August 15, 2022

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

Regarding: Notice of Exempt Modification – AT&T Site CT5270 / FA# 1007133
Address: 2 Volunteer Drive, Windsor Locks, CT 06096

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC ("AT&T") currently maintains a wireless telecommunications facility on an existing +/- 195' Self Support structure at the above-referenced address, latitude 41.9277919, longitude -72.6474989. Said Self Support structure is operated by MCM Acquisitions 2017, LLC.

AT&T desires to modify its existing telecommunications facility by swapping three (3) antennas, adding six (6) antennas, adding one (1) surge arrestor and accompanying feedlines, and swapping mounts as more particularly detailed and described on the enclosed Construction Drawings prepared by Huson Design Group, last revised August 11, 2022. The centerline height of the existing antennas is and will remain at 164 feet. 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 off at various times.

Please accept this letter as notification pursuant to R.C.S.A §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the following individuals: The Honorable Paul M. Harrington, First Selectman of the Town of Windsor Locks, as elected official, Jennifer Valentino, Town Planner, Town of Windsor Locks, Mark Doody, Zoning Enforcement Officer, Town of Windsor Locks, SBA Towers IX, LLC., as tower operator, and Town of Windsor Locks, as 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). Specifically:

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

2. The proposed modifications will not require an 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 modified facility will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. *Please see the RF emissions calculation for AT&T's modified facility enclosed herewith.*

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

6. The existing structure and its foundation can support the proposed loading. *Please see the structural analysis dated June 8, 2018, and prepared by Tower Engineering Solutions, enclosed herewith.*

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).

Sincerely,

Evan Renwick

Evan Renwick
Site Acquisition Specialist
Centerline Communications, LLC
750 West Center Street, Suite 301
West Bridgewater, MA 02379
erenwick@clinellc.com

Enclosures:
Exhibit 1 – Construction Drawings
Exhibit 2 – Property Card and GIS
Exhibit 3 – Structural Analysis
Exhibit 4 – Mount Analysis
Exhibit 5 – RF Emissions Analysis Report Evaluation
Exhibit 6 – Original Tower Approval
Exhibit 7 – Notice Delivery Confirmations

cc: The Honorable Paul M. Harrington, First Selectman, Town of Windsor Locks, elected official. Jennifer Valentino, Town Planner, Town of Windsor Locks
Mark Doody, Zoning Enforcement Officer, Town of Windsor Locks
SBA Towers IX, LLC, as tower operator
Town of Windsor Locks, as property owner

EXHIBIT 1

PROJECT INFORMATION

SCOPE OF WORK:	ITEMS TO BE MOUNTED ON THE EXISTING SELF SUPPORT: • PROPOSED AT&T ANTENNAS: AIR6419 B77G (TYP. OF 1 PER SECTOR, TOTAL OF 3) STACKED @ POS. 3 (TOP). • PROPOSED AT&T ANTENNAS: AIR6449 B77D (TYP. OF 1 PER SECTOR, TOTAL OF 3) STACKED @ POS. 3 (BOTTOM). • PROPOSED AT&T ANTENNAS: DMP65R-BU8DA @ POS. 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • EXISTING AT&T ANTENNAS: TPA-65R-BU8DA (TYP. OF 1 PER SECTOR, TOTAL OF 3) (TO BE RELOCATED TO POS. 2). • EXISTING AT&T RRUS: RRUS 32 B30 (WCS) (TYP. OF 1 PER SECTOR, TOTAL OF 3) (TO BE RELOCATED TO POS. 4). • EXISTING AT&T RRUS: RRUS 8843 B2/B66A (1900/AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3) (TO BE RELOCATED TO POS. 2). • EXISTING AT&T RRUS: RRRUS 4478 B14 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3) (TO BE RELOCATED TO POS. 2). • PROPOSED AT&T SURGE ARRESTOR: DC6-48-60-18-8F (TOTAL OF 1). • INSTALL (2) DC 6AWG DC TRUNKS. • INSTALL (1) 18PAIR FIBER. • INSTALL MOUNT MODIFICATIONS (SEE "S" SHEETS). ITEMS TO BE MOUNTED IN EQUIPMENT LOCATION: • INSTALL (1) NEW 6448 + XCEDE CABLE. • FINAL=1X5216+1XXMU+1DLE+1X6630+IDLE+1X6648+XCEDE CABLE. • INSTALL (3) NEW -48V RECTIFIERS. • INSTALL (1) FIBER BOX ON EXISTING ICE BRIDGE. • INSTALL (1) FIBER TRAY INSIDE EXISTING FIF RACK. ITEMS TO BE REMOVED: • EXISTING AT&T ANTENNA: TPA-65R-BU8DA (TYP. OF 1 PER SECTOR, TOTAL OF 3). • EXISTING AT&T (3) 1-5/8" COAX CABLES. • EXISTING AT&T DIPLEXERS: DBCT108F1V92-1 (TYP. OF 1 PER SECTOR, TOTAL OF 3). ITEMS TO REMAIN: • (3) ANTENNAS, (12) RRU'S, (2) SURGE ARRESTOR, (6) 1-5/8" COAX CABLE, (4) DC POWER & (2) FIBER.
SITE ADDRESS:	2 VOLUNTEER DRIVE WINDSOR LOCKS, CT 06096
LATITUDE:	41.9281111° N, 41° 55' 41.2" N
LONGITUDE:	-72.6467777° W, 72° 38' 48.4" W
TYPE OF SITE:	SELF SUPPORT TOWER / INDOOR EQUIPMENT
STRUCTURE HEIGHT:	195'-0"±
RAD CENTER:	164'-0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	B
GN-1	GENERAL NOTES	B
A-1	COMPOUND & EQUIPMENT PLANS	B
A-2	ANTENNA LAYOUT PLANS & ELEVATION	B
A-3	DETAILS	B
SN-1	STRUCTURAL NOTES	B
S-1	STRUCTURAL DETAILS	B
S-2	STRUCTURAL DETAILS	B
G-1	GROUNDING DETAILS	B
RF-1	RF PLUMBING DIAGRAM	B

at&t

SITE NUMBER: CTL05270

SITE NAME: WINDSOR LOCKS

FA CODE: 10071333

PACE ID: MRCTB056895, MRCTB057029, MRCTB057033, MRCTB056979, MRCTB056929

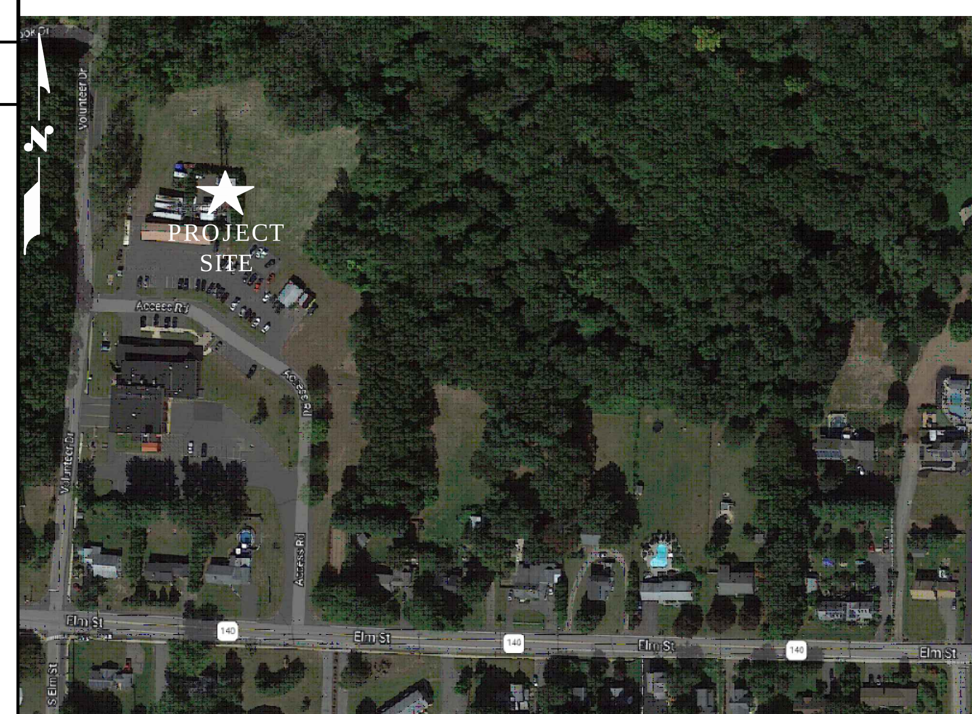
PROJECT: 5G NR ACTIVATION, 5G NR RADIO, 5G NR 1SR CBAND, BBU ADD, 5G NR 1SR

ISSUED FOR PERMITTING

VICINITY MAP

DIRECTIONS TO SITE:

GET ON I-91 N FROM ENTERPRISE DR, HEAD SOUTHEAST TOWARD CAPITAL BLVD, TURN LEFT ONTO CAPITAL BLVD, USE THE LEFT LANE TO TURN LEFT ONTO STATE HWY 411, TURN LEFT TO MERGE ONTO I-91 N, FOLLOW I-91 N TO LAWNACRE RD IN WINDSOR LOCKS. TAKE EXIT 42 FROM I-91 N, MERGE ONTO I-91 N, CONTINUE STRAIGHT TO STAY ON I-91 N, TAKE EXIT 42 TOWARD CT-159/WINDSOR LOCKS, TAKE S MAIN ST AND ELM ST TO VOLUNTEER DR, TURN LEFT ONTO LAWNACRE RD, CONTINUE ONTO S MAIN ST, TURN LEFT ONTO ELM ST, TURN RIGHT ONTO VOLUNTEER DR, DESTINATION WILL BE ON THE RIGHT.



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

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

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET, SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CTL05270
SITE NAME: WINDSOR LOCKS

2 VOLUNTEER DRIVE
WINDSOR LOCKS, CT 06096
HARTFORD COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
B	08/11/22	ISSUED FOR PERMITTING	SG	AT	DPH
A	03/11/22	ISSUED FOR REVIEW	VA	AT	DPH

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: VA

AT&T

TITLE SHEET
5G NR ACTIVATION, 5G NR RADIO, 5G NR 1SR CBAND, BBU ADD, 5G NR 1SR

SITE NUMBER	DRAWING NUMBER	REV
CTL05270	T-1	B

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 – CENTERLINE
   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	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

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

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET, SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CTL05270
SITE NAME: WINDSOR LOCKS

2 VOLUNTEER DRIVE
WINDSOR LOCKS, CT 06096
HARTFORD COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
B	08/11/22	ISSUED FOR PERMITTING	BG	AT	DPH
A	03/11/22	ISSUED FOR REVIEW	VA	AT	DPH

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: VA

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

AT&T

GENERAL NOTES
5G NR ACTIVATION, 5G NR RADIO, 5G NR 1SR CBAND, BBU ADD, 5G NR 1SR

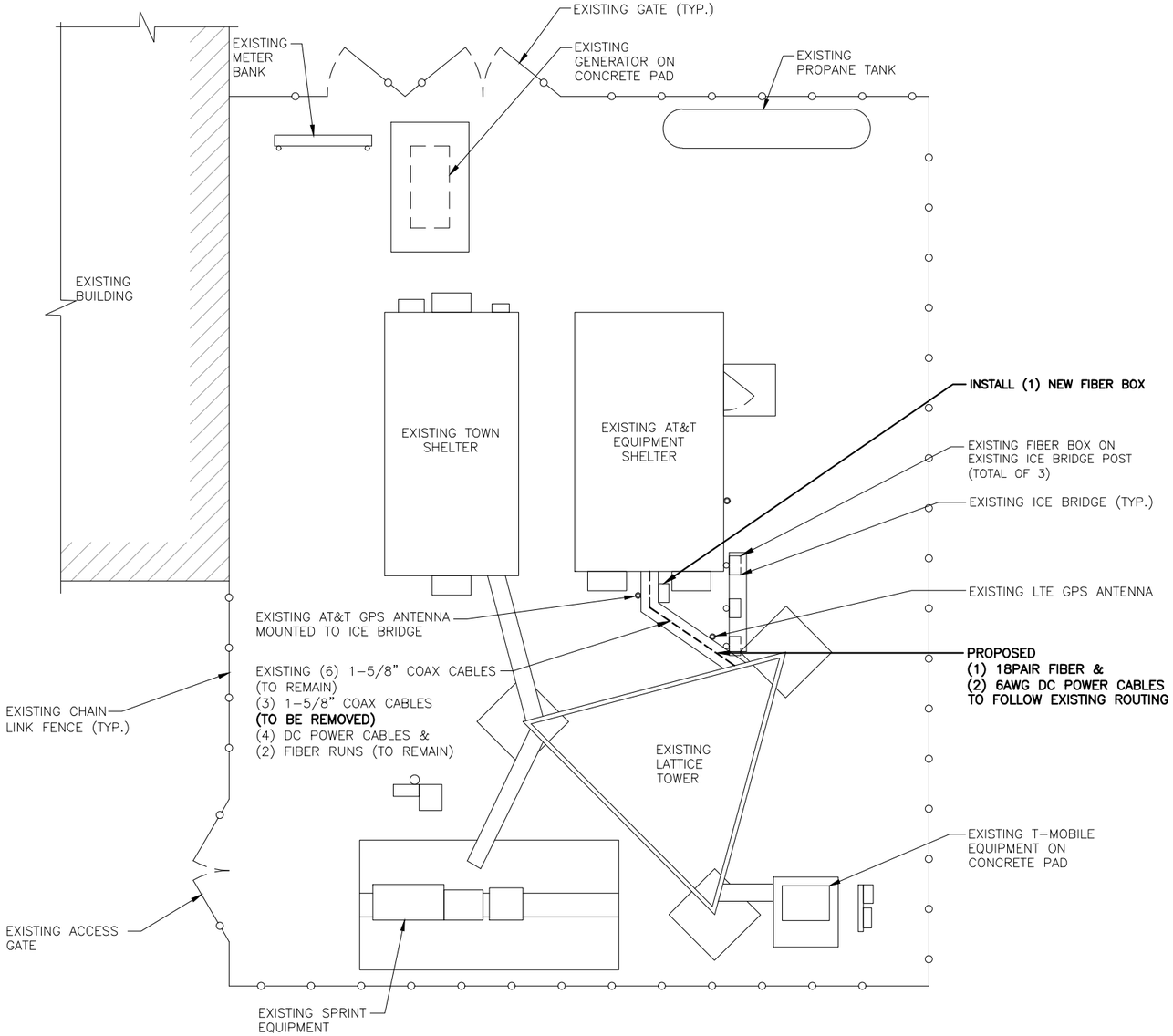
SITE NUMBER	DRAWING NUMBER	REV
CTL05270	GN-1	B

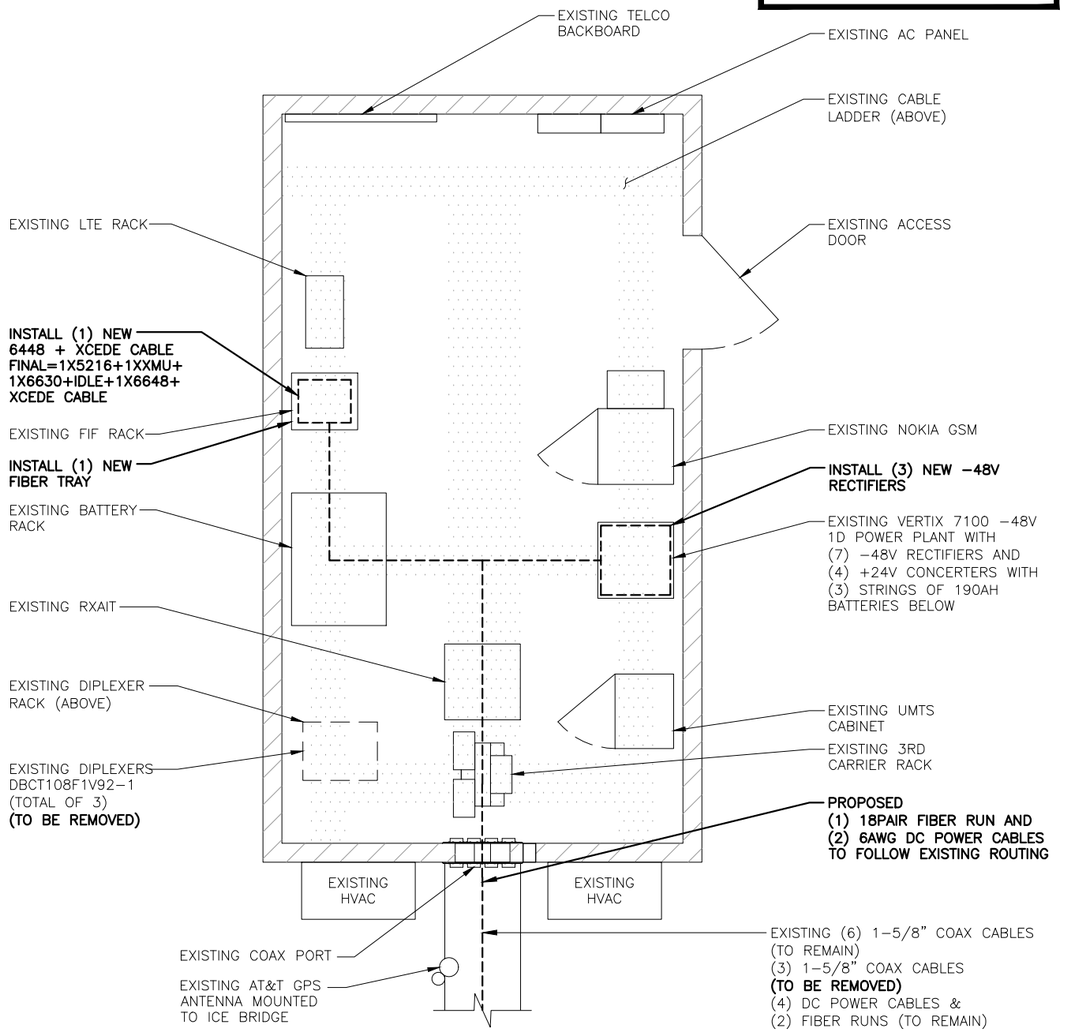
NOTE:

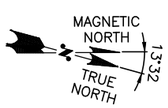
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

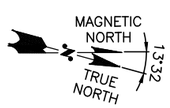






COMPOUND PLAN (1 / A-1)
22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"

0 2'-8" 5'-4" 10'-8" 16'-0"



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

0 1'-4" 2'-8" 4'-0" 6'-0"

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

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET, SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CTL05270
SITE NAME: WINDSOR LOCKS

2 VOLUNTEER DRIVE
WINDSOR LOCKS, CT 06096
HARTFORD COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
B	08/11/22	ISSUED FOR PERMITTING	DG	AT	DPH
A	03/11/22	ISSUED FOR REVIEW	VA	AT	DPH

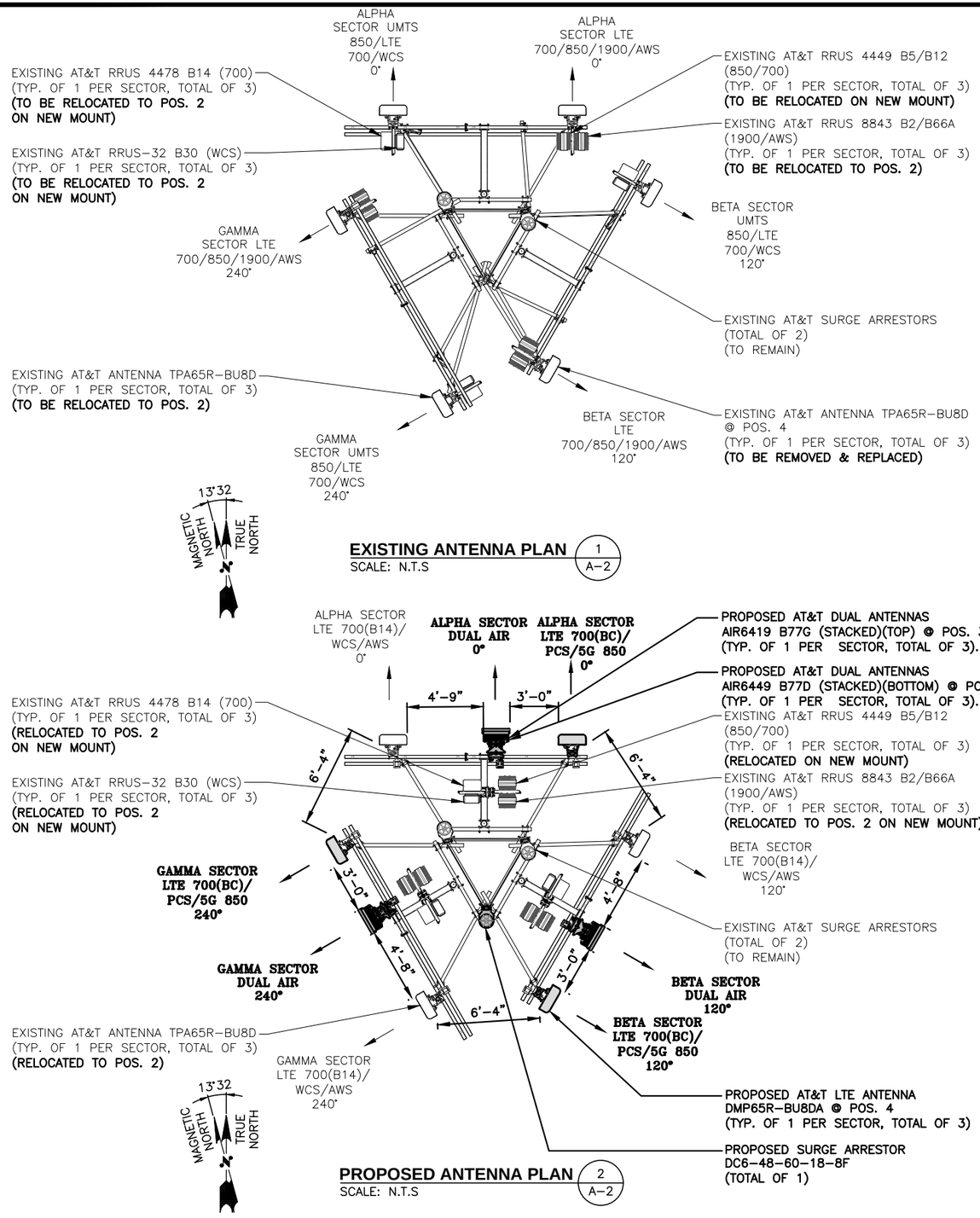
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: VA

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

AT&T

COMPOUND & EQUIPMENT PLANS
5G NR ACTIVATION, 5G NR RADIO, 5G NR 1SR CBAND, BBU ADD, 5G NR 1SR

SITE NUMBER	DRAWING NUMBER	REV
CTL05270	A-1	B



EXISTING ANTENNA PLAN

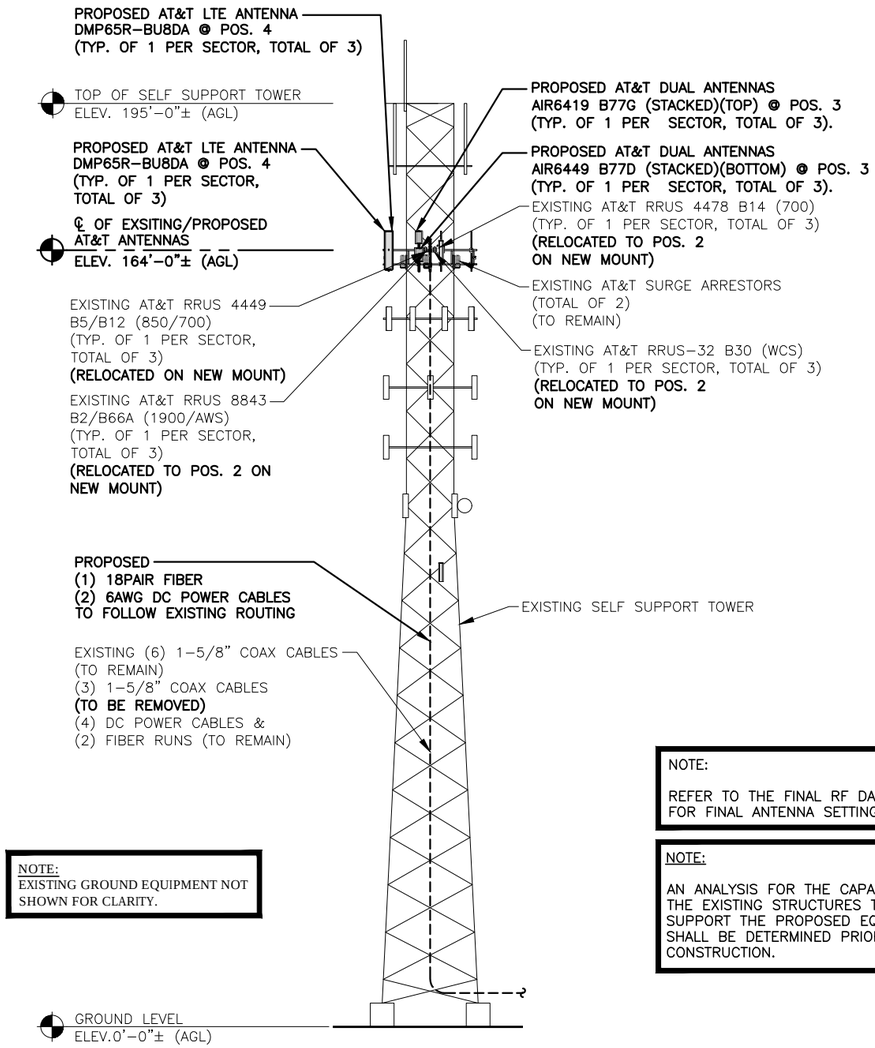
SCALE: N.T.S

1 / A-2

PROPOSED ANTENNA PLAN

SCALE: N.T.S

2 / A-2



NOTE:
EXISTING GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

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

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

ELEVATION

22x34 SCALE: 1/16"=1'-0"
11x17 SCALE: 1/32"=1'-0"

3 / A-2

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

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET, SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CTL05270
SITE NAME: WINDSOR LOCKS

2 VOLUNTEER DRIVE
WINDSOR LOCKS, CT 06096
HARTFORD COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
B	08/11/22	ISSUED FOR PERMITTING	BG	AT	DPF
A	03/11/22	ISSUED FOR REVIEW	VA	AT	DPF

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: VA

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

AT&T

ANTENNA LAYOUT PLANS & ELEVATION
5G NR ACTIVATION, 5G NR RADIO, 5G NR 1SR CBAND, BBU ADD, 5G NR 1SR

SITE NUMBER	DRAWING NUMBER	REV
CTL05270	A-2	B

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	–	–	–	–	–	–	–	–	–	–	(E) (1) RAYCAP DC6-48-60-18-8F
A2	EXISTING	LTE 700(B14)/ WCS/AWS	TPA65R-BU8D	96"X20.7"X7.7"	164'-0"±	0°	–	(E)(1)RRUS-4478 B14 (700) (E)(1)8843 B2/B66A (1900/AWS)	–	(E)(2) DC POWER (E)(1) FIBER (E)(1) "Y" CABLE	
A3	**PROPOSED**	**DUAL AIR**	**AIR6419 B77G AIR6449 B77D**	**31.1"X16.1"X7.3" 30.4"X15.9"X8.1"**	**164'-0"±**	**0°**	–	–	–	–	
A4	**PROPOSED**	**LTE 700(BC)/ PCS/5G 850**	**DMP65R-BU8DA**	**96"X20.7"X7.7"**	**164'-0"±**	**0°**	–	(E)(1)RRUS-32 B30 (WCS) (E)(1)RRUS-4449 B5/B12 (850/700)	–	(E)(1) "Y" CABLE	
B1	–	–	–	–	–	–	–	–	–	–	(E) (1) RAYCAP DC6-48-60-18-8F
B2	EXISTING	LTE 700(B14)/ WCS/AWS	TPA65R-BU8D	96"X20.7"X7.7"	164'-0"±	120°	–	(E)(1)RRUS-4478 B14 (700) (E)(1)RRUS-32 B30 (WCS) (E)(1)8843 B2/B66A (1900/AWS)	–	(E)(2) DC POWER (E)(1) FIBER (E)(1) "Y" CABLE	
B3	**PROPOSED**	**DUAL AIR**	**AIR6419 B77G AIR6449 B77D**	**31.1"X16.1"X7.3" 30.4"X15.9"X8.1"**	**164'-0"±**	**120°**	–	–	–	–	
B4	**PROPOSED**	**LTE 700(BC)/ PCS/5G 850**	**DMP65R-BU8DA**	**96"X20.7"X7.7"**	**164'-0"±**	**120°**	–	(E)(1)RRUS-32 B30 (WCS) (E)(1)RRUS-4449 B5/B12 (850/700)	–	(E)(1) "Y" CABLE	
C1	–	–	–	–	–	–	–	–	–	–	**(P) (1) RAYCAP DC6-48-60-18-8F**
C2	EXISTING	LTE 700(B14)/ WCS/AWS	TPA65R-BU8D	96"X20.7"X7.7"	164'-0"±	240°	–	(E)(1)RRUS-4478 B14 (700) (E)(1)RRUS-32 B30 (WCS) (E)(1)8843 B2/B66A (1900/AWS)	–	**(P)(2) 6AWG DC POWER & (P)(1) 18PAIR FIBER** (E)(1) "Y" CABLE	
C3	**PROPOSED**	**DUAL AIR**	**AIR6419 B77G AIR6449 B77D**	**31.1"X16.1"X7.3" 30.4"X15.9"X8.1"**	**164'-0"±**	**240°**	–	–	–	–	
C4	**PROPOSED**	**LTE 700(BC)/ PCS/5G 850**	**DMP65R-BU8DA**	**96"X20.7"X7.7"**	**164'-0"±**	**240°**	–	(E)(1)RRUS-32 B30 (WCS) (E)(1)RRUS-4449 B5/B12 (850/700)	–	(E)(1) "Y" CABLE	

RRU CHART

QUANTITY	MODEL	SIZE (L x W x D)
E(3)	4478 B14 (700)	18.1"x13.4"x8.3"
E(3)	8843 B2/B66A (1900/AWS)	14.9"x13.2"x10.9"
E(3)	4449 B5/B12 (850/700)	17.9"x13.2"x10.4"
E(3)	RRUS-32 B30 (WCS)	27.2"x12.1"x7.0"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

RRU CHART (2 / A-3)
SCALE: N.T.S

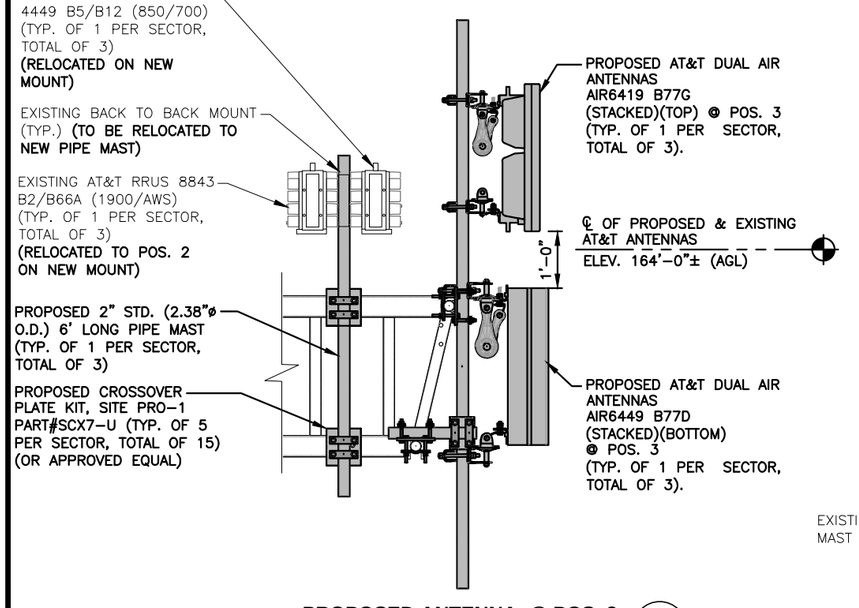
NOTE:

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

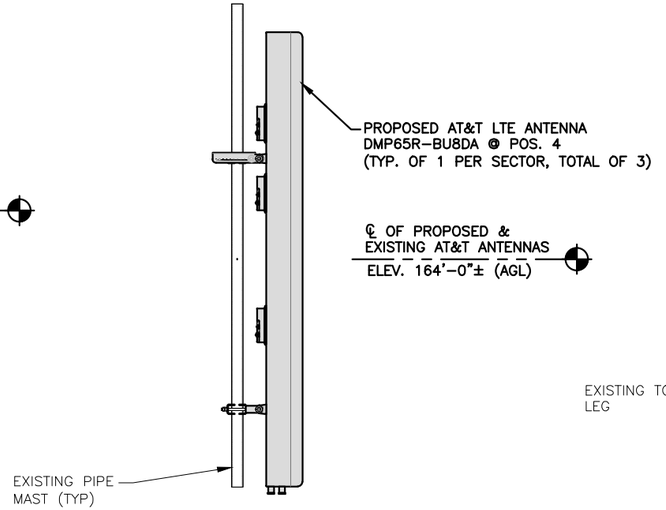
NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

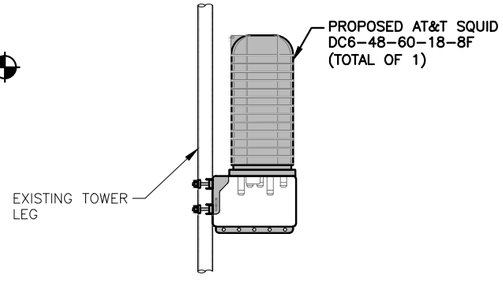
FINAL ANTENNA SCHEDULE (1 / A-3)
SCALE: N.T.S



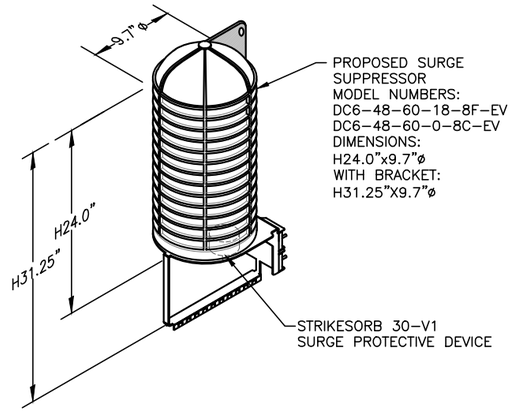
PROPOSED ANTENNA @ POS. 3 (3 / A-3)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"
0 8" 1'-4" 2'-8" 4'-0"



PROPOSED ANTENNA @ POS. 4 (4 / A-3)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"
0 8" 1'-4" 2'-8" 4'-0"



PROPOSED SURGE PROTECTOR MOUNTING DETAIL (5 / A-3)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"
0 0'-6" 1'-0" 2'-0" 3'-0"



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL (6 / A-3)
SCALE: N.T.S

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

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET, SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CTL05270
SITE NAME: WINDSOR LOCKS

2 VOLUNTEER DRIVE
WINDSOR LOCKS, CT 06096
HARTFORD COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
B	08/11/22	ISSUED FOR PERMITTING	VA	AT	DPH
A	03/11/22	ISSUED FOR REVIEW	VA	AT	DPH

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: VA

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

AT&T

DETAILS
5G NR ACTIVATION, 5G NR RADIO, 5G NR 1SR CBAND, BBU ADD, 5G NR 1SR

SITE NUMBER	DRAWING NUMBER	REV
CTL05270	A-3	B

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.

