Greg Milano
SAI Group, LLC
12 Industrial Way
Salem, NH 03079
860-707-9001
gmilano@saigrp.com

January 3, 2020

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) CT2058
20 Mell Road, Lisbon, CT 06351
N 41.590825
W -72.016888

Dear Ms. Bachman:

AT&T currently maintains six (9) antennas at the 187-foot level of the existing 190-foot monopole at 20 Mell Road, Lisbon, CT. The tower is owned by American Tower Corporation. AT&T now intends to remove six (6) CCI antennas and replace them with six (6) DMP65R-BU6DA CCI antennas. These antennas would be installed at the 187-foot level of the tower. AT&T also intends to remove three (3) Ericsson RRUS-11 B12 remote radio units and install three (3) Ericsson 4449 B5/B12 RRUS and three (3) Ericsson B14 4478 RRUS.

This facility was approved by the Siting Council in docket #124 on March 12, 1990. This approval included the condition that the tower height be limited to 199 ft. Since no change to the existing tower height is proposed, therefore this modification complies with the aforementioned condition.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Thomas W. Sparkman - First Selectman for the Town of Lisbon, Lisbon Town Planner as well as the property owner.

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

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

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

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

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

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

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

For the foregoing reasons, AT&T respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Greg Milano

SAI Group, LLC
12 Industrial Way
Salem, NH 03079
860-707-9001
gmilano@saigrp.com

Attachments

cc: Thomas W. Sparkman - First Selectman
Michael J. Murphy – Town Planner
American Tower – Property/Tower Owner

Power Density

Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							0%
AT&T GSM	2	565	187	0.0134	880	0.5867	0.23%
AT&T UMTS	1	279	187	0.0033	880	0.5867	0.06%
AT&T UMTS	2	348	187	0.0083	1900	1.0000	0.08%
AT&T LTE	1	1045	187	0.0124	734	0.4893	0.25%
AT&T LTE	4	3381	187	0.1606	1900	1.0000	1.61%
Site Total							2.23%

*Per CSC Records (available upon request, includes calculation formulas)

** If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

Proposed Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							0%
AT&T UMTS	1	150	156	0.0031	850	0.5667	0.05%
AT&T LTE	1	2951	156	0.0324	700	0.4667	0.69%
AT&T LTE	1	1476	156	0.0162	700	0.4667	0.35%
AT&T LTE	1	1000	156	0.0110	850	0.5667	0.19%
AT&T LTE	1	1000	156	0.0532	850	1.0000	0.53%
AT&T 5G	1	4842	156	0.0110	1900	0.5667	0.19%
Site Total							2.01%

*Per CSC Records (available upon request, includes calculation formulas)

** If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

PROJECT INFORMATION

SCOPE OF WORK:

ITEMS TO BE MOUNTED ON THE EXISTING MONOPOLE:
- NEW AT&T ANTENNAS: DMP65R-BU8DA (TYP. OF 2 PER ALPHA & GAMMA,TOTAL OF 4)
- NEW AT&T ANTENNAS: DMP65R-BU6DA (TOTAL OF 2 FOR BETA).
- NEW AT&T RRUS: B5/B12 4449 (700/850) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: B14 4478 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T DC & FIBER SURGE ARRESTOR DC6-48-60-18-8C-EV (TOTAL OF 1) WITH (2) DC POWER, (1) FIBER RUN & (3) RET CABLES.
- INSTALL NEW SITEPRO1 #VFA12-M3-WLL MOUNTS (TOTAL OF 1) PER MA.
- INSTALL NEW 2-1/2" STD. (2.88" O.D.) PIPE BRACES, (TYP. 1 PER SECTOR, TOTAL OF 3) PER MA.

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:
- SWAP DUS FOR (2) 6630 + IDLE.
- ADD (1) RAYCAP DC12
- ADD (1) FIBER MANAGEMENT BOX

ITEMS TO BE REMOVED:
- EXISTING AT&T ANTENNAS: 7770 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T ANTENNAS: HPA-65R-BUU-H8 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T RRUS: RRUS-11 B12 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T (6) 1-5/8" COAX CABLES

ITEMS TO REMAIN:
- (3) ANTENNAS (7770), (3) RRU'S (RRUS-32 B2), (6) TMA'S (LGP21401), (6) DIPLEXER (LGP 21901) AT GROUND, (1) SURGE ARRESTOR (DC6-48-60-18-8F), (6) 1-5/8" COAX CABLES, (2) DC POWER & (1) FIBER.

SITE ADDRESS:	20 MEL ROAD LISBON, CT 06351
LATITUDE:	41.590825° N, 41° 35' 26.97" N
LONGITUDE:	72.016888° W, 72° 1' .7971" W
TYPE OF SITE:	MONOPOLE / INDOOR EQUIPMENT
STRUCTURE HEIGHT:	190'-0"±
RAD CENTER:	187'-0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

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

ATC SITE NAME: LISBON CT 3
ATC SITE #: 302503

SITE NUMBER: CT2058

SITE NAME: LISBON-MEL RD

FA CODE: 10035006

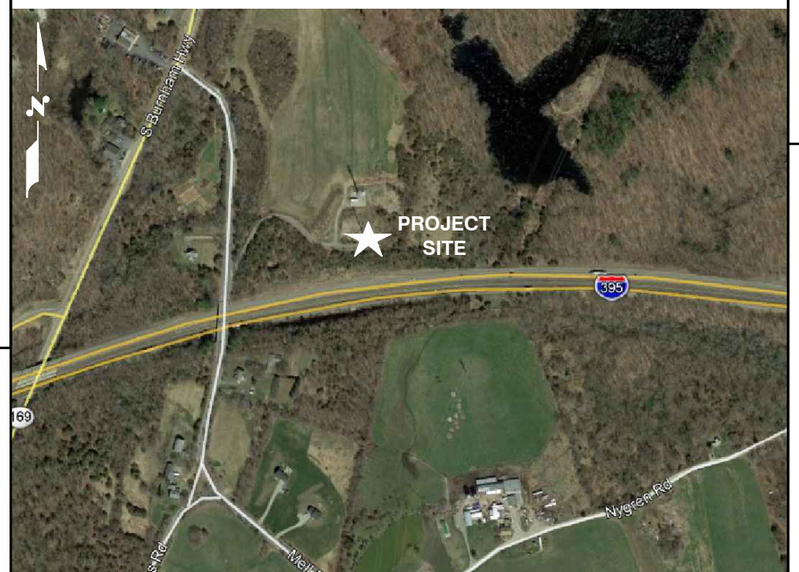
PACE ID: MRCTB040429,MRCTB040668

PROJECT: LTE 3C_4C 2020 UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:

TURN LEFT ONTO STATE HWY 411 (.2 MILES) TURN LEFT TO MERGE ONTO I-91 N (.4 MILES) THEN MERGE ONTO I-91 N (4.1 MILES). TAKE EXIT 25-26 TO MERGE ONTO CT-3 N TOWARD GLASTONBURY (2.4 MILES). TAKE THE EXIT ONTO CT-2 E TOWARD NORWICH (20 MILES), KEEP LEFT AT FORK TO STAY ON CT-2 E (12.7 MILES). TAKE EXIT 28N TO MERGE ONTO 395 N TOWARD PROVIDENCE (5.8 MILES) THEN TAKE EXIT 19 FOR CT-169 TOWARD LISBON (.2 MILES), TURN LEFT ONTO CT-169 N (.4 MILES). TURN RIGHT ONTO MELL RD DESTINATION IS ON THE RIGHT FOR THE ACCESS ROAD.



GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

72 HOURS

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

UNDERGROUND SERVICE ALERT

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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2058
SITE NAME: LISBON-MEL RD
ATC SITE # ID: 302503

20 MEL ROAD
LISBON, CT 06351
NEW LONDON COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	11/22/19	ISSUED FOR CONSTRUCTION	GA	HC	DPH
A	11/11/19	ISSUED FOR REVIEW	TR	HC	DPH

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

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

AT&T

TITLE SHEET
LTE 3C_4C 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2058	T-1	1

GROUNDING NOTES

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

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

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

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

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

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

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

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

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

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

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

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

GENERAL NOTES

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

   CONTRACTOR – SAI
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."

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

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

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

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

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

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

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

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

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

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

ABBREVIATIONS

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

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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2058
SITE NAME: LISBON-MEL RD
ATC SITE # ID: 302503

20 MEL ROAD
LISBON, CT 06351
NEW LONDON COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	11/22/19	ISSUED FOR CONSTRUCTION	GA	HC	DPH
A	11/11/19	ISSUED FOR REVIEW	TR	HC	DPH

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

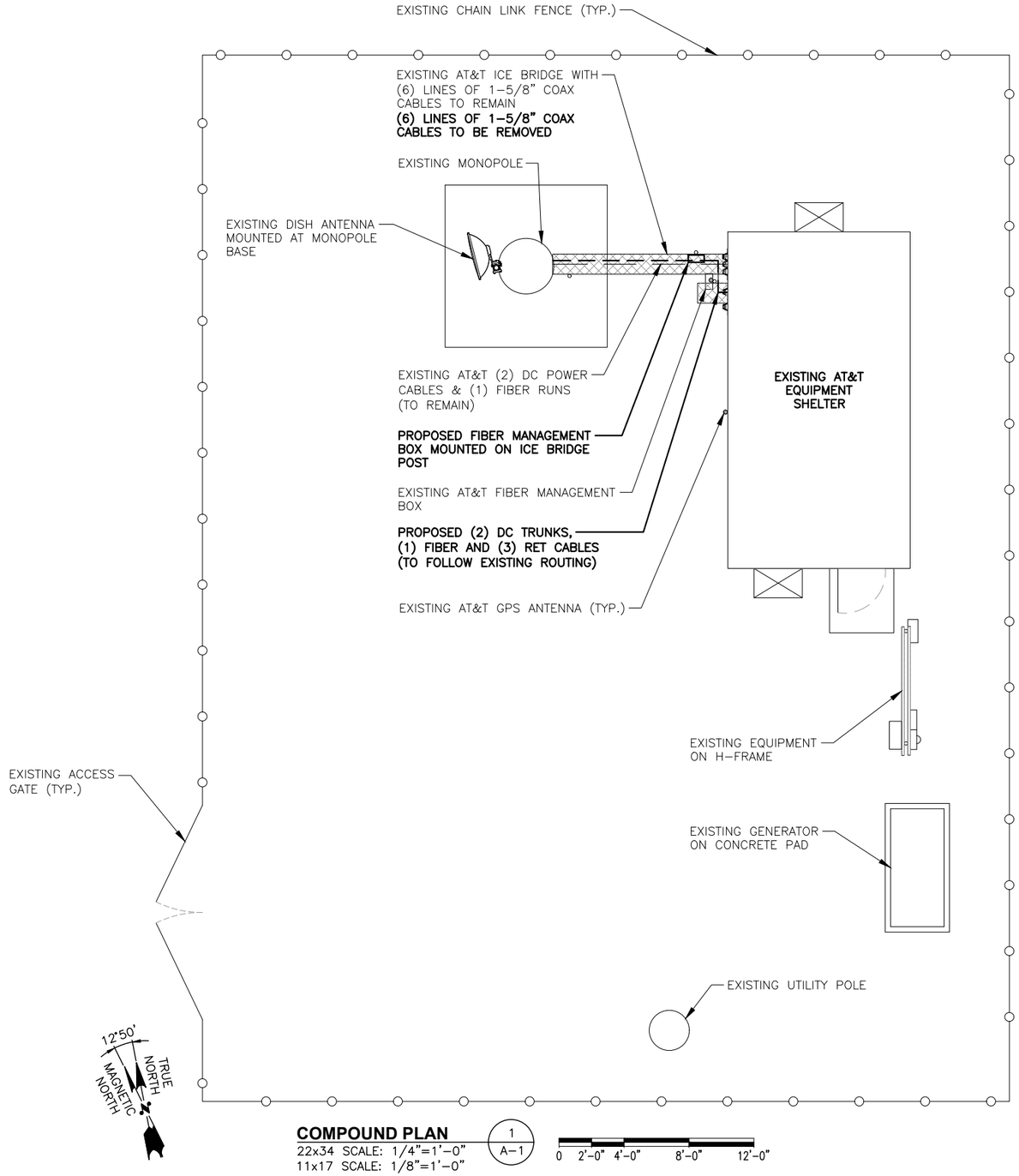
STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES

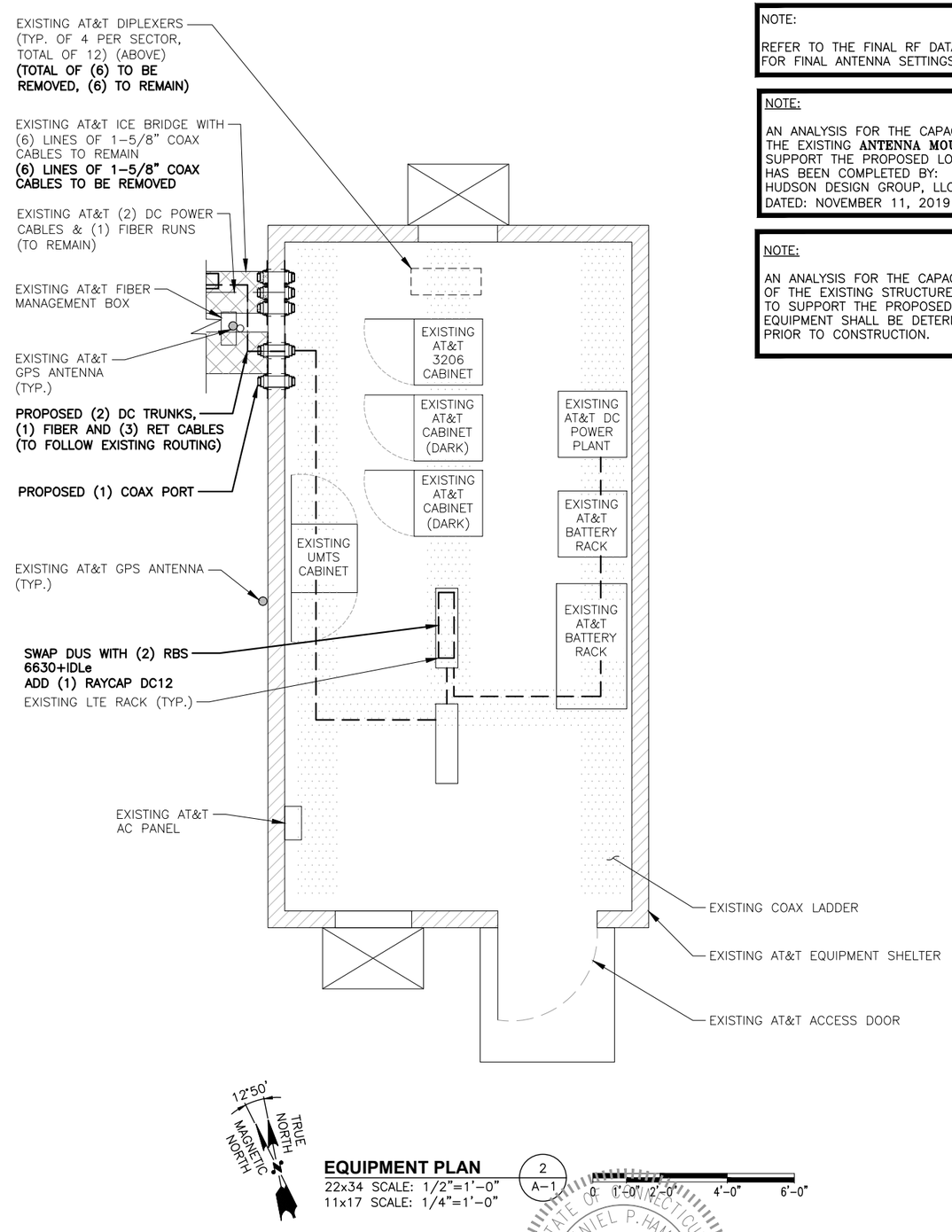
LTE 3C_4C 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2058	GN-1	1



COMPOUND PLAN (1 / A–1)
22x34 SCALE: 1/4"=1'–0"
11x17 SCALE: 1/8"=1'–0"

0 2'–0" 4'–0" 8'–0" 12'–0"



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

0 1'–0" 2'–0" 4'–0" 6'–0"

NOTE:

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

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
HUDSON DESIGN GROUP, LLC.
DATED: NOVEMBER 11, 2019 (Rev.1)

NOTE:

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

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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2058
SITE NAME: LISBON-MEL RD
ATC SITE # ID: 302503

20 MEL ROAD
LISBON, CT 06351
NEW LONDON COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	11/22/19	ISSUED FOR CONSTRUCTION	GA	HC	DPH
A	11/11/19	ISSUED FOR REVIEW	TR	HC	DPH

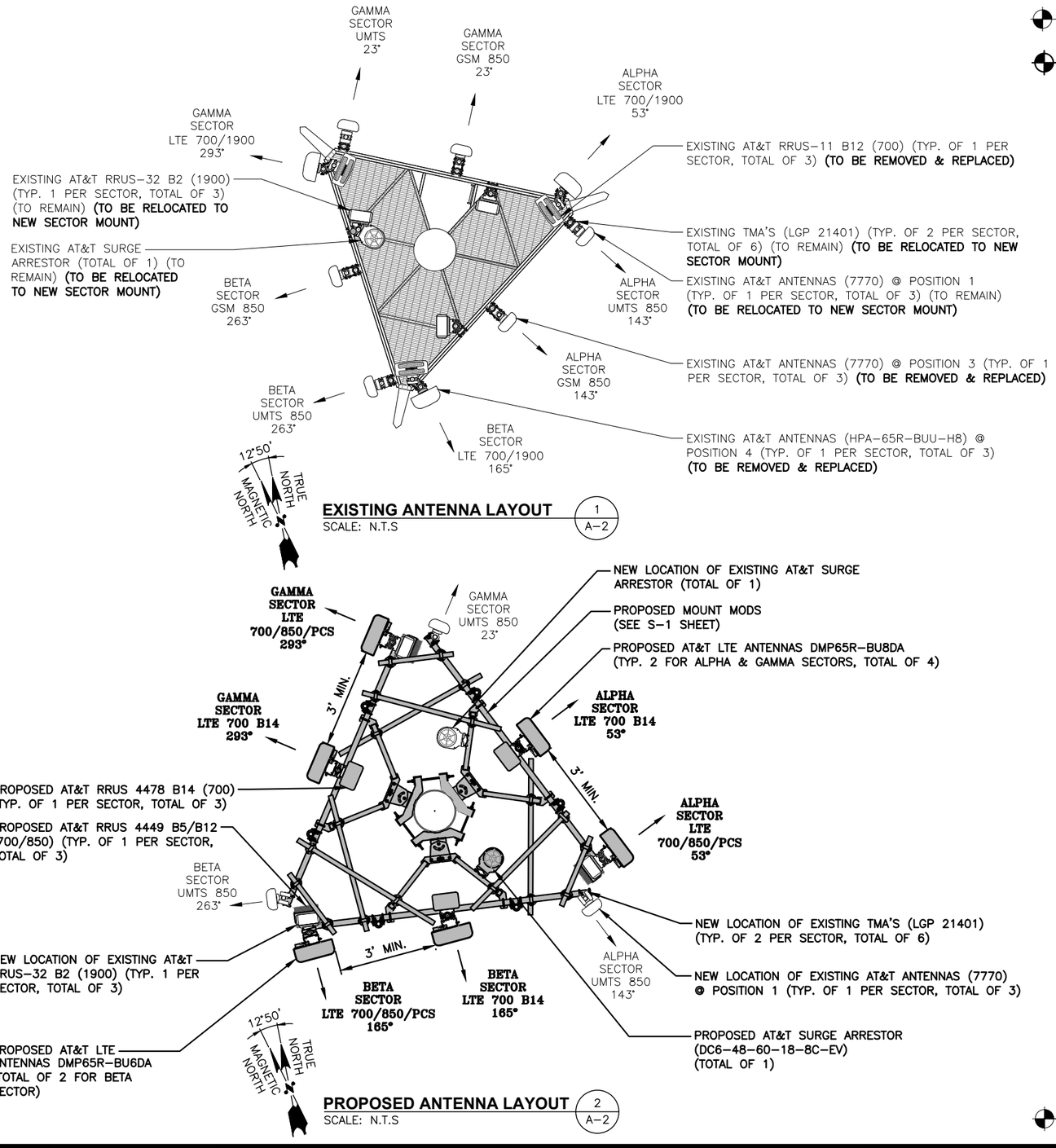
SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: TR

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

AT&T

COMPOUND & EQUIPMENT PLANS
LTE 3C_4C 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2058	A–1	1



EXISTING ANTENNA LAYOUT

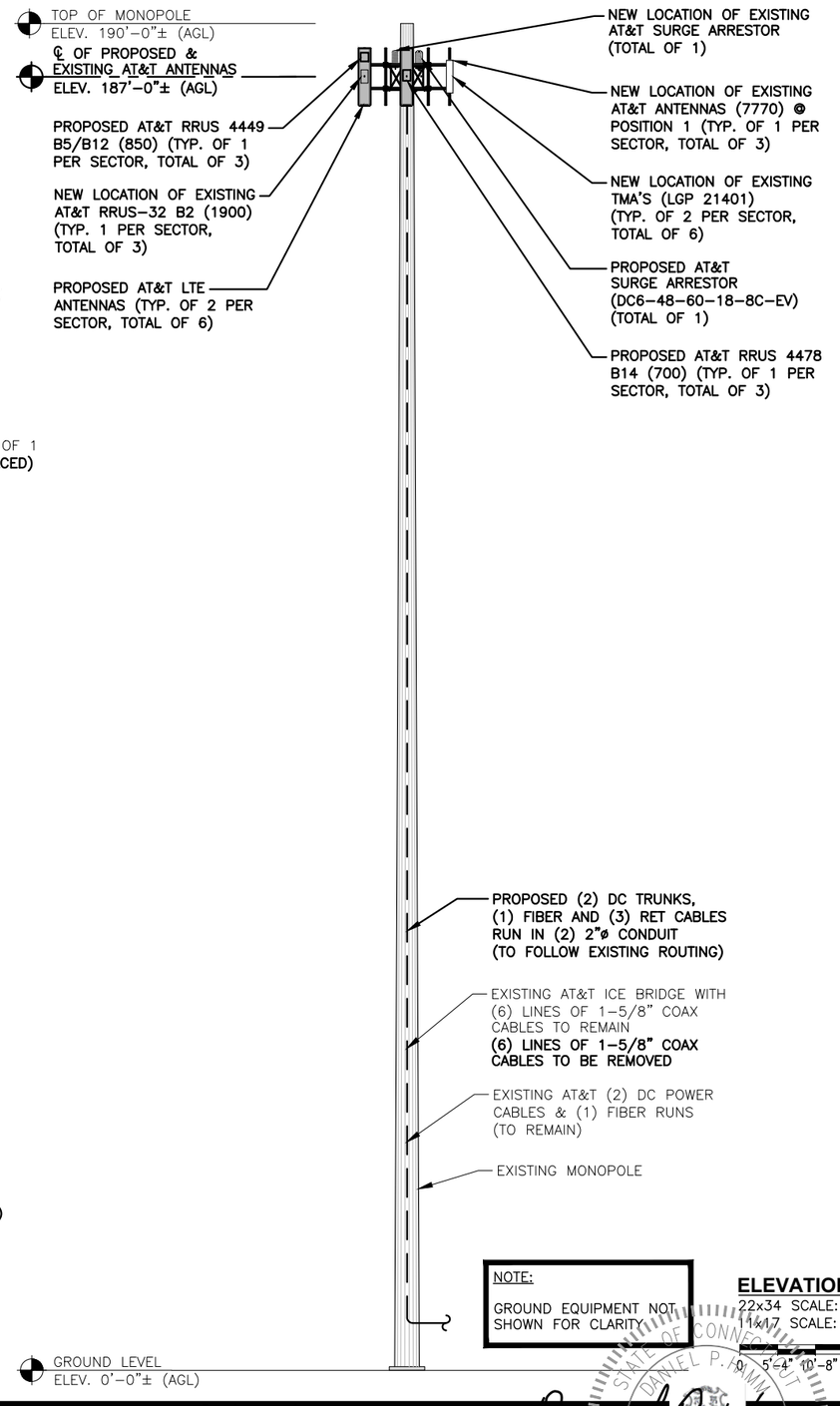
SCALE: N.T.S

1 / A-2

PROPOSED ANTENNA LAYOUT

SCALE: N.T.S

2 / A-2



NOTE:

GROUND EQUIPMENT NOT SHOWN FOR CLARITY

ELEVATION

3 / A-2

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

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

NOTE:

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

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: NOVEMBER 11, 2019 (Rev.1)

NOTE:

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

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

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2058
SITE NAME: LISBON-MEL RD
ATC SITE # ID: 302503

20 MEL ROAD
LISBON, CT 06351
NEW LONDON COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	11/22/19	ISSUED FOR CONSTRUCTION	GA	HC	DPH
A	11/11/19	ISSUED FOR REVIEW	TR	HC	DPH

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

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

AT&T

ANTENNA LAYOUTS & ELEVATION
LTE 3C_4C 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2058	A-2	1

ANTENNA SCHEDULE

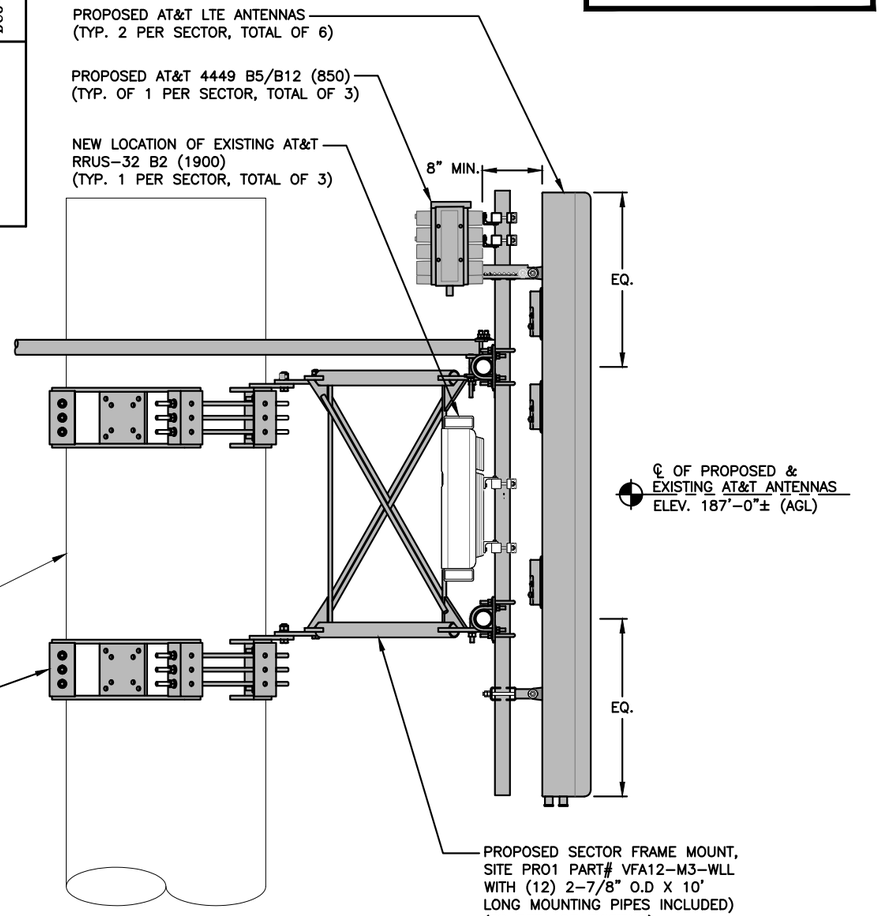
SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	EXISTING	UMTS 850	7770	55X11X5	187'-0"±	143°	(2)(E) LGP21401 (4)(E) LGP21901	–	–	(2)1-5/8 COAX	(E) (1) RAYCAP DC6-48-60-18-8F
A2	–	–	–	–	–	–	–	–	–	–	
A3	**PROPOSED**	**LTE 700 B14**	**DMP65R-BU8DA**	**96x20.7x7.7**	**187'-0"±**	**53°**	–	**(P)(1) 4478 B14 (700)**	**18.1X13.4X8.3**	–	
A4	**PROPOSED**	**LTE 700/850/PCS**	**DMP65R-BU8DA**	**96X20.7X7.7**	**187'-0"±**	**53°**	–	**(P)(1) 4449 B5/B12 (700/850)** (E)(1) RRUS-32 B2 (1900)	**14.9X13.2X10.4** –	–	
B1	EXISTING	UMTS 850	7770	55X11X5	187'-0"±	263°	(2)(E) LGP21401 (4)(E) LGP21901	–	–	(2)1-5/8 COAX	(P) (1) RAYCAP DC6-48-60-18-8C-EV
B2	–	–	–	–	–	–	–	–	–	–	
B3	**PROPOSED**	**LTE 700 B14**	**DMP65R-BU6DA**	**71.2x20.7x7.7**	**187'-0"±**	**165°**	–	(P)(1) 4478 B14 (700)	**18.1X13.4X8.3**	–	
B4	**PROPOSED**	**LTE 700/850/PCS**	**DMP65R-BU6DA**	**71.2X20.7X7.7**	**187'-0"±**	**165°**	–	(P)(1) 4449 B5/B12 (700/850) (E)(1) RRUS-32 B2 (1900)	**14.9X13.2X10.4** –	–	
C1	EXISTING	UMTS 850	7770	55X11X5	187'-0"±	23°	(2)(E) LGP21401 (4)(E) LGP21901	–	–	(2)1-5/8 COAX	SHARED
C2	–	–	–	–	–	–	–	–	–	–	
C3	**PROPOSED**	**LTE 700 B14**	**DMP65R-BU8DA**	**96x20.7x7.7**	**187'-0"±**	293°	–	**(P)(1) 4478 B14 (700)**	**18.1X13.4X8.3**	–	
C4	**PROPOSED**	**LTE 700/850/PCS**	**DMP65R-BU8DA**	**96X20.7X7.7**	**187'-0"±**	**293°**	–	**(P)(1) 4449 B5/B12 (700/850)** (E)(1) RRUS-32 B2 (1900)	**14.9X13.2X10.4** –	–	

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

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

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
HUDSON DESIGN GROUP, LLC.
DATED: NOVEMBER 11, 2019 (Rev.1)

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



PROPOSED LTE ANTENNA MOUNTING DETAIL (4 / A-3)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

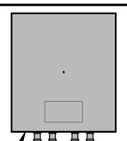
0 0'-6" 1'-0" 2'-0" 3'-0"

RRU CHART

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

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

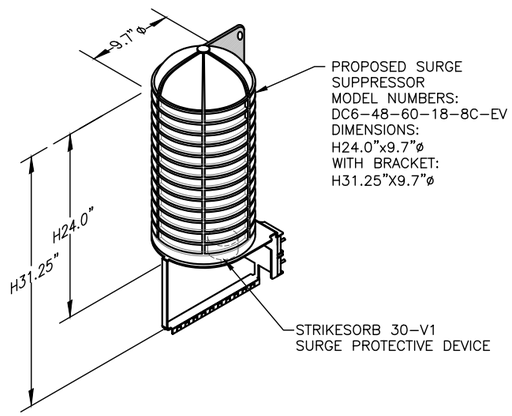
NOTE:
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER



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

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL (2 / A-3)
SCALE: N.T.S



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

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

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

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2058
SITE NAME: LISBON-MEL RD
ATC SITE # ID: 302503

20 MEL ROAD
LISBON, CT 06351
NEW LONDON COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	11/22/19	ISSUED FOR CONSTRUCTION	GA	HC	DPH
A	11/11/19	ISSUED FOR REVIEW	TR	HC	DPH

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

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

AT&T

DETAILS
LTE 3C_4C 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2058	A-3	1

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-H STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
5. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
7. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
8. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
9. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND DI.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
11. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
12. UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
13. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-270 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
16. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
17. ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

NOTES:

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

SPECIAL INSPECTION CHECKLIST

BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	ENGINEER OF RECORD APPROVED SHOP DRAWINGS [1]
REQUIRED	MATERIAL SPECIFICATIONS REPORT [2]
N/A	FABRICATOR NDE INSPECTION
REQUIRED	PACKING SLIPS [3]
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS [4]
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION [5]
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS [6]
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2058
SITE NAME: LISBON-MEL RD
ATC SITE # ID: 302503

20 MEL ROAD
LISBON, CT 06351
NEW LONDON COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	11/22/19	ISSUED FOR CONSTRUCTION	GA	HC	DPH
A	11/11/19	ISSUED FOR REVIEW	TR	HC	DPH

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

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

AT&T

STRUCTURAL NOTES
LTE 3C_4C 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2058	SN-1	1

NOTE:

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

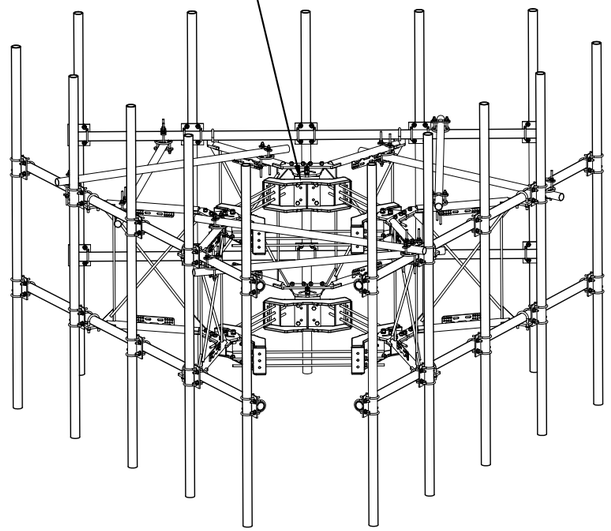
NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
HUDSON DESIGN GROUP, LLC.
DATED: NOVEMBER 11, 2019 (Rev.1)

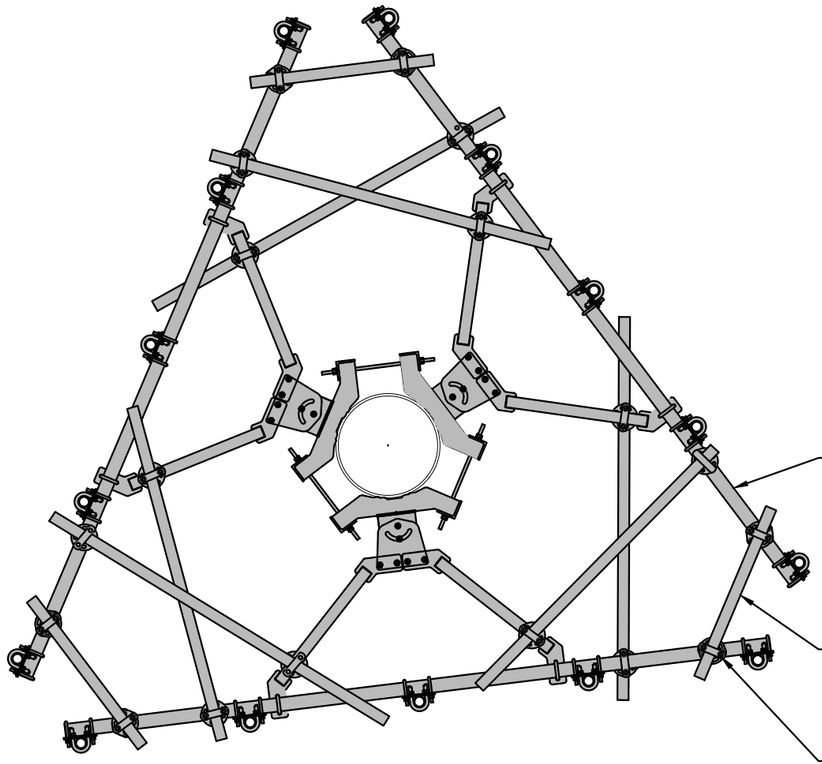
NOTE:

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

PROPOSED V-FRAME SECTOR MOUNT
(SITEPRO1 VFA12-M3-WLL) (TOTAL OF 1)
(INSTALLED PER MOUNT
STRUCTURAL ASSESSMENT)



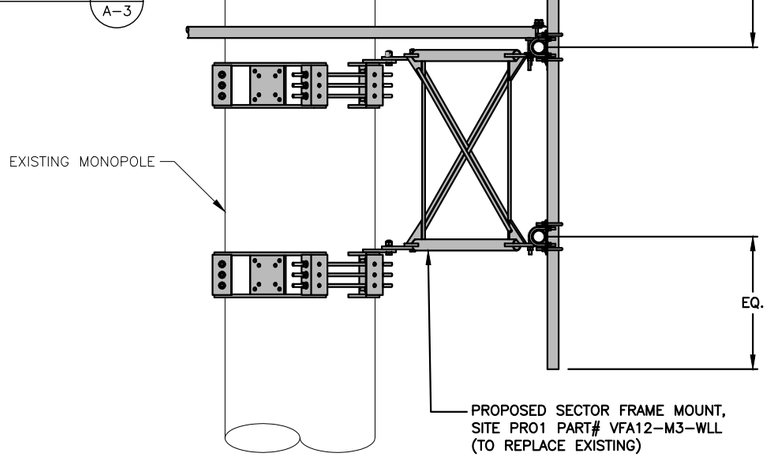
HEAVY DUTY V-FRAME MOUNT DETAIL (2 / A-3)
SCALE: N.T.S

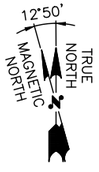


PROPOSED SECTOR FRAME MOUNT,
SITE PRO1 PART# VFA12-M3-WLL
(TO REPLACE EXISTING)

INSTALL NEW 2-1/2" STD. (2.88" O.D.)
PIPE BRACES SECURED TO THE
PROPOSED PIPE MAST (TYP. 1 PER
SECTOR, TOTAL OF 3)

PROPOSED PIPE TO PIPE CLAMP
SITEPRO1 #PUCK (TYP)





PROPOSED MOUNT MODIFICATIONS PLAN (1 / S-1)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

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

PROPOSED MOUNT MODIFICATIONS DETAIL (3 / S-1)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

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

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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2058
SITE NAME: LISBON-MEL RD
ATC SITE # ID: 302503

20 MEL ROAD
LISBON, CT 06351
NEW LONDON COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	11/22/19	ISSUED FOR CONSTRUCTION	GA	HC	DPH
A	11/11/19	ISSUED FOR REVIEW	TR	HC	DPH

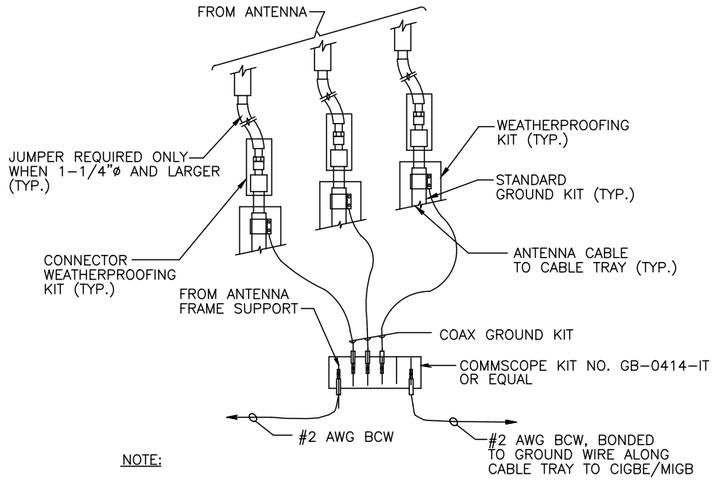
SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: TR

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

AT&T

MOUNT MODIFICATION DESIGN
LTE 3C_4C 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2058	S-1	1

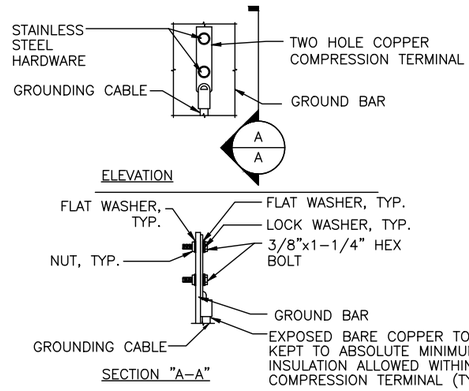


NOTE:

