



October 23, 2019

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

Re: Notice of Exempt Modification – Antenna and RRU Add
Property Address: 104 Bunker Hill Road, Andover, CT 06232
Applicant: AT&T Mobility, LLC

Dear Ms. Bachman:

On behalf of AT&T, 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).

AT&T currently maintains a wireless telecommunications facility consisting of nine (9) wireless telecommunication antennas at an antenna center line height of 137-feet on an existing 178-foot monopole, owned by American Tower Corporation at 10 Presidential Way, Woburn, MA 01801. AT&T now intends to remove three (3) 4' Kathrein 7770 Panel Antennas, each currently installed in position [4], and remove three (3) 6' KMW AM-X-CD-16-65-00T-RET Panel Antennas, each currently installed in position [3]. Swap these for six (6) 6' CCI DMP65R-BU6DA Panel Antennas, each to be installed in position [3 + 4], all sectors. In addition, AT&T intends to remove (1) RRUS-11 in position [3] all sectors and add one (1) RRUS-4478 B14, one (1) RRUS-8843 B2/B66A and (1) RRUS-4449 B5/B12 in position [3 + 4], all sectors, for a total of nine (9) new RRUs. AT&T is also proposing to add (2) Raycap Squid, as well as one (1) fiber line and (4) DC Power Cables to their equipment configuration. All the changes will take place on a new antenna mount.

Attached is a summary of the planned modifications including power density calculations reflecting the change in AT&T's operations at the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

Please accept this letter pursuant to Regulation of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b) (2). In accordance with R.C.S.A., a copy of this letter is being sent to John Valente – Zoning Agent, Town of Andover, CT at 17 School Road, Andover, CT 06232 and Jeffrey J. Maguire – First Selectman, Town of Andover, CT at 17 School Road, Andover, CT 06232. A copy of this letter is being sent to the property owner, Leon and Benjamin Price at 104 Bunker Hill Road, Andover, CT 06232 and to the tower company, American Tower Corporation at 10 Presidential Way, Woburn, MA 01801.

The following is a list of subsequent decisions by the Connecticut Siting Council:

- **EM-AT&T-001-020603** - AT&T Wireless notice of intent to modify an existing telecommunications facility located at 104 Bunker Hill Road, Andover, Connecticut. Decision
- **EM-CING-001-142-061103** - New Cingular Wireless PCS, LLC notice of intent to modify existing telecommunications facilities located at 104 Bunker Hill Road, Andover; and 5 Barbara Road, Tolland, Connecticut. Decision Additional Correspondence
- **EM-CING-001-090114** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 104 Bunker Hill Road, Andover, Connecticut. Decision
- **EM-AT&T-001-120919** - AT&T Mobility notice of intent to modify an existing telecommunications facility located at 104 Bunker Hill Road, Andover, Connecticut.
- **EM-AT&T-001-140131** - American Telephone & Telegraph (AT&T) notice of intent to modify an existing



telecommunications facility located at 104 Bunker Hill Road, Andover, Connecticut. Decision. Extension Request and CSC Decision. Extension Request and CSC Decision. Extension Request and CSC Decision.

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 proposed modifications will not result in an increase in the height of the existing tower. AT&T's replacement antennas will be installed at the 105-foot level of the 147-foot self-support tower.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require an extension of the site boundary.
3. The proposed modifications will not increase the noise levels at the facility by six decibels 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. A cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the RF Emissions Compliance Report, included in [Tab 2](#).
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. (See Structural Analysis Report included in [Tab 3](#)).

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

Sincerely,

Kristina Cottone

CC w/enclosures:
John Valente – Zoning Department, Town of Andover, CT
Jeffrey J. Maguire – First Selectman, Town of Andover, CT
Leon and Benjamin Price – Property Owners
ATC – Tower Company

104 BUNKER HILL RD

Location 104 BUNKER HILL RD

Mblu 33/ 36/ 3/ /

Acct# 1023

Owner PRICE LEON & BENJAMIN

Assessment \$327,900

Appraisal \$468,400

PID 1023

Building Count 1

Current Value

| Appraisal | | | |
|----------------|--------------|-----------|-----------|
| Valuation Year | Improvements | Land | Total |
| 2016 | \$192,100 | \$276,300 | \$468,400 |

| Assessment | | | |
|----------------|--------------|-----------|-----------|
| Valuation Year | Improvements | Land | Total |
| 2016 | \$134,500 | \$193,400 | \$327,900 |

Owner of Record

Owner PRICE LEON & BENJAMIN
Co-Owner
Address 104 BUNKER HILL RD
ANDOVER, CT 06232

Sale Price \$0
Certificate
Book & Page 113/1034
Sale Date 10/18/2010
Instrument 26

Ownership History

| Ownership History | | | | | |
|------------------------------|------------|-------------|-------------|------------|------------|
| Owner | Sale Price | Certificate | Book & Page | Instrument | Sale Date |
| PRICE LEON & BENJAMIN | \$0 | | 113/1034 | 26 | 10/18/2010 |
| PRICE LEON | \$0 | | 0094/0229 | | 08/23/2004 |
| GREEN DEBORAH R & PRICE LEON | \$0 | | 0075/0459 | | 07/06/2000 |
| GREEN DEBORAH R & PRICE LEON | \$184,000 | | 0068/0950 | 00 | 12/10/1997 |
| ARNER DAVID C & MARSHA A | \$69,000 | | 0028/0674 | 00 | 04/15/1976 |

Building Information

Building 1 : Section 1

Year Built: 1969
Living Area: 2,017
Replacement Cost: \$208,772

Building Percent 71

Good:

Replacement Cost

Less Depreciation: \$148,200

Building Attributes

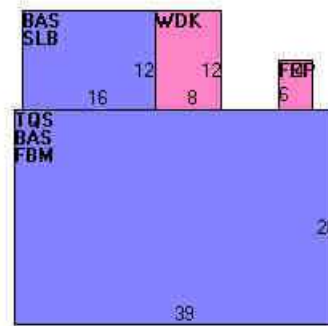
| Field | Description |
|--------------------|----------------|
| Style | Colonial |
| Model | Residential |
| Grade: | C+ |
| Stories: | 1 3/4 Stories |
| Occupancy | 1 |
| Exterior Wall 1 | Clapboard |
| Exterior Wall 2 | |
| Roof Structure: | Gambrel |
| Roof Cover | Asph/F Gls/Cmp |
| Interior Wall 1 | Drywall/Sheet |
| Interior Wall 2 | |
| Interior Flr 1 | Carpet |
| Interior Flr 2 | |
| Heat Fuel | Oil |
| Heat Type: | Hot Water |
| AC Type: | None |
| Total Bedrooms: | 3 Bedrooms |
| Total Bthrms: | 3 |
| Total Half Baths: | 0 |
| Total Xtra Fixtrs: | |
| Total Rooms: | 7 Rooms |
| Bath Style: | Average |
| Kitchen Style: | Average |

Building Photo



(http://images.vgsi.com/photos2/AndoverCTPhotos//\00\00\23\1

Building Layout



(http://images.vgsi.com/photos2/AndoverCTPhotos//Sketches/10

| Building Sub-Areas (sq ft) | | Legend | |
|----------------------------|---------------------------|------------|-------------|
| Code | Description | Gross Area | Living Area |
| BAS | First Floor | 1,206 | 1,206 |
| TQS | Three Quarter Story | 1,014 | 811 |
| FBM | Basement, Finished | 1,014 | 0 |
| FEP | Porch, Enclosed, Finished | 24 | 0 |
| SLB | Slab | 192 | 0 |
| WDK | Deck, Wood | 96 | 0 |
| | | 3,546 | 2,017 |

Extra Features

| Extra Features | Legend |
|----------------------------|--------|
| No Data for Extra Features | |

Land

Land Use

Use Code 1010
Description Single Fam MDL-01
Zone R-80
Neighborhood 12
Alt Land Appr Category No

Land Line Valuation

Size (Acres) 13.9
Frontage 0
Depth 0
Assessed Value \$193,400
Appraised Value \$276,300

Outbuildings

| Outbuildings | | | | | | <u>Legend</u> |
|--------------|----------------|----------|-----------------|-----------|----------|---------------|
| Code | Description | Sub Code | Sub Description | Size | Value | Bldg # |
| FN3 | Fence-6' Chain | | | 200 L.F. | \$1,600 | 1 |
| SHD5 | Shed | | | 220 S.F. | \$5,500 | 1 |
| SHD5 | Shed | | | 200 S.F. | \$5,000 | 1 |
| SHD5 | Shed | | | 360 S.F. | \$9,100 | 1 |
| FGR1 | Garage Av | | | 880 S.F. | \$6,300 | 1 |
| SHP3 | Work Shop Pr | | | 3640 S.F. | \$16,400 | 1 |

Valuation History

| Appraisal | | | |
|----------------|--------------|-----------|-----------|
| Valuation Year | Improvements | Land | Total |
| 2015 | \$210,100 | \$251,700 | \$461,800 |
| 2011 | \$210,100 | \$251,700 | \$461,800 |
| 2010 | \$246,900 | \$101,900 | \$348,800 |

| Assessment | | | |
|----------------|--------------|-----------|-----------|
| Valuation Year | Improvements | Land | Total |
| 2015 | \$147,000 | \$176,200 | \$323,200 |
| 2011 | \$147,000 | \$176,200 | \$323,200 |
| 2010 | \$172,800 | \$71,400 | \$244,200 |

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AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 178 ft Monopole
ATC Site Name : Andover-bunker Hill Road, CT
ATC Asset Number : 302472
Engineering Number : OAA751503_C3_02
Proposed Carrier : AT&T MOBILITY
Carrier Site Name : Andover East
Carrier Site Number : CTL01122 - FA#10035387
Site Location : 104 Bunker Hill Road
Andover, CT 06232-1301
41.737800,-72.349800
County : Tolland
Date : September 17, 2019
Max Usage : 82%
Result : Pass

Prepared By:
Cole Melody Koffi
Structural Engineer I

Reviewed By:

COA: PEC.0001553



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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 178 ft monopole to reflect the change in loading by AT&T MOBILITY.

Supporting Documents

| | |
|----------------------------|--|
| Tower Drawings | PJF Job #29200-028, dated January 14, 2000 |
| Foundation Drawing | PJF Job #29200-012, dated January 14, 2000 |
| Geotechnical Report | Tectonic Project #1170.C966, dated November 30, 1999 |

Analysis

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

| | |
|---------------------------------|---|
| Basic Wind Speed: | 101 mph (3-Second Gust, V_{ASD}) / 130 mph (3-Second Gust, V_{ULT}) |
| Basic Wind Speed w/ Ice: | 50 mph (3-Second Gust) w/ 1" radial ice concurrent |
| Code: | ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code |
| Structure Class: | II |
| Exposure Category: | B |
| Topographic Category: | 3 |
| Crest Height: | 143 ft |
| Spectral Response: | $S_s = 0.18$, $S_1 = 0.06$ |
| Site Class: | D - Stiff Soil |

Conclusion

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

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



Existing and Reserved Equipment

| Elev. ¹ (ft) | Qty | Antenna | Mount Type | Lines | Carrier |
|-------------------------|---------------------------|--|-------------------------|---|------------------|
| 182.0 | 12 | Powerwave Allgon 7120.16.05.00 / A-800-110-131-0-N | Low Profile Platform | (2) 1 1/4" Coax | SPRINT NEXTEL |
| 168.0 | 3 | Commscope NNVV-65B-R4 | Platform with Handrails | (4) 1 1/4" Hybriflex Cable (6) 1 5/8" Coax | |
| | 3 | RFS APXVTM14-ALU-I20 | | | |
| | 3 | Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield | | | |
| | 3 | Alcatel-Lucent 1900 MHz 4X45 RRH | | | |
| 6 | Alcatel-Lucent RRH2x50-08 | | | | |
| 158.0 | 6 | Andrew SBNHH-1D65B | Platform with Handrails | (12) 1 5/8" Coax (2) 1.58" Hybrid | VERIZON WIRELESS |
| | 2 | RFS DB-T1-6Z-8AB-OZ | | | |
| | 6 | Antel LPA-80080/4CF | | | |
| | 3 | Alcatel-Lucent B66a RRH4x45 (AWS-3) | | | |
| | 3 | Alcatel-Lucent RRH2x60 700 | | | |
| | 6 | RFS FD9R6004/2C-3L | | | |
| 148.0 | 3 | RFS APXVAARR24_43-U-NA20 | Low Profile Platform | (1) 1 5/8" Fiber (12) 1 5/8" Coax | T-MOBILE |
| | 3 | EMS RR90-17-02DP | | | |
| | 3 | Ericsson Radio 4449 B12,B71 | | | |
| | 3 | Ericsson KRY 112 489/2 | | | |
| | 3 | Ericsson KRY 112 144/1 | | | |
| 137.0 | 3 | Powerwave Allgon 7770.00 | - | (2) 0.78" 8 AWG 6 (12) 1 1/4" Coax | AT&T MOBILITY |
| | 6 | Powerwave Allgon LGP21401 | | | |
| | 1 | Raycap DC6-48-60-18-8F ("Squid") | | | |
| | 6 | LGP Allgon LGP21903 | | | |
| 108.0 | 1 | Generic GPS | Stand-Off | (1) 1/2" Coax | VERIZON WIRELESS |
| 97.0 | 2 | Generic GPS | Stand-Off | (2) 1/2" Coax | SPRINT NEXTEL |
| 88.0 | 1 | Generic GPS | Stand-Off | (2) 1/2" Coax | |
| 12.0 | 1 | PCTEL GPS-TMG-HR-26N | Stand-Off | (1) 1/2" Coax | AT&T MOBILITY |

Equipment to be Removed

| Elev. ¹ (ft) | Qty | Antenna | Mount Type | Lines | Carrier |
|-------------------------|-----|------------------------------------|----------------------|-----------------------------------|---------------|
| 137.0 | 3 | Ericsson RRUS 11 (Band 12) (55 lb) | Low Profile Platform | (1) 0.39" Cable (1) 3" Conduit | AT&T MOBILITY |
| | 3 | KMW AM-X-CD-16-65-00T-RET | | | |
| | 3 | Powerwave Allgon 7770.00 | | | |



Proposed Equipment

| Elev. ¹ (ft) | Qty | Antenna | Mount Type | Lines | Carrier |
|-------------------------|-----|----------------------------------|---|--|---------------|
| 137.0 | 6 | CCI DMP65R-BU6DA | SitePro 1 RMQP-496-HK Platform with Handrails | (2) 0.39" Fiber Trunk (4) 0.78" 8 AWG 6 | AT&T MOBILITY |
| | 2 | Raycap DC6-48-60-18-8F ("Squid") | | | |
| | 3 | Ericsson RRUS 8843 B2, B66A | | | |
| | 3 | Ericsson RRUS 4478 B14 | | | |
| | 3 | Ericsson RRUS 4449 B5, B12 | | | |

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

Install proposed lines inside the pole shaft.

Structure Usages

| Structural Component | Controlling Usage | Pass/Fail |
|----------------------|-------------------|-----------|
| Anchor Bolts | 80% | Pass |
| Shaft | 82% | Pass |
| Base Plate | 69% | Pass |

Foundations

| Reaction Component | Analysis Reactions | % of Usage |
|--------------------|--------------------|------------|
| Moment (Kips-Ft) | 5,397.0 | 61% |
| Axial (Kips) | 64.1 | 47% |
| Shear (Kips) | 43.6 | 24% |

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

Deflection and Sway*

| Antenna Elevation (ft) | Antenna | Carrier | Deflection (ft) | Sway (Rotation) (°) |
|------------------------|----------------------------------|---------------|-----------------|---------------------|
| 137.0 | Raycap DC6-48-60-18-8F ("Squid") | AT&T MOBILITY | 1.592 | 1.402 |
| | Ericsson RRUS 8843 B2, B66A | | | |
| | Ericsson RRUS 4478 B14 | | | |
| | Ericsson RRUS 4449 B5, B12 | | | |
| | CCI DMP65R-BU6DA | | | |

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



Standard Conditions

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

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

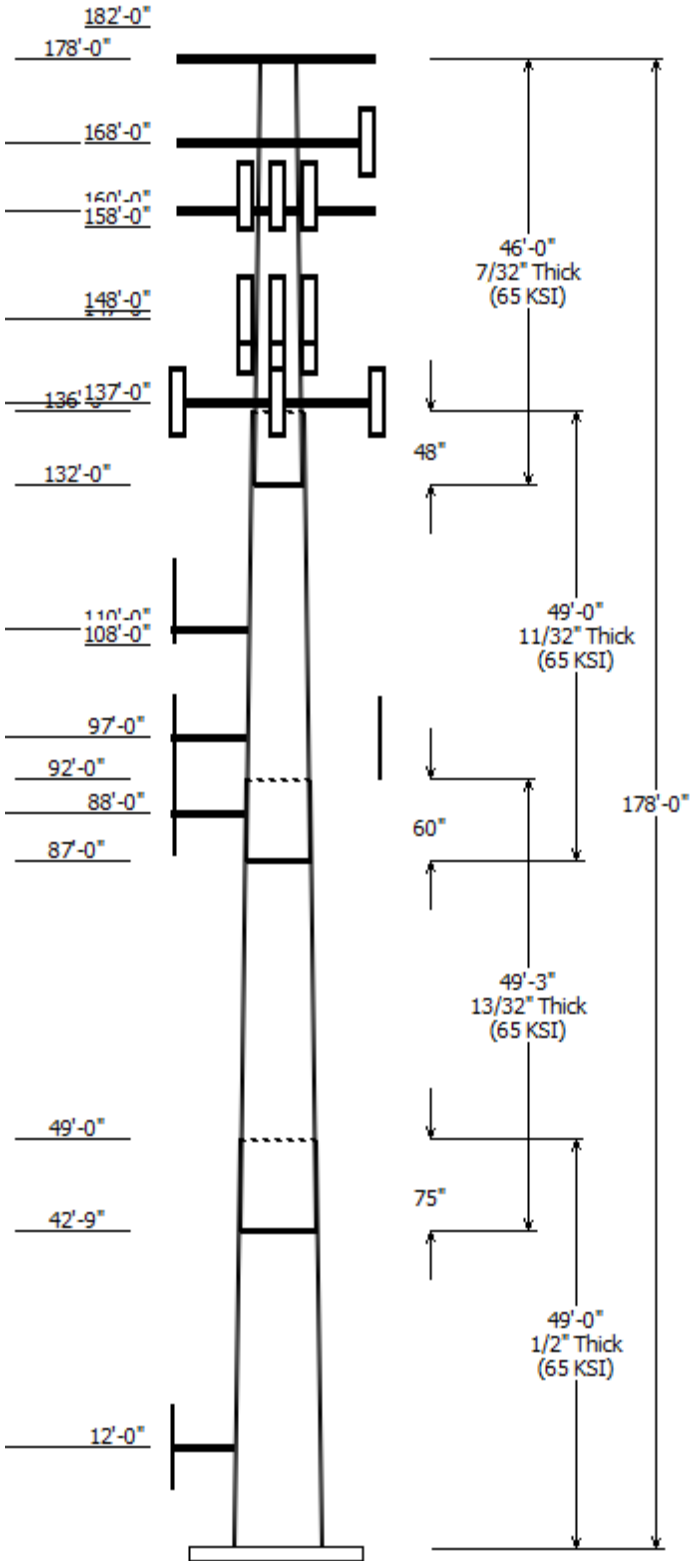
It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

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

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

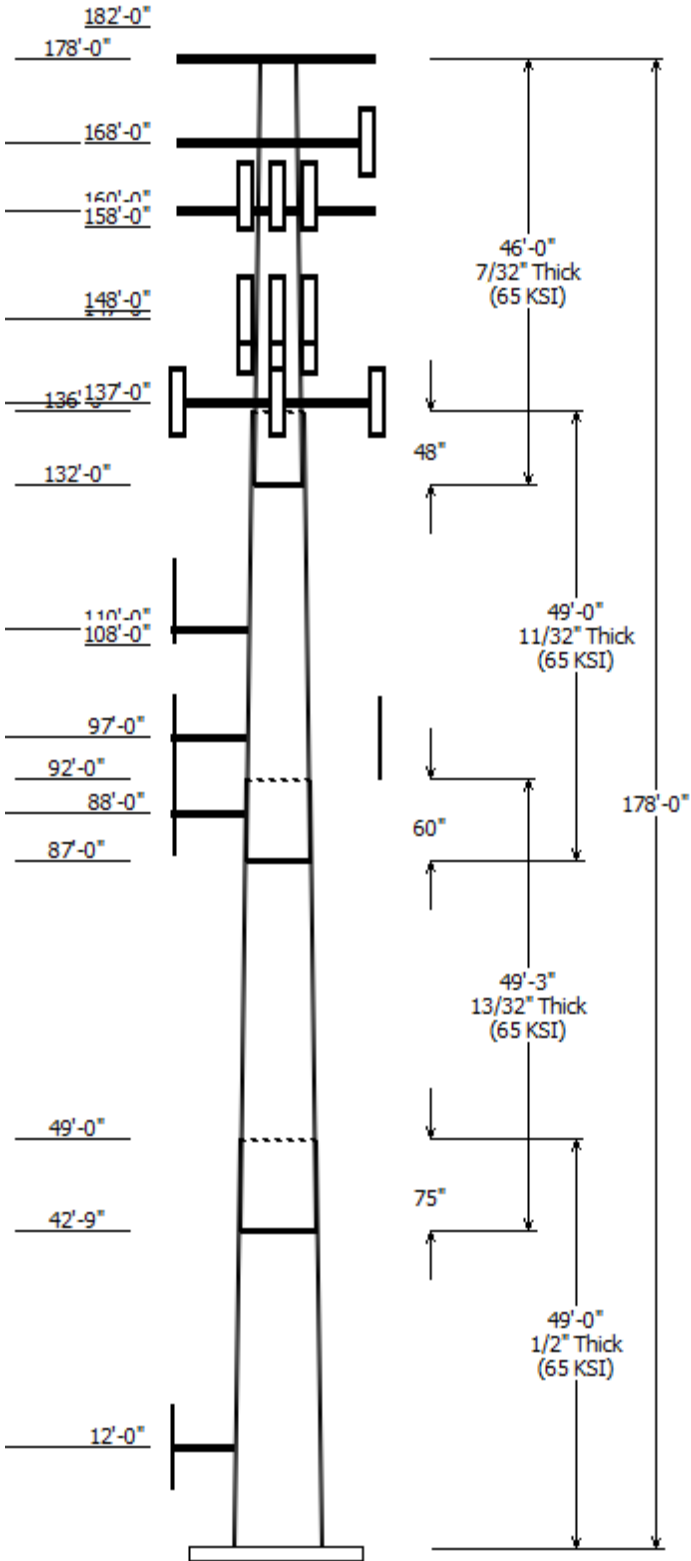
All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

| Job Information | |
|---|----------------------|
| Client : AT&T MOBILITY | Code: ANSI/TIA-222-G |
| Pole : 302472 | |
| Location : Andover-bunker Hill Road, CT | |
| Description : | Struct Class : II |
| Shape : 18 Sides | Exposure : B |
| Height : 178.00 (ft) | Topo : 3 |
| Base Elev (ft): 0.00 | |
| Taper: 0.20700in/ft) | |



| Sections Properties | | | | | | |
|---------------------|-------------|---------------|--------------|------------------|---------------------|-------------|
| Shaft Section | Length (ft) | Diameter (in) | | Joint Type | Overlap Length (in) | Steel Grade |
| | | Accross Top | Flats Bottom | | | |
| 1 | 49.000 | 46.76 | 56.91 | 0.500 | 0.000 | 18 Sides 65 |
| 2 | 49.250 | 38.67 | 48.87 | 0.406 Slip Joint | 75.000 | 18 Sides 65 |
| 3 | 49.000 | 30.25 | 40.40 | 0.344 Slip Joint | 60.000 | 18 Sides 65 |
| 4 | 46.000 | 22.00 | 31.52 | 0.219 Slip Joint | 48.000 | 18 Sides 65 |

| Discrete Appurtenance | | | |
|-----------------------|-----------------|-----|-------------------------------|
| Attach Elev (ft) | Force Elev (ft) | Qty | Description |
| 182.000 | 182.000 | 12 | Powerwave Allgon |
| 178.000 | 178.000 | 1 | Flat Low Profile Platform |
| 168.000 | 168.000 | 3 | Commscope NNVV-65B-R4 |
| 168.000 | 168.000 | 3 | RFS APXVTM14-ALU-I20 |
| 168.000 | 168.000 | 3 | Alcatel-Lucent TD-RRH8x20-25 |
| 168.000 | 168.000 | 3 | Alcatel-Lucent 1900 MHz 4X45 |
| 168.000 | 168.000 | 6 | Alcatel-Lucent RRH2x50-08 |
| 168.000 | 168.000 | 1 | Flat Platform w/ Handrails |
| 160.000 | 160.000 | 1 | Flat Platform w/ Handrails |
| 158.000 | 160.000 | 6 | Andrew SBNHH-1D65B |
| 158.000 | 160.000 | 6 | Antel LPA-80080/4CF |
| 158.000 | 160.000 | 2 | RFS DB-T1-6Z-8AB-0Z |
| 158.000 | 160.000 | 3 | Alcatel-Lucent B66a RRH4x45 |
| 158.000 | 160.000 | 3 | Alcatel-Lucent RRH2x60 700 |
| 158.000 | 158.000 | 6 | RFS FD9R6004/2C-3L |
| 148.000 | 148.000 | 3 | RFS APXVAARR24_43-U-NA20 |
| 148.000 | 147.000 | 3 | EMS RR90-17-02DP |
| 148.000 | 148.000 | 3 | Ericsson Radio 4449 B12,B71 |
| 148.000 | 148.000 | 3 | Ericsson KRY 112 489/2 |
| 148.000 | 148.000 | 3 | Ericsson KRY 112 144/1 |
| 147.000 | 147.000 | 1 | Platform with Handrails RMQP- |
| 137.000 | 137.000 | 3 | Ericsson RRUS 4449 B5, B12 |
| 137.000 | 137.000 | 3 | Ericsson RRUS 4478 B14 |
| 137.000 | 137.000 | 3 | Ericsson RRUS 8843 B2, B66A |
| 137.000 | 137.000 | 2 | Raycap DC6-48-60-18-8F |
| 137.000 | 137.000 | 1 | Raycap DC6-48-60-18-8F |
| 137.000 | 137.000 | 6 | Powerwave Allgon LGP21401 |
| 137.000 | 137.000 | 6 | LGP Allgon LGP21903 |
| 137.000 | 137.000 | 1 | Flat Low Profile Platform |
| 137.000 | 137.000 | 6 | CCI DMP65R-BU6DA |
| 137.000 | 137.000 | 3 | Powerwave Allgon 7770.00 |
| 110.000 | 110.000 | 1 | Stand-Off |
| 108.000 | 110.000 | 1 | Generic GPS |
| 97.000 | 97.000 | 1 | Stand-Off |
| 97.000 | 97.000 | 1 | Generic GPS |
| 97.000 | 97.000 | 1 | Generic GPS |
| 88.000 | 88.000 | 1 | Stand-Off |
| 88.000 | 88.000 | 1 | Generic GPS |
| 12.000 | 12.000 | 1 | Stand-Off |
| 12.000 | 12.000 | 1 | PCTEL GPS-TMG-HR-26N |



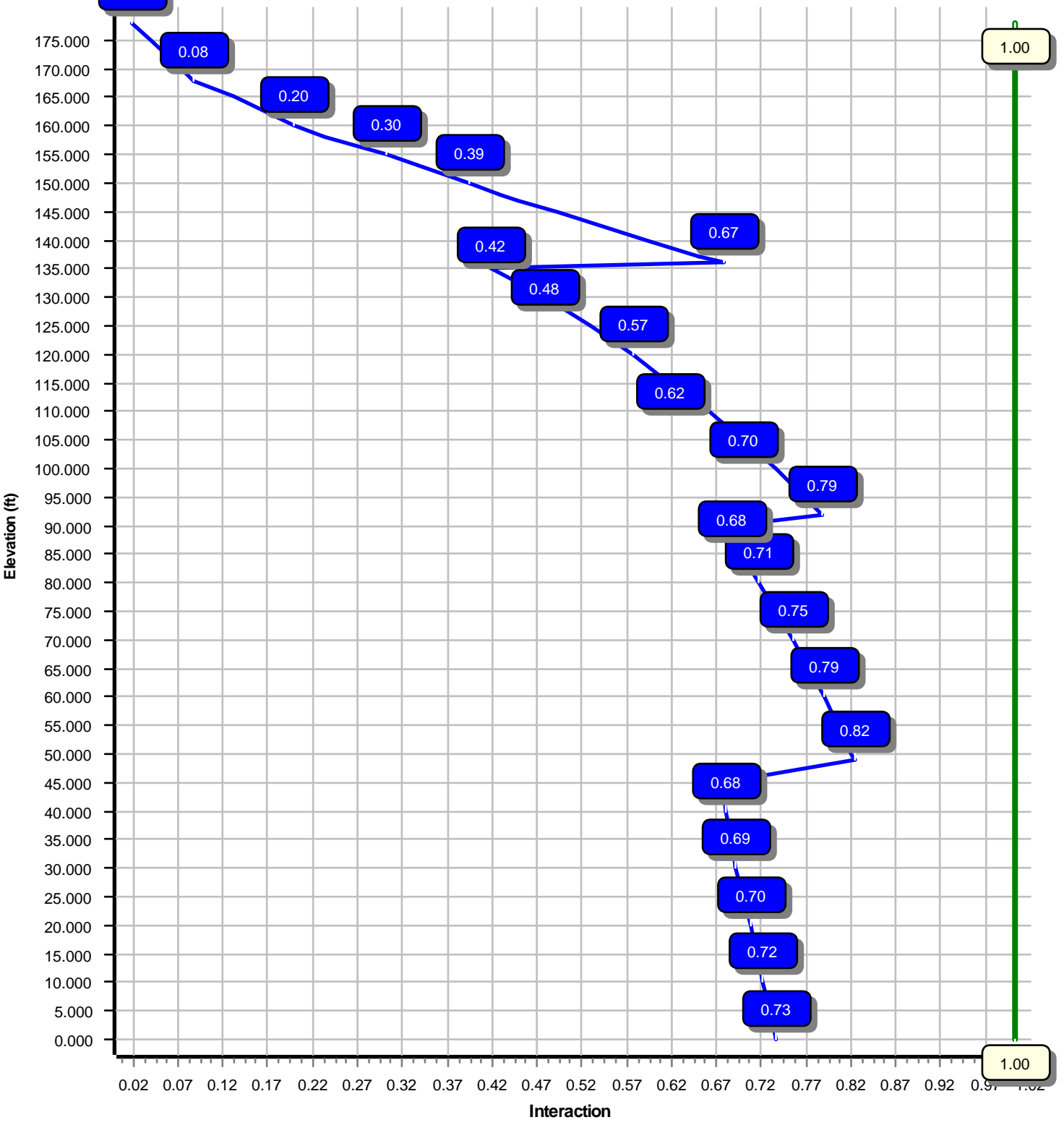
| Linear Appurtenance | | | |
|---------------------|--------|------------------|-----------------|
| Elev (ft) | | Description | Exposed To Wind |
| From | To | | |
| 0.000 | 12.000 | 1/2" Coax | No |
| 0.000 | 88.000 | 1/2" Coax | No |
| 0.000 | 97.000 | 1/2" Coax | No |
| 0.000 | 97.000 | 1/2" Coax | No |
| 0.000 | 108.0 | 1/2" Coax | No |
| 0.000 | 137.0 | 0.39" (10mm) | No |
| 0.000 | 137.0 | 0.78" (19.7mm) 8 | No |
| 0.000 | 137.0 | 0.78" (19.7mm) 8 | No |
| 0.000 | 137.0 | 1 1/4" Coax | No |
| 0.000 | 148.0 | 1 5/8" (1.63"- | No |
| 0.000 | 148.0 | 1 5/8" Coax | No |
| 0.000 | 158.0 | 1 5/8" Coax | No |
| 0.000 | 158.0 | 1.58" (40.1mm) | No |
| 0.000 | 168.0 | 1 1/4" Hybriflex | No |
| 0.000 | 168.0 | 1 5/8" Coax | No |
| 0.000 | 182.0 | 1 1/4" Coax | No |

| Load Cases | |
|-------------------------|--|
| 1.2D + 1.6W | 101 mph with No Ice |
| 0.9D + 1.6W | 101 mph with No Ice (Reduced DL) |
| 1.2D + 1.0Di + 1.0Wi | 50 mph with 1.00 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 | 5397.02 | 43.63 | 64.13 |
| 0.9D + 1.6W | 5314.51 | 43.60 | 48.08 |
| 1.2D + 1.0Di + 1.0Wi | 1512.40 | 12.03 | 106.45 |
| (1.2 + 0.2Sds) * DL + E ELFM | 237.04 | 1.61 | 64.06 |
| (1.2 + 0.2Sds) * DL + E EMAM | 276.76 | 2.08 | 64.06 |
| (0.9 - 0.2Sds) * DL + E ELFM | 232.49 | 1.61 | 44.65 |
| (0.9 - 0.2Sds) * DL + E EMAM | 271.12 | 2.07 | 44.65 |
| 1.0D + 1.0W | 1056.93 | 8.61 | 53.51 |

| 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 82.10% at 49.0 ft



Site Number: 302472

Code: ANSI/TIA-222-G

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Site Name: Andover-bunker Hill Road, CT

Engineering Number: OAA751503_C3_02

9/17/2019 6:56:46 PM

Customer: AT&T MOBILITY

Analysis Parameters

| | | | |
|---------------------|--------------------|----------------------|-------|
| Location : | Tolland County, CT | Height (ft) : | 178 |
| Code : | ANSI/TIA-222-G | Base Diameter (in) : | 56.91 |
| Shape : | 18 Sides | Top Diameter (in) : | 22.00 |
| Pole Type : | Taper | Taper (in/ft) : | 0.207 |
| Pole Manufacturer : | PJF | Rotation (deg) : | 0.00 |

Ice & Wind Parameters

| | | | |
|-----------------------|--------|--------------------------------|---------|
| Structure Class: | II | Design Wind Speed Without Ice: | 101 mph |
| Exposure Category: | B | Design Wind Speed With Ice: | 50 mph |
| Topographic Category: | 3 | Operational Wind Speed: | 60 mph |
| Crest Height: | 143 ft | Design Ice Thickness: | 1.00 in |

Seismic Parameters

Analysis Method: Equivalent Modal Analysis & Equivalent Lateral Force Methods

Site Class: D - Stiff Soil

Period Based on Rayleigh Method (sec): 2.91

| | | | | | |
|--------------|-------|------------|-------|------------|-------|
| T_L (sec): | 6 | p : | 1 | C_s : | 0.030 |
| S_s : | 0.176 | S_1 : | 0.063 | C_s Max: | 0.030 |
| F_a : | 1.600 | F_v : | 2.400 | C_s Min: | 0.030 |
| S_{ds} : | 0.188 | S_{d1} : | 0.101 | | |

