QC Development
PO Box 916
Storrs, CT 06268
860-670-9068
QCDevelopment9068@gmail.com

March 8, 2019

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) – CT2015
405 Brushy Plain Road, Branford, CT 06405
N 41.31682222
W 72.81972222

Dear Ms. Bachman:

AT&T currently maintains six (6) antennas at the 153-foot level of the existing 150-foot Monopole Tower at 405 Brushy Plain Road, Branford, CT. The tower is owned by American Tower and the property is owned by Edward & Kristin Jaconette. AT&T now intends to add three (3) CCI HPA-65R-BU6AA and three (3) Kathrien 800-10965 antennas. AT&T will also swap (3) Ericsson RRUS-11 for (3) B5/B12-4449 and swap and (3) RRUS-32 B2 for (3) B2/B66-8843 and add (3) RRUS-32 Remote Radio Units (RRU). The new antennas and RRUs will also be installed at the 153-foot level of the tower.

This facility was approved by the Connecticut Siting Council, Docket No. 44 on July 24, 1984. This approval included a condition that the tower and antennas not exceed 167 feet above ground level. No modification to the overall facility height is proposed, so this modification therefore complies with the aforementioned approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the Honorable James B. Cosgrove, First Selectman for the Town of Branford and the Branford

Planning & Zoning Department as well as the property owner and the tower owner.

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

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

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

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

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

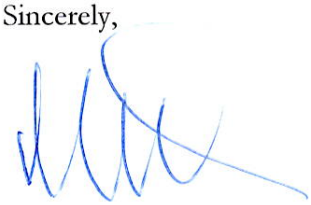
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

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

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

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

Sincerely,



Mark Roberts
QC Development
Consultant for AT&T

Attachments

cc: James B. Cosgrove - Elected Official
Harry Smith – Town Planner
Edward & Kristin Jaconette - Property Owners
American Tower - Tower Owner (via e-mail)

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*							6.67%
AT&T GSM	2	414	153	0.0138	850	0.5667	0.24%
AT&T UMTS	2	656	153	0.0218	850	0.5667	0.39%
AT&T UMTS	2	656	153	0.0218	1900	1.0000	0.22%
AT&T LTE	2	940	153	0.0313	734	0.4667	0.67%
AT&T LTE	2	1791	153	0.0596	1900	1.0000	0.60%
Site Total							8.79%

*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*							6.67%
AT&T UMTS	1	248	153	0.0041	850	0.5667	0.07%
AT&T LTE	1	1476	153	0.0246	700	0.4667	0.53%
AT&T LTE	1	1000	153	0.0166	850	0.5667	0.29%
AT&T 5G	1	1000	153	0.0166	850	0.5667	0.29%
AT&T LTE	2	3664	153	0.1220	1900	1.0000	1.22%
AT&T LTE	1	3837	153	0.0639	2100	1.0000	0.64%
AT&T LTE	1	1285	153	0.0214	2300	1.0000	0.21%
Site Total							9.93%

*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

Note: Proposed Loading may also include corrections to certain Existing Loading values

PROJECT INFORMATION

SCOPE OF WORK:	ITEMS TO BE MOUNTED ON THE EXISTING MONOPOLE: • INSTALL NEW MOUNTING PLATFORM, SITEPRO1 PART# RMQP-12-H5 W/ HRK-12 • INSTALL NEW 2-1/2" STD. (2.88 O.D.) PIPE MAST BEHIND NEW AND EXISTING ANTENNAS SECURED TO NEW MOUNT (TYP. OF 4 PER SECTOR, TOTAL OF 12). • NEW AT&T ANTENNAS: (HPA-65R-BU6AA) MOUNTED @ POSITION 2 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T ANTENNAS: (800-10965) MOUNTED @ POSITION 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T RRUS: B5/B12 4449 (700/850) MOUNTED @ POSITION 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T RRUS: B2/B66A 8843 (1900/AWS) MOUNTED @ POSITION 3 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • EXISTING AT&T ANTENNAS: (SBNHH-1D65B) MOUNTED @ POSITION 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3) TO BE RELOCATED @POSITION 3. • NEW AT&T RUS: RRUS-32 (WCS) TO BE RELOCATED @ POSITION 2. • NEW DC6-48-60-18-8C SQUID WITH (2) 2" FLEX CONDUIT FOR 2 DC/1 FIBER. • NEW DC6-48-60-0-8C-EV DC ONLY SQUID WITH (1) 2" FLEX CONDUIT FOR 1 DC LINES. ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION: • SWAP DUS WITH 6630 • ADD XMU • ADD RBS 6630 FOR 5G • BASEBAND CONFIGURATION AS PER PD / SECTION-7
SITE ADDRESS:	405 BRUSHY PLAIN ROAD BRANFORD, CT 06405
LATITUDE:	41.316798 N, 41° 19' 0.473" N
LONGITUDE:	72.819693 W, 72° 49' 10.895" W
TYPE OF SITE:	MONOPOLE / OUTDOOR EQUIPMENT
STRUCTURE HEIGHT:	150'-0"±
RAD CENTER:	153'-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
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A-2	ANTENNA LAYOUTS	1
A-3	ELEVATION	1
A-4	DETAILS	1
RF-1	RF PLUMBING DIAGRAM	1
G-1	GROUNDING DETAILS	1

ATC SITE NAME: BRANFORD CT 6
ATC SITE #: 302484

SITE NUMBER: CT2015

SITE NAME: BRANFORD

FA CODE:10034973

PACE ID:MRCTB035239, MRCTB035115, MRCTB035127

PROJECT: LTE 3C_4C_5C 2019 UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:

TAKE I-90 WEST TO I-84 WEST TO MERGE WITH I-91 SOUTH. TAKE EXIT 14 (WOODHOUSE AVE/CT-150) AFTER A MILE IT BECOMES CT-22 CONTINUE 4.5 MILES. MAKE A RIGHT ONTO CT-80 CONTINUE 1 MILE THEN MAKE A RIGHT ONTO TOTOKET RD. TOTOKET RD BECOMES BRUSHY PLAIN ROAD, CONTINUE .25 MILES AND THE SITE IS ON THE LEFT.

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: CT2015
SITE NAME: BRANFORD
ATC SITE #: 302484
405 BRUSHY PLAIN ROAD
BRANFORD, CT 06405
NEW HAVEN COUNTY

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

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

STATE OF CONNECTICUT — NO. 29561 — LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET
(LTE 3C-4C-5C)

SITE NUMBER	DRAWING NUMBER	REV
CT2015	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) 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 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 AWS 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. TOUCHUP 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: CT2015
SITE NAME: BRANFORD
ATC SITE #: 302484
405 BRUSHY PLAIN ROAD
BRANFORD, CT 06405
NEW HAVEN COUNTY

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

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

STATE OF CONNECTICUT DEREK J. CREASER LICENSED PROFESSIONAL ENGINEER

AT&T
GENERAL NOTES
(LTE 3C–4C–5C)

SITE NUMBER	DRAWING NUMBER	REV
CT2015	GN–1	1

NOTE:

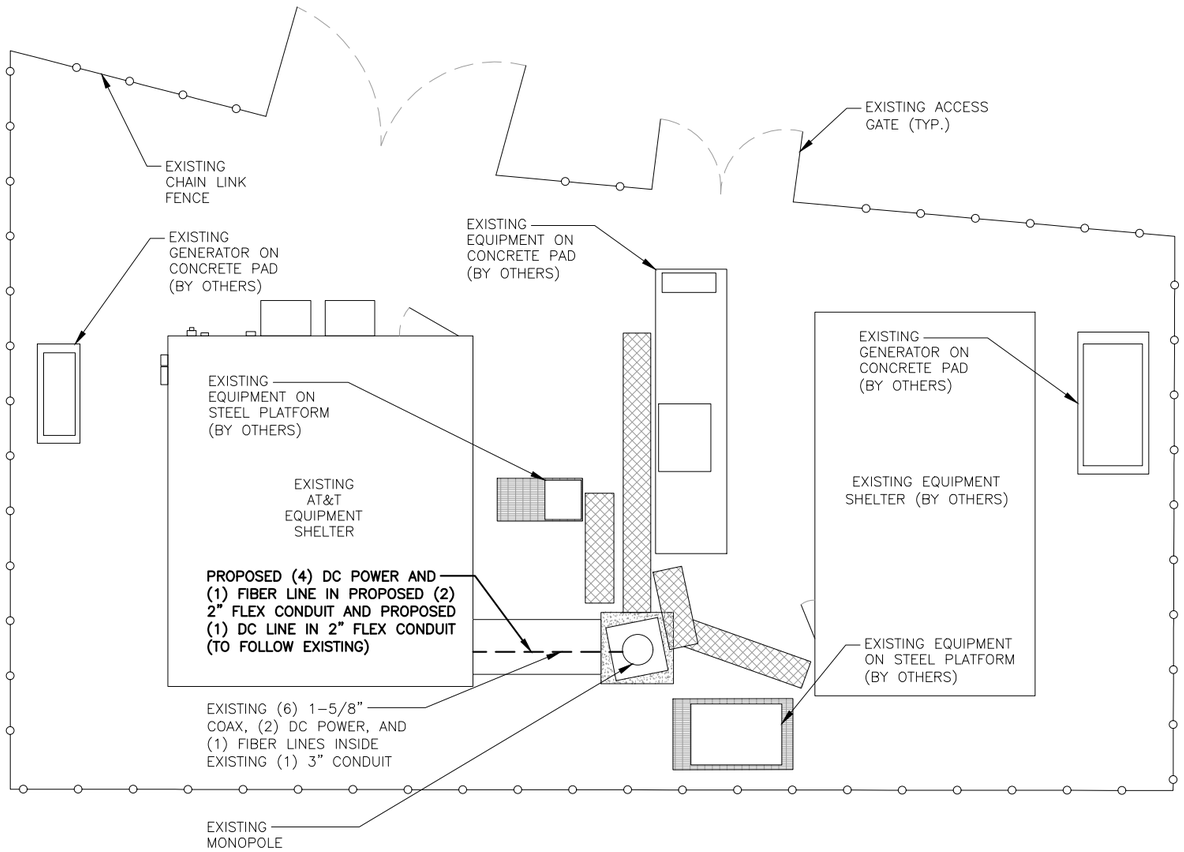
REFER TO STRUCTURAL ANALYSIS BY: A.T. ENGINEERING SERVICE, PLLC, DATED: FEBRUARY 5, 2019 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

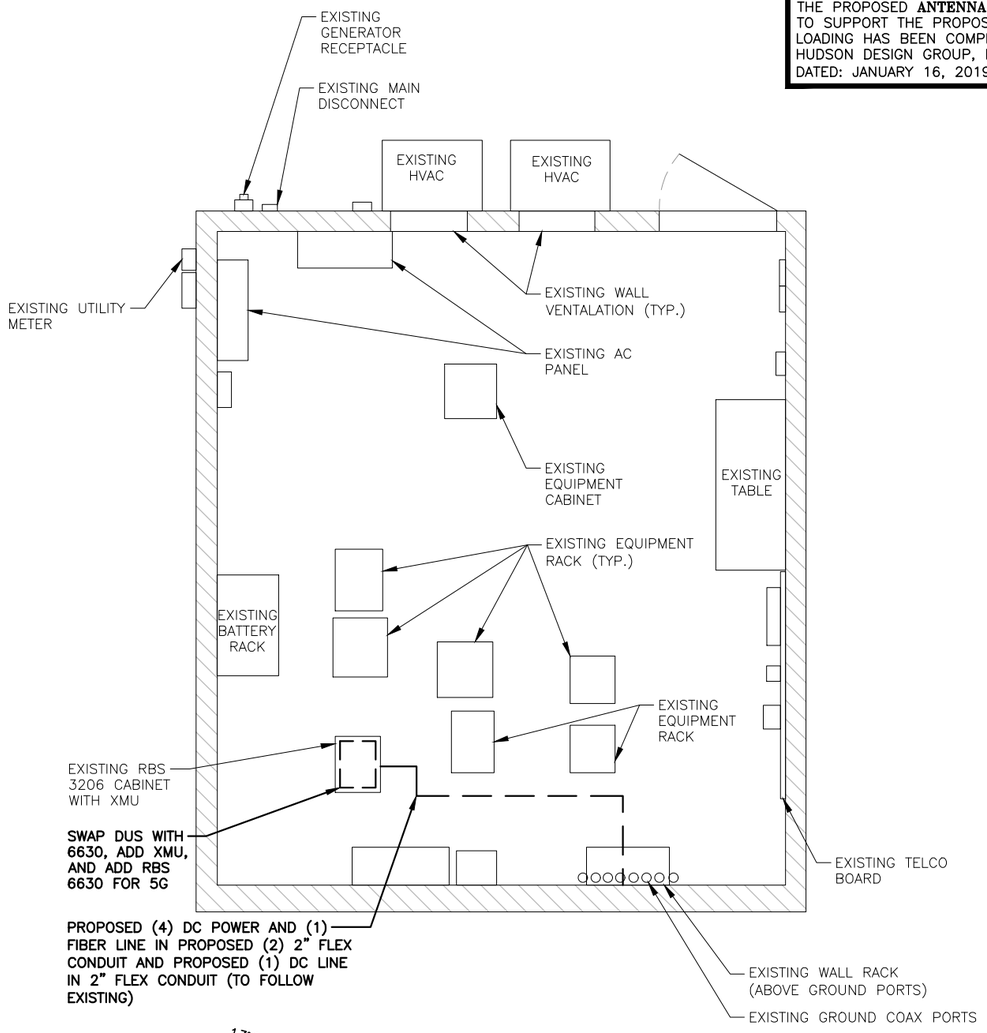
NOTE:

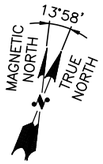
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE PROPOSED **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: JANUARY 16, 2019 (REV. 2)

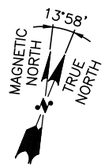






COMPOUND PLAN (1 / A-1)
22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"

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



EQUIPMENT PLAN (2 / A-1)
22x34 SCALE: 3/8"=1'-0"
11x17 SCALE: 3/16"=1'-0"

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

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

12 INDUSTRIAL WAY
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STATE OF CONNECTICUT · DEREK J. CREASEY · No. 28350 · LICENSED PROFESSIONAL ENGINEER

AT&T

COMPOUND & EQUIPMENT PLAN
(LTE 3C-4C-5C)

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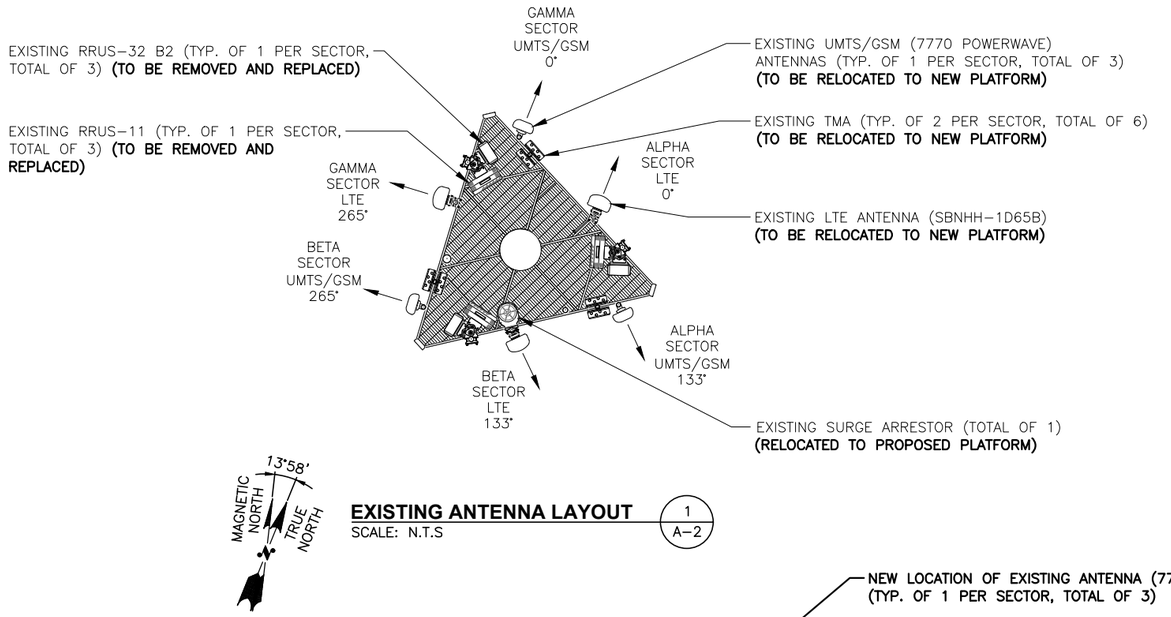
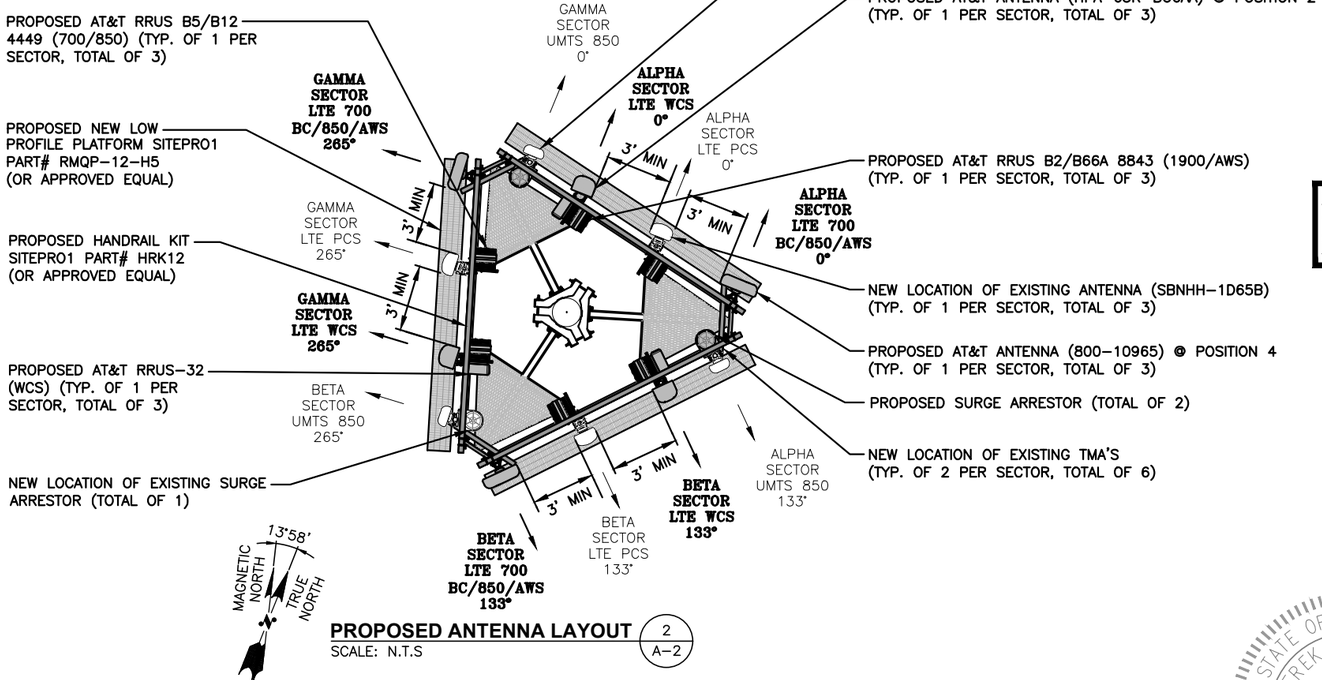


EXISTING ANTENNA LAYOUT

SCALE: N.T.S

1 / A-2



PROPOSED ANTENNA LAYOUT

SCALE: N.T.S

2 / A-2

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

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE PROPOSED **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC.
DATED: JANUARY 16, 2019 (REV. 2)

NOTE:
REFER TO STRUCTURAL ANALYSIS BY: A.T. ENGINEERING SERVICE, PLLC,
DATED: FEBRUARY 5, 2019
FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

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

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

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

SITE NUMBER: CT2015
SITE NAME: BRANFORD
ATC SITE #: 302484

405 BRUSHY PLAIN ROAD
BRANFORD, CT 06405
NEW HAVEN COUNTY

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	03/05/19	ISSUED FOR CONSTRUCTION	AM	AT	DJC
0	02/26/19	ISSUED FOR REVIEW	AR	AT	DJC
A	01/07/19	ISSUED FOR REVIEW	TR	AT	DJC

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

DEREK J. CREASEY — STATE OF CONNECTICUT — 26,256 — LICENSED PROFESSIONAL ENGINEER

AT&T

ANTENNA LAYOUTS
(LTE 3C-4C-5C)

SITE NUMBER	DRAWING NUMBER	REV
CT2015	A-2	1

NOTE:

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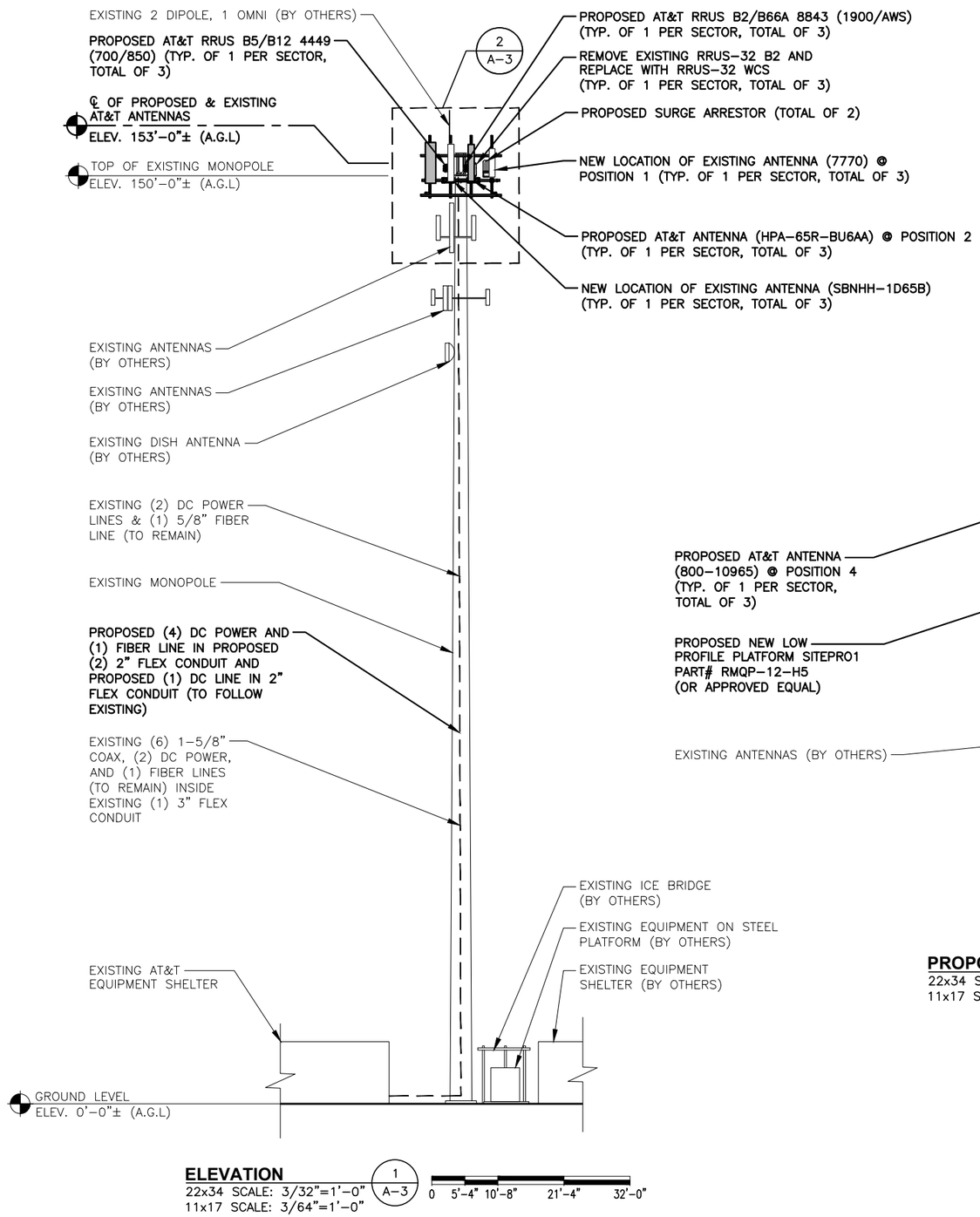
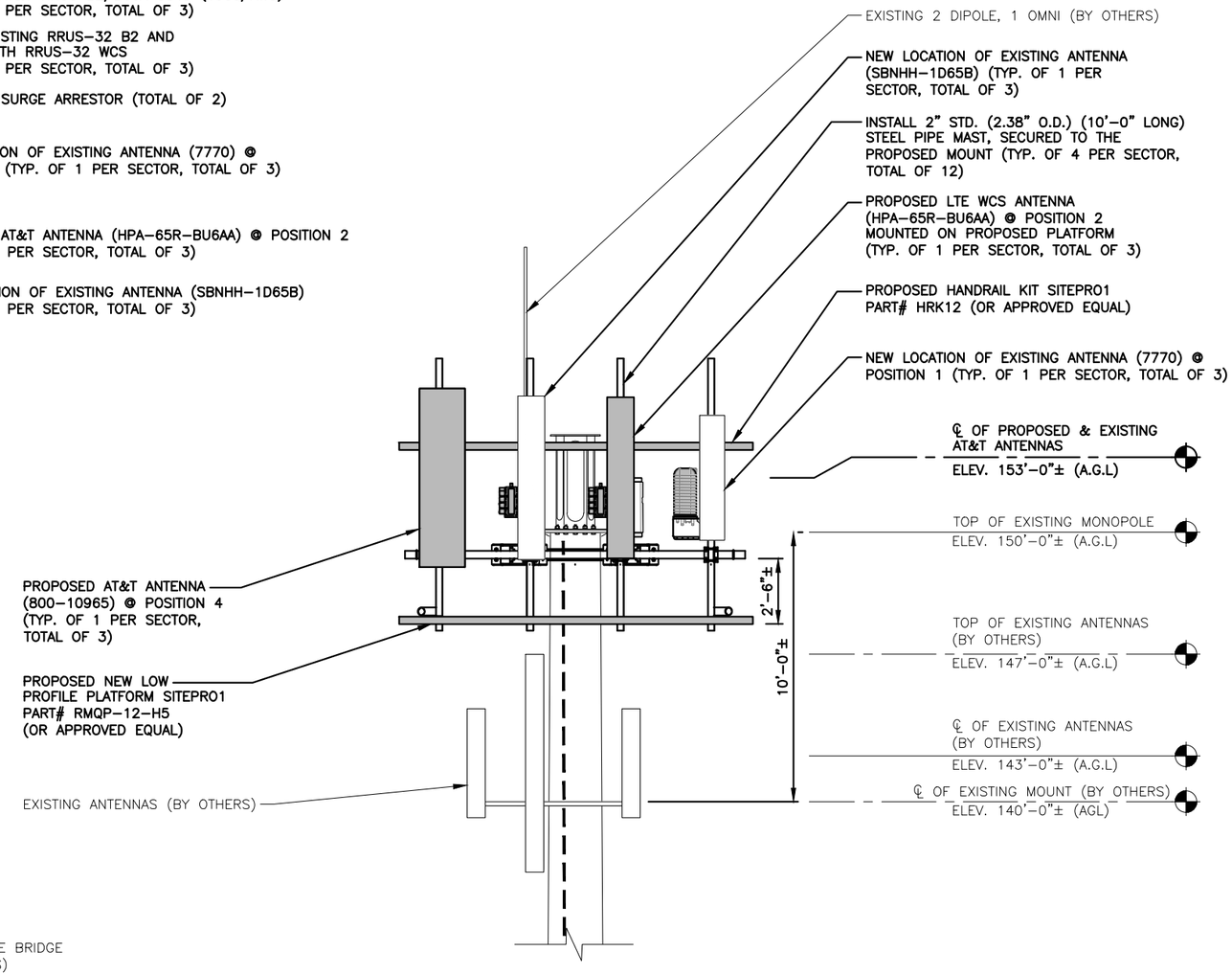


ELEVATION 1 A-3
22x34 SCALE: 3/32"=1'-0"
11x17 SCALE: 3/64"=1'-0"
0 5'-4" 10'-8" 21'-4" 32'-0"



PROPOSED ELEVATION 2 A-3
22x34 SCALE: 3/8"=1'-0"
11x17 SCALE: 3/16"=1'-0"
0 1'-4" 2'-8" 5'-4" 8'-0"

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SAI
12 INDUSTRIAL WAY
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at&t
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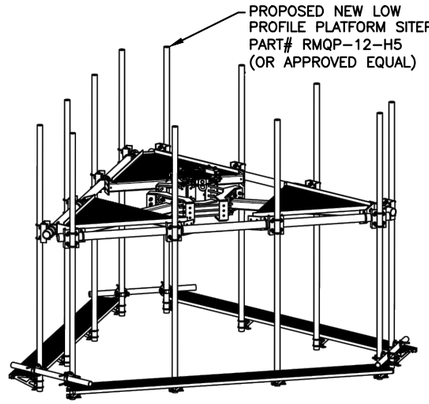
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: TR

STATE OF CONNECTICUT
DEREK J. CREASEY
No. 23567
LICENSED PROFESSIONAL ENGINEER

AT&T

ELEVATION
(LTE 3C-4C-5C)

SITE NUMBER	DRAWING NUMBER	REV
CT2015	A-3	1



NOTE:

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

NOTE:

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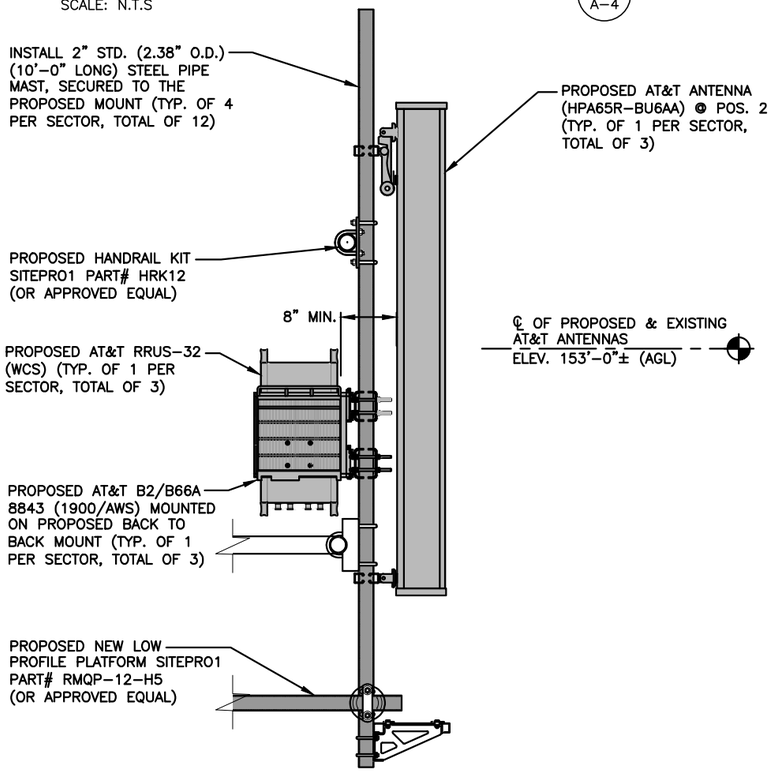
NOTE:

REFER TO STRUCTURAL ANALYSIS BY: A.T. ENGINEERING SERVICE, PLLC, DATED: FEBRUARY 5, 2019 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

PROPOSED LOW PROFILE PLATFORM RMQP-12-H5

1 / A-4

SCALE: N.T.S



PROPOSED LTE ANTENNA & RRH MOUNTING DETAIL

3 / A-4

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

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

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	±153'	133°	(2) POWERWAVE LGP21401	--	--	(2) 1-5/8 COAX (LENGTH 200'±)	(E) (1) RAYCAP DC6-48-60-18-8F
A2	**PROPOSED**	**LTE WCS**	**HPA-65R-BU6AA**	**71x11.7x7.6**	**±153'**	**0°**	--	**(P) (1) RRUS-32 (WCS)**	**27.2x12.1x7.0**		
A3	EXISTING	LTE PCS	SBNHH-1D65B	72X11.9X7.1	±153'	0°	--	**(P) (1) B2/B66 8843**	**14.9x13.2x10.9**	--	
A4	**PROPOSED**	**LTE 700 BC/850/AWS**	**800-10965**	**78.7x20x6.9**	**±153'**	**0°**	--	**(P) (1) B5/B12 4449**	**14.9x13.2x10.4**	--	
B1	EXISTING	UMTS 850	7770	55X11X5	±153'	265°	(2) POWERWAVE LGP21401	--	--	(2) 1-5/8 COAX (LENGTH 200'±)	(P) (1) RAYCAP DC6-48-60-0-8C-EV
B2	**PROPOSED**	**LTE WCS**	**HPA-65R-BU6AA**	**71x11.7x7.6**	**±153'**	**133°**	--	**(P) (1) RRUS-32 (WCS)**	**27.2x12.1x7.0**		
B3	EXISTING	LTE PCS	SBNHH-1D65B	72X11.9X7.1	±153'	133°	--	**(P) (1) B2/B66 8843**	**14.9x13.2x10.9**	--	
B4	**PROPOSED**	**LTE 700 BC/850/AWS**	**800-10965**	**78.7x20x6.9**	**±153'**	**133°**	--	**(P) (1) B5/B12 4449**	**14.9x13.2x10.4**	--	
C1	EXISTING	UMTS 850	7770	55X11X5	±151'	0°	(2) POWERWAVE LGP21401	--	--	(2) 1-5/8 COAX (LENGTH 200'±)	(P) (1) RAYCAP DC6-48-60-0-8C-EV
C2	**PROPOSED**	**LTE WCS**	**HPA-65R-BU6AA**	**71x11.7x7.6**	**±151'**	**265°**	--	**(P) (1) RRUS-32 (WCS)**	**27.2x12.1x7.0**		
C3	EXISTING	LTE PCS	SBNHH-1D65B	72X11.9X7.1	±151'	265°	--	**(P) (1) B2/B66 8843**	**14.9x13.2x10.9**	--	
C4	**PROPOSED**	**LTE 700 BC/850/AWS**	**800-10965**	**78.7x20x6.9**	**±151'**	**265°**	--	**(P) (1) B5/B12 4449**	**14.9x13.2x10.4**	--	

