SAI Group
12 Industrial Way
Salem, NH 03079
603-421-0470

May 5, 2023

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) – CT5073
24 Hospital Ave, Danbury, CT 06810
N 41.405194
W 73.446111

Dear Ms. Bachman:

AT&T currently maintains twelve (12) antennas at the rooftop level of the hospital building at 24 Hospital Avenue, Danbury, CT. The property is owned by Danbury Hospital. AT&T now intends to replace five (5) antennas and add three (3) antennas. This modification may include B2, B5, B17, B14, B29, B30, B66 & n77 hardware that is 4G (LTE) and/or 5GNR capable through remote software configuration and either or both services may be turned on or off at various times. Antenna mount modifications will be installed per the attached TEP Structural Analysis Report dated April 12, 2023.

AT&T Planned Modifications:

Remove:
(3) TMAs
(6) Diplexers
(3) Coax

Remove and Replace:
(3) ANDREW 7770 Antennas (REMOVE) - (3) Ericsson AIR 6419 B77G Antennas (REPLACE)
(2) CCI HPA-65R-BUU-H6 Antennas (REMOVE) – (2) CCI DMP65R-BU6DA Antennas (REPLACE)

Install New:
(3) Ericsson AIR 6449 B77D Antennas
(1) DC Line

Existing to Remain:
(2) KATHREIN 800-10965 Antennas
(2) CCI HPA-65R-BUU-H6 Antennas
(3) CCI BSA-M65R-BUU-H6-K Antennas
(4) Ericsson 4449 B5/B12 RRU
(2) Ericsson 8843 B2/B66A RRU
(2) Ericsson 4478 B14 RRU (700)
(1) Ericsson 4478 B14 RRU (700/AWS)
(2) Ericsson RRUS-32 B30
(2) Ericsson RRUS-32 B66A
(2) Ericsson RRUS-32 B2
(4) Ericsson RRUS-E2 B29
(2) Ericsson 4415 B30 RRU
(6) Raycap Surge Units
(6) Fiber Lines
(12) DC Lines

This facility was first approved by the Connecticut Siting Council, Docket No. 79 on September 10, 1987.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Mayor Dean Esposito and Sharon Calitro, Director of Planning & Zoning for the City of Danbury, as well as to the property owner.

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

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

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

6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, AT&T 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).

Please feel free to call me at (860) 670-9068 with any questions regarding this matter. Thank you for your consideration.

Sincerely,

Mark Roberts

Mark Roberts
Consultant for SAI
Mark.Roberts@QCDevelopment.net

Attachments

Cc: Mayor Dean Esposito – Elected Official
Sharon Calitro - Director of Planning & Zoning
Danbury Hospital - Property Owner

Exhibit A

Original Facility Approval

DOCKET NO. 79

AN APPLICATION OF METRO MOBILE CTS OF FAIRFIELD COUNTY, INC., FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR CELLULAR TELEPHONE ANTENNAS AND ASSOCIATED EQUIPMENT IN THE CITY OF DANBURY, CONNECTICUT.	:	CONNECTICUT SITING COUNCIL
	:	SEPTEMBER 10, 1987

DECISION AND ORDER

Pursuant to the foregoing opinion, the Connecticut Siting Council hereby directs that a Certificate of Environmental Compatibility and Public Need, as provided by Section 16-50k of the General Statutes of Connecticut (CGS), be issued to Metro Mobile CTS of Fairfield County, Inc., for the construction, operation, and maintenance of cellular mobile telephone antennas in the City of Danbury, Connecticut.

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

1. The facility shall be constructed in accordance with all applicable federal, state, and municipal laws and regulations.
2. The Certificate holder shall notify the Federal Aviation Administration of its intention to mount antennas on the Danbury Hospital, and provide it the opportunity to comment prior to initiation of construction. A copy of the notification to the Federal Aviation Administration shall be sent to the City of Danbury's Airport Administrator.

3. The Certificate holder or its successor shall notify the Council if and when directional antennas or any equipment other than that listed in this application is added to this facility.
4. If this facility does not provide or permanently ceases to provide cellular service following completion of construction, this Decision and Order shall be void, and the antennas and all associated equipment in this application shall be dismantled and removed or reapplication for any new use shall be made to the Council before any such new use is made.
5. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the issuance of this Decision and Order, or within three years of the completion of any appeal taken in this Decision.
6. The certificate holder shall comply with any future radio frequency (RF) standards promulgated by state or federal regulatory agencies. Upon the establishment of any new governmental RF standards, the facility granted in this Decision shall be brought into compliance with such standards.

Pursuant to CGS Section 16-50p, we hereby direct that a copy of this Decision and Order be served on each person listed below. A notice of the issuance shall be published in the Danbury News-Times.

The parties to the proceeding are:

Metro Mobile CTS of Fairfield County, Inc.
50 Rockland Road
South Norwalk, CT 06854
Attn: Peter Kelley, Vice President
(applicant)

Howard L. Slater, Esq.
Jennifer Young Gaudet, Esq.
Byrne, Slater, Sandler, Shulman & Rouse, P.C.
330 Main Street
PO Box 3216
Hartford, CT 06103

Fleischman and Walsh, P.C.
1725 N Street, N.W.
Washington, DC 20036
Attn: Richard Rubin, Esq.
Jonathan Cohen, Esq.
(its representatives)

SNET Cellular, Inc.
c/o Peter J. Tyrrell
Senior Attorney
227 Church Street
New Haven, CT 06506
(intervenor)

CERTIFICATION

The undersigned members of the Connecticut Siting Council hereby certify that they have heard the case in Docket 79 or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut the 10th day of September, 1987.

Council Members	Vote Cast
Gloria Dibble Pond Chairperson	Yes
Commissioner Peter Boucher Designee: Kathy A. Geppert	Yes
Commissioner Leslie Carothers Designee: Brian Emerick	Absent
Owen L. Clark	Yes
Fred J. Doocy	Yes
Mortimer A. Gelston	Yes
James G. Horsfall	Yes
William H. Smith	Yes
Colin C. Tait	Yes

0217E

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 2022.

DANBURY • CT

ASSESSOR'S OFFICE

Information on the Property Records for the Municipality of Danbury was last updated on 4/21/2023.

Parcel Information

Location:	LOCUST AV	Property Use:	Office	Primary Use:	General Hospital
Unique ID:	I12001	Map Block Lot:	I12 1	Acres:	23.4600
490 Acres:	0.00	Zone:	RH3	Volume / Page:	0679/0464
Developers Map / Lot:		Census:	2103		

Value Information

	Appraised Value	Assessed Value
Land	58,644,000	41,050,800
Buildings	494,922,600	346,445,820
Detached Outbuildings	815,700	570,990
Total	554,382,300	388,067,610

Owner's Information

Owner's Data
DANBURY HOSPITAL 24 HOSPITAL AVE DANBURY, CT 06810

Building 1

Sketch Not Available

Category:	Office	Use:	General Hospital	GLA:	295,646
Stories:	6.00	Construction:	Masonry	Year Built:	1970
Heating:	Forced Hot Air	Fuel:	Natural Gas	Cooling Percent:	100
Siding:	Brick/Masonry	Roof Material:	Tar and Gravel	Beds/Units:	0

DANBURY HOSPITAL

Danbury, CT

1 inch = 565 Feet

0 565 1130 1695

April 21, 2023

CAI Technologies
Precision Mapping. Geospatial Solutions.

www.cai-tech.com

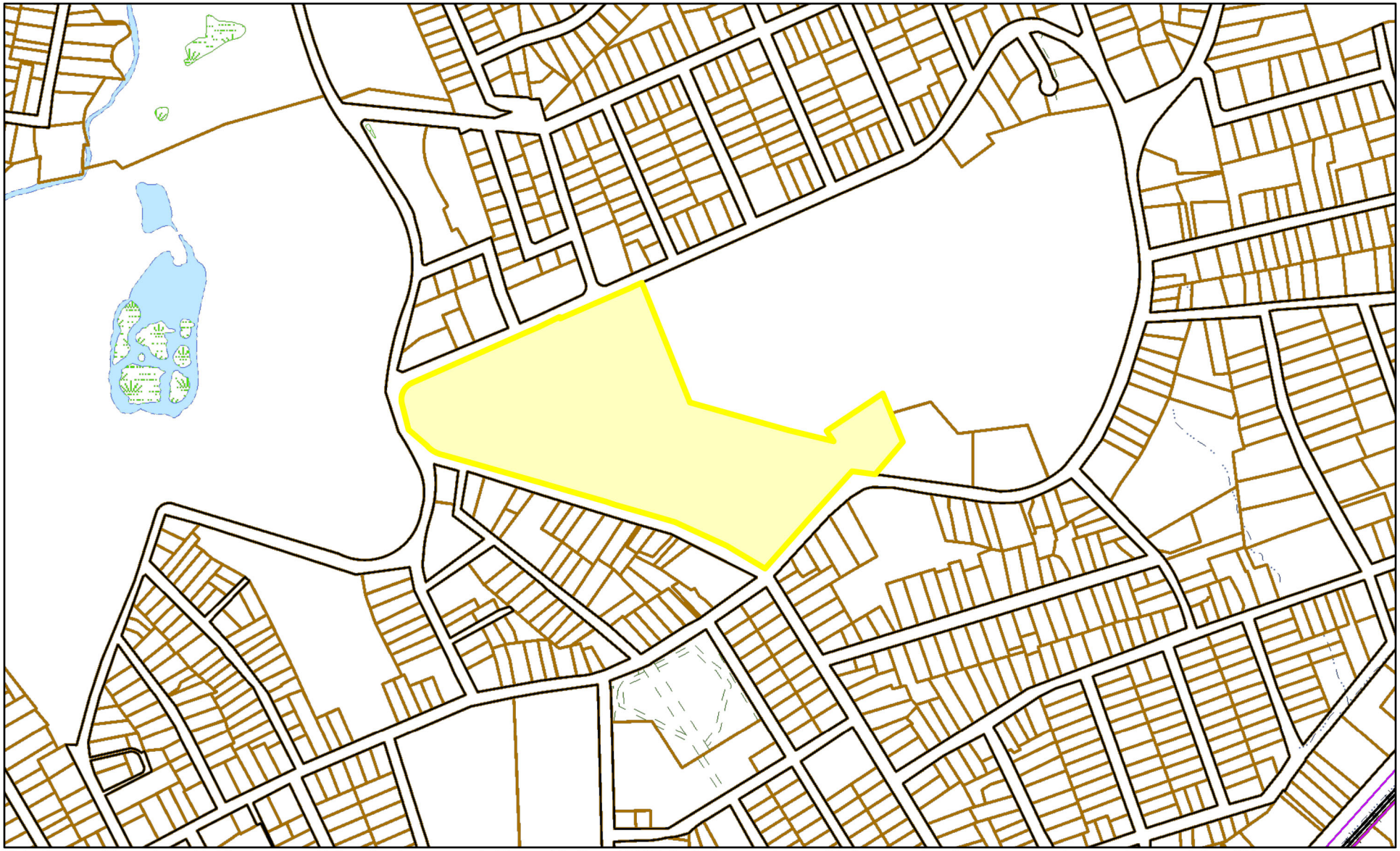


Exhibit C

Construction Drawings

PROJECT INFORMATION

SCOPE OF WORK:	ITEMS TO BE MOUNTED ON THE EXISTING ROOF TOP: • NEW AT&T ANTENNAS: AIR6419 B77G (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T ANTENNAS: AIR6449 B77 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T ANTENNAS: DMP65R-BU6DA (TYP. OF 1 PER ALPHA & BETA SECTOR, TOTAL OF 2). • EXISTING AT&T ANTENNAS: HPA-65R-BUU-H6 (TYP. OF 1 PER ALPHA & BETA SECTOR, TOTAL OF 2) (TO BE RELOCATED TO POS. 1). • EXISTING AT&T ANTENNAS: 800-10965 (TYP. OF 1 PER ALPHA & BETA SECTOR, TOTAL OF 2) (TO BE RELOCATED TO POS. 2). • EXISTING AT&T ANTENNAS: BSA-M65R-BUU-H6-K (TOTAL OF 2 PER GAMMA SECTOR) (TO BE RELOCATED TO POS. 1 & 4). • EXISTING AT&T RRUS-E2 B29 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 4) (TO BE RELOCATED TO POS. 1). • EXISTING AT&T RRUS-32 B30 (WCS) (TYP. 1 PER ALPHA & BETA SECTORS, TOTAL OF 2) (TO BE RELOCATED TO POS. 1). • EXISTING AT&T RRUS-4415 B30 (WCS) (TOTAL OF 2 PER GAMMA SECTOR) (TO BE RELOCATED TO POS. 1). • EXISTING AT&T RRUS-4478 B14 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3) (TO BE RELOCATED TO POS. 2). • EXISTING AT&T RRUS-32 B66A (AWS) (TYP. 1 PER ALPHA & BETA SECTORS, TOTAL OF 2) (TO BE RELOCATED TO POS. 2). • SWAP (1) EXISTING DC TRUNK WITH (1) 6AWG DC TRUNK FOR BETA SECTOR. • ADD (5) Y-CABLES. • PROPOSED MOUNT MODS (SEE "S" SHEET). ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION: • ADD (1) 6648 + XCEDE CABLE. • ADD (1) 6675. • ADD (4) RECTIFIERS. ITEMS TO BE REMOVED: • EXISTING AT&T ANTENNAS: 7770 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • EXISTING AT&T ANTENNAS: HPA-65R-BUU-H6 (TYP. 1 PER ALPHA & BETA SECTORS, TOTAL OF 2) • EXISTING AT&T TMA'S: DTMABP7819VG12A (TYP. OF 1 PER SECTOR, TOTAL OF 3). • EXISTING AT&T DIPLEXER: DBC2055F1V1-2 (TYP. OF 2 PER SECTOR, TOTAL OF 6). • EXISTING (3) COAX CABLES. ITEMS TO REMAIN: • (7) ANTENNAS, (19) RRU'S, (6) SURGE ARRESTORS, (12) DC POWER & (6) FIBER.
SITE ADDRESS:	24 HOSPITAL AVENUE DANBURY, CT 06810
LATITUDE:	41.4052919° N, 41° 24' 19.05" N
LONGITUDE:	73.4468989° W, 73° 26' 48.84" W
TYPE OF SITE:	ROOF TOP / INDOOR EQUIPMENT
STRUCTURE HEIGHT:	121'-5"±
RAD CENTER:	137'-0"± (LTE), 138'-9"± (DOD) & 135'-2"± (C-BAND) – ALPHA SECTOR 159'-0"± (LTE), 160'-9"± (DOD) & 157'-2"± (C-BAND) – BETA SECTOR 133-0"± (LTE), 134'-9"± (DOD) & 134'-2"± (C-BAND) – GAMMA/DELTA SECTOR
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	2
GN-1	GENERAL NOTES	2
A-1	ROOF TOP & EQUIPMENT PLANS	2
A-2	EXISTING ANTENNA LAYOUT	2
A-3	PROPOSED ANTENNA LAYOUT	2
A-4	ELEVATION	2
A-5	DETAILS	2
A-6	DETAILS	2
A-7	DETAILS	2
SN-1	STRUCTURAL NOTES	2
S-1	STRUCTURAL MODIFICATION DESIGN	2
S-2	STRUCTURAL MODIFICATION DESIGN	2
G-1	GROUNDING DETAILS	2
RF-1	RF PLUMBING DIAGRAM	2
RF-2	RF PLUMBING DIAGRAM	2

SITE NUMBER: CTL05073

SITE NAME: DANBURY BANM

FA CODE: 10070988

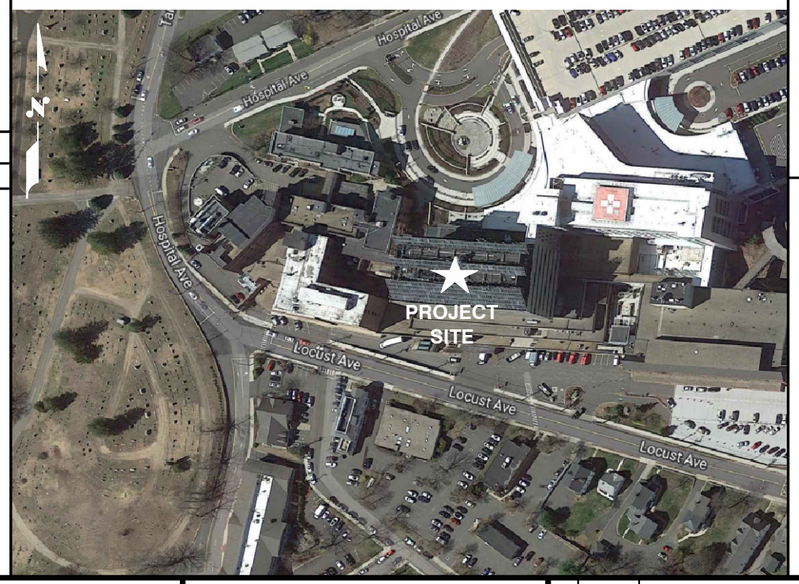
PACE ID: MRCTB054960, MRCTB054779, MRCTB054969, MRCTB054174

PROJECT: 5G NR 1SR C-BAND_5G NR 1DR-1_ANTENNA RETROFIT UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:

START OUT GOING EAST ON ENTERPRISE DR TOWARD CAPITAL BLVD.TURN LEFT ONTO CAPITAL BLVD.TURN LEFT ONTO WEST ST.MERGE ONTO I-91 S VIA THE RAMP ON THE LEFT TOWARD NEW HAVEN.MERGE ONTO I-691 W VIA EXIT 18 TOWARD WATERBURY/MERIDEN.TAKE THE I-84 W EXIT, EXIT 1, ON THE LEFT TOWARD DANBURY/WATERBURY.STAY STRAIGHT TO GO ONTO I 691.STAY STRAIGHT TO GO ONTO I-84 W.TAKE THE CT-37 EXIT, EXIT 6, TOWARD NEW FAIRFIELD.MERGE ONTO NORTH ST/CT-37 TOWARD NEW FAIRFIELD/FEDERAL CORRECTIONAL INSTITUTE/CANDLEWOOD LAKE.TAKE THE 2ND RIGHT ONTO HAYESTOWN AVE.TURN RIGHT ONTO TAMARACK AVE.TURN LEFT ONTO HOSPITAL AVE.TURN RIGHT.TAKE THE 1ST RIGHT.24 HOSPITAL AVE, DANBURY, CT 06810-6099, 24 HOSPITAL AVE.



GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES 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 AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.
5. NOTE TO GENERAL CONTRACTOR: (PRIOR TO CONSTRUCTION COMPLETION)

   TEP NORTHEAST (TEP OPCO, LLC.) TO PERFORM POST/CLIMB AND INSPECTION TO CONFIRM PROPOSED INSTALLATION COMPLIES WITH THE RECORD STAMPED DRAWINGS AND STRUCTURAL REPORTS PRIOR TO SUBMITTING FCCA (FINAL CONSTRUCTION CONTROL AFFIDAVIT). GC IS RESPONSIBLE FOR COORDINATING INSPECTIONS WITH TEP NORTHEAST (TEP OPCO, LLC.) PRIOR TO CONSTRUCTION BEING COMPLETED.

72 HOURS

CALL
BEFORE YOU DIG
CALL TOLL FREE 1-800-922-4455
OR CALL 811

UNDERGROUND SERVICE ALERT

TEP NORTHEAST
TEP OPCO, LLC.
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CTL05073
SITE NAME: DANBURY BANM

24 HOSPITAL AVENUE
DANBURY, CT 06810
FAIRFIELD COUNTY

500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	04/20/23	ISSUED FOR CONSTRUCTION	SA/NR	HC	DPH
1	06/16/22	ISSUED FOR CONSTRUCTION	AK/SA	HC	DPH
A	05/03/22	ISSUED FOR REVIEW	SS	HC	DPH

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: SS

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET

5G NR 1SR C-BAND_5G NR 1DR-1_ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05073	T-1	2

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81 STANDARDS) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS AND #2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

   CONTRACTOR – SAI
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T 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. TOUCH UP 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 AT&T SITES."

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

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

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

20. **APPLICABLE BUILDING CODES:**
    SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

    BUILDING CODE: IBC 2021 WITH 2022 CT STATE BUILDING CODE AMENDMENTS
    ELECTRICAL CODE: 2020 NATIONAL ELECTRICAL CODE (NFPA 70-2020)

    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-H, STRUCTURAL STANDARDS FOR STEEL

    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 GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

TEP NORTHEAST
TEP OPCO, LLC.
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CTL05073
SITE NAME: DANBURY BANM

24 HOSPITAL AVENUE
DANBURY, CT 06810
FAIRFIELD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	04/20/23	ISSUED FOR CONSTRUCTION	SA	NR	HC	DPH
1	06/16/22	ISSUED FOR CONSTRUCTION	AK	SA	HC	DPH
A	05/03/22	ISSUED FOR REVIEW	SS	HC	DPH

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: SS

STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

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GENERAL NOTES

5G NR 1SR C-BAND_5G NR 1DR-1_ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05073	GN-1	2

NOTE TO GENERAL CONTRACTOR: (PRIOR TO CONSTRUCTION COMPLETION)

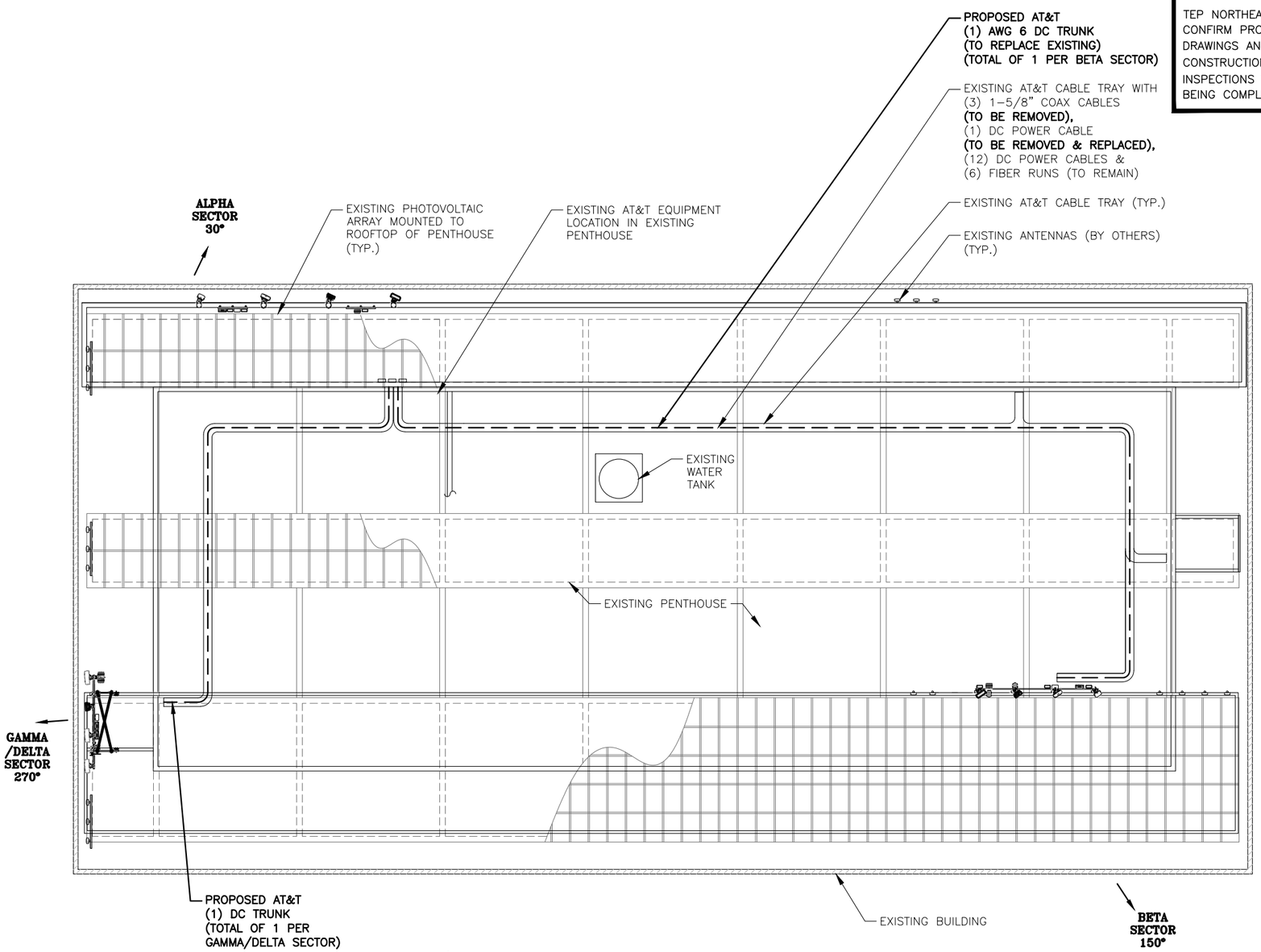
TEP NORTHEAST (TEP OPCO, LLC.) TO PERFORM POST/CLIMB AND INSPECTION TO CONFIRM PROPOSED INSTALLATION COMPLIES WITH THE RECORD STAMPED DRAWINGS AND STRUCTURAL REPORTS PRIOR TO SUBMITTING FCCA (FINAL CONSTRUCTION CONTROL AFFIDAVIT). GC IS RESPONSIBLE FOR COORDINATING INSPECTIONS WITH TEP NORTHEAST (TEP OPCO, LLC.) PRIOR TO CONSTRUCTION BEING COMPLETED.

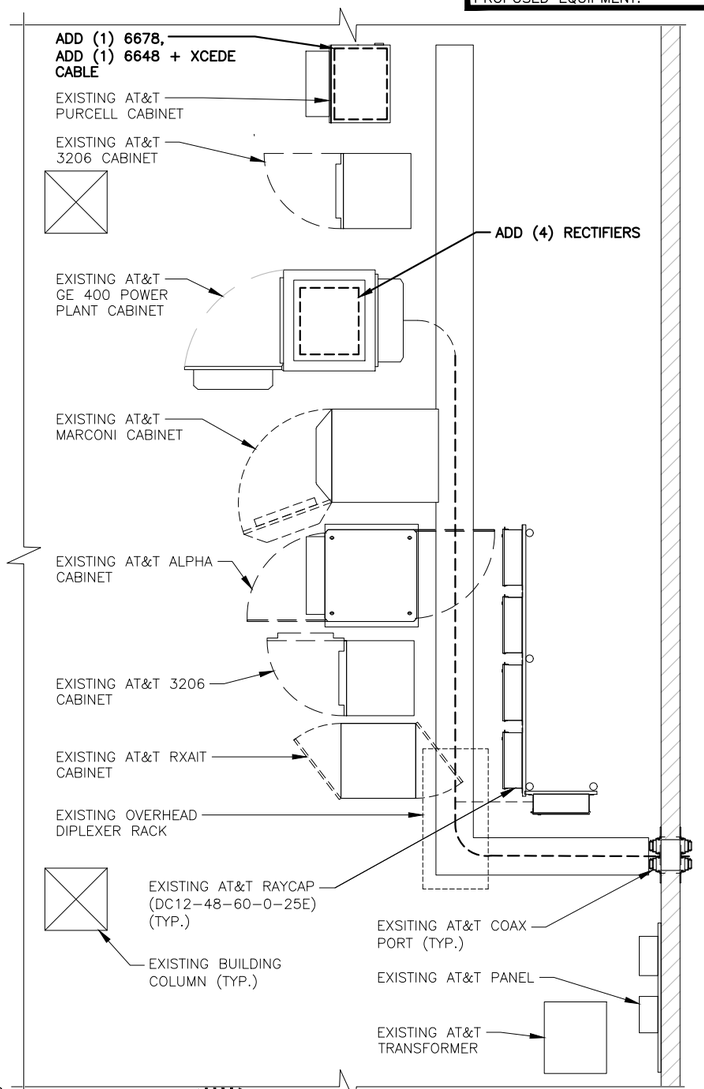
NOTE:

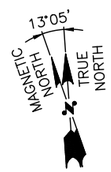
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

REFER TO THE **STRUCTURAL ANALYSIS** BY: **TEP NORTHEAST (TEP OPCO, LLC)** DATED: APRIL 12, 2023 (REV.1) FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

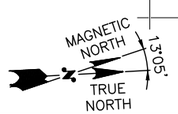






ROOF PLAN (1 / A-1)
22x34 SCALE: 3/32"=1'-0"
11x17 SCALE: 3/64"=1'-0"

0 5'-4" 10'-8" 21'-4" 32'-0"



EQUIPMENT PLAN (2 / A-1)
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

0 1'-0" 2'-0" 4'-0" 6'-0"

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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: SS

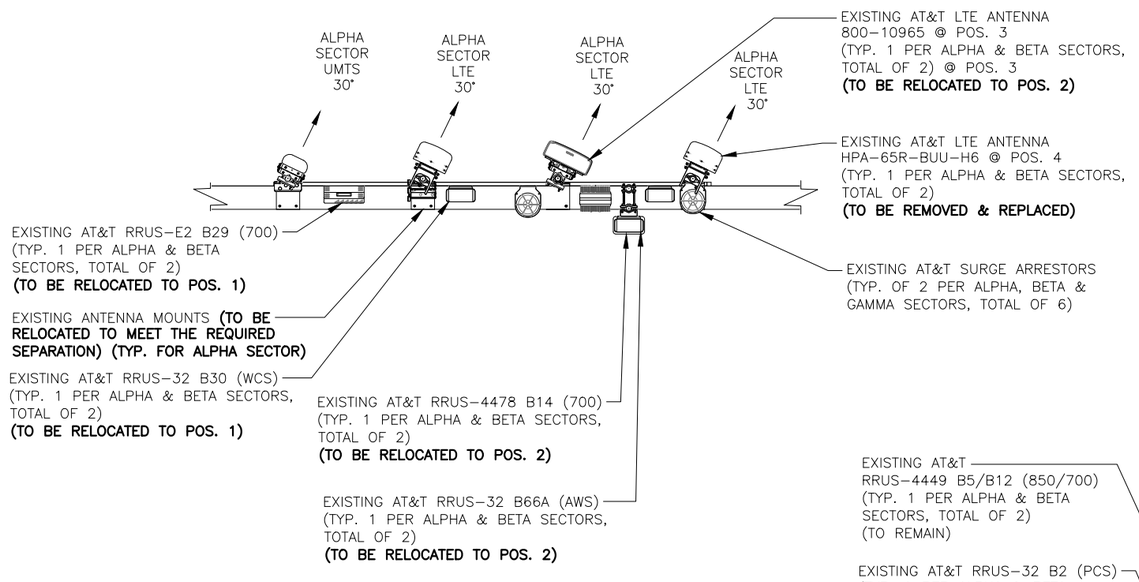
LICENSED PROFESSIONAL ENGINEER — No. 24178 — STATE OF CONNECTICUT

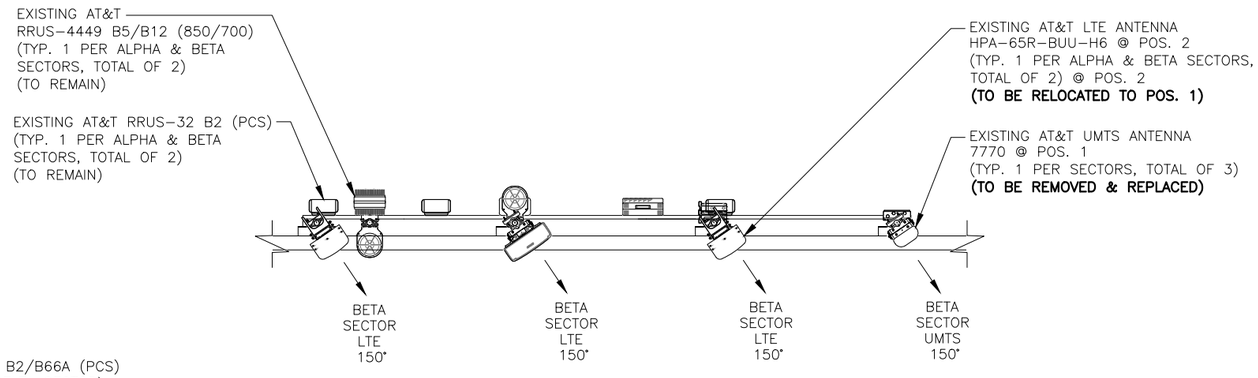
AT&T

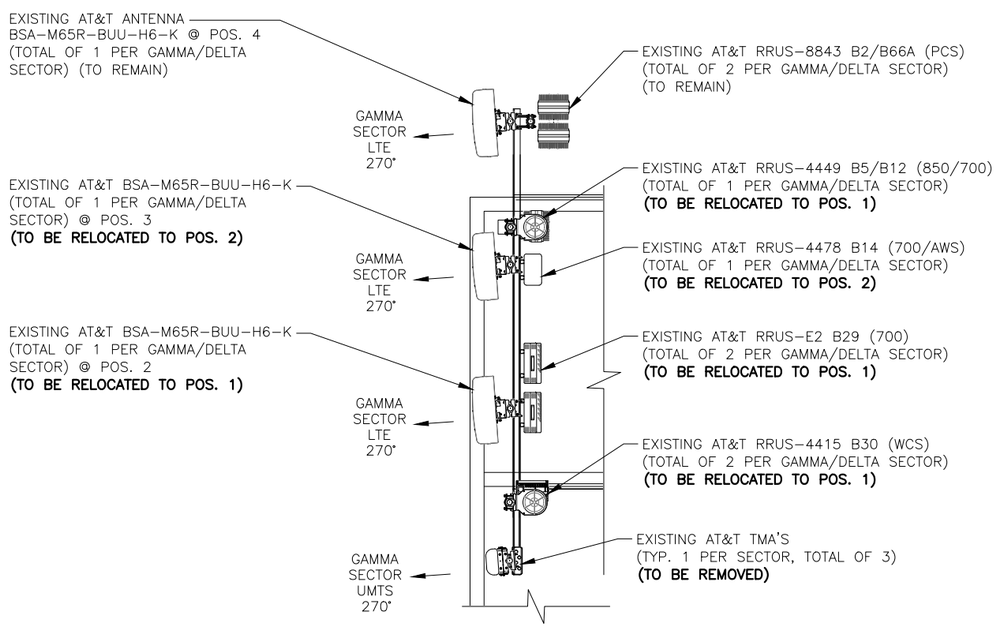
ROOFTOP & EQUIPMENT PLANS

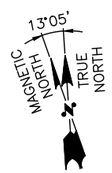
5G NR 1SR C-BAND_5G NR 1DR-1_ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05073	A-1	2









EXISTING ANTENNA LAYOUT (1 / A-2)
SCALE: N.T.S

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

REFER TO THE **STRUCTURAL ANALYSIS** BY: **TEP NORTHEAST (TEP OPCO, LLC)** DATED: APRIL 12, 2023 (REV.1) FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: SS

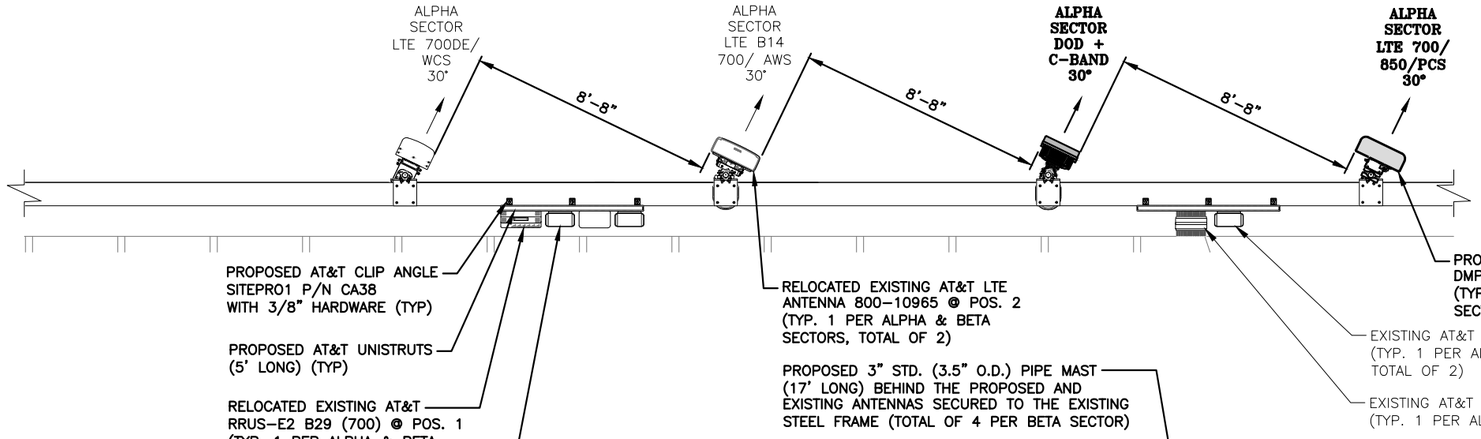
STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24128
LICENSED PROFESSIONAL ENGINEER

AT&T

EXISTING ANTENNA LAYOUT

5G NR 1SR C-BAND_5G NR 1DR-1_ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05073	A-2	2



NOTE:
ANTENNAS AND MOUNTS TO BE ADJUSTED AS REQUIRED TO ACHIEVE A 3'-0" SIDE-TO-SIDE MINIMUM SEPARATION BETWEEN ANTENNAS

NOTE:
ALPHA SECTOR MOUNTING. EXISTING MOUNTS TO BE REUSED WITH NEW HARDWARE AND RE-POSITIONED TO ACHIEVE REQUIRED AT&T SEPARATIONS.

NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:
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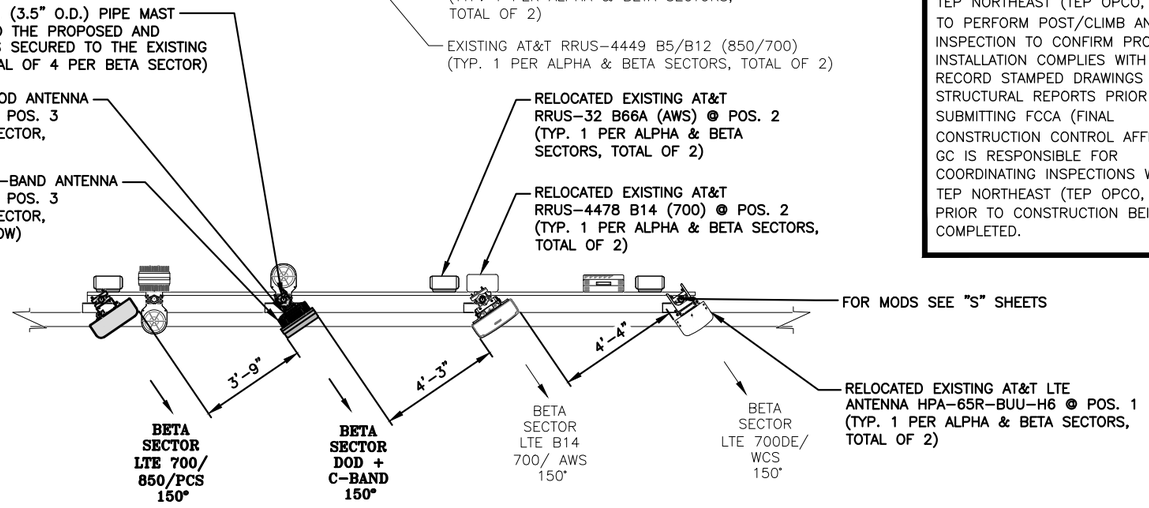

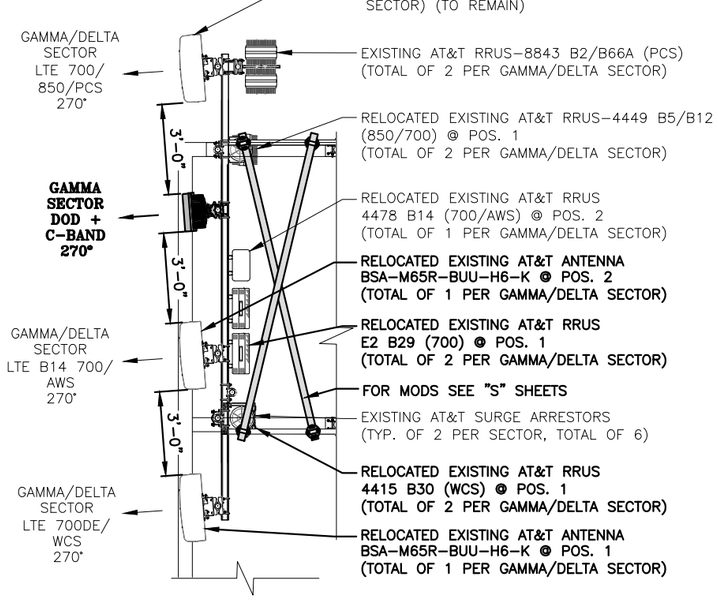

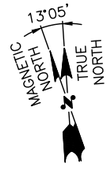

PROPOSED ANTENNA LAYOUT (1 / A-3)
SCALE: N.T.S

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A	05/03/22	ISSUED FOR REVIEW	SS	HC	DPH

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: SS

STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

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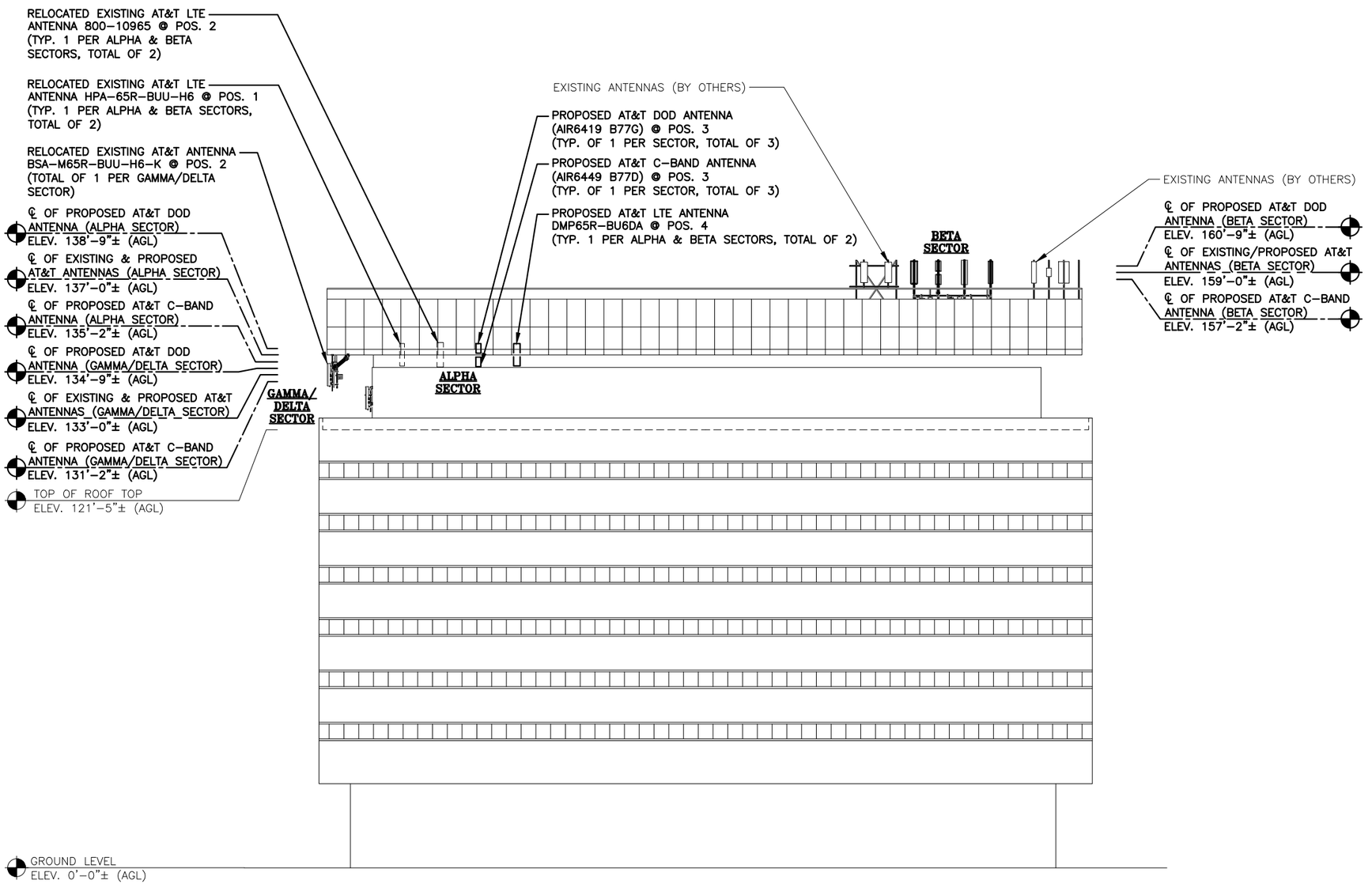
PROPOSED ANTENNA LAYOUT

5G NR 1SR C-BAND_5G NR 1DR-1_ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05073	A-3	2



ELEVATION 1/A-4
22x34 SCALE: 1/16"=1'-0"
11x17 SCALE: 1/32"=1'-0"
0 8'-0" 16'-0" 32'-0" 48'-0"

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

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A	05/03/22	ISSUED FOR REVIEW	SS	HC	DPH

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: SS

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

AT&T

ELEVATION

5G NR 1SR C-BAND_5G NR 1DR-1_ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05073	A-4	2

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	ANTENNA TIP HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	EXISTING	LTE 700DE/ WCS	HPA-65R-BUU-H6	72x14.8x9	137'-0"±	140'-0"±	30°	–	(E)(1)RRUS-E2 B29 (700) (E)(1)RRUS-32 B30 (WCS)	–	(E)(2) DC POWER & (E)(1) FIBER	(E) (2) RAYCAP DC6-48-60-18-8F
A2	EXISTING	LTE B14 700/ AWS	800-10965	78.7x20x6.9	137'-0"±	140'-0"±	30°	–	(E)(1)RRUS-4478 B14 (700) (E)(1)RRUS-32 B66A (AWS)	–	(E)(2) DC POWER & (E)(1) FIBER	
A3	**PROPOSED**	**DOD+CBAND**	**AIR6419 B77G AIR6449 B77 (STACKED)**	**31.1X16.1X7.3 30.6X15.9X10.6**	**138'-9"± 135'-2"±**	**140'-0"± 136'-5"±**	**30°**	–	–	–	–	
A4	**PROPOSED**	**LTE 700/ 850/PCS**	**DMP65R-BU6DA**	**71.2x20.7x7.7**	**137'-0"±**	**140'-0"±**	**30°**	–	(E)(1)RRUS-32 B2 (PCS) (E)(1)RRUS-4449 B5/B12 (850/700)	–	**(P)(1) Y-CABLE**	
B1	EXISTING	LTE 700DE/ WCS	HPA-65R-BUU-H6	72x14.8x9	159'-0"±	162'-0"±	150°	–	(E)(1)RRUS-E2 B29 (700) (E)(1)RRUS-32 B30 (WCS)	–	(E)(2) DC POWER & (E)(1) FIBER	(E) (2) RAYCAP DC6-48-60-18-8F
B2	EXISTING	LTE B14 700/ AWS	800-10965	78.7x20x6.9	159'-0"±	162'-0"±	150°	–	(E)(1)RRUS-4478 B14 (700) (E)(1)RRUS-32 B66A (AWS)	–	(E)(1) DC POWER & (E)(1) FIBER, **(P)(1) DC POWER**	
B3	**PROPOSED**	**DOD+CBAND**	**AIR6419 B77G AIR6449 B77 (STACKED)**	**31.1X16.1X7.3 30.6X15.9X10.6**	**160'-9"± 157'-2"±**	**162'-0"± 158'-5"±**	**150°**	–	–	–	–	
B4	**PROPOSED**	**LTE 700/ 850/PCS**	**DMP65R-BU6DA**	**71.2x20.7x7.7**	**159'-0"±**	**162'-0"±**	**150°**	–	(E)(1)RRUS-32 B2 (PCS) (E)(1)RRUS-4449 B5/B12 (850/700)	–	**(P)(1) Y-CABLE**	
C1	EXISTING	LTE 700DE/ WCS	BSA-M65R-BUU-H6-K	72x28.5x9.7	133-0"±	136'-0"±	270°	–	(E)(1)RRUS-E2 B29 (700) (E)(1)RRUS-4415 B30 (WCS)	–	(E)(3) DC POWER & (E)(1) FIBER	(E) (1) RAYCAP DC6-48-60-18-8F (E) (1) RAYCAP DC9-48-60-24-8C-EV
C2	EXISTING	LTE B14 700/ AWS	BSA-M65R-BUU-H6-K	72x28.5x9.7	133-0"±	136'-0"±	270°	–	(E)(1)RRUS-4478 B14 (700/AWS)	–	(E)(2) DC POWER & (E)(1) FIBER	
C3	**PROPOSED**	**DOD+CBAND**	**AIR6419 B77G AIR6449 B77 (STACKED)**	**31.1X16.1X7.3 30.6X15.9X10.6**	**134'-9"± 131'-2"±**	**136'-0"± 133'-5"±**	**270°**	–	–	–	–	
C-4	EXISTING	LTE 700/ 850/PCS	BSA-M65R-BUU-H6-K	72X28.5X9.7	133-0"±	136'-0"±	270°	–	(E)(1)RRUS-4449 B5/B12 (850/700) (E)(1)RRUS-8843 B2/B66A (PCS)		**(P)(2) Y-CABLE**	
D1	ANTENNAS SHARED WITH GAMMA SECTOR								(E)(1)RRUS-E2 B29 (700) (E)(1)RRUS-4415 B30 (WCS)			
D2												
D3												
D4								–	(E)(1)RRUS-4449 B5/B12 (850/700) (E)(1)RRUS-8843 B2/B66A (PCS)	–	**(P)(2) Y-CABLE**	

FINAL ANTENNA SCHEDULE (1 / A-5)
SCALE: N.T.S

RRU CHART

QUANTITY	MODEL	SIZE (L x W x D)
4(E)	4449 (850/700)	17.9"x13.2"x10.4"
2(E)	8843 B2/B66A (PCS/AWS)	14.9"x13.2"x10.9"
2(E)	4478 B14 (700)	18.1"x13.4"x8.3"
1(E)	4478 B14 (700/AWS)	18.1"x13.4"x8.3"
2(E)	RRUS-32 B30 (WCS)	27.2"x12.1"x7.0"
2(E)	RRUS-32 B66A (AWS)	27.2"x12.1"x7.0"
2(E)	RRUS-32 B2 (PCS)	27.2"x12.1"x7.0"
4(E)	RRUS-E2 B29 (700)	20.4"x18.5"x7.5"
2(E)	4415	16.5"x13.4"x5.9"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:

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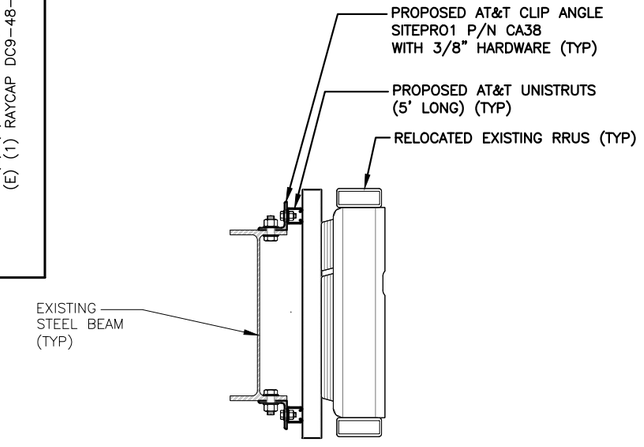

PROPOSED RRUS MOUNT DETAIL (2 / A-5)
22x34 SCALE: 1-1/2"=1'-0"
11x17 SCALE: 3/4"=1'-0"

0'-4" 0'-8" 1'-4" 2'-0"

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DETAILS

5G NR 1SR C-BAND_5G NR 1DR-1_ANTENNA RETROFIT UPGRADE

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CTL05073	A-5	2

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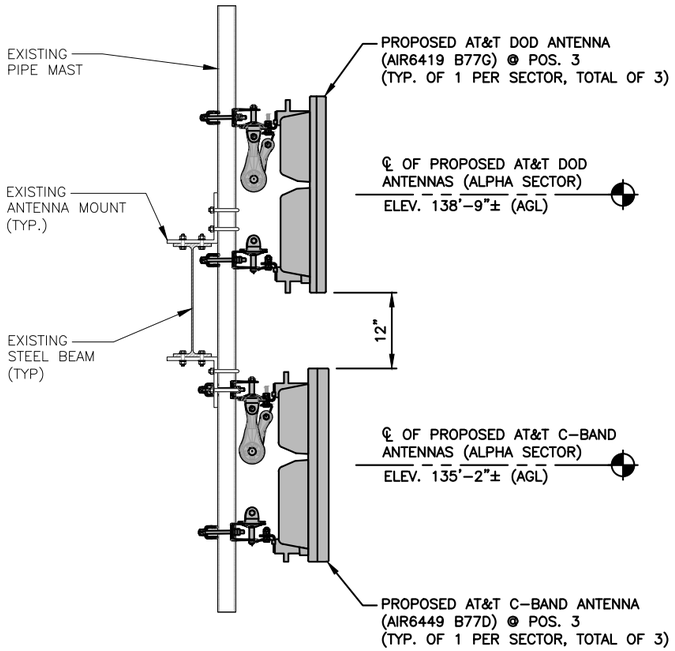
TEP NORTHEAST (TEP OPCO, LLC.) TO PERFORM POST/CLIMB AND INSPECTION TO CONFIRM PROPOSED INSTALLATION COMPLIES WITH THE RECORD STAMPED DRAWINGS AND STRUCTURAL REPORTS PRIOR TO SUBMITTING FCCA (FINAL CONSTRUCTION CONTROL AFFIDAVIT). GC IS RESPONSIBLE FOR COORDINATING INSPECTIONS WITH TEP NORTHEAST (TEP OPCO, LLC.) PRIOR TO CONSTRUCTION BEING COMPLETED.

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

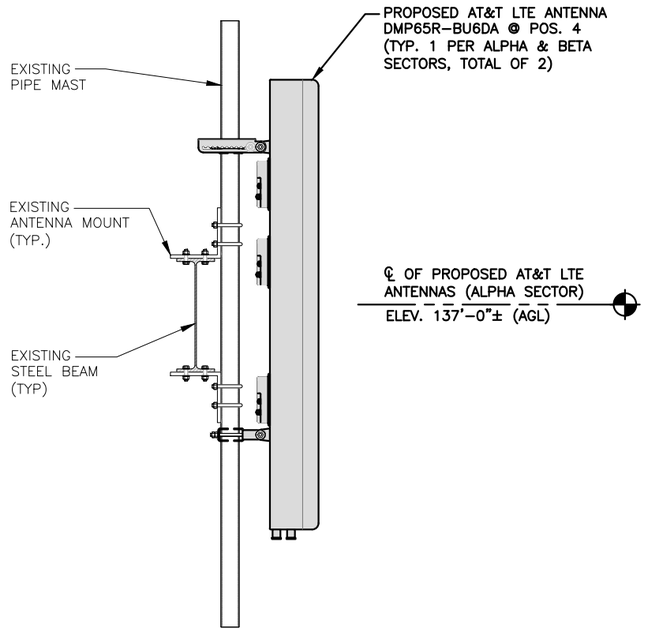
REFER TO THE **STRUCTURAL ANALYSIS** BY: **TEP NORTHEAST (TEP OPCO, LLC)** DATED: APRIL 12, 2023 (REV.1) FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



PROPOSED DOD/C-BAND ANTENNA MOUNTING DETAIL (ALPHA SECTOR) 1 / A-6

22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

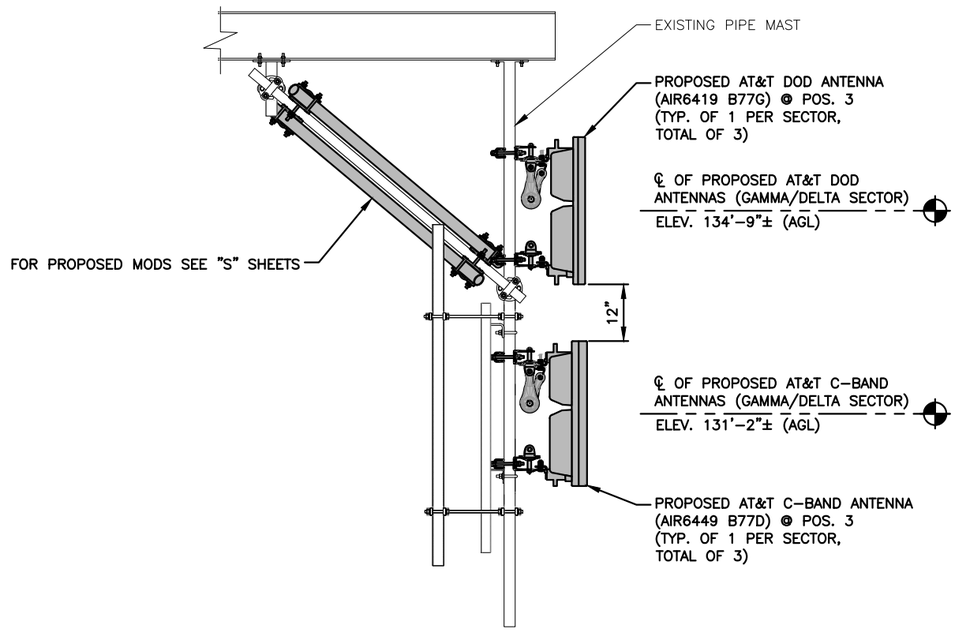
0 0'-6" 1'-0" 2'-0" 3'-0"



PROPOSED LTE ANTENNA MOUNTING DETAIL (ALPHA SECTOR) 2 / A-6

22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0" 3'-0"



PROPOSED DOD/C-BAND ANTENNA MOUNTING DETAIL (GAMMA/DELTA SECTOR) 3 / A-6

22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 8" 1'-4" 2'-8" 4'-0"

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at&t
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A	05/03/22	ISSUED FOR REVIEW	SS	HC	DPH

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: SS

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

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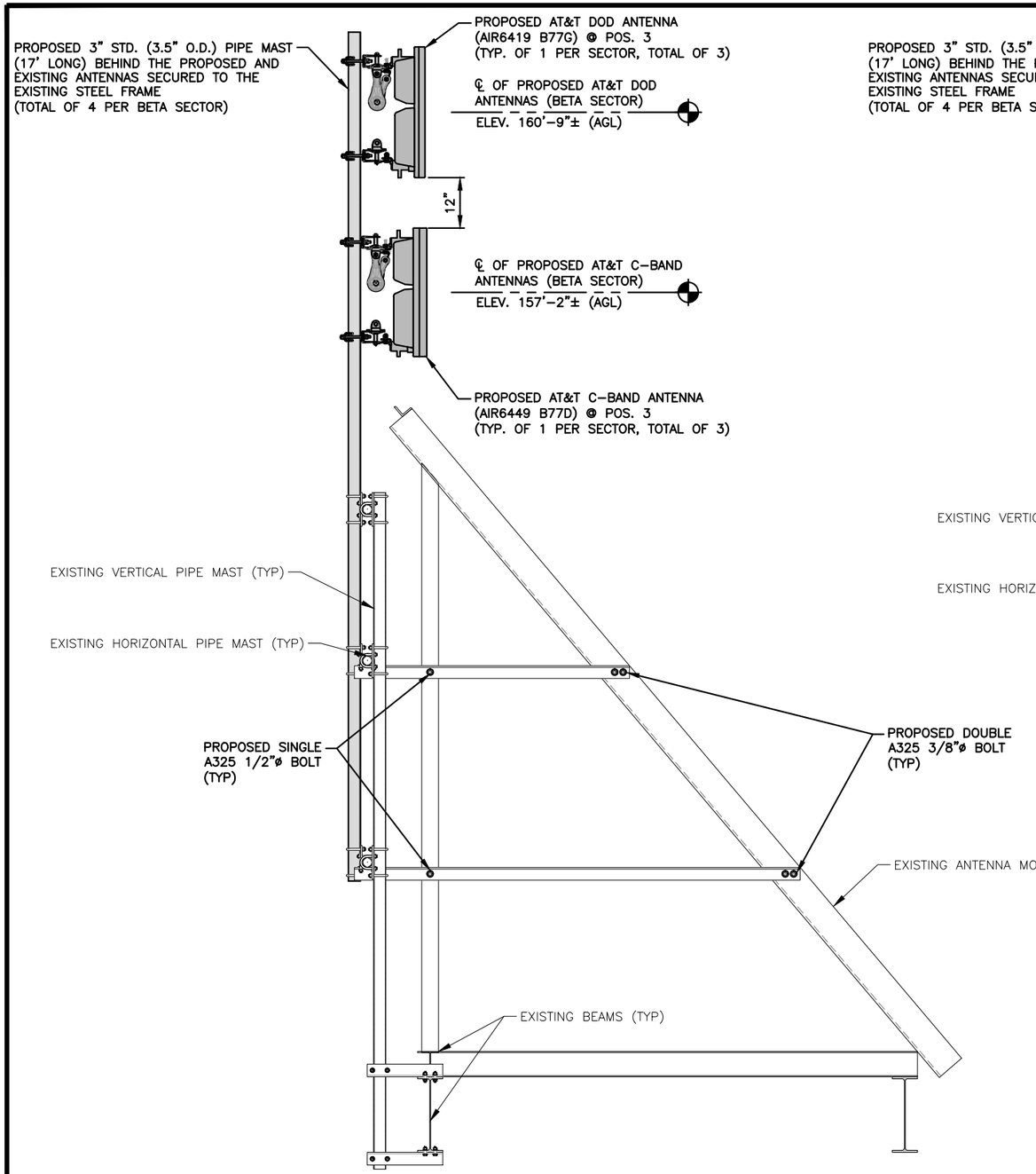
DETAILS

5G NR 1SR C-BAND_5G NR 1DR-1_ANTENNA RETROFIT UPGRADE

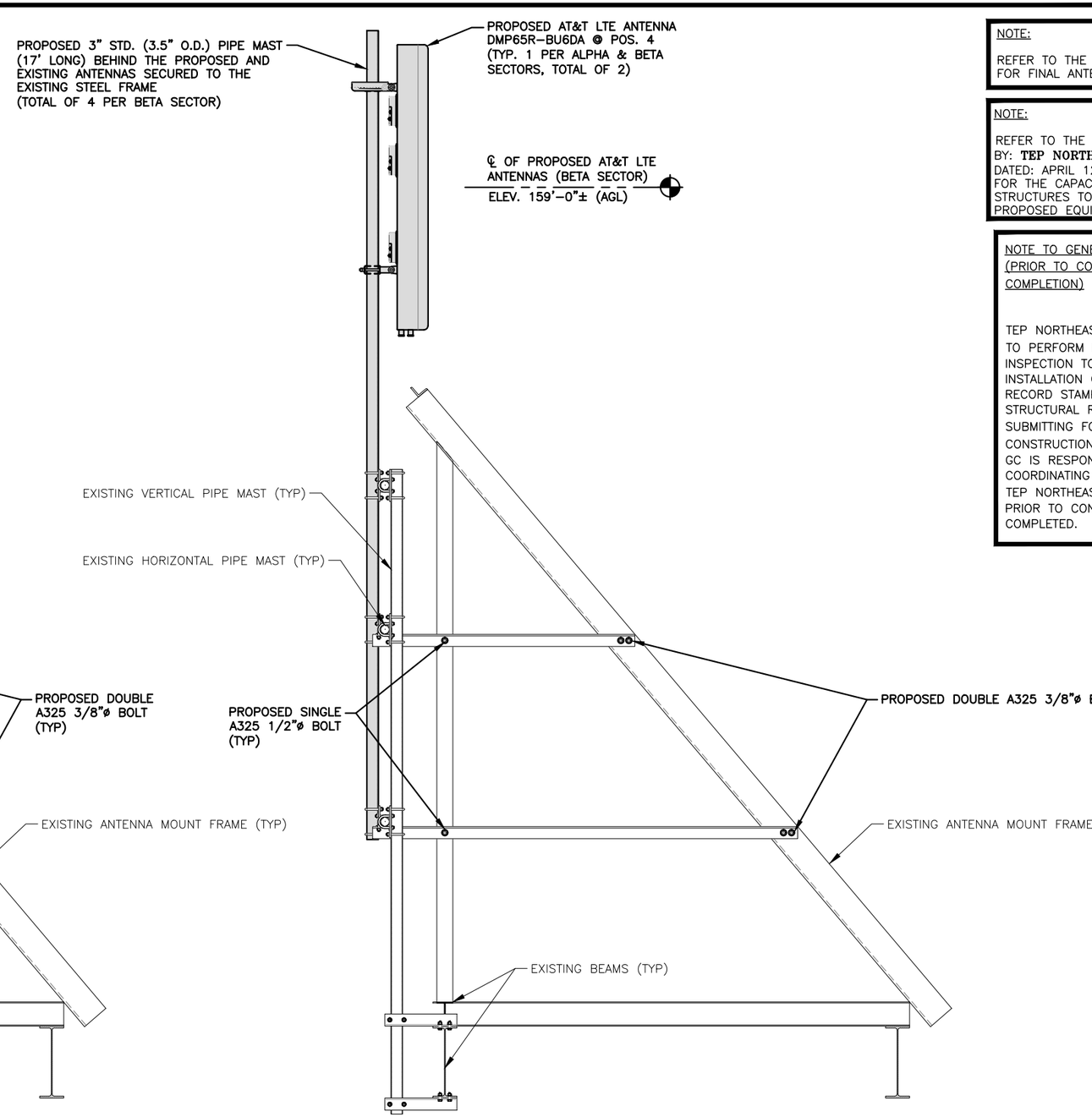
SITE NUMBER	DRAWING NUMBER	REV
CTL05073	A-6	2



PROPOSED DOD/C-BAND ANTENNA MOUNTING DETAIL (BETA SECTOR) (1 / A-7)

22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 8" 1'-4" 2'-8" 4'-0"



PROPOSED LTE ANTENNA MOUNTING DETAIL (BETA SECTOR)

22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 8" 1'-4" 2'-8" 4'-0"

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

REFER TO THE **STRUCTURAL ANALYSIS** BY: **TEP NORTHEAST (TEP OPCO, LLC)** DATED: APRIL 12, 2023 (REV.1) FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: SS

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DETAILS

5G NR 1SR C-BAND_5G NR 1DR-1_ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05073	A-7	2

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-H STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
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
REQUIRED	ENGINEER OF RECORD APPROVED SHOP DRAWINGS [1]
REQUIRED	MATERIAL SPECIFICATIONS REPORT [2]
N/A	FABRICATOR NDE INSPECTION
REQUIRED	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:	

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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: SS

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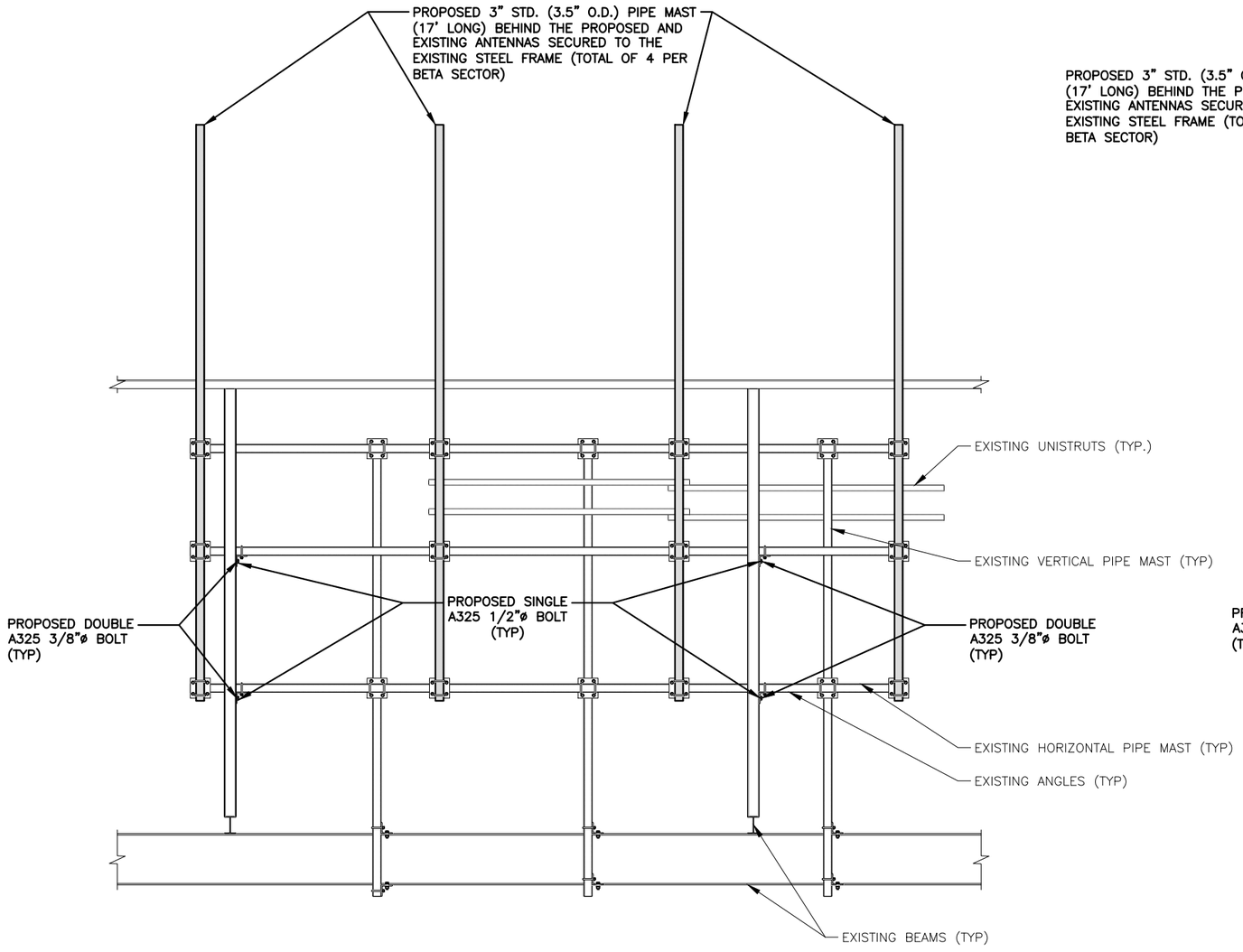
STRUCTURAL NOTES

5G NR 1SR C-BAND_5G NR 1DR-1_ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05073	SN-1	2

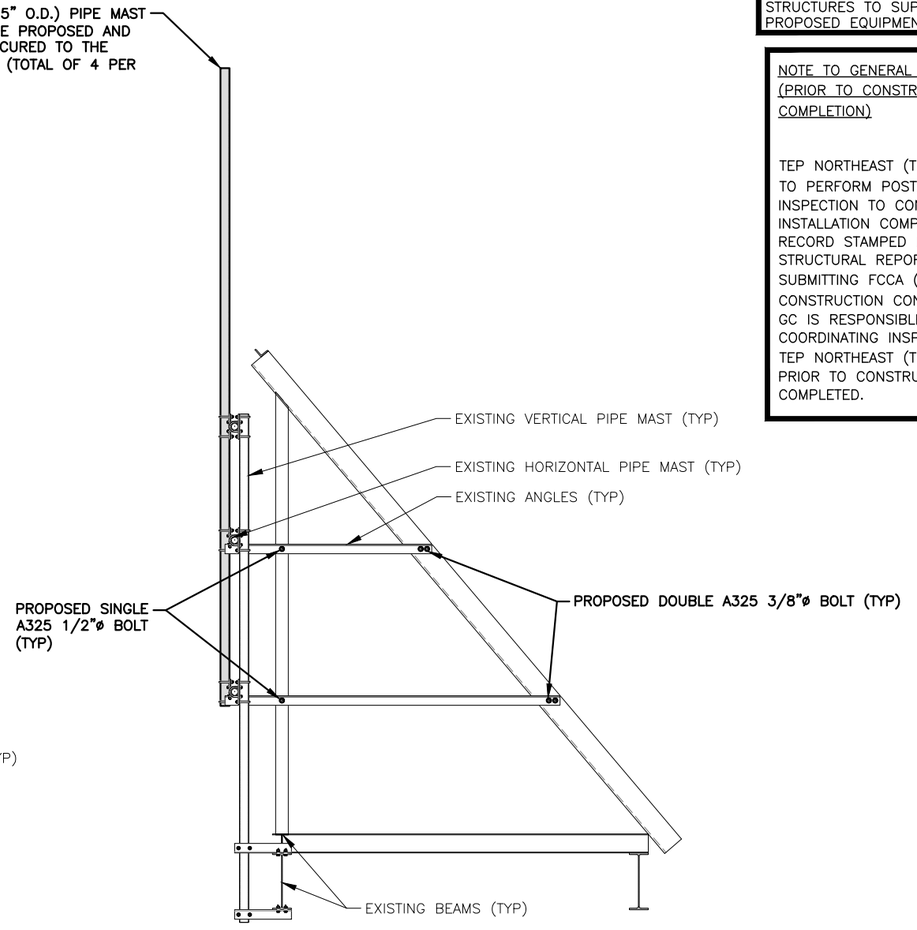


PROPOSED MOUNT MODIFICATIONS ELEVATION (BETA SECTOR)