NOTES:

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

NOTES:

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

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:	

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

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET, SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CTL05270
SITE NAME: WINDSOR LOCKS

2 VOLUNTEER DRIVE
WINDSOR LOCKS, CT 06096
HARTFORD COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
B	08/11/22	ISSUED FOR PERMITTING	BG	AT	DPH
A	03/11/22	ISSUED FOR REVIEW	VA	AT	DPH

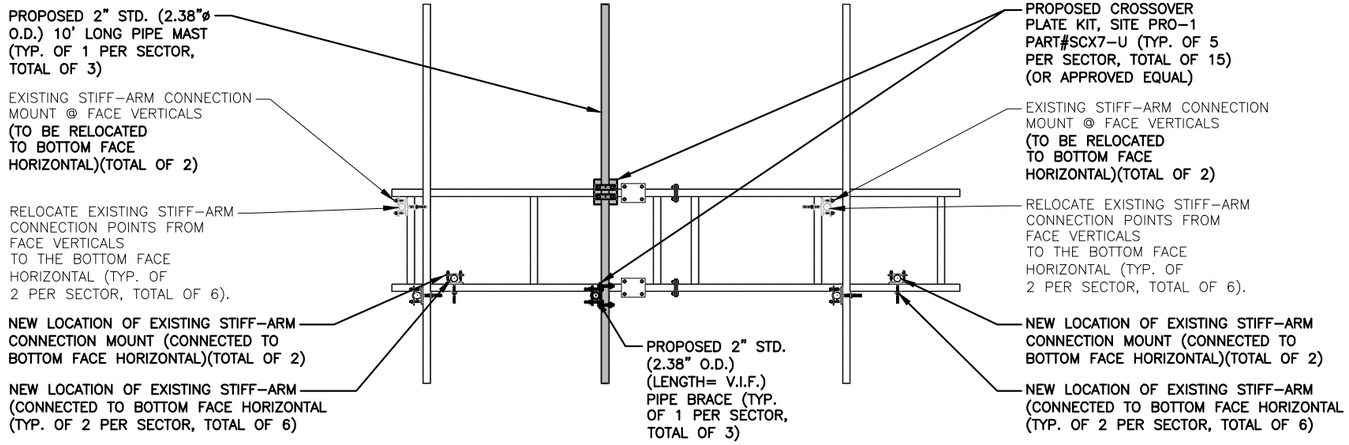
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: VA

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

AT&T

DETAILS
5G NR ACTIVATION, 5G NR RADIO, 5G NR 1SR CBAND, BBU ADD, 5G NR 1SR

SITE NUMBER	DRAWING NUMBER	REV
CTL05270	SN-1	B



EXISTING MOUNT FACE ELEVATION

1 / S-1

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

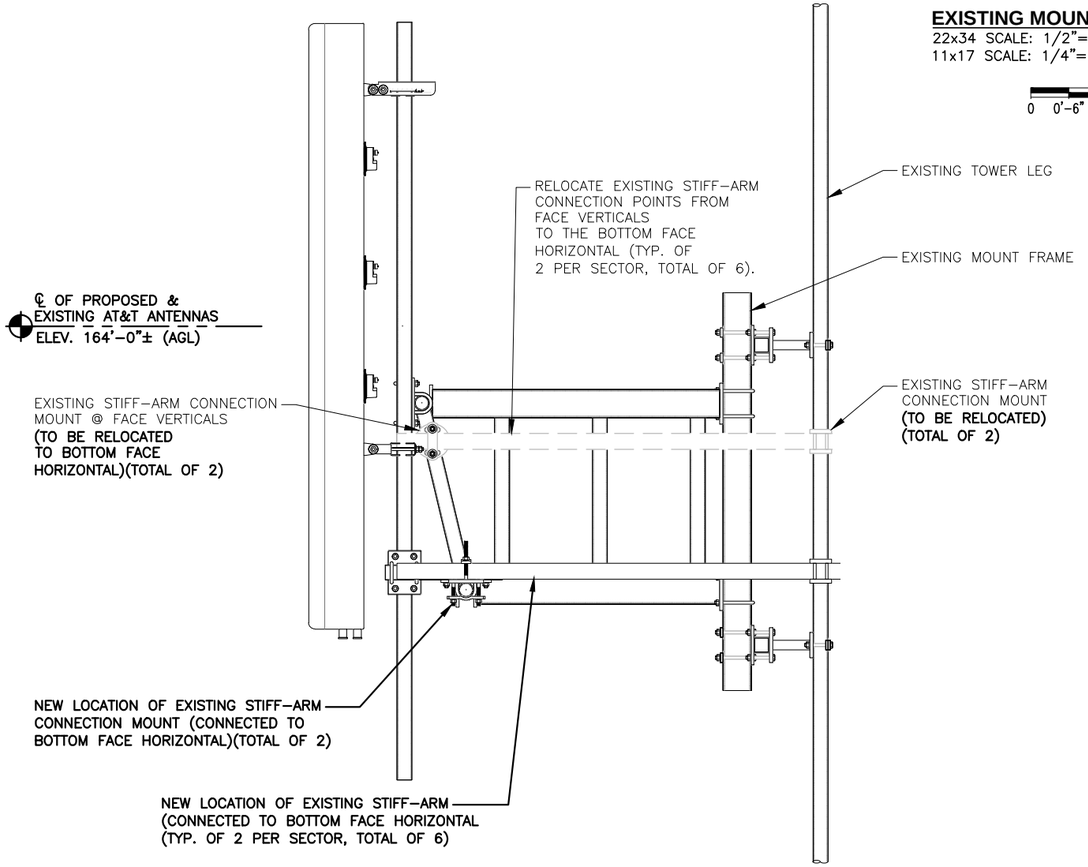
0 0'-6" 1'-0" 2'-0" 3'-0"

NOTE:

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

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

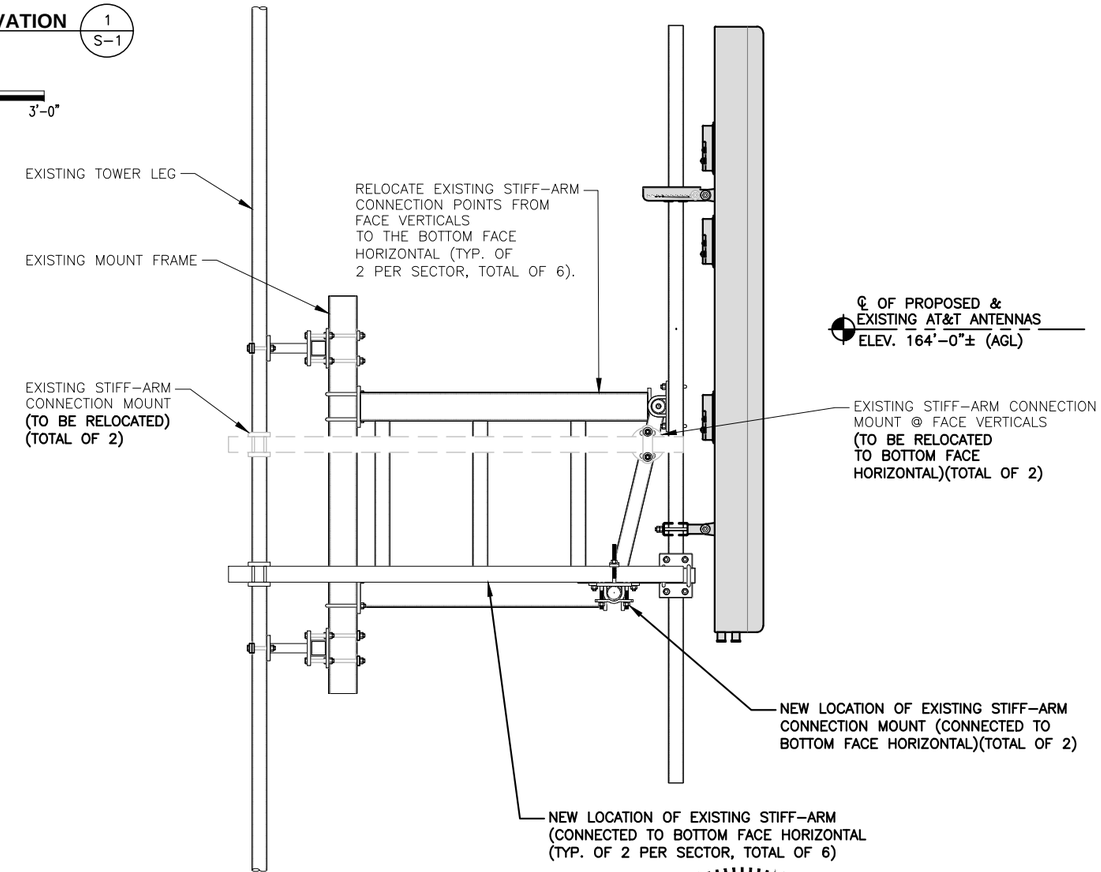


PROPOSED ANTENNA @ POS. 2

2 / S-1

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

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



PROPOSED ANTENNA @ POS. 4

3 / S-1

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

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

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

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET, SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CTL05270
SITE NAME: WINDSOR LOCKS

2 VOLUNTEER DRIVE
WINDSOR LOCKS, CT 06096
HARTFORD COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
B	08/11/22	ISSUED FOR PERMITTING	VA	AT	DPH
A	03/11/22	ISSUED FOR REVIEW	VA	AT	DPH

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: VA

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

AT&T

DETAILS
5G NR ACTIVATION, 5G NR RADIO, 5G NR 1SR CBAND, BBU ADD, 5G NR 1SR

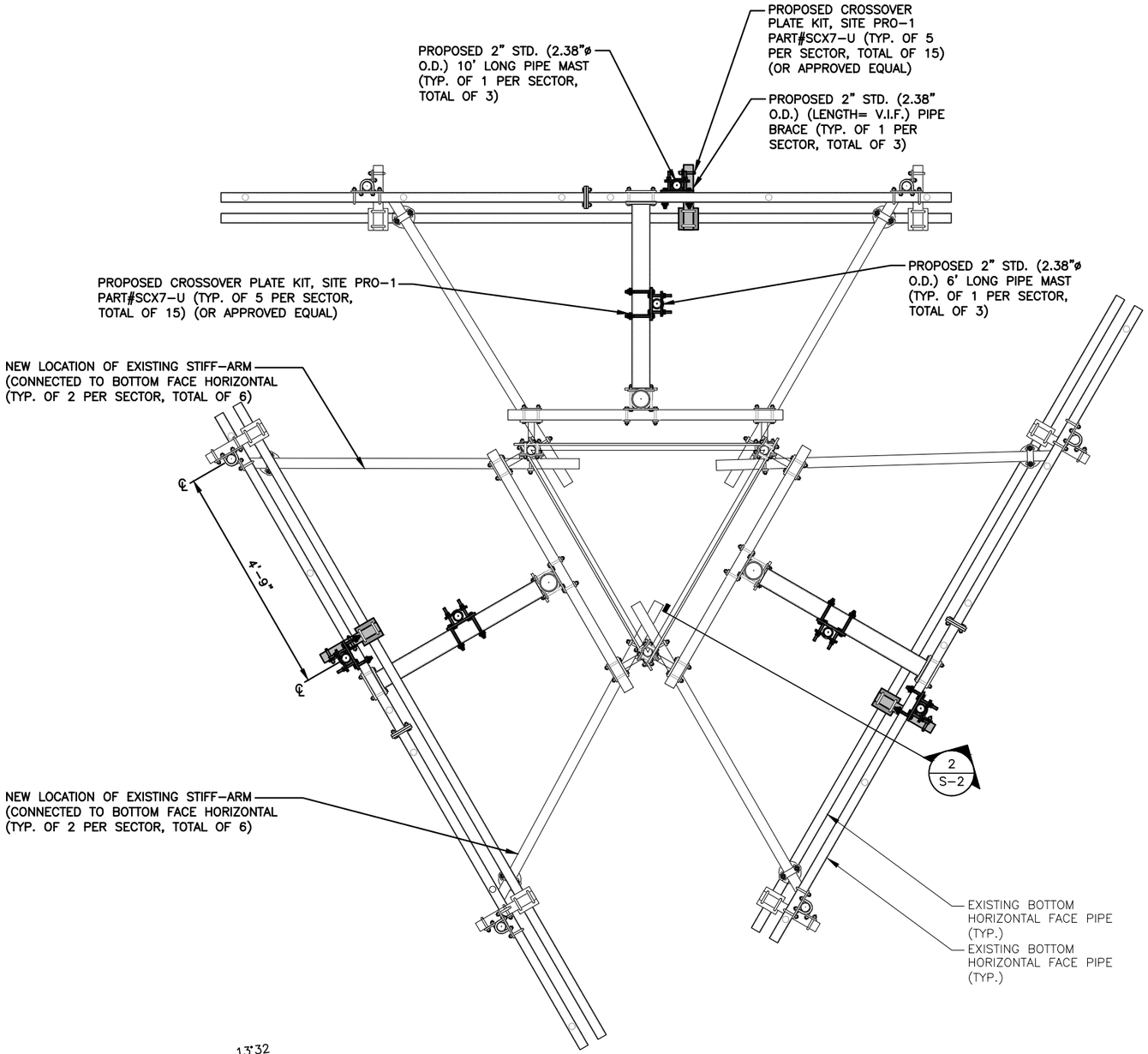
SITE NUMBER	DRAWING NUMBER	REV
CTL05270	S-1	B

NOTE:

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

NOTE:

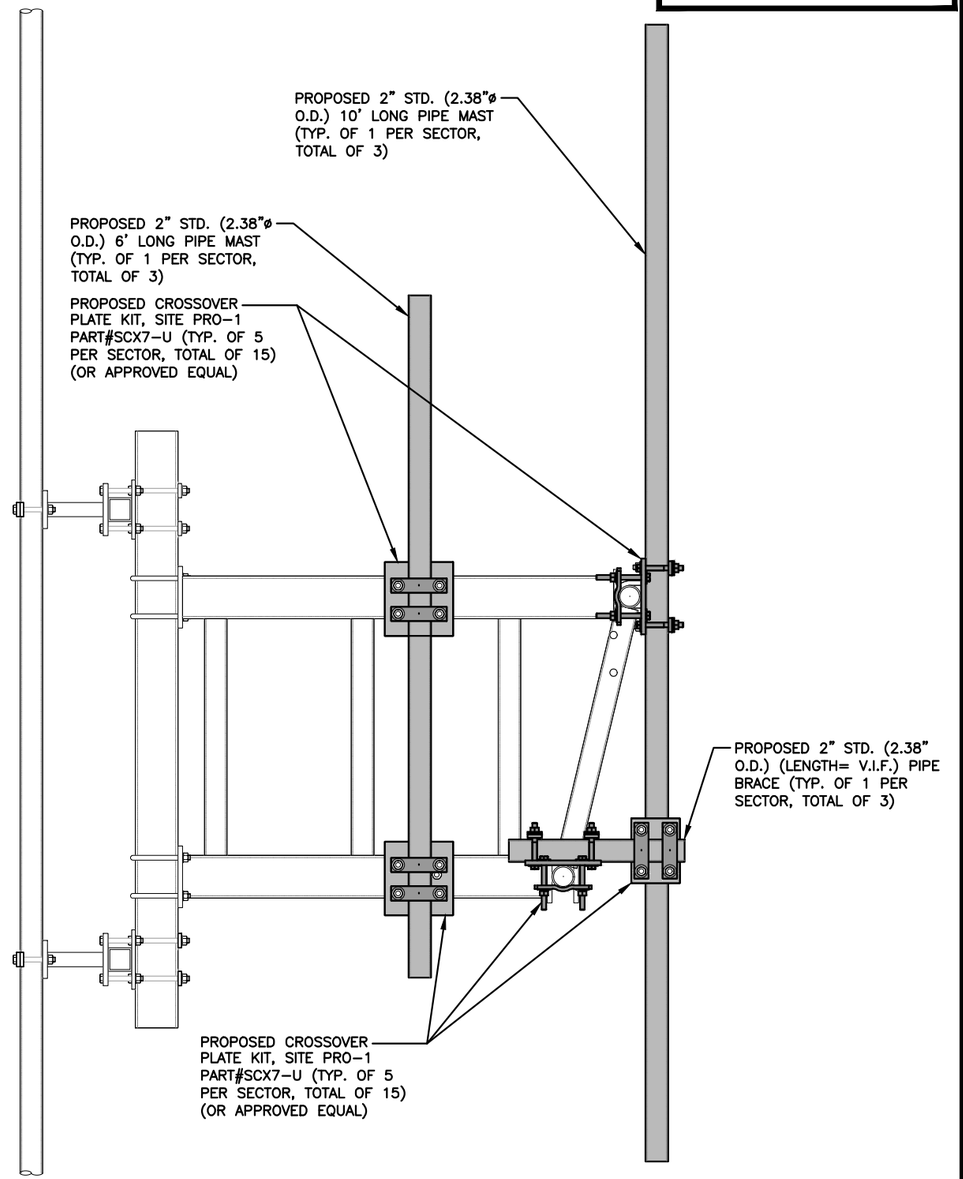
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.



PROPOSED MOUNT MODIFICATION PLAN 1 S-2

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

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



PROPOSED MOUNT MODIFICATION CONNECTION DETAILS 2 S-2

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

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

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

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET, SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CTL05270
SITE NAME: WINDSOR LOCKS

2 VOLUNTEER DRIVE
WINDSOR LOCKS, CT 06096
HARTFORD COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
B	08/11/22	ISSUED FOR PERMITTING	DG	AT	DPH
A	03/11/22	ISSUED FOR REVIEW	VA	AT	DPH

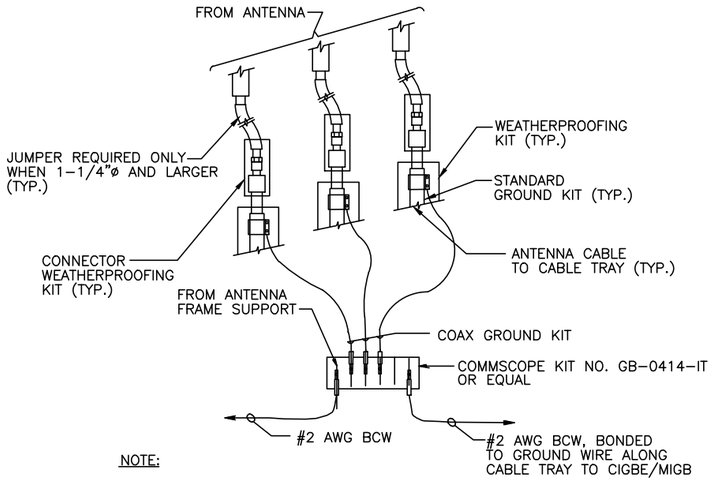
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: VA

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

AT&T

DETAILS
5G NR ACTIVATION, 5G NR RADIO, 5G NR 1SR CBAND, BBU ADD, 5G NR 1SR

SITE NUMBER	DRAWING NUMBER	REV
CTL05270	S-2	B



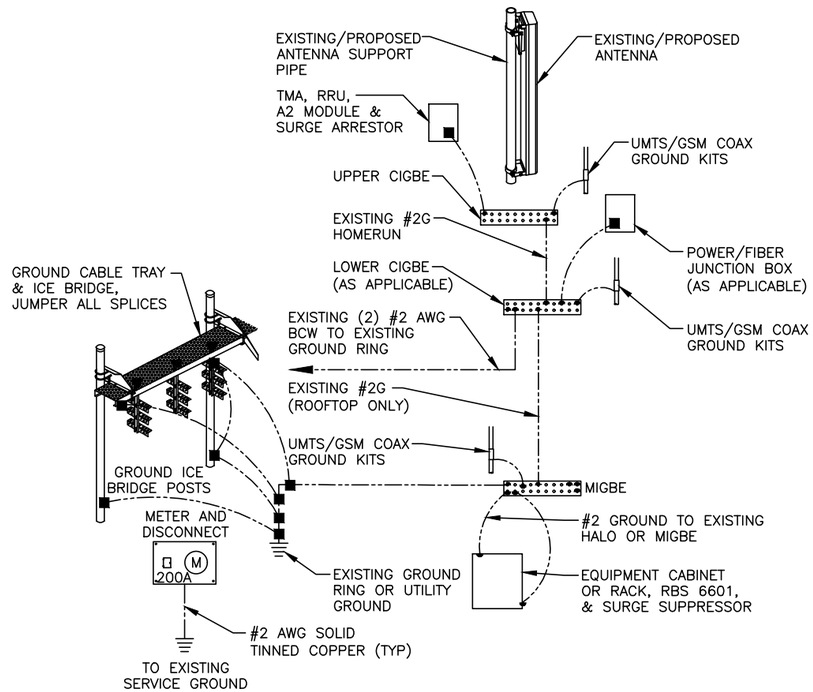
NOTE:

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

SCALE: N.T.S

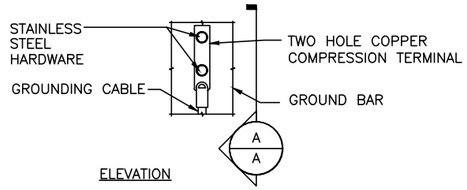
1 / G-1



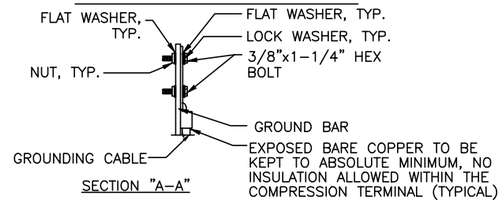
GROUNDING RISER DIAGRAM

SCALE: N.T.S

2 / G-1



ELEVATION



SECTION "A-A"

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

SCALE: N.T.S

3 / G-1

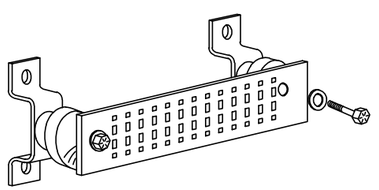
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

CABLE ENTRY PORTS (HATCH PLATES) (#2 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

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

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET, SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CTL05270
SITE NAME: WINDSOR LOCKS

2 VOLUNTEER DRIVE
WINDSOR LOCKS, CT 06096
HARTFORD COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
B	08/11/22	ISSUED FOR PERMITTING	BG	AT	DPH
A	03/11/22	ISSUED FOR REVIEW	VA	AT	DPH

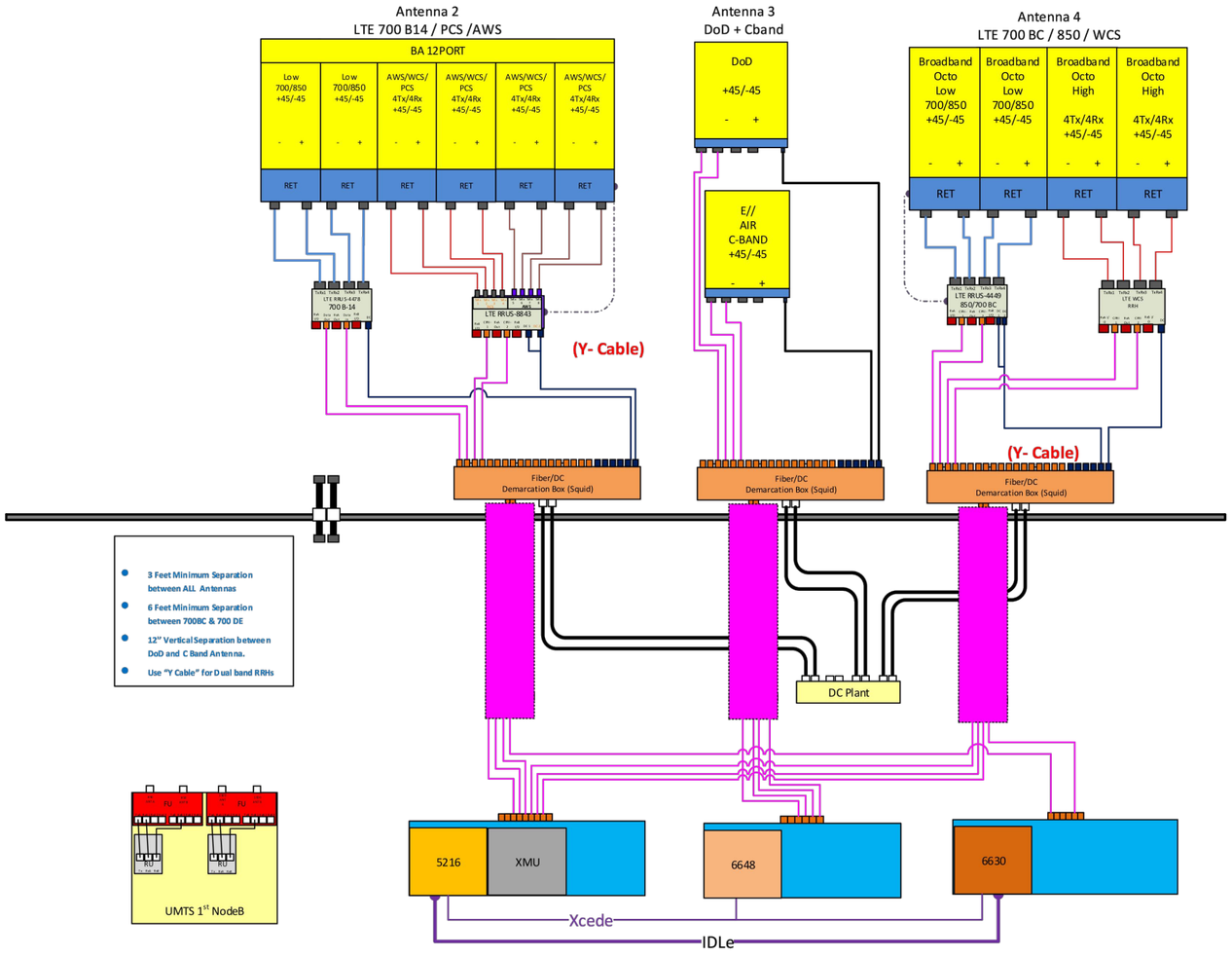
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: VA

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

AT&T

GROUNDING DETAILS
5G NR ACTIVATION, 5G NR RADIO, 5G NR 1SR CBAND, BBU ADD, 5G NR 1SR

SITE NUMBER	DRAWING NUMBER	REV
CTL05270	G-1	B



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

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

NOTE:

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

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

CENTERLINE COMMUNICATIONS
750 WEST CENTER STREET, SUITE #301
WEST BRIDGEWATER, MA 02379

SITE NUMBER: CTL05270
SITE NAME: WINDSOR LOCKS

2 VOLUNTEER DRIVE
WINDSOR LOCKS, CT 06096
HARTFORD COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
B	08/11/22	ISSUED FOR PERMITTING	SG	AT	DPH
A	03/11/22	ISSUED FOR REVIEW	VA	AT	DPH

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: VA

AT&T

RF PLUMBING DIAGRAM
5G NR ACTIVATION, 5G NR RADIO, 5G NR 1SR CBAND, BBU ADD, 5G NR 1SR

SITE NUMBER	DRAWING NUMBER	REV
CTL05270	RF–1	B

EXHIBIT 2

Windsor Locks, CT : Assessor Database

Property Search:

Parcel ID:	Alternate ID:	Owner 1 Name:	Street Number:	Street Name:
				VOLUNTEER DRIVE

Search Reset

Property Detail:

Parcel ID:	Alternate ID/Map Block Lot:	Card:	Card:	Street Name:	Street Number:	Zoning:	LUC:	Acres:
00023300	034-062-080-0004	1	1	VOLUNTEER DRIVE	4	RESA	Municipal Indus	11.20

Owner Information:

Owner 1 Name:	WINDSOR LOCKS TOWN OF
Owner 2 Name:	
Street 1:	50 CHURCH ST
Street 2:	
City:	WINDSOR LOCKS
State:	CT
Zip:	06096
Volume:	113
Page:	299
Deed Date:	0000-00-00

Building Information:

Building Number:	1
Units:	0
Structure Type:	POLICE/FIRE STATION
Grade:	C
Identical Units:	1
Year Built:	1975

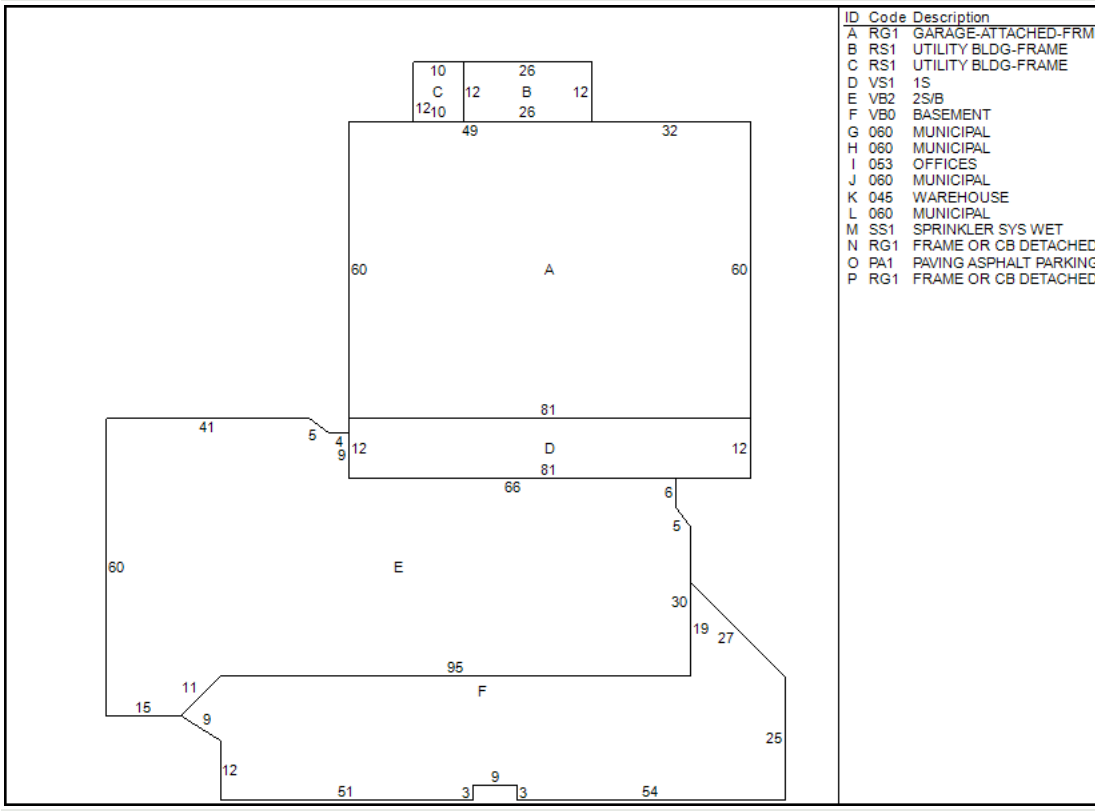
Valuation:

Appraised Land:	$562,200.00
Appraised Land PA490:	$0.00
Appraised Bldg:	$2,373,700.00
Appraised Total:	$2,935,900.00
Total Assessment:	$2,055,130.00

Property Images:

Picture:

Sketch:



Sales History:

Book:	Page:	Sale Date:	Price:	Validity:	Sale Type:
113	299	11/16/1972			

Out-Buildings:

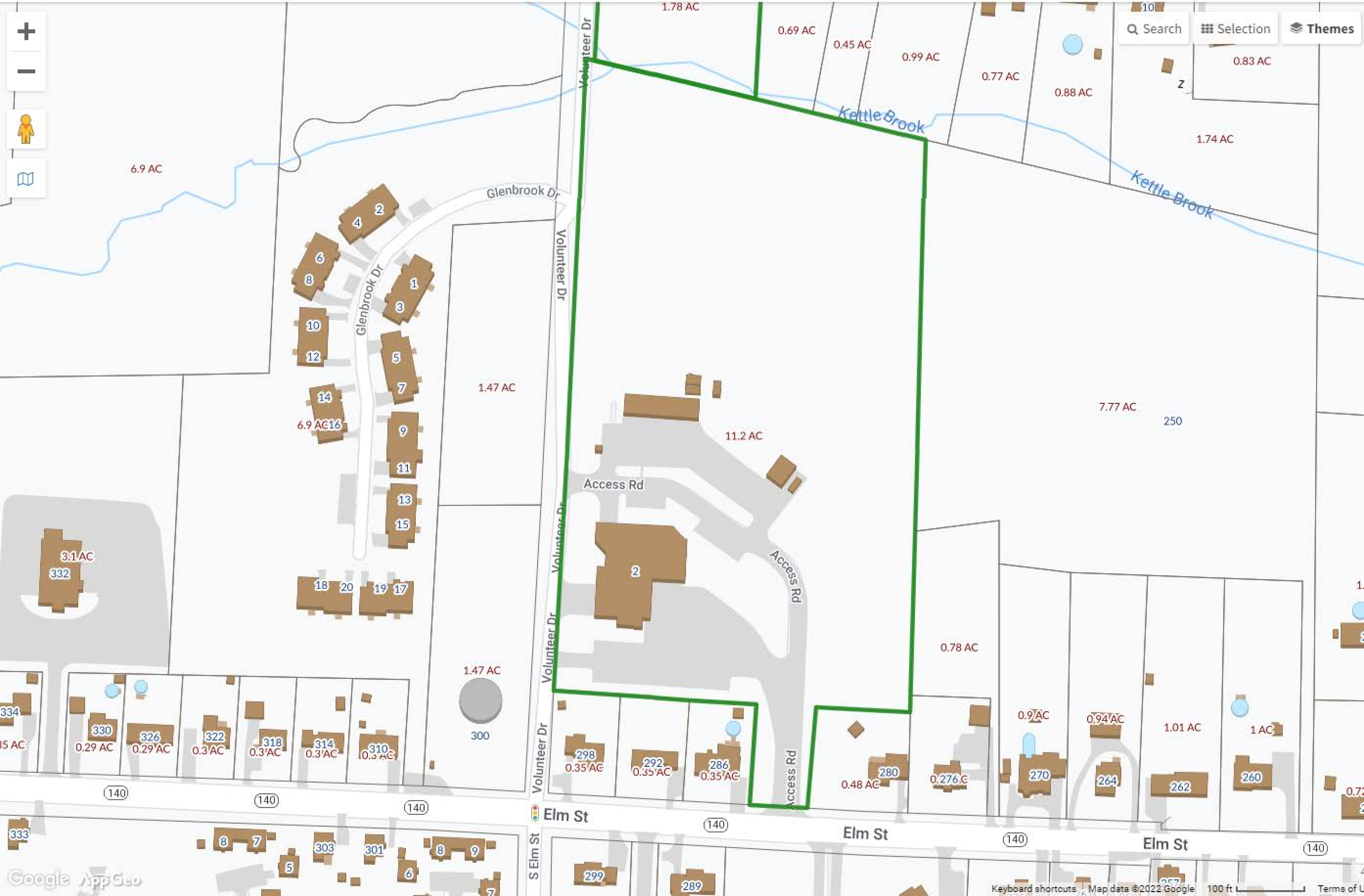
Code:	Description:	Units:	Year Built:	Size1:	Size2:	Area:	Grade:	Conditio
RG1	FRAME OR CB DETACHED GARAGE	1	1999	0	0	2592	C	GOOD
PA1	PAVING ASPHALT PARKING	1	1999	0	0	46600	C	AVERAGE
RG1	FRAME OR CB DETACHED GARAGE	1	1999	0	0	800	C	GOOD