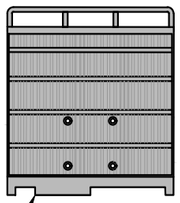
RRU CHART

QUANTITY	MODEL	L	W	D
3(P)	RRUS-32	27.2"	12.1"	7.0"
3(P)	B2/B66 8843	14.9"	13.2"	10.9"
3(P)	B5/B12 4449	14.9"	13.2"	10.4"

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

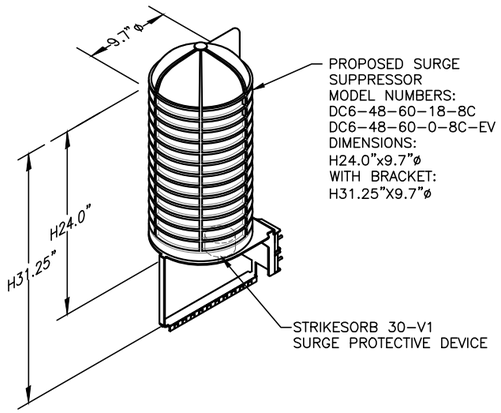
4 / A-4

SCALE: N.T.S

FINAL ANTENNA SCHEDULE

2 / A-4

SCALE: N.T.S

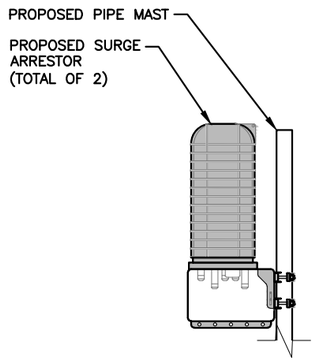


NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL

5 / A-4

SCALE: N.T.S



PROPOSED SURGE ARRESTOR MOUNTING DETAIL

6 / A-4

SCALE: N.T.S

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
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FAX: (978) 336-5586

12 INDUSTRIAL WAY
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500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

SITE NUMBER: CT2015
SITE NAME: BRANFORD
ATC SITE #: 302484

405 BRUSHY PLAIN ROAD
BRANFORD, CT 06405
NEW HAVEN COUNTY

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A	01/07/19	ISSUED FOR REVIEW	TR	AT	DJC

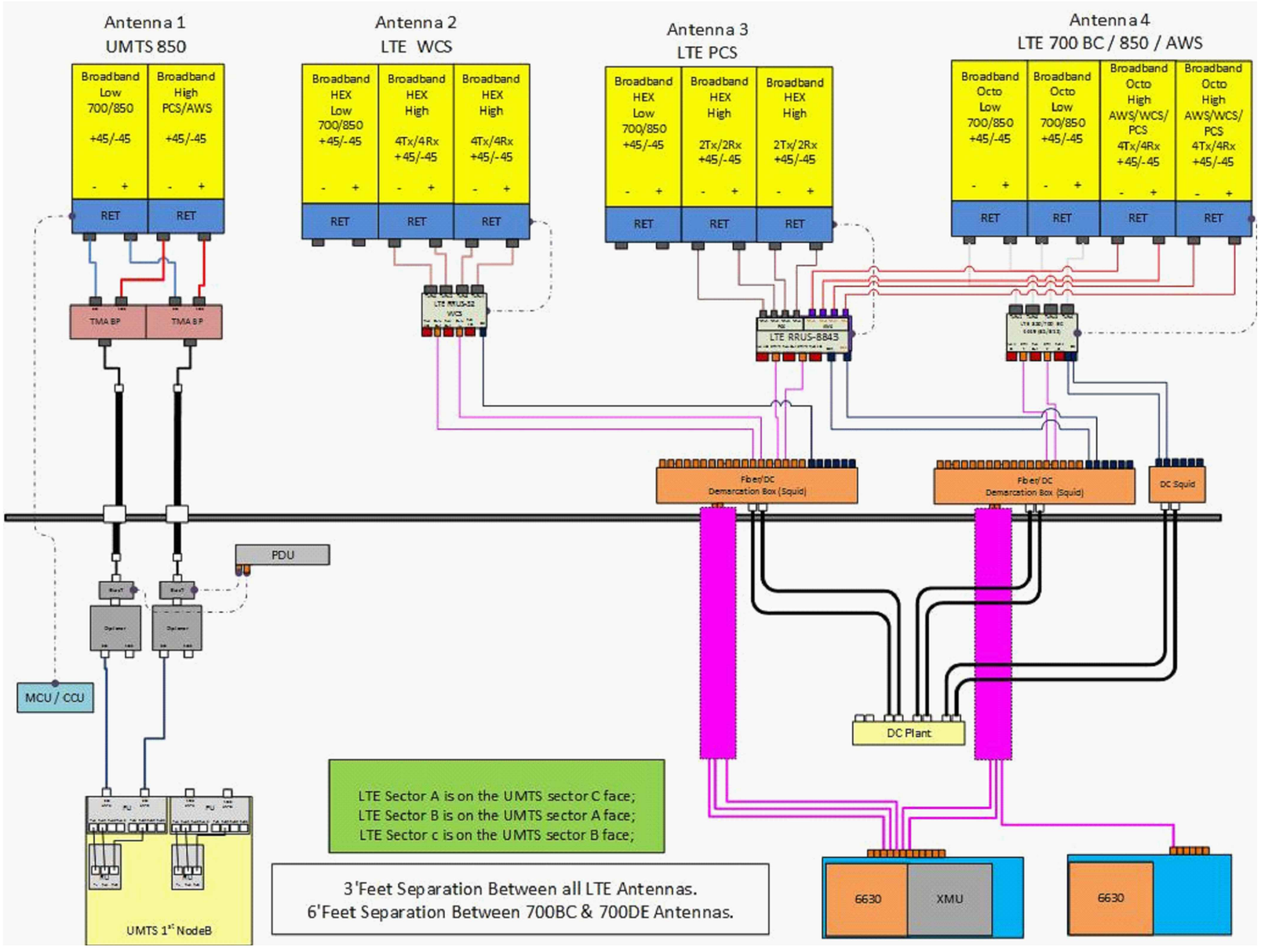
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: TR

STATE OF CONNECTICUT · DEREK J. CREASEY · No. 25[illegible] · LICENSED PROFESSIONAL ENGINEER

AT&T

DETAILS
(LTE 3C-4C-5C)

SITE NUMBER	DRAWING NUMBER	REV
CT2015	A-4	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
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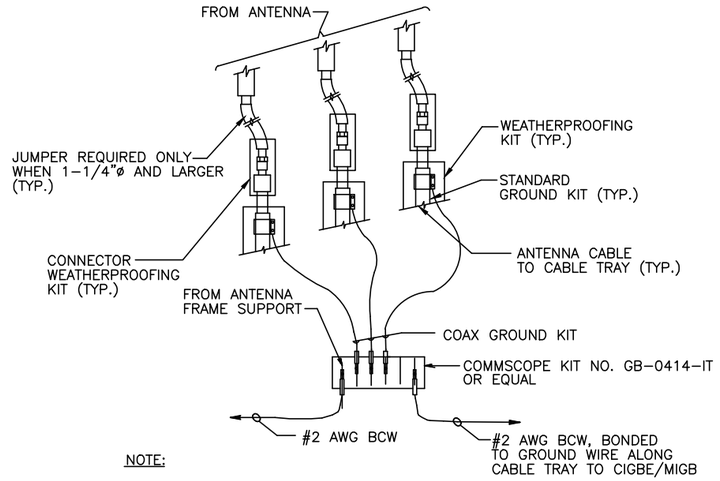
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: TR

STATE OF CONNECTICUT · DEREK J. CREASEY · No. 25854 · LICENSED PROFESSIONAL ENGINEER

AT&T

RF PLUMBING DIAGRAM
(LTE 3C–4C–5C)

SITE NUMBER	DRAWING NUMBER	REV
CT2015	RF–1	1



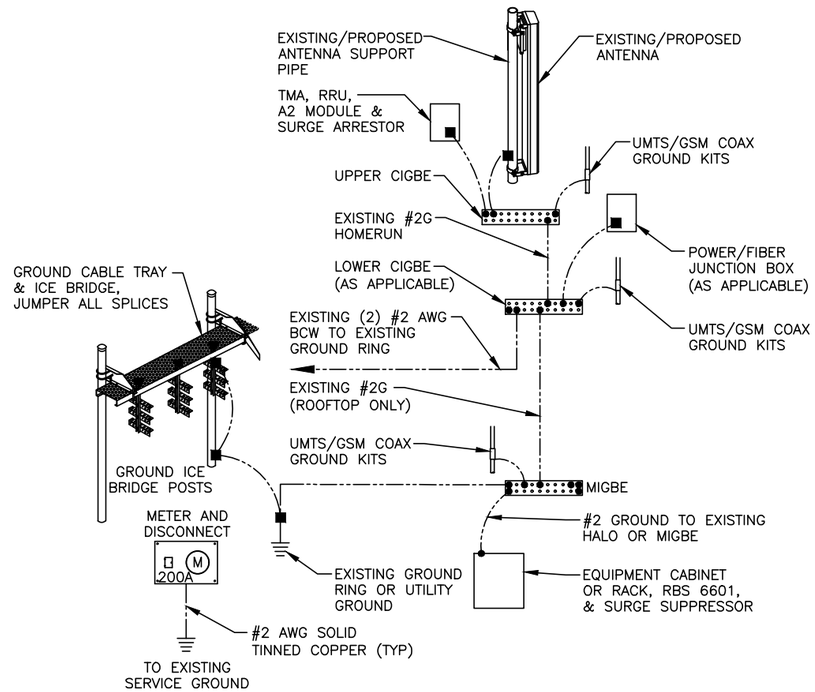
NOTE:

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

SCALE: N.T.S

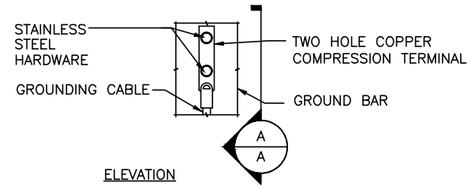
1 / G-1



GROUNDING RISER DIAGRAM

SCALE: N.T.S

2 / G-1



NOTE:

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

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

3 / G-1

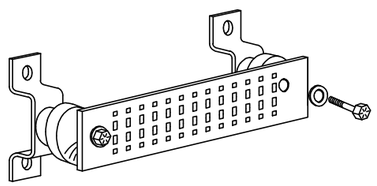
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

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

SECTION "A" – SURGE ABSORBERS

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



GROUND BAR - DETAIL

SCALE: N.T.S

4 / G-1

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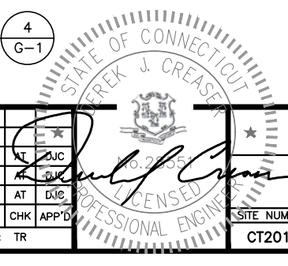

AT&T

GROUNDING DETAILS
(LTE 3C-4C-5C)

SITE NUMBER	DRAWING NUMBER	REV
CT2015	G-1	1

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**150 ft Monopole**
ATC Site Name	:	**Branford CT 6, CT**
ATC Site Number	:	**302484**
Engineering Number	:	**OAA745542_C3_01**
Proposed Carrier	:	**AT&T Mobility**
Carrier Site Name	:	**Branford**
Carrier Site Number	:	**CT2015**
Site Location	:	**405 Brushy Plain Rd** **Branford, CT 06405-2308** **41.316800,-72.819700**
County	:	**New Haven**
Date	:	**February 5, 2019**
Max Usage	:	**96%**
Result	:	**Pass**

Prepared By:
Parvin NikpoorParizi
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 150 ft monopole to reflect the change in loading by AT&T Mobility.

Supporting Documents

Tower Drawings	PJF Job # 29297-629, dated October 2, 1997
Foundation Drawing	Mapped by ATC Tower ID #302484, dated February 13, 2009
Geotechnical Report	Clarence Welti Geotechnical Engineering ID #CT-0020, dated October 8, 1996
Modifications	SpectraSite Drawing CT-0020 M1 dated March 26, 2004 ATC Job # 26487334 dated September 15, 2006 ATC Job # 53055832 dated June 2, 2013

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:	101 mph (3-Second Gust, V_{ASD}) / 130 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 = 0.24, 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
153.0	6	Powerwave Allgon 7020.00 Dual Band RET	-	(1) 0.39" (10mm) Fiber Trunk (2) 0.78" (19.7mm) 8 AWG 6 (6) 1 5/8" Coax	AT&T Mobility
	6	Powerwave Allgon LGP21401			
	1	Raycap DC6-48-60-18-8F ("Squid")			
	3	Powerwave Allgon 7770.00			
150.0	1	Generic GPS		(1) 1/2" Coax	Verizon Wireless
140.0	3	Ericsson KRY 112 144/1	T-Arm	(1) 1 1/4" Hybriflex Cable (12) 1 5/8" Coax	T-Mobile
	3	Ericsson RRUS 11 (Band 12)			
	3	Ericsson AIR 21, 1.3 M, B2A B4P			
	3	Ericsson AIR 21, 1.3M, B4A B2P			
	3	Andrew LNX-6515DS-VTM			
130.0	2	DragonWave Horizon Compact	Side Arm	(2) 1/2" Coax (6) 5/16" (0.31"-7.9mm) Coax	Clearwire Corporation
	1	DragonWave A-ANT-23G-1-C			
	3	NextNet BTS-2500			
	3	Argus LLPX310R			
	1	DragonWave A-ANT-18G-2.5-C			
122.0	1	SWR FMEC/1	Flsuh	(3) 1/2" Coax	Alma Radio Inc.
113.0	3	Alcatel-Lucent RRH2x40-07-L	T-Arm	(6) 1 1/4" Coax (2) 1 5/8" Hybriflex	Verizon Wireless
	3	Alcatel-Lucent RRH 2X60-1900			
	3	Alcatel-Lucent RRH2x60 700			
	3	Nokia B66a RRH4x45 (UHIE)			
	4	RFS APL868013-12T0			
	2	RFS APL866513-12T0-00			
	2	RFS DB-T1-6Z-8AB-0Z			
	6	Commscope JAHH-65B-R3B			

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
153.0	3	Generic Diplexer / Coupler	Platform with Handrails	-	AT&T MOBILITY
	3	Ericsson RRUS 11 (Band 12) (55 lb)			
	3	Ericsson RRUS 32 B2			
	3	CCI HPA-65R-BUU-H6			

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
153.0	3	Kathrein Scala 782-10250	SitePro1 RMQP-12-H5 w/ HRK-12	(1) 0.39" (10mm) Fiber Trunk (4) 0.78" (19.7mm) 8 AWG 6 (2) 2" conduit (1) 3" conduit	AT&T Mobility
	3	Ericsson RRUS 8843 B2, B66A			
	3	Ericsson RRUS 4449 B5, B12			
	1	Raycap DC6-48-60-18-8C			
	3	Ericsson RRUS 32 B30 (53 lbs)			
	1	Raycap DC6-48-60-18-8C-EV			
	3	CCI HPA65R-BU6A			
	3	Commscope SBNHH-1D65B			
	3	Kathrein Scala 80010965			

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

Install proposed lines inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	75%	Pass
Shaft	93%	Pass
Base Plate	65%	Pass
Reinforcement	96%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	3,263.6	31%
Axial (Kips)	48.1	2%

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) (°)
153.0	Kathrein Scala 782-10250	AT&T Mobility	0.000	0.000
	Ericsson RRUS 8843 B2, B66A			
	Ericsson RRUS 4449 B5, B12			
	Raycap DC6-48-60-18-8C			
	Ericsson RRUS 32 B30 (53 lbs)			
	Raycap DC6-48-60-18-8C-EV			
	CCI HPA65R-BU6A			
	Commscope SBNHH-1D65B			
	Kathrein Scala 80010965			
130.0	DragonWave A-ANT-23G-1-C	Clearwire Corporation	1.573	1.498
	DragonWave A-ANT-18G-2.5-C			
70.0	Generic 4' Std. Dish	Other	0.441	0.744

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

AMERICAN TOWER®
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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:

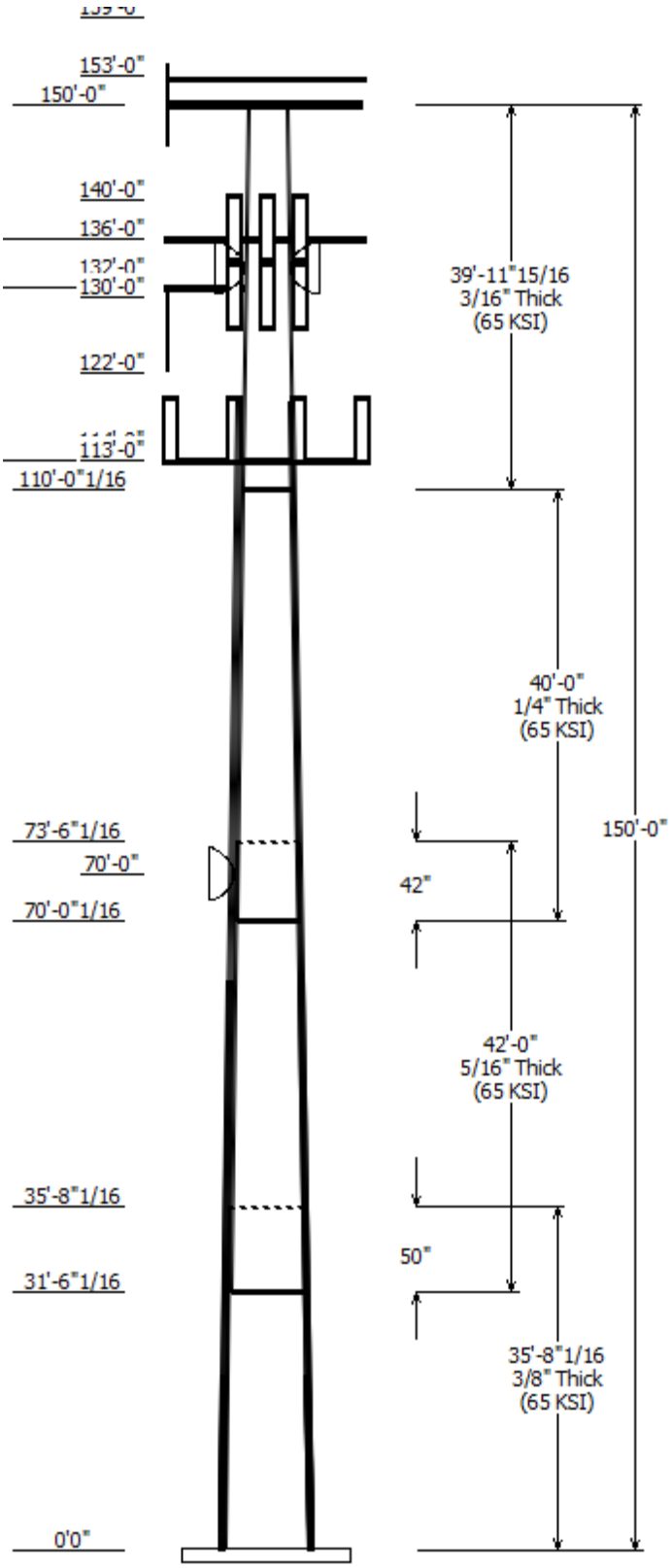
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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

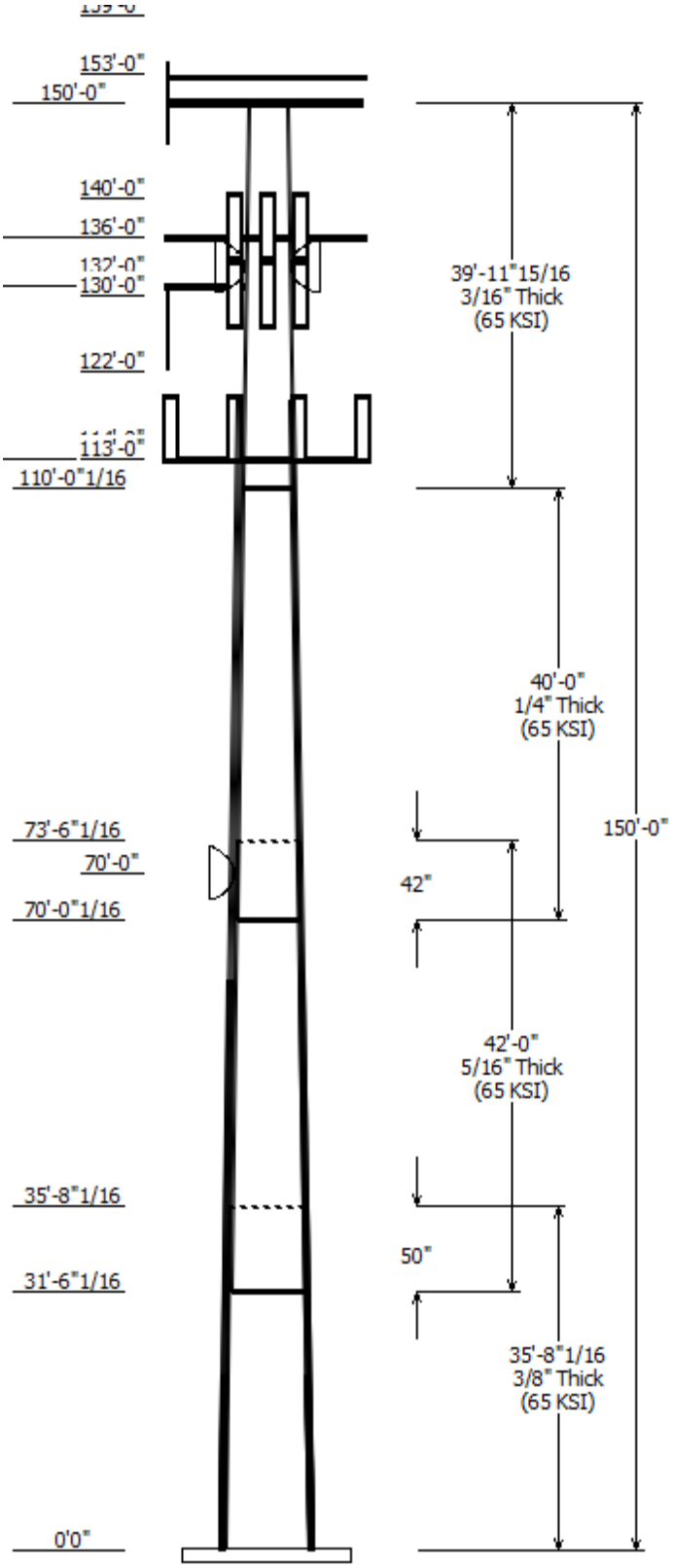
Pole :	302484	Code:	ANSI/TIA-222-G
Location :	Branford CT 6, CT		
Description :	150 ft. ITT Meyer - Model verified 10/25/11		
Client :	AT&T MOBILITY	Struct Class :	II
Shape :	12 Sides	Exposure :	B
Height :	150.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.156700 (in/ft)		

Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	35.670	31.79	37.38	0.375		0.000	12 Sides	65
2	42.000	26.48	33.06	0.313	Slip Joint	50.000	12 Sides	65
3	40.000	21.26	27.53	0.250	Slip Joint	42.000	12 Sides	65
4	39.997	15.00	21.26	0.188	Butt Joint	0.000	12 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
160.000	160.000	1	Generic 11' Dipole
159.000	159.000	1	Generic 4' Omni
153.000	153.000	3	Kathrein Scala 80010965
153.000	153.000	3	Commscope SBNHH-1D65B
153.000	153.000	3	CCI HPA65R-BU6A
153.000	151.000	3	Powerwave Allgon 7770.00
153.000	153.000	1	Raycap DC6-48-60-18-8C-EV
153.000	153.000	3	Ericsson RRUS 32 B30 (53 lbs)
153.000	153.000	1	Raycap DC6-48-60-18-8C
153.000	153.000	3	Ericsson RRUS 4449 B5, B12
153.000	153.000	3	Ericsson RRUS 8843 B2, B66A
153.000	151.000	1	Raycap DC6-48-60-18-8F
153.000	151.000	6	Powerwave Allgon LGP21401
153.000	153.000	3	Kathrein Scala 782-10250
153.000	151.000	6	Powerwave Allgon 7020.00
150.000	150.000	1	Round Platform w/ Handrails
150.000	150.000	1	Generic GPS
140.000	136.000	3	Andrew LNX-6515DS-VTM
140.000	136.000	3	Ericsson AIR 21, 1.3M, B4A B2P
140.000	136.000	3	Ericsson AIR 21, 1.3 M, B2A B4
140.000	136.000	3	Ericsson RRUS 11 (Band 12)
140.000	136.000	3	Ericsson KRY 112 144/1
136.000	136.000	3	Round T-Arm
132.000	132.000	1	Generic 12" x 12" Junction Box
131.000	131.000	1	Side Arms
130.000	132.000	1	DragonWave A-ANT-18G-2.5-C
130.000	130.000	3	Argus LLPX310R
130.000	130.000	3	NextNet BTS-2500
130.000	132.000	1	DragonWave A-ANT-23G-1-C
130.000	132.000	2	DragonWave Horizon Compact
122.000	123.000	1	SWR FMEC/1
114.000	114.000	3	Nokia B5 RRH4x40 w/ Solar Shie
113.000	113.000	3	Round T-Arm
113.000	114.000	6	Commscope JAHH-65B-R3B
113.000	114.000	2	RFS DB-T1-6Z-8AB-0Z
113.000	114.000	2	RFS APL866513-12T0-00
113.000	114.000	4	RFS APL868013-12T0
113.000	114.000	3	Nokia B66a RRH4x45 (UHIE)
113.000	114.000	3	Alcatel-Lucent RRH2x60 700
113.000	114.000	3	Alcatel-Lucent RRH 2X60-1900
113.000	113.000	3	Alcatel-Lucent RRH2x40-07-L
70.000	70.000	1	Generic 4' Std. Dish



Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	19.800	PL 1" x 5"	Yes
0.000	65.000	#18 Dywidag Bars	Yes
0.000	70.000	0.28" (7mm) RG-6	No
0.000	113.0	1 1/4" Coax	No
0.000	113.0	1 5/8" Hybriflex	No
0.000	114.0	1 1/4" Hybriflex	No
0.000	122.0	1/2" Coax	No
0.000	123.0	7/8" Coax	No
0.000	123.2	#18 Dywidag bars	Yes
0.000	130.0	1/2" Coax	Yes
0.000	130.0	5/16" (0.31"-	Yes
0.000	132.0	1/2" Coax	Yes
0.000	132.0	2" conduit	Yes
0.000	140.0	1 1/4" Hybriflex	No
0.000	140.0	1 5/8" Coax	Yes
0.000	150.0	1/2" Coax	No
0.000	153.0	0.39" (10mm)	No
0.000	153.0	0.39" (10mm)	No
0.000	153.0	0.78" (19.7mm) 8	No
0.000	153.0	0.78" (19.7mm) 8	No
0.000	153.0	1 5/8" Coax	No
0.000	153.0	2" conduit	No
0.000	153.0	3" conduit	No
0.000	159.0	1 5/8" Coax	No
0.000	160.0	7/8" Coax	No

Load Cases

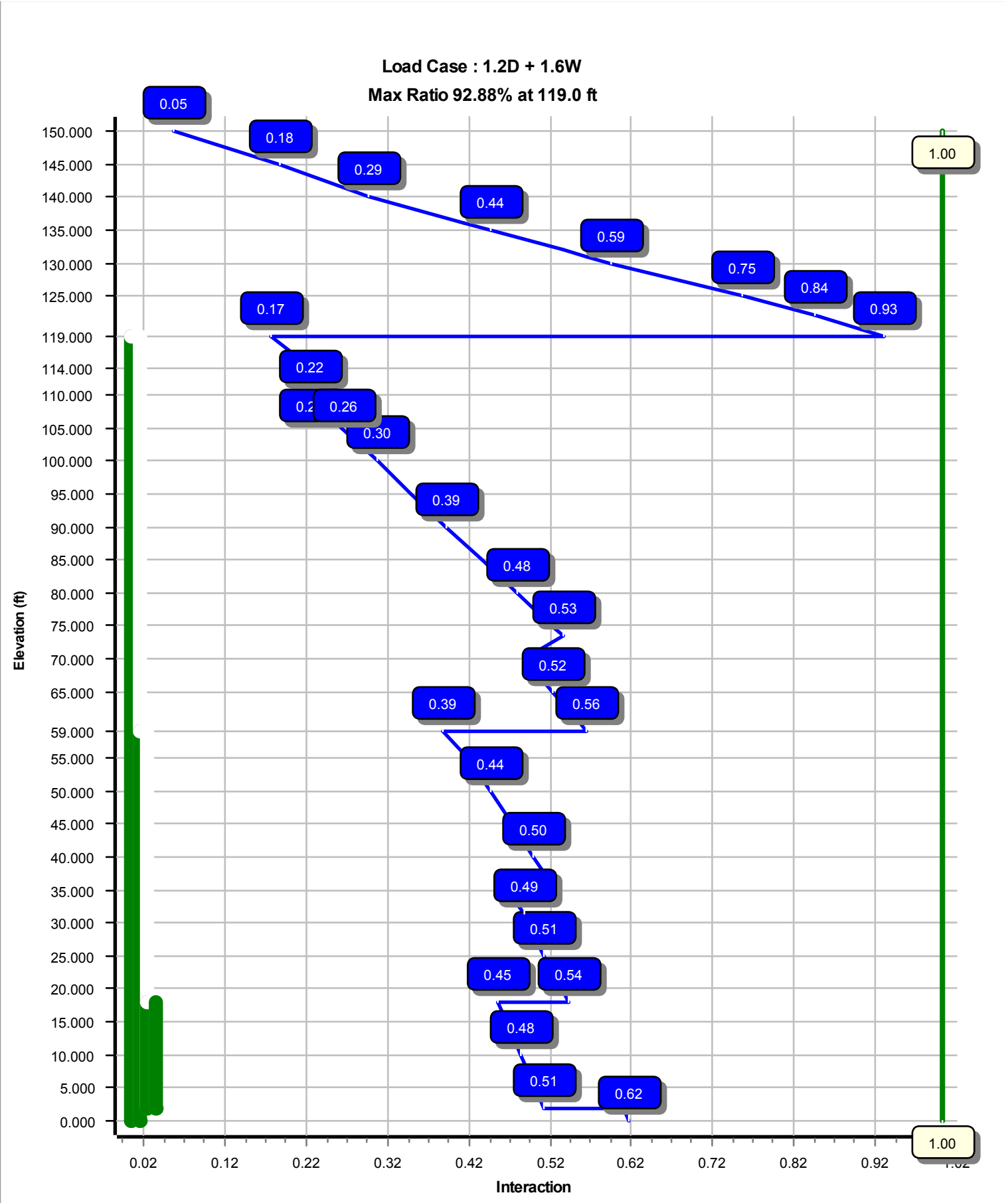
1.2D + 1.6W	101 mph with No Ice
0.9D + 1.6W	101 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) 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	3263.58	32.32	48.06
0.9D + 1.6W	3222.04	32.31	36.04
1.2D + 1.0Di + 1.0Wi	782.13	6.98	86.51
(1.2 + 0.2Sds) * DL + E ELFM	128.06	1.06	47.49
(1.2 + 0.2Sds) * DL + E EMAM	214.59	2.04	47.49
(0.9 - 0.2Sds) * DL + E ELFM	126.15	1.06	32.21
(0.9 - 0.2Sds) * DL + E EMAM	211.13	2.04	32.21
1.0D + 1.0W	716.21	7.14	40.07

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	70.00	5.288	0.744
1.0D + 1.0W	130.00	18.872	1.498
1.0D + 1.0W	130.00	18.872	1.498


Load Case : 1.2D + 1.6W
Max Ratio 92.88% at 119.0 ft
0.05
0.18
0.29
0.44
0.59
0.75
0.84
0.93
0.17
0.22
0.26
0.30
0.39
0.48
0.53
0.52
0.39
0.56
0.44
0.50
0.49
0.51
0.45
0.54
0.48
0.51
0.62
1.00
1.00
150.000
145.000
140.000
135.000
130.000
125.000
119.000
114.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
59.000
55.000
50.000
45.000
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:	302484	Code: ANSI/TIA-222-G	
Site Name:	Branford CT 6, CT	Engineering Number:OAA745542_C3_01	2/5/2019 11:32:04 AM
Customer:	AT&T MOBILITY		

Analysis Parameters

Location :	NEW HAVEN County, CT	Height (ft) :	150
Code :	ANSI/TIA-222-G	Base Diameter (in) :	37.38
Shape :	12 Sides	Top Diameter (in) :	15.00
Pole Type :	Taper	Taper (in/ft) :	0.157
Pole Manfacturer :	ITT Meyer	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	101 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):	2.52				
T_L (sec):	6	p:	1	C_s:	0.030
S_s:	0.240	S_1:	0.060	C_s Max:	0.030
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.256	S_{d1}:	0.096		

Load Cases

1.2D + 1.6W	101 mph with No Ice
0.9D + 1.6W	101 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

