



April 5, 2018

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

Regarding: Notice of Exempt Modification – Addition of Three (3) Remote Radio Head Units (RRUs).

Property Address: 125 Washington Avenue; North Haven, CT 064732 (also known as 127 Washington Avenue) (the “Property”)

Applicant: AT&T Mobility (“AT&T”, Site # CT2209 / FA # 10035221)

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 100-foot monopole at the above-referenced address, latitude 41.39694444, longitude -72.85722222. Said monopole is owned by American Tower Corporation and the ground space is owned by CANDID ASSOCIATES LLC.

AT&T desires to modify its existing telecommunications facility by adding (3) remote radios. The mount height of said antennas is and will remain at 120 feet.

Please accept this application as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72 (b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the First Selectman of the Town of North Haven, The town’s Building Official, and the Zoning Enforcement Officer. A copy of this letter is also being sent to the ground owner, CANDID ASSOCIATES, LLC, and American Tower, Corp., the owner of the structure on which AT&T is located.

The planned modifications to AT&T’s facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The planned modifications will not result in an increase in the height of the existing structure. AT&T’s antennas and associated lines will be installed at the existing mount height of 103’ atop the Monopole tower.
2. The proposed modifications will not involve any changes to ground-space footprint and, therefore will not require an extension of the site boundary.



April 5, 2018  
Page 2 of 2

3. The proposed modification will not increase the noise level at the facility by six decibel or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. An RF emissions calculation is attached.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (Please see attached Structural analysis completed by Tower Engineering Professionals, Inc. dated January 15, 2018).

For the foregoing reasons AT&T respectfully requests that the proposed swap of antennas, addition of radios and addition of squids be allowed within the exempt modifications under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

*Kristen White*

Kristen White  
Site Acquisition Specialist  
Empire Telecom  
[kwhite@empiretelecomm.com](mailto:kwhite@empiretelecomm.com)  
978-284-3801

Enclosures:

CC: Michael J. Freda, First Selectman  
Elio Floriano, Building Official  
Laura Magaraci, Zoning Enforcement Officer  
CANDID ASSOCIATES LLC, Ground Owner  
American Tower Corporation c/o Shawn Dunn, Tower Owner, Leaseholder



# WIRELESS COMMUNICATIONS FACILITY

## CT2209 - LTE 4C

### NORTH HAVEN RR TRACKS

### 127 WASHINGTON AVENUE

### NORTH HAVEN, CT 06473

#### GENERAL NOTES

- ALL WORK SHALL BE IN ACCORDANCE WITH THE 2012 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2016 CONNECTICUT STATE BUILDING CODE AND ALL APPLICABLE SUBORDINATING ORDINANCES FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES, 2016 INTERNATIONAL MECHANICAL, ELECTRICAL AND PLUMBING (M.E.P.) CODES, AND ALL LOCAL CODES.
- THE COMPASS, TOWER, PRIMARY GROUND RING, ELECTRICAL SERVICE TO THE METER BANK AND TELEPHONE SERVICE TO THE FIELD CONDITIONS REGARDING THESE ITEMS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY FIELD WORK UNTIL ALL PERMITS AND APPROVALS ARE OBTAINED.
- THE CONTRACT DOCUMENT SET, CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY FIELD WORK UNTIL ALL PERMITS AND APPROVALS ARE OBTAINED.
- CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AS SHOWN IN THE DRAWINGS AND INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
- CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE REGULATIONS, ORDINANCES AND INSPECTORS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE OBTAINED FOR ALL APPLICABLE AGENCIES. SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS REQUIRED. CONTRACTOR SHALL FURNISH AND ASSEMBLE ALL SET OF DRAWINGS TO BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AND ASSEMBLE ALL SET OF DRAWINGS TO BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA.
- LOCATION OF EQUIPMENT AND WORK SUBMITTED BY OWNERS THAT IS DRAMATICALLY INDIATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY FIELD WORK UNTIL ALL PERMITS AND APPROVALS ARE OBTAINED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY FIELD WORK UNTIL ALL PERMITS AND APPROVALS ARE OBTAINED.

#### SITE DIRECTIONS

**FROM:** 500 ENTERPRISE DRIVE, ROCKY HILL, CONNECTICUT

**TO:** 127 WASHINGTON AVENUE, NORTH HAVEN, CONNECTICUT

- TURN LEFT ONTO CAPITAL BLVD.
- TURN LEFT ONTO WEST ST.
- TURN LEFT ONTO L-91 S TOWARD NEW HAVEN
- TAKE THE WASHINGTON AVE EXIT 12, TOWARD NORTH HAVEN/GATEWAY COMMUNITY COLLEGE.
- TURN LEFT ONTO WASHINGTON AVE.
- 127 WASHINGTON AVE, NORTH HAVEN, CT 06473-1705, 127 WASHINGTON AVE IS ON THE RIGHT.



#### PROJECT SUMMARY

- THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING:
  - INSTALL ANTENNAS.
  - INSTALL PERISCOPE RISE AT POS. 4. (TOTAL OF 3)
  - INSTALL EQUIPMENT SHELTER.
  - INSTALL PERISCOPE RISE AT POS. 4. (TOTAL OF 3)

#### PROJECT INFORMATION

**AT&T SITE NUMBER:** CT2209

**AT&T SITE NAME:** NORTH HAVEN RR TRACKS

**SITE ADDRESS:** 127 WASHINGTON AVENUE, NORTH HAVEN, CT 06473

**LESSEE/APPLICANT:** AT&T MOBILITY

**AT&T FACE ID NUMBER:** FACE JOB 1 - MICTB068599

**AT&T FA LOCATION CODE:** 10035221

**ENGINEER:** CENTEX ENGINEERING, INC. 63-2 NORTH BRANTFORD RD. BRANTFORD, CT 06405

**PROJECT COORDINATES:** LATITUDE: 41°-51'-46.89" N LONGITUDE: 72°-52'-28.87" W

**GROUND ELEVATION:** 428.8' AMSL

**SITE COORDINATES AND GROUND ELEVATION:** REFERENCED FROM GOOGLE EARTH.

#### SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	0
N-1	NOTES, SPECIFICATIONS AND ANTENNA SCHEDULE	0
C-1	PLANS AND ELEVATION	0
C-2	ANTENNA CONFIGURATION DETAILS	0
C-3	DETAILS	0
E-1	SCHEMATIC DIAGRAM AND NOTES	0
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E-3	TYPICAL ELECTRICAL DETAILS	0

REV.	DATE	BY	DESCRIPTION
0	04/05/18	JFR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

**AT&T MOBILITY**

WIRELESS COMMUNICATIONS FACILITY

**NORTH HAVEN RR TRACKS**

**CT2209 - LTE 4C**

127 WASHINGTON AVENUE  
NORTH HAVEN, CT 06473

www.CentexEng.com

430 North Brantford Road  
Brantford, CT 06405

DATE: 03/13/18

SCALE: AS NOTED

JOB NO.: 17024174

TITLE SHEET

**T-1**

Sheet No. 1 of 3



REV.	DATE	BY	DESCRIPTION
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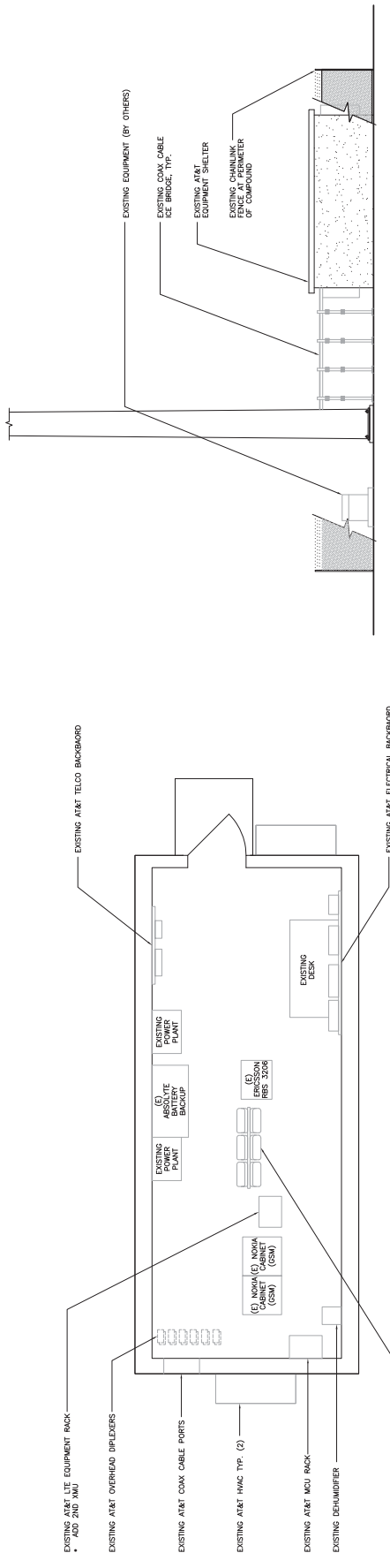
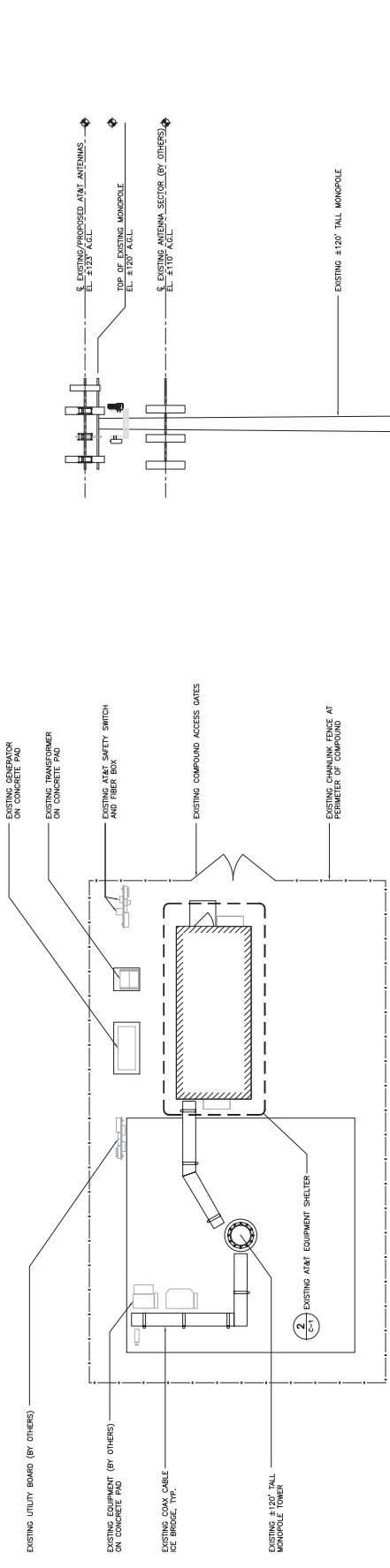


**EMPIRE TELECOM**  
 430 North Broadway Road  
 Bldg. 4000  
 Hartford, CT 06183  
 www.CenterEngineering.com

**AT&T MOBILITY**  
 WIRELESS COMMUNICATIONS FACILITY  
**NORTH HAVEN RR TRACKS**  
**CT2209 - LTE 4G**  
 127 WASHINGTON AVENUE  
 NORTH HAVEN, CT 06473

DATE: 03/13/18  
 SCALE: AS NOTED  
 JOB NO.: 17024174  
 PLANS AND ELEVATION

**C-1**  
 Sheet No. 3 of 3



NOTE: SOME ANTENNA EQUIPMENT (BY OTHERS) NOT SHOWN FOR CLARITY.

TRUE NORTH



REV.	DATE	BY	DESCRIPTION
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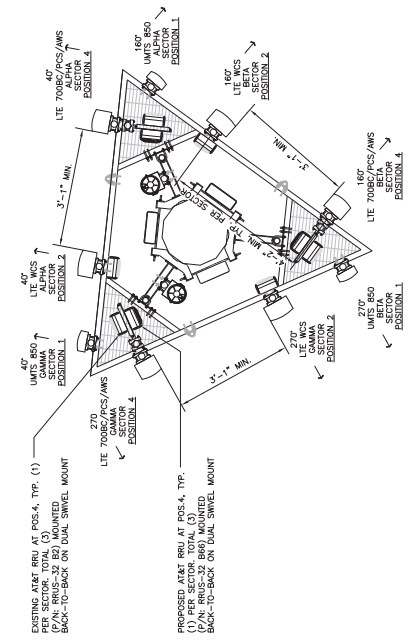


Center of Excellence  
**CENTER** engineering  
 43 North Branch Road  
 06455  
 Waterbury, CT 06405  
 www.CenterEng.com

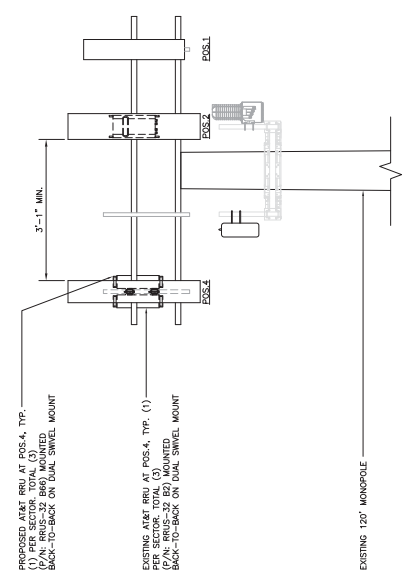
**AT&T MOBILITY**  
 WIRELESS COMMUNICATIONS FACILITY  
**NORTH HAVEN RR TRACKS**  
 CT2209 - LTE 4C  
 127 WASHINGTON AVENUE  
 NORTH HAVEN, CT 06473

DATE: 03/13/18  
 SCALE: AS NOTED  
 JOB NO.: 17004174  
**ANTENNA CONFIGURATION DETAILS**

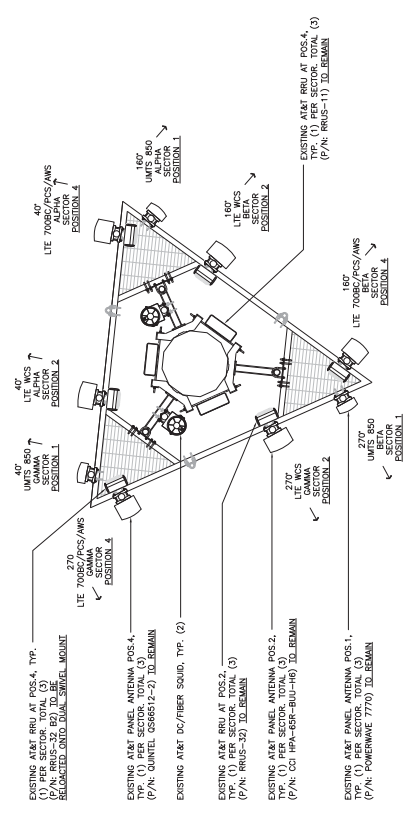
**C-2**  
 Sheet No. 5 of 5



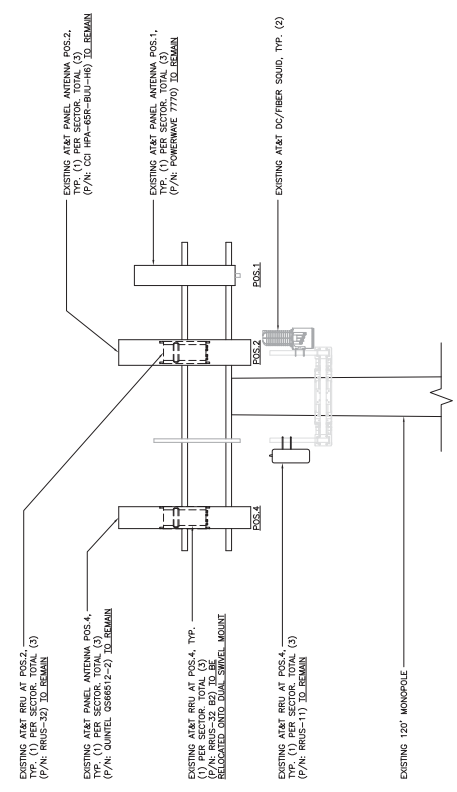
**2 PROPOSED ANTENNA PLAN**  
 SCALE: 3/8" = 1'-0"  
 TRUE NORTH



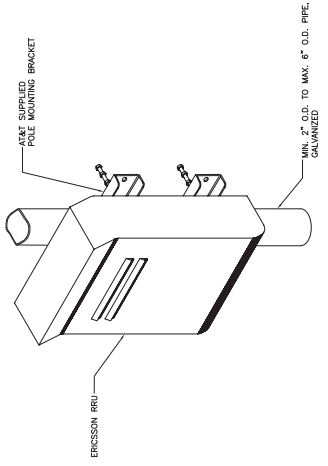
**3 PROPOSED ANTENNA ELEVATION**  
 SCALE: 3/8" = 1'-0"  
 TRUE NORTH



**1 EXISTING ANTENNA PLAN**  
 SCALE: 3/8" = 1'-0"  
 TRUE NORTH



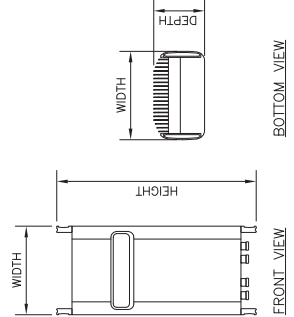
**3 EXISTING ANTENNA ELEVATION**  
 SCALE: 3/8" = 1'-0"  
 TRUE NORTH



ISOMETRIC VIEW

- NOTES:
1. AT&T SHALL SUPPLY RRU AND RRU POLE-MOUNTING BRACKET. CONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ERICSSON RRU POLE-MOUNTING BRACKET. CONTRACTOR SHALL INSTALL RRU AND MAKE CABLE TERMINATIONS.
  2. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

1 TYPICAL RRUS MOUNTING DETAILS  
C-3 NOT TO SCALE

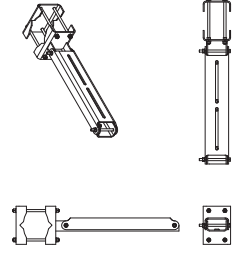


FRONT VIEW  
BOTTOM VIEW

ERICSSON RRU (REMOTE RADIO UNIT)		CLEARANCES	
EQUIPMENT	DIMENSIONS	WEIGHT	
ERICSSON RRU MODEL: ERUS 32 B66	27.17'L x 12.05'W x 7.01'D	52.91 LBS.	ABOVE: 10" MIN. BELOW: 12" MIN. FRONT: 30" MIN.

NOTES:  
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

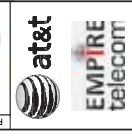
2 ERICSSON RRUS 32 B66 DETAIL  
C-3 NOT TO SCALE



RRU DUAL SWIVEL MOUNT		DIMENSIONS		WEIGHT	
EQUIPMENT	RRU DUAL SWIVEL MOUNT				
MAKE:	SITE PRO 1				
PART NO.:	RRUSDM	27.75'L x 6.5'W x 4.7'D			39.4 LBS.

