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

June 10, 2022

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) – CT1013
27 Butler Street, Meriden, CT 06451
N 41.558333
W 72.807222

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the rooftop level (86' AGL) of the 4-story Central Office building at 27 Butler Street (a/k/a 25 Butler Street), Meriden, CT. The property is owned by Southern New England Telephone. AT&T now intends to replace three (3) 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.

AT&T Planned Modifications:

Remove:
(6) TMAs

Remove and Replace:
(3) ANDREW 7770 Antennas (REMOVE) - (3) Ericsson AIR 6419 B77G Antennas (REPLACE)

Install New:
(3) Ericsson AIR 6449 B77D Antennas
(3) Ericsson 4478 B14 RRU

Existing to Remain:
(4) KATHREIN 800-10964 Antennas
(2) KATHREIN 800-10965 Antennas
(3) Ericsson 8843 B2/B66A RRU
(3) Ericsson 4449 B5/B12 RRU
(3) Raycap Surge Units
(3) Fiber Lines
(6) DC Lines

AT&T's use of this facility was first approved by the Connecticut Siting Council, Petition # 292 on October 14, 1992. The approval included no conditions that could feasibly be violated by this proposed modification, including total facility height and mounting restrictions. This modification therefore complies with the aforementioned approvals.

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 the Mayor Kevin Scarpati and Paul Dickson, Acting Director of Planning, Development & Enforcement for the City of Meriden as well as 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 Kevin Scarpati – Elected Official
Paul Dickson - Acting Director of Planning, Development & Enforcement
SNET - Property Owner

Exhibit A

Original Facility Approval

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

136 Main Street, Suite 401
New Britain, Connecticut 06051-4225
Phone: 827-7682

Petition No. 292 - Staff Report
Springwich Cellular Limited Partnership
Meriden, Connecticut
1992

On September 15, 1992, Chairman Mortimer A. Gelston of the Connecticut Siting Council and Joel M. Rinebold, Executive Director of the Council staff met Peter Van Wilgen of the Springwich Cellular Limited Partnership for a field review of this Petition. Springwich is petitioning the Council under the Regulations of Connecticut State Agencies section 16-50j-38 through 40, for a declaratory ruling that the addition of cellular equipment and antennas to an existing office building at 27 Butler Street, Meriden, Connecticut, would not have a substantial adverse environmental effect and therefore would not require a Certificate of Environmental Compatibility and Public Need from the Council.

Springwich proposes to initially install four whip antennas and later replace them with nine directional panal antennas on the top of the Southern New England Telephone Company's central office building located at 27 Butler Street, Meriden, Connecticut.

No towers or other structures would be necessary to support these antennas. There is presently a SNET microwave dish located on the roof at a slightly lower height.

The antennas would be attached to the building, which stands approximately 77 feet above ground level. The tops of the antennas would rise about 13 feet above the top of the building. A building permit and federal approval for this installation would be obtained following a favorable ruling by the Council. No other approvals are necessary.

Springwich would install its telecommunications equipment on the 3rd floor of the 4 story building. There would be no other changes to the building or proposed site. The nonionizing radio frequency power density levels from the proposed cellular equipment would be well below allowable State levels, both from within the building, as well as at the base of the building.

The proposed cellular equipment would not increase noise levels at the site boundary by six decibels or more, and would not increase the boundaries of the site. Springwich contends that the antennas will not add noticeably to the physical characteristics or visual appearance of the building or surroundings, and will have no affect on the ecology.

JMR/cp

6428E

Exhibit B

Property Card

PROPERTY INFORMATION

Location: **25 BUTLER ST** Map/Lot: 0111-0050-0019-0027

OWNER INFORMATION

Owner(s):
SOUTHERN NEW ENGLAND TEL CO SU
C/O FRONTIER COMMUNICATIONS

Owner Address:
DUFF & PHELPS LLC PO BOX 2629
ADDISON, TX 75001

BUILDING INFORMATION

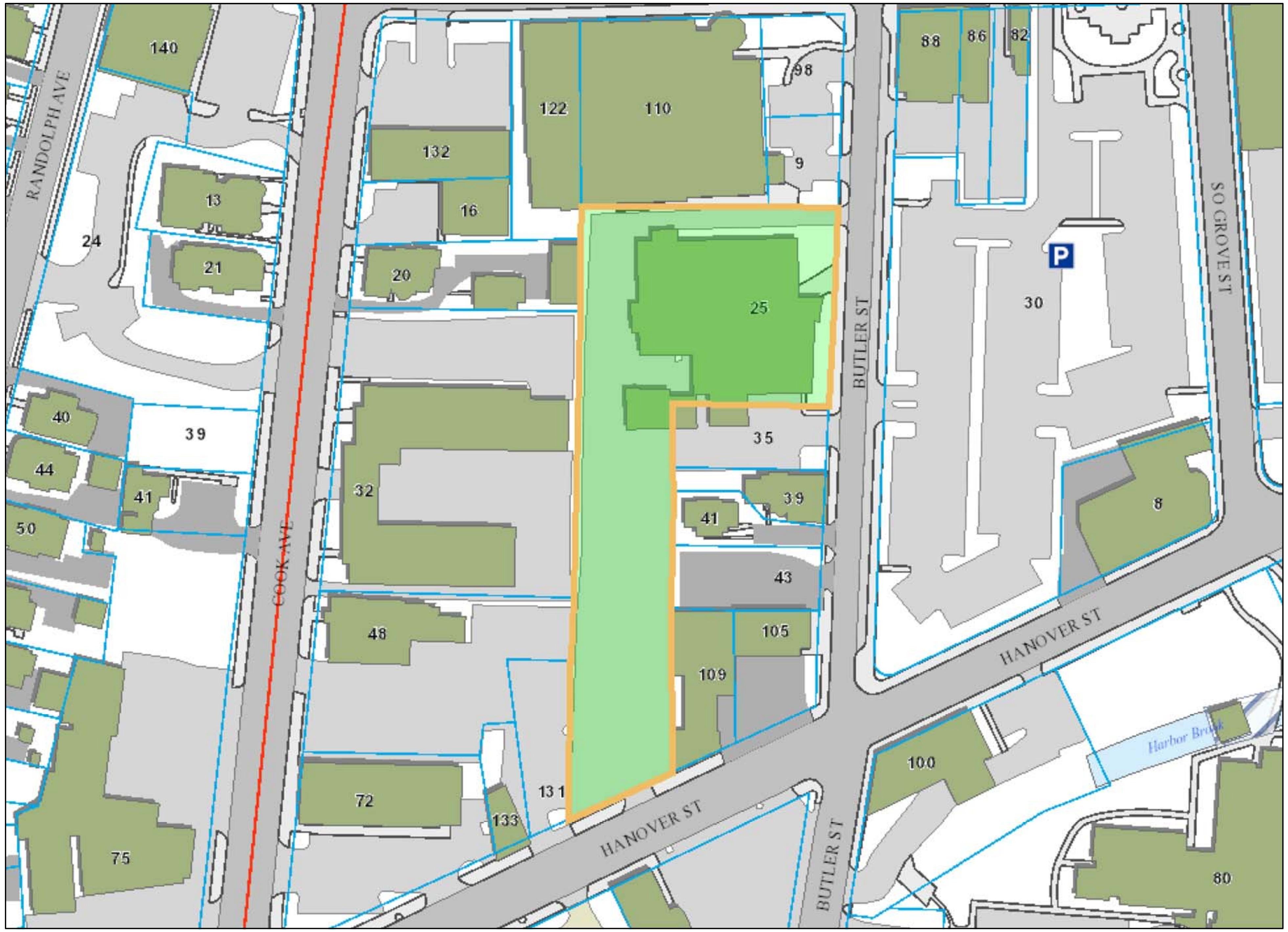
Card Number: 1

OVERVIEW	
Building ID	699
Finished Area	58,395
Comm/Rental Units	4
Living Units	0
Building Type	Office
Year Built	1900
Effective Yr Built	
Building Number	1

INTERIOR DETAILS	
Rooms	
BedRooms	
Full Bath	0
Full Bath Rating	
Half Bath	0
Half Bath Rating	
Kitchens	0
Kitchen Rating	
Fireplaces	0

CONSTRUCTION DETAILS	
Exterior	Concrete Blo
Roof Structure	Flat
Roof Cover	Tar and Gr
Quality	B-
Heat Fuel	Oil
Heat Type	Forced Air
Prcnt. Heated	100.00
Prcnt. AC	100.00
Stories	4 story
Foundation	Concrete

Building Area Summary



CITY OF MERIDEN

Date: 5/1/2019

CITY OF MERIDEN, CT GIS

25 BUTLER ST

1 inch = 100 feet

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 RRUS: 4478 B14 (TYP. OF 1 PER SECTOR, TOTAL OF 3) • ADD (6) Y–CABLES. • PROPOSED MOUNT MODS (SEE S–1 SHEET). ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION: • ADD (1) 6648 + XCEDE CABLE. • ADD (1) XMU. • ADD (3) RECTIFIERS. • ADD (8) UP–CONVERTERS. ITEMS TO BE REMOVED: • EXISTING AT&T ANTENNAS: 7770 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • EXISTING AT&T TMA'S: LGP21401 (TYP. OF 2 PER SECTOR, TOTAL OF 6). • EXISTING AT&T DIPLEXER: CM1007–DBPXBC–003 (TYP. OF 2 PER SECTOR, TOTAL OF 6). • EXISTING (12) COAX CABLES. ITEMS TO REMAIN: • (6) ANTENNAS, (6) RRU'S, (6) DC POWER & (3) FIBER
SITE ADDRESS:	27 BUTLER STREET MERIDEN, CT 06451
LATITUDE:	41.5376031° N, 41° 32' 15.37" N
LONGITUDE:	72.8061661° W, 72° 48' 22.19" W
TYPE OF SITE:	ROOF TOP / INDOOR EQUIPMENT
STRUCTURE HEIGHT:	ROOF (58'–0"±) PENTHOUSE (78'–0"±)
RAD CENTER:	ALPHA SECTOR: 86'–0"±, (LTE), 88'–3"± & 84'–7"± (C–Band) BETA SECTOR: 86'–0"±, (LTE), 88'–0"± & 84'–4"± (C–Band) GAMMA SECTOR: 86'–0"±, (LTE), 88'–0"± & 84'–4"± (C–Band)
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

at&t

SITE NUMBER: CT1013

SITE NAME: MERIDEN SBC CO

FA CODE: 10035054

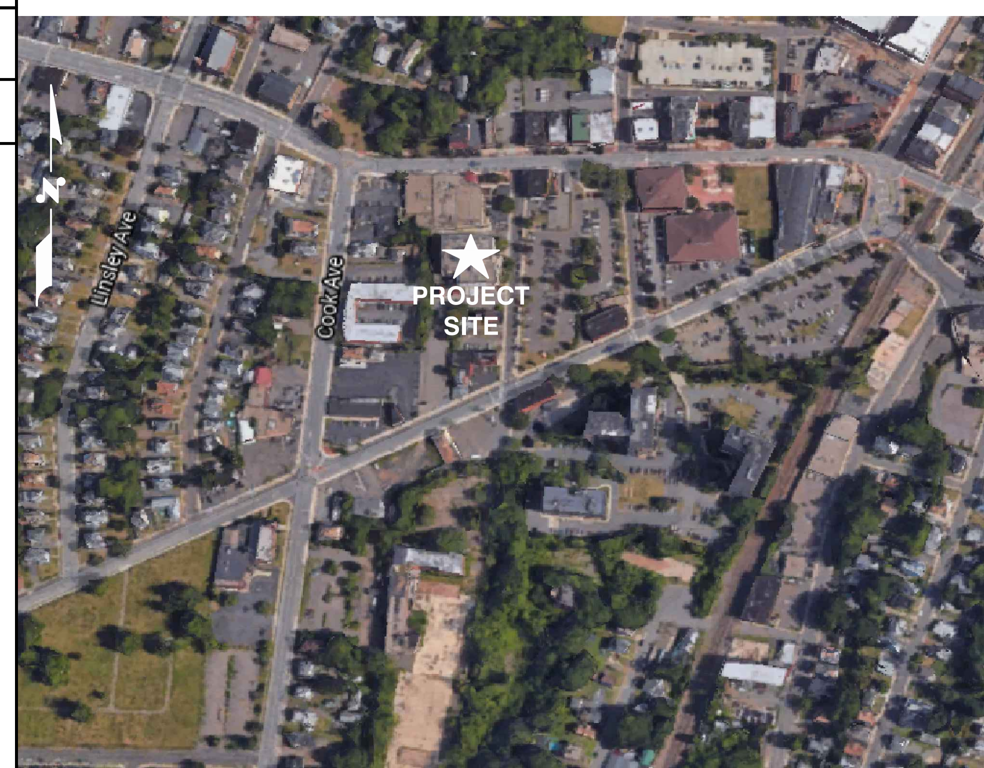
PACE ID: MRCTB053694, MRCTB053691, MRCTB055337, MRCTB055366, MRCTB054185, MRCTB055359

PROJECT: 5G NR 1SR CBAND_LTE 5TH CARRIER UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:

691 WEST EXIT 7 DOWNTOWN MERIDEN TAKE LEFT AT THE END OF THE EXIT DRIVE STRAIGHT ACROSS AT THE NEXT TRAFFIC LIGHT TAKE A RIGHT WEST MAIN ST GET INTO LEFT LANE AND THE 5TH TRAFFIC LIGHT IS BUTLER ST TAKE A LEFT BUILDING IS ON THE RIGHT NEXT TO THE YMCA ON THE CORNER ENTRANCE TO BUILDING IS AT THE BACK DOOR CELL ON THIRD FLOOR THIS IS A CENTRAL OFFICE LOCATION.



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.

72 HOURS

CALL
BEFORE YOU DIG

CALL TOLL FREE 1–800–922–4455

OR CALL 811

UNDERGROUND SERVICE ALERT

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

HDG HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

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27 BUTLER STREET
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NEW HAVEN COUNTY

at&t
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A	02/11/22	ISSUED FOR REVIEW	JP	HC	DPH

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

AT&T

TITLE SHEET

5G NR 1SR CBAND_LTE 5TH CARRIER UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT1013	T–1	1

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 2015 WITH 2018 CT STATE BUILDING CODE AMENDMENTS
    ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE (NFPA 70–2017)

    SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

    AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

    AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

    TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222–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	[illegible]		

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

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
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FAX: (978) 336-5586

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12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT1013
SITE NAME: MERIDEN SBC CO

27 BUTLER STREET
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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: JJ

AT&T
GENERAL NOTES
5G NR 1SR CBAND_LTE 5TH CARRIER UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
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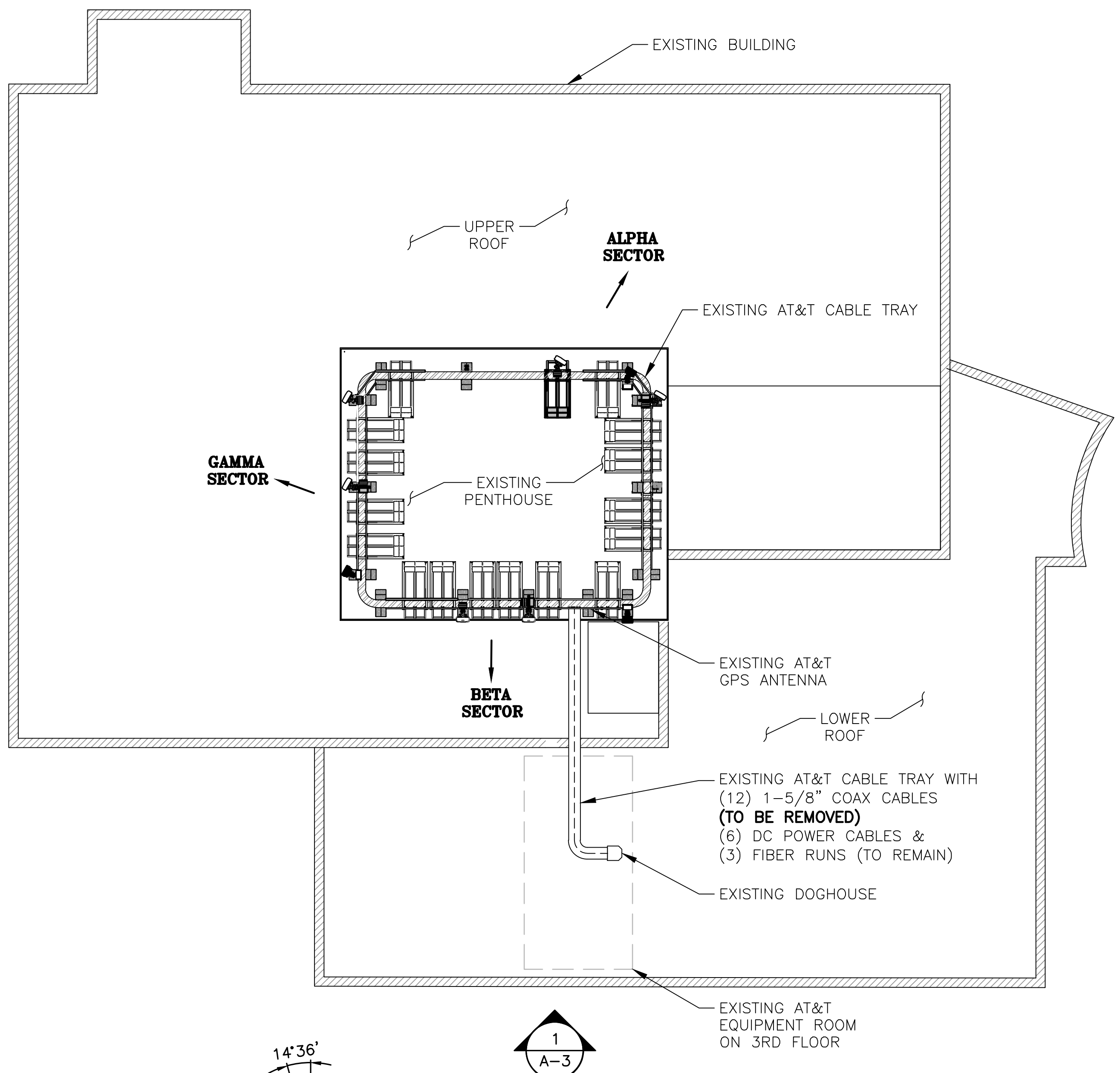
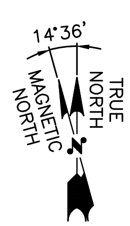




ROOF PLAN (1 / A-1)

22x34 SCALE: 3/32"=1'-0"
11x17 SCALE: 3/64"=1'-0"

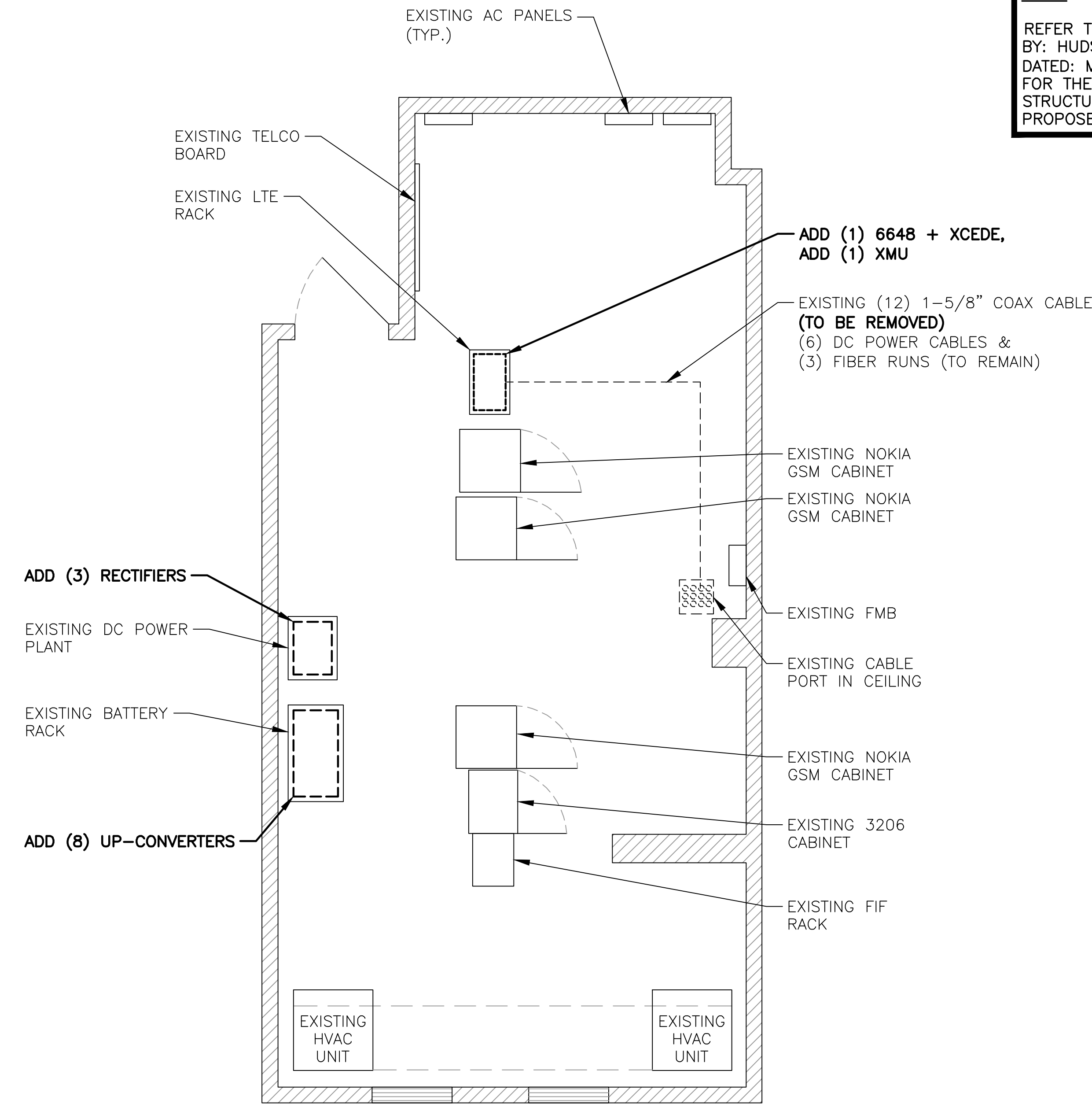
0 5'-4" 10'-8" 21'-4" 32'-0"

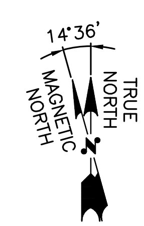
NOTE:

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

NOTE:

REFER TO THE **STRUCTURAL ANALYSIS** BY: HUDSON DESIGN GROUP, LLC DATED: MAY 10, 2022 (Rev.1) FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.