Building Interior/Exterior Information:

Floor From:	Floor To:	Area:	Use Type:	Exterior Walls:	Contruction Type:	Heating:	A/C:	Plumbing:	Functional Util
B1	B1	3056	MUNICIPAL	BRICK VENEER	FIRE RESISTANT	HOT AIR	CENTRAL	NORMAL	3
01	01	5418	MUNICIPAL	BRICK VENEER	FIRE RESISTANT	HOT AIR	CENTRAL	NORMAL	3
01	01	1944	OFFICES	BRICK VENEER	FIRE RESISTANT	HOT AIR	CENTRAL	NORMAL	3
01	01	4860	MUNICIPAL	BRICK VENEER	FIRE RESISTANT	NONE	NONE	NORMAL	3
01	01	432	WAREHOUSE	BRICK VENEER	FIRE RESISTANT	HOT AIR	CENTRAL	NORMAL	3
02	02	5418	MUNICIPAL	BRICK VENEER	FIRE RESISTANT	HOT AIR	CENTRAL	NORMAL	3

Town of Windsor Locks, CT

Property



Search
Selection
Themes
Volunteer Dr
Kettle Brook
Kettle Brook
Glenbrook Dr
Glenbrook Dr
Access Rd
Access Rd
Access Rd
Elm St
Elm St
Elm St
S Elm St
1.78 AC
0.69 AC
0.45 AC
0.99 AC
0.77 AC
0.88 AC
0.83 AC
1.74 AC
6.9 AC
1.47 AC
11.2 AC
7.77 AC
250
2
3.1 AC
332
1.47 AC
300
0.78 AC
0.9 AC
0.94 AC
1.01 AC
1 AC
0.48 AC
280
270
264
262
260
298
0.35 AC
292
0.35 AC
286
0.35 AC
330
0.29 AC
326
0.29 AC
322
0.3 AC
318
0.3 AC
314
0.3 AC
310
140
299
289
333
303
301
Keyboard shortcuts
Map data ©2022 Google
100 ft
Google
AppGeo

EXHIBIT 3

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

Structural Analysis Report

Existing 195 ft PIROD Self Supporting Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT22108-A

Customer Site Name: Windsor Locks @ Volunteer Drive

Carrier Name: AT&T (App#: 200368-1)

Carrier Site ID / Name: CT5270 / Windsor Locks

Site Location: 2-4 Volunteer Drive

Windsor Locks, Connecticut

HARTFORD County

Latitude: 41.928100

Longitude: -72.646800

Analysis Result:

Max Structural Usage: 97.9% [Pass]

Max Foundation Usage: 68.0% [Pass]

Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By: Mohammed Al Rubaye

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

Structural Analysis Report

Existing 195 ft PIROD Self Supporting Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT22108-A

Customer Site Name: Windsor Locks @ Volunteer Drive

Carrier Name: AT&T (App#: 200368-1)

Carrier Site ID / Name: CT5270 / Windsor Locks

Site Location: 2-4 Volunteer Drive

Windsor Locks, Connecticut

HARTFORD County

Latitude: 41.928100

Longitude: -72.646800

Analysis Result:

Max Structural Usage: 97.9% [Pass]

Max Foundation Usage: 68.0% [Pass]

Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By: Mohammed Al Rubaye

Introduction

The purpose of this report is to summarize the analysis results on the 195 ft PIROD Self Supporting Tower to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	PiROD Eng. File #A-115761-1, Archive #F-0078802, dated 10/06/00
Foundation Drawing	PiROD Eng. File #A-115761-1, Archive #F-0078802, dated 10/06/00
Geotechnical Report	Tectonic Engineering Consultants W.O. #2295 01, dated 05/18/99
Modification Drawings	N/A
Mount Analysis	Hudson Design Group LLC PACE Number: MRCTB056929. Dated 04/15/2022

Analysis Criteria

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

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

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	203.4	1	Andrew - DB224-A	Direct	(1) 7/8"	WLPD
2	183.7	5	Andrew - 20' Dipoles w/ (4) Element	(3) T-Frame	(8) 7/8"	
3	182.8	1	2.5" Ø x 20.0' Omni			
4	180.6	1	1.3" Ø x 13.0' Omni			
5	179.1	1	1.3" Ø x 10.0' Omni			
-	164.0	3	CCI - TPA-65R-LCUUUU-H8 - Panel	(3) Modified Sector Frame with new standoff 2" and 3" SCH.40 pipes at each sector and 3" SCH. 40 vertical pipe per sector	(9) 1 5/8" (1) 2" Conduit** (1) 3" Conduit**	AT&T
-		6	CCI - TPA65R-BU8D - Panel			
-		3	Powerwave LGP21401 TMA			
-		3	Kaelus DBCT108F1V92-1 Diplexer			
-		6	Kathrein 860 10025 RET			
-		3	Ericsson RRUS 32 B30			
-		3	Ericsson 4449 B5/B12			
-		3	Ericsson RRUS 8843 B2 B66A			
-		3	Ericsson RRUS 4478 B14			
-		2	Raycap DC6-48-60-18-8F - OVP			
18	150.0	3	Amphenol BXA-70063-6CF-5 - Panel	(3) Sector Frames w/ Mods [(9) Site Pro VZWSMART-SFK3 V-BRACING KIT & (6) 156" P2.5 STD]	(2) 1 5/8" Hybrid (12) 1 5/8"	Verizon
19		6	Commscope SBNHH-1D65B - Panel			
20		3	Samsung MT6407-77A - Panel			
21		6	RFS FD9R6004/2C-3L Diplexer			
22		3	Samsung LTE AWS/PCS RFV01U-D1A - RRU			
23		3	Samsung LTE 700/850 MHz RFV01U-D2A - RRU			
24		2	RFS DB-T1-6Z-8AB-0Z - DC Surge			
25	135.0	3	RFS - APXVAARR24_43-U-NA20 (Octa) - Panel	(3) Reinforced T-Frames	(11) 1 5/8" (3) 1-1/4" Hybrid (3) 1.9" Fiber	T-Mobile
26		3	Ericsson - AIR6419 B41 - Panel			
27		3	Ericsson - AIR32 KRD901146-1_B66A (Octa) - Panel			
28		6	Ericsson - KRY 112 144/2 TMA			
29		3	Ericsson - 4449 B71 + B85 - RRU			
30		3	Ericsson - 4460 B25 + B66 - RRU			
31	116.8	3	RFS - APXVSPP18-C-A20 - Panel	(3) T- Frame	(4) 1-1/4" Fiber	Sprint Nextel
32	115.0	3	RFS - APXVTM14-C-I20 - Panel			
33		3	Alcatel-Lucent - TD-RRH8x20-25 - RRH			
34	110.3	3	Alcatel-Lucent - 800 MHz RRH	Direct		
35	107.6	3	Alcatel-Lucent - 1900 MHz RRH	Direct		

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
36	104.6	1	Andrew - 3.3' Dish	(3) Standoffs	(2) 1/2" (1) 1-5/16" Conduit	Clearwire
37	104.0	1	Andrew - VHLP1-23-DW1			
38		3	Argus - LLPX310R-V1 - Panel			
39	103.8	3	Alcatel-Lucent - SPI-22132825WB -			
40	102.4	1	12" x 12" x 6.38" Junction Box	Direct		
41	75.9	1	3.5" Ø x 8" GPS	(1) Standoff	(1) 1/2"	Unknown
42	60.0	1	PCTEL - GPS-TMG-HR-26N - GPS	Direct	(1) 1/2"	Sprint Nextel

*Inside (1) 3" Conduit

**3" (housing (2) 0.78" DC Power & (1) 0.39" Fiber).

**2" (housing (2) 0.78" DC Power & (1) 0.39" Fiber)

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

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
6	165.75	3	Ericsson - AIR6419 B77G - Panel	(3) Modified Sector Frames w/ (6) Stiff Arm Connection	(2) 0.92" DC (9) 1 5/8" (1) 1/2" Fiber (1) 2" Conduit [housing (2) 0.78" DC & (1) 0.39" Fiber] (1) 3" Conduit [housing (2) 0.78" DC & (1) 0.39" Fiber]	AT&T
7	164.0	3	CCI - TPA65R-BU8D - Panel			
8		3	CCI - DMP65R-BU8DA - Panel			
9		3	Powerwave - LGP21401 TMA			
10		3	KAelus - DBCT108F1V92-1 Diplexer			
11		6	Kathrein - 860 10025 RET			
12		3	Ericsson - RRUS 32 B30			
13		3	Ericsson - 4449 B5/B12 RRU			
14		3	Ericsson - RRUS 8843 B2 B66A			
15		3	Ericsson - RRUS 4478 B14			
16		3	Raycap - DC6-48-60-18-8F - OVP			
17	162.75	3	Ericsson - AIR6449 B77D - Panel			

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

Analysis Results

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

Tower Component	Legs	Diagonals	Horizontals
Max. Usage:	**82.5%**	**97.9%**	**34.2%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Compression (Kips)	Uplift (Kips)	Shear (Kips)
Analysis Reactions	423.6	372.0	41.7

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.3122 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

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

Standard Conditions

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

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

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

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

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

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

Structure: CT22108-A-SBA

Site Name:	Windsor Locks @ Volunteer Drive			**Code:**	TIA-222-G	6/8/2022
Type:	Self Support	**Base Shape:**	Triangle	**Basic WS:**	97.00	
Height:	195.00 (ft)	**Base Width:**	20.00	**Basic Ice WS:**	50.00	
Base Elev:	5.00 (ft)	**Top Width:**	4.50	**Operational WS:**	60.00	Page: 1

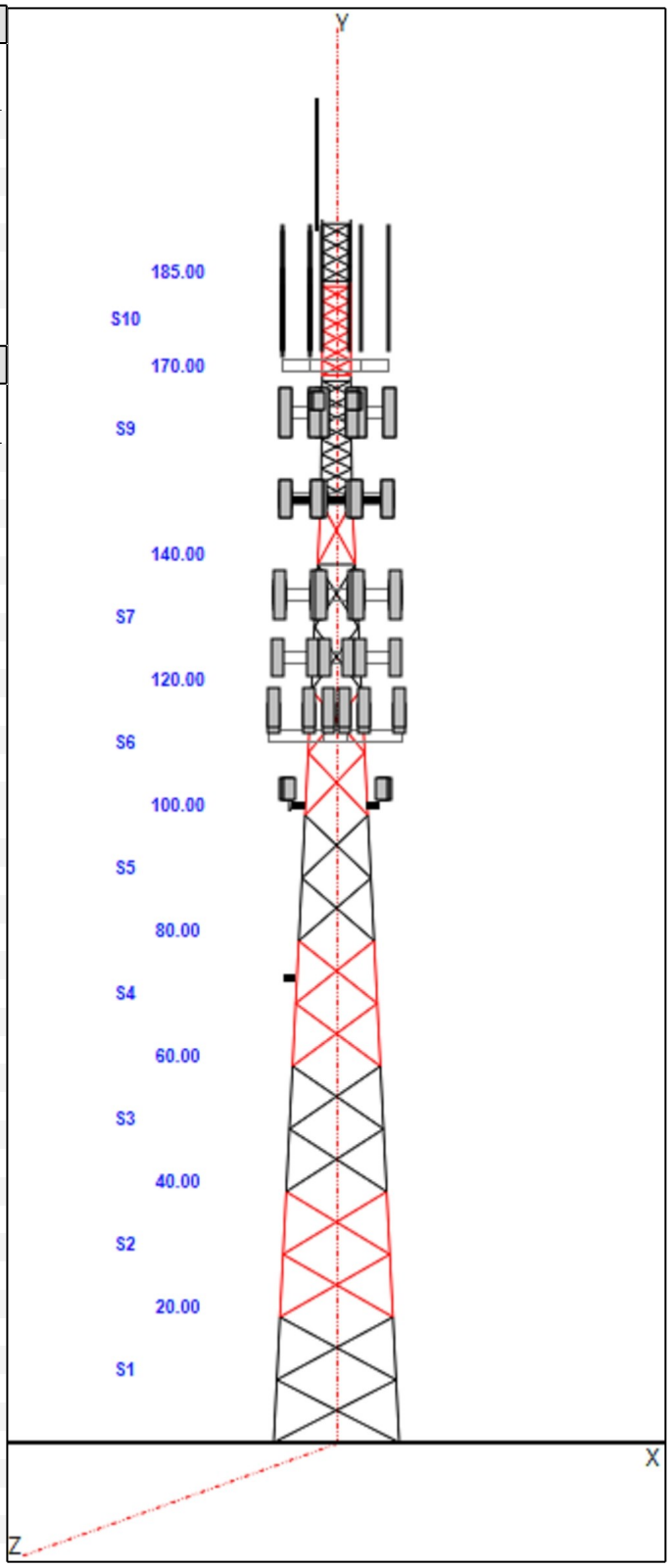
IES Tower Engineering Solutions

Section Properties

Sect	Leg Members	Diagonal Members	Horizontal Members
1-2	12B 12"BD 2.25"	SAE 3.5X3.5X0.3125	
3-4	12B 12"BD 2"	SAE 3X3X0.3125	
5	12B 12"BD 1.75"	SAE 3X3X0.3125	
6	12B 12"BD 1.75"	SAE 3X3X0.1875	
7	12B 12"BD 1.5"	SAE 2.5X2.5X0.1875	SAE 2.5X2.5X0.1875
8	12B 12"BD 1.25"	SAE 2.5X2.5X0.1875	
9	SOL 2" SOLID	SOL 7/8" SOLID	SOL 7/8" SOLID
10-11	SOL 1 3/4" SOLID	SOL 3/4" SOLID	SOL 7/8" SOLID

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description
195.00	195.00	1	Lightning Rod
195.00	195.00	1	Beacon
195.00	203.40	1	Andrew - DB224-A
171.50	171.50	1	15' T-Frame
171.50	183.70	5	Andrew - 20' Dipoles w/ (4) Element
171.50	182.80	1	2.5" Ø x 20.0' Omni
171.50	180.60	1	1.3" Ø x 13.0' Omni
171.50	179.10	1	1.3" Ø x 10.0' Omni
165.75	165.75	3	AIR6419 B77G
164.00	164.00	1	Modified T-Frames
164.00	164.00	3	TPA65R-BU8D
164.00	164.00	3	DMP65R-BU8DA
164.00	164.00	3	LGP21401 TMA
164.00	164.00	3	DBCT108F1V92-1 Diplexer
164.00	164.00	6	860 10025 RET
164.00	164.00	3	RRUS 32 B30
164.00	164.00	3	4449 B5/B12
164.00	164.00	3	RRUS 8843 B2 B66A
164.00	164.00	3	RRUS 4478 B14
164.00	164.00	3	DC6-48-60-18-8F
162.75	162.75	3	AIR6449 B77D
150.00	150.00	3	Sector Frame
150.00	150.00	3	Amphenol - BXA-70063/6CF-EDIN
150.00	150.00	6	Commscope SBNHH-1D65B
150.00	150.00	3	Samsung MT6407-77A
150.00	150.00	6	RFS FD9R6004/2C-3L Diplexer
150.00	150.00	3	Samsung LTE AWS/PCS RFV01U-D1A
150.00	150.00	3	Samsung LTE 700/850 MHz RFV01U
150.00	150.00	2	RFS DB-T1-6Z-8AB-0Z
150.00	150.00	2	(3) 12.5' - 2.5" Horizontal Pi
150.00	150.00	3	(3) SFS-H (V-Braces)
135.00	135.00	1	(3) T-Frames
135.00	135.00	3	APXVAARR24_43-U-NA20 (Octa)
135.00	135.00	3	AIR6419 B41
135.00	135.00	3	AIR32 KRD901146-1_B66A (Octa)
135.00	135.00	6	KRY 112 144/2 TMA
135.00	135.00	3	4449 B71 + B85
135.00	135.00	3	4460 B25 + B66
135.00	135.00	1	T-arms Mods
125.00	125.00	3	JMA Wireless MX08FRO665-21
125.00	125.00	3	Fujitsu TA08025-B604



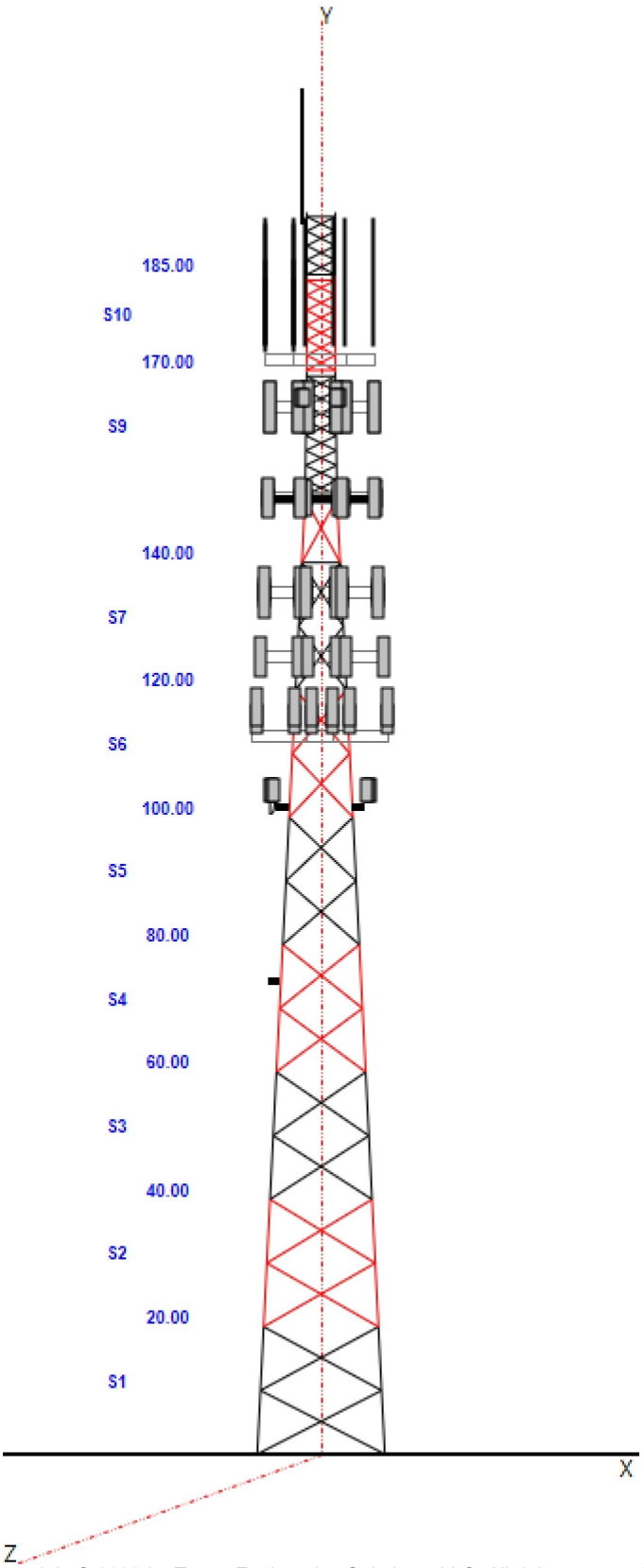
125.00	125.00	3	Fujitsu TA08025-B605
125.00	125.00	1	Raycap RDIDC-9181-PF-48
125.00	125.00	1	(3) Commscope MTC3975083
112.30	112.30	3	Sector Frame
112.30	116.80	3	RFS - APXVSPP18-C-A20
112.30	115.00	3	RFS - APXVTM14-C-I20
112.30	115.00	3	Alcatel-Lucent - TD-RRH8x20-25 - RRH
110.30	110.30	3	Alcatel-Lucent - 800 MHz RRH
107.60	107.60	3	Alcatel-Lucent - 1900 MHz RRH
102.40	102.40	1	12" x 12" x 6.38" Junction Box
101.40	101.40	3	Standoffs
101.40	104.60	1	Andrew - 3.3' Dish
101.40	104.00	1	Andrew - VHLP1-23-DW1
101.40	104.00	3	Argus - LLPX310R-V4
101.40	103.80	3	Alcatel-Lucent - SPI-22132825WB
74.00	75.90	1	3.5" Ø x 8" GPS
74.00	74.00	1	Standoff
60.00	60.00	1	PCTEL - GPS-TMG-HR-26N - GPS

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Qty	Description
171.50	195.00	1	7/8" Coax
0.00	171.50	8	7/8" Coax
0.00	164.00	2	0.92" DC
0.00	164.00	9	1 5/8" Coax
0.00	164.00	1	1/2" Fiber
0.00	164.00	1	2" Conduit
0.00	164.00	1	3" Conduit
0.00	150.00	12	1 5/8" Coax
0.00	150.00	2	1 5/8" Hybrid
0.00	135.00	11	1 5/8" Coax
0.00	135.00	3	1-1/4" Hybrid
0.00	135.00	3	1.9" Fiber
0.00	125.00	1	1.6" Hybrid
0.00	125.00	1	W/G Ladder
0.00	112.30	4	1-1/4" Fiber
0.00	101.40	1	1-5/16" Conduit
0.00	101.40	2	1/2" Coax
0.00	74.00	1	1/2" Coax
0.00	60.00	1	1/2" Coax

Base Reactions

Leg			Overturning		
Max Uplift:	-372.00	(kips	Moment:	6947.84	(ft-kips)
Max Down:	423.62	(kips	Total Down:	67.46	(kips)
Max Shear:	41.72	(kips	Total Shear:	64.34	(kips)

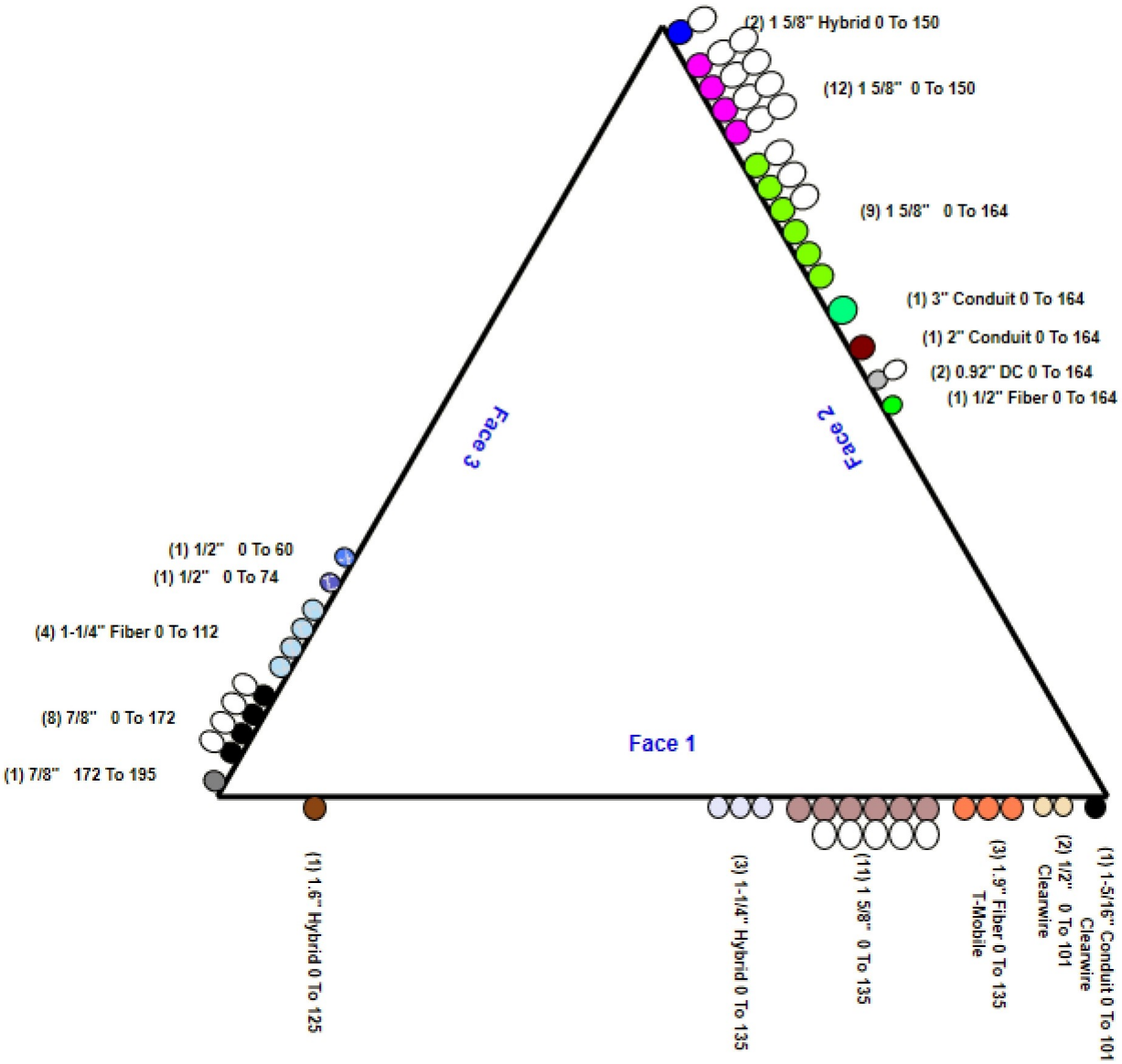


Structure: CT22108-A-SBA - Coax Line Placement

Type: Self Support
Site Name: Windsor Locks @ Volunteer Drive
Height: 195.00 (ft)

6/8/2022

Tower Engineering Solutions



Loading Summary

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 5	

Tower Engineering Solutions

Discrete Appurtenances Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	Ice Weight (lb)	Ice CaAa (sf)	Len (in)	Width (in)	Depth (in)	Ka	Orientation Factor	Vert Ecc (ft)
195.00	Lightning Rod	1	5.00	0.500	33.67	2.889	72.000	1.000	1.000	1.00	1.00	0.000
195.00	Beacon	1	36.00	2.720	218.31	4.019	28.000	17.500	17.500	1.00	1.00	0.000
195.00	Andrew - DB224-A	1	35.00	5.650	275.06	29.777	255.000	0.000	0.000	1.00	1.00	8.400
171.50	15' T-Frame	1	1500.0	44.000	2923.82	96.207	0.000	0.000	0.000	0.75	1.00	0.000
171.50	Andrew - 20' Dipoles w/ (4) Element	5	60.00	7.520	361.51	23.681	240.000	3.000	3.000	1.00	1.00	12.20
171.50	2.5" Ø x 20.0' Omni	1	55.00	5.000	259.86	13.040	240.000	3.000	3.000	1.00	1.00	11.30
171.50	1.3" Ø x 13.0' Omni	1	40.00	2.600	173.84	6.818	156.000	3.000	3.000	1.00	1.00	9.100
171.50	1.3" Ø x 10.0' Omni	1	25.00	1.380	128.42	3.636	120.000	3.000	3.000	1.00	1.00	7.600
165.75	AIR6419 B77G	3	88.00	4.130	285.27	5.311	30.800	16.100	10.800	0.80	0.85	0.000
164.00	Modified T-Frames	1	1500.0	50.500	2909.54	109.81	0.000	0.000	0.000	0.75	1.00	0.000
164.00	TPA65R-BU8D	3	82.50	17.870	616.34	20.288	96.000	20.700	7.700	0.80	0.72	0.000
164.00	DMP65R-BU8DA	3	82.50	17.870	616.34	20.288	96.000	20.700	7.700	0.80	0.72	0.000
164.00	LGP21401 TMA	3	14.10	1.290	47.75	2.415	14.400	9.200	2.600	0.80	0.50	0.000
164.00	DBCT108F1V92-1 Diplexer	3	13.20	0.700	43.59	1.179	10.600	7.900	2.900	0.80	0.50	0.000
164.00	860 10025 RET	6	1.20	0.180	9.27	0.690	7.600	2.400	2.000	0.80	0.50	0.000
164.00	RRUS 32 B30	3	60.00	2.740	188.49	3.748	27.200	12.100	7.000	0.80	0.50	0.000
164.00	4449 B5/B12	3	71.00	1.970	142.86	2.707	17.900	13.200	9.400	0.80	0.50	0.000
164.00	RRUS 8843 B2 B66A	3	75.00	1.650	184.29	2.401	15.000	13.200	11.100	0.80	0.50	0.000
164.00	RRUS 4478 B14	3	59.90	1.840	125.70	2.578	16.500	13.400	7.700	0.80	0.50	0.000
164.00	DC6-48-60-18-8F	3	31.80	0.920	115.02	1.510	24.000	11.000	11.000	1.00	1.00	0.000
162.75	AIR6449 B77D	3	88.00	4.130	285.27	5.311	30.800	16.100	10.800	0.80	0.85	0.000
150.00	Sector Frame	3	500.00	23.000	1430.78	47.405	0.000	0.000	0.000	0.75	0.75	0.000
150.00	Amphenol - BXA-70063/6CF-EDIN	3	17.00	7.570	214.73	11.255	71.000	11.200	5.200	0.80	0.78	0.000
150.00	Commscope SBNHH-1D65B	6	40.60	8.080	326.81	9.842	72.000	11.900	7.100	0.80	0.83	0.000
150.00	Samsung MT6407-77A	3	79.40	4.690	250.17	5.973	35.100	16.100	5.500	0.80	0.70	0.000
150.00	RFS FD9R6004/2C-3L Diplexer	6	3.10	0.360	13.80	0.951	5.800	6.500	1.500	0.80	0.50	0.000
150.00	Samsung LTE AWS/PCS	3	84.40	1.880	152.75	2.615	15.000	15.000	10.000	0.80	0.50	0.000
150.00	Samsung LTE 700/850 MHz	3	70.30	1.880	135.15	2.615	15.000	15.000	8.100	0.80	0.50	0.000
150.00	RFS DB-T1-6Z-8AB-0Z	2	18.90	4.800	180.34	6.140	24.000	24.000	10.000	0.80	0.71	0.000
150.00	(3) 12.5' - 2.5" Horizontal Pi	2	217.50	7.188	500.92	19.230	0.000	0.000	0.000	0.75	1.00	0.000
150.00	(3) SFS-H (V-Braces)	3	197.00	6.300	563.73	15.096	0.000	0.000	0.000	0.75	1.00	0.000
135.00	(3) T-Frames	1	1598.0	40.500	4541.60	96.452	0.000	0.000	0.000	0.75	1.00	0.000
135.00	APXVAARR24_43-U-NA20 (Octa)	3	128.00	20.240	701.99	22.777	95.900	24.000	7.800	0.80	0.70	0.000
135.00	AIR6419 B41	3	103.00	6.320	283.91	7.723	33.100	20.500	8.300	0.80	0.71	0.000
135.00	AIR32 KRD901146-1_B66A (Octa)	3	132.20	6.510	389.88	8.081	57.000	12.900	8.700	0.80	0.87	0.000
135.00	KRY 112 144/2 TMA	6	11.00	0.410	25.22	1.037	6.900	6.100	2.700	0.80	0.70	0.000
135.00	4449 B71 + B85	3	73.20	1.970	149.38	2.721	17.900	13.200	10.600	0.80	0.67	0.000
135.00	4460 B25 + B66	3	109.00	2.850	203.87	3.740	21.800	15.700	7.500	0.00	0.00	0.000
135.00	T-arms Mods	1	180.00	19.400	478.41	46.202	0.000	0.000	0.000	0.75	1.00	0.000
125.00	JMA Wireless MX08FRO665-21	3	64.50	12.490	442.16	14.392	72.000	20.000	8.000	0.80	0.74	0.000
125.00	Fujitsu TA08025-B604	3	63.90	1.960	129.64	2.688	15.800	15.000	7.900	0.80	0.67	0.000
125.00	Fujitsu TA08025-B605	3	75.00	1.960	142.91	2.688	15.800	15.000	9.100	0.80	0.67	0.000
125.00	Raycap RDIDC-9181-PF-48	1	21.90	2.010	91.04	2.748	16.600	14.600	8.500	1.00	1.00	0.000
125.00	(3) Commscope MTC3975083	1	1242.0	28.050	2818.01	73.813	0.000	0.000	0.000	0.75	1.00	0.000
112.30	Sector Frame	3	450.00	24.500	906.81	40.489	0.000	0.000	0.000	0.75	0.75	0.000
112.30	RFS - APXVSPP18-C-A20	3	57.00	8.020	281.43	11.647	72.000	11.800	7.000	0.80	0.83	4.500
112.30	RFS - APXVTM14-C-I20	3	56.20	6.340	269.07	7.811	56.300	12.600	6.300	0.80	0.78	2.700
112.30	Alcatel-Lucent - TD-RRH8x20-25 -	3	70.00	4.050	196.89	5.885	26.100	18.600	6.700	0.80	0.50	2.700

Loading Summary

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 6	

Tower Engineering Solutions

110.30	Alcatel-Lucent - 800 MHz RRH	3	53.00	2.490	149.03	3.975	19.700	13.000	10.800	0.80	0.50	0.000
107.60	Alcatel-Lucent - 1900 MHz RRH	3	44.00	3.800	185.74	5.605	23.000	13.000	17.000	0.80	0.50	0.000
102.40	12" x 12" x 6.38" Junction Box	1	10.00	1.400	63.17	2.481	12.000	12.000	8.000	1.00	1.00	0.000
101.40	Standoffs	3	120.00	4.500	253.38	11.182	0.000	0.000	0.000	0.75	0.75	0.000
101.40	Andrew - 3.3' Dish	1	140.00	8.920	372.43	11.157	36.000	36.000	0.000	1.00	1.00	3.200
101.40	Andrew - VHLP1-23-DW1	1	14.00	1.610	59.10	2.576	15.300	15.300	8.700	1.00	1.00	2.600
101.40	Argus - LLPX310R-V4	3	28.70	4.310	144.33	6.426	42.100	11.800	4.500	0.80	0.73	2.600
101.40	Alcatel-Lucent - SPI-22132825WB	3	33.10	1.820	89.05	3.063	16.100	11.600	6.000	0.80	0.67	2.400
74.00	3.5" Ø x 8" GPS	1	10.00	0.160	16.90	0.638	8.000	2.000	2.000	1.00	1.00	1.900
74.00	Standoff	1	120.00	2.500	250.27	6.126	0.000	0.000	0.000	1.00	1.00	0.000
60.00	PCTEL - GPS-TMG-HR-26N - GPS	1	0.60	0.090	6.45	0.308	5.000	3.200	3.200	1.00	1.00	0.000
	Totals:	**153**	**17,465.40**		**51,993.64**				**Number of Appurtenances :**			**59**

