BE CONSIDERED DIAGRAMMATIC ON THE PLANS. EXACT CONDITIONS SHALL BE DETERMINED IN THE FIELD PRIOR TO ANY INSTALLATION. ANY DIFFERENCES THAT MAY CAUSE SCHEDULE, COST, OR QUALITY SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER OR ENGINEER PRIOR TO ANY WORK.

ALL REFERENCES HEREIN TO VERIFICATION OF ANY CONDITION OF SITE, FIELD, PLANS, OR SPECIFICATIONS PRIOR TO ANY WORK SHALL BE THE FULL RESPONSIBILITY OF THE CONTRACTOR. ANY AND ALL ADDITIONS, MODIFICATIONS, CHANGES, REPAIR, OR DEMOLITION AS A RESULT OF FAILURE TO BRING ANY EXISTING CONDITION NEWERLY TO THE ATTENTION OF THE OWNER OR ENGINEER SHALL BE THE FULL RESPONSIBILITY OF THE CONTRACTOR WITHOUT DELAY, COST, OR CHANGES IN QUALITY.

ALL NOTES THIS SHEET SHALL APPLY UNLESS SPECIFICALLY NOTED OTHERWISE ON THE INCLUDED DRAWINGS OR IN SEPARATE PROJECT SPECIFICATIONS AS APPLICABLE. ALL SPECIFICATIONS SHALL BE CONSIDERED REQUIRED UNLESS APPROVED EQUAL BY THE OWNER, CONSTRUCTION MANAGER, OR ENGINEER AS APPLICABLE.

THE WORDS "PROVIDE" OR "INSTALL" SHALL MEAN FURNISH AND INSTALL.

CONTRACTOR SHALL PROVIDE ALL CUTTING AND PATCHING AS REQUIRED FOR THE INSTALLATION OF HIS WORK. ANY PATCHING SHALL MATCH EXISTING SURROUNDING AREA IN ALL RESPECTS. ALL REMOVED MATERIAL SHALL BE REMOVED FROM THE PREMISES DAILY IN AN APPROVED SAFE MANNER.

ALL SURPLUS MATERIAL SHALL BE REMOVED FROM THE SITE PROMPTLY WHEN DEEMED TO BE SURPLUS.

EVERY CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF HIS WORK AND NEWLY INSTALLED OR EXISTING WORK, INCLUDING PROTECTION OF THE SITE, ALL STRUCTURES, AND ALL OCCUPANTS. FURNISH, INSTALL, MAINTAIN, AND REMOVE AS APNEWRIATE, ALL APNEWRIATE BARRIERS, SAFETY GUARDS, SIGNAGE, AND SECURITY AS REQUIRED.

EVERY CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR RESPECTIVE FEES, PERMITS, INSPECTIONS, TESTING, CERTIFICATES, AND ALL MANAGEMENT OF SAME REQUIRED FOR COMPLETION OF AND LEGAL OCCUPANCY OF THE FINISHED PROJECT.

ALL CONTRACTORS SHALL PROVIDE ALL NECESSARY TOOLS, FIXTURES, SERVICES, MATERIALS, JOB AIDS, AND PERSONNEL REQUIRED FOR THE EXECUTION OF THEIR WORK.

EACH CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP BY THEM TO BE FREE OF DEFECTS AND MAINTAINED FOR A PERIOD OF ONE YEAR AFTER ACCEPTANCE OF THE INSTALLATION BY THE OWNER AND ENGINEER.

ALL WORK SHALL BE PERFORMED BY LICENSED CONTRACTORS IN THE TRADE HAVING JURISDICTION.

ANY DEVIATION, MODIFICATION, ADDITION, OR CHANGE IN DESIGN SHALL NOT BE MADE WITHOUT WRITTEN APPROVAL OF THE OWNER OR ENGINEER.

ALL CONTRACTORS SHALL SUBMIT SHOP DRAWINGS OF ALL EQUIPMENT AND MATERIALS TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION AND INSTALLATION, AND SHALL NOT PROCEED UNTIL ENGINEER APPROVAL IN WRITING IS RETURNED. EACH CONTRACTOR SHALL MAINTAIN ON JOB SITE A COMPLETE SET OF SHOP DRAWINGS WITH ANY DEVIATIONS FROM THE ORIGINAL DESIGN SHALL BE NOTED.

ALL MATERIALS AND EQUIPMENT SHALL BE NEW, WITHOUT BLEMISH OR DEFECT, AND SUITABLE AND LISTED FOR THE INSTALLATION AND SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS OR SPECIFICATIONS. ALL ITEMS OF EQUIPMENT OR MATERIAL THAT ARE OF ONE GENERIC TYPE SHALL BE ONE MANUFACTURER THROUGHOUT.

ALL MATERIALS, EQUIPMENT, TOOLS, AND ITEMS UNDER THE CONTRACTOR'S RESPONSIBILITY ON THE JOBSITE SHALL BE ADEQUATELY SECURED, MAINTAINED, AND PROTECTED, SO AS NOT TO BECOME DAMAGED OR CREATE ANY HAZARD TO PERSONNEL OR NEWERTY.

THE CONTRACTORS HOURS OF WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES AND ORDINANCES AND BE APPROVED BY THE OWNER.

CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR ALL OF HIS CREW AND INSURE THAT EVERY CREW MEMBER FOLLOWS SAVE WORK PRACTICES. SAFETY TRAINING SHALL INCLUDE, BUT NOT BE LIMITED TO, FALL PROTECTION, CONFINED SPACE ENTRY, ELECTRICAL SAFETY, AND TRENCHING/EXCAVATION SAFETY WHERE SUCH WORK IS EXECUTED OR ENCOUNTERED.

ALL TEMPORARY WORK REQUIRED OR SPECIFIED AS A PART OF THIS WORK, SHALL MEET ALL OF THE SAME REQUIREMENTS AS PERMANENT INSTALLATIONS, SHALL MEET ALL APPLICABLE CODE REQUIREMENTS, AND SHALL BE COMPLETELY REMOVED AFTER ITS PURPOSES HAVE BEEN SERVED.

ANY EXISTING UTILITY, SERVICE, STRUCTURE, EQUIPMENT, OR FIXTURE OBSTRUCTING THE WORK SHALL BE REMOVED AND/OR RELOCATED AS DIRECTED BY THE CONSTRUCTION MANAGER.

IF ASBESTOS IS ENCOUNTERED DURING WORK EXECUTION, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE CONSTRUCTION MANAGER AND CEASE ALL ACTIVITIES IN AFFECTED AREAS UNTIL NOTIFIED BY THE CONSTRUCTION TO RESUME OPERATIONS.

EXIST. ELECTRICAL AND MECHANICAL FIXTURES, PIPING, WIRING AND EQUIPMENT OBSTRUCTING THE WORK SHALL BE REMOVED AND/OR RELOCATED AS DIRECTED BY THE CONSTRUCTION MANAGER. TEMPORARY SERVICE INTERRUPTIONS MUST BE COORDINATED WITH OWNER.

05 STEEL:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

MATERIALS:

WIDE FLANGE	ASTM A992, GR 50
TUBING	ASTM A500, GR B
PIPE	ASTM A53, GR B
BOLTS	ASTM A325
GRATING	TYPE GW-2 (1-1/4"x3/16" BARS)
EXISTING METALS	ASTM A36

PROVIDE CERTIFICATION THAT WELDERS TO BE USED IN WORK ARE LICENSED AND HAVE SATISFACTORILY PASSED AWS QUALIFICATION TEST UNDER THE PROVISIONS OF APPENDIX D, PARTS II AND III OF THE AWS CODE FOR WELDING IN BUILDING CONSTRUCTION.

ALL BUILDING CONNECTION POINTS TO BE CENTERED ON EXISTING STRUCTURAL BEARING POINTS AND THE LOCATIONS ARE TO BE VERIFIED IN FIELD PRIOR TO THE FABRICATION OF STEEL.

DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF AISC SPECIFICATION FOR *"THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS"*.

NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIAMETER GALVANIZED ASTM A 307 BOLTS UNLESS OTHERWISE NOTED.

ALL STEEL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIPPED GALVANIZED) COATINGS" ON IRON AND STEEL PRODUCTS WITH A COATING WEIGHT OF 2 OZ/SF.

ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE EXPOSED TO WEATHER SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE."

DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY TOUCHING UP ALL DAMAGED GALVANIZED STEEL WITH COLD ZINC, "GALVANOX", "DRY GALV", OR "ZINC IT", IN ACCORDANCE WITH MANUFACTURERS GUIDELINES. TOUCH UP DAMAGED NON-GALVANIZED STEEL WITH SAME PAINT APPLIED IN SHOP OR FIELD.

THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW. FIELD CUTTING OF STRUCTURAL STEEL IS NOT PERMITTED EXCEPT WITH THE PRIOR APPROVAL OF THE ENGINEER.

CONTRACTOR TO REMOVE AND RE-INSTALL ALL FIRE PROOFING AS REQUIRED DURING CONSTRUCTION.

THE STEEL STRUCTURE SHALL BE DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER COMPLETION. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENT PARTS DURING ERECTION.

ALL STEEL ELEMENTS SHALL BE INSTALLED PLUMB AND LEVEL.

TOWER MANUFACTURER'S DESIGNS SHALL PREVAIL FOR TOWER.

CONNECTIONS SHALL BE DESIGNED BY THE FABRICATOR AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AISC *"MANUAL OF STEEL CONSTRUCTION"*. CONNECTIONS SHALL BE PROVIDED TO CONFORM TO THE REQUIREMENTS OF TYPE 2 CONSTRUCTION.

STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE MINIMUM 3/4" DIAMETER AND EACH CONNECTION SHALL HAVE MINIMUM TWO BOLTS. LOCK WASHERS ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES. IF TENSION CONTROL BOLTS ARE USED, CONNECTIONS SHALL BE DESIGNED FOR SLIP CRITICAL BOLT ALLOWABLE LOAD VALUES.

DESIGN CONNECTIONS AT BEAM ENDS FOR 10 KIPS (MIN).

ALL U-BOLTED CONNECTIONS SHALL BE COMPLETED WITH DOUBLE NUTS OR A LOCK WASHER.

CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS *"STANDARD QUALIFICATION PROCEDURES"*. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND SHALL CONFORM TO AISC AND D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE LARGER OF 1/4" FILLET OR MINIMUM SIZE PER TABLE J2.4 IN THE AISC *"MANUAL OF STEEL CONSTRUCTION"*. AT THE COMPLETION OF WELDING, ALL DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED. SEE NOTE REGARDING DAMAGED GALVANIZED SURFACES.

ALL ARC AND GAS WELDING SHALL BE DONE BY A LICENSED AND CERTIFIED WELDER IN ACCORDANCE WITH AWS.

SEAL ALL PENETRATIONS AND SEAMS BETWEEN MASONRY AND STEEL WITH DOW CORNING 790 SILICONE BUILDING SEALANT OR EQUAL.

26 ELECTRICAL:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

ALL ELECTRICAL CONDUCTORS:

- INSULATION SHALL BE MINIMUM 600V TYPE THHN, THWN-2, OR XHHW.
- BRANCH CIRCUIT CONDUCTORS SHALL BE SOFT DRAWN 98% MINIMUM CONDUCTIVITY NEWERLY REFINED COPPER.
- FEEDER CIRCUIT CONDUCTORS SHALL BE EITHER COPPER OR ALUMINUM OF THE APNEWRIATE SIZE FOR THE APPLICATION, OR AS SPECIFICALLY NOTED.
- PERMANENTLY LABEL OR TAG ALL CONDUCTORS WITH THEIR CIRCUIT DESIGNATION AT ALL TERMINATION ENDS, SPLICES, AND VISIBLE AS PASS-THROUGH IN ALL ENCLOSURES.

ALL CONDUIT, RACEWAY, WIREWAYS, DUCTS, ETC. SHALL BE LISTED AND SUITABLE FOR THE APPLICATION. ONLY THE FOLLOWING CONDUITS AS APPROVED AND LISTED FOR THE APPLICATION SHALL BE ACCEPTABLE:

- ELECTRICAL METALLIC TUBING (EMT).
- COMPRESSION COUPLINGS AND CONNECTORS ONLY MADE UP WRENCH TIGHT.
- FLEXIBLE METAL CONDUIT (FMC) AND LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC).
- FINAL CONNECTIONS TO VIBRATING OR ADJUSTABLE EQUIPMENT INCLUDING, BUT NOT LIMITED TO, LIGHT FIXTURES, HVAC UNITS, TRANSFORMERS, MOTORS, ETC. OR WHERE EQUIPMENT IS PLACED UPON SLAB ON-GRADE.
- RIGID GALVANIZED STEEL (RGS).
- ALL FITTINGS, CONNECTORS, AND COUPLINGS SHALL BE THREADED MADE UP WRENCH TIGHT.
- RIGID POLYVINYL CHLORIDE (PVC) SCHEDULE 40 OR SCHEDULE 80.
- MAY BE USED FOR SERVICES, EXTERIOR, BELOW GRADE, AND WET LOCATIONS.
- SHALL NOT BE USED IN CONCRETE SLABS NOR EXPOSED WITHIN A BUILDING OR STRUCTURE.
- METAL-CLAD CABLE (MC)
- CONCEALED INSTALLATIONS ONLY.
- WITHIN A DUCT WITH SMOOTH OR CORRUGATED METAL JACKET AND NO OUTER COVERING OVER THE METAL JACKET.

IN FINISHED SPACES, ALL CONDUITS SHALL BE CONCEALED EXCEPT TO MAKE A FINAL CONNECTION TO EQUIPMENT NOT MOUNTED IN OR AGAINST FINISH MATERIAL.

ALL FEEDER AND BRANCH CIRCUITS SHALL HAVE A SEPARATE NEWERLY SIZED AND MARKED GROUNDING CONDUCTOR, PER APPLICABLE CODES, THAT BONDS ALL ENCLOSURES, BOXES, ETC. CONDUIT SHALL NOT BE USED AS A GROUNDING OR BONDING CONDUCTOR.

IF EXISTING ELECTRIC SERVICE IS TO REMAIN, CONTRACTOR SHALL BE VERIFY THAT IT MEETS PROJECT REQUIREMENTS WITHOUT MODIFICATION. IF IT IS TO BE ADDED OR REPLACED AS A PART OF THIS WORK, CONTRACTOR SHALL ORDER FROM, COORDINATE WITH, AND GAIN APPROVAL FROM THE ELECTRICAL UTILITY. ALL ELECTRICAL EQUIPMENT SHALL BE AS SPECIFIED AND AS APPROVED BY THE LOCAL UTILITY WHERE APPLICABLE.

ALL EQUIPMENT, ENCLOSURES, ETC. SHALL BE SUITABLE FOR THE INSTALLED ENVIRONMENT, MINIMUM NEMA 3R FOR ALL EXTERIOR INSTALLATIONS.

WIRING DEVICES SHALL BE SPECIFICATION GRADE AND WIRING DEVICE COVER PLATES SHALL BE PLASTIC WITH ENGRAVING AS SPECIFIED. COLOR SHALL BE IVORY. ALL DEVICES AND COVER PLATES SHALL BE OF THE SAME MANUFACTURER.

ALL FIRE-RATED PENETRATIONS SHALL BE SEALED USING A SUITABLE AND LISTED FIRE SEALING DEVICE OR GROUT THAT WILL MAINTAIN THE FIRE RATING OF THE STRUCTURE PENETRATED.

PROVIDE PERMANENTLY AFFIXED ENGRAVED NAMEPLATES FOR ALL CODE REQUIRED LABELING AND ON ALL PANELS, METERING, DISCONNECTS, AND ELECTRICAL EQUIPMENT THAT IDENTIFIES EQUIPMENT SERVED, ELECTRICAL SOURCE WITH CIRCUIT IDENTIFICATION, AND VOLTAGES WITHIN.

ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL FINAL TERMINATIONS TO ALL EQUIPMENT.

ALL ELECTRICAL APPURTENANCES THAT ARE DISCONNECTED SHALL BE COMPLETELY REMOVED WITH EXISTING STRUCTURES TO REMAIN, REPAIRED, FINISHED, FILLED, PAINTED, ETC. ALL PANEL SCHEDULES, EQUIPMENT LABELING, AND CODE-REQUIRED LABELING, SHALL BE VERIFIED AND NEWERLY COMPLETED TO MATCH THE INSTALLATION.

26 GROUNDING:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

GROUND ALL SYSTEMS AND EQUIPMENT IN ACCORDANCE WITH BEST INDUSTRY PRACTICE, THE REQUIREMENTS OF THE NFPA 70 NATIONAL ELECTRICAL CODE (NEC), AND ALL OTHER APPLICABLE CODES AND REGULATIONS.

ALL GROUNDING ELECTRODES PRESENT AT EACH SERVICE LOCATION SHALL BE BONDED TOGETHER TO FORM THE GROUNDING ELECTRODE SYSTEM.

ALL EQUIPMENT ENCLOSURES, DEVICES, AND CONDUITS SHALL BE GROUNDED BY THE INSTALLATION OF A SEPARATE GROUNDING CONDUCTOR FOR ALL FEEDER AND BRANCH CIRCUITS THAT IS SIZED PER CODE OR IS OF THE SIZE INDICATED ON THE DRAWINGS, SHALL BE CONTINUOUS IN LENGTH, AND SHALL BE BONDED TO EACH ENCLOSURE PASSED THROUGH. CONDUIT SHALL NOT BE USED AS A GROUNDING OR BONDING WIRE OR CIRCUIT.

BOND ALL METALLIC CONDUITS TOGETHER THAT ARE CONNECTED TO NON-METALLIC ENCLOSURES, IN-GROUND BOXES, AND TO AN ENCLOSURE WHERE A GROUND BUS IS SPECIFIED OR SUPPLIED. ACCOMPLISH THIS BOND WITH GROUNDING CONDUCTORS MINIMUM SIZED TO THE LARGEST GROUNDING CONDUCTOR PRESENT IN THE ENCLOSURE CONNECTED TO A GROUNDING TYPE BUSHING EQUALLY SIZED OR MAXIMUM GROUND WIRE ACCOMMODATION AVAILABLE IN STANDARD MANUFACTURE FOR THE CONDUIT SIZE, WHICHEVER IS LESS.

EQUIPMENT GROUNDING AND LOAD SIDE BONDING CONDUCTORS SHALL BE SIZED PER THE CIRCUIT'S OVER-CURRENT PROTECTIVE DEVICE (OCPD) SIZE. WHERE THE UNGROUNDED CONDUCTORS ARE INCREASED IN SIZE ABOVE THE STANDARD FOR THE CIRCUIT'S OCPD, INCREASE THE GROUNDING CONDUCTOR NEWORTIONATELY TO THE CROSS-SECTIONAL AREA OF THE UNGROUNDED CONDUCTORS.

SERVICE MAIN BONDING JUMPERS AND GROUNDING ELECTRODE CONDUCTORS SHALL BE SIZED AND INSTALLED PER THE MINIMUM OF ALL APPLICABLE CODES AND REGULATIONS.

26 LIGHTNING PROTECTION:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS AND THE GROUNDING SPECIFICATIONS HEREIN.

THE LIGHTNING PROTECTION GROUNDING SYSTEM (LPGS) SHALL CONSIST OF BONDING ALL EQUIPMENT AND CONDUCTIVE STRUCTURES TO LOCALIZED SINGLE-POINT GROUNDING CONNECTIONS (TYPICALLY GROUND BARS) WHICH ARE BONDED TOGETHER AND TO AN IN-GROUND SYSTEM. IF THE LPGS IS ON A BUILDING, IT SHALL BE EFFECTIVELY BONDED TO THE ELECTRICAL SERVICE MAIN BONDING JUMPER AND TO ADDITIONAL IN-GROUND ELECTRODES AS MAY BE REQUIRED OR INDICATED. IF THE LPGS IS ON A DEDICATED COMMUNICATION SITE, ALL EQUIPMENT AREAS AND TOWERS SHALL EACH HAVE THEIR OWN IN-GROUND RING WITH EVERY RING BONDED TOGETHER, AND ALL CONDUCTIVE STRUCTURES IN CLOSE PROXIMITY (FENCES, ICE BRIDGES, ISOLATED EQUIPMENT, ETC.) ALSO BONDED TO PROVIDE A COMMON ELECTRICAL EQUIPOTENTIAL SYSTEM FOR ALL CONDUCTIVE ELEMENTS AND STRUCTURES.

CONDUCTORS:

- MIN #2 AWG SOLID BARE TINNED COPPER (SBTC) FOR ALL IN-GROUND CONDUCTORS.
- MIN #2 AWG COPPER GREEN STRANDED FOR BONDING STRUCTURES, AND FOR INTER-SYSTEM BONDING OF INDIVIDUAL ELEMENTS SUCH AS GROUND BAR TO GROUND BAR.
- MIN #6 AWG COPPER GREEN STRANDED OR ALL EQUIPMENT BONDING.
- INSTALL ALL IN-GROUND CONDUCTORS IN THE SAME HORIZONTAL PLANE OR IN A DOWNWARD DIRECTION AWAY FROM THE TOWER AND EQUIPMENT AREAS.
- AVOID LONG RUNS. MAKE DIRECT RUNS AS MUCH AS POSSIBLE.
- PLACE THROUGH NON-METALLIC SLEEVES WHEN PASSING THROUGH FLOORS, WALLS, CEILINGS, AND SIMILAR STRUCTURES.
- MAKE ALL CONNECTIONS IN CONTACT WITH EARTH WITH EXOTHERMIC WELDING. MAKE ALL OTHER CONNECTIONS WITH EXOTHERMIC WELDING, IRREVERSIBLE COMPRESSION CONNECTORS, OR LISTED COMPRESSION TWO-HOLE LUGS.
- INSTALL ALL CONDUCTORS WITH A MINIMUM 18 INCH BEND RADIUS AND NO BEND LONGER THAN A 90 DEGREE ARC. ALL BENDS SHALL BE HORIZONTAL, OR DOWNWARD TOWARDS EARTH.
- ALL CONDUCTORS PASSING FROM ABOVE-GROUND TO IN-GROUND CONNECTIONS, WHERE EXPOSED, SHALL BE COVERED AND PROTECTED WITH A NON-METALLIC CONDUIT SEALED AT BOTH ENDS.
- IF 2 OR MORE IN-GROUND CONDUCTOS ARE IN THE SAME PATH (2 RINGS OVERLAPPING, BONDING FOLLOWING ANOTHER RING OR RADIAL, OR SIMILAR), COMBINE WITH A SHARED SINGLE CONDUCTOR.

EQUIPMENT AND TOWER GROUND RINGS SHALL BE:

- BONDED TO ANY CONDUCTIVE OBJECT OR STRUCTURE WITHIN 5 FEET OF EQUIPMENT GROUND RINGS AND WITHIN 20 FEET OF TOWER GROUND RINGS.
- INSTALLED MINIMUM 18 INCHES FROM FOUNDATIONS, FOOTINGS, AND SIMILAR.

INSTALL ALL IN-GROUND RINGS, RADIALS, BONDS CONNECTING THEM, AND ALL SIMILAR GROUNDING:

- MIN 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE, WHICHEVER IS GREATER DEPTH.
- MIN 2 FEET FROM FOUNDATIONS, FOOTINGS, OTHER GROUNDING SYSTEMS, AND SIMILAR STRUCTURES, EXCEPT WHEN MAKING A BOND TO ANY OF THESE STRUCTURES. DO NOT BOND TO FOUNDATION INTERNAL REINFORCEMENT.

ALL EQUIPMENT GROUPED IN A COMMON AREA, COMPOUND, STRUCTURE, OR SIMILAR SHALL BE BONDED TO A SINGLE-POINT GROUND, PREFERABLY AN ISOLATED GROUND BAR. BOND THE GROUND BAR TO THE SYSTEM WITH MINIMUM SINGLE BONDING CONDUCTOR. IF BONDING TO AN IN-GROUND RING, INSTALL 2 BONDING CONDUCTORS MINIMUM WITH EACH CONDUCTOR INSTALLED DIRECTIONALLY AWAY FROM EACH OTHER AND PARALLEL TO THE IN-GROUND CONDUCTOR, WITH NO TEE CONNECTIONS.

TOWER GROUNDING:

- EACH TOWER LEG SHALL BE BONDED TO ITS RING. SINGLE-LEGGED TOWERS, OR MONOPOLES, SHALL HAVE 2 BONDS ON OPPOSITE SIDES.
- BOND TO TOWER BASE, NOT TO VERTICAL TOWER STRUCTURE, AWAY FROM TOWER MOUNTING HARDWARE.
- EACH BOND SHALL HAVE A CORRESPONDING GROUND ROD ON THE RING.
- EACH BOND SHALL CONSIST OF 2 CONDUCTORS FROM THE TOWER TO ITS RING WITH EACH CONDUCTOR DIRECTED IN OPPOSITE DIRECTIONS WITH A PARALLEL CONNECTION ON THE RING ON OPPOSITE SIDES OF THE GROUND ROD.

EQUIPMENT AREA GROUNDING:

- COMMUNICATION AREAS ON EARTH SHALL HAVE A GROUND RING.
- BOND ALL EQUIPMENT TO A SINGLE-POINT GROUND (GROUND BAR).
- BOND THE EQIPMENT SINGLE-POINT GROUND TO THE EQUIPMENT GROUND RING WITH MINIMUM 2 CONDUCTORS DIRECTED IN OPPOSITE DIRECTIONS WITH PARALLEL CONNECTIONS ON THE RING.
- IF EQUIPMENT IS ENCLOSED IN A SHELTER:
- IF THE SHELTER IS CONSIDERED TO BE EXPOSED TO A DIRECT LIGHTNING STRIKE, INSTALL A BUILDING LIGHTNING PROTECTION SYSTEM PER APPLICABLE VERSION OF NFPA 780.
- BOND ALL FIXED CONDUCTIVE BUILDING COMPONENTS TOGETHER AND TO THE BUILDING RING GROUND AT THE CORNERS. THIS IS TYPICALLY CALLED THE HALO GROUND. DO NOT BOND EQUIPMENT TO THE HALO GROUND.
- BOND ALL EQUIPMENT TOGETHER TO A SINGLE-POINT OR INTERIOR EQUIPMENT RING GROUND (IEGR). BOND THE SINGLE-POINT OR IEGR TO THE EXTERNAL EQUIPMENT RING GROUND.
- PLACE GROUND RODS AT THE EQUIPMENT GROUND RING CORNERS.

GROUND RODS:

- SEPARATION SPACE BETWEEN ANY 2 GROUND RODS SHALL BE NO CLOSER THAN THEIR DEPTH. THIS APPLIES TO ALL RODS IN THE COMPLETE SYSTEM.
- DRIVE VERTICALLY IN UNDISTURBED SOIL WITH THE TOP AT SAME DEPTH AS THE IN-GROUND CONDUCTOR. IF NOT POSSIBLE TO INSTALL VERTICALLY, PLACE AS CLOSE TO VERTICAL AS POSSIBLE AND IN A DIRECTION AWAY FROM THE NEAREST ABOVE-GROUND CONDUCTIVE ELEMENT (TOWER, EQUIPMENT, ETC.).

RADIALS (TYP. NEW DEDICATED COMMUNICATION SITES):

- WHERE FEASIBLE WITH ENOUGH SPACE AVAILABLE, INSTALL A MINIMUM OF 4, MAXIMUM 10 RING RADIALS.
- EACH RADIAL'S LENGTH SHALL BE MIN 20 FT, MAX 80 FT.
- EXTEND RADIALS PERPENDICULAR FROM RINGS IN AS STRAIGHT LINE AS POSSIBLE, AWAY FROM OTHER RING GROUNDS, RADIALS, BONDS, AND SIMILAR.
- A COMMON PRACTICE IS TO PLACE 4 RADIALS FROM THE TOWER RING TO THE 4 CORNERS OF THE AVAILABLE AREA.

AT A MINIMUM, BOND ALL COMPOUND CONDUCTIVE FENCE CORNER POSTS AND GATE POSTS TO THE LPGS. PREFERABLY, INSTALL A GROUND RING THAT FOLLOWS THE FENCE LINE, BONDING ALL POSTS TO THE RING.

27 ANTENNAS & CABLES:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL TRANSMISSION CABLES, JUMPERS, CONNECTORS, GROUNDING STRAPS, ANTENNAS, MOUNT AND HARDWARE. ALL MATERIALS SHALL BE INSPECTED BY THE CONTRACTOR FOR DAMAGE UPON DELIVERY. JUMPERS SHALL BE SUPPLIED AT ANTENNAS AND EQUIPMENT INSIDE SHELTER. COORDINATE LENGTH OF JUMPER CABLES WITH OWNER. COORDINATE AND VERIFY ALL OF THE MATERIALS TO BE PROVIDED WITH OWNER PRIOR TO SUBMITTING BID AND ORDERING MATERIALS.

AFTER INSTALLATION, THE TRANSMISSION LINE SYSTEM SHALL BE PIM / SWEEP TESTED FOR NEWER INSTALLATION AND DAMAGE WITH ANTENNAS CONNECTED. CONTRACTOR SHALL OBTAIN AND USE LATEST TESTING PROCEDURES FROM OWNER OR MANUFACTURER PRIOR TO BIDDING.

ANTENNA CABLES SHALL BE UNIQUELY COLOR-CODED AT THE ANTENNAS, BOTH SIDES OF EQUIPMENT SHELTER WALL, AND JUMPER CABLES AT THE EQUIPMENT.

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL CONNECTORS, ASSOCIATED CABLE MOUNTING AND GROUNDING HARDWARE, WALL MOUNTS, STANDOFFS, AND ALL ASSOCIATED HARDWARE TO INSTALL ALL CABLES AND ANTENNAS TO THE MANUFACTURER'S AND OWNER'S SPECIFICATIONS.

ANTENNA CABLES SHALL BE FOAM DIELECTRIC COAXIAL CABLES AS FOLLOWS:

- BASE STATION ANTENNAS:
  - 7/8" DIAMETER FOR CABLE LENGTHS UP TO 100 FT.
  - 1-5/8" DIAMETER FOR CABLE LENGTHS GREATER THAN 100 FT.
  - GPS ANTENNAS:
  - 7/8" DIAMETER FOR CABLE LENGTHS UP TO 200 FT.
  - 1-5/8" DIAMETER FOR CABLE LENGTHS GREATER THAN 200 FT.

MINIMUM BENDING RADIUS FOR COAXIAL CABLES SHALL BE:

- 15 FT FOR 7/8" COAXIAL CABLES.
- 25 FT FOR 1-5/8" COAXIAL CABLES.

CABLE SHALL BE INSTALLED WITH A MINIMUM NUMBER OF BENDS WHERE POSSIBLE. CABLE SHALL NOT BE LEFT UNTERMINATED AND SHALL BE SEALED IMMEDIATELY AFTER BEING INSTALLED.

ALL EXTERIOR CABLE CONNECTIONS SHALL BE COVERED WITH A WATERPROOF SPLICING KIT.

CONTRACTOR SHALL VERIFY EXACT LENGTH AND DIRECTION OF TRAVEL IN FIELD PRIOR TO CONSTRUCTION.

CABLE SHALL BE FURNISHED AND INSTALLED WITHOUT SPLICES AND WITH CONNECTORS AT EACH END.

27 CABLE TRAY:

THESE SPECIFICATIONS SHALL INCLUDE THE GENERAL SPECIFICATIONS HEREIN.

CABLE TRAY SHALL BE MADE OF EITHER CORROSION RESISTANT METAL OR WITH A CORROSION RESISTANT FINISH.

CABLE TRAY SHALL BE OF LADDER TRAY TYPE WITH FLAT COVER CLAMPED TO SIDE RAILS.

CABLE LADDER SHALL BE SIZED TO FIT ALL CABLES IN ACCORDANCE WITH NEC AND NEMA 11-15-84.

CABLE LADDER TRAYS SHALL BE NEMA CLASS 12A BY PW INDUSTRIES, INC. OR EQUAL.

CABLE LADDER TRAY SHALL BE SUPPORTED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

ALL WORKMANSHIP SHALL CONFORM TO THESE REQUIREMENTS AND ALL LOCAL CODES AND STANDARDS TO ENSURE SAFE AND ADEQUATE GROUNDING SYSTEM.

Cellco Partnership d/b/a

verizon

20 ALEXANDER DRIVE
WALLINGFORD, CT 06492

ALL-POINTS
TECHNOLOGY CORPORATION

567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
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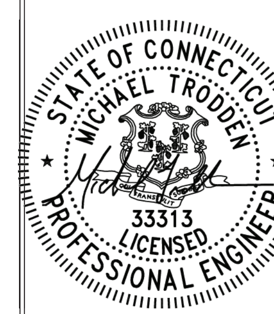
CONSTRUCTION DOCUMENTS

NO	DATE	REVISION
0	02/02/21	FOR REVIEW: JRM
1	05/20/21	FOR FILING: JRM
2		
3		
4		
5		
6		



DESIGN PROFESSIONALS OF RECORD

PROF: MICHAEL S. TRODDEN P.E.
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OWNER: 160 WEST STREET LLC
ADDRESS: 213 COURT STREET MIDDLETOWN, CT 06457

CROMWELL CT

SITE ADDRESS: 160 WEST STREET CROMWELL, CT 06416

APT FILING NUMBER: CT141_11890

	DRAWN BY: DRA
DATE: 02/02/21	CHECKED BY: JRM

VZ PROJECT CODE: 20212217981
VZ LOCATION CODE: 467921
VZ FUZE ID: 16232021

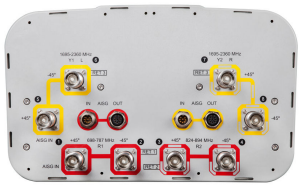
SHEET TITLE:

NOTES& SPECIFICATIONS

SHEET NUMBER:

N-1

JAHH-65B-R3B



8-port sector antenna, 2x 698–787, 2x 824-894 and 4x 1695–2360 MHz, 65° HPBW, 3x RET and low bands have diplexers. Internal SBT's on first LB(Port 1) and first HB(Port 5).

- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- One RET for 700MHz, one RET for 850MHz, and one RET for both high bands to ensure same tilt level for 4x Rx or 4x MIMO
- Internal filter on low band and interleaved dipole technology providing for attractive, low wind load mechanical package
- Separate RS-485 RET input/output for low and high band

General Specifications

Antenna Type	Sector
Band	Multiband
Color	Light gray
Effective Projective Area (EPA), frontal	0.28 m^2 | 3.014 ft^2
Effective Projective Area (EPA), lateral	0.24 m^2 | 2.583 ft^2
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	Aluminum | 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	4
RF Connector Quantity, total	8

Remote Electrical Tilt (RET) Information, General

RET Interface	8-pin DIN Female | 8-pin DIN Male
RET Interface, quantity	2 female | 2 male

Dimensions

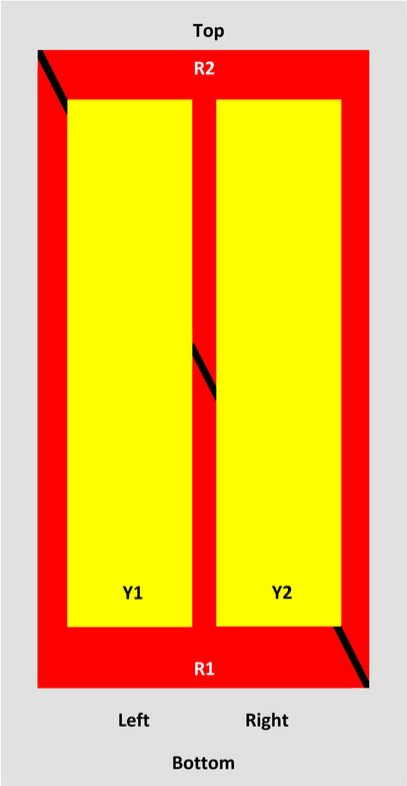
Width	350 mm | 13.78 in

JAHH-65B-R3B

Length	1828 mm | 71.969 in
Depth	208 mm | 8.189 in

Array Layout

JAHH-65A-R3B JAHH-65B-R3B JAHH-65C-R3B



Array	Freq (MHz)	Conns	RET (SRET)	AISG RET UID
R1	698-798	1-2	1	ANxxxxxxxxxxxxxxx1
R2	824-894	3-4	2	ANxxxxxxxxxxxxxxx2
Y1	1695-2360	5-6	3	ANxxxxxxxxxxxxxxx3
Y2	1695-2360	7-8		

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 – 787 MHz | 824 – 894 MHz
Polarization	±45°

Remote Electrical Tilt (RET) Information, Electrical

Protocol	3GPP/AISG 2.0 (Single RET)
Power Consumption, idle state, maximum	2 W

JAHH-65B-R3B

Power Consumption, normal conditions, maximum	13 W
Input Voltage	10–30 Vdc
Internal Bias Tee	Port 1 | Port 5
Internal RET	High band (1) | Low band (2)

Electrical Specifications

Frequency Band, MHz	**698–787**	**824–894**	**1695–1880**	**1850–1990**	**1920–2200**	**2300–2360**
Gain, dBi	14.5	15.8	18	18.4	18.5	18.8
Beamwidth, Horizontal, degrees	67	65	63	63	65	68
Beamwidth, Vertical, degrees	12.4	10.5	5.7	5.2	4.9	4.4
Beam Tilt, degrees	2–14	2–14	0–10	0–10	0–10	0–10
USLS (First Lobe), dB	18	18	20	20	21	23
Front-to-Back Ratio at 180°, dB	32	34	31	35	36	38
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	200	200	300	300	300	250

Electrical Specifications, BASTA

Frequency Band, MHz	**698–787**	**824–894**	**1695–1880**	**1850–1990**	**1920–2200**	**2300–2360**
Gain by all Beam Tilts, average, dBi	14.3	14.9	17.6	18.1	18.2	18.5
Gain by all Beam Tilts Tolerance, dB	±0.3	±0.5	±0.6	±0.4	±0.5	±0.6
Gain by Beam Tilt, average, dBi	2 ° | 14.3 8 ° | 14.3 14 ° | 14.3	2 ° | 15.0 8 ° | 14.9 14 ° | 15.4	0 ° | 17.2 5 ° | 17.6 10 ° | 17.6	0 ° | 17.6 5 ° | 18.2 10 ° | 18.2	0 ° | 17.7 5 ° | 18.3 10 ° | 18.3	0 ° | 17.9 5 ° | 18.7 10 ° | 18.7
Beamwidth, Horizontal Tolerance, degrees	±1.2	±1.4	±4	±2.4	±2.9	±2.7
Beamwidth, Vertical Tolerance, degrees	±0.9	±0.5	±0.3	±0.2	±0.3	±0.1
USLS, beampeak to 20° above beampeak, dB	18	17	17	18	19	18
Front-to-Back Total Power at 180° ± 30°, dB	25	24	26	29	27	29
CPR at Boresight, dB	22	23	20	21	21	24

JAHH-65B-R3B

CPR at Sector, dB	11	12	11	11	11	8

Mechanical Specifications

Wind Loading at Velocity, frontal	301.0 N @ 150 km/h | 67.7 lbf @ 150 km/h
Wind Loading at Velocity, lateral	254.0 N @ 150 km/h | 57.1 lbf @ 150 km/h
Wind Loading at Velocity, maximum	143.4 lbf @ 150 km/h | 638.0 N @ 150 km/h
Wind Speed, maximum	241 km/h | 149.75 mph

Packaging and Weights

Width, packed	456 mm | 17.953 in
Depth, packed	357 mm | 14.055 in
Length, packed	1975 mm | 77.756 in
Net Weight, without mounting kit	29.2 kg | 64.375 lb
Weight, gross	42.5 kg | 93.696 lb

Regulatory Compliance/Certifications

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

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

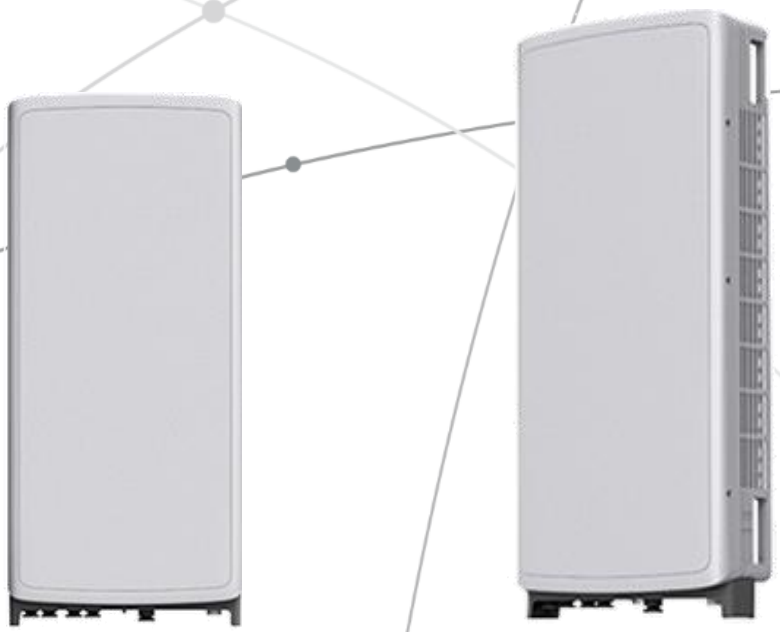
SAMSUNG

SAMSUNG C-Band 64T64R Massive MIMO Radio

for High Capacity and Wide Coverage

Samsung C-Band 64T64R Massive MIMO Radio enables mobile operators to increase coverage range, boost data speeds and ultimately offer enriched 5G experiences to users in the U.S..

Model Code : MT6407-77A

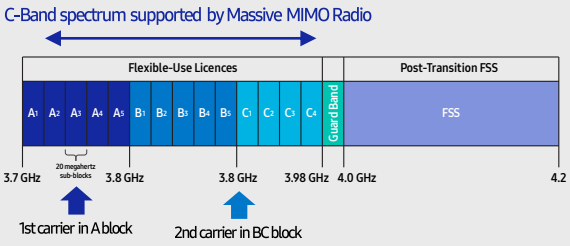


Points of Differentiation

Wide Bandwidth

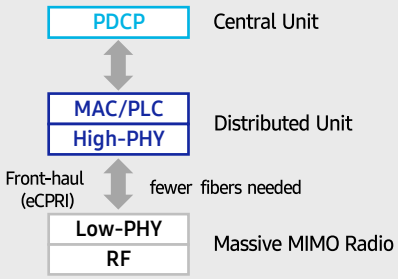
With capability to support up to 2 CC carrier configuration, Samsung C-Band massive MIMO Radio supports 200 MHz bandwidth in the C-Band spectrum.

Samsung C-Band massive MIMO Radio covers the entire C-Band 280 MHz spectrum, so it can meet the operator's needs in current A block and future B/C blocks



Future Proof Product

Samsung C-Band 64T64R Massive MIMO radio supports not only CPRI but also eCPRI as front-haul interface.
It enables operators can cut down on OPEX/CAPEX by reducing front-haul bandwidth through low layer split and using ethernet based higher efficient line.



Enhanced Performance

C-Band massive MIMO Radio creates sharp beams and extends networks' coverage on the critical mid-band spectrum using a large number of antenna elements and high output power to boost data speeds.

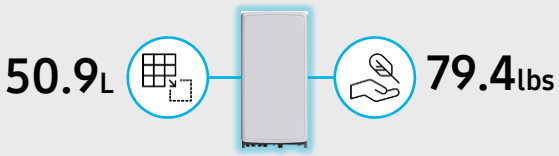
This helps operators reduce their CAPEX as they now need less products to cover the same area than before.

Furthermore, as C-Band massive MIMO Radio supports MU-MIMO(Multi-user MIMO) , it enables to increase user throughput by minimizing interference.

Well Matched Design

Samsung C-Band Massive MIMO radio utilizes 64 antennas, supports up to 280MHz bandwidth, and delivers a 200W output power. despite the above advanced performance, the Radio has a compact size of 50.9L and 79.4lbs. This makes it easy to install the Radio.

It is designed to look solid and compact, with a low profile appearance so that, when installed, harmonizes well with the surrounding environment..



Technical Specifications

Item	Specification
Tech	NR
Band	n77
Frequency Band	3700 - 3980 MHz
EIRP	78.5dBm (53.0 dBm+25.5 dBi)
IBW/OBW	280 MHz / 200 MHz
Installation	Pole/Wall
Size/ Weight	16.06 x 35.06 x 5.51 inch (50.86L)/ 79.4 lbs

SAMSUNG

About Samsung Electronics Co., Ltd.

Samsung inspires the world and shapes the future with transformative ideas and technologies. The company is redefining the worlds of TVs, smartphones, wearable devices, tablets, digital appliances, network systems, and memory, system LSI, foundry and LED solutions.

129 Samsung-ro, Yeongtong-gu, Suwon-si Gyeonggi-do, Korea

SAMSUNG

Dual-Band Radio Unit
AWS/PCS (B66/B2)
RFV01U-D1A

Samsung's RFV01U-D1A is a compact remote Radio Unit (RU) designed for deployments that require flexibility in installation and rapid onlining, without compromising on coverage, capacity or operational expenses.

The RFV01U-D1A RU targets dual-band support across Band 66 (AWS) and Band 2 (PCS), making it an ideal product for broad coverage footprints across multiple common mid-range frequencies.

The RU handles all Radio Frequency (RF) processing in a single, compact unit, and is designed to interface via CPRI with Samsung's CDU baseband offerings, in both distributed- and central-RAN configurations.

In addition to its minimal footprint and ease of installation, the RU is also designed to reduce cost of ownership through its integrated spectrum analyzer, which allows for remote RF monitoring, greatly reducing the need for on-site maintenance visits.

Features and Benefits

- Dual-band support for broad frequency coverage
- Minimal footprint reduces site costs
- Rapid, easy installation
- Flexibly deployable in any location
- Remote RF monitoring capability
- Convection cooled, silent operation
- Built-in Broadcast Auxiliary Services (BAS) filter ensures compliant AWS operation without impacting footprint

Key Technical Specifications

Duplex Type: FDD
Operating Frequencies:
    B66: DL(2,110-2,180MHz)/UL(1,710-1,780MHz)
    B2: DL(1,930-1,990MHz)/UL(1,850-1,910MHz)
Instantaneous Bandwidth:
    70MHz(B66) + 60MHz(B2)
RF Chain: 4T4R/2T4R/2T2R
Output Power: Total 320W
DU-RU Interface: CPRI (10Gbps)
Dimensions: 380 x 380 x 255mm (36.8L)
Weight: 38.3kg
Input Power: -48V DC
Operating Temp.: -40 - 55°(w/o solar load)
Cooling: Natural convection

SAMSUNG

Dual-Band Radio Unit
700/850MHz (B13/B5)
RFV01U-D2A

Samsung's RFV01U-D2A is a compact remote Radio Unit (RU) designed for deployments that require flexibility in installation and rapid onlining, without compromising on coverage, capacity or operational expenses.

The RFV01U-D2A RU targets dual-band support across Band 13 (700MHz) and Band 5 (850MHz), making it an ideal product for broad coverage footprints across multiple common low-end, long-range frequencies.

The RU handles all Radio Frequency (RF) processing in a single, compact unit, and is designed to interface via CPRI with Samsung's CDU baseband offerings, in both distributed- and central-RAN configurations.

In addition to its minimal footprint and ease of installation, the RU is also designed to reduce cost of ownership through its integrated spectrum analyzer, which allows for remote RF monitoring, greatly reducing the need for on-site maintenance visits.

Features and Benefits

- Dual-band support for broad frequency coverage
- Minimal footprint reduces site costs
- Rapid, easy installation
- Flexibly deployable in any location
- Remote RF monitoring capability
- Convection cooled, silent operation

Key Technical Specifications

Duplex Type: FDD
Operating Frequencies:
B13: DL(746-756MHz)/UL(777-787MHz)
B5: DL(869-894MHz)/UL(824-849MHz)
Instantaneous Bandwidth: 10MHz(B13) + 25MHz(B5)
RF Chain: 4T4R/2T4R/2T2R
Output Power: Total 320W
DU-RU Interface: CPRI (10Gbps)
Dimensions: 380 x 380 x 207mm (29.9L)
Weight: 31.9kg
Input Power: -48V DC
Operating Temp.: -40 - 55°(w/o solar load)
Cooling: Natural convection

ATTACHMENT 3

	General	Power	Density					
Site Name: Cromwell								
Tower Height: Verizon @ 67ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*T-Mobile	2	12	75	1950	0.0018	1.0000	0.02%	
*T-Mobile	2	12	75	2100	0.0018	1.0000	0.02%	
*T-Mobile	2	24	75	2100	0.0037	1.0000	0.04%	
VZW 700	**4**	**642**	**67**	**0.0206**	**746**	**0.5007**	4.14%	
VZW CDMA	**2**	**369**	**67**	**0.0059**	**869**	**0.5848**	**1.02%**	
VZW Cellular	**4**	**742**	**67**	**0.0238**	**880**	**0.5827**	**4.05%**	
VZW PCS	**4**	**1601**	**67**	**0.0513**	**1970**	**1.0000**	**5.13%**	
VZW AWS	**4**	**1618**	**67**	**0.0519**	**2145**	**1.0000**	**5.19%**	
VZW CBAND	**1**	**43154**	**67**	**0.3457**	**3700**	**1.0000**	**34.57%**	
								54.17%
* Source: Siting Council								

ATTACHMENT 4

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 76 ft TransAmerican Monopole
Customer Name: SBA Communications Corp
Customer Site Number: CT46122-A
Customer Site Name: Middletown North
Carrier Name: Verizon (App#: 146569, V1)
Carrier Site ID / Name: 467921 / Cromwell CT
Site Location: 160 West Street
Cromwell, Connecticut
Middlesex County
Latitude: 41.606000
Longitude: -72.670388

Analysis Result:

Max Structural Usage: 66.4% [Pass]
Max Foundation Usage: 48.1% [Pass]
Additional Usage Caused by Mount Modification: +1.2%

Report Prepared By: Sital Shrestha

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

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Analysis Result:

Max Structural Usage: 66.4% [Pass]

Max Foundation Usage: 48.1% [Pass]

Additional Usage Caused by Mount Modification: +1.2%

Report Prepared By: Sital Shrestha

Introduction

The purpose of this report is to summarize the analysis results on the 76 ft TransAmerican Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	TransAmerican Power Products, Inc., Order #TP-8949 dated July 19, 2010
Foundation Drawing	Vertical Solutions, Project #100264.02 dated February 23, 2010
Geotechnical Report	Clarence Welti Association, Inc., Project Name: Transcend Wireless Tower dated February 1, 2010
Modification Drawings	N/A
Mount Analysis	MA by MASER Consulting, Project No. 10039467, dated 02/25/2021.

