

Centerline Communications
Mark Appleby
750 West Center Street, Floor 3
West Bridgewater, MA 02379
860-209-4694
mappleby@clinellc.com

September 21, 2022

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

Notice of Exempt Modification
10 Polly Lane Bozrah, Connecticut 06636
Latitude: 42°34'27.23" N
Longitude: -72°12'04.44" W
T-Mobile Site#: CT11258B_Anchor

Dear Ms. Bachman:

T-Mobile currently maintains Six (6) antennas at the 177-foot level of the existing 187-foot Guyed tower at 10 Polly Lane Bozrah CT, 06336. The 187-foot Guyed Tower is owned by the Everest Communications and property is owned by 17 Mile Real Estate LLC. T-Mobile now intends to replace Six (6) of its existing antennas with three (9) new 2500 MHz antennas. The new antennas would be installed at the 138-foot level of the lattice. The proposed upgrades will make the site available for 5G deployment in the future.

Planned Modifications:

Remove and Replace:

(3) Existing Antennas (**Remove**) (3) RFS APXVAARR24_43-U-NA20 Antennas (**Relocate**)

Install New:

(3) Ericsson Air 6419-B41 Antennas

(3) Commscope VV-65B-R1Antennas

(3) RRU 4460-B25/B66 Radios Antenna Level

(3) RRU 4449 B71 B85 Radios Antenna Level

Remove (6) 1-5/8" Coax Replace with (3) Fiber Cables

Ground: Install (2) New Cabinets

This facility was not originally approved by the Connecticut Siting Council. Based on previous Siting Council filings for this tower, the Town of Bozrah does not have record of the original facility approval. Enclosed is a memo related to this.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Town of Bozrah Glenn Pianka First Selectman, John Herring Zoning Official, EIP Communications Tower Owner, 17 Mile Real Estate Land Owner

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

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

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

Sincerely,

Mark Appleby

Mobile: 860-209-4694

Fax: 508-819-3017

Office: 750 W. Center Street Suite 301
West Bridgewater, MA 02379

Email: mappleby@clinellc.com

Attachments

cc: Town of Bozrah First Selectman Glenn Pianka
Town of Bozrah Zoning Officer John Herring
17 Mile Real Estate LLC Property Owner
EIP Communications Tower Owner

Exhibit A

Original Facility Approval



June 11, 2020

Memo: No Initial Zoning Decision Found:
EM-AT&T-013-200604 (Polly Lane, Bozrah)

No original facility approval for this tower could be found, despite consultation with Tom Weber, Building Official for the Town of Bozrah. The building official's phone number is 860.889.2689 Ext. 206.

Please contact me with any questions or concerns regarding this matter.

Best Regards,

Ryan Lynch
Real Estate Manager
Smartlink
781.392.4040
Ryan.Lynch@smartlinkgroup.com

Exhibit B

Property Card

Location: POLLY LA		Map Id: 02/039		Zone: I-80		Date Printed: 9/9/2022				
				Neighborhood: COMM 1		Last Update: 9/9/2022				
Owner Of Record				Volume/Page	Date	Sales Type	Valid	Sale Price		
17 MILE REAL ESTATE LLC				0107/0483	1/2/2019	Warranty Deed	No	1,141,162		
69 HARRY STREET, CONSHOCKEN, PA 19428						Exempt				
Prior Owner History										
MAYNARD LEONARD P				0084/0593	9/19/2006		No	0		
MAYNARD ALICE M				0021/0524			No	0		
Permit Number	Date	Permit Description								
Supplemental Data						Appraised Value				
Census/Tract	7131					Total Land Value	149,520			
Dev Map ID						Total Building Value	0			
GIS ID						Total Outbldg Value	0			
Route						Total Market Value	149,520			
District										
Utilities										
Acres				State Item Codes						
Land Type	Acres	490	Total Value	Code	Quantity	Value				
Comm Vac Excess	6.40	0.00	59,520							
Commercial Primary Vacant	2.00	0.00	90,000							
Total	8.4000	0.00	149,520							
Assessment History (Prior Years as of Oct 1)					490 Appraised Totals					
	2021	2020	2019	2018	Type	Acres	Value	Type	Acres	Value
Land	104,660	104,660	104,660	104,660						
Building	0	0	0	0						
Outbuilding	0	0	0	0						
Total	104,660	104,660	104,660	104,660				Totals	0.00	0
					Application Date:	Expiration Date:				
Comments										
4/21/2017 CERT OF PROBATE VOL 95 PG 939										

Unique ID: 00073200

Bozrah

Location:	POLLY LA		Unit				
Commercial Building Description		Description	Area/Qty				
Building Use Class Overall Condition Construction Quality Stories Year Built Remodel Percent Complete GLA							
Basement							
Basement Area							
HVAC							
Heating Type		Attached Component Computations					
Fuel Type		Type	Yr Bit	Area/Qty			
Cooling Type							
Interior							
Floors							
Walls							
Wall Height							
Exterior							
Exterior Walls							
Roof Type							
Roof Cover							
Special Features							
Detached Component Computations							
Type	Year	Condition	Area/Qty	Type	Year	Condition	Area/Qty

10 Polly Lane Bozrah

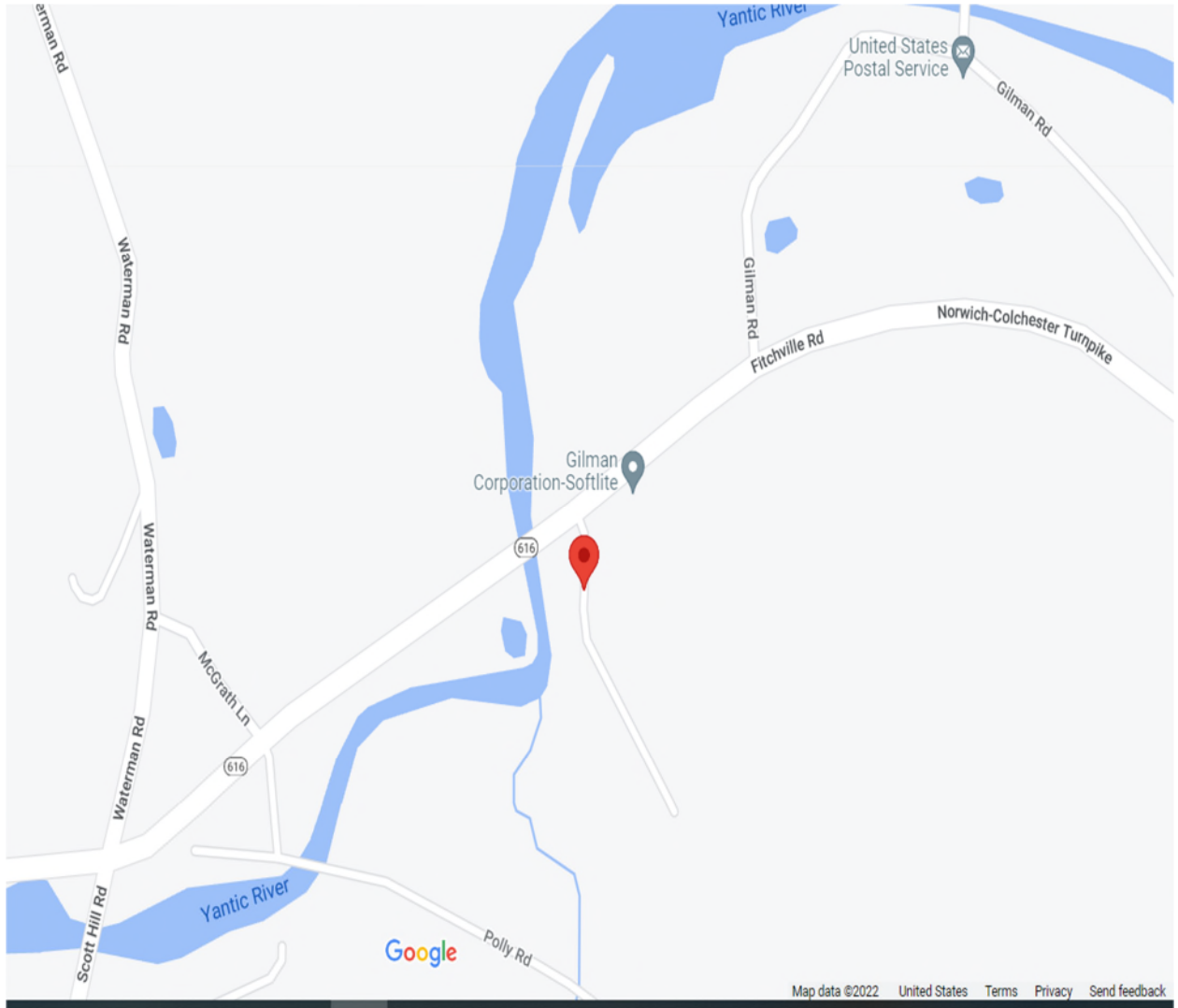


Exhibit C

Construction Drawings

PROJECT INFORMATION

SITE NAME: BOZRAH-1/RT.2
 SITE NUMBER: CT11258B
 SITE ADDRESS: 10 POLLY LANE
 BOZRAH, CT 06336
 COUNTY: NEW LONDON
 MUNICIPALITY: TOWN OF BOZRAH
 ZONING: NA
 LATITUDE: N 41°34'27.23" (41.57423100") (NAD83)
 LONGITUDE: W 72°12'01.44" (-72.20040200") (NAD83)
 TYPE OF SITE: MONOPOLE
 STRUCTURE HEIGHT: 187'-0" AGL
 ANTENNA CENTER: 177'-0" AGL
 GROUND ELEVATION: 321'-6" (NAVD 88)
 BUILDING OWNER NAME: CODLESS DATA TRANSFER INC.
 BUILDING OWNER ADDRESS: 10 POLY LANE
 NEW LONDON, CT 06249
 APPLICANT: T-MOBILE NORTHEAST, LLC.
 35 GRIFFIN RD S
 BLOOMFIELD, CONNECTICUT 06002
 APPLICANT PHONE: (860) 692-7100



T - Mobile NORTHEAST LLC

SITE NAME: BOZRAH-1/RT.2
 SITE ID: CT11258B
 ADDRESS: 10 POLLY LANE
 BOZRAH, CT 06336

TECHNOLOGY: 67D5D998E 6160
 MODIFICATION: ANCHOR_PHASE 3

T - Mobile NORTHEAST LLC

T-MOBILE NORTHEAST, LLC.
 15 COMMERCE WAY, SUITE B
 NORTON, MA 02766
 PHONE: (508) 286-2700
 FAX: (508) 286-2893

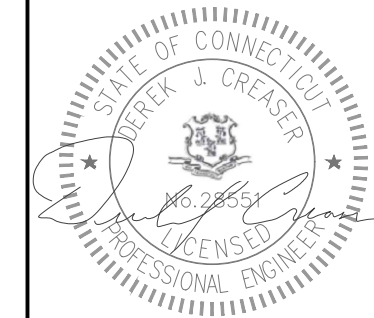


750 W CENTER ST, SUITE 301
 WEST BRIDGEWATER, MA 02379
 PHONE: 781.713.4725

REVISIONS

REV	DATE	DESCRIPTION	BY
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1	08/11/22	REVISED PER COMMENTS	RL
0	06/24/22	ISSUED FOR CONSTRUCTION	RL
A	06/10/22	ISSUED FOR REVIEW	RL

DESIGNED BY: RL	APPROVED BY: WRD
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DATE: 08/22/22

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SITE NAME: BOZRAH-1/RT.2
 SITE ID: CT11258B
 SITE ADDRESS: 10 POLLY LANE
 BOZRAH, CT 06336
 NEW LONDON COUNTY

SHEET TITLE: TITLE SHEET

DRAWING: T-1

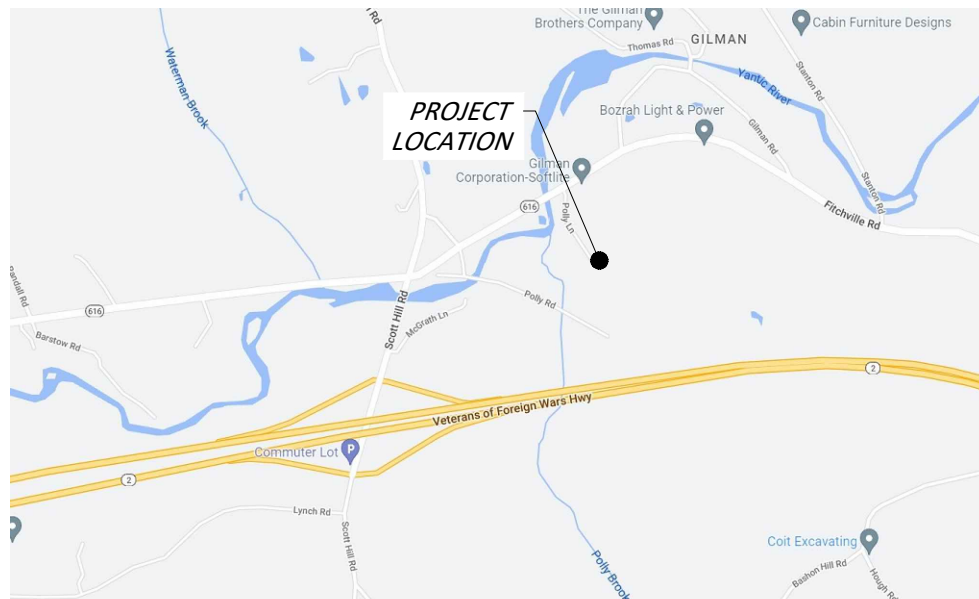
PROJECT DIRECTORY

ENGINEERING FIRM:
 CENTERLINE ENGINEERING SERVICES, PA
 750 WEST CENTER ST, SUITE 301
 WEST BRIDGEWATER, MA 02379
 DEREK CREASER (617) 306-3034

CARRIER:
 T-MOBILE NORTHEAST, LLC.
 35 GRIFFIN RD S
 BLOOMFIELD, CT 06002
 PHONE: (860) 692-1700



Know what's below.
 Call before you dig.



VICINITY MAP
 NOT TO SCALE



LOCATION MAP
 NOT TO SCALE

GENERAL NOTES

- THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T-MOBILE. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSE OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
- THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
- CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE T-MOBILE REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

SCOPE OF WORK

- THREE EXISTING ANTENNAS TO REMAIN AND RELOCATED
- INSTALL SIX NEW ANTENNAS
- REMOVE THREE EXISTING RRUS
- INSTALL THREE NEW RRUS
- INSTALL TWO NEW 6x24 HYBRID CABLES
- ONE EXISTING 6x12 CABLE TO REMAIN
- ADD (1) IXRE ROUTER TO NEW ENCLOSURE 6160
- ADD (1) RP 6651 FOR L2500/N2500 TO NEW ENCLOSURE 6160
- ADD (1) PSU 4813 VOLTAGE BOOSTER TO NEW ENCLOSURE 6160
- INSTALL ONE B160 BATTERY CABINET
- REMOVE ALL UNUSED CABLES AND EQUIPMENT

DRAWING INDEX

NO.	DESCRIPTION
T-1	TITLE SHEET
GN-1	GENERAL NOTES, RF NOTES, CABLING NOTES
A-1	COMPOUND PLAN
A-2	EQUIPMENT LAYOUT
A-3	EQUIPMENT DETAILS
A-4	NORTHEAST ELEVATION
A-5	ANTENNA LAYOUT
SN-1	STRUCTURAL NOTES & SPECIAL INSPECTIONS
S-1	ANTENNA & RRU MOUNTING DETAILS
G-1	GROUNDING & ONE LINE DIAGRAM

DRAWING SCALE NOTES:

THESE DRAWINGS ARE FORMATTED TO BE FULL SIZE AT 22"x34". CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

RF NOTES

1. ACTUAL LENGTHS SHALL BE DETERMINED PER SITE CONDITION BY SUBCONTRACTOR
2. THE DESIGN IS BASED ON RF DATA SHEETS, SIGNED AND APPROVED.
3. RADIO SIGNAL CABLE AND RACEWAY SHALL COMPLY WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC, NFPA 70), CHAPTER 8.
4. ALL SPECIFIED MATERIAL FOR EACH LOCATION (E.G. OUT DOORS-OCCUPIED, INDOORS-UNOCCUPIED, PLENUMS, RISER SHAFTS, ETC.) SHALL BE APPROVED, LISTED, OR LABELED AS REQUIRED BY THE NEC.
5. RADIO SIGNAL CABLE SHALL BE SUPPORTED AT MINIMUM OF EVERY THREE (3) FEET EXCEPT INSIDE MONOPOLES OR MONOPOLES WHERE CABLE AND CONNECTOR MANUFACTURERS SUPPORT RECOMMENDATIONS SHALL BE FOLLOWED. MANUFACTURER RECOMMENDATION CABLES SUPPORT ACCESSORIES SHALL BE USED.
6. THE OUTDOOR CABLE SUPPORT SYSTEM SHALL BE PROVIDED WITH AN ICE SHIELD TO SUPPORT AND PROTECT ANTENNA CABLE RUNS.
7. DRIP LOOPS SHALL BE REQUIRED ON ALL OUTSIDE CABLES. CABLES SHALL BE SLOPED AWAY FROM BUILDING OR OUTDOOR BTS CABINETS TO PREVENT WATER FROM ENTERING THROUGH THE COAXIAL CABLE PORT.
8. ALL FEEDER LINE AND JUMPER CONNECTORS SHALL BE 7/16 DIN CABLE CONNECTORS THAT MEET IP68 STANDARDS.
9. 7/16 DIN CONNECTORS REQUIRE NO ADDITIONAL WEATHER PROOFING IN INDOOR APPLICATIONS IF INSTALLED AND TORQUED PROPERLY. IN OUTDOOR APPLICATIONS WEATHER PROOFING IS REQUIRED AND THE FOLLOWING PROCEDURE SHOULD BE FOLLOWED.
10. USING WEATHERPROOFING KIT APPROVED BY CABLE MANUFACTURER AND CONTRACTOR START TAPE APPROXIMATELY 5 INCHES FROM THE CONNECTOR, AND WRAP 2 INCHES TOWARD THE CONNECTOR, THEN REVERSE THE TAPE SO THAT THE STICKY SIDE IS UP. TAPE OVER THE CONNECTOR OR SURGE ARRESTOR UNTIL THREE (3) TO FOUR (4) INCHES BEYOND THE CONNECTOR AND REVERSE AGAIN WITH THE STICKY SIDE DOWN FOR ANOTHER INCH OR TWO. PASS THE BUTYL RUBBER AND FINISH WITH A FINAL LAYER OF TAPE.
11. ANTENNAS SHALL BE PAINTED, WHEN REQUIRED, BY THE LANDLORD OR AUTHORITY OF HAVING JURISDICTION IN ACCORDANCE WITH ANTENNA MANUFACTURERS' SURFACES PREPARATION AND PAINTING REQUIREMENTS.
12. CABLE SHIELDS AND TOWER CONDUITS SHALL BE GROUNDED AT THE TOP OF THE TOWER WITHIN 10 FEET OF THEIR CONNECTORS, AND AT THE BOTTOM OF THE TOWER ABOUT 6 INCHES BEFORE THEY TURN TOWARD THE FACILITY. THEY SHALL BE GROUNDED AT THE MIDPOINT OF THE TOWERS THAT ARE BETWEEN 60 FEET AND 200 FEET HIGH, AND AT INTERVALS OF 60 FEET OR LESS ON TOWERS THAT ARE HIGHER THAN 200 FEET.

ANTENNA CABLE & SCHEDULING NOTES

1. SUBCONTRACTOR SHALL VERIFY THE ACTUAL LENGTH IN THE FIELD BEFORE INSTALLATION.
2. TAG AND COLOR CODE ALL MAIN CABLES AT LOCATIONS PER T-MOBILE ANTENNA CABLE MARKING STANDARD:
 - TOP OF TOWER END OF MAIN COAX
 - BOTTOM OF TOWER END OF MAIN COAX
 - DIRECTLY BEFORE AND AFTER RF EQUIPMENT
 - END OF JUMPERS AT BTS EQUIPMENT
3. ANTENNAS SHALL BE PROCURED AND INSTALLED WITH DOWN TILT MOUNTING BRACKETS SUPPLIED BY ANTENNA MANUFACTURER.
4. PRIOR APPROVAL IS REQUIRED BEFORE PERFORMING ANY WORK ON EXISTING CELL SITE EQUIPMENT.

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR - CENTERLINE COMMUNICATIONS
SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
OWNER - T-MOBILE MOBILITY
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
 16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF T-MOBILE MOBILITY SITES."
 17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
 18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
 19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
 20. APPLICABLE BUILDING CODES:
SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

BUILDING CODE: IBC 2015 & CONNECTICUT STATE BUILDING CODE 2018
ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE
LIGHTNING CODE: NFPA 780-2017
- SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:
- AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;
 - AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)
 - MANUAL OF STEEL CONSTRUCTION, ASD, FIFTEENTH EDITION;
 - TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-H, STRUCTURAL STANDARDS FOR STEEL
 - ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.
- FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

T - Mobile

NORTHEAST LLC

T-MOBILE NORTHEAST, LLC.
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
PHONE: (508) 286-2700
FAX: (508) 286-2893

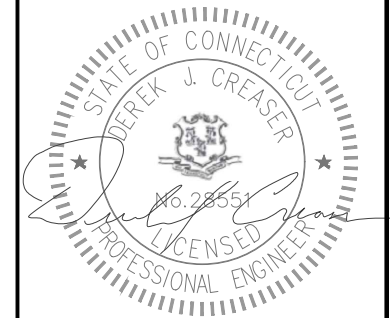


750 W CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725

REVISIONS

REV	DATE	DESCRIPTION	BY
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1	08/11/22	REVISED PER COMMENTS	RL
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DESIGNED BY: RL	APPROVED BY: WRD
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DATE: 08/22/22

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ABBREVIATIONS

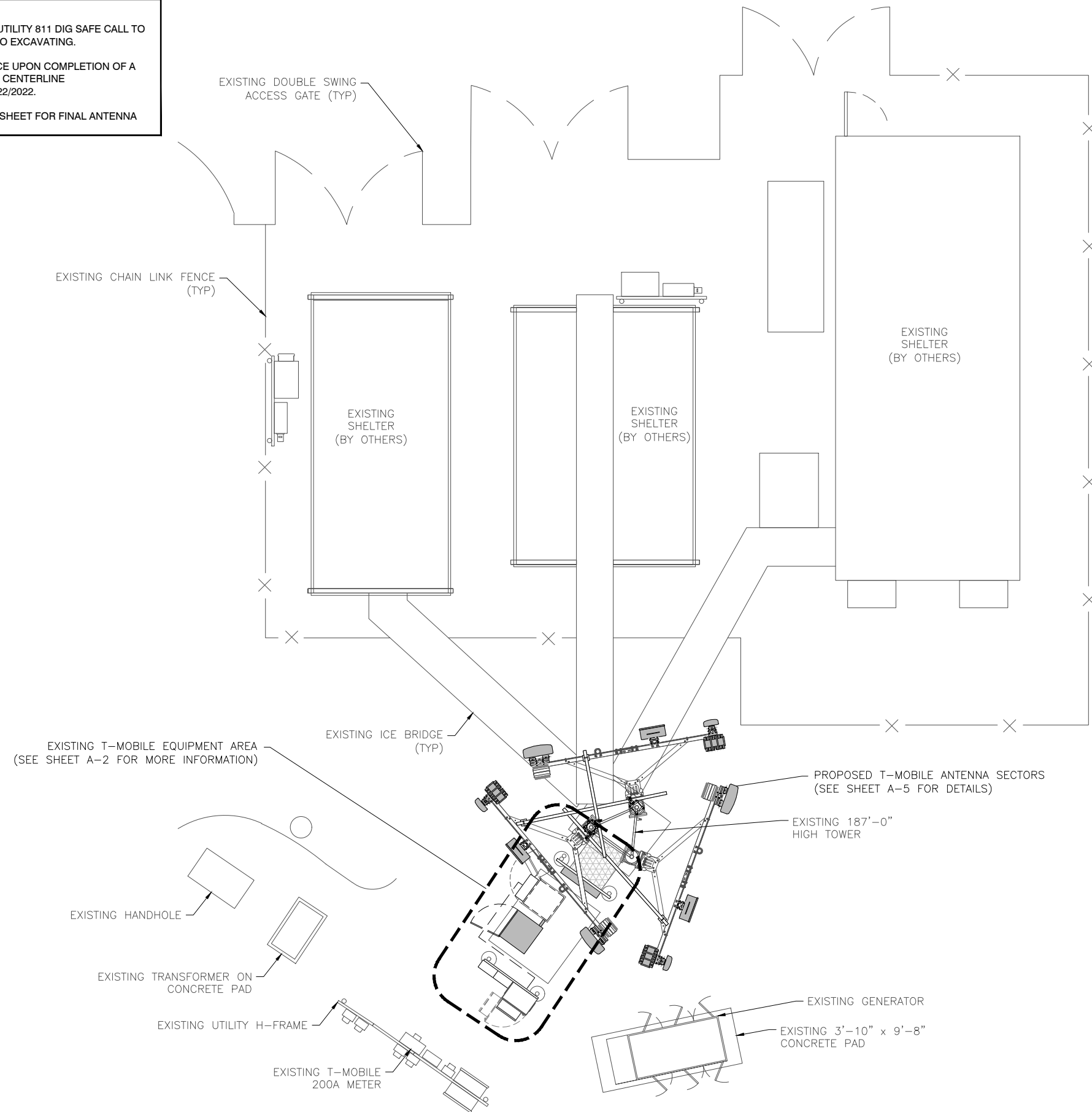
AGL	ABOVE GRADE LEVEL	G.C.	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
AWG	AMERICAN WIRE GAUGE	MGB	MASTER GROUND BUS		
BCW	BARE COPPER WIRE	MIN	MINIMUM	TBD	TO BE DETERMINED
BTS	BASE TRANSCEIVER STATION	PROPOSED	NEW	TBR	TO BE REMOVED
EXISTING	EXISTING	N.T.S.	NOT TO SCALE	TBRR	TO BE REMOVED AND REPLACED
EG	EQUIPMENT GROUND	REF	REFERENCE	TYP	TYPICAL
EGR	EQUIPMENT GROUND RING	REQ	REQUIRED		

SITE NAME:	BOZRAH-1/RT.2
SITE ID:	CT11258B
SITE ADDRESS:	10 POLLY LANE BOZRAH, CT 06336 NEW LONDON COUNTY

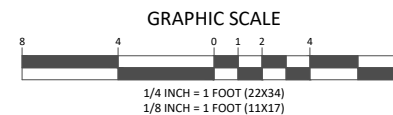
SHEET TITLE:	GENERAL NOTES, RF NOTES, CABLING NOTES
DRAWING:	GN-1

NOTES

1. CONTRACTOR SHALL MAKE A UTILITY 811 DIG SAFE CALL TO LOCATE ALL UTILITIES PRIOR TO EXCAVATING.
2. CONSTRUCTION TO COMMENCE UPON COMPLETION OF A PASSING MOUNT ANALYSIS BY CENTERLINE COMMUNICATIONS DATED 06/22/2022.
3. REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA MODELS AND SETTINGS.



1
A-1
COMPOUND PLAN



T-Mobile
NORTHEAST LLC

T-MOBILE NORTHEAST, LLC.
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
PHONE: (508) 286-2700
FAX: (508) 286-2893

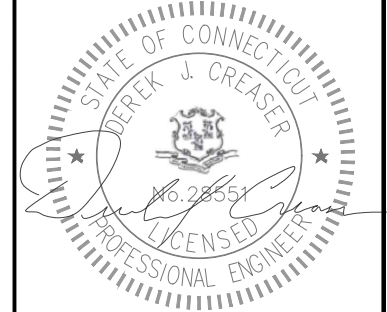


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SITE NAME:
BOZRAH-1/RT.2

SITE ID:
CT11258B

SITE ADDRESS:
**10 POLLY LANE
BOZRAH, CT 06336
NEW LONDON COUNTY**

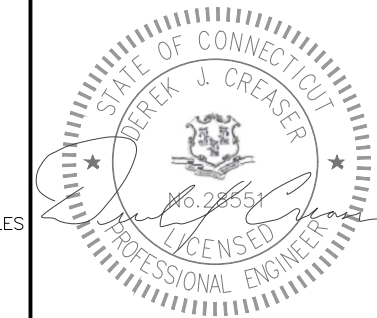
SHEET TITLE:
COMPOUND PLAN

DRAWING:
A-1

REVISIONS

REV	DATE	DESCRIPTION	BY
2	08/22/22	REVISED PER SA NOTES	RL
1	08/11/22	REVISED PER COMMENTS	RL
0	06/24/22	ISSUED FOR CONSTRUCTION	RL
A	06/10/22	ISSUED FOR REVIEW	RL

DESIGNED BY: RL	APPROVED BY: WRD
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DATE: 08/22/22

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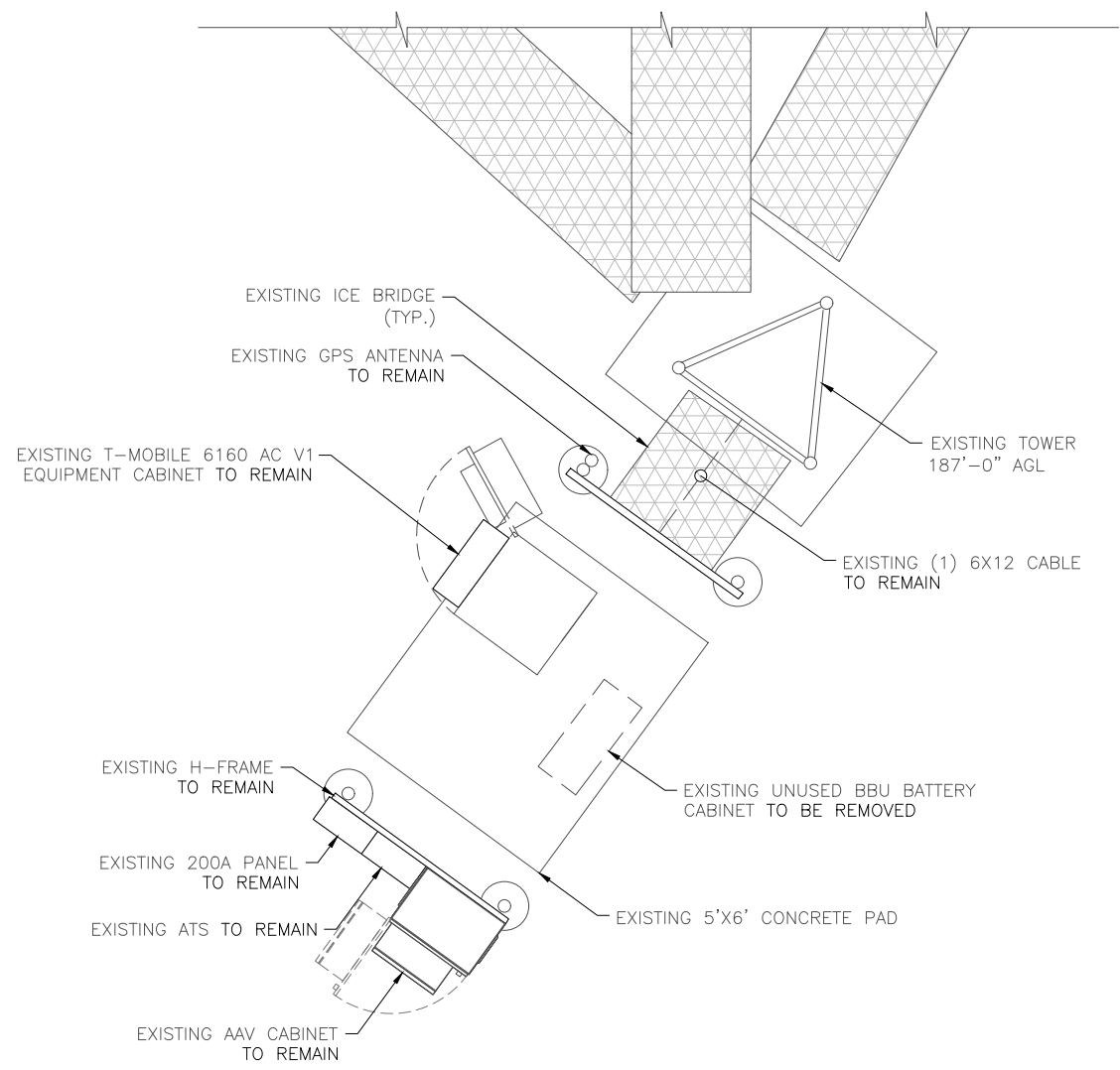
SITE ADDRESS:
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BOZRAH, CT 06336
NEW LONDON COUNTY

SHEET TITLE:
EQUIPMENT LAYOUT

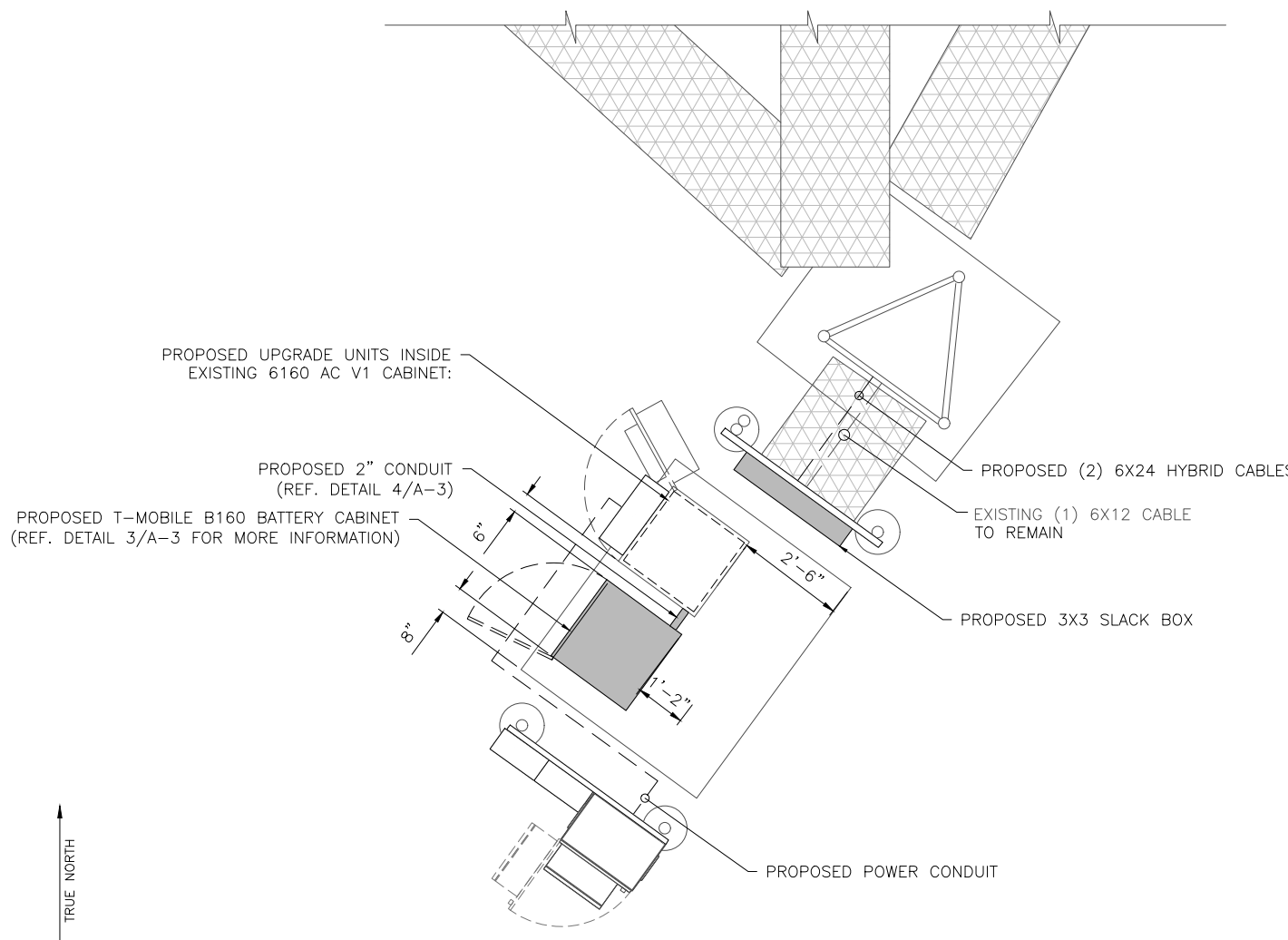
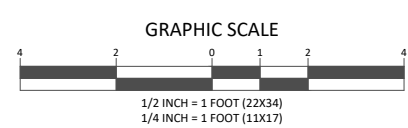
DRAWING:
A-2

RAN EQUIPMENT		
CABINET	EXISTING	PROPOSED
200A PANEL	N/A	N/A
ATS	N/A	N/A
AAV	N/A	N/A
6160 AC V1	(1) DUG20 (1) BB 6630 (1) BB 6648	(1) RP6651 (1) PSU 4813 VR4A (KIT) (1) CSR IXRE V2 (GEN2)
B160	N/A	N/A
SLACK BOX	N/A	N/A

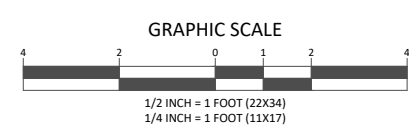
NOTE:
RAN EQUIPMENT IS BASED ON RFDS REV2 DATED 08/22/22



1
A-2
EXISTING EQUIPMENT PLAN



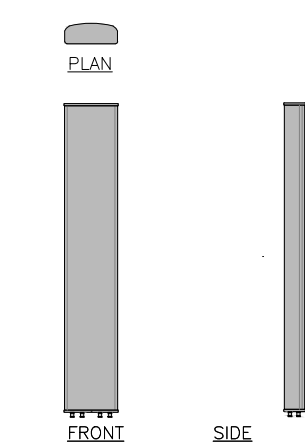
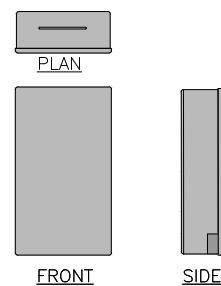
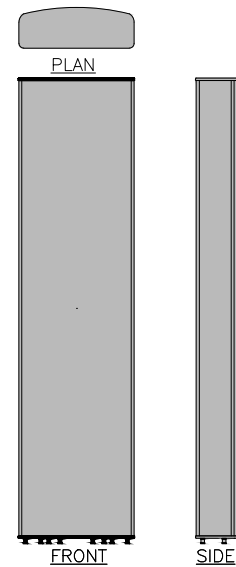
2
A-2
PROPOSED EQUIPMENT PLAN



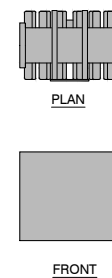
RFS APXVAALL24_43-U-NA20	
MODEL #	APXVAALL24_43-U-NA20
MANUF.	RFS
HEIGHT	95.9"
WIDTH	24.0"
DEPTH	8.5"
WEIGHT	128 LBS W/O MTG HARDWARE 153.3LBS W/ MTG HARDWARE
FRONT EPA:	15.98 FT ²
SIDE EPA:	5.66 FT ²

ERICSSON AIR 6419 B41	
MODEL #	AIR 6419 B41
MANUF.	ERICSSON
HEIGHT	36.3"
WIDTH	20.9"
DEPTH	9.0"
WEIGHT	83.3 LBS
FRONT EPA:	5.27 FT ²
SIDE EPA:	2.27 FT ²

COMMSCOPE VV-65B-R1	
MODEL #	VV-65B-R1
MANUF.	COMMSCOPE
HEIGHT	70.4"
WIDTH	12.0"
DEPTH	4.6"
WEIGHT	28.0 LBS W/O MTG HARDWARE 41.67 LBS W/ MTG HARDWARE
FRONT EPA:	5.87 FT ²
SIDE EPA:	2.25 FT ²



1 ANTENNA DETAILS
A-3



RADIO DIMENSIONS	
MODEL #	RADIO 4460 B25_B66
MANUF.	ERICSSON
HEIGHT	15.1"
WIDTH	17.0"
DEPTH	11.9"
WEIGHT	108 LBS
FRONT EPA:	
SIDE EPA:	

2 RADIO DETAILS
A-3

T-Mobile
NORTHEAST LLC

T-MOBILE NORTHEAST, LLC.
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
PHONE: (508) 286-2700
FAX: (508) 286-2893

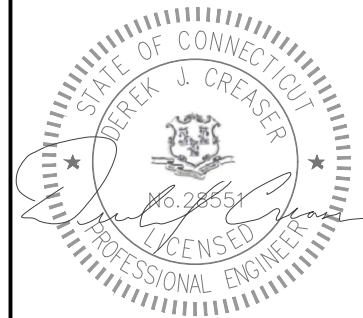


750 W CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725

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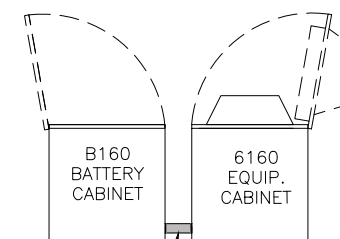
SHEET TITLE: EQUIPMENT DETAILS
--