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	35.670	0.3750	65		0.00	5,014	37.38	0.00	44.68	7810.1	24.03	99.68	31.79	35.67	37.93	4778.7	20.04	84.77	0.156700
2-12	42.000	0.3125	65	Slip	50.00	4,237	33.06	31.50	32.96	4514.0	25.67	105.82	26.48	73.50	26.34	2303.2	20.03	84.76	0.156700
3-12	40.000	0.2500	65	Slip	42.00	2,646	27.53	70.00	21.96	2087.3	26.83	110.14	21.26	110.00	16.92	953.9	20.11	85.07	0.156700
4-12	39.997	0.1875	65	Butt	0.00	1,475	21.26	110.00	12.73	721.9	27.71	113.43	15.00	150.00	8.94	250.5	18.76	80.00	0.156700
				Shaft Weight		13,372													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Distance From Face (ft)	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor
160.00	Generic 11' Dipole	1	0.000	0.000	40.00	3.580	1.00
159.00	Generic 4' Omni	1	0.000	0.000	10.00	1.000	1.00
153.00	CCI HPA65R-BU6A	3	0.000	0.000	41.90	7.860	0.70
153.00	Commscope SBNHH-1D65B	3	0.000	0.000	50.70	8.170	0.69
153.00	Ericsson RRUS 32 B30 (53 lbs)	3	0.000	0.000	53.00	2.740	0.50
153.00	Ericsson RRUS 4449 B5, B12	3	0.000	0.000	71.00	1.970	0.50
153.00	Ericsson RRUS 8843 B2, B66A	3	0.000	0.000	72.00	1.640	0.50
153.00	Kathrein Scala 782-10250	3	0.000	0.000	6.40	0.450	0.50
153.00	Kathrein Scala 80010965	3	0.000	0.000	97.60	13.810	0.62
153.00	Powerwave Allgon 7020.00 Dual	6	0.000	-2.000	2.20	0.340	0.50
153.00	Powerwave Allgon 7770.00	3	0.000	-2.000	35.00	5.510	0.65
153.00	Powerwave Allgon LGP21401	6	0.000	-2.000	14.10	1.100	0.50
153.00	Raycap DC6-48-60-18-8C	1	0.000	0.000	16.00	2.030	1.00
153.00	Raycap DC6-48-60-18-8C-EV	1	0.000	0.000	16.00	4.790	1.00
153.00	Raycap DC6-48-60-18-8F ("Squid	1	0.000	-2.000	31.80	1.470	1.00
150.00	Generic GPS	1	0.000	0.000	10.00	0.900	1.00
150.00	Round Platform w/ Handrails	1	0.000	0.000	2448.72	27.200	1.00
140.00	Andrew LNX-6515DS-VTM	3	0.000	-4.000	51.30	11.430	0.70
140.00	Ericsson AIR 21, 1.3 M, B2A B4	3	0.000	-4.000	83.00	6.050	0.71
140.00	Ericsson AIR 21, 1.3M, B4A B2P	3	0.000	-4.000	81.50	6.090	0.70
140.00	Ericsson KRY 112 144/1	3	0.000	-4.000	11.00	0.350	0.50
140.00	Ericsson RRUS 11 (Band 12)	3	0.000	-4.000	50.00	2.570	0.50
136.00	Round T-Arm	3	0.000	0.000	250.00	9.700	0.67
132.00	Generic 12" x 12" Junction Box	1	0.000	0.000	10.00	1.200	1.00
131.00	Side Arms	1	0.000	0.000	560.00	8.500	1.00
130.00	Argus LLPX310R	3	0.000	0.000	28.60	4.290	0.63
130.00	DragonWave A-ANT-18G-2.5-C	1	0.000	2.000	47.60	8.430	1.00
130.00	DragonWave A-ANT-23G-1-C	1	0.000	2.000	15.00	1.610	1.00
130.00	DragonWave Horizon Compact	2	0.000	2.000	10.60	0.720	0.50
130.00	NextNet BTS-2500	3	0.000	0.000	35.00	1.820	0.50
122.00	SWR FMEC/1	1	0.000	1.000	15.00	2.500	1.00
114.00	Nokia B5 RRH4x40 w/ Solar Shie	3	0.000	0.000	41.90	1.740	0.50
113.00	Alcatel-Lucent RRH 2X60-1900	3	0.000	1.000	39.60	1.880	0.50
113.00	Alcatel-Lucent RRH2x40-07-L	3	0.000	0.000	52.40	1.700	0.50
113.00	Alcatel-Lucent RRH2x60 700	3	0.000	1.000	56.70	2.150	0.50
113.00	Commscope JAHH-65B-R3B	6	0.000	1.000	60.60	9.110	0.69
113.00	Nokia B66a RRH4x45 (UHIE)	3	0.000	1.000	56.80	2.540	0.50
113.00	RFS APL866513-12T0-00	2	0.000	1.000	15.70	4.050	0.82
113.00	RFS APL868013-12T0	4	0.000	1.000	6.30	3.610	0.50
113.00	RFS DB-T1-6Z-8AB-0Z	2	0.000	1.000	44.00	4.800	0.72
113.00	Round T-Arm	3	0.000	0.000	250.00	9.700	0.67
70.00	Generic 4' Std. Dish	1	0.000	0.000	188.00	20.910	1.00
Totals	Num Loadings:42	107			8581.52		

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Projected Width (in)	Exposed To Wind	Carrier
0.00	160.00	3	7/8" Coax	1.09	0.33	N	0.00	N	OTHER
0.00	159.00	1	1 5/8" Coax	1.98	0.82	N	0.00	N	OTHER
0.00	153.00	1	0.39" (10mm) Fiber	0.39	0.06	N	0.00	N	AT&T MOBILITY
0.00	153.00	1	0.39" (10mm) Fiber	0.39	0.06	N	0.00	N	AT&T MOBILITY
0.00	153.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0.00	N	AT&T MOBILITY
0.00	153.00	4	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0.00	N	AT&T MOBILITY
0.00	153.00	6	1 5/8" Coax	1.98	0.82	N	0.00	N	AT&T MOBILITY
0.00	153.00	2	2" conduit	2.38	3.65	N	0.00	N	AT&T MOBILITY
0.00	153.00	1	3" conduit	3.50	7.58	N	0.00	N	AT&T MOBILITY
0.00	150.00	1	1/2" Coax	0.63	0.15	N	0.00	N	VERIZON WIRELESS
0.00	140.00	1	1 1/4" Hybriflex Cable	1.54	1.00	N	0.00	N	T-MOBILE
0.00	140.00	12	1 5/8" Coax	1.98	0.82	N	3.96	Y	T-MOBILE
0.00	132.00	2	1/2" Coax	0.63	0.15	N	0.00	Y	CLEARWIRE CORPORATION
0.00	132.00	2	2" conduit	2.38	3.65	N	2.38	Y	CLEARWIRE CORPORATION
0.00	130.00	2	1/2" Coax	0.63	0.15	N	0.00	Y	CLEARWIRE CORPORATION
0.00	130.00	6	5/16" (0.31"-7.9mm)	0.31	0.05	N	0.00	Y	CLEARWIRE CORPORATION
0.00	123.20	4	#18 Dywidag bars	2.50	0.00	N	1.66	Y	
0.00	123.00	1	7/8" Coax	1.09	0.33	N	0.00	N	ALMA RADIO INC.
0.00	122.00	3	1/2" Coax	0.63	0.15	N	0.00	N	ALMA RADIO INC.
0.00	114.00	2	1 1/4" Hybriflex Cable	1.54	1.00	N	0.00	N	VERIZON WIRELESS
0.00	113.00	6	1 1/4" Coax	1.55	0.63	N	0.00	N	VERIZON WIRELESS
0.00	113.00	2	1 5/8" Hybriflex	1.98	1.30	N	0.00	N	VERIZON WIRELESS
0.00	70.00	1	0.28" (7mm) RG-6	0.28	0.03	N	0.00	N	OTHER
0.00	65.00	4	#18 Dywidag Bars	2.50	0.00	N	0.00	Y	
0.00	19.80	4	PL 1" x 5"	1.00	0.00	N	0.00	Y	

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Intermediate Connections: Description	Spacing (in)	Len (in)	Connectors	Continuation?
0.00	119.0	4	SOL #18 All Thread	75	6.37	6" T Bracket	30.0	3.50	5/8" A36 U-Bolt	Yes
0.00	59.00	4	SOL #18 All Thread	75	3.44	6" Angle Bracket	30.0	3.50	5/8" A36 U-Bolt	No
2.00	18.00	2	PL PL 4" x 1"	50	0.00	5/8" Hollo Bolt	12.0	3.00	5/8" Hollo Bolt	No
2.00	18.00	2	PL PL 5" x 1"	50	0.00	5/8" Hollo Bolt	12.0	3.00	5/8" Hollo 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	37.380	44.684	7,810.1	24.03	99.68	78.5	403.6	0.0	0.0	32.00	9,896	0.0
2.00	Reinf Bottom Reinf	0.3750	37.067	44.305	7,613.3	23.81	98.84	78.8	396.8	0.0	302.8	32.00	9,772	217.6
5.00		0.3750	36.597	43.737	7,324.4	23.47	97.59	79.1	386.6	0.0	449.4	50.00	12,78	510.1
10.00		0.3750	35.813	42.791	6,859.3	22.91	95.50	79.7	370.0	0.0	736.1	50.00	12,34	850.2
15.00		0.3750	35.030	41.845	6,414.3	22.35	93.41	80.3	353.7	0.0	720.0	50.00	11,92	850.2
18.00	Reinf. Top Reinf.	0.3750	34.559	41.278	6,156.8	22.01	92.16	80.7	344.2	0.0	424.3	50.00	11,66	510.1
20.00		0.3750	34.246	40.899	5,989.0	21.79	91.32	80.9	337.8	0.0	279.6	32.00	8,691	217.6
25.00		0.3750	33.463	39.953	5,583.0	21.23	89.23	81.6	322.3	0.0	687.8	32.00	8,402	544.0
30.00		0.3750	32.679	39.007	5,195.7	20.67	87.14	81.9	307.1	0.0	671.7	32.00	8,118	544.0
31.50	Bot - Section 2	0.3750	32.443	38.723	5,082.8	20.50	86.52	81.9	302.7	0.0	198.8	32.00	8,033	163.6
35.00		0.3750	31.896	38.061	4,826.7	20.11	85.05	81.9	292.3	0.0	845.7	32.00	8,061	380.4
35.67	Top - Section 1	0.3125	32.416	32.304	4,249.4	25.11	103.73	77.3	253.3	0.0	160.4	32.00	8,023	72.9
40.00		0.3125	31.737	31.621	3,985.6	24.53	101.56	78.0	242.6	0.0	470.9	32.00	7,783	471.1
45.00		0.3125	30.954	30.833	3,694.9	23.86	99.05	78.7	230.6	0.0	531.3	32.00	7,509	544.0
50.00		0.3125	30.170	30.044	3,418.6	23.19	96.54	79.4	218.9	0.0	517.9	32.00	7,241	544.0
55.00		0.3125	29.387	29.256	3,156.5	22.52	94.04	80.2	207.5	0.0	504.5	32.00	6,978	544.0
59.00	Reinf. Top	0.3125	28.760	28.625	2,956.7	21.98	92.03	80.7	198.6	0.0	393.9	32.00	6,989	489.6
60.00		0.3125	28.603	28.467	2,908.1	21.85	91.53	80.9	196.4	0.0	97.1	16.00	3,838	54.4
65.00		0.3125	27.819	27.679	2,673.1	21.17	89.02	81.6	185.6	0.0	477.6	16.00	3,702	272.0
70.00		0.3125	27.036	26.891	2,451.2	20.50	86.52	81.9	175.1	0.0	464.2	16.00	3,569	272.0
70.00	Bot - Section 3	0.3125	27.035	26.890	2,451.0	20.50	86.51	81.9	175.1	0.0	0.3	16.00	3,568	0.2
73.50	Top - Section 2	0.2500	26.987	21.523	1,963.9	26.25	107.95	76.1	140.6	0.0	575.9	16.00	3,560	190.4
75.00		0.2500	26.753	21.335	1,912.7	25.99	107.01	76.4	138.1	0.0	109.1	16.00	3,521	81.4
80.00		0.2500	25.969	20.704	1,748.0	25.15	103.88	77.3	130.0	0.0	357.6	16.00	3,391	272.0
85.00		0.2500	25.186	20.073	1,593.1	24.31	100.74	78.2	122.2	0.0	346.9	16.00	3,263	272.0
90.00		0.2500	24.402	19.442	1,447.6	23.47	97.61	79.1	114.6	0.0	336.2	16.00	3,138	272.0
95.00		0.2500	23.619	18.812	1,311.2	22.63	94.47	80.0	107.2	0.0	325.4	16.00	3,015	272.0
100.0		0.2500	22.835	18.181	1,183.7	21.79	91.34	80.9	100.1	0.0	314.7	16.00	2,895	272.0
105.0		0.2500	22.052	17.550	1,064.7	20.96	88.21	81.9	93.3	0.0	304.0	16.00	2,777	272.0
110.0		0.2500	21.268	16.919	954.0	20.12	85.07	81.9	86.7	0.0	293.2	16.00	2,661	272.0
110.0	Top - Section 3	0.2500	21.267	16.919	953.9	20.11	85.07	81.9	86.7	0.0	0.2	16.00	2,661	0.2
110.0	Bot - Section 4	0.1875	21.267	12.727	721.9	27.71	113.43	74.5	65.6	0.0		16.00	2,661	
113.0		0.1875	20.798	12.444	674.7	27.04	110.92	75.2	62.7	0.0	128.3	16.00	2,593	163.0
114.0		0.1875	20.641	12.349	659.4	26.82	110.09	75.5	61.7	0.0	42.2	16.00	2,571	54.4
115.0		0.1875	20.485	12.254	644.4	26.59	109.25	75.7	60.8	0.0	41.9	16.00	2,548	54.4
119.0	Reinf. Top	0.1875	19.858	11.876	586.5	25.70	105.91	76.7	57.1	0.0	164.2	16.00	2,593	163.0
120.0		0.1875	19.701	11.781	572.6	25.47	105.07	76.9	56.1	0.0	40.3			
122.0		0.1875	19.388	11.592	545.4	25.03	103.40	77.4	54.4	0.0	79.5			
125.0		0.1875	18.918	11.308	506.4	24.35	100.89	78.2	51.7	0.0	116.9			
130.0		0.1875	18.134	10.835	445.4	23.24	96.71	79.4	47.5	0.0	188.4			
131.0		0.1875	17.977	10.741	433.9	23.01	95.88	79.6	46.6	0.0	36.7			
132.0		0.1875	17.821	10.646	422.5	22.79	95.04	79.9	45.8	0.0	36.4			
135.0		0.1875	17.351	10.362	389.6	22.12	92.54	80.6	43.4	0.0	107.2			
136.0		0.1875	17.194	10.268	379.0	21.89	91.70	80.8	42.6	0.0	35.1			
140.0		0.1875	16.567	9.889	338.6	21.00	88.36	81.8	39.5	0.0	137.2			
145.0		0.1875	15.784	9.416	292.3	19.88	84.18	81.9	35.8	0.0	164.2			
150.0		0.1875	15.000	8.943	250.5	18.76	80.00	81.9	32.3	0.0	156.2			
											13,372.3			10,662.

Load Case: 1.2D + 1.6W — 101 mph with No Ice — 26 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

		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		117.8	0.0					0.0	0.0	117.8	0.0	0.0	0.0
2.00	Reinf Bottom	292.6	363.4					48.9	389.9	341.5	753.3	0.0	0.0
5.00		461.2	539.3					73.4	805.3	534.6	1,344.6	0.0	0.0
10.00		566.6	883.3					122.3	1,342.2	688.9	2,225.5	0.0	0.0
15.00		445.4	864.0					122.3	1,342.2	567.6	2,206.2	0.0	0.0
18.00	Reinf. Top Reinf.	274.0	509.1					73.4	805.3	347.4	1,314.4	0.0	0.0
20.00		376.7	335.6					48.9	389.9	425.6	725.4	0.0	0.0
25.00		529.4	825.4					122.3	974.7	651.7	1,800.1	0.0	0.0
30.00		339.7	806.1					122.3	974.7	461.9	1,780.8	0.0	0.0
31.50	Bot - Section 2	265.1	238.6					37.1	293.1	302.1	531.6	0.0	0.0
35.00		223.1	1,014.8					88.1	681.6	311.2	1,696.5	0.0	0.0
35.67	Top - Section 1	271.1	192.5					17.2	130.6	288.3	323.1	0.0	0.0
40.00		509.1	565.1					113.2	844.1	622.4	1,409.2	0.0	0.0
45.00		550.1	637.5					135.2	974.7	685.2	1,612.2	0.0	0.0
50.00		552.6	621.4					139.5	974.7	692.1	1,596.1	0.0	0.0
55.00		497.9	605.4					143.6	974.7	641.4	1,580.1	0.0	0.0
59.00	Reinf. Top	276.4	472.7					117.6	845.0	394.0	1,317.7	0.0	0.0
60.00		330.7	116.6					29.8	129.7	360.5	246.2	0.0	0.0
65.00		549.2	573.2					150.9	648.3	700.2	1,221.5	0.0	0.0
70.00	Appurtenance(s)	274.0	557.1	814.8	0.0	0.0	225.6	154.3	648.3	1,243.1	1,431.0	0.0	0.0
70.00	Bot - Section 3	194.0	0.4					0.1	0.4	194.1	0.8	0.0	0.0
73.50	Top - Section 2	276.3	691.1					109.9	453.7	386.2	1,144.8	0.0	0.0
75.00		356.2	131.0					47.5	194.0	403.7	325.0	0.0	0.0
80.00		544.1	429.1					160.5	648.1	704.6	1,077.3	0.0	0.0
85.00		536.9	416.3					162.8	648.1	699.7	1,064.4	0.0	0.0
90.00		528.8	403.4					164.9	648.1	693.6	1,051.5	0.0	0.0
95.00		519.8	390.5					166.8	648.1	686.6	1,038.6	0.0	0.0
100.00		509.9	377.6					168.8	648.1	678.7	1,025.8	0.0	0.0
105.00		499.4	364.8					170.6	648.1	670.0	1,012.9	0.0	0.0
110.00		247.1	351.9					172.4	648.1	419.5	1,000.0	0.0	0.0
110.00	Top - Section 3	145.4	0.2					0.1	0.4	145.5	0.7	0.0	0.0
113.00	Appurtenance(s)	193.2	154.0	3,193.8	0.0	2,449.2	2,249.6	104.1	388.4	3,491.1	2,792.1	0.0	0.0
114.00	Appurtenance(s)	95.7	50.6	93.5	0.0	0.0	150.8	34.9	122.0	224.1	323.4	0.0	0.0
115.00		236.2	50.2					34.9	119.6	271.2	169.8	0.0	0.0
119.00	Reinf. Top	235.0	197.1					140.4	412.8	375.4	609.8	0.0	0.0
120.00		138.7	48.3					35.3	54.3	174.0	102.6	0.0	0.0
122.00	Appurtenance(s)	228.5	95.4	114.4	0.0	114.4	18.0	70.7	108.6	413.7	222.0	0.0	0.0
125.00		358.1	140.3					92.9	160.5	451.0	300.7	0.0	0.0
130.00	Appurtenance(s)	265.3	226.0	805.3	0.0	804.2	329.5	140.5	266.8	1,211.1	822.3	0.0	0.0
131.00	Appurtenance(s)	86.7	44.1	396.2	0.0	0.0	672.0	28.2	52.6	511.2	768.7	0.0	0.0
132.00	Appurtenance(s)	171.2	43.7	44.8	0.0	0.0	12.0	28.3	52.6	244.3	108.3	0.0	0.0
135.00		170.1	128.7					51.6	130.5	221.6	259.2	0.0	0.0
136.00	Appurtenance(s)	207.4	42.1	688.9	0.0	0.0	900.0	17.2	43.5	913.6	985.6	0.0	0.0
140.00	Appurtenance(s)	331.9	164.6	2,037.4	0.0	-8,149.8	996.5	69.1	174.0	2,438.5	1,335.1	0.0	0.0
145.00		326.6	197.1					0.0	152.5	326.6	349.6	0.0	0.0
150.00	Appurtenance(s)	160.1	187.4	1,352.7	0.0	0.0	2,950.5	0.0	152.5	1,512.8	3,290.4	0.0	0.0

Load Case: 1.2D + 1.6W 101 mph with No Ice 26 Iterations

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

Totals:	28,839.5	46,296.7	0.00	0.00

Site Number: 302484 Code: ANSI/TIA-222-G

Site Name: Branford CT 6, CT Engineering Number:OAA745542_C3_01 2/5/2019 11:32:14 AM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.6W 101 mph with No Ice 26 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	-48.06	-32.32	0.00	-3,263.58	0.00	3,263.58	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.615
2.00	-47.23	-32.09	0.00	-3,198.94	0.00	3,198.94	3,140.17	1,570.08	4,745.43	2,343.59	0.02	-0.10	0.607
5.00	-45.79	-31.69	0.00	-3,102.69	0.00	3,102.69	3,114.35	1,557.18	4,645.51	2,294.24	0.14	-0.26	0.500
10.00	-43.45	-31.15	0.00	-2,944.22	0.00	2,944.22	3,070.50	1,535.25	4,480.02	2,212.51	0.53	-0.47	0.482
15.00	-41.16	-30.68	0.00	-2,788.46	0.00	2,788.46	3,025.61	1,512.81	4,315.90	2,131.46	1.14	-0.68	0.464
18.00	-39.80	-30.39	0.00	-2,696.41	0.00	2,696.41	2,998.18	1,499.09	4,218.13	2,083.18	1.61	-0.81	0.453
18.00	-39.80	-30.39	0.00	-2,696.41	0.00	2,696.41	2,998.18	1,499.09	4,218.13	2,083.18	1.61	-0.81	0.540
20.00	-38.99	-30.07	0.00	-2,635.62	0.00	2,635.62	2,979.68	1,489.84	4,153.26	2,051.14	1.97	-0.90	0.532
25.00	-37.07	-29.55	0.00	-2,485.27	0.00	2,485.27	2,932.71	1,466.36	3,992.19	1,971.59	3.04	-1.15	0.511
30.00	-35.22	-29.14	0.00	-2,337.53	0.00	2,337.53	2,875.21	1,437.61	3,820.20	1,886.65	4.37	-1.39	0.491
31.50	-34.64	-28.90	0.00	-2,293.72	0.00	2,293.72	2,854.24	1,427.12	3,764.37	1,859.08	4.82	-1.47	0.485
35.00	-32.90	-28.60	0.00	-2,192.66	0.00	2,192.66	2,805.48	1,402.74	3,636.10	1,795.73	5.96	-1.64	0.464
35.67	-32.53	-28.37	0.00	-2,173.49	0.00	2,173.49	2,248.04	1,124.02	2,973.83	1,468.66	6.19	-1.67	0.520
40.00	-31.03	-27.83	0.00	-2,050.64	0.00	2,050.64	2,218.59	1,109.29	2,872.24	1,418.49	7.80	-1.87	0.497
45.00	-29.33	-27.21	0.00	-1,911.49	0.00	1,911.49	2,183.60	1,091.80	2,755.77	1,360.97	9.89	-2.11	0.470
50.00	-27.65	-26.57	0.00	-1,775.45	0.00	1,775.45	2,147.58	1,073.79	2,640.30	1,303.95	12.23	-2.34	0.444
55.00	-26.01	-25.95	0.00	-1,642.62	0.00	1,642.62	2,110.52	1,055.26	2,525.94	1,247.47	14.81	-2.57	0.417
59.00	-24.66	-25.54	0.00	-1,538.82	0.00	1,538.82	2,080.12	1,040.06	2,435.32	1,202.71	17.04	-2.75	0.387
59.00	-24.66	-25.54	0.00	-1,538.82	0.00	1,538.82	2,080.12	1,040.06	2,435.32	1,202.71	17.04	-2.75	0.563
60.00	-24.36	-25.25	0.00	-1,513.27	0.00	1,513.27	2,072.42	1,036.21	2,412.79	1,191.58	17.62	-2.79	0.556
65.00	-23.05	-24.61	0.00	-1,387.04	0.00	1,387.04	2,033.27	1,016.64	2,300.94	1,136.35	20.71	-3.10	0.520
70.00	-21.63	-23.34	0.00	-1,264.01	0.00	1,264.01	1,982.10	991.05	2,178.42	1,075.84	24.12	-3.40	0.486
70.00	-21.60	-23.18	0.00	-1,263.94	0.00	1,263.94	1,982.06	991.03	2,178.34	1,075.80	24.12	-3.40	0.486
73.50	-20.42	-22.78	0.00	-1,182.80	0.00	1,182.80	1,473.95	736.97	1,624.52	802.29	26.69	-3.60	0.533
75.00	-20.05	-22.42	0.00	-1,148.70	0.00	1,148.70	1,466.28	733.14	1,601.77	791.05	27.83	-3.68	0.520
80.00	-18.92	-21.74	0.00	-1,036.60	0.00	1,036.60	1,440.00	720.00	1,526.12	753.69	31.84	-3.97	0.476
85.00	-17.81	-21.05	0.00	-927.91	0.00	927.91	1,412.68	706.34	1,451.11	716.65	36.14	-4.24	0.433
90.00	-16.73	-20.35	0.00	-822.67	0.00	822.67	1,384.32	692.16	1,376.86	679.98	40.72	-4.50	0.389
95.00	-15.67	-19.64	0.00	-720.94	0.00	720.94	1,354.92	677.46	1,303.45	643.72	45.56	-4.74	0.347
100.00	-14.63	-18.93	0.00	-622.72	0.00	622.72	1,324.47	662.24	1,230.99	607.94	50.63	-4.96	0.304
105.00	-13.62	-18.22	0.00	-528.06	0.00	528.06	1,292.99	646.50	1,159.59	572.68	55.93	-5.16	0.262
110.00	-12.64	-17.73	0.00	-436.95	0.00	436.95	1,247.14	623.57	1,077.81	532.29	61.43	-5.34	0.223
110.00	-12.64	-17.60	0.00	-436.89	0.00	436.89	1,247.10	623.55	1,077.76	532.26	61.43	-5.34	0.223
110.00	-12.64	-17.60	0.00	-436.89	0.00	436.89	853.23	426.61	741.76	366.33	61.43	-5.34	0.263
113.00	-10.17	-13.87	0.00	-381.71	0.00	381.71	842.42	421.21	715.90	353.56	64.81	-5.43	0.229
114.00	-9.86	-13.62	0.00	-367.83	0.00	367.83	838.73	419.36	707.30	349.31	65.95	-5.47	0.221
115.00	-9.70	-13.35	0.00	-354.21	0.00	354.21	835.00	417.50	698.71	345.06	67.10	-5.50	0.213
119.00	-9.11	-12.93	0.00	-300.81	0.00	300.81	819.65	409.83	664.49	328.17	71.75	-5.62	0.175
119.00	-9.11	-12.93	0.00	-300.81	0.00	300.81	819.65	409.83	664.49	328.17	71.75	-5.62	0.929
120.00	-8.99	-12.77	0.00	-287.89	0.00	287.89	815.71	407.86	655.98	323.96	72.93	-5.64	0.901
122.00	-8.74	-12.39	0.00	-262.23	0.00	262.23	807.71	403.85	639.01	315.58	75.35	-5.92	0.843
125.00	-8.39	-11.97	0.00	-225.08	0.00	225.08	795.39	397.69	613.71	303.09	79.18	-6.30	0.754
130.00	-7.66	-10.72	0.00	-164.40	0.00	164.40	774.02	387.01	572.00	282.49	86.06	-6.84	0.593
131.00	-6.94	-10.13	0.00	-153.68	0.00	153.68	769.63	384.81	563.73	278.40	87.51	-6.95	0.562
132.00	-6.83	-9.90	0.00	-143.55	0.00	143.55	765.19	382.59	555.49	274.33	88.97	-7.04	0.533
135.00	-6.57	-9.66	0.00	-113.86	0.00	113.86	751.62	375.81	530.94	262.21	93.47	-7.30	0.444
136.00	-5.68	-8.65	0.00	-104.19	0.00	104.19	747.02	373.51	522.82	258.20	95.00	-7.38	0.412
140.00	-4.65	-6.08	0.00	-69.59	0.00	69.59	728.18	364.09	490.64	242.31	101.29	-7.64	0.294
145.00	-4.33	-5.72	0.00	-39.21	0.00	39.21	694.06	347.03	445.03	219.79	109.40	-7.87	0.185
150.00	0.00	-5.07	0.00	-10.61	0.00	10.61	659.19	329.60	401.19	198.13	117.70	-7.99	0.054

Site Number: 302484 Code: ANSI/TIA-222-G

Site Name: Branford CT 6, CT Engineering Number:OAA745542_C3_01 2/5/2019 11:32:14 AM

Customer: AT&T MOBILITY

Load Case: 0.9D + 1.6W — 101 mph with No Ice (Reduced DL) — 26 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

		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		117.8	0.0					0.0	0.0	117.8	0.0	0.0	0.0
2.00	Reinf Bottom	292.6	272.5					48.9	292.4	341.5	564.9	0.0	0.0
5.00		461.2	404.4					73.4	604.0	534.6	1,008.4	0.0	0.0
10.00		566.6	662.5					122.3	1,006.6	688.9	1,669.1	0.0	0.0
15.00		445.4	648.0					122.3	1,006.6	567.6	1,654.6	0.0	0.0
18.00	Reinf. Top Reinf.	274.0	381.8					73.4	604.0	347.4	985.8	0.0	0.0
20.00		376.7	251.7					48.9	292.4	425.6	544.1	0.0	0.0
25.00		529.4	619.0					122.3	731.0	651.7	1,350.1	0.0	0.0
30.00		339.7	604.5					122.3	731.0	461.9	1,335.6	0.0	0.0
31.50	Bot - Section 2	265.1	178.9					37.1	219.8	302.1	398.7	0.0	0.0
35.00		223.1	761.1					88.1	511.2	311.2	1,272.4	0.0	0.0
35.67	Top - Section 1	271.1	144.4					17.2	98.0	288.3	242.3	0.0	0.0
40.00		509.1	423.8					113.2	633.1	622.4	1,056.9	0.0	0.0
45.00		550.1	478.2					135.2	731.0	685.2	1,209.2	0.0	0.0
50.00		552.6	466.1					139.5	731.0	692.1	1,197.1	0.0	0.0
55.00		497.9	454.0					143.6	731.0	641.4	1,185.0	0.0	0.0
59.00	Reinf. Top	276.4	354.5					117.6	633.8	394.0	988.3	0.0	0.0
60.00		330.7	87.4					29.8	97.2	360.5	184.7	0.0	0.0
65.00		549.2	429.9					150.9	486.2	700.2	916.1	0.0	0.0
70.00	Appurtenance(s)	274.0	417.8	814.8	0.0	0.0	169.2	154.3	486.2	1,243.1	1,073.2	0.0	0.0
70.00	Bot - Section 3	194.0	0.3					0.1	0.3	194.1	0.6	0.0	0.0
73.50	Top - Section 2	276.3	518.3					109.9	340.3	386.2	858.6	0.0	0.0
75.00		356.2	98.2					47.5	145.5	403.7	243.7	0.0	0.0
80.00		544.1	321.9					160.5	486.1	704.6	807.9	0.0	0.0
85.00		536.9	312.2					162.8	486.1	699.7	798.3	0.0	0.0
90.00		528.8	302.5					164.9	486.1	693.6	788.6	0.0	0.0
95.00		519.8	292.9					166.8	486.1	686.6	779.0	0.0	0.0
100.00		509.9	283.2					168.8	486.1	678.7	769.3	0.0	0.0
105.00		499.4	273.6					170.6	486.1	670.0	759.7	0.0	0.0
110.00		247.1	263.9					172.4	486.1	419.5	750.0	0.0	0.0
110.00	Top - Section 3	145.4	0.2					0.1	0.3	145.5	0.5	0.0	0.0
113.00	Appurtenance(s)	193.2	115.5	3,193.8	0.0	2,449.2	1,687.2	104.1	291.3	3,491.1	2,094.1	0.0	0.0
114.00	Appurtenance(s)	95.7	38.0	93.5	0.0	0.0	113.1	34.9	91.5	224.1	242.6	0.0	0.0
115.00		236.2	37.7					34.9	89.7	271.2	127.3	0.0	0.0
119.00	Reinf. Top	235.0	147.8					140.4	309.6	375.4	457.4	0.0	0.0
120.00		138.7	36.2					35.3	40.7	174.0	76.9	0.0	0.0
122.00	Appurtenance(s)	228.5	71.6	114.4	0.0	114.4	13.5	70.7	81.4	413.7	166.5	0.0	0.0
125.00		358.1	105.2					92.9	120.3	451.0	225.5	0.0	0.0
130.00	Appurtenance(s)	265.3	169.5	805.3	0.0	804.2	247.1	140.5	200.1	1,211.1	616.7	0.0	0.0
131.00	Appurtenance(s)	86.7	33.0	396.2	0.0	0.0	504.0	28.2	39.5	511.2	576.5	0.0	0.0
132.00	Appurtenance(s)	171.2	32.7	44.8	0.0	0.0	9.0	28.3	39.5	244.3	81.2	0.0	0.0
135.00		170.1	96.5					51.6	97.9	221.6	194.4	0.0	0.0
136.00	Appurtenance(s)	207.4	31.6	688.9	0.0	0.0	675.0	17.2	32.6	913.6	739.2	0.0	0.0
140.00	Appurtenance(s)	331.9	123.5	2,037.4	0.0	-8,149.8	747.4	69.1	130.5	2,438.5	1,001.4	0.0	0.0
145.00		326.6	147.8					0.0	114.4	326.6	262.2	0.0	0.0
150.00	Appurtenance(s)	160.1	140.6	1,352.7	0.0	0.0	2,212.8	0.0	114.4	1,512.8	2,467.8	0.0	0.0

Site Number:	302484	Code: ANSI/TIA-222-G	
Site Name:	Branford CT 6, CT	Engineering Number:OAA745542_C3_01	2/5/2019 11:32:23 AM
Customer:	AT&T MOBILITY		

