



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

May 2, 2023

Kelly Fay
Real Estate Specialist III
Smartlink Group
85 Rangeway Road
Building 3, Suite 102
Billerica, MA
kelly.fay@smartlinkgroup.com

RE: **EM-AT&T-158-230302** – AT&T notice of intent to modify an existing telecommunications facility located at 880 Post Road East, Westport, Connecticut.

Dear Kelly Fay:

The Connecticut Siting Council (Council) is in receipt of your correspondence of May 2, 2023 submitted in response to the Council's March 16, 2023 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

A handwritten signature in dark ink, appearing to read "Melanie Bachman".

Melanie Bachman
Executive Director

MAB/ANM/laf

C: David Barbagallo, Smartlink Group (David.barbagallo@smartlinkgroup.com)

From: Kelly Fay <kelly.fay@smartlinkgroup.com>

Sent: Tuesday, May 2, 2023 11:08 AM

To: Fontaine, Lisa <Lisa.Fontaine@ct.gov>

Cc: CSC-DL Siting Council <Siting.Council@ct.gov>

Subject: RE: EM-ATT-158-230302 , INCOMPLETE Request for Extension - Council Extension Decision
Hi Lisa,

Please see the attached updated documents for the filing. Updated CDs with correct state code, updated structural with Dish loading, updated mount analysis and updated EME report. Do you also need me to mail hard copies?



Kelly Fay
Real Estate Specialist III
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c. 203.246.0606
www.smartlinkgroup.com

Keeping America Connected For Over
20 Years

Link with us.



PROJECT INFORMATION

SCOPE OF WORK: ITEMS TO BE MOUNTED ON THE EXISTING LATTICE TOWER:

- INSTALL AT&T SECTOR FRAME SITEPRO #VFA14-H10-2120 (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- NEW AT&T ANTENNAS: AIR6419 B77G (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- NEW AT&T ANTENNAS: AIR6449 B77D (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- NEW AT&T ANTENNAS: QD6616-7 (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- NEW AT&T ANTENNAS: DMP65R-BU6DA (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- NEW AT&T RRUS 4478 B14 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- NEW AT&T RRUS 4449 B5/B12 (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- NEW AT&T (1) DC9-48-60-24-8C-EV SQUID
- NEW AT&T (3) Y-CABLES, (3) 6 AWG DC TRUNKS, (1) 24 PAIR FIBER

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:

- INSTALL (1) 6630 + IDLE CABLE IN EXISTING RACK
- INSTALL (1) 6648 FHG+XCEDE CABLE.
- INSTALL (1) DC12 IN RACK
- INSTALL (3) RECTIFIERS IN EXISTING POWER PLANT.
- NEW AT&T RRUS 2012 B29 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- NEW AT&T SURGES ARRESTORS (APTDC-BDFDM-DB) (TYP. OF 2 PER SECTOR, TOTAL OF 6)
- FINAL BBU CONFIG=5216-XMU/6630+IDLE/6648+XCEDE.

ITEMS TO BE REMOVED:

- EXISTING AT&T ANTENNAS: (P65-16-XLH-RR) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- EXISTING AT&T ANTENNAS: (QS86512-6) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- EXISTING AT&T ANTENNAS: (HPA-65R-BUU-H6) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- EXISTING AT&T RRUS 11 B12 (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- EXISTING AT&T DIPLEXERS: (DBC0061F1V51-2) (TOTAL OF 6)

ITEMS TO REMAIN:

(9) RRUS, (6) LINES OF 1-5/8" COAX CABLES, (2) SQUIDS,
(4) DC POWER & (2) FIBER.

RFDS: FINAL APPROVED V6 RFDS 02/22/22

SITE ADDRESS: 880 POST ROAD EAST
WESTPORT, CT 06880

LATITUDE: 41.137463° N, 41° 8' 14.87" N
LONGITUDE: -73.334360° W, 73° 20' 3.69" W

TYPE OF SITE: LATTICE TOWER / INDOOR EQUIPMENT

STRUCTURE HEIGHT: 180'-0"±
RAD CENTER: 133'-0"±

CURRENT USE: TELECOMMUNICATIONS FACILITY
PROPOSED USE: TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
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A-2	ANTENNA PLANS & ELEVATION	4
A-3	DETAILS	4
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G-1	GROUNDING DETAILS	4
RF-1	RF PLUMBING DIAGRAM	4



SITE NUMBER: CTL02147
SITE NAME: WESTPORT SP TOWER
FA CODE: 10035298

**PACE ID: MRCTB053103, MRCTB052360, MRCTB051540,
MRCTB051449, MRCTB051488, MRCTB051252,
MRCTB051299**

**PROJECT: LTE 6C, 5G NR RADIO, 5G NR 1SR CBAND,
BBU ADD, LTE 5C, 4TX4RX, 5G NR 1DR-1 2023 UPGRADE**

VICINITY MAP

DIRECTIONS TO SITE:

START OUT GOING EAST ON ENTERPRISE DR TOWARD CAPITAL BLVD. TURN LEFT ONTO CAPITAL BLVD. TURN LEFT ONTO WEST ST.MERGE ONTO CT-8 S VIA EXIT 52 TOWARD BRIDGEPORT.RGE ONTO I-91 S VIA THE RAMP ON THE LEFT TOWARD NEW HAVEN. MERGE ONTO CT-15 S VIA EXIT 17 TOWARD E MAIN ST. MERGE ONTO CT-8 S VIA EXIT 52 TOWARD BRIDGEPORT. MERGE ONTO I-95 S TOWARD NY CITY. TAKE THE SHERWOOD ISLAND CONNECTOR EXIT, EXIT 18. KEEP RIGHT TO TAKE THE RAMP TOWARD WESTPORT COUNTRY PLAYHOUSE/RR STATION/WESTPORT. MERGE ONTO SHERWOOD ISLAND CONNECTOR. TURN RIGHT ONTO POST RD/US-1 N. 880 POST RD E, WESTPORT, CT 06880-5223, 880 POST RD E.

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.



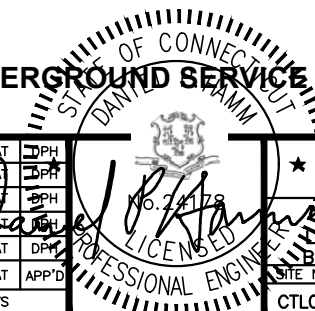
72 HOURS



CALL TOLL FREE 1-800-922-4455

OR CALL 811

UNDERGROUND SERVICE ALERT



SITE NUMBER: CTL02147
SITE NAME: WESTPORT SP TOWER
880 POST ROAD EAST
WESTPORT, CT 06880
FAIRFIELD COUNTY



NO.	DATE	REVISIONS	BY	AT	APP'D
4	04/03/23	ISSUED FOR CONSTRUCTION	JS	AT	DPH
3	04/18/22	ISSUED FOR CONSTRUCTION	MB	AT	DPH
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1	03/02/22	ISSUED FOR CONSTRUCTION	MB	AT	DPH
0	02/04/22	ISSUED FOR REVIEW	VS	AT	DPH

AT&T	
TITLE SHEET	LTE 6C, 5G NR RADIO, 5G NR 1SR CBAND, BBU ADD, LTE 5C, 4TX4RX, 5G NR 1DR-1
SITE NUMBER	CTL02147
DRAWING NUMBER	T-1
REV	4

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

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. **APPLICABLE BUILDING CODES:**
 SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

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

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

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

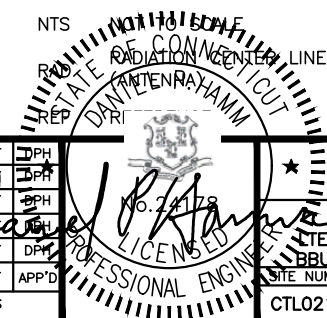
AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-H, STRUCTURAL STANDARDS FOR STEEL

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ABBREVIATIONS

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



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

smartlink
 SMARTLINK
 1997 ANNAPOLIS EXCHANGE PKWY SUITE 200
 ANNAPOLIS, MD 21401

**SITE NUMBER: CTL02147
 SITE NAME: WESTPORT SP TOWER**
 880 POST ROAD EAST
 WESTPORT, CT 06880
 FAIRFIELD COUNTY

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

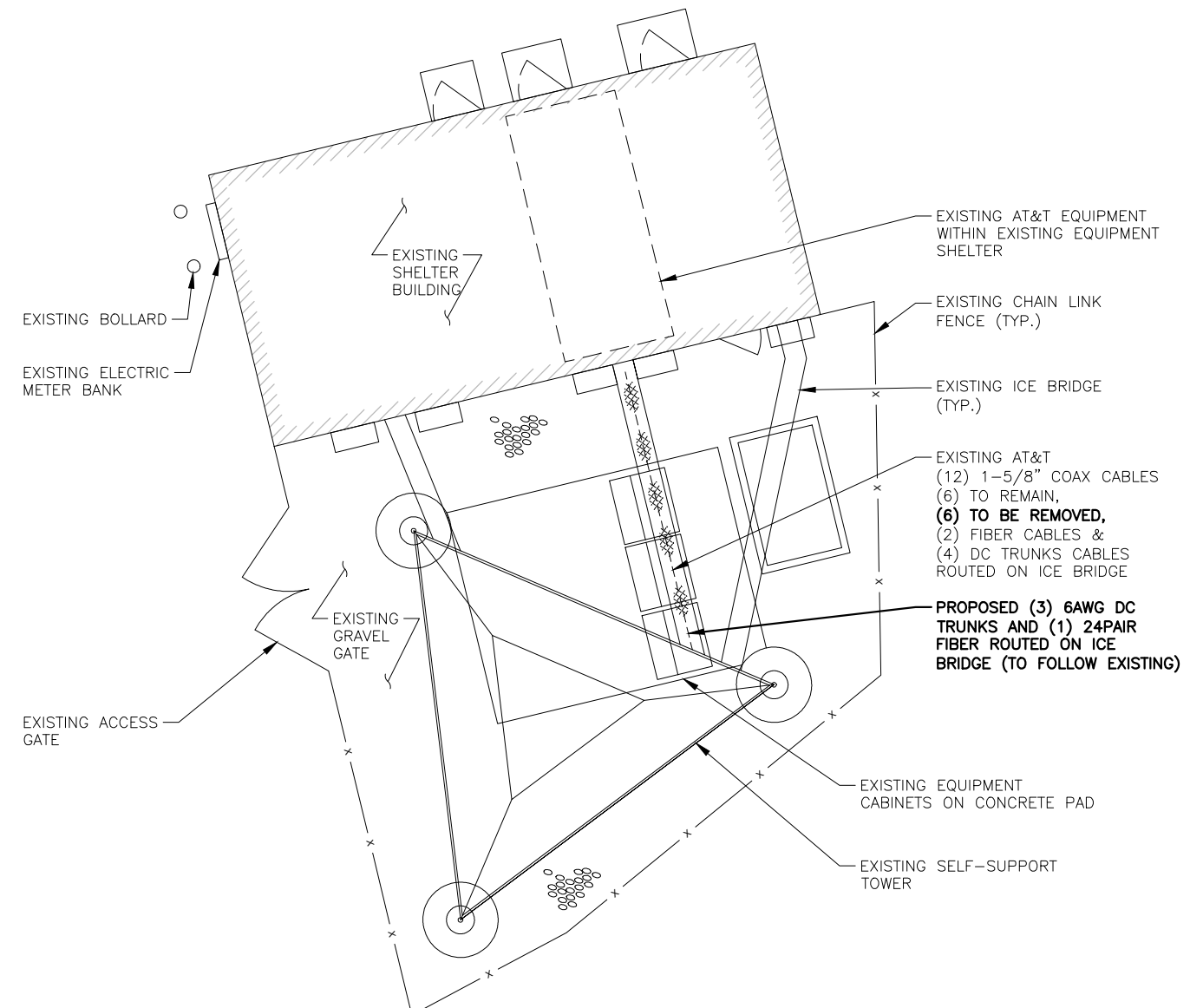
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NO.	DATE	REVISIONS	BY	AT	APP'D
SCALE: AS SHOWN		DESIGNED BY: VS	DRAWN BY: VS		

AT&T
 GENERAL NOTES
 LTE 6C, 5G NR RADIO, 5G NR 1SR CBAND,
 BBU ADD, LTE 5C, 4TX4RX, 5G NR 1DR-1
 SITE NUMBER: CTL02147
 DRAWING NUMBER: GN-1
 REV: 4

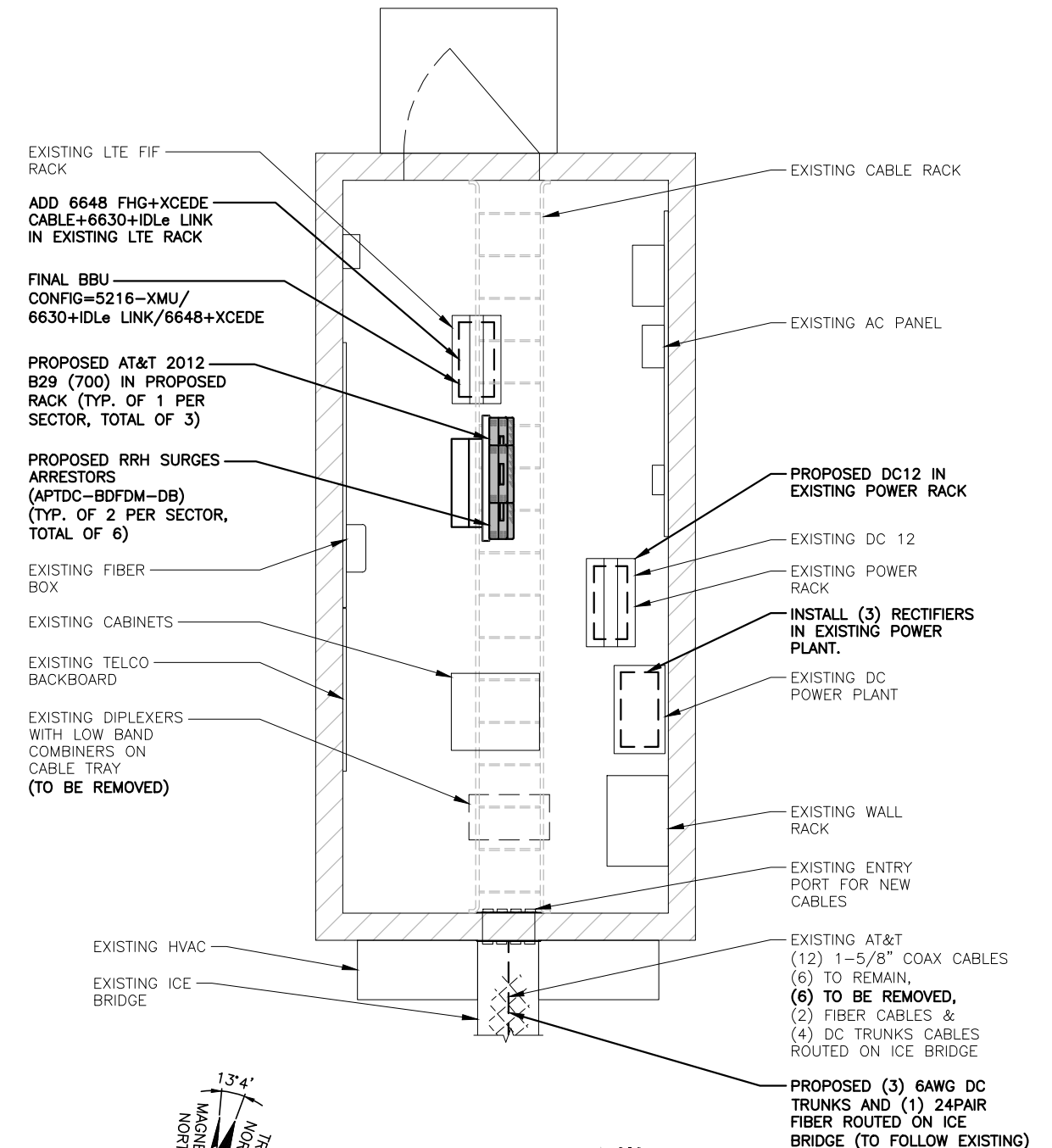
NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

NOTE:
REFER TO FINAL APPROVED V6 RFDS 02/22/22

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
TEP NORTHEAST (TEP OPCO, LLC.)
DATED: APRIL 4, 2023 (REV. 2)



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



EQUIPMENT PLAN
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"
4'-0" 6'-0"



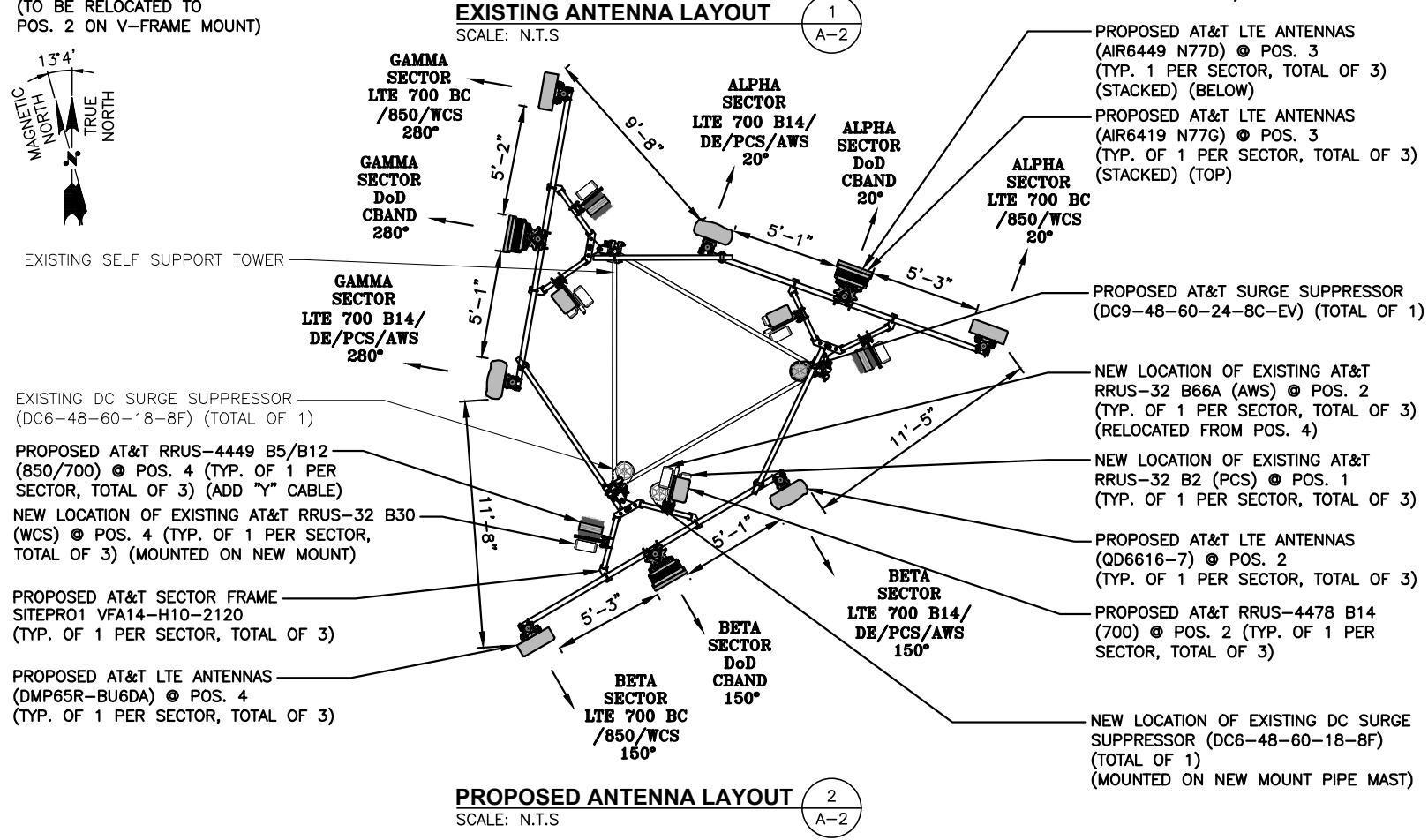
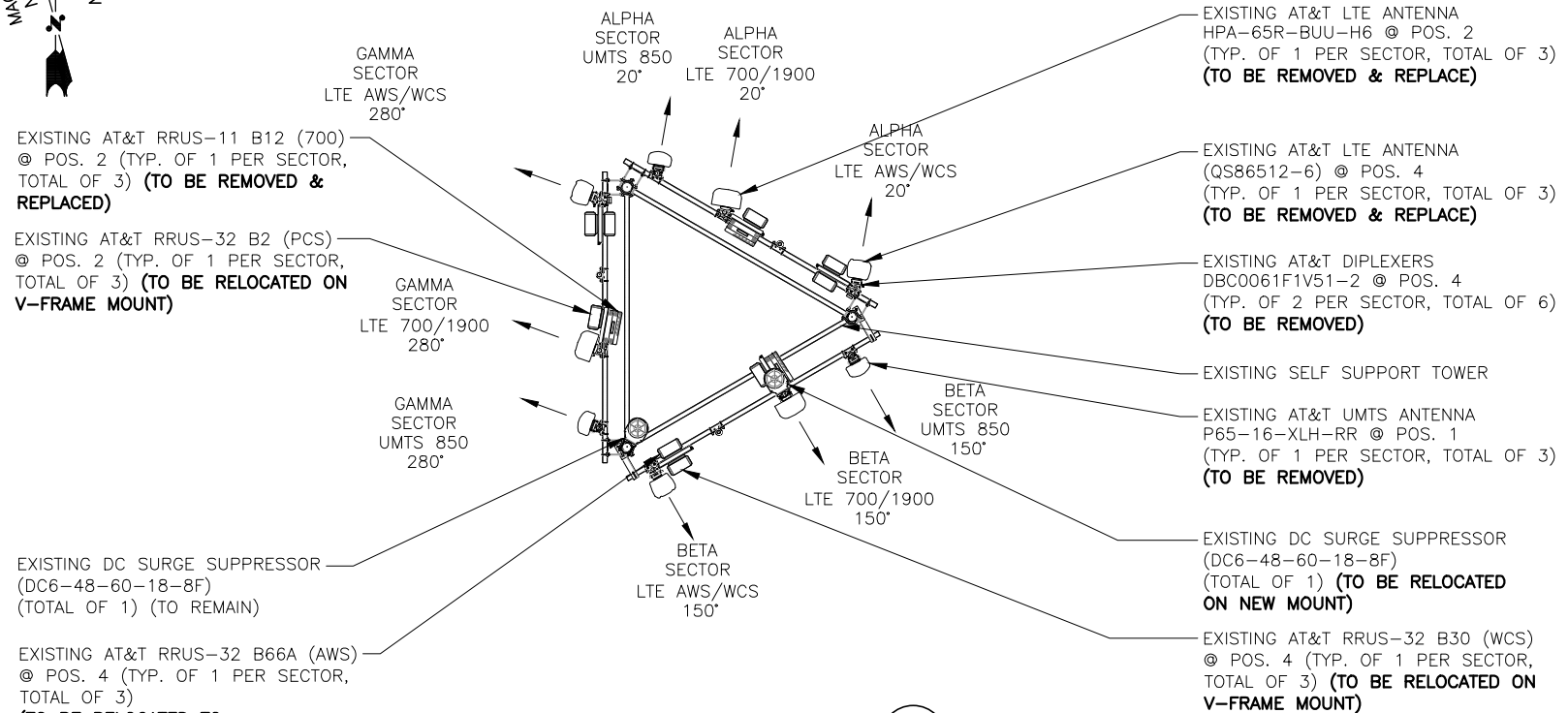
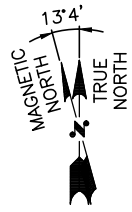
SITE NUMBER: CTL02147
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880 POST ROAD EAST
WESTPORT, CT 06880
FAIRFIELD COUNTY