DRAWING: A-3

6160 AC ENCLOSURE	
CAPACITY	19U(19" RACK)
RACK SPACE USER EQUIP.	POWER AND CPRI SUPPORT FOR
HARDWARE CAPABILITIES	MULTI-STANDARD REMOTE RADIOS (RRU OR AIR) ERS BASEBAND AND TRANSPORT UNITS Li-ION BATTERIES 3PP EQUIPMENT ADDITIONAL POWER FEED OPTIONS AVAILABLE
MECHANICAL SPECIFICATIONS	
WEIGHT	320lbs (INCLUDING ACTIVE EQUIPMENT)
DIMENSIONS (HWD)	63"x26"x26" (INCLUDING BASE FRAME)
BASE FRAME HEIGHT	6"
MOUNTING POSITION	GROUND
ENCLOSURE MATERIAL	ALUMINUM
COLOR	POWDER PAINT NCS 2002-B
DOOR	FRONT ACCESS
RACK TYPE	19" (IEC 60297-3-100)
LOCK TYPE	CYLINDER/PAD LOCK
POWER SYSTEM	
INPUT VOLTAGE	3P+N+PE 346/200-415/240 VAC 2P+N+PE 208/120-220/127 VAC 1P+N+PE 200-250 VAC

B160 BATTERY ENCLOSURE	
CAPACITY	100Ah/150Ah/170Ah/190Ah/210Ah
VRLA12V:	24U 19"/23"
Li-ION	3xFIAMM
SODIUM-NICKEL	
ELECTRICAL SPECIFICATIONS	
DC OUTPUT	-48VDC/200A
BATTERY BREAKERS	2x125/2p
ALARMS	DOOR OPEN, CLIMATE FAILURE, MCB CONNECTION
MECHANICAL SPECIFICATIONS	
WEIGHT	295 lbs (PLUS 3 STRINGS OF RECOMMENDED 190 aHR FOR ADDITIONAL 1588LBS)
DIMENSIONS (HWD)	63"x26"x26" (INCLUDING BASE FRAME)
BASE FRAME HEIGHT	6"
MATERIAL	GALVANIZED STEEL (180g/m ²)
COLOR	POWDER PAINT NCS 2002-B
LOCKING TYPE	CYLINDER/PAD LOCK

3 PROPOSED EQUIPMENT CABINET SPECIFICATIONS
A-3

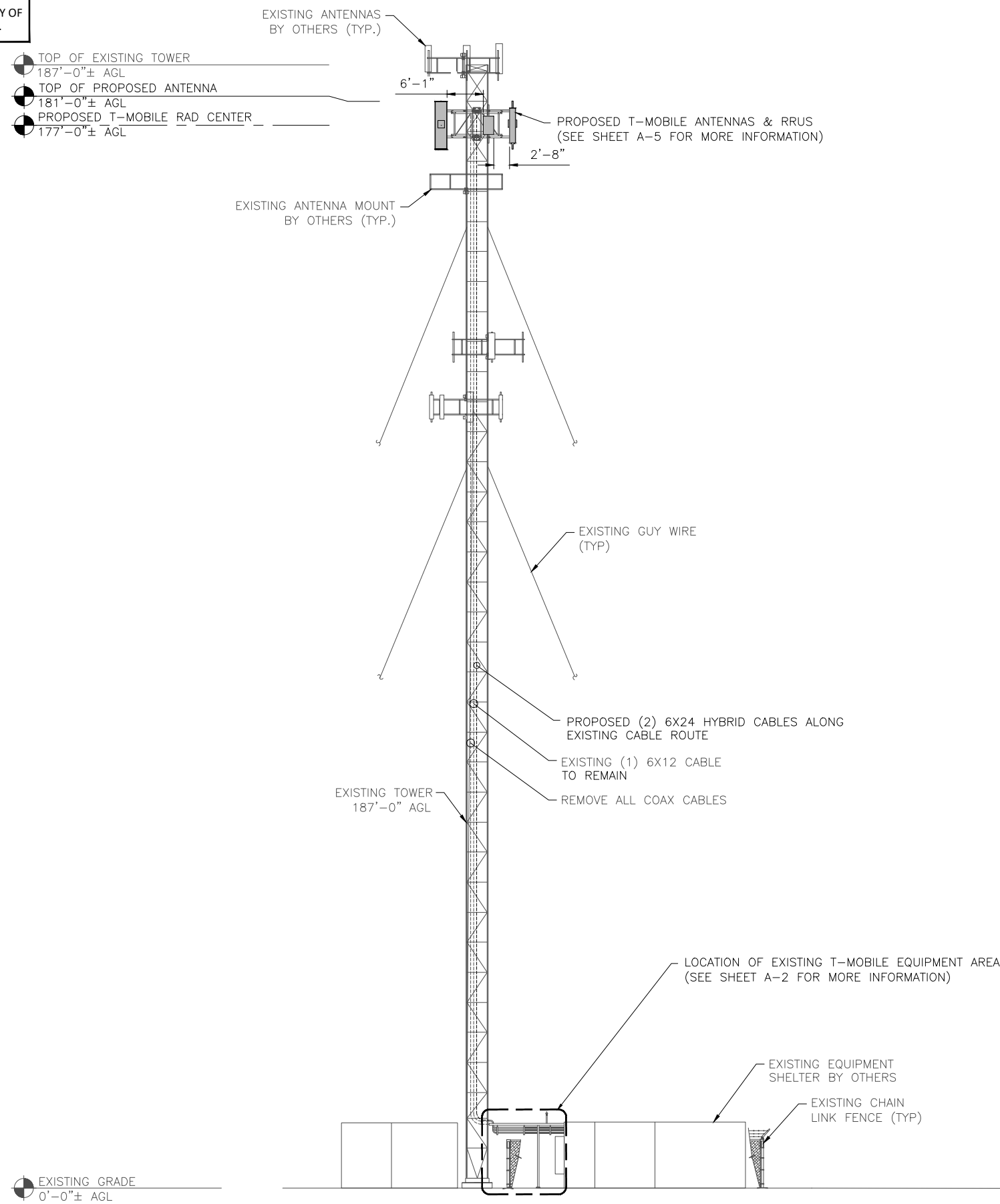


(1) PROPOSED 2"ØX 8" GALV. NIPPLE, (4) 2"Ø LOCK RINGS. & (2) 2"Ø PLASTIC BUSHING (NOT SHOWN)

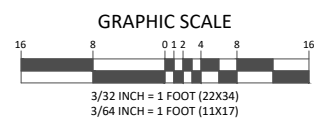
5 PROPOSED EQUIPMENT CONDUIT DETAIL
A-3

ANTENNA & CABLE NOTES:

1. REFERENCE STRUCTURAL ANALYSIS BY PJF & COMPANY DATED 08/10/2022 FOR FURTHER INFORMATION REGARDING THE CAPACITY OF THE EXISTING STRUCTURE TO SUPPORT THIS EQUIPMENT UPGRADE.



1
A-4
NORTHEAST ELEVATION



T-Mobile
NORTHEAST LLC

T-MOBILE NORTHEAST, LLC.
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
PHONE: (508) 286-2700
FAX: (508) 286-2893

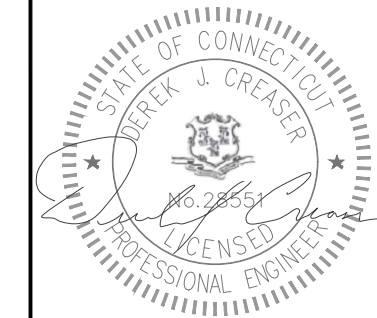


750 W CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725

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BOZRAH-1/RT.2

SITE ID:
CT11258B

SITE ADDRESS:
**10 POLLY LANE
BOZRAH, CT 06336
NEW LONDON COUNTY**

SHEET TITLE:
NORTHEAST ELEVATION

DRAWING:
A-4



ANTENNA & CABLE SCHEDULE:

- ANTENNA & CABLE NOTES:**
- CONSTRUCTION TO COMMENCE UPON COMPLETION OF A PASSING MOUNT ANALYSIS BY CENTERLINE COMMUNICATIONS DATED 06/22/2022.
 - REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.
 - REMOVE ALL UNUSED CABLE, RRUS AND TMAS.
 - PAINT ANTENNAS AND EQUIP. TO MATCH EXISTING.

LOCATION	AZIMUTH	RAD CENTER	STATUS	TECHNOLOGY	ANTENNA MODEL NO.	MECH DOWNTILT	ELEC DOWNTILT	CABLES	DIPLEXERS	TMA/RRU	CABLE SIZE	CABLE LENGTH	
ALPHA	A-1	110°	177'-0"	EXISTING	L700,L600,N600	APXVAALL24_43-U-NA20	0°	2°/2°	(2)COAX JUMPERS(X4) (2)FIBER JUMPERS	N/A	4449 B71+B85 RRU	6X12	195'
	A-2	-	-	-	-	-	-	-	-	-	-	-	
	A-3	110°	177'-0"	PROPOSED	L2500, N2500	AIR6419 B41	0°	2°/2°	(2)FIBER JUMPERS(X4)	N/A	N/A	SHARED	N/A
	A-4	110°	177'-0"	PROPOSED	L2100, L1900, G1900	VV-65B-R1	0°	2°/2°	(2)COAX JUMPERS (X4) (2)FIBER JUMPERS	N/A	4460 B25+B66 RRU	SHARED	N/A
BETA	B-1	230°	177'-0"	EXISTING	L700,L600,N600	APXVAALL24_43-U-NA20	0°	2°/2°	(2)COAX JUMPERS(X4) (2)FIBER JUMPERS	N/A	4449 B71+B85 RRU	6x24 HYBRID	195'
	B-2	-	-	-	-	-	-	-	-	-	-	-	
	B-3	230°	177'-0"	PROPOSED	L2500, N2500	AIR6419 B41	0°	2°/2°	(2)FIBER JUMPERS(X4)	N/A	N/A	SHARED	N/A
	B-4	230°	177'-0"	PROPOSED	L2100, L1900, G1900	VV-65B-R1	0°	2°/2°	(2)COAX JUMPERS (X4) (2)FIBER JUMPERS	N/A	4460 B25+B66 RRU	SHARED	N/A
GAMMA	C-1	350°	177'-0"	EXISTING	L700,L600,N600	APXVAALL24_43-U-NA20	0°	2°/2°	(2)COAX JUMPERS(X4) (2)FIBER JUMPERS	N/A	4449 B71+B85 RRU	6X24 HYBRID	195'
	C-2	-	-	-	-	-	-	-	-	-	-	-	
	C-3	350°	177'-0"	PROPOSED	L2500, N2500	AIR6419 B41	0°	2°/2°	(2)FIBER JUMPERS(X4)	N/A	N/A	SHARED	N/A
	C-4	350°	177'-0"	PROPOSED	L2100, L1900, G1900	VV-65B-R1	0°	2°/2°	(2)COAX JUMPERS (X4) (2)FIBER JUMPERS	N/A	4460 B25+B66 RRU	SHARED	N/A
NOTE: DARK TEXT IN TABLE ABOVE DENOTES PROPOSED EQUIPMENT											(2) TOTAL 6x24 HYBRID CABLES	390'	

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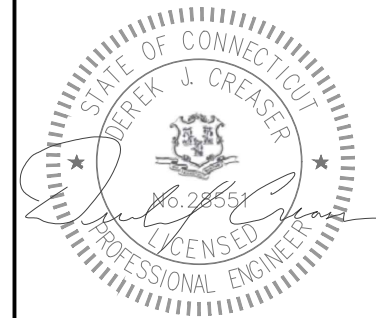


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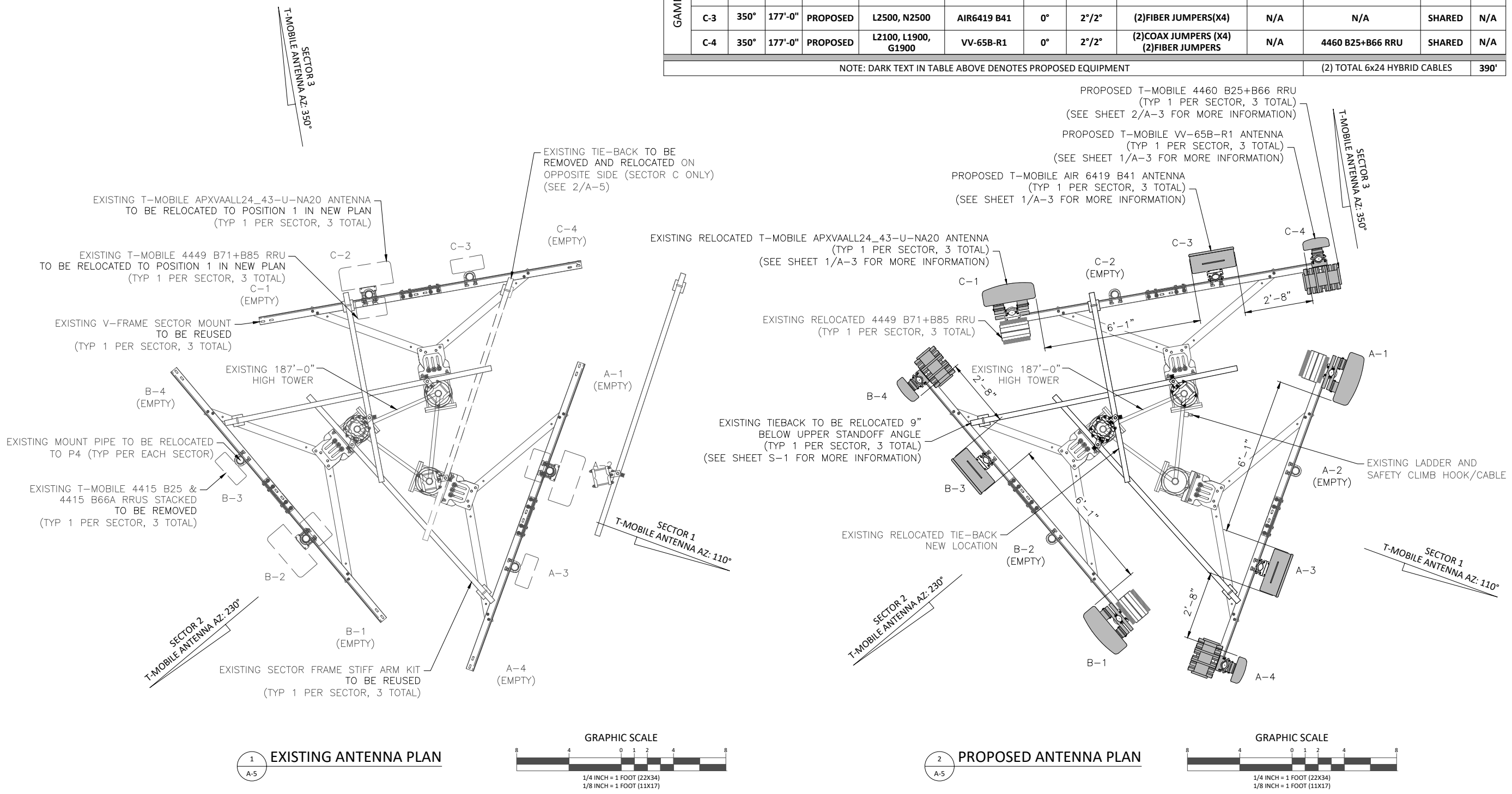


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SHEET TITLE: ANTENNA PLAN & SCHEDULE
DRAWING: A-5



STRUCTURAL NOTES:

- DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-H STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
- DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
- STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
- STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
- STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
- ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
- ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
- FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
- CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D.I.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
- INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
- UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
- EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-270 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
- EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
- WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
- ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
- NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
- SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

SPECIAL INSPECTION CHECKLIST	
BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS ¹
N/A	MATERIAL SPECIFICATIONS REPORT ²
N/A	FABRICATOR NDE INSPECTION
N/A	PACKING SLIPS ³
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS ⁴
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION ⁵
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS ⁶
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTES:

- REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
- PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
- PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
- HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
- ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.8.2.4.
- AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

NOTES:

- ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"Ø A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
- SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
- SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
- VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
- CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
- EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

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NORTHEAST LLC**

T-MOBILE NORTHEAST, LLC.
15 COMMERCE WAY, SUITE B
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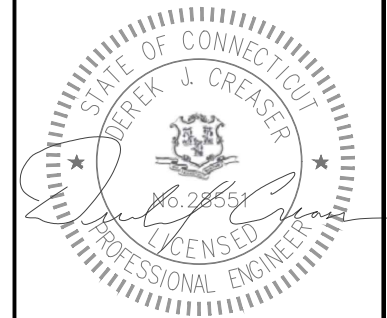


750 W CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725

REVISIONS

REV	DATE	DESCRIPTION	BY
2	08/22/22	REVISED PER SA NOTES	RL
1	08/11/22	REVISED PER COMMENTS	RL
0	06/24/22	ISSUED FOR CONSTRUCTION	RL
A	06/10/22	ISSUED FOR REVIEW	RL

DESIGNED BY: RL	APPROVED BY: WRD
--------------------	---------------------



DATE: 08/22/22

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SITE NAME: BOZRAH-1/RT.2
SITE ID: CT11258B
SITE ADDRESS: 10 POLLY LANE BOZRAH, CT 06336 NEW LONDON COUNTY
SHEET TITLE: STRUCTURAL NOTES & SPECIAL INSPECTIONS
DRAWING: SN-1

- NOTES FOR ANTENNA MOUNTS:**
- VV-65B-R1: BSAMNT-3 PIPE MOUNT KIT
 - AIR6419: ERICSSON R2A PIPE MOUNT KIT
 - APXVAALL24-43-U-NA20: APM40-5E PIPE MOUNT KIT

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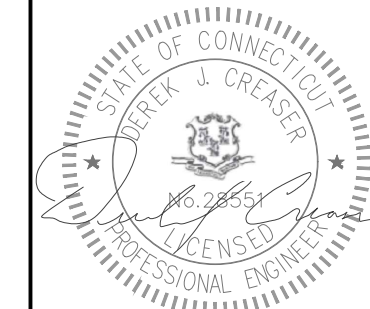


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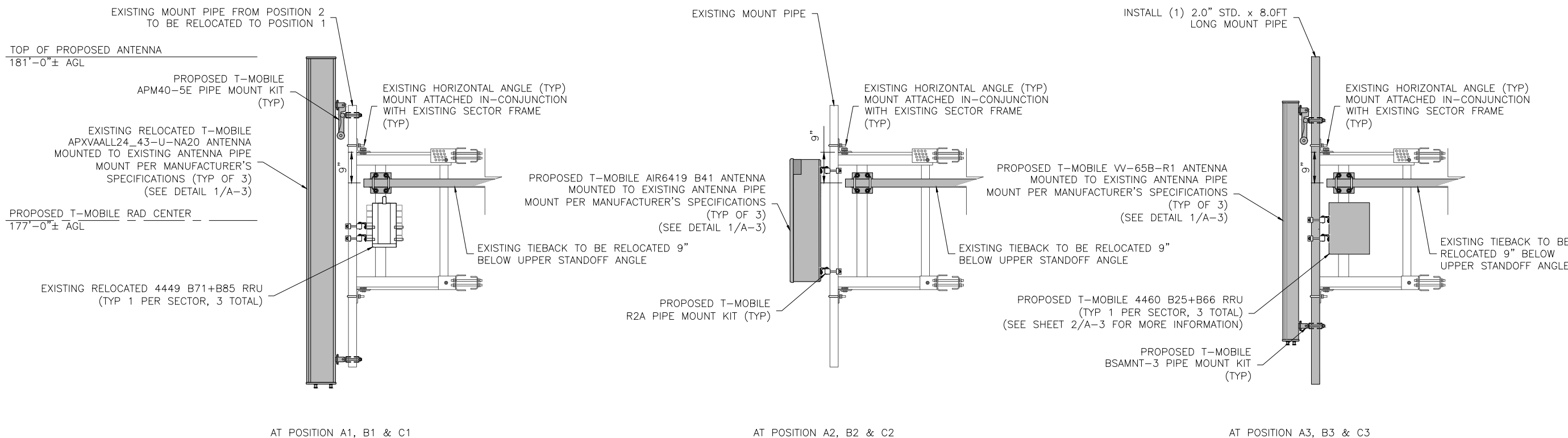
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SITE ID:
CT11258B

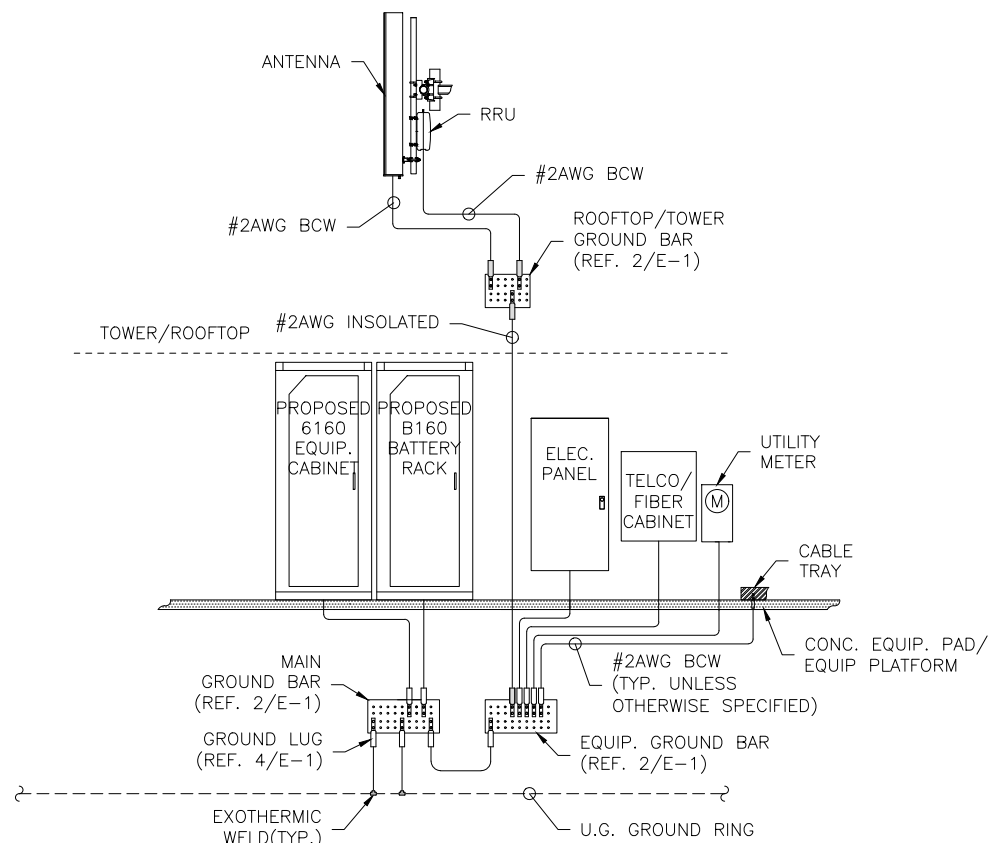
SITE ADDRESS:
10 POLLY LANE
BOZRAH, CT 06336
NEW LONDON COUNTY

SHEET TITLE:
ANTENNA & RRU MOUNTING
DETAILS

DRAWING:
S-1

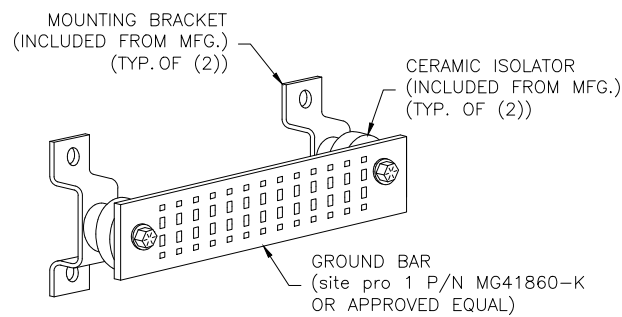


1 TYPICAL ANTENNA & RRU MOUNTING DETAIL
S-1



GROUNDING RISER NOTE:
UNLESS OTHERWISE SPECIFIED ALL GROUNDING CONDUCTORS ARE TO BE #2AWG BCW

1 GROUNDING RISER DIAGRAM
G-1



2 GROUND BAR DETAIL
G-1

EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

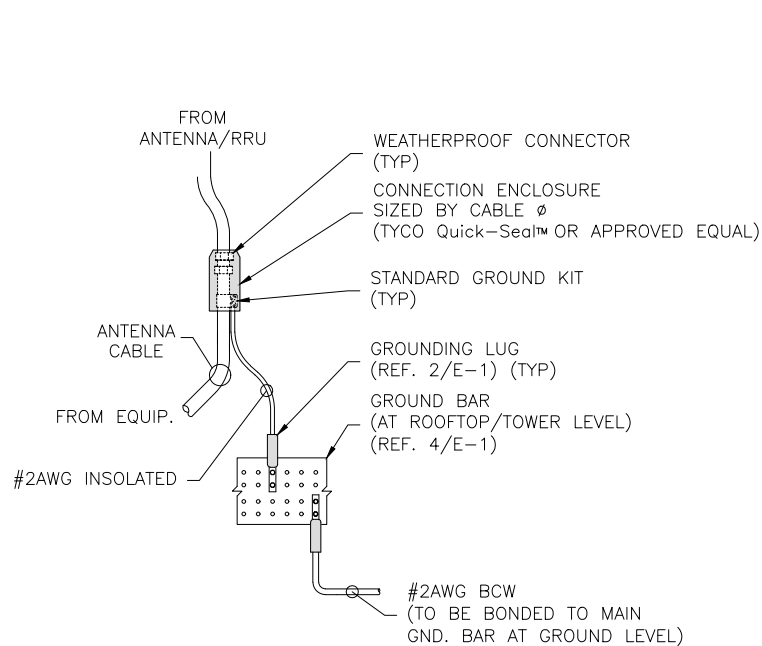
SECTION "P" - SURGE PRODUCERS

- CABLE ENTRY PORTS (HATCH PLATES) (#2)
- GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
- TELCO GROUND BAR
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
- +24V POWER SUPPLY RETURN BAR (#2)
- 48V POWER SUPPLY RETURN BAR (#2)
- RECTIFIER FRAMES.

SECTION "A" - SURGE ABSORBERS

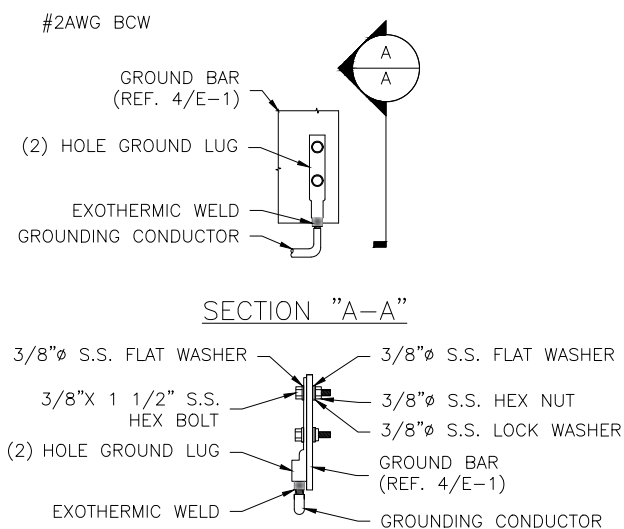
- INTERIOR GROUND RING (#2)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- BUILDING STEEL (IF AVAILABLE) (#2)

3 GROUND WIRE SCHEDULE
G-1



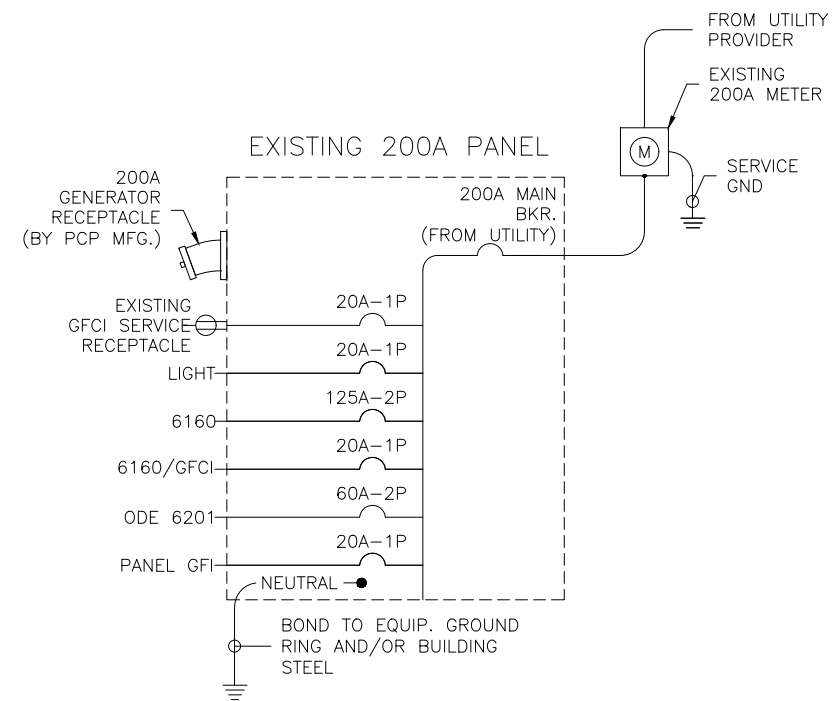
- NOTES:**
- DO NOT INSTALL CABLE GROUND KIT AT BEND IN CABLE.
 - GROUND CABLES DIRECTLY TO CIGBE
 - JUMPER REQUIRED ONLY WHEN CABLE IS 1 1/4" OR LARGER

4 ANTENNA/RRU GROUNDING DETAIL
G-1



- GROUNDING LUG NOTES:**
- DO NOT DOUBLE UP OR STACK LUGS.
 - OXIDE INHIBITING COMPOUND TO BE APPLIED TO ALL LUGS.
 - ALL LUGS ARE TO BE EXOTHERMIC WELDED TO GROUNDING CONDUCTORS.
 - FOR INSOLATED GROUNDING CONDUCTORS, EXPOSED BARE COPPER TO BE KEPT TO ABSOLUTE MINIMUM.
 - NO INSULATION IS ALLOWED WITHIN THE BARREL OF THE COMPRESSION TERMINAL.

5 GROUND LUG DETAIL
G-1



6 ONE LINE DIAGRAM
G-1

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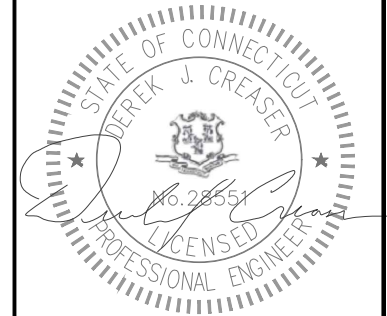
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SITE NAME: BOZRAH-1/RT.2
SITE ID: CT11258B
SITE ADDRESS: 10 POLLY LANE BOZRAH, CT 06336 NEW LONDON COUNTY

SHEET TITLE:
GROUNDING & ONE LINE
DIAGRAM

DRAWING:
G-1

Exhibit D

Structural & Mount Analysis Report

Report Date: August 10, 2022

Client: Everest Infrastructure Partners
Two Allegheny Center
Pittsburgh, PA 15212
Attn: Thomas Rigg
(603) 498-7462
tom.rigg@everestinfrastructure.com

Structure: Existing 187-ft Guyed Tower
Site Name: Bozrah Polly Lane
Site Reference #: 701695
Site Address: 3 Polly Lane
City, County, State: Bozrah, New London County, CT
Latitude, Longitude: 41.573333°, -72.203333°

PJF Project: A13321-0017.002.8700

Paul J. Ford and Company is pleased to submit this “**Structural Analysis Report**” to determine the tower stress level.

Analysis Criteria:

This analysis utilizes an ultimate 3-second gust wind speed of 135 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Proposed Appurtenance Loads:

The structure was analyzed with the proposed loading configuration shown in Table 1 combined with the other considered equipment shown in Table 2 of this report.

Summary of Analysis Results:

Existing Structure: Pass – 88.9%
Existing Foundation: Pass – 97.7%

We at Paul J. Ford and Company appreciate the opportunity of providing our continuing professional services to you and Everest Infrastructure Partners. If you have any questions or need further assistance on this or any other projects, please give us a call.

Respectfully Submitted by:
Paul J. Ford and Company



Anna Trudo, EI
Structural Designer JMF
atrudo@pauljford.com



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1) INTRODUCTION

This tower is a 187 ft Guyed tower designed by Fred A. Nudd Corporation.

The tower has been modified per reinforcement drawings prepared by Paul J. Ford in March of 2020. Reinforcement consists of expanding the Base Foundation by adding concrete.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-G
Risk Category:	II
Nominal Wind Speed:	105 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	0.75 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
177.0	177.0	3	commscope	VV-65B-R1_TMO w/ Mount Pipe	3	1-5/8
		3	ericsson	4460 B25/B66		
		3	ericsson	AIR 6419 B41_TMO w/ Mount Pipe		
		3	ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		3	rfs celwave	APXVAALL24_43-U-NA20 w/ Mount Pipe		
		1	tower mounts	Sector Mount [SM 1305-3] with mount modifications		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
187.0	187.0	6	cci antennas	DMP65R-BU8D w/ Mount Pipe	12 1 2	1-5/8 1-3/8 0.66
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 4478 B14		
		3	ericsson	RRUS 8843 B2/B66A		
		3	powerwave technologies	7770 w/ Mount Pipe		
		6	powerwave technologies	LGP 17201		
		2	raycap	DC6-48-60-18-8F		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		1	tower mounts	Sector Mount [SM 801-3]		
150.0	150.0	3	alcatel lucent	1900 MHz 4x45W RRH	4	1-1/4
		3	alcatel lucent	RRH 8x20W + Solar Shield		
		6	alcatel lucent	RRH2x50-WCS		
		3	commscope	DT465B-2XR w/ Mount Pipe		
		3	rfs celwave	APXV9ERR18-C-A20 w/ Mount Pipe		
		1	tower mounts	Sector Mount [SM 502-3]		
136.0	136.0	3	antel	BXA-70063/6CF w/ Mount Pipe	10 2	1-5/8 6x12
		3	commscope	BSAMNT-SBS-2-2 (Mount Bracket)		
		3	commscope	CBC78T-DS-43-2X		
		6	commscope	JAHH-65B-R3B w/ Mount Pipe		
		1	raycap	RVZDC-6627-PF-48		
		3	samsung telecommunications	B2/B66A RRH-BR049 (RFV01U-D1A)		
		3	samsung telecommunications	B5/B13 RRH-BR04C (RFV01U-D2A)		
		3	samsung telecommunications	MT6407-77A w/ Mount Pipe		
		1	tower mounts	Sector Mount [SM 502-3]		
127.0	127.0	3	fujitsu	TA08025-B604	1	1.6
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-20 w/ Mount Pipe		
		1	mounts	Sabre_C10837002C-32788_Sector_(3)		
		1	raycap	RDIDC-9181-PF-48		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Foundation Mapping Report	TEP, 11/20/2019	133845.318836	Everest
Geotechnical Report	TEP, 8/24/2009	080004.46E	Everest
Previous Structural Analysis	Fred A. Nudd Corporation, 12/28/2017	117-23243.4	Everest
Tower Modification Drawings	Paul J. Ford, 3/12/020	A00019-0431.002.8800_R1	Everest
PMI	Armor Tower Engineering, 8/18/2020	701695	Everest
Collocation Application	Everest, 7/15/2022	701695	Everest
Mount Analysis	Centerline	CT11258B	Everest

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) Tower and structures were maintained in accordance with the TIA-222 Standard.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 3) The original guy anchor foundation drawings were not available at the time of analysis. Therefore, we have assumed the material grades, guy rod information, and reinforcing steel information provided in the previous structural analysis report, referenced in Table 3, are correct.