3 RRU DUAL SWIVEL MOUNT DETAIL  
C-3 NOT TO SCALE

REV.	DATE	BY	CHK'D BY	DESCRIPTION
0	04/05/18	JFR	DWG	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION



AT&T MOBILITY  
WIRELESS COMMUNICATIONS FACILITY  
NORTH HAVEN RR TRACKS  
CT2209 - LTE 4C  
127 WASHINGTON AVENUE  
NORTH HAVEN, CT 06473

DATE: 03/13/18  
SCALE: AS NOTED  
JOB NO. 1700A174

DETAILS

REV	DATE	BY	DESCRIPTION
0	05/18	JFR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION



www.CenterforCellular.com  
 430 North Main Road  
 Westport, CT 06879

**A&T MOBILITY**  
 WIRELESS COMMUNICATIONS FACILITY  
**NORTH HAVEN RR TRACKS**  
**CT2209 - LTE 4C**  
**127 WASHINGTON AVENUE**  
**WESTPORT, CT 06879**

DATE: 03/13/18  
 SCALE: AS NOTED  
 JOB NO.: 1700124

SCHEMATIC  
 DIAGRAM  
 AND NOTES

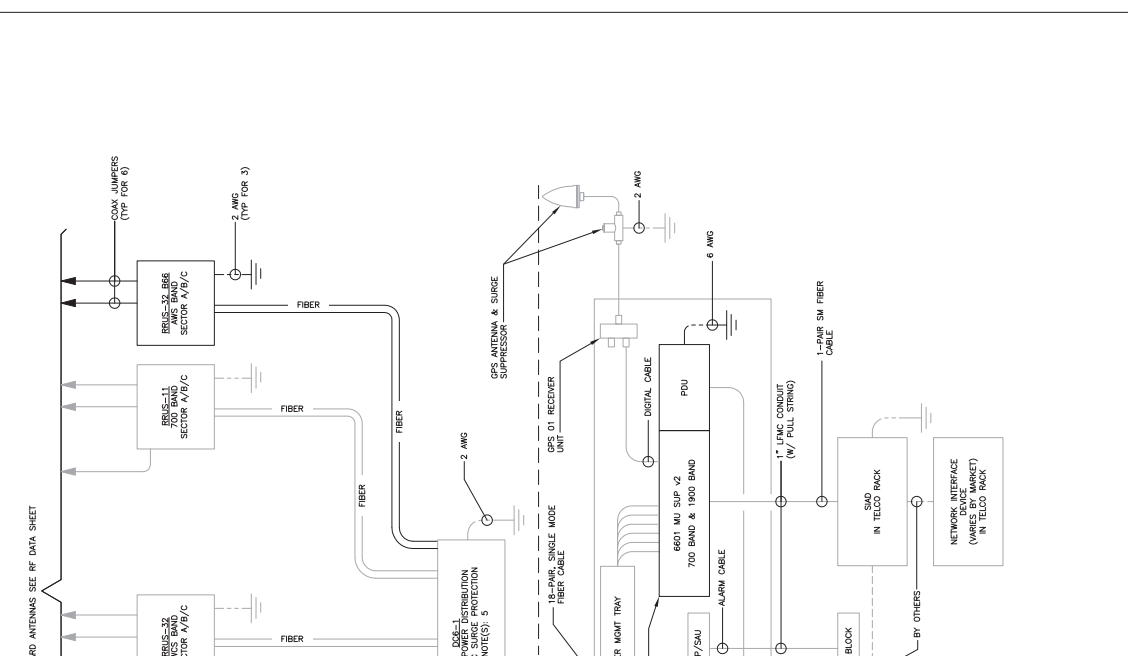
**E-1**  
 Sheet No. 5 of 5

**ELECTRICAL NOTES**

- PRIOR TO START OF CONSTRUCTION CONTRACTOR SHALL COORDINATE WITH OWNER AND LOCAL AGENCIES TO OBTAIN ALL NECESSARY PERMITS AND APPROVALS. ALL MANUFACTURER DOCUMENTATION FOR ALL EQUIPMENT TO BE INSTALLED.
- INSTALL ALL EQUIPMENT IN ACCORDANCE WITH LOCAL BUILDING CODE, NATIONAL ELECTRIC CODE, OWNER AND MANUFACTURER'S SPECIFICATIONS.
- CONNECT ALL NEW EQUIPMENT TO EXISTING TELCO AS REQUIRED BY MANUFACTURER.
- MAINTAIN ALL CLEARANCES REQUIRED BY NEC AND EQUIPMENT MANUFACTURER.
- PRIOR TO INSTALLATION CONTRACTOR SHALL ASSESS EXISTING ELECTRICAL LOAD AND VERIFY EXISTING AVAILABLE CAPACITY FOR PROPOSED INSTALLATION. IF EXISTING ELECTRICAL SYSTEM IS NOT CAPABLE OF SUPPORTING THE PROPOSED INSTALLATION, CONTRACTOR SHALL INSPECT EXISTING GROUNDING AND LIGHTNING PROTECTION SYSTEM AND ENSURE THAT IT IS IN COMPLIANCE WITH NEC AND SITE OWNER'S REQUIREMENTS. CONTRACTOR SHALL PROVIDE ALL NECESSARY GROUNDING AND LIGHTNING PROTECTION TO THE EXISTING SYSTEM TO ENSURE IT IS IN COMPLIANCE WITH NEC AND SITE OWNER'S REQUIREMENTS. ANY DEFICIENCIES SHALL BE CORRECTED.
- ALL TRANSMISSION TOWER SITES CONTAIN AN EXTENSIVE BIRDED GROUNDING SYSTEM. ALL GROUNDING WORK MUST BE COORDINATED WITH AND APPROVED BY THE TOWER OWNER. CONTRACTOR SHALL VERIFY ALL OF THE TOWER OWNER'S SPECIFICATIONS MUST BE STRICTLY FOLLOWED.
- PROVIDE AND INSTALL GROUND KITS FOR ALL NEW COAXIAL CABLES AND BOND TO EXISTING OWNERS GROUNDING SYSTEM PER OWNERS SPECIFICATIONS AND NEC.
- ALL CONDUCTORS SHALL BE TYPE THHN (INT. APPLICATION) AND XHHW (EXT. APPLICATION) UNLESS OTHERWISE SPECIFIED. ALL CONDUCTORS SHALL BE UNBUNDLED COPPER W/0 AWG AND SMALLER SHALL BE SPICED USING ACCEPTABLE SOLDERLESS PRESSURE CONNECTORS. #4 AWG AND LARGER SHALL BE SPICED TO MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZES. CONDUCTORS SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
- MAXIMUM BENDS BASIS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.
- THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND ALL APPLICABLE PERMITS AND APPROVALS. ALL WORK SHALL BE INTERPRETED AS AN IMPROVEMENT OF SUCH CODES OR REGULATIONS.
- THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE ELECTRICAL INSTALLATION. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL LOCAL, STATE, FEDERAL, COUNTY, ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND APPROVALS FROM ALL LOCAL, STATE, FEDERAL, COUNTY, ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL LOCAL, STATE, FEDERAL, COUNTY, ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.
- AND/OR BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.
- THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE DATE OF COMPLETION OF THE WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.
- DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL VERIFY ALL WORK IS IN ACCORDANCE WITH THE DRAWINGS PRIOR TO THE START OF WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL KEY-SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE. PRIOR TO SUBMITTAL OF BID.
- ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL FIRE ALARM AND SIGNALING ASSOCIATION (NFPA) 70-2014. CONTRACTOR SHALL PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES. PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES. PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES. PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.
- GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR.
- EACH EQUIPMENT GROUNDING CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR. N.E.C. ARTICLE 250-122 (MAX. #12 AWG).
- CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 2 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 18900).

**TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM**

- CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:
  - TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST
  - TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST
- GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.
- TESTING SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF THE OWNER. TEST REPORTS SHALL BE DATED ON THE DATE THE TESTS WERE INITIATED AND DATED ON THE DATE OF THE CONSTRUCTION AND INCLUDED WITH THE REPORTS/ANALYSIS.
- THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM REPORT/ANALYSIS TO ENGINEER A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE TEST WORK BEING INITIATED. THE CONTRACTOR SHALL PROVIDE A LETTER WITHIN SEVEN (7) WORKING DAYS TO THE ENGINEER FOR ALL TESTS REQUIRING WITNESSING.



- LTE SCHEMATIC DIAGRAM NOTES**
- BREAKERS TO BE TAGGED AND LOCKED OUT. A 20A (MIN.) OR 30A (MAX) BREAKER FOR RBSs MAY BE SUBSTITUTED FOR THE BREAKERS SHOWN.
  - LEAVE COILED AND PROTECTED UNTIL TERMINATED.
  - DC AND POWER CABLES SHALL BE ROUTED WITH THE EXISTING COAX CABLE.
  - FIBER & DC DISTRIBUTION BOX W/DC SURGE PROTECTION SHALL BE RANGTOP D08-46-40-18-4F.
  - FIBER AND DC POWER CABLES INSIDE MANHOLE WITH CABLE HOSTING STRIPS AT 250 FT MAXIMUM INTERVALS. DRESS CABLES SHALL BE COPPER, CLASS B STRANDING WITH FLAME RETARDANT PVC JACKET, TYPE TC, UL LISTED FOR 90C DRY/ WET.
  - CONDUIT TO BE USED ON THE TOWER IS MORE THAN 10' FROM THE DISTRIBUTION UNITS. MAX CABLE LENGTH IS 16 FEET.
  - CONDUCTOR DC POWER CABLES SHALL BE TOLCOPLEX OR K524444T COPPER, UL LISTED BHN NON-HALOGEN, LOW SMOKE WITH BRANDED COVER, TYPE TC (1/2 AND LARGER), UNLESS OTHERWISE NOTED. STRANDING SHALL BE CLASS B (TYPE 1) OR CLASS C (TYPE 2) UNLESS OTHERWISE NOTED. MAXIMUM CABLE LENGTH SHALL BE 16 FEET. ALL CABLES SHALL BE COPPER, CLASS B STRANDING WITH FLAME RETARDANT PVC JACKET, TYPE TC, UL LISTED FOR 90C DRY/ WET.
  - GROUNDING WIRES SHALL BE COPPER, GREEN THIN/THIN UL LISTED FOR 90C DRY/75C WET INSTALLATION. MINIMUM SIZE IS #12 AWG UNLESS OTHERWISE NOTED. INSTALL IN FLEXIBLE CONDUIT AS SCORED BY MARKET.
  - RET CONTROL FROM THE RBS IS AN OPTIONAL METHOD OF CONNECTION. REFER TO RF DATA SHEET FOR APPLICABILITY.
  - REPLACE EXISTING 15A OR 20A BREAKERS WITH 20A BREAKERS WHEN UPGRADING AN EXISTING RBS 6601 VARIANT 1.
  - AND 12 AWG CONDUCTORS WHEN UPGRADING AN EXISTING RBS 6601 VARIANT 1.

**1 LTE SCHEMATIC DIAGRAM**  
 NOT TO SCALE



REV.	DATE	BY	DESCRIPTION
0	04/05/18	JFR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION



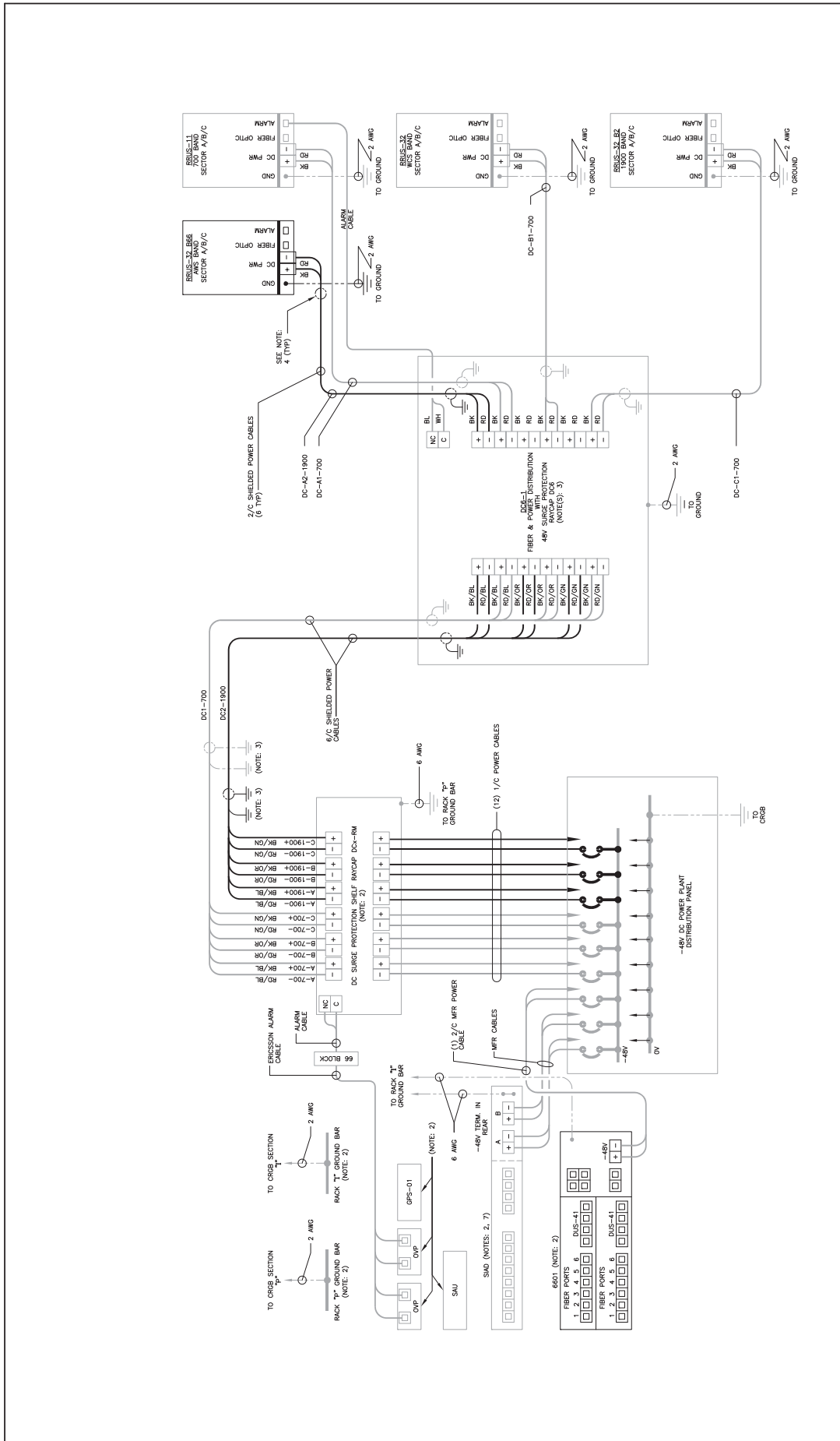
**CENTEK**  
 Centered on Solutions  
 432 North Broadway  
 Westfield, CT 06097  
 www.Centek.com

**AT&T MOBILITY**  
 WIRELESS COMMUNICATIONS FACILITY  
**NORTH HAVEN RR TRACKS**  
**CT2209 - LTE 4C**  
 127 WASHINGTON AVENUE  
 NORTH HAVEN, CT 06473

DATE: 03/13/18  
 SCALE: AS NOTED  
 JOB NO.: 17004174

WIRING DIAGRAM

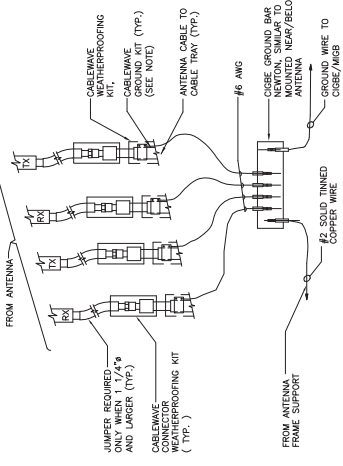
**E-2**  
 Sheet No. 1 of 3



**LTE WIRING DIAGRAM NOTES:**

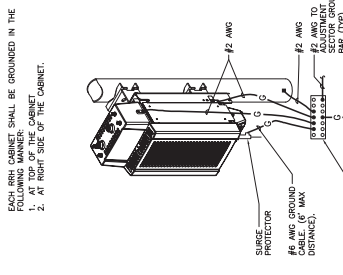
1. LABEL THE DC POWER CABLES AT BOTH ENDS OF EVERY WIRE AND IN ANY PULL BOX IF USED. LABEL SHALL BE DURABLE, SELF ADHESIVE, WRAPPED LONGITUDINALLY ALONG THE CABLE AND STATE THE SECTOR, FREQUENCY BAND AND POLARITY; I.E. "A-1900H". CABLE AND WIRE LABELS SHOWN ARE REPRESENTATIVE AND MAY BE MODIFIED AS DIRECTED BY AIA.
2. INSTALL ON BASEBAND EQUIPMENT RACK.
3. THE BARE GROUND WIRE OF EACH MULTI-CONDUCTOR CABLE SHALL BE CONNECTED TO THE "P" GROUND BAR ON THE RACK. WHEN A SHIELDED CABLE IS USED, THE DRAIN WIRE ALSO SHALL BE CONNECTED TO THE "P" GROUND BAR.
4. THE DRAIN WIRE FROM THE SHIELDED CABLE SHALL BE TERMINATED AT RRU AND DC POWER PLANT.
5. SEE LTE SCHEMATIC DIAGRAM DETAIL 1/E-1 FOR BREAKER RATING.

**1** LTE WIRING DIAGRAM  
 NOT TO SCALE  
 E-2



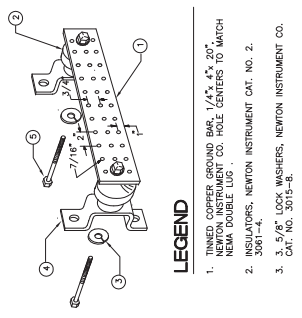
**NOTE**  
 1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

**1 CONNECTION OF GROUND WIRES TO GROUND BAR**  
 E-3 NOT TO SCALE



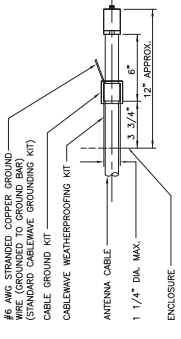
**NOTE**  
 1. EACH RRU CABINET SHALL BE GROUNDED IN THE CENTER OF THE CABINET.  
 2. AT RIGHT SIDE OF THE CABINET.

**2 RRU POLE MOUNT GROUNDING**  
 E-3 NOT TO SCALE



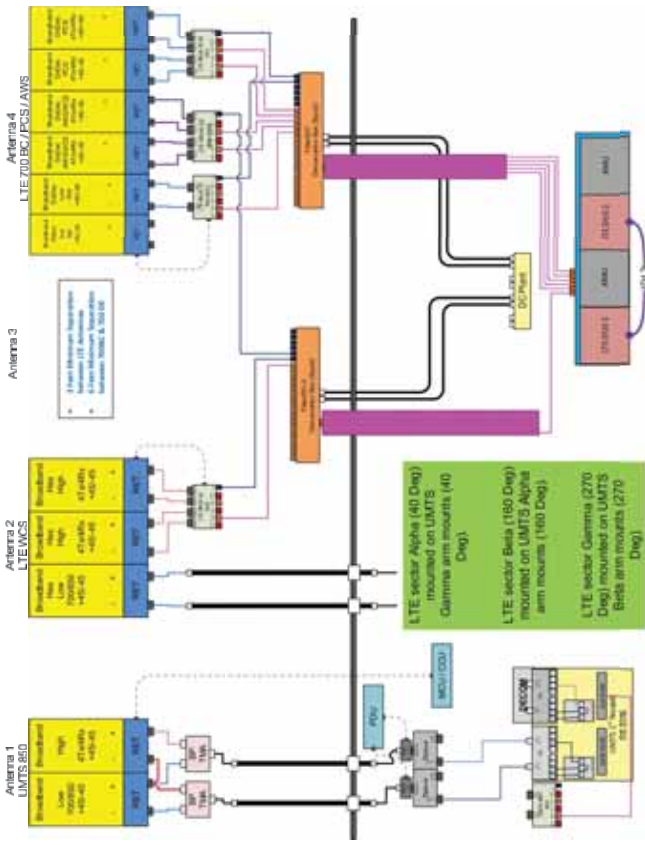
**LEGEND**  
 1. TINNED COPPER GROUND BAR, 1/4" x 4" x 20"  
 2. INSULATORS, NEWTON INSTRUMENT CO. CAT. NO. 3081-4.  
 3. 3. 5/16" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.  
 4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-0056.  
 5. STAINLESS STEEL SECURITY SCREWS.