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AT&T	
COMPOUND & EQUIPMENT PLANS	
LTE 6C, 5G NR RADIO, 5G NR 1SR CBAND, BBU ADD, LTE 5C, 4TX4RX, 5G NR 1DR-1	
SITE NUMBER	DRAWING NUMBER
CTL02147	A-1
REV	4

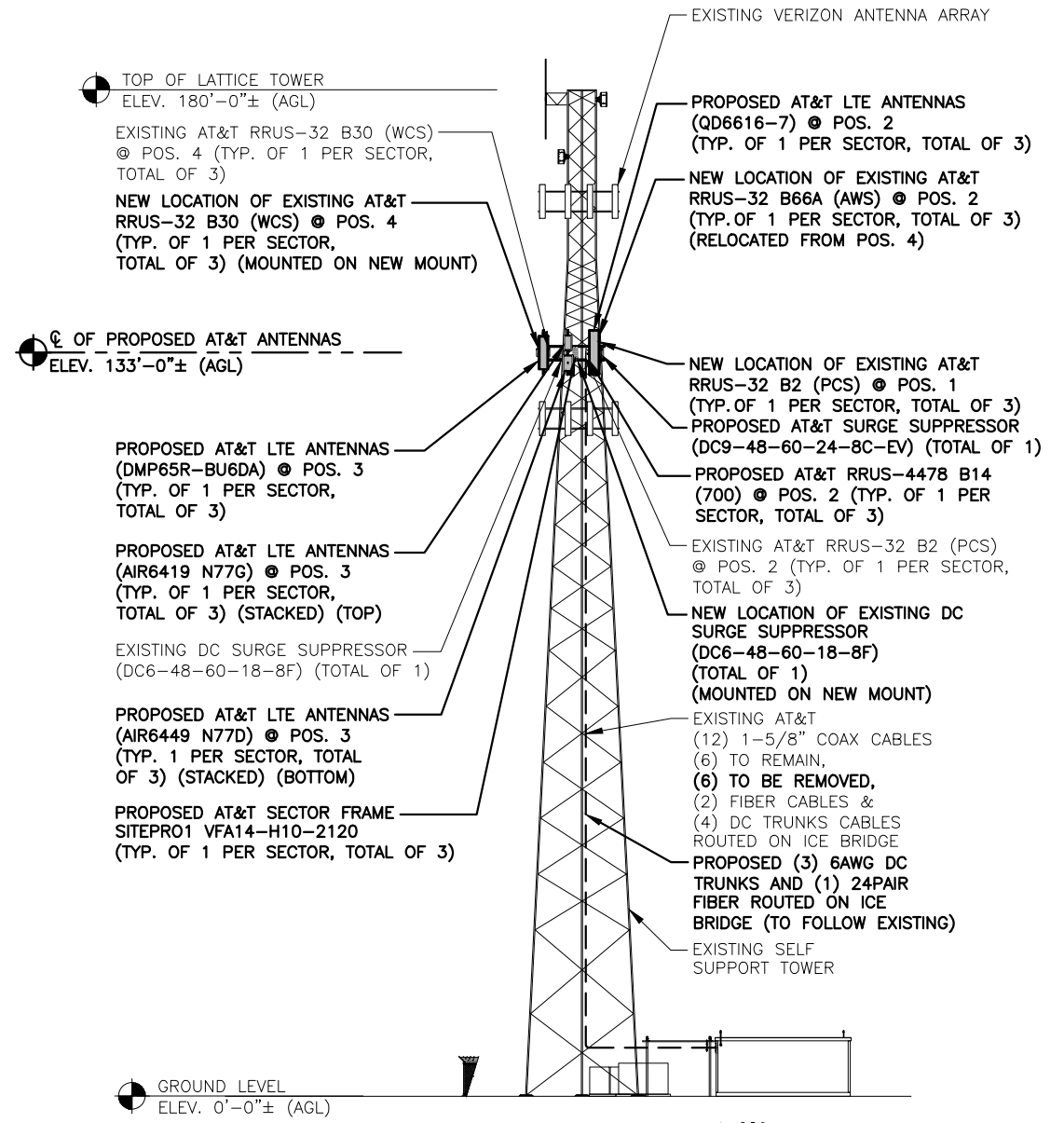


NOTE:
ROTATION OF MOUNTS OR INSTALLATION OF MOUNT MODS MUST NOT ADVERSELY AFFECT, OBSTRUCT, BEND OF PINCH EXISTING SAFETY CABLE IN ANY WAY. GC, C/O AT&T, WILL PURCHASE AND INSTALL CABLE RE-ROUTING BRACKETS AS REQUIRED.

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

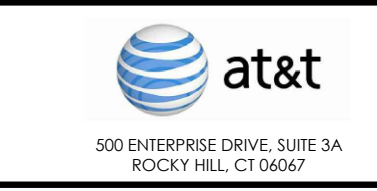
NOTE:
REFER TO FINAL APPROVED V6 RFDS 02/22/22

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: TEP NORTHEAST (TEP OPCO, LLC.) DATED: APRIL 4, 2023 (REV. 2)



SITE NUMBER: CTL02147
SITE NAME: WESTPORT SP TOWER

880 POST ROAD EAST
WESTPORT, CT 06880
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SCALE: AS SHOWN DESIGNED BY: VS DRAWN BY: VS

STATE OF CONNECTICUT
DRIVING F. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

AT&T

ANTENNA PLANS & ELEVATION
LTE 6C, 5G NR RADIO, 5G NR 1SR CBAND,
BBU ADD, LTE 5C, 4TX4RX, 5G NR 1DR-1

SITE NUMBER: CTL02147 DRAWING NUMBER: A-2 REV: 4

ANTENNA SCHEDULE

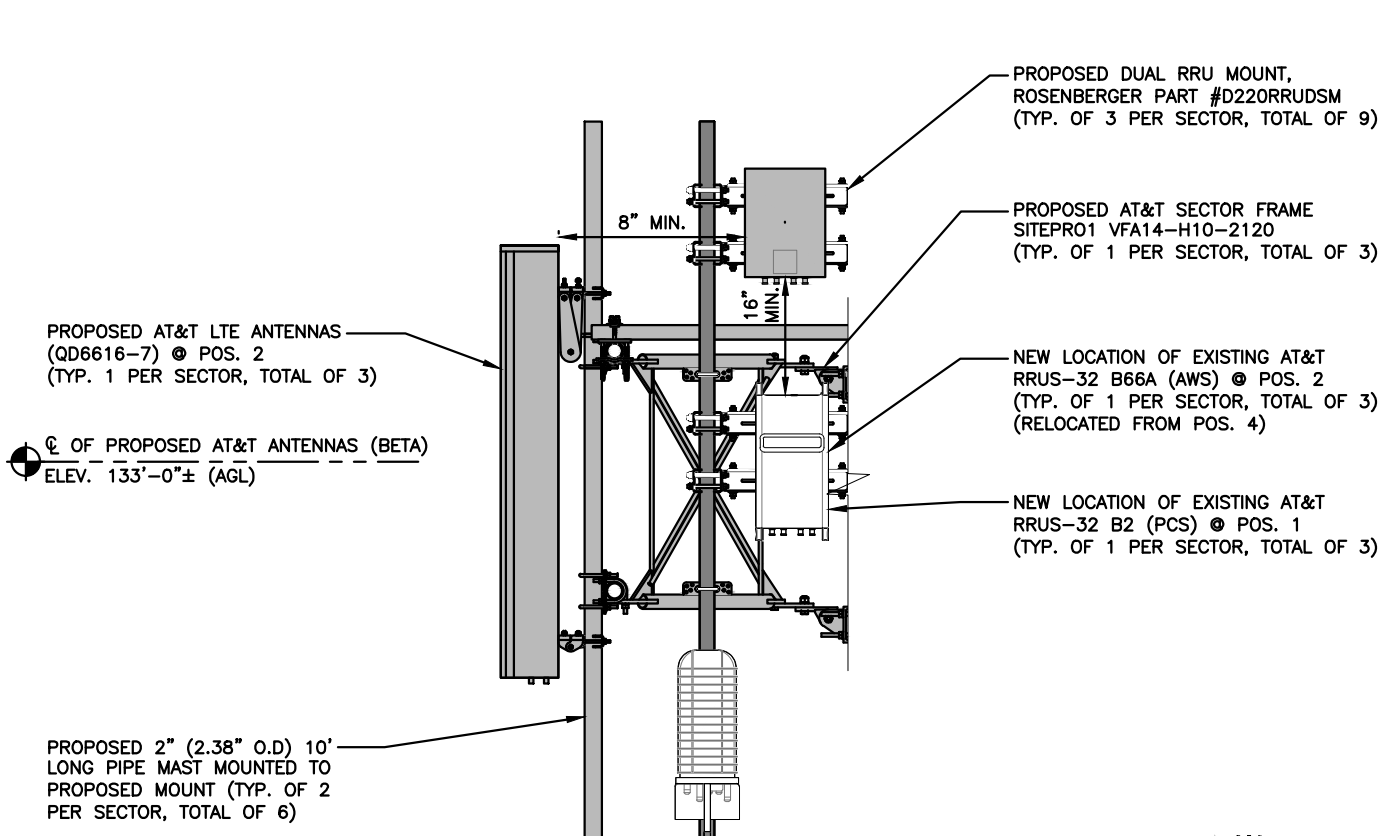
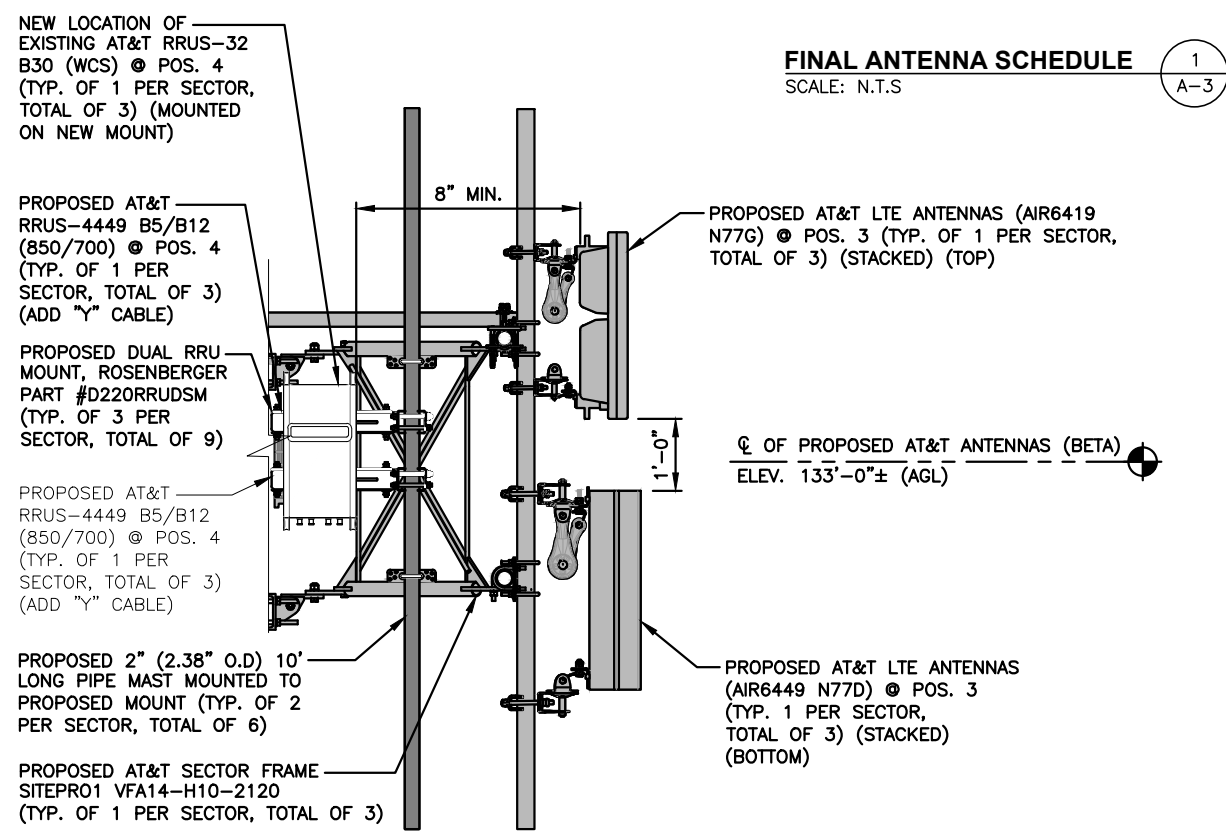
FINAL APPROVED V6 RFDS 02/22/22

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA Ø HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	-	-	-	-	-	-	-	-	-	-	-
A2	PROPOSED	LTE 700 B14/ DE/PCS/AWS	QD6616-7	72"X22"X9.6"	133'-0"±	20°	-	(1)(P) 4478 B14 (700) (1)(P)(G) RRUS 2012 B29 (700) (1)(E) RRUS-32 B2 (PCS) (1)(E) RRUS-32 B66A (AWS)	18.1"X13.4"X8.3" 20.4"x18.5"x7.5"	(2)(E) DC (1)(E) FIBER (2)(E)1-5/8 COAX	(E) (1) RAYCAP DC6-48-60-18-8F
A3	PROPOSED	DOD C-BAND	AIR 6419 N77G AIR 6449 N77D	31.1"X16.1X7.3" 30.4"X15.9"X8.1"	133'-0"±	20°	-	-	-	-	-
A4	PROPOSED	LTE 700 BC /850/WCS	DMP65R-BU6DA	71.2"X20.7"X7.7"	133'-0"±	20°	-	(1)(P) 4449 B5/B12 (850/700) (1)(E) RRUS-32 B30 (WCS)	17.9"x13.2"x10.4"	(1)(P) Y CABLE	-
B1	-	-	-	-	-	-	-	-	-	-	-
B2	PROPOSED	LTE 700 B14/ DE/PCS/AWS	QD6616-7	72"X22"X9.6"	133'-0"±	150°	-	(1)(P) 4478 B14 (700) (1)(P)(G) RRUS 2012 B29 (700) (1)(E) RRUS-32 B2 (PCS) (1)(E) RRUS-32 B66A (AWS)	18.1"X13.4"X8.3" 20.4"x18.5"x7.5"	(2)(E) DC (1)(E) FIBER (2)(E)1-5/8 COAX	(E) (1) RAYCAP DC6-48-60-18-8F
B3	PROPOSED	DOD C-BAND	AIR 6419 N77G AIR 6449 N77D	31.1"X16.1X7.3" 30.4"X15.9"X8.1"	133'-0"±	150°	-	-	-	-	-
B4	PROPOSED	LTE 700 BC /850/WCS	DMP65R-BU6DA	71.2"X20.7"X7.7"	133'-0"±	150°	-	(1)(P) 4449 B5/B12 (850/700) (1)(E) RRUS-32 B30 (WCS)	17.9"x13.2"x10.4"	(1)(P) Y CABLE	-
C1	-	-	-	-	-	-	-	-	-	-	-
C2	PROPOSED	LTE 700 B14/ DE/PCS/AWS	QD6616-7	72"X22"X9.6"	133'-0"±	280°	-	(1)(P) 4478 B14 (700) (1)(P)(G) RRUS 2012 B29 (700) (1)(E) RRUS-32 B2 (PCS) (1)(E) RRUS-32 B66A (AWS)	18.1"X13.4"X8.3" 20.4"x18.5"x7.5"	(2)(E) DC (1)(E) FIBER (2)(E)1-5/8 COAX	(E) (1) RAYCAP DC6-48-60-18-8F
C3	PROPOSED	DOD C-BAND	AIR 6419 N77G AIR 6449 N77D	31.1"X16.1X7.3" 30.4"X15.9"X8.1"	133'-0"±	280°	-	-	-	(3)(P) #6AWG DC TRUNKS (1)(P) 24 PAIR FIBER (APPROX. 155'±)	(P) (1) RAYCAP DC9-48-60-24-8C-EV
C4	PROPOSED	LTE 700 BC /850/WCS	DMP65R-BU6DA	71.2"X20.7"X7.7"	133'-0"±	280°	-	(1)(P) 4449 B5/B12 (850/700) (1)(E) RRUS-32 B30 (WCS)	17.9"x13.2"x10.4"	(1)(P) Y CABLE	-

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

NOTE:
REFER TO FINAL APPROVED V6 RFDS 02/22/22

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
TEP NORTHEAST (TEP OPCO, LLC.)
DATED: APRIL 4, 2023 (REV. 2)



PROPOSED DoD + C BAND ANTENNA MOUNTING DETAIL 2
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

PROPOSED LTE ANTENNAS MOUNTING DETAIL 3
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

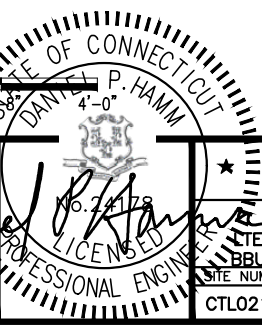


SITE NUMBER: CTL02147
SITE NAME: WESTPORT SP TOWER

880 POST ROAD EAST
WESTPORT, CT 06880
FAIRFIELD COUNTY



4	04/03/23	ISSUED FOR CONSTRUCTION	JS	AT	DPH
3	04/18/22	ISSUED FOR CONSTRUCTION	MB	AT	DPH
2	03/04/22	ISSUED FOR CONSTRUCTION	MB	AT	DPH
1	03/02/22	ISSUED FOR CONSTRUCTION	MB	AT	DPH
0	02/04/22	ISSUED FOR REVIEW	VS	AT	DPH
NO.	DATE	REVISIONS	BY	AT	APP'D
SCALE: AS SHOWN		DESIGNED BY: VS	DRAWN BY: VS		



AT&T
DETAILS
LTE 6C, 5G NR RADIO, 5G NR 1SR CBAND,
BBU ADD, LTE 5C, 4TX4RX, 5G NR 1DR-1

SITE NUMBER: CTL02147
DRAWING NUMBER: A-3
REV: 4

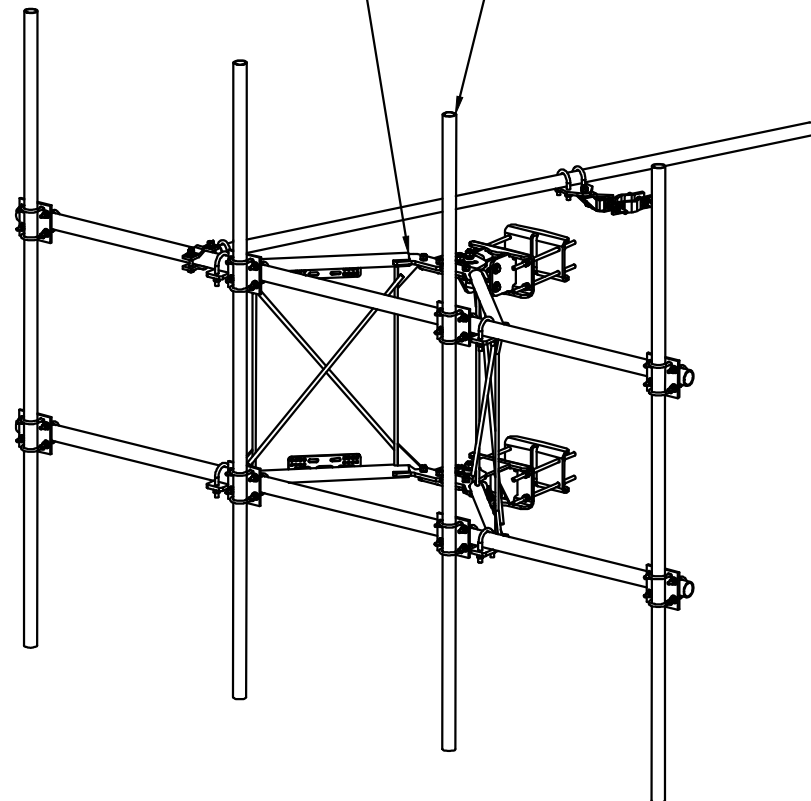
NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
TEP NORTHEAST (TEP OPCO, LLC.)
DATED: APRIL 4, 2023 (REV. 2)

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

NOTE:
REFER TO FINAL APPROVED V6 RFDS 02/22/22

PROPOSED HEAVY DUTY V-FRAME SECTOR MOUNT (SITEPRO1 #VFA14-H10-2120) (TYP. OF 1 PER SECTOR, TOTAL OF 3)

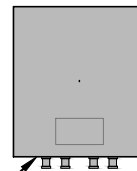
PROPOSED 2-1/2" STD (2.78" O.D.) x 120" LONG PIPE MAST (TYP. OF 4 PER SECTOR, TOTAL OF 12) (INCLUDED WITH KIT)



RRU CHART		
QUANTITY	MODEL	SIZE (L x W x D)
3(P)	4449 B5/B12 (700)	17.9"x13.2"x10.4"
3(P)	4478 B14 (700)	18.1"x13.4"x8.3"
3(P)(G)	RRUS 2012 B29 (700)	20.4"x18.5"x7.5"
3(E)	RRUS-32 B2 (PCS)	27.2"x12.1"x7.0"
3(E)	RRUS-32 B66A (AWS)	27.2"x12.1"x7.0"
3(E)	RRUS-32 B30 (WCS)	27.2"x12.1"x7.0"

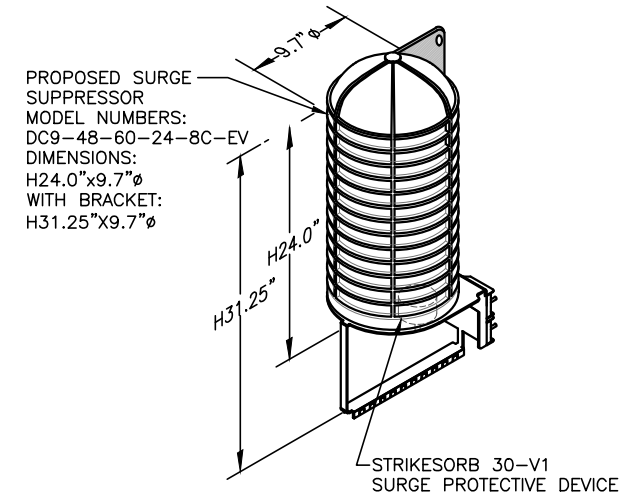
NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:
SEE RFDS FOR RRU FREQUENCY AND MODEL NUMBER



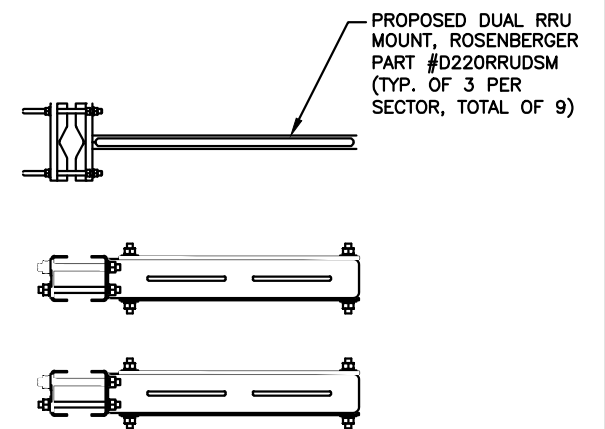
PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.



PROPOSED SURGE SUPPRESSOR
MODEL NUMBERS:
DC9-48-60-24-8C-EV
DIMENSIONS:
H24.0"x9.7"φ
WITH BRACKET:
H31.25"x9.7"φ

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.