This analysis may be affected if any assumptions are not valid or have been made in error. Paul J. Ford and Company should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	187 - 180	Leg	P2.875"x0.203" (2.5 STD)	3	-17.01	74.72	22.8	Pass
T2	180 - 160	Leg	P2.875"x0.203" (2.5 STD)	26	-64.41	79.61	80.9	Pass
T3	160 - 140	Leg	P2.875"x0.203" (2.5 STD)	86	-70.78	79.61	88.9	Pass
T4	140 - 120	Leg	P2.875"x0.203" (2.5 STD)	146	-70.01	79.61	88.0	Pass
T5	120 - 100	Leg	P2.875"x0.203" (2.5 STD)	207	-68.02	79.61	85.4	Pass
T6	100 - 80	Leg	P2.875"x0.203" (2.5 STD)	267	-58.07	79.61	72.9	Pass
T7	80 - 60	Leg	P2.875"x0.203" (2.5 STD)	327	-60.41	79.61	75.9	Pass
T8	60 - 40	Leg	P2.875"x0.203" (2.5 STD)	387	-65.92	79.61	82.8	Pass
T9	40 - 20	Leg	P2.875"x0.203" (2.5 STD)	447	-68.30	79.61	85.8	Pass
T10	20 - 0	Leg	P2.875"x0.203" (2.5 STD)	507	-68.37	79.61	85.9	Pass
T1	187 - 180	Diagonal	5/8	13	7.79	9.94	78.4	Pass
T2	180 - 160	Diagonal	C3x4.1	39	-6.20	31.24	19.9	Pass
T3	160 - 140	Diagonal	5/8	142	7.67	9.94	77.2	Pass
T4	140 - 120	Diagonal	5/8	163	5.58	9.94	56.2	Pass
T5	120 - 100	Diagonal	5/8	261	5.83	9.94	58.7	Pass
T6	100 - 80	Diagonal	5/8	322	3.46	9.94	34.8	Pass
T7	80 - 60	Diagonal	5/8	336	4.11	9.94	41.4	Pass
T8	60 - 40	Diagonal	5/8	439	4.12	9.94	41.5	Pass
T9	40 - 20	Diagonal	5/8	458	3.30	9.94	33.2	Pass
T10	20 - 0	Diagonal	5/8	517	4.27	9.94	42.9	Pass
T1	187 - 180	Horizontal	L 1.5 x 1.5 x 3/16	16	-6.33	7.19	88.0	Pass
T2	180 - 160	Horizontal	L 1.5 x 1.5 x 3/16	67	-3.27	7.19	45.5	Pass
T3	160 - 140	Horizontal	L 1.5 x 1.5 x 3/16	137	-5.24	7.19	72.8	Pass
T4	140 - 120	Horizontal	L 1.5 x 1.5 x 3/16	198	-4.34	7.19	60.4	Pass
T5	120 - 100	Horizontal	L 1.5 x 1.5 x 3/16	257	-3.98	7.19	55.3	Pass
T6	100 - 80	Horizontal	L 1.5 x 1.5 x 3/16	282	-3.55	7.19	49.4	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T7	80 - 60	Horizontal	L 1.5 x 1.5 x 3/16	378	-3.38	7.19	47.1	Pass
T8	60 - 40	Horizontal	L 1.5 x 1.5 x 3/16	437	-3.34	7.19	46.5	Pass
T9	40 - 20	Horizontal	L 1.5 x 1.5 x 3/16	462	-3.56	7.19	49.5	Pass
T10	20 - 0	Horizontal	L 1.5 x 1.5 x 3/16	558	-3.43	7.19	47.7	Pass
T1	187 - 180	Top Girt	L 1.5 x 1.5 x 3/16	4	-4.24	7.19	59.0	Pass
T2	180 - 160	Top Girt	L 1.5 x 1.5 x 3/16	30	-1.23	7.19	17.0	Pass
T3	160 - 140	Top Girt	L 1.5 x 1.5 x 3/16	89	-4.23	7.19	58.9	Pass
T4	140 - 120	Top Girt	L 1.5 x 1.5 x 3/16	149	-2.60	7.19	36.2	Pass
T5	120 - 100	Top Girt	L 1.5 x 1.5 x 3/16	209	-3.13	7.19	43.5	Pass
T6	100 - 80	Top Girt	L 1.5 x 1.5 x 3/16	269	-1.96	7.19	27.2	Pass
T7	80 - 60	Top Girt	L 1.5 x 1.5 x 3/16	330	-1.96	7.19	27.2	Pass
T9	40 - 20	Top Girt	L 1.5 x 1.5 x 3/16	448	-1.63	7.19	22.6	Pass
T10	20 - 0	Top Girt	L 1.5 x 1.5 x 3/16	510	-1.95	7.19	27.1	Pass
T1	187 - 180	Bottom Girt	L 1.5 x 1.5 x 3/16	7	-4.64	7.19	64.6	Pass
T2	180 - 160	Bottom Girt	L 1.5 x 1.5 x 3/16	33	6.28	17.09	36.8	Pass
T3	160 - 140	Bottom Girt	L 1.5 x 1.5 x 3/16	93	-2.24	7.19	31.2	Pass
T4	140 - 120	Bottom Girt	L 1.5 x 1.5 x 3/16	152	-4.24	7.19	58.9	Pass
T5	120 - 100	Bottom Girt	L 1.5 x 1.5 x 3/16	213	-2.05	7.19	28.5	Pass
T6	100 - 80	Bottom Girt	L 1.5 x 1.5 x 3/16	271	-1.72	7.19	23.9	Pass
T7	80 - 60	Bottom Girt	L 1.5 x 1.5 x 3/16	332	-1.72	7.19	23.9	Pass
T8	60 - 40	Bottom Girt	L 1.5 x 1.5 x 3/16	393	-2.02	7.19	28.2	Pass
T9	40 - 20	Bottom Girt	L 1.5 x 1.5 x 3/16	453	-1.75	7.19	24.3	Pass
T10	20 - 0	Bottom Girt	L 1.5 x 1.5 x 3/16	512	0.87	17.09	5.1	Pass
T2	180 - 160	Guy A@160.375	5/8	577	15.39	25.44	60.5	Pass
		Guy A@170	5/8	606	16.11	25.44	63.3	Pass
T4	140 - 120	Guy A@120.375	9/16	595	9.98	21.00	47.5	Pass
T8	60 - 40	Guy A@59.625	9/16	603	9.37	21.00	44.6	Pass
T2	180 - 160	Guy B@160.375	5/8	572	15.01	25.44	59.0	Pass
		Guy B@170	5/8	605	15.85	25.44	62.3	Pass
T4	140 - 120	Guy B@120.375	9/16	590	10.29	21.00	49.0	Pass
T8	60 - 40	Guy B@59.625	9/16	602	9.79	21.00	46.6	Pass
T2	180 - 160	Guy C@160.375	5/8	566	16.83	25.44	66.2	Pass
		Guy C@170	5/8	604	17.40	25.44	68.4	Pass
T4	140 - 120	Guy C@120.375	9/16	583	11.73	21.00	55.9	Pass
T8	60 - 40	Guy C@59.625	9/16	601	10.61	21.00	50.5	Pass
T2	180 - 160	Top Guy Pull-Off@160.375	L 2 x 2 x 5/16	41	11.28	28.60	39.4 49.5 (b)	Pass
		Top Guy Pull-Off@170	L 1.5 x 1.5 x 3/16	60	5.02	17.09	29.4	Pass
T4	140 - 120	Top Guy Pull-Off@120.375	L 2 x 2 x 5/16	162	-7.53	21.94	34.3	Pass
T8	60 - 40	Top Guy Pull-Off@59.625	L 1.5 x 1.5 x 3/16	388	-1.17	6.70	17.5	Pass
T2	180 - 160	Torque Arm Top@160.375	L 3 x 3 x 1/4	567	16.39	39.76	41.2 73.5 (b)	Pass
T4	140 - 120	Torque Arm Top@120.375	L 3 x 3 x 1/4	585	10.06	39.76	25.3 45.1 (b)	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T2	180 - 160	Torque Arm Bottom@160.375	L 3 x 3 x 1/4	575	-13.93	36.39	38.3 38.9 (b)	Pass
T4	140 - 120	Torque Arm Bottom@120.375	L 3 x 3 x 1/4	593	-8.80	36.39	24.2 24.6 (b)	Pass
							Summary	
							Leg (T3)	88.9 Pass
							Diagonal (T1)	78.4 Pass
							Horizontal (T1)	88.0 Pass
							Top Girt (T1)	59.0 Pass
							Bottom Girt (T1)	64.6 Pass
							Guy A (T2)	63.3 Pass
							Guy B (T2)	62.3 Pass
							Guy C (T2)	68.4 Pass
							Top Guy Pull-Off (T2)	49.5 Pass
							Torque Arm Top (T2)	73.5 Pass
							Torque Arm Bottom (T2)	38.9 Pass
							Bolt Checks	73.5 Pass
							Rating =	88.9 Pass

Table 5 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Base Foundation (Structure)	-	12.7	Pass
1	Base Foundation (Soil Interaction)	-	77.0	Pass
1	Guy Anchor Shaft	-	88.2	Pass
1	Guy Anchor Foundation Structural	-	48.1	Pass
1	Guy Anchor Foundation Soil Interaction	-	97.7	Pass

Structure Rating (max from all components) =	97.7%
---	--------------

Notes:

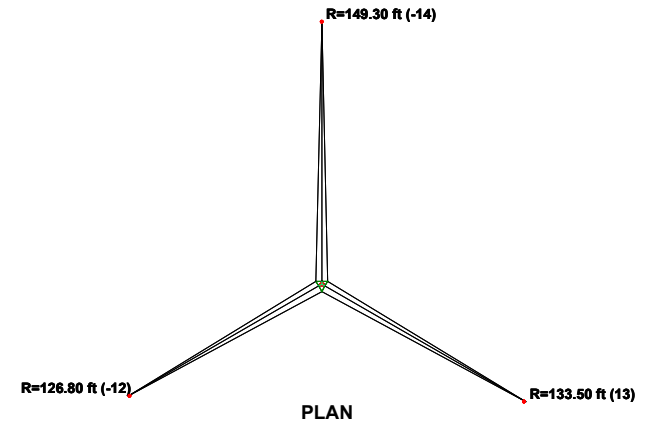
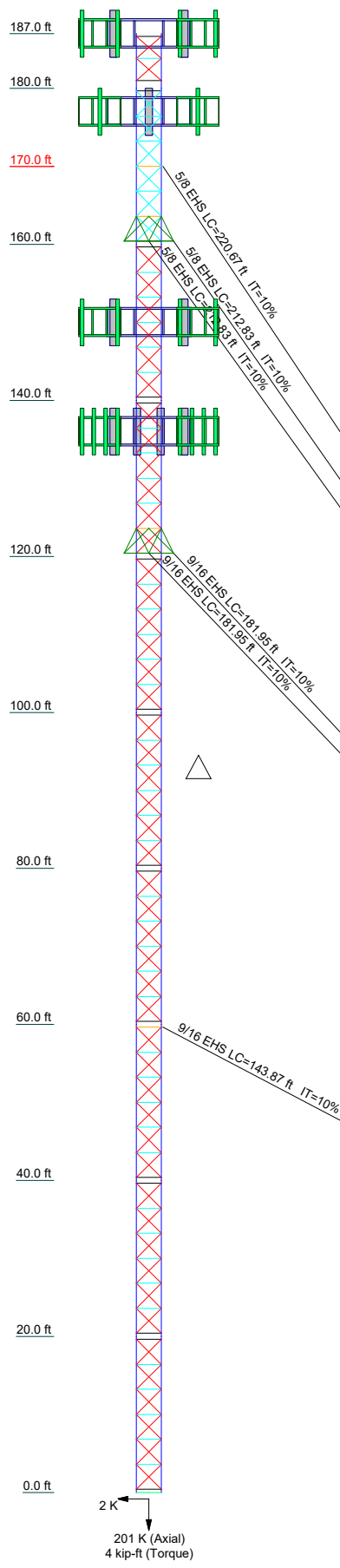
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

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

APPENDIX A
TNXTOWER OUTPUT

Section	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	P2.875"x0.203" (2.5 STD)									
Leg Grade	A500M-60									
Diagonals	SR 5/8									
Diagonal Grade	A36									
Top Girts	L 1.5 x 1.5 x 3/16									
Bottom Girts	L 1.5 x 1.5 x 3/16									
Horizontalis	N.A.									
Top Guy Pull-Offs	L 1.5 x 1.5 x 3/16									
Face Width (ft)	N.A.									
# Panels @ (ft)	55 @ 3.20833									
Weight (K)	7.6	0.7	0.7	0.7	0.7	0.7	1.0	0.7	1.5	0.2



SYMBOL LIST

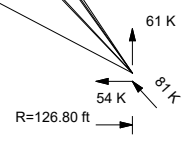
MARK	SIZE	MARK	SIZE
A	A500M-54	B	2 @ 2.84896

MATERIAL STRENGTH


GRADE	Fy	Fu	GRADE	Fy	Fu
A500M-54	54 ksi	70 ksi	A500M-60	60 ksi	75 ksi
A36	36 ksi	58 ksi			

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 105 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 88.9%



ALL REACTIONS ARE FACTORED

Paul J. Ford and Company

 250 East Broad St., Suite 600
 Columbus, OH 43215
 Phone: 614-221-6679
 FAX:

Job: **187-ft GT; Bozrah Polly Lane, CT**
 Project: **13321-0017.002.8700**
 Client: Everest Infrastructure Partners
 Code: TIA-222-G
 Path:
 Drawn by: Anna Trudo
 Date: 08/10/22
 App'd:
 Scale: NTS
 Dwg No. E-1

Tower Input Data

The main tower is a 3x guyed tower with an overall height of 187.00 ft above the ground line.
 The base of the tower is set at an elevation of 0.00 ft above the ground line.
 The face width of the tower is 3.50 ft at the top and 3.50 ft at the base.
 This tower is designed using the TIA-222-G standard.

The following design criteria apply:

- Tower is located in New London County, Connecticut.
- ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
- Basic wind speed of 105 mph.
- Structure Class II.
- Exposure Category B.
- Topographic Category 1.
- Crest Height 0.00 ft.
- Nominal ice thickness of 0.7500 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- Tension only take-up is 0.0313 in.
- Pressures are calculated at each section.
- Stress ratio used in tower member design is 1.
- Safety factor used in guy design is 1.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

- | | | |
|--|---|---|
| Consider Moments - Legs
Consider Moments - Horizontals
Consider Moments - Diagonals
Use Moment Magnification
✓ Use Code Stress Ratios
✓ Use Code Safety Factors - Guys
Escalate Ice
Always Use Max Kz
Use Special Wind Profile

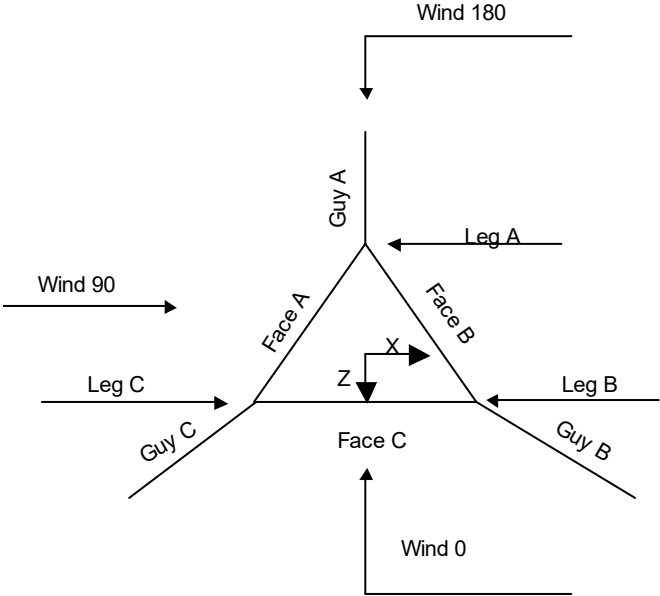
✓ Include Bolts In Member Capacity

Leg Bolts Are At Top Of Section
✓ Secondary Horizontal Braces Leg
Use Diamond Inner Bracing (4 Sided)
SR Members Have Cut Ends
SR Members Are Concentric | Distribute Leg Loads As Uniform
Assume Legs Pinned
✓ Assume Rigid Index Plate
✓ Use Clear Spans For Wind Area
✓ Use Clear Spans For KL/r
✓ Retension Guys To Initial Tension
✓ Bypass Mast Stability Checks
✓ Use Azimuth Dish Coefficients
✓ Project Wind Area of Appurt.

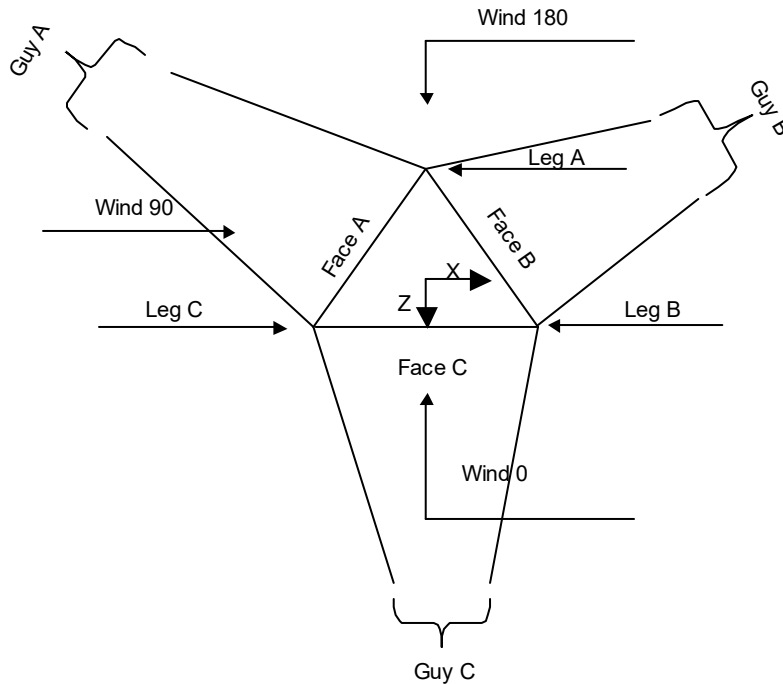
✓ Autocalc Torque Arm Areas

Add IBC .6D+W Combination
✓ Sort Capacity Reports By Component
✓ Triangulate Diamond Inner Bracing
Treat Feed Line Bundles As Cylinder
Ignore KL/ry For 60 Deg. Angle Legs | Use ASCE 10 X-Brace Ly Rules
✓ Calculate Redundant Bracing Forces
Ignore Redundant Members in FEA
SR Leg Bolts Resist Compression
All Leg Panels Have Same Allowable
Offset Girt At Foundation
✓ Consider Feed Line Torque
✓ Include Angle Block Shear Check
Use TIA-222-G Bracing Resist.
Exemption
Use TIA-222-G Tension Splice
Exemption

<div style="background-color: #e0e0e0; text-align: center; padding: 2px;">Poles</div> Include Shear-Torsion Interaction
Always Use Sub-Critical Flow
Use Top Mounted Sockets
Pole Without Linear Attachments
Pole With Shroud Or No
Appurtenances
Outside and Inside Corner Radii Are
Known |
|--|---|---|



Corner & Starmount Guyed Tower



Face Guyed

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	187.00-180.00			3.50	1	7.00
T2	180.00-160.00			3.50	1	20.00
T3	160.00-140.00			3.50	1	20.00
T4	140.00-120.00			3.50	1	20.00
T5-T6	120.00-80.00			3.50	2	20.00
T7	80.00-60.00			3.50	1	20.00
T8-T10	60.00-0.00			3.50	3	20.00

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	187.00-180.00	2.85	TX Brace	No	Yes	3.7500	11.8750
T2	180.00-160.00	3.21	X Brace	No	Yes	4.5000	4.5000
T3	160.00-140.00	3.21	TX Brace	No	Yes	4.5000	4.5000
T4	140.00-120.00	3.21	TX Brace	No	Yes	4.5000	4.5000
T5-T6	120.00-80.00	3.21	TX Brace	No	Yes	4.5000	4.5000
T7	80.00-60.00	3.21	TX Brace	No	Yes	4.5000	4.5000

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T8-T10	60.00-0.00	3.21	TX Brace	No	Yes	4.5000	4.5000

Tower Section Geometry (cont'd)

Tower Elevation	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 187.00-180.00	Pipe	P2.875"x0.203" (2.5 STD)	A500M-54 (54 ksi)	Solid Round	5/8	A36 (36 ksi)
T2 180.00-160.00	Pipe	P2.875"x0.203" (2.5 STD)	A500M-60 (60 ksi)	Channel	C3x4.1	A36 (36 ksi)
T3 160.00-140.00	Pipe	P2.875"x0.203" (2.5 STD)	A500M-60 (60 ksi)	Solid Round	5/8	A36 (36 ksi)
T4 140.00-120.00	Pipe	P2.875"x0.203" (2.5 STD)	A500M-60 (60 ksi)	Solid Round	5/8	A36 (36 ksi)
T5-T6 120.00-80.00	Pipe	P2.875"x0.203" (2.5 STD)	A500M-60 (60 ksi)	Solid Round	5/8	A36 (36 ksi)
T7 80.00-60.00	Pipe	P2.875"x0.203" (2.5 STD)	A500M-60 (60 ksi)	Solid Round	5/8	A36 (36 ksi)
T8-T10 60.00-0.00	Pipe	P2.875"x0.203" (2.5 STD)	A500M-60 (60 ksi)	Solid Round	5/8	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 187.00-180.00	Equal Angle	L 1.5 x 1.5 x 3/16	A36 (36 ksi)	Equal Angle	L 1.5 x 1.5 x 3/16	A36 (36 ksi)
T2 180.00-160.00	Equal Angle	L 1.5 x 1.5 x 3/16	A36 (36 ksi)	Equal Angle	L 1.5 x 1.5 x 3/16	A36 (36 ksi)
T3 160.00-140.00	Equal Angle	L 1.5 x 1.5 x 3/16	A36 (36 ksi)	Equal Angle	L 1.5 x 1.5 x 3/16	A36 (36 ksi)
T4 140.00-120.00	Equal Angle	L 1.5 x 1.5 x 3/16	A36 (36 ksi)	Equal Angle	L 1.5 x 1.5 x 3/16	A36 (36 ksi)
T5-T6 120.00-80.00	Equal Angle	L 1.5 x 1.5 x 3/16	A36 (36 ksi)	Equal Angle	L 1.5 x 1.5 x 3/16	A36 (36 ksi)
T7 80.00-60.00	Equal Angle	L 1.5 x 1.5 x 3/16	A36 (36 ksi)	Equal Angle	L 1.5 x 1.5 x 3/16	A36 (36 ksi)
T8-T10 60.00-0.00	Equal Angle	L 1.5 x 1.5 x 3/16	A36 (36 ksi)	Equal Angle	L 1.5 x 1.5 x 3/16	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 187.00-180.00	None	Flat Bar		A36 (36 ksi)	Equal Angle	L 1.5 x 1.5 x 3/16	A36 (36 ksi)
T2 180.00-160.00	None	Flat Bar		A36 (36 ksi)	Equal Angle	L 1.5 x 1.5 x 3/16	A36 (36 ksi)
T3 160.00-140.00	None	Flat Bar		A36 (36 ksi)	Equal Angle	L 1.5 x 1.5 x 3/16	A36 (36 ksi)
T4 140.00-120.00	None	Flat Bar		A36 (36 ksi)	Equal Angle	L 1.5 x 1.5 x 3/16	A36 (36 ksi)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T5-T6 120.00-80.00	None	Flat Bar		A36 (36 ksi)	Equal Angle	L 1.5 x 1.5 x 3/16	A36 (36 ksi)
T7 80.00-60.00	None	Flat Bar		A36 (36 ksi)	Equal Angle	L 1.5 x 1.5 x 3/16	A36 (36 ksi)
T8-T10 60.00-0.00	None	Flat Bar		A36 (36 ksi)	Equal Angle	L 1.5 x 1.5 x 3/16	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontal in	Double Angle Stitch Bolt Spacing Redundants in
T1 187.00-180.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T2 180.00-160.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T3 160.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T4 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T5-T6 120.00-80.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T7 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000
T8-T10 60.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1.05	36.0000	36.0000	36.0000

Tower Section Geometry (cont'd)

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors ¹						
				X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 187.00-180.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 180.00-160.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 160.00-140.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 140.00-120.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5-T6 120.00-80.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T7 80.00-60.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T8-T10 60.00-0.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

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

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 187.00-180.00	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 180.00-160.00	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 160.00-140.00	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 140.00-120.00	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5-T6 120.00-80.00	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 80.00-60.00	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8-T10 60.00-0.00	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 187.00-180.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 180.00-160.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 160.00-140.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 140.00-120.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5-T6 120.00-80.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 80.00-60.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8-T10 60.00-0.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 187.00-180.00	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T2 180.00-160.00	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T3 160.00-140.00	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T4 140.00-120.00	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T5-T6 120.00-80.00	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T7 80.00-60.00	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T8-T10 60.00-0.00	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	

Guy Data

Guy Elevation ft	Guy Grade	Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L _u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %	
160.375	EHS	A	5/8	4.24	10%	23000	0.813	228.10	149.30	0.0000	-14.00	100%
		B	5/8	4.24	10%	23000	0.813	197.38	133.50	0.0000	13.00	100%
		C	5/8	4.24	10%	23000	0.813	212.66	126.80	0.0000	-12.00	100%
120.375	EHS	A	9/16	3.50	10%	23000	0.671	199.25	149.30	0.0000	-14.00	100%
		B	9/16	3.50	10%	23000	0.671	169.66	133.50	0.0000	13.00	100%
		C	9/16	3.50	10%	23000	0.671	181.81	126.80	0.0000	-12.00	100%
59.625	EHS	A	9/16	3.50	10%	23000	0.671	164.53	149.30	0.0000	-14.00	100%
		B	9/16	3.50	10%	23000	0.671	139.40	133.50	0.0000	13.00	100%
		C	9/16	3.50	10%	23000	0.671	143.76	126.80	0.0000	-12.00	100%
170	EHS	A	5/8	4.24	10%	23000	0.813	235.50	149.30	0.0000	-14.00	100%
		B	5/8	4.24	10%	23000	0.813	204.63	133.50	0.0000	13.00	100%
		C	5/8	4.24	10%	23000	0.813	220.50	126.80	0.0000	-12.00	100%

Guy Data(cont'd)

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
160.375	Torque Arm	7.00	30.0000	Dog Ear	A36 (36 ksi)	Single Angle	L 3 x 3 x 1/4
120.375	Torque Arm	7.00	30.0000	Dog Ear	A36 (36 ksi)	Single Angle	L 3 x 3 x 1/4
59.625 170	Corner Corner						

Guy Data (cont'd)

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
160.38	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Equal Angle	L 2 x 2 x 5/16

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
120.38	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Equal Angle	L 2 x 2 x 5/16
59.63	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Equal Angle	L 1.5 x 1.5 x 3/16
170.00	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Equal Angle	L 1.5 x 1.5 x 3/16

Guy Data (cont'd)

Guy Elevation ft	Cable Weight		Cable Weight		Tower Intercept		Tower Intercept		Tower Intercept	
	A	B	C	D	A	B	C	D		
	K	K	K	K	ft	ft	ft	ft		
160.375	0.19	0.16	0.17		4.91	3.69	4.27			
					3.8	3.3	3.6 sec/pulse			
					sec/pulse	sec/pulse				
120.375	0.13	0.11	0.12		3.76	2.73	3.13			
					3.3	2.9	3.1 sec/pulse			
					sec/pulse	sec/pulse				
59.625	0.11	0.09	0.10		2.58	1.86	1.97			
					2.8	2.4	2.4 sec/pulse			
					sec/pulse	sec/pulse				
170	0.19	0.17	0.18		5.23	3.96	4.59			
					3.9	3.4	3.7 sec/pulse			
					sec/pulse	sec/pulse				

Guy Data (cont'd)

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm		Pull Off		Diagonal	
			K _x	K _y	K _x	K _y	K _x	K _y
160.375	No	No	1	1	1	1	1	1
120.375	No	No	1	1	1	1	1	1
59.625	No	No			1	1	1	1
170	No	No			1	1	1	1

Guy Data (cont'd)

Guy Elevation ft	Torque-Arm				Pull Off				Diagonal			
	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U
160.375	0.7500	2	0.0000	0.75	0.7500	2	0.0000	0.75	0.6250	0	0.0000	0.75
	A325N				A325N				A325N			
120.375	0.7500	2	0.0000	0.75	0.7500	2	0.0000	0.75	0.6250	0	0.0000	0.75
	A325N				A325N				A325N			
59.625	0.6250	0	0.0000	0.75	0.6250	0	0.0000	0.75	0.6250	0	0.0000	0.75
	A325N				A325N				A325N			
170	0.6250	0	0.0000	0.75	0.6250	0	0.0000	0.75	0.6250	0	0.0000	0.75
	A325N				A325N				A325N			

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q _z psf	q _z Ice psf	Ice Thickness in
160.375	A	73.19	22	5	1.6244
	B	86.69	23	5	1.6521
	C	74.19	22	5	1.6266
120.375	A	53.19	20	4	1.5733
	B	66.69	21	5	1.6093
	C	54.19	20	5	1.5763
59.625	A	22.81	17	4	1.4456
	B	36.31	18	4	1.5144
	C	23.81	17	4	1.4518
170	A	78.00	22	5	1.6347
	B	91.50	23	5	1.6610
	C	79.00	22	5	1.6368

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow or Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
FDH1206-24S50-xxM(1 5/8) (T-Mobile) *****	A	No	No	Ar (CaAa)	177.00 - 0.00	0.0000	0.1	3	3	1.4300	1.4300		1.63
FXL-1480(1-1/4) (Sprint)	B	No	No	Ar (CaAa)	150.00 - 0.00	0.0000	0.25	4	4	1.0000 1.5700	1.5700		0.45
AVA7-50(1-5/8) (AT&T)	B	No	No	Ar (CaAa)	187.00 - 0.00	0.0000	0.25	12	4	1.0000 2.0100	2.0100		0.70
AVA7-50(1-5/8) (Verizon/+2P)	A	No	No	Ar (CaAa)	136.00 - 0.00	0.0000	0.3	12	8	1.0000 2.0100	2.0100		0.70
.66" Fiber (AT&T)	B	No	No	Ar (CaAa)	187.00 - 0.00	0.0000	0.25	2	2	0.6600	0.6600		0.40
FDH1206-24S50-xxM(1-3/8) (AT&T)	B	No	No	Ar (CaAa)	187.00 - 0.00	0.0000	0.25	1	1	1.4300	1.4300		1.63
3" Conduit (2 1/2" EMT) (AT&T) *****	B	No	No	Ar (CaAa)	187.00 - 0.00	0.0000	0.25	1	1	2.8750	2.8750		2.16
Safety Line 3/8 *****	C	No	No	Ar (CaAa)	187.00 - 0.00	0.5000	0	1	1	0.3750	0.3750		0.22
AVA7-50(1-5/8) (DISH) *****	C	No	No	Ar (CaAa)	127.00 - 0.00	0.0000	0.4	1	1	1.0000 2.0100	2.0100		0.70

Feed Line/Linear Appurtenances - Entered As Area

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

Feed Line/Linear Appurtenances Section Areas

Tower Sectio n	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
T1	187.00-180.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	20.822	0.000	0.09
		C	0.000	0.000	0.263	0.000	0.00
T2	180.00-160.00	A	0.000	0.000	7.293	0.000	0.08
		B	0.000	0.000	59.490	0.000	0.26
		C	0.000	0.000	0.750	0.000	0.00
T3	160.00-140.00	A	0.000	0.000	8.580	0.000	0.10
		B	0.000	0.000	65.770	0.000	0.28
		C	0.000	0.000	0.750	0.000	0.00
T4	140.00-120.00	A	0.000	0.000	47.172	0.000	0.23
		B	0.000	0.000	72.050	0.000	0.30
		C	0.000	0.000	2.157	0.000	0.01
T5	120.00-100.00	A	0.000	0.000	56.820	0.000	0.27
		B	0.000	0.000	72.050	0.000	0.30
		C	0.000	0.000	4.770	0.000	0.02
T6	100.00-80.00	A	0.000	0.000	56.820	0.000	0.27
		B	0.000	0.000	72.050	0.000	0.30
		C	0.000	0.000	4.770	0.000	0.02
T7	80.00-60.00	A	0.000	0.000	56.820	0.000	0.27
		B	0.000	0.000	72.050	0.000	0.30
		C	0.000	0.000	4.770	0.000	0.02
T8	60.00-40.00	A	0.000	0.000	56.820	0.000	0.27
		B	0.000	0.000	72.050	0.000	0.30
		C	0.000	0.000	4.770	0.000	0.02
T9	40.00-20.00	A	0.000	0.000	56.820	0.000	0.27
		B	0.000	0.000	72.050	0.000	0.30
		C	0.000	0.000	4.770	0.000	0.02
T10	20.00-0.00	A	0.000	0.000	56.820	0.000	0.27
		B	0.000	0.000	72.050	0.000	0.30
		C	0.000	0.000	4.770	0.000	0.02

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Sectio n	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
T1	187.00-180.00	A	1.781	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	31.562	0.000	0.68
		C		0.000	0.000	2.756	0.000	0.03
T2	180.00-160.00	A	1.767	0.000	0.000	25.035	0.000	0.37
		B		0.000	0.000	89.877	0.000	1.94
		C		0.000	0.000	7.819	0.000	0.10
T3	160.00-140.00	A	1.745	0.000	0.000	29.308	0.000	0.43
		B		0.000	0.000	106.563	0.000	2.14
		C		0.000	0.000	7.731	0.000	0.09
T4	140.00-120.00	A	1.720	0.000	0.000	85.465	0.000	1.61
		B		0.000	0.000	123.025	0.000	2.33
		C		0.000	0.000	11.447	0.000	0.15
T5	120.00-100.00	A	1.692	0.000	0.000	99.175	0.000	1.88
		B		0.000	0.000	122.211	0.000	2.30
		C		0.000	0.000	18.305	0.000	0.26
T6	100.00-80.00	A	1.658	0.000	0.000	98.738	0.000	1.86
		B		0.000	0.000	121.252	0.000	2.26
		C		0.000	0.000	18.036	0.000	0.25
T7	80.00-60.00	A	1.617	0.000	0.000	98.203	0.000	1.83
		B		0.000	0.000	120.078	0.000	2.22
		C		0.000	0.000	17.707	0.000	0.24
T8	60.00-40.00	A	1.564	0.000	0.000	97.509	0.000	1.79
		B		0.000	0.000	118.552	0.000	2.17

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
T9	40.00-20.00	C	1.486	0.000	0.000	17.279	0.000	0.23
		A		0.000	0.000	96.500	0.000	1.74
		B		0.000	0.000	116.333	0.000	2.09
T10	20.00-0.00	C	1.331	0.000	0.000	16.656	0.000	0.21
		A		0.000	0.000	94.505	0.000	1.63
		B		0.000	0.000	111.935	0.000	1.94
		C		0.000	0.000	15.420	0.000	0.18

Feed Line Center of Pressure

Section	Elevation ft	CP _X in	CP _Z in	CP _X Ice in	CP _Z Ice in
T1	187.00-180.00	8.5230	0.6394	4.8703	0.8223
T2	180.00-160.00	5.2089	-0.1801	2.4694	0.0317
T3	160.00-140.00	7.7083	-0.1856	4.6075	0.0504
T4	140.00-120.00	5.1917	-4.8222	3.6848	-2.1138
T5	120.00-100.00	4.2669	-5.3716	3.0577	-2.3681
T6	100.00-80.00	4.2669	-5.3716	3.0980	-2.4154
T7	80.00-60.00	4.2669	-5.3716	3.1465	-2.4737
T8	60.00-40.00	4.2669	-5.3716	3.2084	-2.5500
T9	40.00-20.00	4.2669	-5.3716	3.2960	-2.6624
T10	20.00-0.00	4.2669	-5.3716	3.4617	-2.8905

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T1	5	AVA7-50(1-5/8)	180.00 - 187.00	0.6000	0.3806
T1	7	.66" Fiber	180.00 - 187.00	0.6000	0.3806
T1	8	FDH1206-24S50-xxM(1-3/8)	180.00 - 187.00	0.6000	0.3806
T1	9	3" Conduit (2 1/2" EMT)	180.00 - 187.00	0.6000	0.3806
T1	11	Safety Line 3/8	180.00 - 187.00	0.6000	0.3806
T2	2	FDH1206-24S50-xxM(1-5/8)	160.00 - 177.00	0.6000	0.2566
T2	5	AVA7-50(1-5/8)	160.00 - 180.00	0.6000	0.2566
T2	7	.66" Fiber	160.00 - 180.00	0.6000	0.2566
T2	8	FDH1206-24S50-xxM(1-3/8)	160.00 - 180.00	0.6000	0.2566
T2	9	3" Conduit (2 1/2" EMT)	160.00 - 180.00	0.6000	0.2566
T2	11	Safety Line 3/8	160.00 - 180.00	0.6000	0.2566
T3	2	FDH1206-24S50-xxM(1-5/8)	140.00 - 160.00	0.6000	0.3932
T3	4	FXL-1480(1-1/4)	140.00 - 150.00	0.6000	0.3932
T3	5	AVA7-50(1-5/8)	140.00 - 160.00	0.6000	0.3932
T3	7	.66" Fiber	140.00 - 160.00	0.6000	0.3932

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T3	8	FDH1206-24S50-xxM(1-3/8)	140.00 - 160.00	0.6000	0.3932
T3	9	3" Conduit (2 1/2" EMT)	140.00 - 160.00	0.6000	0.3932
T3	11	Safety Line 3/8	140.00 - 160.00	0.6000	0.3932
T4	2	FDH1206-24S50-xxM(1-5/8)	120.00 - 140.00	0.6000	0.3969
T4	4	FXL-1480(1-1/4)	120.00 - 140.00	0.6000	0.3969
T4	5	AVA7-50(1-5/8)	120.00 - 140.00	0.6000	0.3969
T4	6	AVA7-50(1-5/8)	120.00 - 136.00	0.6000	0.3969
T4	7	.66" Fiber	120.00 - 140.00	0.6000	0.3969
T4	8	FDH1206-24S50-xxM(1-3/8)	120.00 - 140.00	0.6000	0.3969
T4	9	3" Conduit (2 1/2" EMT)	120.00 - 140.00	0.6000	0.3969
T4	11	Safety Line 3/8	120.00 - 140.00	0.6000	0.3969
T4	13	AVA7-50(1-5/8)	120.00 - 127.00	0.6000	0.3969
T5	2	FDH1206-24S50-xxM(1-5/8)	100.00 - 120.00	0.6000	0.4047
T5	4	FXL-1480(1-1/4)	100.00 - 120.00	0.6000	0.4047
T5	5	AVA7-50(1-5/8)	100.00 - 120.00	0.6000	0.4047
T5	6	AVA7-50(1-5/8)	100.00 - 120.00	0.6000	0.4047
T5	7	.66" Fiber	100.00 - 120.00	0.6000	0.4047
T5	8	FDH1206-24S50-xxM(1-3/8)	100.00 - 120.00	0.6000	0.4047
T5	9	3" Conduit (2 1/2" EMT)	100.00 - 120.00	0.6000	0.4047
T5	11	Safety Line 3/8	100.00 - 120.00	0.6000	0.4047
T5	13	AVA7-50(1-5/8)	100.00 - 120.00	0.6000	0.4047
T6	2	FDH1206-24S50-xxM(1-5/8)	80.00 - 100.00	0.6000	0.4119
T6	4	FXL-1480(1-1/4)	80.00 - 100.00	0.6000	0.4119
T6	5	AVA7-50(1-5/8)	80.00 - 100.00	0.6000	0.4119
T6	6	AVA7-50(1-5/8)	80.00 - 100.00	0.6000	0.4119
T6	7	.66" Fiber	80.00 - 100.00	0.6000	0.4119
T6	8	FDH1206-24S50-xxM(1-3/8)	80.00 - 100.00	0.6000	0.4119
T6	9	3" Conduit (2 1/2" EMT)	80.00 - 100.00	0.6000	0.4119
T6	11	Safety Line 3/8	80.00 - 100.00	0.6000	0.4119
T6	13	AVA7-50(1-5/8)	80.00 - 100.00	0.6000	0.4119
T7	2	FDH1206-24S50-xxM(1-5/8)	60.00 - 80.00	0.6000	0.4208
T7	4	FXL-1480(1-1/4)	60.00 - 80.00	0.6000	0.4208
T7	5	AVA7-50(1-5/8)	60.00 - 80.00	0.6000	0.4208
T7	6	AVA7-50(1-5/8)	60.00 - 80.00	0.6000	0.4208

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T7	7	.66" Fiber	60.00 - 80.00	0.6000	0.4208
T7	8	FDH1206-24S50-xxM(1-3/8)	60.00 - 80.00	0.6000	0.4208
T7	9	3" Conduit (2 1/2" EMT)	60.00 - 80.00	0.6000	0.4208
T7	11	Safety Line 3/8	60.00 - 80.00	0.6000	0.4208
T7	13	AVA7-50(1-5/8)	60.00 - 80.00	0.6000	0.4208
T8	2	FDH1206-24S50-xxM(1-5/8)	40.00 - 60.00	0.6000	0.4325
T8	4	FXL-1480(1-1/4)	40.00 - 60.00	0.6000	0.4325
T8	5	AVA7-50(1-5/8)	40.00 - 60.00	0.6000	0.4325
T8	6	AVA7-50(1-5/8)	40.00 - 60.00	0.6000	0.4325
T8	7	.66" Fiber	40.00 - 60.00	0.6000	0.4325
T8	8	FDH1206-24S50-xxM(1-3/8)	40.00 - 60.00	0.6000	0.4325
T8	9	3" Conduit (2 1/2" EMT)	40.00 - 60.00	0.6000	0.4325
T8	11	Safety Line 3/8	40.00 - 60.00	0.6000	0.4325
T8	13	AVA7-50(1-5/8)	40.00 - 60.00	0.6000	0.4325
T9	2	FDH1206-24S50-xxM(1-5/8)	20.00 - 40.00	0.6000	0.4495
T9	4	FXL-1480(1-1/4)	20.00 - 40.00	0.6000	0.4495
T9	5	AVA7-50(1-5/8)	20.00 - 40.00	0.6000	0.4495
T9	6	AVA7-50(1-5/8)	20.00 - 40.00	0.6000	0.4495
T9	7	.66" Fiber	20.00 - 40.00	0.6000	0.4495
T9	8	FDH1206-24S50-xxM(1-3/8)	20.00 - 40.00	0.6000	0.4495
T9	9	3" Conduit (2 1/2" EMT)	20.00 - 40.00	0.6000	0.4495
T9	11	Safety Line 3/8	20.00 - 40.00	0.6000	0.4495
T9	13	AVA7-50(1-5/8)	20.00 - 40.00	0.6000	0.4495
T10	2	FDH1206-24S50-xxM(1-5/8)	0.00 - 20.00	0.6000	0.4836
T10	4	FXL-1480(1-1/4)	0.00 - 20.00	0.6000	0.4836
T10	5	AVA7-50(1-5/8)	0.00 - 20.00	0.6000	0.4836
T10	6	AVA7-50(1-5/8)	0.00 - 20.00	0.6000	0.4836
T10	7	.66" Fiber	0.00 - 20.00	0.6000	0.4836
T10	8	FDH1206-24S50-xxM(1-3/8)	0.00 - 20.00	0.6000	0.4836
T10	9	3" Conduit (2 1/2" EMT)	0.00 - 20.00	0.6000	0.4836
T10	11	Safety Line 3/8	0.00 - 20.00	0.6000	0.4836
T10	13	AVA7-50(1-5/8)	0.00 - 20.00	0.6000	0.4836

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
187									
(2) DMP65R-BU8D_TIA w/ Mount Pipe (P - AT&T)	A	From Leg	4.00	0.0000	187.00	No Ice	18.11	10.26	0.14
			0.00			1/2"	18.84	11.78	0.26
			0.00			Ice	19.59	13.33	0.39
						1" Ice			
(2) DMP65R-BU8D_TIA w/ Mount Pipe (P - AT&T)	B	From Leg	4.00	0.0000	187.00	No Ice	18.11	10.26	0.14
			0.00			1/2"	18.84	11.78	0.26
			0.00			Ice	19.59	13.33	0.39
						1" Ice			
(2) DMP65R-BU8D_TIA w/ Mount Pipe (P - AT&T)	C	From Leg	4.00	0.0000	187.00	No Ice	18.11	10.26	0.14
			0.00			1/2"	18.84	11.78	0.26
			0.00			Ice	19.59	13.33	0.39
						1" Ice			
RRUS 4449 B5/B12 (P - AT&T)	A	From Leg	4.00	0.0000	187.00	No Ice	1.97	1.41	0.07
			0.00			1/2"	2.14	1.56	0.09
			0.00			Ice	2.33	1.73	0.11
						1" Ice			
RRUS 4449 B5/B12 (P - AT&T)	B	From Leg	4.00	0.0000	187.00	No Ice	1.97	1.41	0.07
			0.00			1/2"	2.14	1.56	0.09
			0.00			Ice	2.33	1.73	0.11
						1" Ice			
RRUS 4449 B5/B12 (P - AT&T)	C	From Leg	4.00	0.0000	187.00	No Ice	1.97	1.41	0.07
			0.00			1/2"	2.14	1.56	0.09
			0.00			Ice	2.33	1.73	0.11
						1" Ice			
RRUS 8843 B2/B66A (P - AT&T)	A	From Leg	4.00	0.0000	187.00	No Ice	1.64	1.35	0.07
			0.00			1/2"	1.80	1.50	0.09
			0.00			Ice	1.97	1.65	0.11
						1" Ice			
RRUS 8843 B2/B66A (P - AT&T)	B	From Leg	4.00	0.0000	187.00	No Ice	1.64	1.35	0.07
			0.00			1/2"	1.80	1.50	0.09
			0.00			Ice	1.97	1.65	0.11
						1" Ice			
RRUS 8843 B2/B66A (P - AT&T)	C	From Leg	4.00	0.0000	187.00	No Ice	1.64	1.35	0.07
			0.00			1/2"	1.80	1.50	0.09
			0.00			Ice	1.97	1.65	0.11
						1" Ice			
RRUS 4478 B14 (P - AT&T)	A	From Leg	4.00	0.0000	187.00	No Ice	2.02	1.25	0.06
			0.00			1/2"	2.20	1.40	0.08
			0.00			Ice	2.39	1.55	0.10
						1" Ice			
RRUS 4478 B14 (P - AT&T)	B	From Leg	4.00	0.0000	187.00	No Ice	2.02	1.25	0.06
			0.00			1/2"	2.20	1.40	0.08
			0.00			Ice	2.39	1.55	0.10
						1" Ice			
RRUS 4478 B14 (P - AT&T)	C	From Leg	4.00	0.0000	187.00	No Ice	2.02	1.25	0.06
			0.00			1/2"	2.20	1.40	0.08
			0.00			Ice	2.39	1.55	0.10
						1" Ice			
7770_TIA w/ Mount Pipe (E - AT&T)	A	From Leg	4.00	0.0000	187.00	No Ice	5.75	4.25	0.06
			0.00			1/2"	6.18	5.01	0.10
			0.00			Ice	6.61	5.71	0.16
						1" Ice			
7770_TIA w/ Mount Pipe (E - AT&T)	B	From Leg	4.00	0.0000	187.00	No Ice	5.75	4.25	0.06
			0.00			1/2"	6.18	5.01	0.10
			0.00			Ice	6.61	5.71	0.16
						1" Ice			
7770_TIA w/ Mount Pipe (E - AT&T)	C	From Leg	4.00	0.0000	187.00	No Ice	5.75	4.25	0.06
			0.00			1/2"	6.18	5.01	0.10
			0.00			Ice	6.61	5.71	0.16
						1" Ice			
(2) LGP 17201 (E - AT&T)	A	From Leg	4.00	0.0000	187.00	No Ice	1.67	0.47	0.03
			0.00			1/2"	1.83	0.57	0.04
			0.00			Ice	2.00	0.68	0.06
						1" Ice			