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the TIA-222-G-2**.** In accordance with this standard, the structure was analyzed using **TESPoles,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} =125.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 97.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.181, S_1 = 0.063

This structural analysis is based upon the tower being classified as a Structure Class 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.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	74.0	3	RFS APXVAALL24-43-U-NA20	(3) T-Arms w/ replaced new standoff, face horizontal and new support rail with end connection	(6) 7/8" (4) 1 5/8" Fiber (6) 3/8" RET	T-Mobile
2		3	Ericsson Air 32 KRD901146-1_B66A_B2A			
3		3	Ericsson AIR6449 B41			
4		3	Commscope SDX1926Q-43			
5		6	Andrew ATM200-A20			
6		3	Ericsson 4449 B71 + B85			
7		3	Ericsson 4415 B25			
8		3	Ericsson 4415 B66A			
-	64.0	4	Andrew DB846F65ZAXY - Panel	(3) T-Arms	(18) 1 5/8" (2) 1 5/8" Fiber	Verizon
-		2	Andrew DB846H80E-SX - Panel			
-		9	Commscope SBNHH-1D65B - Panel			
-		3	Alcatel Lucent RRH2X60-AWS			
-		3	Alcatel Lucent RRH2X60-700			
-		3	Alcatel Lucent RRH2X60-PCS			
-		2	RFS DB-T1-6Z-8AB-0Z			

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
9	64.0	6	Commscope JAHH-65B-R3B	(3) T-Arms (3) TBD VZWSMART-SFK4 (Mount Reinforcement) (3) Commscope BSAMNT-SBS-2-2 (side-by-side mounts)	(18) 1 5/8" Coax (2) 1 5/8" Hybrid	Verizon
10		3	Samsung Telecommunications VZS01			
11		4	Andrew DB846F65ZAXY			
12		2	Decibel DB846H80E-SX w/Mount Pipe			
13		3	Commscope CBC78T-DS-43-2X/E14F05P50			
14		3	Samsung B2/B66A RRH-BR049			
15		3	Samsung B5/B13 RRH-BR04C			
16		2	RFS DB-T1-6Z-8AB-0Z			

See the attached coax layout for the line placement considered in the analysis.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	**66.4%**	**66.2%**	**39.6%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)
Original Design Reactions	2800.0	52.0
Analysis Reactions	1816.5	30.8
Factored Reactions*	3780.0	70.2
% of Design Reactions	48.1%	43.8%

* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

No foundation drawing is available for the analysis of the existing foundation. Since the reactions calculated from the current analysis are less than those indicated on the original structural design drawing, the foundations are assumed to be adequate to resist the reactions from the current analysis.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.5924 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the TIA-222 Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.

3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the ANSI/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Usage Diagram - Max Ratio 66.38% at 28.3ft

Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	4/21/2021
Site Name:	Middletown North	**Exposure:**	C	
Height:	76.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

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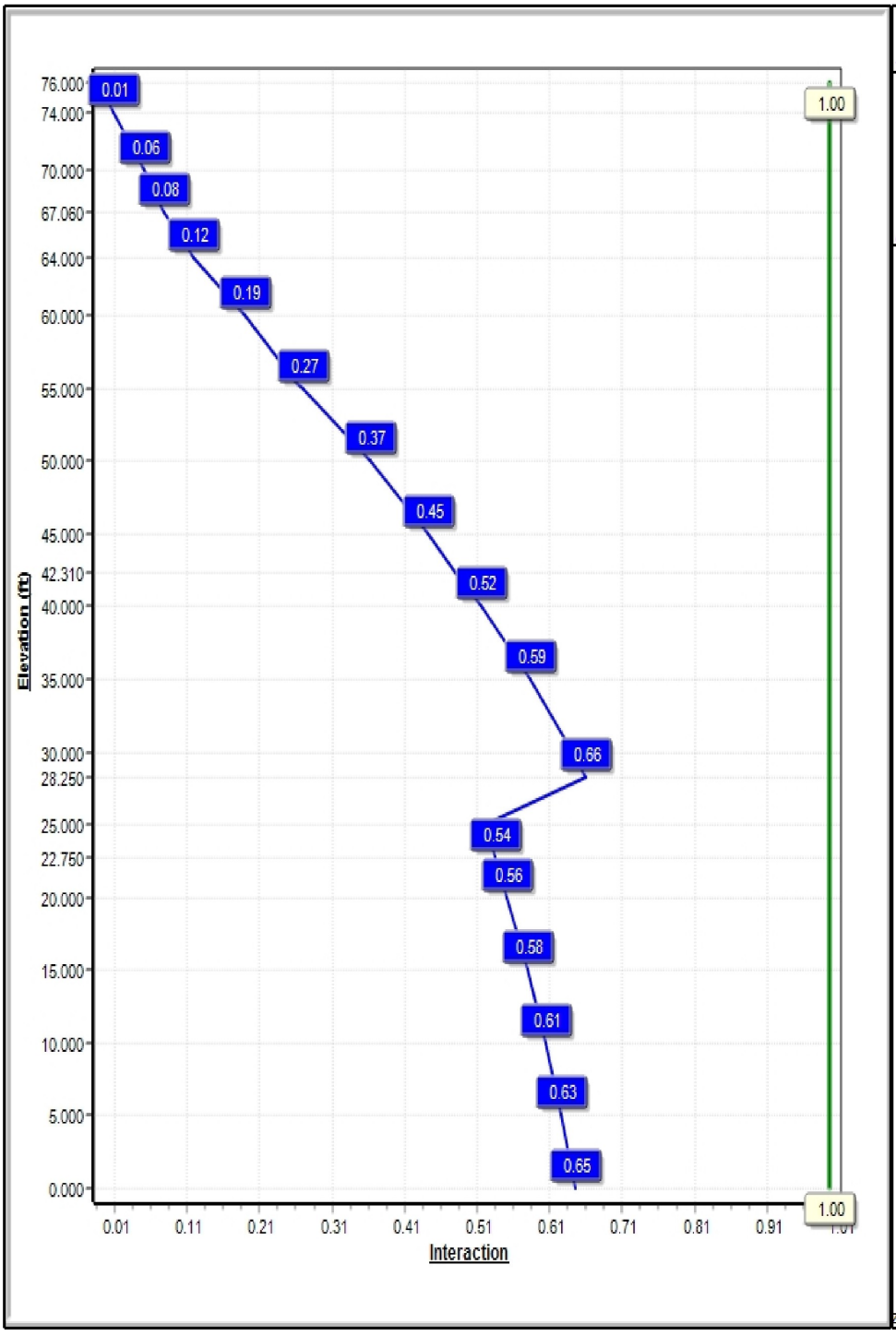
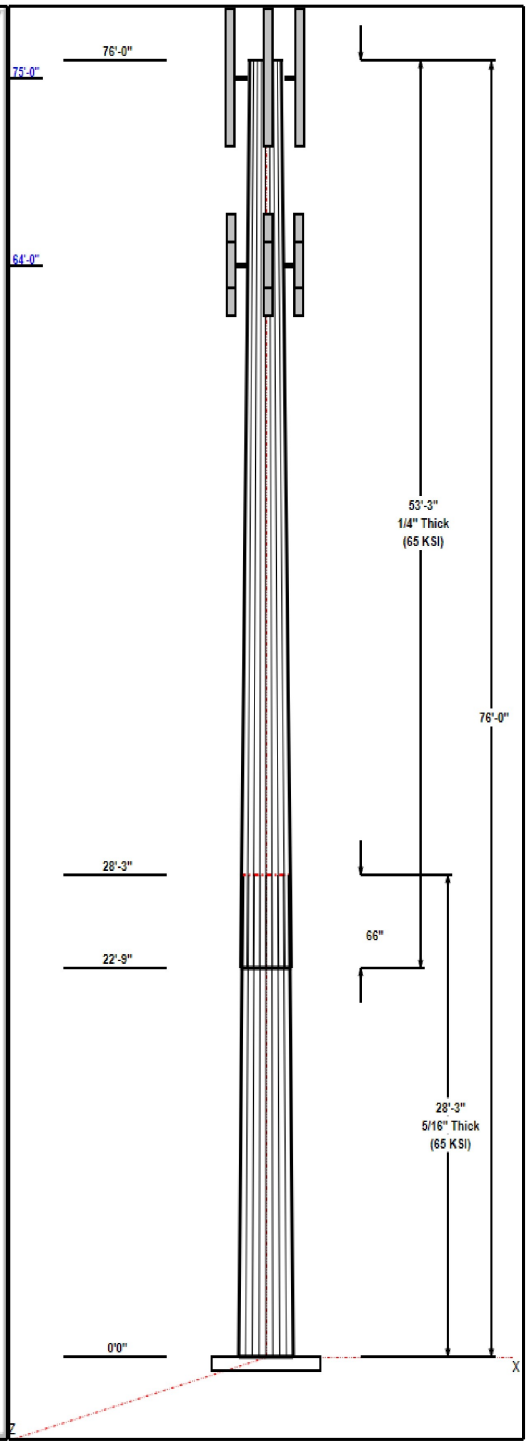
Dead Load Factor:	1.20
Wind Load Factor:	1.60

Load Case : 1.2D + 1.6W 97 mph Wind

Iterations: 17





Structure: CT46122-A-SBA

Type: Tapered
Site Name: Middletown North
Height: 76.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.32787

4/21/2021

Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	28.25	37.24	46.50	0.313		0.32787	65
2	53.25	22.08	39.54	0.250	Slip	0.32787	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
75.45	75.45	1	4' Branches	---
75.00	75.00	3	T-Arms	---
75.00	75.00	3	AIR6449 B41	T-Mobile
75.00	75.00	3	RFS	T-Mobile
75.00	75.00	3	Air 32	T-Mobile
75.00	75.00	6	ATM200-A20	T-Mobile
75.00	75.00	3	Radio 4449 B71+B85	T-Mobile
75.00	75.00	3	Commscope	T-Mobile
75.00	75.00	1	(Handrail Kit w/end	T-Mobile
74.00	74.00	3	RRUS 4415 B25	T-Mobile
74.00	74.00	3	Ericsson 4415 B66A	T-Mobile
74.00	74.00	1	Antenna Branches	---
67.06	67.06	1	6' Branches	---
64.00	64.00	3	T-Arm	Verizon
64.00	64.00	4	DB846F65ZAXY	Verizon
64.00	64.00	2	DB846H80E-SX	Verizon
64.00	64.00	2	DB-T1-6Z-8AB-0Z	Verizon
64.00	64.00	6	JAHH-65B-R3B	Verizon
64.00	64.00	3	VZS01	Verizon
64.00	64.00	1	(3) VZWSMART-SFK4	Verizon
64.00	64.00	3	BSAMNT-SBS-1-2	Verizon
64.00	64.00	3	CBC78T-DS-43-2X/E14F0	Verizon
64.00	64.00	3	B2/B66A RRH-BR049	Verizon
64.00	64.00	3	B5/B13 RRH-BR04C	Verizon
55.44	55.44	1	8' Branches	---
42.31	42.31	1	10' Branches	---

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	75.00	Inside	1 5/8" Fiber	T-Mobile
0.00	75.00	Inside	3/8" RET	T-Mobile
0.00	75.00	Inside	7/8" Coax	T-Mobile
0.00	64.00	Inside	1 5/8" Coax	Verizon
0.00	64.00	Inside	1 5/8" Hybrid	Verizon

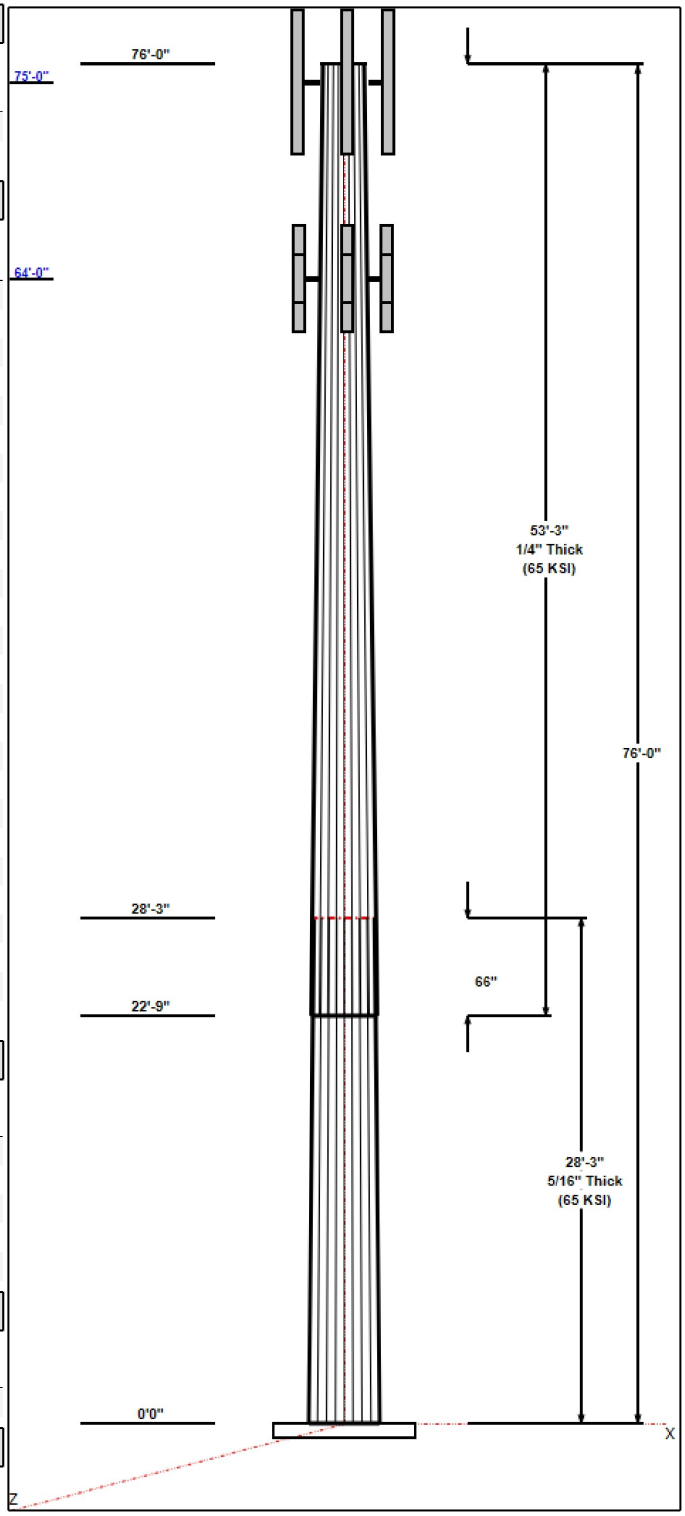
Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
10	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.0000	60.0	60.0	Round

Reactions



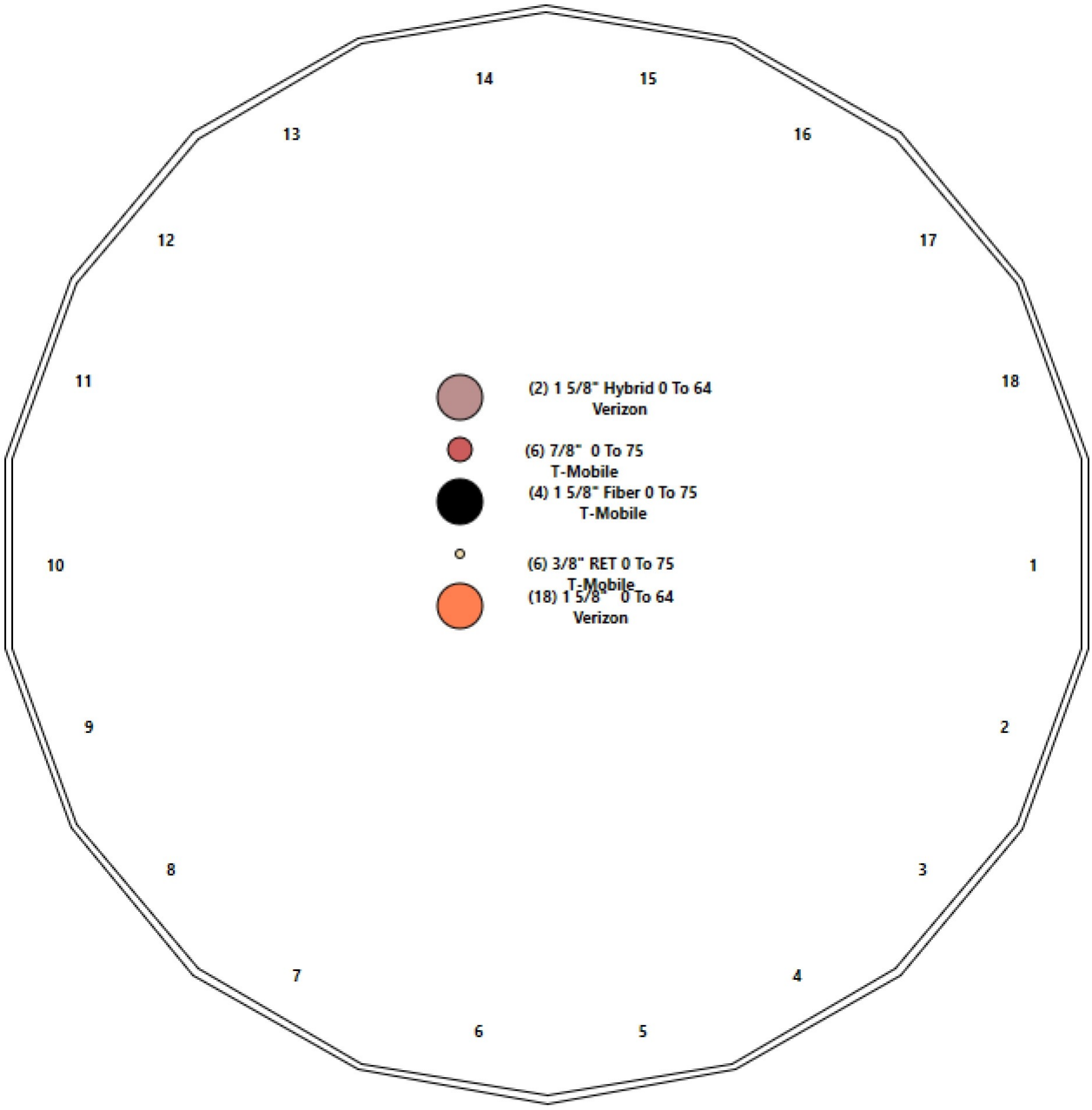
Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 97 mph Wind	1816.5	30.8	22.4
0.9D + 1.6W 97 mph Wind	1810.8	30.7	16.8
1.2D + 1.0Di + 1.0Wi 50 mph Wind	531.9	9.0	44.2
1.2D + 1.0E	88.9	1.3	22.4
0.9D + 1.0E	88.6	1.3	16.8
1.0D + 1.0W 60 mph Wind	433.6	7.4	18.7

Structure: CT46122-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Middletown North
Height: 76.00 (ft)

4/21/2021

Tower Engineering Solutions



Shaft Properties

Structure:	CT46122-A-SBA		**Code:**	EIA/TIA-222-G	4/21/2021
Site Name:	Middletown North		**Exposure:**	C	
Height:	76.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 5

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	28.250	0.3125	65		0.00	3,962
2	18	53.250	0.2500	65	Slip	66.00	4,394
					Total Shaft Weight:		**8,356**

	Bottom						Top						
Sec. No.	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Taper**
1	46.50	0.00	45.81	12347.18	24.83	148.80	37.24	28.25	36.62	6309.09	19.60	119.1	0.327865
2	39.54	22.75	31.18	6080.87	26.48	158.16	22.08	76.00	17.32	1043.23	14.16	88.33	0.327865

Load Summary

Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	4/21/2021	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	75.45	4' Branches	1	390.00	36.86	1.00	728.90	68.890	1.00	0.00	0.00
2	75.00	T-Arms	3	160.00	6.00	0.75	333.69	14.702	0.75	0.00	0.00
3	75.00	AIR6449 B41	3	103.00	5.65	0.71	273.58	6.832	0.71	0.00	0.00
4	75.00	RFS APXVAALL24-43-U-NA20	3	128.00	20.24	0.70	664.17	22.625	0.70	0.00	0.00
5	75.00	Air 32 KRD901146-1_B66A_B2A	3	132.20	6.51	0.87	370.47	7.928	0.87	0.00	0.00
6	75.00	ATM200-A20	6	0.50	0.12	0.50	7.02	0.395	1.00	0.00	0.00
7	75.00	Radio 4449 B71+B85	3	71.00	1.97	0.67	137.41	2.651	0.67	0.00	0.00
8	75.00	Commscope SDX1926Q-43	3	7.00	0.72	0.67	24.85	1.506	0.67	0.00	0.00
9	75.00	(Handrail Kit w/end connection)	1	261.72	6.75	1.00	648.11	14.957	1.00	0.00	0.00
10	74.00	RRUS 4415 B25	3	46.00	1.64	0.67	97.07	2.280	0.67	0.00	0.00
11	74.00	Ericsson 4415 B66A	3	49.60	1.86	0.67	132.23	2.580	0.67	0.00	0.00
12	74.00	Antenna Branches	1	96.00	22.43	1.00	179.26	41.883	1.00	0.00	0.00
13	67.06	6' Branches	1	400.00	83.63	1.00	743.51	55.450	1.00	0.00	0.00
14	64.00	T-Arm	3	350.00	8.00	0.75	649.17	16.548	0.75	0.00	0.00
15	64.00	DB846F65ZAXY	4	21.00	7.05	0.93	273.37	8.586	0.93	0.00	0.00
16	64.00	DB846H80E-SX	2	16.00	5.01	1.12	221.54	6.528	1.12	0.00	0.00
17	64.00	DB-T1-6Z-8AB-0Z	2	44.00	4.80	0.67	227.13	5.886	0.67	0.00	0.00
18	64.00	JAHH-65B-R3B	6	63.30	9.11	0.83	356.54	10.781	0.83	0.00	0.00
19	64.00	VZS01	3	87.10	4.30	0.69	229.72	5.397	0.69	0.00	0.00
20	64.00	(3) VZWSMART-SFK4	1	500.00	16.50	0.75	1226.57	36.245	0.75	0.00	0.00
21	64.00	BSAMNT-SBS-1-2	3	25.35	0.00	0.75	47.02	0.000	0.75	0.00	0.00
22	64.00	CBC78T-DS-43-2X/E14F05P50	3	21.80	0.37	0.67	50.00	0.733	0.67	0.00	0.00
23	64.00	B2/B66A RRH-BR049	3	84.40	1.64	0.67	152.29	2.272	0.67	0.00	0.00
24	64.00	B5/B13 RRH-BR04C	3	70.30	2.22	0.67	141.21	2.979	0.67	0.00	0.00
25	55.44	8' Branches	1	1638.00	150.70	1.00	3018.18	77.680	1.00	0.00	0.00
26	42.31	10' Branches	1	540.00	54.43	1.00	982.87	99.070	1.00	0.00	0.00
		Totals:	**69**	**8,419.77**			**21,608.19**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	75.00	(4) 1 5/8" Fiber	0.00	Inside
0.00	75.00	(6) 3/8" RET	0.00	Inside
0.00	75.00	(6) 7/8" Coax	0.00	Inside
0.00	64.00	(18) 1 5/8" Coax	0.00	Inside
0.00	64.00	(2) 1 5/8" Hybrid	0.00	Inside

Shaft Section Properties

Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	4/21/2021	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 7	

Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.3125	46.500	45.811	12347.2	24.83	148.80	72.2	523.0	0.0
5.00		0.3125	44.861	44.185	11078.6	23.90	143.55	73.3	486.4	765.6
10.00		0.3125	43.221	42.559	9900.0	22.98	138.31	74.4	451.1	737.9
15.00		0.3125	41.582	40.933	8808.1	22.05	133.06	75.5	417.2	710.3
20.00		0.3125	39.943	39.307	7799.6	21.13	127.82	76.6	384.6	682.6
22.75	Bot - Section 2	0.3125	39.041	38.413	7279.3	20.62	124.93	77.2	367.2	363.6
25.00		0.3125	38.303	37.681	6871.2	20.20	122.57	77.6	353.3	527.7
28.25	Top - Section 1	0.2500	37.738	29.746	5281.5	25.21	150.95	0.0	0.0	744.5
30.00		0.2500	37.164	29.290	5042.7	24.80	148.66	72.2	267.2	175.8
35.00		0.2500	35.525	27.989	4400.2	23.65	142.10	73.6	244.0	487.3
40.00		0.2500	33.885	26.689	3814.8	22.49	135.54	74.9	221.7	465.1
42.31		0.2500	33.128	26.088	3562.9	21.95	132.51	75.6	211.8	207.4
45.00		0.2500	32.246	25.388	3283.8	21.33	128.98	76.3	200.6	235.6
50.00		0.2500	30.607	24.087	2804.5	20.18	122.43	77.7	180.5	420.9
55.00		0.2500	28.967	22.786	2374.2	19.02	115.87	79.0	161.4	398.8
55.44		0.2500	28.823	22.672	2338.6	18.92	115.29	79.1	159.8	34.0
60.00		0.2500	27.328	21.486	1990.4	17.86	109.31	80.4	143.5	342.6
64.00		0.2500	26.017	20.445	1715.0	16.94	104.07	81.5	129.8	285.4
65.00		0.2500	25.689	20.185	1650.3	16.71	102.76	81.7	126.5	69.1
67.06		0.2500	25.013	19.649	1522.3	16.23	100.05	82.3	119.9	139.6
70.00		0.2500	24.049	18.884	1351.4	15.55	96.20	82.5	110.7	192.7
74.00		0.2500	22.738	17.844	1140.1	14.63	90.95	82.5	98.8	250.0
75.00		0.2500	22.410	17.583	1090.9	14.40	89.64	82.5	95.9	60.3
75.45		0.2500	22.263	17.466	1069.3	14.29	89.05	82.5	94.6	26.8
76.00		0.2500	22.082	17.323	1043.2	14.16	88.33	82.5	93.1	32.6
										8356.2

Wind Loading - Shaft

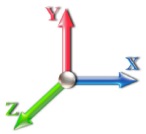
Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	4/21/2021	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 17

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	19.450	21.40	351.89	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	19.450	21.40	339.48	0.650	0.000	5.00	19.327	12.56	430.0	0.0	918.7
10.00		1.00	0.85	19.450	21.40	327.07	0.650	0.000	5.00	18.634	12.11	414.6	0.0	885.5
15.00		1.00	0.85	19.450	21.40	314.67	0.650	0.000	5.00	17.940	11.66	399.2	0.0	852.3
20.00		1.00	0.90	20.638	22.70	311.35	0.650	0.000	5.00	17.246	11.21	407.2	0.0	819.1
22.75	Bot - Section 2	1.00	0.93	21.205	23.33	308.48	0.650	0.000	2.75	9.190	5.97	222.9	0.0	436.4
25.00		1.00	0.95	21.630	23.79	305.67	0.650	0.000	2.25	7.458	4.85	184.6	0.0	633.3
28.25	Top - Section 1	1.00	0.97	22.194	24.41	301.01	0.650	0.000	3.25	10.525	6.84	267.2	0.0	893.4
30.00		1.00	0.98	22.477	24.72	302.32	0.650	0.000	1.75	5.546	3.60	142.6	0.0	210.9
35.00		1.00	1.01	23.218	25.54	293.72	0.650	0.000	5.00	15.377	10.00	408.4	0.0	584.7
40.00		1.00	1.04	23.880	26.27	284.13	0.650	0.000	5.00	14.684	9.54	401.1	0.0	558.2
42.31	Appurtenance(s)	1.00	1.06	24.164	26.58	279.42	0.650	0.000	2.31	6.550	4.26	181.1	0.0	248.9
45.00		1.00	1.07	24.479	26.93	273.76	0.650	0.000	2.69	7.440	4.84	208.4	0.0	282.7
50.00		1.00	1.09	25.029	27.53	262.74	0.650	0.000	5.00	13.296	8.64	380.7	0.0	505.1
55.00		1.00	1.12	25.536	28.09	251.17	0.650	0.000	5.00	12.603	8.19	368.2	0.0	478.5
55.44	Appurtenance(s)	1.00	1.12	25.579	28.14	250.13	0.650	0.000	0.44	1.076	0.70	31.5	0.0	40.8
60.00		1.00	1.14	26.008	28.61	239.14	0.650	0.000	4.56	10.833	7.04	322.3	0.0	411.1
64.00	Appurtenance(s)	1.00	1.15	26.364	29.00	229.21	0.650	0.000	4.00	9.028	5.87	272.3	0.0	342.4
65.00		1.00	1.16	26.450	29.09	226.69	0.650	0.000	1.00	2.188	1.42	66.2	0.0	83.0
67.06	Appurtenance(s)	1.00	1.16	26.624	29.29	221.46	0.650	0.000	2.06	4.419	2.87	134.6	0.0	167.5
70.00		1.00	1.17	26.866	29.55	213.89	0.650	0.000	2.94	6.103	3.97	187.6	0.0	231.3
74.00	Appurtenance(s)	1.00	1.19	27.182	29.90	203.41	0.650	0.000	4.00	7.918	5.15	246.2	0.0	299.9
75.00	Appurtenance(s)	1.00	1.19	27.259	29.98	200.76	0.650	0.000	1.00	1.910	1.24	59.6	0.0	72.3
75.45	Appurtenance(s)	1.00	1.19	27.293	30.02	199.57	0.650	0.000	0.45	0.851	0.55	26.6	0.0	32.2
76.00		1.00	1.19	27.335	30.07	198.10	0.650	0.000	0.55	1.032	0.67	32.3	0.0	39.1
								Totals:	**76.00**			**5,795.3**		**10,027.4**

Discrete Appurtenance Forces

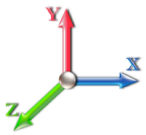
Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	4/21/2021	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 17

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	75.45	4' Branches	1	27.293	30.022	1.00	1.00	36.86	468.00	0.000	0.000	1770.61	0.00	0.00
2	75.00	Air 32	3	27.259	29.985	0.70	0.80	13.59	475.92	0.000	0.000	652.13	0.00	0.00
3	75.00	T-Arms	3	27.259	29.985	0.56	0.75	10.13	576.00	0.000	0.000	485.75	0.00	0.00
4	75.00	AIR6449 B41	3	27.259	29.985	0.57	0.80	9.63	370.80	0.000	0.000	461.89	0.00	0.00
5	75.00	RFS	3	27.259	29.985	0.56	0.80	34.00	460.80	0.000	0.000	1631.32	0.00	0.00
6	75.00	ATM200-A20	6	27.259	29.985	0.40	0.80	0.29	3.60	0.000	0.000	13.82	0.00	0.00
7	75.00	Radio 4449 B71+B85	3	27.259	29.985	0.54	0.80	3.17	255.60	0.000	0.000	151.97	0.00	0.00
8	75.00	Commscope	3	27.259	29.985	0.54	0.80	1.16	25.20	0.000	0.000	55.54	0.00	0.00
9	75.00	(Handrail Kit w/end	1	27.259	29.985	1.00	1.00	6.75	314.06	0.000	0.000	323.83	0.00	0.00
10	74.00	Antenna Branches	1	27.182	29.900	1.00	1.00	22.43	115.20	0.000	0.000	1073.05	0.00	0.00
11	74.00	Ericsson 4415 B66A	3	27.182	29.900	0.54	0.80	2.99	178.56	0.000	0.000	143.08	0.00	0.00
12	74.00	RRUS 4415 B25	3	27.182	29.900	0.54	0.80	2.64	165.60	0.000	0.000	126.16	0.00	0.00
13	67.06	6' Branches	1	26.624	29.287	1.00	1.00	83.63	480.00	0.000	0.000	3918.78	0.00	0.00
14	64.00	B5/B13 RRH-BR04C	3	26.364	29.000	0.54	0.80	3.57	253.08	0.000	0.000	165.64	0.00	0.00
15	64.00	JAHH-65B-R3B	6	26.364	29.000	0.66	0.80	36.29	455.76	0.000	0.000	1684.05	0.00	0.00
16	64.00	T-Arm	3	26.364	29.000	0.56	0.75	13.50	1260.00	0.000	0.000	626.40	0.00	0.00
17	64.00	DB846F65ZAXY	4	26.364	29.000	0.74	0.80	20.98	100.80	0.000	0.000	973.51	0.00	0.00
18	64.00	DB846H80E-SX	2	26.364	29.000	0.90	0.80	8.98	38.40	0.000	0.000	416.58	0.00	0.00
19	64.00	DB-T1-6Z-8AB-0Z	2	26.364	29.000	0.54	0.80	5.15	105.60	0.000	0.000	238.76	0.00	0.00
20	64.00	B2/B66A RRH-BR049	3	26.364	29.000	0.54	0.80	2.64	303.84	0.000	0.000	122.36	0.00	0.00
21	64.00	VZS01	3	26.364	29.000	0.55	0.80	7.12	313.56	0.000	0.000	330.41	0.00	0.00
22	64.00	(3) VZWSMART-SFK4	1	26.364	29.000	0.56	0.75	9.28	600.00	0.000	0.000	430.65	0.00	0.00
23	64.00	BSAMNT-SBS-1-2	3	26.364	29.000	0.56	0.75	0.00	91.26	0.000	0.000	0.00	0.00	0.00
24	64.00	CBC78T-DS-43-2X/E14F0	3	26.364	29.000	0.54	0.80	0.59	78.48	0.000	0.000	27.61	0.00	0.00
25	55.44	8' Branches	1	25.579	28.137	1.00	1.00	150.70	1965.60	0.000	0.000	6784.28	0.00	0.00
26	42.31	10' Branches	1	24.164	26.580	1.00	1.00	54.43	648.00	0.000	0.000	2314.82	0.00	0.00
							Totals:		**10,103.72**			**24,923.00**		

Total Applied Force Summary

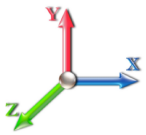
Structure:	CT46122-A-SBA		**Code:**	EIA/TIA-222-G	4/21/2021
Site Name:	Middletown North		**Exposure:**	C	
Height:	76.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 10

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 17

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		430.05	1091.50	0.00	0.00
10.00		414.62	1058.30	0.00	0.00
15.00		399.18	1025.11	0.00	0.00
20.00		407.17	991.91	0.00	0.00
22.75		222.93	531.40	0.00	0.00
25.00		184.55	711.06	0.00	0.00
28.25		267.22	1005.72	0.00	0.00
30.00		142.60	271.41	0.00	0.00
35.00		408.44	757.53	0.00	0.00
40.00		401.13	730.97	0.00	0.00
42.31	(1) attachments	2495.87	976.74	0.00	0.00
45.00		208.36	375.68	0.00	0.00
50.00		380.71	677.86	0.00	0.00
55.00		368.16	651.30	0.00	0.00
55.44	(1) attachments	6815.76	2021.64	0.00	0.00
60.00		322.32	568.70	0.00	0.00
64.00	(33) attachments	5288.24	4081.45	0.00	0.00
65.00		66.19	92.41	0.00	0.00
67.06	(1) attachments	4053.37	667.01	0.00	0.00
70.00		187.57	259.10	0.00	0.00
74.00	(7) attachments	1588.52	797.13	0.00	0.00
75.00	(25) attachments	3835.83	2563.77	0.00	0.00
75.45	(1) attachments	1797.16	500.20	0.00	0.00
76.00		32.27	39.07	0.00	0.00
	Totals:	**30,718.26**	**22,446.98**	**0.00**	**0.00**

Calculated Forces

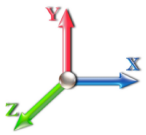
Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	4/21/2021	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 17

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-22.39	-30.76	0.00	-1816.4	0.00	1816.48	2976.77	1488.39	5655.61	2832.01	0.00	0.000	0.000	0.649
5.00	-21.19	-30.40	0.00	-1662.6	0.00	1662.69	2914.38	1457.19	5339.22	2673.58	0.11	-0.200	0.000	0.630
10.00	-20.03	-30.05	0.00	-1510.6	0.00	1510.68	2848.80	1424.40	5025.69	2516.58	0.43	-0.404	0.000	0.608
15.00	-18.90	-29.71	0.00	-1360.4	0.00	1360.42	2780.04	1390.02	4715.67	2361.34	0.97	-0.610	0.000	0.583
20.00	-17.83	-29.34	0.00	-1211.8	0.00	1211.86	2708.10	1354.05	4409.79	2208.17	1.72	-0.818	0.000	0.556
22.75	-17.25	-29.15	0.00	-1131.1	0.00	1131.16	2667.17	1333.59	4243.56	2124.93	2.23	-0.936	0.000	0.539
25.00	-16.48	-28.98	0.00	-1065.5	0.00	1065.58	2632.97	1316.49	4108.71	2057.41	2.69	-1.032	0.000	0.525
28.25	-15.43	-28.72	0.00	-971.39	0.00	971.39	1920.92	960.46	2962.45	1483.43	3.44	-1.169	0.000	0.664
30.00	-15.08	-28.62	0.00	-921.13	0.00	921.13	1904.07	952.03	2891.21	1447.76	3.89	-1.244	0.000	0.645
35.00	-14.22	-28.25	0.00	-778.04	0.00	778.04	1853.76	926.88	2688.99	1346.49	5.32	-1.484	0.000	0.586
40.00	-13.42	-27.87	0.00	-636.79	0.00	636.79	1800.28	900.14	2489.19	1246.45	7.00	-1.712	0.000	0.519
42.31	-12.47	-25.37	0.00	-572.41	0.00	572.41	1774.49	887.25	2397.88	1200.72	7.86	-1.816	0.000	0.485
45.00	-12.03	-25.18	0.00	-504.18	0.00	504.18	1743.61	871.80	2292.47	1147.94	8.92	-1.932	0.000	0.447
50.00	-11.29	-24.81	0.00	-378.28	0.00	378.28	1683.75	841.88	2099.47	1051.30	11.05	-2.123	0.000	0.367
55.00	-10.62	-24.43	0.00	-254.24	0.00	254.24	1620.72	810.36	1910.85	956.84	13.37	-2.284	0.000	0.273
55.44	-8.85	-17.55	0.00	-243.49	0.00	243.49	1615.02	807.51	1894.48	948.65	13.58	-2.297	0.000	0.263
60.00	-8.27	-17.22	0.00	-163.46	0.00	163.46	1554.50	777.25	1727.25	864.91	15.83	-2.410	0.000	0.195
64.00	-4.41	-11.76	0.00	-94.59	0.00	94.59	1499.23	749.61	1584.42	793.39	17.89	-2.483	0.000	0.122
65.00	-4.32	-11.70	0.00	-82.82	0.00	82.82	1485.09	742.54	1549.31	775.81	18.41	-2.498	0.000	0.110
67.06	-3.83	-7.62	0.00	-58.73	0.00	58.73	1455.57	727.78	1477.81	740.00	19.49	-2.523	0.000	0.082
70.00	-3.57	-7.42	0.00	-36.33	0.00	36.33	1403.00	701.50	1368.43	685.23	21.06	-2.549	0.000	0.056
74.00	-2.85	-5.80	0.00	-6.65	0.00	6.65	1325.69	662.84	1221.03	611.42	23.20	-2.567	0.000	0.013
75.00	-0.46	-1.85	0.00	-0.85	0.00	0.85	1306.36	653.18	1185.50	593.63	23.74	-2.568	0.000	0.002
75.45	-0.04	-0.03	0.00	-0.02	0.00	0.02	1297.66	648.83	1169.68	585.71	23.98	-2.568	0.000	0.000
76.00	0.00	-0.03	0.00	0.00	0.00	0.00	1287.03	643.52	1150.48	576.10	24.28	-2.568	0.000	0.000

Wind Loading - Shaft

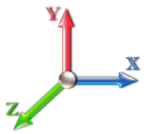
Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	4/21/2021	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 17

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	19.450	21.40	351.89	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	19.450	21.40	339.48	0.650	0.000	5.00	19.327	12.56	430.0	0.0	689.0
10.00		1.00	0.85	19.450	21.40	327.07	0.650	0.000	5.00	18.634	12.11	414.6	0.0	664.1
15.00		1.00	0.85	19.450	21.40	314.67	0.650	0.000	5.00	17.940	11.66	399.2	0.0	639.2
20.00		1.00	0.90	20.638	22.70	311.35	0.650	0.000	5.00	17.246	11.21	407.2	0.0	614.3
22.75	Bot - Section 2	1.00	0.93	21.205	23.33	308.48	0.650	0.000	2.75	9.190	5.97	222.9	0.0	327.3
25.00		1.00	0.95	21.630	23.79	305.67	0.650	0.000	2.25	7.458	4.85	184.6	0.0	475.0
28.25	Top - Section 1	1.00	0.97	22.194	24.41	301.01	0.650	0.000	3.25	10.525	6.84	267.2	0.0	670.1
30.00		1.00	0.98	22.477	24.72	302.32	0.650	0.000	1.75	5.546	3.60	142.6	0.0	158.2
35.00		1.00	1.01	23.218	25.54	293.72	0.650	0.000	5.00	15.377	10.00	408.4	0.0	438.5
40.00		1.00	1.04	23.880	26.27	284.13	0.650	0.000	5.00	14.684	9.54	401.1	0.0	418.6
42.31	Appurtenance(s)	1.00	1.06	24.164	26.58	279.42	0.650	0.000	2.31	6.550	4.26	181.1	0.0	186.7
45.00		1.00	1.07	24.479	26.93	273.76	0.650	0.000	2.69	7.440	4.84	208.4	0.0	212.0
50.00		1.00	1.09	25.029	27.53	262.74	0.650	0.000	5.00	13.296	8.64	380.7	0.0	378.8
55.00		1.00	1.12	25.536	28.09	251.17	0.650	0.000	5.00	12.603	8.19	368.2	0.0	358.9
55.44	Appurtenance(s)	1.00	1.12	25.579	28.14	250.13	0.650	0.000	0.44	1.076	0.70	31.5	0.0	30.6
60.00		1.00	1.14	26.008	28.61	239.14	0.650	0.000	4.56	10.833	7.04	322.3	0.0	308.3
64.00	Appurtenance(s)	1.00	1.15	26.364	29.00	229.21	0.650	0.000	4.00	9.028	5.87	272.3	0.0	256.8
65.00		1.00	1.16	26.450	29.09	226.69	0.650	0.000	1.00	2.188	1.42	66.2	0.0	62.2
67.06	Appurtenance(s)	1.00	1.16	26.624	29.29	221.46	0.650	0.000	2.06	4.419	2.87	134.6	0.0	125.7
70.00		1.00	1.17	26.866	29.55	213.89	0.650	0.000	2.94	6.103	3.97	187.6	0.0	173.5
74.00	Appurtenance(s)	1.00	1.19	27.182	29.90	203.41	0.650	0.000	4.00	7.918	5.15	246.2	0.0	225.0
75.00	Appurtenance(s)	1.00	1.19	27.259	29.98	200.76	0.650	0.000	1.00	1.910	1.24	59.6	0.0	54.2
75.45	Appurtenance(s)	1.00	1.19	27.293	30.02	199.57	0.650	0.000	0.45	0.851	0.55	26.6	0.0	24.2
76.00		1.00	1.19	27.335	30.07	198.10	0.650	0.000	0.55	1.032	0.67	32.3	0.0	29.3
								Totals:	**76.00**			**5,795.3**		**7,520.5**

Discrete Appurtenance Forces

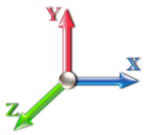
Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	4/21/2021	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 17

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	75.45	4' Branches	1	27.293	30.022	1.00	1.00	36.86	351.00	0.000	0.000	1770.61	0.00	0.00
2	75.00	Air 32	3	27.259	29.985	0.70	0.80	13.59	356.94	0.000	0.000	652.13	0.00	0.00
3	75.00	T-Arms	3	27.259	29.985	0.56	0.75	10.13	432.00	0.000	0.000	485.75	0.00	0.00
4	75.00	AIR6449 B41	3	27.259	29.985	0.57	0.80	9.63	278.10	0.000	0.000	461.89	0.00	0.00
5	75.00	RFS	3	27.259	29.985	0.56	0.80	34.00	345.60	0.000	0.000	1631.32	0.00	0.00
6	75.00	ATM200-A20	6	27.259	29.985	0.40	0.80	0.29	2.70	0.000	0.000	13.82	0.00	0.00
7	75.00	Radio 4449 B71+B85	3	27.259	29.985	0.54	0.80	3.17	191.70	0.000	0.000	151.97	0.00	0.00
8	75.00	Commscope	3	27.259	29.985	0.54	0.80	1.16	18.90	0.000	0.000	55.54	0.00	0.00
9	75.00	(Handrail Kit w/end	1	27.259	29.985	1.00	1.00	6.75	235.55	0.000	0.000	323.83	0.00	0.00
10	74.00	Antenna Branches	1	27.182	29.900	1.00	1.00	22.43	86.40	0.000	0.000	1073.05	0.00	0.00
11	74.00	Ericsson 4415 B66A	3	27.182	29.900	0.54	0.80	2.99	133.92	0.000	0.000	143.08	0.00	0.00
12	74.00	RRUS 4415 B25	3	27.182	29.900	0.54	0.80	2.64	124.20	0.000	0.000	126.16	0.00	0.00
13	67.06	6' Branches	1	26.624	29.287	1.00	1.00	83.63	360.00	0.000	0.000	3918.78	0.00	0.00
14	64.00	B5/B13 RRH-BR04C	3	26.364	29.000	0.54	0.80	3.57	189.81	0.000	0.000	165.64	0.00	0.00
15	64.00	JAHH-65B-R3B	6	26.364	29.000	0.66	0.80	36.29	341.82	0.000	0.000	1684.05	0.00	0.00
16	64.00	T-Arm	3	26.364	29.000	0.56	0.75	13.50	945.00	0.000	0.000	626.40	0.00	0.00
17	64.00	DB846F65ZAXY	4	26.364	29.000	0.74	0.80	20.98	75.60	0.000	0.000	973.51	0.00	0.00
18	64.00	DB846H80E-SX	2	26.364	29.000	0.90	0.80	8.98	28.80	0.000	0.000	416.58	0.00	0.00
19	64.00	DB-T1-6Z-8AB-0Z	2	26.364	29.000	0.54	0.80	5.15	79.20	0.000	0.000	238.76	0.00	0.00
20	64.00	B2/B66A RRH-BR049	3	26.364	29.000	0.54	0.80	2.64	227.88	0.000	0.000	122.36	0.00	0.00
21	64.00	VZS01	3	26.364	29.000	0.55	0.80	7.12	235.17	0.000	0.000	330.41	0.00	0.00
22	64.00	(3) VZWSMART-SFK4	1	26.364	29.000	0.56	0.75	9.28	450.00	0.000	0.000	430.65	0.00	0.00
23	64.00	BSAMNT-SBS-1-2	3	26.364	29.000	0.56	0.75	0.00	68.45	0.000	0.000	0.00	0.00	0.00
24	64.00	CBC78T-DS-43-2X/E14F0	3	26.364	29.000	0.54	0.80	0.59	58.86	0.000	0.000	27.61	0.00	0.00
25	55.44	8' Branches	1	25.579	28.137	1.00	1.00	150.70	1474.20	0.000	0.000	6784.28	0.00	0.00
26	42.31	10' Branches	1	24.164	26.580	1.00	1.00	54.43	486.00	0.000	0.000	2314.82	0.00	0.00
							Totals:		**7,577.79**			**24,923.00**		

Total Applied Force Summary

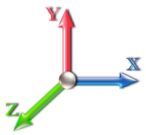
Structure:	CT46122-A-SBA		**Code:**	EIA/TIA-222-G	4/21/2021
Site Name:	Middletown North		**Exposure:**	C	
Height:	76.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 14

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 17

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		430.05	818.63	0.00	0.00
10.00		414.62	793.73	0.00	0.00
15.00		399.18	768.83	0.00	0.00
20.00		407.17	743.93	0.00	0.00
22.75		222.93	398.55	0.00	0.00
25.00		184.55	533.29	0.00	0.00
28.25		267.22	754.29	0.00	0.00
30.00		142.60	203.56	0.00	0.00
35.00		408.44	568.15	0.00	0.00
40.00		401.13	548.23	0.00	0.00
42.31	(1) attachments	2495.87	732.56	0.00	0.00
45.00		208.36	281.76	0.00	0.00
50.00		380.71	508.39	0.00	0.00
55.00		368.16	488.48	0.00	0.00
55.44	(1) attachments	6815.76	1516.23	0.00	0.00
60.00		322.32	426.53	0.00	0.00
64.00	(33) attachments	5288.24	3061.09	0.00	0.00
65.00		66.19	69.31	0.00	0.00
67.06	(1) attachments	4053.37	500.26	0.00	0.00
70.00		187.57	194.32	0.00	0.00
74.00	(7) attachments	1588.52	597.85	0.00	0.00
75.00	(25) attachments	3835.83	1922.83	0.00	0.00
75.45	(1) attachments	1797.16	375.15	0.00	0.00
76.00		32.27	29.30	0.00	0.00
	Totals:	**30,718.26**	**16,835.23**	**0.00**	**0.00**

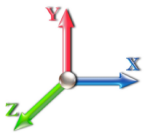
Calculated Forces

Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	4/21/2021	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 17