PROPOSED DUAL RRU MOUNT, ROSENBERGER PART #D22ORRUSM (TYP. OF 3 PER SECTOR, TOTAL OF 9)

PROPOSED MOUNT (SITEPRO1 #VFA14-H10-2120) DETAIL
SCALE: N.T.S

1
A-4

PROPOSED RRUS DETAIL
SCALE: N.T.S

2
A-4

DC SURGE SUPPRESSOR DETAIL
SCALE: N.T.S

3
A-4

BACK TO BACK RRU MOUNT DETAIL
SCALE: N.T.S

4
A-4



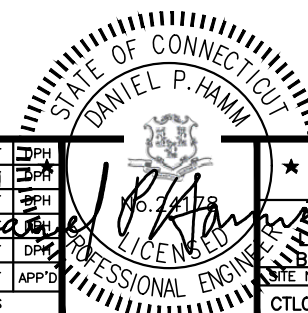
SITE NUMBER: CTL02147
SITE NAME: WESTPORT SP TOWER

880 POST ROAD EAST
WESTPORT, CT 06880
FAIRFIELD COUNTY



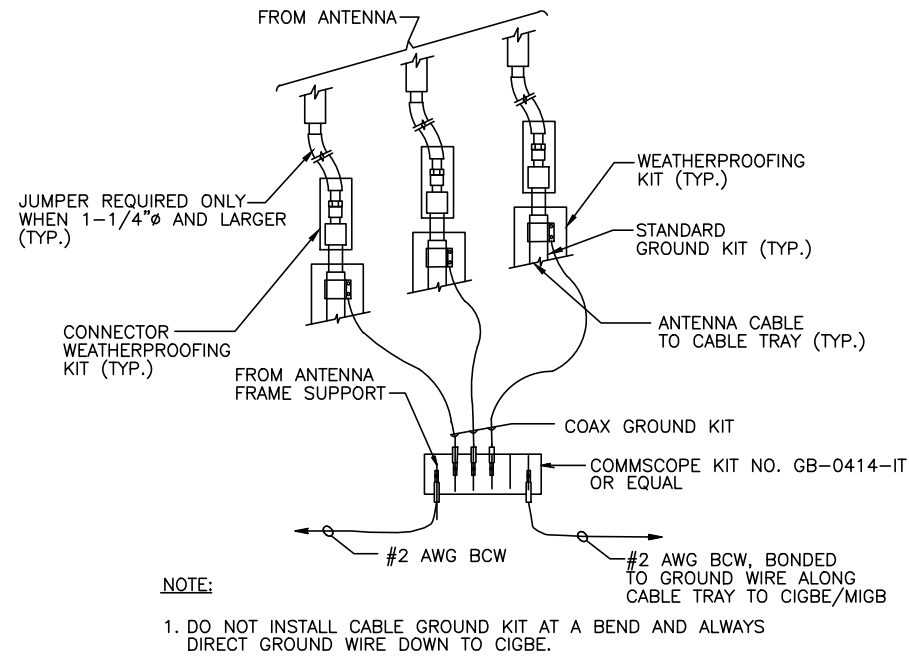
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3	04/18/22	ISSUED FOR CONSTRUCTION	MB	AT	DPH
2	03/04/22	ISSUED FOR CONSTRUCTION	MB	AT	DPH
1	03/02/22	ISSUED FOR CONSTRUCTION	MB	AT	DPH
0	02/04/22	ISSUED FOR REVIEW	VS	AT	DPH

SCALE: AS SHOWN DESIGNED BY: VS DRAWN BY: VS

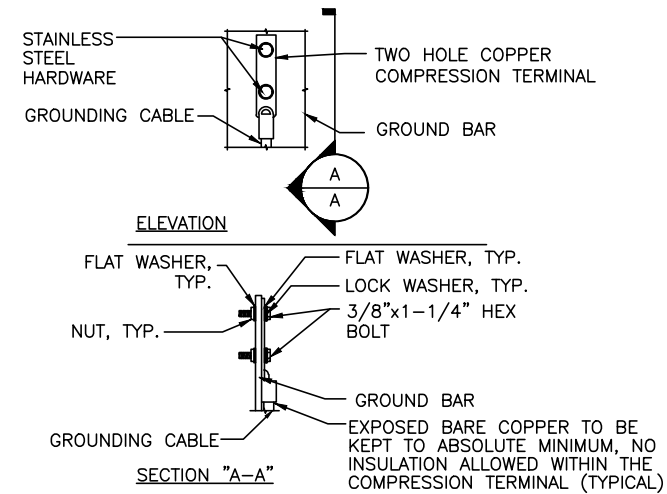


SITE NUMBER	DRAWING NUMBER	REV
CTL02147	A-4	4

AT&T
DETAILS
LTE 6C, 5G NR RADIO, 5G NR 1SR CBAND,
RBU ADD, LTE 5C, 4TX4RX, 5G NR 1DR-1

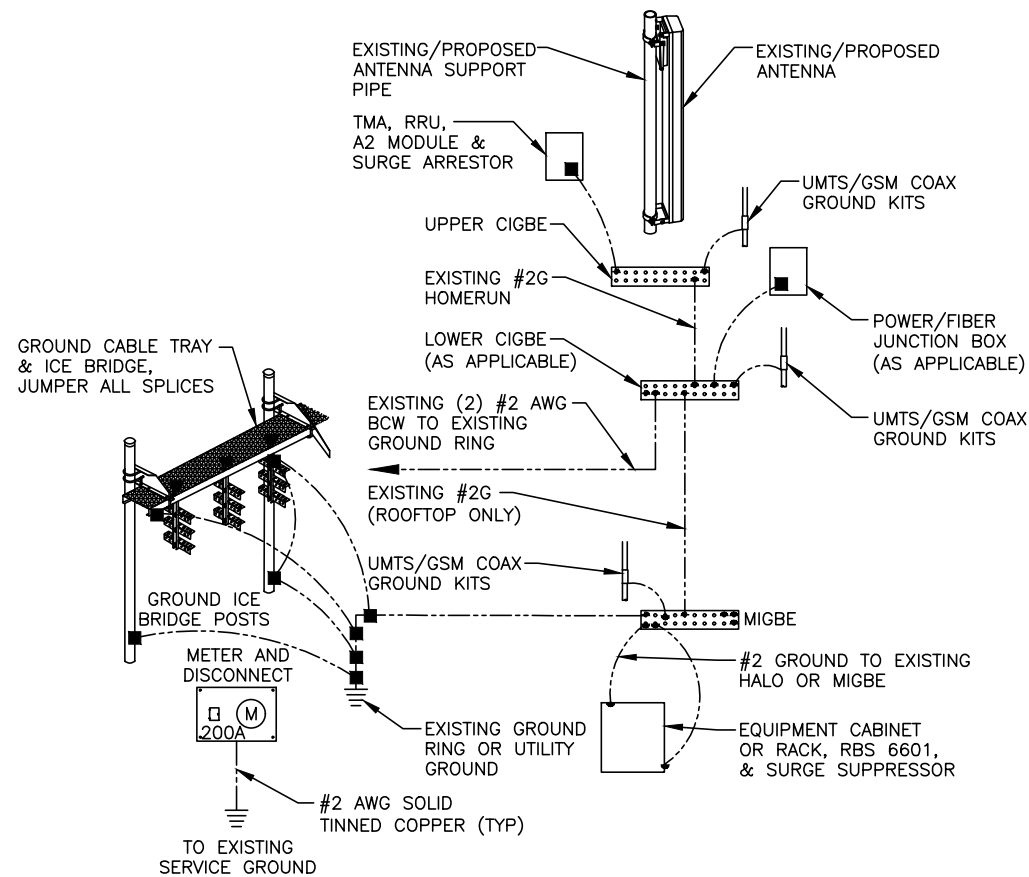


GROUND WIRE TO GROUND BAR CONNECTION DETAIL 1
SCALE: N.T.S. G-1



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

TYPICAL GROUND BAR CONNECTION DETAIL 3
SCALE: N.T.S. G-1



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

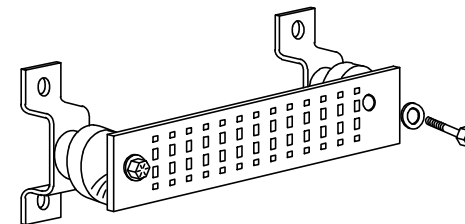
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" - SURGE PRODUCERS

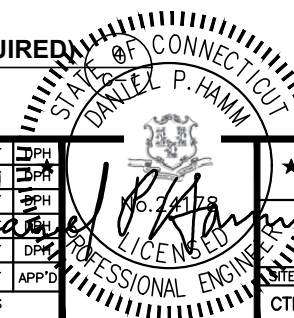
- CABLE ENTRY PORTS (HATCH PLATES) (#2 AWG)
- GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)
- TELCO GROUND BAR
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2 AWG)
- +24V POWER SUPPLY RETURN BAR (#2 AWG)
- 48V POWER SUPPLY RETURN BAR (#2 AWG)
- RECTIFIER FRAMES.

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.



SITE NUMBER: CTL02147
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FAIRFIELD COUNTY



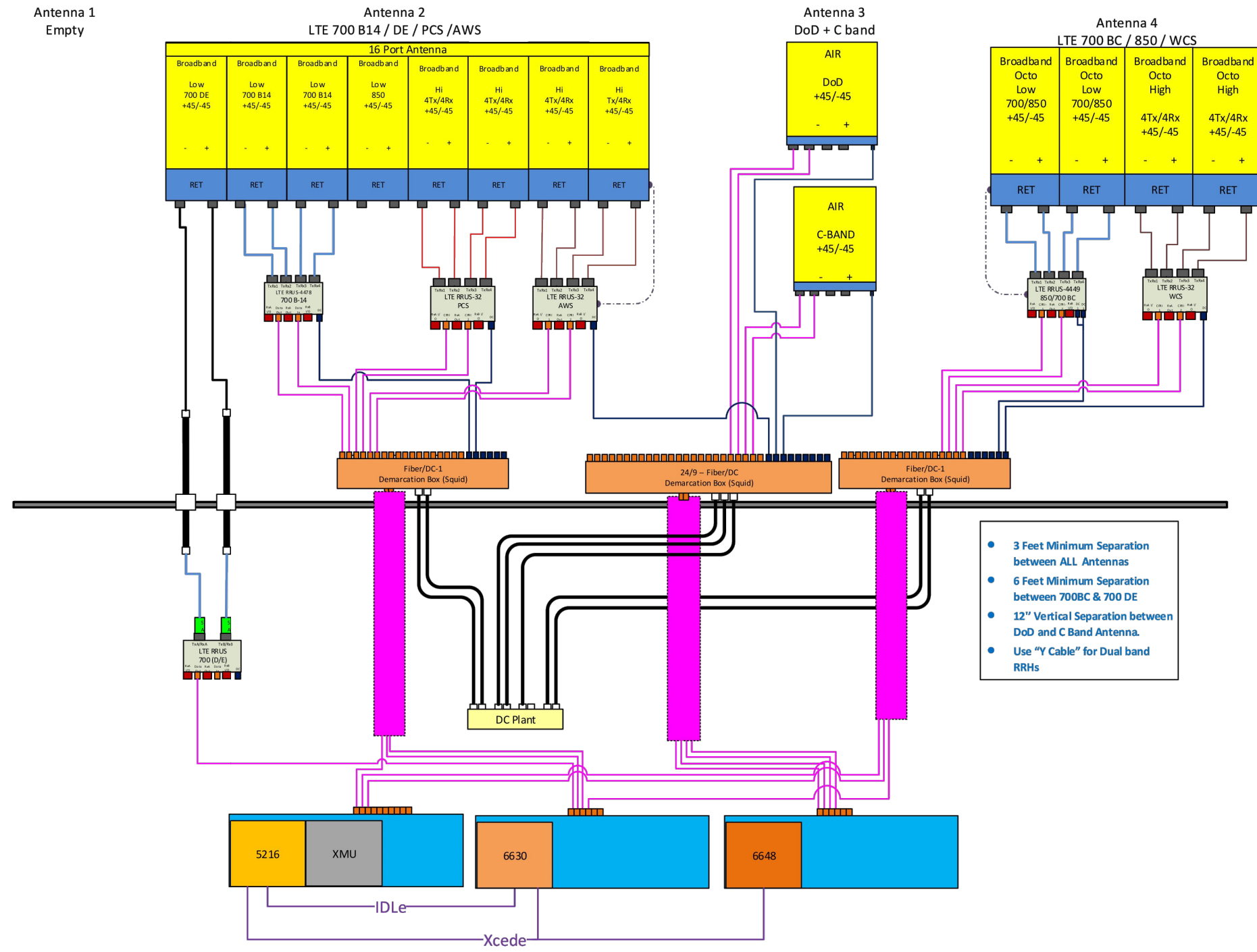
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3	04/18/22	ISSUED FOR CONSTRUCTION	MB	AT	DPH
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1	03/02/22	ISSUED FOR CONSTRUCTION	MB	AT	DPH
0	02/04/22	ISSUED FOR REVIEW	VS	AT	DPH

SCALE: AS SHOWN DESIGNED BY: VS DRAWN BY: VS

SITE NUMBER	DRAWING NUMBER	REV
CTL02147	G-1	4

AT&T
GROUNDING DETAILS
LTE 6C, 5G NR RADIO, 5G NR 1SR CBAND,
RBU ADD, LTE 5C, 4TX4RX, 5G NR 1DR-1

FINAL APPROVED V6 RFDS 02/22/22



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

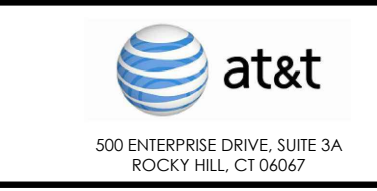
NOTE:
 REFER TO FINAL APPROVED V6 RFDS 02/22/22

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



SITE NUMBER: CTL02147
SITE NAME: WESTPORT SP TOWER

 880 POST ROAD EAST
 WESTPORT, CT 06880
 FAIRFIELD COUNTY



4	04/03/23	ISSUED FOR CONSTRUCTION	JS	AT	DPH
3	04/18/22	ISSUED FOR CONSTRUCTION	MB	AT	DPH
2	03/04/22	ISSUED FOR CONSTRUCTION	MB	AT	DPH
1	03/02/22	ISSUED FOR CONSTRUCTION	SG	AT	DPH
0	02/04/22	ISSUED FOR REVIEW	VS	AT	DPH
NO.	DATE	REVISIONS	BY	AT	APP'D
SCALE: AS SHOWN		DESIGNED BY: VS	DRAWN BY: VS		

AT&T		
RF PLUMBING DIAGRAM LTE 6C, 5G NR RADIO, 5G NR 1SR CBAND, BBU ADD, LTE 5C, 4TX4RX, 5G NR 1DR-1		
SITE NUMBER CTL02147	DRAWING NUMBER RF-1	REV 4

December 14, 2022

Emissions Analysis for Site: **CTL02147– WESTPORT SP TOWER**

MobileComm Professionals, Inc was directed to analyze the proposed AT&T facility located at **880 POST ROAD EAST, WESTPORT, CT 06880**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

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

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public 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 public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the 700 and 850 MHz Bands are approximately $0.467 \text{ mW}/\text{cm}^2$ and $0.567 \text{ mW}/\text{cm}^2$ respectively or $466.667 \mu\text{W}/\text{cm}^2$ and $566.667 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS), 2300 MHz (WCS), 3540 MHz (DoD Band) and 3840 MHz (C-Band) bands is $1 \text{ mW}/\text{cm}^2$ or $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

1. Theoretical Calculations: Methods and Procedures

MobileComm Professionals, Inc has performed theoretical modeling of the site using a software tool, RoofMaster® Version 35.5.26.2022, 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.

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.

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.

2. Antenna Inventory & Power Data

Sector	Ant ID	Operator	Antenna Mfg	Antenna Model	Antenna Type	FREQ. (MHz)	TECH.	AZ. (°)	H B W (°)	Antenna Gain (dBd)	Antenna Aperture (ft)	#of Channels	Transmitter Power Per Channel (Watts)	Total ERP (Watts)	Total EIRP (Watts)	Height (ft)	Calculated Power Density (μW/cm ²)	Allowable MPE (μW/cm ²)	Calculated MPE%
A	1	AT&T	Quintel	QD6616-7	Panel	700	LTE(B14)	20	71	12.05	6	4	40.00	2286.23	3750.77	133.00	0.023079	466.67	0.004945
A	1	AT&T	Quintel	QD6616-7	Panel	700	LTE(B29)	20	71	12.05	6	2	40.00	1143.12	1875.38	133.00	0.011544	466.67	0.002474
A	1	AT&T	Quintel	QD6616-7	Panel	1900	LTE/5G	20	67	15.05	6	4	40.00	4561.63	7483.76	133.00	0.031637	1000.00	0.003164
A	1	AT&T	Quintel	QD6616-7	Panel	2100	LTE/5G	20	62	15.55	6	4	40.00	5118.23	8396.92	133.00	0.036401	1000.00	0.003640
A	2-1	AT&T	Ericsson	AIR 6419 B77G	Panel	3450	5G	20	11	23.50	2.55	4	54.22	12138.53	19914.34	134.77	0.398202	1000.00	0.039820
A	2-2	AT&T	Ericsson	AIR 6449 B77D	Panel	3840	5G	20	11	23.50	2.55	4	86.75	19421.64	31862.94	131.23	0.623752	1000.00	0.062375
A	3	AT&T	CCI	DMP65R-BU6D	Panel	700	LTE(B12)	20	74	11.85	6	4	40.00	2183.33	3581.95	133.00	0.069312	466.67	0.014853
A	3	AT&T	CCI	DMP65R-BU6D	Panel	850	5G	20	63	12.45	6	4	40.00	2506.80	4112.63	133.00	0.076555	566.67	0.013510
A	3	AT&T	CCI	DMP65R-BU6D	Panel	2300	LTE	20	54	16.25	6	4	25.00	3758.37	6165.95	133.00	0.055408	1000.00	0.005541
B	4	AT&T	Quintel	QD6616-7	Panel	700	LTE(B14)	150	71	12.05	6	4	40.00	2286.23	3750.77	133.00	0.000018	466.67	0.000004
B	4	AT&T	Quintel	QD6616-7	Panel	700	LTE(B29)	150	71	12.05	6	2	40.00	1143.12	1875.38	133.00	0.000009	466.67	0.000002
B	4	AT&T	Quintel	QD6616-7	Panel	1900	LTE/5G	150	67	15.05	6	4	40.00	4561.63	7483.76	133.00	0.000004	1000.00	0.000000
B	4	AT&T	Quintel	QD6616-7	Panel	2100	LTE/5G	150	62	15.55	6	4	40.00	5118.23	8396.92	133.00	0.000036	1000.00	0.000004
B	5-1	AT&T	Ericsson	AIR 6419 B77G	Panel	3450	5G	150	11	23.5	2.55	4	54.22	12138.53	19914.34	134.77	0.000273	1000.00	0.000027
B	5-2	AT&T	Ericsson	AIR 6449 B77D	Panel	3840	5G	150	11	23.5	2.55	4	86.75	19421.64	31862.94	131.23	0.000342	1000.00	0.000034
B	6	AT&T	CCI	DMP65R-BU6D	Panel	700	LTE(B12)	150	74	11.85	6	4	40.00	2183.33	3581.95	133.00	0.000107	466.67	0.000023
B	6	AT&T	CCI	DMP65R-BU6D	Panel	850	5G	150	63	12.45	6	4	40.00	2506.80	4112.63	133.00	0.000228	566.67	0.000040
B	6	AT&T	CCI	DMP65R-BU6D	Panel	2300	LTE	150	54	16.25	6	4	25.00	3758.37	6165.95	133.00	0.000070	1000.00	0.000007
C	7	AT&T	Quintel	QD6616-7	Panel	700	LTE(B14)	280	71	12.05	6	4	40.00	2286.23	3750.77	133.00	0.033753	466.67	0.007233
C	7	AT&T	Quintel	QD6616-7	Panel	700	LTE(B29)	280	71	12.05	6	2	40.00	1143.12	1875.38	133.00	0.016884	466.67	0.003618
C	7	AT&T	Quintel	QD6616-7	Panel	1900	LTE/5G	280	67	15.05	6	4	40.00	4561.63	7483.76	133.00	0.041182	1000.00	0.004118
C	7	AT&T	Quintel	QD6616-7	Panel	2100	LTE/5G	280	62	15.55	6	4	40.00	5118.23	8396.92	133.00	0.045354	1000.00	0.004535
C	8-1	AT&T	Ericsson	AIR 6419 B77G	Panel	3450	5G	280	11	23.50	2.55	4	54.22	12138.53	19914.34	134.77	0.000621	1000.00	0.000062
C	8-2	AT&T	Ericsson	AIR 6449 B77D	Panel	3840	5G	280	11	23.50	2.55	4	86.75	19421.64	31862.94	131.23	0.000972	1000.00	0.000097
C	9	AT&T	CCI	DMP65R-BU6D	Panel	700	LTE(B12)	280	74	11.85	6	4	40.00	2183.33	3581.95	133.00	0.000112	466.67	0.000024
C	9	AT&T	CCI	DMP65R-BU6D	Panel	850	5G	280	63	12.45	6	4	40.00	2506.80	4112.63	133.00	0.000018	566.67	0.000003
C	9	AT&T	CCI	DMP65R-BU6D	Panel	2300	LTE	280	54	16.25	6	4	25.00	3758.37	6165.95	133.00	0.000000	1000.00	0.000000

Table 2.1: Antenna Inventory & Power Data

*NOTE: 75% Duty Cycle and adjusted power reduction factor of 0.32 was applied to the AIR6449 & AIR6419 antennas per guidance from AT&T. Specifications were not available for the Ericsson AIR 6419 antenna. Per AT&T, specifications for the AIR 6449 antenna were used to model the 6419 due to its similarity.