Loading Summary

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 7	

Tower Engineering Solutions

Linear Appurtenances Properties

Elev. From (ft)	Elev. To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out of Zone	Spacing (in)	Orientation Factor	Ka Override
171.50	195.00	7/8" Coax	1	1.11	0.52	100.00	3	Individual NR		N	1.00	1.00	
0.00	171.50	7/8" Coax	8	1.11	0.52	50.00	3	Block		N	0.25	1.00	
0.00	164.00	0.92" DC	2	0.92	0.40	50.00	2	Block		N	0.50	1.00	
0.00	164.00	1 5/8" Coax	9	1.98	1.04	66.60	2	Block		N	1.00	1.00	
0.00	164.00	1/2" Fiber	1	0.50	0.16	100.00	2	Individual NR		N	1.00	1.00	
0.00	164.00	2" Conduit	1	2.00	1.78	100.00	2	Individual NR		N	1.00	1.00	
0.00	164.00	3" Conduit	1	3.02	1.78	100.00	2	Individual NR		N	1.00	1.00	
0.00	150.00	1 5/8" Coax	12	1.98	1.04	33.30	2	Block		N	0.25	1.00	
0.00	150.00	1 5/8" Hybrid	2	2.00	1.10	50.00	2	Block		N	0.25	1.00	
0.00	135.00	1 5/8" Coax	11	1.98	1.04	50.00	1	Block		N	0.25	1.00	
0.00	135.00	1-1/4" Hybrid	3	1.25	0.95	100.00	1	Individual NR		N	1.00	1.00	0
0.00	135.00	1.9" Fiber	3	1.90	0.95	33.30	1	Individual IR		N	0.25	1.00	
0.00	125.00	1.6" Hybrid	1	1.60	1.00	100.00	1	Individual NR		N	1.00	1.00	
0.00	125.00	W/G Ladder	1	2.00	6.00	100.00	1	Individual NR		N	1.00	1.00	
0.00	112.30	1-1/4" Fiber	4	1.25	0.95	100.00	3	Individual IR		N	0.50	0.59	
0.00	101.40	1-5/16" Conduit	1	1.38	1.13	100.00	1	Individual NR		N	1.00	1.00	0
0.00	101.40	1/2" Coax	2	0.65	0.16	100.00	1	Individual NR		N	1.00	1.00	0
0.00	74.00	1/2" Coax	1	0.65	0.16	100.00	3	Individual NR		N	1.00	1.00	0
0.00	60.00	1/2" Coax	1	0.65	0.16	100.00	3	Individual NR		N	1.00	1.00	0

Section Forces

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 8	

IES Tower Engineering Solutions

Load Case: 1.2D + 1.6W Normal Wind — 1.2D + 1.6W 97 mph Wind at Normal To Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	17.40	24.365	23.64	0.00	0.12	2.88	1.00	1.00	0.00	35.27	119.13	0.00	7,702.8	0.0	2400.35	2077.99	4,478.33
2	30.0	20.77	22.326	23.64	0.00	0.13	2.84	1.00	1.00	0.00	32.73	119.13	0.00	7,521.7	0.0	2630.08	2480.51	5,110.59
3	50.0	22.85	17.472	22.04	0.00	0.13	2.86	1.00	1.00	0.00	27.28	119.13	0.00	6,411.3	0.0	2422.68	2728.14	5,150.82
4	70.0	24.39	15.857	22.04	0.00	0.14	2.81	1.00	1.00	0.00	25.58	117.73	0.00	6,263.5	0.0	2383.53	2911.66	5,295.19
5	90.0	25.63	14.383	18.83	0.00	0.14	2.79	1.00	1.00	0.00	23.37	116.97	0.00	5,354.4	0.0	2273.88	3059.91	5,333.79
6	110.0	26.69	12.992	18.83	0.00	0.17	2.71	1.00	1.00	0.00	22.05	109.60	0.00	4,699.5	0.0	2165.60	3099.85	5,265.45
7	130.0	27.60	10.974	17.23	0.00	0.19	2.63	1.00	1.00	0.00	19.67	91.84	0.00	3,842.0	0.0	1942.09	2688.66	4,630.75
8	145.0	28.22	4.586	7.81	0.00	0.21	2.56	1.00	1.00	0.00	8.71	33.43	0.00	1,474.4	0.0	856.41	1020.51	1,876.92
9	160.0	28.79	0.000	13.32	0.00	0.14	2.83	1.00	1.00	0.00	7.66	36.95	0.00	1,796.7	0.0	848.17	1110.41	1,958.58
10	177.5	29.41	0.000	8.71	0.00	0.12	2.87	1.00	1.00	0.00	5.00	1.90	0.00	853.8	0.0	572.92	59.32	632.24
11	190.0	29.82	0.000	6.00	0.00	0.13	2.85	1.00	1.00	0.00	3.45	0.93	0.00	585.5	0.0	398.52	27.01	425.53
														46,505.5	**0.0**			**40,158.19**

Load Case: 1.2D + 1.6W 60° Wind — 1.2D + 1.6W 97 mph Wind at 60° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	17.40	24.365	23.64	0.00	0.12	2.88	0.80	1.00	0.00	30.40	119.13	0.00	7,702.8	0.0	2068.74	2077.99	4,146.73
2	30.0	20.77	22.326	23.64	0.00	0.13	2.84	0.80	1.00	0.00	28.27	119.13	0.00	7,521.7	0.0	2271.30	2480.51	4,751.81
3	50.0	22.85	17.472	22.04	0.00	0.13	2.86	0.80	1.00	0.00	23.79	119.13	0.00	6,411.3	0.0	2112.37	2728.14	4,840.51
4	70.0	24.39	15.857	22.04	0.00	0.14	2.81	0.80	1.00	0.00	22.41	117.73	0.00	6,263.5	0.0	2088.01	2911.66	4,999.67
5	90.0	25.63	14.383	18.83	0.00	0.14	2.79	0.80	1.00	0.00	20.50	116.97	0.00	5,354.4	0.0	1994.01	3059.91	5,053.92
6	110.0	26.69	12.992	18.83	0.00	0.17	2.71	0.80	1.00	0.00	19.45	109.60	0.00	4,699.5	0.0	1910.39	3099.85	5,010.24
7	130.0	27.60	10.974	17.23	0.00	0.19	2.63	0.80	1.00	0.00	17.47	91.84	0.00	3,842.0	0.0	1725.36	2688.66	4,414.02
8	145.0	28.22	4.586	7.81	0.00	0.21	2.56	0.80	1.00	0.00	7.79	33.43	0.00	1,474.4	0.0	766.25	1020.51	1,786.76
9	160.0	28.79	0.000	13.32	0.00	0.14	2.83	0.80	1.00	0.00	7.66	36.95	0.00	1,796.7	0.0	848.17	1110.41	1,958.58
10	177.5	29.41	0.000	8.71	0.00	0.12	2.87	0.80	1.00	0.00	5.00	1.90	0.00	853.8	0.0	572.92	59.32	632.24
11	190.0	29.82	0.000	6.00	0.00	0.13	2.85	0.80	1.00	0.00	3.45	0.93	0.00	585.5	0.0	398.52	27.01	425.53
														46,505.5	**0.0**			**38,020.01**

Section Forces

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 9	

IES Tower Engineering Solutions

Load Case: 1.2D + 1.6W 90° Wind — 1.2D + 1.6W 97 mph Wind at 90° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	17.40	24.365	23.64	0.00	0.12	2.88	0.85	1.00	0.00	31.62	119.13	0.00	7,702.8	0.0	2151.64	2077.99	4,229.63
2	30.0	20.77	22.326	23.64	0.00	0.13	2.84	0.85	1.00	0.00	29.38	119.13	0.00	7,521.7	0.0	2360.99	2480.51	4,841.51
3	50.0	22.85	17.472	22.04	0.00	0.13	2.86	0.85	1.00	0.00	24.66	119.13	0.00	6,411.3	0.0	2189.95	2728.14	4,918.09
4	70.0	24.39	15.857	22.04	0.00	0.14	2.81	0.85	1.00	0.00	23.20	117.73	0.00	6,263.5	0.0	2161.89	2911.66	5,073.55
5	90.0	25.63	14.383	18.83	0.00	0.14	2.79	0.85	1.00	0.00	21.21	116.97	0.00	5,354.4	0.0	2063.98	3059.91	5,123.89
6	110.0	26.69	12.992	18.83	0.00	0.17	2.71	0.85	1.00	0.00	20.10	109.60	0.00	4,699.5	0.0	1974.19	3099.85	5,074.04
7	130.0	27.60	10.974	17.23	0.00	0.19	2.63	0.85	1.00	0.00	18.02	91.84	0.00	3,842.0	0.0	1779.54	2688.66	4,468.20
8	145.0	28.22	4.586	7.81	0.00	0.21	2.56	0.85	1.00	0.00	8.02	33.43	0.00	1,474.4	0.0	788.79	1020.51	1,809.30
9	160.0	28.79	0.000	13.32	0.00	0.14	2.83	0.85	1.00	0.00	7.66	36.95	0.00	1,796.7	0.0	848.17	1110.41	1,958.58
10	177.5	29.41	0.000	8.71	0.00	0.12	2.87	0.85	1.00	0.00	5.00	1.90	0.00	853.8	0.0	572.92	59.32	632.24
11	190.0	29.82	0.000	6.00	0.00	0.13	2.85	0.85	1.00	0.00	3.45	0.93	0.00	585.5	0.0	398.52	27.01	425.53
														46,505.5	**0.0**			**38,554.56**

Load Case: 0.9D + 1.6W Normal Wind — 0.9D + 1.6W 97 mph Wind at Normal To Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 0.90

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	17.40	24.365	23.64	0.00	0.12	2.88	1.00	1.00	0.00	35.27	119.13	0.00	5,777.1	0.0	2400.35	2077.99	4,478.33
2	30.0	20.77	22.326	23.64	0.00	0.13	2.84	1.00	1.00	0.00	32.73	119.13	0.00	5,641.2	0.0	2630.08	2480.51	5,110.59
3	50.0	22.85	17.472	22.04	0.00	0.13	2.86	1.00	1.00	0.00	27.28	119.13	0.00	4,808.4	0.0	2422.68	2728.14	5,150.82
4	70.0	24.39	15.857	22.04	0.00	0.14	2.81	1.00	1.00	0.00	25.58	117.73	0.00	4,697.6	0.0	2383.53	2911.66	5,295.19
5	90.0	25.63	14.383	18.83	0.00	0.14	2.79	1.00	1.00	0.00	23.37	116.97	0.00	4,015.8	0.0	2273.88	3059.91	5,333.79
6	110.0	26.69	12.992	18.83	0.00	0.17	2.71	1.00	1.00	0.00	22.05	109.60	0.00	3,524.6	0.0	2165.60	3099.85	5,265.45
7	130.0	27.60	10.974	17.23	0.00	0.19	2.63	1.00	1.00	0.00	19.67	91.84	0.00	2,881.5	0.0	1942.09	2688.66	4,630.75
8	145.0	28.22	4.586	7.81	0.00	0.21	2.56	1.00	1.00	0.00	8.71	33.43	0.00	1,105.8	0.0	856.41	1020.51	1,876.92
9	160.0	28.79	0.000	13.32	0.00	0.14	2.83	1.00	1.00	0.00	7.66	36.95	0.00	1,347.5	0.0	848.17	1110.41	1,958.58
10	177.5	29.41	0.000	8.71	0.00	0.12	2.87	1.00	1.00	0.00	5.00	1.90	0.00	640.4	0.0	572.92	59.32	632.24
11	190.0	29.82	0.000	6.00	0.00	0.13	2.85	1.00	1.00	0.00	3.45	0.93	0.00	439.1	0.0	398.52	27.01	425.53
														34,879.1	**0.0**			**40,158.19**

Section Forces

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 10	

IES Tower Engineering Solutions

Load Case: 0.9D + 1.6W 60° Wind — 0.9D + 1.6W 97 mph Wind at 60° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 0.90

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	17.40	24.365	23.64	0.00	0.12	2.88	0.80	1.00	0.00	30.40	119.13	0.00	5,777.1	0.0	2068.74	2077.99	4,146.73
2	30.0	20.77	22.326	23.64	0.00	0.13	2.84	0.80	1.00	0.00	28.27	119.13	0.00	5,641.2	0.0	2271.30	2480.51	4,751.81
3	50.0	22.85	17.472	22.04	0.00	0.13	2.86	0.80	1.00	0.00	23.79	119.13	0.00	4,808.4	0.0	2112.37	2728.14	4,840.51
4	70.0	24.39	15.857	22.04	0.00	0.14	2.81	0.80	1.00	0.00	22.41	117.73	0.00	4,697.6	0.0	2088.01	2911.66	4,999.67
5	90.0	25.63	14.383	18.83	0.00	0.14	2.79	0.80	1.00	0.00	20.50	116.97	0.00	4,015.8	0.0	1994.01	3059.91	5,053.92
6	110.0	26.69	12.992	18.83	0.00	0.17	2.71	0.80	1.00	0.00	19.45	109.60	0.00	3,524.6	0.0	1910.39	3099.85	5,010.24
7	130.0	27.60	10.974	17.23	0.00	0.19	2.63	0.80	1.00	0.00	17.47	91.84	0.00	2,881.5	0.0	1725.36	2688.66	4,414.02
8	145.0	28.22	4.586	7.81	0.00	0.21	2.56	0.80	1.00	0.00	7.79	33.43	0.00	1,105.8	0.0	766.25	1020.51	1,786.76
9	160.0	28.79	0.000	13.32	0.00	0.14	2.83	0.80	1.00	0.00	7.66	36.95	0.00	1,347.5	0.0	848.17	1110.41	1,958.58
10	177.5	29.41	0.000	8.71	0.00	0.12	2.87	0.80	1.00	0.00	5.00	1.90	0.00	640.4	0.0	572.92	59.32	632.24
11	190.0	29.82	0.000	6.00	0.00	0.13	2.85	0.80	1.00	0.00	3.45	0.93	0.00	439.1	0.0	398.52	27.01	425.53
														34,879.1	**0.0**			**38,020.01**

Load Case: 0.9D + 1.6W 90° Wind — 0.9D + 1.6W 97 mph Wind at 90° From Face

Wind Load Factor: 1.60 — **Wind Importance Factor:** 1.00

Dead Load Factor: 0.90

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	17.40	24.365	23.64	0.00	0.12	2.88	0.85	1.00	0.00	31.62	119.13	0.00	5,777.1	0.0	2151.64	2077.99	4,229.63
2	30.0	20.77	22.326	23.64	0.00	0.13	2.84	0.85	1.00	0.00	29.38	119.13	0.00	5,641.2	0.0	2360.99	2480.51	4,841.51
3	50.0	22.85	17.472	22.04	0.00	0.13	2.86	0.85	1.00	0.00	24.66	119.13	0.00	4,808.4	0.0	2189.95	2728.14	4,918.09
4	70.0	24.39	15.857	22.04	0.00	0.14	2.81	0.85	1.00	0.00	23.20	117.73	0.00	4,697.6	0.0	2161.89	2911.66	5,073.55
5	90.0	25.63	14.383	18.83	0.00	0.14	2.79	0.85	1.00	0.00	21.21	116.97	0.00	4,015.8	0.0	2063.98	3059.91	5,123.89
6	110.0	26.69	12.992	18.83	0.00	0.17	2.71	0.85	1.00	0.00	20.10	109.60	0.00	3,524.6	0.0	1974.19	3099.85	5,074.04
7	130.0	27.60	10.974	17.23	0.00	0.19	2.63	0.85	1.00	0.00	18.02	91.84	0.00	2,881.5	0.0	1779.54	2688.66	4,468.20
8	145.0	28.22	4.586	7.81	0.00	0.21	2.56	0.85	1.00	0.00	8.02	33.43	0.00	1,105.8	0.0	788.79	1020.51	1,809.30
9	160.0	28.79	0.000	13.32	0.00	0.14	2.83	0.85	1.00	0.00	7.66	36.95	0.00	1,347.5	0.0	848.17	1110.41	1,958.58
10	177.5	29.41	0.000	8.71	0.00	0.12	2.87	0.85	1.00	0.00	5.00	1.90	0.00	640.4	0.0	572.92	59.32	632.24
11	190.0	29.82	0.000	6.00	0.00	0.13	2.85	0.85	1.00	0.00	3.45	0.93	0.00	439.1	0.0	398.52	27.01	425.53
														34,879.1	**0.0**			**38,554.56**

Section Forces

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi Normal Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 1.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	4.62	24.365	62.44	38.80	0.22	2.54	1.00	1.00	1.85	60.45	175.52	73.93	17,377.	9674.4	602.67	657.44	1,260.11
2	30.0	5.52	22.326	63.53	39.89	0.24	2.47	1.00	1.00	2.01	59.33	180.42	80.47	18,015.	10494.1	687.43	810.51	1,497.94
3	50.0	6.07	17.472	61.40	39.36	0.25	2.44	1.00	1.00	2.10	53.36	183.21	84.19	16,811.	10400.5	672.79	908.16	1,580.95
4	70.0	6.48	15.857	60.28	38.25	0.27	2.37	1.00	1.00	2.17	51.49	183.79	77.44	16,638.	10375.0	671.80	976.09	1,647.89
5	90.0	6.81	14.383	55.72	36.89	0.30	2.31	1.00	1.00	2.22	47.69	184.59	74.10	15,533.	10179.0	636.78	1030.65	1,667.44
6	110.0	7.09	12.992	54.30	35.47	0.34	2.19	1.00	1.00	2.27	46.28	174.65	54.46	14,231.	9531.7	611.10	1044.48	1,655.58
7	130.0	7.33	10.974	53.66	36.43	0.41	2.04	1.00	1.00	2.30	45.44	142.08	42.21	12,151.	8309.7	577.18	858.66	1,435.84
8	145.0	7.50	4.586	24.44	16.62	0.46	1.95	1.00	1.00	2.33	20.85	52.04	11.63	4,757.8	3283.5	259.60	310.64	570.24
9	160.0	7.65	0.000	65.87	52.55	0.62	1.79	1.00	1.00	2.35	50.02	54.65	16.44	6,964.8	5168.0	583.15	246.26	829.42
10	177.5	7.81	0.000	48.23	39.52	0.64	1.79	1.00	1.00	2.37	37.15	2.49	5.34	3,473.1	2619.2	440.61	23.50	464.12
11	190.0	7.92	0.000	33.61	27.61	0.67	1.78	1.00	1.00	2.39	26.54	0.93	3.98	2,415.8	1830.4	317.83	13.23	331.06
														128,370.9	**81865.4**			**12,940.57**

Load Case: 1.2D + 1.0Di + 1.0Wi 60° Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 1.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	4.62	24.365	62.44	38.80	0.22	2.54	0.80	1.00	1.85	55.58	175.52	73.93	17,377.	9674.4	554.09	657.44	1,211.53
2	30.0	5.52	22.326	63.53	39.89	0.24	2.47	0.80	1.00	2.01	54.87	180.42	80.47	18,015.	10494.1	635.69	810.51	1,446.20
3	50.0	6.07	17.472	61.40	39.36	0.25	2.44	0.80	1.00	2.10	49.86	183.21	84.19	16,811.	10400.5	628.73	908.16	1,536.89
4	70.0	6.48	15.857	60.28	38.25	0.27	2.37	0.80	1.00	2.17	48.32	183.79	77.44	16,638.	10375.0	630.42	976.09	1,606.51
5	90.0	6.81	14.383	55.72	36.89	0.30	2.31	0.80	1.00	2.22	44.81	184.59	74.10	15,533.	10179.0	598.37	1030.65	1,629.02
6	110.0	7.09	12.992	54.30	35.47	0.34	2.19	0.80	1.00	2.27	43.68	174.65	54.46	14,231.	9531.7	576.79	1044.48	1,621.27
7	130.0	7.33	10.974	53.66	36.43	0.41	2.04	0.80	1.00	2.30	43.24	142.08	42.21	12,151.	8309.7	549.30	858.66	1,407.96
8	145.0	7.50	4.586	24.44	16.62	0.46	1.95	0.80	1.00	2.33	19.93	52.04	11.63	4,757.8	3283.5	248.18	310.64	558.81
9	160.0	7.65	0.000	65.87	52.55	0.62	1.79	0.80	1.00	2.35	50.02	54.65	16.44	6,964.8	5168.0	583.15	246.26	829.42
10	177.5	7.81	0.000	48.23	39.52	0.64	1.79	0.80	1.00	2.37	37.15	2.49	5.34	3,473.1	2619.2	440.61	23.50	464.12
11	190.0	7.92	0.000	33.61	27.61	0.67	1.78	0.80	1.00	2.39	26.54	0.93	3.98	2,415.8	1830.4	317.83	13.23	331.06
														128,370.9	**81865.4**			**12,642.79**

Section Forces

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 12	

IES Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 90° Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	4.62	24.365	62.44	38.80	0.22	2.54	0.85	1.00	1.85	56.80	175.52	73.93	17,377.	9674.4	566.23	657.44	1,223.68
2	30.0	5.52	22.326	63.53	39.89	0.24	2.47	0.85	1.00	2.01	55.98	180.42	80.47	18,015.	10494.1	648.63	810.51	1,459.14
3	50.0	6.07	17.472	61.40	39.36	0.25	2.44	0.85	1.00	2.10	50.74	183.21	84.19	16,811.	10400.5	639.74	908.16	1,547.90
4	70.0	6.48	15.857	60.28	38.25	0.27	2.37	0.85	1.00	2.17	49.12	183.79	77.44	16,638.	10375.0	640.77	976.09	1,616.86
5	90.0	6.81	14.383	55.72	36.89	0.30	2.31	0.85	1.00	2.22	45.53	184.59	74.10	15,533.	10179.0	607.97	1030.65	1,638.63
6	110.0	7.09	12.992	54.30	35.47	0.34	2.19	0.85	1.00	2.27	44.33	174.65	54.46	14,231.	9531.7	585.37	1044.48	1,629.85
7	130.0	7.33	10.974	53.66	36.43	0.41	2.04	0.85	1.00	2.30	43.79	142.08	42.21	12,151.	8309.7	556.27	858.66	1,414.93
8	145.0	7.50	4.586	24.44	16.62	0.46	1.95	0.85	1.00	2.33	20.16	52.04	11.63	4,757.8	3283.5	251.03	310.64	561.67
9	160.0	7.65	0.000	65.87	52.55	0.62	1.79	0.85	1.00	2.35	50.02	54.65	16.44	6,964.8	5168.0	583.15	246.26	829.42
10	177.5	7.81	0.000	48.23	39.52	0.64	1.79	0.85	1.00	2.37	37.15	2.49	5.34	3,473.1	2619.2	440.61	23.50	464.12
11	190.0	7.92	0.000	33.61	27.61	0.67	1.78	0.85	1.00	2.39	26.54	0.93	3.98	2,415.8	1830.4	317.83	13.23	331.06
														128,370.9	**81865.4**			**12,717.24**

Load Case: 1.0D + 1.0W Normal Wind — 1.0D + 1.0W 60 mph Wind at Normal To Face

Wind Load Factor: 1.00
Dead Load Factor: 1.00
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	6.66	24.365	23.64	0.00	0.12	2.88	1.00	1.00	0.00	37.65	119.13	0.00	6,419.0	0.0	612.73	496.91	1,109.64
2	30.0	7.95	22.326	23.64	0.00	0.13	2.84	1.00	1.00	0.00	35.28	119.13	0.00	6,268.1	0.0	677.86	593.17	1,271.03
3	50.0	8.74	17.472	22.04	0.00	0.13	2.86	1.00	1.00	0.00	29.62	119.13	0.00	5,342.7	0.0	629.08	652.39	1,281.47
4	70.0	9.33	15.857	22.04	0.00	0.14	2.81	1.00	1.00	0.00	27.92	117.73	0.00	5,219.6	0.0	622.12	696.27	1,318.39
5	90.0	9.81	14.383	18.83	0.00	0.14	2.79	1.00	1.00	0.00	25.06	116.97	0.00	4,462.0	0.0	583.06	731.72	1,314.78
6	110.0	10.21	12.992	18.83	0.00	0.17	2.71	1.00	1.00	0.00	23.70	109.60	0.00	3,916.3	0.0	556.70	741.27	1,297.98
7	130.0	10.56	10.974	17.23	0.00	0.19	2.63	1.00	1.00	0.00	20.84	91.84	0.00	3,201.7	0.0	492.15	642.95	1,135.10
8	145.0	10.80	4.586	7.81	0.00	0.21	2.56	1.00	1.00	0.00	9.09	33.43	0.00	1,228.6	0.0	213.67	244.04	457.71
9	160.0	11.02	0.000	13.32	0.00	0.14	2.83	1.00	1.00	0.00	7.66	36.95	0.00	1,497.3	0.0	202.83	265.54	468.36
10	177.5	11.25	0.000	8.71	0.00	0.12	2.87	1.00	1.00	0.00	5.00	1.90	0.00	711.5	0.0	137.00	14.18	151.19
11	190.0	11.41	0.000	6.00	0.00	0.13	2.85	1.00	1.00	0.00	3.45	0.93	0.00	487.9	0.0	95.30	6.46	101.76
														38,754.6	**0.0**			**9,907.40**

Section Forces

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 13	

IES Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60° Wind — 1.0D + 1.0W 60 mph Wind at 60° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	6.66	24.365	23.64	0.00	0.12	2.88	0.80	1.00	0.00	32.78	119.13	0.00	6,419.0	0.0	533.43	496.91	1,030.34
2	30.0	7.95	22.326	23.64	0.00	0.13	2.84	0.80	1.00	0.00	30.81	119.13	0.00	6,268.1	0.0	592.06	593.17	1,185.23
3	50.0	8.74	17.472	22.04	0.00	0.13	2.86	0.80	1.00	0.00	26.13	119.13	0.00	5,342.7	0.0	554.87	652.39	1,207.26
4	70.0	9.33	15.857	22.04	0.00	0.14	2.81	0.80	1.00	0.00	24.75	117.73	0.00	5,219.6	0.0	551.45	696.27	1,247.73
5	90.0	9.81	14.383	18.83	0.00	0.14	2.79	0.80	1.00	0.00	22.18	116.97	0.00	4,462.0	0.0	516.13	731.72	1,247.86
6	110.0	10.21	12.992	18.83	0.00	0.17	2.71	0.80	1.00	0.00	21.10	109.60	0.00	3,916.3	0.0	495.68	741.27	1,236.95
7	130.0	10.56	10.974	17.23	0.00	0.19	2.63	0.80	1.00	0.00	18.65	91.84	0.00	3,201.7	0.0	440.33	642.95	1,083.27
8	145.0	10.80	4.586	7.81	0.00	0.21	2.56	0.80	1.00	0.00	8.17	33.43	0.00	1,228.6	0.0	192.11	244.04	436.15
9	160.0	11.02	0.000	13.32	0.00	0.14	2.83	0.80	1.00	0.00	7.66	36.95	0.00	1,497.3	0.0	202.83	265.54	468.36
10	177.5	11.25	0.000	8.71	0.00	0.12	2.87	0.80	1.00	0.00	5.00	1.90	0.00	711.5	0.0	137.00	14.18	151.19
11	190.0	11.41	0.000	6.00	0.00	0.13	2.85	0.80	1.00	0.00	3.45	0.93	0.00	487.9	0.0	95.30	6.46	101.76
														38,754.6	**0.0**			**9,396.10**

Load Case: 1.0D + 1.0W 90° Wind — 1.0D + 1.0W 60 mph Wind at 90° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	10.0	6.66	24.365	23.64	0.00	0.12	2.88	0.85	1.00	0.00	34.00	119.13	0.00	6,419.0	0.0	553.25	496.91	1,050.17
2	30.0	7.95	22.326	23.64	0.00	0.13	2.84	0.85	1.00	0.00	31.93	119.13	0.00	6,268.1	0.0	613.51	593.17	1,206.68
3	50.0	8.74	17.472	22.04	0.00	0.13	2.86	0.85	1.00	0.00	27.00	119.13	0.00	5,342.7	0.0	573.42	652.39	1,225.81
4	70.0	9.33	15.857	22.04	0.00	0.14	2.81	0.85	1.00	0.00	25.54	117.73	0.00	5,219.6	0.0	569.12	696.27	1,265.39
5	90.0	9.81	14.383	18.83	0.00	0.14	2.79	0.85	1.00	0.00	22.90	116.97	0.00	4,462.0	0.0	532.86	731.72	1,264.59
6	110.0	10.21	12.992	18.83	0.00	0.17	2.71	0.85	1.00	0.00	21.75	109.60	0.00	3,916.3	0.0	510.93	741.27	1,252.21
7	130.0	10.56	10.974	17.23	0.00	0.19	2.63	0.85	1.00	0.00	19.20	91.84	0.00	3,201.7	0.0	453.28	642.95	1,096.23
8	145.0	10.80	4.586	7.81	0.00	0.21	2.56	0.85	1.00	0.00	8.40	33.43	0.00	1,228.6	0.0	197.50	244.04	441.54
9	160.0	11.02	0.000	13.32	0.00	0.14	2.83	0.85	1.00	0.00	7.66	36.95	0.00	1,497.3	0.0	202.83	265.54	468.36
10	177.5	11.25	0.000	8.71	0.00	0.12	2.87	0.85	1.00	0.00	5.00	1.90	0.00	711.5	0.0	137.00	14.18	151.19
11	190.0	11.41	0.000	6.00	0.00	0.13	2.85	0.85	1.00	0.00	3.45	0.93	0.00	487.9	0.0	95.30	6.46	101.76
														38,754.6	**0.0**			**9,523.92**

Force/Stress Compression Summary

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	20	12B - 12"BD 2.25"	-413.88	1.2D + 1.6W Normal Wind	10.02	100	100	100	24.38	50.00	514.03	80.5	Member X
2	40	12B - 12"BD 2.25"	-377.25	1.2D + 1.6W Normal Wind	10.02	100	100	100	24.38	50.00	514.03	73.4	Member X
3	60	12B - 12"BD 2"	-334.82	1.2D + 1.6W Normal Wind	10.02	100	100	100	24.41	50.00	405.83	82.5	Member X
4	80	12B - 12"BD 2"	-289.84	1.2D + 1.6W Normal Wind	10.02	100	100	100	24.41	50.00	405.83	71.4	Member X
5	100	12B - 12"BD 1.75"	-240.40	1.2D + 1.6W Normal Wind	10.02	100	100	100	25.99	50.00	308.82	77.8	Member X
6	120	12B - 12"BD 1.75"	-184.18	1.2D + 1.6W Normal Wind	10.02	100	100	100	25.99	50.00	308.82	59.6	Member X
7	140	12B - 12"BD 1.5"	-126.38	1.2D + 1.6W Normal Wind	10.02	100	100	100	30.32	50.00	222.99	56.7	Member X
8	150	12B - 12"BD 1.25"	-68.71	1.2D + 1.6W Normal Wind	10.02	100	100	100	36.38	50.00	150.33	45.7	Member X
9	170	SOL - 2" SOLID	-56.30	1.2D + 1.6W Normal Wind	2.33	100	100	100	56.01	50.00	112.40	50.1	Member X
10	185	SOL - 1 3/4" SOLID	-13.11	1.2D + 1.6W Normal Wind	2.35	100	100	100	64.48	50.00	79.87	16.4	Member X
11	195	SOL - 1 3/4" SOLID	-2.71	1.2D + 1.0Di + 1.0Wi Normal	0.21	100	100	100	5.71	50.00	107.98	2.7	Bolt Shear

Splices

		Top Splice					Bottom Splice				
Sect	Top Elev	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts
1	20	1.2D + 1.6W Normal Wind	387.28	0.00	0.0			1.2D + 1.6W Normal Wind	424.43	0.00			
2	40	1.2D + 1.6W Normal Wind	346.05	0.00	0.0			1.2D + 1.6W Normal Wind	387.28	0.00		1/4 A325	6
3	60	1.2D + 1.6W Normal Wind	301.92	0.00	0.0			1.2D + 1.6W Normal Wind	346.05	0.00		1/4 A325	6
4	80	1.2D + 1.6W Normal Wind	253.90	0.00	0.0			1.2D + 1.6W Normal Wind	301.92	0.00		1/4 A325	6
5	100	1.2D + 1.6W Normal Wind	199.58	0.00	0.0			1.2D + 1.6W Normal Wind	253.90	0.00		1 A325	6
6	120	1.2D + 1.6W Normal Wind	141.60	0.00	0.0			1.2D + 1.6W Normal Wind	199.58	0.00		1 A325	6
7	140	1.2D + 1.6W Normal Wind	88.62	0.00	0.0			1.2D + 1.6W Normal Wind	141.60	0.00		1 A325	6
8	150	1.2D + 1.6W Normal Wind	61.32	0.00	0.0			1.2D + 1.6W Normal Wind	88.62	0.00		1 A325	6
9	170	1.2D + 1.6W Normal Wind	16.46	0.00	0.0			1.2D + 1.6W Normal Wind	61.32	0.00		1 A325	6
10	185	1.2D + 1.0Di + 1.0Wi Normal Wi	2.85	0.00	0.0			1.2D + 1.6W Normal Wind	16.46	0.00			
11	195	1.2D + 1.0Di + 1.0Wi 90° Wind	0.40	0.00	0.0			1.2D + 1.0Di + 1.0Wi Normal Wi	2.85	0.00			

HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
1	20										0.00	0	0				
2	40										0.00	0	0				
3	60										0.00	0	0				
4	80										0.00	0	0				
5	100										0.00	0	0				
6	120										0.00	0	0				
7	140	SAE - 2.5X2.5X0.1875	-3.26	0.9D + 1.6W Normal Wind	6.00	100	100	100	145.45	36.00	9.63	1	1	31.81	17.94	34	Member Z
8	150										0.00	0	0				
9	170	SOL - 7/8" SOLID	-1.24	1.2D + 1.6W 90° Wind	4.52	100	100	100	173.48	50.00	4.51	0	0			27	Member X
10	185	SOL - 7/8" SOLID	-1.56	1.2D + 1.6W Normal Wind	4.50	100	100	100	172.76	50.00	4.55	0	0			34	Member X
11	195	SOL - 7/8" SOLID	-0.73	0.9D + 1.6W 90° Wind	4.50	100	100	100	172.76	50.00	4.55	0	0			16	Member X