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

GROUND WIRE TO GROUND BAR CONNECTION DETAIL (1 / G-1)

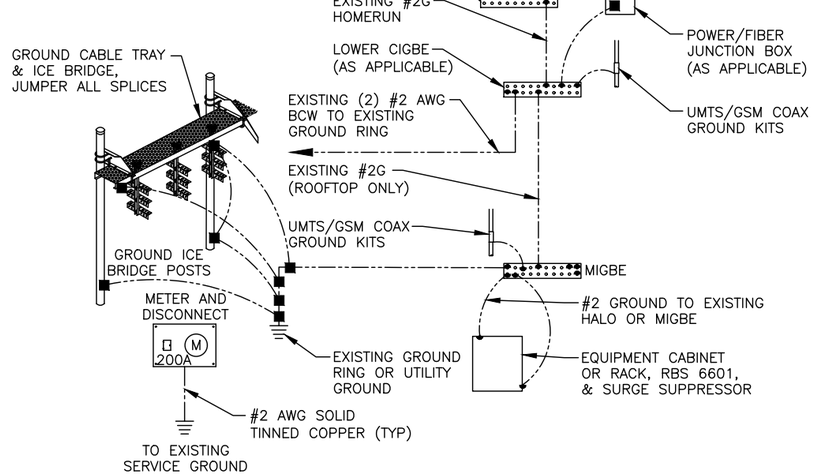
SCALE: N.T.S



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

TYPICAL GROUND BAR CONNECTION DETAIL (3 / G-1)

SCALE: N.T.S



GROUNDING RISER DIAGRAM (2 / G-1)

SCALE: N.T.S

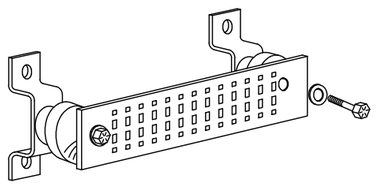
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

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

SECTION "A" – SURGE ABSORBERS

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



GROUND BAR - DETAIL (4 / G-1)

SCALE: N.T.S

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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2058
SITE NAME: LISBON-MEL RD
ATC SITE # ID: 302503

20 MEL ROAD
LISBON, CT 06351
NEW LONDON COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	11/22/19	ISSUED FOR CONSTRUCTION	GA	HC	DPH
A	11/11/19	ISSUED FOR REVIEW	TR	HC	DPH

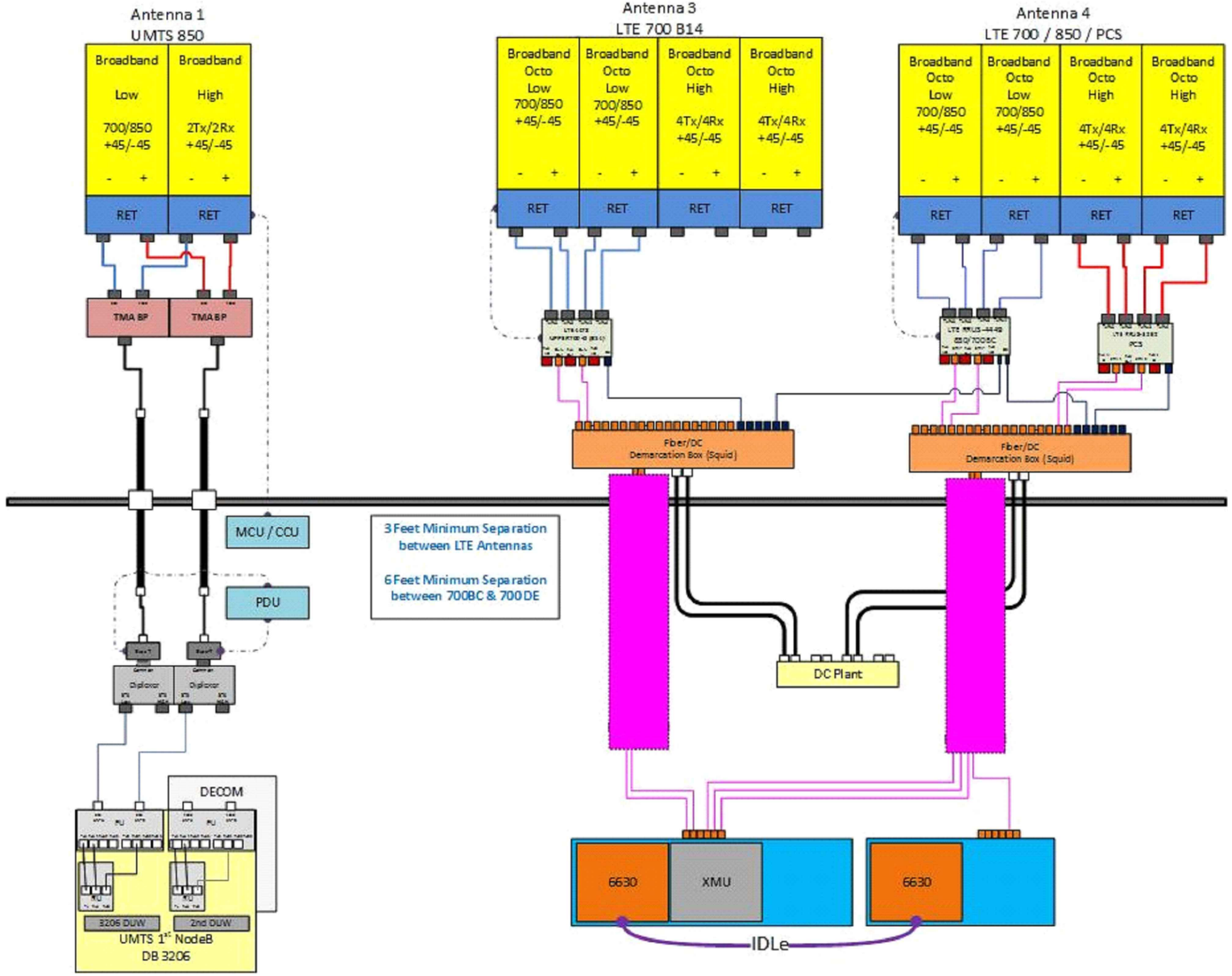
SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: TR

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

AT&T

GROUNDING DETAILS
LTE 3C_4C 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2058	G-1	1



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

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

NOTE:

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

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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2058
SITE NAME: LISBON-MEL RD
ATC SITE # ID: 302503

20 MEL ROAD
LISBON, CT 06351
NEW LONDON COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	11/22/19	ISSUED FOR CONSTRUCTION	GA	HC	DPH
A	11/11/19	ISSUED FOR REVIEW	TR	HC	DPH

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

AT&T

RF PLUMBING DIAGRAM
LTE 3C_4C 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2058	RF–1	1

October 25, 2019
November 11, 2019 (Rev. 1)

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:		
	Site Number:	CT2058 (LTE 3C/4C)
	FA Number:	10035006
	PACE Number:	MRCTB040429
	PT Number:	2051A0PQX2
	Site Name:	LISBON-MEL RD
	Site Address:	20 Mel Road Lisbon, CT 06351

To Whom It May Concern:

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

- (3) 7770 Antennas (55.0"x11.0"x5.0" - Wt. = 35 lbs. /each)
- (3) RRUS-32 B2 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (6) LGP21401 TMA's (14.4"x9.0"x2.7" – Wt. = 19 lbs. /each)
- (6) LGP 21901 Diplexers (6.3"x4.4"x3.0" – Wt. = 6 lbs. /each) (Ground)
- (1) Squid Surge Arrestor (24.0"x9.7" Φ – Wt. = 33 lbs.)
- **(4) DMP65R-BU8DA Antennas (96.0"x20.7"x7.7" – Wt. = 96 lbs. /each)**
- **(2) DMP65R-BU6DA Antennas (71.2"x20.7"x7.7" – Wt. = 80 lbs. /each)**
- **(3) B14 4478 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)**
- **(3) B5/B12 4449 RRH's (14.9"x13.2"x10.4" – Wt. = 73 lbs. /each)**
- **(1) Squid Surge Arrestor (24.0"x9.7" Φ – Wt. = 33 lbs.)**

**Proposed equipment shown in bold*

Mount fabrication drawings prepared by SitePro1 P/N VFA12-M3-WLL, dated May 3, 2018 were used to perform this analysis.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R13.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 135 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 1.19 in was used for this analysis.
- HDG considers this site to be exposure category C; tower is located near large, flat, open, terrain/grasslands.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- The mount has been analyzed with load combinations consisting of 250 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 4.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.

Based on our evaluation, we have determined that the New SitePro1 VFA12-M3-WLL mounts **ARE CAPABLE** of supporting the proposed installation with the following modifications:

- **Install new 2-1/2" Std. (2.88" O.D.) pipe braces secured to the proposed horizontal face pipe (typ. 1 per sector, total of 3).**

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Proposed (LTE 3C/4C) Mount Rating	270	LC3	129%	**FAIL**
Modified (LTE 3C/4C) Mount Rating	268	LC3	77%	**PASS**

Reference Documents:

- Fabrication drawings prepared by SitePro1 P/N VFA12- M3- WLL, dated May 3, 2018.

This determination was based on the following limitations and assumptions:

1. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The proposed mount will be adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. HDG performed a localized analysis on the mount itself and not on the supporting tower structure.

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

Respectfully Submitted,
Hudson Design Group LLC

Michael Cabral
Vice President

STATE OF CONNECTICUT
DANIEL HAMM
24178
LICENSED
PROFESSIONAL ENGINEER

Daniel P. Hamm, PE
Principal

FIELD PHOTOS:
*Note: Existing mount to be removed and replaced.






p: 978.557.5553 f: 978.336.5586 a: 45 Beechwood Drive, N. Andover, MA 01845
p: 203.208.3919 f: 203.234.6398 a: 110 Washington Avenue, 4th Floor, North Haven CT 06473

p: 978.557.5553 f: 978.336.5586 a: 45 Beechwood Drive, N. Andover, MA 01845
p: 203.208.3919 f: 203.234.6398 a: 110 Washington Avenue, 4th Floor, North Haven CT 06473

HUDSON
Design Group LLC

Wind & Ice
Calculations

Date: 11/11/2019
Project Name: LISBON-MEL RD
Project No.: CT2058
Designed By: RL **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

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

z=	183	(ft)
z_g=	900	(ft)
α=	9.5	
K_z=	**1.437**	

$Kzmin \le Kz \le 2.01$

Table 2-4

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

2.6.6.2 Topographic Factor:

Table 2-5

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

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

$K_h = e^{(f*z/H)}$

K_{zt}= **#DIV/0!**

K_h=	#DIV/0!	
K_c=	1.0	(from Table 2-4)
K_t=	0	(from Table 2-5)
f=	0	(from Table 2-5)
z=	183	
z_s=	250	(Mean elevation of base of structure above sea level)
H=	0	(Ht. of the crest above surrounding terrain)
K_{zt}=	1.00	(from 2.6.6.2.1)
K_e=	0.99	(from 2.6.8)

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

Category= **1**

2.6.10 Design Ice Thickness

Max Ice Thickness = t_i =	1.00	in
Importance Factor = I=	1.0	(from Table 2-3)
K_{iz} =	1.19	(from Sec. 2.6.10)

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

t_{iz} = 1.19 in

Date: 11/11/2019
Project Name: LISBON-MEL RD
Project No.: CT2058
Designed By: RL Checked By: MSC

HUDSON Design Group LLC

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=	190	G_h=	0.85

2.6.9.2 Guyed Masts G_h= 0.85

2.6.9.3 Pole Structures G_h= 1.1

2.6.9 Appurtenances G_h= 1.0

2.6.9.4 Structures Supported on Other Structures

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

G_h=	1.35	Gh=	**1.00**

2.6.11.2 Design Wind Force on Appurtenances

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

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

		K_z=	1.437	(from 2.6.5.2)
		K_{zt}=	1.0	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**63.13**	K_e=	0.99	(from 2.6.8)
$q_{z\ (ice)}$=	**8.66**	K_d=	0.95	(from Table 2-2)
$q_{z\ (30)}$=	**3.12**	V_{max}=	135	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

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

Date: 11/11/2019
Project Name: LISBON-MEL RD
Project No.: CT2058
Designed By: RL Checked By: MSC

HUDSON Design Group LLC

Determine Ca:

Table 2-9

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

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

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

Ice Thickness = 1.19 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)
7770 Antenna	55.0	11.0	5.0	4.20	5.00	1.31	348	61	17
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	4.64	1.30	1128	177	56
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.44	1.24	802	127	40
B14 4478 RRH	18.1	13.4	8.3	1.68	1.35	1.20	128	23	6
RRUS-32 B2 RRH (Shielded)	18.1	0.0	8.3	0.00	0.00	1.20	0	4	0
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	2.25	1.20	173	31	9
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	0.00	1.20	100	20	5
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.13	1.20	103	19	5
B5/B12 4449 RRH (Side)	14.9	10.4	13.2	1.08	0.00	1.20	82	16	4
LGP21401 TMA	14.4	2.7	9.0	0.27	5.33	1.33	23	7	1
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	71	13	4
PL 3-1/2x5/8	3.5	0.5		0.01	7.00	1.20	1	1	0
PL 11-1/4x5/8	11.3	0.5		0.04	22.50	1.20	3	3	0
5/8" Round Bar	0.6	12.0		0.05	0.05	1.20	4	3	0
3/4" Round Bar	0.8	12.0		0.06	0.06	1.20	5	3	0
2" Pipe	2.4	12.0		0.20	0.20	1.20	15	5	1
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	18	5	1

Date: 11/11/2019
Project Name: LISBON-MEL RD
Project No.: CT2058
Designed By: RL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.19	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)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	348	185	307
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	1128	513	974
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	802	355	690
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	128	79	115
RRUS-32 B2 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	64	79	68
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	173	105	156
RRUS-32 B2 RRH (Side)	27.2	6.1	12.1	1.14	2.29	4.50	2.25	1.29	1.20	93	173	113
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	103	82	98
B5/B12 4449 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	52	103	65
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	23	68	34

WIND LOADS WITH ICE:

7770 Antenna	57.4	13.4	7.4	5.33	2.94	4.29	7.78	1.28	1.43	59	36	53
DMP65R-BU8DA Antenna	98.4	23.1	10.1	15.76	6.88	4.26	9.77	1.28	1.49	175	89	153
DMP65R-BU6DA Antenna	73.6	23.1	10.1	11.79	5.15	3.19	7.30	1.23	1.41	126	63	110
B14 4478 RRH	20.5	15.8	10.7	2.24	1.52	1.30	1.92	1.20	1.20	23	16	21
RRUS-32 B2 RRH (Shielded)	20.5	7.9	10.7	1.12	1.52	2.60	1.92	1.20	1.20	12	16	13
RRUS-32 B2 RRH	29.6	14.5	9.4	2.97	1.93	2.04	3.15	1.20	1.23	31	20	28
RRUS-32 B2 RRH (Side)	29.6	7.2	14.5	1.49	2.97	4.09	2.04	1.27	1.20	16	31	20
B5/B12 4449 RRH	17.3	15.6	12.8	1.87	1.53	1.11	1.35	1.20	1.20	19	16	19
B5/B12 4449 RRH (Side)	17.3	7.8	15.6	0.93	1.87	2.22	1.11	1.20	1.20	10	19	12
LGP21401 TMA	16.8	5.1	11.4	0.59	1.32	3.31	1.47	1.24	1.20	6	14	8

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	17	9	15
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	56	25	48
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	40	18	34
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	6	4	6
RRUS-32 B2 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	3	4	3
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	9	5	8
RRUS-32 B2 RRH (Side)	27.2	6.1	12.1	1.14	2.29	4.50	2.25	1.29	1.20	5	9	6
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	5	4	5
B5/B12 4449 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	3	5	3
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	3	2

Date: 11/11/2019
Project Name: LISBON-MEL RD
Project No.: CT2058
Designed By: RL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	60	(deg)	Ice Thickness =	1.19	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)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	348	185	226
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	1128	513	667
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	802	355	466
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	128	79	91
RRUS-32 B2 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	96	79	83
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	173	105	122
RRUS-32 B2 RRH (Side)	27.2	9.1	12.1	1.71	2.29	3.00	2.25	1.22	1.20	132	173	163
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	103	82	87
B5/B12 4449 RRH (Side)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	78	103	97
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	23	68	57

WIND LOADS WITH ICE:

7770 Antenna	57.4	13.4	7.4	5.33	2.94	4.29	7.78	1.28	1.43	59	36	42
DMP65R-BU8DA Antenna	98.4	23.1	10.1	15.76	6.88	4.26	9.77	1.28	1.49	175	89	110
DMP65R-BU6DA Antenna	73.6	23.1	10.1	11.79	5.15	3.19	7.30	1.23	1.41	126	63	79
B14 4478 RRH	20.5	15.8	10.7	2.24	1.52	1.30	1.92	1.20	1.20	23	16	18
RRUS-32 B2 RRH (Shielded)	20.5	11.8	10.7	1.68	1.52	1.73	1.92	1.20	1.20	17	16	16
RRUS-32 B2 RRH	29.6	14.5	9.4	2.97	1.93	2.04	3.15	1.20	1.23	31	20	23
RRUS-32 B2 RRH (Side)	29.6	10.9	14.5	2.23	2.97	2.72	2.04	1.21	1.20	23	31	29
B5/B12 4449 RRH	17.3	15.6	12.8	1.87	1.53	1.11	1.35	1.20	1.20	19	16	17
B5/B12 4449 RRH (Side)	17.3	11.7	15.6	1.40	1.87	1.48	1.11	1.20	1.20	15	19	18
LGP21401 TMA	16.8	5.1	11.4	0.59	1.32	3.31	1.47	1.24	1.20	6	14	12

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	17	9	11
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	56	25	33
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	40	18	23
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	6	4	5
RRUS-32 B2 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	5	4	4
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	9	5	6
RRUS-32 B2 RRH (Side)	27.2	9.1	12.1	1.71	2.29	3.00	2.25	1.22	1.20	7	9	8
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	5	4	4
B5/B12 4449 RRH (Side)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	4	5	5
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	3	3

Date: 11/11/2019
Project Name: LISBON-MEL RD
Project No.: CT2058
Designed By: RL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.19	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)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	348	185	185
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	1128	513	513
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	802	355	355
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	128	79	79
RRUS-32 B2 RRH (Shielded)	18.1	0.0	8.3	0.00	1.04	0.00	2.18	1.20	1.20	0	79	79
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	173	105	105
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	2.29	0.00	2.25	1.20	1.20	100	173	173
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	103	82	82
B5/B12 4449 RRH (Side)	14.9	10.4	13.2	1.08	1.37	0.00	1.13	1.20	1.20	82	103	103
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	23	68	68

WIND LOADS WITH ICE:

7770 Antenna	57.4	13.4	7.4	5.33	2.94	4.29	7.78	1.28	1.43	59	36	36
DMP65R-BU8DA Antenna	98.4	23.1	10.1	15.76	6.88	4.26	9.77	1.28	1.49	175	89	89
DMP65R-BU6DA Antenna	73.6	23.1	10.1	11.79	5.15	3.19	7.30	1.23	1.41	126	63	63
B14 4478 RRH	20.5	15.8	10.7	2.24	1.52	1.30	1.92	1.20	1.20	23	16	16
RRUS-32 B2 RRH (Shielded)	20.5	2.4	10.7	0.34	1.52	8.63	1.92	1.45	1.20	4	16	16
RRUS-32 B2 RRH	29.6	14.5	9.4	2.97	1.93	2.04	3.15	1.20	1.23	31	20	20
RRUS-32 B2 RRH (Side)	29.6	9.4	14.5	1.93	2.97	3.15	2.04	1.23	1.20	20	31	31
B5/B12 4449 RRH	17.3	15.6	12.8	1.87	1.53	1.11	1.35	1.20	1.20	19	16	16
B5/B12 4449 RRH (Side)	17.3	12.8	15.6	1.53	1.87	1.35	1.11	1.20	1.20	16	19	19
LGP21401 TMA	16.8	5.1	11.4	0.59	1.32	3.31	1.47	1.24	1.20	6	14	14

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	17	9	9
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	56	25	25
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	40	18	18
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	6	4	4
RRUS-32 B2 RRH (Shielded)	18.1	0.0	8.3	0.00	1.04	0.00	2.18	1.20	1.20	0	4	4
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	9	5	5
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	2.29	0.00	2.25	1.20	1.20	5	9	9
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	5	4	4
B5/B12 4449 RRH (Side)	14.9	10.4	13.2	1.08	1.37	0.00	1.13	1.20	1.20	4	5	5
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	3	3

Date: 11/11/2019
Project Name: LISBON-MEL RD
Project No.: CT2058
Designed By: RL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	120	(deg)	Ice Thickness =	1.19	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)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	348	185	226
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	1128	513	667
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	802	355	466
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	128	79	91
RRUS-32 B2 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	96	79	83
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	173	105	122
RRUS-32 B2 RRH (Side)	27.2	9.1	12.1	1.71	2.29	3.00	2.25	1.22	1.20	132	173	163
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	103	82	87
B5/B12 4449 RRH (Side)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	78	103	97
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	23	68	57

WIND LOADS WITH ICE:

7770 Antenna	57.4	13.4	7.4	5.33	2.94	4.29	7.78	1.28	1.43	59	36	42
DMP65R-BU8DA Antenna	98.4	23.1	10.1	15.76	6.88	4.26	9.77	1.28	1.49	175	89	110
DMP65R-BU6DA Antenna	73.6	23.1	10.1	11.79	5.15	3.19	7.30	1.23	1.41	126	63	79
B14 4478 RRH	20.5	15.8	10.7	2.24	1.52	1.30	1.92	1.20	1.20	23	16	18
RRUS-32 B2 RRH (Shielded)	20.5	11.8	10.7	1.68	1.52	1.73	1.92	1.20	1.20	17	16	16
RRUS-32 B2 RRH	29.6	14.5	9.4	2.97	1.93	2.04	3.15	1.20	1.23	31	20	23
RRUS-32 B2 RRH (Side)	29.6	10.9	14.5	2.23	2.97	2.72	2.04	1.21	1.20	23	31	29
B5/B12 4449 RRH	17.3	15.6	12.8	1.87	1.53	1.11	1.35	1.20	1.20	19	16	17
B5/B12 4449 RRH (Side)	17.3	11.7	15.6	1.40	1.87	1.48	1.11	1.20	1.20	15	19	18
LGP21401 TMA	16.8	5.1	11.4	0.59	1.32	3.31	1.47	1.24	1.20	6	14	12

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	17	9	11
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	56	25	33
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	40	18	23
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	6	4	5
RRUS-32 B2 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	5	4	4
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	9	5	6
RRUS-32 B2 RRH (Side)	27.2	9.1	12.1	1.71	2.29	3.00	2.25	1.22	1.20	7	9	8
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	5	4	4
B5/B12 4449 RRH (Side)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	4	5	5
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	3	3

Date: 11/11/2019
Project Name: LISBON-MEL RD
Project No.: CT2058
Designed By: RL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	150	(deg)	Ice Thickness =	1.19	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)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	348	185	307
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	1128	513	974
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	802	355	690
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	128	79	115
RRUS-32 B2 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	64	79	68
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	173	105	156
RRUS-32 B2 RRH (Side)	27.2	6.1	12.1	1.14	2.29	4.50	2.25	1.29	1.20	93	173	113
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	103	82	98
B5/B12 4449 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	52	103	65
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	23	68	34

WIND LOADS WITH ICE:

7770 Antenna	57.4	13.4	7.4	5.33	2.94	4.29	7.78	1.28	1.43	59	36	53
DMP65R-BU8DA Antenna	98.4	23.1	10.1	15.76	6.88	4.26	9.77	1.28	1.49	175	89	153
DMP65R-BU6DA Antenna	73.6	23.1	10.1	11.79	5.15	3.19	7.30	1.23	1.41	126	63	110
B14 4478 RRH	20.5	15.8	10.7	2.24	1.52	1.30	1.92	1.20	1.20	23	16	21
RRUS-32 B2 RRH (Shielded)	20.5	7.9	10.7	1.12	1.52	2.60	1.92	1.20	1.20	12	16	13
RRUS-32 B2 RRH	29.6	14.5	9.4	2.97	1.93	2.04	3.15	1.20	1.23	31	20	28
RRUS-32 B2 RRH (Side)	29.6	7.2	14.5	1.49	2.97	4.09	2.04	1.27	1.20	16	31	20
B5/B12 4449 RRH	17.3	15.6	12.8	1.87	1.53	1.11	1.35	1.20	1.20	19	16	19
B5/B12 4449 RRH (Side)	17.3	7.8	15.6	0.93	1.87	2.22	1.11	1.20	1.20	10	19	12
LGP21401 TMA	16.8	5.1	11.4	0.59	1.32	3.31	1.47	1.24	1.20	6	14	8

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	17	9	15
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	56	25	48
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	40	18	34
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	6	4	6
RRUS-32 B2 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	3	4	3
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	9	5	8
RRUS-32 B2 RRH (Side)	27.2	6.1	12.1	1.14	2.29	4.50	2.25	1.29	1.20	5	9	6
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	5	4	5
B5/B12 4449 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	3	5	3
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	3	2

Date: 11/11/2019
Project Name: LISBON-MEL RD
Project No.: CT2058
Designed By: RL **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.19 in.
Density of ice: 56 pcf

7770 Antenna

Weight of ice based on total radial SF area:

Height (in):	55.0	
Width (in):	11.0	
Depth (in):	5.0	
Total weight of ice on object:		88 lbs
Weight of object:	35.0 lbs	
Combined weight of ice and object:		123 lbs

DMP65R-BU8DA Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	20.7	
Depth (in):	7.7	
Total weight of ice on object:		271 lbs
Weight of object:	96.0 lbs	
Combined weight of ice and object:		367 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:		201 lbs
Weight of object:	80.0 lbs	
Combined weight of ice and object:		281 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:		50 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		110 lbs

B14 4478 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:		37 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		97 lbs

B5/B12 4449 RRH

Weight of ice based on total radial SF area:

Height (in):	14.9	
Width (in):	13.2	
Depth (in):	10.4	
Total weight of ice on object:		32 lbs
Weight of object:	73.0 lbs	
Combined weight of ice and object:		105 lbs

LGP21401 TMA

Weight of ice based on total radial SF area:

Height (in):	14.4	
Width (in):	2.7	
Depth (in):	9.0	
Total weight of ice on object:		18 lbs
Weight of object:	19.0 lbs	
Combined weight of ice and object:		37 lbs

Squid Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in):	24.0	
Diameter(in):	9.7	
Total weight of ice on object:		32 lbs
Weight of object:	33 lbs	
Combined weight of ice and object:		65 lbs

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:		18 plf

5/8" Round Bar

Per foot weight of ice:

diameter (in):	0.625	
Per foot weight of ice on object:		3 plf

3/4" Round Bar

Per foot weight of ice:

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

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:

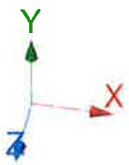
diameter (in):	2.88	
Per foot weight of ice on object:		6 plf

HUDSON
Design Group LLC

Mount Calculations
(Existing Conditions)

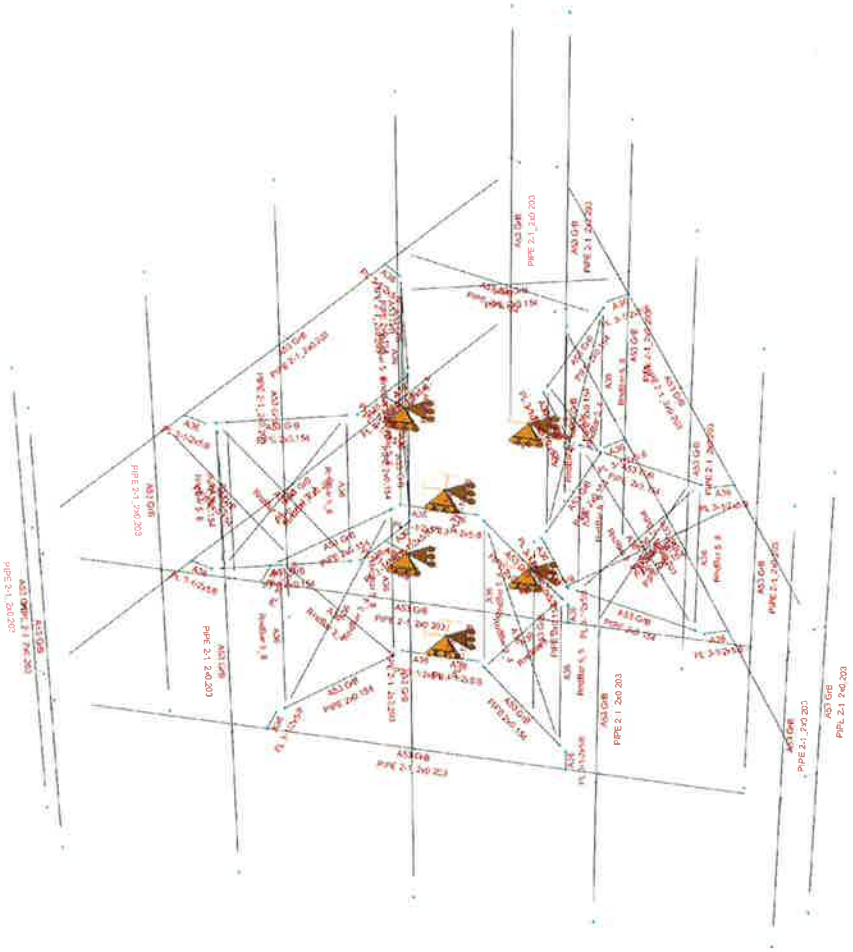
Bentley

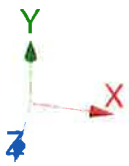
Current Date: 11/11/2019 12:22 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2058\3C-4C\Rev. 1\CT2058 (LTE 3C 4C).re



Bentley

Current Date: 11/11/2019 12:22 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2058\3C-4C\Rev. 1\CT2058 (LTE 3C 4C).re

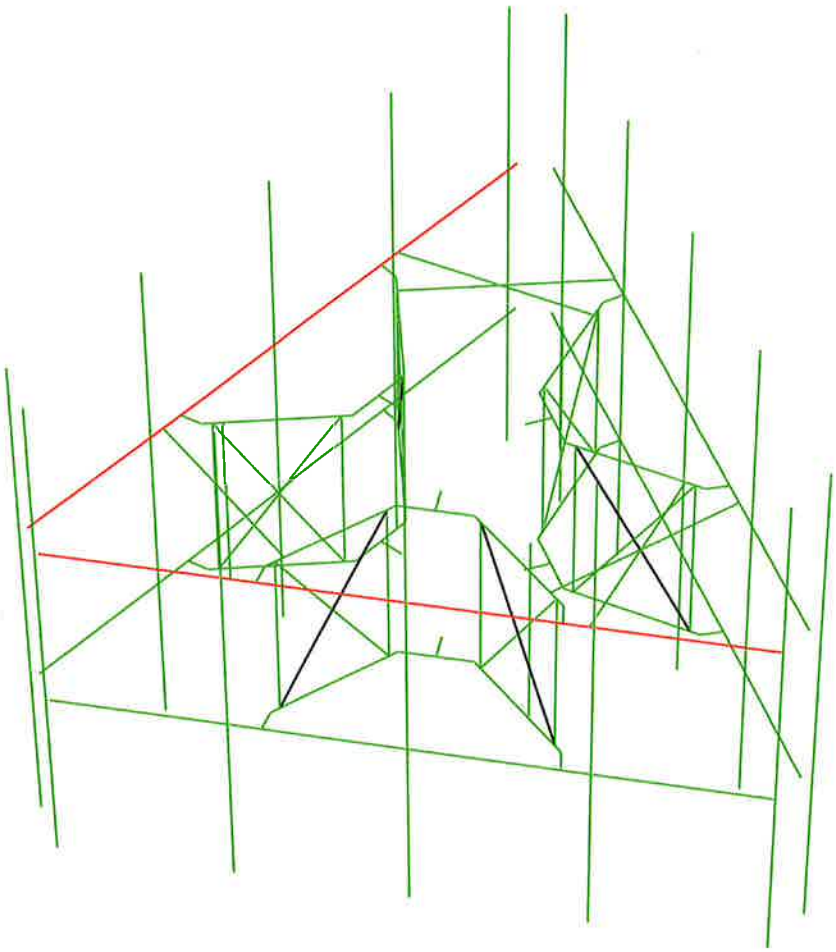


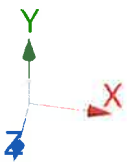


Bentley

Current Date: 11/11/2019 12:22 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2058\3C-4C\Rev. 1\CT2058 (LTE 3C 4C).re

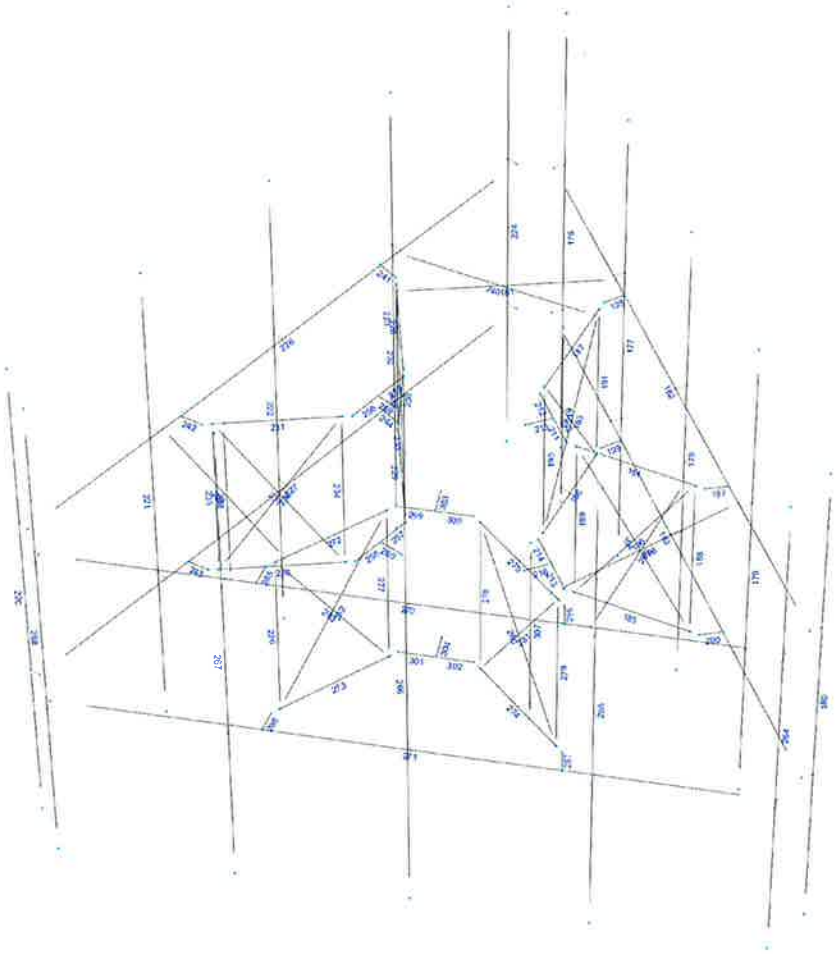
Not designed
Error on design
Design O.K.
With warnings

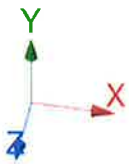




Bentley

Current Date: 11/11/2019 12:23 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2058\3C-4C\Rev. 1\CT2058 (LTE 3C 4C).re





Bentley

Current Date: 11/11/2019 12:23 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2058\3C-4C\Rev. 1\CT2058 (LTE 3C 4C).retx\

Load data

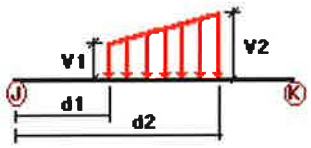
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
W0	Wind Load 0/60/120 deg	No	WIND
W30	Wind Load 30/90/150 deg	No	WIND
Di	Ice Load	No	LL
Wi0	Ice Wind Load 0/60/120 deg	No	WIND
Wi30	Ice Wind Load 30/90/150 deg	No	WIND
WL0	WL 30 mph 0/60/120 deg	No	WIND
WL30	WL 30 mph 30/90/150 deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load End of Mount	No	LL
LLa1	250 lb Live Load Antenna 1	No	LL
LLa2	250 lb Live Load Antenna 2	No	LL
LLa3	250 lb Live Load Antenna 3	No	LL

Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
W0	176	z	-0.018	-0.018	0.00	No	100.00	Yes
	177	z	-0.018	-0.018	0.00	No	100.00	Yes
	178	z	-0.018	-0.018	0.00	No	100.00	Yes
	179	z	-0.018	-0.018	0.00	No	100.00	Yes
	180	z	-0.018	-0.018	0.00	No	100.00	Yes
	181	z	-0.015	-0.015	0.00	No	100.00	Yes
	182	z	-0.018	-0.018	0.00	No	100.00	Yes
	183	z	-0.018	-0.018	0.00	No	100.00	Yes
	184	z	-0.015	-0.015	0.00	No	100.00	Yes
	185	z	-0.015	-0.015	0.00	No	100.00	Yes
	186	z	-0.015	-0.015	0.00	No	100.00	Yes
	187	z	-0.015	-0.015	0.00	No	100.00	Yes
	188	z	-0.004	-0.004	0.00	No	100.00	Yes
	189	z	-0.004	-0.004	0.00	No	100.00	Yes
	190	z	-0.004	-0.004	0.00	No	100.00	Yes

191	z	-0.004	-0.004	0.00	No	100.00	Yes
192	z	-0.005	-0.005	0.00	No	100.00	Yes
193	z	-0.005	-0.005	0.00	No	100.00	Yes
194	z	-0.005	-0.005	0.00	No	100.00	Yes
195	z	-0.005	-0.005	0.00	No	100.00	Yes
196	z	-0.015	-0.015	0.00	No	100.00	Yes
197	z	-0.001	-0.001	0.00	No	100.00	Yes
198	z	-0.001	-0.001	0.00	No	100.00	Yes
199	z	-0.001	-0.001	0.00	No	100.00	Yes
200	z	-0.001	-0.001	0.00	No	100.00	Yes
211	z	-0.001	-0.001	0.00	No	100.00	Yes
212	z	-0.001	-0.001	0.00	No	100.00	Yes
213	z	-0.001	-0.001	0.00	No	100.00	Yes
214	z	-0.001	-0.001	0.00	No	100.00	Yes
215	z	-0.003	-0.003	0.00	No	100.00	Yes
216	z	-0.003	-0.003	0.00	No	100.00	Yes
219	z	-0.015	-0.015	0.00	No	100.00	Yes
220	z	-0.018	-0.018	0.00	No	100.00	Yes
221	z	-0.018	-0.018	0.00	No	100.00	Yes
222	z	-0.018	-0.018	0.00	No	100.00	Yes
223	z	-0.018	-0.018	0.00	No	100.00	Yes
224	z	-0.018	-0.018	0.00	No	100.00	Yes
225	z	-0.015	-0.015	0.00	No	100.00	Yes
226	z	-0.018	-0.018	0.00	No	100.00	Yes
227	z	-0.018	-0.018	0.00	No	100.00	Yes
228	z	-0.015	-0.015	0.00	No	100.00	Yes
229	z	-0.015	-0.015	0.00	No	100.00	Yes
230	z	-0.015	-0.015	0.00	No	100.00	Yes
231	z	-0.015	-0.015	0.00	No	100.00	Yes
232	z	-0.004	-0.004	0.00	No	100.00	Yes
233	z	-0.004	-0.004	0.00	No	100.00	Yes
235	z	-0.004	-0.004	0.00	No	100.00	Yes
236	z	-0.005	-0.005	0.00	No	100.00	Yes
237	z	-0.005	-0.005	0.00	No	100.00	Yes
238	z	-0.005	-0.005	0.00	No	100.00	Yes
239	z	-0.005	-0.005	0.00	No	100.00	Yes
240	z	-0.015	-0.015	0.00	No	100.00	Yes
241	z	-0.001	-0.001	0.00	No	100.00	Yes
242	z	-0.001	-0.001	0.00	No	100.00	Yes
243	z	-0.001	-0.001	0.00	No	100.00	Yes
244	z	-0.001	-0.001	0.00	No	100.00	Yes
255	z	-0.001	-0.001	0.00	No	100.00	Yes
256	z	-0.001	-0.001	0.00	No	100.00	Yes
257	z	-0.001	-0.001	0.00	No	100.00	Yes
258	z	-0.001	-0.001	0.00	No	100.00	Yes
259	z	-0.003	-0.003	0.00	No	100.00	Yes
260	z	-0.003	-0.003	0.00	No	100.00	Yes
264	z	-0.018	-0.018	0.00	No	100.00	Yes
265	z	-0.018	-0.018	0.00	No	100.00	Yes
266	z	-0.018	-0.018	0.00	No	100.00	Yes
267	z	-0.018	-0.018	0.00	No	100.00	Yes
268	z	-0.018	-0.018	0.00	No	100.00	Yes
269	z	-0.015	-0.015	0.00	No	100.00	Yes
270	z	-0.018	-0.018	0.00	No	100.00	Yes
271	z	-0.018	-0.018	0.00	No	100.00	Yes
272	z	-0.015	-0.015	0.00	No	100.00	Yes
273	z	-0.015	-0.015	0.00	No	100.00	Yes
274	z	-0.015	-0.015	0.00	No	100.00	Yes
275	z	-0.015	-0.015	0.00	No	100.00	Yes
276	z	-0.004	-0.004	0.00	No	100.00	Yes