Load Case: 0.9D + 1.6W — 101 mph with No Ice (Reduced DL) — 26 Iterations

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

Wind Importance Factor 1.00

Totals:	28,839.5	34,722.5	0.00	0.00

Load Case: 0.9D + 1.6W 101 mph with No Ice (Reduced DL) 26 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	-36.04	-32.31	0.00	-3,222.04	0.00	3,222.04	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.605
2.00	-35.40	-32.05	0.00	-3,157.42	0.00	3,157.42	3,140.17	1,570.08	4,745.43	2,343.59	0.02	-0.10	0.597
5.00	-34.29	-31.62	0.00	-3,061.29	0.00	3,061.29	3,114.35	1,557.18	4,645.51	2,294.24	0.14	-0.26	0.492
10.00	-32.52	-31.04	0.00	-2,903.20	0.00	2,903.20	3,070.50	1,535.25	4,480.02	2,212.51	0.52	-0.47	0.474
15.00	-30.78	-30.54	0.00	-2,748.02	0.00	2,748.02	3,025.61	1,512.81	4,315.90	2,131.46	1.12	-0.68	0.456
18.00	-29.74	-30.24	0.00	-2,656.39	0.00	2,656.39	2,998.18	1,499.09	4,218.13	2,083.18	1.59	-0.80	0.445
18.00	-29.74	-30.24	0.00	-2,656.39	0.00	2,656.39	2,998.18	1,499.09	4,218.13	2,083.18	1.59	-0.80	0.531
20.00	-29.12	-29.89	0.00	-2,595.92	0.00	2,595.92	2,979.68	1,489.84	4,153.26	2,051.14	1.94	-0.88	0.522
25.00	-27.66	-29.33	0.00	-2,446.48	0.00	2,446.48	2,932.71	1,466.36	3,992.19	1,971.59	3.00	-1.13	0.501
30.00	-26.25	-28.91	0.00	-2,299.84	0.00	2,299.84	2,875.21	1,437.61	3,820.20	1,886.65	4.31	-1.37	0.481
31.50	-25.80	-28.65	0.00	-2,256.38	0.00	2,256.38	2,854.24	1,427.12	3,764.37	1,859.08	4.76	-1.44	0.476
35.00	-24.49	-28.35	0.00	-2,156.19	0.00	2,156.19	2,805.48	1,402.74	3,636.10	1,795.73	5.88	-1.61	0.455
35.67	-24.20	-28.10	0.00	-2,137.19	0.00	2,137.19	2,248.04	1,124.02	2,973.83	1,468.66	6.11	-1.64	0.510
40.00	-23.05	-27.54	0.00	-2,015.50	0.00	2,015.50	2,218.59	1,109.29	2,872.24	1,418.49	7.69	-1.84	0.487
45.00	-21.76	-26.90	0.00	-1,877.81	0.00	1,877.81	2,183.60	1,091.80	2,755.77	1,360.97	9.75	-2.08	0.460
50.00	-20.49	-26.24	0.00	-1,743.31	0.00	1,743.31	2,147.58	1,073.79	2,640.30	1,303.95	12.05	-2.31	0.434
55.00	-19.24	-25.62	0.00	-1,612.09	0.00	1,612.09	2,110.52	1,055.26	2,525.94	1,247.47	14.59	-2.53	0.407
59.00	-18.22	-25.22	0.00	-1,509.61	0.00	1,509.61	2,080.12	1,040.06	2,435.32	1,202.71	16.78	-2.71	0.378
59.00	-18.22	-25.22	0.00	-1,509.61	0.00	1,509.61	2,080.12	1,040.06	2,435.32	1,202.71	16.78	-2.71	0.550
60.00	-17.98	-24.90	0.00	-1,484.40	0.00	1,484.40	2,072.42	1,036.21	2,412.79	1,191.58	17.36	-2.75	0.543
65.00	-16.98	-24.24	0.00	-1,359.89	0.00	1,359.89	2,033.27	1,016.64	2,300.94	1,136.35	20.40	-3.05	0.508
70.00	-15.92	-22.98	0.00	-1,238.67	0.00	1,238.67	1,982.10	991.05	2,178.42	1,075.84	23.75	-3.34	0.474
70.00	-15.89	-22.82	0.00	-1,238.60	0.00	1,238.60	1,982.06	991.03	2,178.34	1,075.80	23.75	-3.34	0.474
73.50	-15.00	-22.42	0.00	-1,158.74	0.00	1,158.74	1,473.95	736.97	1,624.52	802.29	26.27	-3.54	0.520
75.00	-14.71	-22.05	0.00	-1,125.19	0.00	1,125.19	1,466.28	733.14	1,601.77	791.05	27.39	-3.62	0.507
80.00	-13.85	-21.36	0.00	-1,014.97	0.00	1,014.97	1,440.00	720.00	1,526.12	753.69	31.34	-3.90	0.464
85.00	-13.01	-20.66	0.00	-908.19	0.00	908.19	1,412.68	706.34	1,451.11	716.65	35.57	-4.17	0.422
90.00	-12.19	-19.96	0.00	-804.89	0.00	804.89	1,384.32	692.16	1,376.86	679.98	40.06	-4.42	0.379
95.00	-11.39	-19.26	0.00	-705.09	0.00	705.09	1,354.92	677.46	1,303.45	643.72	44.81	-4.65	0.337
100.00	-10.62	-18.56	0.00	-608.79	0.00	608.79	1,324.47	662.24	1,230.99	607.94	49.80	-4.87	0.296
105.00	-9.86	-17.86	0.00	-516.00	0.00	516.00	1,292.99	646.50	1,159.59	572.68	55.00	-5.06	0.254
110.00	-9.12	-17.39	0.00	-426.71	0.00	426.71	1,247.14	623.57	1,077.81	532.29	60.40	-5.24	0.216
110.00	-9.12	-17.25	0.00	-426.66	0.00	426.66	1,247.10	623.55	1,077.76	532.26	60.40	-5.24	0.216
110.00	-9.12	-17.25	0.00	-426.66	0.00	426.66	853.23	426.61	741.76	366.33	60.40	-5.24	0.255
113.00	-7.35	-13.59	0.00	-372.52	0.00	372.52	842.42	421.21	715.90	353.56	63.72	-5.33	0.222
114.00	-7.12	-13.34	0.00	-358.93	0.00	358.93	838.73	419.36	707.30	349.31	64.84	-5.37	0.214
115.00	-7.00	-13.07	0.00	-345.59	0.00	345.59	835.00	417.50	698.71	345.06	65.96	-5.40	0.207
119.00	-6.56	-12.66	0.00	-293.30	0.00	293.30	819.65	409.83	664.49	328.17	70.53	-5.51	0.169
119.00	-6.56	-12.66	0.00	-293.30	0.00	293.30	819.65	409.83	664.49	328.17	70.53	-5.51	0.903
120.00	-6.47	-12.50	0.00	-280.64	0.00	280.64	815.71	407.86	655.98	323.96	71.69	-5.54	0.875
122.00	-6.28	-12.11	0.00	-255.53	0.00	255.53	807.71	403.85	639.01	315.58	74.06	-5.80	0.818
125.00	-6.01	-11.68	0.00	-219.21	0.00	219.21	795.39	397.69	613.71	303.09	77.82	-6.17	0.732
130.00	-5.48	-10.44	0.00	-160.00	0.00	160.00	774.02	387.01	572.00	282.49	84.57	-6.71	0.574
131.00	-4.95	-9.87	0.00	-149.56	0.00	149.56	769.63	384.81	563.73	278.40	85.98	-6.81	0.544
132.00	-4.87	-9.63	0.00	-139.68	0.00	139.68	765.19	382.59	555.49	274.33	87.41	-6.90	0.516
135.00	-4.67	-9.40	0.00	-110.78	0.00	110.78	751.62	375.81	530.94	262.21	91.82	-7.15	0.429
136.00	-4.03	-8.42	0.00	-101.38	0.00	101.38	747.02	373.51	522.82	258.20	93.33	-7.23	0.399
140.00	-3.32	-5.88	0.00	-67.71	0.00	67.71	728.18	364.09	490.64	242.31	99.49	-7.49	0.284
145.00	-3.09	-5.54	0.00	-38.28	0.00	38.28	694.06	347.03	445.03	219.79	107.43	-7.71	0.179
150.00	0.00	-5.07	0.00	-10.61	0.00	10.61	659.19	329.60	401.19	198.13	115.55	-7.83	0.054

Site Number: 302484 Code: ANSI/TIA-222-G

Site Name: Branford CT 6, CT Engineering Number:OAA745542_C3_01 2/5/2019 11:32:23 AM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 25 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		19.0	0.0					0.0	0.0	19.0	0.0	0.0	0.0
2.00	Reinf Bottom	47.5	467.8					13.4	524.4	60.9	992.2	0.0	0.0
5.00		75.4	715.2					21.3	1,035.2	96.7	1,750.5	0.0	0.0
10.00		93.0	1,194.0					36.9	1,757.9	129.9	2,952.0	0.0	0.0
15.00		73.4	1,184.7					37.8	1,781.7	111.2	2,966.4	0.0	0.0
18.00	Reinf. Top Reinf.	45.3	704.6					23.0	1,077.2	68.3	1,781.8	0.0	0.0
20.00		62.4	466.6					15.5	572.6	77.9	1,039.2	0.0	0.0
25.00		87.9	1,151.5					39.0	1,406.9	126.9	2,558.5	0.0	0.0
30.00		56.5	1,131.6					39.4	1,416.6	95.9	2,548.2	0.0	0.0
31.50	Bot - Section 2	44.2	336.9					12.0	427.6	56.2	764.5	0.0	0.0
35.00		37.2	1,246.0					28.7	997.2	65.9	2,243.2	0.0	0.0
35.67	Top - Section 1	45.3	236.9					5.6	191.5	50.9	428.4	0.0	0.0
40.00		85.3	848.6					37.1	1,240.6	122.4	2,089.1	0.0	0.0
45.00		92.4	961.0					44.6	1,438.5	137.0	2,399.6	0.0	0.0
50.00		93.1	940.8					46.3	1,444.3	139.4	2,385.2	0.0	0.0
55.00		84.1	920.1					47.9	1,449.6	132.1	2,369.8	0.0	0.0
59.00	Reinf. Top	46.8	721.5					39.4	1,228.5	86.2	1,950.1	0.0	0.0
60.00		56.2	178.7					10.0	226.0	66.2	404.7	0.0	0.0
65.00		93.5	877.5					50.8	1,132.7	144.3	2,010.2	0.0	0.0
70.00	Appurtenance(s)	46.7	855.7	141.8	0.0	0.0	610.5	52.2	1,048.0	240.7	2,514.2	0.0	0.0
70.00	Bot - Section 3	33.1	0.6					0.0	0.7	33.2	1.3	0.0	0.0
73.50	Top - Section 2	47.2	901.1					37.3	735.4	84.5	1,636.6	0.0	0.0
75.00		61.1	220.4					16.1	315.0	77.2	535.3	0.0	0.0
80.00		93.5	720.9					54.7	1,054.2	148.2	1,775.0	0.0	0.0
85.00		92.6	701.6					55.9	1,057.1	148.5	1,758.7	0.0	0.0
90.00		91.6	682.1					57.0	1,059.9	148.6	1,742.0	0.0	0.0
95.00		90.5	662.4					58.1	1,062.6	148.6	1,725.0	0.0	0.0
100.00		89.2	642.6					59.2	1,065.1	148.3	1,707.7	0.0	0.0
105.00		87.8	622.6					60.2	1,067.5	147.9	1,690.1	0.0	0.0
110.00		43.5	602.4					61.2	1,069.9	104.7	1,672.3	0.0	0.0
110.00	Top - Section 3	25.7	0.4					0.0	0.7	25.8	1.1	0.0	0.0
113.00	Appurtenance(s)	34.2	301.7	712.1	0.0	508.1	7,454.7	37.1	642.3	783.4	8,398.7	0.0	0.0
114.00	Appurtenance(s)	17.0	99.6	21.3	0.0	0.0	428.3	12.5	206.9	50.8	734.8	0.0	0.0
115.00		42.1	99.0					12.5	204.5	54.6	303.5	0.0	0.0
119.00	Reinf. Top	41.9	386.9					50.4	753.5	92.2	1,140.4	0.0	0.0
120.00		24.8	95.5					12.7	139.7	37.5	235.2	0.0	0.0
122.00	Appurtenance(s)	41.0	188.6	44.8	0.0	44.8	113.3	25.5	279.6	111.3	581.5	0.0	0.0
125.00		64.5	277.2					32.1	383.5	96.6	660.7	0.0	0.0
130.00	Appurtenance(s)	47.9	446.3	165.7	0.0	157.4	1,256.8	46.8	601.8	260.5	2,304.9	0.0	0.0
131.00	Appurtenance(s)	15.7	87.9	110.8	0.0	0.0	1,694.6	9.4	108.3	136.0	1,890.8	0.0	0.0
132.00	Appurtenance(s)	31.2	87.2	11.0	0.0	0.0	63.2	9.5	108.3	51.6	258.7	0.0	0.0
135.00		31.0	256.3					16.0	248.9	47.0	505.1	0.0	0.0
136.00	Appurtenance(s)	38.0	84.4	194.5	0.0	0.0	2,271.9	5.3	83.0	237.9	2,439.3	0.0	0.0
140.00	Appurtenance(s)	67.3	328.3	416.1	0.0	-1,664.5	3,614.1	21.5	332.3	504.9	4,274.7	0.0	0.0
145.00		72.8	393.6					0.0	152.5	72.8	546.1	0.0	0.0
150.00	Appurtenance(s)	35.9	375.8	392.5	0.0	0.0	4,625.5	0.0	152.5	428.3	5,153.9	0.0	0.0

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 25 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

Totals:	6,208.99	79,821.0	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 25 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	-86.51	-6.98	0.00	-782.13	0.00	782.13	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.161
2.00	-85.52	-6.96	0.00	-768.17	0.00	768.17	3,140.17	1,570.08	4,745.43	2,343.59	0.01	-0.02	0.159
5.00	-83.76	-6.93	0.00	-747.28	0.00	747.28	3,114.35	1,557.18	4,645.51	2,294.24	0.03	-0.06	0.131
10.00	-80.80	-6.87	0.00	-712.62	0.00	712.62	3,070.50	1,535.25	4,480.02	2,212.51	0.13	-0.11	0.127
15.00	-77.83	-6.81	0.00	-678.28	0.00	678.28	3,025.61	1,512.81	4,315.90	2,131.46	0.27	-0.17	0.123
18.00	-76.05	-6.77	0.00	-657.86	0.00	657.86	2,998.18	1,499.09	4,218.13	2,083.18	0.39	-0.20	0.121
18.00	-76.05	-6.77	0.00	-657.86	0.00	657.86	2,998.18	1,499.09	4,218.13	2,083.18	0.39	-0.20	0.144
20.00	-75.00	-6.74	0.00	-644.32	0.00	644.32	2,979.68	1,489.84	4,153.26	2,051.14	0.47	-0.22	0.142
25.00	-72.44	-6.68	0.00	-610.63	0.00	610.63	2,932.71	1,466.36	3,992.19	1,971.59	0.73	-0.28	0.137
30.00	-69.89	-6.62	0.00	-577.24	0.00	577.24	2,875.21	1,437.61	3,820.20	1,886.65	1.06	-0.34	0.133
31.50	-69.12	-6.59	0.00	-567.29	0.00	567.29	2,854.24	1,427.12	3,764.37	1,859.08	1.17	-0.36	0.132
35.00	-66.87	-6.54	0.00	-544.24	0.00	544.24	2,805.48	1,402.74	3,636.10	1,795.73	1.44	-0.40	0.126
35.67	-66.44	-6.52	0.00	-539.86	0.00	539.86	2,248.04	1,124.02	2,973.83	1,468.66	1.50	-0.41	0.142
40.00	-64.35	-6.44	0.00	-511.62	0.00	511.62	2,218.59	1,109.29	2,872.24	1,418.49	1.89	-0.46	0.137
45.00	-61.94	-6.35	0.00	-479.40	0.00	479.40	2,183.60	1,091.80	2,755.77	1,360.97	2.41	-0.52	0.130
50.00	-59.55	-6.25	0.00	-447.64	0.00	447.64	2,147.58	1,073.79	2,640.30	1,303.95	2.98	-0.58	0.124
55.00	-57.18	-6.14	0.00	-416.40	0.00	416.40	2,110.52	1,055.26	2,525.94	1,247.47	3.61	-0.63	0.117
59.00	-55.23	-6.06	0.00	-391.82	0.00	391.82	2,080.12	1,040.06	2,435.32	1,202.71	4.17	-0.68	0.109
59.00	-55.23	-6.06	0.00	-391.82	0.00	391.82	2,080.12	1,040.06	2,435.32	1,202.71	4.17	-0.68	0.158
60.00	-54.82	-6.03	0.00	-385.76	0.00	385.76	2,072.42	1,036.21	2,412.79	1,191.58	4.31	-0.69	0.157
65.00	-52.80	-5.94	0.00	-355.58	0.00	355.58	2,033.27	1,016.64	2,300.94	1,136.35	5.07	-0.77	0.148
70.00	-50.29	-5.69	0.00	-325.91	0.00	325.91	1,982.10	991.05	2,178.42	1,075.84	5.92	-0.84	0.139
70.00	-50.28	-5.68	0.00	-325.89	0.00	325.89	1,982.06	991.03	2,178.34	1,075.80	5.92	-0.84	0.139
73.50	-48.64	-5.60	0.00	-306.00	0.00	306.00	1,473.95	736.97	1,624.52	802.29	6.56	-0.90	0.155
75.00	-48.11	-5.56	0.00	-297.61	0.00	297.61	1,466.28	733.14	1,601.77	791.05	6.84	-0.92	0.151
80.00	-46.33	-5.44	0.00	-269.81	0.00	269.81	1,440.00	720.00	1,526.12	753.69	7.85	-0.99	0.140
85.00	-44.56	-5.31	0.00	-242.61	0.00	242.61	1,412.68	706.34	1,451.11	716.65	8.93	-1.06	0.129
90.00	-42.82	-5.18	0.00	-216.04	0.00	216.04	1,384.32	692.16	1,376.86	679.98	10.08	-1.13	0.117
95.00	-41.09	-5.04	0.00	-190.13	0.00	190.13	1,354.92	677.46	1,303.45	643.72	11.30	-1.19	0.106
100.00	-39.38	-4.89	0.00	-164.93	0.00	164.93	1,324.47	662.24	1,230.99	607.94	12.58	-1.25	0.095
105.00	-37.69	-4.74	0.00	-140.45	0.00	140.45	1,292.99	646.50	1,159.59	572.68	13.92	-1.31	0.083
110.00	-36.02	-4.61	0.00	-116.74	0.00	116.74	1,247.14	623.57	1,077.81	532.29	15.31	-1.35	0.073
110.00	-36.02	-4.60	0.00	-116.73	0.00	116.73	1,247.10	623.55	1,077.76	532.26	15.32	-1.35	0.073
110.00	-36.02	-4.60	0.00	-116.73	0.00	116.73	853.23	426.61	741.76	366.33	15.32	-1.35	0.087
113.00	-27.64	-3.62	0.00	-102.45	0.00	102.45	842.42	421.21	715.90	353.56	16.17	-1.38	0.074
114.00	-26.91	-3.56	0.00	-98.83	0.00	98.83	838.73	419.36	707.30	349.31	16.46	-1.39	0.072
115.00	-26.61	-3.50	0.00	-95.27	0.00	95.27	835.00	417.50	698.71	345.06	16.76	-1.40	0.070
119.00	-25.47	-3.39	0.00	-81.26	0.00	81.26	819.65	409.83	664.49	328.17	17.94	-1.43	0.059
119.00	-25.47	-3.39	0.00	-81.26	0.00	81.26	819.65	409.83	664.49	328.17	17.94	-1.43	0.279
120.00	-25.23	-3.37	0.00	-77.87	0.00	77.87	815.71	407.86	655.98	323.96	18.24	-1.44	0.271
122.00	-24.65	-3.28	0.00	-71.09	0.00	71.09	807.71	403.85	639.01	315.58	18.86	-1.51	0.256
125.00	-23.98	-3.22	0.00	-61.25	0.00	61.25	795.39	397.69	613.71	303.09	19.84	-1.61	0.232
130.00	-21.68	-2.92	0.00	-45.01	0.00	45.01	774.02	387.01	572.00	282.49	21.61	-1.76	0.187
131.00	-19.79	-2.74	0.00	-42.08	0.00	42.08	769.63	384.81	563.73	278.40	21.98	-1.79	0.177
132.00	-19.53	-2.69	0.00	-39.35	0.00	39.35	765.19	382.59	555.49	274.33	22.36	-1.82	0.169
135.00	-19.03	-2.65	0.00	-31.27	0.00	31.27	751.62	375.81	530.94	262.21	23.53	-1.89	0.145
136.00	-16.60	-2.34	0.00	-28.62	0.00	28.62	747.02	373.51	522.82	258.20	23.92	-1.91	0.133
140.00	-12.34	-1.71	0.00	-19.25	0.00	19.25	728.18	364.09	490.64	242.31	25.56	-1.98	0.096
145.00	-11.80	-1.62	0.00	-10.72	0.00	10.72	694.06	347.03	445.03	219.79	27.67	-2.04	0.066
150.00	0.00	-1.20	0.00	-2.60	0.00	2.60	659.19	329.60	401.19	198.13	29.83	-2.08	0.013

Site Number: 302484 Code: ANSI/TIA-222-G

Site Name: Branford CT 6, CT Engineering Number:OAA745542_C3_01 2/5/2019 11:32:33 AM

Customer: AT&T MOBILITY

Load Case: 1.0D + 1.0W Serviceability 60 mph 24 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		26.0	0.0					0.0	0.0	26.0	0.0	0.0	0.0
2.00	Reinf Bottom	64.5	302.8					10.8	324.9	75.3	627.7	0.0	0.0
5.00		101.7	449.4					16.2	671.1	117.9	1,120.5	0.0	0.0
10.00		125.0	736.1					27.0	1,118.5	151.9	1,854.6	0.0	0.0
15.00		98.2	720.0					27.0	1,118.5	125.2	1,838.5	0.0	0.0
18.00	Reinf. Top Reinf.	60.4	424.3					16.2	671.1	76.6	1,095.4	0.0	0.0
20.00		83.1	279.6					10.8	324.9	93.9	604.5	0.0	0.0
25.00		116.8	687.8					27.0	812.3	143.7	1,500.1	0.0	0.0
30.00		74.9	671.7					27.0	812.3	101.9	1,484.0	0.0	0.0
31.50	Bot - Section 2	58.5	198.8					8.2	244.2	66.6	443.0	0.0	0.0
35.00		49.2	845.7					19.4	568.0	68.6	1,413.7	0.0	0.0
35.67	Top - Section 1	59.8	160.4					3.8	108.8	63.6	269.2	0.0	0.0
40.00		112.3	470.9					25.0	703.4	137.3	1,174.3	0.0	0.0
45.00		121.3	531.3					29.8	812.3	151.1	1,343.5	0.0	0.0
50.00		121.9	517.9					30.8	812.3	152.7	1,330.1	0.0	0.0
55.00		109.8	504.5					31.7	812.3	141.5	1,316.7	0.0	0.0
59.00	Reinf. Top	61.0	393.9					25.9	704.2	86.9	1,098.1	0.0	0.0
60.00		72.9	97.1					6.6	108.1	79.5	205.2	0.0	0.0
65.00		121.1	477.6					33.3	540.3	154.4	1,017.9	0.0	0.0
70.00	Appurtenance(s)	60.4	464.2	179.7	0.0	0.0	188.0	34.0	540.3	274.2	1,192.5	0.0	0.0
70.00	Bot - Section 3	42.8	0.3					0.0	0.4	42.8	0.7	0.0	0.0
73.50	Top - Section 2	60.9	575.9					24.2	378.1	85.2	954.0	0.0	0.0
75.00		78.6	109.1					10.5	161.7	89.0	270.8	0.0	0.0
80.00		120.0	357.6					35.4	540.1	155.4	897.7	0.0	0.0
85.00		118.4	346.9					36.0	540.1	154.5	887.0	0.0	0.0
90.00		116.6	336.2					36.6	540.1	153.3	876.3	0.0	0.0
95.00		114.6	325.4					37.2	540.1	151.9	865.5	0.0	0.0
100.00		112.5	314.7					37.8	540.1	150.3	854.8	0.0	0.0
105.00		110.1	304.0					38.3	540.1	148.5	844.1	0.0	0.0
110.00		54.5	293.2					38.9	540.1	93.4	833.3	0.0	0.0
110.00	Top - Section 3	32.1	0.2					0.0	0.4	32.1	0.6	0.0	0.0
113.00	Appurtenance(s)	42.6	128.3	704.4	0.0	540.2	1,874.7	23.5	323.7	770.6	2,326.7	0.0	0.0
114.00	Appurtenance(s)	21.1	42.2	20.6	0.0	0.0	125.7	7.9	101.6	49.6	269.5	0.0	0.0
115.00		52.1	41.9					7.9	99.6	60.0	141.5	0.0	0.0
119.00	Reinf. Top	51.8	164.2					31.9	344.0	83.7	508.2	0.0	0.0
120.00		30.6	40.3					8.0	45.2	38.6	85.5	0.0	0.0
122.00	Appurtenance(s)	50.4	79.5	25.2	0.0	25.2	15.0	16.1	90.5	91.7	185.0	0.0	0.0
125.00		79.0	116.9					21.2	133.7	100.2	250.6	0.0	0.0
130.00	Appurtenance(s)	58.5	188.4	177.6	0.0	177.4	274.6	32.3	222.3	268.5	685.3	0.0	0.0
131.00	Appurtenance(s)	19.1	36.7	87.4	0.0	0.0	560.0	6.5	43.9	113.0	640.6	0.0	0.0
132.00	Appurtenance(s)	37.8	36.4	9.9	0.0	0.0	10.0	6.5	43.9	54.2	90.2	0.0	0.0
135.00		37.5	107.2					12.3	108.8	49.8	216.0	0.0	0.0
136.00	Appurtenance(s)	45.8	35.1	151.9	0.0	0.0	750.0	4.1	36.3	201.8	821.4	0.0	0.0
140.00	Appurtenance(s)	73.2	137.2	449.4	0.0	-1,797.6	830.4	16.5	145.0	539.1	1,112.6	0.0	0.0
145.00		72.0	164.2					0.0	127.1	72.0	291.3	0.0	0.0
150.00	Appurtenance(s)	35.3	156.2	298.4	0.0	0.0	2,458.7	0.0	127.1	333.7	2,742.0	0.0	0.0

Load Case: 1.0D + 1.0W Serviceability 60 mph 24 Iterations

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

Totals:	6,371.76	38,580.6	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 24 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	-40.07	-7.14	0.00	-716.21	0.00	716.21	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.140
2.00	-39.44	-7.08	0.00	-701.94	0.00	701.94	3,140.17	1,570.08	4,745.43	2,343.59	0.01	-0.02	0.138
5.00	-38.32	-6.99	0.00	-680.69	0.00	680.69	3,114.35	1,557.18	4,645.51	2,294.24	0.03	-0.06	0.114
10.00	-36.46	-6.86	0.00	-645.75	0.00	645.75	3,070.50	1,535.25	4,480.02	2,212.51	0.12	-0.10	0.110
15.00	-34.61	-6.76	0.00	-611.43	0.00	611.43	3,025.61	1,512.81	4,315.90	2,131.46	0.25	-0.15	0.106
18.00	-33.52	-6.69	0.00	-591.15	0.00	591.15	2,998.18	1,499.09	4,218.13	2,083.18	0.35	-0.18	0.103
18.00	-33.52	-6.69	0.00	-591.15	0.00	591.15	2,998.18	1,499.09	4,218.13	2,083.18	0.35	-0.18	0.123
20.00	-32.91	-6.62	0.00	-577.77	0.00	577.77	2,979.68	1,489.84	4,153.26	2,051.14	0.43	-0.20	0.121
25.00	-31.40	-6.50	0.00	-544.69	0.00	544.69	2,932.71	1,466.36	3,992.19	1,971.59	0.67	-0.25	0.116
30.00	-29.92	-6.41	0.00	-512.21	0.00	512.21	2,875.21	1,437.61	3,820.20	1,886.65	0.96	-0.30	0.112
31.50	-29.47	-6.35	0.00	-502.58	0.00	502.58	2,854.24	1,427.12	3,764.37	1,859.08	1.06	-0.32	0.110
35.00	-28.05	-6.28	0.00	-480.37	0.00	480.37	2,805.48	1,402.74	3,636.10	1,795.73	1.31	-0.36	0.106
35.67	-27.78	-6.23	0.00	-476.16	0.00	476.16	2,248.04	1,124.02	2,973.83	1,468.66	1.36	-0.37	0.118
40.00	-26.60	-6.11	0.00	-449.18	0.00	449.18	2,218.59	1,109.29	2,872.24	1,418.49	1.71	-0.41	0.113
45.00	-25.26	-5.97	0.00	-418.63	0.00	418.63	2,183.60	1,091.80	2,755.77	1,360.97	2.17	-0.46	0.107
50.00	-23.92	-5.83	0.00	-388.78	0.00	388.78	2,147.58	1,073.79	2,640.30	1,303.95	2.68	-0.51	0.101
55.00	-22.60	-5.69	0.00	-359.64	0.00	359.64	2,110.52	1,055.26	2,525.94	1,247.47	3.25	-0.56	0.095
59.00	-21.50	-5.60	0.00	-336.88	0.00	336.88	2,080.12	1,040.06	2,435.32	1,202.71	3.74	-0.60	0.088
59.00	-21.50	-5.60	0.00	-336.88	0.00	336.88	2,080.12	1,040.06	2,435.32	1,202.71	3.74	-0.60	0.128
60.00	-21.29	-5.53	0.00	-331.28	0.00	331.28	2,072.42	1,036.21	2,412.79	1,191.58	3.86	-0.61	0.126
65.00	-20.27	-5.39	0.00	-303.60	0.00	303.60	2,033.27	1,016.64	2,300.94	1,136.35	4.54	-0.68	0.118
70.00	-19.08	-5.11	0.00	-276.64	0.00	276.64	1,982.10	991.05	2,178.42	1,075.84	5.29	-0.74	0.111
70.00	-19.08	-5.08	0.00	-276.62	0.00	276.62	1,982.06	991.03	2,178.34	1,075.80	5.29	-0.74	0.111
73.50	-18.12	-4.99	0.00	-258.85	0.00	258.85	1,473.95	736.97	1,624.52	802.29	5.85	-0.79	0.122
75.00	-17.85	-4.91	0.00	-251.38	0.00	251.38	1,466.28	733.14	1,601.77	791.05	6.10	-0.81	0.119
80.00	-16.95	-4.76	0.00	-226.83	0.00	226.83	1,440.00	720.00	1,526.12	753.69	6.98	-0.87	0.109
85.00	-16.06	-4.61	0.00	-203.03	0.00	203.03	1,412.68	706.34	1,451.11	716.65	7.92	-0.93	0.099
90.00	-15.18	-4.45	0.00	-179.99	0.00	179.99	1,384.32	692.16	1,376.86	679.98	8.93	-0.99	0.090
95.00	-14.32	-4.30	0.00	-157.72	0.00	157.72	1,354.92	677.46	1,303.45	643.72	9.99	-1.04	0.080
100.00	-13.46	-4.14	0.00	-136.22	0.00	136.22	1,324.47	662.24	1,230.99	607.94	11.10	-1.09	0.070
105.00	-12.62	-3.99	0.00	-115.49	0.00	115.49	1,292.99	646.50	1,159.59	572.68	12.26	-1.13	0.061
110.00	-11.78	-3.88	0.00	-95.55	0.00	95.55	1,247.14	623.57	1,077.81	532.29	13.47	-1.17	0.052
110.00	-11.78	-3.85	0.00	-95.53	0.00	95.53	1,247.10	623.55	1,077.76	532.26	13.47	-1.17	0.052
110.00	-11.78	-3.85	0.00	-95.53	0.00	95.53	853.23	426.61	741.76	366.33	13.47	-1.17	0.062
113.00	-9.47	-3.04	0.00	-83.45	0.00	83.45	842.42	421.21	715.90	353.56	14.21	-1.19	0.054
114.00	-9.20	-2.98	0.00	-80.41	0.00	80.41	838.73	419.36	707.30	349.31	14.46	-1.20	0.052
115.00	-9.06	-2.92	0.00	-77.43	0.00	77.43	835.00	417.50	698.71	345.06	14.71	-1.20	0.050
119.00	-8.56	-2.83	0.00	-65.74	0.00	65.74	819.65	409.83	664.49	328.17	15.73	-1.23	0.041
119.00	-8.56	-2.83	0.00	-65.74	0.00	65.74	819.65	409.83	664.49	328.17	15.73	-1.23	0.211
120.00	-8.47	-2.80	0.00	-62.91	0.00	62.91	815.71	407.86	655.98	323.96	15.99	-1.24	0.205
122.00	-8.28	-2.71	0.00	-57.29	0.00	57.29	807.71	403.85	639.01	315.58	16.52	-1.30	0.192
125.00	-8.03	-2.62	0.00	-49.16	0.00	49.16	795.39	397.69	613.71	303.09	17.36	-1.38	0.172
130.00	-7.35	-2.34	0.00	-35.89	0.00	35.89	774.02	387.01	572.00	282.49	18.87	-1.50	0.137
131.00	-6.71	-2.21	0.00	-33.55	0.00	33.55	769.63	384.81	563.73	278.40	19.19	-1.52	0.129
132.00	-6.62	-2.16	0.00	-31.34	0.00	31.34	765.19	382.59	555.49	274.33	19.51	-1.54	0.123
135.00	-6.41	-2.11	0.00	-24.85	0.00	24.85	751.62	375.81	530.94	262.21	20.50	-1.60	0.103
136.00	-5.59	-1.89	0.00	-22.74	0.00	22.74	747.02	373.51	522.82	258.20	20.83	-1.62	0.096
140.00	-4.49	-1.32	0.00	-15.18	0.00	15.18	728.18	364.09	490.64	242.31	22.21	-1.67	0.069
145.00	-4.20	-1.25	0.00	-8.57	0.00	8.57	694.06	347.03	445.03	219.79	23.99	-1.72	0.045
150.00	0.00	-1.12	0.00	-2.34	0.00	2.34	659.19	329.60	401.19	198.13	25.81	-1.75	0.012

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.24	
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}):	0.26	
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):	2.52	
Redundancy Factor (p):	1.00	
Seismic Force Distribution Exponent (k):	2.00	
Total Unfactored Dead Load:	40.07	k
Seismic Base Shear (E):	1.20	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)
45	147.50	283	6,163	0.020	24	354
44	142.50	291	5,916	0.019	23	365
43	138.00	282	5,375	0.018	21	353
42	135.50	71	1,310	0.004	5	89
41	133.50	216	3,850	0.013	15	270
40	131.50	80	1,388	0.005	5	100
39	130.50	81	1,372	0.005	5	101
38	127.50	411	6,676	0.022	26	514
37	123.50	251	3,822	0.013	15	314
36	121.00	170	2,489	0.008	10	213
35	119.50	85	1,221	0.004	5	107
34	117.00	508	6,957	0.023	27	636
33	114.50	141	1,855	0.006	7	177
32	113.50	144	1,853	0.006	7	180
31	111.50	452	5,620	0.018	22	566
30	110.00	1	7	0.000	0	1
29	107.50	833	9,630	0.032	38	1,043
28	102.50	844	8,868	0.029	35	1,056
27	97.50	855	8,126	0.027	32	1,070
26	92.50	866	7,406	0.024	29	1,083
25	87.50	876	6,709	0.022	26	1,096
24	82.50	887	6,037	0.020	24	1,110
23	77.50	898	5,392	0.018	21	1,123