**3 GROUND BAR DETAIL**  
 E-3 NOT TO SCALE

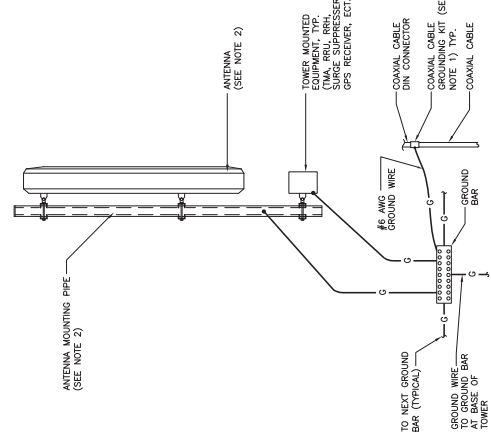


**NOTE**  
 1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

**4 ANTENNA CABLE GROUNDING DETAIL**  
 E-3 NOT TO SCALE



**5 RF PLUMBING DIAGRAM**  
 E-3 NOT TO SCALE



**NOTES**  
 1. BOND COAXIAL CABLE GROUND KITS TO EACH OWNER'S GROUND BAR ALONG ENTIRE COAX RUN FROM ANTENNA TO SHELTER.  
 2. BOND ALL EQUIPMENT TO GROUND PER NEC AND MANUFACTURER'S SPECIFICATIONS.  
 3. DETAIL IS TYPICAL FOR ALL ANTENNA SECTORS, INCLUDING GPS ANTENNA.

**6 TYPICAL ANTENNA GROUNDING DETAIL**  
 E-3 NOT TO SCALE

REV.	DATE	BY	CHK'D	DESCRIPTION
0	04/05/18	JFR	DMD	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION



AT&T MOBILITY  
 WIRELESS COMMUNICATIONS FACILITY  
 NORTH HAVEN RR TRACKS  
 CT2209 - LTE 4C  
 122 WASHINGTON AVENUE  
 NORTH HAVEN, CT 06473

DATE: 03/13/18  
 SCALE: AS NOTED  
 JOB NO.: 17030124

TYPICAL ELECTRICAL DETAILS



**AMERICAN TOWER®**  
CORPORATION

This report was prepared for American Tower Corporation by



**TOWER  
ENGINEERING  
PROFESSIONALS**

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## Structural Analysis Report

**Structure** : 120 ft Monopole  
**ATC Site Name** : Northhaven I, CT  
**ATC Site Number** : 370629  
**Engineering Number** : OAA720419\_C3\_01  
**Proposed Carrier** : AT&T Mobility  
**Carrier Site Name** : North Haven Washington Ave.  
**Carrier Site Number** : CT2209  
**Site Location** : 125 Washington Ave  
North Haven, CT 06473-0000  
41.397800,-72.856700  
**County** : New Haven  
**Date** : January 15, 2018  
**Max Usage** : 35%  
**Result** : Pass

Prepared By:  
Ryan Morofsky  
TEP

Reviewed By:



01/16/2018

**COA: PEC.0001553**



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Calculations .....	Attached



## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 120 ft monopole to reflect the change in loading by AT&T Mobility.

## Supporting Documents

<b>Tower Drawings</b>	Valmont Project #F177, dated September 30, 1998
<b>Foundation Drawing</b>	Valmont Drawing #2652-F, dated October 9, 1998
<b>Geotechnical Report</b>	TEP Project #56829.23316, dated September 22, 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.

<b>Basic Wind Speed:</b>	97 mph (3-Second Gust $V_{asd}$ ) / 125 mph (3-Second Gust $V_{ult}$ )
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
<b>Code:</b>	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
<b>Structure Class:</b>	II
<b>Exposure Category:</b>	B
<b>Topographic Category:</b>	1
<b>Spectral Response:</b>	$S_s = 0.18, S_1 = 0.06$
<b>Site Class:</b>	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](mailto: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**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
120.0	122.0	6	Powerwave 7020.00 Dual Band RET	Platform w/ Handrails	(12) 1 5/8" Coax (4) 0.78" 8 AWG 6 (2) 3/8" RET Control Cable (2) 0.39" Fiber Trunk (2) 3" Conduit	AT&T Mobility
		6	Powerwave LGP21401			
		3	Ericsson RRUS 32 B2			
		3	Ericsson RRUS-32			
		3	Powerwave 7770.00			
		3	Quintel QS66512-2			
		3	CCI HPA-65R-BUU-H6			
	118.0	2	Raycap DC6-48-60-18-8F ("Squid")			
		3	Ericsson RRUS 11 (Band 12)			
		3	Ericsson KRY 112 144/1			
112.0	112.0	3	Ericsson RRUS 11 B12	Platform w/ Handrails	(12) 1 5/8" Coax (1) 1 1/4" Hybriflex	T-Mobile
		3	Ericsson AIR 21, 1.3M, B2A B4P			
		3	Ericsson AIR 21, 1.3M, B4A B2P			
		3	Andrew LNX-6515DS-VTM			
		3	Andrew LNX-6515DS-VTM			

**Equipment to be Removed**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
No loading considered as to be removed						

**Proposed Equipment**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
120.0	122.0	3	Ericsson RRUS 32 B66	Platform w/ Handrails	(1) 3" Conduit	AT&T Mobility

<sup>1</sup>Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax inside the pole shaft.





**Structure Usages**

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	29%	Pass
Shaft	35%	Pass
Base Plate	34%	Pass

**Foundations**

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	4,149.0	5,601.2	1,831.3	33%
Shear (Kips)	37.1	50.1	22.4	45%

\* The design reactions are factored by 1.35 per ANSI/TIA-222-G, Sec. 15.5.1

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) (°)
120.0	Ericsson RRUS 32 B66	AT&T Mobility	0.468	0.372

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



### **Standard Conditions**

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

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

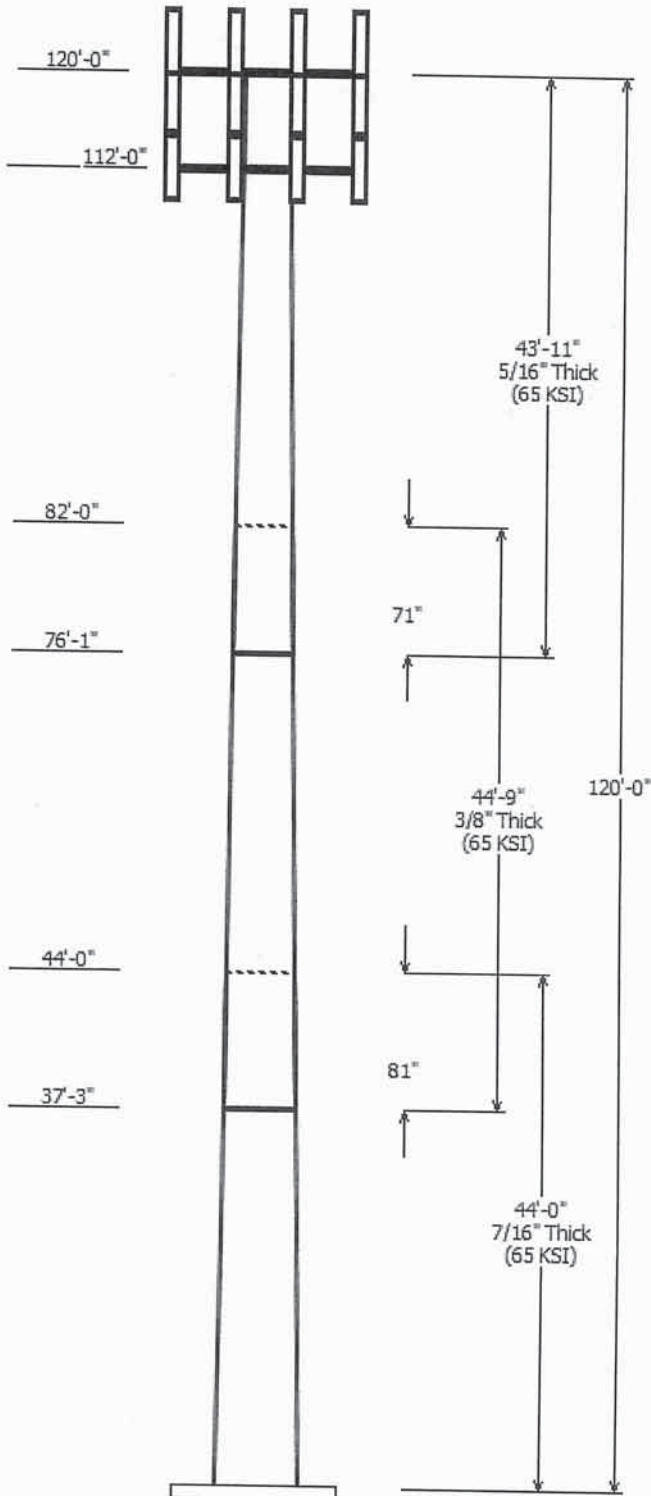
It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

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

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

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

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Job Information	
Pole : 370629	Code: ANSI/TIA-222-G
Location : Northhaven I, CT	
Description : 120 ft Monopole	
Client : AT&T MOBILITY	Struct Class : II
Shape : 12 Sides	Exposure : B
Height : 120.00 (ft)	Topo : 1
Base Elev (ft): 0.00	
Taper: 0.20000in/ft)	

Sections Properties								
Shaft Section	Length (ft)	Diameter (in)		Thick Joint (in)	Type	Overlap Length (in)	Shape	Steel Grade (ksi)
		Across Flats Top	Across Flats Bottom					
1	44.000	45.70	54.50	0.438		0.000	Round	65
2	44.750	38.84	47.80	0.375	Slip Joint	81.000	Round	65
3	43.917	31.87	40.65	0.313	Slip Joint	71.000	Round	65

Discrete Appurtenance				
Attach Elev (ft)	Force Elev (ft)	Qty	Description	
120.000	118.000	3	Ericsson RRUS 11 (Band 12)	
120.000	118.000	2	Raycap DC6-48-60-18-8F	
120.000	122.000	3	Ericsson RRUS 32 B66	
120.000	122.000	3	CCI HPA-65R-BUU-H6	
120.000	122.000	3	Ericsson RRUS 32 B2	
120.000	122.000	6	Powerwave Allgon LGP21401	
120.000	122.000	3	Ericsson RRUS-32	
120.000	122.000	3	Powerwave 7770.00	
120.000	122.000	3	Quintel QS66512-2	
120.000	122.000	6	Powerwave Allgon 7020.00	
120.000	120.000	1	Flat Platform w/ Handrails	
112.000	112.000	1	Flat Platform w/ Handrails	
112.000	112.000	3	Andrew LNX-6515DS-VTM	
112.000	112.000	3	Ericsson AIR 21, 1.3M, B4A B2P	
112.000	112.000	3	Ericsson AIR 21, 1.3M, B2A B4P	
112.000	112.000	3	Ericsson RRUS 11 B12	
112.000	112.000	3	Ericsson KRY 112 144/1	

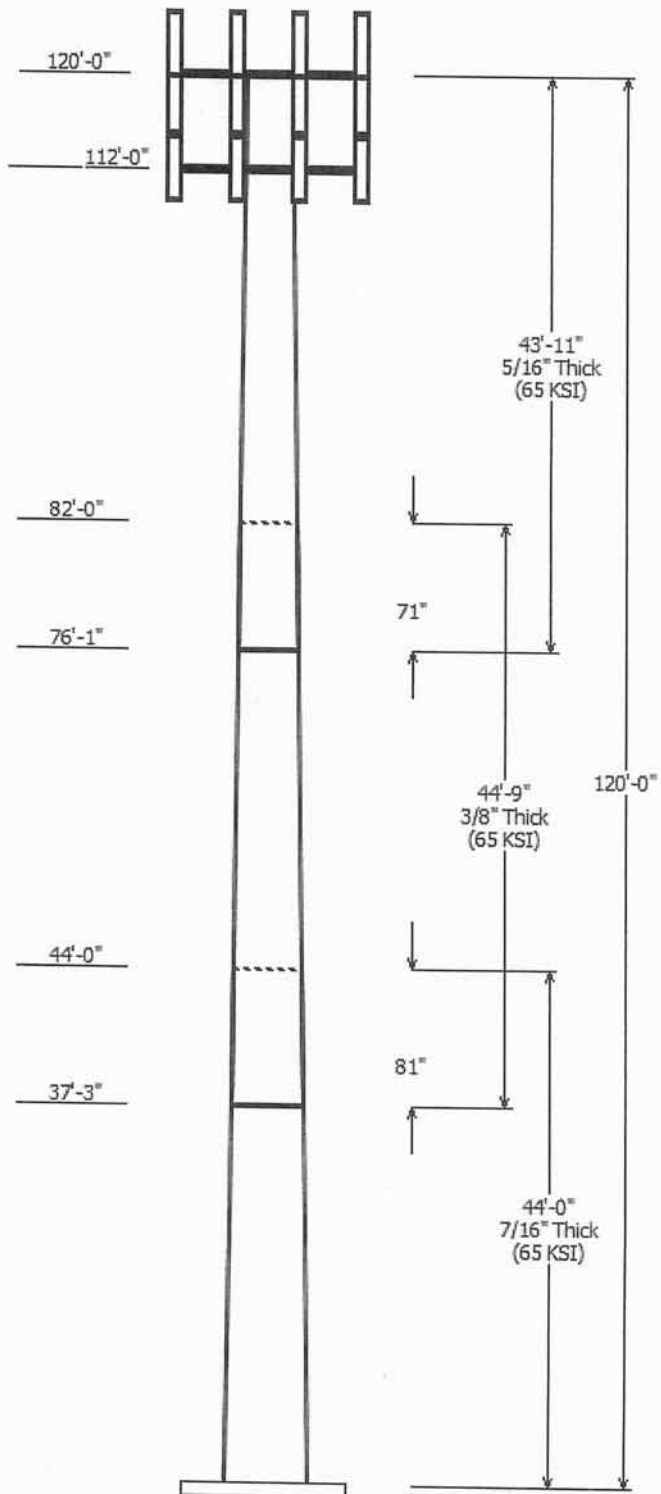
Linear Appurtenance				
Elev (ft)		Description	Exposed To Wind	
From	To			
5.000	112.0	1 1/4" Hybriflex	No	
5.000	112.0	1 5/8" Coax	No	
5.000	120.0	0.39" Fiber Trunk	No	
5.000	120.0	0.78" 8 AWG 6	No	
5.000	120.0	1 5/8" Coax	No	
5.000	120.0	3" Conduit	No	
5.000	120.0	3" Conduit	No	
5.000	120.0	3/8" RET Control	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

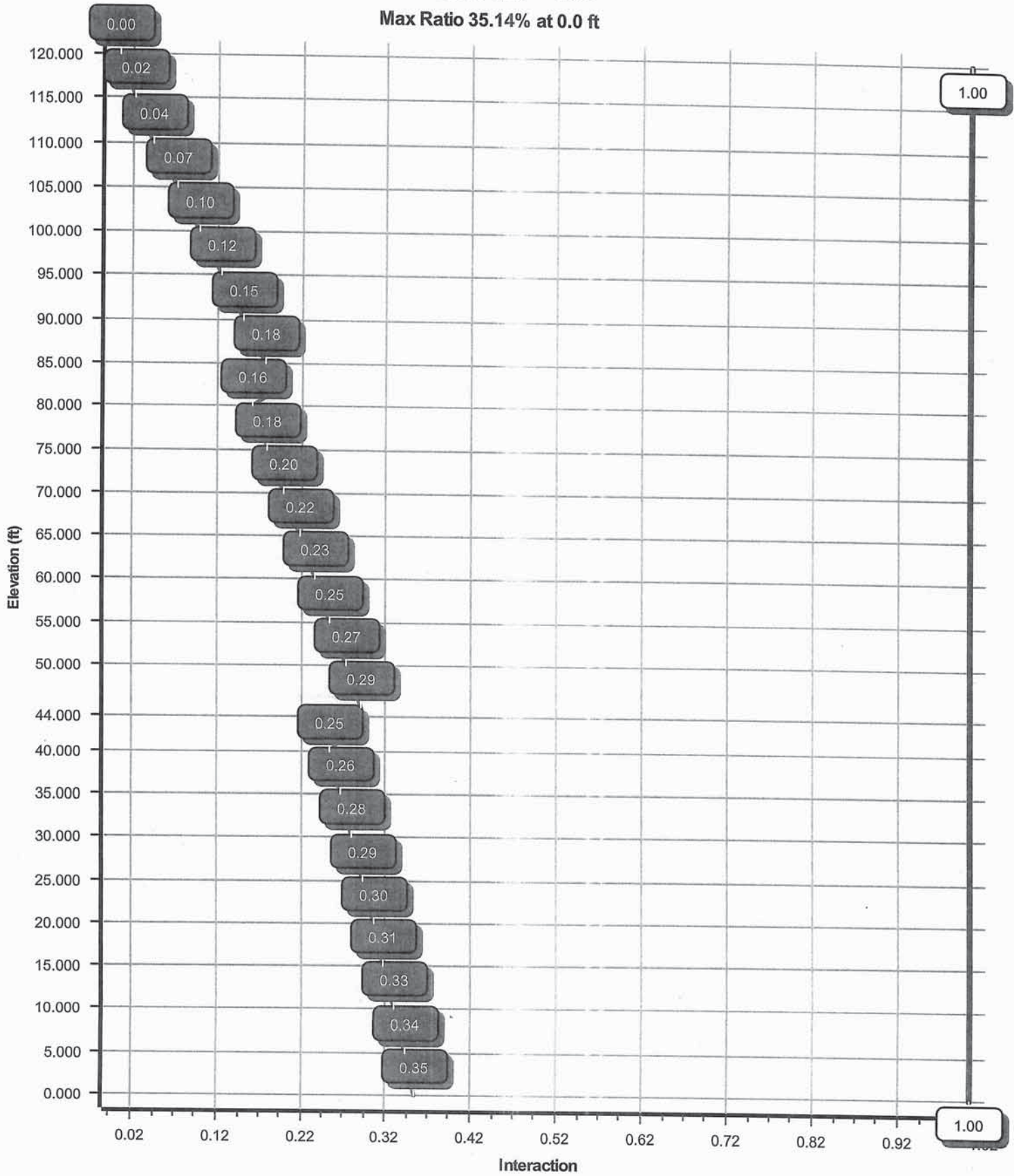


Reactions			
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	1831.31	22.41	42.41
0.9D + 1.6W	1822.44	22.41	31.80
1.2D + 1.0Di + 1.0Wi	405.71	4.86	60.20
(1.2 + 0.2Sds) * DL + E ELFM	201.90	2.16	42.22
(1.2 + 0.2Sds) * DL + E EMAM	301.32	2.98	42.22
(0.9 - 0.2Sds) * DL + E ELFM	200.72	2.16	29.32
(0.9 - 0.2Sds) * DL + E EMAM	299.43	2.98	29.32
1.0D + 1.0W	436.53	5.36	35.35

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 35.14% at 0.0 ft



Site Number: 370629

Code: ANSI/TIA-222-G

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Site Name: Northhaven I, CT

Engineering Number: OAA720419\_C3\_01

1/16/2018 9:29:59 AM

Customer: AT&T MOBILITY

**Analysis Parameters**

Location :	NEW HAVEN County, CT	Height (ft) :	120
Code :	ANSI/TIA-222-G	Base Diameter (in) :	54.50
Shape :	12 Sides	Top Diameter (in) :	31.88
Pole Type :	Taper	Taper (in/ft) :	0.200
Pole Manufacturer :	Valmont	Rotation (deg) :	0.00

**Ice & Wind Parameters**

Structure Class:	II	Design Wind Speed Without Ice:	97 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	0.75 in

