QC Development
PO Box 916
Storrs, CT 06268
860-670-9068
Mark.Roberts@QCDevelopment.net

May 24, 2019

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) – CT3506
50 Devine Street, North Haven, CT 06473
N 41.37777778
W 72.87615833

Dear Ms. Bachman:

AT&T currently maintains twelve (12) antennas at the 107-foot level of the existing 130-foot Monopole at 50 Devine Street, North Haven, CT. The tower is owned by American Tower and the property is owned by 424 Chapel Street LLC. AT&T now intends to replace three (3) CCI antennas with (6) Kathrein 800-10966 antennas. AT&T will also swap (3) Ericsson RRUS-11 Remote Radio Units for (3) Ericsson 4449-B5/B12s and swap (3) Ericsson RRUS-32 B2 for (3) 8843-B2/B66 Remote Radio Units (RRU). The Antennas and RRUs will be installed at the 107-foot level of the tower.

This facility was approved by the Siting Council in Docket # 384 on February 25, 2010 and a height extension was approved in Petition # 1089 on January 23, 2014. This approval included no condition(s) that could feasibly be violated by this modification, including total facility height or mounting restrictions. 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 Michael J. Freda, First Selectman of the Town of North Haven, and the North Haven Land Use Office as well

as the property owner and 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.

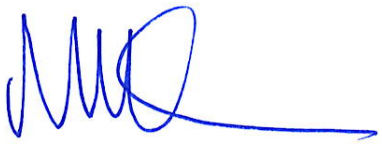
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

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: Michael J. Freda - Elected Official
Alan Fredricksen – Land Use Administrator
424 Chapel Street LLC – Property Owner
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*							4.67%
AT&T UMTS	2	762	107	0.0537	850	0.5667	0.95%
AT&T LTE	2	1239	107	0.0874	700	0.4667	1.87%
AT&T LTE	2	1876	107	0.1323	1900	1.0000	1.32%
AT&T LTE	2	2153	107	0.1518	2300	1.0000	1.87%
Site Total							10.34%

*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*							1.08%
AT&T UMTS	1	762	160	0.0269	850	0.5667	0.47%
AT&T LTE	2	2951	160	0.2081	700	0.4667	4.46%
AT&T LTE	1	1000	160	0.0353	850	0.5667	0.62%
AT&T 5G	1	1000	160	0.0353	850	0.5667	0.62%
AT&T LTE	2	3664	160	0.2583	1900	1.0000	2.58%
AT&T LTE	1	1285	160	0.0453	2300	1.0000	0.45%
Site Total							13.89%

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

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

PROJECT INFORMATION

SCOPE OF WORK:	ITEMS TO BE MOUNTED ON THE EXISTING MONOPOLE: • NEW AT&T ANTENNAS: (800–10966) MOUNTED @ POSITION 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T RRUS: B14 4478 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3) • NEW AT&T RRUS: 4449 B5/B12 (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 3) • NEW AT&T RRUS: B2/B66A 8843 (AWS/1900) (TYP. OF 1 PER SECTOR, TOTAL OF 3) • NEW AT&T SURGE ARRESTOR: SURGE ARRESTOR (DC6–48–60–0–8C–EV) (TOTAL OF 1). • INSTALL (2) DC POWER IN (1) 2" FLEX CONDUIT. ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION: • ADD RBS 6630 WITH IDLe CABLE. • ADD RBS 6630 FOR 5G. • INSTALL (12) TELCO FLEX FOR PROPOSED (2) DC TRUNK.
SITE ADDRESS:	50 DEVINE STREET NORTH HAVEN, CT 06473
LATITUDE:	41.377778 N, 41° 22' 40.03" N
LONGITUDE:	72.876139 W, 72° 52' 34.19" W
TYPE OF SITE:	MONOPOLE / INDOOR EQUIPMENT
STRUCTURE HEIGHT:	130'–0"±
RAD CENTER:	107'–0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

SITE NUMBER: CT3506

SITE NAME: NORTH HAVEN DEVINE STREET

FA CODE: 10578263

PACE ID: MRCTB038063, MRCTB038132, MRCTB038029

PROJECT: LTE 4C_5C_6C 2019 UPGRADE

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T–1	TITLE SHEET	1
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A–1	COMPOUND & EQUIPMENT PLAN	1
A–2	ANTENNA LAYOUTS & ELEVATION	1
A–3	DETAILS	1
SN–1	STRUCTURAL NOTES	1
S–1	STRUCTURAL DETAILS	1
RF–1	RF PLUMBING DIAGRAM	1
G–1	GROUNDING DETAILS	1

ATC SITE NAME: NORTH HAVEN CT
ATC SITE #: 283418

VICINITY MAP

DIRECTIONS TO SITE:

HEAD NORTHEAST ON ENTERPRISE DR TOWARD CAPITAL BLVD, TURN LEFT ONTO CAPITAL BLVD, TURN LEFT ONTO WEST ST, TURN LEFT TO MERGE ONTO I–91 S TOWARD NEW HAVEN, TAKE EXIT 17 FOR CT–15 S/W CROSS PKWY, TAKE EXIT 63 TOWARD CT–22 NORTH HAVEN, TURN LEFT ONTO HARTFORD TURNPIKE, TURN LEFT ONTO DEVINE ST, 50 DEVIN STREET 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

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT3506
SITE NAME: NORTH HAVEN DEVINE STREET
ATC SITE #: 283418
50 DEVINE STREET
NORTH HAVEN, CT 06473
NEW HAVEN COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	05/20/19	ISSUED FOR CONSTRUCTION	AM	AT	DJC
A	03/11/19	ISSUED FOR REVIEW	AM	AT	DJC

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

STATE OF CONNECTICUT — REGISTERED — 28,235 — LICENSED PROFESSIONAL ENGINEER

AT&T
TITLE SHEET
(LTE 4C_5C_6C)

SITE NUMBER	DRAWING NUMBER	REV
CT3506	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-G, 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: CT3506
SITE NAME: NORTH HAVEN DEVINE STREET
ATC SITE #: 283418
50 DEVINE STREET
NORTH HAVEN, CT 06473
NEW HAVEN COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	05/20/19	ISSUED FOR CONSTRUCTION	AM	AT	DJC
A	03/11/19	ISSUED FOR REVIEW	AM	AT	DJC

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

STATE OF CONNECTICUT · DEREK J. CREASEY · 30,295 · LICENSED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES
(LTE 4C_5C_6C)

SITE NUMBER	DRAWING NUMBER	REV
CT3506	GN-1	1

NOTE:

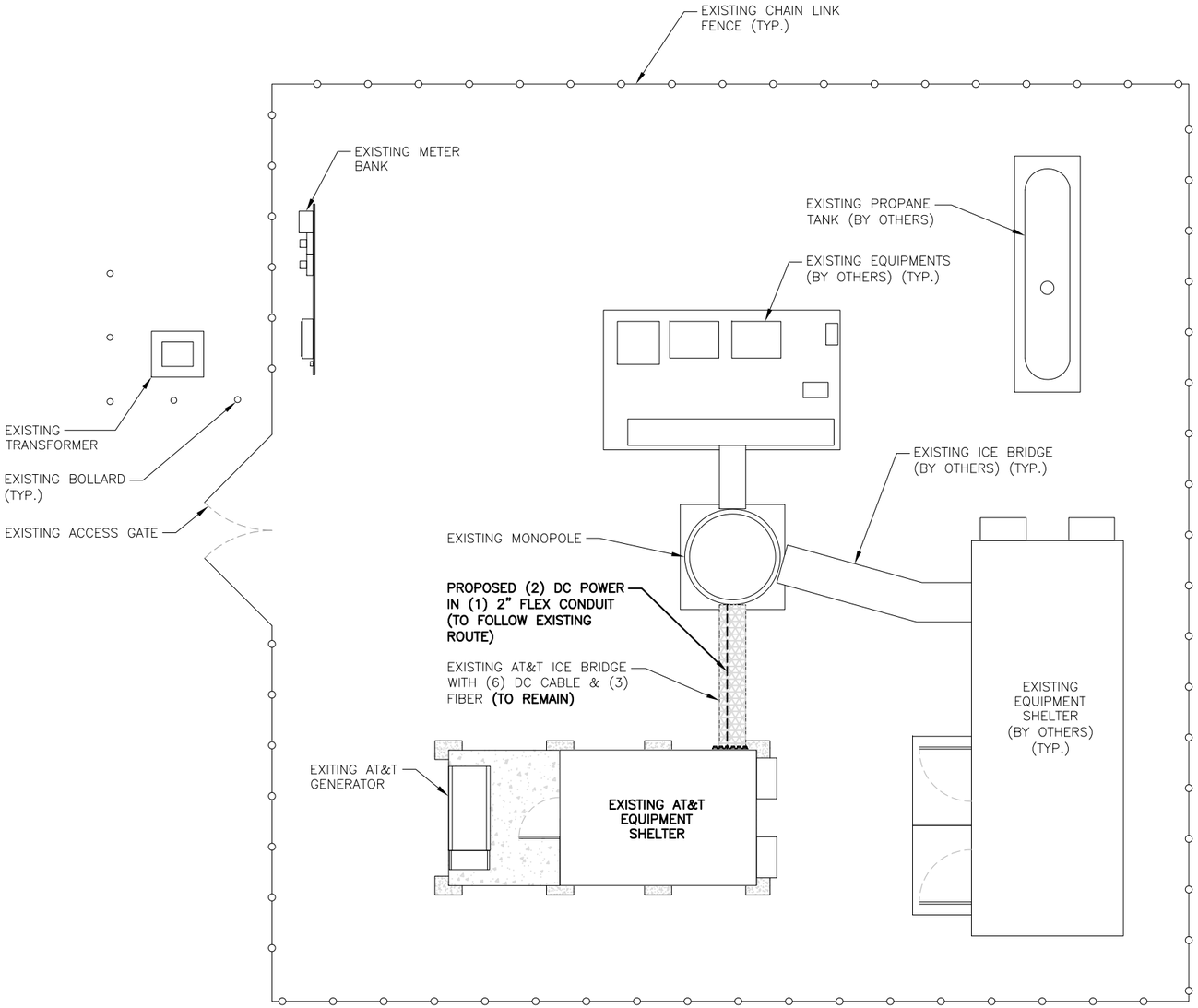
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

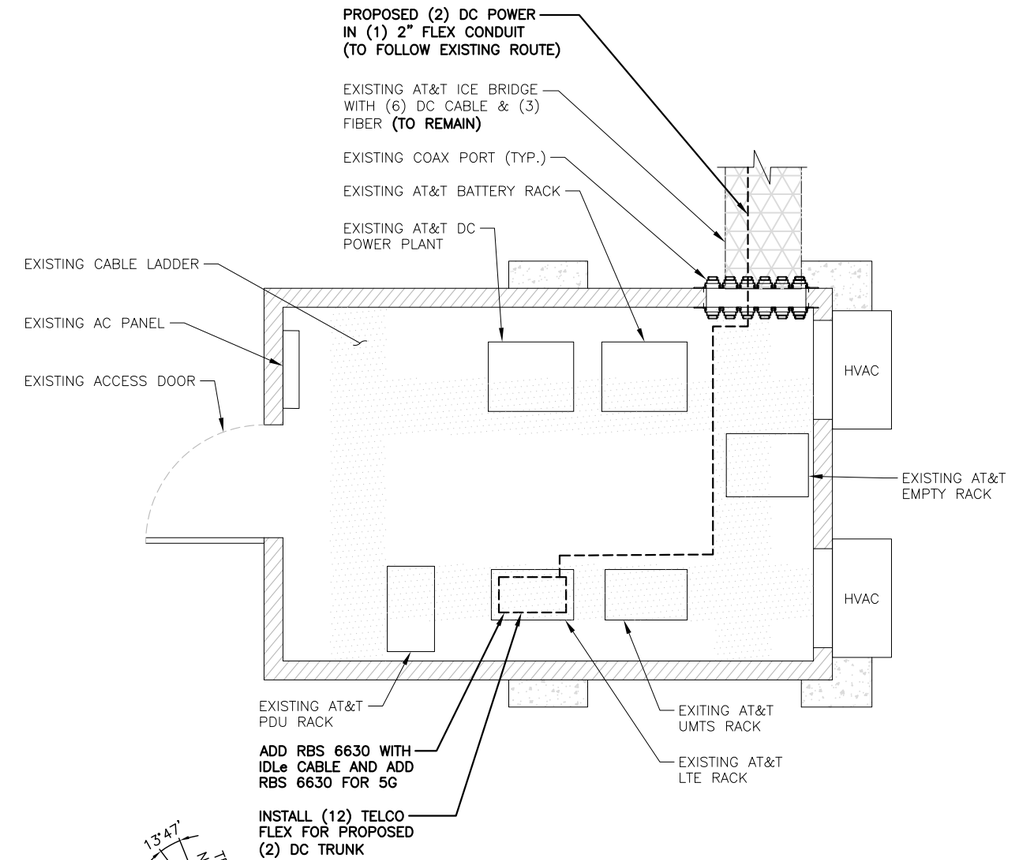
NOTE:

REFER TO **STRUCTURAL ANALYSIS** BY: AMERICAN TOWER CORPORATION, DATED: MAY 1, 2019, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: APRIL 2, 2019





13°47' TRUE NORTH MAGNETIC NORTH

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"

13°47' TRUE NORTH MAGNETIC NORTH

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

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: CT3506
SITE NAME: NORTH HAVEN DEVINE STREET
ATC SITE #: 283418

50 DEVINE STREET
NORTH HAVEN, CT 06473
NEW HAVEN COUNTY

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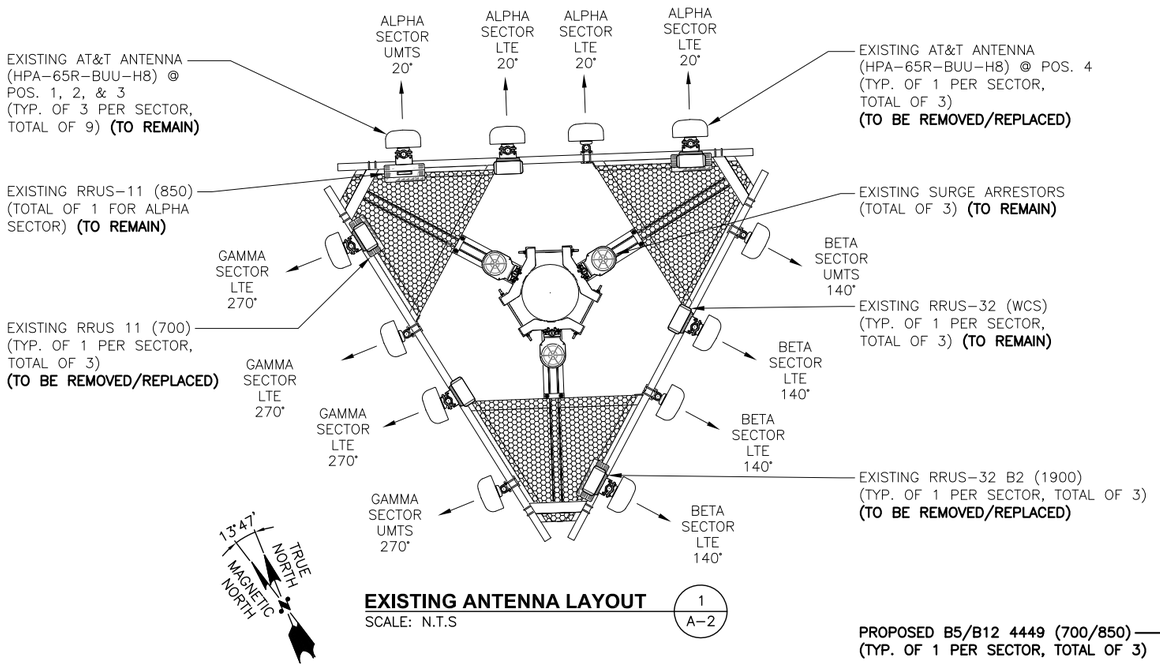
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

STATE OF CONNECTICUT DEREK J. CREASEY No. 25554 LICENSED PROFESSIONAL ENGINEER

AT&T

~~COMPOUND~~ & EQUIPMENT PLAN
(LTE 4C_5C_6C)

SITE NUMBER	DRAWING NUMBER	REV
CT3506	A-1	1



EXISTING ANTENNA LAYOUT

1 / A-2

SCALE: N.T.S

NOTE:

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

NOTE:

REFER TO **STRUCTURAL ANALYSIS** BY: AMERICAN TOWER CORPORATION, DATED: MAY 1, 2019, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

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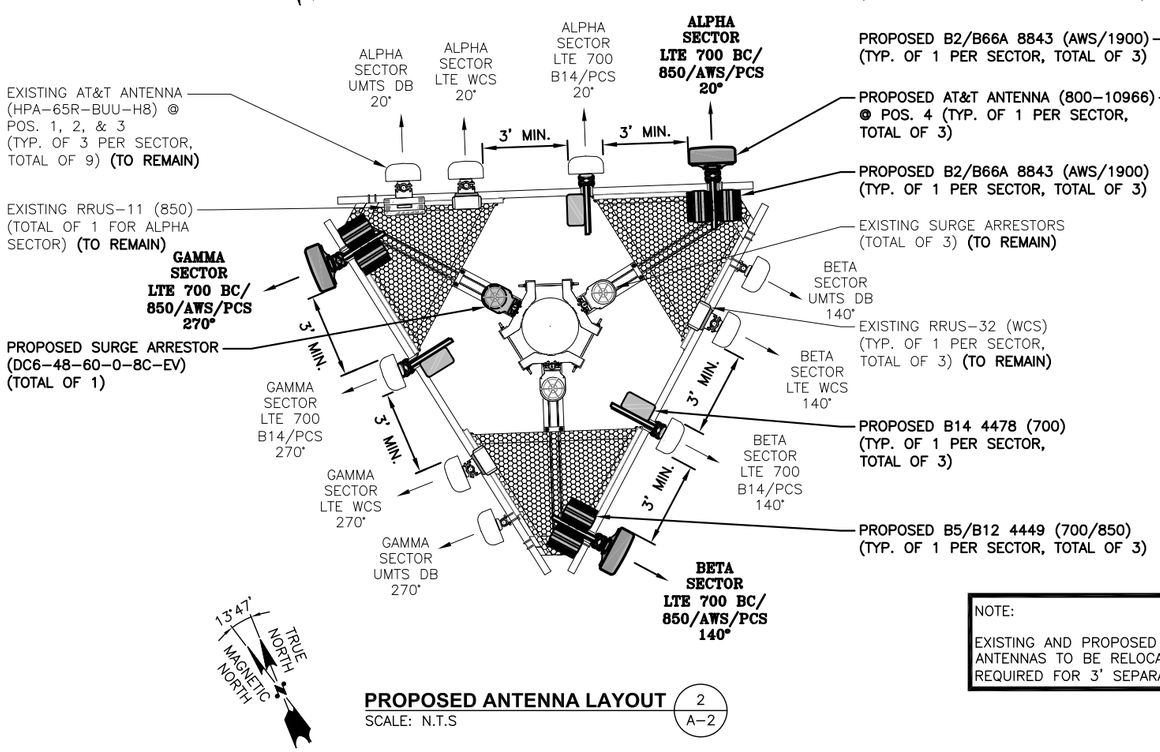


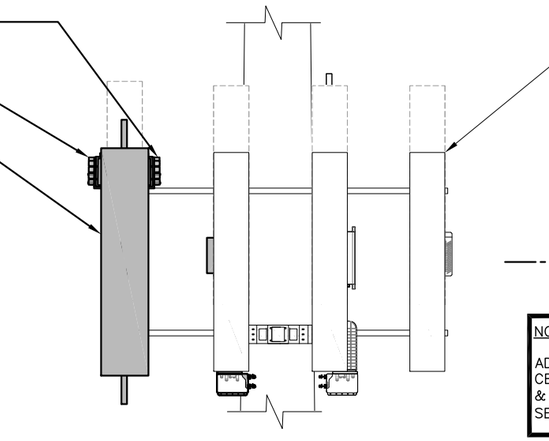
PROPOSED ANTENNA LAYOUT

2 / A-2

SCALE: N.T.S

NOTE:

EXISTING AND PROPOSED LTE ANTENNAS TO BE RELOCATED AS REQUIRED FOR 3' SEPARATION.



NOTE:

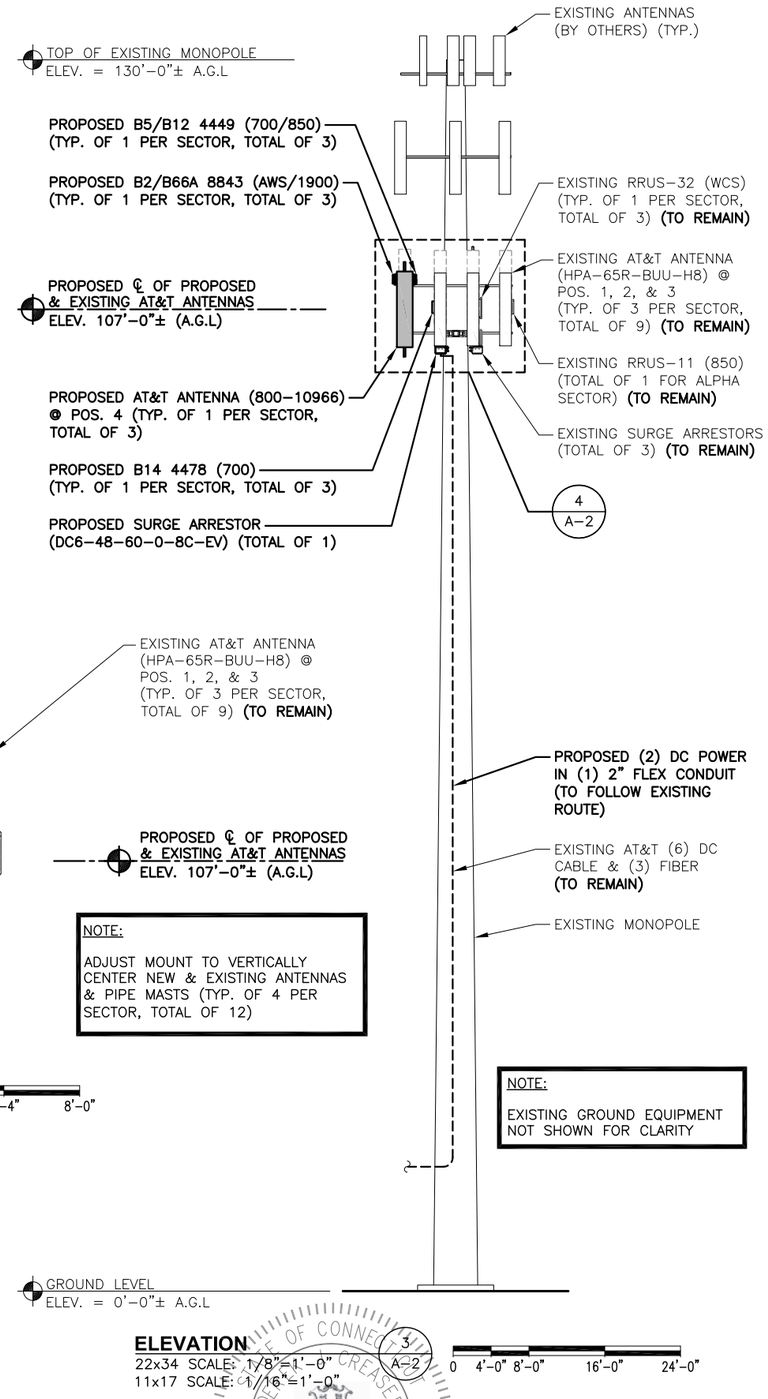
ADJUST MOUNT TO VERTICALLY CENTER NEW & EXISTING ANTENNAS & PIPE MASTS (TYP. OF 4 PER SECTOR, TOTAL OF 12)

ENLARGED ANTENNA ELEVATION

4 / A-2

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

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



NOTE:

EXISTING GROUND EQUIPMENT NOT SHOWN FOR CLARITY

ELEVATION

3 / A-2

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

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

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

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT3506
SITE NAME: NORTH HAVEN DEVINE STREET
ATC SITE #: 283418

50 DEVINE STREET
NORTH HAVEN, CT 06473
NEW HAVEN COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	05/20/19	ISSUED FOR CONSTRUCTION	AM	AT	DJC
A	03/11/19	ISSUED FOR REVIEW	AM	AT	DJC

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

STATE OF CONNECTICUT · CREATED · 10,473 · LICENSED PROFESSIONAL ENGINEER

AT&T

ANTENNA LAYOUTS & ELEVATION
(LTE 4C_5C_6C)

SITE NUMBER	DRAWING NUMBER	REV
CT3506	A-2	1

NOTE:

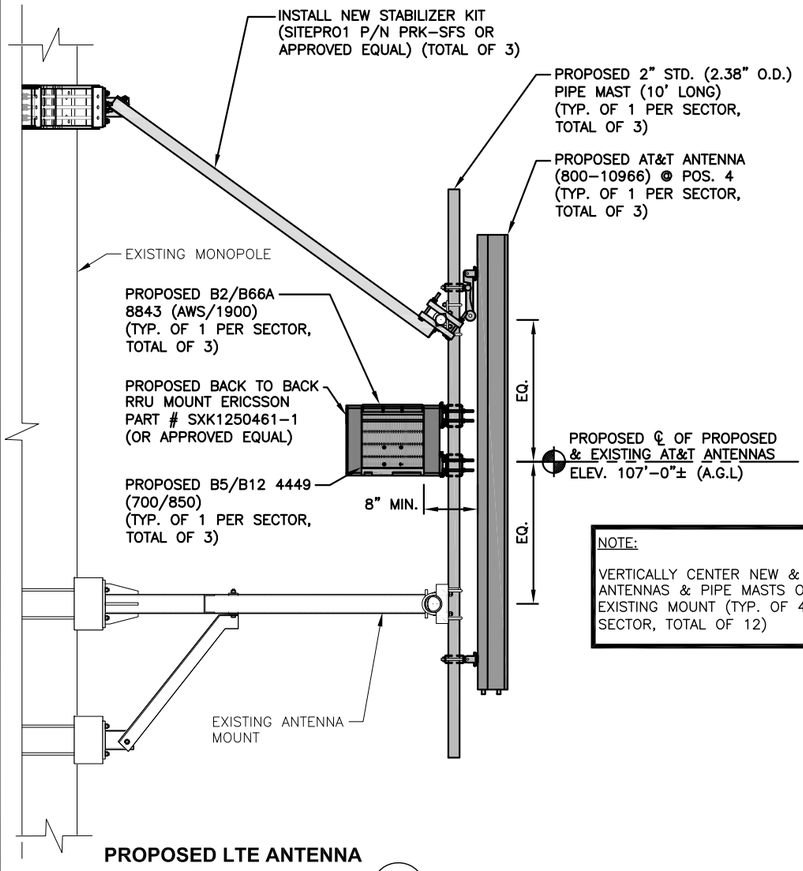
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

REFER TO **STRUCTURAL ANALYSIS** BY: AMERICAN TOWER CORPORATION, DATED: MAY 1, 2019, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: APRIL 2, 2019



NOTE:

VERTICALLY CENTER NEW & EXISTING ANTENNAS & PIPE MASTS ON EXISTING MOUNT (TYP. OF 4 PER SECTOR, TOTAL OF 12)

PROPOSED LTE ANTENNA & RRH MOUNTING DETAIL (1 / A-3)
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 DB	HPA-65R-BUU-H8	92.4X14.8X7.4	±107'-0"	20°	–	(E) RRUS-11 (850)	–	–	--
A2	EXISTING	LTE WCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±107'-0"	20°	–	(E) RRUS 32 (WCS)	–	–	(E) (1) RAYCAP DC6-48-60-18-8C
A3	EXISTING	LTE 700 B14/PCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±107'-0"	20°	–	**(P) B14 4478 (700)**	**18.1X13.4X8.3**	–	
A4	**PROPOSED**	**LTE 700 BC/850/AWS/PCS**	**800-10966**	**96x20x6.9**	**±107'-0"**	**20°**	–	**(P) B5/B12 4449 (700/850) (P) B2/B66A 8843 (AWS/1900)**	**14.9X13.2X10.4 14.9X13.2X10.9**	–	
B1	EXISTING	UMTS DB	HPA-65R-BUU-H8	92.4X14.8X7.4	±107'-0"	140°	–	–	–	–	--
B2	EXISTING	LTE WCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±107'-0"	140°	–	(E) RRUS 32 (WCS)	–	–	(E) (1) RAYCAP DC6-48-60-18-8C
B3	EXISTING	LTE 700 B14/PCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±107'-0"	140°	–	**(P) B14 4478 (700)**	**18.1X13.4X8.3**	–	
B4	**PROPOSED**	**LTE 700 BC/850/AWS/PCS**	**800-10966**	**96x20x6.9**	**±107'-0"**	**140°**	–	**(P) B5/B12 4449 (700/850) (P) B2/B66A 8843 (AWS/1900)**	**14.9X13.2X10.4 14.9X13.2X10.9**	–	
C1	EXISTING	UMTS DB	HPA-65R-BUU-H8	92.4X14.8X7.4	±107'-0"	270°	–	–	–	–	--
C2	EXISTING	LTE WCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±107'-0"	270°	–	(E) RRUS 32 (WCS)	–	–	(E) (1) RAYCAP DC6-48-60-18-8C **(P) (1) RAYCAP DC6-48-60-0-8C-EV**
C3	EXISTING	LTE 700 B14/PCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±107'-0"	270°	–	**(P) B14 4478 (700)**	**18.1X13.4X8.3**	–	
C4	**PROPOSED**	**LTE 700 BC/850/AWS/PCS**	**800-10966**	**96x20x6.9**	**±107'-0"**	**270°**	–	**(P) B5/B12 4449 (700/850) (P) B2/B66A 8843 (AWS/1900)**	**14.9X13.2X10.4 14.9X13.2X10.9**	–	

FINAL ANTENNA SCHEDULE (2 / A-3)
SCALE: N.T.S

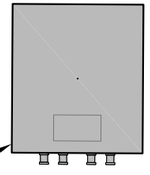
RRU CHART

QUANTITY	MODEL	L	W	D
1(E)	RRUS 11 (850)	19.7"	17.0"	7.2"
3(E)	RRUS 32 (WCS)	27.2"	12.1"	7.0"
3(P)	B14 4478 (700)	18.1"	13.4"	8.3"
3(P)	4449 B5/B12 (700/850)	14.9"	13.2"	10.4"
3(P)	8843 B2/B66A (AWS/1900)	14.9"	13.2"	10.9"

NOTE: MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:

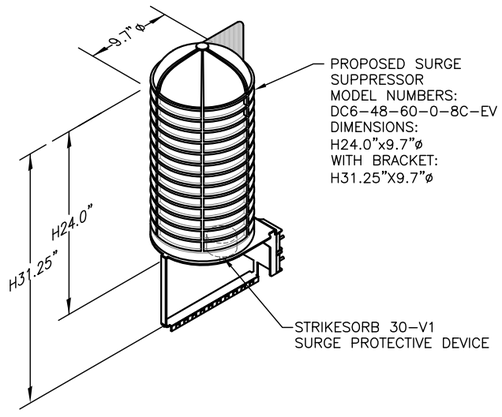
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER



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

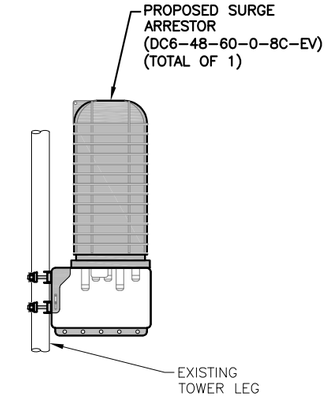
NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

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



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL (4 / A-3)
SCALE: N.T.S



SURGE SUPPRESSOR MOUNTING DETAIL (5 / A-3)
SCALE: N.T.S

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A	03/11/19	ISSUED FOR REVIEW	AM	AT	DJC

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

STATE OF CONNECTICUT · DEREK J. CREASEY · 29255 · LICENSED PROFESSIONAL ENGINEER

AT&T

DETAILS
(LTE 4C_5C_6C)

SITE NUMBER	DRAWING NUMBER	REV
CT3506	A-3	1

STRUCTURAL NOTES:

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

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

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

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

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

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

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

NOTES:

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

NOTES:

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

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12 INDUSTRIAL WAY
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SITE NUMBER: CT3506
SITE NAME: NORTH HAVEN DEVINE STREET
ATC SITE #: 283418
50 DEVINE STREET
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NEW HAVEN COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
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NO.	DATE	REVISIONS	BY	CHK	APP'D
1	05/20/19	ISSUED FOR CONSTRUCTION	AM	AT	DJC
A	03/11/19	ISSUED FOR REVIEW	AM	AT	DJC

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

STATE OF CONNECTICUT
DEREK J. CREASEY
No. 25...
LICENSED PROFESSIONAL ENGINEER

AT&T

STRUCTURAL NOTES
(LTE 4C_5C_6C)

SITE NUMBER	DRAWING NUMBER	REV
CT3506	SN-1	1

NOTE:

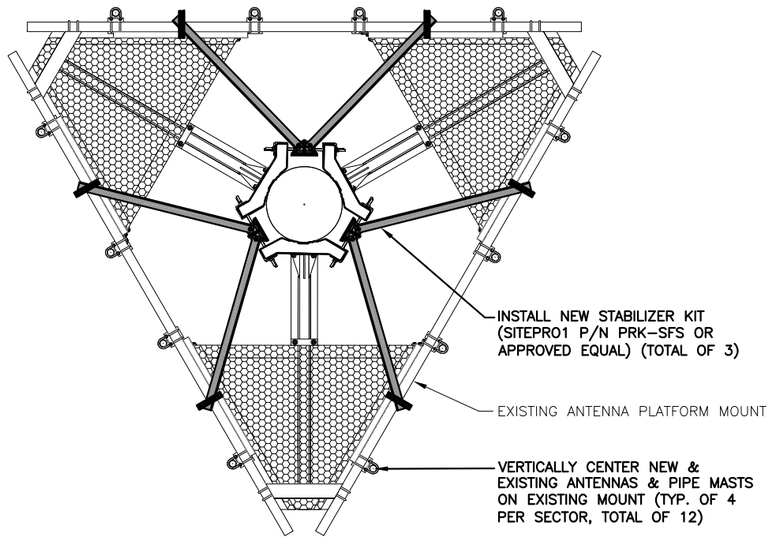
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

REFER TO **STRUCTURAL ANALYSIS** BY: AMERICAN TOWER CORPORATION, DATED: MAY 1, 2019, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

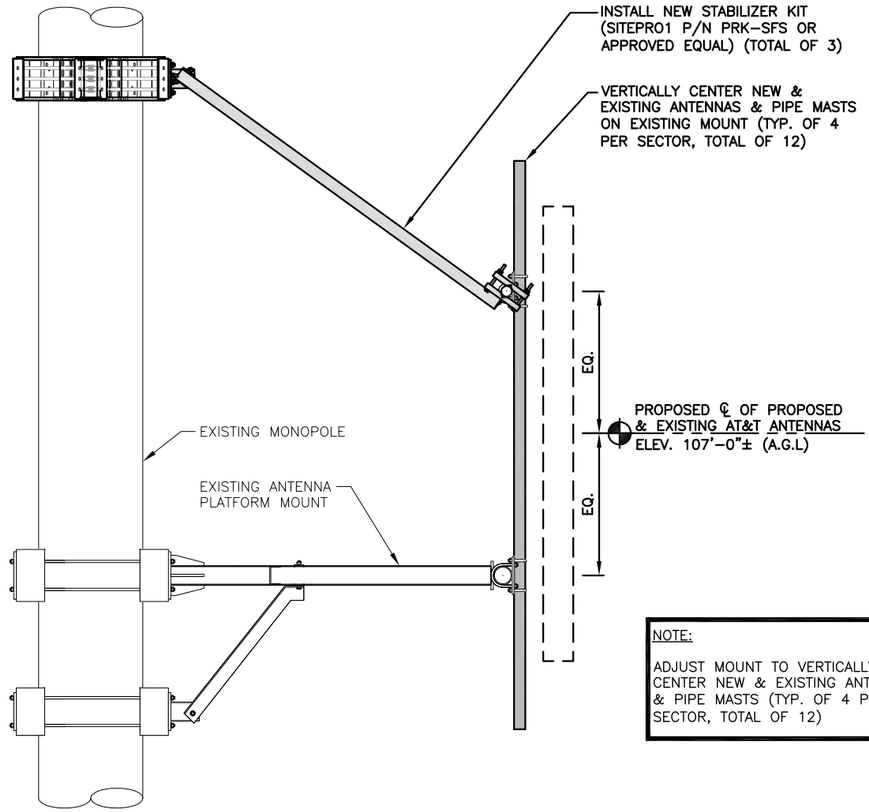
NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: APRIL 2, 2019



PROPOSED REINFOCEMENT PLAN (1 / S-1)
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

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



NOTE:

ADJUST MOUNT TO VERTICALLY CENTER NEW & EXISTING ANTENNAS & PIPE MASTS (TYP. OF 4 PER SECTOR, TOTAL OF 12)

PROPOSED REINFOCEMENT ELEVATION (2 / S-1)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

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

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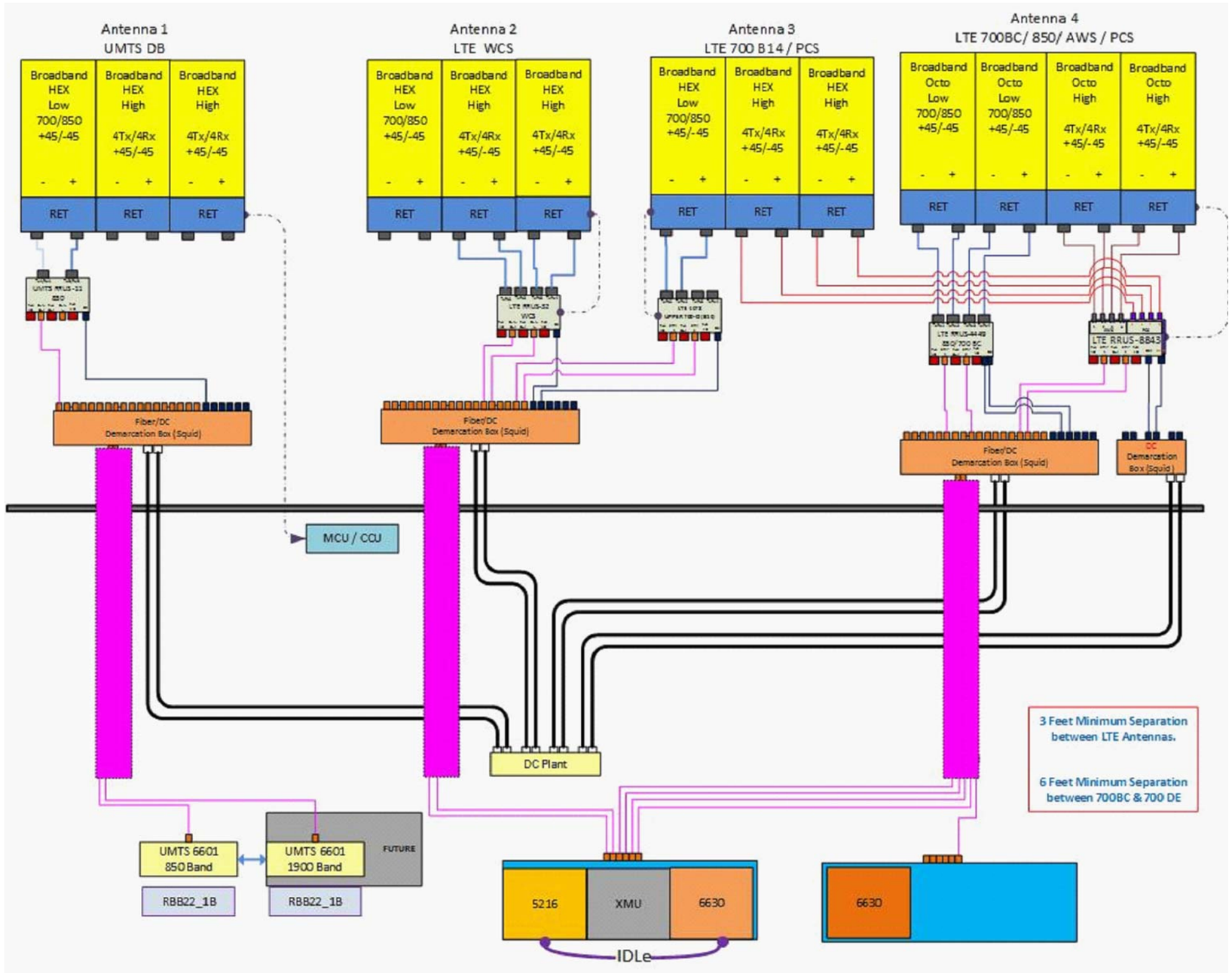
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

STATE OF CONNECTICUT · DEREK J. CREASEY · No. 25354 · LICENSED PROFESSIONAL ENGINEER

AT&T

STRUCTURAL DETAILS
(LTE 4C_5C_6C)

SITE NUMBER	DRAWING NUMBER	REV
CT3506	S-1	1



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

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

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

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	05/20/19	ISSUED FOR CONSTRUCTION	AM	AT	DJC
A	03/11/19	ISSUED FOR REVIEW	AM	AT	DJC

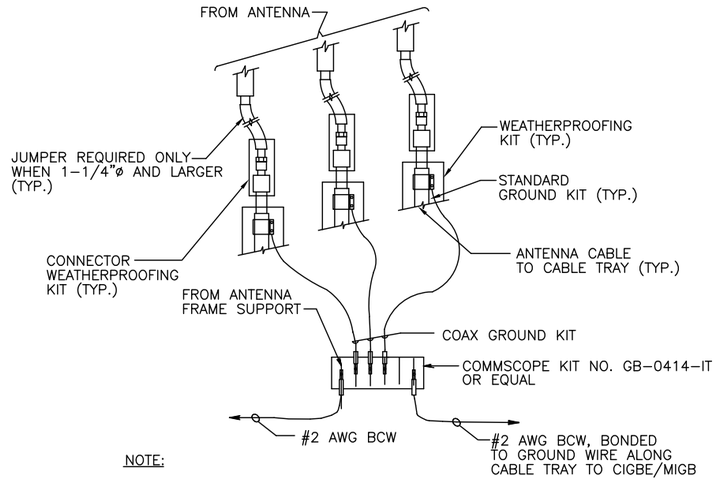
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

STATE OF CONNECTICUT — DEREK J. CREASEY — No. 27554 — LICENSED PROFESSIONAL ENGINEER

AT&T

RF PLUMBING DIAGRAM
(LTE 4C_5C_6C)

SITE NUMBER	DRAWING NUMBER	REV
CT3506	RF–1	1



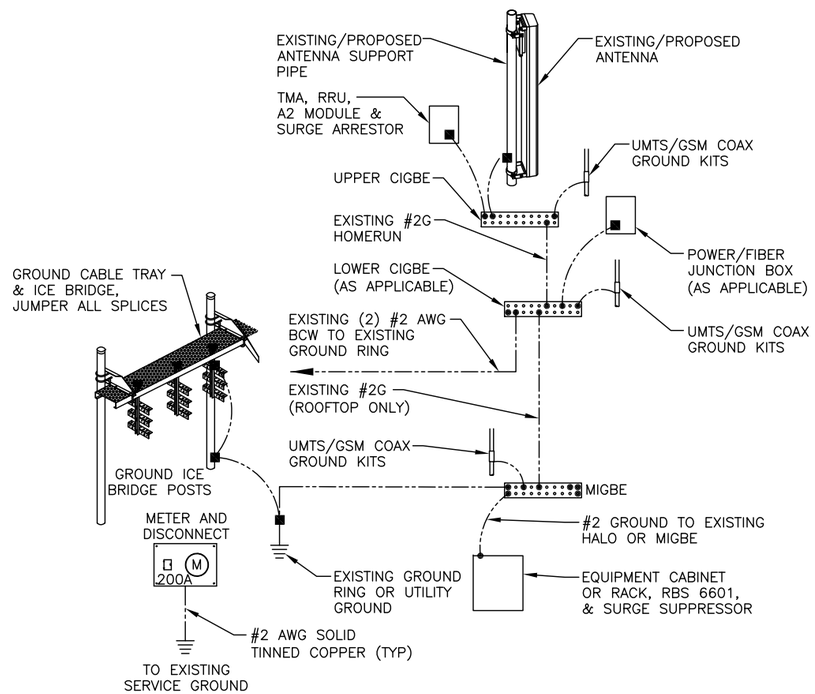
NOTE:

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

1 / G–1

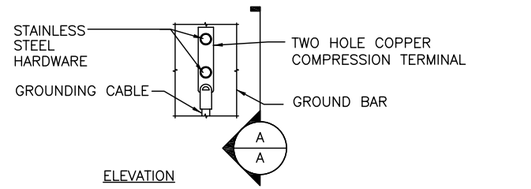
SCALE: N.T.S



GROUNDING RISER DIAGRAM

2 / G–1

SCALE: N.T.S



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

3 / G–1

SCALE: N.T.S

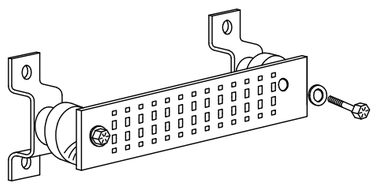
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

CABLE ENTRY PORTS (HATCH PLATES) (#2)
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

4 / G–1

SCALE: N.T.S

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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT3506
SITE NAME: NORTH HAVEN DEVINE STREET
ATC SITE #: 283418

50 DEVINE STREET
NORTH HAVEN, CT 06473
NEW HAVEN COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	05/20/19	ISSUED FOR CONSTRUCTION	AM	AT	DJC
A	03/11/19	ISSUED FOR REVIEW	AM	AT	DJC

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

STATE OF CONNECTICUT · DEREK J. CREASEY · No. 25557 · LICENSED PROFESSIONAL ENGINEER

AT&T

GROUNDING DETAILS
(LTE 4C_5C_6C)

SITE NUMBER	DRAWING NUMBER	REV
CT3506	G–1	1

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**129 ft Monopole**
ATC Site Name	:	**NORTH HAVEN CT, CT**
ATC Site Number	:	**283418**
Engineering Number	:	**OAA747991_C3_01**
Proposed Carrier	:	**AT&T MOBILITY**
Carrier Site Name	:	**NORTH HAVEN DEVINE STREET**
Carrier Site Number	:	**CT3506**
Site Location	:	**50 Devine Street** **North Haven, CT 06473-2204** **41.377800,-72.876200**
County	:	**New Haven**
Date	:	**April 29, 2019**
Max Usage	:	**60%**
Result	:	**Pass**

Prepared By:
Cole Melody Koffi
Structural Engineer I

Reviewed By:

COA: PEC.0001553

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Table of Contents

Introduction 1

Supporting Documents 1

Analysis 1

Conclusion 1

Existing and Reserved Equipment 2

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Calculations ..... Attached

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 129 ft monopole to reflect the change in loading by AT&T MOBILITY.

Supporting Documents

Tower Drawings	Sabre, FTP Job #11-05062, dated May 12, 2010
Foundation Drawing	Sabre, FTP Job #11-05062, dated May 12, 2010
Geotechnical Report	Terracon Project #J2105136, dated April 20, 2010
Modifications	TransAmerican Order #TP-12133, dated February 12, 2014

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:	97 mph (3-Second Gust, V_{ASD})/125 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:	C
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.18, 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
130.0	3	Nokia B5 RRH4x40-850	Low Profile Platform	(8) 1 5/8" Coax (4) 1 5/8" Hybriflex	VERIZON WIRELESS
	3	Alcatel-Lucent RRH2x60 700			
	3	Alcatel-Lucent PCS B25 RRH2x60/4x30			
	3	Alcatel-Lucent B66A RRH 4x45			
	3	Amphenol Antel BXA-171063-12CF			
	2	RFS DB-T1-6Z-8AB-0Z			
	3	Amphenol Antel BXA-80080-6CF-EDIN-X			
	6	Commscope JAHH-65B-R3B			
119.0	3	Ericsson Radio 4449 B12,B71	T-Arms	(2) 1 1/4" Fiber (11) 1 5/8" Coax (1) 1 5/8" Hybriflex	METRO PCS INC
	3	RFS APXVAARR24_43-U-NA20			
	3	Ericsson AIR-32 B2A/B66Aa			
117.0	3	Ericsson AIR 21, 1.3 M, B2A B4P			
107.0	3	Raycap DC6-48-60-18-8F	Platform with Handrails	(2) 0.39" Fiber Trunk (6) 0.78" 8 AWG 6 (3) 3/8" RET Control Cable	AT&T MOBILITY
	9	CCI CCI-HPA-65R-BUU-H8			
	6	Ericsson RRUS 32 B2			
	3	Ericsson RRUS 32 (50.8 lbs)			
	3	Ericsson RRUS-11 (50 lbs.)			

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
107.0	3	Ericsson RRUS-11 (50 lbs.)	-	(5) 3" conduit	AT&T MOBILITY
	3	Ericsson RRUS 32 (50.8 lbs)			
	1	Raycap DC6-48-60-18-8F			
	3	CCI CCI-HPA-65R-BUU-H8			

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
107.0	1	Raycap DC6-48-60-0-8C-EV	Platform with Handrails & SitePro1 PRK-SFS Stabilizer Kit	(1) 0.39" Fiber Trunk (2) 0.78" 8 AWG 6 (6) 2" conduit	AT&T MOBILITY
	3	Ericsson RRUS 8843 B2, B66A			
	3	Ericsson RRUS 4478 B14			
	3	Ericsson RRUS 4449 B5, B12			
	6	Ericsson RRUS A2 B2			
	3	Kathrein Scala 80010966			

[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	45%	Pass
Shaft	55%	Pass
Base Plate	32%	Pass
Flange	14%	Pass

Foundations

Reaction Component	Original Design Reactions	Analysis Reactions	% of Design
Moment (Kips-Ft)	4,535.0	2,608.9	58%
Shear (Kips)	44.0	26.5	60%

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
107.0	Raycap DC6-48-60-0-8C-EV	AT&T MOBILITY	0.955	1.036
	Ericsson RRUS 8843 B2, B66A			
	Ericsson RRUS 4478 B14			
	Ericsson RRUS 4449 B5, B12			
	Ericsson RRUS A2 B2			
	Kathrein Scala 80010966			

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

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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:

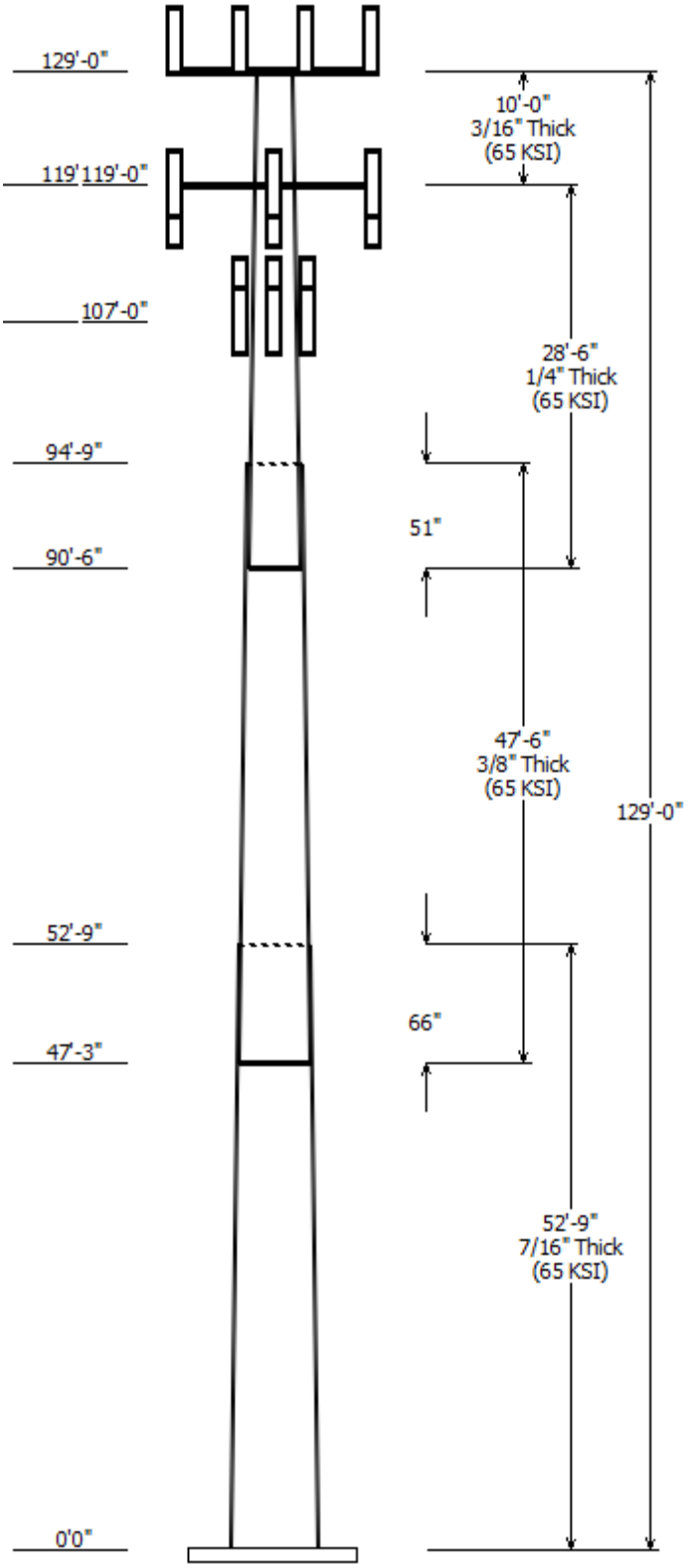
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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 :	283418	Code:	ANSI/TIA-222-G
Location :	NORTH HAVEN CT, CT		
Description :			
Client :	AT&T MOBILITY	Struct Class :	II
Shape :	18 Sides	Exposure :	C
Height :	129.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.225969 (in/ft)		

Sections Properties

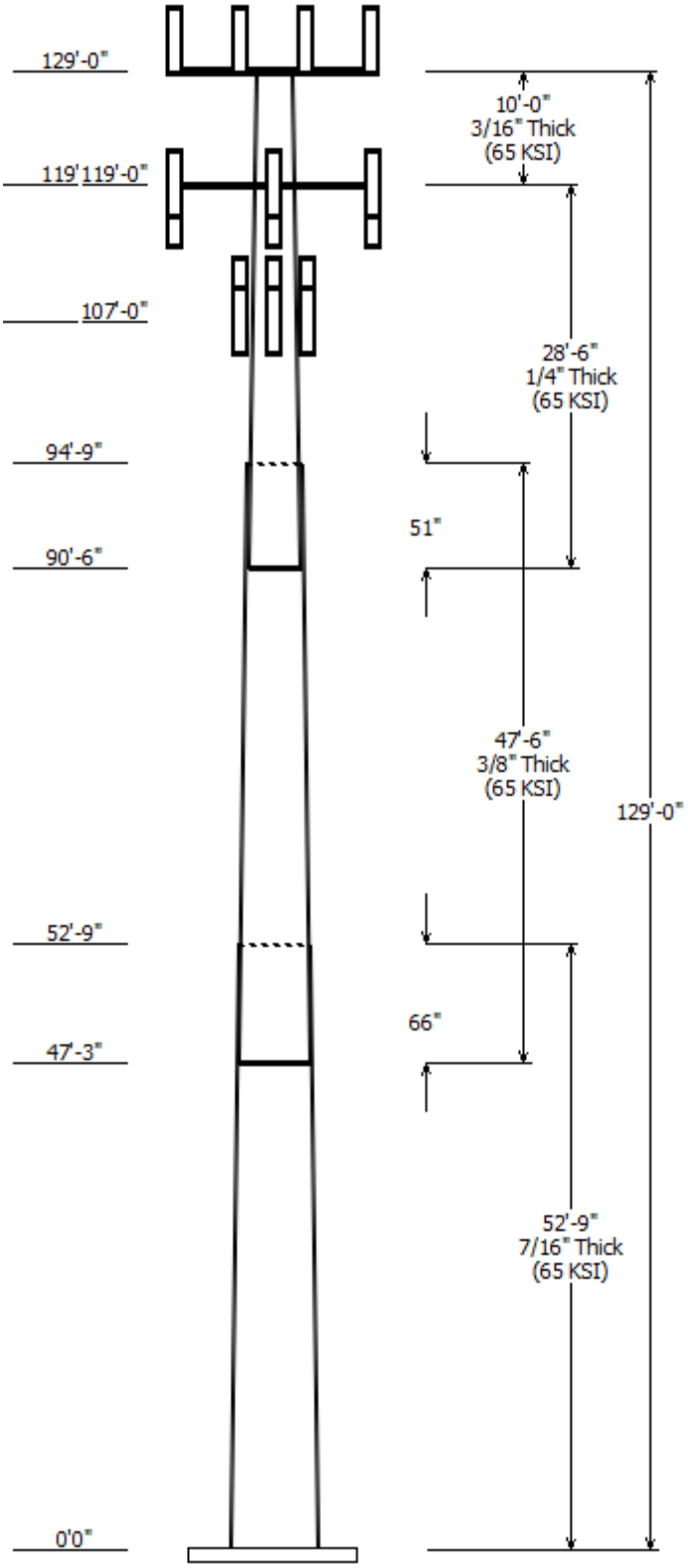
Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	52.750	36.88	48.80	0.438		0.000	18 Sides	65
2	47.500	28.13	38.87	0.375	Slip Joint	66.000	18 Sides	65
3	28.500	23.16	29.60	0.250	Slip Joint	51.000	18 Sides	65
4	10.000	20.90	23.16	0.188	Butt Joint	0.000	18 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
129.000	131.000	6	Commscope JAHH-65B-R3B
129.000	131.000	3	Amphenol Antel BXA-80080-
129.000	131.000	2	RFS DB-T1-6Z-8AB-0Z
129.000	131.000	3	Amphenol Antel BXA-171063-
129.000	131.000	3	Alcatel-Lucent B66A RRH 4x45
129.000	131.000	3	Alcatel-Lucent PCS B25
129.000	131.000	3	Alcatel-Lucent RRH2x60 700
129.000	131.000	3	Nokia B5 RRH4x40-850
129.000	129.000	1	Round Low Profile Platform
119.000	117.000	3	Ericsson AIR 21, 1.3 M, B2A B4
119.000	119.000	3	RFS APXVAARR24_43-U-NA20
119.000	119.000	3	Ericsson AIR-32 B2A/B66Aa
119.000	119.000	3	Ericsson Radio 4449 B12,B71
119.000	119.000	3	Round T-Arm
107.000	107.000	6	Ericsson RRUS A2 B2
107.000	107.000	3	Ericsson RRUS 4449 B5, B12
107.000	107.000	3	Ericsson RRUS 4478 B14
107.000	107.000	3	Ericsson RRUS 8843 B2, B66A
107.000	109.000	3	Raycap DC6-48-60-18-8F
107.000	107.000	1	Raycap DC6-48-60-0-8C-EV
107.000	107.000	1	Round Platform w/ Handrails
107.000	107.000	3	Ericsson RRUS-11 (50 lbs.)
107.000	107.000	6	Ericsson RRUS 32 B2
107.000	107.000	3	Ericsson RRUS 32 (50.8 lbs)
107.000	107.000	3	Kathrein Scala 80010966
107.000	109.000	9	CCI CCI-HPA-65R-BUU-H8

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	107.0	0.39" (10mm)	No
0.000	107.0	0.39" (10mm)	No
0.000	107.0	0.78" (19.7mm) 8	No
0.000	107.0	0.78" (19.7mm) 8	No
0.000	107.0	2" conduit	No
0.000	107.0	3/8" (0.38"-	No
0.000	119.0	1 1/4" (1.25"-	No
0.000	119.0	1 5/8" Coax	No
0.000	119.0	1 5/8" Hybriflex	No
0.000	129.0	1 5/8" Coax	No