22	74.25	271	1,493	0.005	6	339
21	71.75	954	4,912	0.016	19	1,194
20	70.00	1	3	0.000	0	1
19	67.50	1,004	4,577	0.015	18	1,257
18	62.50	1,018	3,976	0.013	16	1,274
17	59.50	205	726	0.002	3	257
16	57.00	1,098	3,568	0.012	14	1,374
15	52.50	1,317	3,629	0.012	14	1,647
14	47.50	1,330	3,001	0.010	12	1,664
13	42.50	1,344	2,427	0.008	10	1,681
12	37.83	1,174	1,681	0.006	7	1,469
11	35.33	269	336	0.001	1	337
10	33.25	1,414	1,563	0.005	6	1,769
9	30.75	443	419	0.001	2	554
8	27.50	1,484	1,122	0.004	4	1,857
7	22.50	1,500	759	0.002	3	1,877
6	19.00	605	218	0.001	1	756
5	16.50	1,095	298	0.001	1	1,371
4	12.50	1,838	287	0.001	1	2,300
3	7.50	1,855	104	0.000	0	2,320
2	3.50	1,120	14	0.000	0	1,402
1	1.00	628	1	0.000	0	785
Generic 11' Dipole	160.00	40	1,024	0.003	4	50
Generic 4' Omni	159.00	10	253	0.001	1	13
Powerwave Allgon 702	153.00	13	309	0.001	1	17
Kathrein Scala 782-1	153.00	19	449	0.001	2	24
Powerwave Allgon LGP	153.00	85	1,980	0.006	8	106
Raycap DC6-48-60-18-	153.00	32	744	0.002	3	40
Ericsson RRUS 8843 B	153.00	216	5,056	0.017	20	270
Ericsson RRUS 4449 B	153.00	213	4,986	0.016	20	267
Raycap DC6-48-60-18-	153.00	16	375	0.001	1	20
Ericsson RRUS 32 B30	153.00	159	3,722	0.012	15	199
Raycap DC6-48-60-18-	153.00	16	375	0.001	1	20
Powerwave Allgon 777	153.00	105	2,458	0.008	10	131
CCI HPA65R-BU6A	153.00	126	2,943	0.010	12	157
Commscope SBNHH-1D65	153.00	152	3,561	0.012	14	190
Kathrein Scala 80010	153.00	293	6,854	0.022	27	366
Generic GPS	150.00	10	225	0.001	1	13
Round Platform w/ Ha	150.00	2,449	55,096	0.181	217	3,064
Ericsson KRY 112 144	140.00	33	647	0.002	3	41
Ericsson RRUS 11 (Ba	140.00	150	2,940	0.010	12	188
Ericsson AIR 21, 1.3	140.00	249	4,880	0.016	19	312
Ericsson AIR 21, 1.3	140.00	244	4,792	0.016	19	306
Andrew LNX-6515DS-VT	140.00	154	3,016	0.010	12	193
Round T-Arm	136.00	750	13,872	0.046	55	938
Generic 12" x 12" Ju	132.00	10	174	0.001	1	13
Side Arms	131.00	560	9,610	0.032	38	701
DragonWave Horizon C	130.00	21	358	0.001	1	27
DragonWave A-ANT-23G	130.00	15	254	0.001	1	19
NextNet BTS-2500	130.00	105	1,775	0.006	7	131
Argus LLPX310R	130.00	86	1,450	0.005	6	107
DragonWave A-ANT-18G	130.00	48	804	0.003	3	60
SWR FMEC/1	122.00	15	223	0.001	1	19
Nokia B5 RRH4x40 w/	114.00	126	1,634	0.005	6	157
Alcatel-Lucent RRH2x	113.00	157	2,007	0.007	8	197
Alcatel-Lucent RRH 2	113.00	119	1,517	0.005	6	149
Alcatel-Lucent RRH2x	113.00	170	2,172	0.007	9	213
Nokia B66a RRH4x45 (	113.00	170	2,176	0.007	9	213
RFS APL868013-12T0	113.00	25	322	0.001	1	32
RFS APL866513-12T0-0	113.00	31	401	0.001	2	39
RFS DB-T1-6Z-8AB-0Z	113.00	88	1,124	0.004	4	110
Commscope JAHH-65B-R	113.00	364	4,643	0.015	18	455
Round T-Arm	113.00	750	9,577	0.031	38	938
Generic 4' Std. Dish	70.00	188	921	0.003	4	235

		40,075	304,854	1.000	1,202	50,142

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)
45	147.50	283	6,163	0.020	24	240
44	142.50	291	5,916	0.019	23	247
43	138.00	282	5,375	0.018	21	240
42	135.50	71	1,310	0.004	5	61
41	133.50	216	3,850	0.013	15	183
40	131.50	80	1,388	0.005	5	68
39	130.50	81	1,372	0.005	5	68
38	127.50	411	6,676	0.022	26	349
37	123.50	251	3,822	0.013	15	213
36	121.00	170	2,489	0.008	10	144
35	119.50	85	1,221	0.004	5	73
34	117.00	508	6,957	0.023	27	431
33	114.50	141	1,855	0.006	7	120
32	113.50	144	1,853	0.006	7	122
31	111.50	452	5,620	0.018	22	384
30	110.00	1	7	0.000	0	0
29	107.50	833	9,630	0.032	38	707
28	102.50	844	8,868	0.029	35	716
27	97.50	855	8,126	0.027	32	726
26	92.50	866	7,406	0.024	29	735
25	87.50	876	6,709	0.022	26	744
24	82.50	887	6,037	0.020	24	753
23	77.50	898	5,392	0.018	21	762
22	74.25	271	1,493	0.005	6	230
21	71.75	954	4,912	0.016	19	810
20	70.00	1	3	0.000	0	1
19	67.50	1,004	4,577	0.015	18	853
18	62.50	1,018	3,976	0.013	16	864
17	59.50	205	726	0.002	3	174
16	57.00	1,098	3,568	0.012	14	932
15	52.50	1,317	3,629	0.012	14	1,118
14	47.50	1,330	3,001	0.010	12	1,129
13	42.50	1,344	2,427	0.008	10	1,140
12	37.83	1,174	1,681	0.006	7	997
11	35.33	269	336	0.001	1	229
10	33.25	1,414	1,563	0.005	6	1,200
9	30.75	443	419	0.001	2	376
8	27.50	1,484	1,122	0.004	4	1,260
7	22.50	1,500	759	0.002	3	1,273
6	19.00	605	218	0.001	1	513
5	16.50	1,095	298	0.001	1	930
4	12.50	1,838	287	0.001	1	1,560
3	7.50	1,855	104	0.000	0	1,574
2	3.50	1,120	14	0.000	0	951
1	1.00	628	1	0.000	0	533
Generic 11' Dipole	160.00	40	1,024	0.003	4	34
Generic 4' Omni	159.00	10	253	0.001	1	8
Powerwave Allgon 702	153.00	13	309	0.001	1	11
Kathrein Scala 782-1	153.00	19	449	0.001	2	16
Powerwave Allgon LGP	153.00	85	1,980	0.006	8	72
Raycap DC6-48-60-18-	153.00	32	744	0.002	3	27
Ericsson RRUS 8843 B	153.00	216	5,056	0.017	20	183
Ericsson RRUS 4449 B	153.00	213	4,986	0.016	20	181
Raycap DC6-48-60-18-	153.00	16	375	0.001	1	14

Ericsson RRUS 32 B30	153.00	159	3,722	0.012	15	135
Raycap DC6-48-60-18-	153.00	16	375	0.001	1	14
Powerwave Allgon 777	153.00	105	2,458	0.008	10	89
CCI HPA65R-BU6A	153.00	126	2,943	0.010	12	107
Commscope SBNHH-1D65	153.00	152	3,561	0.012	14	129
Kathrein Scala 80010	153.00	293	6,854	0.022	27	249
Generic GPS	150.00	10	225	0.001	1	8
Round Platform w/ Ha	150.00	2,449	55,096	0.181	217	2,078
Ericsson KRY 112 144	140.00	33	647	0.002	3	28
Ericsson RRUS 11 (Ba	140.00	150	2,940	0.010	12	127
Ericsson AIR 21, 1.3	140.00	249	4,880	0.016	19	211
Ericsson AIR 21, 1.3	140.00	244	4,792	0.016	19	208
Andrew LNX-6515DS-VT	140.00	154	3,016	0.010	12	131
Round T-Arm	136.00	750	13,872	0.046	55	637
Generic 12" x 12" Ju	132.00	10	174	0.001	1	8
Side Arms	131.00	560	9,610	0.032	38	475
DragonWave Horizon C	130.00	21	358	0.001	1	18
DragonWave A-ANT-23G	130.00	15	254	0.001	1	13
NextNet BTS-2500	130.00	105	1,775	0.006	7	89
Argus LLPX310R	130.00	86	1,450	0.005	6	73
DragonWave A-ANT-18G	130.00	48	804	0.003	3	40
SWR FMEC/1	122.00	15	223	0.001	1	13
Nokia B5 RRH4x40 w/	114.00	126	1,634	0.005	6	107
Alcatel-Lucent RRH2x	113.00	157	2,007	0.007	8	133
Alcatel-Lucent RRH 2	113.00	119	1,517	0.005	6	101
Alcatel-Lucent RRH2x	113.00	170	2,172	0.007	9	144
Nokia B66a RRH4x45 (	113.00	170	2,176	0.007	9	145
RFS APL868013-12T0	113.00	25	322	0.001	1	21
RFS APL866513-12T0-0	113.00	31	401	0.001	2	27
RFS DB-T1-6Z-8AB-0Z	113.00	88	1,124	0.004	4	75
Commscope JAHH-65B-R	113.00	364	4,643	0.015	18	309
Round T-Arm	113.00	750	9,577	0.031	38	637
Generic 4' Std. Dish	70.00	188	921	0.003	4	160
		40,075	304,854	1.000	1,202	34,016

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	-47.49	-1.06	0.00	-128.06	0.00	128.06	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.033
2.00	-46.08	-1.07	0.00	-125.93	0.00	125.93	3,140.17	1,570.08	4,745.43	2,343.59	0.00	0.00	0.032
5.00	-43.76	-1.07	0.00	-122.72	0.00	122.72	3,114.35	1,557.18	4,645.51	2,294.24	0.01	-0.01	0.026
10.00	-41.46	-1.08	0.00	-117.35	0.00	117.35	3,070.50	1,535.25	4,480.02	2,212.51	0.02	-0.02	0.025
15.00	-40.09	-1.08	0.00	-111.96	0.00	111.96	3,025.61	1,512.81	4,315.90	2,131.46	0.04	-0.03	0.024
18.00	-39.34	-1.08	0.00	-108.72	0.00	108.72	2,998.18	1,499.09	4,218.13	2,083.18	0.06	-0.03	0.024
18.00	-39.34	-1.08	0.00	-108.72	0.00	108.72	2,998.18	1,499.09	4,218.13	2,083.18	0.06	-0.03	0.029
20.00	-37.46	-1.08	0.00	-106.55	0.00	106.55	2,979.68	1,489.84	4,153.26	2,051.14	0.08	-0.04	0.028
25.00	-35.60	-1.08	0.00	-101.13	0.00	101.13	2,932.71	1,466.36	3,992.19	1,971.59	0.12	-0.05	0.027
30.00	-35.05	-1.09	0.00	-95.71	0.00	95.71	2,875.21	1,437.61	3,820.20	1,886.65	0.17	-0.06	0.026
31.50	-33.28	-1.08	0.00	-94.08	0.00	94.08	2,854.24	1,427.12	3,764.37	1,859.08	0.19	-0.06	0.026
35.00	-32.94	-1.08	0.00	-90.30	0.00	90.30	2,805.48	1,402.74	3,636.10	1,795.73	0.24	-0.07	0.025
35.67	-31.47	-1.08	0.00	-89.58	0.00	89.58	2,248.04	1,124.02	2,973.83	1,468.66	0.25	-0.07	0.028
40.00	-29.79	-1.07	0.00	-84.92	0.00	84.92	2,218.59	1,109.29	2,872.24	1,418.49	0.31	-0.08	0.027
45.00	-28.13	-1.06	0.00	-79.58	0.00	79.58	2,183.60	1,091.80	2,755.77	1,360.97	0.40	-0.09	0.026
50.00	-26.48	-1.05	0.00	-74.28	0.00	74.28	2,147.58	1,073.79	2,640.30	1,303.95	0.49	-0.10	0.024
55.00	-25.11	-1.03	0.00	-69.05	0.00	69.05	2,110.52	1,055.26	2,525.94	1,247.47	0.60	-0.10	0.023
59.00	-24.85	-1.03	0.00	-64.91	0.00	64.91	2,080.12	1,040.06	2,435.32	1,202.71	0.69	-0.11	0.022
59.00	-24.85	-1.03	0.00	-64.91	0.00	64.91	2,080.12	1,040.06	2,435.32	1,202.71	0.69	-0.11	0.031
60.00	-23.58	-1.02	0.00	-63.88	0.00	63.88	2,072.42	1,036.21	2,412.79	1,191.58	0.71	-0.11	0.030
65.00	-22.32	-1.00	0.00	-58.79	0.00	58.79	2,033.27	1,016.64	2,300.94	1,136.35	0.84	-0.13	0.029
70.00	-22.08	-1.00	0.00	-53.78	0.00	53.78	1,982.10	991.05	2,178.42	1,075.84	0.98	-0.14	0.027
70.00	-20.89	-0.98	0.00	-53.77	0.00	53.77	1,982.06	991.03	2,178.34	1,075.80	0.98	-0.14	0.027
73.50	-20.55	-0.98	0.00	-50.34	0.00	50.34	1,473.95	736.97	1,624.52	802.29	1.08	-0.15	0.030
75.00	-19.43	-0.95	0.00	-48.88	0.00	48.88	1,466.28	733.14	1,601.77	791.05	1.13	-0.15	0.029
80.00	-18.32	-0.93	0.00	-44.12	0.00	44.12	1,440.00	720.00	1,526.12	753.69	1.30	-0.16	0.027
85.00	-17.22	-0.90	0.00	-39.46	0.00	39.46	1,412.68	706.34	1,451.11	716.65	1.47	-0.18	0.025
90.00	-16.14	-0.87	0.00	-34.94	0.00	34.94	1,384.32	692.16	1,376.86	679.98	1.66	-0.19	0.023
95.00	-15.07	-0.84	0.00	-30.57	0.00	30.57	1,354.92	677.46	1,303.45	643.72	1.87	-0.20	0.020
100.00	-14.01	-0.81	0.00	-26.36	0.00	26.36	1,324.47	662.24	1,230.99	607.94	2.08	-0.21	0.018
105.00	-12.97	-0.77	0.00	-22.34	0.00	22.34	1,292.99	646.50	1,159.59	572.68	2.30	-0.21	0.016
110.00	-12.97	-0.77	0.00	-18.51	0.00	18.51	1,247.14	623.57	1,077.81	532.29	2.53	-0.22	0.015
110.00	-12.40	-0.74	0.00	-18.51	0.00	18.51	1,247.10	623.55	1,077.76	532.26	2.53	-0.22	0.014
110.00	-12.40	-0.74	0.00	-18.51	0.00	18.51	853.23	426.61	741.76	366.33	2.53	-0.22	0.017
113.00	-9.88	-0.63	0.00	-16.29	0.00	16.29	842.42	421.21	715.90	353.56	2.67	-0.23	0.015
114.00	-9.54	-0.62	0.00	-15.66	0.00	15.66	838.73	419.36	707.30	349.31	2.72	-0.23	0.014
115.00	-8.91	-0.59	0.00	-15.04	0.00	15.04	835.00	417.50	698.71	345.06	2.76	-0.23	0.013
119.00	-8.80	-0.58	0.00	-12.69	0.00	12.69	819.65	409.83	664.49	328.17	2.96	-0.23	0.012
119.00	-8.80	-0.58	0.00	-12.69	0.00	12.69	819.65	409.83	664.49	328.17	2.96	-0.23	0.049
120.00	-8.59	-0.57	0.00	-12.11	0.00	12.11	815.71	407.86	655.98	323.96	3.01	-0.24	0.048
122.00	-8.25	-0.56	0.00	-10.97	0.00	10.97	807.71	403.85	639.01	315.58	3.11	-0.25	0.045
125.00	-7.74	-0.53	0.00	-9.30	0.00	9.30	795.39	397.69	613.71	303.09	3.27	-0.26	0.040
130.00	-7.30	-0.51	0.00	-6.64	0.00	6.64	774.02	387.01	572.00	282.49	3.55	-0.28	0.033
131.00	-6.50	-0.46	0.00	-6.14	0.00	6.14	769.63	384.81	563.73	278.40	3.61	-0.29	0.030
132.00	-6.21	-0.44	0.00	-5.68	0.00	5.68	765.19	382.59	555.49	274.33	3.68	-0.29	0.029
135.00	-6.12	-0.44	0.00	-4.35	0.00	4.35	751.62	375.81	530.94	262.21	3.86	-0.30	0.025
136.00	-4.83	-0.36	0.00	-3.91	0.00	3.91	747.02	373.51	522.82	258.20	3.93	-0.31	0.022
140.00	-3.43	-0.26	0.00	-2.49	0.00	2.49	728.18	364.09	490.64	242.31	4.19	-0.32	0.015
145.00	-3.08	-0.24	0.00	-1.18	0.00	1.18	694.06	347.03	445.03	219.79	4.52	-0.32	0.010
150.00	0.00	-0.22	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	4.86	-0.33	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	-32.21	-1.06	0.00	-126.15	0.00	126.15	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.029
2.00	-31.26	-1.07	0.00	-124.02	0.00	124.02	3,140.17	1,570.08	4,745.43	2,343.59	0.00	0.00	0.029
5.00	-29.69	-1.07	0.00	-120.82	0.00	120.82	3,114.35	1,557.18	4,645.51	2,294.24	0.01	-0.01	0.024
10.00	-28.13	-1.07	0.00	-115.47	0.00	115.47	3,070.50	1,535.25	4,480.02	2,212.51	0.02	-0.02	0.023
15.00	-27.20	-1.07	0.00	-110.11	0.00	110.11	3,025.61	1,512.81	4,315.90	2,131.46	0.04	-0.03	0.022
18.00	-26.69	-1.08	0.00	-106.88	0.00	106.88	2,998.18	1,499.09	4,218.13	2,083.18	0.06	-0.03	0.022
18.00	-26.69	-1.08	0.00	-106.88	0.00	106.88	2,998.18	1,499.09	4,218.13	2,083.18	0.06	-0.03	0.026
20.00	-25.41	-1.07	0.00	-104.73	0.00	104.73	2,979.68	1,489.84	4,153.26	2,051.14	0.08	-0.04	0.026
25.00	-24.15	-1.07	0.00	-99.36	0.00	99.36	2,932.71	1,466.36	3,992.19	1,971.59	0.12	-0.05	0.025
30.00	-23.78	-1.07	0.00	-93.99	0.00	93.99	2,875.21	1,437.61	3,820.20	1,886.65	0.17	-0.05	0.024
31.50	-22.58	-1.07	0.00	-92.38	0.00	92.38	2,854.24	1,427.12	3,764.37	1,859.08	0.19	-0.06	0.024
35.00	-22.35	-1.07	0.00	-88.64	0.00	88.64	2,805.48	1,402.74	3,636.10	1,795.73	0.23	-0.06	0.023
35.67	-21.35	-1.06	0.00	-87.93	0.00	87.93	2,248.04	1,124.02	2,973.83	1,468.66	0.24	-0.07	0.026
40.00	-20.21	-1.05	0.00	-83.32	0.00	83.32	2,218.59	1,109.29	2,872.24	1,418.49	0.31	-0.07	0.024
45.00	-19.08	-1.04	0.00	-78.05	0.00	78.05	2,183.60	1,091.80	2,755.77	1,360.97	0.39	-0.08	0.023
50.00	-17.96	-1.03	0.00	-72.83	0.00	72.83	2,147.58	1,073.79	2,640.30	1,303.95	0.48	-0.09	0.022
55.00	-17.03	-1.02	0.00	-67.67	0.00	67.67	2,110.52	1,055.26	2,525.94	1,247.47	0.59	-0.10	0.021
59.00	-16.86	-1.02	0.00	-63.60	0.00	63.60	2,080.12	1,040.06	2,435.32	1,202.71	0.68	-0.11	0.020
59.00	-16.86	-1.02	0.00	-63.60	0.00	63.60	2,080.12	1,040.06	2,435.32	1,202.71	0.68	-0.11	0.028
60.00	-15.99	-1.00	0.00	-62.58	0.00	62.58	2,072.42	1,036.21	2,412.79	1,191.58	0.70	-0.11	0.028
65.00	-15.14	-0.98	0.00	-57.57	0.00	57.57	2,033.27	1,016.64	2,300.94	1,136.35	0.82	-0.12	0.026
70.00	-14.98	-0.98	0.00	-52.65	0.00	52.65	1,982.10	991.05	2,178.42	1,075.84	0.96	-0.14	0.025
70.00	-14.17	-0.96	0.00	-52.65	0.00	52.65	1,982.06	991.03	2,178.34	1,075.80	0.96	-0.14	0.024
73.50	-13.94	-0.96	0.00	-49.28	0.00	49.28	1,473.95	736.97	1,624.52	802.29	1.07	-0.15	0.027
75.00	-13.18	-0.94	0.00	-47.85	0.00	47.85	1,466.28	733.14	1,601.77	791.05	1.11	-0.15	0.026
80.00	-12.42	-0.91	0.00	-43.17	0.00	43.17	1,440.00	720.00	1,526.12	753.69	1.27	-0.16	0.024
85.00	-11.68	-0.89	0.00	-38.61	0.00	38.61	1,412.68	706.34	1,451.11	716.65	1.45	-0.17	0.022
90.00	-10.95	-0.86	0.00	-34.18	0.00	34.18	1,384.32	692.16	1,376.86	679.98	1.64	-0.18	0.020
95.00	-10.22	-0.82	0.00	-29.89	0.00	29.89	1,354.92	677.46	1,303.45	643.72	1.83	-0.19	0.018
100.00	-9.50	-0.79	0.00	-25.77	0.00	25.77	1,324.47	662.24	1,230.99	607.94	2.04	-0.20	0.016
105.00	-8.80	-0.75	0.00	-21.84	0.00	21.84	1,292.99	646.50	1,159.59	572.68	2.26	-0.21	0.014
110.00	-8.80	-0.75	0.00	-18.09	0.00	18.09	1,247.14	623.57	1,077.81	532.29	2.48	-0.22	0.013
110.00	-8.41	-0.73	0.00	-18.09	0.00	18.09	1,247.10	623.55	1,077.76	532.26	2.48	-0.22	0.012
110.00	-8.41	-0.73	0.00	-18.09	0.00	18.09	853.23	426.61	741.76	366.33	2.48	-0.22	0.015
113.00	-6.70	-0.62	0.00	-15.92	0.00	15.92	842.42	421.21	715.90	353.56	2.62	-0.22	0.013
114.00	-6.47	-0.60	0.00	-15.30	0.00	15.30	838.73	419.36	707.30	349.31	2.66	-0.22	0.012
115.00	-6.04	-0.57	0.00	-14.69	0.00	14.69	835.00	417.50	698.71	345.06	2.71	-0.22	0.012
119.00	-5.97	-0.57	0.00	-12.40	0.00	12.40	819.65	409.83	664.49	328.17	2.90	-0.23	0.010
119.00	-5.97	-0.57	0.00	-12.40	0.00	12.40	819.65	409.83	664.49	328.17	2.90	-0.23	0.045
120.00	-5.82	-0.56	0.00	-11.83	0.00	11.83	815.71	407.86	655.98	323.96	2.95	-0.23	0.044
122.00	-5.60	-0.54	0.00	-10.71	0.00	10.71	807.71	403.85	639.01	315.58	3.05	-0.24	0.041
125.00	-5.25	-0.52	0.00	-9.07	0.00	9.07	795.39	397.69	613.71	303.09	3.21	-0.26	0.037
130.00	-4.95	-0.49	0.00	-6.48	0.00	6.48	774.02	387.01	572.00	282.49	3.49	-0.28	0.029
131.00	-4.41	-0.45	0.00	-5.99	0.00	5.99	769.63	384.81	563.73	278.40	3.55	-0.28	0.027
132.00	-4.21	-0.43	0.00	-5.54	0.00	5.54	765.19	382.59	555.49	274.33	3.61	-0.29	0.026
135.00	-4.15	-0.43	0.00	-4.24	0.00	4.24	751.62	375.81	530.94	262.21	3.79	-0.30	0.022
136.00	-3.28	-0.35	0.00	-3.81	0.00	3.81	747.02	373.51	522.82	258.20	3.85	-0.30	0.019
140.00	-2.33	-0.26	0.00	-2.42	0.00	2.42	728.18	364.09	490.64	242.31	4.11	-0.31	0.013
145.00	-2.09	-0.23	0.00	-1.15	0.00	1.15	694.06	347.03	445.03	219.79	4.44	-0.32	0.008
150.00	0.00	-0.22	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	4.77	-0.32	0.000

Equivalent Modal Forces Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.24
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}):	0.26
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.52
Redundancy Factor (p):	1.00

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)
45	147.50	283	1.828	1.667	1.025	0.427	81	354
44	142.50	291	1.706	1.144	0.823	0.329	64	365
43	138.00	282	1.600	0.778	0.670	0.250	47	353
42	135.50	71	1.542	0.611	0.595	0.210	10	89
41	133.50	216	1.497	0.494	0.539	0.180	26	270
40	131.50	80	1.453	0.391	0.488	0.152	8	100
39	130.50	81	1.431	0.344	0.464	0.138	7	101
38	127.50	411	1.366	0.222	0.397	0.100	27	514
37	123.50	251	1.281	0.095	0.320	0.054	9	314
36	121.00	170	1.230	0.035	0.278	0.029	3	213
35	119.50	85	1.200	0.004	0.254	0.015	1	107
34	117.00	508	1.150	-0.037	0.219	-0.006	-2	636
33	114.50	141	1.101	-0.069	0.188	-0.025	-2	177
32	113.50	144	1.082	-0.079	0.176	-0.032	-3	180
31	111.50	452	1.044	-0.096	0.154	-0.044	-13	566
30	110.00	1	1.016	-0.105	0.140	-0.053	0	1
29	107.50	833	0.971	-0.116	0.117	-0.065	-36	1,043
28	102.50	844	0.883	-0.121	0.081	-0.081	-46	1,056
27	97.50	855	0.799	-0.112	0.053	-0.087	-50	1,070
26	92.50	866	0.719	-0.092	0.034	-0.083	-48	1,083
25	87.50	876	0.643	-0.068	0.020	-0.067	-39	1,096
24	82.50	887	0.572	-0.043	0.012	-0.042	-25	1,110
23	77.50	898	0.505	-0.018	0.007	-0.010	-6	1,123
22	74.25	271	0.463	-0.003	0.006	0.011	2	339
21	71.75	954	0.432	0.008	0.006	0.026	17	1,194
20	70.00	1	0.412	0.014	0.006	0.036	0	1
19	67.50	1,004	0.383	0.023	0.007	0.048	32	1,257
18	62.50	1,018	0.328	0.039	0.010	0.065	44	1,274
17	59.50	205	0.297	0.046	0.012	0.072	10	257
16	57.00	1,098	0.273	0.051	0.015	0.076	56	1,374
15	52.50	1,317	0.232	0.058	0.019	0.080	70	1,647
14	47.50	1,330	0.190	0.064	0.025	0.081	72	1,664
13	42.50	1,344	0.152	0.068	0.030	0.080	71	1,681
12	37.83	1,174	0.120	0.070	0.034	0.078	61	1,469

11	35.33	269	0.105	0.071	0.037	0.077	14	337
10	33.25	1,414	0.093	0.071	0.038	0.076	72	1,769
9	30.75	443	0.079	0.072	0.040	0.076	22	554
8	27.50	1,484	0.064	0.072	0.041	0.074	74	1,857
7	22.50	1,500	0.043	0.070	0.042	0.072	72	1,877
6	19.00	605	0.030	0.068	0.041	0.070	28	756
5	16.50	1,095	0.023	0.066	0.039	0.068	50	1,371
4	12.50	1,838	0.013	0.059	0.034	0.064	78	2,300
3	7.50	1,855	0.005	0.044	0.025	0.052	64	2,320
2	3.50	1,120	0.001	0.024	0.013	0.033	25	1,402
1	1.00	628	0.000	0.008	0.004	0.012	5	785
Generic 11' Dipole	160.00	40	2.150	3.655	1.704	0.721	19	50
Generic 4' Omni	159.00	10	2.124	3.453	1.639	0.695	5	13
Powerwave Allgon 702	153.00	13	1.966	2.408	1.291	0.548	5	17
Kathrein Scala 782-1	153.00	19	1.966	2.408	1.291	0.548	7	24
Powerwave Allgon LGP	153.00	85	1.966	2.408	1.291	0.548	31	106
Raycap DC6-48-60-18-	153.00	32	1.966	2.408	1.291	0.548	12	40
Ericsson RRUS 8843 B	153.00	216	1.966	2.408	1.291	0.548	79	270
Ericsson RRUS 4449 B	153.00	213	1.966	2.408	1.291	0.548	78	267
Raycap DC6-48-60-18-	153.00	16	1.966	2.408	1.291	0.548	6	20
Ericsson RRUS 32 B30	153.00	159	1.966	2.408	1.291	0.548	58	199
Raycap DC6-48-60-18-	153.00	16	1.966	2.408	1.291	0.548	6	20
Powerwave Allgon 777	153.00	105	1.966	2.408	1.291	0.548	38	131
CCI HPA65R-BU6A	153.00	126	1.966	2.408	1.291	0.548	46	157
Commscope SBNHH-	153.00	152	1.966	2.408	1.291	0.548	56	190
Kathrein Scala 80010	153.00	293	1.966	2.408	1.291	0.548	107	366
Generic GPS	150.00	10	1.890	1.980	1.140	0.480	3	13
Round Platform w/ Ha	150.00	2,449	1.890	1.980	1.140	0.480	784	3,064
Ericsson KRY 112 144	140.00	33	1.646	0.929	0.735	0.284	6	41
Ericsson RRUS 11 (Ba	140.00	150	1.646	0.929	0.735	0.284	28	188
Ericsson AIR 21, 1.3	140.00	249	1.646	0.929	0.735	0.284	47	312
Ericsson AIR 21, 1.3	140.00	244	1.646	0.929	0.735	0.284	46	306
Andrew LNX-6515DS-VT	140.00	154	1.646	0.929	0.735	0.284	29	193
Round T-Arm	136.00	750	1.554	0.642	0.609	0.218	109	938
Generic 12" x 12" Ju	132.00	10	1.464	0.415	0.501	0.159	1	13
Side Arms	131.00	560	1.442	0.367	0.476	0.145	54	701
DragonWave Horizon C	130.00	21	1.420	0.322	0.452	0.131	2	27
DragonWave A-ANT-23G	130.00	15	1.420	0.322	0.452	0.131	1	19
NextNet BTS-2500	130.00	105	1.420	0.322	0.452	0.131	9	131
Argus LLPX310R	130.00	86	1.420	0.322	0.452	0.131	8	107
DragonWave A-ANT-18G	130.00	48	1.420	0.322	0.452	0.131	4	60
SWR FMEC/1	122.00	15	1.250	0.057	0.294	0.039	0	19
Nokia B5 RRH4x40 w/	114.00	126	1.092	-0.074	0.182	-0.028	-2	157
Alcatel-Lucent RRH2x	113.00	157	1.073	-0.084	0.170	-0.035	-4	197
Alcatel-Lucent RRH 2	113.00	119	1.073	-0.084	0.170	-0.035	-3	149
Alcatel-Lucent RRH2x	113.00	170	1.073	-0.084	0.170	-0.035	-4	213
Nokia B66a RRH4x45 (	113.00	170	1.073	-0.084	0.170	-0.035	-4	213
RFS APL868013-12T0	113.00	25	1.073	-0.084	0.170	-0.035	-1	32
RFS APL866513-12T0-0	113.00	31	1.073	-0.084	0.170	-0.035	-1	39
RFS DB-T1-6Z-8AB-0Z	113.00	88	1.073	-0.084	0.170	-0.035	-2	110
Commscope JAHH-65B-	113.00	364	1.073	-0.084	0.170	-0.035	-9	455
Round T-Arm	113.00	750	1.073	-0.084	0.170	-0.035	-18	938
Generic 4' Std. Dish	70.00	188	0.412	0.014	0.006	0.036	4	235
		40,075	96.164	55.178	39.518	14.443	2,595	50,142

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)