**Seismic Parameters**

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	1.41		
T <sub>L</sub> (sec):	6	p:	1.3
S <sub>s</sub> :	0.184	S <sub>1</sub> :	0.062
F <sub>a</sub> :	1.600	F <sub>v</sub> :	2.400
S <sub>ds</sub> :	0.196	S <sub>d1</sub> :	0.099
		C <sub>s</sub> :	0.047
		C <sub>s</sub> Max:	0.047
		C <sub>s</sub> Min:	0.030

**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 + 0.2S <sub>ds</sub> ) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2S <sub>ds</sub> ) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2S <sub>ds</sub> ) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2S <sub>ds</sub> ) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph



Site Number: 370629

Code: ANSI/TIA-222-G

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Site Name: Northhaven I, CT

Engineering Number: OAA720419\_C3\_01

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Customer: AT&T MOBILITY

**Shaft Section Properties**

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom						Top											
							Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Taper (in/ft)					
1-12	44.000	0.4380	65		0.00	10,487	54.50	0.00	76.25	28444.1	31.20	124.43	45.70	44.00	63.84	16691.9	25.81	104.34	0.200008					
2-12	44.750	0.3750	65	Slip	81.00	7,897	47.80	37.25	57.27	16439.4	32.01	127.47	38.84	82.00	46.46	8777.8	25.62	103.60	0.200008					
3-12	43.917	0.3130	65	Slip	71.00	5,415	40.65	76.08	40.66	8448.5	32.66	129.90	31.87	120.00	31.81	4044.6	25.14	101.84	0.200008					
Shaft Weight						23,799																		

**Discrete Appurtenance Properties**

Attach Elev (ft)	Description	Qty	No Ice			Ice			Distance From Face (ft)	Vert Ecc (ft)
			Weight (lb)	EPAa (sf)	Orientation Factor	Weight (lb)	EPAa (sf)	Orientation Factor		
120.00	CCI HPA-65R-BUU-H6	3	51.00	9.660	0.69	292.52	10.993	0.69	0.000	2.000
120.00	Ericsson RRUS 11 (Band 12)	3	50.00	2.570	0.67	128.99	3.203	0.67	0.000	-2.000
120.00	Ericsson RRUS 32 B2	3	53.00	2.740	0.67	118.54	3.779	0.67	0.000	2.000
120.00	Ericsson RRUS 32 B66	3	53.00	2.740	0.67	0.00	0.000	0.67	0.000	2.000
120.00	Ericsson RRUS-32	3	77.00	3.310	0.67	172.22	4.565	0.67	0.000	2.000
120.00	Flat Platform w/ Handrails	1	2000.00	42.400	1.00	3,391.49	62.934	1.00	0.000	0.000
120.00	Powerwave 7770.00	3	35.00	5.510	0.65	166.39	6.539	0.65	0.000	2.000
120.00	Powerwave Allgon 7020.00	6	2.20	0.400	0.50	17.39	0.616	0.50	0.000	2.000
120.00	Powerwave Allgon LGP21401	6	14.10	1.100	0.50	46.69	1.552	0.50	0.000	2.000
120.00	Quintel QS66512-2	3	111.00	8.130	0.74	239.35	5.951	0.74	0.000	2.000
120.00	Raycap DC6-48-60-18-8F	2	31.80	1.280	1.00	121.92	2.835	1.00	0.000	-2.000
112.00	Andrew LNX-6515DS-VTM	3	51.30	11.430	0.70	305.52	13.044	0.70	0.000	0.000
112.00	Ericsson AIR 21, 1.3M, B2A	3	91.50	6.040	0.70	252.71	7.097	0.70	0.000	0.000
112.00	Ericsson AIR 21, 1.3M, B4A	3	81.50	6.090	0.70	244.54	7.158	0.70	0.000	0.000
112.00	Ericsson KRY 112 144/1	3	11.00	0.410	0.50	26.65	0.625	0.50	0.000	0.000
112.00	Ericsson RRUS 11 B12	3	50.70	2.790	0.67	133.98	3.448	0.67	0.000	0.000
112.00	Flat Platform w/ Handrails	1	2000.00	42.400	1.00	3,381.84	62.792	1.00	0.000	0.000
Totals		52	6309.40			13,645.92			Number of Loadings : 17	

**Linear Appurtenance Properties**

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Projected Width (in)	Exposed To Wind	Carrier
5.00	120.00	2	0.39" Fiber Trunk	0.39	0.06	N	0.00	AT&T Mobility
5.00	120.00	4	0.78" 8 AWG 6	0.78	0.59	N	0.00	AT&T Mobility
5.00	120.00	12	1 5/8" Coax	1.98	0.82	N	0.00	AT&T Mobility
5.00	120.00	2	3" Conduit	3.50	7.58	N	0.00	AT&T Mobility
5.00	120.00	1	3" Conduit	3.50	7.58	N	0.00	AT&T Mobility
5.00	120.00	2	3/8" RET Control Cable	0.38	0.23	N	0.00	AT&T Mobility
5.00	112.00	1	1 1/4" Hybriflex	1.54	1.00	N	0.00	T-Mobile
5.00	112.00	12	1 5/8" Coax	1.98	0.82	N	0.00	T-Mobile

Site Number: 370629

Code: ANSI/TIA-222-G

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Site Name: Northhaven I, CT

Engineering Number: OAA720419\_C3\_01

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Customer: AT&T MOBILITY

**Segment Properties** (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	F'y (ksi)	S (in <sup>3</sup> )	Z (in <sup>3</sup> )	Weight (lb)
0.00		0.4380	54.500	76.247	28,444.1	31.20	124.43	70.7	1008.	0.0	0.0
5.00		0.4380	53.500	74.836	26,894.6	30.59	122.15	71.4	971.1	0.0	1,285.3
10.00		0.4380	52.500	73.426	25,402.5	29.97	119.86	72.0	934.7	0.0	1,261.3
15.00		0.4380	51.500	72.016	23,966.6	29.36	117.58	72.7	899.0	0.0	1,237.3
20.00		0.4380	50.500	70.605	22,585.8	28.75	115.30	73.4	864.0	0.0	1,213.3
25.00		0.4380	49.500	69.195	21,259.2	28.14	113.01	74.0	829.7	0.0	1,189.3
30.00		0.4380	48.500	67.784	19,985.5	27.53	110.73	74.7	796.1	0.0	1,165.3
35.00		0.4380	47.500	66.374	18,763.7	26.91	108.45	75.4	763.1	0.0	1,141.3
37.25	Bot - Section 2	0.4380	47.050	65.739	18,230.6	26.64	107.42	75.7	748.5	0.0	505.7
40.00		0.4380	46.500	64.964	17,592.8	26.30	106.16	76.0	730.9	0.0	1,144.3
44.00	Top - Section 1	0.3750	46.450	55.635	15,075.1	31.05	123.87	70.9	627.0	0.0	1,640.4
45.00		0.3750	46.250	55.394	14,879.6	30.90	123.33	71.0	621.5	0.0	188.9
50.00		0.3750	45.250	54.186	13,927.5	30.19	120.67	71.8	594.6	0.0	932.2
55.00		0.3750	44.250	52.979	13,017.0	29.47	118.00	72.6	568.3	0.0	911.6
60.00		0.3750	43.250	51.771	12,147.0	28.76	115.33	73.3	542.6	0.0	891.1
65.00		0.3750	42.249	50.563	11,316.7	28.04	112.67	74.1	517.5	0.0	870.6
70.00		0.3750	41.249	49.356	10,525.1	27.33	110.00	74.9	492.9	0.0	850.0
75.00		0.3750	40.249	48.148	9,771.4	26.62	107.33	75.7	469.0	0.0	829.5
76.08	Bot - Section 3	0.3750	40.033	47.887	9,612.9	26.46	106.75	75.9	463.9	0.0	177.0
80.00		0.3750	39.249	46.941	9,054.4	25.90	104.66	76.5	445.7	0.0	1,168.6
82.00	Top - Section 2	0.3130	39.475	39.470	7,726.7	31.65	126.12	70.2	378.1	0.0	587.8
85.00		0.3130	38.875	38.865	7,376.9	31.14	124.20	70.8	366.6	0.0	399.8
90.00		0.3130	37.875	37.857	6,817.7	30.28	121.01	71.7	347.7	0.0	652.7
95.00		0.3130	36.875	36.850	6,287.6	29.42	117.81	72.6	329.4	0.0	635.5
100.0		0.3130	35.875	35.842	5,785.6	28.57	114.62	73.6	311.6	0.0	618.4
105.0		0.3130	34.875	34.834	5,311.1	27.71	111.42	74.5	294.2	0.0	601.2
110.0		0.3130	33.875	33.826	4,863.3	26.86	108.23	75.4	277.3	0.0	584.1
112.0		0.3130	33.475	33.423	4,691.5	26.51	106.95	75.8	270.7	0.0	228.8
115.0		0.3130	32.875	32.818	4,441.4	26.00	105.03	76.4	261.0	0.0	338.1
120.0		0.3130	31.875	31.810	4,044.6	25.14	101.84	77.3	245.1	0.0	549.8
23,799.0											



Site Number: 370629

Code: ANSI/TIA-222-G

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Site Name: Northhaven I, CT

Engineering Number: OAA720419\_C3\_01

1/16/2018 9:29:59 AM

Customer: AT&T MOBILITY

<b>Load Case: 1.2D + 1.6W</b>	<b>97 mph with No Ice</b>	<b>18 Iterations</b>
Gust Response Factor :1.10		Wind Importance Factor :1.00
Dead Load Factor :1.20		
Wind Load Factor :1.60		

**Applied Segment Forces Summary**

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		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		328.3	0.0					0.0	0.0	328.3	0.0	0.0	0.0
5.00		650.6	1,542.3					0.0	0.0	650.6	1,542.3	0.0	0.0
10.00		638.4	1,513.5					0.0	278.2	638.4	1,791.7	0.0	0.0
15.00		626.3	1,484.7					0.0	278.2	626.3	1,762.9	0.0	0.0
20.00		614.1	1,455.9					0.0	278.2	614.1	1,734.1	0.0	0.0
25.00		602.0	1,427.1					0.0	278.2	602.0	1,705.3	0.0	0.0
30.00		596.8	1,398.3					0.0	278.2	596.8	1,676.5	0.0	0.0
35.00		435.4	1,369.5					0.0	278.2	435.4	1,647.7	0.0	0.0
37.25	Bot - Section 2	307.5	606.9					0.0	125.2	307.5	732.1	0.0	0.0
40.00		422.1	1,373.2					0.0	153.0	422.1	1,526.1	0.0	0.0
44.00	Top - Section 1	314.2	1,968.5					0.0	222.5	314.2	2,191.0	0.0	0.0
45.00		380.6	226.7					0.0	55.6	380.6	282.3	0.0	0.0
50.00		637.0	1,118.6					0.0	278.2	637.0	1,396.8	0.0	0.0
55.00		640.2	1,094.0					0.0	278.2	640.2	1,372.1	0.0	0.0
60.00		641.5	1,069.3					0.0	278.2	641.5	1,347.5	0.0	0.0
65.00		641.2	1,044.7					0.0	278.2	641.2	1,322.8	0.0	0.0
70.00		639.4	1,020.0					0.0	278.2	639.4	1,298.2	0.0	0.0
75.00		388.0	995.4					0.0	278.2	388.0	1,273.5	0.0	0.0
76.08	Bot - Section 3	321.2	212.4					0.0	60.3	321.2	272.7	0.0	0.0
80.00		380.5	1,402.3					0.0	217.9	380.5	1,620.2	0.0	0.0
82.00	Top - Section 2	319.9	705.4					0.0	111.3	319.9	816.6	0.0	0.0
85.00		508.7	479.8					0.0	166.9	508.7	646.7	0.0	0.0
90.00		630.8	783.2					0.0	278.2	630.8	1,061.4	0.0	0.0
95.00		623.8	762.6					0.0	278.2	623.8	1,040.8	0.0	0.0
100.00		615.8	742.1					0.0	278.2	615.8	1,020.2	0.0	0.0
105.00		607.1	721.5					0.0	278.2	607.1	999.6	0.0	0.0
110.00		420.4	700.9					0.0	278.2	420.4	979.1	0.0	0.0
112.00	Appurtenance(s)	296.3	274.6	3,460.3	0.0	0.0	3,429.6	0.0	111.3	3,756.6	3,815.5	0.0	0.0
115.00		468.2	405.7					0.0	127.9	468.2	533.6	0.0	0.0
120.00	Appurtenance(s)	291.0	659.7	4,261.4	0.0	4,000.2	4,141.7	0.0	213.1	4,552.4	5,014.5	0.0	0.0
<b>Totals:</b>										<b>22,708.9</b>	<b>42,423.7</b>	<b>0.00</b>	<b>0.00</b>

Site Number: 370629

Code: ANSI/TIA-222-G

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Site Name: Northhaven I, CT

Engineering Number: OAA720419\_C3\_01

1/16/2018 9:30:00 AM

Customer: AT&T MOBILITY

<b>Load Case: 1.2D + 1.6W</b>	97 mph with No Ice	18 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	-42.41	-22.41	0.00	-1,831.31	0.00	1,831.31	4,850.87	2,425.44	10,823.8	5,345.47	0.00	0.00	0.351
5.00	-40.83	-21.83	0.00	-1,719.24	0.00	1,719.24	4,806.08	2,403.04	10,523.9	5,197.36	0.05	-0.09	0.339
10.00	-39.01	-21.24	0.00	-1,610.12	0.00	1,610.12	4,759.60	2,379.80	10,224.0	5,049.29	0.19	-0.18	0.327
15.00	-37.22	-20.67	0.00	-1,503.91	0.00	1,503.91	4,711.42	2,355.71	9,924.57	4,901.37	0.42	-0.26	0.315
20.00	-35.46	-20.10	0.00	-1,400.58	0.00	1,400.58	4,661.55	2,330.77	9,625.56	4,753.70	0.74	-0.35	0.302
25.00	-33.73	-19.53	0.00	-1,300.11	0.00	1,300.11	4,609.98	2,304.99	9,327.28	4,606.39	1.16	-0.44	0.290
30.00	-32.03	-18.97	0.00	-1,202.45	0.00	1,202.45	4,556.72	2,278.36	9,029.93	4,459.54	1.66	-0.52	0.277
35.00	-30.36	-18.55	0.00	-1,107.62	0.00	1,107.62	4,501.76	2,250.88	8,733.73	4,313.26	2.25	-0.60	0.264
37.25	-29.62	-18.25	0.00	-1,065.89	0.00	1,065.89	4,476.48	2,238.24	8,600.87	4,247.65	2.54	-0.64	0.258
40.00	-28.08	-17.84	0.00	-1,015.69	0.00	1,015.69	4,445.11	2,222.56	8,438.88	4,167.65	2.92	-0.68	0.250
44.00	-25.89	-17.52	0.00	-944.34	0.00	944.34	3,547.79	1,773.89	6,746.39	3,331.79	3.52	-0.75	0.291
45.00	-25.59	-17.15	0.00	-926.82	0.00	926.82	3,540.16	1,770.08	6,702.42	3,310.07	3.68	-0.76	0.287
50.00	-24.18	-16.53	0.00	-841.05	0.00	841.05	3,500.99	1,750.49	6,482.60	3,201.51	4.52	-0.85	0.270
55.00	-22.80	-15.90	0.00	-758.39	0.00	758.39	3,460.13	1,730.06	6,262.98	3,093.05	5.46	-0.93	0.252
60.00	-21.44	-15.27	0.00	-678.88	0.00	678.88	3,417.57	1,708.79	6,043.76	2,984.79	6.47	-1.01	0.234
65.00	-20.11	-14.63	0.00	-602.54	0.00	602.54	3,373.32	1,686.66	5,825.16	2,876.83	7.57	-1.08	0.215
70.00	-18.81	-13.99	0.00	-529.40	0.00	529.40	3,327.38	1,663.69	5,607.39	2,769.28	8.74	-1.15	0.197
75.00	-17.53	-13.58	0.00	-459.47	0.00	459.47	3,279.75	1,639.87	5,390.65	2,662.24	9.98	-1.22	0.178
76.08	-17.26	-13.27	0.00	-444.75	0.00	444.75	3,269.20	1,634.60	5,343.85	2,639.13	10.26	-1.23	0.174
80.00	-15.64	-12.86	0.00	-392.79	0.00	392.79	3,230.41	1,615.21	5,175.17	2,555.82	11.30	-1.28	0.159
82.00	-14.83	-12.53	0.00	-367.07	0.00	367.07	2,493.57	1,246.78	4,030.93	1,990.72	11.84	-1.31	0.190
85.00	-14.18	-12.02	0.00	-329.48	0.00	329.48	2,474.96	1,237.48	3,939.06	1,945.35	12.67	-1.34	0.175
90.00	-13.12	-11.37	0.00	-269.40	0.00	269.40	2,442.59	1,221.30	3,785.91	1,869.72	14.11	-1.40	0.150
95.00	-12.09	-10.73	0.00	-212.53	0.00	212.53	2,408.53	1,204.26	3,632.91	1,794.16	15.60	-1.45	0.124
100.00	-11.08	-10.10	0.00	-158.85	0.00	158.85	2,372.77	1,186.38	3,480.25	1,718.76	17.14	-1.49	0.097
105.00	-10.09	-9.47	0.00	-108.36	0.00	108.36	2,335.32	1,167.66	3,328.15	1,643.65	18.72	-1.52	0.070
110.00	-9.12	-9.03	0.00	-61.00	0.00	61.00	2,296.17	1,148.08	3,176.83	1,568.92	20.33	-1.55	0.043
112.00	-5.41	-5.17	0.00	-42.94	0.00	42.94	2,280.04	1,140.02	3,116.57	1,539.15	20.98	-1.55	0.030
115.00	-4.89	-4.69	0.00	-27.44	0.00	27.44	2,255.33	1,127.67	3,026.49	1,494.67	21.96	-1.56	0.021
120.00	0.00	-4.55	0.00	-4.00	0.00	4.00	2,212.80	1,106.40	2,877.35	1,421.02	23.59	-1.56	0.003



Site Number: 370629  
 Site Name: Northhaven I, CT  
 Customer: AT&T MOBILITY

Code: ANSI/TIA-222-G  
 Engineering Number: OAA720419\_C3\_01

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 1/16/2018 9:30:00 AM

**Load Case: 0.9D + 1.6W** 97 mph with No Ice (Reduced DL) 18 Iterations

Gust Response Factor :1.10 Wind Importance Factor :1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