0.000	129.0	1 5/8" Hybriflex	No

Load Cases

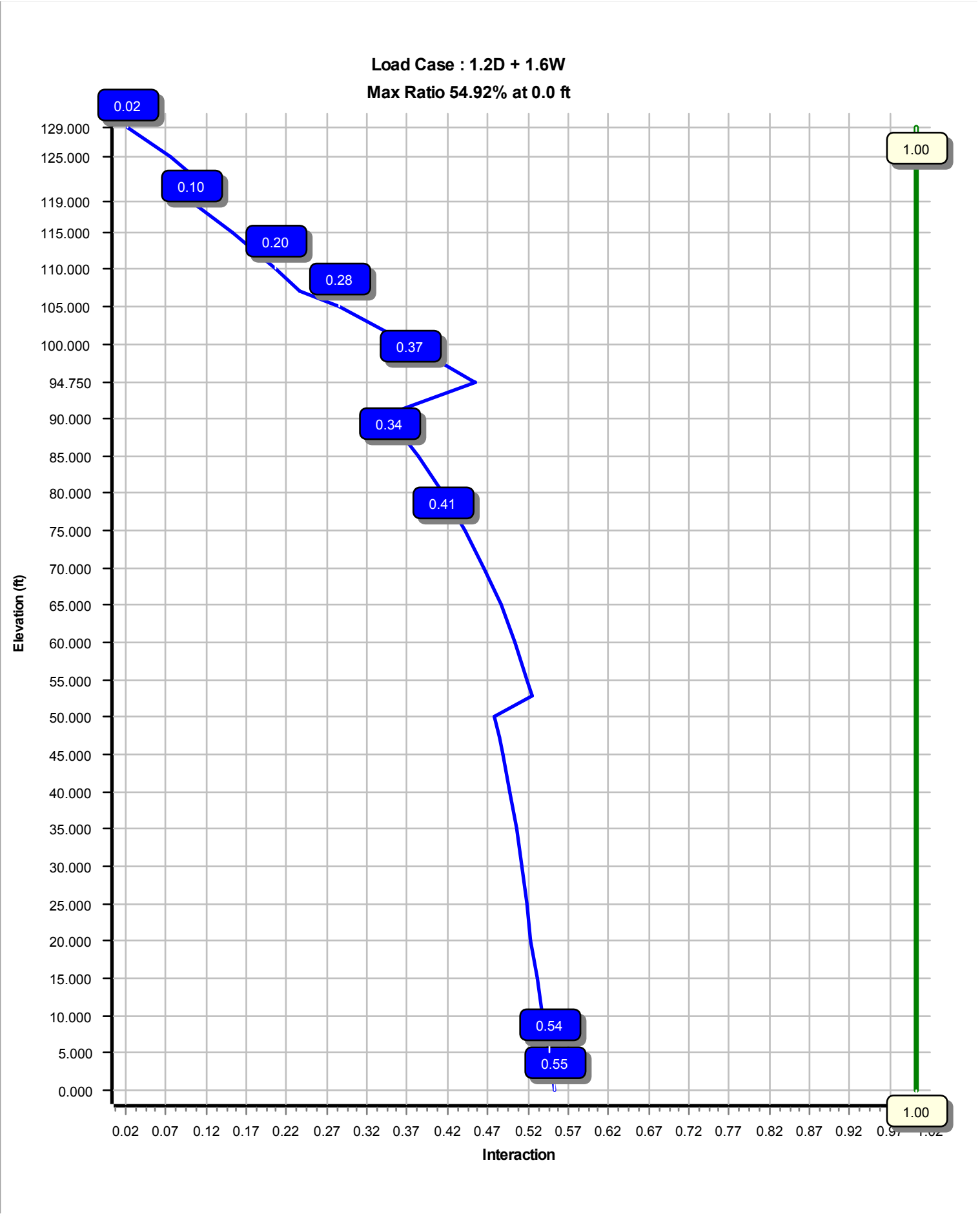
1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) 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	2608.94	26.47	41.30
0.9D + 1.6W	2584.55	26.46	30.96
1.2D + 1.0Di + 1.0Wi	706.04	7.33	58.97
(1.2 + 0.2Sds) * DL + E ELFM	121.36	1.17	40.97
(1.2 + 0.2Sds) * DL + E EMAM	181.55	1.73	40.97
(0.9 - 0.2Sds) * DL + E ELFM	120.02	1.17	28.46
(0.9 - 0.2Sds) * DL + E EMAM	179.39	1.73	28.46
1.0D + 1.0W	620.54	6.33	34.45

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000


Load Case : 1.2D + 1.6W
Max Ratio 54.92% at 0.0 ft
0.02
0.10
0.20
0.28
0.37
0.34
0.41
0.54
0.55
1.00
1.00
Elevation (ft)
129.000
125.000
119.000
115.000
110.000
105.000
100.000
94.750
90.000
85.000
80.000
75.000
70.000
65.000
60.000
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
0.02 0.07 0.12 0.17 0.22 0.27 0.32 0.37 0.42 0.47 0.52 0.57 0.62 0.67 0.72 0.77 0.82 0.87 0.92
Interaction

Site Number:	283418	Code: ANSI/TIA-222-G	
Site Name:	NORTH HAVEN CT, CT	Engineering Number:OAA747991_C3_01	4/30/2019 3:15:06 PM
Customer:	AT&T MOBILITY		

Analysis Parameters

Location :	New Haven County, CT	Height (ft) :	129
Code :	ANSI/TIA-222-G	Base Diameter (in) :	48.80
Shape :	18 Sides	Top Diameter (in) :	20.90
Pole Type :	Taper	Taper (in/ft) :	0.226
Pole Manfacturer :		Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	97 mph
Exposure Category:	C	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):	1.95				
T_L (sec):	6	p:	1	C_s:	0.034
S_s:	0.184	S_1:	0.062	C_s Max:	0.034
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.196	S_{d1}:	0.099		

Load Cases

1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 283418 Code: ANSI/TIA-222-G

Site Name: NORTH HAVEN CT, CT Engineering Number:OAA747991_C3_01 4/30/2019 3:15:06 PM

Customer: AT&T MOBILITY

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	52.750	0.4375	65		0.00	10,569	48.80	0.00	67.15	19844.9	17.90	111.54	36.88	52.75	50.60	8490.9	13.10	84.30	0.225969
2-18	47.500	0.3750	65	Slip	66.00	6,374	38.87	47.25	45.82	8580.0	16.52	103.66	28.13	94.75	33.05	3218.4	11.47	75.04	0.225969
3-18	28.500	0.2500	65	Slip	51.00	2,011	29.60	90.50	23.29	2534.5	19.11	118.40	23.16	119.00	18.18	1205.4	14.57	92.64	0.225969
4-18	10.000	0.1875	65	Butt	0.00	442	23.16	119.00	13.67	911.5	20.02	123.52	20.90	129.00	12.33	668.1	17.89	111.47	0.225969
				Shaft Weight		19,395													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor
129.00	Nokia B5 RRH4x40-850	3	0.80	2.000	48.50	1.320	0.50	89.16	2.069	0.50
129.00	Alcatel-Lucent RRH2x60 700	3	0.80	2.000	56.70	2.150	0.67	123.77	3.138	0.67
129.00	Alcatel-Lucent PCS B25	3	0.80	2.000	55.00	2.200	0.67	125.24	3.201	0.67
129.00	Alcatel-Lucent B66A RRH 4x45	3	0.80	2.000	67.00	2.580	0.67	137.10	3.692	0.67
129.00	Amphenol Antel BXA-171063-	3	0.80	2.000	12.80	4.790	0.72	107.17	7.115	0.72
129.00	RFS DB-T1-6Z-8AB-0Z	2	0.80	2.000	44.00	4.800	0.72	168.04	6.201	0.72
129.00	Amphenol Antel BXA-80080-6CF-	3	0.80	2.000	18.00	5.760	0.73	142.59	8.093	0.73
129.00	Commscope JAHH-65B-R3B	6	0.80	2.000	60.60	9.110	0.69	259.97	11.843	0.69
129.00	Round Low Profile Platform	1	1.00	0.000	1,500.00	21.700	1.00	2,138.50	40.621	1.00
119.00	Ericsson Radio 4449 B12,B71	3	0.80	0.000	74.00	1.640	0.50	128.72	2.465	0.50
119.00	Ericsson AIR 21, 1.3 M, B2A B4P	3	0.80	-2.000	83.00	6.050	0.71	225.65	8.163	0.71
119.00	Ericsson AIR-32 B2A/B66Aa	3	0.80	0.000	132.20	6.510	0.71	288.21	8.651	0.71
119.00	Round T-Arm	3	0.75	0.000	250.00	9.700	0.67	454.29	17.758	0.67
119.00	RFS APXVAARR24_43-U-NA20	3	0.80	0.000	127.90	20.240	0.63	511.64	23.865	0.63
107.00	Raycap DC6-48-60-0-8C-EV	1	0.75	0.000	16.00	1.020	1.00	59.83	1.567	1.00
107.00	Raycap DC6-48-60-18-8F	3	0.75	2.000	20.00	1.260	1.00	70.96	1.897	1.00
107.00	Ericsson RRUS 8843 B2, B66A	3	0.75	0.000	72.00	1.640	0.50	131.32	2.458	0.50
107.00	Ericsson RRUS 4478 B14	3	0.75	0.000	59.90	1.840	0.50	113.41	2.707	0.50
107.00	Ericsson RRUS 4449 B5, B12	3	0.75	0.000	71.00	1.970	0.50	133.38	2.873	0.50
107.00	Ericsson RRUS A2 B2	6	0.75	0.000	22.00	2.060	0.67	64.68	2.971	0.67
107.00	Ericsson RRUS-11 (50 lbs.)	3	0.75	0.000	50.00	2.570	0.67	115.98	3.585	0.67
107.00	Ericsson RRUS 32 (50.8 lbs)	3	0.75	0.000	50.80	2.690	0.67	120.02	3.807	0.67
107.00	Ericsson RRUS 32 B2	6	0.75	0.000	53.00	2.740	0.67	124.19	3.871	0.67
107.00	CCI CCI-HPA-65R-BUU-H8	9	0.75	2.000	68.00	12.980	0.67	316.69	16.446	0.67
107.00	Kathrein Scala 80010966	3	0.75	0.000	114.60	17.360	0.63	425.38	20.930	0.63
107.00	Round Platform w/ Handrails and	1	1.00	0.000	2,000.00	28.000	1.00	3,254.13	52.354	1.00
Totals	Num Loadings:26	86			9,119.80			21,663.79		

Linear Appurtenance Properties

Load Case Azimuth (deg) :

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax / Row	Dist Between Rows (in)	Dist Between Cols (in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	129.00	8	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
0.00	129.00	4	1 5/8" Hybriflex	1.98	1.30	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
0.00	119.00	2	1 1/4" (1.25"- 31.8mm)	1.25	1.05	N	0	0.00	0.00	0	0.00	N	METRO PCS INC
0.00	119.00	11	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	METRO PCS INC
0.00	119.00	1	1 5/8" Hybriflex	1.98	1.30	N	0	0.00	0.00	0	0.00	N	METRO PCS INC
0.00	107.00	2	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	107.00	1	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	107.00	6	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	107.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY

0.00	107.00	6	2" conduit	2.38	3.65	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	107.00	3	3/8" (0.38"- 9.5mm)	0.38	0.23	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY

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)
0.00		0.4375	48.800	67.155	19,844.9	17.90	111.54	80.3	801.0	0.0	0.0
5.00		0.4375	47.670	65.586	18,486.3	17.45	108.96	80.9	763.8	0.0	1,129.2
10.00		0.4375	46.540	64.017	17,191.1	16.99	106.38	81.4	727.5	0.0	1,102.5
15.00		0.4375	45.410	62.448	15,957.9	16.54	103.80	81.9	692.2	0.0	1,075.8
20.00		0.4375	44.281	60.879	14,785.2	16.08	101.21	82.5	657.6	0.0	1,049.1
25.00		0.4375	43.151	59.311	13,671.3	15.63	98.63	82.6	624.0	0.0	1,022.5
30.00		0.4375	42.021	57.742	12,614.9	15.17	96.05	82.6	591.3	0.0	995.8
35.00		0.4375	40.891	56.173	11,614.3	14.72	93.47	82.6	559.4	0.0	969.1
40.00		0.4375	39.761	54.604	10,668.1	14.26	90.88	82.6	528.5	0.0	942.4
45.00		0.4375	38.631	53.035	9,774.7	13.81	88.30	82.6	498.4	0.0	915.7
47.25	Bot - Section 2	0.4375	38.123	52.329	9,389.5	13.60	87.14	82.6	485.1	0.0	403.3
50.00		0.4375	37.502	51.466	8,932.7	13.35	85.72	82.6	469.2	0.0	911.0
52.75	Top - Section 1	0.3750	37.630	44.341	7,775.6	15.93	100.35	82.6	407.0	0.0	896.0
55.00		0.3750	37.122	43.736	7,461.6	15.69	98.99	82.6	395.9	0.0	337.2
60.00		0.3750	35.992	42.391	6,794.3	15.16	95.98	82.6	371.8	0.0	732.7
65.00		0.3750	34.862	41.047	6,168.0	14.63	92.97	82.6	348.5	0.0	709.8
70.00		0.3750	33.732	39.702	5,581.4	14.10	89.95	82.6	325.9	0.0	686.9
75.00		0.3750	32.602	38.357	5,033.2	13.57	86.94	82.6	304.1	0.0	664.0
80.00		0.3750	31.472	37.012	4,522.2	13.04	83.93	82.6	283.0	0.0	641.2
85.00		0.3750	30.343	35.668	4,047.0	12.50	80.91	82.6	262.7	0.0	618.3
90.00		0.3750	29.213	34.323	3,606.3	11.97	77.90	82.6	243.1	0.0	595.4
90.50	Bot - Section 3	0.3750	29.100	34.188	3,564.1	11.92	77.60	82.6	241.2	0.0	58.3
94.75	Top - Section 2	0.2500	28.639	22.526	2,293.8	18.44	114.56	79.7	157.8	0.0	817.4
95.00		0.2500	28.583	22.481	2,280.1	18.40	114.33	79.8	157.1	0.0	19.1
100.0		0.2500	27.453	21.585	2,018.1	17.60	109.81	80.7	144.8	0.0	374.9
105.0		0.2500	26.323	20.688	1,776.9	16.80	105.29	81.6	133.0	0.0	359.6
107.0		0.2500	25.871	20.330	1,686.1	16.48	103.49	82.0	128.4	0.0	139.6
110.0		0.2500	25.193	19.792	1,555.8	16.01	100.77	82.6	121.6	0.0	204.8
115.0		0.2500	24.064	18.895	1,353.8	15.21	96.25	82.6	110.8	0.0	329.1
119.0	Top - Section 3	0.2500	23.160	18.178	1,205.4	14.57	92.64	82.6	102.5	0.0	252.3
119.0	Bot - Section 4	0.1875	23.160	13.671	911.5	20.02	123.52	77.9	77.5	0.0	
120.0		0.1875	22.934	13.536	884.9	19.80	122.31	78.1	76.0	0.0	46.3
125.0		0.1875	21.804	12.864	759.4	18.74	116.29	79.4	68.6	0.0	224.6
129.0		0.1875	20.900	12.326	668.1	17.89	111.47	80.4	63.0	0.0	171.4
											19,395.2

Site Number: 283418 Code: ANSI/TIA-222-G

Site Name: NORTH HAVEN CT, CT Engineering Number:OAA747991_C3_01 4/30/2019 3:15:06 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.6W 97 mph with No Ice 22 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		227.1	0.0					0.0	0.0	227.1	0.0	0.0	0.0
5.00		448.8	1,355.1					0.0	310.0	448.8	1,665.1	0.0	0.0
10.00		438.1	1,323.0					0.0	310.0	438.1	1,633.1	0.0	0.0
15.00		434.2	1,291.0					0.0	310.0	434.2	1,601.0	0.0	0.0
20.00		441.6	1,259.0					0.0	310.0	441.6	1,569.0	0.0	0.0
25.00		451.3	1,226.9					0.0	310.0	451.3	1,537.0	0.0	0.0
30.00		456.8	1,194.9					0.0	310.0	456.8	1,504.9	0.0	0.0
35.00		459.2	1,162.9					0.0	310.0	459.2	1,472.9	0.0	0.0
40.00		459.3	1,130.8					0.0	310.0	459.3	1,440.9	0.0	0.0
45.00		332.3	1,098.8					0.0	310.0	332.3	1,408.8	0.0	0.0
47.25	Bot - Section 2	230.6	484.0					0.0	139.5	230.6	623.5	0.0	0.0
50.00		254.8	1,093.1					0.0	170.5	254.8	1,263.7	0.0	0.0
52.75	Top - Section 1	230.6	1,075.1					0.0	170.5	230.6	1,245.7	0.0	0.0
55.00		331.5	404.6					0.0	139.5	331.5	544.1	0.0	0.0
60.00		452.9	879.2					0.0	310.0	452.9	1,189.2	0.0	0.0
65.00		446.2	851.8					0.0	310.0	446.2	1,161.8	0.0	0.0
70.00		438.5	824.3					0.0	310.0	438.5	1,134.3	0.0	0.0
75.00		430.1	796.9					0.0	310.0	430.1	1,106.9	0.0	0.0
80.00		420.8	769.4					0.0	310.0	420.8	1,079.4	0.0	0.0
85.00		410.9	741.9					0.0	310.0	410.9	1,052.0	0.0	0.0
90.00		222.9	714.5					0.0	310.0	222.9	1,024.5	0.0	0.0
90.50	Bot - Section 3	190.7	69.9					0.0	31.0	190.7	100.9	0.0	0.0
94.75	Top - Section 2	180.6	980.9					0.0	263.5	180.6	1,244.4	0.0	0.0
95.00		205.2	23.0					0.0	15.5	205.2	38.5	0.0	0.0
100.00		384.8	449.8					0.0	310.0	384.8	759.9	0.0	0.0
105.00		263.5	431.5					0.0	310.0	263.5	741.6	0.0	0.0
107.00	Appurtenance(s)	183.3	167.5	7,428.7	0.0	6,388.1	5,271.5	0.0	124.0	7,612.0	5,563.0	0.0	0.0
110.00		286.2	245.7					0.0	87.0	286.2	332.8	0.0	0.0
115.00		313.8	394.9					0.0	145.1	313.8	540.0	0.0	0.0
119.00	Top - Section 3	170.4	302.8	3,624.9	0.0	-1,086.3	2,401.6	0.0	116.1	3,795.3	2,820.4	0.0	0.0
120.00		197.2	55.5					0.0	14.1	197.2	69.7	0.0	0.0
125.00		289.5	269.5					0.0	70.6	289.5	340.1	0.0	0.0
129.00	Appurtenance(s)	125.9	205.7	4,770.9	0.0	7,207.8	3,270.7	0.0	56.4	4,896.8	3,532.9	0.0	0.0
								Totals:		26,634.2	41,341.7	0.00	0.00

Site Number: 283418 Code: ANSI/TIA-222-G

Site Name: NORTH HAVEN CT, CT Engineering Number:OAA747991_C3_01 4/30/2019 3:15:09 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.6W 97 mph with No Ice 22 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	-41.30	-26.47	0.00	-2,608.94	0.00	2,608.94	4,855.79	2,427.89	9,638.20	4,826.26	0.00	0.00	0.549
5.00	-39.55	-26.15	0.00	-2,476.57	0.00	2,476.57	4,773.96	2,386.98	9,252.42	4,633.09	0.10	-0.18	0.543
10.00	-37.84	-25.83	0.00	-2,345.83	0.00	2,345.83	4,690.62	2,345.31	8,871.44	4,442.31	0.39	-0.37	0.536
15.00	-36.15	-25.50	0.00	-2,216.69	0.00	2,216.69	4,605.77	2,302.89	8,495.47	4,254.05	0.88	-0.56	0.529
20.00	-34.50	-25.16	0.00	-2,089.19	0.00	2,089.19	4,519.41	2,259.70	8,124.73	4,068.40	1.56	-0.75	0.521
25.00	-32.89	-24.80	0.00	-1,963.40	0.00	1,963.40	4,406.48	2,203.24	7,715.56	3,863.51	2.45	-0.94	0.516
30.00	-31.31	-24.42	0.00	-1,839.42	0.00	1,839.42	4,289.92	2,144.96	7,310.76	3,660.81	3.54	-1.14	0.510
35.00	-29.76	-24.04	0.00	-1,717.32	0.00	1,717.32	4,173.36	2,086.68	6,916.87	3,463.58	4.85	-1.34	0.503
40.00	-28.25	-23.64	0.00	-1,597.14	0.00	1,597.14	4,056.80	2,028.40	6,533.89	3,271.80	6.36	-1.54	0.495
45.00	-26.79	-23.34	0.00	-1,478.94	0.00	1,478.94	3,940.24	1,970.12	6,161.81	3,085.49	8.09	-1.75	0.486
47.25	-26.13	-23.14	0.00	-1,426.43	0.00	1,426.43	3,887.79	1,943.89	5,997.94	3,003.43	8.94	-1.85	0.482
50.00	-24.83	-22.89	0.00	-1,362.81	0.00	1,362.81	3,823.68	1,911.84	5,800.65	2,904.64	10.03	-1.96	0.476
52.75	-23.55	-22.66	0.00	-1,299.86	0.00	1,299.86	3,294.34	1,647.17	5,032.03	2,519.75	11.20	-2.08	0.523
55.00	-22.96	-22.37	0.00	-1,248.88	0.00	1,248.88	3,249.38	1,624.69	4,894.94	2,451.11	12.20	-2.17	0.517
60.00	-21.70	-21.96	0.00	-1,137.01	0.00	1,137.01	3,149.47	1,574.74	4,597.09	2,301.96	14.60	-2.40	0.501
65.00	-20.47	-21.54	0.00	-1,027.22	0.00	1,027.22	3,049.56	1,524.78	4,308.58	2,157.49	17.24	-2.63	0.483
70.00	-19.28	-21.13	0.00	-919.50	0.00	919.50	2,949.66	1,474.83	4,029.43	2,017.71	20.11	-2.85	0.462
75.00	-18.12	-20.71	0.00	-813.87	0.00	813.87	2,849.75	1,424.87	3,759.63	1,882.61	23.21	-3.07	0.439
80.00	-16.99	-20.29	0.00	-710.33	0.00	710.33	2,749.84	1,374.92	3,499.17	1,752.19	26.55	-3.29	0.412
85.00	-15.89	-19.88	0.00	-608.87	0.00	608.87	2,649.93	1,324.97	3,248.06	1,626.45	30.10	-3.50	0.381
90.00	-14.85	-19.62	0.00	-509.50	0.00	509.50	2,550.02	1,275.01	3,006.31	1,505.39	33.87	-3.69	0.345
90.50	-14.73	-19.44	0.00	-499.69	0.00	499.69	2,540.03	1,270.02	2,982.64	1,493.54	34.26	-3.71	0.341
94.75	-13.47	-19.20	0.00	-417.07	0.00	417.07	1,616.13	808.07	1,883.49	943.15	37.63	-3.87	0.451
95.00	-13.41	-19.02	0.00	-412.27	0.00	412.27	1,613.86	806.93	1,877.08	939.93	37.84	-3.88	0.447
100.00	-12.61	-18.63	0.00	-317.17	0.00	317.17	1,567.71	783.86	1,750.05	876.33	42.02	-4.10	0.371
105.00	-11.85	-18.34	0.00	-224.02	0.00	224.02	1,520.05	760.03	1,625.73	814.07	46.43	-4.30	0.284
107.00	-6.86	-10.34	0.00	-180.96	0.00	180.96	1,500.57	750.28	1,576.80	789.57	48.24	-4.36	0.234
110.00	-6.53	-10.04	0.00	-149.95	0.00	149.95	1,470.44	735.22	1,503.87	753.05	51.00	-4.45	0.204
115.00	-6.01	-9.69	0.00	-99.77	0.00	99.77	1,403.83	701.92	1,370.07	686.05	55.72	-4.56	0.150
119.00	-3.49	-5.68	0.00	-61.00	0.00	61.00	1,350.55	675.27	1,267.52	634.70	59.57	-4.63	0.099
119.00	-3.49	-5.68	0.00	-61.00	0.00	61.00	957.94	478.97	903.96	452.65	59.57	-4.63	0.139
120.00	-3.44	-5.48	0.00	-55.32	0.00	55.32	951.57	475.78	889.04	445.18	60.54	-4.64	0.128
125.00	-3.12	-5.17	0.00	-27.89	0.00	27.89	918.77	459.38	815.41	408.31	65.43	-4.71	0.072
129.00	0.00	-4.90	0.00	-7.21	0.00	7.21	891.44	445.72	757.79	379.46	69.39	-4.73	0.019

Site Number: 283418 Code: ANSI/TIA-222-G

Site Name: NORTH HAVEN CT, CT Engineering Number:OAA747991_C3_01 4/30/2019 3:15:09 PM

Customer: AT&T MOBILITY

Load Case: 0.9D + 1.6W — 97 mph with No Ice (Reduced DL) — 22 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		227.1	0.0					0.0	0.0	227.1	0.0	0.0	0.0
5.00		448.8	1,016.3					0.0	232.5	448.8	1,248.8	0.0	0.0
10.00		438.1	992.3					0.0	232.5	438.1	1,224.8	0.0	0.0
15.00		434.2	968.3					0.0	232.5	434.2	1,200.8	0.0	0.0
20.00		441.6	944.2					0.0	232.5	441.6	1,176.7	0.0	0.0
25.00		451.3	920.2					0.0	232.5	451.3	1,152.7	0.0	0.0
30.00		456.8	896.2					0.0	232.5	456.8	1,128.7	0.0	0.0
35.00		459.2	872.2					0.0	232.5	459.2	1,104.7	0.0	0.0
40.00		459.3	848.1					0.0	232.5	459.3	1,080.6	0.0	0.0
45.00		332.3	824.1					0.0	232.5	332.3	1,056.6	0.0	0.0
47.25	Bot - Section 2	230.6	363.0					0.0	104.6	230.6	467.6	0.0	0.0
50.00		254.8	819.9					0.0	127.9	254.8	947.7	0.0	0.0
52.75	Top - Section 1	230.6	806.4					0.0	127.9	230.6	934.2	0.0	0.0
55.00		331.5	303.5					0.0	104.6	331.5	408.1	0.0	0.0
60.00		452.9	659.4					0.0	232.5	452.9	891.9	0.0	0.0
65.00		446.2	638.8					0.0	232.5	446.2	871.3	0.0	0.0
70.00		438.5	618.2					0.0	232.5	438.5	850.7	0.0	0.0
75.00		430.1	597.6					0.0	232.5	430.1	830.2	0.0	0.0
80.00		420.8	577.0					0.0	232.5	420.8	809.6	0.0	0.0
85.00		410.9	556.5					0.0	232.5	410.9	789.0	0.0	0.0
90.00		222.9	535.9					0.0	232.5	222.9	768.4	0.0	0.0
90.50	Bot - Section 3	190.7	52.5					0.0	23.3	190.7	75.7	0.0	0.0
94.75	Top - Section 2	180.6	735.7					0.0	197.6	180.6	933.3	0.0	0.0
95.00		205.2	17.2					0.0	11.6	205.2	28.9	0.0	0.0
100.00		384.8	337.4					0.0	232.5	384.8	569.9	0.0	0.0
105.00		263.5	323.7					0.0	232.5	263.5	556.2	0.0	0.0
107.00	Appurtenance(s)	183.3	125.6	7,428.7	0.0	6,388.1	3,953.6	0.0	93.0	7,612.0	4,172.2	0.0	0.0
110.00		286.2	184.3					0.0	65.3	286.2	249.6	0.0	0.0
115.00		313.8	296.2					0.0	108.8	313.8	405.0	0.0	0.0
119.00	Top - Section 3	170.4	227.1	3,624.9	0.0	-1,086.3	1,801.2	0.0	87.0	3,795.3	2,115.3	0.0	0.0
120.00		197.2	41.7					0.0	10.6	197.2	52.2	0.0	0.0
125.00		289.5	202.1					0.0	52.9	289.5	255.0	0.0	0.0
129.00	Appurtenance(s)	125.9	154.3	4,770.9	0.0	7,207.8	2,453.0	0.0	42.3	4,896.8	2,649.7	0.0	0.0
								Totals:		26,634.2	31,006.3	0.00	0.00

Site Number: 283418 Code: ANSI/TIA-222-G

Site Name: NORTH HAVEN CT, CT Engineering Number:OAA747991_C3_01 4/30/2019 3:15:13 PM

Customer: AT&T MOBILITY

Load Case: 0.9D + 1.6W 97 mph with No Ice (Reduced DL) 22 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	-30.96	-26.46	0.00	-2,584.55	0.00	2,584.55	4,855.79	2,427.89	9,638.20	4,826.26	0.00	0.00	0.542
5.00	-29.63	-26.10	0.00	-2,452.27	0.00	2,452.27	4,773.96	2,386.98	9,252.42	4,633.09	0.10	-0.18	0.536
10.00	-28.33	-25.75	0.00	-2,321.77	0.00	2,321.77	4,690.62	2,345.31	8,871.44	4,442.31	0.38	-0.36	0.529
15.00	-27.05	-25.39	0.00	-2,193.03	0.00	2,193.03	4,605.77	2,302.89	8,495.47	4,254.05	0.87	-0.55	0.522
20.00	-25.79	-25.02	0.00	-2,066.06	0.00	2,066.06	4,519.41	2,259.70	8,124.73	4,068.40	1.55	-0.74	0.514
25.00	-24.56	-24.64	0.00	-1,940.94	0.00	1,940.94	4,406.48	2,203.24	7,715.56	3,863.51	2.42	-0.93	0.508
30.00	-23.36	-24.24	0.00	-1,817.74	0.00	1,817.74	4,289.92	2,144.96	7,310.76	3,660.81	3.51	-1.13	0.502
35.00	-22.18	-23.84	0.00	-1,696.53	0.00	1,696.53	4,173.36	2,086.68	6,916.87	3,463.58	4.80	-1.33	0.495
40.00	-21.03	-23.43	0.00	-1,577.34	0.00	1,577.34	4,056.80	2,028.40	6,533.89	3,271.80	6.29	-1.53	0.487
45.00	-19.92	-23.11	0.00	-1,460.21	0.00	1,460.21	3,940.24	1,970.12	6,161.81	3,085.49	8.00	-1.73	0.478
47.25	-19.42	-22.91	0.00	-1,408.20	0.00	1,408.20	3,887.79	1,943.89	5,997.94	3,003.43	8.84	-1.82	0.474
50.00	-18.44	-22.66	0.00	-1,345.21	0.00	1,345.21	3,823.68	1,911.84	5,800.65	2,904.64	9.93	-1.94	0.468
52.75	-17.47	-22.43	0.00	-1,282.91	0.00	1,282.91	3,294.34	1,647.17	5,032.03	2,519.75	11.08	-2.05	0.515
55.00	-17.01	-22.13	0.00	-1,232.45	0.00	1,232.45	3,249.38	1,624.69	4,894.94	2,451.11	12.07	-2.15	0.508
60.00	-16.05	-21.70	0.00	-1,121.82	0.00	1,121.82	3,149.47	1,574.74	4,597.09	2,301.96	14.44	-2.37	0.493
65.00	-15.12	-21.28	0.00	-1,013.31	0.00	1,013.31	3,049.56	1,524.78	4,308.58	2,157.49	17.04	-2.60	0.475
70.00	-14.21	-20.85	0.00	-906.92	0.00	906.92	2,949.66	1,474.83	4,029.43	2,017.71	19.88	-2.82	0.454
75.00	-13.33	-20.43	0.00	-802.65	0.00	802.65	2,849.75	1,424.87	3,759.63	1,882.61	22.95	-3.04	0.431
80.00	-12.47	-20.01	0.00	-700.49	0.00	700.49	2,749.84	1,374.92	3,499.17	1,752.19	26.25	-3.25	0.405
85.00	-11.64	-19.60	0.00	-600.42	0.00	600.42	2,649.93	1,324.97	3,248.06	1,626.45	29.76	-3.45	0.374
90.00	-10.85	-19.35	0.00	-502.44	0.00	502.44	2,550.02	1,275.01	3,006.31	1,505.39	33.48	-3.65	0.338
90.50	-10.76	-19.17	0.00	-492.76	0.00	492.76	2,540.03	1,270.02	2,982.64	1,493.54	33.86	-3.67	0.334
94.75	-9.81	-18.94	0.00	-411.30	0.00	411.30	1,616.13	808.07	1,883.49	943.15	37.19	-3.82	0.443
95.00	-9.76	-18.76	0.00	-406.56	0.00	406.56	1,613.86	806.93	1,877.08	939.93	37.39	-3.83	0.439
100.00	-9.15	-18.37	0.00	-312.79	0.00	312.79	1,567.71	783.86	1,750.05	876.33	41.53	-4.05	0.363
105.00	-8.57	-18.08	0.00	-220.96	0.00	220.96	1,520.05	760.03	1,625.73	814.07	45.87	-4.24	0.278
107.00	-4.97	-10.18	0.00	-178.41	0.00	178.41	1,500.57	750.28	1,576.80	789.57	47.67	-4.31	0.229
110.00	-4.72	-9.89	0.00	-147.86	0.00	147.86	1,470.44	735.22	1,503.87	753.05	50.40	-4.39	0.200
115.00	-4.33	-9.55	0.00	-98.42	0.00	98.42	1,403.83	701.92	1,370.07	686.05	55.05	-4.50	0.147
119.00	-2.52	-5.60	0.00	-60.21	0.00	60.21	1,350.55	675.27	1,267.52	634.70	58.85	-4.57	0.097
119.00	-2.52	-5.60	0.00	-60.21	0.00	60.21	957.94	478.97	903.96	452.65	58.85	-4.57	0.136
120.00	-2.48	-5.40	0.00	-54.61	0.00	54.61	951.57	475.78	889.04	445.18	59.81	-4.58	0.125
125.00	-2.24	-5.10	0.00	-27.59	0.00	27.59	918.77	459.38	815.41	408.31	64.64	-4.65	0.070
129.00	0.00	-4.90	0.00	-7.21	0.00	7.21	891.44	445.72	757.79	379.46	68.55	-4.67	0.019