45	147.50	283	1.828	1.667	1.025	0.427	81	240
44	142.50	291	1.706	1.144	0.823	0.329	64	247
43	138.00	282	1.600	0.778	0.670	0.250	47	240
42	135.50	71	1.542	0.611	0.595	0.210	10	61
41	133.50	216	1.497	0.494	0.539	0.180	26	183
40	131.50	80	1.453	0.391	0.488	0.152	8	68
39	130.50	81	1.431	0.344	0.464	0.138	7	68
38	127.50	411	1.366	0.222	0.397	0.100	27	349
37	123.50	251	1.281	0.095	0.320	0.054	9	213
36	121.00	170	1.230	0.035	0.278	0.029	3	144
35	119.50	85	1.200	0.004	0.254	0.015	1	73
34	117.00	508	1.150	-0.037	0.219	-0.006	-2	431
33	114.50	141	1.101	-0.069	0.188	-0.025	-2	120
32	113.50	144	1.082	-0.079	0.176	-0.032	-3	122
31	111.50	452	1.044	-0.096	0.154	-0.044	-13	384
30	110.00	1	1.016	-0.105	0.140	-0.053	0	0
29	107.50	833	0.971	-0.116	0.117	-0.065	-36	707
28	102.50	844	0.883	-0.121	0.081	-0.081	-46	716
27	97.50	855	0.799	-0.112	0.053	-0.087	-50	726
26	92.50	866	0.719	-0.092	0.034	-0.083	-48	735
25	87.50	876	0.643	-0.068	0.020	-0.067	-39	744
24	82.50	887	0.572	-0.043	0.012	-0.042	-25	753
23	77.50	898	0.505	-0.018	0.007	-0.010	-6	762
22	74.25	271	0.463	-0.003	0.006	0.011	2	230
21	71.75	954	0.432	0.008	0.006	0.026	17	810
20	70.00	1	0.412	0.014	0.006	0.036	0	1
19	67.50	1,004	0.383	0.023	0.007	0.048	32	853
18	62.50	1,018	0.328	0.039	0.010	0.065	44	864
17	59.50	205	0.297	0.046	0.012	0.072	10	174
16	57.00	1,098	0.273	0.051	0.015	0.076	56	932
15	52.50	1,317	0.232	0.058	0.019	0.080	70	1,118
14	47.50	1,330	0.190	0.064	0.025	0.081	72	1,129
13	42.50	1,344	0.152	0.068	0.030	0.080	71	1,140
12	37.83	1,174	0.120	0.070	0.034	0.078	61	997
11	35.33	269	0.105	0.071	0.037	0.077	14	229
10	33.25	1,414	0.093	0.071	0.038	0.076	72	1,200
9	30.75	443	0.079	0.072	0.040	0.076	22	376
8	27.50	1,484	0.064	0.072	0.041	0.074	74	1,260
7	22.50	1,500	0.043	0.070	0.042	0.072	72	1,273
6	19.00	605	0.030	0.068	0.041	0.070	28	513
5	16.50	1,095	0.023	0.066	0.039	0.068	50	930
4	12.50	1,838	0.013	0.059	0.034	0.064	78	1,560
3	7.50	1,855	0.005	0.044	0.025	0.052	64	1,574
2	3.50	1,120	0.001	0.024	0.013	0.033	25	951
1	1.00	628	0.000	0.008	0.004	0.012	5	533
Generic 11' Dipole	160.00	40	2.150	3.655	1.704	0.721	19	34
Generic 4' Omni	159.00	10	2.124	3.453	1.639	0.695	5	8
Powerwave Allgon 702	153.00	13	1.966	2.408	1.291	0.548	5	11
Kathrein Scala 782-1	153.00	19	1.966	2.408	1.291	0.548	7	16
Powerwave Allgon LGP	153.00	85	1.966	2.408	1.291	0.548	31	72
Raycap DC6-48-60-18-	153.00	32	1.966	2.408	1.291	0.548	12	27
Ericsson RRUS 8843 B	153.00	216	1.966	2.408	1.291	0.548	79	183
Ericsson RRUS 4449 B	153.00	213	1.966	2.408	1.291	0.548	78	181
Raycap DC6-48-60-18-	153.00	16	1.966	2.408	1.291	0.548	6	14
Ericsson RRUS 32 B30	153.00	159	1.966	2.408	1.291	0.548	58	135
Raycap DC6-48-60-18-	153.00	16	1.966	2.408	1.291	0.548	6	14
Powerwave Allgon 777	153.00	105	1.966	2.408	1.291	0.548	38	89
CCI HPA65R-BU6A	153.00	126	1.966	2.408	1.291	0.548	46	107
Commscope SBNHH-	153.00	152	1.966	2.408	1.291	0.548	56	129
Kathrein Scala 80010	153.00	293	1.966	2.408	1.291	0.548	107	249
Generic GPS	150.00	10	1.890	1.980	1.140	0.480	3	8
Round Platform w/ Ha	150.00	2,449	1.890	1.980	1.140	0.480	784	2,078
Ericsson KRY 112 144	140.00	33	1.646	0.929	0.735	0.284	6	28
Ericsson RRUS 11 (Ba	140.00	150	1.646	0.929	0.735	0.284	28	127

Ericsson AIR 21, 1.3	140.00	249	1.646	0.929	0.735	0.284	47	211
Ericsson AIR 21, 1.3	140.00	244	1.646	0.929	0.735	0.284	46	208
Andrew LNX-6515DS-VT	140.00	154	1.646	0.929	0.735	0.284	29	131
Round T-Arm	136.00	750	1.554	0.642	0.609	0.218	109	637
Generic 12" x 12" Ju	132.00	10	1.464	0.415	0.501	0.159	1	8
Side Arms	131.00	560	1.442	0.367	0.476	0.145	54	475
DragonWave Horizon C	130.00	21	1.420	0.322	0.452	0.131	2	18
DragonWave A-ANT-23G	130.00	15	1.420	0.322	0.452	0.131	1	13
NextNet BTS-2500	130.00	105	1.420	0.322	0.452	0.131	9	89
Argus LLPX310R	130.00	86	1.420	0.322	0.452	0.131	8	73
DragonWave A-ANT-18G	130.00	48	1.420	0.322	0.452	0.131	4	40
SWR FMEC/1	122.00	15	1.250	0.057	0.294	0.039	0	13
Nokia B5 RRH4x40 w/	114.00	126	1.092	-0.074	0.182	-0.028	-2	107
Alcatel-Lucent RRH2x	113.00	157	1.073	-0.084	0.170	-0.035	-4	133
Alcatel-Lucent RRH 2	113.00	119	1.073	-0.084	0.170	-0.035	-3	101
Alcatel-Lucent RRH2x	113.00	170	1.073	-0.084	0.170	-0.035	-4	144
Nokia B66a RRH4x45 (	113.00	170	1.073	-0.084	0.170	-0.035	-4	145
RFS APL868013-12T0	113.00	25	1.073	-0.084	0.170	-0.035	-1	21
RFS APL866513-12T0-0	113.00	31	1.073	-0.084	0.170	-0.035	-1	27
RFS DB-T1-6Z-8AB-0Z	113.00	88	1.073	-0.084	0.170	-0.035	-2	75
Commscope JAHH-65B-	113.00	364	1.073	-0.084	0.170	-0.035	-9	309
Round T-Arm	113.00	750	1.073	-0.084	0.170	-0.035	-18	637
Generic 4' Std. Dish	70.00	188	0.412	0.014	0.006	0.036	4	160
		40,075	96.164	55.178	39.518	14.443	2,595	34,016

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	-47.49	-2.04	0.00	-214.59	0.00	214.59	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.049
2.00	-46.08	-2.02	0.00	-210.51	0.00	210.51	3,140.17	1,570.08	4,745.43	2,343.59	0.00	-0.01	0.048
5.00	-43.76	-1.97	0.00	-204.45	0.00	204.45	3,114.35	1,557.18	4,645.51	2,294.24	0.01	-0.02	0.039
10.00	-41.46	-1.90	0.00	-194.61	0.00	194.61	3,070.50	1,535.25	4,480.02	2,212.51	0.03	-0.03	0.038
15.00	-40.09	-1.86	0.00	-185.12	0.00	185.12	3,025.61	1,512.81	4,315.90	2,131.46	0.07	-0.05	0.036
18.00	-39.34	-1.83	0.00	-179.55	0.00	179.55	2,998.18	1,499.09	4,218.13	2,083.18	0.11	-0.05	0.036
18.00	-39.34	-1.83	0.00	-179.55	0.00	179.55	2,998.18	1,499.09	4,218.13	2,083.18	0.11	-0.05	0.043
20.00	-37.46	-1.76	0.00	-175.89	0.00	175.89	2,979.68	1,489.84	4,153.26	2,051.14	0.13	-0.06	0.042
25.00	-35.60	-1.70	0.00	-167.07	0.00	167.07	2,932.71	1,466.36	3,992.19	1,971.59	0.20	-0.08	0.041
30.00	-35.05	-1.68	0.00	-158.57	0.00	158.57	2,875.21	1,437.61	3,820.20	1,886.65	0.29	-0.09	0.039
31.50	-33.28	-1.61	0.00	-156.04	0.00	156.04	2,854.24	1,427.12	3,764.37	1,859.08	0.32	-0.10	0.039
35.00	-32.94	-1.60	0.00	-150.40	0.00	150.40	2,805.48	1,402.74	3,636.10	1,795.73	0.40	-0.11	0.038
35.67	-31.47	-1.54	0.00	-149.33	0.00	149.33	2,248.04	1,124.02	2,973.83	1,468.66	0.41	-0.11	0.042
40.00	-29.79	-1.48	0.00	-142.65	0.00	142.65	2,218.59	1,109.29	2,872.24	1,418.49	0.52	-0.13	0.041
45.00	-28.13	-1.41	0.00	-135.27	0.00	135.27	2,183.60	1,091.80	2,755.77	1,360.97	0.66	-0.14	0.039
50.00	-26.48	-1.34	0.00	-128.23	0.00	128.23	2,147.58	1,073.79	2,640.30	1,303.95	0.82	-0.16	0.038
55.00	-25.10	-1.29	0.00	-121.53	0.00	121.53	2,110.52	1,055.26	2,525.94	1,247.47	0.99	-0.18	0.036
59.00	-24.85	-1.28	0.00	-116.37	0.00	116.37	2,080.12	1,040.06	2,435.32	1,202.71	1.15	-0.19	0.034
59.00	-24.85	-1.28	0.00	-116.37	0.00	116.37	2,080.12	1,040.06	2,435.32	1,202.71	1.15	-0.19	0.050
60.00	-23.57	-1.24	0.00	-115.09	0.00	115.09	2,072.42	1,036.21	2,412.79	1,191.58	1.19	-0.19	0.049
65.00	-22.32	-1.21	0.00	-108.90	0.00	108.90	2,033.27	1,016.64	2,300.94	1,136.35	1.40	-0.22	0.047
70.00	-22.08	-1.21	0.00	-102.84	0.00	102.84	1,982.10	991.05	2,178.42	1,075.84	1.64	-0.24	0.046
70.00	-20.89	-1.19	0.00	-102.84	0.00	102.84	1,982.06	991.03	2,178.34	1,075.80	1.64	-0.24	0.046
73.50	-20.55	-1.19	0.00	-98.67	0.00	98.67	1,473.95	736.97	1,624.52	802.29	1.82	-0.26	0.052
75.00	-19.42	-1.20	0.00	-96.88	0.00	96.88	1,466.28	733.14	1,601.77	791.05	1.90	-0.26	0.051
80.00	-18.31	-1.23	0.00	-90.89	0.00	90.89	1,440.00	720.00	1,526.12	753.69	2.19	-0.29	0.048
85.00	-17.22	-1.27	0.00	-84.76	0.00	84.76	1,412.68	706.34	1,451.11	716.65	2.51	-0.31	0.046
90.00	-16.13	-1.31	0.00	-78.43	0.00	78.43	1,384.32	692.16	1,376.86	679.98	2.85	-0.34	0.043
95.00	-15.06	-1.36	0.00	-71.86	0.00	71.86	1,354.92	677.46	1,303.45	643.72	3.21	-0.36	0.040
100.00	-14.00	-1.41	0.00	-65.04	0.00	65.04	1,324.47	662.24	1,230.99	607.94	3.60	-0.38	0.037
105.00	-12.96	-1.44	0.00	-57.99	0.00	57.99	1,292.99	646.50	1,159.59	572.68	4.01	-0.40	0.033
110.00	-12.96	-1.44	0.00	-50.78	0.00	50.78	1,247.14	623.57	1,077.81	532.29	4.44	-0.42	0.031
110.00	-12.39	-1.45	0.00	-50.78	0.00	50.78	1,247.10	623.55	1,077.76	532.26	4.44	-0.42	0.030
110.00	-12.39	-1.45	0.00	-50.78	0.00	50.78	853.23	426.61	741.76	366.33	4.44	-0.42	0.036
113.00	-9.87	-1.48	0.00	-46.42	0.00	46.42	842.42	421.21	715.90	353.56	4.71	-0.44	0.032
114.00	-9.53	-1.49	0.00	-44.93	0.00	44.93	838.73	419.36	707.30	349.31	4.81	-0.44	0.031
115.00	-8.90	-1.49	0.00	-43.45	0.00	43.45	835.00	417.50	698.71	345.06	4.90	-0.44	0.030
119.00	-8.79	-1.49	0.00	-37.50	0.00	37.50	819.65	409.83	664.49	328.17	5.28	-0.46	0.026
119.00	-8.79	-1.49	0.00	-37.50	0.00	37.50	819.65	409.83	664.49	328.17	5.28	-0.46	0.125
120.00	-8.58	-1.48	0.00	-36.02	0.00	36.02	815.71	407.86	655.98	323.96	5.37	-0.46	0.122
122.00	-8.24	-1.48	0.00	-33.05	0.00	33.05	807.71	403.85	639.01	315.58	5.57	-0.49	0.115
125.00	-7.73	-1.45	0.00	-28.62	0.00	28.62	795.39	397.69	613.71	303.09	5.90	-0.54	0.104
130.00	-7.28	-1.42	0.00	-21.35	0.00	21.35	774.02	387.01	572.00	282.49	6.51	-0.61	0.085
131.00	-6.48	-1.35	0.00	-19.93	0.00	19.93	769.63	384.81	563.73	278.40	6.64	-0.63	0.080
132.00	-6.20	-1.33	0.00	-18.58	0.00	18.58	765.19	382.59	555.49	274.33	6.77	-0.64	0.076
135.00	-6.11	-1.32	0.00	-14.60	0.00	14.60	751.62	375.81	530.94	262.21	7.18	-0.67	0.064
136.00	-4.82	-1.15	0.00	-13.28	0.00	13.28	747.02	373.51	522.82	258.20	7.32	-0.68	0.058
140.00	-3.42	-0.91	0.00	-8.69	0.00	8.69	728.18	364.09	490.64	242.31	7.91	-0.72	0.041
145.00	-3.07	-0.83	0.00	-4.14	0.00	4.14	694.06	347.03	445.03	219.79	8.68	-0.74	0.023
150.00	0.00	-0.79	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	9.46	-0.75	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	-32.21	-2.04	0.00	-211.13	0.00	211.13	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.045
2.00	-31.26	-2.02	0.00	-207.05	0.00	207.05	3,140.17	1,570.08	4,745.43	2,343.59	0.00	-0.01	0.044
5.00	-29.69	-1.96	0.00	-201.00	0.00	201.00	3,114.35	1,557.18	4,645.51	2,294.24	0.01	-0.02	0.036
10.00	-28.13	-1.89	0.00	-191.19	0.00	191.19	3,070.50	1,535.25	4,480.02	2,212.51	0.03	-0.03	0.035
15.00	-27.20	-1.84	0.00	-181.74	0.00	181.74	3,025.61	1,512.81	4,315.90	2,131.46	0.07	-0.04	0.034
18.00	-26.68	-1.82	0.00	-176.21	0.00	176.21	2,998.18	1,499.09	4,218.13	2,083.18	0.10	-0.05	0.033
18.00	-26.68	-1.82	0.00	-176.21	0.00	176.21	2,998.18	1,499.09	4,218.13	2,083.18	0.10	-0.05	0.040
20.00	-25.41	-1.75	0.00	-172.58	0.00	172.58	2,979.68	1,489.84	4,153.26	2,051.14	0.13	-0.06	0.039
25.00	-24.15	-1.68	0.00	-163.83	0.00	163.83	2,932.71	1,466.36	3,992.19	1,971.59	0.20	-0.07	0.038
30.00	-23.77	-1.66	0.00	-155.42	0.00	155.42	2,875.21	1,437.61	3,820.20	1,886.65	0.28	-0.09	0.037
31.50	-22.57	-1.59	0.00	-152.92	0.00	152.92	2,854.24	1,427.12	3,764.37	1,859.08	0.31	-0.10	0.036
35.00	-22.35	-1.58	0.00	-147.35	0.00	147.35	2,805.48	1,402.74	3,636.10	1,795.73	0.39	-0.11	0.035
35.67	-21.35	-1.52	0.00	-146.29	0.00	146.29	2,248.04	1,124.02	2,973.83	1,468.66	0.40	-0.11	0.039
40.00	-20.21	-1.45	0.00	-139.71	0.00	139.71	2,218.59	1,109.29	2,872.24	1,418.49	0.51	-0.12	0.038
45.00	-19.08	-1.38	0.00	-132.44	0.00	132.44	2,183.60	1,091.80	2,755.77	1,360.97	0.65	-0.14	0.036
50.00	-17.96	-1.32	0.00	-125.53	0.00	125.53	2,147.58	1,073.79	2,640.30	1,303.95	0.80	-0.16	0.035
55.00	-17.03	-1.26	0.00	-118.95	0.00	118.95	2,110.52	1,055.26	2,525.94	1,247.47	0.97	-0.17	0.034
59.00	-16.85	-1.25	0.00	-113.90	0.00	113.90	2,080.12	1,040.06	2,435.32	1,202.71	1.12	-0.19	0.032
59.00	-16.85	-1.25	0.00	-113.90	0.00	113.90	2,080.12	1,040.06	2,435.32	1,202.71	1.12	-0.19	0.046
60.00	-15.99	-1.21	0.00	-112.65	0.00	112.65	2,072.42	1,036.21	2,412.79	1,191.58	1.16	-0.19	0.046
65.00	-15.14	-1.18	0.00	-106.60	0.00	106.60	2,033.27	1,016.64	2,300.94	1,136.35	1.37	-0.21	0.044
70.00	-14.98	-1.18	0.00	-100.69	0.00	100.69	1,982.10	991.05	2,178.42	1,075.84	1.61	-0.23	0.043
70.00	-14.17	-1.16	0.00	-100.68	0.00	100.68	1,982.06	991.03	2,178.34	1,075.80	1.61	-0.23	0.043
73.50	-13.94	-1.16	0.00	-96.62	0.00	96.62	1,473.95	736.97	1,624.52	802.29	1.79	-0.25	0.048
75.00	-13.17	-1.17	0.00	-94.88	0.00	94.88	1,466.28	733.14	1,601.77	791.05	1.87	-0.26	0.047
80.00	-12.42	-1.19	0.00	-89.04	0.00	89.04	1,440.00	720.00	1,526.12	753.69	2.15	-0.28	0.045
85.00	-11.68	-1.23	0.00	-83.08	0.00	83.08	1,412.68	706.34	1,451.11	716.65	2.46	-0.31	0.043
90.00	-10.94	-1.28	0.00	-76.91	0.00	76.91	1,384.32	692.16	1,376.86	679.98	2.79	-0.33	0.040
95.00	-10.22	-1.33	0.00	-70.50	0.00	70.50	1,354.92	677.46	1,303.45	643.72	3.15	-0.35	0.037
100.00	-9.50	-1.38	0.00	-63.84	0.00	63.84	1,324.47	662.24	1,230.99	607.94	3.53	-0.37	0.034
105.00	-8.79	-1.41	0.00	-56.96	0.00	56.96	1,292.99	646.50	1,159.59	572.68	3.93	-0.40	0.031
110.00	-8.79	-1.41	0.00	-49.90	0.00	49.90	1,247.14	623.57	1,077.81	532.29	4.36	-0.42	0.028
110.00	-8.41	-1.42	0.00	-49.90	0.00	49.90	1,247.10	623.55	1,077.76	532.26	4.36	-0.42	0.028
110.00	-8.41	-1.42	0.00	-49.90	0.00	49.90	853.23	426.61	741.76	366.33	4.36	-0.42	0.033
113.00	-6.69	-1.46	0.00	-45.63	0.00	45.63	842.42	421.21	715.90	353.56	4.62	-0.43	0.030
114.00	-6.46	-1.46	0.00	-44.17	0.00	44.17	838.73	419.36	707.30	349.31	4.71	-0.43	0.029
115.00	-6.03	-1.46	0.00	-42.71	0.00	42.71	835.00	417.50	698.71	345.06	4.80	-0.43	0.028
119.00	-5.96	-1.46	0.00	-36.86	0.00	36.86	819.65	409.83	664.49	328.17	5.17	-0.45	0.024
119.00	-5.96	-1.46	0.00	-36.86	0.00	36.86	819.65	409.83	664.49	328.17	5.17	-0.45	0.120
120.00	-5.82	-1.46	0.00	-35.40	0.00	35.40	815.71	407.86	655.98	323.96	5.27	-0.45	0.116
122.00	-5.59	-1.45	0.00	-32.48	0.00	32.48	807.71	403.85	639.01	315.58	5.46	-0.49	0.110
125.00	-5.24	-1.43	0.00	-28.12	0.00	28.12	795.39	397.69	613.71	303.09	5.78	-0.53	0.099
130.00	-4.94	-1.40	0.00	-20.99	0.00	20.99	774.02	387.01	572.00	282.49	6.38	-0.60	0.081
131.00	-4.39	-1.33	0.00	-19.59	0.00	19.59	769.63	384.81	563.73	278.40	6.51	-0.61	0.076
132.00	-4.20	-1.30	0.00	-18.26	0.00	18.26	765.19	382.59	555.49	274.33	6.64	-0.63	0.072
135.00	-4.14	-1.29	0.00	-14.36	0.00	14.36	751.62	375.81	530.94	262.21	7.04	-0.66	0.060
136.00	-3.27	-1.13	0.00	-13.06	0.00	13.06	747.02	373.51	522.82	258.20	7.18	-0.67	0.055
140.00	-2.32	-0.90	0.00	-8.55	0.00	8.55	728.18	364.09	490.64	242.31	7.76	-0.70	0.038
145.00	-2.08	-0.81	0.00	-4.07	0.00	4.07	694.06	347.03	445.03	219.79	8.51	-0.73	0.022
150.00	0.00	-0.79	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	9.28	-0.74	0.000

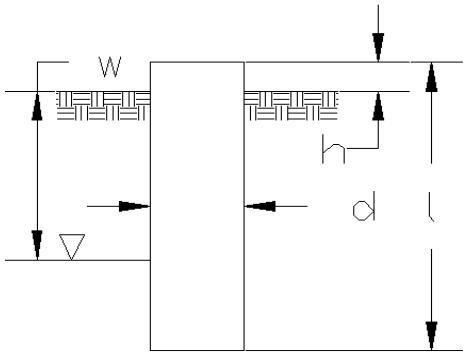
Analysis Summary

	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	32.32	0.00	48.06	0.00	0.00	3263.58	119.00	0.93
0.9D + 1.6W	32.31	0.00	36.04	0.00	0.00	3222.04	119.00	0.90
1.2D + 1.0Di + 1.0Wi	6.98	0.00	86.51	0.00	0.00	782.13	119.00	0.28
(1.2 + 0.2Sds) * DL + E ELFM	1.06	0.00	47.49	0.00	0.00	128.06	119.00	0.05
(1.2 + 0.2Sds) * DL + E EMAM	2.04	0.00	47.49	0.00	0.00	214.59	119.00	0.13
(0.9 - 0.2Sds) * DL + E ELFM	1.06	0.00	32.21	0.00	0.00	126.15	119.00	0.05
(0.9 - 0.2Sds) * DL + E EMAM	2.04	0.00	32.21	0.00	0.00	211.13	119.00	0.12
1.0D + 1.0W	7.14	0.00	40.07	0.00	0.00	716.21	119.00	0.21

Additional Steel Summary

			Intermediate Connectors			Upper Termination Connectors				Lower Termination Connectors				Max Member		
Elev From (ft)	Elev To (ft)	Member	VQ/I (lb/in)	Shear Applied (kips)	Shear phiVn (kips)	MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Pu (kip)	phiPn (kip)	Ratio
0.00	119.	(4) SOL-#18 All Thre	357.5	10.7	16.8	81.7	12.0	7	10	0.0	12.0	0	0	240.0	249.8	0.961
0.00	59.0	(4) SOL-#18 All Thre	202.8	6.1	16.8	146.6	12.0	13	18	0.0	12.0	0	0	209.1	249.8	0.837
2.00	18.0	(2) PL-PL 4" x 1"	121.3	1.5	25.3	129.1	25.3	6	8	141.4	25.3	6	8	143.4	174.4	0.822
2.00	18.0	(2) PL-PL 5" x 1"	151.6	1.8	25.3	161.4	25.3	7	8	176.8	25.3	7	8	179.3	218.0	0.822

Site Name:	Branford CT 6, CT	*Program Last Updated:*	*5/13/2014*
Site Number:	302484	*American Tower Corporation*	
Engineer:	Parvin.NikpoorParizi		
Engineering Number:	OAA745542		
Date:	02/05/19		



Design Base Loads (Factored) - Analysis per TIA-222-G Standards

Analyze or Design a Foundation?	Analyze	
Foundation Mapped:	Y	
Moment (M):	3263.6	k-ft
Shear/Leg (V):	32.3	k
Axial Load (P):	48.1	k
Uplift/Leg (U):	0.0	k
Tower Type (GT / SST / MP):	MP	
Diameter of Caisson (d):	5	ft
Caisson Embedment (L-h):	22.25	ft
Caisson Height Above Ground (h):	0.5	ft
Depth Below Ground Surface to Water Table (w):	4.5	ft
Unit Weight of Concrete:	150	pcf
Unit Weight of Water:	62.4	pcf
Tension Skin Friction/Compression Skin Friction:	0.925	
Pullout Angle:	30	degrees

Engineer Notes

Soil Mechanical Properties

Depth (ft) Top	Depth (ft) Bottom	γ_{Soil} (pcf)	Cohesion (psf)	ϕ (degree)	Ultimate Skin Friction (psf)	Ultimate Bearing Pressure (psf)
0	1	105	0	0	0	0
1	2	120	0	33	0	0
2	4	115	0	30	0	0
4	6	124	0	35	700	0
6	8	137	0	40	822	0
8	10	136	0	40	948	0
10	23.25	140	12807	0	5763	111949

Required Embedment:	16.7	ft - OK, Caisson Embedment Satisfactory
Volume of Concrete:	446.7	ft^3 = 16.5 yd^3
Weight of Concrete (Buoyancy Effect Considered):	45.3	k
Average Soil Unit Weight:	83.4	pcf
Skin Friction Resistance:	1186.5	k
Compressive Bearing Resistance:	2198.1	k
Pullout Weight (Minus Concrete Weight):	508.1	k
Nominal Uplift Capacity per Leg ($\phi_s T_n$):	381.1	k
Nominal Compressive Capacity per Leg ($\phi_s P_n$):	2538.5	k
P_u:	56.9	k
$T_u/\phi_s T_n$:	0.00	Result: OK
$P_u/\phi_s P_n$:	0.02	Result: OK
Total Lateral Resistance:	5355.3	k
Inflection Point (Below Ground Surface):	16.4	ft
Design Overturning Moment At Inflection Point (M_D):	3809.8	k-ft
Nominal Moment Capacity ($\phi_s M_n$):	12476.1	k-ft
$M_D/\phi_s M_n$:	0.31	Result: OK
ϕ_s:	0.75	

Base Plate & Anchor Rod Analysis

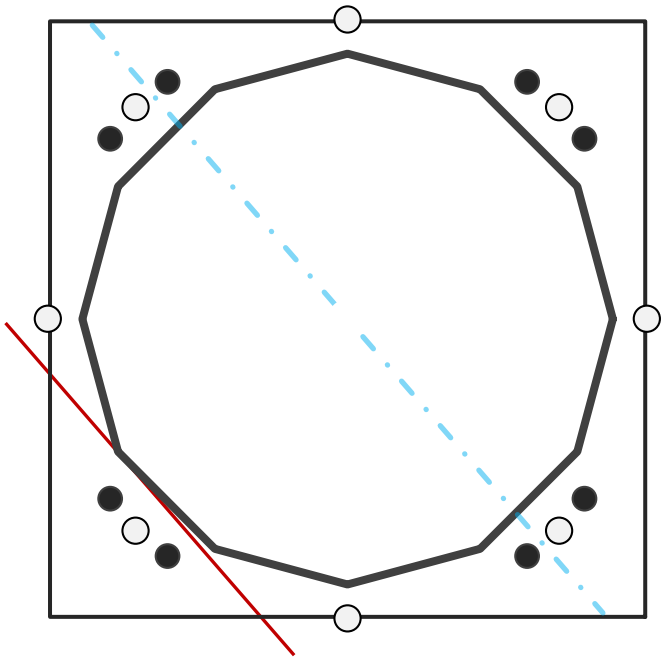
Pole Dimensions		
Number of Sides	12	-
Diameter	37.38	in
Thickness	0.375	in
Orientation Offset		°

Base Reactions		
Moment, Mu	3263.6	k-ft
Axial, Pu	48.1	k
Shear, Vu	32.3	k
Neutral Axis	131	°

Report Capacities		
Component	Capacity	Result
Base Plate	65%	Pass
Anchor Rods	75%	Pass
Dwyidag	64%	Pass

Base Plate		
Shape	Square	-
Width	44	in
Thickness	2 1/4	in
Grade	A572-60	-
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	0	in
Orientation Offset		°
Anchor Rod Detail	c	η=0.55
Clear Distance	N/A	in
Applied Moment, Mu	1083.7	k
Bending Stress, ϕMn	1663.9	k

Dywidag Reinforcement		
Quantity	8	-
Bar Size	#20	in
Diameter, ø	2.5	in
Bracket Type	Angle	-
Circle	44.26	in
Orientation Offset		°
Applied Force, Pu	252.9	k
Dywidag Bar, ϕPn	392.7	k



Original Anchor Rods		
Arrangement	Cluster	-
Quantity	8	-
Diameter, ø	2 1/4	in
Bolt Circle	44	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset		°
Applied Force, Pu	195.0	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	32.3	1415.8	0.43
Anchor Rod Forces	32.3	1415.8	0.43
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	1847.8	0.57
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	43.0992	3.5916	0.1692		7379.37
Bolt	3.9761	3.2477	0.8393	4.5	6294.24
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		9631.30
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Square	-
Width, W	44	in
Thickness, t	2.25	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	23.211	in
Detail Type	c	-
Detail Factor	0.55	-
Clear Distance	N/A	-

Anchor Rods		
Anchor Rod Quantity, N	8	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	44	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	195.0	k
Applied Shear, Vu	0.5	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.751	OK
Interaction Capacity	0.754	OK

External Base Plate		
Chord Length AA	24.345	in
Additional AA	0.000	in
Section Modulus, Z	30.812	in^3
Applied Moment, Mu	1083.7	k-ft
Bending Capacity, ϕMn	1663.9	k-ft
Capacity, Mu/ϕMn	0.651	OK
Chord Length AB	23.009	in
Additional AB	0.000	in
Section Modulus, Z	29.121	in^3
Applied Moment, Mu	825.6	k-ft
Bending Capacity, ϕMn	1572.5	k-ft
Capacity, Mu/ϕMn	0.525	OK
Bend Line Length	0.000	in
Additional Bend Line	0.000	in
Section Modulus, Z	0.000	in^3
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		

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	8	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	44.26	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	252.9	k
Compressive Capacity, ϕPn	392.7	k
Capacity, Pu/ϕPn	0.644	OK

January 16, 2019 (Rev.2)
December 27, 2018 (Rev.1)
December 11, 2018

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:		
	Site Number:	CT2015 (LTE 3C/4C/5C/4T4R)
	FA Number:	10034973
	PACE Number:	MRCTB035239
	PT Number:	2051A0KPJE
	Site Name:	BRANFORD
	Site Address:	405 Brushy Plain Road Branford, CT 06405

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 mount to determine their capability of supporting the following additional loading:

- (3) 7770 Antennas (55.0"x11.0"x5.0"– Wt. = 35 lbs. /each)
- (3) SBNHH-1D65B Antennas (72.9"x11.9"x7.1" – Wt. = 41 lbs. /each)
- (6) LGP21401 TMA's (14.4"x9.0"x2.7" – Wt. = 19 lbs. /each)
- (2) Squid Surge Arrestor (24.0"x9.7" Φ – Wt. = 33 lbs. /each)
- **(3) 800-10965 Antenna (78.7"x20.0"x6.9" – Wt. = 109 lbs./ each)**
- **(3) HPA65R-BU6A Antennas (71.1"x11.7"x7.6" – Wt. = 50 lbs. /each)**
- **(3) RRUS-32 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)**
- **(3) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 71 lbs. /each)**
- **(2) 8843 B2/B66A RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)**
- **(1) Squid Surge Arrestor (24.0"x9.7" Φ – Wt. = 33 lbs. /each)**

**Proposed equipment shown in bold*

Fabrication drawings prepared by SitePro1, P/N RMQP-12-H5, dated November 1, 2017 were available for the proposed mounts.

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 – R11.

- 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 130 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 1.22 in was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- HDG considers this site to be topographic category 3; tower is located at the upper half of a hill.
- 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 3.
- 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 RMQP-12-H5 w/ HRK-12 mount **IS CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
New Mount Rating	211	LC1	70%	**PASS**

Reference Documents:

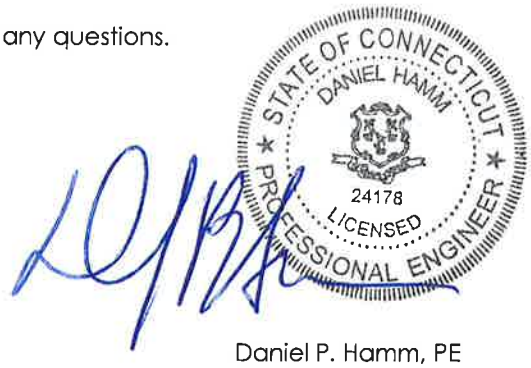
- Fabrication drawings prepared by SitePro1, P/N RMQP-12-H5, dated November 1, 2017.