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
1	20	SAE - 3.5X3.5X0.3125	-10.5	1.2D + 1.6W Normal Wind	21.92	47	47	47	179.14	36.00	14.71	1	1	43.49	37.5	72	Member Z
2	40	SAE - 3.5X3.5X0.3125	-11.1	1.2D + 1.6W 90° Wind	20.16	47	47	47	164.77	36.00	17.39	1	1	43.49	37.5	64	Member Z
3	60	SAE - 3X3X0.3125	-10.9	1.2D + 1.6W 90° Wind	18.45	47	47	47	176.65	36.00	12.89	1	1	43.49	37.5	85	Member Z

Force/Stress Compression Summary

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 15	

IES
Tower Engineering Solutions

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
4	80	SAE - 3X3X0.3125	-10.9	1.2D + 1.6W 90° Wind	16.80	47	47	47	160.90	36.00	15.53	1	1	43.49	37.5	70	Member Z
5	100	SAE - 3X3X0.3125	-11.1	1.2D + 1.6W 90° Wind	15.24	47	47	47	145.96	36.00	18.88	1	1	31.81	29.9	59	Member Z
6	120	SAE - 3X3X0.1875	-11.0	1.2D + 1.6W 90° Wind	13.80	45	45	45	125.00	36.00	15.51	1	1	31.81	17.9	71	Member Z
7	140	SAE - 2.5X2.5X0.1875	-10.0	1.2D + 1.6W 90° Wind	12.50	44	44	44	133.37	36.00	11.46	1	1	31.81	17.9	87	Member Z
8	150	SAE - 2.5X2.5X0.1875	-11.3	1.2D + 1.6W Normal Wind	11.42	44	44	44	121.77	36.00	13.39	1	1	31.81	17.9	84	Member Z
9	170	SOL - 7/8" SOLID	-4.25	1.2D + 1.6W 90° Wind	5.48	50	50	50	135.20	50.00	7.43	0	0			57	Member X
10	185	SOL - 3/4" SOLID	-3.54	1.2D + 1.6W Normal Wind	5.08	50	50	50	146.22	50.00	4.67	0	0			76	Member X
11	195	SOL - 3/4" SOLID	-1.15	1.2D + 1.6W 60° Wind	5.04	50	50	50	145.23	50.00	4.73	0	0			24	Member X

Force/Stress Tension Summary

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 16	

TES Tower Engineering Solutions

LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	20	12B - 12"BD 2.25"	364.60	0.9D + 1.6W 60° Wind	50	536.85	67.9	Member
2	40	12B - 12"BD 2.25"	332.05	0.9D + 1.6W 60° Wind	50	536.85	61.9	Member
3	60	12B - 12"BD 2"	295.26	0.9D + 1.6W 60° Wind	50	423.90	69.7	Member
4	80	12B - 12"BD 2"	254.98	0.9D + 1.6W 60° Wind	50	423.90	60.2	Member
5	100	12B - 12"BD 1.75"	210.22	0.9D + 1.6W 60° Wind	50	324.45	64.8	Member
6	120	12B - 12"BD 1.75"	158.37	0.9D + 1.6W 60° Wind	50	324.45	48.8	Member
7	140	12B - 12"BD 1.5"	106.65	0.9D + 1.6W 60° Wind	50	238.50	44.7	Member
8	150	12B - 12"BD 1.25"	54.27	0.9D + 1.6W 60° Wind	50	165.60	32.8	Member
9	170	SOL - 2" SOLID	45.38	0.9D + 1.6W 60° Wind	50	141.37	32.1	Member
10	185	SOL - 1 3/4" SOLID	6.64	0.9D + 1.6W Normal Wind	50	108.24	6.1	Member
11	195	SOL - 1 3/4" SOLID	1.19	0.9D + 1.6W 60° Wind	50	108.24	1.2	Bolt Shear

Splices

		Top Splice					Bottom Splice				
Sect	Top Elev	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts
1	20	0.9D + 1.6W 60° Wind	339.90	0.00	0.0			0.9D + 1.6W 60° Wind	374.1	0.00			
2	40	0.9D + 1.6W 60° Wind	303.60	0.00	0.0			0.9D + 1.6W 60° Wind	339.9	457.92	74.2	1 1/4 A325	6
3	60	0.9D + 1.6W 60° Wind	264.57	0.00	0.0			0.9D + 1.6W 60° Wind	303.6	457.92	66.3	1 1/4 A325	6
4	80	0.9D + 1.6W 60° Wind	221.22	0.00	0.0			0.9D + 1.6W 60° Wind	264.5	457.92	57.8	1 1/4 A325	6
5	100	0.9D + 1.6W 60° Wind	170.86	0.00	0.0			0.9D + 1.6W 60° Wind	221.2	318.06	69.6	1 A325	6
6	120	0.9D + 1.6W 60° Wind	118.97	0.00	0.0			0.9D + 1.6W 60° Wind	170.8	318.06	53.7	1 A325	6
7	140	0.9D + 1.6W 60° Wind	71.25	0.00	0.0			0.9D + 1.6W 60° Wind	118.9	318.06	37.4	1 A325	6
8	150	0.9D + 1.6W 60° Wind	43.71	0.00	0.0			0.9D + 1.6W 60° Wind	71.25	318.06	22.4	1 A325	6
9	170	0.9D + 1.6W Normal Wind	6.61	0.00	0.0			0.9D + 1.6W 60° Wind	43.71	318.06	13.7	1 A325	6
10	185	0.9D + 1.6W 60° Wind	1.17	0.00	0.0			0.9D + 1.6W Normal Wind	6.61	0.00			
11	195		0.00	0.00	0.0			0.9D + 1.6W 60° Wind	1.17	0.00			

HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	20	-			36	0.00	0	0					
2	40	-			36	0.00	0	0					
3	60	-			36	0.00	0	0					
4	80	-			36	0.00	0	0					
5	100	-			36	0.00	0	0					
6	120	-			36	0.00	0	0					
7	140	SAE - 2.5X2.5X0.1875	3.64	1.2D + 1.6W 60° Wind	36	22.55	1	1	31.81	17.94	10.66	34.1	Blck Shear
8	150	-			36	0.00	0	0					
9	170	SOL - 7/8" SOLID	1.25	1.2D + 1.6W 90° Wind	50	27.06	0	0				4.6	Member
10	185	SOL - 7/8" SOLID	0.90	1.2D + 1.6W 60° Wind	50	27.06	0	0				3.3	Member
11	195	SOL - 7/8" SOLID	0.98	0.9D + 1.6W 60° Wind	50	27.06	0	0				3.6	Member

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	20	SAE - 3.5X3.5X0.3125	10.54	1.2D + 1.6W 90° Wind	36	54.17	1	1	43.49	37.52	23.70	44.5	Blck Shear
2	40	SAE - 3.5X3.5X0.3125	10.71	0.9D + 1.6W 90° Wind	36	54.17	1	1	43.49	37.52	23.70	45.2	Blck Shear
3	60	SAE - 3X3X0.3125	10.49	1.2D + 1.6W 90° Wind	36	44.05	1	1	43.49	37.52	20.30	51.7	Blck Shear
4	80	SAE - 3X3X0.3125	10.57	1.2D + 1.6W 90° Wind	36	44.05	1	1	43.49	37.52	20.30	52.1	Blck Shear

Force/Stress Tension Summary

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 17	

IES
Tower Engineering Solutions

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
5	100	SAE - 3X3X0.3125	11.20	1.2D + 1.6W 90° Wind	36	46.60	1	1	31.81	29.91	19.47	57.5	Blck Shear
6	120	SAE - 3X3X0.1875	10.63	1.2D + 1.6W 90° Wind	36	28.68	1	1	31.81	17.94	11.68	91.0	Blck Shear
7	140	SAE - 2.5X2.5X0.1875	9.72	1.2D + 1.6W 90° Wind	36	22.55	1	1	31.81	17.94	10.66	91.1	Blck Shear
8	150	SAE - 2.5X2.5X0.1875	10.44	0.9D + 1.6W 60° Wind	36	22.55	1	1	31.81	17.94	10.66	97.9	Blck Shear
9	170	SOL - 7/8" SOLID	4.24	1.2D + 1.6W 90° Wind	50	27.06	0	0				15.7	Member
10	185	SOL - 3/4" SOLID	3.81	1.2D + 1.6W Normal Wi	50	19.88	0	0				19.2	Member
11	195	SOL - 3/4" SOLID	0.84	0.9D + 1.6W 90° Wind	50	19.88	0	0				4.2	Member

Support Forces Summary

Structure:	CT22108-A-SBA	**Code:**	TIA-222-G	6/8/2022	
Site Name:	Windsor Locks @ Volunteer Drive	**Exposure:**	C		
Height:	195.00 (ft)	**Crest Height:**	0.00		
Base Elev:	5.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

Load Case	Node	FX (kips)	FY (kips)	FZ (kips)	(-) = Uplift (+) = Down
1.2D + 1.6W Normal Wind	1	-0.01	423.62	-41.72	
	1a	14.84	-178.08	-11.31	
	1b	-14.84	-178.07	-11.32	
1.2D + 1.6W 60° Wind	1	-2.17	218.68	-21.13	
	1a	-19.27	215.87	8.76	
	1b	-32.44	-367.09	-18.73	
1.2D + 1.6W 90° Wind	1	-2.63	22.58	-1.66	
	1a	-31.35	360.92	16.74	
	1b	-28.76	-316.03	-15.08	
0.9D + 1.6W Normal Wind	1	-0.01	417.26	-41.28	
	1a	15.20	-183.33	-11.53	
	1b	-15.19	-183.33	-11.54	
0.9D + 1.6W 60° Wind	1	-2.18	212.68	-20.69	
	1a	-18.90	209.91	8.53	
	1b	-32.79	-372.00	-18.94	
0.9D + 1.6W 90° Wind	1	-2.65	16.94	-1.23	
	1a	-30.97	354.70	16.51	
	1b	-29.12	-321.04	-15.28	
1.2D + 1.0Di + 1.0Wi Normal Wind	1	0.00	193.69	-12.27	
	1a	5.79	-6.55	-4.00	
	1b	-5.78	-6.51	-4.00	
1.2D + 1.0Di + 1.0Wi 60° Wind	1	-0.59	126.42	-5.77	
	1a	-5.23	124.84	2.41	
	1b	-11.47	-70.64	-6.63	
1.2D + 1.0Di + 1.0Wi 90° Wind	1	-0.70	60.37	0.57	
	1a	-9.16	173.25	4.94	
	1b	-10.19	-53.00	-5.51	
1.0D + 1.0W Normal Wind	1	0.00	115.87	-11.20	
	1a	2.73	-29.83	-2.24	
	1b	-2.72	-29.82	-2.24	
1.0D + 1.0W 60° Wind	1	-0.56	66.28	-6.17	
	1a	-5.59	65.54	2.62	
	1b	-7.00	-75.60	-4.04	
1.0D + 1.0W 90° Wind	1	-0.66	18.80	-1.42	
	1a	-8.53	100.43	4.57	
	1b	-6.09	-63.02	-3.15	

Max Reactions

Leg			Overturning		
Max Uplift:	-372.00	(kips)	Moment:	6947.84	(ft-kips)
Max Down:	423.62	(kips)	Total Down:	67.46	(kips)
Max Shear:	41.72	(kips)	Total Shear:	64.34	(kips)

Max Reactions

Leg			Overturning		
Max Uplift:	-372.00	(kips)	Moment:	6947.84	(ft-kips)
Max Down:	423.62	(kips)	Total Down:	67.46	(kips)
Max Shear:	41.72	(kips)	Total Shear:	64.34	(kips)

Anchor Bolts

Bolt Size (in.):	1.25	Number Bolts:	6
Yield Strength (Ksi):	105.00	Tensile Strength (Ksi):	150.00
Detail Type:	C		

Interaction Ratio: 0.64

Max Usages

Max Leg: 82.5% (1.2D + 1.6W Normal Wind - Sect 3)
Max Diag: 97.9% (0.9D + 1.6W 60° Wind - Sect 8)
Max Horiz: 34.2% (1.2D + 1.6W Normal Wind - Sect 10)

Max Deflection, Twist and Sway

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
0.9D + 1.6W 97 mph Wind at 60° From Face	60.00	0.2050	0.0286	0.3877
	70.00	0.2761	-0.0100	0.4561
	100.00	0.5793	0.0536	0.7098
	110.00	0.7111	0.0602	0.7931
	120.00	0.8562	0.0655	0.8647
	130.00	1.0168	0.0748	0.9690
	150.00	1.3808	0.0952	1.1592
	162.25	1.6340	1.0086	1.2439
	164.58	1.6839	1.1989	1.2586
	166.92	1.7328	1.3900	1.1580
	172.56	1.8617	1.9597	1.6867
	195.00	2.3373	2.6742	1.6939
0.9D + 1.6W 97 mph Wind at 90° From Face	60.00	0.2045	-0.0280	0.3887
	70.00	0.2759	-0.0329	0.4557
	100.00	0.5786	-0.0517	0.7084
	110.00	0.7101	-0.0569	0.7880
	120.00	0.8546	-0.0594	0.8608
	130.00	1.0144	-0.0632	0.9647
	150.00	1.3781	-0.0648	1.1447
	162.25	1.6273	0.0243	1.2045
	164.58	1.6772	0.0222	1.2203
	166.92	1.7242	0.0192	1.0747
	172.56	1.8540	0.0300	0.5190
	195.00	2.3160	0.0365	1.2456

0.9D + 1.6W 97 mph Wind at Normal To Face	60.00	0.2108	0.0086	0.3981
	70.00	0.2864	0.0000	0.4670
	100.00	0.5951	0.0144	0.7320
	110.00	0.7306	0.0164	0.8228
	120.00	0.8800	0.0186	0.8899
	130.00	1.0457	0.0234	0.9993
	150.00	1.4231	0.0281	1.2018
	162.25	1.6890	-0.1175	1.2940
	164.58	1.7422	-0.1340	1.2958
	166.92	1.7942	-0.1506	1.2811
	172.56	1.9241	-0.1769	2.8743
	195.00	2.4567	-0.1792	3.0880
1.0D + 1.0W 60 mph Wind at 60° From Face	60.00	0.0495	-0.0049	0.0936
	70.00	0.0670	-0.0058	0.1101
	100.00	0.1399	-0.0090	0.1710
	110.00	0.1717	-0.0098	0.1914
	120.00	0.2067	0.0102	0.2082
	130.00	0.2453	0.0114	0.2328
	150.00	0.3335	0.0132	0.2799
	162.25	0.3943	0.0608	0.2945
	164.58	0.4065	0.0698	0.2980
	166.92	0.4181	0.0799	0.2712
	172.56	0.4492	0.1126	0.3633
	195.00	0.5636	0.1533	0.3785
1.0D + 1.0W 60 mph Wind at 90° From Face	60.00	0.0496	-0.0067	0.0938
	70.00	0.0667	-0.0079	0.1099
	100.00	0.1398	-0.0124	0.1705
	110.00	0.1714	-0.0137	0.1898
	120.00	0.2062	-0.0143	0.2073
	130.00	0.2447	-0.0152	0.2317
	150.00	0.3317	-0.0155	0.2750
	162.25	0.3914	-0.0041	0.2883
	164.58	0.4033	-0.0019	0.2921
	166.92	0.4146	-0.0008	0.2573
	172.56	0.4456	-0.0015	0.1239
	195.00	0.5560	0.0020	0.2975
1.0D + 1.0W 60 mph Wind at Normal To Face	60.00	0.0513	0.0021	0.0966
	70.00	0.0697	0.0000	0.1130
	100.00	0.1444	0.0034	0.1772
	110.00	0.1772	0.0039	0.1990
	120.00	0.2133	0.0044	0.2154
	130.00	0.2534	0.0055	0.2417
	150.00	0.3440	0.0066	0.2890
	162.25	0.4082	-0.0251	0.3120
	164.58	0.4210	-0.0285	0.3122
	166.92	0.4335	-0.0319	0.3088
	172.56	0.4648	-0.0365	0.6899
	195.00	0.5934	-0.0363	0.7410
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face	60.00	0.0698	0.0074	0.1316
	70.00	0.0929	-0.0038	0.1558
	100.00	0.1978	0.0139	0.2456
	110.00	0.2436	0.0157	0.2776
	120.00	0.2943	0.0171	0.3036
	130.00	0.3507	0.0196	0.3450
	150.00	0.4830	0.0243	0.4271
	162.25	0.5776	0.2442	0.4636
	164.58	0.5964	0.2908	0.4747
	166.92	0.6151	0.3381	0.4210
	172.56	0.6659	0.4734	0.7600
	195.00	0.8495	0.7376	1.3208

1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face	60.00	0.0692	-0.0078	0.1319
	70.00	0.0928	-0.0092	0.1552
	100.00	0.1965	-0.0144	0.2448
	110.00	0.2420	-0.0160	0.2750
	120.00	0.2923	-0.0167	0.3029
	130.00	0.3490	-0.0180	0.3427
	150.00	0.4796	-0.0183	0.4184
	162.25	0.5721	-0.0032	0.4500
	164.58	0.5908	0.0068	0.4624
	166.92	0.6084	0.0120	0.3884
	172.56	0.6596	0.0109	0.4211
	195.00	0.8340	0.0115	0.9130
1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face	60.00	0.0697	0.0035	0.1351
	70.00	0.0952	0.0000	0.1586
	100.00	0.2018	0.0064	0.2536
	110.00	0.2489	0.0073	0.2868
	120.00	0.3015	0.0081	0.3156
	130.00	0.3609	0.0099	0.3585
	150.00	0.4973	0.0119	0.4402
	162.25	0.5981	-0.0544	0.4965
	164.58	0.6185	-0.0624	0.5016
	166.92	0.6387	-0.0703	0.4961
	172.56	0.6898	-0.0817	1.3079
	195.00	0.9088	-0.0821	2.0751
1.2D + 1.6W 97 mph Wind at 60° From Face	60.00	0.2054	0.0286	0.3886
	70.00	0.2766	-0.0100	0.4572
	100.00	0.5806	0.0538	0.7117
	110.00	0.7127	0.0604	0.7953
	120.00	0.8582	0.0657	0.8671
	130.00	1.0193	0.0750	0.9719
	150.00	1.3846	0.0955	1.1633
	162.25	1.6386	1.0117	1.2482
	164.58	1.6887	1.2026	1.2629
	166.92	1.7377	1.3943	1.1619
	172.56	1.8670	1.9658	1.6888
	195.00	2.3443	2.6827	1.6963
1.2D + 1.6W 97 mph Wind at 90° From Face	60.00	0.2049	-0.0280	0.3895
	70.00	0.2764	-0.0330	0.4567
	100.00	0.5798	-0.0518	0.7103
	110.00	0.7117	-0.0570	0.7903
	120.00	0.8566	-0.0595	0.8635
	130.00	1.0169	-0.0633	0.9676
	150.00	1.3817	-0.0649	1.1487
	162.25	1.6318	0.0246	1.2086
	164.58	1.6819	0.0224	1.2244
	166.92	1.7290	0.0195	1.0783
	172.56	1.8594	0.0303	0.5154
	195.00	2.3229	0.0369	1.2499
1.2D + 1.6W 97 mph Wind at Normal To Face	60.00	0.2112	0.0087	0.3991
	70.00	0.2870	0.0000	0.4681
	100.00	0.5966	0.0145	0.7341
	110.00	0.7324	0.0165	0.8252
	120.00	0.8822	0.0187	0.8927
	130.00	1.0485	0.0235	1.0025
	150.00	1.4270	0.0282	1.2055
	162.25	1.6938	-0.1177	1.2984
	164.58	1.7472	-0.1342	1.3002
	166.92	1.7994	-0.1509	1.2852
	172.56	1.9297	-0.1772	2.8784
	195.00	2.4641	-0.1795	3.0928

Mat Foundation Design for Self Supporting Tower

			Date: 6/8/2022
Customer Name:	SBA Communications Corp	TIA Standard:	TIA-222-G
Site Name:		Structure Height (Ft.):	195
Site Nmber:	CT22108-A-SBA	Engineer Name:	J. Tibbetts
Engr. Number:	130159	Engineer Login ID:	

Foundation Info Obtained from: Drawings/Calculations

Analysis or Design? Analysis

Number of Tower Legs: 3 Legs

Base Reactions (Factored):

(1). Individual Leg:

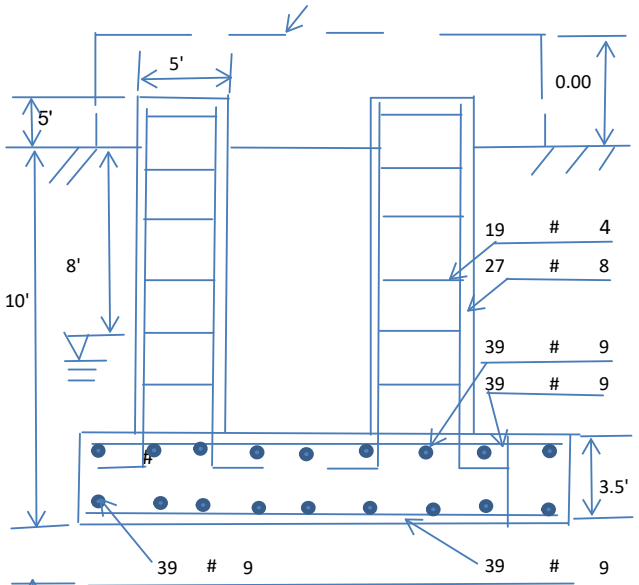
Axial Load (Kips):	423.6	Uplift Force (Kips):	372.0
Shear Force (Kips):	41.7		

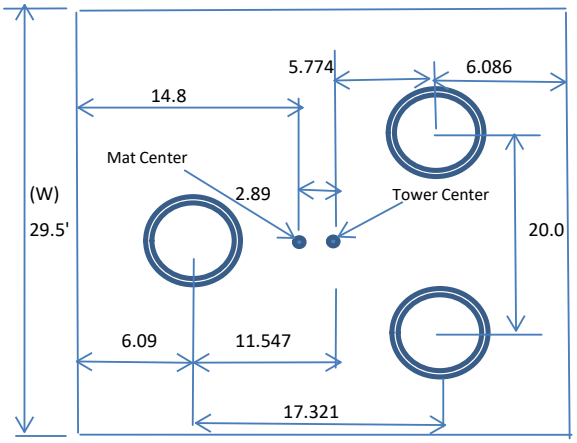
(2). Tower Base:

Total Vertical Load (Kips):	67.5	Total Shear Force (Kips):	64.3
Moment (Kips-ft):	6947.8		

Foundation Geometries:

Leg distance (Center-to-Center ft.):		20.0	Mods required -Yes/No ?:	No	
Diameter of Pier (ft.):	Square	5.0	Pier Height A. G. (ft.):	5.00	
Tower center to mat center (ft):		2.89	Depth of Base BG (ft.):	10.0	
Length of Pad (ft.):		29.5	Width of Pad (ft.):	29.5	
Thickness of Pad (ft):		3.50			





Material Properties and Reabr Info:

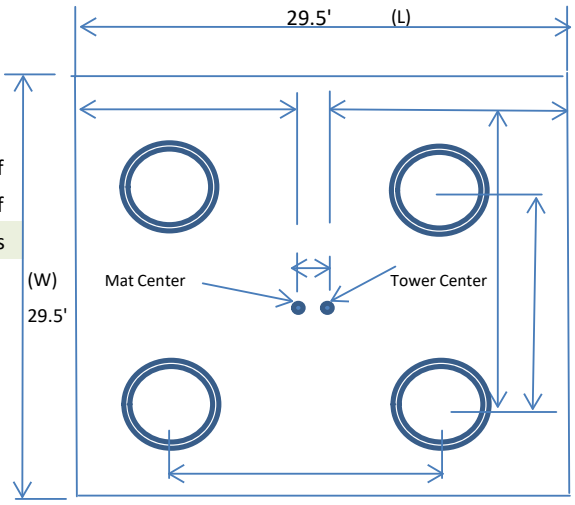
Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	8	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	27	Tie Spacing (in):	10.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf

Rebar at the bottom of the concrete pad:

Qty. of Rebar in Pad (L):	39	Qty. of Rebar in Pad (W):	39

Rebar at the top of the concrete pad:

Qty. of Rebar in Pad (L):	39	Qty. of Rebar in Pad (W):	39



Soil Design Parameters:

Soil Unit Weight (pcf):	100.0	Soil Buoyant Weight:	50.0	Pcf
Water Table B.G.S. (ft):	8.0	Unit Weight of Water:	62.4	pcf
Ultimate Bearing Pressure (psf):	7000	Consider ties in concrete shear strength:	Yes	
Consider Soil Lateral Resistance ?	No			

Apply 1.35 for e/w per G/H: 1.35

Foundation Analysis and Design:	Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75			
Total Dry Soil Volume (cu. Ft.):		5169.13	Total Dry Soil Weight (Kips):	516.91			
Total Buoyant Soil Volume (cu. Ft.):		0.00	Total Buoyant Soil Weight (Kips):	0.00			
Total Effective Soil Weight (Kips):		516.91	Weight from the Concrete Block at Top (K):	0.00			
Total Dry Concrete Volume (cu. Ft.):		2167.88	Total Dry Concrete Weight (Kips):	325.18			
Total Buoyant Concrete Volume (cu. Ft.):		1740.50	Total Buoyant Concrete Weight (Kips):	152.47			
Total Effective Concrete Weight (Kips):		477.65	Total Vertical Load on Base (Kips):	1062.03			
Check Soil Capacities:						Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):		3572.95	<	Allowable Factored Soil Bearing (psf):	5250	0.68	OK!
Allowable Foundation Overturning Resistance (kips-ft.):		14197.9	>	Design Factored Momont (kips-ft):	8108	0.57	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):		1.75	OK!				
Check the capacities of Reinforceing Concrete:							
Strength reduction factor (Flexure and axial tension):		0.90	Strength reduction factor (Shear):		0.75		
Strength reduction factor (Axial compresion):		0.65	Wind Load Factor on Concrete Design:		1.00		
(1) Concrete Pier:						Load/ Capacity Ratio	
Vertical Steel Rebar Area (sq. in./each):		0.79		Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):		1827.4	>	Design Factored Moment (Mu, Kips-Ft)	479.8	0.26	OK!
Calculated Shear Capacity (Kips):		322.7	>	Design Factored Shear (Kips):	41.7	0.13	OK!
Calculated Tension Capacity (Tn, Kips):		1151.8	>	Design Factored Tension (Tu Kips):	372.0	0.32	OK!
Calculated Compression Capacity (Pn, Kips):		4745.3	>	Design Factored Axial Load (Pu Kips):	423.6	0.09	OK!
Moment & Tension Strength Combination:		0.26	OK!	Check Tie Spacing (Design/Req'd):	0.83		
Pier Reinforcement Ratio:		0.006	Reinforcement Ratio is satisfied per ACI				
(2).Concrete Pad:							
One-Way Design Shear Capacity (L or W Direction, Kips):		1117.9	>	One-Way Factored Shear (L/W-Dir Kips	228.0	0.20	OK!
One-Way Design Shear Capacity (Diagonal Dir., Kips):		857.3	>	One-Way Factored Shear (Dia. Dir, Kips	317.1	0.37	OK!
Lower Steel Pad Reinforcement Ratio (L or W-Direct.):		0.0029		Lower Steel Reinf. Ratio (Dia. Dir.):	0.0026		
Lower Steel Pad Moment Capacity (L or W-Dir. Kips-ft):		6518.3	>	Moment at Bottom (L-Direct. K-Ft):	860.9	0.13	OK!
Lower Steel Pad Moment Capacity (Dia. Direction,K-ft):		6147.7	>	Moment at Bottom (Dia. Dir. K-Ft):	1362.9	0.22	OK!
Upper Steel Pad Reinforcement Ratio (L or W -Direction):		0.0029		Upper Steel Reinf. Ratio (Dia. Dir.):	0.0026		
Upper Steel Pad Moment Capacity (L or W-Dir., Kips-ft):		6518.3	>	Moment at the top (L-Dir Kips-Ft):	240.1	0.04	OK!
Upper Steel Pad Moment Capacity (Dia. Direction, K-ft):		6147.7	>	Moment at the top (Dia. Dir., K-Ft):	534.1	0.09	OK!
Punching Failure Capacity (Kips):		1973.2	>	Punch. Failure Factored Shear (K):	423.6	0.21	OK!

EXHIBIT 4

April 15, 2022

Centerline Communications
750 West Center Street, Suite #301
West Bridgewater, MA, 02379

RE:

Site Number:	CT5270
FA Number:	10071333
PACE Number:	MRCTB056929
PT Number:	2051A11Y83
Site Name:	WINDSOR LOCKS
Site Address:	2 Volunteer Drive Windsor Locks, CT 06096

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by Centerline Communications to perform a mount analysis on the existing AT&T antenna/RRH mounts to determine their capability of supporting the following additional loading:

- (3) TPA65R-BU8D Antennas (96.0"x20.7"x7.7" – Wt. = 87 lbs. /each)
- (3) RRUS-32 B30 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (3) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each)
- (3) 8843 B2/B66A RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)
- (3) 4478 B14 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)
- (2) DC6-48-60-18-8F Surge Arrestors (24.0"x9.7"Φ–Wt.=33 lbs./each) (tower mounted)
- **(3) AIR6449 Antennas (30.6"x15.9"x10.6" – Wt. = 82 lbs. /each)**
- **(3) AIR6419 Antennas (31.1"x16.1"x7.3" – Wt. = 66 lbs. /each)**
- **(3) DMP65R-BU8DA Antennas (96.0"x20.7"x7.7" – Wt. = 119 lbs. /each)**
- **(1) DC6-48-60-18-8F Surge Arrestors (24.0"x9.7"Φ–Wt.=33 lbs./each) (tower mounted)**

**Proposed equipment shown in bold.*

No original structural design documents or fabrication drawings were available for the existing mounts. HDG's subconsultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mounts on March 8, 2022.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R16.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 125 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.5 in. An escalated ice thickness of 1.76 in was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- HDG considers this site to have a spectral response acceleration parameter at short periods, S_S, of 0.177 and a spectral response acceleration parameter at a period of 1 second, S_1, of 0.064.
- The mount has been analyzed with load combinations consisting of 500 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 3.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The existing mounts are secured to the existing self supporting tower with brackets and threaded rods. HDG considers the threaded rods to be the governing connection member.

Based on our evaluation, we have determined that the existing mounts **ARE NOT CAPABLE** of supporting the proposed installation. HDG recommends the following modifications:

- **Relocated existing stiff-arm connection points from face verticals to the bottom face horizontal (typ. of 2 per sector, total of 6).**

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing Mount Rating	14	LC20	143%	**FAIL**
Modified Mount Rating	14	LC20	99%	**PASS**

Reference Documents:

- Mount Mapping Report prepared by ProVertic LLC, dated March 11, 2022.

This determination was based on the following limitations and assumptions:

1. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
2. 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.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The existing mount has been adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. HDG performed a localized analysis on the mount itself and not on the supporting tower structure.

Please feel free to contact our office should you have any questions.