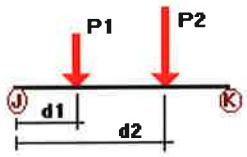
	277	z	-0.004	-0.004	0.00	No	100.00	Yes
	278	z	-0.004	-0.004	0.00	No	100.00	Yes
	279	z	-0.004	-0.004	0.00	No	100.00	Yes
	280	z	-0.005	-0.005	0.00	No	100.00	Yes
	281	z	-0.005	-0.005	0.00	No	100.00	Yes
	282	z	-0.005	-0.005	0.00	No	100.00	Yes
	283	z	-0.005	-0.005	0.00	No	100.00	Yes
	284	z	-0.015	-0.015	0.00	No	100.00	Yes
	285	z	-0.001	-0.001	0.00	No	100.00	Yes
	286	z	-0.001	-0.001	0.00	No	100.00	Yes
	287	z	-0.001	-0.001	0.00	No	100.00	Yes
	288	z	-0.001	-0.001	0.00	No	100.00	Yes
	299	z	-0.001	-0.001	0.00	No	100.00	Yes
	300	z	-0.001	-0.001	0.00	No	100.00	Yes
	301	z	-0.001	-0.001	0.00	No	100.00	Yes
	302	z	-0.001	-0.001	0.00	No	100.00	Yes
	303	z	-0.003	-0.003	0.00	No	100.00	Yes
	304	z	-0.003	-0.003	0.00	No	100.00	Yes
	307	z	-0.015	-0.015	0.00	No	100.00	Yes
W30	176	x	-0.018	-0.018	0.00	No	100.00	Yes
	177	x	-0.018	-0.018	0.00	No	100.00	Yes
	178	x	-0.018	-0.018	0.00	No	100.00	Yes
	179	x	-0.018	-0.018	0.00	No	100.00	Yes
	180	x	-0.018	-0.018	0.00	No	100.00	Yes
	181	x	-0.015	-0.015	0.00	No	100.00	Yes
	182	x	-0.018	-0.018	0.00	No	100.00	Yes
	183	x	-0.018	-0.018	0.00	No	100.00	Yes
	184	x	-0.015	-0.015	0.00	No	100.00	Yes
	185	x	-0.015	-0.015	0.00	No	100.00	Yes
	186	x	-0.015	-0.015	0.00	No	100.00	Yes
	187	x	-0.015	-0.015	0.00	No	100.00	Yes
	188	x	-0.004	-0.004	0.00	No	100.00	Yes
	189	x	-0.004	-0.004	0.00	No	100.00	Yes
	190	x	-0.004	-0.004	0.00	No	100.00	Yes
	191	x	-0.004	-0.004	0.00	No	100.00	Yes
	192	x	-0.005	-0.005	0.00	No	100.00	Yes
	193	x	-0.005	-0.005	0.00	No	100.00	Yes
	194	x	-0.005	-0.005	0.00	No	100.00	Yes
	195	x	-0.005	-0.005	0.00	No	100.00	Yes
	196	x	-0.015	-0.015	0.00	No	100.00	Yes
	197	x	-0.001	-0.001	0.00	No	100.00	Yes
	198	x	-0.001	-0.001	0.00	No	100.00	Yes
	199	x	-0.001	-0.001	0.00	No	100.00	Yes
	200	x	-0.001	-0.001	0.00	No	100.00	Yes
	211	x	-0.001	-0.001	0.00	No	100.00	Yes
	212	x	-0.001	-0.001	0.00	No	100.00	Yes
	213	x	-0.001	-0.001	0.00	No	100.00	Yes
	214	x	-0.001	-0.001	0.00	No	100.00	Yes
	215	x	-0.003	-0.003	0.00	No	100.00	Yes
	216	x	-0.003	-0.003	0.00	No	100.00	Yes
	219	x	-0.015	-0.015	0.00	No	100.00	Yes
	220	x	-0.018	-0.018	0.00	No	100.00	Yes
	221	x	-0.018	-0.018	0.00	No	100.00	Yes
	222	x	-0.018	-0.018	0.00	No	100.00	Yes
	223	x	-0.018	-0.018	0.00	No	100.00	Yes
	224	x	-0.018	-0.018	0.00	No	100.00	Yes
	225	x	-0.015	-0.015	0.00	No	100.00	Yes
	226	x	-0.018	-0.018	0.00	No	100.00	Yes
	227	x	-0.018	-0.018	0.00	No	100.00	Yes
	228	x	-0.015	-0.015	0.00	No	100.00	Yes

	229	x	-0.015	-0.015	0.00	No	100.00	Yes
	230	x	-0.015	-0.015	0.00	No	100.00	Yes
	231	x	-0.015	-0.015	0.00	No	100.00	Yes
	232	x	-0.004	-0.004	0.00	No	100.00	Yes
	233	x	-0.004	-0.004	0.00	No	100.00	Yes
	235	x	-0.004	-0.004	0.00	No	100.00	Yes
	236	x	-0.005	-0.005	0.00	No	100.00	Yes
	237	x	-0.005	-0.005	0.00	No	100.00	Yes
	238	x	-0.005	-0.005	0.00	No	100.00	Yes
	239	x	-0.005	-0.005	0.00	No	100.00	Yes
	240	x	-0.015	-0.015	0.00	No	100.00	Yes
	241	x	-0.001	-0.001	0.00	No	100.00	Yes
	242	x	-0.001	-0.001	0.00	No	100.00	Yes
	243	x	-0.001	-0.001	0.00	No	100.00	Yes
	244	x	-0.001	-0.001	0.00	No	100.00	Yes
	255	x	-0.001	-0.001	0.00	No	100.00	Yes
	256	x	-0.001	-0.001	0.00	No	100.00	Yes
	257	x	-0.001	-0.001	0.00	No	100.00	Yes
	258	x	-0.001	-0.001	0.00	No	100.00	Yes
	259	x	-0.003	-0.003	0.00	No	100.00	Yes
	260	x	-0.003	-0.003	0.00	No	100.00	Yes
	264	x	-0.018	-0.018	0.00	No	100.00	Yes
	265	x	-0.018	-0.018	0.00	No	100.00	Yes
	266	x	-0.018	-0.018	0.00	No	100.00	Yes
	267	x	-0.018	-0.018	0.00	No	100.00	Yes
	268	x	-0.018	-0.018	0.00	No	100.00	Yes
	269	x	-0.015	-0.015	0.00	No	100.00	Yes
	270	x	-0.018	-0.018	0.00	No	100.00	Yes
	271	x	-0.018	-0.018	0.00	No	100.00	Yes
	272	x	-0.015	-0.015	0.00	No	100.00	Yes
	273	x	-0.015	-0.015	0.00	No	100.00	Yes
	274	x	-0.015	-0.015	0.00	No	100.00	Yes
	275	x	-0.015	-0.015	0.00	No	100.00	Yes
	276	x	-0.004	-0.004	0.00	No	100.00	Yes
	277	x	-0.004	-0.004	0.00	No	100.00	Yes
	278	x	-0.004	-0.004	0.00	No	100.00	Yes
	279	x	-0.004	-0.004	0.00	No	100.00	Yes
	280	x	-0.005	-0.005	0.00	No	100.00	Yes
	281	x	-0.005	-0.005	0.00	No	100.00	Yes
	282	x	-0.005	-0.005	0.00	No	100.00	Yes
	283	x	-0.005	-0.005	0.00	No	100.00	Yes
	284	x	-0.015	-0.015	0.00	No	100.00	Yes
	285	x	-0.001	-0.001	0.00	No	100.00	Yes
	286	x	-0.001	-0.001	0.00	No	100.00	Yes
	287	x	-0.001	-0.001	0.00	No	100.00	Yes
	288	x	-0.001	-0.001	0.00	No	100.00	Yes
	299	x	-0.001	-0.001	0.00	No	100.00	Yes
	300	x	-0.001	-0.001	0.00	No	100.00	Yes
	301	x	-0.001	-0.001	0.00	No	100.00	Yes
	302	x	-0.001	-0.001	0.00	No	100.00	Yes
	303	x	-0.003	-0.003	0.00	No	100.00	Yes
	304	x	-0.003	-0.003	0.00	No	100.00	Yes
	307	x	-0.015	-0.015	0.00	No	100.00	Yes
Di	176	y	-0.006	-0.006	0.00	No	100.00	Yes
	177	y	-0.006	-0.006	0.00	No	100.00	Yes
	178	y	-0.006	-0.006	0.00	No	100.00	Yes
	179	y	-0.006	-0.006	0.00	No	100.00	Yes
	180	y	-0.006	-0.006	0.00	No	100.00	Yes
	181	y	-0.005	-0.005	0.00	No	100.00	Yes
	182	y	-0.006	-0.006	0.00	No	100.00	Yes

183	y	-0.006	-0.006	0.00	No	100.00	Yes
184	y	-0.005	-0.005	0.00	No	100.00	Yes
185	y	-0.005	-0.005	0.00	No	100.00	Yes
186	y	-0.005	-0.005	0.00	No	100.00	Yes
187	y	-0.005	-0.005	0.00	No	100.00	Yes
188	y	-0.003	-0.003	0.00	No	100.00	Yes
189	y	-0.003	-0.003	0.00	No	100.00	Yes
190	y	-0.003	-0.003	0.00	No	100.00	Yes
191	y	-0.003	-0.003	0.00	No	100.00	Yes
192	y	-0.003	-0.003	0.00	No	100.00	Yes
193	y	-0.003	-0.003	0.00	No	100.00	Yes
194	y	-0.003	-0.003	0.00	No	100.00	Yes
195	y	-0.003	-0.003	0.00	No	100.00	Yes
196	y	-0.005	-0.005	0.00	No	100.00	Yes
197	y	-0.007	-0.007	0.00	No	100.00	Yes
198	y	-0.007	-0.007	0.00	No	100.00	Yes
199	y	-0.007	-0.007	0.00	No	100.00	Yes
200	y	-0.007	-0.007	0.00	No	100.00	Yes
211	y	-0.007	-0.007	0.00	No	100.00	Yes
212	y	-0.007	-0.007	0.00	No	100.00	Yes
213	y	-0.007	-0.007	0.00	No	100.00	Yes
214	y	-0.007	-0.007	0.00	No	100.00	Yes
215	y	-0.018	-0.018	0.00	No	100.00	Yes
216	y	-0.018	-0.018	0.00	No	100.00	Yes
219	y	-0.005	-0.005	0.00	No	100.00	Yes
220	y	-0.006	-0.006	0.00	No	100.00	Yes
221	y	-0.006	-0.006	0.00	No	100.00	Yes
222	y	-0.006	-0.006	0.00	No	100.00	Yes
223	y	-0.006	-0.006	0.00	No	100.00	Yes
224	y	-0.006	-0.006	0.00	No	100.00	Yes
225	y	-0.005	-0.005	0.00	No	100.00	Yes
226	y	-0.006	-0.006	0.00	No	100.00	Yes
227	y	-0.006	-0.006	0.00	No	100.00	Yes
228	y	-0.005	-0.005	0.00	No	100.00	Yes
229	y	-0.005	-0.005	0.00	No	100.00	Yes
230	y	-0.005	-0.005	0.00	No	100.00	Yes
231	y	-0.005	-0.005	0.00	No	100.00	Yes
232	y	-0.003	-0.003	0.00	No	100.00	Yes
233	y	-0.003	-0.003	0.00	No	100.00	Yes
235	y	-0.003	-0.003	0.00	No	100.00	Yes
236	y	-0.003	-0.003	0.00	No	100.00	Yes
237	y	-0.003	-0.003	0.00	No	100.00	Yes
238	y	-0.003	-0.003	0.00	No	100.00	Yes
239	y	-0.003	-0.003	0.00	No	100.00	Yes
240	y	-0.005	-0.005	0.00	No	100.00	Yes
241	y	-0.007	-0.007	0.00	No	100.00	Yes
242	y	-0.007	-0.007	0.00	No	100.00	Yes
243	y	-0.007	-0.007	0.00	No	100.00	Yes
244	y	-0.007	-0.007	0.00	No	100.00	Yes
255	y	-0.007	-0.007	0.00	No	100.00	Yes
256	y	-0.007	-0.007	0.00	No	100.00	Yes
257	y	-0.007	-0.007	0.00	No	100.00	Yes
258	y	-0.007	-0.007	0.00	No	100.00	Yes
259	y	-0.018	-0.018	0.00	No	100.00	Yes
260	y	-0.018	-0.018	0.00	No	100.00	Yes
264	y	-0.006	-0.006	0.00	No	100.00	Yes
265	y	-0.006	-0.006	0.00	No	100.00	Yes
266	y	-0.006	-0.006	0.00	No	100.00	Yes
267	y	-0.006	-0.006	0.00	No	100.00	Yes
268	y	-0.006	-0.006	0.00	No	100.00	Yes

269	y	-0.005	-0.005	0.00	No	100.00	Yes
270	y	-0.006	-0.006	0.00	No	100.00	Yes
271	y	-0.006	-0.006	0.00	No	100.00	Yes
272	y	-0.005	-0.005	0.00	No	100.00	Yes
273	y	-0.005	-0.005	0.00	No	100.00	Yes
274	y	-0.005	-0.005	0.00	No	100.00	Yes
275	y	-0.005	-0.005	0.00	No	100.00	Yes
276	y	-0.003	-0.003	0.00	No	100.00	Yes
277	y	-0.003	-0.003	0.00	No	100.00	Yes
278	y	-0.003	-0.003	0.00	No	100.00	Yes
279	y	-0.003	-0.003	0.00	No	100.00	Yes
280	y	-0.003	-0.003	0.00	No	100.00	Yes
281	y	-0.003	-0.003	0.00	No	100.00	Yes
282	y	-0.003	-0.003	0.00	No	100.00	Yes
283	y	-0.003	-0.003	0.00	No	100.00	Yes
284	y	-0.005	-0.005	0.00	No	100.00	Yes
285	y	-0.007	-0.007	0.00	No	100.00	Yes
286	y	-0.007	-0.007	0.00	No	100.00	Yes
287	y	-0.007	-0.007	0.00	No	100.00	Yes
288	y	-0.007	-0.007	0.00	No	100.00	Yes
299	y	-0.007	-0.007	0.00	No	100.00	Yes
300	y	-0.007	-0.007	0.00	No	100.00	Yes
301	y	-0.007	-0.007	0.00	No	100.00	Yes
302	y	-0.007	-0.007	0.00	No	100.00	Yes
303	y	-0.018	-0.018	0.00	No	100.00	Yes
304	y	-0.018	-0.018	0.00	No	100.00	Yes
307	y	-0.005	-0.005	0.00	No	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	176	y	-0.018	3.00	No
		y	-0.018	7.00	No
		y	-0.038	5.00	No
	178	y	-0.04	2.50	No
		y	-0.04	7.50	No
		y	-0.06	5.00	No
	179	y	-0.133	5.00	No
	180	y	-0.04	2.50	No
		y	-0.04	7.50	No
	219	y	-0.033	2.00	No
	220	y	-0.018	3.00	No
		y	-0.018	7.00	No
		y	-0.038	5.00	No
	222	y	-0.048	1.50	No
		y	-0.048	8.50	No
		y	-0.06	5.00	No
	223	y	-0.133	5.00	No
	224	y	-0.048	1.50	No

		y	-0.048	8.50	No
	264	y	-0.018	3.00	No
		y	-0.018	7.00	No
		y	-0.038	5.00	No
	266	y	-0.048	1.50	No
		y	-0.048	8.50	No
		y	-0.06	5.00	No
	267	y	-0.133	5.00	No
	268	y	-0.048	1.50	No
		y	-0.048	8.50	No
	307	y	-0.033	2.00	No
W0	176	z	-0.113	3.00	No
		z	-0.113	7.00	No
		z	-0.057	5.00	No
	178	z	-0.234	2.50	No
		z	-0.234	7.50	No
		z	-0.083	5.00	No
	179	z	-0.163	5.00	No
	180	z	-0.234	2.50	No
		z	-0.234	7.50	No
	219	z	-0.071	2.00	No
	220	z	-0.113	3.00	No
		z	-0.113	7.00	No
		z	-0.057	5.00	No
	222	z	-0.334	1.50	No
		z	-0.334	8.50	No
		z	-0.083	5.00	No
	223	z	-0.163	5.00	No
	224	z	-0.334	1.50	No
		z	-0.334	8.50	No
	264	z	-0.174	3.00	No
		z	-0.174	7.00	No
	266	z	-0.565	1.50	No
		z	-0.565	8.50	No
	267	z	-0.182	5.00	No
	268	z	-0.565	1.50	No
		z	-0.565	8.50	No
	307	z	-0.071	2.00	No
W30	176	x	-0.154	3.00	No
		x	-0.154	7.00	No
		x	-0.034	5.00	No
	178	x	-0.346	2.50	No
		x	-0.346	7.50	No
		x	-0.068	5.00	No
	179	x	-0.113	5.00	No
	180	x	-0.346	2.50	No
		x	-0.346	7.50	No
	219	x	-0.071	2.00	No
	220	x	-0.154	3.00	No
		x	-0.154	7.00	No
		x	-0.034	5.00	No
	222	x	-0.488	1.50	No
		x	-0.488	8.50	No
		x	-0.068	5.00	No
	223	x	-0.113	5.00	No
	224	x	-0.488	1.50	No
		x	-0.488	8.50	No
	264	x	-0.093	3.00	No
		x	-0.093	7.00	No
		x	-0.068	5.00	No

	266	x	-0.257	1.50	No
		x	-0.257	8.50	No
		x	-0.079	5.00	No
	267	x	-0.173	5.00	No
	268	x	-0.257	1.50	No
		x	-0.257	8.50	No
	307	x	-0.071	2.00	No
Di	176	y	-0.044	3.00	No
		y	-0.044	7.00	No
		y	-0.037	5.00	No
	178	y	-0.10	2.50	No
		y	-0.10	7.50	No
		y	-0.037	5.00	No
	179	y	-0.082	5.00	No
	180	y	-0.10	2.50	No
		y	-0.10	7.50	No
	219	y	-0.032	2.00	No
	220	y	-0.044	3.00	No
		y	-0.044	7.00	No
		y	-0.037	5.00	No
	222	y	-0.135	1.50	No
		y	-0.135	8.50	No
		y	-0.037	5.00	No
	223	y	-0.082	5.00	No
	224	y	-0.135	1.50	No
		y	-0.135	8.50	No
	264	y	-0.044	3.00	No
		y	-0.044	7.00	No
		y	-0.037	5.00	No
	266	y	-0.135	1.50	No
		y	-0.135	8.50	No
		y	-0.037	5.00	No
	267	y	-0.082	5.00	No
	268	y	-0.135	1.50	No
		y	-0.135	8.50	No
	307	y	-0.032	2.00	No
Wi0	176	z	-0.021	3.00	No
		z	-0.021	7.00	No
		z	-0.012	5.00	No
	178	z	-0.04	2.50	No
		z	-0.04	7.50	No
		z	-0.016	5.00	No
	179	z	-0.029	5.00	No
	180	z	-0.04	2.50	No
		z	-0.04	7.50	No
	219	z	-0.013	2.00	No
	220	z	-0.021	3.00	No
		z	-0.021	7.00	No
		z	-0.012	5.00	No
	222	z	-0.056	1.50	No
		z	-0.056	8.50	No
		z	-0.016	5.00	No
	223	z	-0.029	5.00	No
	224	z	-0.056	1.50	No
		z	-0.056	8.50	No
	264	z	-0.031	3.00	No
		z	-0.031	7.00	No
	266	z	-0.089	1.50	No
		z	-0.089	8.50	No
	267	z	-0.036	5.00	No

	268	z	-0.089	1.50	No
		z	-0.089	8.50	No
	307	z	-0.013	2.00	No
Wi30	176	x	-0.027	3.00	No
		x	-0.027	7.00	No
		x	-0.008	5.00	No
	178	x	-0.055	2.50	No
		x	-0.055	7.50	No
		x	-0.013	5.00	No
	179	x	-0.02	5.00	No
	180	x	-0.055	2.50	No
		x	-0.055	7.50	No
	219	x	-0.013	2.00	No
	220	x	-0.027	3.00	No
		x	-0.027	7.00	No
		x	-0.008	5.00	No
	222	x	-0.077	1.50	No
		x	-0.077	8.50	No
		x	-0.013	5.00	No
	223	x	-0.02	5.00	No
	224	x	-0.077	1.50	No
		x	-0.077	8.50	No
	264	x	-0.019	3.00	No
		x	-0.019	7.00	No
		x	-0.014	5.00	No
	266	x	-0.045	1.50	No
		x	-0.045	8.50	No
		x	-0.016	5.00	No
	267	x	-0.031	5.00	No
	268	x	-0.045	1.50	No
		x	-0.045	8.50	No
	307	x	-0.013	2.00	No
WL0	176	z	-0.006	3.00	No
		z	-0.006	7.00	No
		z	-0.003	5.00	No
	178	z	-0.012	2.50	No
		z	-0.012	7.50	No
		z	-0.004	5.00	No
	179	z	-0.008	5.00	No
	180	z	-0.012	2.50	No
		z	-0.012	7.50	No
	219	z	-0.004	2.00	No
	220	z	-0.006	3.00	No
		z	-0.006	7.00	No
		z	-0.003	5.00	No
	222	z	-0.017	1.50	No
		z	-0.017	8.50	No
		z	-0.004	5.00	No
	223	z	-0.008	5.00	No
	224	z	-0.017	1.50	No
		z	-0.017	8.50	No
	264	z	-0.009	3.00	No
		z	-0.009	7.00	No
	266	z	-0.028	1.50	No
		z	-0.028	8.50	No
	267	z	-0.009	5.00	No
	268	z	-0.028	1.50	No
		z	-0.028	8.50	No
	307	z	-0.004	2.00	No
WL30	176	x	-0.008	3.00	No

		x	-0.008	7.00	No
		x	-0.002	5.00	No
	178	x	-0.018	2.50	No
		x	-0.018	7.50	No
		x	-0.003	5.00	No
	179	x	-0.006	5.00	No
	180	x	-0.018	2.50	No
		x	-0.018	7.50	No
	219	x	-0.004	2.00	No
	220	x	-0.008	3.00	No
		x	-0.008	7.00	No
		x	-0.002	5.00	No
	222	x	-0.025	1.50	No
		x	-0.025	8.50	No
		x	-0.003	5.00	No
	223	x	-0.006	5.00	No
	224	x	-0.025	1.50	No
		x	-0.025	8.50	No
	264	x	-0.005	3.00	No
		x	-0.005	7.00	No
		x	-0.003	5.00	No
	266	x	-0.013	1.50	No
		x	-0.013	8.50	No
		x	-0.004	5.00	No
	267	x	-0.009	5.00	No
	268	x	-0.013	1.50	No
		x	-0.013	8.50	No
	307	x	-0.004	2.00	No
LL1	270	y	-0.25	50.00	Yes
LL2	270	y	-0.25	100.00	Yes
LLa1	264	y	-0.25	50.00	Yes
LLa2	266	y	-0.25	50.00	Yes
LLa3	268	y	-0.25	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
W0	Wind Load 0/60/120 deg	No	0.00	0.00	0.00
W30	Wind Load 30/90/150 deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
Wi0	Ice Wind Load 0/60/120 deg	No	0.00	0.00	0.00
Wi30	Ice Wind Load 30/90/150 deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0/60/120 deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30/90/150 deg	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 End of Mount	No	0.00	0.00	0.00
LLa1	250 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	250 lb Live Load Antenna 3	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
W0	0.00	0.00	0.00
W30	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
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	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

Bentley

Current Date: 11/11/2019 12:23 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2058\3C-4C\Rev. 1\CT2058 (LTE 3C 4C).retx\

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2DL+W0
LC2=1.2DL+W30
LC3=1.2DL-W0
LC4=1.2DL-W30
LC5=0.9DL+W0
LC6=0.9DL+W30
LC7=0.9DL-W0
LC8=0.9DL-W30
LC9=1.2DL+Di+Wi0
LC10=1.2DL+Di+Wi30
LC11=1.2DL+Di-Wi0
LC12=1.2DL+Di-Wi30
LC13=1.2DL
LC15=1.2DL+1.5LL1
LC16=1.2DL+1.5LL2
LC17=1.2DL+WL0+1.5LLa1
LC18=1.2DL+WL30+1.5LLa1
LC19=1.2DL-WL0+1.5LLa1
LC20=1.2DL-WL30+1.5LLa1
LC21=1.2DL+WL0+1.5LLa2
LC22=1.2DL+WL30+1.5LLa2
LC23=1.2DL-WL0+1.5LLa2
LC24=1.2DL-WL30+1.5LLa2
LC25=1.2DL+WL0+1.5LLa3
LC26=1.2DL+WL30+1.5LLa3
LC27=1.2DL-WL0+1.5LLa3
LC28=1.2DL-WL30+1.5LLa3

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	PIPE 2-1_2x0.203	**176**	LC4 at 33.33%	0.17	OK	Eq. H1-1b
		177	LC1 at 33.33%	0.22	OK	Eq. H1-1b
		178	LC3 at 33.33%	0.35	OK	Eq. H1-1b
		179	LC3 at 33.33%	0.26	OK	Eq. H1-1b
		180	LC3 at 33.33%	0.22	OK	Eq. H1-1b
		182	LC2 at 28.91%	0.77	OK	Eq. H1-1b
		183	LC2 at 29.17%	0.68	OK	Eq. H1-1b
		220	LC2 at 33.33%	0.17	OK	Eq. H1-1b
		221	LC2 at 33.33%	0.27	OK	Eq. H1-1b
		222	LC2 at 66.67%	0.51	OK	Eq. H1-1b
		223	LC4 at 33.33%	0.25	OK	Eq. H1-1b
		224	LC2 at 66.67%	0.51	OK	Eq. H1-1b
		226	LC2 at 26.56%	1.25	N.G.	Eq. H3-6
		227	LC2 at 29.17%	0.80	OK	Eq. H1-1b
		264	LC20 at 33.33%	0.21	OK	Eq. H1-1b
		265	LC4 at 33.33%	0.22	OK	Eq. H1-1b
		266	LC3 at 66.67%	0.67	OK	Eq. H1-1b
		267	LC2 at 33.33%	0.27	OK	Eq. H1-1b
		268	LC3 at 66.67%	0.67	OK	Eq. H1-1b
		270	LC3 at 26.56%	1.29	N.G.	Eq. H3-6
		271	LC3 at 29.17%	1.00	OK	Eq. H1-1b

PIPE 2x0.154	**181**	LC2 at 100.00%	0.77	OK	Eq. H1-1b
	184	LC2 at 93.75%	0.36	OK	Eq. H1-1b
	185	LC2 at 93.75%	0.25	OK	Eq. H1-1b
	186	LC3 at 93.75%	0.26	OK	Eq. H1-1b
	187	LC2 at 13.75%	0.68	OK	Eq. H1-1b
	196	LC4 at 100.00%	0.27	OK	Eq. H1-1b
	219	LC2 at 8.33%	0.18	OK	Eq. H1-1b
	225	LC3 at 100.00%	0.88	OK	Eq. H1-1b
	228	LC2 at 14.06%	0.83	OK	Eq. H1-1b
	229	LC3 at 93.75%	0.25	OK	Eq. H1-1b
	230	LC4 at 93.75%	0.30	OK	Eq. H1-1b
	231	LC3 at 15.63%	0.55	OK	Eq. H1-1b
	240	LC4 at 50.00%	0.37	OK	Eq. H1-1b
	269	LC4 at 100.00%	0.32	OK	Eq. H1-1b
	272	LC1 at 14.06%	**0.92**	**OK**	Eq. H1-1b
	273	LC3 at 91.67%	0.30	OK	Eq. H1-1b
	274	LC1 at 93.75%	0.29	OK	Eq. H1-1b
	275	LC2 at 93.75%	0.34	OK	Eq. H1-1b
	284	LC1 at 50.00%	0.36	OK	Eq. H1-1b
	307	LC4 at 8.33%	0.15	OK	Eq. H1-1b
PL 11-1/4x5/8	**215**	LC12 at 100.00%	0.31	OK	Eq. H1-1b
	216	LC12 at 100.00%	0.20	OK	Eq. H1-1b
	259	LC9 at 100.00%	0.32	OK	Eq. H1-1b
	260	LC10 at 100.00%	0.20	OK	Eq. H1-1b
	303	LC11 at 100.00%	**0.33**	**OK**	Eq. H1-1b
	304	LC11 at 100.00%	0.22	OK	Eq. H1-1b
PL 3-1/2x5/8	**197**	LC2 at 100.00%	0.52	OK	Eq. H1-1b
	198	LC2 at 100.00%	0.63	OK	Eq. H3-6
	199	LC3 at 100.00%	0.39	OK	Eq. H1-1b
	200	LC9 at 100.00%	0.43	OK	Eq. H1-1b
	211	LC2 at 100.00%	0.69	OK	Eq. H1-1b
	212	LC11 at 0.00%	0.41	OK	Eq. H1-1b
	213	LC9 at 100.00%	0.52	OK	Eq. H1-1b
	214	LC3 at 0.00%	0.51	OK	Eq. H1-1b
	241	LC3 at 100.00%	0.57	OK	Eq. H1-1b
	242	LC4 at 100.00%	0.54	OK	Eq. H1-1b
	243	LC4 at 100.00%	0.45	OK	Eq. H1-1b
	244	LC2 at 100.00%	0.65	OK	Eq. H1-1b
	255	LC10 at 100.00%	0.71	OK	Eq. H3-6
	256	LC4 at 0.00%	0.69	OK	Eq. H1-1b
	257	LC11 at 100.00%	0.60	OK	Eq. H1-1b
	258	LC4 at 0.00%	0.55	OK	Eq. H1-1b
	285	LC3 at 100.00%	0.54	OK	Eq. H1-1b
	286	LC1 at 100.00%	0.59	OK	Eq. H1-1b
	287	LC2 at 100.00%	0.39	OK	Eq. H1-1b
	288	LC3 at 100.00%	0.67	OK	Eq. H1-1b
	299	LC3 at 100.00%	**0.77**	**OK**	Eq. H3-6
	300	LC1 at 0.00%	0.62	OK	Eq. H1-1b
	301	LC12 at 100.00%	0.60	OK	Eq. H1-1b
	302	LC1 at 0.00%	0.50	OK	Eq. H1-1b
RndBar 3_4	**192**	LC3 at 50.00%	0.18	OK	Eq. H1-1b
	193	LC3 at 0.00%	0.16	OK	Eq. H1-1b
	194	LC10 at 100.00%	0.23	With warnings	Eq. H1-1b
	195	LC3 at 0.00%	0.24	OK	Eq. H1-1b
	236	LC4 at 50.00%	0.24	OK	Eq. H1-1b
	237	LC4 at 0.00%	0.20	OK	Eq. H1-1b
	238	LC11 at 100.00%	0.27	With warnings	Eq. H1-1b
	239	LC10 at 100.00%	0.28	OK	Eq. H1-1b
	280	LC1 at 50.00%	0.17	OK	Eq. H1-1b
	281	LC4 at 100.00%	0.17	OK	Eq. H1-1b

	282	LC11 at 100.00%	0.27	With warnings	Eq. H1-1b
	283	LC2 at 0.00%	**0.30**	**OK**	Eq. H1-1b
RndBar 5_8	**188**	LC1 at 18.75%	0.54	OK	Eq. H1-1a
	189	LC9 at 87.50%	0.47	OK	Eq. H1-1a
	190	LC3 at 87.50%	0.44	OK	Eq. H1-1a
	191	LC3 at 18.75%	0.49	OK	Eq. H1-1a
	232	LC3 at 50.00%	**0.63**	**OK**	Eq. H1-1a
	233	LC10 at 87.50%	0.55	OK	Eq. H1-1a
	234	LC12 at 87.50%	0.36	OK	Eq. H1-1a
	235	LC4 at 18.75%	0.52	OK	Eq. H1-1a
	276	LC4 at 18.75%	0.60	OK	Eq. H1-1a
	277	LC11 at 87.50%	0.54	OK	Eq. H1-1a
	278	LC17 at 87.50%	0.48	OK	Eq. H1-1a
	279	LC1 at 87.50%	0.61	OK	Eq. H1-1a

Bentley

Current Date: 11/11/2019 12:23 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2058\3C-4C\Rev. 1\CT2058 (LTE 3C 4C).retx\

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
290	1.0392	0.00	-0.60	0
291	1.7716	0.00	-0.2882	0
292	1.0392	-3.3333	-0.60	0
293	1.7716	-3.3333	-0.2882	0
294	1.1354	-3.3333	-1.3901	0
295	1.1354	0.00	-1.3901	0
296	0.4901	-6.6667	-7.2112	0
297	0.4901	3.3333	-7.2112	0
298	6.4901	-6.6667	3.1812	0
299	6.4901	3.3333	3.1812	0
306	4.1832	0.00	0.3707	0
307	4.1832	-3.3333	0.3707	0
308	1.7706	-3.3333	-3.8081	0
309	1.7706	0.00	-3.8081	0
310	4.0079	0.00	0.3228	0
311	4.0079	-3.3333	0.3228	0
312	1.9468	0.00	-0.2404	0
313	1.9468	-3.3333	-0.2404	0
314	1.1816	0.00	-1.5658	0
315	1.1816	-3.3333	-1.5658	0
316	1.7244	0.00	-3.6324	0

317	1.7244	-3.3333	-3.6324	0
320	4.9901	-6.6667	0.5831	0
321	4.9901	3.3333	0.5831	0
322	1.9901	-6.6667	-4.6131	0
323	1.9901	3.3333	-4.6131	0
324	4.5565	0.00	0.232	0
325	2.0773	0.00	-4.062	0
326	2.0773	-3.3333	-4.062	0
327	4.5565	-3.3333	0.232	0
328	3.4901	-6.6667	-2.015	0
329	3.4901	3.3333	-2.015	0
346	1.4535	0.00	-0.8392	0
347	1.4535	-3.3333	-0.8392	0
349	1.6792	0.00	-3.4602	0
350	3.8362	0.00	0.2758	0
354	1.2799	0.3333	-2.6991	0
356	-1.0392	0.00	-0.60	0
357	-1.1354	0.00	-1.3901	0
358	-1.0392	-3.3333	-0.60	0
359	-1.1354	-3.3333	-1.3901	0
360	-1.7716	-3.3333	-0.2882	0
361	-1.7716	0.00	-0.2882	0
362	-6.4901	-6.6667	3.1812	0
363	-6.4901	3.3333	3.1812	0
364	-0.4901	-6.6667	-7.2112	0
365	-0.4901	3.3333	-7.2112	0
372	-1.7706	0.00	-3.8081	0
373	-1.7706	-3.3333	-3.8081	0
374	-4.1832	-3.3333	0.3707	0
375	-4.1832	0.00	0.3707	0
377	-1.7244	-3.3333	-3.6324	0
378	-1.1816	0.00	-1.5658	0
379	-1.1816	-3.3333	-1.5658	0
380	-1.9468	0.00	-0.2404	0
381	-1.9468	-3.3333	-0.2404	0
382	-4.0079	0.00	0.3228	0
383	-4.0079	-3.3333	0.3228	0
386	-1.9901	-6.6667	-4.6131	0
387	-1.9901	3.3333	-4.6131	0
388	-4.9901	-6.6667	0.5831	0
389	-4.9901	3.3333	0.5831	0
390	-2.0773	0.00	-4.062	0
391	-4.5565	0.00	0.232	0
392	-4.5565	-3.3333	0.232	0
393	-2.0773	-3.3333	-4.062	0
394	-3.4901	-6.6667	-2.015	0
395	-3.4901	3.3333	-2.015	0
411	-6.4901	-3.3333	3.1812	0
412	-1.4535	0.00	-0.8392	0
413	-1.4535	-3.3333	-0.8392	0
415	-3.8362	0.00	0.2758	0
416	-1.6792	0.00	-3.4602	0
422	0.00	0.00	1.20	0
423	-0.6362	0.00	1.6783	0
424	0.00	-3.3333	1.20	0
425	-0.6362	-3.3333	1.6783	0
426	0.6362	-3.3333	1.6783	0
427	0.6362	0.00	1.6783	0
428	6.00	-6.6667	4.03	0
429	6.00	3.3333	4.03	0

430	-6.00	-6.6667	4.03	0
431	-6.00	3.3333	4.03	0
438	-2.4126	0.00	3.4374	0
439	-2.4126	-3.3333	3.4374	0
440	2.4126	-3.3333	3.4374	0
441	2.4126	0.00	3.4374	0
442	-2.2835	0.00	3.3096	0
443	-2.2835	-3.3333	3.3096	0
444	-0.7653	0.00	1.8062	0
445	-0.7653	-3.3333	1.8062	0
446	0.7653	0.00	1.8062	0
447	0.7653	-3.3333	1.8062	0
448	2.2835	0.00	3.3096	0
449	2.2835	-3.3333	3.3096	0
452	-3.00	-6.6667	4.03	0
453	-3.00	3.3333	4.03	0
454	3.00	-6.6667	4.03	0
455	3.00	3.3333	4.03	0
456	-2.4792	0.00	3.83	0
457	2.4792	0.00	3.83	0
458	2.4792	-3.3333	3.83	0
459	-2.4792	-3.3333	3.83	0
460	0.00	-6.6667	4.03	0
461	0.00	3.3333	4.03	0
476	3.00	-3.3333	4.03	0
478	0.00	0.00	1.6783	0
479	0.00	-3.3333	1.6783	0
481	2.157	0.00	3.1843	0
482	-2.157	0.00	3.1843	0
486	1.6976	0.3333	2.4579	0
487	1.6976	-3.6667	2.4579	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
290	1	1	1	1	0	1
292	1	1	1	1	0	1
356	1	1	1	1	0	1
358	1	1	1	1	0	1
422	1	1	1	1	0	1
424	1	1	1	1	0	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
176	297	296		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
177	323	322		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
178	329	328		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
179	321	320		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
180	299	298		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00