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-16.78	-30.75	0.00	-1810.8	0.00	1810.82	2976.77	1488.39	5655.61	2832.01	0.00	0.000	0.000	0.645
5.00	-15.85	-30.37	0.00	-1657.0	0.00	1657.08	2914.38	1457.19	5339.22	2673.58	0.11	-0.200	0.000	0.626
10.00	-14.96	-30.01	0.00	-1505.2	0.00	1505.22	2848.80	1424.40	5025.69	2516.58	0.43	-0.403	0.000	0.604
15.00	-14.08	-29.65	0.00	-1355.1	0.00	1355.18	2780.04	1390.02	4715.67	2361.34	0.96	-0.608	0.000	0.579
20.00	-13.26	-29.27	0.00	-1206.9	0.00	1206.92	2708.10	1354.05	4409.79	2208.17	1.71	-0.815	0.000	0.552
22.75	-12.81	-29.07	0.00	-1126.4	0.00	1126.42	2667.17	1333.59	4243.56	2124.93	2.22	-0.932	0.000	0.535
25.00	-12.23	-28.90	0.00	-1061.0	0.00	1061.02	2632.97	1316.49	4108.71	2057.41	2.68	-1.028	0.000	0.521
28.25	-11.42	-28.64	0.00	-967.09	0.00	967.09	1920.92	960.46	2962.45	1483.43	3.43	-1.165	0.000	0.659
30.00	-11.14	-28.52	0.00	-916.98	0.00	916.98	1904.07	952.03	2891.21	1447.76	3.87	-1.239	0.000	0.640
35.00	-10.47	-28.14	0.00	-774.36	0.00	774.36	1853.76	926.88	2688.99	1346.49	5.30	-1.478	0.000	0.582
40.00	-9.86	-27.76	0.00	-633.64	0.00	633.64	1800.28	900.14	2489.19	1246.45	6.98	-1.705	0.000	0.515
42.31	-9.15	-25.26	0.00	-569.53	0.00	569.53	1774.49	887.25	2397.88	1200.72	7.83	-1.809	0.000	0.480
45.00	-8.81	-25.06	0.00	-501.59	0.00	501.59	1743.61	871.80	2292.47	1147.94	8.88	-1.924	0.000	0.443
50.00	-8.24	-24.69	0.00	-376.28	0.00	376.28	1683.75	841.88	2099.47	1051.30	11.01	-2.114	0.000	0.364
55.00	-7.73	-24.31	0.00	-252.83	0.00	252.83	1620.72	810.36	1910.85	956.84	13.31	-2.274	0.000	0.270
55.44	-6.47	-17.45	0.00	-242.13	0.00	242.13	1615.02	807.51	1894.48	948.65	13.52	-2.287	0.000	0.260
60.00	-6.03	-17.12	0.00	-162.55	0.00	162.55	1554.50	777.25	1727.25	864.91	15.77	-2.399	0.000	0.192
64.00	-3.18	-11.71	0.00	-94.07	0.00	94.07	1499.23	749.61	1584.42	793.39	17.81	-2.472	0.000	0.121
65.00	-3.11	-11.64	0.00	-82.36	0.00	82.36	1485.09	742.54	1549.31	775.81	18.33	-2.487	0.000	0.109
67.06	-2.79	-7.57	0.00	-58.38	0.00	58.38	1455.57	727.78	1477.81	740.00	19.41	-2.512	0.000	0.081
70.00	-2.60	-7.38	0.00	-36.12	0.00	36.12	1403.00	701.50	1368.43	685.23	20.97	-2.538	0.000	0.055
74.00	-2.07	-5.76	0.00	-6.61	0.00	6.61	1325.69	662.84	1221.03	611.42	23.10	-2.556	0.000	0.012
75.00	-0.32	-1.85	0.00	-0.85	0.00	0.85	1306.36	653.18	1185.50	593.63	23.64	-2.557	0.000	0.002
75.45	-0.03	-0.03	0.00	-0.02	0.00	0.02	1297.66	648.83	1169.68	585.71	23.88	-2.557	0.000	0.000
76.00	0.00	-0.03	0.00	0.00	0.00	0.00	1287.03	643.52	1150.48	576.10	24.17	-2.557	0.000	0.000

Wind Loading - Shaft

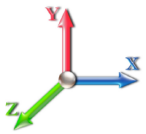
Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	4/21/2021	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 16

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.656	5.00	20.707	24.85	141.3	482.5	1401.2
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.775	5.00	20.113	24.14	137.2	500.2	1385.7
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.848	5.00	19.480	23.38	132.9	502.7	1355.0
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.902	5.00	18.832	22.60	136.3	498.5	1317.6
22.75	Bot - Section 2	1.00	0.93	5.634	6.20	0.00	1.200	1.927	2.75	10.073	12.09	74.9	271.9	708.3
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.945	2.25	8.188	9.83	62.1	223.4	856.7
28.25	Top - Section 1	1.00	0.97	5.897	6.49	0.00	1.200	1.969	3.25	11.591	13.91	90.2	318.3	1211.7
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.981	1.75	6.124	7.35	48.3	170.0	380.9
35.00		1.00	1.01	6.169	6.79	0.00	1.200	2.012	5.00	17.054	20.46	138.9	472.8	1057.6
40.00		1.00	1.04	6.345	6.98	0.00	1.200	2.039	5.00	16.383	19.66	137.2	458.6	1016.8
42.31	Appurtenance(s)	1.00	1.06	6.420	7.06	0.00	1.200	2.050	2.31	7.339	8.81	62.2	208.6	457.5
45.00		1.00	1.07	6.504	7.15	0.00	1.200	2.063	2.69	8.365	10.04	71.8	238.4	521.1
50.00		1.00	1.09	6.650	7.32	0.00	1.200	2.085	5.00	15.034	18.04	132.0	426.7	931.8
55.00		1.00	1.12	6.785	7.46	0.00	1.200	2.105	5.00	14.357	17.23	128.6	409.4	887.9
55.44	Appurtenance(s)	1.00	1.12	6.796	7.48	0.00	1.200	2.106	0.44	1.230	1.48	11.0	35.9	76.7
60.00		1.00	1.14	6.910	7.60	0.00	1.200	2.123	4.56	12.447	14.94	113.5	357.0	768.1
64.00	Appurtenance(s)	1.00	1.15	7.005	7.71	0.00	1.200	2.137	4.00	10.453	12.54	96.6	301.3	643.7
65.00		1.00	1.16	7.028	7.73	0.00	1.200	2.140	1.00	2.544	3.05	23.6	74.6	157.5
67.06	Appurtenance(s)	1.00	1.16	7.074	7.78	0.00	1.200	2.147	2.06	5.156	6.19	48.1	150.4	317.9
70.00		1.00	1.17	7.138	7.85	0.00	1.200	2.156	2.94	7.159	8.59	67.5	207.9	439.2
74.00	Appurtenance(s)	1.00	1.19	7.222	7.94	0.00	1.200	2.168	4.00	9.364	11.24	89.3	270.4	570.3
75.00	Appurtenance(s)	1.00	1.19	7.243	7.97	0.00	1.200	2.171	1.00	2.272	2.73	21.7	66.8	139.1
75.45	Appurtenance(s)	1.00	1.19	7.252	7.98	0.00	1.200	2.172	0.45	1.013	1.22	9.7	29.9	62.1
76.00		1.00	1.19	7.263	7.99	0.00	1.200	2.174	0.55	1.231	1.48	11.8	36.3	75.4
								Totals:	**76.00**			**1,986.8**		**16,739.8**

Discrete Appurtenance Forces

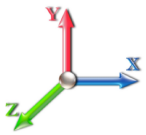
Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	4/21/2021	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 16

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	75.45	4' Branches	1	7.252	7.977	1.00	1.00	68.89	468.00	0.000	0.000	549.54	0.00	0.00
2	75.00	Air 32	3	7.243	7.967	0.70	0.80	16.55	1190.73	0.000	0.000	131.87	0.00	0.00
3	75.00	T-Arms	3	7.243	7.967	0.56	0.75	24.81	977.07	0.000	0.000	197.66	0.00	0.00
4	75.00	AIR6449 B41	3	7.243	7.967	0.57	0.80	11.64	787.45	0.000	0.000	92.76	0.00	0.00
5	75.00	RFS	3	7.243	7.967	0.56	0.80	38.01	2069.32	0.000	0.000	302.83	0.00	0.00
6	75.00	ATM200-A20	6	7.243	7.967	0.80	0.80	1.89	33.71	0.000	0.000	15.09	0.00	0.00
7	75.00	Radio 4449 B71+B85	3	7.243	7.967	0.54	0.80	4.26	414.02	0.000	0.000	33.96	0.00	0.00
8	75.00	Commscope	3	7.243	7.967	0.54	0.80	2.42	66.45	0.000	0.000	19.29	0.00	0.00
9	75.00	(Handrail Kit w/end	1	7.243	7.967	1.00	1.00	14.96	962.18	0.000	0.000	119.16	0.00	0.00
10	74.00	Antenna Branches	1	7.222	7.945	1.00	1.00	41.88	294.46	0.000	0.000	332.74	0.00	0.00
11	74.00	Ericsson 4415 B66A	3	7.222	7.945	0.54	0.80	4.15	426.44	0.000	0.000	32.96	0.00	0.00
12	74.00	RRUS 4415 B25	3	7.222	7.945	0.54	0.80	3.67	290.60	0.000	0.000	29.13	0.00	0.00
13	67.06	6' Branches	1	7.074	7.782	1.00	1.00	155.45	1223.51	0.000	0.000	1209.64	0.00	0.00
14	64.00	B5/B13 RRH-BR04C	3	7.005	7.705	0.54	0.80	4.79	414.20	0.000	0.000	36.91	0.00	0.00
15	64.00	JAHH-65B-R3B	6	7.005	7.705	0.66	0.80	42.95	2215.22	0.000	0.000	330.96	0.00	0.00
16	64.00	T-Arm	3	7.005	7.705	0.56	0.75	27.92	1947.52	0.000	0.000	215.17	0.00	0.00
17	64.00	DB846F65ZAXY	4	7.005	7.705	0.74	0.80	25.55	1110.27	0.000	0.000	196.89	0.00	0.00
18	64.00	DB846H80E-SX	2	7.005	7.705	0.90	0.80	11.70	449.48	0.000	0.000	90.14	0.00	0.00
19	64.00	DB-T1-6Z-8AB-0Z	2	7.005	7.705	0.54	0.80	6.31	471.85	0.000	0.000	48.62	0.00	0.00
20	64.00	B2/B66A RRH-BR049	3	7.005	7.705	0.54	0.80	3.65	516.80	0.000	0.000	28.15	0.00	0.00
21	64.00	VZS01	3	7.005	7.705	0.55	0.80	8.94	741.42	0.000	0.000	68.87	0.00	0.00
22	64.00	(3) VZWSMART-SFK4	1	7.005	7.705	0.56	0.75	20.39	1176.57	0.000	0.000	157.10	0.00	0.00
23	64.00	BSAMNT-SBS-1-2	3	7.005	7.705	0.56	0.75	0.00	152.82	0.000	0.000	0.00	0.00	0.00
24	64.00	CBC78T-DS-43-2X/E14F0	3	7.005	7.705	0.54	0.80	1.18	163.09	0.000	0.000	9.08	0.00	0.00
25	55.44	8' Branches	1	6.796	7.476	1.00	1.00	277.68	4983.78	0.000	0.000	2075.92	0.00	0.00
26	42.31	10' Branches	1	6.420	7.062	1.00	1.00	99.07	1630.87	0.000	0.000	699.68	0.00	0.00
							Totals:		**25,177.82**			**7,024.13**		

Total Applied Force Summary

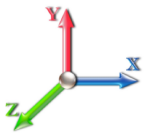
Structure:	CT46122-A-SBA		**Code:**	EIA/TIA-222-G	4/21/2021
Site Name:	Middletown North		**Exposure:**	C	
Height:	76.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 18

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 16

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		141.26	1573.99	0.00	0.00
10.00		137.20	1558.49	0.00	0.00
15.00		132.89	1527.84	0.00	0.00
20.00		136.31	1490.41	0.00	0.00
22.75		74.91	803.30	0.00	0.00
25.00		62.11	934.42	0.00	0.00
28.25		90.23	1323.97	0.00	0.00
30.00		48.27	441.37	0.00	0.00
35.00		138.87	1230.38	0.00	0.00
40.00		137.21	1189.57	0.00	0.00
42.31	(1) attachments	761.87	2168.25	0.00	0.00
45.00		71.82	614.09	0.00	0.00
50.00		131.97	1104.56	0.00	0.00
55.00		128.58	1060.73	0.00	0.00
55.44	(1) attachments	2086.96	5075.71	0.00	0.00
60.00		113.54	925.69	0.00	0.00
64.00	(33) attachments	1278.55	10141.18	0.00	0.00
65.00		23.60	166.97	0.00	0.00
67.06	(1) attachments	1257.79	1560.90	0.00	0.00
70.00		67.46	467.04	0.00	0.00
74.00	(7) attachments	484.10	1619.64	0.00	0.00
75.00	(25) attachments	934.34	6649.51	0.00	0.00
75.45	(1) attachments	559.24	530.10	0.00	0.00
76.00		11.80	75.37	0.00	0.00
	Totals:	**9,010.90**	**44,233.47**	**0.00**	**0.00**

Calculated Forces

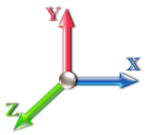
Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	4/21/2021	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 16

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-44.23	-9.03	0.00	-531.92	0.00	531.92	2976.77	1488.39	5655.61	2832.01	0.00	0.000	0.000	0.203
5.00	-42.65	-8.94	0.00	-486.75	0.00	486.75	2914.38	1457.19	5339.22	2673.58	0.03	-0.059	0.000	0.197
10.00	-41.08	-8.84	0.00	-442.07	0.00	442.07	2848.80	1424.40	5025.69	2516.58	0.13	-0.118	0.000	0.190
15.00	-39.54	-8.74	0.00	-397.88	0.00	397.88	2780.04	1390.02	4715.67	2361.34	0.28	-0.179	0.000	0.183
20.00	-38.04	-8.63	0.00	-354.16	0.00	354.16	2708.10	1354.05	4409.79	2208.17	0.50	-0.239	0.000	0.174
22.75	-37.24	-8.58	0.00	-330.42	0.00	330.42	2667.17	1333.59	4243.56	2124.93	0.65	-0.274	0.000	0.169
25.00	-36.30	-8.53	0.00	-311.13	0.00	311.13	2632.97	1316.49	4108.71	2057.41	0.79	-0.302	0.000	0.165
28.25	-34.97	-8.45	0.00	-283.40	0.00	283.40	1920.92	960.46	2962.45	1483.43	1.01	-0.342	0.000	0.209
30.00	-34.52	-8.43	0.00	-268.61	0.00	268.61	1904.07	952.03	2891.21	1447.76	1.14	-0.364	0.000	0.204
35.00	-33.28	-8.32	0.00	-226.47	0.00	226.47	1853.76	926.88	2688.99	1346.49	1.56	-0.434	0.000	0.186
40.00	-32.09	-8.20	0.00	-184.87	0.00	184.87	1800.28	900.14	2489.19	1246.45	2.05	-0.500	0.000	0.166
42.31	-29.92	-7.44	0.00	-165.93	0.00	165.93	1774.49	887.25	2397.88	1200.72	2.30	-0.530	0.000	0.155
45.00	-29.30	-7.38	0.00	-145.93	0.00	145.93	1743.61	871.80	2292.47	1147.94	2.61	-0.564	0.000	0.144
50.00	-28.19	-7.26	0.00	-109.02	0.00	109.02	1683.75	841.88	2099.47	1051.30	3.23	-0.619	0.000	0.121
55.00	-27.13	-7.13	0.00	-72.71	0.00	72.71	1620.72	810.36	1910.85	956.84	3.90	-0.665	0.000	0.093
55.44	-22.08	-4.99	0.00	-69.57	0.00	69.57	1615.02	807.51	1894.48	948.65	3.97	-0.669	0.000	0.087
60.00	-21.15	-4.88	0.00	-46.79	0.00	46.79	1554.50	777.25	1727.25	864.91	4.62	-0.701	0.000	0.068
64.00	-11.03	-3.48	0.00	-27.27	0.00	27.27	1499.23	749.61	1584.42	793.39	5.22	-0.722	0.000	0.042
65.00	-10.86	-3.45	0.00	-23.80	0.00	23.80	1485.09	742.54	1549.31	775.81	5.37	-0.726	0.000	0.038
67.06	-9.31	-2.18	0.00	-16.68	0.00	16.68	1455.57	727.78	1477.81	740.00	5.69	-0.734	0.000	0.029
70.00	-8.85	-2.10	0.00	-10.28	0.00	10.28	1403.00	701.50	1368.43	685.23	6.14	-0.741	0.000	0.021
74.00	-7.23	-1.60	0.00	-1.87	0.00	1.87	1325.69	662.84	1221.03	611.42	6.76	-0.746	0.000	0.009
75.00	-0.60	-0.58	0.00	-0.27	0.00	0.27	1306.36	653.18	1185.50	593.63	6.92	-0.746	0.000	0.001
75.45	-0.08	-0.01	0.00	-0.01	0.00	0.01	1297.66	648.83	1169.68	585.71	6.99	-0.746	0.000	0.000
76.00	0.00	-0.01	0.00	0.00	0.00	0.00	1287.03	643.52	1150.48	576.10	7.08	-0.746	0.000	0.000

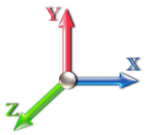
Seismic Segment Forces (Factored)

Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	4/21/2021	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case: 1.2D + 1.0E

Gust Response Factor	1.10			**Sds**	0.19	**Iterations**	15
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10	**Ss**	0.18
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.87	**SA**	0.09	**S1**	0.06
						Seismic Importance Factor	1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		765.58	0.01	0.05	0.03	10.92	
10.00		737.92	0.03	0.07	0.04	14.49	
15.00		710.26	0.07	0.07	0.04	16.03	
20.00		682.59	0.13	0.07	0.03	17.33	
22.75	Bot - Section 2	363.63	0.17	0.07	0.03	9.80	
25.00		527.75	0.20	0.06	0.02	14.83	
28.25	Top - Section 1	744.50	0.26	0.05	0.02	21.77	
30.00		175.77	0.29	0.05	0.01	5.18	
35.00		487.28	0.40	0.02	0.01	13.62	
40.00		465.14	0.52	-0.02	0.01	10.66	
42.31	Appurtenance(s)	747.42	0.59	-0.05	0.01	14.82	
45.00		235.59	0.66	-0.07	0.02	3.84	
50.00		420.88	0.82	-0.11	0.06	5.48	
55.00		398.75	0.99	-0.11	0.13	8.01	
55.44	Appurtenance(s)	1672.0	1.01	-0.11	0.13	35.80	
60.00		342.59	1.18	-0.02	0.24	14.93	
64.00	Appurtenance(s)	3286.0	1.34	0.18	0.37	252.63	
65.00		69.13	1.38	0.25	0.41	6.04	
67.06	Appurtenance(s)	539.61	1.47	0.43	0.51	60.31	
70.00		192.75	1.60	0.79	0.67	29.54	
74.00	Appurtenance(s)	632.75	1.79	1.50	0.96	140.75	
75.00	Appurtenance(s)	2128.6	1.84	1.73	1.05	515.27	
75.45	Appurtenance(s)	416.83	1.86	1.84	1.09	104.71	
76.00		32.55	1.89	1.98	1.14	8.55	
	Totals:	**16,775.9**				**1,335.3**	**Total Wind:** **30,718.3**

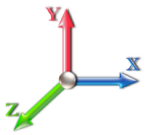
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	4/21/2021	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 21	

Tower Engineering Solutions

Load Case: 1.2D + 1.0E



Gust Response Factor	1.10			**Sds**	0.19			**Iterations**	15
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10			**Ss**	0.18
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.87	**SA**	0.09			**S1**	0.06
								Seismic Importance Factor	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-22.45	-1.34	0.00	-88.88	0.00	88.88	2976.77	1488.39	5655.61	2832.01		0.00	0.00	0.039
5.00	-21.36	-1.33	0.00	-82.20	0.00	82.20	2914.38	1457.19	5339.22	2673.58		0.01	-0.01	0.038
10.00	-20.30	-1.32	0.00	-75.55	0.00	75.55	2848.80	1424.40	5025.69	2516.58		0.02	-0.02	0.037
15.00	-19.27	-1.31	0.00	-68.96	0.00	68.96	2780.04	1390.02	4715.67	2361.34		0.05	-0.03	0.036
20.00	-18.28	-1.29	0.00	-62.43	0.00	62.43	2708.10	1354.05	4409.79	2208.17		0.09	-0.04	0.035
22.75	-17.75	-1.28	0.00	-58.89	0.00	58.89	2667.17	1333.59	4243.56	2124.93		0.11	-0.05	0.034
25.00	-17.04	-1.27	0.00	-56.00	0.00	56.00	2632.97	1316.49	4108.71	2057.41		0.13	-0.05	0.034
28.25	-16.03	-1.25	0.00	-51.88	0.00	51.88	1920.92	960.46	2962.45	1483.43		0.17	-0.06	0.043
30.00	-15.76	-1.24	0.00	-49.70	0.00	49.70	1904.07	952.03	2891.21	1447.76		0.19	-0.06	0.043
35.00	-15.00	-1.23	0.00	-43.48	0.00	43.48	1853.76	926.88	2688.99	1346.49		0.27	-0.08	0.040
40.00	-14.27	-1.22	0.00	-37.32	0.00	37.32	1800.28	900.14	2489.19	1246.45		0.36	-0.09	0.038
42.31	-13.29	-1.21	0.00	-34.50	0.00	34.50	1774.49	887.25	2397.88	1200.72		0.40	-0.10	0.036
45.00	-12.92	-1.21	0.00	-31.25	0.00	31.25	1743.61	871.80	2292.47	1147.94		0.46	-0.10	0.035
50.00	-12.24	-1.20	0.00	-25.22	0.00	25.22	1683.75	841.88	2099.47	1051.30		0.57	-0.12	0.031
55.00	-11.59	-1.19	0.00	-19.21	0.00	19.21	1620.72	810.36	1910.85	956.84		0.70	-0.13	0.027
55.44	-9.57	-1.15	0.00	-18.68	0.00	18.68	1615.02	807.51	1894.48	948.65		0.71	-0.13	0.026
60.00	-9.00	-1.14	0.00	-13.42	0.00	13.42	1554.50	777.25	1727.25	864.91		0.84	-0.14	0.021
64.00	-4.92	-0.88	0.00	-8.86	0.00	8.86	1499.23	749.61	1584.42	793.39		0.95	-0.14	0.014
65.00	-4.82	-0.87	0.00	-7.98	0.00	7.98	1485.09	742.54	1549.31	775.81		0.98	-0.14	0.014
67.06	-4.16	-0.81	0.00	-6.19	0.00	6.19	1455.57	727.78	1477.81	740.00		1.05	-0.15	0.011
70.00	-3.90	-0.78	0.00	-3.81	0.00	3.81	1403.00	701.50	1368.43	685.23		1.14	-0.15	0.008
74.00	-3.10	-0.64	0.00	-0.69	0.00	0.69	1325.69	662.84	1221.03	611.42		1.26	-0.15	0.003
75.00	-0.54	-0.11	0.00	-0.06	0.00	0.06	1306.36	653.18	1185.50	593.63		1.30	-0.15	0.001
75.45	-0.04	-0.01	0.00	0.00	0.00	0.00	1297.66	648.83	1169.68	585.71		1.31	-0.15	0.000
76.00	0.00	-0.01	0.00	0.00	0.00	0.00	1287.03	643.52	1150.48	576.10		1.33	-0.15	0.000

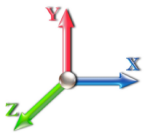
Seismic Segment Forces (Factored)

Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	4/21/2021	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E

Gust Response Factor	1.10			**Sds**	0.19	**Iterations**	15
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10	**Ss**	0.18
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.87	**SA**	0.09	**S1**	0.06
						Seismic Importance Factor	1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		765.58	0.01	0.05	0.03	10.92	
10.00		737.92	0.03	0.07	0.04	14.49	
15.00		710.26	0.07	0.07	0.04	16.03	
20.00		682.59	0.13	0.07	0.03	17.33	
22.75	Bot - Section 2	363.63	0.17	0.07	0.03	9.80	
25.00		527.75	0.20	0.06	0.02	14.83	
28.25	Top - Section 1	744.50	0.26	0.05	0.02	21.77	
30.00		175.77	0.29	0.05	0.01	5.18	
35.00		487.28	0.40	0.02	0.01	13.62	
40.00		465.14	0.52	-0.02	0.01	10.66	
42.31	Appurtenance(s)	747.42	0.59	-0.05	0.01	14.82	
45.00		235.59	0.66	-0.07	0.02	3.84	
50.00		420.88	0.82	-0.11	0.06	5.48	
55.00		398.75	0.99	-0.11	0.13	8.01	
55.44	Appurtenance(s)	1672.0	1.01	-0.11	0.13	35.80	
60.00		342.59	1.18	-0.02	0.24	14.93	
64.00	Appurtenance(s)	3286.0	1.34	0.18	0.37	252.63	
65.00		69.13	1.38	0.25	0.41	6.04	
67.06	Appurtenance(s)	539.61	1.47	0.43	0.51	60.31	
70.00		192.75	1.60	0.79	0.67	29.54	
74.00	Appurtenance(s)	632.75	1.79	1.50	0.96	140.75	
75.00	Appurtenance(s)	2128.6	1.84	1.73	1.05	515.27	
75.45	Appurtenance(s)	416.83	1.86	1.84	1.09	104.71	
76.00		32.55	1.89	1.98	1.14	8.55	
	Totals:	**16,775.9**				**1,335.3**	**Total Wind:** **30,718.3**

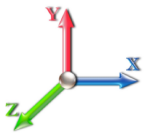
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	4/21/2021	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E



Gust Response Factor	1.10			**Sds**	0.19			**Iterations**	15
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10			**Ss**	0.18
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.87	**SA**	0.09			**S1**	0.06
								Seismic Importance Factor	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-16.84	-1.34	0.00	-88.58	0.00	88.58	2976.77	1488.39	5655.61	2832.01		0.00	0.00	0.037
5.00	-16.02	-1.33	0.00	-81.90	0.00	81.90	2914.38	1457.19	5339.22	2673.58		0.01	-0.01	0.036
10.00	-15.22	-1.32	0.00	-75.26	0.00	75.26	2848.80	1424.40	5025.69	2516.58		0.02	-0.02	0.035
15.00	-14.45	-1.30	0.00	-68.68	0.00	68.68	2780.04	1390.02	4715.67	2361.34		0.05	-0.03	0.034
20.00	-13.71	-1.29	0.00	-62.17	0.00	62.17	2708.10	1354.05	4409.79	2208.17		0.09	-0.04	0.033
22.75	-13.31	-1.28	0.00	-58.63	0.00	58.63	2667.17	1333.59	4243.56	2124.93		0.11	-0.05	0.033
25.00	-12.78	-1.26	0.00	-55.76	0.00	55.76	2632.97	1316.49	4108.71	2057.41		0.13	-0.05	0.032
28.25	-12.02	-1.24	0.00	-51.65	0.00	51.65	1920.92	960.46	2962.45	1483.43		0.17	-0.06	0.041
30.00	-11.82	-1.24	0.00	-49.48	0.00	49.48	1904.07	952.03	2891.21	1447.76		0.19	-0.06	0.040
35.00	-11.25	-1.23	0.00	-43.28	0.00	43.28	1853.76	926.88	2688.99	1346.49		0.27	-0.08	0.038
40.00	-10.70	-1.22	0.00	-37.15	0.00	37.15	1800.28	900.14	2489.19	1246.45		0.35	-0.09	0.036
42.31	-9.97	-1.20	0.00	-34.34	0.00	34.34	1774.49	887.25	2397.88	1200.72		0.40	-0.10	0.034
45.00	-9.69	-1.20	0.00	-31.10	0.00	31.10	1743.61	871.80	2292.47	1147.94		0.45	-0.10	0.033
50.00	-9.18	-1.20	0.00	-25.10	0.00	25.10	1683.75	841.88	2099.47	1051.30		0.57	-0.11	0.029
55.00	-8.69	-1.19	0.00	-19.13	0.00	19.13	1620.72	810.36	1910.85	956.84		0.70	-0.13	0.025
55.44	-7.17	-1.15	0.00	-18.60	0.00	18.60	1615.02	807.51	1894.48	948.65		0.71	-0.13	0.024
60.00	-6.75	-1.13	0.00	-13.37	0.00	13.37	1554.50	777.25	1727.25	864.91		0.83	-0.14	0.020
64.00	-3.69	-0.87	0.00	-8.83	0.00	8.83	1499.23	749.61	1584.42	793.39		0.95	-0.14	0.014
65.00	-3.62	-0.87	0.00	-7.96	0.00	7.96	1485.09	742.54	1549.31	775.81		0.98	-0.14	0.013
67.06	-3.12	-0.81	0.00	-6.17	0.00	6.17	1455.57	727.78	1477.81	740.00		1.04	-0.15	0.010
70.00	-2.92	-0.78	0.00	-3.80	0.00	3.80	1403.00	701.50	1368.43	685.23		1.13	-0.15	0.008
74.00	-2.33	-0.63	0.00	-0.69	0.00	0.69	1325.69	662.84	1221.03	611.42		1.26	-0.15	0.003
75.00	-0.40	-0.11	0.00	-0.06	0.00	0.06	1306.36	653.18	1185.50	593.63		1.29	-0.15	0.000
75.45	-0.03	-0.01	0.00	0.00	0.00	0.00	1297.66	648.83	1169.68	585.71		1.30	-0.15	0.000
76.00	0.00	-0.01	0.00	0.00	0.00	0.00	1287.03	643.52	1150.48	576.10		1.32	-0.15	0.000

Wind Loading - Shaft

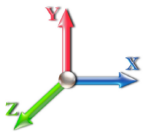
Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	4/21/2021	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 16

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	217.66	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	209.99	0.650	0.000	5.00	19.327	12.56	102.8	0.0	765.6
10.00		1.00	0.85	7.442	8.19	202.31	0.650	0.000	5.00	18.634	12.11	99.1	0.0	737.9
15.00		1.00	0.85	7.442	8.19	194.64	0.650	0.000	5.00	17.940	11.66	95.5	0.0	710.3
20.00		1.00	0.90	7.896	8.69	192.59	0.650	0.000	5.00	17.246	11.21	97.4	0.0	682.6
22.75	Bot - Section 2	1.00	0.93	8.113	8.92	190.81	0.650	0.000	2.75	9.190	5.97	53.3	0.0	363.6
25.00		1.00	0.95	8.276	9.10	189.07	0.650	0.000	2.25	7.458	4.85	44.1	0.0	527.7
28.25	Top - Section 1	1.00	0.97	8.492	9.34	186.19	0.650	0.000	3.25	10.525	6.84	63.9	0.0	744.5
30.00		1.00	0.98	8.600	9.46	187.00	0.650	0.000	1.75	5.546	3.60	34.1	0.0	175.8
35.00		1.00	1.01	8.883	9.77	181.68	0.650	0.000	5.00	15.377	10.00	97.7	0.0	487.3
40.00		1.00	1.04	9.137	10.05	175.75	0.650	0.000	5.00	14.684	9.54	95.9	0.0	465.1
42.31	Appurtenance(s)	1.00	1.06	9.245	10.17	172.84	0.650	0.000	2.31	6.550	4.26	43.3	0.0	207.4
45.00		1.00	1.07	9.366	10.30	169.33	0.650	0.000	2.69	7.440	4.84	49.8	0.0	235.6
50.00		1.00	1.09	9.576	10.53	162.52	0.650	0.000	5.00	13.296	8.64	91.0	0.0	420.9
55.00		1.00	1.12	9.770	10.75	155.36	0.650	0.000	5.00	12.603	8.19	88.0	0.0	398.8
55.44	Appurtenance(s)	1.00	1.12	9.787	10.77	154.72	0.650	0.000	0.44	1.076	0.70	7.5	0.0	34.0
60.00		1.00	1.14	9.951	10.95	147.92	0.650	0.000	4.56	10.833	7.04	77.1	0.0	342.6
64.00	Appurtenance(s)	1.00	1.15	10.087	11.10	141.78	0.650	0.000	4.00	9.028	5.87	65.1	0.0	285.4
65.00		1.00	1.16	10.120	11.13	140.22	0.650	0.000	1.00	2.188	1.42	15.8	0.0	69.1
67.06	Appurtenance(s)	1.00	1.16	10.187	11.21	136.99	0.650	0.000	2.06	4.419	2.87	32.2	0.0	139.6
70.00		1.00	1.17	10.279	11.31	132.30	0.650	0.000	2.94	6.103	3.97	44.9	0.0	192.7
74.00	Appurtenance(s)	1.00	1.19	10.400	11.44	125.82	0.650	0.000	4.00	7.918	5.15	58.9	0.0	250.0
75.00	Appurtenance(s)	1.00	1.19	10.430	11.47	124.18	0.650	0.000	1.00	1.910	1.24	14.2	0.0	60.3
75.45	Appurtenance(s)	1.00	1.19	10.443	11.49	123.44	0.650	0.000	0.45	0.851	0.55	6.4	0.0	26.8
76.00		1.00	1.19	10.459	11.50	122.54	0.650	0.000	0.55	1.032	0.67	7.7	0.0	32.6
								Totals:	**76.00**			**1,385.8**		**8,356.2**

Discrete Appurtenance Forces

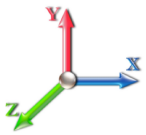
Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	4/21/2021	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 16

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	75.45	4' Branches	1	10.443	11.487	1.00	1.00	36.86	390.00	0.000	0.000	423.41	0.00	0.00
2	75.00	Air 32	3	10.430	11.473	0.70	0.80	13.59	396.60	0.000	0.000	155.94	0.00	0.00
3	75.00	T-Arms	3	10.430	11.473	0.56	0.75	10.13	480.00	0.000	0.000	116.16	0.00	0.00
4	75.00	AIR6449 B41	3	10.430	11.473	0.57	0.80	9.63	309.00	0.000	0.000	110.45	0.00	0.00
5	75.00	RFS	3	10.430	11.473	0.56	0.80	34.00	384.00	0.000	0.000	390.10	0.00	0.00
6	75.00	ATM200-A20	6	10.430	11.473	0.40	0.80	0.29	3.00	0.000	0.000	3.30	0.00	0.00
7	75.00	Radio 4449 B71+B85	3	10.430	11.473	0.54	0.80	3.17	213.00	0.000	0.000	36.34	0.00	0.00
8	75.00	Commscope	3	10.430	11.473	0.54	0.80	1.16	21.00	0.000	0.000	13.28	0.00	0.00
9	75.00	(Handrail Kit w/end	1	10.430	11.473	1.00	1.00	6.75	261.72	0.000	0.000	77.44	0.00	0.00
10	74.00	Antenna Branches	1	10.400	11.440	1.00	1.00	22.43	96.00	0.000	0.000	256.60	0.00	0.00
11	74.00	Ericsson 4415 B66A	3	10.400	11.440	0.54	0.80	2.99	148.80	0.000	0.000	34.22	0.00	0.00
12	74.00	RRUS 4415 B25	3	10.400	11.440	0.54	0.80	2.64	138.00	0.000	0.000	30.17	0.00	0.00
13	67.06	6' Branches	1	10.187	11.205	1.00	1.00	83.63	400.00	0.000	0.000	937.11	0.00	0.00
14	64.00	B5/B13 RRH-BR04C	3	10.087	11.096	0.54	0.80	3.57	210.90	0.000	0.000	39.61	0.00	0.00
15	64.00	JAHH-65B-R3B	6	10.087	11.096	0.66	0.80	36.29	379.80	0.000	0.000	402.71	0.00	0.00
16	64.00	T-Arm	3	10.087	11.096	0.56	0.75	13.50	1050.00	0.000	0.000	149.79	0.00	0.00
17	64.00	DB846F65ZAXY	4	10.087	11.096	0.74	0.80	20.98	84.00	0.000	0.000	232.80	0.00	0.00
18	64.00	DB846H80E-SX	2	10.087	11.096	0.90	0.80	8.98	32.00	0.000	0.000	99.62	0.00	0.00
19	64.00	DB-T1-6Z-8AB-0Z	2	10.087	11.096	0.54	0.80	5.15	88.00	0.000	0.000	57.09	0.00	0.00
20	64.00	B2/B66A RRH-BR049	3	10.087	11.096	0.54	0.80	2.64	253.20	0.000	0.000	29.26	0.00	0.00
21	64.00	VZS01	3	10.087	11.096	0.55	0.80	7.12	261.30	0.000	0.000	79.01	0.00	0.00
22	64.00	(3) VZWSMART-SFK4	1	10.087	11.096	0.56	0.75	9.28	500.00	0.000	0.000	102.98	0.00	0.00
23	64.00	BSAMNT-SBS-1-2	3	10.087	11.096	0.56	0.75	0.00	76.05	0.000	0.000	0.00	0.00	0.00
24	64.00	CBC78T-DS-43-2X/E14F0	3	10.087	11.096	0.54	0.80	0.59	65.40	0.000	0.000	6.60	0.00	0.00
25	55.44	8' Branches	1	9.787	10.765	1.00	1.00	150.70	1638.00	0.000	0.000	1622.34	0.00	0.00
26	42.31	10' Branches	1	9.245	10.170	1.00	1.00	54.43	540.00	0.000	0.000	553.55	0.00	0.00
							Totals:		**8,419.77**			**5,959.91**		

Total Applied Force Summary

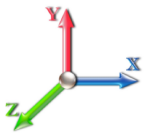
Structure:	CT46122-A-SBA		**Code:**	EIA/TIA-222-G	4/21/2021
Site Name:	Middletown North		**Exposure:**	C	
Height:	76.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 26

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 16

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		102.84	909.58	0.00	0.00
10.00		99.15	881.92	0.00	0.00
15.00		95.46	854.26	0.00	0.00
20.00		97.37	826.59	0.00	0.00
22.75		53.31	442.83	0.00	0.00
25.00		44.13	592.55	0.00	0.00
28.25		63.90	838.10	0.00	0.00
30.00		34.10	226.17	0.00	0.00
35.00		97.67	631.28	0.00	0.00
40.00		95.92	609.14	0.00	0.00
42.31	(1) attachments	596.84	813.95	0.00	0.00
45.00		49.83	313.06	0.00	0.00
50.00		91.04	564.88	0.00	0.00
55.00		88.04	542.75	0.00	0.00
55.44	(1) attachments	1629.87	1684.70	0.00	0.00
60.00		77.08	473.92	0.00	0.00
64.00	(33) attachments	1264.59	3401.21	0.00	0.00
65.00		15.83	77.01	0.00	0.00
67.06	(1) attachments	969.29	555.85	0.00	0.00
70.00		44.85	215.91	0.00	0.00
74.00	(7) attachments	379.87	664.27	0.00	0.00
75.00	(25) attachments	917.27	2136.48	0.00	0.00
75.45	(1) attachments	429.76	416.83	0.00	0.00
76.00		7.72	32.55	0.00	0.00
	Totals:	**7,345.74**	**18,705.82**	**0.00**	**0.00**

Calculated Forces

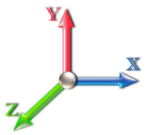
Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	4/21/2021	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 16

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-18.70	-7.35	0.00	-433.59	0.00	433.59	2976.77	1488.39	5655.61	2832.01	0.00	0.000	0.000	0.159
5.00	-17.79	-7.26	0.00	-396.82	0.00	396.82	2914.38	1457.19	5339.22	2673.58	0.03	-0.048	0.000	0.155
10.00	-16.90	-7.18	0.00	-360.50	0.00	360.50	2848.80	1424.40	5025.69	2516.58	0.10	-0.096	0.000	0.149
15.00	-16.04	-7.10	0.00	-324.60	0.00	324.60	2780.04	1390.02	4715.67	2361.34	0.23	-0.146	0.000	0.143
20.00	-15.21	-7.01	0.00	-289.12	0.00	289.12	2708.10	1354.05	4409.79	2208.17	0.41	-0.195	0.000	0.137
22.75	-14.76	-6.96	0.00	-269.86	0.00	269.86	2667.17	1333.59	4243.56	2124.93	0.53	-0.223	0.000	0.133
25.00	-14.17	-6.92	0.00	-254.20	0.00	254.20	2632.97	1316.49	4108.71	2057.41	0.64	-0.246	0.000	0.129
28.25	-13.33	-6.86	0.00	-231.72	0.00	231.72	1920.92	960.46	2962.45	1483.43	0.82	-0.279	0.000	0.163
30.00	-13.10	-6.83	0.00	-219.72	0.00	219.72	1904.07	952.03	2891.21	1447.76	0.93	-0.297	0.000	0.159
35.00	-12.46	-6.74	0.00	-185.57	0.00	185.57	1853.76	926.88	2688.99	1346.49	1.27	-0.354	0.000	0.145
40.00	-11.84	-6.65	0.00	-151.87	0.00	151.87	1800.28	900.14	2489.19	1246.45	1.67	-0.409	0.000	0.128
42.31	-11.03	-6.05	0.00	-136.51	0.00	136.51	1774.49	887.25	2397.88	1200.72	1.88	-0.433	0.000	0.120
45.00	-10.72	-6.01	0.00	-120.23	0.00	120.23	1743.61	871.80	2292.47	1147.94	2.13	-0.461	0.000	0.111
50.00	-10.15	-5.92	0.00	-90.20	0.00	90.20	1683.75	841.88	2099.47	1051.30	2.64	-0.507	0.000	0.092
55.00	-9.60	-5.83	0.00	-60.62	0.00	60.62	1620.72	810.36	1910.85	956.84	3.19	-0.545	0.000	0.069
55.44	-7.93	-4.18	0.00	-58.05	0.00	58.05	1615.02	807.51	1894.48	948.65	3.24	-0.548	0.000	0.066
60.00	-7.46	-4.11	0.00	-38.97	0.00	38.97	1554.50	777.25	1727.25	864.91	3.78	-0.575	0.000	0.050
64.00	-4.07	-2.81	0.00	-22.55	0.00	22.55	1499.23	749.61	1584.42	793.39	4.27	-0.592	0.000	0.031
65.00	-3.99	-2.79	0.00	-19.75	0.00	19.75	1485.09	742.54	1549.31	775.81	4.39	-0.596	0.000	0.028
67.06	-3.45	-1.82	0.00	-14.00	0.00	14.00	1455.57	727.78	1477.81	740.00	4.65	-0.602	0.000	0.021
70.00	-3.23	-1.77	0.00	-8.66	0.00	8.66	1403.00	701.50	1368.43	685.23	5.02	-0.608	0.000	0.015
74.00	-2.57	-1.38	0.00	-1.59	0.00	1.59	1325.69	662.84	1221.03	611.42	5.54	-0.612	0.000	0.005
75.00	-0.44	-0.44	0.00	-0.20	0.00	0.20	1306.36	653.18	1185.50	593.63	5.66	-0.613	0.000	0.001
75.45	-0.03	-0.01	0.00	0.00	0.00	0.00	1297.66	648.83	1169.68	585.71	5.72	-0.613	0.000	0.000
76.00	0.00	-0.01	0.00	0.00	0.00	0.00	1287.03	643.52	1150.48	576.10	5.79	-0.613	0.000	0.000

Final Analysis Summary

Structure:	CT46122-A-SBA		**Code:**	EIA/TIA-222-G	4/21/2021
Site Name:	Middletown North		**Exposure:**	C	
Height:	76.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 28

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Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 97 mph Wind	30.8	0.00	22.39	0.00	0.00	1816.48
0.9D + 1.6W 97 mph Wind	30.7	0.00	16.78	0.00	0.00	1810.82
1.2D + 1.0Di + 1.0Wi 50 mph Wind	9.0	0.00	44.23	0.00	0.00	531.92
1.2D + 1.0E	1.3	0.00	22.45	0.00	0.00	88.88
0.9D + 1.0E	1.3	0.00	16.84	0.00	0.00	88.58
1.0D + 1.0W 60 mph Wind	7.4	0.00	18.70	0.00	0.00	433.59

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 97 mph Wind	-15.43	-28.72	0.00	-971.39	0.00	-971.39	1920.92	960.46	2962.45	1483.43	28.25	0.664
0.9D + 1.6W 97 mph Wind	-11.42	-28.64	0.00	-967.09	0.00	-967.09	1920.92	960.46	2962.45	1483.43	28.25	0.659
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-34.97	-8.45	0.00	-283.40	0.00	-283.40	1920.92	960.46	2962.45	1483.43	28.25	0.209
1.2D + 1.0E	-16.03	-1.25	0.00	-51.88	0.00	-51.88	1920.92	960.46	2962.45	1483.43	28.25	0.043
0.9D + 1.0E	-12.02	-1.24	0.00	-51.65	0.00	-51.65	1920.92	960.46	2962.45	1483.43	28.25	0.041
1.0D + 1.0W 60 mph Wind	-13.33	-6.86	0.00	-231.72	0.00	-231.72	1920.92	960.46	2962.45	1483.43	28.25	0.163

Base Plate Summary

Structure:	CT46122-A-SB		**Code:**	EIA/TIA-222-G	4/21/2021
Site Name:	Middletown North		**Exposure:**	C	
Height:	76.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 29

Tower Engineering Solutions

Reactions	
Original Design	
Moment (kip-ft):	2800.00
Axial (kip):	27.00
Shear (kip):	52.00
Analysis (1.2D + 1.6W)	
Moment (kip-ft):	1816.48
Axial (kip):	22.39
Shear (kip):	30.76

Base Plate	
Yield (ksi):	60.00
Width (in):	60.00
Style:	Round
Polygon Sides:	0.00
Clip Length (in):	0.00
Effective Len (in):	29.11
Moment (kip-in):	622.08
Allow Stress (ksi):	81.00
Applied Stress (ksi):	32.40
Stress Ratio:	0.40

Anchor Bolts	
Bolt Circle:	54.00
Number Bolts:	10.00
Bolt Type:	2.25" 18J
Bolt Diameter (in):	2.25
Yield (ksi):	75.00
Ultimate (ksi):	100.00
Arrangement:	Radial
Cluster Dist (in):	0.00
Start Angle (deg):	0.00
Compression	
Force (kip):	165.89
Allowable (kip):	260.00
Ratio:	0.66
Tension	
Force (kip):	157.04
Allowable (kip):	260.00
Ratio:	0.63

Tower Engineering Solutions, LLC

June 14, 2021

Mr. Andrew Leone
Verizon Wireless
20 Alexander Dr.
Wallingford, CT 06492

Re: Verizon Wireless antenna Model Clarification for CT Siting Council

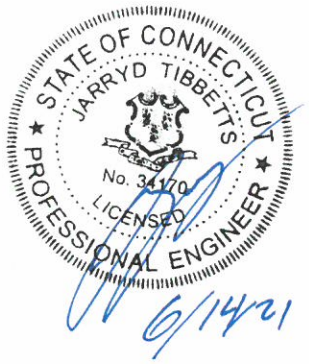
Dear Mr. Leone,

This letter is intended to clarify and confirm the antenna naming convention used by Verizon Wireless as a part of an antenna upgrade project on numerous wireless facilities.

The antenna naming convention "Licensed Sub-6, L-Sub6, nL-Sub6, VZS01" and any other slight variants refer to the 64T64RMMU, Model Code: MT6407-77A manufactured by Samsung Electronics. These names are interchangeable and are used in various documents, including but not limited to the "Structural Analysis".

If you have any questions or comments, or require additional information, please do not hesitate to contact me.

Sincerely,
Tower Engineering Solutions, LLC



1320 Greenway Drive - Suite 600, Irving, Texas 75038 Phone: (972) 483-0607, Fax: (972) 975-9615

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

Post-Mod Antenna Mount Analysis Report and PMI Requirements

Mount Fix

SMART Tool Project #: 10039467
Maser Consulting Connecticut Project #: 20777624A

February 25, 2021

Site Information	*Site ID:*	*467921-VZW / CROMWELL CT*
	Site Name:	*CROMWELL CT*
	Carrier Name:	*Verizon Wireless*
	Address:	*160 West* *Cromwell, Connecticut 06416* *Middlesex County*
	Latitude:	*41.605992°*
	Longitude:	*-72.670381°*
Structure Information	*Tower Type:*	*Monopole*
	Mount Type:	*10.63-Ft T-Arm*

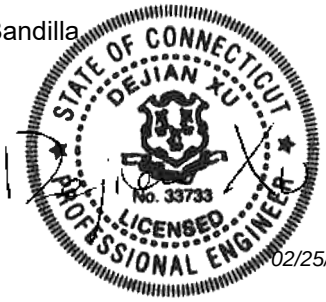
FUZE ID # 16232021

Analysis Results

T-Arm: **59.7% Pass**

******Contractor PMI Requirements*:**
Included at the end of this MA report
Available & Submitted via portal at https://pmi.vzwsmart.com
Contractor - Please Review Specific Site PMI Requirements Upon Award
Requirements also Noted on Mount Modification Drawings
Requirements may also be Noted on A & E drawings

Report Prepared By: Zachary Bandilla



02/25/2021

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: 602576, dated November 25, 2020*
Mount Mapping Report	*RKS Design & Engineering LLC, Site ID: SBA: CT46122, dated January 16, 2021*
Previous Mount Analysis	*Maser Consulting Connecticut, Project #: 20777624A, Dated January 26, 2021*
Mount Modification Drawings	*Maser Consulting Connecticut, Project #: 20777624A, Dated February 25, 2021*

Analysis Criteria:

Codes and Standards:	ANSI/TIA-222-H	
Wind Parameters:	Basic Wind Speed (Ultimate 3-sec. Gust), V_{ULT}:	119 mph
	Ice Wind Speed (3-sec. Gust):	50 mph
	Design Ice Thickness:	1.00 in
	Risk Category:	II
	Exposure Category:	C
	Topographic Category:	1
	Topographic Feature Considered:	N/A
	Topographic Method:	N/A
	Ground Elevation Factor, K_e:	0.995
Seismic Parameters:	S_S:	0.205
	S_1:	0.055
Maintenance Parameters:	Wind Speed (3-sec. Gust):	30 mph
	Maintenance Live Load, Lv:	250 lbs.
	Maintenance Live Load, Lm:	500 lbs.
Analysis Software:	RISA-3D (V17)	

Final Loading Configuration:

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

Mount Elevation (ft)	Equipment Elevation (ft)	Quantity	Manufacturer	Model	Status
61.50	64.00	3	-	VZS01	Added
		3	Commscope	CBC78T-DS-43-2X	
		3	Samsung	B2/B66A RRH-BR049	
		3	Samsung	B5/B13 RRH-BR04C	
		6	Commscope	JAHH-65B-R3B	
		4	Andrew	DB846F65ZAXY	Retained
		2	Decibel	DB846H80E-SX	
		2	Raycap	RRFDC-3315-PF-48	

Standard Conditions:

1. All engineering services are performed on the basis that the information provided to Maser Consulting Connecticut and used in this analysis is current and correct. The existing equipment loading has been applied at locations determined from the supplied documentation. Any deviation from the loading locations specified in this report shall be communicated to Maser Consulting Connecticut to verify deviation will not adversely impact the analysis.

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

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

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

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

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

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

6. All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Maser Consulting Connecticut is not responsible for the conclusion, opinions, and recommendations made by others based on the information supplied.

7. Structural Steel Grades have been assumed as follows, if applicable, unless otherwise noted in this analysis:
   - Channel, Solid Round, Angle, Plate — ASTM A36 (Gr. 36)
   - HSS (Rectangular) — ASTM 500 (Gr. B-46)
   - Pipe — ASTM A53 (Gr. B-35)
   - Threaded Rod — F1554 (Gr. 36)
   - Bolts — ASTM A325
   -
8. Any mount modifications listed under Sources of Information are assumed to have been installed per the design specifications.