EQUIPMENT PLAN (2 / A-1)

22x34 SCALE: 3/8"=1'-0"
11x17 SCALE: 3/16"=1'-0"

0 1'-4" 2'-8" 5'-4" 8'-0"

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

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SITE NUMBER: CT1013
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AT&T

ROOF & EQUIPMENT PLANS
5G NR 1SR CBAND_LTE 5TH CARRIER UPGRADE

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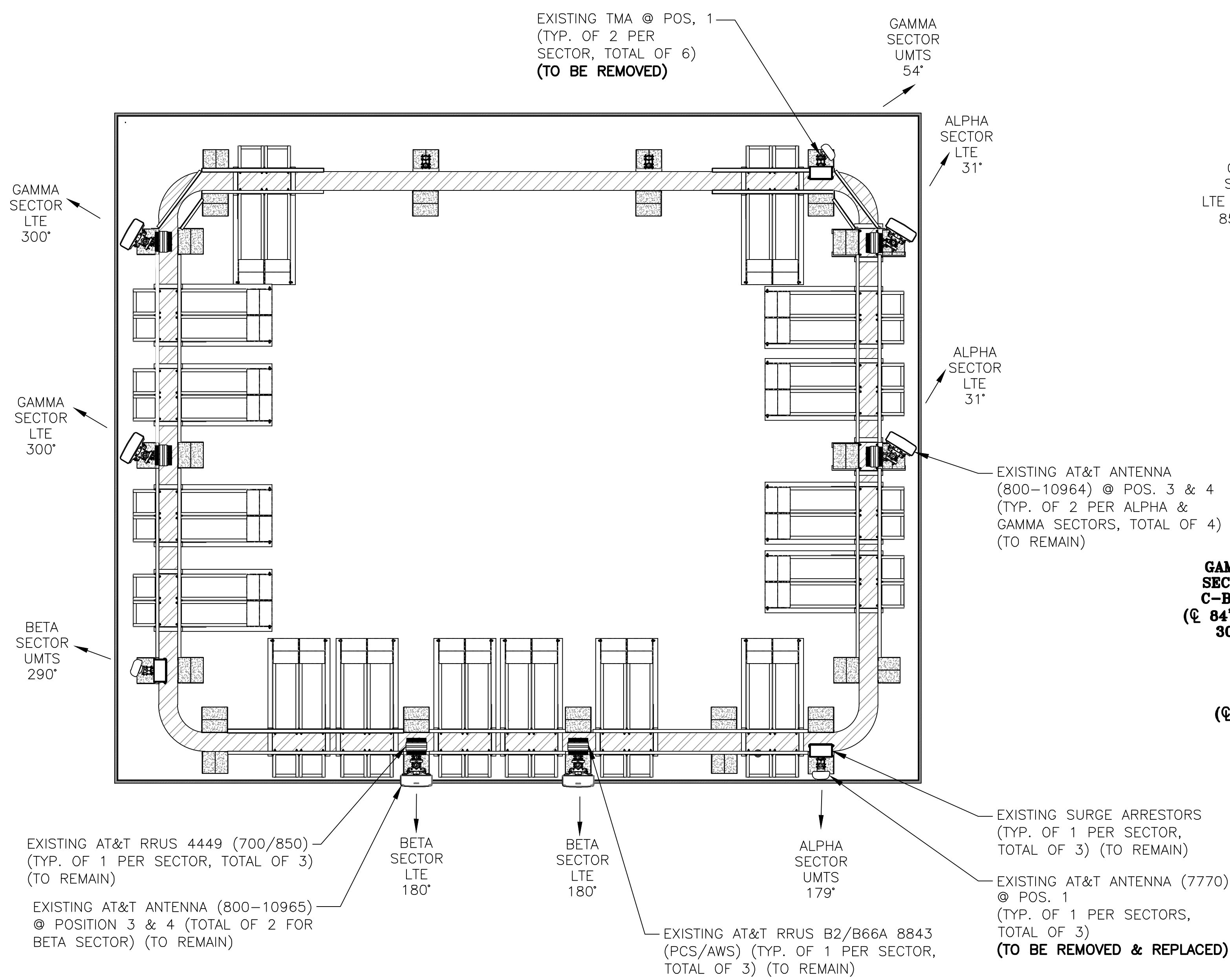
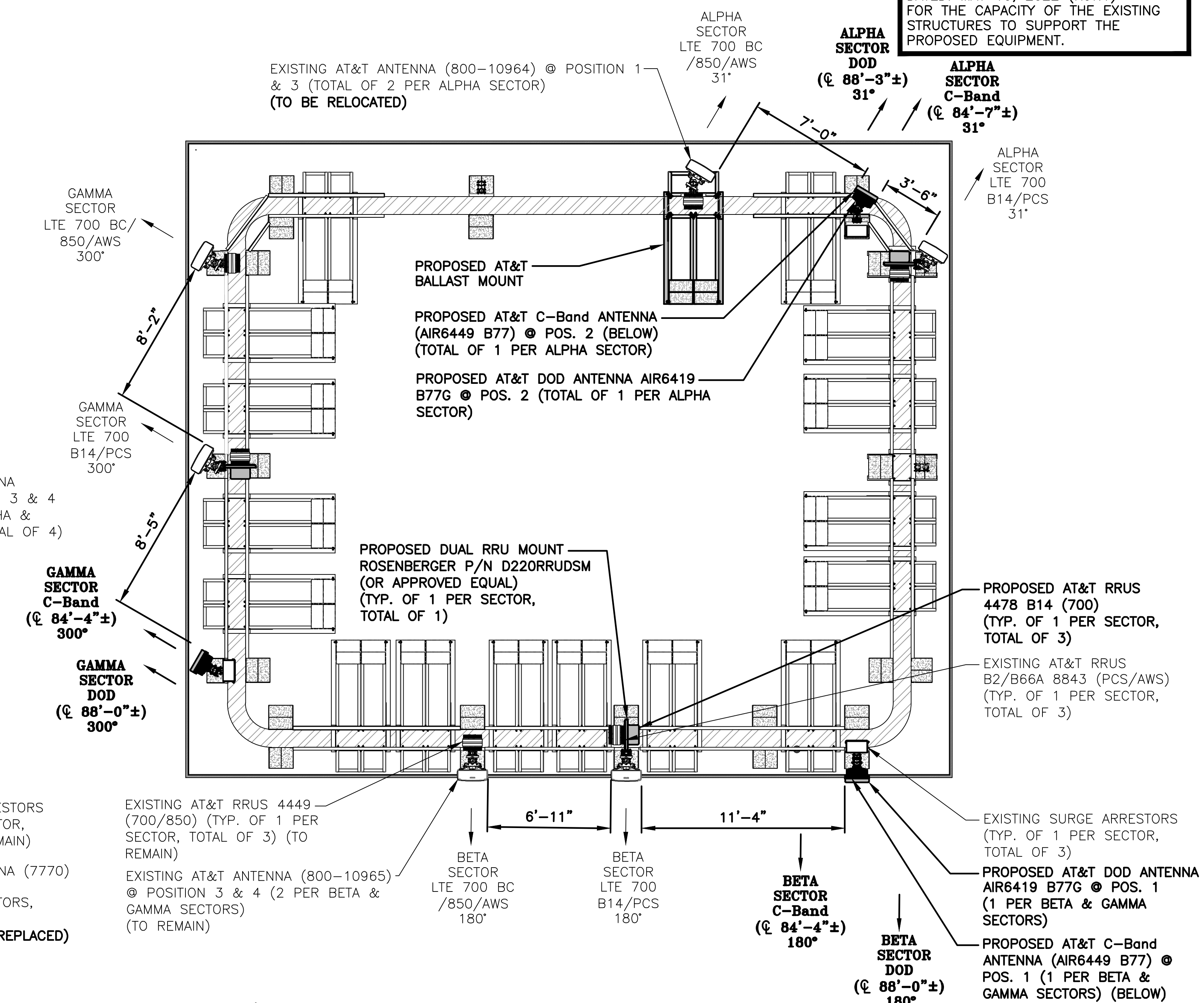


EXISTING ANTENNA PLAN (1 / A-3)

22x34 SCALE: 3/8"=1'-0"
11x17 SCALE: 3/16"=1'-0"



PROPOSED ANTENNA PLAN (2 / A-3)

22x34 SCALE: 3/8"=1'-0"
11x17 SCALE: 3/16"=1'-0"

HUDSON Design Group LLC
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SITE NUMBER: CT1013
SITE NAME: MERIDEN SBC CO

27 BUTLER STREET
MERIDEN, CT 06451
NEW HAVEN COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	05/12/22	ISSUED FOR CONSTRUCTION			
A	02/11/22	ISSUED FOR REVIEW	JP	HC	DPH

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

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

AT&T
ANTENNA LAYOUT PLANS
5G NR 1SR CBAND_LTE 5TH CARRIER UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT1013	A-2	1

NOTE:

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

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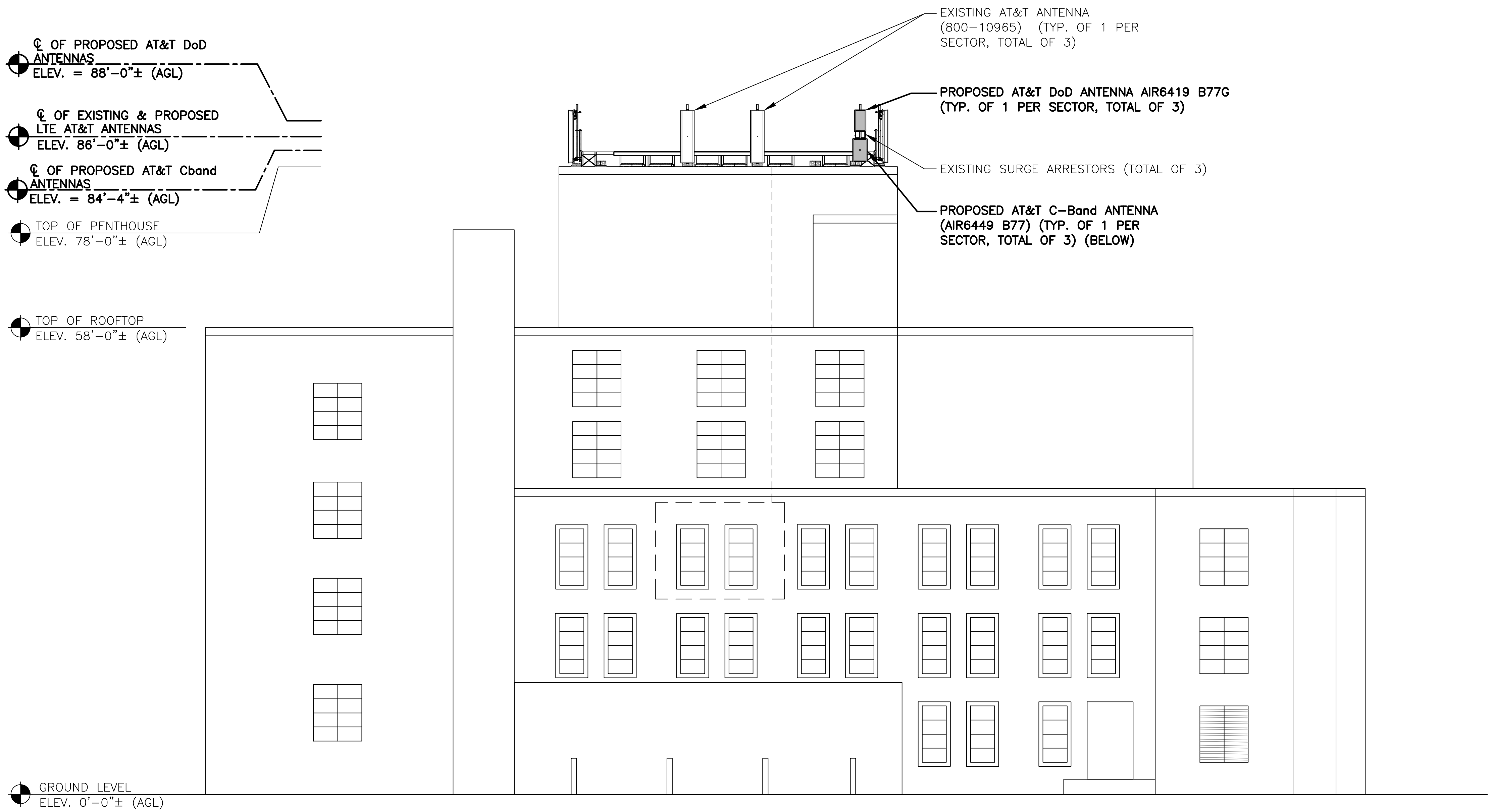

ELEVATION (1 / A-4)

22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

0 4'-0" 8'-0" 16'-0" 24'-0"

NO.	DATE	REVISIONS	BY	CHK	APP'D
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A	02/11/22	ISSUED FOR REVIEW	JP	HC	DPH

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

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AT&T

ELEVATION

5G NR 1SR CBAND_LTE 5TH CARRIER UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT1013	A-3	1

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	EXISTING	LTE 700 BC/850/AWS	800–10964	59x20x6.9	86'–0"±	31°	–	(E)(1) 4449 B5/B12 (850/700)	–	(E)(2) DC POWER & (1) FIBER	(E) (1) RAYCAP DC6–48–60–18
A2	**PROPOSED**	**DOD + C–BAND**	**AIR6419 B77G + AIR6449 B77 (STACKED)**	**31.1X16.1X7.3 30.6X15.9X10.6**	**88'–3"± 84'–7"±**	**31°**	–	–	–	–	
A3	EXISTING	LTE B14/PCS	800–10964	59X20X6.9	86'–0"±	31°	–	**(P)(1) 4478 B14 (700)** (E)(1) 8843 B2/B66A (PCS/AWS)	–	–	
A4	–	–	–	–	–	–	–	–	–	–	
B1	**PROPOSED**	**DOD + C–BAND**	**AIR6419 B77G + AIR6449 B77 (STACKED)**	**31.1X16.1X7.3 30.6X15.9X10.6**	**88'–0"± 84'–4"±**	**180°**	–	–	–	(E)(2) DC POWER & (1) FIBER	(E) (1) RAYCAP DC6–48–60–18
B2	–	–	–	–	–	–	–	–	–	–	
B3	EXISTING	LTE B14/PCS	800–10965	78.7X20X6.9	86'–0"±	180°	–	**(P)(1) 4478 B14 (700)** (E)(1) 8843 B2/B66A (PCS/AWS)	–	–	
B4	EXISTING	LTE 700 BC/850/AWS	800–10965	78.7X20X6.9	86'–0"±	180°	–	(E)(1) 4449 B5/B12 (850/700)	–	–	
C1	**PROPOSED**	**DOD + C–BAND**	**AIR6419 B77G + AIR6449 B77 (STACKED)**	**31.1X16.1X7.3 30.6X15.9X10.6**	**88'–0"± 84'–4"±**	**300°**	–	–	–	(E)(2) DC POWER & (1) FIBER	(E) (1) RAYCAP DC6–48–60–18
C2	–	–	–	–	–	–	–	–	–	–	
C3	EXISTING	LTE B14/PCS	800–10964	59X20X6.9	86'–0"±	300°	–	**(P)(1) 4478 B14 (700)** (E)(1) 8843 B2/B66A (PCS/AWS)	–	–	
C4	EXISTING	LTE 700 BC/850/AWS	800–10964	59x20x6.9	86'–0"±	300°	–	(E)(1) 4449 B5/B12 (850/700)	–	–	

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

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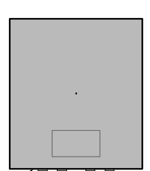
FINAL ANTENNA SCHEDULE 1 / A–4
SCALE: N.T.S

RRU CHART

QUANTITY	MODEL	SIZE (L x W x D)
E(3)	4449 (850/700)	17.9"x13.2"x10.4"
E(3)	8843 (PCS/AWS)	14.9"x13.2"x10.9"
P(3)	**4478 B14 (700)**	**18.1"x13.4"x8.3"**

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

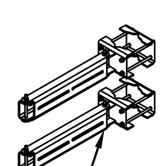
NOTE:
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER



PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

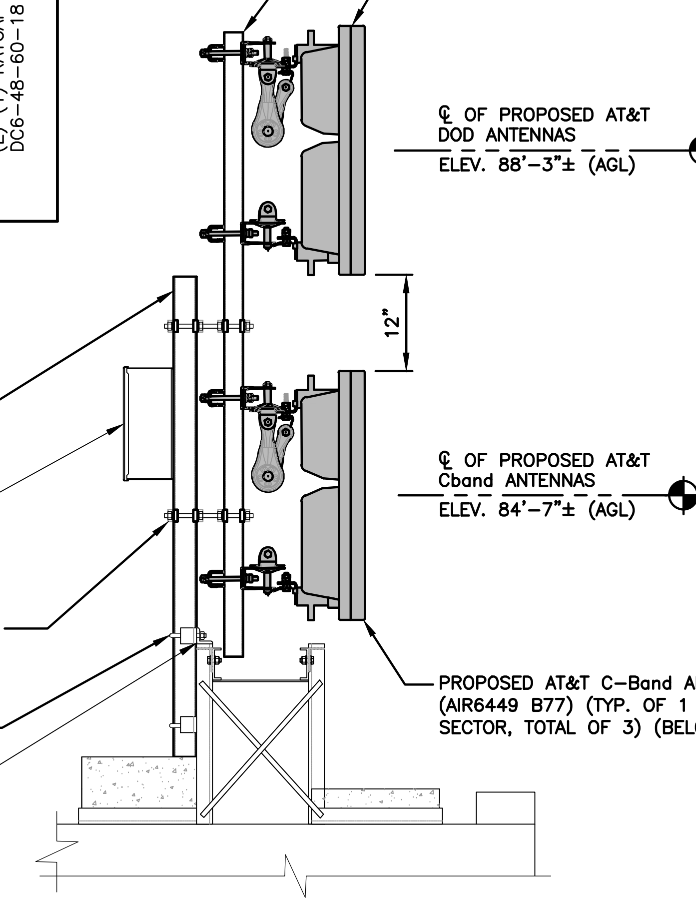
NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL 2 / A–4
SCALE: N.T.S