181	300	416	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
182	302	303	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
183	304	305	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
184	306	291	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
185	307	293	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
186	308	294	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
187	309	295	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
188	310	311	RndBar 5_8	A36	0.00	0.00	0.00
189	312	313	RndBar 5_8	A36	0.00	0.00	0.00
190	314	315	RndBar 5_8	A36	0.00	0.00	0.00
191	316	317	RndBar 5_8	A36	0.00	0.00	0.00
192	314	317	RndBar 3_4	A36	0.00	0.00	0.00
193	315	316	RndBar 3_4	A36	0.00	0.00	0.00
194	311	312	RndBar 3_4	A36	0.00	0.00	0.00
195	310	313	RndBar 3_4	A36	0.00	0.00	0.00
196	318	481	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
197	306	324	PL 3-1/2x5/8	A36	0.00	0.00	0.00
198	309	325	PL 3-1/2x5/8	A36	0.00	0.00	0.00
199	308	326	PL 3-1/2x5/8	A36	0.00	0.00	0.00
200	307	327	PL 3-1/2x5/8	A36	0.00	0.00	0.00
211	291	346	PL 3-1/2x5/8	A36	0.00	0.00	0.00
212	346	295	PL 3-1/2x5/8	A36	0.00	0.00	0.00
213	293	347	PL 3-1/2x5/8	A36	0.00	0.00	0.00
214	347	294	PL 3-1/2x5/8	A36	0.00	0.00	0.00
215	346	290	PL 11-1/4x5/8	A36	11.25	9.25	0.00
216	347	292	PL 11-1/4x5/8	A36	11.25	9.25	0.00
219	354	355	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
220	363	362	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
221	389	388	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
222	395	394	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
223	387	386	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
224	365	364	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
225	366	482	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
226	368	369	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
227	370	371	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
228	372	357	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
229	373	359	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
230	374	360	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
231	375	361	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
232	376	377	RndBar 5_8	A36	0.00	0.00	0.00
233	378	379	RndBar 5_8	A36	0.00	0.00	0.00
234	380	381	RndBar 5_8	A36	0.00	0.00	0.00
235	382	383	RndBar 5_8	A36	0.00	0.00	0.00
236	380	383	RndBar 3_4	A36	0.00	0.00	0.00
237	381	382	RndBar 3_4	A36	0.00	0.00	0.00
238	377	378	RndBar 3_4	A36	0.00	0.00	0.00
239	376	379	RndBar 3_4	A36	0.00	0.00	0.00
240	384	349	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
241	372	390	PL 3-1/2x5/8	A36	0.00	0.00	0.00
242	375	391	PL 3-1/2x5/8	A36	0.00	0.00	0.00
243	374	392	PL 3-1/2x5/8	A36	0.00	0.00	0.00
244	373	393	PL 3-1/2x5/8	A36	0.00	0.00	0.00
255	357	412	PL 3-1/2x5/8	A36	0.00	0.00	0.00
256	412	361	PL 3-1/2x5/8	A36	0.00	0.00	0.00
257	359	413	PL 3-1/2x5/8	A36	0.00	0.00	0.00
258	413	360	PL 3-1/2x5/8	A36	0.00	0.00	0.00
259	412	356	PL 11-1/4x5/8	A36	11.25	9.25	0.00
260	413	358	PL 11-1/4x5/8	A36	11.25	9.25	0.00
264	429	428	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
265	455	454	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00

266	461	460	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
267	453	452	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
268	431	430	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
269	432	350	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
270	434	435	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
271	436	437	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
272	438	423	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
273	439	425	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
274	440	426	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
275	441	427	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
276	442	443	RndBar 5_8	A36	0.00	0.00	0.00
277	444	445	RndBar 5_8	A36	0.00	0.00	0.00
278	446	447	RndBar 5_8	A36	0.00	0.00	0.00
279	448	449	RndBar 5_8	A36	0.00	0.00	0.00
280	446	449	RndBar 3_4	A36	0.00	0.00	0.00
281	447	448	RndBar 3_4	A36	0.00	0.00	0.00
282	443	444	RndBar 3_4	A36	0.00	0.00	0.00
283	442	445	RndBar 3_4	A36	0.00	0.00	0.00
284	450	415	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
285	438	456	PL 3-1/2x5/8	A36	0.00	0.00	0.00
286	441	457	PL 3-1/2x5/8	A36	0.00	0.00	0.00
287	440	458	PL 3-1/2x5/8	A36	0.00	0.00	0.00
288	439	459	PL 3-1/2x5/8	A36	0.00	0.00	0.00
299	423	478	PL 3-1/2x5/8	A36	0.00	0.00	0.00
300	478	427	PL 3-1/2x5/8	A36	0.00	0.00	0.00
301	425	479	PL 3-1/2x5/8	A36	0.00	0.00	0.00
302	479	426	PL 3-1/2x5/8	A36	0.00	0.00	0.00
303	478	422	PL 11-1/4x5/8	A36	11.25	9.25	0.00
304	479	424	PL 11-1/4x5/8	A36	11.25	9.25	0.00
307	486	487	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
176	0.00	2	-0.9659	0.00	-0.2588
177	0.00	2	-0.9659	0.00	-0.2588
178	0.00	2	-0.9659	0.00	-0.2588
179	0.00	2	-0.9659	0.00	-0.2588
180	0.00	2	-0.9659	0.00	-0.2588
188	0.00	2	0.866	0.00	-0.50
189	0.00	2	0.866	0.00	-0.50
190	0.00	2	0.866	0.00	-0.50
191	0.00	2	0.866	0.00	-0.50
197	90.00	0	0.00	0.00	0.00
198	90.00	0	0.00	0.00	0.00
199	90.00	0	0.00	0.00	0.00
200	90.00	0	0.00	0.00	0.00
211	90.00	0	0.00	0.00	0.00
212	90.00	0	0.00	0.00	0.00
213	90.00	0	0.00	0.00	0.00
214	90.00	0	0.00	0.00	0.00
215	90.00	0	0.00	0.00	0.00
216	90.00	0	0.00	0.00	0.00
219	0.00	2	-0.50	0.00	-0.866
220	0.00	2	0.2588	0.00	0.9659

221	0.00	2	0.2588	0.00	0.9659
222	0.00	2	0.2588	0.00	0.9659
223	0.00	2	0.2588	0.00	0.9659
224	0.00	2	0.2588	0.00	0.9659
232	0.00	2	-0.866	0.00	-0.50
233	0.00	2	-0.866	0.00	-0.50
234	0.00	2	-0.866	0.00	-0.50
235	0.00	2	-0.866	0.00	-0.50
241	90.00	0	0.00	0.00	0.00
242	90.00	0	0.00	0.00	0.00
243	90.00	0	0.00	0.00	0.00
244	90.00	0	0.00	0.00	0.00
255	90.00	0	0.00	0.00	0.00
256	90.00	0	0.00	0.00	0.00
257	90.00	0	0.00	0.00	0.00
258	90.00	0	0.00	0.00	0.00
259	90.00	0	0.00	0.00	0.00
260	90.00	0	0.00	0.00	0.00
264	315.00	0	0.00	0.00	0.00
265	315.00	0	0.00	0.00	0.00
266	315.00	0	0.00	0.00	0.00
267	315.00	0	0.00	0.00	0.00
268	315.00	0	0.00	0.00	0.00
276	0.00	2	0.00	0.00	1.00
277	0.00	2	0.00	0.00	1.00
278	0.00	2	0.00	0.00	1.00
279	0.00	2	0.00	0.00	1.00
285	90.00	0	0.00	0.00	0.00
286	90.00	0	0.00	0.00	0.00
287	90.00	0	0.00	0.00	0.00
288	90.00	0	0.00	0.00	0.00
299	90.00	0	0.00	0.00	0.00
300	90.00	0	0.00	0.00	0.00
301	90.00	0	0.00	0.00	0.00
302	90.00	0	0.00	0.00	0.00
303	90.00	0	0.00	0.00	0.00
304	90.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
181	0.00	-2.00	0.00	0.00	-2.00	0.00
192	0.00	-3.50	0.00	0.00	3.50	0.00
193	0.00	3.50	0.00	0.00	-3.50	0.00
194	0.00	3.50	0.00	0.00	-3.50	0.00
195	0.00	-3.50	0.00	0.00	3.50	0.00
196	0.00	2.00	0.00	0.00	2.00	0.00
215	0.00	-0.625	0.00	0.00	-0.625	0.00
216	0.00	-0.625	0.00	0.00	-0.625	0.00
225	0.00	-2.00	0.00	0.00	-2.00	0.00
236	0.00	-3.50	0.00	0.00	3.50	0.00
237	0.00	3.50	0.00	0.00	-3.50	0.00
238	0.00	3.50	0.00	0.00	-3.50	0.00
239	0.00	-3.50	0.00	0.00	3.50	0.00
240	0.00	2.00	0.00	0.00	2.00	0.00

259	0.00	-0.625	0.00	0.00	-0.625	0.00
260	0.00	-0.625	0.00	0.00	-0.625	0.00
269	0.00	-2.00	0.00	0.00	-2.00	0.00
280	0.00	-3.50	0.00	0.00	3.50	0.00
281	0.00	3.50	0.00	0.00	-3.50	0.00
282	0.00	3.50	0.00	0.00	-3.50	0.00
283	0.00	-3.50	0.00	0.00	3.50	0.00
284	0.00	2.00	0.00	0.00	2.00	0.00
303	0.00	-0.625	0.00	0.00	-0.625	0.00
304	0.00	-0.625	0.00	0.00	-0.625	0.00

Hinges

	Node-J				Node-K						
Member	**M33**	**M22**	**V3**	**V2**	**M33**	**M22**	**V3**	**V2**	**TOR**	**AXL**	**Axial rigidity**
181	1	1	0	0	0	0	0	0	0	0	Full
193	0	0	0	0	0	0	0	0	0	0	Tension only
195	0	0	0	0	0	0	0	0	0	0	Tension only
196	1	1	0	0	0	0	0	0	0	0	Full
197	1	1	0	0	0	0	0	0	0	0	Full
198	1	1	0	0	0	0	0	0	0	0	Full
199	1	1	0	0	0	0	0	0	0	0	Full
200	1	1	0	0	0	0	0	0	0	0	Full
225	1	1	0	0	0	0	0	0	0	0	Full
237	0	0	0	0	0	0	0	0	0	0	Tension only
239	0	0	0	0	0	0	0	0	0	0	Tension only
240	1	1	0	0	0	0	0	0	0	0	Full
241	1	1	0	0	0	0	0	0	0	0	Full
242	1	1	0	0	0	0	0	0	0	0	Full
243	1	1	0	0	0	0	0	0	0	0	Full
244	1	1	0	0	0	0	0	0	0	0	Full
269	1	1	0	0	0	0	0	0	0	0	Full
281	0	0	0	0	0	0	0	0	0	0	Tension only
283	0	0	0	0	0	0	0	0	0	0	Tension only
284	1	1	0	0	0	0	0	0	0	0	Full
285	1	1	0	0	0	0	0	0	0	0	Full
286	1	1	0	0	0	0	0	0	0	0	Full
287	1	1	0	0	0	0	0	0	0	0	Full
288	1	1	0	0	0	0	0	0	0	0	Full

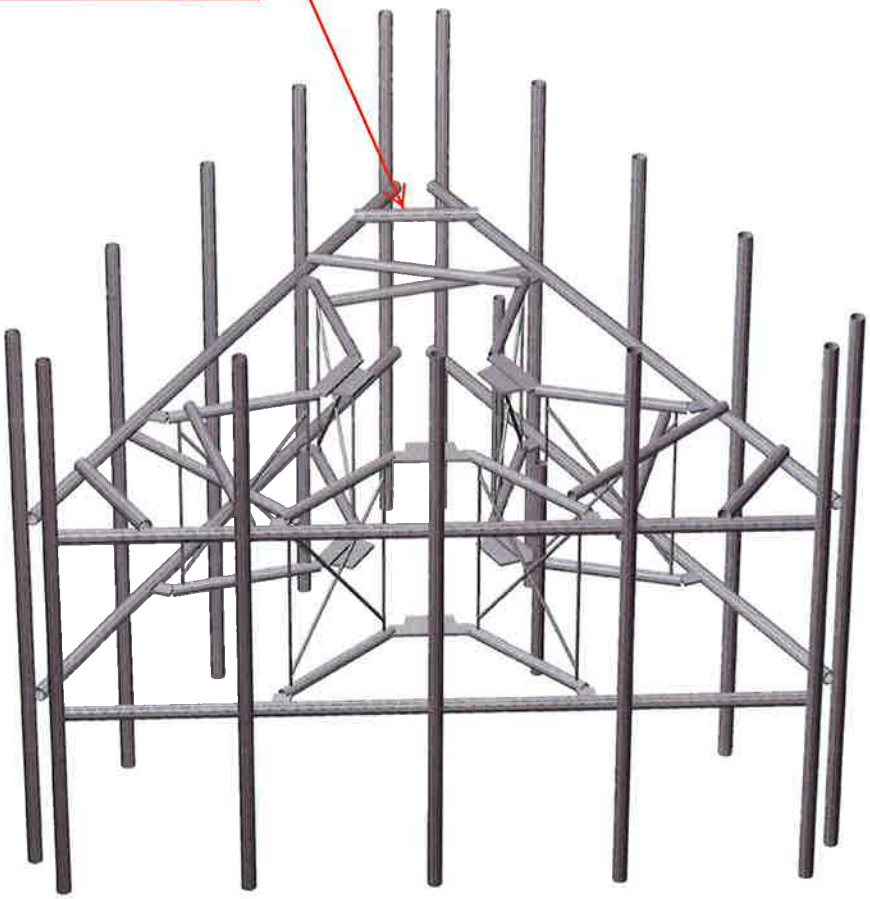
HUDSON
Design Group LLC

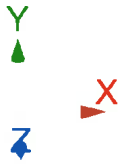
Mount Calculations
(Modified Conditions)

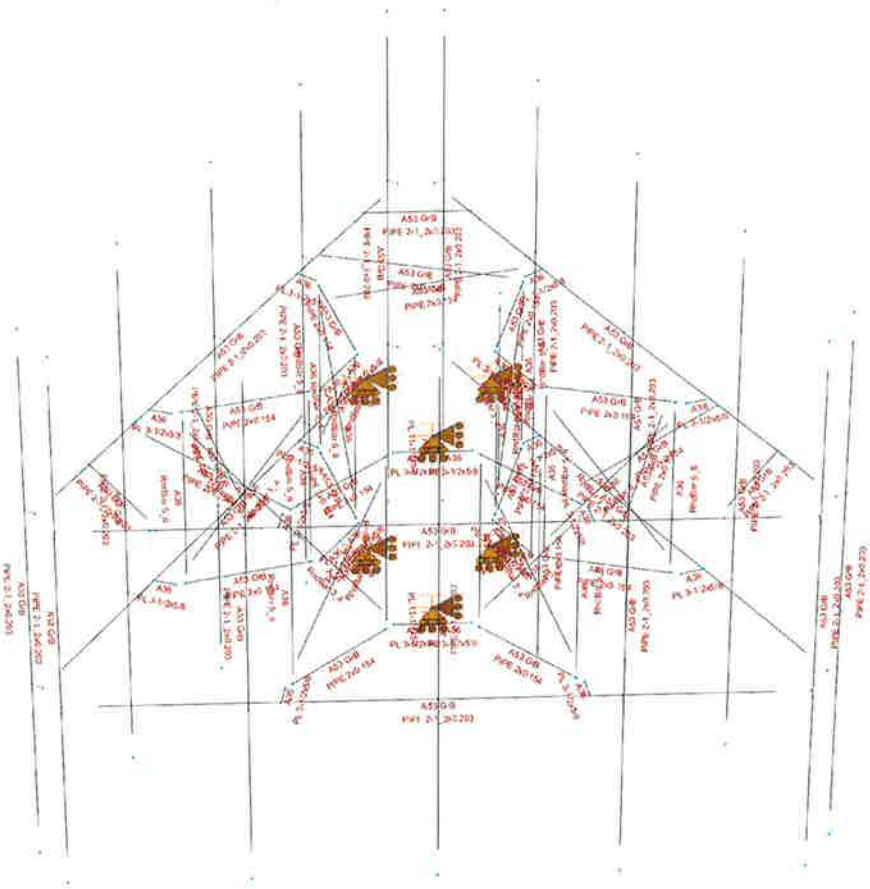
Bentley

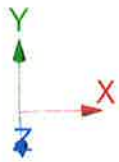
Current Date: 11/11/2019 12:16 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2058\3C-4C\Rev. 1\CT2058 (LTE 3C 4C)(MOD).retx\

Install new 2-1/2" Std. (2.88" O.D.) pipe braces secured to the proposed horizontal face pipe (typ. 1 per sector, total of 3).





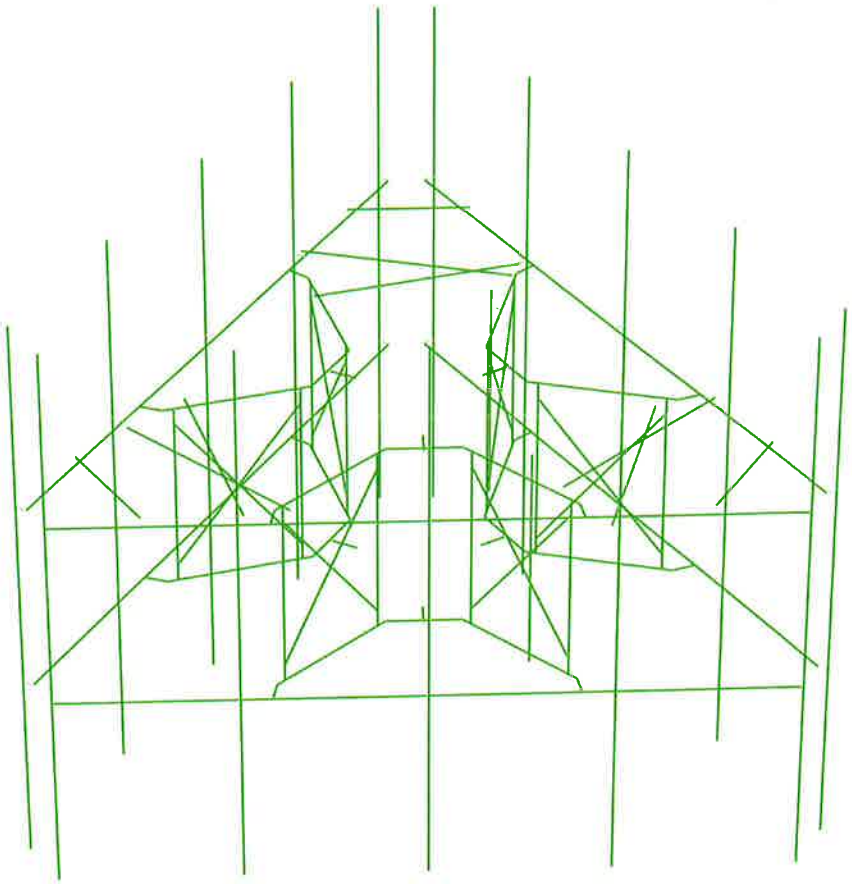


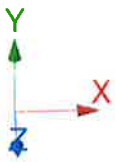

Y
X
Z

Bentley

Current Date: 11/11/2019 12:20 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2058\3C-4C\Rev. 1\CT2058 (LTE 3C 4C)(N

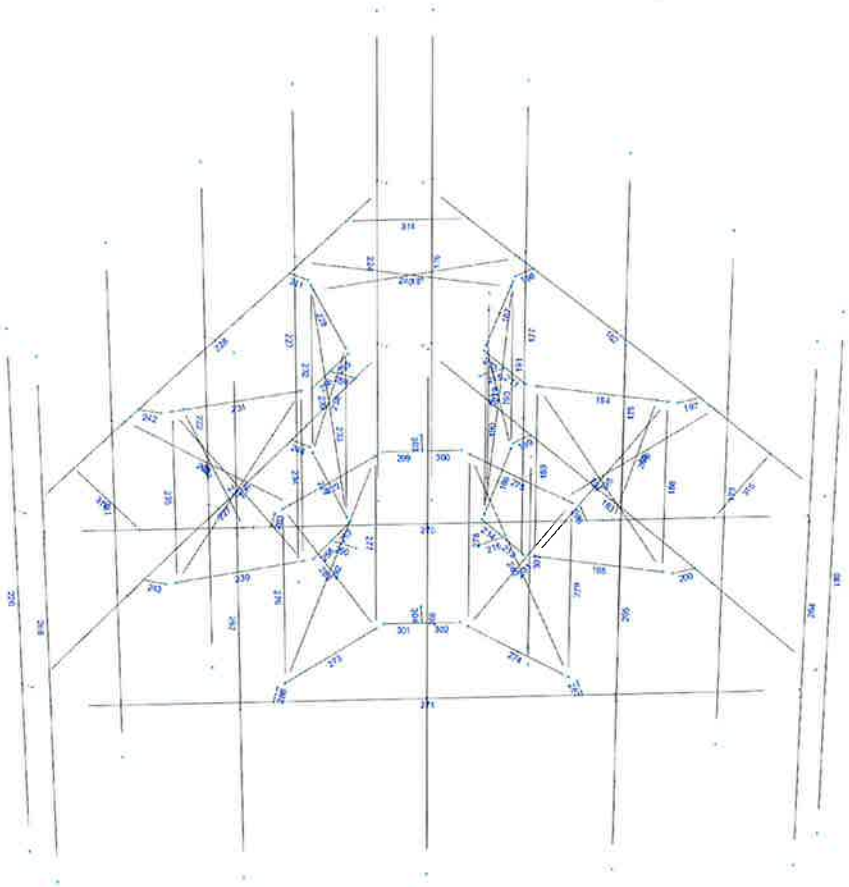
Not designed
Error on design
Design O.K.
With warnings

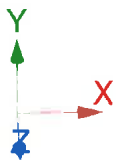




Bentley

Current Date: 11/11/2019 12:20 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2058\3C-4C\Rev. 1\CT2058 (LTE 3C 4C)(M





Bentley

Current Date: 11/11/2019 12:20 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2058\3C-4C\Rev. 1\CT2058 (LTE 3C 4C)(MOD).retx\

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2DL+W0
LC2=1.2DL+W30
LC3=1.2DL-W0
LC4=1.2DL-W30
LC5=0.9DL+W0
LC6=0.9DL+W30
LC7=0.9DL-W0
LC8=0.9DL-W30
LC9=1.2DL+Di+Wi0
LC10=1.2DL+Di+Wi30
LC11=1.2DL+Di-Wi0
LC12=1.2DL+Di-Wi30
LC13=1.2DL
LC15=1.2DL+1.5LL1
LC16=1.2DL+1.5LL2
LC17=1.2DL+WL0+1.5LLa1
LC18=1.2DL+WL30+1.5LLa1
LC19=1.2DL-WL0+1.5LLa1
LC20=1.2DL-WL30+1.5LLa1
LC21=1.2DL+WL0+1.5LLa2
LC22=1.2DL+WL30+1.5LLa2
LC23=1.2DL-WL0+1.5LLa2
LC24=1.2DL-WL30+1.5LLa2
LC25=1.2DL+WL0+1.5LLa3
LC26=1.2DL+WL30+1.5LLa3
LC27=1.2DL-WL0+1.5LLa3
LC28=1.2DL-WL30+1.5LLa3

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	PIPE 2-1_2x0.203	**176**	LC4 at 33.33%	0.23	OK	Eq. H1-1b
		177	LC1 at 33.33%	0.19	OK	Eq. H1-1b
		178	LC3 at 33.33%	0.29	OK	Eq. H1-1b
		179	LC3 at 33.33%	0.26	OK	Eq. H1-1b
		180	LC1 at 33.33%	0.25	OK	Eq. H1-1b
		182	LC2 at 29.17%	0.59	OK	Eq. H1-1b
		183	LC2 at 29.17%	0.58	OK	Eq. H1-1b
		220	LC1 at 33.33%	0.21	OK	Eq. H1-1b
		221	LC3 at 33.33%	0.22	OK	Eq. H1-1b
		222	LC2 at 66.67%	0.51	OK	Eq. H1-1b
		223	LC4 at 33.33%	0.26	OK	Eq. H1-1b
		224	LC2 at 33.33%	0.69	OK	Eq. H1-1b
		226	LC2 at 11.98%	0.66	OK	Eq. H1-1b
		227	LC4 at 70.83%	0.67	OK	Eq. H1-1b
		264	LC20 at 33.33%	0.21	OK	Eq. H1-1b
		265	LC4 at 33.33%	0.21	OK	Eq. H1-1b
		266	LC3 at 66.67%	0.67	OK	Eq. H1-1b
		267	LC1 at 64.58%	0.27	OK	Eq. H1-1b
		268	LC3 at 33.33%	**0.77**	**OK**	Eq. H1-1b
		270	LC3 at 11.98%	0.71	OK	Eq. H1-1b
		271	LC3 at 29.17%	0.66	OK	Eq. H1-1b

	314	LC2 at 0.00%	0.69	OK	Eq. H1-1b
	315	LC1 at 100.00%	0.34	OK	Eq. H1-1b
	316	LC3 at 100.00%	0.64	OK	Eq. H1-1b
PIPE 2x0.154	**181**	LC2 at 100.00%	0.26	OK	Eq. H1-1b
	184	LC1 at 14.06%	0.33	OK	Eq. H1-1b
	185	LC2 at 93.75%	0.23	OK	Eq. H1-1b
	186	LC3 at 93.75%	0.21	OK	Eq. H1-1b
	187	LC3 at 15.00%	0.39	OK	Eq. H1-1b
	196	LC2 at 100.00%	0.28	OK	Eq. H1-1b
	219	LC2 at 8.33%	0.13	OK	Eq. H1-1b
	225	LC4 at 50.00%	0.22	OK	Eq. H1-1b
	228	LC4 at 15.63%	0.39	OK	Eq. H1-1b
	229	LC3 at 93.75%	0.23	OK	Eq. H1-1b
	230	LC4 at 93.75%	0.22	OK	Eq. H1-1b
	231	LC4 at 15.63%	0.34	OK	Eq. H1-1b
	240	LC1 at 50.00%	0.26	OK	Eq. H1-1b
	269	LC2 at 53.13%	0.20	OK	Eq. H1-1b
	272	LC4 at 14.06%	**0.48**	**OK**	Eq. H1-1b
	273	LC9 at 93.75%	0.23	OK	Eq. H1-1b
	274	LC1 at 93.75%	0.22	OK	Eq. H1-1b
	275	LC2 at 15.00%	0.40	OK	Eq. H1-1b
	284	LC3 at 53.13%	0.17	OK	Eq. H1-1b
	307	LC4 at 8.33%	0.14	OK	Eq. H1-1b
PL 11-1/4x5/8	**215**	LC9 at 100.00%	0.31	OK	Eq. H1-1b
	216	LC10 at 100.00%	0.21	OK	Eq. H1-1b
	259	LC9 at 100.00%	0.32	OK	Eq. H1-1b
	260	LC10 at 100.00%	0.20	OK	Eq. H1-1b
	303	LC12 at 100.00%	**0.33**	**OK**	Eq. H1-1b
	304	LC11 at 100.00%	0.22	OK	Eq. H1-1b
PL 3-1/2x5/8	**197**	LC2 at 100.00%	0.53	OK	Eq. H1-1b
	198	LC3 at 100.00%	0.42	OK	Eq. H1-1b
	199	LC3 at 100.00%	0.39	OK	Eq. H1-1b
	200	LC9 at 100.00%	0.40	OK	Eq. H1-1b
	211	LC2 at 100.00%	**0.69**	**OK**	Eq. H1-1b
	212	LC11 at 0.00%	0.43	OK	Eq. H1-1b
	213	LC2 at 100.00%	0.55	OK	Eq. H1-1b
	214	LC11 at 0.00%	0.48	OK	Eq. H1-1b
	241	LC3 at 100.00%	0.51	OK	Eq. H1-1b
	242	LC4 at 100.00%	0.44	OK	Eq. H1-1b
	243	LC4 at 100.00%	0.40	OK	Eq. H1-1b
	244	LC2 at 100.00%	0.56	OK	Eq. H1-1b
	255	LC3 at 100.00%	0.65	OK	Eq. H1-1b
	256	LC4 at 0.00%	0.67	OK	Eq. H1-1b
	257	LC11 at 100.00%	0.55	OK	Eq. H1-1b
	258	LC4 at 0.00%	0.53	OK	Eq. H1-1b
	285	LC1 at 100.00%	0.55	OK	Eq. H1-1b
	286	LC1 at 100.00%	0.47	OK	Eq. H1-1b
	287	LC2 at 100.00%	0.36	OK	Eq. H1-1b
	288	LC3 at 100.00%	0.60	OK	Eq. H1-1b
	299	LC11 at 100.00%	0.60	OK	Eq. H3-6
	300	LC1 at 0.00%	0.59	OK	Eq. H1-1b
	301	LC9 at 100.00%	0.55	OK	Eq. H1-1b
	302	LC1 at 0.00%	0.52	OK	Eq. H1-1b
RndBar 3_4	**192**	LC11 at 0.00%	0.14	OK	Eq. Sec. D2
	193	LC10 at 0.00%	0.16	OK	Eq. H1-1b
	194	LC2 at 100.00%	0.21	OK	Eq. H1-1b
	195	LC3 at 0.00%	0.26	OK	Eq. H1-1b
	236	LC11 at 0.00%	0.19	OK	Eq. H1-1b
	237	LC12 at 0.00%	0.20	OK	Eq. H1-1b
	238	LC11 at 100.00%	0.23	OK	Eq. H1-1b

	239	LC11 at 100.00%	0.25	OK	Eq. H1-1b
	280	LC1 at 0.00%	0.15	OK	Eq. H1-1b
	281	LC9 at 0.00%	0.16	OK	Eq. H1-1b
	282	LC10 at 100.00%	0.23	OK	Eq. H1-1b
	283	LC2 at 0.00%	**0.29**	**OK**	Eq. H1-1b
RndBar 5_8	**188**	LC2 at 56.25%	0.55	OK	Eq. H1-1a
	189	LC10 at 87.50%	0.43	OK	Eq. H1-1a
	190	LC11 at 87.50%	0.48	OK	Eq. H1-1a
	191	LC2 at 62.50%	0.53	OK	Eq. H1-1a
	232	LC4 at 68.75%	0.58	OK	Eq. H1-1a
	233	LC11 at 87.50%	0.47	OK	Eq. H1-1a
	234	LC12 at 87.50%	0.41	OK	Eq. H1-1a
	235	LC3 at 18.75%	0.48	OK	Eq. H1-1a
	276	LC1 at 56.25%	**0.68**	**OK**	Eq. H1-1a
	277	LC12 at 87.50%	0.48	OK	Eq. H1-1a
	278	LC9 at 87.50%	0.48	OK	Eq. H1-1a
	279	LC1 at 43.75%	0.60	OK	Eq. H1-1a

Bentley

Current Date: 11/11/2019 12:20 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2058\3C-4C\Rev. 1\CT2058 (LTE 3C 4C)(MOD).retx\

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
290	1.0392	0.00	-0.60	0
291	1.7716	0.00	-0.2882	0
292	1.0392	-3.3333	-0.60	0
293	1.7716	-3.3333	-0.2882	0
294	1.1354	-3.3333	-1.3901	0
295	1.1354	0.00	-1.3901	0
296	0.4901	-6.6667	-7.2112	0
297	0.4901	3.3333	-7.2112	0
298	6.4901	-6.6667	3.1812	0
299	6.4901	3.3333	3.1812	0
306	4.1832	0.00	0.3707	0
307	4.1832	-3.3333	0.3707	0
308	1.7706	-3.3333	-3.8081	0
309	1.7706	0.00	-3.8081	0
310	4.0079	0.00	0.3228	0
311	4.0079	-3.3333	0.3228	0
312	1.9468	0.00	-0.2404	0
313	1.9468	-3.3333	-0.2404	0
314	1.1816	0.00	-1.5658	0
315	1.1816	-3.3333	-1.5658	0
316	1.7244	0.00	-3.6324	0

317	1.7244	-3.3333	-3.6324	0
320	4.9901	-6.6667	0.5831	0
321	4.9901	3.3333	0.5831	0
322	1.9901	-6.6667	-4.6131	0
323	1.9901	3.3333	-4.6131	0
324	4.5565	0.00	0.232	0
325	2.0773	0.00	-4.062	0
326	2.0773	-3.3333	-4.062	0
327	4.5565	-3.3333	0.232	0
328	3.4901	-6.6667	-2.015	0
329	3.4901	3.3333	-2.015	0
346	1.4535	0.00	-0.8392	0
347	1.4535	-3.3333	-0.8392	0
349	1.6792	0.00	-3.4602	0
350	3.8362	0.00	0.2758	0
354	1.2799	0.3333	-2.6991	0
356	-1.0392	0.00	-0.60	0
357	-1.1354	0.00	-1.3901	0
358	-1.0392	-3.3333	-0.60	0
359	-1.1354	-3.3333	-1.3901	0
360	-1.7716	-3.3333	-0.2882	0
361	-1.7716	0.00	-0.2882	0
362	-6.4901	-6.6667	3.1812	0
363	-6.4901	3.3333	3.1812	0
364	-0.4901	-6.6667	-7.2112	0
365	-0.4901	3.3333	-7.2112	0
366	-4.7648	0.00	0.5929	0
372	-1.7706	0.00	-3.8081	0
373	-1.7706	-3.3333	-3.8081	0
374	-4.1832	-3.3333	0.3707	0
375	-4.1832	0.00	0.3707	0
376	-1.7244	0.00	-3.6324	0
377	-1.7244	-3.3333	-3.6324	0
378	-1.1816	0.00	-1.5658	0
379	-1.1816	-3.3333	-1.5658	0
380	-1.9468	0.00	-0.2404	0
381	-1.9468	-3.3333	-0.2404	0
382	-4.0079	0.00	0.3228	0
383	-4.0079	-3.3333	0.3228	0
386	-1.9901	-6.6667	-4.6131	0
387	-1.9901	3.3333	-4.6131	0
388	-4.9901	-6.6667	0.5831	0
389	-4.9901	3.3333	0.5831	0
390	-2.0773	0.00	-4.062	0
391	-4.5565	0.00	0.232	0
392	-4.5565	-3.3333	0.232	0
393	-2.0773	-3.3333	-4.062	0
394	-3.4901	-6.6667	-2.015	0
395	-3.4901	3.3333	-2.015	0
412	-1.4535	0.00	-0.8392	0
413	-1.4535	-3.3333	-0.8392	0
415	-3.8362	0.00	0.2758	0
416	-1.6792	0.00	-3.4602	0
422	0.00	0.00	1.20	0
423	-0.6362	0.00	1.6783	0
424	0.00	-3.3333	1.20	0
425	-0.6362	-3.3333	1.6783	0
426	0.6362	-3.3333	1.6783	0
427	0.6362	0.00	1.6783	0
428	6.00	-6.6667	4.03	0

429	6.00	3.3333	4.03	0
430	-6.00	-6.6667	4.03	0
431	-6.00	3.3333	4.03	0
438	-2.4126	0.00	3.4374	0
439	-2.4126	-3.3333	3.4374	0
440	2.4126	-3.3333	3.4374	0
441	2.4126	0.00	3.4374	0
442	-2.2835	0.00	3.3096	0
443	-2.2835	-3.3333	3.3096	0
444	-0.7653	0.00	1.8062	0
445	-0.7653	-3.3333	1.8062	0
446	0.7653	0.00	1.8062	0
447	0.7653	-3.3333	1.8062	0
448	2.2835	0.00	3.3096	0
449	2.2835	-3.3333	3.3096	0
452	-3.00	-6.6667	4.03	0
453	-3.00	3.3333	4.03	0
454	3.00	-6.6667	4.03	0
455	3.00	3.3333	4.03	0
457	2.4792	0.00	3.83	0
458	2.4792	-3.3333	3.83	0
460	0.00	-6.6667	4.03	0
461	0.00	3.3333	4.03	0
478	0.00	0.00	1.6783	0
479	0.00	-3.3333	1.6783	0
481	2.157	0.00	3.1843	0
482	-2.157	0.00	3.1843	0
487	1.6976	-3.6667	2.4579	0
492	2.7396	0.00	3.83	0
493	-1.9471	0.00	-4.2875	0
494	-4.6867	0.00	0.4575	0
495	1.9471	0.00	-4.2875	0
496	4.6867	0.00	0.4575	0
497	-1.0669	1.67E-06	-5.8121	0
498	1.0669	1.67E-06	-5.8121	0
499	4.50	1.67E-06	3.83	0
500	5.5669	1.67E-06	1.9821	0
501	-5.5669	1.67E-06	1.9821	0
502	-4.50	1.67E-06	3.83	0
436	-6.00	-3.3333	3.83	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
290	1	1	1	1	0	1
292	1	1	1	1	0	1
356	1	1	1	1	0	1
358	1	1	1	1	0	1
422	1	1	1	1	0	1
424	1	1	1	1	0	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
176	297	296		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
177	323	322		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
178	329	328		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
179	321	320		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
180	299	298		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
181	300	416		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
182	302	303		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
183	304	305		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
184	306	291		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
185	307	293		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
186	308	294		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
187	309	295		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
188	310	311		RndBar 5_8	A36	0.00	0.00	0.00
189	312	313		RndBar 5_8	A36	0.00	0.00	0.00
190	314	315		RndBar 5_8	A36	0.00	0.00	0.00
191	316	317		RndBar 5_8	A36	0.00	0.00	0.00
192	314	317		RndBar 3_4	A36	0.00	0.00	0.00
193	315	316		RndBar 3_4	A36	0.00	0.00	0.00
194	311	312		RndBar 3_4	A36	0.00	0.00	0.00
195	310	313		RndBar 3_4	A36	0.00	0.00	0.00
196	318	481		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
197	306	324		PL 3-1/2x5/8	A36	0.00	0.00	0.00
198	309	325		PL 3-1/2x5/8	A36	0.00	0.00	0.00
199	308	326		PL 3-1/2x5/8	A36	0.00	0.00	0.00
200	307	327		PL 3-1/2x5/8	A36	0.00	0.00	0.00
211	291	346		PL 3-1/2x5/8	A36	0.00	0.00	0.00
212	346	295		PL 3-1/2x5/8	A36	0.00	0.00	0.00
213	293	347		PL 3-1/2x5/8	A36	0.00	0.00	0.00
214	347	294		PL 3-1/2x5/8	A36	0.00	0.00	0.00
215	346	290		PL 11-1/4x5/8	A36	11.25	9.25	0.00
216	347	292		PL 11-1/4x5/8	A36	11.25	9.25	0.00
219	354	355		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
220	363	362		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
221	389	388		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
222	395	394		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
223	387	386		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
224	365	364		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
225	366	482		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
226	368	369		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
227	370	371		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
228	372	357		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
229	373	359		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
230	374	360		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
231	375	361		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
232	376	377		RndBar 5_8	A36	0.00	0.00	0.00
233	378	379		RndBar 5_8	A36	0.00	0.00	0.00
234	380	381		RndBar 5_8	A36	0.00	0.00	0.00
235	382	383		RndBar 5_8	A36	0.00	0.00	0.00
236	380	383		RndBar 3_4	A36	0.00	0.00	0.00
237	381	382		RndBar 3_4	A36	0.00	0.00	0.00
238	377	378		RndBar 3_4	A36	0.00	0.00	0.00
239	376	379		RndBar 3_4	A36	0.00	0.00	0.00
240	384	349		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
241	372	390		PL 3-1/2x5/8	A36	0.00	0.00	0.00
242	375	391		PL 3-1/2x5/8	A36	0.00	0.00	0.00
243	374	392		PL 3-1/2x5/8	A36	0.00	0.00	0.00
244	373	393		PL 3-1/2x5/8	A36	0.00	0.00	0.00
255	357	412		PL 3-1/2x5/8	A36	0.00	0.00	0.00
256	412	361		PL 3-1/2x5/8	A36	0.00	0.00	0.00
257	359	413		PL 3-1/2x5/8	A36	0.00	0.00	0.00

258	413	360	PL 3-1/2x5/8	A36	0.00	0.00	0.00
259	412	356	PL 11-1/4x5/8	A36	11.25	9.25	0.00
260	413	358	PL 11-1/4x5/8	A36	11.25	9.25	0.00
264	429	428	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
265	455	454	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
266	461	460	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
267	453	452	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
268	431	430	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
269	432	350	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
270	434	435	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
271	436	437	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
272	438	423	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
273	439	425	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
274	440	426	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
275	441	427	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
276	442	443	RndBar 5_8	A36	0.00	0.00	0.00
277	444	445	RndBar 5_8	A36	0.00	0.00	0.00
278	446	447	RndBar 5_8	A36	0.00	0.00	0.00
279	448	449	RndBar 5_8	A36	0.00	0.00	0.00
280	446	449	RndBar 3_4	A36	0.00	0.00	0.00
281	447	448	RndBar 3_4	A36	0.00	0.00	0.00
282	443	444	RndBar 3_4	A36	0.00	0.00	0.00
283	442	445	RndBar 3_4	A36	0.00	0.00	0.00
284	450	415	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
285	438	456	PL 3-1/2x5/8	A36	0.00	0.00	0.00
286	441	457	PL 3-1/2x5/8	A36	0.00	0.00	0.00
287	440	458	PL 3-1/2x5/8	A36	0.00	0.00	0.00
288	439	459	PL 3-1/2x5/8	A36	0.00	0.00	0.00
299	423	478	PL 3-1/2x5/8	A36	0.00	0.00	0.00
300	478	427	PL 3-1/2x5/8	A36	0.00	0.00	0.00
301	425	479	PL 3-1/2x5/8	A36	0.00	0.00	0.00
302	479	426	PL 3-1/2x5/8	A36	0.00	0.00	0.00
303	478	422	PL 11-1/4x5/8	A36	11.25	9.25	0.00
304	479	424	PL 11-1/4x5/8	A36	11.25	9.25	0.00
307	486	487	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
314	497	498	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
315	499	500	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
316	501	502	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
176	0.00	2	-0.9659	0.00	-0.2588
177	0.00	2	-0.9659	0.00	-0.2588
178	0.00	2	-0.9659	0.00	-0.2588
179	0.00	2	-0.9659	0.00	-0.2588
180	0.00	2	-0.9659	0.00	-0.2588
188	0.00	2	0.866	0.00	-0.50
189	0.00	2	0.866	0.00	-0.50
190	0.00	2	0.866	0.00	-0.50
191	0.00	2	0.866	0.00	-0.50
197	90.00	0	0.00	0.00	0.00
198	90.00	0	0.00	0.00	0.00
199	90.00	0	0.00	0.00	0.00
200	90.00	0	0.00	0.00	0.00