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

Analysis Results:

Component	Utilization %	Pass/Fail
Mount Pipe	*59.7%*	*Pass*
Standoff Horizontal	*27.7%*	*Pass*
Face Horizontal	*27.2%*	*Pass*
MOD Face Horizontal	*50.4%*	*Pass*
MOD Standoff Horizontal	*44.5%*	*Pass*
Mount Connection	*47.0%*	*Pass*

Structure Rating – *(Controlling Utilization of all Components)*	**59.7%**

Recommendation:

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

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

Attachments:

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


01/16/2021


01/16/2021

V3.0 Updated on 8-31-2020

Antenna Mount Mapping Form (PATENT PENDING)

FCC # 1273764

Tower Owner:	SBA	**Mapping Date:**	1/16/2021
Site Name:	VZW:CROMWELL CT	**Tower Type:**	Monopole
Site Number or ID:	SBA:CT46122	**Tower Height (Ft.):**	UNKNOWN
Mapping Contractor:	RKS DESIGN & ENGINEERINF LLC	**Mount Elevation (Ft.):**	64.33

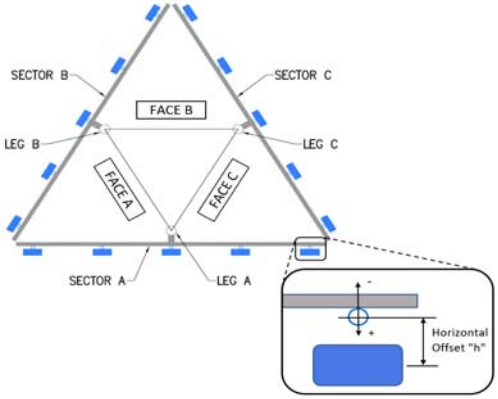
Please insert the sketches of the antenna mount from the "Sketches" tab with dimensions and members here.

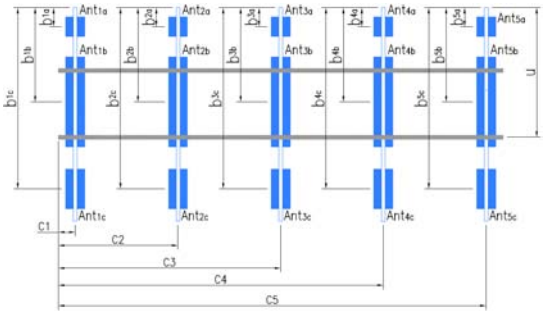
Mount Pipe Configuration and Geometries [Unit = Inches]

Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "u"	Horizontal Offset "C1, C2, C3, etc."	Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "u"	Horizontal Offset "C1, C2, C3, etc."
A1	PIPE 2.375"Øx0.15"x72.5" LONG	63.50	4.50	C1	PIPE 2.375"Øx0.15"x72.5" LONG	63.50	4.50
A2	PIPE 2.375"Øx0.15"x72.5" LONG	63.50	26.50	C2	PIPE 2.375"Øx0.15"x72.5" LONG	63.50	26.50
A3	PIPE 2.375"Øx0.15"x72.5" LONG	63.50	62.75	C3	PIPE 2.375"Øx0.15"x72.5" LONG	63.50	62.75
A4	PIPE 2.375"Øx0.15"x72.5" LONG	63.50	93.00	C4	PIPE 2.375"Øx0.15"x72.5" LONG	63.50	93.00
A5	PIPE 2.375"Øx0.15"x72.5" LONG	63.50	123.50	C5	PIPE 2.375"Øx0.15"x72.5" LONG	63.50	123.50
A6				C6			
B1	PIPE 2.375"Øx0.15"x72.5" LONG	63.50	4.50	D1			
B2	PIPE 2.375"Øx0.15"x72.5" LONG	63.50	26.50	D2			
B3	PIPE 2.375"Øx0.15"x72.5" LONG	63.50	62.75	D3			
B4	PIPE 2.375"Øx0.15"x72.5" LONG	63.50	93.00	D4			
B5	PIPE 2.375"Øx0.15"x72.5" LONG	63.50	123.50	D5			
B6				D6			

Distance between bottom rail and mount CL elevation (dim d). Unit is inches. See 'Mount Elev Ref' tab for details. :	
Distance from top of bottom support rail to lowest tip of ant./eqpt. of Carrier above. (N/A if > 10 ft.) :	6
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.):		Tower Leg Size or Pole Shaft Diameter at Mount Elev. (in.):	26.11



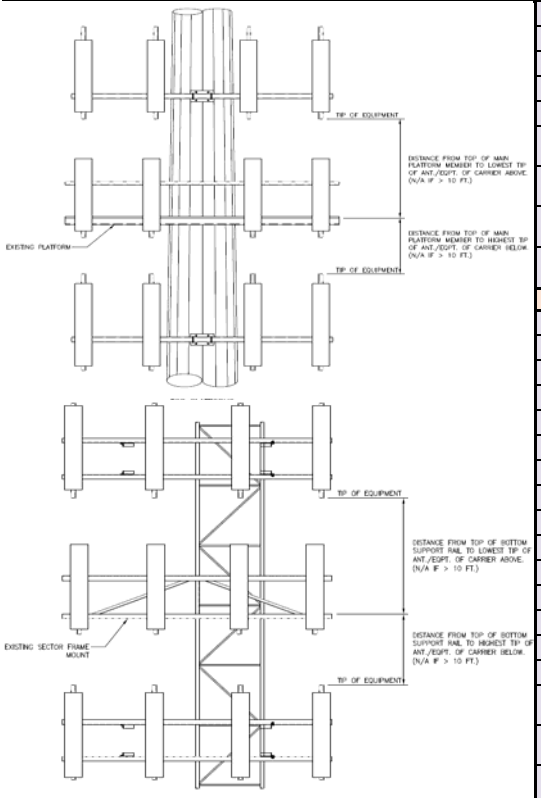


Antenna Layout (Looking Out From Tower)

Ants. Items	Enter antenna model. If not labeled, enter "Unknown". Antenna Models if Known	Width (in.)	Depth (in.)	Height (in.)	Coax Size and Qty	Antenna Center-line (Ft.)	Mounting Locations [Units are inches and degrees] Vertical Distances"b_{1a}, b_{2a}, b_{3a}, b_{1b}...." (Inches)	Horiz. Offset "h" (Use "-" if Ant. is behind)	Antenna Azimuth (Degrees)	Photos of antennas Photo Numbers
Sector A										
Ant_{1a}										
Ant_{1b}	UNKNOWN-PANEL	12.75	6.50	70.25		67.0383	31.00	16.75	0.00	244
Ant_{1c}										
Ant_{2a}	B4 RRH2x60-4R	10.63	5.75	36.60		67.2675	28.25	-14.00		244
Ant_{2b}	SBNHH-1D65B	11.90	7.10	72.00		67.0383	31.00	7.75	0.00	244
Ant_{2c}										
Ant_{3a}	B13 RRH4x30	12.00	9.00	21.60		67.8925	20.75	-15.50		246
Ant_{3b}	SBNHH-1D65B	11.90	7.10	72.00		67.0383	31.00	7.75	0.00	246
Ant_{3c}										
Ant_{4a}	B25 RRH4x30	12.00	7.20	21.20		67.4967	25.50	-25.25		246
Ant_{4b}	SBNHH-1D65B	11.90	7.10	72.00		67.0383	31.00	7.75	0.00	246
Ant_{4c}										
Ant_{5a}										
Ant_{5b}	UNKNOWN-PANEL	12.75	6.50	70.25		67.0383	31.00	16.75	0.00	246
Ant_{5c}										
Ant on Standoff	RRFDC-3315-PF-48	15.73	10.25	25.66			0.58	6.30		245-246
Ant on Standoff										
Ant on Tower										
Ant on Tower										

Mount Azimuth (Degree) for Each Sector			Tower Leg Azimuth (Degree) for Each Sector		
Sector A:	0.00	Deg	Leg A:		Deg
Sector B:	120.00	Deg	Leg B:		Deg
Sector C:	240.00	Deg	Leg C:		Deg
Sector D:		Deg	Leg D:		Deg

Climbing Facility Information		
Location:	0.00 Deg	N/A
Climbing Facility	Corrosion Type:	N/A
	Access:	Climbing path was unobstructed.
	Condition:	Good condition.



Sector B										
Ant_{1a}										
Ant_{1b}	DR846F65ZAXY	12.75	6.50	70.25		67.0383	31.00	16.75	120.00	248
Ant_{1c}										
Ant_{2a}	B4 RRH2x60-4R	10.63	5.75	36.60		67.2675	28.25	-14.00		248
Ant_{2b}	SBNHH-1D65B	11.90	7.10	72.00		66.955	32.00	14.00	120.00	248
Ant_{2c}										
Ant_{3a}	B13 RRH4x30	12.00	9.00	21.60		67.8925	20.75	-15.50		248
Ant_{3b}	SBNHH-1D65B	11.90	7.10	72.00		66.955	32.00	14.00	120.00	248
Ant_{3c}										
Ant_{4a}	B25 RRH4x30	12.00	7.20	21.20		67.4967	25.50	-15.25		249
Ant_{4b}	SBNHH-1D65B	11.90	7.10	72.00		66.955	32.00	14.00	120.00	249
Ant_{4c}										
Ant_{5a}										
Ant_{5b}	DR846F65ZAXY	12.75	6.50	70.25		66.5383	37.00	16.75	120.00	249
Ant_{5c}										
Ant on Standoff	RRFDC-3315-PF-48	15.73	10.25	25.66			0.58	6.30		225
Ant on Standoff										
Ant on Tower										
Ant on Tower										
Sector C										
Ant_{1a}										
Ant_{1b}	UNKNOWN-PANEL	9.50	8.00	72.50		66.6842	35.25	11.00	240.00	251
Ant_{1c}										
Ant_{2a}	B4 RRH2x60-4R	10.63	5.75	36.60		67.2675	28.25	-14.00		251
Ant_{2b}	SBNHH-1D65B	11.90	7.10	72.00		67.0383	31.00	7.75	240.00	251
Ant_{2c}										
Ant_{3a}	B13 RRH4x30	12.00	9.00	21.60		67.8925	20.75	-15.50		252
Ant_{3b}	SBNHH-1D65B	11.90	7.10	72.00		67.0383	31.00	7.75	240.00	252
Ant_{3c}										
Ant_{4a}	B25 RRH4x30	12.00	7.20	21.20		67.4967	25.50	-15.25		253
Ant_{4b}	SBNHH-1D65B	11.90	7.10	72.00		67.0383	31.00	7.75	240.00	253
Ant_{4c}										
Ant_{5a}										
Ant_{5b}	UNKNOWN PANEL	9.50	8.00	72.50		66.6842	35.25	11.00	240.00	253
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	COAX: TOTAL (14): (6) FH 1-5/8, (2) 1.50"Ø, (6) FH 1-5/8 CUT COAX	
2		
3		
4		
5		
6		
7		
8		

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

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

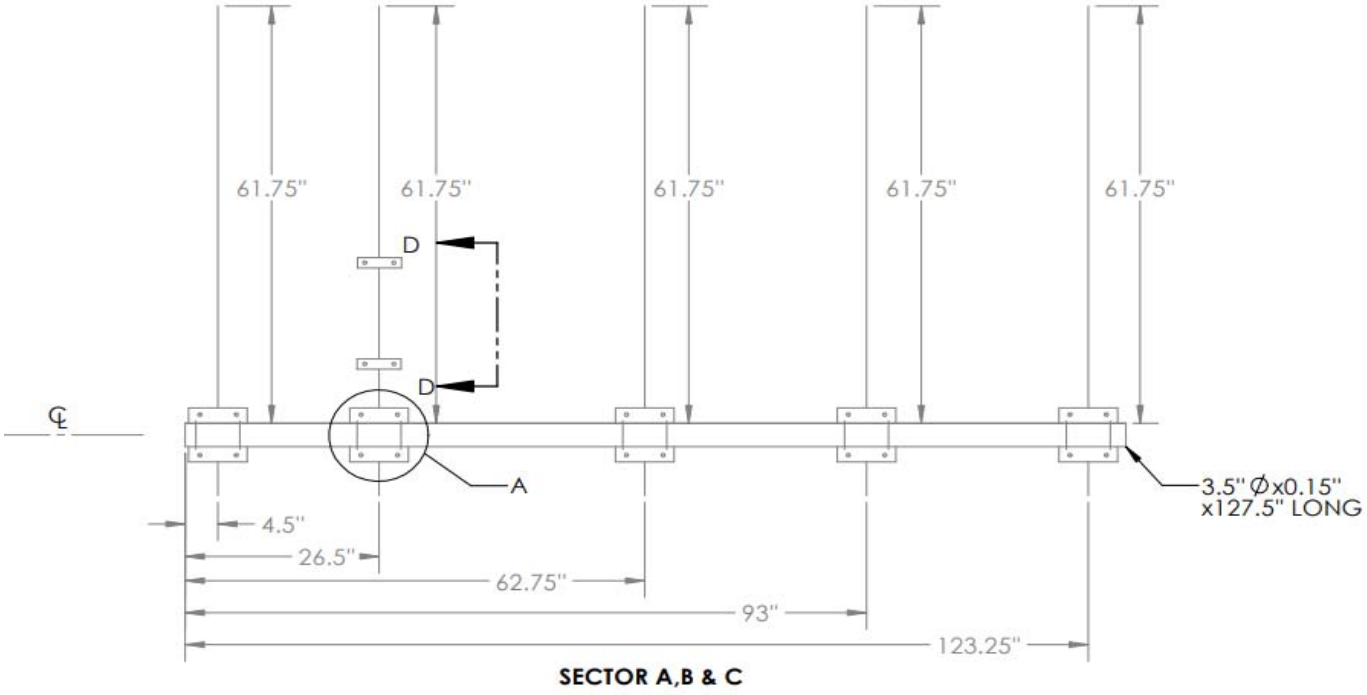
V3.0 Updated on 8-31-2020

Antenna Mount Mapping Form (PATENT PENDING)

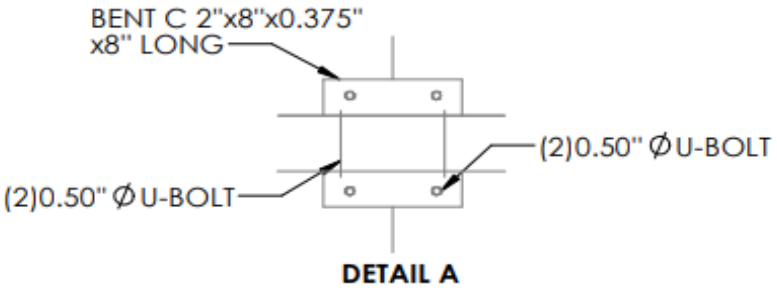
FCC # 1273764

Tower Owner:	SBA	**Mapping Date:**	1/16/2021
Site Name:	VZW:CROMWELL CT	**Tower Type:**	Monopole
Site Number or ID:	SBA:CT46122	**Tower Height (Ft.):**	UNKNOWN
Mapping Contractor:	RKS DESIGN & ENGINEERINF LLC	**Mount Elevation (Ft.):**	64.33

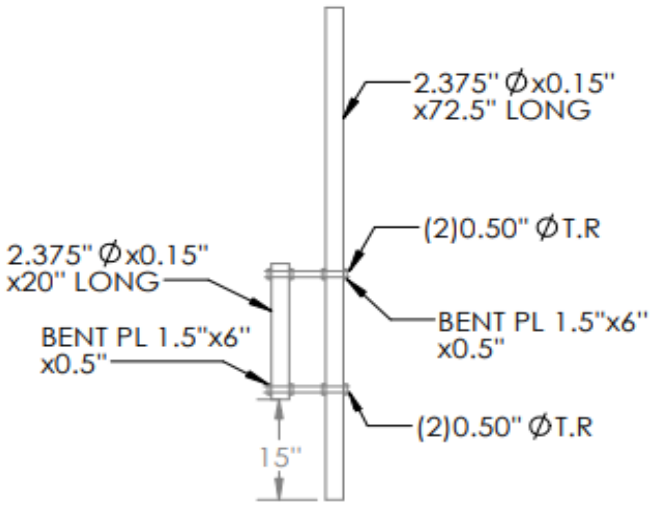
Please Insert Sketches of the Antenna Mount



SECTOR A,B & C

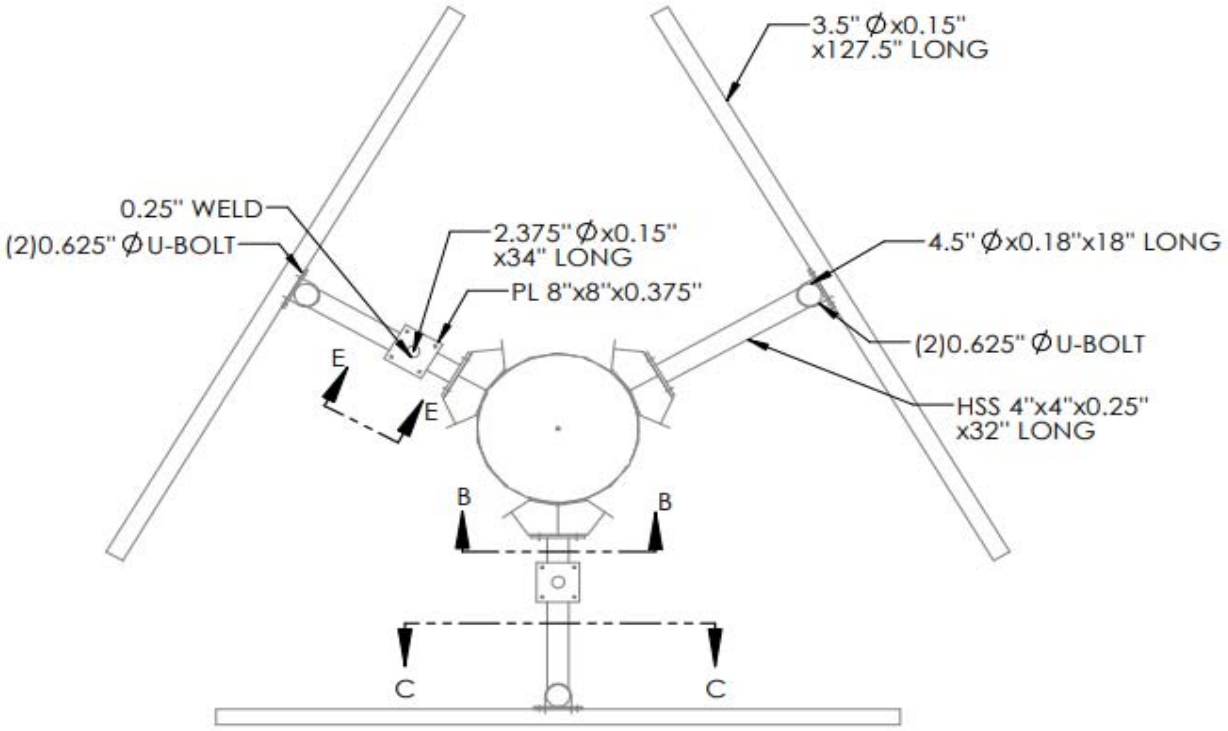


DETAIL A

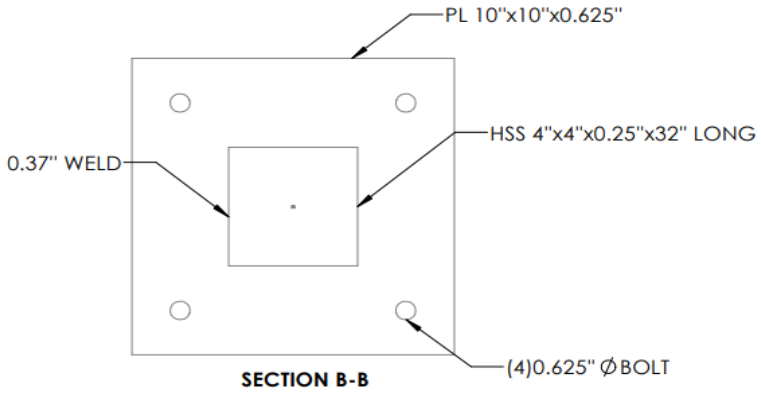


SECTION D-D

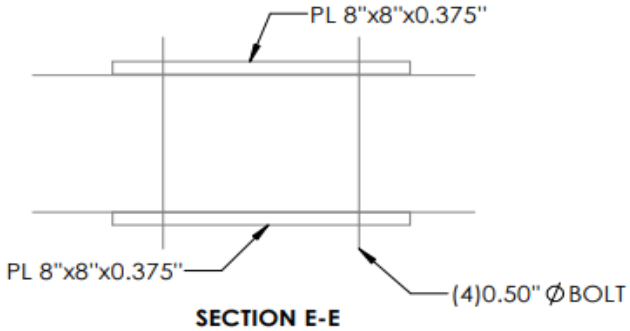
Please Insert Sketches of the Antenna Mount, cont'd



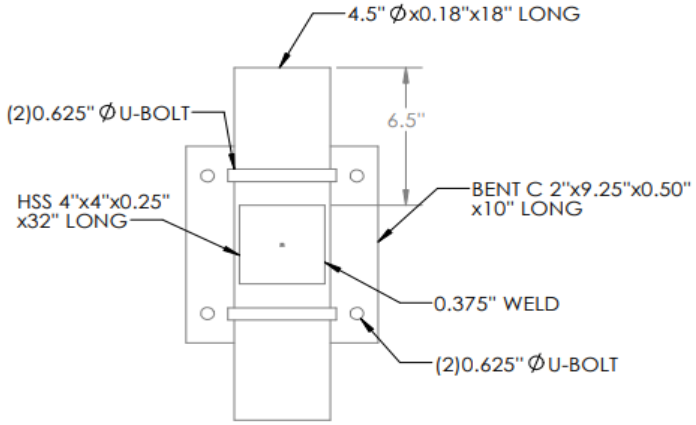
MOUNT PLAN VIEW



SECTION B-B

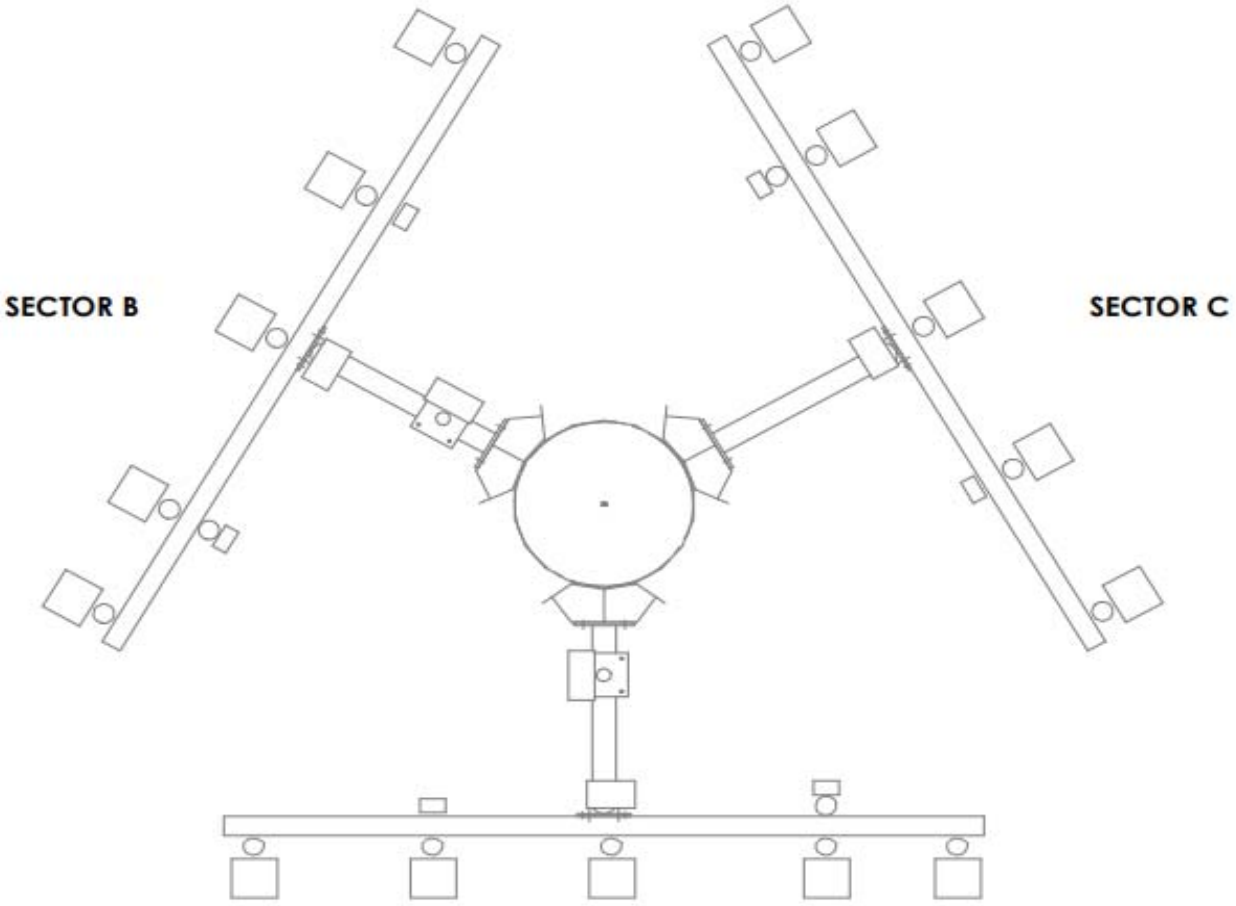


SECTION E-E

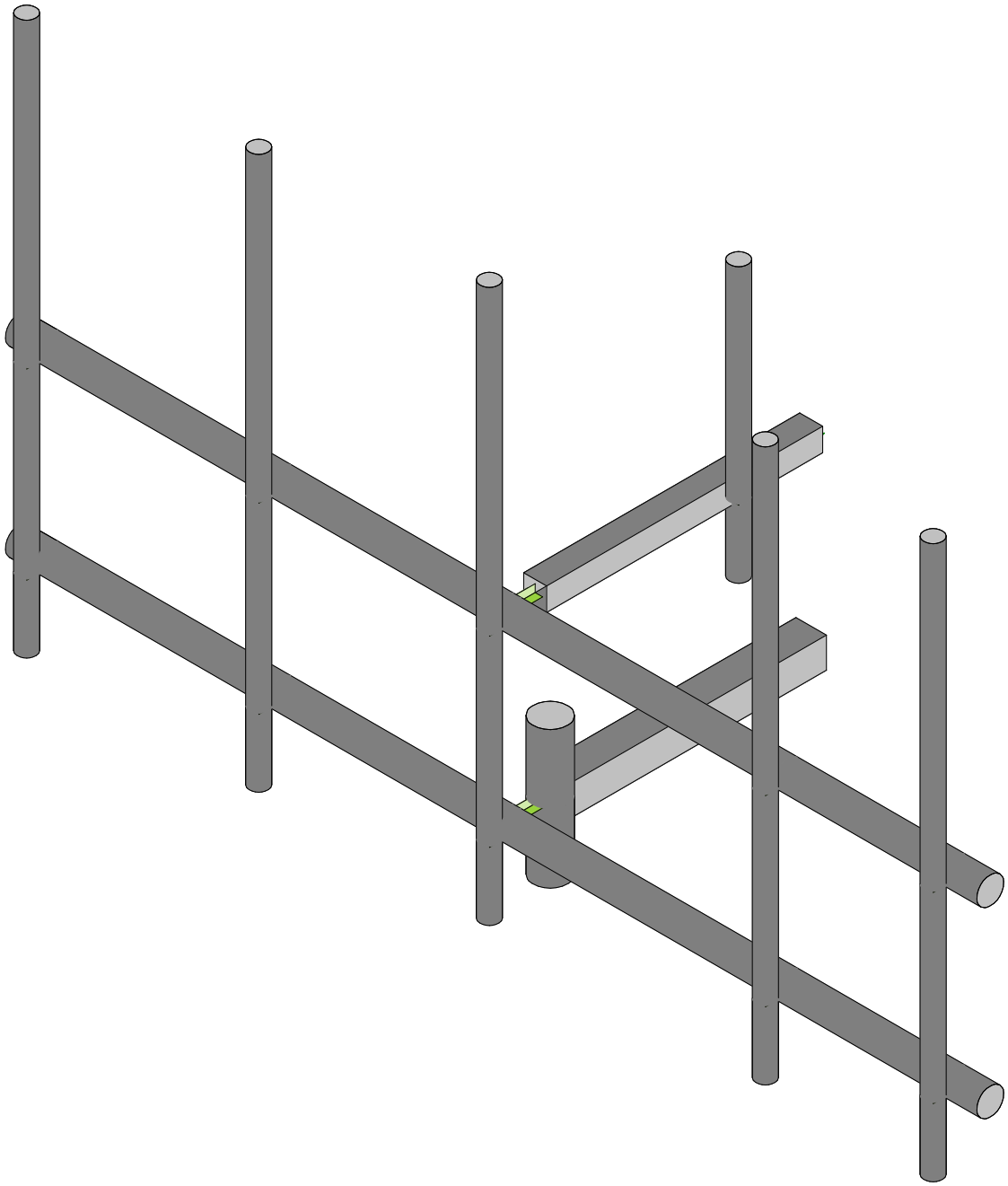


SECTION C-C

Please Insert Sketches of the Antenna Mount, cont'd

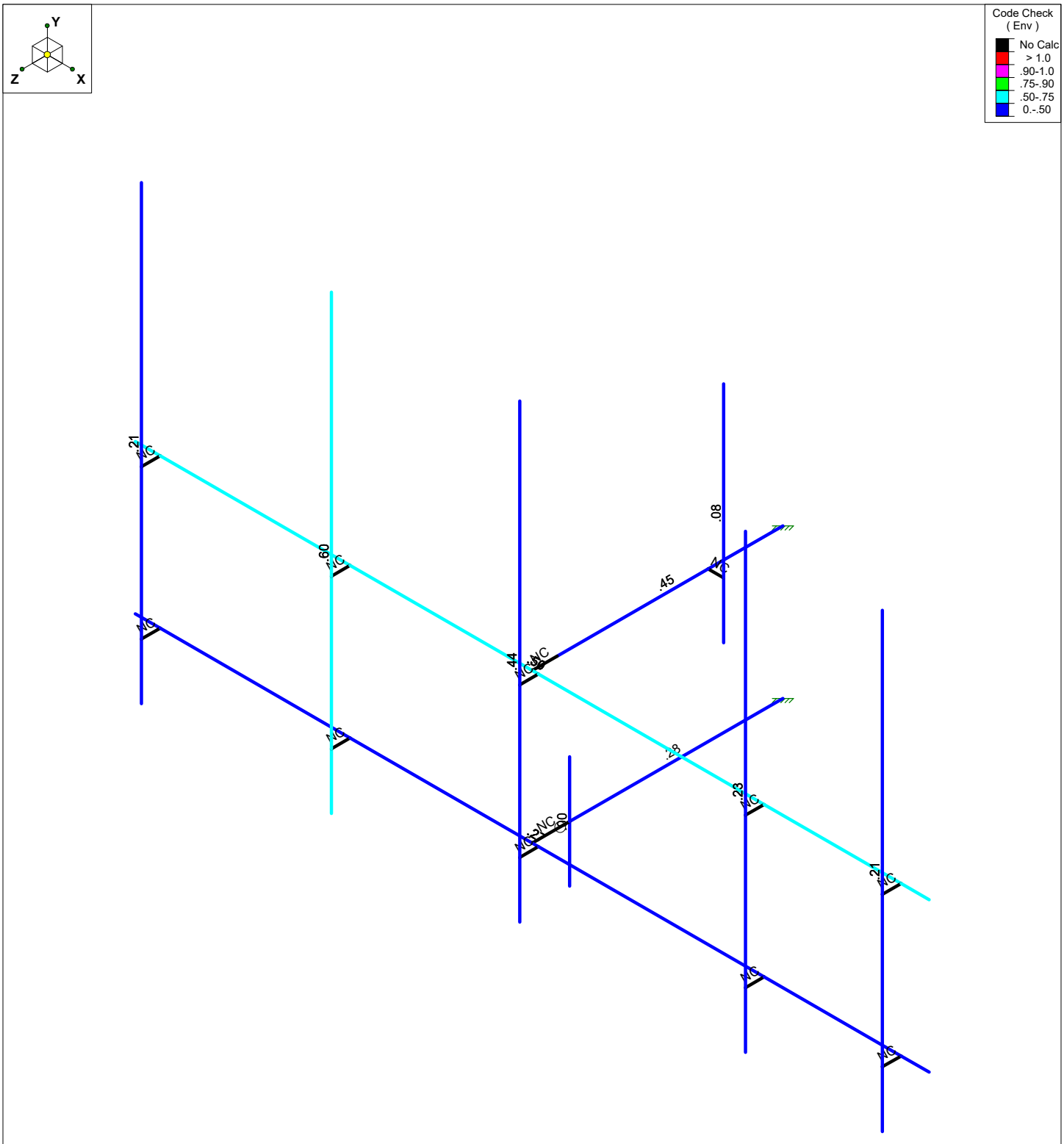


ANTENNA PALN VIEW



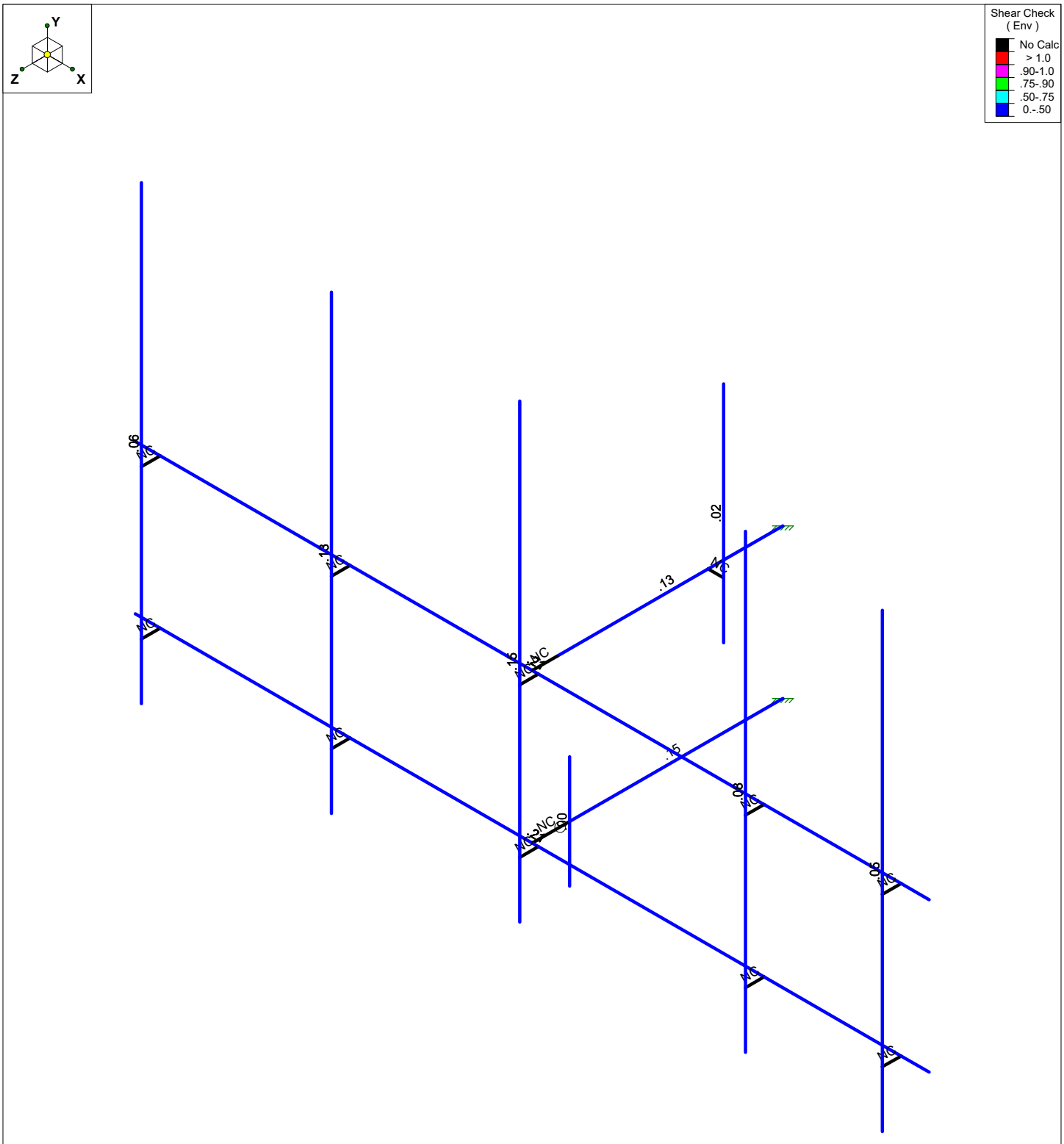
Envelope Only Solution

Maser Consulting	467921-VZW_MT_LOT_SectorA_H	SK - 1
		Feb 24, 2021 at 9:26 AM
Project No. 10035984		467921-VZW_MT_LOT_A_H.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Maser Consulting	467921-VZW_MT_LOT_SectorA_H	SK - 1
		Feb 25, 2021 at 2:33 PM
Project No. 10039467		467921-VZW_MT_LOT_A_H.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Maser Consulting	467921-VZW_MT_LOT_SectorA_H	SK - 2
		Feb 25, 2021 at 2:33 PM
Project No. 10039467		467921-VZW_MT_LOT_A_H.r3d

Basic Load Cases

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

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
57	Structure Wi (120 De...	None						22		
58	Structure Wi (150 De...	None						22		
59	Structure Wi (180 De...	None						22		
60	Structure Wi (210 De...	None						22		
61	Structure Wi (240 De...	None						22		
62	Structure Wi (270 De...	None						22		
63	Structure Wi (300 De...	None						22		
64	Structure Wi (330 De...	None						22		
65	Structure Wm (0 Deg)	None						22		
66	Structure Wm (30 De...	None						22		
67	Structure Wm (60 De...	None						22		
68	Structure Wm (90 De...	None						22		
69	Structure Wm (120 D...	None						22		
70	Structure Wm (150 D...	None						22		
71	Structure Wm (180 D...	None						22		
72	Structure Wm (210 D...	None						22		
73	Structure Wm (240 D...	None						22		
74	Structure Wm (270 D...	None						22		
75	Structure Wm (300 D...	None						22		
76	Structure Wm (330 D...	None						22		
77	Lm1	None					1			
78	Lm2	None					1			
79	Lv1	None					1			
80	Lv2	None					1			

Load Combinations

	Description	Solve	PD...	SR...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
1	1.2D+1.0...	Yes	Y		1	1.2	39	1.2	3	1	41	1												
2	1.2D+1.0...	Yes	Y		1	1.2	39	1.2	4	1	42	1												
3	1.2D+1.0...	Yes	Y		1	1.2	39	1.2	5	1	43	1												
4	1.2D+1.0...	Yes	Y		1	1.2	39	1.2	6	1	44	1												
5	1.2D+1.0...	Yes	Y		1	1.2	39	1.2	7	1	45	1												
6	1.2D+1.0...	Yes	Y		1	1.2	39	1.2	8	1	46	1												
7	1.2D+1.0...	Yes	Y		1	1.2	39	1.2	9	1	47	1												
8	1.2D+1.0...	Yes	Y		1	1.2	39	1.2	10	1	48	1												
9	1.2D+1.0...	Yes	Y		1	1.2	39	1.2	11	1	49	1												
10	1.2D+1.0...	Yes	Y		1	1.2	39	1.2	12	1	50	1												
11	1.2D+1.0...	Yes	Y		1	1.2	39	1.2	13	1	51	1												
12	1.2D+1.0...	Yes	Y		1	1.2	39	1.2	14	1	52	1												
13	1.2D + 1.0...	Yes	Y		1	1.2	39	1.2	2	1	40	1	15	1	53	1								
14	1.2D + 1.0...	Yes	Y		1	1.2	39	1.2	2	1	40	1	16	1	54	1								
15	1.2D + 1.0...	Yes	Y		1	1.2	39	1.2	2	1	40	1	17	1	55	1								
16	1.2D + 1.0...	Yes	Y		1	1.2	39	1.2	2	1	40	1	18	1	56	1								
17	1.2D + 1.0...	Yes	Y		1	1.2	39	1.2	2	1	40	1	19	1	57	1								
18	1.2D + 1.0...	Yes	Y		1	1.2	39	1.2	2	1	40	1	20	1	58	1								
19	1.2D + 1.0...	Yes	Y		1	1.2	39	1.2	2	1	40	1	21	1	59	1								
20	1.2D + 1.0...	Yes	Y		1	1.2	39	1.2	2	1	40	1	22	1	60	1								
21	1.2D + 1.0...	Yes	Y		1	1.2	39	1.2	2	1	40	1	23	1	61	1								
22	1.2D + 1.0...	Yes	Y		1	1.2	39	1.2	2	1	40	1	24	1	62	1								
23	1.2D + 1.0...	Yes	Y		1	1.2	39	1.2	2	1	40	1	25	1	63	1								
24	1.2D + 1.0...	Yes	Y		1	1.2	39	1.2	2	1	40	1	26	1	64	1								
25	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	77	1.5	27	1	65	1										
26	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	77	1.5	28	1	66	1										
27	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	77	1.5	29	1	67	1										
28	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	77	1.5	30	1	68	1										

Load Combinations (Continued)

	Description	Solve	PD	SR	BLC	Fact	BLC	Fact	BLC	Fact	BLC	Fact	BLC	Fact	BLC	Fact	BLC	Fact	BLC	Fact	BLC	Fact	BLC	Fact
29	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	77	1.5	31	1	69	1										
30	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	77	1.5	32	1	70	1										
31	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	77	1.5	33	1	71	1										
32	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	77	1.5	34	1	72	1										
33	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	77	1.5	35	1	73	1										
34	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	77	1.5	36	1	74	1										
35	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	77	1.5	37	1	75	1										
36	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	77	1.5	38	1	76	1										
37	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	78	1.5	27	1	65	1										
38	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	78	1.5	28	1	66	1										
39	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	78	1.5	29	1	67	1										
40	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	78	1.5	30	1	68	1										
41	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	78	1.5	31	1	69	1										
42	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	78	1.5	32	1	70	1										
43	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	78	1.5	33	1	71	1										
44	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	78	1.5	34	1	72	1										
45	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	78	1.5	35	1	73	1										
46	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	78	1.5	36	1	74	1										
47	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	78	1.5	37	1	75	1										
48	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	78	1.5	38	1	76	1										
49	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	79	1.5														
50	1.2D + 1.5...	Yes	Y		1	1.2	39	1.2	80	1.5														
51	1.4D	Yes	Y		1	1.4	39	1.4																

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N2	-6.479167	.76	.25	0	
2	N3	4.145833	.76	.25	0	
3	N46A	3.770833	.76	.25	0	
4	N50	3.770833	.76	.5	0	
5	N52	3.770833	6.051667	.5	0	
6	N53	3.770833	0.01	.5	0	
7	N53A	-1.166667	.76	.25	0	
8	N54A	-1.166667	.76	-0.25	0	
9	N33A	-1.166667	1.51	-0.25	0	
10	N34A	-1.166667	.01	-0.25	0	
11	N35B	-1.166667	.76	-3.104167	0	
12	N12	1.9375	.76	.25	0	
13	N13	1.9375	.76	.5	0	
14	N14	1.9375	6.051667	.5	0	
15	N15	1.9375	0.01	.5	0	
16	N16	-1.083333	.76	.25	0	
17	N17	-1.083333	.76	.5	0	
18	N18	-1.083333	6.051667	.5	0	
19	N19	-1.083333	0.01	.5	0	
20	N20	-3.604167	.76	.25	0	
21	N21	-3.604167	.76	.5	0	
22	N22	-3.604167	6.051667	.5	0	
23	N23	-3.604167	0.01	.5	0	
24	N24	-6.145833	.76	.25	0	
25	N25	-6.145833	.76	.5	0	
26	N26	-6.145833	6.051667	.5	0	
27	N27	-6.145833	0.01	.5	0	
28	N31	-6.479167	2.76	.25	0	
29	N32	4.145833	2.76	.25	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
30	N33	3.770833	2.76	.25	0	
31	N34	3.770833	2.76	.5	0	
32	N35	1.9375	2.76	.25	0	
33	N36	1.9375	2.76	.5	0	
34	N37	-1.083333	2.76	.25	0	
35	N38	-1.083333	2.76	.5	0	
36	N39	-3.604167	2.76	.25	0	
37	N40	-3.604167	2.76	.5	0	
38	N41	-6.145833	2.76	.25	0	
39	N42	-6.145833	2.76	.5	0	
40	N44	-1.166667	2.76	-3.104167	0	
41	N45	-1.166667	2.76	.25	0	
42	N46	-1.166667	2.76	-0.083333	0	
43	N48	-1.166667	2.76	-2.104167	0	
44	N49	-0.958333	2.76	-2.104167	0	
45	N48A	-0.958333	2.01	-2.104167	0	
46	N49A	-0.958333	5.01	-2.104167	0	

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design L...	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Mount Pipe	PIPE_2.0	Column	Pipe	A53 Gr. B	Typical	1.02	.627	.627	1.25
2	Face Horizontal	PIPE_3.0	Beam	Pipe	A53 Gr. B	Typical	2.07	2.85	2.85	5.69
3	Standoff Horizontal	HSS4X4X4	Beam	SquareT...	A500 Gr. B 46	Typical	3.37	7.8	7.8	12.8
4	Standoff Mount Pipe	PIPE_4.0	Column	Pipe	A53 Gr. B	Typical	2.96	6.82	6.82	13.6
5	MOD Face Horizontal	PIPE_3.0	Beam	Pipe	A53 Gr. B	Typical	2.07	2.85	2.85	5.69
6	MOD Standoff Horizon...	HSS3X3X4	Beam	SquareT...	A500 Gr. B 46	Typical	2.44	3.02	3.02	5.08

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	Face Horizo...	10.625			Lbyy						Lateral
2	MP1A	Mount Pipe	6.042									Lateral
3	M17A	Standoff Mo...	1.5									Lateral
4	M18A	Standoff Ho...	2.854			Lbyy						Lateral
5	MP2A	Mount Pipe	6.042									Lateral
6	MP3A	Mount Pipe	6.042									Lateral
7	MP4A	Mount Pipe	6.042									Lateral
8	MP5A	Mount Pipe	6.042									Lateral
9	M17	MOD Face ...	10.625			Lbyy						Lateral
10	M23	MOD Stand...	3.021			Lbyy						Lateral
11	OVP	Mount Pipe	3									Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N2	N3			Face Horizontal	Beam	Pipe	A53 Gr. B	Typical
2	M28	N46A	N50			RIGID	None	None	RIGID	Typical
3	MP1A	N52	N53			Mount Pipe	Column	Pipe	A53 Gr. B	Typical
4	M31A	N53A	N54A			RIGID	None	None	RIGID	Typical
5	M17A	N34A	N33A			Standoff Moun..	Column	Pipe	A53 Gr. B	Typical
6	M18A	N54A	N35B			Standoff Horiz...	Beam	SquareTube	A500 Gr. ...	Typical
7	M7	N12	N13			RIGID	None	None	RIGID	Typical
8	MP2A	N14	N15			Mount Pipe	Column	Pipe	A53 Gr. B	Typical
9	M9	N16	N17			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
10	MP3A	N18	N19			Mount Pipe	Column	Pipe	A53 Gr. B	Typical
11	M11	N20	N21			RIGID	None	None	RIGID	Typical
12	MP4A	N22	N23			Mount Pipe	Column	Pipe	A53 Gr. B	Typical
13	M13	N24	N25			RIGID	None	None	RIGID	Typical
14	MP5A	N26	N27			Mount Pipe	Column	Pipe	A53 Gr. B	Typical
15	M17	N31	N32			MOD Face Ho...	Beam	Pipe	A53 Gr. B	Typical
16	M18	N33	N34			RIGID	None	None	RIGID	Typical
17	M19	N35	N36			RIGID	None	None	RIGID	Typical
18	M20	N37	N38			RIGID	None	None	RIGID	Typical
19	M21	N39	N40			RIGID	None	None	RIGID	Typical
20	M22	N41	N42			RIGID	None	None	RIGID	Typical
21	M23	N46	N44			MOD Standoff ...	Beam	SquareTube	A500 Gr. ...	Typical
22	M24	N45	N46			RIGID	None	None	RIGID	Typical
23	M25	N48	N49			RIGID	None	None	RIGID	Typical
24	OVP	N49A	N48A			Mount Pipe	Column	Pipe	A53 Gr. B	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1						Yes				None
2	M28						Yes	** NA **			None
3	MP1A						Yes	** NA **			None
4	M31A		OOOOOO				Yes	** NA **			None
5	M17A						Yes	** NA **			None
6	M18A						Yes	Default			None
7	M7						Yes	** NA **			None
8	MP2A						Yes	** NA **			None
9	M9						Yes	** NA **			None
10	MP3A						Yes	** NA **			None
11	M11						Yes	** NA **			None
12	MP4A						Yes	** NA **			None
13	M13						Yes	** NA **			None
14	MP5A						Yes	** NA **			None
15	M17						Yes	Default			None
16	M18						Yes	** NA **			None
17	M19						Yes	** NA **			None
18	M20						Yes	** NA **			None
19	M21						Yes	** NA **			None
20	M22						Yes	** NA **			None
21	M23						Yes	Default			None
22	M24						Yes	** NA **			None
23	M25						Yes	** NA **			None
24	OVP						Yes	** NA **			None

Member Point Loads (BLC 1 : Antenna D)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	Y	-31.65	.5
2	MP4A	My	-.016	.5
3	MP4A	Mz	.02	.5
4	MP4A	Y	-31.65	5.5
5	MP4A	My	-.016	5.5
6	MP4A	Mz	.02	5.5
7	MP4A	Y	-31.65	.5
8	MP4A	My	-.016	.5
9	MP4A	Mz	-.02	.5

Member Point Loads (BLC 1 : Antenna D) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
10	MP4A	Y	-31.65	5.5
11	MP4A	My	-.016	5.5
12	MP4A	Mz	-.02	5.5
13	MP2A	Y	-43.55	2.5
14	MP2A	My	-.022	2.5
15	MP2A	Mz	0	2.5
16	MP2A	Y	-43.55	3.5
17	MP2A	My	-.022	3.5
18	MP2A	Mz	0	3.5
19	MP1A	Y	-10.5	.5
20	MP1A	My	-.005	.5
21	MP1A	Mz	.002	.5
22	MP1A	Y	-10.5	5.5
23	MP1A	My	-.005	5.5
24	MP1A	Mz	.002	5.5
25	MP5A	Y	-10.5	.5
26	MP5A	My	-.005	.5
27	MP5A	Mz	.002	.5
28	MP5A	Y	-10.5	5.5
29	MP5A	My	-.005	5.5
30	MP5A	Mz	.002	5.5
31	MP4A	Y	-10.4	.25
32	MP4A	My	.005	.25
33	MP4A	Mz	0	.25
34	MP4A	Y	-84.4	1.75
35	MP4A	My	.042	1.75
36	MP4A	Mz	0	1.75
37	MP3A	Y	-70.3	1.75
38	MP3A	My	.035	1.75
39	MP3A	Mz	0	1.75
40	OVP	Y	-44	1.25
41	OVP	My	0	1.25
42	OVP	Mz	0	1.25