DUAL RRU MOUNT (ROSENBERGER PART# D220RRUDSM) (TYP. OF 1 PER SECTOR, TOTAL OF 3)

DUAL RRU MOUNT DETAIL 3 / A–4
SCALE: N.T.S



PROPOSED C-BAND ANTENNA MOUNTING DETAIL @ ALPHA SECTOR 4 / A–4
22x34 SCALE: 3/4"=1'–0"
11x17 SCALE: 3/8"=1'–0"

0 8" 1'–4" 2'–8" 4'–0"

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A	02/11/22	ISSUED FOR REVIEW	JP	HC	DPH

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

AT&T
DETAILS
5G NR 1SR CBAND_LTE 5TH CARRIER UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT1013	A–4	1

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
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS [1]
N/A	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: JJ

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

AT&T
STRUCTURAL NOTES
5G NR 1SR CBAND_LTE 5TH CARRIER UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT1013	SN-1	1

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NOTE:

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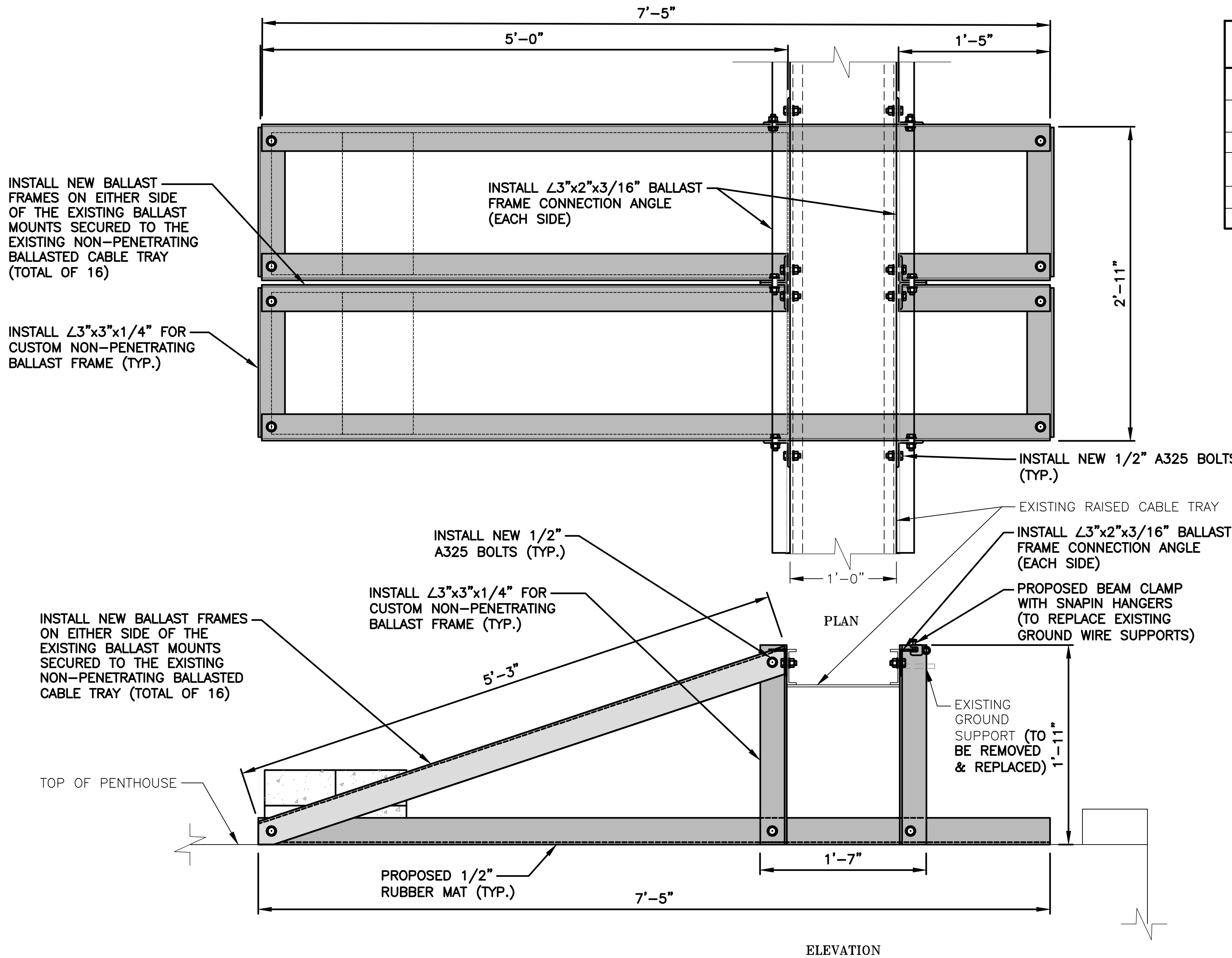
MINIMUM BALLAST REQUIREMENTS-ALPHA SECTOR (PROPOSED MOUNT)

	EXISTING	PROPOSED	TOTAL
NUMBER OF BLOCKS ON FRONT SLED	0	0	**0**
NUMBER BLOCKS ON BACK SLED	0	8	8
SIZE OF BLOCKS	–	4"x8"x16" SOLID	4"x8"x16" SOLID
WEIGHT OF BLOCKS	–	38 LBS./EA	38 LBS./EA
TOTAL BALLAST WEIGHT	0 LBS.	304 LBS.	304 LBS.



PROPOSED CUSTOM BALLAST FRAME DETAIL (1 / S-1)

22x34 SCALE: 1-1/2"=1'-0"
11x17 SCALE: 3/4"=1'-0"

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

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

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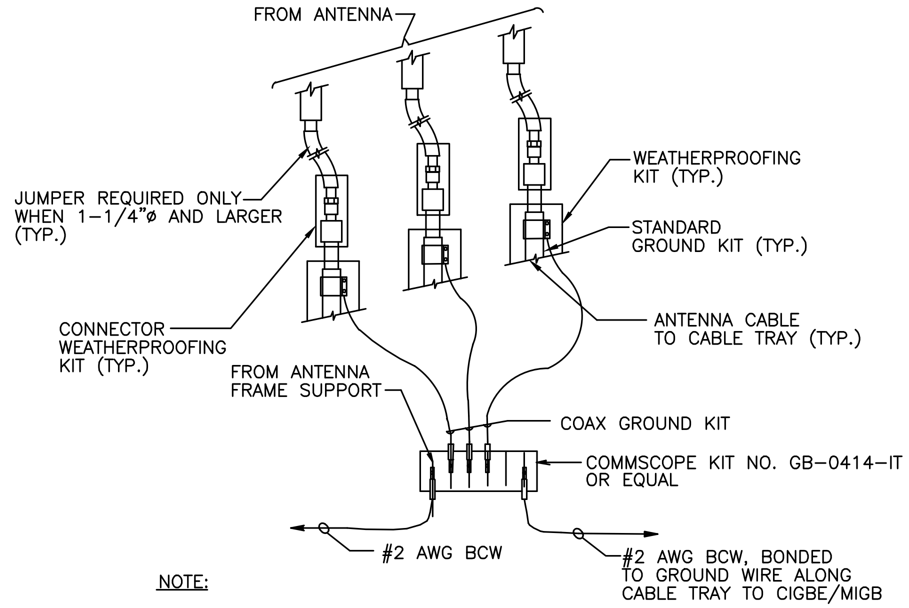
STRUCTURAL MODIFICATION DESIGN

5G NR 1SR CBAND_LTE 5TH CARRIER UPGRADE

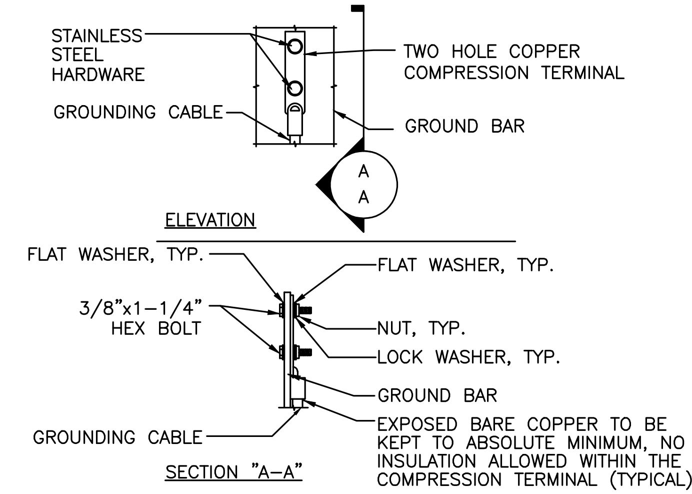
SITE NUMBER	DRAWING NUMBER	REV
CT1013	S-1	1



NOTE:

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

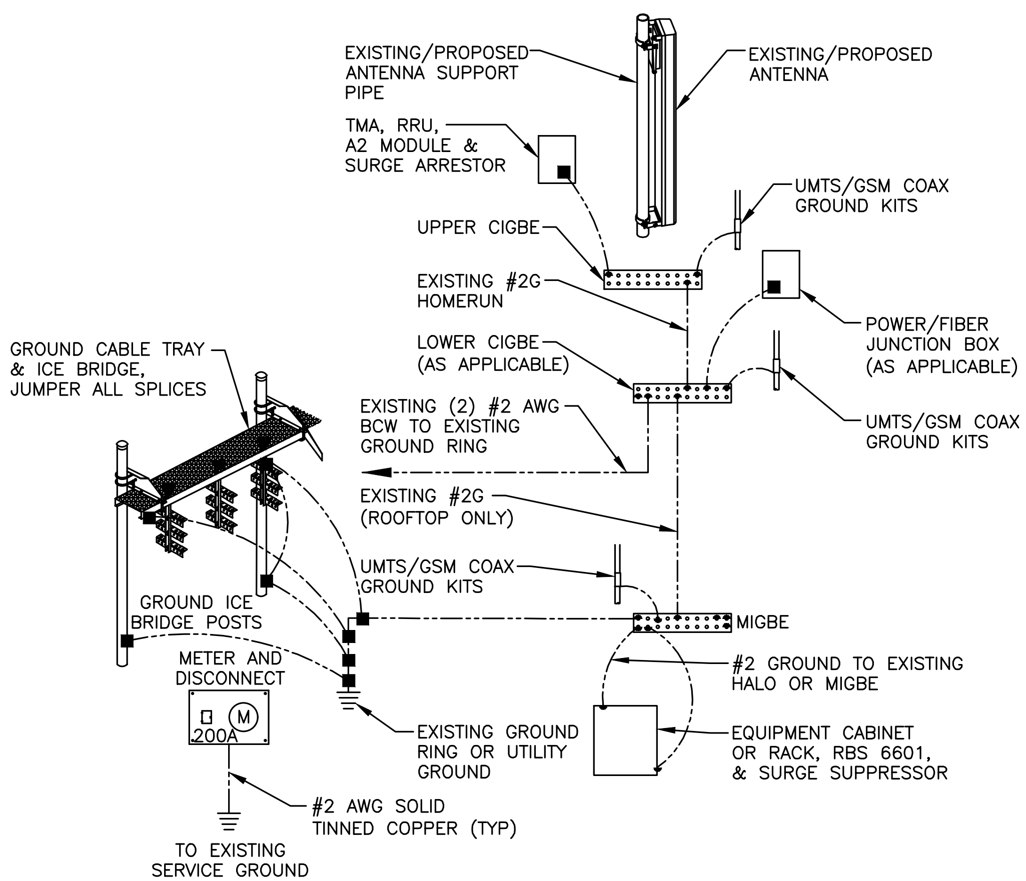
GROUND WIRE TO GROUND BAR CONNECTION DETAIL (1 / G-1)
SCALE: N.T.S



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



GROUNDING RISER DIAGRAM (2 / G-1)
SCALE: N.T.S

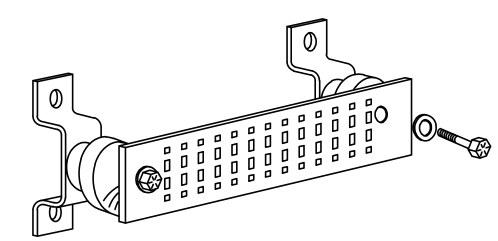
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

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)
SCALE: N.T.S

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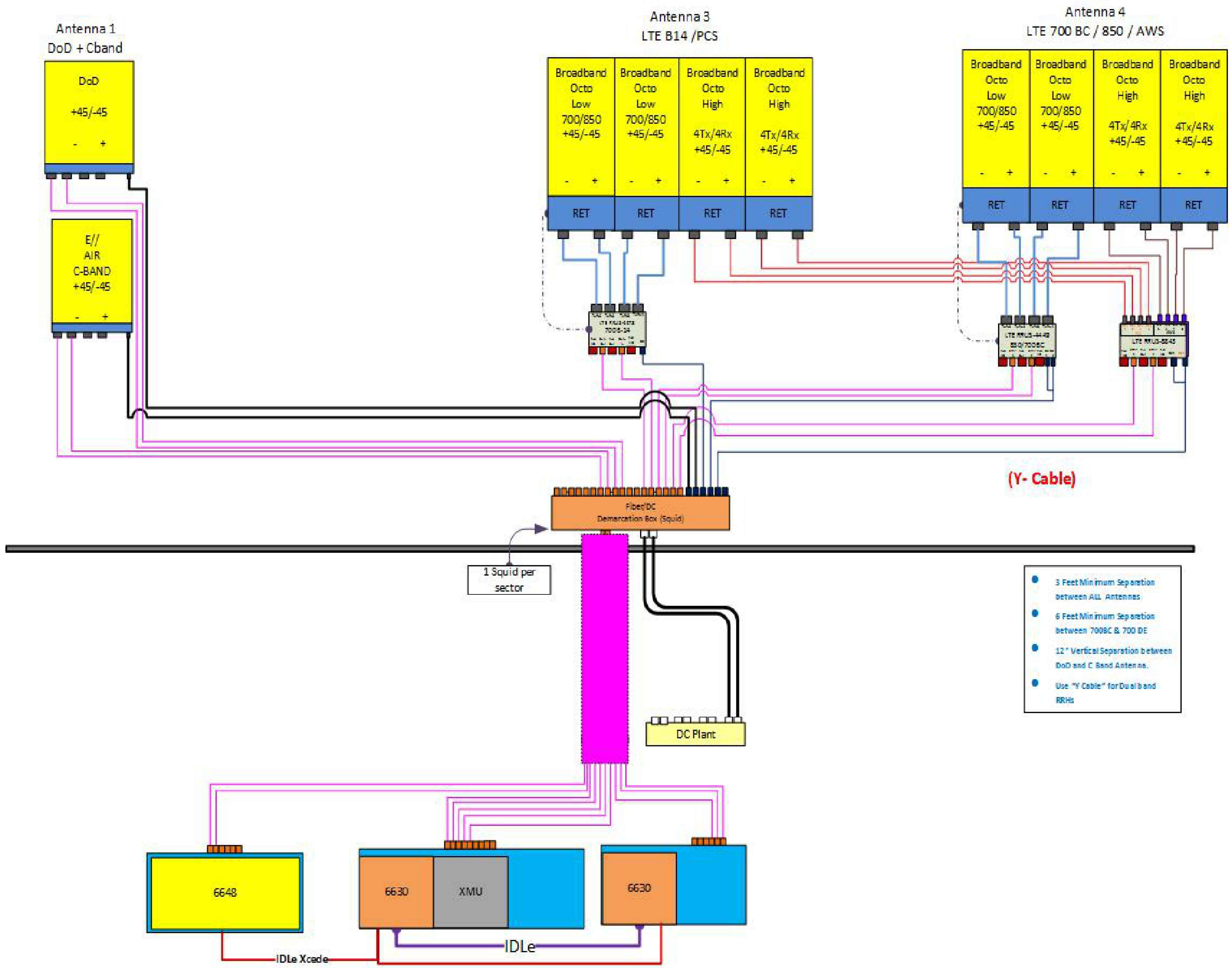
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	05/12/22	ISSUED FOR CONSTRUCTION	JP	HC	DPH
A	02/11/22	ISSUED FOR REVIEW	JP	HC	DPH

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

AT&T
GROUNDING DETAILS
5G NR 1SR CBAND_LTE 5TH CARRIER UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT1013	G-1	1



- 3 Feet Minimum Separation between ALL Antennes
- 6 Feet Minimum Separation between 700BC & 700 DE
- 12" Vertical Separation between DoD and C Band Antenna.
- Use "Y Cable" for Dual band RRHs

NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

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

RF PLUMBING DIAGRAM 1 RF-1
SCALE: N.T.S

HDG HUDSON Design Group LLC
45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845
TEL: (978) 557-5553 FAX: (978) 336-5586

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT1013
SITE NAME: MERIDEN SBC CO

27 BUTLER STREET
MERIDEN, CT 06451
NEW HAVEN COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	05/12/22	ISSUED FOR CONSTRUCTION	JJ/GA	HC	DPH
A	02/11/22	ISSUED FOR REVIEW	JP	HC	DPH

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

AT&T

RF PLUMBING DIAGRAM
5G NR 1SR CBAND_LTE 5TH CARRIER UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT1013	RF-1	1

Exhibit D

Structural Analysis Report

(REVISED)
STRUCTURAL ANALYSIS REPORT

For

CT1013

MERIDEN SBC CO
27 Butler Street
Meriden, CT 06451

Antennas Mounted on Non-Penetrating Ballasted Cable Tray on Roof

Prepared for:

SAI at&t

Dated: May 10, 2022 (Rev.1)
February 25, 2022

Prepared by:

HDG HUDSON Design Group LLC

45 Beechwood Drive
North Andover, MA 01845
(P) 978.557.5553 (F) 978.336.5586
www.hudsondesigngroupllc.com

STATE OF CONNECTICUT DANIEL HAMM LICENSED PROFESSIONAL ENGINEER

HUDSON Design Group LLC

SCOPE OF WORK:

Hudson Design Group LLC (HDG) 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 HDG 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 November 18, 2021.

The following documents were used for our reference:

- Previous HDG Structural Analysis Report dated November 11, 2019.

CONCLUSION SUMMARY:

Based on our evaluation, we have determined that the existing structure **IS CAPABLE** of supporting the proposed equipment loading.

	Member	Stress Ratio	Pass/Fail
Roof (Bar Joist 2)	SJ-103 Bar Joist	99%	**PASS**

Based on our evaluation, we have determined that the existing and proposed ballast mounts **ARE CAPABLE** of supporting the proposed equipment loading with the following modifications:

- **Install new ballast mount to support relocated 800-10964 antenna.**

	Controlling Load Case	Stress Ratio	Pass/Fail
Existing Alpha Sector Ballast Mount	Overturning	99%	**PASS**
Proposed Alpha Sector Ballast Mount	Overturning	99%	**PASS**
Existing Beta Sector Ballast Mount	Overturning	99%	**PASS**
Existing Gamma Sector Ballast Mount	Overturning	99%	**PASS**

Based on our evaluation, we have determined that the existing and proposed pipe masts **ARE CAPABLE** of supporting the proposed equipment loading.

	Member	Controlling Load Case	Stress Ratio	Pass/Fail
Pipe Mast	2-1/2" std pipe	Deflection	27%	**PASS**

Reference the table below for the minimum ballast requirements for the Alpha sector:

MINIMUM BALLAST REQUIREMENTS – ALPHA SECTOR			
	Existing	**Proposed**	**Total**
Number of Blocks on Front Sled	6	0	6
Number Blocks on Back Sled	25	0	25
Size of Blocks	4"x8"x16" Solid	-	4"x8"x16" Solid
Weight of Blocks	38 lbs. /each	-	38 lbs. /each
Total Ballast Weight	1178 lbs.	0 lbs.	1178 lbs.

MINIMUM BALLAST REQUIREMENTS – ALPHA SECTOR (PROPOSED MOUNT)			
	Existing	Proposed	Total
Number of Blocks on Front Sled	0	0	0
Number Blocks on Back Sled	0	8	8
Size of Blocks	-	4"x8"x16" Solid	4"x8"x16" Solid
Weight of Blocks	-	38 lbs. /each	38 lbs. /each
Total Ballast Weight	0 lbs.	304 lbs.	304 lbs.

Reference the table below for the minimum ballast requirements for the Beta sector:

MINIMUM BALLAST REQUIREMENTS – BETA SECTOR			
	Existing	Proposed	Total
Number of Blocks on Front Sled	8	0	8
Number Blocks on Back Sled	33	0	33
Size of Blocks	4"x8"x16" Solid	-	4"x8"x16" Solid
Weight of Blocks	38 lbs. /each	-	38 lbs. /each
Total Ballast Weight	1558 lbs.	0 lbs.	1558 lbs.