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 21 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		72.9	0.0					0.0	0.0	72.9	0.0	0.0	0.0
5.00		144.6	1,709.5					0.0	310.0	144.6	2,019.6	0.0	0.0
10.00		141.9	1,710.6					0.0	310.0	141.9	2,020.6	0.0	0.0
15.00		141.1	1,689.8					0.0	310.0	141.1	1,999.8	0.0	0.0
20.00		144.0	1,661.9					0.0	310.0	144.0	1,971.9	0.0	0.0
25.00		147.6	1,630.2					0.0	310.0	147.6	1,940.2	0.0	0.0
30.00		149.8	1,596.2					0.0	310.0	149.8	1,906.2	0.0	0.0
35.00		151.0	1,560.5					0.0	310.0	151.0	1,870.5	0.0	0.0
40.00		151.5	1,523.7					0.0	310.0	151.5	1,833.7	0.0	0.0
45.00		109.8	1,485.9					0.0	310.0	109.8	1,795.9	0.0	0.0
47.25	Bot - Section 2	76.3	657.4					0.0	139.5	76.3	797.0	0.0	0.0
50.00		84.4	1,307.0					0.0	170.5	84.4	1,477.5	0.0	0.0
52.75	Top - Section 1	76.5	1,286.8					0.0	170.5	76.5	1,457.4	0.0	0.0
55.00		110.2	576.4					0.0	139.5	110.2	715.9	0.0	0.0
60.00		151.0	1,252.4					0.0	310.0	151.0	1,562.4	0.0	0.0
65.00		149.2	1,216.9					0.0	310.0	149.2	1,526.9	0.0	0.0
70.00		147.1	1,180.9					0.0	310.0	147.1	1,491.0	0.0	0.0
75.00		144.8	1,144.7					0.0	310.0	144.8	1,454.7	0.0	0.0
80.00		142.3	1,108.1					0.0	310.0	142.3	1,418.1	0.0	0.0
85.00		139.5	1,071.2					0.0	310.0	139.5	1,381.2	0.0	0.0
90.00		75.8	1,034.1					0.0	310.0	75.8	1,344.1	0.0	0.0
90.50	Bot - Section 3	65.0	101.9					0.0	31.0	65.0	132.9	0.0	0.0
94.75	Top - Section 2	61.6	1,249.1					0.0	263.5	61.6	1,512.7	0.0	0.0
95.00		70.3	38.8					0.0	15.5	70.3	54.3	0.0	0.0
100.00		132.1	754.7					0.0	310.0	132.1	1,064.7	0.0	0.0
105.00		90.8	726.1					0.0	310.0	90.8	1,036.1	0.0	0.0
107.00	Appurtenance(s)	63.4	283.8	1,742.6	0.0	1,355.7	9,614.2	0.0	124.0	1,806.1	10,022.0	0.0	0.0
110.00		99.5	416.4					0.0	87.0	99.5	503.4	0.0	0.0
115.00		109.5	668.4					0.0	145.1	109.5	813.5	0.0	0.0
119.00	Top - Section 3	59.7	514.7	829.0	0.0	-243.4	4,426.6	0.0	116.1	888.7	5,057.4	0.0	0.0
120.00		69.5	108.2					0.0	14.1	69.5	122.3	0.0	0.0
125.00		102.4	521.2					0.0	70.6	102.4	591.8	0.0	0.0
129.00	Appurtenance(s)	44.7	400.1	1,182.2	0.0	1,638.8	5,625.6	0.0	56.4	1,226.9	6,082.1	0.0	0.0
								Totals:		7,373.77	58,977.5	0.00	0.00

Site Number: 283418 Code: ANSI/TIA-222-G

Site Name: NORTH HAVEN CT, CT Engineering Number:OAA747991_C3_01 4/30/2019 3:15:16 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 21 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	-58.97	-7.33	0.00	-706.04	0.00	706.04	4,855.79	2,427.89	9,638.20	4,826.26	0.00	0.00	0.158
5.00	-56.95	-7.23	0.00	-669.41	0.00	669.41	4,773.96	2,386.98	9,252.42	4,633.09	0.03	-0.05	0.156
10.00	-54.92	-7.13	0.00	-633.26	0.00	633.26	4,690.62	2,345.31	8,871.44	4,442.31	0.11	-0.10	0.154
15.00	-52.92	-7.04	0.00	-597.59	0.00	597.59	4,605.77	2,302.89	8,495.47	4,254.05	0.24	-0.15	0.152
20.00	-50.94	-6.93	0.00	-562.41	0.00	562.41	4,519.41	2,259.70	8,124.73	4,068.40	0.42	-0.20	0.150
25.00	-48.99	-6.82	0.00	-527.75	0.00	527.75	4,406.48	2,203.24	7,715.56	3,863.51	0.66	-0.25	0.148
30.00	-47.08	-6.71	0.00	-493.64	0.00	493.64	4,289.92	2,144.96	7,310.76	3,660.81	0.96	-0.31	0.146
35.00	-45.20	-6.59	0.00	-460.10	0.00	460.10	4,173.36	2,086.68	6,916.87	3,463.58	1.31	-0.36	0.144
40.00	-43.37	-6.47	0.00	-427.17	0.00	427.17	4,056.80	2,028.40	6,533.89	3,271.80	1.72	-0.42	0.141
45.00	-41.57	-6.37	0.00	-394.84	0.00	394.84	3,940.24	1,970.12	6,161.81	3,085.49	2.18	-0.47	0.139
47.25	-40.77	-6.31	0.00	-380.51	0.00	380.51	3,887.79	1,943.89	5,997.94	3,003.43	2.41	-0.50	0.137
50.00	-39.29	-6.23	0.00	-363.16	0.00	363.16	3,823.68	1,911.84	5,800.65	2,904.64	2.70	-0.53	0.135
52.75	-37.83	-6.16	0.00	-346.03	0.00	346.03	3,294.34	1,647.17	5,032.03	2,519.75	3.02	-0.56	0.149
55.00	-37.11	-6.07	0.00	-332.17	0.00	332.17	3,249.38	1,624.69	4,894.94	2,451.11	3.29	-0.58	0.147
60.00	-35.54	-5.94	0.00	-301.82	0.00	301.82	3,149.47	1,574.74	4,597.09	2,301.96	3.93	-0.64	0.142
65.00	-34.01	-5.81	0.00	-272.12	0.00	272.12	3,049.56	1,524.78	4,308.58	2,157.49	4.64	-0.70	0.137
70.00	-32.52	-5.68	0.00	-243.08	0.00	243.08	2,949.66	1,474.83	4,029.43	2,017.71	5.41	-0.76	0.132
75.00	-31.06	-5.54	0.00	-214.70	0.00	214.70	2,849.75	1,424.87	3,759.63	1,882.61	6.24	-0.82	0.125
80.00	-29.64	-5.41	0.00	-187.00	0.00	187.00	2,749.84	1,374.92	3,499.17	1,752.19	7.13	-0.88	0.118
85.00	-28.25	-5.27	0.00	-159.96	0.00	159.96	2,649.93	1,324.97	3,248.06	1,626.45	8.08	-0.93	0.109
90.00	-26.91	-5.19	0.00	-133.60	0.00	133.60	2,550.02	1,275.01	3,006.31	1,505.39	9.08	-0.98	0.099
90.50	-26.77	-5.13	0.00	-131.01	0.00	131.01	2,540.03	1,270.02	2,982.64	1,493.54	9.19	-0.99	0.098
94.75	-25.26	-5.05	0.00	-109.20	0.00	109.20	1,616.13	808.07	1,883.49	943.15	10.09	-1.03	0.131
95.00	-25.20	-4.99	0.00	-107.94	0.00	107.94	1,613.86	806.93	1,877.08	939.93	10.14	-1.03	0.130
100.00	-24.14	-4.87	0.00	-82.97	0.00	82.97	1,567.71	783.86	1,750.05	876.33	11.26	-1.09	0.110
105.00	-23.10	-4.77	0.00	-58.64	0.00	58.64	1,520.05	760.03	1,625.73	814.07	12.43	-1.14	0.087
107.00	-13.12	-2.77	0.00	-47.75	0.00	47.75	1,500.57	750.28	1,576.80	789.57	12.91	-1.16	0.069
110.00	-12.61	-2.66	0.00	-39.45	0.00	39.45	1,470.44	735.22	1,503.87	753.05	13.65	-1.18	0.061
115.00	-11.80	-2.54	0.00	-26.15	0.00	26.15	1,403.83	701.92	1,370.07	686.05	14.90	-1.21	0.047
119.00	-6.76	-1.54	0.00	-15.99	0.00	15.99	1,350.55	675.27	1,267.52	634.70	15.93	-1.23	0.030
119.00	-6.76	-1.54	0.00	-15.99	0.00	15.99	957.94	478.97	903.96	452.65	15.93	-1.23	0.042
120.00	-6.64	-1.47	0.00	-14.45	0.00	14.45	951.57	475.78	889.04	445.18	16.18	-1.23	0.039
125.00	-6.05	-1.36	0.00	-7.08	0.00	7.08	918.77	459.38	815.41	408.31	17.49	-1.25	0.024
129.00	0.00	-1.23	0.00	-1.64	0.00	1.64	891.44	445.72	757.79	379.46	18.54	-1.26	0.004

Site Number: 283418 Code: ANSI/TIA-222-G

Site Name: NORTH HAVEN CT, CT Engineering Number:OAA747991_C3_01 4/30/2019 3:15:16 PM

Customer: AT&T MOBILITY

Load Case: 1.0D + 1.0W Serviceability 60 mph 21 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

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		54.3	0.0					0.0	0.0	54.3	0.0	0.0	0.0
5.00		107.3	1,129.2					0.0	258.3	107.3	1,387.6	0.0	0.0
10.00		104.8	1,102.5					0.0	258.3	104.8	1,360.9	0.0	0.0
15.00		103.8	1,075.8					0.0	258.3	103.8	1,334.2	0.0	0.0
20.00		105.6	1,049.1					0.0	258.3	105.6	1,307.5	0.0	0.0
25.00		107.9	1,022.5					0.0	258.3	107.9	1,280.8	0.0	0.0
30.00		109.2	995.8					0.0	258.3	109.2	1,254.1	0.0	0.0
35.00		109.8	969.1					0.0	258.3	109.8	1,227.4	0.0	0.0
40.00		109.8	942.4					0.0	258.3	109.8	1,200.7	0.0	0.0
45.00		79.5	915.7					0.0	258.3	79.5	1,174.0	0.0	0.0
47.25	Bot - Section 2	55.1	403.3					0.0	116.3	55.1	519.6	0.0	0.0
50.00		60.9	911.0					0.0	142.1	60.9	1,053.0	0.0	0.0
52.75	Top - Section 1	55.1	896.0					0.0	142.1	55.1	1,038.0	0.0	0.0
55.00		79.3	337.2					0.0	116.3	79.3	453.4	0.0	0.0
60.00		108.3	732.7					0.0	258.3	108.3	991.0	0.0	0.0
65.00		106.7	709.8					0.0	258.3	106.7	968.2	0.0	0.0
70.00		104.9	686.9					0.0	258.3	104.9	945.3	0.0	0.0
75.00		102.8	664.0					0.0	258.3	102.8	922.4	0.0	0.0
80.00		100.6	641.2					0.0	258.3	100.6	899.5	0.0	0.0
85.00		98.3	618.3					0.0	258.3	98.3	876.6	0.0	0.0
90.00		53.3	595.4					0.0	258.3	53.3	853.8	0.0	0.0
90.50	Bot - Section 3	45.6	58.3					0.0	25.8	45.6	84.1	0.0	0.0
94.75	Top - Section 2	43.2	817.4					0.0	219.6	43.2	1,037.0	0.0	0.0
95.00		49.1	19.1					0.0	12.9	49.1	32.1	0.0	0.0
100.00		92.0	374.9					0.0	258.3	92.0	633.2	0.0	0.0
105.00		63.0	359.6					0.0	258.3	63.0	618.0	0.0	0.0
107.00	Appurtenance(s)	43.8	139.6	1,776.4	0.0	1,527.6	4,392.9	0.0	103.3	1,820.3	4,635.8	0.0	0.0
110.00		68.4	204.8					0.0	72.5	68.4	277.3	0.0	0.0
115.00		75.0	329.1					0.0	120.9	75.0	450.0	0.0	0.0
119.00	Top - Section 3	40.7	252.3	866.8	0.0	-259.8	2,001.3	0.0	96.7	907.6	2,350.3	0.0	0.0
120.00		47.1	46.3					0.0	11.8	47.1	58.1	0.0	0.0
125.00		69.2	224.6					0.0	58.8	69.2	283.4	0.0	0.0
129.00	Appurtenance(s)	30.1	171.4	1,140.9	0.0	1,723.6	2,725.6	0.0	47.0	1,171.0	2,944.1	0.0	0.0
								Totals:		6,369.11	34,451.4	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 21 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	-34.45	-6.33	0.00	-620.54	0.00	620.54	4,855.79	2,427.89	9,638.20	4,826.26	0.00	0.00	0.136
5.00	-33.06	-6.25	0.00	-588.91	0.00	588.91	4,773.96	2,386.98	9,252.42	4,633.09	0.02	-0.04	0.134
10.00	-31.69	-6.16	0.00	-557.68	0.00	557.68	4,690.62	2,345.31	8,871.44	4,442.31	0.09	-0.09	0.132
15.00	-30.35	-6.08	0.00	-526.86	0.00	526.86	4,605.77	2,302.89	8,495.47	4,254.05	0.21	-0.13	0.130
20.00	-29.04	-6.00	0.00	-496.46	0.00	496.46	4,519.41	2,259.70	8,124.73	4,068.40	0.37	-0.18	0.128
25.00	-27.76	-5.91	0.00	-466.48	0.00	466.48	4,406.48	2,203.24	7,715.56	3,863.51	0.58	-0.22	0.127
30.00	-26.50	-5.81	0.00	-436.96	0.00	436.96	4,289.92	2,144.96	7,310.76	3,660.81	0.84	-0.27	0.126
35.00	-25.27	-5.72	0.00	-407.89	0.00	407.89	4,173.36	2,086.68	6,916.87	3,463.58	1.15	-0.32	0.124
40.00	-24.06	-5.62	0.00	-379.31	0.00	379.31	4,056.80	2,028.40	6,533.89	3,271.80	1.51	-0.37	0.122
45.00	-22.88	-5.55	0.00	-351.20	0.00	351.20	3,940.24	1,970.12	6,161.81	3,085.49	1.92	-0.42	0.120
47.25	-22.36	-5.50	0.00	-338.72	0.00	338.72	3,887.79	1,943.89	5,997.94	3,003.43	2.12	-0.44	0.119
50.00	-21.31	-5.44	0.00	-323.60	0.00	323.60	3,823.68	1,911.84	5,800.65	2,904.64	2.39	-0.47	0.117
52.75	-20.27	-5.38	0.00	-308.64	0.00	308.64	3,294.34	1,647.17	5,032.03	2,519.75	2.66	-0.49	0.129
55.00	-19.81	-5.31	0.00	-296.53	0.00	296.53	3,249.38	1,624.69	4,894.94	2,451.11	2.90	-0.52	0.127
60.00	-18.82	-5.21	0.00	-269.95	0.00	269.95	3,149.47	1,574.74	4,597.09	2,301.96	3.47	-0.57	0.123
65.00	-17.84	-5.11	0.00	-243.88	0.00	243.88	3,049.56	1,524.78	4,308.58	2,157.49	4.10	-0.62	0.119
70.00	-16.90	-5.01	0.00	-218.31	0.00	218.31	2,949.66	1,474.83	4,029.43	2,017.71	4.78	-0.68	0.114
75.00	-15.97	-4.91	0.00	-193.24	0.00	193.24	2,849.75	1,424.87	3,759.63	1,882.61	5.52	-0.73	0.108
80.00	-15.07	-4.82	0.00	-168.66	0.00	168.66	2,749.84	1,374.92	3,499.17	1,752.19	6.31	-0.78	0.102
85.00	-14.19	-4.72	0.00	-144.58	0.00	144.58	2,649.93	1,324.97	3,248.06	1,626.45	7.15	-0.83	0.094
90.00	-13.33	-4.66	0.00	-121.00	0.00	121.00	2,550.02	1,275.01	3,006.31	1,505.39	8.05	-0.88	0.086
90.50	-13.25	-4.61	0.00	-118.67	0.00	118.67	2,540.03	1,270.02	2,982.64	1,493.54	8.14	-0.88	0.085
94.75	-12.21	-4.56	0.00	-99.06	0.00	99.06	1,616.13	808.07	1,883.49	943.15	8.94	-0.92	0.113
95.00	-12.18	-4.52	0.00	-97.92	0.00	97.92	1,613.86	806.93	1,877.08	939.93	8.99	-0.92	0.112
100.00	-11.54	-4.42	0.00	-75.34	0.00	75.34	1,567.71	783.86	1,750.05	876.33	9.99	-0.97	0.093
105.00	-10.92	-4.36	0.00	-53.22	0.00	53.22	1,520.05	760.03	1,625.73	814.07	11.03	-1.02	0.073
107.00	-6.32	-2.45	0.00	-42.99	0.00	42.99	1,500.57	750.28	1,576.80	789.57	11.47	-1.04	0.059
110.00	-6.04	-2.38	0.00	-35.62	0.00	35.62	1,470.44	735.22	1,503.87	753.05	12.12	-1.06	0.051
115.00	-5.59	-2.30	0.00	-23.71	0.00	23.71	1,403.83	701.92	1,370.07	686.05	13.24	-1.08	0.039
119.00	-3.26	-1.35	0.00	-14.50	0.00	14.50	1,350.55	675.27	1,267.52	634.70	14.16	-1.10	0.025
119.00	-3.26	-1.35	0.00	-14.50	0.00	14.50	957.94	478.97	903.96	452.65	14.16	-1.10	0.035
120.00	-3.20	-1.30	0.00	-13.15	0.00	13.15	951.57	475.78	889.04	445.18	14.39	-1.10	0.033
125.00	-2.92	-1.23	0.00	-6.64	0.00	6.64	918.77	459.38	815.41	408.31	15.55	-1.12	0.019
129.00	0.00	-1.17	0.00	-1.72	0.00	1.72	891.44	445.72	757.79	379.46	16.49	-1.12	0.005

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.18	
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}):	0.20	
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):	1.95	
Redundancy Factor (p):	1.00	
Seismic Force Distribution Exponent (k):	1.73	
Total Unfactored Dead Load:	34.45	k
Seismic Base Shear (E):	1.17	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)
32	127.00	218	930	0.015	17	271
31	122.50	283	1,134	0.018	21	351
30	119.50	58	223	0.004	4	72
29	117.00	349	1,290	0.021	24	433
28	112.50	450	1,555	0.025	29	558
27	108.50	277	900	0.014	17	344
26	106.00	243	757	0.012	14	301
25	102.50	618	1,818	0.029	34	766
24	97.50	633	1,709	0.027	32	785
23	94.88	32	83	0.001	2	40
22	92.63	1,037	2,562	0.041	48	1,285
21	90.25	84	199	0.003	4	104
20	87.50	854	1,912	0.031	36	1,058
19	82.50	877	1,774	0.028	33	1,086
18	77.50	900	1,634	0.026	31	1,115
17	72.50	922	1,493	0.024	28	1,143
16	67.50	945	1,353	0.022	25	1,171
15	62.50	968	1,213	0.019	23	1,200
14	57.50	991	1,076	0.017	20	1,228
13	53.88	453	440	0.007	8	562
12	51.38	1,038	928	0.015	17	1,286
11	48.63	1,053	856	0.014	16	1,305
10	46.13	520	386	0.006	7	644

9	42.50	1,174	756	0.012	14	1,455
8	37.50	1,201	623	0.010	12	1,488
7	32.50	1,227	498	0.008	9	1,521
6	27.50	1,254	381	0.006	7	1,554
5	22.50	1,281	275	0.004	5	1,587
4	17.50	1,307	182	0.003	3	1,620
3	12.50	1,334	104	0.002	2	1,653
2	7.50	1,361	44	0.001	1	1,686
1	2.50	1,388	7	0.000	0	1,720
Nokia B5 RRH4x40-850	129.00	146	636	0.010	12	180
Alcatel-Lucent RRH2x	129.00	170	744	0.012	14	211
Alcatel-Lucent PCS B	129.00	165	722	0.012	13	204
Alcatel-Lucent B66A	129.00	201	879	0.014	16	249
Amphenol Antel BXA-1	129.00	38	168	0.003	3	48
RFS DB-T1-6Z-8AB-0Z	129.00	88	385	0.006	7	109
Amphenol Antel BXA-8	129.00	54	236	0.004	4	67
Commscope JAHH-65B-R	129.00	364	1,591	0.025	30	451
Round Low Profile Pl	129.00	1,500	6,562	0.105	123	1,859
Ericsson Radio 4449	119.00	222	845	0.014	16	275
Ericsson AIR 21, 1.3	119.00	249	948	0.015	18	309
Ericsson AIR-32 B2A/	119.00	397	1,509	0.024	28	491
Round T-Arm	119.00	750	2,854	0.046	53	929
RFS APXVAARR24_43-U-	119.00	384	1,460	0.023	27	476
Raycap DC6-48-60-0-8	107.00	16	51	0.001	1	20
Raycap DC6-48-60-18-	107.00	60	190	0.003	4	74
Ericsson RRUS 8843 B	107.00	216	684	0.011	13	268
Ericsson RRUS 4478 B	107.00	180	569	0.009	11	223
Ericsson RRUS 4449 B	107.00	213	675	0.011	13	264
Ericsson RRUS A2 B2	107.00	132	418	0.007	8	164
Ericsson RRUS-11 (50	107.00	150	475	0.008	9	186
Ericsson RRUS 32 (50	107.00	152	483	0.008	9	189
Ericsson RRUS 32 B2	107.00	318	1,008	0.016	19	394
CCI CCI-HPA-65R-BUU-	107.00	612	1,939	0.031	36	758
Kathrein Scala 80010	107.00	344	1,089	0.017	20	426
Round Platform w/ Ha	107.00	2,000	6,337	0.101	118	2,479
		34,451	62,551	1.000	1,168	42,694

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)
32	127.00	218	930	0.015	17	188
31	122.50	283	1,134	0.018	21	244
30	119.50	58	223	0.004	4	50
29	117.00	349	1,290	0.021	24	300
28	112.50	450	1,555	0.025	29	387
27	108.50	277	900	0.014	17	239
26	106.00	243	757	0.012	14	209
25	102.50	618	1,818	0.029	34	532
24	97.50	633	1,709	0.027	32	545
23	94.88	32	83	0.001	2	28
22	92.63	1,037	2,562	0.041	48	893
21	90.25	84	199	0.003	4	72
20	87.50	854	1,912	0.031	36	735
19	82.50	877	1,774	0.028	33	755
18	77.50	900	1,634	0.026	31	774
17	72.50	922	1,493	0.024	28	794
16	67.50	945	1,353	0.022	25	814
15	62.50	968	1,213	0.019	23	833
14	57.50	991	1,076	0.017	20	853

13	53.88	453	440	0.007	8	390
12	51.38	1,038	928	0.015	17	893
11	48.63	1,053	856	0.014	16	906
10	46.13	520	386	0.006	7	447
9	42.50	1,174	756	0.012	14	1,011
8	37.50	1,201	623	0.010	12	1,034
7	32.50	1,227	498	0.008	9	1,056
6	27.50	1,254	381	0.006	7	1,079
5	22.50	1,281	275	0.004	5	1,102
4	17.50	1,307	182	0.003	3	1,125
3	12.50	1,334	104	0.002	2	1,148
2	7.50	1,361	44	0.001	1	1,171
1	2.50	1,388	7	0.000	0	1,194
Nokia B5 RRH4x40-850	129.00	146	636	0.010	12	125
Alcatel-Lucent RRH2x	129.00	170	744	0.012	14	146
Alcatel-Lucent PCS B	129.00	165	722	0.012	13	142
Alcatel-Lucent B66A	129.00	201	879	0.014	16	173
Amphenol Antel BXA-1	129.00	38	168	0.003	3	33
RFS DB-T1-6Z-8AB-0Z	129.00	88	385	0.006	7	76
Amphenol Antel BXA-8	129.00	54	236	0.004	4	46
Commscope JAHH-65B-R	129.00	364	1,591	0.025	30	313
Round Low Profile Pl	129.00	1,500	6,562	0.105	123	1,291
Ericsson Radio 4449	119.00	222	845	0.014	16	191
Ericsson AIR 21, 1.3	119.00	249	948	0.015	18	214
Ericsson AIR-32 B2A/	119.00	397	1,509	0.024	28	341
Round T-Arm	119.00	750	2,854	0.046	53	646
RFS APXVAARR24_43-U-	119.00	384	1,460	0.023	27	330
Raycap DC6-48-60-0-8	107.00	16	51	0.001	1	14
Raycap DC6-48-60-18-	107.00	60	190	0.003	4	52
Ericsson RRUS 8843 B	107.00	216	684	0.011	13	186
Ericsson RRUS 4478 B	107.00	180	569	0.009	11	155
Ericsson RRUS 4449 B	107.00	213	675	0.011	13	183
Ericsson RRUS A2 B2	107.00	132	418	0.007	8	114
Ericsson RRUS-11 (50	107.00	150	475	0.008	9	129
Ericsson RRUS 32 (50	107.00	152	483	0.008	9	131
Ericsson RRUS 32 B2	107.00	318	1,008	0.016	19	274
CCI CCI-HPA-65R-BUU-	107.00	612	1,939	0.031	36	527
Kathrein Scala 80010	107.00	344	1,089	0.017	20	296
Round Platform w/ Ha	107.00	2,000	6,337	0.101	118	1,721
		34,451	62,551	1.000	1,168	29,654