1 / S-1

22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

0 1'-0" 2'-0" 4'-0" 6'-0"



PROPOSED MOUNT MODIFICATIONS DETAIL (BETA SECTOR)

2 / S-1

22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

0 1'-0" 2'-0" 4'-0" 6'-0"

NOTE:

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STRUCTURAL MODIFICATION DESIGN

5G NR 1SR C-BAND_5G NR 1DR-1_ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05073	S-1	2

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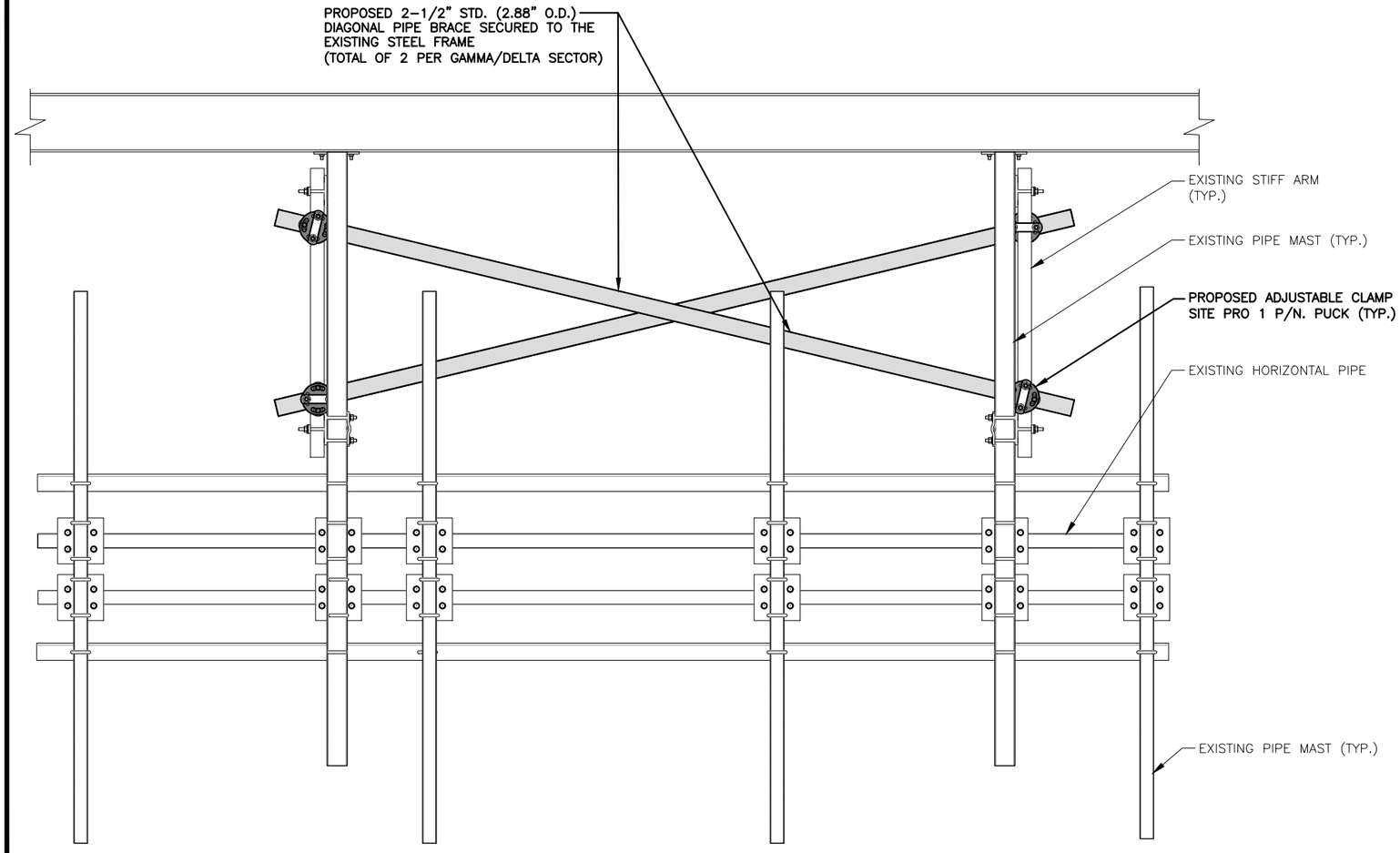
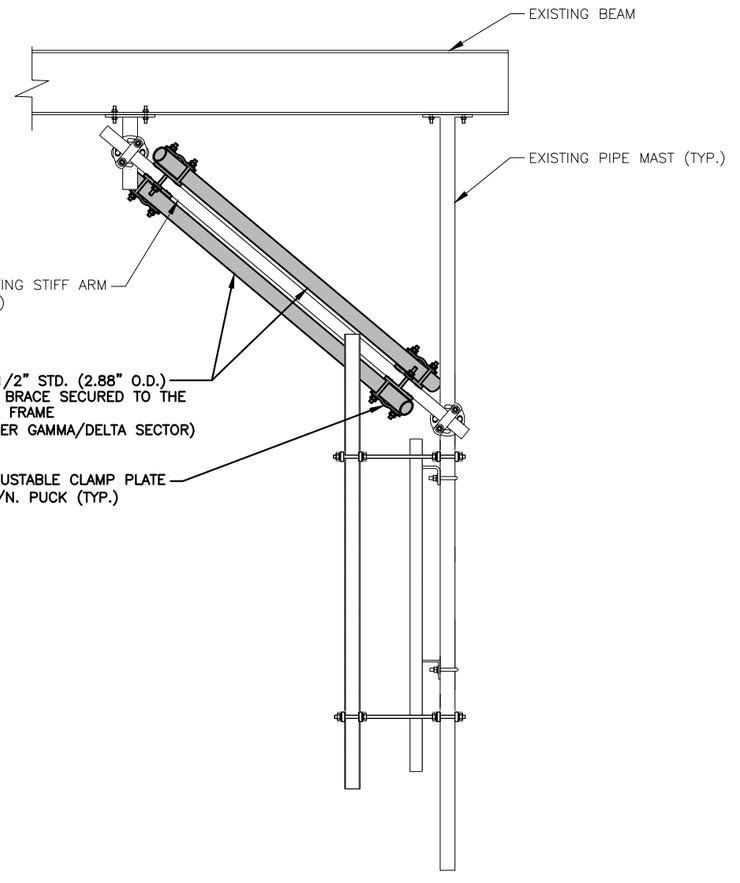


PROPOSED MOUNT MODIFICATIONS ELEVATION (GAMMA SECTOR) — 1 / S–2

22x34 SCALE: 1"=1'–0"
11x17 SCALE: 1/2"=1'–0"

0 1'–0" 2'–0" 4'–0" 6'–0"



PROPOSED MOUNT MODIFICATIONS DETAILS (GAMMA SECTOR) — 2 / S–2

22x34 SCALE: 1"=1'–0"
11x17 SCALE: 1/2"=1'–0"

0 0'–6" 1'–0" 2'–0" 3'–0"

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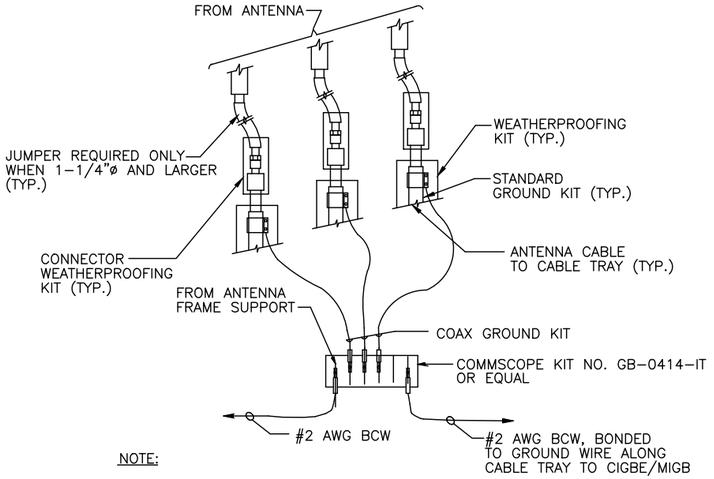
MOUNT MODIFICATION DETAILS

5G NR-1SR C-BAND_5G NR 1DR-1_ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05073	S–2	2



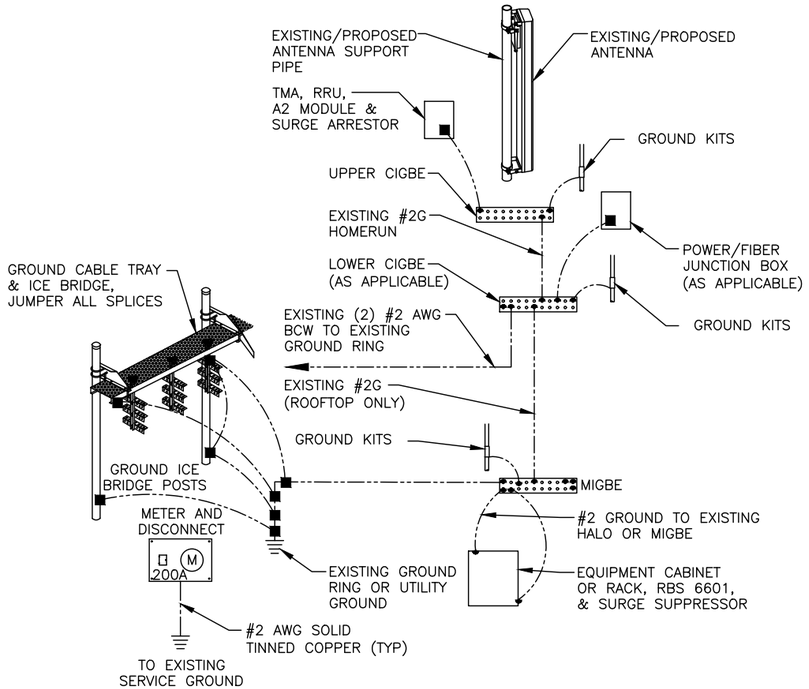
NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

1 / G-1

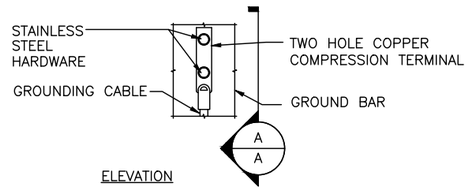
SCALE: N.T.S



GROUNDING RISER DIAGRAM

2 / G-1

SCALE: N.T.S



NOTES:

1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATION.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB

TYPICAL GROUND BAR CONNECTION DETAIL

3 / G-1

SCALE: N.T.S

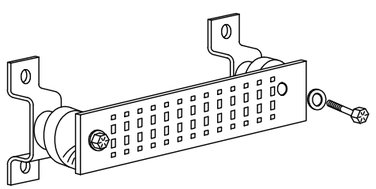
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

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

SECTION "A" – SURGE ABSORBERS

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



GROUND BAR - DETAIL (AS REQUIRED)

4 / G-1

SCALE: N.T.S

TEP NORTHEAST
TEP OPCO, LLC
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CTL05073
SITE NAME: DANBURY BANM

24 HOSPITAL AVENUE
DANBURY, CT 06810
FAIRFIELD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	04/20/23	ISSUED FOR CONSTRUCTION	SA/NR	HC	DPH
1	06/16/22	ISSUED FOR CONSTRUCTION	AK/SA	HC	DPH
A	05/03/22	ISSUED FOR REVIEW	SS	HC	DPH

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: SS

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

AT&T

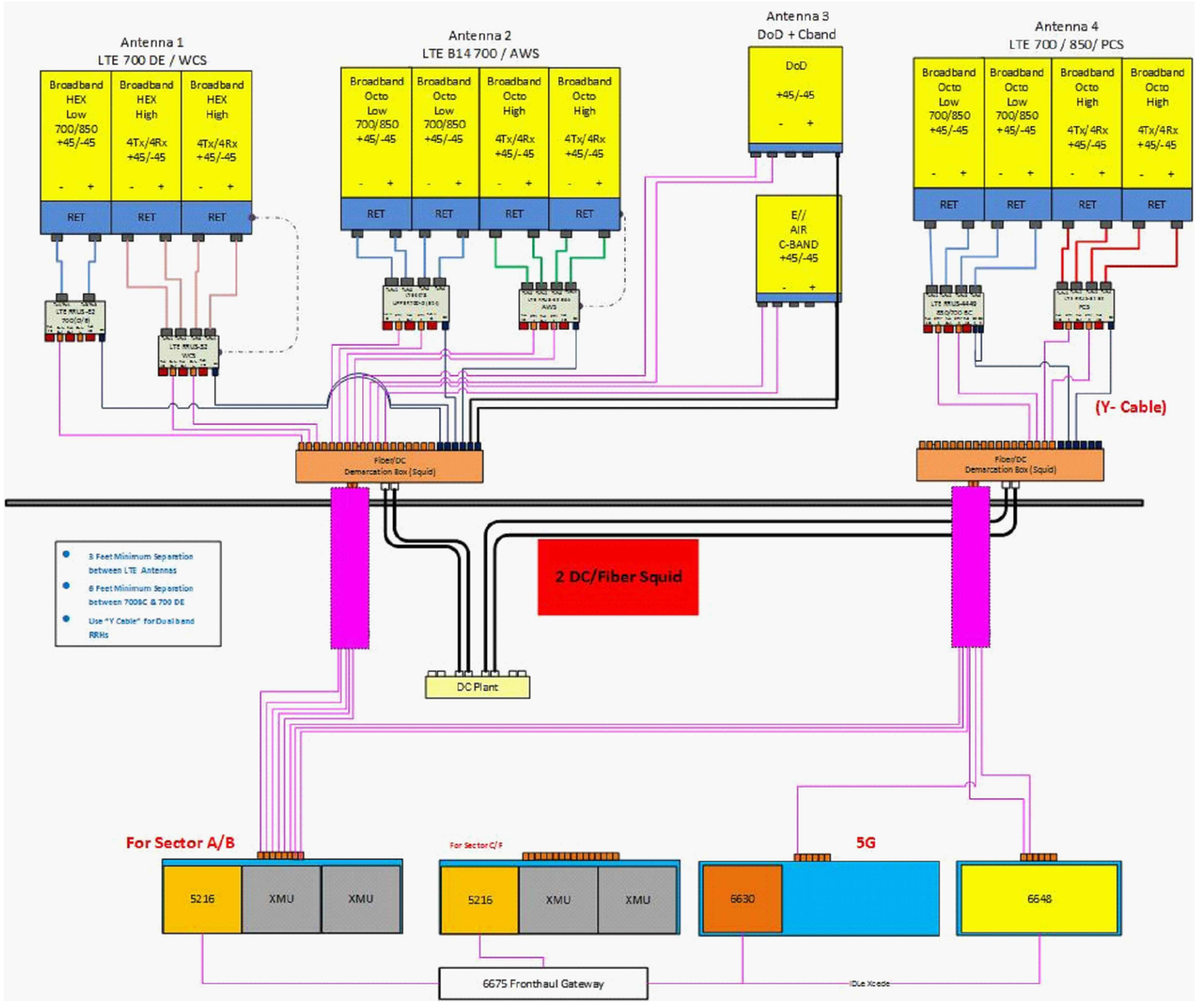
GROUNDING DETAILS

5G NR 1SR C-BAND_5G NR 1DR-1_ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05073	G-1	2

ALPHA & BETA SECTOR

NOTE:
REV: 2
DATED: 02/21/2021
RFDS ID: 4462270



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

NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS.
3. RFDS USED FOR REFERENCE.

NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

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TEP OPCO, LLC.
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
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SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CTL05073
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at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	04/20/23	ISSUED FOR CONSTRUCTION	GA/MR	HC	DPH
1	06/16/22	ISSUED FOR CONSTRUCTION	JJ/GA	HC	DPH
A	05/03/22	ISSUED FOR REVIEW	SS	HC	DPH

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: SS

AT&T

RF PLUMBING DIAGRAM

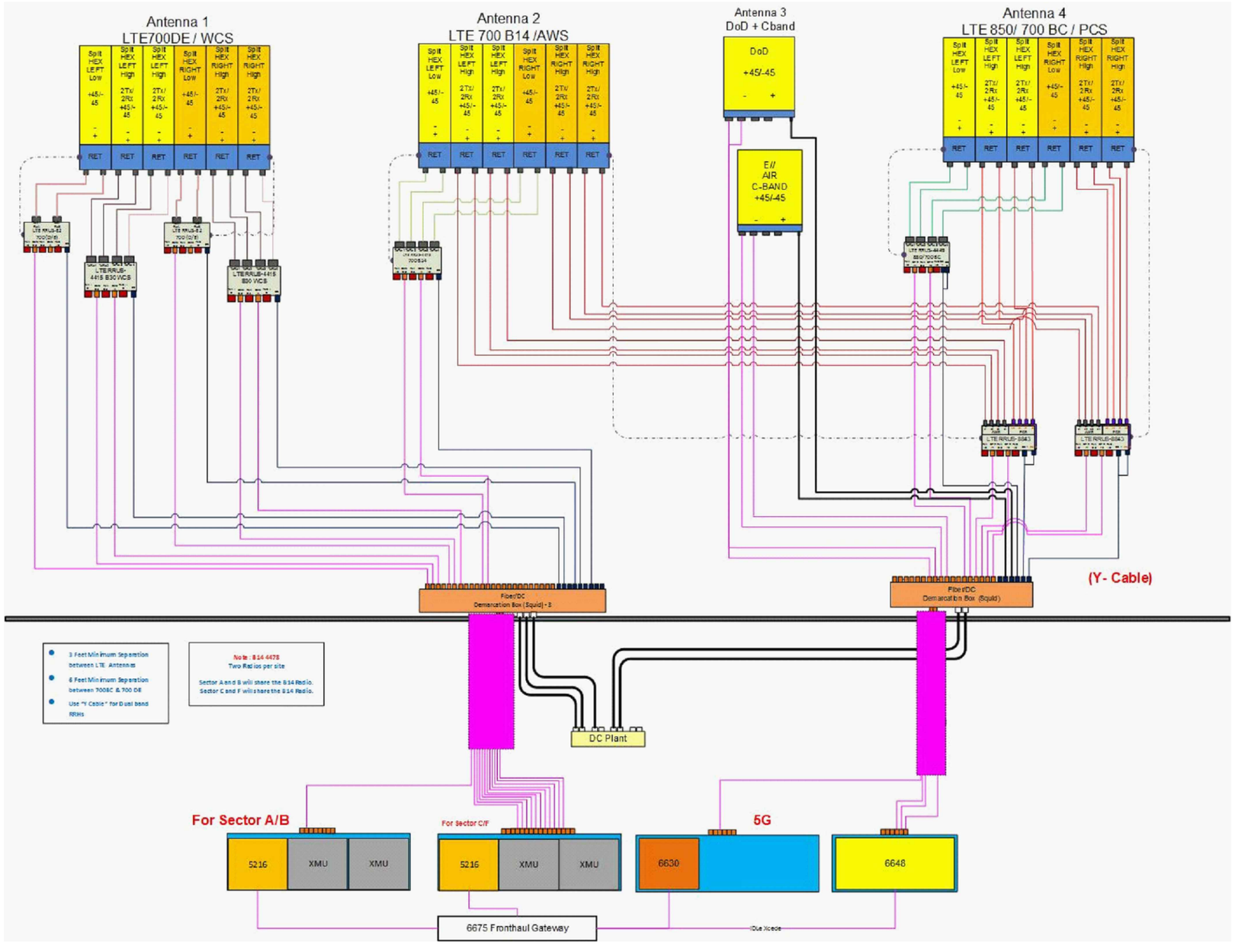
5G NR 1SR C–BAND_5G NR 1DR–1_ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05073	RF–1	2

GAMMA/ DELTA SECTOR

NOTE:

REV: 2
DATED: 02/21/2021
RFDS ID: 4462270



RF PLUMBING DIAGRAM (1 / RF–2)
SCALE: N.T.S

NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS.
3. RFDS USED FOR REFERENCE.

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

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SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CTL05073
SITE NAME: DANBURY BANM

24 HOSPITAL AVENUE
DANBURY, CT 06810
FAIRFIELD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
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NO.	DATE	REVISIONS	BY	CHK	APP'D
2	04/20/23	ISSUED FOR CONSTRUCTION	GA/MR	HC	DPH
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A	05/03/22	ISSUED FOR REVIEW	SS	HC	DPH

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: SS

AT&T

RF PLUMBING DIAGRAM

5G NR 1SR C–BAND_5G NR 1DR–1_ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05073	RF–2	2

Exhibit D

Structural Analysis Report

(REVISED)
STRUCTURAL ANALYSIS REPORT

For

CT5073

DANBURY BANM

24 Hospital Avenue
Danbury, CT 06810

Antennas Mounted on Steel Frames on the Roof

Prepared for:

SAI at&t

Dated: April 12, 2023 (Rev.1)
May 16, 2022

Prepared by:

TEP NORTHEAST

(TEP OPCO, LLC)
45 Beechwood Drive
North Andover, MA 01845
(P) 978.557.5553
www.tepgroup.net

STATE OF CONNECTICUT
DANIEL HAMM
LICENSED
PROFESSIONAL ENGINEER

SCOPE OF WORK:

TEP Northeast (TEP NE) has been authorized by AT&T to conduct a structural evaluation of the structure supporting the proposed equipment located in the areas depicted in the latest TEP NE construction drawings.

This report represents this office's findings, conclusions and recommendations pertaining to the support of AT&T's proposed antennas listed below.

This office conducted an on-site visual survey of the above site on April 13, 2021. Attendees included Marc Dahlquist (TEP NE – Field Technician).

The following documents were used for our reference:

- Previous Structural Analysis prepared by Hudson Design Group, LLC. dated March 17, 2020.

CONCLUSION SUMMARY:

Based on our evaluation, we have determined that the existing mounts **ARE NOT CAPABLE** of supporting the proposed equipment loading. TEP NE recommends the following modification:

- **Install proposed 3" std. (3.5" O.D.) pipe mast behind the proposed and existing antennas secured to the existing steel frame (total of 4 per beta sector).**
- **Install proposed 2-1/2" std. (2.88" O.D.) diagonal pipe brace secured to the existing steel frame (total of 2 per gamma/delta sector).**

	Member	Controlling Load Case	Stress Ratio	Pass/Fail
Antenna Mount (Alpha Sector)	2	LC1	42%	**PASS**
Antenna Mount (Beta Sector)	29	LC1	131%	**FAIL**
Antenna Mount (Modified Beta Sector)	28	LC1	91%	**PASS**
Antenna Mount (Gamma/Delta Sector)	1&2	LC2	103%	**FAIL**
Antenna Mount (Modified Gamma/Delta Sector)	1	LC3	97%	**PASS**

Based on our evaluation, we have determined that the existing connections **ARE NOT CAPABLE** of supporting the proposed equipment loading. TEP NE recommends the following modification:

- **Remove and replace existing single 3/8" threaded rod connections with proposed single A325 1/2" bolt connections (total of 4 per beta sector).**
- **Remove and replace existing double 3/8" threaded rod connections with proposed double A325 3/8" bolt connections (total of 4 per beta sector).**

	Member	Stress Ratio	Pass/Fail
Existing Connection (Alpha Sector)	1/2" Threaded Rod	7%	**PASS**
Existing Connection (Beta Sector)	3/8" Threaded Rod	282%	**FAIL**
Proposed Connection (Beta Sector)	1/2" Bolt	77%	**PASS**
Existing Connection (Gamma/Delta Sector)	3/8" Threaded Rod	94%	**PASS**

APPURTENANCE CONFIGURATION:

Appurtenances	Dimensions	Weight	**Elevation	Mount
(2) HPA-65R-BUU-H6 Antennas	72.0"x14.8"x7.4"	51 lbs	133',137',159'	Antenna Mount
(2) 800-10965 Antennas	78.7"x20.0"x6.9"	109 lbs	133',137',159'	Antenna Mount
(3) BSA-M65R-BUU-H6-K Antennas	72.0"x28.5"x9.7"	101 lbs	133'	Antenna Mount
(4) RRUS-E2 B29 RRH's	20.4"x18.5"x7.5"	53 lbs	-	Antenna Mount
(2) RRUS-32 B30 RRH's	27.2"x12.1"x7.0"	60 lbs	-	Antenna Mount
(3) 4478 B14 RRH's	18.1"x13.4"x8.3"	60 lbs	-	Antenna Mount
(2) RRUS-32 B66A RRH's	27.2"x12.1"x7.0"	60 lbs	-	Antenna Mount
(3) 4449 B5/B12 RRH's	17.9"x13.2"x9.4"	73 lbs	-	Antenna Mount
(2) RRUS-32 B2 RRH's	27.2"x12.1"x7.0"	60 lbs	-	Antenna Mount
(2) 4415 B30 RRH's	16.5"x13.4"x5.9"	46 lbs	-	Antenna Mount
(2) 8843 B2/B66A RRH's	14.9"x13.2"x10.9"	72 lbs	-	Antenna Mount
(5) DC6-48-60-18-8F Surge Arrestors	31.4"x10.2"Ø	33 lbs	-	Antenna Mount
(1) DC9-48-60-24-8C-EV Surge Arrestor	31.4"x10.2"Ø	33 lbs	-	Antenna Mount
(3) AIR6419 Antennas	31.0"x16.1"x7.3"	66 lbs	***Varies	Antenna Mount
(3) AIR6449 Antennas	30.6"x15.9"x10.6"	82 lbs	***Varies	Antenna Mount
(2) DMP65R-BU6DA Antennas	71.2"x20.7"x7.7"	96 lbs	133',137',159'	Antenna Mount
(1) 4449 B5/B12 RRH	17.9"x13.2"x9.4"	73 lbs	-	Antenna Mount

** Proposed equipment shown in bold.*

*** Elevation to antenna centerline. Alpha Sector at 137'-0", Beta Sector at 159'-0", Gamma/ Delta Sector at 133'-0").*

**** Elevation to antenna centerline. Alpha sector at 138'-9" (AIR6419 Antenna) and 135'-2" (AIR6449 Antenna) elevation, Beta Sector at 160'-9" (AIR6419 Antenna) and 157'-2" (AIR6449 Antenna) elevation, Gamma sector at 134'-9" (AIR6419 Antenna) and 131'-2" (AIR6449 Antenna) elevation.*

DESIGN CRITERIA:

International Building Code (IBC) 2021 with 2022 Connecticut State Building Code Amendments, and ASCE 7-16 (Minimum Design Loads for Buildings and Other Structures).		
Wind		
Reference Wind Speed:	130 mph	(2022 CSBC Appendix P)
Exposure Category:	C	(ASCE 7-16 Chapter 26)
Risk Category:	IV	(ASCE 7-16 Table 1.5-1)
Snow		
Ground Snow, P_g:	30	(2022 CSBC Appendix P)
Importance Factor (I_s):	1.2	(ASCE 7-16 Table 1.5-2)
Exposure Factor (C_e):	1.0	(Partially Exposed, Table 7.3-1)
Thermal Factor (C_t):	1.0	(ASCE 7-16 Table 7.3-2)
Flat Roof Snow Load:	25.2 psf	(ASCE 7-16 Equation 7.3-1)
Min. Flat Roof Snow Load:	30 psf	
EIA/TIA-222-H Structural Standards for Steel Antenna Towers and Antenna Supporting Structures		
Wind		
City/Town:	Danbury	
County:	Fairfield	
Wind Load:	130 mph	(TIA-222-H Figure B-2)
Ice		
Design Ice Thickness (t_i):	1.0 in	(TIA-222-H Figure B-9)
Structure Class:	IV	(TIA-222-H Table 2-1)
Importance Factor (I_i):	1.25	(TIA-222-H Table 2-3)
Factored Thickness of Radial Ice (t_{iz}):	1.46 in	(TIA-222-H Sec. 2.6.10)

ANTENNA SUPPORT RECOMMENDATIONS:

The proposed antennas are to be mounted on existing and proposed pipe masts installed on existing steel frames secured to the existing steel frame on the roof.

RRH SUPPORT RECOMMENDATIONS:

The proposed RRH's are to be mounted on existing unistrut components secured to the existing pipe masts.

Limitations and Assumptions:

1. Reference the latest TEP NE construction drawings for all the equipment locations and details.
2. All detail requirements will be designed and furnished in the construction drawings.
3. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
4. TEP NE is not responsible for any modifications completed prior to and hereafter which TEP NE was not directly involved.
5. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer requirements.
6. If field conditions differ from what is assumed in this report, then the engineer of record is to be notified as soon as possible.

FIELD PHOTOS:

Photo 1: Sample photo illustrating the existing Alpha sector.

Photo 2: Sample photo illustrating the existing Beta sector.

FIELD PHOTOS (CONT.):

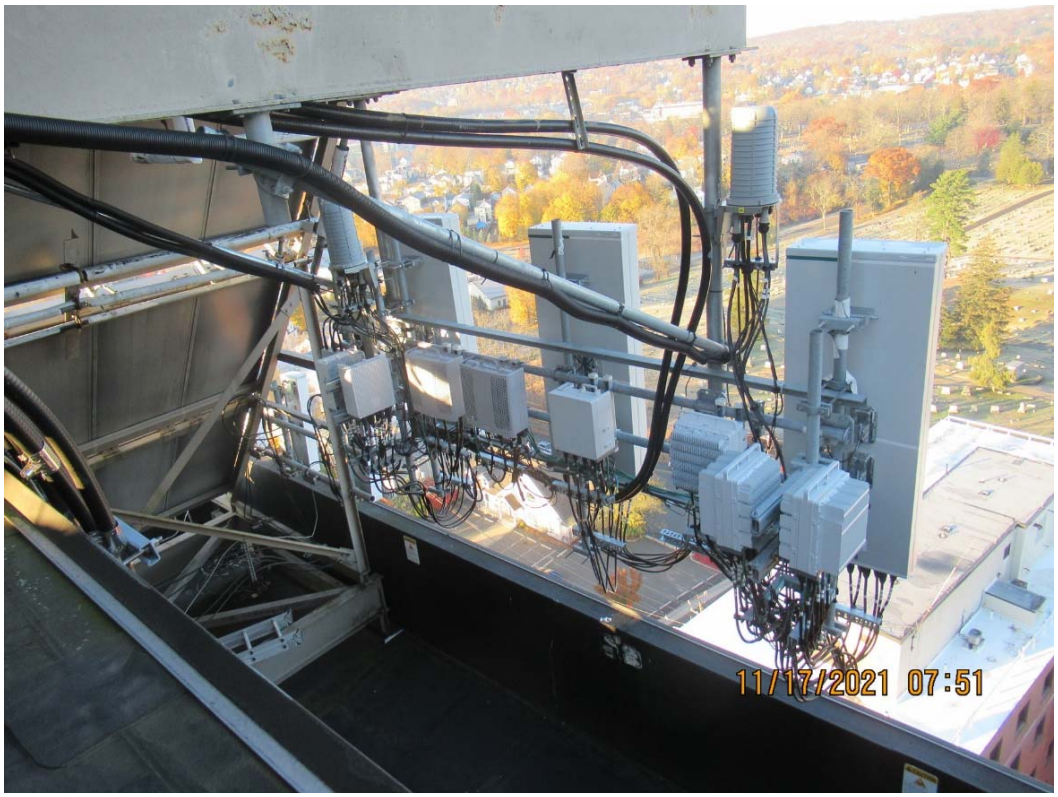


Photo 3: Sample photo illustrating the existing Gamma/Delta sector.

Photo 4: Sample photo illustrating the existing equipment cabinets.