Reference the table below for the minimum ballast requirements for the Gamma sector:

MINIMUM BALLAST REQUIREMENTS – GAMMA SECTOR			
	Existing	Proposed	Total
Number of Blocks on Front Sled	8	0	8
Number Blocks on Back Sled	27	0	27
Size of Blocks	4"x8"x16" Solid	-	4"x8"x16" Solid
Weight of Blocks	38 lbs. /each	-	38 lbs. /each
Total Ballast Weight	1330 lbs.	0 lbs.	1330 lbs.

HDG did not perform a condition assessment of the entire roof but did perform an inspection of the existing roof members and structural bearing walls below the area where the equipment is proposed to be located.

HUDSON Design Group LLC

APPURTENANCE CONFIGURATION:

Appurtenances	Dimensions	Weight	**Elevation	Mount
(2) 800-10965 Antennas	78.7"x20.0"x6.9"	109 lbs	86'	Ballast Mount
(4) 800-10964 Antennas	59.0"x20.0"x6.9"	84 lbs	86'	Ballast Mount
(3) 4449 B5/B12 RRH's	14.9"x13.2"x10.4"	73 lbs	-	Ballast Mount
(3) 8843 B2/B66A RRH's	14.9"x13.2"x10.9"	72 lbs	-	Ballast Mount
(3) DC6-48-60-18 Surge Arrestor	18.9"x15.9"x9.6"	35 lbs	-	Ballast Mount
(3) AIR6419 Antennas	31.0"x16.1"x7.3"	66 lbs	88'	Ballast Mount
(3) AIR6449 Antennas	30.6"x15.9"x10.6"	82 lbs	84'-4"	Ballast Mount
(3) B14 4478 RRH's	18.1"x13.4"x8.3"	60 lbs	-	Ballast Mount

** Proposed equipment shown in bold.*
*** Elevation to antenna centerline.*

DESIGN CRITERIA:

International Building Code (IBC) 2015 with 2018 Connecticut State Building Code, and ASCE-10 (Minimum Design Loads for Buildings and Other Structures).		
Wind		
Reference Wind Speed:	125 mph	(2018 CTSBC Appendix N)
Exposure Category:	B	(ASCE 7-10 Chapter 26)
Risk Category:	II	(ASCE 7-10 Table 1.5-1)
Snow		
Ground Snow, P_g:	30	(2018 CTSBC Appendix N)
Importance Factor (I_s):	1.0	(ASCE 7-10 Table 1.5-2)
Exposure Factor (C_e):	1.0	(Partially Exposed, Table 7-2)
Thermal Factor (C_t):	1.0	(ASCE 7-10 Table 7-3)
Flat Roof Snow Load:	21 psf	(ASCE 7-10 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:	Meriden	
County:	New Haven	
Wind Load:	125 mph	(TIA-222-H Annex B)
Ice		
Design Ice Thickness (t_i):	1.5 in	(TIA-222-H Annex B)
Structure Class:	II	(TIA-222-H Table 2-1)
Importance Factor (I_i):	1.0	(TIA-222-H Table 2-3)
Factored Thickness of Radial Ice (t_{iz}):	1.64 in	(TIA-222-H Sec. 2.6.10)

EXISTING ROOF CONSTRUCTION:

The existing roof construction consists of a roofing membrane over rigid insulation over precast concrete planks supported by steel bar joists, beams, and columns.

ANTENNA/RRH/SURGE ARRESTOR SUPPORT RECOMMENDATIONS:

The new antennas are proposed to be mounted on proposed pipe masts installed on new and existing non-penetrating ballasted cable tray located on the roof. Reference the table on page 2 and 3 for the minimum ballast requirements. All ballasts have been located over existing steel beams and bar joists around the exterior portion of the penthouse roof.

Limitations and Assumptions:

1. Reference the latest HDG construction drawings for all the equipment locations.
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. HDG is not responsible for any modifications completed prior to and hereafter which HDG 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 antennas and mounts

Photo 2: Sample photo illustrating the existing ballast mounts.

FIELD PHOTOS (CONT.):

Photo 3: Sample photo illustrating the existing roof framing.

HUDSON
Design Group LLC

Wind Calculations

Date: 2/25/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

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

$z=$	86	(ft)
$z_g=$	1200	(ft)
$\alpha=$	7.0	

K_z= 0.947

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}= #DIV/0!

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

Category= **1**

$K_h=$	#DIV/0!	
$K_c=$	0	(from Table 2-4)
$K_t=$	0	(from Table 2-5)
$f=$	0	(from Table 2-5)
$z=$	86	
$z_s=$	120	(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)
$K_e=$	1.00	(from 2.6.8)

2.6.10 Design Ice Thickness

Max Ice Thickness =	t_i =	1.50	in
Importance Factor =	I=	1.0	(from Table 2-3)
	K_{iz} =	1.10	(from Sec. 2.6.10)

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

t_{iz} = 1.65 in

Date: 2/25/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID Checked By: MSC

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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= 78 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= $0.00256*K_z*K_{zt}*K_s*K_e*K_d*V_{max}^2$

q_z=	**35.81**
$q_{z\,(ice)}$=	**5.73**
$q_{z\,(30)}$=	**2.06**

K_z=	0.947	(from 2.6.5.2)
K_{zt}=	1.0	(from 2.6.6.2.1)
K_s=	1.0	(from 2.6.7)
K_e=	1.00	(from 2.6.8)
K_d=	0.95	(from Table 2-2)
V_{max}=	125	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: 2/25/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID Checked By: MSC

HUDSON Design Group LLC

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 = **1.65** **in** | **Angle =** **0 (deg)** | **Equivalent Angle =** **180 (deg)**

Appurtenances	**Height**	**Width**	**Depth**	**Flat Area**	**Aspect Ratio**	**Ca**	**Force (lbs)**	**Force (lbs) (w/ Ice)**
AIR 6449 Antenna	30.6	15.9	10.6	3.38	1.92	1.20	**145**	**31**
AIR 6419 Antenna	31.0	16.1	7.3	3.47	1.93	1.20	**149**	**32**
800-10964 Antenna	59.0	20.0	6.9	8.19	2.95	1.22	**358**	**70**
800-10965 Antenna	78.7	20.0	6.9	10.93	3.94	1.26	**495**	**96**
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.36	1.20	**71**	**17**
4449 B5/B12 RRH (Shielded)	17.9	0.0	9.4	0.00	0.00	1.20	**0**	**0**
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.20	**59**	**14**
8843 B2/B66A RRH (Shielded)	14.9	2.7	13.2	0.28	0.00	1.20	**12**	**0**
B14 4478 RRH	18.1	13.4	8.3	1.68	1.35	1.20	**72**	**17**
B14 4478 RRH (Shielded)	18.1	2.1	13.4	0.26	0.00	1.20	**11**	**0**
DC6-48-60-18 Surge Arrestor	18.9	15.9	9.6	2.09	1.19	1.20	**90**	**20**
L1-1/2x1-1/2 Angle	1.5	12.0		0.13	0.13	2.00	**9**	
L3x3 Angle	3.0	12.0		0.25	0.25	2.00	**18**	
Cable Tray	3.5	12.0		0.29	0.29	2.00	**21**	

HUDSON
Design Group LLC

Pipe Mast Calculations

Steel Beam

Project File: CT1013.ec6

LIC# : KW-06013026, Build:20.22.2.9 Hudson Design Group LLC

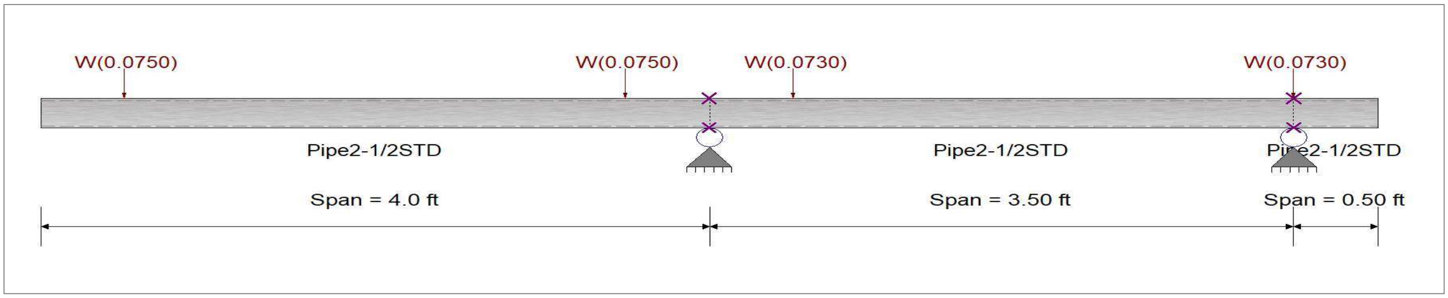
DESCRIPTION: Proposed AIR 6419 + 6449 Antenna Pipe Mast

CODE REFERENCES

Calculations per AISC 360-10, IBC 2015, CBC 2016, ASCE 7-10
Load Combination Set : ASCE 7-10

Material Properties

Analysis Method :	Allowable Strength Design	Fy : Steel Yield :	35.0 ksi
Beam Bracing :	Completely Unbraced	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load(s) for Span Number 1
Point Load : W = 0.0750 k @ 0.50 ft, (AIR 6419 Wind Load)

Point Load : W = 0.0750 k @ 3.50 ft, (AIR 6419 Wind Load)

Load(s) for Span Number 2
Point Load : W = 0.0730 k @ 0.50 ft, (AIR 6449 Wind Load)

Point Load : W = 0.0730 k @ 3.50 ft, (AIR 6449 Wind Load)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	**0.095** : 1	Maximum Shear Stress Ratio =	**0.011** : 1
Section used for this span	**Pipe2-1/2STD**	Section used for this span	**Pipe2-1/2STD**
Ma : Applied	0.226 k-ft	Va : Applied	0.1132 k
Mn / Omega : Allowable	2.393 k-ft	Vn/Omega : Allowable	10.123 k
Load Combination	+D+0.60W	Load Combination	+D+0.60W
		Location of maximum on span	4.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.107 in	Ratio =	895	>=240.	Span: 3 : W Only
Max Upward Transient Deflection	-0.009 in	Ratio =	4,829	>=240.	Span: 3 : W Only
Max Downward Total Deflection	0.079 in	Ratio =	1212	>=180	Span: 3 : +D+0.60W
Max Upward Total Deflection	-0.006 in	Ratio =	6658	>=180	Span: 3 : +D+0.60W

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios		Summary of Moment Values							Summary of Shear Values		
Segment Length	Span #	M	V	Mmax +	Mmax -	Ma Max	Mnx	Mnx/Omega	Cb	Rm	Va Max	Vnx	Vnx/Omega
D Only													
Dsgn. L = 4.00 ft	1	0.019	0.002		-0.05	0.05	4.00	2.39	1.00	1.00	0.02	16.91	10.12
Dsgn. L = 3.50 ft	2	0.019	0.002	-0.00	-0.05	0.05	4.00	2.39	2.10	1.00	0.02	16.91	10.12
Dsgn. L = 0.50 ft	3	0.000	0.000		-0.00	0.00	4.00	2.39	1.00	1.00	0.00	16.91	10.12
+D+0.60W													
Dsgn. L = 4.00 ft	1	0.095	0.011		-0.23	0.23	4.00	2.39	1.00	1.00	0.11	16.91	10.12
Dsgn. L = 3.50 ft	2	0.095	0.011	-0.00	-0.23	0.23	4.00	2.39	1.87	1.00	0.11	16.91	10.12
Dsgn. L = 0.50 ft	3	0.000	0.000		-0.00	0.00	4.00	2.39	1.00	1.00	0.00	16.91	10.12
+D+0.450W													
Dsgn. L = 4.00 ft	1	0.076	0.009		-0.18	0.18	4.00	2.39	1.00	1.00	0.09	16.91	10.12
Dsgn. L = 3.50 ft	2	0.076	0.009	-0.00	-0.18	0.18	4.00	2.39	1.88	1.00	0.09	16.91	10.12
Dsgn. L = 0.50 ft	3	0.000	0.000		-0.00	0.00	4.00	2.39	1.00	1.00	0.00	16.91	10.12

Steel Beam

Project File: CT1013.ec6

LIC# : KW-06013026, Build:20.22.2.9 Hudson Design Group LLC

DESCRIPTION: Proposed AIR 6419 + 6449 Antenna Pipe Mast

Maximum Forces & Stresses for Load Combinations

Load Combination			Max Stress Ratios		Summary of Moment Values							Summary of Shear Values		
Segment Length		Span #	M	V	Mmax +	Mmax -	Ma Max	Mnx	Mnx/Omega	Cb	Rm	Va Max	Vnx	Vnx/Omega
+0.60D+0.60W														
Dsgn. L =	4.00 ft	1	0.087	0.010		-0.21	0.21	4.00	2.39	1.00	1.00	0.10	16.91	10.12
Dsgn. L =	3.50 ft	2	0.087	0.010	-0.00	-0.21	0.21	4.00	2.39	1.85	1.00	0.10	16.91	10.12
Dsgn. L =	0.50 ft	3	0.000	0.000		-0.00	0.00	4.00	2.39	1.00	1.00	0.00	16.91	10.12
+0.60D														
Dsgn. L =	4.00 ft	1	0.012	0.001		-0.03	0.03	4.00	2.39	1.00	1.00	0.01	16.91	10.12
Dsgn. L =	3.50 ft	2	0.012	0.001	-0.00	-0.03	0.03	4.00	2.39	2.10	1.00	0.01	16.91	10.12
Dsgn. L =	0.50 ft	3	0.000	0.000		-0.00	0.00	4.00	2.39	1.00	1.00	0.00	16.91	10.12

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
W Only	1	0.1072	0.000		0.0000	0.000
	2	0.0000	0.000	W Only	-0.0087	1.493
W Only	3	0.0032	0.500		0.0000	1.493

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4
Overall MAXimum		0.298	-0.002	
Overall MINimum		0.028	0.000	
D Only		0.046	0.000	
+D+0.60W		0.225	-0.001	
+D+0.450W		0.181	-0.001	
+0.60D+0.60W		0.207	-0.001	
+0.60D		0.028	0.000	
W Only		0.298	-0.002	

HUDSON Design Group LLC

Alpha Sector Ballast Mount Calculations
(Existing Conditions)

Date: 5/11/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID **Checked By:** MSC

HUDSON Design Group LLC

Weight of Ballast Mount - Alpha Sector

Item	Wt. (Lbs.)	Linear ft.	Qty.	Total (Lbs.)
L1-1/2x1-1/2x3/16 (V)	1.8	2.1	12	45.0
L1-1/2x1-1/2x3/16 (H)	1.8	3.67	6	39.6
L1-1/2x1-1/2x3/16 (H)	1.8	1.33	12	28.7
L3x3x1/4 (V)	4.9	2.1	40	408.3
L3x3x1/4 (H)	4.9	7.5	20	735.0
L3x3x1/4 (H)	4.9	1.42	40	278.3
L3x2x3/6 (H)	3.07	30	2	184.2
1/2" Round Bar	0.668	2.39	4	6.4
2" STD. Pipe	3.66	7	3	76.9
2-1/2" STD. Pipe	5.8	6	1	34.8
2-1/2" XS Pipe	7.67	6	2	92.0
Cable Tray	10	28	1	280.0
			Total, T_{weight}	**2209.2** lbs.

Weight of Appurtenances - Alpha Sector

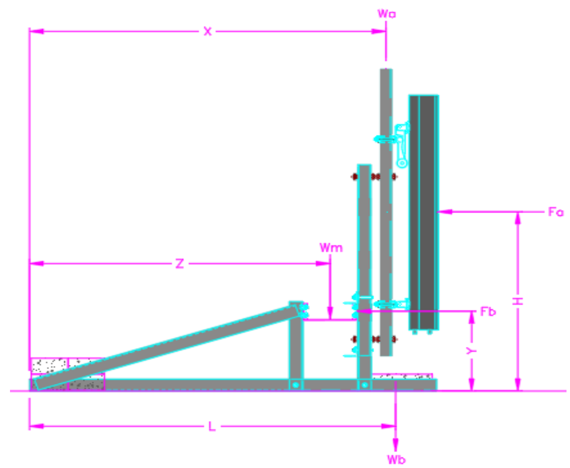
Item	Wt. (Lbs.)	Qty.	Total (Lbs.)
AIR6419 Antenna	66	1	66.0
AIR6449 Antenna	82	1	82.0
800-10964 Antennas	84	1	84.0
4449 B5/B12 RRH's	73	1	73.0
8843 B2/B66A RRH's	72	1	72.0
B14 4478 RRH's	60	1	60.0
DC6-48-60-18 Surge Arrestor	35	1	35.0
		Total, T_{weight}	**472.0** lbs.

Date: 5/11/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID **Checked By:** MSC

HUDSON Design Group LLC

Calculate Total Ballast Required for Ballast Mount - Existing Conditions - Alpha Sector

Assume (3) Antennas as projected area



Wind Force on Appurtenances (Fa) =	765	lbs.
Height (H) =	4	ft
Wind Force on Ballast Frame (Fb) =	1451	lbs.
Height (Y) =	1.67	ft
Weight of Appurtenances (Wa) =	472	lbs.
Distance to Appurtenances (X) =	6.5	ft
Weight of Ballast Mount (Wm) =	2210	lbs.
Center of Cable Tray (Z) =	5.5	ft
Length (L) =	6.75	ft
Ballast (Wb) =	0	
Safety Factor (SF) =	1.5	

Overturning at Ballast

ΣM = 0 = (Fa*H)+(Fb*Y)-(Wa*X)-(Wm*Z)-(Wb*L)

Wb = [(Fa*H*SF+Fb*Y*SF-Wa*X-Wm*Z)/L]= **-1037 lbs.**

Determine Number of Blocks Required
(assume 4"x8"x16" solid blocks @ 38 lbs. each)

Number of Blocks Required =	-28 BLOCKS FRONT SIDE
Existing Blocks =	0 BLOCKS FRONT SIDE
Additional Blocks Required =	**0 BLOCKS FRONT SIDE**

Note: Additional blocks are NOT required.

Date: 5/11/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID **Checked By:** MSC

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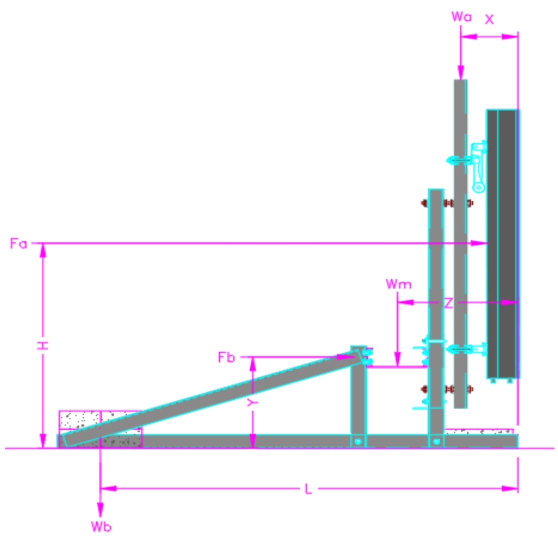
Calculate Total Ballast Required for Ballast Mount - Existing Conditions - Alpha Sector

Assume (3) Antennas as projected area



Wind Force on Appurtenances (Fa) =	765	lbs.
Height (H) =	4	ft
Wind Force on Ballast Frame (Fb) =	1451	lbs.
Height (Y) =	1.67	ft
Weight of Appurtenances (Wa) =	472	lbs.
Distance to Appurtenances (X) =	0.67	ft
Weight of Ballast Mount (Wm) =	2210	lbs.
Center of Ballast Mount (Z) =	1.9	ft
Length (L) =	6.75	ft
Length/2 (L/2) =	3.375	ft
Ballast (Wb) =	19	
Ballast @ L/2 (Wb_2) =	6	
Safety Factor (SF) =	1.5	

Overturning at Ballast

$\Sigma M = 0 = (Fa*H)+(Fb*Y)-(Wa*X)-(Wm*Z)-(Wb*L)-(Wb_2*L/2)$

$Wb = [(Fa*H*SF+Fb*Y*SF)-(Wa*X-Wm*Z)-(Wb_2*L/2)/l$ **409 lbs.**

Determine Number of Blocks Required
(assume 4"x8"x16" solid blocks @ 38 lbs. each)

Number of Blocks Required =	11 BLOCKS BACK SIDE
Existing Blocks @ L =	19 BLOCKS BACK SIDE
Additional Blocks Required =	**0 BLOCKS BACK SIDE**

Note: Additional blocks are NOT required.