Sector	Ant ID	Operator	Antenna Mfg	Antenna Model	Antenna Type	FREQ. (MHz)	TECH.	AZ. (°)	H B W (°)	Antenna Gain (dBd)	Antenna Aperture (ft)	#of Channels	Transmitter Power Per Channel (Watts)	Total ERP (Watts)	Total EIRP (Watts)	Height (ft)	Calculated Power Density (μW/cm ²)	Allowable MPE (μW/cm ²)	Calculated MPE%
A	10	T-Mobile	Ericsson	KRC118023-1_A	Panel	2100	LTE	30	63.3	15.70	4.68	2	60.00	4458.42	7314.44	125.00	0.030340	1000.00	0.003034
A	11	T-Mobile	Ericsson	KRC118023-1_A	Panel	1900	GSM	30	63.3	15.60	4.68	2	30.00	2178.47	3573.97	125.00	0.052205	1000.00	0.005221
A	11	T-Mobile	Ericsson	KRC118023-1_A	Panel	2100	UMTS	30	63.3	15.70	4.68	2	30.00	2229.21	3657.22	125.00	0.047976	1000.00	0.004798
A	12	T-Mobile	CommScope	LNx-6515DS-VTM	Panel	700	LTE	30	65	14.55	8	1	30.00	762.29	1250.61	125.00	0.008093	466.67	0.001734
B	13	T-Mobile	Ericsson	KRC118023-1_A	Panel	2100	LTE	170	63.3	15.70	4.68	2	60.00	4458.42	7314.44	125.00	0.000023	1000.00	0.000002
B	14	T-Mobile	Ericsson	KRC118023-1_A	Panel	1900	GSM	170	63.3	15.60	4.68	2	30.00	2178.47	3573.97	125.00	0.000001	1000.00	0.000000
B	14	T-Mobile	Ericsson	KRC118023-1_A	Panel	2100	UMTS	170	63.3	15.70	4.68	2	30.00	2229.21	3657.22	125.00	0.000006	1000.00	0.000001
B	15	T-Mobile	CommScope	LNx-6515DS-VTM	Panel	700	LTE	170	65	14.55	8	1	30.00	762.29	1250.61	125.00	0.000000	466.67	0.000000
C	16	T-Mobile	Ericsson	KRC118023-1_A	Panel	2100	LTE	270	63.3	15.70	4.68	2	60.00	4458.42	7314.44	125.00	0.000072	1000.00	0.000007
C	17	T-Mobile	Ericsson	KRC118023-1_A	Panel	1900	GSM	270	63.3	15.60	4.68	2	30.00	2178.47	3573.97	125.00	0.000017	1000.00	0.000002
C	17	T-Mobile	Ericsson	KRC118023-1_A	Panel	2100	UMTS	270	63.3	15.70	4.68	2	30.00	2229.21	3657.22	125.00	0.000008	1000.00	0.000001
C	18	T-Mobile	CommScope	LNx-6515DS-VTM	Panel	700	LTE	270	65	14.55	8	1	30.00	762.29	1250.61	125.00	0.000000	466.67	0.000000
A	19	Verizon	JMA	MX06FRO640-02	Panel	1900	LTE	5	39	17.95	6	4	40.00	8897.67	14592.17	160.00	0.001235	1000.00	0.000123
A	20	Verizon	JMA	MX06FRO640-02	Panel	2100	LTE	5	37	18.25	6	4	40.00	9534.02	15635.80	160.00	0.002478	1000.00	0.000248
A	21	Verizon	Samsung	XXDWMM-12.5-65-8T	Panel	3500	5G	30	17	10.85	1	4	5.00	243.32	399.05	160.00	0.014572	1000.00	0.001457
A	22	Verizon	Samsung	MT6407-77A	Panel	3700	5G	30	17	22.85	2.93	4	35.00	26995.05	44271.89	160.00	0.629094	1000.00	0.062909
A	23	Verizon	JMA	MX06FRO640-02	Panel	700	LTE	55	42	14.15	6	4	40.00	3709.16	6083.03	160.00	0.000317	466.67	0.000068
A	24	Verizon	JMA	MX06FRO640-02	Panel	850	LTE	55	37	15.05	6	4	40.00	4563.27	7483.76	160.00	0.000598	566.67	0.000105
B	25	Verizon	Commscope	JAHH-65B-R3B	Panel	700	LTE	180	65	12.35	6	4	40.00	2449.74	4019.02	160.00	0.000019	466.67	0.000004
B	25	Verizon	Commscope	JAHH-65B-R3B	Panel	850	LTE	180	65	13.65	6	4	40.00	3304.61	5421.51	160.00	0.000000	566.67	0.000000
B	26	Verizon	Commscope	JAHH-65B-R3B	Panel	1900	LTE	180	65	16.15	6	4	40.00	5876.52	9640.95	160.00	0.000009	1000.00	0.000001
B	26	Verizon	Commscope	JAHH-65B-R3B	Panel	2100	LTE	180	65	16.35	6	4	40.00	6153.47	10095.32	160.00	0.000012	1000.00	0.000001
B	27	Verizon	Samsung	XXDWMM-12.5-65-8T	Panel	3500	5G	180	17	10.85	1	4	5.00	243.32	399.05	160.00	0.000001	1000.00	0.000000
B	28	Verizon	Samsung	MT6407-77A	Panel	3700	5G	180	17	22.85	2.93	4	35.00	26995.05	44271.89	160.00	0.000180	1000.00	0.000018
C	29	Verizon	Commscope	JAHH-65B-R3B	Panel	700	LTE	280	65	12.35	6	4	40.00	2449.74	4019.02	160.00	0.000091	466.67	0.000020
C	29	Verizon	Commscope	JAHH-65B-R3B	Panel	850	LTE	280	65	13.65	6	4	40.00	3304.61	5421.51	160.00	0.000000	566.67	0.000000
C	30	Verizon	Commscope	JAHH-65B-R3B	Panel	1900	LTE	280	65	16.15	6	4	40.00	5876.52	9640.95	160.00	0.000002	1000.00	0.000000
C	30	Verizon	Commscope	JAHH-65B-R3B	Panel	2100	LTE	280	65	16.35	6	4	40.00	6153.47	10095.32	160.00	0.000026	1000.00	0.000003
C	31	Verizon	Samsung	XXDWMM-12.5-65-8T	Panel	3500	5G	280	17	10.85	1	4	5.00	243.32	399.05	160.00	0.000018	1000.00	0.000002
C	32	Verizon	Samsung	MT6407-77A	Panel	3700	5G	280	17	22.85	2.93	4	35.00	26995.05	44271.89	160.00	0.000447	1000.00	0.000045
A	33	Other Carrier	Generic	Generic	Microwave	12400	Unkown	90	3	34.85	3	1	0.30	855.31	1403.21	180.00	0.000130	1000.00	0.000013
B	34	Other Carrier	Generic	Generic	Microwave	12400	Unkown	280	3	34.85	3	1	0.30	855.31	1403.21	169.00	0.000006	1000.00	0.000001
A	35	Other Carrier	Generic	Generic	OMNI	850	LTE	0	360	34.85	12	1	60.00	422.82	693.67	170.00	0.000000	566.67	0.000000
																Calculated Power Density (μW/cm ²)	2.253849	Calculated MPE%	0.2499

Table 2.2: Antenna Inventory & Power Data

*NOTE: 75% Duty Cycle and adjusted power reduction factor of 0.32 was applied to the AIR6449 & AIR6419 antennas per guidance from AT&T. Specifications were not available for the Ericsson AIR 6419 antenna. Per AT&T, specifications for the AIR 6449 antenna were used to model the 6419 due to its similarity.

3. Compliance Summary

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

The anticipated composite MPE value for this site assuming all carriers present is 0.2499% of the allowable FCC established general public limit sampled at the ground level.

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

April 4, 2023 (Rev.2)

April 11, 2022 (Rev.1)

January 27, 2022



Smartlink, LLC
1997 Annapolis Exchange Pkwy, Suite 200
Annapolis, MD 21401

RE: AT&T Site Number: CT2147 (C-BAND)
FA Number: 10035298
PACE Number: MRCTB053103
PT Number: 2051A11ATZ
TEP Project Number: 359276
AT&T Site Name: WESTPORT SP TOWER
Site Address: 880 Post Road East
Westport, CT 06880

To Whom It May Concern:

TEP Northeast (TEP NE) has been authorized by Smartlink to perform a mount analysis on the proposed AT&T antenna/RRH mounts to determine their capability of supporting the following additional loading (based on RFDS V6.00 dated 2/22/2022):

- (3) RRUS-32 B2 (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (3) RRUS-32 B30 (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (3) RRUS-32 B66A (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (2) DC6-48-60-18-8F Surge Arrestors (31.4"x10.2" Ø – Wt. = 29 lbs. /each) (tower mounted)
- **(3) QD6616-7 Antennas (72.0"x22.0"x9.6" – Wt. = 130 lbs. /each)**
- **(3) AIR6419 Antennas (31.1"x16.1"x7.3" – Wt. = 66 lbs. /each)**
- **(3) AIR6449 Antennas (30.6"x15.9"x10.6" – Wt. 82 lbs. /each)**
- **(3) DMP65R-BU6DA Antennas (71.2"x20.7"x7.7" – Wt. = 96 lbs. /each)**
- **(3) 4478 B14 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)**
- **(3) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each)**
- **(1) DC9-48-60-24-8C-EV Surge Arrestor (31.4"x10.2" Ø – Wt. = 29 lbs.) (tower mounted)**

**Proposed equipment shown in bold*

Mount fabrication drawings prepared by SitePro1, P/N VFA14-H10-2120, dated December 7, 2020, were used to perform this analysis. ProVertic LLC performed a survey climb and mapping of the existing AT&T antenna mounts on October 5, 2021. This office conducted a ground audit of the existing AT&T antenna mounts on May 4, 2021.

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 2021 with 2022 Connecticut State Building Code, and AT&T Mount Technical Directive – R22.
- TEP NE 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 P of the Connecticut State Building Code, the max basic wind speed for this site is equal to 120 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.15 in was used for this analysis.
- TEP NE considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- TEP NE considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- TEP NE considers this site to have a spectral response acceleration parameter at short periods, S_s , of 0.232 and a spectral response acceleration parameter at a period of 1 second, S_1 , of 0.056.
- 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 2.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The proposed mount is to be secured to the existing self supporting tower with threaded rods and steel plates tightened around the tower leg. TEP NE considers the threaded rods as the governing connection members.

Based on our evaluation, we have determined that the Proposed (3) SitePro1 P/N VFA14-H10-2120 mounts **ARE CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Proposed (C-BAND) Mount Rating	11	LC57	95%	PASS

Reference Documents:

- Fabrication drawings prepared by SitePro1, P/N VFA14-H10-2120, dated December 7, 2020.

This determination was based on the following limitations and assumptions:

1. TEP NE is not responsible for any modifications completed prior to and hereafter which TEP NE 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. TEP NE 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,
TEP Northeast



Michael Cabral
Director



Daniel P. Hamm, PE
Vice President

**Wind & Ice
Calculations**

Date: 4/4/2023
 Project Name: WESTPORT SP TOWER
 Project No.: CT2147
 Designed By: CL Checked By: MSC



2.6.5.2 Velocity Pressure Coeff:

$K_z = 2.01 (z/z_g)^{2/\alpha}$
 $K_z = 1.072$
 $z = 133$ (ft)
 $z_g = 1200$ (ft)
 $\alpha = 7.0$

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

Table 2-4

Exposure	Z _g	α	K _{zmin}	K _c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

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

$K_{zt} = [1 + (K_c K_t / K_h)]^2$

$K_{zt} = 1$

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

Category = 1

$K_h = e^{(fz/H)}$

$K_h = 1$
 $K_c = 0.9$ (from Table 2-4)
 $K_t = 0$ (from Table 2-5)
 $f = 0$ (from Table 2-5)
 $z = 133$
 $z_s = 56$ (Mean elevation of base of structure above sea level)
 $H = 0$ (Ht. of the crest above surrounding terrain)
 $K_{zt} = 1.00$ (from 2.6.6.2.1)
 $K_e = 1.00$ (from 2.6.8)

2.6.10 Design Ice Thickness

Max Ice Thickness =

Importance Factor =

$t_i = 1.00$ in
 $I = 1.00$ (from Table 2-3)
 $K_{iz} = 1.15$ (from Sec. 2.6.10)

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

$t_{iz} = 1.15$ in

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2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

$G_h = 1.0$ Latticed Structures > 600 ft

$G_h = 0.85$ Latticed Structures 450 ft or less

$G_h = 0.85 + 0.15 [h/150 - 3.0]$

$h =$ ht. of structure

$h =$ 180

$G_h =$ 0.85

2.6.9.2 Guyed Masts

$G_h =$ 0.85

2.6.9.3 Pole Structures

$G_h =$ 1.1

2.6.9 Appurtenances

$G_h =$ 1.0

2.6.9.4 Structures Supported on Other Structures

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

$G_h =$ 1.35

$G_h =$ 1.00

2.6.11.2 Design Wind Force on Appurtenances

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

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

$q_z =$	37.47
$q_z (ice) =$	6.51
$q_z (30) =$	2.34

$K_z =$	1.072 (from 2.6.5.2)
$K_{zt} =$	1.0 (from 2.6.6.2.1)
$K_s =$	1.0 (from 2.6.7)
$K_e =$	1.00 (from 2.6.8)
$K_d =$	0.95 (from Table 2-2)
$V_{max} =$	120 mph (Ultimate Wind Speed)
$V_{max (ice)} =$	50 mph
$V_{30} =$	30 mph

Table 2-2

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

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Determine Ca:

Table 2-9

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

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
 (Aspect ratio is independent of the spacing between support points of a linear appurtenance,
 Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **1.15 in** Angle = **0 (deg)** Equivalent Angle = **180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
QD6616-7 Antenna	72.0	22.0	9.6	11.00	3.27	1.23	509	101	32
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.93	1.20	156	33	10
AIR6449 Antenna	30.6	15.9	10.6	3.38	1.92	1.20	152	32	9
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.44	1.24	476	95	30
RRUS-32 B2 RRH	27.2	7.0	12.1	1.32	3.89	1.26	63	16	4
RRUS-32 B30 RRH	27.2	7.0	12.1	1.32	3.89	1.26	63	16	4
RRUS-32 B66A RRH	27.2	7.0	12.1	1.32	3.89	1.26	63	16	4
4478 B14 RRH	18.1	13.4	8.3	1.68	1.35	1.20	76	17	5
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.90	1.20	53	13	3
DC6-48-60-18-8F Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	58	13	4
DC9-48-60-24-8C-EV Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	58	13	4
2" Pipe	2.4	12.0		0.20	0.20	1.20	9		
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	11		
5/8" Round Bar	0.6	12.0		0.05	0.05	1.20	2		
3/4" Round Bar	0.8	12.0		0.06	0.06	1.20	3		
PL 3-1/2x5/8"	0.6	12.0		0.05	0.05	2.00	4		
PL 11-1/4x5/8"	0.6	12.0		0.05	0.05	2.00	4		

Date: 4/4/2023
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WIND LOADS

Angle = 30 (deg) Ice Thickness = 1.15 in. Equivalent Angle = 210 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	509	255	445
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	156	76	136
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	152	103	140
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	476	210	410
RRUS-32 B2 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	63	103	73
RRUS-32 B30 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	63	103	73
RRUS-32 B66A RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	63	103	73
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	76	47	69
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	53	74	58

WIND LOADS WITH ICE:

QD6616-7 Antenna	74.3	24.3	11.9	12.54	6.14	3.06	6.24	1.22	1.37	100	55	89
AIR6419 Antenna	33.4	18.4	9.6	4.27	2.23	1.82	3.48	1.20	1.24	33	18	29
AIR6449 Antenna	32.9	18.2	12.9	4.16	2.95	1.81	2.55	1.20	1.20	32	23	30
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.74	5.10	3.20	7.35	1.23	1.41	94	47	82
RRUS-32 B2 RRH	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	17
RRUS-32 B30 RRH	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	17
RRUS-32 B66A RRH	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	17
4478 B14 RRH	20.4	15.7	10.6	2.22	1.50	1.30	1.92	1.20	1.20	17	12	16
4449 B5/B12 RRH	20.2	11.7	15.5	1.64	2.17	1.73	1.30	1.20	1.20	13	17	14

WIND LOADS AT 30 MPH:

QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	32	16	28
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	10	5	9
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	9
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	30	13	26
RRUS-32 B2 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	5
RRUS-32 B30 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	5
RRUS-32 B66A RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	5
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	4
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	5	4

Date: 4/4/2023
 Project Name: WESTPORT SP TOWER
 Project No.: CT2147
 Designed By: CL Checked By: MSC



WIND LOADS

Angle = 60 (deg) Ice Thickness = 1.15 in. Equivalent Angle = 240 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	509	255	318
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	156	76	96
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	152	103	115
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	476	210	277
RRUS-32 B2 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	63	103	93
RRUS-32 B30 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	63	103	93
RRUS-32 B66A RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	63	103	93
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	76	47	54
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	53	74	68

WIND LOADS WITH ICE:

QD6616-7 Antenna	74.3	24.3	11.9	12.54	6.14	3.06	6.24	1.22	1.37	100	55	66
AIR6419 Antenna	33.4	18.4	9.6	4.27	2.23	1.82	3.48	1.20	1.24	33	18	22
AIR6449 Antenna	32.9	18.2	12.9	4.16	2.95	1.81	2.55	1.20	1.20	32	23	25
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.74	5.10	3.20	7.35	1.23	1.41	94	47	59
RRUS-32 B2 RRH	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	21
RRUS-32 B30 RRH	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	21
RRUS-32 B66A RRH	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	21
4478 B14 RRH	20.4	15.7	10.6	2.22	1.50	1.30	1.92	1.20	1.20	17	12	13
4449 B5/B12 RRH	20.2	11.7	15.5	1.64	2.17	1.73	1.30	1.20	1.20	13	17	16

WIND LOADS AT 30 MPH:

QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	32	16	20
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	10	5	6
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	7
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	30	13	17
RRUS-32 B2 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	6
RRUS-32 B30 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	6
RRUS-32 B66A RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	6
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	3
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	5	4

Date: 4/4/2023
 Project Name: WESTPORT SP TOWER
 Project No.: CT2147
 Designed By: CL Checked By: MSC



WIND LOADS

Angle = 90 (deg) Ice Thickness = 1.15 in. Equivalent Angle = 270 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	509	255	255
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	156	76	76
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	152	103	103
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	476	210	210
RRUS-32 B2 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	63	103	103
RRUS-32 B30 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	63	103	103
RRUS-32 B66A RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	63	103	103
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	76	47	47
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	53	74	74

WIND LOADS WITH ICE:

QD6616-7 Antenna	74.3	24.3	11.9	12.54	6.14	3.06	6.24	1.22	1.37	100	55	55
AIR6419 Antenna	33.4	18.4	9.6	4.27	2.23	1.82	3.48	1.20	1.24	33	18	18
AIR6449 Antenna	32.9	18.2	12.9	4.16	2.95	1.81	2.55	1.20	1.20	32	23	23
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.74	5.10	3.20	7.35	1.23	1.41	94	47	47
RRUS-32 B2 RRH	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	23
RRUS-32 B30 RRH	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	23
RRUS-32 B66A RRH	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	23
4478 B14 RRH	20.4	15.7	10.6	2.22	1.50	1.30	1.92	1.20	1.20	17	12	12
4449 B5/B12 RRH	20.2	11.7	15.5	1.64	2.17	1.73	1.30	1.20	1.20	13	17	17

WIND LOADS AT 30 MPH:

QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	32	16	16
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	10	5	5
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	6
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	30	13	13
RRUS-32 B2 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	6
RRUS-32 B30 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	6
RRUS-32 B66A RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	6
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	3
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	5	5

Date: 4/4/2023
 Project Name: WESTPORT SP TOWER
 Project No.: CT2147
 Designed By: CL Checked By: MSC



WIND LOADS

Angle = **120** (deg) Ice Thickness = **1.15** in. Equivalent Angle = **300** (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	509	255	318
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	156	76	96
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	152	103	115
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	476	210	277
RRUS-32 B2 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	63	103	93
RRUS-32 B30 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	63	103	93
RRUS-32 B66A RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	63	103	93
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	76	47	54
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	53	74	68

WIND LOADS WITH ICE:

QD6616-7 Antenna	74.3	24.3	11.9	12.54	6.14	3.06	6.24	1.22	1.37	100	55	66
AIR6419 Antenna	33.4	18.4	9.6	4.27	2.23	1.82	3.48	1.20	1.24	33	18	22
AIR6449 Antenna	32.9	18.2	12.9	4.16	2.95	1.81	2.55	1.20	1.20	32	23	25
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.74	5.10	3.20	7.35	1.23	1.41	94	47	59
RRUS-32 B2 RRH	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	21
RRUS-32 B30 RRH	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	21
RRUS-32 B66A RRH	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	21
4478 B14 RRH	20.4	15.7	10.6	2.22	1.50	1.30	1.92	1.20	1.20	17	12	13
4449 B5/B12 RRH	20.2	11.7	15.5	1.64	2.17	1.73	1.30	1.20	1.20	13	17	16

WIND LOADS AT 30 MPH:

QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	32	16	20
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	10	5	6
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	7
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	30	13	17
RRUS-32 B2 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	6
RRUS-32 B30 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	6
RRUS-32 B66A RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	6
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	3
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	5	4

Date: 4/4/2023
 Project Name: WESTPORT SP TOWER
 Project No.: CT2147
 Designed By: CL Checked By: MSC



WIND LOADS

Angle = 150 (deg) Ice Thickness = 1.15 in. Equivalent Angle = 330 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	509	255	445
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	156	76	136
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	152	103	140
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	476	210	410
RRUS-32 B2 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	63	103	73
RRUS-32 B30 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	63	103	73
RRUS-32 B66A RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	63	103	73
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	76	47	69
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	53	74	58

WIND LOADS WITH ICE:

QD6616-7 Antenna	74.3	24.3	11.9	12.54	6.14	3.06	6.24	1.22	1.37	100	55	89
AIR6419 Antenna	33.4	18.4	9.6	4.27	2.23	1.82	3.48	1.20	1.24	33	18	29
AIR6449 Antenna	32.9	18.2	12.9	4.16	2.95	1.81	2.55	1.20	1.20	32	23	30
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.74	5.10	3.20	7.35	1.23	1.41	94	47	82
RRUS-32 B2 RRH	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	17
RRUS-32 B30 RRH	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	17
RRUS-32 B66A RRH	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	17
4478 B14 RRH	20.4	15.7	10.6	2.22	1.50	1.30	1.92	1.20	1.20	17	12	16
4449 B5/B12 RRH	20.2	11.7	15.5	1.64	2.17	1.73	1.30	1.20	1.20	13	17	14

WIND LOADS AT 30 MPH:

QD6616-7 Antenna	72.0	22.0	9.6	11.00	4.80	3.27	7.50	1.23	1.42	32	16	28
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	10	5	9
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	9
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	30	13	26
RRUS-32 B2 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	5
RRUS-32 B30 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	5
RRUS-32 B66A RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	5
4478 B14 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	4
4449 B5/B12 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	5	4

Date: 4/4/2023

Project Name: WESTPORT SP TOWER

Project No.: CT2147

Designed By: CL Checked By: MSC



ICE WEIGHT CALCULATIONS

Thickness of ice: 1.15 in.
Density of ice: 56 pcf

QD6616-7 Antenna

Weight of ice based on total radial SF area:
Height (in): 72.0
Width (in): 22.0
Depth (in): 9.6
Total weight of ice on object: 212 lbs
Weight of object: 130.0 lbs

Combined weight of ice and object: 342 lbs

AIR6419 Antenna

Weight of ice based on total radial SF area:
Height (in): 31.1
Width (in): 16.1
Depth (in): 7.3
Total weight of ice on object: 69 lbs
Weight of object: 66.0 lbs

Combined weight of ice and object: 135 lbs

AIR6449 Antenna

Weight of ice based on total radial SF area:
Height (in): 30.6
Width (in): 15.9
Depth (in): 10.6
Total weight of ice on object: 73 lbs
Weight of object: 82.0 lbs

Combined weight of ice and object: 155 lbs

DMP65R-BU6DA Antenna

Weight of ice based on total radial SF area:
Height (in): 71.2
Width (in): 20.7
Depth (in): 7.7
Total weight of ice on object: 194 lbs
Weight of object: 96.0 lbs

Combined weight of ice and object: 290 lbs

RRUS-32 B2 RRH

Weight of ice based on total radial SF area:
Height (in): 27.2
Width (in): 12.1
Depth (in): 7.0
Total weight of ice on object: 48 lbs
Weight of object: 60.0 lbs

Combined weight of ice and object: 108 lbs

RRUS-32 B30 RRH

Weight of ice based on total radial SF area:
Height (in): 27.2
Width (in): 12.1
Depth (in): 7.0
Total weight of ice on object: 48 lbs
Weight of object: 60.0 lbs

Combined weight of ice and object: 108 lbs

RRUS-32 B66A RRH

Weight of ice based on total radial SF area:
Height (in): 27.2
Width (in): 12.1
Depth (in): 7.0
Total weight of ice on object: 48 lbs
Weight of object: 60.0 lbs

Combined weight of ice and object: 108 lbs

4478 B14 RRH

Weight of ice based on total radial SF area:
Height (in): 18.1
Width (in): 13.4
Depth (in): 8.3
Total weight of ice on object: 36 lbs
Weight of object: 60.0 lbs

Combined weight of ice and object: 96 lbs

4449 B5/B12 RRH

Weight of ice based on total radial SF area:
Height (in): 17.9
Width (in): 13.2
Depth (in): 9.4
Total weight of ice on object: 36 lbs
Weight of object: 73.0 lbs

Combined weight of ice and object: 109 lbs

DC6-48-60-18-8F Surge Arrestor

Weight of ice based on total radial SF area:
Depth (in): 31.4
Diameter(in): 10.2
Total weight of ice on object: 42 lbs
Weight of object: 29 lbs

Combined weight of ice and object: 71 lbs

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

Weight of ice based on total radial SF area:
Depth (in): 31.4
Diameter(in): 10.2
Total weight of ice on object: 42 lbs
Weight of object: 29 lbs

Combined weight of ice and object: 71 lbs

2" Pipe

Per foot weight of ice:
diameter (in): 2.38
Per foot weight of ice on object: 5 plf

2-1/2" Pipe

Per foot weight of ice:
diameter (in): 2.88
Per foot weight of ice on object: 6 plf