Alpha Sector Antenna Mount Calculations

Date: 4/12/2023
Project Name: DANBURY BANM
Project No.: CT5073
Designed By: KSBM **Checked By:** MSC

2.6.5.2 Velocity Pressure Coeff:

$K_z = 2.01 (z/z_g)^{2/\alpha}$

z=	137	(ft)
z_g=	900	(ft)
α=	9.5	
K_z=	**1.352**	

Kzmin ≤ Kz ≤ 2.01

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$K_{zt} = [1+(K_c K_t/K_h)]^2$ $K_h = e^{(f*z/H)}$

K_{zt}=	**1**	
K_h=	1	
K_c=	1.0	(from Table 2-4)
K_t=	0	(from Table 2-5)
f=	0	(from Table 2-5)
z=	137	
z_s=	430	(Mean elevation of base of structure above sea level)
H=	0	(Ht. of the crest above surrounding terrain)
K_{zt}=	1.00	(from 2.6.6.2.1)
K_e=	0.98	(from 2.6.8)

(If Category 1 then K_{zt} =1.0)

Category= **1**

2.6.10 Design Ice Thickness

Max Ice Thickness = t_i =	1.00	in
Importance Factor = I=	1.25	(from Table 2-3)
K_{iz} =	1.15	(from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$ t_{iz} = 1.44 in

Date: 4/12/2023
Project Name: DANBURY BANM
Project No.: CT5073
Designed By: KSBM Checked By: MSC

2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

G_h = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h=	121.5	G_h=	0.85

2.6.9.2 Guyed Masts G_h= 0.85

2.6.9.3 Pole Structures G_h= 1.1

2.6.9 Appurtenances G_h= 1.0

2.6.9.4 Structures Supported on Other Structures

(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

G_h=	1.35	**Gh=**	**1.00**

2.6.11.2 Design Wind Force on Appurtenances

$F = q_z * G_h * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$

		K_z=	1.352	(from 2.6.5.2)
		K_{zt}=	1.0	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**54.72**	K_e=	0.98	(from 2.6.8)
$q_{z\ (ice)}$=	**8.10**	K_d=	0.95	(from Table 2-2)
$q_{z\ (30)}$=	**2.91**	V_{max}=	130	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

Date: 4/12/2023
Project Name: DANBURY BANM
Project No.: CT5073
Designed By: KSBM Checked By: MSC

Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		**Aspect Ratio ≤ 2.5**	**Aspect Ratio = 7**	**Aspect Ratio ≥ 25**
		Ca	**Ca**	**Ca**
Flat		1.2	1.4	2.0
Square/Rectangular HSS		$1.2 - 2.8(r_s) \geq 0.85$	$1.4 - 4.0(r_s) \geq 0.90$	$2.0 - 6.0(r_s) \geq 1.25$
Round	**C < 39** (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{1.0})$
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
(Aspect ratio is independent of the spacing between support points of a linear appurtenance,

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **1.44** **in** | **Angle =** **0 (deg)** | **Equivalent Angle =** **180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	4.86	1.31	**529**	**97**
HPA-65R-BUU-H6 Antenna (Side)	72.0	7.4	14.8	3.70	9.73	1.49	**302**	**65**
800-10965 Antenna	78.7	20.0	6.9	10.93	3.94	1.26	**756**	**133**
800-10965 Antenna (Side)	78.7	6.9	20.0	3.77	11.41	1.55	**319**	**69**
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.93	1.20	**228**	**44**
AIR6419 Antenna (Side)	31.1	7.3	16.1	1.58	4.26	1.28	**110**	**25**
AIR6449 Antenna	30.6	15.9	10.6	3.38	1.92	1.20	**222**	**42**
AIR6449 Antenna (Side)	30.6	10.6	15.9	2.25	2.89	1.22	**150**	**31**
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.44	1.24	**696**	**122**
DMP65R-BU6DA Antenna (Side)	71.2	7.7	20.7	3.81	9.25	1.47	**307**	**65**
RRUS-E2 B29 RRH	20.4	18.5	7.5	2.62	1.10	1.20	**172**	**34**
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	2.25	1.20	**150**	**30**
4478 B14 RRH	18.1	13.4	8.3	1.68	1.35	1.20	**111**	**23**
RRUS-32 B66A RRH	27.2	12.1	7.0	2.29	2.25	1.20	**150**	**30**
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	2.25	1.20	**150**	**30**
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.36	1.20	**108**	**23**
DC6-48-60-18-8F Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	**85**	**18**
2" Pipe	2.4	12.0		0.20	0.20	1.20	**13**	

Date: 4/12/2023
Project Name: DANBURY BANM
Project No.: CT5073
Designed By: KSBM **Checked By:** MSC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.44 in.
Density of ice: 56 pcf

HPA-65R-BUU-H6 Antenna

Weight of ice based on total radial SF area:

Height (in):	72.0	
Width (in):	14.8	
Depth (in):	7.4	
Total weight of ice on object:		190 lbs
Weight of object:	51.0 lbs	
Combined weight of ice and object:		241 lbs

800-10965 Antenna

Weight of ice based on total radial SF area:

Height (in):	78.7	
Width (in):	20.0	
Depth (in):	6.9	
Total weight of ice on object:		261 lbs
Weight of object:	109.0 lbs	
Combined weight of ice and object:		370 lbs

AIR6419 Antenna

Weight of ice based on total radial SF area:

Height (in):	31.1	
Width (in):	16.1	
Depth (in):	7.3	
Total weight of ice on object:		87 lbs
Weight of object:	66.0 lbs	
Combined weight of ice and object:		153 lbs

AIR6449 Antenna

Weight of ice based on total radial SF area:

Height (in):	30.6	
Width (in):	15.9	
Depth (in):	10.6	
Total weight of ice on object:		92 lbs
Weight of object:	82.0 lbs	
Combined weight of ice and object:		174 lbs

DMP65R-BU6DA Antenna

Weight of ice based on total radial SF area:

Height (in):	71.2	
Width (in):	20.7	
Depth (in):	7.7	
Total weight of ice on object:		246 lbs
Weight of object:	96.0 lbs	
Combined weight of ice and object:		342 lbs

RRUS-E2 B29 RRH

Weight of ice based on total radial SF area:

Height (in):	20.4	
Width (in):	18.5	
Depth (in):	7.5	
Total weight of ice on object:		64 lbs
Weight of object:	53.0 lbs	
Combined weight of ice and object:		117 lbs

RRUS-32 B30 RRH

Weight of ice based on total radial SF area:

Height (in):	27.2	
Width (in):	12.1	
Depth (in):	7.0	
Total weight of ice on object:		61 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		121 lbs

4478 B14 RRH

Weight of ice based on total radial SF area:

Height (in):	18.1	
Width (in):	13.4	
Depth (in):	8.3	
Total weight of ice on object:		46 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		106 lbs

RRUS-32 B66A RRH

Weight of ice based on total radial SF area:

Height (in):	27.2	
Width (in):	12.1	
Depth (in):	7.0	
Total weight of ice on object:		61 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		121 lbs

RRUS-32 B2 RRH

Weight of ice based on total radial SF area:

Height (in):	27.2	
Width (in):	12.1	
Depth (in):	7.0	
Total weight of ice on object:		61 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		121 lbs

4449 B5/B12 RRH

Weight of ice based on total radial SF area:

Height (in):	17.9	
Width (in):	13.2	
Depth (in):	9.4	
Total weight of ice on object:		46 lbs
Weight of object:	73.0 lbs	
Combined weight of ice and object:		119 lbs

DC6-48-60-18 Surge Arrestor

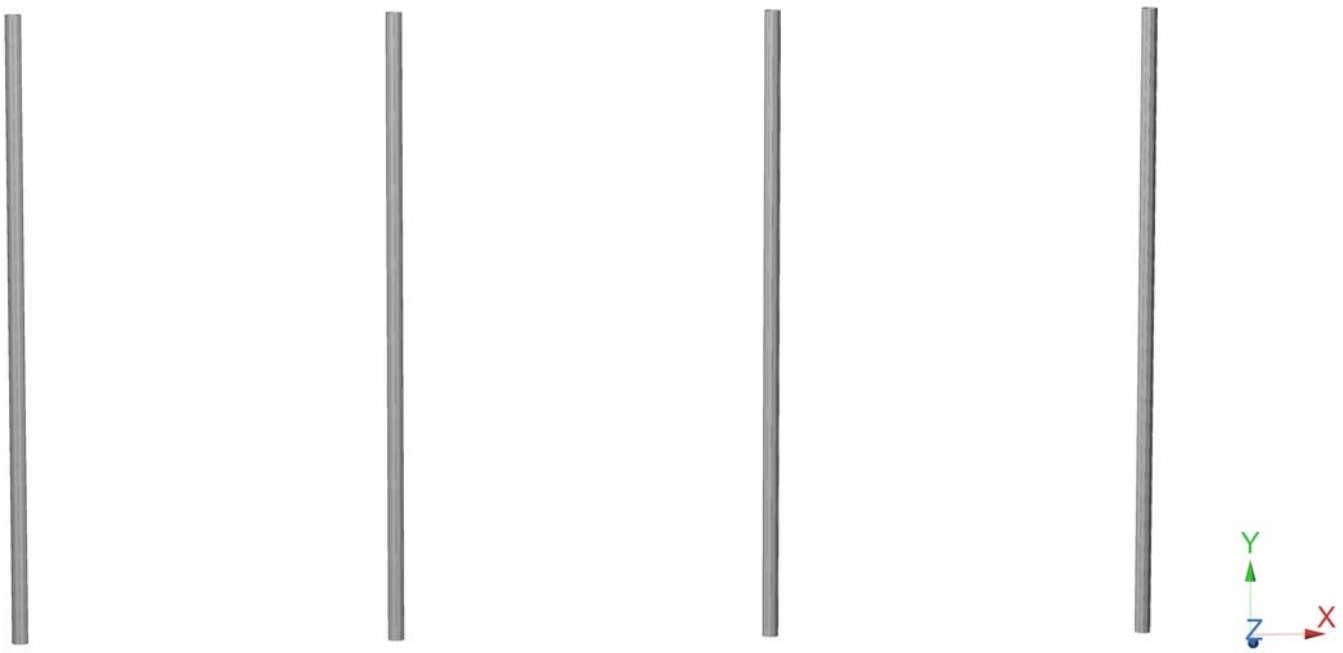
Weight of ice based on total radial SF area:

Depth (in):	31.4	
Diameter(in):	10.2	
Total weight of ice on object:		54 lbs
Weight of object:	33 lbs	
Combined weight of ice and object:		87 lbs

2" pipe

Per foot weight of ice:

diameter (in):	2.38	
Per foot weight of ice on object:		7 plf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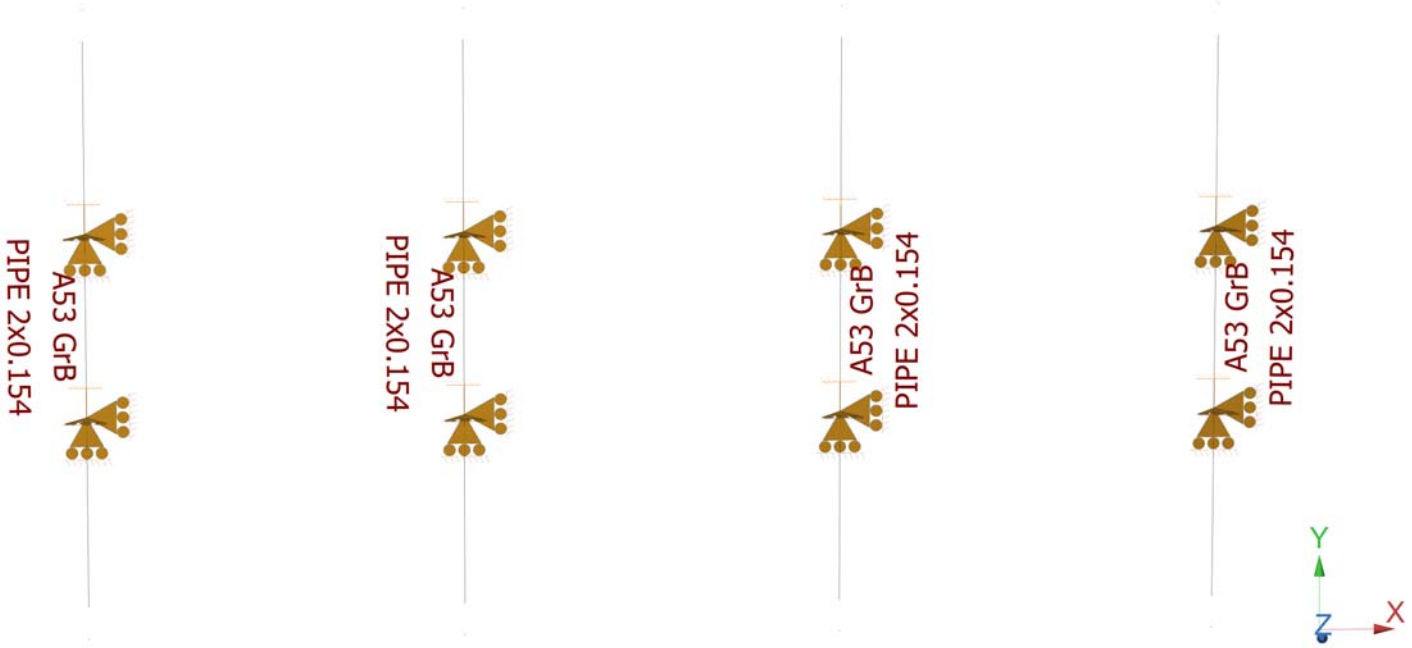
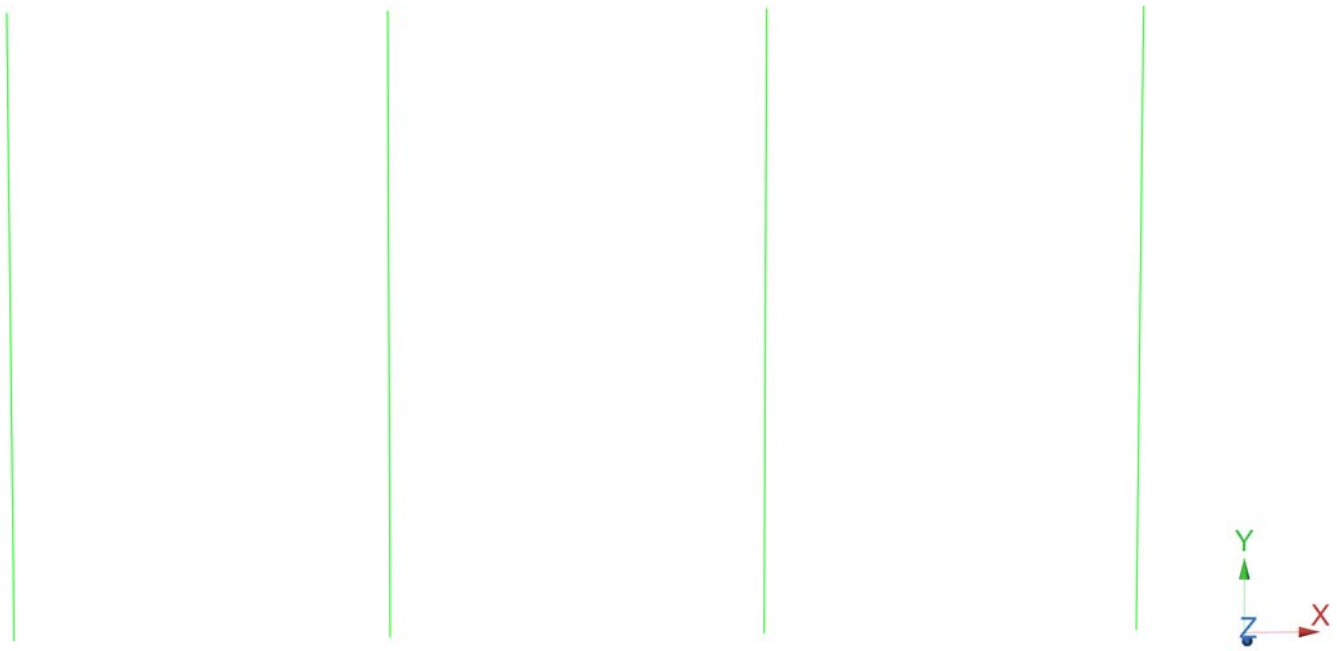
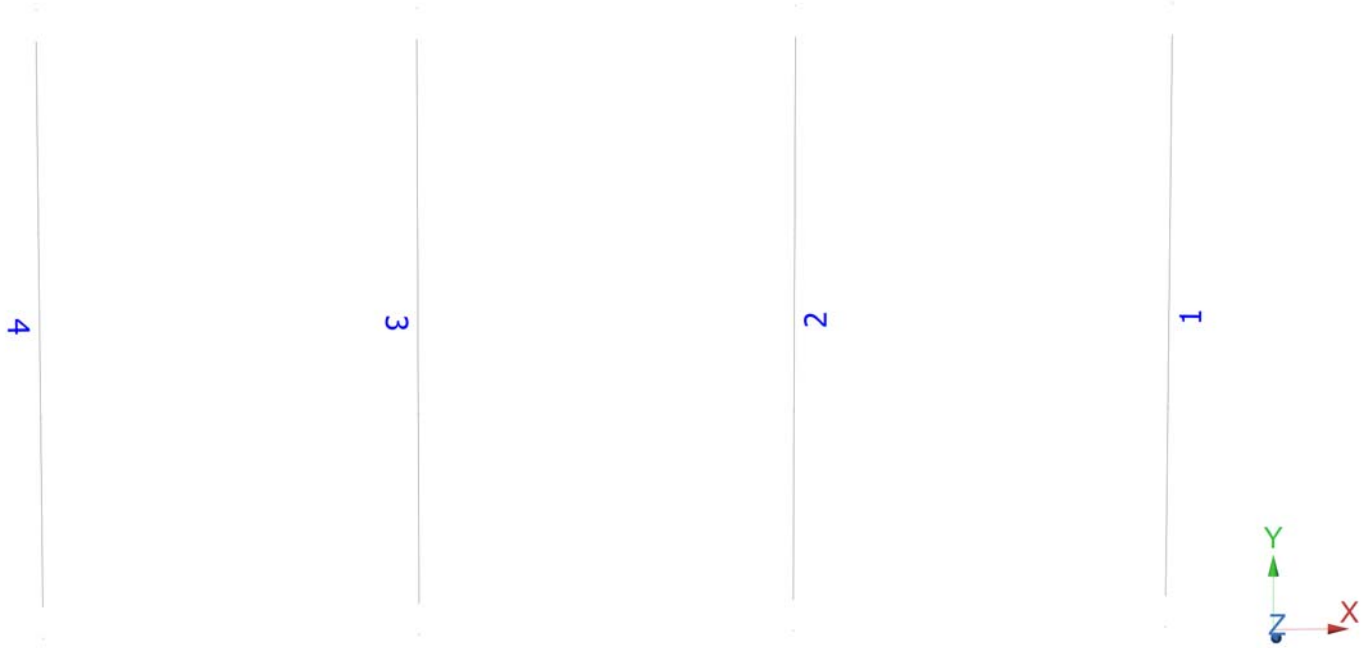
Z
X


A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 2x0.154
Y
Z
X


Y
Z
X


4
3
2
1
Y
Z
X

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Load data

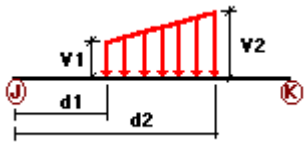
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

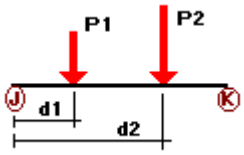
Condition	Description	Comb.	Category
DL	Dead Load	No	DL
Wf	Wind Load (FRONT)	No	WIND
Ws	Wind Load (SIDE)	No	WIND
Wfice	Wind ICE (FRONT)	No	WIND
Wsice	Wind ICE (SIDE)	No	WIND
Di	Ice Load	No	LL

Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Ws	1	x	-0.012	0.00	0.00	No	0.00	No
	2	x	-0.012	0.00	0.00	No	0.00	No
	3	x	-0.012	0.00	0.00	No	0.00	No
	4	x	-0.012	0.00	0.00	No	0.00	No
Di	1	y	-0.007	0.00	0.00	No	0.00	No
	2	y	-0.007	0.00	0.00	No	0.00	No
	3	y	-0.007	0.00	0.00	No	0.00	No
	4	y	-0.007	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	1	y	-0.026	2.00	No
		y	-0.026	7.00	No
	2	y	-0.055	1.75	No
		y	-0.055	7.25	No
	3	y	-0.033	1.75	No
		y	-0.033	3.50	No
		y	-0.041	5.50	No
		y	-0.041	7.25	No
	4	y	-0.048	2.00	No
		y	-0.048	7.00	No
Wf	1	z	-0.265	2.00	No
		z	-0.265	7.00	No
	2	z	-0.378	1.75	No
		z	-0.378	7.25	No
	3	z	-0.115	1.75	No
		z	-0.115	3.50	No
		z	-0.111	5.50	No
		z	-0.111	7.25	No
	4	z	-0.348	2.00	No
		z	-0.348	7.00	No
Ws	1	x	-0.151	2.00	No
		x	-0.151	7.00	No
	2	x	-0.16	1.75	No
		x	-0.16	7.25	No
	3	x	-0.056	1.75	No
		x	-0.056	3.50	No
		x	-0.076	5.50	No
		x	-0.076	7.25	No
	4	x	-0.154	2.00	No
		x	-0.154	7.00	No
Wfice	1	z	-0.049	2.00	No
		z	-0.049	7.00	No
	2	z	-0.067	1.75	No
		z	-0.067	7.25	No
	3	z	-0.022	1.75	No
		z	-0.022	3.50	No
		z	-0.022	5.50	No
		z	-0.022	7.25	No
	4	z	-0.061	2.00	No
		z	-0.061	7.00	No
Wsice	1	x	-0.033	2.00	No
		x	-0.033	7.00	No
	2	x	-0.035	1.75	No
		x	-0.035	7.25	No
	3	x	-0.013	1.75	No
		x	-0.013	3.50	No
		x	-0.016	5.50	No
		x	-0.016	7.25	No
	4	x	-0.033	2.00	No
		x	-0.033	7.00	No
Di	1	y	-0.095	2.00	No
		y	-0.095	7.00	No
	2	y	-0.131	1.75	No
		y	-0.131	7.25	No
	3	y	-0.044	1.75	No
		y	-0.044	3.50	No
		y	-0.047	5.50	No
		y	-0.047	7.25	No
	4	y	-0.123	2.00	No
		y	-0.123	7.00	No

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
Wf	Wind Load (FRONT)	No	0.00	0.00	0.00
Ws	Wind Load (SIDE)	No	0.00	0.00	0.00
Wfice	Wind ICE (FRONT)	No	0.00	0.00	0.00
Wsice	Wind ICE (SIDE)	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
Wf	0.00	0.00	0.00
Ws	0.00	0.00	0.00
Wfice	0.00	0.00	0.00
Wsice	0.00	0.00	0.00
Di	0.00	0.00	0.00

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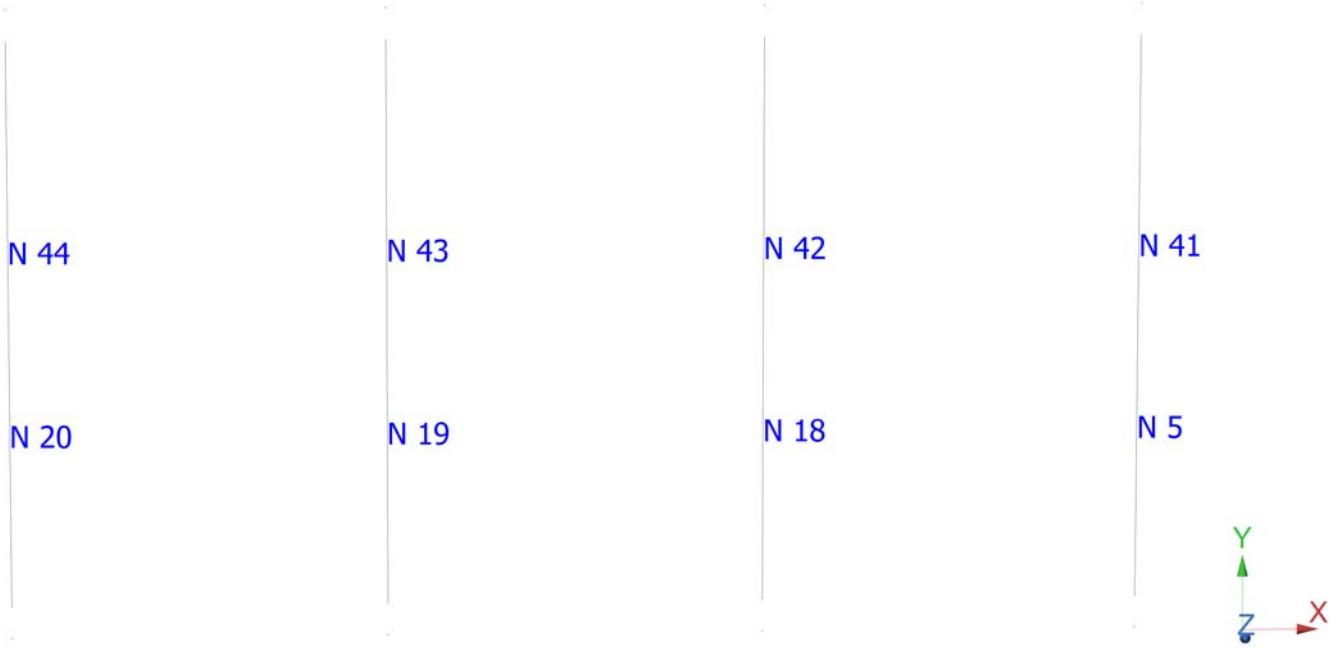
Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2DL+Wf
LC2=1.2DL+Ws
LC3=0.9DL+Wf
LC4=0.9DL+Ws
LC5=1.2DL+Wfice+Di
LC6=1.2DL+Wsice+Di
LC7=1.4DL
LC8=0.9DL

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	PIPE 2x0.154	**1**	LC1 at 64.58%	0.26	OK	
		2	LC1 at 64.58%	**0.42**	**OK**	
		3	LC1 at 64.58%	0.15	OK	
		4	LC1 at 64.58%	0.34	OK	


N 44
N 43
N 42
N 41
N 20
N 19
N 18
N 5
Y
Z
X

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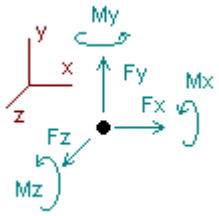
Analysis result

Envelope for nodal reactions

Note.- **lc** is the controlling load condition



Direction of positive forces and moments

Envelope of nodal reactions for :
LC1=1.2DL+Wf
LC2=1.2DL+Ws
LC3=0.9DL+Wf
LC4=0.9DL+Ws
LC5=1.2DL+Wfice+Di
LC6=1.2DL+Wsice+Di
LC7=1.4DL
LC8=0.9DL

		Forces						Moments					
Node		**Fx** [Kip]	**lc**	**Fy** [Kip]	**lc**	**Fz** [Kip]	**lc**	**Mx** [Kip*ft]	**lc**	**My** [Kip*ft]	**lc**	**Mz** [Kip*ft]	**lc**
5	Max	0.264	LC2	0.142	LC5	0.379	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	0.000	LC1	0.036	LC3	0.000	LC2	0.00000	LC1	0.00000	LC1	0.00000	LC1
18	Max	0.277	LC2	0.213	LC5	0.540	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	0.000	LC1	0.062	LC3	0.000	LC2	0.00000	LC1	0.00000	LC1	0.00000	LC1
19	Max	0.269	LC2	0.233	LC5	0.316	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	0.000	LC1	0.094	LC3	0.000	LC2	0.00000	LC1	0.00000	LC1	0.00000	LC1
20	Max	0.268	LC2	0.197	LC5	0.497	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	0.000	LC1	0.055	LC3	0.000	LC2	0.00000	LC1	0.00000	LC1	0.00000	LC1
41	Max	0.134	LC2	0.142	LC5	0.151	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	0.000	LC1	0.036	LC3	0.000	LC2	0.00000	LC1	0.00000	LC1	0.00000	LC1
42	Max	0.139	LC2	0.213	LC5	0.216	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	0.000	LC1	0.062	LC3	0.000	LC2	0.00000	LC1	0.00000	LC1	0.00000	LC1
43	Max	0.091	LC2	0.160	LC5	0.136	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	0.000	LC1	0.063	LC3	0.000	LC2	0.00000	LC1	0.00000	LC1	0.00000	LC1
44	Max	0.136	LC2	0.197	LC5	0.199	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	0.000	LC1	0.055	LC3	0.000	LC2	0.00000	LC1	0.00000	LC1	0.00000	LC1

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Project No.: CT5073
Designed By: KSBM **Checked By:** MSC

CHECK CONNECTION CAPACITY → ALPHA SECTOR

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = A36 1/2" (Threaded Rod)

Allowable Tensile Load =

F_{Tall} = 4271 lbs.

Allowable Shear Load =

F_{Vall} = 2562 lbs.

TENSILE FORCES

Reaction **F =** 197 lbs. (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 268 lbs. (See Bentley Output)
Reactions in Z direction: 497 lbs. (See Bentley Output)

Resultant: 565 lbs.

No. of Supports = 1
No. of Bolts / Support = 4

Tension Design Load /Bolts =

f_t = 49.25 lbs. < 4271 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v = 141.16 lbs. < 2562 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.012	+	0.055	=	0.067	<	1.0	**Therefore, OK !**

Beta Sector Antenna Mount Calculations
(Existing Conditions)

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Designed By: KSBM **Checked By:** MSC

2.6.5.2 Velocity Pressure Coeff:

$K_z = 2.01\ (z/z_g)^{2/\alpha}$

z=	159	(ft)
z_g=	900	(ft)
α=	9.5	
K_z=	**1.395**	

$K_{zmin} \le K_z \le 2.01$

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$K_{zt} = [1+(K_c K_t/K_h)]^2$ $\quad K_h = e^{(f*z/H)}$

K_{zt}= **1**

(If Category 1 then K_{zt} =1.0)

Category= **1**

K_h=	1	
K_c=	1.0	(from Table 2-4)
K_t=	0	(from Table 2-5)
f=	0	(from Table 2-5)
z=	159	
z_s=	430	(Mean elevation of base of structure above sea level)
H=	0	(Ht. of the crest above surrounding terrain)
K_{zt}=	1.00	(from 2.6.6.2.1)
K_e=	0.98	(from 2.6.8)

2.6.10 Design Ice Thickness

Max Ice Thickness = t_i = 1.00 in
Importance Factor = I= 1.25 (from Table 2-3)
K_{iz} = 1.17 (from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$ $\quad t_{iz}$ = 1.46 in

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Designed By: KSBM Checked By: MSC

2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

G_h = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h=	121.5	G_h=	0.85
2.6.9.2 Guyed Masts		G_h=	0.85
2.6.9.3 Pole Structures		G_h=	1.1
2.6.9 Appurtenances		G_h=	1.0

2.6.9.4 Structures Supported on Other Structures
(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

G_h=	1.35	**Gh=**	**1.00**

2.6.11.2 Design Wind Force on Appurtenances

$F = q_z * G_h * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$

		K_z=	1.395	(from 2.6.5.2)
		K_{zt}=	1.0	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**56.47**	K_e=	0.98	(from 2.6.8)
$q_{z\ (ice)}$=	**8.35**	K_d=	0.95	(from Table 2-2)
$q_{z\ (30)}$=	**3.01**	V_{max}=	130	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

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Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Square/Rectangular HSS		1.2 - 2.8(r_s) ≥ 0.85	1.4 - 4.0(r_s) ≥ 0.90	2.0 - 6.0(r_s) ≥ 1.25
Round	**C < 39** (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{-1.0})$
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
(Aspect ratio is independent of the spacing between support points of a linear appurtenance,

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = 1.46 in | **Angle =** 0 (deg) | **Equivalent Angle =** 180 (deg)

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	4.86	1.31	545	101
HPA-65R-BUU-H6 Antenna (Side)	72.0	7.4	14.8	3.70	9.73	1.49	312	67
800-10965 Antenna	78.7	20.0	6.9	10.93	3.94	1.26	780	137
800-10965 Antenna (Side)	78.7	6.9	20.0	3.77	11.41	1.55	329	72
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.93	1.20	236	45
AIR6419 Antenna (Side)	31.1	7.3	16.1	1.58	4.26	1.28	114	26
AIR6449 Antenna	30.6	15.9	10.6	3.38	1.92	1.20	229	44
AIR6449 Antenna (Side)	30.6	10.6	15.9	2.25	2.89	1.22	155	32
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.44	1.24	718	126
DMP65R-BU6DA Antenna (Side)	71.2	7.7	20.7	3.81	9.25	1.47	317	67
RRUS-E2 B29 RRH	20.4	18.5	7.5	2.62	1.10	1.20	178	35
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	2.25	1.20	155	32
4478 B14 RRH	18.1	13.4	8.3	1.68	1.35	1.20	114	24
RRUS-32 B66A RRH	27.2	12.1	7.0	2.29	2.25	1.20	155	32
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	2.25	1.20	155	32
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.36	1.20	111	23
DC6-48-60-18-8F Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	88	18
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	16	
2-1/2x2-1/2 Angle	2.5	12.0		0.21	0.21	2.00	24	
3x3 Angle	3.0	12.0		0.25	0.25	2.00	28	
4x4 Angle	4.0	12.0		0.33	0.33	2.00	38	
3" Pipe	3.5	12.0		0.29	0.29	1.20	20	

Date: 4/13/2023
Project Name: DANBURY BANM
Project No.: CT5073
Designed By: KSBM **Checked By:** MSC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.46 in.
Density of ice: 56 pcf

HPA-65R-BUU-H6 Antenna
Weight of ice based on total radial SF area:
Height (in): 72.0
Width (in): 14.8
Depth (in): 7.4
Total weight of ice on object: 193 lbs
Weight of object: 51.0 lbs
Combined weight of ice and object: 244 lbs

800-10965 Antenna
Weight of ice based on total radial SF area:
Height (in): 78.7
Width (in): 20.0
Depth (in): 6.9
Total weight of ice on object: 265 lbs
Weight of object: 109.0 lbs
Combined weight of ice and object: 374 lbs

AIR6419 Antenna
Weight of ice based on total radial SF area:
Height (in): 31.1
Width (in): 16.1
Depth (in): 7.3
Total weight of ice on object: 88 lbs
Weight of object: 66.0 lbs
Combined weight of ice and object: 154 lbs

AIR6449 Antenna
Weight of ice based on total radial SF area:
Height (in): 30.6
Width (in): 15.9
Depth (in): 10.6
Total weight of ice on object: 94 lbs
Weight of object: 82.0 lbs
Combined weight of ice and object: 176 lbs

DMP65R-BU6DA Antenna
Weight of ice based on total radial SF area:
Height (in): 71.2
Width (in): 20.7
Depth (in): 7.7
Total weight of ice on object: 249 lbs
Weight of object: 96.0 lbs
Combined weight of ice and object: 345 lbs

RRUS-E2 B29 RRH
Weight of ice based on total radial SF area:
Height (in): 20.4
Width (in): 18.5
Depth (in): 7.5
Total weight of ice on object: 65 lbs
Weight of object: 53.0 lbs
Combined weight of ice and object: 118 lbs

RRUS-32 B30 RRH
Weight of ice based on total radial SF area:
Height (in): 27.2
Width (in): 12.1
Depth (in): 7.0
Total weight of ice on object: 62 lbs
Weight of object: 60.0 lbs
Combined weight of ice and object: 122 lbs

4478 B14 RRH
Weight of ice based on total radial SF area:
Height (in): 18.1
Width (in): 13.4
Depth (in): 8.3
Total weight of ice on object: 46 lbs
Weight of object: 60.0 lbs
Combined weight of ice and object: 106 lbs

RRUS-32 B66A RRH
Weight of ice based on total radial SF area:
Height (in): 27.2
Width (in): 12.1
Depth (in): 7.0
Total weight of ice on object: 62 lbs
Weight of object: 60.0 lbs
Combined weight of ice and object: 122 lbs

RRUS-32 B2 RRH
Weight of ice based on total radial SF area:
Height (in): 27.2
Width (in): 12.1
Depth (in): 7.0
Total weight of ice on object: 62 lbs
Weight of object: 60.0 lbs
Combined weight of ice and object: 122 lbs

4449 B5/B12 RRH
Weight of ice based on total radial SF area:
Height (in): 17.9
Width (in): 13.2
Depth (in): 9.4
Total weight of ice on object: 47 lbs
Weight of object: 73.0 lbs
Combined weight of ice and object: 120 lbs

DC6-48-60-18 Surge Arrestor
Weight of ice based on total radial SF area:
Depth (in): 31.4
Diameter(in): 10.2
Total weight of ice on object: 54 lbs
Weight of object: 33 lbs
Combined weight of ice and object: 87 lbs

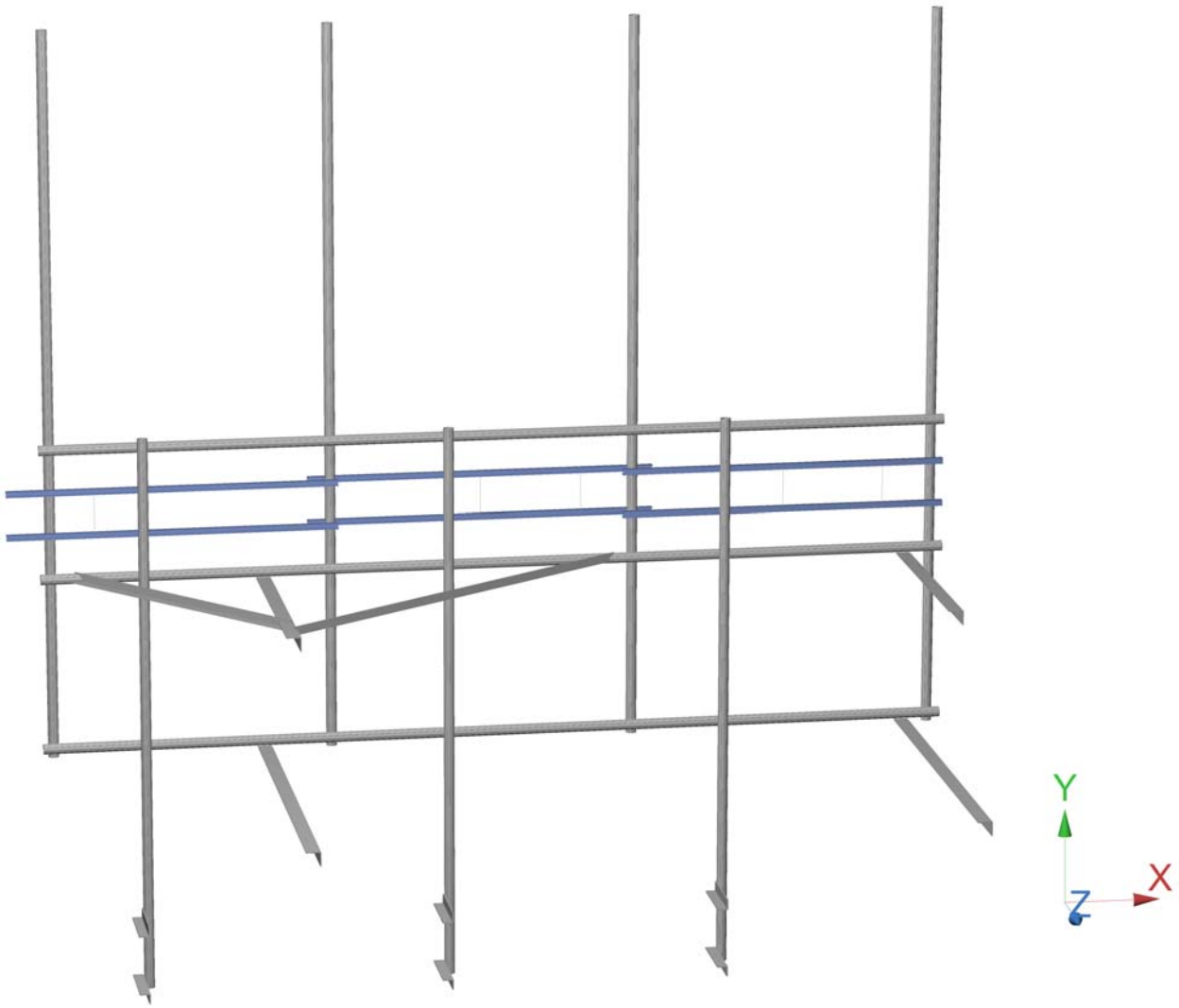
2-1/2" pipe
Per foot weight of ice:
diameter (in): 2.88
Per foot weight of ice on object: 8 plf

L 2-1/2x2-1/2 Angles
Weight of ice based on total radial SF area:
Height (in): 2.5
Width (in): 2.5
Per foot weight of ice on object: 9 plf

L 3x3 Angles
Weight of ice based on total radial SF area:
Height (in): 3
Width (in): 3
Per foot weight of ice on object: 10 plf

L 4x4 Angles
Weight of ice based on total radial SF area:
Height (in): 4
Width (in): 4
Per foot weight of ice on object: 13 plf

3" Pipe
Per foot weight of ice:
diameter (in): 3.5
Per foot weight of ice on object: 9 plf