Load Cases

| | |
|------------------------------|---|
| 1.2D + 1.6W | 101 mph with No Ice |
| 0.9D + 1.6W | 101 mph with No Ice (Reduced DL) |
| 1.2D + 1.0Di + 1.0Wi | 50 mph with 1.00 in Radial Ice |
| (1.2 + 0.2Sds) * DL + E ELFM | Seismic Equivalent Lateral Forces Method |
| (1.2 + 0.2Sds) * DL + E EMAM | Seismic Equivalent Modal Analysis Method |
| (0.9 - 0.2Sds) * DL + E ELFM | Seismic (Reduced DL) Equivalent Lateral Forces Method |
| (0.9 - 0.2Sds) * DL + E EMAM | Seismic (Reduced DL) Equivalent Modal Analysis Method |
| 1.0D + 1.0W | Serviceability 60 mph |

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Site Name: Andover-bunker Hill Road, CT

Engineering Number: OAA751503_C3_02

9/17/2019 6:56:46 PM

Customer: AT&T MOBILITY

Shaft Section Properties

| Sect Info | Length (ft) | Thick (in) | Fy (ksi) | Joint Type | Joint Len (in) | Weight (lb) | Bottom | | | | | | Top | | | | | | |
|--------------|-------------|------------|----------|------------|----------------|-------------|----------|-----------|-------------------------|-----------------------|-----------|-----------|----------|-----------|-------------------------|-----------------------|-----------|-----------|---------------|
| | | | | | | | Dia (in) | Elev (ft) | Area (in ²) | Ix (in ⁴) | W/t Ratio | D/t Ratio | Dia (in) | Elev (ft) | Area (in ²) | Ix (in ⁴) | W/t Ratio | D/t Ratio | Taper (in/ft) |
| 1-18 | 49.000 | 0.5000 | 65 | | 0.00 | 13,584 | 56.91 | 0.00 | 89.52 | 35990.1 | 18.31 | 113.82 | 46.76 | 49.00 | 73.42 | 19857.1 | 14.73 | 93.53 | 0.207008 |
| 2-18 | 49.250 | 0.4063 | 65 | Slip | 75.00 | 9,371 | 48.87 | 42.75 | 62.49 | 18546.7 | 19.45 | 120.30 | 38.67 | 92.00 | 49.35 | 9131.9 | 15.02 | 95.21 | 0.207008 |
| 3-18 | 49.000 | 0.3438 | 65 | Slip | 60.00 | 6,364 | 40.40 | 87.00 | 43.70 | 8859.4 | 18.96 | 117.53 | 30.25 | 136.00 | 32.64 | 3689.5 | 13.76 | 88.02 | 0.207008 |
| 4-18 | 46.000 | 0.2188 | 65 | Slip | 48.00 | 2,885 | 31.52 | 132.00 | 21.73 | 2690.8 | 23.65 | 144.10 | 22.00 | 178.00 | 15.12 | 906.4 | 15.97 | 100.57 | 0.207008 |
| Shaft Weight | | | | | | 32,204 | | | | | | | | | | | | | |

Discrete Appurtenance Properties

| Attach Elev (ft) | Description | Qty | Ka | Vert Ecc (ft) | Weight (lb) | No Ice EPAa (sf) | Orientation Factor | Weight (lb) | Ice EPAa (sf) | Orientation Factor |
|------------------|-------------------------------|-----|------|---------------|-------------|------------------|--------------------|-------------|---------------|--------------------|
| 182.00 | Powerwave Allgon | 12 | 0.80 | 0.000 | 15.40 | 5.320 | 0.70 | 246.14 | 5.297 | 0.70 |
| 178.00 | Flat Low Profile Platform | 1 | 1.00 | 0.000 | 1,500.00 | 26.100 | 1.00 | 2,404.57 | 52.756 | 1.00 |
| 168.00 | Alcatel-Lucent RRH2x50-08 | 6 | 0.75 | 0.000 | 52.90 | 1.700 | 0.50 | 135.49 | 2.902 | 0.50 |
| 168.00 | Alcatel-Lucent 1900 MHz 4X45 | 3 | 0.75 | 0.000 | 60.00 | 2.320 | 0.67 | 172.32 | 3.825 | 0.67 |
| 168.00 | Alcatel-Lucent TD-RRH8x20-25 | 3 | 0.75 | 0.000 | 70.00 | 4.050 | 0.61 | 201.72 | 5.902 | 0.61 |
| 168.00 | RFS APXVTM14-ALU-I20 | 3 | 0.75 | 0.000 | 56.20 | 6.340 | 0.66 | 248.11 | 9.375 | 0.66 |
| 168.00 | Commscope NNVV-65B-R4 | 3 | 0.75 | 0.000 | 77.40 | 12.270 | 0.64 | 427.60 | 16.178 | 0.64 |
| 168.00 | Flat Platform w/ Handrails | 1 | 1.00 | 0.000 | 2,000.00 | 42.400 | 1.00 | 3,980.72 | 71.629 | 1.00 |
| 160.00 | Flat Platform w/ Handrails | 1 | 1.00 | 0.000 | 2,000.00 | 42.400 | 1.00 | 3,978.38 | 71.595 | 1.00 |
| 158.00 | RFS FD9R6004/2C-3L | 6 | 0.75 | 0.000 | 2.60 | 0.310 | 0.50 | 13.75 | 0.840 | 0.50 |
| 158.00 | Alcatel-Lucent RRH2x60 700 | 3 | 0.75 | 2.000 | 56.70 | 2.150 | 0.67 | 151.41 | 3.544 | 0.67 |
| 158.00 | Alcatel-Lucent B66a RRH4x45 | 3 | 0.75 | 2.000 | 67.00 | 2.660 | 0.67 | 165.66 | 4.259 | 0.67 |
| 158.00 | RFS DB-T1-6Z-8AB-0Z | 2 | 0.75 | 2.000 | 44.00 | 4.800 | 0.72 | 219.14 | 6.778 | 0.72 |
| 158.00 | Antel LPA-80080/4CF | 6 | 0.75 | 2.000 | 12.00 | 5.400 | 0.62 | 215.92 | 3.831 | 0.62 |
| 158.00 | Andrew SBNHH-1D65B | 6 | 0.75 | 2.000 | 50.70 | 8.170 | 0.69 | 294.88 | 12.106 | 0.69 |
| 148.00 | Ericsson KRY 112 144/1 | 3 | 0.75 | 0.000 | 11.00 | 0.350 | 0.50 | 25.95 | 0.913 | 0.50 |
| 148.00 | Ericsson KRY 112 489/2 | 3 | 0.75 | 0.000 | 15.40 | 0.560 | 0.50 | 39.95 | 1.290 | 0.50 |
| 148.00 | Ericsson Radio 4449 B12,B71 | 3 | 0.75 | 0.000 | 74.00 | 1.640 | 0.50 | 151.82 | 2.814 | 0.50 |
| 148.00 | EMS RR90-17-02DP | 3 | 0.75 | -1.000 | 13.50 | 4.360 | 0.64 | 166.33 | 5.778 | 0.64 |
| 148.00 | RFS APXVAARR24_43-U-NA20 | 3 | 0.75 | 0.000 | 127.90 | 20.240 | 0.63 | 673.57 | 25.394 | 0.63 |
| 147.00 | Platform with Handrails RMQP- | 1 | 1.00 | 0.000 | 2,500.00 | 34.800 | 1.00 | 4,920.34 | 68.491 | 1.00 |
| 137.00 | LGP Allgon LGP21903 | 6 | 0.80 | 0.000 | 5.50 | 0.230 | 0.50 | 17.18 | 0.699 | 0.50 |
| 137.00 | Powerwave Allgon LGP21401 | 6 | 0.80 | 0.000 | 14.10 | 1.100 | 0.50 | 48.74 | 2.087 | 0.50 |
| 137.00 | Raycap DC6-48-60-18-8F | 1 | 0.80 | 0.000 | 31.80 | 1.470 | 1.00 | 117.46 | 2.440 | 1.00 |
| 137.00 | Raycap DC6-48-60-18-8F | 2 | 0.80 | 0.000 | 31.80 | 1.470 | 1.00 | 117.46 | 2.440 | 1.00 |
| 137.00 | Ericsson RRUS 8843 B2, B66A | 3 | 0.80 | 0.000 | 72.00 | 1.640 | 0.50 | 157.10 | 2.814 | 0.50 |
| 137.00 | Ericsson RRUS 4478 B14 | 3 | 0.80 | 0.000 | 59.90 | 1.840 | 0.50 | 136.67 | 3.084 | 0.50 |
| 137.00 | Ericsson RRUS 4449 B5, B12 | 3 | 0.80 | 0.000 | 71.00 | 1.970 | 0.50 | 160.48 | 3.266 | 0.50 |
| 137.00 | Powerwave Allgon 7770.00 | 3 | 0.80 | 0.000 | 35.00 | 5.510 | 0.65 | 239.01 | 7.013 | 0.65 |
| 137.00 | CCI DMP65R-BU6DA | 6 | 0.80 | 0.000 | 79.40 | 12.710 | 0.63 | 437.04 | 16.582 | 0.63 |
| 137.00 | Flat Low Profile Platform | 1 | 1.00 | 0.000 | 1,500.00 | 26.100 | 1.00 | 2,399.51 | 52.607 | 1.00 |
| 110.00 | Stand-Off | 1 | 1.00 | 0.000 | 100.00 | 3.000 | 1.00 | 167.63 | 5.174 | 1.00 |
| 108.00 | Generic GPS | 1 | 1.00 | 2.000 | 10.00 | 0.900 | 1.00 | 50.58 | 1.787 | 1.00 |
| 97.00 | Generic GPS | 1 | 1.00 | 0.000 | 10.00 | 0.900 | 1.00 | 50.59 | 1.787 | 1.00 |
| 97.00 | Generic GPS | 1 | 1.00 | 0.000 | 10.00 | 0.900 | 1.00 | 50.59 | 1.787 | 1.00 |
| 97.00 | Stand-Off | 1 | 1.00 | 0.000 | 100.00 | 3.000 | 1.00 | 167.65 | 5.174 | 1.00 |
| 88.00 | Generic GPS | 1 | 1.00 | 0.000 | 10.00 | 0.900 | 1.00 | 50.61 | 1.788 | 1.00 |
| 88.00 | Stand-Off | 1 | 1.00 | 0.000 | 100.00 | 3.000 | 1.00 | 167.68 | 5.175 | 1.00 |
| 12.00 | PCTEL GPS-TMG-HR-26N | 1 | 1.00 | 0.000 | 0.60 | 0.090 | 1.00 | 6.94 | 0.326 | 1.00 |
| 12.00 | Stand-Off | 1 | 1.00 | 0.000 | 100.00 | 3.000 | 1.00 | 163.78 | 5.050 | 1.00 |
| Totals | Num Loadings:40 | | | | | | | | | |
| | | 118 | | | 14,213.00 | | | 38,635.03 | | |

Linear Appurtenance Properties Load Case Azimuth (deg) :

| Elev From (ft) | Elev To (ft) | Qty | Description | Coax Dia (in) | Coax Wt (lb/ft) | Max Coax / Flat Row | Dist Between Rows (in) | Dist Between Cols (in) | Azimuth (deg) | Dist From Face (in) | Exposed To Wind | Carrier |
|----------------|--------------|-----|------------------------|---------------|-----------------|---------------------|------------------------|------------------------|---------------|---------------------|-----------------|------------------|
| 0.00 | 182.00 | 2 | 1 1/4" Coax | 1.55 | 0.63 | N 0 | 0.00 | 0.00 | 0 | 0.00 | N | SPRINT NEXTEL |
| 0.00 | 168.00 | 4 | 1 1/4" Hybriflex Cable | 1.54 | 1.00 | N 0 | 0.00 | 0.00 | 0 | 0.00 | N | SPRINT NEXTEL |
| 0.00 | 168.00 | 6 | 1 5/8" Coax | 1.98 | 0.82 | N 0 | 0.00 | 0.00 | 0 | 0.00 | N | SPRINT NEXTEL |
| 0.00 | 158.00 | 12 | 1 5/8" Coax | 1.98 | 0.82 | N 0 | 0.00 | 0.00 | 0 | 0.00 | N | VERIZON WIRELESS |
| 0.00 | 158.00 | 2 | 1.58" (40.1mm) Hybrid | 1.58 | 1.61 | N 0 | 0.00 | 0.00 | 0 | 0.00 | N | VERIZON WIRELESS |
| 0.00 | 148.00 | 1 | 1 5/8" (1.63"-41.3mm) | 1.63 | 1.61 | N 0 | 0.00 | 0.00 | 0 | 0.00 | N | T-MOBILE |
| 0.00 | 148.00 | 12 | 1 5/8" Coax | 1.98 | 0.82 | N 0 | 0.00 | 0.00 | 0 | 0.00 | N | T-MOBILE |
| 0.00 | 137.00 | 2 | 0.39" (10mm) Fiber | 0.39 | 0.06 | N 0 | 0.00 | 0.00 | 0 | 0.00 | N | AT&T MOBILITY |
| 0.00 | 137.00 | 2 | 0.78" (19.7mm) 8 AWG | 0.78 | 0.59 | N 0 | 0.00 | 0.00 | 0 | 0.00 | N | AT&T MOBILITY |
| 0.00 | 137.00 | 4 | 0.78" (19.7mm) 8 AWG | 0.78 | 0.59 | N 0 | 0.00 | 0.00 | 0 | 0.00 | N | AT&T MOBILITY |
| 0.00 | 137.00 | 12 | 1 1/4" Coax | 1.55 | 0.63 | N 0 | 0.00 | 0.00 | 0 | 0.00 | N | AT&T MOBILITY |
| 0.00 | 108.00 | 1 | 1/2" Coax | 0.63 | 0.15 | N 0 | 0.00 | 0.00 | 0 | 0.00 | N | VERIZON WIRELESS |
| 0.00 | 97.00 | 1 | 1/2" Coax | 0.63 | 0.15 | N 0 | 0.00 | 0.00 | 0 | 0.00 | N | SPRINT NEXTEL |
| 0.00 | 97.00 | 1 | 1/2" Coax | 0.63 | 0.15 | N 0 | 0.00 | 0.00 | 0 | 0.00 | N | SPRINT NEXTEL |
| 0.00 | 88.00 | 2 | 1/2" Coax | 0.63 | 0.15 | N 0 | 0.00 | 0.00 | 0 | 0.00 | N | SPRINT NEXTEL |
| 0.00 | 12.00 | 1 | 1/2" Coax | 0.63 | 0.15 | N 0 | 0.00 | 0.00 | 0 | 0.00 | N | AT&T MOBILITY |

Segment Properties (Max Len : 5. ft)

| Seg Top Elev (ft) | Description | Thick (in) | Flat Dia (in) | Area (in ²) | Ix (in ⁴) | W/t Ratio | D/t Ratio | F'y (ksi) | S (in ³) | Z (in ³) | Weight (lb) |
|-------------------|-----------------|------------|---------------|-------------------------|-----------------------|-----------|-----------|-----------|----------------------|----------------------|-------------|
| 0.00 | | 0.5000 | 56.910 | 89.519 | 35,990.1 | 18.31 | 113.82 | 79.9 | 1245. | 0.0 | 0.0 |
| 5.00 | | 0.5000 | 55.875 | 87.877 | 34,045.1 | 17.94 | 111.75 | 80.3 | 1200. | 0.0 | 1,509.1 |
| 10.00 | | 0.5000 | 54.840 | 86.234 | 32,171.5 | 17.58 | 109.68 | 80.7 | 1155. | 0.0 | 1,481.2 |
| 12.00 | | 0.5000 | 54.426 | 85.577 | 31,441.7 | 17.43 | 108.85 | 80.9 | 1137. | 0.0 | 584.6 |
| 15.00 | | 0.5000 | 53.805 | 84.592 | 30,367.9 | 17.21 | 107.61 | 81.2 | 1111. | 0.0 | 868.6 |
| 20.00 | | 0.5000 | 52.770 | 82.949 | 28,633.1 | 16.85 | 105.54 | 81.6 | 1068. | 0.0 | 1,425.3 |
| 25.00 | | 0.5000 | 51.735 | 81.307 | 26,965.5 | 16.48 | 103.47 | 82.0 | 1026. | 0.0 | 1,397.3 |
| 30.00 | | 0.5000 | 50.700 | 79.664 | 25,364.1 | 16.12 | 101.40 | 82.4 | 985.4 | 0.0 | 1,369.4 |
| 35.00 | | 0.5000 | 49.665 | 78.022 | 23,827.3 | 15.75 | 99.33 | 82.6 | 944.9 | 0.0 | 1,341.4 |
| 40.00 | | 0.5000 | 48.630 | 76.379 | 22,353.9 | 15.39 | 97.26 | 82.6 | 905.4 | 0.0 | 1,313.5 |
| 42.75 | Bot - Section 2 | 0.5000 | 48.060 | 75.476 | 21,570.0 | 15.19 | 96.12 | 82.6 | 884.0 | 0.0 | 710.5 |
| 45.00 | | 0.5000 | 47.595 | 74.736 | 20,942.5 | 15.02 | 95.19 | 82.6 | 866.7 | 0.0 | 1,051.2 |
| 49.00 | Top - Section 1 | 0.4063 | 47.579 | 60.824 | 17,100.7 | 18.89 | 117.12 | 79.2 | 707.9 | 0.0 | 1,843.5 |
| 50.00 | | 0.4063 | 47.372 | 60.557 | 16,876.6 | 18.80 | 116.61 | 79.3 | 701.7 | 0.0 | 206.5 |
| 55.00 | | 0.4063 | 46.337 | 59.223 | 15,785.2 | 18.35 | 114.06 | 79.8 | 671.0 | 0.0 | 1,019.0 |
| 60.00 | | 0.4063 | 45.302 | 57.888 | 14,741.9 | 17.90 | 111.51 | 80.3 | 640.9 | 0.0 | 996.3 |
| 65.00 | | 0.4063 | 44.267 | 56.554 | 13,745.6 | 17.45 | 108.96 | 80.9 | 611.6 | 0.0 | 973.5 |
| 70.00 | | 0.4063 | 43.232 | 55.219 | 12,795.3 | 17.00 | 106.42 | 81.4 | 582.9 | 0.0 | 950.8 |
| 75.00 | | 0.4063 | 42.197 | 53.884 | 11,889.8 | 16.55 | 103.87 | 81.9 | 555.0 | 0.0 | 928.1 |
| 80.00 | | 0.4063 | 41.162 | 52.550 | 11,028.1 | 16.10 | 101.32 | 82.5 | 527.7 | 0.0 | 905.4 |
| 85.00 | | 0.4063 | 40.127 | 51.215 | 10,209.0 | 15.65 | 98.77 | 82.6 | 501.1 | 0.0 | 882.7 |
| 87.00 | Bot - Section 3 | 0.4063 | 39.713 | 50.681 | 9,893.1 | 15.47 | 97.75 | 82.6 | 490.7 | 0.0 | 346.7 |
| 88.00 | | 0.4063 | 39.506 | 50.415 | 9,737.6 | 15.38 | 97.24 | 82.6 | 485.5 | 0.0 | 320.3 |
| 90.00 | | 0.4063 | 39.092 | 49.881 | 9,431.5 | 15.20 | 96.23 | 82.6 | 475.2 | 0.0 | 635.6 |
| 92.00 | Top - Section 2 | 0.3438 | 39.365 | 42.573 | 8,190.3 | 18.43 | 114.52 | 79.7 | 409.8 | 0.0 | 628.9 |
| 95.00 | | 0.3438 | 38.744 | 41.896 | 7,805.4 | 18.11 | 112.71 | 80.1 | 396.8 | 0.0 | 431.1 |
| 97.00 | | 0.3438 | 38.330 | 41.444 | 7,555.7 | 17.90 | 111.51 | 80.3 | 388.3 | 0.0 | 283.6 |
| 100.0 | | 0.3438 | 37.709 | 40.767 | 7,191.1 | 17.58 | 109.70 | 80.7 | 375.6 | 0.0 | 419.6 |
| 105.0 | | 0.3438 | 36.674 | 39.637 | 6,609.9 | 17.05 | 106.69 | 81.3 | 355.0 | 0.0 | 684.0 |
| 108.0 | | 0.3438 | 36.053 | 38.960 | 6,276.7 | 16.73 | 104.88 | 81.7 | 342.9 | 0.0 | 401.2 |
| 110.0 | | 0.3438 | 35.639 | 38.508 | 6,060.9 | 16.52 | 103.68 | 82.0 | 335.0 | 0.0 | 263.6 |
| 115.0 | | 0.3438 | 34.604 | 37.379 | 5,543.2 | 15.99 | 100.67 | 82.6 | 315.5 | 0.0 | 645.6 |
| 120.0 | | 0.3438 | 33.569 | 36.250 | 5,055.8 | 15.46 | 97.66 | 82.6 | 296.6 | 0.0 | 626.4 |
| 125.0 | | 0.3438 | 32.534 | 35.120 | 4,597.9 | 14.93 | 94.64 | 82.6 | 278.4 | 0.0 | 607.1 |
| 130.0 | | 0.3438 | 31.499 | 33.991 | 4,168.5 | 14.39 | 91.63 | 82.6 | 260.7 | 0.0 | 587.9 |
| 132.0 | Bot - Section 4 | 0.3438 | 31.085 | 33.539 | 4,004.5 | 14.18 | 90.43 | 82.6 | 253.7 | 0.0 | 229.8 |
| 135.0 | | 0.3438 | 30.464 | 32.862 | 3,766.7 | 13.86 | 88.62 | 82.6 | 243.5 | 0.0 | 558.6 |
| 136.0 | Top - Section 3 | 0.2188 | 30.694 | 21.159 | 2,482.8 | 22.98 | 140.32 | 74.4 | 159.3 | 0.0 | 183.7 |
| 137.0 | | 0.2188 | 30.487 | 21.015 | 2,432.6 | 22.81 | 139.37 | 74.6 | 157.2 | 0.0 | 71.8 |
| 140.0 | | 0.2188 | 29.866 | 20.584 | 2,285.9 | 22.31 | 136.53 | 75.2 | 150.8 | 0.0 | 212.3 |
| 145.0 | | 0.2188 | 28.831 | 19.865 | 2,054.8 | 21.48 | 131.80 | 76.1 | 140.4 | 0.0 | 344.1 |
| 147.0 | | 0.2188 | 28.417 | 19.578 | 1,966.8 | 21.14 | 129.91 | 76.5 | 136.3 | 0.0 | 134.2 |
| 148.0 | | 0.2188 | 28.210 | 19.434 | 1,923.8 | 20.98 | 128.96 | 76.7 | 134.3 | 0.0 | 66.4 |
| 150.0 | | 0.2188 | 27.796 | 19.147 | 1,839.7 | 20.64 | 127.07 | 77.1 | 130.4 | 0.0 | 131.3 |
| 155.0 | | 0.2188 | 26.761 | 18.428 | 1,640.3 | 19.81 | 122.34 | 78.1 | 120.7 | 0.0 | 319.6 |
| 158.0 | | 0.2188 | 26.140 | 17.997 | 1,527.8 | 19.31 | 119.50 | 78.7 | 115.1 | 0.0 | 185.9 |
| 160.0 | | 0.2188 | 25.726 | 17.709 | 1,455.8 | 18.97 | 117.61 | 79.1 | 111.5 | 0.0 | 121.5 |
| 165.0 | | 0.2188 | 24.691 | 16.991 | 1,285.6 | 18.14 | 112.87 | 80.1 | 102.6 | 0.0 | 295.2 |
| 168.0 | | 0.2188 | 24.070 | 16.560 | 1,190.2 | 17.64 | 110.03 | 80.7 | 97.4 | 0.0 | 171.2 |
| 170.0 | | 0.2188 | 23.656 | 16.272 | 1,129.3 | 17.31 | 108.14 | 81.0 | 94.0 | 0.0 | 111.7 |
| 175.0 | | 0.2188 | 22.621 | 15.554 | 986.2 | 16.47 | 103.41 | 82.0 | 85.9 | 0.0 | 270.7 |
| 178.0 | | 0.2188 | 22.000 | 15.122 | 906.4 | 15.97 | 100.57 | 82.6 | 81.2 | 0.0 | 156.6 |
| 32,204.2 | | | | | | | | | | | |

| | | |
|-------------------------------|----------------------------|------------------------------|
| Load Case: 1.2D + 1.6W | 101 mph with No Ice | 27 Iterations |
| Gust Response Factor :1.10 | | Wind Importance Factor :1.00 |
| Dead Load Factor :1.20 | | |
| Wind Load Factor :1.60 | | |

Applied Segment Forces Summary

| Seg Elev (ft) | Description | Shaft Forces | | 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 | | 505.6 | 0.0 | | | | | 0.0 | 0.0 | 505.6 | 0.0 | 0.0 | 0.0 |
| 5.00 | | 981.1 | 1,810.9 | | | | | 0.0 | 280.9 | 981.1 | 2,091.8 | 0.0 | 0.0 |
| 10.00 | | 657.8 | 1,777.4 | | | | | 0.0 | 280.9 | 657.8 | 2,058.2 | 0.0 | 0.0 |
| 12.00 | Appurtenance(s) | 447.9 | 701.6 | 186.0 | 0.0 | 0.0 | 120.7 | 0.0 | 112.3 | 633.9 | 934.6 | 0.0 | 0.0 |
| 15.00 | | 688.0 | 1,042.3 | | | | | 0.0 | 168.0 | 688.0 | 1,210.3 | 0.0 | 0.0 |
| 20.00 | | 821.6 | 1,710.3 | | | | | 0.0 | 280.0 | 821.6 | 1,990.3 | 0.0 | 0.0 |
| 25.00 | | 776.9 | 1,676.8 | | | | | 0.0 | 280.0 | 776.9 | 1,956.7 | 0.0 | 0.0 |
| 30.00 | | 744.3 | 1,643.2 | | | | | 0.0 | 280.0 | 744.3 | 1,923.2 | 0.0 | 0.0 |
| 35.00 | | 728.9 | 1,609.7 | | | | | 0.0 | 280.0 | 728.9 | 1,889.7 | 0.0 | 0.0 |
| 40.00 | | 559.3 | 1,576.2 | | | | | 0.0 | 280.0 | 559.3 | 1,856.1 | 0.0 | 0.0 |
| 42.75 | Bot - Section 2 | 359.4 | 852.6 | | | | | 0.0 | 154.0 | 359.4 | 1,006.6 | 0.0 | 0.0 |
| 45.00 | | 448.1 | 1,261.4 | | | | | 0.0 | 126.0 | 448.1 | 1,387.4 | 0.0 | 0.0 |
| 49.00 | Top - Section 1 | 356.3 | 2,212.1 | | | | | 0.0 | 224.0 | 356.3 | 2,436.1 | 0.0 | 0.0 |
| 50.00 | | 420.0 | 247.8 | | | | | 0.0 | 56.0 | 420.0 | 303.8 | 0.0 | 0.0 |
| 55.00 | | 691.0 | 1,222.8 | | | | | 0.0 | 280.0 | 691.0 | 1,502.7 | 0.0 | 0.0 |
| 60.00 | | 675.8 | 1,195.5 | | | | | 0.0 | 280.0 | 675.8 | 1,475.5 | 0.0 | 0.0 |
| 65.00 | | 660.1 | 1,168.3 | | | | | 0.0 | 280.0 | 660.1 | 1,448.2 | 0.0 | 0.0 |
| 70.00 | | 644.2 | 1,141.0 | | | | | 0.0 | 280.0 | 644.2 | 1,421.0 | 0.0 | 0.0 |
| 75.00 | | 628.3 | 1,113.8 | | | | | 0.0 | 280.0 | 628.3 | 1,393.7 | 0.0 | 0.0 |
| 80.00 | | 612.2 | 1,086.5 | | | | | 0.0 | 280.0 | 612.2 | 1,366.5 | 0.0 | 0.0 |
| 85.00 | | 420.7 | 1,059.3 | | | | | 0.0 | 280.0 | 420.7 | 1,339.2 | 0.0 | 0.0 |
| 87.00 | Bot - Section 3 | 178.5 | 416.1 | | | | | 0.0 | 112.0 | 178.5 | 528.1 | 0.0 | 0.0 |
| 88.00 | Appurtenance(s) | 178.6 | 384.4 | 210.6 | 0.0 | 0.0 | 132.0 | 0.0 | 56.0 | 389.2 | 572.4 | 0.0 | 0.0 |
| 90.00 | | 236.2 | 762.8 | | | | | 0.0 | 111.3 | 236.2 | 874.0 | 0.0 | 0.0 |
| 92.00 | Top - Section 2 | 291.3 | 754.7 | | | | | 0.0 | 111.3 | 291.3 | 866.0 | 0.0 | 0.0 |
| 95.00 | | 288.2 | 517.4 | | | | | 0.0 | 166.9 | 288.2 | 684.3 | 0.0 | 0.0 |
| 97.00 | Appurtenance(s) | 283.5 | 340.3 | 258.9 | 0.0 | 0.0 | 144.0 | 0.0 | 111.3 | 542.3 | 595.6 | 0.0 | 0.0 |
| 100.00 | | 444.8 | 503.5 | | | | | 0.0 | 165.8 | 444.8 | 669.4 | 0.0 | 0.0 |
| 105.00 | | 437.4 | 820.8 | | | | | 0.0 | 276.4 | 437.4 | 1,097.1 | 0.0 | 0.0 |
| 108.00 | Appurtenance(s) | 267.9 | 481.4 | 48.5 | 0.0 | 97.0 | 12.0 | 0.0 | 165.8 | 316.4 | 659.2 | 0.0 | 0.0 |
| 110.00 | Appurtenance(s) | 366.5 | 316.3 | 161.7 | 0.0 | 0.0 | 120.0 | 0.0 | 110.2 | 528.2 | 546.5 | 0.0 | 0.0 |
| 115.00 | | 512.9 | 774.7 | | | | | 0.0 | 275.5 | 512.9 | 1,050.1 | 0.0 | 0.0 |
| 120.00 | | 497.7 | 751.6 | | | | | 0.0 | 275.5 | 497.7 | 1,027.1 | 0.0 | 0.0 |
| 125.00 | | 482.7 | 728.6 | | | | | 0.0 | 275.5 | 482.7 | 1,004.0 | 0.0 | 0.0 |
| 130.00 | | 330.5 | 705.5 | | | | | 0.0 | 275.5 | 330.5 | 981.0 | 0.0 | 0.0 |
| 132.00 | Bot - Section 4 | 232.1 | 275.7 | | | | | 0.0 | 110.2 | 232.1 | 385.9 | 0.0 | 0.0 |
| 135.00 | | 184.9 | 670.3 | | | | | 0.0 | 165.3 | 184.9 | 835.6 | 0.0 | 0.0 |
| 136.00 | Top - Section 3 | 91.3 | 220.4 | | | | | 0.0 | 55.1 | 91.3 | 275.5 | 0.0 | 0.0 |
| 137.00 | Appurtenance(s) | 180.2 | 86.1 | 4,671.5 | 0.0 | 0.0 | 3,483.7 | 0.0 | 55.1 | 4,851.6 | 3,624.9 | 0.0 | 0.0 |
| 140.00 | | 353.2 | 254.8 | | | | | 0.0 | 124.9 | 353.2 | 379.7 | 0.0 | 0.0 |
| 145.00 | | 303.9 | 412.9 | | | | | 0.0 | 208.1 | 303.9 | 621.1 | 0.0 | 0.0 |
| 147.00 | Appurtenance(s) | 127.6 | 161.1 | 1,887.3 | 0.0 | 0.0 | 3,000.0 | 0.0 | 83.3 | 2,014.9 | 3,244.3 | 0.0 | 0.0 |
| 148.00 | Appurtenance(s) | 125.8 | 79.6 | 2,052.6 | 0.0 | -340.5 | 870.5 | 0.0 | 41.6 | 2,178.4 | 991.8 | 0.0 | 0.0 |
| 150.00 | | 287.4 | 157.5 | | | | | 0.0 | 55.8 | 287.4 | 213.3 | 0.0 | 0.0 |
| 155.00 | | 322.6 | 383.6 | | | | | 0.0 | 139.4 | 322.6 | 523.0 | 0.0 | 0.0 |
| 158.00 | Appurtenance(s) | 196.5 | 223.1 | 2,919.5 | 0.0 | 5,763.1 | 1,021.1 | 0.0 | 83.7 | 3,116.0 | 1,327.8 | 0.0 | 0.0 |
| 160.00 | Appurtenance(s) | 266.8 | 145.8 | 2,311.0 | 0.0 | 0.0 | 2,400.0 | 0.0 | 24.4 | 2,577.8 | 2,570.2 | 0.0 | 0.0 |
| 165.00 | | 299.1 | 354.2 | | | | | 0.0 | 61.1 | 299.1 | 415.3 | 0.0 | 0.0 |

Site Number: 302472

Code: ANSI/TIA-222-G

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Site Name: Andover-bunker Hill Road, CT

Engineering Number: OAA751503_C3_02

9/17/2019 6:56:52 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.6W

101 mph with No Ice

27 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

| | | | | | | | | | | | | | |
|---------|-----------------|-------|-------|---------|-----|-----|---------|-----|------|----------|----------|------|------|
| 168.00 | Appurtenance(s) | 181.8 | 205.5 | 4,505.6 | 0.0 | 0.0 | 3,729.8 | 0.0 | 36.6 | 4,687.4 | 3,972.0 | 0.0 | 0.0 |
| 170.00 | | 246.3 | 134.1 | | | | | 0.0 | 3.0 | 246.3 | 137.1 | 0.0 | 0.0 |
| 175.00 | | 275.6 | 324.9 | | | | | 0.0 | 7.6 | 275.6 | 332.4 | 0.0 | 0.0 |
| 178.00 | Appurtenance(s) | 101.1 | 187.9 | 1,435.1 | 0.0 | 0.0 | 1,800.0 | 0.0 | 4.5 | 1,536.2 | 1,992.4 | 0.0 | 0.0 |
| Totals: | | | | | | | | | | 42,048.6 | 63,988.8 | 0.00 | 0.00 |