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	-40.97	-1.17	0.00	-121.36	0.00	121.36	4,855.79	2,427.89	9,638.20	4,826.26	0.00	0.00	0.034
5.00	-39.29	-1.18	0.00	-115.51	0.00	115.51	4,773.96	2,386.98	9,252.42	4,633.09	0.00	-0.01	0.033
10.00	-37.63	-1.18	0.00	-109.63	0.00	109.63	4,690.62	2,345.31	8,871.44	4,442.31	0.02	-0.02	0.033
15.00	-36.01	-1.18	0.00	-103.74	0.00	103.74	4,605.77	2,302.89	8,495.47	4,254.05	0.04	-0.03	0.032
20.00	-34.43	-1.18	0.00	-97.84	0.00	97.84	4,519.41	2,259.70	8,124.73	4,068.40	0.07	-0.03	0.032
25.00	-32.87	-1.18	0.00	-91.94	0.00	91.94	4,406.48	2,203.24	7,715.56	3,863.51	0.11	-0.04	0.031
30.00	-31.35	-1.17	0.00	-86.06	0.00	86.06	4,289.92	2,144.96	7,310.76	3,660.81	0.17	-0.05	0.031
35.00	-29.86	-1.16	0.00	-80.20	0.00	80.20	4,173.36	2,086.68	6,916.87	3,463.58	0.23	-0.06	0.030
40.00	-28.41	-1.15	0.00	-74.39	0.00	74.39	4,056.80	2,028.40	6,533.89	3,271.80	0.30	-0.07	0.030
45.00	-27.76	-1.15	0.00	-68.63	0.00	68.63	3,940.24	1,970.12	6,161.81	3,085.49	0.38	-0.08	0.029
47.25	-26.46	-1.13	0.00	-66.04	0.00	66.04	3,887.79	1,943.89	5,997.94	3,003.43	0.42	-0.09	0.029
50.00	-25.17	-1.11	0.00	-62.93	0.00	62.93	3,823.68	1,911.84	5,800.65	2,904.64	0.47	-0.09	0.028
52.75	-24.61	-1.11	0.00	-59.87	0.00	59.87	3,294.34	1,647.17	5,032.03	2,519.75	0.52	-0.10	0.031
55.00	-23.38	-1.09	0.00	-57.38	0.00	57.38	3,249.38	1,624.69	4,894.94	2,451.11	0.57	-0.10	0.031
60.00	-22.18	-1.07	0.00	-51.93	0.00	51.93	3,149.47	1,574.74	4,597.09	2,301.96	0.68	-0.11	0.030
65.00	-21.01	-1.04	0.00	-46.60	0.00	46.60	3,049.56	1,524.78	4,308.58	2,157.49	0.80	-0.12	0.028
70.00	-19.87	-1.02	0.00	-41.38	0.00	41.38	2,949.66	1,474.83	4,029.43	2,017.71	0.94	-0.13	0.027
75.00	-18.75	-0.99	0.00	-36.29	0.00	36.29	2,849.75	1,424.87	3,759.63	1,882.61	1.08	-0.14	0.026
80.00	-17.67	-0.95	0.00	-31.36	0.00	31.36	2,749.84	1,374.92	3,499.17	1,752.19	1.24	-0.15	0.024
85.00	-16.61	-0.92	0.00	-26.59	0.00	26.59	2,649.93	1,324.97	3,248.06	1,626.45	1.40	-0.16	0.023
90.00	-16.50	-0.92	0.00	-22.00	0.00	22.00	2,550.02	1,275.01	3,006.31	1,505.39	1.57	-0.17	0.021
90.50	-15.22	-0.86	0.00	-21.54	0.00	21.54	2,540.03	1,270.02	2,982.64	1,493.54	1.59	-0.17	0.020
94.75	-15.18	-0.86	0.00	-17.87	0.00	17.87	1,616.13	808.07	1,883.49	943.15	1.74	-0.18	0.028
95.00	-14.39	-0.83	0.00	-17.65	0.00	17.65	1,613.86	806.93	1,877.08	939.93	1.75	-0.18	0.028
100.00	-13.63	-0.80	0.00	-13.50	0.00	13.50	1,567.71	783.86	1,750.05	876.33	1.94	-0.19	0.024
105.00	-13.33	-0.78	0.00	-9.51	0.00	9.51	1,520.05	760.03	1,625.73	814.07	2.15	-0.20	0.020
107.00	-7.54	-0.49	0.00	-7.95	0.00	7.95	1,500.57	750.28	1,576.80	789.57	2.23	-0.20	0.015
110.00	-6.98	-0.46	0.00	-6.49	0.00	6.49	1,470.44	735.22	1,503.87	753.05	2.35	-0.20	0.013
115.00	-6.55	-0.43	0.00	-4.21	0.00	4.21	1,403.83	701.92	1,370.07	686.05	2.57	-0.21	0.011
119.00	-4.00	-0.28	0.00	-2.48	0.00	2.48	1,350.55	675.27	1,267.52	634.70	2.74	-0.21	0.007
119.00	-4.00	-0.28	0.00	-2.48	0.00	2.48	957.94	478.97	903.96	452.65	2.74	-0.21	0.010
120.00	-3.65	-0.25	0.00	-2.21	0.00	2.21	951.57	475.78	889.04	445.18	2.79	-0.21	0.009
125.00	-3.38	-0.24	0.00	-0.94	0.00	0.94	918.77	459.38	815.41	408.31	3.01	-0.21	0.006
129.00	0.00	-0.22	0.00	0.00	0.00	0.00	891.44	445.72	757.79	379.46	3.18	-0.21	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	-28.46	-1.17	0.00	-120.02	0.00	120.02	4,855.79	2,427.89	9,638.20	4,826.26	0.00	0.00	0.031
5.00	-27.29	-1.17	0.00	-114.17	0.00	114.17	4,773.96	2,386.98	9,252.42	4,633.09	0.00	-0.01	0.030
10.00	-26.14	-1.17	0.00	-108.31	0.00	108.31	4,690.62	2,345.31	8,871.44	4,442.31	0.02	-0.02	0.030
15.00	-25.01	-1.17	0.00	-102.44	0.00	102.44	4,605.77	2,302.89	8,495.47	4,254.05	0.04	-0.03	0.030
20.00	-23.91	-1.17	0.00	-96.57	0.00	96.57	4,519.41	2,259.70	8,124.73	4,068.40	0.07	-0.03	0.029
25.00	-22.83	-1.17	0.00	-90.71	0.00	90.71	4,406.48	2,203.24	7,715.56	3,863.51	0.11	-0.04	0.029
30.00	-21.77	-1.16	0.00	-84.87	0.00	84.87	4,289.92	2,144.96	7,310.76	3,660.81	0.16	-0.05	0.028
35.00	-20.74	-1.15	0.00	-79.06	0.00	79.06	4,173.36	2,086.68	6,916.87	3,463.58	0.22	-0.06	0.028
40.00	-19.73	-1.14	0.00	-73.30	0.00	73.30	4,056.80	2,028.40	6,533.89	3,271.80	0.29	-0.07	0.027
45.00	-19.28	-1.13	0.00	-67.60	0.00	67.60	3,940.24	1,970.12	6,161.81	3,085.49	0.37	-0.08	0.027
47.25	-18.38	-1.12	0.00	-65.05	0.00	65.05	3,887.79	1,943.89	5,997.94	3,003.43	0.41	-0.08	0.026
50.00	-17.48	-1.10	0.00	-61.97	0.00	61.97	3,823.68	1,911.84	5,800.65	2,904.64	0.46	-0.09	0.026
52.75	-17.09	-1.09	0.00	-58.94	0.00	58.94	3,294.34	1,647.17	5,032.03	2,519.75	0.52	-0.10	0.029
55.00	-16.24	-1.07	0.00	-56.48	0.00	56.48	3,249.38	1,624.69	4,894.94	2,451.11	0.56	-0.10	0.028
60.00	-15.41	-1.05	0.00	-51.11	0.00	51.11	3,149.47	1,574.74	4,597.09	2,301.96	0.67	-0.11	0.027
65.00	-14.59	-1.03	0.00	-45.84	0.00	45.84	3,049.56	1,524.78	4,308.58	2,157.49	0.79	-0.12	0.026
70.00	-13.80	-1.00	0.00	-40.69	0.00	40.69	2,949.66	1,474.83	4,029.43	2,017.71	0.93	-0.13	0.025
75.00	-13.02	-0.97	0.00	-35.68	0.00	35.68	2,849.75	1,424.87	3,759.63	1,882.61	1.07	-0.14	0.024
80.00	-12.27	-0.94	0.00	-30.83	0.00	30.83	2,749.84	1,374.92	3,499.17	1,752.19	1.22	-0.15	0.022
85.00	-11.53	-0.90	0.00	-26.13	0.00	26.13	2,649.93	1,324.97	3,248.06	1,626.45	1.38	-0.16	0.020
90.00	-11.46	-0.90	0.00	-21.62	0.00	21.62	2,550.02	1,275.01	3,006.31	1,505.39	1.55	-0.17	0.019
90.50	-10.57	-0.85	0.00	-21.17	0.00	21.17	2,540.03	1,270.02	2,982.64	1,493.54	1.57	-0.17	0.018
94.75	-10.54	-0.85	0.00	-17.56	0.00	17.56	1,616.13	808.07	1,883.49	943.15	1.72	-0.17	0.025
95.00	-10.00	-0.82	0.00	-17.34	0.00	17.34	1,613.86	806.93	1,877.08	939.93	1.73	-0.17	0.025
100.00	-9.46	-0.78	0.00	-13.26	0.00	13.26	1,567.71	783.86	1,750.05	876.33	1.92	-0.18	0.021
105.00	-9.26	-0.77	0.00	-9.35	0.00	9.35	1,520.05	760.03	1,625.73	814.07	2.12	-0.19	0.018
107.00	-5.24	-0.48	0.00	-7.81	0.00	7.81	1,500.57	750.28	1,576.80	789.57	2.20	-0.19	0.013
110.00	-4.85	-0.45	0.00	-6.38	0.00	6.38	1,470.44	735.22	1,503.87	753.05	2.32	-0.20	0.012
115.00	-4.55	-0.42	0.00	-4.14	0.00	4.14	1,403.83	701.92	1,370.07	686.05	2.53	-0.20	0.009
119.00	-2.78	-0.27	0.00	-2.44	0.00	2.44	1,350.55	675.27	1,267.52	634.70	2.70	-0.21	0.006
119.00	-2.78	-0.27	0.00	-2.44	0.00	2.44	957.94	478.97	903.96	452.65	2.70	-0.21	0.008
120.00	-2.53	-0.25	0.00	-2.17	0.00	2.17	951.57	475.78	889.04	445.18	2.75	-0.21	0.008
125.00	-2.35	-0.23	0.00	-0.92	0.00	0.92	918.77	459.38	815.41	408.31	2.96	-0.21	0.005
129.00	0.00	-0.22	0.00	0.00	0.00	0.00	891.44	445.72	757.79	379.46	3.14	-0.21	0.000

Equivalent Modal Analysis Method

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

Spectral Response Acceleration for Short Period (S_s):	0.18
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}):	0.20
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	1.95
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)
32	127.00	218	1.832	1.687	1.033	0.339	49	271
31	122.50	283	1.704	1.139	0.821	0.261	49	351
30	119.50	58	1.622	0.848	0.700	0.214	8	72
29	117.00	349	1.555	0.645	0.610	0.179	42	433
28	112.50	450	1.437	0.359	0.471	0.122	37	558
27	108.50	277	1.337	0.175	0.370	0.079	15	344
26	106.00	243	1.276	0.089	0.315	0.055	9	301
25	102.50	618	1.193	-0.002	0.250	0.027	11	766
24	97.50	633	1.080	-0.081	0.175	-0.003	-1	785
23	94.88	32	1.022	-0.104	0.143	-0.015	0	40
22	92.63	1,037	0.974	-0.115	0.119	-0.023	-16	1,285
21	90.25	84	0.925	-0.121	0.097	-0.029	-2	104
20	87.50	854	0.870	-0.121	0.076	-0.032	-18	1,058
19	82.50	877	0.773	-0.106	0.046	-0.032	-19	1,086
18	77.50	900	0.682	-0.081	0.027	-0.023	-14	1,115
17	72.50	922	0.597	-0.052	0.014	-0.008	-5	1,143
16	67.50	945	0.517	-0.023	0.008	0.009	6	1,171
15	62.50	968	0.444	0.004	0.006	0.024	16	1,200
14	57.50	991	0.376	0.026	0.007	0.036	24	1,228
13	53.88	453	0.330	0.038	0.010	0.043	13	562
12	51.38	1,038	0.300	0.045	0.012	0.046	32	1,286
11	48.63	1,053	0.269	0.052	0.015	0.048	34	1,305
10	46.13	520	0.242	0.057	0.018	0.049	17	644
9	42.50	1,174	0.205	0.062	0.023	0.050	39	1,455
8	37.50	1,201	0.160	0.067	0.029	0.049	39	1,488
7	32.50	1,227	0.120	0.070	0.034	0.048	39	1,521
6	27.50	1,254	0.086	0.071	0.039	0.047	39	1,554
5	22.50	1,281	0.057	0.071	0.041	0.045	38	1,587
4	17.50	1,307	0.035	0.069	0.041	0.043	37	1,620
3	12.50	1,334	0.018	0.063	0.037	0.039	35	1,653
2	7.50	1,361	0.006	0.048	0.027	0.031	28	1,686
1	2.50	1,388	0.001	0.021	0.011	0.015	14	1,720
Nokia B5 RRH4x40-850	129.00	146	1.890	1.980	1.140	0.376	37	180
Alcatel-Lucent RRH2x	129.00	170	1.890	1.980	1.140	0.376	43	211

Alcatel-Lucent PCS B	129.00	165	1.890	1.980	1.140	0.376	41	204
Alcatel-Lucent B66A	129.00	201	1.890	1.980	1.140	0.376	50	249
Amphenol Antel BXA-1	129.00	38	1.890	1.980	1.140	0.376	10	48
RFS DB-T1-6Z-8AB-0Z	129.00	88	1.890	1.980	1.140	0.376	22	109
Amphenol Antel BXA-8	129.00	54	1.890	1.980	1.140	0.376	14	67
Commscope JAHH-65B-	129.00	364	1.890	1.980	1.140	0.376	91	451
Round Low Profile Pl	129.00	1,500	1.890	1.980	1.140	0.376	376	1,859
Ericsson Radio 4449	119.00	222	1.608	0.805	0.681	0.207	31	275
Ericsson AIR 21, 1.3	119.00	249	1.608	0.805	0.681	0.207	34	309
Ericsson AIR-32 B2A/	119.00	397	1.608	0.805	0.681	0.207	55	491
Round T-Arm	119.00	750	1.608	0.805	0.681	0.207	104	929
RFS APXVAARR24_43-U-	119.00	384	1.608	0.805	0.681	0.207	53	476
Raycap DC6-48-60-0-8	107.00	16	1.300	0.121	0.336	0.064	1	20
Raycap DC6-48-60-18-	107.00	60	1.300	0.121	0.336	0.064	3	74
Ericsson RRUS 8843 B	107.00	216	1.300	0.121	0.336	0.064	9	268
Ericsson RRUS 4478 B	107.00	180	1.300	0.121	0.336	0.064	8	223
Ericsson RRUS 4449 B	107.00	213	1.300	0.121	0.336	0.064	9	264
Ericsson RRUS A2 B2	107.00	132	1.300	0.121	0.336	0.064	6	164
Ericsson RRUS-11 (50	107.00	150	1.300	0.121	0.336	0.064	6	186
Ericsson RRUS 32 (50	107.00	152	1.300	0.121	0.336	0.064	7	189
Ericsson RRUS 32 B2	107.00	318	1.300	0.121	0.336	0.064	14	394
CCI CCI-HPA-65R-BUU-	107.00	612	1.300	0.121	0.336	0.064	26	758
Kathrein Scala 80010	107.00	344	1.300	0.121	0.336	0.064	15	426
Round Platform w/ Ha	107.00	2,000	1.300	0.121	0.336	0.064	86	2,479
		34,451	62.699	28.195	23.331	6.927	1,743	42,694

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)
32	127.00	218	1.832	1.687	1.033	0.339	49	188
31	122.50	283	1.704	1.139	0.821	0.261	49	244
30	119.50	58	1.622	0.848	0.700	0.214	8	50
29	117.00	349	1.555	0.645	0.610	0.179	42	300
28	112.50	450	1.437	0.359	0.471	0.122	37	387
27	108.50	277	1.337	0.175	0.370	0.079	15	239
26	106.00	243	1.276	0.089	0.315	0.055	9	209
25	102.50	618	1.193	-0.002	0.250	0.027	11	532
24	97.50	633	1.080	-0.081	0.175	-0.003	-1	545
23	94.88	32	1.022	-0.104	0.143	-0.015	0	28
22	92.63	1,037	0.974	-0.115	0.119	-0.023	-16	893
21	90.25	84	0.925	-0.121	0.097	-0.029	-2	72
20	87.50	854	0.870	-0.121	0.076	-0.032	-18	735
19	82.50	877	0.773	-0.106	0.046	-0.032	-19	755
18	77.50	900	0.682	-0.081	0.027	-0.023	-14	774
17	72.50	922	0.597	-0.052	0.014	-0.008	-5	794
16	67.50	945	0.517	-0.023	0.008	0.009	6	814
15	62.50	968	0.444	0.004	0.006	0.024	16	833
14	57.50	991	0.376	0.026	0.007	0.036	24	853
13	53.88	453	0.330	0.038	0.010	0.043	13	390
12	51.38	1,038	0.300	0.045	0.012	0.046	32	893
11	48.63	1,053	0.269	0.052	0.015	0.048	34	906
10	46.13	520	0.242	0.057	0.018	0.049	17	447
9	42.50	1,174	0.205	0.062	0.023	0.050	39	1,011
8	37.50	1,201	0.160	0.067	0.029	0.049	39	1,034
7	32.50	1,227	0.120	0.070	0.034	0.048	39	1,056
6	27.50	1,254	0.086	0.071	0.039	0.047	39	1,079
5	22.50	1,281	0.057	0.071	0.041	0.045	38	1,102
4	17.50	1,307	0.035	0.069	0.041	0.043	37	1,125

3	12.50	1,334	0.018	0.063	0.037	0.039	35	1,148
2	7.50	1,361	0.006	0.048	0.027	0.031	28	1,171
1	2.50	1,388	0.001	0.021	0.011	0.015	14	1,194
Nokia B5 RRH4x40-850	129.00	146	1.890	1.980	1.140	0.376	37	125
Alcatel-Lucent RRH2x	129.00	170	1.890	1.980	1.140	0.376	43	146
Alcatel-Lucent PCS B	129.00	165	1.890	1.980	1.140	0.376	41	142
Alcatel-Lucent B66A	129.00	201	1.890	1.980	1.140	0.376	50	173
Amphenol Antel BXA-1	129.00	38	1.890	1.980	1.140	0.376	10	33
RFS DB-T1-6Z-8AB-0Z	129.00	88	1.890	1.980	1.140	0.376	22	76
Amphenol Antel BXA-8	129.00	54	1.890	1.980	1.140	0.376	14	46
Commscope JAHH-65B-	129.00	364	1.890	1.980	1.140	0.376	91	313
Round Low Profile Pl	129.00	1,500	1.890	1.980	1.140	0.376	376	1,291
Ericsson Radio 4449	119.00	222	1.608	0.805	0.681	0.207	31	191
Ericsson AIR 21, 1.3	119.00	249	1.608	0.805	0.681	0.207	34	214
Ericsson AIR-32 B2A/	119.00	397	1.608	0.805	0.681	0.207	55	341
Round T-Arm	119.00	750	1.608	0.805	0.681	0.207	104	646
RFS APXVAARR24_43-U-	119.00	384	1.608	0.805	0.681	0.207	53	330
Raycap DC6-48-60-0-8	107.00	16	1.300	0.121	0.336	0.064	1	14
Raycap DC6-48-60-18-	107.00	60	1.300	0.121	0.336	0.064	3	52
Ericsson RRUS 8843 B	107.00	216	1.300	0.121	0.336	0.064	9	186
Ericsson RRUS 4478 B	107.00	180	1.300	0.121	0.336	0.064	8	155
Ericsson RRUS 4449 B	107.00	213	1.300	0.121	0.336	0.064	9	183
Ericsson RRUS A2 B2	107.00	132	1.300	0.121	0.336	0.064	6	114
Ericsson RRUS-11 (50	107.00	150	1.300	0.121	0.336	0.064	6	129
Ericsson RRUS 32 (50	107.00	152	1.300	0.121	0.336	0.064	7	131
Ericsson RRUS 32 B2	107.00	318	1.300	0.121	0.336	0.064	14	274
CCI CCI-HPA-65R-BUU-	107.00	612	1.300	0.121	0.336	0.064	26	527
Kathrein Scala 80010	107.00	344	1.300	0.121	0.336	0.064	15	296
Round Platform w/ Ha	107.00	2,000	1.300	0.121	0.336	0.064	86	1,721
		34,451	62.699	28.195	23.331	6.927	1,743	29,654

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	-40.97	-1.73	0.00	-181.55	0.00	181.55	4,855.79	2,427.89	9,638.20	4,826.26	0.00	0.00	0.046
5.00	-39.29	-1.71	0.00	-172.88	0.00	172.88	4,773.96	2,386.98	9,252.42	4,633.09	0.01	-0.01	0.046
10.00	-37.63	-1.69	0.00	-164.32	0.00	164.32	4,690.62	2,345.31	8,871.44	4,442.31	0.03	-0.03	0.045
15.00	-36.01	-1.66	0.00	-155.88	0.00	155.88	4,605.77	2,302.89	8,495.47	4,254.05	0.06	-0.04	0.044
20.00	-34.43	-1.63	0.00	-147.59	0.00	147.59	4,519.41	2,259.70	8,124.73	4,068.40	0.11	-0.05	0.044
25.00	-32.87	-1.59	0.00	-139.46	0.00	139.46	4,406.48	2,203.24	7,715.56	3,863.51	0.17	-0.07	0.044
30.00	-31.35	-1.56	0.00	-131.49	0.00	131.49	4,289.92	2,144.96	7,310.76	3,660.81	0.25	-0.08	0.043
35.00	-29.86	-1.53	0.00	-123.69	0.00	123.69	4,173.36	2,086.68	6,916.87	3,463.58	0.34	-0.09	0.043
40.00	-28.41	-1.49	0.00	-116.06	0.00	116.06	4,056.80	2,028.40	6,533.89	3,271.80	0.45	-0.11	0.042
45.00	-27.76	-1.48	0.00	-108.60	0.00	108.60	3,940.24	1,970.12	6,161.81	3,085.49	0.57	-0.12	0.042
47.25	-26.46	-1.45	0.00	-105.28	0.00	105.28	3,887.79	1,943.89	5,997.94	3,003.43	0.63	-0.13	0.042
50.00	-25.17	-1.42	0.00	-101.30	0.00	101.30	3,823.68	1,911.84	5,800.65	2,904.64	0.71	-0.14	0.041
52.75	-24.61	-1.40	0.00	-97.41	0.00	97.41	3,294.34	1,647.17	5,032.03	2,519.75	0.79	-0.15	0.046
55.00	-23.38	-1.38	0.00	-94.25	0.00	94.25	3,249.38	1,624.69	4,894.94	2,451.11	0.86	-0.16	0.046
60.00	-22.18	-1.37	0.00	-87.34	0.00	87.34	3,149.47	1,574.74	4,597.09	2,301.96	1.04	-0.17	0.045
65.00	-21.01	-1.37	0.00	-80.49	0.00	80.49	3,049.56	1,524.78	4,308.58	2,157.49	1.23	-0.19	0.044
70.00	-19.86	-1.37	0.00	-73.66	0.00	73.66	2,949.66	1,474.83	4,029.43	2,017.71	1.44	-0.21	0.043
75.00	-18.75	-1.39	0.00	-66.79	0.00	66.79	2,849.75	1,424.87	3,759.63	1,882.61	1.66	-0.23	0.042
80.00	-17.66	-1.41	0.00	-59.84	0.00	59.84	2,749.84	1,374.92	3,499.17	1,752.19	1.91	-0.24	0.041
85.00	-16.60	-1.43	0.00	-52.80	0.00	52.80	2,649.93	1,324.97	3,248.06	1,626.45	2.18	-0.26	0.039
90.00	-16.50	-1.43	0.00	-45.66	0.00	45.66	2,550.02	1,275.01	3,006.31	1,505.39	2.46	-0.28	0.037
90.50	-15.21	-1.44	0.00	-44.95	0.00	44.95	2,540.03	1,270.02	2,982.64	1,493.54	2.49	-0.28	0.036
94.75	-15.17	-1.45	0.00	-38.81	0.00	38.81	1,616.13	808.07	1,883.49	943.15	2.75	-0.30	0.051
95.00	-14.39	-1.45	0.00	-38.45	0.00	38.45	1,613.86	806.93	1,877.08	939.93	2.76	-0.30	0.050
100.00	-13.62	-1.43	0.00	-31.22	0.00	31.22	1,567.71	783.86	1,750.05	876.33	3.09	-0.32	0.044
105.00	-13.32	-1.43	0.00	-24.05	0.00	24.05	1,520.05	760.03	1,625.73	814.07	3.43	-0.34	0.038
107.00	-7.53	-1.19	0.00	-21.20	0.00	21.20	1,500.57	750.28	1,576.80	789.57	3.57	-0.34	0.032
110.00	-6.98	-1.15	0.00	-17.62	0.00	17.62	1,470.44	735.22	1,503.87	753.05	3.79	-0.35	0.028
115.00	-6.54	-1.11	0.00	-11.86	0.00	11.86	1,403.83	701.92	1,370.07	686.05	4.17	-0.37	0.022
119.00	-3.99	-0.81	0.00	-7.42	0.00	7.42	1,350.55	675.27	1,267.52	634.70	4.48	-0.38	0.015
119.00	-3.99	-0.81	0.00	-7.42	0.00	7.42	957.94	478.97	903.96	452.65	4.48	-0.38	0.021
120.00	-3.64	-0.76	0.00	-6.61	0.00	6.61	951.57	475.78	889.04	445.18	4.56	-0.38	0.019
125.00	-3.37	-0.71	0.00	-2.83	0.00	2.83	918.77	459.38	815.41	408.31	4.96	-0.39	0.011
129.00	0.00	-0.68	0.00	0.00	0.00	0.00	891.44	445.72	757.79	379.46	5.29	-0.39	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	-28.46	-1.73	0.00	-179.39	0.00	179.39	4,855.79	2,427.89	9,638.20	4,826.26	0.00	0.00	0.043
5.00	-27.29	-1.71	0.00	-170.73	0.00	170.73	4,773.96	2,386.98	9,252.42	4,633.09	0.01	-0.01	0.043
10.00	-26.14	-1.68	0.00	-162.19	0.00	162.19	4,690.62	2,345.31	8,871.44	4,442.31	0.03	-0.03	0.042
15.00	-25.01	-1.65	0.00	-153.78	0.00	153.78	4,605.77	2,302.89	8,495.47	4,254.05	0.06	-0.04	0.042
20.00	-23.91	-1.61	0.00	-145.54	0.00	145.54	4,519.41	2,259.70	8,124.73	4,068.40	0.11	-0.05	0.041
25.00	-22.83	-1.58	0.00	-137.47	0.00	137.47	4,406.48	2,203.24	7,715.56	3,863.51	0.17	-0.07	0.041
30.00	-21.77	-1.55	0.00	-129.56	0.00	129.56	4,289.92	2,144.96	7,310.76	3,660.81	0.25	-0.08	0.040
35.00	-20.74	-1.51	0.00	-121.84	0.00	121.84	4,173.36	2,086.68	6,916.87	3,463.58	0.34	-0.09	0.040
40.00	-19.73	-1.47	0.00	-114.29	0.00	114.29	4,056.80	2,028.40	6,533.89	3,271.80	0.44	-0.11	0.040
45.00	-19.28	-1.46	0.00	-106.93	0.00	106.93	3,940.24	1,970.12	6,161.81	3,085.49	0.56	-0.12	0.040
47.25	-18.38	-1.43	0.00	-103.64	0.00	103.64	3,887.79	1,943.89	5,997.94	3,003.43	0.62	-0.13	0.039
50.00	-17.48	-1.40	0.00	-99.72	0.00	99.72	3,823.68	1,911.84	5,800.65	2,904.64	0.70	-0.14	0.039
52.75	-17.09	-1.38	0.00	-95.88	0.00	95.88	3,294.34	1,647.17	5,032.03	2,519.75	0.78	-0.15	0.043
55.00	-16.24	-1.36	0.00	-92.77	0.00	92.77	3,249.38	1,624.69	4,894.94	2,451.11	0.85	-0.15	0.043
60.00	-15.40	-1.35	0.00	-85.97	0.00	85.97	3,149.47	1,574.74	4,597.09	2,301.96	1.02	-0.17	0.042
65.00	-14.59	-1.34	0.00	-79.23	0.00	79.23	3,049.56	1,524.78	4,308.58	2,157.49	1.21	-0.19	0.042
70.00	-13.80	-1.35	0.00	-72.51	0.00	72.51	2,949.66	1,474.83	4,029.43	2,017.71	1.42	-0.21	0.041
75.00	-13.02	-1.36	0.00	-65.76	0.00	65.76	2,849.75	1,424.87	3,759.63	1,882.61	1.64	-0.22	0.040
80.00	-12.27	-1.38	0.00	-58.94	0.00	58.94	2,749.84	1,374.92	3,499.17	1,752.19	1.88	-0.24	0.038
85.00	-11.53	-1.40	0.00	-52.02	0.00	52.02	2,649.93	1,324.97	3,248.06	1,626.45	2.15	-0.26	0.036
90.00	-11.46	-1.41	0.00	-45.00	0.00	45.00	2,550.02	1,275.01	3,006.31	1,505.39	2.43	-0.28	0.034
90.50	-10.56	-1.42	0.00	-44.30	0.00	44.30	2,540.03	1,270.02	2,982.64	1,493.54	2.45	-0.28	0.034
94.75	-10.54	-1.42	0.00	-38.27	0.00	38.27	1,616.13	808.07	1,883.49	943.15	2.71	-0.29	0.047
95.00	-9.99	-1.42	0.00	-37.91	0.00	37.91	1,613.86	806.93	1,877.08	939.93	2.72	-0.29	0.047
100.00	-9.46	-1.41	0.00	-30.81	0.00	30.81	1,567.71	783.86	1,750.05	876.33	3.04	-0.31	0.041
105.00	-9.25	-1.40	0.00	-23.76	0.00	23.76	1,520.05	760.03	1,625.73	814.07	3.38	-0.33	0.035
107.00	-5.23	-1.18	0.00	-20.95	0.00	20.95	1,500.57	750.28	1,576.80	789.57	3.52	-0.34	0.030
110.00	-4.84	-1.14	0.00	-17.42	0.00	17.42	1,470.44	735.22	1,503.87	753.05	3.74	-0.35	0.026
115.00	-4.54	-1.10	0.00	-11.73	0.00	11.73	1,403.83	701.92	1,370.07	686.05	4.11	-0.36	0.020
119.00	-2.77	-0.80	0.00	-7.35	0.00	7.35	1,350.55	675.27	1,267.52	634.70	4.42	-0.37	0.014
119.00	-2.77	-0.80	0.00	-7.35	0.00	7.35	957.94	478.97	903.96	452.65	4.42	-0.37	0.019
120.00	-2.53	-0.75	0.00	-6.55	0.00	6.55	951.57	475.78	889.04	445.18	4.50	-0.37	0.017
125.00	-2.34	-0.70	0.00	-2.80	0.00	2.80	918.77	459.38	815.41	408.31	4.89	-0.38	0.009
129.00	0.00	-0.68	0.00	0.00	0.00	0.00	891.44	445.72	757.79	379.46	5.21	-0.38	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	26.47	0.00	41.30	0.00	0.00	2608.94	0.00	0.55
0.9D + 1.6W	26.46	0.00	30.96	0.00	0.00	2584.55	0.00	0.54
1.2D + 1.0Di + 1.0Wi	7.33	0.00	58.97	0.00	0.00	706.04	0.00	0.16
(1.2 + 0.2Sds) * DL + E ELFM	1.17	0.00	40.97	0.00	0.00	121.36	0.00	0.03
(1.2 + 0.2Sds) * DL + E EMAM	1.73	0.00	40.97	0.00	0.00	181.55	94.75	0.05
(0.9 - 0.2Sds) * DL + E ELFM	1.17	0.00	28.46	0.00	0.00	120.02	0.00	0.03
(0.9 - 0.2Sds) * DL + E EMAM	1.73	0.00	28.46	0.00	0.00	179.39	94.75	0.05
1.0D + 1.0W	6.33	0.00	34.45	0.00	0.00	620.54	0.00	0.14

Base Plate & Anchor Rod Analysis

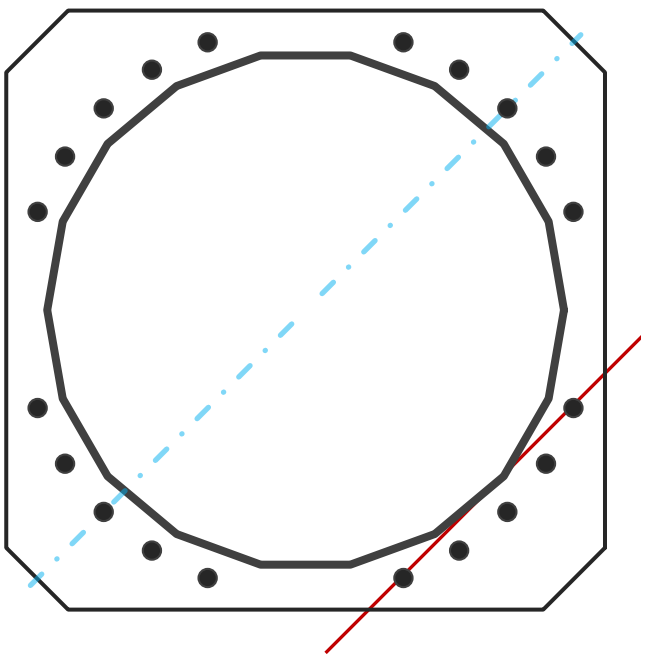
Pole Dimensions		
Number of Sides	18	-
Diameter	48.8	in
Thickness	0.4375	in
Orientation Offset		°

