CENTERLINE COMMUNICATIONS

750 West Center Street, Floor 3 / Suite 301
West Bridgewater, MA 02379 *Corporate Headquarters*
781.713.4725
617.249.0819

Centerline Communications
Ryan Clark
750 West Center Street, Floor 3
West Bridgewater, MA 02379
203-300-7310
rclark@clinellc.com

April 30, 2021

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

Notice of Exempt Modification
232 South Main Street East Windsor, CT 06088
Latitude: 41.771800
Longitude:-72.590300
T-Mobile Site#: CT11402A_Anchor

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 155-foot level of the existing 188-foot monopole tower at 232 South Main Street East Windsor, CT 06088. The 188-foot tower is owned by Balch Communications and property is owned by Balch Bridge Street Corp. T-Mobile now intends to add three (3) 2500MHz antennas. The new antennas would be installed at the 155-foot level of the tower. A mount stabilizer kit is to be installed as recommended in the attached Mount Analysis. The proposed modifications will make the site available for 5G at some point in the future.

Planned Modifications:

Install New:
(3) Fiber Hybrid Line
(3) AIR6449 B41
(3) Radio 4424 B25
(3) Radio 4415 B66

Remove:
(6) TMA's
(12) Coax

Existing to Remain:
(2) Fiber Hybrid Line
(3) RFS- APXVAARR24_43-U-NA20
(3) RFS- APX16DWV- 16DWV-16DWV-S-E-A20

Ground:
(2) Add Cabinets
(1) Add Generator

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This facility was approved by the Town of East Windsor on August 13, 1996. We used the information from the previous filing. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to First Selectman Jason E. Bowsza, Elected Official and Clark Chapin, Director of Planning for the Town of East Windsor, as well as the property owner and the tower 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,

Ryan Clark
Mobile: 203-300-7310
Fax: 508-819-3017
Office: 750 West Center Street, Floor 3 West Bridgewater, MA 02379
Email: rclark@clinellc.com

Attachments
cc: First Selectman Jason E. Bowsza, Chief Elected Official Town of East Windsor
Clark Chapin, Director of Planning for the Town of East Windsor
Balch Communications, tower and property owner

Exhibit A

Original Facility Approval

TOWN OF EAST WINDSOR - PLANNING & ZONING COMMISSION
AUGUST 13, 1996 - PUBLIC HEARING #1271

CONDITIONS OF APPROVAL

BALCH BRIDGE STREET CORPORATION
SPECIAL USE PERMIT - TELECOMMUNICATIONS TOWER
232 SOUTH MAIN STREET
EAST WINDSOR, CONNECTICUT

Motion by: Ed Filipone

Seconded by: Susan Kiss

TO APPROVE the application of Balch Bridge Street Corporation for a Special Use Permit to allow the construction of a 200 foot tall telecommunications tower on property located at 232 South Main Street which is presently zoned B-2 and shown on Assessors Map 33, Block 5, Lot 84-1. This approval is subject to conformance with the reference plans and the following conditions:

Referenced plans:

- "Key Map, Balch Bridge Street Corporation, South Main Street - U.S. Route 5 East Windsor, Connecticut" Sheet 1 of 3, Scale 1'=200' BY J.R. Russo & Associates dated 7-2-96.
- "Balch Bridge Street Corporation, South Main Street - U.S. Route 5 East Windsor, Connecticut" Sheet 2 of 3, Scale 1'=100' BY J.R. Russo & Associates dated 7-2-96.
- "Site Plan, Balch Bridge Street Corporation, South Main Street - U.S. Route 5 East Windsor, Connecticut" Sheet 1 of 3, Scale 1'=200' BY J.R. Russo & Associates dated 7-2-96, revised to 7-30-96.

Conditions to be met prior to signing mylars:

1. The applicant shall submit an agreement for review and approval of the town attorney, to indemnify and hold harmless the Town of East Windsor against any claims that may be made should the proposed tower fall and cause damages to property or individuals. The hold harmless agreement shall be recorded on the land records of the subject property and of the property to the immediate south which is also under the applicant's control.

2. A copy of this approval Motion shall be recorded on the land records.

Conditions to be met prior to the issuance of a Zoning Permit:

3. Two sets of mylars shall be submitted for the signature of the Commission Chairman and Secretary. One set of mylars shall be filed on the land records and another shall be filed in the East Windsor Planning and Zoning Commission office.

Conditions to be met Prior to Certificate of Compliance:

4. All conditions of this approval motion shall be complied with.

BALCH BRIDGE STREET CORPORATION
SPECIAL USE PERMIT - TELECOMMUNICATIONS TOWER
232 SOUTH MAIN STREET
EAST WINDSOR, CONNECTICUT

General Conditions:

5. No work may begin until a Zoning and Building Permit have been issued.

6. Construction of improvements as approved by this special use/site plan approval must commence by August 13, 1997 and all improvements must be completed within 1 year from the start of construction, otherwise approval shall become null and void unless an extension is granted by the Commission.

7. This Special Use Permit approval is for the specific use identified in the application. Any changes in use or tenancy require a new zoning permit and may require additional Commission approvals.

8. No structures or buildings other than the tower shall be erected without further Site Plan Review by the Commission.

9. This project shall be constructed and maintained in accordance with the referenced plans. Minor modifications to the approved plans which result in lesser impacts may be allowed subject to staff review and approval.

10. By acceptance of this permit and conditions, the applicant and owner acknowledge the right of Town staff to periodically enter upon the subject property for the purpose of determining compliance with the terms of this approval.

VOTE: In Favor: Unanimous

Exhibit B

Property Card

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2017.

Information on the Property Records for the Municipality of East Windsor was last updated on 4/30/2021.

Parcel Information

Location:	232 SOUTH MAIN ST	Property Use:	Vacant Land	Primary Use:	Residential
Unique ID:	00647091	Map Block Lot:	012 05 084 -01	Acres:	41.35
490 Acres:	41.35	Zone:	M-1	Volume / Page:	0115/0840
Developers Map / Lot:	490-1992	Census:			

Value Information

	Appraised Value	Assessed Value
Land	84,218	26,990
Buildings	0	0
Detached Outbuildings	0	0
Total	84,218	26,990

Owner's Information

Owner's Data
BALCH BRIDGE STREET CORP P O BOX 678 EAST WINDSOR, CT 06088-0678

Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Valid Sale	Sale Price
BALCH BRIDGE STREET CORP	0115	0840	12/01/1979		No	$0


Connecticut River
Connecticut River
S Main St
Stoughton Rd
Abbe Rd
159
5

Exhibit C

Construction Drawings

PROJECT INFORMATION

SITE NAME:	EAST WINDSOR/RT-191_1
SITE NUMBER:	CT11402A
SITE ADDRESS:	232 SOUTH MAIN STREET EAST WINDSOR, CT 06088
COUNTY	HARTFORD COUNTY
MUNICIPALITY:	HARTFORD COUNTY
ZONING:	M-1
LATITUDE:	41.771800° (NAD 83)
LONGITUDE:	-72.590300° (NAD 83)
TYPE OF SITE:	LATTICE TOWER
STRUCTURE HEIGHT:	188'-0" AGL
ANTENNA CENTER:	159'-0" AGL
GROUND ELEVATION:	59.1' (NAVID 88)
STRUCTURE OWNER NAME:	BALCH COMMUNICATIONS, CSC
BUILDING OWNER ADDRESS:	248 SOUTH MAIN STREET EAST WINDSOR, CT 06088
APPLICANT:	T-MOBILE NORTHEAST, LLC. 15 COMMERCE WAY, SUITE B NORTON, MASSACHUSETTS 02766
APPLICANT PHONE:	(508) 286-2700
APPLICANT FAX:	(508) 286-2893

PROJECT DIRECTORY

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

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

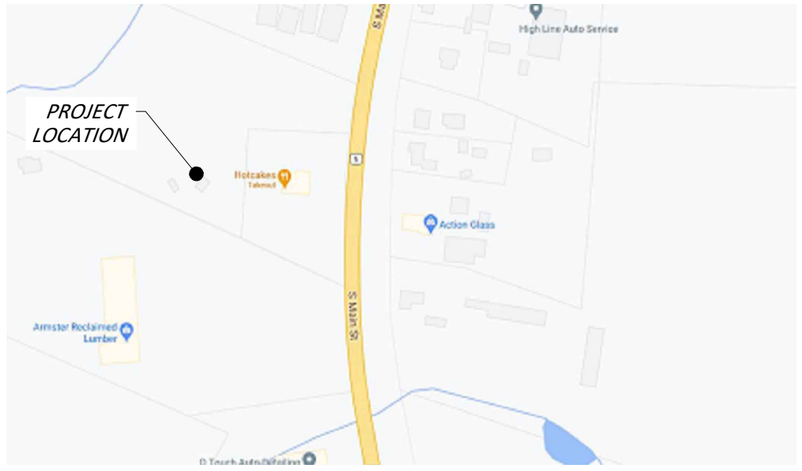
811 Know what's **below.** **Call** before you dig.

CENTERLINE COMMUNICATIONS

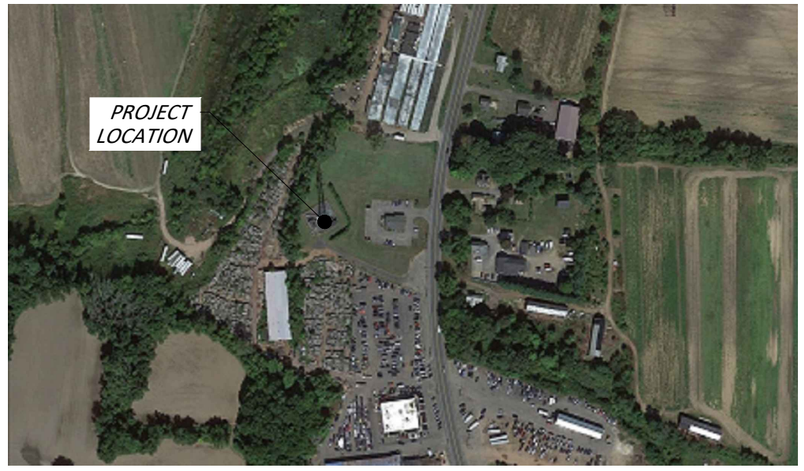
T - Mobile
NORTHEAST LLC

SITE NAME: EAST WINDSOR/RT-191_1
SITE ID: CT11402A
ADDRESS: 232 SOUTH MAIN STREET
EAST WINDSOR, CT 06088

TECHNOLOGY: 67D5A998C HYBRID
MODIFICATION: ANCHOR_PHASE 3



VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.

GENERAL NOTES

1. 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.

2. 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.

3. 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

1. INSTALL THREE NEW T-MOBILE ANTENNAS
2. INSTALL SIX NEW RRUS
3. REMOVE THREE GENERIC & THREE COMMSCOPE TWIN STYLE TMAS
4. REMOVE ONE EXISTING RBS 3106 CABINET
5. INSTALL ONE NEW 6160 AC ENCLOSURE
6. INSTALL ONE NEW B160 BATTERY ENCLOSURE
7. INSTALL THREE NEW 6X24 HYBRID CABLES
8. INSTALL ONE 25KW DIESEL GENERATOR
9. 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 & DETAILS
A-3	SOUTH ELEVATION
A-4	ANTENNA PLAN & SCHEDULE
A-5	GENERAL DETAILS
A-6	SECTOR FRAME REINFORCEMENT DETAIL
A-7	25KW GENERATOR DETAILS
A-8	25KW GENERATOR DETAILS
A-9	PPC DETAILS
A-10	AUTOMATIC TRANSFER SWITCH DETAILS
SN-1	STRUCTURAL NOTES & SPECIAL INSPECTIONS
E-1	ONE-LINE DIAGRAM & GROUNDING DETAILS
G-1	GENERATOR AND EQUIPMENT GROUNDING DETAIL

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.

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

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

REVISIONS

REV	DATE	DESCRIPTION	BY
0	04/29/21	ISSUED FOR PERMIT	JIK
A	04/05/21	ISSUED FOR REVIEW	NMT

DESIGNED BY:	APPROVED BY:
NMT	MK

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

DATE: 04/29/21

SITE NAME: EAST WINDSOR/RT-191_1
SITE ID: CT11402A
SITE ADDRESS:

SHEET TITLE: **TITLE SHEET**
DRAWING: **T-1**

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.

CT BUILDING CODE: IBC 2015 & CONNECTICUT STATE BUILDING CODE 2018
ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE
LIGHTING CODE: NFPA 70-2017

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, FOURTEENTH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-G, 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.

ABBREVIATIONS

AGL	ABOVE GROUND LEVEL	GRC	GALVANIZED RIDGID CONDUIT	RF	RADIO FREQUENCY
AWG	AMERICAN WIRE GAGE	MGB	MASTER GROUND BUSS	R&R	REMOVE AND REPLACE
BCW	BARE COPPER WIRE	MIN	MINIMUM	TBR	TO BE REMOVED
BTS	BASE TRANSCEIVER STATION	NEC	NATIONAL ELEC. CODE	TYP	TYPICAL
EG	EQUIPMENT GROUND	NTS	NOT TO SCALE		
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		
G.C.	GENERAL CONTRACTOR	REQ	REQUIRED		

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

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

REVISIONS

REV	DATE	DESCRIPTION	BY
0	04/29/21	ISSUED FOR PERMIT	JIK
A	04/05/21	ISSUED FOR REVIEW	NMT

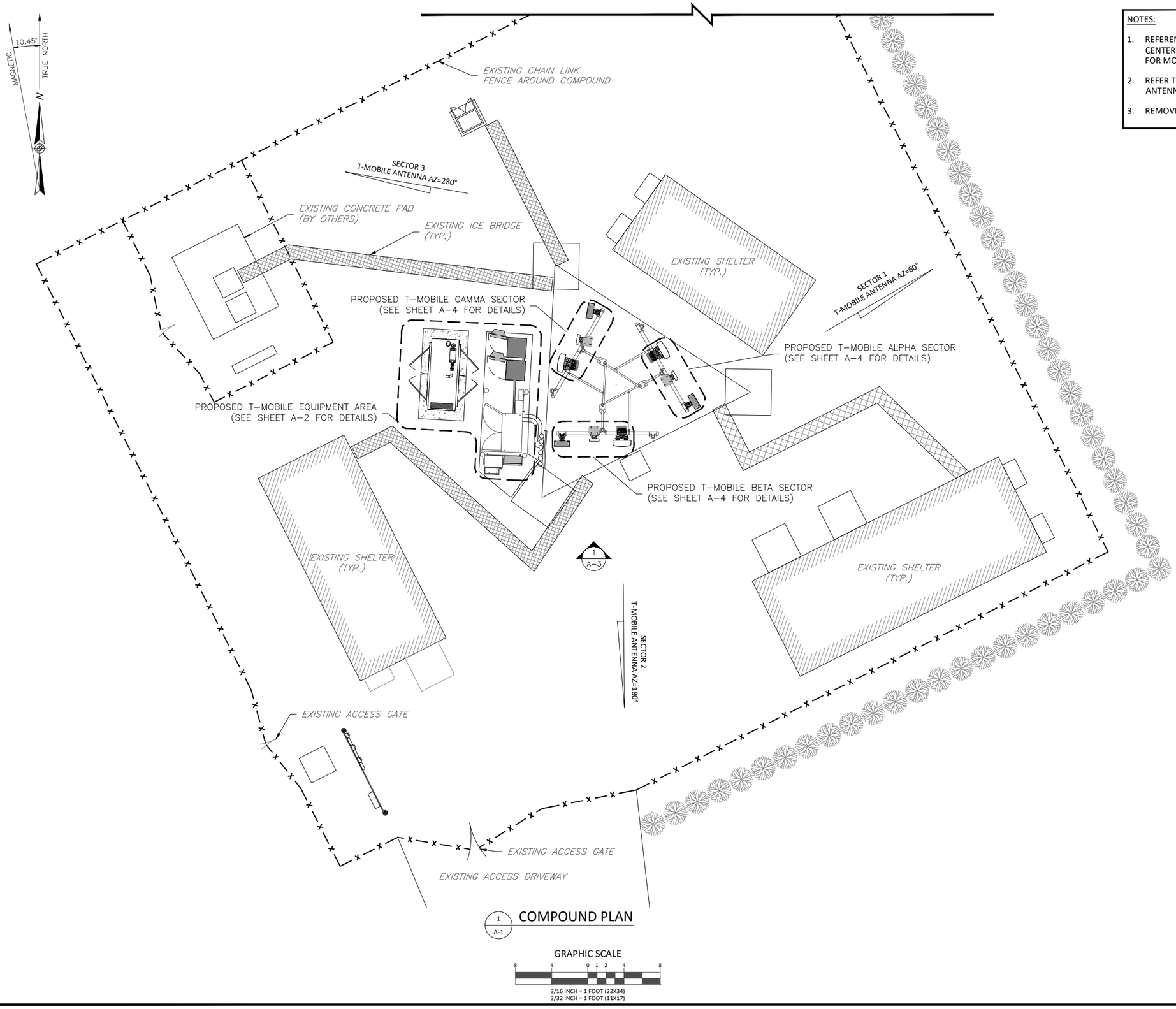
DESIGNED BY: NMT | APPROVED BY: MK

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

DATE: 04/29/21

SITE NAME: EAST WINDSOR/RT-191_1
SITE ID: CT11402A
SITE ADDRESS:

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



1 A-1 COMPOUND PLAN

GRAPHIC SCALE

8 4 0 1 2 4 8

3/16 INCH = 1 FOOT (22X34)
3/32 INCH = 1 FOOT (11X17)

NOTES:

1. REFERENCE LATEST STRUCTURAL ANALYSIS BY CENTERLINE COMMUNICATIONS DATED 04/28/2021 FOR MORE STRUCTURAL INFORMATION.
2. REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.
3. REMOVE ALL UNUSED CABLE, RRUS AND TMAS.

T - Mobile
NORTHEAST LLC

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

CENTERLINE COMMUNICATIONS

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PHONE: 781.713.4725

REVISIONS

REV	DATE	DESCRIPTION	BY
0	04/29/21	ISSUED FOR PERMIT	JIK
A	04/05/21	ISSUED FOR REVIEW	NMT

DESIGNED BY:	APPROVED BY:
NMT	MK

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

DATE: 04/29/21

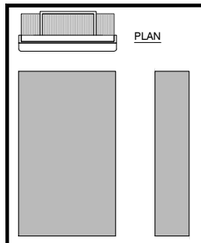
SITE NAME: EAST WINDSOR/RT-191_1

SITE ID: CT11402A

SITE ADDRESS:

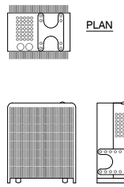
SHEET TITLE: COMPOUND PLAN

DRAWING: A-1

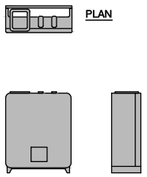


ANTENNA DIMENSIONS	
MODEL #	AIR 6449 B41
MANUF.	ERICSSON
HEIGHT	33.1"
WIDTH	20.6"
DEPTH	8.6"
WEIGHT	104.0 LBS

1 A-2 ANTENNA DETAILS
NOT TO SCALE



RADIO DIMENSIONS	
MODEL #	RADIO 4424 B25
MANUF.	ERICSSON
HEIGHT	17.1"
WIDTH	14.4"
DEPTH	11.3"
WEIGHT	86 LBS

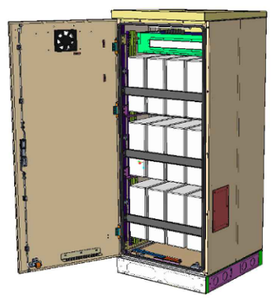


RADIO DIMENSIONS	
MODEL #	RADIO 4415 B25 & B66A
MANUF.	ERICSSON
HEIGHT	14.9"
WIDTH	13.2"
DEPTH	5.4"
WEIGHT	46.3 LBS

2 A-2 RADIO DETAILS
NOT TO SCALE

6160 AC ENCLOSURE

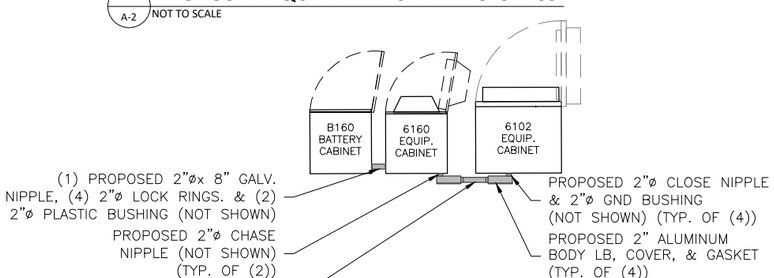
CAPACITY	
RACK SPACE USER EQUIP.	19U(19" RACK)
HARDWARE CAPABILITIES	POWER AND CPRI SUPPORT FOR MULTI-STANDARD REMOTE RADIOS(RRU OR AIR) ERS BASEBAND AND TRANSPORT UNITS Li-ION BATTERIES 3PP EQUIPMENT ADDITIONAL POWER FEED OPTIONS AVAILABLE
MECHANICAL SPECIFICATIONS	
WEIGHT	320lbs (INCLUDING ACTIVE EQUIPMENT)
DIMENSIONS	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



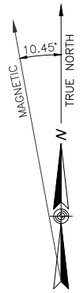
B160 BATTERY ENCLOSURE

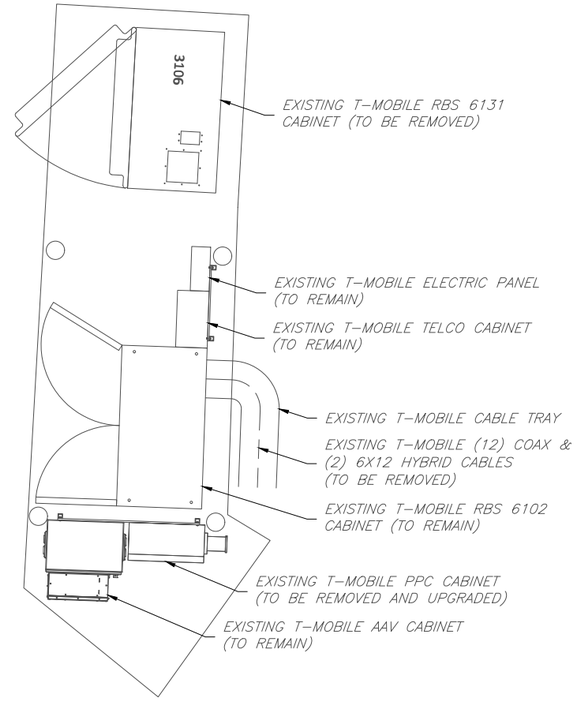
CAPACITY	
VRLA12V:	100Ah/150Ah/170Ah/190Ah/210Ah
Li-ION	24U 19"/23"
SODIUM-NICKEL	3xFIAMM
ELECTRICAL SPECIFICATIONS	
DC OUTPUT	-48VDC/200A
BATTERY BREAKERS	2x125/2p
ALARMS	DOOR OPEN, CLIMATE FAILURE, MCB CONNECTION
MECHANICAL SPECIFICATIONS	
WEIGHT	134kg/296lbs
DIMENSIONS	63"x26"x26" (INCLUDING BASE FRAME)
BASE FRAME HEIGHT	6"
MATERIAL	GALVANIZED STEEL (180g/m²)
COLOR	POWDER PAINT NCS 2002-B
LOCKING TYPE	CYLINDER/PAD LOCK

3 A-2 PROPOSED EQUIPMENT CABINETS SPECS.
NOT TO SCALE

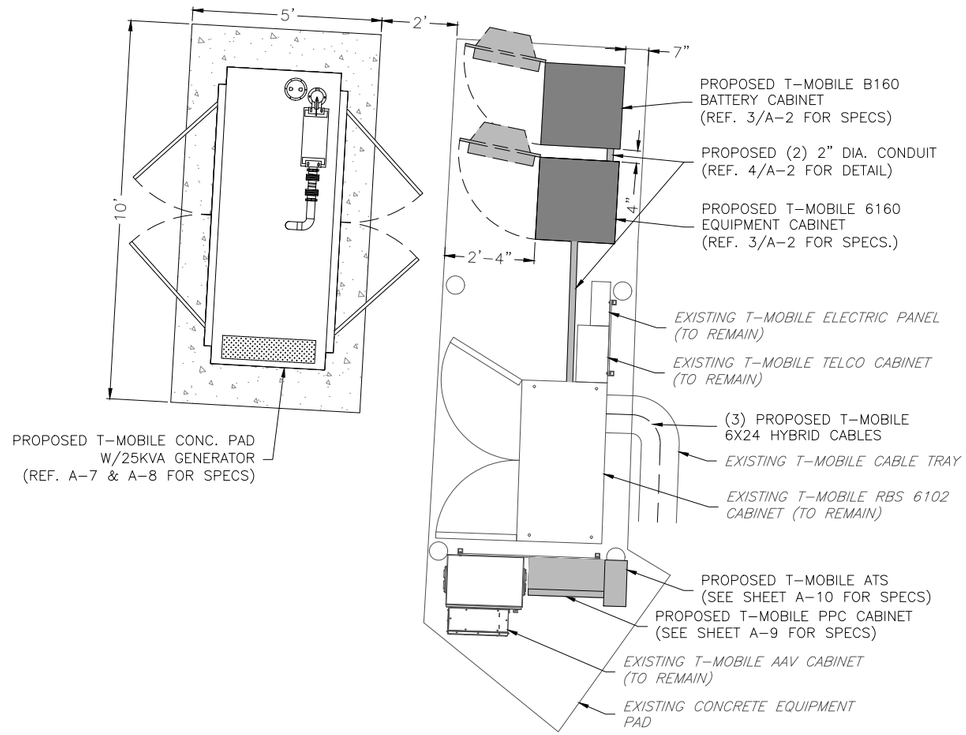


4 A-2 NEW EQUIPMENT CONDUIT DETAIL
NOT TO SCALE





5 A-2 EXISTING EQUIPMENT LAYOUT
NOT TO SCALE



6 A-2 PROPOSED EQUIPMENT LAYOUT
NOT TO SCALE

T - Mobile
NORTHEAST LLC

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

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

REVISIONS

REV	DATE	DESCRIPTION	BY
0	04/29/21	ISSUED FOR PERMIT	JIK
A	04/05/21	ISSUED FOR REVIEW	NMT

DESIGNED BY:	APPROVED BY:
NMT	MK

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

DATE: 04/29/21

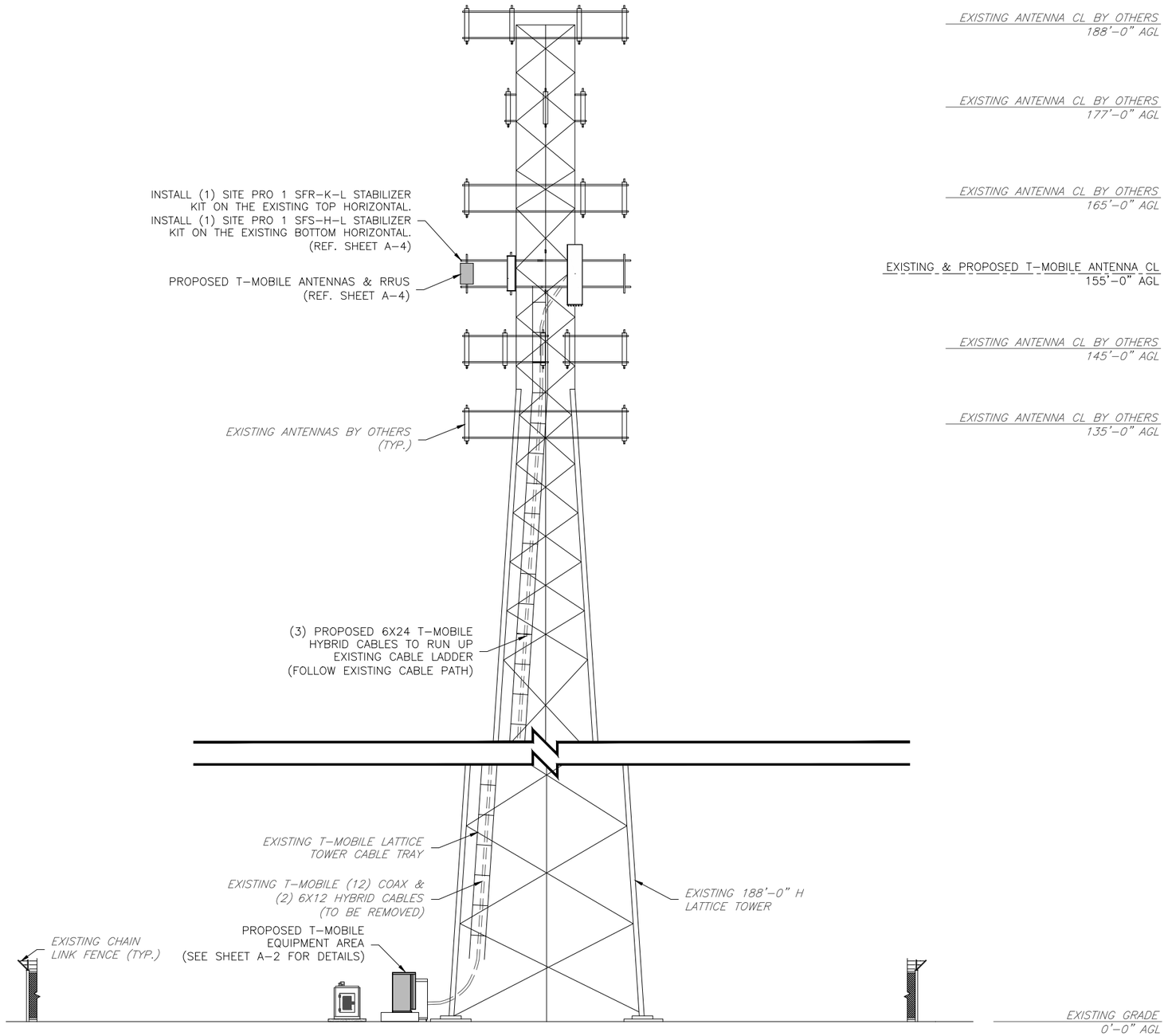
SITE NAME:
EAST WINDSOR/RT-191_1

SITE ID:
CT11402A

SITE ADDRESS:

SHEET TITLE:
EQUIPMENT LAYOUT & DETAILS

DRAWING:
A-2



1 / A-1 SOUTH ELEVATION

GRAPHIC SCALE

16 8 0 1 2 4 8 16

1/8 INCH = 1 FOOT (22X34)
1/16 INCH = 1 FOOT (11X17)

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STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

DATE: 04/29/21

SITE NAME: EAST WINDSOR/RT-191_1

SITE ID: CT11402A

SITE ADDRESS:

SHEET TITLE: SOUTH ELEVATION

DRAWING: A-3

STRUCTURAL NOTES:

CONCLUSIONS:

THE RESULTS OF THE ANALYSIS CONCLUDED THAT THE EXISTING T-MOBILE MOUNTS *ARE ADEQUATE* TO SUPPORT THE EXISTING AND PROPOSED T-MOBILE EQUIPMENT LOADING UPON COMPLETION OF THE FOLLOWING MODIFICATIONS. CENTERLINE RECOMMENDS THE FOLLOWING:

ALPHA, BETA & GAMMA:

INSTALL (1) SITE PRO 1 SFR-K-L STABILIZER KIT ON THE EXISTING TOP HORIZONTAL.

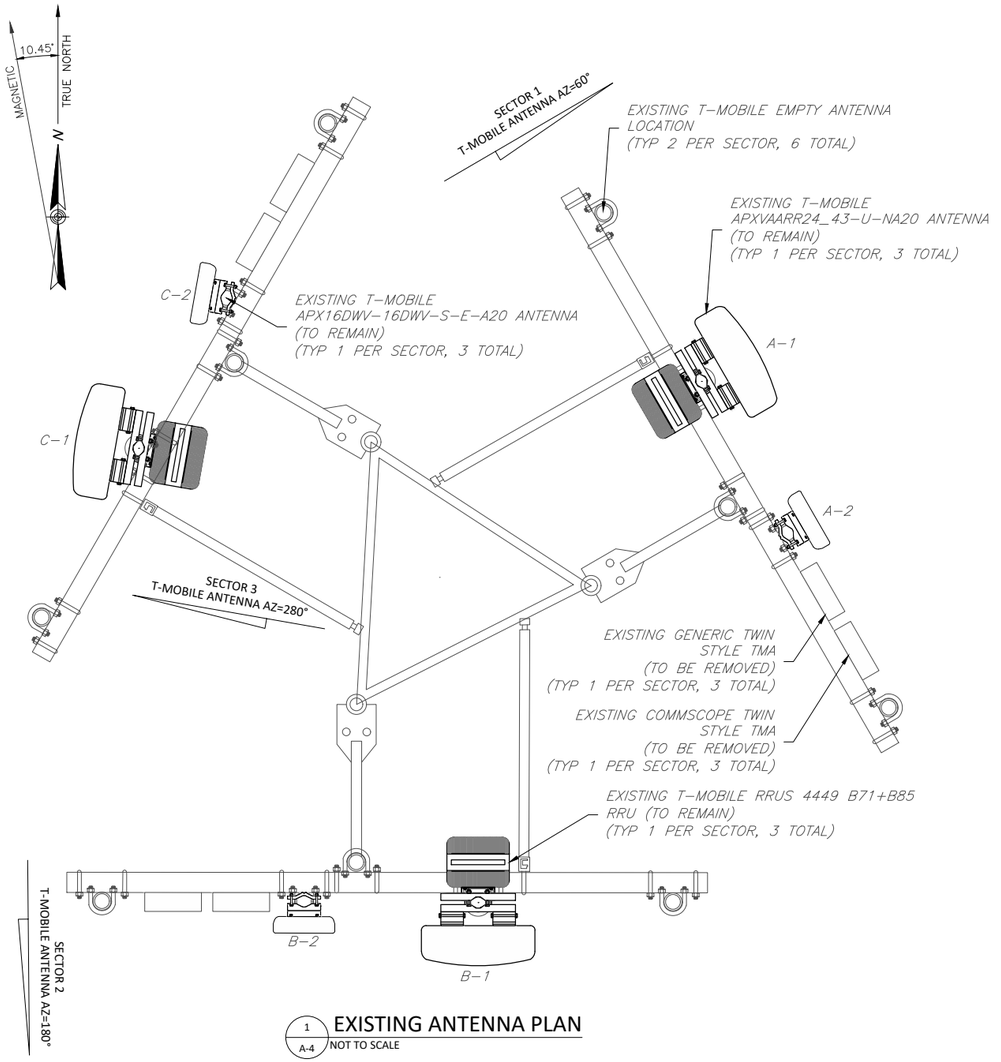
INSTALL (1) SITE PRO 1 SFS-H-L STABILIZER KIT ON THE EXISTING BOTTOM HORIZONTAL.

NOTES:

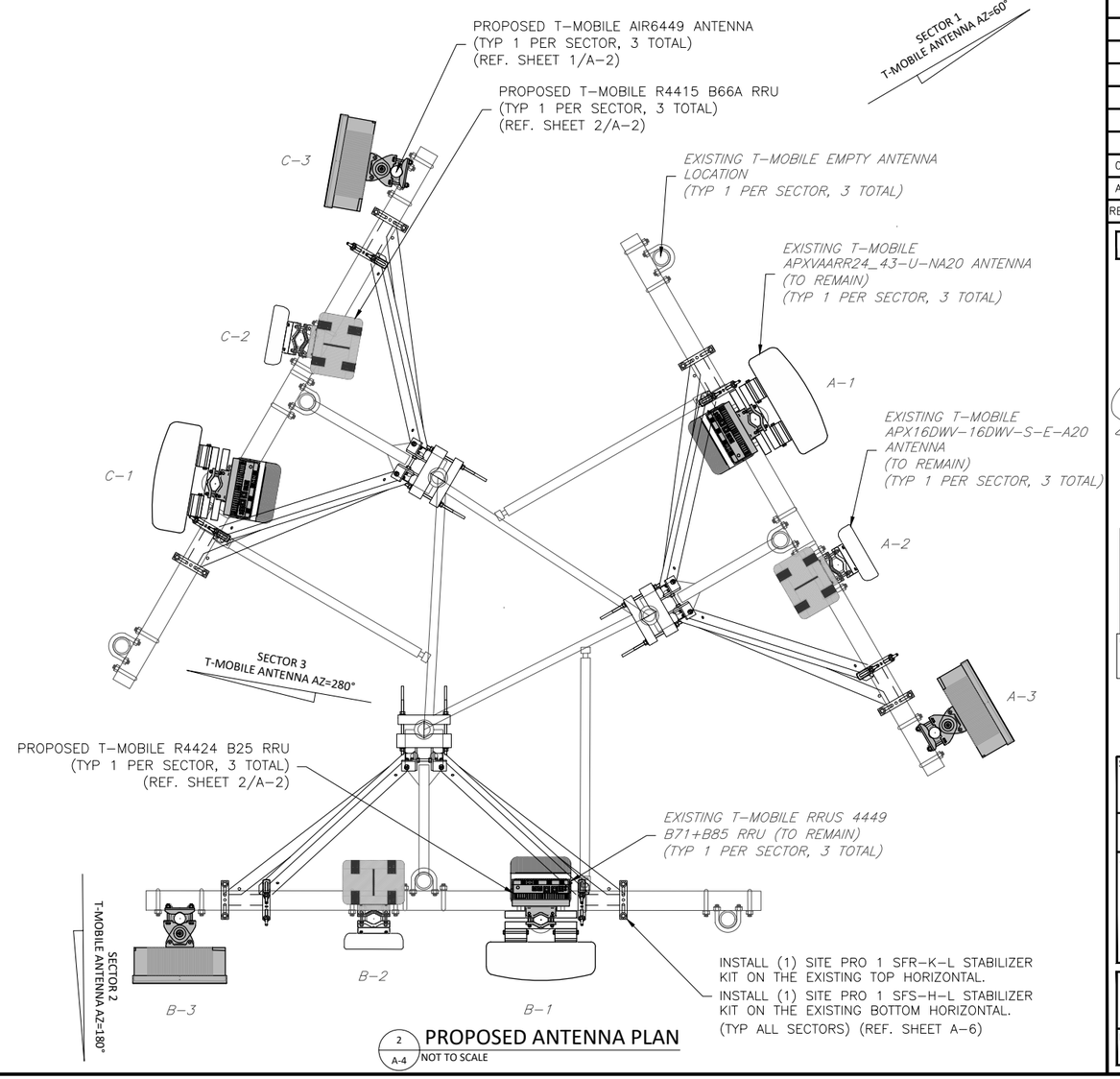
1. REFERENCE LATEST STRUCTURAL ANALYSIS BY CENTERLINE COMMUNICATIONS DATED 04/28/2021 FOR MORE STRUCTURAL INFORMATION.
2. REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.
3. REMOVE ALL UNUSED CABLE, RRUS AND TMAS.