**Applied Segment Forces Summary**

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		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		328.3	0.0					0.0	0.0	328.3	0.0	0.0	0.0
5.00		650.6	1,156.7					0.0	0.0	650.6	1,156.7	0.0	0.0
10.00		638.4	1,135.1					0.0	208.6	638.4	1,343.8	0.0	0.0
15.00		626.3	1,113.5					0.0	208.6	626.3	1,322.2	0.0	0.0
20.00		614.1	1,091.9					0.0	208.6	614.1	1,300.6	0.0	0.0
25.00		602.0	1,070.3					0.0	208.6	602.0	1,279.0	0.0	0.0
30.00		596.8	1,048.7					0.0	208.6	596.8	1,257.4	0.0	0.0
35.00		435.4	1,027.1					0.0	208.6	435.4	1,235.8	0.0	0.0
37.25	Bot - Section 2	307.5	455.2					0.0	93.9	307.5	549.1	0.0	0.0
40.00		422.1	1,029.9					0.0	114.7	422.1	1,144.6	0.0	0.0
44.00	Top - Section 1	314.2	1,476.3					0.0	166.9	314.2	1,643.2	0.0	0.0
45.00		380.6	170.0					0.0	41.7	380.6	211.7	0.0	0.0
50.00		637.0	839.0					0.0	208.6	637.0	1,047.6	0.0	0.0
55.00		640.2	820.5					0.0	208.6	640.2	1,029.1	0.0	0.0
60.00		641.5	802.0					0.0	208.6	641.5	1,010.6	0.0	0.0
65.00		641.2	783.5					0.0	208.6	641.2	992.1	0.0	0.0
70.00		639.4	765.0					0.0	208.6	639.4	973.6	0.0	0.0
75.00		388.0	746.5					0.0	208.6	388.0	955.1	0.0	0.0
76.08	Bot - Section 3	321.2	159.3					0.0	45.2	321.2	204.5	0.0	0.0
80.00		380.5	1,051.7					0.0	163.4	380.5	1,215.1	0.0	0.0
82.00	Top - Section 2	319.9	529.0					0.0	83.4	319.9	612.5	0.0	0.0
85.00		508.7	359.9					0.0	125.2	508.7	485.0	0.0	0.0
90.00		630.8	587.4					0.0	208.6	630.8	796.0	0.0	0.0
95.00		623.8	572.0					0.0	208.6	623.8	780.6	0.0	0.0
100.00		615.8	556.5					0.0	208.6	615.8	765.2	0.0	0.0
105.00		607.1	541.1					0.0	208.6	607.1	749.7	0.0	0.0
110.00		420.4	525.7					0.0	208.6	420.4	734.3	0.0	0.0
112.00	Appurtenance(s)	296.3	205.9	3,460.3	0.0	0.0	2,572.2	0.0	83.4	3,756.6	2,861.6	0.0	0.0
115.00		468.2	304.3					0.0	95.9	468.2	400.2	0.0	0.0
120.00	Appurtenance(s)	291.0	494.8	4,261.4	0.0	4,000.2	3,106.3	0.0	159.8	4,552.4	3,760.9	0.0	0.0
<b>Totals:</b>										<b>22,708.9</b>	<b>31,817.7</b>	<b>0.00</b>	<b>0.00</b>

Site Number: 370629

Code: ANSI/TIA-222-G

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Site Name: Northhaven I, CT

Engineering Number: OAA720419\_C3\_01

1/16/2018 9:30:02 AM

Customer: AT&T MOBILITY

Load Case: 0.9D + 1.6W

97 mph with No Ice (Reduced DL)

18 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	-31.80	-22.41	0.00	-1,822.44	0.00	1,822.44	4,850.87	2,425.44	10,823.8	5,345.47	0.00	0.00	0.348
5.00	-30.61	-21.80	0.00	-1,710.41	0.00	1,710.41	4,806.08	2,403.04	10,523.9	5,197.36	0.05	-0.09	0.336
10.00	-29.24	-21.20	0.00	-1,601.40	0.00	1,601.40	4,759.60	2,379.80	10,224.0	5,049.29	0.19	-0.18	0.323
15.00	-27.89	-20.61	0.00	-1,495.39	0.00	1,495.39	4,711.42	2,355.71	9,924.57	4,901.37	0.42	-0.26	0.311
20.00	-26.56	-20.03	0.00	-1,392.31	0.00	1,392.31	4,661.55	2,330.77	9,625.56	4,753.70	0.74	-0.35	0.299
25.00	-25.25	-19.46	0.00	-1,292.15	0.00	1,292.15	4,609.98	2,304.99	9,327.28	4,606.39	1.15	-0.43	0.286
30.00	-23.98	-18.89	0.00	-1,194.85	0.00	1,194.85	4,556.72	2,278.36	9,029.93	4,459.54	1.65	-0.52	0.273
35.00	-22.72	-18.46	0.00	-1,100.42	0.00	1,100.42	4,501.76	2,250.88	8,733.73	4,313.26	2.24	-0.60	0.260
37.25	-22.17	-18.16	0.00	-1,058.88	0.00	1,058.88	4,476.48	2,238.24	8,600.87	4,247.65	2.53	-0.63	0.254
40.00	-21.01	-17.75	0.00	-1,008.93	0.00	1,008.93	4,445.11	2,222.56	8,438.88	4,167.65	2.91	-0.68	0.247
44.00	-19.36	-17.43	0.00	-937.93	0.00	937.93	3,547.79	1,773.89	6,746.39	3,331.79	3.50	-0.74	0.287
45.00	-19.14	-17.06	0.00	-920.50	0.00	920.50	3,540.16	1,770.08	6,702.42	3,310.07	3.66	-0.76	0.284
50.00	-18.07	-16.44	0.00	-835.20	0.00	835.20	3,500.99	1,750.49	6,482.60	3,201.51	4.50	-0.84	0.266
55.00	-17.03	-15.80	0.00	-753.02	0.00	753.02	3,460.13	1,730.06	6,262.98	3,093.05	5.42	-0.92	0.248
60.00	-16.01	-15.17	0.00	-674.00	0.00	674.00	3,417.57	1,708.79	6,043.76	2,984.79	6.43	-1.00	0.231
65.00	-15.02	-14.53	0.00	-598.17	0.00	598.17	3,373.32	1,686.66	5,825.16	2,876.83	7.52	-1.08	0.212
70.00	-14.04	-13.89	0.00	-525.53	0.00	525.53	3,327.38	1,663.69	5,607.39	2,769.28	8.69	-1.15	0.194
75.00	-13.08	-13.49	0.00	-456.11	0.00	456.11	3,279.75	1,639.87	5,390.65	2,662.24	9.92	-1.21	0.175
76.08	-12.88	-13.17	0.00	-441.50	0.00	441.50	3,269.20	1,634.60	5,343.85	2,639.13	10.20	-1.23	0.171
80.00	-11.66	-12.77	0.00	-389.92	0.00	389.92	3,230.41	1,615.21	5,175.17	2,555.82	11.23	-1.27	0.156
82.00	-11.05	-12.44	0.00	-364.38	0.00	364.38	2,493.57	1,246.78	4,030.93	1,990.72	11.77	-1.30	0.188
85.00	-10.57	-11.93	0.00	-327.06	0.00	327.06	2,474.96	1,237.48	3,939.06	1,945.35	12.59	-1.33	0.172
90.00	-9.78	-11.29	0.00	-267.41	0.00	267.41	2,442.59	1,221.30	3,785.91	1,869.72	14.02	-1.39	0.147
95.00	-9.00	-10.65	0.00	-210.97	0.00	210.97	2,408.53	1,204.26	3,632.91	1,794.16	15.50	-1.44	0.121
100.00	-8.25	-10.02	0.00	-157.70	0.00	157.70	2,372.77	1,186.38	3,480.25	1,718.76	17.03	-1.48	0.095
105.00	-7.51	-9.40	0.00	-107.58	0.00	107.58	2,335.32	1,167.66	3,328.15	1,643.65	18.60	-1.51	0.069
110.00	-6.78	-8.96	0.00	-60.58	0.00	60.58	2,296.17	1,148.08	3,176.83	1,568.92	20.20	-1.54	0.042
112.00	-4.02	-5.13	0.00	-42.66	0.00	42.66	2,280.04	1,140.02	3,116.57	1,539.15	20.85	-1.54	0.029
115.00	-3.64	-4.65	0.00	-27.26	0.00	27.26	2,255.33	1,127.67	3,026.49	1,494.67	21.82	-1.55	0.020
120.00	0.00	-4.55	0.00	-4.00	0.00	4.00	2,212.80	1,106.40	2,877.35	1,421.02	23.44	-1.55	0.003



Site Number: 370629

Code: ANSI/TIA-222-G

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Site Name: Northhaven I, CT

Engineering Number: OAA720419\_C3\_01

1/16/2018 9:30:02 AM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

17 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

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces			Sum of Forces			
		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		68.1	0.0					0.0	0.0	68.1	0.0	0.0	0.0
5.00		135.4	1,952.6					0.0	0.0	135.4	1,952.6	0.0	0.0
10.00		133.4	1,964.1					0.0	278.2	133.4	2,242.3	0.0	0.0
15.00		131.3	1,950.7					0.0	278.2	131.3	2,228.9	0.0	0.0
20.00		129.1	1,929.2					0.0	278.2	129.1	2,207.3	0.0	0.0
25.00		126.8	1,903.4					0.0	278.2	126.8	2,181.5	0.0	0.0
30.00		126.0	1,875.0					0.0	278.2	126.0	2,153.1	0.0	0.0
35.00		92.0	1,844.7					0.0	278.2	92.0	2,122.9	0.0	0.0
37.25	Bot - Section 2	65.1	821.1					0.0	125.2	65.1	946.3	0.0	0.0
40.00		89.4	1,637.8					0.0	153.0	89.4	1,790.8	0.0	0.0
44.00	Top - Section 1	66.6	2,350.4					0.0	222.5	66.6	2,572.9	0.0	0.0
45.00		80.8	322.3					0.0	55.6	80.8	378.0	0.0	0.0
50.00		135.4	1,590.1					0.0	278.2	135.4	1,868.2	0.0	0.0
55.00		136.4	1,560.1					0.0	278.2	136.4	1,838.3	0.0	0.0
60.00		136.9	1,529.6					0.0	278.2	136.9	1,807.7	0.0	0.0
65.00		137.1	1,498.6					0.0	278.2	137.1	1,776.7	0.0	0.0
70.00		137.1	1,467.1					0.0	278.2	137.1	1,745.2	0.0	0.0
75.00		83.3	1,435.2					0.0	278.2	83.3	1,713.4	0.0	0.0
76.08	Bot - Section 3	69.0	307.6					0.0	60.3	69.0	367.9	0.0	0.0
80.00		81.8	1,746.4					0.0	217.9	81.8	1,964.3	0.0	0.0
82.00	Top - Section 2	68.9	880.1					0.0	111.3	68.9	991.3	0.0	0.0
85.00		109.7	738.8					0.0	166.9	109.7	905.7	0.0	0.0
90.00		136.3	1,206.3					0.0	278.2	136.3	1,484.5	0.0	0.0
95.00		135.2	1,177.4					0.0	278.2	135.2	1,455.6	0.0	0.0
100.00		133.8	1,148.3					0.0	278.2	133.8	1,426.4	0.0	0.0
105.00		132.3	1,118.9					0.0	278.2	132.3	1,397.1	0.0	0.0
110.00		91.8	1,089.4					0.0	278.2	91.8	1,367.6	0.0	0.0
112.00	Appurtenance(s)	64.8	428.8	762.5	0.0	0.0	6,393.6	0.0	111.3	827.3	6,933.7	0.0	0.0
115.00		102.7	633.5					0.0	127.9	102.7	761.4	0.0	0.0
120.00	Appurtenance(s)	63.9	1,029.8	955.2	0.0	782.5	8,378.3	0.0	213.1	1,019.1	9,621.2	0.0	0.0
<b>Totals:</b>										4,918.02	60,202.9	0.00	0.00

Site Number: 370629

Code: ANSI/TIA-222-G

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Site Name: Northhaven I, CT

Engineering Number: OAA720419\_C3\_01

1/16/2018 9:30:04 AM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

17 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	-60.20	-4.86	0.00	-405.71	0.00	405.71	4,850.87	2,425.44	10,823.8	5,345.47	0.00	0.00	0.088
5.00	-58.25	-4.74	0.00	-381.41	0.00	381.41	4,806.08	2,403.04	10,523.9	5,197.36	0.01	-0.02	0.086
10.00	-56.00	-4.63	0.00	-357.69	0.00	357.69	4,759.60	2,379.80	10,224.0	5,049.29	0.04	-0.04	0.083
15.00	-53.77	-4.51	0.00	-334.55	0.00	334.55	4,711.42	2,355.71	9,924.57	4,901.37	0.09	-0.06	0.080
20.00	-51.57	-4.40	0.00	-311.98	0.00	311.98	4,661.55	2,330.77	9,625.56	4,753.70	0.17	-0.08	0.077
25.00	-49.38	-4.29	0.00	-289.98	0.00	289.98	4,609.98	2,304.99	9,327.28	4,606.39	0.26	-0.10	0.074
30.00	-47.23	-4.17	0.00	-268.56	0.00	268.56	4,556.72	2,278.36	9,029.93	4,459.54	0.37	-0.12	0.071
35.00	-45.10	-4.08	0.00	-247.71	0.00	247.71	4,501.76	2,250.88	8,733.73	4,313.26	0.50	-0.13	0.067
37.25	-44.16	-4.02	0.00	-238.52	0.00	238.52	4,476.48	2,238.24	8,600.87	4,247.65	0.56	-0.14	0.066
40.00	-42.37	-3.94	0.00	-227.45	0.00	227.45	4,445.11	2,222.56	8,438.88	4,167.65	0.65	-0.15	0.064
44.00	-39.79	-3.87	0.00	-211.70	0.00	211.70	3,547.79	1,773.89	6,746.39	3,331.79	0.78	-0.17	0.075
45.00	-39.41	-3.80	0.00	-207.82	0.00	207.82	3,540.16	1,770.08	6,702.42	3,310.07	0.82	-0.17	0.074
50.00	-37.55	-3.67	0.00	-188.84	0.00	188.84	3,500.99	1,750.49	6,482.60	3,201.51	1.01	-0.19	0.070
55.00	-35.71	-3.54	0.00	-170.50	0.00	170.50	3,460.13	1,730.06	6,262.98	3,093.05	1.21	-0.21	0.065
60.00	-33.90	-3.40	0.00	-152.81	0.00	152.81	3,417.57	1,708.79	6,043.76	2,984.79	1.44	-0.22	0.061
65.00	-32.12	-3.27	0.00	-135.80	0.00	135.80	3,373.32	1,686.66	5,825.16	2,876.83	1.69	-0.24	0.057
70.00	-30.38	-3.13	0.00	-119.46	0.00	119.46	3,327.38	1,663.69	5,607.39	2,769.28	1.95	-0.26	0.052
75.00	-28.66	-3.04	0.00	-103.80	0.00	103.80	3,279.75	1,639.87	5,390.65	2,662.24	2.23	-0.27	0.048
76.08	-28.29	-2.98	0.00	-100.50	0.00	100.50	3,269.20	1,634.60	5,343.85	2,639.13	2.29	-0.28	0.047
80.00	-26.33	-2.89	0.00	-88.84	0.00	88.84	3,230.41	1,615.21	5,175.17	2,555.82	2.52	-0.29	0.043
82.00	-25.34	-2.82	0.00	-83.06	0.00	83.06	2,493.57	1,246.78	4,030.93	1,990.72	2.64	-0.29	0.052
85.00	-24.43	-2.71	0.00	-74.60	0.00	74.60	2,474.96	1,237.48	3,939.06	1,945.35	2.83	-0.30	0.048
90.00	-22.95	-2.57	0.00	-61.06	0.00	61.06	2,442.59	1,221.30	3,785.91	1,869.72	3.15	-0.31	0.042
95.00	-21.49	-2.43	0.00	-48.21	0.00	48.21	2,408.53	1,204.26	3,632.91	1,794.16	3.48	-0.32	0.036
100.00	-20.07	-2.29	0.00	-36.06	0.00	36.06	2,372.77	1,186.38	3,480.25	1,718.76	3.83	-0.33	0.029
105.00	-18.67	-2.15	0.00	-24.60	0.00	24.60	2,335.32	1,167.66	3,328.15	1,643.65	4.18	-0.34	0.023
110.00	-17.30	-2.05	0.00	-13.83	0.00	13.83	2,296.17	1,148.08	3,176.83	1,568.92	4.54	-0.35	0.016
112.00	-10.38	-1.18	0.00	-9.73	0.00	9.73	2,280.04	1,140.02	3,116.57	1,539.15	4.69	-0.35	0.011
115.00	-9.61	-1.08	0.00	-6.17	0.00	6.17	2,255.33	1,127.67	3,026.49	1,494.67	4.91	-0.35	0.008
120.00	0.00	-1.02	0.00	-0.78	0.00	0.78	2,212.80	1,106.40	2,877.35	1,421.02	5.28	-0.35	0.001



Site Number: 370629

Code: ANSI/TIA-222-G

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Site Name: Northhaven I, CT

Engineering Number: OAA720419\_C3\_01

1/16/2018 9:30:04 AM

Customer: AT&T MOBILITY

**Load Case: 1.0D + 1.0W**

Serviceability 60 mph

17 Iterations

Gust Response Factor :1.10

Dead Load Factor :1.00

Wind Load Factor :1.00

Wind Importance Factor :1.00

**Applied Segment Forces Summary**

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces			Sum of Forces			
		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		78.5	0.0					0.0	0.0	78.5	0.0	0.0	0.0
5.00		155.6	1,285.3					0.0	0.0	155.6	1,285.3	0.0	0.0
10.00		152.7	1,261.3					0.0	231.8	152.7	1,493.1	0.0	0.0
15.00		149.8	1,237.3					0.0	231.8	149.8	1,469.1	0.0	0.0
20.00		146.9	1,213.3					0.0	231.8	146.9	1,445.1	0.0	0.0
25.00		143.9	1,189.3					0.0	231.8	143.9	1,421.1	0.0	0.0
30.00		142.7	1,165.3					0.0	231.8	142.7	1,397.1	0.0	0.0
35.00		104.1	1,141.3					0.0	231.8	104.1	1,373.1	0.0	0.0
37.25	Bot - Section 2	73.5	505.7					0.0	104.3	73.5	610.1	0.0	0.0
40.00		100.9	1,144.3					0.0	127.5	100.9	1,271.8	0.0	0.0
44.00	Top - Section 1	75.1	1,640.4					0.0	185.4	75.1	1,825.8	0.0	0.0
45.00		91.0	188.9					0.0	46.4	91.0	235.3	0.0	0.0
50.00		152.3	932.2					0.0	231.8	152.3	1,164.0	0.0	0.0
55.00		153.1	911.6					0.0	231.8	153.1	1,143.4	0.0	0.0
60.00		153.4	891.1					0.0	231.8	153.4	1,122.9	0.0	0.0
65.00		153.3	870.6					0.0	231.8	153.3	1,102.4	0.0	0.0
70.00		152.9	850.0					0.0	231.8	152.9	1,081.8	0.0	0.0
75.00		92.8	829.5					0.0	231.8	92.8	1,061.3	0.0	0.0
76.08	Bot - Section 3	76.8	177.0					0.0	50.2	76.8	227.2	0.0	0.0
80.00		91.0	1,168.6					0.0	181.6	91.0	1,350.2	0.0	0.0
82.00	Top - Section 2	76.5	587.8					0.0	92.7	76.5	680.5	0.0	0.0
85.00		121.7	399.8					0.0	139.1	121.7	538.9	0.0	0.0
90.00		150.9	652.7					0.0	231.8	150.9	884.5	0.0	0.0
95.00		149.2	635.5					0.0	231.8	149.2	867.3	0.0	0.0
100.00		147.3	618.4					0.0	231.8	147.3	850.2	0.0	0.0
105.00		145.2	601.2					0.0	231.8	145.2	833.0	0.0	0.0
110.00		100.5	584.1					0.0	231.8	100.5	815.9	0.0	0.0
112.00	Appurtenance(s)	70.9	228.8	827.5	0.0	0.0	2,858.0	0.0	92.7	898.3	3,179.6	0.0	0.0
115.00		112.0	338.1					0.0	106.6	112.0	444.7	0.0	0.0
120.00	Appurtenance(s)	69.6	549.8	1,019.0	0.0	956.6	3,451.4	0.0	177.6	1,088.6	4,178.8	0.0	0.0
<b>Totals:</b>										5,430.44	35,353.0	0.00	0.00