This determination was based on the following limitations and assumptions:

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

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

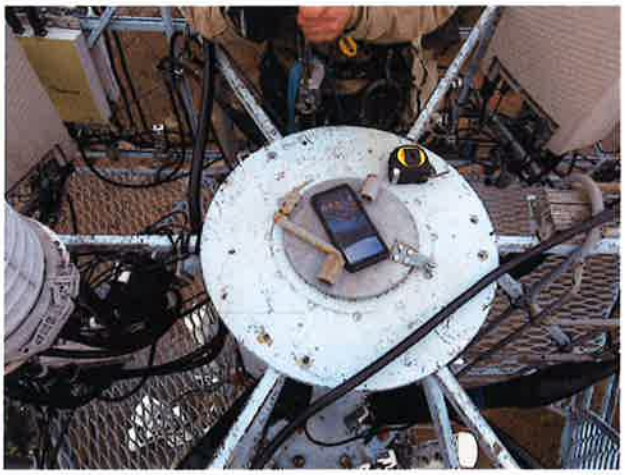
Respectfully Submitted,
Hudson Design Group LLC



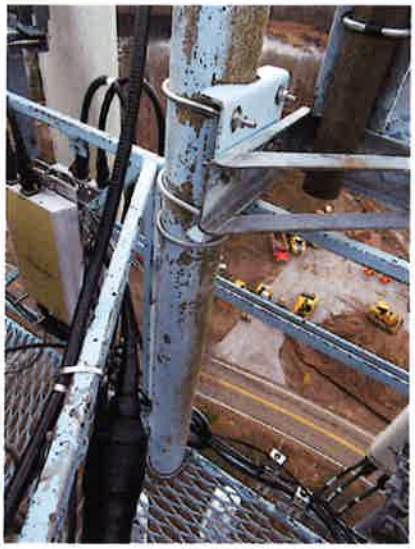
Michael Cabral
Structural Dept. Head

Daniel P. Hamm, PE
Principal

FIELD PHOTOS:
Note: Existing Mount to be removed.



p: 978.557.5553 f: 978.336.5586 a: 45 Beechwood Drive, N. Andover, MA 01845
p: 413.588.8139 f: 413.517.0590 a: 116 Pleasant Street, Ste 302, Easthampton, MA 01027






p: 978.557.5553 f: 978.336.5586 a: 45 Beechwood Drive, N. Andover, MA 01845
p: 413.588.8139 f: 413.517.0590 a: 116 Pleasant Street, Ste 302, Easthampton, MA 01027

HUDSON
Design Group LLC

Wind & Ice
Calculations

Date: 01/16/2019
Project Name: BRANFORD
Project No.: CT2015
Designed By: SO **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

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

	z=	153 (ft)
	z_g=	1200 (ft)
K_z= **1.116**	α=	7.0

Kzmin ≤ Kz ≤ 2.01

Table 2-4

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

2.6.6.2 Topographic Factor:

Table 2-5

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

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

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

K_{zt}= **1.127894329**

K_h= 7.6906092

K_c= 0.9 (from Table 2-4)

K_t= 0.53 (from Table 2-5)

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

f= 2 (from Table 2-5)

Category= **3**

z= 153

z_s= 250 (Mean elevation of base of structure above se

H= 150 (Ht. of the crest above surrounding terrain)

K_{zt}= 1.13 (from 2.6.6.2.1)

K_e= 0.99 (from 2.6.8)

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} = 1.17 (from Sec. 2.6.10)

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

t_{Iz} = 1.22 in

Date: 01/16/2019
Project Name: BRANFORD
Project No.: CT2015
Designed By: SO Checked By: MSC

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2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

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

h=	130	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=	1.116	(from 2.6.5.2)	**q_z=**	**51.26**
K_{zt}=	1.1	(from 2.6.6.2.1)	**$q_{z\,(ice)}$=**	**7.58**
K_s=	1.0	(from 2.6.7)	**$q_{z\,(30)}$=**	**2.73**
K_e=	0.99	(from 2.6.8)		
K_d=	0.95	(from Table 2-2)		
V_{max}=	130	mph (Ultimate Wind Speed)		
$V_{max\,(ice)}$=	50	mph		
V_{30}=	30	mph		

Table 2-2

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

Project Name: BRANFORD
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Designed By: SO Checked By: MSC

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Determine Ca:

Table 2-9

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

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

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

Ice Thickness = **1.22** 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	282	53	15
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	6.08	1.36	402	74	21
SBNHH-1D65B Antenna	72.9	11.9	7.1	6.02	6.13	1.36	420	77	22
800-10965 Antenna	78.7	20.0	6.9	10.93	3.94	1.26	708	121	38
RRUS-32 RRH	27.2	12.1	7.0	2.29	2.25	1.20	141	27	7
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	4.50	1.29	75	17	4
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.20	84	17	4
8843 B2/B66A (Shielded)	14.9	6.6	10.9	0.68	2.26	1.20	42	10	2
4449 B5/B12 RRH	18.0	13.2	9.5	1.65	1.36	1.20	102	20	5
4449 B5/B12 (Shielded)	18.0	6.6	9.5	0.83	2.73	1.21	51	12	3
LGP21401 TMA	14.4	2.7	9.0	0.27	5.33	1.33	18	6	1
Whip Antenna	2.5	12.0	12.0	0.21	0.21	1.20	13	4	1
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	58	12	3
2" Pipe	2.4	12.0		0.20	0.20	1.20	12	4	1
3" Pipe	3.5	12.0		0.29	0.29	1.20	18	5	1
2x2 Angle	2.0	12.0		0.17	0.17	2.00	17	7	1
2.5x2.5 Angle	2.5	12.0		0.21	0.21	2.00	21	7	1
HSS 4x4	4.0	12.0		0.33	0.33	1.25	21	6	1

Date: 01/16/2019
Project Name: BRANFORD
Project No.: CT2015
Designed By: SO Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	30	(deg)

Ice Thickness =	1.22	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	282	150	249
HPA65R-BU6A Antenn	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	402	284	373
SBNHH-1D65B Antenn	72.9	11.9	7.1	6.02	3.59	6.13	10.27	1.36	1.51	420	278	385
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	708	299	606
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	141	86	127
RRUS-32 RRH (Shielde	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	75	86	78
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	84	69	80
8843 B2/B66A (Shielde	14.9	6.6	10.9	0.68	1.13	2.26	1.37	1.20	1.20	42	69	49
4449 B5/B12 RRH	18.0	13.2	9.5	1.65	1.19	1.36	1.89	1.20	1.20	102	73	94
4449 B5/B12 (Shielded	18.0	6.6	9.5	0.83	1.19	2.73	1.89	1.21	1.20	51	73	57
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	18	55	28
Whip Antenna	2.5	12.0	12.0	0.21	0.21	0.21	0.21	1.20	1.20	13	13	13

WIND LOADS WITH ICE:

7770 Antenna	57.4	13.4	7.4	5.36	2.96	4.28	7.73	1.28	1.42	52	32	47
HPA65R-BU6A Antenn	73.5	14.1	10.0	7.22	5.12	5.20	7.33	1.32	1.41	72	55	68
SBNHH-1D65B Antenn	75.3	14.3	9.5	7.50	4.99	5.26	7.90	1.32	1.43	75	54	70
800-10965 Antenna	81.1	22.4	9.3	12.64	5.26	3.62	8.69	1.25	1.46	120	58	104
RRUS-32 RRH	29.6	14.5	9.4	2.99	1.94	2.04	3.14	1.20	1.23	27	18	25
RRUS-32 RRH (Shielde	29.6	7.3	9.4	1.50	1.94	4.08	3.14	1.27	1.23	14	18	15
8843 B2/B66A RRH	17.3	15.6	13.3	1.88	1.60	1.11	1.30	1.20	1.20	17	15	16
8843 B2/B66A (Shielde	17.3	7.8	13.3	0.94	1.60	2.22	1.30	1.20	1.20	9	15	10
4449 B5/B12 RRH	20.4	15.6	11.9	2.22	1.69	1.31	1.71	1.20	1.20	20	15	19
4449 B5/B12 (Shielded	20.4	7.8	11.9	1.11	1.69	2.61	1.71	1.21	1.20	10	15	11
LGP21401 TMA	16.8	5.1	11.4	0.60	1.34	3.28	1.47	1.23	1.20	6	12	7
Whip Antenna	4.9	14.4	14.4	0.49	0.49	0.34	0.34	1.20	1.20	4	4	4

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	15	8	13
HPA65R-BU6A Antenn	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	21	15	20
SBNHH-1D65B Antenn	72.9	11.9	7.1	6.02	3.59	6.13	10.27	1.36	1.51	22	15	20
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	38	16	32
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	7	5	7
RRUS-32 RRH (Shielde	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	4	5	4
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	4	4
8843 B2/B66A (Shielde	14.9	6.6	10.9	0.68	1.13	2.26	1.37	1.20	1.20	2	4	3
4449 B5/B12 RRH	18.0	13.2	9.5	1.65	1.19	1.36	1.89	1.20	1.20	5	4	5
4449 B5/B12 (Shielded	18.0	6.6	9.5	0.83	1.19	2.73	1.89	1.21	1.20	3	4	3
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	3	1
Whip Antenna	2.5	12.0	12.0	0.21	0.21	0.21	0.21	1.20	1.20	1	1	1

Date: 01/16/2019
Project Name: BRANFORD
Project No.: CT2015
Designed By: SO Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 60 (deg) | Ice Thickness = 1.22 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	282	150	183
HPA65R-BU6A Antenn	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	402	284	314
SBNHH-1D65B Antenn	72.9	11.9	7.1	6.02	3.59	6.13	10.27	1.36	1.51	420	278	314
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	708	299	401
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	141	86	99
RRUS-32 RRH (Shielde	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	107	86	91
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	84	69	73
8843 B2/B66A (Shielde	14.9	9.9	10.9	1.02	1.13	1.51	1.37	1.20	1.20	63	69	68
4449 B5/B12 RRH	18.0	13.2	9.5	1.65	1.19	1.36	1.89	1.20	1.20	102	73	80
4449 B5/B12 (Shielded	18.0	9.9	9.5	1.24	1.19	1.82	1.89	1.20	1.20	76	73	74
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	18	55	46
Whip Antenna	2.5	12.0	12.0	0.21	0.21	0.21	0.21	1.20	1.20	13	13	13

WIND LOADS WITH ICE:

7770 Antenna	57.4	13.4	7.4	5.36	2.96	4.28	7.73	1.28	1.42	52	32	37
HPA65R-BU6A Antenn	73.5	14.1	10.0	7.22	5.12	5.20	7.33	1.32	1.41	72	55	59
SBNHH-1D65B Antenn	75.3	14.3	9.5	7.50	4.99	5.26	7.90	1.32	1.43	75	54	59
800-10965 Antenna	81.1	22.4	9.3	12.64	5.26	3.62	8.69	1.25	1.46	120	58	73
RRUS-32 RRH	29.6	14.5	9.4	2.99	1.94	2.04	3.14	1.20	1.23	27	18	20
RRUS-32 RRH (Shielde	29.6	10.9	9.4	2.24	1.94	2.72	3.14	1.21	1.23	21	18	19
8843 B2/B66A RRH	17.3	15.6	13.3	1.88	1.60	1.11	1.30	1.20	1.20	17	15	15
8843 B2/B66A (Shielde	17.3	11.7	13.3	1.41	1.60	1.48	1.30	1.20	1.20	13	15	14
4449 B5/B12 RRH	20.4	15.6	11.9	2.22	1.69	1.31	1.71	1.20	1.20	20	15	17
4449 B5/B12 (Shielded	20.4	11.7	11.9	1.66	1.69	1.74	1.71	1.20	1.20	15	15	15
LGP21401 TMA	16.8	5.1	11.4	0.60	1.34	3.28	1.47	1.23	1.20	6	12	11
Whip Antenna	4.9	14.4	14.4	0.49	0.49	0.34	0.34	1.20	1.20	4	4	4

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	15	8	10
HPA65R-BU6A Antenn	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	21	15	17
SBNHH-1D65B Antenn	72.9	11.9	7.1	6.02	3.59	6.13	10.27	1.36	1.51	22	15	17
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	38	16	21
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	7	5	5
RRUS-32 RRH (Shielde	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	6	5	5
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	4	4
8843 B2/B66A (Shielde	14.9	9.9	10.9	1.02	1.13	1.51	1.37	1.20	1.20	3	4	4
4449 B5/B12 RRH	18.0	13.2	9.5	1.65	1.19	1.36	1.89	1.20	1.20	5	4	4
4449 B5/B12 (Shielded	18.0	9.9	9.5	1.24	1.19	1.82	1.89	1.20	1.20	4	4	4
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	3	2
Whip Antenna	2.5	12.0	12.0	0.21	0.21	0.21	0.21	1.20	1.20	1	1	1

Date: 01/16/2019
Project Name: BRANFORD
Project No.: CT2015
Designed By: SO Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 90 (deg) | Ice Thickness = 1.22 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	282	150	150
HPA65R-BU6A Antenn	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	402	284	284
SBNHH-1D65B Antenn	72.9	11.9	7.1	6.02	3.59	6.13	10.27	1.36	1.51	420	278	278
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	708	299	299
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	141	86	86
RRUS-32 RRH (Shielde	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	75	86	86
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	84	69	69
8843 B2/B66A (Shielde	14.9	6.6	10.9	0.68	1.13	2.26	1.37	1.20	1.20	42	69	69
4449 B5/B12 RRH	18.0	13.2	9.5	1.65	1.19	1.36	1.89	1.20	1.20	102	73	73
4449 B5/B12 (Shielded	18.0	6.6	9.5	0.83	1.19	2.73	1.89	1.21	1.20	51	73	73
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	18	55	55
Whip Antenna	2.5	12.0	12.0	0.21	0.21	0.21	0.21	1.20	1.20	13	13	13

WIND LOADS WITH ICE:

7770 Antenna	57.4	13.4	7.4	5.36	2.96	4.28	7.73	1.28	1.42	52	32	32
HPA65R-BU6A Antenn	73.5	14.1	10.0	7.22	5.12	5.20	7.33	1.32	1.41	72	55	55
SBNHH-1D65B Antenn	75.3	14.3	9.5	7.50	4.99	5.26	7.90	1.32	1.43	75	54	54
800-10965 Antenna	81.1	22.4	9.3	12.64	5.26	3.62	8.69	1.25	1.46	120	58	58
RRUS-32 RRH	29.6	14.5	9.4	2.99	1.94	2.04	3.14	1.20	1.23	27	18	18
RRUS-32 RRH (Shielde	29.6	8.5	9.4	1.75	1.94	3.49	3.14	1.24	1.23	16	18	18
8843 B2/B66A RRH	17.3	15.6	13.3	1.88	1.60	1.11	1.30	1.20	1.20	17	15	15
8843 B2/B66A (Shielde	17.3	9.0	13.3	1.09	1.60	1.92	1.30	1.20	1.20	10	15	15
4449 B5/B12 RRH	20.4	15.6	11.9	2.22	1.69	1.31	1.71	1.20	1.20	20	15	15
4449 B5/B12 (Shielded	20.4	9.0	11.9	1.28	1.69	2.26	1.71	1.20	1.20	12	15	15
LGP21401 TMA	16.8	5.1	11.4	0.60	1.34	3.28	1.47	1.23	1.20	6	12	12
Whip Antenna	4.9	14.4	14.4	0.49	0.49	0.34	0.34	1.20	1.20	4	4	4

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	15	8	8
HPA65R-BU6A Antenn	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	21	15	15
SBNHH-1D65B Antenn	72.9	11.9	7.1	6.02	3.59	6.13	10.27	1.36	1.51	22	15	15
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	38	16	16
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	7	5	5
RRUS-32 RRH (Shielde	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	4	5	5
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	4	4
8843 B2/B66A (Shielde	14.9	6.6	10.9	0.68	1.13	2.26	1.37	1.20	1.20	2	4	4
4449 B5/B12 RRH	18.0	13.2	9.5	1.65	1.19	1.36	1.89	1.20	1.20	5	4	4
4449 B5/B12 (Shielded	18.0	6.6	9.5	0.83	1.19	2.73	1.89	1.21	1.20	3	4	4
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	3	3
Whip Antenna	2.5	12.0	12.0	0.21	0.21	0.21	0.21	1.20	1.20	1	1	1

Date: 01/16/2019
Project Name: BRANFORD
Project No.: CT2015
Designed By: SO Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 120 (deg) | Ice Thickness = 1.22 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	282	150	183
HPA65R-BU6A Antenn	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	402	284	314
SBNHH-1D65B Antenn	72.9	11.9	7.1	6.02	3.59	6.13	10.27	1.36	1.51	420	278	314
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	708	299	401
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	141	86	99
RRUS-32 RRH (Shielde	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	107	86	91
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	84	69	73
8843 B2/B66A (Shielde	14.9	9.9	10.9	1.02	1.13	1.51	1.37	1.20	1.20	63	69	68
4449 B5/B12 RRH	18.0	13.2	9.5	1.65	1.19	1.36	1.89	1.20	1.20	102	73	80
4449 B5/B12 (Shielded	18.0	9.9	9.5	1.24	1.19	1.82	1.89	1.20	1.20	76	73	74
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	18	55	46
Whip Antenna	2.5	12.0	12.0	0.21	0.21	0.21	0.21	1.20	1.20	13	13	13

WIND LOADS WITH ICE:

7770 Antenna	57.4	13.4	7.4	5.36	2.96	4.28	7.73	1.28	1.42	52	32	37
HPA65R-BU6A Antenn	73.5	14.1	10.0	7.22	5.12	5.20	7.33	1.32	1.41	72	55	59
SBNHH-1D65B Antenn	75.3	14.3	9.5	7.50	4.99	5.26	7.90	1.32	1.43	75	54	59
800-10965 Antenna	81.1	22.4	9.3	12.64	5.26	3.62	8.69	1.25	1.46	120	58	73
RRUS-32 RRH	29.6	14.5	9.4	2.99	1.94	2.04	3.14	1.20	1.23	27	18	20
RRUS-32 RRH (Shielde	29.6	10.9	9.4	2.24	1.94	2.72	3.14	1.21	1.23	21	18	19
8843 B2/B66A RRH	17.3	15.6	13.3	1.88	1.60	1.11	1.30	1.20	1.20	17	15	15
8843 B2/B66A (Shielde	17.3	11.7	13.3	1.41	1.60	1.48	1.30	1.20	1.20	13	15	14
4449 B5/B12 RRH	20.4	15.6	11.9	2.22	1.69	1.31	1.71	1.20	1.20	20	15	17
4449 B5/B12 (Shielded	20.4	11.7	11.9	1.66	1.69	1.74	1.71	1.20	1.20	15	15	15
LGP21401 TMA	16.8	5.1	11.4	0.60	1.34	3.28	1.47	1.23	1.20	6	12	11
Whip Antenna	4.9	14.4	14.4	0.49	0.49	0.34	0.34	1.20	1.20	4	4	4

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	15	8	10
HPA65R-BU6A Antenn	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	21	15	17
SBNHH-1D65B Antenn	72.9	11.9	7.1	6.02	3.59	6.13	10.27	1.36	1.51	22	15	17
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	38	16	21
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	7	5	5
RRUS-32 RRH (Shielde	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	6	5	5
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	4	4
8843 B2/B66A (Shielde	14.9	9.9	10.9	1.02	1.13	1.51	1.37	1.20	1.20	3	4	4
4449 B5/B12 RRH	18.0	13.2	9.5	1.65	1.19	1.36	1.89	1.20	1.20	5	4	4
4449 B5/B12 (Shielded	18.0	9.9	9.5	1.24	1.19	1.82	1.89	1.20	1.20	4	4	4
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	3	2
Whip Antenna	2.5	12.0	12.0	0.21	0.21	0.21	0.21	1.20	1.20	1	1	1

Date: 01/16/2019
Project Name: BRANFORD
Project No.: CT2015
Designed By: SO Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 150 (deg) | Ice Thickness = 1.22 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	282	150	249
HPA65R-BU6A Antenn	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	402	284	373
SBNHH-1D65B Antenn	72.9	11.9	7.1	6.02	3.59	6.13	10.27	1.36	1.51	420	278	385
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	708	299	606
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	141	86	127
RRUS-32 RRH (Shielde	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	75	86	78
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	84	69	80
8843 B2/B66A (Shielde	14.9	6.6	10.9	0.68	1.13	2.26	1.37	1.20	1.20	42	69	49
4449 B5/B12 RRH	18.0	13.2	9.5	1.65	1.19	1.36	1.89	1.20	1.20	102	73	94
4449 B5/B12 (Shielded	18.0	6.6	9.5	0.83	1.19	2.73	1.89	1.21	1.20	51	73	57
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	18	55	28
Whip Antenna	2.5	12.0	12.0	0.21	0.21	0.21	0.21	1.20	1.20	13	13	13

WIND LOADS WITH ICE:

7770 Antenna	57.4	13.4	7.4	5.36	2.96	4.28	7.73	1.28	1.42	52	32	47
HPA65R-BU6A Antenn	73.5	14.1	10.0	7.22	5.12	5.20	7.33	1.32	1.41	72	55	68
SBNHH-1D65B Antenn	75.3	14.3	9.5	7.50	4.99	5.26	7.90	1.32	1.43	75	54	70
800-10965 Antenna	81.1	22.4	9.3	12.64	5.26	3.62	8.69	1.25	1.46	120	58	104
RRUS-32 RRH	29.6	14.5	9.4	2.99	1.94	2.04	3.14	1.20	1.23	27	18	25
RRUS-32 RRH (Shielde	29.6	7.3	9.4	1.50	1.94	4.08	3.14	1.27	1.23	14	18	15
8843 B2/B66A RRH	17.3	15.6	13.3	1.88	1.60	1.11	1.30	1.20	1.20	17	15	16
8843 B2/B66A (Shielde	17.3	7.8	13.3	0.94	1.60	2.22	1.30	1.20	1.20	9	15	10
4449 B5/B12 RRH	20.4	15.6	11.9	2.22	1.69	1.31	1.71	1.20	1.20	20	15	19
4449 B5/B12 (Shielded	20.4	7.8	11.9	1.11	1.69	2.61	1.71	1.21	1.20	10	15	11
LGP21401 TMA	16.8	5.1	11.4	0.60	1.34	3.28	1.47	1.23	1.20	6	12	7
Whip Antenna	4.9	14.4	14.4	0.49	0.49	0.34	0.34	1.20	1.20	4	4	4

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	15	8	13
HPA65R-BU6A Antenn	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	21	15	20
SBNHH-1D65B Antenn	72.9	11.9	7.1	6.02	3.59	6.13	10.27	1.36	1.51	22	15	20
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	38	16	32
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	7	5	7
RRUS-32 RRH (Shielde	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	4	5	4
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	4	4
8843 B2/B66A (Shielde	14.9	6.6	10.9	0.68	1.13	2.26	1.37	1.20	1.20	2	4	3
4449 B5/B12 RRH	18.0	13.2	9.5	1.65	1.19	1.36	1.89	1.20	1.20	5	4	5
4449 B5/B12 (Shielded	18.0	6.6	9.5	0.83	1.19	2.73	1.89	1.21	1.20	3	4	3
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	3	1
Whip Antenna	2.5	12.0	12.0	0.21	0.21	0.21	0.21	1.20	1.20	1	1	1

ICE WEIGHT CALCULATIONS

Thickness of ice:	1.22	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:		91 lbs
Weight of object:	35.0	lbs
Combined weight of ice and object:		126 lbs

HPA65R-BU6A Antenna

Weight of ice based on total radial SF area:

Height (in):	71.1	
Width (in):	11.7	
Depth (in):	7.6	
Total weight of ice on object:		134 lbs
Weight of object:	42.0	lbs
Combined weight of ice and object:		176 lbs

SBNHH-1D65B Antenna

Weight of ice based on total radial SF area:

Height (in):	72.9	
Width (in):	11.9	
Depth (in):	7.1	
Total weight of ice on object:		137 lbs
Weight of object:	41.0	lbs
Combined weight of ice and object:		178 lbs

800-10965 Antenna

Weight of ice based on total radial SF area:

Height (in):	78.7	
Width (in):	20.0	
Depth (in):	6.9	
Total weight of ice on object:		219 lbs
Weight of object:	109.0	lbs
Combined weight of ice and object:		328 lbs

RRUS-32 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:		51 lbs
Weight of object:	60.0	lbs
Combined weight of ice and object:		111 lbs

8843 B2/B66A RRH

Weight of ice based on total radial SF area:

Height (in):	14.9	
Width (in):	13.2	
Depth (in):	10.9	
Total weight of ice on object:		34 lbs
Weight of object:	72.0	lbs
Combined weight of ice and object:		106 lbs

4449 B5/B12 RRH

Weight of ice based on total radial SF area:

Height (in):	18.0	
Width (in):	13.2	
Depth (in):	9.5	
Total weight of ice on object:		39 lbs
Weight of object:	71.0	lbs
Combined weight of ice and object:		110 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:		19 lbs
Weight of object:	19.0	lbs
Combined weight of ice and object:		38 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:		33 lbs
Weight of object:	33	lbs
Combined weight of ice and object:		66 lbs

Whip Antenna

Per foot weight of ice:

diameter (in):	2.5	
Per foot weight of ice on object:		6 plf

2" pipe

HSS 4x4

Weight of ice based on total radial SF area:

Height (in):	4

Date: 01/16/2018
Project Name: BRANFORD
Project No.: CT2015
Designed By: SO **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.22 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:		91 lbs
Weight of object:	35.0 lbs	
Combined weight of ice and object:		126 lbs

HPA65R-BU6A Antenna

Weight of ice based on total radial SF area:

Height (in):	71.1	
Width (in):	11.7	
Depth (in):	7.6	
Total weight of ice on object:		134 lbs
Weight of object:	42.0 lbs	
Combined weight of ice and object:		176 lbs

SBNHH-1D65B Antenna

Weight of ice based on total radial SF area:

Height (in):	72.9	
Width (in):	11.9	
Depth (in):	7.1	
Total weight of ice on object:		137 lbs
Weight of object:	41.0 lbs	
Combined weight of ice and object:		178 lbs

800-10965 Antenna

Weight of ice based on total radial SF area:

Height (in):	78.7	
Width (in):	20.0	
Depth (in):	6.9	
Total weight of ice on object:		219 lbs
Weight of object:	109.0 lbs	
Combined weight of ice and object:		328 lbs

RRUS-32 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:		51 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		111 lbs

8843 B2/B66A RRH

Weight of ice based on total radial SF area:

Height (in):	14.9	
Width (in):	13.2	
Depth (in):	10.9	
Total weight of ice on object:		34 lbs
Weight of object:	72.0 lbs	
Combined weight of ice and object:		106 lbs

4449 B5/B12 RRH

Weight of ice based on total radial SF area:

Height (in):	18.0	
Width (in):	13.2	
Depth (in):	9.5	
Total weight of ice on object:		39 lbs
Weight of object:	71.0 lbs	
Combined weight of ice and object:		110 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:		19 lbs
Weight of object:	19.0 lbs	
Combined weight of ice and object:		38 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:		33 lbs
Weight of object:	33 lbs	
Combined weight of ice and object:		66 lbs

Whip Antenna

Per foot weight of ice:

diameter (in):	2.5	
Per foot weight of ice on object:		6 plf

2" pipe

Per foot weight of ice:

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

HSS 4x4

Weight of ice based on total radial SF area:

Height (in):	4	
Width (in):	4	
Per foot weight of ice on object:		10 plf

3" Pipe

Per foot weight of ice:

diameter (in):	3.5	
Per foot weight of ice on object:		7 plf

L 2x2 Angles

Weight of ice based on total radial SF area:

Height (in):	2	
Width (in):	2	
Per foot weight of ice on object:		6 plf

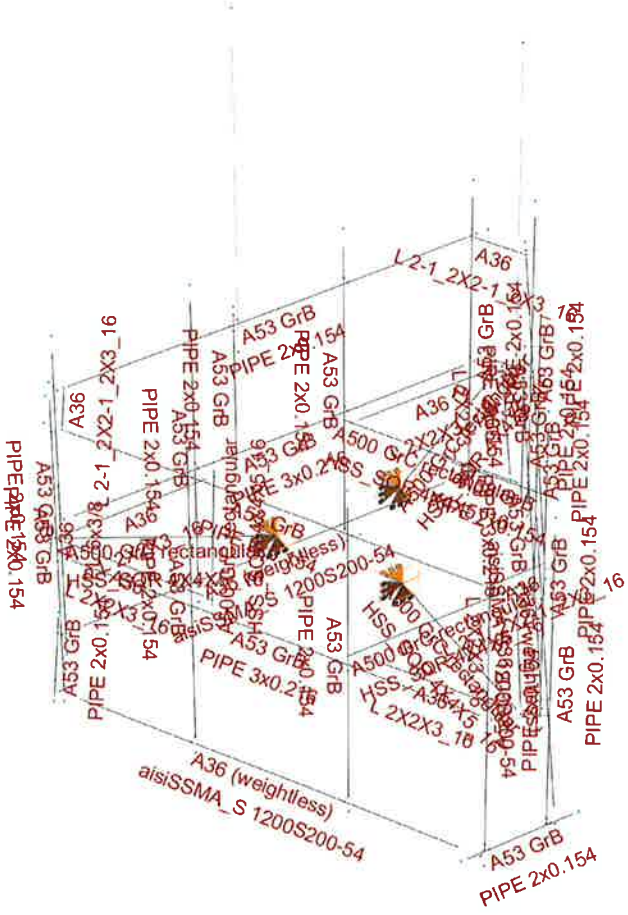
HUDSON
Design Group LLC

Mount Calculations
(Modified Conditions)


Z
Y
X

Bentley

Current Date: 1/16/2019 2:31 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2015\3C-4C-5C-4T4R\Rev.2\CT2015 (3C-4



Bentley

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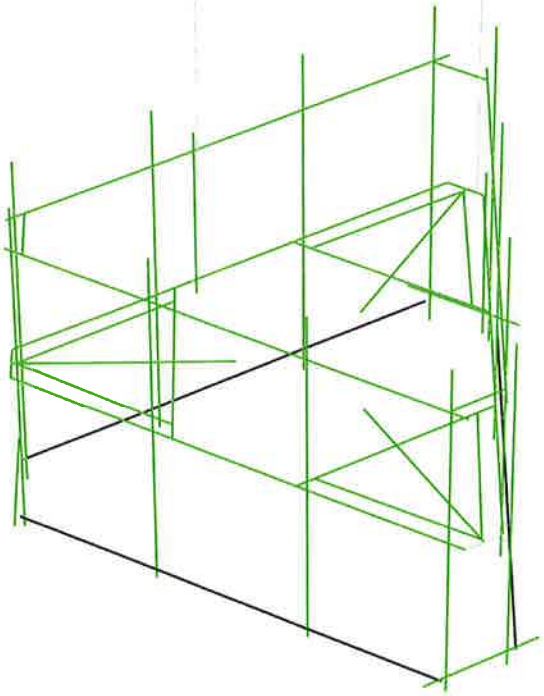
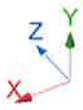
Design status

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





Bentley

Current Date: 1/16/2019 2:32 PM
Units system: English
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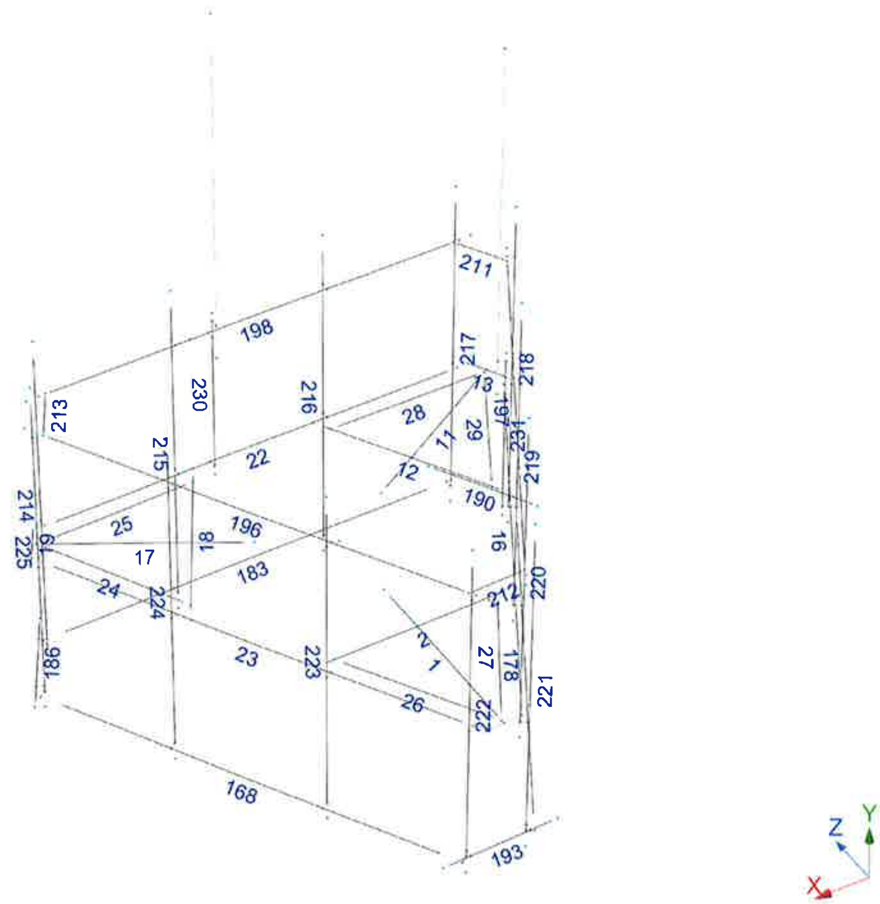

Bentley

Current Date: 1/16/2019 2:32 PM
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Load data

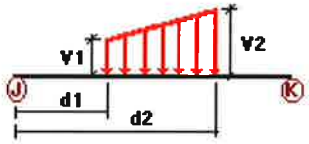
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
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
LLa4	250 lb Live Load Antenna 4	No	LL

Distributed force on members

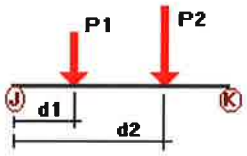


Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	1	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	2	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	11	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	12	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	17	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	18	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	24	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	25	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	26	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	27	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	28	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	29	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
W0	1	Z	-0.021	-0.021	0.00	Yes	100.00	Yes
	2	Z	-0.021	-0.021	0.00	Yes	100.00	Yes