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral	Vert					
(2) LGP 17201 (E - AT&T)	B	From Leg	4.00	0.0000	187.00	No Ice	1.67	0.47	0.03	
			0.00			1/2"	1.83	0.57	0.04	
			0.00			Ice	2.00	0.68	0.06	
(2) LGP 17201 (E - AT&T)	C	From Leg	4.00	0.0000	187.00	No Ice	1.67	0.47	0.03	
			0.00			1/2"	1.83	0.57	0.04	
			0.00			Ice	2.00	0.68	0.06	
(2) DC6-48-60-18-8F (E - AT&T)	A	From Leg	4.00	0.0000	187.00	No Ice	1.21	1.21	0.03	
			0.00			1/2"	1.89	1.89	0.05	
			0.00			Ice	2.11	2.11	0.08	
Sector Mount [SM 801-3] (E - AT&T)	C	None		0.0000	187.00	No Ice	20.61	20.61	0.88	
						1/2"	29.42	29.42	1.28	
						Ice	38.23	38.23	1.82	
mount mods	A	From Leg	2.00	0.0000	187.00	No Ice	4.16	8.47	0.24	
			0.00			1/2"	5.29	10.84	0.27	
			0.00			Ice	6.42	13.22	0.29	
mount mods	B	From Leg	2.00	0.0000	187.00	No Ice	4.16	8.47	0.24	
			0.00			1/2"	5.29	10.84	0.27	
			0.00			Ice	6.42	13.22	0.29	
mount mods	C	From Leg	2.00	0.0000	187.00	No Ice	4.16	8.47	0.24	
			0.00			1/2"	5.29	10.84	0.27	
			0.00			Ice	6.42	13.22	0.29	
177					1" Ice					
APXVAALL24_43-U- NA20_TIA w/ Mount Pipe (TMO)	A	From Leg	4.00	0.0000	177.00	No Ice	20.48	10.87	0.18	
			0.00			1/2"	21.23	12.39	0.32	
			0.00			Ice	21.99	13.94	0.46	
APXVAALL24_43-U- NA20_TIA w/ Mount Pipe (TMO)	B	From Leg	4.00	0.0000	177.00	No Ice	20.48	10.87	0.18	
			0.00			1/2"	21.23	12.39	0.32	
			0.00			Ice	21.99	13.94	0.46	
APXVAALL24_43-U- NA20_TIA w/ Mount Pipe (TMO)	C	From Leg	4.00	0.0000	177.00	No Ice	20.48	10.87	0.18	
			0.00			1/2"	21.23	12.39	0.32	
			0.00			Ice	21.99	13.94	0.46	
RADIO 4449 B71 B85A_T- MOBILE (TMO)	A	From Leg	4.00	0.0000	177.00	No Ice	1.97	1.59	0.07	
			0.00			1/2"	2.15	1.75	0.09	
			0.00			Ice	2.33	1.92	0.12	
RADIO 4449 B71 B85A_T- MOBILE (TMO)	B	From Leg	4.00	0.0000	177.00	No Ice	1.97	1.59	0.07	
			0.00			1/2"	2.15	1.75	0.09	
			0.00			Ice	2.33	1.92	0.12	
RADIO 4449 B71 B85A_T- MOBILE (TMO)	C	From Leg	4.00	0.0000	177.00	No Ice	1.97	1.59	0.07	
			0.00			1/2"	2.15	1.75	0.09	
			0.00			Ice	2.33	1.92	0.12	
AIR 6419 B41_TMO_TIA w/ Mount Pipe (TMO - p)	A	From Leg	4.00	0.0000	177.00	No Ice	6.53	3.75	0.11	
			0.00			1/2"	6.92	4.24	0.17	
			0.00			Ice	7.31	4.75	0.23	
AIR 6419 B41_TMO_TIA w/ Mount Pipe (TMO - p)	B	From Leg	4.00	0.0000	177.00	No Ice	6.53	3.75	0.11	
			0.00			1/2"	6.92	4.24	0.17	
			0.00			Ice	7.31	4.75	0.23	
AIR 6419 B41_TMO_TIA w/ Mount Pipe (TMO - p)	C	From Leg	4.00	0.0000	177.00	No Ice	6.53	3.75	0.11	
			0.00			1/2"	6.92	4.24	0.17	
			0.00			Ice	7.31	4.75	0.23	
					1" Ice					

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
VV-65B-R1_TMO_TIA w/ Mount Pipe (TMO - p)	A	From Leg	4.00 0.00 0.00	0.0000	177.00	No Ice	8.15	5.43	0.07
						1/2"	8.70	6.56	0.13
						Ice	9.22	7.41	0.20
						1" Ice			
VV-65B-R1_TMO_TIA w/ Mount Pipe (TMO - p)	B	From Leg	4.00 0.00 0.00	0.0000	177.00	No Ice	8.15	5.43	0.07
						1/2"	8.70	6.56	0.13
						Ice	9.22	7.41	0.20
						1" Ice			
VV-65B-R1_TMO_TIA w/ Mount Pipe (TMO - p)	C	From Leg	4.00 0.00 0.00	0.0000	177.00	No Ice	8.15	5.43	0.07
						1/2"	8.70	6.56	0.13
						Ice	9.22	7.41	0.20
						1" Ice			
4460 B25/B66 (TMO - p)	A	From Leg	4.00 0.00 0.00	0.0000	177.00	No Ice	2.57	1.97	0.11
						1/2"	2.77	2.15	0.13
						Ice	2.98	2.34	0.16
						1" Ice			
4460 B25/B66 (TMO - p)	B	From Leg	4.00 0.00 0.00	0.0000	177.00	No Ice	2.57	1.97	0.11
						1/2"	2.77	2.15	0.13
						Ice	2.98	2.34	0.16
						1" Ice			
4460 B25/B66 (TMO - p)	C	From Leg	4.00 0.00 0.00	0.0000	177.00	No Ice	2.57	1.97	0.11
						1/2"	2.77	2.15	0.13
						Ice	2.98	2.34	0.16
						1" Ice			
8' x 2" Sch 40 Pipe Mount	A	From Leg	4.00 0.00 0.00	0.0000	177.00	No Ice	1.90	1.90	0.03
						1/2"	2.73	2.73	0.04
						Ice	3.40	3.40	0.06
						1" Ice			
8' x 2" Sch 40 Pipe Mount	B	From Leg	4.00 0.00 0.00	0.0000	177.00	No Ice	1.90	1.90	0.03
						1/2"	2.73	2.73	0.04
						Ice	3.40	3.40	0.06
						1" Ice			
8' x 2" Sch 40 Pipe Mount	C	From Leg	4.00 0.00 0.00	0.0000	177.00	No Ice	1.90	1.90	0.03
						1/2"	2.73	2.73	0.04
						Ice	3.40	3.40	0.06
						1" Ice			
Sector Mount [SM 1305-3] (TMO)	C	None		0.0000	177.00	No Ice	31.68	31.68	1.25
						1/2"	41.02	41.02	1.94
						Ice	50.37	50.37	2.79
						1" Ice			
173 ***150*** APXV9ERR18-C-A20_TIA w/ Mount Pipe (Sprint)	A	From Leg	4.00 0.00 0.00	0.0000	150.00	No Ice	8.26	7.47	0.10
1/2"						8.82	8.66	0.17	
Ice						9.35	9.56	0.24	
1" Ice									
APXV9ERR18-C-A20_TIA w/ Mount Pipe (Sprint)	B	From Leg	4.00 0.00 0.00	0.0000	150.00	No Ice	8.26	7.47	0.10
						1/2"	8.82	8.66	0.17
						Ice	9.35	9.56	0.24
						1" Ice			
APXV9ERR18-C-A20_TIA w/ Mount Pipe (Sprint)	C	From Leg	4.00 0.00 0.00	0.0000	150.00	No Ice	8.26	7.47	0.10
						1/2"	8.82	8.66	0.17
						Ice	9.35	9.56	0.24
						1" Ice			
DT465B-2XR w/ Mount Pipe (Sprint)	A	From Leg	4.00 0.00 0.00	0.0000	150.00	No Ice	5.50	4.38	0.09
						1/2"	5.97	4.84	0.16
						Ice	6.45	5.30	0.25
						1" Ice			
DT465B-2XR w/ Mount Pipe (Sprint)	B	From Leg	4.00 0.00 0.00	0.0000	150.00	No Ice	5.50	4.38	0.09
						1/2"	5.97	4.84	0.16
						Ice	6.45	5.30	0.25
						1" Ice			
DT465B-2XR w/ Mount Pipe (Sprint)	C	From Leg	4.00 0.00 0.00	0.0000	150.00	No Ice	5.50	4.38	0.09
						1/2"	5.97	4.84	0.16
						Ice	6.45	5.30	0.25
						1" Ice			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
1900 MHz 4x45W RRH (Sprint)	A	From Leg	4.00	0.0000	150.00	1" Ice			
			0.00			No Ice	2.32	2.24	0.06
			0.00			1/2"	2.53	2.44	0.08
1900 MHz 4x45W RRH (Sprint)	B	From Leg	4.00	0.0000	150.00	Ice	2.74	2.65	0.11
			0.00			1" Ice			
			0.00			No Ice	2.32	2.24	0.06
1900 MHz 4x45W RRH (Sprint)	C	From Leg	4.00	0.0000	150.00	1/2"	2.53	2.44	0.08
			0.00			Ice	2.74	2.65	0.11
			0.00			1" Ice			
RRH 8x20W + Solar Shield (Sprint)	A	From Leg	4.00	0.0000	150.00	No Ice	4.05	1.53	0.07
			0.00			1/2"	4.30	1.71	0.10
			0.00			Ice	4.56	1.90	0.13
RRH 8x20W + Solar Shield (Sprint)	B	From Leg	4.00	0.0000	150.00	1" Ice			
			0.00			No Ice	4.05	1.53	0.07
			0.00			1/2"	4.30	1.71	0.10
RRH 8x20W + Solar Shield (Sprint)	C	From Leg	4.00	0.0000	150.00	Ice	4.56	1.90	0.13
			0.00			1" Ice			
			0.00			No Ice	4.05	1.53	0.07
(2) RRH2x50-WCS (Sprint)	A	From Leg	4.00	0.0000	150.00	1/2"	4.30	1.71	0.10
			0.00			Ice	4.56	1.90	0.13
			0.00			1" Ice			
(2) RRH2x50-WCS (Sprint)	B	From Leg	4.00	0.0000	150.00	No Ice	4.91	2.70	0.08
			0.00			1/2"	5.23	3.00	0.11
			0.00			Ice	5.55	3.30	0.14
(2) RRH2x50-WCS (Sprint)	C	From Leg	4.00	0.0000	150.00	1" Ice			
			0.00			No Ice	4.91	2.70	0.08
			0.00			1/2"	5.23	3.00	0.11
Sector Mount [SM 502-3]	C	None		0.0000	150.00	Ice	5.55	3.30	0.14
						1" Ice			
						No Ice	29.82	29.82	1.67
136 BXA-70063/6CF_TIA w/ Mount Pipe (E-VZW)	A	From Leg	4.00	0.0000	136.00	1/2"	42.21	42.21	2.27
			0.00			Ice	54.43	54.43	3.05
			0.00			1" Ice			
BXA-70063/6CF_TIA w/ Mount Pipe (E-VZW)	B	From Leg	4.00	0.0000	136.00	No Ice	7.87	6.27	0.06
			0.00			1/2"	8.42	7.43	0.12
			0.00			Ice	8.94	8.30	0.19
BXA-70063/6CF_TIA w/ Mount Pipe (E-VZW)	C	From Leg	4.00	0.0000	136.00	1" Ice			
			0.00			No Ice	7.87	6.27	0.06
			0.00			1/2"	8.42	7.43	0.12
Sector Mount [SM 502-3] (E-VZW)	C	None		0.0000	136.00	Ice	8.94	8.30	0.19
						1" Ice			
						No Ice	29.82	29.82	1.67
(2) JAHH-65B-R3B_TIA w/ Mount Pipe (P-VZW)	A	From Leg	4.00	0.0000	136.00	1/2"	42.21	42.21	2.27
			0.00			Ice	54.43	54.43	3.05
			0.00			1" Ice			
(2) JAHH-65B-R3B_TIA w/ Mount Pipe (P-VZW)	B	From Leg	4.00	0.0000	136.00	No Ice	9.35	7.65	0.09
			0.00			1/2"	9.92	8.83	0.17
			0.00			Ice	10.46	9.73	0.25
(2) JAHH-65B-R3B_TIA w/ Mount Pipe (P-VZW)	B	From Leg	4.00	0.0000	136.00	1" Ice			
			0.00			No Ice	9.35	7.65	0.09
			0.00			1/2"	9.92	8.83	0.17
						Ice	10.46	9.73	0.25

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
(2) JAHH-65B-R3B_TIA w/ Mount Pipe (P-VZW)	C	From Leg	4.00	0.0000	136.00	1" Ice			
			0.00			No Ice	9.35	7.65	0.09
			0.00			1/2"	9.92	8.83	0.17
MT6407-77A w/ Mount Pipe (P-VZW)	A	From Leg	4.00	0.0000	136.00	1" Ice			
			0.00			No Ice	4.91	2.68	0.10
			0.00			1/2"	5.26	3.14	0.14
MT6407-77A w/ Mount Pipe (P-VZW)	B	From Leg	4.00	0.0000	136.00	1" Ice			
			0.00			No Ice	4.91	2.68	0.10
			0.00			1/2"	5.26	3.14	0.14
MT6407-77A w/ Mount Pipe (P-VZW)	C	From Leg	4.00	0.0000	136.00	1" Ice			
			0.00			No Ice	4.91	2.68	0.10
			0.00			1/2"	5.26	3.14	0.14
B2/B66A RRH-BR049 (RFV01U-D1A) (P-VZW)	A	From Leg	4.00	0.0000	136.00	1" Ice			
			0.00			No Ice	1.88	1.25	0.08
			0.00			1/2"	2.05	1.39	0.10
B2/B66A RRH-BR049 (RFV01U-D1A) (P-VZW)	B	From Leg	4.00	0.0000	136.00	1" Ice			
			0.00			No Ice	1.88	1.25	0.08
			0.00			1/2"	2.05	1.39	0.10
B2/B66A RRH-BR049 (RFV01U-D1A) (P-VZW)	C	From Leg	4.00	0.0000	136.00	1" Ice			
			0.00			No Ice	1.88	1.25	0.08
			0.00			1/2"	2.05	1.39	0.10
B5/B13 RRH-BR04C (RFV01U-D2A) (P-VZW)	A	From Leg	4.00	0.0000	136.00	1" Ice			
			0.00			No Ice	1.88	1.01	0.07
			0.00			1/2"	2.05	1.14	0.09
B5/B13 RRH-BR04C (RFV01U-D2A) (P-VZW)	B	From Leg	4.00	0.0000	136.00	1" Ice			
			0.00			No Ice	1.88	1.01	0.07
			0.00			1/2"	2.05	1.14	0.09
B5/B13 RRH-BR04C (RFV01U-D2A) (P-VZW)	C	From Leg	4.00	0.0000	136.00	1" Ice			
			0.00			No Ice	1.88	1.01	0.07
			0.00			1/2"	2.05	1.14	0.09
RVZDC-6627-PF-48 (P-VZW)	C	From Leg	4.00	0.0000	136.00	1" Ice			
			0.00			No Ice	3.79	2.51	0.03
			0.00			1/2"	4.04	2.73	0.06
CBC78T-DS-43-2X (P-VZW)	A	From Leg	4.00	0.0000	136.00	1" Ice			
			0.00			No Ice	0.37	0.51	0.02
			0.00			1/2"	0.45	0.60	0.03
CBC78T-DS-43-2X (P-VZW)	B	From Leg	4.00	0.0000	136.00	1" Ice			
			0.00			No Ice	0.37	0.51	0.02
			0.00			1/2"	0.45	0.60	0.03
CBC78T-DS-43-2X (P-VZW)	C	From Leg	4.00	0.0000	136.00	1" Ice			
			0.00			No Ice	0.37	0.51	0.02
			0.00			1/2"	0.45	0.60	0.03
BSAMNT-SBS-2-2 (Mount Bracket) (P-VZW)	A	From Leg	4.00	0.0000	136.00	1" Ice			
			0.00			No Ice	0.00	0.00	0.07
			0.00			1/2"	0.00	0.00	0.09
BSAMNT-SBS-2-2 (Mount Bracket) (P-VZW)	B	From Leg	4.00	0.0000	136.00	1" Ice			
			0.00			No Ice	0.00	0.00	0.07
			0.00			1/2"	0.00	0.00	0.09
BSAMNT-SBS-2-2 (Mount Bracket) (P-VZW)	C	From Leg	4.00	0.0000	136.00	1" Ice			
			0.00			No Ice	0.00	0.00	0.07
			0.00			1/2"	0.00	0.00	0.09

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
BSAMNT-SBS-2-2 (Mount Bracket) (P-VZW)	C	From Leg	4.00	0.0000	136.00	No Ice	0.00	0.00	0.07
			0.00			1/2"	0.00	0.00	0.09
			0.00			Ice	0.00	0.00	0.11
						1" Ice			

MX08FRO665-20_TIA w/ Mount Pipe (dish network)	A	From Leg	4.00	0.0000	127.00	No Ice	12.73	7.53	0.10
			0.00			1/2"	13.33	8.72	0.19
			0.00			Ice	13.89	9.62	0.29
						1" Ice			
MX08FRO665-20_TIA w/ Mount Pipe (dish network)	B	From Leg	4.00	0.0000	127.00	No Ice	12.73	7.53	0.10
			0.00			1/2"	13.33	8.72	0.19
			0.00			Ice	13.89	9.62	0.29
						1" Ice			
MX08FRO665-20_TIA w/ Mount Pipe (dish network)	C	From Leg	4.00	0.0000	127.00	No Ice	12.73	7.53	0.10
			0.00			1/2"	13.33	8.72	0.19
			0.00			Ice	13.89	9.62	0.29
						1" Ice			
TA08025-B605 (dish network)	A	From Leg	4.00	0.0000	127.00	No Ice	1.96	1.13	0.08
			0.00			1/2"	2.14	1.27	0.09
			0.00			Ice	2.32	1.41	0.11
						1" Ice			
TA08025-B605 (dish network)	B	From Leg	4.00	0.0000	127.00	No Ice	1.96	1.13	0.08
			0.00			1/2"	2.14	1.27	0.09
			0.00			Ice	2.32	1.41	0.11
						1" Ice			
TA08025-B605 (dish network)	C	From Leg	4.00	0.0000	127.00	No Ice	1.96	1.13	0.08
			0.00			1/2"	2.14	1.27	0.09
			0.00			Ice	2.32	1.41	0.11
						1" Ice			
TA08025-B604 (dish network)	A	From Leg	4.00	0.0000	127.00	No Ice	1.96	0.98	0.06
			0.00			1/2"	2.14	1.11	0.08
			0.00			Ice	2.32	1.25	0.10
						1" Ice			
TA08025-B604 (dish network)	B	From Leg	4.00	0.0000	127.00	No Ice	1.96	0.98	0.06
			0.00			1/2"	2.14	1.11	0.08
			0.00			Ice	2.32	1.25	0.10
						1" Ice			
TA08025-B604 (dish network)	C	From Leg	4.00	0.0000	127.00	No Ice	1.96	0.98	0.06
			0.00			1/2"	2.14	1.11	0.08
			0.00			Ice	2.32	1.25	0.10
						1" Ice			
RDIDC-9181-PF-48 (dish network)	C	From Leg	4.00	0.0000	127.00	No Ice	2.01	1.17	0.02
			0.00			1/2"	2.19	1.31	0.04
			0.00			Ice	2.37	1.46	0.06
						1" Ice			
Sabre_C10837002C-32788_Sector_(3)	C	None		0.0000	127.00	No Ice	18.52	18.52	2.03
						1/2"	28.00	28.00	3.07
						Ice	37.48	37.48	4.11
						1" Ice			

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy
5	1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy

Comb. No.	Description
6	1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy
10	1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy
11	1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy
12	1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy
13	1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy
14	1.2 Dead+1.0 Ice+1.0 Temp+Guy
15	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
16	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
17	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
18	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
19	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
20	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
21	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
22	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
23	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
24	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
25	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
26	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
27	Dead+Wind 0 deg - Service+Guy
28	Dead+Wind 30 deg - Service+Guy
29	Dead+Wind 60 deg - Service+Guy
30	Dead+Wind 90 deg - Service+Guy
31	Dead+Wind 120 deg - Service+Guy
32	Dead+Wind 150 deg - Service+Guy
33	Dead+Wind 180 deg - Service+Guy
34	Dead+Wind 210 deg - Service+Guy
35	Dead+Wind 240 deg - Service+Guy
36	Dead+Wind 270 deg - Service+Guy
37	Dead+Wind 300 deg - Service+Guy
38	Dead+Wind 330 deg - Service+Guy

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Guy C @ 126.8 ft Elev -12 ft Azimuth 240 deg	Max. Vert	10	-2.12	-1.18	0.68
	Max. H _x	10	-2.12	-1.18	0.68
	Max. H _z	5	-60.67	-46.70	26.27
	Min. Vert	5	-60.67	-46.70	26.27
	Min. H _x	5	-60.67	-46.70	26.27
	Min. H _z	10	-2.12	-1.18	0.68
Guy B @ 133.5 ft Elev 13 ft Azimuth 120 deg	Max. Vert	6	-0.96	0.72	0.42
	Max. H _x	11	-48.34	47.02	26.55
	Max. H _z	13	-47.22	45.11	26.71
	Min. Vert	11	-48.34	47.02	26.55
	Min. H _x	6	-0.96	0.72	0.42
	Min. H _z	6	-0.96	0.72	0.42
Guy A @ 149.3 ft Elev -14 ft Azimuth 0 deg	Max. Vert	2	-1.52	-0.00	-1.25
	Max. H _x	11	-27.99	1.16	-28.39
	Max. H _z	2	-1.52	-0.00	-1.25
	Min. Vert	7	-50.69	-0.61	-51.71
	Min. H _x	5	-27.16	-1.20	-27.63
	Min. H _z	7	-50.69	-0.61	-51.71
Mast	Max. Vert	18	201.24	-0.20	-0.20

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. H _x	11	116.33	2.22	0.07
	Max. H _z	13	118.69	1.13	1.64
	Max. M _x	1	0.00	0.02	-0.02
	Max. M _z	1	0.00	0.02	-0.02
	Max. Torsion	6	4.38	-1.57	-0.98
	Min. Vert	33	78.37	0.02	-0.43
	Min. H _x	5	126.39	-1.96	0.08
	Min. H _z	8	102.78	0.00	-1.89
	Min. M _x	1	0.00	0.02	-0.02
	Min. M _z	1	0.00	0.02	-0.02
	Min. Torsion	12	-4.29	1.99	1.11

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	78.55	-0.02	0.02	0.00	0.00	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy	127.42	-0.08	-1.58	0.00	0.00	2.62
1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy	121.65	0.78	-1.20	0.00	0.00	2.73
1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy	109.87	1.61	-0.88	0.00	0.00	-0.07
1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy	126.39	1.96	-0.08	0.00	0.00	-3.86
1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy	133.19	1.57	0.98	0.00	0.00	-4.38
1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy	120.47	0.83	1.75	0.00	0.00	-3.14
1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy	102.78	-0.00	1.89	0.00	0.00	-2.70
1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy	114.14	-0.73	1.42	0.00	0.00	-2.72
1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy	122.73	-1.55	0.87	0.00	0.00	0.10
1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy	116.33	-2.22	-0.07	0.00	0.00	3.79
1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy	104.56	-1.99	-1.11	0.00	0.00	4.29
1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy	118.69	-1.13	-1.64	0.00	0.00	3.05
1.2 Dead+1.0 Ice+1.0 Temp+Guy	197.96	-0.19	0.18	0.00	0.00	-0.01
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	201.03	-0.20	-0.16	0.00	0.00	0.45
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	201.05	-0.04	-0.11	0.00	0.00	0.54
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	200.99	0.11	0.02	0.00	0.00	0.13
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	201.24	0.20	0.20	0.00	0.00	-0.50
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	201.06	0.15	0.38	0.00	0.00	-0.63
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	199.63	0.01	0.48	0.00	0.00	-0.43
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	198.46	-0.18	0.49	0.00	0.00	-0.46

Load Combination	Vertical	Shear _x	Shear _z	Overturning Moment, M _x	Overturning Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	198.23	-0.37	0.45	0.00	0.00	-0.55
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	198.49	-0.51	0.36	0.00	0.00	-0.14
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	198.65	-0.59	0.19	0.00	0.00	0.47
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	198.98	-0.53	-0.01	0.00	0.00	0.62
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	199.93	-0.37	-0.14	0.00	0.00	0.42
Dead+Wind 0 deg - Service+Guy	79.28	-0.02	-0.40	0.00	0.00	0.50
Dead+Wind 30 deg - Service+Guy	79.16	0.16	-0.30	0.00	0.00	0.52
Dead+Wind 60 deg - Service+Guy	79.04	0.35	-0.19	0.00	0.00	-0.02
Dead+Wind 90 deg - Service+Guy	78.84	0.49	0.03	0.00	0.00	-0.75
Dead+Wind 120 deg - Service+Guy	78.60	0.42	0.28	0.00	0.00	-0.84
Dead+Wind 150 deg - Service+Guy	78.40	0.22	0.43	0.00	0.00	-0.60
Dead+Wind 180 deg - Service+Guy	78.37	-0.02	0.43	0.00	0.00	-0.50
Dead+Wind 210 deg - Service+Guy	78.48	-0.21	0.35	0.00	0.00	-0.52
Dead+Wind 240 deg - Service+Guy	78.68	-0.40	0.24	0.00	0.00	0.02
Dead+Wind 270 deg - Service+Guy	78.95	-0.52	0.02	0.00	0.00	0.74
Dead+Wind 300 deg - Service+Guy	79.17	-0.44	-0.22	0.00	0.00	0.84
Dead+Wind 330 deg - Service+Guy	79.27	-0.25	-0.39	0.00	0.00	0.59

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-30.76	0.00	0.00	30.76	0.00	0.005%
2	0.10	-36.52	-45.11	-0.10	36.52	45.11	0.007%
3	21.93	-36.35	-37.80	-21.93	36.35	37.81	0.009%
4	39.44	-36.19	-22.76	-39.44	36.19	22.76	0.002%
5	48.25	-36.44	-0.07	-48.26	36.44	0.07	0.006%
6	41.62	-36.67	23.90	-41.63	36.67	-23.90	0.008%
7	23.20	-36.47	40.16	-23.21	36.47	-40.16	0.005%
8	-0.10	-36.25	44.47	0.10	36.25	-44.47	0.001%
9	-21.93	-36.42	37.80	21.93	36.42	-37.80	0.006%
10	-40.00	-36.58	23.08	40.01	36.58	-23.08	0.008%
11	-48.25	-36.34	0.07	48.25	36.34	-0.07	0.003%
12	-41.07	-36.10	-23.58	41.07	36.10	23.58	0.002%
13	-23.20	-36.30	-40.16	23.20	36.30	40.16	0.007%
14	-0.00	-133.48	0.00	0.00	133.48	-0.00	0.001%
15	0.08	-133.61	-13.18	-0.08	133.61	13.19	0.001%
16	6.67	-133.45	-11.44	-6.67	133.45	11.44	0.001%
17	11.73	-133.30	-6.77	-11.73	133.30	6.77	0.001%
18	13.79	-133.52	-0.05	-13.79	133.52	0.05	0.002%
19	11.94	-133.73	6.80	-11.94	133.73	-6.80	0.002%
20	6.68	-133.55	11.55	-6.68	133.55	-11.55	0.001%
21	-0.08	-133.35	13.12	0.08	133.35	-13.11	0.002%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
22	-6.67	-133.51	11.44	6.67	133.51	-11.43	0.001%
23	-11.79	-133.66	6.80	11.79	133.66	-6.80	0.001%
24	-13.79	-133.44	0.05	13.79	133.44	-0.05	0.001%
25	-11.88	-133.23	-6.77	11.88	133.23	6.77	0.001%
26	-6.68	-133.41	-11.55	6.68	133.41	11.55	0.000%
27	0.02	-30.78	-9.21	-0.02	30.78	9.21	0.003%
28	4.48	-30.75	-7.72	-4.48	30.75	7.71	0.003%
29	8.05	-30.72	-4.65	-8.05	30.72	4.64	0.002%
30	9.85	-30.77	-0.01	-9.85	30.77	0.01	0.003%
31	8.49	-30.82	4.88	-8.49	30.82	-4.88	0.004%
32	4.74	-30.78	8.20	-4.73	30.78	-8.19	0.011%
33	-0.02	-30.73	9.08	0.02	30.73	-9.07	0.006%
34	-4.48	-30.77	7.72	4.47	30.77	-7.71	0.005%
35	-8.16	-30.80	4.71	8.16	30.80	-4.71	0.007%
36	-9.85	-30.75	0.01	9.85	30.75	-0.01	0.006%
37	-8.38	-30.70	-4.81	8.38	30.70	4.81	0.005%
38	-4.74	-30.74	-8.20	4.74	30.74	8.19	0.012%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	9	0.00000001	0.00009004
2	Yes	16	0.00000001	0.00006467
3	Yes	15	0.00009015	0.00013087
4	Yes	13	0.00012338	0.00008391
5	Yes	16	0.00000001	0.00007250
6	Yes	16	0.00005818	0.00008516
7	Yes	16	0.00000001	0.00006378
8	Yes	13	0.00000001	0.00006372
9	Yes	15	0.00000001	0.00007632
10	Yes	15	0.00000001	0.00008966
11	Yes	14	0.00011509	0.00013947
12	Yes	13	0.00000001	0.00005467
13	Yes	15	0.00000001	0.00009132
14	Yes	11	0.00000001	0.00005867
15	Yes	13	0.00000001	0.00005248
16	Yes	13	0.00000001	0.00004351
17	Yes	12	0.00000001	0.00006614
18	Yes	12	0.00000001	0.00005653
19	Yes	12	0.00000001	0.00007536
20	Yes	12	0.00000001	0.00006537
21	Yes	11	0.00015000	0.00010685
22	Yes	11	0.00000001	0.00006352
23	Yes	11	0.00000001	0.00004317
24	Yes	11	0.00000001	0.00006928
25	Yes	11	0.00015000	0.00013322
26	Yes	13	0.00000001	0.00003894
27	Yes	9	0.00000001	0.00005023
28	Yes	9	0.00000001	0.00005829
29	Yes	9	0.00000001	0.00005963
30	Yes	9	0.00000001	0.00004833
31	Yes	9	0.00000001	0.00004723
32	Yes	8	0.00000001	0.00013750
33	Yes	8	0.00000001	0.00012863
34	Yes	8	0.00000001	0.00010654
35	Yes	8	0.00000001	0.00009540
36	Yes	8	0.00000001	0.00008521
37	Yes	8	0.00000001	0.00010574
38	Yes	8	0.00000001	0.00013597

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	187 - 180	2.522	29	0.2102	0.0454
T2	180 - 160	2.197	29	0.2037	0.0407
T3	160 - 140	1.508	29	0.1192	0.0383
T4	140 - 120	1.176	29	0.0712	0.0483
T5	120 - 100	0.929	29	0.0432	0.0520
T6	100 - 80	0.868	30	0.0268	0.0864
T7	80 - 60	0.769	30	0.0344	0.1015
T8	60 - 40	0.613	30	0.0286	0.0979
T9	40 - 20	0.511	30	0.0334	0.0788
T10	20 - 0	0.316	30	0.0622	0.0445

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
187.00	(2) DMP65R-BU8D_TIA w/ Mount Pipe	29	2.522	0.2102	0.0454	18737
177.00	APXVAALL24_43-U-NA20_TIA w/ Mount Pipe	29	2.068	0.1958	0.0398	12514
170.00	Guy	29	1.801	0.1666	0.0384	11031
160.38	Guy	29	1.517	0.1207	0.0382	9435
150.00	APXV9ERR18-C-A20_TIA w/ Mount Pipe	29	1.317	0.0888	0.0438	19619
136.00	BXA-70063/6CF_TIA w/ Mount Pipe	29	1.121	0.0652	0.0485	300784
127.00	MX08FRO665-20_TIA w/ Mount Pipe	29	1.003	0.0524	0.0483	32256
120.38	Guy	29	0.932	0.0436	0.0517	20990
59.63	Guy	30	0.611	0.0285	0.0977	41661

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	187 - 180	22.443	6	1.5689	0.3218
T2	180 - 160	20.141	6	1.5384	0.3114
T3	160 - 140	14.747	6	1.1088	0.3000
T4	140 - 120	11.364	6	0.7908	0.3261
T5	120 - 100	8.770	6	0.5313	0.3429
T6	100 - 80	7.422	6	0.3219	0.5645
T7	80 - 60	6.241	6	0.2997	0.6136
T8	60 - 40	4.943	6	0.2754	0.5701
T9	40 - 20	3.856	6	0.3106	0.4513
T10	20 - 0	2.253	6	0.4654	0.2647

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
187.00	(2) DMP65R-BU8D_TIA w/ Mount Pipe	6	22.443	1.5689	0.3218	4038

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
177.00	APXVAALL24_43-U-NA20_TIA w/ Mount Pipe	6	19.203	1.5000	0.3076	2650
170.00	Guy	6	17.178	1.3555	0.3012	2236
160.38	Guy	6	14.827	1.1172	0.2999	1916
150.00	APXV9ERR18-C-A20_TIA w/ Mount Pipe	6	12.890	0.9258	0.3070	3539
136.00	BXA-70063/6CF_TIA w/ Mount Pipe	6	10.781	0.7393	0.3266	9978
127.00	MX08FRO665-20_TIA w/ Mount Pipe	6	9.556	0.6221	0.3209	3822
120.38	Guy	6	8.807	0.5362	0.3405	2777
59.63	Guy	6	4.921	0.2746	0.5686	8062

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T1	187	Leg	A325N	0.7500	4	3.23	29.82	0.108	1	Bolt Tension
T2	180	Leg	A325N	0.7500	4	6.89	29.82	0.231	1	Bolt Tension
		Top Guy Pull- Off@160.375	A325N	0.7500	2	5.64	11.38	0.495	1	Member Block Shear
		Torque Arm Top@160.375	A325N	0.7500	2	8.19	11.15	0.735	1	Member Block Shear
		Torque Arm Bottom@160.375	A325N	0.7500	2	6.96	17.89	0.389	1	Bolt Shear
T3	160	Leg	A325N	0.7500	4	3.70	29.82	0.124	1	Bolt Tension
T4	140	Leg	A325N	0.7500	4	5.65	29.82	0.190	1	Bolt Tension
		Top Guy Pull- Off@120.375	A325N	0.7500	2	3.77	17.89	0.211	1	Bolt Shear
		Torque Arm Top@120.375	A325N	0.7500	2	5.03	11.15	0.451	1	Member Block Shear
		Torque Arm Bottom@120.375	A325N	0.7500	2	4.40	17.89	0.246	1	Bolt Shear
T5	120	Leg	A325N	0.7500	4	4.47	29.82	0.150	1	Bolt Tension
T6	100	Leg	A325N	0.7500	4	4.75	29.82	0.159	1	Bolt Tension
T7	80	Leg	A325N	0.7500	4	4.99	29.82	0.167	1	Bolt Tension
T8	60	Leg	A325N	0.7500	4	5.47	29.82	0.183	1	Bolt Tension
T9	40	Leg	A325N	0.7500	4	5.65	29.82	0.190	1	Bolt Tension
T10	20	Leg	A325N	0.7500	4	5.60	29.82	0.188	1	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T _u K	Allowable ϕT_r K	Required S.F.	Actual S.F.
T2	160.38 (A) (577)	5/8 EHS	4.24	42.40	15.39	25.44	1.000	1.653
	160.38 (A) (578)	5/8 EHS	4.24	42.40	14.70	25.44	1.000	1.730
	160.38 (B) (571)	5/8 EHS	4.24	42.40	14.46	25.44	1.000	1.759
	160.38 (B) (572)	5/8 EHS	4.24	42.40	15.01	25.44	1.000	1.694
	160.38 (C) (565)	5/8 EHS	4.24	42.40	16.69	25.44	1.000	1.524

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T4	160.38 (C) (566)	5/8 EHS	4.24	42.40	16.83	25.44	1.000	1.511
	170.00 (A) (606)	5/8 EHS	4.24	42.40	16.11	25.44	1.000	1.580
	170.00 (B) (605)	5/8 EHS	4.24	42.40	15.85	25.44	1.000	1.605
	170.00 (C) (604)	5/8 EHS	4.24	42.40	17.40	25.44	1.000	1.462
	120.38 (A) (595)	9/16 EHS	3.50	35.00	9.98	21.00	1.000	2.104
	120.38 (A) (596)	9/16 EHS	3.50	35.00	9.79	21.00	1.000	2.146
	120.38 (B) (589)	9/16 EHS	3.50	35.00	9.48	21.00	1.000	2.216
	120.38 (B) (590)	9/16 EHS	3.50	35.00	10.29	21.00	1.000	2.041
	120.38 (C) (583)	9/16 EHS	3.50	35.00	11.73	21.00	1.000	1.790
	120.38 (C) (584)	9/16 EHS	3.50	35.00	10.85	21.00	1.000	1.936
T8	59.63 (A) (603)	9/16 EHS	3.50	35.00	9.37	21.00	1.000	2.242
	59.63 (B) (602)	9/16 EHS	3.50	35.00	9.79	21.00	1.000	2.146
	59.63 (C) (601)	9/16 EHS	3.50	35.00	10.61	21.00	1.000	1.979

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	187 - 180	P2.875"x0.203" (2.5 STD)	7.00	2.85	36.1 K=1.00	1.7040	-17.01	74.72	0.228 ¹
T2	180 - 160	P2.875"x0.203" (2.5 STD)	20.00	3.21	40.6 K=1.00	1.7040	-64.41	79.61	0.809 ¹
T3	160 - 140	P2.875"x0.203" (2.5 STD)	20.00	3.21	40.6 K=1.00	1.7040	-70.78	79.61	0.889 ¹
T4	140 - 120	P2.875"x0.203" (2.5 STD)	20.00	3.21	40.6 K=1.00	1.7040	-70.01	79.61	0.880 ¹
T5	120 - 100	P2.875"x0.203" (2.5 STD)	20.00	3.21	40.6 K=1.00	1.7040	-68.02	79.61	0.854 ¹
T6	100 - 80	P2.875"x0.203" (2.5 STD)	20.00	3.21	40.6 K=1.00	1.7040	-58.07	79.61	0.729 ¹
T7	80 - 60	P2.875"x0.203" (2.5 STD)	20.00	3.21	40.6 K=1.00	1.7040	-60.41	79.61	0.759 ¹
T8	60 - 40	P2.875"x0.203" (2.5 STD)	20.00	3.21	40.6 K=1.00	1.7040	-65.92	79.61	0.828 ¹
T9	40 - 20	P2.875"x0.203" (2.5 STD)	20.00	3.21	40.6 K=1.00	1.7040	-68.30	79.61	0.858 ¹
T10	20 - 0	P2.875"x0.203" (2.5 STD)	20.00	3.21	40.6 K=1.00	1.7040	-68.37	79.61	0.859 ¹

¹ $P_u / \phi P_n$ controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T2	180 - 160	C3x4.1	4.75	2.21	65.7 K=1.00	1.2100	-6.20	31.24	0.199 ¹

¹ P_u / φP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	187 - 180	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-6.33	7.19	0.880 ¹
T2	180 - 160	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-3.27	7.19	0.455 ¹
T3	160 - 140	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-5.24	7.19	0.728 ¹
T4	140 - 120	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-4.34	7.19	0.604 ¹
T5	120 - 100	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-3.98	7.19	0.553 ¹
T6	100 - 80	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-3.55	7.19	0.494 ¹
T7	80 - 60	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-3.38	7.19	0.471 ¹
T8	60 - 40	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-3.34	7.19	0.465 ¹
T9	40 - 20	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-3.56	7.19	0.495 ¹
T10	20 - 0	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-3.43	7.19	0.477 ¹