ANTENNA & CABLE SCHEDULE

	LOCATION	AZIMUTH	RAD CENTER	STATUS	TECHNOLOGY	ANTENNA MODEL	MECH. DOWN-TILT	ELEC. DOWN-TILT	CABLES	DIPLEXERS	TMA/RRU MODEL	CABLE SIZE	CABLE LENGTH
ALPHA	*A-1*	*60°*	*155'-0"*	*EXISTING*	*L700, L600, N600, G1900 & L1900*	*APXVAALL24_43-U-NA20 (OCTO)*	*0°*	*4°/4°/4°/4°*	*(4) FIBER JUMPER (X2) (4) COAX JUMPER (X2)*	*N/A*	RRU 4449 B71+B85 **RRU 4424 B25**	SHARED	0'
	A-2	*60°*	*155'-0"*	*EXISTING*	*L2100*	*APX16DWV-16DWV-S-E-A20 (QUAD)*	*0°*	*4°/4°*	*(2) FIBER JUMPER (2) COAX JUMPER (X2)*	*N/A*	**RRU 4415 B66A**	SHARED	0'
	A-3	**60°**	**155'-0"**	**PROPOSED**	**L2500, N2500**	**AIR6449 B41**	**0°**	**4°/4°**	**(2) FIBER JUMPER (X2)**	**N/A**	**N/A**	**6X24**	**200'**
BETA	*B-1*	*180°*	*155'-0"*	*EXISTING*	*L700, L600, N600, G1900 & L1900*	*APXVAALL24_43-U-NA20 (OCTO)*	*0°*	*4°/4°/4°/4°*	*(4) FIBER JUMPER (X2) (4) COAX JUMPER (X2)*	*N/A*	RRU 4449 B71+B85 **RRU 4424 B25**	SHARED	0'
	B-2	*180°*	*155'-0"*	*EXISTING*	*L2100*	*APX16DWV-16DWV-S-E-A20 (QUAD)*	*0°*	*4°/4°*	*(2) FIBER JUMPER (2) COAX JUMPER (X2)*	*N/A*	**RRU 4415 B66A**	SHARED	0'
	B-3	**180°**	**155'-0"**	**PROPOSED**	**L2500, N2500**	**AIR6449 B41**	**0°**	**4°/4°**	**(2) FIBER JUMPER (X2)**	**N/A**	**N/A**	**6X24**	**200'**
GAMMA	*C-1*	*280°*	*155'-0"*	*EXISTING*	*L700, L600, N600, G1900 & L1900*	*APXVAALL24_43-U-NA20 (OCTO)*	*0°*	*4°/4°/4°/4°*	*(4) FIBER JUMPER (X2) (4) COAX JUMPER (X2)*	*N/A*	RRU 4449 B71+B85 **RRU 4424 B25**	SHARED	0'
	C-2	*280°*	*155'-0"*	*EXISTING*	*L2100*	*APX16DWV-16DWV-S-E-A20 (QUAD)*	*0°*	*4°/4°*	*(2) FIBER JUMPER (2) COAX JUMPER (X2)*	*N/A*	**RRU 4415 B66A**	SHARED	0'
	C-3	**280°**	**155'-0"**	**PROPOSED**	**L2500, N2500**	**AIR6449 B41**	**0°**	**4°/4°**	**(2) FIBER JUMPER (X2)**	**N/A**	**N/A**	**6X24**	**200'**
NOTE: DARK TEXT IN TABLE ABOVE DENOTES PROPOSED EQUIPMENT											TOTAL 6x24 HYBRID CABLE		**600'±**



1 A-4 EXISTING ANTENNA PLAN
NOT TO SCALE



2 A-4 PROPOSED ANTENNA PLAN
NOT TO SCALE

T - Mobile
NORTHEAST LLC

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

REVISIONS

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A	04/05/21	ISSUED FOR REVIEW	NMT

DESIGNED BY:	APPROVED BY:
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STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

DATE: 04/29/21

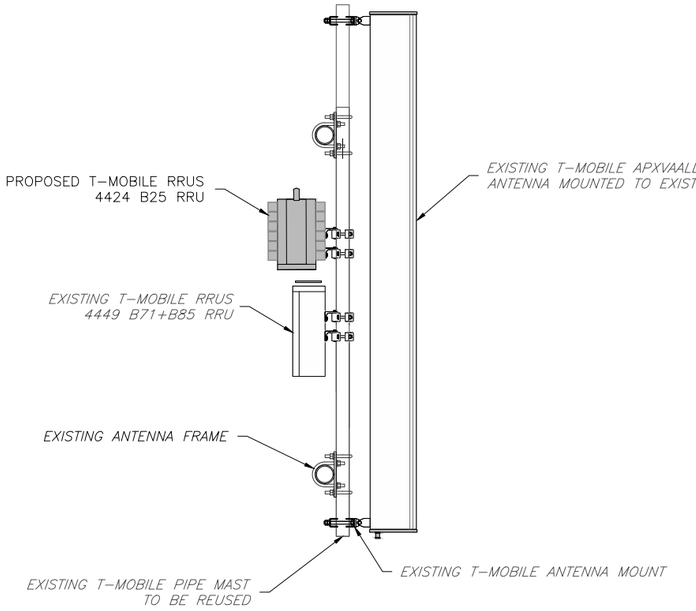
SITE NAME: EAST WINDSOR/RT-191_1

SITE ID: CT11402A

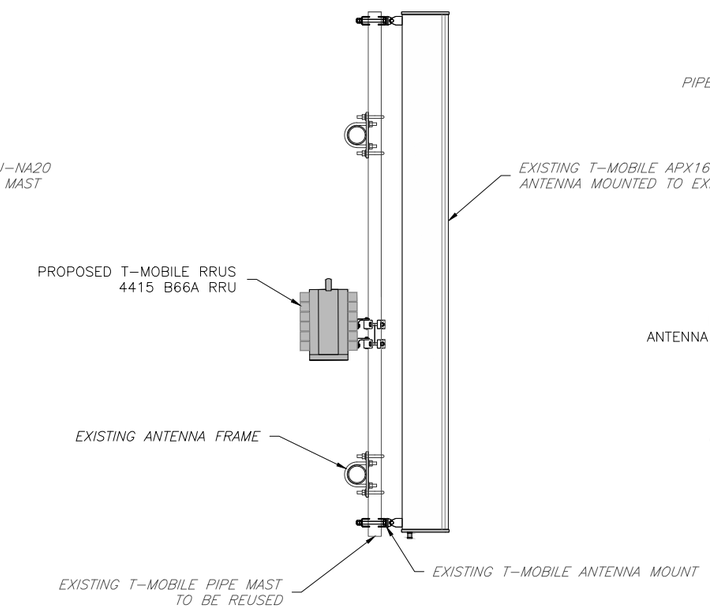
SITE ADDRESS:

SHEET TITLE: ANTENNA PLANS & SCHEDULE

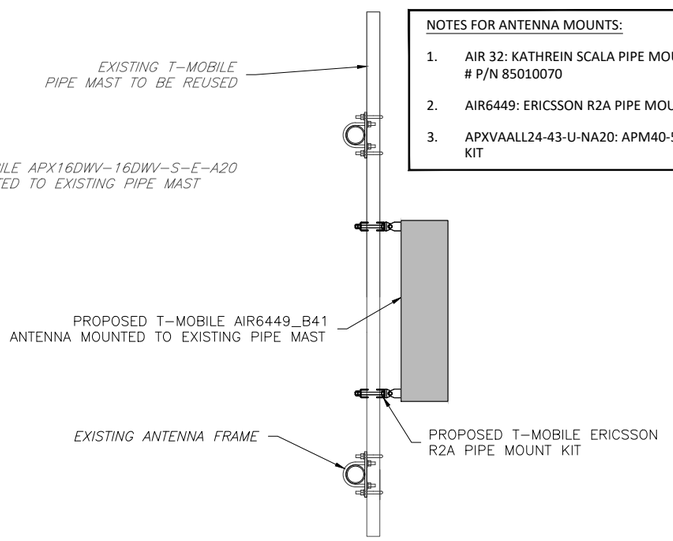
DRAWING: A-4



ANTENNA MOUNT DETAIL FOR POSITION
A-1, B-1 & C-1



ANTENNA MOUNT DETAIL FOR POSITION
A-2, B-2 & C-2



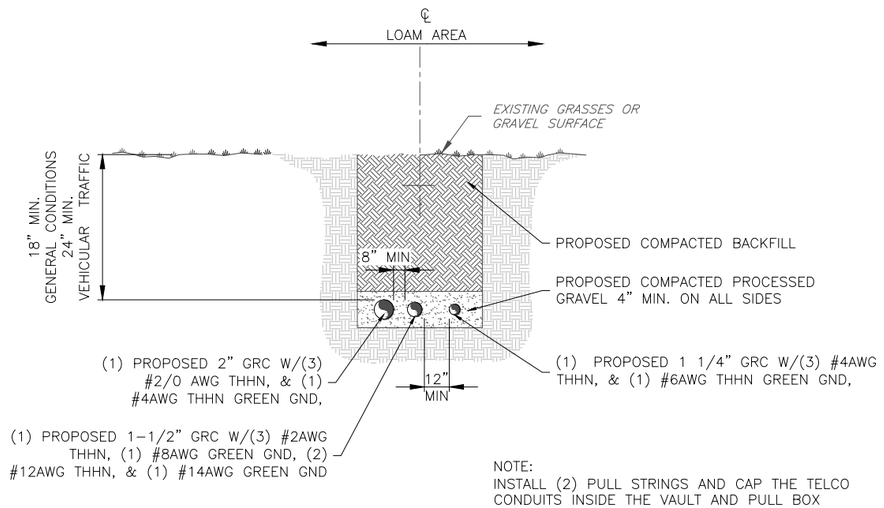
ANTENNA MOUNT DETAIL FOR POSITION
A-3, B-3 & C-3

NOTES FOR ANTENNA MOUNTS:

1. AIR 32: KATHREIN SCALA PIPE MOUNT KIT
   # P/N 85010070
2. AIR6449: ERICSSON R2A PIPE MOUNT KIT
3. APXVAALL24-43-U-NA20: APM40-5E PIPE MOUNT KIT

1 / A-5 ANTENNA MOUNTING DETAILS

NOT TO SCALE



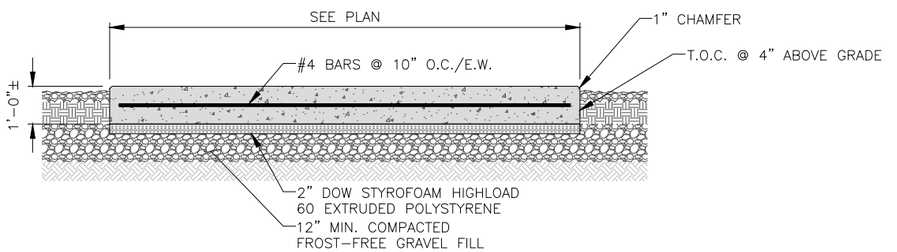
NOTE:
INSTALL (2) PULL STRINGS AND CAP THE TELCO CONDUITS INSIDE THE VAULT AND PULL BOX

2 / A-5 TELCO AND POWER JOINT TRENCH CONDUIT

NOT TO SCALE

FOUNDATION NOTES & CONCRETE SPECIFICATIONS:

1. FOUNDATION AREA SHALL BE EXCAVATED TO THE DEPTH AND DIMENSIONS SHOWN ON THE PLANS. EXISTING LEDGE AND ALL OTHER EXISTING UNSUITABLE MATERIAL SHALL BE REMOVED AND LEGALLY DISPOSED OF OFF–SITE. THE SUBGRADE SHALL BE ROLLED WITH A 1–TON, VIBRATORY, WALK–BEHIND ROLLER AT A SPEED OF LESS THAN 2 FPS, 6 PASSES MINIMUM, TO PROVIDE UNYIELDING SURFACE.
2. UNDERCUT SOFT OR "WEAVING" AREAS A MINIMUM OF 12 INCHES DEEP. BACKFILL UNDERCUT AREA WITH FILL MEETING THE SPECIFICATIONS OF STRUCTURAL FILL.
3. CONCRETE TO HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH (f'c)=4000 psi. CONCRETE TO BE AIR ENTRAINED, DESIRED AIR CONTENT TO BE 6% (PLUS OR MINUS 2%)
4. REINFORCING BAR TO BE ASTM A615 GRADE 60.
5. WELDED WIRE FABRIC TO CONFORM TO THE REQUIREMENTS OF ASTM A185. WIRES FOR FABRIC TO CONFORM TO THE REQUIREMENTS OF ASTM A82.
6. ALL REINFORCING TO HAVE MINIMUM CONCRETE COVER PER ACI SPECIFICATIONS.
7. ALL CONCRETE MATERIALS AND WORKMANSHIP SHALL CONFORM TO LATEST EDITION OF ACI 318 AND APPLICABLE STATE BUILDING CODE.
8. LEASE AREA IS ON A SLOPE. GRADE LEASE AREA AS REQUIRED TO FACILITATE INSTALLATION OF LEVEL CONCRETE SLAB.
9. SLOPE SLAB TO ALLOW FOR WATER DRAINAGE AWAY FROM SITE.



3 / A-5 CONCRETE SLAB DETAIL

NOT TO SCALE

T - Mobile
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FAX: (508) 286-2893

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750 W CENTER ST, SUITE 301
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PHONE: 781.713.4725

REVISIONS

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A	04/05/21	ISSUED FOR REVIEW	NMT

DESIGNED BY:	APPROVED BY:
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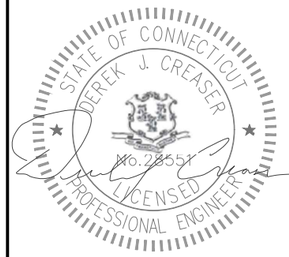


DATE: 04/29/21

SITE NAME:
EAST WINDSOR/RT-191_1

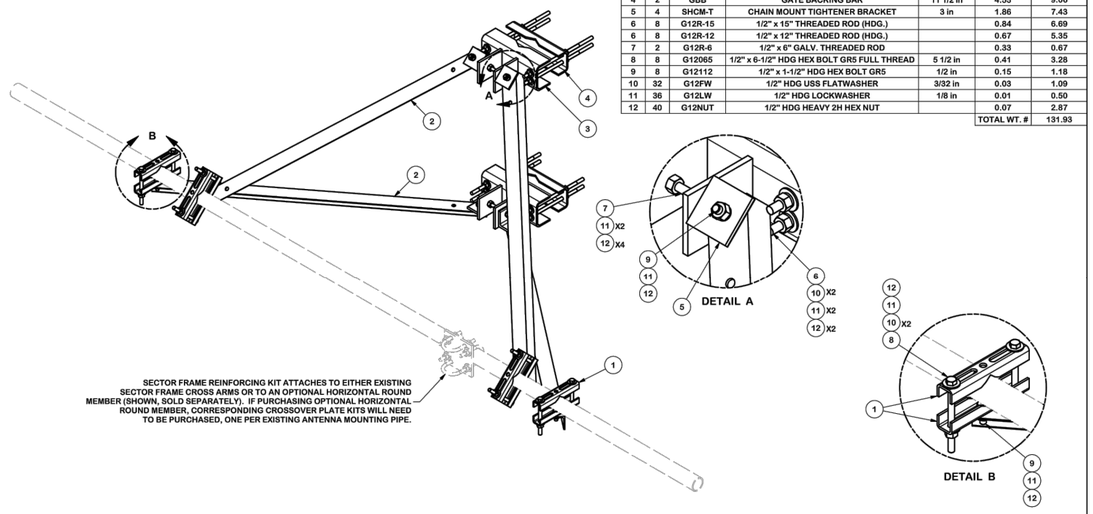
SITE ID:
CT11402A

SITE ADDRESS:

SHEET TITLE:
GENERAL DETAILS

DRAWING:
A-5

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	8	X-STU	STIFF ARM CHANNEL BRACKET	8 1/2 in	1.37	10.98
2	4	X-232697	TRPD-HD DIAGONAL ANGLE - SITE PRO 1	52 1/2 in	14.35	57.39
3	2	CFS	LOWER GATE FOOT WELDMENT		12.72	25.45
4	2	GBB	GATE BACKING BAR	11 1/2 in	4.53	9.06
5	4	SHCM-T	CHAIN MOUNT TIGHTENER BRACKET	3 in	1.86	7.43
6	8	G12R-15	1/2" x 15" THREADED ROD (HDG.)		0.84	6.69
6	8	G12R-12	1/2" x 12" THREADED ROD (HDG.)		0.67	5.35
7	2	G12R-6	1/2" x 6" GALV. THREADED ROD		0.33	0.67
8	8	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	5 1/2 in	0.41	3.28
9	8	G12112	1/2" x 1-1/2" HDG HEX BOLT GR5	1/2 in	0.15	1.18
10	32	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	1.09
11	36	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.50
12	40	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	2.87
					TOTAL WT. #	131.93



SECTOR FRAME REINFORCING KIT ATTACHES TO EITHER EXISTING SECTOR FRAME CROSS ARMS OR TO AN OPTIONAL HORIZONTAL ROUND MEMBER (SHOWN, SOLD SEPARATELY). IF PURCHASING OPTIONAL HORIZONTAL ROUND MEMBER, CORRESPONDING CROSSOVER PLATE KITS WILL NEED TO BE PURCHASED, ONE PER EXISTING ANTENNA MOUNTING PIPE.

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	CHANGED MAX. DIA. FOR HANDRAIL CONNECTION	5563	BC	10/25/2017

REVISION HISTORY

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

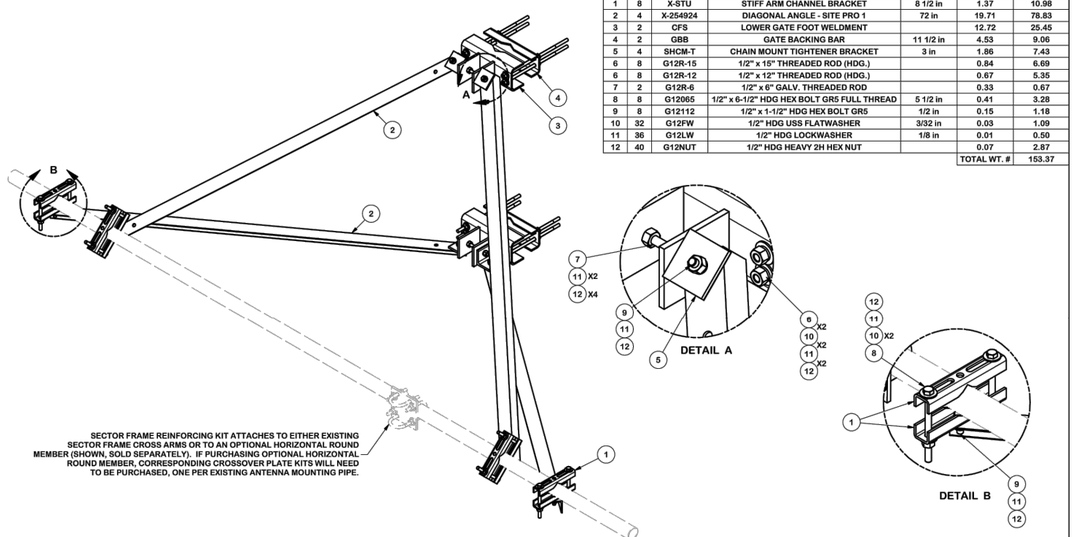
DESCRIPTION: SECTOR FRAME REINFORCEMENT KIT

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
5563	CEK 4/25/2014		SFR-K
CLASS / SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81 / 01	CUSTOMER	BMC 4/30/2014	SFR-K

SITE PRO 1 — A valmont COMPANY
Engineering Support Team: 1-888-753-7446
Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX

PAGE 1 OF 3

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	8	X-STU	STIFF ARM CHANNEL BRACKET	8 1/2 in	1.37	10.98
2	4	X-254924	DIAGONAL ANGLE - SITE PRO 1	72 in	19.71	78.83
3	2	CFS	LOWER GATE FOOT WELDMENT		12.72	25.45
4	2	GBB	GATE BACKING BAR	11 1/2 in	4.53	9.06
5	4	SHCM-T	CHAIN MOUNT TIGHTENER BRACKET	3 in	1.86	7.43
6	8	G12R-15	1/2" x 15" THREADED ROD (HDG.)		0.84	6.69
6	8	G12R-12	1/2" x 12" THREADED ROD (HDG.)		0.67	5.35
7	2	G12R-6	1/2" x 6" GALV. THREADED ROD		0.33	0.67
8	8	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	5 1/2 in	0.41	3.28
9	8	G12112	1/2" x 1-1/2" HDG HEX BOLT GR5	1/2 in	0.15	1.18
10	32	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	1.09
11	36	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.50
12	40	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	2.87
					TOTAL WT. #	153.37



SECTOR FRAME REINFORCING KIT ATTACHES TO EITHER EXISTING SECTOR FRAME CROSS ARMS OR TO AN OPTIONAL HORIZONTAL ROUND MEMBER (SHOWN, SOLD SEPARATELY). IF PURCHASING OPTIONAL HORIZONTAL ROUND MEMBER, CORRESPONDING CROSSOVER PLATE KITS WILL NEED TO BE PURCHASED, ONE PER EXISTING ANTENNA MOUNTING PIPE.

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	CHANGED MAX. DIA. FOR HANDRAIL CONNECTION	5563	BC	10/25/2017

REVISION HISTORY

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

DESCRIPTION: SECTOR FRAME REINFORCEMENT KIT

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
5563	CEK 4/25/2014		SFR-K-L
CLASS / SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81 / 01	CUSTOMER	BMC 7/23/2014	SFR-K-L

SITE PRO 1 — A valmont COMPANY
Engineering Support Team: 1-888-753-7446
Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX

PAGE 2 OF 3

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750 W CENTER ST, SUITE 301
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REVISIONS

REV	DATE	DESCRIPTION	BY
0	04/29/21	ISSUED FOR PERMIT	JIK
A	04/05/21	ISSUED FOR REVIEW	NMT

DESIGNED BY:	APPROVED BY:
NMT	MK

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

DATE: 04/29/21

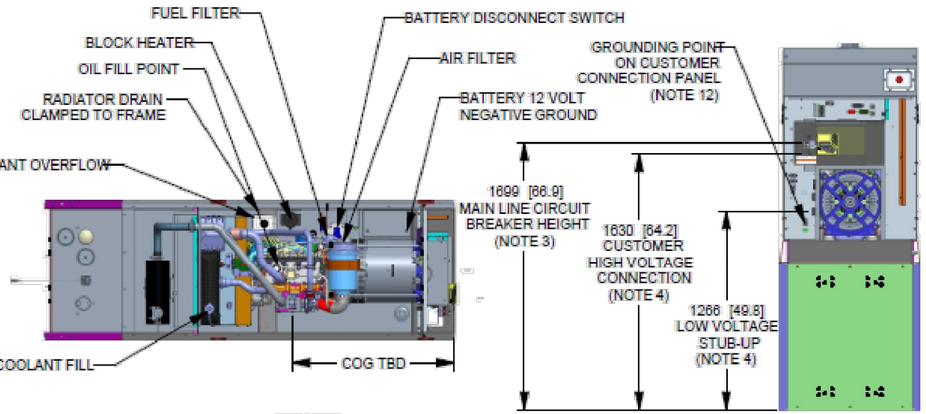
SITE NAME: EAST WINDSOR/RT-191_1

SITE ID: CT11402A

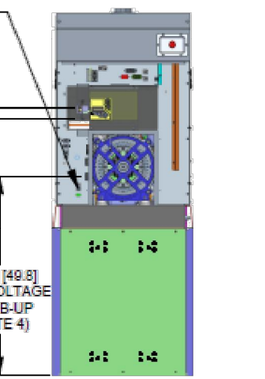
SITE ADDRESS:

SHEET TITLE: **SECTOR FRAME REINFORCEMENT KIT**

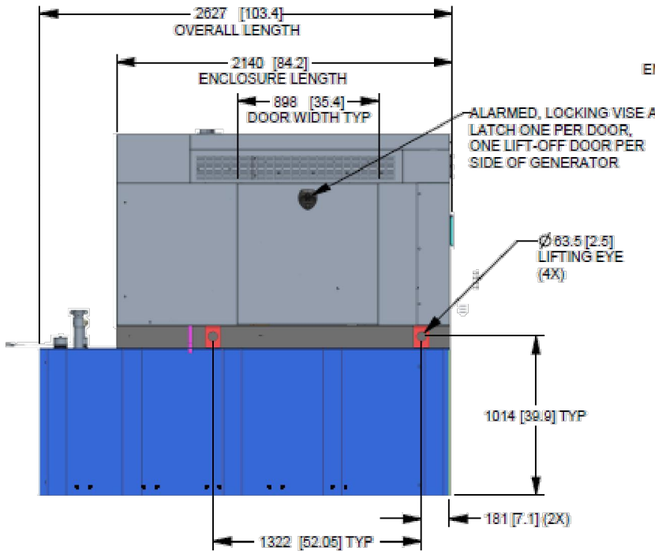
DRAWING: **A-6**



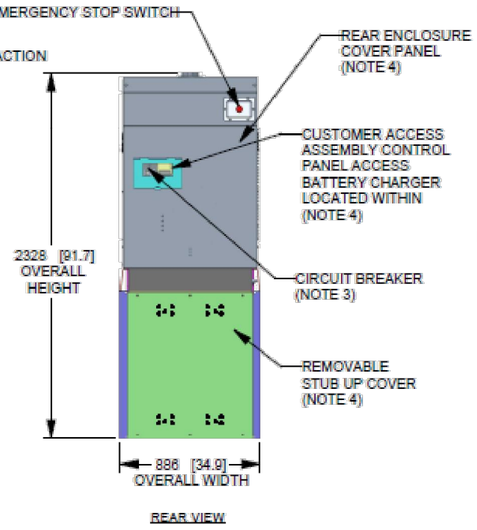
TOP VIEW
(SHOWN WITH ENCLOSURE REMOVED)



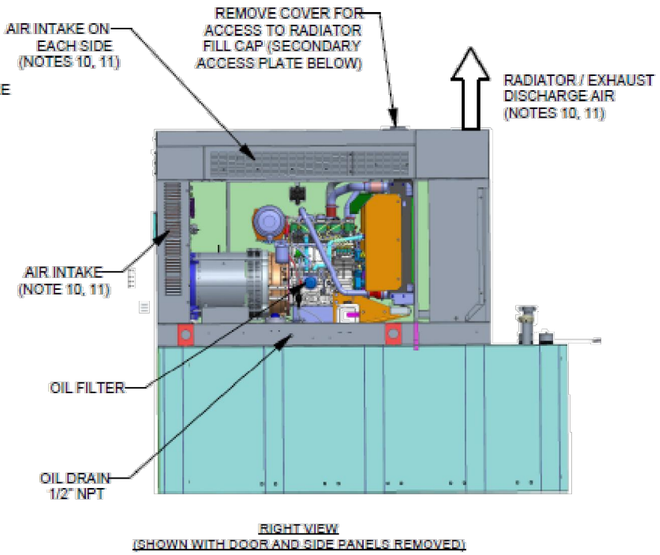
REAR VIEW
(SHOWN WITH REAR COVER PANEL REMOVED)



LEFT VIEW



REAR VIEW



RIGHT VIEW
(SHOWN WITH DOOR AND SIDE PANELS REMOVED)

NOTES:
1.THIS UNIT MUST BE INSTALLED IN ACCORDANCE WITH CURRENT APPLICABLE NFPA 37 AND NFPA 70 STANDARDS AS WELL AS ANY OTHER FEDERAL, STATE, AND LOCAL CODES.
2. BATTERY (12 VOLT NEGATIVE GROUND SYSTEM).
3. CONTROL PANEL / CIRCUIT BREAKER INFORMATION:
- MAIN LINE CIRCUIT BREAKER 125 AMPS
- SEE SPECIFICATION SHEET OR OWNERS MANUAL
- ACCESSIBLE THROUGH CUSTOMER ACCESS ASSEMBLY DOOR ON REAR OF GENERATOR.
- CONTROL PANEL INCLUDES INTEGRATED BATTERY CHARGER
4. REMOVE THE REAR STUB-UP AND REAR ENCLOSURE COVER PANEL TO ACCESS THE STUB-UP AREAS AS FOLLOWS:
- HIGH VOLTAGE CONNECTION INCLUDING AC LOAD LEAD CONDUIT CONNECTION, NEUTRAL CONNECTION, AND BATTERY CHARGER 120 VOLT AC (0.5 AMP MAX) CONNECTION.
- LOW VOLTAGE CONNECTION INCLUDING TRANSFER SWITCH CONTROL WIRES
5. ENGINE SERVICE CONNECTIONS
OIL DRAIN: 1/2" NPT
RADIATOR DRAIN : HOSE CLAMPED TO FRAME
6. CENTER OF GRAVITY AND WEIGHT MAY CHANGE DUE TO UNIT OPTIONS.
7. BOTTOM OF GENERATOR SET MUST BE ENCLOSED TO PREVENT PEST INTRUSION AND RECIRCULATION OF DISCHARGE AIR AND/OR IMPROPER COOLING AIR FLOW.
8. REFERENCE OWNERS MANUAL FOR LIFTING WARNINGS.
9. MOUNTING BOLTS OR STUDS TO MOUNTING SURFACE SHALL BE 5/8-11 GRADE 5 (USE STANDARD SAE TORQUE SPECS)
10. MUST ALLOW FREE FLOW OF INTAKE AIR, DISCHARGE AIR AND EXHAUST. SEE SPEC SHEET FOR MINIMUM AIR FLOW AND MAXIMUM RESTRICTION REQUIREMENTS.
11. GENERATOR MUST BE INSTALLED SUCH THAT FRESH COOLING AIR IS AVAILABLE AND THAT DISCHARGE AIR FROM RADIATOR IS NOT RECIRCULATED. RECOMMENDED MINIMUM PERIMETER(3FT) AND VERTICAL OVER EXHAUST (5FT) CLEARANCE FOR SITE LOCATION.
12. GENERATOR MUST BE GROUNDED.

WEIGHT DATA: (INCLUDES FUEL TANK)
GENERATOR: TBD
GENERATOR WITH SHIPPING SKID:TBD
WEIGHT: KG [LBS]
DIMENSIONS: MM [INCHES]

DRAWING CREATED FROM PRO/ENGINEER 3D FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.

INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
INSTALLATION D2.2L
25KW Y06 PD

ISSUE DATE:	5/10/18			
SIZE B	CAGE NO N/A	DWG NO 10000036728		REV 1
SCALE 0.031	WT-KG SEE ABOVE	SHEET 1 of 2		

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REVISIONS

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A	04/05/21	ISSUED FOR REVIEW	NMT

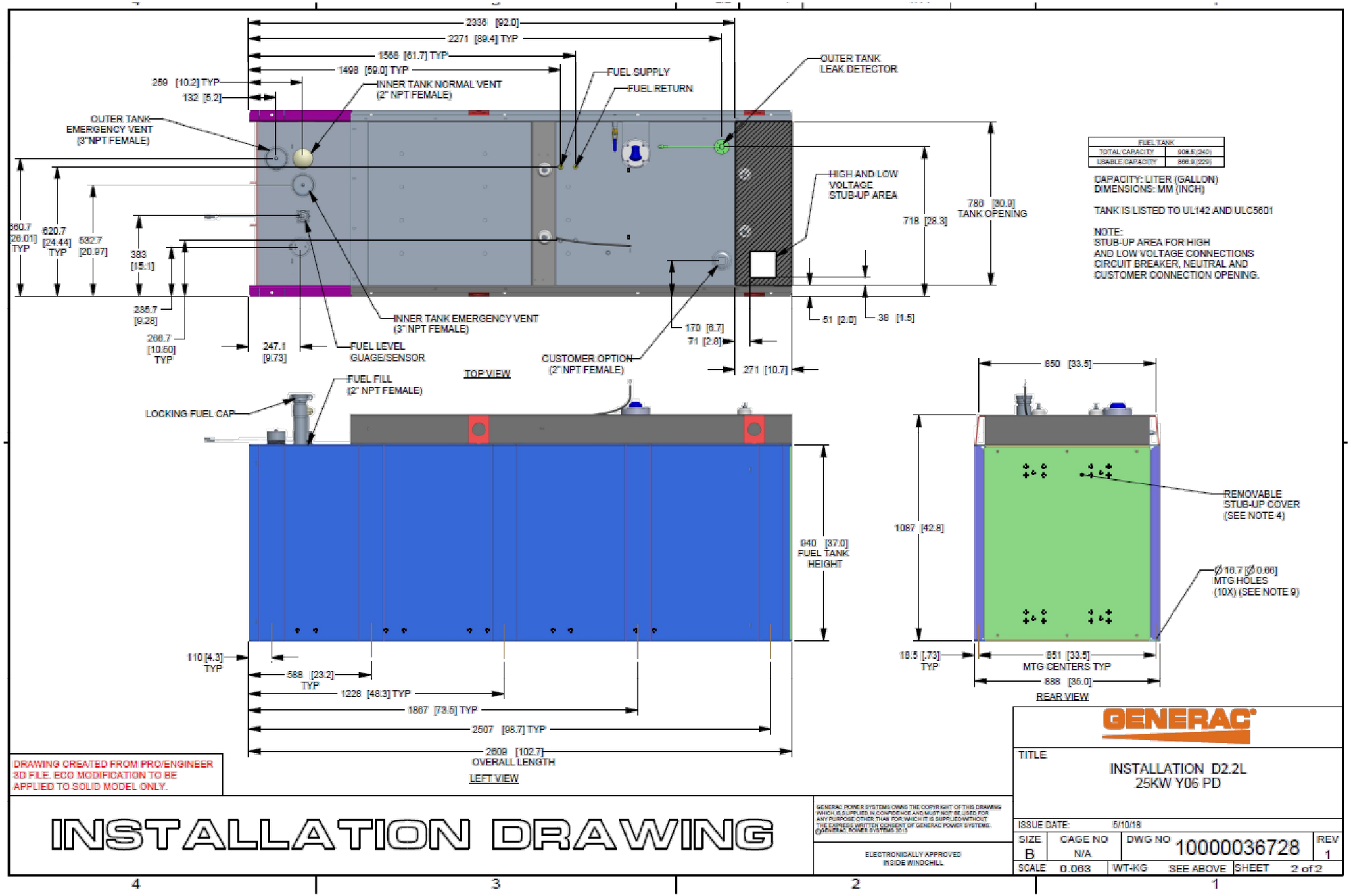
DESIGNED BY:	APPROVED BY:
NMT	MK

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

DATE: 04/29/21

SITE NAME: EAST WINDSOR/RT-191_1
SITE ID: CT11402A
SITE ADDRESS:

SHEET TITLE: 25KW GENERATOR DETAILS
DRAWING: A-7



FUEL TANK	
TOTAL CAPACITY	908.5 (240)
USABLE CAPACITY	866.9 (229)

CAPACITY: LITER (GALLON)
DIMENSIONS: MM (INCH)

TANK IS LISTED TO UL142 AND ULC5601

NOTE:
STUB-UP AREA FOR HIGH AND LOW VOLTAGE CONNECTIONS CIRCUIT BREAKER, NEUTRAL AND CUSTOMER CONNECTION OPENING.

DRAWING CREATED FROM PRO/ENGINEER 3D FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.

INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
INSTALLATION D2.2L
25KW Y06 PD

ISSUE DATE: 5/10/18			
SIZE B	CAGE NO N/A	DWG NO 10000036728	REV 1
SCALE 0.063	WT-KG SEE ABOVE	SHEET 2 of 2	

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STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

DATE: 04/29/21

SITE NAME: EAST WINDSOR/RT-191_1
SITE ID: CT11402A
SITE ADDRESS:

SHEET TITLE: 25KW GENERATOR DETAILS
DRAWING: A-8

SPECIFICATIONS FOR 200A PPC WITH IS NOT AVAILABLE AT
TIME OF ISSUANCE OF THESE CONSTRUCTION DRAWINGS

1 / A-9 PPC DETAIL
NOT TO SCALE

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DATE: 04/29/21

SITE NAME:
EAST WINDSOR/RT-191_1

SITE ID:
CT11402A

SITE ADDRESS:

SHEET TITLE:
PPC DETAILS

DRAWING:
A-9

Automatic Transfer Switches

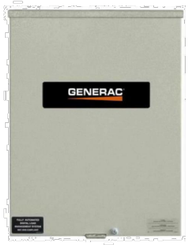
GENERAC®

Service and non-Service rated Automatic Smart Transfer Switches

Automatic Transfer Switches 1 of 2

Automatic Transfer Switches 2 of 2

100 - 400 Amps, Single Phase



c UL us LISTED

USA ENGINEERED & BUILT* *Built in the USA using domestic and foreign parts

*CUL only applies to non-service rated switches

Description

Generac Automatic Transfer Switches are designed for use with single phase generators that utilize an Evolution™ or Nexus™ Controller. The 100, 200, and 400 amp open transition switches are available in single phase in both service equipment rated and non-service equipment rated configurations. The 150 and 300 amp open transition switches are only available in a service rated equipment configuration.

Standard Features

Service rated (RXSW) Generac Automatic Transfer Switches are housed in an aluminum NEMA/UL Type 3R enclosure*, with electrostatically applied and baked powder paint. The Heavy Duty Generac Contactor is a UL recognized device, designed for years of service. The controller at the generator handles all the timing, sensing, exercising functions, and transfer commands. All switches are covered by a 5 year limited warranty.

* Non-service rated (RXSC) switches are housed in a steel enclosure.

DPM Technology

Through the use of digital power technology (DPM), these switches have the capability to manage up to 4 individual HVAC (24 VAC controlled) loads with no additional hardware. When used in tandem with Smart Management Modules, up to 8 more loads can be managed as well, providing the most installation efficient power management options available.

GENERAC® ISO 9001:2008

GENERAC®

100-400 Amps, Single Phase — Automatic Smart Transfer Switches

Functions

All timing and sensing functions originate in the generator controller

- Utility voltage drop-out ..... <65%
- Timer to generator start ..... 10 second factory set, adjustable between 2-1500 seconds by a qualified dealer*
- Engine warm up delay ..... 5 seconds
- Standby voltage sensor ..... 65% for 5 seconds
- Utility voltage pickup ..... >80%
- Re-transfer time delay ..... 15 seconds
- Engine cool-down timer ..... 60 seconds
- Exerciser ..... 5 or 12 minutes adjustable weekly/Bi-weekly/Monthly**

The transfer switch can be operated manually without power applied.