Load Case: 1.2D + 1.6W

101 mph with No Ice

27 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 | -64.13 | -43.63 | 0.00 | -5,397.02 | 0.00 | 5,397.02 | 6,434.86 | 3,217.43 | 14,900.4 | 7,461.32 | 0.00 | 0.00 | 0.733 |
| 5.00 | -61.88 | -42.88 | 0.00 | -5,178.86 | 0.00 | 5,178.86 | 6,350.74 | 3,175.37 | 14,433.5 | 7,227.48 | 0.11 | -0.21 | 0.726 |
| 10.00 | -59.72 | -42.36 | 0.00 | -4,964.49 | 0.00 | 4,964.49 | 6,265.35 | 3,132.68 | 13,970.9 | 6,995.84 | 0.44 | -0.42 | 0.719 |
| 12.00 | -58.71 | -41.83 | 0.00 | -4,879.77 | 0.00 | 4,879.77 | 6,230.84 | 3,115.42 | 13,787.1 | 6,903.82 | 0.64 | -0.51 | 0.716 |
| 15.00 | -57.38 | -41.31 | 0.00 | -4,754.28 | 0.00 | 4,754.28 | 6,178.70 | 3,089.35 | 13,512.8 | 6,766.48 | 1.00 | -0.64 | 0.712 |
| 20.00 | -55.24 | -40.67 | 0.00 | -4,547.75 | 0.00 | 4,547.75 | 6,090.77 | 3,045.39 | 13,059.5 | 6,539.47 | 1.79 | -0.86 | 0.705 |
| 25.00 | -53.15 | -40.07 | 0.00 | -4,344.40 | 0.00 | 4,344.40 | 6,001.58 | 3,000.79 | 12,611.0 | 6,314.89 | 2.80 | -1.08 | 0.697 |
| 30.00 | -51.08 | -39.48 | 0.00 | -4,144.07 | 0.00 | 4,144.07 | 5,911.12 | 2,955.56 | 12,167.6 | 6,092.85 | 4.05 | -1.30 | 0.689 |
| 35.00 | -49.06 | -38.91 | 0.00 | -3,946.65 | 0.00 | 3,946.65 | 5,796.61 | 2,898.31 | 11,683.4 | 5,850.41 | 5.54 | -1.53 | 0.683 |
| 40.00 | -47.10 | -38.44 | 0.00 | -3,752.12 | 0.00 | 3,752.12 | 5,674.58 | 2,837.29 | 11,194.2 | 5,605.46 | 7.26 | -1.76 | 0.678 |
| 42.75 | -46.03 | -38.14 | 0.00 | -3,646.42 | 0.00 | 3,646.42 | 5,607.46 | 2,803.73 | 10,929.6 | 5,472.97 | 8.31 | -1.89 | 0.675 |
| 45.00 | -44.56 | -37.76 | 0.00 | -3,560.59 | 0.00 | 3,560.59 | 5,552.55 | 2,776.27 | 10,715.5 | 5,365.75 | 9.23 | -1.99 | 0.672 |
| 49.00 | -42.06 | -37.41 | 0.00 | -3,409.54 | 0.00 | 3,409.54 | 4,334.74 | 2,167.37 | 8,395.94 | 4,204.21 | 10.98 | -2.18 | 0.821 |
| 50.00 | -41.66 | -37.09 | 0.00 | -3,372.13 | 0.00 | 3,372.13 | 4,321.48 | 2,160.74 | 8,333.21 | 4,172.80 | 11.44 | -2.23 | 0.818 |
| 55.00 | -40.02 | -36.54 | 0.00 | -3,186.66 | 0.00 | 3,186.66 | 4,254.40 | 2,127.20 | 8,021.52 | 4,016.72 | 13.93 | -2.51 | 0.803 |
| 60.00 | -38.40 | -35.98 | 0.00 | -3,003.98 | 0.00 | 3,003.98 | 4,186.06 | 2,093.03 | 7,713.24 | 3,862.35 | 16.70 | -2.79 | 0.787 |
| 65.00 | -36.81 | -35.43 | 0.00 | -2,824.08 | 0.00 | 2,824.08 | 4,116.45 | 2,058.22 | 7,408.53 | 3,709.77 | 19.77 | -3.07 | 0.770 |
| 70.00 | -35.26 | -34.88 | 0.00 | -2,646.93 | 0.00 | 2,646.93 | 4,045.56 | 2,022.78 | 7,107.57 | 3,559.07 | 23.14 | -3.35 | 0.753 |
| 75.00 | -33.73 | -34.34 | 0.00 | -2,472.53 | 0.00 | 2,472.53 | 3,973.41 | 1,986.71 | 6,810.50 | 3,410.31 | 26.80 | -3.64 | 0.734 |
| 80.00 | -32.24 | -33.80 | 0.00 | -2,300.84 | 0.00 | 2,300.84 | 3,899.99 | 1,950.00 | 6,517.51 | 3,263.60 | 30.76 | -3.92 | 0.714 |
| 85.00 | -30.82 | -33.39 | 0.00 | -2,131.85 | 0.00 | 2,131.85 | 3,805.04 | 1,902.52 | 6,195.74 | 3,102.48 | 35.02 | -4.21 | 0.696 |
| 87.00 | -30.25 | -33.22 | 0.00 | -2,065.07 | 0.00 | 2,065.07 | 3,765.38 | 1,882.69 | 6,066.61 | 3,037.81 | 36.80 | -4.33 | 0.688 |
| 88.00 | -29.66 | -32.83 | 0.00 | -2,031.85 | 0.00 | 2,031.85 | 3,745.55 | 1,872.77 | 6,002.55 | 3,005.74 | 37.71 | -4.38 | 0.684 |
| 90.00 | -28.74 | -32.59 | 0.00 | -1,966.18 | 0.00 | 1,966.18 | 3,705.89 | 1,852.94 | 5,875.46 | 2,942.10 | 39.57 | -4.50 | 0.676 |
| 92.00 | -27.82 | -32.30 | 0.00 | -1,901.00 | 0.00 | 1,901.00 | 3,054.73 | 1,527.36 | 4,893.34 | 2,450.31 | 41.48 | -4.62 | 0.785 |
| 95.00 | -27.08 | -32.03 | 0.00 | -1,804.10 | 0.00 | 1,804.10 | 3,020.24 | 1,510.12 | 4,760.42 | 2,383.75 | 44.44 | -4.79 | 0.766 |
| 97.00 | -26.44 | -31.51 | 0.00 | -1,740.04 | 0.00 | 1,740.04 | 2,996.99 | 1,498.50 | 4,672.40 | 2,339.67 | 46.47 | -4.92 | 0.753 |
| 100.00 | -25.68 | -31.12 | 0.00 | -1,645.51 | 0.00 | 1,645.51 | 2,961.74 | 1,480.87 | 4,541.28 | 2,274.01 | 49.62 | -5.11 | 0.733 |
| 105.00 | -24.49 | -30.69 | 0.00 | -1,489.88 | 0.00 | 1,489.88 | 2,901.98 | 1,450.99 | 4,325.26 | 2,165.84 | 55.13 | -5.42 | 0.697 |
| 108.00 | -23.79 | -30.38 | 0.00 | -1,397.71 | 0.00 | 1,397.71 | 2,865.51 | 1,432.75 | 4,197.21 | 2,101.73 | 58.59 | -5.61 | 0.674 |
| 110.00 | -23.18 | -29.89 | 0.00 | -1,336.95 | 0.00 | 1,336.95 | 2,840.94 | 1,420.47 | 4,112.52 | 2,059.32 | 60.97 | -5.73 | 0.658 |
| 115.00 | -22.04 | -29.38 | 0.00 | -1,187.52 | 0.00 | 1,187.52 | 2,777.06 | 1,388.53 | 3,901.02 | 1,953.41 | 67.12 | -6.03 | 0.616 |
| 120.00 | -20.93 | -28.88 | 0.00 | -1,040.61 | 0.00 | 1,040.61 | 2,693.16 | 1,346.58 | 3,667.73 | 1,836.59 | 73.57 | -6.31 | 0.575 |
| 125.00 | -19.86 | -28.38 | 0.00 | -896.22 | 0.00 | 896.22 | 2,609.26 | 1,304.63 | 3,441.64 | 1,723.38 | 80.32 | -6.59 | 0.528 |
| 130.00 | -18.84 | -27.99 | 0.00 | -754.33 | 0.00 | 754.33 | 2,525.36 | 1,262.68 | 3,222.75 | 1,613.77 | 87.34 | -6.84 | 0.475 |
| 132.00 | -18.43 | -27.75 | 0.00 | -698.35 | 0.00 | 698.35 | 2,491.80 | 1,245.90 | 3,137.20 | 1,570.93 | 90.22 | -6.94 | 0.452 |
| 135.00 | -17.58 | -27.50 | 0.00 | -615.09 | 0.00 | 615.09 | 2,441.46 | 1,220.73 | 3,011.04 | 1,507.76 | 94.62 | -7.08 | 0.416 |
| 136.00 | -17.29 | -27.39 | 0.00 | -587.59 | 0.00 | 587.59 | 1,416.30 | 708.15 | 1,774.76 | 888.70 | 96.10 | -7.13 | 0.675 |
| 137.00 | -14.25 | -22.15 | 0.00 | -560.21 | 0.00 | 560.21 | 1,410.39 | 705.20 | 1,755.27 | 878.94 | 97.60 | -7.17 | 0.648 |
| 140.00 | -13.83 | -21.81 | 0.00 | -493.76 | 0.00 | 493.76 | 1,392.36 | 696.18 | 1,697.02 | 849.77 | 102.15 | -7.36 | 0.592 |
| 145.00 | -13.19 | -21.47 | 0.00 | -384.72 | 0.00 | 384.72 | 1,361.30 | 680.65 | 1,600.81 | 801.59 | 109.99 | -7.63 | 0.491 |
| 147.00 | -10.22 | -19.05 | 0.00 | -341.79 | 0.00 | 341.79 | 1,348.51 | 674.26 | 1,562.66 | 782.49 | 113.20 | -7.73 | 0.445 |
| 148.00 | -9.51 | -16.77 | 0.00 | -322.74 | 0.00 | 322.74 | 1,342.05 | 671.02 | 1,543.66 | 772.98 | 114.82 | -7.78 | 0.425 |

Site Number: 302472

Code: ANSI/TIA-222-G

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Site Name: Andover-bunker Hill Road, CT

Engineering Number: OAA751503_C3_02

9/17/2019 6:56:52 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.6W

101 mph with No Ice

27 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

| | | | | | | | | | | | | | |
|--------|-------|--------|------|---------|------|--------|----------|--------|----------|--------|--------|-------|-------|
| 150.00 | -9.30 | -16.48 | 0.00 | -289.20 | 0.00 | 289.20 | 1,328.96 | 664.48 | 1,505.82 | 754.03 | 118.08 | -7.87 | 0.391 |
| 155.00 | -8.78 | -16.11 | 0.00 | -206.80 | 0.00 | 206.80 | 1,295.36 | 647.68 | 1,412.23 | 707.16 | 126.40 | -8.06 | 0.300 |
| 158.00 | -7.89 | -12.85 | 0.00 | -152.71 | 0.00 | 152.71 | 1,274.59 | 637.29 | 1,356.80 | 679.41 | 131.48 | -8.15 | 0.231 |
| 160.00 | -5.70 | -9.94 | 0.00 | -127.02 | 0.00 | 127.02 | 1,260.48 | 630.24 | 1,320.18 | 661.07 | 134.90 | -8.21 | 0.197 |
| 165.00 | -5.32 | -9.59 | 0.00 | -77.34 | 0.00 | 77.34 | 1,224.34 | 612.17 | 1,229.85 | 615.84 | 143.52 | -8.31 | 0.130 |
| 168.00 | -2.07 | -4.38 | 0.00 | -48.57 | 0.00 | 48.57 | 1,202.05 | 601.02 | 1,176.54 | 589.15 | 148.74 | -8.35 | 0.084 |
| 170.00 | -1.97 | -4.11 | 0.00 | -39.82 | 0.00 | 39.82 | 1,186.93 | 593.46 | 1,141.40 | 571.55 | 152.23 | -8.37 | 0.071 |
| 175.00 | -1.68 | -3.79 | 0.00 | -19.26 | 0.00 | 19.26 | 1,148.25 | 574.12 | 1,054.98 | 528.28 | 160.99 | -8.41 | 0.038 |
| 178.00 | 0.00 | -3.51 | 0.00 | -7.88 | 0.00 | 7.88 | 1,123.52 | 561.76 | 1,003.37 | 502.43 | 166.25 | -8.42 | 0.016 |

| | | |
|-------------------------------|----------------------------------|------------------------------|
| Load Case: 0.9D + 1.6W | 101 mph with No Ice (Reduced DL) | 27 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 | | 505.6 | 0.0 | | | | | 0.0 | 0.0 | 505.6 | 0.0 | 0.0 | 0.0 |
| 5.00 | | 981.1 | 1,358.2 | | | | | 0.0 | 210.6 | 981.1 | 1,568.8 | 0.0 | 0.0 |
| 10.00 | | 657.8 | 1,333.0 | | | | | 0.0 | 210.6 | 657.8 | 1,543.7 | 0.0 | 0.0 |
| 12.00 | Appurtenance(s) | 447.9 | 526.2 | 186.0 | 0.0 | 0.0 | 90.5 | 0.0 | 84.3 | 633.9 | 701.0 | 0.0 | 0.0 |
| 15.00 | | 688.0 | 781.7 | | | | | 0.0 | 126.0 | 688.0 | 907.7 | 0.0 | 0.0 |
| 20.00 | | 821.6 | 1,282.7 | | | | | 0.0 | 210.0 | 821.6 | 1,492.7 | 0.0 | 0.0 |
| 25.00 | | 776.9 | 1,257.6 | | | | | 0.0 | 210.0 | 776.9 | 1,467.6 | 0.0 | 0.0 |
| 30.00 | | 744.3 | 1,232.4 | | | | | 0.0 | 210.0 | 744.3 | 1,442.4 | 0.0 | 0.0 |
| 35.00 | | 728.9 | 1,207.3 | | | | | 0.0 | 210.0 | 728.9 | 1,417.3 | 0.0 | 0.0 |
| 40.00 | | 559.3 | 1,182.1 | | | | | 0.0 | 210.0 | 559.3 | 1,392.1 | 0.0 | 0.0 |
| 42.75 | Bot - Section 2 | 359.4 | 639.5 | | | | | 0.0 | 115.5 | 359.4 | 754.9 | 0.0 | 0.0 |
| 45.00 | | 448.1 | 946.1 | | | | | 0.0 | 94.5 | 448.1 | 1,040.6 | 0.0 | 0.0 |
| 49.00 | Top - Section 1 | 356.3 | 1,659.1 | | | | | 0.0 | 168.0 | 356.3 | 1,827.1 | 0.0 | 0.0 |
| 50.00 | | 420.0 | 185.9 | | | | | 0.0 | 42.0 | 420.0 | 227.9 | 0.0 | 0.0 |
| 55.00 | | 691.0 | 917.1 | | | | | 0.0 | 210.0 | 691.0 | 1,127.0 | 0.0 | 0.0 |
| 60.00 | | 675.8 | 896.6 | | | | | 0.0 | 210.0 | 675.8 | 1,106.6 | 0.0 | 0.0 |
| 65.00 | | 660.1 | 876.2 | | | | | 0.0 | 210.0 | 660.1 | 1,086.2 | 0.0 | 0.0 |
| 70.00 | | 644.2 | 855.8 | | | | | 0.0 | 210.0 | 644.2 | 1,065.7 | 0.0 | 0.0 |
| 75.00 | | 628.3 | 835.3 | | | | | 0.0 | 210.0 | 628.3 | 1,045.3 | 0.0 | 0.0 |
| 80.00 | | 612.2 | 814.9 | | | | | 0.0 | 210.0 | 612.2 | 1,024.9 | 0.0 | 0.0 |
| 85.00 | | 420.7 | 794.5 | | | | | 0.0 | 210.0 | 420.7 | 1,004.4 | 0.0 | 0.0 |
| 87.00 | Bot - Section 3 | 178.5 | 312.1 | | | | | 0.0 | 84.0 | 178.5 | 396.0 | 0.0 | 0.0 |
| 88.00 | Appurtenance(s) | 178.6 | 288.3 | 210.6 | 0.0 | 0.0 | 99.0 | 0.0 | 42.0 | 389.2 | 429.3 | 0.0 | 0.0 |
| 90.00 | | 236.2 | 572.1 | | | | | 0.0 | 83.4 | 236.2 | 655.5 | 0.0 | 0.0 |
| 92.00 | Top - Section 2 | 291.3 | 566.0 | | | | | 0.0 | 83.4 | 291.3 | 649.5 | 0.0 | 0.0 |
| 95.00 | | 288.2 | 388.0 | | | | | 0.0 | 125.2 | 288.2 | 513.2 | 0.0 | 0.0 |
| 97.00 | Appurtenance(s) | 283.5 | 255.2 | 258.9 | 0.0 | 0.0 | 108.0 | 0.0 | 83.4 | 542.3 | 446.7 | 0.0 | 0.0 |
| 100.00 | | 444.8 | 377.7 | | | | | 0.0 | 124.4 | 444.8 | 502.0 | 0.0 | 0.0 |
| 105.00 | | 437.4 | 615.6 | | | | | 0.0 | 207.3 | 437.4 | 822.9 | 0.0 | 0.0 |
| 108.00 | Appurtenance(s) | 267.9 | 361.1 | 48.5 | 0.0 | 97.0 | 9.0 | 0.0 | 124.4 | 316.4 | 494.4 | 0.0 | 0.0 |
| 110.00 | Appurtenance(s) | 366.5 | 237.2 | 161.7 | 0.0 | 0.0 | 90.0 | 0.0 | 82.6 | 528.2 | 409.9 | 0.0 | 0.0 |
| 115.00 | | 512.9 | 581.0 | | | | | 0.0 | 206.6 | 512.9 | 787.6 | 0.0 | 0.0 |
| 120.00 | | 497.7 | 563.7 | | | | | 0.0 | 206.6 | 497.7 | 770.3 | 0.0 | 0.0 |
| 125.00 | | 482.7 | 546.4 | | | | | 0.0 | 206.6 | 482.7 | 753.0 | 0.0 | 0.0 |
| 130.00 | | 330.5 | 529.1 | | | | | 0.0 | 206.6 | 330.5 | 735.7 | 0.0 | 0.0 |
| 132.00 | Bot - Section 4 | 232.1 | 206.8 | | | | | 0.0 | 82.6 | 232.1 | 289.4 | 0.0 | 0.0 |
| 135.00 | | 184.9 | 502.7 | | | | | 0.0 | 124.0 | 184.9 | 626.7 | 0.0 | 0.0 |
| 136.00 | Top - Section 3 | 91.3 | 165.3 | | | | | 0.0 | 41.3 | 91.3 | 206.6 | 0.0 | 0.0 |
| 137.00 | Appurtenance(s) | 180.2 | 64.6 | 4,671.5 | 0.0 | 0.0 | 2,612.8 | 0.0 | 41.3 | 4,851.6 | 2,718.7 | 0.0 | 0.0 |
| 140.00 | | 353.2 | 191.1 | | | | | 0.0 | 93.7 | 353.2 | 284.8 | 0.0 | 0.0 |
| 145.00 | | 303.9 | 309.7 | | | | | 0.0 | 156.1 | 303.9 | 465.8 | 0.0 | 0.0 |
| 147.00 | Appurtenance(s) | 127.6 | 120.8 | 1,887.3 | 0.0 | 0.0 | 2,250.0 | 0.0 | 62.4 | 2,014.9 | 2,433.2 | 0.0 | 0.0 |
| 148.00 | Appurtenance(s) | 125.8 | 59.7 | 2,052.6 | 0.0 | -340.5 | 652.9 | 0.0 | 31.2 | 2,178.4 | 743.8 | 0.0 | 0.0 |
| 150.00 | | 287.4 | 118.2 | | | | | 0.0 | 41.8 | 287.4 | 160.0 | 0.0 | 0.0 |
| 155.00 | | 322.6 | 287.7 | | | | | 0.0 | 104.6 | 322.6 | 392.3 | 0.0 | 0.0 |
| 158.00 | Appurtenance(s) | 196.5 | 167.3 | 2,919.5 | 0.0 | 5,763.1 | 765.8 | 0.0 | 62.7 | 3,116.0 | 995.9 | 0.0 | 0.0 |
| 160.00 | Appurtenance(s) | 266.8 | 109.4 | 2,311.0 | 0.0 | 0.0 | 1,800.0 | 0.0 | 18.3 | 2,577.8 | 1,927.7 | 0.0 | 0.0 |
| 165.00 | | 299.1 | 265.7 | | | | | 0.0 | 45.8 | 299.1 | 311.5 | 0.0 | 0.0 |

Site Number: 302472

Code: ANSI/TIA-222-G

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Site Name: Andover-bunker Hill Road, CT

Engineering Number: OAA751503_C3_02

9/17/2019 6:56:58 PM

Customer: AT&T MOBILITY

Load Case: 0.9D + 1.6W

101 mph with No Ice (Reduced DL)

27 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

| | | | | | | | | | | | | | | |
|--------|-----------------|-------|-------|---------|-----|-----|---------|-----|------|---------|----------|----------|------|------|
| 168.00 | Appurtenance(s) | 181.8 | 154.1 | 4,505.6 | 0.0 | 0.0 | 2,797.4 | 0.0 | 27.5 | 4,687.4 | 2,979.0 | 0.0 | 0.0 | |
| 170.00 | | 246.3 | 100.5 | | | | | 0.0 | 2.3 | 246.3 | 102.8 | 0.0 | 0.0 | |
| 175.00 | | 275.6 | 243.7 | | | | | 0.0 | 5.7 | 275.6 | 249.3 | 0.0 | 0.0 | |
| 178.00 | Appurtenance(s) | 101.1 | 140.9 | 1,435.1 | 0.0 | 0.0 | 1,350.0 | 0.0 | 3.4 | 1,536.2 | 1,494.3 | 0.0 | 0.0 | |
| | | | | | | | | | | Totals: | 42,048.6 | 47,991.6 | 0.00 | 0.00 |

Load Case: 0.9D + 1.6W

101 mph with No Ice (Reduced DL)

27 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 | -48.08 | -43.60 | 0.00 | -5,314.51 | 0.00 | 5,314.51 | 6,434.86 | 3,217.43 | 14,900.4 | 7,461.32 | 0.00 | 0.00 | 0.720 |
| 5.00 | -46.36 | -42.78 | 0.00 | -5,096.51 | 0.00 | 5,096.51 | 6,350.74 | 3,175.37 | 14,433.5 | 7,227.48 | 0.11 | -0.21 | 0.713 |
| 10.00 | -44.71 | -42.23 | 0.00 | -4,882.59 | 0.00 | 4,882.59 | 6,265.35 | 3,132.68 | 13,970.9 | 6,995.84 | 0.44 | -0.41 | 0.705 |
| 12.00 | -43.93 | -41.68 | 0.00 | -4,798.12 | 0.00 | 4,798.12 | 6,230.84 | 3,115.42 | 13,787.1 | 6,903.82 | 0.63 | -0.50 | 0.702 |
| 15.00 | -42.91 | -41.11 | 0.00 | -4,673.09 | 0.00 | 4,673.09 | 6,178.70 | 3,089.35 | 13,512.8 | 6,766.48 | 0.99 | -0.63 | 0.698 |
| 20.00 | -41.28 | -40.42 | 0.00 | -4,467.56 | 0.00 | 4,467.56 | 6,090.77 | 3,045.39 | 13,059.5 | 6,539.47 | 1.76 | -0.84 | 0.690 |
| 25.00 | -39.67 | -39.77 | 0.00 | -4,265.45 | 0.00 | 4,265.45 | 6,001.58 | 3,000.79 | 12,611.0 | 6,314.89 | 2.76 | -1.06 | 0.682 |
| 30.00 | -38.09 | -39.15 | 0.00 | -4,066.59 | 0.00 | 4,066.59 | 5,911.12 | 2,955.56 | 12,167.6 | 6,092.85 | 3.98 | -1.28 | 0.674 |
| 35.00 | -36.54 | -38.53 | 0.00 | -3,870.85 | 0.00 | 3,870.85 | 5,796.61 | 2,898.31 | 11,683.4 | 5,850.41 | 5.44 | -1.50 | 0.668 |
| 40.00 | -35.05 | -38.04 | 0.00 | -3,678.22 | 0.00 | 3,678.22 | 5,674.58 | 2,837.29 | 11,194.2 | 5,605.46 | 7.14 | -1.73 | 0.663 |
| 42.75 | -34.23 | -37.72 | 0.00 | -3,573.63 | 0.00 | 3,573.63 | 5,607.46 | 2,803.73 | 10,929.6 | 5,472.97 | 8.17 | -1.85 | 0.659 |
| 45.00 | -33.11 | -37.32 | 0.00 | -3,488.75 | 0.00 | 3,488.75 | 5,552.55 | 2,776.27 | 10,715.5 | 5,365.75 | 9.07 | -1.96 | 0.656 |
| 49.00 | -31.22 | -36.97 | 0.00 | -3,339.46 | 0.00 | 3,339.46 | 4,334.74 | 2,167.37 | 8,395.94 | 4,204.21 | 10.79 | -2.14 | 0.802 |
| 50.00 | -30.91 | -36.62 | 0.00 | -3,302.49 | 0.00 | 3,302.49 | 4,321.48 | 2,160.74 | 8,333.21 | 4,172.80 | 11.24 | -2.19 | 0.799 |
| 55.00 | -29.64 | -36.03 | 0.00 | -3,119.37 | 0.00 | 3,119.37 | 4,254.40 | 2,127.20 | 8,021.52 | 4,016.72 | 13.68 | -2.46 | 0.784 |
| 60.00 | -28.40 | -35.44 | 0.00 | -2,939.23 | 0.00 | 2,939.23 | 4,186.06 | 2,093.03 | 7,713.24 | 3,862.35 | 16.41 | -2.74 | 0.768 |
| 65.00 | -27.18 | -34.86 | 0.00 | -2,762.03 | 0.00 | 2,762.03 | 4,116.45 | 2,058.22 | 7,408.53 | 3,709.77 | 19.42 | -3.01 | 0.751 |
| 70.00 | -25.98 | -34.28 | 0.00 | -2,587.75 | 0.00 | 2,587.75 | 4,045.56 | 2,022.78 | 7,107.57 | 3,559.07 | 22.72 | -3.29 | 0.734 |
| 75.00 | -24.81 | -33.71 | 0.00 | -2,416.34 | 0.00 | 2,416.34 | 3,973.41 | 1,986.71 | 6,810.50 | 3,410.31 | 26.31 | -3.57 | 0.715 |
| 80.00 | -23.67 | -33.15 | 0.00 | -2,247.77 | 0.00 | 2,247.77 | 3,899.99 | 1,950.00 | 6,517.51 | 3,263.60 | 30.19 | -3.84 | 0.695 |
| 85.00 | -22.59 | -32.74 | 0.00 | -2,082.02 | 0.00 | 2,082.02 | 3,805.04 | 1,902.52 | 6,195.74 | 3,102.48 | 34.37 | -4.12 | 0.677 |
| 87.00 | -22.16 | -32.57 | 0.00 | -2,016.54 | 0.00 | 2,016.54 | 3,765.38 | 1,882.69 | 6,066.61 | 3,037.81 | 36.12 | -4.24 | 0.670 |
| 88.00 | -21.71 | -32.18 | 0.00 | -1,983.97 | 0.00 | 1,983.97 | 3,745.55 | 1,872.77 | 6,002.55 | 3,005.74 | 37.01 | -4.30 | 0.666 |
| 90.00 | -21.01 | -31.94 | 0.00 | -1,919.62 | 0.00 | 1,919.62 | 3,705.89 | 1,852.94 | 5,875.46 | 2,942.10 | 38.83 | -4.41 | 0.658 |
| 92.00 | -20.31 | -31.64 | 0.00 | -1,855.75 | 0.00 | 1,855.75 | 3,054.73 | 1,527.36 | 4,893.34 | 2,450.31 | 40.70 | -4.52 | 0.764 |
| 95.00 | -19.74 | -31.37 | 0.00 | -1,760.82 | 0.00 | 1,760.82 | 3,020.24 | 1,510.12 | 4,760.42 | 2,383.75 | 43.60 | -4.69 | 0.746 |
| 97.00 | -19.25 | -30.84 | 0.00 | -1,698.08 | 0.00 | 1,698.08 | 2,996.99 | 1,498.50 | 4,672.40 | 2,339.67 | 45.59 | -4.82 | 0.733 |
| 100.00 | -18.66 | -30.44 | 0.00 | -1,605.56 | 0.00 | 1,605.56 | 2,961.74 | 1,480.87 | 4,541.28 | 2,274.01 | 48.67 | -5.01 | 0.713 |
| 105.00 | -17.75 | -30.00 | 0.00 | -1,453.38 | 0.00 | 1,453.38 | 2,901.98 | 1,450.99 | 4,325.26 | 2,165.84 | 54.07 | -5.31 | 0.678 |
| 108.00 | -17.21 | -29.69 | 0.00 | -1,363.28 | 0.00 | 1,363.28 | 2,865.51 | 1,432.75 | 4,197.21 | 2,101.73 | 57.46 | -5.49 | 0.655 |
| 110.00 | -16.75 | -29.18 | 0.00 | -1,303.91 | 0.00 | 1,303.91 | 2,840.94 | 1,420.47 | 4,112.52 | 2,059.32 | 59.78 | -5.61 | 0.639 |
| 115.00 | -15.88 | -28.67 | 0.00 | -1,158.01 | 0.00 | 1,158.01 | 2,777.06 | 1,388.53 | 3,901.02 | 1,953.41 | 65.81 | -5.90 | 0.599 |
| 120.00 | -15.03 | -28.17 | 0.00 | -1,014.66 | 0.00 | 1,014.66 | 2,693.16 | 1,346.58 | 3,667.73 | 1,836.59 | 72.12 | -6.18 | 0.558 |
| 125.00 | -14.21 | -27.67 | 0.00 | -873.83 | 0.00 | 873.83 | 2,609.26 | 1,304.63 | 3,441.64 | 1,723.38 | 78.73 | -6.44 | 0.513 |
| 130.00 | -13.44 | -27.30 | 0.00 | -735.49 | 0.00 | 735.49 | 2,525.36 | 1,262.68 | 3,222.75 | 1,613.77 | 85.60 | -6.69 | 0.462 |
| 132.00 | -13.12 | -27.06 | 0.00 | -680.90 | 0.00 | 680.90 | 2,491.80 | 1,245.90 | 3,137.20 | 1,570.93 | 88.41 | -6.79 | 0.439 |
| 135.00 | -12.48 | -26.82 | 0.00 | -599.73 | 0.00 | 599.73 | 2,441.46 | 1,220.73 | 3,011.04 | 1,507.76 | 92.72 | -6.93 | 0.403 |
| 136.00 | -12.26 | -26.71 | 0.00 | -572.91 | 0.00 | 572.91 | 1,416.30 | 708.15 | 1,774.76 | 888.70 | 94.17 | -6.97 | 0.655 |
| 137.00 | -10.11 | -21.59 | 0.00 | -546.20 | 0.00 | 546.20 | 1,410.39 | 705.20 | 1,755.27 | 878.94 | 95.63 | -7.01 | 0.630 |
| 140.00 | -9.79 | -21.24 | 0.00 | -481.44 | 0.00 | 481.44 | 1,392.36 | 696.18 | 1,697.02 | 849.77 | 100.09 | -7.19 | 0.575 |
| 145.00 | -9.30 | -20.91 | 0.00 | -375.25 | 0.00 | 375.25 | 1,361.30 | 680.65 | 1,600.81 | 801.59 | 107.75 | -7.46 | 0.476 |
| 147.00 | -7.13 | -18.60 | 0.00 | -333.43 | 0.00 | 333.43 | 1,348.51 | 674.26 | 1,562.66 | 782.49 | 110.89 | -7.56 | 0.432 |
| 148.00 | -6.66 | -16.35 | 0.00 | -314.83 | 0.00 | 314.83 | 1,342.05 | 671.02 | 1,543.66 | 772.98 | 112.47 | -7.61 | 0.413 |

Site Number: 302472

Code: ANSI/TIA-222-G

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Site Name: Andover-bunker Hill Road, CT

Engineering Number: OAA751503_C3_02

9/17/2019 6:56:58 PM

Customer: AT&T MOBILITY

Load Case: 0.9D + 1.6W

101 mph with No Ice (Reduced DL)