Member Point Loads (BLC 2 : Antenna Di)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	Y	-64.313	.5
2	MP4A	My	-.032	.5
3	MP4A	Mz	.04	.5
4	MP4A	Y	-64.313	5.5
5	MP4A	My	-.032	5.5
6	MP4A	Mz	.04	5.5
7	MP4A	Y	-64.313	.5
8	MP4A	My	-.032	.5
9	MP4A	Mz	-.04	.5
10	MP4A	Y	-64.313	5.5
11	MP4A	My	-.032	5.5
12	MP4A	Mz	-.04	5.5
13	MP2A	Y	-32.697	2.5
14	MP2A	My	-.016	2.5
15	MP2A	Mz	0	2.5
16	MP2A	Y	-32.697	3.5
17	MP2A	My	-.016	3.5
18	MP2A	Mz	0	3.5
19	MP1A	Y	-54.408	.5
20	MP1A	My	-.026	.5

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
21	MP1A	Mz	.009	.5
22	MP1A	Y	-54.408	5.5
23	MP1A	My	-.026	5.5
24	MP1A	Mz	.009	5.5
25	MP5A	Y	-54.408	.5
26	MP5A	My	-.026	.5
27	MP5A	Mz	.009	.5
28	MP5A	Y	-54.408	5.5
29	MP5A	My	-.026	5.5
30	MP5A	Mz	.009	5.5
31	MP4A	Y	-9.796	.25
32	MP4A	My	.005	.25
33	MP4A	Mz	0	.25
34	MP4A	Y	-41.209	1.75
35	MP4A	My	.021	1.75
36	MP4A	Mz	0	1.75
37	MP3A	Y	-36.872	1.75
38	MP3A	My	.018	1.75
39	MP3A	Mz	0	1.75
40	OVP	Y	-67.528	1.25
41	OVP	My	0	1.25
42	OVP	Mz	0	1.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	0	.5
2	MP4A	Z	-161.882	.5
3	MP4A	Mx	-.101	.5
4	MP4A	X	0	5.5
5	MP4A	Z	-161.882	5.5
6	MP4A	Mx	-.101	5.5
7	MP4A	X	0	.5
8	MP4A	Z	-161.882	.5
9	MP4A	Mx	.101	.5
10	MP4A	X	0	5.5
11	MP4A	Z	-161.882	5.5
12	MP4A	Mx	.101	5.5
13	MP2A	X	0	2.5
14	MP2A	Z	-83.517	2.5
15	MP2A	Mx	0	2.5
16	MP2A	X	0	3.5
17	MP2A	Z	-83.517	3.5
18	MP2A	Mx	0	3.5
19	MP1A	X	0	.5
20	MP1A	Z	-123.423	.5
21	MP1A	Mx	-.021	.5
22	MP1A	X	0	5.5
23	MP1A	Z	-123.423	5.5
24	MP1A	Mx	-.021	5.5
25	MP5A	X	0	.5
26	MP5A	Z	-123.423	.5
27	MP5A	Mx	-.021	.5
28	MP5A	X	0	5.5
29	MP5A	Z	-123.423	5.5
30	MP5A	Mx	-.021	5.5
31	MP4A	X	0	.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
32	MP4A	Z	-13.256	.25
33	MP4A	Mx	0	.25
34	MP4A	X	0	1.75
35	MP4A	Z	-66.568	1.75
36	MP4A	Mx	0	1.75
37	MP3A	X	0	1.75
38	MP3A	Z	-66.016	1.75
39	MP3A	Mx	0	1.75
40	OVP	X	0	1.25
41	OVP	Z	-130.75	1.25
42	OVP	Mx	0	1.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	73.996	.5
2	MP4A	Z	-128.165	.5
3	MP4A	Mx	-.117	.5
4	MP4A	X	73.996	5.5
5	MP4A	Z	-128.165	5.5
6	MP4A	Mx	-.117	5.5
7	MP4A	X	73.996	.5
8	MP4A	Z	-128.165	.5
9	MP4A	Mx	.043	.5
10	MP4A	X	73.996	5.5
11	MP4A	Z	-128.165	5.5
12	MP4A	Mx	.043	5.5
13	MP2A	X	35.406	2.5
14	MP2A	Z	-61.325	2.5
15	MP2A	Mx	-.018	2.5
16	MP2A	X	35.406	3.5
17	MP2A	Z	-61.325	3.5
18	MP2A	Mx	-.018	3.5
19	MP1A	X	57.989	.5
20	MP1A	Z	-100.44	.5
21	MP1A	Mx	-.044	.5
22	MP1A	X	57.989	5.5
23	MP1A	Z	-100.44	5.5
24	MP1A	Mx	-.044	5.5
25	MP5A	X	57.989	.5
26	MP5A	Z	-100.44	.5
27	MP5A	Mx	-.044	.5
28	MP5A	X	57.989	5.5
29	MP5A	Z	-100.44	5.5
30	MP5A	Mx	-.044	5.5
31	MP4A	X	6.117	.25
32	MP4A	Z	-10.596	.25
33	MP4A	Mx	.003	.25
34	MP4A	X	30.525	1.75
35	MP4A	Z	-52.871	1.75
36	MP4A	Mx	.015	1.75
37	MP3A	X	29.224	1.75
38	MP3A	Z	-50.617	1.75
39	MP3A	Mx	.015	1.75
40	OVP	X	58.749	1.25
41	OVP	Z	-101.756	1.25
42	OVP	Mx	0	1.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	104.106	.5
2	MP4A	Z	-60.106	.5
3	MP4A	Mx	-.09	.5
4	MP4A	X	104.106	5.5
5	MP4A	Z	-60.106	5.5
6	MP4A	Mx	-.09	5.5
7	MP4A	X	104.106	.5
8	MP4A	Z	-60.106	.5
9	MP4A	Mx	-.014	.5
10	MP4A	X	104.106	5.5
11	MP4A	Z	-60.106	5.5
12	MP4A	Mx	-.014	5.5
13	MP2A	X	39.319	2.5
14	MP2A	Z	-22.701	2.5
15	MP2A	Mx	-.02	2.5
16	MP2A	X	39.319	3.5
17	MP2A	Z	-22.701	3.5
18	MP2A	Mx	-.02	3.5
19	MP1A	X	95.184	.5
20	MP1A	Z	-54.955	.5
21	MP1A	Mx	-.054	.5
22	MP1A	X	95.184	5.5
23	MP1A	Z	-54.955	5.5
24	MP1A	Mx	-.054	5.5
25	MP5A	X	95.184	.5
26	MP5A	Z	-54.955	.5
27	MP5A	Mx	-.054	.5
28	MP5A	X	95.184	5.5
29	MP5A	Z	-54.955	5.5
30	MP5A	Mx	-.054	5.5
31	MP4A	X	8.827	.25
32	MP4A	Z	-5.096	.25
33	MP4A	Mx	.004	.25
34	MP4A	X	43.314	1.75
35	MP4A	Z	-25.007	1.75
36	MP4A	Mx	.022	1.75
37	MP3A	X	37.509	1.75
38	MP3A	Z	-21.656	1.75
39	MP3A	Mx	.019	1.75
40	OVP	X	78.803	1.25
41	OVP	Z	-45.497	1.25
42	OVP	Mx	0	1.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	106.322	.5
2	MP4A	Z	0	.5
3	MP4A	Mx	-.053	.5
4	MP4A	X	106.322	5.5
5	MP4A	Z	0	5.5
6	MP4A	Mx	-.053	5.5
7	MP4A	X	106.322	.5
8	MP4A	Z	0	.5
9	MP4A	Mx	-.053	.5
10	MP4A	X	106.322	5.5
11	MP4A	Z	0	5.5

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
12	MP4A	Mx	-.053	5.5
13	MP2A	X	32.697	2.5
14	MP2A	Z	0	2.5
15	MP2A	Mx	-.016	2.5
16	MP2A	X	32.697	3.5
17	MP2A	Z	0	3.5
18	MP2A	Mx	-.016	3.5
19	MP1A	X	111.285	.5
20	MP1A	Z	0	.5
21	MP1A	Mx	-.052	.5
22	MP1A	X	111.285	5.5
23	MP1A	Z	0	5.5
24	MP1A	Mx	-.052	5.5
25	MP5A	X	111.285	.5
26	MP5A	Z	0	.5
27	MP5A	Mx	-.052	.5
28	MP5A	X	111.285	5.5
29	MP5A	Z	0	5.5
30	MP5A	Mx	-.052	5.5
31	MP4A	X	9.172	.25
32	MP4A	Z	0	.25
33	MP4A	Mx	.005	.25
34	MP4A	X	44.497	1.75
35	MP4A	Z	0	1.75
36	MP4A	Mx	.022	1.75
37	MP3A	X	35.744	1.75
38	MP3A	Z	0	1.75
39	MP3A	Mx	.018	1.75
40	OVP	X	77.742	1.25
41	OVP	Z	0	1.25
42	OVP	Mx	0	1.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	104.106	.5
2	MP4A	Z	60.106	.5
3	MP4A	Mx	-.014	.5
4	MP4A	X	104.106	5.5
5	MP4A	Z	60.106	5.5
6	MP4A	Mx	-.014	5.5
7	MP4A	X	104.106	.5
8	MP4A	Z	60.106	.5
9	MP4A	Mx	-.09	.5
10	MP4A	X	104.106	5.5
11	MP4A	Z	60.106	5.5
12	MP4A	Mx	-.09	5.5
13	MP2A	X	39.319	2.5
14	MP2A	Z	22.701	2.5
15	MP2A	Mx	-.02	2.5
16	MP2A	X	39.319	3.5
17	MP2A	Z	22.701	3.5
18	MP2A	Mx	-.02	3.5
19	MP1A	X	102.823	.5
20	MP1A	Z	59.365	.5
21	MP1A	Mx	-.038	.5
22	MP1A	X	102.823	5.5

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
23	MP1A	Z	59.365	5.5
24	MP1A	Mx	-.038	5.5
25	MP5A	X	102.823	.5
26	MP5A	Z	59.365	.5
27	MP5A	Mx	-.038	.5
28	MP5A	X	102.823	5.5
29	MP5A	Z	59.365	5.5
30	MP5A	Mx	-.038	5.5
31	MP4A	X	8.827	.25
32	MP4A	Z	5.096	.25
33	MP4A	Mx	.004	.25
34	MP4A	X	43.314	1.75
35	MP4A	Z	25.007	1.75
36	MP4A	Mx	.022	1.75
37	MP3A	X	37.509	1.75
38	MP3A	Z	21.656	1.75
39	MP3A	Mx	.019	1.75
40	OVP	X	78.803	1.25
41	OVP	Z	45.497	1.25
42	OVP	Mx	0	1.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	73.996	.5
2	MP4A	Z	128.165	.5
3	MP4A	Mx	.043	.5
4	MP4A	X	73.996	5.5
5	MP4A	Z	128.165	5.5
6	MP4A	Mx	.043	5.5
7	MP4A	X	73.996	.5
8	MP4A	Z	128.165	.5
9	MP4A	Mx	-.117	.5
10	MP4A	X	73.996	5.5
11	MP4A	Z	128.165	5.5
12	MP4A	Mx	-.117	5.5
13	MP2A	X	35.406	2.5
14	MP2A	Z	61.325	2.5
15	MP2A	Mx	-.018	2.5
16	MP2A	X	35.406	3.5
17	MP2A	Z	61.325	3.5
18	MP2A	Mx	-.018	3.5
19	MP1A	X	62.399	.5
20	MP1A	Z	108.079	.5
21	MP1A	Mx	-.011	.5
22	MP1A	X	62.399	5.5
23	MP1A	Z	108.079	5.5
24	MP1A	Mx	-.011	5.5
25	MP5A	X	62.399	.5
26	MP5A	Z	108.079	.5
27	MP5A	Mx	-.011	.5
28	MP5A	X	62.399	5.5
29	MP5A	Z	108.079	5.5
30	MP5A	Mx	-.011	5.5
31	MP4A	X	6.117	.25
32	MP4A	Z	10.596	.25
33	MP4A	Mx	.003	.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
34	MP4A	X	30.525	1.75
35	MP4A	Z	52.871	1.75
36	MP4A	Mx	.015	1.75
37	MP3A	X	29.224	1.75
38	MP3A	Z	50.617	1.75
39	MP3A	Mx	.015	1.75
40	OVP	X	58.749	1.25
41	OVP	Z	101.756	1.25
42	OVP	Mx	0	1.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	0	.5
2	MP4A	Z	161.882	.5
3	MP4A	Mx	.101	.5
4	MP4A	X	0	5.5
5	MP4A	Z	161.882	5.5
6	MP4A	Mx	.101	5.5
7	MP4A	X	0	.5
8	MP4A	Z	161.882	.5
9	MP4A	Mx	-.101	.5
10	MP4A	X	0	5.5
11	MP4A	Z	161.882	5.5
12	MP4A	Mx	-.101	5.5
13	MP2A	X	0	2.5
14	MP2A	Z	83.517	2.5
15	MP2A	Mx	0	2.5
16	MP2A	X	0	3.5
17	MP2A	Z	83.517	3.5
18	MP2A	Mx	0	3.5
19	MP1A	X	0	.5
20	MP1A	Z	123.423	.5
21	MP1A	Mx	.021	.5
22	MP1A	X	0	5.5
23	MP1A	Z	123.423	5.5
24	MP1A	Mx	.021	5.5
25	MP5A	X	0	.5
26	MP5A	Z	123.423	.5
27	MP5A	Mx	.021	.5
28	MP5A	X	0	5.5
29	MP5A	Z	123.423	5.5
30	MP5A	Mx	.021	5.5
31	MP4A	X	0	.25
32	MP4A	Z	13.256	.25
33	MP4A	Mx	0	.25
34	MP4A	X	0	1.75
35	MP4A	Z	66.568	1.75
36	MP4A	Mx	0	1.75
37	MP3A	X	0	1.75
38	MP3A	Z	66.016	1.75
39	MP3A	Mx	0	1.75
40	OVP	X	0	1.25
41	OVP	Z	130.75	1.25
42	OVP	Mx	0	1.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-73.996	.5
2	MP4A	Z	128.165	.5
3	MP4A	Mx	.117	.5
4	MP4A	X	-73.996	5.5
5	MP4A	Z	128.165	5.5
6	MP4A	Mx	.117	5.5
7	MP4A	X	-73.996	.5
8	MP4A	Z	128.165	.5
9	MP4A	Mx	-.043	.5
10	MP4A	X	-73.996	5.5
11	MP4A	Z	128.165	5.5
12	MP4A	Mx	-.043	5.5
13	MP2A	X	-35.406	2.5
14	MP2A	Z	61.325	2.5
15	MP2A	Mx	.018	2.5
16	MP2A	X	-35.406	3.5
17	MP2A	Z	61.325	3.5
18	MP2A	Mx	.018	3.5
19	MP1A	X	-57.989	.5
20	MP1A	Z	100.44	.5
21	MP1A	Mx	.044	.5
22	MP1A	X	-57.989	5.5
23	MP1A	Z	100.44	5.5
24	MP1A	Mx	.044	5.5
25	MP5A	X	-57.989	.5
26	MP5A	Z	100.44	.5
27	MP5A	Mx	.044	.5
28	MP5A	X	-57.989	5.5
29	MP5A	Z	100.44	5.5
30	MP5A	Mx	.044	5.5
31	MP4A	X	-6.117	.25
32	MP4A	Z	10.596	.25
33	MP4A	Mx	-.003	.25
34	MP4A	X	-30.525	1.75
35	MP4A	Z	52.871	1.75
36	MP4A	Mx	-.015	1.75
37	MP3A	X	-29.224	1.75
38	MP3A	Z	50.617	1.75
39	MP3A	Mx	-.015	1.75
40	OVP	X	-58.749	1.25
41	OVP	Z	101.756	1.25
42	OVP	Mx	0	1.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-104.106	.5
2	MP4A	Z	60.106	.5
3	MP4A	Mx	.09	.5
4	MP4A	X	-104.106	5.5
5	MP4A	Z	60.106	5.5
6	MP4A	Mx	.09	5.5
7	MP4A	X	-104.106	.5
8	MP4A	Z	60.106	.5
9	MP4A	Mx	.014	.5
10	MP4A	X	-104.106	5.5
11	MP4A	Z	60.106	5.5

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
12	MP4A	Mx	.014	5.5
13	MP2A	X	-39.319	2.5
14	MP2A	Z	22.701	2.5
15	MP2A	Mx	.02	2.5
16	MP2A	X	-39.319	3.5
17	MP2A	Z	22.701	3.5
18	MP2A	Mx	.02	3.5
19	MP1A	X	-95.184	.5
20	MP1A	Z	54.955	.5
21	MP1A	Mx	.054	.5
22	MP1A	X	-95.184	5.5
23	MP1A	Z	54.955	5.5
24	MP1A	Mx	.054	5.5
25	MP5A	X	-95.184	.5
26	MP5A	Z	54.955	.5
27	MP5A	Mx	.054	.5
28	MP5A	X	-95.184	5.5
29	MP5A	Z	54.955	5.5
30	MP5A	Mx	.054	5.5
31	MP4A	X	-8.827	.25
32	MP4A	Z	5.096	.25
33	MP4A	Mx	-.004	.25
34	MP4A	X	-43.314	1.75
35	MP4A	Z	25.007	1.75
36	MP4A	Mx	-.022	1.75
37	MP3A	X	-37.509	1.75
38	MP3A	Z	21.656	1.75
39	MP3A	Mx	-.019	1.75
40	OVP	X	-78.803	1.25
41	OVP	Z	45.497	1.25
42	OVP	Mx	0	1.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-106.322	.5
2	MP4A	Z	0	.5
3	MP4A	Mx	.053	.5
4	MP4A	X	-106.322	5.5
5	MP4A	Z	0	5.5
6	MP4A	Mx	.053	5.5
7	MP4A	X	-106.322	.5
8	MP4A	Z	0	.5
9	MP4A	Mx	.053	.5
10	MP4A	X	-106.322	5.5
11	MP4A	Z	0	5.5
12	MP4A	Mx	.053	5.5
13	MP2A	X	-32.697	2.5
14	MP2A	Z	0	2.5
15	MP2A	Mx	.016	2.5
16	MP2A	X	-32.697	3.5
17	MP2A	Z	0	3.5
18	MP2A	Mx	.016	3.5
19	MP1A	X	-111.285	.5
20	MP1A	Z	0	.5
21	MP1A	Mx	.052	.5
22	MP1A	X	-111.285	5.5

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
23	MP1A	Z	0	5.5
24	MP1A	Mx	.052	5.5
25	MP5A	X	-111.285	.5
26	MP5A	Z	0	.5
27	MP5A	Mx	.052	.5
28	MP5A	X	-111.285	5.5
29	MP5A	Z	0	5.5
30	MP5A	Mx	.052	5.5
31	MP4A	X	-9.172	.25
32	MP4A	Z	0	.25
33	MP4A	Mx	-.005	.25
34	MP4A	X	-44.497	1.75
35	MP4A	Z	0	1.75
36	MP4A	Mx	-.022	1.75
37	MP3A	X	-35.744	1.75
38	MP3A	Z	0	1.75
39	MP3A	Mx	-.018	1.75
40	OVP	X	-77.742	1.25
41	OVP	Z	0	1.25
42	OVP	Mx	0	1.25

Member Point Loads (BLC 13 : Antenna Wo (300 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-104.106	.5
2	MP4A	Z	-60.106	.5
3	MP4A	Mx	.014	.5
4	MP4A	X	-104.106	5.5
5	MP4A	Z	-60.106	5.5
6	MP4A	Mx	.014	5.5
7	MP4A	X	-104.106	.5
8	MP4A	Z	-60.106	.5
9	MP4A	Mx	.09	.5
10	MP4A	X	-104.106	5.5
11	MP4A	Z	-60.106	5.5
12	MP4A	Mx	.09	5.5
13	MP2A	X	-39.319	2.5
14	MP2A	Z	-22.701	2.5
15	MP2A	Mx	.02	2.5
16	MP2A	X	-39.319	3.5
17	MP2A	Z	-22.701	3.5
18	MP2A	Mx	.02	3.5
19	MP1A	X	-102.823	.5
20	MP1A	Z	-59.365	.5
21	MP1A	Mx	.038	.5
22	MP1A	X	-102.823	5.5
23	MP1A	Z	-59.365	5.5
24	MP1A	Mx	.038	5.5
25	MP5A	X	-102.823	.5
26	MP5A	Z	-59.365	.5
27	MP5A	Mx	.038	.5
28	MP5A	X	-102.823	5.5
29	MP5A	Z	-59.365	5.5
30	MP5A	Mx	.038	5.5
31	MP4A	X	-8.827	.25
32	MP4A	Z	-5.096	.25
33	MP4A	Mx	-.004	.25

Member Point Loads (BLC 13 : Antenna Wo (300 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
34	MP4A	X	-43.314	1.75
35	MP4A	Z	-25.007	1.75
36	MP4A	Mx	-.022	1.75
37	MP3A	X	-37.509	1.75
38	MP3A	Z	-21.656	1.75
39	MP3A	Mx	-.019	1.75
40	OVP	X	-78.803	1.25
41	OVP	Z	-45.497	1.25
42	OVP	Mx	0	1.25

Member Point Loads (BLC 14 : Antenna Wo (330 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-73.996	.5
2	MP4A	Z	-128.165	.5
3	MP4A	Mx	-.043	.5
4	MP4A	X	-73.996	5.5
5	MP4A	Z	-128.165	5.5
6	MP4A	Mx	-.043	5.5
7	MP4A	X	-73.996	.5
8	MP4A	Z	-128.165	.5
9	MP4A	Mx	.117	.5
10	MP4A	X	-73.996	5.5
11	MP4A	Z	-128.165	5.5
12	MP4A	Mx	.117	5.5
13	MP2A	X	-35.406	2.5
14	MP2A	Z	-61.325	2.5
15	MP2A	Mx	.018	2.5
16	MP2A	X	-35.406	3.5
17	MP2A	Z	-61.325	3.5
18	MP2A	Mx	.018	3.5
19	MP1A	X	-62.399	.5
20	MP1A	Z	-108.079	.5
21	MP1A	Mx	.011	.5
22	MP1A	X	-62.399	5.5
23	MP1A	Z	-108.079	5.5
24	MP1A	Mx	.011	5.5
25	MP5A	X	-62.399	.5
26	MP5A	Z	-108.079	.5
27	MP5A	Mx	.011	.5
28	MP5A	X	-62.399	5.5
29	MP5A	Z	-108.079	5.5
30	MP5A	Mx	.011	5.5
31	MP4A	X	-6.117	.25
32	MP4A	Z	-10.596	.25
33	MP4A	Mx	-.003	.25
34	MP4A	X	-30.525	1.75
35	MP4A	Z	-52.871	1.75
36	MP4A	Mx	-.015	1.75
37	MP3A	X	-29.224	1.75
38	MP3A	Z	-50.617	1.75
39	MP3A	Mx	-.015	1.75
40	OVP	X	-58.749	1.25
41	OVP	Z	-101.756	1.25
42	OVP	Mx	0	1.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	0	.5
2	MP4A	Z	-31.107	.5
3	MP4A	Mx	-.019	.5
4	MP4A	X	0	5.5
5	MP4A	Z	-31.107	5.5
6	MP4A	Mx	-.019	5.5
7	MP4A	X	0	.5
8	MP4A	Z	-31.107	.5
9	MP4A	Mx	.019	.5
10	MP4A	X	0	5.5
11	MP4A	Z	-31.107	5.5
12	MP4A	Mx	.019	5.5
13	MP2A	X	0	2.5
14	MP2A	Z	-16.511	2.5
15	MP2A	Mx	0	2.5
16	MP2A	X	0	3.5
17	MP2A	Z	-16.511	3.5
18	MP2A	Mx	0	3.5
19	MP1A	X	0	.5
20	MP1A	Z	-24.081	.5
21	MP1A	Mx	-.004	.5
22	MP1A	X	0	5.5
23	MP1A	Z	-24.081	5.5
24	MP1A	Mx	-.004	5.5
25	MP5A	X	0	.5
26	MP5A	Z	-24.081	.5
27	MP5A	Mx	-.004	.5
28	MP5A	X	0	5.5
29	MP5A	Z	-24.081	5.5
30	MP5A	Mx	-.004	5.5
31	MP4A	X	0	.25
32	MP4A	Z	-3.346	.25
33	MP4A	Mx	0	.25
34	MP4A	X	0	1.75
35	MP4A	Z	-13.883	1.75
36	MP4A	Mx	0	1.75
37	MP3A	X	0	1.75
38	MP3A	Z	-13.759	1.75
39	MP3A	Mx	0	1.75
40	OVP	X	0	1.25
41	OVP	Z	-25.957	1.25
42	OVP	Mx	0	1.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	14.31	.5
2	MP4A	Z	-24.786	.5
3	MP4A	Mx	-.023	.5
4	MP4A	X	14.31	5.5
5	MP4A	Z	-24.786	5.5
6	MP4A	Mx	-.023	5.5
7	MP4A	X	14.31	.5
8	MP4A	Z	-24.786	.5
9	MP4A	Mx	.008	.5
10	MP4A	X	14.31	5.5
11	MP4A	Z	-24.786	5.5

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
12	MP4A	Mx	.008	5.5
13	MP2A	X	7.065	2.5
14	MP2A	Z	-12.238	2.5
15	MP2A	Mx	-.004	2.5
16	MP2A	X	7.065	3.5
17	MP2A	Z	-12.238	3.5
18	MP2A	Mx	-.004	3.5
19	MP1A	X	11.413	.5
20	MP1A	Z	-19.768	.5
21	MP1A	Mx	-.009	.5
22	MP1A	X	11.413	5.5
23	MP1A	Z	-19.768	5.5
24	MP1A	Mx	-.009	5.5
25	MP5A	X	11.413	.5
26	MP5A	Z	-19.768	.5
27	MP5A	Mx	-.009	.5
28	MP5A	X	11.413	5.5
29	MP5A	Z	-19.768	5.5
30	MP5A	Mx	-.009	5.5
31	MP4A	X	1.567	.25
32	MP4A	Z	-2.715	.25
33	MP4A	Mx	.000783	.25
34	MP4A	X	6.41	1.75
35	MP4A	Z	-11.102	1.75
36	MP4A	Mx	.003	1.75
37	MP3A	X	6.152	1.75
38	MP3A	Z	-10.656	1.75
39	MP3A	Mx	.003	1.75
40	OVP	X	11.756	1.25
41	OVP	Z	-20.363	1.25
42	OVP	Mx	0	1.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	20.48	.5
2	MP4A	Z	-11.824	.5
3	MP4A	Mx	-.018	.5
4	MP4A	X	20.48	5.5
5	MP4A	Z	-11.824	5.5
6	MP4A	Mx	-.018	5.5
7	MP4A	X	20.48	.5
8	MP4A	Z	-11.824	.5
9	MP4A	Mx	-.003	.5
10	MP4A	X	20.48	5.5
11	MP4A	Z	-11.824	5.5
12	MP4A	Mx	-.003	5.5
13	MP2A	X	8.114	2.5
14	MP2A	Z	-4.685	2.5
15	MP2A	Mx	-.004	2.5
16	MP2A	X	8.114	3.5
17	MP2A	Z	-4.685	3.5
18	MP2A	Mx	-.004	3.5
19	MP1A	X	18.882	.5
20	MP1A	Z	-10.902	.5
21	MP1A	Mx	-.011	.5
22	MP1A	X	18.882	5.5

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
23	MP1A	Z	-10.902	5.5
24	MP1A	Mx	-.011	5.5
25	MP5A	X	18.882	.5
26	MP5A	Z	-10.902	.5
27	MP5A	Mx	-.011	.5
28	MP5A	X	18.882	5.5
29	MP5A	Z	-10.902	5.5
30	MP5A	Mx	-.011	5.5
31	MP4A	X	2.348	.25
32	MP4A	Z	-1.356	.25
33	MP4A	Mx	.001	.25
34	MP4A	X	9.26	1.75
35	MP4A	Z	-5.346	1.75
36	MP4A	Mx	.005	1.75
37	MP3A	X	8.135	1.75
38	MP3A	Z	-4.697	1.75
39	MP3A	Mx	.004	1.75
40	OVP	X	16.129	1.25
41	OVP	Z	-9.312	1.25
42	OVP	Mx	0	1.25

Member Point Loads (BLC 18 : Antenna Wi (90 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	21.162	.5
2	MP4A	Z	0	.5
3	MP4A	Mx	-.011	.5
4	MP4A	X	21.162	5.5
5	MP4A	Z	0	5.5
6	MP4A	Mx	-.011	5.5
7	MP4A	X	21.162	.5
8	MP4A	Z	0	.5
9	MP4A	Mx	-.011	.5
10	MP4A	X	21.162	5.5
11	MP4A	Z	0	5.5
12	MP4A	Mx	-.011	5.5
13	MP2A	X	6.989	2.5
14	MP2A	Z	0	2.5
15	MP2A	Mx	-.003	2.5
16	MP2A	X	6.989	3.5
17	MP2A	Z	0	3.5
18	MP2A	Mx	-.003	3.5
19	MP1A	X	22.035	.5
20	MP1A	Z	0	.5
21	MP1A	Mx	-.01	.5
22	MP1A	X	22.035	5.5
23	MP1A	Z	0	5.5
24	MP1A	Mx	-.01	5.5
25	MP5A	X	22.035	.5
26	MP5A	Z	0	.5
27	MP5A	Mx	-.01	.5
28	MP5A	X	22.035	5.5
29	MP5A	Z	0	5.5
30	MP5A	Mx	-.01	5.5
31	MP4A	X	2.499	.25
32	MP4A	Z	0	.25
33	MP4A	Mx	.001	.25

Member Point Loads (BLC 18 : Antenna Wi (90 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
34	MP4A	X	9.629	1.75
35	MP4A	Z	0	1.75
36	MP4A	Mx	.005	1.75
37	MP3A	X	7.939	1.75
38	MP3A	Z	0	1.75
39	MP3A	Mx	.004	1.75
40	OVP	X	16.179	1.25
41	OVP	Z	0	1.25
42	OVP	Mx	0	1.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	20.48	.5
2	MP4A	Z	11.824	.5
3	MP4A	Mx	-.003	.5
4	MP4A	X	20.48	5.5
5	MP4A	Z	11.824	5.5
6	MP4A	Mx	-.003	5.5
7	MP4A	X	20.48	.5
8	MP4A	Z	11.824	.5
9	MP4A	Mx	-.018	.5
10	MP4A	X	20.48	5.5
11	MP4A	Z	11.824	5.5
12	MP4A	Mx	-.018	5.5
13	MP2A	X	8.114	2.5
14	MP2A	Z	4.685	2.5
15	MP2A	Mx	-.004	2.5
16	MP2A	X	8.114	3.5
17	MP2A	Z	4.685	3.5
18	MP2A	Mx	-.004	3.5
19	MP1A	X	20.17	.5
20	MP1A	Z	11.645	.5
21	MP1A	Mx	-.007	.5
22	MP1A	X	20.17	5.5
23	MP1A	Z	11.645	5.5
24	MP1A	Mx	-.007	5.5
25	MP5A	X	20.17	.5
26	MP5A	Z	11.645	.5
27	MP5A	Mx	-.007	.5
28	MP5A	X	20.17	5.5
29	MP5A	Z	11.645	5.5
30	MP5A	Mx	-.007	5.5
31	MP4A	X	2.348	.25
32	MP4A	Z	1.356	.25
33	MP4A	Mx	.001	.25
34	MP4A	X	9.26	1.75
35	MP4A	Z	5.346	1.75
36	MP4A	Mx	.005	1.75
37	MP3A	X	8.135	1.75
38	MP3A	Z	4.697	1.75
39	MP3A	Mx	.004	1.75
40	OVP	X	16.129	1.25
41	OVP	Z	9.312	1.25
42	OVP	Mx	0	1.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	14.31	.5
2	MP4A	Z	24.786	.5
3	MP4A	Mx	.008	.5
4	MP4A	X	14.31	5.5
5	MP4A	Z	24.786	5.5
6	MP4A	Mx	.008	5.5
7	MP4A	X	14.31	.5
8	MP4A	Z	24.786	.5
9	MP4A	Mx	-.023	.5
10	MP4A	X	14.31	5.5
11	MP4A	Z	24.786	5.5
12	MP4A	Mx	-.023	5.5
13	MP2A	X	7.065	2.5
14	MP2A	Z	12.238	2.5
15	MP2A	Mx	-.004	2.5
16	MP2A	X	7.065	3.5
17	MP2A	Z	12.238	3.5
18	MP2A	Mx	-.004	3.5
19	MP1A	X	12.157	.5
20	MP1A	Z	21.056	.5
21	MP1A	Mx	-.002	.5
22	MP1A	X	12.157	5.5
23	MP1A	Z	21.056	5.5
24	MP1A	Mx	-.002	5.5
25	MP5A	X	12.157	.5
26	MP5A	Z	21.056	.5
27	MP5A	Mx	-.002	.5
28	MP5A	X	12.157	5.5
29	MP5A	Z	21.056	5.5
30	MP5A	Mx	-.002	5.5
31	MP4A	X	1.567	.25
32	MP4A	Z	2.715	.25
33	MP4A	Mx	.000783	.25
34	MP4A	X	6.41	1.75
35	MP4A	Z	11.102	1.75
36	MP4A	Mx	.003	1.75
37	MP3A	X	6.152	1.75
38	MP3A	Z	10.656	1.75
39	MP3A	Mx	.003	1.75
40	OVP	X	11.756	1.25
41	OVP	Z	20.363	1.25
42	OVP	Mx	0	1.25

Member Point Loads (BLC 21 : Antenna Wi (180 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	0	.5
2	MP4A	Z	31.107	.5
3	MP4A	Mx	.019	.5
4	MP4A	X	0	5.5
5	MP4A	Z	31.107	5.5
6	MP4A	Mx	.019	5.5
7	MP4A	X	0	.5
8	MP4A	Z	31.107	.5
9	MP4A	Mx	-.019	.5
10	MP4A	X	0	5.5
11	MP4A	Z	31.107	5.5

Member Point Loads (BLC 21 : Antenna Wi (180 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
12	MP4A	Mx	-.019	5.5
13	MP2A	X	0	2.5
14	MP2A	Z	16.511	2.5
15	MP2A	Mx	0	2.5
16	MP2A	X	0	3.5
17	MP2A	Z	16.511	3.5
18	MP2A	Mx	0	3.5
19	MP1A	X	0	.5
20	MP1A	Z	24.081	.5
21	MP1A	Mx	.004	.5
22	MP1A	X	0	5.5
23	MP1A	Z	24.081	5.5
24	MP1A	Mx	.004	5.5
25	MP5A	X	0	.5
26	MP5A	Z	24.081	.5
27	MP5A	Mx	.004	.5
28	MP5A	X	0	5.5
29	MP5A	Z	24.081	5.5
30	MP5A	Mx	.004	5.5
31	MP4A	X	0	.25
32	MP4A	Z	3.346	.25
33	MP4A	Mx	0	.25
34	MP4A	X	0	1.75
35	MP4A	Z	13.883	1.75
36	MP4A	Mx	0	1.75
37	MP3A	X	0	1.75
38	MP3A	Z	13.759	1.75
39	MP3A	Mx	0	1.75
40	OVP	X	0	1.25
41	OVP	Z	25.957	1.25
42	OVP	Mx	0	1.25

Member Point Loads (BLC 22 : Antenna Wi (210 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-14.31	.5
2	MP4A	Z	24.786	.5
3	MP4A	Mx	.023	.5
4	MP4A	X	-14.31	5.5
5	MP4A	Z	24.786	5.5
6	MP4A	Mx	.023	5.5
7	MP4A	X	-14.31	.5
8	MP4A	Z	24.786	.5
9	MP4A	Mx	-.008	.5
10	MP4A	X	-14.31	5.5
11	MP4A	Z	24.786	5.5
12	MP4A	Mx	-.008	5.5
13	MP2A	X	-7.065	2.5
14	MP2A	Z	12.238	2.5
15	MP2A	Mx	.004	2.5
16	MP2A	X	-7.065	3.5
17	MP2A	Z	12.238	3.5
18	MP2A	Mx	.004	3.5
19	MP1A	X	-11.413	.5
20	MP1A	Z	19.768	.5
21	MP1A	Mx	.009	.5
22	MP1A	X	-11.413	5.5

Member Point Loads (BLC 22 : Antenna Wi (210 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
23	MP1A	Z	19.768	5.5
24	MP1A	Mx	.009	5.5
25	MP5A	X	-11.413	.5
26	MP5A	Z	19.768	.5
27	MP5A	Mx	.009	.5
28	MP5A	X	-11.413	5.5
29	MP5A	Z	19.768	5.5
30	MP5A	Mx	.009	5.5
31	MP4A	X	-1.567	.25
32	MP4A	Z	2.715	.25
33	MP4A	Mx	-.000783	.25
34	MP4A	X	-6.41	1.75
35	MP4A	Z	11.102	1.75
36	MP4A	Mx	-.003	1.75
37	MP3A	X	-6.152	1.75
38	MP3A	Z	10.656	1.75
39	MP3A	Mx	-.003	1.75
40	OVP	X	-11.756	1.25
41	OVP	Z	20.363	1.25
42	OVP	Mx	0	1.25

Member Point Loads (BLC 23 : Antenna Wi (240 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-20.48	.5
2	MP4A	Z	11.824	.5
3	MP4A	Mx	.018	.5
4	MP4A	X	-20.48	5.5
5	MP4A	Z	11.824	5.5
6	MP4A	Mx	.018	5.5
7	MP4A	X	-20.48	.5
8	MP4A	Z	11.824	.5
9	MP4A	Mx	.003	.5
10	MP4A	X	-20.48	5.5
11	MP4A	Z	11.824	5.5
12	MP4A	Mx	.003	5.5
13	MP2A	X	-8.114	2.5
14	MP2A	Z	4.685	2.5
15	MP2A	Mx	.004	2.5
16	MP2A	X	-8.114	3.5
17	MP2A	Z	4.685	3.5
18	MP2A	Mx	.004	3.5
19	MP1A	X	-18.882	.5
20	MP1A	Z	10.902	.5
21	MP1A	Mx	.011	.5
22	MP1A	X	-18.882	5.5
23	MP1A	Z	10.902	5.5
24	MP1A	Mx	.011	5.5
25	MP5A	X	-18.882	.5
26	MP5A	Z	10.902	.5
27	MP5A	Mx	.011	.5
28	MP5A	X	-18.882	5.5
29	MP5A	Z	10.902	5.5
30	MP5A	Mx	.011	5.5
31	MP4A	X	-2.348	.25
32	MP4A	Z	1.356	.25
33	MP4A	Mx	-.001	.25

Member Point Loads (BLC 23 : Antenna Wi (240 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
34	MP4A	X	-9.26	1.75
35	MP4A	Z	5.346	1.75
36	MP4A	Mx	-.005	1.75
37	MP3A	X	-8.135	1.75
38	MP3A	Z	4.697	1.75
39	MP3A	Mx	-.004	1.75
40	OVP	X	-16.129	1.25
41	OVP	Z	9.312	1.25
42	OVP	Mx	0	1.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-21.162	.5
2	MP4A	Z	0	.5
3	MP4A	Mx	.011	.5
4	MP4A	X	-21.162	5.5
5	MP4A	Z	0	5.5
6	MP4A	Mx	.011	5.5
7	MP4A	X	-21.162	.5
8	MP4A	Z	0	.5
9	MP4A	Mx	.011	.5
10	MP4A	X	-21.162	5.5
11	MP4A	Z	0	5.5
12	MP4A	Mx	.011	5.5
13	MP2A	X	-6.989	2.5
14	MP2A	Z	0	2.5
15	MP2A	Mx	.003	2.5
16	MP2A	X	-6.989	3.5
17	MP2A	Z	0	3.5
18	MP2A	Mx	.003	3.5
19	MP1A	X	-22.035	.5
20	MP1A	Z	0	.5
21	MP1A	Mx	.01	.5
22	MP1A	X	-22.035	5.5
23	MP1A	Z	0	5.5
24	MP1A	Mx	.01	5.5
25	MP5A	X	-22.035	.5
26	MP5A	Z	0	.5
27	MP5A	Mx	.01	.5
28	MP5A	X	-22.035	5.5
29	MP5A	Z	0	5.5
30	MP5A	Mx	.01	5.5
31	MP4A	X	-2.499	.25
32	MP4A	Z	0	.25
33	MP4A	Mx	-.001	.25
34	MP4A	X	-9.629	1.75
35	MP4A	Z	0	1.75
36	MP4A	Mx	-.005	1.75
37	MP3A	X	-7.939	1.75
38	MP3A	Z	0	1.75
39	MP3A	Mx	-.004	1.75
40	OVP	X	-16.179	1.25
41	OVP	Z	0	1.25
42	OVP	Mx	0	1.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-20.48	.5
2	MP4A	Z	-11.824	.5
3	MP4A	Mx	.003	.5
4	MP4A	X	-20.48	5.5
5	MP4A	Z	-11.824	5.5
6	MP4A	Mx	.003	5.5
7	MP4A	X	-20.48	.5
8	MP4A	Z	-11.824	.5
9	MP4A	Mx	.018	.5
10	MP4A	X	-20.48	5.5
11	MP4A	Z	-11.824	5.5
12	MP4A	Mx	.018	5.5
13	MP2A	X	-8.114	2.5
14	MP2A	Z	-4.685	2.5
15	MP2A	Mx	.004	2.5
16	MP2A	X	-8.114	3.5
17	MP2A	Z	-4.685	3.5
18	MP2A	Mx	.004	3.5
19	MP1A	X	-20.17	.5
20	MP1A	Z	-11.645	.5
21	MP1A	Mx	.007	.5
22	MP1A	X	-20.17	5.5
23	MP1A	Z	-11.645	5.5
24	MP1A	Mx	.007	5.5
25	MP5A	X	-20.17	.5
26	MP5A	Z	-11.645	.5
27	MP5A	Mx	.007	.5
28	MP5A	X	-20.17	5.5
29	MP5A	Z	-11.645	5.5
30	MP5A	Mx	.007	5.5
31	MP4A	X	-2.348	.25
32	MP4A	Z	-1.356	.25
33	MP4A	Mx	-.001	.25
34	MP4A	X	-9.26	1.75
35	MP4A	Z	-5.346	1.75
36	MP4A	Mx	-.005	1.75
37	MP3A	X	-8.135	1.75
38	MP3A	Z	-4.697	1.75
39	MP3A	Mx	-.004	1.75
40	OVP	X	-16.129	1.25
41	OVP	Z	-9.312	1.25
42	OVP	Mx	0	1.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-14.31	.5
2	MP4A	Z	-24.786	.5
3	MP4A	Mx	-.008	.5
4	MP4A	X	-14.31	5.5
5	MP4A	Z	-24.786	5.5
6	MP4A	Mx	-.008	5.5
7	MP4A	X	-14.31	.5
8	MP4A	Z	-24.786	.5
9	MP4A	Mx	.023	.5
10	MP4A	X	-14.31	5.5
11	MP4A	Z	-24.786	5.5

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
12	MP4A	Mx	.023	5.5
13	MP2A	X	-7.065	2.5
14	MP2A	Z	-12.238	2.5
15	MP2A	Mx	.004	2.5
16	MP2A	X	-7.065	3.5
17	MP2A	Z	-12.238	3.5
18	MP2A	Mx	.004	3.5
19	MP1A	X	-12.157	.5
20	MP1A	Z	-21.056	.5
21	MP1A	Mx	.002	.5
22	MP1A	X	-12.157	5.5
23	MP1A	Z	-21.056	5.5
24	MP1A	Mx	.002	5.5
25	MP5A	X	-12.157	.5
26	MP5A	Z	-21.056	.5
27	MP5A	Mx	.002	.5
28	MP5A	X	-12.157	5.5
29	MP5A	Z	-21.056	5.5
30	MP5A	Mx	.002	5.5
31	MP4A	X	-1.567	.25
32	MP4A	Z	-2.715	.25
33	MP4A	Mx	-.000783	.25
34	MP4A	X	-6.41	1.75
35	MP4A	Z	-11.102	1.75
36	MP4A	Mx	-.003	1.75
37	MP3A	X	-6.152	1.75
38	MP3A	Z	-10.656	1.75
39	MP3A	Mx	-.003	1.75
40	OVP	X	-11.756	1.25
41	OVP	Z	-20.363	1.25
42	OVP	Mx	0	1.25

Member Point Loads (BLC 27 : Antenna Wm (0 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	0	.5
2	MP4A	Z	-10.288	.5
3	MP4A	Mx	-.006	.5
4	MP4A	X	0	5.5
5	MP4A	Z	-10.288	5.5
6	MP4A	Mx	-.006	5.5
7	MP4A	X	0	.5
8	MP4A	Z	-10.288	.5
9	MP4A	Mx	.006	.5
10	MP4A	X	0	5.5
11	MP4A	Z	-10.288	5.5
12	MP4A	Mx	.006	5.5
13	MP2A	X	0	2.5
14	MP2A	Z	-5.308	2.5
15	MP2A	Mx	0	2.5
16	MP2A	X	0	3.5
17	MP2A	Z	-5.308	3.5
18	MP2A	Mx	0	3.5
19	MP1A	X	0	.5
20	MP1A	Z	-7.844	.5
21	MP1A	Mx	-.001	.5
22	MP1A	X	0	5.5

Member Point Loads (BLC 27 : Antenna Wm (0 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
23	MP1A	Z	-7.844	5.5
24	MP1A	Mx	-.001	5.5
25	MP5A	X	0	.5
26	MP5A	Z	-7.844	.5
27	MP5A	Mx	-.001	.5
28	MP5A	X	0	5.5
29	MP5A	Z	-7.844	5.5
30	MP5A	Mx	-.001	5.5
31	MP4A	X	0	.25
32	MP4A	Z	-.842	.25
33	MP4A	Mx	0	.25
34	MP4A	X	0	1.75
35	MP4A	Z	-4.231	1.75
36	MP4A	Mx	0	1.75
37	MP3A	X	0	1.75
38	MP3A	Z	-4.196	1.75
39	MP3A	Mx	0	1.75
40	OVP	X	0	1.25
41	OVP	Z	-8.31	1.25
42	OVP	Mx	0	1.25

Member Point Loads (BLC 28 : Antenna Wm (30 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	4.703	.5
2	MP4A	Z	-8.145	.5
3	MP4A	Mx	-.007	.5
4	MP4A	X	4.703	5.5
5	MP4A	Z	-8.145	5.5
6	MP4A	Mx	-.007	5.5
7	MP4A	X	4.703	.5
8	MP4A	Z	-8.145	.5
9	MP4A	Mx	.003	.5
10	MP4A	X	4.703	5.5
11	MP4A	Z	-8.145	5.5
12	MP4A	Mx	.003	5.5
13	MP2A	X	2.25	2.5
14	MP2A	Z	-3.898	2.5
15	MP2A	Mx	-.001	2.5
16	MP2A	X	2.25	3.5
17	MP2A	Z	-3.898	3.5
18	MP2A	Mx	-.001	3.5
19	MP1A	X	3.685	.5
20	MP1A	Z	-6.383	.5
21	MP1A	Mx	-.003	.5
22	MP1A	X	3.685	5.5
23	MP1A	Z	-6.383	5.5
24	MP1A	Mx	-.003	5.5
25	MP5A	X	3.685	.5
26	MP5A	Z	-6.383	.5
27	MP5A	Mx	-.003	.5
28	MP5A	X	3.685	5.5
29	MP5A	Z	-6.383	5.5
30	MP5A	Mx	-.003	5.5
31	MP4A	X	.389	.25
32	MP4A	Z	-.673	.25
33	MP4A	Mx	.000194	.25

Member Point Loads (BLC 28 : Antenna Wm (30 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
34	MP4A	X	1.94	1.75
35	MP4A	Z	-3.36	1.75
36	MP4A	Mx	.00097	1.75
37	MP3A	X	1.857	1.75
38	MP3A	Z	-3.217	1.75
39	MP3A	Mx	.000928	1.75
40	OVP	X	3.734	1.25
41	OVP	Z	-6.467	1.25
42	OVP	Mx	0	1.25

Member Point Loads (BLC 29 : Antenna Wm (60 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	6.616	.5
2	MP4A	Z	-3.82	.5
3	MP4A	Mx	-.006	.5
4	MP4A	X	6.616	5.5
5	MP4A	Z	-3.82	5.5
6	MP4A	Mx	-.006	5.5
7	MP4A	X	6.616	.5
8	MP4A	Z	-3.82	.5
9	MP4A	Mx	-.00092	.5
10	MP4A	X	6.616	5.5
11	MP4A	Z	-3.82	5.5
12	MP4A	Mx	-.00092	5.5
13	MP2A	X	2.499	2.5
14	MP2A	Z	-1.443	2.5
15	MP2A	Mx	-.001	2.5
16	MP2A	X	2.499	3.5
17	MP2A	Z	-1.443	3.5
18	MP2A	Mx	-.001	3.5
19	MP1A	X	6.049	.5
20	MP1A	Z	-3.493	.5
21	MP1A	Mx	-.003	.5
22	MP1A	X	6.049	5.5
23	MP1A	Z	-3.493	5.5
24	MP1A	Mx	-.003	5.5
25	MP5A	X	6.049	.5
26	MP5A	Z	-3.493	.5
27	MP5A	Mx	-.003	.5
28	MP5A	X	6.049	5.5
29	MP5A	Z	-3.493	5.5
30	MP5A	Mx	-.003	5.5
31	MP4A	X	.561	.25
32	MP4A	Z	-.324	.25
33	MP4A	Mx	.000281	.25
34	MP4A	X	2.753	1.75
35	MP4A	Z	-1.589	1.75
36	MP4A	Mx	.001	1.75
37	MP3A	X	2.384	1.75
38	MP3A	Z	-1.376	1.75
39	MP3A	Mx	.001	1.75
40	OVP	X	5.008	1.25
41	OVP	Z	-2.892	1.25
42	OVP	Mx	0	1.25