Site Number: 370629

Code: ANSI/TIA-222-G

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Site Name: Northhaven I, CT

Engineering Number: OAA720419\_C3\_01

1/16/2018 9:30:06 AM

Customer: AT&T MOBILITY

Load Case: 1.0D + 1.0W

Serviceability 60 mph

17 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	-35.35	-5.36	0.00	-436.53	0.00	436.53	4,850.87	2,425.44	10,823.8	5,345.47	0.00	0.00	0.089
5.00	-34.06	-5.21	0.00	-409.74	0.00	409.74	4,806.08	2,403.04	10,523.9	5,197.36	0.01	-0.02	0.086
10.00	-32.57	-5.07	0.00	-383.66	0.00	383.66	4,759.60	2,379.80	10,224.0	5,049.29	0.05	-0.04	0.083
15.00	-31.10	-4.93	0.00	-358.30	0.00	358.30	4,711.42	2,355.71	9,924.57	4,901.37	0.10	-0.06	0.080
20.00	-29.65	-4.80	0.00	-333.63	0.00	333.63	4,661.55	2,330.77	9,625.56	4,753.70	0.18	-0.08	0.077
25.00	-28.23	-4.66	0.00	-309.65	0.00	309.65	4,609.98	2,304.99	9,327.28	4,606.39	0.28	-0.10	0.073
30.00	-26.83	-4.52	0.00	-286.36	0.00	286.36	4,556.72	2,278.36	9,029.93	4,459.54	0.40	-0.12	0.070
35.00	-25.46	-4.42	0.00	-263.75	0.00	263.75	4,501.76	2,250.88	8,733.73	4,313.26	0.54	-0.14	0.067
37.25	-24.85	-4.35	0.00	-253.80	0.00	253.80	4,476.48	2,238.24	8,600.87	4,247.65	0.61	-0.15	0.065
40.00	-23.57	-4.25	0.00	-241.83	0.00	241.83	4,445.11	2,222.56	8,438.88	4,167.65	0.70	-0.16	0.063
44.00	-21.75	-4.17	0.00	-224.83	0.00	224.83	3,547.79	1,773.89	6,746.39	3,331.79	0.84	-0.18	0.074
45.00	-21.51	-4.09	0.00	-220.65	0.00	220.65	3,540.16	1,770.08	6,702.42	3,310.07	0.88	-0.18	0.073
50.00	-20.35	-3.94	0.00	-200.22	0.00	200.22	3,500.99	1,750.49	6,482.60	3,201.51	1.08	-0.20	0.068
55.00	-19.20	-3.79	0.00	-180.53	0.00	180.53	3,460.13	1,730.06	6,262.98	3,093.05	1.30	-0.22	0.064
60.00	-18.08	-3.64	0.00	-161.59	0.00	161.59	3,417.57	1,708.79	6,043.76	2,984.79	1.54	-0.24	0.059
65.00	-16.98	-3.48	0.00	-143.42	0.00	143.42	3,373.32	1,686.66	5,825.16	2,876.83	1.80	-0.26	0.055
70.00	-15.90	-3.33	0.00	-126.00	0.00	126.00	3,327.38	1,663.69	5,607.39	2,769.28	2.08	-0.27	0.050
75.00	-14.83	-3.23	0.00	-109.36	0.00	109.36	3,279.75	1,639.87	5,390.65	2,662.24	2.38	-0.29	0.046
76.08	-14.61	-3.16	0.00	-105.86	0.00	105.86	3,269.20	1,634.60	5,343.85	2,639.13	2.44	-0.29	0.045
80.00	-13.26	-3.06	0.00	-93.49	0.00	93.49	3,230.41	1,615.21	5,175.17	2,555.82	2.69	-0.31	0.041
82.00	-12.58	-2.98	0.00	-87.37	0.00	87.37	2,493.57	1,246.78	4,030.93	1,990.72	2.82	-0.31	0.049
85.00	-12.04	-2.86	0.00	-78.42	0.00	78.42	2,474.96	1,237.48	3,939.06	1,945.35	3.02	-0.32	0.045
90.00	-11.15	-2.71	0.00	-64.12	0.00	64.12	2,442.59	1,221.30	3,785.91	1,869.72	3.36	-0.33	0.039
95.00	-10.29	-2.55	0.00	-50.59	0.00	50.59	2,408.53	1,204.26	3,632.91	1,794.16	3.72	-0.34	0.032
100.00	-9.44	-2.40	0.00	-37.81	0.00	37.81	2,372.77	1,186.38	3,480.25	1,718.76	4.08	-0.35	0.026
105.00	-8.60	-2.25	0.00	-25.80	0.00	25.80	2,335.32	1,167.66	3,328.15	1,643.65	4.46	-0.36	0.019
110.00	-7.79	-2.15	0.00	-14.52	0.00	14.52	2,296.17	1,148.08	3,176.83	1,568.92	4.84	-0.37	0.013
112.00	-4.62	-1.23	0.00	-10.23	0.00	10.23	2,280.04	1,140.02	3,116.57	1,539.15	5.00	-0.37	0.009
115.00	-4.17	-1.12	0.00	-6.54	0.00	6.54	2,255.33	1,127.67	3,026.49	1,494.67	5.23	-0.37	0.006
120.00	0.00	-1.09	0.00	-0.96	0.00	0.96	2,212.80	1,106.40	2,877.35	1,421.02	5.62	-0.37	0.001



Site Number: 370629

Code: ANSI/TIA-222-G

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Site Name: Northhaven I, CT

Engineering Number: OAA720419\_C3\_01

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Customer: AT&T MOBILITY

### 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 Coefficient $F_v$ :	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 ( $C_s$ ):	0.05
Upper Limit $C_s$	0.05
Lower Limit $C_s$	0.03
Period based on Rayleigh Method (sec):	1.41
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.45
Total Unfactored Dead Load:	35.35 k
Seismic Base Shear (E):	2.16 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)
29	117.50	727	746	0.044	95	901
28	113.50	445	434	0.026	55	551
27	111.00	322	303	0.018	39	398
26	107.50	816	735	0.043	94	1,011
25	102.50	833	700	0.041	89	1,032
24	97.50	850	665	0.039	85	1,054
23	92.50	867	628	0.037	80	1,075
22	87.50	884	591	0.035	75	1,096
21	83.50	539	336	0.020	43	668
20	81.00	681	406	0.024	52	843
19	78.04	1,350	763	0.045	97	1,673
18	75.54	227	123	0.007	16	282
17	72.50	1,061	539	0.032	69	1,315
16	67.50	1,082	495	0.029	63	1,341
15	62.50	1,102	451	0.027	57	1,366
14	57.50	1,123	407	0.024	52	1,392
13	52.50	1,143	363	0.021	46	1,417
12	47.50	1,164	320	0.019	41	1,442
11	44.50	235	59	0.003	7	292
10	42.00	1,826	419	0.025	53	2,263
9	38.63	1,272	259	0.015	33	1,576
8	36.13	610	113	0.007	14	756
7	32.50	1,373	217	0.013	28	1,702

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6	27.50	1,397	173	0.010	22	1,731
5	22.50	1,421	132	0.008	17	1,761
4	17.50	1,445	93	0.005	12	1,791
3	12.50	1,469	58	0.003	7	1,821
2	7.50	1,493	28	0.002	4	1,850
1	2.50	1,285	5	0.000	1	1,593
Powerwave Allgon 702	120.00	13	14	0.001	2	16
Powerwave Allgon LGP	120.00	85	89	0.005	11	105
Raycap DC6-48-60-18-	120.00	64	67	0.004	9	79
Ericsson RRUS 11 (Ba	120.00	150	159	0.009	20	186
Ericsson RRUS 32 B66	120.00	159	168	0.010	21	197
Ericsson RRUS 32 B2	120.00	159	168	0.010	21	197
Ericsson RRUS-32	120.00	231	244	0.014	31	286
Powerwave 7770.00	120.00	105	111	0.007	14	130
Quintel QS66512-2	120.00	333	352	0.021	45	413
CCI HPA-65R-BUU-H6	120.00	153	162	0.010	21	190
Flat Platform w/ Han	120.00	2,000	2,114	0.125	269	2,479
Ericsson KRY 112 144	112.00	33	32	0.002	4	41
Ericsson RRUS 11 B12	112.00	152	145	0.009	19	188
Ericsson AIR 21, 1.3	112.00	275	262	0.015	33	340
Ericsson AIR 21, 1.3	112.00	244	234	0.014	30	303
Andrew LNX-6515DS-VT	112.00	154	147	0.009	19	191
Flat Platform w/ Han	112.00	2,000	1,912	0.113	244	2,479
		35,353	16,941	1.000	2,157	43,811

Load Case (0.9 - 0.2Sds) \* DL + E ELFM

Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
29	117.50	727	746	0.044	95	626
28	113.50	445	434	0.026	55	383
27	111.00	322	303	0.018	39	277
26	107.50	816	735	0.043	94	702
25	102.50	833	700	0.041	89	717
24	97.50	850	665	0.039	85	732
23	92.50	867	628	0.037	80	747
22	87.50	884	591	0.035	75	761
21	83.50	539	336	0.020	43	464
20	81.00	681	406	0.024	52	586
19	78.04	1,350	763	0.045	97	1,162
18	75.54	227	123	0.007	16	196
17	72.50	1,061	539	0.032	69	913
16	67.50	1,082	495	0.029	63	931
15	62.50	1,102	451	0.027	57	949
14	57.50	1,123	407	0.024	52	967
13	52.50	1,143	363	0.021	46	984
12	47.50	1,164	320	0.019	41	1,002
11	44.50	235	59	0.003	7	203
10	42.00	1,826	419	0.025	53	1,572
9	38.63	1,272	259	0.015	33	1,095
8	36.13	610	113	0.007	14	525
7	32.50	1,373	217	0.013	28	1,182
6	27.50	1,397	173	0.010	22	1,203
5	22.50	1,421	132	0.008	17	1,223
4	17.50	1,445	93	0.005	12	1,244
3	12.50	1,469	58	0.003	7	1,264
2	7.50	1,493	28	0.002	4	1,285
1	2.50	1,285	5	0.000	1	1,106
Powerwave Allgon 702	120.00	13	14	0.001	2	11
Powerwave Allgon LGP	120.00	85	89	0.005	11	73



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Raycap DC6-48-60-18-	120.00	64	67	0.004	9	55
Ericsson RRUS 11 (Ba	120.00	150	159	0.009	20	129
Ericsson RRUS 32 B66	120.00	159	168	0.010	21	137
Ericsson RRUS 32 B2	120.00	159	168	0.010	21	137
Ericsson RRUS-32	120.00	231	244	0.014	31	199
Powerwave 7770.00	120.00	105	111	0.007	14	90
Quintel QS66512-2	120.00	333	352	0.021	45	287
CCI HPA-65R-BUU-H6	120.00	153	162	0.010	21	132
Flat Platform w/ Han	120.00	2,000	2,114	0.125	269	1,721
Ericsson KRY 112 144	112.00	33	32	0.002	4	28
Ericsson RRUS 11 B12	112.00	152	145	0.009	19	131
Ericsson AIR 21, 1.3	112.00	275	262	0.015	33	236
Ericsson AIR 21, 1.3	112.00	244	234	0.014	30	210
Andrew LNX-6515DS-VT	112.00	154	147	0.009	19	132
Flat Platform w/ Han	112.00	2,000	1,912	0.113	244	1,721
		35,353	16,941	1.000	2,157	30,430

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Customer: AT&T MOBILITY

**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	-42.22	-2.16	0.00	-201.90	0.00	201.90	4,850.87	2,425.44	10,823.8	5,345.47	0.00	0.00	0.046
5.00	-40.37	-2.16	0.00	-191.11	0.00	191.11	4,806.08	2,403.04	10,523.9	5,197.36	0.01	-0.01	0.045
10.00	-38.55	-2.16	0.00	-180.30	0.00	180.30	4,759.60	2,379.80	10,224.0	5,049.29	0.02	-0.02	0.044
15.00	-36.76	-2.15	0.00	-169.49	0.00	169.49	4,711.42	2,355.71	9,924.57	4,901.37	0.05	-0.03	0.042
20.00	-34.99	-2.14	0.00	-158.72	0.00	158.72	4,661.55	2,330.77	9,625.56	4,753.70	0.08	-0.04	0.041
25.00	-33.26	-2.13	0.00	-148.00	0.00	148.00	4,609.98	2,304.99	9,327.28	4,606.39	0.13	-0.05	0.039
30.00	-31.56	-2.10	0.00	-137.37	0.00	137.37	4,556.72	2,278.36	9,029.93	4,459.54	0.19	-0.06	0.038
35.00	-30.80	-2.09	0.00	-126.87	0.00	126.87	4,501.76	2,250.88	8,733.73	4,313.26	0.25	-0.07	0.036
37.25	-29.23	-2.06	0.00	-122.17	0.00	122.17	4,476.48	2,238.24	8,600.87	4,247.65	0.28	-0.07	0.035
40.00	-26.97	-2.00	0.00	-116.51	0.00	116.51	4,445.11	2,222.56	8,438.88	4,167.65	0.33	-0.08	0.034
44.00	-26.67	-2.00	0.00	-108.49	0.00	108.49	3,547.79	1,773.89	6,746.39	3,331.79	0.40	-0.08	0.040
45.00	-25.23	-1.96	0.00	-106.50	0.00	106.50	3,540.16	1,770.08	6,702.42	3,310.07	0.41	-0.09	0.039
50.00	-23.81	-1.91	0.00	-96.71	0.00	96.71	3,500.99	1,750.49	6,482.60	3,201.51	0.51	-0.10	0.037
55.00	-22.42	-1.86	0.00	-87.14	0.00	87.14	3,460.13	1,730.06	6,262.98	3,093.05	0.61	-0.11	0.035
60.00	-21.06	-1.81	0.00	-77.83	0.00	77.83	3,417.57	1,708.79	6,043.76	2,984.79	0.73	-0.11	0.032
65.00	-19.72	-1.74	0.00	-68.80	0.00	68.80	3,373.32	1,686.66	5,825.16	2,876.83	0.85	-0.12	0.030
70.00	-18.40	-1.67	0.00	-60.09	0.00	60.09	3,327.38	1,663.69	5,607.39	2,769.28	0.99	-0.13	0.027
75.00	-18.12	-1.66	0.00	-51.72	0.00	51.72	3,279.75	1,639.87	5,390.65	2,662.24	1.13	-0.14	0.025
76.08	-16.45	-1.56	0.00	-49.92	0.00	49.92	3,269.20	1,634.60	5,343.85	2,639.13	1.16	-0.14	0.024
80.00	-15.60	-1.51	0.00	-43.81	0.00	43.81	3,230.41	1,615.21	5,175.17	2,555.82	1.28	-0.15	0.022
82.00	-14.93	-1.46	0.00	-40.80	0.00	40.80	2,493.57	1,246.78	4,030.93	1,990.72	1.34	-0.15	0.026
85.00	-13.84	-1.39	0.00	-36.42	0.00	36.42	2,474.96	1,237.48	3,939.06	1,945.35	1.43	-0.15	0.024
90.00	-12.76	-1.30	0.00	-29.49	0.00	29.49	2,442.59	1,221.30	3,785.91	1,869.72	1.60	-0.16	0.021
95.00	-11.71	-1.22	0.00	-22.97	0.00	22.97	2,408.53	1,204.26	3,632.91	1,794.16	1.77	-0.16	0.018
100.00	-10.68	-1.13	0.00	-16.88	0.00	16.88	2,372.77	1,186.38	3,480.25	1,718.76	1.94	-0.17	0.014
105.00	-9.67	-1.03	0.00	-11.25	0.00	11.25	2,335.32	1,167.66	3,328.15	1,643.65	2.12	-0.17	0.011
110.00	-9.27	-0.99	0.00	-6.10	0.00	6.10	2,296.17	1,148.08	3,176.83	1,568.92	2.30	-0.17	0.008
112.00	-5.18	-0.58	0.00	-4.11	0.00	4.11	2,280.04	1,140.02	3,116.57	1,539.15	2.37	-0.17	0.005
115.00	-4.28	-0.48	0.00	-2.39	0.00	2.39	2,255.33	1,127.67	3,026.49	1,494.67	2.48	-0.18	0.003
120.00	0.00	-0.46	0.00	0.00	0.00	0.00	2,212.80	1,106.40	2,877.35	1,421.02	2.67	-0.18	0.000



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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	-29.32	-2.16	0.00	-200.72	0.00	200.72	4,850.87	2,425.44	10,823.8	5,345.47	0.00	0.00	0.044
5.00	-28.04	-2.16	0.00	-189.93	0.00	189.93	4,806.08	2,403.04	10,523.9	5,197.36	0.01	-0.01	0.042
10.00	-26.77	-2.16	0.00	-179.14	0.00	179.14	4,759.60	2,379.80	10,224.0	5,049.29	0.02	-0.02	0.041
15.00	-25.53	-2.15	0.00	-168.36	0.00	168.36	4,711.42	2,355.71	9,924.57	4,901.37	0.05	-0.03	0.040
20.00	-24.31	-2.13	0.00	-157.62	0.00	157.62	4,661.55	2,330.77	9,625.56	4,753.70	0.08	-0.04	0.038
25.00	-23.10	-2.12	0.00	-146.94	0.00	146.94	4,609.98	2,304.99	9,327.28	4,606.39	0.13	-0.05	0.037
30.00	-21.92	-2.09	0.00	-136.37	0.00	136.37	4,556.72	2,278.36	9,029.93	4,459.54	0.18	-0.06	0.035
35.00	-21.40	-2.08	0.00	-125.91	0.00	125.91	4,501.76	2,250.88	8,733.73	4,313.26	0.25	-0.07	0.034
37.25	-20.30	-2.05	0.00	-121.24	0.00	121.24	4,476.48	2,238.24	8,600.87	4,247.65	0.28	-0.07	0.033
40.00	-18.73	-1.99	0.00	-115.61	0.00	115.61	4,445.11	2,222.56	8,438.88	4,167.65	0.33	-0.08	0.032
44.00	-18.53	-1.99	0.00	-107.65	0.00	107.65	3,547.79	1,773.89	6,746.39	3,331.79	0.39	-0.08	0.038
45.00	-17.52	-1.95	0.00	-105.66	0.00	105.66	3,540.16	1,770.08	6,702.42	3,310.07	0.41	-0.09	0.037
50.00	-16.54	-1.90	0.00	-95.93	0.00	95.93	3,500.99	1,750.49	6,482.60	3,201.51	0.51	-0.10	0.035
55.00	-15.57	-1.85	0.00	-86.43	0.00	86.43	3,460.13	1,730.06	6,262.98	3,093.05	0.61	-0.10	0.032
60.00	-14.62	-1.79	0.00	-77.19	0.00	77.19	3,417.57	1,708.79	6,043.76	2,984.79	0.73	-0.11	0.030
65.00	-13.69	-1.73	0.00	-68.23	0.00	68.23	3,373.32	1,686.66	5,825.16	2,876.83	0.85	-0.12	0.028
70.00	-12.78	-1.66	0.00	-59.58	0.00	59.58	3,327.38	1,663.69	5,607.39	2,769.28	0.98	-0.13	0.025
75.00	-12.58	-1.65	0.00	-51.28	0.00	51.28	3,279.75	1,639.87	5,390.65	2,662.24	1.12	-0.14	0.023
76.08	-11.42	-1.55	0.00	-49.49	0.00	49.49	3,269.20	1,634.60	5,343.85	2,639.13	1.15	-0.14	0.022
80.00	-10.84	-1.49	0.00	-43.44	0.00	43.44	3,230.41	1,615.21	5,175.17	2,555.82	1.27	-0.14	0.020
82.00	-10.37	-1.45	0.00	-40.45	0.00	40.45	2,493.57	1,246.78	4,030.93	1,990.72	1.33	-0.15	0.024
85.00	-9.61	-1.37	0.00	-36.10	0.00	36.10	2,474.96	1,237.48	3,939.06	1,945.35	1.42	-0.15	0.022
90.00	-8.86	-1.29	0.00	-29.23	0.00	29.23	2,442.59	1,221.30	3,785.91	1,869.72	1.59	-0.16	0.019
95.00	-8.13	-1.21	0.00	-22.77	0.00	22.77	2,408.53	1,204.26	3,632.91	1,794.16	1.75	-0.16	0.016
100.00	-7.42	-1.12	0.00	-16.73	0.00	16.73	2,372.77	1,186.38	3,480.25	1,718.76	1.93	-0.17	0.013
105.00	-6.71	-1.02	0.00	-11.15	0.00	11.15	2,335.32	1,167.66	3,328.15	1,643.65	2.10	-0.17	0.010
110.00	-6.44	-0.98	0.00	-6.04	0.00	6.04	2,296.17	1,148.08	3,176.83	1,568.92	2.28	-0.17	0.007
112.00	-3.60	-0.57	0.00	-4.08	0.00	4.08	2,280.04	1,140.02	3,116.57	1,539.15	2.36	-0.17	0.004
115.00	-2.97	-0.47	0.00	-2.37	0.00	2.37	2,255.33	1,127.67	3,026.49	1,494.67	2.47	-0.17	0.003
120.00	0.00	-0.46	0.00	0.00	0.00	0.00	2,212.80	1,106.40	2,877.35	1,421.02	2.65	-0.17	0.000