	11	Z	-0.021	-0.021	0.00	Yes	100.00	Yes
	12	Z	-0.021	-0.021	0.00	Yes	100.00	Yes
	16	Z	-0.018	-0.018	0.00	Yes	100.00	Yes
	17	Z	-0.021	-0.021	0.00	Yes	100.00	Yes
	18	Z	-0.021	-0.021	0.00	Yes	100.00	Yes
	22	Z	-0.018	-0.018	0.00	Yes	100.00	Yes
	23	Z	-0.018	-0.018	0.00	Yes	100.00	Yes
	24	Z	-0.017	-0.017	0.00	Yes	100.00	Yes
	25	Z	-0.017	-0.017	0.00	Yes	100.00	Yes
	26	Z	-0.017	-0.017	0.00	Yes	100.00	Yes
	27	Z	-0.017	-0.017	0.00	Yes	100.00	Yes
	28	Z	-0.017	-0.017	0.00	Yes	100.00	Yes
	29	Z	-0.017	-0.017	0.00	Yes	100.00	Yes
	168	Z	-0.017	-0.017	0.00	Yes	100.00	Yes
	178	Z	-0.017	-0.017	0.00	Yes	100.00	Yes
	183	Z	-0.017	-0.017	0.00	Yes	100.00	Yes
	196	Z	-0.012	-0.012	0.00	Yes	100.00	Yes
	197	Z	-0.012	-0.012	0.00	Yes	100.00	Yes
	198	Z	-0.012	-0.012	0.00	Yes	100.00	Yes
	211	Z	-0.021	-0.021	0.00	Yes	100.00	Yes
	212	Z	-0.021	-0.021	0.00	Yes	100.00	Yes
	213	Z	-0.021	-0.021	0.00	Yes	100.00	Yes
	218	Z	-0.012	-0.012	0.00	Yes	100.00	Yes
	219	Z	-0.012	-0.012	0.00	Yes	100.00	Yes
	220	Z	-0.012	-0.012	0.00	Yes	100.00	Yes
	221	Z	-0.012	-0.012	0.00	Yes	100.00	Yes
	222	Z	-0.012	-0.012	0.00	Yes	100.00	Yes
	223	Z	-0.012	-0.012	0.00	Yes	100.00	Yes
	224	Z	-0.012	-0.012	0.00	Yes	100.00	Yes
	225	Z	-0.012	-0.012	0.00	Yes	100.00	Yes
W30	1	X	-0.021	-0.021	0.00	Yes	100.00	Yes
	2	X	-0.021	-0.021	0.00	Yes	100.00	Yes
	11	X	-0.021	-0.021	0.00	Yes	100.00	Yes
	12	X	-0.021	-0.021	0.00	Yes	100.00	Yes
	16	X	-0.018	-0.018	0.00	Yes	100.00	Yes
	17	X	-0.021	-0.021	0.00	Yes	100.00	Yes
	18	X	-0.021	-0.021	0.00	Yes	100.00	Yes
	23	X	-0.018	-0.018	0.00	Yes	100.00	Yes
	24	X	-0.017	-0.017	0.00	Yes	100.00	Yes
	26	X	-0.017	-0.017	0.00	Yes	100.00	Yes
	27	X	-0.017	-0.017	0.00	Yes	100.00	Yes
	29	X	-0.017	-0.017	0.00	Yes	100.00	Yes
	168	X	-0.017	-0.017	0.00	Yes	100.00	Yes
	178	X	-0.017	-0.017	0.00	Yes	100.00	Yes
	196	X	-0.012	-0.012	0.00	Yes	100.00	Yes
	197	X	-0.012	-0.012	0.00	Yes	100.00	Yes
	214	X	-0.012	-0.012	0.00	Yes	100.00	Yes
	215	X	-0.012	-0.012	0.00	Yes	100.00	Yes
	216	X	-0.012	-0.012	0.00	Yes	100.00	Yes
	217	X	-0.012	-0.012	0.00	Yes	100.00	Yes
	230	X	-0.012	-0.012	0.00	Yes	100.00	Yes
	231	X	-0.012	-0.012	0.00	Yes	100.00	Yes
Di	1	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	2	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	11	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	12	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	17	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	18	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	24	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
	25	Y	-0.006	-0.006	0.00	Yes	100.00	Yes

26	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
27	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
28	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
29	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
168	Y	-0.015	-0.015	0.00	Yes	100.00	Yes
178	Y	-0.015	-0.015	0.00	Yes	100.00	Yes
183	Y	-0.015	-0.015	0.00	Yes	100.00	Yes
186	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
190	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
193	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
196	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
197	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
198	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
211	Y	-0.007	-0.007	0.00	Yes	100.00	Yes
212	Y	-0.007	-0.007	0.00	Yes	100.00	Yes
213	Y	-0.007	-0.007	0.00	Yes	100.00	Yes
214	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
215	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
216	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
217	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
218	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
219	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
220	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
221	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
222	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
223	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
224	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
225	Y	-0.005	-0.005	0.00	Yes	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	214	y	-0.018	1.50	No
		y	-0.018	4.50	No
		y	-0.038	3.00	No
	215	y	-0.025	1.00	No
		y	-0.025	5.00	No
		y	-0.132	3.00	No
	216	y	-0.021	1.00	No
		y	-0.021	5.00	No
		y	-0.071	3.00	No
	217	y	-0.055	1.00	No
		y	-0.055	5.00	No
	218	y	-0.018	1.50	No
		y	-0.018	4.50	No
		y	-0.038	3.00	No
	219	y	-0.025	1.00	No
		y	-0.025	5.00	No
		y	-0.132	3.00	No

	220	y	-0.021	1.00	No
		y	-0.021	5.00	No
		y	-0.071	3.00	No
	221	y	-0.055	1.00	No
		y	-0.055	5.00	No
	222	y	-0.018	1.50	No
		y	-0.018	4.50	No
		y	-0.038	3.00	No
	223	y	-0.025	1.00	No
		y	-0.025	5.00	No
		y	-0.132	3.00	No
	224	y	-0.021	1.00	No
		y	-0.021	5.00	No
		y	-0.071	3.00	No
	225	y	-0.055	1.00	No
		y	-0.055	5.00	No
W0	214	z	-0.142	1.50	No
		z	-0.142	4.50	No
	215	z	-0.202	1.00	No
		z	-0.202	5.00	No
		z	-0.117	3.00	No
	216	z	-0.211	1.00	No
		z	-0.211	5.00	No
		z	-0.051	3.00	No
	217	z	-0.355	1.00	No
		z	-0.355	5.00	No
	218	z	-0.092	1.50	No
		z	-0.092	4.50	No
		z	-0.046	3.00	No
	219	z	-0.157	1.00	No
		z	-0.157	5.00	No
		z	-0.091	3.00	No
	220	z	-0.157	1.00	No
		z	-0.157	5.00	No
		z	-0.074	3.00	No
	221	z	-0.201	1.00	No
		z	-0.201	5.00	No
	222	z	-0.092	1.50	No
		z	-0.092	4.50	No
		z	-0.046	3.00	No
	223	z	-0.157	1.00	No
		z	-0.157	5.00	No
		z	-0.091	3.00	No
	224	z	-0.157	1.00	No
		z	-0.157	5.00	No
		z	-0.074	3.00	No
	225	z	-0.201	1.00	No
		z	-0.201	5.00	No
W30	214	x	-0.076	1.50	No
		x	-0.076	4.50	No
		x	-0.055	3.00	No
	215	x	-0.143	1.00	No
		x	-0.143	5.00	No
		x	-0.086	3.00	No
	216	x	-0.14	1.00	No
		x	-0.14	5.00	No
		x	-0.073	3.00	No
	217	x	-0.15	1.00	No
		x	-0.15	5.00	No
	218	x	-0.125	1.50	No

		x	-0.125	4.50	No
		x	-0.028	3.00	No
	219	x	-0.187	1.00	No
		x	-0.187	5.00	No
		x	-0.057	3.00	No
	220	x	-0.193	1.00	No
		x	-0.193	5.00	No
		x	-0.057	3.00	No
	221	x	-0.303	1.00	No
		x	-0.303	5.00	No
	222	x	-0.125	1.50	No
		x	-0.125	4.50	No
		x	-0.028	3.00	No
	223	x	-0.187	1.00	No
		x	-0.187	5.00	No
		x	-0.057	3.00	No
	224	x	-0.193	1.00	No
		x	-0.193	5.00	No
		x	-0.057	3.00	No
	225	x	-0.303	1.00	No
		x	-0.303	5.00	No
Di	214	y	-0.046	1.50	No
		y	-0.046	4.50	No
		y	-0.038	3.00	No
	215	y	-0.067	1.00	No
		y	-0.067	5.00	No
		y	-0.085	3.00	No
	216	y	-0.069	1.00	No
		y	-0.069	5.00	No
		y	-0.039	3.00	No
	217	y	-0.11	1.00	No
		y	-0.11	5.00	No
	218	y	-0.046	1.50	No
		y	-0.046	4.50	No
		y	-0.038	3.00	No
	219	y	-0.067	1.00	No
		y	-0.067	5.00	No
		y	-0.085	3.00	No
	220	y	-0.069	1.00	No
		y	-0.069	5.00	No
		y	-0.039	3.00	No
	221	y	-0.11	1.00	No
		y	-0.11	5.00	No
	222	y	-0.046	1.50	No
		y	-0.046	4.50	No
		y	-0.038	3.00	No
	223	y	-0.067	1.00	No
		y	-0.067	5.00	No
		y	-0.085	3.00	No
	224	y	-0.069	1.00	No
		y	-0.069	5.00	No
		y	-0.039	3.00	No
	225	y	-0.11	1.00	No
		y	-0.11	5.00	No
Wi0	214	z	-0.027	1.50	No
		z	-0.027	4.50	No
	215	z	-0.038	1.00	No
		z	-0.038	5.00	No
		z	-0.022	3.00	No
	216	z	-0.039	1.00	No

		z	-0.039	5.00	No
		z	-0.012	3.00	No
	217	z	-0.061	1.00	No
		z	-0.061	5.00	No
	218	z	-0.019	1.50	No
		z	-0.019	4.50	No
		z	-0.011	3.00	No
	219	z	-0.03	1.00	No
		z	-0.03	5.00	No
		z	-0.019	3.00	No
	220	z	-0.03	1.00	No
		z	-0.03	5.00	No
		z	-0.015	3.00	No
	221	z	-0.037	1.00	No
		z	-0.037	5.00	No
	222	z	-0.019	1.50	No
		z	-0.019	4.50	No
		z	-0.011	3.00	No
	223	z	-0.03	1.00	No
		z	-0.03	5.00	No
		z	-0.019	3.00	No
	224	z	-0.03	1.00	No
		z	-0.03	5.00	No
		z	-0.015	3.00	No
	225	z	-0.037	1.00	No
		z	-0.037	5.00	No
Wi30	214	x	-0.017	1.50	No
		x	-0.017	4.50	No
		x	-0.012	3.00	No
	215	x	-0.028	1.00	No
		x	-0.028	5.00	No
		x	-0.018	3.00	No
	216	x	-0.028	1.00	No
		x	-0.028	5.00	No
		x	-0.015	3.00	No
	217	x	-0.03	1.00	No
		x	-0.03	5.00	No
	218	x	-0.024	1.50	No
		x	-0.024	4.50	No
		x	-0.004	3.00	No
	219	x	-0.034	1.00	No
		x	-0.034	5.00	No
		x	-0.015	3.00	No
	220	x	-0.035	1.00	No
		x	-0.035	5.00	No
		x	-0.011	3.00	No
	221	x	-0.053	1.00	No
		x	-0.053	5.00	No
	222	x	-0.024	1.50	No
		x	-0.024	4.50	No
		x	-0.004	3.00	No
	223	x	-0.034	1.00	No
		x	-0.034	5.00	No
		x	-0.015	3.00	No
	224	x	-0.035	1.00	No
		x	-0.035	5.00	No
		x	-0.011	3.00	No
	225	x	-0.053	1.00	No
		x	-0.053	5.00	No
WL0	214	z	-0.008	1.50	No

		z	-0.008	4.50	No
	215	z	-0.011	1.00	No
		z	-0.011	5.00	No
		z	-0.006	3.00	No
	216	z	-0.011	1.00	No
		z	-0.011	5.00	No
		z	-0.003	3.00	No
	217	z	-0.019	1.00	No
		z	-0.019	5.00	No
	218	z	-0.005	1.50	No
		z	-0.005	4.50	No
		z	-0.001	3.00	No
	219	z	-0.009	1.00	No
		z	-0.009	5.00	No
		z	-0.005	3.00	No
	220	z	-0.009	1.00	No
		z	-0.009	5.00	No
		z	-0.004	3.00	No
	221	z	-0.011	1.00	No
		z	-0.011	5.00	No
	222	z	-0.005	1.50	No
		z	-0.005	4.50	No
		z	-0.001	3.00	No
	223	z	-0.009	1.00	No
		z	-0.009	5.00	No
		z	-0.005	3.00	No
	224	z	-0.009	1.00	No
		z	-0.009	5.00	No
		z	-0.004	3.00	No
	225	z	-0.011	1.00	No
		z	-0.011	5.00	No
WL30	214	x	-0.004	1.50	No
		x	-0.004	4.50	No
		x	-0.003	3.00	No
	215	x	-0.008	1.00	No
		x	-0.008	5.00	No
		x	-0.005	3.00	No
	216	x	-0.008	1.00	No
		x	-0.008	5.00	No
		x	-0.004	0.00	No
	217	x	-0.008	1.00	No
		x	-0.008	5.00	No
	218	x	-0.007	1.50	No
		x	-0.007	4.50	No
		x	-0.001	3.00	No
	219	x	-0.01	1.00	No
		x	-0.01	5.00	No
		x	-0.004	3.00	No
	220	x	-0.011	1.00	No
		x	-0.011	5.00	No
		x	-0.003	0.00	No
	221	x	-0.017	1.00	No
		x	-0.017	5.00	No
	222	x	-0.007	1.50	No
		x	-0.007	4.50	No
		x	-0.001	3.00	No
	223	x	-0.01	1.00	No
		x	-0.01	5.00	No
		x	-0.004	3.00	No
	224	x	-0.011	1.00	No

		x	-0.011	5.00	No
		x	-0.003	0.00	No
	225	x	-0.017	1.00	No
		x	-0.017	5.00	No
LL1	22	y	-0.25	6.25	No
LL2	22	y	-0.25	0.00	No
LLa1	214	y	-0.25	4.00	No
LLa2	215	y	-0.25	4.00	No
LLa3	216	y	-0.25	4.00	No
LLa4	217	y	-0.25	4.00	No

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
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
LLa4	250 lb Live Load Antenna 4	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
LLa4	0.00	0.00	0.00

Bentley

Current Date: 1/16/2019 2:32 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2015\3C-4C-5C-4T4R\Rev.2\CT2015 (3C-4C-5C) Rev.2.etz\

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
LC29=1.2DL+WL0+1.5LLa4
LC30=1.2DL+WL30+1.5LLa4
LC31=1.2DL-WL0+1.5LLa4
LC32=1.2DL-WL30+1.5LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	aisiSSMA_S 1200S200-54	**168**	LC12 at 31.25%	0.40	With warnings	Sec. C5.2
		178	LC10 at 31.25%	0.40	With warnings	Sec. C5.2
		183	LC11 at 31.25%	**0.41**	**With warnings**	Sec. C5.2
	HSS_SQR 4X4X5_16	**1**	LC1 at 0.00%	**0.35**	**OK**	Eq. H1-1b
		2	LC1 at 50.00%	0.18	OK	Eq. H1-1b
		11	LC2 at 0.00%	0.35	OK	Eq. H1-1b
		12	LC2 at 48.44%	0.17	OK	Eq. H1-1b
		17	LC4 at 0.00%	0.34	OK	Eq. H1-1b
		18	LC4 at 50.00%	0.16	OK	Eq. H1-1b
	L 2-1_2X2-1_2X3_16	**211**	LC1 at 0.00%	**0.70**	**OK**	Sec. F1
		212	LC4 at 0.00%	0.65	OK	Sec. F1
		213	LC1 at 100.00%	0.59	OK	Eq. H2-1
	L 2X2X3_16	**24**	LC4 at 0.00%	**0.30**	**OK**	Eq. H2-1
		25	LC3 at 0.00%	0.26	OK	Eq. H2-1

	26	LC1 at 0.00%	0.29	OK	Eq. H2-1
	27	LC1 at 0.00%	0.29	OK	Eq. H2-1
	28	LC3 at 0.00%	0.28	OK	Eq. H2-1
	29	LC2 at 0.00%	0.24	OK	Eq. H2-1
PIPE 2x0.154	**186**	LC1 at 25.00%	0.11	OK	Eq. H1-1b
	190	LC3 at 25.00%	0.11	OK	Eq. H1-1b
	193	LC2 at 25.00%	0.09	OK	Eq. H1-1b
	196	LC1 at 3.57%	0.35	OK	Eq. H1-1b
	197	LC3 at 40.63%	0.48	OK	Eq. H1-1b
	198	LC1 at 59.72%	0.42	OK	Eq. H1-1b
	214	LC3 at 53.75%	0.39	OK	Eq. H1-1b
	215	LC3 at 54.69%	0.54	OK	Eq. H1-1b
	216	LC1 at 54.69%	0.54	OK	Eq. H1-1b
	217	LC3 at 53.75%	0.40	OK	Eq. H1-1b
	218	LC1 at 53.75%	0.45	OK	Eq. H1-1b
	219	LC3 at 54.69%	0.54	OK	Eq. H1-1b
	220	LC3 at 54.69%	0.54	OK	Eq. H1-1b
	221	LC2 at 53.75%	0.42	OK	Eq. H1-1b
	222	LC4 at 53.75%	0.45	OK	Eq. H1-1b
	223	LC2 at 54.69%	0.54	OK	Eq. H1-1b
	224	LC3 at 54.69%	**0.55**	**OK**	Eq. H1-1b
	225	LC1 at 53.75%	0.44	OK	Eq. H1-1b
	230	LC1 at 5.00%	0.39	OK	Eq. H1-1b
	231	LC3 at 5.00%	0.44	OK	Eq. H1-1b
PIPE 3x0.216	**16**	LC2 at 40.63%	**0.26**	**OK**	Eq. H1-1b
	22	LC2 at 36.72%	0.22	OK	Eq. H1-1b
	23	LC1 at 63.39%	0.24	OK	Eq. H1-1b
PL 6x3/8	**13**	LC2 at 50.00%	0.18	OK	Eq. H1-1b
	19	LC3 at 50.00%	**0.19**	**OK**	Eq. H1-1b

Bentley

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Units system: English
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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
3	0.00	0.00	-0.75	0
4	0.00	0.00	-2.25	0
10	2.212	0.00	-2.25	0
15	0.00	0.00	1.25	0
28	-1.7321	0.00	2.25	0
29	-3.0311	0.00	3.00	0
35	-4.1371	0.00	1.0844	0
39	1.7321	0.00	2.25	0
40	3.0311	0.00	3.00	0
41	6.348	0.00	4.915	0
45	6.098	0.00	5.348	0
46	1.9251	0.00	4.9156	0
47	4.1371	0.00	1.0844	0
581	-0.8382	-4.50	-5.8942	0
584	-2.679	5.50	-2.702	0
585	-0.8382	5.50	-5.8942	0
586	-6.6062	5.50	4.0962	0
587	-4.762	5.50	0.9059	0
607	4.762	5.50	0.9059	0
611	6.6062	5.50	4.0962	0
615	2.679	5.50	-2.702	0

619	0.8382	5.50	-5.8942	0
631	2.083	5.50	5.5461	0
634	5.768	-4.50	5.548	0
700	5.5662	-3.80	6.2975	0
708	-7.1544	-3.80	3.5467	0
709	-5.5662	-3.80	6.2975	0
714	1.5882	-3.80	-6.0942	0
715	-1.5882	-3.80	-6.0942	0
747	-0.50	4.00	-6.08	0
635	5.768	5.50	5.548	0
738	6.433	4.00	4.1962	0
750	6.348	4.00	4.049	0
775	1.1766	3.50	5.1461	0
749	6.098	4.00	5.348	0
683	-6.6062	-4.00	4.0962	0
711	-6.6062	-3.80	4.0962	0
713	-6.7794	-3.80	4.1962	0
722	-2.083	4.00	5.3461	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
3	1	1	1	1	1	1
28	1	1	1	1	1	1
39	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
1	3	5		HSS_SQR 4X4X5_16	A500 GrC rectangular	0.00	0.00	0.00
2	7	6		HSS_SQR 4X4X5_16	A500 GrC rectangular	0.00	0.00	0.00
11	28	30		HSS_SQR 4X4X5_16	A500 GrC rectangular	0.00	0.00	0.00
12	32	31		HSS_SQR 4X4X5_16	A500 GrC rectangular	0.00	0.00	0.00
13	33	34		PL 6x3/8	A36	0.00	0.00	0.00
16	34	8		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
17	39	41		HSS_SQR 4X4X5_16	A500 GrC rectangular	0.00	0.00	0.00
18	43	42		HSS_SQR 4X4X5_16	A500 GrC rectangular	0.00	0.00	0.00
19	44	45		PL 6x3/8	A36	0.00	0.00	0.00
22	33	45		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
23	44	9		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
24	47	375		L 2X2X3_16	A36	0.00	0.00	0.00
25	46	375		L 2X2X3_16	A36	0.00	0.00	0.00
26	10	377		L 2X2X3_16	A36	0.00	0.00	0.00
27	11	377		L 2X2X3_16	A36	0.00	0.00	0.00
28	36	379		L 2X2X3_16	A36	0.00	0.00	0.00
29	379	35		L 2X2X3_16	A36	0.00	0.00	0.00
168	670	654		aisiSSMA_S 1200S200-54	A36 (weightless)	0.00	0.00	0.00
178	686	682		aisiSSMA_S 1200S200-54	A36 (weightless)	0.00	0.00	0.00
183	694	690		aisiSSMA_S 1200S200-54	A36 (weightless)	0.00	0.00	0.00
186	701	700		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

190	709	708	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
193	715	714	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
196	744	745	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
197	746	747	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
198	748	749	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
211	754	753	L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
212	752	751	L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
213	750	755	L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
214	635	634	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
215	631	630	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
216	623	622	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
217	627	626	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
218	586	582	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
219	587	583	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
220	584	580	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
221	585	581	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
222	619	618	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
223	615	614	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
224	607	606	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
225	611	610	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
230	767	768	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
231	761	762	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
25	270.00	0	0.00	0.00	0.00
26	270.00	0	0.00	0.00	0.00
168	90.00	0	0.00	0.00	0.00
178	90.00	0	0.00	0.00	0.00
183	90.00	0	0.00	0.00	0.00
211	180.00	0	0.00	0.00	0.00
212	180.00	0	0.00	0.00	0.00
213	180.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
168	5.3301	0.00	-0.7679	3.3301	0.00	-4.2321
178	-3.3301	0.00	-4.2321	-5.3301	0.00	-0.7679
183	-2.00	0.00	5.00	2.00	0.00	5.00

405 BRUSHY PLAIN RD

Location	405 BRUSHY PLAIN RD	**Mblu**	D02/000 003/ 00001/ /
Acct#	004475	**Owner**	JACONETTE EDWARD F JR &
Assessment	$374,700	**Appraisal**	$535,300
PID	695	**Building Count**	3

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$173,100	$362,200	$535,300
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$121,200	$253,500	$374,700

Owner of Record

Owner	JACONETTE EDWARD F JR &	**Sale Price**	$0
Co-Owner	JACONETTE KRISTIN L (SUR)	**Certificate**	
Address	405 BRUSHY PLAIN RD BRANFORD, CT 06405	**Book & Page**	0788/1038
		Sale Date	11/18/2002
		Instrument	25

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
JACONETTE EDWARD F JR &	$0		0788/1038	25	11/18/2002
ADAMS MARSHA	$0		442/ 252		12/22/1987
ADAMS MARSHA	$0				12/22/1987

Building Information

Building 1 : Section 1

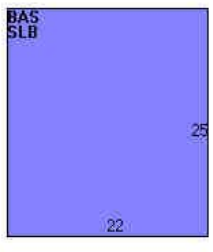
Year Built:	1992
Living Area:	550
Replacement Cost:	$25,339
Building Percent Good:	83
Replacement Cost Less Depreciation:	$21,000

Building Attributes	
Field	**Description**
STYLE	Warehouse
MODEL	Ind/Comm
Grade	C
Stories:	1
Occupancy	1
Exterior Wall 1	Precast Panel
Exterior Wall 2	
Roof Structure	Shed
Roof Cover	T&G/Rubber
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Electric
Heating Type	Hot Air-no Duc
AC Type	Heat Pump
Bldg Use	TEL REL TW MDL96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	0431
Heat/AC	HEAT/AC PKGS
Frame Type	MASONRY
Baths/Plumbing	NONE
Ceiling/Wall	CEILING ONLY
Rooms/Prtns	AVERAGE
Wall Height	9

Building Photo

(http://images.vgsi.com/photos/BranfordCTPhotos//\00\01\45/84.jpg)

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	550	550
SLB	Slab	550	0
		1,100	550

% Comn Wall	

Building 2 : Section 1

Year Built: 2001
Living Area: 432
Replacement Cost: $19,902
Building Percent Good: 87
Replacement Cost Less Depreciation: $17,300

Building Attributes : Bldg 2 of 3	
Field	**Description**
STYLE	Warehouse
MODEL	Ind/Comm
Grade	C
Stories:	1
Occupancy	1
Exterior Wall 1	Precast Panel
Exterior Wall 2	
Roof Structure	Shed
Roof Cover	T&G/Rubber
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Electric
Heating Type	Hot Air-no Duc
AC Type	Heat Pump
Bldg Use	TEL REL TW MDL96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	0431
Heat/AC	HEAT/AC PKGS
Frame Type	MASONRY
Baths/Plumbing	NONE
Ceiling/Wall	CEILING ONLY
Rooms/Prtns	AVERAGE
Wall Height	9
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos/BranfordCTPhotos//\00\01\45/85.jpg)

Building Layout

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	432	432
SLB	Slab	432	0
		864	432

Building 3 : Section 1

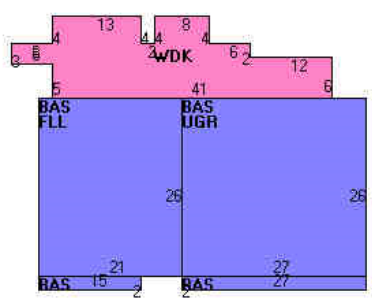
Year Built: 1975
Living Area: 1,742
Replacement Cost: $195,337
Building Percent Good: 66
Replacement Cost Less Depreciation: $128,900

Building Attributes : Bldg 3 of 3	
Field	**Description**
Style	Raised Ranch
Model	Residential
Grade:	C +
Stories:	1 Story
Occupancy	1
Exterior Wall 1	Wood Shingle
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	
Interior Flr 1	Carpet
Interior Flr 2	
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	Central
Total Bedrooms:	3 Bedrooms
Total Bthrms:	2
Total Half Baths:	0
Total Xtra Fixtrs:	
Total Rooms:	7 Rooms
Bath Style:	Average
Kitchen Style:	Average

Building Photo

(http://images.vgsi.com/photos/BranfordCTPhotos//\00\01\05/61.jpg)

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,332	1,332
FLL	Finished Lower Level	546	410
UGR	Garage Under	702	0

Cottage Cmplx	
Cottage Adj	

WDK	Deck, Wood	406	0
		2,986	1,742

Extra Features

Extra Features				Legend
Code	**Description**	**Size**	**Value**	**Bldg #**
FPL2	FIREPLACE 1.5	1 UNITS	$3,300	3
FPO	EXTRA FPL OPEN	1 UNITS	$800	3

Land

Land Use

Use Code 0431
Description TEL REL TW MDL96
Zone R-4
Neighborhood 0050
Alt Land Appr No
Category

Land Line Valuation

Size (Acres) 4.5
Frontage
Depth
Assessed Value $253,500
Appraised Value $362,200

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FN3	FENCE-6' CHAIN			260 L.F.	$1,300	1
PAV2	PAVING-CONC			137 S.F.	$500	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$173,100	$362,200	$535,300
2016	$173,100	$362,200	$535,300
2015	$173,100	$362,200	$535,300

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$121,200	$253,500	$374,700
2016	$121,200	$253,500	$374,700
2015	$121,200	$253,500	$374,700

Town of Branford

Geographic Information System (GIS)

Date Printed: 3/6/2019

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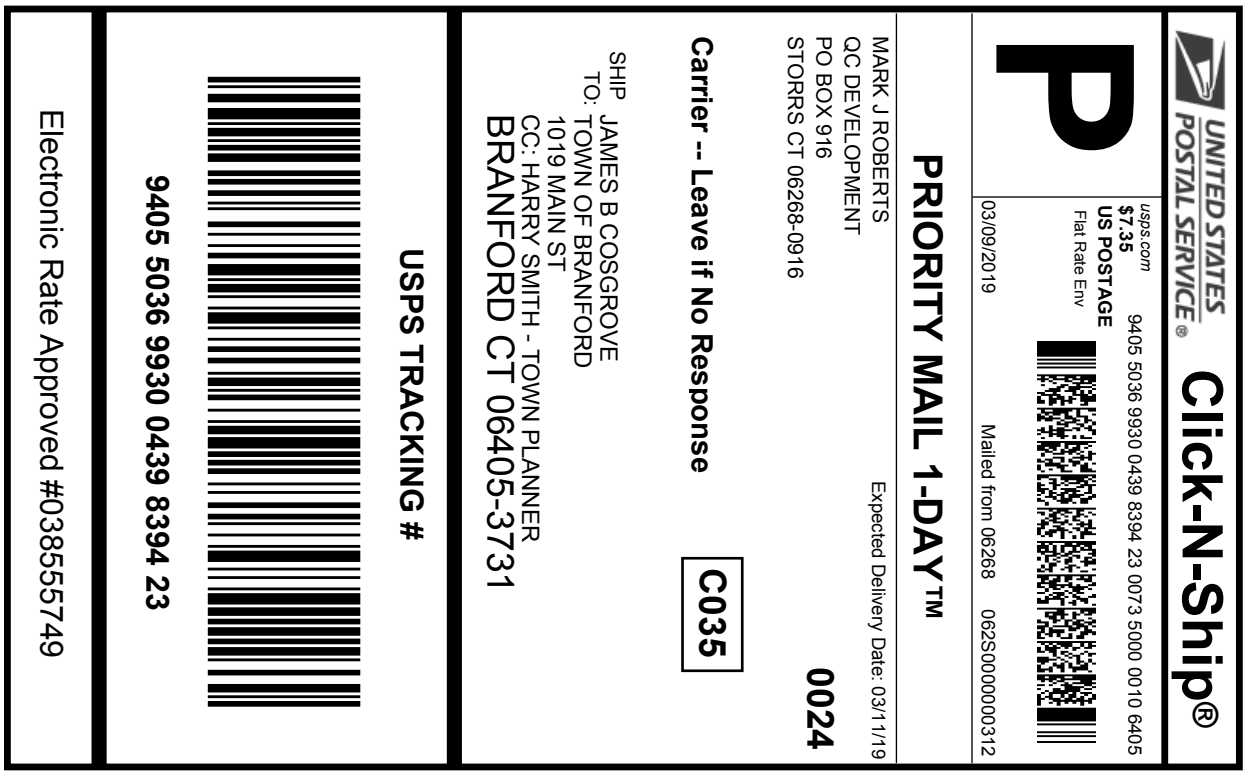
0 200 Feet

N W E S



Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0439 8394 23

Trans. #:	458524297
Print Date:	03/06/2019
Ship Date:	03/09/2019
Expected Delivery Date:	03/11/2019

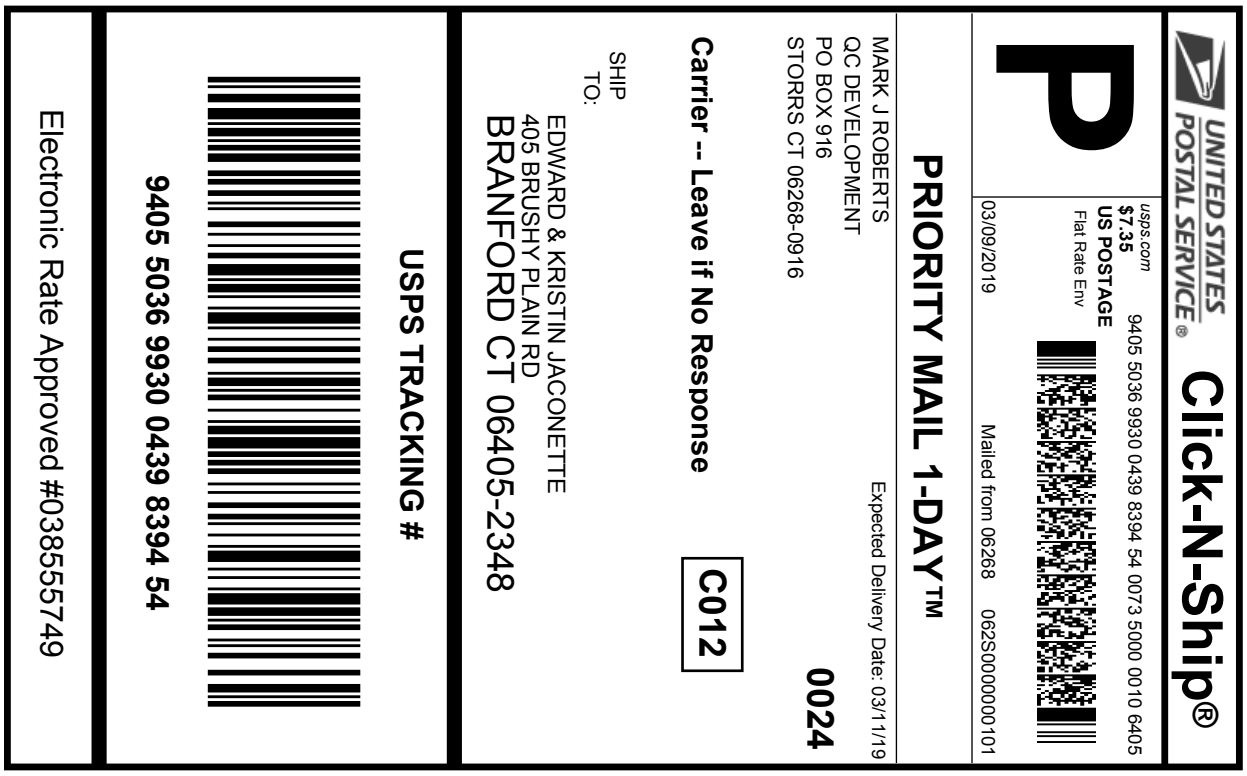
Priority Mail® Postage:	**$7.35**
Total	**$7.35**

From: MARK J ROBERTS
QC DEVELOPMENT
PO BOX 916
STORRS CT 06268-0916

To: JAMES B COSGROVE
TOWN OF BRANFORD
1019 MAIN ST
CC: HARRY SMITH - TOWN PLANNER
BRANFORD CT 06405-3731

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

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0439 8394 54

Trans. #:	458524297
Print Date:	03/06/2019
Ship Date:	03/09/2019
Expected Delivery Date:	03/11/2019

Priority Mail® Postage:	**$7.35**
Total	**$7.35**

From: MARK J ROBERTS
QC DEVELOPMENT
PO BOX 916
STORRS CT 06268-0916

To: EDWARD & KRISTIN JACONETTE
405 BRUSHY PLAIN RD
BRANFORD CT 06405-2348

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

Thank you for shipping with the United States Postal Service!
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