Member Point Loads (BLC 30 : Antenna Wm (90 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	6.757	.5
2	MP4A	Z	0	.5
3	MP4A	Mx	-.003	.5
4	MP4A	X	6.757	5.5
5	MP4A	Z	0	5.5
6	MP4A	Mx	-.003	5.5
7	MP4A	X	6.757	.5
8	MP4A	Z	0	.5
9	MP4A	Mx	-.003	.5
10	MP4A	X	6.757	5.5
11	MP4A	Z	0	5.5
12	MP4A	Mx	-.003	5.5
13	MP2A	X	2.078	2.5
14	MP2A	Z	0	2.5
15	MP2A	Mx	-.001	2.5
16	MP2A	X	2.078	3.5
17	MP2A	Z	0	3.5
18	MP2A	Mx	-.001	3.5
19	MP1A	X	7.073	.5
20	MP1A	Z	0	.5
21	MP1A	Mx	-.003	.5
22	MP1A	X	7.073	5.5
23	MP1A	Z	0	5.5
24	MP1A	Mx	-.003	5.5
25	MP5A	X	7.073	.5
26	MP5A	Z	0	.5
27	MP5A	Mx	-.003	.5
28	MP5A	X	7.073	5.5
29	MP5A	Z	0	5.5
30	MP5A	Mx	-.003	5.5
31	MP4A	X	.583	.25
32	MP4A	Z	0	.25
33	MP4A	Mx	.000292	.25
34	MP4A	X	2.828	1.75
35	MP4A	Z	0	1.75
36	MP4A	Mx	.001	1.75
37	MP3A	X	2.272	1.75
38	MP3A	Z	0	1.75
39	MP3A	Mx	.001	1.75
40	OVP	X	4.941	1.25
41	OVP	Z	0	1.25
42	OVP	Mx	0	1.25

Member Point Loads (BLC 31 : Antenna Wm (120 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	6.616	.5
2	MP4A	Z	3.82	.5
3	MP4A	Mx	-.00092	.5
4	MP4A	X	6.616	5.5
5	MP4A	Z	3.82	5.5
6	MP4A	Mx	-.00092	5.5
7	MP4A	X	6.616	.5
8	MP4A	Z	3.82	.5
9	MP4A	Mx	-.006	.5
10	MP4A	X	6.616	5.5
11	MP4A	Z	3.82	5.5

Member Point Loads (BLC 31 : Antenna Wm (120 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
12	MP4A	Mx	-.006	5.5
13	MP2A	X	2.499	2.5
14	MP2A	Z	1.443	2.5
15	MP2A	Mx	-.001	2.5
16	MP2A	X	2.499	3.5
17	MP2A	Z	1.443	3.5
18	MP2A	Mx	-.001	3.5
19	MP1A	X	6.535	.5
20	MP1A	Z	3.773	.5
21	MP1A	Mx	-.002	.5
22	MP1A	X	6.535	5.5
23	MP1A	Z	3.773	5.5
24	MP1A	Mx	-.002	5.5
25	MP5A	X	6.535	.5
26	MP5A	Z	3.773	.5
27	MP5A	Mx	-.002	.5
28	MP5A	X	6.535	5.5
29	MP5A	Z	3.773	5.5
30	MP5A	Mx	-.002	5.5
31	MP4A	X	.561	.25
32	MP4A	Z	.324	.25
33	MP4A	Mx	.000281	.25
34	MP4A	X	2.753	1.75
35	MP4A	Z	1.589	1.75
36	MP4A	Mx	.001	1.75
37	MP3A	X	2.384	1.75
38	MP3A	Z	1.376	1.75
39	MP3A	Mx	.001	1.75
40	OVP	X	5.008	1.25
41	OVP	Z	2.892	1.25
42	OVP	Mx	0	1.25

Member Point Loads (BLC 32 : Antenna Wm (150 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	4.703	.5
2	MP4A	Z	8.145	.5
3	MP4A	Mx	.003	.5
4	MP4A	X	4.703	5.5
5	MP4A	Z	8.145	5.5
6	MP4A	Mx	.003	5.5
7	MP4A	X	4.703	.5
8	MP4A	Z	8.145	.5
9	MP4A	Mx	-.007	.5
10	MP4A	X	4.703	5.5
11	MP4A	Z	8.145	5.5
12	MP4A	Mx	-.007	5.5
13	MP2A	X	2.25	2.5
14	MP2A	Z	3.898	2.5
15	MP2A	Mx	-.001	2.5
16	MP2A	X	2.25	3.5
17	MP2A	Z	3.898	3.5
18	MP2A	Mx	-.001	3.5
19	MP1A	X	3.966	.5
20	MP1A	Z	6.869	.5
21	MP1A	Mx	-.000689	.5
22	MP1A	X	3.966	5.5

Member Point Loads (BLC 32 : Antenna Wm (150 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
23	MP1A	Z	6.869	5.5
24	MP1A	Mx	-.000689	5.5
25	MP5A	X	3.966	.5
26	MP5A	Z	6.869	.5
27	MP5A	Mx	-.000689	.5
28	MP5A	X	3.966	5.5
29	MP5A	Z	6.869	5.5
30	MP5A	Mx	-.000689	5.5
31	MP4A	X	.389	.25
32	MP4A	Z	.673	.25
33	MP4A	Mx	.000194	.25
34	MP4A	X	1.94	1.75
35	MP4A	Z	3.36	1.75
36	MP4A	Mx	.00097	1.75
37	MP3A	X	1.857	1.75
38	MP3A	Z	3.217	1.75
39	MP3A	Mx	.000928	1.75
40	OVP	X	3.734	1.25
41	OVP	Z	6.467	1.25
42	OVP	Mx	0	1.25

Member Point Loads (BLC 33 : Antenna Wm (180 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	0	.5
2	MP4A	Z	10.288	.5
3	MP4A	Mx	.006	.5
4	MP4A	X	0	5.5
5	MP4A	Z	10.288	5.5
6	MP4A	Mx	.006	5.5
7	MP4A	X	0	.5
8	MP4A	Z	10.288	.5
9	MP4A	Mx	-.006	.5
10	MP4A	X	0	5.5
11	MP4A	Z	10.288	5.5
12	MP4A	Mx	-.006	5.5
13	MP2A	X	0	2.5
14	MP2A	Z	5.308	2.5
15	MP2A	Mx	0	2.5
16	MP2A	X	0	3.5
17	MP2A	Z	5.308	3.5
18	MP2A	Mx	0	3.5
19	MP1A	X	0	.5
20	MP1A	Z	7.844	.5
21	MP1A	Mx	.001	.5
22	MP1A	X	0	5.5
23	MP1A	Z	7.844	5.5
24	MP1A	Mx	.001	5.5
25	MP5A	X	0	.5
26	MP5A	Z	7.844	.5
27	MP5A	Mx	.001	.5
28	MP5A	X	0	5.5
29	MP5A	Z	7.844	5.5
30	MP5A	Mx	.001	5.5
31	MP4A	X	0	.25
32	MP4A	Z	.842	.25
33	MP4A	Mx	0	.25

Member Point Loads (BLC 33 : Antenna Wm (180 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
34	MP4A	X	0	1.75
35	MP4A	Z	4.231	1.75
36	MP4A	Mx	0	1.75
37	MP3A	X	0	1.75
38	MP3A	Z	4.196	1.75
39	MP3A	Mx	0	1.75
40	OVP	X	0	1.25
41	OVP	Z	8.31	1.25
42	OVP	Mx	0	1.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-4.703	.5
2	MP4A	Z	8.145	.5
3	MP4A	Mx	.007	.5
4	MP4A	X	-4.703	5.5
5	MP4A	Z	8.145	5.5
6	MP4A	Mx	.007	5.5
7	MP4A	X	-4.703	.5
8	MP4A	Z	8.145	.5
9	MP4A	Mx	-.003	.5
10	MP4A	X	-4.703	5.5
11	MP4A	Z	8.145	5.5
12	MP4A	Mx	-.003	5.5
13	MP2A	X	-2.25	2.5
14	MP2A	Z	3.898	2.5
15	MP2A	Mx	.001	2.5
16	MP2A	X	-2.25	3.5
17	MP2A	Z	3.898	3.5
18	MP2A	Mx	.001	3.5
19	MP1A	X	-3.685	.5
20	MP1A	Z	6.383	.5
21	MP1A	Mx	.003	.5
22	MP1A	X	-3.685	5.5
23	MP1A	Z	6.383	5.5
24	MP1A	Mx	.003	5.5
25	MP5A	X	-3.685	.5
26	MP5A	Z	6.383	.5
27	MP5A	Mx	.003	.5
28	MP5A	X	-3.685	5.5
29	MP5A	Z	6.383	5.5
30	MP5A	Mx	.003	5.5
31	MP4A	X	-.389	.25
32	MP4A	Z	.673	.25
33	MP4A	Mx	-.000194	.25
34	MP4A	X	-1.94	1.75
35	MP4A	Z	3.36	1.75
36	MP4A	Mx	-.00097	1.75
37	MP3A	X	-1.857	1.75
38	MP3A	Z	3.217	1.75
39	MP3A	Mx	-.000928	1.75
40	OVP	X	-3.734	1.25
41	OVP	Z	6.467	1.25
42	OVP	Mx	0	1.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-6.616	.5
2	MP4A	Z	3.82	.5
3	MP4A	Mx	.006	.5
4	MP4A	X	-6.616	5.5
5	MP4A	Z	3.82	5.5
6	MP4A	Mx	.006	5.5
7	MP4A	X	-6.616	.5
8	MP4A	Z	3.82	.5
9	MP4A	Mx	.00092	.5
10	MP4A	X	-6.616	5.5
11	MP4A	Z	3.82	5.5
12	MP4A	Mx	.00092	5.5
13	MP2A	X	-2.499	2.5
14	MP2A	Z	1.443	2.5
15	MP2A	Mx	.001	2.5
16	MP2A	X	-2.499	3.5
17	MP2A	Z	1.443	3.5
18	MP2A	Mx	.001	3.5
19	MP1A	X	-6.049	.5
20	MP1A	Z	3.493	.5
21	MP1A	Mx	.003	.5
22	MP1A	X	-6.049	5.5
23	MP1A	Z	3.493	5.5
24	MP1A	Mx	.003	5.5
25	MP5A	X	-6.049	.5
26	MP5A	Z	3.493	.5
27	MP5A	Mx	.003	.5
28	MP5A	X	-6.049	5.5
29	MP5A	Z	3.493	5.5
30	MP5A	Mx	.003	5.5
31	MP4A	X	-.561	.25
32	MP4A	Z	.324	.25
33	MP4A	Mx	-.000281	.25
34	MP4A	X	-2.753	1.75
35	MP4A	Z	1.589	1.75
36	MP4A	Mx	-.001	1.75
37	MP3A	X	-2.384	1.75
38	MP3A	Z	1.376	1.75
39	MP3A	Mx	-.001	1.75
40	OVP	X	-5.008	1.25
41	OVP	Z	2.892	1.25
42	OVP	Mx	0	1.25

Member Point Loads (BLC 36 : Antenna Wm (270 Deg))

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-6.757	.5
2	MP4A	Z	0	.5
3	MP4A	Mx	.003	.5
4	MP4A	X	-6.757	5.5
5	MP4A	Z	0	5.5
6	MP4A	Mx	.003	5.5
7	MP4A	X	-6.757	.5
8	MP4A	Z	0	.5
9	MP4A	Mx	.003	.5
10	MP4A	X	-6.757	5.5
11	MP4A	Z	0	5.5

Member Point Loads (BLC 36 : Antenna Wm (270 Deg)) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
12	MP4A	Mx	.003	5.5
13	MP2A	X	-2.078	2.5
14	MP2A	Z	0	2.5
15	MP2A	Mx	.001	2.5
16	MP2A	X	-2.078	3.5
17	MP2A	Z	0	3.5
18	MP2A	Mx	.001	3.5
19	MP1A	X	-7.073	.5
20	MP1A	Z	0	.5
21	MP1A	Mx	.003	.5
22	MP1A	X	-7.073	5.5
23	MP1A	Z	0	5.5
24	MP1A	Mx	.003	5.5
25	MP5A	X	-7.073	.5
26	MP5A	Z	0	.5
27	MP5A	Mx	.003	.5
28	MP5A	X	-7.073	5.5
29	MP5A	Z	0	5.5
30	MP5A	Mx	.003	5.5
31	MP4A	X	-.583	.25
32	MP4A	Z	0	.25
33	MP4A	Mx	-.000292	.25
34	MP4A	X	-2.828	1.75
35	MP4A	Z	0	1.75
36	MP4A	Mx	-.001	1.75
37	MP3A	X	-2.272	1.75
38	MP3A	Z	0	1.75
39	MP3A	Mx	-.001	1.75
40	OVP	X	-4.941	1.25
41	OVP	Z	0	1.25
42	OVP	Mx	0	1.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-6.616	.5
2	MP4A	Z	-3.82	.5
3	MP4A	Mx	.00092	.5
4	MP4A	X	-6.616	5.5
5	MP4A	Z	-3.82	5.5
6	MP4A	Mx	.00092	5.5
7	MP4A	X	-6.616	.5
8	MP4A	Z	-3.82	.5
9	MP4A	Mx	.006	.5
10	MP4A	X	-6.616	5.5
11	MP4A	Z	-3.82	5.5
12	MP4A	Mx	.006	5.5
13	MP2A	X	-2.499	2.5
14	MP2A	Z	-1.443	2.5
15	MP2A	Mx	.001	2.5
16	MP2A	X	-2.499	3.5
17	MP2A	Z	-1.443	3.5
18	MP2A	Mx	.001	3.5
19	MP1A	X	-6.535	.5
20	MP1A	Z	-3.773	.5
21	MP1A	Mx	.002	.5
22	MP1A	X	-6.535	5.5

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
23	MP1A	Z	-3.773	5.5
24	MP1A	Mx	.002	5.5
25	MP5A	X	-6.535	.5
26	MP5A	Z	-3.773	.5
27	MP5A	Mx	.002	.5
28	MP5A	X	-6.535	5.5
29	MP5A	Z	-3.773	5.5
30	MP5A	Mx	.002	5.5
31	MP4A	X	-.561	.25
32	MP4A	Z	-.324	.25
33	MP4A	Mx	-.000281	.25
34	MP4A	X	-2.753	1.75
35	MP4A	Z	-1.589	1.75
36	MP4A	Mx	-.001	1.75
37	MP3A	X	-2.384	1.75
38	MP3A	Z	-1.376	1.75
39	MP3A	Mx	-.001	1.75
40	OVP	X	-5.008	1.25
41	OVP	Z	-2.892	1.25
42	OVP	Mx	0	1.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP4A	X	-4.703	.5
2	MP4A	Z	-8.145	.5
3	MP4A	Mx	-.003	.5
4	MP4A	X	-4.703	5.5
5	MP4A	Z	-8.145	5.5
6	MP4A	Mx	-.003	5.5
7	MP4A	X	-4.703	.5
8	MP4A	Z	-8.145	.5
9	MP4A	Mx	.007	.5
10	MP4A	X	-4.703	5.5
11	MP4A	Z	-8.145	5.5
12	MP4A	Mx	.007	5.5
13	MP2A	X	-2.25	2.5
14	MP2A	Z	-3.898	2.5
15	MP2A	Mx	.001	2.5
16	MP2A	X	-2.25	3.5
17	MP2A	Z	-3.898	3.5
18	MP2A	Mx	.001	3.5
19	MP1A	X	-3.966	.5
20	MP1A	Z	-6.869	.5
21	MP1A	Mx	.000689	.5
22	MP1A	X	-3.966	5.5
23	MP1A	Z	-6.869	5.5
24	MP1A	Mx	.000689	5.5
25	MP5A	X	-3.966	.5
26	MP5A	Z	-6.869	.5
27	MP5A	Mx	.000689	.5
28	MP5A	X	-3.966	5.5
29	MP5A	Z	-6.869	5.5
30	MP5A	Mx	.000689	5.5
31	MP4A	X	-.389	.25
32	MP4A	Z	-.673	.25
33	MP4A	Mx	-.000194	.25

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

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
34	MP4A	X	-1.94	1.75
35	MP4A	Z	-3.36	1.75
36	MP4A	Mx	-.00097	1.75
37	MP3A	X	-1.857	1.75
38	MP3A	Z	-3.217	1.75
39	MP3A	Mx	-.000928	1.75
40	OVP	X	-3.734	1.25
41	OVP	Z	-6.467	1.25
42	OVP	Mx	0	1.25

Member Point Loads (BLC 77 : Lm1)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	M11	Y	-500	0

Member Point Loads (BLC 78 : Lm2)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	M7	Y	-500	0

Member Point Loads (BLC 79 : Lv1)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	M1	Y	-250	%50

Member Point Loads (BLC 80 : Lv2)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	M1	Y	-250	0

Member Distributed Loads (BLC 40 : Structure Di)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-5.934	-5.934	0	%100
2	MP1A	Y	-4.472	-4.472	0	%100
3	M17A	Y	-7.235	-7.235	0	%100
4	M18A	Y	-8.739	-8.739	0	%100
5	MP2A	Y	-4.472	-4.472	0	%100
6	MP3A	Y	-4.472	-4.472	0	%100
7	MP4A	Y	-4.472	-4.472	0	%100
8	MP5A	Y	-4.472	-4.472	0	%100
9	M17	Y	-5.934	-5.934	0	%100
10	M23	Y	-6.9	-6.9	0	%100
11	OVP	Y	-4.472	-4.472	0	%100

Member Distributed Loads (BLC 41 : Structure Wo (0 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	0	0	0	%100
2	M1	Z	-12.335	-12.335	0	%100
3	MP1A	X	0	0	0	%100
4	MP1A	Z	-8.37	-8.37	0	%100
5	M17A	X	0	0	0	%100
6	M17A	Z	-8.849	-8.849	0	%100
7	M18A	X	0	0	0	%100
8	M18A	Z	0	0	0	%100
9	MP2A	X	0	0	0	%100
10	MP2A	Z	-8.37	-8.37	0	%100
11	MP3A	X	0	0	0	%100

Member Distributed Loads (BLC 41 : Structure Wo (0 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
12	MP3A	Z	-8.37	-8.37	0	%100
13	MP4A	X	0	0	0	%100
14	MP4A	Z	-8.37	-8.37	0	%100
15	MP5A	X	0	0	0	%100
16	MP5A	Z	-8.37	-8.37	0	%100
17	M17	X	0	0	0	%100
18	M17	Z	-12.335	-12.335	0	%100
19	M23	X	0	0	0	%100
20	M23	Z	0	0	0	%100
21	OVP	X	0	0	0	%100
22	OVP	Z	-6.845	-6.845	0	%100

Member Distributed Loads (BLC 42 : Structure Wo (30 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	4.626	4.626	0	%100
2	M1	Z	-8.012	-8.012	0	%100
3	MP1A	X	4.185	4.185	0	%100
4	MP1A	Z	-7.249	-7.249	0	%100
5	M17A	X	4.424	4.424	0	%100
6	M17A	Z	-7.663	-7.663	0	%100
7	M18A	X	1.366	1.366	0	%100
8	M18A	Z	-2.366	-2.366	0	%100
9	MP2A	X	4.185	4.185	0	%100
10	MP2A	Z	-7.249	-7.249	0	%100
11	MP3A	X	4.185	4.185	0	%100
12	MP3A	Z	-7.249	-7.249	0	%100
13	MP4A	X	4.185	4.185	0	%100
14	MP4A	Z	-7.249	-7.249	0	%100
15	MP5A	X	4.185	4.185	0	%100
16	MP5A	Z	-7.249	-7.249	0	%100
17	M17	X	4.626	4.626	0	%100
18	M17	Z	-8.012	-8.012	0	%100
19	M23	X	1.1	1.1	0	%100
20	M23	Z	-1.905	-1.905	0	%100
21	OVP	X	3.422	3.422	0	%100
22	OVP	Z	-5.928	-5.928	0	%100

Member Distributed Loads (BLC 43 : Structure Wo (60 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	2.671	2.671	0	%100
2	M1	Z	-1.542	-1.542	0	%100
3	MP1A	X	7.249	7.249	0	%100
4	MP1A	Z	-4.185	-4.185	0	%100
5	M17A	X	7.663	7.663	0	%100
6	M17A	Z	-4.424	-4.424	0	%100
7	M18A	X	7.099	7.099	0	%100
8	M18A	Z	-4.099	-4.099	0	%100
9	MP2A	X	7.249	7.249	0	%100
10	MP2A	Z	-4.185	-4.185	0	%100
11	MP3A	X	7.249	7.249	0	%100
12	MP3A	Z	-4.185	-4.185	0	%100
13	MP4A	X	7.249	7.249	0	%100
14	MP4A	Z	-4.185	-4.185	0	%100
15	MP5A	X	7.249	7.249	0	%100
16	MP5A	Z	-4.185	-4.185	0	%100
17	M17	X	2.671	2.671	0	%100

Member Distributed Loads (BLC 43 : Structure Wo (60 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
18	M17	Z	-1.542	-1.542	0	%100
19	M23	X	5.716	5.716	0	%100
20	M23	Z	-3.3	-3.3	0	%100
21	OVP	X	5.928	5.928	0	%100
22	OVP	Z	-3.422	-3.422	0	%100

Member Distributed Loads (BLC 44 : Structure Wo (90 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	0	0	0	%100
2	M1	Z	0	0	0	%100
3	MP1A	X	8.37	8.37	0	%100
4	MP1A	Z	0	0	0	%100
5	M17A	X	8.849	8.849	0	%100
6	M17A	Z	0	0	0	%100
7	M18A	X	10.93	10.93	0	%100
8	M18A	Z	0	0	0	%100
9	MP2A	X	8.37	8.37	0	%100
10	MP2A	Z	0	0	0	%100
11	MP3A	X	8.37	8.37	0	%100
12	MP3A	Z	0	0	0	%100
13	MP4A	X	8.37	8.37	0	%100
14	MP4A	Z	0	0	0	%100
15	MP5A	X	8.37	8.37	0	%100
16	MP5A	Z	0	0	0	%100
17	M17	X	0	0	0	%100
18	M17	Z	0	0	0	%100
19	M23	X	8.8	8.8	0	%100
20	M23	Z	0	0	0	%100
21	OVP	X	6.845	6.845	0	%100
22	OVP	Z	0	0	0	%100

Member Distributed Loads (BLC 45 : Structure Wo (120 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	2.671	2.671	0	%100
2	M1	Z	1.542	1.542	0	%100
3	MP1A	X	7.249	7.249	0	%100
4	MP1A	Z	4.185	4.185	0	%100
5	M17A	X	7.663	7.663	0	%100
6	M17A	Z	4.424	4.424	0	%100
7	M18A	X	7.099	7.099	0	%100
8	M18A	Z	4.099	4.099	0	%100
9	MP2A	X	7.249	7.249	0	%100
10	MP2A	Z	4.185	4.185	0	%100
11	MP3A	X	7.249	7.249	0	%100
12	MP3A	Z	4.185	4.185	0	%100
13	MP4A	X	7.249	7.249	0	%100
14	MP4A	Z	4.185	4.185	0	%100
15	MP5A	X	7.249	7.249	0	%100
16	MP5A	Z	4.185	4.185	0	%100
17	M17	X	2.671	2.671	0	%100
18	M17	Z	1.542	1.542	0	%100
19	M23	X	5.716	5.716	0	%100
20	M23	Z	3.3	3.3	0	%100
21	OVP	X	5.928	5.928	0	%100
22	OVP	Z	3.422	3.422	0	%100

Member Distributed Loads (BLC 46 : Structure Wo (150 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	4.626	4.626	0	%100
2	M1	Z	8.012	8.012	0	%100
3	MP1A	X	4.185	4.185	0	%100
4	MP1A	Z	7.249	7.249	0	%100
5	M17A	X	4.424	4.424	0	%100
6	M17A	Z	7.663	7.663	0	%100
7	M18A	X	1.366	1.366	0	%100
8	M18A	Z	2.366	2.366	0	%100
9	MP2A	X	4.185	4.185	0	%100
10	MP2A	Z	7.249	7.249	0	%100
11	MP3A	X	4.185	4.185	0	%100
12	MP3A	Z	7.249	7.249	0	%100
13	MP4A	X	4.185	4.185	0	%100
14	MP4A	Z	7.249	7.249	0	%100
15	MP5A	X	4.185	4.185	0	%100
16	MP5A	Z	7.249	7.249	0	%100
17	M17	X	4.626	4.626	0	%100
18	M17	Z	8.012	8.012	0	%100
19	M23	X	1.1	1.1	0	%100
20	M23	Z	1.905	1.905	0	%100
21	OVP	X	3.422	3.422	0	%100
22	OVP	Z	5.928	5.928	0	%100

Member Distributed Loads (BLC 47 : Structure Wo (180 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	0	0	0	%100
2	M1	Z	12.335	12.335	0	%100
3	MP1A	X	0	0	0	%100
4	MP1A	Z	8.37	8.37	0	%100
5	M17A	X	0	0	0	%100
6	M17A	Z	8.849	8.849	0	%100
7	M18A	X	0	0	0	%100
8	M18A	Z	0	0	0	%100
9	MP2A	X	0	0	0	%100
10	MP2A	Z	8.37	8.37	0	%100
11	MP3A	X	0	0	0	%100
12	MP3A	Z	8.37	8.37	0	%100
13	MP4A	X	0	0	0	%100
14	MP4A	Z	8.37	8.37	0	%100
15	MP5A	X	0	0	0	%100
16	MP5A	Z	8.37	8.37	0	%100
17	M17	X	0	0	0	%100
18	M17	Z	12.335	12.335	0	%100
19	M23	X	0	0	0	%100
20	M23	Z	0	0	0	%100
21	OVP	X	0	0	0	%100
22	OVP	Z	6.845	6.845	0	%100

Member Distributed Loads (BLC 48 : Structure Wo (210 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	-4.626	-4.626	0	%100
2	M1	Z	8.012	8.012	0	%100
3	MP1A	X	-4.185	-4.185	0	%100
4	MP1A	Z	7.249	7.249	0	%100
5	M17A	X	-4.424	-4.424	0	%100
6	M17A	Z	7.663	7.663	0	%100

Member Distributed Loads (BLC 48 : Structure Wo (210 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
7	M18A	X	-1.366	-1.366	0	%100
8	M18A	Z	2.366	2.366	0	%100
9	MP2A	X	-4.185	-4.185	0	%100
10	MP2A	Z	7.249	7.249	0	%100
11	MP3A	X	-4.185	-4.185	0	%100
12	MP3A	Z	7.249	7.249	0	%100
13	MP4A	X	-4.185	-4.185	0	%100
14	MP4A	Z	7.249	7.249	0	%100
15	MP5A	X	-4.185	-4.185	0	%100
16	MP5A	Z	7.249	7.249	0	%100
17	M17	X	-4.626	-4.626	0	%100
18	M17	Z	8.012	8.012	0	%100
19	M23	X	-1.1	-1.1	0	%100
20	M23	Z	1.905	1.905	0	%100
21	OVP	X	-3.422	-3.422	0	%100
22	OVP	Z	5.928	5.928	0	%100

Member Distributed Loads (BLC 49 : Structure Wo (240 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	-2.671	-2.671	0	%100
2	M1	Z	1.542	1.542	0	%100
3	MP1A	X	-7.249	-7.249	0	%100
4	MP1A	Z	4.185	4.185	0	%100
5	M17A	X	-7.663	-7.663	0	%100
6	M17A	Z	4.424	4.424	0	%100
7	M18A	X	-7.099	-7.099	0	%100
8	M18A	Z	4.099	4.099	0	%100
9	MP2A	X	-7.249	-7.249	0	%100
10	MP2A	Z	4.185	4.185	0	%100
11	MP3A	X	-7.249	-7.249	0	%100
12	MP3A	Z	4.185	4.185	0	%100
13	MP4A	X	-7.249	-7.249	0	%100
14	MP4A	Z	4.185	4.185	0	%100
15	MP5A	X	-7.249	-7.249	0	%100
16	MP5A	Z	4.185	4.185	0	%100
17	M17	X	-2.671	-2.671	0	%100
18	M17	Z	1.542	1.542	0	%100
19	M23	X	-5.716	-5.716	0	%100
20	M23	Z	3.3	3.3	0	%100
21	OVP	X	-5.928	-5.928	0	%100
22	OVP	Z	3.422	3.422	0	%100

Member Distributed Loads (BLC 50 : Structure Wo (270 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	0	0	0	%100
2	M1	Z	0	0	0	%100
3	MP1A	X	-8.37	-8.37	0	%100
4	MP1A	Z	0	0	0	%100
5	M17A	X	-8.849	-8.849	0	%100
6	M17A	Z	0	0	0	%100
7	M18A	X	-10.93	-10.93	0	%100
8	M18A	Z	0	0	0	%100
9	MP2A	X	-8.37	-8.37	0	%100
10	MP2A	Z	0	0	0	%100
11	MP3A	X	-8.37	-8.37	0	%100
12	MP3A	Z	0	0	0	%100

Member Distributed Loads (BLC 50 : Structure Wo (270 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
13	MP4A	X	-8.37	-8.37	0	%100
14	MP4A	Z	0	0	0	%100
15	MP5A	X	-8.37	-8.37	0	%100
16	MP5A	Z	0	0	0	%100
17	M17	X	0	0	0	%100
18	M17	Z	0	0	0	%100
19	M23	X	-8.8	-8.8	0	%100
20	M23	Z	0	0	0	%100
21	OVP	X	-6.845	-6.845	0	%100
22	OVP	Z	0	0	0	%100

Member Distributed Loads (BLC 51 : Structure Wo (300 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	-2.671	-2.671	0	%100
2	M1	Z	-1.542	-1.542	0	%100
3	MP1A	X	-7.249	-7.249	0	%100
4	MP1A	Z	-4.185	-4.185	0	%100
5	M17A	X	-7.663	-7.663	0	%100
6	M17A	Z	-4.424	-4.424	0	%100
7	M18A	X	-7.099	-7.099	0	%100
8	M18A	Z	-4.099	-4.099	0	%100
9	MP2A	X	-7.249	-7.249	0	%100
10	MP2A	Z	-4.185	-4.185	0	%100
11	MP3A	X	-7.249	-7.249	0	%100
12	MP3A	Z	-4.185	-4.185	0	%100
13	MP4A	X	-7.249	-7.249	0	%100
14	MP4A	Z	-4.185	-4.185	0	%100
15	MP5A	X	-7.249	-7.249	0	%100
16	MP5A	Z	-4.185	-4.185	0	%100
17	M17	X	-2.671	-2.671	0	%100
18	M17	Z	-1.542	-1.542	0	%100
19	M23	X	-5.716	-5.716	0	%100
20	M23	Z	-3.3	-3.3	0	%100
21	OVP	X	-5.928	-5.928	0	%100
22	OVP	Z	-3.422	-3.422	0	%100

Member Distributed Loads (BLC 52 : Structure Wo (330 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	-4.626	-4.626	0	%100
2	M1	Z	-8.012	-8.012	0	%100
3	MP1A	X	-4.185	-4.185	0	%100
4	MP1A	Z	-7.249	-7.249	0	%100
5	M17A	X	-4.424	-4.424	0	%100
6	M17A	Z	-7.663	-7.663	0	%100
7	M18A	X	-1.366	-1.366	0	%100
8	M18A	Z	-2.366	-2.366	0	%100
9	MP2A	X	-4.185	-4.185	0	%100
10	MP2A	Z	-7.249	-7.249	0	%100
11	MP3A	X	-4.185	-4.185	0	%100
12	MP3A	Z	-7.249	-7.249	0	%100
13	MP4A	X	-4.185	-4.185	0	%100
14	MP4A	Z	-7.249	-7.249	0	%100
15	MP5A	X	-4.185	-4.185	0	%100
16	MP5A	Z	-7.249	-7.249	0	%100
17	M17	X	-4.626	-4.626	0	%100
18	M17	Z	-8.012	-8.012	0	%100

Member Distributed Loads (BLC 52 : Structure Wo (330 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
19	M23	X	-1.1	-1.1	0	%100
20	M23	Z	-1.905	-1.905	0	%100
21	OVP	X	-3.422	-3.422	0	%100
22	OVP	Z	-5.928	-5.928	0	%100

Member Distributed Loads (BLC 53 : Structure Wi (0 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	0	0	0	%100
2	M1	Z	-3.502	-3.502	0	%100
3	MP1A	X	0	0	0	%100
4	MP1A	Z	-2.802	-2.802	0	%100
5	M17A	X	0	0	0	%100
6	M17A	Z	-2.63	-2.63	0	%100
7	M18A	X	0	0	0	%100
8	M18A	Z	0	0	0	%100
9	MP2A	X	0	0	0	%100
10	MP2A	Z	-2.802	-2.802	0	%100
11	MP3A	X	0	0	0	%100
12	MP3A	Z	-2.802	-2.802	0	%100
13	MP4A	X	0	0	0	%100
14	MP4A	Z	-2.802	-2.802	0	%100
15	MP5A	X	0	0	0	%100
16	MP5A	Z	-2.802	-2.802	0	%100
17	M17	X	0	0	0	%100
18	M17	Z	-3.502	-3.502	0	%100
19	M23	X	0	0	0	%100
20	M23	Z	0	0	0	%100
21	OVP	X	0	0	0	%100
22	OVP	Z	-2.334	-2.334	0	%100

Member Distributed Loads (BLC 54 : Structure Wi (30 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	1.313	1.313	0	%100
2	M1	Z	-2.275	-2.275	0	%100
3	MP1A	X	1.401	1.401	0	%100
4	MP1A	Z	-2.427	-2.427	0	%100
5	M17A	X	1.315	1.315	0	%100
6	M17A	Z	-2.277	-2.277	0	%100
7	M18A	X	.379	.379	0	%100
8	M18A	Z	-.657	-.657	0	%100
9	MP2A	X	1.401	1.401	0	%100
10	MP2A	Z	-2.427	-2.427	0	%100
11	MP3A	X	1.401	1.401	0	%100
12	MP3A	Z	-2.427	-2.427	0	%100
13	MP4A	X	1.401	1.401	0	%100
14	MP4A	Z	-2.427	-2.427	0	%100
15	MP5A	X	1.401	1.401	0	%100
16	MP5A	Z	-2.427	-2.427	0	%100
17	M17	X	1.313	1.313	0	%100
18	M17	Z	-2.275	-2.275	0	%100
19	M23	X	.335	.335	0	%100
20	M23	Z	-.581	-.581	0	%100
21	OVP	X	1.167	1.167	0	%100
22	OVP	Z	-2.022	-2.022	0	%100

Member Distributed Loads (BLC 55 : Structure Wi (60 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.758	.758	0	%100
2	M1	Z	-.438	-.438	0	%100
3	MP1A	X	2.427	2.427	0	%100
4	MP1A	Z	-1.401	-1.401	0	%100
5	M17A	X	2.277	2.277	0	%100
6	M17A	Z	-1.315	-1.315	0	%100
7	M18A	X	1.972	1.972	0	%100
8	M18A	Z	-1.138	-1.138	0	%100
9	MP2A	X	2.427	2.427	0	%100
10	MP2A	Z	-1.401	-1.401	0	%100
11	MP3A	X	2.427	2.427	0	%100
12	MP3A	Z	-1.401	-1.401	0	%100
13	MP4A	X	2.427	2.427	0	%100
14	MP4A	Z	-1.401	-1.401	0	%100
15	MP5A	X	2.427	2.427	0	%100
16	MP5A	Z	-1.401	-1.401	0	%100
17	M17	X	.758	.758	0	%100
18	M17	Z	-.438	-.438	0	%100
19	M23	X	1.742	1.742	0	%100
20	M23	Z	-1.006	-1.006	0	%100
21	OVP	X	2.022	2.022	0	%100
22	OVP	Z	-1.167	-1.167	0	%100

Member Distributed Loads (BLC 56 : Structure Wi (90 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	0	0	0	%100
2	M1	Z	0	0	0	%100
3	MP1A	X	2.802	2.802	0	%100
4	MP1A	Z	0	0	0	%100
5	M17A	X	2.63	2.63	0	%100
6	M17A	Z	0	0	0	%100
7	M18A	X	3.035	3.035	0	%100
8	M18A	Z	0	0	0	%100
9	MP2A	X	2.802	2.802	0	%100
10	MP2A	Z	0	0	0	%100
11	MP3A	X	2.802	2.802	0	%100
12	MP3A	Z	0	0	0	%100
13	MP4A	X	2.802	2.802	0	%100
14	MP4A	Z	0	0	0	%100
15	MP5A	X	2.802	2.802	0	%100
16	MP5A	Z	0	0	0	%100
17	M17	X	0	0	0	%100
18	M17	Z	0	0	0	%100
19	M23	X	2.682	2.682	0	%100
20	M23	Z	0	0	0	%100
21	OVP	X	2.334	2.334	0	%100
22	OVP	Z	0	0	0	%100

Member Distributed Loads (BLC 57 : Structure Wi (120 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.758	.758	0	%100
2	M1	Z	.438	.438	0	%100
3	MP1A	X	2.427	2.427	0	%100
4	MP1A	Z	1.401	1.401	0	%100
5	M17A	X	2.277	2.277	0	%100
6	M17A	Z	1.315	1.315	0	%100

Member Distributed Loads (BLC 57 : Structure Wi (120 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
7	M18A	X	1.972	1.972	0	%100
8	M18A	Z	1.138	1.138	0	%100
9	MP2A	X	2.427	2.427	0	%100
10	MP2A	Z	1.401	1.401	0	%100
11	MP3A	X	2.427	2.427	0	%100
12	MP3A	Z	1.401	1.401	0	%100
13	MP4A	X	2.427	2.427	0	%100
14	MP4A	Z	1.401	1.401	0	%100
15	MP5A	X	2.427	2.427	0	%100
16	MP5A	Z	1.401	1.401	0	%100
17	M17	X	.758	.758	0	%100
18	M17	Z	.438	.438	0	%100
19	M23	X	1.742	1.742	0	%100
20	M23	Z	1.006	1.006	0	%100
21	OVP	X	2.022	2.022	0	%100
22	OVP	Z	1.167	1.167	0	%100

Member Distributed Loads (BLC 58 : Structure Wi (150 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	1.313	1.313	0	%100
2	M1	Z	2.275	2.275	0	%100
3	MP1A	X	1.401	1.401	0	%100
4	MP1A	Z	2.427	2.427	0	%100
5	M17A	X	1.315	1.315	0	%100
6	M17A	Z	2.277	2.277	0	%100
7	M18A	X	.379	.379	0	%100
8	M18A	Z	.657	.657	0	%100
9	MP2A	X	1.401	1.401	0	%100
10	MP2A	Z	2.427	2.427	0	%100
11	MP3A	X	1.401	1.401	0	%100
12	MP3A	Z	2.427	2.427	0	%100
13	MP4A	X	1.401	1.401	0	%100
14	MP4A	Z	2.427	2.427	0	%100
15	MP5A	X	1.401	1.401	0	%100
16	MP5A	Z	2.427	2.427	0	%100
17	M17	X	1.313	1.313	0	%100
18	M17	Z	2.275	2.275	0	%100
19	M23	X	.335	.335	0	%100
20	M23	Z	.581	.581	0	%100
21	OVP	X	1.167	1.167	0	%100
22	OVP	Z	2.022	2.022	0	%100

Member Distributed Loads (BLC 59 : Structure Wi (180 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	0	0	0	%100
2	M1	Z	3.502	3.502	0	%100
3	MP1A	X	0	0	0	%100
4	MP1A	Z	2.802	2.802	0	%100
5	M17A	X	0	0	0	%100
6	M17A	Z	2.63	2.63	0	%100
7	M18A	X	0	0	0	%100
8	M18A	Z	0	0	0	%100
9	MP2A	X	0	0	0	%100
10	MP2A	Z	2.802	2.802	0	%100
11	MP3A	X	0	0	0	%100
12	MP3A	Z	2.802	2.802	0	%100

Member Distributed Loads (BLC 59 : Structure Wi (180 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
13	MP4A	X	0	0	0	%100
14	MP4A	Z	2.802	2.802	0	%100
15	MP5A	X	0	0	0	%100
16	MP5A	Z	2.802	2.802	0	%100
17	M17	X	0	0	0	%100
18	M17	Z	3.502	3.502	0	%100
19	M23	X	0	0	0	%100
20	M23	Z	0	0	0	%100
21	OVP	X	0	0	0	%100
22	OVP	Z	2.334	2.334	0	%100

Member Distributed Loads (BLC 60 : Structure Wi (210 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	-1.313	-1.313	0	%100
2	M1	Z	2.275	2.275	0	%100
3	MP1A	X	-1.401	-1.401	0	%100
4	MP1A	Z	2.427	2.427	0	%100
5	M17A	X	-1.315	-1.315	0	%100
6	M17A	Z	2.277	2.277	0	%100
7	M18A	X	-.379	-.379	0	%100
8	M18A	Z	.657	.657	0	%100
9	MP2A	X	-1.401	-1.401	0	%100
10	MP2A	Z	2.427	2.427	0	%100
11	MP3A	X	-1.401	-1.401	0	%100
12	MP3A	Z	2.427	2.427	0	%100
13	MP4A	X	-1.401	-1.401	0	%100
14	MP4A	Z	2.427	2.427	0	%100
15	MP5A	X	-1.401	-1.401	0	%100
16	MP5A	Z	2.427	2.427	0	%100
17	M17	X	-1.313	-1.313	0	%100
18	M17	Z	2.275	2.275	0	%100
19	M23	X	-.335	-.335	0	%100
20	M23	Z	.581	.581	0	%100
21	OVP	X	-1.167	-1.167	0	%100
22	OVP	Z	2.022	2.022	0	%100

Member Distributed Loads (BLC 61 : Structure Wi (240 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	-.758	-.758	0	%100
2	M1	Z	.438	.438	0	%100
3	MP1A	X	-2.427	-2.427	0	%100
4	MP1A	Z	1.401	1.401	0	%100
5	M17A	X	-2.277	-2.277	0	%100
6	M17A	Z	1.315	1.315	0	%100
7	M18A	X	-1.972	-1.972	0	%100
8	M18A	Z	1.138	1.138	0	%100
9	MP2A	X	-2.427	-2.427	0	%100
10	MP2A	Z	1.401	1.401	0	%100
11	MP3A	X	-2.427	-2.427	0	%100
12	MP3A	Z	1.401	1.401	0	%100
13	MP4A	X	-2.427	-2.427	0	%100
14	MP4A	Z	1.401	1.401	0	%100
15	MP5A	X	-2.427	-2.427	0	%100
16	MP5A	Z	1.401	1.401	0	%100
17	M17	X	-.758	-.758	0	%100
18	M17	Z	.438	.438	0	%100

Member Distributed Loads (BLC 61 : Structure Wi (240 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
19	M23	X	-1.742	-1.742	0	%100
20	M23	Z	1.006	1.006	0	%100
21	OVP	X	-2.022	-2.022	0	%100
22	OVP	Z	1.167	1.167	0	%100

Member Distributed Loads (BLC 62 : Structure Wi (270 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	0	0	0	%100
2	M1	Z	0	0	0	%100
3	MP1A	X	-2.802	-2.802	0	%100
4	MP1A	Z	0	0	0	%100
5	M17A	X	-2.63	-2.63	0	%100
6	M17A	Z	0	0	0	%100
7	M18A	X	-3.035	-3.035	0	%100
8	M18A	Z	0	0	0	%100
9	MP2A	X	-2.802	-2.802	0	%100
10	MP2A	Z	0	0	0	%100
11	MP3A	X	-2.802	-2.802	0	%100
12	MP3A	Z	0	0	0	%100
13	MP4A	X	-2.802	-2.802	0	%100
14	MP4A	Z	0	0	0	%100
15	MP5A	X	-2.802	-2.802	0	%100
16	MP5A	Z	0	0	0	%100
17	M17	X	0	0	0	%100
18	M17	Z	0	0	0	%100
19	M23	X	-2.682	-2.682	0	%100
20	M23	Z	0	0	0	%100
21	OVP	X	-2.334	-2.334	0	%100
22	OVP	Z	0	0	0	%100

Member Distributed Loads (BLC 63 : Structure Wi (300 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	-.758	-.758	0	%100
2	M1	Z	-.438	-.438	0	%100
3	MP1A	X	-2.427	-2.427	0	%100
4	MP1A	Z	-1.401	-1.401	0	%100
5	M17A	X	-2.277	-2.277	0	%100
6	M17A	Z	-1.315	-1.315	0	%100
7	M18A	X	-1.972	-1.972	0	%100
8	M18A	Z	-1.138	-1.138	0	%100
9	MP2A	X	-2.427	-2.427	0	%100
10	MP2A	Z	-1.401	-1.401	0	%100
11	MP3A	X	-2.427	-2.427	0	%100
12	MP3A	Z	-1.401	-1.401	0	%100
13	MP4A	X	-2.427	-2.427	0	%100
14	MP4A	Z	-1.401	-1.401	0	%100
15	MP5A	X	-2.427	-2.427	0	%100
16	MP5A	Z	-1.401	-1.401	0	%100
17	M17	X	-.758	-.758	0	%100
18	M17	Z	-.438	-.438	0	%100
19	M23	X	-1.742	-1.742	0	%100
20	M23	Z	-1.006	-1.006	0	%100
21	OVP	X	-2.022	-2.022	0	%100
22	OVP	Z	-1.167	-1.167	0	%100

Member Distributed Loads (BLC 64 : Structure Wi (330 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	-1.313	-1.313	0	%100
2	M1	Z	-2.275	-2.275	0	%100
3	MP1A	X	-1.401	-1.401	0	%100
4	MP1A	Z	-2.427	-2.427	0	%100
5	M17A	X	-1.315	-1.315	0	%100
6	M17A	Z	-2.277	-2.277	0	%100
7	M18A	X	-.379	-.379	0	%100
8	M18A	Z	-.657	-.657	0	%100
9	MP2A	X	-1.401	-1.401	0	%100
10	MP2A	Z	-2.427	-2.427	0	%100
11	MP3A	X	-1.401	-1.401	0	%100
12	MP3A	Z	-2.427	-2.427	0	%100
13	MP4A	X	-1.401	-1.401	0	%100
14	MP4A	Z	-2.427	-2.427	0	%100
15	MP5A	X	-1.401	-1.401	0	%100
16	MP5A	Z	-2.427	-2.427	0	%100
17	M17	X	-1.313	-1.313	0	%100
18	M17	Z	-2.275	-2.275	0	%100
19	M23	X	-.335	-.335	0	%100
20	M23	Z	-.581	-.581	0	%100
21	OVP	X	-1.167	-1.167	0	%100
22	OVP	Z	-2.022	-2.022	0	%100

Member Distributed Loads (BLC 65 : Structure Wm (0 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	0	0	0	%100
2	M1	Z	-.784	-.784	0	%100
3	MP1A	X	0	0	0	%100
4	MP1A	Z	-.532	-.532	0	%100
5	M17A	X	0	0	0	%100
6	M17A	Z	-.562	-.562	0	%100
7	M18A	X	0	0	0	%100
8	M18A	Z	0	0	0	%100
9	MP2A	X	0	0	0	%100
10	MP2A	Z	-.532	-.532	0	%100
11	MP3A	X	0	0	0	%100
12	MP3A	Z	-.532	-.532	0	%100
13	MP4A	X	0	0	0	%100
14	MP4A	Z	-.532	-.532	0	%100
15	MP5A	X	0	0	0	%100
16	MP5A	Z	-.532	-.532	0	%100
17	M17	X	0	0	0	%100
18	M17	Z	-.784	-.784	0	%100
19	M23	X	0	0	0	%100
20	M23	Z	0	0	0	%100
21	OVP	X	0	0	0	%100
22	OVP	Z	-.435	-.435	0	%100

Member Distributed Loads (BLC 66 : Structure Wm (30 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.294	.294	0	%100
2	M1	Z	-.509	-.509	0	%100
3	MP1A	X	.266	.266	0	%100
4	MP1A	Z	-.461	-.461	0	%100
5	M17A	X	.281	.281	0	%100
6	M17A	Z	-.487	-.487	0	%100

Member Distributed Loads (BLC 66 : Structure Wm (30 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
7	M18A	X	.087	.087	0	%100
8	M18A	Z	-.15	-.15	0	%100
9	MP2A	X	.266	.266	0	%100
10	MP2A	Z	-.461	-.461	0	%100
11	MP3A	X	.266	.266	0	%100
12	MP3A	Z	-.461	-.461	0	%100
13	MP4A	X	.266	.266	0	%100
14	MP4A	Z	-.461	-.461	0	%100
15	MP5A	X	.266	.266	0	%100
16	MP5A	Z	-.461	-.461	0	%100
17	M17	X	.294	.294	0	%100
18	M17	Z	-.509	-.509	0	%100
19	M23	X	.07	.07	0	%100
20	M23	Z	-.121	-.121	0	%100
21	OVP	X	.218	.218	0	%100
22	OVP	Z	-.377	-.377	0	%100

Member Distributed Loads (BLC 67 : Structure Wm (60 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.17	.17	0	%100
2	M1	Z	-.098	-.098	0	%100
3	MP1A	X	.461	.461	0	%100
4	MP1A	Z	-.266	-.266	0	%100
5	M17A	X	.487	.487	0	%100
6	M17A	Z	-.281	-.281	0	%100
7	M18A	X	.451	.451	0	%100
8	M18A	Z	-.26	-.26	0	%100
9	MP2A	X	.461	.461	0	%100
10	MP2A	Z	-.266	-.266	0	%100
11	MP3A	X	.461	.461	0	%100
12	MP3A	Z	-.266	-.266	0	%100
13	MP4A	X	.461	.461	0	%100
14	MP4A	Z	-.266	-.266	0	%100
15	MP5A	X	.461	.461	0	%100
16	MP5A	Z	-.266	-.266	0	%100
17	M17	X	.17	.17	0	%100
18	M17	Z	-.098	-.098	0	%100
19	M23	X	.363	.363	0	%100
20	M23	Z	-.21	-.21	0	%100
21	OVP	X	.377	.377	0	%100
22	OVP	Z	-.218	-.218	0	%100

Member Distributed Loads (BLC 68 : Structure Wm (90 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	0	0	0	%100
2	M1	Z	0	0	0	%100
3	MP1A	X	.532	.532	0	%100
4	MP1A	Z	0	0	0	%100
5	M17A	X	.562	.562	0	%100
6	M17A	Z	0	0	0	%100
7	M18A	X	.695	.695	0	%100
8	M18A	Z	0	0	0	%100
9	MP2A	X	.532	.532	0	%100
10	MP2A	Z	0	0	0	%100
11	MP3A	X	.532	.532	0	%100
12	MP3A	Z	0	0	0	%100

Member Distributed Loads (BLC 68 : Structure Wm (90 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
13	MP4A	X	.532	.532	0	%100
14	MP4A	Z	0	0	0	%100
15	MP5A	X	.532	.532	0	%100
16	MP5A	Z	0	0	0	%100
17	M17	X	0	0	0	%100
18	M17	Z	0	0	0	%100
19	M23	X	.559	.559	0	%100
20	M23	Z	0	0	0	%100
21	OVP	X	.435	.435	0	%100
22	OVP	Z	0	0	0	%100