5/8" Round Bar

Per foot weight of ice:
diameter (in): 0.625
Per foot weight of ice on object: 2 plf

3/4" Round Bar

Per foot weight of ice:
diameter (in): 0.75
Per foot weight of ice on object: 3 plf

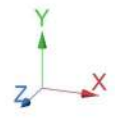
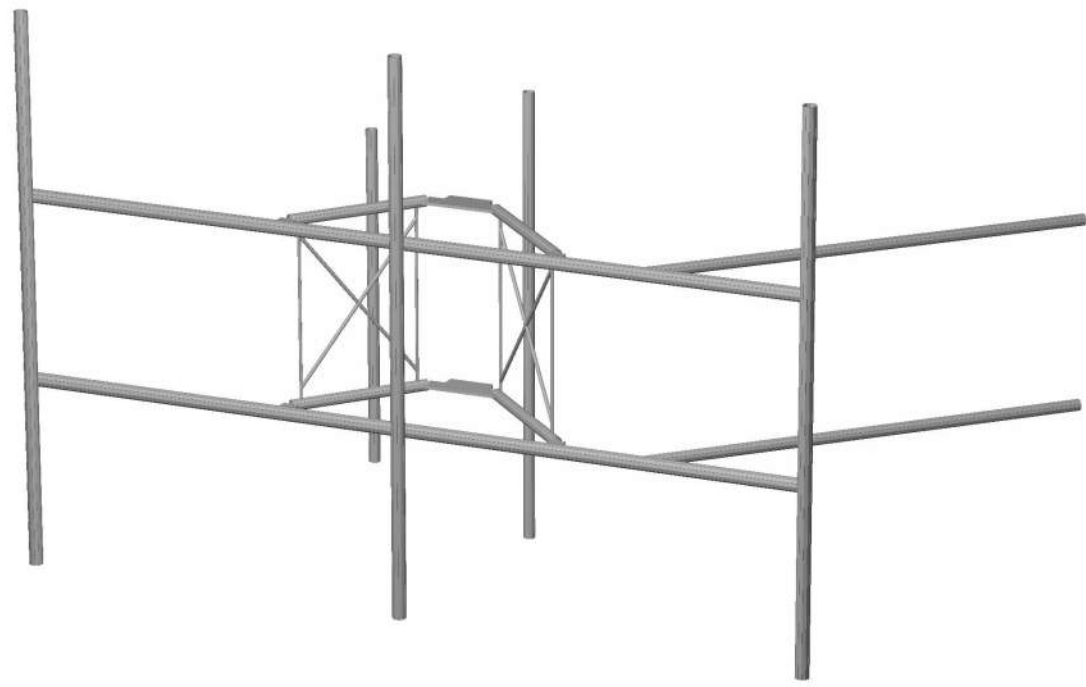
PL 3-1/2x5/8"

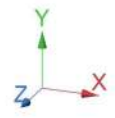
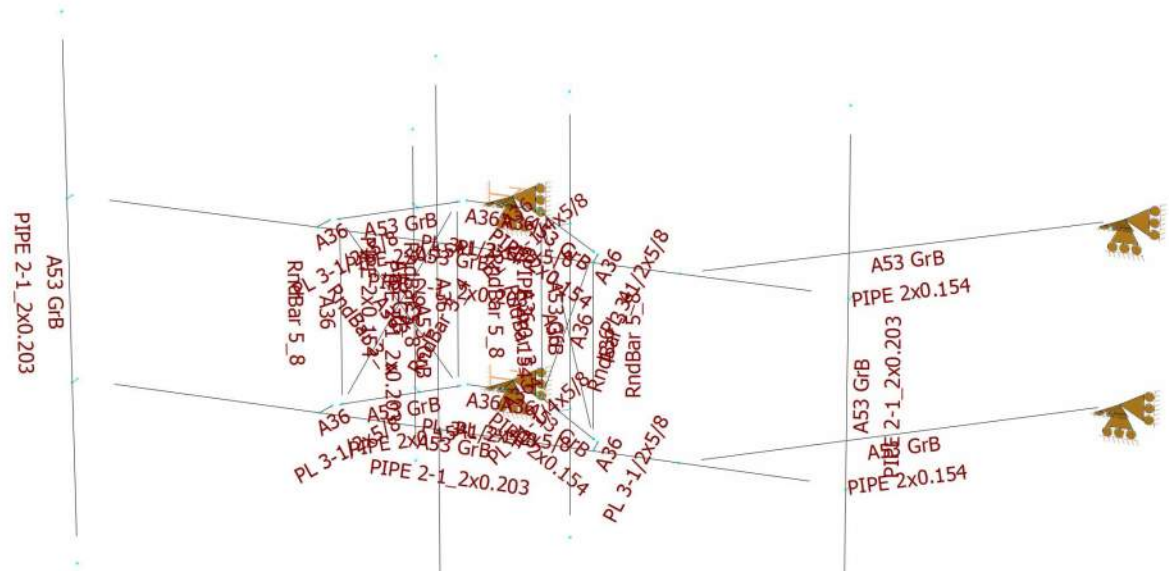
Weight of ice based on total radial SF area:
Height (in): 3.5
Width (in): 0.625
Per foot weight of ice on object: 7 plf

PL 11-1/4x5/8"

Weight of ice based on total radial SF area:
Height (in): 11.25
Width (in): 0.625
Per foot weight of ice on object: 17 plf

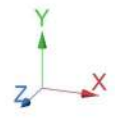
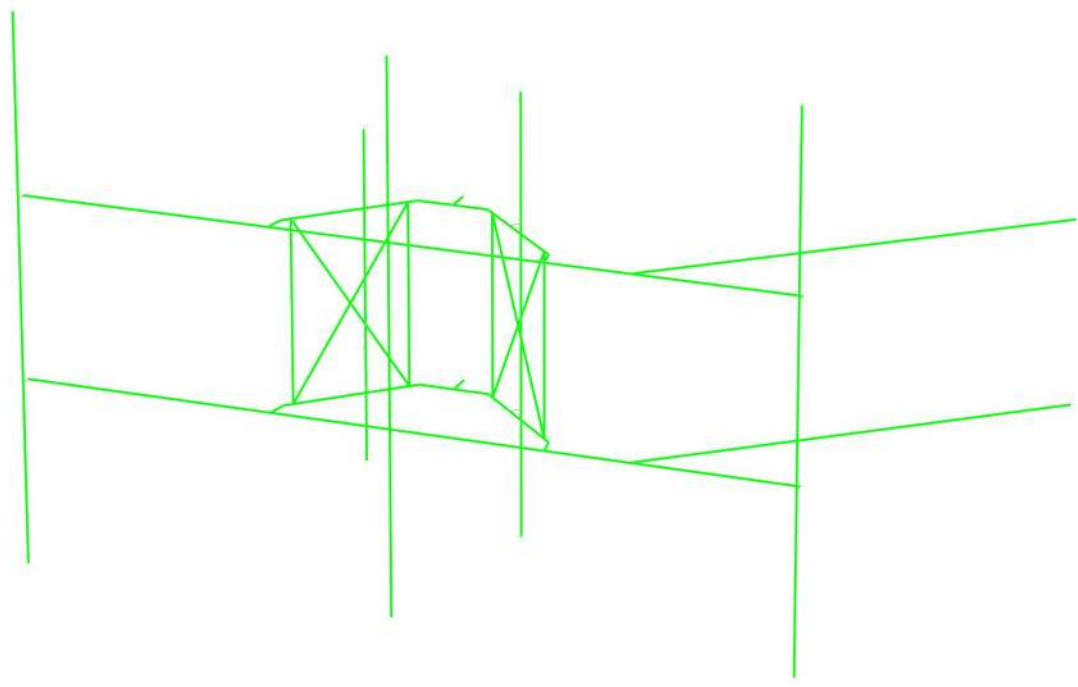
**Mount Calculations
(Existing Conditions)**

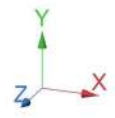
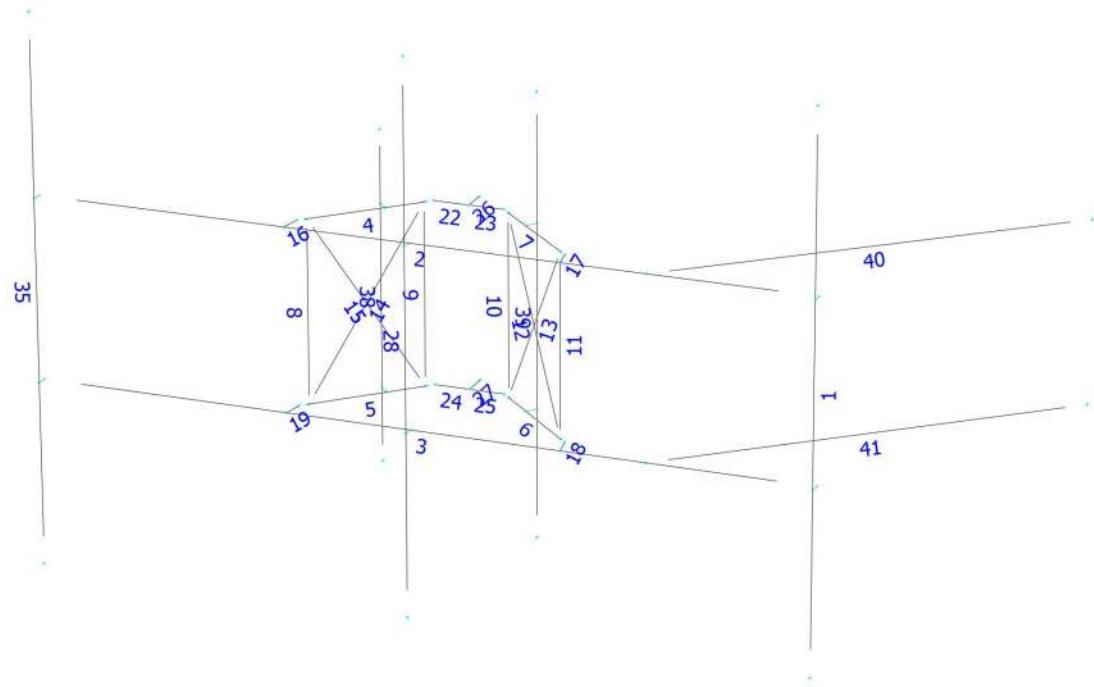




Design status

- Not designed
- Error on design
- Design O.K.
- With warnings





Load data

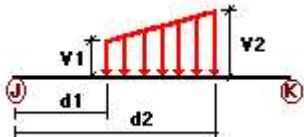
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category																																																															
D	Dead Load	No	DL																																																															
Wo	Wind Load (NO ICE)	No	WIND																																																															
W30	WL 30deg	No	WIND																																																															
W60	WL 60deg	No	WIND																																																															
W90	WL 90deg	No	WIND																																																															
W120	WL 120deg	No	WIND																																																															
W150	WL 150deg	No	WIND																																																															
Di	Ice Load	No	LL																																																															
WI0	WL ICE 0deg	No	WIND																																																															
WI30	WL ICE 30deg	No	WIND																																																															
WI60	WL ICE 60deg	No </tr <tr> <td>WI90</td> <td>WL ICE 90deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WI120</td> <td>WL ICE 120deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WI150</td> <td>WL ICE 150deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL0</td> <td>WL 30 mph 0deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL30</td> <td>WL 30 mph 30deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL60</td> <td>WL 30 mph 60deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL90</td> <td>WL 30 mph 90deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL120</td> <td>WL 30 mph 120deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL150</td> <td>WL 30 mph 150deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>LL1</td> <td>250 lb Live Load Center of Mount</td> <td>No</td> <td>LL</td> </tr> <tr> <td>LL2</td> <td>250 lb Live Load Right End of Mount</td> <td>No</td> <td>LL</td> </tr> <tr> <td>LL3</td> <td>250 lb Live Load Left End of Mount</td> <td>No</td> <td>LL</td> </tr> <tr> <td>LLa1</td> <td>500 lb Live Load Antenna 1</td> <td>No</td> <td>LL</td> </tr> <tr> <td>LLa2</td> <td>500 lb Live Load Antenna 1</td> <td>No</td> <td>LL</td> </tr> <tr> <td>LLa3</td> <td>500 lb Live Load Antenna 1</td> <td>No</td> <td>LL</td> </tr> <tr> <td>LLa4</td> <td>500 lb Live Load Antenna 1</td> <td>No</td> <td>LL</td> </tr>	WI90	WL ICE 90deg	No	WIND	WI120	WL ICE 120deg	No	WIND	WI150	WL ICE 150deg	No	WIND	WL0	WL 30 mph 0deg	No	WIND	WL30	WL 30 mph 30deg	No	WIND	WL60	WL 30 mph 60deg	No	WIND	WL90	WL 30 mph 90deg	No	WIND	WL120	WL 30 mph 120deg	No	WIND	WL150	WL 30 mph 150deg	No	WIND	LL1	250 lb Live Load Center of Mount	No	LL	LL2	250 lb Live Load Right End of Mount	No	LL	LL3	250 lb Live Load Left End of Mount	No	LL	LLa1	500 lb Live Load Antenna 1	No	LL	LLa2	500 lb Live Load Antenna 1	No	LL	LLa3	500 lb Live Load Antenna 1	No	LL	LLa4	500 lb Live Load Antenna 1	No	LL
WI90	WL ICE 90deg	No	WIND																																																															
WI120	WL ICE 120deg	No	WIND																																																															
WI150	WL ICE 150deg	No	WIND																																																															
WL0	WL 30 mph 0deg	No	WIND																																																															
WL30	WL 30 mph 30deg	No	WIND																																																															
WL60	WL 30 mph 60deg	No	WIND																																																															
WL90	WL 30 mph 90deg	No	WIND																																																															
WL120	WL 30 mph 120deg	No	WIND																																																															
WL150	WL 30 mph 150deg	No	WIND																																																															
LL1	250 lb Live Load Center of Mount	No	LL																																																															
LL2	250 lb Live Load Right End of Mount	No	LL																																																															
LL3	250 lb Live Load Left End of Mount	No	LL																																																															
LLa1	500 lb Live Load Antenna 1	No	LL																																																															
LLa2	500 lb Live Load Antenna 1	No	LL																																																															
LLa3	500 lb Live Load Antenna 1	No	LL																																																															
LLa4	500 lb Live Load Antenna 1	No	LL																																																															

Distributed force on members

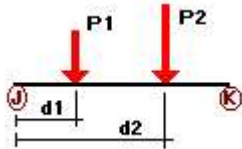


Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%	
Wo	2	z	-0.006	-0.006	0.00	No	100.00	Yes	
	3	z	-0.006	-0.006	0.00	No	100.00	Yes	
	4	z	-0.005	-0.005	0.00	No	100.00	Yes	
	5	z	-0.005	-0.005	0.00	No	100.00	Yes	
	6	z	-0.005	-0.005	0.00	No	100.00	Yes	
	7	z	-0.005	-0.005	0.00	No	100.00	Yes	
	8	z	-0.001	-0.001	0.00	No	100.00	Yes	
	9	z	-0.001	-0.001	0.00	No	100.00	Yes	
	10	z	-0.001	-0.001	0.00	No	100.00	Yes	
	11	z	-0.001	-0.001	0.00	No	100.00	Yes	
	12	z	-0.001	-0.001	0.00	No	100.00	Yes	
	13	z	-0.001	-0.001	0.00	No	100.00	Yes	
	14	z	-0.001	-0.001	0.00	No	100.00	Yes	
	15	z	-0.001	-0.001	0.00	No	100.00	Yes	
	16	z	-0.002	-0.002	0.00	No	100.00	Yes	
	17	z	-0.002	-0.002	0.00	No	100.00	Yes	
	18	z	-0.002	-0.002	0.00	No	100.00	Yes	
	19	z	-0.002	-0.002	0.00	No	100.00	Yes	
	22	z	-0.002	-0.002	0.00	No	100.00	Yes	
	23	z	-0.002	-0.002	0.00	No	100.00	Yes	
	24	z	-0.002	-0.002	0.00	No	100.00	Yes	
	25	z	-0.002	-0.002	0.00	No	100.00	Yes	
	26	z	-0.002	-0.002	0.00	No	100.00	Yes	
	27	z	-0.002	-0.002	0.00	No	100.00	Yes	
	38	z	-0.005	-0.005	0.00	No	100.00	Yes	
	39	z	-0.005	-0.005	0.00	No	100.00	Yes	
	40	z	-0.005	-0.005	0.00	No	100.00	Yes	
	41	z	-0.005	-0.005	0.00	No	100.00	Yes	
	W30	2	z	-0.006	-0.006	0.00	No	100.00	Yes
		3	z	-0.006	-0.006	0.00	No	100.00	Yes
		4	z	-0.005	-0.005	0.00	No	100.00	Yes
		5	z	-0.005	-0.005	0.00	No	100.00	Yes
		6	z	-0.005	-0.005	0.00	No	100.00	Yes
		7	z	-0.005	-0.005	0.00	No	100.00	Yes
		8	z	-0.001	-0.001	0.00	No	100.00	Yes
		9	z	-0.001	-0.001	0.00	No	100.00	Yes
		10	z	-0.001	-0.001	0.00	No	100.00	Yes
		11	z	-0.001	-0.001	0.00	No	100.00	Yes
		12	z	-0.001	-0.001	0.00	No	100.00	Yes
		13	z	-0.001	-0.001	0.00	No	100.00	Yes
		14	z	-0.001	-0.001	0.00	No	100.00	Yes
15		z	-0.001	-0.001	0.00	No	100.00	Yes	
16		z	-0.002	-0.002	0.00	No	100.00	Yes	
17		z	-0.002	-0.002	0.00	No	100.00	Yes	
18		z	-0.002	-0.002	0.00	No	100.00	Yes	
19		z	-0.002	-0.002	0.00	No	100.00	Yes	
22		z	-0.002	-0.002	0.00	No	100.00	Yes	
23		z	-0.002	-0.002	0.00	No	100.00	Yes	
24	z	-0.002	-0.002	0.00	No	100.00	Yes		
25	z	-0.002	-0.002	0.00	No	100.00	Yes		
26	z	-0.002	-0.002	0.00	No	100.00	Yes		
27	z	-0.002	-0.002	0.00	No	100.00	Yes		
38	z	-0.005	-0.005	0.00	No	100.00	Yes		
39	z	-0.005	-0.005	0.00	No	100.00	Yes		
40	z	-0.005	-0.005	0.00	No	100.00	Yes		
41	z	-0.005	-0.005	0.00	No	100.00	Yes		
W60	1	x	-0.006	-0.006	0.00	No	100.00	Yes	
	4	x	-0.005	-0.005	0.00	No	100.00	Yes	
	5	x	-0.005	-0.005	0.00	No	100.00	Yes	
	6	x	-0.005	-0.005	0.00	No	100.00	Yes	

	9	x	-0.001	-0.001	0.00	No	100.00	Yes
	10	x	-0.001	-0.001	0.00	No	100.00	Yes
	11	x	-0.001	-0.001	0.00	No	100.00	Yes
	12	x	-0.001	-0.001	0.00	No	100.00	Yes
	13	x	-0.001	-0.001	0.00	No	100.00	Yes
	14	x	-0.001	-0.001	0.00	No	100.00	Yes
	15	x	-0.001	-0.001	0.00	No	100.00	Yes
	16	x	-0.002	-0.002	0.00	No	100.00	Yes
	17	x	-0.002	-0.002	0.00	No	100.00	Yes
	18	x	-0.002	-0.002	0.00	No	100.00	Yes
	19	x	-0.002	-0.002	0.00	No	100.00	Yes
	22	x	-0.002	-0.002	0.00	No	100.00	Yes
	23	x	-0.002	-0.002	0.00	No	100.00	Yes
	24	x	-0.002	-0.002	0.00	No	100.00	Yes
	25	x	-0.002	-0.002	0.00	No	100.00	Yes
	26	x	-0.002	-0.002	0.00	No	100.00	Yes
	27	x	-0.002	-0.002	0.00	No	100.00	Yes
	28	x	-0.006	-0.006	0.00	No	100.00	Yes
	35	x	-0.006	-0.006	0.00	No	100.00	Yes
	38	x	-0.005	-0.005	0.00	No	100.00	Yes
	39	x	-0.005	-0.005	0.00	No	100.00	Yes
	40	x	-0.005	-0.005	0.00	No	100.00	Yes
	41	x	-0.005	-0.005	0.00	No	100.00	Yes
W150	1	z	0.006	0.006	0.00	No	100.00	Yes
	2	z	0.006	0.006	0.00	No	100.00	Yes
	3	z	0.006	0.006	0.00	No	100.00	Yes
	4	z	0.005	0.005	0.00	No	100.00	Yes
	5	z	0.005	0.005	0.00	No	100.00	Yes
	6	z	0.005	0.005	0.00	No	100.00	Yes
	7	z	0.005	0.005	0.00	No	100.00	Yes
	8	z	0.001	0.001	0.00	No	100.00	Yes
	9	z	0.001	0.001	0.00	No	100.00	Yes
	10	z	0.001	0.001	0.00	No	100.00	Yes
	11	z	0.001	0.001	0.00	No	100.00	Yes
	12	z	0.001	0.001	0.00	No	100.00	Yes
	13	z	0.001	0.001	0.00	No	100.00	Yes
	14	z	0.001	0.001	0.00	No	100.00	Yes
	15	z	0.001	0.001	0.00	No	100.00	Yes
	16	z	0.002	0.002	0.00	No	100.00	Yes
	17	z	0.002	0.002	0.00	No	100.00	Yes
	18	z	0.002	0.002	0.00	No	100.00	Yes
	19	z	0.002	0.002	0.00	No	100.00	Yes
	22	z	0.002	0.002	0.00	No	100.00	Yes
	23	z	0.002	0.002	0.00	No	100.00	Yes
	24	z	0.002	0.002	0.00	No	100.00	Yes
	25	z	0.002	0.002	0.00	No	100.00	Yes
	26	z	0.002	0.002	0.00	No	100.00	Yes
	27	z	0.002	0.002	0.00	No	100.00	Yes
	28	z	0.006	0.006	0.00	No	100.00	Yes
	35	z	0.006	0.006	0.00	No	100.00	Yes
	38	z	0.005	0.005	0.00	No	100.00	Yes
	39	z	0.005	0.005	0.00	No	100.00	Yes
	40	z	0.005	0.005	0.00	No	100.00	Yes
	41	z	0.005	0.005	0.00	No	100.00	Yes
Di	1	y	-0.006	-0.006	0.00	No	100.00	Yes
	2	y	-0.006	-0.006	0.00	No	100.00	Yes
	3	y	-0.006	-0.006	0.00	No	100.00	Yes
	4	y	-0.005	-0.005	0.00	No	100.00	Yes
	5	y	-0.005	-0.005	0.00	No	100.00	Yes
	6	y	-0.005	-0.005	0.00	No	100.00	Yes