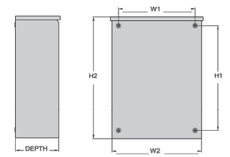
*When used in conjunction with units utilizing Evolution™ controls **Adjustable via the controller

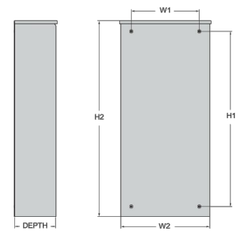
Specifications

Model	RXSC100A3		RXSC200A3
Amps	100		200
Voltage	120/240, 1ø		120/240, 1ø
Load Transition Type (Automatic)	Open Transition		Open Transition
Enclosure Type	NEMA/UL 3R		NEMA/UL 3R
UL Rating	UL/CUL		UL/CUL
Withstand Rating (Amps)	10,000		10,000
Lug Range	1/0 - #14		250 MCM - #6

Dimensions

Model		RXSC100A3	RXSC200A3
Height (in./mm)	H1	17.24/437.9	17.24/437.9
	H2	20/508	20/508
Width (in./mm)	W1	12.5/317.5	12.5/317.5
	W2	14.6/370.8	14.6/370.8
Depth (in./mm)		7.09/180.1	7.09/180.1
Weight (lbs./kilos)		20/9.07	20/9.07





GENERAC®

1 / A-10 AUTOMATIC TRANSFER SWITCH DETAIL
NOT TO SCALE

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A	04/05/21	ISSUED FOR REVIEW	NMT

DESIGNED BY: NMT | APPROVED BY: MK

STATE OF CONNECTICUT · DEREK J. CREASER · No. 28551 · LICENSED PROFESSIONAL ENGINEER

DATE: 04/29/21

SITE NAME: EAST WINDSOR/RT-191_1

SITE ID: CT11402A

SITE ADDRESS:

SHEET TITLE: AUTOMATIC TRANSFER SWITCH DETAIL

DRAWING: A-10

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. 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.
3. 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".
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.
10. 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 DI.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
11. 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.
12. 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.
13. 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.
14. 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.
15. 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.
16. 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.
17. 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.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. 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:

1. REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
2. PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
3. PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
4. HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
5. 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.
6. AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

NOTES:

1. ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"ø A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
2. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
3. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
4. 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.
5. CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
6. EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

T - Mobile
NORTHEAST LLC

T-MOBILE NORTHEAST, LLC.
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PHONE: (508) 286-2700
FAX: (508) 286-2893

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

REVISIONS

REV	DATE	DESCRIPTION	BY
0	04/29/21	ISSUED FOR PERMIT	JIK
A	04/05/21	ISSUED FOR REVIEW	NMT

DESIGNED BY:	APPROVED BY:
NMT	MK

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

DATE: 04/29/21

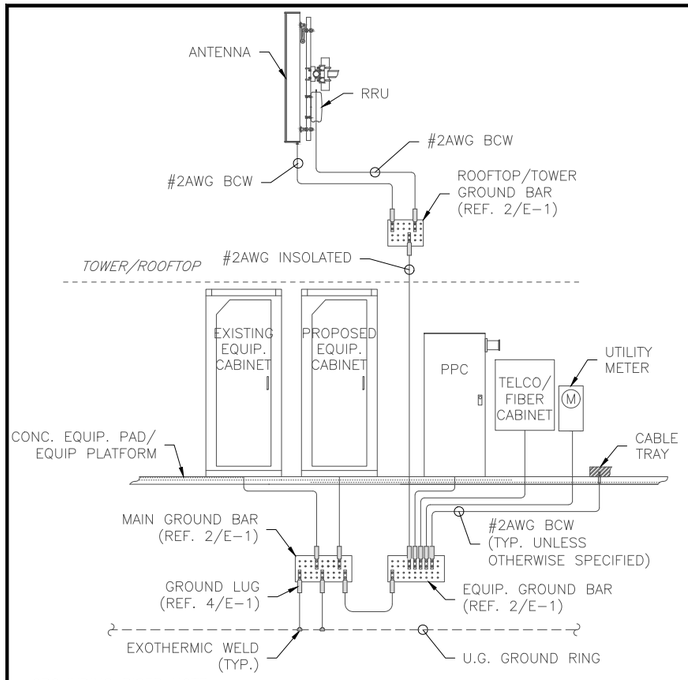
SITE NAME: EAST WINDSOR/RT-191_1

SITE ID: CT11402A

SITE ADDRESS:

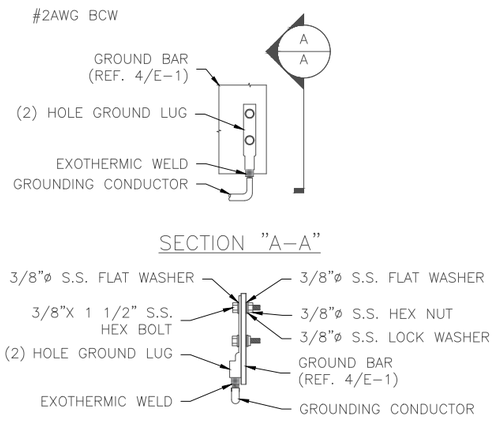
SHEET TITLE: STRUCTURAL NOTES & SPECIAL INSPECTIONS

DRAWING: SN-1



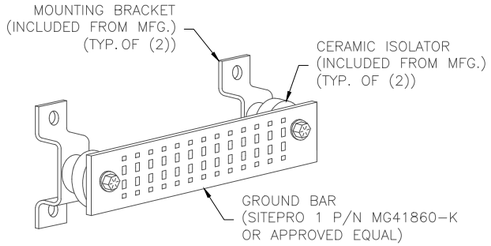
GROUNDING RISER NOTE:
UNLESS OTHERWISE SPECIFIED ALL GROUNDING CONDUCTORS ARE TO BE #2AWG BCW

1 E-1 **GROUNDING RISER DIAGRAM**
NOT TO SCALE



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

2 E-1 **GROUND LUG DETAIL**
NOT TO SCALE



4 E-1 **GROUND BAR DETAIL**
NOT TO SCALE

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

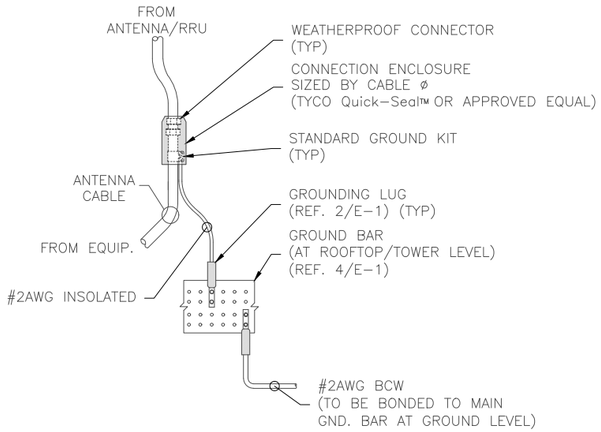
SECTION "P" – SURGE PRODUCERS

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

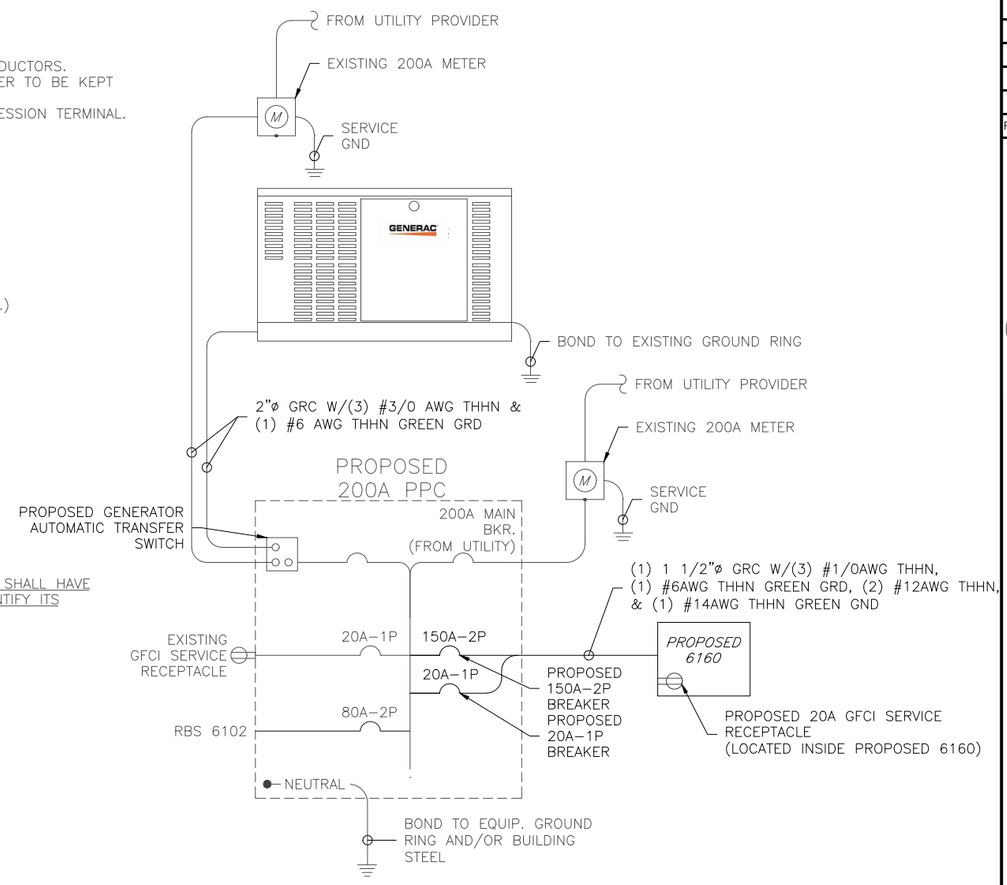
INTERIOR GROUND RING (#2)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
BUILDING STEEL (IF AVAILABLE) (#2)

5 E-1 **GROUND WIRE SCHEDULE**
NOT TO SCALE



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

3 E-1 **ANTENNA/RRU GROUNDING DETAIL**
NOT TO SCALE



6 E-1 **ONE LINE DIAGRAM**
NOT TO SCALE

T - Mobile
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CENTERLINE COMMUNICATIONS
750 W CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725

REVISIONS

REV	DATE	DESCRIPTION	BY
0	04/29/21	ISSUED FOR PERMIT	JIK
A	04/05/21	ISSUED FOR REVIEW	NMT

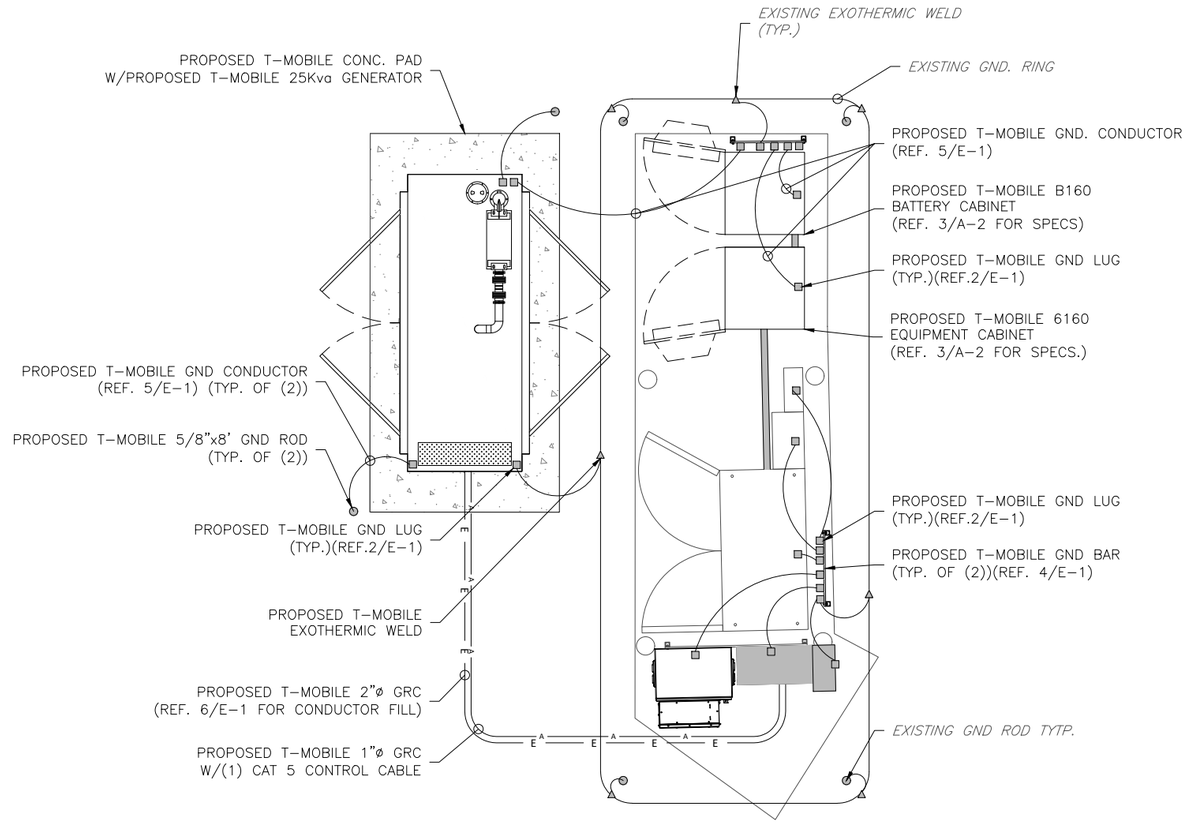
DESIGNED BY:	APPROVED BY:
NMT	MK

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

DATE: 04/29/21

SITE NAME: EAST WINDSOR/RT-191_1
SITE ID: CT11402A
SITE ADDRESS:

SHEET TITLE: **ONE-LINE DIAGRAM & GROUNDING DETAILS**
DRAWING: **E-1**



1 / G-1 GENERATOR AND EQUIPMENT GROUNDING DETAIL

NOT TO SCALE

T - Mobile
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CENTERLINE COMMUNICATIONS

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

REVISIONS

REV	DATE	DESCRIPTION	BY
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A	04/05/21	ISSUED FOR REVIEW	NMT

DESIGNED BY:	APPROVED BY:
NMT	MK

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

DATE: 04/29/21

SITE NAME: EAST WINDSOR/RT-191_1

SITE ID: CT11402A

SITE ADDRESS:

SHEET TITLE: GENERATOR & EQUIP GROUNDING PLAN

DRAWING: G-1

Exhibit D

Structural Analysis Report

CENTERLINE COMMUNICATIONS
750 West Center Street, Suite 301
West Bridgewater, MA 02379
781.713.4725

Structural Analysis Report

Site ID: CT11402A
Site Name: East Windsor/RT-191_1
Project Name: ANCHOR
Address: 232 South Main St
East Windsor, CT 06088

Client:

T - Mobile

NORTHEAST, LLC
15 Commerce Way, Suite B
Norton, MA 02766

Date: 4/28/2021

Scope of Work:

Centerline Communications was authorized by T-Mobile Northeast LLC to perform an analysis of the existing structure to determine its capacity to support the proposed and existing T-Mobile equipment/appurtenances listed in this report.

Existing & Proposed Equipment:

Carrier	Mounting Level (ft)	Center Line Elevation (ft)	Number of Appurtenances	Antenna Manufacturer	Appurtenance Model	Feed Lines (in)
-	188.0	202.5	1	-	BCD-87010	(1) 1-1/4
-	186.0	188.0	1	Rohn	14' Platform	-
-	172.0	172.0	6	-	AM-X-CD-16-65-00T-RET	(12) 1-1/4 (2) 5/8 (1) 3/8
			3	-	800 10121	
			3	-	RRUS 11	
			3	-	RRUS 12	
			3	-	TT19-08BP111-001	
			3	-	DTMABP7819VG12A	
			1	-	DC6-48-60-18-8F	
			3	-	Sector Mount	
T-Mobile	155.0	155.0	3	RFS	APX16DWV-16DWV-S-E-A20	(2) 6x24 Hybrid **(3) 6x24 Hybrid**
			3	RFS	APXVAARR24_43-U-NA20	
			3	**Ericsson**	**AIR 6449 B41**	
			3	**Ericsson**	**4415 B66A RRH**	
			3	Ericsson	Radio 4449 B71+B85 RRH	
			3	**Ericsson**	**4424 B25 RRH**	
			3	-	Sector Mount	
			3	**-**	**Sector Frame Reinforcements**	
-	145.5	145.5	9	-	SBNHH-1D85B	(17) 1-5/8
			3	-	BXA-70063-6CF-EDIN-6	
			3	-	B66A RRH4x45	
			3	-	B25 RRH4x30-4R	
			3	-	RRH2x60-1900	
			2	-	DB-B1-6C-12AB-0Z	
			3	Site Pro 1	VFA10-RRU Sector Mount	

-	123.0	123.0	3	-	APXVSPP18-C-A20	(3) 1-1/4 (1) Hybrid
			3	-	DT465B-2XR	
			3	-	RRH2x50-800	
			3	-	RRH4x45-1900	
			3	-	TD-RRH8x20-25	
			3	-	RRH2x50-800	
			3	-	Sector Mount	

*Note: Proposed equipment shown in **bold**.*

Design Criteria:

Design Codes:

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

Ultimate Design Wind Speed (V_{ult})	125 mph
Wind Speed with Ice	50 mph
Ice Thickness	1.00 in.
Exposure Category	C
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	0.177 g
Spectral Response Acceleration Parameter at a Period of 1 Second, S_1	0.064 g
Short Period Site Coefficient, F_a	1.60
Long Period Site Coefficient, F_v	2.40

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

Conclusion:

Section Capacity (Summary)

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	188 - 180	Leg	P3x.216	2	-3798.38	88548.60	4.3	Pass
T2	180 - 160	Leg	P3x.216	21	-20740.70	82502.90	25.1	Pass
T3	160 - 140	Leg	ROHN 3 EH	60	-53602.60	94349.80	56.8	Pass
T4	140 - 120	Leg	ROHN 4 EH	81	-97329.20	159905.00	60.9	Pass
T5	120 - 100	Leg	ROHN 5 EH	102	-142068.00	239326.00	59.4	Pass
T6	100 - 80	Leg	ROHN 6 EHS	123	-185956.00	244126.00	76.2	Pass
T7	80 - 60	Leg	ROHN 6 EH	138	-234234.00	303759.00	77.1	Pass
T8	60 - 40	Leg	ROHN 8 EHS	153	-278728.00	386368.00	72.1	Pass
T9	40 - 20	Leg	ROHN 8 EH	168	-322774.00	505544.00	63.8 65.7 (b)	Pass
T10	20 - 0	Leg	ROHN 8 EH	183	-366963.00	505565.00	72.6	Pass
T1	188 - 180	Diagonal	L1 3/4x1 3/4x3/16	10	-1128.41	8824.45	12.8 18.3 (b)	Pass
T2	180 - 160	Diagonal	L1 3/4x1 3/4x3/16	38	-3322.51	5512.95	60.3	Pass
T3	160 - 140	Diagonal	L2 1/2x2 1/2x1/4	65	-7143.41	12209.80	58.5 67.9 (b)	Pass
T4	140 - 120	Diagonal	L3x3x1/4	86	-8448.30	16593.20	50.9 57.1 (b)	Pass
T5	120 - 100	Diagonal	L3x3x1/4	107	-8517.09	12404.00	68.7	Pass
T6	100 - 80	Diagonal	L3 1/2x3 1/2x1/4	127	-12629.80	14408.10	87.7	Pass
T7	80 - 60	Diagonal	L4x4x5/16	142	-12290.10	22316.40	55.1 68.7 (b)	Pass
T8	60 - 40	Diagonal	L4x4x5/16	157	-12347.10	18939.00	65.2 69.0 (b)	Pass
T9	40 - 20	Diagonal	L4x4x5/16	172	-13774.50	16141.50	85.3	Pass
T10	20 - 0	Diagonal	L4x4x3/8	187	-15387.70	16543.30	93.0	Pass
T2	180 - 160	Horizontal	L2x2x1/8	32	-359.74	2031.49	17.7	Pass
T1	188 - 180	Top Girt	L3x3x1/4	4	-96.65	20868.70	0.6 0.8 (b)	Pass
							Summary	
						Leg (T7)	77.1	Pass
						Diagonal (T10)	93.0	Pass
						Horizontal (T2)	17.7	Pass
						Top Girt (T1)	0.8	Pass
						Bolt Checks	86.0	Pass
						Anchor Rods	73.6	Pass
						RATING =	**93.0**	**Pass**

Structure Rating (max from all components) =	**93.0%**

Note) Foundation information was not available at the time of analysis and has been excluded from the results.

Recommendations:

The existing tower has sufficient capacity to support the existing and proposed loading for the final loading configuration. Modifications to the tower structure are not required.

Reference Documents:

- T-Mobile RFDS CT11402A_Anchor_5, dated February 23, 2021
- Construction Drawings by ForeSite LLC, dated August 1, 2018
- Structural Analysis by Destek Engineering, dated August 14, 2018
- Mount Analysis by Destek Engineering, dated June 1, 2018
- Construction Drawings by Atlantis Group, dated April 23, 2009
- Structural Assessment by Velocitel, dated April 17, 2009
- Construction Drawings by Arcnet Architects, dated August 14, 1997

Assumptions and Limitations:

- The tower and structures were built and maintained with the manufacturer's specifications.
- The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in this report and the referenced drawings.

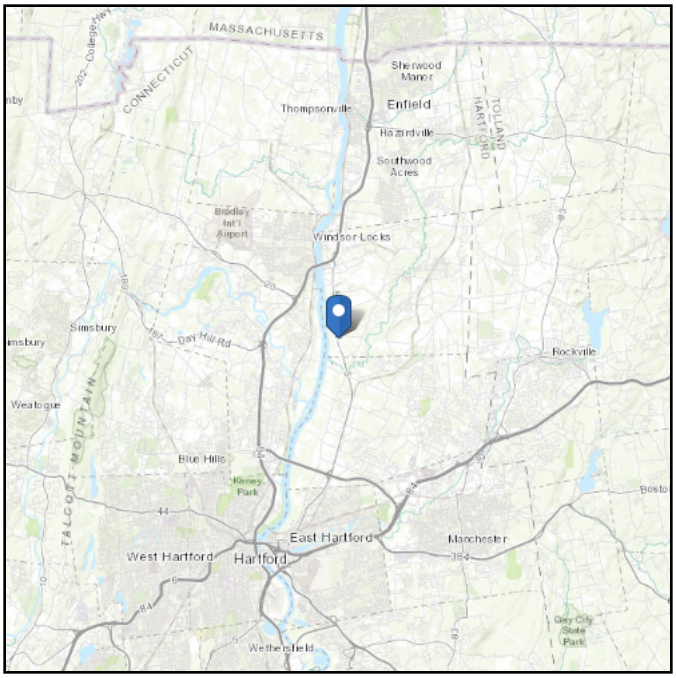
Design Calculations

ASCE 7 Hazards Report

Address:
232 S Main St
East Windsor, Connecticut
06088

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

Elevation: 51.35 ft (NAVD 88)
Latitude: 41.877936
Longitude: -72.6094



Wind

Results:

Wind Speed:	122 Vmph
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	92 Vmph
100-year MRI	99 Vmph

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

Date Accessed: Tue Apr 06 2021

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

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

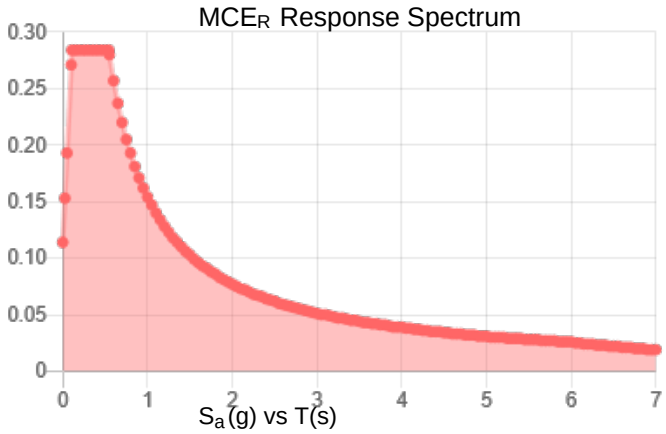
Seismic

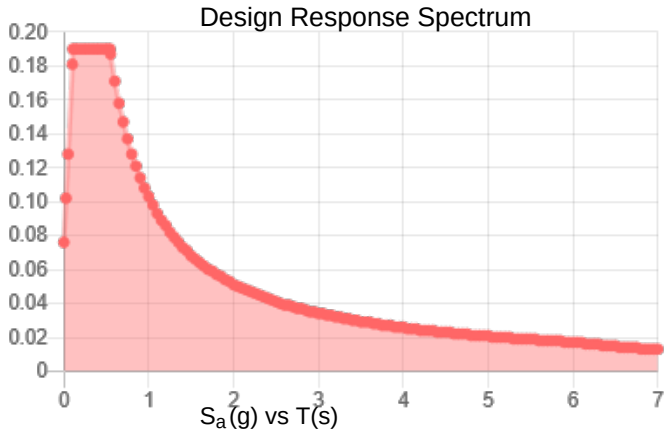
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.178	S_{DS} :	0.19
S_1 :	0.064	S_{D1} :	0.103
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.088
S_{MS} :	0.284	PGA_M :	0.141
S_{M1} :	0.154	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Tue Apr 06 2021

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Tue Apr 06 2021

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

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

Snow

Results:

Ground Snow Load, p_g:	30 lb/ft^2
Elevation:	51.4 ft
Data Source:	ASCE/SEI 7-10, Fig. 7-1.
Date Accessed:	Tue Apr 06 2021

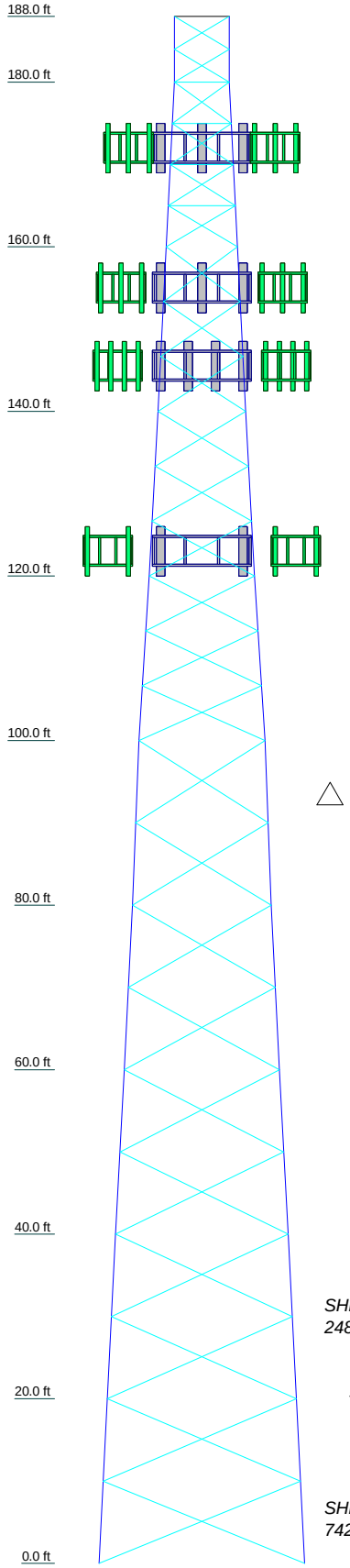
Values provided are ground snow loads. In areas designated "case study required," extreme local variations in ground snow loads preclude mapping at this scale. Site-specific case studies are required to establish ground snow loads at elevations not covered.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10
Legs		P3x.216	ROHN 3 EH	ROHN 4 EH	ROHN 5 EH	ROHN 6 EHS	ROHN 6 EH	ROHN 8 EHS	ROHN 8 EH	
Leg Grade		A572-50								
Diagonals		L1 3/4x1 3/4x3/16	L2 1/2x2 1/2x1/4	L3x3x1/4		L3 1/2x3 1/2x1/4		L4x4x5/16		L4x4x3/8
Diagonal Grade		A36		A572-50						
Top Girts	L3x3x1/4			N.A.						
Horizontals	N.A.	L2x2x1/8				N.A.				
Face Width (ft)	6.63		8.75	10.71	12.79	15.29	16.88	18.83	21	23.05
# Panels @ (ft)	2 @ 4	4 @ 5		9 @ 6.66667				10 @ 10		
Weight (lb) 30390.5	499.6	1121.7	1550.7	2198.1	2753.5	2813.2	3910.8	4381.1	5230.1	5931.6



MATERIAL STRENGTH

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

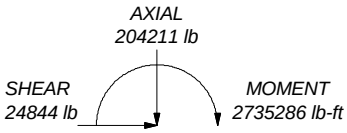
TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 93%

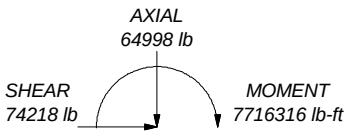
ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 378067 lb
SHEAR: 45003 lb

UPLIFT: -324924 lb
SHEAR: 39832 lb



TORQUE 14686 lb-ft
50 mph WIND - 1.0000 in ICE

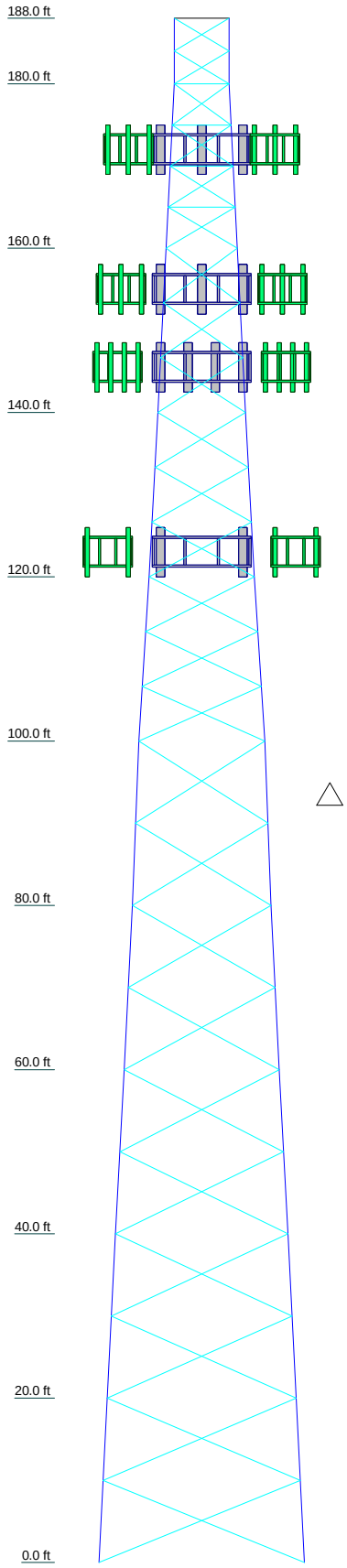


TORQUE 56123 lb-ft
REACTIONS - 97 mph WIND

Centerline Communications
750 West Center Street, Suite 301
West Bridgewater, MA 02379
Phone: 781-713-4725
FAX:

Job: ***CT11402A***			
Project: ***Anchor***			
Client: T-Mobile	Drawn by: Arielle Novak	App'd:	
Code: TIA-222-G	Date: 04/28/21	Scale: NTS	
Path: C:\Users\Arielle Novak\Desktop\Projects\TMO\In Progress\CT11402A\Working Files\Analysis\tnx\CT11402A.eri		Dwg No. E-1	

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10
Legs	P3x.216		ROHN 3 EH	ROHN 4 EH	ROHN 5 EH	ROHN 6 EHS	ROHN 6 EH	ROHN 8 EHS	ROHN 8 EH	
Leg Grade	A572-50									
Diagonals	L1 3/4x1 3/4x3/16		L2 1/2x2 1/2x1/4	L3x3x1/4		L3 1/2x3 1/2x1/4		L4x4x5/16		L4x4x3/8
Diagonal Grade	A36			A572-50						
Top Girts	L3x3x1/4					N.A.				
Horizontals	N.A.	L2x2x1/8					N.A.			
Face Width (ft) 25	6.63		8.75	10.71	12.79	15.29	16.88	18.83	21	23.05
# Panels @ (ft)	2 @ 4	4 @ 5	9 @ 6.66667					10 @ 10		
Weight (lb) 30390.5	499.6	1121.7	1550.7	2198.1	2753.5	2813.2	3910.8	4381.1	5230.1	5931.6



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
BCD-87010	195	4415 B66A (TMO)	155
Rohn 14' Platform	186	4415 B66A (TMO)	155
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	172	4415 B66A (TMO)	155
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	172	Reinforced Sector Mount (TMO)	155
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	172	Reinforced Sector Mount (TMO)	155
800 10121 w/ Mount Pipe	172	Reinforced Sector Mount (TMO)	155
800 10121 w/ Mount Pipe	172	RRH2X60-1900	145.5
800 10121 w/ Mount Pipe	172	RRH2X60-1900	145.5
RRUS 11	172	RRH2X60-1900	145.5
RRUS 11	172	DB-B1-6C-12AB-0Z	145.5
RRUS 11	172	DB-B1-6C-12AB-0Z	145.5
RRUS 12	172	SitePro VFA10-RRU	145.5
RRUS 12	172	SitePro VFA10-RRU	145.5
RRUS 12	172	SitePro VFA10-RRU	145.5
TT19-08BP111-001	172	(3) SBNHH-1D85B w/ Mount Pipe	145.5
TT19-08BP111-001	172	(3) SBNHH-1D85B w/ Mount Pipe	145.5
TT19-08BP111-001	172	(3) SBNHH-1D85B w/ Mount Pipe	145.5
DTMABP7819VG12A	172	BXA-70063-6CF-EDIN-6 w/ Mount Pipe	145.5
DTMABP7819VG12A	172	BXA-70063-6CF-EDIN-6 w/ Mount Pipe	145.5
DTMABP7819VG12A	172	BXA-70063-6CF-EDIN-6 w/ Mount Pipe	145.5
DC6-48-60-18-8F	172	B66A RRH4X45	145.5
6' x 2" Mount Pipe	172	B66A RRH4X45	145.5
6' x 2" Mount Pipe	172	B66A RRH4X45	145.5
6' x 2" Mount Pipe	172	B25 RRH4x30-4R	145.5
Sector Mount [SM 503-3]	172	B25 RRH4x30-4R	145.5
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe (TMO)	155	B25 RRH4x30-4R	145.5
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe (TMO)	155	TD-RRH8x20-25	123
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe (TMO)	155	TD-RRH8x20-25	123
APXVAARR24_43-U-NA20 w/ Mount Pipe (TMO)	155	TD-RRH8x20-25	123
APXVAARR24_43-U-NA20 w/ Mount Pipe (TMO)	155	RRH2x50-800	123
APXVAARR24_43-U-NA20 w/ Mount Pipe (TMO)	155	RRH2x50-800	123
RADIO 4449 (TMO)	155	RRH2x50-800	123
RADIO 4449 (TMO)	155	Sector Mount [SM 503-3]	123
RADIO 4449 (TMO)	155	APXVSPP18-C-A20 w/ Mount Pipe	123
AIR 6449 B41 W/ MOUNT PIPE (TMO)	155	APXVSPP18-C-A20 w/ Mount Pipe	123
AIR 6449 B41 W/ MOUNT PIPE (TMO)	155	APXVSPP18-C-A20 w/ Mount Pipe	123
AIR 6449 B41 W/ MOUNT PIPE (TMO)	155	DT465V-2XR w/ Mount Pipe	123
4424 B25 (TMO)	155	DT465V-2XR w/ Mount Pipe	123
4424 B25 (TMO)	155	DT465V-2XR w/ Mount Pipe	123
4424 B25 (TMO)	155	RRH2x50-800	123
		RRH2x50-800	123
		RRH2x50-800	123
		RRH4x45-19	123
		RRH4x45-19	123
		RRH4x45-19	123

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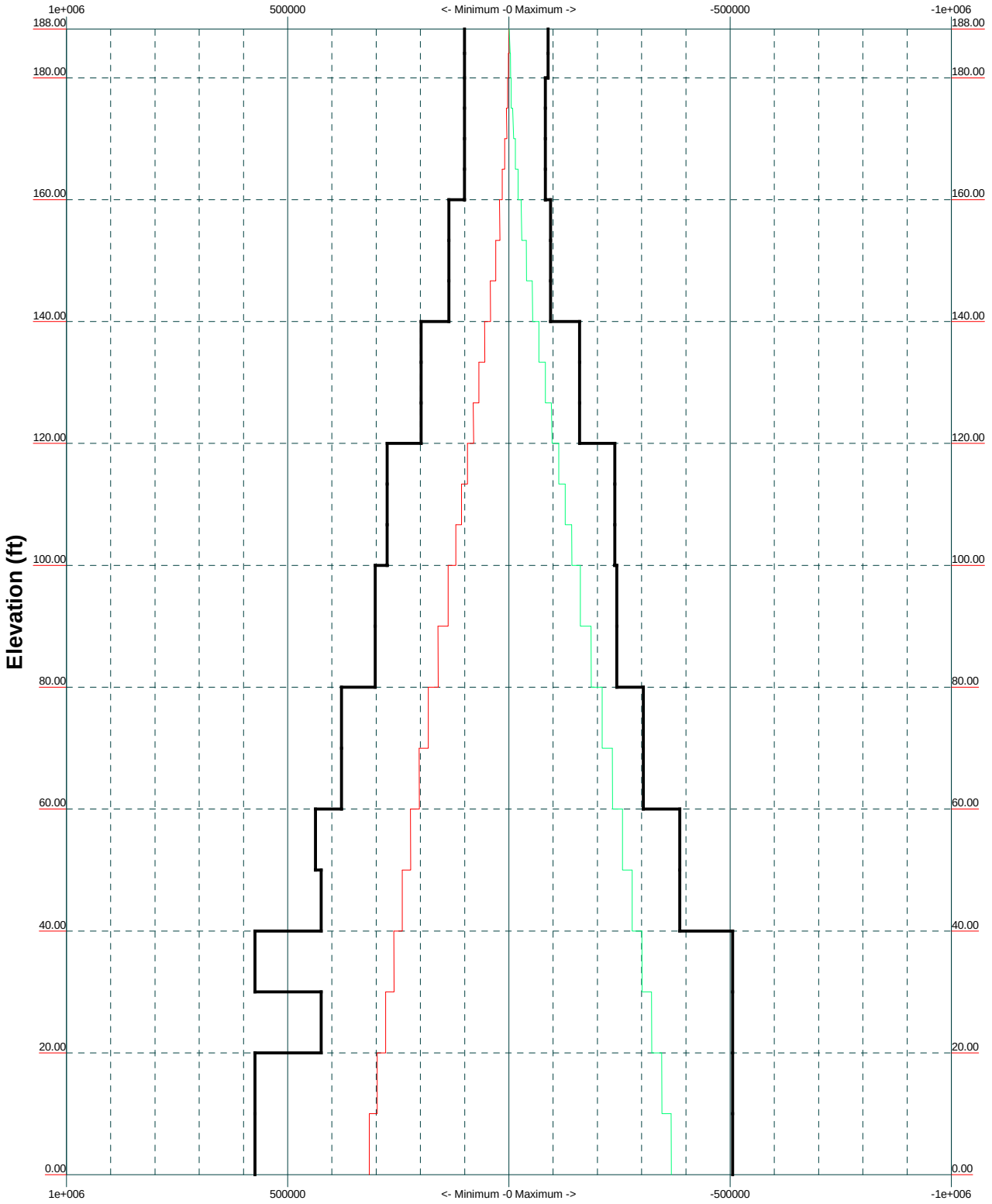
TIA-222-G - 97 mph/50 mph 1.0000 in Ice Exposure C