27 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

| | | | | | | | | | | | | | |
|--------|-------|--------|------|---------|------|--------|----------|--------|----------|--------|--------|-------|-------|
| 150.00 | -6.50 | -16.06 | 0.00 | -282.13 | 0.00 | 282.13 | 1,328.96 | 664.48 | 1,505.82 | 754.03 | 115.67 | -7.69 | 0.380 |
| 155.00 | -6.12 | -15.70 | 0.00 | -201.83 | 0.00 | 201.83 | 1,295.36 | 647.68 | 1,412.23 | 707.16 | 123.80 | -7.88 | 0.291 |
| 158.00 | -5.55 | -12.49 | 0.00 | -148.96 | 0.00 | 148.96 | 1,274.59 | 637.29 | 1,356.80 | 679.41 | 128.77 | -7.97 | 0.224 |
| 160.00 | -3.98 | -9.67 | 0.00 | -123.98 | 0.00 | 123.98 | 1,260.48 | 630.24 | 1,320.18 | 661.07 | 132.11 | -8.02 | 0.191 |
| 165.00 | -3.71 | -9.33 | 0.00 | -75.63 | 0.00 | 75.63 | 1,224.34 | 612.17 | 1,229.85 | 615.84 | 140.55 | -8.12 | 0.126 |
| 168.00 | -1.42 | -4.27 | 0.00 | -47.63 | 0.00 | 47.63 | 1,202.05 | 601.02 | 1,176.54 | 589.15 | 145.65 | -8.16 | 0.082 |
| 170.00 | -1.35 | -4.02 | 0.00 | -39.08 | 0.00 | 39.08 | 1,186.93 | 593.46 | 1,141.40 | 571.55 | 149.06 | -8.18 | 0.070 |
| 175.00 | -1.14 | -3.71 | 0.00 | -19.00 | 0.00 | 19.00 | 1,148.25 | 574.12 | 1,054.98 | 528.28 | 157.62 | -8.22 | 0.037 |
| 178.00 | 0.00 | -3.51 | 0.00 | -7.88 | 0.00 | 7.88 | 1,123.52 | 561.76 | 1,003.37 | 502.43 | 162.77 | -8.23 | 0.016 |

| | | |
|--|--------------------------------|------------------------------|
| Load Case: 1.2D + 1.0Di + 1.0Wi | 50 mph with 1.00 in Radial Ice | 27 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 | | 153.0 | 0.0 | | | | | 0.0 | 0.0 | 153.0 | 0.0 | 0.0 | 0.0 |
| 5.00 | | 298.1 | 2,541.3 | | | | | 0.0 | 280.9 | 298.1 | 2,822.2 | 0.0 | 0.0 |
| 10.00 | | 200.8 | 2,568.8 | | | | | 0.0 | 280.9 | 200.8 | 2,849.6 | 0.0 | 0.0 |
| 12.00 | Appurtenance(s) | 137.2 | 1,025.2 | 49.6 | 0.0 | 0.0 | 169.1 | 0.0 | 112.3 | 186.8 | 1,306.6 | 0.0 | 0.0 |
| 15.00 | | 211.2 | 1,529.1 | | | | | 0.0 | 168.0 | 211.2 | 1,697.1 | 0.0 | 0.0 |
| 20.00 | | 252.8 | 2,519.3 | | | | | 0.0 | 280.0 | 252.8 | 2,799.3 | 0.0 | 0.0 |
| 25.00 | | 239.6 | 2,480.7 | | | | | 0.0 | 280.0 | 239.6 | 2,760.7 | 0.0 | 0.0 |
| 30.00 | | 230.1 | 2,438.2 | | | | | 0.0 | 280.0 | 230.1 | 2,718.2 | 0.0 | 0.0 |
| 35.00 | | 225.8 | 2,393.3 | | | | | 0.0 | 280.0 | 225.8 | 2,673.2 | 0.0 | 0.0 |
| 40.00 | | 173.5 | 2,346.8 | | | | | 0.0 | 280.0 | 173.5 | 2,626.7 | 0.0 | 0.0 |
| 42.75 | Bot - Section 2 | 111.6 | 1,272.4 | | | | | 0.0 | 154.0 | 111.6 | 1,426.4 | 0.0 | 0.0 |
| 45.00 | | 139.2 | 1,607.6 | | | | | 0.0 | 126.0 | 139.2 | 1,733.5 | 0.0 | 0.0 |
| 49.00 | Top - Section 1 | 110.8 | 2,817.9 | | | | | 0.0 | 224.0 | 110.8 | 3,041.9 | 0.0 | 0.0 |
| 50.00 | | 130.8 | 398.7 | | | | | 0.0 | 56.0 | 130.8 | 454.7 | 0.0 | 0.0 |
| 55.00 | | 215.5 | 1,961.7 | | | | | 0.0 | 280.0 | 215.5 | 2,241.6 | 0.0 | 0.0 |
| 60.00 | | 211.2 | 1,918.9 | | | | | 0.0 | 280.0 | 211.2 | 2,198.9 | 0.0 | 0.0 |
| 65.00 | | 206.8 | 1,876.0 | | | | | 0.0 | 280.0 | 206.8 | 2,155.9 | 0.0 | 0.0 |
| 70.00 | | 202.3 | 1,832.9 | | | | | 0.0 | 280.0 | 202.3 | 2,112.8 | 0.0 | 0.0 |
| 75.00 | | 197.7 | 1,789.7 | | | | | 0.0 | 280.0 | 197.7 | 2,069.7 | 0.0 | 0.0 |
| 80.00 | | 193.2 | 1,746.5 | | | | | 0.0 | 280.0 | 193.2 | 2,026.5 | 0.0 | 0.0 |
| 85.00 | | 133.0 | 1,703.4 | | | | | 0.0 | 280.0 | 133.0 | 1,983.3 | 0.0 | 0.0 |
| 87.00 | Bot - Section 3 | 56.5 | 671.1 | | | | | 0.0 | 112.0 | 56.5 | 783.1 | 0.0 | 0.0 |
| 88.00 | Appurtenance(s) | 56.5 | 513.4 | 57.6 | 0.0 | 0.0 | 211.8 | 0.0 | 56.0 | 114.1 | 781.2 | 0.0 | 0.0 |
| 90.00 | | 74.8 | 1,018.2 | | | | | 0.0 | 111.3 | 74.8 | 1,129.4 | 0.0 | 0.0 |
| 92.00 | Top - Section 2 | 92.4 | 1,007.6 | | | | | 0.0 | 111.3 | 92.4 | 1,118.8 | 0.0 | 0.0 |
| 95.00 | | 91.5 | 891.0 | | | | | 0.0 | 166.9 | 91.5 | 1,057.9 | 0.0 | 0.0 |
| 97.00 | Appurtenance(s) | 90.1 | 586.8 | 72.3 | 0.0 | 0.0 | 255.8 | 0.0 | 111.3 | 162.4 | 954.0 | 0.0 | 0.0 |
| 100.00 | | 141.7 | 867.7 | | | | | 0.0 | 165.8 | 141.7 | 1,033.5 | 0.0 | 0.0 |
| 105.00 | | 139.6 | 1,411.9 | | | | | 0.0 | 276.4 | 139.6 | 1,688.3 | 0.0 | 0.0 |
| 108.00 | Appurtenance(s) | 85.7 | 830.4 | 14.7 | 0.0 | 29.5 | 44.1 | 0.0 | 165.8 | 100.5 | 1,040.3 | 0.0 | 0.0 |
| 110.00 | Appurtenance(s) | 117.6 | 546.5 | 42.7 | 0.0 | 0.0 | 167.6 | 0.0 | 110.2 | 160.3 | 824.3 | 0.0 | 0.0 |
| 115.00 | | 165.0 | 1,334.4 | | | | | 0.0 | 275.5 | 165.0 | 1,609.9 | 0.0 | 0.0 |
| 120.00 | | 160.7 | 1,295.8 | | | | | 0.0 | 275.5 | 160.7 | 1,571.2 | 0.0 | 0.0 |
| 125.00 | | 156.5 | 1,257.1 | | | | | 0.0 | 275.5 | 156.5 | 1,532.6 | 0.0 | 0.0 |
| 130.00 | | 107.5 | 1,218.5 | | | | | 0.0 | 275.5 | 107.5 | 1,494.0 | 0.0 | 0.0 |
| 132.00 | Bot - Section 4 | 75.6 | 478.5 | | | | | 0.0 | 110.2 | 75.6 | 588.7 | 0.0 | 0.0 |
| 135.00 | | 60.3 | 972.8 | | | | | 0.0 | 165.3 | 60.3 | 1,138.1 | 0.0 | 0.0 |
| 136.00 | Top - Section 3 | 29.8 | 320.6 | | | | | 0.0 | 55.1 | 29.8 | 375.7 | 0.0 | 0.0 |
| 137.00 | Appurtenance(s) | 59.0 | 185.7 | 1,136.6 | 0.0 | 0.0 | 7,405.3 | 0.0 | 55.1 | 1,195.6 | 7,646.1 | 0.0 | 0.0 |
| 140.00 | | 115.9 | 548.0 | | | | | 0.0 | 124.9 | 115.9 | 672.9 | 0.0 | 0.0 |
| 145.00 | | 100.0 | 886.2 | | | | | 0.0 | 208.1 | 100.0 | 1,094.3 | 0.0 | 0.0 |
| 147.00 | Appurtenance(s) | 42.1 | 347.9 | 568.9 | 0.0 | 0.0 | 4,920.3 | 0.0 | 83.3 | 611.1 | 5,351.5 | 0.0 | 0.0 |
| 148.00 | Appurtenance(s) | 41.6 | 172.5 | 415.1 | 0.0 | -69.1 | 2,907.6 | 0.0 | 41.6 | 456.7 | 3,121.7 | 0.0 | 0.0 |
| 150.00 | | 95.4 | 340.7 | | | | | 0.0 | 55.8 | 95.4 | 396.5 | 0.0 | 0.0 |
| 155.00 | | 107.4 | 826.0 | | | | | 0.0 | 139.4 | 107.4 | 965.5 | 0.0 | 0.0 |
| 158.00 | Appurtenance(s) | 65.7 | 483.1 | 578.1 | 0.0 | 1,124.7 | 4,198.2 | 0.0 | 83.7 | 643.8 | 4,764.9 | 0.0 | 0.0 |
| 160.00 | Appurtenance(s) | 89.6 | 316.7 | 597.7 | 0.0 | 0.0 | 3,978.4 | 0.0 | 24.4 | 687.3 | 4,319.5 | 0.0 | 0.0 |
| 165.00 | | 100.8 | 765.9 | | | | | 0.0 | 61.1 | 100.8 | 827.0 | 0.0 | 0.0 |

Site Number: 302472

Code: ANSI/TIA-222-G

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Site Name: Andover-bunker Hill Road, CT

Engineering Number: OAA751503_C3_02

9/17/2019 6:57:03 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 1.00 in Radial Ice

27 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

| | | | | | | | | | | | | | |
|---------|-----------------|------|-------|---------|-----|-----|---------|-----|------|----------|----------|------|------|
| 168.00 | Appurtenance(s) | 61.6 | 447.0 | 1,082.9 | 0.0 | 0.0 | 7,576.7 | 0.0 | 36.6 | 1,144.5 | 8,060.3 | 0.0 | 0.0 |
| 170.00 | | 83.9 | 292.6 | | | | | 0.0 | 3.0 | 83.9 | 295.6 | 0.0 | 0.0 |
| 175.00 | | 94.3 | 705.8 | | | | | 0.0 | 7.6 | 94.3 | 713.3 | 0.0 | 0.0 |
| 178.00 | Appurtenance(s) | 34.7 | 410.9 | 444.3 | 0.0 | 0.0 | 2,404.6 | 0.0 | 4.5 | 479.0 | 2,820.0 | 0.0 | 0.0 |
| Totals: | | | | | | | | | | 11,828.5 | 103,469. | 0.00 | 0.00 |

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 1.00 in Radial Ice

27 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 | -106.45 | -12.03 | 0.00 | -1,512.40 | 0.00 | 1,512.40 | 6,434.86 | 3,217.43 | 14,900.4 | 7,461.32 | 0.00 | 0.00 | 0.219 |
| 5.00 | -103.62 | -11.84 | 0.00 | -1,452.25 | 0.00 | 1,452.25 | 6,350.74 | 3,175.37 | 14,433.5 | 7,227.48 | 0.03 | -0.06 | 0.217 |
| 10.00 | -100.76 | -11.71 | 0.00 | -1,393.06 | 0.00 | 1,393.06 | 6,265.35 | 3,132.68 | 13,970.9 | 6,995.84 | 0.12 | -0.12 | 0.215 |
| 12.00 | -99.45 | -11.57 | 0.00 | -1,369.64 | 0.00 | 1,369.64 | 6,230.84 | 3,115.42 | 13,787.1 | 6,903.82 | 0.18 | -0.14 | 0.214 |
| 15.00 | -97.74 | -11.44 | 0.00 | -1,334.93 | 0.00 | 1,334.93 | 6,178.70 | 3,089.35 | 13,512.8 | 6,766.48 | 0.28 | -0.18 | 0.213 |
| 20.00 | -94.93 | -11.28 | 0.00 | -1,277.75 | 0.00 | 1,277.75 | 6,090.77 | 3,045.39 | 13,059.5 | 6,539.47 | 0.50 | -0.24 | 0.211 |
| 25.00 | -92.16 | -11.12 | 0.00 | -1,221.36 | 0.00 | 1,221.36 | 6,001.58 | 3,000.79 | 12,611.0 | 6,314.89 | 0.79 | -0.30 | 0.209 |
| 30.00 | -89.43 | -10.98 | 0.00 | -1,165.74 | 0.00 | 1,165.74 | 5,911.12 | 2,955.56 | 12,167.6 | 6,092.85 | 1.14 | -0.37 | 0.206 |
| 35.00 | -86.75 | -10.83 | 0.00 | -1,110.85 | 0.00 | 1,110.85 | 5,796.61 | 2,898.31 | 11,683.4 | 5,850.41 | 1.55 | -0.43 | 0.205 |
| 40.00 | -84.11 | -10.71 | 0.00 | -1,056.70 | 0.00 | 1,056.70 | 5,674.58 | 2,837.29 | 11,194.2 | 5,605.46 | 2.04 | -0.49 | 0.203 |
| 42.75 | -82.68 | -10.63 | 0.00 | -1,027.25 | 0.00 | 1,027.25 | 5,607.46 | 2,803.73 | 10,929.6 | 5,472.97 | 2.33 | -0.53 | 0.202 |
| 45.00 | -80.94 | -10.54 | 0.00 | -1,003.32 | 0.00 | 1,003.32 | 5,552.55 | 2,776.27 | 10,715.5 | 5,365.75 | 2.59 | -0.56 | 0.202 |
| 49.00 | -77.90 | -10.44 | 0.00 | -961.17 | 0.00 | 961.17 | 4,334.74 | 2,167.37 | 8,395.94 | 4,204.21 | 3.08 | -0.61 | 0.247 |
| 50.00 | -77.43 | -10.37 | 0.00 | -950.73 | 0.00 | 950.73 | 4,321.48 | 2,160.74 | 8,333.21 | 4,172.80 | 3.21 | -0.63 | 0.246 |
| 55.00 | -75.18 | -10.23 | 0.00 | -898.90 | 0.00 | 898.90 | 4,254.40 | 2,127.20 | 8,021.52 | 4,016.72 | 3.91 | -0.71 | 0.241 |
| 60.00 | -72.97 | -10.09 | 0.00 | -847.76 | 0.00 | 847.76 | 4,186.06 | 2,093.03 | 7,713.24 | 3,862.35 | 4.69 | -0.78 | 0.237 |
| 65.00 | -70.80 | -9.95 | 0.00 | -797.31 | 0.00 | 797.31 | 4,116.45 | 2,058.22 | 7,408.53 | 3,709.77 | 5.56 | -0.86 | 0.232 |
| 70.00 | -68.68 | -9.81 | 0.00 | -747.56 | 0.00 | 747.56 | 4,045.56 | 2,022.78 | 7,107.57 | 3,559.07 | 6.50 | -0.94 | 0.227 |
| 75.00 | -66.60 | -9.67 | 0.00 | -698.51 | 0.00 | 698.51 | 3,973.41 | 1,986.71 | 6,810.50 | 3,410.31 | 7.54 | -1.02 | 0.222 |
| 80.00 | -64.57 | -9.53 | 0.00 | -650.15 | 0.00 | 650.15 | 3,899.99 | 1,950.00 | 6,517.51 | 3,263.60 | 8.65 | -1.10 | 0.216 |
| 85.00 | -62.58 | -9.42 | 0.00 | -602.50 | 0.00 | 602.50 | 3,805.04 | 1,902.52 | 6,195.74 | 3,102.48 | 9.85 | -1.19 | 0.211 |
| 87.00 | -61.79 | -9.37 | 0.00 | -583.66 | 0.00 | 583.66 | 3,765.38 | 1,882.69 | 6,066.61 | 3,037.81 | 10.36 | -1.22 | 0.209 |
| 88.00 | -61.01 | -9.27 | 0.00 | -574.28 | 0.00 | 574.28 | 3,745.55 | 1,872.77 | 6,002.55 | 3,005.74 | 10.61 | -1.24 | 0.207 |
| 90.00 | -59.88 | -9.21 | 0.00 | -555.74 | 0.00 | 555.74 | 3,705.89 | 1,852.94 | 5,875.46 | 2,942.10 | 11.14 | -1.27 | 0.205 |
| 92.00 | -58.75 | -9.13 | 0.00 | -537.33 | 0.00 | 537.33 | 3,054.73 | 1,527.36 | 4,893.34 | 2,450.31 | 11.68 | -1.30 | 0.239 |
| 95.00 | -57.69 | -9.06 | 0.00 | -509.95 | 0.00 | 509.95 | 3,020.24 | 1,510.12 | 4,760.42 | 2,383.75 | 12.51 | -1.35 | 0.233 |
| 97.00 | -56.73 | -8.92 | 0.00 | -491.83 | 0.00 | 491.83 | 2,996.99 | 1,498.50 | 4,672.40 | 2,339.67 | 13.08 | -1.39 | 0.229 |
| 100.00 | -55.69 | -8.82 | 0.00 | -465.08 | 0.00 | 465.08 | 2,961.74 | 1,480.87 | 4,541.28 | 2,274.01 | 13.97 | -1.44 | 0.223 |
| 105.00 | -54.00 | -8.70 | 0.00 | -420.99 | 0.00 | 420.99 | 2,901.98 | 1,450.99 | 4,325.26 | 2,165.84 | 15.53 | -1.53 | 0.213 |
| 108.00 | -52.95 | -8.61 | 0.00 | -394.86 | 0.00 | 394.86 | 2,865.51 | 1,432.75 | 4,197.21 | 2,101.73 | 16.50 | -1.58 | 0.206 |
| 110.00 | -52.13 | -8.48 | 0.00 | -377.63 | 0.00 | 377.63 | 2,840.94 | 1,420.47 | 4,112.52 | 2,059.32 | 17.17 | -1.62 | 0.202 |
| 115.00 | -50.51 | -8.35 | 0.00 | -335.21 | 0.00 | 335.21 | 2,777.06 | 1,388.53 | 3,901.02 | 1,953.41 | 18.91 | -1.70 | 0.190 |
| 120.00 | -48.93 | -8.20 | 0.00 | -293.49 | 0.00 | 293.49 | 2,693.16 | 1,346.58 | 3,667.73 | 1,836.59 | 20.74 | -1.78 | 0.178 |
| 125.00 | -47.40 | -8.06 | 0.00 | -252.47 | 0.00 | 252.47 | 2,609.26 | 1,304.63 | 3,441.64 | 1,723.38 | 22.64 | -1.86 | 0.165 |
| 130.00 | -45.90 | -7.94 | 0.00 | -212.17 | 0.00 | 212.17 | 2,525.36 | 1,262.68 | 3,222.75 | 1,613.77 | 24.63 | -1.93 | 0.150 |
| 132.00 | -45.31 | -7.87 | 0.00 | -196.28 | 0.00 | 196.28 | 2,491.80 | 1,245.90 | 3,137.20 | 1,570.93 | 25.44 | -1.96 | 0.143 |
| 135.00 | -44.17 | -7.79 | 0.00 | -172.66 | 0.00 | 172.66 | 2,441.46 | 1,220.73 | 3,011.04 | 1,507.76 | 26.68 | -2.00 | 0.133 |
| 136.00 | -43.79 | -7.76 | 0.00 | -164.87 | 0.00 | 164.87 | 1,416.30 | 708.15 | 1,774.76 | 888.70 | 27.10 | -2.01 | 0.217 |
| 137.00 | -36.19 | -6.32 | 0.00 | -157.10 | 0.00 | 157.10 | 1,410.39 | 705.20 | 1,755.27 | 878.94 | 27.52 | -2.02 | 0.204 |
| 140.00 | -35.52 | -6.22 | 0.00 | -138.15 | 0.00 | 138.15 | 1,392.36 | 696.18 | 1,697.02 | 849.77 | 28.81 | -2.07 | 0.188 |
| 145.00 | -34.42 | -6.11 | 0.00 | -107.06 | 0.00 | 107.06 | 1,361.30 | 680.65 | 1,600.81 | 801.59 | 31.02 | -2.15 | 0.159 |
| 147.00 | -29.09 | -5.31 | 0.00 | -94.84 | 0.00 | 94.84 | 1,348.51 | 674.26 | 1,562.66 | 782.49 | 31.93 | -2.18 | 0.143 |
| 148.00 | -25.99 | -4.74 | 0.00 | -89.53 | 0.00 | 89.53 | 1,342.05 | 671.02 | 1,543.66 | 772.98 | 32.39 | -2.19 | 0.135 |

Site Number: 302472

Code: ANSI/TIA-222-G

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Site Name: Andover-bunker Hill Road, CT

Engineering Number: OAA751503_C3_02

9/17/2019 6:57:04 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 1.00 in Radial Ice

27 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

| | | | | | | | | | | | | | |
|--------|--------|-------|------|--------|------|-------|----------|--------|----------|--------|-------|-------|-------|
| 150.00 | -25.59 | -4.65 | 0.00 | -80.05 | 0.00 | 80.05 | 1,328.96 | 664.48 | 1,505.82 | 754.03 | 33.31 | -2.22 | 0.125 |
| 155.00 | -24.63 | -4.52 | 0.00 | -56.82 | 0.00 | 56.82 | 1,295.36 | 647.68 | 1,412.23 | 707.16 | 35.66 | -2.27 | 0.099 |
| 158.00 | -19.89 | -3.69 | 0.00 | -42.14 | 0.00 | 42.14 | 1,274.59 | 637.29 | 1,356.80 | 679.41 | 37.10 | -2.29 | 0.078 |
| 160.00 | -15.60 | -2.84 | 0.00 | -34.75 | 0.00 | 34.75 | 1,260.48 | 630.24 | 1,320.18 | 661.07 | 38.06 | -2.31 | 0.065 |
| 165.00 | -14.78 | -2.71 | 0.00 | -20.56 | 0.00 | 20.56 | 1,224.34 | 612.17 | 1,229.85 | 615.84 | 40.49 | -2.34 | 0.045 |
| 168.00 | -6.77 | -1.24 | 0.00 | -12.44 | 0.00 | 12.44 | 1,202.05 | 601.02 | 1,176.54 | 589.15 | 41.96 | -2.35 | 0.027 |
| 170.00 | -6.48 | -1.14 | 0.00 | -9.96 | 0.00 | 9.96 | 1,186.93 | 593.46 | 1,141.40 | 571.55 | 42.95 | -2.35 | 0.023 |
| 175.00 | -5.77 | -1.02 | 0.00 | -4.26 | 0.00 | 4.26 | 1,148.25 | 574.12 | 1,054.98 | 528.28 | 45.42 | -2.36 | 0.013 |
| 178.00 | 0.00 | -0.78 | 0.00 | -1.20 | 0.00 | 1.20 | 1,123.52 | 561.76 | 1,003.37 | 502.43 | 46.90 | -2.36 | 0.002 |

| | | |
|-------------------------------|------------------------------|------------------------------|
| Load Case: 1.0D + 1.0W | Serviceability 60 mph | 25 Iterations |
| Gust Response Factor :1.10 | | Wind Importance Factor :1.00 |
| Dead Load Factor :1.00 | | |
| Wind Load Factor :1.00 | | |

Applied Segment Forces Summary

| Seg Elev (ft) | Description | Shaft Forces | | 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 | | 99.8 | 0.0 | | | | | 0.0 | 0.0 | 99.8 | 0.0 | 0.0 | 0.0 |
| 5.00 | | 193.6 | 1,509.1 | | | | | 0.0 | 234.1 | 193.6 | 1,743.2 | 0.0 | 0.0 |
| 10.00 | | 129.8 | 1,481.2 | | | | | 0.0 | 234.1 | 129.8 | 1,715.2 | 0.0 | 0.0 |
| 12.00 | Appurtenance(s) | 88.4 | 584.6 | 36.7 | 0.0 | 0.0 | 100.6 | 0.0 | 93.6 | 125.1 | 778.9 | 0.0 | 0.0 |
| 15.00 | | 135.8 | 868.6 | | | | | 0.0 | 140.0 | 135.8 | 1,008.6 | 0.0 | 0.0 |
| 20.00 | | 162.2 | 1,425.3 | | | | | 0.0 | 233.3 | 162.2 | 1,658.6 | 0.0 | 0.0 |
| 25.00 | | 153.3 | 1,397.3 | | | | | 0.0 | 233.3 | 153.3 | 1,630.6 | 0.0 | 0.0 |
| 30.00 | | 146.9 | 1,369.4 | | | | | 0.0 | 233.3 | 146.9 | 1,602.7 | 0.0 | 0.0 |
| 35.00 | | 143.8 | 1,341.4 | | | | | 0.0 | 233.3 | 143.8 | 1,574.7 | 0.0 | 0.0 |
| 40.00 | | 110.4 | 1,313.5 | | | | | 0.0 | 233.3 | 110.4 | 1,546.8 | 0.0 | 0.0 |
| 42.75 | Bot - Section 2 | 70.9 | 710.5 | | | | | 0.0 | 128.3 | 70.9 | 838.8 | 0.0 | 0.0 |
| 45.00 | | 88.4 | 1,051.2 | | | | | 0.0 | 105.0 | 88.4 | 1,156.2 | 0.0 | 0.0 |
| 49.00 | Top - Section 1 | 70.3 | 1,843.5 | | | | | 0.0 | 186.6 | 70.3 | 2,030.1 | 0.0 | 0.0 |
| 50.00 | | 82.9 | 206.5 | | | | | 0.0 | 46.7 | 82.9 | 253.2 | 0.0 | 0.0 |
| 55.00 | | 136.4 | 1,019.0 | | | | | 0.0 | 233.3 | 136.4 | 1,252.3 | 0.0 | 0.0 |
| 60.00 | | 133.4 | 996.3 | | | | | 0.0 | 233.3 | 133.4 | 1,229.6 | 0.0 | 0.0 |
| 65.00 | | 130.3 | 973.5 | | | | | 0.0 | 233.3 | 130.3 | 1,206.8 | 0.0 | 0.0 |
| 70.00 | | 127.1 | 950.8 | | | | | 0.0 | 233.3 | 127.1 | 1,184.1 | 0.0 | 0.0 |
| 75.00 | | 124.0 | 928.1 | | | | | 0.0 | 233.3 | 124.0 | 1,161.4 | 0.0 | 0.0 |
| 80.00 | | 120.8 | 905.4 | | | | | 0.0 | 233.3 | 120.8 | 1,138.7 | 0.0 | 0.0 |
| 85.00 | | 83.0 | 882.7 | | | | | 0.0 | 233.3 | 83.0 | 1,116.0 | 0.0 | 0.0 |
| 87.00 | Bot - Section 3 | 35.2 | 346.7 | | | | | 0.0 | 93.3 | 35.2 | 440.1 | 0.0 | 0.0 |
| 88.00 | Appurtenance(s) | 35.2 | 320.3 | 41.6 | 0.0 | 0.0 | 110.0 | 0.0 | 46.7 | 76.8 | 477.0 | 0.0 | 0.0 |
| 90.00 | | 46.6 | 635.6 | | | | | 0.0 | 92.7 | 46.6 | 728.3 | 0.0 | 0.0 |
| 92.00 | Top - Section 2 | 57.5 | 628.9 | | | | | 0.0 | 92.7 | 57.5 | 721.6 | 0.0 | 0.0 |
| 95.00 | | 56.9 | 431.1 | | | | | 0.0 | 139.1 | 56.9 | 570.2 | 0.0 | 0.0 |
| 97.00 | Appurtenance(s) | 55.9 | 283.6 | 51.1 | 0.0 | 0.0 | 120.0 | 0.0 | 92.7 | 107.0 | 496.3 | 0.0 | 0.0 |
| 100.00 | | 87.8 | 419.6 | | | | | 0.0 | 138.2 | 87.8 | 557.8 | 0.0 | 0.0 |
| 105.00 | | 86.3 | 684.0 | | | | | 0.0 | 230.3 | 86.3 | 914.3 | 0.0 | 0.0 |
| 108.00 | Appurtenance(s) | 52.9 | 401.2 | 9.6 | 0.0 | 19.1 | 10.0 | 0.0 | 138.2 | 62.4 | 549.4 | 0.0 | 0.0 |
| 110.00 | Appurtenance(s) | 72.3 | 263.6 | 31.9 | 0.0 | 0.0 | 100.0 | 0.0 | 91.8 | 104.2 | 455.4 | 0.0 | 0.0 |
| 115.00 | | 101.2 | 645.6 | | | | | 0.0 | 229.6 | 101.2 | 875.1 | 0.0 | 0.0 |
| 120.00 | | 98.2 | 626.4 | | | | | 0.0 | 229.6 | 98.2 | 855.9 | 0.0 | 0.0 |
| 125.00 | | 95.3 | 607.1 | | | | | 0.0 | 229.6 | 95.3 | 836.7 | 0.0 | 0.0 |
| 130.00 | | 65.2 | 587.9 | | | | | 0.0 | 229.6 | 65.2 | 817.5 | 0.0 | 0.0 |
| 132.00 | Bot - Section 4 | 45.8 | 229.8 | | | | | 0.0 | 91.8 | 45.8 | 321.6 | 0.0 | 0.0 |
| 135.00 | | 36.5 | 558.6 | | | | | 0.0 | 137.7 | 36.5 | 696.3 | 0.0 | 0.0 |
| 136.00 | Top - Section 3 | 18.0 | 183.7 | | | | | 0.0 | 45.9 | 18.0 | 229.6 | 0.0 | 0.0 |
| 137.00 | Appurtenance(s) | 35.6 | 71.8 | 921.9 | 0.0 | 0.0 | 2,903.1 | 0.0 | 45.9 | 957.5 | 3,020.8 | 0.0 | 0.0 |
| 140.00 | | 69.7 | 212.3 | | | | | 0.0 | 104.1 | 69.7 | 316.4 | 0.0 | 0.0 |
| 145.00 | | 60.0 | 344.1 | | | | | 0.0 | 173.5 | 60.0 | 517.5 | 0.0 | 0.0 |
| 147.00 | Appurtenance(s) | 25.2 | 134.2 | 372.5 | 0.0 | 0.0 | 2,500.0 | 0.0 | 69.4 | 397.6 | 2,703.6 | 0.0 | 0.0 |
| 148.00 | Appurtenance(s) | 24.8 | 66.4 | 405.1 | 0.0 | -67.2 | 725.4 | 0.0 | 34.7 | 429.9 | 826.5 | 0.0 | 0.0 |
| 150.00 | | 56.7 | 131.3 | | | | | 0.0 | 46.5 | 56.7 | 177.8 | 0.0 | 0.0 |
| 155.00 | | 63.7 | 319.6 | | | | | 0.0 | 116.2 | 63.7 | 435.8 | 0.0 | 0.0 |
| 158.00 | Appurtenance(s) | 38.8 | 185.9 | 576.2 | 0.0 | 1,137.3 | 850.9 | 0.0 | 69.7 | 614.9 | 1,106.5 | 0.0 | 0.0 |
| 160.00 | Appurtenance(s) | 52.7 | 121.5 | 456.1 | 0.0 | 0.0 | 2,000.0 | 0.0 | 20.4 | 508.7 | 2,141.9 | 0.0 | 0.0 |
| 165.00 | | 59.0 | 295.2 | | | | | 0.0 | 50.9 | 59.0 | 346.1 | 0.0 | 0.0 |

Site Number: 302472

Code: ANSI/TIA-222-G

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Site Name: Andover-bunker Hill Road, CT

Engineering Number: OAA751503_C3_02

9/17/2019 6:57:09 PM

Customer: AT&T MOBILITY

Load Case: 1.0D + 1.0W

Serviceability 60 mph

25 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

| | | | | | | | | | | | | | |
|---------|-----------------|------|-------|-------|-----|-----|---------|-----|------|----------|----------|------|------|
| 168.00 | Appurtenance(s) | 35.9 | 171.2 | 889.2 | 0.0 | 0.0 | 3,108.2 | 0.0 | 30.5 | 925.1 | 3,310.0 | 0.0 | 0.0 |
| 170.00 | | 48.6 | 111.7 | | | | | 0.0 | 2.5 | 48.6 | 114.2 | 0.0 | 0.0 |
| 175.00 | | 54.4 | 270.7 | | | | | 0.0 | 6.3 | 54.4 | 277.0 | 0.0 | 0.0 |
| 178.00 | Appurtenance(s) | 20.0 | 156.6 | 283.2 | 0.0 | 0.0 | 1,500.0 | 0.0 | 3.8 | 303.2 | 1,660.4 | 0.0 | 0.0 |
| Totals: | | | | | | | | | | 8,298.27 | 53,324.0 | 0.00 | 0.00 |

Load Case: 1.0D + 1.0W

Serviceability 60 mph

25 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 | -53.51 | -8.61 | 0.00 | -1,056.93 | 0.00 | 1,056.93 | 6,434.86 | 3,217.43 | 14,900.4 | 7,461.32 | 0.00 | 0.00 | 0.150 |
| 5.00 | -51.76 | -8.45 | 0.00 | -1,013.91 | 0.00 | 1,013.91 | 6,350.74 | 3,175.37 | 14,433.5 | 7,227.48 | 0.02 | -0.04 | 0.148 |
| 10.00 | -50.04 | -8.34 | 0.00 | -971.66 | 0.00 | 971.66 | 6,265.35 | 3,132.68 | 13,970.9 | 6,995.84 | 0.09 | -0.08 | 0.147 |
| 12.00 | -49.26 | -8.23 | 0.00 | -954.98 | 0.00 | 954.98 | 6,230.84 | 3,115.42 | 13,787.1 | 6,903.82 | 0.13 | -0.10 | 0.146 |
| 15.00 | -48.24 | -8.13 | 0.00 | -930.28 | 0.00 | 930.28 | 6,178.70 | 3,089.35 | 13,512.8 | 6,766.48 | 0.20 | -0.13 | 0.145 |
| 20.00 | -46.58 | -7.99 | 0.00 | -889.65 | 0.00 | 889.65 | 6,090.77 | 3,045.39 | 13,059.5 | 6,539.47 | 0.35 | -0.17 | 0.144 |
| 25.00 | -44.94 | -7.87 | 0.00 | -849.68 | 0.00 | 849.68 | 6,001.58 | 3,000.79 | 12,611.0 | 6,314.89 | 0.55 | -0.21 | 0.142 |
| 30.00 | -43.33 | -7.75 | 0.00 | -810.34 | 0.00 | 810.34 | 5,911.12 | 2,955.56 | 12,167.6 | 6,092.85 | 0.79 | -0.25 | 0.140 |
| 35.00 | -41.75 | -7.63 | 0.00 | -771.59 | 0.00 | 771.59 | 5,796.61 | 2,898.31 | 11,683.4 | 5,850.41 | 1.08 | -0.30 | 0.139 |
| 40.00 | -40.20 | -7.54 | 0.00 | -733.44 | 0.00 | 733.44 | 5,674.58 | 2,837.29 | 11,194.2 | 5,605.46 | 1.42 | -0.34 | 0.138 |
| 42.75 | -39.36 | -7.48 | 0.00 | -712.72 | 0.00 | 712.72 | 5,607.46 | 2,803.73 | 10,929.6 | 5,472.97 | 1.63 | -0.37 | 0.137 |
| 45.00 | -38.20 | -7.40 | 0.00 | -695.90 | 0.00 | 695.90 | 5,552.55 | 2,776.27 | 10,715.5 | 5,365.75 | 1.81 | -0.39 | 0.137 |
| 49.00 | -36.17 | -7.33 | 0.00 | -666.30 | 0.00 | 666.30 | 4,334.74 | 2,167.37 | 8,395.94 | 4,204.21 | 2.15 | -0.43 | 0.167 |
| 50.00 | -35.91 | -7.26 | 0.00 | -658.98 | 0.00 | 658.98 | 4,321.48 | 2,160.74 | 8,333.21 | 4,172.80 | 2.24 | -0.44 | 0.166 |
| 55.00 | -34.66 | -7.15 | 0.00 | -622.66 | 0.00 | 622.66 | 4,254.40 | 2,127.20 | 8,021.52 | 4,016.72 | 2.73 | -0.49 | 0.163 |
| 60.00 | -33.42 | -7.04 | 0.00 | -586.91 | 0.00 | 586.91 | 4,186.06 | 2,093.03 | 7,713.24 | 3,862.35 | 3.27 | -0.55 | 0.160 |
| 65.00 | -32.21 | -6.93 | 0.00 | -551.72 | 0.00 | 551.72 | 4,116.45 | 2,058.22 | 7,408.53 | 3,709.77 | 3.87 | -0.60 | 0.157 |
| 70.00 | -31.02 | -6.82 | 0.00 | -517.09 | 0.00 | 517.09 | 4,045.56 | 2,022.78 | 7,107.57 | 3,559.07 | 4.53 | -0.66 | 0.153 |
| 75.00 | -29.85 | -6.71 | 0.00 | -483.01 | 0.00 | 483.01 | 3,973.41 | 1,986.71 | 6,810.50 | 3,410.31 | 5.24 | -0.71 | 0.149 |
| 80.00 | -28.71 | -6.60 | 0.00 | -449.47 | 0.00 | 449.47 | 3,899.99 | 1,950.00 | 6,517.51 | 3,263.60 | 6.02 | -0.77 | 0.145 |
| 85.00 | -27.59 | -6.52 | 0.00 | -416.47 | 0.00 | 416.47 | 3,805.04 | 1,902.52 | 6,195.74 | 3,102.48 | 6.85 | -0.82 | 0.142 |
| 87.00 | -27.15 | -6.49 | 0.00 | -403.43 | 0.00 | 403.43 | 3,765.38 | 1,882.69 | 6,066.61 | 3,037.81 | 7.20 | -0.85 | 0.140 |
| 88.00 | -26.67 | -6.41 | 0.00 | -396.94 | 0.00 | 396.94 | 3,745.55 | 1,872.77 | 6,002.55 | 3,005.74 | 7.38 | -0.86 | 0.139 |
| 90.00 | -25.94 | -6.36 | 0.00 | -384.12 | 0.00 | 384.12 | 3,705.89 | 1,852.94 | 5,875.46 | 2,942.10 | 7.74 | -0.88 | 0.138 |
| 92.00 | -25.22 | -6.31 | 0.00 | -371.40 | 0.00 | 371.40 | 3,054.73 | 1,527.36 | 4,893.34 | 2,450.31 | 8.12 | -0.90 | 0.160 |
| 95.00 | -24.64 | -6.25 | 0.00 | -352.47 | 0.00 | 352.47 | 3,020.24 | 1,510.12 | 4,760.42 | 2,383.75 | 8.69 | -0.94 | 0.156 |
| 97.00 | -24.15 | -6.15 | 0.00 | -339.97 | 0.00 | 339.97 | 2,996.99 | 1,498.50 | 4,672.40 | 2,339.67 | 9.09 | -0.96 | 0.153 |
| 100.00 | -23.59 | -6.08 | 0.00 | -321.51 | 0.00 | 321.51 | 2,961.74 | 1,480.87 | 4,541.28 | 2,274.01 | 9.71 | -1.00 | 0.149 |
| 105.00 | -22.67 | -5.99 | 0.00 | -291.14 | 0.00 | 291.14 | 2,901.98 | 1,450.99 | 4,325.26 | 2,165.84 | 10.79 | -1.06 | 0.142 |
| 108.00 | -22.12 | -5.93 | 0.00 | -273.14 | 0.00 | 273.14 | 2,865.51 | 1,432.75 | 4,197.21 | 2,101.73 | 11.47 | -1.10 | 0.138 |
| 110.00 | -21.66 | -5.83 | 0.00 | -261.28 | 0.00 | 261.28 | 2,840.94 | 1,420.47 | 4,112.52 | 2,059.32 | 11.93 | -1.12 | 0.135 |
| 115.00 | -20.78 | -5.73 | 0.00 | -232.12 | 0.00 | 232.12 | 2,777.06 | 1,388.53 | 3,901.02 | 1,953.41 | 13.13 | -1.18 | 0.126 |
| 120.00 | -19.92 | -5.64 | 0.00 | -203.44 | 0.00 | 203.44 | 2,693.16 | 1,346.58 | 3,667.73 | 1,836.59 | 14.40 | -1.23 | 0.118 |
| 125.00 | -19.08 | -5.54 | 0.00 | -175.26 | 0.00 | 175.26 | 2,609.26 | 1,304.63 | 3,441.64 | 1,723.38 | 15.72 | -1.29 | 0.109 |
| 130.00 | -18.26 | -5.47 | 0.00 | -147.55 | 0.00 | 147.55 | 2,525.36 | 1,262.68 | 3,222.75 | 1,613.77 | 17.10 | -1.34 | 0.099 |
| 132.00 | -17.94 | -5.42 | 0.00 | -136.61 | 0.00 | 136.61 | 2,491.80 | 1,245.90 | 3,137.20 | 1,570.93 | 17.66 | -1.36 | 0.094 |
| 135.00 | -17.24 | -5.37 | 0.00 | -120.35 | 0.00 | 120.35 | 2,441.46 | 1,220.73 | 3,011.04 | 1,507.76 | 18.52 | -1.38 | 0.087 |
| 136.00 | -17.01 | -5.35 | 0.00 | -114.97 | 0.00 | 114.97 | 1,416.30 | 708.15 | 1,774.76 | 888.70 | 18.81 | -1.39 | 0.141 |
| 137.00 | -14.02 | -4.33 | 0.00 | -109.62 | 0.00 | 109.62 | 1,410.39 | 705.20 | 1,755.27 | 878.94 | 19.11 | -1.40 | 0.135 |
| 140.00 | -13.70 | -4.26 | 0.00 | -96.63 | 0.00 | 96.63 | 1,392.36 | 696.18 | 1,697.02 | 849.77 | 20.00 | -1.44 | 0.124 |
| 145.00 | -13.18 | -4.20 | 0.00 | -75.32 | 0.00 | 75.32 | 1,361.30 | 680.65 | 1,600.81 | 801.59 | 21.53 | -1.49 | 0.104 |
| 147.00 | -10.49 | -3.73 | 0.00 | -66.93 | 0.00 | 66.93 | 1,348.51 | 674.26 | 1,562.66 | 782.49 | 22.16 | -1.51 | 0.093 |
| 148.00 | -9.67 | -3.28 | 0.00 | -63.20 | 0.00 | 63.20 | 1,342.05 | 671.02 | 1,543.66 | 772.98 | 22.48 | -1.52 | 0.089 |