Respectfully Submitted,
Hudson Design Group LLC

Michael Cabral
Vice President

Daniel P. Hamm, PE
Principal

FIELD PHOTOS

HUDSON
Design Group LLC

Wind & Ice
Calculations

ANSI/TIA-222H - WIND, ICE & SEISMIC LOAD CALCULATIONS

Site Code/Name		CT5270 - WINDSOR LOCKS		
State		Connecticut		
County		Hartford		*Reference*
Structure Class		II		*Table 2-1*
Exposure Category		B		*Section 2.6.5.1.2*
Topographic Category		1 - Kzt = 1		*Section 2.6.6.2.1*
Mean Elevation of base of structure	z_s	115.28	ft	*ASCE7-16 Hazards*
Height Above Ground	z	164	ft	

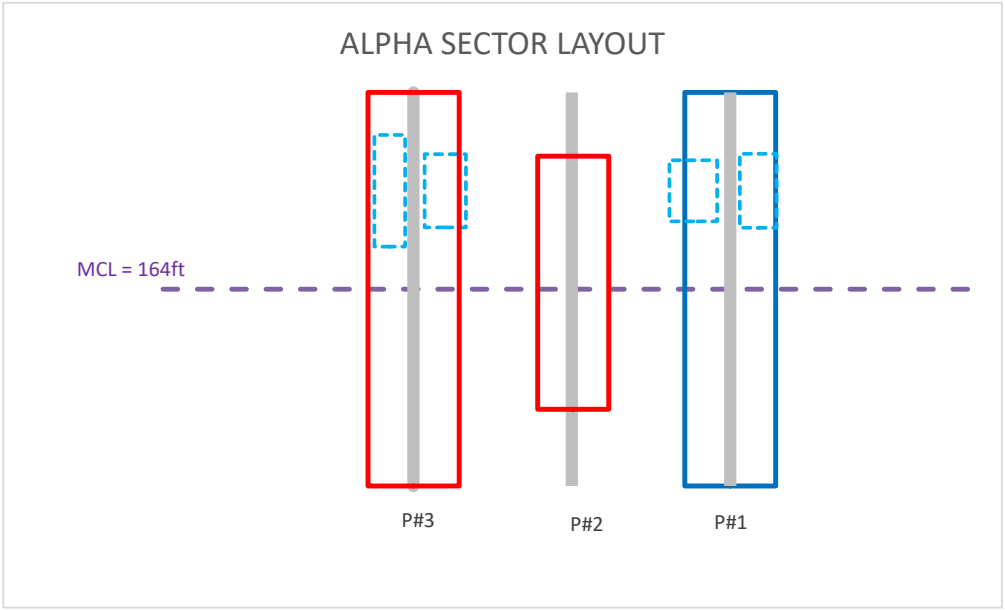
Wind Parameters				
Basic wind speed	V	125	mph	*Appendix N of Connecticut State Building*
Wind direction probability factor	K_d	0.95		*Section 16.6*
Gust effect factor	G_h	1		*Section 16.6*
Velocity Pressure (Ka = 0.9)		38.77	psf	*Section 2.6.11.6*

Wind & Ice Parameters				
Base windspeed in conjunction with ice, V_i		50	mph	*ASCE7-16 Hazards Tool*
Base Ice thickness	t_i	1.50	in	*ASCE7-16 Hazards Tool*
Ice Velocity Pressure (Ka = 0.9)	q_{ice}	6.20	psf	*Section 2.6.11.6*
Design Ice Thickness	t_{iz}	1.76	in	*Section 2.6.10*

Seismic Parameters				
Site Soil Class		D - Default		*Table 2-10*
Seismic Design Category		B		*ASCE7-16 Hazards Tool*
Spectral Response at Short Periods	S_s	0.177		*Appendix N of Connecticut State Building*
Spectral Response at 1sec	S_1	0.064		*Appendix N of Connecticut State Building*
Long Period Transition Period	T_L	6		*ASCE7-16 Hazards Tool*
Seismic Importance Factor	I_s	1		*Table 2-3*
Response modification coefficient	R	2		*Section 16.7*
Short-Period Site Coefficient	F_a	1.6		*Table 2-11*
Design Spectral Response at Short Periods	S_{DS}	0.189		*Section 2.7.5*
Seismic Response Coefficient	C_s	0.094		*Section 2.7.7.1*

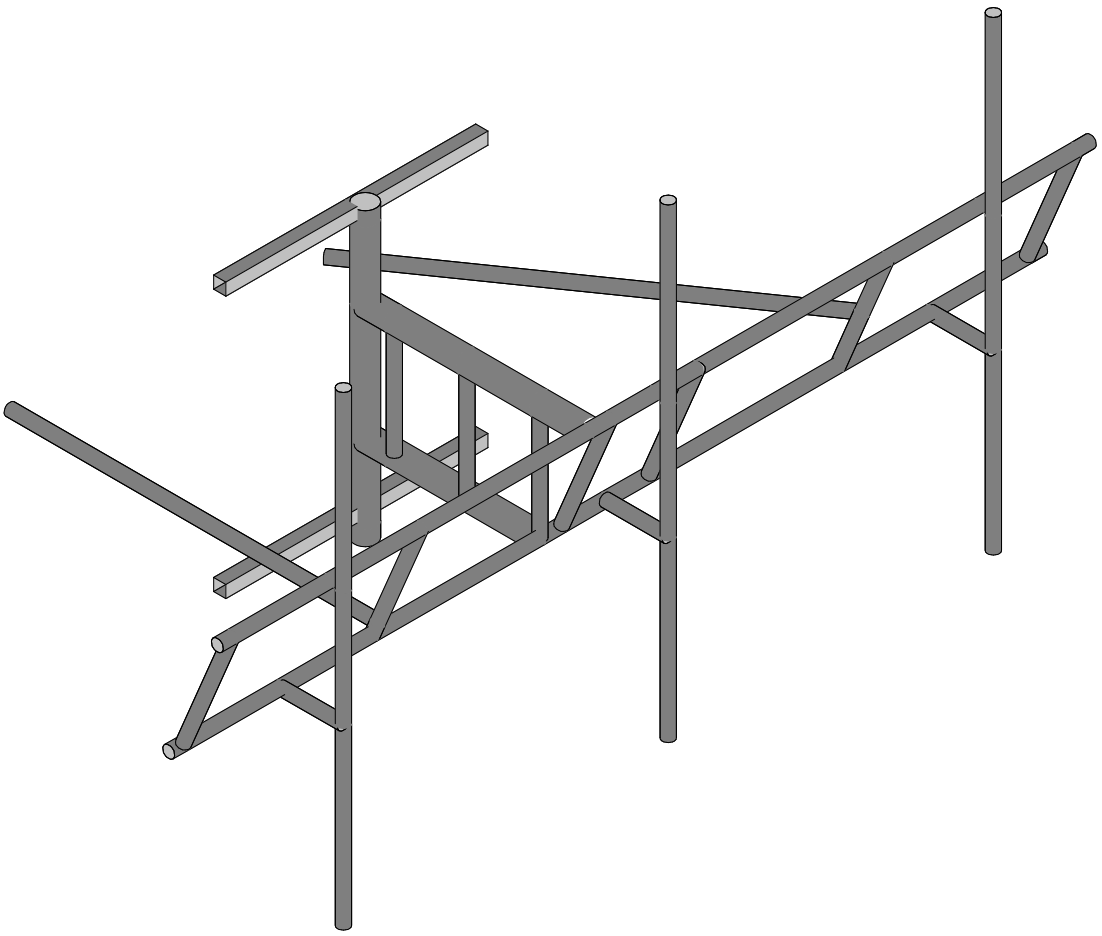
TYPICAL SECTOR

Position	Appurtenance properties						Wind		Ice	Seismic
	Manufacturer	Model	L [in]	W [in]	D [in]	Weight [lbs]	0^o [lbs]	90^o [lbs]	IceWeight [lbs]	E_H [lbs]
1	CCI	TPA65R-BU8D	96.0	20.7	7.7	87.0	692.8	314.9	417.9	8.2
2	Ericsson	AIR6449+AIR6419 STACKED	61.7	16.1	10.6	148.0	336.7	237.3	239.3	14.0
3	CCI	DMP65R-BU8DA	96.0	20.7	7.7	119.0	692.8	314.9	417.9	11.2
1	Ericsson	4478 B14	18.1	13.4	8.3	60.0	48.5	78.4	62.4	5.7
1	Ericsson	8843 B2/B66A	14.9	13.2	10.9	72.0	52.5	63.5	56.4	6.8
3	Ericsson	4449 B5/B12	17.9	13.2	9.4	73.0	54.4	76.3	63.3	6.9
3	Ericsson	RRUS-32 B30	27.2	12.1	7.0	60.0	64.7	106.3	81.7	5.7



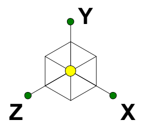
HUDSON
Design Group LLC

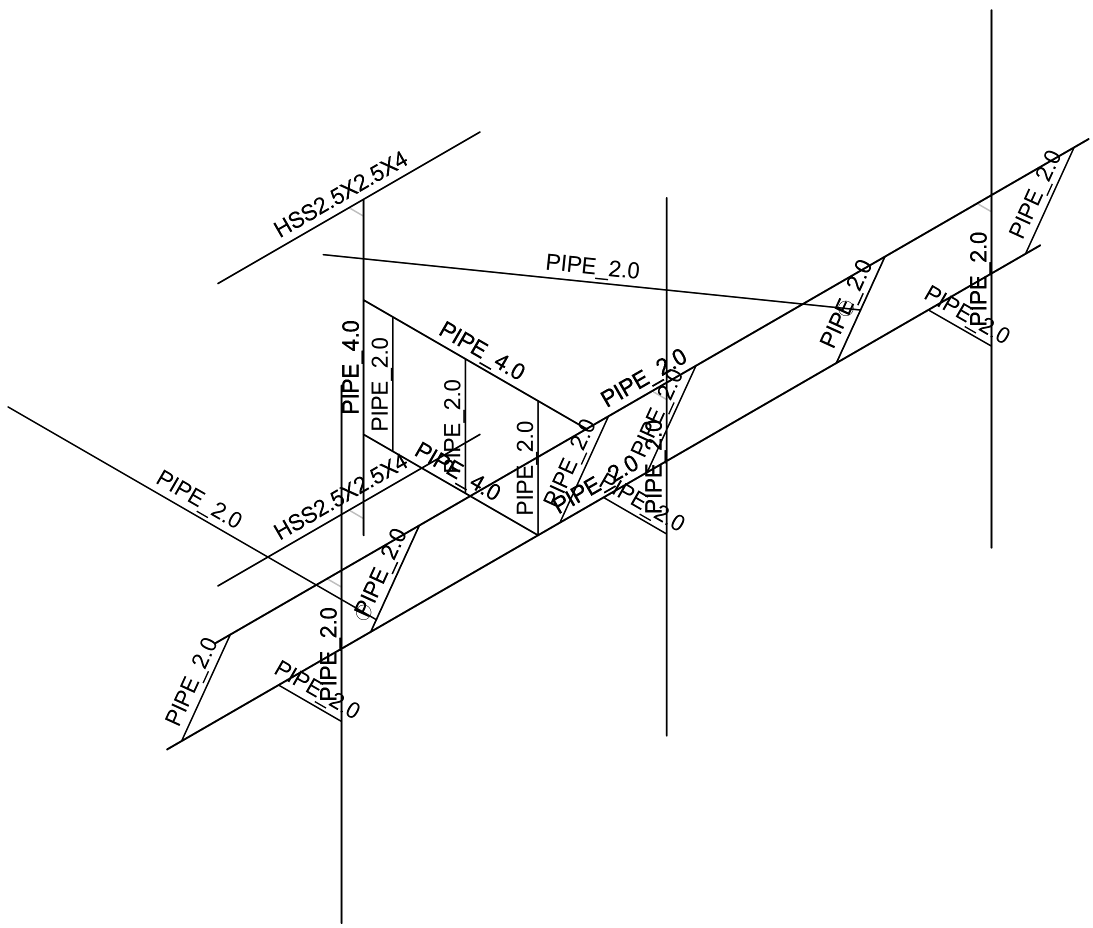
Mount Calculations
(Existing Conditions)



Envelope Only Solution

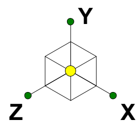
Hudson Design Group, LLC	WINDSOR LOCKS	SK - 1
KM		Apr 15, 2022 at 2:18 PM
CT5270		CT5270.r3d

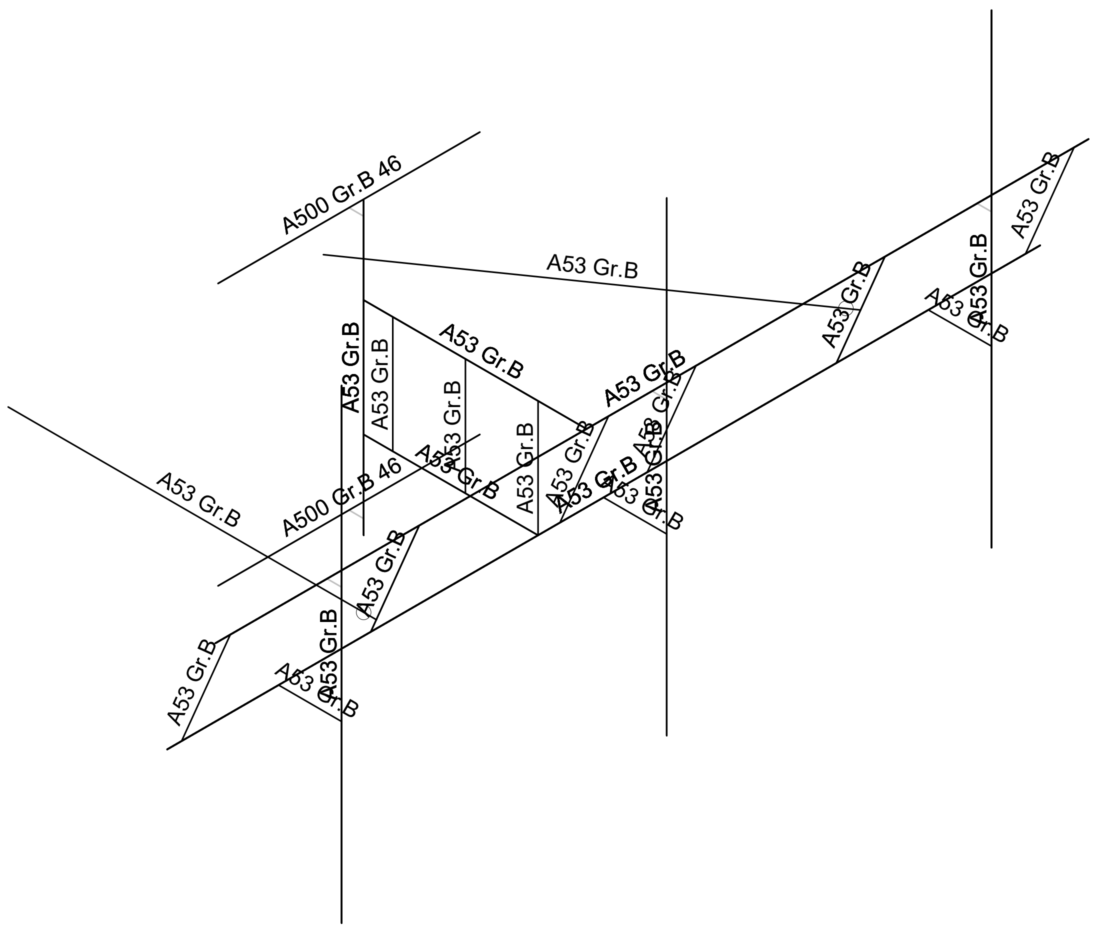




Envelope Only Solution

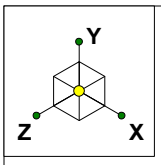
Hudson Design Group, LLC	WINDSOR LOCKS	SK - 2
KM		Apr 15, 2022 at 2:19 PM
CT5270		CT5270.r3d

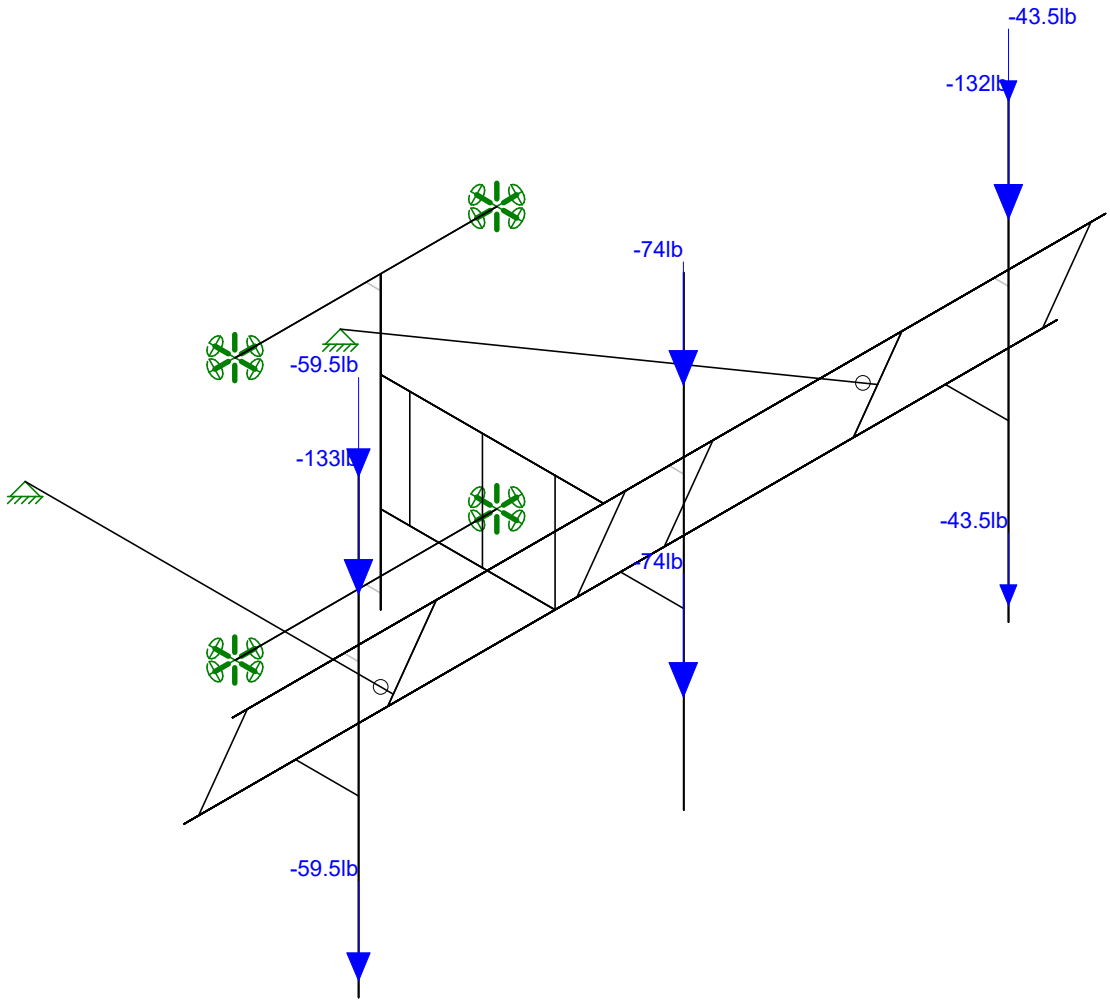




Envelope Only Solution

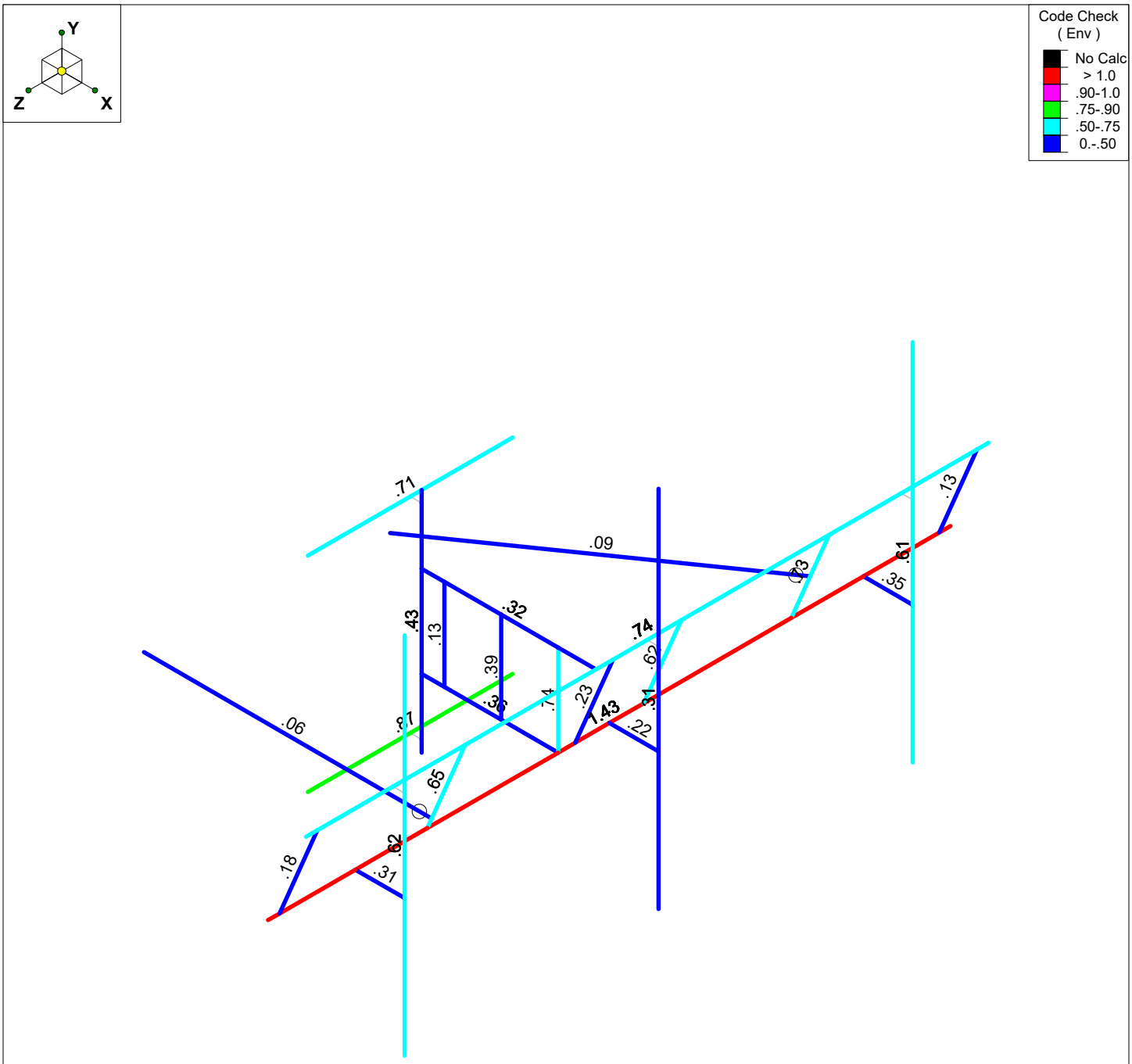
Hudson Design Group, LLC	WINDSOR LOCKS	SK - 3
KM		Apr 15, 2022 at 2:19 PM
CT5270		CT5270.r3d





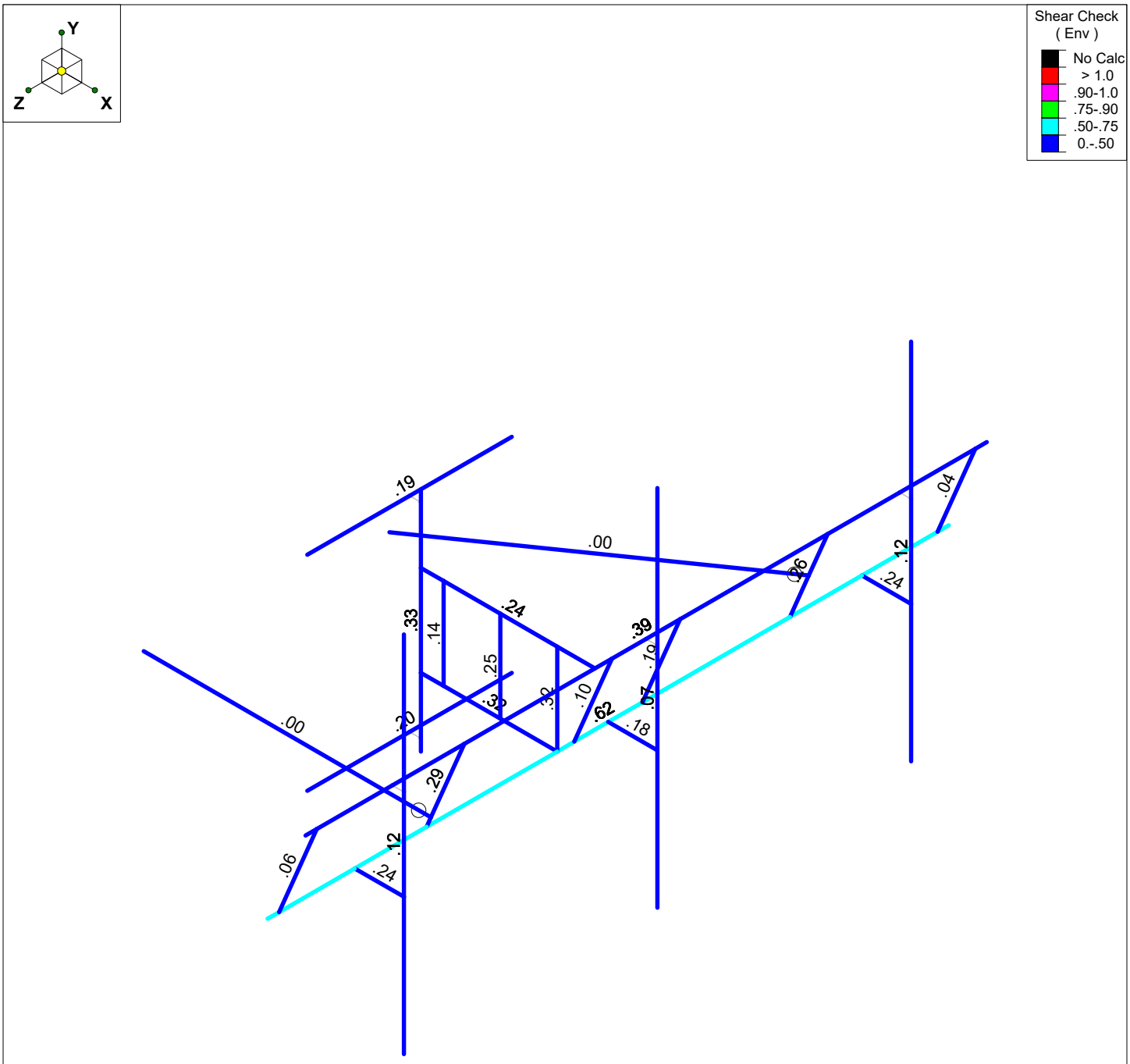
Loads: BLC 2, We
Envelope Only Solution

Hudson Design Group, LLC	WINDSOR LOCKS	SK - 4
KM		Apr 15, 2022 at 2:19 PM
CT5270		CT5270.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Hudson Design Group, LLC	WINDSOR LOCKS	SK - 5
KM		Apr 15, 2022 at 2:20 PM
CT5270		CT5270.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Hudson Design Group, LLC	WINDSOR LOCKS	SK - 6
KM		Apr 15, 2022 at 2:20 PM
CT5270		CT5270.r3d

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): LRFD
Cold Formed Steel Code	AISI S100-16: LRFD
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	AA ADM1-15: LRFD - Building
Stainless Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-16
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B 42	29000	11154	.3	.65	.49	42	1.4	58	1.3
5	A500 Gr.B 46	29000	11154	.3	.65	.49	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	PIPE_4.0	PIPE_4.0	None	None	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
2	PIPE_2.0	PIPE_2.0	None	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
3	HSS2.5X2.5X4	HSS2.5X2.5X4	None	None	A500 Gr.B 46	Typical	1.97	1.63	1.63	2.79

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N24						
2	N25						
3	N28	Reaction	Reaction	Reaction			
4	N29	Reaction	Reaction	Reaction			
5	N50						
6	N51						
7	N52	Reaction	Reaction	Reaction	Reaction		Reaction
8	N53	Reaction	Reaction	Reaction	Reaction		Reaction
9	N54	Reaction	Reaction	Reaction	Reaction		Reaction
10	N55	Reaction	Reaction	Reaction	Reaction		Reaction
11	N56						

Joint Boundary Conditions (Continued)

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
12	N57						

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2			PIPE_4.0	None	None	A53 Gr.B	Typical
2	M2	N3	N4			PIPE_2.0	None	None	A53 Gr.B	Typical
3	M3	N5	N6			PIPE_4.0	None	None	A53 Gr.B	Typical
4	M4	N7	N15			PIPE_2.0	None	None	A53 Gr.B	Typical
5	M5	N8	N16			PIPE_2.0	None	None	A53 Gr.B	Typical
6	M6	N11	N19			PIPE_2.0	None	None	A53 Gr.B	Typical
7	M7	N12	N20			PIPE_2.0	None	None	A53 Gr.B	Typical
8	M8	N9	N17			PIPE_2.0	None	None	A53 Gr.B	Typical
9	M9	N10	N18			PIPE_2.0	None	None	A53 Gr.B	Typical
10	M10	N1	N21			PIPE_2.0	None	None	A53 Gr.B	Typical
11	M11	N23	N22			PIPE_2.0	None	None	A53 Gr.B	Typical
12	M12	N25	N24			PIPE_4.0	None	None	A53 Gr.B	Typical
13	M13	N27	N26			PIPE_2.0	None	None	A53 Gr.B	Typical
14	M14	N13	N14			PIPE_2.0	None	None	A53 Gr.B	Typical
15	M15	N36	N28			PIPE_2.0	None	None	A53 Gr.B	Typical
16	M16	N37	N29			PIPE_2.0	None	None	A53 Gr.B	Typical
17	M17	N33	N30			RIGID	None	None	RIGID	Typical
18	M18	N31	N32			PIPE_2.0	None	None	A53 Gr.B	Typical
19	M19	N34	N35			PIPE_2.0	None	None	A53 Gr.B	Typical
20	M20	N41	N38			RIGID	None	None	RIGID	Typical
21	M21	N39	N40			PIPE_2.0	None	None	A53 Gr.B	Typical
22	M22	N42	N43			PIPE_2.0	None	None	A53 Gr.B	Typical
23	M23	N47	N44			RIGID	None	None	RIGID	Typical
24	M24	N45	N46			PIPE_2.0	None	None	A53 Gr.B	Typical
25	M25	N48	N49			PIPE_2.0	None	None	A53 Gr.B	Typical
26	M26	N53	N55			HSS2.5X2.5X4	None	None	A500 Gr.B...	Typical
27	M27	N52	N54			HSS2.5X2.5X4	None	None	A500 Gr.B...	Typical
28	M28	N51	N57			RIGID	None	None	RIGID	Typical
29	M29	N50	N56			RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1						Yes	** NA **			None
2	M2						Yes	** NA **			None
3	M3						Yes	** NA **			None
4	M4						Yes	** NA **			None
5	M5						Yes	** NA **			None
6	M6						Yes	** NA **			None
7	M7						Yes	** NA **			None
8	M8						Yes	** NA **			None
9	M9						Yes	** NA **			None
10	M10						Yes	** NA **			None
11	M11						Yes	** NA **			None
12	M12						Yes	** NA **			None
13	M13						Yes	** NA **			None
14	M14						Yes	** NA **			None
15	M15	BenPIN					Yes	** NA **			None
16	M16	BenPIN					Yes	** NA **			None
17	M17						Yes	** NA **			None
18	M18						Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
19	M19						Yes	** NA **			None
20	M20						Yes	** NA **			None
21	M21						Yes	** NA **			None
22	M22						Yes	** NA **			None
23	M23						Yes	** NA **			None
24	M24						Yes	** NA **			None
25	M25						Yes	** NA **			None
26	M26						Yes	** NA **			None
27	M27						Yes	** NA **			None
28	M28						Yes	** NA **			None
29	M29						Yes	** NA **			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	PIPE_4.0	36						2.1	2.1		Lateral
2	M2	PIPE_2.0	180	Segment	Segment							Lateral
3	M3	PIPE_4.0	46						2.1	2.1		Lateral
4	M4	PIPE_2.0	26						.65	.65		Lateral
5	M5	PIPE_2.0	26						.65	.65		Lateral
6	M6	PIPE_2.0	26						.65	.65		Lateral
7	M7	PIPE_2.0	26						.65	.65		Lateral
8	M8	PIPE_2.0	26						.65	.65		Lateral
9	M9	PIPE_2.0	26						.65	.65		Lateral
10	M10	PIPE_2.0	24						.65	.65		Lateral
11	M11	PIPE_2.0	24						.65	.65		Lateral
12	M12	PIPE_4.0	60									Lateral
13	M13	PIPE_2.0	24						.65	.65		Lateral
14	M14	PIPE_2.0	180	Segment	Segment							Lateral
15	M15	PIPE_2.0	79.583									Lateral
16	M16	PIPE_2.0	75.722									Lateral
17	M18	PIPE_2.0	96									Lateral
18	M19	PIPE_2.0	13									Lateral
19	M21	PIPE_2.0	96									Lateral
20	M22	PIPE_2.0	13									Lateral
21	M24	PIPE_2.0	96									Lateral
22	M25	PIPE_2.0	13									Lateral
23	M26	HSS2.5X2.5...	54									Lateral
24	M27	HSS2.5X2.5...	54									Lateral

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Self We	DL		-1.1						
2	We	DL					10			
3	Ice We	DL					10	21		
4	W0	WL					10	21		
5	W30	WL					20	42		
6	W60	WL					20	42		
7	W90	WL					10	21		
8	W120	WL					20	42		
9	W150	WL					20	42		
10	W0 + Ice	WL					10	21		
11	W30 + Ice	WL					20	42		
12	W60 + Ice	WL					20	42		
13	W90 + Ice	WL					10	21		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
14	W120 + Ice	WL					20	42		
15	W150 + Ice	WL					20	42		
16	500lbs LM 1	LL				1				
17	500lbs LM 2	LL				1				
18	500lbs LM 3	LL				1				
19	500lbs LM 4	LL								
20	250lbs LV 5	LL				1				
21	250lbs LV 6	LL				1				
22	E0	EL	-.09				10			
23	E90	EL			.09		10			

Load Combinations

	Description	Sol...	PD...	SR...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
1	Dead	Yes	Y		1	1.4	2	1.4	0		0															
2	Dead + Wi...	Yes	Y		1	1.2	2	1.2	4	1	0															
3	Dead + Wi...	Yes	Y		1	1.2	2	1.2	5	1	0															
4	Dead + Wi...	Yes	Y		1	1.2	2	1.2	6	1	0															
5	Dead + Wi...	Yes	Y		1	1.2	2	1.2	7	1	0															
6	Dead + Wi...	Yes	Y		1	1.2	2	1.2	8	1	0															
7	Dead + Wi...	Yes	Y		1	1.2	2	1.2	9	1	0															
8	Dead + Wi...	Yes	Y		1	1.2	2	1.2	4	-1	0															
9	Dead + Wi...	Yes	Y		1	1.2	2	1.2	5	-1	0															
10	Dead + Wi...	Yes	Y		1	1.2	2	1.2	6	-1	0															
11	Dead + Wi...	Yes	Y		1	1.2	2	1.2	7	-1	0															
12	Dead + Wi...	Yes	Y		1	1.2	2	1.2	8	-1	0															
13	Dead + Wi...	Yes	Y		1	1.2	2	1.2	9	-1	0															
14	Dead + Ic...	Yes	Y		1	1.2	2	1.2	10	1	3	1														
15	Dead + Ic...	Yes	Y		1	1.2	2	1.2	11	1	3	1														
16	Dead + Ic...	Yes	Y		1	1.2	2	1.2	12	1	3	1														
17	Dead + Ic...	Yes	Y		1	1.2	2	1.2	13	1	3	1														
18	Dead + Ic...	Yes	Y		1	1.2	2	1.2	14	1	3	1														
19	Dead + Ic...	Yes	Y		1	1.2	2	1.2	15	1	3	1														
20	Dead + Ic...	Yes	Y		1	1.2	2	1.2	10	-1	3	1														
21	Dead + Ic...	Yes	Y		1	1.2	2	1.2	11	-1	3	1														
22	Dead + Ic...	Yes	Y		1	1.2	2	1.2	12	-1	3	1														
23	Dead + Ic...	Yes	Y		1	1.2	2	1.2	13	-1	3	1														
24	Dead + Ic...	Yes	Y		1	1.2	2	1.2	14	-1	3	1														
25	Dead + Ic...	Yes	Y		1	1.2	2	1.2	15	-1	3	1														
26	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	4	.058														
27	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	5	.058														
28	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	6	.058														
29	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	7	.058														
30	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	8	.058														
31	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	9	.058														
32	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	4	-.058														
33	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	5	-.058														
34	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	6	-.058														
35	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	7	-.058														
36	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	8	-.058														
37	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	9	-.058														
38	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	4	.058														
39	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	5	.058														
40	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	6	.058														
41	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	7	.058														
42	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	8	.058														

Load Combinations (Continued)

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
43	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	9	.058														
44	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	4	-.058														
45	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	5	-.058														
46	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	6	-.058														
47	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	7	-.058														
48	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	8	-.058														
49	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	9	-.058														
50	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	4	.058														
51	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	5	.058														
52	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	6	.058														
53	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	7	.058														
54	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	8	.058														
55	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	9	.058														
56	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	4	-.058														
57	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	5	-.058														
58	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	6	-.058														
59	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	7	-.058														
60	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	8	-.058														
61	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	9	-.058														
62	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	4	.058														
63	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	5	.058														
64	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	6	.058														
65	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	7	.058														
66	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	8	.058														
67	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	9	.058														
68	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	4	-.058														
69	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	5	-.058														
70	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	6	-.058														
71	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	7	-.058														
72	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	8	-.058														
73	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	9	-.058														
74	Dead + LV...	Yes	Y		1	1.2	2	1.2	20	1.5	0															
75	Dead + LV...	Yes	Y		1	1.2	2	1.2	21	1.5	0															
76	Service 60...	Yes	Y		1	1	2	1	4	.23	0															
77	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22	1	23															
78	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22	.866	23	.5														
79	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22	.5	23	.866														
80	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22		23	1														
81	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22	-.5	23	.866														
82	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22	-.866	23	.5														
83	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22	-1	23															
84	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22	-.866	23	-.5														
85	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22	-.5	23	-.866														
86	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22		23	-1														
87	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22	.5	23	-.866														
88	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22	.866	23	-.5														