Site Number: 370629

Code: ANSI/TIA-222-G

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Site Name: Northhaven I, CT

Engineering Number: OAA720419\_C3\_01

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Customer: AT&T MOBILITY

### Equivalent Modal Forces Analysis

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

Spectral Response Acceleration for Short Period ( $S_s$ ):	0.18
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
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.10
Period Based on Rayleigh Method (sec):	1.41
Redundancy Factor ( $\rho$ ):	1.30

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

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
29	117.50	727	1.812	1.594	0.998	0.338	213	901
28	113.50	445	1.691	1.088	0.801	0.266	102	551
27	111.00	322	1.617	0.832	0.694	0.225	63	398
26	107.50	816	1.517	0.543	0.563	0.174	123	1,011
25	102.50	833	1.379	0.245	0.410	0.113	82	1,032
24	97.50	850	1.248	0.054	0.292	0.065	48	1,054
23	92.50	867	1.123	-0.056	0.201	0.030	23	1,075
22	87.50	884	1.005	-0.109	0.134	0.008	6	1,096
21	83.50	539	0.915	-0.121	0.093	-0.002	-1	668
20	81.00	681	0.861	-0.120	0.073	-0.004	-2	843
19	78.04	1,350	0.799	-0.112	0.054	-0.004	-5	1,673
18	75.54	227	0.749	-0.101	0.040	-0.002	0	282
17	72.50	1,061	0.690	-0.084	0.028	0.002	2	1,315
16	67.50	1,082	0.598	-0.052	0.014	0.013	12	1,341
15	62.50	1,102	0.513	-0.021	0.008	0.024	23	1,366
14	57.50	1,123	0.434	0.007	0.006	0.034	33	1,392
13	52.50	1,143	0.362	0.030	0.008	0.040	40	1,417
12	47.50	1,164	0.296	0.046	0.013	0.044	44	1,442
11	44.50	235	0.260	0.054	0.016	0.045	9	292
10	42.00	1,826	0.232	0.058	0.019	0.045	71	2,263
9	38.63	1,272	0.196	0.063	0.024	0.044	49	1,576
8	36.13	610	0.171	0.066	0.027	0.044	23	756
7	32.50	1,373	0.139	0.069	0.032	0.042	50	1,702
6	27.50	1,397	0.099	0.071	0.037	0.040	49	1,731
5	22.50	1,421	0.066	0.072	0.041	0.038	47	1,761
4	17.50	1,445	0.040	0.070	0.042	0.036	45	1,791
3	12.50	1,469	0.021	0.064	0.038	0.032	41	1,821
2	7.50	1,493	0.007	0.050	0.029	0.025	33	1,850
1	2.50	1,285	0.001	0.022	0.012	0.012	13	1,593
Powerwave Allgon 702	120.00	13	1.890	1.980	1.140	0.387	4	16
Powerwave Allgon LGP	120.00	85	1.890	1.980	1.140	0.387	28	105
Raycap DC6-48-60-18-	120.00	64	1.890	1.980	1.140	0.387	21	79
Ericsson RRUS 11 (Ba	120.00	150	1.890	1.980	1.140	0.387	50	186
Ericsson RRUS 32 B66	120.00	159	1.890	1.980	1.140	0.387	53	197

Site Number: 370629

Code: ANSI/TIA-222-G

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Site Name: Northhaven I, CT

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Ericsson RRUS 32 B2	120.00	159	1.890	1.980	1.140	0.387	53	197
Ericsson RRUS-32	120.00	231	1.890	1.980	1.140	0.387	78	286
Powerwave 7770.00	120.00	105	1.890	1.980	1.140	0.387	35	130
Quintel QS66512-2	120.00	333	1.890	1.980	1.140	0.387	112	413
CCI HPA-65R-BUU-H6	120.00	153	1.890	1.980	1.140	0.387	51	190
Flat Platform w/ Han	120.00	2,000	1.890	1.980	1.140	0.387	671	2,479
Ericsson KRY 112 144	112.00	33	1.646	0.929	0.735	0.241	7	41
Ericsson RRUS 11 B12	112.00	152	1.646	0.929	0.735	0.241	32	188
Ericsson AIR 21, 1.3	112.00	275	1.646	0.929	0.735	0.241	57	340
Ericsson AIR 21, 1.3	112.00	244	1.646	0.929	0.735	0.241	51	303
Andrew LNX-6515DS-VT	112.00	154	1.646	0.929	0.735	0.241	32	191
Flat Platform w/ Han	112.00	2,000	1.646	0.929	0.735	0.241	418	2,479
		35,353	49.508	31.680	21.695	7.477	2,992	43,811

**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)
29	117.50	727	1.812	1.594	0.998	0.338	213	626
28	113.50	445	1.691	1.088	0.801	0.266	102	383
27	111.00	322	1.617	0.832	0.694	0.225	63	277
26	107.50	816	1.517	0.543	0.563	0.174	123	702
25	102.50	833	1.379	0.245	0.410	0.113	82	717
24	97.50	850	1.248	0.054	0.292	0.065	48	732
23	92.50	867	1.123	-0.056	0.201	0.030	23	747
22	87.50	884	1.005	-0.109	0.134	0.008	6	761
21	83.50	539	0.915	-0.121	0.093	-0.002	-1	464
20	81.00	681	0.861	-0.120	0.073	-0.004	-2	586
19	78.04	1,350	0.799	-0.112	0.054	-0.004	-5	1,162
18	75.54	227	0.749	-0.101	0.040	-0.002	0	196
17	72.50	1,061	0.690	-0.084	0.028	0.002	2	913
16	67.50	1,082	0.598	-0.052	0.014	0.013	12	931
15	62.50	1,102	0.513	-0.021	0.008	0.024	23	949
14	57.50	1,123	0.434	0.007	0.006	0.034	33	967
13	52.50	1,143	0.362	0.030	0.008	0.040	40	984
12	47.50	1,164	0.296	0.046	0.013	0.044	44	1,002
11	44.50	235	0.260	0.054	0.016	0.045	9	203
10	42.00	1,826	0.232	0.058	0.019	0.045	71	1,572
9	38.63	1,272	0.196	0.063	0.024	0.044	49	1,095
8	36.13	610	0.171	0.066	0.027	0.044	23	525
7	32.50	1,373	0.139	0.069	0.032	0.042	50	1,182
6	27.50	1,397	0.099	0.071	0.037	0.040	49	1,203
5	22.50	1,421	0.066	0.072	0.041	0.038	47	1,223
4	17.50	1,445	0.040	0.070	0.042	0.036	45	1,244
3	12.50	1,469	0.021	0.064	0.038	0.032	41	1,264
2	7.50	1,493	0.007	0.050	0.029	0.025	33	1,285
1	2.50	1,285	0.001	0.022	0.012	0.012	13	1,106
Powerwave Allgon 702	120.00	13	1.890	1.980	1.140	0.387	4	11
Powerwave Allgon LGP	120.00	85	1.890	1.980	1.140	0.387	28	73
Raycap DC6-48-60-18-	120.00	64	1.890	1.980	1.140	0.387	21	55
Ericsson RRUS 11 (Ba	120.00	150	1.890	1.980	1.140	0.387	50	129
Ericsson RRUS 32 B66	120.00	159	1.890	1.980	1.140	0.387	53	137
Ericsson RRUS 32 B2	120.00	159	1.890	1.980	1.140	0.387	53	137
Ericsson RRUS-32	120.00	231	1.890	1.980	1.140	0.387	78	199
Powerwave 7770.00	120.00	105	1.890	1.980	1.140	0.387	35	90
Quintel QS66512-2	120.00	333	1.890	1.980	1.140	0.387	112	287
CCI HPA-65R-BUU-H6	120.00	153	1.890	1.980	1.140	0.387	51	132
Flat Platform w/ Han	120.00	2,000	1.890	1.980	1.140	0.387	671	1,721
Ericsson KRY 112 144	112.00	33	1.646	0.929	0.735	0.241	7	28

Site Number: 370629

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Site Name: Northhaven I, CT

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Ericsson RRUS 11 B12	112.00	152	1.646	0.929	0.735	0.241	32	131
Ericsson AIR 21, 1.3	112.00	275	1.646	0.929	0.735	0.241	57	236
Ericsson AIR 21, 1.3	112.00	244	1.646	0.929	0.735	0.241	51	210
Andrew LNX-6515DS-VT	112.00	154	1.646	0.929	0.735	0.241	32	132
Flat Platform w/ Han	112.00	2,000	1.646	0.929	0.735	0.241	418	1,721
		35,353	49.508	31.680	21.695	7.477	2,992	30,430

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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	-42.22	-2.98	0.00	-301.32	0.00	301.32	4,850.87	2,425.44	10,823.8	5,345.47	0.00	0.00	0.065
5.00	-40.37	-2.96	0.00	-286.40	0.00	286.40	4,806.08	2,403.04	10,523.9	5,197.36	0.01	-0.01	0.064
10.00	-38.55	-2.93	0.00	-271.59	0.00	271.59	4,759.60	2,379.80	10,224.0	5,049.29	0.03	-0.03	0.062
15.00	-36.75	-2.89	0.00	-256.94	0.00	256.94	4,711.42	2,355.71	9,924.57	4,901.37	0.07	-0.04	0.060
20.00	-34.99	-2.85	0.00	-242.47	0.00	242.47	4,661.55	2,330.77	9,625.56	4,753.70	0.12	-0.06	0.059
25.00	-33.26	-2.81	0.00	-228.20	0.00	228.20	4,609.98	2,304.99	9,327.28	4,606.39	0.19	-0.07	0.057
30.00	-31.56	-2.77	0.00	-214.15	0.00	214.15	4,556.72	2,278.36	9,029.93	4,459.54	0.28	-0.09	0.055
35.00	-30.80	-2.75	0.00	-200.31	0.00	200.31	4,501.76	2,250.88	8,733.73	4,313.26	0.38	-0.10	0.053
37.25	-29.23	-2.70	0.00	-194.13	0.00	194.13	4,476.48	2,238.24	8,600.87	4,247.65	0.43	-0.11	0.052
40.00	-26.96	-2.63	0.00	-186.70	0.00	186.70	4,445.11	2,222.56	8,438.88	4,167.65	0.50	-0.12	0.051
44.00	-26.67	-2.62	0.00	-176.19	0.00	176.19	3,547.79	1,773.89	6,746.39	3,331.79	0.60	-0.13	0.060
45.00	-25.23	-2.58	0.00	-173.57	0.00	173.57	3,540.16	1,770.08	6,702.42	3,310.07	0.63	-0.13	0.060
50.00	-23.81	-2.54	0.00	-160.67	0.00	160.67	3,500.99	1,750.49	6,482.60	3,201.51	0.78	-0.15	0.057
55.00	-22.42	-2.51	0.00	-147.96	0.00	147.96	3,460.13	1,730.06	6,262.98	3,093.05	0.94	-0.16	0.054
60.00	-21.05	-2.49	0.00	-135.40	0.00	135.40	3,417.57	1,708.79	6,043.76	2,984.79	1.12	-0.18	0.052
65.00	-19.71	-2.48	0.00	-122.95	0.00	122.95	3,373.32	1,686.66	5,825.16	2,876.83	1.32	-0.20	0.049
70.00	-18.39	-2.48	0.00	-110.56	0.00	110.56	3,327.38	1,663.69	5,607.39	2,769.28	1.53	-0.21	0.045
75.00	-18.11	-2.48	0.00	-98.17	0.00	98.17	3,279.75	1,639.87	5,390.65	2,662.24	1.76	-0.22	0.042
76.08	-16.44	-2.48	0.00	-95.49	0.00	95.49	3,269.20	1,634.60	5,343.85	2,639.13	1.81	-0.23	0.041
80.00	-15.60	-2.48	0.00	-85.78	0.00	85.78	3,230.41	1,615.21	5,175.17	2,555.82	2.00	-0.24	0.038
82.00	-14.93	-2.48	0.00	-80.82	0.00	80.82	2,493.57	1,246.78	4,030.93	1,990.72	2.10	-0.24	0.047
85.00	-13.83	-2.47	0.00	-73.38	0.00	73.38	2,474.96	1,237.48	3,939.06	1,945.35	2.26	-0.25	0.043
90.00	-12.76	-2.45	0.00	-61.02	0.00	61.02	2,442.59	1,221.30	3,785.91	1,869.72	2.53	-0.26	0.038
95.00	-11.70	-2.40	0.00	-48.79	0.00	48.79	2,408.53	1,204.26	3,632.91	1,794.16	2.81	-0.27	0.032
100.00	-10.67	-2.31	0.00	-36.81	0.00	36.81	2,372.77	1,186.38	3,480.25	1,718.76	3.10	-0.28	0.026
105.00	-9.66	-2.18	0.00	-25.26	0.00	25.26	2,335.32	1,167.66	3,328.15	1,643.65	3.41	-0.29	0.020
110.00	-9.26	-2.12	0.00	-14.34	0.00	14.34	2,296.17	1,148.08	3,176.83	1,568.92	3.72	-0.30	0.013
112.00	-5.17	-1.40	0.00	-10.10	0.00	10.10	2,280.04	1,140.02	3,116.57	1,539.15	3.84	-0.30	0.009
115.00	-4.27	-1.18	0.00	-5.91	0.00	5.91	2,255.33	1,127.67	3,026.49	1,494.67	4.03	-0.30	0.006
120.00	0.00	-1.16	0.00	0.00	0.00	0.00	2,212.80	1,106.40	2,877.35	1,421.02	4.34	-0.30	0.000



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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	-29.32	-2.98	0.00	-299.43	0.00	299.43	4,850.87	2,425.44	10,823.8	5,345.47	0.00	0.00	0.062
5.00	-28.04	-2.96	0.00	-284.52	0.00	284.52	4,806.08	2,403.04	10,523.9	5,197.36	0.01	-0.01	0.061
10.00	-26.77	-2.92	0.00	-269.74	0.00	269.74	4,759.60	2,379.80	10,224.0	5,049.29	0.03	-0.03	0.059
15.00	-25.53	-2.88	0.00	-255.13	0.00	255.13	4,711.42	2,355.71	9,924.57	4,901.37	0.07	-0.04	0.057
20.00	-24.30	-2.84	0.00	-240.71	0.00	240.71	4,661.55	2,330.77	9,625.56	4,753.70	0.12	-0.06	0.056
25.00	-23.10	-2.80	0.00	-226.50	0.00	226.50	4,609.98	2,304.99	9,327.28	4,606.39	0.19	-0.07	0.054
30.00	-21.92	-2.75	0.00	-212.52	0.00	212.52	4,556.72	2,278.36	9,029.93	4,459.54	0.28	-0.09	0.052
35.00	-21.39	-2.73	0.00	-198.77	0.00	198.77	4,501.76	2,250.88	8,733.73	4,313.26	0.38	-0.10	0.051
37.25	-20.30	-2.68	0.00	-192.63	0.00	192.63	4,476.48	2,238.24	8,600.87	4,247.65	0.43	-0.11	0.050
40.00	-18.73	-2.61	0.00	-185.25	0.00	185.25	4,445.11	2,222.56	8,438.88	4,167.65	0.49	-0.12	0.049
44.00	-18.52	-2.60	0.00	-174.81	0.00	174.81	3,547.79	1,773.89	6,746.39	3,331.79	0.60	-0.13	0.058
45.00	-17.52	-2.56	0.00	-172.20	0.00	172.20	3,540.16	1,770.08	6,702.42	3,310.07	0.62	-0.13	0.057
50.00	-16.54	-2.52	0.00	-159.41	0.00	159.41	3,500.99	1,750.49	6,482.60	3,201.51	0.77	-0.15	0.055
55.00	-15.57	-2.49	0.00	-146.80	0.00	146.80	3,460.13	1,730.06	6,262.98	3,093.05	0.93	-0.16	0.052
60.00	-14.62	-2.47	0.00	-134.34	0.00	134.34	3,417.57	1,708.79	6,043.76	2,984.79	1.11	-0.18	0.049
65.00	-13.69	-2.46	0.00	-122.00	0.00	122.00	3,373.32	1,686.66	5,825.16	2,876.83	1.31	-0.19	0.046
70.00	-12.77	-2.45	0.00	-109.71	0.00	109.71	3,327.38	1,663.69	5,607.39	2,769.28	1.52	-0.21	0.043
75.00	-12.58	-2.46	0.00	-97.44	0.00	97.44	3,279.75	1,639.87	5,390.65	2,662.24	1.75	-0.22	0.040
76.08	-11.42	-2.46	0.00	-94.78	0.00	94.78	3,269.20	1,634.60	5,343.85	2,639.13	1.80	-0.23	0.039
80.00	-10.83	-2.46	0.00	-85.15	0.00	85.15	3,230.41	1,615.21	5,175.17	2,555.82	1.99	-0.24	0.037
82.00	-10.36	-2.46	0.00	-80.23	0.00	80.23	2,493.57	1,246.78	4,030.93	1,990.72	2.09	-0.24	0.044
85.00	-9.60	-2.45	0.00	-72.85	0.00	72.85	2,474.96	1,237.48	3,939.06	1,945.35	2.24	-0.25	0.041
90.00	-8.86	-2.43	0.00	-60.59	0.00	60.59	2,442.59	1,221.30	3,785.91	1,869.72	2.51	-0.26	0.036
95.00	-8.12	-2.38	0.00	-48.45	0.00	48.45	2,408.53	1,204.26	3,632.91	1,794.16	2.79	-0.27	0.030
100.00	-7.41	-2.29	0.00	-36.56	0.00	36.56	2,372.77	1,186.38	3,480.25	1,718.76	3.08	-0.28	0.024
105.00	-6.71	-2.17	0.00	-25.09	0.00	25.09	2,335.32	1,167.66	3,328.15	1,643.65	3.38	-0.29	0.018
110.00	-6.43	-2.10	0.00	-14.25	0.00	14.25	2,296.17	1,148.08	3,176.83	1,568.92	3.69	-0.30	0.012
112.00	-3.59	-1.39	0.00	-10.04	0.00	10.04	2,280.04	1,140.02	3,116.57	1,539.15	3.81	-0.30	0.008
115.00	-2.96	-1.17	0.00	-5.87	0.00	5.87	2,255.33	1,127.67	3,026.49	1,494.67	4.00	-0.30	0.005
120.00	0.00	-1.16	0.00	0.00	0.00	0.00	2,212.80	1,106.40	2,877.35	1,421.02	4.31	-0.30	0.000

Site Number: 370629

Code: ANSI/TIA-222-G

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Site Name: Northhaven I, CT

Engineering Number: OAA720419\_C3\_01

1/16/2018 9:30:06 AM

**Analysis Summary**

Load Case	Reactions						Max Usage	
	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	22.41	0.00	42.41	0.00	0.00	1831.31	0.00	0.35
0.9D + 1.6W	22.41	0.00	31.80	0.00	0.00	1822.44	0.00	0.35
1.2D + 1.0Di + 1.0Wi	4.86	0.00	60.20	0.00	0.00	405.71	0.00	0.09
(1.2 + 0.2Sds) * DL + E ELFM	2.16	0.00	42.22	0.00	0.00	201.90	0.00	0.05
(1.2 + 0.2Sds) * DL + E EMAM	2.98	0.00	42.22	0.00	0.00	301.32	0.00	0.07
(0.9 - 0.2Sds) * DL + E ELFM	2.16	0.00	29.32	0.00	0.00	200.72	0.00	0.04
(0.9 - 0.2Sds) * DL + E EMAM	2.98	0.00	29.32	0.00	0.00	299.43	0.00	0.06
1.0D + 1.0W	5.36	0.00	35.35	0.00	0.00	436.53	0.00	0.09



Site Number: 370629

Code: ANSI/TIA-222-G

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Site Name: Northhaven I, CT

Engineering Number: OAA720419\_C3\_01

1/16/2018 9:30:06 AM

Customer: AT&T MOBILITY

**Base Summary**

**Reactions**

Original Design			Analysis			
Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment Design %
4,149.00	39.20	37.10	1,831.31	60.20	22.41	32.70

**Base Plate**

Yield (ksi)	Thick (in)	Width (in)	Style	Poly Sides	Clip Len (in)	Effective Len (in)	Mu (kip-in)	Phi Mn (kip-in)	Ratio
60.0	2.750	68.920	Polygon	12	0.00	8.762	306.75	894.54	0.34

**Anchor Bolts**

Bolt Circle	Num Bolts	Bolt Type	Bolt Dia (in)	Yield (ksi)	Ultimate (ksi)	Arrange	Cluster Dist (in)	Start Angle (deg)	Compression			Tension		
									Force (kip)	Allow (kip)	Ratio	Force (kip)	Allow (kip)	Ratio
62.92	20	2.25" 18J	2.25	75.00	100.00	Radial	0.00	0.0	72.86	260.00	0.29	66.84	260.00	0.27



# Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CT2209

North Haven Washington Ave  
FA# 10035221  
125 Washington Ave  
North Haven, CT 06473

**January 29, 2018**

**Centerline Communications Project Number: 950006-087**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>10.75 %</b>



January 29, 2018

AT&T Mobility – New England  
Attn: John Benedetto, RF Manager  
550 Cochituate Road  
Suite 550 – 13&14  
Framingham, MA 06040

### Emissions Analysis for Site: **CT2209 – North Haven Washington Ave**

Centerline Communications, LLC (“Centerline”) was directed to analyze the proposed AT&T facility located at **125 Washington Ave, North Haven, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

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

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

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

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limits for the 700 and 850 MHz Bands are approximately  $467 \mu\text{W}/\text{cm}^2$  and  $567 \mu\text{W}/\text{cm}^2$  respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is  $1000 \mu\text{W}/\text{cm}^2$ . Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.