211	90.00	0	0.00	0.00	0.00
212	90.00	0	0.00	0.00	0.00
213	90.00	0	0.00	0.00	0.00
214	90.00	0	0.00	0.00	0.00
215	90.00	0	0.00	0.00	0.00
216	90.00	0	0.00	0.00	0.00
219	0.00	2	-0.50	0.00	-0.866
220	0.00	2	0.2588	0.00	0.9659
221	0.00	2	0.2588	0.00	0.9659
222	0.00	2	0.2588	0.00	0.9659
223	0.00	2	0.2588	0.00	0.9659
224	0.00	2	0.2588	0.00	0.9659
232	0.00	2	-0.866	0.00	-0.50
233	0.00	2	-0.866	0.00	-0.50
234	0.00	2	-0.866	0.00	-0.50
235	0.00	2	-0.866	0.00	-0.50
241	90.00	0	0.00	0.00	0.00
242	90.00	0	0.00	0.00	0.00
243	90.00	0	0.00	0.00	0.00
244	90.00	0	0.00	0.00	0.00
255	90.00	0	0.00	0.00	0.00
256	90.00	0	0.00	0.00	0.00
257	90.00	0	0.00	0.00	0.00
258	90.00	0	0.00	0.00	0.00
259	90.00	0	0.00	0.00	0.00
260	90.00	0	0.00	0.00	0.00
264	315.00	0	0.00	0.00	0.00
265	315.00	0	0.00	0.00	0.00
266	315.00	0	0.00	0.00	0.00
267	315.00	0	0.00	0.00	0.00
268	315.00	0	0.00	0.00	0.00
276	0.00	2	0.00	0.00	1.00
277	0.00	2	0.00	0.00	1.00
278	0.00	2	0.00	0.00	1.00
279	0.00	2	0.00	0.00	1.00
285	90.00	0	0.00	0.00	0.00
286	90.00	0	0.00	0.00	0.00
287	90.00	0	0.00	0.00	0.00
288	90.00	0	0.00	0.00	0.00
299	90.00	0	0.00	0.00	0.00
300	90.00	0	0.00	0.00	0.00
301	90.00	0	0.00	0.00	0.00
302	90.00	0	0.00	0.00	0.00
303	90.00	0	0.00	0.00	0.00
304	90.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
181	0.00	-2.00	0.00	0.00	-2.00	0.00
192	0.00	-3.50	0.00	0.00	3.50	0.00
193	0.00	3.50	0.00	0.00	-3.50	0.00
194	0.00	3.50	0.00	0.00	-3.50	0.00
195	0.00	-3.50	0.00	0.00	3.50	0.00
196	0.00	2.00	0.00	0.00	2.00	0.00

215	0.00	-0.625	0.00	0.00	-0.625	0.00
216	0.00	-0.625	0.00	0.00	-0.625	0.00
225	0.00	-2.00	0.00	0.00	-2.00	0.00
236	0.00	-3.50	0.00	0.00	3.50	0.00
237	0.00	3.50	0.00	0.00	-3.50	0.00
238	0.00	3.50	0.00	0.00	-3.50	0.00
239	0.00	-3.50	0.00	0.00	3.50	0.00
240	0.00	2.00	0.00	0.00	2.00	0.00
259	0.00	-0.625	0.00	0.00	-0.625	0.00
260	0.00	-0.625	0.00	0.00	-0.625	0.00
269	0.00	-2.00	0.00	0.00	-2.00	0.00
280	0.00	-3.50	0.00	0.00	3.50	0.00
281	0.00	3.50	0.00	0.00	-3.50	0.00
282	0.00	3.50	0.00	0.00	-3.50	0.00
283	0.00	-3.50	0.00	0.00	3.50	0.00
284	0.00	2.00	0.00	0.00	2.00	0.00
303	0.00	-0.625	0.00	0.00	-0.625	0.00
304	0.00	-0.625	0.00	0.00	-0.625	0.00
314	0.00	2.00	0.00	0.00	2.00	0.00
315	0.00	2.00	0.00	0.00	2.00	0.00
316	0.00	2.00	0.00	0.00	2.00	0.00

Hinges

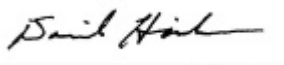
	Node-J				Node-K						
Member	**M33**	**M22**	**V3**	**V2**	**M33**	**M22**	**V3**	**V2**	**TOR**	**AXL**	**Axial rigidity**
181	1	1	0	0	0	0	0	0	0	0	Full
193	0	0	0	0	0	0	0	0	0	0	Tension only
195	0	0	0	0	0	0	0	0	0	0	Tension only
196	1	1	0	0	0	0	0	0	0	0	Full
197	1	1	0	0	0	0	0	0	0	0	Full
198	1	1	0	0	0	0	0	0	0	0	Full
199	1	1	0	0	0	0	0	0	0	0	Full
200	1	1	0	0	0	0	0	0	0	0	Full
225	1	1	0	0	0	0	0	0	0	0	Full
237	0	0	0	0	0	0	0	0	0	0	Tension only
239	0	0	0	0	0	0	0	0	0	0	Tension only
240	1	1	0	0	0	0	0	0	0	0	Full
241	1	1	0	0	0	0	0	0	0	0	Full
242	1	1	0	0	0	0	0	0	0	0	Full
243	1	1	0	0	0	0	0	0	0	0	Full
244	1	1	0	0	0	0	0	0	0	0	Full
269	1	1	0	0	0	0	0	0	0	0	Full
281	0	0	0	0	0	0	0	0	0	0	Tension only
283	0	0	0	0	0	0	0	0	0	0	Tension only
284	1	1	0	0	0	0	0	0	0	0	Full
285	1	1	0	0	0	0	0	0	0	0	Full
286	1	1	0	0	0	0	0	0	0	0	Full
287	1	1	0	0	0	0	0	0	0	0	Full
288	1	1	0	0	0	0	0	0	0	0	Full

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**180.4 ft Monopole**
ATC Site Name	:	**Lisbon CT 3, CT**
ATC Asset Number	:	**302503**
Engineering Number	:	**OAA754270_C3_01**
Proposed Carrier	:	**AT&T Mobility**
Carrier Site Name	:	**Lisbon-Mel Road**
Carrier Site Number	:	**CT2058**
Site Location	:	**20 Mel Road** **Jewett City, CT 06351-3017** **41.590800, -72.016900**
County	:	**New London**
Date	:	**November 20, 2019**
Max Usage	:	**91%**
Result	:	**Pass**

Prepared By:
Daniel Hinshaw
Structural Engineer I



Reviewed By:

COA: PEC.0001553

AMERICAN TOWER®
CORPORATION

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 180.4 ft monopole to reflect the change in loading by AT&T Mobility.

Supporting Documents

Tower Drawings	HTS Mapping Project #HTS011509, dated January 13, 2009
Foundation Drawing	SNET Drawing #3C255, dated August 8, 1990
Geotechnical Report	DOG Project #GEO17-00679-01, dated March 3, 2017
Modifications	ATC Job #50406832, dated October 25, 2012 ATC Job #42728432, dated January 28, 2009
Mount Analysis	HDG Project #CT2058, dated October 25, 2019

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	103 mph (3-Second Gust, V_{asd}) / 135 mph (3-second Gust, V_{ult})
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.17, S_1 = 0.06
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
192.0	1	Generic 6' Omni	-	(1) 1 5/8" Coax	Spok Holdings, Inc.
184.0	6	Powerwave Allgon LGP21401		(2) 0.65" (16.4mm) 8 AWG 2C (12) 1 5/8" Coax (1) 1.3" (33mm) Hybrid (Type 1) (1) 2" conduit	AT&T Mobility
	6	LGP Allgon LGP21903			
	1	Raycap DC6-48-60-18-8F (23.5" Height)			
	3	Ericsson RRUS 32 B2			
	3	Powerwave Allgon 7770.00			
10.0	1	Channel Master Type 120	Flush	(1) 0.28" (7mm) RG-6	Spok Holdings, Inc.

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
184.0	3	Ericsson RRUS-11 800 MHz	Platform with Handrails	-	AT&T Mobility
	2	CCI HPA-65R-BUU-H8			
	1	CCI HPA-65R-BUU-H6			
	3	Powerwave Allgon 7770.00			

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
184.0	3	Ericsson RRUS 4449 B5, B12	Site Pro 1 V-Frame Sector Frames	(1) 0.39" (10mm) Fiber Trunk (2) 0.78" (19.7mm) 8 AWG 6 (1) 2" conduit	AT&T Mobility
	3	Ericsson RRUS 4478 B14			
	1	Raycap DC6-48-60-18-8C			
	2	CCI DMP65R-BU6DA			
	4	CCI DMP65R-BU8D			

[1] Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed coax inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	76%	Pass
Shaft	81%	Pass
Base Plate	25%	Pass
Reinforcement	91%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	3,461.5	85%
Axial (Kips)	52.0	2%
Shear (Kips)	31.9	29%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
180.4	Ericsson RRUS 4449 B5, B12	AT&T Mobility	2.972	1.869
	Ericsson RRUS 4478 B14			
	Raycap DC6-48-60-18-8C			
	CCI DMP65R-BU6DA			
	CCI DMP65R-BU8D			
10.0	Channel Master Type 120	Spok Holdings, Inc.	0.010	0.109

***Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G**

Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

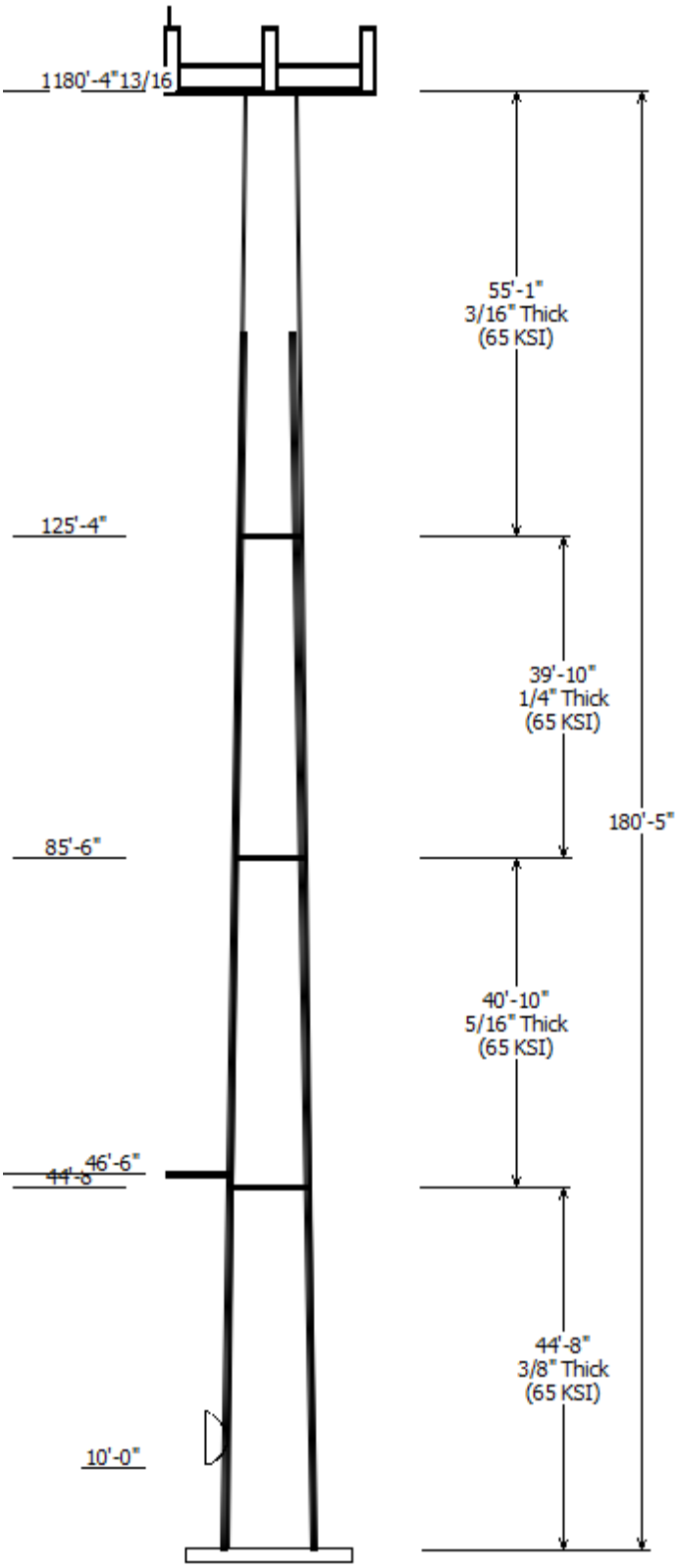
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.



Job Information

Client :	AT&T MOBILITY		
Pole :	302503	Code:	ANSI/TIA-222-G
Location :	Lisbon CT 3, CT		
Description :	180'-5" Mapped Monopole	Struct Class :	II
Shape :	12 Sides	Exposure :	B
Height :	180.42 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.147760 (in/ft)		

Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	44.667	35.09	41.69	0.375		0.000	12 Sides	65
2	40.833	29.06	35.09	0.313	Butt Joint	0.000	12 Sides	65
3	39.833	23.17	29.06	0.250	Butt Joint	0.000	12 Sides	65
4	55.083	15.04	23.17	0.188	Butt Joint	0.000	12 Sides	65

Discrete Appurtenance

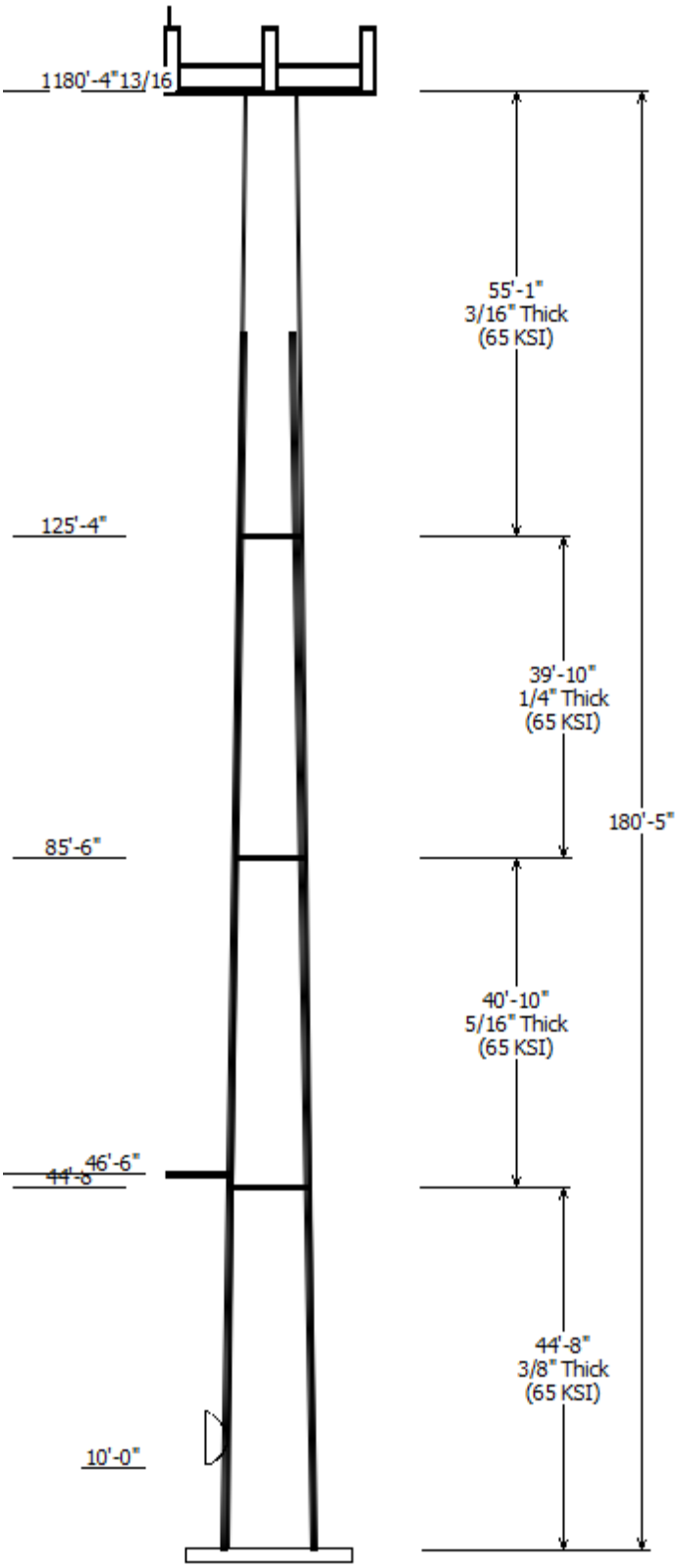
Attach Elev (ft)	Force Elev (ft)	Qty	Description
180.400	184.000	3	Generic Flat Light Sector Fram
180.400	184.000	4	CCI DMP65R-BU8D
180.400	184.000	2	CCI DMP65R-BU6DA
180.400	185.000	3	Powerwave Allgon 7770.00
180.400	185.000	3	Ericsson RRUS 32 B2
180.400	184.000	1	Raycap DC6-48-60-18-8C
180.400	184.000	3	Ericsson RRUS 4478 B14
180.400	184.000	3	Ericsson RRUS 4449 B5, B12
180.400	185.000	1	Raycap DC6-48-60-18-8F (23.5"
180.400	185.000	6	Powerwave Allgon LGP21401
180.400	185.000	6	LGP Allgon LGP21903
180.400	189.000	1	Generic 6' Omni
46.500	46.500	1	Round Side Arm
10.000	14.000	1	Channel Master Type 120

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	10.000	0.28" (7mm) RG-6	Yes
0.000	155.0	#20 Dywdag Bars	Yes
0.000	155.0	#20 Dywdag Bars	Yes
0.000	155.0	#20 Dywdag Bars	Yes
0.000	155.0	#20 Dywdag Bars	Yes
0.000	184.0	0.39" (10mm)	No
0.000	184.0	0.65" (16.4mm) 8	No
0.000	184.0	0.78" (19.7mm) 8	No
0.000	184.0	1 5/8" Coax	No
0.000	184.0	1.3" (33mm)	No
0.000	184.0	2" conduit	No
0.000	184.0	2" conduit	No
0.000	192.0	1 5/8" Coax	No

Load Cases

1.2D + 1.6W	103 mph with No Ice
0.9D + 1.6W	103 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method



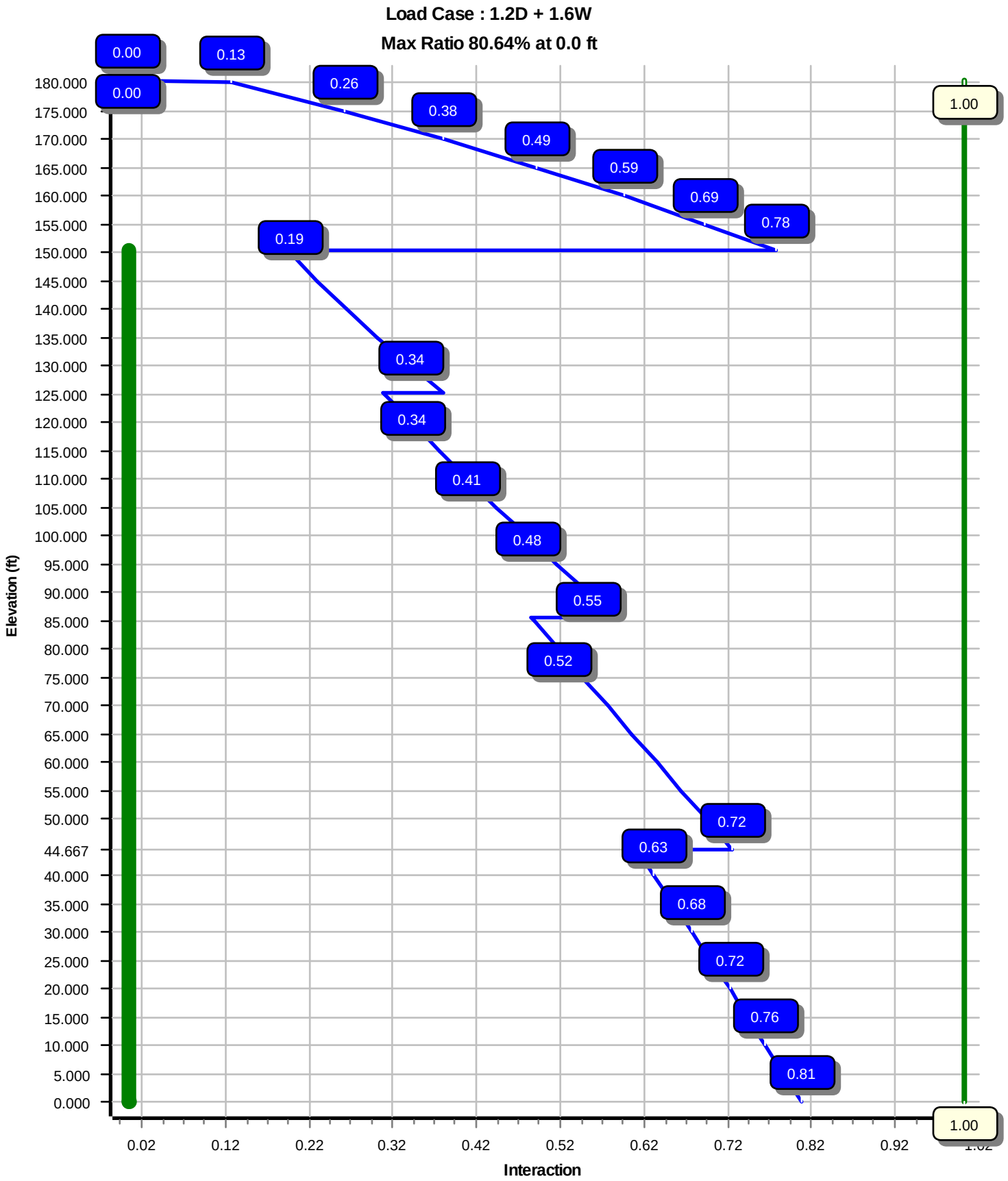
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	3461.48	31.93	52.00
0.9D + 1.6W	3392.45	31.36	38.98
1.2D + 1.0Di + 1.0Wi	700.67	5.94	69.22
(1.2 + 0.2Sds) * DL + E ELFM	236.59	1.70	51.65
(1.2 + 0.2Sds) * DL + E EMAM	205.14	1.70	51.65
(0.9 - 0.2Sds) * DL + E ELFM	231.38	1.70	36.10
(0.9 - 0.2Sds) * DL + E EMAM	200.29	1.70	36.10
1.0D + 1.0W	655.61	6.00	43.40

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	10.00	0.116	0.109


Load Case : 1.2D + 1.6W
Max Ratio 80.64% at 0.0 ft
0.00
0.13
0.26
0.38
0.49
0.59
0.69
0.78
0.00
0.19
0.34
0.34
0.41
0.48
0.55
0.52
0.72
0.63
0.68
0.72
0.76
0.81
1.00
1.00
180.000
175.000
170.000
165.000
160.000
155.000
150.000
145.000
140.000
135.000
130.000
125.000
120.000
115.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
55.000
50.000
44.667
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
Elevation (ft)
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number: 302503 **Code: ANSI/TIA-222-G**

Site Name: Lisbon CT 3, CT **Engineering Number:** **11/20/2019 5:03:14 PM**

Customer: AT&T MOBILITY

Analysis Parameters

Location :	**New London County, CT**	**Height (ft) :**	**180.4166**
Code :	**ANSI/TIA-222-G**	**Base Diameter (in) :**	**41.70**
Shape :	**12 Sides**	**Top Diameter (in) :**	**15.04**
Pole Type :	**Taper**	**Taper (in/ft) :**	**0.148**
Pole Manfacturer :		**Rotation (deg) :**	**0.00**

Ice & Wind Parameters

Structure Class:	**II**	**Design Wind Speed Without Ice:**	**103 mph**
Exposure Category:	**B**	**Design Wind Speed With Ice:**	**50 mph**
Topographic Category:	**1**	**Operational Wind Speed:**	**60 mph**
Crest Height:	**0 ft**	**Design Ice Thickness:**	**0.75 in**

Seismic Parameters

Analysis Method: **Equivalent Modal Analysis & Equivalent Lateral Force Methods**

Site Class: **D - Stiff Soil**

Period Based on Rayleigh Method (sec): **3.07**

T_L (sec):	**6**	**p:**	**1.3**	**C_s:**	**0.030**
S_s:	**0.169**	**S_1:**	**0.060**	**C_s Max:**	**0.030**
F_a:	**1.600**	**F_v:**	**2.400**	**C_s Min:**	**0.030**
S_{ds}:	**0.180**	**S_{d1}:**	**0.096**		

Load Cases

1.2D + 1.6W	**103 mph with No Ice**
0.9D + 1.6W	**103 mph with No Ice (Reduced DL)**
1.2D + 1.0Di + 1.0Wi	**50 mph with 0.75 in Radial Ice**
(1.2 + 0.2Sds) * DL + E ELFM	**Seismic Equivalent Lateral Forces Method**
(1.2 + 0.2Sds) * DL + E EMAM	**Seismic Equivalent Modal Analysis Method**
(0.9 - 0.2Sds) * DL + E ELFM	**Seismic (Reduced DL) Equivalent Lateral Forces Method**
(0.9 - 0.2Sds) * DL + E EMAM	**Seismic (Reduced DL) Equivalent Modal Analysis Method**
1.0D + 1.0W	**Serviceability 60 mph**

Site Number: 302503 **Code: ANSI/TIA-222-G**

Site Name: Lisbon CT 3, CT **Engineering Number:** **11/20/2019 5:03:14 PM**

Customer: AT&T MOBILITY

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-12	44.667	0.3750	65		0.00	6,978	41.69	0.00	49.90	10875.9	27.12	111.20	35.09	44.67	41.93	6452.8	22.40	93.60	0.147760
2-12	40.833	0.3125	65	Butt	0.00	4,442	35.09	44.67	35.00	5406.4	27.42	112.32	29.06	85.50	28.93	3052.9	22.24	93.01	0.147760
3-12	39.833	0.2500	65	Butt	0.00	2,823	29.06	85.50	23.20	2458.3	28.47	116.26	23.17	125.33	18.46	1238.7	22.16	92.72	0.147760
4-12	55.083	0.1875	65	Butt	0.00	2,141	23.17	125.33	13.88	936.6	30.45	123.62	15.04	180.42	8.97	252.5	18.81	80.21	0.147760
				Shaft Weight		16,385													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor
180.40	LGP Allgon LGP21903	6	0.80	4.600	5.50	0.230	0.50	14.08	0.575	0.50
180.40	Powerwave Allgon LGP21401	6	0.80	4.600	14.10	1.100	0.50	39.56	1.826	0.50
180.40	Raycap DC6-48-60-18-8F (23.5"	1	0.80	4.600	20.00	1.260	1.00	73.74	1.932	1.00
180.40	Generic 6' Omni	1	1.00	8.600	25.00	1.760	1.00	72.05	3.044	1.00
180.40	Ericsson RRUS 4449 B5, B12	3	0.80	3.600	71.00	1.970	0.50	136.78	2.922	0.50
180.40	Ericsson RRUS 4478 B14	3	0.80	3.600	59.40	2.020	0.67	122.03	2.982	0.67
180.40	Raycap DC6-48-60-18-8C	1	0.80	3.600	16.00	2.030	1.00	75.42	2.805	1.00
180.40	Ericsson RRUS 32 B2	3	0.80	4.600	53.00	2.740	0.67	128.07	3.932	0.67
180.40	Powerwave Allgon 7770.00	3	0.80	4.600	35.00	5.510	0.65	173.26	6.586	0.65
180.40	CCI DMP65R-BU6DA	2	0.80	3.600	79.40	12.710	0.72	342.31	15.557	0.72
180.40	CCI DMP65R-BU8D	4	0.80	3.600	95.70	17.870	0.63	442.59	21.631	0.63
180.40	Generic Flat Light Sector Frame	3	0.75	3.600	400.00	17.900	0.75	707.16	33.300	0.75
46.50	Round Side Arm	1	1.00	0.000	150.00	5.200	1.00	215.09	7.618	1.00
10.00	Channel Master Type 120	1	1.00	4.000	126.00	20.190	1.00	278.74	22.425	1.00
Totals	Num Loadings:14	38			2,851.40			7,293.75		

Linear Appurtenance Properties

Load Case Azimuth (deg) :

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax / Row	Dist Between Rows (in)	Dist Between Cols (in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	192.00	1	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	SPOK HOLDINGS,
0.00	184.00	1	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	184.00	2	0.65" (16.4mm) 8 AWG	0.65	0.31	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	184.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	184.00	12	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	184.00	1	1.3" (33mm) Hybrid	1.30	1.00	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	184.00	1	2" conduit	2.38	3.65	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	184.00	1	2" conduit	2.38	3.65	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	155.00	1	#20 Dywdag Bars	4.00	16.70	N	1	0.00	0.00	0	0.00	Y	-
0.00	155.00	1	#20 Dywdag Bars	4.00	16.70	N	1	0.00	0.00	90	0.00	Y	-
0.00	155.00	1	#20 Dywdag Bars	4.00	16.70	N	1	0.00	0.00	180	0.00	Y	-
0.00	155.00	1	#20 Dywdag Bars	4.00	16.70	N	1	0.00	0.00	270	0.00	Y	-
0.00	10.00	1	0.28" (7mm) RG-6	0.28	0.03	N	1	0.00	0.00	90	0.00	Y	SPOK HOLDINGS,

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Intermediate Connections Description	Intermediate Connections Spacing (in)	Intermediate Connections Len (in)	Connectors	Continuation?

0.00	150.5	4	SOL	#20 All Thread	80	2.19	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	No

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)	Additional Reinforcing Area (in^2)	Additional Reinforcing Ix (in^4)	Additional Reinforcing Weight (lb)
0.00		0.3750	41.699	49.898	10,875.9	27.12	111.20	75.1	503.9	0.0	0.0	19.64	5,801	0.0
5.00		0.3750	40.960	49.006	10,302.9	26.59	109.23	75.7	485.9	0.0	841.4	19.64	5,626	334.0
10.00		0.3750	40.221	48.114	9,750.4	26.06	107.26	76.3	468.3	0.0	826.2	19.64	5,454	334.0
15.00		0.3750	39.482	47.222	9,218.1	25.53	105.29	76.9	451.0	0.0	811.0	19.64	5,284	334.0
20.00		0.3750	38.743	46.330	8,705.4	25.00	103.32	77.4	434.1	0.0	795.8	19.64	5,117	334.0
25.00		0.3750	38.004	45.438	8,212.2	24.48	101.35	78.0	417.4	0.0	780.7	19.64	4,953	334.0
30.00		0.3750	37.266	44.546	7,737.9	23.95	99.38	78.6	401.1	0.0	765.5	19.64	4,792	334.0
35.00		0.3750	36.527	43.653	7,282.3	23.42	97.41	79.2	385.1	0.0	750.3	19.64	4,633	334.0
40.00		0.3750	35.788	42.761	6,844.9	22.89	95.43	79.7	369.5	0.0	735.1	19.64	4,477	334.0
44.67	Top - Section 1	0.3750	35.099	41.929	6,452.8	22.40	93.60	80.3	355.2	0.0	672.4	19.64	4,333	311.7
44.67	Bot - Section 2	0.3125	35.099	35.003	5,406.4	27.42	112.32	74.8	297.6	0.0		19.64	4,333	
45.00		0.3125	35.049	34.954	5,383.5	27.37	112.16	74.9	296.7	0.0	39.7	19.64	4,323	22.3
46.50		0.3125	34.828	34.731	5,281.1	27.18	111.45	75.1	292.9	0.0	177.8	19.64	4,278	100.2
50.00		0.3125	34.310	34.210	5,047.2	26.74	109.79	75.6	284.2	0.0	410.5	19.64	4,173	233.8
55.00		0.3125	33.572	33.467	4,725.3	26.11	107.43	76.2	271.9	0.0	575.7	19.64	4,024	334.0
60.00		0.3125	32.833	32.724	4,417.3	25.47	105.07	76.9	259.9	0.0	563.1	19.64	3,879	334.0
65.00		0.3125	32.094	31.980	4,123.0	24.84	102.70	77.6	248.2	0.0	550.4	19.64	3,736	334.0
70.00		0.3125	31.355	31.237	3,842.1	24.21	100.34	78.3	236.7	0.0	537.8	19.64	3,596	334.0
75.00		0.3125	30.616	30.493	3,574.3	23.57	97.97	79.0	225.5	0.0	525.1	19.64	3,459	334.0
80.00		0.3125	29.878	29.750	3,319.2	22.94	95.61	79.7	214.6	0.0	512.5	19.64	3,324	334.0
85.00		0.3125	29.139	29.007	3,076.5	22.31	93.24	80.4	204.0	0.0	499.8	19.64	3,192	334.0
85.50	Top - Section 2	0.3125	29.065	28.932	3,052.9	22.24	93.01	80.5	202.9	0.0	49.3	19.64	3,179	33.4
85.50	Bot - Section 3	0.2500	29.065	23.196	2,458.3	28.47	116.26	73.7	163.4	0.0		19.64	3,179	
90.00		0.2500	28.400	22.661	2,292.0	27.76	113.60	74.4	155.9	0.0	351.1	19.64	3,063	300.6
95.00		0.2500	27.661	22.066	2,116.3	26.97	110.65	75.3	147.8	0.0	380.5	19.64	2,936	334.0
100.0		0.2500	26.922	21.471	1,949.7	26.18	107.69	76.2	139.9	0.0	370.4	19.64	2,812	334.0
105.0		0.2500	26.184	20.877	1,792.1	25.38	104.73	77.0	132.2	0.0	360.3	19.64	2,691	334.0
110.0		0.2500	25.445	20.282	1,643.3	24.59	101.78	77.9	124.8	0.0	350.1	19.64	2,572	334.0
115.0		0.2500	24.706	19.687	1,502.9	23.80	98.82	78.8	117.5	0.0	340.0	19.64	2,457	334.0
120.0		0.2500	23.967	19.092	1,370.8	23.01	95.87	79.6	110.5	0.0	329.9	19.64	2,343	334.0
125.0		0.2500	23.228	18.498	1,246.7	22.22	92.91	80.5	103.7	0.0	319.8	19.64	2,233	334.0
125.3	Top - Section 3	0.2500	23.179	18.458	1,238.7	22.16	92.72	80.5	103.2	0.0	21.0	19.64	2,225	22.3
125.3	Bot - Section 4	0.1875	23.179	13.881	936.6	30.45	123.62	71.5	78.1	0.0		19.64	2,225	
130.0		0.1875	22.490	13.465	854.8	29.46	119.94	72.6	73.4	0.0	217.1	19.64	2,125	311.7
135.0		0.1875	21.751	13.019	772.7	28.40	116.00	73.7	68.6	0.0	225.3	19.64	2,020	334.0
140.0		0.1875	21.012	12.573	695.9	27.35	112.06	74.9	64.0	0.0	217.7	19.64	1,917	334.0
145.0		0.1875	20.273	12.127	624.5	26.29	108.12	76.0	59.5	0.0	210.1	19.64	1,817	334.0
150.0		0.1875	19.534	11.681	558.1	25.24	104.18	77.2	55.2	0.0	202.5	19.64	1,720	334.0
150.5	Reinf. Top	0.1875	19.461	11.636	551.7	25.13	103.79	77.3	54.8	0.0	19.8	19.64	1,711	33.4
155.0		0.1875	18.796	11.235	496.5	24.18	100.24	78.3	51.0	0.0	175.1			
160.0		0.1875	18.057	10.789	439.7	23.12	96.30	79.5	47.0	0.0	187.4			
165.0		0.1875	17.318	10.343	387.4	22.07	92.36	80.6	43.2	0.0	179.8			
170.0		0.1875	16.579	9.897	339.4	21.01	88.42	81.8	39.5	0.0	172.2			
175.0		0.1875	15.840	9.450	295.6	19.96	84.48	81.9	36.0	0.0	164.6			
180.0		0.1875	15.102	9.004	255.6	18.90	80.54	81.9	32.7	0.0	157.0			
180.4		0.1875	15.043	8.969	252.6	18.82	80.23	81.9	32.4	0.0	12.2			
180.4		0.1875	15.040	8.967	252.5	18.81	80.21	81.9	32.4	0.0	0.5			
											16,384.5			10,053.