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Design Group LLC

Alpha Sector Ballast Mount Calculations
(Proposed Conditions)

Date: 5/10/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID **Checked By:** MSC

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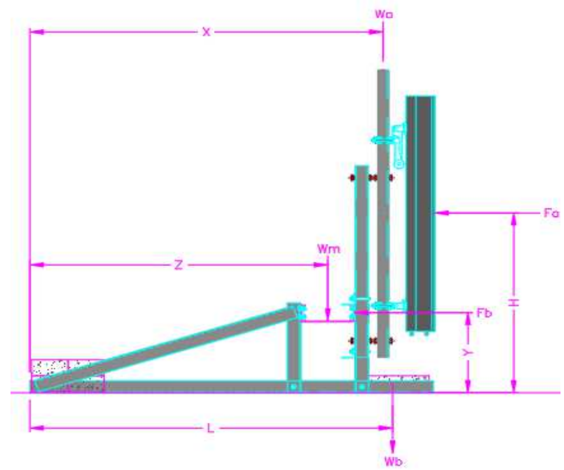
Calculate Total Ballast Required for Ballast Mount - Proposed - Alpha Sector - (800-10964 Antenna)



Wind Force on Appurtenances (Fa) =	358	lbs.
Height (H) =	4	ft
Wind Force on Ballast Frame (Fb) =	289	lbs.
Height (Y) =	1.67	ft
Weight of Appurtenances (Wa) =	84	lbs.
Distance to Appurtenances (X) =	6.5	ft
Weight of Ballast Mount (Wm) =	431	lbs.
Center of Cable Tray (Z) =	5.5	ft
Length (L) =	6.75	ft
Ballast (Wb) =	0	
Safety Factor (SF) =	1.5	

Overturning at Ballast

ΣM = 0 = (Fa*H)+(Fb*Y)-(Wa*X)-(Wm*Z)-(Wb*L)

Wb = [(Fa*H*SF+Fb*Y*SF-Wa*X-Wm*Z)/L]= **-7 lbs.**

Determine Number of Blocks Required
(assume 4"x8"x16" solid blocks @ 38 lbs. each)

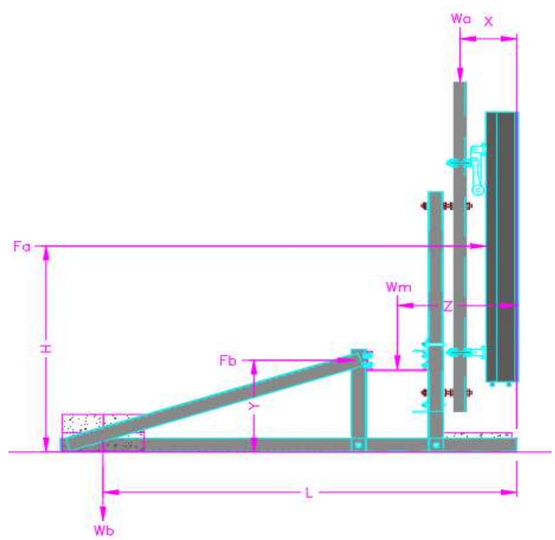
Number of Blocks Required =	-1 BLOCKS FRONT SIDE
Existing Blocks =	0 BLOCKS FRONT SIDE
Additional Blocks Required =	**0 BLOCKS FRONT SIDE**

Date: 5/10/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID **Checked By:** MSC

HUDSON Design Group LLC

Calculate Total Ballast Required for Ballast Mount - Proposed - Alpha Sector - (800-10964 Antenna)

Assume (3) Antennas as projected area



Wind Force on Appurtenances (Fa) =	358	lbs.
Height (H) =	4	ft
Wind Force on Ballast Frame (Fb) =	289	lbs.
Height (Y) =	1.67	ft
Weight of Appurtenances (Wa) =	84	lbs.
Distance to Appurtenances (X) =	0.67	ft
Weight of Ballast Mount (Wm) =	431	lbs.
Center of Ballast Mount (Z) =	1.9	ft
Length (L) =	6.75	ft
Length/2 (L/2) =	3.375	ft
Ballast (Wb) =	0	
Ballast @ L/2 (Wb_2) =	0	
Safety Factor (SF) =	1.5	

Overturning at Ballast

$\Sigma M = 0 = (Fa*H)+(Fb*Y)-(Wa*X)-(Wm*Z)-(Wb*L)-(Wb_2*L/2)$

$Wb = [(Fa*H*SF+Fb*Y*SF)-(Wa*X-Wm*Z)-(Wb_2*L/2)/l$ **291 lbs.**

Determine Number of Blocks Required
(assume 4"x8"x16" solid blocks @ 38 lbs. each)

Number of Blocks Required = 8 BLOCKS BACK SIDE

Existing Blocks @ L = 0 BLOCKS BACK SIDE

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Beta Sector Ballast Mount Calculations
(Existing Conditions)

Date: 2/25/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID **Checked By:** MSC

HUDSON Design Group LLC

Weight of Ballast Mount - Beta Sector

Item	Wt. (Lbs.)	Linear ft.	Qty.	Total (Lbs.)
L1-1/2x1-1/2x3/16 (V)	1.8	2.1	16	60.0
L1-1/2x1-1/2x3/16 (H)	1.8	3.67	8	52.8
L1-1/2x1-1/2x3/16 (H)	1.8	1.33	16	38.3
L3x3x1/4 (V)	4.9	2.1	48	489.9
L3x3x1/4 (H)	4.9	7.5	24	882.0
L3x3x1/4 (H)	4.9	1.42	48	334.0
L3x2x3/6 (H)	3.07	28	2	171.9
1/2" Round Bar	0.668	2.39	16	25.5
2" STD. Pipe	3.66	7	3	76.9
2-1/2" STD. Pipe	5.8	6	1	34.8
2-1/2" XS Pipe	7.67	6	2	92.0
Cable Tray	10	32.5	1	325.0
			Total, T_{weight}	2583.2 lbs.

Weight of Appurtenances - Beta Sector

Item	Wt. (Lbs.)	Qty.	Total (Lbs.)
AIR6419 Antenna	66	1	66.0
AIR6449 Antenna	82	1	82.0
800-10965 Antennas	109	2	218.0
4449 B5/B12 RRH's	73	1	73.0
8843 B2/B66A RRH's	72	1	72.0
B14 4478 RRH's	60	1	60.0
DC6-48-60-18 Surge Arrestor	35	1	35.0
		Total, T_{weight}	606.0 lbs.

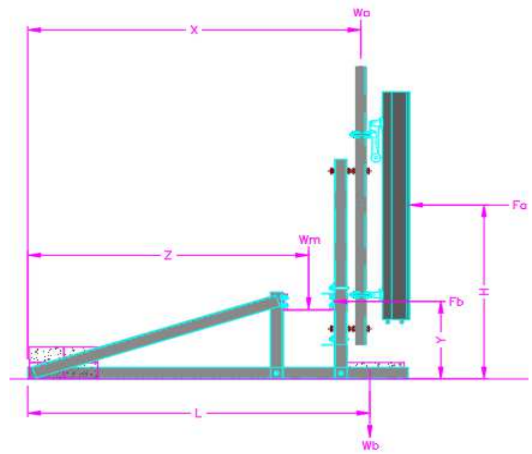
Date: 2/25/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID **Checked By:** MSC

HUDSON Design Group LLC

Calculate Total Ballast Required for Ballast Mount - Existing Conditions - Beta Sector

Assume (3) Antennas as projected area

Wind Force on Appurtenances (Fa) =	1397	lbs.
Height (H) =	4	ft
Wind Force on Ballast Frame (Fb) =	1733	lbs.
Height (Y) =	1.67	ft
Weight of Appurtenances (Wa) =	606	lbs.
Distance to Appurtenances (X) =	6.5	ft
Weight of Ballast Mount (Wm) =	2584	lbs.
Center of Ballast Mount (Z) =	5.5	ft
Length (L) =	6.75	ft
Ballast (Wb) =	0	
Safety Factor (SF) =	1.5	



Overturning at Ballast

ΣM = 0 = (Fa*H)+(Fb*Y)-(Wa*X)-(Wm*Z)-(Wb*L)

Wb = [(Fa*H*SF+Fb*Y*SF-Wa*X-Wm*Z)/L]= **-804 lbs.**

Determine Number of Blocks Required
(assume 4"x8"x16" solid blocks @ 38 lbs. each)

Number of Blocks Required =	-22 BLOCKS FRONT SIDE
Existing Blocks =	0 BLOCKS FRONT SIDE
Additional Blocks Required =	**0 BLOCKS FRONT SIDE**

Note: Additional blocks are NOT required.

Date: 2/25/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID **Checked By:** MSC

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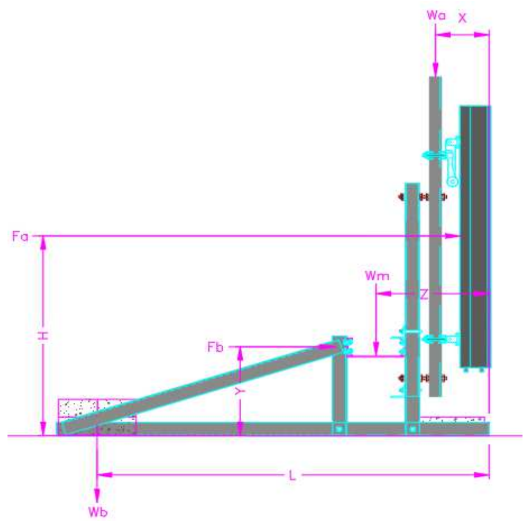
Calculate Total Ballast Required for Ballast Mount - Existing Conditions - Beta Sector

Assume (3) Antennas as projected area



Wind Force on Appurtenances (Fa) =	1397	lbs.
Height (H) =	4	ft
Wind Force on Ballast Frame (Fb) =	1733	lbs.
Height (Y) =	1.67	ft
Weight of Appurtenances (Wa) =	606	lbs.
Distance to Appurtenances (X) =	0.67	ft
Weight of Ballast Mount (Wm) =	2584	lbs.
Center of Ballast Mount (Z) =	1.9	ft
Length (L) =	6.75	ft
Length/2 (L/2) =	3.375	ft
Ballast (Wb) =	25	
Ballast @ L/2 (Wb_2) =	8	
Safety Factor (SF) =	1.5	

Overturning at Ballast

$\Sigma M = 0 = (Fa*H)+(Fb*Y)-(Wa*X)-(Wm*Z)-(Wb*L)-(Wb_2*L/2)$

$Wb = [(Fa*H*SF+Fb*Y*SF)-(Wa*X-Wm*Z)-(Wb_2*L/2)/L]=$ **945 lbs.**

Determine Number of Blocks Required
(assume 4"x8"x16" solid blocks @ 38 lbs. each)

Number of Blocks Required =	25 BLOCKS BACK SIDE
Existing Blocks @ L =	25 BLOCKS BACK SIDE
Additional Blocks Required =	**0 BLOCKS BACK SIDE**

Note: Additional blocks are NOT required.

Gamma Sector Ballast Mount Calculations (Existing Conditions)

Date: 5/11/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID **Checked By:** MSC

HUDSON Design Group LLC

Weight of Ballast Mount - Gamma Sector

Item	Wt. (Lbs.)	Linear ft.	Qty.	Total (Lbs.)
L1-1/2x1-1/2x3/16 (V)	1.8	2.1	16	60.0
L1-1/2x1-1/2x3/16 (H)	1.8	3.67	8	52.8
L1-1/2x1-1/2x3/16 (H)	1.8	1.33	16	38.3
L3x3x1/4 (V)	4.9	2.1	40	408.3
L3x3x1/4 (H)	4.9	7.5	20	735.0
L3x3x1/4 (H)	4.9	1.42	40	278.3
L3x2x3/6 (H)	3.07	30	2	184.2
1/2" Round Bar	0.668	2.39	16	25.5
2" STD. Pipe	3.66	7	3	76.9
2-1/2" STD. Pipe	5.8	6	1	34.8
2-1/2" XS Pipe	7.67	6	2	92.0
Cable Tray	10	31	1	310.0
			Total, T_{weight}	**2296.2** lbs.

Weight of Appurtenances - Gamma Sector

Item	Wt. (Lbs.)	Qty.	Total (Lbs.)
AIR6419 Antenna	66	1	66.0
AIR6449 Antenna	82	1	82.0
800-10964 Antennas	84	1	84.0
4449 B5/B12 RRH's	73	1	73.0
8843 B2/B66A RRH's	72	1	72.0
B14 4478 RRH's	60	1	60.0
DC6-48-60-18 Surge Arrestor	35	1	35.0
		Total, T_{weight}	**472.0** lbs.

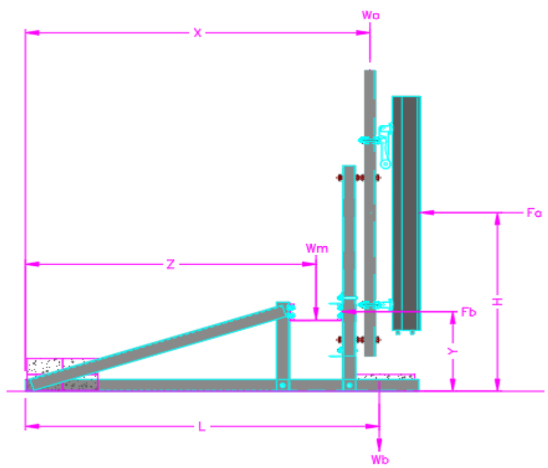
Date: 5/11/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID **Checked By:** MSC

HUDSON Design Group LLC

Calculate Total Ballast Required for Ballast Mount - Existing Conditions - Gamma Sector

Assume (3) Antennas as projected area

Wind Force on Appurtenances (Fa) =	1123	lbs.
Height (H) =	4	ft
Wind Force on Ballast Frame (Fb) =	1551	lbs.
Height (Y) =	1.67	ft
Weight of Appurtenances (Wa) =	472	lbs.
Distance to Appurtenances (X) =	6.5	ft
Weight of Ballast Mount (Wm) =	2297	lbs.
Center of Ballast Mount (Z) =	5.5	ft
Length (L) =	6.75	ft
Ballast (Wb) =	0	
Safety Factor (SF) =	1.5	



Overturning at Ballast

ΣM = 0 = (Fa*H)+(Fb*Y)-(Wa*X)-(Wm*Z)-(Wb*L)

Wb = [(Fa*H*SF+Fb*Y*SF-Wa*X-Wm*Z)/L]= **-752 lbs.**

Determine Number of Blocks Required
(assume 4"x8"x16" solid blocks @ 38 lbs. each)

Number of Blocks Required =	-20 BLOCKS FRONT SIDE
Existing Blocks =	0 BLOCKS FRONT SIDE
Additional Blocks Required =	**0 BLOCKS FRONT SIDE**

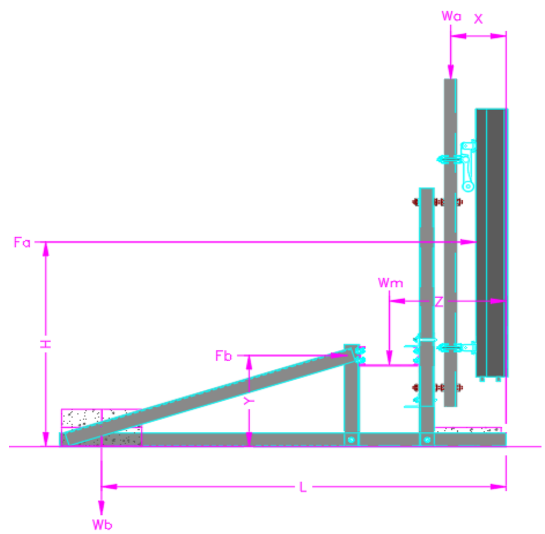
Note: Additional blocks are NOT required.

Date: 5/11/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID **Checked By:** MSC

HUDSON Design Group LLC

Calculate Total Ballast Required for Ballast Mount - Existing Conditions - Gamma Sector

Assume (3) Antennas as projected area



Wind Force on Appurtenances (Fa) =	1123	lbs.
Height (H) =	4	ft
Wind Force on Ballast Frame (Fb) =	1551	lbs.
Height (Y) =	1.67	ft
Weight of Appurtenances (Wa) =	472	lbs.
Distance to Appurtenances (X) =	0.67	ft
Weight of Ballast Mount (Wm) =	2297	lbs.
Center of Ballast Mount (Z) =	1.9	ft
Length (L) =	6.75	ft
Length/2 (L/2) =	3.375	ft
Ballast (Wb) =	19	
Ballast @ L/2 (Wb_2) =	8	
Safety Factor (SF) =	1.5	

Overturning at Ballast

ΣM = 0 = (Fa*H)+(Fb*Y)-(Wa*X)-(Wm*Z)-(Wb*L)-(Wb_2*L/2)

Wb = [(Fa*H*SF+Fb*Y*SF)-(Wa*X-Wm*Z)-(Wb_2*L/2)/ **720 lbs.**

Determine Number of Blocks Required
(assume 4"x8"x16" solid blocks @ 38 lbs. each)

Number of Blocks Required =	19 BLOCKS BACK SIDE
Existing Blocks @ L =	19 BLOCKS BACK SIDE
Additional Blocks Required =	**0 BLOCKS BACK SIDE**

Note: Additional blocks are NOT required.

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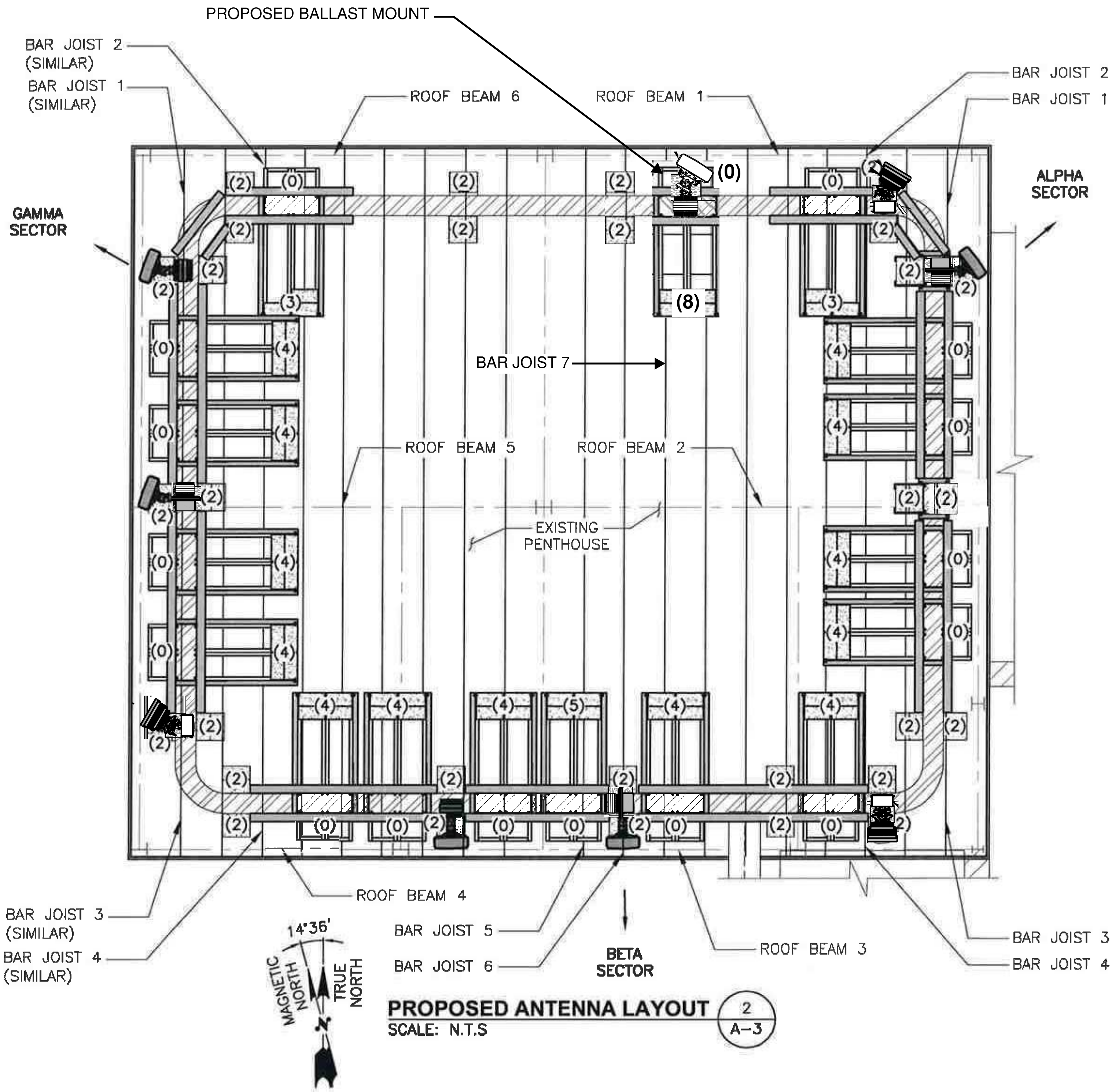
Roof Framing
Calculations