Leg Capacity ——— **Leg Compression (lb)**



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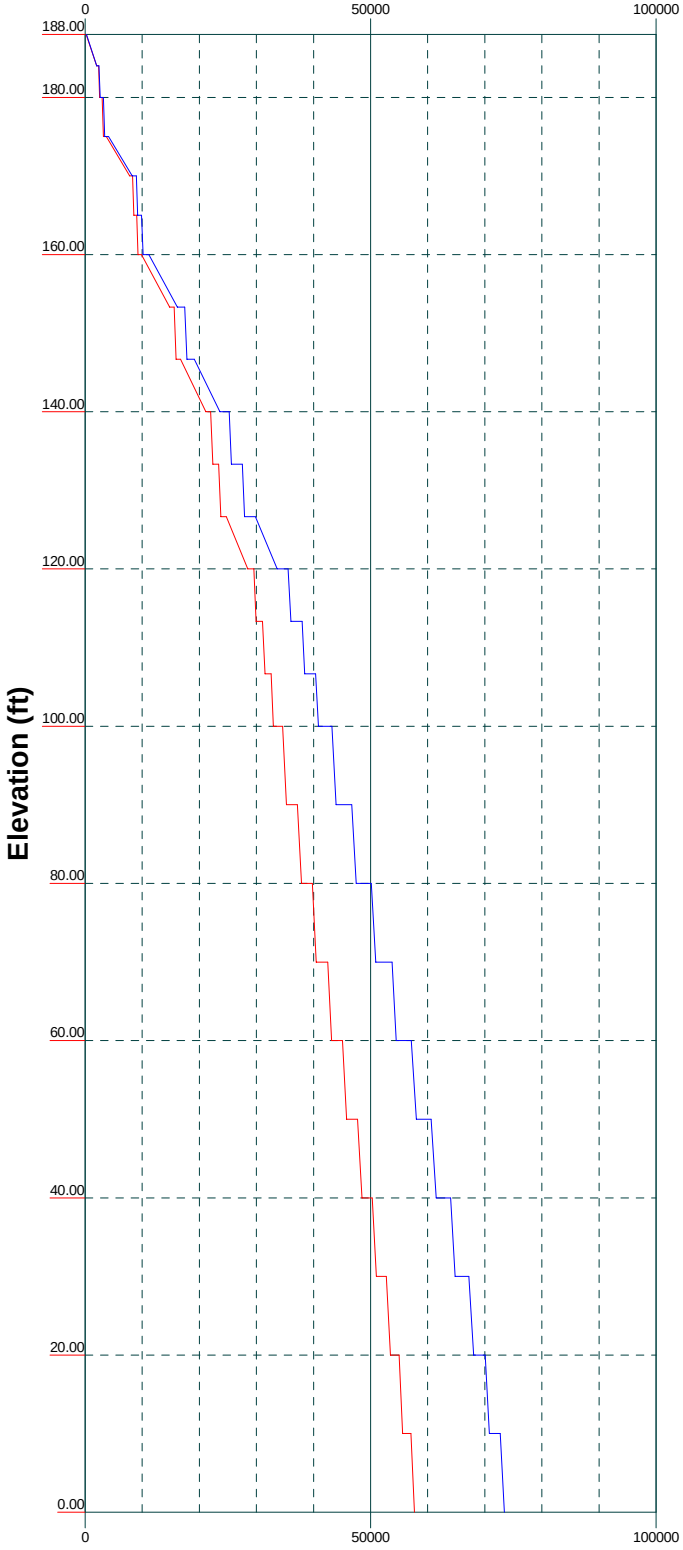
TIA-222-G - 97 mph/50 mph 1.0000 in Ice Exposure C

Vx Vz

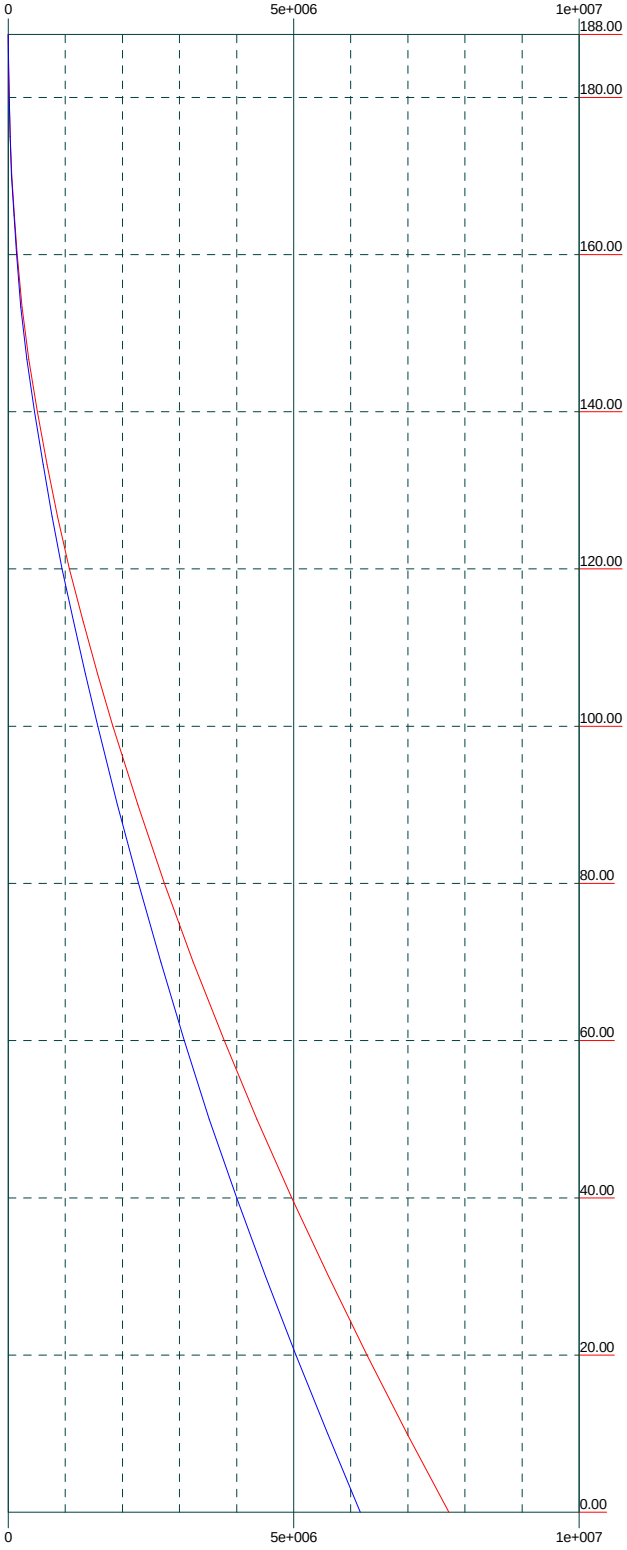
Maximum Values

Mx Mz

Global Mast Shear (lb)



Global Mast Moment (lb-ft)



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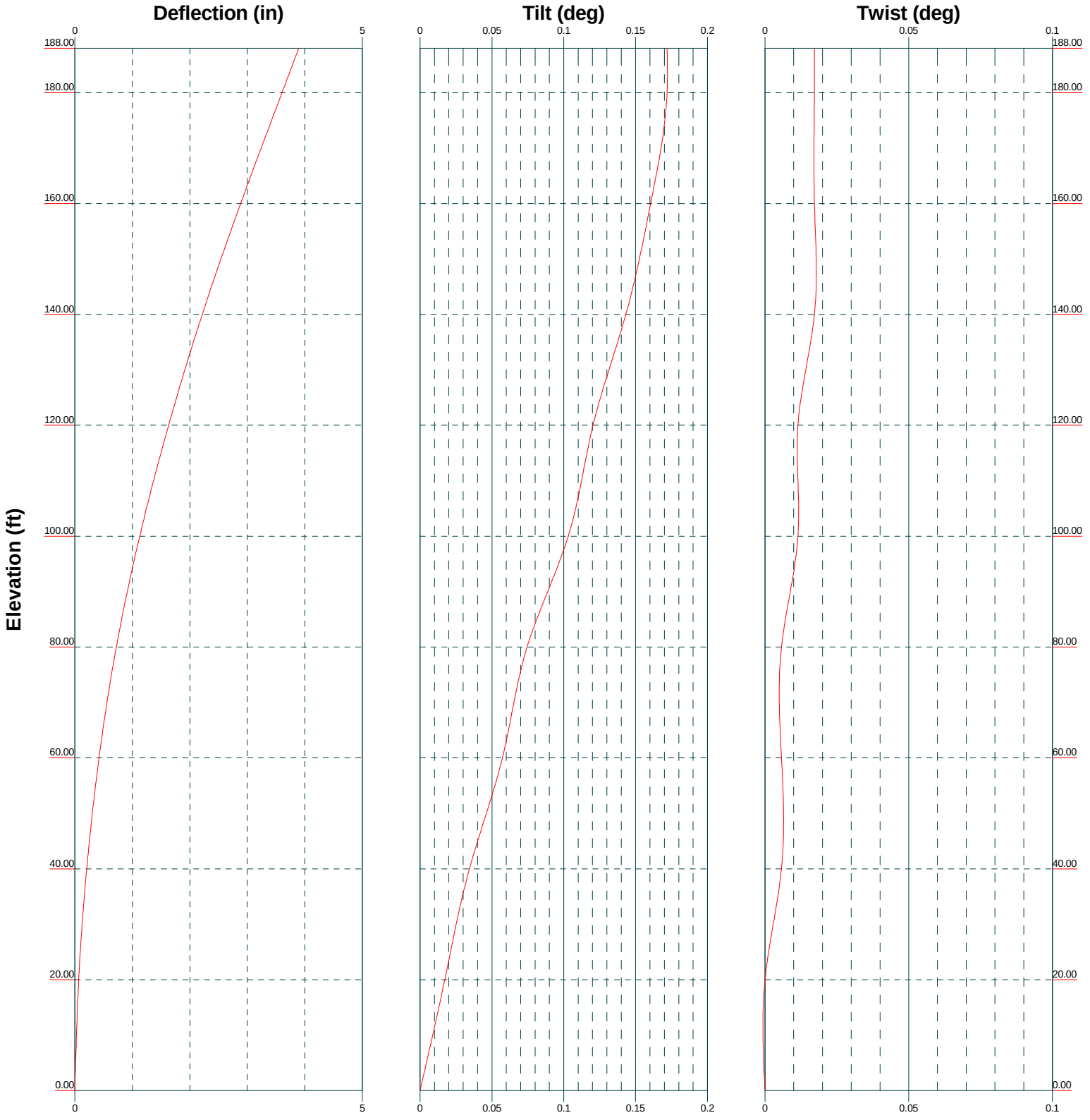
TIA-222-G - Service - 60 mph

Maximum Values



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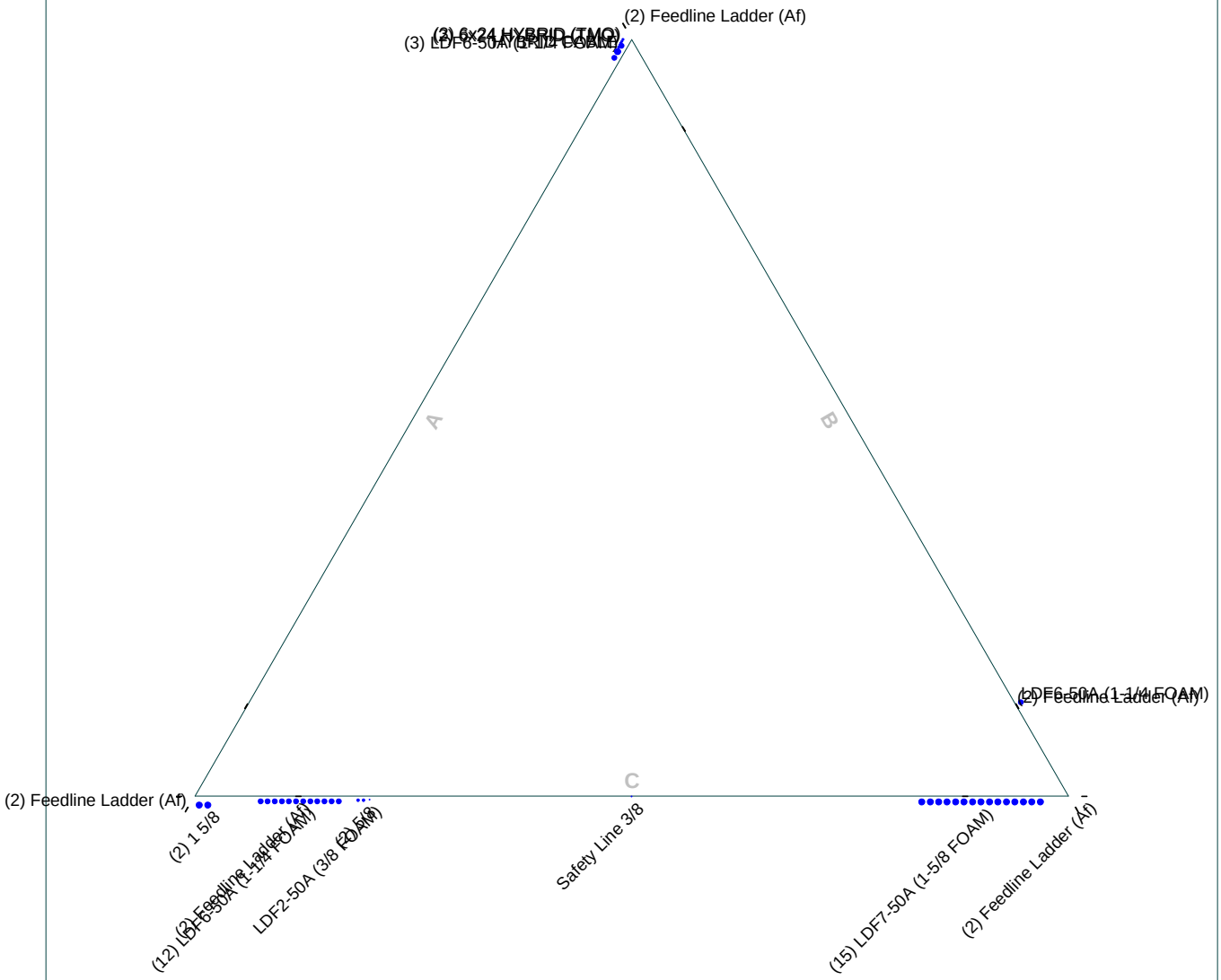
Feed Line Plan
20'

Round Flat App In Face App Out Face

Section @ 20'



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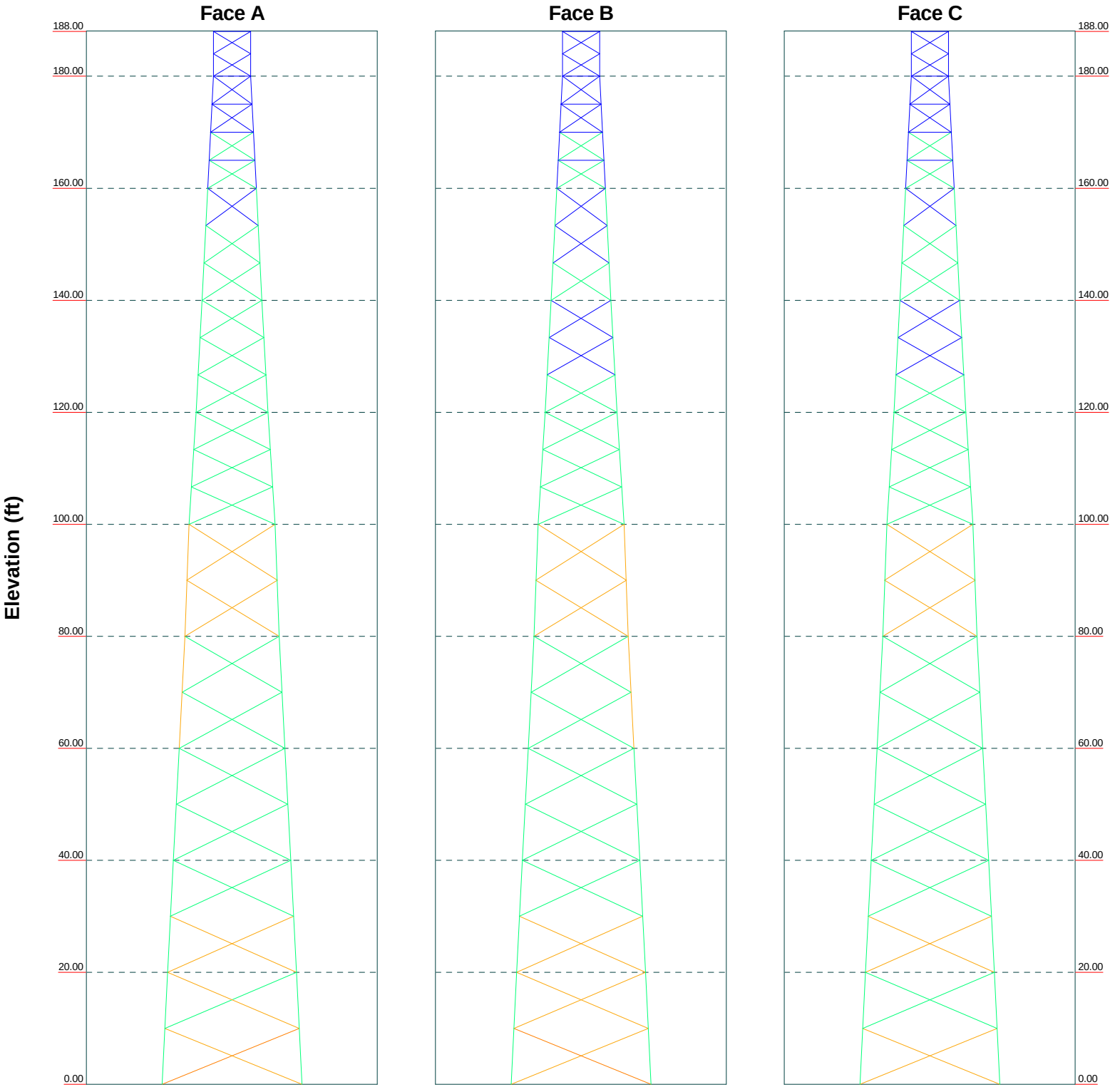
Stress Distribution Chart
0' - 188'

> 100% | 90%-100% | 75%-90% | 50%-75% | < 50% Overstress



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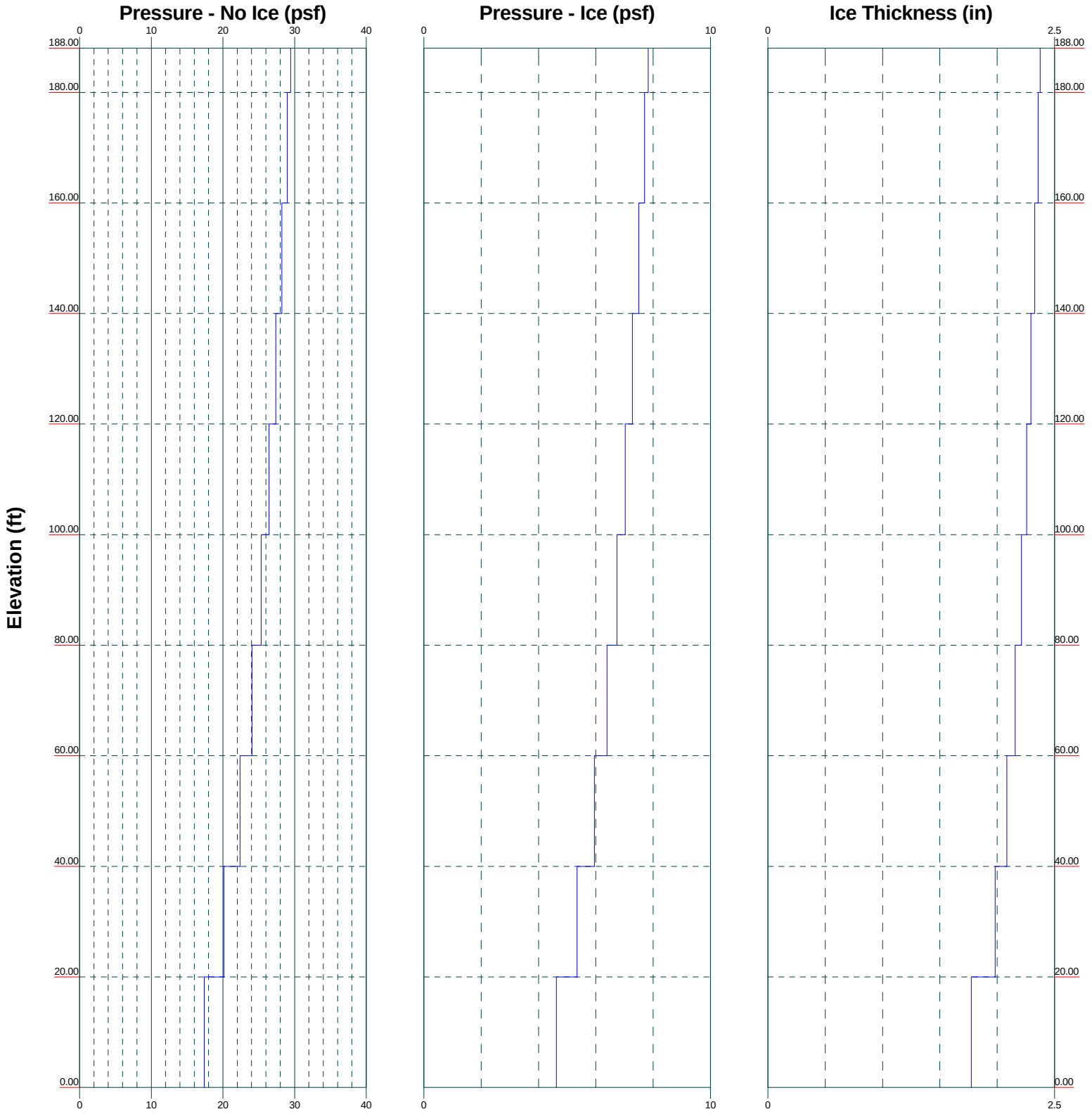
Wind Pressures and Ice Thickness

TIA-222-G - 97 mph/50 mph 1.0000 in Ice Exposure C



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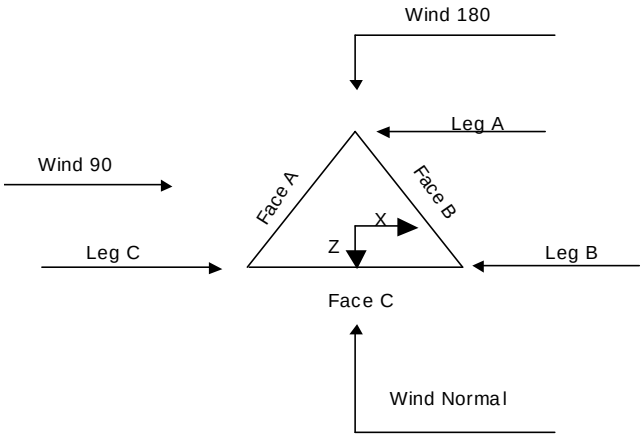
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 188.00 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 6.63 ft at the top and 25.00 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Hartford County, Connecticut.
ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
Basic wind speed of 97 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area	√	SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
√	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
√	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component		Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
√	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	188.00-180.00			6.63	1	8.00
T2	180.00-160.00			6.63	1	20.00
T3	160.00-140.00			8.75	1	20.00
T4	140.00-120.00			10.71	1	20.00
T5	120.00-100.00			12.79	1	20.00
T6	100.00-80.00			15.29	1	20.00
T7	80.00-60.00			16.88	1	20.00
T8	60.00-40.00			18.83	1	20.00
T9	40.00-20.00			21.00	1	20.00
T10	20.00-0.00			23.05	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	188.00-180.00	4.00	X Brace	No	No	0.0000	0.0000
T2	180.00-160.00	5.00	X Brace	No	Yes	0.0000	0.0000
T3	160.00-140.00	6.67	X Brace	No	No	0.0000	0.0000
T4	140.00-120.00	6.67	X Brace	No	No	0.0000	0.0000
T5	120.00-100.00	6.67	X Brace	No	No	0.0000	0.0000

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

Tower Section Geometry *(cont'd)*

Tower Elevation *ft*	*Leg Type*	*Leg Size*	*Leg Grade*	*Diagonal Type*	*Diagonal Size*	*Diagonal Grade*
T1 188.00-180.00	Pipe	P3x.216	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T2 180.00-160.00	Pipe	P3x.216	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T3 160.00-140.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T4 140.00-120.00	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A572-50 (50 ksi)
T5 120.00-100.00	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A572-50 (50 ksi)
T6 100.00-80.00	Pipe	ROHN 6 EHS	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T7 80.00-60.00	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Equal Angle	L4x4x5/16	A572-50 (50 ksi)
T8 60.00-40.00	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Equal Angle	L4x4x5/16	A572-50 (50 ksi)
T9 40.00-20.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Equal Angle	L4x4x5/16	A572-50 (50 ksi)
T10 20.00-0.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Equal Angle	L4x4x3/8	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation *ft*	*Top Girt Type*	*Top Girt Size*	*Top Girt Grade*	*Bottom Girt Type*	*Bottom Girt Size*	*Bottom Girt Grade*
T1 188.00-180.00	Equal Angle	L3x3x1/4	A36 (36 ksi)	Pipe		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation *ft*	*No. of Mid Girts*	*Mid Girt Type*	*Mid Girt Size*	*Mid Girt Grade*	*Horizontal Type*	*Horizontal Size*	*Horizontal Grade*
T2 180.00-160.00	None	Flat Bar		A36	Equal Angle	L2x2x1/8	A36

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
				(36 ksi)			(36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 188.00-180.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T2 180.00-160.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T3 160.00-140.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T4 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T5 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T6 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T7 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T8 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T9 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	36.0000	36.0000	36.0000
T10 20.00-0.00	0.00	0.0000	A36 (36 ksi)	1.03	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	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	No	1	1	1	1	1	1	1	1
188.00-180.00				1	1	1	1	1	1	1
T2	Yes	No	1	1	1	1	1	1	1	1
180.00-160.00				1	1	1	1	1	1	1
T3	Yes	No	1	1	1	1	1	1	1	1
160.00-140.00				1	1	1	1	1	1	1
T4	Yes	No	1	1	1	1	1	1	1	1
140.00-120.00				1	1	1	1	1	1	1
T5	Yes	No	1	1	1	1	1	1	1	1
120.00-100.00				1	1	1	1	1	1	1
T6	Yes	No	1	1	1	1	1	1	1	1
100.00-80.00				1	1	1	1	1	1	1
T7	Yes	No	1	1	1	1	1	1	1	1

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
80.00-60.00				1	1	1	1	1	1	1
T8	Yes	No	1	1	1	1	1	1	1	1
60.00-40.00				1	1	1	1	1	1	1
T9	Yes	No	1	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1
T10	Yes	No	1	1	1	1	1	1	1	1
20.00-0.00				1	1	1	1	1	1	1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	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 188.00-180.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 180.00-160.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 160.00-140.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 140.00-120.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 120.00-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 100.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 188.00-180.00	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

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T5 120.00-100.00	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
T6 100.00-80.00	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 60.00-40.00	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
T9 40.00-20.00	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
T10 20.00-0.00	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 188.00-180.00	Flange	0.8750 A325N	4	0.6250 A325N	1	0.6250 A325N	1	0.5000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 180.00-160.00	Flange	0.8750 A325N	4	0.6250 A325N	1	0.5000 A325N	0	0.5000 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	0
T3 160.00-140.00	Flange	0.8750 A325N	4	0.6250 A325N	1	0.5000 A325N	0	0.5000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 140.00-120.00	Flange	1.0000 A325N	4	0.7500 A325N	1	0.5000 A325N	0	0.5000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 120.00-100.00	Flange	1.0000 A325N	6	0.7500 A325N	1	0.5000 A325N	0	0.5000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 100.00-80.00	Flange	1.0000 A325N	6	0.7500 A325N	1	0.5000 A325N	0	0.5000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 80.00-60.00	Flange	1.0000 A325N	8	0.7500 A325N	1	0.5000 A325N	0	0.5000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 60.00-40.00	Flange	1.0000 A325N	8	0.7500 A325N	1	0.5000 A325N	0	0.5000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 40.00-20.00	Flange	1.0000 A325N	8	0.7500 A325N	1	0.5000 A325N	0	0.5000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 20.00-0.00	Flange	0.7500 A325N	0	0.7500 A325N	1	0.5000 A325N	0	0.5000 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
Safety Line 3/8 ***	C	No	No	Ar (CaAa)	188.00 - 0.00	0.0000	0	1	1	0.3750	0.3750		0.22
LDF6-50A (1-1/4 FOAM)	B	No	No	Ar (CaAa)	188.00 - 8.00	1.0000	0.38	1	1	1.5500	1.5500		0.66

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
***													
LDF6-50A (1-1/4 FOAM)	C	No	No	Ar (CaAa)	172.00 - 8.00	1.0000	0.38	12	12	0.7000	1.5500		0.66
5/8	C	No	No	Ar (CaAa)	172.00 - 8.00	1.0000	0.31	2	2	0.8800	0.8800		0.40
LDF2-50A (3/8 FOAM)	C	No	No	Ar (CaAa)	172.00 - 8.00	1.0000	0.3	1	1	0.4400	0.4400		0.08
***													
***													
LDF7-50A (1-5/8 FOAM)	C	No	No	Ar (CaAa)	145.50 - 8.00	1.0000	-0.4	15	15	0.7000	1.9800		0.82
1 5/8	C	No	No	Ar (CaAa)	145.50 - 8.00	2.0000	0.49	2	2	0.7000	1.9800		1.04
***													
LDF6-50A (1-1/4 FOAM)	A	No	No	Ar (CaAa)	123.00 - 8.00	1.0000	0.48	3	3	0.7000	1.5500		0.66
HYBRID CABLE	A	No	No	Ar (CaAa)	123.00 - 8.00	1.0000	0.48	1	1	0.7000	1.9800		1.04
***													
Feedline Ladder (Af)	A	No	No	Af (CaAa)	157.00 - 0.00	0.0000	-0.45	2	2	36.0000	1.7500		3.00
Feedline Ladder (Af)	B	No	No	Af (CaAa)	188.00 - 0.00	0.0000	0.45	2	2	36.0000	1.7500		3.00
Feedline Ladder (Af)	B	No	No	Af (CaAa)	188.00 - 0.00	0.0000	-0.45	2	2	36.0000	1.7500		3.00
Feedline Ladder (Af)	C	No	No	Af (CaAa)	172.00 - 0.00	0.0000	0.45	2	2	36.0000	1.7500		3.00
Feedline Ladder (Af)	C	No	No	Af (CaAa)	145.00 - 0.00	0.0000	-0.45	2	2	36.0000	1.7500		3.00
***													
6x24 HYBRID (TMO)	A	No	No	Ar (CaAa)	155.00 - 8.00	2.0000	0.49	3	3	1.5500	0.7000		1.04
6x24 HYBRID (TMO)	A	No	No	Ar (CaAa)	155.00 - 8.00	2.0000	0.49	2	2	1.5500	0.7000		1.04
***													

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C_AA_A ft^2/ft	Weight plf
***								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	188.00-180.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	10.573	0.000	101.28
		C	0.000	0.000	0.300	0.000	1.76
T2	180.00-160.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	26.433	0.000	253.20
		C	0.000	0.000	32.710	0.000	182.00
T3	160.00-140.00	A	0.000	0.000	15.167	0.000	180.00
		B	0.000	0.000	26.433	0.000	253.20
		C	0.000	0.000	75.446	0.000	409.49
T4	140.00-120.00	A	0.000	0.000	20.656	0.000	233.06
		B	0.000	0.000	26.433	0.000	253.20
		C	0.000	0.000	133.003	0.000	708.00
T5	120.00-100.00	A	0.000	0.000	31.927	0.000	284.40
		B	0.000	0.000	26.433	0.000	253.20
		C	0.000	0.000	133.003	0.000	708.00
T6	100.00-80.00	A	0.000	0.000	31.927	0.000	284.40
		B	0.000	0.000	26.433	0.000	253.20
		C	0.000	0.000	133.003	0.000	708.00
T7	80.00-60.00	A	0.000	0.000	31.927	0.000	284.40
		B	0.000	0.000	26.433	0.000	253.20
		C	0.000	0.000	133.003	0.000	708.00
T8	60.00-40.00	A	0.000	0.000	31.927	0.000	284.40
		B	0.000	0.000	26.433	0.000	253.20
		C	0.000	0.000	133.003	0.000	708.00
T9	40.00-20.00	A	0.000	0.000	31.927	0.000	284.40
		B	0.000	0.000	26.433	0.000	253.20
		C	0.000	0.000	133.003	0.000	708.00
T10	20.00-0.00	A	0.000	0.000	23.823	0.000	218.64
		B	0.000	0.000	25.193	0.000	247.92
		C	0.000	0.000	89.435	0.000	522.56

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	188.00-180.00	A	2.375	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	29.573	0.000	576.32
		C		0.000	0.000	4.100	0.000	65.59
T2	180.00-160.00	A	2.356	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	73.559	0.000	1425.17
		C		0.000	0.000	95.983	0.000	1636.26
T3	160.00-140.00	A	2.327	0.000	0.000	60.189	0.000	956.68
		B		0.000	0.000	72.972	0.000	1400.89
		C		0.000	0.000	198.469	0.000	3412.90
T4	140.00-120.00	A	2.294	0.000	0.000	82.065	0.000	1281.08
		B		0.000	0.000	72.311	0.000	1373.80
		C		0.000	0.000	321.196	0.000	5572.94
T5	120.00-100.00	A	2.256	0.000	0.000	118.083	0.000	1837.66
		B		0.000	0.000	71.551	0.000	1343.05
		C		0.000	0.000	319.314	0.000	5476.37
T6	100.00-80.00	A	2.211	0.000	0.000	116.615	0.000	1792.05
		B		0.000	0.000	70.655	0.000	1307.30
		C		0.000	0.000	317.095	0.000	5363.47
T7	80.00-60.00	A	2.156	0.000	0.000	114.818	0.000	1737.06
		B		0.000	0.000	69.557	0.000	1264.32
		C		0.000	0.000	314.379	0.000	5226.68
T8	60.00-40.00	A	2.085	0.000	0.000	112.483	0.000	1666.98

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		B		0.000	0.000	68.130	0.000	1209.71
		C		0.000	0.000	310.851	0.000	5051.21
T9	40.00-20.00	A	1.981	0.000	0.000	109.087	0.000	1567.85
		B		0.000	0.000	66.054	0.000	1132.83
		C		0.000	0.000	305.720	0.000	4800.67
T10	20.00-0.00	A	1.775	0.000	0.000	71.760	0.000	995.01
		B		0.000	0.000	57.852	0.000	926.33
		C		0.000	0.000	201.164	0.000	2963.93

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	188.00-180.00	4.7449	-1.8635	5.2316	-0.9472
T2	180.00-160.00	-3.4095	-0.8913	-2.7869	1.7359
T3	160.00-140.00	-5.9687	-0.0231	-7.3178	2.1614
T4	140.00-120.00	2.7062	0.3728	0.0939	2.9281
T5	120.00-100.00	2.8809	-4.6711	0.0242	-2.7706
T6	100.00-80.00	3.3140	-5.3516	0.0880	-3.2423
T7	80.00-60.00	3.4281	-5.3909	0.1631	-3.5030
T8	60.00-40.00	3.6381	-5.5895	0.2672	-3.7923
T9	40.00-20.00	3.8890	-5.9083	0.4274	-4.1960
T10	20.00-0.00	2.8731	-3.8469	0.6448	-1.4783

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	Safety Line 3/8	180.00 - 188.00	0.6000	0.4652
T1	3	LDF6-50A (1-1/4 FOAM)	180.00 - 188.00	0.6000	0.4652
T1	19	Feedline Ladder (Af)	180.00 - 188.00	0.6000	0.4652
T1	20	Feedline Ladder (Af)	180.00 - 188.00	0.6000	0.4652
T2	1	Safety Line 3/8	160.00 - 180.00	0.6000	0.5112
T2	3	LDF6-50A (1-1/4 FOAM)	160.00 - 180.00	0.6000	0.5112
T2	5	LDF6-50A (1-1/4 FOAM)	160.00 - 172.00	0.6000	0.5112
T2	6	5/8	160.00 - 172.00	0.6000	0.5112
T2	7	LDF2-50A (3/8 FOAM)	160.00 - 172.00	0.6000	0.5112
T2	19	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.5112
T2	20	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.5112