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-in]	LC	MY [k-in]	LC	MZ [k-in]	LC
1	N28	max	1329.657	2	64.8	20	1165.092	8	0	88	0	88	0	88
2		min	-1690.777	8	5.302	13	-925.716	2	0	1	0	1	0	1
3	N29	max	1286.809	3	49.752	21	33.462	11	0	88	0	88	0	88
4		min	-1527.174	9	7.238	3	-28.352	5	0	1	0	1	0	1
5	N52	max	75.325	6	961.836	24	710.601	12	12.422	24	0	88	7.876	21
6		min	-1293.796	24	149.017	6	-530.637	6	2.842	6	0	1	1.885	3

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-in]	LC	MY [k-in]	LC	MZ [k-in]	LC
7	N53	max	1644.054	19	1021.689	18	363.762	13	13.168	18	0	88	7.07	20
8		min	-34.384	13	181.353	12	-833.594	31	3.209	12	0	1	1.87	2
9	N54	max	409.14	12	918.864	18	710.601	12	-2.424	12	0	88	7.876	21
10		min	-1093.712	18	112.437	12	-530.637	6	-12.074	18	0	1	1.885	3
11	N55	max	1600.755	24	945.487	24	363.762	13	-2.63	6	0	88	7.07	20
12		min	-177.434	6	128.978	6	-833.594	31	-12.526	24	0	1	1.87	2
13	Totals:	max	2742.58	2	3754.014	17	1792.354	11						
14		min	-2742.539	8	1156.995	76	-1792.354	5						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear...	Loc[i...	Dir	LC	phi*Pnc...	phi*Pnt ...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	M14	PIPE_2.0	1.426	76.875	20	.620	76.8...		21	32075....	32130	22.459	22.459	2...	H3-6
2	M26	HSS2.5X2.5X4	.869	27	19	.198	27	z	19	64344....	81558	67.482	67.482	1...	H1-1b
3	M2	PIPE_2.0	.743	80.625	23	.386	80.6...		21	32075....	32130	22.459	22.459	1...	H1-1b
4	M10	PIPE_2.0	.740	24	33	.319	0		34	31485....	32130	22.459	22.459	2...	H3-6
5	M8	PIPE_2.0	.734	26	20	.256	13		20	31374....	32130	22.459	22.459	1...	H1-1b
6	M27	HSS2.5X2.5X4	.711	27	24	.193	0	z	22	64344....	81558	67.482	67.482	1...	H1-1b
7	M5	PIPE_2.0	.651	0	25	.289	23.0...		9	31374....	32130	22.459	22.459	2...	H1-1b
8	M18	PIPE_2.0	.622	36	8	.122	36		13	14916....	32130	22.459	22.459	1...	H1-1b
9	M7	PIPE_2.0	.622	0	19	.191	0		20	31374....	32130	22.459	22.459	2...	H1-1b
10	M24	PIPE_2.0	.613	36	8	.115	36		3	14916....	32130	22.459	22.459	1...	H1-1b
11	M12	PIPE_4.0	.432	17.5	21	.328	56.8...		12	86073....	93240	127.575	127.575	1...	H1-1b
12	M13	PIPE_2.0	.389	0	21	.247	24		35	31485....	32130	22.459	22.459	2...	H1-1b
13	M1	PIPE_4.0	.359	36	19	.316	30		32	82122....	93240	127.575	127.575	2...	H1-1b
14	M25	PIPE_2.0	.348	13	8	.235	13		13	31681....	32130	22.459	22.459	1...	H1-1b
15	M3	PIPE_4.0	.324	46	24	.243	39.7...		36	75783....	93240	127.575	127.575	1...	H1-1b
16	M19	PIPE_2.0	.309	13	8	.238	13		3	31681....	32130	22.459	22.459	1...	H1-1b
17	M21	PIPE_2.0	.308	36	21	.075	60		16	14916....	32130	22.459	22.459	2...	H1-1b
18	M6	PIPE_2.0	.231	0	21	.098	0		33	31374....	32130	22.459	22.459	2...	H1-1b
19	M22	PIPE_2.0	.221	0	18	.185	13		23	31681....	32130	22.459	22.459	1...	H1-1b
20	M4	PIPE_2.0	.177	26	75	.063	0		75	31374....	32130	22.459	22.459	2...	H1-1b
21	M11	PIPE_2.0	.133	0	14	.143	0		35	31485....	32130	22.459	22.459	2...	H1-1b
22	M9	PIPE_2.0	.128	26	13	.039	0		2	31374....	32130	22.459	22.459	1...	H1-1b
23	M15	PIPE_2.0	.085	79.583	2	.005	79.5...		24	18962....	32130	22.459	22.459	1...	H1-1b*
24	M16	PIPE_2.0	.065	75.722	3	.005	0		23	19932....	32130	22.459	22.459	1...	H1-1b*

HUDSON
Design Group LLC

Connection Check
(Existing Conditions)

SITE DETAILS

Site Name/Code	WINDSOR LOCKS
Date	4/15/2022
Engineer	KM

CONNECTION PARAMETERS

Loadcase #		**19**	
Number of bolts		**4**	
B		**4**	*in*
D		**6**	*in*
Bolt Diameter	d	**1/2**	*in*
Tensile Area	A_b	0.20	in^2
Tensile Area	A_n	0.14	in^2
Grade		G. 36	
Bolt Ultimate Strength	F_{ub}	58	*ksi*
Connection length reduction factor	R_b	1	

Connection Sketch/Photo

FLANGE LOADS

Bending Moment	Mzz	**7.04**	*kips-in*
Bending Moment	Myy	**0.00**	*kips-in*
Torsional Moment	Mxx	**13.13**	*kips-in*
Shear Force	Vy	**1.02**	*kips*
Shear Force	Vz	**0.58**	*kips*
Axial Force	Px	**1.64**	*kips*

SOFTWARE REACTIONS TABLE

LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-in]	MY [k-in]	MZ [k-in]
19	N53	1644.054	1017.112	-583.909	13.126	0	7.041
19	N55	1278.415	845.632	-583.909	-11.611	0	7.041
19	N54	-1091.427	911.893	136.365	-12.003	0	7.733
19	N52	-1068.461	868.148	136.365	11.617	0	7.733
19	N28	-849.916	63.598	582.732	0	0	0
19	N29	-454.858	47.63	-.72	0	0	0
19	Totals:	-542.193	3754.013	-313.077			
19	COG (in):	X: 39.398	Y: 15.537	Z: 93.749			

BOLT CHECK

Bolt Tension Capacity

$\phi R_{nt} = 0.75 * F_{ub} * A_n$

ϕR_{nt}= **6.2** *kips*

Bolt Shear Capacity

$\phi R_{nv} = 0.75 * 0.45 * Fub * Ab * Rb$

ϕR_{nv}= **4.3** *kips*

Maximum Bolt Tension

$T_{ub} = F_{Mxx} + F_{Mzz} + T_y/4$

T_{ub}= **1.00** *kips*

Maximum Bolt Shear

$V_{ub} = \text{sqrt}((V_x/4)^2 + (V_y/4)^2) + F_{Myy}$

V_{ub}= **1.20** *kips*

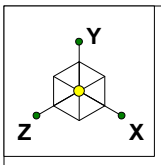
Tension Ratio: **16.2 %** PASS

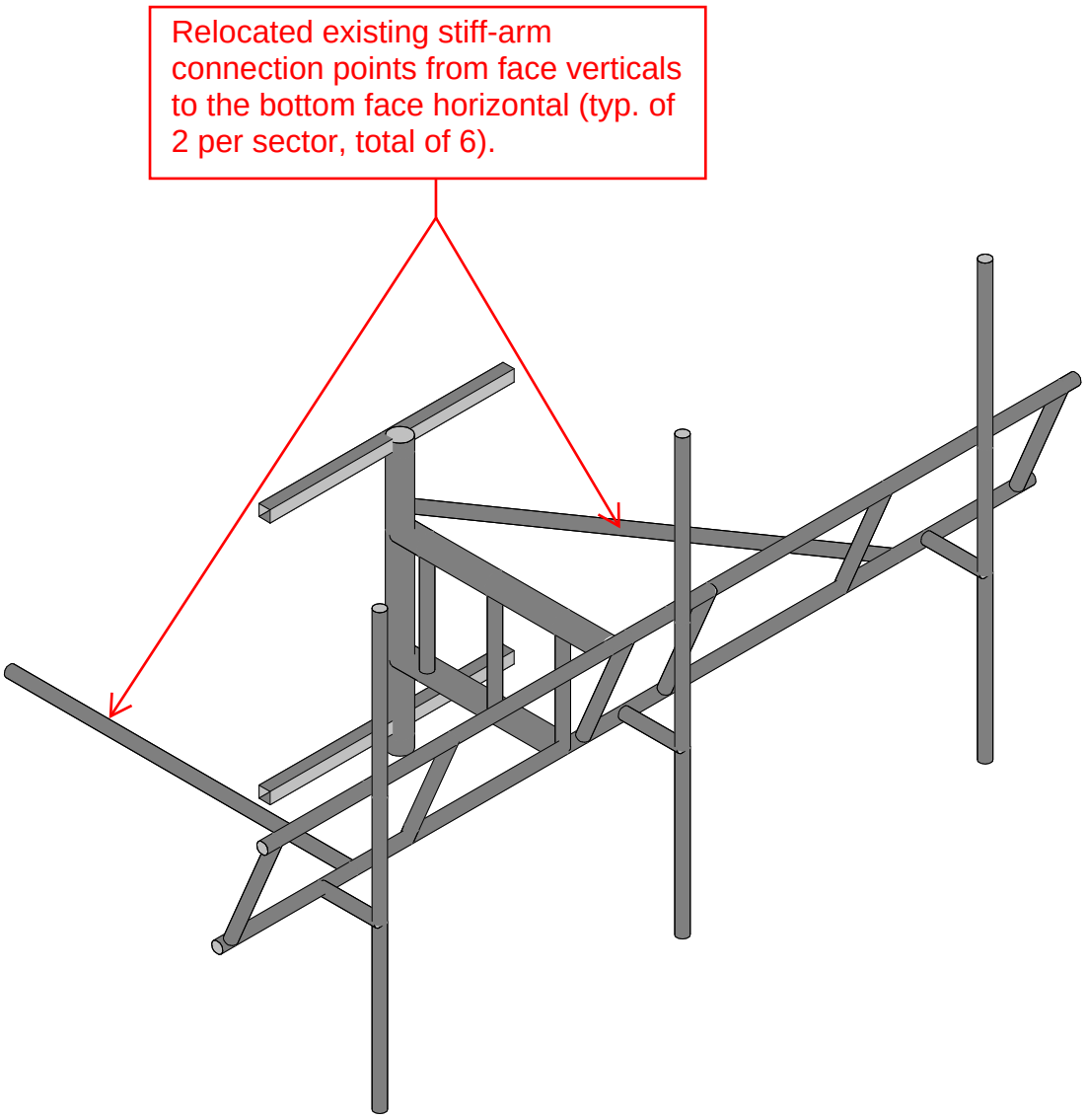
Shear Ratio: **28.2 %** PASS

$(T_{ub} / \phi R_{nt})^2 + (V_{ub} / \phi R_{nv})^2 < 1.0$ **OK** Ratio **10.6%** PASS

HUDSON
Design Group LLC

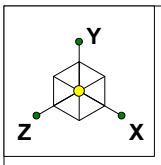
Mount Calculations
(Modified Conditions)

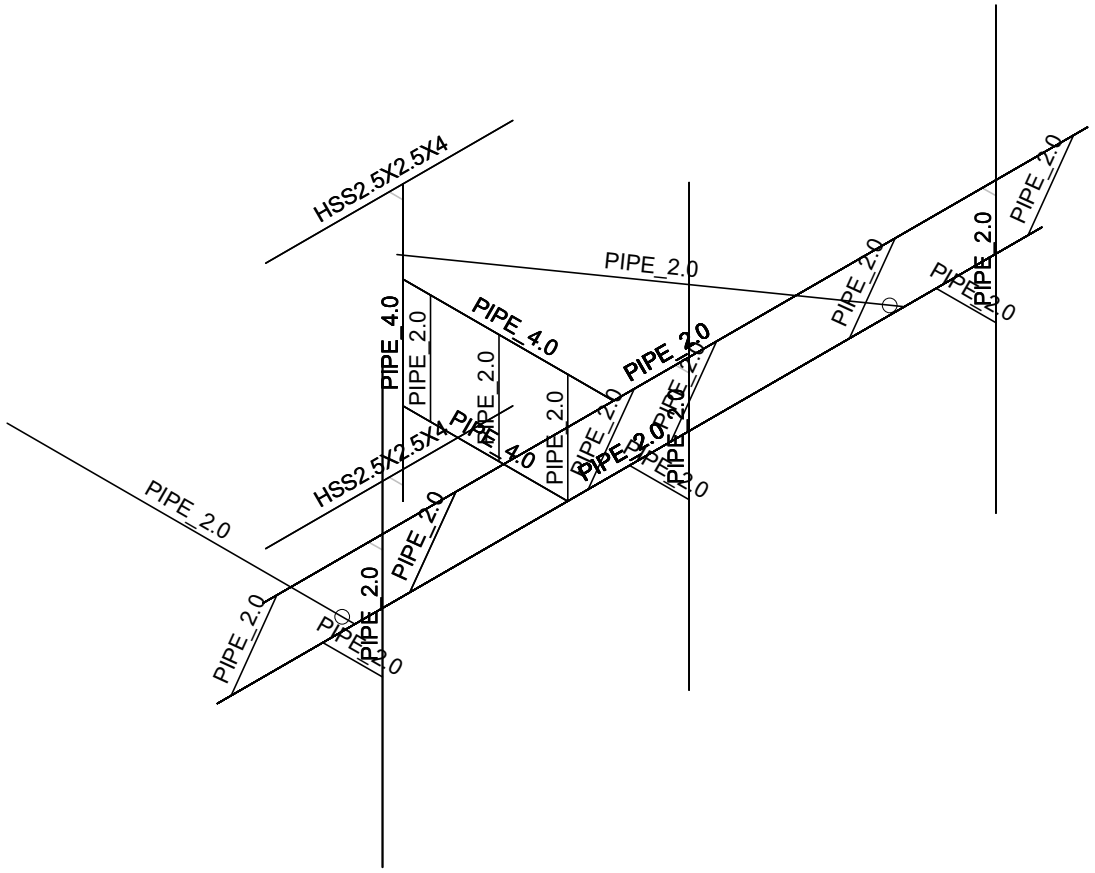




Envelope Only Solution

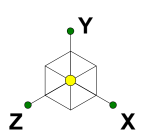
Hudson Design Group, LLC	WINDSOR LOCKS	SK - 1
KM		Apr 15, 2022 at 2:27 PM
CT5270		CT5270.r3d

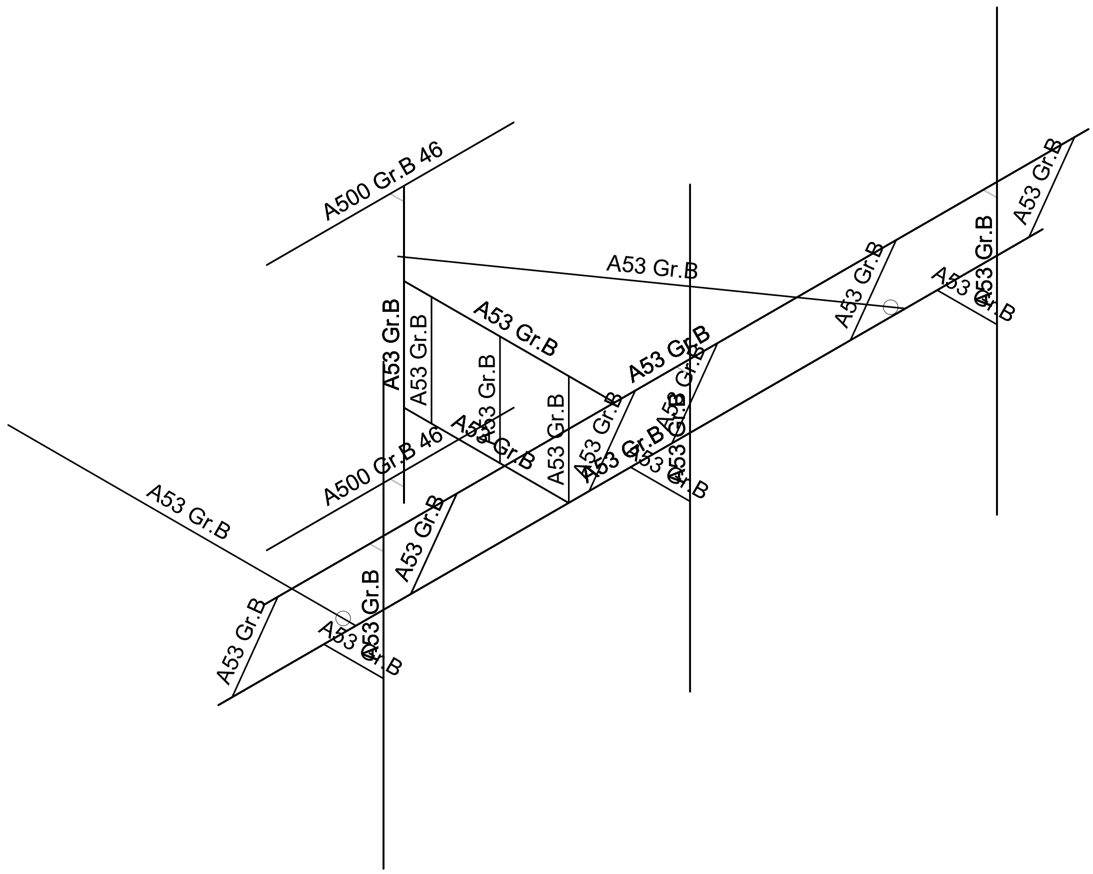




Envelope Only Solution

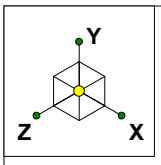
Hudson Design Group, LLC	WINDSOR LOCKS	SK - 2
KM		Apr 15, 2022 at 2:28 PM
CT5270		CT5270.r3d

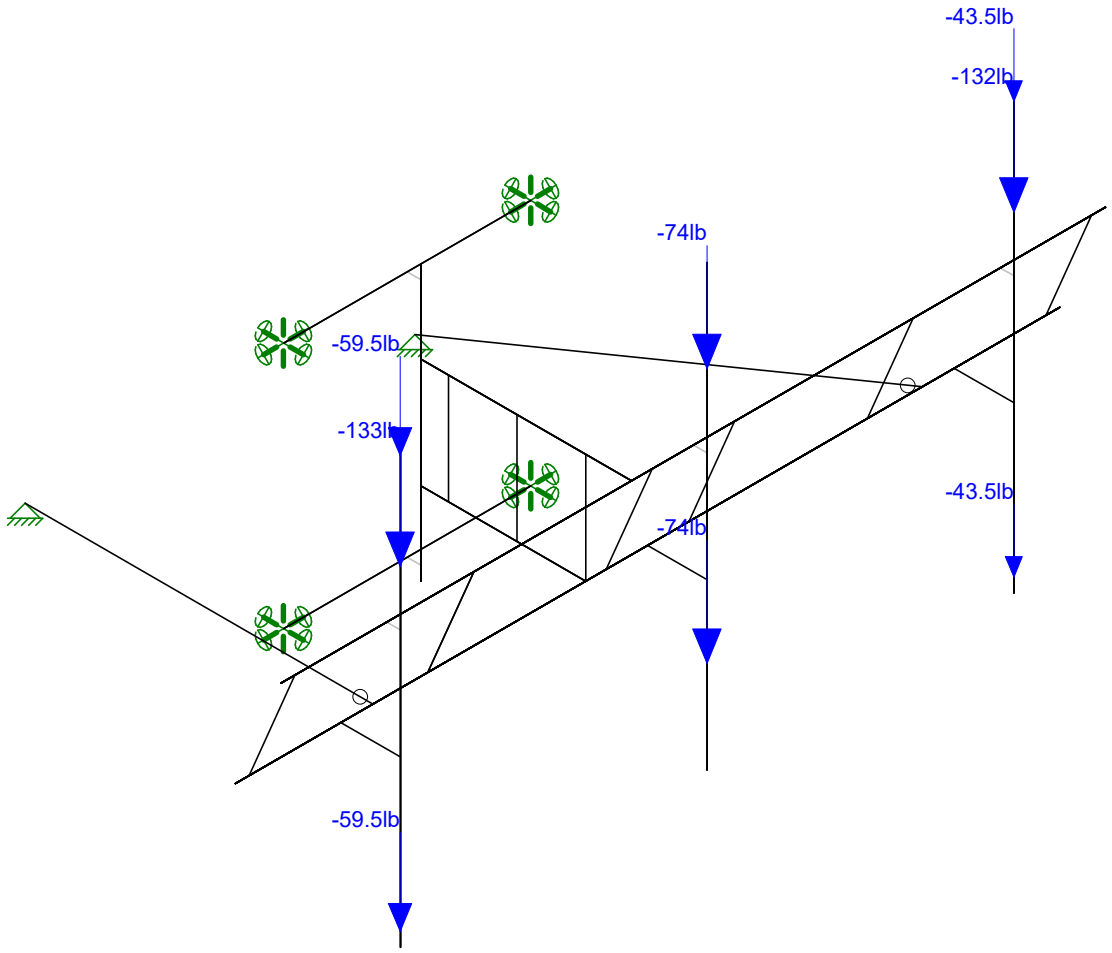




Envelope Only Solution

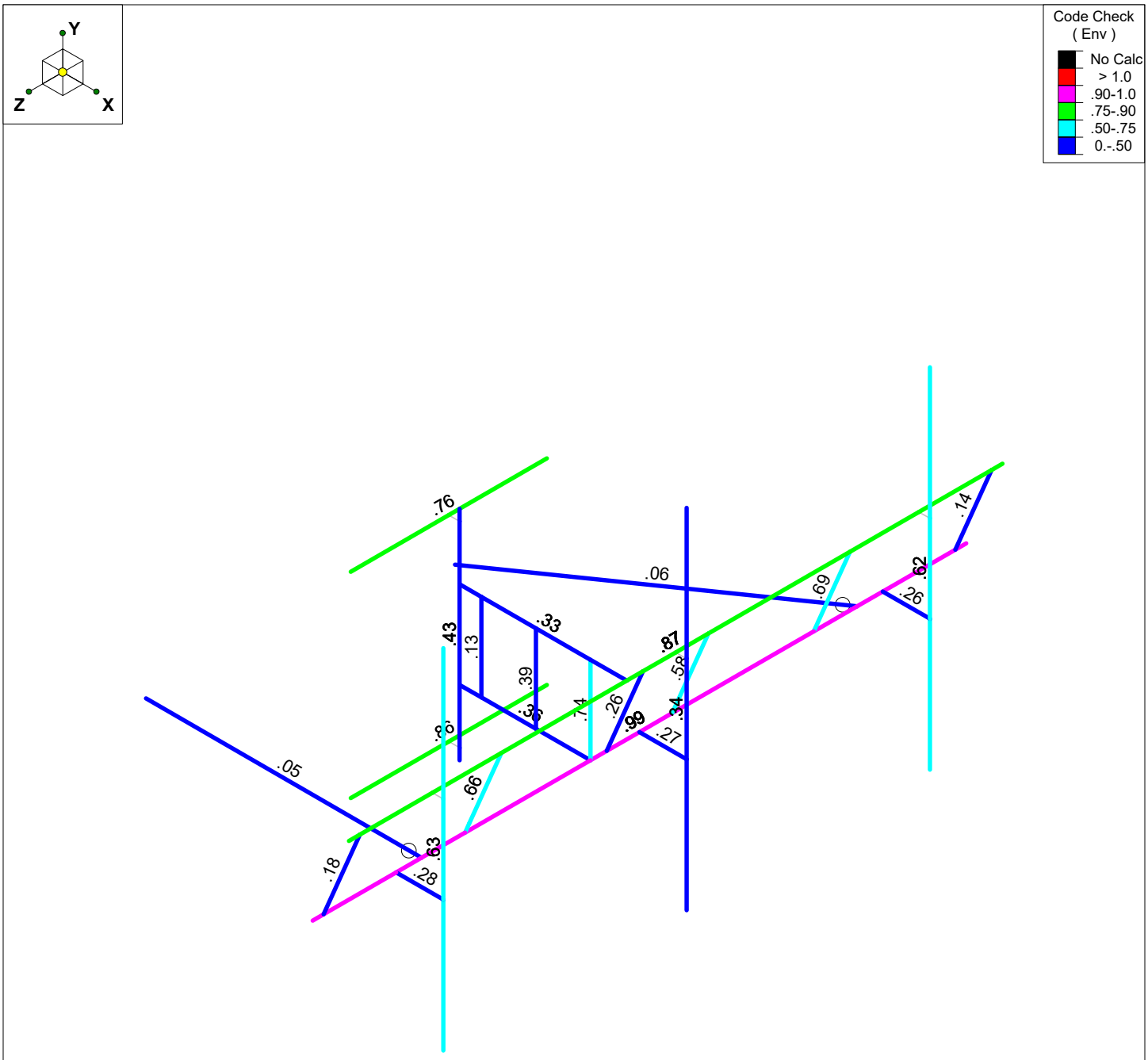
Hudson Design Group, LLC	WINDSOR LOCKS	SK - 3
KM		Apr 15, 2022 at 2:28 PM
CT5270		CT5270.r3d





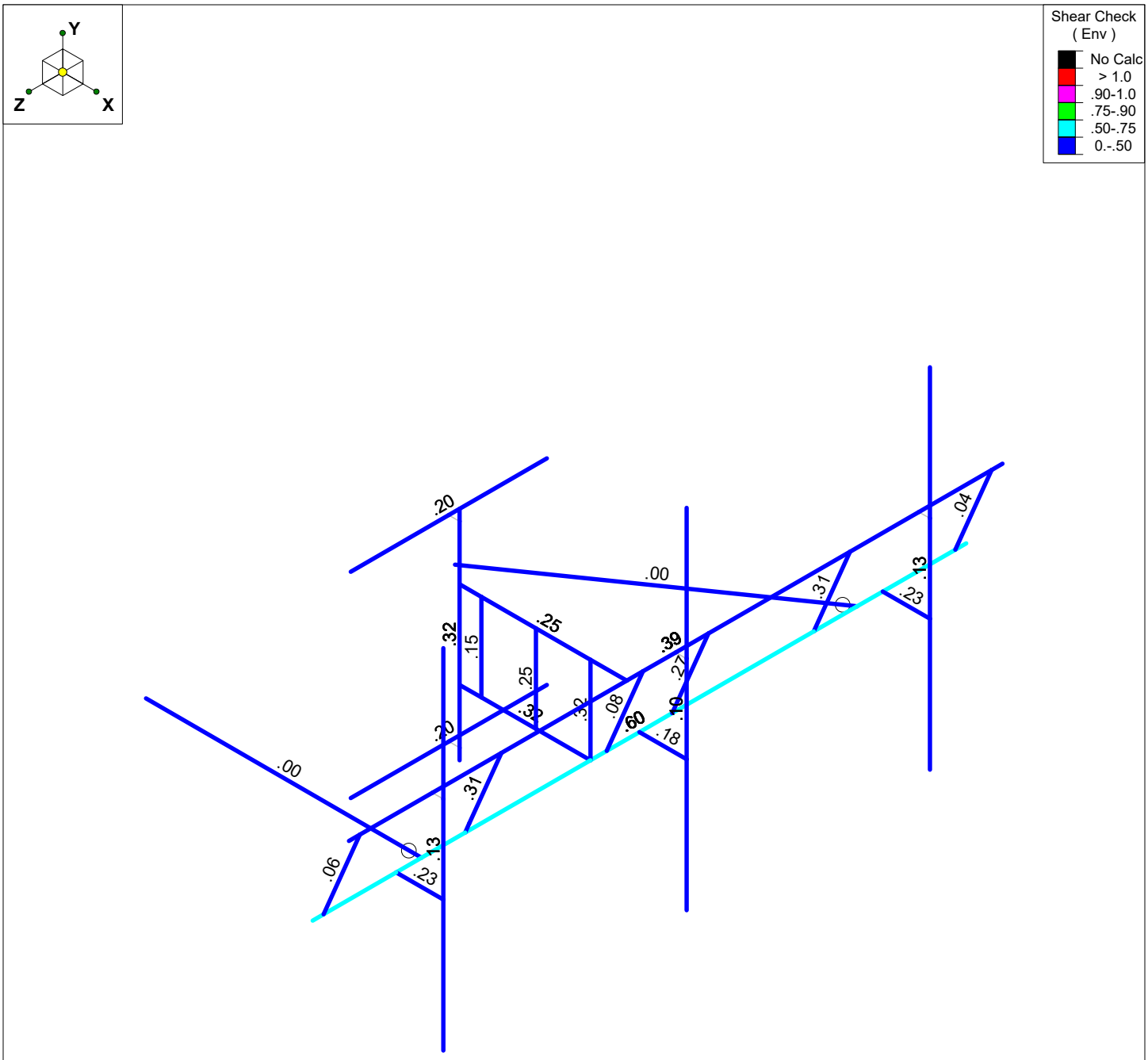
Loads: BLC 2, We
Envelope Only Solution

Hudson Design Group, LLC	WINDSOR LOCKS	SK - 4
KM		Apr 15, 2022 at 2:28 PM
CT5270		CT5270.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Hudson Design Group, LLC	WINDSOR LOCKS	SK - 5
KM		Apr 15, 2022 at 2:29 PM
CT5270		CT5270.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Hudson Design Group, LLC	WINDSOR LOCKS	SK - 6
KM		Apr 15, 2022 at 2:29 PM
CT5270		CT5270.r3d

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): LRFD
Cold Formed Steel Code	AISI S100-16: LRFD
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	AA ADM1-15: LRFD - Building
Stainless Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-16
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B 42	29000	11154	.3	.65	.49	42	1.4	58	1.3
5	A500 Gr.B 46	29000	11154	.3	.65	.49	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	PIPE_4.0	PIPE_4.0	None	None	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
2	PIPE_2.0	PIPE_2.0	None	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
3	HSS2.5X2.5X4	HSS2.5X2.5X4	None	None	A500 Gr.B 46	Typical	1.97	1.63	1.63	2.79

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N24						
2	N25						
3	N47						
4	N48						
5	N49	Reaction	Reaction	Reaction	Reaction		Reaction
6	N50	Reaction	Reaction	Reaction	Reaction		Reaction
7	N51	Reaction	Reaction	Reaction	Reaction		Reaction
8	N52	Reaction	Reaction	Reaction	Reaction		Reaction
9	N53						
10	N54						
11	N56	Reaction	Reaction	Reaction			

Joint Boundary Conditions (Continued)

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
12	N58	Reaction	Reaction	Reaction			

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2			PIPE_4.0	None	None	A53 Gr.B	Typical
2	M2	N3	N4			PIPE_2.0	None	None	A53 Gr.B	Typical
3	M3	N5	N6			PIPE_4.0	None	None	A53 Gr.B	Typical
4	M4	N7	N15			PIPE_2.0	None	None	A53 Gr.B	Typical
5	M5	N8	N16			PIPE_2.0	None	None	A53 Gr.B	Typical
6	M6	N11	N19			PIPE_2.0	None	None	A53 Gr.B	Typical
7	M7	N12	N20			PIPE_2.0	None	None	A53 Gr.B	Typical
8	M8	N9	N17			PIPE_2.0	None	None	A53 Gr.B	Typical
9	M9	N10	N18			PIPE_2.0	None	None	A53 Gr.B	Typical
10	M10	N1	N21			PIPE_2.0	None	None	A53 Gr.B	Typical
11	M11	N23	N22			PIPE_2.0	None	None	A53 Gr.B	Typical
12	M12	N25	N24			PIPE_4.0	None	None	A53 Gr.B	Typical
13	M13	N27	N26			PIPE_2.0	None	None	A53 Gr.B	Typical
14	M14	N13	N14			PIPE_2.0	None	None	A53 Gr.B	Typical
15	M15	N31	N28			RIGID	None	None	RIGID	Typical
16	M16	N29	N30			PIPE_2.0	None	None	A53 Gr.B	Typical
17	M17	N32	N33			PIPE_2.0	None	None	A53 Gr.B	Typical
18	M18	N38	N35			RIGID	None	None	RIGID	Typical
19	M19	N36	N37			PIPE_2.0	None	None	A53 Gr.B	Typical
20	M20	N39	N40			PIPE_2.0	None	None	A53 Gr.B	Typical
21	M21	N44	N41			RIGID	None	None	RIGID	Typical
22	M22	N42	N43			PIPE_2.0	None	None	A53 Gr.B	Typical
23	M23	N45	N46			PIPE_2.0	None	None	A53 Gr.B	Typical
24	M24	N50	N52			HSS2.5X2.5X4	None	None	A500 Gr.B...	Typical
25	M25	N49	N51			HSS2.5X2.5X4	None	None	A500 Gr.B...	Typical
26	M26	N48	N54			RIGID	None	None	RIGID	Typical
27	M27	N47	N53			RIGID	None	None	RIGID	Typical
28	M28	N55	N56			PIPE_2.0	None	None	A53 Gr.B	Typical
29	M29	N57	N58			PIPE_2.0	None	None	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1						Yes	** NA **			None
2	M2						Yes	** NA **			None
3	M3						Yes	** NA **			None
4	M4						Yes	** NA **			None
5	M5						Yes	** NA **			None
6	M6						Yes	** NA **			None
7	M7						Yes	** NA **			None
8	M8						Yes	** NA **			None
9	M9						Yes	** NA **			None
10	M10						Yes	** NA **			None
11	M11						Yes	** NA **			None
12	M12						Yes	** NA **			None
13	M13						Yes	** NA **			None
14	M14						Yes	** NA **			None
15	M15						Yes	** NA **			None
16	M16						Yes	** NA **			None
17	M17						Yes	** NA **			None
18	M18						Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
19	M19						Yes	** NA **			None
20	M20						Yes	** NA **			None
21	M21						Yes	** NA **			None
22	M22						Yes	** NA **			None
23	M23						Yes	** NA **			None
24	M24						Yes	** NA **			None
25	M25						Yes	** NA **			None
26	M26						Yes	** NA **			None
27	M27						Yes	** NA **			None
28	M28	BenPIN					Yes	** NA **			None
29	M29	BenPIN					Yes	** NA **			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	PIPE_4.0	36						2.1	2.1		Lateral
2	M2	PIPE_2.0	180	Segment	Segment							Lateral
3	M3	PIPE_4.0	46						2.1	2.1		Lateral
4	M4	PIPE_2.0	26						.65	.65		Lateral
5	M5	PIPE_2.0	26						.65	.65		Lateral
6	M6	PIPE_2.0	26						.65	.65		Lateral
7	M7	PIPE_2.0	26						.65	.65		Lateral
8	M8	PIPE_2.0	26						.65	.65		Lateral
9	M9	PIPE_2.0	26						.65	.65		Lateral
10	M10	PIPE_2.0	24						.65	.65		Lateral
11	M11	PIPE_2.0	24						.65	.65		Lateral
12	M12	PIPE_4.0	60									Lateral
13	M13	PIPE_2.0	24						.65	.65		Lateral
14	M14	PIPE_2.0	180	Segment	Segment							Lateral
15	M16	PIPE_2.0	96									Lateral
16	M17	PIPE_2.0	13									Lateral
17	M19	PIPE_2.0	96									Lateral
18	M20	PIPE_2.0	13									Lateral
19	M22	PIPE_2.0	96									Lateral
20	M23	PIPE_2.0	13									Lateral
21	M24	HSS2.5X2.5...	54									Lateral
22	M25	HSS2.5X2.5...	54									Lateral
23	M28	PIPE_2.0	75.722									Lateral
24	M29	PIPE_2.0	79.583									Lateral