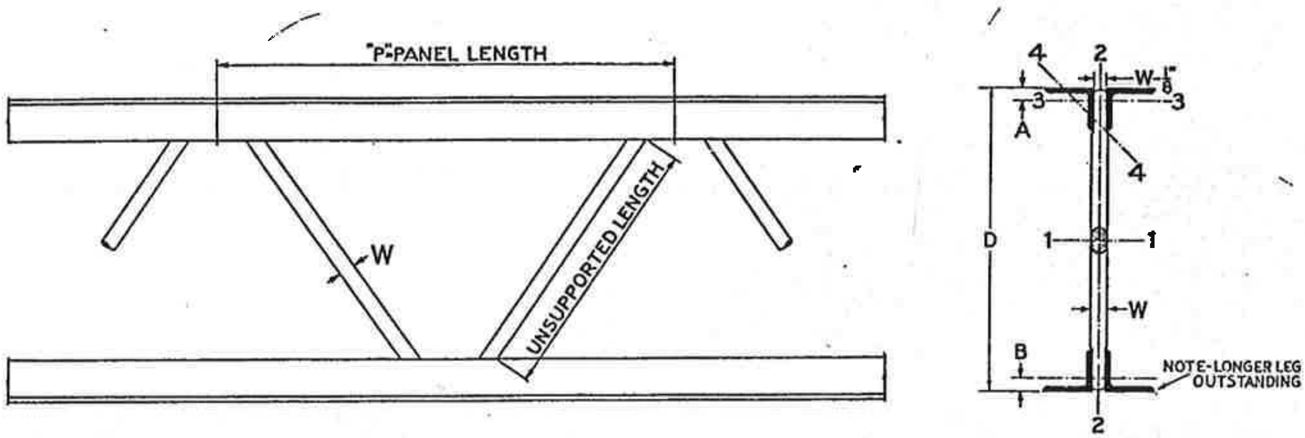


PROPOSED ANTENNA LAYOUT

SCALE: N.T.S

Properties and Dimensions

Welded Type, Bethlehem Standard Open-Web Joists



Type	Depth "D"	Top Chord 2-Ls Angles	Top Chord Area	Top Chord r Axis 4-4	Top Chord S Axis 3-3	Top Chord "A"	Bottom Chord 2-Ls Angles	Bottom Chord Area	Bottom Chord "B"	"P"	Web End Section Dia. W	Web End Section Area	Web End Section r Axis 2-2	Web Middle Section Dia. W	Web Middle Section Area	Web Middle Section r Axis 2-2	Moment of Inertia Axis 1-1	S. J. I. Std. Properties Resist Moment	S. J. I. Std. Properties End React.	Approx. Weight per ft.
	Ins.	Ins.	Ins.²	Ins.	Ins.³	Ins.	Ins.	Ins.²	Ins.	Ins.	Ins.	Ins.²	Ins.	Ins.	Ins.²	Ins.	Ins.⁴	In.-lbs.	Lbs.	Lbs.
SJ-81	8¼	1 x1 x⅛	.46	.20	.062	.30	1 x1 x⅛	.46	.30	12	7/16	.150	.109	⅜	.110	.094	13.52	29,500	1,600	3.9
SJ-82	8¼	1 x1 x⅛	.46	.20	.062	.30	1 x1 x⅛	.46	.30	12	½	.196	.125	7/16	.150	.109	13.52	52,500	1,900	4.3
SJ-102	10	1 x1 x⅛	.46	.20	.062	.30	1 x1 x⅛	.46	.30	14	½	.196	.125	7/16	.150	.109	20.40	63,000	1,900	4.4
SJ-103	10	1¼x1¼x⅛	.60	.25	.098	.36	1¼x1¼x⅛	.60	.36	14	½	.196	.125	7/16	.150	.109	26.00	82,000	1,950	5.1
SJ-104	10	1¾x1¼x⅛	.72	.27	.102	.31	1¼x1¼x⅛	.60	.36	14	½	.196	.125	½	.196	.125	28.73	100,000	2,200	6.0
SJ-123	12	1¼x1¼x⅛	.60	.25	.098	.36	1 x1 x⅛	.46	.30	15	9/16	.248	.141	½	.196	.125	33.60	92,000	2,200	5.2
SJ-124	12	1¾x1¼x⅛	.72	.27	.102	.31	1¼x1¼x⅛	.60	.36	15	9/16	.248	.141	½	.196	.125	42.27	115,000	2,300	6.1
SJ-125	12	2 x1½x⅛	.84	.33	.150	.37	1¾x1¼x⅛	.72	.31	15	9/16	.248	.141	½	.196	.125	49.95	142,000	2,500	7.1
SJ-126	12	1¾x1¼x3/16	1.06	.27	.150	.33	1¼x1¼x3/16	.86	.38	15	9/16	.248	.141	9/16	.248	.141	60.77	175,000	2,700	8.7
SJ-145	14	2 x1½x⅛	.84	.33	.150	.37	1¾x1¼x⅛	.72	.31	16	⅝	.307	.156	9/16	.248	.141	69.06	156,000	2,900	7.2
SJ-146	14	1¾x1¼x3/16	1.06	.27	.150	.33	1¼x1¼x3/16	.86	.38	16	⅝	.307	.156	9/16	.248	.141	84.12	205,000	3,100	8.9
SJ-147	14	2 x1½x3/16	1.24	.32	.220	.39	1¾x1¼x3/16	1.06	.33	16	⅝	.307	.156	⅝	.307	.156	101.16	246,000	3,400	10.2
SJ-166	16	1¾x1¼x3/16	1.06	.27	.150	.33	1¼x1¼x3/16	.86	.38	18	11/16	.371	.172	⅝	.307	.156	111.25	232,000	3,200	9.2
SJ-167	16	2 x1½x3/16	1.24	.32	.220	.39	1¾x1¼x3/16	1.06	.33	18	11/16	.371	.172	⅝	.307	.156	133.80	281,000	3,600	10.5
*SJ-1806	18	1¾x1¼x3/16	1.06	.27	.150	.33	1¼x1¼x3/16	.86	.38	20	11/16	.371	.172	11/16	.371	.172	142.19	255,000	3,600	9.4
*SJ-1807	18	2 x1½x3/16	1.24	.32	.220	.39	1¾x1¼x3/16	1.06	.33	20	¾	.442	.188	11/16	.371	.172	171.02	310,000	3,800	10.8
*SJ-2007	20	2 x1½x3/16	1.24	.32	.220	.39	1¾x1¼x3/16	1.06	.33	22	¾	.442	.188	11/16	.371	.172	212.81	340,000	3,900	10.9

* These joists are beyond the range of sizes included in the Steel Joist Institute standard types. However, they are designed in accordance with the Steel Joist Institute standard specifications.

Date: 2/25/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID **Checked By:** MSC

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CHECK ROOF JOIST CAPACITY - Bar Joist 1

SJ-103 (Assumed)

Length	17	ft.+/-
Spacing	2	ft.+/-
Resisting Moment	82	in-kip
Maximum End Reaction	1950	lbs.

Load Breakdown

Flat Roof Snow Load	30	psf
	60	**plf**
Roof Dead Load (Assumed)		
Concrete Panel	27	
Rigid insul.	1	
Membrane	1	
Ballast Stone	7	
Miscellaneous	5	
	41	psf
	82	**plf**
Joist	**4.75**	**plf**
Total =	**86.75**	**plf**
Point Load 1 =	175	lbs.
Point Load 2 =	112	lbs.
Point Load 3 =	112	lbs.
Point Load 4 =	175	lbs.

Date: 2/25/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID **Checked By:** MSC

HUDSON Design Group LLC

Calculate End Reactions

Reaction A	1634.15 lbs.	<	1950	lbs.	**OK!**
Reaction B	1434.60 lbs.	<	1950	lbs.	**OK!**

Calculate Resistant Moment

Moment = $wl^2/8 + Pab/l + Pab/l + Pab/l + Pab/l$

= 6741.54 ft-lb
= 80.90 in-kip < 82 in-kip **OK!**

Conclusion

The roof is capable of supporting the proposed and the existing loads. If field conditions differ from what is assumed in this report, then the engineer of record is to be notified as soon as possible.

Date: 2/25/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID **Checked By:** MSC

HUDSON Design Group LLC

CHECK ROOF JOIST CAPACITY - Bar Joist 2

SJ-103 (Assumed)

Length	17	ft.+/-
Spacing	2	ft.+/-
Resisting Moment	82	in-kip
Maximum End Reaction	1950	lbs.

Load Breakdown

Flat Roof Snow Load	30	psf
	60	**plf**
Roof Dead Load (Assumed)		
Concrete Panel	27	
Rigid insul.	1	
Membrane	1	
Ballast Stone	7	
Miscellaneous	5	
	41	psf
	82	**plf**
Joist	**4.75**	**plf**
Total =	**86.75**	**plf**
Point Load 1 =	230.5	lbs.
Point Load 2 =	175	lbs.
Point Load 3 =	112	lbs.
Point Load 4 =	112	lbs.

Date: 2/25/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID **Checked By:** MSC

HUDSON Design Group LLC

Calculate End Reactions

Reaction A	1457.90 lbs.	<	1950 lbs.	**OK!**
Reaction B	1666.35 lbs.	<	1950 lbs.	**OK!**

Calculate Resistant Moment

Moment = $wl^2/8 + Pab/l + Pab/l + Pab/l + Pab/l$

= 6831.10 ft-lb
= 81.97 in-kip < 82 in-kip **OK!**

Conclusion

The roof is capable of supporting the proposed and the existing loads. If field conditions differ from what is assumed in this report, then the engineer of record is to be notified as soon as possible.

Date:	2/25/2022
Project Name:	MERIDEN SBC CO
Project No.:	CT1013
Designed By:	ID **Checked By:** MSC

HUDSON Design Group LLC

CHECK ROOF JOIST CAPACITY - Bar Joist 3

SJ-103 (Assumed)

Length	17	ft.+/-
Spacing	2	ft.+/-
Resisting Moment	82	in-kip
Maximum End Reaction	1950	lbs.

Load Breakdown

Flat Roof Snow Load	30	psf
	60	**plf**
Roof Dead Load (Assumed)		
Concrete Panel	27	
Rigid insul.	1	
Membrane	1	
Ballast Stone	7	
Miscellaneous	5	
	41	psf
	82	**plf**
Joist	**4.75**	**plf**
Total =	**86.75**	**plf**
Point Load 1 =	112	lbs.
Point Load 2 =	112	lbs.
Point Load 3 =	111.6667	lbs.

Date: 2/25/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID **Checked By:** MSC

HUDSON Design Group LLC

Calculate End Reactions

Reaction A	1378.92	lbs.	<	1950 lbs.	**OK!**
Reaction B	1451.49	lbs.	<	1950 lbs.	**OK!**

Calculate Resistant Moment

Moment = $wl^2/8 + Pab/l + Pab/l + Pab/l$

= 6435.70 ft-lb
= 77.23 in-kip < 82 in-kip **OK!**

Conclusion

The roof is capable of supporting the proposed and the existing loads.
If field conditions differ from what is assumed in this report, then the engineer of record is to be notified as soon as possible.

Date: 2/25/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID **Checked By:** MSC

HUDSON Design Group LLC

CHECK ROOF JOIST CAPACITY - Bar Joist 4

SJ-103 (Assumed)

Length	17	ft.+/-
Spacing	2	ft.+/-
Resisting Moment	82	in-kip
Maximum End Reaction	1950	lbs.

Load Breakdown

Flat Roof Snow Load	30	psf
	60	**plf**
Roof Dead Load (Assumed)		
Concrete Panel	27	
Rigid insul.	1	
Membrane	1	
Ballast Stone	7	
Miscellaneous	5	
	41	psf
	82	**plf**
Joist	**4.75**	**plf**
Total =	**86.75**	**plf**
Point Load 1 =	112	lbs.
Point Load 2 =	112	lbs.
Point Load 3 =	187	lbs.
Point Load 4 =	230.5	lbs.

Date: 2/25/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID **Checked By:** MSC

HUDSON Design Group LLC

Calculate End Reactions

Reaction A	1668.20	lbs.	<	1950	lbs.	**OK!**
Reaction B	1468.05	lbs.	<	1950	lbs.	**OK!**

Calculate Resistant Moment

Moment = $wl^2/8 + Pab/l + Pab/l + Pab/l + Pab/l$

= 6825.17	ft-lb				
= 81.90	in-kip	<	82	in-kip	**OK!**

Conclusion

The roof is capable of supporting the proposed and the existing loads. If field conditions differ from what is assumed in this report, then the engineer of record is to be notified as soon as possible.

Date: 2/25/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID **Checked By:** MSC

HUDSON Design Group LLC

CHECK ROOF JOIST CAPACITY - Bar Joist 5

SJ-103 (Assumed)

Length	17	ft.+/-
Spacing	2	ft.+/-
Resisting Moment	82	in-kip
Maximum End Reaction	1950	lbs.

Load Breakdown

Flat Roof Snow Load	30	psf
	60	**plf**
Roof Dead Load (Assumed)		
Concrete Panel	27	
Rigid insul.	1	
Membrane	1	
Ballast Stone	7	
Miscellaneous	5	
	41	psf
	82	**plf**
Joist	**4.75**	**plf**
Total =	**86.75**	**plf**
Point Load 1 =	289	lbs.

Date:	2/25/2022
Project Name:	MERIDEN SBC CO
Project No.:	CT1013
Designed By:	ID **Checked By:** MSC

HDG HUDSON Design Group LLC

Calculate End Reactions

Reaction A	1490.99 lbs.	<	1950 lbs.	**OK!**
Reaction B	1292.77 lbs.	<	1950 lbs.	**OK!**

Calculate Resistant Moment

Moment = $wl^2/8 + Pab/l$

= 5951.78 ft-lb

= 71.42 in-kip < 82 in-kip **OK!**

Conclusion

The roof is capable of supporting the proposed and the existing loads. If field conditions differ from what is assumed in this report, then the engineer of record is to be notified as soon as possible.

Date: 2/25/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID **Checked By:** MSC

HDG HUDSON Design Group LLC

CHECK ROOF JOIST CAPACITY - Bar Joist 6

SJ-103 (Assumed)

Length	17	ft.+/-
Spacing	2	ft.+/-
Resisting Moment	82	in-kip
Maximum End Reaction	1950	lbs.

Load Breakdown

Flat Roof Snow Load	30	psf
	60	**plf**
Roof Dead Load (Assumed)		
Concrete Panel	27	
Rigid insul.	1	
Membrane	1	
Ballast Stone	7	
Miscellaneous	5	
	41	psf
	82	**plf**
Joist	**4.75**	**plf**
Total =	**86.75**	**plf**
Point Load 1 =	260	lbs.

Date:	2/25/2022		
Project Name:	MERIDEN SBC CO		
Project No.:	CT1013		
Designed By:	ID	**Checked By:**	MSC

HUDSON Design Group LLC

Calculate End Reactions

Reaction A	1466.54	lbs.	<	1950	lbs.	**OK!**
Reaction B	1288.21	lbs.	<	1950	lbs.	**OK!**

Calculate Resistant Moment

Moment = $wl^2/8 + Pab/l$

=	5886.51	ft-lb				
=	70.64	in-kip	<	82	in-kip	**OK!**

Conclusion

The roof is capable of supporting the proposed and the existing loads. If field conditions differ from what is assumed in this report, then the engineer of record is to be notified as soon as possible.

Date: 5/10/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID **Checked By:** MSC

HUDSON Design Group LLC

CHECK ROOF JOIST CAPACITY - Bar Joist 7

SJ-103 (Assumed)

Length	17	ft.+/-
Spacing	2	ft.+/-
Resisting Moment	82	in-kip
Maximum End Reaction	1950	lbs.

Load Breakdown

Flat Roof Snow Load	30	psf
	60	**plf**
Roof Dead Load (Assumed)		
Concrete Panel	27	
Rigid insul.	1	
Membrane	1	
Ballast Stone	7	
Miscellaneous	5	
	41	psf
	82	**plf**
Joist	**4.75**	**plf**
Total =	**86.75**	**plf**
Point Load 1 =	368	lbs. (Ballast to be supported by (2) roof joists)

Date: 5/10/2022
Project Name: MERIDEN SBC CO
Project No.: CT1013
Designed By: ID **Checked By:** MSC

HUDSON
Design Group LLC

Calculate End Reactions

Reaction A	1333.96 lbs.	<	1950 lbs.	**OK!**
Reaction B	1528.79 lbs.	<	1950 lbs.	**OK!**

Calculate Resistant Moment

Moment = $wl^2/8 + Pab/l$

= 6426.99 ft-lb
= 77.12 in-kip < 82 in-kip **OK!**

Conclusion

The roof is capable of supporting the proposed and the existing loads. If field conditions differ from what is assumed in this report, then the engineer of record is to be notified as soon as possible.