7	y	-0.005	-0.005	0.00	No	100.00	Yes
8	y	-0.002	-0.002	0.00	No	100.00	Yes
9	y	-0.002	-0.002	0.00	No	100.00	Yes
10	y	-0.002	-0.002	0.00	No	100.00	Yes
11	y	-0.002	-0.002	0.00	No	100.00	Yes
12	y	-0.003	-0.003	0.00	No	100.00	Yes
13	y	-0.003	-0.003	0.00	No	100.00	Yes
14	y	-0.003	-0.003	0.00	No	100.00	Yes
15	y	-0.003	-0.003	0.00	No	100.00	Yes
16	y	-0.007	-0.007	0.00	No	100.00	Yes
17	y	-0.007	-0.007	0.00	No	100.00	Yes
18	y	-0.007	-0.007	0.00	No	100.00	Yes
19	y	-0.007	-0.007	0.00	No	100.00	Yes
22	y	-0.007	-0.007	0.00	No	100.00	Yes
23	y	-0.007	-0.007	0.00	No	100.00	Yes
24	y	-0.007	-0.007	0.00	No	100.00	Yes
25	y	-0.007	-0.007	0.00	No	100.00	Yes
26	y	-0.017	-0.017	0.00	No	100.00	Yes
27	y	-0.017	-0.017	0.00	No	100.00	Yes
28	y	-0.006	-0.006	0.00	No	100.00	Yes
35	y	-0.006	-0.006	0.00	No	100.00	Yes
38	y	-0.005	-0.005	0.00	No	100.00	Yes
39	y	-0.005	-0.005	0.00	No	100.00	Yes
40	y	-0.005	-0.005	0.00	No	100.00	Yes
41	y	-0.005	-0.005	0.00	No	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%	
D	1	y	-0.065	2.50	No	
		y	-0.065	7.50	No	
	28	y	-0.033	2.00	No	
		y	-0.033	4.50	No	
		y	-0.041	5.50	No	
		y	-0.041	8.00	No	
		y	-0.04	2.50	No	
	35	y	-0.04	7.50	No	
		y	-0.073	3.00	No	
	38	y	-0.06	3.00	No	
		y	-0.06	1.50	No	
	39	y	-0.06	1.50	No	
y		-0.06	7.00	No		
Wo		1	z	-0.228	2.50	No
			z	-0.228	7.50	No
28		z	-0.07	2.00	No	
	-0.07		4.50	No		
	z	-0.068	5.50	No		
		-0.068	8.00	No		
		-0.213	2.50	No		

		z	-0.213	7.50	No
	38	z	-0.047	3.00	No
		z	-0.056	3.00	No
	39	z	-0.056	1.50	No
		z	-0.056	1.50	No
		z	-0.068	7.00	No
W30	1	3	-0.199	2.50	No
		3	-0.199	7.50	No
	28	3	-0.061	2.00	No
		3	-0.061	4.50	No
		3	-0.063	5.50	No
		3	-0.063	8.00	No
	35	3	-0.184	2.50	No
		3	-0.184	7.50	No
	38	3	-0.065	3.00	No
	39	3	-0.065	1.50	No
		3	-0.061	7.00	No
W60	1	3	-0.143	2.50	No
		3	-0.143	7.50	No
	28	3	-0.043	2.00	No
		3	-0.043	4.50	No
		3	-0.052	5.50	No
		3	-0.052	8.00	No
	35	3	-0.124	2.50	No
		3	-0.124	7.50	No
	38	3	-0.083	3.00	No
	39	3	-0.083	1.50	No
		3	-0.048	7.00	No
W90	1	x	-0.114	2.50	No
		x	-0.114	7.50	No
	28	x	-0.034	2.00	No
		x	-0.034	4.50	No
		x	-0.046	5.50	No
		x	-0.046	8.00	No
	35	x	-0.094	2.50	No
		x	-0.094	7.50	No
	38	x	-0.092	3.00	No
	39	x	-0.092	1.50	No
		x	-0.042	7.00	No
W120	1	2	-0.143	2.50	No
		2	-0.143	7.50	No
	28	2	-0.043	2.00	No
		2	-0.043	4.50	No
		2	-0.052	5.50	No
		2	-0.052	8.00	No
	35	2	-0.124	2.50	No
		2	-0.124	7.50	No
	38	2	-0.083	3.00	No
	39	2	-0.083	1.50	No
		2	-0.048	7.00	No
W150	1	2	-0.199	2.50	No
		2	-0.199	7.50	No
	28	2	-0.061	2.00	No
		2	-0.061	4.50	No
		2	-0.063	5.50	No
		2	-0.063	8.00	No
	35	2	-0.184	2.50	No
		2	-0.184	7.50	No
	38	2	-0.065	3.00	No
	39	2	-0.065	1.50	No

		2	-0.061	7.00	No
Di	1	y	-0.106	2.50	No
		y	-0.106	7.50	No
	28	y	-0.034	2.00	No
		y	-0.034	4.50	No
		y	-0.037	5.50	No
		y	-0.037	8.00	No
	35	y	-0.097	2.50	No
		y	-0.097	7.50	No
	38	y	-0.036	3.00	No
		y	-0.048	3.00	No
	39	y	-0.048	1.50	No
		y	-0.048	1.50	No
		y	-0.036	7.00	No
W10	1	z	-0.045	2.50	No
		z	-0.045	7.50	No
	28	z	-0.015	2.00	No
		z	-0.015	4.50	No
		z	-0.015	5.50	No
		z	-0.015	8.00	No
	35	z	-0.043	2.50	No
		z	-0.043	7.50	No
	38	z	-0.011	3.00	No
		z	-0.014	3.00	No
	39	z	-0.014	1.50	No
		z	-0.014	1.50	No
		z	-0.016	7.00	No
W130	1	3	-0.04	2.50	No
		3	-0.04	7.50	No
	28	3	-0.013	2.00	No
		3	-0.013	4.50	No
		3	-0.014	5.50	No
		3	-0.014	8.00	No
	35	3	-0.037	2.50	No
		3	-0.037	7.50	No
	38	3	-0.015	3.00	No
	39	3	-0.015	1.50	No
		3	-0.014	7.00	No
W160	1	3	-0.03	2.50	No
		3	-0.03	7.50	No
	28	3	-0.01	2.00	No
		3	-0.01	4.50	No
		3	-0.012	5.50	No
		3	-0.012	8.00	No
	35	3	-0.026	2.50	No
		3	-0.026	7.50	No
	38	3	-0.019	3.00	No
	39	3	-0.019	1.50	No
		3	-0.012	7.00	No
W190	1	x	-0.025	2.50	No
		x	-0.025	7.50	No
	28	x	-0.008	2.00	No
		x	-0.008	4.50	No
		x	-0.011	5.50	No
		x	-0.011	8.00	No
	35	x	-0.021	2.50	No
		x	-0.021	7.50	No
	38	x	-0.021	3.00	No
	39	x	-0.021	1.50	No
		x	-0.01	7.00	No

WI120	1	2	-0.03	2.50	No
		2	-0.03	7.50	No
	28	2	-0.01	2.00	No
		2	-0.01	4.50	No
		2	-0.012	5.50	No
	35	2	-0.012	8.00	No
		2	-0.026	2.50	No
	38	2	-0.026	7.50	No
		2	-0.019	3.00	No
	39	2	-0.019	1.50	No
2		-0.012	7.00	No	
WI150	1	2	-0.04	2.50	No
		2	-0.04	7.50	No
	28	2	-0.013	2.00	No
		2	-0.013	4.50	No
		2	-0.014	5.50	No
	35	2	-0.014	8.00	No
		2	-0.037	2.50	No
	38	2	-0.037	7.50	No
		2	-0.015	3.00	No
	39	2	-0.015	1.50	No
2		-0.014	7.00	No	
WL0	1	z	-0.014	2.50	No
		z	-0.014	7.50	No
	28	z	-0.005	2.00	No
		z	-0.005	4.50	No
		z	-0.004	5.50	No
	35	z	-0.004	8.00	No
		z	-0.014	2.50	No
	38	z	-0.014	7.50	No
		z	-0.003	3.00	No
	39	z	-0.003	3.00	No
z		-0.003	1.50	No	
39	z	-0.003	1.50	No	
	z	-0.004	7.00	No	
WL30	1	3	-0.013	2.50	No
		3	-0.013	7.50	No
	28	3	-0.004	2.00	No
		3	-0.004	4.50	No
		3	-0.004	5.50	No
	35	3	-0.004	8.00	No
		3	-0.012	2.50	No
	38	3	-0.012	7.50	No
		3	-0.004	3.00	No
	39	3	-0.004	1.50	No
3		-0.004	7.00	No	
WL60	1	3	-0.009	2.50	No
		3	-0.009	7.50	No
	28	3	-0.003	2.00	No
		3	-0.003	4.50	No
		3	-0.003	5.50	No
	35	3	-0.003	8.00	No
		3	-0.008	2.50	No
	38	3	-0.008	7.50	No
		3	-0.006	3.00	No
	39	3	-0.006	1.50	No
3		-0.003	7.00	No	
WL90	1	x	-0.007	2.50	No
		x	-0.007	7.50	No
	28	x	-0.002	2.00	No

		x	-0.002	4.50	No
		x	-0.003	5.50	No
		x	-0.003	8.00	No
	35	x	-0.006	2.50	No
		x	-0.006	7.50	No
	38	x	-0.006	3.00	No
	39	x	-0.006	1.50	No
		x	-0.003	7.00	No
WL120	1	2	-0.009	2.50	No
		2	-0.009	7.50	No
	28	2	-0.003	2.00	No
		2	-0.003	4.50	No
		2	-0.003	5.50	No
		2	-0.003	8.00	No
	35	2	-0.008	2.50	No
		2	-0.008	7.50	No
	38	2	-0.006	3.00	No
	39	2	-0.006	1.50	No
		2	-0.003	7.00	No
WL150	1	2	-0.013	2.50	No
		2	-0.013	7.50	No
	28	2	-0.004	2.00	No
		2	-0.004	4.50	No
		2	-0.004	5.50	No
		2	-0.004	8.00	No
	35	2	-0.012	2.50	No
		2	-0.012	7.50	No
	38	2	-0.004	3.00	No
	39	2	-0.004	1.50	No
		2	-0.004	7.00	No
LL1	2	y	-0.25	50.00	Yes
LL2	2	y	-0.25	100.00	Yes
LL3	2	y	-0.25	0.00	Yes
LLa2	1	y	-0.50	50.00	Yes
LLa3	28	y	-0.50	50.00	Yes
LLa4	35	y	-0.50	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00
WI150	WL ICE 150deg	No	0.00	0.00	0.00

WL0	WL 30 mph 0deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30deg	No	0.00	0.00	0.00
WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00
WL150	WL 30 mph 150deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load Right End of Mount	No	0.00	0.00	0.00
LL3	250 lb Live Load Left End of Mount	No	0.00	0.00	0.00
LLa1	500 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	500 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa3	500 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa4	500 lb Live Load Antenna 1	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
D	0.00	0.00	0.00
Wo	0.00	0.00	0.00
W30	0.00	0.00	0.00
W60	0.00	0.00	0.00
W90	0.00	0.00	0.00
W120	0.00	0.00	0.00
W150	0.00	0.00	0.00
Di	0.00	0.00	0.00
WI0	0.00	0.00	0.00
WI30	0.00	0.00	0.00
WI60	0.00	0.00	0.00
WI90	0.00	0.00	0.00
WI120	0.00	0.00	0.00
WI150	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
WL60	0.00	0.00	0.00
WL90	0.00	0.00	0.00
WL120	0.00	0.00	0.00
WL150	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LL3	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00
LLa4	0.00	0.00	0.00

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+Wl0
LC26=1.2D+Di+Wl30
LC27=1.2D+Di+Wl60
LC28=1.2D+Di+Wl90
LC29=1.2D+Di+Wl120
LC30=1.2D+Di+Wl150
LC31=1.2D+Di-Wl0
LC32=1.2D+Di-Wl30
LC33=1.2D+Di-Wl60
LC34=1.2D+Di-Wl90
LC35=1.2D+Di-Wl120
LC36=1.2D+Di-Wl150
LC37=1.2D+1.6LL1
LC38=1.2D+1.6LL2
LC39=1.2D+1.6LL3
LC40=1.2D+Wl0+1.6LLa1
LC41=1.2D+Wl30+1.6LLa1
LC42=1.2D+Wl60+1.6LLa1
LC43=1.2D+Wl90+1.6LLa1
LC44=1.2D+Wl120+1.6LLa1
LC45=1.2D+Wl150+1.6LLa1
LC46=1.2D-Wl0+1.6LLa1
LC47=1.2D-Wl30+1.6LLa1
LC48=1.2D-Wl60+1.6LLa1
LC49=1.2D-Wl90+1.6LLa1
LC50=1.2D-Wl120+1.6LLa1
LC51=1.2D-Wl150+1.6LLa1
LC52=1.2D+Wl0+1.6LLa2
LC53=1.2D+Wl30+1.6LLa2
LC54=1.2D+Wl60+1.6LLa2

LC55=1.2D+WL90+1.6LLa2
 LC56=1.2D+WL120+1.6LLa2
 LC57=1.2D+WL150+1.6LLa2
 LC58=1.2D-WL0+1.6LLa2
 LC59=1.2D-WL30+1.6LLa2
 LC60=1.2D-WL60+1.6LLa2
 LC61=1.2D-WL90+1.6LLa2
 LC62=1.2D-WL120+1.6LLa2
 LC63=1.2D-WL150+1.6LLa2
 LC64=1.2D+WL0+1.6LLa3
 LC65=1.2D+WL30+1.6LLa3
 LC66=1.2D+WL60+1.6LLa3
 LC67=1.2D+WL90+1.6LLa3
 LC68=1.2D+WL120+1.6LLa3
 LC69=1.2D+WL150+1.6LLa3
 LC70=1.2D-WL0+1.6LLa3
 LC71=1.2D-WL30+1.6LLa3
 LC72=1.2D-WL60+1.6LLa3
 LC73=1.2D-WL90+1.6LLa3
 LC74=1.2D-WL120+1.6LLa3
 LC75=1.2D-WL150+1.6LLa3
 LC76=1.2D+WL0+1.6LLa4
 LC77=1.2D+WL30+1.6LLa4
 LC78=1.2D+WL60+1.6LLa4
 LC79=1.2D+WL90+1.6LLa4
 LC80=1.2D+WL120+1.6LLa4
 LC81=1.2D+WL150+1.6LLa4
 LC82=1.2D-WL0+1.6LLa4
 LC83=1.2D-WL30+1.6LLa4
 LC84=1.2D-WL60+1.6LLa4
 LC85=1.2D-WL90+1.6LLa4
 LC86=1.2D-WL120+1.6LLa4
 LC87=1.2D-WL150+1.6LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	PIPE 2-1_2x0.203	1	LC63 at 33.33%	0.68	OK	Eq. H1-1b
		2	LC58 at 68.75%	0.68	OK	Eq. H1-1b
		3	LC52 at 68.75%	0.74	OK	Eq. H1-1b
		28	LC58 at 33.33%	0.19	OK	Eq. H1-1b
		35	LC77 at 33.33%	0.65	OK	Eq. H1-1b
	PIPE 2x0.154	4	LC82 at 93.75%	0.44	OK	Eq. H1-1b
		5	LC76 at 93.75%	0.35	OK	Eq. H1-1b
		6	LC52 at 93.75%	0.41	OK	Eq. H1-1b
		7	LC58 at 93.75%	0.51	OK	Eq. H1-1b
		38	LC79 at 22.92%	0.23	OK	Eq. H1-1b
		39	LC61 at 29.17%	0.27	OK	Eq. H1-1b
		40	LC36 at 50.00%	0.06	OK	Eq. H1-1b
		41	LC36 at 50.00%	0.06	OK	Eq. H1-1b
	PL 11-1/4x5/8	26	LC31 at 100.00%	0.34	OK	Eq. H1-1b
		27	LC32 at 100.00%	0.26	OK	Eq. H1-1b
	PL 3-1/2x5/8	16	LC82 at 100.00%	0.49	OK	Eq. H1-1b
		17	LC59 at 100.00%	0.57	OK	Eq. H1-1b
		18	LC53 at 100.00%	0.60	OK	Eq. H1-1b
		19	LC76 at 100.00%	0.51	OK	Eq. H1-1b
		22	LC82 at 100.00%	0.71	OK	Eq. H1-1b
		23	LC60 at 0.00%	0.82	OK	Eq. H1-1b
		24	LC87 at 100.00%	0.69	OK	Eq. H1-1b
		25	LC53 at 0.00%	0.82	OK	Eq. H1-1b
	RndBar 3_4	12	LC62 at 100.00%	0.46	OK	Eq. H1-1a
		13	LC52 at 0.00%	0.31	OK	Eq. H1-1b

	14	LC87 at 0.00%	0.41	OK	Eq. H1-1a
	15	LC76 at 100.00%	0.26	OK	Eq. H1-1b
RndBar 5_8	8	LC76 at 87.50%	0.85	OK	Eq. H1-1a
	9	LC79 at 87.50%	0.81	OK	Eq. H1-1a
	10	LC55 at 87.50%	0.93	OK	Eq. H1-1a
	11	LC57 at 87.50%	0.95	OK	Eq. H1-1a

Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	0.00	0.00	2.00	0
2	-0.6362	0.00	2.4783	0
3	0.00	-3.3333	2.00	0
4	-0.6362	-3.3333	2.4783	0
5	0.6362	-3.3333	2.4783	0
6	0.6362	0.00	2.4783	0
7	7.00	-6.6667	4.83	0
8	7.00	3.3333	4.83	0
9	-7.00	0.00	4.63	0
10	7.00	0.00	4.63	0
11	-7.00	-3.3333	4.63	0
12	7.00	-3.3333	4.63	0
13	-2.4126	0.00	4.2374	0
14	-2.4126	-3.3333	4.2374	0
15	2.4126	-3.3333	4.2374	0
16	2.4126	0.00	4.2374	0
17	-2.2835	0.00	4.1096	0
18	-2.2835	-3.3333	4.1096	0
19	-0.7653	0.00	2.6062	0
20	-0.7653	-3.3333	2.6062	0
21	0.7653	0.00	2.6062	0
22	0.7653	-3.3333	2.6062	0
23	2.2835	0.00	4.1096	0

24	2.2835	-3.3333	4.1096	0
25	-2.4792	0.00	4.63	0
26	2.4792	0.00	4.63	0
27	2.4792	-3.3333	4.63	0
28	-2.4792	-3.3333	4.63	0
29	7.00	3.33E-06	4.83	0
30	7.00	-3.3333	4.83	0
31	0.00	0.00	2.4783	0
32	0.00	-3.3333	2.4783	0
33	-0.2175	-6.6667	4.83	0
34	-0.2175	3.3333	4.83	0
35	-0.2175	0.00	4.63	0
36	-0.2175	-3.3333	4.63	0
37	-0.2175	3.33E-06	4.83	0
38	-0.2175	-3.3333	4.83	0
39	-1.2713	0.00	3.1073	0
40	-1.2713	-3.3333	3.1073	0
41	-1.4213	0.00	2.9573	0
42	-1.4213	-3.3333	2.9573	0
43	1.2713	0.00	3.1073	0
44	1.2713	-3.3333	3.1073	0
45	1.4213	0.00	2.9573	0
46	1.4213	-3.3333	2.9573	0
47	-7.00	-6.6667	4.83	0
48	-7.00	3.3333	4.83	0
49	-7.00	3.33E-06	4.83	0
50	-7.00	-3.3333	4.83	0
51	-1.4213	-4.6667	2.9573	0
52	1.4213	-5.6667	2.9573	0
53	-1.4213	1.3333	2.9573	0
54	1.4213	2.3333	2.9573	0
55	4.00	0.00	4.63	0
56	10.0572	0.00	-0.5961	0
57	4.00	-3.3333	4.63	0
58	10.0572	-3.3333	-0.5961	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
1	1	1	1	1	0	1
3	1	1	1	1	0	1
56	1	1	1	0	0	0
58	1	1	1	0	0	0

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	8	7		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
2	9	10		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
3	11	12		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
4	13	2		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
5	14	4		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
6	15	5		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
7	16	6		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
8	17	18		RndBar 5_8	A36	0.00	0.00	0.00
9	19	20		RndBar 5_8	A36	0.00	0.00	0.00
10	21	22		RndBar 5_8	A36	0.00	0.00	0.00
11	23	24		RndBar 5_8	A36	0.00	0.00	0.00
12	21	24		RndBar 3_4	A36	0.00	0.00	0.00
13	22	23		RndBar 3_4	A36	0.00	0.00	0.00
14	18	19		RndBar 3_4	A36	0.00	0.00	0.00
15	17	20		RndBar 3_4	A36	0.00	0.00	0.00
16	13	25		PL 3-1/2x5/8	A36	0.00	0.00	0.00
17	16	26		PL 3-1/2x5/8	A36	0.00	0.00	0.00
18	15	27		PL 3-1/2x5/8	A36	0.00	0.00	0.00
19	14	28		PL 3-1/2x5/8	A36	0.00	0.00	0.00
22	2	31		PL 3-1/2x5/8	A36	0.00	0.00	0.00
23	31	6		PL 3-1/2x5/8	A36	0.00	0.00	0.00
24	4	32		PL 3-1/2x5/8	A36	0.00	0.00	0.00
25	32	5		PL 3-1/2x5/8	A36	0.00	0.00	0.00
26	31	1		PL 11-1/4x5/8	A36	11.25	9.25	0.00
27	32	3		PL 11-1/4x5/8	A36	11.25	9.25	0.00
28	34	33		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
35	48	47		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
38	53	51		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
39	54	52		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
40	56	55		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
41	58	57		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

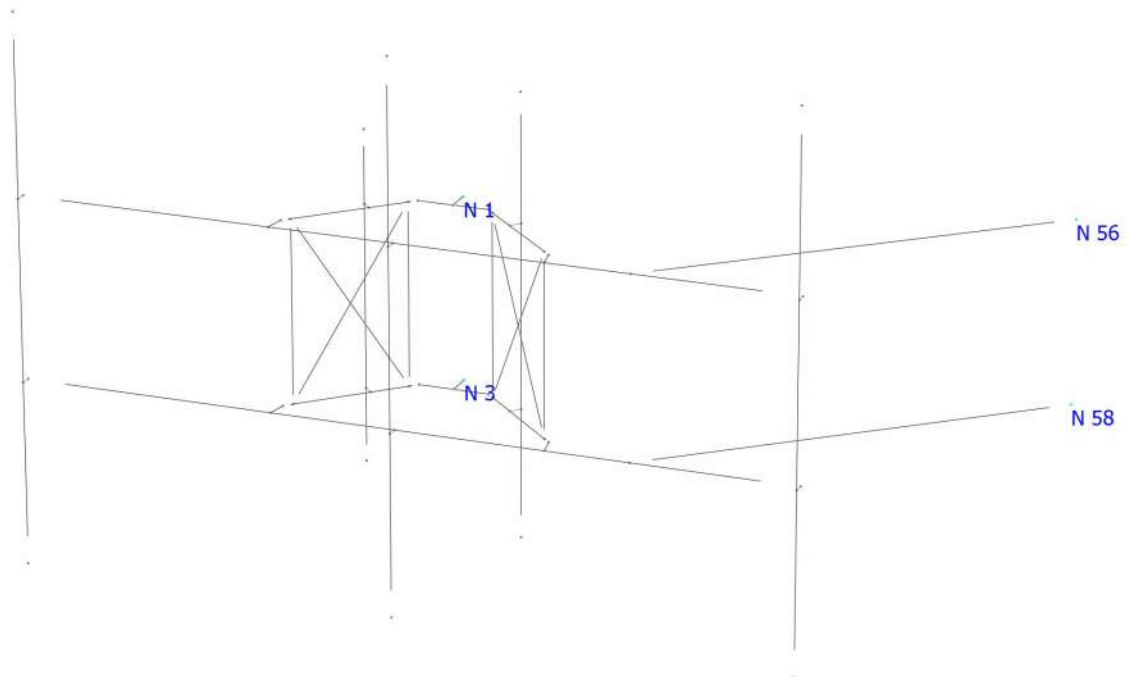
Member	Rotation [Deg]	Axes23	NX	NY	NZ
1	315.00	0	0.00	0.00	0.00
8	0.00	2	0.00	0.00	1.00
9	0.00	2	0.00	0.00	1.00
10	0.00	2	0.00	0.00	1.00
11	0.00	2	0.00	0.00	1.00
16	90.00	0	0.00	0.00	0.00
17	90.00	0	0.00	0.00	0.00
18	90.00	0	0.00	0.00	0.00
19	90.00	0	0.00	0.00	0.00
22	90.00	0	0.00	0.00	0.00
23	90.00	0	0.00	0.00	0.00
24	90.00	0	0.00	0.00	0.00
25	90.00	0	0.00	0.00	0.00
26	90.00	0	0.00	0.00	0.00
27	90.00	0	0.00	0.00	0.00
28	315.00	0	0.00	0.00	0.00
35	315.00	0	0.00	0.00	0.00
38	315.00	0	0.00	0.00	0.00
39	315.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
12	0.00	-3.50	0.00	0.00	3.50	0.00
13	0.00	3.50	0.00	0.00	-3.50	0.00
14	0.00	3.50	0.00	0.00	-3.50	0.00
15	0.00	-3.50	0.00	0.00	3.50	0.00
26	0.00	-0.625	0.00	0.00	-0.625	0.00
27	0.00	-0.625	0.00	0.00	-0.625	0.00