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

Additional details can be found in FCC OET 65.



## CALCULATIONS

Calculations were performed for the proposed AT&T Wireless antenna facility located at **125 Washington Ave, North Haven, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
UMTS	850 MHz	2	30
LTE	2300 MHz (WCS)	4	60
LTE	700 MHz	2	60
LTE	1900 MHz (PCS)	4	60
LTE	2100 MHz (AWS)	4	60

*Table 1: Channel Data Table*



The following antennas listed in *Table 2* were used in the modeling for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Powerwave 7770	122
A	2	CCI HPA-65R-BUU-H6	122
A	3	Quintel QS46512-2	122
B	1	Powerwave 7770	122
B	2	CCI HPA-65R-BUU-H6	122
B	3	Quintel QS46512-2	122
C	1	Powerwave 7770	122
C	2	CCI HPA-65R-BUU-H6	122
C	3	Quintel QS46512-2	122

*Table 2: Antenna Data*

All calculations were done with respect to uncontrolled / general population threshold limits.





## RESULTS

Per the calculations completed for the proposed AT&T configurations *Table 3* shows resulting emissions power levels and percentages of the FCC’s allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Powerwave 7770	850 MHz	11.4	2	120	1,656.46	0.78
Antenna A2	CCI HPA-65R-BUU-H6	2300 MHz (WCS)	15.25	4	240	8,039.17	2.15
Antenna A3	Quintel QS46512-2	700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	10.55 / 13.15 / 13.85	10	600	12,142.79	3.66
Sector A Composite MPE%							<b>6.59</b>
Antenna B1	Powerwave 7770	850 MHz	11.4	2	120	1,656.46	0.78
Antenna B2	CCI HPA-65R-BUU-H6	2300 MHz (WCS)	15.25	4	240	8,039.17	2.15
Antenna B3	Quintel QS46512-2	700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	10.55 / 13.15 / 13.85	10	600	12,142.79	3.66
Sector B Composite MPE%							<b>6.59</b>
Antenna C1	Powerwave 7770	850 MHz	11.4	2	120	1,656.46	0.78
Antenna C2	CCI HPA-65R-BUU-H6	2300 MHz (WCS)	15.25	4	240	8,039.17	2.15
Antenna C3	Quintel QS46512-2	700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	10.55 / 13.15 / 13.85	10	600	12,142.79	3.66
Sector C Composite MPE%							<b>6.59</b>

*Table 3: AT&T Emissions Levels*



The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum AT&T MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each AT&T Sector as well as the composite MPE value for the site.

<b>Site Composite MPE%</b>	
<b>Carrier</b>	<b>MPE%</b>
AT&T – Max Sector Value	<b>6.59 %</b>
XM Satellite Radio	0.21 %
T-Mobile	3.95 %
<b>Site Total MPE %:</b>	<b>10.75 %</b>

*Table 4: All Carrier MPE Contributions*

AT&T Sector A Total:	6.59 %
AT&T Sector B Total:	6.59 %
AT&T Sector C Total:	6.59 %
<b>Site Total:</b>	<b>10.75 %</b>

*Table 5: Site MPE Summary*



FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated AT&T sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

AT&T _ Frequency Band / Technology (All Sectors)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
AT&T 850 MHz LTE	2	828.23	122	4.43	850 MHz	567	0.78%
AT&T 2300 MHz (WCS) LTE	4	2,009.79	122	21.48	2300 MHz (WCS)	1000	2.15%
AT&T 700 MHz LTE	2	681.01	122	3.64	700 MHz	467	0.78%
AT&T 1900 MHz (PCS) LTE	4	1,239.23	122	13.24	1900 MHz (PCS)	1000	1.32%
AT&T 2100 MHz (AWS) LTE	4	1,455.97	122	15.56	2100 MHz (AWS)	1000	1.56%
						<b>Total:</b>	<b>6.59%</b>

*Table 6: AT&T Maximum Sector MPE Power Values*





## Summary

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

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector A:	6.59 %
Sector B:	6.59 %
Sector C:	6.59 %
AT&T Maximum Total (per sector):	6.59 %
Site Total:	10.75 %
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **10.75 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

A handwritten signature in black ink, appearing to read 'Scott Heffernan', is positioned above the printed name.

Scott Heffernan  
RF Engineering Director  
**Centerline Communications, LLC**  
95 Ryan Drive, Suite 1  
Raynham, MA 02767

# 125 WASHINGTON AVE

**Location** 125 WASHINGTON AVE

**Mblu** 073/ / 011/ /

**Acct#** 200200

**Owner** CANDID ASSOCIATES LLC

**Assessment** \$144,830

**Appraisal** \$206,900

**PID** 8727

**Building Count** 1

## Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2014	\$80,800	\$126,100	\$206,900

Assessment			
Valuation Year	Improvements	Land	Total
2014	\$56,560	\$88,270	\$144,830

## Owner of Record

**Owner** CANDID ASSOCIATES LLC  
**Co-Owner**  
**Address** 110 WASHINGTON AVE  
NORTH HAVEN, CT 06473

**Sale Price** \$0  
**Certificate** 1  
**Book & Page** 528/ 443  
**Sale Date** 09/15/1998

## Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
CANDID ASSOCIATES LLC	\$0	1	528/ 443	09/15/1998
LONGOBARDI VINCENT	\$0	3	361/ 982	12/16/1986
LONGOBARDI VINCENT	\$0	4	299/ 167	02/01/1978

## Building Information

### Building 1 : Section 1

**Year Built:** 1950  
**Living Area:** 4,320  
**Replacement Cost:** \$152,453  
**Building Percent** 53  
**Good:**  
**Replacement Cost**  
**Less Depreciation:** \$80,800

Building Attributes

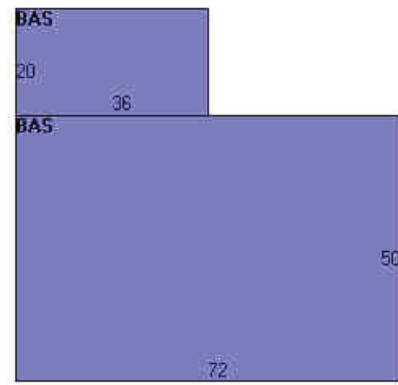
Field	Description
STYLE	Warehouse
MODEL	Ind/Comm
Grade	C
Stories:	1
Occupancy	1
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Average
Interior Floor 2	
Heating Fuel	None
Heating Type	None
AC Type	None
Bldg Use	IND WHSES M96
Total Rooms	
Total Bedrms	
Total Baths	
1st Floor Use:	
Heat/AC	NONE
Frame Type	WOOD FRAME
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	AVERAGE
Wall Height	14
% Comn Wall	

### Building Photo



(<http://images.vgsi.com/photos/NorthHavenCTPhotos/\00\01\96>)

### Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	4,320	4,320
		4,320	4,320

### Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
OVHD	OVER HEADDOOR	448 S.F.	\$0	1
OVHD	OVER HEADDOOR	120 S.F.	\$0	1

### Land

#### Land Use

Use Code 4010

#### Land Line Valuation

Size (Acres) 3.15



**Description** IND WHSES M96  
**Zone** IL80  
**Neighborhood** 301  
**Alt Land Appr Category** No

**Frontage**  
**Depth**  
**Assessed Value** \$88,270  
**Appraised Value** \$126,100

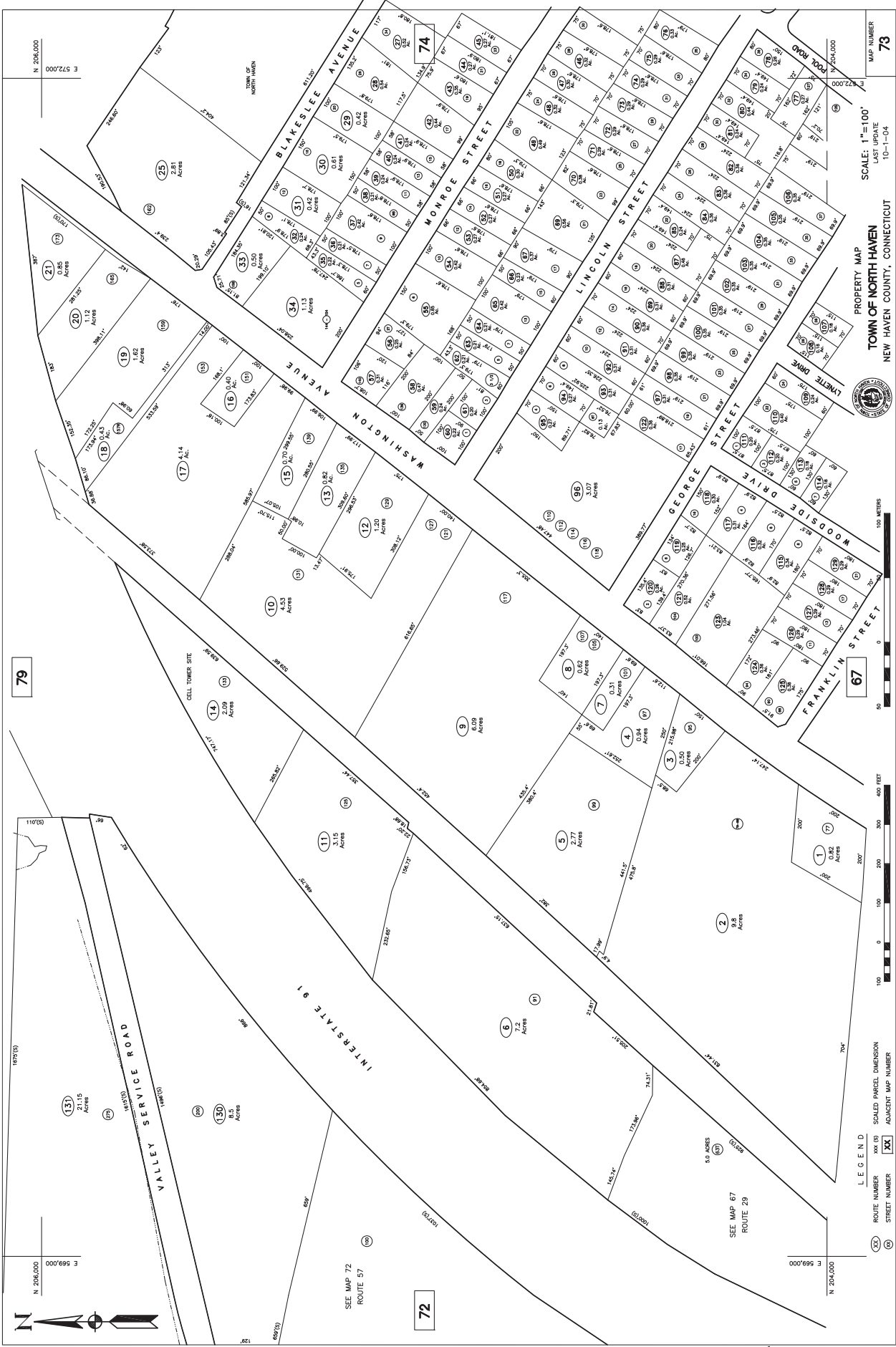
**Outbuildings**

Outbuildings	<u>Legend</u>
No Data for Outbuildings	

**Valuation History**

Appraisal			
Valuation Year	Improvements	Land	Total
2013	\$107,700	\$126,100	\$233,800
2008	\$61,800	\$201,100	\$262,900
2007		\$70,770	\$114,030

Assessment			
Valuation Year	Improvements	Land	Total
2013	\$75,390	\$88,270	\$163,660
2008	\$43,260	\$140,770	\$184,030
2007		\$70,770	\$114,030



MAP NUMBER  
**73**

SCALE: 1"=100'  
LAST UPDATE  
10-1-04

PROPERTY MAP  
TOWN OF NORTH HAVEN  
NEW HAVEN COUNTY, CONNECTICUT



SEE MAP 67  
ROUTE 29

SEE MAP 72  
ROUTE 57

LESEND  
 (X) ROUTE NUMBER  
 (XX) SCALED PARCEL DIMENSION  
 (XX) ADJACENT MAP NUMBER





**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Candid Associates LLC  
 110 Washington Ave  
 North Haven, CT 06473



9590 9402 1864 6104 9542 75

2. Article Number (Transfer from service label)

7016 2140 0000 9458 7396

PS Form 3811, July 2015 PSN 7530-02-000-9053

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature *[Signature]*  Agent  Addressee  
 B. Received by (Printed Name) *D. Nap* C. Date of Delivery *4-13-18*  
 D. Is delivery address different from item 1?  Yes  No  
 If YES, enter delivery address below:

3. Service Type
- Priority Mail Express®
  - Adult Signature
  - Adult Signature Restricted Delivery
  - Certified Mail®
  - Certified Mail Restricted Delivery
  - Collect on Delivery
  - Collect on Delivery Restricted Delivery
  - Insured Mail
  - Insured Mail Restricted Delivery (over \$500)
  - Return Receipt for Merchandise
  - Signature Confirmation™
  - Signature Confirmation Restricted Delivery

Domestic Return Receipt

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Shawn Dunn, A PM  
 American Tower Corp.  
 10 Presidential Way  
 Woburn, MA 01801



9590 9402 1864 6104 9542 99

2. Article Number (Transfer from service label)

7016 2140 0000 9458 7419

PS Form 3811, July 2015 PSN 7530-02-000-9053

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature *[Signature]*  Agent  Addressee  
 B. Received by (Printed Name) C. Date of Delivery  
 D. Is delivery address different from item 1?  Yes  No  
 If YES, enter delivery address below:

3. Service Type
- Priority Mail Express®
  - Adult Signature
  - Adult Signature Restricted Delivery
  - Certified Mail®
  - Certified Mail Restricted Delivery
  - Collect on Delivery
  - Collect on Delivery Restricted Delivery
  - Insured Mail
  - Insured Mail Restricted Delivery (over \$500)
  - Return Receipt for Merchandise
  - Signature Confirmation™
  - Signature Confirmation Restricted Delivery

Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Michael Freda, First Selectman  
 Town of North Haven  
 18 Church St  
 North Haven, CT 06473



9590 9402 1864 6104 9542 51

2. Article Number (Transfer from service label)

7016 2140 0000 9458 6184

PS Form 3811, July 2015 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature

Agent

Addressee

B. Received by (Printed Name)

C. Date of Delivery

D. Is delivery address different from item 1?  Yes  No

If YES, enter delivery address below:  Yes  No

3. Service Type
- Adult Signature
  - Adult Signature Restricted Delivery
  - Certified Mail®
  - Certified Mail Restricted Delivery
  - Collect on Delivery
  - Collect on Delivery Restricted Delivery
  - Insured Mail
  - Insured Mail Restricted Delivery (over \$500)
  - Priority Mail Express®
  - Registered Mail™
  - Registered Mail Restricted Delivery
  - Return Receipt for Merchandise
  - Signature Confirmation™
  - Signature Confirmation Restricted Delivery

Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Alio Floriano, Building Official  
 Town of North Haven  
 18 Church St.  
 North Haven, CT 06473



9590 9402 1864 6104 9542 68

2. Article Number (Transfer from service label)

7016 2140 0000 9458 7389

PS Form 3811, July 2015 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature

Agent

Addressee

B. Received by (Printed Name)

C. Date of Delivery

D. Is delivery address different from item 1?  Yes  No

If YES, enter delivery address below:  Yes  No

3. Service Type
- Adult Signature
  - Adult Signature Restricted Delivery
  - Certified Mail®
  - Certified Mail Restricted Delivery
  - Collect on Delivery
  - Collect on Delivery Restricted Delivery
  - Insured Mail
  - Insured Mail Restricted Delivery (over \$500)
  - Priority Mail Express®
  - Registered Mail™
  - Registered Mail Restricted Delivery
  - Return Receipt for Merchandise
  - Signature Confirmation™
  - Signature Confirmation Restricted Delivery

Domestic Return Receipt

ALERT: AS OF APRIL 30, USPS.COM WILL NO LONGER SUPPORT OUTDATED BROWSERS. TO...

# USPS Tracking®

FAQs > (<http://faq.usps.com/?articleId=220900>)

Track Another Package +

Tracking Number: 70162140000094587402

Remove X

Expected Delivery on

FRIDAY

13

APRIL 2018 ⓘ

by

8:00pm ⓘ

 Delivered

April 13, 2018 at 9:46 am  
Delivered, Front Desk/Reception  
NORTH HAVEN, CT 06473

Get Updates ▼

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Text & Email Updates



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Tracking History



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Product Information



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See Less ^

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Go to our FAQs section to find answers to your tracking questions.

FAQs (<http://faq.usps.com/?articleId=220900>)

The easiest tracking number is the one you don't have to know.

With Informed Delivery<sup>®</sup>, you never have to type in another tracking number. Sign up to:

- See images\* of incoming mail.
- Automatically track the packages you're expecting.
- Set up email and text alerts so you don't need to enter tracking numbers.
- Enter USPS Delivery Instructions<sup>™</sup> for your mail carrier.

Sign Up

([https://reg.usps.com/entreg/RegistrationAction\\_input?](https://reg.usps.com/entreg/RegistrationAction_input?app=uspsTools&appURL=https%3A%2F%2Ftools.usps.com%2Fgo)

\*NOTE: Black and white (grayscale) images show the outside, front of letter-sized envelopes and mailpieces that are processed through USPS automated equipment.