Base Reactions		
Moment, Mu	2608.9	k-ft
Axial, Pu	41.3	k
Shear, Vu	26.5	k
Neutral Axis	225	°

Report Capacities		
Component	Capacity	Result
Base Plate	32%	Pass
Anchor Rods	45%	Pass
Dwyidag	-	-

Base Plate		
Shape	Square	-
Width	58	in
Thickness	2 3/4	in
Grade	A572-50	-
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Clip	6	in
Orientation Offset		°
Anchor Rod Detail	d	η=0.5
Clear Distance	3	in
Applied Moment, Mu	953.0	k
Bending Stress, ϕMn	3018.1	k

Original Anchor Rods		
Arrangement	Cluster	-
Quantity	20	-
Diameter, ø	2 1/4	in
Bolt Circle	55.25	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset		°
Applied Force, Pu	115.3	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	26.5	2608.9	1.00
Anchor Rod Forces	26.5	2608.9	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
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	66.1347	3.6742	0.2355		19339.81
Bolt	3.9761	3.2477	0.8393	4.5	24801.22
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Square	-
Width, W	58	in
Thickness, t	2.75	in
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Base Plate Chord	31.346	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods		
Anchor Rod Quantity, N	20	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	55.25	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	115.3	k
Applied Shear, Vu	0.5	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.444	OK
Interaction Capacity	0.447	OK

External Base Plate		
Chord Length AA	32.724	in
Additional AA	2.750	in
Section Modulus, Z	67.069	in^3
Applied Moment, Mu	953.0	k-ft
Bending Capacity, ϕMn	3018.1	k-ft
Capacity, Mu/ϕMn	0.316	OK
Chord Length AB	31.964	in
Additional AB	2.750	in
Section Modulus, Z	65.631	in^3
Applied Moment, Mu	743.7	k-ft
Bending Capacity, ϕMn	2953.4	k-ft
Capacity, Mu/ϕMn	0.252	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		

Base/Flange Plate	Plate Type	***Flange***	***@ 119 ft***
	Pole Diameter	23.16	in
	Pole Thickness	0.1875	in
	Plate Diameter	30.375	in
	Plate Thickness	1.25	in
	Plate Fy	60	ksi
	Weld Length	0.125	in
	ϕ_s Resistance	99.19	k-in
	Applied	6.16	k-in
Stiffeners	#		

Bolts	#	***14***	
	Bolt Circle	26.125	in
	(R)adial / (S)quare	R	
●	Diameter	1	in
	Hole Diameter	1.125	in
	Type	A325	
	Fy	92	ksi
	Fu	120	ksi
	ϕ_s Resistance	54.52	k
	Applied	7.75	k
Reinforcement ●	#	***0***	
Extra Bolts O	#	***0***	

Code Rev. ***G***

Moment 61.0 k-ft

Axial 3.5 k

Date	4/29/2019
Engineer	Cole.Koffi
Site #	283418
Carrier	AT&T Mobility

Required Flange Thickness:

0.31 in OK

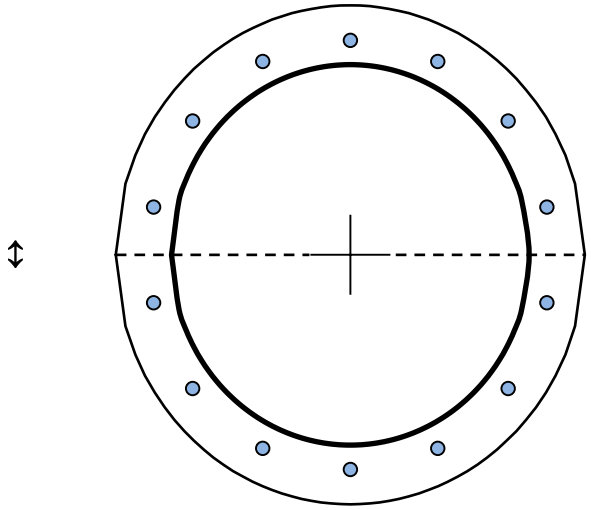


Plate Stress Ratio:

0.06 (Pass)

Bolt Stress Ratio:

0.14 (Pass)

April 2, 2019

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:		
	Site Number:	CT3506 (LTE 4C/5C/6C)
	FA Number:	10578263
	PACE Number:	MRCTB038132
	PT Number:	2051A0MCJM
	Site Name:	NORTH HAVEN DEVINE STREET
	Site Address:	50 Devine Street North Haven, CT 06473

To Whom It May Concern:

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

- (9) HPA-65R-BUU-H8 Antennas (92.4"x14.8"x7.4" – Wt. = 68 lbs. /each)
- (3) RRUS-11 RRH's (19.7"x17.0"x7.2" – Wt. = 51 lbs. /each)
- (3) RRUS-32 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (3) Squid Surge Arrestors (24.0"x9.7" Ø – Wt. = 33 lbs. /each) (Tower Mounted)
- **(3) 800-10966 Antennas (96.0"x20.0"x6.9" – Wt. = 115 lbs. /each)**
- **(3) B14 4478 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)**
- **(3) B2/B66A 8843 RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)**
- **(3) B5/B12 4449 RRH's (14.9"x13.2"x10.4" – Wt. = 73 lbs. /each)**
- **(1) Squid Surge Arrestor (24.0"x9.7" Ø – Wt. = 33 lbs.) (Tower Mounted)**

**Proposed equipment shown in bold.*

No original structural design documents or fabrication drawings were available for the existing mount. HDG's subconsultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mount on March 27, 2019.

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 – R12.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 125 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.12 in was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- The mount has been analyzed with load combinations consisting of 250 lbs. live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 4.
- The mount has been analyzed with load combinations consisting of a 250 lbs. live load in a worst case location on the mount.
- The existing mount is secured to the existing monopole with ring mounts. The connection is considered OK by visual inspection.

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

- **Install new stabilizer kit, SitePro1 P/N PRK-SFS (or approved equal).**
- **Vertically center new and existing antennas and pipe masts on the existing mount (typ. of 4 per sector, total of 12).**

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing (LTE 4C/5C/6C) Mount Rating	67	LC4	166%	**FAIL**
Modified (LTE 4C/5C/6C) Mount Rating	34	LC2	83%	**PASS**

Reference Documents:

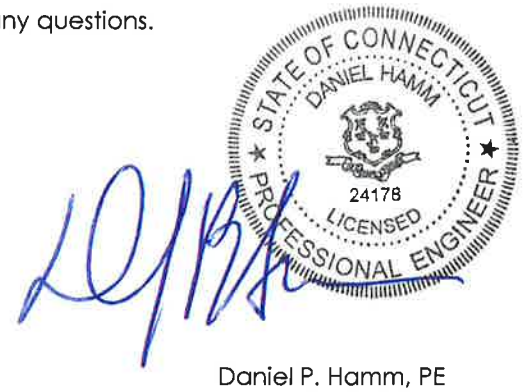
- Mount mapping report prepared by ProVertic LLC.

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:



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Design Group LLC

Wind & Ice
Calculations

Date: 4/2/2019
Project Name: NORTH HAVEN DEVINE STREET
Project No.: CT3506
Designed By: BD **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

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

	z=	107 (ft)
	z_g=	1200 (ft)
K_z= 1.008	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}= #DIV/0!

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

Category=	1

K_h=	#DIV/0!	
K_c=	0.9	(from Table 2-4)
K_t=		(from Table 2-5)
f=		(from Table 2-5)
z=	107	
z_s=	8	(Mean elevation of base of structure above sea level)
H=	0	(Ht. of the crest above surrounding terrain)
K_{zt}=	1.00	(from 2.6.6.2.1)
K_e=	1.00	(from 2.6.8)

2.6.10 Design Ice Thickness

Max Ice Thickness =
Importance Factor =

t_i =	1.00	in
I=	1.0	(from Table 2-3)
K_{iz} =	1.12	(from Sec. 2.6.10)

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

t_{iz} =	1.12	in

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2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

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

h=	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=	1.008	(from 2.6.5.2)
		K_{zt}=	1.0	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**38.27**	K_e=	1.00	(from 2.6.8)
$q_{z\ (Ice)}$=	**6.12**	K_d=	0.95	(from Table 2-2)
$q_{z\ (30)}$=	**2.20**	V_{max}=	125	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

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

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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 = 1.12 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)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	6.24	1.37	497	94	29
800-10966 Antenna	96.0	20.0	6.9	13.33	4.80	1.30	665	121	38
RRUS-11 RRH	19.7	17.0	7.2	2.33	1.16	1.20	107	22	6
RRUS-11 RRH (Shielded)	19.7	2.2	7.2	0.30	8.95	1.47	17	6	1
RRUS-32 RRH	27.2	12.1	7.0	2.29	2.25	1.20	105	22	6
RRUS-32 RRH (Shielded)	27.2	0.0	7.0	0.00	0.00	1.20	0	0	0
B14 4478 RRH	18.1	13.4	8.3	1.68	1.35	1.20	77	16	4
B14 4478 RRH (Shielded)	18.1	0.0	8.3	0.00	0.00	1.20	0	0	0
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.20	63	14	4
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.20	52	12	3
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.13	1.20	63	14	4
B5/B12 4449 RRH (Side)	14.9	10.4	13.2	1.08	1.43	1.20	49	11	3
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	43	9	2
2" Pipe	2.4	12.0		0.20	0.20	1.20	9	3	1
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	11	4	1
3" Pipe	3.5	12.0		0.29	0.29	1.20	13	4	1
L 2x2x3/16 Angles	2.0	12.0		0.17	0.17	2.00	13	5	1
L 3x3x1/4 Angles	3.0	12.0		0.25	0.25	2.00	19	6	1
C3x6	3.0	12.0		0.25	0.25	1.25	12	4	1
PL 6x3/8	6.0	12.0		0.50	0.50	1.25	24	6	1

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WIND LOADS

Angle = 30 (deg) | Ice Thickness = 1.12 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)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	497	288	444
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	665	287	570
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	107	46	92
RRUS-11 RRH (Shielded)	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	53	46	51
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	105	64	95
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	56	64	58
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	77	48	70
B14 4478 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	39	48	41
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	63	52	60
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	52	63	55
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	63	49	59
B5/B12 4449 RRH (Side)	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	49	63	53

WIND LOADS WITH ICE:

HPA-65R-BUU-H8 Antenna	94.6	17.0	9.6	11.21	6.34	5.55	9.81	1.34	1.49	92	58	83
800-10966 Antenna	98.2	22.2	9.1	15.18	6.24	4.42	10.74	1.29	1.52	119	58	104
RRUS-11 RRH	21.9	19.2	9.4	2.93	1.44	1.14	2.32	1.20	1.20	22	11	19
RRUS-11 RRH (Shielded)	21.9	9.6	9.4	1.47	1.44	2.28	2.32	1.20	1.20	11	11	11
RRUS-32 RRH	29.4	14.3	9.2	2.93	1.89	2.05	3.18	1.20	1.23	22	14	20
RRUS-32 RRH (Shielded)	29.4	7.2	9.2	1.47	1.89	4.10	3.18	1.27	1.23	11	14	12
B14 4478 RRH	20.3	15.6	10.5	2.21	1.49	1.30	1.93	1.20	1.20	16	11	15
B14 4478 RRH (Shielded)	20.3	7.8	10.5	1.11	1.49	2.60	1.93	1.20	1.20	8	11	9
B2/B66A 8843 RRH	17.1	15.4	13.1	1.84	1.57	1.11	1.30	1.20	1.20	14	12	13
B2/B66A 8843 RRH (Side)	17.1	13.1	15.4	1.57	1.84	1.30	1.11	1.20	1.20	12	14	12
B5/B12 4449 RRH	17.1	15.4	12.6	1.84	1.51	1.11	1.36	1.20	1.20	14	11	13
B5/B12 4449 RRH (Side)	17.1	12.6	15.4	1.51	1.84	1.36	1.11	1.20	1.20	11	14	12

WIND LOADS AT 30 MPH:

HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	29	17	26
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	38	17	33
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	6	3	5
RRUS-11 RRH (Shielded)	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	3	3	3
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	5
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	3	4	3
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	4	3	4
B14 4478 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	2	3	2
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	3
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	4	3	3
B5/B12 4449 RRH (Side)	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	3	4	3

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Project No.: CT3506
Designed By: BD Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	60	(deg)	Ice Thickness =	1.12	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)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	497	288	340
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	665	287	381
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	107	46	61
RRUS-11 RRH (Shielded)	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	80	46	54
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	105	64	74
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	80	64	68
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	77	48	55
B14 4478 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	58	48	50
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	63	52	55
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	52	63	60
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	63	49	53
B5/B12 4449 RRH (Side)	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	49	63	59

WIND LOADS WITH ICE:

HPA-65R-BUU-H8 Antenna	94.6	17.0	9.6	11.21	6.34	5.55	9.81	1.34	1.49	92	58	66
800-10966 Antenna	98.2	22.2	9.1	15.18	6.24	4.42	10.74	1.29	1.52	119	58	74
RRUS-11 RRH	21.9	19.2	9.4	2.93	1.44	1.14	2.32	1.20	1.20	22	11	13
RRUS-11 RRH (Shielded)	21.9	14.4	9.4	2.20	1.44	1.52	2.32	1.20	1.20	16	11	12
RRUS-32 RRH	29.4	14.3	9.2	2.93	1.89	2.05	3.18	1.20	1.23	22	14	16
RRUS-32 RRH (Shielded)	29.4	10.8	9.2	2.20	1.89	2.74	3.18	1.21	1.23	16	14	15
B14 4478 RRH	20.3	15.6	10.5	2.21	1.49	1.30	1.93	1.20	1.20	16	11	12
B14 4478 RRH (Shielded)	20.3	11.7	10.5	1.66	1.49	1.73	1.93	1.20	1.20	12	11	11
B2/B66A 8843 RRH	17.1	15.4	13.1	1.84	1.57	1.11	1.30	1.20	1.20	14	12	12
B2/B66A 8843 RRH (Side)	17.1	13.1	15.4	1.57	1.84	1.30	1.11	1.20	1.20	12	14	13
B5/B12 4449 RRH	17.1	15.4	12.6	1.84	1.51	1.11	1.36	1.20	1.20	14	11	12
B5/B12 4449 RRH (Side)	17.1	12.6	15.4	1.51	1.84	1.36	1.11	1.20	1.20	11	14	13

WIND LOADS AT 30 MPH:

HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	29	17	20
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	38	17	22
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	6	3	4
RRUS-11 RRH (Shielded)	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	5	3	3
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	5	4	4
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	4	3	3
B14 4478 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	3	3	3
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	3
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	4	3	3
B5/B12 4449 RRH (Side)	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	3	4	3

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Project Name: NORTH HAVEN DEVINE STREET
Project No.: CT3506
Designed By: BD Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.12	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)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	497	288	288
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	665	287	287
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	107	46	46
RRUS-11 RRH (Shielded)	19.7	2.2	7.2	0.30	0.99	0.00	2.74	1.20	1.21	14	46	46
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	105	64	64
RRUS-32 RRH (Shielded)	27.2	0.0	7.0	0.00	1.32	0.00	3.89	1.20	1.26	0	64	64
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	77	48	48
B14 4478 RRH (Shielded)	18.1	0.0	8.3	0.00	1.04	0.00	2.18	1.20	1.20	0	48	48
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	63	52	52
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	52	63	63
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	63	49	49
B5/B12 4449 RRH (Side)	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	49	63	63

WIND LOADS WITH ICE:

HPA-65R-BUU-H8 Antenna	94.6	17.0	9.6	11.21	6.34	5.55	9.81	1.34	1.49	92	58	58
800-10966 Antenna	98.2	22.2	9.1	15.18	6.24	4.42	10.74	1.29	1.52	119	58	58
RRUS-11 RRH	21.9	19.2	9.4	2.93	1.44	1.14	2.32	1.20	1.20	22	11	11
RRUS-11 RRH (Shielded)	21.9	4.4	9.4	0.68	1.44	4.93	2.32	1.31	1.20	5	11	11
RRUS-32 RRH	29.4	14.3	9.2	2.93	1.89	2.05	3.18	1.20	1.23	22	14	14
RRUS-32 RRH (Shielded)	29.4	2.2	9.2	0.46	1.89	13.09	3.18	1.60	1.23	5	14	14
B14 4478 RRH	20.3	15.6	10.5	2.21	1.49	1.30	1.93	1.20	1.20	16	11	11
B14 4478 RRH (Shielded)	20.3	2.2	10.5	0.32	1.49	9.05	1.93	1.47	1.20	3	11	11
B2/B66A 8843 RRH	17.1	15.4	13.1	1.84	1.57	1.11	1.30	1.20	1.20	14	12	12
B2/B66A 8843 RRH (Side)	17.1	13.1	15.4	1.57	1.84	1.30	1.11	1.20	1.20	12	14	14
B5/B12 4449 RRH	17.1	15.4	12.6	1.84	1.51	1.11	1.36	1.20	1.20	14	11	11
B5/B12 4449 RRH (Side)	17.1	12.6	15.4	1.51	1.84	1.36	1.11	1.20	1.20	11	14	14

WIND LOADS AT 30 MPH:

HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	29	17	17
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	38	17	17
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	6	3	3
RRUS-11 RRH (Shielded)	19.7	2.2	7.2	0.30	0.99	0.00	2.74	1.20	1.21	1	3	3
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
RRUS-32 RRH (Shielded)	27.2	0.0	7.0	0.00	1.32	0.00	3.89	1.20	1.26	0	4	4
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	4	3	3
B14 4478 RRH (Shielded)	18.1	0.0	8.3	0.00	1.04	0.00	2.18	1.20	1.20	0	3	3
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	4
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	4	3	3
B5/B12 4449 RRH (Side)	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	3	4	4

Date: 4/2/2019
Project Name: NORTH HAVEN DEVINE STREET
Project No.: CT3506
Designed By: BD Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	120	(deg)	Ice Thickness =	1.12	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)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	497	288	340
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	665	287	381
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	107	46	61
RRUS-11 RRH (Shielded)	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	80	46	54
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	105	64	74
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	80	64	68
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	77	48	55
B14 4478 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	58	48	50
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	63	52	55
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	52	63	60
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	63	49	53
B5/B12 4449 RRH (Side)	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	49	63	59

WIND LOADS WITH ICE:

HPA-65R-BUU-H8 Antenna	94.6	17.0	9.6	11.21	6.34	5.55	9.81	1.34	1.49	92	58	66
800-10966 Antenna	98.2	22.2	9.1	15.18	6.24	4.42	10.74	1.29	1.52	119	58	74
RRUS-11 RRH	21.9	19.2	9.4	2.93	1.44	1.14	2.32	1.20	1.20	22	11	13
RRUS-11 RRH (Shielded)	21.9	14.4	9.4	2.20	1.44	1.52	2.32	1.20	1.20	16	11	12
RRUS-32 RRH	29.4	14.3	9.2	2.93	1.89	2.05	3.18	1.20	1.23	22	14	16
RRUS-32 RRH (Shielded)	29.4	10.8	9.2	2.20	1.89	2.74	3.18	1.21	1.23	16	14	15
B14 4478 RRH	20.3	15.6	10.5	2.21	1.49	1.30	1.93	1.20	1.20	16	11	12
B14 4478 RRH (Shielded)	20.3	11.7	10.5	1.66	1.49	1.73	1.93	1.20	1.20	12	11	11
B2/B66A 8843 RRH	17.1	15.4	13.1	1.84	1.57	1.11	1.30	1.20	1.20	14	12	12
B2/B66A 8843 RRH (Side)	17.1	13.1	15.4	1.57	1.84	1.30	1.11	1.20	1.20	12	14	13
B5/B12 4449 RRH	17.1	15.4	12.6	1.84	1.51	1.11	1.36	1.20	1.20	14	11	12
B5/B12 4449 RRH (Side)	17.1	12.6	15.4	1.51	1.84	1.36	1.11	1.20	1.20	11	14	13

WIND LOADS AT 30 MPH:

HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	29	17	20
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	38	17	22
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	6	3	4
RRUS-11 RRH (Shielded)	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	5	3	3
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	5	4	4
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	4	3	3
B14 4478 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.18	1.20	1.20	3	3	3
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	3
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	4	3	3
B5/B12 4449 RRH (Side)	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	3	4	3

Date: 4/2/2019
Project Name: NORTH HAVEN DEVINE STREET
Project No.: CT3506
Designed By: BD Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	150	(deg)	Ice Thickness =	1.12	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)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	497	288	444
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	665	287	570
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	107	46	92
RRUS-11 RRH (Shielded)	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	53	46	51
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	105	64	95
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	56	64	58
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	77	48	70
B14 4478 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	39	48	41
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	63	52	60
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	52	63	55
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	63	49	59
B5/B12 4449 RRH (Side)	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	49	63	53

WIND LOADS WITH ICE:

HPA-65R-BUU-H8 Antenna	94.6	17.0	9.6	11.21	6.34	5.55	9.81	1.34	1.49	92	58	83
800-10966 Antenna	98.2	22.2	9.1	15.18	6.24	4.42	10.74	1.29	1.52	119	58	104
RRUS-11 RRH	21.9	19.2	9.4	2.93	1.44	1.14	2.32	1.20	1.20	22	11	19
RRUS-11 RRH (Shielded)	21.9	9.6	9.4	1.47	1.44	2.28	2.32	1.20	1.20	11	11	11
RRUS-32 RRH	29.4	14.3	9.2	2.93	1.89	2.05	3.18	1.20	1.23	22	14	20
RRUS-32 RRH (Shielded)	29.4	7.2	9.2	1.47	1.89	4.10	3.18	1.27	1.23	11	14	12
B14 4478 RRH	20.3	15.6	10.5	2.21	1.49	1.30	1.93	1.20	1.20	16	11	15
B14 4478 RRH (Shielded)	20.3	7.8	10.5	1.11	1.49	2.60	1.93	1.20	1.20	8	11	9
B2/B66A 8843 RRH	17.1	15.4	13.1	1.84	1.57	1.11	1.30	1.20	1.20	14	12	13
B2/B66A 8843 RRH (Side)	17.1	13.1	15.4	1.57	1.84	1.30	1.11	1.20	1.20	12	14	12
B5/B12 4449 RRH	17.1	15.4	12.6	1.84	1.51	1.11	1.36	1.20	1.20	14	11	13
B5/B12 4449 RRH (Side)	17.1	12.6	15.4	1.51	1.84	1.36	1.11	1.20	1.20	11	14	12

WIND LOADS AT 30 MPH:

HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	29	17	26
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	38	17	33
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	6	3	5
RRUS-11 RRH (Shielded)	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	3	3	3
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	5
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	3	4	3
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	4	3	4
B14 4478 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.18	1.21	1.20	2	3	2
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	3
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	4	3	3
B5/B12 4449 RRH (Side)	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	3	4	3

Date: 4/2/2019
Project Name: NORTH HAVEN DEVINE STREET
Project No.: CT3506
Designed By: BD **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.12 in.
Density of ice: 56 pcf

HPA-65R-BUU-H8 Antenna

Weight of ice based on total radial SF area:

Height (in):	92.4	
Width (in):	14.8	
Depth (in):	7.4	
Total weight of ice on object:		186 lbs
Weight of object:	68.0 lbs	
Combined weight of ice and object:		254 lbs

800-10966 Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	20.0	
Depth (in):	6.9	
Total weight of ice on object:		244 lbs
Weight of object:	115.0 lbs	
Combined weight of ice and object:		359 lbs

RRUS-11 RRH

Weight of ice based on total radial SF area:

Height (in):	19.7	
Width (in):	17.0	
Depth (in):	7.2	
Total weight of ice on object:		44 lbs
Weight of object:	51.0 lbs	
Combined weight of ice and object:		95 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:		47 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		107 lbs

B14 4478 RRH

Weight of ice based on total radial SF area:

Height (in):	18.1	
Width (in):	13.4	
Depth (in):	8.3	
Total weight of ice on object:		35 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		95 lbs

B2/B66A 8843 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:		31 lbs
Weight of object:	72.0 lbs	
Combined weight of ice and object:		103 lbs

B5/B12 4449 RRH

Weight of ice based on total radial SF area:

Height (in):	14.9	
Width (in):	13.2	
Depth (in):	10.4	
Total weight of ice on object:		30 lbs
Weight of object:	73.0 lbs	
Combined weight of ice and object:		103 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:		30 lbs
Weight of object:	33 lbs	
Combined weight of ice and object:		63 lbs

2" pipe

Per foot weight of ice:

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

C 3x6

Weight of ice based on total radial SF area:

Height (in):	3	
Width (in):	1.6	
Per foot weight of ice on object:		6 plf

2-1/2" pipe

Per foot weight of ice:

diameter (in):	2.88	
Per foot weight of ice on object:		5 plf

L 2x2x3/16 Angles

Weight of ice based on total radial SF area:

Height (in):	2	
Width (in):	2	
Per foot weight of ice on object:		5 plf

3" pipe

Per foot weight of ice:

diameter (in):	3.5	
Per foot weight of ice on object:		6 plf

L 3x3x1/4 Angles

Weight of ice based on total radial SF area:

Height (in):	3	
Width (in):	3	
Per foot weight of ice on object:		7 plf

PL 6x3/8

Weight of ice based on total radial SF area:

Height (in):	6	
Width (in):	0.38	
Per foot weight of ice on object:		10 plf

HUDSON
Design Group LLC

Mount Calculations
(Existing Conditions)

Bentley

Current Date: 4/2/2019 11:18 AM
Units system: English
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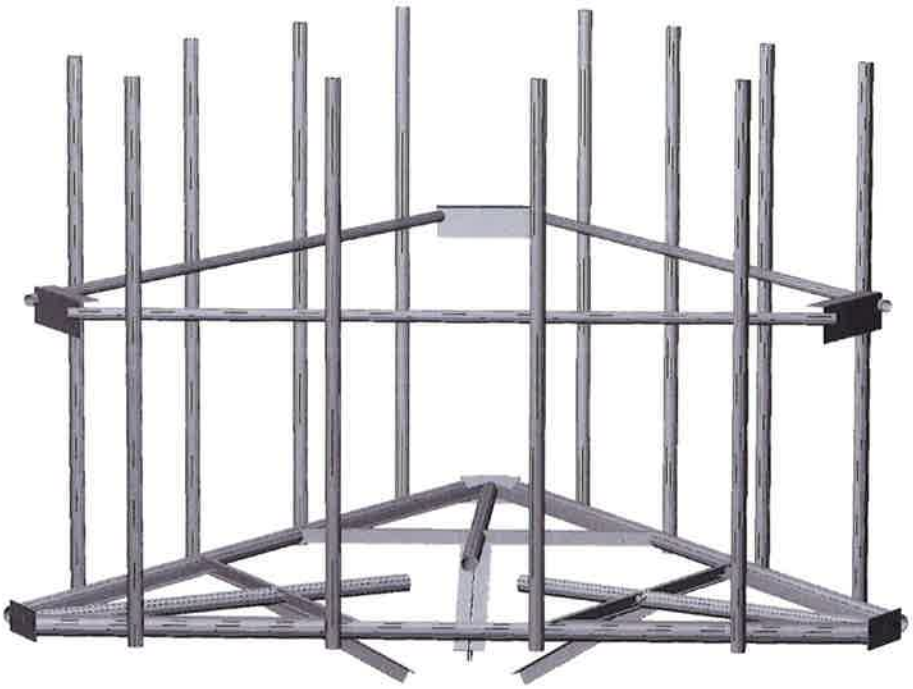

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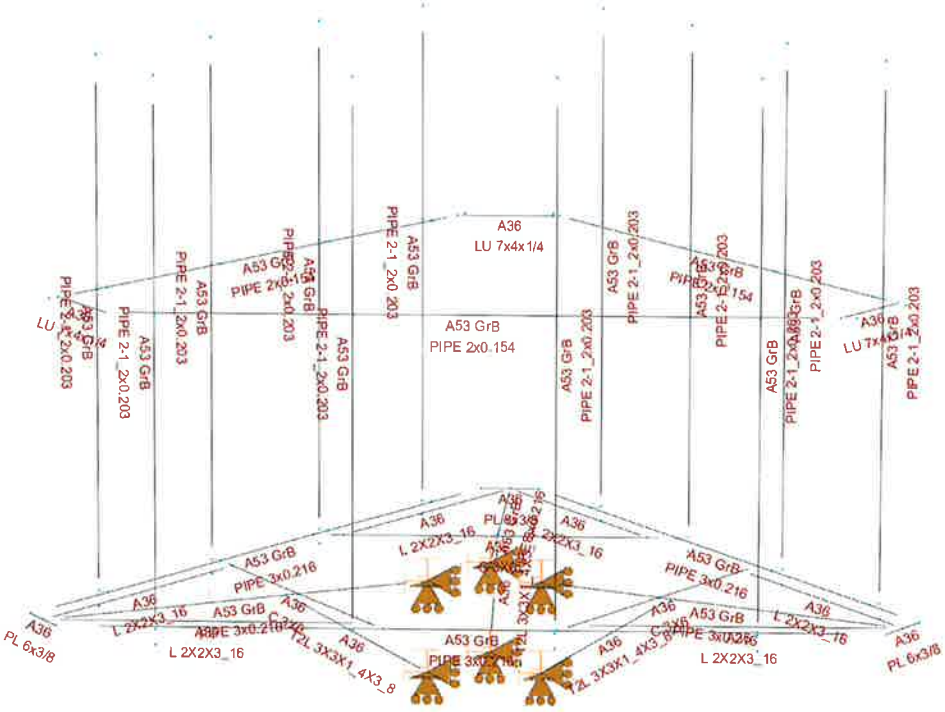