Member Distributed Loads (BLC 69 : Structure Wm (120 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.17	.17	0	%100
2	M1	Z	.098	.098	0	%100
3	MP1A	X	.461	.461	0	%100
4	MP1A	Z	.266	.266	0	%100
5	M17A	X	.487	.487	0	%100
6	M17A	Z	.281	.281	0	%100
7	M18A	X	.451	.451	0	%100
8	M18A	Z	.26	.26	0	%100
9	MP2A	X	.461	.461	0	%100
10	MP2A	Z	.266	.266	0	%100
11	MP3A	X	.461	.461	0	%100
12	MP3A	Z	.266	.266	0	%100
13	MP4A	X	.461	.461	0	%100
14	MP4A	Z	.266	.266	0	%100
15	MP5A	X	.461	.461	0	%100
16	MP5A	Z	.266	.266	0	%100
17	M17	X	.17	.17	0	%100
18	M17	Z	.098	.098	0	%100
19	M23	X	.363	.363	0	%100
20	M23	Z	.21	.21	0	%100
21	OVP	X	.377	.377	0	%100
22	OVP	Z	.218	.218	0	%100

Member Distributed Loads (BLC 70 : Structure Wm (150 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.294	.294	0	%100
2	M1	Z	.509	.509	0	%100
3	MP1A	X	.266	.266	0	%100
4	MP1A	Z	.461	.461	0	%100
5	M17A	X	.281	.281	0	%100
6	M17A	Z	.487	.487	0	%100
7	M18A	X	.087	.087	0	%100
8	M18A	Z	.15	.15	0	%100
9	MP2A	X	.266	.266	0	%100
10	MP2A	Z	.461	.461	0	%100
11	MP3A	X	.266	.266	0	%100
12	MP3A	Z	.461	.461	0	%100
13	MP4A	X	.266	.266	0	%100
14	MP4A	Z	.461	.461	0	%100
15	MP5A	X	.266	.266	0	%100
16	MP5A	Z	.461	.461	0	%100
17	M17	X	.294	.294	0	%100
18	M17	Z	.509	.509	0	%100

Member Distributed Loads (BLC 70 : Structure Wm (150 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
19	M23	X	.07	.07	0	%100
20	M23	Z	.121	.121	0	%100
21	OVP	X	.218	.218	0	%100
22	OVP	Z	.377	.377	0	%100

Member Distributed Loads (BLC 71 : Structure Wm (180 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	0	0	0	%100
2	M1	Z	.784	.784	0	%100
3	MP1A	X	0	0	0	%100
4	MP1A	Z	.532	.532	0	%100
5	M17A	X	0	0	0	%100
6	M17A	Z	.562	.562	0	%100
7	M18A	X	0	0	0	%100
8	M18A	Z	0	0	0	%100
9	MP2A	X	0	0	0	%100
10	MP2A	Z	.532	.532	0	%100
11	MP3A	X	0	0	0	%100
12	MP3A	Z	.532	.532	0	%100
13	MP4A	X	0	0	0	%100
14	MP4A	Z	.532	.532	0	%100
15	MP5A	X	0	0	0	%100
16	MP5A	Z	.532	.532	0	%100
17	M17	X	0	0	0	%100
18	M17	Z	.784	.784	0	%100
19	M23	X	0	0	0	%100
20	M23	Z	0	0	0	%100
21	OVP	X	0	0	0	%100
22	OVP	Z	.435	.435	0	%100

Member Distributed Loads (BLC 72 : Structure Wm (210 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	-.294	-.294	0	%100
2	M1	Z	.509	.509	0	%100
3	MP1A	X	-.266	-.266	0	%100
4	MP1A	Z	.461	.461	0	%100
5	M17A	X	-.281	-.281	0	%100
6	M17A	Z	.487	.487	0	%100
7	M18A	X	-.087	-.087	0	%100
8	M18A	Z	.15	.15	0	%100
9	MP2A	X	-.266	-.266	0	%100
10	MP2A	Z	.461	.461	0	%100
11	MP3A	X	-.266	-.266	0	%100
12	MP3A	Z	.461	.461	0	%100
13	MP4A	X	-.266	-.266	0	%100
14	MP4A	Z	.461	.461	0	%100
15	MP5A	X	-.266	-.266	0	%100
16	MP5A	Z	.461	.461	0	%100
17	M17	X	-.294	-.294	0	%100
18	M17	Z	.509	.509	0	%100
19	M23	X	-.07	-.07	0	%100
20	M23	Z	.121	.121	0	%100
21	OVP	X	-.218	-.218	0	%100
22	OVP	Z	.377	.377	0	%100

Member Distributed Loads (BLC 73 : Structure Wm (240 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	-.17	-.17	0	%100
2	M1	Z	.098	.098	0	%100
3	MP1A	X	-.461	-.461	0	%100
4	MP1A	Z	.266	.266	0	%100
5	M17A	X	-.487	-.487	0	%100
6	M17A	Z	.281	.281	0	%100
7	M18A	X	-.451	-.451	0	%100
8	M18A	Z	.26	.26	0	%100
9	MP2A	X	-.461	-.461	0	%100
10	MP2A	Z	.266	.266	0	%100
11	MP3A	X	-.461	-.461	0	%100
12	MP3A	Z	.266	.266	0	%100
13	MP4A	X	-.461	-.461	0	%100
14	MP4A	Z	.266	.266	0	%100
15	MP5A	X	-.461	-.461	0	%100
16	MP5A	Z	.266	.266	0	%100
17	M17	X	-.17	-.17	0	%100
18	M17	Z	.098	.098	0	%100
19	M23	X	-.363	-.363	0	%100
20	M23	Z	.21	.21	0	%100
21	OVP	X	-.377	-.377	0	%100
22	OVP	Z	.218	.218	0	%100

Member Distributed Loads (BLC 74 : Structure Wm (270 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	0	0	0	%100
2	M1	Z	0	0	0	%100
3	MP1A	X	-.532	-.532	0	%100
4	MP1A	Z	0	0	0	%100
5	M17A	X	-.562	-.562	0	%100
6	M17A	Z	0	0	0	%100
7	M18A	X	-.695	-.695	0	%100
8	M18A	Z	0	0	0	%100
9	MP2A	X	-.532	-.532	0	%100
10	MP2A	Z	0	0	0	%100
11	MP3A	X	-.532	-.532	0	%100
12	MP3A	Z	0	0	0	%100
13	MP4A	X	-.532	-.532	0	%100
14	MP4A	Z	0	0	0	%100
15	MP5A	X	-.532	-.532	0	%100
16	MP5A	Z	0	0	0	%100
17	M17	X	0	0	0	%100
18	M17	Z	0	0	0	%100
19	M23	X	-.559	-.559	0	%100
20	M23	Z	0	0	0	%100
21	OVP	X	-.435	-.435	0	%100
22	OVP	Z	0	0	0	%100

Member Distributed Loads (BLC 75 : Structure Wm (300 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	-.17	-.17	0	%100
2	M1	Z	-.098	-.098	0	%100
3	MP1A	X	-.461	-.461	0	%100
4	MP1A	Z	-.266	-.266	0	%100
5	M17A	X	-.487	-.487	0	%100
6	M17A	Z	-.281	-.281	0	%100

Member Distributed Loads (BLC 75 : Structure Wm (300 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
7	M18A	X	-.451	-.451	0	%100
8	M18A	Z	-.26	-.26	0	%100
9	MP2A	X	-.461	-.461	0	%100
10	MP2A	Z	-.266	-.266	0	%100
11	MP3A	X	-.461	-.461	0	%100
12	MP3A	Z	-.266	-.266	0	%100
13	MP4A	X	-.461	-.461	0	%100
14	MP4A	Z	-.266	-.266	0	%100
15	MP5A	X	-.461	-.461	0	%100
16	MP5A	Z	-.266	-.266	0	%100
17	M17	X	-.17	-.17	0	%100
18	M17	Z	-.098	-.098	0	%100
19	M23	X	-.363	-.363	0	%100
20	M23	Z	-.21	-.21	0	%100
21	OVP	X	-.377	-.377	0	%100
22	OVP	Z	-.218	-.218	0	%100

Member Distributed Loads (BLC 76 : Structure Wm (330 Deg))

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	-.294	-.294	0	%100
2	M1	Z	-.509	-.509	0	%100
3	MP1A	X	-.266	-.266	0	%100
4	MP1A	Z	-.461	-.461	0	%100
5	M17A	X	-.281	-.281	0	%100
6	M17A	Z	-.487	-.487	0	%100
7	M18A	X	-.087	-.087	0	%100
8	M18A	Z	-.15	-.15	0	%100
9	MP2A	X	-.266	-.266	0	%100
10	MP2A	Z	-.461	-.461	0	%100
11	MP3A	X	-.266	-.266	0	%100
12	MP3A	Z	-.461	-.461	0	%100
13	MP4A	X	-.266	-.266	0	%100
14	MP4A	Z	-.461	-.461	0	%100
15	MP5A	X	-.266	-.266	0	%100
16	MP5A	Z	-.461	-.461	0	%100
17	M17	X	-.294	-.294	0	%100
18	M17	Z	-.509	-.509	0	%100
19	M23	X	-.07	-.07	0	%100
20	M23	Z	-.121	-.121	0	%100
21	OVP	X	-.218	-.218	0	%100
22	OVP	Z	-.377	-.377	0	%100

Member Area Loads

Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
No Data to Print ...						

Envelope AISC 15th(360-16): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc.....		LC	phi*Pn...	phi*Pn...	phi*Mn...	phi*Mn.....		Eqn
1	M1	PIPE_3.0	.272	5.312	12	.210	5.312		21	35631...	65205	5.749	5.749	1...	H1-1b
2	MP1A	PIPE_2.0	.213	3.273	6	.047	3.273		9	20741...	32130	1.872	1.872	1...	H1-1b
3	M17A	PIPE_4.0	.000	.75	10	.000	.75		10	92571...	93240	10.631	10.631	1...	H1-1b
4	M18A	HSS4X4X4	.277	2.854	5	.149	2.854	z	11	13484...	139518	16.181	16.181	1...	H1-1b
5	MP2A	PIPE_2.0	.231	5.286	47	.078	3.336		7	20741...	32130	1.872	1.872	3...	H1-1b

Envelope AISC 15th(360-16): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc.....		LC	phi*Pn...	phi*Pn...	phi*Mn...	phi*Mn.....	Eqn
6	MP3A	PIPE_2.0	.438	5.286	19	.152	3.336		6	20741...	32130	1.872	1.872	3... H1-1b
7	MP4A	PIPE_2.0	.597	3.273	1	.134	3.336		7	20741...	32130	1.872	1.872	4... H1-1b
8	MP5A	PIPE_2.0	.213	3.273	6	.058	5.286		7	20741...	32130	1.872	1.872	1... H1-1b
9	M17	PIPE_3.0	.504	5.312	7	.206	5.312		20	35631...	65205	5.749	5.749	1... H1-1b
10	M23	HSS3X3X4	.445	3.021	11	.129	3.021	z	11	94053...	101016	8.556	8.556	2... H1-1b
11	OVP	PIPE_2.0	.080	2.25	7	.015	2.25		7	28843...	32130	1.872	1.872	1... H1-1b

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N35B	max	898.441	11	1211.116	19	1166.798	13	-.624	1	2.538	11	1.436	5
2		min	-974.781	5	305.341	1	419.097	7	-3.1	19	-2.756	5	-1.715	11
3	N44	max	710.397	9	885.889	13	1527.228	1	-.698	7	3.059	11	.698	5
4		min	-624.776	3	151.487	7	-2552.724	7	-1.52	13	-2.838	5	-.808	11
5	Totals:	max	1447.398	10	1990.105	16	2133.631	1						
6		min	-1447.399	4	963.175	10	-2133.627	7						

Client:	Verizon Wireless	Date:	2/24/2021
Site Name:	CROMWELL CT		
Project No.	20777624A		
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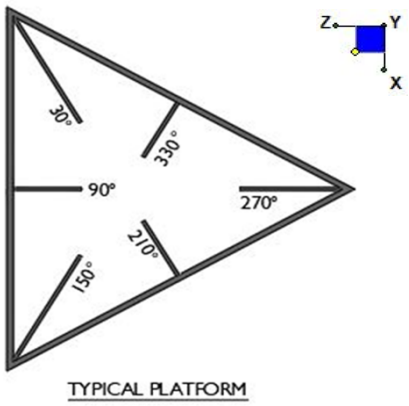
I. Mount-to-Tower Connection Check

RISA Model Data

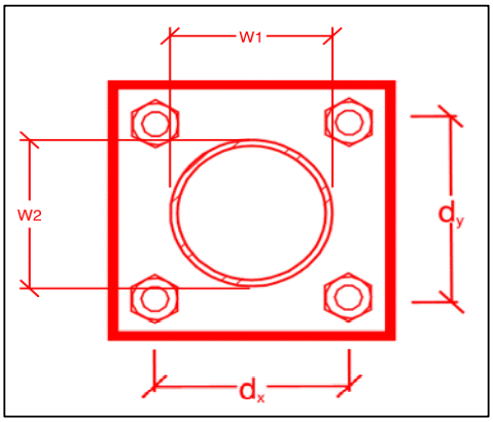
Nodes *(labeled per RISA)*	Orientation *(per graphic of typical platform)*
N35B	90



TYPICAL PLATFORM

Tower Connection Bolt Checks

Any moment resistance?:	yes
Bolt Quantity per Reaction:	4
d_x (in) *(Delta X of typ. bolt config. sketch)* :	7
d_y (in) *(Delta Y of typ. bolt config. sketch)* :	7
Bolt Type:	A325N
Bolt Diameter (in):	0.625
Required Tensile Strength (kips):	12.1
Required Shear Strength (kips):	7.1
Tensile Strength / bolt (kips):	20.7
Shear Strength / bolt (kips):	12.4
Tensile Capacity Overall:	**14.6%***
Shear Capacity Overall:	**14.3%**



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

Tower Connection Plate and Weld Check

Connecting Standoff Member Shape:	Rect
Plate Width (in):	10
Plate Height (in):	10
W1 (in):	4
W2 (in):	4
Fy (ksi, plate):	36
t_{Plate} (in):	0.625
Weld Size (1/16 in):	6
Phi*Rn (kip/in):	8.35
Required Weld Strength (kip/in):	2.01
Plate Bending Capacity:	**38.5%**
Weld Capacity:	**24.1%**

Max Plate Bending Strengths

Mu_{xx} *(kip-in)* :	4.5
Phi*Mn_{xx} *(kip-in)* :	31.6
Mu_{yy} *(kip-in)* :	7.7
Phi*Mn_{yy} *(kip-in)* :	31.6

Client:	Verizon Wireless	Date:	2/24/2021
Site Name:	CROMWELL CT		
Project No.	20777624A		
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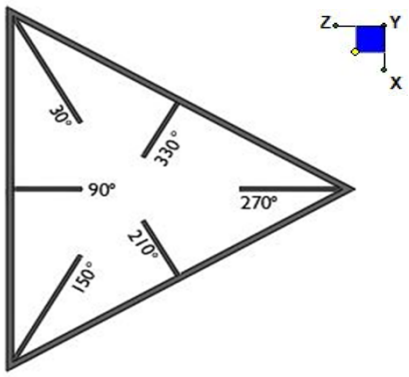
I. Mount-to-Tower Connection Check - Proposed Standoff

RISA Model Data

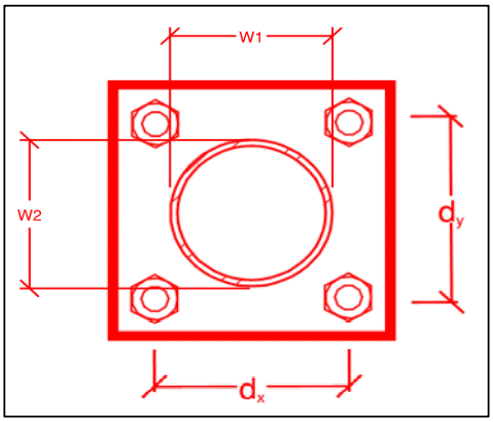
Nodes *(labeled per RISA)*	Orientation *(per graphic of typical platform)*
N44	90



TYPICAL PLATFORM

Tower Connection Bolt Checks

Any moment resistance?:	yes
Bolt Quantity per Reaction:	4
d_x (in) *(Delta X of typ. bolt config. sketch)* :	6
d_y (in) *(Delta Y of typ. bolt config. sketch)* :	6
Bolt Type:	A325N
Bolt Diameter (in):	0.625
Required Tensile Strength (kips):	13.0
Required Shear Strength (kips):	4.0
Tensile Strength / bolt (kips):	20.7
Shear Strength / bolt (kips):	12.4
Tensile Capacity Overall:	**15.7%***
Shear Capacity Overall:	**8.1%**



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

Tower Connection Plate and Weld Check

Connecting Standoff Member Shape:	Rect
Plate Width (in):	8.25
Plate Height (in):	8.25
W1 (in):	3
W2 (in):	3
Fy (ksi, plate):	36
t_{Plate} (in):	0.75
Weld Size (1/16 in):	5
Phi*Rn (kip/in):	6.96
Required Weld Strength (kip/in):	3.27
Plate Bending Capacity:	**31.0%**
Weld Capacity:	**47.0%**

Max Plate Bending Strengths

Mu_{xx} *(kip-in)* :	2.2
Phi*Mn_{xx} *(kip-in)* :	37.6
Mu_{yy} *(kip-in)* :	9.5
Phi*Mn_{yy} *(kip-in)* :	37.6

Mount Desktop – Post Modification Inspection (PMI) Report Requirements

Documents & Photos Required from Contractor – Mount Modification

Purpose – to provide Maser Consulting Connecticut the proper documentation in order to complete the required Mount Desktop review of the Post Modification Inspection Report.

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

Base Requirements:

- Any special photos outside of the standard requirements will be indicated on the drawings
- Provide "as built drawings" showing contractor's name, preparer's signature, and date. Any deviations from the drawings (proposed modification) must be shown.
- Notation that all hardware was properly installed, and the existing hardware was inspected for any issues.
- Verification that loading is as communicated in the modification drawings. NOTE If loading is different than what is conveyed in the modification drawing contact Maser Consulting Connecticut immediately.
- Each photo should be time and date stamped
- Photos should be high resolution and submitted in a Zip File and should be organized in the file structure as depicted in Schedule A attached.
- Contractor shall ensure that the safety climb wire rope is supported and not adversely impacted by the install of the modification components. This may involve the install of wire rope guides, or other items to protect the wire rope.
- The photos in the file structure should be uploaded **to** https://pmi.vzwsmart.com as depicted on the drawings

Photo Requirements:

- *Base and "During Installation Photos"*
  - Base pictures include
    - Photo of Gate Signs showing the tower owner, site name, and number
    - Photo of carrier shelter showing the carrier site name and number if available
    - Photos of the galvanizing compound and/or paint used (if applicable), clearly showing the label and name
  - "During Installation Photos if provided - must be placed only in this folder
- *Photos taken at ground level*
  - Overall tower structure before and after installation of the modifications
  - Photos of the appropriate mount before and after installation of the modifications; if the mounts are at different rad elevations, pictures must be provided for all elevations that the modifications were installed

- *Photos taken at Mount Elevation*
    - Photos showing each individual sector before and also after installation of modifications. Each entire sector must be in one photo to show in the inter-connection of members.
        - These photos should also certify that the placement and geometry of the equipment on the mount is as depicted on the sketch and table in the mount analysis
    - Close-up photos of each installed modification per the modification drawings; pictures should also include connection hardware (U-bolts, bolts, nuts, all-threaded rods, etc.)
    - Photos showing the measurements of the installed modification member sizes (i.e. lengths, widths, depths, diameters, thicknesses)
    - Photos showing the elevation or distances of the installed modifications from the appropriate reference locations shown in the modification drawings
    - Photos showing the installed modifications onto the tower with tape drop measurements (if applicable) (i.e. ring/collar mounts, tie-backs, V-bracing kits, etc.); if the existing mount elevation needs to be changed according to the modification drawings, a tape drop measurement shall be provided before the elevation change
    - Photos showing the safety climb wire rope above and below the mount prior to modification.
    - Photos showing the climbing facility and safety climb if present.

Material Certification:

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

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

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

Certifying Individual: Company _____

Name _____

Signature _____

Antenna & equipment placement and Geometry Confirmation:

- The contractor must certify that the antenna & equipment placement and geometry is in accordance with the antenna placement diagrams as included in this mount analysis.

☐ The contractor certifies that the photos support and the equipment on the mount is as depicted on the antenna placement diagrams as included in this mount analysis.

☐ The contractor notes that the equipment on the mount is not in accordance with the antenna placement diagrams and has accordingly marked up the diagrams or provided a diagram outlining the differences.

Certifying Individual: Company _____

Name _____

Signature _____

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

Issue:

Install proposed OVP to a new 3' P2.0 STD mount pipe connected to the proposed standoff arm of the Alpha Sector. Connect pipe to standoff arm using Perfect Vision PV-XP-30ST20 crossover plate. Relocate existing OVP to a new 3' P2.0 STD mount pipe connected to the proposed standoff arm of the Beta Sector. Connect pipe to standoff arm using Perfect Vision PV-XP-30ST20 crossover plate. Contractor to reattach any disturbed Monopine branches after antenna installation. Contractor to ensure that existing and proposed mount connections do not nor will not interfere with safety climb wire rope. Contractor to install safety climb wire rope guides as necessary.

Response:

Schedule A – Photo & Document File Structure

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

Structure: 467921-VZW - Cromwell CT

Sector: **A**

Structure Type: Monopole

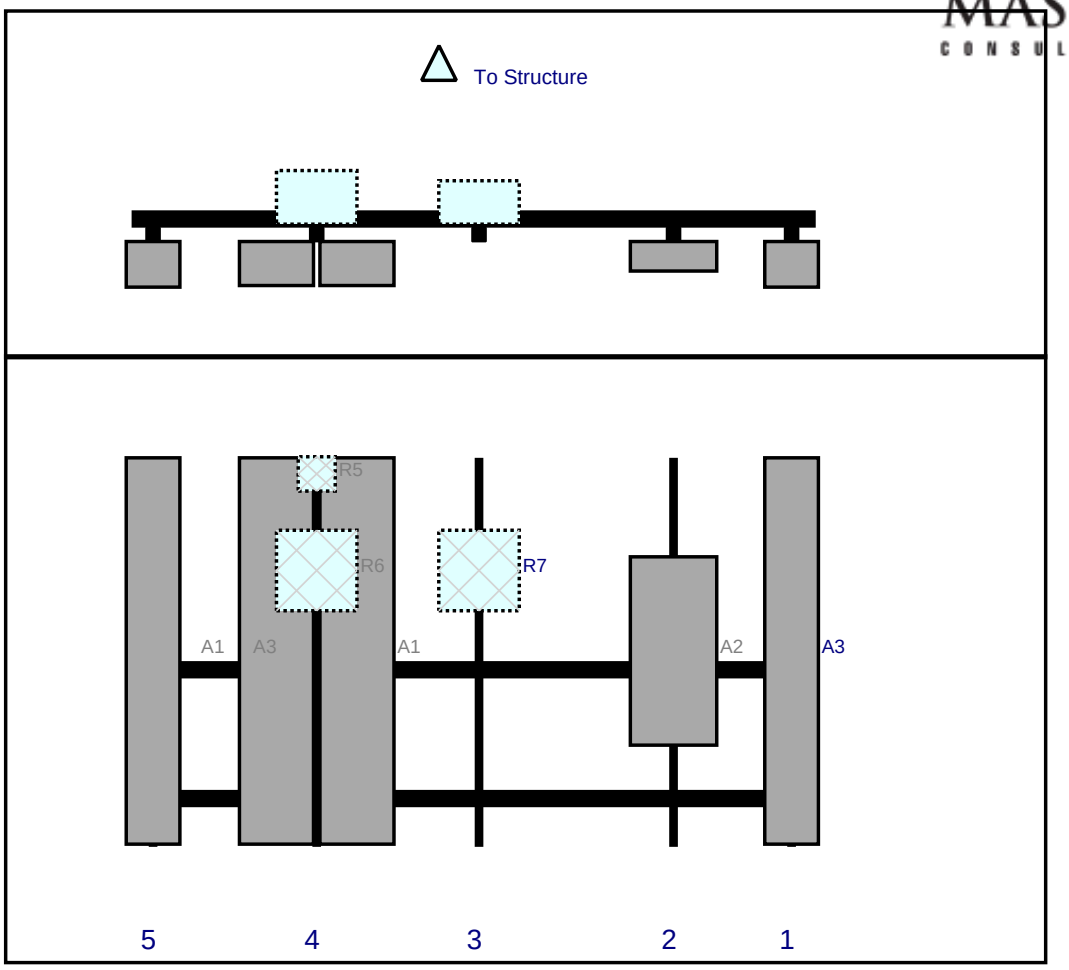
Mount Elev: 61.50

2/25/2021

Page: 1

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
A3	DB846F65ZAXY	72	10	123	1	a	Front	36	0	Retained	01/16/2021
A2	VZS01	35.1	16.1	101	2	a	Front	36	0	Added	
R7	B5/B13 RRH-BR04C	15	15	64.75	3	a	Behind	21	0	Added	
A1	JAHH-65B-R3B	72	13.8	34.5	4	a	Front	36	7.5	Added	
A1	JAHH-65B-R3B	72	13.8	34.5	4	b	Front	36	-7.5	Added	
R5	CBC78T-DS-43-2X	6.4	6.9	34.5	4	a	Behind	3	0	Added	
R6	B2/B66A RRH-BR049	15	15	34.5	4	a	Behind	21	0	Added	
A3	DB846F65ZAXY	72	10	4	5	a	Front	36	0	Retained	01/16/2021

Sector: **B**

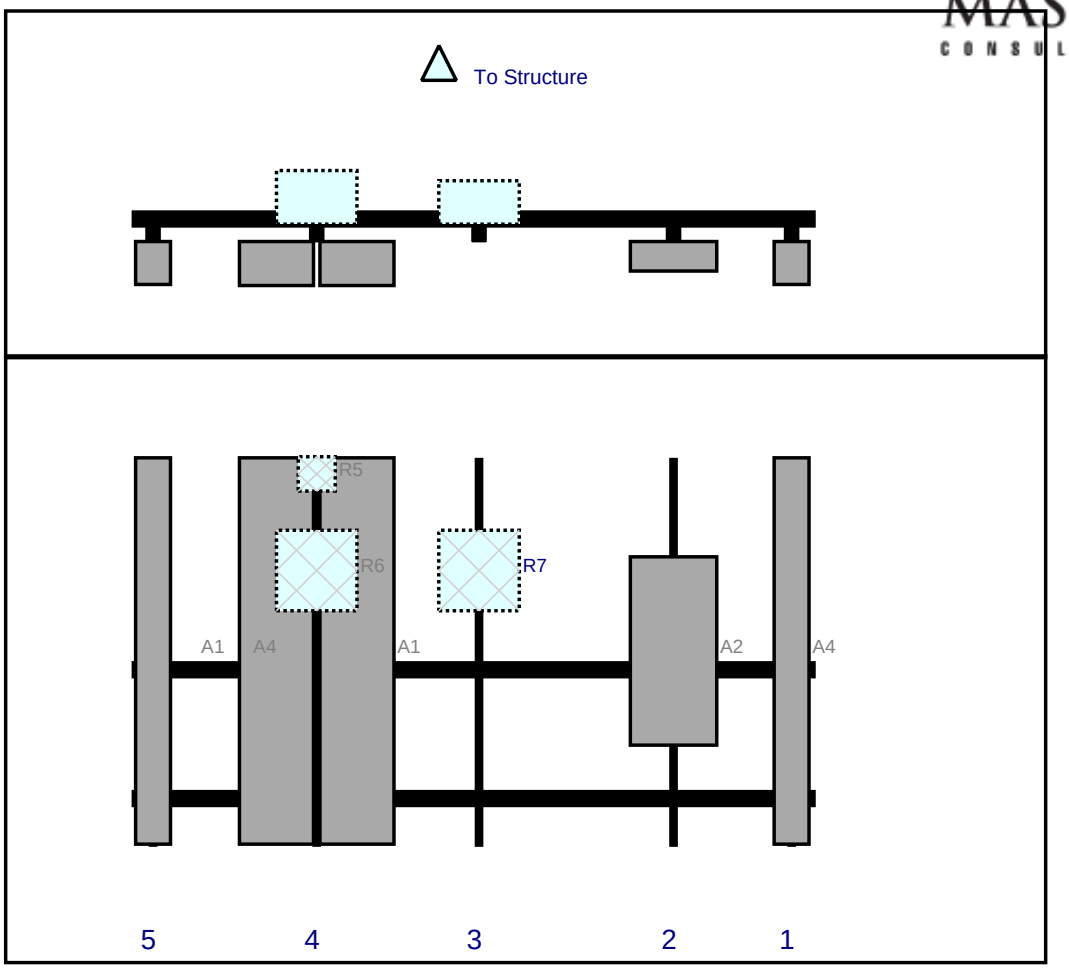
Structure Type: Monopole

Mount Elev: 61.50

2/25/2021

Plan View

Front View
Looking at Structure



Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A4	DB846H80E-SX	72	6.5	123	1	a	Front	36	0	Retained	01/16/2021
A2	VZS01	35.1	16.1	101	2	a	Front	36	0	Added	
R7	B5/B13 RRH-BR04C	15	15	64.75	3	a	Behind	21	0	Added	
A1	JAHH-65B-R3B	72	13.8	34.5	4	a	Front	36	7.5	Added	
A1	JAHH-65B-R3B	72	13.8	34.5	4	b	Front	36	-7.5	Added	
R5	CBC78T-DS-43-2X	6.4	6.9	34.5	4	a	Behind	3	0	Added	
R6	B2/B66A RRH-BR049	15	15	34.5	4	a	Behind	21	0	Added	
A4	DB846H80E-SX	72	6.5	4	5	a	Front	36	0	Retained	01/16/2021

Sector: **C**

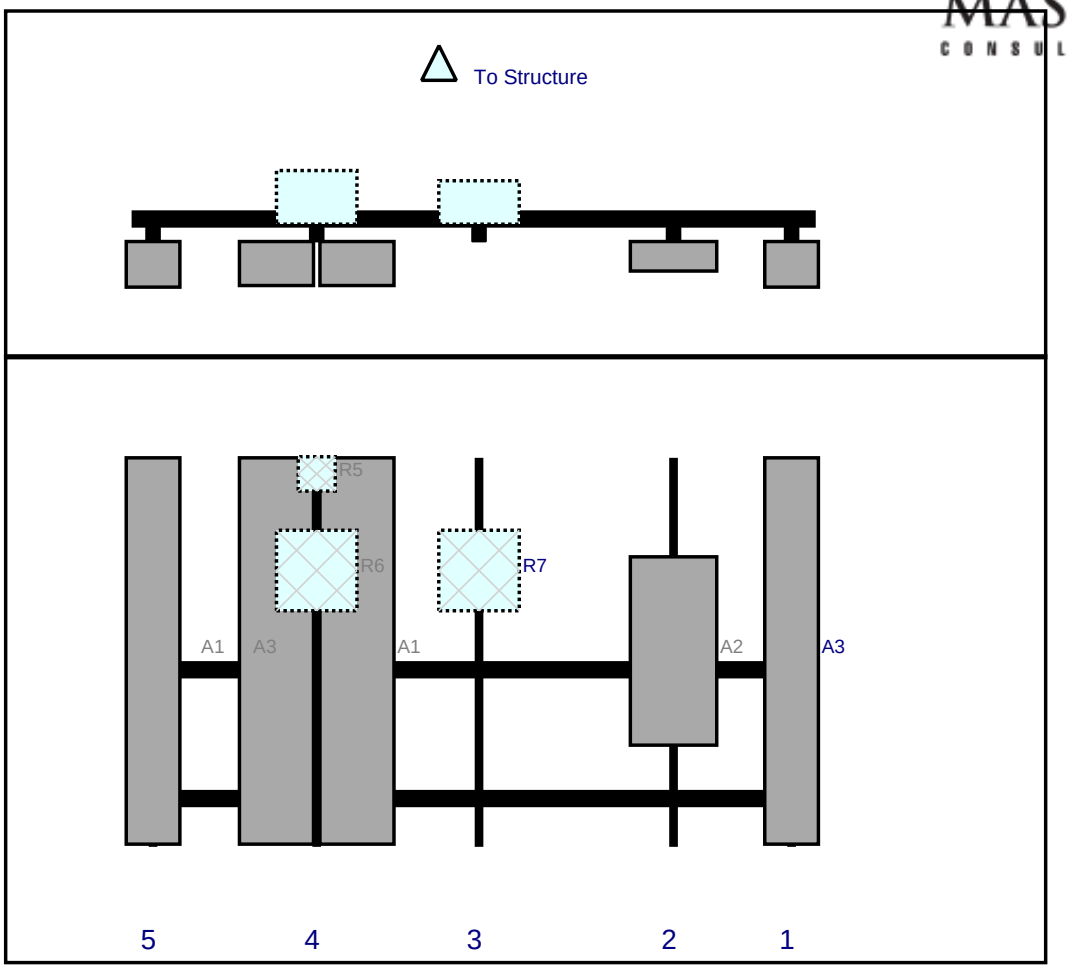
Structure Type: Monopole

Mount Elev: 61.50

2/25/2021

Plan View

Front View
Looking at Structure



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A3	DB846F65ZAXY	72	10	123	1	a	Front	36	0	Retained	01/16/2021
A2	VZS01	35.1	16.1	101	2	a	Front	36	0	Added	
R7	B5/B13 RRH-BR04C	15	15	64.75	3	a	Behind	21	0	Added	
A1	JAHH-65B-R3B	72	13.8	34.5	4	a	Front	36	7.5	Added	
A1	JAHH-65B-R3B	72	13.8	34.5	4	b	Front	36	-7.5	Added	
R5	CBC78T-DS-43-2X	6.4	6.9	34.5	4	a	Behind	3	0	Added	
R6	B2/B66A RRH-BR049	15	15	34.5	4	a	Behind	21	0	Added	
A3	DB846F65ZAXY	72	10	4	5	a	Front	36	0	Retained	01/16/2021

Maser Consulting Connecticut

Subject	TIA-222-H Usage
Site Information	Site ID: 467921-VZW / CROMWELL CT Site Name: CROMWELL CT Carrier Name: Verizon Wireless Address: 160 West Cromwell, Connecticut 06416 Middlesex County Latitude: 41.605992° Longitude: -72.670381°
Structure Information	Tower Type: Monopole Mount Type: 10.63-Ft T-Arm

To Whom It May Concern,

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

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

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

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

Sincerely,

Dejian Xu

Dejian Xu, PE
Technical Specialist

MASER CONSULTING
— CONNECTICUT—

331 Newman Springs Road, Suite 203
Red Bank, NJ 07701
T: 732.383.1950
www.maserconsulting.com

March 29, 2021

Mr. Andrew Leone
Verizon Wireless
20 Alexander Dr.
Wallingford, CT 06492

Re: Verizon Wireless antenna Model Clarification for CT Siting Council

Dear Mr. Leone,

This letter is intended to clarify and confirm the antenna naming convention used by Verizon Wireless as a part of an antenna upgrade project on numerous wireless facilities.

The antenna naming convention "Licensed Sub-6, L-Sub6, nL-Sub6, VZS01" and any other slight variants refer to the 64T64RMMU antenna manufactured by Samsung Electronics. These names are interchangeable and are used in various documents, including but not limited to the "Antenna Mount Analysis".

If you have any questions or comments, or require additional information, please do not hesitate to contact me.

Very truly yours,
MASER CONSULTING CONNECTICUT

Petros Toukalas
Connecticut Professional Engineer
License Number: 32577

PROJECT NOTES

1. SEE MODIFICATION NOTES
2. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITY COMPANIES OR OTHER PUBLIC/GOVERNING AUTHORITIES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
4. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE AS A RESULT OF CONSTRUCTION OF THIS FACILITY AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
6. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
7. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING THE BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND CONSTRUCTION DRAWINGS.
8. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THESE DRAWINGS MUST BE VERIFIED. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
9. SINCE THE CELL SITE MAY BE 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 REQUIRED TO BE WORN TO ALERT OF ANY POTENTIALLY DANGEROUS EXPOSURE LEVELS.
10. NO NOISE, SMOKE, DUST OR ODOR WILL RESULT FROM THIS FACILITY AS TO CAUSE A NUISANCE.
11. THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION (NO HANDICAP ACCESS IS REQUIRED).

verizon

MOUNT MODIFICATION DRAWINGS
EXISTING 10.63' T-ARM MOUNT

SITE NAME: CROMWELL CT
SITE NUMBER: 467291

160 WEST ST
CROMWELL, CT 06416
MIDDLESEX COUNTY

PROJECT INFORMATION

SITE INFORMATION

LATITUDE:	41.605992° N
LONGITUDE:	72.670381° W
JURISDICTION	MIDDLESEX COUNTY

APPLICANT/LESSEE

COMPANY	VERIZON WIRELESS

CLIENT REPRESENTATIVE

COMPANY	VERIZON WIRELESS
ADDRESS	118 FLANDERS ROAD, 3RD FLOOR
CITY, STATE, ZIP	WESTBOROUGH, MA 01518
CONTACT	ANDREW CANDIELLO
E-MAIL	ANDREW.CANDIELLO@VERIZONWIRELESS.COM

PROJECT MANAGER

COMPANY	MASER CONSULTING CONNECTICUT
CONTACT	GREG DULNIK
PHONE	(615) 686-2575
E-MAIL	GREG.DULNIK@COLLIERSENGINEERING.COM

SHEET INDEX

SHEET	DESCRIPTION
T-1	TITLE SHEET
S-1	BILL OF MATERIALS
S-2	MODIFICATION NOTES
S-3	MODIFICATION NOTES
S-4	MODIFICATION DETAILS
S-5	MODIFICATION DETAILS
S-6	MOUNT PHOTOS
	SPECIFICATION SHEETS

CONTRACTOR PMI REQUIREMENTS

PMI LOCATION	HTTPS://PMI.VZWSMART.COM
SMART TOOL PROJECT #	10039467
VZW LOCATION CODE (PSLC)	467921
FUZE ID	16232021

PMI REQUIREMENTS EMBEDDED WITHIN MOUNT MODIFICATION REPORT

REFERENCED DOCUMENTS

FAILING MOUNT ANALYSIS REPORT

SMART TOOL PROJECT #	10035984
MASER CONSULTING PROJECT #	20777624A
ANALYSIS DATE	01/26/2021

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- MARYLAND
- GEORGIA
- TEXAS
- TENNESSEE
- COLORADO

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Know what's below. Call before you dig.
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE: AS SHOWN
JOB NUMBER: 20777624A

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
0	2/25/2021	ISSUED FOR CONSTRUCTION	FAC	DX

STATE OF CONNECTICUT
DEJIAN XU
LICENSED PROFESSIONAL ENGINEER
CONNECTICUT PROFESSIONAL ENGINEER
LICENSE NUMBER: 33733
02/25/2021

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:
CROMWELL CT
467921
160 WEST ST
CROMWELL, CT 06416
MIDDLESEX COUNTY

MT. LAUREL OFFICE
2000 Midlantic Drive
Suite 100
Mount Laurel, NJ 08054
Phone: 856.797.0412
Fax: 856.722.1120

SHEET TITLE: TITLE SHEET
SHEET NUMBER: T-1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

BILL OF MATERIALS

VZWSMART KITS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES
3	VZWSMART	VZWSMART-SFK4	T-ARM KIT	FINAL LENGTHT TO BE DETERMINED IN FIELD, CONTRACTOR TO TRIM AS REQUIRED
15		VZWSMART-MSK2	CROSSOVERPLATE	
1		VZWSMART-PLK7	MONOPOLE COLLAR MOUNT ASSEMBLY	

OTHER REQUIRED PARTS

QUANTITY	MANUFACTURER	PART NUMBER	DESCRIPTION	NOTES
3	-	-	128" LONG, P3.0 STD PIPE	GALVANIZED
2	-	-	36" LONG, P2.0 STD PIPE	GALVANIZED
2	PERFECT VISION	PV-XP-30ST20	CROSSOVER PLATE KIT	OR EOR APPROVED EQUAL, CONTACT MASER CONSULTING TO OBTAIN APPROVAL OF SUBSTITUTION

NOTE: 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

NOTE: WHEN SPECIFIED, VZWSMART KITS SHALL BE REQUIRED AND WILL BE VERIFIED DURING THE DESKTOP PMI

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SITE NAME:

CROMWELL CT
467921

160 WEST ST
CROMWELL, CT 06416
MIDDLESEX COUNTY

MT. LAUREL OFFICE
2000 Midlantic Drive
Suite 100
Mount Laurel, NJ 08054
Phone: 856.797.0412
Fax: 856.722.1120

SHEET TITLE : BILL OF MATERIALS

SHEET NUMBER : S-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.

DESIGN LOADS

WIND LOADS

a. BASIC WIND SPEED (3 SECOND GUST), V =119 MPH

b. EXPOSURE CATEGORY C

c. TOPOGRAPHIC CATEGORY I

d. MEAN BASE ELEVATION (AMSL) = 132.91'

ICE LOADS

a. ICE WIND SPEED (3 SECOND GUST), V = 50 MPH

b. ICE THICKNESS = 1.0 IN

SEISMIC LOADS

a. SEISMIC DESIGN CATEGORY B

b. SHORT TERM MCER GROUND MOTION, S_S = .205

c. LONG TERM MCER GROUND MOTION, S_1 = .055

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 GREG.DULNIK@COLLIERSENGINEERING.COM
   b. PROVIDE MASER CONSULTING PROJECT # AND MASER CONSULTING 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 (ZINGA OR ZINC COTE), 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.

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SCALE : AS SHOWN   JOB NUMBER : 20777624A

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
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STATE OF CONNECTICUT · DEJIAN XU · LICENSED · PROFESSIONAL ENGINEER

Dejian Xu
CONNECTICUT PROFESSIONAL ENGINEER
LICENSE NUMBER: 33733
MASER CONSULTING
02/25/2021

SITE NAME:

CROMWELL CT
467921

160 WEST ST
CROMWELL, CT 06416
MIDDLESEX COUNTY

MT. LAUREL OFFICE
2000 Midlantic Drive
Suite 100
Mount Laurel, NJ 08054

Phone: 856.797.0412
Fax: 856.722.1120

SHEET TITLE : MODIFICATION NOTES

SHEET NUMBER : S-2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

\\uj\AllOffices\Nashville\Projects\2020\20777000A\20777624A\Construction\Mount Fix\Rev 0\20777624.Cromwell CT.Mount MOD.dwg\S-2 By: FCENTONE

MODIFICATION INSPECTION NOTES

MI CHECKLIST	
CONSTRUCTION/ INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY EOR)	REPORT ITEM
PRE-CONSTRUCTION	
X	MI CHECKLIST DRAWING
X	EOR APPROVED SHOP DRAWINGS
NA	FABRICATION INSPECTION
NA	FABRICATOR CERTIFIED WELD INSPECTION
X	MATERIAL TEST REPORT (MTR)
NA	FABRICATOR NDE INSPECTION
X	PACKING SLIPS
ADDITIONAL TESTING AND INSPECTIONS:	
CONSTRUCTION	
X	CONSTRUCTION INSPECTIONS
NA	CONTRACTOR'S CERTIFIED WELD INSPECTION AND NDE REPORTS
X	ON SITE COLD GALVANIZING VERIFICATION
X	GC AS-BUILT DOCUMENTS
ADDITIONAL TESTING AND INSPECTIONS:	
POST-CONSTRUCTION	
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)
X	VZW PMI DOCUMENTS
X	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTE: X DENOTES A DOCUMENT REQUIRED FOR THE MI REPORT
NA DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE MI REPORT

THE MODIFICATION INSPECTION (MI) IS A VISUAL INSPECTION OF MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS, AS DESIGNED BY THE ENGINEER OF RECORD (EOR).

THE MI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, NOR DOES THE MI INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES.

TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PURCHASE ORDER (PO) IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY.

MI INSPECTOR

THE MI INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE MI TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS

THE MI INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GC INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS, AND SUBMITTING THE MI REPORT TO EOR.

GENERAL CONTRACTOR

THE GC IS REQUIRED TO CONTACT THE MI INSPECTOR AS SOON AS RECEIVING A PO FOR THE MODIFICATION INSTALLATION OR TURNKEY PROJECT TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE MI INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE MI INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS
- BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS

THE GC SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MI CHECKLIST.

RECOMMENDATIONS

THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING AN MI REPORT:

- IT IS SUGGESTED THAT THE GC PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLY 10, TO THE MI INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MI TO BE CONDUCTED.
- THE GC AND MI INSPECTOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE SIMULTANEOUSLY FOR ANY GUY WIRE TENSIONING OR RE-TENSIONING OPERATIONS.
- IT MAY BE BENEFICIAL TO INSTALL ALL MODIFICATIONS PRIOR TO CONDUCTING THE FOUNDATION INSPECTIONS TO ALLOW THE FOUNDATION AND MI INSPECTION(S) TO COMMENCE WITH ONE SITE VISIT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE DURING THE MI TO HAVE ANY DEFICIENCIES CORRECTED DURING THE INITIAL MI. THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MI CAREFULLY TO ENSURE ALL CONSTRUCTION FACILITIES ARE AT THEIR DISPOSAL WHEN THE MI INSPECTOR IS ON SITE.

CORRECTION OF FAILING MI'S

IF THE MODIFICATION INSTALLATION WOULD FAIL THE MI ("FAILED MI"), THE GC SHALL WORK WITH THE OWNER TO COORDINATE A REMEDIATION PLAN:

- CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT MI.

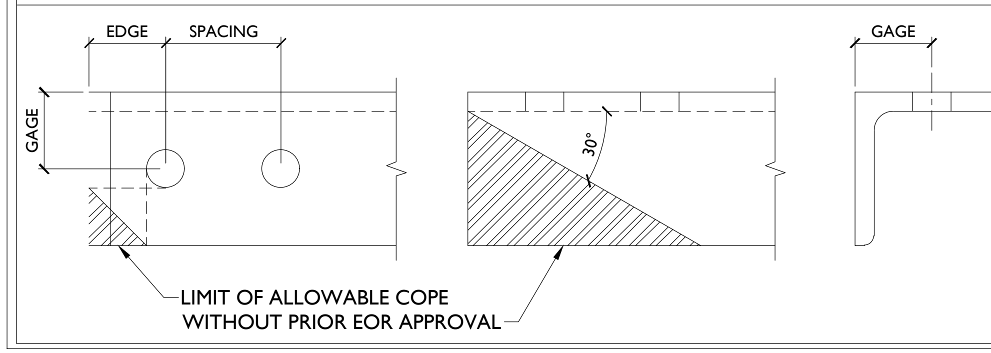
REQUIRED PHOTOS

BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE MI REPORT:

- PRE-CONSTRUCTION GENERAL SITE CONDITION
- PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION
  - RAW MATERIALS
  - PHOTOS OF ALL CRITICAL DETAILS
  - FOUNDATION MODIFICATIONS
  - WELD PREPARATION
  - BOLT INSTALLATION
  - FINAL INSTALLED CONDITION
  - SURFACE COATING REPAIR
- POST CONSTRUCTION PHOTOGRAPHS
  - FINAL INFIELD CONDITION

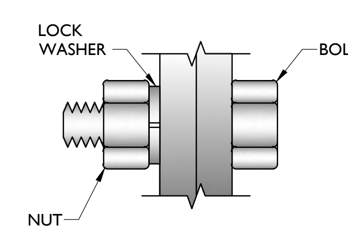
PHOTOS OF ELEVATED MODIFICATIONS TAKEN ONLY FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.