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T2	21	Feedline Ladder (Af)	160.00 - 172.00	0.6000	0.5112
T3	1	Safety Line 3/8	140.00 - 160.00	0.6000	0.6000
T3	3	LDF6-50A (1-1/4 FOAM)	140.00 - 160.00	0.6000	0.6000
T3	5	LDF6-50A (1-1/4 FOAM)	140.00 - 160.00	0.6000	0.6000
T3	6	5/8	140.00 - 160.00	0.6000	0.6000
T3	7	LDF2-50A (3/8 FOAM)	140.00 - 160.00	0.6000	0.6000
T3	12	LDF7-50A (1-5/8 FOAM)	140.00 - 145.50	0.6000	0.6000
T3	13	1 5/8	140.00 - 145.50	0.6000	0.6000
T3	18	Feedline Ladder (Af)	140.00 - 157.00	0.6000	0.6000
T3	19	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T3	20	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T3	21	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T3	22	Feedline Ladder (Af)	140.00 - 145.00	0.6000	0.6000
T3	24	6x24 HYBRID	140.00 - 155.00	0.6000	0.6000
T3	25	6x24 HYBRID	140.00 - 155.00	0.6000	0.6000
T4	1	Safety Line 3/8	120.00 - 140.00	0.6000	0.6000
T4	3	LDF6-50A (1-1/4 FOAM)	120.00 - 140.00	0.6000	0.6000
T4	5	LDF6-50A (1-1/4 FOAM)	120.00 - 140.00	0.6000	0.6000
T4	6	5/8	120.00 - 140.00	0.6000	0.6000
T4	7	LDF2-50A (3/8 FOAM)	120.00 - 140.00	0.6000	0.6000
T4	12	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.6000
T4	13	1 5/8	120.00 - 140.00	0.6000	0.6000
T4	15	LDF6-50A (1-1/4 FOAM)	120.00 - 123.00	0.6000	0.6000
T4	16	HYBRID CABLE	120.00 - 123.00	0.6000	0.6000
T4	18	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	19	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	20	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	21	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	22	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	24	6x24 HYBRID	120.00 - 140.00	0.6000	0.6000
T4	25	6x24 HYBRID	120.00 - 140.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T5	1	Safety Line 3/8	100.00 - 120.00	0.6000	0.6000
T5	3	LDF6-50A (1-1/4 FOAM)	100.00 - 120.00	0.6000	0.6000
T5	5	LDF6-50A (1-1/4 FOAM)	100.00 - 120.00	0.6000	0.6000
T5	6	5/8	100.00 - 120.00	0.6000	0.6000
T5	7	LDF2-50A (3/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T5	12	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T5	13	1 5/8	100.00 - 120.00	0.6000	0.6000
T5	15	LDF6-50A (1-1/4 FOAM)	100.00 - 120.00	0.6000	0.6000
T5	16	HYBRID CABLE	100.00 - 120.00	0.6000	0.6000
T5	18	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	19	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	20	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	21	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	22	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	24	6x24 HYBRID	100.00 - 120.00	0.6000	0.6000
T5	25	6x24 HYBRID	100.00 - 120.00	0.6000	0.6000
T6	1	Safety Line 3/8	80.00 - 100.00	0.6000	0.6000
T6	3	LDF6-50A (1-1/4 FOAM)	80.00 - 100.00	0.6000	0.6000
T6	5	LDF6-50A (1-1/4 FOAM)	80.00 - 100.00	0.6000	0.6000
T6	6	5/8	80.00 - 100.00	0.6000	0.6000
T6	7	LDF2-50A (3/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T6	12	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T6	13	1 5/8	80.00 - 100.00	0.6000	0.6000
T6	15	LDF6-50A (1-1/4 FOAM)	80.00 - 100.00	0.6000	0.6000
T6	16	HYBRID CABLE	80.00 - 100.00	0.6000	0.6000
T6	18	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	19	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	20	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	21	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	22	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T6	24	6x24 HYBRID	80.00 - 100.00	0.6000	0.6000
T6	25	6x24 HYBRID	80.00 - 100.00	0.6000	0.6000
T7	1	Safety Line 3/8	60.00 - 80.00	0.6000	0.6000
T7	3	LDF6-50A (1-1/4 FOAM)	60.00 - 80.00	0.6000	0.6000
T7	5	LDF6-50A (1-1/4 FOAM)	60.00 - 80.00	0.6000	0.6000
T7	6	5/8	60.00 - 80.00	0.6000	0.6000
T7	7	LDF2-50A (3/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T7	12	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T7	13	1 5/8	60.00 - 80.00	0.6000	0.6000
T7	15	LDF6-50A (1-1/4 FOAM)	60.00 - 80.00	0.6000	0.6000
T7	16	HYBRID CABLE	60.00 - 80.00	0.6000	0.6000
T7	18	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	19	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	20	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	21	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T7	22	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T7	24	6x24 HYBRID	60.00 - 80.00	0.6000	0.6000
T7	25	6x24 HYBRID	60.00 - 80.00	0.6000	0.6000
T8	1	Safety Line 3/8	40.00 - 60.00	0.6000	0.6000
T8	3	LDF6-50A (1-1/4 FOAM)	40.00 - 60.00	0.6000	0.6000
T8	5	LDF6-50A (1-1/4 FOAM)	40.00 - 60.00	0.6000	0.6000
T8	6	5/8	40.00 - 60.00	0.6000	0.6000
T8	7	LDF2-50A (3/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T8	12	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T8	13	1 5/8	40.00 - 60.00	0.6000	0.6000
T8	15	LDF6-50A (1-1/4 FOAM)	40.00 - 60.00	0.6000	0.6000
T8	16	HYBRID CABLE	40.00 - 60.00	0.6000	0.6000
T8	18	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	19	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	20	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	21	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	22	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T8	24	6x24 HYBRID	40.00 - 60.00	0.6000	0.6000
T8	25	6x24 HYBRID	40.00 - 60.00	0.6000	0.6000
T9	1	Safety Line 3/8	20.00 - 40.00	0.6000	0.6000
T9	3	LDF6-50A (1-1/4 FOAM)	20.00 - 40.00	0.6000	0.6000
T9	5	LDF6-50A (1-1/4 FOAM)	20.00 - 40.00	0.6000	0.6000
T9	6	5/8	20.00 - 40.00	0.6000	0.6000
T9	7	LDF2-50A (3/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T9	12	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T9	13	1 5/8	20.00 - 40.00	0.6000	0.6000
T9	15	LDF6-50A (1-1/4 FOAM)	20.00 - 40.00	0.6000	0.6000
T9	16	HYBRID CABLE	20.00 - 40.00	0.6000	0.6000
T9	18	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	19	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	20	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	21	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	22	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T9	24	6x24 HYBRID	20.00 - 40.00	0.6000	0.6000
T9	25	6x24 HYBRID	20.00 - 40.00	0.6000	0.6000
T10	1	Safety Line 3/8	0.00 - 20.00	0.6000	0.6000
T10	3	LDF6-50A (1-1/4 FOAM)	8.00 - 20.00	0.6000	0.6000
T10	5	LDF6-50A (1-1/4 FOAM)	8.00 - 20.00	0.6000	0.6000
T10	6	5/8	8.00 - 20.00	0.6000	0.6000
T10	7	LDF2-50A (3/8 FOAM)	8.00 - 20.00	0.6000	0.6000
T10	12	LDF7-50A (1-5/8 FOAM)	8.00 - 20.00	0.6000	0.6000
T10	13	1 5/8	8.00 - 20.00	0.6000	0.6000
T10	15	LDF6-50A (1-1/4 FOAM)	8.00 - 20.00	0.6000	0.6000
T10	16	HYBRID CABLE	8.00 - 20.00	0.6000	0.6000
T10	18	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	19	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	20	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	21	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	22	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T10	24	6x24 HYBRID	8.00 - 20.00	0.6000	0.6000
T10	25	6x24 HYBRID	8.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
BCD-87010	B	From Leg	0.00 0.00 7.50	0.0000	195.00	No Ice 1/2" Ice 1" Ice	2.90 4.05 5.21	2.90 4.05 5.21	30.00 50.00 80.00
***									
Rohn 14' Platform	C	None		0.0000	186.00	No Ice 1/2" Ice 1" Ice	41.00 56.00 71.00	41.00 56.00 71.00	2500.00 3000.00 3500.00
***									
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.30 7.48 8.37	70.00 140.00 210.00
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.30 7.48 8.37	70.00 140.00 210.00
(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.30 7.48 8.37	70.00 140.00 210.00
800 10121 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice	5.39 5.81 6.23	4.60 5.35 6.05	70.00 110.00 170.00
800 10121 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice	5.39 5.81 6.23	4.60 5.35 6.05	70.00 110.00 170.00
800 10121 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice	5.39 5.81 6.23	4.60 5.35 6.05	70.00 110.00 170.00
RRUS 11	A	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	50.00 70.00 100.00
RRUS 11	B	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	50.00 70.00 100.00
RRUS 11	C	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	50.00 70.00 100.00
RRUS 12	A	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice	3.15 3.36 3.59	1.29 1.44 1.60	60.00 80.00 110.00
RRUS 12	B	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice	3.15 3.36 3.59	1.29 1.44 1.60	60.00 80.00 110.00
RRUS 12	C	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice	3.15 3.36 3.59	1.29 1.44 1.60	60.00 80.00 110.00
TT19-08BP111-001	A	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice	0.55 0.65 0.75	0.45 0.53 0.63	20.00 20.00 30.00
TT19-08BP111-001	B	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice	0.55 0.65 0.75	0.45 0.53 0.63	20.00 20.00 30.00
TT19-08BP111-001	C	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice	0.55 0.65 0.75	0.45 0.53 0.63	20.00 20.00 30.00
DTMABP7819VG12A	A	From Leg	4.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice 1" Ice	0.98 1.10 1.23	0.34 0.42 0.51	20.00 30.00 40.00
DTMABP7819VG12A	B	From Leg	4.00	0.0000	172.00	No Ice	0.98	0.34	20.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00			1/2" Ice	1.10	0.42	30.00
			0.00			1" Ice	1.23	0.51	40.00
DTMABP7819VG12A	C	From Leg	4.00	0.0000	172.00	No Ice	0.98	0.34	20.00
			0.00			1/2" Ice	1.10	0.42	30.00
			0.00			1" Ice	1.23	0.51	40.00
DC6-48-60-18-8F	C	From Leg	4.00	0.0000	172.00	No Ice	0.79	0.79	20.00
			0.00			1/2" Ice	1.27	1.27	30.00
			0.00			1" Ice	1.45	1.45	50.00
6' x 2" Mount Pipe	A	From Leg	4.00	0.0000	172.00	No Ice	1.43	1.43	20.00
			0.00			1/2" Ice	1.92	1.92	30.00
			0.00			1" Ice	2.29	2.29	50.00
6' x 2" Mount Pipe	B	From Leg	4.00	0.0000	172.00	No Ice	1.43	1.43	20.00
			0.00			1/2" Ice	1.92	1.92	30.00
			0.00			1" Ice	2.29	2.29	50.00
6' x 2" Mount Pipe	C	From Leg	4.00	0.0000	172.00	No Ice	1.43	1.43	20.00
			0.00			1/2" Ice	1.92	1.92	30.00
			0.00			1" Ice	2.29	2.29	50.00
Sector Mount [SM 503-3]	C	None		0.0000	172.00	No Ice	33.64	33.64	1690.00
						1/2" Ice	48.17	48.17	2260.00
						1" Ice	62.70	62.70	2820.00
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APX16DWV-16DWV-S-E-A20 w/ Mount Pipe (TMO)	A	From Leg	4.00	0.0000	155.00	No Ice	6.82	3.49	60.00
			0.00			1/2" Ice	7.28	4.26	110.00
			0.00			1" Ice	7.72	4.96	160.00
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe (TMO)	B	From Leg	4.00	0.0000	155.00	No Ice	6.82	3.49	60.00
			0.00			1/2" Ice	7.28	4.26	110.00
			0.00			1" Ice	7.72	4.96	160.00
APX16DWV-16DWV-S-E-A20 w/ Mount Pipe (TMO)	C	From Leg	4.00	0.0000	155.00	No Ice	6.82	3.49	60.00
			0.00			1/2" Ice	7.28	4.26	110.00
			0.00			1" Ice	7.72	4.96	160.00
APXVAARR24_43-U-NA20 w/ Mount Pipe (TMO)	A	From Leg	4.00	0.0000	155.00	No Ice	20.48	11.02	160.00
			0.00			1/2" Ice	21.23	12.55	300.00
			0.00			1" Ice	21.99	14.10	440.00
APXVAARR24_43-U-NA20 w/ Mount Pipe (TMO)	B	From Leg	4.00	0.0000	155.00	No Ice	20.48	11.02	160.00
			0.00			1/2" Ice	21.23	12.55	300.00
			0.00			1" Ice	21.99	14.10	440.00
APXVAARR24_43-U-NA20 w/ Mount Pipe (TMO)	C	From Leg	4.00	0.0000	155.00	No Ice	20.48	11.02	160.00
			0.00			1/2" Ice	21.23	12.55	300.00
			0.00			1" Ice	21.99	14.10	440.00
RADIO 4449 (TMO)	A	From Leg	4.00	0.0000	155.00	No Ice	3.50	2.36	90.00
			0.00			1/2" Ice	3.74	2.57	110.00
			0.00			1" Ice	3.99	2.78	150.00
RADIO 4449 (TMO)	B	From Leg	4.00	0.0000	155.00	No Ice	3.50	2.36	90.00
			0.00			1/2" Ice	3.74	2.57	110.00
			0.00			1" Ice	3.99	2.78	150.00
RADIO 4449 (TMO)	C	From Leg	4.00	0.0000	155.00	No Ice	3.50	2.36	90.00
			0.00			1/2" Ice	3.74	2.57	110.00
			0.00			1" Ice	3.99	2.78	150.00
***									
(3) SBNHH-1D85B w/ Mount Pipe	A	From Leg	4.00	0.0000	145.50	No Ice	8.32	7.00	70.00
			0.00			1/2" Ice	8.88	8.19	140.00
			0.00			1" Ice	9.40	9.08	210.00
(3) SBNHH-1D85B w/ Mount Pipe	B	From Leg	4.00	0.0000	145.50	No Ice	8.32	7.00	70.00
			0.00			1/2" Ice	8.88	8.19	140.00
			0.00			1" Ice	9.40	9.08	210.00
(3) SBNHH-1D85B w/ Mount Pipe	C	From Leg	4.00	0.0000	145.50	No Ice	8.32	7.00	70.00
			0.00			1/2" Ice	8.88	8.19	140.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00			1" Ice	9.40	9.08	210.00
BXA-70063-6CF-EDIN-6 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	145.50	No Ice 1/2" Ice 1" Ice	7.81 8.36 8.87	5.80 6.95 7.82	40.00 100.00 170.00
BXA-70063-6CF-EDIN-6 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	145.50	No Ice 1/2" Ice 1" Ice	7.81 8.36 8.87	5.80 6.95 7.82	40.00 100.00 170.00
BXA-70063-6CF-EDIN-6 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	145.50	No Ice 1/2" Ice 1" Ice	7.81 8.36 8.87	5.80 6.95 7.82	40.00 100.00 170.00
B66A RRH4X45	A	From Leg	4.00 0.00 0.00	0.0000	145.50	No Ice 1/2" Ice 1" Ice	2.58 2.79 3.01	1.63 1.81 2.00	60.00 80.00 100.00
B66A RRH4X45	B	From Leg	4.00 0.00 0.00	0.0000	145.50	No Ice 1/2" Ice 1" Ice	2.58 2.79 3.01	1.63 1.81 2.00	60.00 80.00 100.00
B66A RRH4X45	C	From Leg	4.00 0.00 0.00	0.0000	145.50	No Ice 1/2" Ice 1" Ice	2.58 2.79 3.01	1.63 1.81 2.00	60.00 80.00 100.00
B25 RRH4x30-4R	A	From Leg	4.00 0.00 0.00	0.0000	145.50	No Ice 1/2" Ice 1" Ice	2.14 2.33 2.53	1.31 1.46 1.63	50.00 70.00 90.00
B25 RRH4x30-4R	B	From Leg	4.00 0.00 0.00	0.0000	145.50	No Ice 1/2" Ice 1" Ice	2.14 2.33 2.53	1.31 1.46 1.63	50.00 70.00 90.00
B25 RRH4x30-4R	C	From Leg	4.00 0.00 0.00	0.0000	145.50	No Ice 1/2" Ice 1" Ice	2.14 2.33 2.53	1.31 1.46 1.63	50.00 70.00 90.00
RRH2X60-1900	A	From Leg	4.00 0.00 0.00	0.0000	145.50	No Ice 1/2" Ice 1" Ice	1.87 2.05 2.24	1.22 1.37 1.52	40.00 60.00 80.00
RRH2X60-1900	B	From Leg	4.00 0.00 0.00	0.0000	145.50	No Ice 1/2" Ice 1" Ice	1.87 2.05 2.24	1.22 1.37 1.52	40.00 60.00 80.00
RRH2X60-1900	C	From Leg	4.00 0.00 0.00	0.0000	145.50	No Ice 1/2" Ice 1" Ice	1.87 2.05 2.24	1.22 1.37 1.52	40.00 60.00 80.00
DB-B1-6C-12AB-0Z	A	From Leg	4.00 0.00 0.00	0.0000	145.50	No Ice 1/2" Ice 1" Ice	3.36 3.60 3.84	2.19 2.39 2.61	20.00 50.00 80.00
DB-B1-6C-12AB-0Z	C	From Leg	4.00 0.00 0.00	0.0000	145.50	No Ice 1/2" Ice 1" Ice	3.36 3.60 3.84	2.19 2.39 2.61	20.00 50.00 80.00
SitePro VFA10-RRU	A	None		0.0000	145.50	No Ice 1/2" Ice 1" Ice	7.53 10.77 14.01	3.80 5.38 6.96	310.00 370.00 430.00
SitePro VFA10-RRU	B	None		0.0000	145.50	No Ice 1/2" Ice 1" Ice	7.53 10.77 14.01	3.80 5.38 6.96	310.00 370.00 430.00
SitePro VFA10-RRU	C	None		0.0000	145.50	No Ice 1/2" Ice 1" Ice	7.53 10.77 14.01	3.80 5.38 6.96	310.00 370.00 430.00
***									
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	123.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.95 8.13 9.02	80.00 150.00 230.00
APXVSPP18-C-A20 w/	B	From Leg	4.00	0.0000	123.00	No Ice	8.26	6.95	80.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Mount Pipe			0.00				1/2" Ice	8.82	8.13	150.00
			0.00				1" Ice	9.35	9.02	230.00
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00	0.0000	123.00		No Ice	8.26	6.95	80.00
			0.00				1/2" Ice	8.82	8.13	150.00
			0.00				1" Ice	9.35	9.02	230.00
DT465V-2XR w/ Mount Pipe	A	From Leg	4.00	0.0000	123.00		No Ice	9.34	7.63	80.00
			0.00				1/2" Ice	9.91	8.82	160.00
			0.00				1" Ice	10.44	9.72	240.00
DT465V-2XR w/ Mount Pipe	B	From Leg	4.00	0.0000	123.00		No Ice	9.34	7.63	80.00
			0.00				1/2" Ice	9.91	8.82	160.00
			0.00				1" Ice	10.44	9.72	240.00
DT465V-2XR w/ Mount Pipe	C	From Leg	4.00	0.0000	123.00		No Ice	9.34	7.63	80.00
			0.00				1/2" Ice	9.91	8.82	160.00
			0.00				1" Ice	10.44	9.72	240.00
RRH2x50-800	A	From Leg	4.00	0.0000	123.00		No Ice	1.70	1.28	50.00
			0.00				1/2" Ice	1.86	1.43	70.00
			0.00				1" Ice	2.03	1.58	90.00
RRH2x50-800	B	From Leg	4.00	0.0000	123.00		No Ice	1.70	1.28	50.00
			0.00				1/2" Ice	1.86	1.43	70.00
			0.00				1" Ice	2.03	1.58	90.00
RRH2x50-800	C	From Leg	4.00	0.0000	123.00		No Ice	1.70	1.28	50.00
			0.00				1/2" Ice	1.86	1.43	70.00
			0.00				1" Ice	2.03	1.58	90.00
RRH4x45-19	A	From Leg	4.00	0.0000	123.00		No Ice	2.31	2.38	60.00
			0.00				1/2" Ice	2.52	2.58	80.00
			0.00				1" Ice	2.73	2.79	110.00
RRH4x45-19	B	From Leg	4.00	0.0000	123.00		No Ice	2.31	2.38	60.00
			0.00				1/2" Ice	2.52	2.58	80.00
			0.00				1" Ice	2.73	2.79	110.00
RRH4x45-19	C	From Leg	4.00	0.0000	123.00		No Ice	2.31	2.38	60.00
			0.00				1/2" Ice	2.52	2.58	80.00
			0.00				1" Ice	2.73	2.79	110.00
TD-RRH8x20-25	A	From Leg	4.00	0.0000	123.00		No Ice	4.05	1.53	70.00
			0.00				1/2" Ice	4.30	1.71	100.00
			0.00				1" Ice	4.56	1.90	130.00
TD-RRH8x20-25	B	From Leg	4.00	0.0000	123.00		No Ice	4.05	1.53	70.00
			0.00				1/2" Ice	4.30	1.71	100.00
			0.00				1" Ice	4.56	1.90	130.00
TD-RRH8x20-25	C	From Leg	4.00	0.0000	123.00		No Ice	4.05	1.53	70.00
			0.00				1/2" Ice	4.30	1.71	100.00
			0.00				1" Ice	4.56	1.90	130.00
RRH2x50-800	A	From Leg	4.00	0.0000	123.00		No Ice	1.70	1.28	50.00
			0.00				1/2" Ice	1.86	1.43	70.00
			0.00				1" Ice	2.03	1.58	90.00
RRH2x50-800	B	From Leg	4.00	0.0000	123.00		No Ice	1.70	1.28	50.00
			0.00				1/2" Ice	1.86	1.43	70.00
			0.00				1" Ice	2.03	1.58	90.00
RRH2x50-800	C	From Leg	4.00	0.0000	123.00		No Ice	1.70	1.28	50.00
			0.00				1/2" Ice	1.86	1.43	70.00
			0.00				1" Ice	2.03	1.58	90.00
Sector Mount [SM 503-3]	C	None			0.0000	123.00	No Ice	33.64	33.64	1690.00
							1/2" Ice	48.17	48.17	2260.00
							1" Ice	62.70	62.70	2820.00
***										
AIR 6449 B41 W/ MOUNT PIPE (TMO)	A	From Leg	4.00		0.0000	155.00	No Ice	5.95	3.36	118.60
			0.00				1/2" Ice	6.33	3.83	168.39
			0.00				1" Ice	6.72	4.32	223.69

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
AIR 6449 B41 W/ MOUNT PIPE	B	From Leg	4.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	5.95 6.33 6.72	3.36 3.83 4.32	118.60 168.39 223.69
(TMO)									
AIR 6449 B41 W/ MOUNT PIPE	C	From Leg	4.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	5.95 6.33 6.72	3.36 3.83 4.32	118.60 168.39 223.69
(TMO)									
4424 B25	A	From Leg	4.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	2.05 2.23 2.42	1.61 1.77 1.94	86.00 106.93 130.84
(TMO)									
4424 B25	B	From Leg	4.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	2.05 2.23 2.42	1.61 1.77 1.94	86.00 106.93 130.84
(TMO)									
4424 B25	C	From Leg	4.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	2.05 2.23 2.42	1.61 1.77 1.94	86.00 106.93 130.84
(TMO)									
4415 B66A	A	From Leg	4.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	1.84 2.01 2.19	0.82 0.94 1.07	46.00 60.07 76.66
(TMO)									
4415 B66A	B	From Leg	4.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	1.84 2.01 2.19	0.82 0.94 1.07	46.00 60.07 76.66
(TMO)									
4415 B66A	C	From Leg	4.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	1.84 2.01 2.19	0.82 0.94 1.07	46.00 60.07 76.66
(TMO)									
Reinforced Sector Mount	A	None		0.0000	155.00	No Ice 1/2" Ice 1" Ice	17.90 23.30 28.60	12.70 16.60 20.50	630.00 870.00 1110.00
(TMO)									
Reinforced Sector Mount	B	None		0.0000	155.00	No Ice 1/2" Ice 1" Ice	17.90 23.30 28.60	12.70 16.60 20.50	630.00 870.00 1110.00
(TMO)									
Reinforced Sector Mount	C	None		0.0000	155.00	No Ice 1/2" Ice 1" Ice	17.90 23.30 28.60	12.70 16.60 20.50	630.00 870.00 1110.00
(TMO)									
***									

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice

Comb. No.	Description
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Leg C	Max. Vert	18	349550.52	35796.67	-19789.10
	Max. H_x	18	349550.52	35796.67	-19789.10
	Max. H_z	5	-274084.38	-28343.67	18137.60
	Min. Vert	7	-294389.97	-31230.85	17149.80
	Min. H_x	7	-294389.97	-31230.85	17149.80
	Min. H_z	18	349550.52	35796.67	-19789.10
Leg B	Max. Vert	10	350931.55	-35940.82	-19966.65
	Max. H_x	23	-295525.87	31373.92	17326.93
	Max. H_z	25	-265828.95	27559.38	17954.68
	Min. Vert	23	-295525.87	31373.92	17326.93
	Min. H_x	10	350931.55	-35940.82	-19966.65
	Min. H_z	10	350931.55	-35940.82	-19966.65
Leg A	Max. Vert	2	378067.20	210.16	45002.50
	Max. H_x	21	15528.32	4520.04	1318.64
	Max. H_z	2	378067.20	210.16	45002.50

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
	Min. Vert	15	-324924.46	-215.61	-39831.76
	Min. H_x	9	15736.73	-4517.86	1337.75
	Min. H_z	15	-324924.46	-215.61	-39831.76

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	54164.65	-0.00	0.00	14821.37	-1453.24	-0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	64997.58	15.46	-74217.77	-7716315.28	-4017.24	9247.87
0.9 Dead+1.6 Wind 0 deg - No Ice	48748.19	15.46	-74218.00	-7713182.64	-3578.02	9247.20
1.2 Dead+1.6 Wind 30 deg - No Ice	64997.58	34402.24	-59586.51	-6279720.43	-3637804.15	56122.73
0.9 Dead+1.6 Wind 30 deg - No Ice	48747.26	34401.43	-59586.88	-6277944.74	-3633763.62	56085.11
1.2 Dead+1.6 Wind 60 deg - No Ice	64997.58	54425.02	-31440.15	-3352959.99	-5835809.90	32988.11
0.9 Dead+1.6 Wind 60 deg - No Ice	48748.19	54425.20	-31440.25	-3354054.82	-5829519.58	32969.68
1.2 Dead+1.6 Wind 90 deg - No Ice	64997.58	54760.89	-15.43	15579.22	-6018811.13	-11370.00
0.9 Dead+1.6 Wind 90 deg - No Ice	48748.19	54761.08	-15.43	11099.46	-6012225.95	-11381.51
1.2 Dead+1.6 Wind 120 deg - No Ice	64997.58	58288.28	33652.75	3577114.13	-6166394.39	29424.42
0.9 Dead+1.6 Wind 120 deg - No Ice	48748.19	58288.46	33652.86	3569089.17	-6159830.61	29414.26
1.2 Dead+1.6 Wind 150 deg - No Ice	64997.58	33674.60	58356.95	6141154.54	-3534300.86	44474.06
0.9 Dead+1.6 Wind 150 deg - No Ice	48749.59	33674.27	58358.31	6130634.20	-3530375.78	44450.34
1.2 Dead+1.6 Wind 180 deg - No Ice	64997.58	-15.46	70148.87	7398397.49	503.23	-9246.15
0.9 Dead+1.6 Wind 180 deg - No Ice	48748.19	-15.46	70149.09	7386630.66	936.80	-9245.96
1.2 Dead+1.6 Wind 210 deg - No Ice	64997.58	-34402.31	59586.47	6315550.94	3634098.79	-56122.73
0.9 Dead+1.6 Wind 210 deg - No Ice	48747.27	-34403.04	59585.95	6304829.65	3630919.29	-56085.12
1.2 Dead+1.6 Wind 240 deg - No Ice	64997.58	-57948.78	33474.59	3565633.55	6138497.02	-32991.78
0.9 Dead+1.6 Wind 240 deg - No Ice	48748.19	-57948.97	33474.70	3557615.15	6132822.80	-32981.50
1.2 Dead+1.6 Wind 270 deg - No Ice	64997.58	-54760.89	15.49	20096.29	6015320.76	11370.21
0.9 Dead+1.6 Wind 270 deg - No Ice	48748.19	-54761.08	15.49	15611.72	6009608.64	11381.73
1.2 Dead+1.6 Wind 300 deg - No Ice	64997.58	-54764.52	-31618.31	-3364444.26	5856724.24	-29421.19
0.9 Dead+1.6 Wind 300 deg - No Ice	48748.19	-54764.69	-31618.41	-3365532.45	5851290.52	-29403.22
1.2 Dead+1.6 Wind 330 deg - No Ice	64997.58	-33674.53	-58356.99	-6105330.70	3531013.86	-44474.28
0.9 Dead+1.6 Wind 330 deg -	48749.59	-33675.87	-58357.39	-6103763.42	3527960.97	-44450.58

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
No Ice						
1.2 Dead+1.0 Ice+1.0 Temp	204210.78	0.08	-0.80	119446.07	-1876.85	0.07
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	204210.78	2.82	-24843.51	-2543116.53	-2269.73	-1026.49
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	204210.78	11429.24	-19796.04	-2036866.23	-1247074.27	10983.74
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	204210.78	18412.75	-10633.87	-1054166.95	-2034538.46	7022.41
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	204210.78	19729.65	-2.83	119437.76	-2210474.66	-1492.44
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	204210.78	19194.59	11081.99	1330608.50	-2098945.60	7054.04
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	204210.78	11279.53	19542.33	2238109.30	-1224357.30	14685.64
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	204210.78	-2.81	24278.58	2735285.80	-1444.04	1026.09
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	204210.78	-11429.24	19796.01	2276588.77	1243333.10	-10983.73
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	204210.78	-18901.97	10916.29	1317678.60	2072003.35	-7026.09
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	204210.78	-19729.65	2.80	120268.05	2206755.05	1492.46
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	204210.78	-18705.36	-10799.56	-1067096.03	2054043.67	-7050.06
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	204210.78	-11279.53	-19542.36	-1998381.67	1220667.90	-14685.70
Dead+Wind 0 deg - Service	54164.65	3.70	-18084.23	-1854725.24	-1994.64	2211.19
Dead+Wind 30 deg - Service	54164.65	8394.87	-14540.36	-1508553.80	-881013.38	13417.70
Dead+Wind 60 deg - Service	54164.65	13306.08	-7686.54	-801327.60	-1414077.29	7885.69
Dead+Wind 90 deg - Service	54164.65	13431.45	-3.70	14326.33	-1460646.32	-2720.12
Dead+Wind 120 deg - Service	54164.65	14229.90	8215.64	876076.98	-1493103.18	7034.06
Dead+Wind 150 deg - Service	54164.65	8220.86	14246.33	1496626.65	-856317.76	10632.65
Dead+Wind 180 deg - Service	54164.65	-3.70	17111.23	1799943.70	-914.66	-2211.05
Dead+Wind 210 deg - Service	54164.65	-8394.88	14540.35	1538299.01	878091.82	-13417.67
Dead+Wind 240 deg - Service	54164.65	-14148.72	8173.03	873332.21	1484361.15	-7887.01
Dead+Wind 270 deg - Service	54164.65	-13431.45	3.70	15405.75	1457738.05	2720.14
Dead+Wind 300 deg - Service	54164.65	-13387.27	-7729.14	-804072.49	1417002.72	-7032.82
Dead+Wind 330 deg - Service	54164.65	-8220.85	-14246.34	-1466881.85	853422.06	-10632.69

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0.00	-54164.65	0.00	0.00	54164.65	-0.00	0.000%
2	15.46	-64997.59	-74218.60	-15.46	64997.58	74217.77	0.001%
3	15.46	-48748.19	-74218.60	-15.46	48748.19	74218.00	0.001%
4	34402.69	-64997.59	-59587.21	-34402.24	64997.58	59586.51	0.001%
5	34402.69	-48748.19	-59587.21	-34401.43	48747.26	59586.88	0.002%
6	54425.74	-64997.59	-31440.56	-54425.02	64997.58	31440.15	0.001%
7	54425.74	-48748.19	-31440.56	-54425.20	48748.19	31440.25	0.001%
8	54761.62	-64997.59	-15.46	-54760.89	64997.58	15.43	0.001%
9	54761.62	-48748.19	-15.46	-54761.08	48748.19	15.43	0.001%
10	58288.95	-64997.59	33653.14	-58288.28	64997.58	-33652.75	0.001%
11	58288.95	-48748.19	33653.14	-58288.46	48748.19	-33652.86	0.001%
12	33674.97	-64997.59	58357.67	-33674.60	64997.58	-58356.95	0.001%
13	33674.97	-48748.19	58357.67	-33674.27	48749.59	-58358.31	0.002%
14	-15.46	-64997.59	70149.76	15.46	64997.58	-70148.87	0.001%

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
15	-15.46	-48748.19	70149.76	15.46	48748.19	-70149.09	0.001%
16	-34402.69	-64997.59	59587.21	34402.31	64997.58	-59586.47	0.001%
17	-34402.69	-48748.19	59587.21	34403.04	48747.27	-59585.95	0.002%
18	-57949.46	-64997.59	33474.98	57948.78	64997.58	-33474.59	0.001%
19	-57949.46	-48748.19	33474.98	57948.97	48748.19	-33474.70	0.001%
20	-54761.62	-64997.59	15.46	54760.89	64997.58	-15.49	0.001%
21	-54761.62	-48748.19	15.46	54761.08	48748.19	-15.49	0.001%
22	-54765.23	-64997.59	-31618.72	54764.52	64997.58	31618.31	0.001%
23	-54765.23	-48748.19	-31618.72	54764.69	48748.19	31618.41	0.001%
24	-33674.97	-64997.59	-58357.67	33674.53	64997.58	58356.99	0.001%
25	-33674.97	-48748.19	-58357.67	33675.87	48749.59	58357.39	0.002%
26	-0.00	-204210.78	0.00	-0.08	204210.78	0.80	0.000%
27	2.81	-204210.78	-24843.73	-2.82	204210.78	24843.51	0.000%
28	11429.35	-204210.78	-19796.22	-11429.24	204210.78	19796.04	0.000%
29	18412.93	-204210.78	-10633.96	-18412.75	204210.78	10633.87	0.000%
30	19729.86	-204210.78	-2.81	-19729.65	204210.78	2.83	0.000%
31	19194.78	-204210.78	11082.11	-19194.59	204210.78	-11081.99	0.000%
32	11279.64	-204210.78	19542.53	-11279.53	204210.78	-19542.33	0.000%
33	-2.81	-204210.78	24278.82	2.81	204210.78	-24278.58	0.000%
34	-11429.35	-204210.78	19796.22	11429.24	204210.78	-19796.01	0.000%
35	-18902.16	-204210.78	10916.41	18901.97	204210.78	-10916.29	0.000%
36	-19729.86	-204210.78	2.81	19729.65	204210.78	-2.80	0.000%
37	-18705.55	-204210.78	-10799.66	18705.36	204210.78	10799.56	0.000%
38	-11279.64	-204210.78	-19542.53	11279.53	204210.78	19542.36	0.000%
39	3.70	-54164.65	-18084.40	-3.70	54164.65	18084.23	0.000%
40	8394.96	-54164.65	-14540.50	-8394.87	54164.65	14540.36	0.000%
41	13306.22	-54164.65	-7686.62	-13306.08	54164.65	7686.54	0.000%
42	13431.60	-54164.65	-3.70	-13431.45	54164.65	3.70	0.000%
43	14230.04	-54164.65	8215.72	-14229.90	54164.65	-8215.64	0.000%
44	8220.94	-54164.65	14246.47	-8220.86	54164.65	-14246.33	0.000%
45	-3.70	-54164.65	17111.40	3.70	54164.65	-17111.23	0.000%
46	-8394.96	-54164.65	14540.50	8394.88	54164.65	-14540.35	0.000%
47	-14148.86	-54164.65	8173.11	14148.72	54164.65	-8173.03	0.000%
48	-13431.60	-54164.65	3.70	13431.45	54164.65	-3.70	0.000%
49	-13387.40	-54164.65	-7729.22	13387.27	54164.65	7729.14	0.000%
50	-8220.94	-54164.65	-14246.47	8220.85	54164.65	14246.34	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	9	0.00000001	0.00006761
3	Yes	9	0.00000001	0.00004934
4	Yes	9	0.00000001	0.00007208
5	Yes	9	0.00000001	0.00005369
6	Yes	9	0.00000001	0.00007604
7	Yes	9	0.00000001	0.00005744
8	Yes	9	0.00000001	0.00007314
9	Yes	9	0.00000001	0.00005450
10	Yes	9	0.00000001	0.00006835
11	Yes	9	0.00000001	0.00004996
12	Yes	9	0.00000001	0.00007180
13	Yes	9	0.00000001	0.00005352
14	Yes	9	0.00000001	0.00007570
15	Yes	9	0.00000001	0.00005721

16	Yes	9	0.00000001	0.00007210
17	Yes	9	0.00000001	0.00005370
18	Yes	9	0.00000001	0.00006842
19	Yes	9	0.00000001	0.00005000
20	Yes	9	0.00000001	0.00007315
21	Yes	9	0.00000001	0.00005450
22	Yes	9	0.00000001	0.00007602
23	Yes	9	0.00000001	0.00005741
24	Yes	9	0.00000001	0.00007179
25	Yes	9	0.00000001	0.00005351
26	Yes	7	0.00000001	0.00012554
27	Yes	10	0.00000001	0.00004794
28	Yes	10	0.00000001	0.00004736
29	Yes	10	0.00000001	0.00004719
30	Yes	10	0.00000001	0.00004657
31	Yes	10	0.00000001	0.00004838
32	Yes	10	0.00000001	0.00004912
33	Yes	10	0.00000001	0.00005085
34	Yes	10	0.00000001	0.00004983
35	Yes	10	0.00000001	0.00004859
36	Yes	10	0.00000001	0.00004699
37	Yes	10	0.00000001	0.00004770
38	Yes	10	0.00000001	0.00004697
39	Yes	9	0.00000001	0.00005591
40	Yes	9	0.00000001	0.00005679
41	Yes	9	0.00000001	0.00005756
42	Yes	9	0.00000001	0.00005671
43	Yes	9	0.00000001	0.00005607
44	Yes	9	0.00000001	0.00005649
45	Yes	9	0.00000001	0.00005769
46	Yes	9	0.00000001	0.00005691
47	Yes	9	0.00000001	0.00005613
48	Yes	9	0.00000001	0.00005676
49	Yes	9	0.00000001	0.00005759
50	Yes	9	0.00000001	0.00005640

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	188 - 180	3.894	39	0.1715	0.0185
T2	180 - 160	3.604	39	0.1710	0.0188
T3	160 - 140	2.884	39	0.1627	0.0174
T4	140 - 120	2.216	39	0.1441	0.0150
T5	120 - 100	1.631	39	0.1216	0.0122
T6	100 - 80	1.129	39	0.1006	0.0101
T7	80 - 60	0.722	39	0.0769	0.0079
T8	60 - 40	0.420	39	0.0546	0.0061
T9	40 - 20	0.207	39	0.0339	0.0040
T10	20 - 0	0.067	39	0.0174	0.0019

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
195.00	BCD-87010	39	3.894	0.1715	0.0185	503679
186.00	Rohn 14' Platform	39	3.821	0.1715	0.0186	503679
172.00	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	39	3.314	0.1690	0.0185	308940
155.00	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	39	2.710	0.1589	0.0168	71039
145.50	(3) SBNHH-1D85B w/ Mount Pipe	39	2.392	0.1500	0.0157	58492
123.00	APXVSPP18-C-A20 w/ Mount Pipe	39	1.713	0.1249	0.0126	59671

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	188 - 180	16.290	2	0.7196	0.0776
T2	180 - 160	15.077	2	0.7173	0.0785
T3	160 - 140	12.055	2	0.6825	0.0728
T4	140 - 120	9.253	2	0.6042	0.0629
T5	120 - 100	6.803	2	0.5095	0.0513
T6	100 - 80	4.704	2	0.4209	0.0423
T7	80 - 60	3.002	2	0.3212	0.0331
T8	60 - 40	1.744	2	0.2281	0.0254
T9	40 - 20	0.855	2	0.1414	0.0169
T10	20 - 0	0.275	2	0.0726	0.0078