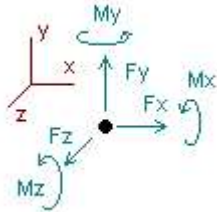
Hinges

Member	Node-J				Node-K				TOR	AXL	Axial rigidity
	M33	M22	V3	V2	M33	M22	V3	V2			
13	0	0	0	0	0	0	0	0	0	0	Tension only
15	0	0	0	0	0	0	0	0	0	0	Tension only
16	1	1	0	0	0	0	0	0	0	0	Full
17	1	1	0	0	0	0	0	0	0	0	Full
18	1	1	0	0	0	0	0	0	0	0	Full
19	1	1	0	0	0	0	0	0	0	0	Full
40	0	0	0	0	1	1	0	0	0	0	Full
41	0	0	0	0	1	1	0	0	0	0	Full



Analysis result

Reactions



Direction of positive forces and moments

Node	Forces [Kip]			Moments [Kip*ft]		
	FX	FY	FZ	MX	MY	MZ
Condition LC1=1.2D+Wo						
1	-0.10766	0.76755	0.16552	-0.28295	0.00000	0.03619
3	0.17154	0.66052	1.55579	-0.29334	0.00000	0.03889
56	-0.04550	0.01618	0.05433	0.00000	0.00000	0.00000
58	-0.01839	0.01621	0.03098	0.00000	0.00000	0.00000
SUM	0.00000	1.46046	1.80662	-0.57630	0.00000	0.07507
Condition LC2=1.2D+W30						
1	0.12495	0.76712	0.00147	-0.28497	0.00000	0.03856
3	0.42452	0.66050	1.44665	-0.28644	0.00000	0.04105
56	0.14251	0.01641	-0.10766	0.00000	0.00000	0.00000
58	0.16008	0.01642	-0.12278	0.00000	0.00000	0.00000
SUM	0.85206	1.46046	1.21768	-0.57140	0.00000	0.07961
Condition LC3=1.2D+W60						
1	0.19536	0.76711	-0.23362	-0.28130	0.00000	0.03948
3	0.46224	0.66047	1.19676	-0.28055	0.00000	0.04175
56	0.17491	0.01643	-0.13952	0.00000	0.00000	0.00000
58	0.19911	0.01645	-0.16035	0.00000	0.00000	0.00000
SUM	1.03163	1.46046	0.66327	-0.56185	0.00000	0.08123
Condition LC4=1.2D+W90						
1	0.23345	0.76734	-0.53794	-0.27922	0.00000	0.03925
3	0.48631	0.66014	0.90407	-0.27170	0.00000	0.04078
56	0.21731	0.01649	-0.17618	0.00000	0.00000	0.00000
58	0.23330	0.01649	-0.18994	0.00000	0.00000	0.00000
SUM	1.17037	1.46046	0.00000	-0.55092	0.00000	0.08003
Condition LC5=1.2D+W120						
1	0.15135	0.76734	-0.87939	-0.27225	0.00000	0.03810
3	0.43589	0.66015	0.57716	-0.26546	0.00000	0.04020
56	0.21739	0.01649	-0.17638	0.00000	0.00000	0.00000
58	0.22700	0.01648	-0.18465	0.00000	0.00000	0.00000
SUM	1.03163	1.46046	-0.66327	-0.53771	0.00000	0.07830

Condition LC6=1.2D+W150						
1	0.07272	0.76759	-1.23205	-0.26430	0.00000	0.03850
3	0.37319	0.65991	0.21545	-0.25814	0.00000	0.04043
56	0.19336	0.01648	-0.18216	0.00000	0.00000	0.00000
58	0.21280	0.01648	-0.19893	0.00000	0.00000	0.00000
SUM	0.85206	1.46046	-1.39768	-0.52244	0.00000	0.07893
Condition LC7=1.2D-W0						
1	-0.18631	0.76658	-1.61177	-0.25509	0.00000	0.03349
3	0.12037	0.66133	-0.10757	-0.25545	0.00000	0.03570
56	0.02963	0.01627	-0.04075	0.00000	0.00000	0.00000
58	0.03632	0.01627	-0.04653	0.00000	0.00000	0.00000
SUM	0.00000	1.46046	-1.80662	-0.51054	0.00000	0.06919
Condition LC8=1.2D-W30						
1	-0.41606	0.76701	-1.45069	-0.25308	0.00000	0.03113
3	-0.12971	0.66136	-0.00133	-0.26230	0.00000	0.03355
56	-0.16124	0.01604	0.12417	0.00000	0.00000	0.00000
58	-0.14506	0.01606	0.11017	0.00000	0.00000	0.00000
SUM	-0.85206	1.46046	-1.21768	-0.51538	0.00000	0.06468
Condition LC9=1.2D-W60						
1	-0.48716	0.76702	-1.21492	-0.25680	0.00000	0.03020
3	-0.16813	0.66140	0.24920	-0.26825	0.00000	0.03285
56	-0.19295	0.01601	0.15537	0.00000	0.00000	0.00000
58	-0.18339	0.01602	0.14708	0.00000	0.00000	0.00000
SUM	-1.03163	1.46046	-0.66327	-0.52505	0.00000	0.06306
Condition LC10=1.2D-W90						
1	-0.52622	0.76679	-0.90957	-0.25894	0.00000	0.03043
3	-0.19315	0.66173	0.54289	-0.27714	0.00000	0.03381
56	-0.23437	0.01596	0.19101	0.00000	0.00000	0.00000
58	-0.21663	0.01598	0.17567	0.00000	0.00000	0.00000
SUM	-1.17037	1.46046	0.00000	-0.53608	0.00000	0.06424
Condition LC11=1.2D-W120						
1	-0.44539	0.76679	-0.56673	-0.26593	0.00000	0.03158
3	-0.14404	0.66172	0.87117	-0.28342	0.00000	0.03440
56	-0.23318	0.01596	0.18984	0.00000	0.00000	0.00000
58	-0.20902	0.01599	0.16898	0.00000	0.00000	0.00000
SUM	-1.03163	1.46046	0.66327	-0.54934	0.00000	0.06598
Condition LC12=1.2D-W150						
1	-0.36856	0.76653	-0.21230	-0.27386	0.00000	0.03116
3	-0.08314	0.66195	1.23463	-0.29075	0.00000	0.03415
56	-0.20734	0.01598	0.19386	0.00000	0.00000	0.00000
58	-0.19303	0.01599	0.18149	0.00000	0.00000	0.00000
SUM	-0.85206	1.46046	1.39768	-0.56461	0.00000	0.06530

Condition LC13=0.9D+Wo						
1	-0.07126	0.57559	0.34679	-0.21559	0.00000	0.02738
3	0.13515	0.49546	1.37452	-0.22468	0.00000	0.02948
56	-0.04343	0.01213	0.05256	0.00000	0.00000	0.00000
58	-0.02046	0.01215	0.03277	0.00000	0.00000	0.00000
SUM	0.00000	1.09534	1.80662	-0.44027	0.00000	0.05686
Condition LC14=0.9D+W30						
1	0.16151	0.57521	0.18265	-0.21763	0.00000	0.02975
3	0.38797	0.49551	1.26546	-0.21781	0.00000	0.03164
56	0.14465	0.01231	-0.10950	0.00000	0.00000	0.00000
58	0.15793	0.01231	-0.12093	0.00000	0.00000	0.00000
SUM	0.85206	1.09534	1.21768	-0.43544	0.00000	0.06138
Condition LC15=0.9D+W60						
1	0.23193	0.57519	-0.05253	-0.21398	0.00000	0.03069
3	0.42569	0.49549	1.01566	-0.21196	0.00000	0.03235
56	0.17707	0.01233	-0.14137	0.00000	0.00000	0.00000
58	0.19695	0.01234	-0.15849	0.00000	0.00000	0.00000
SUM	1.03163	1.09534	0.66327	-0.42593	0.00000	0.06303
Condition LC16=0.9D+W90						
1	0.27009	0.57542	-0.35699	-0.21192	0.00000	0.03049
3	0.44967	0.49519	0.72311	-0.20315	0.00000	0.03142
56	0.21949	0.01237	-0.17806	0.00000	0.00000	0.00000
58	0.23111	0.01236	-0.18806	0.00000	0.00000	0.00000
SUM	1.17037	1.09534	0.00000	-0.41507	0.00000	0.06191
Condition LC17=0.9D+W120						
1	0.18809	0.57540	-0.69860	-0.20497	0.00000	0.02939
3	0.39916	0.49522	0.39636	-0.19695	0.00000	0.03087
56	0.21958	0.01237	-0.17827	0.00000	0.00000	0.00000
58	0.22480	0.01236	-0.18275	0.00000	0.00000	0.00000
SUM	1.03163	1.09534	-0.66327	-0.40192	0.00000	0.06025
Condition LC18=0.9D+W150						
1	0.10958	0.57562	-1.05140	-0.19704	0.00000	0.02982
3	0.33634	0.49501	0.03480	-0.18967	0.00000	0.03113
56	0.19556	0.01236	-0.18406	0.00000	0.00000	0.00000
58	0.21059	0.01236	-0.19702	0.00000	0.00000	0.00000
SUM	0.85206	1.09534	-1.39768	-0.38671	0.00000	0.06095
Condition LC19=0.9D-Wo						
1	-0.14946	0.57453	-1.43126	-0.18783	0.00000	0.02487
3	0.08353	0.49641	-0.28809	-0.18700	0.00000	0.02645
56	0.03179	0.01220	-0.04262	0.00000	0.00000	0.00000
58	0.03415	0.01220	-0.04465	0.00000	0.00000	0.00000
SUM	0.00000	1.09534	-1.80662	-0.37483	0.00000	0.05133

Condition LC20=0.9D-W30						
1	-0.37936	0.57490	-1.27011	-0.18579	0.00000	0.02252
3	-0.16639	0.49637	-0.18193	-0.19381	0.00000	0.02432
56	-0.15916	0.01203	0.12237	0.00000	0.00000	0.00000
58	-0.14716	0.01204	0.11198	0.00000	0.00000	0.00000
SUM	-0.85206	1.09534	-1.21768	-0.37961	0.00000	0.04684
Condition LC21=0.9D-W60						
1	-0.45047	0.57492	-1.03423	-0.18950	0.00000	0.02157
3	-0.20481	0.49640	0.06851	-0.19973	0.00000	0.02360
56	-0.19088	0.01201	0.15358	0.00000	0.00000	0.00000
58	-0.18547	0.01202	0.14888	0.00000	0.00000	0.00000
SUM	-1.03163	1.09534	-0.66327	-0.38923	0.00000	0.04517
Condition LC22=0.9D-W90						
1	-0.48961	0.57469	-0.72875	-0.19161	0.00000	0.02176
3	-0.22975	0.49670	0.36206	-0.20858	0.00000	0.02453
56	-0.23233	0.01197	0.18924	0.00000	0.00000	0.00000
58	-0.21868	0.01198	0.17744	0.00000	0.00000	0.00000
SUM	-1.17037	1.09534	0.00000	-0.40019	0.00000	0.04629
Condition LC23=0.9D-W120						
1	-0.40888	0.57472	-0.38575	-0.19858	0.00000	0.02287
3	-0.18055	0.49666	0.69018	-0.21482	0.00000	0.02508
56	-0.23115	0.01197	0.18809	0.00000	0.00000	0.00000
58	-0.21107	0.01199	0.17075	0.00000	0.00000	0.00000
SUM	-1.03163	1.09534	0.66327	-0.41340	0.00000	0.04795
Condition LC24=0.9D-W150						
1	-0.33217	0.57449	-0.03117	-0.20649	0.00000	0.02241
3	-0.11952	0.49688	1.05350	-0.22211	0.00000	0.02480
56	-0.20532	0.01199	0.19211	0.00000	0.00000	0.00000
58	-0.19505	0.01199	0.18324	0.00000	0.00000	0.00000
SUM	-0.85206	1.09534	1.39768	-0.42860	0.00000	0.04721
Condition LC25=1.2D+Di+W10						
1	-0.22640	1.36013	-1.17583	-0.47488	0.00000	0.05873
3	0.23316	1.16075	1.47499	-0.48531	0.00000	0.06236
56	-0.01065	0.03621	0.00919	0.00000	0.00000	0.00000
58	0.00389	0.03624	-0.00335	0.00000	0.00000	0.00000
SUM	0.00000	2.59332	0.30500	-0.96019	0.00000	0.12109
Condition LC26=1.2D+Di+W130						
1	-0.17744	1.35995	-1.21457	-0.47535	0.00000	0.05919
3	0.28809	1.16075	1.45102	-0.48373	0.00000	0.06279
56	0.02766	0.03630	-0.02386	0.00000	0.00000	0.00000
58	0.03988	0.03632	-0.03439	0.00000	0.00000	0.00000
SUM	0.17819	2.59332	0.17819	-0.95907	0.00000	0.12197

Condition LC27=1.2D+Di+W160						
1	-0.18156	1.36005	-1.23660	-0.47508	0.00000	0.05916
3	0.27764	1.16070	1.42503	-0.48302	0.00000	0.06263
56	0.01813	0.03627	-0.01564	0.00000	0.00000	0.00000
58	0.03145	0.03630	-0.02713	0.00000	0.00000	0.00000
SUM	0.14566	2.59332	0.14566	-0.95810	0.00000	0.12179
Condition LC28=1.2D+Di+W190						
1	-0.17124	1.36008	-1.30195	-0.47466	0.00000	0.05913
3	0.28447	1.16062	1.36128	-0.48101	0.00000	0.06244
56	0.02842	0.03630	-0.02452	0.00000	0.00000	0.00000
58	0.04035	0.03632	-0.03481	0.00000	0.00000	0.00000
SUM	0.18200	2.59332	0.00000	-0.95567	0.00000	0.12157
Condition LC29=1.2D+Di+W1120						
1	-0.19078	1.36011	-1.37765	-0.47312	0.00000	0.05886
3	0.27203	1.16060	1.28757	-0.47951	0.00000	0.06229
56	0.02692	0.03630	-0.02323	0.00000	0.00000	0.00000
58	0.03750	0.03632	-0.03235	0.00000	0.00000	0.00000
SUM	0.14566	2.59332	-0.14566	-0.95264	0.00000	0.12115
Condition LC30=1.2D+Di+W1150						
1	-0.18358	1.36018	-1.38578	-0.47285	0.00000	0.05919
3	0.28241	1.16050	1.27606	-0.47912	0.00000	0.06269
56	0.03339	0.03631	-0.02882	0.00000	0.00000	0.00000
58	0.04597	0.03634	-0.03966	0.00000	0.00000	0.00000
SUM	0.17819	2.59332	-0.17819	-0.95197	0.00000	0.12188
Condition LC31=1.2D+Di-W10						
1	-0.23733	1.35999	-1.48775	-0.47051	0.00000	0.05799
3	0.23030	1.16085	1.18882	-0.47822	0.00000	0.06156
56	-0.00083	0.03623	0.00072	0.00000	0.00000	0.00000
58	0.00786	0.03625	-0.00679	0.00000	0.00000	0.00000
SUM	0.00000	2.59332	-0.30500	-0.94873	0.00000	0.11955
Condition LC32=1.2D+Di-W130						
1	-0.28618	1.36017	-1.44912	-0.47005	0.00000	0.05753
3	0.17547	1.16085	1.21269	-0.47980	0.00000	0.06114
56	-0.03925	0.03614	0.03388	0.00000	0.00000	0.00000
58	-0.02823	0.03617	0.02436	0.00000	0.00000	0.00000
SUM	-0.17819	2.59332	-0.17819	-0.94984	0.00000	0.11867
Condition LC33=1.2D+Di-W160						
1	-0.28210	1.36007	-1.42705	-0.47031	0.00000	0.05756
3	0.18588	1.16091	1.23871	-0.48051	0.00000	0.06129
56	-0.02968	0.03616	0.02562	0.00000	0.00000	0.00000
58	-0.01977	0.03619	0.01706	0.00000	0.00000	0.00000
SUM	-0.14566	2.59332	-0.14566	-0.95082	0.00000	0.11885

Condition LC34=1.2D+Di-WI90						
1	-0.29244	1.36003	-1.36167	-0.47073	0.00000	0.05759
3	0.17903	1.16099	1.30249	-0.48252	0.00000	0.06149
56	-0.03994	0.03614	0.03447	0.00000	0.00000	0.00000
58	-0.02864	0.03617	0.02471	0.00000	0.00000	0.00000
SUM	-0.18200	2.59332	0.00000	-0.95325	0.00000	0.11907
Condition LC35=1.2D+Di-WI120						
1	-0.27295	1.36001	-1.28592	-0.47227	0.00000	0.05786
3	0.19142	1.16101	1.37625	-0.48401	0.00000	0.06164
56	-0.03840	0.03614	0.03313	0.00000	0.00000	0.00000
58	-0.02574	0.03617	0.02220	0.00000	0.00000	0.00000
SUM	-0.14566	2.59332	0.14566	-0.95629	0.00000	0.11949
Condition LC36=1.2D+Di-WI150						
1	-0.28019	1.35994	-1.27775	-0.47255	0.00000	0.05753
3	0.18099	1.16110	1.38780	-0.48441	0.00000	0.06123
56	-0.04483	0.03613	0.03867	0.00000	0.00000	0.00000
58	-0.03417	0.03615	0.02947	0.00000	0.00000	0.00000
SUM	-0.17819	2.59332	0.17819	-0.95696	0.00000	0.11876
Condition LC37=1.2D+1.6LL1						
1	-0.14573	0.98497	-0.99217	-0.34778	0.00000	0.03405
3	0.14569	0.84302	0.99220	-0.35610	0.00000	0.03666
56	-0.00966	0.01622	0.00833	0.00000	0.00000	0.00000
58	0.00970	0.01624	-0.00837	0.00000	0.00000	0.00000
SUM	0.00000	1.86046	0.00000	-0.70388	0.00000	0.07071
Condition LC38=1.2D+1.6LL2						
1	-0.80937	0.98629	-1.08739	-0.33746	0.00000	0.14905
3	0.80940	0.84172	1.08732	-0.34931	0.00000	0.16326
56	-0.11391	0.01591	0.09830	0.00000	0.00000	0.00000
58	0.11389	0.01654	-0.09824	0.00000	0.00000	0.00000
SUM	0.00000	1.86046	0.00000	-0.68677	0.00000	0.31231
Condition LC39=1.2D+1.6LL3						
1	0.50618	0.99377	-0.89411	-0.34331	0.00000	-0.07379
3	-0.50627	0.83423	0.89418	-0.34244	0.00000	-0.08348
56	0.11037	0.01636	-0.09523	0.00000	0.00000	0.00000
58	-0.11028	0.01611	0.09515	0.00000	0.00000	0.00000
SUM	0.00000	1.86046	0.00000	-0.68575	0.00000	-0.15727
Condition LC40=1.2D+WLO+1.6LLa1						
1	-0.14611	0.76709	-0.67648	-0.26980	0.00000	0.03489
3	0.14637	0.66090	0.76625	-0.27543	0.00000	0.03736
56	-0.00870	0.01622	0.00751	0.00000	0.00000	0.00000
58	0.00844	0.01624	-0.00728	0.00000	0.00000	0.00000
SUM	0.00000	1.46046	0.09000	-0.54522	0.00000	0.07225

Condition LC41=1.2D+WL30+1.6LLa1						
1	-0.12981	0.76705	-0.68693	-0.26988	0.00000	0.03507
3	0.16378	0.66092	0.76036	-0.27505	0.00000	0.03753
56	0.00219	0.01623	-0.00189	0.00000	0.00000	0.00000
58	0.01900	0.01625	-0.01639	0.00000	0.00000	0.00000
SUM	0.05515	1.46046	0.05515	-0.54493	0.00000	0.07260
Condition LC42=1.2D+WL60+1.6LLa1						
1	-0.13096	0.76710	-0.69408	-0.26982	0.00000	0.03507
3	0.15908	0.66087	0.75016	-0.27474	0.00000	0.03746
56	-0.00100	0.01623	0.00086	0.00000	0.00000	0.00000
58	0.01600	0.01625	-0.01381	0.00000	0.00000	0.00000
SUM	0.04313	1.46046	0.04313	-0.54456	0.00000	0.07253
Condition LC43=1.2D+WL90+1.6LLa1						
1	-0.12959	0.76708	-0.71535	-0.26964	0.00000	0.03506
3	0.16145	0.66089	0.73186	-0.27421	0.00000	0.03744
56	0.00102	0.01623	-0.00088	0.00000	0.00000	0.00000
58	0.01812	0.01625	-0.01563	0.00000	0.00000	0.00000
SUM	0.05100	1.46046	0.00000	-0.54384	0.00000	0.07250
Condition LC44=1.2D+WL120+1.6LLa1						
1	-0.13347	0.76706	-0.73807	-0.26919	0.00000	0.03494
3	0.15795	0.66091	0.71103	-0.27384	0.00000	0.03732
56	0.00139	0.01623	-0.00120	0.00000	0.00000	0.00000
58	0.01726	0.01625	-0.01489	0.00000	0.00000	0.00000
SUM	0.04313	1.46046	-0.04313	-0.54303	0.00000	0.07226
Condition LC45=1.2D+WL150+1.6LLa1						
1	-0.13163	0.76710	-0.74024	-0.26909	0.00000	0.03510
3	0.16181	0.66086	0.70663	-0.27367	0.00000	0.03753
56	0.00395	0.01624	-0.00340	0.00000	0.00000	0.00000
58	0.02103	0.01626	-0.01814	0.00000	0.00000	0.00000
SUM	0.05515	1.46046	-0.05515	-0.54276	0.00000	0.07262
Condition LC46=1.2D-WL0+1.6LLa1						
1	-0.14686	0.76703	-0.77072	-0.26836	0.00000	0.03480
3	0.14654	0.66097	0.68099	-0.27343	0.00000	0.03724
56	-0.00815	0.01622	0.00703	0.00000	0.00000	0.00000
58	0.00847	0.01624	-0.00730	0.00000	0.00000	0.00000
SUM	0.00000	1.46046	-0.09000	-0.54179	0.00000	0.07204
Condition LC47=1.2D-WL30+1.6LLa1						
1	-0.16315	0.76707	-0.76028	-0.26827	0.00000	0.03462
3	0.12914	0.66095	0.68687	-0.27381	0.00000	0.03707
56	-0.01905	0.01621	0.01644	0.00000	0.00000	0.00000
58	-0.00211	0.01623	0.00182	0.00000	0.00000	0.00000
SUM	-0.05515	1.46046	-0.05515	-0.54209	0.00000	0.07169

Condition **LC48=1.2D-WL60+1.6LLa1**

1	-0.16200	0.76702	-0.75312	-0.26833	0.00000	0.03462
3	0.13383	0.66100	0.69708	-0.27412	0.00000	0.03714
56	-0.01586	0.01621	0.01368	0.00000	0.00000	0.00000
58	0.00089	0.01623	-0.00077	0.00000	0.00000	0.00000

SUM -0.04313 1.46046 -0.04313 -0.54245 0.00000 0.07176

Condition **LC49=1.2D-WL90+1.6LLa1**

1	-0.16337	0.76704	-0.73185	-0.26851	0.00000	0.03463
3	0.13146	0.66098	0.71538	-0.27465	0.00000	0.03716
56	-0.01787	0.01621	0.01542	0.00000	0.00000	0.00000
58	-0.00122	0.01623	0.00105	0.00000	0.00000	0.00000