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Self We	DL		-1.1						
2	We	DL					10			
3	Ice We	DL					10	21		
4	W0	WL					10	21		
5	W30	WL					20	42		
6	W60	WL					20	42		
7	W90	WL					10	21		
8	W120	WL					20	42		
9	W150	WL					20	42		
10	W0 + Ice	WL					10	21		
11	W30 + Ice	WL					20	42		
12	W60 + Ice	WL					20	42		
13	W90 + Ice	WL					10	21		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
14	W120 + Ice	WL					20	42		
15	W150 + Ice	WL					20	42		
16	500lbs LM 1	LL				1				
17	500lbs LM 2	LL				1				
18	500lbs LM 3	LL				1				
19	500lbs LM 4	LL								
20	250lbs LV 5	LL				1				
21	250lbs LV 6	LL				1				
22	E0	EL	-.09				10			
23	E90	EL			.09		10			

Load Combinations

	Description	Sol...	PD...	SR...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
1	Dead	Yes	Y		1	1.4	2	1.4	0		0															
2	Dead + Wi...	Yes	Y		1	1.2	2	1.2	4	1	0															
3	Dead + Wi...	Yes	Y		1	1.2	2	1.2	5	1	0															
4	Dead + Wi...	Yes	Y		1	1.2	2	1.2	6	1	0															
5	Dead + Wi...	Yes	Y		1	1.2	2	1.2	7	1	0															
6	Dead + Wi...	Yes	Y		1	1.2	2	1.2	8	1	0															
7	Dead + Wi...	Yes	Y		1	1.2	2	1.2	9	1	0															
8	Dead + Wi...	Yes	Y		1	1.2	2	1.2	4	-1	0															
9	Dead + Wi...	Yes	Y		1	1.2	2	1.2	5	-1	0															
10	Dead + Wi...	Yes	Y		1	1.2	2	1.2	6	-1	0															
11	Dead + Wi...	Yes	Y		1	1.2	2	1.2	7	-1	0															
12	Dead + Wi...	Yes	Y		1	1.2	2	1.2	8	-1	0															
13	Dead + Wi...	Yes	Y		1	1.2	2	1.2	9	-1	0															
14	Dead + Ic...	Yes	Y		1	1.2	2	1.2	10	1	3	1														
15	Dead + Ic...	Yes	Y		1	1.2	2	1.2	11	1	3	1														
16	Dead + Ic...	Yes	Y		1	1.2	2	1.2	12	1	3	1														
17	Dead + Ic...	Yes	Y		1	1.2	2	1.2	13	1	3	1														
18	Dead + Ic...	Yes	Y		1	1.2	2	1.2	14	1	3	1														
19	Dead + Ic...	Yes	Y		1	1.2	2	1.2	15	1	3	1														
20	Dead + Ic...	Yes	Y		1	1.2	2	1.2	10	-1	3	1														
21	Dead + Ic...	Yes	Y		1	1.2	2	1.2	11	-1	3	1														
22	Dead + Ic...	Yes	Y		1	1.2	2	1.2	12	-1	3	1														
23	Dead + Ic...	Yes	Y		1	1.2	2	1.2	13	-1	3	1														
24	Dead + Ic...	Yes	Y		1	1.2	2	1.2	14	-1	3	1														
25	Dead + Ic...	Yes	Y		1	1.2	2	1.2	15	-1	3	1														
26	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	4	.058														
27	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	5	.058														
28	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	6	.058														
29	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	7	.058														
30	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	8	.058														
31	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	9	.058														
32	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	4	-.058														
33	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	5	-.058														
34	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	6	-.058														
35	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	7	-.058														
36	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	8	-.058														
37	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	9	-.058														
38	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	4	.058														
39	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	5	.058														
40	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	6	.058														
41	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	7	.058														
42	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	8	.058														

Load Combinations (Continued)

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
43	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	9	.058														
44	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	4	-.058														
45	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	5	-.058														
46	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	6	-.058														
47	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	7	-.058														
48	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	8	-.058														
49	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	9	-.058														
50	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	4	.058														
51	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	5	.058														
52	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	6	.058														
53	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	7	.058														
54	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	8	.058														
55	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	9	.058														
56	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	4	-.058														
57	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	5	-.058														
58	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	6	-.058														
59	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	7	-.058														
60	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	8	-.058														
61	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	9	-.058														
62	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	4	.058														
63	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	5	.058														
64	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	6	.058														
65	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	7	.058														
66	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	8	.058														
67	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	9	.058														
68	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	4	-.058														
69	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	5	-.058														
70	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	6	-.058														
71	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	7	-.058														
72	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	8	-.058														
73	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	9	-.058														
74	Dead + LV...	Yes	Y		1	1.2	2	1.2	20	1.5	0															
75	Dead + LV...	Yes	Y		1	1.2	2	1.2	21	1.5	0															
76	Service 60...	Yes	Y		1	1	2	1	4	.23	0															
77	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22	1	23															
78	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22	.866	23	.5														
79	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22	.5	23	.866														
80	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22		23	1														
81	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22	-.5	23	.866														
82	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22	-.866	23	.5														
83	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22	-1	23															
84	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22	-.866	23	-.5														
85	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22	-.5	23	-.866														
86	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22		23	-1														
87	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22	.5	23	-.866														
88	(1.2 + 0.2...	Yes	Y		1	1.238	2	1.238	22	.866	23	-.5														

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-in]	LC	MY [k-in]	LC	MZ [k-in]	LC
1	N49	max	134.793	4	978.704	24	716.945	36	12.602	24	0	88	7.945	21
2		min	-1401.896	22	172.844	6	-431.448	6	3.071	6	0	1	1.851	2
3	N50	max	1635.188	18	1006.673	18	391.641	13	13.009	18	0	88	7.55	20
4		min	-10.051	13	183.662	12	-829.785	31	3.228	12	0	1	1.102	2
5	N51	max	523.418	13	909.333	18	716.945	36	-2.519	12	0	88	7.945	21
6		min	-1243.81	7	123.125	12	-431.448	6	-12.03	18	0	1	1.851	2

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-in]	LC	MY [k-in]	LC	MZ [k-in]	LC
7	N52	max	1550.386	24	946.884	24	391.641	13	-2.641	6	0	88	7.55	20
8		min	-154.42	6	132.529	6	-829.785	31	-12.514	24	0	1	1.102	2
9	N56	max	913.014	3	47.904	21	31.972	11	0	88	0	88	0	88
10		min	-1109.305	9	8.684	3	-28.607	5	0	1	0	1	0	1
11	N58	max	1005.651	2	60.342	20	857.316	8	0	88	0	88	0	88
12		min	-1246.791	8	6.756	13	-696.843	2	0	1	0	1	0	1
13	Totals:	max	2742.506	2	3754.042	23	1792.356	11						
14		min	-2742.39	8	1157.002	76	-1792.355	5						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear...	Loc[i...	Dir	LC	phi*Pnc...	phi*Pnt ...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	M14	PIPE_2.0	.986	76.875	20	.599	76.8...		22	32075....	32130	22.459	22.459	2...	H1-1b
2	M2	PIPE_2.0	.871	76.875	21	.385	80.6...		21	32075....	32130	22.459	22.459	1...	H1-1b
3	M24	HSS2.5X2.5X4	.861	27	18	.204	27	z	19	64344....	81558	67.482	67.482	1...	H1-1b
4	M25	HSS2.5X2.5X4	.756	27	22	.200	0	z	21	64344....	81558	67.482	67.482	1...	H1-1b
5	M10	PIPE_2.0	.740	24	32	.320	0		34	31485....	32130	22.459	22.459	2...	H3-6
6	M8	PIPE_2.0	.692	0	15	.313	26		20	31374....	32130	22.459	22.459	2...	H1-1b
7	M5	PIPE_2.0	.659	0	25	.310	26		21	31374....	32130	22.459	22.459	2...	H1-1b
8	M16	PIPE_2.0	.627	36	8	.127	36		13	14916....	32130	22.459	22.459	1...	H1-1b
9	M22	PIPE_2.0	.620	36	8	.126	36		3	14916....	32130	22.459	22.459	1...	H1-1b
10	M7	PIPE_2.0	.579	0	18	.269	0		8	31374....	32130	22.459	22.459	2...	H1-1b
11	M12	PIPE_4.0	.429	17.5	20	.315	56.8...		12	86073....	93240	127.575	127.575	1...	H1-1b
12	M13	PIPE_2.0	.392	0	20	.252	0		32	31485....	32130	22.459	22.459	2...	H1-1b
13	M1	PIPE_4.0	.359	36	18	.319	30		32	82122....	93240	127.575	127.575	2...	H1-1b
14	M19	PIPE_2.0	.341	36	20	.104	36		8	14916....	32130	22.459	22.459	2...	H1-1b
15	M3	PIPE_4.0	.332	46	22	.254	39.7...		35	75783....	93240	127.575	127.575	2...	H1-1b
16	M17	PIPE_2.0	.276	13	8	.228	13		4	31681....	32130	22.459	22.459	1...	H1-1b
17	M20	PIPE_2.0	.266	0	19	.181	13		23	31681....	32130	22.459	22.459	1...	H1-1b
18	M23	PIPE_2.0	.259	13	8	.228	0		10	31681....	32130	22.459	22.459	2...	H1-1b
19	M6	PIPE_2.0	.259	0	20	.083	0		37	31374....	32130	22.459	22.459	2...	H1-1b
20	M4	PIPE_2.0	.176	26	75	.062	0		75	31374....	32130	22.459	22.459	2...	H1-1b
21	M9	PIPE_2.0	.139	26	2	.038	0		2	31374....	32130	22.459	22.459	1...	H1-1b
22	M11	PIPE_2.0	.132	24	25	.146	0		32	31485....	32130	22.459	22.459	2...	H1-1b
23	M29	PIPE_2.0	.065	79.583	2	.005	79.5...		24	18962....	32130	22.459	22.459	1...	H1-1b*
24	M28	PIPE_2.0	.046	75.722	3	.005	0		23	19932....	32130	22.459	22.459	1...	H1-1b*

HUDSON
Design Group LLC

Connection Check
(Modified Conditions)

SITE DETAILS

Site Name/Code	WINDSOR LOCKS
Date	4/15/2022
Engineer	KM

CONNECTION PARAMETERS

Loadcase #		**18**	
Number of bolts		**4**	
B		**4**	*in*
D		**6**	*in*
Bolt Diameter	d	**1/2**	*in*
Tensile Area	A_b	0.20	in^2
Tensile Area	A_n	0.14	in^2
Grade		G. 36	
Bolt Ultimate Strength	F_{ub}	58	*ksi*
Connection length reduction factor	R_b	1	

Connection Sketch/Photo

FLANGE LOADS

Bending Moment	Mzz	**7.35**	*kips-in*
Bending Moment	Myy	**0.00**	*kips-in*
Torsional Moment	Mxx	**13.01**	*kips-in*
Shear Force	Vy	**1.01**	*kips*
Shear Force	Vz	**0.59**	*kips*
Axial Force	Px	**1.64**	*kips*

SOFTWARE REACTIONS TABLE

LC	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-in]	MY [k-in]	MZ [k-in]
18	N50	1635.188	1006.673	-588.826	13.009	0	7.347
18	N52	1221.219	845.05	-588.826	-11.58	0	7.347
18	N51	-1202.789	909.333	200.334	-12.03	0	7.781
18	N49	-1156.66	890.793	200.334	11.862	0	7.781
18	N58	-494.325	56.743	331.322	0	0	0
18	N56	-263.061	45.448	-5.754	0	0	0
18	Totals:	-260.429	3754.039	-451.415			
18	COG (in):	X: 39.253	Y: 15.188	Z: 93.735			

BOLT CHECK

Bolt Tension Capacity

$\phi R_{nt} = 0.75 * F_{ub} * A_n$

ϕR_{nt} = **6.2** *kips*

Bolt Shear Capacity

$\phi R_{nv} = 0.75 * 0.45 * Fub * Ab * Rb$

ϕR_{nv} = **4.3** *kips*

Maximum Bolt Tension

$T_{ub} = F_{Mxx} + F_{Mzz} + T_y/4$

T_{ub} = **1.02** *kips*

Maximum Bolt Shear

$V_{ub} = \text{sqrt}((V_x/4)^2 + (V_y/4)^2) + F_{Myy}$

V_{ub} = **1.19** *kips*

Tension Ratio:	**16.5 %**	**Shear Ratio:**	**27.9 %**
	PASS		PASS

$(T_{ub} / \phi R_{nt})^2 + (V_{ub} / \phi R_{nv})^2 < 1.0$ **OK** Ratio **10.5%** PASS

EXHIBIT 5

Radio Frequency Exposure Analysis Report

August 9, 2022

Centerline on behalf of AT&T
Centerline Communications Project Number: N/A

AT&T Site Name: WINDSOR LOCKS
Site Number: CT5270
FA#: 10071333
USID: 14370

Site Address: 2 VOLUNTEER DRIVE, WINDSOR LOCKS, CT 06096

Site Compliance Summary

AT&T Compliance Status:	Compliant
Cumulative Calculated Power Density (Ground Level):	53.48237 µW/cm^2
Cumulative General Population % MPE (Ground Level):	5.3483499999999999%

August 9, 2022

Centerline
Attn: Jennifer Iliades, Project Manager
750 W Center St, Suite 301
West Bridgewater, MA 02379

RF Exposure Analysis for Site: **WINDSOR LOCKS**

Centerline Communications, LLC ("Centerline") was contracted to analyze the proposed AT&T facility at **2 VOLUNTEER DRIVE, WINDSOR LOCKS, CT 06096** for the purpose of determining whether the predictive exposure from the proposed facility is within specified federal limits.

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

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

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

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

Calculation Methodology

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

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

Data & Results

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

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

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

Maximum Calculated Cumulative Power Density (Location: approximately 380' southwest of site)

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density ($\mu W/cm^2$)	General Population MPE Limit ($\mu W/cm^2$)	General Population % MPE
AT&T A 1	CCI TPA65R-BU8D	700	12.95	164.00	4.00	30.00	2366.91	0.00000	466.67	0.00000
AT&T A 1	CCI TPA65R-BU8D	1900	15.45	164.00	4.00	30.00	4209.02	0.00000	1000.00	0.00000
AT&T A 1	CCI TPA65R-BU8D	2100	15.85	164.00	4.00	30.00	4615.10	0.00000	1000.00	0.00000
AT&T A 2	Ericsson AIR6449	3700	23.45	164.00	1.00	108.40	23989.95	0.00001	1000.00	0.00000
AT&T A 3	Ericsson AIR6419	3450	23.45	164.00	1.00	108.40	23989.95	0.00001	1000.00	0.00000
AT&T A 4	CCI DMP65R-BU8D	700	12.25	164.00	4.00	30.00	2014.56	0.00000	466.67	0.00000
AT&T A 4	CCI DMP65R-BU8D	850	12.75	164.00	4.00	30.00	2260.38	0.00000	566.67	0.00000
AT&T A 4	CCI DMP65R-BU8D	2300	14.95	164.00	4.00	18.00	2250.78	0.00000	1000.00	0.00000
AT&T B 5	CCI TPA65R-BU8D	700	12.85	164.00	4.00	30.00	2313.03	0.00000	466.67	0.00000
AT&T B 5	CCI TPA65R-BU8D	1900	15.45	164.00	4.00	30.00	4209.02	0.00000	1000.00	0.00000
AT&T B 5	CCI TPA65R-BU8D	2100	15.85	164.00	4.00	30.00	4615.10	0.00000	1000.00	0.00000
AT&T B 6	Ericsson AIR6449	3700	23.45	164.00	1.00	108.40	23989.95	0.00000	1000.00	0.00000
AT&T B 7	Ericsson AIR6419	3450	23.45	164.00	1.00	108.40	23989.95	0.00000	1000.00	0.00000
AT&T B 8	CCI DMP65R-BU8D	700	12.15	164.00	4.00	30.00	1968.71	0.00000	466.67	0.00000
AT&T B 8	CCI DMP65R-BU8D	850	12.65	164.00	4.00	30.00	2208.93	0.00000	566.67	0.00000
AT&T B 8	CCI DMP65R-BU8D	2300	14.95	164.00	4.00	18.00	2250.78	0.00000	1000.00	0.00000
AT&T C 9	CCI TPA65R-BU8D	700	12.95	164.00	4.00	30.00	2366.91	0.00013	466.67	0.00003
AT&T C 9	CCI TPA65R-BU8D	1900	15.15	164.00	4.00	30.00	3928.09	0.00009	1000.00	0.00001
AT&T C 9	CCI TPA65R-BU8D	2100	15.75	164.00	4.00	30.00	4510.05	0.00009	1000.00	0.00001
AT&T C 10	Ericsson AIR6449	3700	23.45	164.00	1.00	108.40	23989.95	0.00059	1000.00	0.00006
AT&T C 11	Ericsson AIR6419	3450	23.45	164.00	1.00	108.40	23989.95	0.00048	1000.00	0.00005
AT&T C 12	CCI DMP65R-BU8D	700	12.25	164.00	4.00	30.00	2014.56	0.00013	466.67	0.00003
AT&T C 12	CCI DMP65R-BU8D	850	12.75	164.00	4.00	30.00	2260.38	0.00012	566.67	0.00002
AT&T C 12	CCI DMP65R-BU8D	2300	14.95	164.00	4.00	18.00	2250.78	0.00006	1000.00	0.00001
WLPD A 13	GENERIC OMNI 12FT	850	8.96	203.40	1.00	12.70	99.95	0.00000	566.67	0.00000
WLPD A 14	GENERIC OMNI 12FT	850	8.96	183.70	1.00	12.70	99.95	0.00000	566.67	0.00000
WLPD A 15	GENERIC OMNI 12FT	850	8.96	182.80	1.00	12.70	99.95	0.00000	566.67	0.00000
WLPD A 16	GENERIC OMNI 12FT	850	8.96	180.60	1.00	12.70	99.95	0.00000	566.67	0.00000
WLPD A 17	GENERIC OMNI 12FT	850	8.96	179.10	1.00	12.70	99.95	0.00000	566.67	0.00000
Verizon A 18	ANTEL BXA-70063-6CF-EDIN-5	850	14.50	150.00	7.00	20.00	3945.74	0.00000	566.67	0.00000
Verizon A 19	COMMSCOPE SBNHH-1D65B	700	12.38	150.00	4.00	40.00	2767.71	0.00000	466.67	0.00000
Verizon A 19	COMMSCOPE SBNHH-1D65B	1900	15.89	150.00	4.00	40.00	6210.41	0.00000	1000.00	0.00000
Verizon A 20	COMMSCOPE SBNHH-1D65B	850	12.67	150.00	4.00	40.00	2958.83	0.00000	566.67	0.00000
Verizon A 20	COMMSCOPE SBNHH-1D65B	2100	16.44	150.00	4.00	40.00	7048.88	0.00000	1000.00	0.00000
Verizon A 21	SAMSUNG MT6407	3700	23.35	150.00	4.00	50.00	43254.37	0.00003	1000.00	0.00000

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density (μW/cm²)	General Population MPE Limit (μW/cm²)	General Population % MPE
Verizon B 22	ANTEL BXA-70063-6CF-EDIN-5	850	14.50	150.00	7.00	20.00	3945.74	0.00000	566.67	0.00000
Verizon B 23	COMMSCOPE SBNHH-1D65B	700	12.38	150.00	4.00	40.00	2767.71	0.00000	466.67	0.00000
Verizon B 23	COMMSCOPE SBNHH-1D65B	1900	15.89	150.00	4.00	40.00	6210.41	0.00000	1000.00	0.00000
Verizon B 24	COMMSCOPE SBNHH-1D65B	850	12.67	150.00	4.00	40.00	2958.83	0.00000	566.67	0.00000
Verizon B 24	COMMSCOPE SBNHH-1D65B	2100	16.44	150.00	4.00	40.00	7048.88	0.00000	1000.00	0.00000
Verizon B 25	SAMSUNG MT6407	3700	23.35	150.00	4.00	50.00	43254.37	0.00004	1000.00	0.00000
Verizon C 26	ANTEL BXA-70063-6CF-EDIN-5	850	14.50	150.00	7.00	20.00	3945.74	0.00014	566.67	0.00003
Verizon C 27	COMMSCOPE SBNHH-1D65B	700	12.38	150.00	4.00	40.00	2767.71	0.00010	466.67	0.00002
Verizon C 27	COMMSCOPE SBNHH-1D65B	1900	15.89	150.00	4.00	40.00	6210.41	0.00011	1000.00	0.00001
Verizon C 28	COMMSCOPE SBNHH-1D65B	850	12.67	150.00	4.00	40.00	2958.83	0.00011	566.67	0.00002
Verizon C 28	COMMSCOPE SBNHH-1D65B	2100	16.44	150.00	4.00	40.00	7048.88	0.00011	1000.00	0.00001
Verizon C 29	SAMSUNG MT6407	3700	23.35	150.00	4.00	50.00	43254.37	0.00131	1000.00	0.00013
T-Mobile A 30	RFS APXVAARR24 43-U-NA20	700	13.17	135.00	4.00	40.00	3319.86	0.00000	466.67	0.00000
T-Mobile A 30	RFS APXVAARR24 43-U-NA20	600	13.09	135.00	2.00	40.00	1629.63	0.00000	400.00	0.00000
T-Mobile A 30	RFS APXVAARR24 43-U-NA20	600	13.09	135.00	2.00	30.00	1222.23	0.00000	400.00	0.00000
T-Mobile A 31	ERICSSON AIR6419	2500	22.05	135.00	2.00	80.00	25651.93	0.35741	1000.00	0.03574
T-Mobile A 31	ERICSSON AIR6419	2500	22.05	135.00	2.00	80.00	25651.93	0.35741	1000.00	0.03574
T-Mobile A 32	ERICSSON AIR 32	1900	15.65	135.00	4.00	30.00	4407.39	0.00000	1000.00	0.00000
T-Mobile A 32	ERICSSON AIR 32	2100	15.65	135.00	4.00	40.00	5876.52	0.00000	1000.00	0.00000
T-Mobile B 33	RFS APXVAARR24 43-U-NA20	700	13.17	135.00	4.00	40.00	3319.86	0.00000	466.67	0.00000
T-Mobile B 33	RFS APXVAARR24 43-U-NA20	600	13.09	135.00	2.00	40.00	1629.63	0.00000	400.00	0.00000
T-Mobile B 33	RFS APXVAARR24 43-U-NA20	600	13.09	135.00	2.00	30.00	1222.23	0.00000	400.00	0.00000
T-Mobile B 34	ERICSSON AIR6419	2500	22.05	135.00	2.00	80.00	25651.93	0.15855	1000.00	0.01586
T-Mobile B 34	ERICSSON AIR6419	2500	22.05	135.00	2.00	80.00	25651.93	0.15855	1000.00	0.01586
T-Mobile B 35	ERICSSON AIR 32	1900	15.65	135.00	4.00	30.00	4407.39	0.00000	1000.00	0.00000
T-Mobile B 35	ERICSSON AIR 32	2100	15.65	135.00	4.00	40.00	5876.52	0.00000	1000.00	0.00000
T-Mobile C 36	RFS APXVAARR24 43-U-NA20	700	13.17	135.00	4.00	40.00	3319.86	0.00014	466.67	0.00003
T-Mobile C 36	RFS APXVAARR24 43-U-NA20	600	13.09	135.00	2.00	40.00	1629.63	0.00006	400.00	0.00002
T-Mobile C 36	RFS APXVAARR24 43-U-NA20	600	13.09	135.00	2.00	30.00	1222.23	0.00004	400.00	0.00001
T-Mobile C 37	ERICSSON AIR6419	2500	22.05	135.00	2.00	80.00	25651.93	20.85279	1000.00	2.08528
T-Mobile C 37	ERICSSON AIR6419	2500	22.05	135.00	2.00	80.00	25651.93	20.85279	1000.00	2.08528
T-Mobile C 38	ERICSSON AIR 32	1900	15.65	135.00	4.00	30.00	4407.39	0.00013	1000.00	0.00001
T-Mobile C 38	ERICSSON AIR 32	2100	15.65	135.00	4.00	40.00	5876.52	0.00017	1000.00	0.00002
Sprint A 39	RFS APXVSPP18-C-A20	850	13.35	116.00	2.00	40.00	1730.17	0.00000	566.67	0.00000
Sprint A 39	RFS APXVSPP18-C-A20-	1900	15.85	116.00	2.00	60.00	4615.10	0.00000	1000.00	0.00000
Sprint A 40	RFS APXVTM14-C-I20 AZ0	2500	21.35	115.00	8.00	20.00	21833.33	0.00000	1000.00	0.00000

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density ($\mu W/cm^2$)	General Population MPE Limit ($\mu W/cm^2$)	General Population % MPE
Sprint B 41	RFS APXVSPP18-C-A20	850	13.35	116.00	2.00	40.00	1730.17	0.00000	566.67	0.00000
Sprint B 41	RFS APXVSPP18-C-A20-	1900	15.85	116.00	2.00	60.00	4615.10	0.00000	1000.00	0.00000
Sprint B 42	RFS APXVTM14-C-I20 AZ0	2500	21.35	115.00	8.00	20.00	21833.33	0.00000	1000.00	0.00000
Sprint C 43	RFS APXVSPP18-C-A20	850	13.35	116.00	2.00	40.00	1730.17	0.00009	566.67	0.00002
Sprint C 43	RFS APXVSPP18-C-A20-	1900	15.85	116.00	2.00	60.00	4615.10	0.00014	1000.00	0.00001
Sprint C 44	RFS APXVTM14-C-I20 AZ0	2500	21.35	115.00	8.00	20.00	21833.33	0.00049	1000.00	0.00005
Clearwire A 45	ARGUS LLPX310R	2500	15.85	104.00	8.00	20.00	6153.47	0.00000	1000.00	0.00000
Clearwire A 46	GENERIC MICROWAVE 3FT	18000	39.45	104.60	1.00	0.10	881.05	0.00000	1000.00	0.00000
Clearwire A 47	ANDREW VHLP1-23	23000	38.55	104.00	1.00	0.10	716.14	0.00000	1000.00	0.00000
Clearwire B 48	ARGUS LLPX310R	2500	15.85	104.00	8.00	20.00	6153.47	0.00000	1000.00	0.00000
Clearwire C 49	ARGUS LLPX310R	2500	15.85	104.00	8.00	20.00	6153.47	0.00022	1000.00	0.00002
							Cumulative Power Density:	**53.48237 $\mu W/cm^2$**	**Cumulative % MPE:**	**5.34835%**

Summary

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

Katrina Styx
RF EME Technical Writer
Centerline Communications, LLC

EXHIBIT 6

TOWN OF WINDSOR LOCKS, CT
BUILDING PERMIT

APPLICATION FOR BUILDING PERMIT

INSPECTIONS:
Plumbing
HVAC
Sprinkler
Electric
Zoning OK CO
Affidavit
Eng. Dept.
Fire Dept. OK per John Donahue 6/21/99
Health Dept.
Approved for CO: OK CO 5bdrm

No. #23004

Date: 6-14-99

ESTIMATED COST/VALUE $ 60,000
(Excluding Electric, Plumbing & HVAC)

COMPLETE RED BOXED AREAS.
TYPE OR PRINT ONLY
SIGN ON REVERSE SIDE

Permit Fee $ Waived
Occupancy Fee $ Waived
Total Fee $ Waived

TO BUILDING DEPARTMENT, TOWN OF WINDSOR LOCKS, CT
The undersigned, hereby applies to do work according to the following specifications:

Job Location 2-4 Volunteer Drive Lot No. ____ Side of Street ____ Zone ResA
Applicant Message Center Management Tel # 860-418-5706
Address 40 Woodland Street (STREET), Hartford (CITY) CT (STATE) Zip 06105 Lic # 860-418-5752 - Chris
Owner Town of Windsor Locks Address 50 Church Street, Windsor Locks, CT
Architech ____ Address ____
Size New Area: Ft. Front Overall 70 Ft. Deep Overall 54 Total Area 3780 # Garages 0
Size of Lot ____ Dist. From Street Line 85' Lavatories 0 Bathrooms 0 Rooms 1st ____ 2nd ____ 3rd ____
Purpose of this Permit Construction of wireless telecommunication facility (per drawings)

City Water ☐ Well ☐ Septic ☐ Sewer ☐

Use Group ____ Construction Type ____
Approved by OK 6/28/99 Date ____

TOWN OF WINDSOR LOCKS, CT

BUILDING PERMIT

№ 23004

DATE June 29, 1999
CHECK NO waived CASH
C.O. FEE waived

APPLICANT
NAME Message Center Management
ADDRESS 40 Woodland Street
Hartford, CT 06105

PHONE 860-418-5706 LICENSE NO.
OWNER 860-418-5752-Chris
NAME Town of Windsor Locks
ADDRESS 50 Church Street
Windsor Locks, CT 06096

ESTIMATED COST/VALUE $ 60,000
(EXCLUDING ELECTRICAL, PLUMBING & HVAC)
FEE $ WAIVED

BUILDING DEPARTMENT
TOWN OF WINDSOR LOCKS, CONNECTICUT

FEE PAID: $10.00

CERTIFICATE OF OCCUPANCY

DATED: May 22 19 2000

ZONE: Res A

This to certify that 2-4 Volunteer Drive, Windsor Locks, CT 06096 constructed under permit No. 23004 conforms substantially to the requirements of the building ordinances and the zoning regulations of the Town of Windsor Locks and is hereby approved for occupancy as indicated below.

Approved for Occupancy- As a wireless telecommunication facility

Use Group:
Constr. Type:

Building Official

Notice: If this certificate is lost or destroyed, a duplicate should be obtained immediately from the Building Department.

Any change or extension of the use herein approved requires a new certificate of occupancy.

TOWN OF WINDSOR LOCKS, CT
BUILDING PERMIT

№ 23004

DATE June 29, 1999
CHECK NO waived CASH
C.O. FEE waived

APPLICANT
NAME Message Center Management
ADDRESS 40 Woodland Street
Hartford, CT 06105

PHONE 860-418-5706 LICENSE NO.
OWNER 860-418-5752-Chris
NAME Town of Windsor Locks
ADDRESS 50 Church Street
Windsor Locks, CT 06096

ESTIMATED COST/VALUE $ 60,000
(EXCLUDING ELECTRICAL, PLUMBING & HVAC)
FEE $ WAIVED

To construct a Wireless Telecommunication Facility as per drawings at 2-4 Volunteer Drive.

Ft Front=70' Ft Deep= 54'

work to be done in accordance with this application and plans approved by the Building Department

Building Official

Tower is being constructed on Town
is in a partnership with MCM T
from Communication Carriers that
permit issuance with No Fee is appropriate.

Ranges: minutes
Lat: 41 degrees - 52 to 56
Long: 72 degrees - 37-40 minutes

EXHIBIT 7

From: UPS
To: Evan Renwick
Subject: UPS Delivery Notification, Tracking Number 1Z9Y45030314732063
Date: Tuesday, August 16, 2022 10:18:18 AM

Hello, your package has been delivered.

Delivery Date: Tuesday, 08/16/2022
Delivery Time: 10:14 AM
Signed by: RATTI

CENTERLINE SITE ACQUISITION

Tracking Number:	1Z9Y45030314732063
Ship To:	TOWN OF WINDSOR LOCKS 50 CHURCH STREET FIRST SELECTMAN'S OFFICE WINDSOR LOCKS, CT 060962331 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CT5270-CSC_FIRST SELECTMAN

Discover more about UPS:

Visit www.ups.com

Sign Up For Additional E-Mail From UPS

Read Compass Online

Download the UPS mobile app

From: UPS
To: Evan Renwick
Subject: UPS Delivery Notification, Tracking Number 1Z9Y45030334113775
Date: Tuesday, August 16, 2022 10:18:37 AM

Hello, your package has been delivered.

Delivery Date: Tuesday, 08/16/2022
Delivery Time: 10:13 AM
Signed by: RATTI

CENTERLINE SITE ACQUISITION

Tracking Number:	1Z9Y45030334113775
Ship To:	PLANNING & ZONING DEPARTMENT 50 CHURCH STREET WINDSOR LOCKS, CT 060962331 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CT5270__CSC__TOWN PLANNER

Discover more about UPS:

Visit www.ups.com

Sign Up For Additional E-Mail From UPS

Read Compass Online

Download the UPS mobile app

From: UPS
To: Evan Renwick
Subject: UPS Delivery Notification, Tracking Number 1Z9Y45030322034383
Date: Tuesday, August 16, 2022 10:18:15 AM

Hello, your package has been delivered.

Delivery Date: Tuesday, 08/16/2022
Delivery Time: 10:12 AM
Signed by: RATTI

CENTERLINE SITE ACQUISITION

Tracking Number:	1Z9Y45030322034383
Ship To:	PLANNING & ZONING DEPARTMENT 50 CHURCH STREET WINDSOR LOCKS, CT 060962331 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CT5270__CSC__ZEO

Discover more about UPS:

Visit www.ups.com

Sign Up For Additional E-Mail From UPS

Read Compass Online

Download the UPS mobile app

From: UPS
To: Evan Renwick
Subject: UPS Delivery Notification, Tracking Number 1Z9Y45030310919057
Date: Thursday, August 18, 2022 10:22:52 AM

Hello, your package has been delivered.

Delivery Date: Thursday, 08/18/2022
Delivery Time: 10:20 AM
Signed by: MILLER

CENTERLINE SITE ACQUISITION

Tracking Number:	1Z9Y45030310919057
Ship To:	SBA TOWERS IX, LLC 8051 CONGRESS AVENUE 2ND FLOOR BOCA RATON, FL 334871307 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CT5270-SBA TOWERS

Discover more about UPS:

Visit www.ups.com

Sign Up For Additional E-Mail From UPS

Read Compass Online

Download the UPS mobile app

property of their respective owners.

Please do not reply directly to this email. UPS will not receive any reply message.

Review the UPS Privacy Notice

For Questions, Visit Our Help and Support Center

Links contained in this email have been replaced. If you click on a link in the email above, the link will be analyzed for known threats. If a known threat is found, you will not be able to proceed to the destination. If suspicious content is detected, you will see a warning.