¹ P_u / φP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	187 - 180	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-4.24	7.19	0.590 ¹
T2	180 - 160	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-1.23	7.19	0.170 ¹
T3	160 - 140	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-4.23	7.19	0.589 ¹
T4	140 - 120	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-2.60	7.19	0.362 ¹
T5	120 - 100	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-3.13	7.19	0.435 ¹
T6	100 - 80	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-1.96	7.19	0.272 ¹
T7	80 - 60	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-1.96	7.19	0.272 ¹
T9	40 - 20	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-1.63	7.19	0.226 ¹
T10	20 - 0	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-1.95	7.19	0.271 ¹

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
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¹ P_u / φP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	187 - 180	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-4.64	7.19	0.646 ¹
T2	180 - 160	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-1.71	7.19	0.238 ¹
T3	160 - 140	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-2.24	7.19	0.312 ¹
T4	140 - 120	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-4.24	7.19	0.589 ¹
T5	120 - 100	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-2.05	7.19	0.285 ¹
T6	100 - 80	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-1.72	7.19	0.239 ¹
T7	80 - 60	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-1.72	7.19	0.239 ¹
T8	60 - 40	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-2.02	7.19	0.282 ¹
T9	40 - 20	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-1.75	7.19	0.243 ¹
T10	20 - 0	L 1.5 x 1.5 x 3/16	3.50	3.26	128.2 K=0.96	0.5273	-0.29	7.19	0.041 ¹

¹ P_u / φP_n controls

Top Guy Pull-Off Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T2	180 - 160	L 2 x 2 x 5/16	3.50	3.26	100.3 K=1.00	1.1500	-4.89	21.94	0.223 ¹
T4	140 - 120	L 2 x 2 x 5/16	3.50	3.26	100.3 K=1.00	1.1500	-7.53	21.94	0.343 ¹
T8	60 - 40	L 1.5 x 1.5 x 3/16	3.50	3.26	133.4 K=1.00	0.5273	-1.17	6.70	0.175 ¹

¹ P_u / φP_n controls

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T2	180 - 160 (569)	L 3 x 3 x 1/4	3.50	3.38	68.5 K=1.00	1.4375	-13.75	36.39	0.378 ¹
T2	180 - 160 (570)	L 3 x 3 x 1/4	3.50	3.38	68.5 K=1.00	1.4375	-12.64	36.39	0.347 ¹

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	180 - 160 (575)	L 3 x 3 x 1/4	3.50	3.38	68.5 K=1.00	1.4375	-13.93	36.39	0.383 ¹
T2	180 - 160 (576)	L 3 x 3 x 1/4	3.50	3.38	68.5 K=1.00	1.4375	-12.52	36.39	0.344 ¹
T2	180 - 160 (581)	L 3 x 3 x 1/4	3.50	3.38	68.5 K=1.00	1.4375	-12.63	36.39	0.347 ¹
T2	180 - 160 (582)	L 3 x 3 x 1/4	3.50	3.38	68.5 K=1.00	1.4375	-12.90	36.39	0.355 ¹
T4	140 - 120 (587)	L 3 x 3 x 1/4	3.50	3.38	68.5 K=1.00	1.4375	-7.89	36.39	0.217 ¹
T4	140 - 120 (588)	L 3 x 3 x 1/4	3.50	3.38	68.5 K=1.00	1.4375	-6.89	36.39	0.189 ¹
T4	140 - 120 (593)	L 3 x 3 x 1/4	3.50	3.38	68.5 K=1.00	1.4375	-8.80	36.39	0.242 ¹
T4	140 - 120 (594)	L 3 x 3 x 1/4	3.50	3.38	68.5 K=1.00	1.4375	-7.13	36.39	0.196 ¹
T4	140 - 120 (599)	L 3 x 3 x 1/4	3.50	3.38	68.5 K=1.00	1.4375	-7.44	36.39	0.204 ¹
T4	140 - 120 (600)	L 3 x 3 x 1/4	3.50	3.38	68.5 K=1.00	1.4375	-8.03	36.39	0.221 ¹

¹ $P_u / \phi P_n$ controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	187 - 180	P2.875"x0.203" (2.5 STD)	7.00	0.99	12.5	1.7040	12.92	82.82	0.156 ¹
T2	180 - 160	P2.875"x0.203" (2.5 STD)	20.00	3.21	40.6	1.7040	40.83	92.02	0.444 ¹
T3	160 - 140	P2.875"x0.203" (2.5 STD)	20.00	0.38	4.7	1.7040	27.55	92.02	0.299 ¹

¹ $P_u / \phi P_n$ controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	187 - 180	5/8	4.51	4.20	322.9	0.3068	7.79	9.94	0.784 ¹
T2	180 - 160	C3x4.1	4.75	2.21	65.7	1.2100	7.04	39.20	0.180 ¹
T3	160 - 140	5/8	4.75	4.42	339.7	0.3068	7.67	9.94	0.772 ¹
T4	140 - 120	5/8	4.75	4.42	339.7	0.3068	5.58	9.94	0.562 ¹
T5	120 - 100	5/8	4.75	4.42	339.7	0.3068	5.83	9.94	0.587 ¹
T6	100 - 80	5/8	4.75	4.42	339.7	0.3068	3.46	9.94	0.348 ¹
T7	80 - 60	5/8	4.75	4.42	339.7	0.3068	4.11	9.94	0.414 ¹
T8	60 - 40	5/8	4.75	4.42	339.7	0.3068	4.12	9.94	0.415 ¹
T9	40 - 20	5/8	4.75	4.42	339.7	0.3068	3.30	9.94	0.332 ¹
T10	20 - 0	5/8	4.75	4.42	339.7	0.3068	4.27	9.94	0.429 ¹

¹ $P_u / \phi P_n$ controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	187 - 180	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	0.29	17.09	0.017 ¹
T2	180 - 160	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	5.10	17.09	0.299 ¹
T3	160 - 140	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	1.23	17.09	0.072 ¹
T4	140 - 120	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	1.21	17.09	0.071 ¹
T5	120 - 100	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	1.18	17.09	0.069 ¹
T6	100 - 80	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	1.01	17.09	0.059 ¹
T7	80 - 60	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	1.05	17.09	0.061 ¹
T8	60 - 40	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	1.14	17.09	0.067 ¹
T9	40 - 20	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	1.18	17.09	0.069 ¹
T10	20 - 0	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	1.18	17.09	0.069 ¹

¹ $P_u / \phi P_n$ controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	180 - 160	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	1.23	17.09	0.072 ¹
T3	160 - 140	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	1.23	17.09	0.072 ¹
T4	140 - 120	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	1.21	17.09	0.071 ¹
T5	120 - 100	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	1.18	17.09	0.069 ¹
T6	100 - 80	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	1.01	17.09	0.059 ¹
T7	80 - 60	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	1.05	17.09	0.061 ¹
T9	40 - 20	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	1.18	17.09	0.069 ¹
T10	20 - 0	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	1.18	17.09	0.069 ¹

¹ $P_u / \phi P_n$ controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	187 - 180	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	0.29	17.09	0.017 ¹
T2	180 - 160	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	6.28	17.09	0.368 ¹
T3	160 - 140	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	1.23	17.09	0.072 ¹
T4	140 - 120	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	1.21	17.09	0.071 ¹
T5	120 - 100	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	1.18	17.09	0.069 ¹
T6	100 - 80	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	1.01	17.09	0.059 ¹
T7	80 - 60	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	1.05	17.09	0.061 ¹
T8	60 - 40	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	1.14	17.09	0.067 ¹
T9	40 - 20	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	1.18	17.09	0.069 ¹
T10	20 - 0	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	0.87	17.09	0.051 ¹

¹ $P_u / \phi P_n$ controls

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T2	180 - 160	L 2 x 2 x 5/16	3.50	3.26	65.1	0.6574	11.28	28.60	0.394 ¹
T2	180 - 160	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	5.02	17.09	0.294 ¹
T4	140 - 120	L 2 x 2 x 5/16	3.50	3.26	65.1	0.6574	0.28	28.60	0.010 ¹
T8	60 - 40	L 1.5 x 1.5 x 3/16	3.50	3.26	85.7	0.5273	2.76	17.09	0.162 ¹

¹ P_u / φP_n controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T2	180 - 160 (567)	L 3 x 3 x 1/4	4.75	4.59	59.1	0.9141	16.39	39.76	0.412 ¹
T2	180 - 160 (568)	L 3 x 3 x 1/4	4.75	4.59	59.1	0.9141	16.20	39.76	0.408 ¹
T2	180 - 160 (573)	L 3 x 3 x 1/4	4.75	4.59	59.1	0.9141	15.91	39.76	0.400 ¹
T2	180 - 160 (574)	L 3 x 3 x 1/4	4.75	4.59	59.1	0.9141	16.23	39.76	0.408 ¹
T2	180 - 160 (579)	L 3 x 3 x 1/4	4.75	4.59	59.1	0.9141	14.98	39.76	0.377 ¹
T2	180 - 160 (580)	L 3 x 3 x 1/4	4.75	4.59	59.1	0.9141	15.10	39.76	0.380 ¹
T4	140 - 120 (585)	L 3 x 3 x 1/4	4.75	4.59	59.1	0.9141	10.06	39.76	0.253 ¹
T4	140 - 120 (586)	L 3 x 3 x 1/4	4.75	4.59	59.1	0.9141	9.77	39.76	0.246 ¹
T4	140 - 120 (591)	L 3 x 3 x 1/4	4.75	4.59	59.1	0.9141	8.58	39.76	0.216 ¹
T4	140 - 120 (592)	L 3 x 3 x 1/4	4.75	4.59	59.1	0.9141	9.15	39.76	0.230 ¹
T4	140 - 120 (597)	L 3 x 3 x 1/4	4.75	4.59	59.1	0.9141	8.20	39.76	0.206 ¹
T4	140 - 120 (598)	L 3 x 3 x 1/4	4.75	4.59	59.1	0.9141	8.44	39.76	0.212 ¹

¹ P_u / φP_n controls

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T2	180 - 160 (569)	L 3 x 3 x 1/4	3.50	3.38	43.6	0.9141	5.28	39.76	0.133 ¹
T2	180 - 160 (570)	L 3 x 3 x 1/4	3.50	3.38	43.6	0.9141	4.65	39.76	0.117 ¹
T2	180 - 160 (575)	L 3 x 3 x 1/4	3.50	3.38	43.6	0.9141	5.57	39.76	0.140 ¹
T2	180 - 160 (576)	L 3 x 3 x 1/4	3.50	3.38	43.6	0.9141	4.81	39.76	0.121 ¹
T2	180 - 160 (581)	L 3 x 3 x 1/4	3.50	3.38	43.6	0.9141	5.57	39.76	0.140 ¹
T2	180 - 160 (582)	L 3 x 3 x 1/4	3.50	3.38	43.6	0.9141	5.70	39.76	0.143 ¹
T4	140 - 120 (587)	L 3 x 3 x 1/4	3.50	3.38	43.6	0.9141	3.82	39.76	0.096 ¹
T4	140 - 120 (588)	L 3 x 3 x 1/4	3.50	3.38	43.6	0.9141	3.52	39.76	0.089 ¹

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	140 - 120 (593)	L 3 x 3 x 1/4	3.50	3.38	43.6	0.9141	4.20	39.76	0.106 ¹
T4	140 - 120 (594)	L 3 x 3 x 1/4	3.50	3.38	43.6	0.9141	4.01	39.76	0.101 ¹
T4	140 - 120 (599)	L 3 x 3 x 1/4	3.50	3.38	43.6	0.9141	4.45	39.76	0.112 ¹
T4	140 - 120 (600)	L 3 x 3 x 1/4	3.50	3.38	43.6	0.9141	4.49	39.76	0.113 ¹

¹ $P_u / \phi P_n$ controls

Section Capacity Table

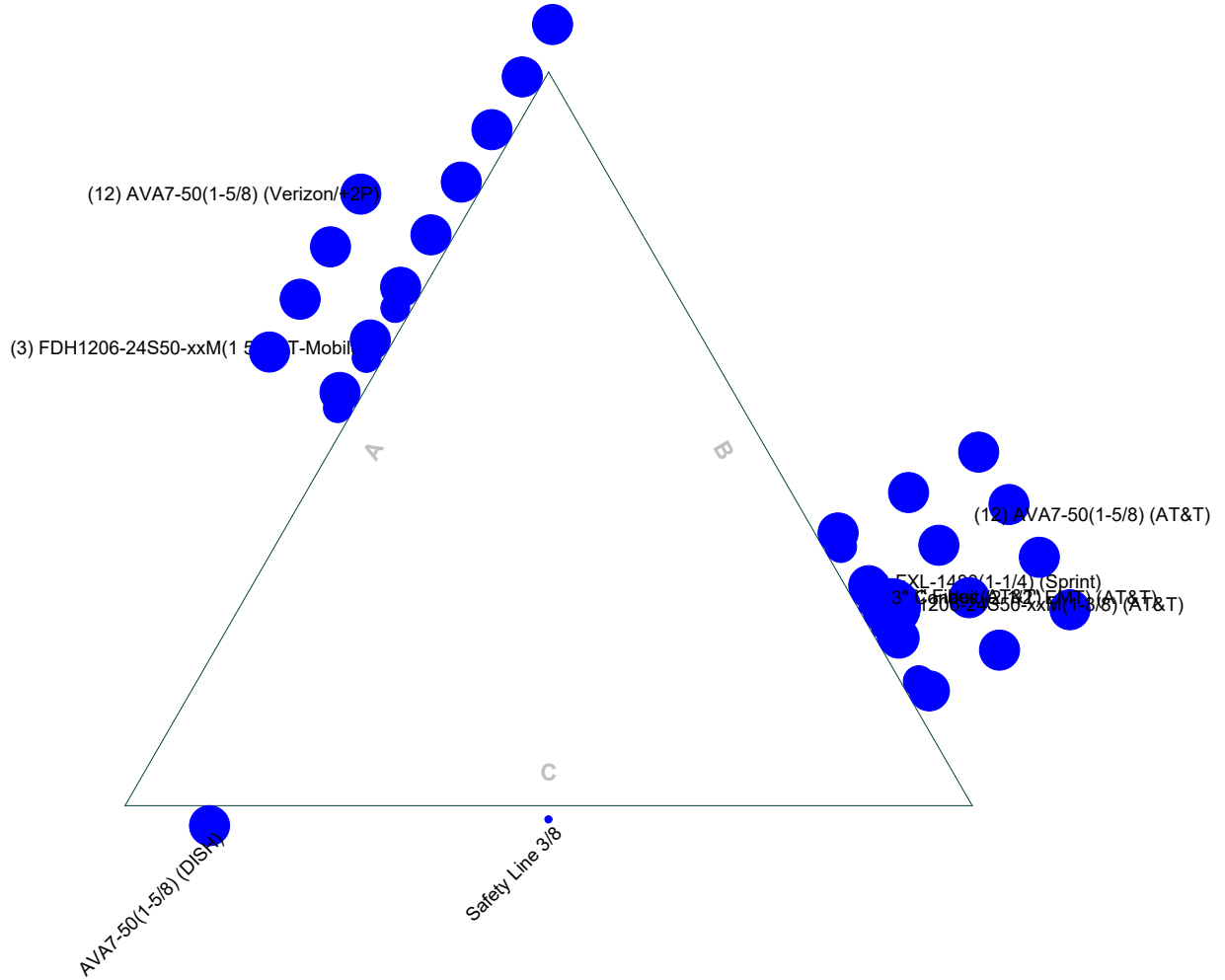
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	187 - 180	Leg	P2.875"x0.203" (2.5 STD)	3	-17.01	74.72	22.8	Pass
T2	180 - 160	Leg	P2.875"x0.203" (2.5 STD)	26	-64.41	79.61	80.9	Pass
T3	160 - 140	Leg	P2.875"x0.203" (2.5 STD)	86	-70.78	79.61	88.9	Pass
T4	140 - 120	Leg	P2.875"x0.203" (2.5 STD)	146	-70.01	79.61	88.0	Pass
T5	120 - 100	Leg	P2.875"x0.203" (2.5 STD)	207	-68.02	79.61	85.4	Pass
T6	100 - 80	Leg	P2.875"x0.203" (2.5 STD)	267	-58.07	79.61	72.9	Pass
T7	80 - 60	Leg	P2.875"x0.203" (2.5 STD)	327	-60.41	79.61	75.9	Pass
T8	60 - 40	Leg	P2.875"x0.203" (2.5 STD)	387	-65.92	79.61	82.8	Pass
T9	40 - 20	Leg	P2.875"x0.203" (2.5 STD)	447	-68.30	79.61	85.8	Pass
T10	20 - 0	Leg	P2.875"x0.203" (2.5 STD)	507	-68.37	79.61	85.9	Pass
T1	187 - 180	Diagonal	5/8	13	7.79	9.94	78.4	Pass
T2	180 - 160	Diagonal	C3x4.1	39	-6.20	31.24	19.9	Pass
T3	160 - 140	Diagonal	5/8	142	7.67	9.94	77.2	Pass
T4	140 - 120	Diagonal	5/8	163	5.58	9.94	56.2	Pass
T5	120 - 100	Diagonal	5/8	261	5.83	9.94	58.7	Pass
T6	100 - 80	Diagonal	5/8	322	3.46	9.94	34.8	Pass
T7	80 - 60	Diagonal	5/8	336	4.11	9.94	41.4	Pass
T8	60 - 40	Diagonal	5/8	439	4.12	9.94	41.5	Pass
T9	40 - 20	Diagonal	5/8	458	3.30	9.94	33.2	Pass
T10	20 - 0	Diagonal	5/8	517	4.27	9.94	42.9	Pass
T1	187 - 180	Horizontal	L 1.5 x 1.5 x 3/16	16	-6.33	7.19	88.0	Pass
T2	180 - 160	Horizontal	L 1.5 x 1.5 x 3/16	67	-3.27	7.19	45.5	Pass
T3	160 - 140	Horizontal	L 1.5 x 1.5 x 3/16	137	-5.24	7.19	72.8	Pass
T4	140 - 120	Horizontal	L 1.5 x 1.5 x 3/16	198	-4.34	7.19	60.4	Pass
T5	120 - 100	Horizontal	L 1.5 x 1.5 x 3/16	257	-3.98	7.19	55.3	Pass
T6	100 - 80	Horizontal	L 1.5 x 1.5 x 3/16	282	-3.55	7.19	49.4	Pass
T7	80 - 60	Horizontal	L 1.5 x 1.5 x 3/16	378	-3.38	7.19	47.1	Pass
T8	60 - 40	Horizontal	L 1.5 x 1.5 x 3/16	437	-3.34	7.19	46.5	Pass
T9	40 - 20	Horizontal	L 1.5 x 1.5 x 3/16	462	-3.56	7.19	49.5	Pass
T10	20 - 0	Horizontal	L 1.5 x 1.5 x 3/16	558	-3.43	7.19	47.7	Pass
T1	187 - 180	Top Girt	L 1.5 x 1.5 x 3/16	4	-4.24	7.19	59.0	Pass
T2	180 - 160	Top Girt	L 1.5 x 1.5 x 3/16	30	-1.23	7.19	17.0	Pass
T3	160 - 140	Top Girt	L 1.5 x 1.5 x 3/16	89	-4.23	7.19	58.9	Pass
T4	140 - 120	Top Girt	L 1.5 x 1.5 x 3/16	149	-2.60	7.19	36.2	Pass
T5	120 - 100	Top Girt	L 1.5 x 1.5 x 3/16	209	-3.13	7.19	43.5	Pass
T6	100 - 80	Top Girt	L 1.5 x 1.5 x 3/16	269	-1.96	7.19	27.2	Pass
T7	80 - 60	Top Girt	L 1.5 x 1.5 x 3/16	330	-1.96	7.19	27.2	Pass
T9	40 - 20	Top Girt	L 1.5 x 1.5 x 3/16	448	-1.63	7.19	22.6	Pass
T10	20 - 0	Top Girt	L 1.5 x 1.5 x 3/16	510	-1.95	7.19	27.1	Pass
T1	187 - 180	Bottom Girt	L 1.5 x 1.5 x 3/16	7	-4.64	7.19	64.6	Pass
T2	180 - 160	Bottom Girt	L 1.5 x 1.5 x 3/16	33	6.28	17.09	36.8	Pass
T3	160 - 140	Bottom Girt	L 1.5 x 1.5 x 3/16	93	-2.24	7.19	31.2	Pass
T4	140 - 120	Bottom Girt	L 1.5 x 1.5 x 3/16	152	-4.24	7.19	58.9	Pass
T5	120 - 100	Bottom Girt	L 1.5 x 1.5 x 3/16	213	-2.05	7.19	28.5	Pass
T6	100 - 80	Bottom Girt	L 1.5 x 1.5 x 3/16	271	-1.72	7.19	23.9	Pass
T7	80 - 60	Bottom Girt	L 1.5 x 1.5 x 3/16	332	-1.72	7.19	23.9	Pass
T8	60 - 40	Bottom Girt	L 1.5 x 1.5 x 3/16	393	-2.02	7.19	28.2	Pass
T9	40 - 20	Bottom Girt	L 1.5 x 1.5 x 3/16	453	-1.75	7.19	24.3	Pass
T10	20 - 0	Bottom Girt	L 1.5 x 1.5 x 3/16	512	0.87	17.09	5.1	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail	
T2	180 - 160	Guy A@160.375	5/8	577	15.39	25.44	60.5	Pass	
		Guy A@170	5/8	606	16.11	25.44	63.3	Pass	
T4	140 - 120	Guy A@120.375	9/16	595	9.98	21.00	47.5	Pass	
T8	60 - 40	Guy A@59.625	9/16	603	9.37	21.00	44.6	Pass	
T2	180 - 160	Guy B@160.375	5/8	572	15.01	25.44	59.0	Pass	
		Guy B@170	5/8	605	15.85	25.44	62.3	Pass	
T4	140 - 120	Guy B@120.375	9/16	590	10.29	21.00	49.0	Pass	
T8	60 - 40	Guy B@59.625	9/16	602	9.79	21.00	46.6	Pass	
T2	180 - 160	Guy C@160.375	5/8	566	16.83	25.44	66.2	Pass	
		Guy C@170	5/8	604	17.40	25.44	68.4	Pass	
T4	140 - 120	Guy C@120.375	9/16	583	11.73	21.00	55.9	Pass	
T8	60 - 40	Guy C@59.625	9/16	601	10.61	21.00	50.5	Pass	
T2	180 - 160	Top Guy Pull-Off@160.375	L 2 x 2 x 5/16	41	11.28	28.60	39.4	Pass	
		Top Guy Pull-Off@170	L 1.5 x 1.5 x 3/16	60	5.02	17.09	49.5 (b) 29.4	Pass	
T4	140 - 120	Top Guy Pull-Off@120.375	L 2 x 2 x 5/16	162	-7.53	21.94	34.3	Pass	
T8	60 - 40	Top Guy Pull-Off@59.625	L 1.5 x 1.5 x 3/16	388	-1.17	6.70	17.5	Pass	
T2	180 - 160	Torque Arm Top@160.375	L 3 x 3 x 1/4	567	16.39	39.76	41.2 73.5 (b)	Pass	
T4	140 - 120	Torque Arm Top@120.375	L 3 x 3 x 1/4	585	10.06	39.76	25.3 45.1 (b)	Pass	
T2	180 - 160	Torque Arm Bottom@160.375	L 3 x 3 x 1/4	575	-13.93	36.39	38.3 38.9 (b)	Pass	
T4	140 - 120	Torque Arm Bottom@120.375	L 3 x 3 x 1/4	593	-8.80	36.39	24.2 24.6 (b)	Pass	
							Summary		
							Leg (T3)	88.9	Pass
							Diagonal (T1)	78.4	Pass
							Horizontal (T1)	88.0	Pass
							Top Girt (T1)	59.0	Pass
							Bottom Girt (T1)	64.6	Pass
							Guy A (T2)	63.3	Pass
							Guy B (T2)	62.3	Pass
							Guy C (T2)	68.4	Pass
							Top Guy Pull-Off (T2)	49.5	Pass
							Torque Arm Top (T2)	73.5	Pass
							Torque Arm Bottom (T2)	38.9	Pass
							Bolt Checks	73.5	Pass
							RATING =	88.9	Pass

APPENDIX B
BASE LEVEL DRAWING

Feed Line Plan

— Round
 — Flat
 — App In Face
 — App Out Face



<p>Paul J. Ford and Company 250 East Broad St., Suite 600 Columbus, OH 43215 Phone: 614-221-6679 FAX:</p>	Job: 187-ft GT; Bozrah Polly Lane, CT		
	Project: 13321-0017.002.8700		
	Client: Everest Infrastructure Partners	Drawn by: Anna Trudo	App'd:
	Code: TIA-222-G	Date: 08/10/22	Scale: NTS
	Path:	Dwg No. E-7	

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APPENDIX C
ADDITIONAL CALCULATIONS

Project Number:	a13321-0017.002.8700
Engineer:	AKT
Date:	8/10/2022
Site Name:	Bozrah Polly Lane
Site Number:	701695
Client Project:	
Client Project 1:	

BLOCK FOUNDATION

(Version v5.2 - Effective Date 8/1/2022)

STRUCTURE SETTINGS

TIA Standard:	TIA-222-G
Foundation Type:	Block
Structure Type:	GT w/ Pivot Base
Structure Height:	187.00 ft
BP Dist. Above Fnd.:	0.00 in
BC/Bearing Plate Width:	0.00 in

FACTORED FOUNDATION LOADS

Load Combo 1 = $LC1 = 1.2D + 1.0Dg + 1.6W_o$
 Load Combo 2 = =

	Global	LC1 (+C)	LC2 (-T)	
Applied Axial:		201.00		kip
Applied Shear:		2.00		kip
Applied Moment:				kip-ft
Load Offset (Dir.1) (eB):		0.00		ft
Load Offset (Dir.2) (eL):		0.00		ft

PAD PROPERTIES

Pad Width (B):	15.00	ft	
Pad Length (L):	4.95	ft (Rectangular)	
Pad Thickness (T):	6.75	ft	
Height Above Grade:	1.21	ft	
Depth to Bottom of Pad (D):	5.54	ft	
Top & Btm Pad Steel Different?	No		
	Dir.1	Dir.2	
Pad Clear Cover (Top) (C2):	3.00	in	
Pad Rebar Size (Top):	9	9	# bar
Pad Rebar Quantity (Top):	9	18	
Pad Rebar Length:	14.50	4.45	ft
Pad Clear Cover (Bottom) (C3):		in	
Pad Rebar Size (Bottom):			
Pad Rebar Quantity (Bottom):			
Pad Rebar Length:	14.50	4.45	ft

MATERIAL PROPERTIES

Concrete Strength, F'_c :	3.00	ksi
Concrete Density, γ_c :	150	pcf
Long. Rebar Strength, F_y :	60	ksi
Tie Rebar Strength, F_y :	60	ksi

SOIL PROPERTIES

Layer	Thickness (ft)	Soil Density (pcf)	Cohesion (ksf)	Friction Angle (deg)	Ultimate Net Bearing (ksf)	Depth (ft)
1	5.62	115.00	0.00	32.00	8.00	5.62
2						
3						
4						

Base Friction, μ :	0.40	
Groundwater Depth:	8.00	ft
Neglected Depth:	3.33	ft

RESULTS

	Demand	Capacity	Rating	
Pad Shear - 1-Way (kip)	15.61	372.40	4.2%	Pass
Pad Shear - 2-Way (Comp) (ksi)	0.00	0.16	0.0%	Pass
Flexural 2-Way (Comp) (kip-ft)	0.00	6133.30	0.0%	Pass
Pad Flexural (kip-ft)	382.61	3018.28	12.7%	Pass
Pad Shear - 2-Way (Uplift) (ksi)	0.00	0.16	0.0%	Pass
Flexural 2-Way (Tension) (kip-ft)	0.00	6133.30	0.0%	Pass

	Demand	Capacity	Rating	
Lateral (kip)	2.00	88.17	2.3%	Pass
Overturning	-	-	STABLE	Pass
Bearing Pressure (ksf)	3.99	5.18	77.0%	Pass
Uplift (kip)	0.00	0.00	0.0%	Pass

Structural Rating:	12.7%	Pass
Soil Rating:	77.0%	Pass

ANALYSIS ASSUMPTIONS

- PASSIVE PRESSURE: INCLUDED ON PAD AND PIER
- SOIL WEDGES/COHESION PLANE: NOT INCLUDED

Deadman Guy Anchor Analysis (LRFD)

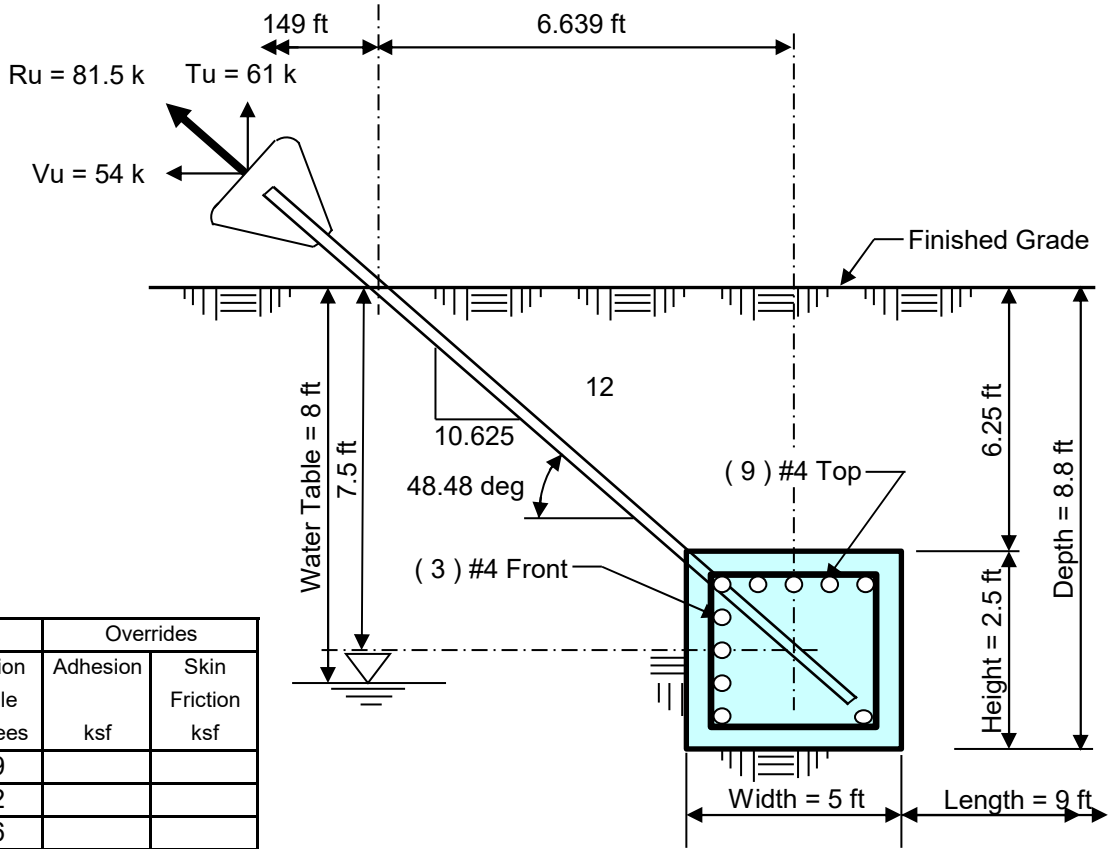
Guy Anchor: Bozrah, CT

PJF Job No. 13321-0017.002.8700

Project Name: Bozrah Polly Lane

Engineer: SFM

Uplift Force =	<u>61</u>	k
Horizontal Force =	<u>54</u>	k
Load Factor, Concrete Weight =	<u>0.9</u>	
Φ, Soil Weight =	<u>0.75</u>	
Depth to Water Table =	<u>8</u>	ft
Toe Width (If Any) =	<u>0</u>	in
Toe Height (If Any) =	<u>0</u>	in
Depth to Bottom of Deadman =	<u>8.75</u>	ft
Deadman Block Height =	<u>2.5</u>	ft
Deadman Block Width =	<u>5</u>	ft
Deadman Block Length =	<u>9</u>	ft
Guy Rod Steel Strength, Fy =	<u>48</u>	ksi
Guy Rod Cross-Sectional Area =	<u>2.405</u>	in ²
Concrete Strength, f'c =	<u>3</u>	ksi
Rebar Strength, Fy =	<u>60</u>	ksi
Minimum Cover Over Rebar =	<u>3</u>	in
Horiz. Ult. Passive Press. Override =		ksf/ft



Layer Thk ft	Dry Soil Density pcf	Sat Soil Density pcf	Uplift		Horizontal		Overrides	
			Cohesion ksf	Friction Angle degrees	Cohesion ksf	Friction Angle degrees	Adhesion ksf	Skin Friction ksf
2.5	110	110		29		29		
3.5	115	115		32		32		
3	120	120		36		36		

Uplift Based on: Soil Cone

Concrete Volume per Anchor =	<u>4.17</u>	yd ³
Concrete Volume for (3) Anchors =	<u>12.50</u>	yd ³

Inverted pyramid of soil in uplift will be taken from the top of the anchor.

Summary Results:

	Required	Available	Capacity Ratio =	
Guy Rod Tensile Force =	<u>81.47</u> k	<u>92.4</u> k	<u>88.2%</u>	in Tensile Force
Soil, Horizontal Resistance =	<u>54.0</u> k	<u>55.3</u> k	<u>97.7%</u>	in Horiz Resistance
Soil, Uplift Resistance =	<u>61.0</u> k	<u>92.2</u> k	<u>66.2%</u>	in Uplift Resistance
Steel, Uplift Bending Moment =	<u>91.3</u> k-ft	<u>199.2</u> k-ft	<u>45.8%</u>	in Bending Moment
Steel, Horizontal Bending Moment =	<u>60.8</u> k-ft	<u>126.4</u> k-ft	<u>48.1%</u>	in Bending Moment
Toe Shear =				in Shear

STANDARD CONDITIONS FOR FURNISHING OF PROFESSIONAL ENGINEERING SERVICES ON
EXISTING STRUCTURES BY PAUL J. FORD AND COMPANY

- 1) Paul J. Ford and Company has not made a field inspection to verify the tower member sizes or the antenna/coax loading. If the existing conditions are not as represented on these drawings, we should be contacted immediately to evaluate the significance of the deviation.
- 2) No allowance was made for any damaged, missing, or rusted members. The analysis of this tower assumes that no physical deterioration has occurred in any of the structural components of the tower and that all the tower members have the same load carrying capacity as the day the tower was erected.
- 3) It is not possible to have all the detailed information to perform a thorough analysis of every structural sub-component of an existing tower. The structural analysis by Paul J. Ford and Company verifies the adequacy of the main structural members of the tower. Paul J. Ford and Company provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc.
- 4) This tower has been analyzed according to the minimum design wind loads recommended by the Telecommunications Industry Association Standard ANSI/TIA-222-G. If the owner or local or state agencies require a higher design wind load, Paul J. Ford and Company should be made aware of this requirement.
- 5) The enclosed sketches are a schematic representation of the tower that we have analyzed. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions and for the proper fit and clearance in the field.
- 6) Miscellaneous items such as antenna mounts etc. have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

Mount Analysis Report

Site Address	10 Polly Lane Bozrah, CT 06336
Site Name	Bozrah-1/Rt. 2
Site ID	CT11258B
Project Name	ANCHOR
Design Codes	2015 International Building Code ASCE 7-10 TIA-222-G Standards 2018 CT State Building Code

	Stress Ratio	Overall Result
Existing Mounts with Modifications	85%	PASS

Client:

T - Mobile
NORTHEAST, LLC
35 GRIFFIN RD S
BLOOMFIELD, CT 06002

Date: 6/22/2022

Scope of Work:

Centerline Communications was authorized by T-Mobile Northeast LLC to perform an analysis of the existing antenna mounts to determine their capacity to support the existing and proposed T-Mobile equipment listed in this report. These mounts were analyzed using RISA 3D v17.0.4.

Final Appurtenances Configuration:

Elevation (ft)	Position ¹	Azimuth (degrees)	Quantity	Appurtenance	Sector
177	MP1	110	1	APXVAALL24_43-U-NA20 Antenna	Sector 1
177	MP2	110	1	AIR 6419 B41 Antenna	
177	MP3	110	1	VV-65B-R1 Antenna	
177	MP1	110	1	4449 B71+B85 RRH	
177	MP3	110	1	4460 B25+B66 RRH	
177	-	230	1	APXVAALL24_43-U-NA20 Antenna	Sector 2
177	-	230	1	AIR 6419 B41 Antenna	
177	-	230	1	VV-65B-R1 Antenna	
177	-	230	1	4449 B71+B85 RRH	
177	-	230	1	4460 B25+B66 RRH	
177	-	350	1	APXVAALL24_43-U-NA20 Antenna	Sector 3
177	-	350	1	AIR 6419 B41 Antenna	
177	-	350	1	VV-65B-R1 Antenna	
177	-	350	1	4449 B71+B85 RRH	
177	-	350	1	4460 B25+B66 RRH	

Notes:

1. MP represents Mount Pipe.
2. Existing Appurtenance
3. **Proposed Appurtenance**

Design Criteria:

Design Codes:

2015 International Building Code
ASCE 7-10
TIA-222-G Standards
2018 CT State Building Code

Ultimate Wind Speed	135 mph
Nominal Wind Speed	105 mph
Wind Speed with Ice	50 mph
Ice Thickness	0.75 in.
Exposure Category	B
Topographic Category	1
Risk Category	II
Site Soil Class (Assumed)	D-Stiff Soil
Seismic Design Category	B
Spectral Response Acceleration Parameter at a Short Periods, S_s	0.170 g
Spectral Response Acceleration Parameter at a Period of 1 Second, S_1	0.061 g
Short Period Site Coefficient, F_a	1.6
Long Period Site Coefficient, F_v	2.4

***Refer to calculations for additional design criteria.**

Conclusion:

Based on the results of the analysis, we have determined that the existing T-Mobile mounts are adequate to support the existing and proposed T-Mobile equipment loading upon completion of the listed modifications. Centerline Communications recommends the following:

Alpha, Beta & Gamma Sector:

- Relocate existing mount pipe from the Position 2 to Position 4.
- Relocate the existing tieback such that it is connected 9" below the top standoff angle.
- Install (1) 2.0" STD. x 8.0ft long mount pipe at Position 1.

	Stress Ratio	Overall Result
Existing Mounts with Modifications	85%	PASS

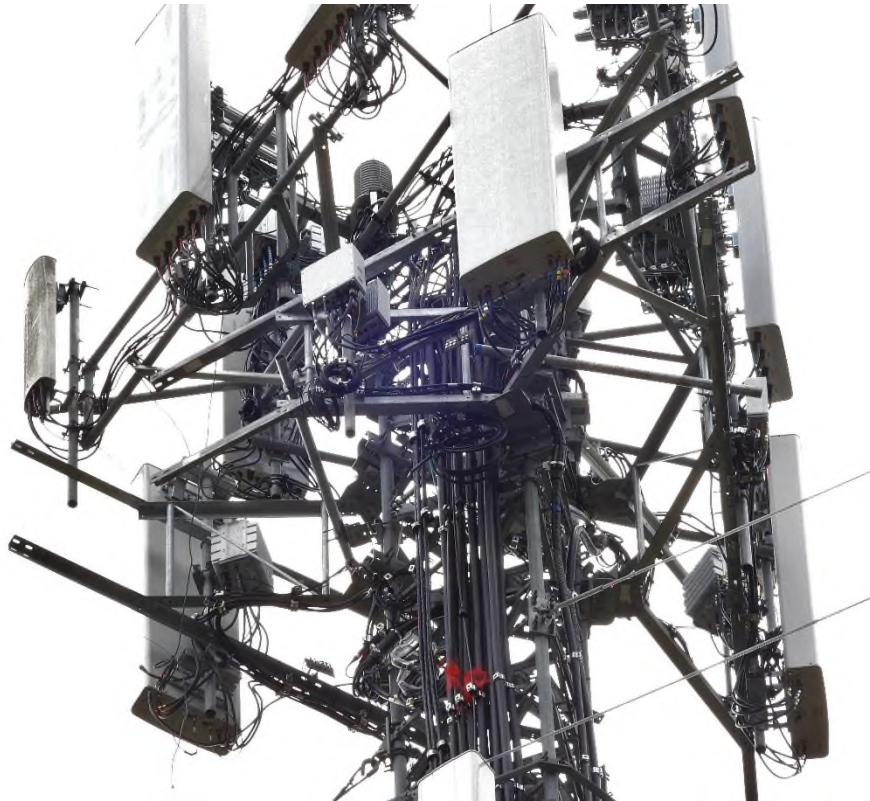
Reference Documents:

- T-Mobile RFDS CT11258B_Anchor_4, dated 05/26/2022
- Mount Analysis by Centek Engineering, Inc., dated 05/03/2019
- Construction Drawings by Centek Engineering, Inc., dated 07/28/2021

Assumptions and Limitations:

- The calculations performed by Centerline Communications are limited to the structural members in these calculations only.
- The existing mounts are assumed to have been correctly designed and installed.
- Structural calculations in this report do not check the adequacy of the supporting structure, other mounts, or coax mounting attachments.
- The calculation assumes all structural members to be in good condition i.e., no damage, rust, or other defects.