Steel Beam

Project File: CT1013.ec6

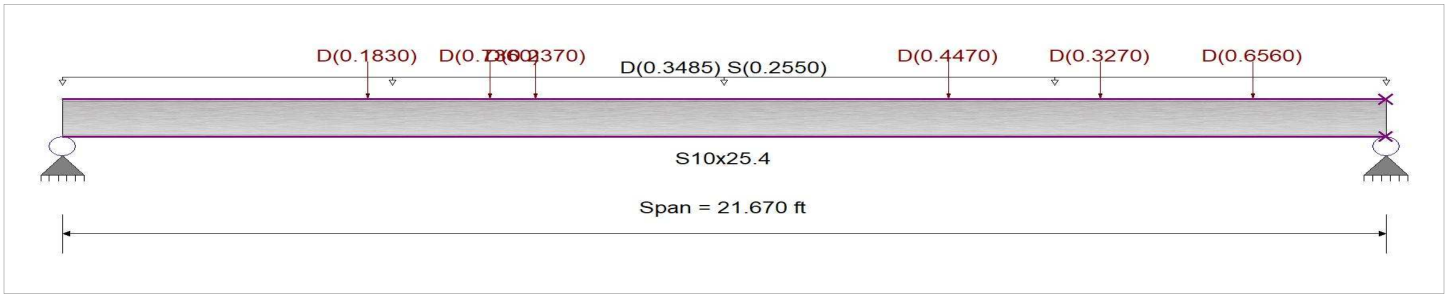
DESCRIPTION: Beam 1

CODE REFERENCES

Calculations per AISC 360-10, IBC 2015, CBC 2016, ASCE 7-10
Load Combination Set : ASCE 7-10

Material Properties

Analysis Method :	Allowable Strength Design	Fy : Steel Yield :	36.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations

Beam self weight calculated and added to loading

Uniform Load : D = 0.0410, S = 0.030 ksf, Tributary Width = 8.50 ft, (Roof Load)

Point Load : D = 0.2370 k @ 7.750 ft, (Point Load 1 (Per Previous SA by HDG))

Point Load : D = 0.4470 k @ 14.50 ft, (Point Load 2 (Per Previous SA by HDG))

Point Load : D = 0.3270 k @ 17.0 ft, (Point Load 3 (Per Previous SA by HDG))

Point Load : D = 0.6560 k @ 19.50 ft, (Point Load 4(Per Previous SA by HDG))

Point Load : D = 0.1830 k @ 5.0 ft, (Point Load (Propose Antennas + Surge Arrestor))

Point Load : D = 0.7360 k @ 7.0 ft, (Point Load - Proposed Alpha Sector Ballast Mount)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	**0.865** : 1	Maximum Shear Stress Ratio =	**0.186** : 1
Section used for this span	**S10x25.4**	Section used for this span	**S10x25.4**
Ma : Applied	43.950 k-ft	Va : Applied	8.325 k
Mn / Omega : Allowable	50.838 k-ft	Vn/Omega : Allowable	44.784 k
Load Combination	+D+S	Load Combination	+D+S
		Location of maximum on span	21.670 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.356 in	Ratio =	729	>=360	
Max Upward Transient Deflection	0.000 in	Ratio =	0	<360	Span: 1 : S Only
Max Downward Total Deflection	1.056 in	Ratio =	246	>=240.	Span: 1 : +D+S
Max Upward Total Deflection	0.000 in	Ratio =	0	<240.0	

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios		Summary of Moment Values							Summary of Shear Values		
Segment Length	Span #	M	V	Mmax +	Mmax -	Ma Max	Mnx	Mnx/Omega	Cb	Rm	Va Max	Vnx	Vnx/Omega
D Only													
Dsgn. L = 21.67 ft	1	0.570	0.124	28.99		28.99	84.90	50.84	1.00	1.00	5.56	67.18	44.78
+D+S													
Dsgn. L = 21.67 ft	1	0.865	0.186	43.95		43.95	84.90	50.84	1.00	1.00	8.32	67.18	44.78
+D+0.750S													
Dsgn. L = 21.67 ft	1	0.791	0.170	40.21		40.21	84.90	50.84	1.00	1.00	7.63	67.18	44.78
+0.60D													

Steel Beam

DESCRIPTION: Beam 1

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios		Summary of Moment Values							Summary of Shear Values		
Segment Length	Span #	M	V	Mmax +	Mmax -	Ma Max	Mnx	Mnx/Omega	Cb	Rm	Va Max	Vnx	Vnx/Omega
Dsgn. L = 21.67 ft	1	0.342	0.075	17.39		17.39	84.90	50.84	1.00	1.00	3.34	67.18	44.78

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	1.0556	10.835		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	7.889	8.325
Overall MINimum	2.763	2.763
D Only	5.127	5.562
+D+S	7.889	8.325
+D+0.750S	7.199	7.634
+0.60D	3.076	3.337
S Only	2.763	2.763

Steel Beam

Project File: CT1013.ec6

LIC# : KW-06013026, Build:20.22.3.16 Hudson Design Group LLC (c) ENERCALC INC 1983-2022

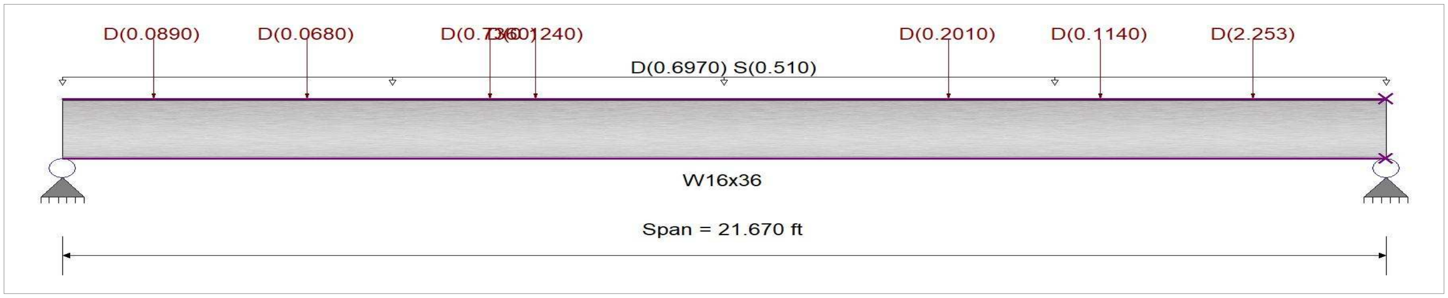
DESCRIPTION: Beam 2

CODE REFERENCES

Calculations per AISC 360-10, IBC 2015, CBC 2016, ASCE 7-10
Load Combination Set : ASCE 7-10

Material Properties

Analysis Method :	Allowable Strength Design	Fy : Steel Yield :	36.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations

Beam self weight calculated and added to loading

Uniform Load : D = 0.0410, S = 0.030 ksf, Tributary Width = 17.0 ft, (Roof Load)

Point Load : D = 0.0890 k @ 1.50 ft, (Point Load 1 (Per Previous SA by HDG))

Point Load : D = 0.0680 k @ 4.0 ft, (Point Load 2 (Per Previous SA by HDG))

Point Load : D = 0.1240 k @ 7.750 ft, (Point Load 3 (Per Previous SA by HDG))

Point Load : D = 0.2010 k @ 14.50 ft, (Point Load 4(Per Previous SA by HDG))

Point Load : D = 0.1140 k @ 17.0 ft, (Point Load 5(Per Previous SA by HDG))

Point Load : D = 2.253 k @ 19.50 ft, (Point Load 6(Per Previous SA by HDG))

Point Load : D = 0.7360 k @ 7.0 ft, (Point Load - Proposed Alpha Sector Ballast Mount)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	**0.693** : 1	Maximum Shear Stress Ratio =	**0.237** : 1
Section used for this span	**W16x36**	Section used for this span	**W16x36**
Ma : Applied	79.653 k-ft	Va : Applied	16.020 k
Mn / Omega : Allowable	114.970 k-ft	Vn/Omega : Allowable	67.543 k
Load Combination	+D+S	Load Combination	+D+S
		Location of maximum on span	21.670 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.196 in	Ratio =	1,329	>=360	
Max Upward Transient Deflection	0.000 in	Ratio =	0	<360	Span: 1 : S Only
Max Downward Total Deflection	0.525 in	Ratio =	496	>=240.	Span: 1 : +D+S
Max Upward Total Deflection	0.000 in	Ratio =	0	<240.0	

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios		Summary of Moment Values							Summary of Shear Values		
Segment Length	Span #	M	V	Mmax +	Mmax -	Ma Max	Mnx	Mnx/Omega	Cb	Rm	Va Max	Vnx	Vnx/Omega
D Only													
Dsgn. L = 21.67 ft	1	0.432	0.155	49.72		49.72	192.00	114.97	1.00	1.00	10.49	101.31	67.54
+D+S													
Dsgn. L = 21.67 ft	1	0.693	0.237	79.65		79.65	192.00	114.97	1.00	1.00	16.02	101.31	67.54

Steel Beam

DESCRIPTION: Beam 2

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios		Summary of Moment Values							Summary of Shear Values		
Segment Length	Span #	M	V	Mmax +	Mmax -	Ma Max	Mnx	Mnx/Omega	Cb	Rm	Va Max	Vnx	Vnx/Omega
+D+0.750S													
Dsgn. L = 21.67 ft	1	0.628	0.217	72.17		72.17	192.00	114.97	1.00	1.00	14.64	101.31	67.54
+0.60D													
Dsgn. L = 21.67 ft	1	0.259	0.093	29.83		29.83	192.00	114.97	1.00	1.00	6.30	101.31	67.54

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.5246	10.897		0.0000	0.000

Vertical Reactions

Support notation : Far left is # Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	14.501	16.020
Overall MINimum	5.385	5.526
D Only	8.975	10.494
+D+S	14.501	16.020
+D+0.750S	13.119	14.639
+0.60D	5.385	6.297
S Only	5.526	5.526

Steel Beam

Project File: CT1013.ec6

LIC# : KW-06013026, Build:20.22.2.9 Hudson Design Group LLC

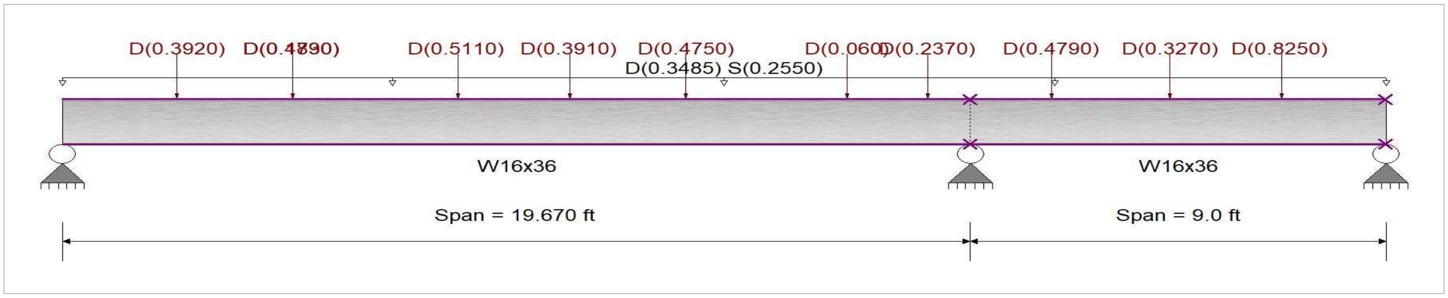
DESCRIPTION: Beam 3

CODE REFERENCES

Calculations per AISC 360-10, IBC 2015, CBC 2016, ASCE 7-10
Load Combination Set : ASCE 7-10

Material Properties

Analysis Method :	Allowable Strength Design	Fy : Steel Yield :	36.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations

Beam self weight calculated and added to loading
Loads on all spans...
Uniform Load on ALL spans : D = 0.0410, S = 0.030 ksf, Tributary Width = 8.50 ft

Load(s) for Span Number 1

Point Load : D = 0.3920 k @ 2.50 ft, (Point Load 1 (Per Previous SA by HDG))

Point Load : D = 0.4790 k @ 5.0 ft, (Point Load 2 (Per Previous SA by HDG))

Point Load : D = 0.5110 k @ 8.580 ft, (Point Load 3 (Per Previous SA by HDG))

Point Load : D = 0.3910 k @ 11.0 ft, (Point Load 4(Per Previous SA by HDG))

Point Load : D = 0.4790 k @ 13.50 ft, (Point Load 5(Per Previous SA by HDG))

Point Load : D = 0.2370 k @ 18.750 ft, (Point Load 6(Per Previous SA by HDG))

Point Load : D = 0.1830 k @ 5.0 ft, (Point Load (Proposed Antennas + Surge Arrestor))

Point Load : D = 0.060 k @ 17.0 ft, (Point Load (Proposed RRH))

Load(s) for Span Number 2

Point Load : D = 0.4790 k @ 1.750 ft, (Point Load 7 (Per Previous SA by HDG))

Point Load : D = 0.3270 k @ 4.330 ft, (Point Load 8 (Per Previous SA by HDG))

Point Load : D = 0.8250 k @ 6.750 ft, (Point Load 9 (Per Previous SA by HDG))

Steel Beam

Project File: CT1013.ec6

LIC# : KW-06013026, Build:20.22.2.9 | Hudson Design Group LLC | (c) ENERCALC INC 1983-2022

DESCRIPTION: Beam 3

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	**0.251** : 1	Maximum Shear Stress Ratio =	**0.134** : 1
Section used for this span	**W16x36**	Section used for this span	**W16x36**
Ma : Applied	28.908 k-ft	Va : Applied	9.023 k
Mn / Omega : Allowable	114.970 k-ft	Vn/Omega : Allowable	67.543 k
Load Combination	+D+S	Load Combination	+D+S
		Location of maximum on span	19.670 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.037 in	Ratio = 6,371	>=360	Span: 2 : S Only
Max Upward Transient Deflection	-0.004 in	Ratio = 29,108	>=360	Span: 2 : S Only
Max Downward Total Deflection	0.116 in	Ratio = 2032	>=240.	Span: 2 : +D+S
Max Upward Total Deflection	-0.011 in	Ratio = 9751	>=240.	Span: 2 : +D+S

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios		Summary of Moment Values							Summary of Shear Values		
Segment Length	Span #	M	V	Mmax +	Mmax -	Ma Max	Mnx	Mnx/Omega	Cb	Rm	Va Max	Vnx	Vnx/Omega
D Only													
Dsgn. L = 19.67 ft	1	0.171	0.089	17.55	-19.64	19.64	192.00	114.97	1.00	1.00	6.04	101.31	67.54
Dsgn. L = 9.00 ft	2	0.171	0.069	0.23	-19.64	19.64	192.00	114.97	1.00	1.00	4.67	101.31	67.54
+D+S													
Dsgn. L = 19.67 ft	1	0.251	0.134	25.68	-28.91	28.91	192.00	114.97	1.00	1.00	9.02	101.31	67.54
Dsgn. L = 9.00 ft	2	0.251	0.101	0.22	-28.91	28.91	192.00	114.97	1.00	1.00	6.85	101.31	67.54
+D+0.750S													
Dsgn. L = 19.67 ft	1	0.231	0.123	23.65	-26.59	26.59	192.00	114.97	1.00	1.00	8.28	101.31	67.54
Dsgn. L = 9.00 ft	2	0.231	0.093	0.22	-26.59	26.59	192.00	114.97	1.00	1.00	6.31	101.31	67.54
+0.60D													
Dsgn. L = 19.67 ft	1	0.102	0.054	10.53	-11.78	11.78	192.00	114.97	1.00	1.00	3.63	101.31	67.54
Dsgn. L = 9.00 ft	2	0.102	0.042	0.14	-11.78	11.78	192.00	114.97	1.00	1.00	2.80	101.31	67.54

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.1161	8.891		0.0000	0.000
	2	0.0000	8.891	+D+S	-0.0111	3.204

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	6.284	15.874	0.535
Overall MINimum	2.037	5.157	0.117
D Only	4.248	10.717	0.418
+D+S	6.284	15.874	0.535
+D+0.750S	5.775	14.585	0.506
+0.60D	2.549	6.430	0.251
S Only	2.037	5.157	0.117

Steel Beam

Project File: CT1013.ec6

LIC# : KW-06013026, Build:20.22.2.9 | Hudson Design Group LLC | (c) ENERCALC INC 1983-2022

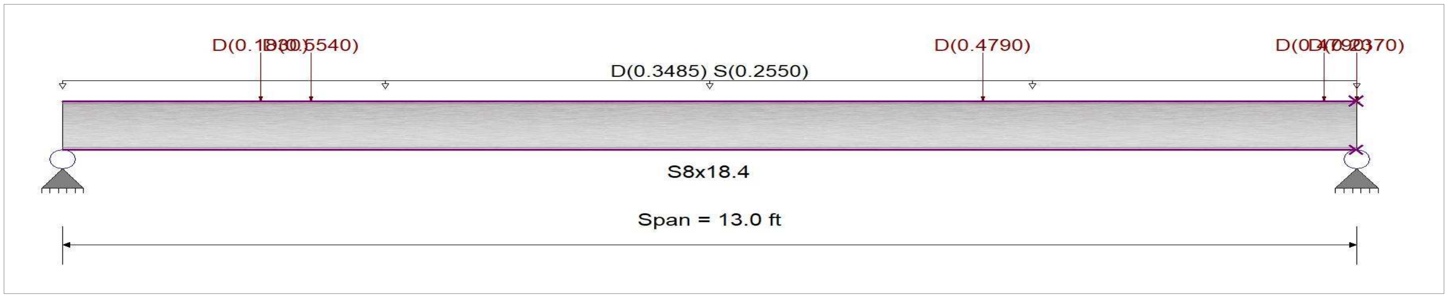
DESCRIPTION: Beam 4

CODE REFERENCES

Calculations per AISC 360-10, IBC 2015, CBC 2016, ASCE 7-10
Load Combination Set : ASCE 7-10

Material Properties

Analysis Method :	Allowable Strength Design	Fy : Steel Yield :	36.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations

Beam self weight calculated and added to loading

Uniform Load : D = 0.0410, S = 0.030 ksf, Tributary Width = 8.50 ft, (Roof Load)

Point Load : D = 0.5540 k @ 2.50 ft, (Point Load 1 (Per Previous SA by HDG))

Point Load : D = 0.2370 k @ 13.0 ft, (Point Load 2 (Per Previous SA by HDG))

Point Load : D = 0.4790 k @ 9.250 ft, (Point Load 3 (Per Previous SA by HDG))

Point Load : D = 0.4790 k @ 12.670 ft, (Point Load 4(Per Previous SA by HDG))

Point Load : D = 0.1830 k @ 2.0 ft, (Point Load 5 (Propose Antennas + Surge Arrestor))

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	**0.506** : 1	Maximum Shear Stress Ratio =	**0.160** : 1
Section used for this span	**S8x18.4**	Section used for this span	**S8x18.4**
Ma : Applied	14.990 k-ft	Va : Applied	4.985 k
Mn / Omega : Allowable	29.641 k-ft	Vn/Omega : Allowable	31.219 k
Load Combination	+D+S	Load Combination	+D+S
		Location of maximum on span	13.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.099 in	Ratio =	1,580	>=360	
Max Upward Transient Deflection	0.000 in	Ratio =	0	<360	Span: 1 : S Only
Max Downward Total Deflection	0.278 in	Ratio =	560	>=240.	Span: 1 : +D+S
Max Upward Total Deflection	0.000 in	Ratio =	0	<240.0	

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios		Summary of Moment Values							Summary of Shear Values		
Segment Length	Span #	M	V	Mmax +	Mmax -	Ma Max	Mnx	Mnx/Omega	Cb	Rm	Va Max	Vnx	Vnx/Omega
D Only													
Dsgn. L = 13.00 ft	1	0.324	0.107	9.60		9.60	49.50	29.64	1.00	1.00	3.33	46.83	31.22
+D+S													
Dsgn. L = 13.00 ft	1	0.506	0.160	14.99		14.99	49.50	29.64	1.00	1.00	4.98	46.83	31.22
+D+0.750S													
Dsgn. L = 13.00 ft	1	0.460	0.146	13.64		13.64	49.50	29.64	1.00	1.00	4.57	46.83	31.22
+0.60D													
Dsgn. L = 13.00 ft	1	0.194	0.064	5.76		5.76	49.50	29.64	1.00	1.00	2.00	46.83	31.22

Steel Beam

DESCRIPTION: Beam 4

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.2784	6.500		0.0000	0.000

Vertical Reactions

Support notation : Far left is #· Values in KIPS

Load Combination	Support 1	Support 2	
Overall MAXimum	4.795	5.222	0.117
Overall MINimum	1.658	1.658	0.117
D Only	3.137	3.564	0.117
+D+S	4.795	5.222	0.117
+D+0.750S	4.381	4.807	0.117
+0.60D	1.882	2.139	0.117
S Only	1.658	1.658	0.117

Project Title: MERIDEN SBC CO
Engineer: ID
Project ID: CT1013
Project Descr:

Steel Beam

Project File: CT1013.ec6

LIC# : KW-06013026, Build:20.22.2.9 — Hudson Design Group LLC —

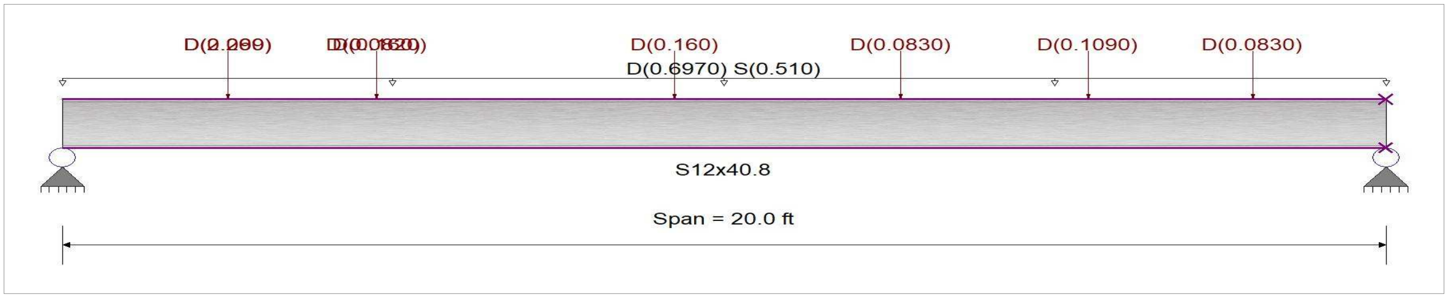
DESCRIPTION: Beam 5

CODE REFERENCES

Calculations per AISC 360-10, IBC 2015, CBC 2016, ASCE 7-10
Load Combination Set : ASCE 7-10

Material Properties

Analysis Method :	Allowable Strength Design	Fy : Steel Yield :	36.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations

Beam self weight calculated and added to loading

Uniform Load : D = 0.0410, S = 0.030 ksf, Tributary Width = 17.0 ft, (Roof Load)

Point Load : D = 2.299 k @ 2.50 ft, (Point Load 1 (Per Previous SA by HDG))

Point Load : D = 0.0820 k @ 4.750 ft, (Point Load 2 (Per Previous SA by HDG))

Point Load : D = 0.160 k @ 4.750 ft, (Point Load 3 (Per Previous SA by HDG))

Point Load : D = 0.0830 k @ 12.670 ft, (Point Load 4(Per Previous SA by HDG))

Point Load : D = 0.1090 k @ 15.50 ft, (Point Load 5(Per Previous SA by HDG))