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
195.00	BCD-87010	2	16.290	0.7196	0.0776	121866
186.00	Rohn 14' Platform	2	15.987	0.7193	0.0779	121866
172.00	(2) AM-X-CD-16-65-00T-RET w/ Mount Pipe	2	13.858	0.7090	0.0774	75853
155.00	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	2	11.326	0.6663	0.0705	16909
145.50	(3) SBNHH-1D85B w/ Mount Pipe	2	9.991	0.6288	0.0658	13901
123.00	APXVSPP18-C-A20 w/ Mount Pipe	2	7.148	0.5234	0.0529	14098

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load per Bolt lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	188	Leg	A325N	0.8750	4	316.53	40589.10	0.008 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	1062.57	5811.33	0.183 ✔	1	Member Block Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load per Bolt lb	Ratio Load / Allowable	Allowable Ratio	Criteria
		Top Girt	A325N	0.6250	1	96.90	12425.20	0.008 ✔	1	Bolt Shear
T2	180	Leg	A325N	0.8750	4	3738.87	40589.10	0.092 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	3119.31	5811.33	0.537 ✔	1	Member Block Shear
		Horizontal	A325N	0.6250	1	457.13	4553.91	0.100 ✔	1	Member Block Shear
T3	160	Leg	A325N	0.8750	4	10475.00	40589.10	0.258 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	7088.58	10440.00	0.679 ✔	1	Member Bearing
T4	140	Leg	A325N	1.0000	4	20131.20	53014.40	0.380 ✔	1	Bolt Tension
		Diagonal	A325N	0.7500	1	8070.78	14137.50	0.571 ✔	1	Member Bearing
T5	120	Leg	A325N	1.0000	6	20012.40	53014.40	0.377 ✔	1	Bolt Tension
		Diagonal	A325N	0.7500	1	8534.66	14137.50	0.604 ✔	1	Member Bearing
T6	100	Leg	A325N	1.0000	6	26677.60	53014.40	0.503 ✔	1	Bolt Tension
		Diagonal	A325N	0.7500	1	11831.70	14137.50	0.837 ✔	1	Member Bearing
T7	80	Leg	A325N	1.0000	8	25336.50	53014.40	0.478 ✔	1	Bolt Tension
		Diagonal	A325N	0.7500	1	12290.10	17892.40	0.687 ✔	1	Bolt Shear
T8	60	Leg	A325N	1.0000	8	30149.80	53014.40	0.569 ✔	1	Bolt Tension
		Diagonal	A325N	0.7500	1	12347.10	17892.40	0.690 ✔	1	Bolt Shear
T9	40	Leg	A325N	1.0000	8	34840.90	53014.40	0.657 ✔	1	Bolt Tension
		Diagonal	A325N	0.7500	1	13774.50	17892.40	0.770 ✔	1	Bolt Shear
T10	20	Diagonal	A325N	0.7500	1	15387.70	17892.40	0.860 ✔	1	Bolt Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	188 - 180	P3x.216	8.00	4.00	41.3 K=1.00	2.2285	-3798.38	88548.60	0.043 [1] ✔
T2	180 - 160	P3x.216	20.04	5.01	51.7 K=1.00	2.2285	-20740.70	82502.90	0.251 [1] ✔
T3	160 - 140	ROHN 3 EH	20.03	6.68	70.5 K=1.00	3.0159	-53602.60	94349.80	0.568 [1] ✔
T4	140 - 120	ROHN 4 EH	20.04	6.68	54.3 K=1.00	4.4074	-97329.20	159905.00	0.609 [1] ✔
T5	120 - 100	ROHN 5 EH	20.05	6.68	43.6 K=1.00	6.1120	-142068.00	239326.00	0.594 [1] ✔
T6	100 - 80	ROHN 6 EHS	20.02	10.01	54.0 K=1.00	6.7133	-185956.00	244126.00	0.762 [1] ✔
T7	80 - 60	ROHN 6 EH	20.03	10.02	54.8	8.4049	-234234.00	303759.00	0.771 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
					K=1.00				✔
T8	60 - 40	ROHN 8 EHS	20.04	10.02	41.2 K=1.00	9.7193	-278728.00	386368.00	0.721 [1] ✔
T9	40 - 20	ROHN 8 EH	20.03	10.02	41.8 K=1.00	12.7627	-322774.00	505544.00	0.638 [1] ✔
T10	20 - 0	ROHN 8 EH	20.03	10.02	41.8 K=1.00	12.7627	-366963.00	505565.00	0.726 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	188 - 180	L1 3/4x1 3/4x3/16	7.74	3.58	125.1 K=1.00	0.6211	-1128.41	8824.45	0.128 [1] ✔
T2	180 - 160	L1 3/4x1 3/4x3/16	9.40	4.57	159.5 K=1.00	0.6211	-3322.51	5512.95	0.603 [1] ✔
T3	160 - 140	L2 1/2x2 1/2x1/4	12.34	6.07	148.4 K=1.00	1.1900	-7143.41	12209.80	0.585 [1] ✔
T4	140 - 120	L3x3x1/4	14.12	6.91	140.0 K=1.00	1.4400	-8448.30	16593.20	0.509 [1] ✔
T5	120 - 100	L3x3x1/4	16.30	7.99	161.9 K=1.00	1.4400	-8517.09	12404.00	0.687 [1] ✔
T6	100 - 80	L3 1/2x3 1/2x1/4	19.28	9.41	162.8 K=1.00	1.6900	-12629.80	14408.10	0.877 [1] ✔
T7	80 - 60	L4x4x5/16	20.89	10.27	155.9 K=1.00	2.4000	-12290.10	22316.40	0.551 [1] ✔
T8	60 - 40	L4x4x5/16	22.77	11.15	169.2 K=1.00	2.4000	-12347.10	18939.00	0.652 [1] ✔
T9	40 - 20	L4x4x5/16	24.66	12.08	183.3 K=1.00	2.4000	-13774.50	16141.50	0.853 [1] ✔
T10	20 - 0	L4x4x3/8	26.48	12.98	197.6 K=1.00	2.8600	-15387.70	16543.30	0.930 [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 lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	180 - 160	L2x2x1/8	8.22	7.69	232.1 K=1.00	0.4844	-359.74	2031.49	0.177 [1] ✔

KL/R > 200 (C) - 32

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$

[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 lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	188 - 180	L3x3x1/4	6.63	6.10	123.6 K=1.00	1.4400	-96.90	20868.70	0.005 [1] ✔

[1] P_u / ϕP_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 lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	188 - 180	P3x.216	8.00	4.00	41.3	2.2285	977.65	100281.00	0.010 [1] ✔
T2	180 - 160	P3x.216	20.04	5.01	51.7	2.2285	14955.50	100281.00	0.149 [1] ✔
T3	160 - 140	ROHN 3 EH	20.03	6.68	70.5	3.0159	41900.10	135717.00	0.309 [1] ✔
T4	140 - 120	ROHN 4 EH	20.04	6.68	54.3	4.4074	80524.70	198335.00	0.406 [1] ✔
T5	120 - 100	ROHN 5 EH	20.05	6.68	43.6	6.1120	120074.00	275039.00	0.437 [1] ✔
T6	100 - 80	ROHN 6 EHS	20.02	10.01	54.0	6.7133	160066.00	302097.00	0.530 [1] ✔
T7	80 - 60	ROHN 6 EH	20.03	10.02	54.8	8.4049	202692.00	378222.00	0.536 [1] ✔
T8	60 - 40	ROHN 8 EHS	20.04	10.02	41.2	9.7193	241199.00	437369.00	0.551 [1] ✔
T9	40 - 20	ROHN 8 EH	20.03	10.02	41.8	12.7627	278727.00	574322.00	0.485 [1] ✔
T10	20 - 0	ROHN 8 EH	20.03	10.02	41.8	12.7627	315847.00	574322.00	0.550 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	188 - 180	L1 3/4x1 3/4x3/16	7.74	3.58	82.7	0.3604	1062.57	15675.30	0.068 [1] ✔
T2	180 - 160	L1 3/4x1 3/4x3/16	9.40	4.57	104.7	0.3604	3119.31	15675.30	0.199 [1] ✔
T3	160 - 140	L2 1/2x2 1/2x1/4	12.34	6.07	96.6	0.7519	7088.58	32706.60	0.217 [1] ✔
T4	140 - 120	L3x3x1/4	14.12	6.91	90.9	0.9159	8070.78	44652.00	0.181 [1] ✔
T5	120 - 100	L3x3x1/4	16.30	7.99	104.8	0.9159	8534.66	44652.00	0.191 [1] ✔
T6	100 - 80	L3 1/2x3 1/2x1/4	19.28	9.41	105.1	1.1034	11831.70	53792.60	0.220 [1] ✔
T7	80 - 60	L4x4x5/16	20.89	10.27	100.7	1.5949	11590.60	77752.40	0.149 [1] ✔
T8	60 - 40	L4x4x5/16	22.77	11.15	109.2	1.5949	11832.40	77752.40	0.152 [1] ✔
T9	40 - 20	L4x4x5/16	23.73	11.62	113.7	1.5949	12845.80	77752.40	0.165 [1] ✔
T10	20 - 0	L4x4x3/8	25.58	12.53	123.6	1.8989	14211.10	92571.70	0.154 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	180 - 160	L2x2x1/8	8.22	7.69	151.9	0.2930	457.13	12744.10	0.036 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	188 - 180	L3x3x1/4	6.63	6.10	81.8	0.9394	10.85	40862.80	0.000 [1] ✔

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	188 - 180	Leg	P3x.216	2	-3798.38	88548.60	4.3	Pass
T2	180 - 160	Leg	P3x.216	21	-20740.70	82502.90	25.1	Pass
T3	160 - 140	Leg	ROHN 3 EH	60	-53602.60	94349.80	56.8	Pass
T4	140 - 120	Leg	ROHN 4 EH	81	-97329.20	159905.00	60.9	Pass
T5	120 - 100	Leg	ROHN 5 EH	102	-142068.00	239326.00	59.4	Pass
T6	100 - 80	Leg	ROHN 6 EHS	123	-185956.00	244126.00	76.2	Pass
T7	80 - 60	Leg	ROHN 6 EH	138	-234234.00	303759.00	77.1	Pass
T8	60 - 40	Leg	ROHN 8 EHS	153	-278728.00	386368.00	72.1	Pass
T9	40 - 20	Leg	ROHN 8 EH	168	-322774.00	505544.00	63.8	Pass
							65.7 (b)	
T10	20 - 0	Leg	ROHN 8 EH	183	-366963.00	505565.00	72.6	Pass
T1	188 - 180	Diagonal	L1 3/4x1 3/4x3/16	10	-1128.41	8824.45	12.8	Pass
							18.3 (b)	
T2	180 - 160	Diagonal	L1 3/4x1 3/4x3/16	38	-3322.51	5512.95	60.3	Pass
T3	160 - 140	Diagonal	L2 1/2x2 1/2x1/4	65	-7143.41	12209.80	58.5	Pass
							67.9 (b)	
T4	140 - 120	Diagonal	L3x3x1/4	86	-8448.30	16593.20	50.9	Pass
							57.1 (b)	
T5	120 - 100	Diagonal	L3x3x1/4	107	-8517.09	12404.00	68.7	Pass
T6	100 - 80	Diagonal	L3 1/2x3 1/2x1/4	127	-12629.80	14408.10	87.7	Pass
T7	80 - 60	Diagonal	L4x4x5/16	142	-12290.10	22316.40	55.1	Pass
							68.7 (b)	
T8	60 - 40	Diagonal	L4x4x5/16	157	-12347.10	18939.00	65.2	Pass
							69.0 (b)	
T9	40 - 20	Diagonal	L4x4x5/16	172	-13774.50	16141.50	85.3	Pass
T10	20 - 0	Diagonal	L4x4x3/8	187	-15387.70	16543.30	93.0	Pass
T2	180 - 160	Horizontal	L2x2x1/8	32	-359.74	2031.49	17.7	Pass
T1	188 - 180	Top Girt	L3x3x1/4	4	-96.65	20868.70	0.6	Pass
							0.8 (b)	
							Summary	
							Leg (T7) 77.1	Pass
							Diagonal (T10) 93.0	Pass
							Horizontal (T2) 17.7	Pass
							Top Girt (T1) 0.8	Pass
							Bolt Checks 86.0	Pass
							RATING = 93.0	**Pass**

Project Information

BU #	
Site Name	CT11402A
Order #	

Tower Information

Tower Type	Self Support
TIA-222 Rev	G

☑ Load Z Normalization

Applied Loads

	Comp.	Uplift
Axial (k)	378.07	324.92
Shear (k)	45.00	39.83

Anchor Rod Data

Quantity:	10
Diameter (in):	1
Material Grade:	A354-BC
Grout Considered:	No
l_{ar} (in):	0
Eta Factor, η:	0.5
Thread Type:	N-Included
Configuration:	Symmetrical

Fy=109 ksi Fu=125 ksi

Anchor Rod Results

Axial, Pu_c (kips)	37.81
Shear, Vu (kips)	4.50
Moment, Mu (kip-in)	-
Axial Cap., φPn_t (kips)	60.60
Shear Cap., ϕVn (kips)	-
Moment Cap., ϕMn (kip-in)	-
Stress Rating	73.6%

Pass

Analysis Date: 4/28/2021

Exhibit E

Mount Analysis

CENTERLINE COMMUNICATIONS
750 West Center Street, Suite 301
West Bridgewater, MA 02379
781.713.4725

Mount Analysis Report

Site Address	232 South Main St. East Windsor, CT 06088
Site Name	East Windsor/Rt-191_1
Site ID	CT11402A
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 Mount with Modifications	**85%**	**PASS**

Client:

T - Mobile

NORTHEAST, LLC
15 Commerce Way, Suite B
Norton, MA 02766

Date: 04/28/2021

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
155	MP2	60	1	APXVAARR24_43-U-NA20 Antenna	Sector 1
155	MP3	60	1	APX16DWV-16DWV-S-E-A20 Antenna	
155	**MP4**	**60**	**1**	**AIR6449 B41 Antenna**	
155	MP2	60	1	4449 B71+B85 RRH	
155	**MP2**	**60**	**1**	**4424 B25 RRH**	
155	**MP3**	**60**	**1**	**4415 B66A RRH**	
155	-	180	1	APXVAARR24_43-U-NA20 Antenna	Sector 2
155	-	180	1	APX16DWV-16DWV-S-E-A20 Antenna	
155	**-**	**180**	**1**	**AIR6449 B41 Antenna**	
155	-	180	1	4449 B71+B85 RRH	
155	**-**	**180**	**1**	**4424 B25 RRH**	
155	**-**	**180**	**1**	**4415 B66A RRH**	
155	-	280	1	APXVAARR24_43-U-NA20 Antenna	Sector 3
155	-	280	1	APX16DWV-16DWV-S-E-A20 Antenna	
155	**-**	**280**	**1**	**AIR6449 B41 Antenna**	
155	-	280	1	4449 B71+B85 RRH	
155	**-**	**280**	**1**	**4424 B25 RRH**	
155	**-**	**280**	**1**	**4415 B66A RRH**	

Notes:

1. MP represent 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	125 mph
Nominal Wind Speed	97 mph
Wind Speed with Ice	50 mph
Ice Thickness	1.0 in.
Exposure Category	C
Topographic Category	1
Structure Class	II
Site Soil Class (Assumed)	D-Stiff Soil
Seismic Design Category	B
Spectral Response Acceleration Parameter at a Short Periods, S_S	0.177 g
Spectral Response Acceleration Parameter at a Period of 1 Second, S_1	0.064 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:

The results of the analysis concluded that the existing T-Mobile mounts *are adequate* to support the existing and proposed T-Mobile equipment loading upon completion of the following modifications. Centerline recommends the following:

Alpha, Beta & Gamma:

- Install (1) Site Pro 1 SFR-K-L stabilizer kit on the existing top horizontal.
- Install (1) Site Pro 1 SFS-H-L stabilizer kit on the existing bottom horizontal.

	Stress Ratio	Overall Result
Existing Mount with Modifications	**85%**	**PASS**

Reference Documents:

- T-Mobile RFDS CT11402A_Anchor_5_draft, dated 02/23/2021
- Structural Analysis by Destek Engineering, dated 08/14/2018
- Mount Assessment by Destek Engineering, dated 06/01/2018
- Construction Drawings by Foresite, LLC, dated 08/01/2018

Assumptions and Limitations:

- The calculations performed by Centerline Communications are limited to the structural members in these calculations only.
- 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 Mount

Design Calculations

CENTERLINE COMMUNICATIONS

750 West Center Street, Suite 301
West Bridgewater, MA 02379
781.713.4725

Site Details	
Site Name	East Windsor/Rt-191_1
Carrier	T-Mobile
City, State	East Windsor, CT
Project	Anchor

Mount Details		
Mount Type	Sector Frame	
Mount Height, z	155	ft
Number of Sectors	3	
Tower Type	SST	
Tower Height, h	188	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	0.177	g
1 Second Period Spectral Acceleration, S_1	0.064	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}	125	mph
Nominal Wind Speed, V	97	mph
Wind Speed with Ice, V_i	50	mph
Design Ice Thickness, t_i	1	in
Structural Class	II	
Exposure Category	C	
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	1.39	
Gust Effect Factor, G_h	1.00	
Design Ice Thickness, t_{iz}	2.33	in
Velocity Pressure, q_z	31.76	psf
Velocity Pressure with Ice, q_{zi}	8.44	psf
Shielding Factor, K_a	1.00	
Flat Velocity Pressure (Ca =2.0)	63.52	psf
Round Velocity Pressure (Ca = 1.2)	38.11	psf
Round Velocity Pressure with Ice (Ca = 1.2)	10.13	psf
Engineer Initials	**AP**	

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Members Forces							
Member Label	**Shape**	**Type**	**w, lbs/ft**	**q_z, psf**	**w_i, lbs/ft**	**q_{zi}, psf**	**V_s, lbs/ft**
Horizontal	PIPE_2.0	Beam	3.47	38.11	13.43	10.13	0.44
Mount Pipe	PIPE_2.0	Beam	3.47	38.11	13.43	10.13	0.44
Standoff Mast	PIPE_4.0	Beam	10.07	38.11	19.49	10.13	1.27
Standoff Plate	PL7x3/8	Beam	8.93	63.52	26.65	10.13	1.12
Standoff End Plate	PL6x3/8	Beam	7.66	63.52	23.81	10.13	0.96
Tieback	PIPE_2.0	Beam	3.47	38.11	13.43	10.13	0.44
SFS-L	L2.5x2.5x3	Beam	3.07	63.52	16.74	10.13	0.39

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Sector 1							
		Wind Force				Dimensions	Weights
Appurtenances	Rad. Ht., ft	Front EPA ft^2	Side EPA ft^2	0° Force lbs.	90° Force lbs.	H\W\D, in	Wt.\$Wt._{ice}$, lbs.
APXVAARR24_43-U-NA20 Antenna	155	20.24	8.89	642.90	282.30	95.9\24\8.7	153.3\600.27
APX16DWV-16DWV-S-E-A20 Antenna	155	6.46	2.15	205.16	68.28	55.9\13\3.15	40.7\197.01
AIR6449 B41 Antenna	155	5.68	2.49	180.47	79.10	33.1\20.6\8.6	104\220.37
4449 B71+B85 RRH	155	1.97	1.59	62.48	50.39	17.91\13.18\10.63	91.09\118.5
4424 B25 RRH	155	2.05	1.61	65.17	51.14	17.1\14.4\11.3	86\124.66
4415 B66A RRH	155	1.86	0.81	58.97	25.83	16.54\13.47\5.9	49.6\89.17

*Dish force coefficient is calculated per Annex C.2 of TIA-222-G, if available.

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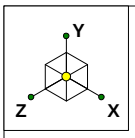
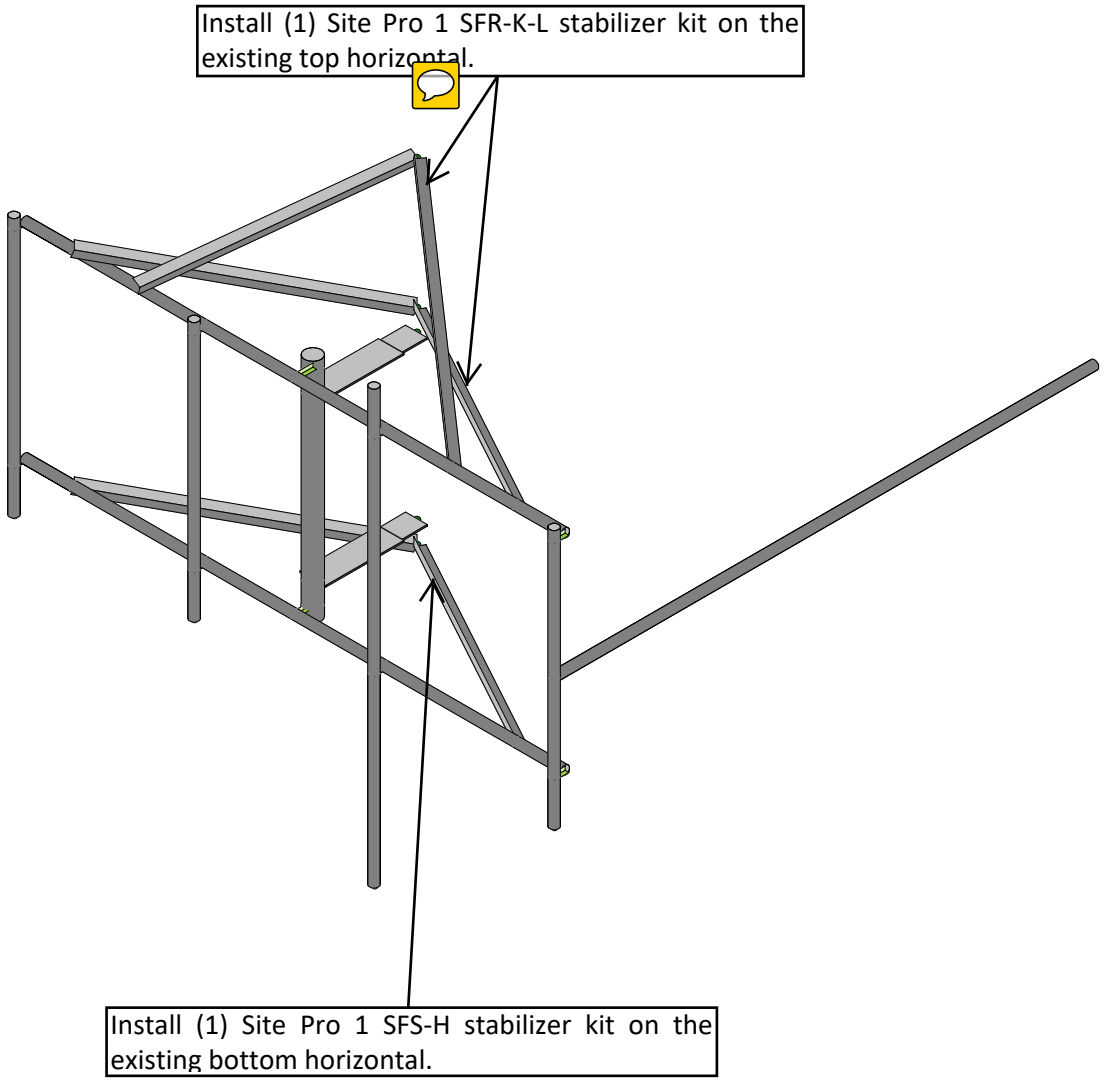
Sector 1 Continue…								
		Wind Force with Ice				Wind Force V = 30 mph		Seismic Force
Appurtenances	Rad. Ht., ft	Front EPA ft^2	Side EPA ft^2	0° Force lbs.	90° Force lbs.	0° Force lbs.	90° Force lbs.	Vs, lbs
APXVAARR24_43-U-NA20 Antenna	155	14.46	7.58	292.88	138.96	61.50	27.00	19.30
APX16DWV-16DWV-S-E-A20 Antenna	155	5.36	2.69	99.71	40.81	19.62	6.53	5.12
AIR6449 B41 Antenna	155	4.64	2.46	87.10	41.80	17.26	7.57	13.09
4449 B71+B85 RRH	155	1.96	1.68	33.13	27.56	5.98	4.82	11.47
4424 B25 RRH	155	2.02	1.69	34.35	27.85	6.23	4.89	10.82
4415 B66A RRH	155	1.87	1.09	31.45	16.06	5.64	2.47	6.24

Existing Mount with Modifications Results





Centerline Communcation...	CT11402A_MA	Rendered
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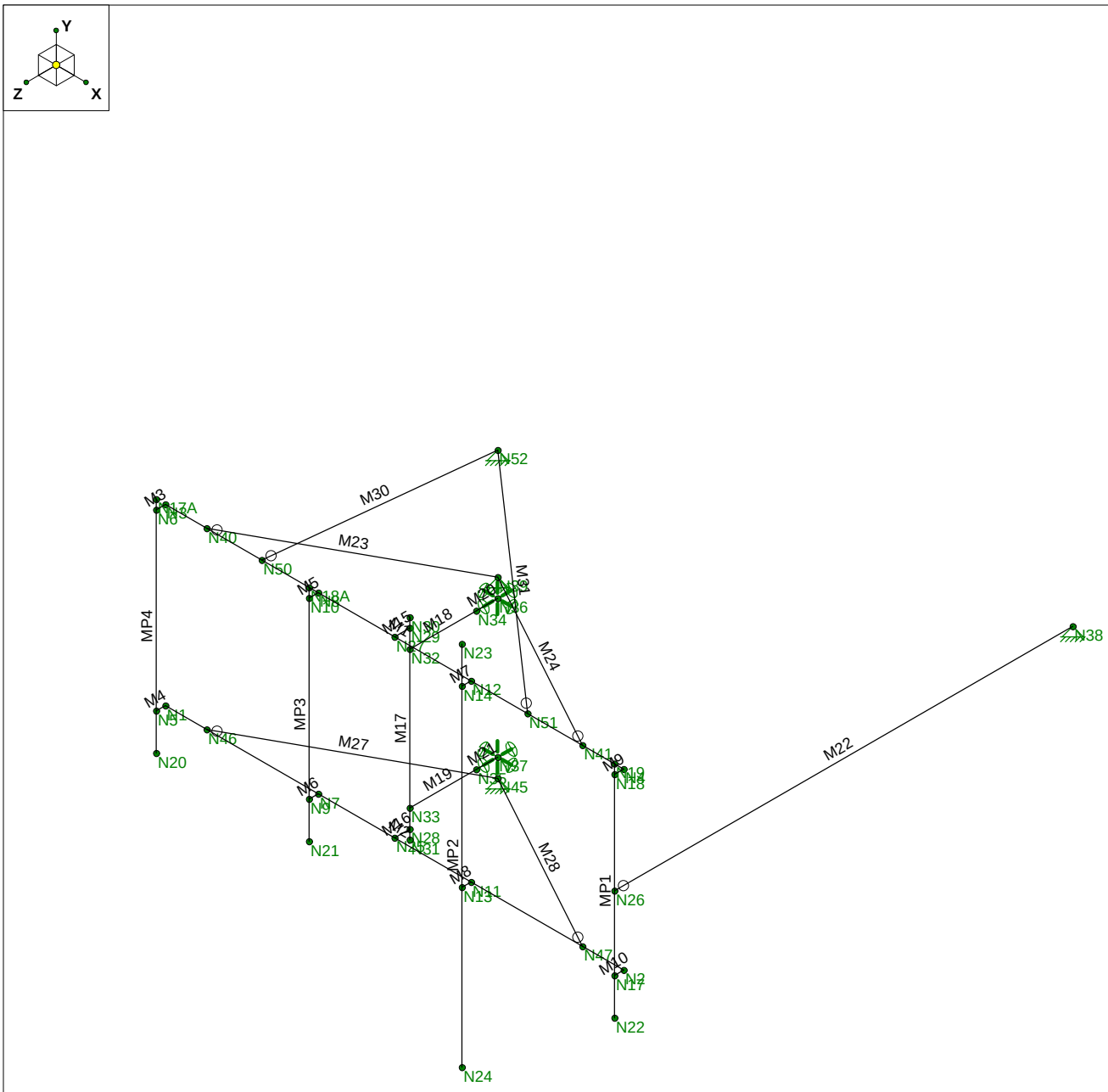

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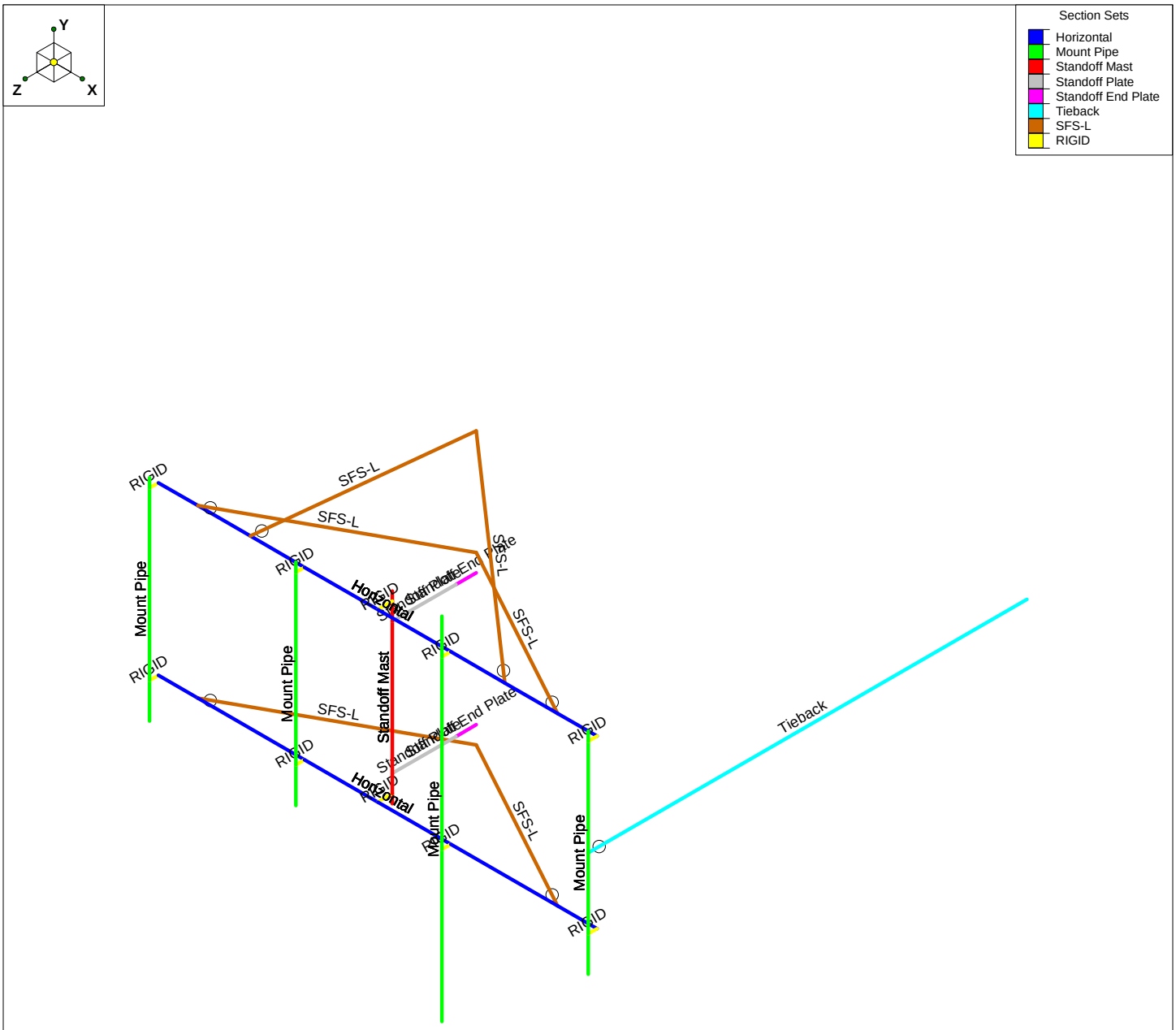

Centerline Communcation...	CT11402A_MA	Section Sets
AP		Apr 27, 2021 at 10:01 AM
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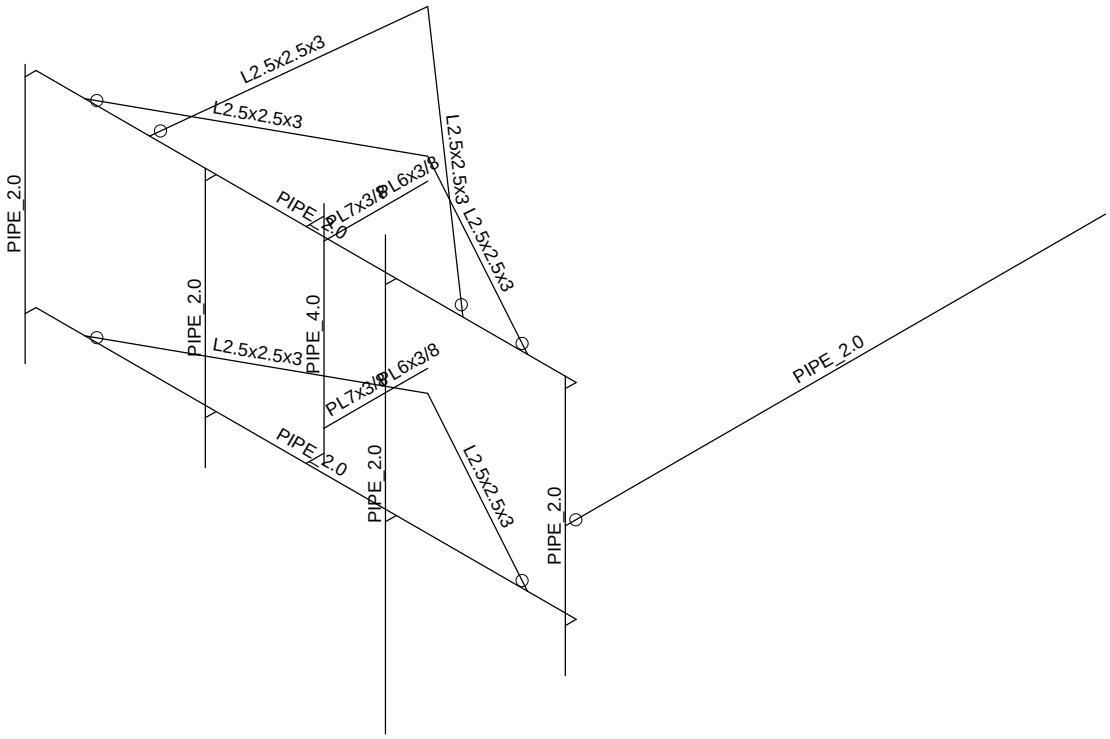

Centerline Communcation...	CT11402A_MA	Member Shape
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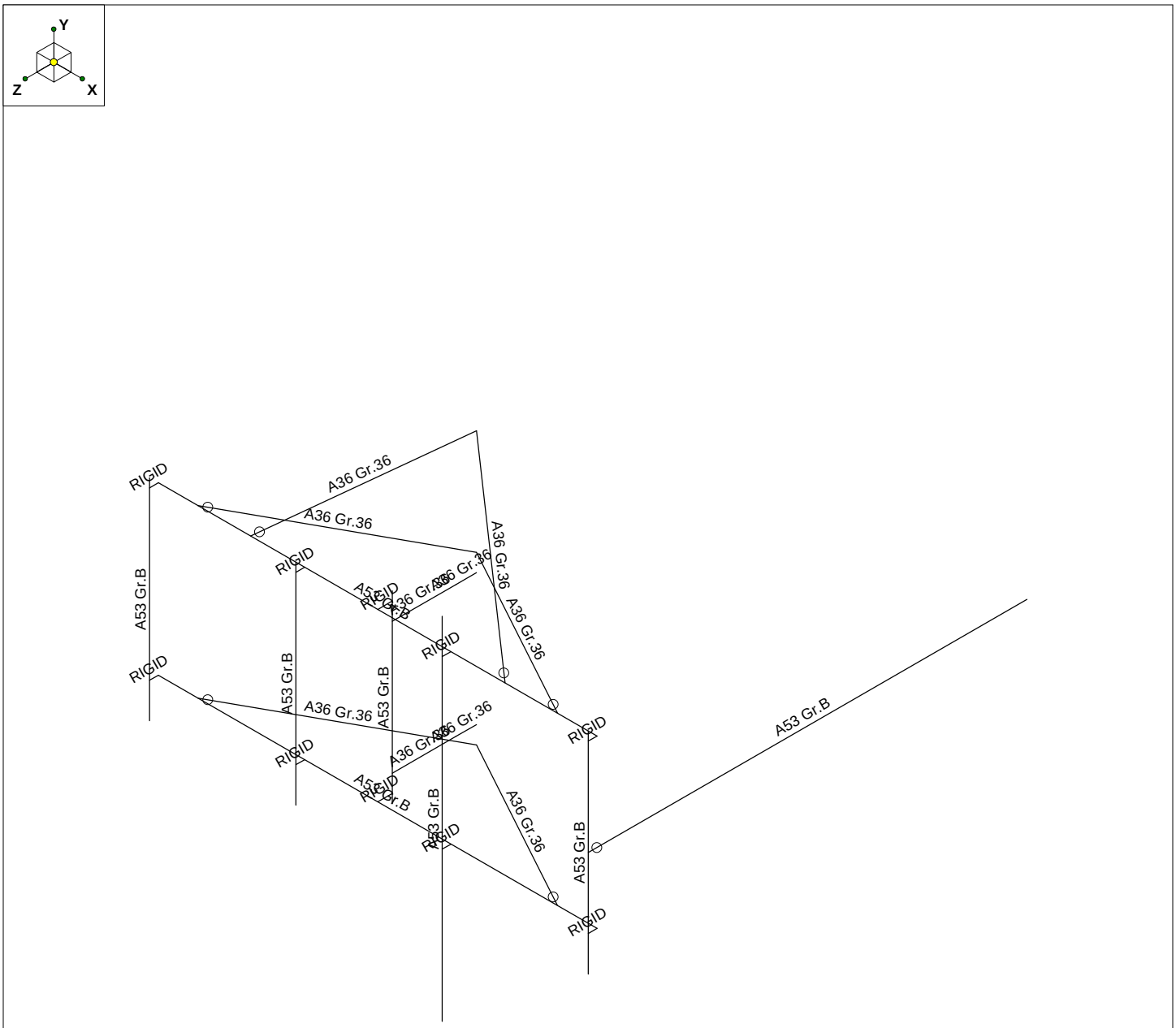