Site Number: 302472

Code: ANSI/TIA-222-G

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Site Name: Andover-bunker Hill Road, CT

Engineering Number: OAA751503_C3_02

9/17/2019 6:57:09 PM

Customer: AT&T MOBILITY

Load Case: 1.0D + 1.0W

Serviceability 60 mph

25 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

| | | | | | | | | | | | | | |
|--------|-------|-------|------|--------|------|-------|----------|--------|----------|--------|-------|-------|-------|
| 150.00 | -9.49 | -3.23 | 0.00 | -56.64 | 0.00 | 56.64 | 1,328.96 | 664.48 | 1,505.82 | 754.03 | 23.12 | -1.54 | 0.082 |
| 155.00 | -9.06 | -3.15 | 0.00 | -40.51 | 0.00 | 40.51 | 1,295.36 | 647.68 | 1,412.23 | 707.16 | 24.75 | -1.58 | 0.064 |
| 158.00 | -7.97 | -2.51 | 0.00 | -29.91 | 0.00 | 29.91 | 1,274.59 | 637.29 | 1,356.80 | 679.41 | 25.75 | -1.59 | 0.050 |
| 160.00 | -5.84 | -1.94 | 0.00 | -24.89 | 0.00 | 24.89 | 1,260.48 | 630.24 | 1,320.18 | 661.07 | 26.42 | -1.60 | 0.042 |
| 165.00 | -5.50 | -1.88 | 0.00 | -15.17 | 0.00 | 15.17 | 1,224.34 | 612.17 | 1,229.85 | 615.84 | 28.11 | -1.62 | 0.029 |
| 168.00 | -2.21 | -0.86 | 0.00 | -9.54 | 0.00 | 9.54 | 1,202.05 | 601.02 | 1,176.54 | 589.15 | 29.13 | -1.63 | 0.018 |
| 170.00 | -2.10 | -0.81 | 0.00 | -7.82 | 0.00 | 7.82 | 1,186.93 | 593.46 | 1,141.40 | 571.55 | 29.82 | -1.64 | 0.015 |
| 175.00 | -1.82 | -0.74 | 0.00 | -3.79 | 0.00 | 3.79 | 1,148.25 | 574.12 | 1,054.98 | 528.28 | 31.54 | -1.64 | 0.009 |
| 178.00 | 0.00 | -0.69 | 0.00 | -1.56 | 0.00 | 1.56 | 1,123.52 | 561.76 | 1,003.37 | 502.43 | 32.57 | -1.65 | 0.003 |

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}): | 0.19 |
| Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}): | 0.10 |
| Seismic Response Coefficient (C_s): | 0.03 |
| Upper Limit C_s | 0.03 |
| Lower Limit C_s | 0.03 |
| Period based on Rayleigh Method (sec): | 2.91 |
| Redundancy Factor (ρ): | 1.00 |
| Seismic Force Distribution Exponent (k): | 2.00 |
| Total Unfactored Dead Load: | 53.51 k |
| Seismic Base Shear (E): | 1.61 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) |
|---------|------------------------|-------------|---------------|----------|-----------------------|---------------------|
| 51 | 176.50 | 160 | 4,995 | 0.008 | 13 | 198 |
| 50 | 172.50 | 277 | 8,244 | 0.014 | 22 | 343 |
| 49 | 169.00 | 114 | 3,263 | 0.005 | 9 | 141 |
| 48 | 166.50 | 202 | 5,594 | 0.009 | 15 | 250 |
| 47 | 162.50 | 346 | 9,139 | 0.015 | 25 | 428 |
| 46 | 159.00 | 142 | 3,586 | 0.006 | 10 | 176 |
| 45 | 156.50 | 256 | 6,261 | 0.010 | 17 | 316 |
| 44 | 152.50 | 436 | 10,136 | 0.017 | 27 | 539 |
| 43 | 149.00 | 178 | 3,946 | 0.007 | 11 | 220 |
| 42 | 147.50 | 101 | 2,199 | 0.004 | 6 | 125 |
| 41 | 146.00 | 204 | 4,340 | 0.007 | 12 | 252 |
| 40 | 142.50 | 518 | 10,509 | 0.018 | 28 | 640 |
| 39 | 138.50 | 316 | 6,069 | 0.010 | 16 | 392 |
| 38 | 136.50 | 118 | 2,192 | 0.004 | 6 | 146 |
| 37 | 135.50 | 230 | 4,215 | 0.007 | 11 | 284 |
| 36 | 133.50 | 696 | 12,410 | 0.021 | 33 | 862 |
| 35 | 131.00 | 322 | 5,519 | 0.009 | 15 | 398 |
| 34 | 127.50 | 817 | 13,289 | 0.022 | 36 | 1,012 |
| 33 | 122.50 | 837 | 12,556 | 0.021 | 34 | 1,035 |
| 32 | 117.50 | 856 | 11,817 | 0.020 | 32 | 1,059 |
| 31 | 112.50 | 875 | 11,076 | 0.019 | 30 | 1,083 |
| 30 | 109.00 | 355 | 4,223 | 0.007 | 11 | 440 |
| 29 | 106.50 | 539 | 6,117 | 0.010 | 16 | 667 |

| | | | | | | |
|----------------------|--------|-------|--------|-------|-----|-------|
| 28 | 102.50 | 914 | 9,606 | 0.016 | 26 | 1,131 |
| 27 | 98.50 | 558 | 5,412 | 0.009 | 15 | 690 |
| 26 | 96.00 | 376 | 3,468 | 0.006 | 9 | 466 |
| 25 | 93.50 | 570 | 4,985 | 0.008 | 13 | 706 |
| 24 | 91.00 | 722 | 5,976 | 0.010 | 16 | 893 |
| 23 | 89.00 | 728 | 5,769 | 0.010 | 15 | 901 |
| 22 | 87.50 | 367 | 2,810 | 0.005 | 8 | 454 |
| 21 | 86.00 | 440 | 3,255 | 0.005 | 9 | 545 |
| 20 | 82.50 | 1,116 | 7,596 | 0.013 | 20 | 1,381 |
| 19 | 77.50 | 1,139 | 6,840 | 0.011 | 18 | 1,409 |
| 18 | 72.50 | 1,161 | 6,105 | 0.010 | 16 | 1,437 |
| 17 | 67.50 | 1,184 | 5,395 | 0.009 | 14 | 1,465 |
| 16 | 62.50 | 1,207 | 4,714 | 0.008 | 13 | 1,494 |
| 15 | 57.50 | 1,230 | 4,065 | 0.007 | 11 | 1,522 |
| 14 | 52.50 | 1,252 | 3,452 | 0.006 | 9 | 1,550 |
| 13 | 49.50 | 253 | 620 | 0.001 | 2 | 313 |
| 12 | 47.00 | 2,030 | 4,484 | 0.007 | 12 | 2,512 |
| 11 | 43.88 | 1,156 | 2,226 | 0.004 | 6 | 1,431 |
| 10 | 41.38 | 839 | 1,436 | 0.002 | 4 | 1,038 |
| 9 | 37.50 | 1,547 | 2,175 | 0.004 | 6 | 1,914 |
| 8 | 32.50 | 1,575 | 1,663 | 0.003 | 4 | 1,949 |
| 7 | 27.50 | 1,603 | 1,212 | 0.002 | 3 | 1,983 |
| 6 | 22.50 | 1,631 | 825 | 0.001 | 2 | 2,018 |
| 5 | 17.50 | 1,659 | 508 | 0.001 | 1 | 2,053 |
| 4 | 13.50 | 1,009 | 184 | 0.000 | 0 | 1,248 |
| 3 | 11.00 | 678 | 82 | 0.000 | 0 | 839 |
| 2 | 7.50 | 1,715 | 96 | 0.000 | 0 | 2,123 |
| 1 | 2.50 | 1,743 | 11 | 0.000 | 0 | 2,157 |
| Powerwave Allgon 712 | 178.00 | 185 | 5,855 | 0.010 | 16 | 229 |
| Flat Low Profile Pla | 178.00 | 1,500 | 47,526 | 0.079 | 128 | 1,856 |
| Alcatel-Lucent RRH2x | 168.00 | 317 | 8,958 | 0.015 | 24 | 393 |
| Alcatel-Lucent 1900 | 168.00 | 180 | 5,080 | 0.008 | 14 | 223 |
| Alcatel-Lucent TD-RR | 168.00 | 210 | 5,927 | 0.010 | 16 | 260 |
| RFS APXVTM14-ALU-I20 | 168.00 | 169 | 4,759 | 0.008 | 13 | 209 |
| Commscope NNVV-65B-R | 168.00 | 232 | 6,554 | 0.011 | 18 | 287 |
| Flat Platform w/ Han | 168.00 | 2,000 | 56,448 | 0.094 | 152 | 2,475 |
| Flat Platform w/ Han | 160.00 | 2,000 | 51,200 | 0.086 | 137 | 2,475 |
| RFS FD9R6004/2C-3L | 158.00 | 16 | 389 | 0.001 | 1 | 19 |
| Alcatel-Lucent RRH2x | 158.00 | 170 | 4,246 | 0.007 | 11 | 211 |
| Alcatel-Lucent B66a | 158.00 | 201 | 5,018 | 0.008 | 13 | 249 |
| RFS DB-T1-6Z-8AB-OZ | 158.00 | 88 | 2,197 | 0.004 | 6 | 109 |
| Antel LPA-80080/4CF | 158.00 | 72 | 1,797 | 0.003 | 5 | 89 |
| Andrew SBNHH-1D65B | 158.00 | 304 | 7,594 | 0.013 | 20 | 376 |
| Ericsson KRY 112 144 | 148.00 | 33 | 723 | 0.001 | 2 | 41 |
| Ericsson KRY 112 489 | 148.00 | 46 | 1,012 | 0.002 | 3 | 57 |
| Ericsson Radio 4449 | 148.00 | 222 | 4,863 | 0.008 | 13 | 275 |
| EMS RR90-17-02DP | 148.00 | 41 | 887 | 0.001 | 2 | 50 |
| RFS APXVAARR24_43-U- | 148.00 | 384 | 8,405 | 0.014 | 23 | 475 |
| Platform with Handra | 147.00 | 2,500 | 54,023 | 0.090 | 145 | 3,094 |
| LGP Allgon LGP21903 | 137.00 | 33 | 619 | 0.001 | 2 | 41 |
| Powerwave Allgon LGP | 137.00 | 85 | 1,588 | 0.003 | 4 | 105 |
| Raycap DC6-48-60-18- | 137.00 | 32 | 597 | 0.001 | 2 | 39 |
| Raycap DC6-48-60-18- | 137.00 | 64 | 1,194 | 0.002 | 3 | 79 |
| Ericsson RRUS 8843 B | 137.00 | 216 | 4,054 | 0.007 | 11 | 267 |
| Ericsson RRUS 4478 B | 137.00 | 180 | 3,373 | 0.006 | 9 | 222 |
| Ericsson RRUS 4449 B | 137.00 | 213 | 3,998 | 0.007 | 11 | 264 |
| Powerwave Allgon 777 | 137.00 | 105 | 1,971 | 0.003 | 5 | 130 |
| CCI DMP65R-BU6DA | 137.00 | 476 | 8,942 | 0.015 | 24 | 590 |
| Flat Low Profile Pla | 137.00 | 1,500 | 28,154 | 0.047 | 76 | 1,856 |
| Stand-Off | 110.00 | 100 | 1,210 | 0.002 | 3 | 124 |
| Generic GPS | 108.00 | 10 | 117 | 0.000 | 0 | 12 |
| Generic GPS | 97.00 | 10 | 94 | 0.000 | 0 | 12 |
| Generic GPS | 97.00 | 10 | 94 | 0.000 | 0 | 12 |
| Stand-Off | 97.00 | 100 | 941 | 0.002 | 3 | 124 |

| | | | | | | |
|----------------------|-------|--------|---------|-------|-------|--------|
| Generic GPS | 88.00 | 10 | 77 | 0.000 | 0 | 12 |
| Stand-Off | 88.00 | 100 | 774 | 0.001 | 2 | 124 |
| PCTEL GPS-TMG-HR-26N | 12.00 | 1 | 0 | 0.000 | 0 | 1 |
| Stand-Off | 12.00 | 100 | 14 | 0.000 | 0 | 124 |
| | | 53,509 | 597,938 | 1.000 | 1,605 | 66,220 |

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

Seismic (Reduced DL) Equivalent Lateral Forces Method

| Segment | Height Above Base (ft) | Weight (lb) | W _z (lb-ft) | C _{vx} | Horizontal Force (lb) | Vertical Force (lb) |
|---------|------------------------|-------------|------------------------|-----------------|-----------------------|---------------------|
| 51 | 176.50 | 160 | 4,995 | 0.008 | 13 | 138 |
| 50 | 172.50 | 277 | 8,244 | 0.014 | 22 | 239 |
| 49 | 169.00 | 114 | 3,263 | 0.005 | 9 | 99 |
| 48 | 166.50 | 202 | 5,594 | 0.009 | 15 | 174 |
| 47 | 162.50 | 346 | 9,139 | 0.015 | 25 | 298 |
| 46 | 159.00 | 142 | 3,586 | 0.006 | 10 | 122 |
| 45 | 156.50 | 256 | 6,261 | 0.010 | 17 | 220 |
| 44 | 152.50 | 436 | 10,136 | 0.017 | 27 | 376 |
| 43 | 149.00 | 178 | 3,946 | 0.007 | 11 | 153 |
| 42 | 147.50 | 101 | 2,199 | 0.004 | 6 | 87 |
| 41 | 146.00 | 204 | 4,340 | 0.007 | 12 | 176 |
| 40 | 142.50 | 518 | 10,509 | 0.018 | 28 | 446 |
| 39 | 138.50 | 316 | 6,069 | 0.010 | 16 | 273 |
| 38 | 136.50 | 118 | 2,192 | 0.004 | 6 | 101 |
| 37 | 135.50 | 230 | 4,215 | 0.007 | 11 | 198 |
| 36 | 133.50 | 696 | 12,410 | 0.021 | 33 | 601 |
| 35 | 131.00 | 322 | 5,519 | 0.009 | 15 | 277 |
| 34 | 127.50 | 817 | 13,289 | 0.022 | 36 | 705 |
| 33 | 122.50 | 837 | 12,556 | 0.021 | 34 | 722 |
| 32 | 117.50 | 856 | 11,817 | 0.020 | 32 | 738 |
| 31 | 112.50 | 875 | 11,076 | 0.019 | 30 | 755 |
| 30 | 109.00 | 355 | 4,223 | 0.007 | 11 | 307 |
| 29 | 106.50 | 539 | 6,117 | 0.010 | 16 | 465 |
| 28 | 102.50 | 914 | 9,606 | 0.016 | 26 | 789 |
| 27 | 98.50 | 558 | 5,412 | 0.009 | 15 | 481 |
| 26 | 96.00 | 376 | 3,468 | 0.006 | 9 | 325 |
| 25 | 93.50 | 570 | 4,985 | 0.008 | 13 | 492 |
| 24 | 91.00 | 722 | 5,976 | 0.010 | 16 | 622 |
| 23 | 89.00 | 728 | 5,769 | 0.010 | 15 | 628 |
| 22 | 87.50 | 367 | 2,810 | 0.005 | 8 | 317 |
| 21 | 86.00 | 440 | 3,255 | 0.005 | 9 | 380 |
| 20 | 82.50 | 1,116 | 7,596 | 0.013 | 20 | 963 |
| 19 | 77.50 | 1,139 | 6,840 | 0.011 | 18 | 982 |
| 18 | 72.50 | 1,161 | 6,105 | 0.010 | 16 | 1,002 |
| 17 | 67.50 | 1,184 | 5,395 | 0.009 | 14 | 1,021 |
| 16 | 62.50 | 1,207 | 4,714 | 0.008 | 13 | 1,041 |
| 15 | 57.50 | 1,230 | 4,065 | 0.007 | 11 | 1,060 |
| 14 | 52.50 | 1,252 | 3,452 | 0.006 | 9 | 1,080 |
| 13 | 49.50 | 253 | 620 | 0.001 | 2 | 218 |
| 12 | 47.00 | 2,030 | 4,484 | 0.007 | 12 | 1,751 |
| 11 | 43.88 | 1,156 | 2,226 | 0.004 | 6 | 997 |
| 10 | 41.38 | 839 | 1,436 | 0.002 | 4 | 723 |
| 9 | 37.50 | 1,547 | 2,175 | 0.004 | 6 | 1,334 |
| 8 | 32.50 | 1,575 | 1,663 | 0.003 | 4 | 1,358 |
| 7 | 27.50 | 1,603 | 1,212 | 0.002 | 3 | 1,382 |
| 6 | 22.50 | 1,631 | 825 | 0.001 | 2 | 1,406 |
| 5 | 17.50 | 1,659 | 508 | 0.001 | 1 | 1,430 |
| 4 | 13.50 | 1,009 | 184 | 0.000 | 0 | 870 |
| 3 | 11.00 | 678 | 82 | 0.000 | 0 | 585 |
| 2 | 7.50 | 1,715 | 96 | 0.000 | 0 | 1,479 |

| | | | | | | |
|----------------------|--------|--------|---------|-------|-------|--------|
| 1 | 2.50 | 1,743 | 11 | 0.000 | 0 | 1,503 |
| Powerwave Allgon 712 | 178.00 | 185 | 5,855 | 0.010 | 16 | 159 |
| Flat Low Profile Pla | 178.00 | 1,500 | 47,526 | 0.079 | 128 | 1,294 |
| Alcatel-Lucent RRH2x | 168.00 | 317 | 8,958 | 0.015 | 24 | 274 |
| Alcatel-Lucent 1900 | 168.00 | 180 | 5,080 | 0.008 | 14 | 155 |
| Alcatel-Lucent TD-RR | 168.00 | 210 | 5,927 | 0.010 | 16 | 181 |
| RFS APXVTM14-ALU-I20 | 168.00 | 169 | 4,759 | 0.008 | 13 | 145 |
| Commscope NNVV-65B-R | 168.00 | 232 | 6,554 | 0.011 | 18 | 200 |
| Flat Platform w/ Han | 168.00 | 2,000 | 56,448 | 0.094 | 152 | 1,725 |
| Flat Platform w/ Han | 160.00 | 2,000 | 51,200 | 0.086 | 137 | 1,725 |
| RFS FD9R6004/2C-3L | 158.00 | 16 | 389 | 0.001 | 1 | 13 |
| Alcatel-Lucent RRH2x | 158.00 | 170 | 4,246 | 0.007 | 11 | 147 |
| Alcatel-Lucent B66a | 158.00 | 201 | 5,018 | 0.008 | 13 | 173 |
| RFS DB-T1-6Z-8AB-0Z | 158.00 | 88 | 2,197 | 0.004 | 6 | 76 |
| Antel LPA-80080/4CF | 158.00 | 72 | 1,797 | 0.003 | 5 | 62 |
| Andrew SBNHH-1D65B | 158.00 | 304 | 7,594 | 0.013 | 20 | 262 |
| Ericsson KRY 112 144 | 148.00 | 33 | 723 | 0.001 | 2 | 28 |
| Ericsson KRY 112 489 | 148.00 | 46 | 1,012 | 0.002 | 3 | 40 |
| Ericsson Radio 4449 | 148.00 | 222 | 4,863 | 0.008 | 13 | 191 |
| EMS RR90-17-02DP | 148.00 | 41 | 887 | 0.001 | 2 | 35 |
| RFS APXVAARR24_43-U- | 148.00 | 384 | 8,405 | 0.014 | 23 | 331 |
| Platform with Handra | 147.00 | 2,500 | 54,023 | 0.090 | 145 | 2,156 |
| LGP Allgon LGP21903 | 137.00 | 33 | 619 | 0.001 | 2 | 28 |
| Powerwave Allgon LGP | 137.00 | 85 | 1,588 | 0.003 | 4 | 73 |
| Raycap DC6-48-60-18- | 137.00 | 32 | 597 | 0.001 | 2 | 27 |
| Raycap DC6-48-60-18- | 137.00 | 64 | 1,194 | 0.002 | 3 | 55 |
| Ericsson RRUS 8843 B | 137.00 | 216 | 4,054 | 0.007 | 11 | 186 |
| Ericsson RRUS 4478 B | 137.00 | 180 | 3,373 | 0.006 | 9 | 155 |
| Ericsson RRUS 4449 B | 137.00 | 213 | 3,998 | 0.007 | 11 | 184 |
| Powerwave Allgon 777 | 137.00 | 105 | 1,971 | 0.003 | 5 | 91 |
| CCI DMP65R-BU6DA | 137.00 | 476 | 8,942 | 0.015 | 24 | 411 |
| Flat Low Profile Pla | 137.00 | 1,500 | 28,154 | 0.047 | 76 | 1,294 |
| Stand-Off | 110.00 | 100 | 1,210 | 0.002 | 3 | 86 |
| Generic GPS | 108.00 | 10 | 117 | 0.000 | 0 | 9 |
| Generic GPS | 97.00 | 10 | 94 | 0.000 | 0 | 9 |
| Generic GPS | 97.00 | 10 | 94 | 0.000 | 0 | 9 |
| Stand-Off | 97.00 | 100 | 941 | 0.002 | 3 | 86 |
| Generic GPS | 88.00 | 10 | 77 | 0.000 | 0 | 9 |
| Stand-Off | 88.00 | 100 | 774 | 0.001 | 2 | 86 |
| PCTEL GPS-TMG-HR-26N | 12.00 | 1 | 0 | 0.000 | 0 | 1 |
| Stand-Off | 12.00 | 100 | 14 | 0.000 | 0 | 86 |
| | | 53,509 | 597,938 | 1.000 | 1,605 | 46,149 |

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 | -64.06 | -1.61 | 0.00 | -237.04 | 0.00 | 237.04 | 6,434.86 | 3,217.43 | 14,900.4 | 7,461.32 | 0.00 | 0.00 | 0.042 |
| 5.00 | -61.94 | -1.62 | 0.00 | -228.99 | 0.00 | 228.99 | 6,350.74 | 3,175.37 | 14,433.5 | 7,227.48 | 0.00 | -0.01 | 0.041 |
| 10.00 | -61.10 | -1.63 | 0.00 | -220.89 | 0.00 | 220.89 | 6,265.35 | 3,132.68 | 13,970.9 | 6,995.84 | 0.02 | -0.02 | 0.041 |
| 12.00 | -59.73 | -1.63 | 0.00 | -217.64 | 0.00 | 217.64 | 6,230.84 | 3,115.42 | 13,787.1 | 6,903.82 | 0.03 | -0.02 | 0.041 |
| 15.00 | -57.67 | -1.64 | 0.00 | -212.75 | 0.00 | 212.75 | 6,178.70 | 3,089.35 | 13,512.8 | 6,766.48 | 0.04 | -0.03 | 0.041 |
| 20.00 | -55.66 | -1.64 | 0.00 | -204.58 | 0.00 | 204.58 | 6,090.77 | 3,045.39 | 13,059.5 | 6,539.47 | 0.08 | -0.04 | 0.040 |
| 25.00 | -53.67 | -1.65 | 0.00 | -196.37 | 0.00 | 196.37 | 6,001.58 | 3,000.79 | 12,611.0 | 6,314.89 | 0.12 | -0.05 | 0.040 |
| 30.00 | -51.72 | -1.65 | 0.00 | -188.14 | 0.00 | 188.14 | 5,911.12 | 2,955.56 | 12,167.6 | 6,092.85 | 0.18 | -0.06 | 0.040 |
| 35.00 | -49.81 | -1.65 | 0.00 | -179.89 | 0.00 | 179.89 | 5,796.61 | 2,898.31 | 11,683.4 | 5,850.41 | 0.25 | -0.07 | 0.039 |
| 40.00 | -48.77 | -1.65 | 0.00 | -171.64 | 0.00 | 171.64 | 5,674.58 | 2,837.29 | 11,194.2 | 5,605.46 | 0.32 | -0.08 | 0.039 |
| 42.75 | -47.34 | -1.65 | 0.00 | -167.09 | 0.00 | 167.09 | 5,607.46 | 2,803.73 | 10,929.6 | 5,472.97 | 0.37 | -0.08 | 0.039 |
| 45.00 | -44.83 | -1.64 | 0.00 | -163.39 | 0.00 | 163.39 | 5,552.55 | 2,776.27 | 10,715.5 | 5,365.75 | 0.41 | -0.09 | 0.039 |
| 49.00 | -44.51 | -1.64 | 0.00 | -156.83 | 0.00 | 156.83 | 4,334.74 | 2,167.37 | 8,395.94 | 4,204.21 | 0.49 | -0.10 | 0.048 |
| 50.00 | -42.96 | -1.63 | 0.00 | -155.19 | 0.00 | 155.19 | 4,321.48 | 2,160.74 | 8,333.21 | 4,172.80 | 0.51 | -0.10 | 0.047 |
| 55.00 | -41.44 | -1.63 | 0.00 | -147.02 | 0.00 | 147.02 | 4,254.40 | 2,127.20 | 8,021.52 | 4,016.72 | 0.62 | -0.11 | 0.046 |
| 60.00 | -39.95 | -1.62 | 0.00 | -138.88 | 0.00 | 138.88 | 4,186.06 | 2,093.03 | 7,713.24 | 3,862.35 | 0.75 | -0.13 | 0.046 |
| 65.00 | -38.48 | -1.61 | 0.00 | -130.76 | 0.00 | 130.76 | 4,116.45 | 2,058.22 | 7,408.53 | 3,709.77 | 0.89 | -0.14 | 0.045 |
| 70.00 | -37.04 | -1.60 | 0.00 | -122.70 | 0.00 | 122.70 | 4,045.56 | 2,022.78 | 7,107.57 | 3,559.07 | 1.04 | -0.15 | 0.044 |
| 75.00 | -35.63 | -1.59 | 0.00 | -114.69 | 0.00 | 114.69 | 3,973.41 | 1,986.71 | 6,810.50 | 3,410.31 | 1.21 | -0.17 | 0.043 |
| 80.00 | -34.25 | -1.57 | 0.00 | -106.75 | 0.00 | 106.75 | 3,899.99 | 1,950.00 | 6,517.51 | 3,263.60 | 1.39 | -0.18 | 0.041 |
| 85.00 | -33.71 | -1.57 | 0.00 | -98.89 | 0.00 | 98.89 | 3,805.04 | 1,902.52 | 6,195.74 | 3,102.48 | 1.59 | -0.19 | 0.041 |
| 87.00 | -33.25 | -1.56 | 0.00 | -95.76 | 0.00 | 95.76 | 3,765.38 | 1,882.69 | 6,066.61 | 3,037.81 | 1.67 | -0.20 | 0.040 |
| 88.00 | -32.22 | -1.54 | 0.00 | -94.20 | 0.00 | 94.20 | 3,745.55 | 1,872.77 | 6,002.55 | 3,005.74 | 1.71 | -0.20 | 0.040 |
| 90.00 | -31.32 | -1.52 | 0.00 | -91.12 | 0.00 | 91.12 | 3,705.89 | 1,852.94 | 5,875.46 | 2,942.10 | 1.79 | -0.21 | 0.039 |
| 92.00 | -30.62 | -1.51 | 0.00 | -88.07 | 0.00 | 88.07 | 3,054.73 | 1,527.36 | 4,893.34 | 2,450.31 | 1.88 | -0.21 | 0.046 |
| 95.00 | -30.15 | -1.50 | 0.00 | -83.54 | 0.00 | 83.54 | 3,020.24 | 1,510.12 | 4,760.42 | 2,383.75 | 2.02 | -0.22 | 0.045 |
| 97.00 | -29.31 | -1.49 | 0.00 | -80.53 | 0.00 | 80.53 | 2,996.99 | 1,498.50 | 4,672.40 | 2,339.67 | 2.11 | -0.23 | 0.044 |
| 100.00 | -28.18 | -1.46 | 0.00 | -76.06 | 0.00 | 76.06 | 2,961.74 | 1,480.87 | 4,541.28 | 2,274.01 | 2.25 | -0.23 | 0.043 |
| 105.00 | -27.51 | -1.45 | 0.00 | -68.75 | 0.00 | 68.75 | 2,901.98 | 1,450.99 | 4,325.26 | 2,165.84 | 2.51 | -0.25 | 0.041 |
| 108.00 | -27.06 | -1.44 | 0.00 | -64.40 | 0.00 | 64.40 | 2,865.51 | 1,432.75 | 4,197.21 | 2,101.73 | 2.67 | -0.26 | 0.040 |
| 110.00 | -25.85 | -1.40 | 0.00 | -61.52 | 0.00 | 61.52 | 2,840.94 | 1,420.47 | 4,112.52 | 2,059.32 | 2.77 | -0.26 | 0.039 |
| 115.00 | -24.80 | -1.37 | 0.00 | -54.50 | 0.00 | 54.50 | 2,777.06 | 1,388.53 | 3,901.02 | 1,953.41 | 3.06 | -0.28 | 0.037 |
| 120.00 | -23.76 | -1.34 | 0.00 | -47.63 | 0.00 | 47.63 | 2,693.16 | 1,346.58 | 3,667.73 | 1,836.59 | 3.35 | -0.29 | 0.035 |
| 125.00 | -22.75 | -1.30 | 0.00 | -40.93 | 0.00 | 40.93 | 2,609.26 | 1,304.63 | 3,441.64 | 1,723.38 | 3.66 | -0.30 | 0.032 |
| 130.00 | -22.35 | -1.29 | 0.00 | -34.41 | 0.00 | 34.41 | 2,525.36 | 1,262.68 | 3,222.75 | 1,613.77 | 3.99 | -0.31 | 0.030 |
| 132.00 | -21.49 | -1.25 | 0.00 | -31.82 | 0.00 | 31.82 | 2,491.80 | 1,245.90 | 3,137.20 | 1,570.93 | 4.12 | -0.32 | 0.029 |
| 135.00 | -21.20 | -1.24 | 0.00 | -28.06 | 0.00 | 28.06 | 2,441.46 | 1,220.73 | 3,011.04 | 1,507.76 | 4.32 | -0.32 | 0.027 |
| 136.00 | -21.06 | -1.24 | 0.00 | -26.82 | 0.00 | 26.82 | 1,416.30 | 708.15 | 1,774.76 | 888.70 | 4.39 | -0.33 | 0.045 |
| 137.00 | -17.07 | -1.05 | 0.00 | -25.58 | 0.00 | 25.58 | 1,410.39 | 705.20 | 1,755.27 | 878.94 | 4.46 | -0.33 | 0.041 |
| 140.00 | -16.43 | -1.02 | 0.00 | -22.42 | 0.00 | 22.42 | 1,392.36 | 696.18 | 1,697.02 | 849.77 | 4.67 | -0.34 | 0.038 |
| 145.00 | -16.18 | -1.01 | 0.00 | -17.30 | 0.00 | 17.30 | 1,361.30 | 680.65 | 1,600.81 | 801.59 | 5.03 | -0.35 | 0.033 |
| 147.00 | -12.96 | -0.84 | 0.00 | -15.27 | 0.00 | 15.27 | 1,348.51 | 674.26 | 1,562.66 | 782.49 | 5.17 | -0.35 | 0.029 |
| 148.00 | -11.85 | -0.78 | 0.00 | -14.42 | 0.00 | 14.42 | 1,342.05 | 671.02 | 1,543.66 | 772.98 | 5.25 | -0.36 | 0.027 |
| 150.00 | -11.31 | -0.76 | 0.00 | -12.86 | 0.00 | 12.86 | 1,328.96 | 664.48 | 1,505.82 | 754.03 | 5.40 | -0.36 | 0.026 |
| 155.00 | -10.99 | -0.74 | 0.00 | -9.08 | 0.00 | 9.08 | 1,295.36 | 647.68 | 1,412.23 | 707.16 | 5.78 | -0.37 | 0.021 |
| 158.00 | -9.76 | -0.66 | 0.00 | -6.87 | 0.00 | 6.87 | 1,274.59 | 637.29 | 1,356.80 | 679.41 | 6.01 | -0.37 | 0.018 |
| 160.00 | -6.86 | -0.48 | 0.00 | -5.54 | 0.00 | 5.54 | 1,260.48 | 630.24 | 1,320.18 | 661.07 | 6.17 | -0.37 | 0.014 |