Point Load : D = 0.0830 k @ 18.0 ft, (Point Load 6(Per Previous SA by HDG))

Point Load : D = 0.060 k @ 2.50 ft, (Point Load (Proposed RRH))

Point Load : D = 0.160 k @ 9.250 ft, (Point Load 3 (Per Previous SA by HDG))

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.711 : 1	Maximum Shear Stress Ratio =	0.186 : 1
Section used for this span	S12x40.8	Section used for this span	S12x40.8
Ma : Applied	67.339 k-ft	Va : Applied	14.876 k
Mn / Omega : Allowable	94.671 k-ft	Vn/Omega : Allowable	79.834 k
Load Combination	+D+S	Load Combination	+D+S
		Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.236 in	Ratio =	1,018	>=360	
Max Upward Transient Deflection	0.000 in	Ratio =	0	<360	Span: 1 : S Only
Max Downward Total Deflection	0.626 in	Ratio =	383	>=240.	Span: 1 : +D+S
Max Upward Total Deflection	0.000 in	Ratio =	0	<240.0	

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios		Summary of Moment Values							Summary of Shear Values	
Segment Length	Span #	M	V	Mmax +	Mmax -	Ma Max	Mnx	Mnx/Omega	Cb	Rm	Va Max	VnxVnx/Omega
D Only												

Steel Beam

Project File: CT1013.ec6

LIC# : KW-06013026, Build:20.22.2.9 Hudson Design Group LLC

DESCRIPTION: Beam 5

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios		Summary of Moment Values							Summary of Shear Values		
Segment Length	Span #	M	V	Mmax +	Mmax -	Ma Max	Mnx	Mnx/Omega	Cb	Rm	Va Max	Vnx	Vnx/Omega
Dsgn. L = 20.00 ft	1	0.442	0.122	41.88		41.88	158.10	94.67	1.00	1.00	9.78	119.75	79.83
+D+S													
Dsgn. L = 20.00 ft	1	0.711	0.186	67.34		67.34	158.10	94.67	1.00	1.00	14.88	119.75	79.83
+D+0.750S													
Dsgn. L = 20.00 ft	1	0.644	0.170	60.97		60.97	158.10	94.67	1.00	1.00	13.60	119.75	79.83
+0.60D													
Dsgn. L = 20.00 ft	1	0.265	0.073	25.13		25.13	158.10	94.67	1.00	1.00	5.87	119.75	79.83

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.6264	9.943		0.0000	0.000

Vertical Reactions

Support notation : Far left is #· Values in KIPS

Load Combination	Support 1	Support 2	
Overall MAXimum	14.876	13.116	0.117
Overall MINimum	5.100	4.810	0.117
D Only	9.776	8.016	0.117
+D+S	14.876	13.116	0.117
+D+0.750S	13.601	11.841	0.117
+0.60D	5.866	4.810	0.117
S Only	5.100	5.100	0.117

Steel Beam

Project File: CT1013.ec6

LIC# : KW-06013026, Build:20.22.2.9 Hudson Design Group LLC

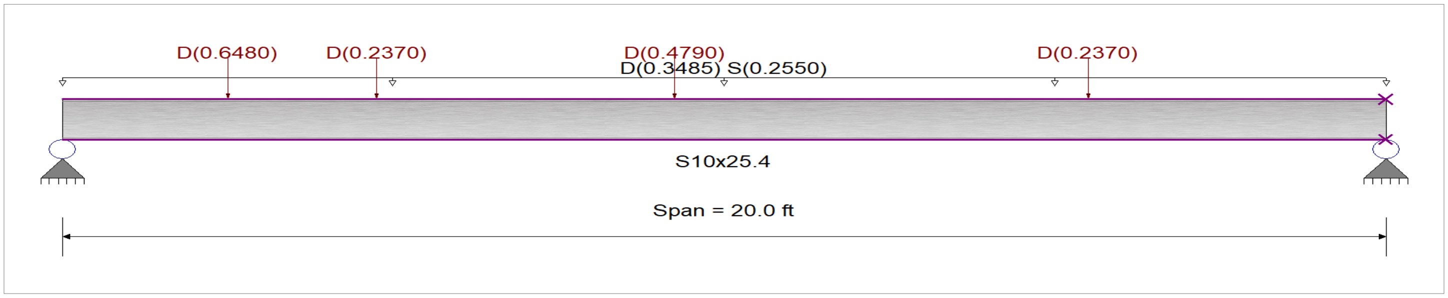
DESCRIPTION: Beam 6

CODE REFERENCES

Calculations per AISC 360-10, IBC 2015, CBC 2016, ASCE 7-10
Load Combination Set : ASCE 7-10

Material Properties

Analysis Method :	Allowable Strength Design	Fy : Steel Yield :	36.0 ksi
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling	E: Modulus :	29,000.0 ksi
Bending Axis :	Major Axis Bending		



Applied Loads

Service loads entered. Load Factors will be applied for calculations

Beam self weight calculated and added to loading
Uniform Load : D = 0.0410, S = 0.030 ksf, Tributary Width = 8.50 ft, (Roof Load)

Point Load : D = 0.6480 k @ 2.50 ft, (Point Load 1 (Per Previous SA by HDG))

Point Load : D = 0.2370 k @ 4.750 ft, (Point Load 2 (Per Previous SA by HDG))

Point Load : D = 0.4790 k @ 9.250 ft, (Point Load 3 (Per Previous SA by HDG))

Point Load : D = 0.2370 k @ 15.50 ft, (Point Load 4(Per Previous SA by HDG))

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.701 : 1	Maximum Shear Stress Ratio =	0.164 : 1
Section used for this span	**S10x25.4**	Section used for this span	**S10x25.4**
Ma : Applied	35.640 k-ft	Va : Applied	7.348 k
Mn / Omega : Allowable	50.838 k-ft	Vn/Omega : Allowable	44.784 k
Load Combination	+D+S	Load Combination	+D+S
		Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.258 in Ratio =	928	>=360	
Max Upward Transient Deflection	0.000 in Ratio =	0	<360	Span: 1 : S Only
Max Downward Total Deflection	0.720 in Ratio =	333	>=240.	Span: 1 : +D+S
Max Upward Total Deflection	0.000 in Ratio =	0	<240.0	

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values Mmax +	Mmax -	Ma Max	Mnx	Mnx/Omega	Cb	Rm	Summary of Shear Values Va Max	Vnx	Vnx/Omega
D Only													
Dsgn. L = 20.00 ft	1	0.451	0.107	22.94		22.94	84.90	50.84	1.00	1.00	4.80	67.18	44.78
+D+S													
Dsgn. L = 20.00 ft	1	0.701	0.164	35.64		35.64	84.90	50.84	1.00	1.00	7.35	67.18	44.78
+D+0.750S													
Dsgn. L = 20.00 ft	1	0.639	0.150	32.46		32.46	84.90	50.84	1.00	1.00	6.71	67.18	44.78
+0.60D													
Dsgn. L = 20.00 ft	1	0.271	0.064	13.76		13.76	84.90	50.84	1.00	1.00	2.88	67.18	44.78

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S	1	0.7203	10.000		0.0000	0.000

Steel Beam

DESCRIPTION: Beam 6

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	
Overall MAXimum	7.348	6.832	0.117
Overall MINimum	2.550	2.550	0.117
D Only	4.798	4.282	0.117
+D+S	7.348	6.832	0.117
+D+0.750S	6.710	6.194	0.117
+0.60D	2.879	2.569	0.117
S Only	2.550	2.550	0.117

Exhibit E

Power Density/RF Emissions Report

C Squared Systems, LLC
65 Dartmouth Drive
Auburn, NH 03032
603-644-2800
support@csquaredsystems.com

Calculated Radio Frequency Exposure

CT1013

27 Butler Street, Meriden, CT

June 8, 2022

Table of Contents

List of Tables

List of Figures

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modification of AT&T antenna arrays on top of the existing rooftop located at 27 Butler Street in Meriden, CT. The coordinates of the existing rooftop are 41-32-15.37 N, 72-48-22.20 W

AT&T is proposing the following:

1) Install twelve (12) multi-band antennas (four (4) per sector) to support its commercial LTE network and the FirstNet National Public Safety Broadband Network ("NPSBN").

This report considers the planned antenna configuration for AT&T[1] to derive the resulting % Maximum Permissible Exposure of its proposed installation.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

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

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

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

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

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

[1] As referenced to AT&T's Radio Frequency Design Sheet dated 5/13/22.

3. RF Exposure Calculation Methods

The power density calculation results were generated using the following formula as outlined in FCC bulletin OET 65:

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

Where:

ERP = Effective Radiated Power

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

H = Horizontal Distance from antenna

V = Vertical Distance from radiation center of antenna

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

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

4. Calculation Results

Table 1 below outlines the cumulative power density information for the AT&T modification to the existing rooftop facility at the site. The proposed antennas are directional in nature; therefore, the majority of the RF power is focused out towards the horizon. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the base of the building. Please refer to Attachment C for the vertical pattern of the proposed AT&T antennas. The calculated results for AT&T in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antennas.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm^2)	Limit	% MPE
AT&T	86	739	2	2234	0.0251	0.4927	5.10%
AT&T	86	885	1	2625	0.0148	0.5900	2.50%
AT&T	86	1900	3	5237	0.0883	1.0000	8.83%
AT&T	86	2100	2	8226	0.0925	1.0000	9.25%
AT&T	88	3500	1	24286	0.1299	1.0000	12.99%
AT&T	84	3500	1	24286	0.1436	1.0000	14.36%
						Total	**53.03%**

Table 1: Carrier Information[2]

[2] The existing record in the CSC Power Density Table for AT&T should be removed and replaced with the updated AT&T technologies and values provided in Table 1. Please note that % MPE values listed are rounded to two decimal points and the total % MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not identically match the total value reflected in the table.

5. Conclusion

The above analysis concludes that RF exposure at ground level from the proposed facility will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Using conservative calculation methods, the highest expected percent of Maximum Permissible Exposure at ground level for AT&T's equipment is **53.03% of the FCC General Population/Uncontrolled limit**.

As noted previously, the calculated % MPE levels are more conservative (higher) than the actual signal levels will be from the finished modifications.

6. Statement of Certification

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

June 8, 2022
Date

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

Attachment A: References

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

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

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

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

(A) Limits for Occupational/Controlled Exposure[3]

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

(B) Limits for General Population/Uncontrolled Exposure[4]

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

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

Table 2: FCC Limits for Maximum Permissible Exposure (MPE)

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

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

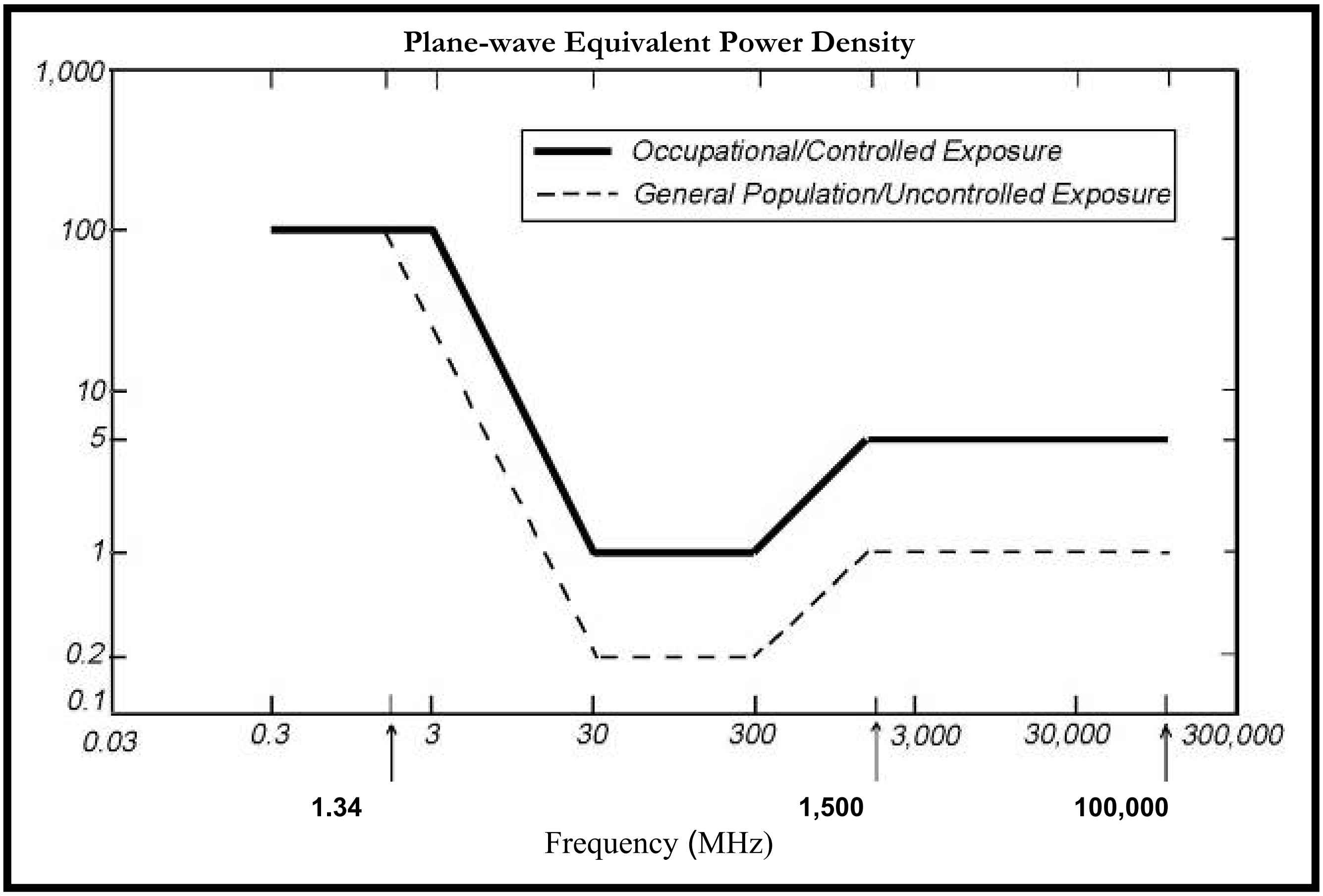
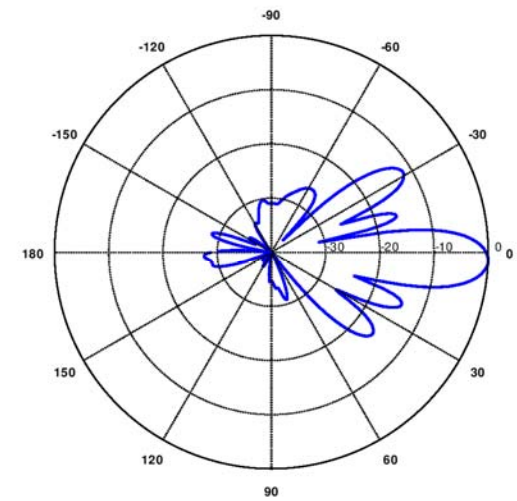


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: AT&T Antenna Data Sheets and Electrical Patterns

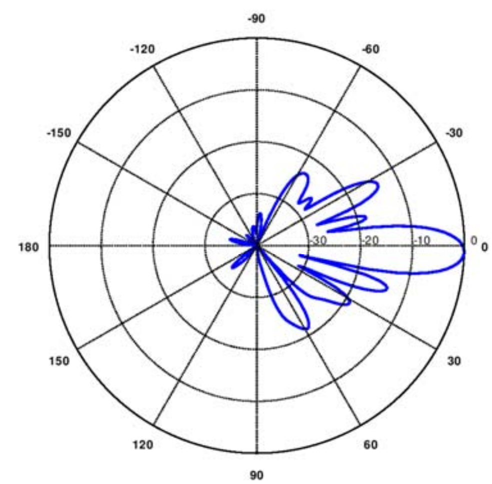
700 MHz

Manufacturer:	Kathrein
Model #:	80010964
Frequency Band:	698-798 MHz
Gain:	13.6 dBi
Vertical Beamwidth:	17.8°
Horizontal Beamwidth:	64.6°
Polarization:	Dual Linear 45°
Size L x W x D:	59.0” x 20.0” x 6.9”



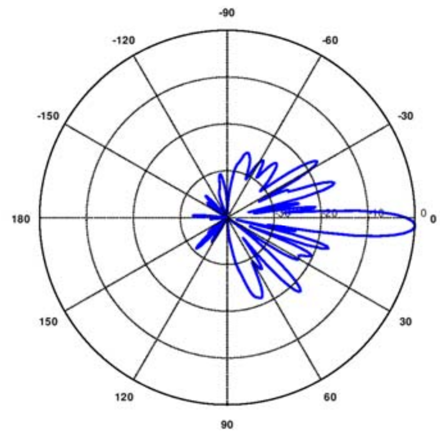
885 MHz

Manufacturer:	Kathrein
Model #:	80010964
Frequency Band:	824 - 896 MHz
Gain:	14.3 dBi
Vertical Beamwidth:	15.8°
Horizontal Beamwidth:	62.0°
Polarization:	Dual Linear 45°
Size L x W x D:	59.0” x 20.0” x 6.9”



1900 MHz

Manufacturer:	Kathrein
Model #:	80010964
Frequency Band:	1850-1990 MHz
Gain:	17.3 dBi
Vertical Beamwidth:	6.4°
Horizontal Beamwidth:	62.7°
Polarization:	Dual Linear 45°
Size L x W x D:	59.0” x 20.0” x 6.9”



2100 MHz

Manufacturer:	Kathrein
Model #:	80010964
Frequency Band:	1920-2180 MHz
Gain:	17.5 dBi
Vertical Beamwidth:	6.0°
Horizontal Beamwidth:	60.3°
Polarization:	Dual Linear 45°
Size L x W x D:	59.0” x 20.0” x 6.9”

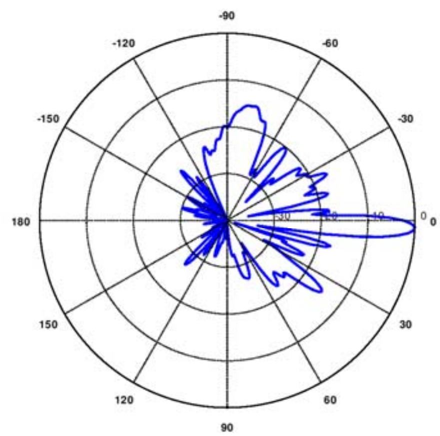


Exhibit F

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Ship Date:	06/10/2022		
Expected Delivery Date:	06/11/2022		

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5900 BALCONES DR STE 8148
AUSTIN TX 78731-4257

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STORRS MANSFIELD, CT 06268

Change Delivery Instructions

Text & Email Updates

Delivery Instructions

Tracking History

USPS Tracking Plus®

Product Information

Click-N-Ship®

UNITED STATES POSTAL SERVICE®

P

usps.com
$8.95
US POSTAGE
Flat Rate Env

9405 5036 9930 0269 5849 20 0089 5000 0077 5001

U.S. POSTAGE PAID
Click-N-Ship®

06/10/2022 Mailed from 06268

PRIORITY MAIL 2-DAY™

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

Expected Delivery Date: 06/13/22

0004

SOUTHERN NEW ENGLAND TELEPHONE
C/O FRONTIER COMMUNICATIONS
PO BOX 2629
DUFF & PHELPS LLC
ADDISON TX 75001-2629

B032

USPS TRACKING #

9405 5036 9930 0269 5849 20

Electronic Rate Approved #038555749

Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
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.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :

9405 5036 9930 0269 5849 20

Trans. #:	565278519	Priority Mail® Postage:	**$8.95**
Print Date:	06/09/2022	Total:	**$8.95**
Ship Date:	06/10/2022		
Expected Delivery Date:	06/13/2022		

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

To: SOUTHERN NEW ENGLAND TELEPHONE
C/O FRONTIER COMMUNICATIONS
PO BOX 2629
DUFF & PHELPS LLC
ADDISON TX 75001-2629

* 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.

UNITED STATES POSTAL SERVICE® *Thank you for shipping with the United States Postal Service!*

Check the status of your shipment on the USPS Tracking® page at usps.com

USPS Tracking®

FAQs >

Track Another Package +

Tracking Number: 9405503699300269584920

Remove ✕

Expected Delivery by

MONDAY

13 JUNE 2022 ⓘ

by **9:00pm** ⓘ

USPS Tracking Plus® Available

Feedback

USPS in possession of item

June 10, 2022 at 1:53 pm
STORRS MANSFIELD, CT 06268

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