Photos:



Existing Mounts

Design Calculations

Site Details	
Site Name	Bozrah-1/Rt. 2
Carrier	T-Mobile
City, State	Bozrah, CT
Project	Anchor

Mount Details	
Mount Type	Sector Frame
Mount Height, z	177 ft
Number of Sectors	3
Tower Type	Guyed
Tower Height, h	187 ft

Topographic Factors	
Topographic Category	1
Feature	Flat
Crest Height, H	N/A ft
Distance from Crest, x	N/A ft
Slope (H/L)	N/A
Topographic Factor, K_{zt}	1.00

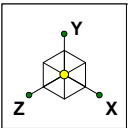
Seismic Factors	
Importance Factor, I_E	1
Short Period Spectral Acceleration, S_s	0.17 g
1 Second Period Spectral Acceleration, S_1	0.061 g
Long-Period Transition Period, T_L	6
Design Category	B
Short Period Site Coefficient, F_a	1.60
Long-Period Site Coefficient, F_v	2.4

Site Parameters	
Ultimate Wind Speed, V_{ULT}	135 mph
Nominal Wind Speed, V	105 mph
Wind Speed with Ice, V_i	50 mph
Design Ice Thickness, t_i	0.75 in
Structural Class	II
Exposure Category	B
Site Soil Class	D-Stiff Soil (Assumed)

Code	
Building Code	2015 IBC
TIA Code	TIA-222-G
ASCE Code	7-10

Site Constants	
Importance Factor, I (Wind no Ice)	1.00
Importance Factor, I (Ice Thickness)	1.00
Importance Factor, I (wind with Ice)	1.00
Wind Direction Prob. Factor, K_d	0.95
Velocity Pressure Coefficient, K_z	1.16
Gust Effect Factor, G_h	1.00
Design Ice Thickness, t_{iz}	1.77 in
Velocity Pressure, q_z	31.19 psf
Velocity Pressure with Ice, q_{zi}	7.07 psf
Shielding Factor, K_a	1.00
Flat Velocity Pressure (Ca = 2.0)	62.39 psf
Round Velocity Pressure (Ca = 1.2)	37.43 psf
Round Velocity Pressure with Ice (Ca = 1.2)	8.49 psf
Engineer Initials	AP

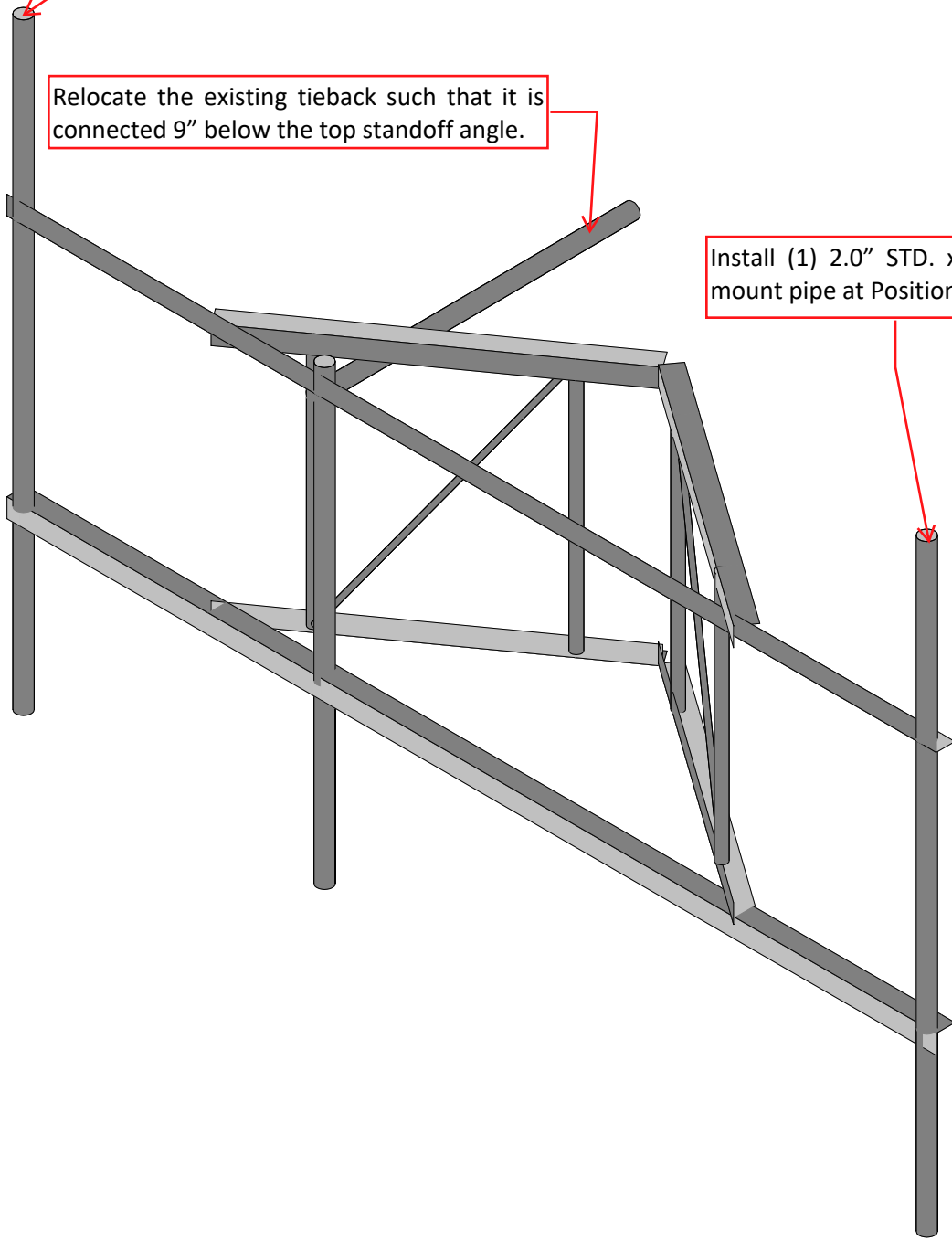
Existing Mounts with Modifications Results



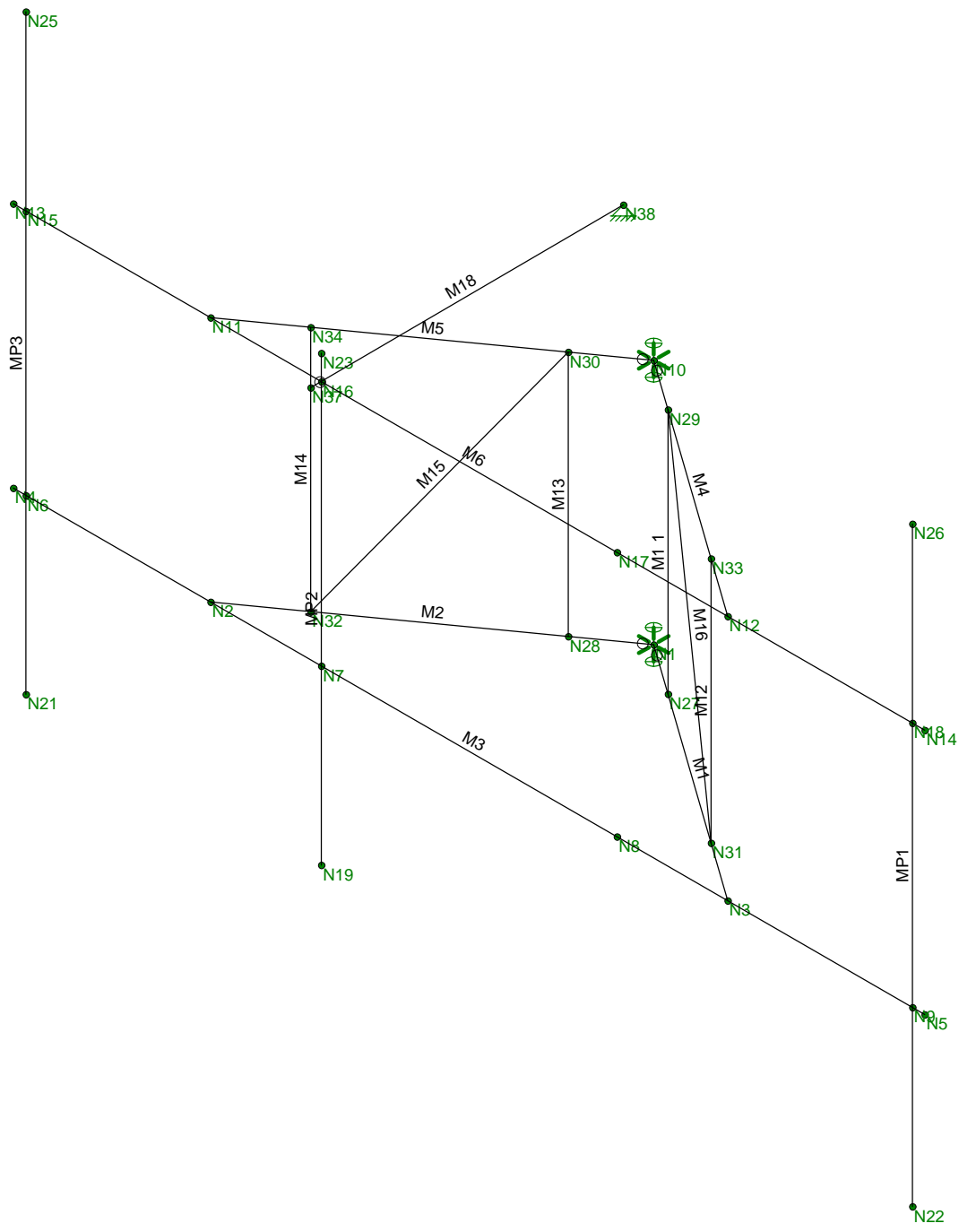
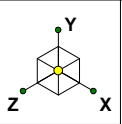
Relocate existing mount pipe from the Position 2 to Position 4.

Relocate the existing tieback such that it is connected 9" below the top standoff angle.

Install (1) 2.0" STD. x 8.0ft long mount pipe at Position 1.



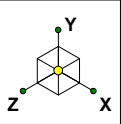
Centerline Communication...	CT11258B_MA	Rendered
AP		June 22, 2022 at 3:13 PM
		CT11258B_MA.r3d



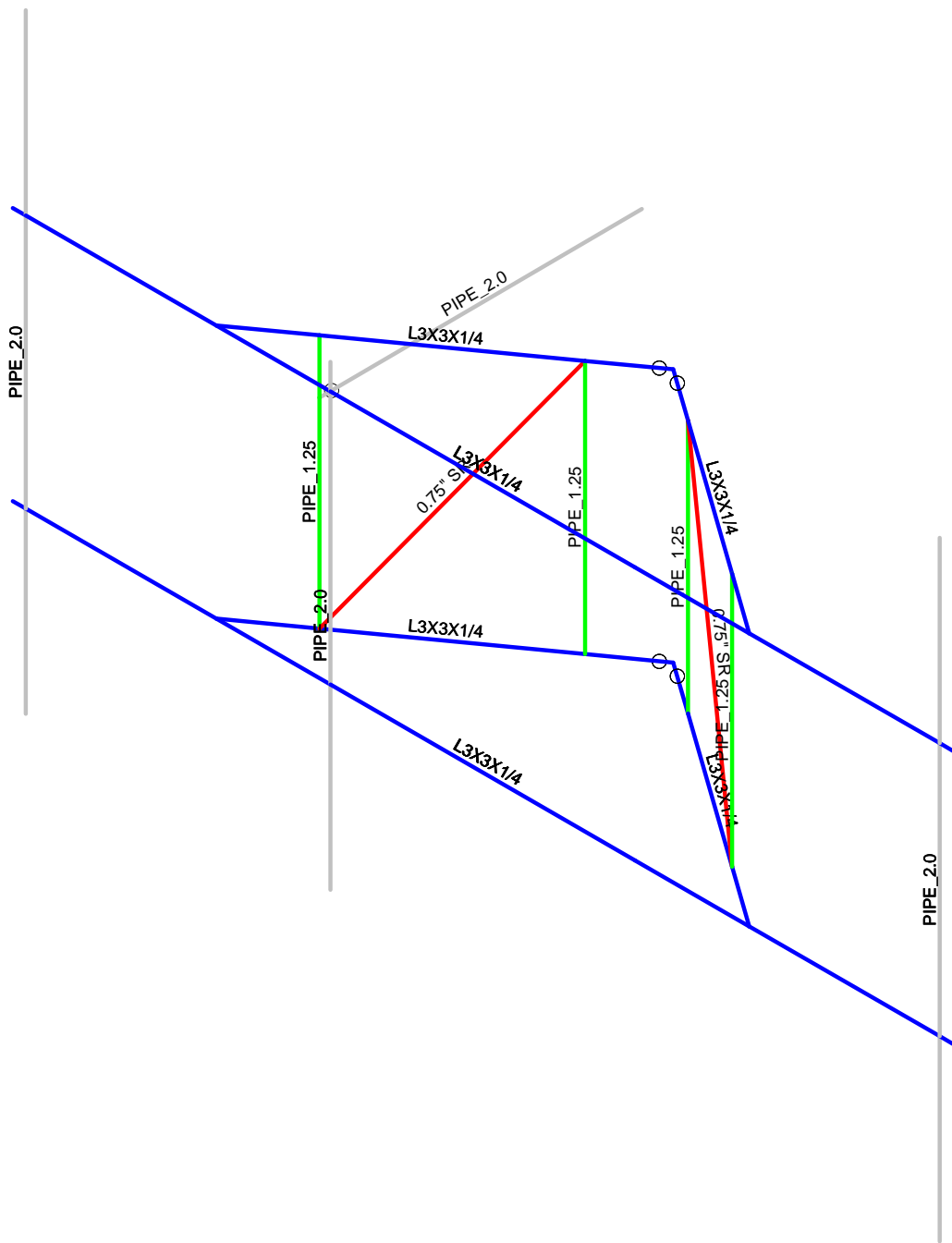
Centerline Communication...
AP

CT11258B_MA

Wireframe
June 22, 2022 at 3:13 PM
CT11258B_MA.r3d



Section Sets	
	L3X3X1/4
	PIPE_1.25
	0.75" SR
	PIPE_2.0



Centerline Communication...

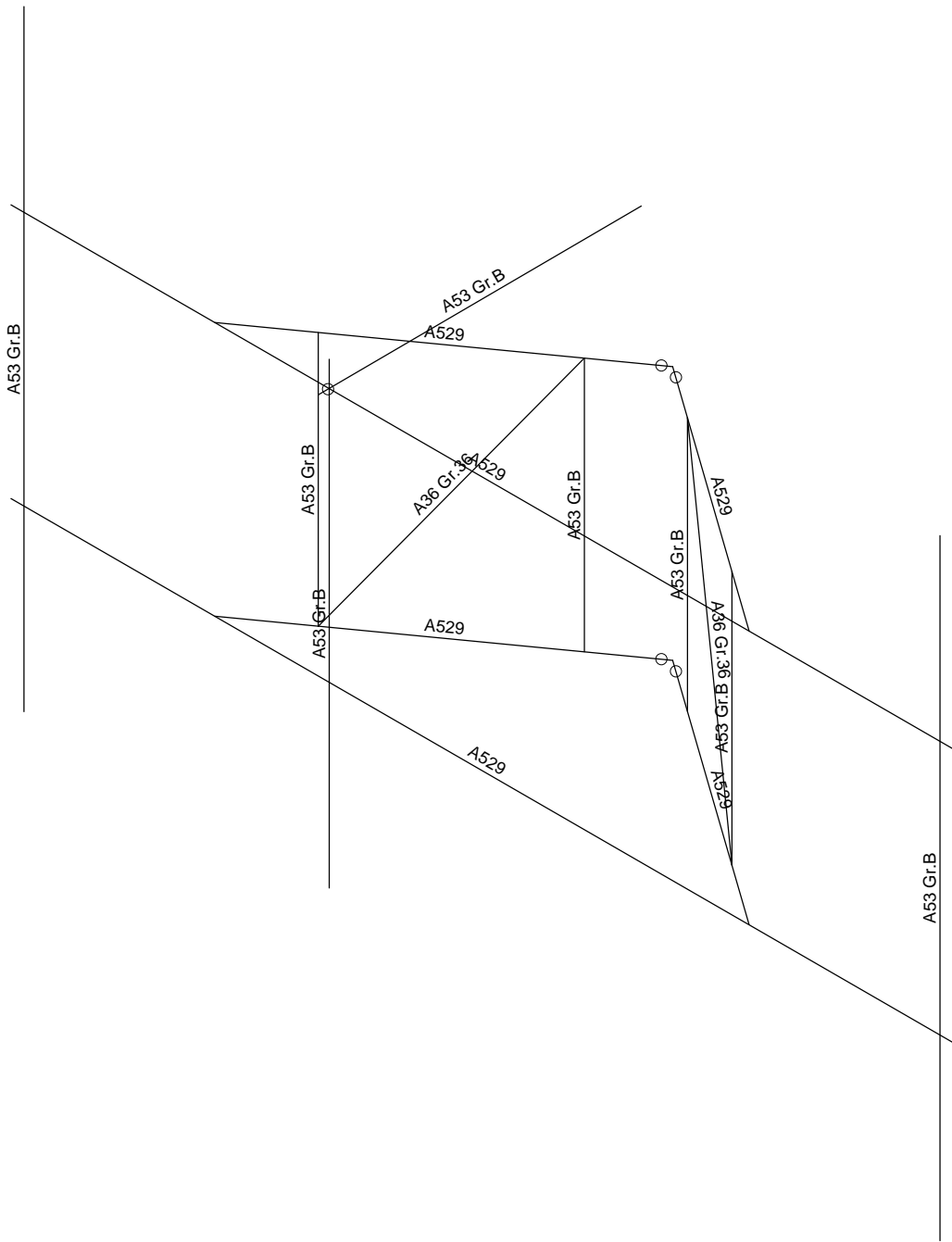
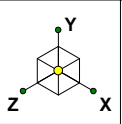
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CT11258B_MA

Section Sets

June 22, 2022 at 3:14 PM

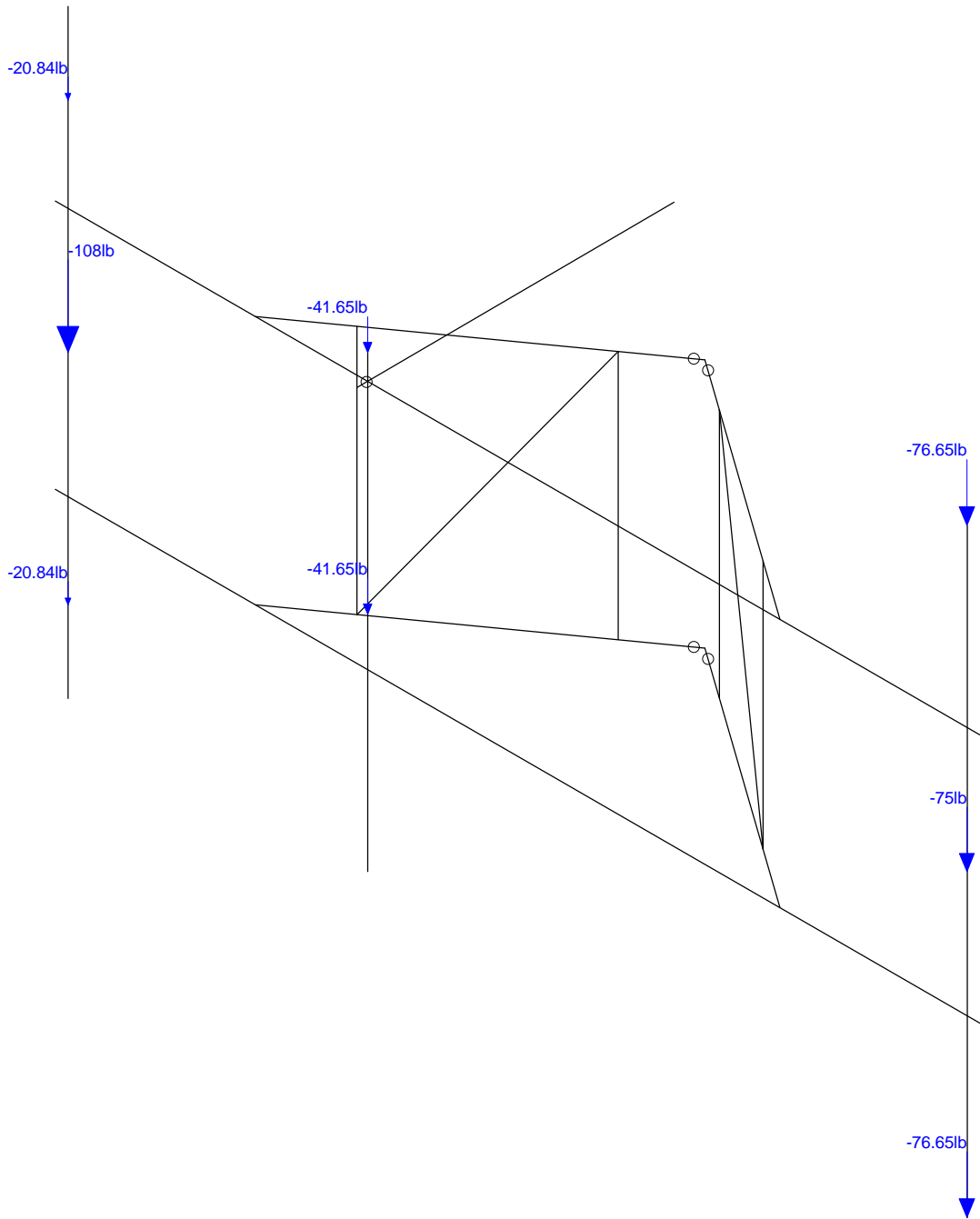
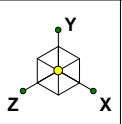
CT11258B_MA.r3d



Centerline Communication...
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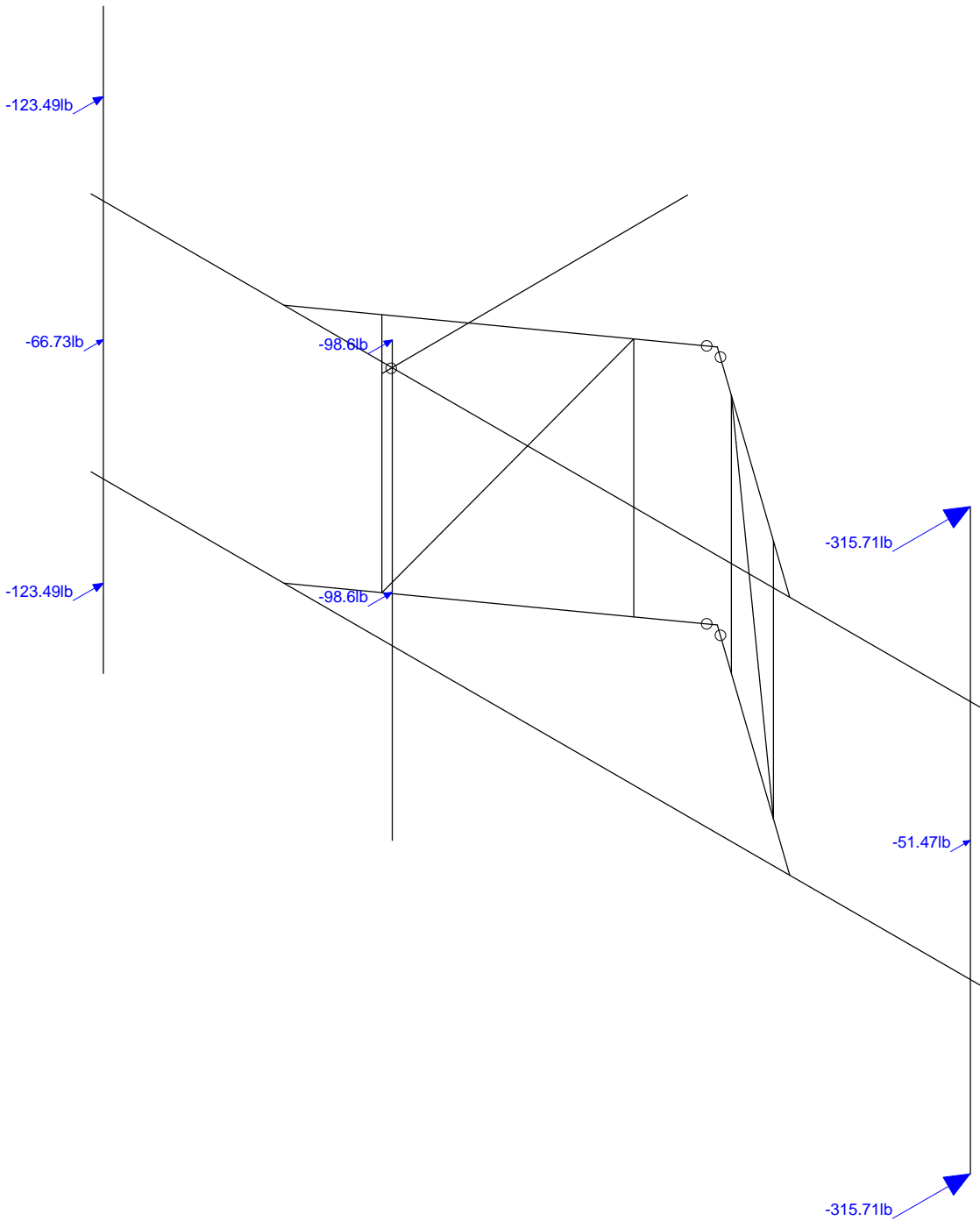
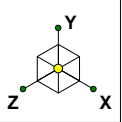
CT11258B_MA

Material Sets
June 22, 2022 at 3:14 PM
CT11258B_MA.r3d



Loads: BLC 1, Dead Load

Centerline Communication...	CT11258B_MA	Dead Load
AP		June 22, 2022 at 3:14 PM
		CT11258B_MA.r3d



Loads: BLC 2, Wind 0

Centerline Communication...

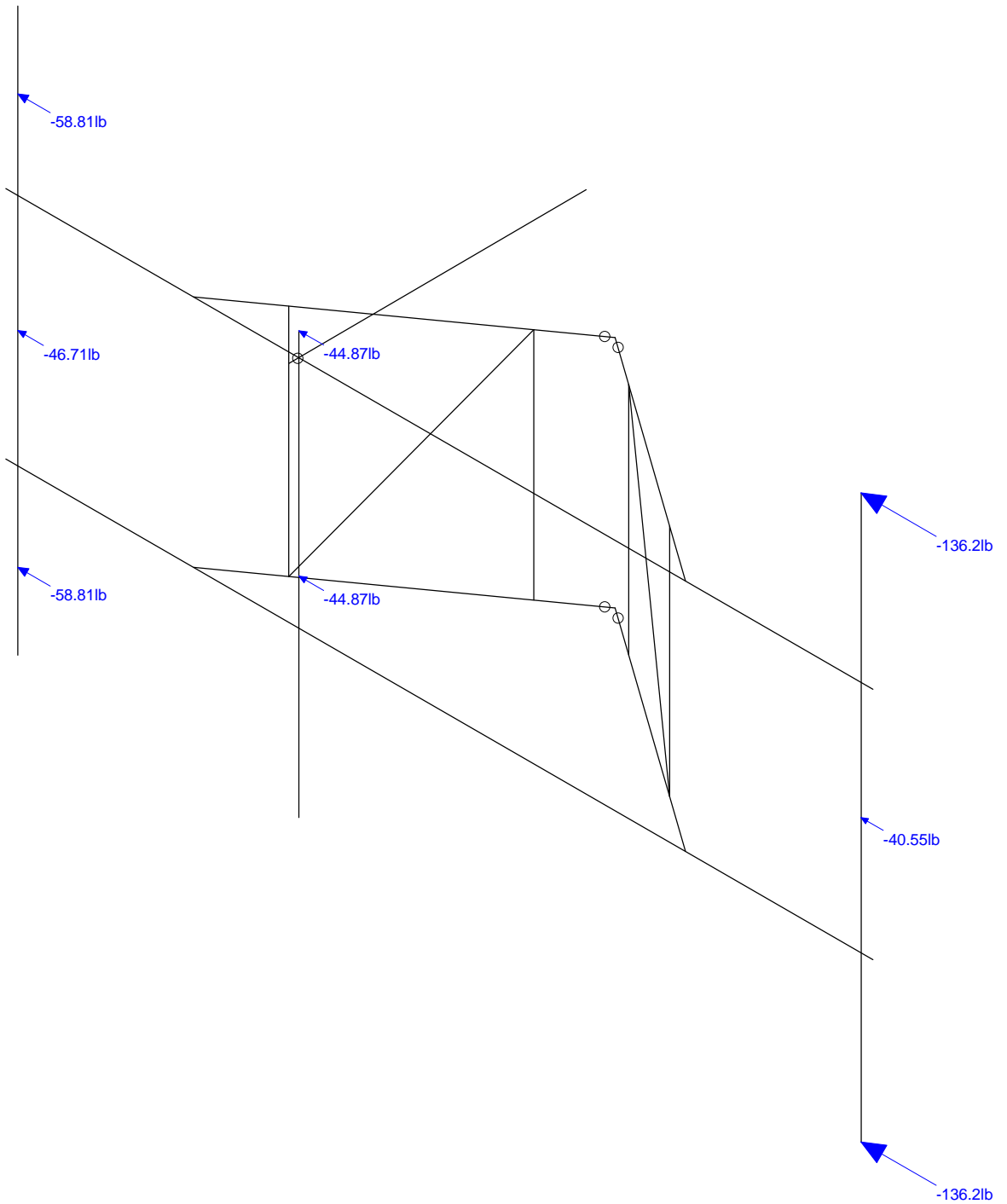
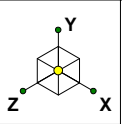
AP

CT11258B_MA

Wind 0

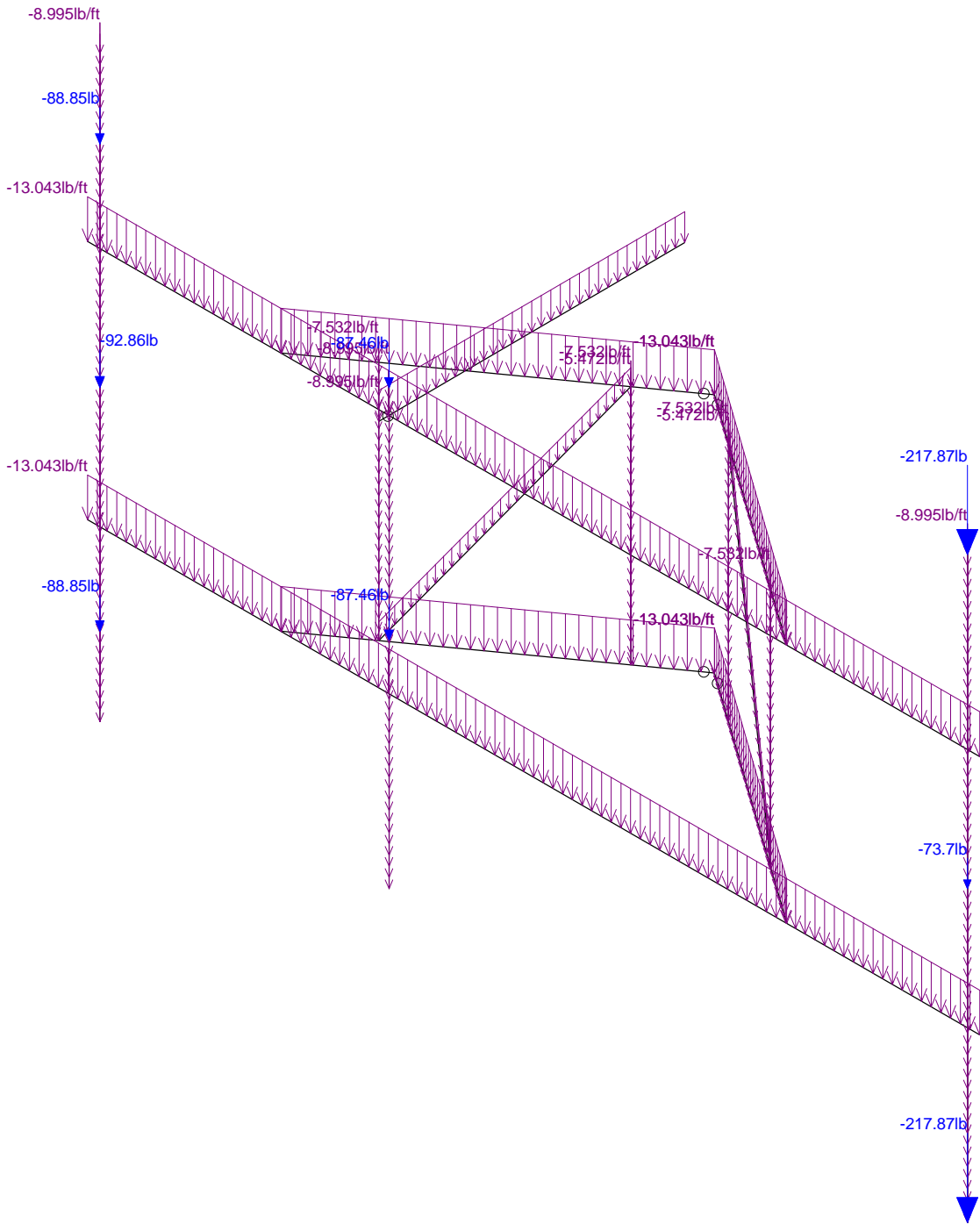
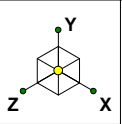
June 22, 2022 at 3:15 PM

CT11258B_MA.r3d



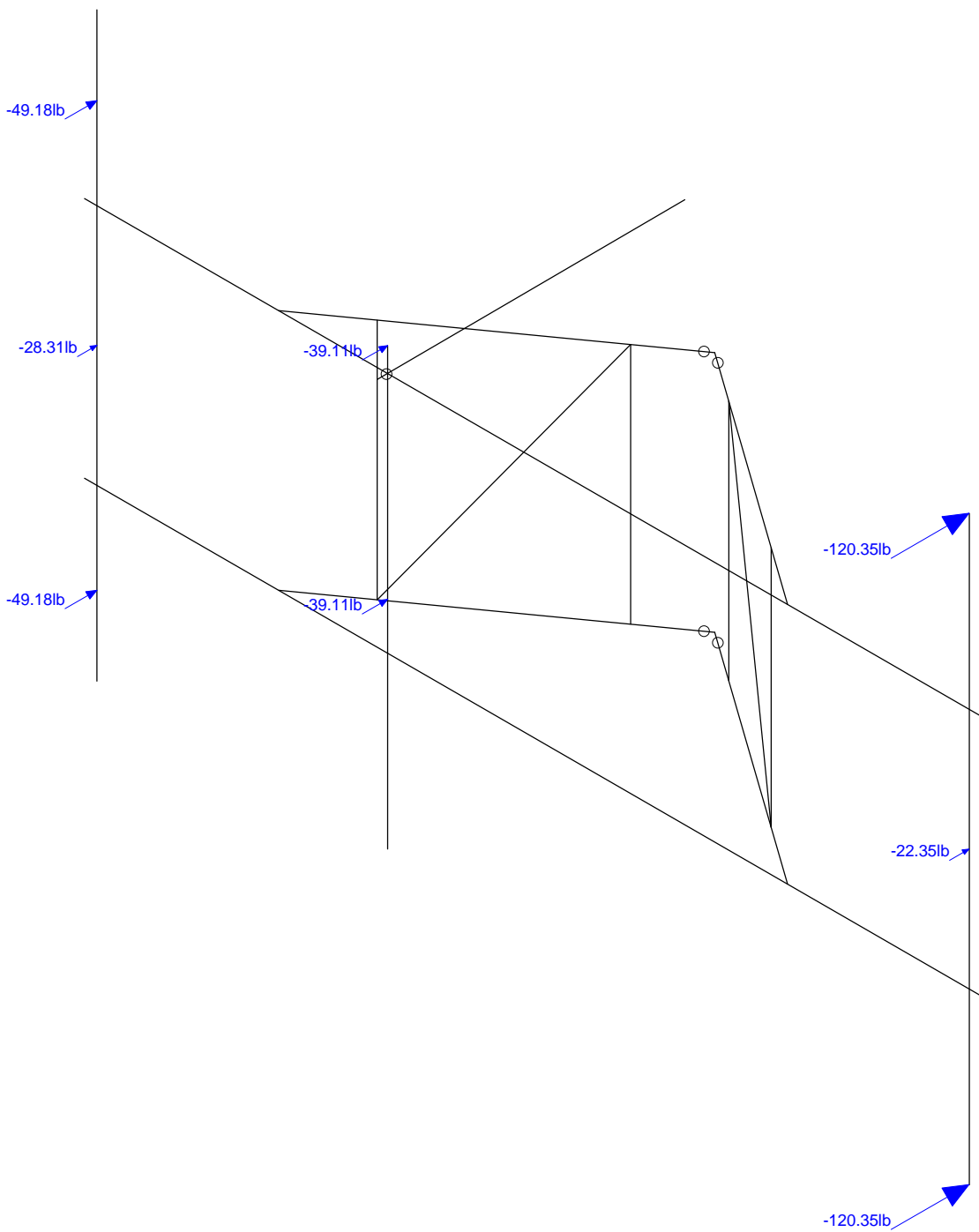
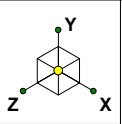
Loads: BLC 5, Wind 90

Centerline Communication...	CT11258B_MA	Wind 90
AP		June 22, 2022 at 3:15 PM
		CT11258B_MA.r3d



Loads: BLC 9, Ice Weight

Centerline Communication...	CT11258B_MA	Ice Weight
AP		June 22, 2022 at 3:15 PM
		CT11258B_MA.r3d



Loads: BLC 10, Ice + Wind 0

Centerline Communication...