Centerline Communcation...	CT11402A_MA	Material Sets
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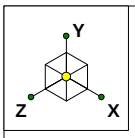
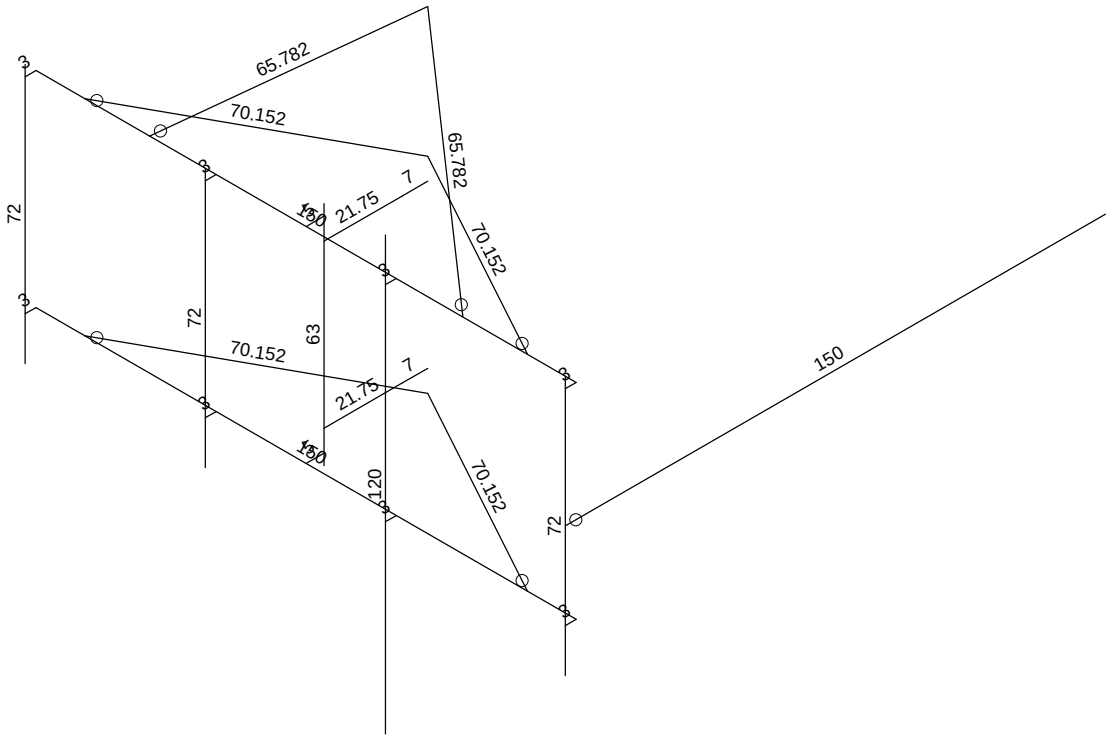
		CT11402A_MA_Modified.r3d





Member Length (in) Displayed

Centerline Communcation...	CT11402A_MA	Member Length
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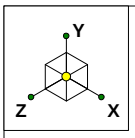

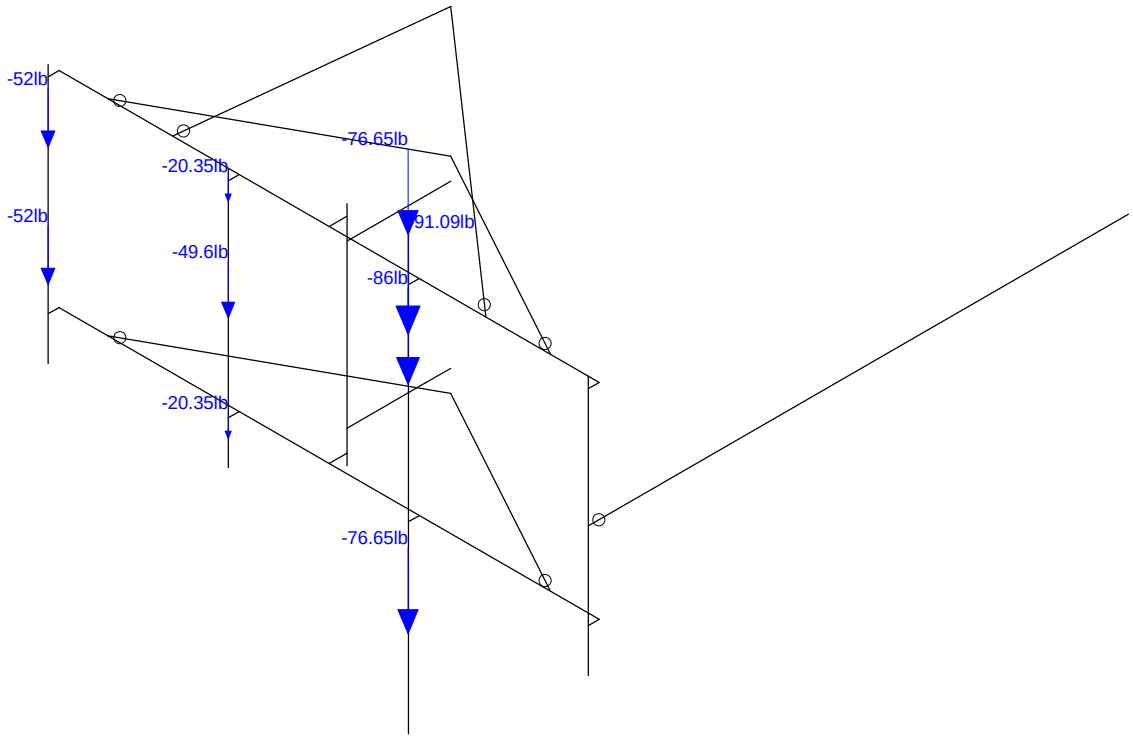

Loads: BLC 1, Dead Load

Centerline Communcation...	CT11402A_MA	Dead Load
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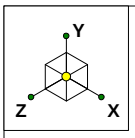
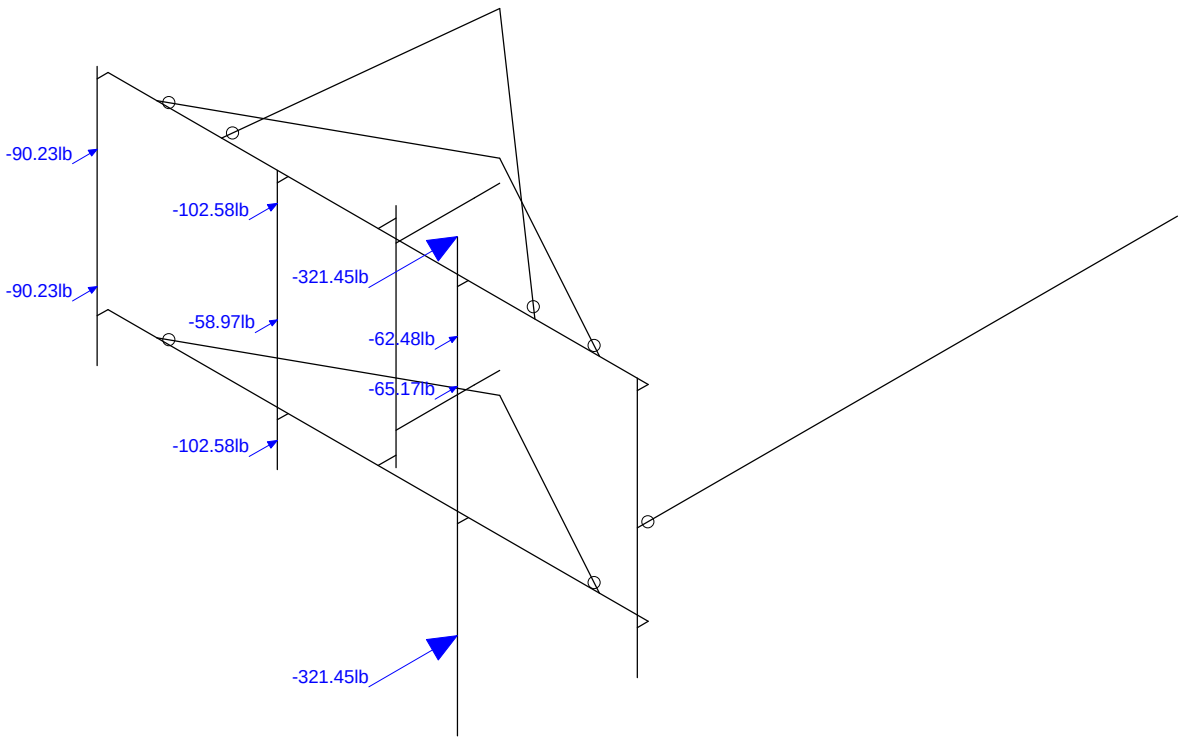
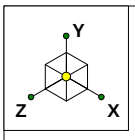
		CT11402A_MA_Modified.r3d

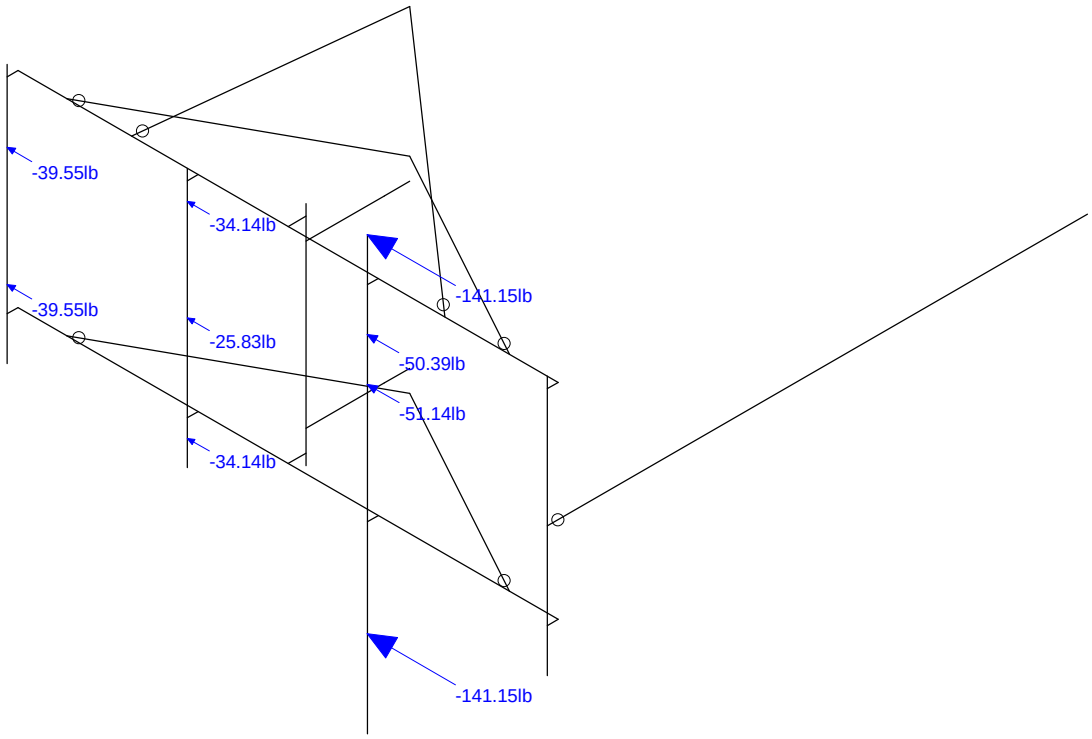




Loads: BLC 2, Wind 0

Centerline Communcation...	CT11402A_MA	Wind 0
AP		Apr 27, 2021 at 10:02 AM
		CT11402A_MA_Modified.r3d





Loads: BLC 5, Wind 90

Centerline Communcation...	CT11402A_MA	Wind 90
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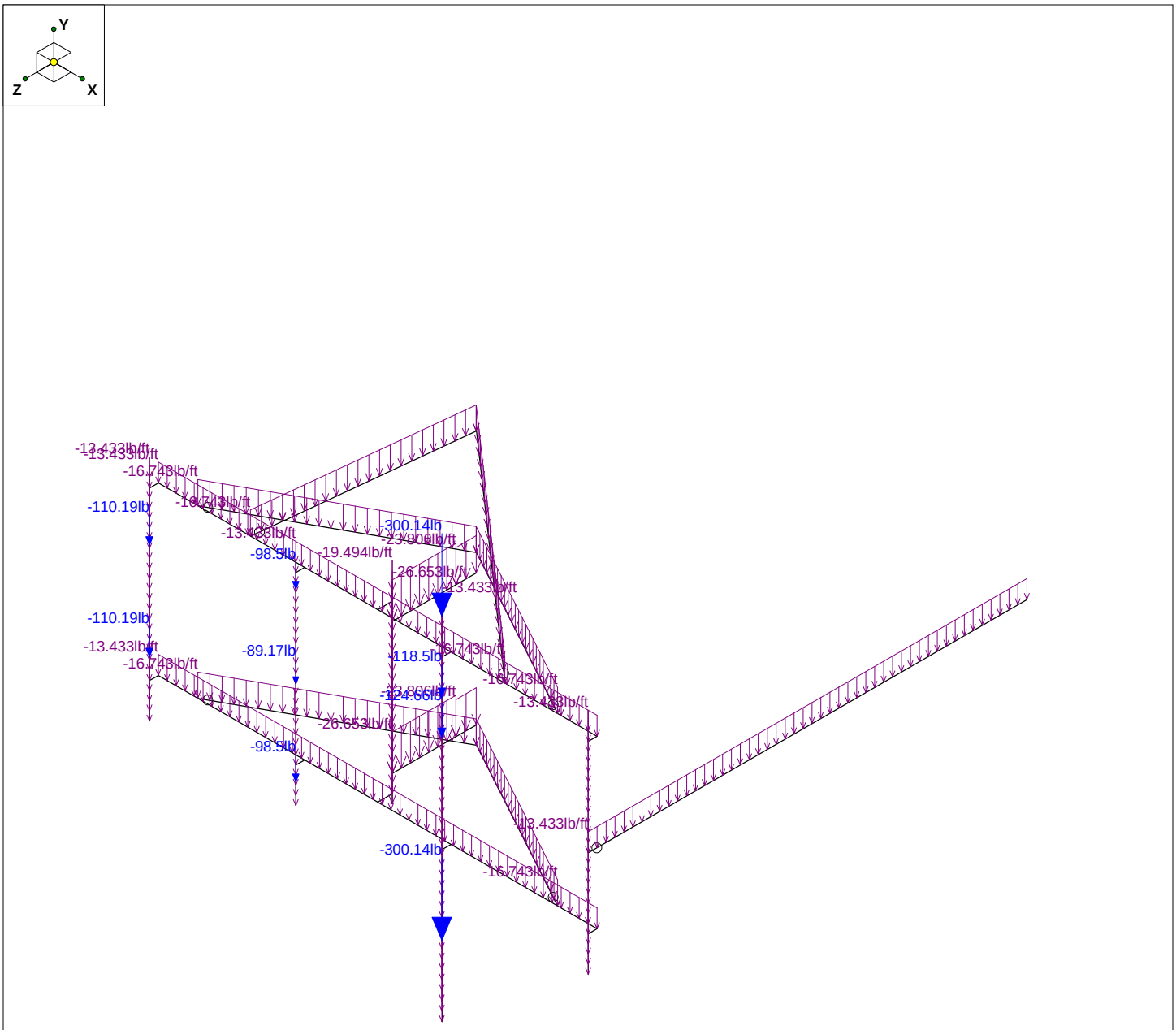
		CT11402A_MA_Modified.r3d



Loads: BLC 9, Ice Weight

Centerline Communcation...	CT11402A_MA	Ice Weight
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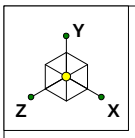
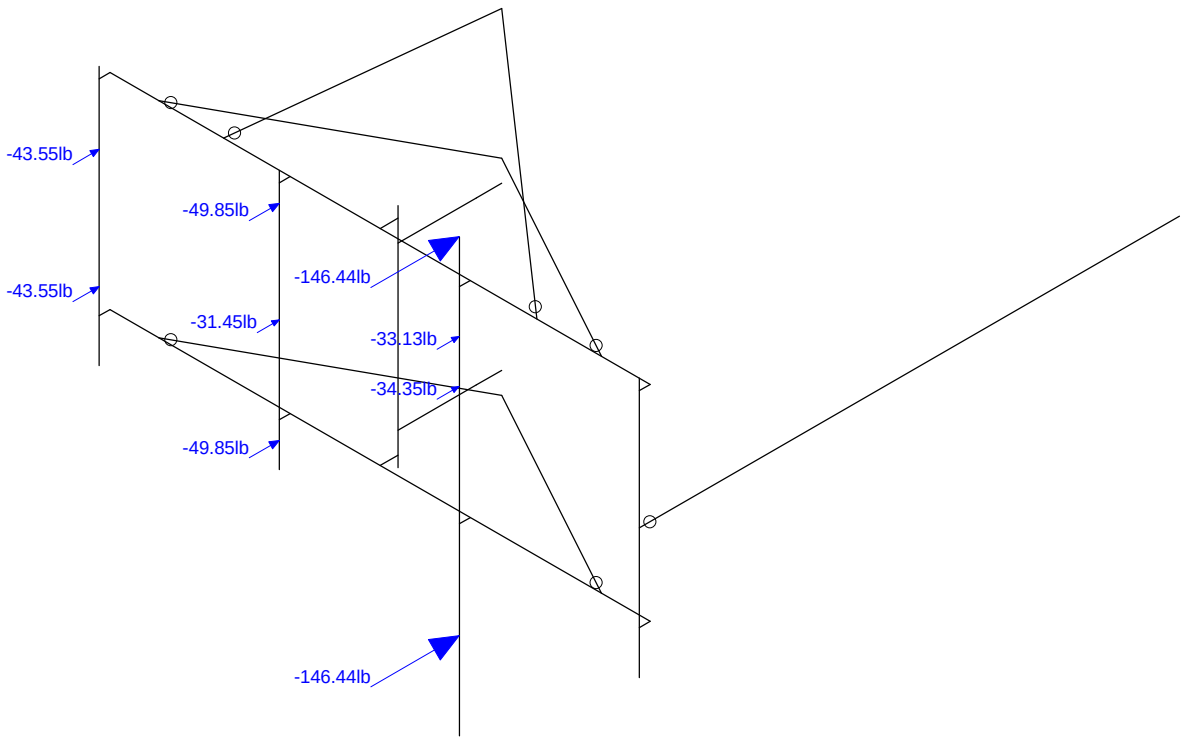
		CT11402A_MA_Modified.r3d





Loads: BLC 10, Ice + Wind 0

Centerline Communcation...	CT11402A_MA	Ice + Wind 0
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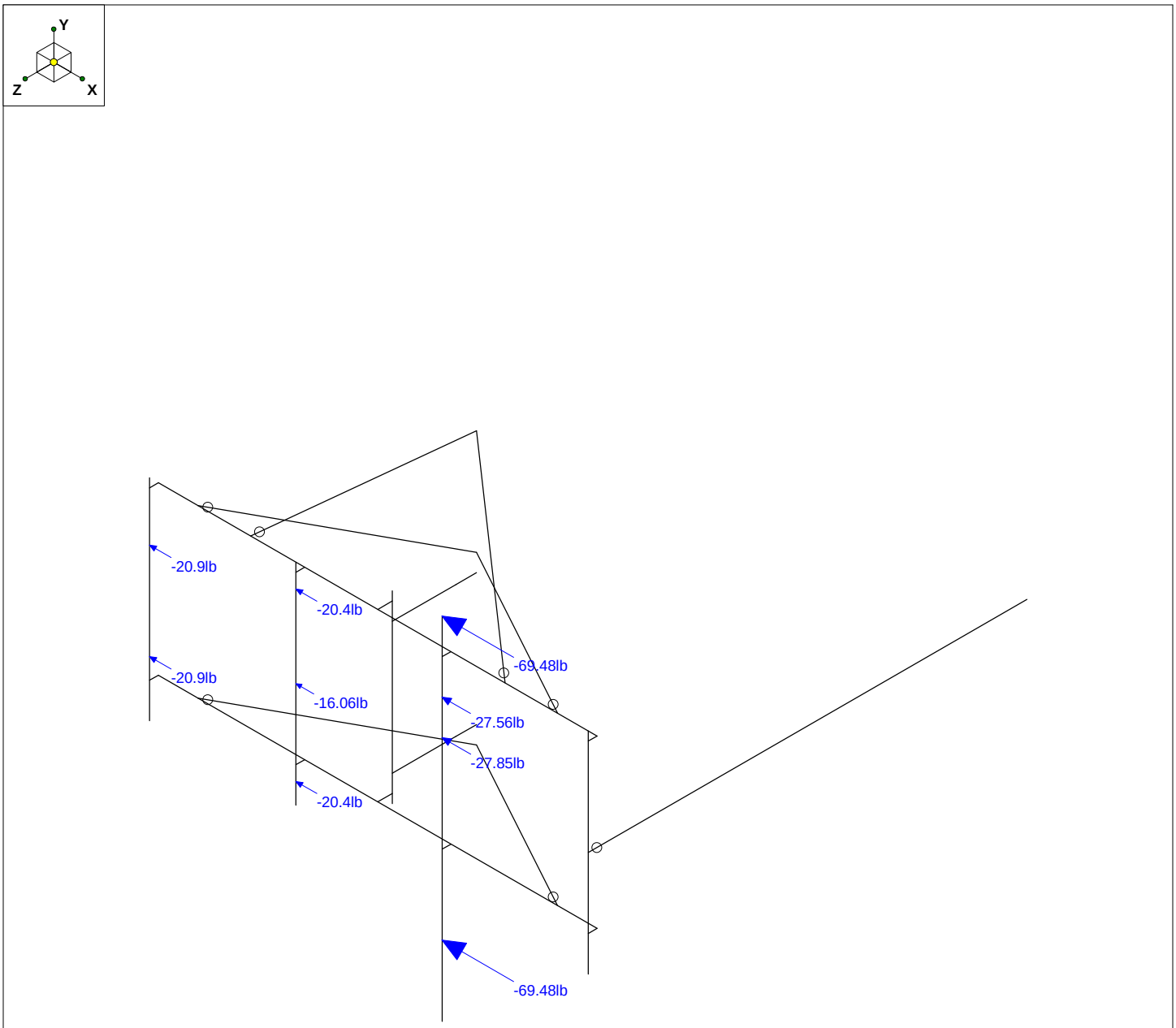
		CT11402A_MA_Modified.r3d



Loads: BLC 13, Ice + Wind 90

Centerline Communcation...	CT11402A_MA	Ice + Wind 90
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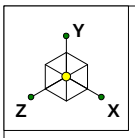

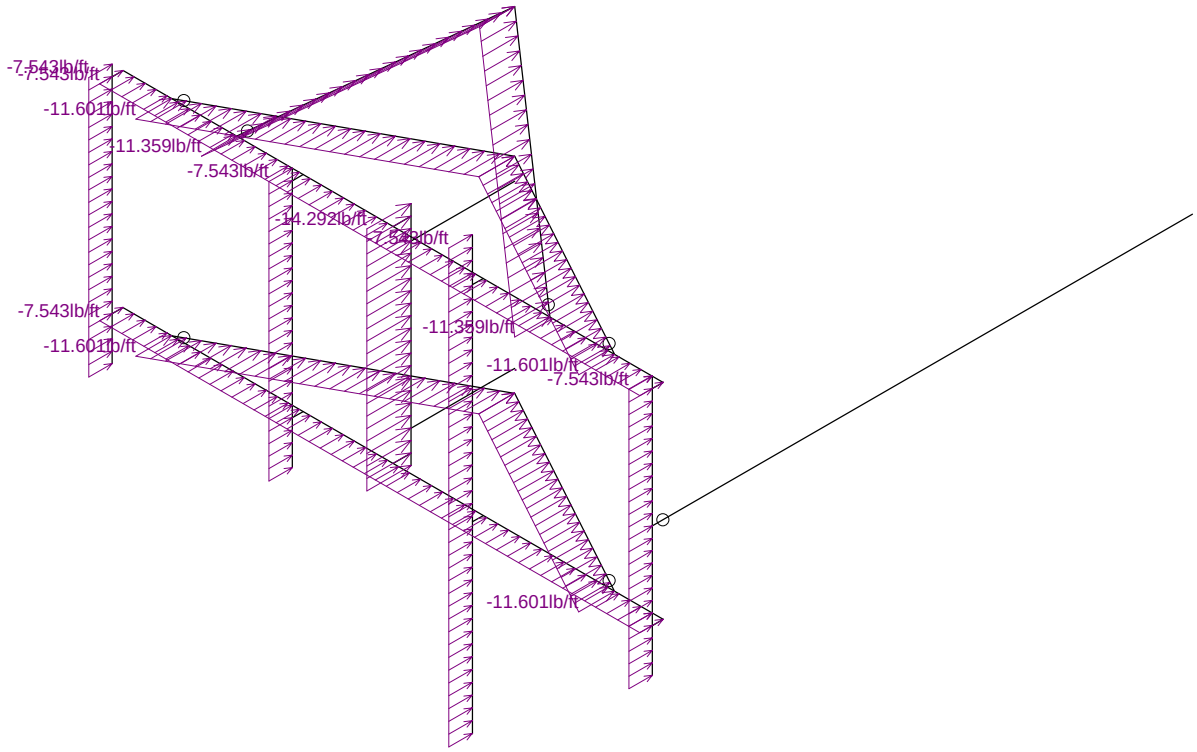

Loads: BLC 17, Distri. Wind Z

Centerline Communcation...	CT11402A_MA	Distr. Wind 0
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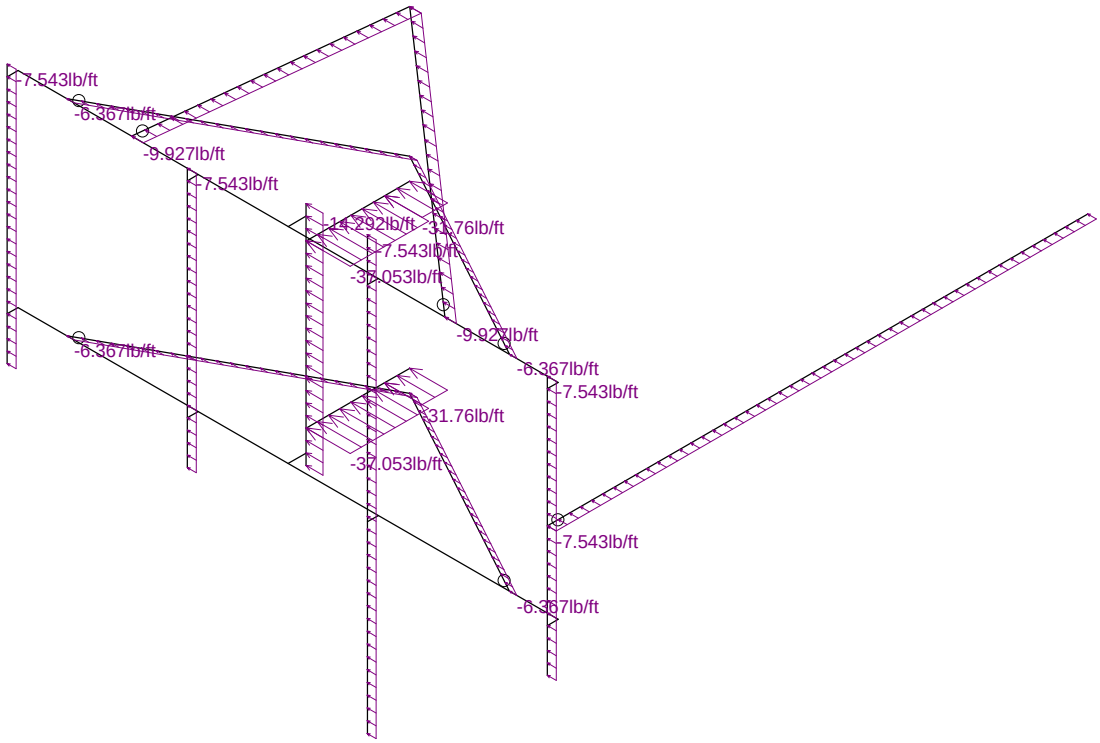

Loads: BLC 18, Distri. Wind X

Centerline Communcation...	CT11402A_MA	Distr. Wind 90
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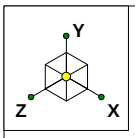

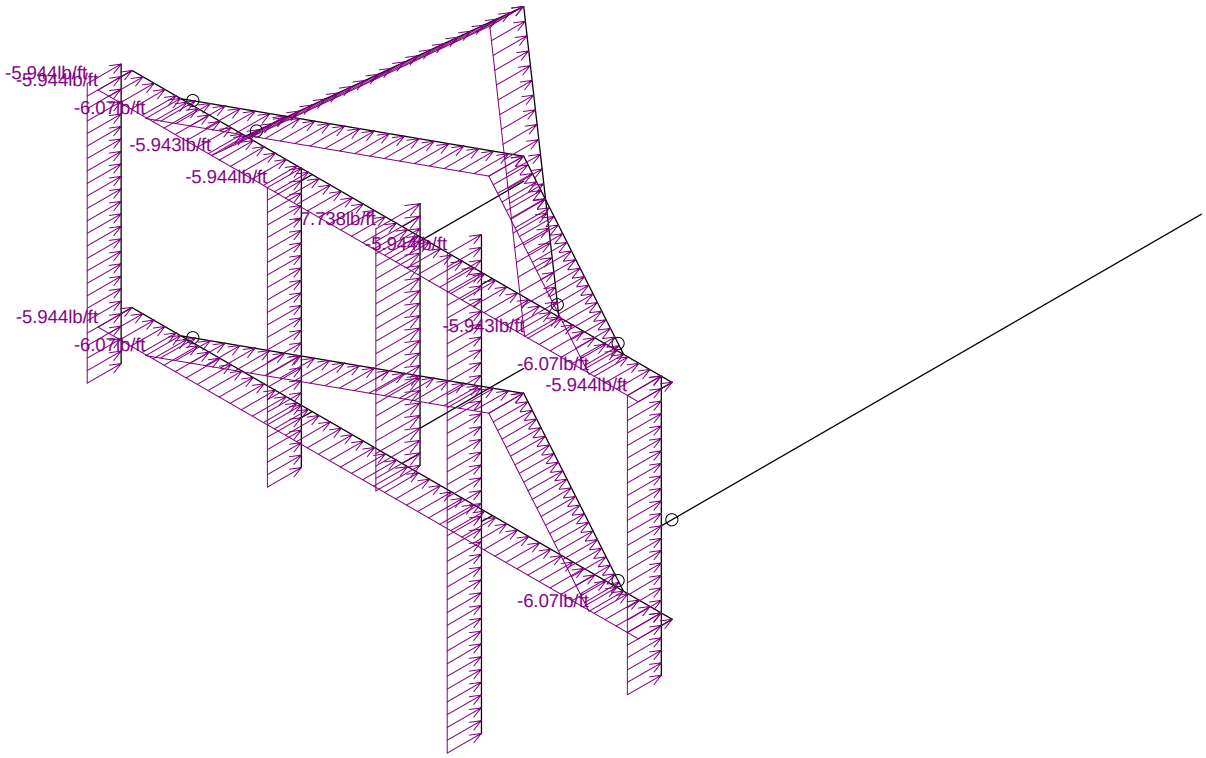

Loads: BLC 19, Distri. Ice + Wind Z

Centerline Communcation...	CT11402A_MA	Distr. Ice + Wind 0
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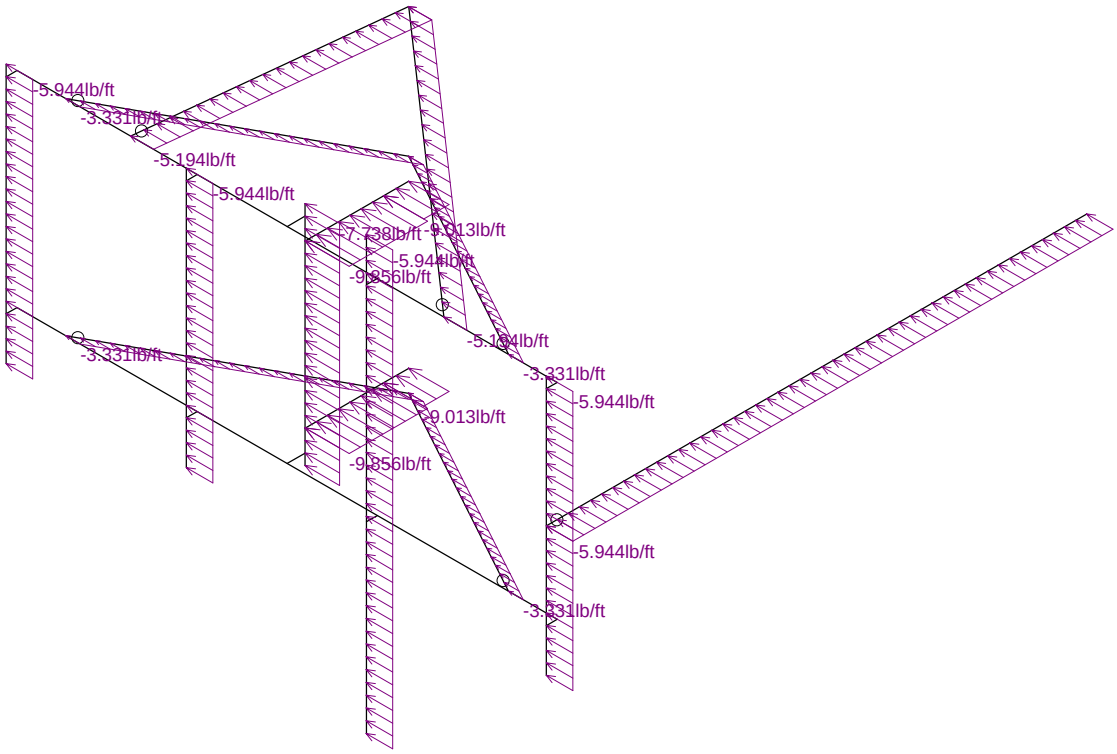

Loads: BLC 20, Distrr. Ice + Wind X

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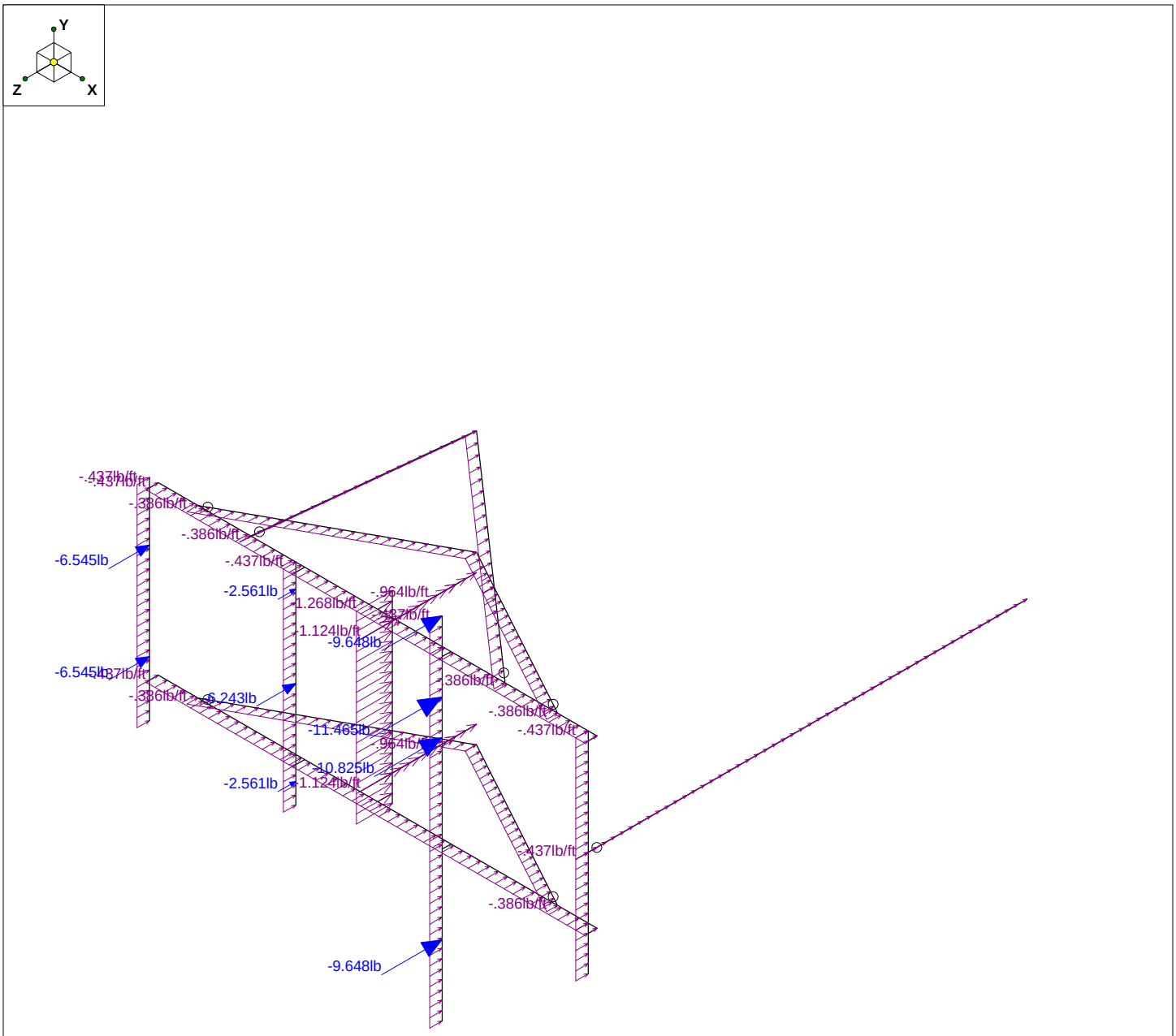