ALLOWABLE COPING



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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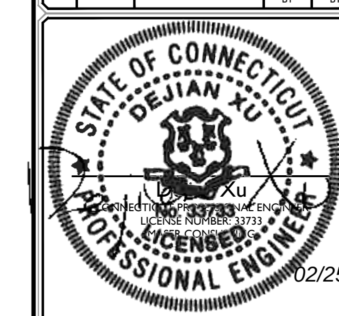

SITE NAME:

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467921

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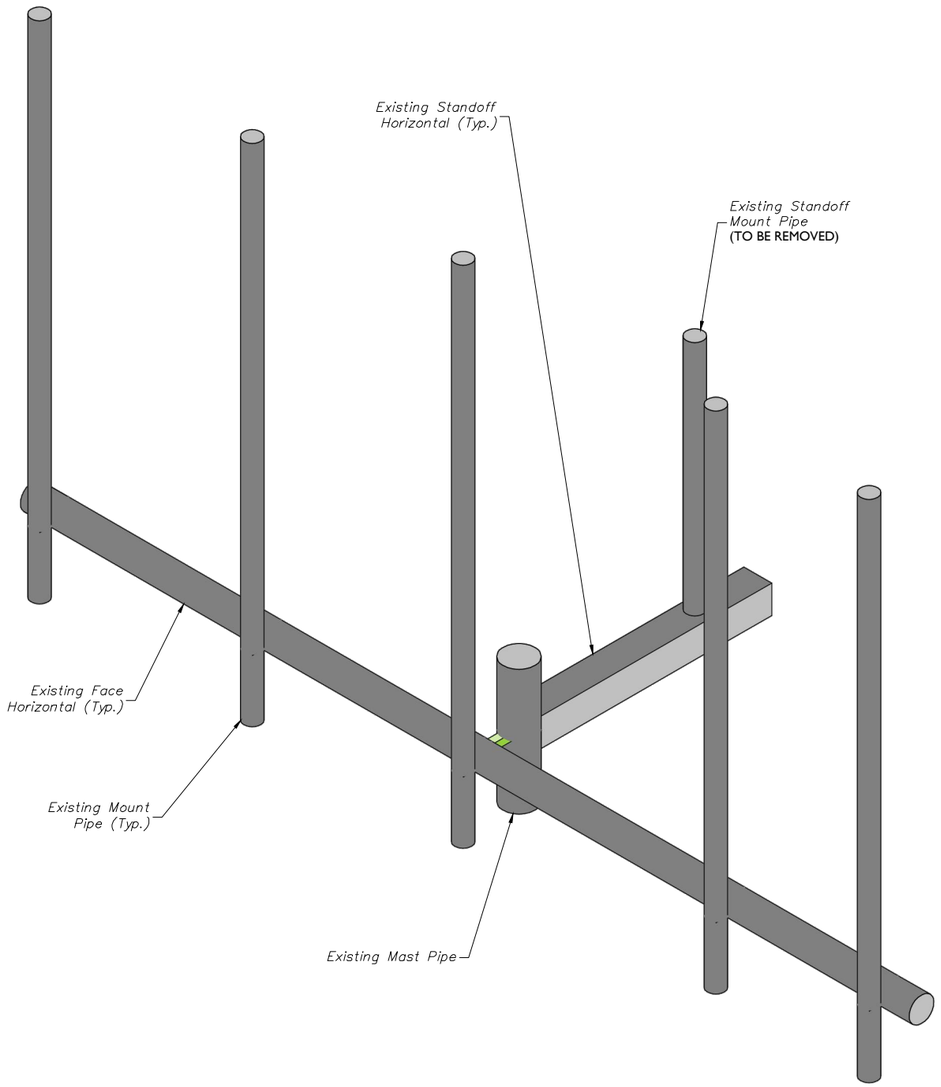
SHEET TITLE : MODIFICATION NOTES

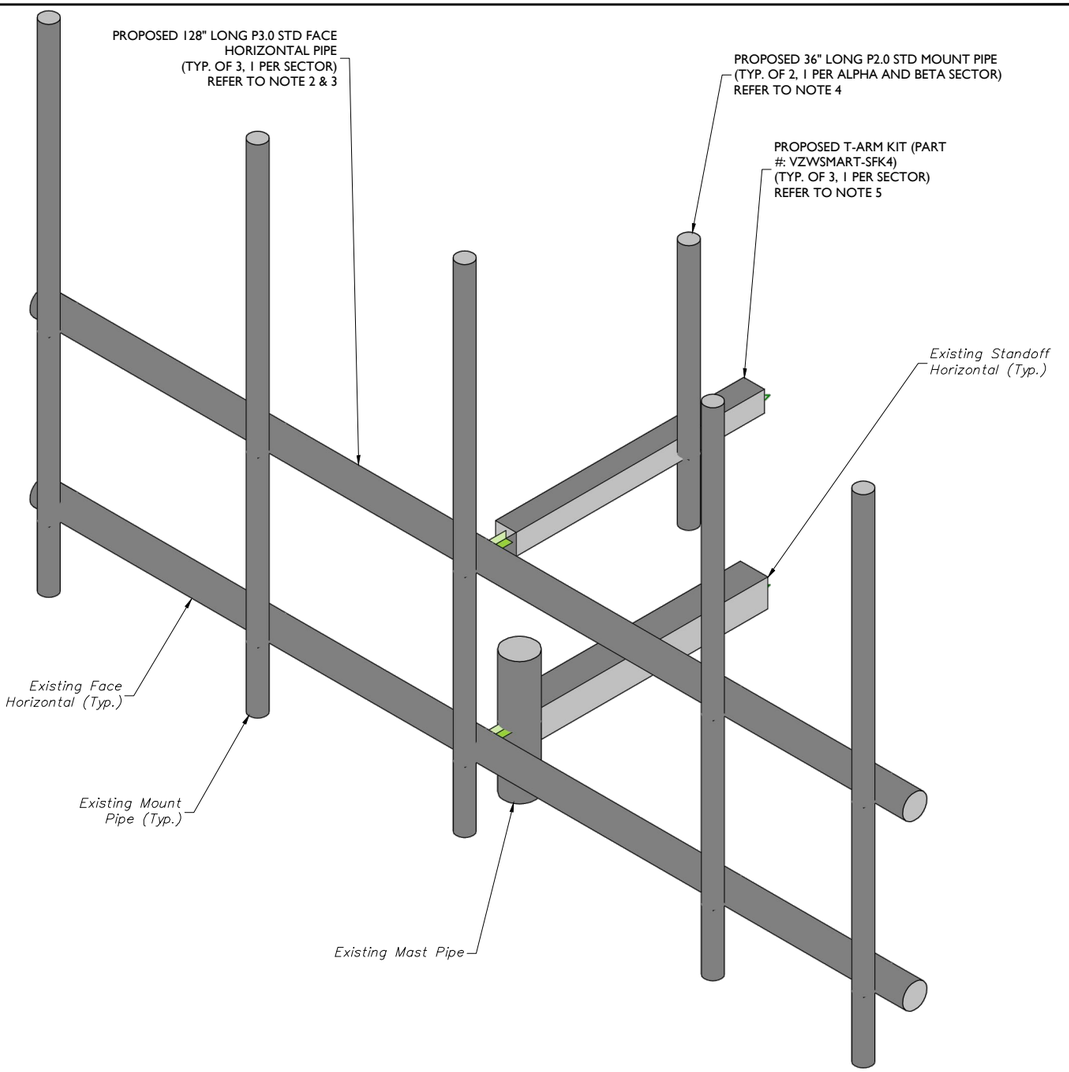
SHEET NUMBER : S-3

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



1 EXISTING FRAME ISOMETRIC VIEW (TYP. ALL SECTORS)

SCALE : N.T.S.



2 PROPOSED FRAME ISOMETRIC VIEW (TYP. ALL SECTORS)

SCALE : N.T.S.

STRUCTURAL NOTES:

1. PER THE MOUNT MAPPING COMPLETED BY RKS DESIGN & ENGINEERING LLC., ON 01/16/2021, THE SAFETY CLIMB AND CLIMBING FACILITIES UP TO THE VERIZON MOUNT ELEVATION (61'-6") ARE IN GOOD CONDITION. MASER 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.

MODIFICATION NOTES:

1. MOUNT MEMBERS NOT SHOWN FOR CLARITY U.N.O.
2. RADIO AND/OR TME POSITIONS SHALL BE ADJUSTED VERTICALLY AS NEEDED IN ORDER TO ACHIEVE INSTALLATION OF HORIZONTAL AS SHOWN. EOR SHALL BE NOTIFIED IF EQUIPMENT NEEDS TO BE RELOCATED TO ANOTHER MOUNT PIPE.
3. CONNECT NEW HORIZONTAL TO ALL EXISTING VERTICAL MOUNT PIPES WITH CROSSOVER PLATES (PART #: VZWSMART-MSK2).
4. CONNECT PROPOSED STANDOFF MOUNT PIPE TO NEW STANDOFF HORIZONTAL WITH CROSSOVER PLATE KIT (PERFECT VISION #: PV-XP-30ST20, OR EOR APPROVED EQUAL).
5. CONNECT OTHER END OF T-ARM KIT TO NEW MONOPOLE COLLAR MOUNT ASSEMBLY (PART #: VZWSMART-PLK7).
6. CONTRACTOR TO RE-ATTACH MONOPINES BRANCHES AFTER INSTALLATION OF ANTENNAS. CONTRACTOR TO REMOVE EXISTING PIPE AND HARDWARE BEHIND POSITION 2 IN ALL SECTORS.
7. CONTRACTOR TO REMOVE STEP BOLTS IF THEY DISTURB THE INSTALLATION OF THE NEW MONOPLE COLLAR MOUNT ASSEMBLY (PART #: VZWSMART-PLK7).

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STATE OF CONNECTICUT DEJIAN XU LICENSED PROFESSIONAL ENGINEER
DEJIAN XU
CONNECTICUT PE LICENSE NO. 33733
LICENSED PROFESSIONAL ENGINEER
02/25/2021

SITE NAME:
CROMWELL CT
467921
160 WEST ST
CROMWELL, CT 06416
MIDDLESEX COUNTY

MT. LAUREL OFFICE
2000 Midlantic Drive
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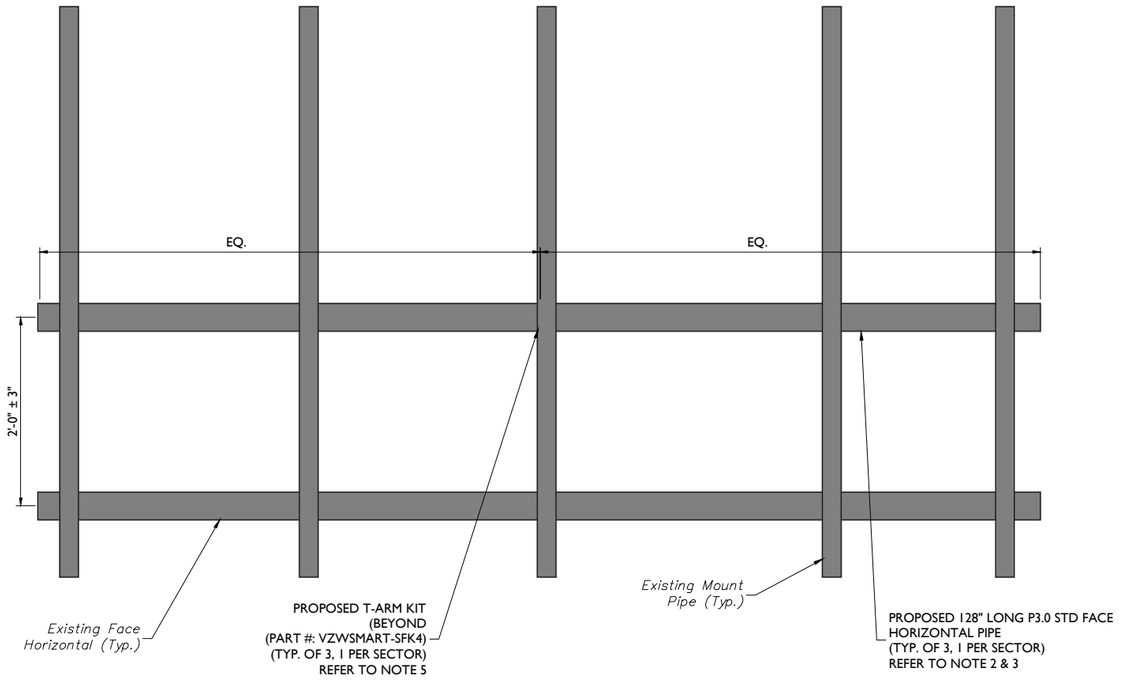
Fax: 856.722.1120

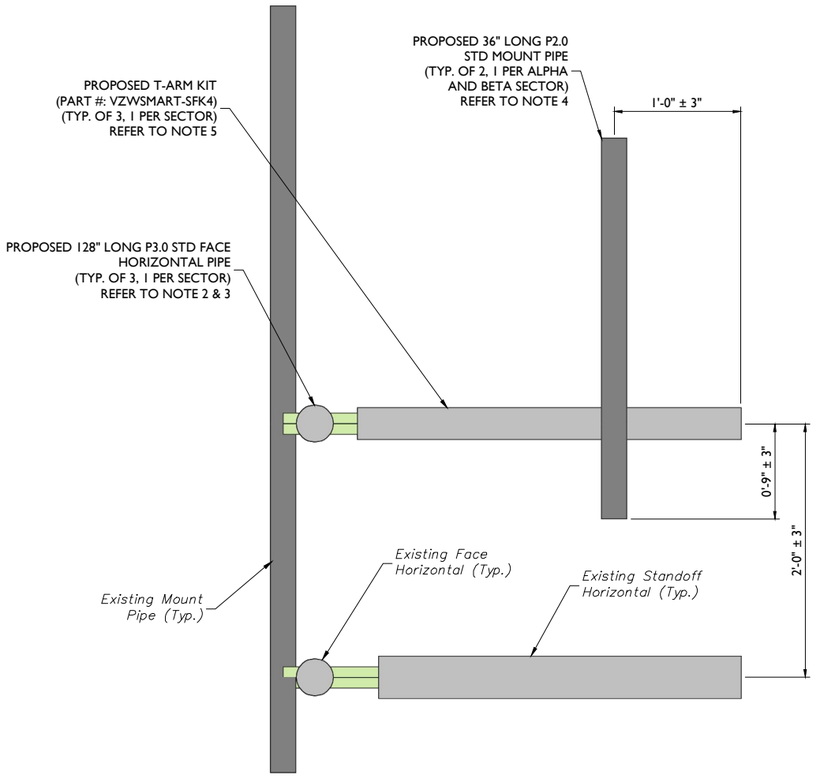
SHEET TITLE :
MODIFICATION DETAILS

SHEET NUMBER :
S-4



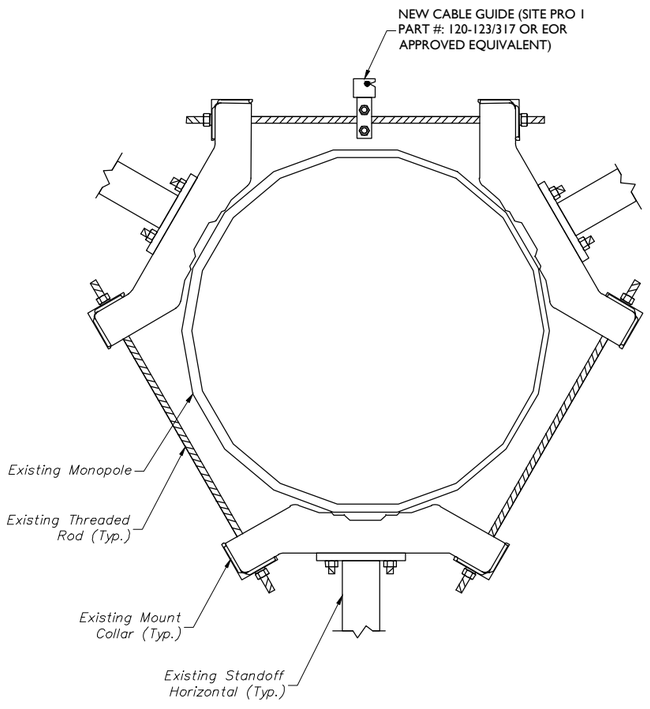
1 PROPOSED FRONT ELEVATION VIEW (TYP. ALL SECTORS)

SCALE : N.T.S.



3 PROPOSED SIDE ELEVATION VIEW (TYP. ALL SECTORS)

SCALE : N.T.S.



2 CABLE GUIDE THREADED ROD ATTACHMENT - PLAN VIEW

MODIFICATION NOTES:

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3. CONNECT NEW HORIZONTAL TO ALL EXISTING VERTICAL MOUNT PIPES WITH CROSSOVER PLATES (PART #: VZWSMART-MSK2).
4. CONNECT PROPOSED STANDOFF MOUNT PIPE TO NEW STANDOFF HORIZONTAL WITH CROSSOVER PLATE KIT (PERFECT VISION #: PV-XP-30ST20, OR EOR APPROVED EQUAL).
5. CONNECT OTHER END OF T-ARM KIT TO NEW MONOPOLE COLLAR MOUNT ASSEMBLY (PART #: VZWSMART-PLK7).
6. CONTRACTOR TO RE-ATTACH MONOPINES BRANCHES AFTER INSTALLATION OF ANTENNAS. CONTRACTOR TO REMOVE EXISTING PIPE AND HARDWARE BEHIND POSITION 2 IN ALL SECTORS.
7. CONTRACTOR TO REMOVE STEP BOLTS IF THEY DISTURB THE INSTALLATION OF THE NEW MONOPLE COLLAR MOUNT ASSEMBLY (PART #: VZWSMART-PLK7).

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LICENSED PROFESSIONAL ENGINEER
Dejian Xu
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SHEET TITLE :
MODIFICATION DETAILS

SHEET NUMBER :
S-5

MOUNT PHOTO 1

MOUNT PHOTO 2

MOUNT PHOTO 3

MOUNT PHOTO 4

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REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
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STATE OF CONNECTICUT
DEJIAN XU
LICENSED PROFESSIONAL ENGINEER
DEJIAN XU
CONNECTICUT LICENSE NO. 32733
LICENSE NUMBER: 32733
MASER CONSULTING CT
02/25/2021

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:

CROMWELL CT
467921

160 WEST ST
CROMWELL, CT 06416
MIDDLESEX COUNTY

MT. LAUREL OFFICE
2000 Midlantic Drive
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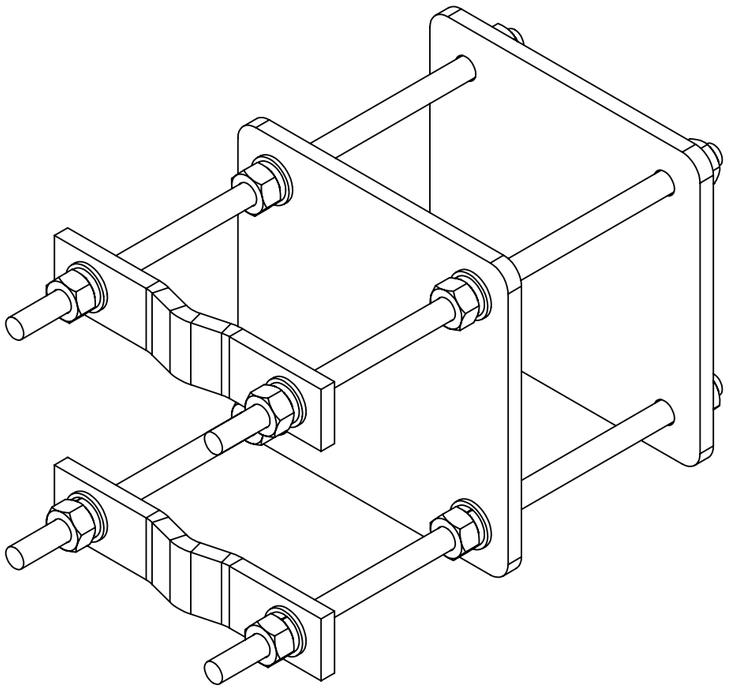
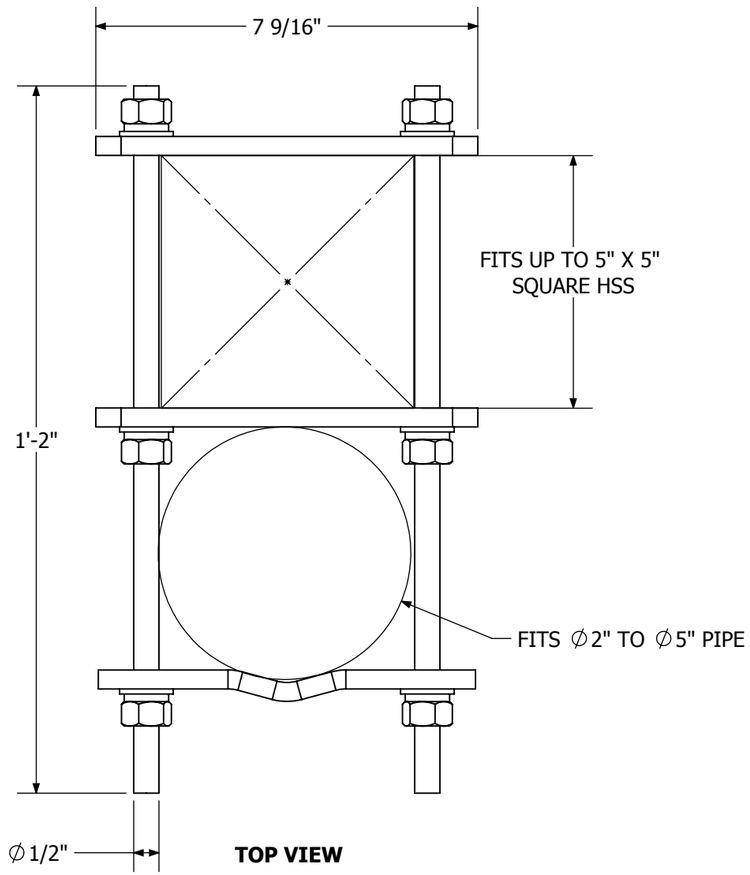
SHEET TITLE : MOUNT PHOTOS

SHEET NUMBER : S-6

PV-XP-ST-U



PX-XP-ST-U
SQUARE TUBE TO ROUND PIPE CROSSOVER
WEIGHT: 18.2 LBS



TOP VIEW

PERFECT VISION MANUFACTURING
16101 La Grande Dr.
Little Rock, AR 72223
(630)-201-4012

STAMP:

REVISIONS:

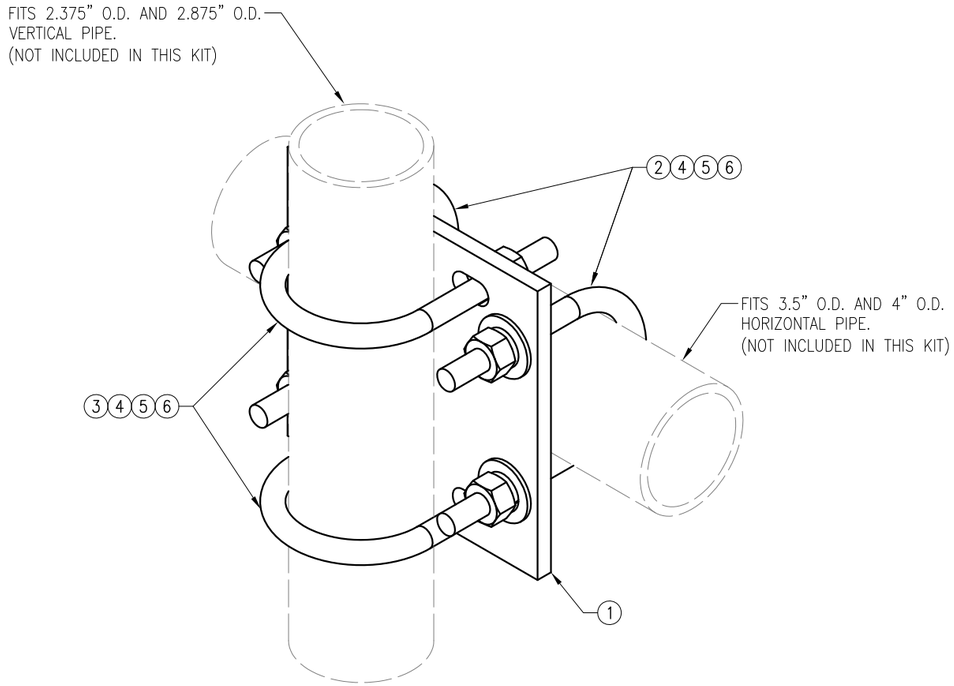
NO.	DATE	DESCRIPTION	BY	CHK	APD
0	10/23/15	INITIAL RELEASE	DJN	AM	SS
1					
2					
3					
4					
5					

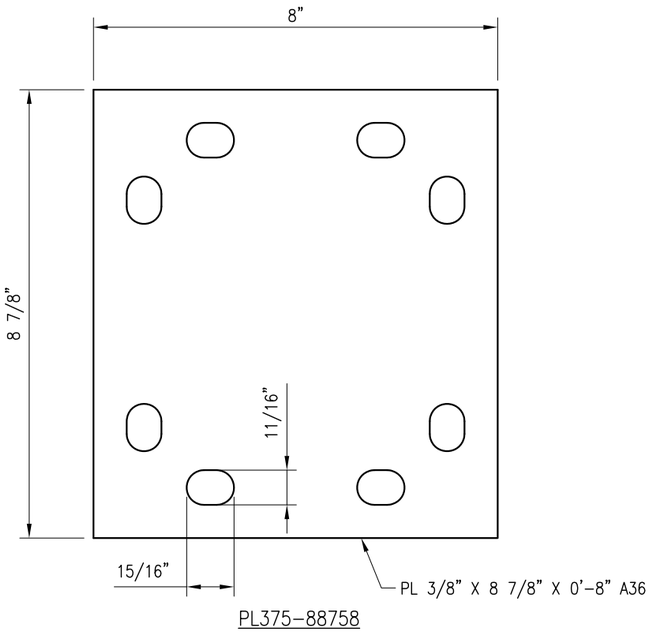
SITE INFORMATION:

DESIGN TYPE:
HSS TO PIPE CROSSOVER

SHEET TITLE:
ENGINEERING DETAIL

SHEET TITLE:	REVISION:
E-1	0





PL375-88758

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

VZWSMART-MSK2 (CROSSOVER PLATE)

ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	1	PL375-88758	PL 3/8" X 8 3/4" X 0'-8" A36	MSK2-F1	8
2	2	MS02-625-4125-600	RU-BOLT 5/8" X 4 1/8" I.W. X 6" I.L. A36 (OR EQUIV.)	RBC-1	3
3	2	MS02-625-300-500	RU-BOLT 5/8" X 3" I.W. X 5" I.L. A36 (OR EQUIV.)	RBC-1	3
4	8	FW-625	5/8" HDG USS FLAT WASHER	---	1
5	8	LW-625	5/8" HDG LOCK WASHER	---	0
6	8	NUT-625	5/8" HDG HEX NUT	---	1
				GALVANIZED WT	15

VzW SMART Tool© Vendor

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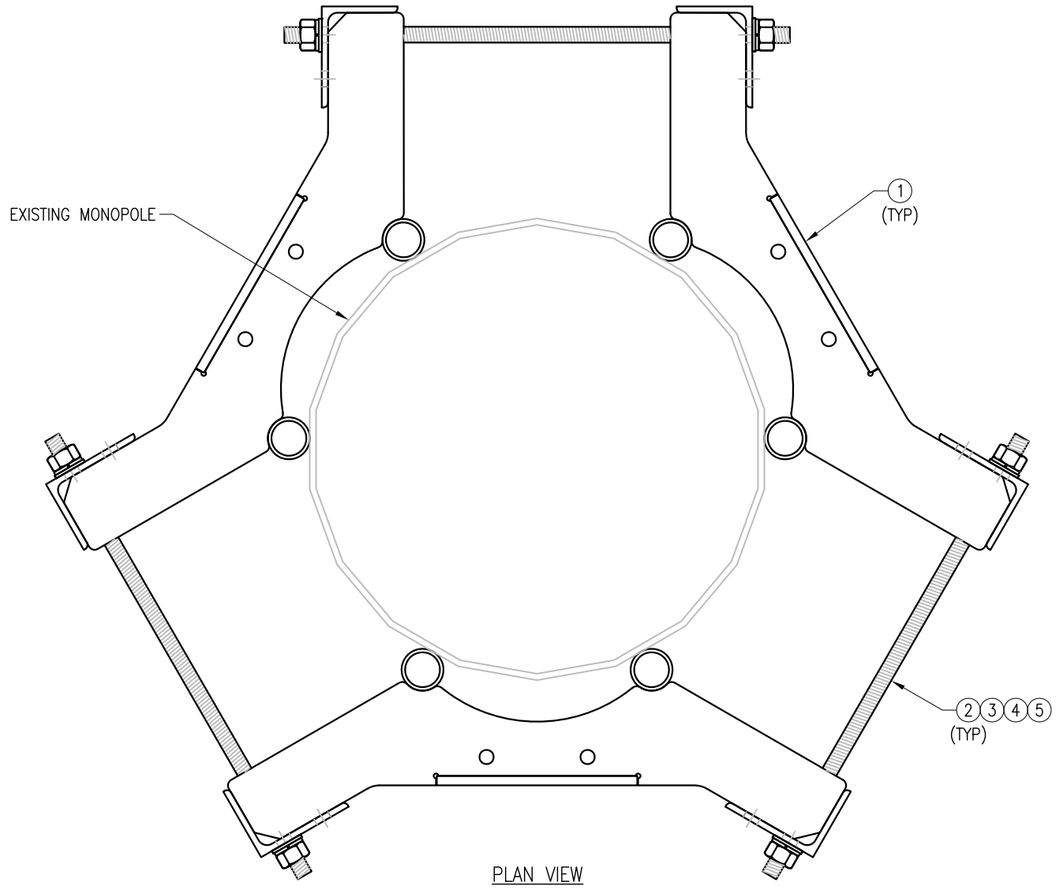
DRAWN BY: H.R | CHECKED BY: HMA

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	H.R	05/08/20

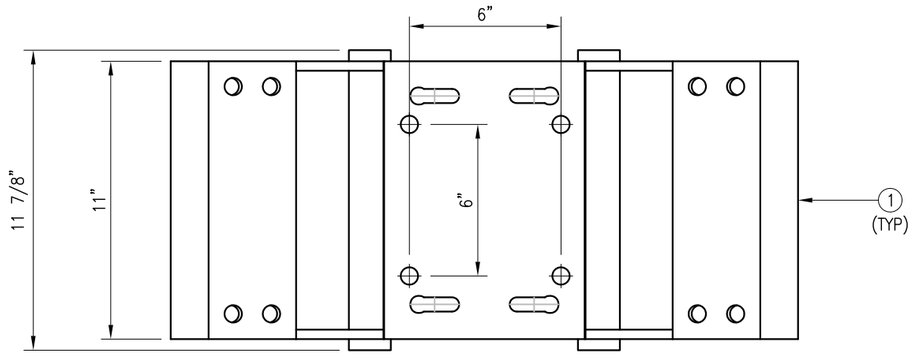
SHEET TITLE:
VZWSMART-MSK2
CROSSOVER PLATE

SHEET NUMBER: VZWSMART-MSK2

REV #: 0



PLAN VIEW
MONOPOLE COLLAR MOUNT ASSEMBLY



FRONT VIEW

NOTES:
1. FIT 12" TO 45" DIA MONOPOLE.
2. HOT-DIPPED GALVANIZED PER ASTM A123.

VZWSMART-PLK7 (MONOPOLE COLLAR MOUNT ASSEMBLY)

ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	3	CM-1245	COLLAR MOUNT ASSEMBLY	PLK7-F1	147
2	6	---	THREADED ROD 5/8" X 4'-0" A193-B7	---	
3	12	FW-625	5/8" HDG USS FLAT WASHER	---	1
4	12	LW-625	5/8" HDG LOCK WASHER	---	0
5	12	NUT-625	5/8" HDG HEX NUT	---	1
				GALVANIZED WT	150

VzW SMART Tool© Vendor

verizon

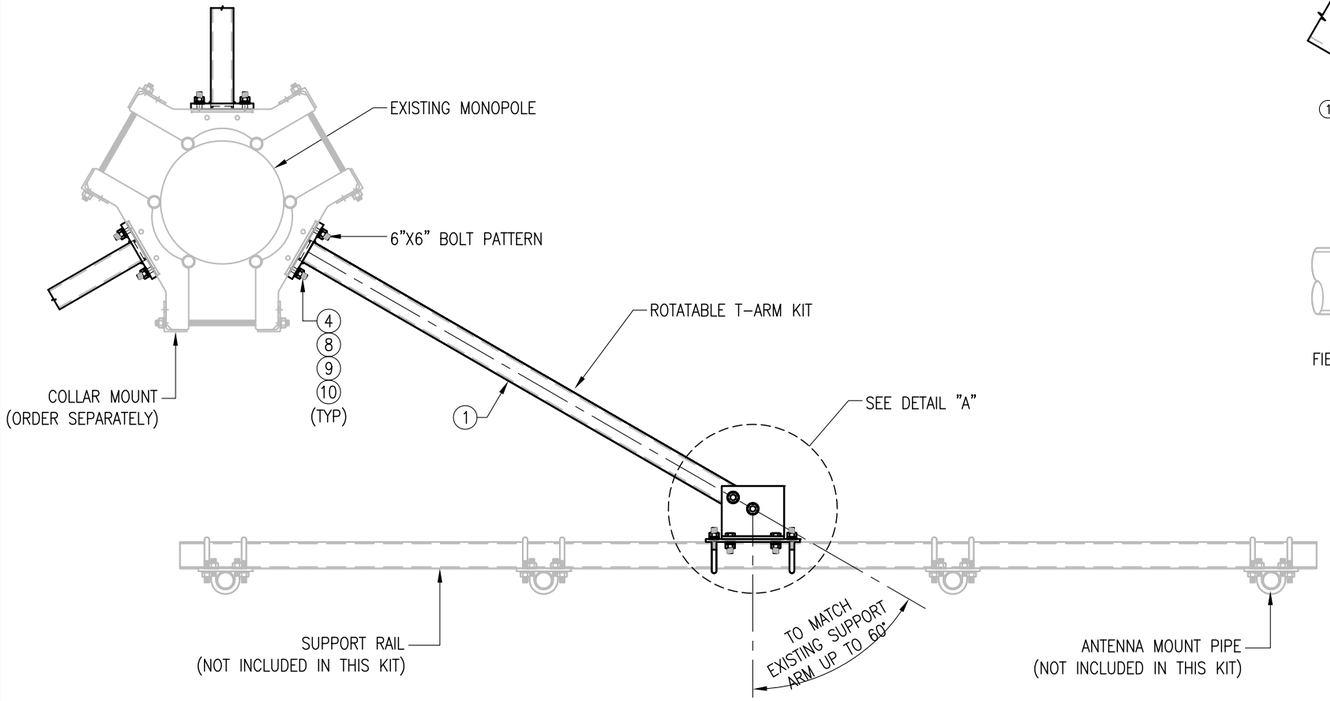
DRAWN BY: BT | CHECKED BY: HMA/KW

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	BT	05/11/20

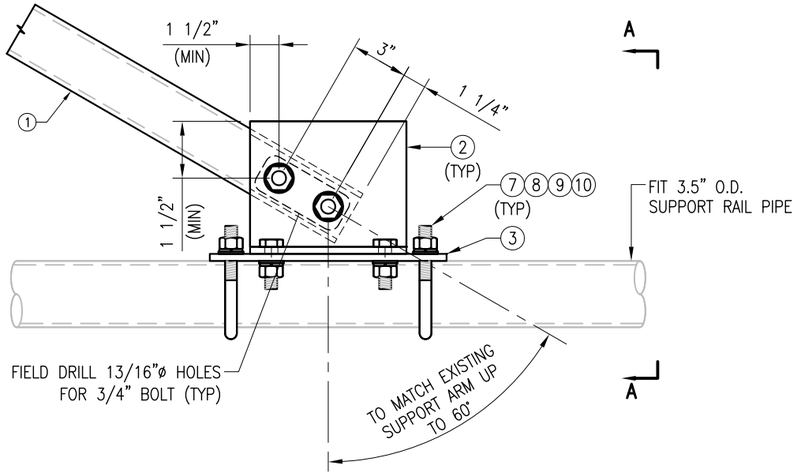
SHEET TITLE:
VZWSMART-PLK7
MONOPOLE COLLAR
MOUNT ASSEMBLY

SHEET NUMBER: VZWSMART-PLK7

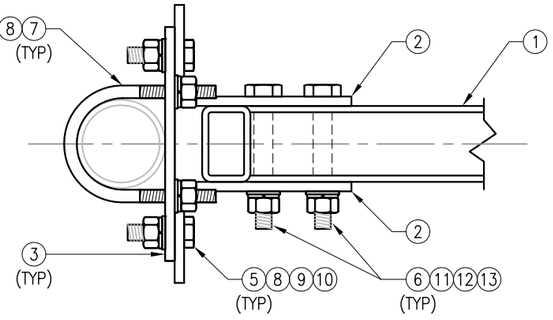
REV #: 0



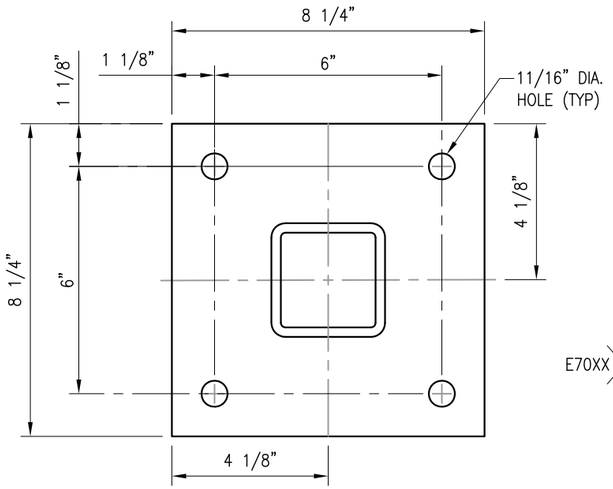
PLAN VIEW
T-ARM KIT



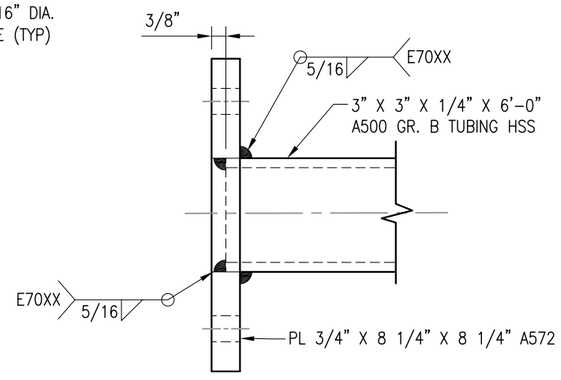
DETAIL "A"



SECTION "A-A"



FRONT VIEW



SIDE VIEW

RO-TAW-6 WELDMENT

VZWSMART-SFK4 (T-ARM KIT)

ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	1	RO-TAW-6	T-ARM WELDMENT	SFK4-F1	71
2	2	BP825-94375	PL 3/8" X 8 1/4" X 9 7/16" A36 BEND PLATE	SFK4-F2	17
3	1	PL375-92512025	PL 3/8" X 9 1/4" X 1'-0 1/2" A36	SFK4-F3	12
4	4	---	BOLT 5/8" X 2 1/4" A325	---	0
5	4	---	BOLT 5/8" X 2" A325	---	0
6	2	---	BOLT 3/4" X 5 1/4" A325	---	0
7	2	MS02-625-3625-600	RU-BOLT 5/8" X 3 5/8" I.W. X 6" I.L. A36 (OR EQUIV.)	RBC-1	3
8	12	FW-625	5/8" HDG USS FLAT WASHER	---	1
9	12	LW-625	5/8" HDG LOCK WASHER	---	0
10	12	NUT-625	5/8" HDG HEX NUT	---	1
11	2	FW-75	3/4" HDG USS FLAT WASHER	---	0
12	2	LW-75	3/4" HDG LOCK WASHER	---	0
13	2	NUT-75	3/4" HDG HEX NUT	---	0
				GALVANIZED WT	106

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

VzW SMART Tool© Vendor

verizon

DRAWN BY: BT | CHECKED BY: HMA/KW

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	BT	05/08/20

SHEET TITLE:
VZWSMART-SFK4
T-ARM KIT

SHEET NUMBER: VZWSMART-SFK4

REV #: 0

ATTACHMENT 5

Map: 31

June 2020

- Parcel on Current Map
- Parcel Not on Current Map
- Easements
- Historic Lines
- 0088200 Parcel Identifier
- 9.02 AC Parcel Size (in acres)
- 100 Parcel Address
- 234.5 Parcel Dimension

N W E S

0 100 200 Feet

Town of Cromwell
Connecticut

22	32	44
21	31	43
20	30	42

This tax map is for assessment purpose only. It is not valid to use this map as a survey or for property conveyance.

AppGeo

HIGH HIGH RIDGE RD
PATRICIA LN
WASHINGTON RD
CHELSEA DR
EAGER LN
FRANKLIN RD
WEST ST
WEST STREET TER
OLD WEST ST
STATE HWY 9
ROUTE 9 N
MYSTIQUE LN
MYSTIQUE LN
HICKSVILLE RD
SMITH FARM RD
SMITH FARM RD
30R
SITE
31

TOWN OF CROMWELL

Printed By: Shawna 04/06/2018 3:41:00PM

Parcel ID: **00033900** ***Location:*** 160 WEST STREET ***Map-Lot*** 31-14A ***Last Revaluation -*** ***October 1, 2017***

Patriot
Properties Inc.

Current Owner ***Percent***
160 WEST STREET LLC 100

213 COURT STREET
MIDDLETOWN CT 06457

Current Value Information

Inc (appr)

Use Code	Land Value	PA 490 Value	Building Value	Outbuildings	Total Value	Total Assessed
201	241,800	0	2,122,400	110,000	2,474,200	1,731,940
TOTAL	**241,800**	**0**	**2,122,400**	**110,000**	**2,474,200**	**1,731,940**

Previous Value Information

Tax Yr	Land Value	Bldg Value	Outbuildings	Total Value	Total Assessmen
2018	241,800	2,122,400	110,000	2,474,200	1,731,940
2017	241,800	2,122,400	110,000	2,474,200	1,731,940
2016	356,290	1,635,220	43,320	2,034,830	1,424,390
2015	356,290	1,635,220	43,320	2,034,830	1,424,390
2014	356,290	1,635,220	43,320	2,034,830	1,424,390
2013	356,290	1,635,220	43,320	2,034,830	1,424,390

Property Factors

Census 5702
Flood:
Topo:
Street: Paved
Dev. Map
Dev. Map

Zoning Data

Desc.	%
LB	100.00

Utilities

2 Public Water
3 Public Sewer

BAA

17K

Previous Owner(s)
160 WEST STREET LIMITED PARTNERSHIP

General Notes

MEDICAL OFFICE;

Bldg #1 Middlesex Home Care + Supplies INC, Family Eye Care, Feet First

Bldg # 2 Wildwood Property management, Great Blue Research, Beacon Services of CT

Sales Information

Grantee	Vol-Page	Type	SaleDate	SalePrice	Sale Verif	GeneralNotes
160 WEST STREET LLC	896-268		01/27/2003	0	Other	
160 WEST STREET LIMITED P	546-322		12/29/1993	0	Other	

Activity Information

Date	Results	Visited By
12/27/2017	Informal Review No Change	John Valente
09/11/2017	Change - Value Change Company	John Valente
05/18/2017	No Change - Field Review	Dave Stannard
09/11/2014	Permit- Miscellaneous	AO
09/11/2014	Permit- Drive By	MM
09/09/2014	Permit- Miscellaneous	AO
09/11/2012	Permit - Int & Ext Inspect	
09/11/2012	Permit- Miscellaneous	AO
09/11/2012	Permit- Miscellaneous	AO
09/11/2012	Permit- Miscellaneous	AO

Building Permit Information

Date	Permit #	Description	Amount	% Comp	Visit Date	CO Date	GeneralNotes
08/15/2014	22787	Electric	900	100	09/11/2014		Reception area
08/13/2014	22776	Other	4,800	100	09/09/2014	09/09/2014	Emrgncy repair to drywall
12/12/2011	20377	Other	3,000	100	09/11/2012	09/11/2012	Run gas line to new gener
11/16/2011	20315	Other	10,000	100	09/11/2012	09/11/2012	New cell site for Metro P
09/28/2011	20183	Propane Tank	2,850	100	09/11/2012	09/11/2012	Undergrounf gas line
09/19/2011	20156		35,000	100	09/11/2012	01/12/2012	Inst of cell site antenna
03/21/2006	15920	Remodel	33,000	100	03/28/2006		off & bth reno
03/21/2006	15921	Electric	0	100	03/28/2006		wire new area,rfd exstg m

Land Data

Use	Description	Units	Unit Type	Neigh	Land Adjustments	Special Land Calc	Appraised Value	PA 490 Asmt	Neigh Order	Notes
201	Commercial	43,560	SF	CJ			178,500	0	1200	
201	Commercial	2.530	AC	CJ			63,300	0	1200	

Total Area: 3.53 **PA 490 Use Asmt: 0** **Total Appraised: 241,800** **Assessed Value: 169,260**

ParcelID: 00033900 **Location:** 160 WEST STREET **Printed By:** Shawna 04/06/2018 3:41:00PM

Bldg Seq 1 **Of** 2

Exterior Information

Building Type:	Office Bldg
Story Ht:	1 Story
Living Units:	0
Foundation:	
Prim. Ext. Wall:	Brick/Masonr
Sec. Ext. Wall:	
Roof Type:	Flat
Roof Cover:	Asphalt Shin
Avg. Wall Ht:	18.00
Color:	

Interior Information

Prime Wall:	Drywall	
Sec. Wall:		
Floor Type:	Carpet	50%
Sec. Floor:	Vinyl	50 %
Heat Fuel:	Gas	
Heat Type:	Forced Air	
Sec. Ht Type:		
% A/C:	100	
% Sprinkled:	0	
Bsmt. Gar:	0	
Kitchens:	0	Add. Kit: 0
Fireplaces:	0	Gas: 0
Int. Condition:	Typical	

Room Count

Total Rooms:	
Bedrooms:	

Bath Features

Full Baths:	0
Addl. Full Baths:	0
Half Baths:	0
Addl. Half Baths:	0
Full Bths Below:	0
Half Bths Below:	0
Other Fixtures:	0
Total Baths:	0 0

Condo Information

Name:	
Style:	
Location:	
Tot Units:	

General Information

Year Blt:	1985
Grade:	C
Remodeled Yr:	
Rem. Kitchen Yr:	
Rem. Bath Yr:	

Depreciation %

Phys Cond	Average	24.00
Func		0.00
Econ		5.00
Spec		0.00
OV		0.00
Total %Dep:		**27.80**

Calculation

Basic $/SQ	120.00
Replacement Cost	1,342,305
Depreciation	373,161
Depreciated Value	969,144
Final Total (Rounded)	**969,100**

Extra Features / Yard Items (1st 10 Lines Displayed)

Code	Description	Qty	Size	Cond.	Year	Unit Price	Dep%	UndepValue	Appraised Value	Assessment
LT1	Light 1	1	6	AV	2002	1,000.00	13	7,200	6,300	4,410
PAV1	Paving Asph.	1	38,400	AV	1985	3.00	25	138,240	103,700	72,590

Total Sp. Features: **Total Yard Items** **110,000** **Total Appraised:** **110,000** **Total Assessed Value** **77,000**

Sub Area Detail

Code	Desc.	Living	Gross Area
FFL	First Floor	13,500	13,500
Total		**13,500**	**13,500**

ParcelID: 00033900 **Location:** 160 WEST STREET **Printed By:** Shawna 04/06/2018 3:41:00PM

Bldg Seq 2 **Of** 2

Exterior Information

Building Type:	Office Bldg
Story Ht:	1 Story
Living Units:	0
Foundation:	
Prim. Ext. Wall:	Brick/Masonr
Sec. Ext. Wall:	
Roof Type:	Flat
Roof Cover:	Asphalt Shin
Avg. Wall Ht:	18.00
Color:	

Interior Information

Prime Wall:	Drywall	
Sec. Wall:		
Floor Type:	Carpet	50%
Sec. Floor:	Vinyl	50 %
Heat Fuel:	Gas	
Heat Type:	Forced Air	
Sec. Ht Type:		
% A/C:	100	
% Sprinkled:	0	
Bsmt. Gar:	0	
Kitchens:	0	Add. Kit: 0
Fireplaces:	0	Gas: 0
Int. Condition:	Typical	

Room Count

Total Rooms:	
Bedrooms:	

Bath Features

Full Baths:	0
Addl. Full Baths:	0
Half Baths:	0
Addl. Half Baths:	0
Full Bths Below:	0
Half Bths Below:	0
Other Fixtures:	0
Total Baths:	0 0

Condo Information

Name:	
Style:	
Location:	
Tot Units:	

General Information

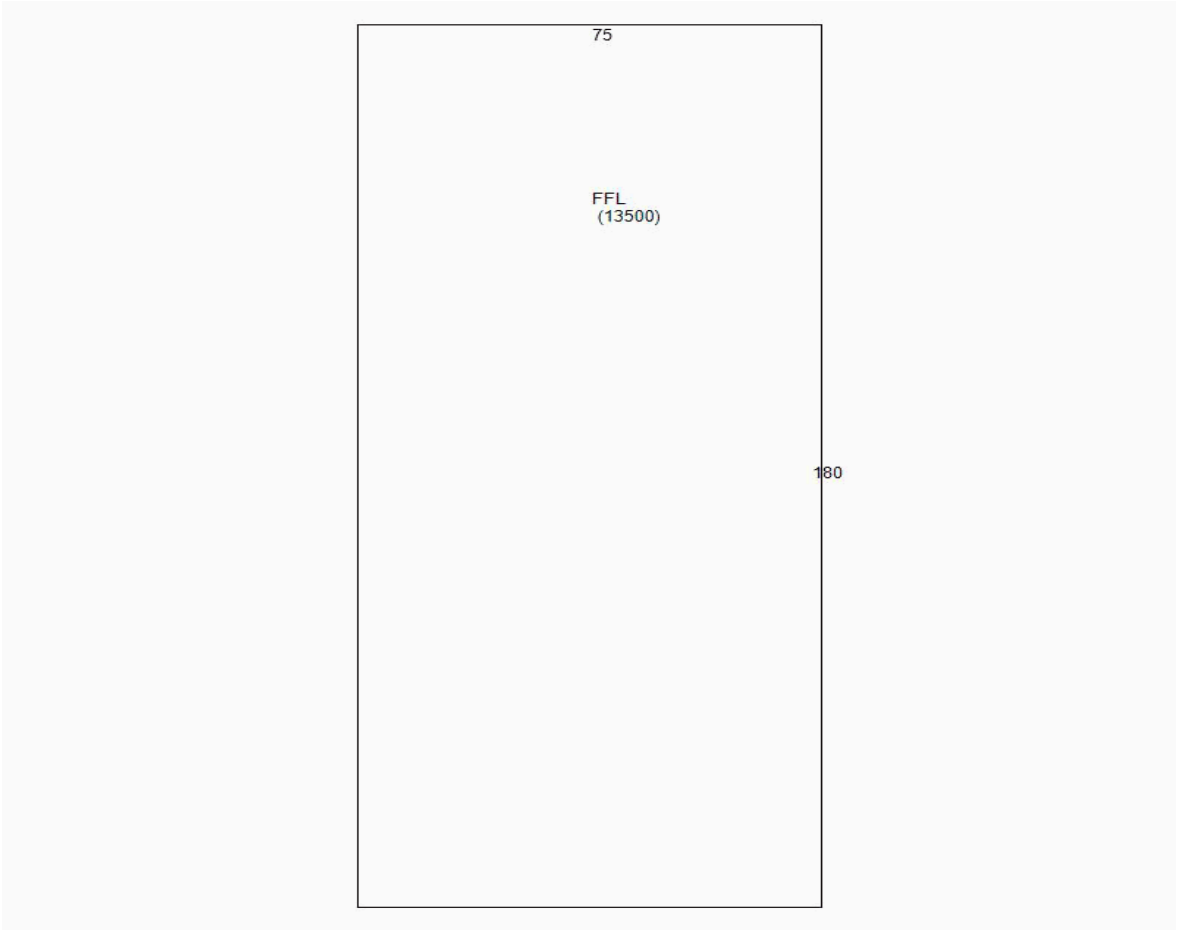
Year Blt:	1985
Grade:	C
Remodeled Yr:	
Rem. Kitchen Yr:	
Rem. Bath Yr:	

Depreciation %

Phys Cond	Average	24.00
Func		0.00
Econ		5.00
Spec		0.00
OV		0.00
Total %Dep:		**27.80**

Calculation

Basic $/SQ	120.00
Replacement Cost	1,342,305
Depreciation	373,161
Depreciated Value	969,144
Final Total (Rounded)	**969,100**



Extra Features / Yard Items (1st 10 Lines Displayed)

Code	Description	Qty	Size	Cond.	Year	Unit Price	Dep%	UndepValue	Appraised Value	Assessment

Total Sp. Features: **Total Yard Items** **Total Appraised:** **Total Assessed Value**

Sub Area Detail

Code	Desc.	Living	Gross Area
FFL	First Floor	13,500	13,500
Total		**13,500**	**13,500**

ATTACHMENT 6

CROMWELL

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.*
Kenneth C. Baldwin, Esq. Robinson & Cole LLP 280 Trumbull Street Hartford, CT 06103		3	neopost 06/17/2021 US POSTAGE $002.89⁰ ZIP 06103 041L12203887
	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.	Anthony J. Salvatore, Town Manager Town of Cromwell 41 West Street Cromwell, CT 06416				
2.	Stuart Popper, Director of Planning and Development Town of Cromwell 41 West Street Cromwell, CT 06416				
3.	160 West Street LLC c/o Andrew Becker 213 Court Street Middletown, CT 06457				
4.					
5.					
6.					

USPS JUN 17 2021 OLD STATE HOUSE STATION 06106