Load Case: 1.2D + 1.6W — 103 mph with No Ice — 30 Iterations

Gust Response Factor :1.10 — Wind Importance Factor 1.00
Dead Load Factor :1.20
Wind Load Factor :1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		357.3	0.0					0.0	0.0	357.3	0.0	0.0	0.0
5.00		711.0	1,009.6					0.0	926.7	711.0	1,936.3	0.0	0.0
10.00	Appurtenance(s)	703.9	991.4	641.8	0.0	2,567.1	151.2	0.0	926.7	1,345.7	2,069.3	0.0	0.0
15.00		696.8	973.2					0.0	926.5	696.8	1,899.7	0.0	0.0
20.00		662.3	955.0					0.0	926.5	662.3	1,881.5	0.0	0.0
25.00		625.3	936.8					127.1	926.5	752.5	1,863.3	0.0	0.0
30.00		620.5	918.6					127.1	926.5	747.6	1,845.1	0.0	0.0
35.00		628.2	900.4					130.2	926.5	758.4	1,826.9	0.0	0.0
40.00		617.9	882.2					135.6	926.5	753.5	1,808.7	0.0	0.0
44.67	Top - Section 1	322.1	806.9					131.1	864.7	453.2	1,671.6	0.0	0.0
45.00		119.0	47.6					9.5	61.8	128.5	109.4	0.0	0.0
46.50	Appurtenance(s)	325.6	213.4	187.5	0.0	0.0	180.0	43.1	278.0	556.2	671.4	0.0	0.0
50.00		556.2	492.6					102.0	648.6	658.2	1,141.2	0.0	0.0
55.00		657.2	690.9					149.3	926.5	806.5	1,617.4	0.0	0.0
60.00		658.9	675.7					153.3	926.5	812.2	1,602.2	0.0	0.0
65.00		659.0	660.5					156.9	926.5	815.9	1,587.0	0.0	0.0
70.00		657.6	645.3					159.1	926.5	816.7	1,571.9	0.0	0.0
75.00		654.9	630.2					160.7	926.5	815.7	1,556.7	0.0	0.0
80.00		651.0	615.0					162.3	926.5	813.3	1,541.5	0.0	0.0
85.00		356.7	599.8					163.7	926.5	520.4	1,526.3	0.0	0.0
85.50	Top - Section 2	321.6	59.1					16.4	92.6	338.1	151.8	0.0	0.0
90.00		607.7	421.3					148.7	833.9	756.4	1,255.2	0.0	0.0
95.00		633.1	456.6					166.4	926.5	799.5	1,383.1	0.0	0.0
100.00		625.3	444.4					167.7	926.5	793.0	1,371.0	0.0	0.0
105.00		616.7	432.3					168.9	926.5	785.6	1,358.8	0.0	0.0
110.00		607.3	420.2					170.0	926.5	777.3	1,346.7	0.0	0.0
115.00		597.2	408.0					171.2	926.5	768.4	1,334.5	0.0	0.0
120.00		586.4	395.9					172.2	926.5	758.7	1,322.4	0.0	0.0
125.00		309.6	383.7					173.2	926.5	482.8	1,310.2	0.0	0.0
125.33	Top - Section 3	284.6	25.1					11.6	61.7	296.2	86.9	0.0	0.0
130.00		543.9	260.6					162.7	864.8	706.5	1,125.3	0.0	0.0
135.00		550.4	270.4					175.2	926.5	725.6	1,196.9	0.0	0.0
140.00		537.3	261.2					176.1	926.5	713.4	1,187.8	0.0	0.0
145.00		523.6	252.1					177.0	926.5	700.6	1,178.7	0.0	0.0
150.00		283.8	243.0					177.9	926.5	461.7	1,169.6	0.0	0.0
150.50	Reinf. Top	251.1	23.8					17.8	92.7	269.0	116.5	0.0	0.0
155.00		428.7	210.1					160.9	473.1	589.7	683.3	0.0	0.0
160.00		399.7	224.8					0.0	124.9	399.7	349.7	0.0	0.0
165.00		386.8	215.7					0.0	124.9	386.8	340.6	0.0	0.0
170.00		373.4	206.6					0.0	124.9	373.4	331.5	0.0	0.0
175.00		359.8	197.5					0.0	124.9	359.8	322.4	0.0	0.0
180.00		190.2	188.4					0.0	124.9	190.2	313.3	0.0	0.0
180.40		14.4	14.7					0.0	10.0	14.4	24.7	0.0	0.0
180.42		0.6	0.6					0.0	0.4	0.6	1.0	0.0	0.0
								Totals:		26,429.0	48,989.3	0.00	0.00

Load Case: 1.2D + 1.6W — 103 mph with No Ice — 30 Iterations

Gust Response Factor :1.10 — Wind Importance Factor 1.00
Dead Load Factor :1.20
Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-52.00	-31.93	0.00	-3,461.48	0.00	3,461.48	3,374.47	1,687.24	5,749.79	2,839.61	0.00	0.00	0.806
5.00	-49.91	-31.46	0.00	-3,301.85	0.00	3,301.85	3,339.53	1,669.77	5,587.61	2,759.51	0.15	-0.29	0.785
10.00	-47.69	-30.34	0.00	-3,141.97	0.00	3,141.97	3,303.67	1,651.84	5,426.07	2,679.73	0.61	-0.58	0.762
15.00	-45.66	-29.85	0.00	-2,990.27	0.00	2,990.27	3,266.89	1,633.44	5,265.23	2,600.30	1.37	-0.86	0.741
20.00	-43.64	-29.37	0.00	-2,841.04	0.00	2,841.04	3,229.18	1,614.59	5,105.20	2,521.27	2.43	-1.15	0.719
25.00	-41.65	-28.78	0.00	-2,694.19	0.00	2,694.19	3,190.54	1,595.27	4,946.05	2,442.67	3.78	-1.43	0.697
30.00	-39.69	-28.18	0.00	-2,550.27	0.00	2,550.27	3,150.98	1,575.49	4,787.88	2,364.55	5.44	-1.72	0.675
35.00	-37.75	-27.55	0.00	-2,409.37	0.00	2,409.37	3,110.50	1,555.25	4,630.76	2,286.96	7.39	-2.00	0.653
40.00	-35.85	-26.90	0.00	-2,271.63	0.00	2,271.63	3,069.09	1,534.55	4,474.78	2,209.92	9.63	-2.28	0.630
44.67	-34.13	-26.46	0.00	-2,146.12	0.00	2,146.12	3,029.61	1,514.81	4,330.30	2,138.57	11.98	-2.54	0.608
44.67	-34.13	-26.46	0.00	-2,146.12	0.00	2,146.12	2,356.88	1,178.44	3,380.89	1,669.69	11.98	-2.54	0.723
45.00	-34.00	-26.36	0.00	-2,137.30	0.00	2,137.30	2,354.99	1,177.50	3,373.36	1,665.97	12.16	-2.56	0.721
46.50	-33.29	-25.86	0.00	-2,097.77	0.00	2,097.77	2,346.45	1,173.22	3,339.48	1,649.24	12.98	-2.65	0.712
50.00	-32.07	-25.29	0.00	-2,007.26	0.00	2,007.26	2,326.18	1,163.09	3,260.58	1,610.28	15.00	-2.86	0.692
55.00	-30.37	-24.56	0.00	-1,880.80	0.00	1,880.80	2,296.44	1,148.22	3,148.31	1,554.83	18.16	-3.16	0.662
60.00	-28.69	-23.80	0.00	-1,758.01	0.00	1,758.01	2,265.77	1,132.89	3,036.63	1,499.68	21.63	-3.46	0.632
65.00	-27.05	-23.03	0.00	-1,638.99	0.00	1,638.99	2,234.19	1,117.09	2,925.62	1,444.85	25.41	-3.75	0.603
70.00	-25.42	-22.23	0.00	-1,523.87	0.00	1,523.87	2,201.67	1,100.84	2,815.37	1,390.41	29.49	-4.04	0.574
75.00	-23.83	-21.42	0.00	-1,412.72	0.00	1,412.72	2,168.24	1,084.12	2,705.97	1,336.38	33.86	-4.32	0.544
80.00	-22.26	-20.59	0.00	-1,305.62	0.00	1,305.62	2,133.87	1,066.94	2,597.50	1,282.81	38.53	-4.59	0.515
85.00	-20.73	-20.00	0.00	-1,202.66	0.00	1,202.66	2,098.59	1,049.29	2,490.04	1,229.74	43.47	-4.86	0.486
85.50	-20.56	-19.70	0.00	-1,192.66	0.00	1,192.66	2,095.01	1,047.50	2,479.36	1,224.46	43.98	-4.89	0.483
85.50	-20.56	-19.70	0.00	-1,192.66	0.00	1,192.66	1,537.79	768.90	1,827.83	902.70	43.98	-4.89	0.584
90.00	-19.29	-18.92	0.00	-1,104.00	0.00	1,104.00	1,518.16	759.08	1,762.50	870.43	48.70	-5.12	0.550
95.00	-17.90	-18.09	0.00	-1,009.38	0.00	1,009.38	1,495.46	747.73	1,690.19	834.72	54.21	-5.40	0.513
100.00	-16.53	-17.24	0.00	-918.94	0.00	918.94	1,471.85	735.92	1,618.25	799.19	60.01	-5.68	0.477
105.00	-15.18	-16.39	0.00	-832.73	0.00	832.73	1,447.30	723.65	1,546.78	763.90	66.08	-5.94	0.442
110.00	-13.86	-15.54	0.00	-750.77	0.00	750.77	1,421.84	710.92	1,475.86	728.87	72.42	-6.19	0.407
115.00	-12.56	-14.68	0.00	-673.08	0.00	673.08	1,395.45	697.72	1,405.58	694.16	79.02	-6.43	0.373
120.00	-11.28	-13.82	0.00	-599.69	0.00	599.69	1,368.13	684.07	1,336.01	659.81	85.86	-6.66	0.340
125.00	-10.01	-13.20	0.00	-530.61	0.00	530.61	1,339.89	669.95	1,267.25	625.85	92.94	-6.87	0.308
125.33	-9.93	-12.92	0.00	-526.21	0.00	526.21	1,337.98	668.99	1,262.70	623.60	93.42	-6.89	0.306
125.33	-9.93	-12.92	0.00	-526.21	0.00	526.21	893.38	446.69	847.72	418.66	93.42	-6.89	0.378
130.00	-8.86	-12.11	0.00	-465.93	0.00	465.93	879.61	439.81	809.42	399.74	100.23	-7.08	0.339
135.00	-7.72	-11.27	0.00	-405.38	0.00	405.38	863.96	431.98	768.47	379.52	107.74	-7.29	0.300
140.00	-6.61	-10.43	0.00	-349.05	0.00	349.05	847.39	423.70	727.68	359.37	115.45	-7.48	0.262
145.00	-5.50	-9.59	0.00	-296.91	0.00	296.91	829.90	414.95	687.15	339.36	123.36	-7.65	0.227
150.00	-4.39	-8.99	0.00	-248.94	0.00	248.94	811.48	405.74	646.95	319.51	131.44	-7.81	0.193
150.50	-4.30	-8.71	0.00	-244.44	0.00	244.44	809.59	404.79	642.96	317.53	132.25	-7.83	0.190
150.50	-4.30	-8.71	0.00	-244.44	0.00	244.44	809.59	404.79	642.96	317.53	132.25	-7.83	0.776
155.00	-3.66	-8.05	0.00	-205.25	0.00	205.25	792.13	396.07	607.18	299.86	139.67	-7.96	0.690
160.00	-3.30	-7.64	0.00	-164.99	0.00	164.99	771.86	385.93	567.92	280.48	148.27	-8.49	0.593
165.00	-2.97	-7.23	0.00	-126.81	0.00	126.81	750.67	375.34	529.26	261.38	157.38	-8.96	0.489

Site Number: 302503 **Code:** ANSI/TIA-222-G

Site Name: Lisbon CT 3, CT **Engineering Number:** **11/20/2019 5:03:19 PM**

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.6W — 103 mph with No Ice — 30 Iterations

Gust Response Factor :1.10 — Wind Importance Factor 1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

170.00	-2.66	-6.82	0.00	-90.68	0.00	90.68	728.55	364.28	491.27	242.62	166.94	-9.36	0.378
175.00	-2.37	-6.42	0.00	-56.58	0.00	56.58	696.59	348.30	448.31	221.40	176.87	-9.67	0.259
180.00	-2.09	-6.19	0.00	-24.47	0.00	24.47	663.72	331.86	406.75	200.88	187.06	-9.86	0.125
180.40	0.00	0.00	0.00	0.00	0.00	0.00	661.08	330.54	403.51	199.28	187.88	-9.87	0.000
180.42	0.00	0.00	0.00	0.00	0.00	0.00	660.98	330.49	403.38	199.21	187.92	-9.87	0.000

Load Case: 0.9D + 1.6W — 103 mph with No Ice (Reduced DL) — 30 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :0.90
Wind Load Factor :1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		283.3	0.0					0.0	0.0	283.3	0.0	0.0	0.0
5.00		561.6	757.2					0.0	695.0	561.6	1,452.3	0.0	0.0
10.00	Appurtenance(s)	551.5	743.6	641.8	0.0	2,567.1	113.4	0.0	695.0	1,193.3	1,552.0	0.0	0.0
15.00		541.4	729.9					0.0	694.9	541.4	1,424.8	0.0	0.0
20.00		583.9	716.3					0.0	694.9	583.9	1,411.1	0.0	0.0
25.00		625.3	702.6					127.1	694.9	752.5	1,397.5	0.0	0.0
30.00		620.5	688.9					127.1	694.9	747.6	1,383.8	0.0	0.0
35.00		628.2	675.3					130.2	694.9	758.4	1,370.2	0.0	0.0
40.00		617.9	661.6					135.6	694.9	753.5	1,356.5	0.0	0.0
44.67	Top - Section 1	322.1	605.2					131.1	648.6	453.2	1,253.7	0.0	0.0
45.00		119.0	35.7					9.5	46.3	128.5	82.0	0.0	0.0
46.50	Appurtenance(s)	325.6	160.1	187.5	0.0	0.0	135.0	43.1	208.5	556.2	503.5	0.0	0.0
50.00		556.2	369.5					102.0	486.4	658.2	855.9	0.0	0.0
55.00		657.2	518.2					149.3	694.9	806.5	1,213.0	0.0	0.0
60.00		658.9	506.8					153.3	694.9	812.2	1,201.7	0.0	0.0
65.00		659.0	495.4					156.9	694.9	815.9	1,190.3	0.0	0.0
70.00		657.6	484.0					159.1	694.9	816.7	1,178.9	0.0	0.0
75.00		654.9	472.6					160.7	694.9	815.7	1,167.5	0.0	0.0
80.00		651.0	461.2					162.3	694.9	813.3	1,156.1	0.0	0.0
85.00		356.7	449.9					163.7	694.9	520.4	1,144.7	0.0	0.0
85.50	Top - Section 2	321.6	44.4					16.4	69.5	338.1	113.8	0.0	0.0
90.00		607.7	316.0					148.7	625.4	756.4	941.4	0.0	0.0
95.00		633.1	342.4					166.4	694.9	799.5	1,037.3	0.0	0.0
100.00		625.3	333.3					167.7	694.9	793.0	1,028.2	0.0	0.0
105.00		616.7	324.2					168.9	694.9	785.6	1,019.1	0.0	0.0
110.00		607.3	315.1					170.0	694.9	777.3	1,010.0	0.0	0.0
115.00		597.2	306.0					171.2	694.9	768.4	1,000.9	0.0	0.0
120.00		586.4	296.9					172.2	694.9	758.7	991.8	0.0	0.0
125.00		309.6	287.8					173.2	694.9	482.8	982.7	0.0	0.0
125.33	Top - Section 3	284.6	18.9					11.6	46.3	296.2	65.2	0.0	0.0
130.00		543.9	195.4					162.7	648.6	706.5	844.0	0.0	0.0
135.00		550.4	202.8					175.2	694.9	725.6	897.7	0.0	0.0
140.00		537.3	195.9					176.1	694.9	713.4	890.8	0.0	0.0
145.00		523.6	189.1					177.0	694.9	700.6	884.0	0.0	0.0
150.00		283.8	182.3					177.9	694.9	461.7	877.2	0.0	0.0
150.50	Reinf. Top	251.1	17.9					17.8	69.5	269.0	87.3	0.0	0.0
155.00		428.7	157.6					160.9	354.9	589.7	512.5	0.0	0.0
160.00		399.7	168.6					0.0	93.7	399.7	262.3	0.0	0.0
165.00		386.8	161.8					0.0	93.7	386.8	255.5	0.0	0.0
170.00		373.4	155.0					0.0	93.7	373.4	248.6	0.0	0.0
175.00		359.8	148.1					0.0	93.7	359.8	241.8	0.0	0.0
180.00		190.2	141.3					0.0	93.7	190.2	235.0	0.0	0.0
180.40		14.4	11.0					0.0	7.5	14.4	18.5	0.0	0.0
180.42		0.6	0.5					0.0	0.3	0.6	0.8	0.0	0.0
								Totals:		25,819.3	36,742.0	0.00	0.00

Site Number: 302503 Code: ANSI/TIA-222-G

Site Name: Lisbon CT 3, CT Engineering Number: 11/20/2019 5:03:24 PM

Customer: AT&T MOBILITY

Load Case: 0.9D + 1.6W 103 mph with No Ice (Reduced DL) 30 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-38.98	-31.36	0.00	-3,392.45	0.00	3,392.45	3,374.47	1,687.24	5,749.79	2,839.61	0.00	0.00	0.788
5.00	-37.38	-30.97	0.00	-3,235.68	0.00	3,235.68	3,339.53	1,669.77	5,587.61	2,759.51	0.15	-0.28	0.767
10.00	-35.69	-29.95	0.00	-3,078.24	0.00	3,078.24	3,303.67	1,651.84	5,426.07	2,679.73	0.60	-0.56	0.745
15.00	-34.13	-29.55	0.00	-2,928.51	0.00	2,928.51	3,266.89	1,633.44	5,265.23	2,600.30	1.34	-0.85	0.724
20.00	-32.58	-29.11	0.00	-2,780.74	0.00	2,780.74	3,229.18	1,614.59	5,105.20	2,521.27	2.38	-1.13	0.702
25.00	-31.06	-28.47	0.00	-2,635.22	0.00	2,635.22	3,190.54	1,595.27	4,946.05	2,442.67	3.71	-1.40	0.680
30.00	-29.57	-27.83	0.00	-2,492.86	0.00	2,492.86	3,150.98	1,575.49	4,787.88	2,364.55	5.33	-1.68	0.658
35.00	-28.09	-27.16	0.00	-2,353.70	0.00	2,353.70	3,110.50	1,555.25	4,630.76	2,286.96	7.23	-1.96	0.636
40.00	-26.64	-26.48	0.00	-2,217.88	0.00	2,217.88	3,069.09	1,534.55	4,474.78	2,209.92	9.43	-2.23	0.613
44.67	-25.35	-26.04	0.00	-2,094.30	0.00	2,094.30	3,029.61	1,514.81	4,330.30	2,138.57	11.73	-2.48	0.592
44.67	-25.35	-26.04	0.00	-2,094.30	0.00	2,094.30	2,356.88	1,178.44	3,380.89	1,669.69	11.73	-2.48	0.704
45.00	-25.25	-25.93	0.00	-2,085.61	0.00	2,085.61	2,354.99	1,177.50	3,373.36	1,665.97	11.91	-2.50	0.702
46.50	-24.70	-25.42	0.00	-2,046.72	0.00	2,046.72	2,346.45	1,173.22	3,339.48	1,649.24	12.71	-2.59	0.693
50.00	-23.77	-24.83	0.00	-1,957.75	0.00	1,957.75	2,326.18	1,163.09	3,260.58	1,610.28	14.69	-2.80	0.672
55.00	-22.48	-24.07	0.00	-1,833.63	0.00	1,833.63	2,296.44	1,148.22	3,148.31	1,554.83	17.78	-3.09	0.643
60.00	-21.21	-23.30	0.00	-1,713.27	0.00	1,713.27	2,265.77	1,132.89	3,036.63	1,499.68	21.17	-3.38	0.615
65.00	-19.96	-22.51	0.00	-1,596.78	0.00	1,596.78	2,234.19	1,117.09	2,925.62	1,444.85	24.86	-3.66	0.586
70.00	-18.73	-21.71	0.00	-1,484.23	0.00	1,484.23	2,201.67	1,100.84	2,815.37	1,390.41	28.84	-3.94	0.557
75.00	-17.53	-20.89	0.00	-1,375.70	0.00	1,375.70	2,168.24	1,084.12	2,705.97	1,336.38	33.12	-4.22	0.528
80.00	-16.35	-20.07	0.00	-1,271.23	0.00	1,271.23	2,133.87	1,066.94	2,597.50	1,282.81	37.67	-4.48	0.500
85.00	-15.20	-19.50	0.00	-1,170.88	0.00	1,170.88	2,098.59	1,049.29	2,490.04	1,229.74	42.51	-4.75	0.472
85.50	-15.07	-19.18	0.00	-1,161.14	0.00	1,161.14	2,095.01	1,047.50	2,479.36	1,224.46	43.00	-4.77	0.469
85.50	-15.07	-19.18	0.00	-1,161.14	0.00	1,161.14	1,537.79	768.90	1,827.83	902.70	43.00	-4.77	0.567
90.00	-14.11	-18.41	0.00	-1,074.80	0.00	1,074.80	1,518.16	759.08	1,762.50	870.43	47.61	-5.00	0.534
95.00	-13.07	-17.59	0.00	-982.74	0.00	982.74	1,495.46	747.73	1,690.19	834.72	52.99	-5.28	0.498
100.00	-12.05	-16.75	0.00	-894.81	0.00	894.81	1,471.85	735.92	1,618.25	799.19	58.65	-5.54	0.463
105.00	-11.04	-15.92	0.00	-811.04	0.00	811.04	1,447.30	723.65	1,546.78	763.90	64.58	-5.79	0.429
110.00	-10.05	-15.08	0.00	-731.45	0.00	731.45	1,421.84	710.92	1,475.86	728.87	70.77	-6.04	0.395
115.00	-9.08	-14.25	0.00	-656.02	0.00	656.02	1,395.45	697.72	1,405.58	694.16	77.21	-6.27	0.362
120.00	-8.13	-13.42	0.00	-584.78	0.00	584.78	1,368.13	684.07	1,336.01	659.81	83.89	-6.50	0.330
125.00	-7.19	-12.84	0.00	-517.70	0.00	517.70	1,339.89	669.95	1,267.25	625.85	90.79	-6.71	0.299
125.33	-7.13	-12.55	0.00	-513.42	0.00	513.42	1,337.98	668.99	1,262.70	623.60	91.26	-6.72	0.297
125.33	-7.13	-12.55	0.00	-513.42	0.00	513.42	893.38	446.69	847.72	418.66	91.26	-6.72	0.367
130.00	-6.34	-11.77	0.00	-454.86	0.00	454.86	879.61	439.81	809.42	399.74	97.90	-6.91	0.330
135.00	-5.50	-10.96	0.00	-396.02	0.00	396.02	863.96	431.98	768.47	379.52	105.23	-7.11	0.292
140.00	-4.67	-10.15	0.00	-341.24	0.00	341.24	847.39	423.70	727.68	359.37	112.76	-7.30	0.256
145.00	-3.86	-9.35	0.00	-290.48	0.00	290.48	829.90	414.95	687.15	339.36	120.48	-7.47	0.221
150.00	-3.04	-8.79	0.00	-243.70	0.00	243.70	811.48	405.74	646.95	319.51	128.36	-7.62	0.189
150.50	-2.98	-8.51	0.00	-239.31	0.00	239.31	809.59	404.79	642.96	317.53	129.16	-7.64	0.186
150.50	-2.98	-8.51	0.00	-239.31	0.00	239.31	809.59	404.79	642.96	317.53	129.16	-7.64	0.758
155.00	-2.50	-7.87	0.00	-201.00	0.00	201.00	792.13	396.07	607.18	299.86	136.40	-7.76	0.674
160.00	-2.24	-7.46	0.00	-161.64	0.00	161.64	771.86	385.93	567.92	280.48	144.79	-8.28	0.580
165.00	-1.99	-7.06	0.00	-124.33	0.00	124.33	750.67	375.34	529.26	261.38	153.69	-8.75	0.479

Load Case: 0.9D + 1.6W — 103 mph with No Ice (Reduced DL) — 30 Iterations

Gust Response Factor: 1.10 — Wind Importance Factor: 1.00
Dead Load Factor: 0.90
Wind Load Factor: 1.60

170.00	-1.76	-6.66	0.00	-89.06	0.00	89.06	728.55	364.28	491.27	242.62	163.03	-9.14	0.370
175.00	-1.55	-6.27	0.00	-55.77	0.00	55.77	696.59	348.30	448.31	221.40	172.73	-9.44	0.254
180.00	-1.34	-6.05	0.00	-24.41	0.00	24.41	663.72	331.86	406.75	200.88	182.69	-9.63	0.124
180.40	0.00	0.00	0.00	0.00	0.00	0.00	661.08	330.54	403.51	199.28	183.49	-9.65	0.000
180.42	0.00	0.00	0.00	0.00	0.00	0.00	660.98	330.49	403.38	199.21	183.52	-9.65	0.000

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 29 Iterations

Gust Response Factor :1.10 — Ice Dead Load Factor :1.00 — Wind Importance Factor :1.00
Dead Load Factor :1.20 — Ice Importance Factor :1.00
Wind Load Factor :1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		52.8	0.0					0.0	0.0	52.8	0.0	0.0	0.0
5.00		105.0	1,325.7					27.5	994.6	132.5	2,320.3	0.0	0.0
10.00	Appurtenance(s)	103.7	1,339.1	105.0	0.0	419.9	238.9	28.5	1,003.8	237.1	2,581.8	0.0	0.0
15.00		102.2	1,333.2					25.1	1,004.4	127.3	2,337.5	0.0	0.0
20.00		100.6	1,321.0					25.3	1,007.4	125.9	2,328.4	0.0	0.0
25.00		98.9	1,305.5					25.5	1,009.8	124.4	2,315.3	0.0	0.0
30.00		98.4	1,287.9					25.6	1,011.7	124.0	2,299.7	0.0	0.0
35.00		99.9	1,269.0					26.4	1,013.4	126.3	2,282.4	0.0	0.0
40.00		98.5	1,249.0					27.6	1,014.9	126.1	2,263.9	0.0	0.0
44.67	Top - Section 1	51.4	1,147.3					26.7	948.4	78.1	2,095.6	0.0	0.0
45.00		19.0	72.0					1.9	67.8	21.0	139.8	0.0	0.0
46.50	Appurtenance(s)	52.1	322.9	40.5	0.0	0.0	215.1	8.8	305.1	101.4	843.1	0.0	0.0
50.00		89.2	745.8					20.9	712.2	110.0	1,458.1	0.0	0.0
55.00		105.6	1,048.3					30.6	1,018.4	136.2	2,066.6	0.0	0.0
60.00		106.1	1,028.9					31.5	1,019.4	137.7	2,048.3	0.0	0.0
65.00		106.4	1,009.2					32.4	1,020.3	138.8	2,029.4	0.0	0.0
70.00		106.5	989.1					33.1	1,021.1	139.7	2,010.2	0.0	0.0
75.00		106.4	968.7					33.9	1,021.9	140.3	1,990.6	0.0	0.0
80.00		106.0	948.1					34.6	1,022.7	140.7	1,970.7	0.0	0.0
85.00		58.2	927.2					35.3	1,023.4	93.5	1,950.6	0.0	0.0
85.50	Top - Section 2	52.6	91.9					3.6	102.4	56.2	194.3	0.0	0.0
90.00		99.6	710.8					32.4	921.7	132.0	1,632.5	0.0	0.0
95.00		104.1	772.0					36.6	1,024.7	140.7	1,796.7	0.0	0.0
100.00		103.2	753.7					37.2	1,025.3	140.4	1,778.9	0.0	0.0
105.00		102.1	735.1					37.8	1,025.9	139.9	1,761.0	0.0	0.0
110.00		100.9	716.4					38.4	1,026.4	139.3	1,742.8	0.0	0.0
115.00		99.6	697.6					38.9	1,027.0	138.6	1,724.5	0.0	0.0
120.00		98.3	678.6					39.5	1,027.5	137.7	1,706.1	0.0	0.0
125.00		52.0	659.5					40.0	1,028.0	92.0	1,687.5	0.0	0.0
125.33	Top - Section 3	48.0	43.5					2.7	68.5	50.7	112.0	0.0	0.0
130.00		92.0	511.5					37.8	959.9	129.8	1,471.4	0.0	0.0
135.00		93.5	532.0					41.0	1,028.9	134.5	1,560.9	0.0	0.0
140.00		91.7	515.6					41.5	1,029.4	133.2	1,545.0	0.0	0.0
145.00		89.9	499.2					42.0	1,029.8	131.9	1,529.0	0.0	0.0
150.00		48.9	482.7					42.4	1,030.2	91.3	1,512.9	0.0	0.0
150.50	Reinf. Top	43.5	47.7					4.3	103.0	47.8	150.8	0.0	0.0
155.00		81.6	419.1					38.6	566.9	120.2	985.9	0.0	0.0
160.00		83.9	449.3					0.0	124.9	83.9	574.3	0.0	0.0
165.00		81.8	432.6					0.0	124.9	81.8	557.5	0.0	0.0
170.00		79.6	415.7					0.0	124.9	79.6	540.7	0.0	0.0
175.00		77.3	398.8					0.0	124.9	77.3	523.7	0.0	0.0
180.00		41.1	381.9					0.0	124.9	41.1	506.8	0.0	0.0
180.40		3.1	30.1					0.0	10.0	3.1	40.1	0.0	0.0
180.42		0.1	1.2					0.0	0.4	0.1	1.7	0.0	0.0
								Totals:		4,736.67	62,969.2	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 29 Iterations

Gust Response Factor: 1.10 | Ice Dead Load Factor: 1.00 | Wind Importance Factor: 1.00
Dead Load Factor: 1.20 | Ice Importance Factor: 1.00
Wind Load Factor: 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-69.22	-5.94	0.00	-700.67	0.00	700.67	3,374.47	1,687.24	5,749.79	2,839.61	0.00	0.00	0.176
5.00	-66.89	-5.88	0.00	-670.96	0.00	670.96	3,339.53	1,669.77	5,587.61	2,759.51	0.03	-0.06	0.172
10.00	-64.31	-5.70	0.00	-641.16	0.00	641.16	3,303.67	1,651.84	5,426.07	2,679.73	0.12	-0.12	0.167
15.00	-61.96	-5.63	0.00	-612.66	0.00	612.66	3,266.89	1,633.44	5,265.23	2,600.30	0.28	-0.18	0.163
20.00	-59.63	-5.56	0.00	-584.51	0.00	584.51	3,229.18	1,614.59	5,105.20	2,521.27	0.49	-0.23	0.159
25.00	-57.31	-5.48	0.00	-556.73	0.00	556.73	3,190.54	1,595.27	4,946.05	2,442.67	0.77	-0.29	0.155
30.00	-55.01	-5.40	0.00	-529.32	0.00	529.32	3,150.98	1,575.49	4,787.88	2,364.55	1.11	-0.35	0.150
35.00	-52.72	-5.31	0.00	-502.32	0.00	502.32	3,110.50	1,555.25	4,630.76	2,286.96	1.51	-0.41	0.146
40.00	-50.45	-5.22	0.00	-475.76	0.00	475.76	3,069.09	1,534.55	4,474.78	2,209.92	1.97	-0.47	0.141
44.67	-48.35	-5.15	0.00	-451.40	0.00	451.40	3,029.61	1,514.81	4,330.30	2,138.57	2.46	-0.52	0.137
44.67	-48.35	-5.15	0.00	-451.40	0.00	451.40	2,356.88	1,178.44	3,380.89	1,669.69	2.46	-0.52	0.163
45.00	-48.21	-5.13	0.00	-449.69	0.00	449.69	2,354.99	1,177.50	3,373.36	1,665.97	2.49	-0.53	0.163
46.50	-47.37	-5.05	0.00	-441.99	0.00	441.99	2,346.45	1,173.22	3,339.48	1,649.24	2.66	-0.55	0.161
50.00	-45.91	-4.97	0.00	-424.30	0.00	424.30	2,326.18	1,163.09	3,260.58	1,610.28	3.08	-0.59	0.157
55.00	-43.84	-4.86	0.00	-399.45	0.00	399.45	2,296.44	1,148.22	3,148.31	1,554.83	3.73	-0.66	0.151
60.00	-41.78	-4.74	0.00	-375.14	0.00	375.14	2,265.77	1,132.89	3,036.63	1,499.68	4.45	-0.72	0.145
65.00	-39.75	-4.62	0.00	-351.42	0.00	351.42	2,234.19	1,117.09	2,925.62	1,444.85	5.24	-0.78	0.139
70.00	-37.74	-4.49	0.00	-328.31	0.00	328.31	2,201.67	1,100.84	2,815.37	1,390.41	6.09	-0.84	0.132
75.00	-35.75	-4.36	0.00	-305.84	0.00	305.84	2,168.24	1,084.12	2,705.97	1,336.38	7.00	-0.90	0.126
80.00	-33.77	-4.22	0.00	-284.03	0.00	284.03	2,133.87	1,066.94	2,597.50	1,282.81	7.98	-0.96	0.120
85.00	-31.82	-4.11	0.00	-262.92	0.00	262.92	2,098.59	1,049.29	2,490.04	1,229.74	9.02	-1.02	0.114
85.50	-31.63	-4.07	0.00	-260.86	0.00	260.86	2,095.01	1,047.50	2,479.36	1,224.46	9.13	-1.03	0.113
85.50	-31.63	-4.07	0.00	-260.86	0.00	260.86	1,537.79	768.90	1,827.83	902.70	9.13	-1.03	0.137
90.00	-29.99	-3.94	0.00	-242.55	0.00	242.55	1,518.16	759.08	1,762.50	870.43	10.12	-1.08	0.130
95.00	-28.20	-3.79	0.00	-222.86	0.00	222.86	1,495.46	747.73	1,690.19	834.72	11.28	-1.14	0.122
100.00	-26.42	-3.64	0.00	-203.89	0.00	203.89	1,471.85	735.92	1,618.25	799.19	12.51	-1.20	0.114
105.00	-24.66	-3.49	0.00	-185.68	0.00	185.68	1,447.30	723.65	1,546.78	763.90	13.80	-1.26	0.106
110.00	-22.91	-3.33	0.00	-168.23	0.00	168.23	1,421.84	710.92	1,475.86	728.87	15.15	-1.31	0.098
115.00	-21.19	-3.17	0.00	-151.56	0.00	151.56	1,395.45	697.72	1,405.58	694.16	16.55	-1.37	0.090
120.00	-19.48	-3.01	0.00	-135.69	0.00	135.69	1,368.13	684.07	1,336.01	659.81	18.02	-1.42	0.083
125.00	-17.80	-2.89	0.00	-120.63	0.00	120.63	1,339.89	669.95	1,267.25	625.85	19.53	-1.47	0.076
125.33	-17.69	-2.84	0.00	-119.67	0.00	119.67	1,337.98	668.99	1,262.70	623.60	19.63	-1.47	0.075
125.33	-17.69	-2.84	0.00	-119.67	0.00	119.67	893.38	446.69	847.72	418.66	19.63	-1.47	0.093
130.00	-16.22	-2.68	0.00	-106.42	0.00	106.42	879.61	439.81	809.42	399.74	21.09	-1.52	0.084
135.00	-14.66	-2.52	0.00	-93.00	0.00	93.00	863.96	431.98	768.47	379.52	22.71	-1.56	0.075
140.00	-13.12	-2.35	0.00	-80.40	0.00	80.40	847.39	423.70	727.68	359.37	24.37	-1.61	0.066
145.00	-11.59	-2.19	0.00	-68.64	0.00	68.64	829.90	414.95	687.15	339.36	26.08	-1.65	0.057
150.00	-10.08	-2.05	0.00	-57.71	0.00	57.71	811.48	405.74	646.95	319.51	27.82	-1.69	0.049
150.50	-9.93	-2.00	0.00	-56.68	0.00	56.68	809.59	404.79	642.96	317.53	28.00	-1.69	0.048
150.50	-9.93	-2.00	0.00	-56.68	0.00	56.68	809.59	404.79	642.96	317.53	28.00	-1.69	0.191
155.00	-8.94	-1.87	0.00	-47.66	0.00	47.66	792.13	396.07	607.18	299.86	29.61	-1.72	0.170
160.00	-8.37	-1.78	0.00	-38.32	0.00	38.32	771.86	385.93	567.92	280.48	31.47	-1.84	0.148
165.00	-7.81	-1.70	0.00	-29.41	0.00	29.41	750.67	375.34	529.26	261.38	33.46	-1.95	0.123

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 29 Iterations

Gust Response Factor : 1.10 Ice Dead Load Factor : 1.00 Wind Importance Factor : 1.00
Dead Load Factor : 1.20 Ice Importance Factor : 1.00
Wind Load Factor : 1.00

170.00	-7.27	-1.61	0.00	-20.93	0.00	20.93	728.55	364.28	491.27	242.62	35.55	-2.04	0.096
175.00	-6.75	-1.52	0.00	-12.89	0.00	12.89	696.59	348.30	448.31	221.40	37.73	-2.11	0.068
180.00	-6.25	-1.46	0.00	-5.29	0.00	5.29	663.72	331.86	406.75	200.88	39.97	-2.16	0.036
180.40	0.00	0.00	0.00	0.00	0.00	0.00	661.08	330.54	403.51	199.28	40.16	-2.16	0.000
180.42	0.00	0.00	0.00	0.00	0.00	0.00	660.98	330.49	403.38	199.21	40.16	-2.16	0.000