Loads: BLC 21, Seismic Load Z

Centerline Communcation...	CT11402A_MA	Seismic Z
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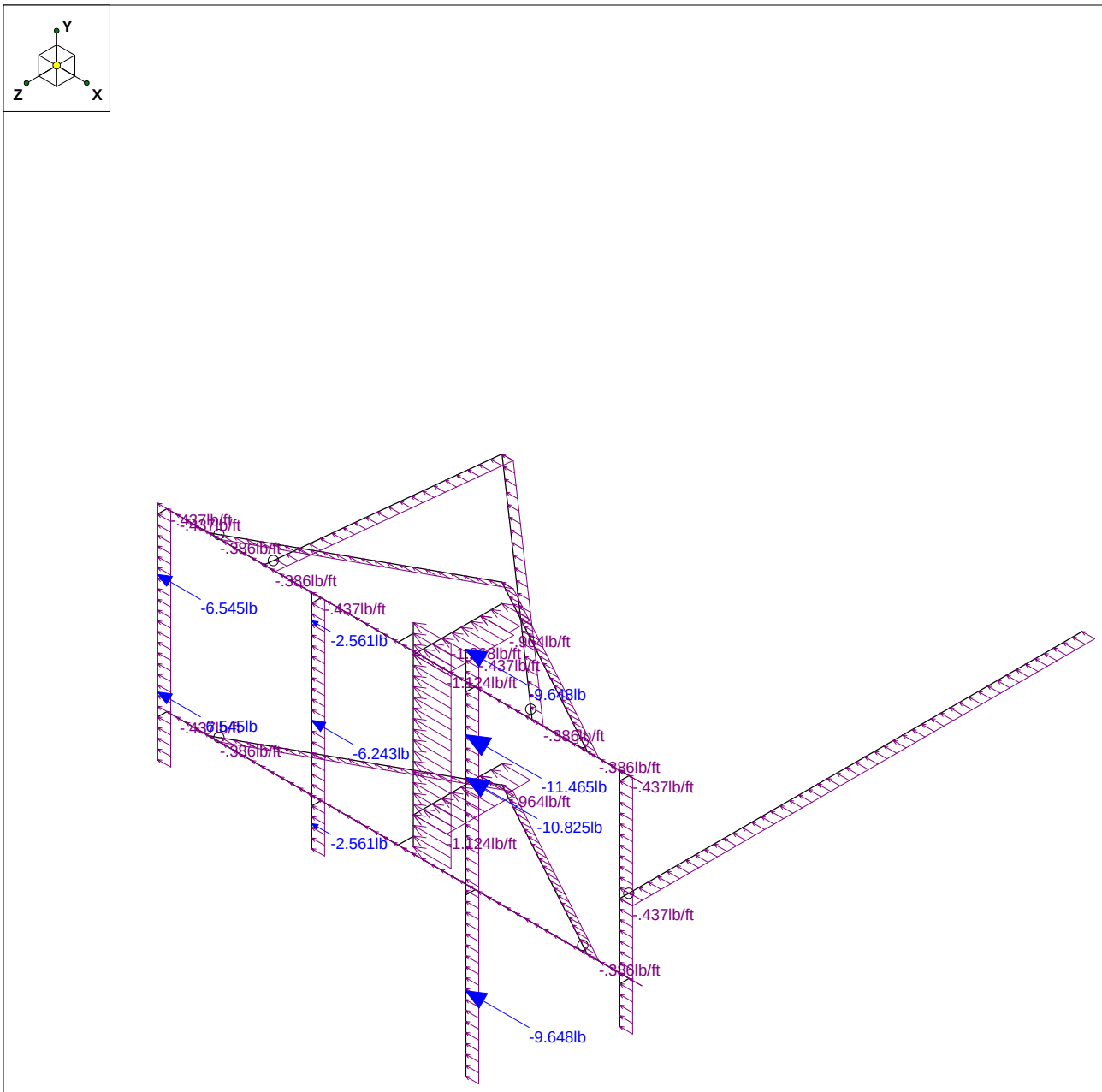

Loads: BLC 22, Seismic Load X

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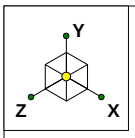
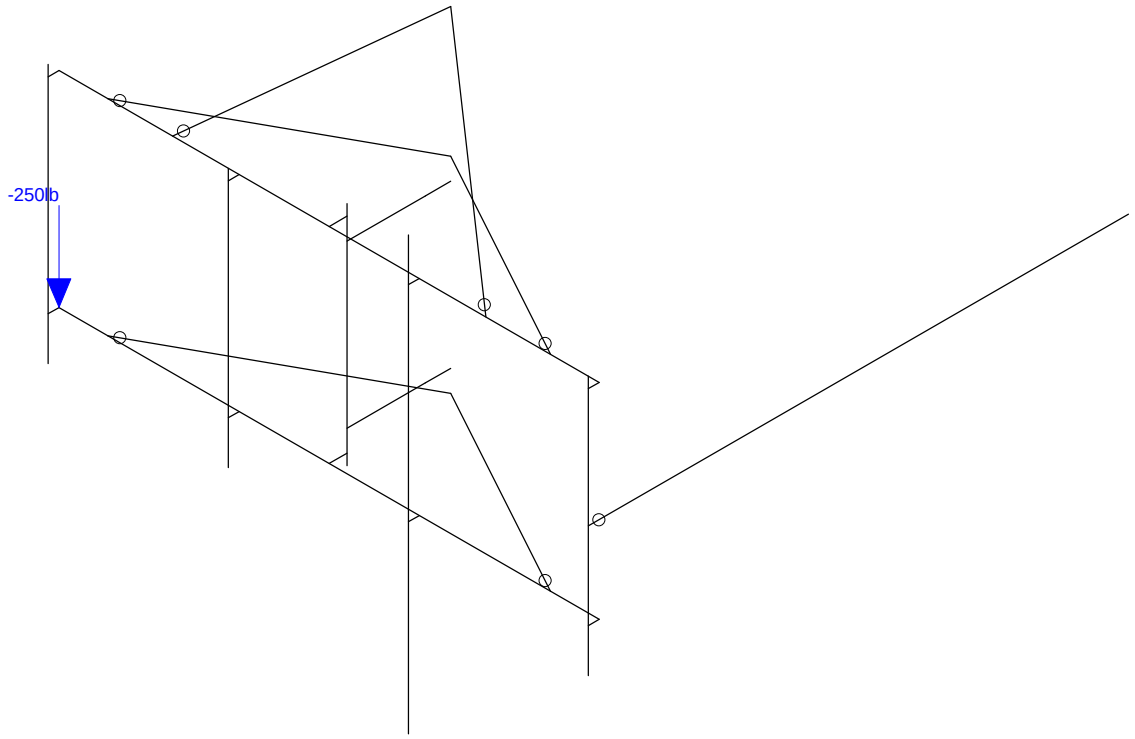
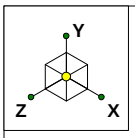
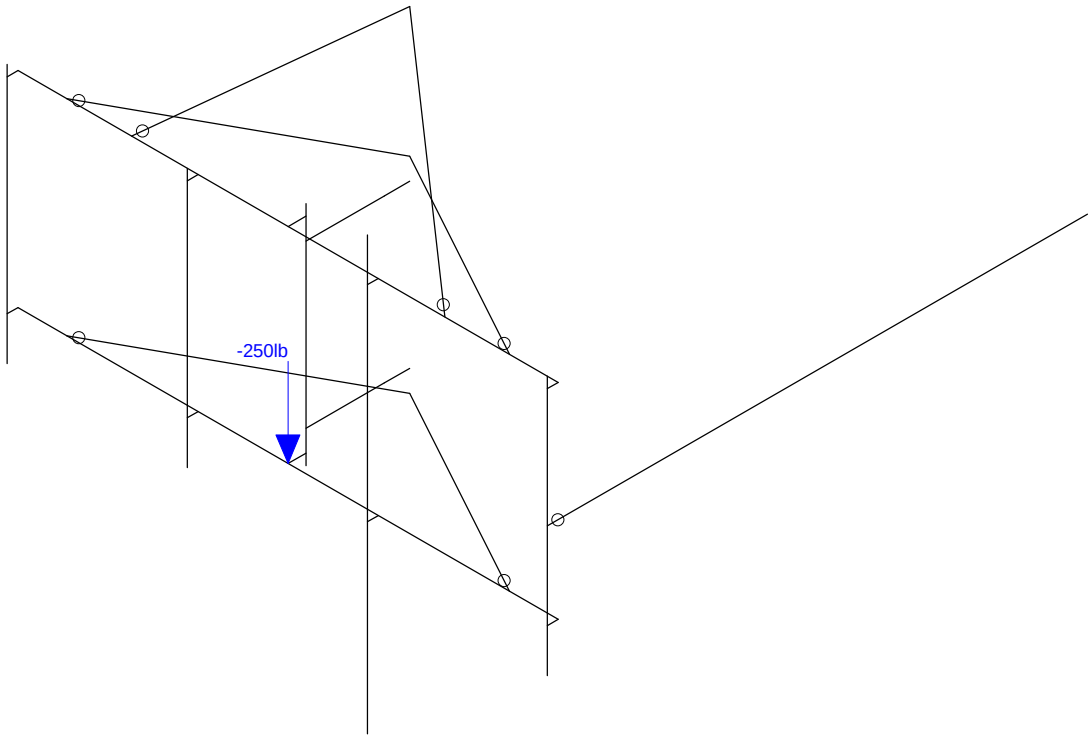




Loads: BLC 23, Live Load 1

Centerline Communcation...	CT11402A_MA	Live Load 1
AP		Apr 27, 2021 at 10:05 AM
		CT11402A_MA_Modified.r3d





Loads: BLC 24, Live Load 2

Centerline Communcation...	CT11402A_MA	Live Load 2
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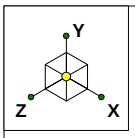
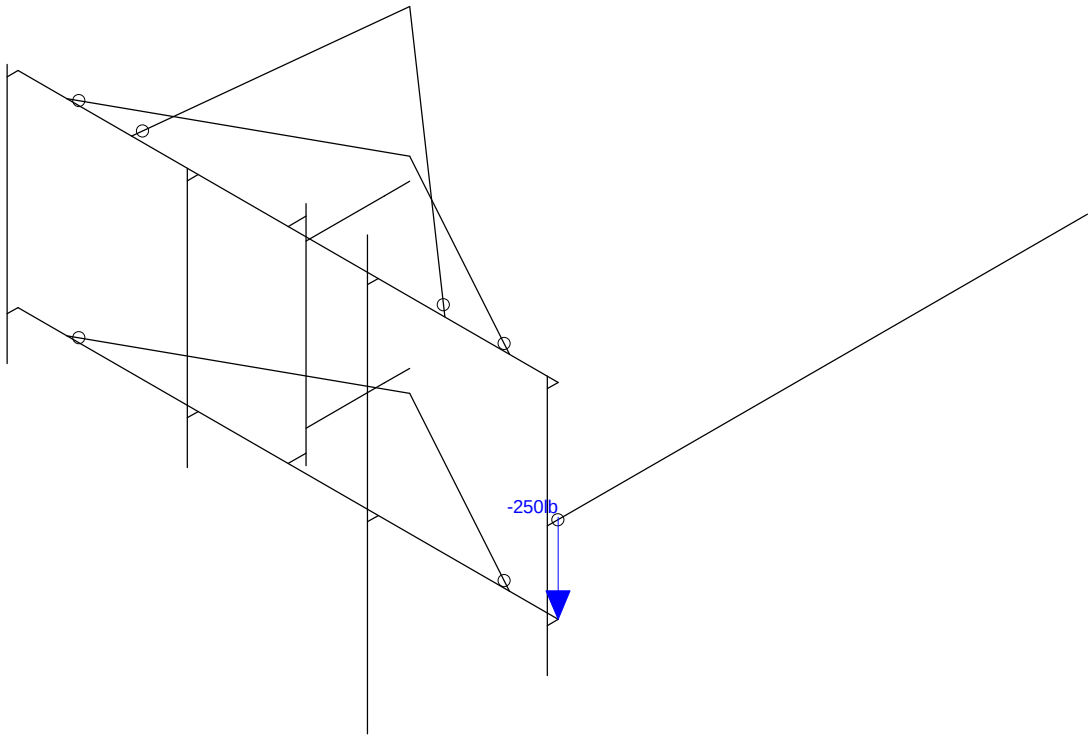
		CT11402A_MA_Modified.r3d





Loads: BLC 25, Live Load 3

Centerline Communcation...	CT11402A_MA	Live Load 3
AP		Apr 27, 2021 at 10:05 AM
		CT11402A_MA_Modified.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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Horizontal	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
2	Mount Pipe	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
3	Standoff Mast	PIPE_4.0	Beam	Pipe	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
4	Standoff Plate	PL7x3/8	Beam	RECT	A36 Gr.36	Typical	2.625	.031	10.719	.119
5	Standoff End Plate	PL6x3/8	Beam	RECT	A36 Gr.36	Typical	2.25	.026	6.75	.101
6	Tieback	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
7	SFS-L	L2.5x2.5x3	Beam	Single Angle	A36 Gr.36	Typical	.901	.535	.535	.011

Joint Coordinates and Temperatures

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
1	N1	0	0	0	0	
2	N2	150	0	0	0	
3	N3	0	57	0	0	
4	N4	150	57	0	0	
5	N5	0	0	3	0	
6	N6	0	57	3	0	
7	N7	50	0	0	0	
8	N8	50	57	0	0	
9	N9	50	0	3	0	
10	N10	50	57	3	0	
11	N11	100	0	0	0	
12	N12	100	57	0	0	
13	N13	100	0	3	0	
14	N14	100	57	3	0	
15	N17	150	0	3	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
16	N18	150	57	3	0	
17	N17A	0	60	3	0	
18	N18A	50	60	3	0	
19	N19	150	60	3	0	
20	N20	0	-12	3	0	
21	N21	50	-12	3	0	
22	N22	150	-12	3	0	
23	N23	100	69	3	0	
24	N24	100	-51	3	0	
25	N25	75	0	0	0	
26	N26	150	24	3	0	
27	N27	75	57	0	0	
28	N28	75	0	-5	0	
29	N29	75	57	-5	0	
30	N30	75	60	-5	0	
31	N31	75	-3	-5	0	
32	N32	75	51	-5	0	
33	N33	75	6	-5	0	
34	N34	75	51	-26.75	0	
35	N35	75	6	-26.75	0	
36	N36	75	51	-33.75	0	
37	N37	75	6	-33.75	0	
38	N38	150	24	-147	0	
39	N39	75	57	-33.75	0	
40	N40	13.5	57	0	0	
41	N41	136.5	57	0	0	
42	N50	31.5	57	0	0	
43	N51	118.5	57	0	0	
44	N52	75	93	-33.75	0	
45	N45	75	0	-33.75	0	
46	N46	13.5	0	0	0	
47	N47	136.5	0	0	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	76.208	5	110.548	20	3.84	15	0	78	0	78	0	78
2		min	-.001	8	19.5	14	-833.385	12	0	1	0	1	0	1
3	N36	max	146.144	10	146.697	16	1494.045	16	-17.967	14	0	78	2.269	51
4		min	-139.317	8	20.497	14	-392.307	15	-158.211	16	0	1	-2.075	42

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
5	N37	max	193.758	2	163.563	22	962.988	2	-24.418	13	0	78	2.064	51
6		min	-184.123	15	29.061	13	-932.935	15	-158.409	16	0	1	-2.258	40
7	N39	max	928.981	12	110.596	22	2146.171	17	0	78	0	78	0	78
8		min	-506.333	37	14.014	10	-353.376	15	0	1	0	1	0	1
9	N52	max	617.027	38	3535.432	18	-564.866	9	0	78	0	78	0	78
10		min	-605.903	57	727.394	9	-3198.519	21	0	1	0	1	0	1
11	N45	max	1085.453	5	123.17	22	1071.304	3	0	78	0	78	0	78
12		min	-149.78	9	13.947	10	-876.341	15	0	1	0	1	0	1
13	Totals:	max	2186.65	12	4173.491	20	3337.276	2						
14		min	-.006	2	856.372	9	-3337.259	15						

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	N36	Reaction	Reaction	Reaction	Reaction		Reaction
3	N37	Reaction	Reaction	Reaction	Reaction		Reaction
4	N39	Reaction	Reaction	Reaction			
5	N52	Reaction	Reaction	Reaction			
6	N45	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	Horizontal	150			Lbyy						Lateral
2	M2	Horizontal	150			Lbyy						Lateral
3	MP4	Mount Pipe	72			Lbyy						Lateral
4	MP3	Mount Pipe	72			Lbyy						Lateral
5	MP1	Mount Pipe	72			Lbyy						Lateral
6	MP2	Mount Pipe	120			Lbyy						Lateral
7	M17	Standoff Ma...	63			Lbyy						Lateral
8	M18	Standoff Pla...	21.75			Lbyy						Lateral
9	M19	Standoff Pla...	21.75			Lbyy						Lateral
10	M20	Standoff En...	7			Lbyy						Lateral
11	M21	Standoff En...	7			Lbyy						Lateral
12	M22	Tieback	150			Lbyy						Lateral
13	M23	SFS-L	70.152			Lbyy						Lateral
14	M24	SFS-L	70.152			Lbyy						Lateral
15	M30	SFS-L	65.782			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
16	M31	SFS-L	65.782			Lbyy						Lateral
17	M27	SFS-L	70.152			Lbyy						Lateral
18	M28	SFS-L	70.152			Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N3	N4			Horizontal	Beam	Pipe	A53 Gr.B	Typical
2	M2	N1	N2			Horizontal	Beam	Pipe	A53 Gr.B	Typical
3	M3	N6	N3			RIGID	None	None	RIGID	Typical
4	M4	N5	N1			RIGID	None	None	RIGID	Typical
5	M5	N10	N8			RIGID	None	None	RIGID	Typical
6	M6	N9	N7			RIGID	None	None	RIGID	Typical
7	M7	N14	N12			RIGID	None	None	RIGID	Typical
8	M8	N13	N11			RIGID	None	None	RIGID	Typical
9	M9	N18	N4			RIGID	None	None	RIGID	Typical
10	M10	N17	N2			RIGID	None	None	RIGID	Typical
11	MP4	N17A	N20			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
12	MP3	N18A	N21			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
13	MP1	N19	N22			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
14	MP2	N23	N24			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
15	M15	N27	N29			RIGID	None	None	RIGID	Typical
16	M16	N25	N28			RIGID	None	None	RIGID	Typical
17	M17	N30	N31			Standoff Mast	Beam	Pipe	A53 Gr.B	Typical
18	M18	N32	N34		90	Standoff Plate	Beam	RECT	A36 Gr.36	Typical
19	M19	N33	N35		90	Standoff Plate	Beam	RECT	A36 Gr.36	Typical
20	M20	N34	N36		90	Standoff End ...	Beam	RECT	A36 Gr.36	Typical
21	M21	N35	N37		90	Standoff End ...	Beam	RECT	A36 Gr.36	Typical
22	M22	N26	N38			Tieback	Beam	Pipe	A53 Gr.B	Typical
23	M23	N40	N39			SFS-L	Beam	Single Angle	A36 Gr.36	Typical
24	M24	N41	N39			SFS-L	Beam	Single Angle	A36 Gr.36	Typical
25	M30	N50	N52			SFS-L	Beam	Single Angle	A36 Gr.36	Typical
26	M31	N51	N52			SFS-L	Beam	Single Angle	A36 Gr.36	Typical
27	M27	N46	N45			SFS-L	Beam	Single Angle	A36 Gr.36	Typical
28	M28	N47	N45			SFS-L	Beam	Single Angle	A36 Gr.36	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1						Yes				None
2	M2						Yes				None
3	M3						Yes	** NA **			None
4	M4						Yes	** NA **			None
5	M5						Yes	** NA **			None
6	M6						Yes	** NA **			None
7	M7						Yes	** NA **			None
8	M8						Yes	** NA **			None
9	M9						Yes	** NA **			None
10	M10						Yes	** NA **			None
11	MP4						Yes				None
12	MP3						Yes				None
13	MP1						Yes	Default			None
14	MP2						Yes				None
15	M15						Yes	** NA **			None
16	M16						Yes	** NA **			None
17	M17						Yes				None
18	M18						Yes				None
19	M19						Yes				None
20	M20						Yes				None
21	M21						Yes				None
22	M22	BenPIN					Yes	Default			None
23	M23	BenPIN					Yes	Default			None
24	M24	BenPIN					Yes	Default			None
25	M30	BenPIN					Yes	Default			None
26	M31	BenPIN					Yes	Default			None
27	M27	BenPIN					Yes	Default			None
28	M28	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			9			
2	Wind 0	WLZ					18			
3	Wind 30	None					18			
4	Wind 60	None					18			
5	Wind 90	WLX					18			
6	Wind 120	None					18			
7	Wind 150	None					18			

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
8	Wind 180	WLZ					18			
9	Ice Weight	DL					9	28		
10	Ice + Wind 0	WLZ					18			
11	Ice + Wind 30	None					18			
12	Ice + Wind 60	None					18			
13	Ice + Wind 90	WLX					18			
14	Ice + Wind 120	None					18			
15	Ice + Wind 150	None					18			
16	Ice + Wind 180	WLZ					18			
17	Distri. Wind Z	WLZ						28		
18	Distri. Wind X	WLX						28		
19	Distri. Ice + Wind Z	WLZ						28		
20	Distrr. Ice + Wind X	WLX						28		
21	Seismic Load Z	ELZ					9	28		
22	Seismic Load X	ELX					9	28		
23	Live Load 1	LL					1			
24	Live Load 2	LL					1			
25	Live Load 3	LL					1			

Load Combinations

	Description	Solve	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	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	1.3...	18	.8												
4	1.2D + 1.6W 60°	Yes	Y		1	1.2	4	1.6	17	.8	18	1.3...												
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	1.3...												
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	1.3...	18	.8												
11	0.9D + 1.6W 60°	Yes	Y		1	.9	4	1.6	17	.8	18	1.3...												
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	1.3...												
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 + 1.0Wi 0°	Yes	Y		1	1.2	9	1	10	1	19	1	20											
17	1.2D + 1.0Di + 1.0Wi 3...	Yes	Y		1	1.2	9	1	11	1	19	.866	20	.5										
18	1.2D + 1.0Di + 1.0Wi 6...	Yes	Y		1	1.2	9	1	12	1	19	.5	20	.866										

Load Combinations (Continued)

	Description	Solve	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
19	1.2D + 1.0Di + 1.0Wi 9...	Yes	Y		1	1.2	9	1	13	1	19		20	1										
20	1.2D + 1.0Di + 1.0Wi 1...	Yes	Y		1	1.2	9	1	14	1	19	-.5	20	.866										
21	1.2D + 1.0Di + 1.0Wi 1...	Yes	Y		1	1.2	9	1	15	1	19	-.866	20	.5										
22	1.2D + 1.0Di + 1.0Wi 1...	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	-.866	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															
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	-.866	22	.5														
36	0.9D + 1.0Eh 180°	Yes	Y		1	.9	21	-1	22															
37	1.0D +1.5Lv + 1.0W (6...	Yes	Y		1	1	23	1.5	2	.342	17	.342	18											
38	1.0D +1.5Lv + 1.0W (6...	Yes	Y		1	1	23	1.5	3	.342	17	.296	18	.171										
39	1.0D +1.5Lv + 1.0W (6...	Yes	Y		1	1	23	1.5	4	.342	17	.171	18	.296										
40	1.0D +1.5Lv + 1.0W (6...	Yes	Y		1	1	23	1.5	5	.342	17		18	.342										
41	1.0D +1.5Lv + 1.0W (6...	Yes	Y		1	1	23	1.5	6	.342	17	-.171	18	.296										
42	1.0D +1.5Lv + 1.0W (6...	Yes	Y		1	1	23	1.5	7	.342	17	-.296	18	.171										
43	1.0D +1.5Lv + 1.0W (6...	Yes	Y		1	1	23	1.5	8	.342	17	-.342	18											
44	1.0D +1.5Lv + 1.0W (6...	Yes	Y		1	1	24	1.5	2	.342	17	.342	18											
45	1.0D +1.5Lv + 1.0W (6...	Yes	Y		1	1	24	1.5	3	.342	17	.296	18	.171										
46	1.0D +1.5Lv + 1.0W (6...	Yes	Y		1	1	24	1.5	4	.342	17	.171	18	.296										
47	1.0D +1.5Lv + 1.0W (6...	Yes	Y		1	1	24	1.5	5	.342	17		18	.342										
48	1.0D +1.5Lv + 1.0W (6...	Yes	Y		1	1	24	1.5	6	.342	17	-.171	18	.296										
49	1.0D +1.5Lv + 1.0W (6...	Yes	Y		1	1	24	1.5	7	.342	17	-.296	18	.171										
50	1.0D +1.5Lv + 1.0W (6...	Yes	Y		1	1	24	1.5	8	.342	17	-.342	18											
51	1.0D +1.5Lv + 1.0W (6...	Yes	Y		1	1	25	1.5	2	.342	17	.342	18											
52	1.0D +1.5Lv + 1.0W (6...	Yes	Y		1	1	25	1.5	3	.342	17	.296	18	.171										
53	1.0D +1.5Lv + 1.0W (6...	Yes	Y		1	1	25	1.5	4	.342	17	.171	18	.296										
54	1.0D +1.5Lv + 1.0W (6...	Yes	Y		1	1	25	1.5	5	.342	17		18	.342										
55	1.0D +1.5Lv + 1.0W (6...	Yes	Y		1	1	25	1.5	6	.342	17	-.171	18	.296										
56	1.0D +1.5Lv + 1.0W (6...	Yes	Y		1	1	25	1.5	7	.342	17	-.296	18	.171										
57	1.0D +1.5Lv + 1.0W (6...	Yes	Y		1	1	25	1.5	8	.342	17	-.342	18											
58	1.2D + 1.0Lv + 1.0W (...	Yes	Y		1	1.2	23	1	2	.096	17	.096	18											

Load Combinations (Continued)

	Description	Solve	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
59	1.2D + 1.0Lv + 1.0W (...	Yes	Y		1	1.2	23	1	3	.096	17	.083	18	.048										
60	1.2D + 1.0Lv + 1.0W (...	Yes	Y		1	1.2	23	1	4	.096	17	.048	18	.083										
61	1.2D + 1.0Lv + 1.0W (...	Yes	Y		1	1.2	23	1	5	.096	17		18	.096										
62	1.2D + 1.0Lv + 1.0W (...	Yes	Y		1	1.2	23	1	6	.096	17	-.048	18	.083										
63	1.2D + 1.0Lv + 1.0W (...	Yes	Y		1	1.2	23	1	7	.096	17	-.083	18	.048										
64	1.2D + 1.0Lv + 1.0W (...	Yes	Y		1	1.2	23	1	8	.096	17	-.096	18											
65	1.2D + 1.0Lv + 1.0W (...	Yes	Y		1	1.2	24	1	2	.096	17	.096	18											
66	1.2D + 1.0Lv + 1.0W (...	Yes	Y		1	1.2	24	1	3	.096	17	.083	18	.048										
67	1.2D + 1.0Lv + 1.0W (...	Yes	Y		1	1.2	24	1	4	.096	17	.048	18	.083										
68	1.2D + 1.0Lv + 1.0W (...	Yes	Y		1	1.2	24	1	5	.096	17		18	.096										
69	1.2D + 1.0Lv + 1.0W (...	Yes	Y		1	1.2	24	1	6	.096	17	-.048	18	.083										
70	1.2D + 1.0Lv + 1.0W (...	Yes	Y		1	1.2	24	1	7	.096	17	-.083	18	.048										
71	1.2D + 1.0Lv + 1.0W (...	Yes	Y		1	1.2	24	1	8	.096	17	-.096	18											
72	1.2D + 1.0Lv + 1.0W (...	Yes	Y		1	1.2	25	1	2	.096	17	.096	18											
73	1.2D + 1.0Lv + 1.0W (...	Yes	Y		1	1.2	25	1	3	.096	17	.083	18	.048										
74	1.2D + 1.0Lv + 1.0W (...	Yes	Y		1	1.2	25	1	4	.096	17	.048	18	.083										
75	1.2D + 1.0Lv + 1.0W (...	Yes	Y		1	1.2	25	1	5	.096	17		18	.096										
76	1.2D + 1.0Lv + 1.0W (...	Yes	Y		1	1.2	25	1	6	.096	17	-.048	18	.083										
77	1.2D + 1.0Lv + 1.0W (...	Yes	Y		1	1.2	25	1	7	.096	17	-.083	18	.048										
78	1.2D + 1.0Lv + 1.0W (...	Yes	Y		1	1.2	25	1	8	.096	17	-.096	18											

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*P...	phi*P...	phi*M...	phi*M...	...	Eqn
1	M1	PIPE_2.0	.851	118.75	16	.240	100		21	6295....	32130	1871....	1871....	...	H1-1b
2	MP2	PIPE_2.0	.651	70	9	.088	12.5		20	9836....	32130	1871....	1871....	...	H1-1b
3	M2	PIPE_2.0	.585	75	15	.314	75		8	6295....	32130	1871....	1871....	...	H3-6
4	MP1	PIPE_2.0	.459	36	5	.104	36		20	20866...	32130	1871....	1871....	...	H1-1b
5	M24	L2.5x2.5...	.354	35.807	18	.021	70.1...	y	16	9608....	29192...	872.5...	1601....	...	H2-1
6	M23	L2.5x2.5...	.334	34.345	16	.022	70.1...	y	22	9608....	29192...	872.5...	1584....	...	H2-1
7	M20	PL6x3/8	.291	7	16	.007	0	y	51	58397...	72900	569.5...	9112.5	...	H1-1b
8	M21	PL6x3/8	.281	7	16	.009	0	y	51	58397...	72900	569.5...	9112.5	...	H1-1b
9	MP3	PIPE_2.0	.275	3	22	.079	60		19	20866...	32130	1871....	1871....	...	H1-1b
10	M18	PL7x3/8	.262	0	16	.007	0	y	14	14690...	85050	664.4...	12403....	...	H1-1b
11	MP4	PIPE_2.0	.239	3	41	.087	60		16	20866...	32130	1871....	1871....	...	H1-1b
12	M19	PL7x3/8	.229	0	16	.010	0	y	13	14690...	85050	664.4...	12403....	...	H1-1b
13	M28	L2.5x2.5...	.207	70.152	3	.027	70.1...	y	20	9608....	29192...	872.5...	1837....	...	H2-1
14	M22	PIPE_2.0	.198	75	19	.012	150		19	6295....	32130	1871....	1871....	...	H1-1b
15	M30	L2.5x2.5...	.193	32.206	16	.007	65.7...	y	16	10927...	29192...	872.5...	1748....	...	H2-1
16	M31	L2.5x2.5...	.183	29.465	18	.013	65.7...	z	7	10927...	29192...	872.5...	1617....	...	H2-1

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*P...	phi*P...	phi*M...	phi*M...	...	Eqn
17	M27	L2.5x2.5...	.179	70.152	9	.026	70.1...	y	17	9608....	29192..	872.5...	1884....	...	H2-1
18	M17	PIPE_4.0	.069	54.469	7	.077	54.4...		2	85371...	93240	10631...	10631...	....	H1-1b

Exhibit F

Power Density/RF Emissions Report

EBI Consulting

environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CT11402A

East Windsor/RT-191_1
232 South Main Street
Windsor, Connecticut 06088

April 29, 2021

EBI Project Number: 6221002085

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**16.98%**

April 29, 2021

T-Mobile
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, Connecticut 06002

Emissions Analysis for Site: CT11402A - East Windsor/RT-191_1

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **232 South Main Street** in **Windsor, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu W/cm^2$). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits; therefore, it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (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.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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 (see below), 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.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 232 South Main Street in Windsor, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower. For power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.

3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

5) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

7) 1 LTE channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

8) 1 NR channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

9) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

10) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

11) The antennas used in this modeling are the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector A, the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector B, the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

12) The antenna mounting height centerline of the proposed antennas is 155 feet above ground level (AGL).

13) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

14) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd / 15.65 dBd / 15.65 dBd
Height (AGL):	155 feet	Height (AGL):	155 feet	Height (AGL):	155 feet
Channel Count:	11	Channel Count:	11	Channel Count:	11
Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts
ERP (W):	12,873.80	ERP (W):	12,873.80	ERP (W):	12,873.80
Antenna A1 MPE %:	**3.00%**	Antenna B1 MPE %:	**3.00%**	Antenna C1 MPE %:	**3.00%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	155 feet	Height (AGL):	155 feet	Height (AGL):	155 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A2 MPE %:	**0.76%**	Antenna B2 MPE %:	**0.76%**	Antenna C2 MPE %:	**0.76%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	17.3 dBd / 17.3 dBd	Gain:	17.3 dBd / 17.3 dBd	Gain:	17.3 dBd / 17.3 dBd
Height (AGL):	155 feet	Height (AGL):	155 feet	Height (AGL):	155 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	12,888.76	ERP (W):	12,888.76	ERP (W):	12,888.76
Antenna A3 MPE %:	**2.09%**	Antenna B3 MPE %:	**2.09%**	Antenna C3 MPE %:	**2.09%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	5.84%
AT&T	1.82%
Metro PCS	0.42%
Town	0.18%
Nextel	0.24%
Sprint	3.59%
Verizon	4.89%
Site Total MPE % :	16.98%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	5.84%
T-Mobile Sector B Total:	5.84%
T-Mobile Sector C Total:	5.84%
Site Total MPE % :	16.98%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 600 MHz LTE	2	591.73	155.0	1.92	600 MHz LTE	400	0.48%
T-Mobile 600 MHz NR	1	1577.94	155.0	2.56	600 MHz NR	400	0.64%
T-Mobile 700 MHz LTE	2	648.82	155.0	2.10	700 MHz LTE	467	0.45%
T-Mobile 1900 MHz GSM	4	1101.85	155.0	7.14	1900 MHz GSM	1000	0.71%
T-Mobile 1900 MHz LTE	2	2203.69	155.0	7.14	1900 MHz LTE	1000	0.71%
T-Mobile 2100 MHz LTE	2	2334.27	155.0	7.56	2100 MHz LTE	1000	0.76%
T-Mobile 2500 MHz LTE	1	6444.38	155.0	10.44	2500 MHz LTE	1000	1.04%
T-Mobile 2500 MHz NR	1	6444.38	155.0	10.44	2500 MHz NR	1000	1.04%
						Total:	**5.84%**

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	5.84%
Sector B:	5.84%
Sector C:	5.84%
T-Mobile Maximum MPE % (Sector A):	5.84%
Site Total:	16.98%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **16.98%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Exhibit G

Mailing Receipts/Proof of Notice

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.

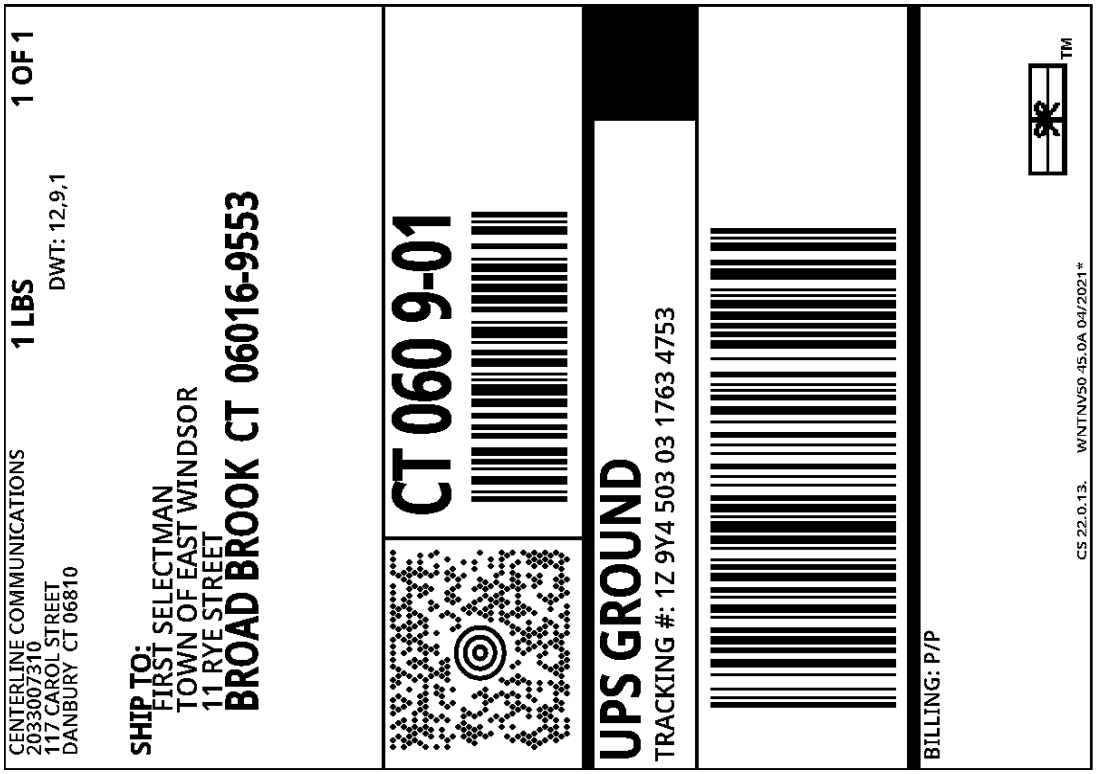
   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To 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™
TIENDA ECUADOR
72 LAKE AVE
DANBURY ,CT 06810

UPS Access Point™
THE UPS STORE
42 LAKE AVENUE EXT
DANBURY ,CT 06811

UPS Access Point™
CVS STORE # 1109
7 DURANT AVE
BETHEL ,CT 06801

FOLD HERE



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   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.

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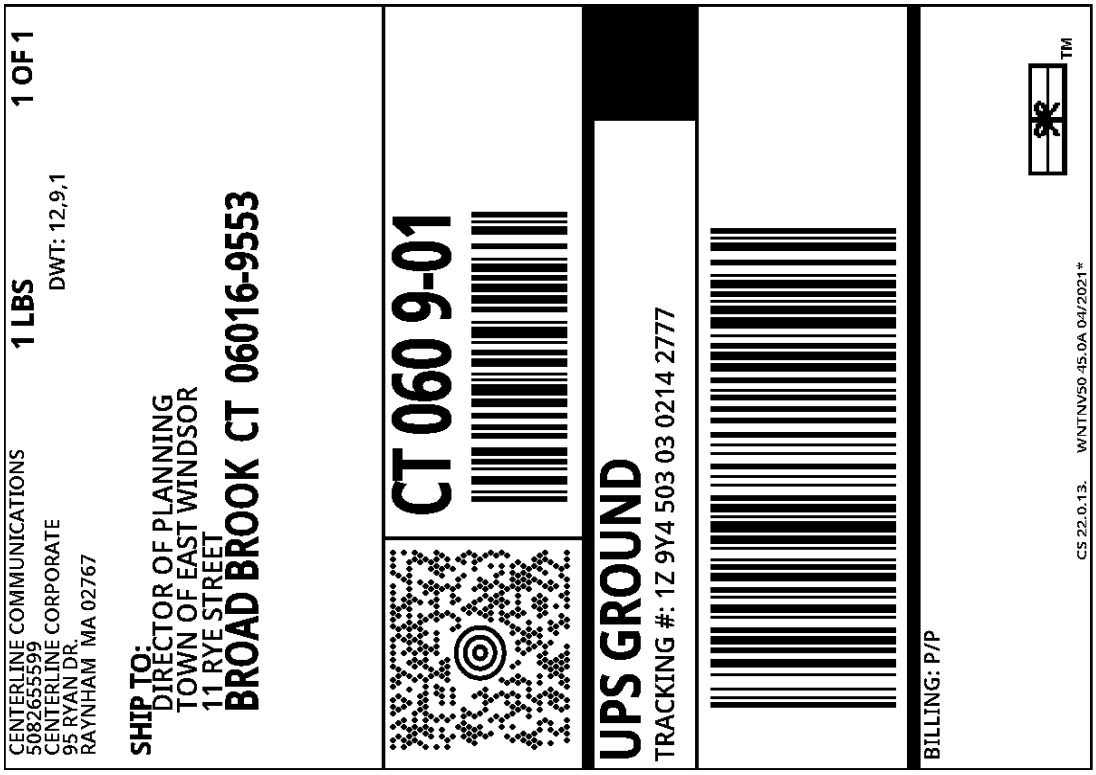

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