Site Number: 302472

Code: ANSI/TIA-222-G

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Site Name: Andover-bunker Hill Road, CT

Engineering Number: OAA751503_C3_02

9/17/2019 6:57:10 PM

Customer: AT&T MOBILITY

| | | | | | | | | | | | | | |
|--------|-------|-------|------|-------|------|------|----------|--------|----------|--------|------|-------|-------|
| 165.00 | -6.61 | -0.47 | 0.00 | -3.12 | 0.00 | 3.12 | 1,224.34 | 612.17 | 1,229.85 | 615.84 | 6.56 | -0.38 | 0.010 |
| 168.00 | -2.63 | -0.20 | 0.00 | -1.72 | 0.00 | 1.72 | 1,202.05 | 601.02 | 1,176.54 | 589.15 | 6.80 | -0.38 | 0.005 |
| 170.00 | -2.28 | -0.17 | 0.00 | -1.33 | 0.00 | 1.33 | 1,186.93 | 593.46 | 1,141.40 | 571.55 | 6.96 | -0.38 | 0.004 |
| 175.00 | -2.08 | -0.16 | 0.00 | -0.47 | 0.00 | 0.47 | 1,148.25 | 574.12 | 1,054.98 | 528.28 | 7.36 | -0.38 | 0.003 |
| 178.00 | 0.00 | -0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 1,123.52 | 561.76 | 1,003.37 | 502.43 | 7.60 | -0.38 | 0.000 |

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

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 | -44.65 | -1.61 | 0.00 | -232.49 | 0.00 | 232.49 | 6,434.86 | 3,217.43 | 14,900.4 | 7,461.32 | 0.00 | 0.00 | 0.038 |
| 5.00 | -43.17 | -1.61 | 0.00 | -224.45 | 0.00 | 224.45 | 6,350.74 | 3,175.37 | 14,433.5 | 7,227.48 | 0.00 | -0.01 | 0.038 |
| 10.00 | -42.58 | -1.62 | 0.00 | -216.38 | 0.00 | 216.38 | 6,265.35 | 3,132.68 | 13,970.9 | 6,995.84 | 0.02 | -0.02 | 0.038 |
| 12.00 | -41.62 | -1.62 | 0.00 | -213.14 | 0.00 | 213.14 | 6,230.84 | 3,115.42 | 13,787.1 | 6,903.82 | 0.03 | -0.02 | 0.038 |
| 15.00 | -40.19 | -1.62 | 0.00 | -208.28 | 0.00 | 208.28 | 6,178.70 | 3,089.35 | 13,512.8 | 6,766.48 | 0.04 | -0.03 | 0.037 |
| 20.00 | -38.79 | -1.63 | 0.00 | -200.15 | 0.00 | 200.15 | 6,090.77 | 3,045.39 | 13,059.5 | 6,539.47 | 0.08 | -0.04 | 0.037 |
| 25.00 | -37.40 | -1.63 | 0.00 | -192.01 | 0.00 | 192.01 | 6,001.58 | 3,000.79 | 12,611.0 | 6,314.89 | 0.12 | -0.05 | 0.037 |
| 30.00 | -36.05 | -1.63 | 0.00 | -183.86 | 0.00 | 183.86 | 5,911.12 | 2,955.56 | 12,167.6 | 6,092.85 | 0.18 | -0.06 | 0.036 |
| 35.00 | -34.71 | -1.63 | 0.00 | -175.70 | 0.00 | 175.70 | 5,796.61 | 2,898.31 | 11,683.4 | 5,850.41 | 0.24 | -0.07 | 0.036 |
| 40.00 | -33.99 | -1.63 | 0.00 | -167.55 | 0.00 | 167.55 | 5,674.58 | 2,837.29 | 11,194.2 | 5,605.46 | 0.32 | -0.08 | 0.036 |
| 42.75 | -32.99 | -1.63 | 0.00 | -163.07 | 0.00 | 163.07 | 5,607.46 | 2,803.73 | 10,929.6 | 5,472.97 | 0.36 | -0.08 | 0.036 |
| 45.00 | -31.24 | -1.61 | 0.00 | -159.41 | 0.00 | 159.41 | 5,552.55 | 2,776.27 | 10,715.5 | 5,365.75 | 0.40 | -0.09 | 0.035 |
| 49.00 | -31.02 | -1.62 | 0.00 | -152.95 | 0.00 | 152.95 | 4,334.74 | 2,167.37 | 8,395.94 | 4,204.21 | 0.48 | -0.10 | 0.044 |
| 50.00 | -29.94 | -1.61 | 0.00 | -151.34 | 0.00 | 151.34 | 4,321.48 | 2,160.74 | 8,333.21 | 4,172.80 | 0.50 | -0.10 | 0.043 |
| 55.00 | -28.88 | -1.60 | 0.00 | -143.30 | 0.00 | 143.30 | 4,254.40 | 2,127.20 | 8,021.52 | 4,016.72 | 0.61 | -0.11 | 0.042 |
| 60.00 | -27.84 | -1.59 | 0.00 | -135.29 | 0.00 | 135.29 | 4,186.06 | 2,093.03 | 7,713.24 | 3,862.35 | 0.73 | -0.12 | 0.042 |
| 65.00 | -26.82 | -1.58 | 0.00 | -127.32 | 0.00 | 127.32 | 4,116.45 | 2,058.22 | 7,408.53 | 3,709.77 | 0.87 | -0.14 | 0.041 |
| 70.00 | -25.82 | -1.57 | 0.00 | -119.41 | 0.00 | 119.41 | 4,045.56 | 2,022.78 | 7,107.57 | 3,559.07 | 1.02 | -0.15 | 0.040 |
| 75.00 | -24.83 | -1.55 | 0.00 | -111.56 | 0.00 | 111.56 | 3,973.41 | 1,986.71 | 6,810.50 | 3,410.31 | 1.18 | -0.16 | 0.039 |
| 80.00 | -23.87 | -1.54 | 0.00 | -103.80 | 0.00 | 103.80 | 3,899.99 | 1,950.00 | 6,517.51 | 3,263.60 | 1.36 | -0.17 | 0.038 |
| 85.00 | -23.49 | -1.53 | 0.00 | -96.12 | 0.00 | 96.12 | 3,805.04 | 1,902.52 | 6,195.74 | 3,102.48 | 1.55 | -0.19 | 0.037 |
| 87.00 | -23.17 | -1.52 | 0.00 | -93.06 | 0.00 | 93.06 | 3,765.38 | 1,882.69 | 6,066.61 | 3,037.81 | 1.63 | -0.19 | 0.037 |
| 88.00 | -22.45 | -1.50 | 0.00 | -91.54 | 0.00 | 91.54 | 3,745.55 | 1,872.77 | 6,002.55 | 3,005.74 | 1.67 | -0.20 | 0.036 |
| 90.00 | -21.83 | -1.49 | 0.00 | -88.53 | 0.00 | 88.53 | 3,705.89 | 1,852.94 | 5,875.46 | 2,942.10 | 1.75 | -0.20 | 0.036 |
| 92.00 | -21.34 | -1.48 | 0.00 | -85.55 | 0.00 | 85.55 | 3,054.73 | 1,527.36 | 4,893.34 | 2,450.31 | 1.84 | -0.21 | 0.042 |
| 95.00 | -21.01 | -1.47 | 0.00 | -81.13 | 0.00 | 81.13 | 3,020.24 | 1,510.12 | 4,760.42 | 2,383.75 | 1.97 | -0.21 | 0.041 |
| 97.00 | -20.43 | -1.45 | 0.00 | -78.19 | 0.00 | 78.19 | 2,996.99 | 1,498.50 | 4,672.40 | 2,339.67 | 2.06 | -0.22 | 0.040 |
| 100.00 | -19.64 | -1.42 | 0.00 | -73.84 | 0.00 | 73.84 | 2,961.74 | 1,480.87 | 4,541.28 | 2,274.01 | 2.20 | -0.23 | 0.039 |
| 105.00 | -19.17 | -1.41 | 0.00 | -66.72 | 0.00 | 66.72 | 2,901.98 | 1,450.99 | 4,325.26 | 2,165.84 | 2.45 | -0.24 | 0.037 |
| 108.00 | -18.86 | -1.40 | 0.00 | -62.49 | 0.00 | 62.49 | 2,865.51 | 1,432.75 | 4,197.21 | 2,101.73 | 2.60 | -0.25 | 0.036 |
| 110.00 | -18.02 | -1.37 | 0.00 | -59.69 | 0.00 | 59.69 | 2,840.94 | 1,420.47 | 4,112.52 | 2,059.32 | 2.71 | -0.26 | 0.035 |
| 115.00 | -17.28 | -1.33 | 0.00 | -52.86 | 0.00 | 52.86 | 2,777.06 | 1,388.53 | 3,901.02 | 1,953.41 | 2.98 | -0.27 | 0.033 |
| 120.00 | -16.56 | -1.30 | 0.00 | -46.18 | 0.00 | 46.18 | 2,693.16 | 1,346.58 | 3,667.73 | 1,836.59 | 3.27 | -0.28 | 0.031 |
| 125.00 | -15.85 | -1.27 | 0.00 | -39.68 | 0.00 | 39.68 | 2,609.26 | 1,304.63 | 3,441.64 | 1,723.38 | 3.57 | -0.29 | 0.029 |
| 130.00 | -15.57 | -1.25 | 0.00 | -33.35 | 0.00 | 33.35 | 2,525.36 | 1,262.68 | 3,222.75 | 1,613.77 | 3.89 | -0.31 | 0.027 |
| 132.00 | -14.97 | -1.22 | 0.00 | -30.85 | 0.00 | 30.85 | 2,491.80 | 1,245.90 | 3,137.20 | 1,570.93 | 4.02 | -0.31 | 0.026 |
| 135.00 | -14.78 | -1.20 | 0.00 | -27.20 | 0.00 | 27.20 | 2,441.46 | 1,220.73 | 3,011.04 | 1,507.76 | 4.21 | -0.32 | 0.024 |
| 136.00 | -14.67 | -1.20 | 0.00 | -26.00 | 0.00 | 26.00 | 1,416.30 | 708.15 | 1,774.76 | 888.70 | 4.28 | -0.32 | 0.040 |
| 137.00 | -11.90 | -1.02 | 0.00 | -24.80 | 0.00 | 24.80 | 1,410.39 | 705.20 | 1,755.27 | 878.94 | 4.35 | -0.32 | 0.037 |
| 140.00 | -11.45 | -0.99 | 0.00 | -21.73 | 0.00 | 21.73 | 1,392.36 | 696.18 | 1,697.02 | 849.77 | 4.55 | -0.33 | 0.034 |
| 145.00 | -11.28 | -0.98 | 0.00 | -16.77 | 0.00 | 16.77 | 1,361.30 | 680.65 | 1,600.81 | 801.59 | 4.90 | -0.34 | 0.029 |
| 147.00 | -9.03 | -0.82 | 0.00 | -14.81 | 0.00 | 14.81 | 1,348.51 | 674.26 | 1,562.66 | 782.49 | 5.04 | -0.34 | 0.026 |
| 148.00 | -8.26 | -0.76 | 0.00 | -13.99 | 0.00 | 13.99 | 1,342.05 | 671.02 | 1,543.66 | 772.98 | 5.12 | -0.35 | 0.024 |
| 150.00 | -7.88 | -0.73 | 0.00 | -12.47 | 0.00 | 12.47 | 1,328.96 | 664.48 | 1,505.82 | 754.03 | 5.26 | -0.35 | 0.022 |
| 155.00 | -7.66 | -0.71 | 0.00 | -8.81 | 0.00 | 8.81 | 1,295.36 | 647.68 | 1,412.23 | 707.16 | 5.63 | -0.36 | 0.018 |
| 158.00 | -6.80 | -0.64 | 0.00 | -6.66 | 0.00 | 6.66 | 1,274.59 | 637.29 | 1,356.80 | 679.41 | 5.86 | -0.36 | 0.015 |
| 160.00 | -4.78 | -0.47 | 0.00 | -5.38 | 0.00 | 5.38 | 1,260.48 | 630.24 | 1,320.18 | 661.07 | 6.01 | -0.36 | 0.012 |

Site Number: 302472

Code: ANSI/TIA-222-G

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Site Name: Andover-bunker Hill Road, CT

Engineering Number: OAA751503_C3_02

9/17/2019 6:57:10 PM

Customer: AT&T MOBILITY

| | | | | | | | | | | | | | |
|--------|-------|-------|------|-------|------|------|----------|--------|----------|--------|------|-------|-------|
| 165.00 | -4.61 | -0.45 | 0.00 | -3.03 | 0.00 | 3.03 | 1,224.34 | 612.17 | 1,229.85 | 615.84 | 6.40 | -0.37 | 0.009 |
| 168.00 | -1.83 | -0.19 | 0.00 | -1.67 | 0.00 | 1.67 | 1,202.05 | 601.02 | 1,176.54 | 589.15 | 6.63 | -0.37 | 0.004 |
| 170.00 | -1.59 | -0.17 | 0.00 | -1.29 | 0.00 | 1.29 | 1,186.93 | 593.46 | 1,141.40 | 571.55 | 6.79 | -0.37 | 0.004 |
| 175.00 | -1.45 | -0.15 | 0.00 | -0.46 | 0.00 | 0.46 | 1,148.25 | 574.12 | 1,054.98 | 528.28 | 7.18 | -0.37 | 0.002 |
| 178.00 | 0.00 | -0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 1,123.52 | 561.76 | 1,003.37 | 502.43 | 7.41 | -0.37 | 0.000 |

Equivalent Modal Analysis Method

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

| | |
|--|------|
| Spectral Response Acceleration for Short Period (S_s): | 0.18 |
| Spectral Response Acceleration at 1.0 Second Period (S_1): | 0.06 |
| Importance Factor (I_E): | 1.00 |
| Site Coefficient F_a : | 1.60 |
| Site Coefficient F_v : | 2.40 |
| Response Modification Coefficient (R): | 1.50 |
| Design Spectral Response Acceleration at Short Period (S_{ds}): | 0.19 |
| Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}): | 0.10 |
| Period Based on Rayleigh Method (sec): | 2.91 |
| Redundancy Factor (p): | 1.00 |

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

| Segment | Height Above Base (ft) | Weight (lb) | a | b | c | Saz | Horizontal Force (lb) | Vertical Force (lb) |
|---------|---------------------------------|----------------|-------|--------|-------|--------|-----------------------------|---------------------------|
| 51 | 176.50 | 160 | 1.858 | 1.817 | 1.081 | 0.334 | 36 | 198 |
| 50 | 172.50 | 277 | 1.775 | 1.427 | 0.935 | 0.284 | 52 | 343 |
| 49 | 169.00 | 114 | 1.704 | 1.136 | 0.820 | 0.243 | 18 | 141 |
| 48 | 166.50 | 202 | 1.654 | 0.954 | 0.745 | 0.215 | 29 | 250 |
| 47 | 162.50 | 346 | 1.575 | 0.704 | 0.637 | 0.174 | 40 | 428 |
| 46 | 159.00 | 142 | 1.508 | 0.521 | 0.552 | 0.140 | 13 | 176 |
| 45 | 156.50 | 256 | 1.461 | 0.410 | 0.498 | 0.118 | 20 | 316 |
| 44 | 152.50 | 436 | 1.387 | 0.260 | 0.419 | 0.086 | 25 | 539 |
| 43 | 149.00 | 178 | 1.324 | 0.156 | 0.358 | 0.060 | 7 | 220 |
| 42 | 147.50 | 101 | 1.298 | 0.117 | 0.334 | 0.050 | 3 | 125 |
| 41 | 146.00 | 204 | 1.272 | 0.083 | 0.312 | 0.040 | 5 | 252 |
| 40 | 142.50 | 518 | 1.211 | 0.016 | 0.263 | 0.020 | 7 | 640 |
| 39 | 138.50 | 316 | 1.144 | -0.042 | 0.215 | -0.001 | 0 | 392 |
| 38 | 136.50 | 118 | 1.111 | -0.063 | 0.194 | -0.010 | -1 | 146 |
| 37 | 135.50 | 230 | 1.095 | -0.073 | 0.184 | -0.014 | -2 | 284 |
| 36 | 133.50 | 696 | 1.063 | -0.088 | 0.165 | -0.022 | -10 | 862 |
| 35 | 131.00 | 322 | 1.024 | -0.103 | 0.143 | -0.030 | -7 | 398 |
| 34 | 127.50 | 817 | 0.970 | -0.116 | 0.117 | -0.040 | -22 | 1,012 |
| 33 | 122.50 | 837 | 0.895 | -0.122 | 0.085 | -0.049 | -28 | 1,035 |
| 32 | 117.50 | 856 | 0.824 | -0.116 | 0.061 | -0.053 | -30 | 1,059 |
| 31 | 112.50 | 875 | 0.755 | -0.102 | 0.042 | -0.052 | -30 | 1,083 |
| 30 | 109.00 | 355 | 0.709 | -0.090 | 0.032 | -0.048 | -11 | 440 |
| 29 | 106.50 | 539 | 0.677 | -0.080 | 0.026 | -0.043 | -16 | 667 |
| 28 | 102.50 | 914 | 0.627 | -0.063 | 0.018 | -0.034 | -21 | 1,131 |
| 27 | 98.50 | 558 | 0.579 | -0.045 | 0.012 | -0.022 | -8 | 690 |
| 26 | 96.00 | 376 | 0.550 | -0.034 | 0.010 | -0.014 | -4 | 466 |
| 25 | 93.50 | 570 | 0.521 | -0.024 | 0.008 | -0.006 | -2 | 706 |
| 24 | 91.00 | 722 | 0.494 | -0.014 | 0.007 | 0.003 | 1 | 893 |
| 23 | 89.00 | 728 | 0.472 | -0.006 | 0.006 | 0.009 | 4 | 901 |
| 22 | 87.50 | 367 | 0.457 | -0.001 | 0.006 | 0.014 | 3 | 454 |
| 21 | 86.00 | 440 | 0.441 | 0.005 | 0.006 | 0.018 | 5 | 545 |
| 20 | 82.50 | 1,116 | 0.406 | 0.016 | 0.006 | 0.028 | 21 | 1,381 |
| 19 | 77.50 | 1,139 | 0.358 | 0.031 | 0.008 | 0.039 | 30 | 1,409 |
| 18 | 72.50 | 1,161 | 0.314 | 0.042 | 0.011 | 0.047 | 36 | 1,437 |

| | | | | | | | | |
|----------------------|--------|--------|--------|--------|--------|--------|-------|--------|
| 17 | 67.50 | 1,184 | 0.272 | 0.051 | 0.015 | 0.051 | 41 | 1,465 |
| 16 | 62.50 | 1,207 | 0.233 | 0.058 | 0.019 | 0.054 | 43 | 1,494 |
| 15 | 57.50 | 1,230 | 0.197 | 0.063 | 0.024 | 0.055 | 45 | 1,522 |
| 14 | 52.50 | 1,252 | 0.164 | 0.067 | 0.028 | 0.054 | 45 | 1,550 |
| 13 | 49.50 | 253 | 0.146 | 0.068 | 0.031 | 0.054 | 9 | 313 |
| 12 | 47.00 | 2,030 | 0.132 | 0.069 | 0.033 | 0.054 | 72 | 2,512 |
| 11 | 43.88 | 1,156 | 0.115 | 0.070 | 0.035 | 0.053 | 41 | 1,431 |
| 10 | 41.38 | 839 | 0.102 | 0.071 | 0.037 | 0.052 | 29 | 1,038 |
| 9 | 37.50 | 1,547 | 0.084 | 0.071 | 0.039 | 0.052 | 53 | 1,914 |
| 8 | 32.50 | 1,575 | 0.063 | 0.072 | 0.041 | 0.050 | 53 | 1,949 |
| 7 | 27.50 | 1,603 | 0.045 | 0.071 | 0.042 | 0.049 | 53 | 1,983 |
| 6 | 22.50 | 1,631 | 0.030 | 0.068 | 0.041 | 0.048 | 52 | 2,018 |
| 5 | 17.50 | 1,659 | 0.018 | 0.063 | 0.037 | 0.045 | 49 | 2,053 |
| 4 | 13.50 | 1,009 | 0.011 | 0.056 | 0.033 | 0.041 | 28 | 1,248 |
| 3 | 11.00 | 678 | 0.007 | 0.050 | 0.029 | 0.038 | 17 | 839 |
| 2 | 7.50 | 1,715 | 0.003 | 0.039 | 0.022 | 0.031 | 35 | 2,123 |
| 1 | 2.50 | 1,743 | 0.000 | 0.016 | 0.008 | 0.014 | 17 | 2,157 |
| Powerwave Allgon 712 | 178.00 | 185 | 1.890 | 1.980 | 1.140 | 0.354 | 44 | 229 |
| Flat Low Profile Pla | 178.00 | 1,500 | 1.890 | 1.980 | 1.140 | 0.354 | 354 | 1,856 |
| Alcatel-Lucent RRH2x | 168.00 | 317 | 1.684 | 1.061 | 0.790 | 0.231 | 49 | 393 |
| Alcatel-Lucent 1900 | 168.00 | 180 | 1.684 | 1.061 | 0.790 | 0.231 | 28 | 223 |
| Alcatel-Lucent TD-RR | 168.00 | 210 | 1.684 | 1.061 | 0.790 | 0.231 | 32 | 260 |
| RFS APXVTM14-ALU-I20 | 168.00 | 169 | 1.684 | 1.061 | 0.790 | 0.231 | 26 | 209 |
| Commscope NNVV- | 168.00 | 232 | 1.684 | 1.061 | 0.790 | 0.231 | 36 | 287 |
| Flat Platform w/ Han | 168.00 | 2,000 | 1.684 | 1.061 | 0.790 | 0.231 | 308 | 2,475 |
| Flat Platform w/ Han | 160.00 | 2,000 | 1.527 | 0.570 | 0.576 | 0.150 | 199 | 2,475 |
| RFS FD9R6004/2C-3L | 158.00 | 16 | 1.489 | 0.475 | 0.530 | 0.131 | 1 | 19 |
| Alcatel-Lucent RRH2x | 158.00 | 170 | 1.489 | 0.475 | 0.530 | 0.131 | 15 | 211 |
| Alcatel-Lucent B66a | 158.00 | 201 | 1.489 | 0.475 | 0.530 | 0.131 | 18 | 249 |
| RFS DB-T1-6Z-8AB-0Z | 158.00 | 88 | 1.489 | 0.475 | 0.530 | 0.131 | 8 | 109 |
| Antel LPA-80080/4CF | 158.00 | 72 | 1.489 | 0.475 | 0.530 | 0.131 | 6 | 89 |
| Andrew SBNHH-1D65B | 158.00 | 304 | 1.489 | 0.475 | 0.530 | 0.131 | 27 | 376 |
| Ericsson KRY 112 144 | 148.00 | 33 | 1.307 | 0.130 | 0.342 | 0.053 | 1 | 41 |
| Ericsson KRY 112 489 | 148.00 | 46 | 1.307 | 0.130 | 0.342 | 0.053 | 2 | 57 |
| Ericsson Radio 4449 | 148.00 | 222 | 1.307 | 0.130 | 0.342 | 0.053 | 8 | 275 |
| EMS RR90-17-02DP | 148.00 | 41 | 1.307 | 0.130 | 0.342 | 0.053 | 1 | 50 |
| RFS APXVAARR24_43-U- | 148.00 | 384 | 1.307 | 0.130 | 0.342 | 0.053 | 14 | 475 |
| Platform with Handra | 147.00 | 2,500 | 1.289 | 0.106 | 0.326 | 0.047 | 78 | 3,094 |
| LGP Allgon LGP21903 | 137.00 | 33 | 1.120 | -0.058 | 0.199 | -0.008 | 0 | 41 |
| Powerwave Allgon LGP | 137.00 | 85 | 1.120 | -0.058 | 0.199 | -0.008 | 0 | 105 |
| Raycap DC6-48-60-18- | 137.00 | 32 | 1.120 | -0.058 | 0.199 | -0.008 | 0 | 39 |
| Raycap DC6-48-60-18- | 137.00 | 64 | 1.120 | -0.058 | 0.199 | -0.008 | 0 | 79 |
| Ericsson RRUS 8843 B | 137.00 | 216 | 1.120 | -0.058 | 0.199 | -0.008 | -1 | 267 |
| Ericsson RRUS 4478 B | 137.00 | 180 | 1.120 | -0.058 | 0.199 | -0.008 | -1 | 222 |
| Ericsson RRUS 4449 B | 137.00 | 213 | 1.120 | -0.058 | 0.199 | -0.008 | -1 | 264 |
| Powerwave Allgon 777 | 137.00 | 105 | 1.120 | -0.058 | 0.199 | -0.008 | -1 | 130 |
| CCI DMP65R-BU6DA | 137.00 | 476 | 1.120 | -0.058 | 0.199 | -0.008 | -2 | 590 |
| Flat Low Profile Pla | 137.00 | 1,500 | 1.120 | -0.058 | 0.199 | -0.008 | -8 | 1,856 |
| Stand-Off | 110.00 | 100 | 0.722 | -0.093 | 0.034 | -0.049 | -3 | 124 |
| Generic GPS | 108.00 | 10 | 0.696 | -0.086 | 0.029 | -0.046 | 0 | 12 |
| Generic GPS | 97.00 | 10 | 0.561 | -0.039 | 0.011 | -0.017 | 0 | 12 |
| Generic GPS | 97.00 | 10 | 0.561 | -0.039 | 0.011 | -0.017 | 0 | 12 |
| Stand-Off | 97.00 | 100 | 0.561 | -0.039 | 0.011 | -0.017 | -1 | 124 |
| Generic GPS | 88.00 | 10 | 0.462 | -0.003 | 0.006 | 0.012 | 0 | 12 |
| Stand-Off | 88.00 | 100 | 0.462 | -0.003 | 0.006 | 0.012 | 1 | 124 |
| PCTEL GPS-TMG-HR- | 12.00 | 1 | 0.009 | 0.053 | 0.030 | 0.039 | 0 | 1 |
| Stand-Off | 12.00 | 100 | 0.009 | 0.053 | 0.030 | 0.039 | 3 | 124 |
| | | 53,509 | 82.540 | 21.259 | 23.798 | 5.503 | 2,087 | 66,220 |

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) |
|----------------------|------------------------|-------------|-------|--------|-------|--------|-----------------------|---------------------|
| 51 | 176.50 | 160 | 1.858 | 1.817 | 1.081 | 0.334 | 36 | 138 |
| 50 | 172.50 | 277 | 1.775 | 1.427 | 0.935 | 0.284 | 52 | 239 |
| 49 | 169.00 | 114 | 1.704 | 1.136 | 0.820 | 0.243 | 18 | 99 |
| 48 | 166.50 | 202 | 1.654 | 0.954 | 0.745 | 0.215 | 29 | 174 |
| 47 | 162.50 | 346 | 1.575 | 0.704 | 0.637 | 0.174 | 40 | 298 |
| 46 | 159.00 | 142 | 1.508 | 0.521 | 0.552 | 0.140 | 13 | 122 |
| 45 | 156.50 | 256 | 1.461 | 0.410 | 0.498 | 0.118 | 20 | 220 |
| 44 | 152.50 | 436 | 1.387 | 0.260 | 0.419 | 0.086 | 25 | 376 |
| 43 | 149.00 | 178 | 1.324 | 0.156 | 0.358 | 0.060 | 7 | 153 |
| 42 | 147.50 | 101 | 1.298 | 0.117 | 0.334 | 0.050 | 3 | 87 |
| 41 | 146.00 | 204 | 1.272 | 0.083 | 0.312 | 0.040 | 5 | 176 |
| 40 | 142.50 | 518 | 1.211 | 0.016 | 0.263 | 0.020 | 7 | 446 |
| 39 | 138.50 | 316 | 1.144 | -0.042 | 0.215 | -0.001 | 0 | 273 |
| 38 | 136.50 | 118 | 1.111 | -0.063 | 0.194 | -0.010 | -1 | 101 |
| 37 | 135.50 | 230 | 1.095 | -0.073 | 0.184 | -0.014 | -2 | 198 |
| 36 | 133.50 | 696 | 1.063 | -0.088 | 0.165 | -0.022 | -10 | 601 |
| 35 | 131.00 | 322 | 1.024 | -0.103 | 0.143 | -0.030 | -7 | 277 |
| 34 | 127.50 | 817 | 0.970 | -0.116 | 0.117 | -0.040 | -22 | 705 |
| 33 | 122.50 | 837 | 0.895 | -0.122 | 0.085 | -0.049 | -28 | 722 |
| 32 | 117.50 | 856 | 0.824 | -0.116 | 0.061 | -0.053 | -30 | 738 |
| 31 | 112.50 | 875 | 0.755 | -0.102 | 0.042 | -0.052 | -30 | 755 |
| 30 | 109.00 | 355 | 0.709 | -0.090 | 0.032 | -0.048 | -11 | 307 |
| 29 | 106.50 | 539 | 0.677 | -0.080 | 0.026 | -0.043 | -16 | 465 |
| 28 | 102.50 | 914 | 0.627 | -0.063 | 0.018 | -0.034 | -21 | 789 |
| 27 | 98.50 | 558 | 0.579 | -0.045 | 0.012 | -0.022 | -8 | 481 |
| 26 | 96.00 | 376 | 0.550 | -0.034 | 0.010 | -0.014 | -4 | 325 |
| 25 | 93.50 | 570 | 0.521 | -0.024 | 0.008 | -0.006 | -2 | 492 |
| 24 | 91.00 | 722 | 0.494 | -0.014 | 0.007 | 0.003 | 1 | 622 |
| 23 | 89.00 | 728 | 0.472 | -0.006 | 0.006 | 0.009 | 4 | 628 |
| 22 | 87.50 | 367 | 0.457 | -0.001 | 0.006 | 0.014 | 3 | 317 |
| 21 | 86.00 | 440 | 0.441 | 0.005 | 0.006 | 0.018 | 5 | 380 |
| 20 | 82.50 | 1,116 | 0.406 | 0.016 | 0.006 | 0.028 | 21 | 963 |
| 19 | 77.50 | 1,139 | 0.358 | 0.031 | 0.008 | 0.039 | 30 | 982 |
| 18 | 72.50 | 1,161 | 0.314 | 0.042 | 0.011 | 0.047 | 36 | 1,002 |
| 17 | 67.50 | 1,184 | 0.272 | 0.051 | 0.015 | 0.051 | 41 | 1,021 |
| 16 | 62.50 | 1,207 | 0.233 | 0.058 | 0.019 | 0.054 | 43 | 1,041 |
| 15 | 57.50 | 1,230 | 0.197 | 0.063 | 0.024 | 0.055 | 45 | 1,060 |
| 14 | 52.50 | 1,252 | 0.164 | 0.067 | 0.028 | 0.054 | 45 | 1,080 |
| 13 | 49.50 | 253 | 0.146 | 0.068 | 0.031 | 0.054 | 9 | 218 |
| 12 | 47.00 | 2,030 | 0.132 | 0.069 | 0.033 | 0.054 | 72 | 1,751 |
| 11 | 43.88 | 1,156 | 0.115 | 0.070 | 0.035 | 0.053 | 41 | 997 |
| 10 | 41.38 | 839 | 0.102 | 0.071 | 0.037 | 0.052 | 29 | 723 |
| 9 | 37.50 | 1,547 | 0.084 | 0.071 | 0.039 | 0.052 | 53 | 1,334 |
| 8 | 32.50 | 1,575 | 0.063 | 0.072 | 0.041 | 0.050 | 53 | 1,358 |
| 7 | 27.50 | 1,603 | 0.045 | 0.071 | 0.042 | 0.049 | 53 | 1,382 |
| 6 | 22.50 | 1,631 | 0.030 | 0.068 | 0.041 | 0.048 | 52 | 1,406 |
| 5 | 17.50 | 1,659 | 0.018 | 0.063 | 0.037 | 0.045 | 49 | 1,430 |
| 4 | 13.50 | 1,009 | 0.011 | 0.056 | 0.033 | 0.041 | 28 | 870 |
| 3 | 11.00 | 678 | 0.007 | 0.050 | 0.029 | 0.038 | 17 | 585 |
| 2 | 7.50 | 1,715 | 0.003 | 0.039 | 0.022 | 0.031 | 35 | 1,479 |
| 1 | 2.50 | 1,743 | 0.000 | 0.016 | 0.008 | 0.014 | 17 | 1,503 |
| Powerwave Allgon 712 | 178.00 | 185 | 1.890 | 1.980 | 1.140 | 0.354 | 44 | 159 |
| Flat Low Profile Pla | 178.00 | 1,500 | 1.890 | 1.980 | 1.140 | 0.354 | 354 | 1,294 |
| Alcatel-Lucent RRH2x | 168.00 | 317 | 1.684 | 1.061 | 0.790 | 0.231 | 49 | 274 |
| Alcatel-Lucent 1900 | 168.00 | 180 | 1.684 | 1.061 | 0.790 | 0.231 | 28 | 155 |
| Alcatel-Lucent TD-RR | 168.00 | 210 | 1.684 | 1.061 | 0.790 | 0.231 | 32 | 181 |

| | | | | | | | | |
|----------------------|--------|--------|--------|--------|--------|--------|-------|--------|
| RFS APXVTM14-ALU-I20 | 168.00 | 169 | 1.684 | 1.061 | 0.790 | 0.231 | 26 | 145 |
| Commscope NNVV- | 168.00 | 232 | 1.684 | 1.061 | 0.790 | 0.231 | 36 | 200 |
| Flat Platform w/ Han | 168.00 | 2,000 | 1.684 | 1.061 | 0.790 | 0.231 | 308 | 1,725 |
| Flat Platform w/ Han | 160.00 | 2,000 | 1.527 | 0.570 | 0.576 | 0.150 | 199 | 1,725 |
| RFS FD9R6004/2C-3L | 158.00 | 16 | 1.489 | 0.475 | 0.530 | 0.131 | 1 | 13 |
| Alcatel-Lucent RRH2x | 158.00 | 170 | 1.489 | 0.475 | 0.530 | 0.131 | 15 | 147 |
| Alcatel-Lucent B66a | 158.00 | 201 | 1.489 | 0.475 | 0.530 | 0.131 | 18 | 173 |
| RFS DB-T1-6Z-8AB-0Z | 158.00 | 88 | 1.489 | 0.475 | 0.530 | 0.131 | 8 | 76 |
| Antel LPA-80080/4CF | 158.00 | 72 | 1.489 | 0.475 | 0.530 | 0.131 | 6 | 62 |
| Andrew SBNHH-1D65B | 158.00 | 304 | 1.489 | 0.475 | 0.530 | 0.131 | 27 | 262 |
| Ericsson KRY 112 144 | 148.00 | 33 | 1.307 | 0.130 | 0.342 | 0.053 | 1 | 28 |
| Ericsson KRY 112 489 | 148.00 | 46 | 1.307 | 0.130 | 0.342 | 0.053 | 2 | 40 |
| Ericsson Radio 4449 | 148.00 | 222 | 1.307 | 0.130 | 0.342 | 0.053 | 8 | 191 |
| EMS RR90-17-02DP | 148.00 | 41 | 1.307 | 0.130 | 0.342 | 0.053 | 1 | 35 |
| RFS APXVAARR24_43-U- | 148.00 | 384 | 1.307 | 0.130 | 0.342 | 0.053 | 14 | 331 |
| Platform with Handra | 147.00 | 2,500 | 1.289 | 0.106 | 0.326 | 0.047 | 78 | 2,156 |
| LGP Allgon LGP21903 | 137.00 | 33 | 1.120 | -0.058 | 0.199 | -0.008 | 0 | 28 |
| Powerwave Allgon LGP | 137.00 | 85 | 1.120 | -0.058 | 0.199 | -0.008 | 0 | 73 |
| Raycap DC6-48-60-18- | 137.00 | 32 | 1.120 | -0.058 | 0.199 | -0.008 | 0 | 27 |
| Raycap DC6-48-60-18- | 137.00 | 64 | 1.120 | -0.058 | 0.199 | -0.008 | 0 | 55 |
| Ericsson RRUS 8843 B | 137.00 | 216 | 1.120 | -0.058 | 0.199 | -0.008 | -1 | 186 |
| Ericsson RRUS 4478 B | 137.00 | 180 | 1.120 | -0.058 | 0.199 | -0.008 | -1 | 155 |
| Ericsson RRUS 4449 B | 137.00 | 213 | 1.120 | -0.058 | 0.199 | -0.008 | -1 | 184 |
| Powerwave Allgon 777 | 137.00 | 105 | 1.120 | -0.058 | 0.199 | -0.008 | -1 | 91 |
| CCI DMP65R-BU6DA | 137.00 | 476 | 1.120 | -0.058 | 0.199 | -0.008 | -2 | 411 |
| Flat Low Profile Pla | 137.00 | 1,500 | 1.120 | -0.058 | 0.199 | -0.008 | -8 | 1,294 |
| Stand-Off | 110.00 | 100 | 0.722 | -0.093 | 0.034 | -0.049 | -3 | 86 |
| Generic GPS | 108.00 | 10 | 0.696 | -0.086 | 0.029 | -0.046 | 0 | 9 |
| Generic GPS | 97.00 | 10 | 0.561 | -0.039 | 0.011 | -0.017 | 0 | 9 |
| Generic GPS | 97.00 | 10 | 0.561 | -0.039 | 0.011 | -0.017 | 0 | 9 |
| Stand-Off | 97.00 | 100 | 0.561 | -0.039 | 0.011 | -0.017 | -1 | 86 |
| Generic GPS | 88.00 | 10 | 0.462 | -0.003 | 0.006 | 0.012 | 0 | 9 |
| Stand-Off | 88.00 | 100 | 0.462 | -0.003 | 0.006 | 0.012 | 1 | 86 |
| PCTEL GPS-TMG-HR- | 12.00 | 1 | 0.009 | 0.053 | 0.030 | 0.039 | 0 | 1 |
| Stand-Off | 12.00 | 100 | 0.009 | 0.053 | 0.030 | 0.039 | 3 | 86 |
| | | 53,509 | 82.540 | 21.259 | 23.798 | 5.503 | 2,087 | 46,149 |