Site Number: 302503 | Code: ANSI/TIA-222-G |

Site Name: Lisbon CT 3, CT | Engineering Number: | 11/20/2019 5:03:29 PM

Customer: AT&T MOBILITY

Load Case: 1.0D + 1.0W | Serviceability 60 mph | 28 Iterations

Gust Response Factor :1.10 | Wind Importance Factor 1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		53.8	0.0					0.0	0.0	53.8	0.0	0.0	0.0
5.00		106.6	841.4					0.0	772.2	106.6	1,613.6	0.0	0.0
10.00	Appurtenance(s)	104.7	826.2	121.8	0.0	487.1	126.0	0.0	772.2	226.4	1,724.4	0.0	0.0
15.00		102.7	811.0					0.0	772.1	102.7	1,583.1	0.0	0.0
20.00		110.8	795.8					0.0	772.1	110.8	1,567.9	0.0	0.0
25.00		118.7	780.7					24.1	772.1	142.8	1,552.8	0.0	0.0
30.00		117.7	765.5					24.1	772.1	141.9	1,537.6	0.0	0.0
35.00		119.2	750.3					24.7	772.1	143.9	1,522.4	0.0	0.0
40.00		117.2	735.1					25.7	772.1	143.0	1,507.2	0.0	0.0
44.67	Top - Section 1	61.1	672.4					24.9	720.6	86.0	1,393.0	0.0	0.0
45.00		22.6	39.7					1.8	51.5	24.4	91.2	0.0	0.0
46.50	Appurtenance(s)	61.8	177.8	35.6	0.0	0.0	150.0	8.2	231.6	105.5	559.5	0.0	0.0
50.00		105.5	410.5					19.4	540.5	124.9	951.0	0.0	0.0
55.00		124.7	575.7					28.3	772.1	153.0	1,347.8	0.0	0.0
60.00		125.0	563.1					29.1	772.1	154.1	1,335.2	0.0	0.0
65.00		125.1	550.4					29.8	772.1	154.8	1,322.5	0.0	0.0
70.00		124.8	537.8					30.4	772.1	155.2	1,309.9	0.0	0.0
75.00		124.3	525.1					31.1	772.1	155.4	1,297.2	0.0	0.0
80.00		123.5	512.5					31.7	772.1	155.2	1,284.6	0.0	0.0
85.00		67.7	499.8					32.2	772.1	99.9	1,271.9	0.0	0.0
85.50	Top - Section 2	61.0	49.3					3.3	77.2	64.3	126.5	0.0	0.0
90.00		115.3	351.1					29.5	694.9	144.9	1,046.0	0.0	0.0
95.00		120.1	380.5					33.3	772.1	153.4	1,152.6	0.0	0.0
100.00		118.7	370.4					33.8	772.1	152.5	1,142.5	0.0	0.0
105.00		117.0	360.3					34.3	772.1	151.3	1,132.3	0.0	0.0
110.00		115.2	350.1					34.8	772.1	150.0	1,122.2	0.0	0.0
115.00		113.3	340.0					35.2	772.1	148.6	1,112.1	0.0	0.0
120.00		111.3	329.9					35.7	772.1	146.9	1,102.0	0.0	0.0
125.00		58.7	319.8					36.1	772.1	94.8	1,091.9	0.0	0.0
125.33	Top - Section 3	54.0	21.0					2.4	51.5	56.4	72.4	0.0	0.0
130.00		103.2	217.1					34.1	720.6	137.3	937.8	0.0	0.0
135.00		104.4	225.3					36.9	772.1	141.4	997.4	0.0	0.0
140.00		102.0	217.7					37.3	772.1	139.3	989.8	0.0	0.0
145.00		99.4	210.1					37.7	772.1	137.1	982.2	0.0	0.0
150.00		53.8	202.5					38.1	772.1	91.9	974.6	0.0	0.0
150.50	Reinf. Top	47.7	19.8					3.8	77.2	51.5	97.0	0.0	0.0
155.00		81.4	175.1					34.6	394.3	116.0	569.4	0.0	0.0
160.00		75.9	187.4					0.0	104.1	75.9	291.5	0.0	0.0
165.00		73.4	179.8					0.0	104.1	73.4	283.9	0.0	0.0
170.00		70.9	172.2					0.0	104.1	70.9	276.3	0.0	0.0
175.00		68.3	164.6					0.0	104.1	68.3	268.7	0.0	0.0
180.00		36.1	157.0					0.0	104.1	36.1	261.1	0.0	0.0
180.40		2.7	12.2					0.0	8.3	2.7	20.6	0.0	0.0
180.42		0.1	0.5					0.0	0.3	0.1	0.9	0.0	0.0
								Totals:		4,945.15	40,824.4	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 28 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :1.00
Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-43.40	-6.00	0.00	-655.61	0.00	655.61	3,374.47	1,687.24	5,749.79	2,839.61	0.00	0.00	0.160
5.00	-41.78	-5.93	0.00	-625.63	0.00	625.63	3,339.53	1,669.77	5,587.61	2,759.51	0.03	-0.05	0.156
10.00	-40.05	-5.74	0.00	-595.49	0.00	595.49	3,303.67	1,651.84	5,426.07	2,679.73	0.12	-0.11	0.151
15.00	-38.46	-5.67	0.00	-566.80	0.00	566.80	3,266.89	1,633.44	5,265.23	2,600.30	0.26	-0.16	0.147
20.00	-36.89	-5.59	0.00	-538.45	0.00	538.45	3,229.18	1,614.59	5,105.20	2,521.27	0.46	-0.22	0.143
25.00	-35.33	-5.47	0.00	-510.52	0.00	510.52	3,190.54	1,595.27	4,946.05	2,442.67	0.72	-0.27	0.138
30.00	-33.79	-5.35	0.00	-483.16	0.00	483.16	3,150.98	1,575.49	4,787.88	2,364.55	1.03	-0.33	0.134
35.00	-32.26	-5.23	0.00	-456.39	0.00	456.39	3,110.50	1,555.25	4,630.76	2,286.96	1.40	-0.38	0.129
40.00	-30.75	-5.10	0.00	-430.25	0.00	430.25	3,069.09	1,534.55	4,474.78	2,209.92	1.82	-0.43	0.125
44.67	-29.36	-5.02	0.00	-406.43	0.00	406.43	3,029.61	1,514.81	4,330.30	2,138.57	2.27	-0.48	0.120
44.67	-29.36	-5.02	0.00	-406.43	0.00	406.43	2,356.88	1,178.44	3,380.89	1,669.69	2.27	-0.48	0.143
45.00	-29.26	-5.00	0.00	-404.76	0.00	404.76	2,354.99	1,177.50	3,373.36	1,665.97	2.31	-0.48	0.143
46.50	-28.70	-4.90	0.00	-397.26	0.00	397.26	2,346.45	1,173.22	3,339.48	1,649.24	2.46	-0.50	0.141
50.00	-27.75	-4.79	0.00	-380.09	0.00	380.09	2,326.18	1,163.09	3,260.58	1,610.28	2.84	-0.54	0.137
55.00	-26.40	-4.65	0.00	-356.12	0.00	356.12	2,296.44	1,148.22	3,148.31	1,554.83	3.44	-0.60	0.131
60.00	-25.06	-4.51	0.00	-332.85	0.00	332.85	2,265.77	1,132.89	3,036.63	1,499.68	4.10	-0.66	0.125
65.00	-23.74	-4.36	0.00	-310.31	0.00	310.31	2,234.19	1,117.09	2,925.62	1,444.85	4.82	-0.71	0.119
70.00	-22.42	-4.21	0.00	-288.50	0.00	288.50	2,201.67	1,100.84	2,815.37	1,390.41	5.59	-0.76	0.113
75.00	-21.13	-4.06	0.00	-267.45	0.00	267.45	2,168.24	1,084.12	2,705.97	1,336.38	6.42	-0.82	0.108
80.00	-19.84	-3.90	0.00	-247.16	0.00	247.16	2,133.87	1,066.94	2,597.50	1,282.81	7.30	-0.87	0.102
85.00	-18.57	-3.79	0.00	-227.66	0.00	227.66	2,098.59	1,049.29	2,490.04	1,229.74	8.24	-0.92	0.096
85.50	-18.44	-3.73	0.00	-225.77	0.00	225.77	2,095.01	1,047.50	2,479.36	1,224.46	8.34	-0.93	0.096
85.50	-18.44	-3.73	0.00	-225.77	0.00	225.77	1,537.79	768.90	1,827.83	902.70	8.34	-0.93	0.116
90.00	-17.39	-3.58	0.00	-208.98	0.00	208.98	1,518.16	759.08	1,762.50	870.43	9.23	-0.97	0.109
95.00	-16.24	-3.43	0.00	-191.06	0.00	191.06	1,495.46	747.73	1,690.19	834.72	10.28	-1.02	0.102
100.00	-15.10	-3.27	0.00	-173.93	0.00	173.93	1,471.85	735.92	1,618.25	799.19	11.38	-1.07	0.094
105.00	-13.97	-3.10	0.00	-157.61	0.00	157.61	1,447.30	723.65	1,546.78	763.90	12.53	-1.12	0.087
110.00	-12.85	-2.94	0.00	-142.09	0.00	142.09	1,421.84	710.92	1,475.86	728.87	13.73	-1.17	0.081
115.00	-11.74	-2.78	0.00	-127.38	0.00	127.38	1,395.45	697.72	1,405.58	694.16	14.98	-1.22	0.074
120.00	-10.63	-2.62	0.00	-113.48	0.00	113.48	1,368.13	684.07	1,336.01	659.81	16.28	-1.26	0.067
125.00	-9.54	-2.50	0.00	-100.40	0.00	100.40	1,339.89	669.95	1,267.25	625.85	17.63	-1.30	0.061
125.33	-9.47	-2.45	0.00	-99.57	0.00	99.57	1,337.98	668.99	1,262.70	623.60	17.72	-1.30	0.061
125.33	-9.47	-2.45	0.00	-99.57	0.00	99.57	893.38	446.69	847.72	418.66	17.72	-1.30	0.075
130.00	-8.54	-2.29	0.00	-88.15	0.00	88.15	879.61	439.81	809.42	399.74	19.01	-1.34	0.067
135.00	-7.54	-2.13	0.00	-76.69	0.00	76.69	863.96	431.98	768.47	379.52	20.43	-1.38	0.059
140.00	-6.55	-1.97	0.00	-66.02	0.00	66.02	847.39	423.70	727.68	359.37	21.90	-1.42	0.052
145.00	-5.57	-1.81	0.00	-56.15	0.00	56.15	829.90	414.95	687.15	339.36	23.40	-1.45	0.045
150.00	-4.60	-1.70	0.00	-47.08	0.00	47.08	811.48	405.74	646.95	319.51	24.93	-1.48	0.038
150.50	-4.51	-1.65	0.00	-46.23	0.00	46.23	809.59	404.79	642.96	317.53	25.09	-1.48	0.038
150.50	-4.51	-1.65	0.00	-46.23	0.00	46.23	809.59	404.79	642.96	317.53	25.09	-1.48	0.151
155.00	-3.94	-1.52	0.00	-38.82	0.00	38.82	792.13	396.07	607.18	299.86	26.50	-1.51	0.134
160.00	-3.65	-1.44	0.00	-31.22	0.00	31.22	771.86	385.93	567.92	280.48	28.13	-1.61	0.116
165.00	-3.36	-1.37	0.00	-24.01	0.00	24.01	750.67	375.34	529.26	261.38	29.86	-1.70	0.096

Load Case: 1.0D + 1.0W Serviceability 60 mph 28 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :1.00
Wind Load Factor :1.00

170.00	-3.09	-1.29	0.00	-17.18	0.00	17.18	728.55	364.28	491.27	242.62	31.68	-1.77	0.075
175.00	-2.82	-1.22	0.00	-10.72	0.00	10.72	696.59	348.30	448.31	221.40	33.57	-1.83	0.052
180.00	-2.56	-1.17	0.00	-4.64	0.00	4.64	663.72	331.86	406.75	200.88	35.51	-1.87	0.027
180.40	0.00	0.00	0.00	0.00	0.00	0.00	661.08	330.54	403.51	199.28	35.66	-1.87	0.000
180.42	0.00	0.00	0.00	0.00	0.00	0.00	660.98	330.49	403.38	199.21	35.67	-1.87	0.000

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.17	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.00	
Site Coefficient F_a:	1.60	
Site Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.18	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10	
Seismic Response Coefficient (C_s):	0.03	
Upper Limit C_s	0.03	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	3.07	
Redundancy Factor (p):	1.30	
Seismic Force Distribution Exponent (k):	2.00	
Total Unfactored Dead Load:	43.40	k
Seismic Base Shear (E):	1.69	k

Load Case (1.2 + 0.2Sds) * DL + E ELFM **Seismic Equivalent Lateral Forces Method**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
43	180.41	1	28	0.000	0	1
42	180.20	21	668	0.002	3	25
41	177.50	261	8,226	0.021	36	323
40	172.50	269	7,995	0.021	35	332
39	167.50	276	7,751	0.020	34	341
38	162.50	284	7,496	0.019	33	351
37	157.50	291	7,230	0.019	32	360
36	152.75	569	13,285	0.034	58	704
35	150.25	97	2,191	0.006	10	120
34	147.50	975	21,204	0.055	93	1,205
33	142.50	982	19,945	0.051	87	1,214
32	137.50	990	18,714	0.048	82	1,223
31	132.50	997	17,511	0.045	76	1,233
30	127.67	938	15,285	0.039	67	1,159
29	125.17	72	1,134	0.003	5	89
28	122.50	1,092	16,385	0.042	72	1,350
27	117.50	1,102	15,214	0.039	66	1,362
26	112.50	1,112	14,075	0.036	61	1,375
25	107.50	1,122	12,969	0.033	57	1,387
24	102.50	1,132	11,897	0.031	52	1,400
23	97.50	1,142	10,861	0.028	47	1,412
22	92.50	1,153	9,862	0.025	43	1,425
21	87.75	1,046	8,054	0.021	35	1,293

20	85.25	126	919	0.002	4	156
19	82.50	1,272	8,657	0.022	38	1,572
18	77.50	1,285	7,716	0.020	34	1,588
17	72.50	1,297	6,819	0.018	30	1,603
16	67.50	1,310	5,968	0.015	26	1,619
15	62.50	1,323	5,166	0.013	23	1,635
14	57.50	1,335	4,414	0.011	19	1,650
13	52.50	1,348	3,715	0.010	16	1,666
12	48.25	951	2,214	0.006	10	1,175
11	45.75	409	857	0.002	4	506
10	44.83	91	183	0.000	1	113
9	42.33	1,393	2,496	0.006	11	1,722
8	37.50	1,507	2,120	0.005	9	1,863
7	32.50	1,522	1,608	0.004	7	1,882
6	27.50	1,538	1,163	0.003	5	1,901
5	22.50	1,553	786	0.002	3	1,919
4	17.50	1,568	480	0.001	2	1,938
3	12.50	1,583	247	0.001	1	1,957
2	7.50	1,598	90	0.000	0	1,976
1	2.50	1,614	10	0.000	0	1,995
LGP Allgon LGP21903	180.40	33	1,074	0.003	5	41
Powerwave Allgon LGP	180.40	85	2,753	0.007	12	105
Raycap DC6-48-60-18-	180.40	20	651	0.002	3	25
Generic 6' Omni	180.40	25	814	0.002	4	31
Ericsson RRUS 4449 B	180.40	213	6,932	0.018	30	263
Ericsson RRUS 4478 B	180.40	178	5,799	0.015	25	220
Raycap DC6-48-60-18-	180.40	16	521	0.001	2	20
Ericsson RRUS 32 B2	180.40	159	5,175	0.013	23	197
Powerwave Allgon 777	180.40	105	3,417	0.009	15	130
CCI DMP65R-BU6DA	180.40	159	5,168	0.013	23	196
CCI DMP65R-BU8D	180.40	383	12,458	0.032	54	473
Generic Flat Light S	180.40	1,200	39,053	0.101	170	1,483
Round Side Arm	46.50	150	324	0.001	1	185
Channel Master Type	10.00	126	13	0.000	0	156
		43,400	387,758	1.000	1,693	53,645

Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
43	180.41	1	28	0.000	0	1
42	180.20	21	668	0.002	3	18
41	177.50	261	8,226	0.021	36	226
40	172.50	269	7,995	0.021	35	232
39	167.50	276	7,751	0.020	34	239
38	162.50	284	7,496	0.019	33	245
37	157.50	291	7,230	0.019	32	252
36	152.75	569	13,285	0.034	58	492
35	150.25	97	2,191	0.006	10	84
34	147.50	975	21,204	0.055	93	842
33	142.50	982	19,945	0.051	87	849
32	137.50	990	18,714	0.048	82	855
31	132.50	997	17,511	0.045	76	862
30	127.67	938	15,285	0.039	67	810
29	125.17	72	1,134	0.003	5	63
28	122.50	1,092	16,385	0.042	72	943
27	117.50	1,102	15,214	0.039	66	952
26	112.50	1,112	14,075	0.036	61	961
25	107.50	1,122	12,969	0.033	57	970
24	102.50	1,132	11,897	0.031	52	978

23	97.50	1,142	10,861	0.028	47	987
22	92.50	1,153	9,862	0.025	43	996
21	87.75	1,046	8,054	0.021	35	904
20	85.25	126	919	0.002	4	109
19	82.50	1,272	8,657	0.022	38	1,099
18	77.50	1,285	7,716	0.020	34	1,110
17	72.50	1,297	6,819	0.018	30	1,121
16	67.50	1,310	5,968	0.015	26	1,132
15	62.50	1,323	5,166	0.013	23	1,143
14	57.50	1,335	4,414	0.011	19	1,154
13	52.50	1,348	3,715	0.010	16	1,164
12	48.25	951	2,214	0.006	10	822
11	45.75	409	857	0.002	4	354
10	44.83	91	183	0.000	1	79
9	42.33	1,393	2,496	0.006	11	1,204
8	37.50	1,507	2,120	0.005	9	1,302
7	32.50	1,522	1,608	0.004	7	1,315
6	27.50	1,538	1,163	0.003	5	1,328
5	22.50	1,553	786	0.002	3	1,341
4	17.50	1,568	480	0.001	2	1,355
3	12.50	1,583	247	0.001	1	1,368
2	7.50	1,598	90	0.000	0	1,381
1	2.50	1,614	10	0.000	0	1,394
LGP Allgon LGP21903	180.40	33	1,074	0.003	5	29
Powerwave Allgon LGP	180.40	85	2,753	0.007	12	73
Raycap DC6-48-60-18-	180.40	20	651	0.002	3	17
Generic 6' Omni	180.40	25	814	0.002	4	22
Ericsson RRUS 4449 B	180.40	213	6,932	0.018	30	184
Ericsson RRUS 4478 B	180.40	178	5,799	0.015	25	154
Raycap DC6-48-60-18-	180.40	16	521	0.001	2	14
Ericsson RRUS 32 B2	180.40	159	5,175	0.013	23	137
Powerwave Allgon 777	180.40	105	3,417	0.009	15	91
CCI DMP65R-BU6DA	180.40	159	5,168	0.013	23	137
CCI DMP65R-BU8D	180.40	383	12,458	0.032	54	331
Generic Flat Light S	180.40	1,200	39,053	0.101	170	1,037
Round Side Arm	46.50	150	324	0.001	1	130
Channel Master Type	10.00	126	13	0.000	0	109
		43,400	387,758	1.000	1,693	37,495

Load Case (1.2 + 0.2Sds) * DL + E ELFM **Seismic Equivalent Lateral Forces Method**

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-51.65	-1.70	0.00	-236.59	0.00	236.59	3,374.47	1,687.24	5,749.79	2,839.61	0.00	0.00	0.065
5.00	-49.67	-1.72	0.00	-228.09	0.00	228.09	3,339.53	1,669.77	5,587.61	2,759.51	0.01	-0.02	0.064
10.00	-47.56	-1.73	0.00	-219.50	0.00	219.50	3,303.67	1,651.84	5,426.07	2,679.73	0.04	-0.04	0.063
15.00	-45.62	-1.74	0.00	-210.84	0.00	210.84	3,266.89	1,633.44	5,265.23	2,600.30	0.09	-0.06	0.061
20.00	-43.70	-1.75	0.00	-202.12	0.00	202.12	3,229.18	1,614.59	5,105.20	2,521.27	0.17	-0.08	0.060
25.00	-41.80	-1.76	0.00	-193.36	0.00	193.36	3,190.54	1,595.27	4,946.05	2,442.67	0.26	-0.10	0.059
30.00	-39.92	-1.76	0.00	-184.55	0.00	184.55	3,150.98	1,575.49	4,787.88	2,364.55	0.38	-0.12	0.057
35.00	-38.05	-1.76	0.00	-175.73	0.00	175.73	3,110.50	1,555.25	4,630.76	2,286.96	0.52	-0.14	0.055
40.00	-36.33	-1.76	0.00	-166.91	0.00	166.91	3,069.09	1,534.55	4,474.78	2,209.92	0.68	-0.16	0.054
44.67	-36.22	-1.77	0.00	-158.70	0.00	158.70	3,029.61	1,514.81	4,330.30	2,138.57	0.84	-0.18	0.053
44.67	-36.22	-1.77	0.00	-158.70	0.00	158.70	2,356.88	1,178.44	3,380.89	1,669.69	0.84	-0.18	0.063
45.00	-35.71	-1.76	0.00	-158.11	0.00	158.11	2,354.99	1,177.50	3,373.36	1,665.97	0.86	-0.18	0.062
46.50	-34.35	-1.76	0.00	-155.46	0.00	155.46	2,346.45	1,173.22	3,339.48	1,649.24	0.91	-0.19	0.061
50.00	-32.69	-1.74	0.00	-149.32	0.00	149.32	2,326.18	1,163.09	3,260.58	1,610.28	1.06	-0.21	0.060
55.00	-31.03	-1.73	0.00	-140.60	0.00	140.60	2,296.44	1,148.22	3,148.31	1,554.83	1.29	-0.23	0.057
60.00	-29.40	-1.71	0.00	-131.95	0.00	131.95	2,265.77	1,132.89	3,036.63	1,499.68	1.54	-0.25	0.055
65.00	-27.78	-1.69	0.00	-123.39	0.00	123.39	2,234.19	1,117.09	2,925.62	1,444.85	1.81	-0.27	0.053
70.00	-26.18	-1.66	0.00	-114.94	0.00	114.94	2,201.67	1,100.84	2,815.37	1,390.41	2.11	-0.29	0.050
75.00	-24.59	-1.63	0.00	-106.63	0.00	106.63	2,168.24	1,084.12	2,705.97	1,336.38	2.42	-0.31	0.047
80.00	-23.01	-1.59	0.00	-98.49	0.00	98.49	2,133.87	1,066.94	2,597.50	1,282.81	2.76	-0.34	0.045
85.00	-22.86	-1.59	0.00	-90.53	0.00	90.53	2,098.59	1,049.29	2,490.04	1,229.74	3.13	-0.36	0.043
85.50	-21.57	-1.55	0.00	-89.74	0.00	89.74	2,095.01	1,047.50	2,479.36	1,224.46	3.16	-0.36	0.042
85.50	-21.57	-1.55	0.00	-89.74	0.00	89.74	1,537.79	768.90	1,827.83	902.70	3.16	-0.36	0.051
90.00	-20.14	-1.50	0.00	-82.76	0.00	82.76	1,518.16	759.08	1,762.50	870.43	3.51	-0.38	0.048
95.00	-18.73	-1.45	0.00	-75.24	0.00	75.24	1,495.46	747.73	1,690.19	834.72	3.91	-0.40	0.044
100.00	-17.33	-1.40	0.00	-67.97	0.00	67.97	1,471.85	735.92	1,618.25	799.19	4.34	-0.42	0.041
105.00	-15.94	-1.34	0.00	-60.97	0.00	60.97	1,447.30	723.65	1,546.78	763.90	4.78	-0.44	0.038
110.00	-14.57	-1.27	0.00	-54.29	0.00	54.29	1,421.84	710.92	1,475.86	728.87	5.25	-0.45	0.034
115.00	-13.20	-1.20	0.00	-47.94	0.00	47.94	1,395.45	697.72	1,405.58	694.16	5.74	-0.47	0.031
120.00	-11.86	-1.12	0.00	-41.96	0.00	41.96	1,368.13	684.07	1,336.01	659.81	6.24	-0.49	0.028
125.00	-11.77	-1.11	0.00	-36.38	0.00	36.38	1,339.89	669.95	1,267.25	625.85	6.76	-0.50	0.025
125.33	-10.61	-1.04	0.00	-36.01	0.00	36.01	1,337.98	668.99	1,262.70	623.60	6.79	-0.50	0.024
125.33	-10.61	-1.04	0.00	-36.01	0.00	36.01	893.38	446.69	847.72	418.66	6.79	-0.50	0.030
130.00	-9.37	-0.95	0.00	-31.17	0.00	31.17	879.61	439.81	809.42	399.74	7.29	-0.52	0.027
135.00	-8.15	-0.86	0.00	-26.41	0.00	26.41	863.96	431.98	768.47	379.52	7.84	-0.53	0.023
140.00	-6.94	-0.76	0.00	-22.10	0.00	22.10	847.39	423.70	727.68	359.37	8.40	-0.54	0.020
145.00	-5.73	-0.66	0.00	-18.29	0.00	18.29	829.90	414.95	687.15	339.36	8.97	-0.55	0.016
150.00	-5.61	-0.65	0.00	-14.98	0.00	14.98	811.48	405.74	646.95	319.51	9.56	-0.56	0.014
150.50	-4.91	-0.59	0.00	-14.66	0.00	14.66	809.59	404.79	642.96	317.53	9.62	-0.56	0.014
150.50	-4.91	-0.59	0.00	-14.66	0.00	14.66	809.59	404.79	642.96	317.53	9.62	-0.56	0.052
155.00	-4.55	-0.55	0.00	-12.02	0.00	12.02	792.13	396.07	607.18	299.86	10.15	-0.57	0.046
160.00	-4.20	-0.52	0.00	-9.26	0.00	9.26	771.86	385.93	567.92	280.48	10.77	-0.60	0.038
165.00	-3.86	-0.48	0.00	-6.67	0.00	6.67	750.67	375.34	529.26	261.38	11.41	-0.63	0.031
170.00	-3.53	-0.44	0.00	-4.25	0.00	4.25	728.55	364.28	491.27	242.62	12.08	-0.65	0.022
175.00	-3.21	-0.41	0.00	-2.03	0.00	2.03	696.59	348.30	448.31	221.40	12.77	-0.66	0.014
180.00	0.00	0.00	0.00	0.00	0.00	0.00	663.72	331.86	406.75	200.88	13.46	-0.67	0.000
180.40	0.00	0.00	0.00	0.00	0.00	0.00	661.08	330.54	403.51	199.28	13.52	-0.67	0.000

180.42	0.00	0.00	0.00	0.00	0.00	0.00	660.98	330.49	403.38	199.21	13.52	-0.67	0.000

Load Case (0.9 - 0.2Sds) * DL + E ELFM **Seismic (Reduced DL) Equivalent Lateral Forces Method**

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-36.10	-1.70	0.00	-231.38	0.00	231.38	3,374.47	1,687.24	5,749.79	2,839.61	0.00	0.00	0.061
5.00	-34.72	-1.71	0.00	-222.89	0.00	222.89	3,339.53	1,669.77	5,587.61	2,759.51	0.01	-0.02	0.060
10.00	-33.24	-1.72	0.00	-214.35	0.00	214.35	3,303.67	1,651.84	5,426.07	2,679.73	0.04	-0.04	0.058
15.00	-31.89	-1.73	0.00	-205.76	0.00	205.76	3,266.89	1,633.44	5,265.23	2,600.30	0.09	-0.06	0.057
20.00	-30.54	-1.73	0.00	-197.12	0.00	197.12	3,229.18	1,614.59	5,105.20	2,521.27	0.16	-0.08	0.056
25.00	-29.22	-1.73	0.00	-188.47	0.00	188.47	3,190.54	1,595.27	4,946.05	2,442.67	0.26	-0.10	0.055
30.00	-27.90	-1.73	0.00	-179.79	0.00	179.79	3,150.98	1,575.49	4,787.88	2,364.55	0.37	-0.12	0.053
35.00	-26.60	-1.73	0.00	-171.12	0.00	171.12	3,110.50	1,555.25	4,630.76	2,286.96	0.50	-0.14	0.052
40.00	-25.39	-1.73	0.00	-162.46	0.00	162.46	3,069.09	1,534.55	4,474.78	2,209.92	0.66	-0.16	0.050
44.67	-25.31	-1.73	0.00	-154.40	0.00	154.40	3,029.61	1,514.81	4,330.30	2,138.57	0.82	-0.18	0.049
44.67	-25.31	-1.73	0.00	-154.40	0.00	154.40	2,356.88	1,178.44	3,380.89	1,669.69	0.82	-0.18	0.058
45.00	-24.96	-1.73	0.00	-153.82	0.00	153.82	2,354.99	1,177.50	3,373.36	1,665.97	0.84	-0.18	0.058
46.50	-24.01	-1.72	0.00	-151.23	0.00	151.23	2,346.45	1,173.22	3,339.48	1,649.24	0.89	-0.18	0.057
50.00	-22.84	-1.70	0.00	-145.22	0.00	145.22	2,326.18	1,163.09	3,260.58	1,610.28	1.03	-0.20	0.056
55.00	-21.69	-1.69	0.00	-136.70	0.00	136.70	2,296.44	1,148.22	3,148.31	1,554.83	1.25	-0.22	0.053
60.00	-20.55	-1.67	0.00	-128.25	0.00	128.25	2,265.77	1,132.89	3,036.63	1,499.68	1.50	-0.24	0.051
65.00	-19.41	-1.65	0.00	-119.90	0.00	119.90	2,234.19	1,117.09	2,925.62	1,444.85	1.76	-0.26	0.049
70.00	-18.29	-1.62	0.00	-111.67	0.00	111.67	2,201.67	1,100.84	2,815.37	1,390.41	2.05	-0.29	0.047
75.00	-17.18	-1.58	0.00	-103.58	0.00	103.58	2,168.24	1,084.12	2,705.97	1,336.38	2.36	-0.31	0.044
80.00	-16.08	-1.55	0.00	-95.66	0.00	95.66	2,133.87	1,066.94	2,597.50	1,282.81	2.69	-0.33	0.042
85.00	-15.97	-1.54	0.00	-87.93	0.00	87.93	2,098.59	1,049.29	2,490.04	1,229.74	3.05	-0.35	0.040
85.50	-15.07	-1.51	0.00	-87.16	0.00	87.16	2,095.01	1,047.50	2,479.36	1,224.46	3.08	-0.35	0.039
85.50	-15.07	-1.51	0.00	-87.16	0.00	87.16	1,537.79	768.90	1,827.83	902.70	3.08	-0.35	0.047
90.00	-14.07	-1.46	0.00	-80.38	0.00	80.38	1,518.16	759.08	1,762.50	870.43	3.42	-0.37	0.044
95.00	-13.09	-1.41	0.00	-73.07	0.00	73.07	1,495.46	747.73	1,690.19	834.72	3.81	-0.39	0.041
100.00	-12.11	-1.36	0.00	-66.01	0.00	66.01	1,471.85	735.92	1,618.25	799.19	4.23	-0.41	0.038
105.00	-11.14	-1.30	0.00	-59.22	0.00	59.22	1,447.30	723.65	1,546.78	763.90	4.66	-0.42	0.035
110.00	-10.18	-1.23	0.00	-52.74	0.00	52.74	1,421.84	710.92	1,475.86	728.87	5.11	-0.44	0.032
115.00	-9.23	-1.16	0.00	-46.58	0.00	46.58	1,395.45	697.72	1,405.58	694.16	5.59	-0.46	0.029
120.00	-8.28	-1.08	0.00	-40.77	0.00	40.77	1,368.13	684.07	1,336.01	659.81	6.07	-0.47	0.026
125.00	-8.22	-1.08	0.00	-35.35	0.00	35.35	1,339.89	669.95	1,267.25	625.85	6.58	-0.49	0.023
125.33	-7.41	-1.01	0.00	-34.99	0.00	34.99	1,337.98	668.99	1,262.70	623.60	6.61	-0.49	0.023
125.33	-7.41	-1.01	0.00	-34.99	0.00	34.99	893.38	446.69	847.72	418.66	6.61	-0.49	0.028
130.00	-6.55	-0.92	0.00	-30.30	0.00	30.30	879.61	439.81	809.42	399.74	7.10	-0.50	0.025
135.00	-5.70	-0.84	0.00	-25.67	0.00	25.67	863.96	431.98	768.47	379.52	7.63	-0.52	0.021
140.00	-4.85	-0.74	0.00	-21.49	0.00	21.49	847.39	423.70	727.68	359.37	8.18	-0.53	0.018
145.00	-4.01	-0.64	0.00	-17.78	0.00	17.78	829.90	414.95	687.15	339.36	8.74	-0.54	0.015
150.00	-3.92	-0.63	0.00	-14.56	0.00	14.56	811.48	405.74	646.95	319.51	9.30	-0.55	0.013
150.50	-3.43	-0.57	0.00	-14.25	0.00	14.25	809.59	404.79	642.96	317.53	9.36	-0.55	0.013
150.50	-3.43	-0.57	0.00	-14.25	0.00	14.25	809.59	404.79	642.96	317.53	9.36	-0.55	0.049
155.00	-3.18	-0.54	0.00	-11.68	0.00	11.68	792.13	396.07	607.18	299.86	9.88	-0.56	0.043
160.00	-2.93	-0.50	0.00	-8.99	0.00	8.99	771.86	385.93	567.92	280.48	10.48	-0.59	0.036
165.00	-2.70	-0.47	0.00	-6.47	0.00	6.47	750.67	375.34	529.26	261.38	11.11	-0.61	0.028
170.00	-2.46	-0.43	0.00	-4.13	0.00	4.13	728.55	364.28	491.27	242.62	11.76	-0.63	0.020
175.00	-2.24	-0.39	0.00	-1.97	0.00	1.97	696.59	348.30	448.31	221.40	12.42	-0.64	0.012
180.00	0.00	0.00	0.00	0.00	0.00	0.00	663.72	331.86	406.75	200.88	13.10	-0.65	0.000
180.40	0.00	0.00	0.00	0.00	0.00	0.00	661.08	330.54	403.51	199.28	13.16	-0.65	0.000

180.42	0.00	0.00	0.00	0.00	0.00	0.00	660.98	330.49	403.38	199.21	13.16	-0.65	0.000

Equivalent Modal Analysis Method

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.17
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.18
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	3.07
Redundancy Factor (p):	1.30

Load Case (1.2 + 0.2Sds) * DL + E EMAM **Seismic Equivalent Modal Analysis Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
43	180.41	1	1.890	1.979	1.140	0.339	0	1
42	180.20	21	1.885	1.956	1.131	0.337	6	25
41	177.50	261	1.829	1.675	1.029	0.303	69	323
40	172.50	269	1.728	1.230	0.858	0.245	57	332
39	167.50	276	1.629	0.871	0.710	0.193	46	341
38	162.50	284	1.533	0.586	0.583	0.146	36	351
37	157.50	291	1.440	0.365	0.475	0.104	26	360
36	152.75	569	1.355	0.204	0.387	0.068	34	704
35	150.25	97	1.311	0.136	0.346	0.051	4	120
34	147.50	975	1.263	0.073	0.305	0.034	29	1,205
33	142.50	982	1.179	-0.014	0.239	0.007	6	1,214
32	137.50	990	1.098	-0.071	0.185	-0.015	-13	1,223
31	132.50	997	1.019	-0.105	0.141	-0.032	-28	1,233
30	127.67	938	0.946	-0.119	0.106	-0.044	-36	1,159
29	125.17	72	0.910	-0.122	0.091	-0.049	-3	89
28	122.50	1,092	0.871	-0.121	0.077	-0.052	-49	1,350
27	117.50	1,102	0.802	-0.112	0.054	-0.055	-52	1,362
26	112.50	1,112	0.735	-0.097	0.037	-0.052	-50	1,375
25	107.50	1,122	0.671	-0.078	0.025	-0.044	-43	1,387
24	102.50	1,132	0.610	-0.057	0.016	-0.032	-32	1,400
23	97.50	1,142	0.552	-0.035	0.010	-0.017	-17	1,412
22	92.50	1,153	0.497	-0.015	0.007	0.000	0	1,425
21	87.75	1,046	0.447	0.003	0.006	0.015	14	1,293
20	85.25	126	0.422	0.011	0.006	0.022	2	156
19	82.50	1,272	0.395	0.020	0.007	0.030	33	1,572
18	77.50	1,285	0.349	0.033	0.009	0.040	44	1,588
17	72.50	1,297	0.305	0.044	0.012	0.047	53	1,603
16	67.50	1,310	0.265	0.053	0.016	0.051	58	1,619
15	62.50	1,323	0.227	0.059	0.020	0.053	61	1,635
14	57.50	1,335	0.192	0.064	0.024	0.054	62	1,650
13	52.50	1,348	0.160	0.067	0.029	0.053	62	1,666
12	48.25	951	0.135	0.069	0.032	0.053	44	1,175
11	45.75	409	0.122	0.070	0.034	0.052	19	506
10	44.83	91	0.117	0.070	0.035	0.052	4	113

9	42.33	1,393	0.104	0.071	0.037	0.052	62	1,722
8	37.50	1,507	0.082	0.072	0.039	0.051	66	1,863
7	32.50	1,522	0.061	0.072	0.041	0.050	65	1,882
6	27.50	1,538	0.044	0.071	0.042	0.048	65	1,901
5	22.50	1,553	0.029	0.068	0.040	0.047	63	1,919
4	17.50	1,568	0.018	0.063	0.037	0.044	60	1,938
3	12.50	1,583	0.009	0.053	0.031	0.039	54	1,957
2	7.50	1,598	0.003	0.038	0.021	0.031	42	1,976
1	2.50	1,614	0.000	0.015	0.008	0.014	20	1,995
LGP Allgon LGP21903	180.40	33	1.890	1.978	1.139	0.339	10	41
Powerwave Allgon LGP	180.40	85	1.890	1.978	1.139	0.339	25	105
Raycap DC6-48-60-18-	180.40	20	1.890	1.978	1.139	0.339	6	25
Generic 6' Omni	180.40	25	1.890	1.978	1.139	0.339	7	31
Ericsson RRUS 4449 B	180.40	213	1.890	1.978	1.139	0.339	63	263
Ericsson RRUS 4478 B	180.40	178	1.890	1.978	1.139	0.339	52	220
Raycap DC6-48-60-18-	180.40	16	1.890	1.978	1.139	0.339	5	20
Ericsson RRUS 32 B2	180.40	159	1.890	1.978	1.139	0.339	47	197
Powerwave Allgon 777	180.40	105	1.890	1.978	1.139	0.339	31	130
CCI DMP65R-BU6DA	180.40	159	1.890	1.978	1.139	0.339	47	196
CCI DMP65R-BU8D	180.40	383	1.890	1.978	1.139	0.339	113	473
Generic Flat Light S	180.40	1,200	1.890	1.978	1.139	0.339	353	1,483
Round Side Arm	46.50	150	0.126	0.070	0.034	0.052	7	185
Channel Master Type	10.00	126	0.006	0.047	0.027	0.036	4	156
		43,400	52.047	33.069	22.210	6.492	1,712	53,645

Load Case (0.9 - 0.2Sds) * DL + E EMAM **Seismic (Reduced DL) Equivalent Modal Analysis Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
43	180.41	1	1.890	1.979	1.140	0.339	0	1
42	180.20	21	1.885	1.956	1.131	0.337	6	18
41	177.50	261	1.829	1.675	1.029	0.303	69	226
40	172.50	269	1.728	1.230	0.858	0.245	57	232
39	167.50	276	1.629	0.871	0.710	0.193	46	239
38	162.50	284	1.533	0.586	0.583	0.146	36	245
37	157.50	291	1.440	0.365	0.475	0.104	26	252
36	152.75	569	1.355	0.204	0.387	0.068	34	492
35	150.25	97	1.311	0.136	0.346	0.051	4	84
34	147.50	975	1.263	0.073	0.305	0.034	29	842
33	142.50	982	1.179	-0.014	0.239	0.007	6	849
32	137.50	990	1.098	-0.071	0.185	-0.015	-13	855
31	132.50	997	1.019	-0.105	0.141	-0.032	-28	862
30	127.67	938	0.946	-0.119	0.106	-0.044	-36	810
29	125.17	72	0.910	-0.122	0.091	-0.049	-3	63
28	122.50	1,092	0.871	-0.121	0.077	-0.052	-49	943
27	117.50	1,102	0.802	-0.112	0.054	-0.055	-52	952
26	112.50	1,112	0.735	-0.097	0.037	-0.052	-50	961
25	107.50	1,122	0.671	-0.078	0.025	-0.044	-43	970
24	102.50	1,132	0.610	-0.057	0.016	-0.032	-32	978
23	97.50	1,142	0.552	-0.035	0.010	-0.017	-17	987
22	92.50	1,153	0.497	-0.015	0.007	0.000	0	996
21	87.75	1,046	0.447	0.003	0.006	0.015	14	904
20	85.25	126	0.422	0.011	0.006	0.022	2	109
19	82.50	1,272	0.395	0.020	0.007	0.030	33	1,099
18	77.50	1,285	0.349	0.033	0.009	0.040	44	1,110
17	72.50	1,297	0.305	0.044	0.012	0.047	53	1,121
16	67.50	1,310	0.265	0.053	0.016	0.051	58	1,132
15	62.50	1,323	0.227	0.059	0.020	0.053	61	1,143
14	57.50	1,335	0.192	0.064	0.024	0.054	62	1,154

13	**52.50**	**1,348**	**0.160**	**0.067**	**0.029**	**0.053**	**62**	**1,164**
12	**48.25**	**951**	**0.135**	**0.069**	**0.032**	**0.053**	**44**	**822**
11	**45.75**	**409**	**0.122**	**0.070**	**0.034**	**0.052**	**19**	**354**
10	**44.83**	**91**	**0.117**	**0.070**	**0.035**	**0.052**	**4**	**79**
9	**42.33**	**1,393**	**0.104**	**0.071**	**0.037**	**0.052**	**62**	**1,204**
8	**37.50**	**1,507**	**0.082**	**0.072**	**0.039**	**0.051**	**66**	**1,302**
7	**32.50**	**1,522**	**0.061**	**0.072**	**0.041**	**0.050**	**65**	**1,315**
6	**27.50**	**1,538**	**0.044**	**0.071**	**0.042**	**0.048**	**65**	**1,328**
5	**22.50**	**1,553**	**0.029**	**0.068**	**0.040**	**0.047**	**63**	**1,341**
4	**17.50**	**1,568**	**0.018**	**0.063**	**0.037**	**0.044**	**60**	**1,355**
3	**12.50**	**1,583**	**0.009**	**0.053**	**0.031**	**0.039**	**54**	**1,368**
2	**7.50**	**1,598**	**0.003**	**0.038**	**0.021**	**0.031**	**42**	**1,381**
1	**2.50**	**1,614**	**0.000**	**0.015**	**0.008**	**0.014**	**20**	**1,394**
LGP Allgon LGP21903	**180.40**	**33**	**1.890**	**1.978**	**1.139**	**0.339**	**10**	**29**
Powerwave Allgon LGP	**180.40**	**85**	**1.890**	**1.978**	**1.139**	**0.339**	**25**	**73**
Raycap DC6-48-60-18-	**180.40**	**20**	**1.890**	**1.978**	**1.139**	**0.339**	**6**	**17**
Generic 6' Omni	**180.40**	**25**	**1.890**	**1.978**	**1.139**	**0.339**	**7**	**22**
Ericsson RRUS 4449 B	**180.40**	**213**	**1.890**	**1.978**	**1.139**	**0.339**	**63**	**184**
Ericsson RRUS 4478 B	**180.40**	**178**	**1.890**	**1.978**	**1.139**	**0.339**	**52**	**154**
Raycap DC6-48-60-18-	**180.40**	**16**	**1.890**	**1.978**	**1.139**	**0.339**	**5**	**14**
Ericsson RRUS 32 B2	**180.40**	**159**	**1.890**	**1.978**	**1.139**	**0.339**	**47**	**137**
Powerwave Allgon 777	**180.40**	**105**	**1.890**	**1.978**	**1.139**	**0.339**	**31**	**91**
CCI DMP65R-BU6DA	**180.40**	**159**	**1.890**	**1.978**	**1.139**	**0.339**	**47**	**137**
CCI DMP65R-BU8D	**180.40**	**383**	**1.890**	**1.978**	**1.139**	**0.339**	**113**	**331**
Generic Flat Light S	**180.40**	**1,200**	**1.890**	**1.978**	**1.139**	**0.339**	**353**	**1,037**
Round Side Arm	**46.50**	**150**	**0.126**	**0.070**	**0.034**	**0.052**	**7**	**130**
Channel Master Type	**10.00**	**126**	**0.006**	**0.047**	**0.027**	**0.036**	**4**	**109**
		43,400	**52.047**	**33.069**	**22.210**	**6.492**	**1,712**	**37,495**

Load Case **(1.2 + 0.2Sds) * DL + E EMAM** **Seismic Equivalent Modal Analysis Method**