SUM -0.05100 1.46046 0.00000 -0.54317 0.00000 0.07179

Condition **LC50=1.2D-WL120+1.6LLa1**

1	-0.15950	0.76706	-0.70913	-0.26896	0.00000	0.03475
3	0.13496	0.66096	0.73622	-0.27502	0.00000	0.03728
56	-0.01824	0.01621	0.01574	0.00000	0.00000	0.00000
58	-0.00036	0.01623	0.00031	0.00000	0.00000	0.00000

SUM -0.04313 1.46046 0.04313 -0.54398 0.00000 0.07203

Condition **LC51=1.2D-WL150+1.6LLa1**

1	-0.16134	0.76702	-0.70696	-0.26906	0.00000	0.03459
3	0.13109	0.66101	0.74062	-0.27519	0.00000	0.03708
56	-0.02079	0.01621	0.01793	0.00000	0.00000	0.00000
58	-0.00412	0.01623	0.00355	0.00000	0.00000	0.00000

SUM -0.05515 1.46046 0.05515 -0.54426 0.00000 0.07166

Condition **LC52=1.2D+WL0+1.6LLa2**

1	-1.50374	1.20622	-1.42260	-0.40670	0.00000	0.26478
3	1.50449	1.02180	1.51183	-0.42536	0.00000	0.29221
56	-0.18649	0.01541	0.16095	0.00000	0.00000	0.00000
58	0.18574	0.01703	-0.16017	0.00000	0.00000	0.00000

SUM 0.00000 2.26046 0.09000 -0.83205 0.00000 0.55699

Condition **LC53=1.2D+WL30+1.6LLa2**

1	-1.48748	1.20614	-1.43303	-0.40676	0.00000	0.26495
3	1.52193	1.02178	1.50592	-0.42496	0.00000	0.29237
56	-0.17564	0.01546	0.15159	0.00000	0.00000	0.00000
58	0.19634	0.01707	-0.16932	0.00000	0.00000	0.00000

SUM 0.05515 2.26046 0.05515 -0.83173 0.00000 0.55732

Condition **LC54=1.2D+WL60+1.6LLa2**

1	-1.48865	1.20621	-1.44016	-0.40671	0.00000	0.26494
3	1.51726	1.02175	1.49569	-0.42466	0.00000	0.29228
56	-0.17883	0.01544	0.15435	0.00000	0.00000	0.00000
58	0.19336	0.01706	-0.16675	0.00000	0.00000	0.00000

SUM 0.04313 2.26046 0.04313 -0.83137 0.00000 0.55722

Condition LC55=1.2D+WL90+1.6LLa2						
1	-1.48732	1.20619	-1.46137	-0.40653	0.00000	0.26491
3	1.51966	1.02175	1.47734	-0.42411	0.00000	0.29225
56	-0.17684	0.01545	0.15264	0.00000	0.00000	0.00000
58	0.19550	0.01707	-0.16860	0.00000	0.00000	0.00000

SUM	0.05100	2.26046	0.00000	-0.83064	0.00000	0.55716
Condition LC56=1.2D+WL120+1.6LLa2						
1	-1.49125	1.20617	-1.48404	-0.40608	0.00000	0.26477
3	1.51621	1.02176	1.45645	-0.42374	0.00000	0.29211
56	-0.17649	0.01545	0.15234	0.00000	0.00000	0.00000
58	0.19466	0.01707	-0.16789	0.00000	0.00000	0.00000

SUM	0.04313	2.26046	-0.04313	-0.82982	0.00000	0.55687
Condition LC57=1.2D+WL150+1.6LLa2						
1	-1.48943	1.20621	-1.48619	-0.40598	0.00000	0.26492
3	1.52009	1.02170	1.45204	-0.42356	0.00000	0.29230
56	-0.17396	0.01547	0.15016	0.00000	0.00000	0.00000
58	0.19845	0.01708	-0.17116	0.00000	0.00000	0.00000

SUM	0.05515	2.26046	-0.05515	-0.82954	0.00000	0.55722
Condition LC58=1.2D-WL0+1.6LLa2						
1	-1.50474	1.20619	-1.51663	-0.40526	0.00000	0.26460
3	1.50490	1.02183	1.42636	-0.42333	0.00000	0.29200
56	-0.18605	0.01541	0.16060	0.00000	0.00000	0.00000
58	0.18589	0.01703	-0.16033	0.00000	0.00000	0.00000

SUM	0.00000	2.26046	-0.09000	-0.82860	0.00000	0.55660
Condition LC59=1.2D-WL30+1.6LLa2						
1	-1.52100	1.20627	-1.50621	-0.40519	0.00000	0.26443
3	1.48747	1.02184	1.43226	-0.42373	0.00000	0.29184
56	-0.19690	0.01536	0.16997	0.00000	0.00000	0.00000
58	0.17527	0.01698	-0.15117	0.00000	0.00000	0.00000

SUM	-0.05515	2.26046	-0.05515	-0.82892	0.00000	0.55627
Condition LC60=1.2D-WL60+1.6LLa2						
1	-1.51983	1.20620	-1.49908	-0.40525	0.00000	0.26444
3	1.49214	1.02188	1.44249	-0.42403	0.00000	0.29193
56	-0.19371	0.01538	0.16721	0.00000	0.00000	0.00000
58	0.17826	0.01700	-0.15375	0.00000	0.00000	0.00000

SUM	-0.04313	2.26046	-0.04313	-0.82928	0.00000	0.55636
Condition LC61=1.2D-WL90+1.6LLa2						
1	-1.52116	1.20622	-1.47786	-0.40543	0.00000	0.26447
3	1.48973	1.02188	1.46084	-0.42458	0.00000	0.29196
56	-0.19569	0.01537	0.16892	0.00000	0.00000	0.00000
58	0.17613	0.01699	-0.15190	0.00000	0.00000	0.00000

SUM	-0.05100	2.26046	0.00000	-0.83001	0.00000	0.55643

Condition LC62=1.2D-WL120+1.6LLa2						
1	-1.51724	1.20623	-1.45519	-0.40588	0.00000	0.26461
3	1.49318	1.02187	1.48173	-0.42495	0.00000	0.29210
56	-0.19604	0.01537	0.16921	0.00000	0.00000	0.00000
58	0.17696	0.01699	-0.15262	0.00000	0.00000	0.00000

SUM	-0.04313	2.26046	0.04313	-0.83083	0.00000	0.55672
Condition LC63=1.2D-WL150+1.6LLa2						
1	-1.51906	1.20620	-1.45303	-0.40598	0.00000	0.26446
3	1.48930	1.02193	1.48615	-0.42513	0.00000	0.29191
56	-0.19857	0.01536	0.17139	0.00000	0.00000	0.00000
58	0.17318	0.01698	-0.14935	0.00000	0.00000	0.00000

SUM	-0.05515	2.26046	0.05515	-0.83111	0.00000	0.55637
Condition LC64=1.2D+WL0+1.6LLa3						
1	-0.09944	1.20112	-1.25987	-0.42590	0.00000	0.02471
3	0.09967	1.02687	1.34966	-0.44079	0.00000	0.02686
56	-0.00937	0.01622	0.00808	0.00000	0.00000	0.00000
58	0.00914	0.01624	-0.00788	0.00000	0.00000	0.00000

SUM	0.00000	2.26046	0.09000	-0.86669	0.00000	0.05157
Condition LC65=1.2D+WL30+1.6LLa3						
1	-0.08314	1.20108	-1.27030	-0.42599	0.00000	0.02489
3	0.11708	1.02689	1.34375	-0.44040	0.00000	0.02703
56	0.00153	0.01623	-0.00132	0.00000	0.00000	0.00000
58	0.01969	0.01626	-0.01698	0.00000	0.00000	0.00000

SUM	0.05515	2.26046	0.05515	-0.86639	0.00000	0.05192
Condition LC66=1.2D+WL60+1.6LLa3						
1	-0.08430	1.20114	-1.27743	-0.42593	0.00000	0.02489
3	0.11240	1.02684	1.33353	-0.44009	0.00000	0.02696
56	-0.00166	0.01623	0.00143	0.00000	0.00000	0.00000
58	0.01669	0.01625	-0.01440	0.00000	0.00000	0.00000

SUM	0.04313	2.26046	0.04313	-0.86602	0.00000	0.05185
Condition LC67=1.2D+WL90+1.6LLa3						
1	-0.08296	1.20112	-1.29867	-0.42574	0.00000	0.02488
3	0.11479	1.02685	1.31520	-0.43955	0.00000	0.02694
56	0.00036	0.01623	-0.00031	0.00000	0.00000	0.00000
58	0.01880	0.01625	-0.01622	0.00000	0.00000	0.00000

SUM	0.05100	2.26046	0.00000	-0.86529	0.00000	0.05182
Condition LC68=1.2D+WL120+1.6LLa3						
1	-0.08685	1.20110	-1.32135	-0.42529	0.00000	0.02476
3	0.11130	1.02687	1.29433	-0.43918	0.00000	0.02682
56	0.00074	0.01623	-0.00064	0.00000	0.00000	0.00000
58	0.01794	0.01625	-0.01548	0.00000	0.00000	0.00000

SUM	0.04313	2.26046	-0.04313	-0.86447	0.00000	0.05158

Condition **LC69=1.2D+WL150+1.6LLa3**

1	-0.08502	1.20114	-1.32350	-0.42519	0.00000	0.02492
3	0.11517	1.02682	1.28992	-0.43900	0.00000	0.02702
56	0.00330	0.01624	-0.00285	0.00000	0.00000	0.00000
58	0.02170	0.01626	-0.01872	0.00000	0.00000	0.00000

SUM 0.05515 2.26046 -0.05515 -0.86420 0.00000 0.05194

Condition **LC70=1.2D-WL0+1.6LLa3**

1	-0.10027	1.20107	-1.35395	-0.42446	0.00000	0.02462
3	0.09993	1.02692	1.26425	-0.43876	0.00000	0.02674
56	-0.00879	0.01622	0.00758	0.00000	0.00000	0.00000
58	0.00914	0.01624	-0.00788	0.00000	0.00000	0.00000

SUM 0.00000 2.26046 -0.09000 -0.86322 0.00000 0.05135

Condition **LC71=1.2D-WL30+1.6LLa3**

1	-0.11656	1.20112	-1.34353	-0.42437	0.00000	0.02443
3	0.08253	1.02691	1.27015	-0.43915	0.00000	0.02657
56	-0.01970	0.01621	0.01700	0.00000	0.00000	0.00000
58	-0.00143	0.01623	0.00123	0.00000	0.00000	0.00000

SUM -0.05515 2.26046 -0.05515 -0.86352 0.00000 0.05100

Condition **LC72=1.2D-WL60+1.6LLa3**

1	-0.11540	1.20106	-1.33639	-0.42443	0.00000	0.02443
3	0.08721	1.02695	1.28037	-0.43946	0.00000	0.02664
56	-0.01651	0.01621	0.01425	0.00000	0.00000	0.00000
58	0.00157	0.01623	-0.00136	0.00000	0.00000	0.00000

SUM -0.04313 2.26046 -0.04313 -0.86389 0.00000 0.05107

Condition **LC73=1.2D-WL90+1.6LLa3**

1	-0.11675	1.20108	-1.31515	-0.42462	0.00000	0.02444
3	0.08481	1.02694	1.29870	-0.44000	0.00000	0.02666
56	-0.01853	0.01621	0.01599	0.00000	0.00000	0.00000
58	-0.00053	0.01623	0.00046	0.00000	0.00000	0.00000

SUM -0.05100 2.26046 0.00000 -0.86462 0.00000 0.05110

Condition **LC74=1.2D-WL120+1.6LLa3**

1	-0.11285	1.20109	-1.29247	-0.42507	0.00000	0.02456
3	0.08829	1.02693	1.31958	-0.44037	0.00000	0.02678
56	-0.01890	0.01621	0.01631	0.00000	0.00000	0.00000
58	0.00033	0.01623	-0.00029	0.00000	0.00000	0.00000

SUM -0.04313 2.26046 0.04313 -0.86544 0.00000 0.05134

Condition **LC75=1.2D-WL150+1.6LLa3**

1	-0.11470	1.20105	-1.29030	-0.42517	0.00000	0.02440
3	0.08442	1.02697	1.32400	-0.44055	0.00000	0.02657
56	-0.02145	0.01620	0.01851	0.00000	0.00000	0.00000
58	-0.00342	0.01623	0.00295	0.00000	0.00000	0.00000

SUM -0.05515 2.26046 0.05515 -0.86571 0.00000 0.05098

Condition LC76=1.2D+WL0+1.6LLa4						
1	1.17841	1.21910	-1.08012	-0.41696	0.00000	-0.17948
3	-1.17871	1.00890	1.17035	-0.41332	0.00000	-0.20262
56	0.21114	0.01645	-0.18214	0.00000	0.00000	0.00000
58	-0.21084	0.01602	0.18191	0.00000	0.00000	0.00000
SUM	0.00000	2.26046	0.09000	-0.83028	0.00000	-0.38210
Condition LC77=1.2D+WL30+1.6LLa4						
1	1.19457	1.21905	-1.09059	-0.41704	0.00000	-0.17928
3	-1.16116	1.00892	1.16448	-0.41294	0.00000	-0.20243
56	0.22198	0.01646	-0.19149	0.00000	0.00000	0.00000
58	-0.20024	0.01603	0.17276	0.00000	0.00000	0.00000
SUM	0.05515	2.26046	0.05515	-0.82999	0.00000	-0.38171
Condition LC78=1.2D+WL60+1.6LLa4						
1	1.19349	1.21911	-1.09773	-0.41699	0.00000	-0.17929
3	-1.16593	1.00887	1.15427	-0.41263	0.00000	-0.20251
56	0.21881	0.01646	-0.18875	0.00000	0.00000	0.00000
58	-0.20324	0.01602	0.17535	0.00000	0.00000	0.00000
SUM	0.04313	2.26046	0.04313	-0.82962	0.00000	-0.38180
Condition LC79=1.2D+WL90+1.6LLa4						
1	1.19488	1.21909	-1.11900	-0.41680	0.00000	-0.17930
3	-1.16358	1.00888	1.13596	-0.41209	0.00000	-0.20253
56	0.22081	0.01646	-0.19049	0.00000	0.00000	0.00000
58	-0.20111	0.01603	0.17353	0.00000	0.00000	0.00000
SUM	0.05100	2.26046	0.00000	-0.82889	0.00000	-0.38183
Condition LC80=1.2D+WL120+1.6LLa4						
1	1.19105	1.21907	-1.14171	-0.41635	0.00000	-0.17943
3	-1.16713	1.00890	1.11512	-0.41172	0.00000	-0.20266
56	0.22118	0.01646	-0.19082	0.00000	0.00000	0.00000
58	-0.20197	0.01602	0.17427	0.00000	0.00000	0.00000
SUM	0.04313	2.26046	-0.04313	-0.82807	0.00000	-0.38208
Condition LC81=1.2D+WL150+1.6LLa4						
1	1.19285	1.21911	-1.14389	-0.41624	0.00000	-0.17926
3	-1.16322	1.00886	1.11073	-0.41155	0.00000	-0.20244
56	0.22371	0.01646	-0.19301	0.00000	0.00000	0.00000
58	-0.19818	0.01603	0.17101	0.00000	0.00000	0.00000
SUM	0.05515	2.26046	-0.05515	-0.82779	0.00000	-0.38171
Condition LC82=1.2D-WL0+1.6LLa4						
1	1.17783	1.21904	-1.17434	-0.41550	0.00000	-0.17959
3	-1.17871	1.00895	1.08506	-0.41131	0.00000	-0.20276
56	0.21165	0.01645	-0.18261	0.00000	0.00000	0.00000
58	-0.21078	0.01602	0.18189	0.00000	0.00000	0.00000
SUM	0.00000	2.26046	-0.09000	-0.82681	0.00000	-0.38235

Condition **LC83=1.2D-WL30+1.6LLa4**

1	1.16168	1.21908	-1.16388	-0.41542	0.00000	-0.17979
3	-1.19624	1.00893	1.09092	-0.41168	0.00000	-0.20295
56	0.20080	0.01644	-0.17324	0.00000	0.00000	0.00000
58	-0.22139	0.01600	0.19105	0.00000	0.00000	0.00000
SUM	-0.05515	2.26046	-0.05515	-0.82710	0.00000	-0.38275

Condition **LC84=1.2D-WL60+1.6LLa4**

1	1.16275	1.21903	-1.15673	-0.41547	0.00000	-0.17978
3	-1.19148	1.00898	1.10114	-0.41199	0.00000	-0.20287
56	0.20398	0.01644	-0.17598	0.00000	0.00000	0.00000
58	-0.21839	0.01601	0.18845	0.00000	0.00000	0.00000
SUM	-0.04313	2.26046	-0.04313	-0.82747	0.00000	-0.38265

Condition **LC85=1.2D-WL90+1.6LLa4**

1	1.16136	1.21905	-1.13546	-0.41566	0.00000	-0.17977
3	-1.19383	1.00897	1.11944	-0.41253	0.00000	-0.20285
56	0.20198	0.01644	-0.17425	0.00000	0.00000	0.00000
58	-0.22051	0.01601	0.19027	0.00000	0.00000	0.00000
SUM	-0.05100	2.26046	0.00000	-0.82820	0.00000	-0.38262

Condition **LC86=1.2D-WL120+1.6LLa4**

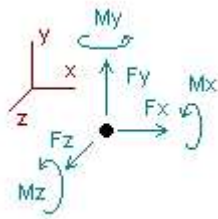
1	1.16519	1.21907	-1.11275	-0.41611	0.00000	-0.17965
3	-1.19029	1.00895	1.14029	-0.41291	0.00000	-0.20273
56	0.20162	0.01644	-0.17393	0.00000	0.00000	0.00000
58	-0.21965	0.01601	0.18952	0.00000	0.00000	0.00000
SUM	-0.04313	2.26046	0.04313	-0.82902	0.00000	-0.38237

Condition **LC87=1.2D-WL150+1.6LLa4**

1	1.16339	1.21903	-1.11056	-0.41622	0.00000	-0.17981
3	-1.19420	1.00899	1.14468	-0.41308	0.00000	-0.20294
56	0.19909	0.01644	-0.17174	0.00000	0.00000	0.00000
58	-0.22343	0.01600	0.19278	0.00000	0.00000	0.00000
SUM	-0.05515	2.26046	0.05515	-0.82929	0.00000	-0.38275

Envelope for nodal reactions

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



Direction of positive forces and moments

Envelope of nodal reactions for :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+W10
LC26=1.2D+Di+W130
LC27=1.2D+Di+W160
LC28=1.2D+Di+W190
LC29=1.2D+Di+W120
LC30=1.2D+Di+W150
LC31=1.2D+Di-W10
LC32=1.2D+Di-W130
LC33=1.2D+Di-W160
LC34=1.2D+Di-W190
LC35=1.2D+Di-W120
LC36=1.2D+Di-W150
LC37=1.2D+1.6LL1
LC38=1.2D+1.6LL2
LC39=1.2D+1.6LL3
LC40=1.2D+W10+1.6LLa1
LC41=1.2D+W130+1.6LLa1
LC42=1.2D+W160+1.6LLa1
LC43=1.2D+W190+1.6LLa1
LC44=1.2D+W120+1.6LLa1
LC45=1.2D+W150+1.6LLa1
LC46=1.2D-W10+1.6LLa1
LC47=1.2D-W130+1.6LLa1
LC48=1.2D-W160+1.6LLa1
LC49=1.2D-W190+1.6LLa1
LC50=1.2D-W120+1.6LLa1
LC51=1.2D-W150+1.6LLa1
LC52=1.2D+W10+1.6LLa2
LC53=1.2D+W130+1.6LLa2
LC54=1.2D+W160+1.6LLa2
LC55=1.2D+W190+1.6LLa2
LC56=1.2D+W120+1.6LLa2
LC57=1.2D+W150+1.6LLa2
LC58=1.2D-W10+1.6LLa2
LC59=1.2D-W130+1.6LLa2
LC60=1.2D-W160+1.6LLa2
LC61=1.2D-W190+1.6LLa2
LC62=1.2D-W120+1.6LLa2
LC63=1.2D-W150+1.6LLa2

LC64=1.2D+WL0+1.6LLa3
 LC65=1.2D+WL30+1.6LLa3
 LC66=1.2D+WL60+1.6LLa3
 LC67=1.2D+WL90+1.6LLa3
 LC68=1.2D+WL120+1.6LLa3
 LC69=1.2D+WL150+1.6LLa3
 LC70=1.2D-WL0+1.6LLa3
 LC71=1.2D-WL30+1.6LLa3
 LC72=1.2D-WL60+1.6LLa3
 LC73=1.2D-WL90+1.6LLa3
 LC74=1.2D-WL120+1.6LLa3
 LC75=1.2D-WL150+1.6LLa3
 LC76=1.2D+WL0+1.6LLa4
 LC77=1.2D+WL30+1.6LLa4
 LC78=1.2D+WL60+1.6LLa4
 LC79=1.2D+WL90+1.6LLa4
 LC80=1.2D+WL120+1.6LLa4
 LC81=1.2D+WL150+1.6LLa4
 LC82=1.2D-WL0+1.6LLa4
 LC83=1.2D-WL30+1.6LLa4
 LC84=1.2D-WL60+1.6LLa4
 LC85=1.2D-WL90+1.6LLa4
 LC86=1.2D-WL120+1.6LLa4
 LC87=1.2D-WL150+1.6LLa4

Node		Forces						Moments					
		Fx	lc	Fy	lc	Fz	lc	Mx	lc	My	lc	Mz	lc
		[Kip]		[Kip]		[Kip]		[Kip*ft]		[Kip*ft]		[Kip*ft]	
1	Max	1.195	LC79	1.360	LC30	0.347	LC13	-0.18579	LC20	0.00000	LC1	0.26495	LC53
	Min	-1.521	LC61	0.574	LC24	-1.612	LC7	-0.47535	LC26	0.00000	LC1	-0.17981	LC87
3	Max	1.522	LC53	1.161	LC36	1.556	LC1	-0.18700	LC19	0.00000	LC1	0.29237	LC53
	Min	-1.196	LC83	0.495	LC18	-0.288	LC19	-0.48531	LC25	0.00000	LC1	-0.20295	LC83
56	Max	0.224	LC81	0.036	LC30	0.194	LC12	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.234	LC10	0.012	LC22	-0.193	LC81	0.00000	LC1	0.00000	LC1	0.00000	LC1
58	Max	0.233	LC4	0.036	LC30	0.193	LC87	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.223	LC87	0.012	LC22	-0.199	LC6	0.00000	LC1	0.00000	LC1	0.00000	LC1

Connection Check

Date: 4/4/2023
Project Name: WESTPORT SP TOWER
Project No.: CT2147
Designed By: CL Checked By: MSC



CHECK CONNECTION CAPACITY (Worst Case)

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

Bolt Type = A36 5/8" Threaded Rod

Allowable Tensile Load =

$$F_{Tall} = 6673 \text{ lbs.}$$

Allowable Shear Load =

$$F_{Vall} = 4004 \text{ lbs.}$$

TENSILE FORCES

Reaction F = 1612 lbs. (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 1521 lbs. (See Bentley Output)

Reactions in Y direction: 1360 lbs. (See Bentley Output)

Resultant: 2040 lbs.

No. of Supports = 1

No. of Bolts / Support = 4

Tension Design Load /Bolts =

$$f_t = 403.00 \text{ lbs.} < 6673 \text{ lbs.} \text{ Therefore, OK !}$$

Shear Design Load / Bolts=

$$f_v = 510.09 \text{ lbs.} < 4004 \text{ lbs.} \text{ Therefore, OK !}$$

CHECK COMBINED TENSION AND SHEAR

$$\begin{array}{rclclcl} f_t / F_T & + & f_v / F_V & \leq & 1.0 \\ 0.060 & + & 0.127 & = & 0.188 < 1.0 \text{ Therefore, OK !} \end{array}$$