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 | -64.06 | -2.08 | 0.00 | -276.76 | 0.00 | 276.76 | 6,434.86 | 3,217.43 | 14,900.49 | 7,461.32 | 0.00 | 0.00 | 0.047 |
| 5.00 | -61.94 | -2.05 | 0.00 | -266.38 | 0.00 | 266.38 | 6,350.74 | 3,175.37 | 14,433.52 | 7,227.48 | 0.01 | -0.01 | 0.047 |
| 10.00 | -61.10 | -2.04 | 0.00 | -256.13 | 0.00 | 256.13 | 6,265.35 | 3,132.68 | 13,970.92 | 6,995.84 | 0.02 | -0.02 | 0.046 |
| 12.00 | -59.73 | -2.02 | 0.00 | -252.04 | 0.00 | 252.04 | 6,230.84 | 3,115.42 | 13,787.14 | 6,903.82 | 0.03 | -0.03 | 0.046 |
| 15.00 | -57.67 | -1.98 | 0.00 | -245.99 | 0.00 | 245.99 | 6,178.70 | 3,089.35 | 13,512.86 | 6,766.48 | 0.05 | -0.03 | 0.046 |
| 20.00 | -55.66 | -1.93 | 0.00 | -236.11 | 0.00 | 236.11 | 6,090.77 | 3,045.39 | 13,059.52 | 6,539.47 | 0.09 | -0.04 | 0.045 |
| 25.00 | -53.67 | -1.89 | 0.00 | -226.44 | 0.00 | 226.44 | 6,001.58 | 3,000.79 | 12,611.04 | 6,314.89 | 0.14 | -0.06 | 0.045 |
| 30.00 | -51.72 | -1.85 | 0.00 | -216.99 | 0.00 | 216.99 | 5,911.12 | 2,955.56 | 12,167.60 | 6,092.85 | 0.21 | -0.07 | 0.044 |
| 35.00 | -49.81 | -1.80 | 0.00 | -207.76 | 0.00 | 207.76 | 5,796.61 | 2,898.31 | 11,683.46 | 5,850.41 | 0.29 | -0.08 | 0.044 |
| 40.00 | -48.77 | -1.78 | 0.00 | -198.75 | 0.00 | 198.75 | 5,674.58 | 2,837.29 | 11,194.28 | 5,605.46 | 0.38 | -0.09 | 0.044 |
| 42.75 | -47.34 | -1.74 | 0.00 | -193.86 | 0.00 | 193.86 | 5,607.46 | 2,803.73 | 10,929.69 | 5,472.97 | 0.43 | -0.10 | 0.044 |
| 45.00 | -44.83 | -1.67 | 0.00 | -189.95 | 0.00 | 189.95 | 5,552.55 | 2,776.27 | 10,715.57 | 5,365.75 | 0.48 | -0.10 | 0.043 |
| 49.00 | -44.51 | -1.66 | 0.00 | -183.27 | 0.00 | 183.27 | 4,334.74 | 2,167.37 | 8,395.94 | 4,204.21 | 0.57 | -0.11 | 0.054 |
| 50.00 | -42.96 | -1.62 | 0.00 | -181.61 | 0.00 | 181.61 | 4,321.48 | 2,160.74 | 8,333.21 | 4,172.80 | 0.59 | -0.12 | 0.053 |
| 55.00 | -41.44 | -1.59 | 0.00 | -173.49 | 0.00 | 173.49 | 4,254.40 | 2,127.20 | 8,021.52 | 4,016.72 | 0.72 | -0.13 | 0.053 |
| 60.00 | -39.95 | -1.55 | 0.00 | -165.56 | 0.00 | 165.56 | 4,186.06 | 2,093.03 | 7,713.24 | 3,862.35 | 0.87 | -0.15 | 0.052 |
| 65.00 | -38.48 | -1.52 | 0.00 | -157.81 | 0.00 | 157.81 | 4,116.45 | 2,058.22 | 7,408.53 | 3,709.77 | 1.03 | -0.16 | 0.052 |
| 70.00 | -37.04 | -1.49 | 0.00 | -150.24 | 0.00 | 150.24 | 4,045.56 | 2,022.78 | 7,107.57 | 3,559.07 | 1.21 | -0.18 | 0.051 |
| 75.00 | -35.63 | -1.46 | 0.00 | -142.81 | 0.00 | 142.81 | 3,973.41 | 1,986.71 | 6,810.50 | 3,410.31 | 1.41 | -0.19 | 0.051 |
| 80.00 | -34.25 | -1.45 | 0.00 | -135.50 | 0.00 | 135.50 | 3,899.99 | 1,950.00 | 6,517.51 | 3,263.60 | 1.62 | -0.21 | 0.050 |
| 85.00 | -33.71 | -1.45 | 0.00 | -128.27 | 0.00 | 128.27 | 3,805.04 | 1,902.52 | 6,195.74 | 3,102.48 | 1.85 | -0.23 | 0.050 |
| 87.00 | -33.25 | -1.44 | 0.00 | -125.38 | 0.00 | 125.38 | 3,765.38 | 1,882.69 | 6,066.61 | 3,037.81 | 1.95 | -0.24 | 0.050 |
| 88.00 | -32.22 | -1.44 | 0.00 | -123.93 | 0.00 | 123.93 | 3,745.55 | 1,872.77 | 6,002.55 | 3,005.74 | 2.00 | -0.24 | 0.050 |
| 90.00 | -31.32 | -1.44 | 0.00 | -121.06 | 0.00 | 121.06 | 3,705.89 | 1,852.94 | 5,875.46 | 2,942.10 | 2.10 | -0.25 | 0.050 |
| 92.00 | -30.62 | -1.44 | 0.00 | -118.19 | 0.00 | 118.19 | 3,054.73 | 1,527.36 | 4,893.34 | 2,450.31 | 2.20 | -0.25 | 0.058 |
| 95.00 | -30.15 | -1.45 | 0.00 | -113.87 | 0.00 | 113.87 | 3,020.24 | 1,510.12 | 4,760.42 | 2,383.75 | 2.37 | -0.26 | 0.058 |
| 97.00 | -29.31 | -1.46 | 0.00 | -110.98 | 0.00 | 110.98 | 2,996.99 | 1,498.50 | 4,672.40 | 2,339.67 | 2.48 | -0.27 | 0.057 |
| 100.00 | -28.18 | -1.48 | 0.00 | -106.61 | 0.00 | 106.61 | 2,961.74 | 1,480.87 | 4,541.28 | 2,274.01 | 2.65 | -0.28 | 0.056 |
| 105.00 | -27.51 | -1.50 | 0.00 | -99.20 | 0.00 | 99.20 | 2,901.98 | 1,450.99 | 4,325.26 | 2,165.84 | 2.96 | -0.31 | 0.055 |
| 108.00 | -27.06 | -1.51 | 0.00 | -94.70 | 0.00 | 94.70 | 2,865.51 | 1,432.75 | 4,197.21 | 2,101.73 | 3.16 | -0.32 | 0.055 |
| 110.00 | -25.85 | -1.55 | 0.00 | -91.68 | 0.00 | 91.68 | 2,840.94 | 1,420.47 | 4,112.52 | 2,059.32 | 3.29 | -0.33 | 0.054 |
| 115.00 | -24.79 | -1.58 | 0.00 | -83.94 | 0.00 | 83.94 | 2,777.06 | 1,388.53 | 3,901.02 | 1,953.41 | 3.65 | -0.35 | 0.052 |
| 120.00 | -23.76 | -1.61 | 0.00 | -76.03 | 0.00 | 76.03 | 2,693.16 | 1,346.58 | 3,667.73 | 1,836.59 | 4.02 | -0.37 | 0.050 |
| 125.00 | -22.74 | -1.63 | 0.00 | -67.98 | 0.00 | 67.98 | 2,609.26 | 1,304.63 | 3,441.64 | 1,723.38 | 4.42 | -0.39 | 0.048 |
| 130.00 | -22.35 | -1.64 | 0.00 | -59.81 | 0.00 | 59.81 | 2,525.36 | 1,262.68 | 3,222.75 | 1,613.77 | 4.83 | -0.41 | 0.046 |
| 132.00 | -21.48 | -1.65 | 0.00 | -56.52 | 0.00 | 56.52 | 2,491.80 | 1,245.90 | 3,137.20 | 1,570.93 | 5.01 | -0.42 | 0.045 |
| 135.00 | -21.20 | -1.65 | 0.00 | -51.57 | 0.00 | 51.57 | 2,441.46 | 1,220.73 | 3,011.04 | 1,507.76 | 5.27 | -0.43 | 0.043 |
| 136.00 | -21.05 | -1.65 | 0.00 | -49.91 | 0.00 | 49.91 | 1,416.30 | 708.15 | 1,774.76 | 888.70 | 5.36 | -0.43 | 0.071 |
| 137.00 | -17.07 | -1.64 | 0.00 | -48.26 | 0.00 | 48.26 | 1,410.39 | 705.20 | 1,755.27 | 878.94 | 5.45 | -0.43 | 0.067 |
| 140.00 | -16.43 | -1.64 | 0.00 | -43.33 | 0.00 | 43.33 | 1,392.36 | 696.18 | 1,697.02 | 849.77 | 5.73 | -0.45 | 0.063 |
| 145.00 | -16.18 | -1.63 | 0.00 | -35.15 | 0.00 | 35.15 | 1,361.30 | 680.65 | 1,600.81 | 801.59 | 6.21 | -0.47 | 0.056 |
| 147.00 | -12.96 | -1.53 | 0.00 | -31.88 | 0.00 | 31.88 | 1,348.51 | 674.26 | 1,562.66 | 782.49 | 6.42 | -0.48 | 0.050 |
| 148.00 | -11.84 | -1.49 | 0.00 | -30.35 | 0.00 | 30.35 | 1,342.05 | 671.02 | 1,543.66 | 772.98 | 6.52 | -0.49 | 0.048 |
| 150.00 | -11.30 | -1.46 | 0.00 | -27.38 | 0.00 | 27.38 | 1,328.96 | 664.48 | 1,505.82 | 754.03 | 6.72 | -0.50 | 0.045 |
| 155.00 | -10.98 | -1.44 | 0.00 | -20.08 | 0.00 | 20.08 | 1,295.36 | 647.68 | 1,412.23 | 707.16 | 7.25 | -0.52 | 0.037 |
| 158.00 | -9.76 | -1.34 | 0.00 | -15.76 | 0.00 | 15.76 | 1,274.59 | 637.29 | 1,356.80 | 679.41 | 7.58 | -0.52 | 0.031 |
| 160.00 | -6.85 | -1.08 | 0.00 | -13.07 | 0.00 | 13.07 | 1,260.48 | 630.24 | 1,320.18 | 661.07 | 7.80 | -0.53 | 0.025 |

Site Number: 302472

Code: ANSI/TIA-222-G

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Site Name: Andover-bunker Hill Road, CT

Engineering Number: OAA751503_C3_02

9/17/2019 6:57:10 PM

Customer: AT&T MOBILITY

| | | | | | | | | | | | | | |
|--------|-------|-------|------|-------|------|------|----------|--------|----------|--------|------|-------|-------|
| 165.00 | -6.60 | -1.05 | 0.00 | -7.69 | 0.00 | 7.69 | 1,224.34 | 612.17 | 1,229.85 | 615.84 | 8.36 | -0.54 | 0.018 |
| 168.00 | -2.62 | -0.51 | 0.00 | -4.55 | 0.00 | 4.55 | 1,202.05 | 601.02 | 1,176.54 | 589.15 | 8.71 | -0.54 | 0.010 |
| 170.00 | -2.28 | -0.46 | 0.00 | -3.53 | 0.00 | 3.53 | 1,186.93 | 593.46 | 1,141.40 | 571.55 | 8.93 | -0.55 | 0.008 |
| 175.00 | -2.08 | -0.42 | 0.00 | -1.25 | 0.00 | 1.25 | 1,148.25 | 574.12 | 1,054.98 | 528.28 | 9.51 | -0.55 | 0.004 |
| 178.00 | 0.00 | -0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 1,123.52 | 561.76 | 1,003.37 | 502.43 | 9.85 | -0.55 | 0.000 |

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

Calculated Forces

| Seg Elev (ft) | Pu FY (-) (kips) | Vu FX (-) (kips) | Tu MY (ft-kips) | Mu MZ (ft-kips) | Mu MX (ft-kips) | Resultant Moment (ft-kips) | phi Pn (kips) | phi Vn (kips) | phi Tn (ft-kips) | phi Mn (ft-kips) | Total Deflect (in) | Rotation (deg) | Ratio |
|---------------|------------------|------------------|-----------------|-----------------|-----------------|----------------------------|---------------|---------------|------------------|------------------|--------------------|----------------|-------|
| 0.00 | -44.65 | -2.07 | 0.00 | -271.12 | 0.00 | 271.12 | 6,434.86 | 3,217.43 | 14,900.49 | 7,461.32 | 0.00 | 0.00 | 0.043 |
| 5.00 | -43.17 | -2.05 | 0.00 | -260.75 | 0.00 | 260.75 | 6,350.74 | 3,175.37 | 14,433.52 | 7,227.48 | 0.01 | -0.01 | 0.043 |
| 10.00 | -42.58 | -2.03 | 0.00 | -250.53 | 0.00 | 250.53 | 6,265.35 | 3,132.68 | 13,970.92 | 6,995.84 | 0.02 | -0.02 | 0.043 |
| 12.00 | -41.62 | -2.01 | 0.00 | -246.46 | 0.00 | 246.46 | 6,230.84 | 3,115.42 | 13,787.14 | 6,903.82 | 0.03 | -0.03 | 0.042 |
| 15.00 | -40.19 | -1.96 | 0.00 | -240.43 | 0.00 | 240.43 | 6,178.70 | 3,089.35 | 13,512.86 | 6,766.48 | 0.05 | -0.03 | 0.042 |
| 20.00 | -38.79 | -1.92 | 0.00 | -230.62 | 0.00 | 230.62 | 6,090.77 | 3,045.39 | 13,059.52 | 6,539.47 | 0.09 | -0.04 | 0.042 |
| 25.00 | -37.40 | -1.87 | 0.00 | -221.02 | 0.00 | 221.02 | 6,001.58 | 3,000.79 | 12,611.04 | 6,314.89 | 0.14 | -0.05 | 0.041 |
| 30.00 | -36.05 | -1.83 | 0.00 | -211.66 | 0.00 | 211.66 | 5,911.12 | 2,955.56 | 12,167.60 | 6,092.85 | 0.20 | -0.07 | 0.041 |
| 35.00 | -34.71 | -1.78 | 0.00 | -202.54 | 0.00 | 202.54 | 5,796.61 | 2,898.31 | 11,683.46 | 5,850.41 | 0.28 | -0.08 | 0.041 |
| 40.00 | -33.99 | -1.75 | 0.00 | -193.65 | 0.00 | 193.65 | 5,674.58 | 2,837.29 | 11,194.28 | 5,605.46 | 0.37 | -0.09 | 0.041 |
| 42.75 | -32.99 | -1.71 | 0.00 | -188.83 | 0.00 | 188.83 | 5,607.46 | 2,803.73 | 10,929.69 | 5,472.97 | 0.42 | -0.10 | 0.040 |
| 45.00 | -31.24 | -1.64 | 0.00 | -184.97 | 0.00 | 184.97 | 5,552.55 | 2,776.27 | 10,715.57 | 5,365.75 | 0.47 | -0.10 | 0.040 |
| 49.00 | -31.02 | -1.64 | 0.00 | -178.41 | 0.00 | 178.41 | 4,334.74 | 2,167.37 | 8,395.94 | 4,204.21 | 0.56 | -0.11 | 0.050 |
| 50.00 | -29.94 | -1.59 | 0.00 | -176.77 | 0.00 | 176.77 | 4,321.48 | 2,160.74 | 8,333.21 | 4,172.80 | 0.58 | -0.11 | 0.049 |
| 55.00 | -28.88 | -1.55 | 0.00 | -168.80 | 0.00 | 168.80 | 4,254.40 | 2,127.20 | 8,021.52 | 4,016.72 | 0.71 | -0.13 | 0.049 |
| 60.00 | -27.84 | -1.52 | 0.00 | -161.04 | 0.00 | 161.04 | 4,186.06 | 2,093.03 | 7,713.24 | 3,862.35 | 0.85 | -0.14 | 0.048 |
| 65.00 | -26.82 | -1.48 | 0.00 | -153.46 | 0.00 | 153.46 | 4,116.45 | 2,058.22 | 7,408.53 | 3,709.77 | 1.01 | -0.16 | 0.048 |
| 70.00 | -25.81 | -1.45 | 0.00 | -146.06 | 0.00 | 146.06 | 4,045.56 | 2,022.78 | 7,107.57 | 3,559.07 | 1.18 | -0.17 | 0.047 |
| 75.00 | -24.83 | -1.42 | 0.00 | -138.83 | 0.00 | 138.83 | 3,973.41 | 1,986.71 | 6,810.50 | 3,410.31 | 1.37 | -0.19 | 0.047 |
| 80.00 | -23.87 | -1.40 | 0.00 | -131.72 | 0.00 | 131.72 | 3,899.99 | 1,950.00 | 6,517.51 | 3,263.60 | 1.58 | -0.21 | 0.046 |
| 85.00 | -23.49 | -1.40 | 0.00 | -124.70 | 0.00 | 124.70 | 3,805.04 | 1,902.52 | 6,195.74 | 3,102.48 | 1.81 | -0.22 | 0.046 |
| 87.00 | -23.17 | -1.40 | 0.00 | -121.90 | 0.00 | 121.90 | 3,765.38 | 1,882.69 | 6,066.61 | 3,037.81 | 1.90 | -0.23 | 0.046 |
| 88.00 | -22.45 | -1.39 | 0.00 | -120.50 | 0.00 | 120.50 | 3,745.55 | 1,872.77 | 6,002.55 | 3,005.74 | 1.95 | -0.23 | 0.046 |
| 90.00 | -21.83 | -1.39 | 0.00 | -117.71 | 0.00 | 117.71 | 3,705.89 | 1,852.94 | 5,875.46 | 2,942.10 | 2.05 | -0.24 | 0.046 |
| 92.00 | -21.34 | -1.40 | 0.00 | -114.93 | 0.00 | 114.93 | 3,054.73 | 1,527.36 | 4,893.34 | 2,450.31 | 2.15 | -0.25 | 0.054 |
| 95.00 | -21.01 | -1.40 | 0.00 | -110.74 | 0.00 | 110.74 | 3,020.24 | 1,510.12 | 4,760.42 | 2,383.75 | 2.31 | -0.26 | 0.053 |
| 97.00 | -20.43 | -1.41 | 0.00 | -107.94 | 0.00 | 107.94 | 2,996.99 | 1,498.50 | 4,672.40 | 2,339.67 | 2.42 | -0.27 | 0.053 |
| 100.00 | -19.64 | -1.43 | 0.00 | -103.71 | 0.00 | 103.71 | 2,961.74 | 1,480.87 | 4,541.28 | 2,274.01 | 2.59 | -0.28 | 0.052 |
| 105.00 | -19.17 | -1.45 | 0.00 | -96.54 | 0.00 | 96.54 | 2,901.98 | 1,450.99 | 4,325.26 | 2,165.84 | 2.89 | -0.30 | 0.051 |
| 108.00 | -18.86 | -1.47 | 0.00 | -92.18 | 0.00 | 92.18 | 2,865.51 | 1,432.75 | 4,197.21 | 2,101.73 | 3.08 | -0.31 | 0.050 |
| 110.00 | -18.01 | -1.50 | 0.00 | -89.25 | 0.00 | 89.25 | 2,840.94 | 1,420.47 | 4,112.52 | 2,059.32 | 3.21 | -0.32 | 0.050 |
| 115.00 | -17.28 | -1.53 | 0.00 | -81.75 | 0.00 | 81.75 | 2,777.06 | 1,388.53 | 3,901.02 | 1,953.41 | 3.56 | -0.34 | 0.048 |
| 120.00 | -16.55 | -1.56 | 0.00 | -74.10 | 0.00 | 74.10 | 2,693.16 | 1,346.58 | 3,667.73 | 1,836.59 | 3.92 | -0.36 | 0.046 |
| 125.00 | -15.85 | -1.58 | 0.00 | -66.29 | 0.00 | 66.29 | 2,609.26 | 1,304.63 | 3,441.64 | 1,723.38 | 4.30 | -0.38 | 0.045 |
| 130.00 | -15.57 | -1.59 | 0.00 | -58.38 | 0.00 | 58.38 | 2,525.36 | 1,262.68 | 3,222.75 | 1,613.77 | 4.71 | -0.40 | 0.042 |
| 132.00 | -14.97 | -1.60 | 0.00 | -55.19 | 0.00 | 55.19 | 2,491.80 | 1,245.90 | 3,137.20 | 1,570.93 | 4.88 | -0.40 | 0.041 |
| 135.00 | -14.77 | -1.60 | 0.00 | -50.39 | 0.00 | 50.39 | 2,441.46 | 1,220.73 | 3,011.04 | 1,507.76 | 5.14 | -0.42 | 0.039 |
| 136.00 | -14.67 | -1.60 | 0.00 | -48.79 | 0.00 | 48.79 | 1,416.30 | 708.15 | 1,774.76 | 888.70 | 5.22 | -0.42 | 0.065 |
| 137.00 | -11.89 | -1.60 | 0.00 | -47.19 | 0.00 | 47.19 | 1,410.39 | 705.20 | 1,755.27 | 878.94 | 5.31 | -0.42 | 0.062 |
| 140.00 | -11.45 | -1.59 | 0.00 | -42.38 | 0.00 | 42.38 | 1,392.36 | 696.18 | 1,697.02 | 849.77 | 5.58 | -0.44 | 0.058 |
| 145.00 | -11.27 | -1.59 | 0.00 | -34.41 | 0.00 | 34.41 | 1,361.30 | 680.65 | 1,600.81 | 801.59 | 6.06 | -0.46 | 0.051 |
| 147.00 | -9.03 | -1.49 | 0.00 | -31.23 | 0.00 | 31.23 | 1,348.51 | 674.26 | 1,562.66 | 782.49 | 6.25 | -0.47 | 0.047 |
| 148.00 | -8.25 | -1.45 | 0.00 | -29.74 | 0.00 | 29.74 | 1,342.05 | 671.02 | 1,543.66 | 772.98 | 6.35 | -0.48 | 0.045 |
| 150.00 | -7.87 | -1.43 | 0.00 | -26.83 | 0.00 | 26.83 | 1,328.96 | 664.48 | 1,505.82 | 754.03 | 6.55 | -0.48 | 0.042 |
| 155.00 | -7.65 | -1.41 | 0.00 | -19.69 | 0.00 | 19.69 | 1,295.36 | 647.68 | 1,412.23 | 707.16 | 7.07 | -0.50 | 0.034 |
| 158.00 | -6.80 | -1.31 | 0.00 | -15.47 | 0.00 | 15.47 | 1,274.59 | 637.29 | 1,356.80 | 679.41 | 7.39 | -0.51 | 0.028 |
| 160.00 | -4.77 | -1.06 | 0.00 | -12.84 | 0.00 | 12.84 | 1,260.48 | 630.24 | 1,320.18 | 661.07 | 7.61 | -0.52 | 0.023 |

Site Number: 302472

Code: ANSI/TIA-222-G

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Site Name: Andover-bunker Hill Road, CT

Engineering Number: OAA751503_C3_02

9/17/2019 6:57:10 PM

Customer: AT&T MOBILITY

| | | | | | | | | | | | | | |
|--------|-------|-------|------|-------|------|------|----------|--------|----------|--------|------|-------|-------|
| 165.00 | -4.60 | -1.03 | 0.00 | -7.56 | 0.00 | 7.56 | 1,224.34 | 612.17 | 1,229.85 | 615.84 | 8.15 | -0.53 | 0.016 |
| 168.00 | -1.83 | -0.50 | 0.00 | -4.48 | 0.00 | 4.48 | 1,202.05 | 601.02 | 1,176.54 | 589.15 | 8.49 | -0.53 | 0.009 |
| 170.00 | -1.59 | -0.45 | 0.00 | -3.48 | 0.00 | 3.48 | 1,186.93 | 593.46 | 1,141.40 | 571.55 | 8.71 | -0.53 | 0.007 |
| 175.00 | -1.45 | -0.41 | 0.00 | -1.23 | 0.00 | 1.23 | 1,148.25 | 574.12 | 1,054.98 | 528.28 | 9.27 | -0.54 | 0.004 |
| 178.00 | 0.00 | -0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 1,123.52 | 561.76 | 1,003.37 | 502.43 | 9.60 | -0.54 | 0.000 |

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 | 43.63 | 0.00 | 64.13 | 0.00 | 0.00 | 5397.02 | 49.00 | 0.82 |
| 0.9D + 1.6W | 43.60 | 0.00 | 48.08 | 0.00 | 0.00 | 5314.51 | 49.00 | 0.80 |
| 1.2D + 1.0Di + 1.0Wi | 12.03 | 0.00 | 106.45 | 0.00 | 0.00 | 1512.40 | 49.00 | 0.25 |
| (1.2 + 0.2Sds) * DL + E ELFM | 1.61 | 0.00 | 64.06 | 0.00 | 0.00 | 237.04 | 49.00 | 0.05 |
| (1.2 + 0.2Sds) * DL + E EMAM | 2.08 | 0.00 | 64.06 | 0.00 | 0.00 | 276.76 | 136.00 | 0.07 |
| (0.9 - 0.2Sds) * DL + E ELFM | 1.61 | 0.00 | 44.65 | 0.00 | 0.00 | 232.49 | 49.00 | 0.04 |
| (0.9 - 0.2Sds) * DL + E EMAM | 2.07 | 0.00 | 44.65 | 0.00 | 0.00 | 271.12 | 136.00 | 0.07 |
| 1.0D + 1.0W | 8.61 | 0.00 | 53.51 | 0.00 | 0.00 | 1056.93 | 49.00 | 0.17 |

Site Name: Andover-bunker Hill Rd, CT
Site Number: 302472
Tower Type: MP
Design Loads (Factored) - Analysis per TIA-222-G Standards

Monolithic Mat & Pier Foundation Analysis

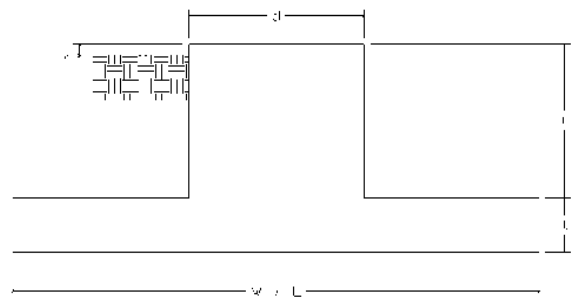
| Foundation Analysis Parameters | | |
|--|----------|------|
| Design / Analysis / Mapping: | Analysis | - |
| Compression/Leg: | 64.1 | k |
| Uplift/Leg: | 0.0 | k |
| Total Shear: | 43.6 | k |
| Moment: | 5,397.0 | k-ft |
| Tower + Appurtenance Weight: | 64.1 | k |
| Depth to Base of Foundation (l + t - h): | 9.5 | ft |
| Diameter of Pier (d): | 8 | ft |
| Length of Pier (l): | 6 | ft |
| Height of Pier above Ground (h): | 0.5 | ft |
| Width of Pad (W): | 24 | ft |
| Length of Pad (L): | 24 | ft |
| Thickness of Pad (t): | 4 | ft |
| Tower Leg Center to Center: | 0 | ft |
| Number of Tower Legs: | 1 | - |
| Tower Center from Mat Center: | 0 | ft |
| Depth Below Ground Surface to Water Table: | 99 | ft |
| Unit Weight of Concrete: | 150 | pcf |
| Unit Weight of Soil Above Water Table: | 125 | pcf |
| Unit Weight of Water: | 62.4 | pcf |
| Unit Weight of Soil Below Water Table: | 62.6 | pcf |
| Friction Angle of Uplift: | 15 | ° |
| Coefficient of Shear Friction: | 0.3 | - |
| Ultimate Compressive Bearing Pressure: | 8,000 | psf |
| Ultimate Passive Pressure on Pad Face: | 0 | psf |
| $f_{\text{Soil and Concrete Weight}}$: | 0.9 | - |
| f_{Soil} : | 0.75 | - |

| Foundation Steel Parameters | | |
|----------------------------------|--------|-----------------|
| Concrete Strength (f'_c): | 3,000 | psi |
| Pad Tension Steel Depth: | 44.0 | in |
| Dead Load Factor: | 0.9 | - |
| f_{Shear} : | 0.75 | - |
| $f_{\text{Flexure / Tension}}$: | 0.9 | - |
| $f_{\text{Compression}}$: | 0.65 | - |
| b: | 0.85 | - |
| Bottom Pad Rebar Size #: | 11 | - |
| # of Bottom Pad Rebar: | 24 | - |
| Pad Bottom Steel Area: | 37.44 | in ² |
| Pad Steel F_y : | 60,000 | psi |
| Top Pad Rebar Size #: | 11 | - |
| # of Top Pad Rebar: | 24 | - |
| Pad Top Steel Area: | 37.44 | in ² |
| Pier Rebar Size #: | 11 | - |
| Pier Steel Area (Single Bar): | 1.56 | in ² |
| # of Pier Rebar: | 40 | - |
| Pier Steel F_y : | 60,000 | psi |
| Pier Cage Diameter: | 88.0 | in |
| Rebar Strain Limit: | 0.008 | - |
| Steel Elastic Modulus: | 29,000 | ksi |
| Tie Rebar Size #: | 5 | - |
| Tie Steel Area (Single Bar): | 0.31 | in ² |
| Tie Spacing: | 6 | in |
| Tie Steel F_y : | 60,000 | psi |

| Overturning Moment Usage | | |
|------------------------------|--------|------|
| Design OTM: | 5833.3 | k-ft |
| OTM Resistance: | 9512.8 | k-ft |
| Design OTM / OTM Resistance: | 61% | Pass |

| Soil Bearing Pressure Usage | | |
|---|----------------------|------|
| Net Bearing Pressure: | 2843 | psf |
| Factored Nominal Bearing Pressure: | 6000 | psf |
| Factored Nominal (Net) Bearing Pressure: | 47% | Pass |
| Load Direction Controlling Design Bearing Pressure: | Diagonal to Pad Edge | |

| Sliding Factor of Safety | | |
|---------------------------------------|-------|------|
| Ultimate Friction Resistance: | 241.7 | k |
| Ultimate Passive Pressure Resistance: | 0.0 | k |
| Total Factored Sliding Resistance: | 181.3 | k |
| Sliding Design / Sliding Resistance: | 24% | Pass |



Pad Strength Capacity

| | | | |
|--|-----------------------------|------|--|
| Factored One Way Shear (V_u): | 248.5 | k | |
| One Way Shear Capacity (fV_c): | 1041.1 | k | ACI11.3.1.1 |
| V_u / fV_c : | 24% | Pass | |
| Load Direction Controlling Shear Capacity: | <i>Parallel to Pad Edge</i> | | |
| Lower Steel Pad Factored Moment (M_u): | 1754.7 | k-ft | |
| Lower Steel Pad Moment Capacity (fM_n): | 7194.1 | k-ft | ACI10.3 |
| M_u / fM_n : | 24% | Pass | |
| Load Direction Controlling Flexural Capacity: | <i>Parallel to Pad Edge</i> | | |
| Upper Steel Pad Factored Moment (M_u): | 1335.9 | k-ft | |
| Upper Steel Pad Moment Capacity (fM_n): | 7194.1 | k-ft | |
| M_u / fM_n : | 19% | Pass | |
| Lower Pad Flexural Reinforcement Ratio: | 0.0030 | | OK - Minimum Reinforcement Ratio Met - ACI10.5.1 |
| Upper Pad Flexural Reinforcement Ratio: | 0.0030 | | OK - Minimum Reinforcement Ratio Met - ACI10.5.1 |
| Pad Shrinkage Reinforcement Ratio: | 0.0059 | | OK - Shrinkage Reinforcement Ratio Met - ACI7.12.2.1 |
| Lower Pad Reinforcement Spacing: | 12 | in | Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4 |
| Upper Pad Reinforcement Spacing: | 12 | in | Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4 |
| Factored Punching Shear (V_u): | 0.0 | k | |
| Nominal Punching Shear Capacity ($f_c V_n$): | 3179.9 | k | ACI11.12.2.1 |
| V_u / fV_c : | 0% | Pass | |