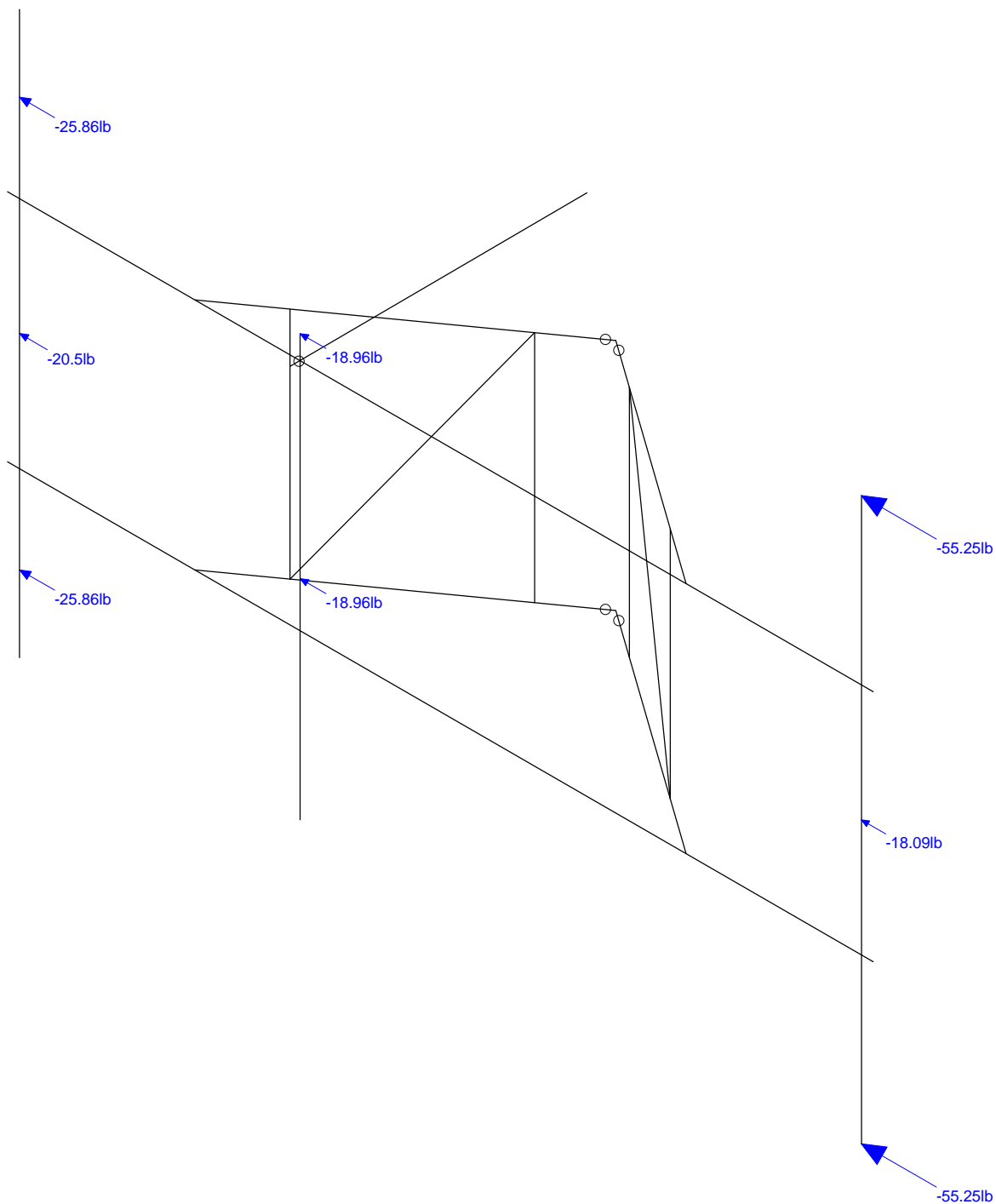
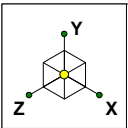
AP

CT11258B_MA

Ice + Wind 0

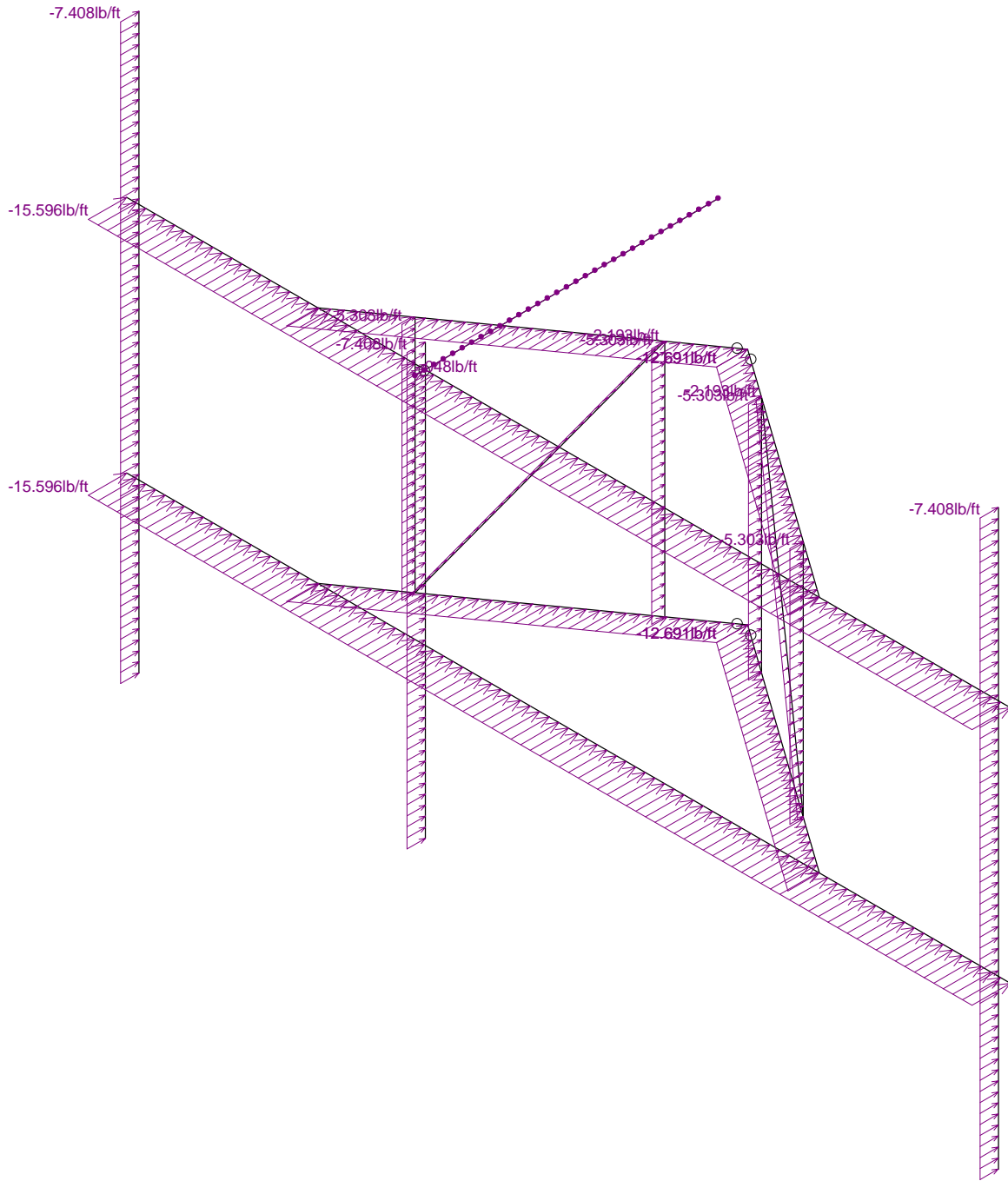
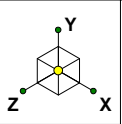
June 22, 2022 at 3:15 PM

CT11258B_MA.r3d



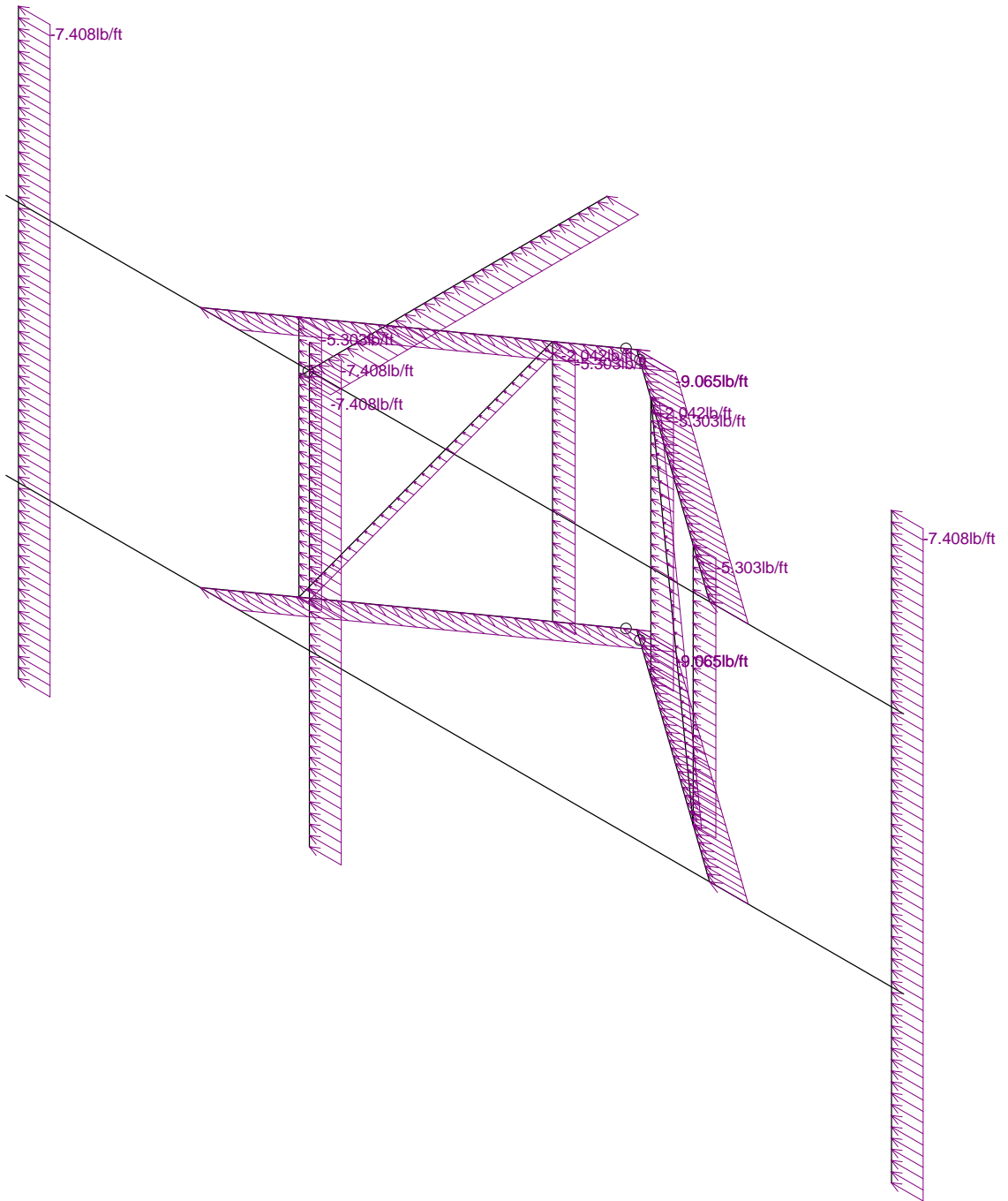
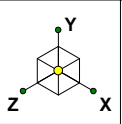
Loads: BLC 13, Ice + Wind 90

Centerline Communication...	CT11258B_MA	Ice + Wind 90
AP		June 22, 2022 at 3:15 PM
		CT11258B_MA.r3d



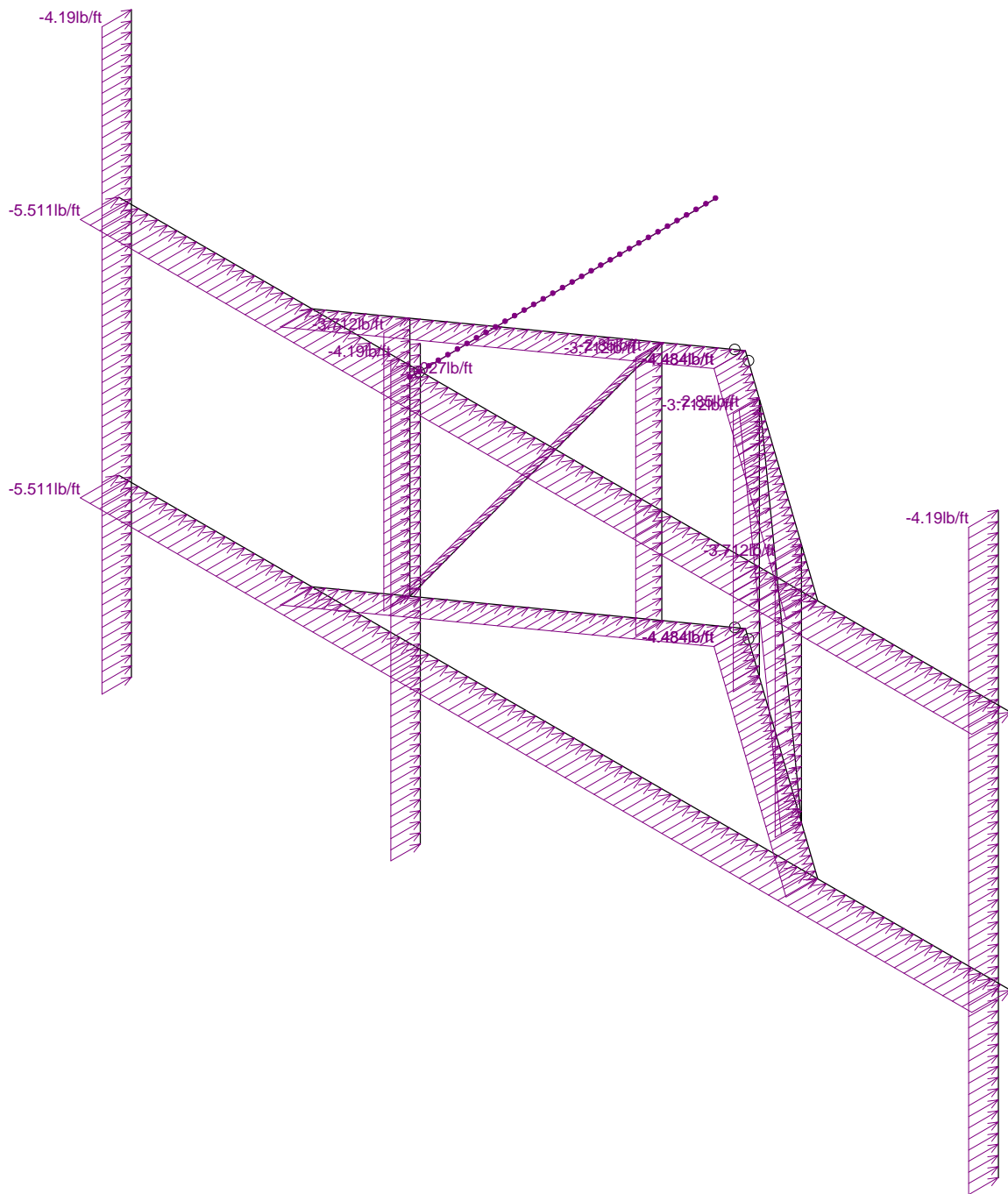
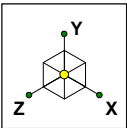
Loads: BLC 17, Distri. Wind Z

Centerline Communication...		Distr. Wind 0
AP	CT11258B_MA	June 22, 2022 at 3:15 PM
		CT11258B_MA.r3d



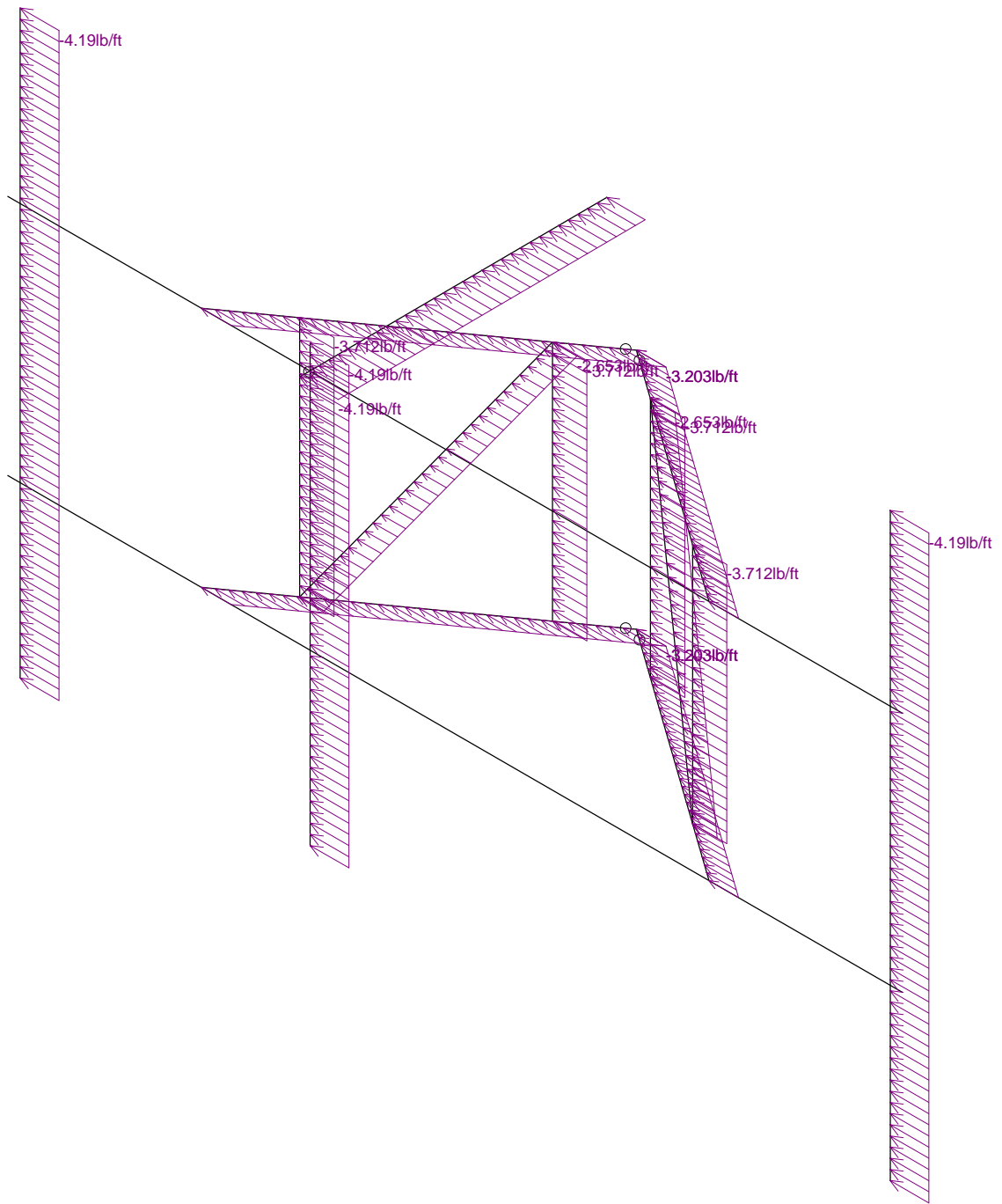
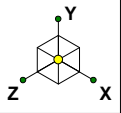
Loads: BLC 18, Distri. Wind X

Centerline Communication...		Distr. Wind 90
AP	CT11258B_MA	June 22, 2022 at 3:15 PM
		CT11258B_MA.r3d



Loads: BLC 19, Distri. Ice + Wind Z

Centerline Communication...		Distr. Ice + Wind 0
AP	CT11258B_MA	June 22, 2022 at 3:16 PM
		CT11258B_MA.r3d



Loads: BLC 20, Distr. Ice + Wind X

Centerline Communication...	CT11258B_MA	Distr. Ice + Wind 90
AP		June 22, 2022 at 3:16 PM
		CT11258B_MA.r3d

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/...	Density[lb/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	490	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	490	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	490	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	490	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	490	50	1.25	65	1.15
8	A913 Gr.65	29000	11154	.3	.65	490	65	1.1	80	1.1
9	A529	29000	11154	.3	.65	490	42	1.5	60	1.2
10	A572	29000	11154	.3	.65	490	42	1.5	60	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	L3X3X1/4	L3X3X4	Beam	Single Angle	A529	Typical	1.44	1.23	1.23	.031
2	PIPE 1.25	PIPE 1.25	Beam	Pipe	A53 Gr.B	Typical	.625	.184	.184	.368
3	0.75" SR	0.75" SR	Beam	BAR	A36 Gr.36	Typical	.442	.016	.016	.031
4	PIPE 2.0	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25

Joint Coordinates and Temperatures

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
1	N1	0	0	0	0	
2	N2	-42	0	30	0	
3	N3	42	0	30	0	
4	N4	-74.04	0	30	0	
5	N5	74.04	0	30	0	
6	N6	-72	0	30	0	
7	N7	-24	0	30	0	
8	N8	24	0	30	0	
9	N9	72	0	30	0	
10	N10	0	39.996	0	0	
11	N11	-42	39.996	30	0	
12	N12	42	39.996	30	0	
13	N13	-74.04	39.996	30	0	
14	N14	74.04	39.996	30	0	
15	N15	-72	39.996	30	0	
16	N16	-24	39.996	30	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
17	N17	24	39.996	30	0	
18	N18	72	39.996	30	0	
19	N19	-24	-27.996	30	0	
20	N21	-72	-27.996	30	0	
21	N22	72	-27.996	30	0	
22	N23	-24	44.004	30	0	
23	N25	-72	68.004	30	0	
24	N26	72	68.004	30	0	
25	N27	8.104788	0	5.789136	0	
26	N28	-8.104788	0	5.789136	0	
27	N29	8.104788	39.996	5.789136	0	
28	N30	-8.104788	39.996	5.789136	0	
29	N31	32.516784	0	23.226276	0	
30	N32	-32.516784	0	23.226276	0	
31	N33	32.516784	39.996	23.226276	0	
32	N34	-32.516784	39.996	23.226276	0	
33	N37	-32.516784	31.498	23.226276	0	
34	N38	-32.849017	31.498	-27.89882	0	

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N38	max	32.755	5	28.271	16	1603.491	6	0	78	0	78	0	78
2		min	-7.448	2	6.532	12	-1032.855	2	0	1	0	1	0	1
3	N10	max	765.455	40	1534.028	17	1986.388	9	0	78	0	78	0	78
4		min	-766.851	57	90.492	15	-3284.648	7	0	1	0	1	0	1
5	N1	max	908.958	54	1414.22	22	2488.074	2	0	78	0	78	0	78
6		min	-621.196	43	57.978	9	-1335.629	15	0	1	0	1	0	1
7	Totals:	max	1608.374	12	2841.706	22	3278.744	9						
8		min	0	1	718.687	9	-3278.744	8						

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N38	Reaction	Reaction	Reaction			
2	N10	Reaction	Reaction	Reaction		Reaction	
3	N1	Reaction	Reaction	Reaction		Reaction	

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
1	M1	L3X3X1/4	51.614			Lbyy						Lateral
2	M2	L3X3X1/4	51.614			Lbyy						Lateral
3	M3	L3X3X1/4	148.08			Lbyy						Lateral
4	M4	L3X3X1/4	51.614			Lbyy						Lateral
5	M5	L3X3X1/4	51.614			Lbyy						Lateral
6	M6	L3X3X1/4	148.08			Lbyy						Lateral
7	MP3	PIPE 2.0	96			Lbyy						Lateral
8	MP2	PIPE 2.0	72			Lbyy						Lateral
9	MP1	PIPE 2.0	96			Lbyy						Lateral
10	M1 1	PIPE 1.25	39.996			Lbyy						Lateral
11	M12	PIPE 1.25	39.996			Lbyy						Lateral
12	M13	PIPE 1.25	39.996			Lbyy						Lateral
13	M14	PIPE 1.25	39.996			Lbyy						Lateral
14	M15	0.75" SR	49.997			Lbyy						Lateral
15	M16	0.75" SR	49.997			Lbyy						Lateral
16	M18	PIPE 2.0	51.126			Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design R...
1	M1	N1	N3		270	L3X3X1/4	Beam	Single Angle	A529	Typical
2	M2	N1	N2			L3X3X1/4	Beam	Single Angle	A529	Typical
3	M3	N4	N5		180	L3X3X1/4	Beam	Single Angle	A529	Typical
4	M4	N10	N12		180	L3X3X1/4	Beam	Single Angle	A529	Typical
5	M5	N10	N11		90	L3X3X1/4	Beam	Single Angle	A529	Typical
6	M6	N13	N14		270	L3X3X1/4	Beam	Single Angle	A529	Typical
7	MP3	N25	N21			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
8	MP2	N23	N19			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
9	MP1	N26	N22			PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical
10	M1 1	N29	N27			PIPE 1.25	Beam	Pipe	A53 Gr.B	Typical
11	M12	N33	N31			PIPE 1.25	Beam	Pipe	A53 Gr.B	Typical
12	M13	N30	N28			PIPE 1.25	Beam	Pipe	A53 Gr.B	Typical
13	M14	N34	N32			PIPE 1.25	Beam	Pipe	A53 Gr.B	Typical
14	M15	N30	N32			0.75" SR	Beam	BAR	A36 Gr....	Typical
15	M16	N29	N31			0.75" SR	Beam	BAR	A36 Gr....	Typical
16	M18	N37	N38			PIPE 2.0	Beam	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	BenPIN					Yes	Default			None
2	M2	BenPIN					Yes	Default			None
3	M3						Yes	Default			None
4	M4	BenPIN					Yes	Default			None
5	M5	BenPIN					Yes	Default			None
6	M6						Yes	Default			None
7	MP3						Yes	Default			None
8	MP2						Yes	Default			None
9	MP1						Yes	Default			None
10	M1 1						Yes	Default			None
11	M12						Yes	Default			None
12	M13						Yes	Default			None
13	M14						Yes	Default			None
14	M15					Tension ...	Yes	Default			None
15	M16					Tension ...	Yes	Default			None
16	M18	BenPIN					Yes	Default			None

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
1	Dead Load	DL		-1			8		
2	Wind 0	WLZ					16		
3	Wind 30	None					16		
4	Wind 60	None					16		
5	Wind 90	WLX					16		
6	Wind 120	None					16		
7	Wind 150	None					16		
8	Wind 180	WLZ					16		
9	Ice Weight	DL					8	16	
10	Ice + Wind 0	WLZ					16		
11	Ice + Wind 30	None					16		
12	Ice + Wind 60	None					16		
13	Ice + Wind 90	WLX					16		
14	Ice + Wind 120	None					16		
15	Ice + Wind 150	None					16		
16	Ice + Wind 180	WLZ					16		
17	Distri. Wind Z	WLZ						16	
18	Distri. Wind X	WLX						16	
19	Distri. Ice + Wind Z	WLZ						16	



Company : Centerline Communications, LLC
 Designer : AP
 Job Number :
 Model Name : CT11258B_MA

June 22, 2022
 3:16 PM
 Checked By: JG

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
20	Distr. Ice + Wind X	WLX						16	
21	Seismic Load Z	ELZ					8	16	
22	Seismic Load X	ELX					8	16	
23	Live Load 1	LL					1		
24	Live Load 2	LL					1		
25	Live Load 3	LL					1		

Load Combinations

	Description	Solve	PDelta	S...B...Fa...B...Fa...B...Fa...B...Fa...B...Fa...B...Fa...B...Fa...																
1	1.4D	Yes	Y	1 1.4																
2	1.2D + 1.6W 0°	Yes	Y	1 1.2 2 1.6 17 1.6 18																
3	1.2D + 1.6W 30°	Yes	Y	1 1.2 3 1.6 17 1.... 18 .8																
4	1.2D + 1.6W 60°	Yes	Y	1 1.2 4 1.6 17 .8 18 1....																
5	1.2D + 1.6W 90°	Yes	Y	1 1.2 5 1.6 17 18 1.6																
6	1.2D + 1.6W 120°	Yes	Y	1 1.2 6 1.6 17 -.8 18 1....																
7	1.2D + 1.6W 150°	Yes	Y	1 1.2 7 1.6 17 -1.... 18 .8																
8	1.2D + 1.6W 180°	Yes	Y	1 1.2 8 1.6 17 -1.6 18																
9	0.9D + 1.6W 0°	Yes	Y	1 .9 2 1.6 17 1.6 18																
10	0.9D + 1.6W 30°	Yes	Y	1 .9 3 1.6 17 1.... 18 .8																
11	0.9D + 1.6W 60°	Yes	Y	1 .9 4 1.6 17 .8 18 1....																
12	0.9D + 1.6W 90°	Yes	Y	1 .9 5 1.6 17 18 1.6																
13	0.9D + 1.6W 120°	Yes	Y	1 .9 6 1.6 17 -.8 18 1....																
14	0.9D + 1.6W 150°	Yes	Y	1 .9 7 1.6 17 -1.... 18 .8																
15	0.9D + 1.6W 180°	Yes	Y	1 .9 8 1.6 17 -1.6 18																
16	1.2D + 1.0Di + 1.0...	Yes	Y	1 1.2 9 1 10 1 19 1 20																
17	1.2D + 1.0Di + 1.0...	Yes	Y	1 1.2 9 1 11 1 19 .866 20 .5																
18	1.2D + 1.0Di + 1.0...	Yes	Y	1 1.2 9 1 12 1 19 .5 20 .866																
19	1.2D + 1.0Di + 1.0...	Yes	Y	1 1.2 9 1 13 1 19 20 1																
20	1.2D + 1.0Di + 1.0...	Yes	Y	1 1.2 9 1 14 1 19 -.5 20 .866																
21	1.2D + 1.0Di + 1.0...	Yes	Y	1 1.2 9 1 15 1 19 -.8.. 20 .5																
22	1.2D + 1.0Di + 1.0...	Yes	Y	1 1.2 9 1 16 1 19 -1 20																
23	1.2D + 1.0Eh 0°	Yes	Y	1 1.2 21 1 22																
24	1.2D + 1.0Eh 30°	Yes	Y	1 1.2 21 .866 22 .5																
25	1.2D + 1.0Eh 60°	Yes	Y	1 1.2 21 .5 22 .866																
26	1.2D + 1.0Eh 90°	Yes	Y	1 1.2 21 22 1																
27	1.2D + 1.0Eh 120°	Yes	Y	1 1.2 21 -.5 22 .866																
28	1.2D + 1.0Eh 150°	Yes	Y	1 1.2 21 -.8.. 22 .5																
29	1.2D + 1.0Eh 180°	Yes	Y	1 1.2 21 -1 22																
30	0.9D + 1.0Eh 0°	Yes	Y	1 .9 21 1 22																



Company : Centerline Communications, LLC
 Designer : AP
 Job Number :
 Model Name : CT11258B_MA

June 22, 2022
 3:16 PM
 Checked By: JG

Load Combinations (Continued)

Description	Solve	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
31	0.9D + 1.0Eh 30°	Yes	Y	1	.9	21	.866	22	.5										
32	0.9D + 1.0Eh 60°	Yes	Y	1	.9	21	.5	22	.866										
33	0.9D + 1.0Eh 90°	Yes	Y	1	.9	21		22	1										
34	0.9D + 1.0Eh 120°	Yes	Y	1	.9	21	-.5	22	.866										
35	0.9D + 1.0Eh 150°	Yes	Y	1	.9	21	-.8	22	.5										
36	0.9D + 1.0Eh 180°	Yes	Y	1	.9	21	-1	22											
37	1.0D +1.5Lv + 1.0...	Yes	Y	1	1	23	1.5	2	.292	17	.292	18							
38	1.0D +1.5Lv + 1.0...	Yes	Y	1	1	23	1.5	3	.292	17	.253	18	.146						
39	1.0D +1.5Lv + 1.0...	Yes	Y	1	1	23	1.5	4	.292	17	.146	18	.253						
40	1.0D +1.5Lv + 1.0...	Yes	Y	1	1	23	1.5	5	.292	17		18	.292						
41	1.0D +1.5Lv + 1.0...	Yes	Y	1	1	23	1.5	6	.292	17	-.1	18	.253						
42	1.0D +1.5Lv + 1.0...	Yes	Y	1	1	23	1.5	7	.292	17	-.2	18	.146						
43	1.0D +1.5Lv + 1.0...	Yes	Y	1	1	23	1.5	8	.292	17	-.2	18							
44	1.0D +1.5Lv + 1.0...	Yes	Y	1	1	24	1.5	2	.292	17	.292	18							
45	1.0D +1.5Lv + 1.0...	Yes	Y	1	1	24	1.5	3	.292	17	.253	18	.146						
46	1.0D +1.5Lv + 1.0...	Yes	Y	1	1	24	1.5	4	.292	17	.146	18	.253						
47	1.0D +1.5Lv + 1.0...	Yes	Y	1	1	24	1.5	5	.292	17		18	.292						
48	1.0D +1.5Lv + 1.0...	Yes	Y	1	1	24	1.5	6	.292	17	-.1	18	.253						
49	1.0D +1.5Lv + 1.0...	Yes	Y	1	1	24	1.5	7	.292	17	-.2	18	.146						
50	1.0D +1.5Lv + 1.0...	Yes	Y	1	1	24	1.5	8	.292	17	-.2	18							
51	1.0D +1.5Lv + 1.0...	Yes	Y	1	1	25	1.5	2	.292	17	.292	18							
52	1.0D +1.5Lv + 1.0...	Yes	Y	1	1	25	1.5	3	.292	17	.253	18	.146						
53	1.0D +1.5Lv + 1.0...	Yes	Y	1	1	25	1.5	4	.292	17	.146	18	.253						
54	1.0D +1.5Lv + 1.0...	Yes	Y	1	1	25	1.5	5	.292	17		18	.292						
55	1.0D +1.5Lv + 1.0...	Yes	Y	1	1	25	1.5	6	.292	17	-.1	18	.253						
56	1.0D +1.5Lv + 1.0...	Yes	Y	1	1	25	1.5	7	.292	17	-.2	18	.146						
57	1.0D +1.5Lv + 1.0...	Yes	Y	1	1	25	1.5	8	.292	17	-.2	18							
58	1.2D + 1.0Lv + 1.0...	Yes	Y	1	1.2	23	1	2	.082	17	.082	18							
59	1.2D + 1.0Lv + 1.0...	Yes	Y	1	1.2	23	1	3	.082	17	.071	18	.041						
60	1.2D + 1.0Lv + 1.0...	Yes	Y	1	1.2	23	1	4	.082	17	.041	18	.071						
61	1.2D + 1.0Lv + 1.0...	Yes	Y	1	1.2	23	1	5	.082	17		18	.082						
62	1.2D + 1.0Lv + 1.0...	Yes	Y	1	1.2	23	1	6	.082	17	-.0	18	.071						
63	1.2D + 1.0Lv + 1.0...	Yes	Y	1	1.2	23	1	7	.082	17	-.0	18	.041						
64	1.2D + 1.0Lv + 1.0...	Yes	Y	1	1.2	23	1	8	.082	17	-.0	18							
65	1.2D + 1.0Lv + 1.0...	Yes	Y	1	1.2	24	1	2	.082	17	.082	18							
66	1.2D + 1.0Lv + 1.0...	Yes	Y	1	1.2	24	1	3	.082	17	.071	18	.041						
67	1.2D + 1.0Lv + 1.0...	Yes	Y	1	1.2	24	1	4	.082	17	.041	18	.071						
68	1.2D + 1.0Lv + 1.0...	Yes	Y	1	1.2	24	1	5	.082	17		18	.082						
69	1.2D + 1.0Lv + 1.0...	Yes	Y	1	1.2	24	1	6	.082	17	-.0	18	.071						
70	1.2D + 1.0Lv + 1.0...	Yes	Y	1	1.2	24	1	7	.082	17	-.0	18	.041						

Load Combinations (Continued)

	Description	Solve	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
71	1.2D + 1.0Lv + 1.0...	Yes	Y	1	1.2	24	1	8	.082	17	-.0	18								
72	1.2D + 1.0Lv + 1.0...	Yes	Y	1	1.2	25	1	2	.082	17	.082	18								
73	1.2D + 1.0Lv + 1.0...	Yes	Y	1	1.2	25	1	3	.082	17	.071	18	.041							
74	1.2D + 1.0Lv + 1.0...	Yes	Y	1	1.2	25	1	4	.082	17	.041	18	.071							
75	1.2D + 1.0Lv + 1.0...	Yes	Y	1	1.2	25	1	5	.082	17		18	.082							
76	1.2D + 1.0Lv + 1.0...	Yes	Y	1	1.2	25	1	6	.082	17	-.0	18	.071							
77	1.2D + 1.0Lv + 1.0...	Yes	Y	1	1.2	25	1	7	.082	17	-.0	18	.041							
78	1.2D + 1.0Lv + 1.0...	Yes	Y	1	1.2	25	1	8	.082	17	-.0	18								

Envelope AISC 14th(360-10): LRFD Steel Code Checks

Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[...]	Dir	LC	phi*P...	phi*P...	phi*M...	phi*M.....	Eqn	
1	M14	PIPE 1.25	.853	8.749	13	.281	0	6	1490...	1968...	800.6...	800.6.....	H1-1b	
2	M6	L3X3X4	.839	117.23	8	.108	117...	y	8	5077...	54432	1969...	3589.....	H2-1
3	M3	L3X3X4	.802	117.23	2	.149	117...	z	2	5077...	54432	1969...	3640.....	H2-1
4	MP1	PIPE 2.0	.689	68	2	.071	68		8	1491...	32130	1871...	1871.....	H1-1b
5	M4	L3X3X4	.447	51.614	8	.065	40.3...	y	5	3362...	54432	1969...	4268.....	H2-1
6	M1	L3X3X4	.444	51.614	2	.086	51.6...	y	2	3362...	54432	1969...	4260.....	H2-1
7	M2	L3X3X4	.356	51.614	2	.143	51.6...	z	6	3362...	54432	1969...	4381.....	H2-1
8	M5	L3X3X4	.336	51.614	8	.199	51.6...	y	13	3362...	54432	1969...	4381.....	H2-1
9	MP3	PIPE 2.0	.239	29	20	.038	29		40	1491...	32130	1871...	1871.....	H1-1b
10	M1 1	PIPE 1.25	.227	0	22	.094	39.9...		6	1490...	1968...	800.6...	800.6.....	H1-1b
11	MP2	PIPE 2.0	.220	43.5	7	.067	4.5		13	2086...	32130	1871...	1871.....	H1-1b
12	M16	0.75" SR	.206	0	20	.031	49.9...		7	1403...	1431...	178.9...	178.9.....	H1-...
13	M13	PIPE 1.25	.179	39.996	16	.107	0		6	1490...	1968...	800.6...	800.6.....	H1-1b
14	M12	PIPE 1.25	.178	0	17	.079	39.9...		6	1490...	1968...	800.6...	800.6.....	H1-1b
15	M15	0.75" SR	.158	0	16	.029	0		7	1403...	1431...	178.9...	178.9.....	H1-...
16	M18	PIPE 2.0	.062	51.126	6	.003	51.1...		19	2584...	32130	1871...	1871.....	H1-...

Exhibit E

Power Density/RF Emissions Report



Radio Frequency Exposure Analysis Report

September 14, 2022

Centerline on behalf of T-Mobile
Centerline Communications Project Number: N/A

T-Mobile Site Name: Bozrah-1/Rt. 2
Site Number: CT11258B

Site Address: 10 Polly Lane, Bozrah, CT 06336

Site Compliance Summary

T-Mobile Compliance Status: Compliant

Cumulative Calculated Power Density (Ground Level): 24.20446 $\mu\text{W}/\text{cm}^2$

Cumulative General Population % MPE (Ground Level): 2.42051%

Cumulative Calculated Power Density (Hilltop Level): 134.006183 $\mu\text{W}/\text{cm}^2$

Cumulative General Population % MPE (Hilltop Level): 13.408681%



September 14, 2022

Centerline
Attn: Jessica Meyer, Project Coordinator
750 W Center St, Suite 301
West Bridgewater, MA 02379

RF Exposure Analysis for Site: **Bozrah-1/Rt. 2**

Centerline Communications, LLC (“Centerline”) was contracted to analyze the proposed T-Mobile facility at **10 Polly Lane, Bozrah, CT 06336** for the purpose of determining whether the predictive exposure from the proposed facility is within specified federal limits.

All information used in this report was analyzed as a percentage of the Maximum Permissible Exposure (% MPE) limits as detailed in 47 CFR § 1.1310 as well as Federal Communications Commission (FCC) OET Bulletin 65 Edition 97-01. The FCC MPE limits are typically expressed in units of milliwatts per square centimeter (mW/cm^2) or microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The exposure limits vary depending upon the frequencies being utilized. The General Population/Uncontrolled MPE limit (in mW/cm^2) for frequencies between 300 and 1500 is defined as frequency (in MHz) divided by 1500 ($f_{\text{MHz}}/1500$). Frequencies between 1500 and 100,000 MHz have a General Population/Uncontrolled MPE limit of $1 \text{ mW}/\text{cm}^2$ ($1000 \mu\text{W}/\text{cm}^2$). The calculated power density at each sample point divided by the limit at each calculated frequency provides a result in % MPE. Summing the calculated % MPE from all contributors provides a cumulative % MPE at a particular sample point. Wireless carriers use different frequency bands with varying MPE limits; therefore, it is useful to report results in terms of % MPE as opposed to power density.

All results were compared to the FCC radio frequency exposure rules as detailed in 47 CFR § 1.1307(b) to determine compliance with the MPE limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits, as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means. Additional details can be found in FCC OET 65.



Calculation Methodology

Centerline Communications, LLC has performed theoretical modeling of the site using a software tool, RoofMaster®, which incorporates calculation methodologies detailed in FCC OET 65. RoofMaster® uses a cylindrical model for conservative power density predictions within the near field of the antenna where the antenna pattern has not truly formed yet. Within this area power density values tend to decrease based upon an inverse distance function. At the point where it is appropriate for modeling to change from near-field calculations to far-field calculations, the power decreases inversely with the square of the distance. The modeling is based on worst-case assumptions in terms of transmitter power and duty cycle. No losses were included in the power calculations unless they were specifically provided for the project.

In OET 65, a far field model is presented to calculate the spatial peak power density. The RoofMaster® implementation of this model incorporates antenna manufacturer's horizontal and vertical pattern data to determine the power density in all directions. This model yields the power density at a single point in space. In order to determine the spatial power density for comparison to the FCC limits, the average of several points calculated within the human profile (0-6') must be conducted. RoofMaster® calculates seven power density values between 0-6' above the specified study plane and performs a linear spatial average.



Data & Results

The following table details the antennas and operating parameters for the T-Mobile antenna system as well as any other antenna systems at the site. This is based on antenna information provided by the client and data compiled from other sources where necessary. The data below was input into Roofmaster® to perform the theoretical exposure calculations at the ground level.

The theoretical calculations performed in Roofmaster® determine the cumulative exposure at all sample points at ground level (0-6' spatial average). The results from highest cumulative sample point at ground level surrounding the site are displayed in the table below. The contribution from directional antennas to the maximum cumulative totals varies greatly depending on location; therefore, the contribution from one antenna sector at the highest calculated exposure point may be greater or less than other sectors since sectorized directional antennas are pointed in different directions and there is not much overlapping exposure.

The contribution to the cumulative power density and % MPE for each antenna/frequency band is listed in the table. The cumulative power density and cumulative % MPE are displayed at the bottom of the table.