Y
X
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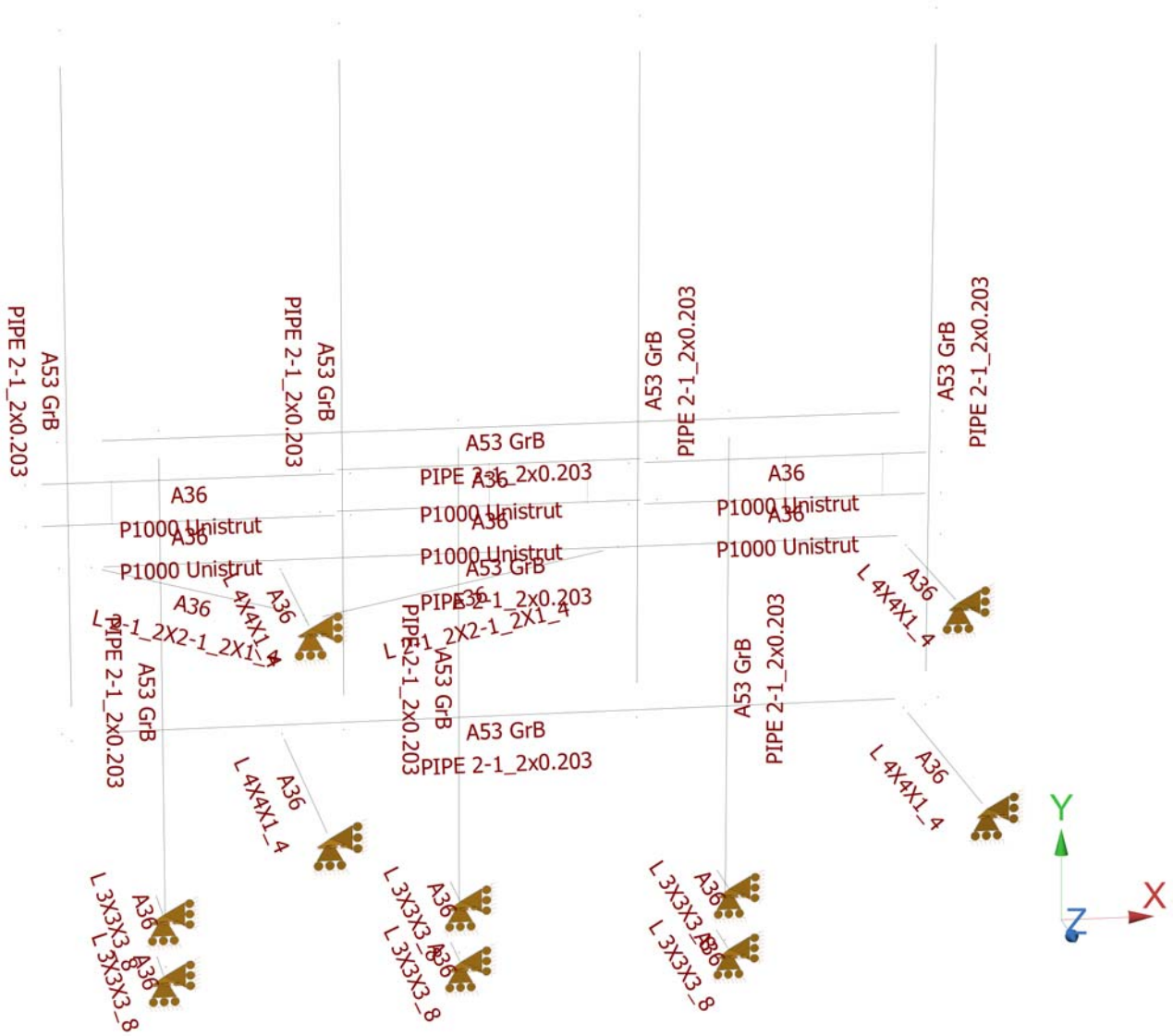
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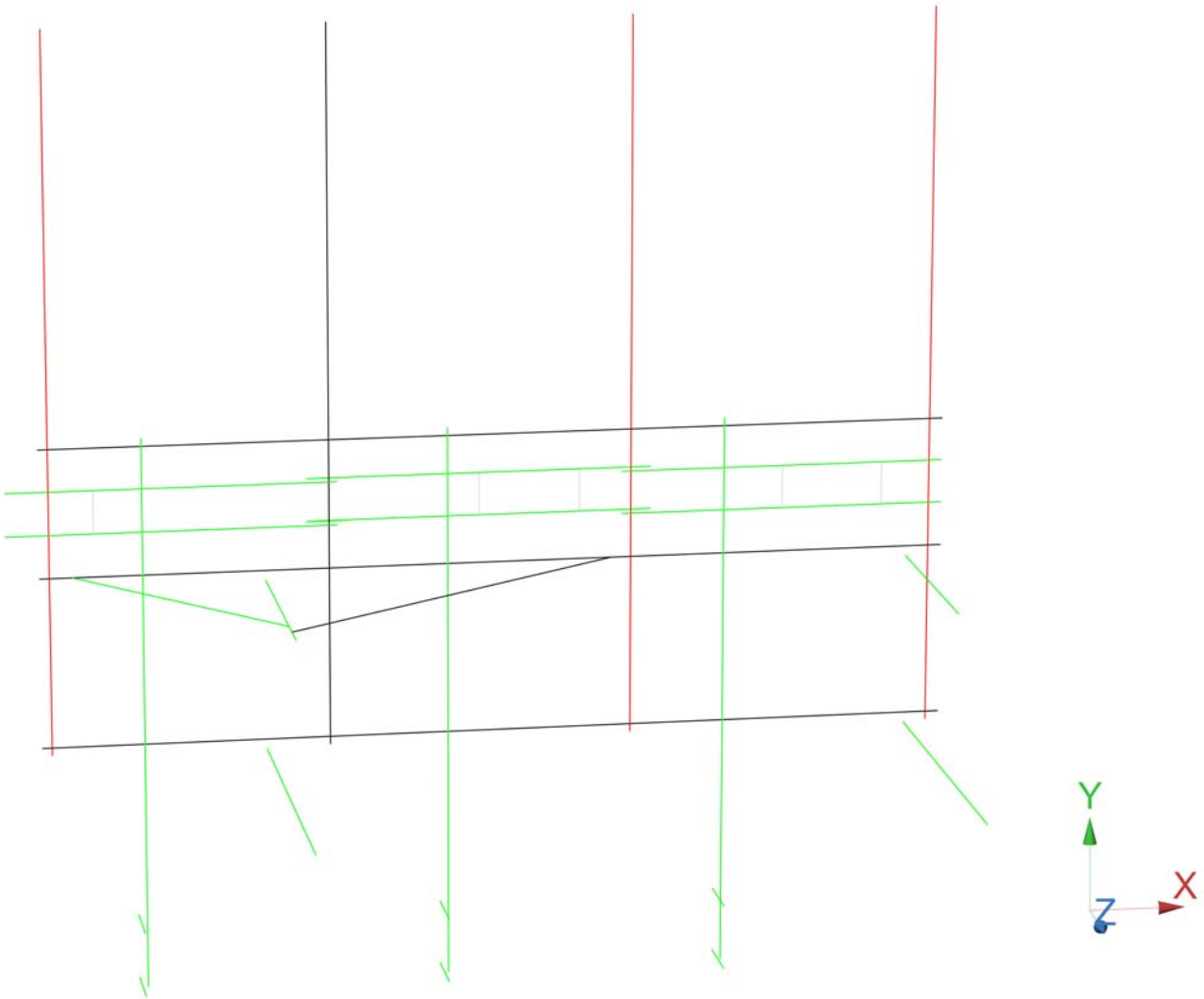
PIPE 2-1_2x0.203
A36
P1000 Unistrut
L 4X4X1_4
L 3X3X3_8
Y
X
Z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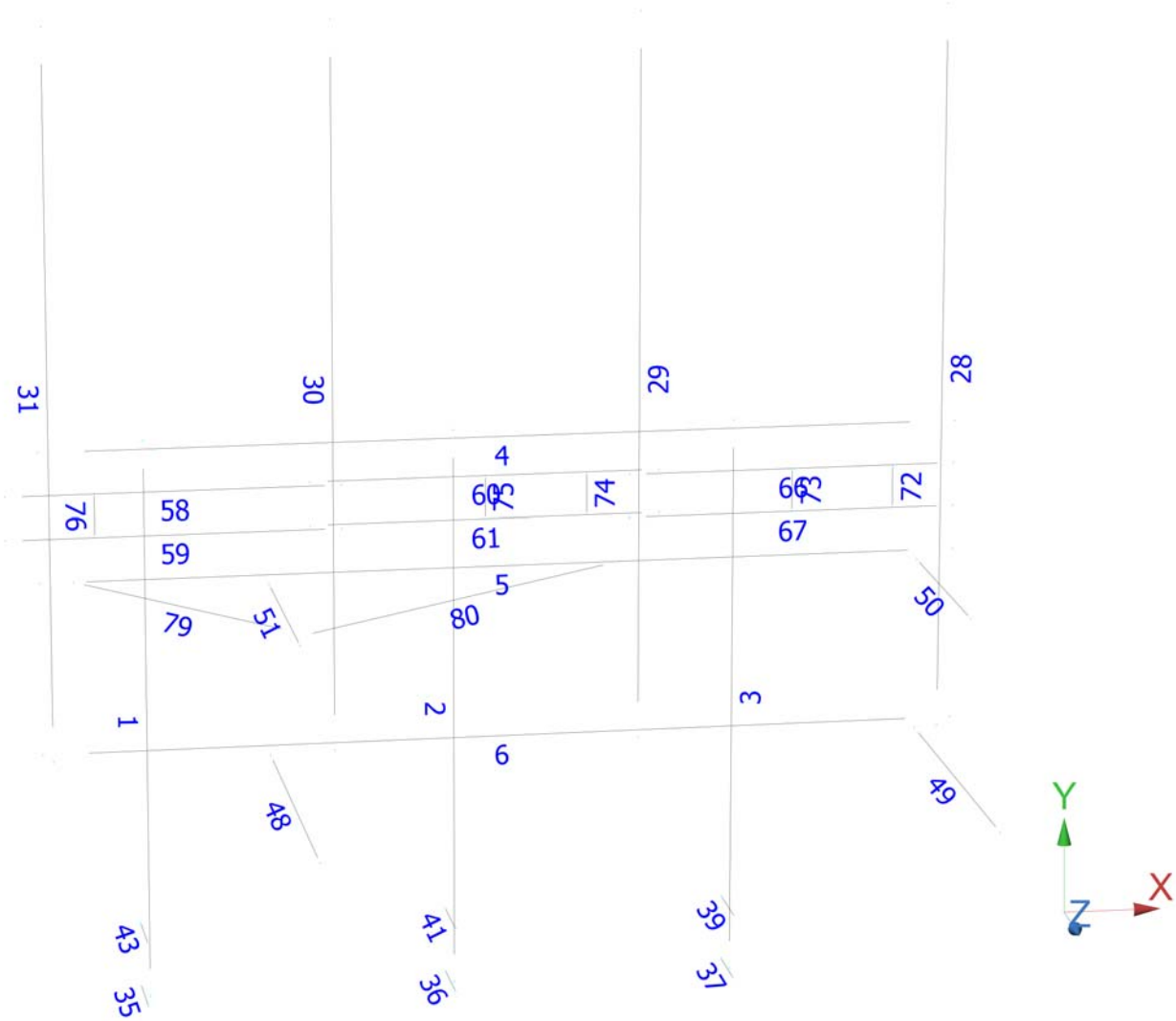
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RAM® Elements
CONNECT Edition

Current Date: 4/12/2023 3:54 PM
Units system: English

Load data

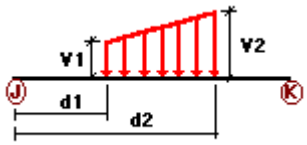
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
Wf	Wind Load (FRONT)	No	WIND
Ws	Wind Load (SIDE)	No	WIND
Wfice	Wind ICE (FRONT)	No	WIND
Wsice	Wind ICE (SIDE)	No	WIND
Di	Ice Load	No	LL

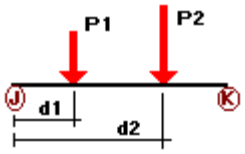
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Ws	1	x	-0.015	0.00	0.00	No	0.00	No
	2	x	-0.015	0.00	0.00	No	0.00	No
	3	x	-0.015	0.00	0.00	No	0.00	No
	4	x	-0.015	0.00	0.00	No	0.00	No
	5	x	-0.015	0.00	0.00	No	0.00	No
	6	x	-0.015	0.00	0.00	No	0.00	No
	28	x	-0.015	0.00	0.00	No	0.00	No
	29	x	-0.015	0.00	0.00	No	0.00	No
	30	x	-0.015	0.00	0.00	No	0.00	No
	31	x	-0.015	0.00	0.00	No	0.00	No
	35	x	-0.026	0.00	0.00	No	0.00	No
	36	x	-0.026	0.00	0.00	No	0.00	No
	37	x	-0.026	0.00	0.00	No	0.00	No
	39	x	-0.026	0.00	0.00	No	0.00	No
	41	x	-0.026	0.00	0.00	No	0.00	No
	43	x	-0.026	0.00	0.00	No	0.00	No
	48	x	-0.035	0.00	0.00	No	0.00	No
	49	x	-0.035	0.00	0.00	No	0.00	No
	50	x	-0.035	0.00	0.00	No	0.00	No
	51	x	-0.035	0.00	0.00	No	0.00	No
	79	x	-0.022	0.00	0.00	No	0.00	No
	80	x	-0.022	0.00	0.00	No	0.00	No
Di	1	y	-0.008	0.00	0.00	No	0.00	No
	2	y	-0.008	0.00	0.00	No	0.00	No

3	y	-0.008	0.00	0.00	No	0.00	No
4	y	-0.008	0.00	0.00	No	0.00	No
5	y	-0.008	0.00	0.00	No	0.00	No
6	y	-0.008	0.00	0.00	No	0.00	No
28	y	-0.008	0.00	0.00	No	0.00	No
29	y	-0.008	0.00	0.00	No	0.00	No
30	y	-0.008	0.00	0.00	No	0.00	No
31	y	-0.008	0.00	0.00	No	0.00	No
35	y	-0.01	0.00	0.00	No	0.00	No
36	y	-0.01	0.00	0.00	No	0.00	No
37	y	-0.01	0.00	0.00	No	0.00	No
39	y	-0.01	0.00	0.00	No	0.00	No
41	y	-0.01	0.00	0.00	No	0.00	No
43	y	-0.01	0.00	0.00	No	0.00	No
48	y	-0.013	0.00	0.00	No	0.00	No
49	y	-0.013	0.00	0.00	No	0.00	No
50	y	-0.013	0.00	0.00	No	0.00	No
51	y	-0.013	0.00	0.00	No	0.00	No
79	y	-0.009	0.00	0.00	No	0.00	No
80	y	-0.009	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	1	y	-0.073	2.00	No
		y	-0.033	4.00	No
	28	y	-0.026	1.00	No
		y	-0.026	6.00	No
	29	y	-0.055	0.75	No
		y	-0.055	6.25	No
	30	y	-0.033	1.25	No
		y	-0.033	3.00	No
		y	-0.041	5.00	No
		y	-0.041	6.75	No
		y	-0.033	11.50	No
	31	y	-0.048	1.00	No
		y	-0.048	6.00	No
	72	y	-0.053	50.00	Yes
	73	y	-0.06	50.00	Yes
	74	y	-0.06	50.00	Yes
	75	y	-0.06	50.00	Yes
	76	y	-0.06	50.00	Yes
Wf	28	z	-0.273	1.00	No
		z	-0.273	6.00	No
	29	z	-0.391	0.75	No
		z	-0.391	6.25	No
	30	z	-0.118	1.25	No
		z	-0.118	3.00	No
		z	-0.115	5.00	No

		z	-0.115	6.75	No
	31	z	-0.359	1.00	No
		z	-0.359	6.00	No
Ws	1	x	-0.087	2.00	No
		x	-0.088	4.00	No
	28	x	-0.156	1.00	No
		x	-0.156	6.00	No
	29	x	-0.165	0.75	No
		x	-0.165	6.25	No
	30	x	-0.057	1.25	No
		x	-0.057	3.00	No
		x	-0.078	5.00	No
		x	-0.078	6.75	No
		x	-0.081	11.50	No
	31	x	-0.159	1.00	No
		x	-0.159	6.00	No
	72	x	-0.099	50.00	Yes
	73	x	-0.109	50.00	Yes
	74	x	-0.082	50.00	Yes
	75	x	-0.109	50.00	Yes
	76	x	-0.109	50.00	Yes
Wfice	28	z	-0.051	1.00	No
		z	-0.051	6.00	No
	29	z	-0.069	0.75	No
		z	-0.069	6.25	No
	30	z	-0.023	1.25	No
		z	-0.023	3.00	No
		z	-0.022	5.00	No
		z	-0.022	6.75	No
	31	z	-0.064	1.00	No
		z	-0.064	6.00	No
Wsice	1	x	-0.018	2.00	No
		x	-0.018	4.00	No
	28	x	-0.034	1.00	No
		x	-0.034	6.00	No
	29	x	-0.036	0.75	No
		x	-0.036	6.25	No
	30	x	-0.013	1.25	No
		x	-0.013	3.00	No
		x	-0.017	5.00	No
		x	-0.017	6.75	No
		x	-0.018	11.50	No
	31	x	-0.034	1.00	No
		x	-0.034	6.00	No
	72	x	-0.017	50.00	Yes
	73	x	-0.021	50.00	Yes
	74	x	-0.016	50.00	Yes
	75	x	-0.021	50.00	Yes
	76	x	-0.021	50.00	Yes
Di	1	y	-0.047	2.00	No
		y	-0.054	4.00	No
	28	y	-0.097	1.00	No
		y	-0.097	6.00	No
	29	y	-0.133	0.75	No
		y	-0.133	6.25	No
	30	y	-0.045	1.25	No
		y	-0.045	3.00	No
		y	-0.047	5.00	No
		y	-0.047	6.75	No
		y	-0.054	11.50	No

31	y	-0.125	1.00	No
	y	-0.125	6.00	No
72	y	-0.065	50.00	Yes
73	y	-0.062	50.00	Yes
74	y	-0.046	50.00	Yes
75	y	-0.062	50.00	Yes
76	y	-0.062	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
Wf	Wind Load (FRONT)	No	0.00	0.00	0.00
Ws	Wind Load (SIDE)	No	0.00	0.00	0.00
Wfice	Wind ICE (FRONT)	No	0.00	0.00	0.00
Wsice	Wind ICE (SIDE)	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
Wf	0.00	0.00	0.00
Ws	0.00	0.00	0.00
Wfice	0.00	0.00	0.00
Wsice	0.00	0.00	0.00
Di	0.00	0.00	0.00

RAM® Elements
CONNECT Edition

Current Date: 4/12/2023 3:55 PM
Units system: English

Steel Code Check

Report: Summary - Group by member

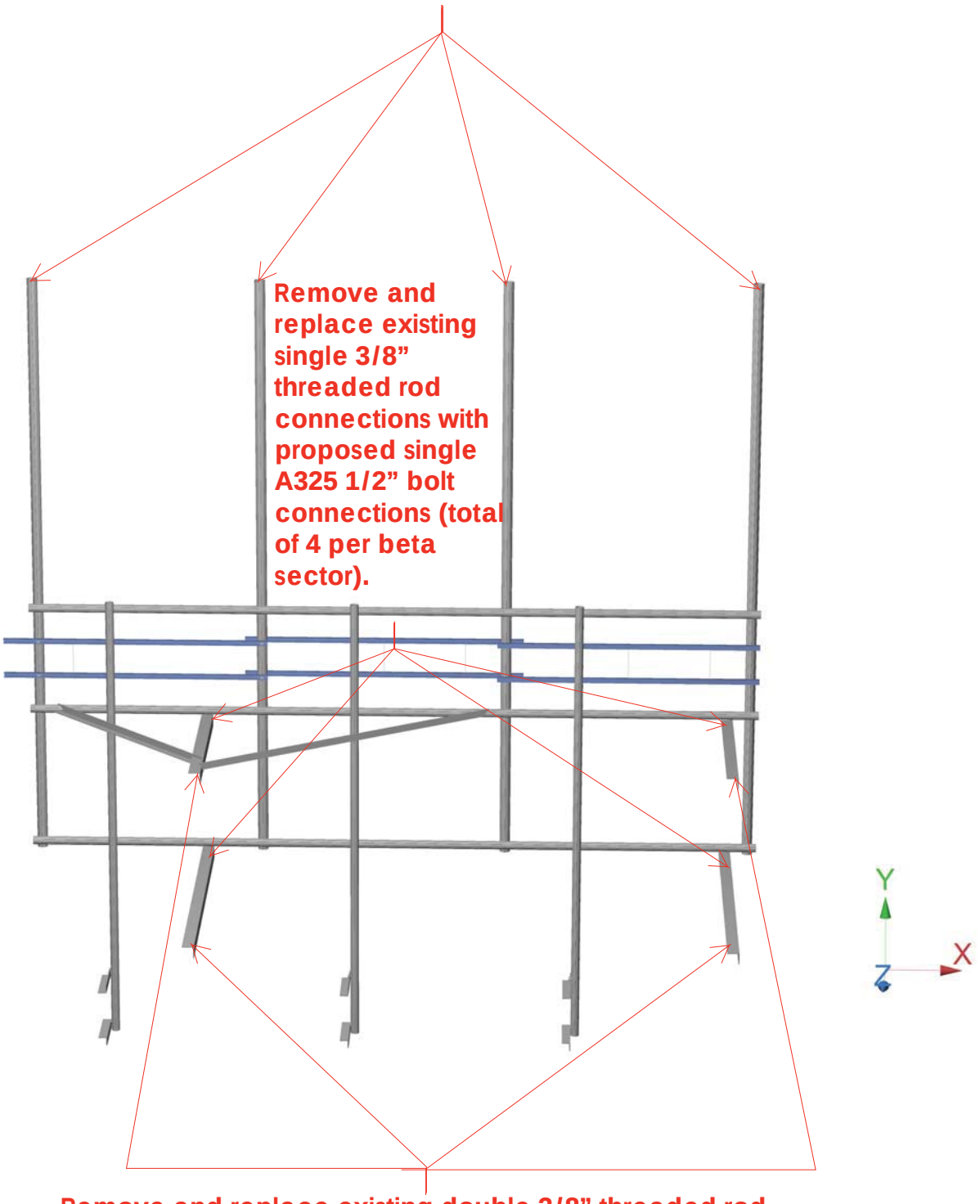
Load conditions to be included in design :

LC1=1.2DL+Wf
LC2=1.2DL+Ws
LC3=0.9DL+Wf
LC4=0.9DL+Ws
LC5=1.2DL+Wfice+Di
LC6=1.2DL+Wsice+Di
LC7=1.4DL
LC8=0.9DL

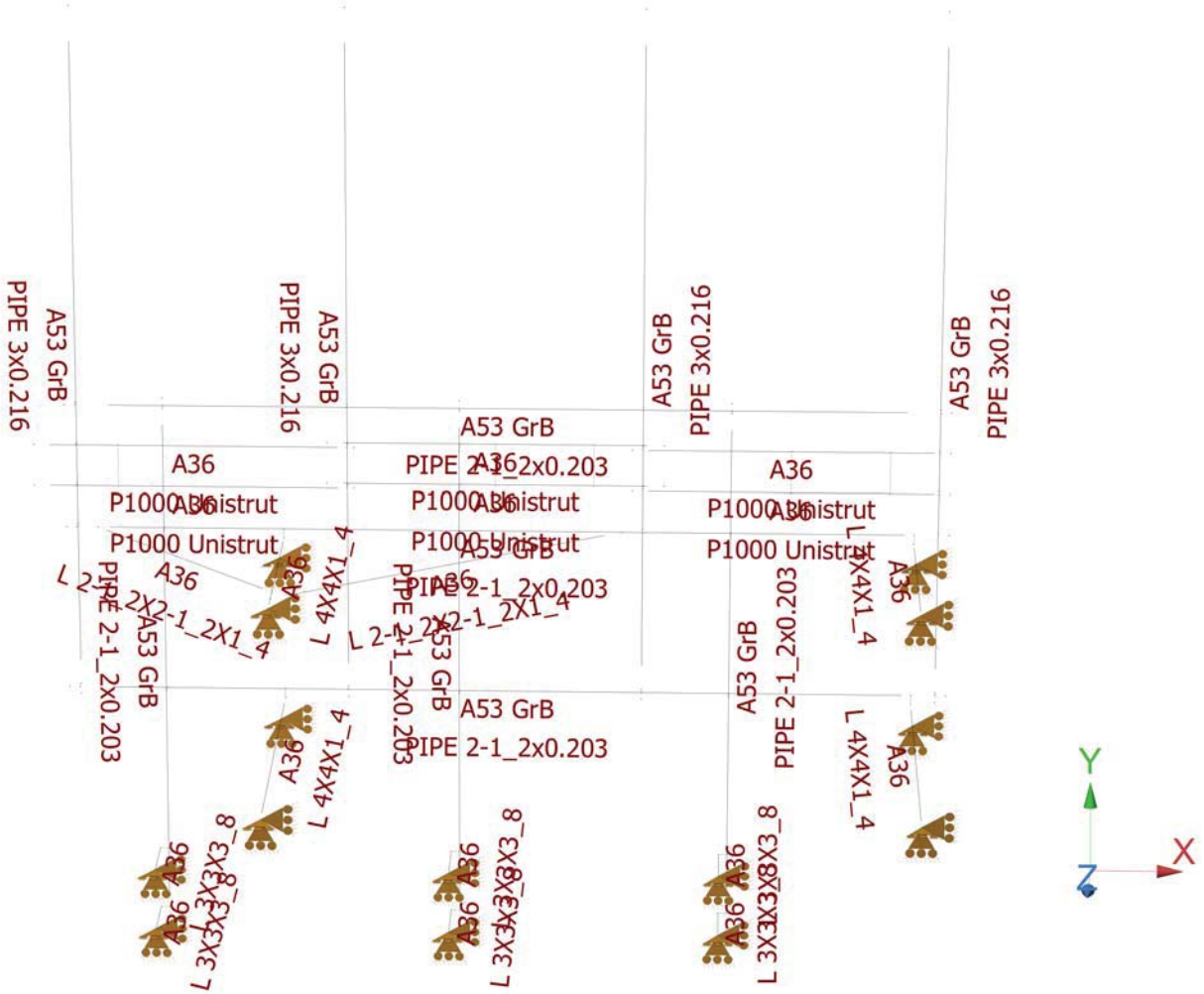
Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	L 2-1_2X2-1_2X1_4	**79**	LC1 at 0.00%	**0.62**	**OK**	
		80	LC2 at 100.00%	0.34	With warnings	
	L 3X3X3_8	**35**	LC2 at 0.00%	0.32	OK	
		36	LC6 at 0.00%	0.22	OK	
		37	LC6 at 0.00%	0.21	OK	
		39	LC5 at 0.00%	0.24	OK	
		41	LC6 at 0.00%	0.25	OK	
		43	LC2 at 0.00%	**0.38**	**OK**	
	L 4X4X1_4	**48**	LC1 at 15.63%	0.25	OK	
		49	LC1 at 0.00%	0.27	OK	
		50	LC4 at 28.13%	**0.53**	**OK**	
		51	LC2 at 28.13%	0.51	OK	
	P1000 Unistrut	**58**	LC4 at 96.88%	0.31	OK	Eq. H1.2-1
		59	LC4 at 26.56%	0.20	OK	Eq. H1.2-1
		60	LC2 at 38.54%	**0.67**	**OK**	Eq. H1.2-1
		61	LC2 at 6.25%	0.60	OK	Eq. H1.2-1
		66	LC2 at 96.25%	0.62	OK	Eq. H1.1-1
		67	LC2 at 96.25%	0.60	OK	Eq. H1.2-1
	PIPE 2-1_2x0.203	**1**	LC1 at 23.96%	0.89	OK	
		2	LC3 at 24.22%	0.55	OK	
		3	LC1 at 23.96%	0.76	OK	
		4	LC3 at 89.06%	0.78	With warnings	
		5	LC1 at 55.73%	0.62	With warnings	
		6	LC1 at 34.38%	0.65	With warnings	
		28	LC1 at 73.96%	1.28	N.G.	
		29	LC1 at 56.25%	**1.31**	**N.G.**	
		30	LC1 at 75.00%	0.98	With warnings	
		31	LC1 at 56.25%	1.20	N.G.	

Beta Sector Antenna Mount Calculations
(Modified Conditions)

Install proposed 3” std. (3.5” O.D.) pipe mast behind the proposed and existing antennas secured to the existing steel frame (total of 4 per beta sector).



Remove and replace existing double 3/8” threaded rod connections with proposed double A325 3/8” bolt connections (total of 4 per beta sector).


A53 GrB
PIPE 3x0.216
A53 GrB
PIPE 3x0.216
A53 GrB
PIPE 3x0.216
A53 GrB
PIPE 3x0.216
A53 GrB
PIPE 2-1_2x0.203
A53 GrB
PIPE 2-1_2x0.203
A53 GrB
PIPE 2-1_2x0.203
A53 GrB
PIPE 2-1_2x0.203
A36
P1000 Unistrut
A36
P1000 Unistrut
A36
P1000 Unistrut
A36
P1000 Unistrut
L 4X4X1_4
L 4X4X1_4
L 4X4X1_4
L 4X4X1_4
L 3X3X3_8
L 3X3X3_8
L 3X3X3_8
L 3X3X3_8
Y
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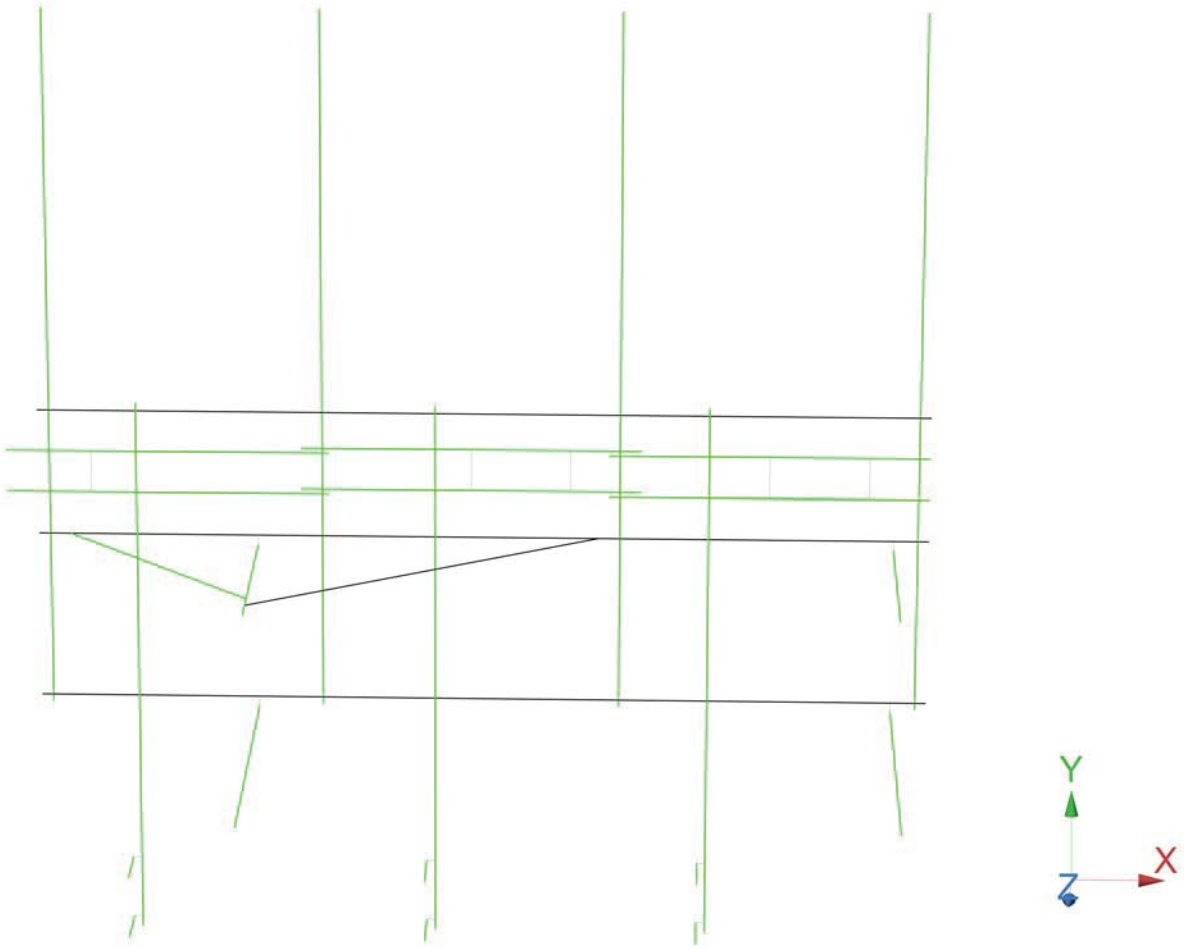
Z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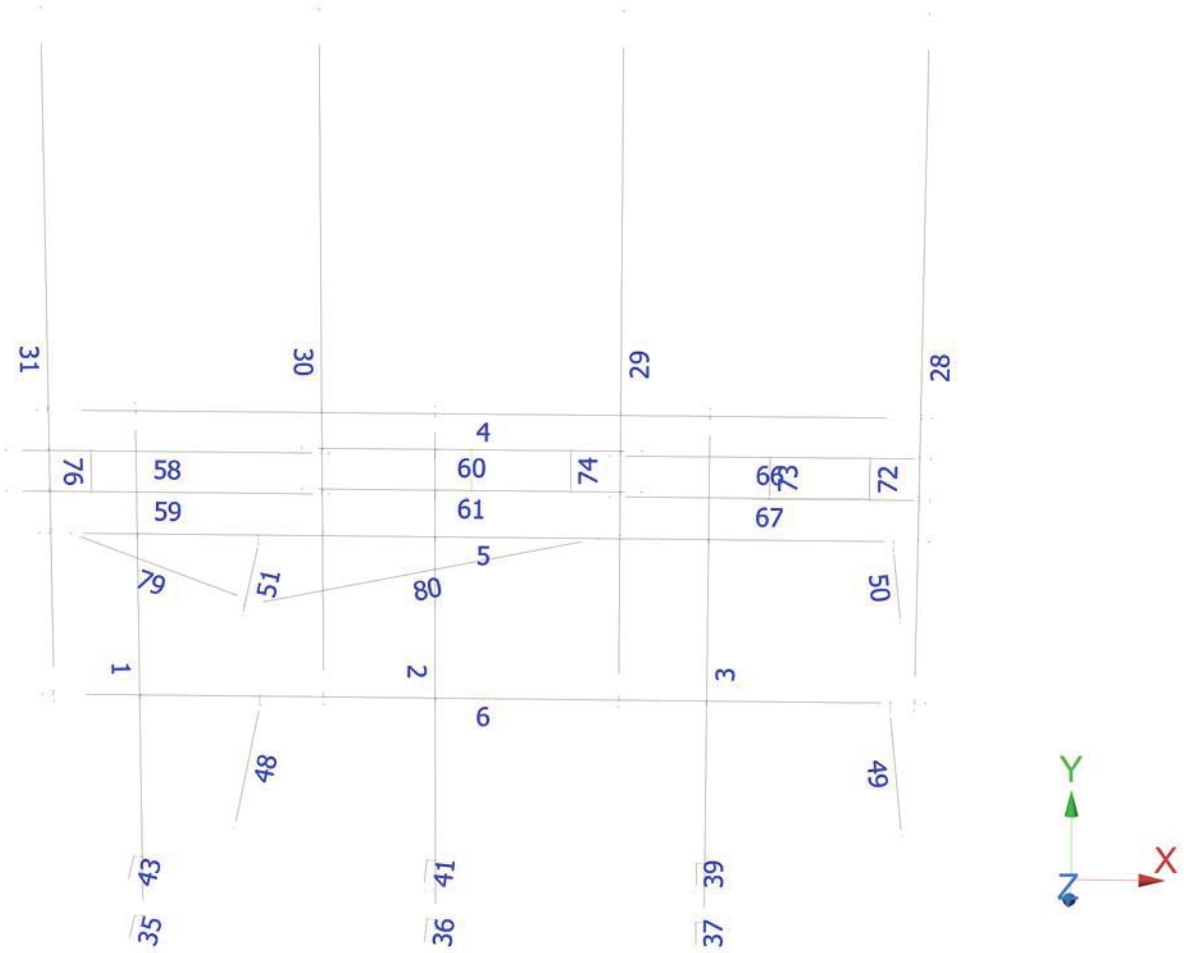
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RAM® Elements
CONNECT Edition

Current Date: 4/13/2023 5:05 PM
Units system: English

Load data

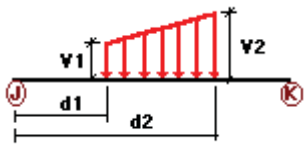
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
Wf	Wind Load (FRONT)	No	WIND
Ws	Wind Load (SIDE)	No	WIND
Wfice	Wind ICE (FRONT)	No	WIND
Wsice	Wind ICE (SIDE)	No	WIND
Di	Ice Load	No	LL