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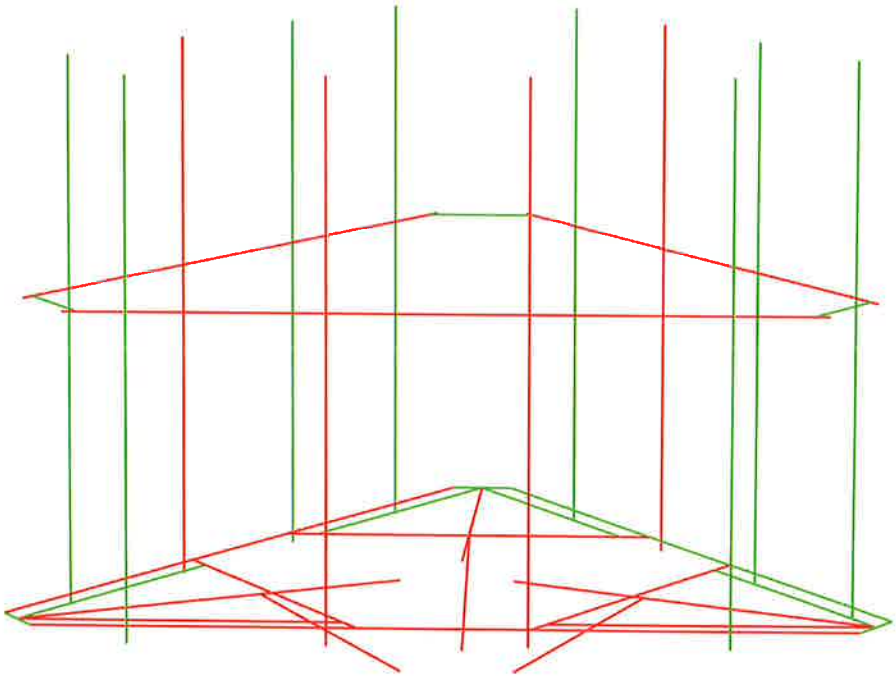
Design status

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



Bentley

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Units system: English
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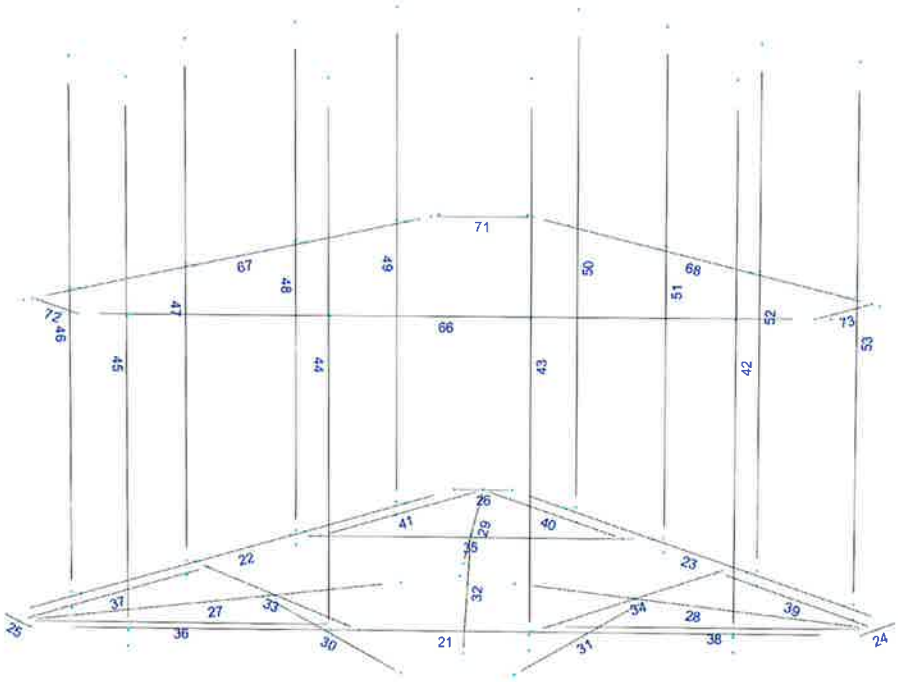

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Load data

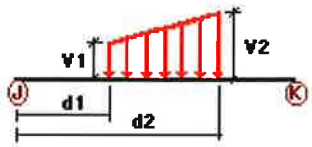
GLOSSARY

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

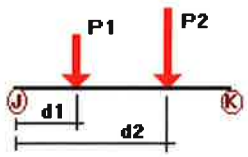


Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	33	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	34	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	35	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	36	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	37	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	38	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	39	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	40	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	41	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
W0	21	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	22	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	23	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	27	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	28	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	30	Z	-0.019	-0.019	0.00	Yes	100.00	Yes

	31	Z	-0.019	-0.019	0.00	Yes	100.00	Yes
	32	Z	-0.019	-0.019	0.00	Yes	100.00	Yes
	33	Z	-0.012	-0.012	0.00	Yes	100.00	Yes
	34	Z	-0.012	-0.012	0.00	Yes	100.00	Yes
	35	Z	-0.012	-0.012	0.00	Yes	100.00	Yes
	46	Z	-0.011	-0.011	0.00	Yes	100.00	Yes
	47	Z	-0.011	-0.011	0.00	Yes	100.00	Yes
	48	Z	-0.011	-0.011	0.00	Yes	100.00	Yes
	49	Z	-0.011	-0.011	0.00	Yes	100.00	Yes
	50	Z	-0.011	-0.011	0.00	Yes	100.00	Yes
	51	Z	-0.011	-0.011	0.00	Yes	100.00	Yes
	52	Z	-0.011	-0.011	0.00	Yes	100.00	Yes
	53	Z	-0.011	-0.011	0.00	Yes	100.00	Yes
	66	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	67	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
	68	Z	-0.009	-0.009	0.00	Yes	100.00	Yes
W30	22	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	23	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	27	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	28	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	29	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	30	X	-0.019	-0.019	0.00	Yes	100.00	Yes
	31	X	-0.019	-0.019	0.00	Yes	100.00	Yes
	32	X	-0.019	-0.019	0.00	Yes	100.00	Yes
	33	X	-0.012	-0.012	0.00	Yes	100.00	Yes
	34	X	-0.012	-0.012	0.00	Yes	100.00	Yes
	42	X	-0.011	-0.011	0.00	Yes	100.00	Yes
	43	X	-0.011	-0.011	0.00	Yes	100.00	Yes
	44	X	-0.011	-0.011	0.00	Yes	100.00	Yes
	45	X	-0.011	-0.011	0.00	Yes	100.00	Yes
	46	X	-0.011	-0.011	0.00	Yes	100.00	Yes
	47	X	-0.011	-0.011	0.00	Yes	100.00	Yes
	48	X	-0.011	-0.011	0.00	Yes	100.00	Yes
	49	X	-0.011	-0.011	0.00	Yes	100.00	Yes
	50	X	-0.011	-0.011	0.00	Yes	100.00	Yes
	51	X	-0.011	-0.011	0.00	Yes	100.00	Yes
	52	X	-0.011	-0.011	0.00	Yes	100.00	Yes
	67	X	-0.009	-0.009	0.00	Yes	100.00	Yes
	68	X	-0.009	-0.009	0.00	Yes	100.00	Yes
Di	21	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
	22	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
	23	Y	-0.006	-0.006	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	-0.006	-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
	30	Y	-0.007	-0.007	0.00	Yes	100.00	Yes
	31	Y	-0.007	-0.007	0.00	Yes	100.00	Yes
	32	Y	-0.007	-0.007	0.00	Yes	100.00	Yes
	33	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
	34	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
	35	Y	-0.006	-0.006	0.00	Yes	100.00	Yes
	36	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	37	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	38	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	39	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	40	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
	41	Y	-0.005	-0.005	0.00	Yes	100.00	Yes

42	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
43	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
44	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
45	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
46	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
47	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
48	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
49	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
50	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
51	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
52	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
53	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
66	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
67	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
68	Y	-0.005	-0.005	0.00	Yes	100.00	Yes
71	Y	-0.007	-0.007	0.00	Yes	100.00	Yes
72	Y	-0.007	-0.007	0.00	Yes	100.00	Yes
73	Y	-0.007	-0.007	0.00	Yes	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	42	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.051	6.00	No
	43	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.06	5.00	No
	44	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.06	5.00	No
	45	y	-0.058	0.50	No
		y	-0.058	7.50	No
		y	-0.145	5.00	No
	46	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.051	6.00	No
	47	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.06	5.00	No
	48	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.06	5.00	No
	49	y	-0.058	0.50	No
		y	-0.058	7.50	No
		y	-0.145	5.00	No
	50	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.051	6.00	No

	51	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.06	5.00	No
	52	y	-0.034	0.50	No
		y	-0.034	7.50	No
		y	-0.06	5.00	No
	53	y	-0.058	0.50	No
		y	-0.058	7.50	No
		y	-0.145	5.00	No
W0	42	z	-0.249	0.50	No
		z	-0.249	7.50	No
		z	-0.017	6.00	No
	43	z	-0.249	0.50	No
		z	-0.249	7.50	No
	44	z	-0.249	0.50	No
		z	-0.249	7.50	No
	45	z	-0.333	0.50	No
		z	-0.333	7.50	No
	46	z	-0.17	0.50	No
		z	-0.17	7.50	No
		z	-0.054	6.00	No
	47	z	-0.17	0.50	No
		z	-0.17	7.50	No
	48	z	-0.17	0.50	No
		z	-0.17	7.50	No
	49	z	-0.191	0.50	No
		z	-0.191	7.50	No
	50	z	-0.17	0.50	No
		z	-0.17	7.50	No
		z	-0.054	6.00	No
	51	z	-0.17	0.50	No
		z	-0.17	7.50	No
	52	z	-0.17	0.50	No
		z	-0.17	7.50	No
	53	z	-0.191	0.50	No
		z	-0.191	7.50	No
W30	42	x	-0.144	0.50	No
		x	-0.144	7.50	No
		x	-0.046	6.00	No
	43	x	-0.144	0.50	No
		x	-0.144	7.50	No
		x	-0.064	5.00	No
	44	x	-0.144	0.50	No
		x	-0.144	7.50	No
		x	-0.048	5.00	No
	45	x	-0.144	0.50	No
		x	-0.144	7.50	No
		x	-0.063	5.00	No
	46	x	-0.222	0.50	No
		x	-0.222	7.50	No
		x	-0.051	6.00	No
	47	x	-0.222	0.50	No
		x	-0.222	7.50	No
		x	-0.058	5.00	No
	48	x	-0.222	0.50	No
		x	-0.222	7.50	No
		x	-0.041	5.00	No
	49	x	-0.285	0.50	No
		x	-0.285	7.50	No
		x	-0.055	5.00	No

	50	x	-0.222	0.50	No
		x	-0.222	7.50	No
		x	-0.051	6.00	No
	51	x	-0.222	0.50	No
		x	-0.222	7.50	No
		x	-0.058	5.00	No
	52	x	-0.222	0.50	No
		x	-0.222	7.50	No
		x	-0.041	5.00	No
	53	x	-0.285	0.50	No
		x	-0.285	7.50	No
		x	-0.055	5.00	No
Di	42	y	-0.093	0.50	No
		y	-0.093	7.50	No
		y	-0.044	6.00	No
	43	y	-0.093	0.50	No
		y	-0.093	7.50	No
		y	-0.047	5.00	No
	44	y	-0.093	0.50	No
		y	-0.093	7.50	No
		y	-0.035	5.00	No
	45	y	-0.122	0.50	No
		y	-0.122	7.50	No
		y	-0.061	5.00	No
	46	y	-0.093	0.50	No
		y	-0.093	7.50	No
		y	-0.044	6.00	No
	47	y	-0.093	0.50	No
		y	-0.093	7.50	No
		y	-0.047	5.00	No
	48	y	-0.093	0.50	No
		y	-0.093	7.50	No
		y	-0.035	5.00	No
	49	y	-0.122	0.50	No
		y	-0.122	7.50	No
		y	-0.061	5.00	No
	50	y	-0.093	0.50	No
		y	-0.093	7.50	No
		y	-0.044	6.00	No
	51	y	-0.093	0.50	No
		y	-0.093	7.50	No
		y	-0.047	5.00	No
	52	y	-0.093	0.50	No
		y	-0.093	7.50	No
		y	-0.035	5.00	No
	53	y	-0.122	0.50	No
		y	-0.122	7.50	No
		y	-0.061	5.00	No
Wi0	42	z	-0.047	0.50	No
		z	-0.047	7.50	No
		z	-0.006	6.00	No
	43	z	-0.047	0.50	No
		z	-0.047	7.50	No
	44	z	-0.047	0.50	No
		z	-0.047	7.50	No
	45	z	-0.061	0.50	No
		z	-0.061	7.50	No
	46	z	-0.033	0.50	No
		z	-0.033	7.50	No
		z	-0.012	6.00	No

	47	z	-0.033	0.50	No
		z	-0.033	7.50	No
	48	z	-0.033	0.50	No
		z	-0.033	7.50	No
	49	z	-0.037	0.50	No
		z	-0.037	7.50	No
	50	z	-0.033	0.50	No
		z	-0.033	7.50	No
		z	-0.012	6.00	No
	51	z	-0.033	0.50	No
		z	-0.033	7.50	No
	52	z	-0.033	0.50	No
		z	-0.033	7.50	No
	53	z	-0.037	0.50	No
		z	-0.037	7.50	No
Wi30	42	x	-0.029	0.50	No
		x	-0.029	7.50	No
		x	-0.011	6.00	No
	43	x	-0.029	0.50	No
		x	-0.029	7.50	No
		x	-0.014	5.00	No
	44	x	-0.029	0.50	No
		x	-0.029	7.50	No
		x	-0.011	5.00	No
	45	x	-0.029	0.50	No
		x	-0.029	7.50	No
		x	-0.014	5.00	No
	46	x	-0.042	0.50	No
		x	-0.042	7.50	No
		x	-0.011	6.00	No
	47	x	-0.042	0.50	No
		x	-0.042	7.50	No
		x	-0.012	5.00	No
	48	x	-0.042	0.50	No
		x	-0.042	7.50	No
		x	-0.009	5.00	No
	49	x	-0.052	0.50	No
		x	-0.052	7.50	No
		x	-0.012	5.00	No
	50	x	-0.042	0.50	No
		x	-0.042	7.50	No
		x	-0.011	6.00	No
	51	x	-0.042	0.50	No
		x	-0.042	7.50	No
		x	-0.012	5.00	No
	52	x	-0.042	0.50	No
		x	-0.042	7.50	No
		x	-0.009	5.00	No
	53	x	-0.052	0.50	No
		x	-0.052	7.50	No
		x	-0.012	5.00	No
WL0	42	z	-0.015	0.50	No
		z	-0.015	7.50	No
		z	-0.001	6.00	No
	43	z	-0.015	0.50	No
		z	-0.015	7.50	No
	44	z	-0.015	0.50	No
		z	-0.015	7.50	No
	45	z	-0.019	0.50	No
		z	-0.019	7.50	No

	46	z	-0.01	0.50	No
		z	-0.01	7.50	No
		z	-0.003	6.00	No
	47	z	-0.01	0.50	No
		z	-0.01	7.50	No
	48	z	-0.01	0.50	No
		z	-0.01	7.50	No
	49	z	-0.011	0.50	No
		z	-0.011	7.50	No
	50	z	-0.01	0.50	No
		z	-0.01	7.50	No
		z	-0.003	6.00	No
	51	z	-0.01	0.50	No
		z	-0.01	7.50	No
	52	z	-0.01	0.50	No
		z	-0.01	7.50	No
	53	z	-0.011	0.50	No
		z	-0.011	7.50	No
WL30	42	x	-0.009	0.50	No
		x	-0.009	7.50	No
		x	-0.003	6.00	No
	43	x	-0.009	0.50	No
		x	-0.009	7.50	No
		x	-0.004	5.00	No
	44	x	-0.009	0.50	No
		x	-0.009	7.50	No
		x	-0.003	5.00	No
	45	x	-0.009	0.50	No
		x	-0.009	7.50	No
		x	-0.004	5.00	No
	46	x	-0.013	0.50	No
		x	-0.013	7.50	No
		x	-0.003	6.00	No
	47	x	-0.013	0.50	No
		x	-0.013	7.50	No
		x	-0.003	5.00	No
	48	x	-0.013	0.50	No
		x	-0.013	7.50	No
		x	-0.002	5.00	No
	49	x	-0.017	0.50	No
		x	-0.017	7.50	No
		x	-0.003	5.00	No
	50	x	-0.013	0.50	No
		x	-0.013	7.50	No
		x	-0.003	6.00	No
	51	x	-0.013	0.50	No
		x	-0.013	7.50	No
		x	-0.003	5.00	No
	52	x	-0.013	0.50	No
		x	-0.013	7.50	No
		x	-0.002	5.00	No
	53	x	-0.017	0.50	No
		x	-0.017	7.50	No
		x	-0.003	5.00	No
LL1	21	y	-0.25	50.00	Yes
LL2	21	y	-0.25	0.00	No
LLa1	42	y	-0.25	50.00	Yes
LLa2	43	y	-0.25	50.00	Yes
LLa3	44	y	-0.25	50.00	Yes
LLa4	45	y	-0.25	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
W0	Wind Load 0/60/120 deg	No	0.00	0.00	0.00
W30	Wind Load 30/90/150 deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
Wi0	Ice Wind Load 0/60/120 deg	No	0.00	0.00	0.00
Wi30	Ice Wind Load 30/90/150 deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0/60/120 deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30/90/150 deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load End of Mount	No	0.00	0.00	0.00
LLa1	250 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	250 lb Live Load Antenna 3	No	0.00	0.00	0.00
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

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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
	C 3X6	**33**	LC2 at 50.00%	**1.43**	**N.G.**	Eq. H1-1b
		34	LC4 at 50.00%	1.42	N.G.	Eq. H1-1b
		35	LC1 at 50.00%	1.42	N.G.	Eq. H1-1b
	L 2X2X3_16	**36**	LC2 at 0.00%	1.00	N.G.	Eq. H2-1
		37	LC3 at 100.00%	0.83	OK	Sec. F1
		38	LC4 at 0.00%	**1.04**	**N.G.**	Eq. H2-1
		39	LC3 at 100.00%	0.80	OK	Sec. F1
		40	LC1 at 0.00%	0.98	OK	Eq. H2-1
		41	LC1 at 0.00%	0.94	OK	Eq. H2-1
	LU 7x4x1/4	**71**	LC4 at 100.00%	0.44	OK	Eq. H2-1
		72	LC2 at 100.00%	0.55	OK	Eq. H2-1
		73	LC4 at 0.00%	**0.56**	**OK**	Eq. H2-1
	PIPE 2-1_2x0.203	**42**	LC4 at 95.83%	0.62	OK	Eq. H1-1b
		43	LC4 at 95.83%	**1.12**	**N.G.**	Eq. H1-1b
		44	LC2 at 95.83%	1.01	N.G.	Eq. H1-1b

	45	LC2 at 95.83%	0.60	OK	Eq. H1-1b
	46	LC1 at 95.83%	0.71	OK	Eq. H1-1b
	47	LC3 at 95.83%	1.02	N.G.	Eq. H1-1b
	48	LC2 at 95.83%	0.95	OK	Eq. H1-1b
	49	LC2 at 95.83%	0.67	OK	Eq. H1-1b
	50	LC4 at 95.83%	0.72	OK	Eq. H1-1b
	51	LC2 at 95.83%	1.04	N.G.	Eq. H1-1b
	52	LC3 at 95.83%	0.91	OK	Eq. H1-1b
	53	LC1 at 95.83%	0.66	OK	Eq. H1-1b
PIPE 2x0.154	**66**	LC4 at 8.93%	1.56	N.G.	Eq. H1-1b
	67	LC4 at 91.96%	**1.66**	**N.G.**	Eq. H3-6
	68	LC8 at 11.61%	1.52	N.G.	Eq. H1-1b
PIPE 3x0.216	**21**	LC2 at 39.29%	1.00	N.G.	Eq. H3-6
	22	LC4 at 60.71%	1.04	N.G.	Eq. H3-6
	23	LC3 at 60.71%	1.00	OK	Eq. H3-6
	27	LC2 at 62.50%	1.46	N.G.	Eq. H1-1b
	28	LC4 at 62.50%	**1.58**	**N.G.**	Eq. H3-6
	29	LC1 at 62.50%	1.52	N.G.	Eq. H1-1b
PL 6x3/8	**24**	LC4 at 50.00%	**0.99**	**OK**	Eq. H3-6
	25	LC2 at 0.00%	0.98	OK	Eq. H3-6
	26	LC1 at 50.00%	0.92	OK	Eq. H3-6
T2L 3X3X1_4X3_8	**30**	LC2 at 0.00%	1.51	N.G.	Eq. H2-1
	31	LC4 at 0.00%	**1.52**	**N.G.**	Eq. H2-1
	32	LC1 at 0.00%	1.40	N.G.	Eq. H2-1

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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
1	0.00	0.00	0.00	0
21	0.00	0.00	-1.08	0
173	0.9353	-1.52	0.54	0
174	-0.9353	-1.52	0.54	0
175	0.00	-1.52	-1.08	0
178	0.9353	0.00	0.54	0
180	-0.9353	0.00	0.54	0
216	0.5195	0.00	-7.8401	0
217	7.0495	0.00	3.4701	0
225	-7.0495	0.00	3.4701	0
226	-0.5195	0.00	-7.8401	0
228	6.53	0.00	4.37	0
229	-6.53	0.00	4.37	0
230	1.5295	0.00	-6.0908	0
231	3.1145	0.00	-3.3455	0
232	4.6995	0.00	-0.6002	0
233	6.2645	0.00	2.1105	0
234	4.8727	0.00	-0.7002	0
235	6.4377	0.00	2.0105	0
236	1.7027	0.00	-6.1908	0
237	3.2877	0.00	-3.4455	0
254	-1.3045	0.00	-6.4805	0

255	-1.4777	0.00	-6.5805	0
256	-2.8695	0.00	-3.7698	0
257	-3.0427	0.00	-3.8698	0
258	-4.4545	0.00	-1.0245	0
259	-4.6277	0.00	-1.1245	0
260	-6.0395	0.00	1.7208	0
261	-6.2127	0.00	1.6208	0
262	-4.96	0.00	4.37	0
263	-4.96	0.00	4.57	0
264	-1.83	0.00	4.37	0
265	-1.83	0.00	4.57	0
266	1.34	0.00	4.37	0
267	1.34	0.00	4.57	0
268	4.51	0.00	4.37	0
269	4.51	0.00	4.57	0
270	-6.7898	0.00	3.9201	0
271	0.00	0.00	-7.8401	0
272	6.7898	0.00	3.9201	0
296	-2.9185	0.00	1.685	0
299	2.9185	0.00	1.685	0
300	0.00	0.00	-3.37	0
301	-3.1029	0.00	1.7914	0
340	3.1029	0.00	1.7914	0
341	0.00	0.00	-3.5829	0
342	-4.4687	0.00	-1.00	0
343	-1.3683	0.00	4.37	0
348	1.3683	0.00	4.37	0
349	4.4687	0.00	-1.00	0
350	3.1004	0.00	-3.37	0
351	-3.1004	0.00	-3.37	0
352	-4.2185	0.00	-0.5667	0
353	-1.6185	0.00	3.9367	0
358	4.2185	0.00	-0.5667	0
359	1.6185	0.00	3.9367	0
360	-2.60	0.00	-3.37	0
361	2.60	0.00	-3.37	0
362	4.51	-0.25	4.57	0
363	1.34	-0.25	4.57	0
364	-1.83	-0.25	4.57	0
365	-4.96	-0.25	4.57	0
366	-6.2127	-0.25	1.6208	0
367	-4.6277	-0.25	-1.1245	0
368	-3.0427	-0.25	-3.8698	0
369	-1.4777	-0.25	-6.5805	0
370	1.7027	-0.25	-6.1908	0
371	3.2877	-0.25	-3.4455	0
372	4.8727	-0.25	-0.7002	0
373	6.4377	-0.25	2.0105	0
374	4.51	8.75	4.57	0
375	1.34	8.75	4.57	0
376	-1.83	8.75	4.57	0
377	-4.96	8.75	4.57	0
378	-6.2127	8.75	1.6208	0
379	-4.6277	8.75	-1.1245	0
380	-3.0427	8.75	-3.8698	0
381	-1.4777	8.75	-6.5805	0
382	1.7027	8.75	-6.1908	0
383	3.2877	8.75	-3.4455	0
384	4.8727	8.75	-0.7002	0
385	6.4377	8.75	2.0105	0

386	4.51	5.00	4.37	0
387	4.51	5.00	4.57	0
388	1.34	5.00	4.37	0
389	1.34	5.00	4.57	0
390	-1.83	5.00	4.37	0
391	-1.83	5.00	4.57	0
392	-4.96	5.00	4.37	0
393	-4.96	5.00	4.57	0
394	-6.0395	5.00	1.7208	0
395	-6.2127	5.00	1.6208	0
396	-4.4545	5.00	-1.0245	0
397	-4.6277	5.00	-1.1245	0
398	-2.8695	5.00	-3.7698	0
399	-3.0427	5.00	-3.8698	0
400	-1.3045	5.00	-6.4805	0
401	-1.4777	5.00	-6.5805	0
402	1.5295	5.00	-6.0908	0
403	1.7027	5.00	-6.1908	0
404	3.1145	5.00	-3.3455	0
405	3.2877	5.00	-3.4455	0
406	4.6995	5.00	-0.6002	0
407	4.8727	5.00	-0.7002	0
408	6.2645	5.00	2.1105	0
409	6.4377	5.00	2.0105	0
411	0.7845	5.00	-7.3812	0
412	6.7845	5.00	3.0112	0
413	6.6595	5.00	2.7946	0
414	0.9095	5.00	-7.1646	0
423	-6.7845	5.00	3.0112	0
424	-6.6595	5.00	2.7946	0
425	-0.7845	5.00	-7.3812	0
426	-0.9095	5.00	-7.1646	0
427	6.00	5.00	4.37	0
428	5.75	5.00	4.37	0
429	-6.00	5.00	4.37	0
430	-5.75	5.00	4.37	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
21	1	1	1	1	1	1
173	1	1	1	1	1	1
174	1	1	1	1	1	1
175	1	1	1	1	1	1
178	1	1	1	1	1	1
180	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
21	229	228		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
22	225	226		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
23	216	217		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
24	217	228		PL 6x3/8	A36	0.00	0.00	0.00
25	229	225		PL 6x3/8	A36	0.00	0.00	0.00
26	216	226		PL 6x3/8	A36	0.00	0.00	0.00
27	270	180		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
28	272	178		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
29	271	21		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
30	301	174		T2L 3X3X1_4X3_8	A36	0.00	0.00	0.00
31	340	173		T2L 3X3X1_4X3_8	A36	0.00	0.00	0.00
32	341	175		T2L 3X3X1_4X3_8	A36	0.00	0.00	0.00
33	343	342		C 3X6	A36	0.00	0.00	0.00
34	348	349		C 3X6	A36	0.00	0.00	0.00
35	351	350		C 3X6	A36	0.00	0.00	0.00
36	270	353		L 2X2X3_16	A36	0.00	0.00	0.00
37	352	270		L 2X2X3_16	A36	0.00	0.00	0.00
38	272	359		L 2X2X3_16	A36	0.00	0.00	0.00
39	358	272		L 2X2X3_16	A36	0.00	0.00	0.00
40	271	361		L 2X2X3_16	A36	0.00	0.00	0.00
41	271	360		L 2X2X3_16	A36	0.00	0.00	0.00
42	374	362		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
43	375	363		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
44	376	364		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
45	377	365		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
46	378	366		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
47	379	367		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
48	380	368		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
49	381	369		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
50	382	370		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
51	383	371		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
52	384	372		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
53	385	373		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
66	429	427		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
67	423	425		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
68	411	412		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
71	414	426		LU 7x4x1/4	A36	0.00	0.00	0.00
72	424	430		LU 7x4x1/4	A36	0.00	0.00	0.00
73	428	413		LU 7x4x1/4	A36	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
33	180.00	0	0.00	0.00	0.00
35	180.00	0	0.00	0.00	0.00
36	270.00	0	0.00	0.00	0.00
37	270.00	0	0.00	0.00	0.00
41	270.00	0	0.00	0.00	0.00
71	180.00	0	0.00	0.00	0.00
72	180.00	0	0.00	0.00	0.00
73	180.00	0	0.00	0.00	0.00

HUDSON
Design Group LLC

Mount Calculations
(Modified Conditions)

Install new stabilizer kit, SitePro1 P/N PRK-SFS (or approved equal).

Vertically center new and existing antennas and pipe masts on the existing mount (typ. of 4 per sector, total of 12).