**Maximum Calculated Cumulative Power Density at 0' Ground Level
(Location: approximately 512' north of site)**

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/Channel (watts)	ERP (watts)	Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	General Population MPE Limit ($\mu\text{W}/\text{cm}^2$)	General Population % MPE
T-Mobile A 1	RFS APXVAALL24 43-U-NA20	700	13.65	177.00	4.00	40.00	3707.83	0.00000	466.67	0.00000
T-Mobile A 1	RFS APXVAALL24 43-U-NA20	600	12.95	177.00	2.00	40.00	1577.94	0.00000	400.00	0.00000
T-Mobile A 1	RFS APXVAALL24 43-U-NA20	600	12.95	177.00	2.00	30.00	1183.45	0.00000	400.00	0.00000
T-Mobile A 2	ERICSSON AIR6419	2500	22.05	177.00	2.00	80.00	25651.93	0.24706	1000.00	0.02471
T-Mobile A 2	ERICSSON AIR6419	2500	22.05	177.00	2.00	80.00	25651.93	0.24706	1000.00	0.02471
T-Mobile A 3	COMMSCOPE VV-65B-R1	1900	16.16	177.00	2.00	140.00	11565.33	0.00000	1000.00	0.00000
T-Mobile A 3	COMMSCOPE VV-65B-R1	2100	16.68	177.00	2.00	140.00	13036.41	0.00000	1000.00	0.00000
T-Mobile A 3	COMMSCOPE VV-65B-R1	1900	16.16	177.00	1.00	15.00	619.57	0.00000	1000.00	0.00000
T-Mobile B 4	RFS APXVAALL24 43-U-NA20	700	13.65	177.00	4.00	40.00	3707.83	0.00000	466.67	0.00000
T-Mobile B 4	RFS APXVAALL24 43-U-NA20	600	12.95	177.00	2.00	40.00	1577.94	0.00000	400.00	0.00000
T-Mobile B 4	RFS APXVAALL24 43-U-NA20	600	12.95	177.00	2.00	30.00	1183.45	0.00000	400.00	0.00000
T-Mobile B 5	ERICSSON AIR6419	2500	22.05	177.00	2.00	80.00	25651.93	0.00279	1000.00	0.00028
T-Mobile B 5	ERICSSON AIR6419	2500	22.05	177.00	2.00	80.00	25651.93	0.00279	1000.00	0.00028
T-Mobile B 6	COMMSCOPE VV-65B-R1	1900	16.16	177.00	2.00	140.00	11565.33	0.00000	1000.00	0.00000
T-Mobile B 6	COMMSCOPE VV-65B-R1	2100	16.68	177.00	2.00	140.00	13036.41	0.00000	1000.00	0.00000
T-Mobile B 6	COMMSCOPE VV-65B-R1	1900	16.16	177.00	1.00	15.00	619.57	0.00000	1000.00	0.00000
T-Mobile C 7	RFS APXVAALL24 43-U-NA20	700	13.65	177.00	4.00	40.00	3707.83	0.00004	466.67	0.00001
T-Mobile C 7	RFS APXVAALL24 43-U-NA20	600	12.95	177.00	2.00	40.00	1577.94	0.00002	400.00	0.00000
T-Mobile C 7	RFS APXVAALL24 43-U-NA20	600	12.95	177.00	2.00	30.00	1183.45	0.00001	400.00	0.00000
T-Mobile C 8	ERICSSON AIR6419	2500	22.05	177.00	2.00	80.00	25651.93	11.85101	1000.00	1.18510
T-Mobile C 8	ERICSSON AIR6419	2500	22.05	177.00	2.00	80.00	25651.93	11.85101	1000.00	1.18510
T-Mobile C 9	COMMSCOPE VV-65B-R1	1900	16.16	177.00	2.00	140.00	11565.33	0.00009	1000.00	0.00001
T-Mobile C 9	COMMSCOPE VV-65B-R1	2100	16.68	177.00	2.00	140.00	13036.41	0.00010	1000.00	0.00001
T-Mobile C 9	COMMSCOPE VV-65B-R1	1900	16.16	177.00	1.00	15.00	619.57	0.00001	1000.00	0.00000
AT&T A 10	CCI DMP65R-BU8D	700	12.25	187.00	4.00	40.00	2686.09	0.00000	466.67	0.00000
AT&T A 10	CCI DMP65R-BU8D	850	12.55	187.00	4.00	40.00	2878.19	0.00000	566.67	0.00000
AT&T A 11	CCI DMP65R-BU8D	700	12.25	187.00	4.00	40.00	2686.09	0.00000	466.67	0.00000
AT&T A 11	CCI DMP65R-BU8D	1900	14.15	187.00	4.00	40.00	4160.26	0.00000	1000.00	0.00000
AT&T A 11	CCI DMP65R-BU8D	2100	15.15	187.00	4.00	40.00	5237.45	0.00000	1000.00	0.00000
AT&T A 12	POWERWAVE 7770	850	11.35	187.00	1.00	40.00	545.83	0.00000	566.67	0.00000
AT&T B 13	CCI DMP65R-BU8D	700	12.25	187.00	4.00	40.00	2686.09	0.00000	466.67	0.00000
AT&T B 13	CCI DMP65R-BU8D	850	12.55	187.00	4.00	40.00	2878.19	0.00000	566.67	0.00000
AT&T B 14	CCI DMP65R-BU8D	700	12.25	187.00	4.00	40.00	2686.09	0.00000	466.67	0.00000
AT&T B 14	CCI DMP65R-BU8D	1900	14.15	187.00	4.00	40.00	4160.26	0.00000	1000.00	0.00000



Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	General Population MPE Limit ($\mu\text{W}/\text{cm}^2$)	General Population % MPE
AT&T B 14	CCI DMP65R-BU8D	2100	15.15	187.00	4.00	40.00	5237.45	0.00000	1000.00	0.00000
AT&T B 15	POWERWAVE 7770	850	11.35	187.00	1.00	40.00	545.83	0.00000	566.67	0.00000
AT&T C 16	CCI DMP65R-BU8D	700	12.25	187.00	4.00	40.00	2686.09	0.00004	466.67	0.00001
AT&T C 16	CCI DMP65R-BU8D	850	12.55	187.00	4.00	40.00	2878.19	0.00004	566.67	0.00001
AT&T C 17	CCI DMP65R-BU8D	700	12.25	187.00	4.00	40.00	2686.09	0.00004	466.67	0.00001
AT&T C 17	CCI DMP65R-BU8D	1900	14.15	187.00	4.00	40.00	4160.26	0.00003	1000.00	0.00000
AT&T C 17	CCI DMP65R-BU8D	2100	15.15	187.00	4.00	40.00	5237.45	0.00003	1000.00	0.00000
AT&T C 18	POWERWAVE 7770	850	11.35	187.00	1.00	40.00	545.83	0.00001	566.67	0.00000
Sprint A 19	RFS APXV9ERR18-C	850	11.85	150.00	8.00	20.00	2449.74	0.00000	566.67	0.00000
Sprint A 19	RFS APXV9ERR18-C-	1900	14.55	150.00	4.00	45.00	5131.83	0.00000	1000.00	0.00000
Sprint A 20	COMMSCOPE DT465B-2XR	2500	15.62	150.00	2.00	50.00	3647.54	0.00000	1000.00	0.00000
Sprint B 21	RFS APXV9ERR18-C	850	11.85	150.00	8.00	20.00	2449.74	0.00000	566.67	0.00000
Sprint B 21	RFS APXV9ERR18-C-	1900	14.55	150.00	4.00	45.00	5131.83	0.00000	1000.00	0.00000
Sprint B 22	COMMSCOPE DT465B-2XR	2500	15.62	150.00	2.00	50.00	3647.54	0.00000	1000.00	0.00000
Sprint C 23	RFS APXV9ERR18-C	850	11.85	150.00	8.00	20.00	2449.74	0.00005	566.67	0.00001
Sprint C 23	RFS APXV9ERR18-C-	1900	14.55	150.00	4.00	45.00	5131.83	0.00005	1000.00	0.00001
Sprint C 24	COMMSCOPE DT465B-2XR	2500	15.62	150.00	2.00	50.00	3647.54	0.00004	1000.00	0.00000
Verizon A 25	ANTEL BXA-70063-6CF	850	14.50	136.00	7.00	20.00	3945.74	0.00000	566.67	0.00000
Verizon A 26	COMMSCOPE JAHH-65B-R3B	700	12.11	136.00	4.00	40.00	2600.88	0.00000	466.67	0.00000
Verizon A 26	COMMSCOPE JAHH-65B-R3B	1900	15.72	136.00	4.00	40.00	5972.00	0.00000	1000.00	0.00000
Verizon A 27	COMMSCOPE JAHH-65B-R3B	850	12.81	136.00	4.00	40.00	3055.77	0.00000	566.67	0.00000
Verizon A 27	COMMSCOPE JAHH-65B-R3B	2100	15.71	136.00	4.00	40.00	5958.27	0.00000	1000.00	0.00000
Verizon A 28	SAMSUNG MT6407	3700	23.35	136.00	2.00	100.00	43254.37	0.00003	1000.00	0.00000
Verizon B 29	ANTEL BXA-70063-6CF	850	14.50	136.00	7.00	20.00	3945.74	0.00000	566.67	0.00000
Verizon B 30	COMMSCOPE JAHH-65B-R3B	700	12.11	136.00	4.00	40.00	2600.88	0.00000	466.67	0.00000
Verizon B 30	COMMSCOPE JAHH-65B-R3B	1900	15.72	136.00	4.00	40.00	5972.00	0.00000	1000.00	0.00000
Verizon B 31	COMMSCOPE JAHH-65B-R3B	850	12.81	136.00	4.00	40.00	3055.77	0.00000	566.67	0.00000
Verizon B 31	COMMSCOPE JAHH-65B-R3B	2100	15.71	136.00	4.00	40.00	5958.27	0.00000	1000.00	0.00000
Verizon B 32	SAMSUNG MT6407	3700	23.35	136.00	2.00	100.00	43254.37	0.00003	1000.00	0.00000
Verizon C 33	ANTEL BXA-70063-6CF	850	14.50	136.00	7.00	20.00	3945.74	0.00006	566.67	0.00001
Verizon C 34	COMMSCOPE JAHH-65B-R3B	700	12.11	136.00	4.00	40.00	2600.88	0.00009	466.67	0.00002
Verizon C 34	COMMSCOPE JAHH-65B-R3B	1900	15.72	136.00	4.00	40.00	5972.00	0.00007	1000.00	0.00001
Verizon C 35	COMMSCOPE JAHH-65B-R3B	850	12.81	136.00	4.00	40.00	3055.77	0.00009	566.67	0.00002
Verizon C 35	COMMSCOPE JAHH-65B-R3B	2100	15.71	136.00	4.00	40.00	5958.27	0.00007	1000.00	0.00001
Verizon C 36	SAMSUNG MT6407	3700	23.35	136.00	2.00	100.00	43254.37	0.00139	1000.00	0.00014
Dish A 37	JMA MX08FRO665-21	700	12.05	127.00	4.00	40.00	2565.19	0.00000	466.67	0.00000



Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/Channel (watts)	ERP (watts)	Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	General Population MPE Limit ($\mu\text{W}/\text{cm}^2$)	General Population % MPE
Dish A 37	JMA MX08FRO665-21	2000	15.75	127.00	4.00	40.00	6013.40	0.00000	1000.00	0.00000
Dish A 37	JMA MX08FRO665-21	2100	16.75	127.00	4.00	40.00	7570.42	0.00000	1000.00	0.00000
Dish B 38	JMA MX08FRO665-21	700	12.05	127.00	4.00	40.00	2565.19	0.00000	466.67	0.00000
Dish B 38	JMA MX08FRO665-21	2000	15.75	127.00	4.00	40.00	6013.40	0.00000	1000.00	0.00000
Dish B 38	JMA MX08FRO665-21	2100	16.75	127.00	4.00	40.00	7570.42	0.00000	1000.00	0.00000
Dish C 39	JMA MX08FRO665-21	700	12.05	127.00	4.00	40.00	2565.19	0.00012	466.67	0.00003
Dish C 39	JMA MX08FRO665-21	2000	15.75	127.00	4.00	40.00	6013.40	0.00009	1000.00	0.00001
Dish C 39	JMA MX08FRO665-21	2100	16.75	127.00	4.00	40.00	7570.42	0.00012	1000.00	0.00001
							Cumulative Power Density:	24.20446 $\mu\text{W}/\text{cm}^2$	Cumulative % MPE:	2.42051%

**Maximum Calculated Cumulative Power Density at 100' Hilltop Level
(Location: approximately 220' east of site)**

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/Channel (watts)	ERP (watts)	Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	General Population MPE Limit ($\mu\text{W}/\text{cm}^2$)	General Population % MPE
T-Mobile A 1	RFS APXVAALL24 43-U-NA20	700	13.65	177.00	4.00	40.00	3707.83	0.00136	466.67	0.00029
T-Mobile A 1	RFS APXVAALL24 43-U-NA20	600	12.95	177.00	2.00	40.00	1577.94	0.00068	400.00	0.00017
T-Mobile A 1	RFS APXVAALL24 43-U-NA20	600	12.95	177.00	2.00	30.00	1183.45	0.00051	400.00	0.00013
T-Mobile A 2	ERICSSON AIR6419	2500	22.05	177.00	2.00	80.00	25651.93	65.15696	1000.00	6.51570
T-Mobile A 2	ERICSSON AIR6419	2500	22.05	177.00	2.00	80.00	25651.93	65.15696	1000.00	6.51570
T-Mobile A 3	COMMSCOPE VV-65B-R1	1900	16.16	177.00	2.00	140.00	11565.33	0.00284	1000.00	0.00028
T-Mobile A 3	COMMSCOPE VV-65B-R1	2100	16.68	177.00	2.00	140.00	13036.41	0.00299	1000.00	0.00030
T-Mobile A 3	COMMSCOPE VV-65B-R1	1900	16.16	177.00	1.00	15.00	619.57	0.00015	1000.00	0.00002
T-Mobile B 4	RFS APXVAALL24 43-U-NA20	700	13.65	177.00	4.00	40.00	3707.83	0.00000	466.67	0.00000
T-Mobile B 4	RFS APXVAALL24 43-U-NA20	600	12.95	177.00	2.00	40.00	1577.94	0.00000	400.00	0.00000
T-Mobile B 4	RFS APXVAALL24 43-U-NA20	600	12.95	177.00	2.00	30.00	1183.45	0.00000	400.00	0.00000
T-Mobile B 5	ERICSSON AIR6419	2500	22.05	177.00	2.00	80.00	25651.93	0.17703	1000.00	0.01770
T-Mobile B 5	ERICSSON AIR6419	2500	22.05	177.00	2.00	80.00	25651.93	0.17703	1000.00	0.01770
T-Mobile B 6	COMMSCOPE VV-65B-R1	1900	16.16	177.00	2.00	140.00	11565.33	0.00000	1000.00	0.00000
T-Mobile B 6	COMMSCOPE VV-65B-R1	2100	16.68	177.00	2.00	140.00	13036.41	0.00000	1000.00	0.00000
T-Mobile B 6	COMMSCOPE VV-65B-R1	1900	16.16	177.00	1.00	15.00	619.57	0.00000	1000.00	0.00000
T-Mobile C 7	RFS APXVAALL24 43-U-NA20	700	13.65	177.00	4.00	40.00	3707.83	0.00001	466.67	0.00000
T-Mobile C 7	RFS APXVAALL24 43-U-NA20	600	12.95	177.00	2.00	40.00	1577.94	0.00000	400.00	0.00000
T-Mobile C 7	RFS APXVAALL24 43-U-NA20	600	12.95	177.00	2.00	30.00	1183.45	0.00000	400.00	0.00000



Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	General Population MPE Limit ($\mu\text{W}/\text{cm}^2$)	General Population % MPE
T-Mobile C 8	ERICSSON AIR6419	2500	22.05	177.00	2.00	80.00	25651.93	1.21885	1000.00	0.12189
T-Mobile C 8	ERICSSON AIR6419	2500	22.05	177.00	2.00	80.00	25651.93	1.21885	1000.00	0.12189
T-Mobile C 9	COMMSCOPE VV-65B-R1	1900	16.16	177.00	2.00	140.00	11565.33	0.00000	1000.00	0.00000
T-Mobile C 9	COMMSCOPE VV-65B-R1	2100	16.68	177.00	2.00	140.00	13036.41	0.00000	1000.00	0.00000
T-Mobile C 9	COMMSCOPE VV-65B-R1	1900	16.16	177.00	1.00	15.00	619.57	0.00000	1000.00	0.00000
AT&T A 10	CCI DMP65R-BU8D	700	12.25	187.00	4.00	40.00	2686.09	0.00109	466.67	0.00023
AT&T A 10	CCI DMP65R-BU8D	850	12.55	187.00	4.00	40.00	2878.19	0.00113	566.67	0.00020
AT&T A 11	CCI DMP65R-BU8D	700	12.25	187.00	4.00	40.00	2686.09	0.00109	466.67	0.00023
AT&T A 11	CCI DMP65R-BU8D	1900	14.15	187.00	4.00	40.00	4160.26	0.00094	1000.00	0.00009
AT&T A 11	CCI DMP65R-BU8D	2100	15.15	187.00	4.00	40.00	5237.45	0.00097	1000.00	0.00010
AT&T A 12	POWERWAVE 7770	850	11.35	187.00	1.00	40.00	545.83	0.00018	566.67	0.00003
AT&T B 13	CCI DMP65R-BU8D	700	12.25	187.00	4.00	40.00	2686.09	0.00000	466.67	0.00000
AT&T B 13	CCI DMP65R-BU8D	850	12.55	187.00	4.00	40.00	2878.19	0.00000	566.67	0.00000
AT&T B 14	CCI DMP65R-BU8D	700	12.25	187.00	4.00	40.00	2686.09	0.00000	466.67	0.00000
AT&T B 14	CCI DMP65R-BU8D	1900	14.15	187.00	4.00	40.00	4160.26	0.00000	1000.00	0.00000
AT&T B 14	CCI DMP65R-BU8D	2100	15.15	187.00	4.00	40.00	5237.45	0.00000	1000.00	0.00000
AT&T B 15	POWERWAVE 7770	850	11.35	187.00	1.00	40.00	545.83	0.00000	566.67	0.00000
AT&T C 16	CCI DMP65R-BU8D	700	12.25	187.00	4.00	40.00	2686.09	0.00000	466.67	0.00000
AT&T C 16	CCI DMP65R-BU8D	850	12.55	187.00	4.00	40.00	2878.19	0.00000	566.67	0.00000
AT&T C 17	CCI DMP65R-BU8D	700	12.25	187.00	4.00	40.00	2686.09	0.00000	466.67	0.00000
AT&T C 17	CCI DMP65R-BU8D	1900	14.15	187.00	4.00	40.00	4160.26	0.00000	1000.00	0.00000
AT&T C 17	CCI DMP65R-BU8D	2100	15.15	187.00	4.00	40.00	5237.45	0.00000	1000.00	0.00000
AT&T C 18	POWERWAVE 7770	850	11.35	187.00	1.00	40.00	545.83	0.00000	566.67	0.00000
Sprint A 19	RFS APXV9ERR18-C	850	11.85	150.00	8.00	20.00	2449.74	0.00310	566.67	0.00055
Sprint A 19	RFS APXV9ERR18-C-	1900	14.55	150.00	4.00	45.00	5131.83	0.00291	1000.00	0.00029
Sprint A 20	COMMSCOPE DT465B-2XR	2500	15.62	150.00	2.00	50.00	3647.54	0.00164	1000.00	0.00016
Sprint B 21	RFS APXV9ERR18-C	850	11.85	150.00	8.00	20.00	2449.74	0.00001	566.67	0.00000
Sprint B 21	RFS APXV9ERR18-C-	1900	14.55	150.00	4.00	45.00	5131.83	0.00001	1000.00	0.00000
Sprint B 22	COMMSCOPE DT465B-2XR	2500	15.62	150.00	2.00	50.00	3647.54	0.00000	1000.00	0.00000
Sprint C 23	RFS APXV9ERR18-C	850	11.85	150.00	8.00	20.00	2449.74	0.00004	566.67	0.00001
Sprint C 23	RFS APXV9ERR18-C-	1900	14.55	150.00	4.00	45.00	5131.83	0.00005	1000.00	0.00000
Sprint C 24	COMMSCOPE DT465B-2XR	2500	15.62	150.00	2.00	50.00	3647.54	0.00003	1000.00	0.00000
Verizon A 25	ANTEL BXA-70063-6CF	850	14.50	136.00	7.00	20.00	3945.74	0.00567	566.67	0.00100
Verizon A 26	COMMSCOPE JAHH-65B-R3B	700	12.11	136.00	4.00	40.00	2600.88	0.01138	466.67	0.00244
Verizon A 26	COMMSCOPE JAHH-65B-R3B	1900	15.72	136.00	4.00	40.00	5972.00	0.00682	1000.00	0.00068
Verizon A 27	COMMSCOPE JAHH-65B-R3B	850	12.81	136.00	4.00	40.00	3055.77	0.01227	566.67	0.00217



Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	General Population MPE Limit ($\mu\text{W}/\text{cm}^2$)	General Population % MPE
Verizon A 27	COMMSCOPE JAHH-65B-R3B	2100	15.71	136.00	4.00	40.00	5958.27	0.00670	1000.00	0.00067
Verizon A 28	SAMSUNG MT6407	3700	23.35	136.00	2.00	100.00	43254.37	0.66569	1000.00	0.06657
Verizon B 29	ANTEL BXA-70063-6CF	850	14.50	136.00	7.00	20.00	3945.74	0.00000	566.67	0.00000
Verizon B 30	COMMSCOPE JAHH-65B-R3B	700	12.11	136.00	4.00	40.00	2600.88	0.00001	466.67	0.00000
Verizon B 30	COMMSCOPE JAHH-65B-R3B	1900	15.72	136.00	4.00	40.00	5972.00	0.00001	1000.00	0.00000
Verizon B 31	COMMSCOPE JAHH-65B-R3B	850	12.81	136.00	4.00	40.00	3055.77	0.00001	566.67	0.00000
Verizon B 31	COMMSCOPE JAHH-65B-R3B	2100	15.71	136.00	4.00	40.00	5958.27	0.00001	1000.00	0.00000
Verizon B 32	SAMSUNG MT6407	3700	23.35	136.00	2.00	100.00	43254.37	0.01359	1000.00	0.00136
Verizon C 33	ANTEL BXA-70063-6CF	850	14.50	136.00	7.00	20.00	3945.74	0.00000	566.67	0.00000
Verizon C 34	COMMSCOPE JAHH-65B-R3B	700	12.11	136.00	4.00	40.00	2600.88	0.00006	466.67	0.00001
Verizon C 34	COMMSCOPE JAHH-65B-R3B	1900	15.72	136.00	4.00	40.00	5972.00	0.00001	1000.00	0.00000
Verizon C 35	COMMSCOPE JAHH-65B-R3B	850	12.81	136.00	4.00	40.00	3055.77	0.00004	566.67	0.00001
Verizon C 35	COMMSCOPE JAHH-65B-R3B	2100	15.71	136.00	4.00	40.00	5958.27	0.00001	1000.00	0.00000
Verizon C 36	SAMSUNG MT6407	3700	23.35	136.00	2.00	100.00	43254.37	0.01634	1000.00	0.00163
Dish A 37	JMA MX08FRO665-21	700	12.05	127.00	4.00	40.00	2565.19	0.03878	466.67	0.00831
Dish A 37	JMA MX08FRO665-21	2000	15.75	127.00	4.00	40.00	6013.40	0.03484	1000.00	0.00348
Dish A 37	JMA MX08FRO665-21	2100	16.75	127.00	4.00	40.00	7570.42	0.00000	1000.00	0.00663
Dish B 38	JMA MX08FRO665-21	700	12.05	127.00	4.00	40.00	2565.19	0.00007	466.67	0.00001
Dish B 38	JMA MX08FRO665-21	2000	15.75	127.00	4.00	40.00	6013.40	0.00000	1000.00	0.00000
Dish B 38	JMA MX08FRO665-21	2100	16.75	127.00	4.00	40.00	7570.42	0.00000	1000.00	0.00000
Dish C 39	JMA MX08FRO665-21	700	12.05	127.00	4.00	40.00	2565.19	0.00010	466.67	0.00002
Dish C 39	JMA MX08FRO665-21	2000	15.75	127.00	4.00	40.00	6013.40	0.00001	1000.00	0.00000
Dish C 39	JMA MX08FRO665-21	2100	16.75	127.00	4.00	40.00	7570.42	0.00007	1000.00	0.00001
							Cumulative Power Density:	134.006183 $\mu\text{W}/\text{cm}^2$	Cumulative % MPE:	13.408681%



Summary

The theoretical calculations performed for this analysis yielded cumulative power density totals in all areas at ground level that are within the allowable federal limits for public exposure to RF energy. Therefore, the site is **Compliant** with FCC rules and regulations.

A handwritten signature in black ink, appearing to read "Katrina Styx", with a long, sweeping flourish extending to the right.

Katrina Styx
RF EME Technical Writer
Centerline Communications, LLC

Exhibit F

Mailing Receipts/ Proof Postage

UPS CampusShip: View/Print Label

- 1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.
- 2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**

Customers with a Daily Pickup

Your driver will pickup your shipment(s) as usual.

Customers without a Daily Pickup

Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.

Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.

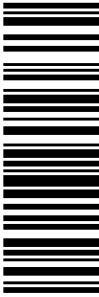
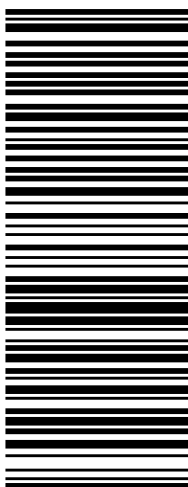

Hand the package to any UPS driver in your area.

UPS Access Point™
 CVS STORE # 1060
 326 MAIN ST
 SOUTHINGTON ,CT 06489

UPS Access Point™
 MICHAELS STORE # 1279
 99 EXECUTIVE BLVD
 SOUTHINGTON ,CT 06489

UPS Access Point™
 ADVANCE AUTO PARTS STORE 8525
 151 QUEEN ST
 SOUTHINGTON ,CT 06489

FOLD HERE

<p>MARK APPELBY 8602094694 CENTERLINE COMMUNICATIONS 90 HAMILTON AVENUE SOUTHINGTON CT 06489-3883</p> <p>3 LBS 1 OF 1 DWT: 13,10,1</p> <p>SHIP TO: MELANIE BACHMAN, EXECUTIVE DIRECTOR CONNECTICUT SITTING COUNCIL 10 FRANKLIN SQUARE NEW BRITAIN CT 06051-2655</p>	<p>CT 067 9-06</p> 	<p>UPS GROUND</p> <p>TRACKING #: 1Z 9Y4 503 03 1702 1432</p> 	<p>BILLING: P/P</p>  <p style="font-size: small;">CS 23.6.00. WNTNV50 39.0A 09/2022*</p>
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Shipment Receipt

Transaction Date: 21 Sep 2022

Tracking Number:

1Z9Y45030317021432

① Address Information

Ship To:

Connecticut Siting Council
 Melanie Bachman, Executive
 Director
 10 Franklin Square
 NEW BRITAIN CT 060512655

Ship From:

Centerline Communications
 Mark Appleby
 90 Hamilton Avenue
 SOUTHINGTON CT 064893883
 Telephone:8602094694
 email:mappleby@clinellc.com
 Residential

Return Address:

Centerline Communications
 Mark Appleby
 90 Hamilton Avenue
 SOUTHINGTON CT 064893883
 Telephone:8602094694 email:mappleby@clinellc.com
 Residential

② Package Information

	Weight	Dimensions / Packaging	Declared Value	Reference Numbers
1.	3.0 lbs (3.0 lbs billable)	13 x 10 x 1in. Other Packaging		

③ UPS Shipping Service and Shipping Options

Service: UPS Ground Service
Delivered By: End of Day Thursday, Sep 22, 2022

Shipping Fees Subtotal: 12.40 USD

Transportation: 10.64 USD
Fuel Surcharge: 1.76 USD

④ Payment Information

Bill Shipping Charges to: Shipper's Account 9Y4503

Shipping Charges:	12.40 USD
Subtotal Shipping Charges:	12.40 USD
Total Charged:	12.40 USD

Note: This document is not an invoice. Your final invoice may vary from the displayed reference rates.

* For delivery and guarantee information, see the UPS Service Guide ({}). To speak to a customer service representative, call 1-800-PICK-UPS for domestic services and 1-800-782-7892 for international services.

UPS CampusShip: View/Print Label

- 1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.
- 2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**

Customers with a Daily Pickup

Your driver will pickup your shipment(s) as usual.

Customers without a Daily Pickup

Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.

Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.

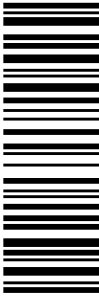
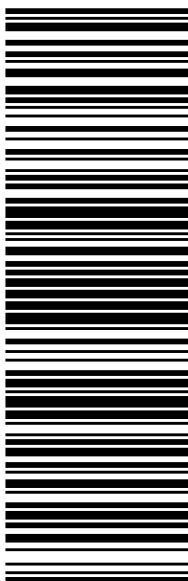

Hand the package to any UPS driver in your area.

UPS Access Point™
 CVS STORE # 1060
 326 MAIN ST
 SOUTHLINGTON ,CT 06489

UPS Access Point™
 MICHAELS STORE # 1279
 99 EXECUTIVE BLVD
 SOUTHLINGTON ,CT 06489

UPS Access Point™
 ADVANCE AUTO PARTS STORE 8525
 151 QUEEN ST
 SOUTHLINGTON ,CT 06489

FOLD HERE

<p>MARK APPELBY 860.209.1694 CENTERLINE COMMUNICATIONS 90 HAMILTON AVENUE SOUTHLINGTON CT 06489-3883</p> <p>SHIP TO: FIRST SELECTMAN GLENN PIANKA 860.889.2689 TOWN OF BOZRAH 1 RIVER RD BOZRAH CT 06334-1118</p>	<p>1 LBS 1 OF 1 DWT: 13,10,1</p> <p>CT 063 0-03</p> 	<p>UPS GROUND TRACKING #: 1Z 9Y4 503 P2 3234 0742</p> 	<p>BILLING: P/P ATTENTION UPS DRIVER: SHIPPER RELEASE</p>  <p>CS 23.6.00. WNTNV50 39.0A 09/2022*</p>
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Shipment Receipt

Transaction Date: 21 Sep 2022

Tracking Number:

1Z9Y4503P232340742

1 Address Information

Ship To:	Ship From:	Return Address:
Town of Bozrah	Centerline Communications	Centerline Communications
First Selectman Glenn Pianka	Mark Appleby	Mark Appleby
1 River Rd	90 Hamilton Avenue	90 Hamilton Avenue
BOZRAH CT 063341118	SOUTHINGTON CT 064893883	SOUTHINGTON CT 064893883
Telephone:860.889.2689	Telephone:8602094694	Telephone:8602094694 email:mappleby@clinellc.com
	email:mappleby@clinellc.com	Residential
	Residential	

2 Package Information

	Weight	Dimensions / Packaging	Declared Value	Reference Numbers
1.	1.0 lbs (1.0 lbs billable)	13 x 10 x 1in. Other Packaging		

3 UPS Shipping Service and Shipping Options

Service: UPS Ground Service

Delivered By: End of Day Thursday, Sep 22, 2022

Shipping Fees Subtotal: 15.68 USD **Additional Shipping Options**

Transportation	9.36 USD	Deliver Without Signature	
Fuel Surcharge	2.22 USD	Package1: Deliver Without Signature	0.00 USD
Delivery Area Surcharge - Extended	4.10 USD	Quantum View Notify E-mail Notifications:	No Charge
Package 1	USD	1 mappleby@clinellc.com: Delivery	

4 Payment Information

Bill Shipping Charges to: Shipper's Account 9Y4503

Shipping Charges:	15.68 USD
Subtotal Shipping Charges:	15.68 USD
Total Charged:	15.68 USD

Note: This document is not an invoice. Your final invoice may vary from the displayed reference rates.

* For delivery and guarantee information, see the UPS Service Guide ({}). To speak to a customer service representative, call 1-800-PICK-UPS for domestic services and 1-800-782-7892 for international services.

UPS CampusShip: View/Print Label

- 1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.
- 2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**

Customers with a Daily Pickup

Your driver will pickup your shipment(s) as usual.

Customers without a Daily Pickup

Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.

Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.

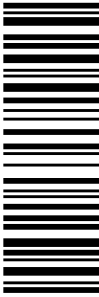
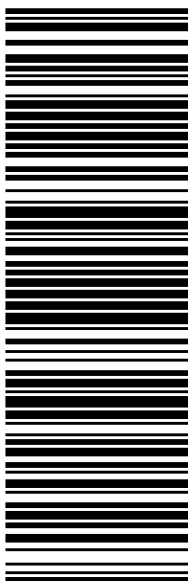

Hand the package to any UPS driver in your area.

UPS Access Point™
 CVS STORE # 1060
 326 MAIN ST
 SOUTHLINGTON ,CT 06489

UPS Access Point™
 MICHAELS STORE # 1279
 99 EXECUTIVE BLVD
 SOUTHLINGTON ,CT 06489

UPS Access Point™
 ADVANCE AUTO PARTS STORE 8525
 151 QUEEN ST
 SOUTHLINGTON ,CT 06489

FOLD HERE

<p>MARK APPLBY 8602094694 CENTERLINE COMMUNICATIONS 90 HAMILTON AVENUE SOUTHLINGTON CT 06489-3883</p> <p>SHIP TO: ZONING OFFICER JOHN HERRING 8608892689 TOWN OF BOZRAH 1 RIVER RD BOZRAH CT 06334-1118</p>	<p>1 LBS 1 OF 1</p> <p>DWT: 13,10,1</p> <p>CT 063 0-03</p> 	<p>UPS GROUND</p> <p>TRACKING #: 1Z 9Y4 503 P2 3532 2355</p> 	<p>BILLING: P/P ATTENTION UPS DRIVER: SHIPPER RELEASE</p>  <p>CS 23.6.00. WNTNV50 39.0A 09/2022*</p>
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Shipment Receipt

Transaction Date: 21 Sep 2022

Tracking Number:

1Z9Y4503P235322355

1 Address Information

Ship To:	Ship From:	Return Address:
Town of Bozrah Zoning Officer John Herring 1 River Rd BOZRAH CT 063341118 Telephone:8608892689	Centerline Communications Mark Appleby 90 Hamilton Avenue SOUTHINGTON CT 064893883 Telephone:8602094694 email:mappleby@clinellc.com Residential	Centerline Communications Mark Appleby 90 Hamilton Avenue SOUTHINGTON CT 064893883 Telephone:8602094694 email:mappleby@clinellc.com Residential

2 Package Information

	Weight	Dimensions / Packaging	Declared Value	Reference Numbers
1.	1.0 lbs (1.0 lbs billable)	13 x 10 x 1in. Other Packaging		

3 UPS Shipping Service and Shipping Options

Service: UPS Ground Service

Delivered By: End of Day Thursday, Sep 22, 2022

Shipping Fees Subtotal: 15.68 USD **Additional Shipping Options**

Transportation	9.36 USD	Deliver Without Signature	
Fuel Surcharge	2.22 USD	Package1: Deliver Without Signature	0.00 USD
Delivery Area Surcharge - Extended	4.10 USD	Quantum View Notify E-mail Notifications:	No Charge
Package 1	USD	1 mappleby@clinellc.com: Delivery	

4 Payment Information

Bill Shipping Charges to: Shipper's Account 9Y4503

Shipping Charges:	15.68 USD
Subtotal Shipping Charges:	15.68 USD
Total Charged:	15.68 USD

Note: This document is not an invoice. Your final invoice may vary from the displayed reference rates.

* For delivery and guarantee information, see the UPS Service Guide ({}). To speak to a customer service representative, call 1-800-PICK-UPS for domest services and 1-800-782-7892 for international services.

UPS CampusShip: View/Print Label

- 1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.
- 2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**

Customers with a Daily Pickup

Your driver will pickup your shipment(s) as usual.

Customers without a Daily Pickup

Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.

Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.



Hand the package to any UPS driver in your area.

UPS Access Point™
 CVS STORE # 1060
 326 MAIN ST
 SOUTHLINGTON ,CT 06489

UPS Access Point™
 MICHAELS STORE # 1279
 99 EXECUTIVE BLVD
 SOUTHLINGTON ,CT 06489

UPS Access Point™
 ADVANCE AUTO PARTS STORE 8525
 151 QUEEN ST
 SOUTHLINGTON ,CT 06489

FOLD HERE

<p>MARK APPLBY 8602094694 CENTERLINE COMMUNICATIONS 90 HAMILTON AVENUE SOUTHLINGTON CT 06489-3883</p> <p>SHIP TO: MARK ROSCIOLI 17 MILE REAL ESTATE 69 HARRY ST CONSHOHOCKEN PA 19428-2071</p>	<p>1 LBS 1 OF 1</p> <p>DWT: 13,10,1</p> <p>PA 193 9-01</p> 	<p>UPS GROUND</p> <p>TRACKING #: 1Z 9Y4 503 03 0369 4465</p> 	<p>BILLING: P/P</p>  <p>CS 23.6.00. WNTNV50 39.0A 09/2022*</p>
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Shipment Receipt

Transaction Date: 21 Sep 2022

Tracking Number:

1Z9Y45030303694465

① Address Information

Ship To: 17 Mile Real Estate Mark Roscioli 69 Harry St CONSHOHOCKEN PA 19428207 1 Residential	Ship From: Centerline Communications Mark Appleby 90 Hamilton Avenue SOUTHINGTON CT 064893883 Telephone:8602094694 email:mappleby@clinellc.com Residential	Return Address: Centerline Communications Mark Appleby 90 Hamilton Avenue SOUTHINGTON CT 064893883 Telephone:8602094694 email:mappleby@clinellc.com Residential
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② Package Information

	Weight	Dimensions / Packaging	Declared Value	Reference Numbers
1.	1.0 lbs (1.0 lbs billable)	13 x 10 x 1in. Other Packaging		

③ UPS Shipping Service and Shipping Options

Service: UPS Ground Service

Delivered By: End of Day Thursday, Sep 22, 2022

Shipping Fees Subtotal: 16.55 USD

Transportation	9.36 USD
Fuel Surcharge	2.34 USD
Residential Surcharge	4.85 USD

④ Payment Information

Bill Shipping Charges to: Shipper's Account 9Y4503

Shipping Charges:	16.55 USD
Subtotal Shipping Charges:	16.55 USD
Total Charged:	16.55 USD

Note: This document is not an invoice. Your final invoice may vary from the displayed reference rates.

* For delivery and guarantee information, see the UPS Service Guide ({}). To speak to a customer service representative, call 1-800-PICK-UPS for domestic services and 1-800-782-7892 for international services.

UPS CampusShip: View/Print Label

- 1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.
- 2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**

Customers with a Daily Pickup

Your driver will pickup your shipment(s) as usual.

Customers without a Daily Pickup

Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.

Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.


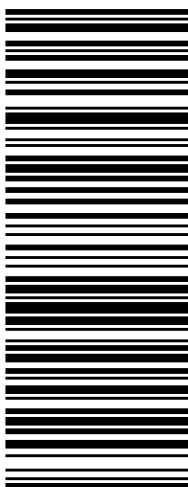

Hand the package to any UPS driver in your area.

UPS Access Point™
CVS STORE # 1060
326 MAIN ST
SOUTHINGTON ,CT 06489

UPS Access Point™
MICHAELS STORE # 1279
99 EXECUTIVE BLVD
SOUTHINGTON ,CT 06489

UPS Access Point™
ADVANCE AUTO PARTS STORE 8525
151 QUEEN ST
SOUTHINGTON ,CT 06489

FOLD HERE

<p>MARK APPLBY 8602094694 CENTERLINE COMMUNICATIONS 90 HAMILTON AVENUE SOUTHINGTON CT 06489-3883</p> <p>SHIP TO: ROMMELL HADLEY EIP COMMUNICATIONS I, LLC LEGAL DEPARTMENT - SITE 701773 NOVA PLACE TOWER 2 SUITE 1002 2 ALLEGHENY CENTER PITTSBURGH PA 15212-5401</p>	<p>1 LBS 1 OF 1 DWT: 13,10,1</p> <p>PA 152 9-42</p> 	<p>UPS GROUND TRACKING #: 1Z 9Y4 503 03 0258 9474</p> 	<p>BILLING: P/P</p>  <p>CS 23.6.00. WNTNV50 39.0A 09/2022*</p>
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Shipment Receipt

Transaction Date: 21 Sep 2022

Tracking Number:

1Z9Y45030302589474

1 Address Information

Ship To:	Ship From:	Return Address:
EIP Communications I, LLC Rommell Hadley 2 Allegheny Center Nova Place Tower 2 Suite 1002 Legal Department - Site 701773 PITTSBURGH PA 152125401	Centerline Communications Mark Appleby 90 Hamilton Avenue SOUTHINGTON CT 064893883 Telephone:8602094694 email:mappleby@clinellc.com Residential	Centerline Communications Mark Appleby 90 Hamilton Avenue SOUTHINGTON CT 064893883 Telephone:8602094694 email:mappleby@clinellc.com Residential

2 Package Information

	Weight	Dimensions / Packaging	Declared Value	Reference Numbers
1.	1.0 lbs (1.0 lbs billable)	13 x 10 x 1in. Other Packaging		

3 UPS Shipping Service and Shipping Options

Service:	UPS Ground Service
Delivered By:	End of Day Friday, Sep 23, 2022
Shipping Fees Subtotal:	12.41 USD
Transportation	10.65 USD
Fuel Surcharge	1.76 USD

4 Payment Information

Bill Shipping Charges to: Shipper's Account 9Y4503

Shipping Charges:	12.41 USD
Subtotal Shipping Charges:	12.41 USD
Total Charged:	12.41 USD

Note: This document is not an invoice. Your final invoice may vary from the displayed reference rates.

* For delivery and guarantee information, see the UPS Service Guide ({}). To speak to a customer service representative, call 1-800-PICK-UPS for domestic services and 1-800-782-7892 for international services.