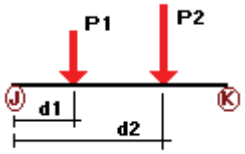
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Ws	30	x	-0.02	0.00	0.00	No	0.00	No
	1	x	-0.015	0.00	0.00	No	0.00	No
	2	x	-0.015	0.00	0.00	No	0.00	No
	3	x	-0.015	0.00	0.00	No	0.00	No
	4	x	-0.015	0.00	0.00	No	0.00	No
	5	x	-0.015	0.00	0.00	No	0.00	No
	6	x	-0.015	0.00	0.00	No	0.00	No
	28	x	-0.02	0.00	0.00	No	0.00	No
	29	x	-0.02	0.00	0.00	No	0.00	No
	31	x	-0.02	0.00	0.00	No	0.00	No
	35	x	-0.026	0.00	0.00	No	0.00	No
	36	x	-0.026	0.00	0.00	No	0.00	No
	37	x	-0.026	0.00	0.00	No	0.00	No
	39	x	-0.026	0.00	0.00	No	0.00	No
	41	x	-0.026	0.00	0.00	No	0.00	No
	43	x	-0.026	0.00	0.00	No	0.00	No
	48	x	-0.035	0.00	0.00	No	0.00	No
	49	x	-0.035	0.00	0.00	No	0.00	No
	50	x	-0.035	0.00	0.00	No	0.00	No
	51	x	-0.035	0.00	0.00	No	0.00	No
	79	x	-0.022	0.00	0.00	No	0.00	No
	80	x	-0.022	0.00	0.00	No	0.00	No
Di	30	y	-0.009	0.00	0.00	No	0.00	No
	1	y	-0.008	0.00	0.00	No	0.00	No

2	y	-0.008	0.00	0.00	No	0.00	No
3	y	-0.008	0.00	0.00	No	0.00	No
4	y	-0.008	0.00	0.00	No	0.00	No
5	y	-0.008	0.00	0.00	No	0.00	No
6	y	-0.008	0.00	0.00	No	0.00	No
28	y	-0.009	0.00	0.00	No	0.00	No
29	y	-0.009	0.00	0.00	No	0.00	No
31	y	-0.009	0.00	0.00	No	0.00	No
35	y	-0.01	0.00	0.00	No	0.00	No
36	y	-0.01	0.00	0.00	No	0.00	No
37	y	-0.01	0.00	0.00	No	0.00	No
39	y	-0.01	0.00	0.00	No	0.00	No
41	y	-0.01	0.00	0.00	No	0.00	No
43	y	-0.01	0.00	0.00	No	0.00	No
48	y	-0.013	0.00	0.00	No	0.00	No
49	y	-0.013	0.00	0.00	No	0.00	No
50	y	-0.013	0.00	0.00	No	0.00	No
51	y	-0.013	0.00	0.00	No	0.00	No
79	y	-0.009	0.00	0.00	No	0.00	No
80	y	-0.009	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	30	y	-0.033	1.25	No
		y	-0.033	3.00	No
		y	-0.041	5.00	No
		y	-0.041	6.75	No
		y	-0.033	11.50	No
	1	y	-0.073	2.00	No
		y	-0.033	4.00	No
	28	y	-0.026	1.00	No
		y	-0.026	6.00	No
	29	y	-0.055	0.75	No
		y	-0.055	6.25	No
	31	y	-0.048	1.00	No
		y	-0.048	6.00	No
	72	y	-0.053	50.00	Yes
	73	y	-0.06	50.00	Yes
	74	y	-0.06	50.00	Yes
	76	y	-0.06	50.00	Yes
Wf	30	z	-0.118	1.25	No
		z	-0.118	3.00	No
		z	-0.115	5.00	No
		z	-0.115	6.75	No
	28	z	-0.273	1.00	No
		z	-0.273	6.00	No
	29	z	-0.391	0.75	No
		z	-0.391	6.25	No

	31	z	-0.359	1.00	No
		z	-0.359	6.00	No
Ws	30	x	-0.057	1.25	No
		x	-0.057	3.00	No
		x	-0.078	5.00	No
		x	-0.078	6.75	No
		x	-0.081	11.50	No
	1	x	-0.087	2.00	No
		x	-0.088	4.00	No
	28	x	-0.156	1.00	No
		x	-0.156	6.00	No
	29	x	-0.165	0.75	No
		x	-0.165	6.25	No
	31	x	-0.159	1.00	No
		x	-0.159	6.00	No
	72	x	-0.099	50.00	Yes
	73	x	-0.109	50.00	Yes
	74	x	-0.082	50.00	Yes
	76	x	-0.109	50.00	Yes
Wfice	30	z	-0.023	1.25	No
		z	-0.023	3.00	No
		z	-0.022	5.00	No
		z	-0.022	6.75	No
	28	z	-0.051	1.00	No
		z	-0.051	6.00	No
	29	z	-0.069	0.75	No
		z	-0.069	6.25	No
	31	z	-0.064	1.00	No
		z	-0.064	6.00	No
Wsice	30	x	-0.013	1.25	No
		x	-0.013	3.00	No
		x	-0.017	5.00	No
		x	-0.017	6.75	No
		x	-0.018	11.50	No
	1	x	-0.018	2.00	No
		x	-0.018	4.00	No
	28	x	-0.034	1.00	No
		x	-0.034	6.00	No
	29	x	-0.036	0.75	No
		x	-0.036	6.25	No
	31	x	-0.034	1.00	No
		x	-0.034	6.00	No
	72	x	-0.017	50.00	Yes
	73	x	-0.021	50.00	Yes
	74	x	-0.016	50.00	Yes
	76	x	-0.021	50.00	Yes
Di	30	y	-0.045	1.25	No
		y	-0.045	3.00	No
		y	-0.047	5.00	No
		y	-0.047	6.75	No
		y	-0.054	11.50	No
	1	y	-0.047	2.00	No
		y	-0.054	4.00	No
	28	y	-0.097	1.00	No
		y	-0.097	6.00	No
	29	y	-0.133	0.75	No
		y	-0.133	6.25	No
	31	y	-0.125	1.00	No
		y	-0.125	6.00	No
	72	y	-0.065	50.00	Yes

73	y	-0.062	50.00	Yes
74	y	-0.046	50.00	Yes
76	y	-0.062	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
Wf	Wind Load (FRONT)	No	0.00	0.00	0.00
Ws	Wind Load (SIDE)	No	0.00	0.00	0.00
Wfice	Wind ICE (FRONT)	No	0.00	0.00	0.00
Wsice	Wind ICE (SIDE)	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
Wf	0.00	0.00	0.00
Ws	0.00	0.00	0.00
Wfice	0.00	0.00	0.00
Wsice	0.00	0.00	0.00
Di	0.00	0.00	0.00

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CONNECT Edition

Current Date: 4/13/2023 5:06 PM
Units system: English

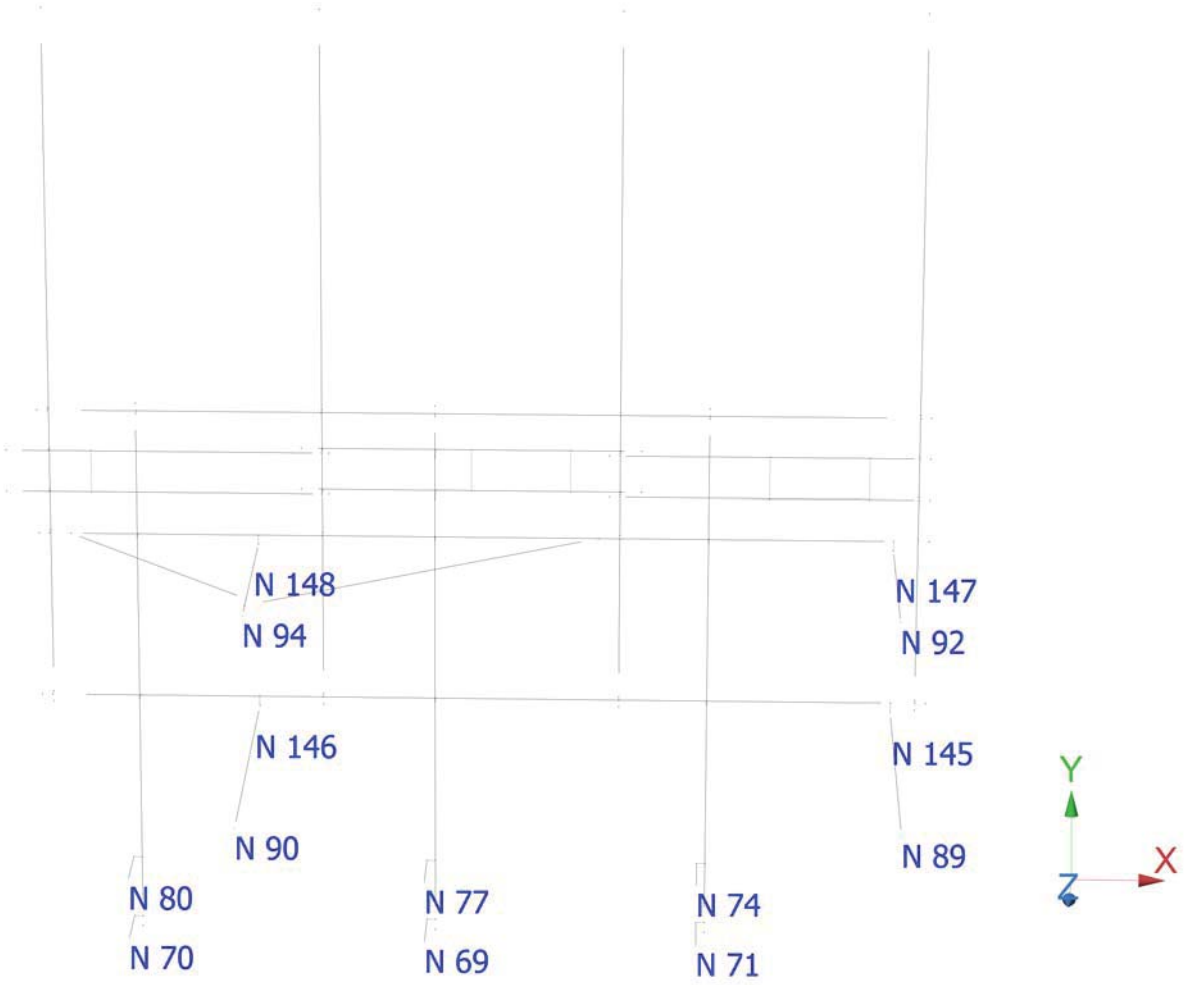
Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2DL+Wf
LC2=1.2DL+Ws
LC3=0.9DL+Wf
LC4=0.9DL+Ws
LC5=1.2DL+Wfice+Di
LC6=1.2DL+Wsice+Di
LC7=1.4DL
LC8=0.9DL

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	L 2-1_2X2-1_2X1_4	**79**	LC1 at 0.00%	**0.49**	**OK**	
		80	LC2 at 100.00%	0.38	With warnings	
	L 3X3X3_8	**35**	LC2 at 0.00%	0.33	OK	
		36	LC6 at 0.00%	0.22	OK	
		37	LC6 at 0.00%	0.21	OK	
		39	LC5 at 0.00%	0.25	OK	
		41	LC5 at 0.00%	0.25	OK	
		43	LC2 at 0.00%	**0.40**	**OK**	
	L 4X4X1_4	**48**	LC2 at 18.75%	0.24	OK	
		49	LC1 at 0.00%	0.24	OK	
		50	LC4 at 28.13%	**0.59**	**OK**	
		51	LC2 at 28.13%	0.57	OK	
	P1000 Unistrut	**58**	LC4 at 96.88%	0.31	OK	Eq. H1.2-1
		59	LC4 at 26.56%	0.23	OK	Eq. H1.2-1
		60	LC2 at 6.25%	**0.72**	**OK**	Eq. H1.1-1
		61	LC2 at 50.00%	0.66	OK	Eq. H1.1-1
		66	LC2 at 96.25%	0.69	OK	Eq. H1.1-1
		67	LC2 at 96.25%	0.69	OK	Eq. H1.2-1
	PIPE 2-1_2x0.203	**1**	LC1 at 23.96%	**0.64**	**OK**	
		2	LC1 at 24.22%	0.36	OK	
		3	LC3 at 23.96%	0.52	OK	
		4	LC3 at 34.38%	0.59	With warnings	
		5	LC1 at 37.50%	0.55	With warnings	
		6	LC1 at 34.38%	0.58	With warnings	
	PIPE 3x0.216	**28**	LC1 at 73.96%	**0.91**	**OK**	
		29	LC1 at 56.25%	0.82	OK	
		30	LC1 at 75.00%	0.73	OK	
		31	LC1 at 56.25%	0.75	OK	


N 148
N 94
N 147
N 92
N 146
N 145
N 90
N 89
N 80
N 70
N 77
N 69
N 74
N 71
Y
X
Z

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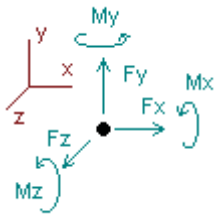
Current Date: 4/13/2023 5:08 PM
Units system: English

Analysis result

Envelope for nodal reactions

Note.- **Ic** is the controlling load condition



Direction of positive forces and moments

Envelope of nodal reactions for :
LC1=1.2DL+Wf
LC2=1.2DL+Ws
LC3=0.9DL+Wf
LC4=0.9DL+Ws
LC5=1.2DL+Wfice+Di
LC6=1.2DL+Wsice+Di
LC7=1.4DL
LC8=0.9DL

		Forces						Moments					
Node		**Fx** [Kip]	**Ic**	**Fy** [Kip]	**Ic**	**Fz** [Kip]	**Ic**	**Mx** [Kip*ft]	**Ic**	**My** [Kip*ft]	**Ic**	**Mz** [Kip*ft]	**Ic**
69	Max	0.090	LC2	0.381	LC6	0.031	LC3	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.044	LC3	0.150	LC3	-0.695	LC6	0.00000	LC1	0.00000	LC1	0.00000	LC1
70	Max	0.095	LC2	0.539	LC2	0.405	LC3	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.012	LC3	0.169	LC3	-0.873	LC2	0.00000	LC1	0.00000	LC1	0.00000	LC1
71	Max	0.066	LC2	0.365	LC6	0.346	LC3	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.043	LC3	0.086	LC3	-0.669	LC6	0.00000	LC1	0.00000	LC1	0.00000	LC1
74	Max	0.046	LC1	0.413	LC5	0.633	LC6	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.001	LC6	0.111	LC4	-0.905	LC3	0.00000	LC1	0.00000	LC1	0.00000	LC1
77	Max	0.120	LC1	0.418	LC5	0.651	LC6	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.011	LC4	0.172	LC8	-0.431	LC3	0.00000	LC1	0.00000	LC1	0.00000	LC1
80	Max	-0.005	LC8	0.622	LC2	0.721	LC2	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.040	LC1	0.203	LC8	-1.115	LC3	0.00000	LC1	0.00000	LC1	0.00000	LC1
89	Max	0.102	LC2	0.016	LC4	0.000	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.003	LC3	-0.059	LC1	0.000	LC4	0.00000	LC1	0.00000	LC1	0.00000	LC1
90	Max	0.153	LC2	-0.019	LC8	0.000	LC6	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	0.003	LC3	-0.077	LC2	0.000	LC8	0.00000	LC1	0.00000	LC1	0.00000	LC1
92	Max	0.006	LC7	0.226	LC4	0.001	LC5	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.386	LC4	-0.104	LC5	-0.001	LC4	0.00000	LC1	0.00000	LC1	0.00000	LC1
94	Max	0.424	LC2	0.015	LC4	2.307	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.947	LC3	-0.324	LC1	-0.377	LC4	0.00000	LC1	0.00000	LC1	0.00000	LC1

145	Max	0.388	LC4	0.978	LC1	-0.043	LC8	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.092	LC6	0.035	LC4	-1.484	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
146	Max	-0.028	LC4	0.915	LC1	-0.043	LC8	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.250	LC6	0.321	LC8	-1.528	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
147	Max	2.245	LC2	0.526	LC5	2.384	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	0.029	LC8	-0.817	LC4	0.079	LC8	0.00000	LC1	0.00000	LC1	0.00000	LC1
148	Max	2.257	LC4	0.965	LC6	2.526	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.020	LC7	-0.108	LC3	0.029	LC8	0.00000	LC1	0.00000	LC1	0.00000	LC1

Date: 4/13/2023
Project Name: DANBURY BANM
Project No.: CT5073
Designed By: KSBM **Checked By:** MSC

CHECK CONNECTION CAPACITY → BETA SECTOR BOTTOM CONNECTION (TWO BOLTS)

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = A36 3/8" (Threaded Rod)

Allowable Tensile Load =

F_{Tall} = 2402 lbs.

Allowable Shear Load =

F_{Vall}= 1441 lbs.

TENSILE FORCES

Reaction **F =** 622 lbs. (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 40 lbs. (See Bentley Output)
Reactions in Z direction: 1115 lbs. (See Bentley Output)

Resultant: 1116 lbs.

No. of Supports = 1
No. of Bolts / Support = 2

Tension Design Load /Bolts =

f_t= 311.00 lbs. < 2402 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v= 557.86 lbs. < 1441 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.129	+	0.387	=	0.517	<	1.0	**Therefore, OK !**

Date: 4/13/2023
Project Name: DANBURY BANM
Project No.: CT5073
Designed By: KSBM **Checked By:** MSC

CHECK CONNECTION CAPACITY → BETA SECTOR TOP CONNECTION (TWO BOLTS)

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = A36 3/8" (Threaded Rod)

Allowable Tensile Load =

F_{Tall} = 2402 lbs.

Allowable Shear Load =

F_{Vall}= 1441 lbs.

TENSILE FORCES

Reaction **F =** 947 lbs. (See Bentley Output)

SHEAR FORCES

Reactions in Y direction: 324 lbs. (See Bentley Output)
Reactions in Z direction: 2307 lbs. (See Bentley Output)

Resultant: 2330 lbs.

No. of Supports = 1
No. of Bolts / Support = 2

Tension Design Load /Bolts =

f_t= 473.50 lbs. < 2402 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v= 1164.82 lbs. < 1441 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.197	+	0.808	=	1.01	>	1.0	**Therefore, NOT OK !**

Date: 4/13/2023
Project Name: DANBURY BANM
Project No.: CT5073
Designed By: KSBM **Checked By:** MSC

CHECK CONNECTION CAPACITY → PROPOSED BETA SECTOR TOP CONNECTION (TWO BOLTS)

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = A325 3/8" (Threaded Rod)

Allowable Tensile Load =

F_{Tall} = 4970 lbs.

Allowable Shear Load =

F_{Vall} = 2982 lbs.

TENSILE FORCES

Reaction **F =** 947 lbs. (See Bentley Output)

SHEAR FORCES

Reactions in Y direction: 324 lbs. (See Bentley Output)
Reactions in Z direction: 2307 lbs. (See Bentley Output)

Resultant: 2330 lbs.

No. of Supports = 1
No. of Bolts / Support = 2

Tension Design Load /Bolts =

f_t = 473.50 lbs. < 4970 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v = 1164.82 lbs. < 2982 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.095	+	0.391	=	0.486	<	1.0	**Therefore, OK !**

Date: 4/13/2023
Project Name: DANBURY BANM
Project No.: CT5073
Designed By: KSBM **Checked By:** MSC

CHECK CONNECTION CAPACITY → BETA SECTOR TOP CONNECTION (SINGLE BOLT)

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = A36 3/8" (Threaded Rod)

Allowable Tensile Load =

F_{Tall} = 2402 lbs.

Allowable Shear Load =

F_{Vall}= 1441 lbs.

TENSILE FORCES

Reaction **F =** 2257 lbs. (See Bentley Output)

SHEAR FORCES

Reactions in Y direction: 965 lbs. (See Bentley Output)
Reactions in Z direction: 2526 lbs. (See Bentley Output)

Resultant: 2704 lbs.

No. of Supports = 1
No. of Bolts / Support = 1

Tension Design Load /Bolts =

f_t= 2257.00 lbs. < 2402 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v= 2704.05 lbs. > 1441 lbs. **Therefore, NOT OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.940	+	1.876	=	2.816	>	1.0	**Therefore, NOT OK !**

Date: 4/13/2023
Project Name: DANBURY BANM
Project No.: CT5073
Designed By: KSBM **Checked By:** MSC

CHECK CONNECTION CAPACITY → PROPOSED BETA SECTOR TOP CONNECTION (SINGLE BOLT)

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = A325 1/2" (Bolt)

Allowable Tensile Load =

F_{Tall} = 8836 lbs.

Allowable Shear Load =

F_{Vall}= 5301 lbs.

TENSILE FORCES

Reaction **F =** 2257 lbs. (See Bentley Output)

SHEAR FORCES

Reactions in Y direction: 965 lbs. (See Bentley Output)
Reactions in Z direction: 2526 lbs. (See Bentley Output)

Resultant: 2704 lbs.

No. of Supports = 1
No. of Bolts / Support = 1

Tension Design Load /Bolts =

f_t= 2257.00 lbs. < 8836 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v= 2704.05 lbs. < 5301 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.255	+	0.510	=	0.766	<	1.0	**Therefore, OK !**

TEP NORTHEAST

Gamma/Delta Sector Antenna Mount
(Existing Conditions)

Date: 4/12/2023
Project Name: DANBURY BANM
Project No.: CT5073
Designed By: KSBM **Checked By:** MSC

2.6.5.2 Velocity Pressure Coeff:

$K_z = 2.01 (z/z_g)^{2/\alpha}$

z=	133	(ft)
z_g=	900	(ft)
α=	9.5	
K_z=	**1.344**	

Kzmin ≤ Kz ≤ 2.01

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$K_{zt} = [1+(K_c K_t/K_h)]^2$ $K_h = e^{(f*z/H)}$

K_{zt}=	**1**	
K_h=	1	
K_c=	1.0	(from Table 2-4)
K_t=	0	(from Table 2-5)
f=	0	(from Table 2-5)
z=	133	
z_s=	430	(Mean elevation of base of structure above sea level)
H=	0	(Ht. of the crest above surrounding terrain)
K_{zt}=	1.00	(from 2.6.6.2.1)
K_e=	0.98	(from 2.6.8)

(If Category 1 then K_{zt} =1.0)

Category= **1**

2.6.10 Design Ice Thickness

Max Ice Thickness = t_i =	1.00	in
Importance Factor = I=	1.25	(from Table 2-3)
K_{iz} =	1.15	(from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$ t_{iz} = 1.44 in

Date: 4/12/2023
Project Name: DANBURY BANM
Project No.: CT5073
Designed By: KSBM Checked By: MSC

2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

G_h = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h=	121.5	G_h=	0.85

2.6.9.2 Guyed Masts G_h= 0.85

2.6.9.3 Pole Structures G_h= 1.1

2.6.9 Appurtenances G_h= 1.0

2.6.9.4 Structures Supported on Other Structures

(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

G_h=	1.35	**Gh=**	**1.00**

2.6.11.2 Design Wind Force on Appurtenances

$F = q_z * G_h * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$

		K_z=	1.344	(from 2.6.5.2)
		K_{zt}=	1.0	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**54.38**	K_e=	0.98	(from 2.6.8)
$q_{z\ (ice)}$=	**8.04**	K_d=	0.95	(from Table 2-2)
$q_{z\ (30)}$=	**2.90**	V_{max}=	130	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

Date: 4/13/2023
Project Name: DANBURY BANM
Project No.: CT5073
Designed By: KSBM Checked By: MSC

Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Square/Rectangular HSS		1.2 - 2.8(r_s) ≥ 0.85	1.4 - 4.0(r_s) ≥ 0.90	2.0 - 6.0(r_s) ≥ 1.25
Round	C < 39 (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{1.0})$
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
(Aspect ratio is independent of the spacing between support points of a linear appurtenance,

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **1.44** in **Angle =** **0 (deg)** **Equivalent Angle =** **180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.93	1.20	227	43
AIR6419 Antenna (Side)	31.1	7.3	16.1	1.58	4.26	1.28	110	25
AIR6449 Antenna	30.6	15.9	10.6	3.38	1.92	1.20	220	42
AIR6449 Antenna (Side)	30.6	10.6	15.9	2.25	2.89	1.22	149	31
BSA-M65R-BUU-H6-K Antenna	72.0	28.5	9.7	14.25	2.53	1.20	931	158
BSA-M65R-BUU-H6-K Antenna (Side)	72.0	9.7	28.5	4.85	7.42	1.41	373	74
RRUS-E2 B29 RRH	20.4	18.5	7.5	2.62	1.10	1.20	171	33
4478 B14 RRH	18.1	13.4	8.3	1.68	1.35	1.20	110	23
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.90	1.20	76	17
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	2.80	1.21	45	12
4415 B30 RRH (Shielded)	16.5	3.0	13.4	0.34	5.59	1.34	25	8
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.20	74	16
8843 B2/B66A RRH (Shielded)	14.9	5.5	13.2	0.56	2.73	1.21	37	10
DC6-48-60-18-8F Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	85	18
DC9-48-60-24-8C-EV Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	85	18
2" Pipe	2.4	12.0		0.20	0.20	1.20	13	
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	16	
3" Pipe	3.5	12.0		0.29	0.29	1.20	19	
3x3 Angle	3.0	12.0		0.25	0.25	2.00	27	

Date: 4/13/2023
Project Name: DANBURY BANM
Project No.: CT5073
Designed By: KSBM **Checked By:** MSC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.44 in.
Density of ice: 56 pcf

BSA-M65R-BUU-H6-K Antenna

Weight of ice based on total radial SF area:

Height (in):	72.0	
Width (in):	28.5	
Depth (in):	9.7	
Total weight of ice on object:		333 lbs
Weight of object:	101.0 lbs	
Combined weight of ice and object:		434 lbs

AIR6419 Antenna

Weight of ice based on total radial SF area:

Height (in):	31.1	
Width (in):	16.1	
Depth (in):	7.3	
Total weight of ice on object:		87 lbs
Weight of object:	66.0 lbs	
Combined weight of ice and object:		153 lbs

AIR6449 Antenna

Weight of ice based on total radial SF area:

Height (in):	30.6	
Width (in):	15.9	
Depth (in):	10.6	
Total weight of ice on object:		92 lbs
Weight of object:	82.0 lbs	
Combined weight of ice and object:		174 lbs

RRUS-E2 B29 RRH

Weight of ice based on total radial SF area:

Height (in):	20.4	
Width (in):	18.5	
Depth (in):	7.5	
Total weight of ice on object:		64 lbs
Weight of object:	53.0 lbs	
Combined weight of ice and object:		117 lbs

4478 B14 RRH

Weight of ice based on total radial SF area:

Height (in):	18.1	
Width (in):	13.4	
Depth (in):	8.3	
Total weight of ice on object:		46 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		106 lbs

4449 B5/B12 RRH

Weight of ice based on total radial SF area:

Height (in):	17.9	
Width (in):	13.2	
Depth (in):	9.4	
Total weight of ice on object:		46 lbs
Weight of object:	73.0 lbs	
Combined weight of ice and object:		119 lbs

4415 B30 RRH

Weight of ice based on total radial SF area:

Height (in):	16.5	
Width (in):	13.4	
Depth (in):	5.9	
Total weight of ice on object:		39 lbs
Weight of object:	46.0 lbs	
Combined weight of ice and object:		85 lbs

8843 B2/B66A RRH

Weight of ice based on total radial SF area:

Height (in):	14.9	
Width (in):	13.2	
Depth (in):	10.9	
Total weight of ice on object:		41 lbs
Weight of object:	72.0 lbs	
Combined weight of ice and object:		113 lbs

DC6-48-60-18 Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in):	31.4	
Diameter(in):	10.2	
Total weight of ice on object:		54 lbs
Weight of object:	33 lbs	
Combined weight of ice and object:		87 lbs

DC9-48-60-24-8C-EV Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in):	31.4	
Diameter(in):	10.2	
Total weight of ice on object:		54 lbs
Weight of object:	33 lbs	
Combined weight of ice and object:		87 lbs

L 3x3 Angles

Weight of ice based on total radial SF area:

Height (in):	3	
Width (in):	3	
Per foot weight of ice on object:		10 plf

2" pipe

Per foot weight of ice:

diameter (in):	2.38	
Per foot weight of ice on object:		7 plf

2-1/2" pipe

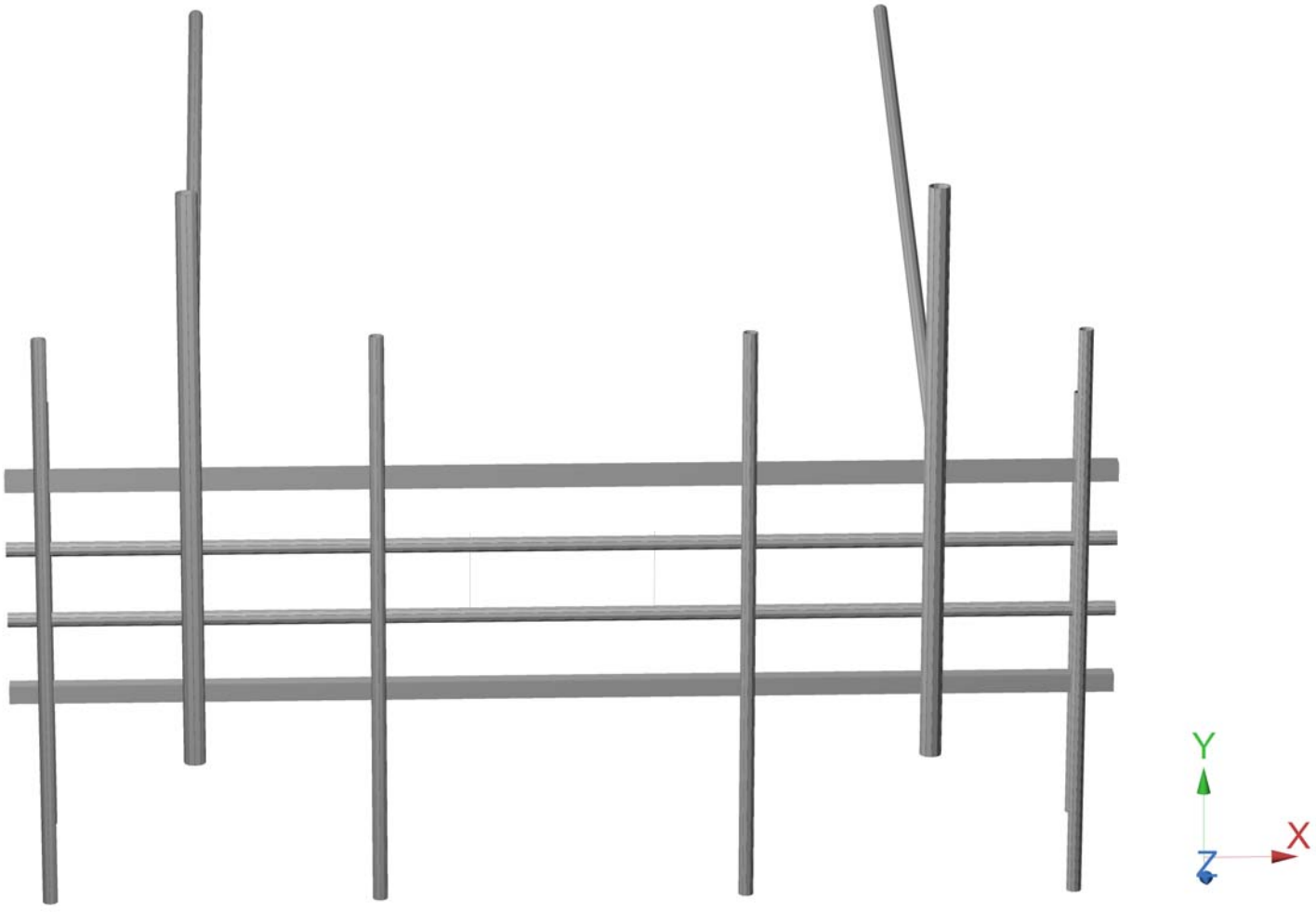
Per foot weight of ice:

diameter (in):	2.88	
Per foot weight of ice on object:		8 plf

3" Pipe

Per foot weight of ice:

diameter (in):	3.5	
Per foot weight of ice on object:		9 plf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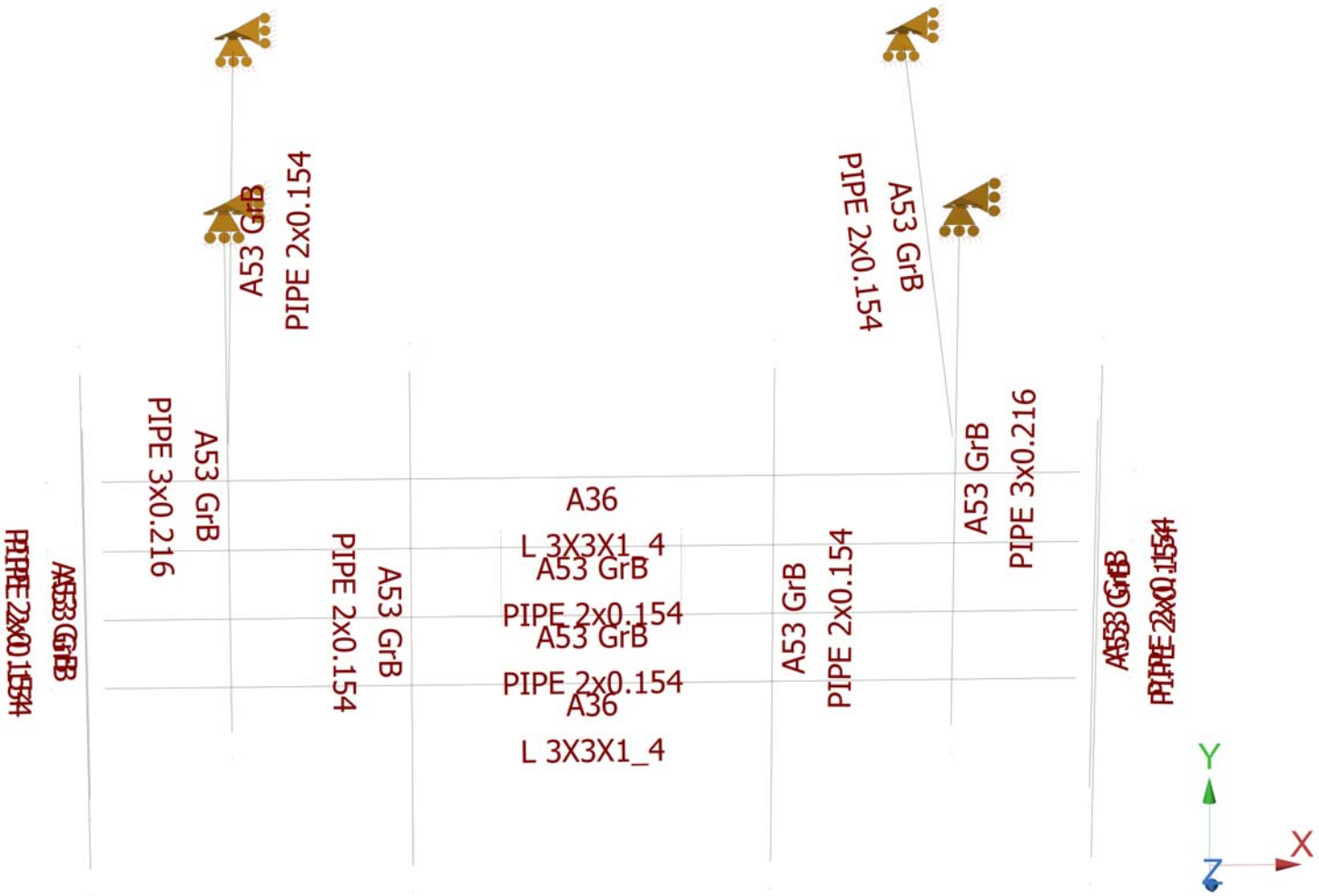
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PIPE 3x0.216
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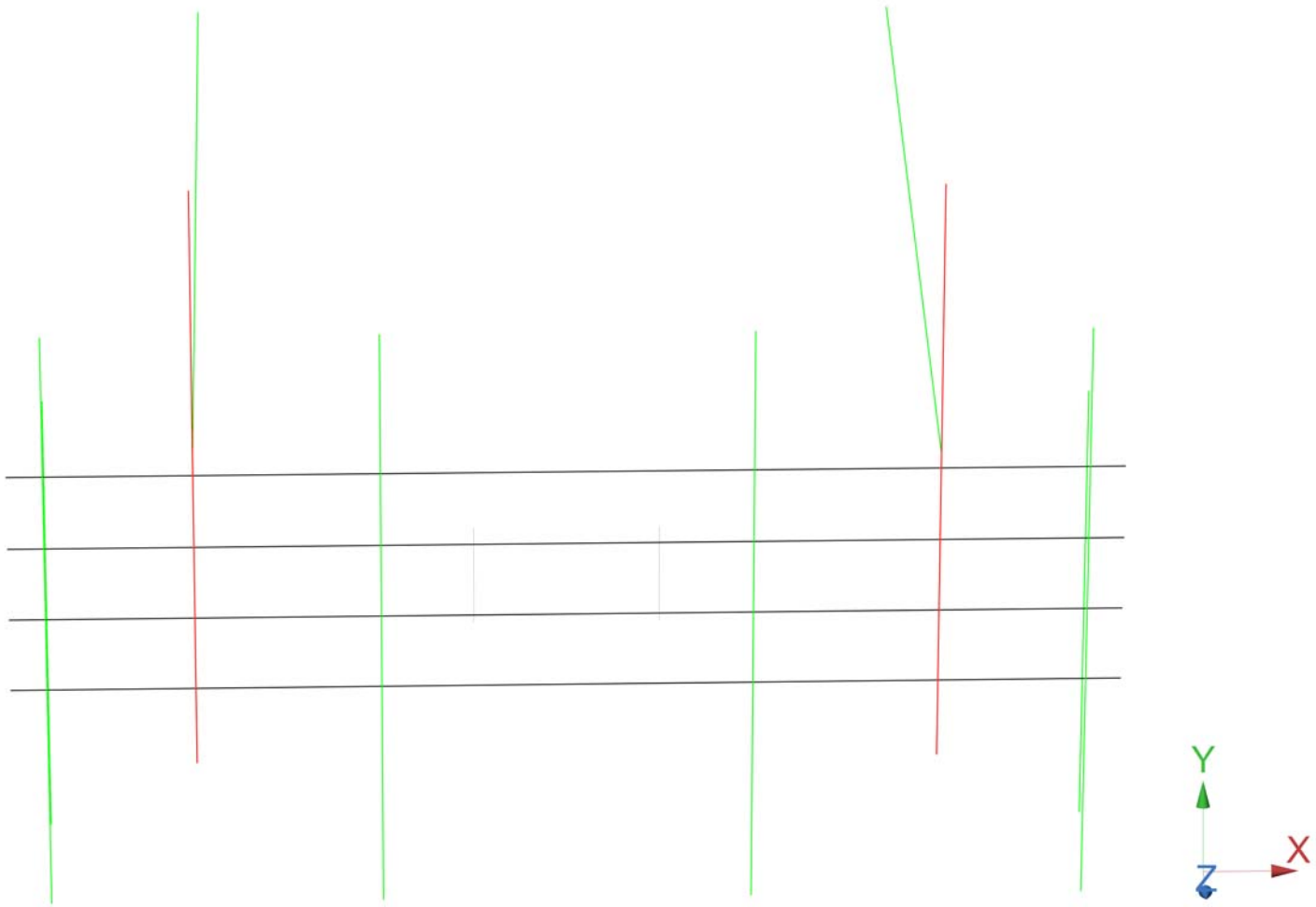
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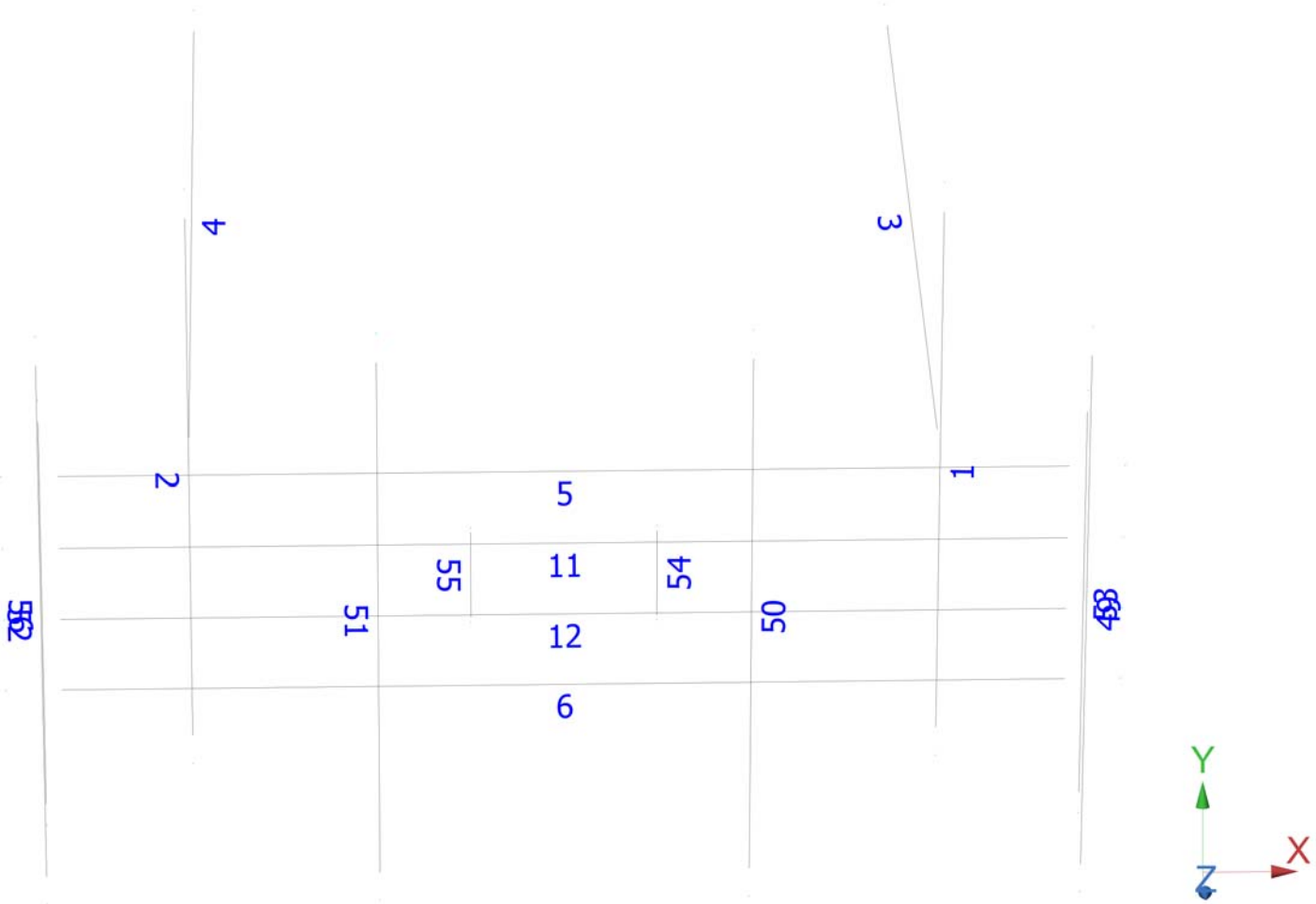
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RAM® Elements
CONNECT Edition

Current Date: 4/12/2023 3:09 PM
Units system: English

Load data

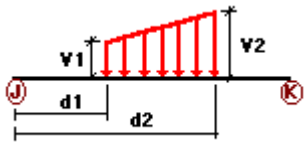
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
Wf	Wind Load (FRONT)	No	WIND
Ws	Wind Load (SIDE)	No	WIND
Wif	Wind with Ice (FRONT)	No	WIND
Wis	Wind with Ice (SIDE)	No	WIND
Di	Ice Load	No	LL

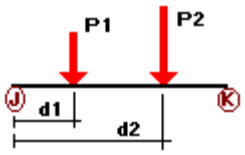
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wf	1	z	-0.018	0.00	0.00	No	0.00	No
	2	z	-0.018	0.00	0.00	No	0.00	No
	3	z	-0.012	0.00	0.00	No	0.00	No
	4	z	-0.012	0.00	0.00	No	0.00	No
	5	z	-0.025	0.00	0.00	No	0.00	No
	6	z	-0.025	0.00	0.00	No	0.00	No
	11	z	-0.012	0.00	0.00	No	0.00	No
	12	z	-0.012	0.00	0.00	No	0.00	No
Ws	1	x	-0.018	0.00	0.00	No	0.00	No
	2	x	-0.018	0.00	0.00	No	0.00	No
	49	x	-0.012	0.00	0.00	No	0.00	No
	50	x	-0.012	0.00	0.00	No	0.00	No
	51	x	-0.012	0.00	0.00	No	0.00	No
	52	x	-0.012	0.00	0.00	No	0.00	No
	53	x	-0.012	0.00	0.00	No	0.00	No
	56	x	-0.012	0.00	0.00	No	0.00	No
Di	1	y	-0.009	0.00	0.00	No	0.00	No
	2	y	-0.009	0.00	0.00	No	0.00	No
	3	y	-0.007	0.00	0.00	No	0.00	No
	4	y	-0.007	0.00	0.00	No	0.00	No
	5	y	-0.01	0.00	0.00	No	0.00	No
	6	y	-0.01	0.00	0.00	No	0.00	No
	11	y	-0.007	0.00	0.00	No	0.00	No
	12	y	-0.007	0.00	0.00	No	0.00	No

49	y	-0.007	0.00	0.00	No	0.00	No
50	y	-0.007	0.00	0.00	No	0.00	No
51	y	-0.007	0.00	0.00	No	0.00	No
52	y	-0.007	0.00	0.00	No	0.00	No
53	y	-0.007	0.00	0.00	No	0.00	No
56	y	-0.007	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	2	y	-0.073	5.50	No
		y	-0.033	3.50	No
	49	y	-0.051	1.50	No
		y	-0.051	6.50	No
	50	y	-0.051	1.50	No
		y	-0.051	6.50	No
		y	-0.053	50.00	Yes
	51	y	-0.033	1.00	No
		y	-0.033	2.75	No
		y	-0.041	4.75	No
		y	-0.041	6.50	No
	52	y	-0.051	1.50	No
		y	-0.051	6.50	No
	53	y	-0.046	50.00	Yes
		y	-0.046	50.00	Yes
		y	-0.033	0.50	No
	54	y	-0.053	50.00	Yes
	55	y	-0.06	50.00	Yes
	56	y	-0.072	50.00	Yes
		y	-0.072	50.00	Yes
Wf	2	z	-0.076	5.50	No
		z	-0.076	5.50	No
		z	-0.085	3.50	No
	49	z	-0.466	1.50	No
		z	-0.466	6.50	No
	50	z	-0.466	1.50	No
		z	-0.466	6.50	No
	51	z	-0.114	1.00	No
		z	-0.114	2.75	No
		z	-0.111	4.75	No
		z	-0.111	6.50	No
	52	z	-0.466	1.50	No
		z	-0.466	6.50	No
	53	z	-0.025	50.00	Yes
		z	-0.025	50.00	Yes
	54	z	-0.171	50.00	Yes
	55	z	-0.11	50.00	Yes
	56	z	-0.037	50.00	Yes
		z	-0.037	50.00	Yes

Ws	2	x	-0.107	5.50	No
		x	-0.085	3.50	No
	49	x	-0.187	1.50	No
		x	-0.187	6.50	No
	50	x	-0.187	1.50	No
		x	-0.187	6.50	No
		x	-0.07	50.00	Yes
	51	x	-0.055	1.00	No
		x	-0.055	2.75	No
		x	-0.075	4.75	No
		x	-0.075	6.50	No
	52	x	-0.187	1.50	No
		x	-0.187	6.50	No
	53	x	-0.10	50.00	Yes
		x	-0.085	0.50	No
	54	x	-0.07	50.00	Yes
	55	x	-0.068	50.00	Yes
	56	x	-0.089	50.00	Yes
Wif	2	z	-0.017	5.50	No
		z	-0.018	3.50	No
	49	z	-0.079	2.00	No
		z	-0.079	7.00	No
	50	z	-0.079	2.00	No
		z	-0.079	7.00	No
	51	z	-0.022	1.00	No
		z	-0.022	2.75	No
		z	-0.022	4.75	No
		z	-0.022	6.50	No
	52	z	-0.079	2.00	No
		z	-0.079	7.00	No
	53	z	-0.008	50.00	Yes
		z	-0.008	50.00	Yes
	54	z	-0.033	50.00	Yes
	55	z	-0.023	50.00	Yes
	56	z	-0.01	50.00	Yes
		z	-0.01	50.00	Yes
Wis	2	x	-0.022	5.50	No
		x	-0.018	3.50	No
	49	x	-0.038	2.00	No
		x	-0.038	7.00	No
	50	x	-0.038	2.00	No
		x	-0.038	7.00	No
		x	-0.016	50.00	Yes
	51	x	-0.013	1.00	No
		x	-0.013	2.75	No
		x	-0.016	4.75	No
		x	-0.016	6.50	No
	52	x	-0.038	2.00	No
		x	-0.038	7.00	No
	53	x	-0.021	50.00	Yes
		x	-0.018	0.50	No
	54	x	-0.016	50.00	Yes
	55	x	-0.016	50.00	Yes
	56	x	-0.019	50.00	Yes
Di	2	y	-0.046	5.50	No
		y	-0.054	3.50	No
	49	y	-0.167	1.50	No
		y	-0.167	6.50	No
	50	y	-0.167	1.50	No
		y	-0.167	6.50	No

	y	-0.064	50.00	Yes
51	y	-0.044	1.00	No
	y	-0.044	2.75	No
	y	-0.046	4.75	No
	y	-0.046	6.50	No
52	y	-0.167	1.50	No
	y	-0.167	6.50	No
53	y	-0.039	50.00	Yes
	y	-0.039	50.00	Yes
	y	-0.054	0.50	No
54	y	-0.064	50.00	Yes
55	y	-0.046	50.00	Yes
56	y	-0.041	50.00	Yes
	y	-0.041	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
Wf	Wind Load (FRONT)	No	0.00	0.00	0.00
Ws	Wind Load (SIDE)	No	0.00	0.00	0.00
Wif	Wind with Ice (FRONT)	No	0.00	0.00	0.00
Wis	Wind with Ice (SIDE)	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
Wf	0.00	0.00	0.00
Ws	0.00	0.00	0.00
Wif	0.00	0.00	0.00
Wis	0.00	0.00	0.00
Di	0.00	0.00	0.00

RAM® Elements
CONNECT Edition

Current Date: 4/12/2023 3:10 PM
Units system: English

Steel Code Check

Report: Summary - Group by member

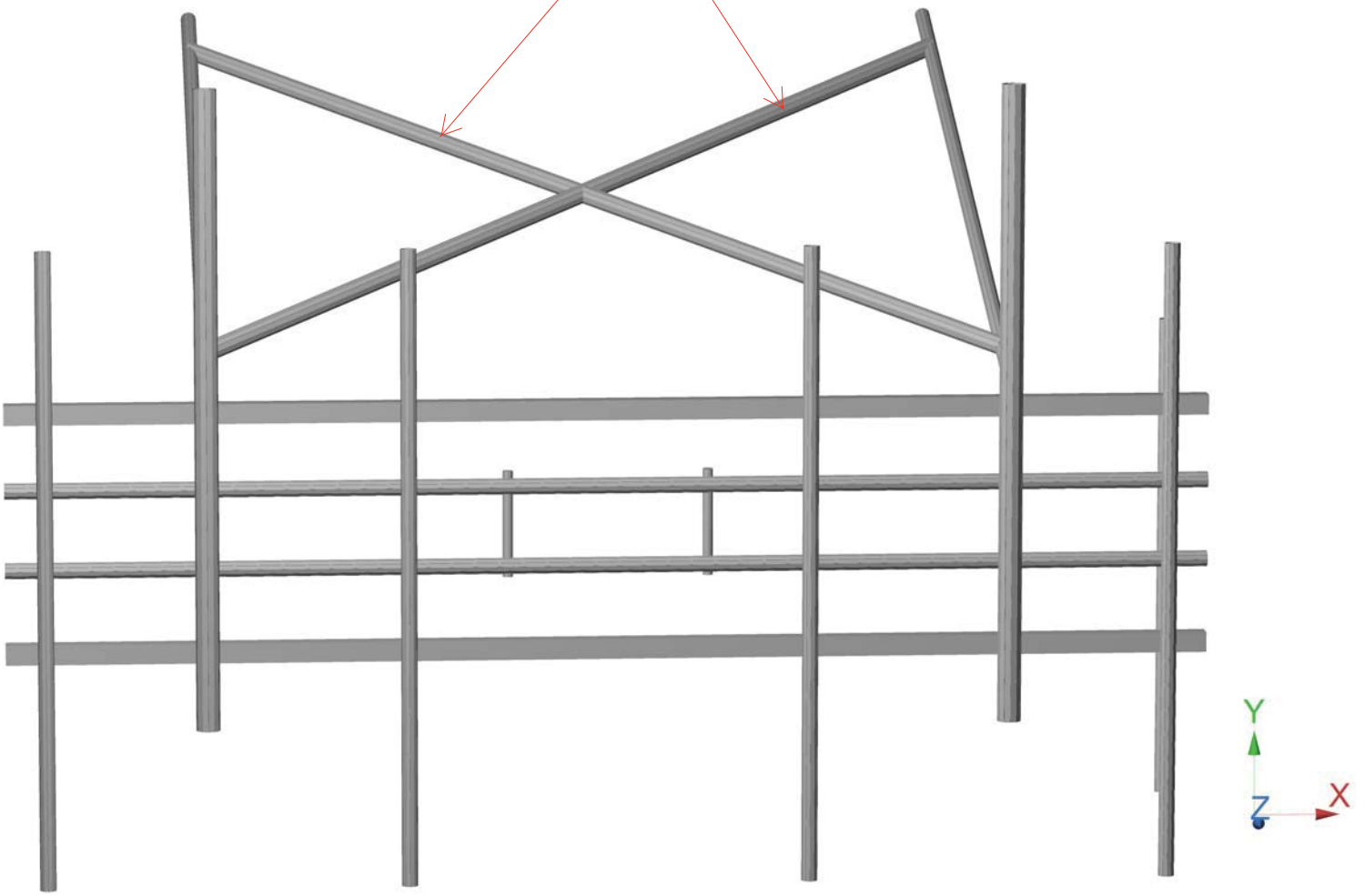
Load conditions to be included in design :

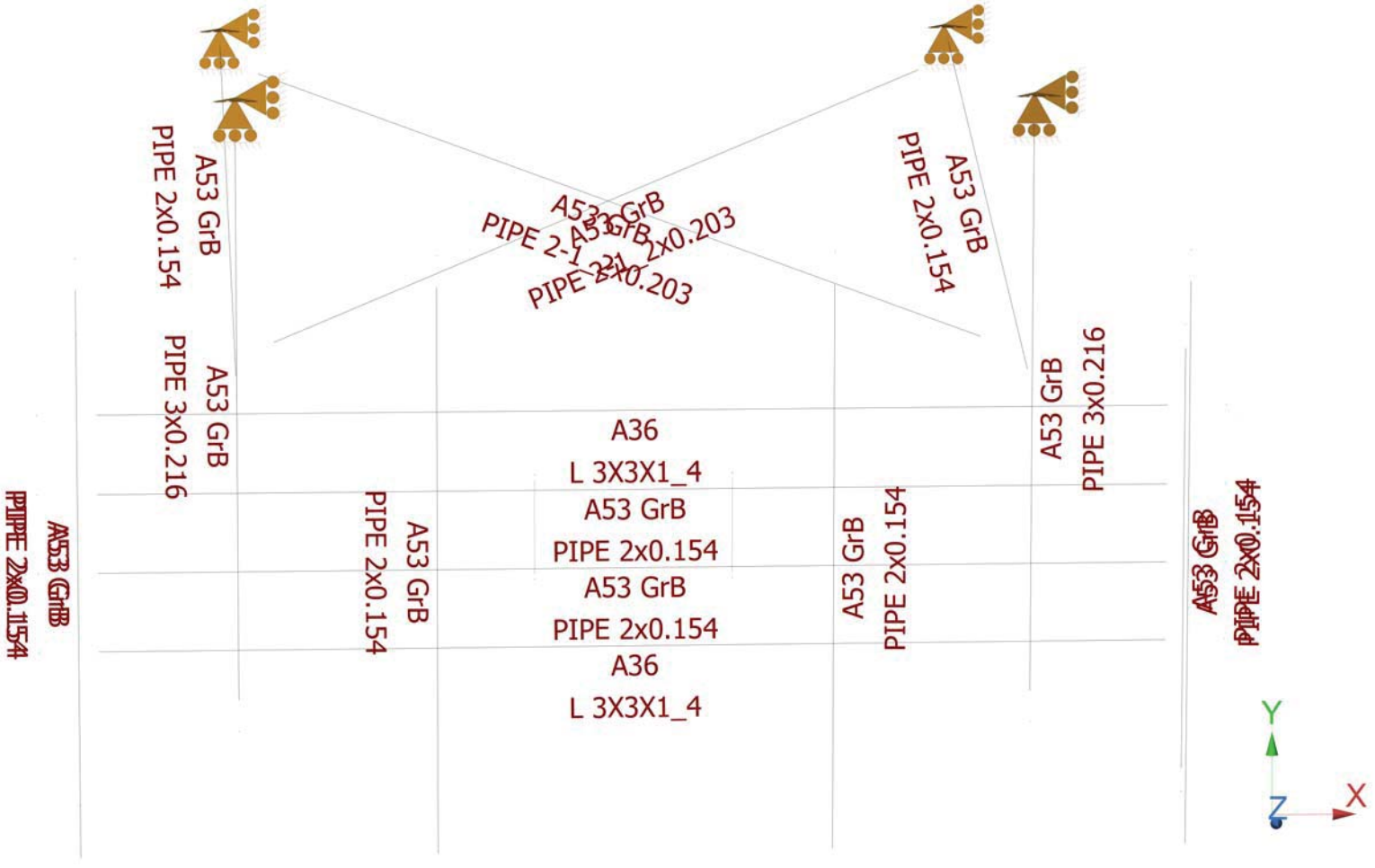
LC1=1.2DL+Wf
LC2=1.2DL+Ws
LC3=1.2DL-Wf
LC4=1.2DL-Ws
LC5=0.9DL+Wf
LC6=0.9DL+Ws
LC7=0.9DL-Wf
LC8=0.9DL-Ws
LC9=1.2DL+Wif+Di
LC10=1.2DL+Wis+Di
LC11=1.2DL-Wif+Di
LC12=1.2DL-Wis+Di
LC13=1.2DL
LC14=0.9DL

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	L 3X3X1_4	**5**	LC6 at 66.96%	**0.89**	**With warnings**	
		6	LC4 at 83.04%	0.65	With warnings	
	PIPE 2x0.154	**3**	LC1 at 50.00%	0.53	OK	
		4	LC1 at 50.00%	0.53	OK	
		11	LC8 at 33.33%	**0.80**	**With warnings**	
		12	LC4 at 65.97%	0.64	With warnings	
		49	LC1 at 66.07%	0.30	OK	
		50	LC2 at 25.00%	0.75	OK	
		51	LC4 at 25.00%	0.74	OK	
		52	LC1 at 66.07%	0.30	OK	
		53	LC3 at 12.50%	0.07	OK	
		56	LC3 at 12.50%	0.07	OK	
	PIPE 3x0.216	**1**	LC2 at 48.96%	**1.03**	**N.G.**	
		2	LC4 at 48.96%	1.03	N.G.	

Gamma/Delta Sector Antenna Mount
(Modified Conditions)

Install proposed 2-1/2” std. (2.88” O.D.) diagonal pipe brace secured to the existing steel frame (total of 2 per gamma/delta sector).

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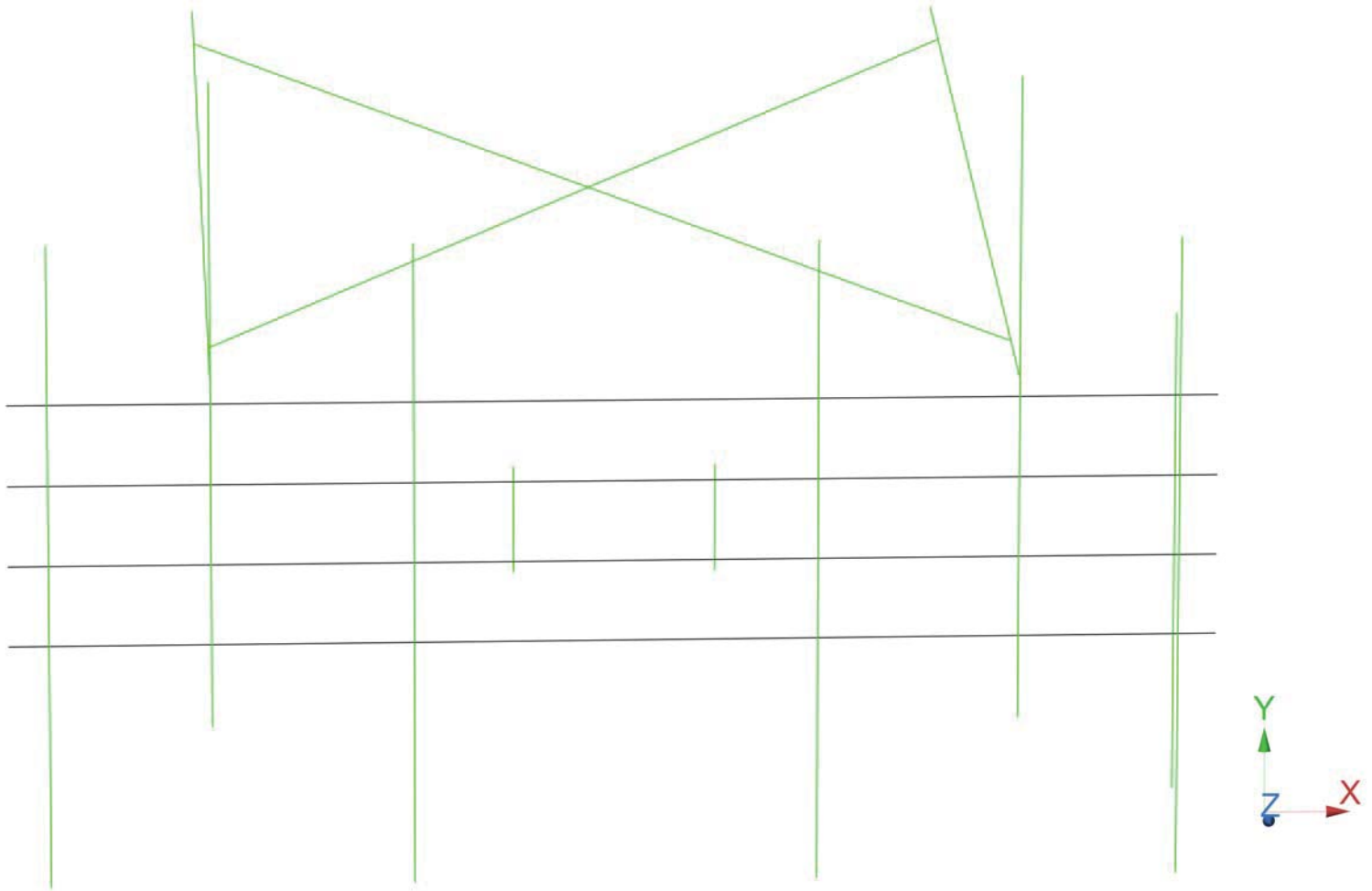
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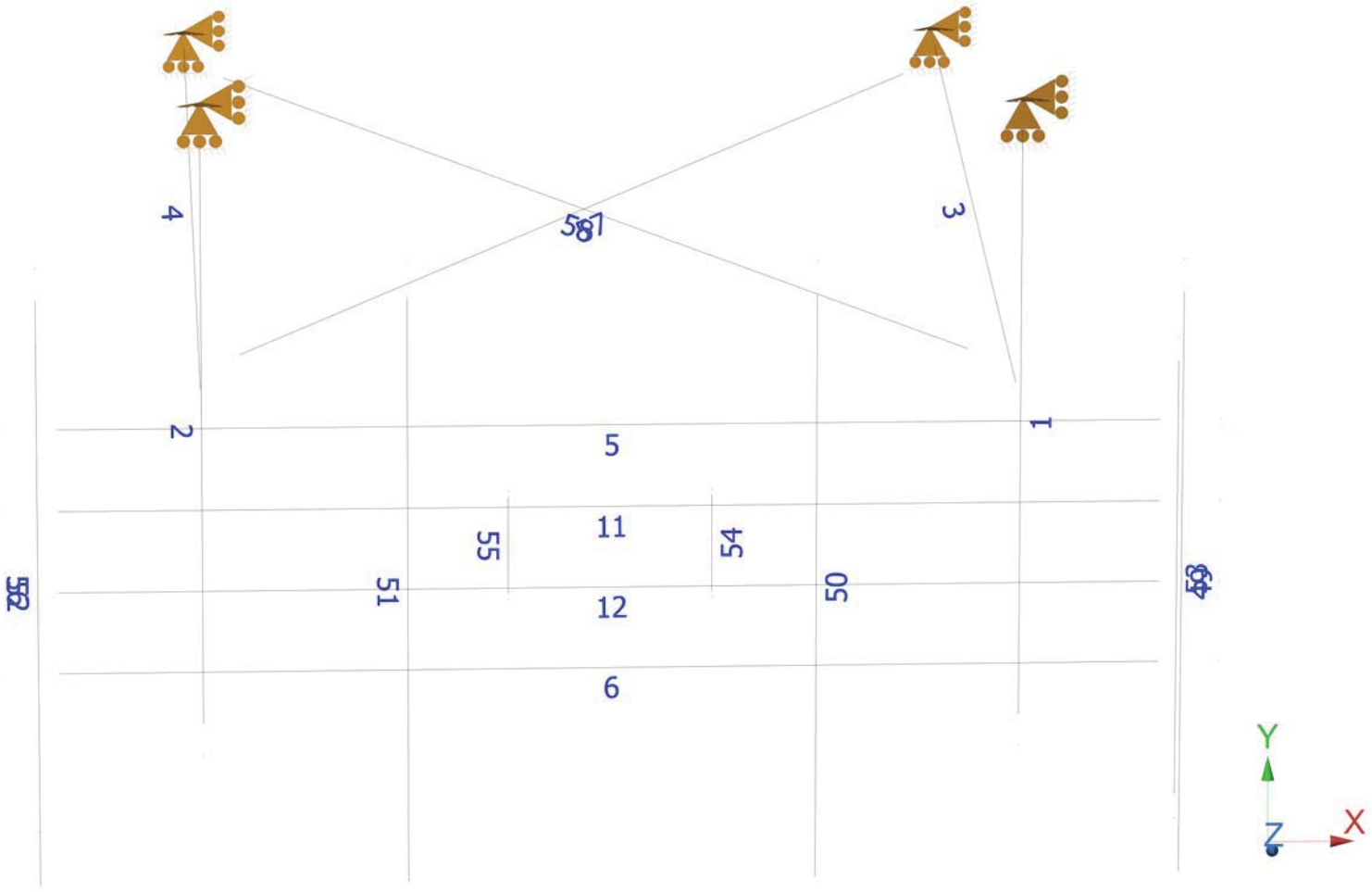
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RAM® Elements
CONNECT Edition

Current Date: 4/13/2023 5:17 PM
Units system: English

Load data

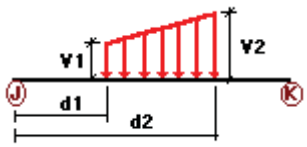
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
Wf	Wind Load (FRONT)	No	WIND
Ws	Wind Load (SIDE)	No	WIND
Wif	Wind with Ice (FRONT)	No	WIND
Wis	Wind with Ice (SIDE)	No	WIND
Di	Ice Load	No	LL

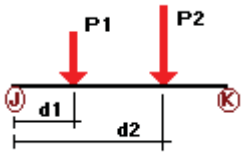
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wf	1	z	-0.018	0.00	0.00	No	0.00	No
	2	z	-0.018	0.00	0.00	No	0.00	No
	3	z	-0.012	0.00	0.00	No	0.00	No
	4	z	-0.012	0.00	0.00	No	0.00	No
	5	z	-0.025	0.00	0.00	No	0.00	No
	6	z	-0.025	0.00	0.00	No	0.00	No
	11	z	-0.012	0.00	0.00	No	0.00	No
	12	z	-0.012	0.00	0.00	No	0.00	No
	57	z	-0.016	0.00	0.00	No	0.00	No
	58	z	-0.016	0.00	0.00	No	0.00	No
Ws	1	x	-0.018	0.00	0.00	No	0.00	No
	2	x	-0.018	0.00	0.00	No	0.00	No
	49	x	-0.012	0.00	0.00	No	0.00	No
	50	x	-0.012	0.00	0.00	No	0.00	No
	51	x	-0.012	0.00	0.00	No	0.00	No
	52	x	-0.012	0.00	0.00	No	0.00	No
	53	x	-0.012	0.00	0.00	No	0.00	No
	56	x	-0.012	0.00	0.00	No	0.00	No
Di	1	y	-0.009	0.00	0.00	No	0.00	No
	2	y	-0.009	0.00	0.00	No	0.00	No
	3	y	-0.007	0.00	0.00	No	0.00	No
	4	y	-0.007	0.00	0.00	No	0.00	No
	5	y	-0.01	0.00	0.00	No	0.00	No
	6	y	-0.01	0.00	0.00	No	0.00	No

11	y	-0.007	0.00	0.00	No	0.00	No
12	y	-0.007	0.00	0.00	No	0.00	No
49	y	-0.007	0.00	0.00	No	0.00	No
50	y	-0.007	0.00	0.00	No	0.00	No
51	y	-0.007	0.00	0.00	No	0.00	No
52	y	-0.007	0.00	0.00	No	0.00	No
53	y	-0.007	0.00	0.00	No	0.00	No
56	y	-0.007	0.00	0.00	No	0.00	No
57	y	-0.008	0.00	0.00	No	0.00	No
58	y	-0.008	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	2	y	-0.073	5.50	No
		y	-0.033	3.50	No
	49	y	-0.051	1.50	No
		y	-0.051	6.50	No
	50	y	-0.051	1.50	No
		y	-0.051	6.50	No
		y	-0.053	50.00	Yes
	51	y	-0.033	1.00	No
		y	-0.033	2.75	No
		y	-0.041	4.75	No
		y	-0.041	6.50	No
	52	y	-0.051	1.50	No
		y	-0.051	6.50	No
	53	y	-0.046	50.00	Yes
		y	-0.046	50.00	Yes
		y	-0.033	0.50	No
	56	y	-0.072	50.00	Yes
		y	-0.072	50.00	Yes
	55	y	-0.06	50.00	Yes
	54	y	-0.053	50.00	Yes
Wf	2	z	-0.076	5.50	No
		z	-0.076	5.50	No
		z	-0.085	3.50	No
	49	z	-0.466	1.50	No
		z	-0.466	6.50	No
	50	z	-0.466	1.50	No
		z	-0.466	6.50	No
	51	z	-0.114	1.00	No
		z	-0.114	2.75	No
		z	-0.111	4.75	No
		z	-0.111	6.50	No
	52	z	-0.466	1.50	No
		z	-0.466	6.50	No
	53	z	-0.025	50.00	Yes
		z	-0.025	50.00	Yes

	56	z	-0.037	50.00	Yes
		z	-0.037	50.00	Yes
	55	z	-0.11	50.00	Yes
	54	z	-0.171	50.00	Yes
Ws	2	x	-0.107	5.50	No
		x	-0.085	3.50	No
	49	x	-0.187	1.50	No
		x	-0.187	6.50	No
	50	x	-0.187	1.50	No
		x	-0.187	6.50	No
		x	-0.07	50.00	Yes
	51	x	-0.055	1.00	No
		x	-0.055	2.75	No
		x	-0.075	4.75	No
		x	-0.075	6.50	No
	52	x	-0.187	1.50	No
		x	-0.187	6.50	No
	53	x	-0.10	50.00	Yes
		x	-0.085	0.50	No
	56	x	-0.089	50.00	Yes
	55	x	-0.068	50.00	Yes
	54	x	-0.07	50.00	Yes
Wif	2	z	-0.017	5.50	No
		z	-0.018	3.50	No
	49	z	-0.079	2.00	No
		z	-0.079	7.00	No
	50	z	-0.079	2.00	No
		z	-0.079	7.00	No
	51	z	-0.022	1.00	No
		z	-0.022	2.75	No
		z	-0.022	4.75	No
		z	-0.022	6.50	No
	52	z	-0.079	2.00	No
		z	-0.079	7.00	No
	53	z	-0.008	50.00	Yes
		z	-0.008	50.00	Yes
	56	z	-0.01	50.00	Yes
		z	-0.01	50.00	Yes
	55	z	-0.023	50.00	Yes
	54	z	-0.033	50.00	Yes
Wis	2	x	-0.022	5.50	No
		x	-0.018	3.50	No
	49	x	-0.038	2.00	No
		x	-0.038	7.00	No
	50	x	-0.038	2.00	No
		x	-0.038	7.00	No
		x	-0.016	50.00	Yes
	51	x	-0.013	1.00	No
		x	-0.013	2.75	No
		x	-0.016	4.75	No
		x	-0.016	6.50	No
	52	x	-0.038	2.00	No
		x	-0.038	7.00	No
	53	x	-0.021	50.00	Yes
		x	-0.018	0.50	No
	56	x	-0.019	50.00	Yes
	55	x	-0.016	50.00	Yes
	54	x	-0.016	50.00	Yes
Di	2	y	-0.046	5.50	No
		y	-0.054	3.50	No