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-51.65	-1.70	0.00	-205.14	0.00	205.14	3,374.47	1,687.24	5,749.79	2,839.61	0.00	0.00	0.058
5.00	-49.67	-1.67	0.00	-196.65	0.00	196.65	3,339.53	1,669.77	5,587.61	2,759.51	0.01	-0.02	0.057
10.00	-47.56	-1.63	0.00	-188.29	0.00	188.29	3,303.67	1,651.84	5,426.07	2,679.73	0.04	-0.03	0.055
15.00	-45.62	-1.58	0.00	-180.16	0.00	180.16	3,266.89	1,633.44	5,265.23	2,600.30	0.08	-0.05	0.054
20.00	-43.70	-1.53	0.00	-172.27	0.00	172.27	3,229.18	1,614.59	5,105.20	2,521.27	0.14	-0.07	0.053
25.00	-41.80	-1.47	0.00	-164.63	0.00	164.63	3,190.54	1,595.27	4,946.05	2,442.67	0.23	-0.09	0.051
30.00	-39.92	-1.42	0.00	-157.27	0.00	157.27	3,150.98	1,575.49	4,787.88	2,364.55	0.33	-0.10	0.050
35.00	-38.06	-1.36	0.00	-150.19	0.00	150.19	3,110.50	1,555.25	4,630.76	2,286.96	0.44	-0.12	0.049
40.00	-36.33	-1.30	0.00	-143.40	0.00	143.40	3,069.09	1,534.55	4,474.78	2,209.92	0.58	-0.14	0.047
44.67	-36.22	-1.30	0.00	-137.32	0.00	137.32	3,029.61	1,514.81	4,330.30	2,138.57	0.72	-0.16	0.047
44.67	-36.22	-1.30	0.00	-137.32	0.00	137.32	2,356.88	1,178.44	3,380.89	1,669.69	0.72	-0.16	0.055
45.00	-35.71	-1.29	0.00	-136.89	0.00	136.89	2,354.99	1,177.50	3,373.36	1,665.97	0.73	-0.16	0.055
46.50	-34.35	-1.24	0.00	-134.96	0.00	134.96	2,346.45	1,173.22	3,339.48	1,649.24	0.78	-0.16	0.055
50.00	-32.69	-1.18	0.00	-130.63	0.00	130.63	2,326.18	1,163.09	3,260.58	1,610.28	0.91	-0.18	0.053
55.00	-31.04	-1.12	0.00	-124.73	0.00	124.73	2,296.44	1,148.22	3,148.31	1,554.83	1.10	-0.20	0.052
60.00	-29.40	-1.07	0.00	-119.11	0.00	119.11	2,265.77	1,132.89	3,036.63	1,499.68	1.32	-0.22	0.050
65.00	-27.78	-1.01	0.00	-113.78	0.00	113.78	2,234.19	1,117.09	2,925.62	1,444.85	1.56	-0.24	0.049
70.00	-26.18	-0.96	0.00	-108.72	0.00	108.72	2,201.67	1,100.84	2,815.37	1,390.41	1.81	-0.26	0.048
75.00	-24.59	-0.92	0.00	-103.91	0.00	103.91	2,168.24	1,084.12	2,705.97	1,336.38	2.09	-0.28	0.046
80.00	-23.02	-0.89	0.00	-99.32	0.00	99.32	2,133.87	1,066.94	2,597.50	1,282.81	2.39	-0.30	0.045
85.00	-22.86	-0.89	0.00	-94.89	0.00	94.89	2,098.59	1,049.29	2,490.04	1,229.74	2.71	-0.32	0.044
85.50	-21.57	-0.87	0.00	-94.45	0.00	94.45	2,095.01	1,047.50	2,479.36	1,224.46	2.75	-0.32	0.044
85.50	-21.57	-0.87	0.00	-94.45	0.00	94.45	1,537.79	768.90	1,827.83	902.70	2.75	-0.32	0.053
90.00	-20.14	-0.87	0.00	-90.53	0.00	90.53	1,518.16	759.08	1,762.50	870.43	3.06	-0.34	0.052
95.00	-18.73	-0.89	0.00	-86.18	0.00	86.18	1,495.46	747.73	1,690.19	834.72	3.42	-0.36	0.050
100.00	-17.33	-0.92	0.00	-81.75	0.00	81.75	1,471.85	735.92	1,618.25	799.19	3.81	-0.39	0.048
105.00	-15.94	-0.96	0.00	-77.18	0.00	77.18	1,447.30	723.65	1,546.78	763.90	4.23	-0.41	0.046
110.00	-14.57	-1.00	0.00	-72.40	0.00	72.40	1,421.84	710.92	1,475.86	728.87	4.67	-0.43	0.044
115.00	-13.21	-1.05	0.00	-67.39	0.00	67.39	1,395.45	697.72	1,405.58	694.16	5.14	-0.46	0.042
120.00	-11.86	-1.09	0.00	-62.15	0.00	62.15	1,368.13	684.07	1,336.01	659.81	5.63	-0.48	0.039
125.00	-11.77	-1.10	0.00	-56.69	0.00	56.69	1,339.89	669.95	1,267.25	625.85	6.14	-0.50	0.037
125.33	-10.61	-1.12	0.00	-56.32	0.00	56.32	1,337.98	668.99	1,262.70	623.60	6.18	-0.50	0.036
125.33	-10.61	-1.12	0.00	-56.32	0.00	56.32	893.38	446.69	847.72	418.66	6.18	-0.50	0.045
130.00	-9.37	-1.15	0.00	-51.08	0.00	51.08	879.61	439.81	809.42	399.74	6.68	-0.52	0.041
135.00	-8.15	-1.15	0.00	-45.35	0.00	45.35	863.96	431.98	768.47	379.52	7.24	-0.55	0.037
140.00	-6.93	-1.13	0.00	-39.60	0.00	39.60	847.39	423.70	727.68	359.37	7.83	-0.57	0.033
145.00	-5.73	-1.09	0.00	-33.93	0.00	33.93	829.90	414.95	687.15	339.36	8.44	-0.59	0.028
150.00	-5.61	-1.09	0.00	-28.46	0.00	28.46	811.48	405.74	646.95	319.51	9.07	-0.61	0.024
150.50	-4.91	-1.05	0.00	-27.91	0.00	27.91	809.59	404.79	642.96	317.53	9.13	-0.61	0.024
150.50	-4.91	-1.05	0.00	-27.91	0.00	27.91	809.59	404.79	642.96	317.53	9.13	-0.61	0.094
155.00	-4.55	-1.02	0.00	-23.19	0.00	23.19	792.13	396.07	607.18	299.86	9.71	-0.62	0.083
160.00	-4.19	-0.99	0.00	-18.08	0.00	18.08	771.86	385.93	567.92	280.48	10.40	-0.68	0.070
165.00	-3.85	-0.94	0.00	-13.14	0.00	13.14	750.67	375.34	529.26	261.38	11.14	-0.73	0.055
170.00	-3.52	-0.88	0.00	-8.44	0.00	8.44	728.55	364.28	491.27	242.62	11.93	-0.77	0.040
175.00	-3.20	-0.81	0.00	-4.04	0.00	4.04	696.59	348.30	448.31	221.40	12.76	-0.80	0.023
180.00	0.00	0.00	0.00	0.00	0.00	0.00	663.72	331.86	406.75	200.88	13.60	-0.81	0.000
180.40	0.00	0.00	0.00	0.00	0.00	0.00	661.08	330.54	403.51	199.28	13.67	-0.81	0.000

180.42	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**660.98**	**330.49**	**403.38**	**199.21**	**13.67**	**-0.81**	**0.000**

Load Case **(0.9 - 0.2Sds) * DL + E EMAM** **Seismic (Reduced DL) Equivalent Modal Analysis Method**

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-36.10	-1.70	0.00	-200.29	0.00	200.29	3,374.47	1,687.24	5,749.79	2,839.61	0.00	0.00	0.054
5.00	-34.72	-1.66	0.00	-191.80	0.00	191.80	3,339.53	1,669.77	5,587.61	2,759.51	0.01	-0.02	0.052
10.00	-33.24	-1.62	0.00	-183.49	0.00	183.49	3,303.67	1,651.84	5,426.07	2,679.73	0.04	-0.03	0.051
15.00	-31.89	-1.56	0.00	-175.41	0.00	175.41	3,266.89	1,633.44	5,265.23	2,600.30	0.08	-0.05	0.050
20.00	-30.55	-1.51	0.00	-167.59	0.00	167.59	3,229.18	1,614.59	5,105.20	2,521.27	0.14	-0.07	0.049
25.00	-29.22	-1.45	0.00	-160.05	0.00	160.05	3,190.54	1,595.27	4,946.05	2,442.67	0.22	-0.08	0.047
30.00	-27.90	-1.39	0.00	-152.80	0.00	152.80	3,150.98	1,575.49	4,787.88	2,364.55	0.32	-0.10	0.046
35.00	-26.60	-1.33	0.00	-145.84	0.00	145.84	3,110.50	1,555.25	4,630.76	2,286.96	0.43	-0.12	0.045
40.00	-25.39	-1.27	0.00	-139.19	0.00	139.19	3,069.09	1,534.55	4,474.78	2,209.92	0.56	-0.13	0.044
44.67	-25.32	-1.27	0.00	-133.25	0.00	133.25	3,029.61	1,514.81	4,330.30	2,138.57	0.70	-0.15	0.043
44.67	-25.32	-1.27	0.00	-133.25	0.00	133.25	2,356.88	1,178.44	3,380.89	1,669.69	0.70	-0.15	0.051
45.00	-24.96	-1.25	0.00	-132.83	0.00	132.83	2,354.99	1,177.50	3,373.36	1,665.97	0.71	-0.15	0.051
46.50	-24.01	-1.21	0.00	-130.94	0.00	130.94	2,346.45	1,173.22	3,339.48	1,649.24	0.76	-0.16	0.050
50.00	-22.85	-1.15	0.00	-126.73	0.00	126.73	2,326.18	1,163.09	3,260.58	1,610.28	0.88	-0.17	0.049
55.00	-21.69	-1.09	0.00	-121.00	0.00	121.00	2,296.44	1,148.22	3,148.31	1,554.83	1.07	-0.19	0.048
60.00	-20.55	-1.03	0.00	-115.56	0.00	115.56	2,265.77	1,132.89	3,036.63	1,499.68	1.28	-0.21	0.047
65.00	-19.42	-0.97	0.00	-110.41	0.00	110.41	2,234.19	1,117.09	2,925.62	1,444.85	1.51	-0.23	0.045
70.00	-18.30	-0.92	0.00	-105.54	0.00	105.54	2,201.67	1,100.84	2,815.37	1,390.41	1.76	-0.25	0.044
75.00	-17.19	-0.88	0.00	-100.93	0.00	100.93	2,168.24	1,084.12	2,705.97	1,336.38	2.03	-0.27	0.043
80.00	-16.09	-0.85	0.00	-96.53	0.00	96.53	2,133.87	1,066.94	2,597.50	1,282.81	2.33	-0.29	0.042
85.00	-15.98	-0.85	0.00	-92.30	0.00	92.30	2,098.59	1,049.29	2,490.04	1,229.74	2.64	-0.31	0.041
85.50	-15.08	-0.83	0.00	-91.88	0.00	91.88	2,095.01	1,047.50	2,479.36	1,224.46	2.67	-0.31	0.041
85.50	-15.08	-0.83	0.00	-91.88	0.00	91.88	1,537.79	768.90	1,827.83	902.70	2.67	-0.31	0.050
90.00	-14.08	-0.83	0.00	-88.14	0.00	88.14	1,518.16	759.08	1,762.50	870.43	2.97	-0.33	0.048
95.00	-13.09	-0.85	0.00	-83.99	0.00	83.99	1,495.46	747.73	1,690.19	834.72	3.33	-0.35	0.047
100.00	-12.11	-0.88	0.00	-79.76	0.00	79.76	1,471.85	735.92	1,618.25	799.19	3.71	-0.37	0.045
105.00	-11.14	-0.92	0.00	-75.37	0.00	75.37	1,447.30	723.65	1,546.78	763.90	4.11	-0.40	0.043
110.00	-10.18	-0.97	0.00	-70.78	0.00	70.78	1,421.84	710.92	1,475.86	728.87	4.54	-0.42	0.041
115.00	-9.23	-1.01	0.00	-65.95	0.00	65.95	1,395.45	697.72	1,405.58	694.16	5.00	-0.44	0.039
120.00	-8.28	-1.06	0.00	-60.88	0.00	60.88	1,368.13	684.07	1,336.01	659.81	5.47	-0.47	0.037
125.00	-8.22	-1.06	0.00	-55.58	0.00	55.58	1,339.89	669.95	1,267.25	625.85	5.98	-0.49	0.035
125.33	-7.41	-1.09	0.00	-55.23	0.00	55.23	1,337.98	668.99	1,262.70	623.60	6.01	-0.49	0.034
125.33	-7.41	-1.09	0.00	-55.23	0.00	55.23	893.38	446.69	847.72	418.66	6.01	-0.49	0.043
130.00	-6.55	-1.12	0.00	-50.12	0.00	50.12	879.61	439.81	809.42	399.74	6.50	-0.51	0.039
135.00	-5.69	-1.12	0.00	-44.54	0.00	44.54	863.96	431.98	768.47	379.52	7.05	-0.53	0.035
140.00	-4.84	-1.11	0.00	-38.92	0.00	38.92	847.39	423.70	727.68	359.37	7.62	-0.55	0.031
145.00	-4.00	-1.08	0.00	-33.36	0.00	33.36	829.90	414.95	687.15	339.36	8.21	-0.57	0.027
150.00	-3.92	-1.07	0.00	-27.98	0.00	27.98	811.48	405.74	646.95	319.51	8.82	-0.59	0.023
150.50	-3.43	-1.03	0.00	-27.44	0.00	27.44	809.59	404.79	642.96	317.53	8.88	-0.59	0.023
150.50	-3.43	-1.03	0.00	-27.44	0.00	27.44	809.59	404.79	642.96	317.53	8.88	-0.59	0.091
155.00	-3.17	-1.01	0.00	-22.80	0.00	22.80	792.13	396.07	607.18	299.86	9.45	-0.61	0.080
160.00	-2.93	-0.97	0.00	-17.76	0.00	17.76	771.86	385.93	567.92	280.48	10.12	-0.67	0.067
165.00	-2.69	-0.92	0.00	-12.91	0.00	12.91	750.67	375.34	529.26	261.38	10.85	-0.72	0.053
170.00	-2.46	-0.86	0.00	-8.29	0.00	8.29	728.55	364.28	491.27	242.62	11.62	-0.76	0.038
175.00	-2.23	-0.79	0.00	-3.97	0.00	3.97	696.59	348.30	448.31	221.40	12.42	-0.78	0.021
180.00	0.00	0.00	0.00	0.00	0.00	0.00	663.72	331.86	406.75	200.88	13.25	-0.79	0.000
180.40	0.00	0.00	0.00	0.00	0.00	0.00	661.08	330.54	403.51	199.28	13.31	-0.79	0.000

180.42	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**660.98**	**330.49**	**403.38**	**199.21**	**13.32**	**-0.79**	**0.000**

Analysis Summary

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	31.93	0.00	52.00	0.00	0.00	3461.48	0.00	0.81
0.9D + 1.6W	31.36	0.00	38.98	0.00	0.00	3392.45	0.00	0.79
1.2D + 1.0Di + 1.0Wi	5.94	0.00	69.22	0.00	0.00	700.67	150.50	0.19
(1.2 + 0.2Sds) * DL + E ELFM	1.70	0.00	51.65	0.00	0.00	236.59	0.00	0.07
(1.2 + 0.2Sds) * DL + E EMAM	1.70	0.00	51.65	0.00	0.00	205.14	150.50	0.09
(0.9 - 0.2Sds) * DL + E ELFM	1.70	0.00	36.10	0.00	0.00	231.38	0.00	0.06
(0.9 - 0.2Sds) * DL + E EMAM	1.70	0.00	36.10	0.00	0.00	200.29	150.50	0.09
1.0D + 1.0W	6.00	0.00	43.40	0.00	0.00	655.61	0.00	0.16

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors VQ/I (lb/in)	Shear Applied (kips)	Shear phiVn (kips)	Ratio	Max Member Pu (kip)	phiPn (kip)	Ratio
0.00	150.50	(4) SOL-#20 All Thread Bar	306.1	9.2	16.8	0.546	300.7	330.5	0.910

Elev From (ft)	Elev To (ft)	Member	Upper Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Ratio	Lower Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Ratio
0.00	150.50	(4) SOL-#20 All Thread Bar	83.8	12.0	7	12	0.582	0.0	12.0	0	0	0.000

Site Name:	Lisbon CT 3
Site Number:	302503
Engineering Number:	OAA754270_C3_01
Engineer:	DH
Date:	11/19/2019

Design Base Loads (Factored) - Design per TIA-222-G Standard

Moment (Overturning) (M_u):	3461.5	k-ft
Shear/Leg (V_u):	31.9	k
Compression/Leg (P_u):	52.0	k
Uplift/Leg (T_u):	0.0	k
Tower Type (GT / SST / MP):	MP	

Length / Width of Block:	14.0	ft
Thickness of Block:	6.0	ft
Block Height Above Ground:	0.5	ft
Depth Below Ground Surface to Water Table (w):	30.0	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Soil:	130.0	pcf
Unit Weight of Water:	62.4	pcf
Ultimate Compressive Bearing Pressure:	30000	psf
Capacity Increase (Due to Transient Loads):	1.00	
Pullout Angle:	45.0	degrees
Rod Diameter:	1.00	in
Rod Ultimate Strength:	90	ksi
Rod Net Area:	0.79	in^2
Number of Rods:	16	
Diameter of Cored Hole:	3.00	in
Ultimate Grout / Rock Interface Bond Strength:	100	psi
Ultimate Grout / Rock Anchor Interface Bond Strength:	400	psi
Overall Rod Embedment Length:	72	in
Rod Exposure Above Lock Off Nut in Foundation:	36	in
Rod Embedment Circle:	137	in
Free Stress Length:	0	in
Soil / Concrete Friction Coefficient:	0.55	
Rock Anchor Design Plastic or Elastic:	Elastic	
Ignore Pullout Weight Resistance (Y/N):	Y	
Weight of Concrete (Buoyancy Effect Considered):	176.4	k
Compressive Bearing Resistance:	4618.1	k
Pullout Weight / Rod:		k - Ignored
Rock / Grout Bond Strength / Rod:	67.9	k
Grout / Rod Bond Strength / Rod:	90.5	k
Factored Nominal Moment Capacity per Leg ($\phi_s M_n$):	4322.2	k
Factored Nominal Uplift Capacity per Leg ($\phi_s T_n$):	1012.1	k
Factored Nominal Compressive Capacity per Leg ($\phi_s P_n$):	3463.6	k
Factored Nominal Shear Capacity per Leg ($\phi_s V_n$):	666.8	k
M_u:	3653.1	k-ft
T_u:	0.0	k
P_u:	77.9	k
V_u:	31.9	k
$T_u/\phi_s T_n + M_u/\phi_s M_n$:	0.85	Result: OK
$P_u/\phi_s P_n$:	0.02	Result: OK

Caisson Strength Capacity

Concrete Compressive Strength (f'_c):	3000	psi
Vertical Steel Rebar Size #:	11	
Vertical Steel Rebar Area:	1.56	in^2
# of Vertical Steel Rebars:	52	Minimum # of vertical rebar met
Vertical Steel Rebar Yield Strength (F_y):	60	ksi
Horizontal Tie / Stirrup Size #:	4	
Horizontal Tie / Stirrup Area:	0.20	in^2
Horizontal Tie / Stirrup Spacing:	12.0	in
Horizontal Tie / Stirrup Steel Yield Strength (F_y):	40	ksi
Rod Bearing Plate Diameter:	8.0	in
Rod Bearing Plate Thickness:	1.0	in
Anchor Bearing Plate Yield Strength:	36	ksi
Anchor Rod Nut Diameter:	2.02	in
Rebar Cage Diameter:	160.0	in
Strength Bending/Tension Reduction Factor (ϕ_B):	0.90	ACI318-05 - 9.3.2.1
Strength Shear Reduction Factor (ϕ_V):	0.75	ACI318-05 - 9.3.2.3
Strength Compression/Bearing Reduction Factor ($\phi_{P/B}$):	0.65	ACI318-05 - 9.3.2.2
Factored Nominal Moment Capacity ($\phi_B M_n$):	28558.1	k-ft - ACI318-05 - 10.2
$M_u/\phi_B M_n$:	0.13	Result: OK
Design Shear (V_u):	268.8	k
Factored Nominal Shear Capacity ($\phi_V V_n$):	938.6	k - ACI318-05 - 11.3.1.1 or 11.5.7.2
$V_u/\phi_V V_n$:	0.29	Result: OK
Design Tension (T_u):	0.0	k
Factored Nominal Tension Capacity ($\phi_T T_n$):	4380.5	k - ACI318-05 - 10.2
$T_u/\phi_T T_n$:	0.00	Result: OK
Design Compression (P_u):	52.0	k
Factored Nominal Compression Capacity ($\phi_P P_n$):	34454.1	k - ACI318-05 - 10.3.6.2
$P_u/\phi_P P_n$:	0.00	Result: OK

Bearing Plate Design

Plate Bearing Design Load (P_u):	43.0	k
Plate Shear Design Load (V_u):	43.0	k
Factored Rod Bearing Plate Capacity of a Single Anchor ($\phi_B P_n$):	164.0	k
Bearing Plate Pressure:	0.9	ksi
Plate Design Moment (M_u):	12.4	k-in
Critical Length:	6.88	in
Plastic Modulus:	1.72	in^3
Factored Nominal Plate Flexural Resistance ($\phi_B M_n$):	55.7	k-in
Factored Nominal Plate Shear Resistance ($\phi_V V_n$):	123.4	k
Factored Punch Shear Capacity Resisting Plate Load ($\phi_P P_n$):	667.7	k - ACI318-05 - 11.11.2.1
Interaction Equation:	0.35	Result: OK

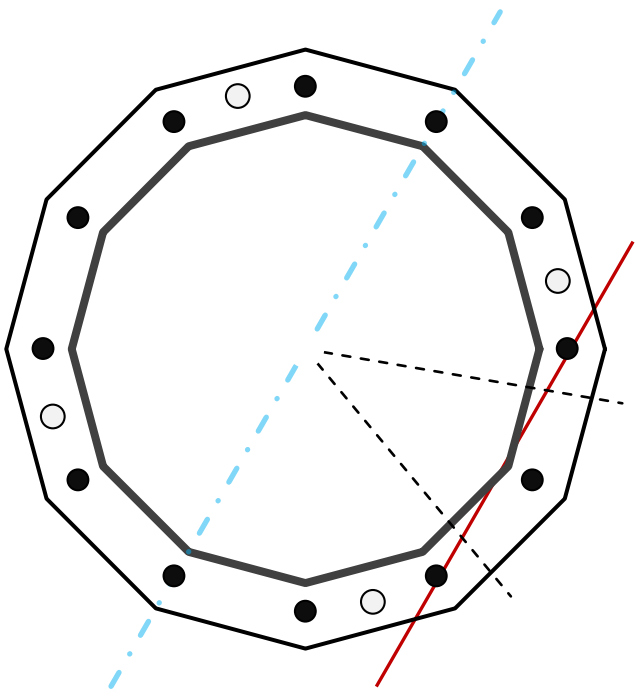
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	12	-
Diameter	41.699	in
Thickness	0.375	in
Orientation Offset		°

Base Reactions		
Moment, Mu	3461.5	k-ft
Axial, Pu	52.0	k
Shear, Vu	31.9	k
Neutral Axis	240	°

Report Capacities		
Component	Capacity	Result
Base Plate	25%	Pass
Anchor Rods	76%	Pass
Dwyidag	57%	Pass

Base Plate		
Number of Sides	12	-
Diameter, ø	53.699	in
Thickness	2 1/2	in
Grade	A572-60	
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	N/A	in
Orientation Offset		°
Anchor Rod Detail	c	η=0.55
Clear Distance	N/A	in
Applied Moment, Mu	423.6	k
Bending Stress, ϕMn	1700.6	k



Dywidag Reinforcement		
Quantity	4	-
Bar Size	#20	in
Diameter, ø	2.5	in
Bracket Type	Angle	-
Circle	48.58	in
Orientation Offset	15	°
Applied Force, Pu	222.5	k
Dywidag Bar, ϕPn	392.7	k

Original Anchor Rods		
Arrangement	Radial	-
Quantity	12	-
Diameter, ø	2 1/4	in
Bolt Circle	48.699	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	12.7	in
Orientation Offset		°
Applied Force, Pu	193.6	k
Anchor Rods, ϕPn	259.8	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	31.9	2212.7	0.64
Anchor Rod Forces	31.9	2212.7	0.64
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	1248.8	0.36
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	48.1295	4.0108	0.1889		10275.94
Bolt	3.9761	3.2477	0.8393	4.5	10463.96
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	4.9087	4.9087	1.9175		5799.78
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	12	-
Width, W	53.699	in
Thickness, t	2.5	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	33.835	in
Detail Type	c	-
Detail Factor	0.55	-
Clear Distance	N/A	-

Anchor Rods		
Anchor Rod Quantity, N	12	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	48.699	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	193.6	k
Applied Shear, Vu	1.5	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.745	OK
Interaction Capacity	0.756	OK

External Base Plate		
Chord Length AA	33.993	in
Additional AA	5.000	in
Section Modulus, Z	60.926	in^3
Applied Moment, Mu	423.6	k-ft
Bending Capacity, ϕMn	3290.0	k-ft
Capacity, Mu/ϕMn	0.129	OK
Chord Length AB	32.513	in
Additional AB	5.000	in
Section Modulus, Z	58.614	in^3
Applied Moment, Mu	280.3	k-ft
Bending Capacity, ϕMn	3165.2	k-ft
Capacity, Mu/ϕMn	0.089	OK
Bend Line Length	20.155	in
Additional Bend Line	0.000	in
Section Modulus, Z	31.492	in^3
Applied Moment, Mu	423.6	k-ft
Bending Capacity, ϕMn	1700.6	k-ft
Capacity, Mu/ϕMn	0.249	OK

Internal Base Plate		
Arc Length	0.000	in
Section Modulus, Z	0.000	in^3
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		

Dywidag Reinforcement		
Dywidag Quantity, N	4	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	48.579	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	222.5	k
Compressive Capacity, ϕPn	392.7	k
Capacity, Pu/ϕPn	0.567	OK

Flange Plate Analysis

Flange Plate			
	Plate Type	***Flange***	***@ 125 ft***
	Pole Diameter	23.179	in
	Pole Thickness	0.1875	in
	Plate Diameter	29.6028	in
	Plate Thickness	1.25	in
	Plate Fy	36	ksi
	Weld Length	0.1875	in
	f_s Resistance	51.20	k-in
	Applied	18.19	k-in

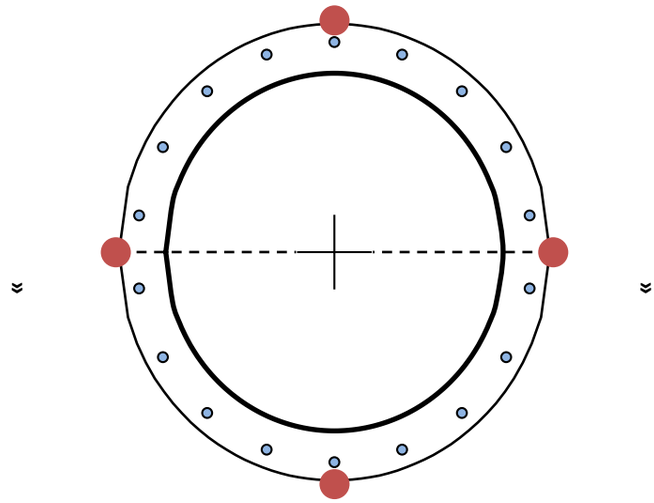
Code Rev.	***G***	
Moment	526.2	k-ft
Axial	9.9	k

Required Flange Thickness:
0.75 in OK

Date	11/20/2019	
Engineer	DH	
Site #	302503	
Carrier	AT&T Mobility	

Stiffeners		
#	***0***	

Bolts			
	#	***18***	
	Bolt Circle	27.237	in
	(R)adial / (S)quare	R	
	Bolt Gap	6	in
•	Diameter	1	in
	Hole Diameter	1.125	in
	Type	A325	
	Fy	92	ksi
	Fu	120	ksi
	f_s Resistance	54.52	k
	Applied	14.22	k



Reinforcement			
	#	***4***	
•	DYW. Circle	30.054	in
	Offset Angle	0	°
	Type	#20	
	Diameter	2.5	in
	Fu	100	ksi
	f_s Resistance	392.70	k
	Applied	149.31	k

Extra Bolts 0		
#		

Plate Stress Ratio:
36% Pass

Bolt Stress Ratio:
26% Pass

Reinforcement Stress Ratio:
38% Pass

26 MELL RD

Location	26 MELL RD	**Mblu**	09/ 073/ 0000/ /
Acct#	W1082500	**Owner**	WILDOWSKY STANLEY JR
Assessment		**Appraisal**	
PID	1972	**Building Count**	1

Current Value

Appraisal
No Data for Current Valuation

Assessment
No Data for Current Valuation

Owner of Record

Owner	WILDOWSKY STANLEY JR	**Sale Price**	$0
Co-Owner	AMERICAN TOWER/LAND MGMT	**Certificate**	
Care Of		**Book & Page**	77/11
Address	10 PRESIDENTIAL WAY WOBURN, MA 01801	**Sale Date**	09/27/1995
		Instrument	U

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
WILDOWSKY STANLEY JR	$0		77/11	U	09/27/1995

Building Information

Building 1 : Section 1

Year Built:	
Living Area:	0
Replacement Cost:	$0
Building Percent Good:	
Replacement Cost Less Depreciation:	$0

Building Attributes	
Field	**Description**

Building Photo

Building Photo (http://images.vgsi.com/photos2/LisbonCTPhotos//LegacyPhotos'

Building Layout

Building Layout (ParcelSketch.ashx?pid=1972&bid=1972)

Building Sub-Areas (sq ft)	Legend

Style	Outbuildings
Model	
Grade	
No. of Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type	
AC Type	
Total Bedrooms	
Total Bathrms	
Total Half Baths	
Xtra Fixtrs.	
Total Rooms	
Bath Style	
Kitchen Style	
Wood Fireplaces	
Gas Fireplaces	
Rental Unit	
Fin. Bsmnt. Qual.	
Foundation	
Bsmnt Garage	
Int vs Ext	

No Data for Building Sub-Areas

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code 4340

Land Line Valuation

Size (Acres) 0.23

Description	Cell Tower	**Assessed Value**	$0
Neighborhood	C1	**Appraised Value**	$0
Category			

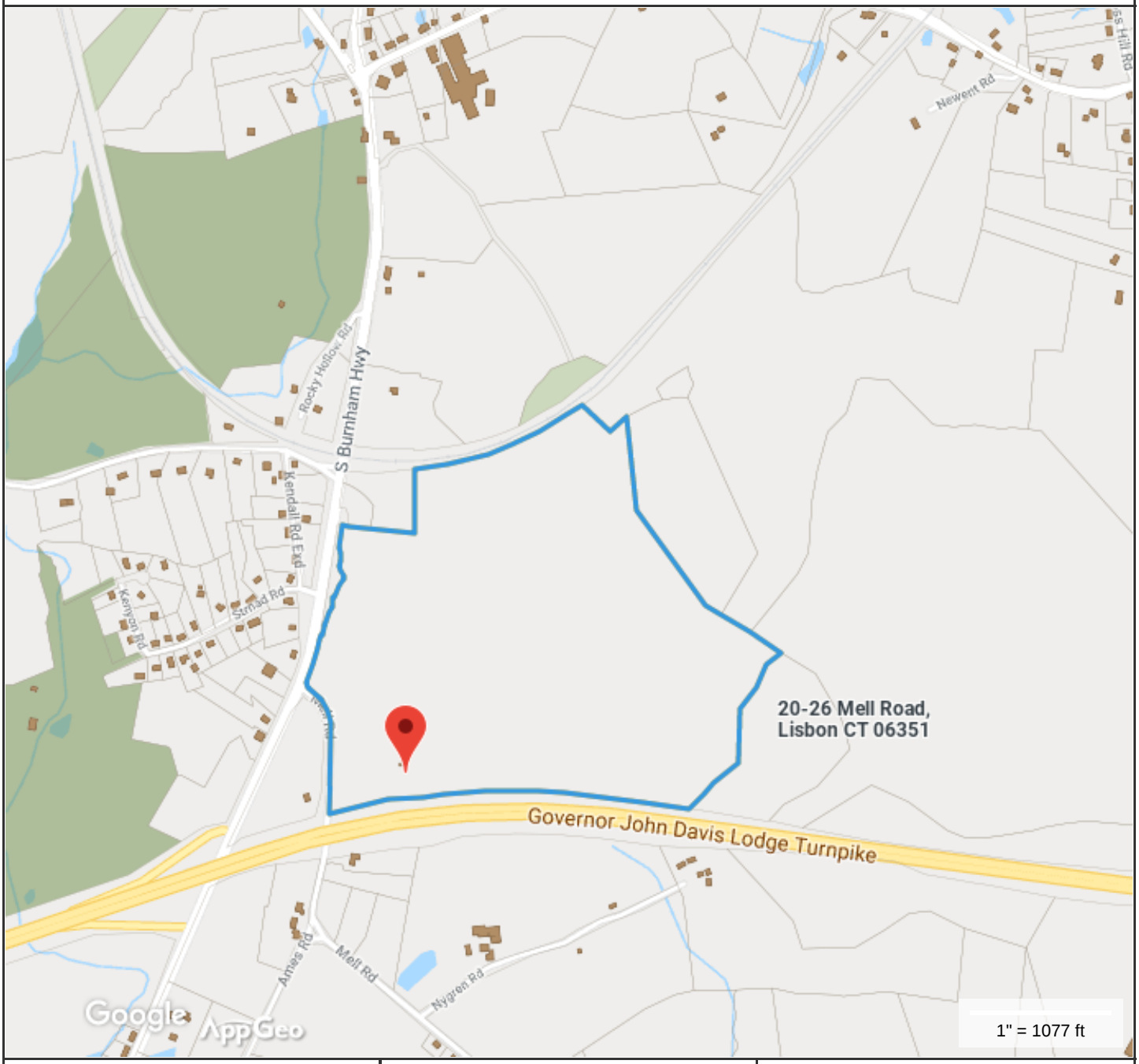
Outbuildings

Outbuildings							Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Assessed Value**	**Bldg #**
CELL	Cell Shed			286.00 S.F.	$32,180	$22,530	1
FN3	FENCE-6' CHAIN			280.00 L.F.	$1,680	$1,180	1
CELL	Cell Shed			280.00 S.F.	$31,500	$22,050	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$65,360	$117,910	$183,270
2017	$65,360	$101,250	$166,610
2016	$65,360	$101,250	$166,610

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$45,760	$82,540	$128,300
2017	$45,760	$70,880	$116,640
2016	$45,760	$70,880	$116,640



SCCOG

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

SCCOG makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 05/31/2017
Data updated 10/1/2013

DOCKET NO. 124 - AN APPLICATION OF SNET CELLULAR, INC., FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, OPERATION, AND MAINTENANCE OF A CELLULAR TELEPHONE TOWER AND ASSOCIATED EQUIPMENT IN THE TOWN OF LISBON, CONNECTICUT.

CONNECTICUT

SITING

COUNCIL

March 12, 1990

DECISION AND ORDER

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council finds that the effects associated with the construction, operation, and maintenance of a cellular telephone monopole tower and associated equipment building at the proposed Lisbon site, including effects on the natural environment; ecological balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not significant either alone or cumulatively with other effects, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the proposed Lisbon site in this application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by Section 16-50k of the Connecticut General Statutes (CGS), be issued to SNET Cellular, Inc. (SNET), for the construction, operation, and maintenance of a cellular telephone tower site at the proposed tower site on Mell Road in Lisbon, Connecticut.

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

1. The tower shall be a monopole no taller than necessary to provide the proposed service, and in no event shall the structure exceed a total height of 199 feet above ground level, including antennas.

2. The facility shall be constructed in accordance with applicable sections of the State of Connecticut Basic Building Code.

3. Unless necessary to comply with conditions of the Federal Aviation Administration, no lights shall be installed on this tower.

4. The Certificate Holder shall prepare a Development and Management Plan (D&M Plan) for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of State Agencies. The D&M Plan shall include detailed plans for erosion and sediment control; access road specifications, choice, and location; and seeding, loaming, and landscaping around the tower site.

5. The Certificate Holder shall permit public or private entities to share space on the tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

6. The Certificate Holder shall notify the Council if and when directional antennas or any equipment other than that listed in this application are added to this facility.

7. If this facility does not initially provide, or permanently ceases to provide, cellular service following the completion of construction, this Decision and Order shall be void, and the tower and all associated equipment in this application shall be dismantled and removed or reapplication for any new use shall be made to the Council and a Certificate granted before any such new use is made.

8. The Certificate Holder shall comply with any future radio frequency (RF) standard promulgated by State or federal regulatory agencies. Upon the establishment of any new governmental RF standards, the facility granted in this Decision and Order shall be brought into compliance with such standards.

9. The Certificate Holder or its successor shall provide the Council a recalculated report of power density if and when additional channels over the proposed 45 channels, higher wattage over the proposed 100 watts per channel, or if other circumstances in operation cause a change in power density above the levels originally calculated in the application.

10. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the effective date of this Decision and Order.

Pursuant to Section 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below. A notice of issuance shall be published in the New London Day, the Norwich Bulletin, and the Hartford Courant. By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of State Agencies.

The parties or intervenors to this proceeding are:

PARTY	REPRESENTATIVE
SNET Cellular, Inc. 227 Church Street New Haven, CT 06506	Peter J. Tyrrell Senior Attorney SNET Cellular, Inc. 227 Church Street Room 1021 New Haven, CT 06506
Metro Mobile CTS of New London, Inc. 100 Corporate Drive Windsor, CT 06095 (SERVICE WAIVED)	Henry H. Sprague, Esq. Robinson & Cole One Commercial Plaza Hartford, CT 06103-3597
Metro Mobile CTS, Inc. 110 East 59th Street New York, NY 10022 (SERVICE WAIVED)	Henry H. Sprague, Esq. Robinson & Cole One Commercial Plaza Hartford, CT 06103-3597 (SERVICE WAIVED)

CERTIFICATION

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case in Docket No. 124 - An application of SNET Cellular, Inc., for a Certificate of Environmental Compatibility and Public Need for the construction, operation, and maintenance of a cellular telephone tower and associated equipment in the Town of Lisbon, Connecticut or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut the 12th day of March, 1990.

Council Members	Vote Cast
Gloria Dibble Pond Chairperson	Yes
Commissioner Peter Boucher Designee: Robert A. Pulito	Yes
Commissioner Leslie Carothers Designee: Brian Emerick	Yes
Harry E. Covey	Yes
Mortimer A. Gelston	Yes
Daniel P. Lynch, Jr.	Yes
Paulann H. Sheets	Yes
William H. Smith	Yes
Colin C. Tait	Yes

4195E-2

CERTIFICATION

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case in Docket No. 124 - An application of SNET Cellular, Inc., for a Certificate of Environmental Compatibility and Public Need for the construction, operation, and maintenance of a cellular telephone tower and associated equipment in the Town of Lisbon, Connecticut or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut the 12th day of March, 1990.

Council Members	Vote Cast
Gloria Dibble Pond Chairperson	Yes
Commissioner Peter Boucher Designee: Robert A. Pulito	Yes
Commissioner Leslie Carothers Designee: Brian Emerick	Yes
Harry E. Covey	Yes
Mortimer A. Gelston	Yes
Daniel P. Lynch, Jr.	Yes
Paulann H. Sheets	Yes
William H. Smith	Yes
Colin C. Tait	Yes

4195E-2

JHANA ARSENAULT
6034210470
SAI COMMUNICATIONS
12 INDUSTRIAL WAY
SALEM NH 03079

1 LBS

1 OF 1

SHIP TO:
COPY OF CSC FILING FROM ATT
7819264585
AMERICAN TOWER CORPORATION
10 PRESIDENTIAL WAY
WOBURN MA 01801

MA 018 9-04

UPS GROUND
TRACKING #: 1Z 9V0 F66 03 9399 5288

BILLING: P/P

Reference No.1: CT-103-19006

XOL 19.10.10 NV45 20.0A 10/2019

JHANA ARSENAULT
6034210470
SAI COMMUNICATIONS
12 INDUSTRIAL WAY
SALEM NH 03079

1 LBS

1 OF 1

SHIP TO:
MICHAEL J.MURPHY-TOWN PLANNER
6034210470
HON.THOMAS W.SPARKMAN-1ST SELECTMAN
1 NEWENT RD.
LISBON CT 06351

CT 063 0-03

UPS GROUND
TRACKING #: 1Z 9V0 F66 03 9563 9990

BILLING: P/P

Reference No.1: CT-102-19006

XOL 19.10.10 NV45 20.0A 10/2019