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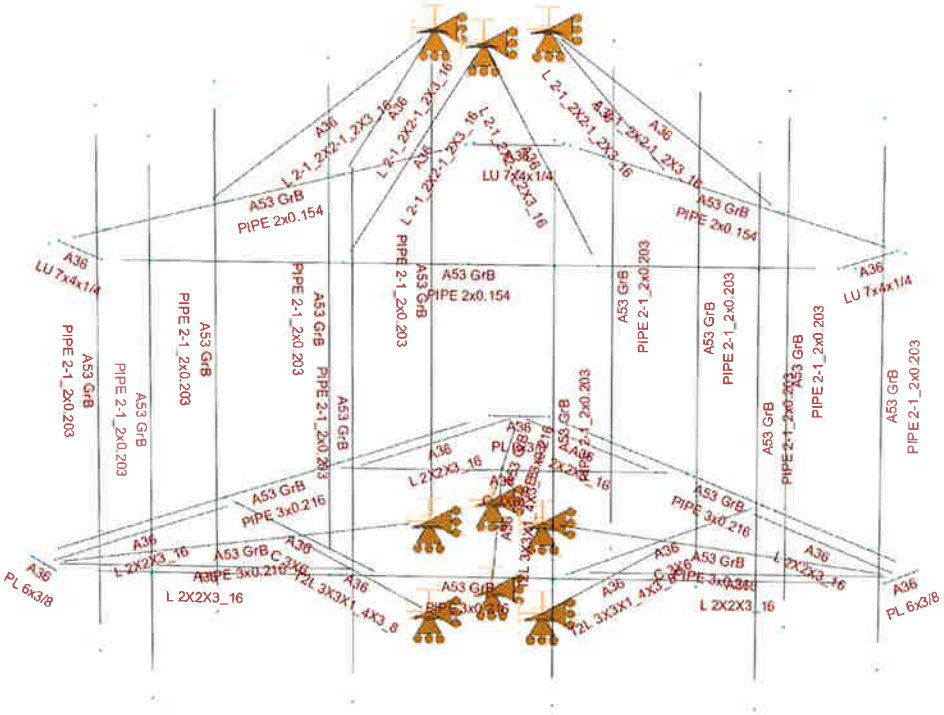

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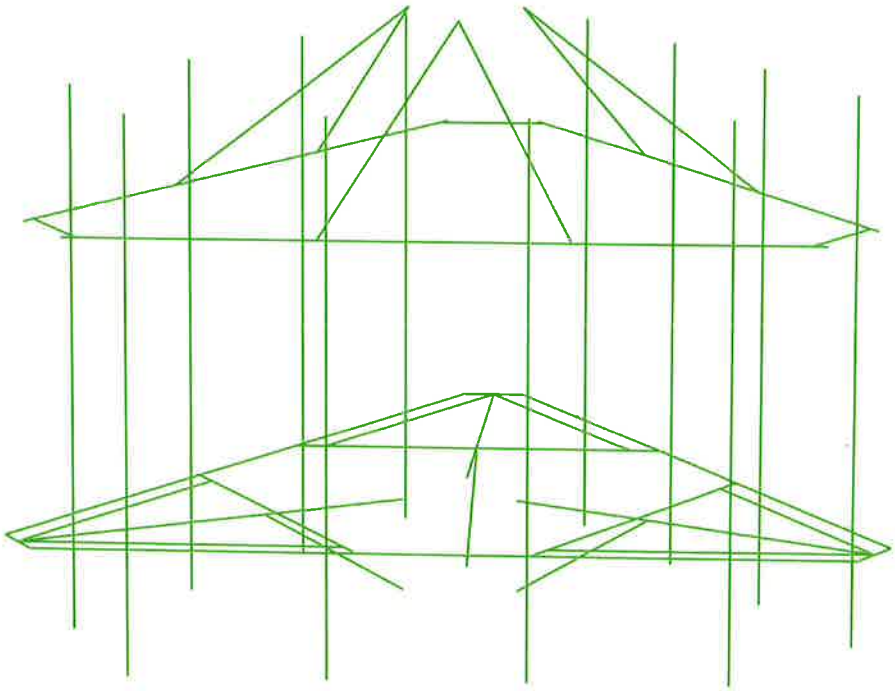
Design status

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



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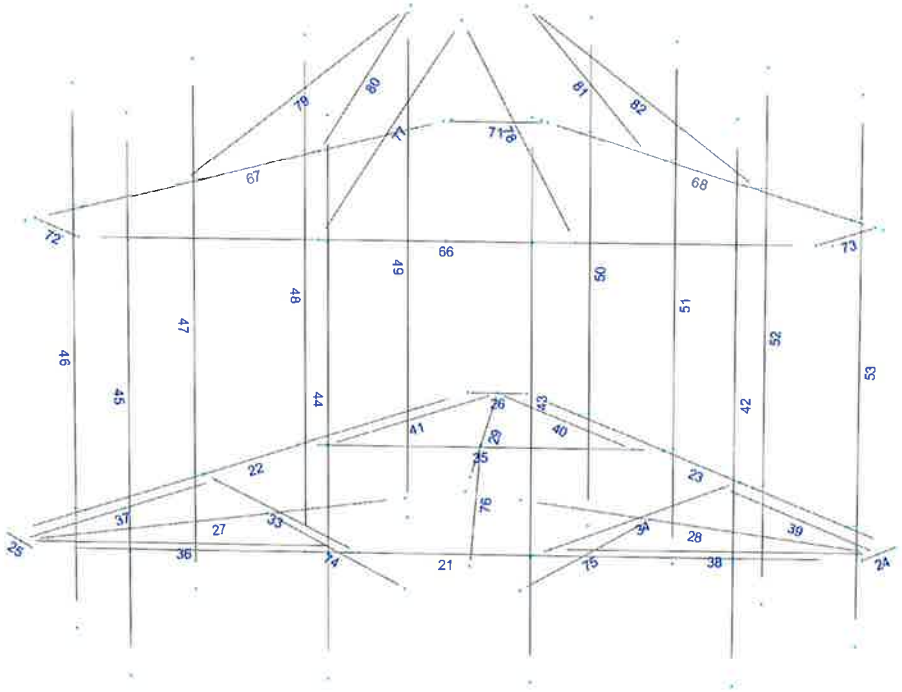

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Steel Code Check

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
	C 3X6	**33**	LC4 at 100.00%	0.77	OK	Eq. H1-1b
		34	LC2 at 100.00%	**0.83**	**OK**	Eq. H1-1b
		35	LC3 at 0.00%	0.62	OK	Eq. H1-1b
	L 2-1_2X2-1_2X3_16	**77**	LC9 at 0.00%	0.55	OK	Eq. H2-1
		78	LC9 at 0.00%	0.50	OK	Eq. H2-1
		79	LC3 at 0.00%	0.64	OK	Sec. F1
		80	LC4 at 0.00%	**0.71**	**OK**	Sec. F1
		81	LC2 at 100.00%	0.69	OK	Sec. F1
		82	LC3 at 0.00%	0.62	OK	Sec. F1
	L 2X2X3_16	**36**	LC3 at 0.00%	0.32	OK	Eq. H2-1
		37	LC2 at 100.00%	**0.38**	**OK**	Eq. H2-1
		38	LC3 at 0.00%	0.33	OK	Eq. H2-1
		39	LC4 at 100.00%	0.36	OK	Eq. H2-1
		40	LC11 at 0.00%	0.32	OK	Eq. H2-1
		41	LC11 at 0.00%	0.31	OK	Eq. H2-1

LU 7x4x1/4	**71**	LC1 at 100.00%	0.17	OK	Eq. H2-1
	72	LC3 at 100.00%	0.18	OK	Eq. H2-1
	73	LC4 at 100.00%	**0.19**	**OK**	Eq. H2-1
PIPE 2-1_2x0.203	**42**	LC10 at 77.08%	0.27	OK	Eq. H1-1b
	43	LC10 at 77.08%	0.36	OK	Eq. H1-1b
	44	LC12 at 77.08%	0.38	OK	Eq. H1-1b
	45	LC3 at 77.08%	0.27	OK	Eq. H1-1b
	46	LC1 at 77.08%	0.32	OK	Eq. H1-1b
	47	LC11 at 77.08%	0.41	OK	Eq. H1-1b
	48	LC12 at 77.08%	0.41	OK	Eq. H1-1b
	49	LC2 at 77.08%	0.37	OK	Eq. H1-1b
	50	LC4 at 77.08%	0.38	OK	Eq. H1-1b
	51	LC10 at 77.08%	**0.42**	**OK**	Eq. H1-1b
	52	LC11 at 77.08%	0.34	OK	Eq. H1-1b
	53	LC1 at 77.08%	0.30	OK	Eq. H1-1b
PIPE 2x0.154	**66**	LC3 at 66.88%	0.61	OK	Eq. H1-1b
	67	LC2 at 32.64%	**0.74**	**OK**	Eq. H1-1b
	68	LC4 at 66.67%	0.69	OK	Eq. H1-1b
PIPE 3x0.216	**21**	LC10 at 60.71%	0.24	OK	Eq. H1-1b
	22	LC12 at 60.71%	0.26	OK	Eq. H3-6
	23	LC11 at 60.71%	0.26	OK	Eq. H3-6
	27	LC9 at 62.50%	0.36	OK	Eq. H1-1b
	28	LC9 at 62.50%	0.36	OK	Eq. H1-1b
	29	LC12 at 62.50%	**0.36**	**OK**	Eq. H1-1b
PL 6x3/8	**24**	LC2 at 50.00%	0.25	OK	Eq. H1-1b
	25	LC4 at 0.00%	0.25	OK	Eq. H1-1b
	26	LC3 at 50.00%	**0.26**	**OK**	Eq. H1-1b
T2L 3X3X1_4X3_8	**74**	LC9 at 100.00%	0.35	OK	Eq. H2-1
	75	LC10 at 0.00%	0.34	OK	Eq. H2-1
	76	LC2 at 0.00%	**0.41**	**OK**	Eq. H2-1

Bentley

Current Date: 4/2/2019 11:20 AM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT3506\CT3506 (LTE 4C-5C-6C) (MOD.).etz\

Geometry data

GLOSSARY

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

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	0.00	0.00	0.00	0
21	0.00	0.00	-1.08	0
173	0.9353	-1.52	0.54	0
174	-0.9353	-1.52	0.54	0
175	0.00	-1.52	-1.08	0
178	0.9353	0.00	0.54	0
180	-0.9353	0.00	0.54	0
216	0.5195	0.00	-7.8401	0
217	7.0495	0.00	3.4701	0
225	-7.0495	0.00	3.4701	0
226	-0.5195	0.00	-7.8401	0
228	6.53	0.00	4.37	0
229	-6.53	0.00	4.37	0
230	1.5295	0.00	-6.0908	0
231	3.1145	0.00	-3.3455	0
232	4.6995	0.00	-0.6002	0
233	6.2645	0.00	2.1105	0
234	4.8727	0.00	-0.7002	0
235	6.4377	0.00	2.0105	0
236	1.7027	0.00	-6.1908	0
237	3.2877	0.00	-3.4455	0

254	-1.3045	0.00	-6.4805	0
255	-1.4777	0.00	-6.5805	0
256	-2.8695	0.00	-3.7698	0
257	-3.0427	0.00	-3.8698	0
258	-4.4545	0.00	-1.0245	0
259	-4.6277	0.00	-1.1245	0
260	-6.0395	0.00	1.7208	0
261	-6.2127	0.00	1.6208	0
262	-4.96	0.00	4.37	0
263	-4.96	0.00	4.57	0
264	-1.83	0.00	4.37	0
265	-1.83	0.00	4.57	0
266	1.34	0.00	4.37	0
267	1.34	0.00	4.57	0
268	4.51	0.00	4.37	0
269	4.51	0.00	4.57	0
270	-6.7898	0.00	3.9201	0
271	0.00	0.00	-7.8401	0
272	6.7898	0.00	3.9201	0
342	-4.4687	0.00	-1.00	0
343	-1.3683	0.00	4.37	0
348	1.3683	0.00	4.37	0
349	4.4687	0.00	-1.00	0
350	3.1004	0.00	-3.37	0
351	-3.1004	0.00	-3.37	0
352	-4.2185	0.00	-0.5667	0
353	-1.6185	0.00	3.9367	0
358	4.2185	0.00	-0.5667	0
359	1.6185	0.00	3.9367	0
360	-2.60	0.00	-3.37	0
361	2.60	0.00	-3.37	0
362	4.51	-2.00	4.57	0
363	1.34	-2.00	4.57	0
364	-1.83	-2.00	4.57	0
365	-4.96	-2.00	4.57	0
366	-6.2127	-2.00	1.6208	0
367	-4.6277	-2.00	-1.1245	0
368	-3.0427	-2.00	-3.8698	0
369	-1.4777	-2.00	-6.5805	0
370	1.7027	-2.00	-6.1908	0
371	3.2877	-2.00	-3.4455	0
372	4.8727	-2.00	-0.7002	0
373	6.4377	-2.00	2.0105	0
374	4.51	7.00	4.57	0
375	1.34	7.00	4.57	0
376	-1.83	7.00	4.57	0
377	-4.96	7.00	4.57	0
378	-6.2127	7.00	1.6208	0
379	-4.6277	7.00	-1.1245	0
380	-3.0427	7.00	-3.8698	0
381	-1.4777	7.00	-6.5805	0
382	1.7027	7.00	-6.1908	0
383	3.2877	7.00	-3.4455	0
384	4.8727	7.00	-0.7002	0
385	6.4377	7.00	2.0105	0
386	4.51	5.00	4.37	0
387	4.51	5.00	4.57	0
388	1.34	5.00	4.37	0
389	1.34	5.00	4.57	0
390	-1.83	5.00	4.37	0

391	-1.83	5.00	4.57	0
392	-4.96	5.00	4.37	0
393	-4.96	5.00	4.57	0
394	-6.0395	5.00	1.7208	0
395	-6.2127	5.00	1.6208	0
396	-4.4545	5.00	-1.0245	0
397	-4.6277	5.00	-1.1245	0
398	-2.8695	5.00	-3.7698	0
399	-3.0427	5.00	-3.8698	0
400	-1.3045	5.00	-6.4805	0
401	-1.4777	5.00	-6.5805	0
402	1.5295	5.00	-6.0908	0
403	1.7027	5.00	-6.1908	0
404	3.1145	5.00	-3.3455	0
405	3.2877	5.00	-3.4455	0
406	4.6995	5.00	-0.6002	0
407	4.8727	5.00	-0.7002	0
408	6.2645	5.00	2.1105	0
409	6.4377	5.00	2.0105	0
411	0.7845	5.00	-7.3812	0
412	6.7845	5.00	3.0112	0
413	6.6595	5.00	2.7946	0
414	0.9095	5.00	-7.1646	0
423	-6.7845	5.00	3.0112	0
424	-6.6595	5.00	2.7946	0
425	-0.7845	5.00	-7.3812	0
426	-0.9095	5.00	-7.1646	0
427	6.00	5.00	4.37	0
428	5.75	5.00	4.37	0
429	-6.00	5.00	4.37	0
430	-5.75	5.00	4.37	0
431	-3.1029	0.00	1.7914	0
451	0.00	0.00	-3.58	0
452	3.1029	0.00	1.7914	0
453	0.00	5.00	4.37	0
454	2.7845	5.00	-3.9171	0
455	4.7845	5.00	-0.4529	0
461	0.9353	8.00	-0.54	0
462	0.00	8.00	1.08	0
463	-0.9353	8.00	-0.54	0
468	-2.7845	5.00	-3.9171	0
469	-4.7845	5.00	-0.4529	0
470	-2.00	5.00	4.37	0
471	2.00	5.00	4.37	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
21	1	1	1	1	1	1
173	1	1	1	1	1	1
174	1	1	1	1	1	1
175	1	1	1	1	1	1
178	1	1	1	1	1	1
180	1	1	1	1	1	1
461	1	1	1	1	1	1

462	1	1	1	1	1	1
463	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
21	229	228		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
22	225	226		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
23	216	217		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
24	217	228		PL 6x3/8	A36	0.00	0.00	0.00
25	229	225		PL 6x3/8	A36	0.00	0.00	0.00
26	216	226		PL 6x3/8	A36	0.00	0.00	0.00
27	270	180		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
28	272	178		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
29	271	21		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
33	343	342		C 3X6	A36	0.00	0.00	0.00
34	348	349		C 3X6	A36	0.00	0.00	0.00
35	351	350		C 3X6	A36	0.00	0.00	0.00
36	270	353		L 2X2X3_16	A36	0.00	0.00	0.00
37	352	270		L 2X2X3_16	A36	0.00	0.00	0.00
38	272	359		L 2X2X3_16	A36	0.00	0.00	0.00
39	358	272		L 2X2X3_16	A36	0.00	0.00	0.00
40	271	361		L 2X2X3_16	A36	0.00	0.00	0.00
41	271	360		L 2X2X3_16	A36	0.00	0.00	0.00
42	374	362		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
43	375	363		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
44	376	364		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
45	377	365		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
46	378	366		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
47	379	367		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
48	380	368		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
49	381	369		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
50	382	370		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
51	383	371		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
52	384	372		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
53	385	373		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
66	429	427		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
67	423	425		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
68	411	412		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
71	414	426		LU 7x4x1/4	A36	0.00	0.00	0.00
72	424	430		LU 7x4x1/4	A36	0.00	0.00	0.00
73	428	413		LU 7x4x1/4	A36	0.00	0.00	0.00
74	174	431		T2L 3X3X1_4X3_8	A36	0.00	0.00	0.00
75	452	173		T2L 3X3X1_4X3_8	A36	0.00	0.00	0.00
76	175	451		T2L 3X3X1_4X3_8	A36	0.00	0.00	0.00
77	470	462		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
78	471	462		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
79	463	469		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
80	463	468		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
81	454	461		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
82	461	455		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
33	180.00	0	0.00	0.00	0.00
35	180.00	0	0.00	0.00	0.00
36	270.00	0	0.00	0.00	0.00
37	270.00	0	0.00	0.00	0.00
41	270.00	0	0.00	0.00	0.00
71	180.00	0	0.00	0.00	0.00
72	180.00	0	0.00	0.00	0.00
73	180.00	0	0.00	0.00	0.00
77	135.00	0	0.00	0.00	0.00
78	135.00	0	0.00	0.00	0.00
79	135.00	0	0.00	0.00	0.00
80	135.00	0	0.00	0.00	0.00
81	135.00	0	0.00	0.00	0.00
82	135.00	0	0.00	0.00	0.00

50 DEVINE ST

Location	50 DEVINE ST	**Mblu**	051/ / 021/ /
Acct#	256482	**Owner**	424 CHAPEL STREET LLC
Assessment	$1,287,160	**Appraisal**	$1,838,800
PID	8849	**Building Count**	2

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$1,255,400	$583,400	$1,838,800
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$878,780	$408,380	$1,287,160

Owner of Record

Owner	424 CHAPEL STREET LLC	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	50 DEVINE ST NORTH HAVEN, CT 06473	**Book & Page**	832/ 52
		Sale Date	08/02/2010

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
424 CHAPEL STREET LLC	$0		832/ 52	08/02/2010
424 CHAPEL STREET LLC	$0	1	772/ 943	08/02/2007
PAPA ANTHONY S (RET ANN TRUST 1,2,3) &	$0	2	427/ 372	02/11/1992
PAPA ANTHONY S	$0	3	410/ 102	07/24/1990
PAPA ANTHONY S	$0	4	410/ 87	07/24/1990

Building Information

Building 1 : Section 1

Year Built: 1949
Living Area: 24,300
Replacement Cost: $807,225
Building Percent Good: 80
Replacement Cost Less Depreciation: $645,800

Building Attributes	
Field	**Description**
STYLE	Lt. Industrial
MODEL	Ind/Comm
Grade	C
Stories:	1
Occupancy	1
Exterior Wall 1	Brick
Exterior Wall 2	Metal
Roof Structure	Gable/Hip
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	Minim/Masonry
Interior Floor 1	Concr-Finished
Interior Floor 2	Carpet
Heating Fuel	Gas
Heating Type	Unit Heat
AC Type	Central
Bldg Use	MANUFAC M96
Total Rooms	
Total Bedrms	
Total Baths	
1st Floor Use:	
Heat/AC	HEAT/AC PKGS
Frame Type	WOOD FRAME
Baths/Plumbing	AVERAGE
Ceiling/Wall	SUS-CEIL/MN WL
Rooms/Prtns	AVERAGE

Building Photo

(http://images.vgsi.com/photos/NorthHavenCTPhotos//\00\01\54/75.jpg)

Building Layout

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	18,480	18,480
AOF	Office	5,820	5,820
FOP	Porch, Open	180	0
		24,480	24,300

Wall Height	10
% Comn Wall	

Building 2 : Section 1

Year Built: 1984
Living Area: 18,228
Replacement Cost: $671,884
Building Percent Good: 80
Replacement Cost Less Depreciation: $537,500

Building Attributes : Bldg 2 of 2	
Field	**Description**
STYLE	Lt. Industrial
MODEL	Ind/Comm
Grade	C
Stories:	1
Occupancy	1
Exterior Wall 1	Metal
Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	Metal/Tin
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	Carpet
Heating Fuel	Gas
Heating Type	Unit Heat
AC Type	Partial
Bldg Use	MANUFAC M96
Total Rooms	
Total Bedrms	
Total Baths	
1st Floor Use:	
Heat/AC	HEAT/AC PKGS
Frame Type	STEEL
Baths/Plumbing	AVERAGE
Ceiling/Wall	SUS-CEIL/MN WL
Rooms/Prtns	AVERAGE
Wall Height	22
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos/NorthHavenCTPhotos//\00\01\54/76.jpg)

Building Layout

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	11,772	11,772
AOF	Office	6,456	6,456
		18,228	18,228

Extra Features

Extra Features				Legend
Code	**Description**	**Size**	**Value**	**Bldg #**
A/C	AIR CONDITION	52800 S.F.	$82,400	2
SPR1	SPRINKLERS-WET	0 S.F.	$0	2
SPR1	SPRINKLERS-WET	19202 S.F.	$13,800	1
LDL1	LOAD LEVELERS	3 UNITS	$7,000	1
MEZ1	MEZZANINE-UNF	2959 S.F.	$21,300	1

Land

Land Use

Use Code 4000
Description MANUFAC M96
Zone IG80
Neighborhood 305
Alt Land Appr No
Category

Land Line Valuation

Size (Acres) 5.97
Frontage
Depth
Assessed Value $408,380
Appraised Value $583,400

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
PAV1	PAVING-ASPHALT			45000 S.F.	$6,100	1
TWR1	COMMU-TOWER			1 UNITS	$112,500	1

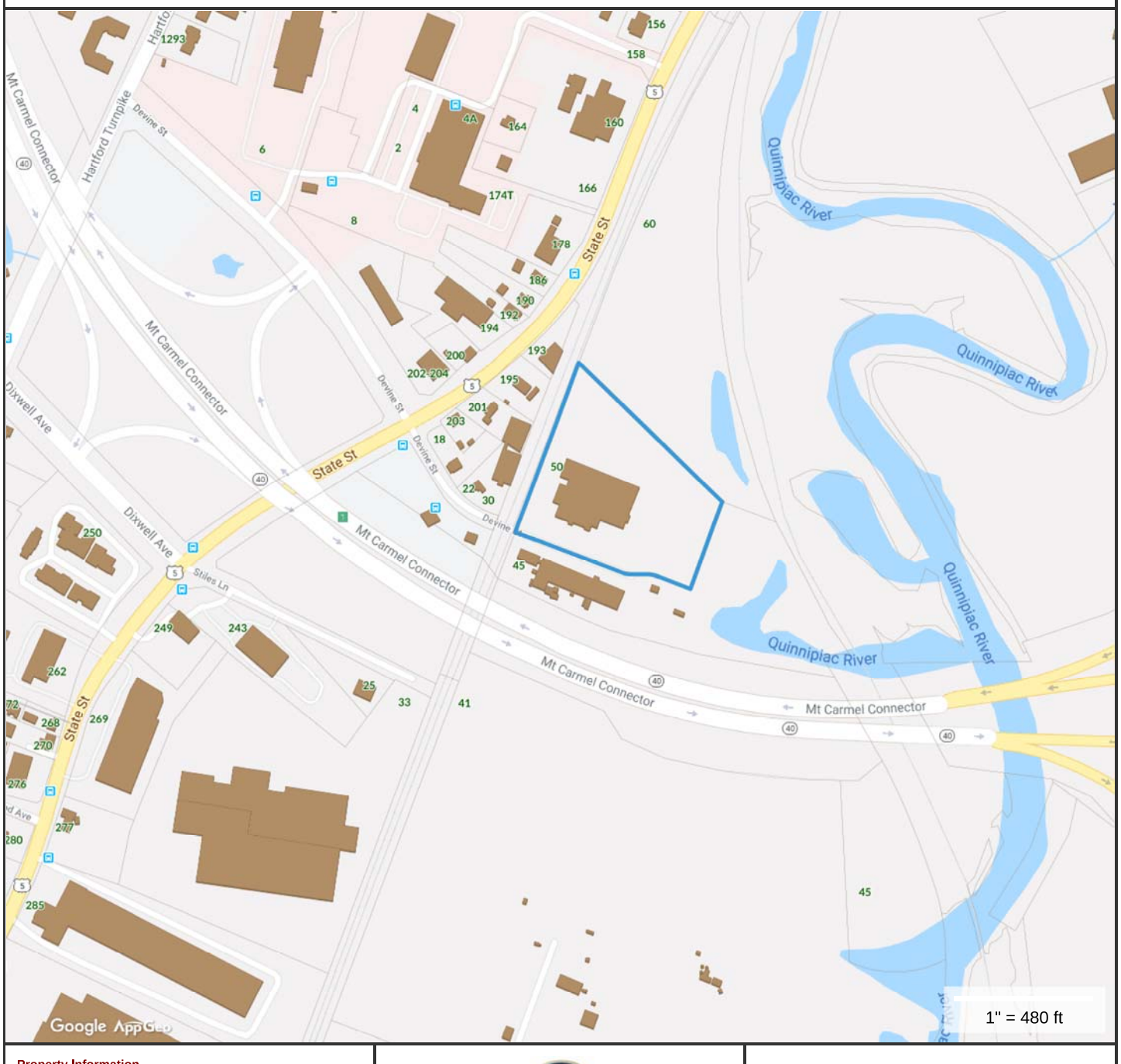
Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2013	$1,332,500	$657,800	$1,990,300
2008	$733,200	$688,200	$1,421,400
2007		$481,740	$994,980

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2013	$932,750	$460,460	$1,393,210
2008	$526,390	$481,740	$1,008,130
2007		$481,740	$994,980

Town of North Haven, CT May 23, 2019

50 DEVINE STREET, NORTH HAVEN



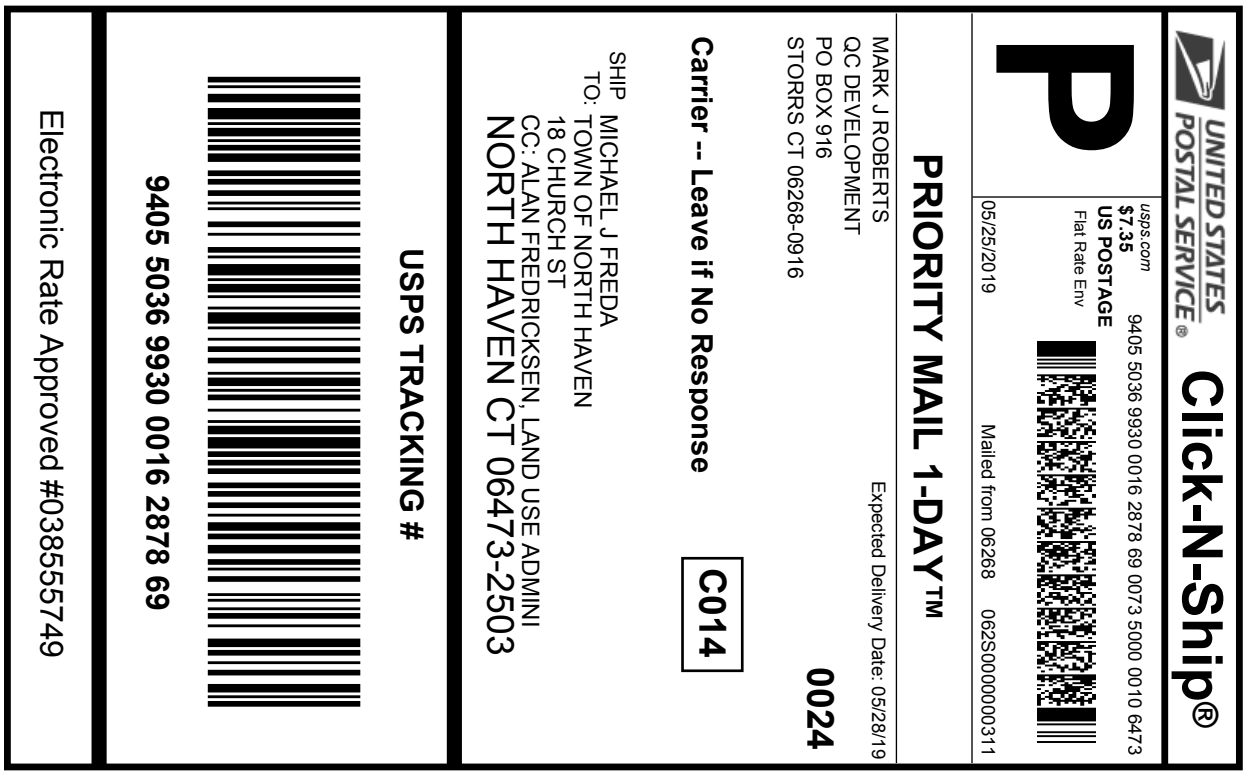
Property Information

Property ID	51/21
Location	50 DEVINE ST
Owner	424 CHAPEL STREET LLC

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

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

Geometry updated 07/01/2018
Data updated 11/18/2018



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 0016 2878 69

Trans. #:	464762080
Print Date:	05/24/2019
Ship Date:	05/25/2019
Expected Delivery Date:	05/28/2019

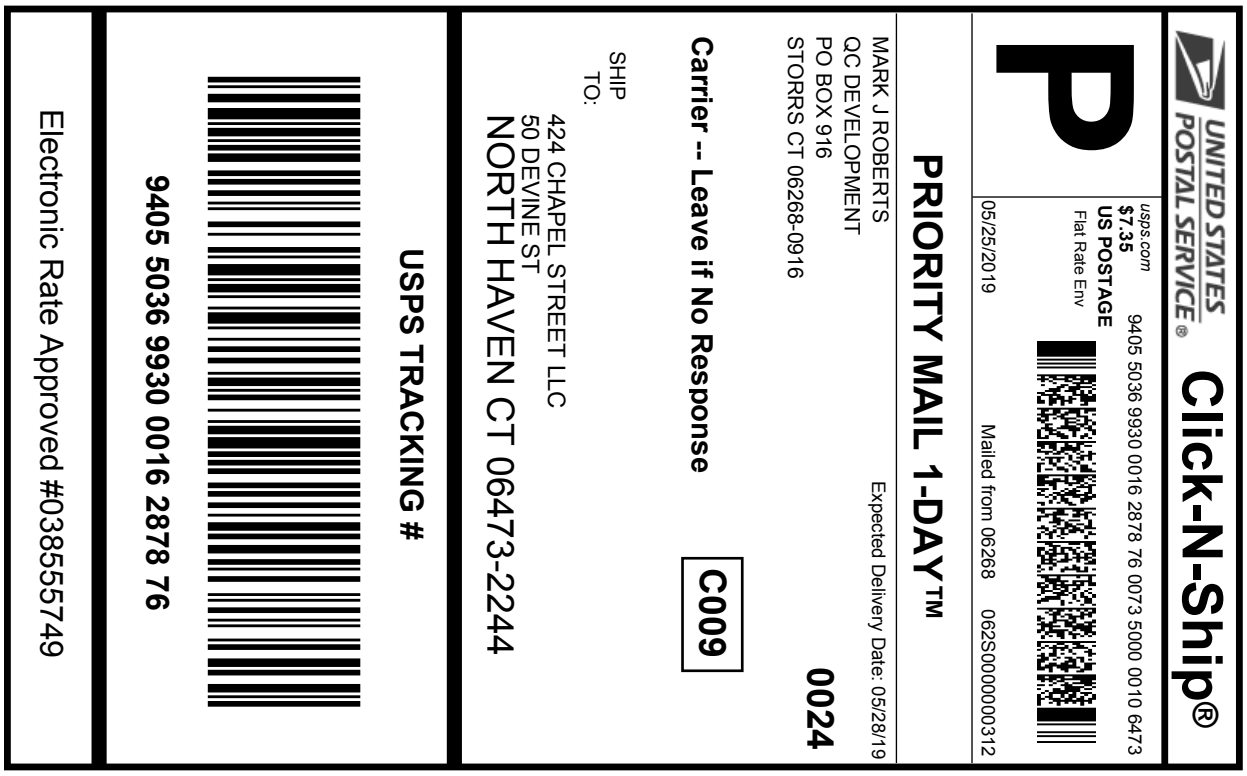
Priority Mail® Postage:	**$7.35**
Total	**$7.35**

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

To: MICHAEL J FREDA
TOWN OF NORTH HAVEN
18 CHURCH ST
CC: ALAN FREDRICKSEN, LAND USE ADMINI
NORTH HAVEN CT 06473-2503

* 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



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

To: 424 CHAPEL STREET LLC
50 DEVINE ST
NORTH HAVEN CT 06473-2244

* 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.

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