49	y	-0.167	1.50	No
	y	-0.167	6.50	No
50	y	-0.167	1.50	No
	y	-0.167	6.50	No
	y	-0.064	50.00	Yes
51	y	-0.044	1.00	No
	y	-0.044	2.75	No
	y	-0.046	4.75	No
	y	-0.046	6.50	No
52	y	-0.167	1.50	No
	y	-0.167	6.50	No
53	y	-0.039	50.00	Yes
	y	-0.039	50.00	Yes
	y	-0.054	0.50	No
56	y	-0.041	50.00	Yes
	y	-0.041	50.00	Yes
55	y	-0.046	50.00	Yes
54	y	-0.064	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
Wf	Wind Load (FRONT)	No	0.00	0.00	0.00
Ws	Wind Load (SIDE)	No	0.00	0.00	0.00
Wif	Wind with Ice (FRONT)	No	0.00	0.00	0.00
Wis	Wind with Ice (SIDE)	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
Wf	0.00	0.00	0.00
Ws	0.00	0.00	0.00
Wif	0.00	0.00	0.00
Wis	0.00	0.00	0.00
Di	0.00	0.00	0.00

RAM® Elements
CONNECT Edition

Current Date: 4/13/2023 7:12 PM
Units system: English

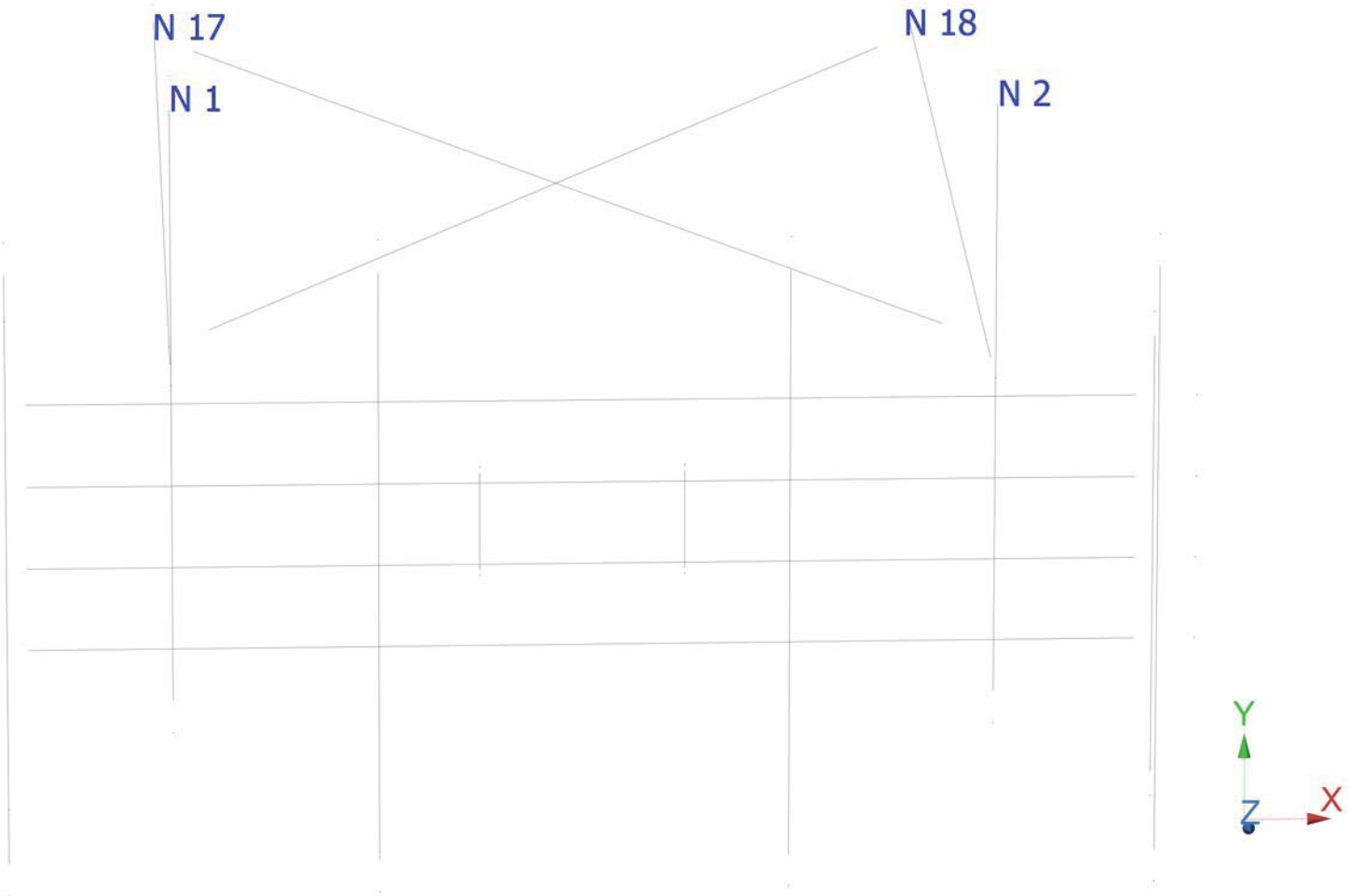
Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2DL+Wf
LC2=1.2DL+Ws
LC3=1.2DL-Wf
LC4=1.2DL-Ws
LC5=0.9DL+Wf
LC6=0.9DL+Ws
LC7=0.9DL-Wf
LC8=0.9DL-Ws
LC9=1.2DL+Wif+Di
LC10=1.2DL+Wis+Di
LC11=1.2DL-Wif+Di
LC12=1.2DL-Wis+Di
LC13=1.2DL
LC14=0.9DL

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	L 3X3X1_4	**5**	LC8 at 16.96%	0.41	With warnings	
		6	LC5 at 16.96%	**0.50**	**With warnings**	
	PIPE 2-1_2x0.203	**57**	LC4 at 0.00%	**0.14**	**OK**	
		58	LC2 at 0.00%	0.13	OK	
	PIPE 2x0.154	**3**	LC4 at 91.67%	**0.73**	**OK**	
		4	LC2 at 91.67%	0.73	OK	
		11	LC1 at 16.67%	0.43	With warnings	
		12	LC1 at 83.33%	0.41	OK	
		49	LC3 at 66.07%	0.30	OK	
		50	LC1 at 61.25%	0.42	OK	
		51	LC4 at 25.00%	0.37	OK	
		52	LC3 at 66.07%	0.30	OK	
		53	LC3 at 12.50%	0.07	OK	
		56	LC3 at 12.50%	0.07	OK	
	PIPE 3x0.216	**1**	LC3 at 46.88%	**0.97**	**OK**	
		2	LC3 at 46.88%	0.93	OK	


N 17
N 18
N 1
N 2
Y
Z
X

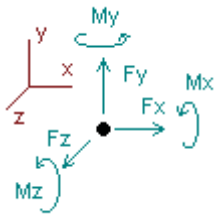
RAM® Elements
CONNECT Edition

Current Date: 4/13/2023 5:18 PM
Units system: English

Analysis result

Envelope for nodal reactions

Note.- **Ic** is the controlling load condition



Direction of positive forces and moments

Envelope of nodal reactions for :
LC1=1.2DL+Wf
LC2=1.2DL+Ws
LC3=1.2DL-Wf
LC4=1.2DL-Ws
LC5=0.9DL+Wf
LC6=0.9DL+Ws
LC7=0.9DL-Wf
LC8=0.9DL-Ws
LC9=1.2DL+Wif+Di
LC10=1.2DL+Wis+Di
LC11=1.2DL-Wif+Di
LC12=1.2DL-Wis+Di
LC13=1.2DL
LC14=0.9DL

		Forces						Moments					
Node		**Fx** [Kip]	**Ic**	**Fy** [Kip]	**Ic**	**Fz** [Kip]	**Ic**	**Mx** [Kip*ft]	**Ic**	**My** [Kip*ft]	**Ic**	**Mz** [Kip*ft]	**Ic**
1	Max	0.370	LC6	2.594	LC1	1.365	LC3	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.376	LC4	-0.728	LC7	-1.298	LC5	0.00000	LC1	0.00000	LC1	0.00000	LC1
2	Max	0.373	LC2	2.467	LC1	1.432	LC3	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.365	LC8	-0.871	LC7	-1.369	LC5	0.00000	LC1	0.00000	LC1	0.00000	LC1
17	Max	1.058	LC6	1.607	LC3	4.151	LC5	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-1.074	LC4	-1.468	LC5	-4.220	LC3	0.00000	LC1	0.00000	LC1	0.00000	LC1
18	Max	1.073	LC2	1.632	LC3	4.227	LC5	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-1.060	LC8	-1.497	LC5	-4.287	LC3	0.00000	LC1	0.00000	LC1	0.00000	LC1

Date: 4/13/2023
Project Name: DANBURY BANM
Project No.: CT5073
Designed By: KSBM **Checked By:** MSC

CHECK CONNECTION CAPACITY → GAMMA SECTOR

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = A36 3/8" (Threaded Rod)

Allowable Tensile Load =

F_{Tall} = 2402 lbs.

Allowable Shear Load =

F_{Vall} = 1441 lbs.

TENSILE FORCES

Reaction **F =** 1632 lbs. (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 1073 lbs. (See Bentley Output)
Reactions in Z direction: 4287 lbs. (See Bentley Output)

Resultant: 4419 lbs.

No. of Supports = 1
No. of Bolts / Support = 4

Tension Design Load /Bolts =

f_t= 408.00 lbs. < 2402 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v= 1104.81 lbs. < 1441 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.170	+	0.767	=	0.936	<	1.0	**Therefore, OK !**

Exhibit E

Power Density/RF Emissions Report

SAI Group
12 Industrial Way
Salem, NH 03079
(603) 421-0470
www.saigrp.com

Radio Frequency Exposure Theoretical Study

Prepared For:

AT&T Mobility

Site Name:	Danbury Banm
FA#:	10070988
Site ID:	CTL05073
Address:	24 Hospital Avenue, Danbury, CT 06810

Prepared by: **SAI Group**
12 Industrial Way
Salem, NH 03079
(603) 421-0470

Date of Report: March 31, 2023

Statement of Compliance

AT&T's proposed antenna installation along with other existing antennas is calculated to be within *4.75%* of FCC Standard for General Public/Uncontrolled Maximum Permissible Exposure (MPE).

Table of Contents

1 General Summary

SAI Group was contracted by AT&T Mobility to conduct a Radio Frequency (RF) Analysis for a wireless facility located at 24 Hospital Avenue, Danbury, CT to determine whether the radio facility is in compliance with Federal Communications Commission (FCC) regulations and standards regarding RF exposure.

RF exposure is calculated in accordance with FCC's suggested prediction methods.

2 Site Compliance Summary

Compliance Summary (General Public Limit)	
Site Compliance	Yes
Maximum Calculated %MPE at 0-6' Ground Level (Cumulative)	4.75% at about 460ft South from the tower.

3 RF Design Specifications

Table below shows the technical data used for the calculation of cumulative %MPE results.

Ant ID	Operator	Antenna Make	Antenna Model	Type	TX Freq (MHz)	Az (Deg)	Ant Gain (dBd)	Total ERP (Watts)	Z Rad Center (ft)
1	AT&T	CCI	HPA-65R-BUU-H6	Panel	700	30	12.49	1419	137
1	AT&T	CCI	HPA-65R-BUU-H6	Panel	2300	30	15.13	3258	137
2	AT&T	KATHREIN	80010965	Panel	700	30	12.15	2625	137
2	AT&T	KATHREIN	80010965	Panel	2100	30	16.55	3615	137
2	AT&T	KATHREIN	80010965	Panel	2100	30	16.55	3615	137
3	AT&T	ERICSSON	AIR6419	Panel	3500	30	23.45	23990	138.75
4	AT&T	ERICSSON	AIR6449	Panel	3700	30	23.5	24268	135.17
5	AT&T	CCI	DMP65R-BU6D	Panel	700	30	11.75	1197	137
5	AT&T	CCI	DMP65R-BU6D	Panel	1900	30	14.35	1089	137
5	AT&T	CCI	DMP65R-BU6D	Panel	1900	30	14.35	1089	137
5	AT&T	CCI	DMP65R-BU6D	Panel	850	30	11.45	1000	137
5	AT&T	CCI	DMP65R-BU6D	Panel	1900	30	14.35	2178	137
6	AT&T	CCI	HPA-65R-BUU-H6	Panel	700	150	12.49	1419	159
6	AT&T	CCI	HPA-65R-BUU-H6	Panel	2300	150	15.13	3258	159
7	AT&T	KATHREIN	80010965	Panel	700	150	12.05	2565	159
7	AT&T	KATHREIN	80010965	Panel	2100	150	16.55	3615	159
7	AT&T	KATHREIN	80010965	Panel	2100	150	16.55	3615	159
8	AT&T	ERICSSON	AIR6419	Panel	3500	150	23.45	23990	160.75
9	AT&T	ERICSSON	AIR6449	Panel	3700	150	23.5	24268	157.17
10	AT&T	CCI	DMP65R-BU6D	Panel	700	150	11.75	1197	159
10	AT&T	CCI	DMP65R-BU6D	Panel	1900	150	14.65	1167	159
10	AT&T	CCI	DMP65R-BU6D	Panel	1900	150	14.65	1167	159
10	AT&T	CCI	DMP65R-BU6D	Panel	850	150	11.45	1000	159
10	AT&T	CCI	DMP65R-BU6D	Panel	1900	150	14.65	2334	159
11	AT&T	CCI	BSA-M65R-BUU-H6	Panel	700	270	14.05	2033	133
11	AT&T	CCI	BSA-M65R-BUU-H6	Panel	2300	270	16.25	4217	133
12	AT&T	CCI	BSA-M65R-BUU-H6	Panel	700	270	14.05	2033	133
12	AT&T	CCI	BSA-M65R-BUU-H6	Panel	2100	270	16.45	3533	133
12	AT&T	CCI	BSA-M65R-BUU-H6	Panel	2100	270	16.45	3533	133
13	AT&T	ERICSSON	AIR6419	Panel	3500	270	23.45	23990	134.75
14	AT&T	ERICSSON	AIR6449	Panel	3700	270	23.5	24268	131.17
15	AT&T	CCI	BSA-M65R-BUU-H6	Panel	700	270	14.05	2033	133
15	AT&T	CCI	BSA-M65R-BUU-H6	Panel	1900	270	16.25	1687	133
15	AT&T	CCI	BSA-M65R-BUU-H6	Panel	1900	270	16.25	1687	133
15	AT&T	CCI	BSA-M65R-BUU-H6	Panel	850	270	14.95	1000	133
15	AT&T	CCI	BSA-M65R-BUU-H6	Panel	1900	270	16.25	3374	133
16	AT&T	CCI	BSA-M65R-BUU-H6	Panel	700	270	14.55	2281	133
16	AT&T	CCI	BSA-M65R-BUU-H6	Panel	2300	270	16.35	4315	133

17	AT&T	CCI	BSA-M65R-BUU-H6	Panel	700	270	14.55	2281	133
17	AT&T	CCI	BSA-M65R-BUU-H6	Panel	2100	270	16.55	3615	133
17	AT&T	CCI	BSA-M65R-BUU-H6	Panel	2100	270	16.55	3615	133
18	AT&T	CCI	BSA-M65R-BUU-H6	Panel	700	270	14.55	2281	133
18	AT&T	CCI	BSA-M65R-BUU-H6	Panel	1900	270	15.75	1503	133
18	AT&T	CCI	BSA-M65R-BUU-H6	Panel	1900	270	15.75	1503	133
18	AT&T	CCI	BSA-M65R-BUU-H6	Panel	850	270	15.45	1000	133
18	AT&T	CCI	BSA-M65R-BUU-H6	Panel	1900	270	15.75	3007	133
19	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	700	30	12.11	2472	156
19	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	850	30	12.81	998	156
20	VZW	AMPHENOL	BXA-80063-6BF-EDIN	Panel	850	30	14.5	2856	156
21	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	1900	30	15.72	6100	156
21	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	2100	30	15.71	6224	156
22	VZW	SAMSUNG	XXDWMM-12.5-65-8T	Panel	3550	30	10.55	227	158.50
23	VZW	SAMSUNG	MT6407	Panel	3700	30	23.45	26124	156
24	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	700	150	12.11	2472	156
24	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	850	150	12.81	998	156
25	VZW	AMPHENOL	BXA-80063-6BF-EDIN	Panel	850	150	14.5	2856	156
26	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	1900	150	15.72	6100	156
26	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	2100	150	15.71	6224	156
27	VZW	SAMSUNG	XXDWMM-12.5-65-8T	Panel	3550	150	10.55	227	158.50
28	VZW	SAMSUNG	MT6407	Panel	3700	150	23.45	26124	156
29	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	700	280	12.11	2472	156
29	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	850	280	12.81	998	156
30	VZW	AMPHENOL	BXA-80063-6BF-EDIN	Panel	850	280	14.5	2856	156
31	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	1900	280	15.72	6100	156
31	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	2100	280	15.71	6224	156
32	VZW	SAMSUNG	XXDWMM-12.5-65-8T	Panel	3550	280	10.55	227	159
33	VZW	SAMSUNG	MT6407	Panel	3700	280	23.45	26124	156
34	T-Mobile	ERICSSON	AIR6449	Panel	2500	60	22.35	20615	154
34	T-Mobile	ERICSSON	AIR6449	Panel	2500	60	22.35	20615	154
35	T-Mobile	ERICSSON	AIR 32	Panel	2100	60	15.75	4510	154
35	T-Mobile	ERICSSON	AIR 32	Panel	1900	60	15.55	2154	154
35	T-Mobile	ERICSSON	AIR 32	Panel	1900	60	15.55	2154	154
36	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	700	60	13.17	1660	154
36	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	60	13.09	815	154
36	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	60	13.09	815	154
36	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	1900	60	15.29	5409	154
36	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	2100	60	17.32	3237	154
37	T-Mobile	ERICSSON	AIR6449	Panel	2500	150	22.35	20615	154
37	T-Mobile	ERICSSON	AIR6449	Panel	2500	150	22.35	20615	154
38	T-Mobile	ERICSSON	AIR 32	Panel	2100	150	15.75	4510	154
38	T-Mobile	ERICSSON	AIR 32	Panel	1900	150	15.55	2154	154

38	T-Mobile	ERICSSON	AIR 32	Panel	1900	150	15.55	2154	154
39	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	700	150	13.17	1660	154
39	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	150	13.09	815	154
39	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	150	13.09	815	154
39	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	1900	150	15.29	5409	154
39	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	2100	150	17.32	3237	154
40	T-Mobile	ERICSSON	AIR6449	Panel	2500	300	22.35	20615	127
40	T-Mobile	ERICSSON	AIR6449	Panel	2500	300	22.35	20615	127
41	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	700	300	13.17	1660	127
41	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	300	13.09	815	127
41	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	300	13.09	815	127
41	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	1900	300	15.29	5409	127
41	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	2100	300	17.32	3237	127
42	T-Mobile	ERICSSON	AIR 32	Panel	2100	300	15.75	4510	127
42	T-Mobile	ERICSSON	AIR 32	Panel	1900	300	15.55	2154	127
43	T-Mobile	ERICSSON	AIR6449	Panel	2500	210	22.35	20615	154
43	T-Mobile	ERICSSON	AIR6449	Panel	2500	210	22.35	20615	154
44	T-Mobile	ERICSSON	AIR 32	Panel	2100	210	15.75	4510	154
44	T-Mobile	ERICSSON	AIR 32	Panel	1900	210	15.55	2154	154
44	T-Mobile	ERICSSON	AIR 32	Panel	1900	210	15.55	2154	154
45	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	700	210	13.17	1660	154
45	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	210	13.09	815	154
45	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	210	13.09	815	154
45	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	1900	210	15.29	5409	154
46	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	220	13.35	350	131
46	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	220	13.35	875	131
46	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	220	15.85	5598	131
46	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	220	15.85	3112	131
47	SPRINT	RFS	APXVTM14 ALU-I20	Panel	2500	220	15.85	3112	131
48	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	270	13.35	350	131
48	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	270	13.35	875	131
48	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	270	15.85	5598	131
48	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	270	15.85	3112	131
49	SPRINT	RFS	APXVTM14 ALU-I20	Panel	2500	270	15.85	3112	131
50	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	340	13.35	350	131
50	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	340	13.35	875	131
50	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	340	15.85	5598	131
50	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	340	15.85	3112	131
51	SPRINT	RFS	APXVTM14 ALU-I20	Panel	2500	340	15.85	3112	131
52	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	30	13.35	350	155
52	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	30	13.35	875	155
52	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	30	15.85	6842	155
52	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	30	15.85	3112	155

53	SPRINT	RFS	APXVTM14 ALU-I20	Panel	2500	30	15.85	3112	155
54	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	120	13.35	350	155
54	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	120	13.35	875	155
54	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	120	15.85	6842	155
54	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	120	15.85	3112	155
55	SPRINT	RFS	APXVTM14 ALU-I20	Panel	2500	120	15.85	3112	155
56	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	170	13.35	350	131
56	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	170	13.35	875	131
56	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	170	15.85	6842	131
56	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	170	15.85	3112	131
57	SPRINT	RFS	APXVTM14 ALU-I20	Panel	2500	170	15.85	3112	131

NOTE: The Z value indicates the distance of radiation center of the antenna height above the ground site level unless otherwise indicated. Effective Radiated Power (ERP) is provided by the operator or calculated based on SAI Group experience. SAI Group has assumed transmission parameters for “Unknown” RF emitters based on either similar installations found at other radio communications sites or from the latest data available for the site. “Generic” antenna models have been used where existing antenna part numbers or radiation patterns are not available. The frequencies presented in this table may have been assumed in order to represent the approximate band of operation and to support a worst-case calculation of power density

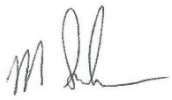
4 Conclusion

I certify to the best of my knowledge that the statements contained in this report are true and accurate. The theoretical computations contained are based on FCC recommended methods, with industry standard assumptions & formulas, and complies with FCC mandated Maximum Permissible RF Exposure requirements.

A comprehensive field survey was not performed prior to the generation of this report. If questions arise regarding the calculations herein, SAI Group recommends that a comprehensive field survey be performed to resolve any disputes.

Sanket Joshi
RF Engineer
SAI Group

March 31, 2023
Date



Matthew Smelcer
RF Engineering Manager

March 31, 2023
Date

Appendix A – FCC Rules and Regulations

In 1996, the Federal Communication Commission (FCC) adopted procedures and guidelines for evaluating of the effects of RF exposure. This guideline from the FCC Office of Engineering and Technology is Bulletin 65 ("OET Bulletin 65"), *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, Edition 97-01, published August 1997. Since 1996 the FCC periodically reviews these rules and regulations as per their congressional mandate.

Maximum Permissible Exposure (MPE) limits utilized in this analysis are outlined in the following Tables and diagram:

Table 1. MPE Limits for General Population/ Uncontrolled Exposure

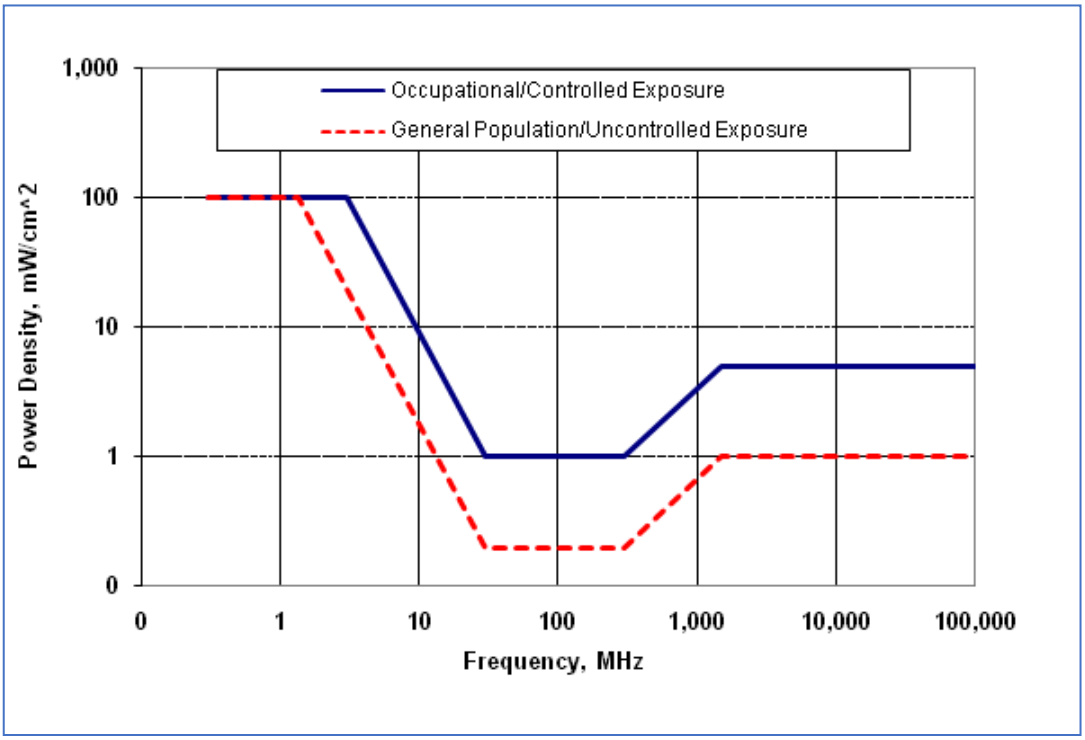
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time for $\|E\|^2$, $\|H\|^2$, or S (Minutes)
0.3 – 1.34	614	1.63	(100)*	30
1.34 -30	824/f	2.19/f	($180/f^2$)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	--	--	f/1500	30
1500– 100,000	--	--	1.0	30
f = frequency in MHz		* = Plane wave equivalent power density		

General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can't exercise control over their exposure. A site is evaluated with General Public limits if there is no access controls or no RF warning signage present.

Table 2. MPE Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time for $\|E\|^2$, $\|H\|^2$, or S (Minutes)
0.3 – 3.0	614	1.63	(100)*	6
3.0 – 30	1842/f	4.89/f	($900/f^2$)*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	--	--	f/300	6
1500– 100,000	--	--	5.0	6
f = frequency in MHz		* = Plane wave equivalent power density		

Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where such occupational/controlled limits apply provided he or she is made aware of the potential for exposure. Typical criteria to remediate controlled environment are restricted access to the areas where antennas are located along with appropriate RF warning signage. A site with Controlled environment is evaluated with Occupational limits.



Maximum Permissible Exposures. Occupational/Controlled and General Population/Uncontrolled MPE's are functions of frequency.

Appendix B – Calculations Methodology and Assumptions

SAI Group has performed theoretical analysis using Waterford Consultants' RoofMaster™ 2020 Version 30.5.26.2022 which uses a cylindrical model for very conservative power density calculations within the near field of the antenna where the antenna pattern has not truly formed yet. The Cylindrical Model is used to determine the spatially averaged power density in the near field directly in front of an antenna. In order to implement this model in all directions, the calculations utilize the antenna manufacturer horizontal pattern data. Additionally, the model also incorporates factors that reduce the power density by inverse square of horizontal and vertical distances beyond the near field region.

RoofMaster™ uses far field model to calculate the spatial peak power density. The RoofMaster™ implementation of this model incorporated manufacturer's horizontal and vertical pattern data to determine the power density in all directions.

The calculations are based on worst-case assumptions that, all antennas are always operating at full power.

The site has been modeled with these assumptions to show the maximum RF energy density. Areas modeled with exposure greater than 100% of the General Public MPE level may not actually occur, but are shown as a prediction that could be realized.

Appendix C – Informative References

The following references can be followed for further information about RF Health and Safety.

FCC Radio Frequency Safety
http://www.fcc.gov/encyclopedia/radio-frequency-safety

FCC OET Bulletin 56
https://transition.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet56/oet56e4.pdf

FCC OET Bulletin 65
https://transition.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet65/oet65.pdf

National Council on Radiation Protection and Measurements (NCRP)
http://www.ncrponline.org

American National Standards Institute (ANSI)
http://www.ansi.org

Environmental Protection Agency (EPA)
https://www3.epa.gov/radtown/wireless-technology.html

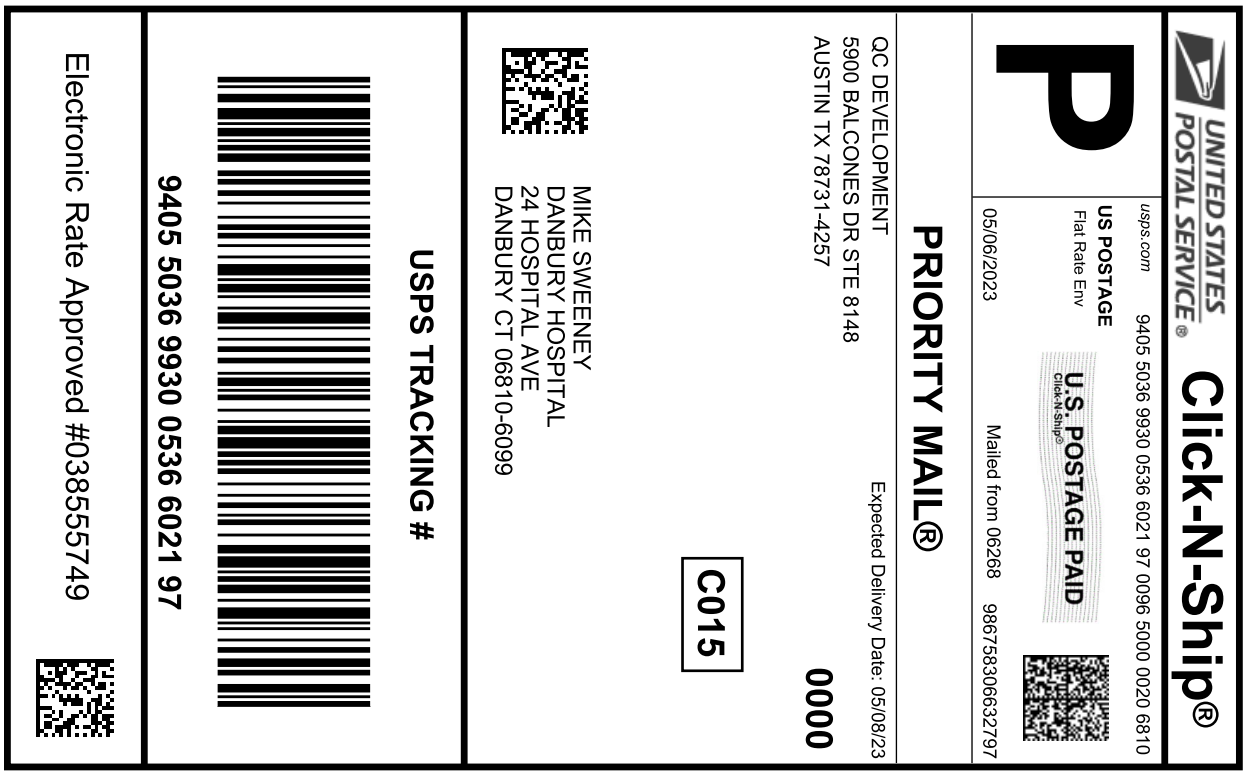
National Institutes of Health (NIH)
http://www.niehs.nih.gov/health/topics/agents/emf/

Occupational Safety and Health Agency (OSHA)
http://www.osha.gov/SLTC/radiofrequencyradiation/

International Commission on Non-Ionizing Radiation Protection (ICNIRP)
http://www.icnirp.org/

Exhibit F

Recipient Mailings



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Instructions

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2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
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USPS TRACKING # :
9405 5036 9930 0536 6021 97

Trans. #:	587712605
Print Date:	05/03/2023
Ship Date:	05/06/2023
Expected Delivery Date:	05/08/2023

Priority Mail® Postage:	**$9.65**
Total:	**$9.65**

From: QC DEVELOPMENT
5900 BALCONES DR STE 8148
AUSTIN TX 78731-4257

To: MIKE SWEENEY
DANBURY HOSPITAL
24 HOSPITAL AVE
DANBURY CT 06810-6099

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

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Tracking Number:

9405503699300536602197

Copy Add to Informed Delivery (https://informeddelivery.usps.com/)

Expected Delivery on

MONDAY

8 May 2023 ⓘ

by **9:00pm** ⓘ

Your item departed our USPS facility in STAMFORD CT DISTRIBUTION CENTER on May 7, 2023 at 10:06 am. The item is currently in transit to the destination.

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Moving Through Network

Departed USPS Regional Facility

STAMFORD CT DISTRIBUTION CENTER
May 7, 2023, 10:06 am

Arrived at USPS Regional Facility

STAMFORD CT DISTRIBUTION CENTER
May 7, 2023, 6:17 am

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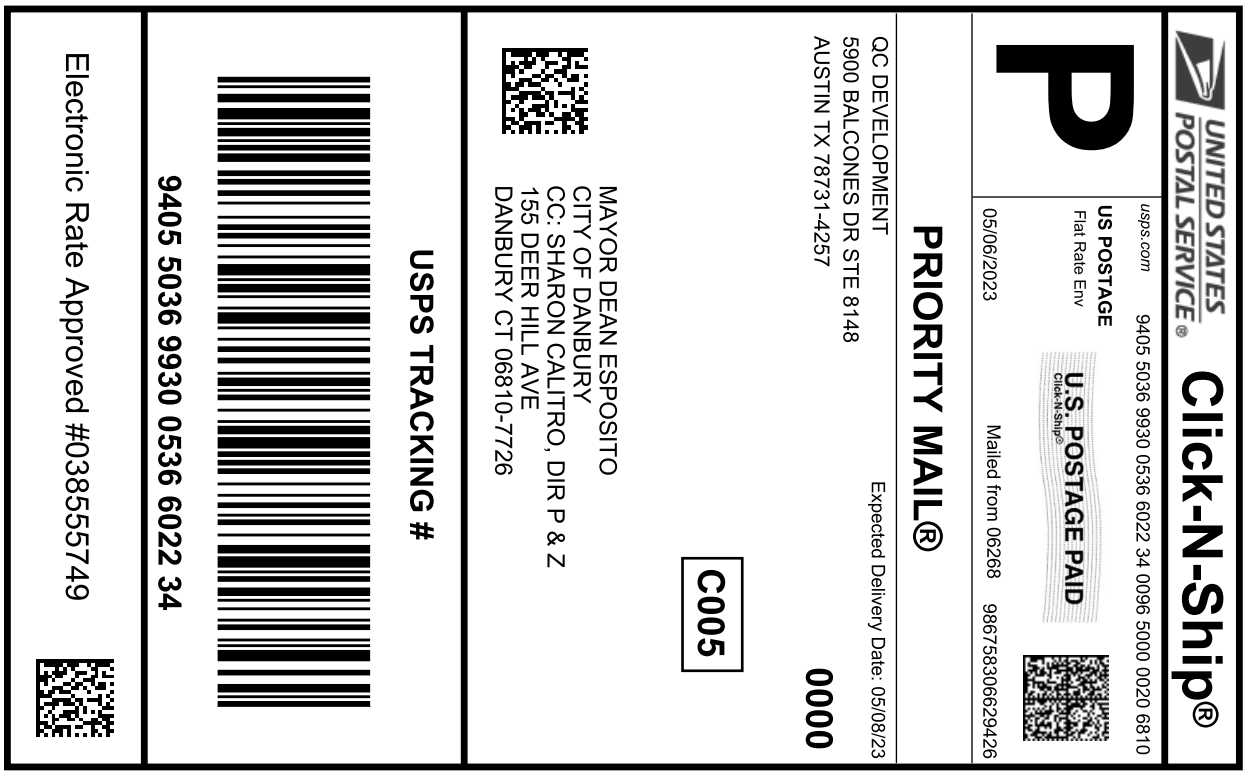

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Instructions

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5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0536 6022 34

Trans. #:	587712605
Print Date:	05/03/2023
Ship Date:	05/06/2023
Expected Delivery Date:	05/08/2023

Priority Mail® Postage:	**$9.65**
Total:	**$9.65**

From: QC DEVELOPMENT
5900 BALCONES DR STE 8148
AUSTIN TX 78731-4257

To: MAYOR DEAN ESPOSITO
CITY OF DANBURY
CC: SHARON CALITRO, DIR P & Z
155 DEER HILL AVE
DANBURY CT 06810-7726

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

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May 7, 2023, 10:04 am

Arrived at USPS Regional Facility

STAMFORD CT DISTRIBUTION CENTER
May 7, 2023, 6:17 am

See All Tracking History

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