Pier Strength Capacity

| | | | |
|--|---------|------|---|
| Factored Moment in Pier (M_u): | 5658.8 | k-ft | |
| Pier Moment Capacity (fM_n): | 12085.4 | k-ft | |
| M_u / fM_n : | 47% | Pass | |
| Factored Shear in Pier (V_u): | 43.6 | k | |
| Pier Shear Capacity (fV_n): | 954.4 | k | |
| V_u / fV_c : | 5% | Pass | |
| Pier Shear Reinforcement Ratio: | 0.0005 | | OK - No Ties Necessary for Shear - ACI11.5.6.1 |
| Factored Tension in Pier (T_u): | 0.0 | k | |
| Pier Tension Capacity (fT_n): | 3369.6 | k | |
| T_u / fT_n : | 0% | Pass | |
| Factored Compression in Pier (P_u): | 64.1 | k | |
| Pier Compression Capacity (fP_n): | 9515.1 | k | ACI10.3.6.2 |
| P_u / fP_n : | 1% | Pass | |
| Pier Compression Reinforcement Ratio: | 0.009 | | OK - Reinforcement Ratio Met - ACI10.9.1 & 10.8.4 |
| Minimum Depth to Develop Vertical Rebar: | 31 | in | ACI12.2.3 |
| Minimum Hook Development Length: | 22 | in | ACI12.5 |
| Minimum Mat Thickness / Edge Distance from Pier: | 25.0 | in | |
| Minimum Foundation Depth: | 4.93 | ft | |
| $M_u / f_b M_n + T_u / f_T T_n$: | 47% | Pass | |

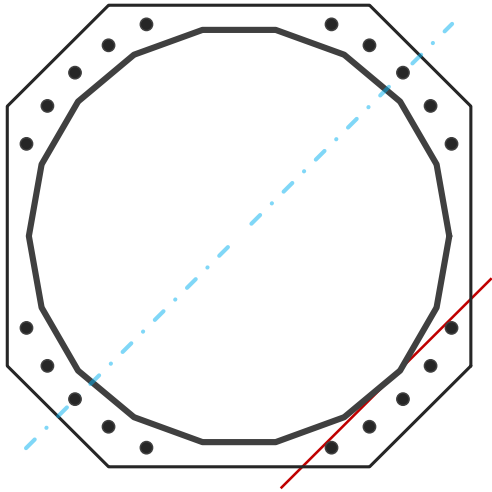
Base Plate & Anchor Rod Analysis

| Pole Dimensions | | |
|--------------------|-------|----|
| Number of Sides | 18 | - |
| Diameter | 56.91 | in |
| Thickness | 0.5 | in |
| Orientation Offset | 0 | ° |

| Base Reactions | | |
|----------------|--------|------|
| Moment, Mu | 5397.0 | k-ft |
| Axial, Pu | 64.1 | k |
| Shear, Vu | 43.6 | k |
| Neutral Axis | 225 | ° |

| Report Capacities | | |
|-------------------|----------|--------|
| Component | Capacity | Result |
| Base Plate | 69% | Pass |
| Anchor Rods | 80% | Pass |
| Dwyidag | - | - |

| Base Plate | | |
|---------------------------|---------|------------|
| Shape | Square | - |
| Width | 64 | in |
| Thickness | 3 | in |
| Grade | A572-50 | |
| Yield Strength, Fy | 50 | ksi |
| Tensile Strength, Fu | 65 | ksi |
| Clip | 14 | in |
| Orientation Offset | 0 | ° |
| Anchor Rod Detail | d | $\eta=0.5$ |
| Clear Distance | 3 | in |
| Applied Moment, Mu | 2315.6 | k |
| Bending Stress, ϕMn | 3376.7 | k |



| Original Anchor Rods | | |
|------------------------|---------|-----|
| Arrangement | Cluster | - |
| Quantity | 20 | - |
| Diameter, ϕ | 2 1/4 | in |
| Bolt Circle | 64 | in |
| Grade | A615-75 | |
| Yield Strength, Fy | 75 | ksi |
| Tensile Strength, Fu | 100 | ksi |
| Spacing | 6.0 | in |
| Orientation Offset | 0 | ° |
| Applied Force, Pu | 205.5 | k |
| Anchor Rods, ϕPn | 259.8 | k |

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

| Reaction | Shear Vu | Moment Mu | Factor |
|-------------------------------|-------------|--------------|--------|
| - | k | k-ft | - |
| Base Forces | 43.6 | 5397.0 | 1.00 |
| Anchor Rod Forces | 43.6 | 5397.0 | 1.00 |
| Additional Bolt (Grp1) Forces | 0.0 | 0.0 | 0.00 |
| Additional Bolt (Grp2) Forces | 0.0 | 0.0 | 0.00 |
| Dywidag Forces | 0.0 | 0.0 | 0.00 |
| Stiffener Forces | 0.0 | 0.0 | 0.00 |

Geometric Properties

| Section | Gross Area | Net Area | Individual Inertia | Threads per Inch | Moment of Inertia |
|-----------|-----------------|-----------------|--------------------|------------------|-------------------|
| - | in ² | in ² | in ⁴ | # | in ⁴ |
| Pole | 88.1594 | 4.8977 | 0.4100 | | 35073.77 |
| Bolt | 3.9761 | 3.2477 | 0.8393 | 4.5 | 33273.13 |
| Bolt1 | 0.0000 | 0.0000 | 0.0000 | 0 | 0.00 |
| Bolt2 | 0.0000 | 0.0000 | 0.0000 | 0 | 0.00 |
| Dywidag | 0.0000 | 0.0000 | 0.0000 | | 0.00 |
| Stiffener | 0.0000 | 0.0000 | 0.0000 | | 0.00 |

| Base Plate | | |
|----------------------|--------|-----|
| Shape | Square | - |
| Width, W | 64 | in |
| Thickness, t | 3 | in |
| Yield Strength, Fy | 50 | ksi |
| Tensile Strength, Fu | 65 | ksi |
| Base Plate Chord | 29.279 | in |
| Detail Type | d | - |
| Detail Factor | 0.50 | - |
| Clear Distance | 3 | - |

| Anchor Rods | | |
|----------------------------------|-------|-----|
| Anchor Rod Quantity, N | 20 | - |
| Rod Diameter, d | 2.25 | in |
| Bolt Circle, BC | 64 | in |
| Yield Strength, Fy | 75 | ksi |
| Tensile Strength, Fu | 100 | ksi |
| Applied Axial, Pu | 205.5 | k |
| Applied Shear, Vu | 0.7 | k |
| Compressive Capacity, ϕP_n | 259.8 | k |
| Tensile Capacity, ϕR_n | 0.791 | OK |
| Interaction Capacity | 0.796 | OK |

| External Base Plate | | |
|------------------------------|--------|-----------------|
| Chord Length AA | 33.350 | in |
| Additional AA | 0.000 | in |
| Section Modulus, Z | 75.037 | in ³ |
| Applied Moment, Mu | 2315.6 | k-ft |
| Bending Capacity, ϕM_n | 3376.7 | k-ft |
| Capacity, Mu/ ϕM_n | 0.686 | OK |
| Chord Length AB | 32.468 | in |
| Additional AB | 0.000 | in |
| Section Modulus, Z | 73.053 | in ³ |
| Applied Moment, Mu | 1878.1 | k-ft |
| Bending Capacity, ϕM_n | 3287.4 | k-ft |
| Capacity, Mu/ ϕM_n | 0.571 | OK |
| Bend Line Length | 0.000 | in |
| Additional Bend Line | 0.000 | in |
| Section Modulus, Z | 0.000 | in ³ |
| Applied Moment, Mu | 0.0 | k-ft |
| Bending Capacity, ϕM_n | 0.0 | k-ft |
| Capacity, Mu/ ϕM_n | | |

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



Non-Ionizing Radiation Report

Compiled For: Smartlink on behalf of AT&T

Site Name: Andover East

Site FA: 10035387

Site ID: CTL01122

104 Bunker Hill Road, Andover, CT 06232

Latitude: 41.7378250 Longitude: -72.3498319

Structure Type: Monopole

Report Date: October 7, 2019



Status: AT&T will be compliant with FCC rules on RF Exposure with the signage recommendation in section 4 of this report.

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1. Executive Summary:

Smartlink on behalf of AT&T has contracted Infinigy Solutions, LLC to determine whether the site Andover East located at 104 Bunker Hill Road in Andover, CT Will Be Compliant with all Federal Communications Commission (FCC) rules and regulations for radio frequency (RF) exposure as indicated in **47CFR§1.1310**.

The report incorporates a theoretical RF field analysis in accordance with the FCC Rules and Regulations for all individuals classified as “Occupational or Controlled” and “General Public or Uncontrolled” (see Appendix A and B).

This document and the conclusions herein are based on information provided by Smartlink on behalf of AT&T.

As a result of the analysis, **AT&T Will Be Compliant with FCC rules with the installation of signage recommended in section 4.**

Engineering assumptions were made regarding the collation operator(s). The assumptions were made based upon typical deployment configurations and practices of the operator(s).

| All Carriers, All Bands Cumulative Exposure % | | |
|---|--|--------|
| Uncontrolled / General Population | Exposure values at the site (mW/cm ²) | 0.0279 |
| | % Exposure | 3.71% |
| Controlled / Occupational | Exposure values at the site (mW/cm ²) | 0.0279 |
| | % Exposure | 0.77% |

2. Site Summary:

| Site Information | |
|---|-------------------|
| Site Name: Andover East | |
| Site Address: 104 Bunker Hill Road, Andover, CT 06232 | |
| Site Type: Monopole | |
| Compliance Status | Will Be Compliant |
| Mitigation Required | No |
| Signage Required | Yes |
| Barriers Required | No |
| Access Locked | No |
| Area Controlled or Uncontrolled | Uncontrolled |

3. Site Compliance

This report also incorporates overview of the site information:

- Antenna Inventory Table
- Calculation Tables showing exposure for each carrier transmit frequency
- Total exposure for all carriers existing and proposed at ground level considering the centerline of all antennas and horizontal distance from the tower.
- Maximum Effective Radiated Power Assumed as Worst Case for Calculations used in this study
- Calculations based on flat ground around base of the structure

4. Site Compliance Recommendations

Infinigy recommends the following upon the installation of antennas at the site:

Base of tower

Caution 2 sign.

Note: The above signage recommendation is moot if there is an existing caution 2 sign at the base of the tower.

5. Antenna Inventory Table

| Ant ID | Sector | Operator | Antenna manufacturer | Antenna Model | Operating Frequency | Rad Ctr (Ft) | Total ERP Power (Watts) |
|--------|--------|----------|----------------------|---------------------|---------------------|--------------|-------------------------|
| 1a | Alpha | AT&T | Powerwave | 7770 | 850 | 137 | 1326 |
| 2a | Alpha | AT&T | CCI | DMP65R-BU6DA | 700 | 137 | 2951 |
| 2b | Alpha | AT&T | CCI | DMP65R-BU6DA | 1900 | 137 | 3664 |
| 3a | Alpha | AT&T | CCI | DMP65R-BU6DA | 700 | 137 | 1476 |
| 3b | Alpha | AT&T | CCI | DMP65R-BU6DA | 850 | 137 | 1000 |
| 3c | Alpha | AT&T | CCI | DMP65R-BU6DA | 2100 | 137 | 3837 |
| 3d | Alpha | AT&T | CCI | DMP65R-BU6DA | 850 | 137 | 1000 |
| 4a | Beta | AT&T | Powerwave | 7770 | 850 | 137 | 1326 |
| 4b | Beta | AT&T | Powerwave | 7770 | 1900 | 137 | 1769 |
| 5a | Beta | AT&T | CCI | DMP65R-BU6DA | 700 | 137 | 2951 |
| 5b | Beta | AT&T | CCI | DMP65R-BU6DA | 1900 | 137 | 3664 |
| 6a | Beta | AT&T | CCI | DMP65R-BU6DA | 700 | 137 | 1476 |
| 6b | Beta | AT&T | CCI | DMP65R-BU6DA | 850 | 137 | 1000 |
| 6c | Beta | AT&T | CCI | DMP65R-BU6DA | 2100 | 137 | 3837 |
| 6d | Beta | AT&T | CCI | DMP65R-BU6DA | 850 | 137 | 1000 |
| 7a | Gamma | AT&T | Powerwave | 7770 | 850 | 137 | 1326 |
| 7b | Gamma | AT&T | Powerwave | 7770 | 1900 | 137 | 1769 |
| 8a | Gamma | AT&T | CCI | DMP65R-BU6DA | 700 | 137 | 2951 |
| 8b | Gamma | AT&T | CCI | DMP65R-BU6DA | 1900 | 137 | 3664 |
| 9a | Gamma | AT&T | CCI | DMP65R-BU6DA | 700 | 137 | 1476 |
| 9b | Gamma | AT&T | CCI | DMP65R-BU6DA | 850 | 137 | 1000 |
| 9c | Gamma | AT&T | CCI | DMP65R-BU6DA | 2100 | 137 | 3837 |
| 9d | Gamma | AT&T | CCI | DMP65R-BU6DA | 850 | 137 | 1000 |
| 10a | Alpha | T-Mobile | Ericsson | APXVARR24_43-C-NA20 | 600 | 148 | 1458 |

| Ant ID | Sector | Operator | Antenna manufacturer | Antenna Model | Operating Frequency | Rad Ctr (Ft) | Total ERP Power (Watts) |
|--------|--------|------------------|----------------------|---------------------|---------------------|--------------|-------------------------|
| 12c | Gamma | T-Mobile | Ericsson | APXVARR24_43-C-NA20 | 1900 | 148 | 1957 |
| 12d | Gamma | T-Mobile | Ericsson | APXVARR24_43-C-NA20 | 2100 | 148 | 2231 |
| 13 | Alpha | Verizon Wireless | Antel | LPA-80080/6CF | 850 | 158 | 1536 |
| 14 | Alpha | Verizon Wireless | Commscope | SBNHH-1D6565B | 1900 | 158 | 2196 |
| 15a | Alpha | Verizon Wireless | Commscope | SBNHH-1D6565B | 2100 | 158 | 2336 |
| 15b | Alpha | Verizon Wireless | Commscope | SBNHH-1D6565B | 700 | 158 | 1218 |
| 16 | Beta | Verizon Wireless | Antel | LPA-80080/6CF | 850 | 158 | 1536 |
| 17 | Beta | Verizon Wireless | Commscope | SBNHH-1D6565B | 1900 | 158 | 2196 |
| 18a | Beta | Verizon Wireless | Commscope | SBNHH-1D6565B | 2100 | 158 | 2336 |
| 18b | Beta | Verizon Wireless | Commscope | SBNHH-1D6565B | 700 | 158 | 1218 |
| 19 | Gamma | Verizon Wireless | Antel | LPA-80080/6CF | 850 | 158 | 1536 |
| 20 | Gamma | Verizon Wireless | Commscope | SBNHH-1D6565B | 1900 | 158 | 2196 |
| 21a | Gamma | Verizon Wireless | Commscope | SBNHH-1D6565B | 2100 | 158 | 2336 |
| 21b | Gamma | Verizon Wireless | Commscope | SBNHH-1D6565B | 700 | 158 | 1218 |
| 22 | Alpha | Sprint | Powerwave | 7120.16.05.00 | 850 | 168 | 1856 |
| 23a | Alpha | Sprint | Commscope | NNVV-65B-R4 | 1900 | 168 | 1643 |
| 23b | Alpha | Sprint | Commscope | NNVV-65B-R4 | 2500 | 168 | 1791 |
| 24 | Beta | Sprint | Powerwave | 7120.16.05.00 | 850 | 168 | 1856 |
| 25a | Beta | Sprint | Commscope | NNVV-65B-R4 | 1900 | 168 | 1643 |
| 25b | Beta | Sprint | Commscope | NNVV-65B-R4 | 2500 | 168 | 1791 |
| 26 | Gamma | Sprint | Powerwave | 7120.16.05.00 | 850 | 168 | 1856 |
| 27a | Gamma | Sprint | Commscope | NNVV-65B-R4 | 1900 | 168 | 1643 |
| 27b | Gamma | Sprint | Commscope | NNVV-65B-R4 | 2500 | 168 | 1791 |

6. RF Guidelines

To ensure safety of company workers, the following points need to be taken into consideration and implemented at wireless sites in accordance with the Carriers policies:

- a) **Worksite:** Any employee at the site should avoid working directly in front of the antenna or in areas predicted to exceed general population exposure limits by 100%. Workers should insist that the transmitters be switched off during the work period.

- b) **RF Safety Training and Awareness:** All employees working in areas exceeding the general population limits should have a basic awareness of RF safety measures. Videos, classroom lectures and online courses are all appropriate training methods on these topics.

- c) **Site Access:** Restricting access to transmitting antenna locations is one of the most important elements of RF safety. This can be done with:
 - Locked doors/gates/ladder access
 - Alarmed doors
 - Restrictive barriers

- d) **Three-foot Buffer:** There is an inverse relationship between the strength of the field and the distance from the antenna. The RF field diminishes with distance from the antenna. Workers should maintain a three-foot distance from the antennas.

- e) **Antennas:** Workers should always assume that the antenna is transmitting and should never stop right in front of the antenna. If someone must pass by an antenna, he/she should move quickly, thus reducing RF exposure.

Attachment 1: AT&T Exposure Analysis

| AT&T 700 MHz LTE | | |
|---|--|---------------|
| Uncontrolled / General Population | FCC's exposure limits (mW/cm ²) | 0.5 |
| | Exposure values at the site (mW/cm ²) | 0.0038 |
| | % Exposure | 0.76% |
| Controlled / Occupational | FCC's Exposure limits(mW/cm ²) | 2.3 |
| | Exposure values at the site (mW/cm ²) | 0.0038 |
| | % Exposure | 0.17% |

| AT&T 850 MHz UMTS | | |
|---|--|---------------|
| Uncontrolled / General Population | FCC's exposure limits (mW/cm ²) | 0.6 |
| | Exposure values at the site (mW/cm ²) | 0.0011 |
| | % Exposure | 0.19% |
| Controlled / Occupational | FCC's Exposure limits(mW/cm ²) | 2.8 |
| | Exposure values at the site (mW/cm ²) | 0.0011 |
| | % Exposure | 0.04% |

| AT&T 850 MHz LTE | | |
|---|--|---------------|
| Uncontrolled / General Population | FCC's exposure limits (mW/cm ²) | 0.6 |
| | Exposure values at the site (mW/cm ²) | 0.0009 |
| | % Exposure | 0.14% |
| Controlled / Occupational | FCC's Exposure limits(mW/cm ²) | 2.8 |
| | Exposure values at the site (mW/cm ²) | 0.0009 |
| | % Exposure | 0.03% |

| AT&T 850 MHz 5G | | |
|---|--|---------------|
| Uncontrolled / General Population | FCC's exposure limits (mW/cm ²) | 0.6 |
| | Exposure values at the site (mW/cm ²) | 0.0009 |
| | % Exposure | 0.14% |
| Controlled / Occupational | FCC's Exposure limits(mW/cm ²) | 2.8 |
| | Exposure values at the site (mW/cm ²) | 0.0009 |
| | % Exposure | 0.03% |

| AT&T 1900 MHz LTE | | |
|---|--|---------------|
| Uncontrolled / General Population | FCC's exposure limits (mW/cm ²) | 1.0 |
| | Exposure values at the site (mW/cm ²) | 0.0033 |
| | % Exposure | 0.33% |
| Controlled / Occupational | FCC's Exposure limits(mW/cm ²) | 5.0 |
| | Exposure values at the site (mW/cm ²) | 0.0033 |
| | % Exposure | 0.07% |

| AT&T 1900 MHz UMTS | | |
|---|--|---------------|
| Uncontrolled / General Population | FCC's exposure limits (mW/cm ²) | 1.0 |
| | Exposure values at the site (mW/cm ²) | 0.0015 |
| | % Exposure | 0.15% |
| Controlled / Occupational | FCC's Exposure limits(mW/cm ²) | 5.0 |
| | Exposure values at the site (mW/cm ²) | 0.0015 |
| | % Exposure | 0.03% |

| AT&T 2100 MHz LTE | | |
|---|--|---------------|
| Uncontrolled / General Population | FCC's exposure limits (mW/cm ²) | 1.0 |
| | Exposure values at the site (mW/cm ²) | 0.0033 |
| | % Exposure | 0.33% |
| Controlled / Occupational | FCC's Exposure limits(mW/cm ²) | 5.0 |
| | Exposure values at the site (mW/cm ²) | 0.0033 |
| | % Exposure | 0.07% |

Attachment 2: Verizon Wireless Exposure Analysis

| Verizon Wireless 700 MHz LTE | | |
|---|--|---------------|
| Uncontrolled / General Population | FCC's exposure limits (mW/cm ²) | 0.5 |
| | Exposure values at the site (mW/cm ²) | 0.0008 |
| | % Exposure | 0.16% |
| Controlled / Occupational | FCC's Exposure limits(mW/cm ²) | 2.3 |
| | Exposure values at the site (mW/cm ²) | 0.0008 |
| | % Exposure | 0.03% |

| Verizon Wireless 850 MHz LTE | | |
|---|--|---------------|
| Uncontrolled / General Population | FCC's exposure limits (mW/cm ²) | 0.6 |
| | Exposure values at the site (mW/cm ²) | 0.0010 |
| | % Exposure | 0.17% |
| Controlled / Occupational | FCC's Exposure limits(mW/cm ²) | 2.8 |
| | Exposure values at the site (mW/cm ²) | 0.0010 |
| | % Exposure | 0.04% |

| Verizon Wireless 1900 MHz LTE | | |
|---|--|---------------|
| Uncontrolled / General Population | FCC's exposure limits (mW/cm ²) | 1.0 |
| | Exposure values at the site (mW/cm ²) | 0.0014 |
| | % Exposure | 0.14% |
| Controlled / Occupational | FCC's Exposure limits(mW/cm ²) | 5.0 |
| | Exposure values at the site (mW/cm ²) | 0.0014 |
| | % Exposure | 0.03% |

| Verizon Wireless 2100 MHz LTE | | |
|---|--|---------------|
| Uncontrolled / General Population | FCC's exposure limits (mW/cm ²) | 1.0 |
| | Exposure values at the site (mW/cm ²) | 0.0015 |
| | % Exposure | 0.15% |
| Controlled / Occupational | FCC's Exposure limits(mW/cm ²) | 5.0 |
| | Exposure values at the site (mW/cm ²) | 0.0015 |
| | % Exposure | 0.03% |

Attachment 3: T-Mobile Exposure Analysis

| T-Mobile 600 MHz LTE | | |
|---|---|-----------------|
| Uncontrolled / General Population | FCC's exposure limits (mW/cm ²) | 0.4 |
| | Exposure values at the site (mW/cm ²) | 0.001085 |
| | % Exposure | 0.27% |
| Controlled / Occupational | FCC's Exposure limits(mW/cm ²) | 2.0 |
| | Exposure values at the site (mW/cm ²) | 0.001085 |
| | % Exposure | 0.0542% |

| T-Mobile 700 MHz LTE | | |
|---|---|-----------------|
| Uncontrolled / General Population | FCC's exposure limits (mW/cm ²) | 0.5 |
| | Exposure values at the site (mW/cm ²) | 0.001168 |
| | % Exposure | 0.23% |
| Controlled / Occupational | FCC's Exposure limits(mW/cm ²) | 2.3 |
| | Exposure values at the site (mW/cm ²) | 0.001168 |
| | % Exposure | 0.0508% |

| T-Mobile 1900 MHz LTE | | |
|---|---|-----------------|
| Uncontrolled / General Population | FCC's exposure limits (mW/cm ²) | 1.0 |
| | Exposure values at the site (mW/cm ²) | 0.001456 |
| | % Exposure | 0.15% |
| Controlled / Occupational | FCC's Exposure limits(mW/cm ²) | 5.0 |
| | Exposure values at the site (mW/cm ²) | 0.001456 |
| | % Exposure | 0.0291% |

| T-Mobile 2100 MHz LTE | | |
|---|--|-----------------|
| Uncontrolled / General Population | FCC's exposure limits (mW/cm ²) | 1.0 |
| | Exposure values at the site (mW/cm ²) | 0.001660 |
| | % Exposure | 0.17% |
| Controlled / Occupational | FCC's Exposure limits(mW/cm ²) | 5.0 |
| | Exposure values at the site (mW/cm ²) | 0.001660 |
| | % Exposure | 0.0332% |

Attachment 4: Sprint Exposure Analysis

| Sprint 862 MHz LTE | | |
|---|---|----------------|
| Uncontrolled / General Population | FCC's exposure limits (mW/cm ²) | 0.6 |
| | Exposure values at the site (mW/cm ²) | 0.0011 |
| | % Exposure | 0.18% |
| Controlled / Occupational | FCC's Exposure limits(mW/cm ²) | 2.8 |
| | Exposure values at the site (mW/cm ²) | 0.0011 |
| | % Exposure | 0.0389% |

| Sprint 1900 MHz LTE | | |
|---|---|----------------|
| Uncontrolled / General Population | FCC's exposure limits (mW/cm ²) | 1.0 |
| | Exposure values at the site (mW/cm ²) | 0.0010 |
| | % Exposure | 0.10% |
| Controlled / Occupational | FCC's Exposure limits(mW/cm ²) | 5.0 |
| | Exposure values at the site (mW/cm ²) | 0.0010 |
| | % Exposure | 0.0193% |

| Sprint 2500 MHz LTE | | |
|---|---|----------------|
| Uncontrolled / General Population | FCC's exposure limits (mW/cm ²) | 1.0 |
| | Exposure values at the site (mW/cm ²) | 0.0011 |
| | % Exposure | 0.11% |
| Controlled / Occupational | FCC's Exposure limits(mW/cm ²) | 5.0 |
| | Exposure values at the site (mW/cm ²) | 0.0011 |
| | % Exposure | 0.0210% |

Attachment 5: Combined Exposure Analysis for each Carrier

| AT&T All Bands | | |
|--------------------------------------|--|--------|
| Uncontrolled / General Population | Exposure values at the site (mW/cm ²) | 0.0146 |
| | % Exposure | 1.88% |
| Controlled / Occupational | Exposure values at the site (mW/cm ²) | 0.0146 |
| | % Exposure | 0.40% |

| Verizon Wireless All Bands | | |
|--------------------------------------|--|--------|
| Uncontrolled / General Population | Exposure values at the site (mW/cm ²) | 0.0048 |
| | % Exposure | 0.63% |
| Controlled / Occupational | Exposure values at the site (mW/cm ²) | 0.0048 |
| | % Exposure | 0.13% |

| T-Mobile All Bands | | |
|--------------------------------------|--|----------|
| Uncontrolled / General Population | Exposure values at the site (mW/cm ²) | 0.005369 |
| | % Exposure | 0.82% |
| Controlled / Occupational | Exposure values at the site (mW/cm ²) | 0.005369 |
| | % Exposure | 0.17% |

| Sprint All Bands | | |
|--------------------------------------|--|--------|
| Uncontrolled / General Population | Exposure values at the site (mW/cm ²) | 0.0031 |
| | % Exposure | 0.38% |
| Controlled / Occupational | Exposure values at the site (mW/cm ²) | 0.0031 |
| | % Exposure | 0.08% |

7. Appendix A: FCC Guidelines

FCC Policies

The Federal Communications Commission (FCC) in 1996 implemented regulations and policies for analysis of RF propagation to evaluate RF emissions. All the analysis and results of this report are compared with FCC's (Federal Communications Commission) rules to determine whether a site is compliant for Occupational/Controlled or General Public/Uncontrolled exposure. All the analysis of RF propagation is done in terms of a percentage. The limits primarily indicate the power density and are generally expressed in terms of milliwatts per centimeter square, mW/cm².

FCC guidelines incorporate two separate tiers of exposure limits that are dependent on the scenario/ situation in which that exposure takes place or the status of the individuals who are subjected to that exposure. The decision as to which tier is applied to a scenario is based on the following definitions:

Occupational / Controlled

These limits apply in situations when someone is exposed to RF energy through his/her occupation, is fully aware of the harmful effects of the RF exposure and has an ability to exercise control over this exposure. Occupational / controlled exposure limits also apply when 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. limits for Occupational/Controlled exposure can be found on Table 1 (A).

General Population / Uncontrolled

These limits apply to situations in which the general public may be exposed or in which persons who are exposed because of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure to RF. Therefore, members of the general public would always be considered under this category, for example, in the case of a telecommunications

tower that exposes people in a nearby residential area. Exposure limits for General Population/Uncontrolled can be found on Table 1 (B).

Table 1. LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

(A) Limits for Occupational/Controlled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/cm ²) | Averaging Time E ² , H ² or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|---|---|
| 0.3-3.0 | 614 | 1.63 | (100)* | 6 |
| 3.0-30 | 1842/f | 4.89/f | (900/f ²)* | 6 |
| 30-300 | 61.4 | 0.163 | 1.0 | 6 |
| 300-1500 | -- | -- | f/300 | 6 |
| 1500-100,000 | -- | -- | 5 | 6 |

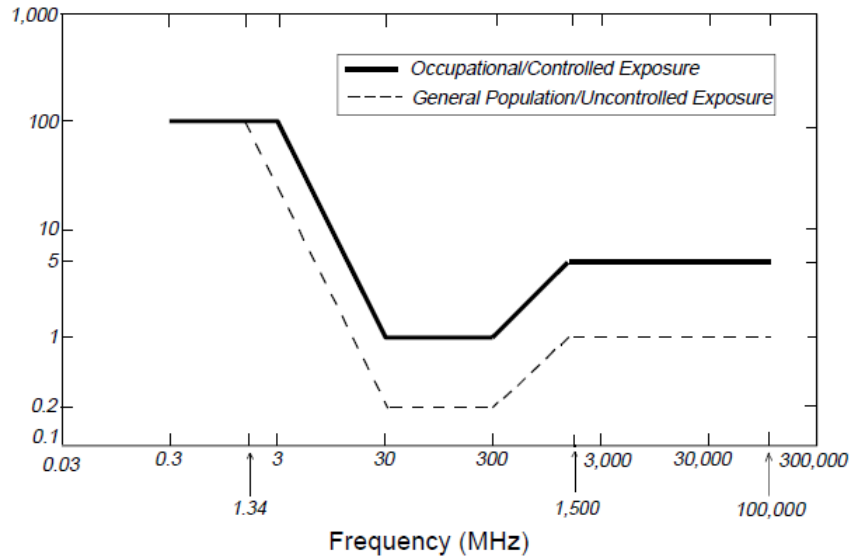
(B) Limits for General Population/Uncontrolled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/cm ²) | Averaging Time E ² , H ² or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|---|---|
| 0.3-1.34 | 614 | 1.63 | (100)* | 30 |
| 1.34-30 | 824/f | 2.19/f | (180/f ²)* | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | -- | -- | f/1500 | 30 |
| 1500-100,000 | -- | -- | 1.0 | 30 |

f = frequency in MHz

*Plane-wave equivalent power density

Figure 1. FCC Limits for Maximum Permissible Exposure (MPE)
Plane-wave Equivalent Power Density



OSHA Statement:

The objective of the OSHA Act is to ensure the safety and health of the working men and women by enforcing certain standards. The act also assists and encourages the states in their efforts to ensure safe and healthy working conditions through means of research, information, education and training in the field of occupational safety and health and for other purposes.

According to OSHA Act section 5, important duties to be considered are:

(a) Each employer

- 1) Shall furnish to each of his employees' employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious harm to his employees
- 2) Shall comply with occupational safety and health standards promulgated under this act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

8. Appendix B: Preparer Certification

I, Tim Harris, preparer of this report, certify that I am fully trained and aware of the rules and regulations of both the Federal Communications Commission and the Occupational Safety and Health Administration regarding Human Exposure to Radio Frequency Radiation. In addition, I have been trained in 1) RF safety and 2) RF modeling using RoofView modeling software.

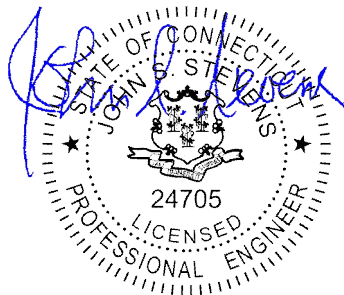
I certify that the information contained in this report is true and correct to the best of my knowledge.

Timothy A. Harris

10/7/2019

Signature

Date



10/08/2019

Kristina Cottone

From: TrackingUpdates@fedex.com
Sent: Thursday, October 24, 2019 1:47 PM
To: Kristina Cottone
Subject: FedEx Shipment 776639818585 Delivered

Your package has been delivered


Tracking # [776639818585](#)

| | |
|--|---|
| Ship date: Wed, 10/23/2019 | Delivery date: Thu, 10/24/2019 1:42 pm |
| Smartlink LLC NORTH BILLERICA, MA 01862 US |  Jeffrey J. Maguire TOWN OF ANDOVER 17 SCHOOL RD ANDOVER, CT 06232152617 US |
|  Delivered | |

Shipment Facts

Our records indicate that the following package has been delivered.

| | |
|---------------------------|--|
| Tracking number: | 776639818585 |
| Status: | Delivered: 10/24/2019 1:42 PM Signed for By: GGOROY |
| Reference: | CTL01122 Andover |
| Signed for by: | GGOROY |
| Delivery location: | Andover, CT |
| Service type: | FedEx Ground |
| Packaging type: | Package |
| Number of pieces: | 1 |
| Weight: | 1.00 lb. |
| Standard transit: | 10/24/2019 |

 Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 12:47 PM CDT on 10/24/2019.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.

Kristina Cottone

From: TrackingUpdates@fedex.com
Sent: Thursday, October 24, 2019 1:47 PM
To: Kristina Cottone
Subject: FedEx Shipment 776639659980 Delivered

Your package has been delivered


Tracking # [776639659980](#)

| | |
|---|---|
| Ship date: Wed, 10/23/2019 | Delivery date: Thu, 10/24/2019 1:42 pm |
| Smartlink LLC NORTH BILLERICA, MA 01862 US |  Delivered John Valente TOWN OF ANDOVER 17 SCHOOL RD ANDOVER, CT 06232152617 US |

Shipment Facts

Our records indicate that the following package has been delivered.

| | |
|---------------------------|--|
| Tracking number: | 776639659980 |
| Status: | Delivered: 10/24/2019 1:42 PM Signed for By: GGOROY |
| Reference: | CTL01122 Andover |
| Signed for by: | GGOROY |
| Delivery location: | Andover, CT |
| Service type: | FedEx Ground |
| Packaging type: | Package |
| Number of pieces: | 1 |
| Weight: | 1.00 lb. |
| Standard transit: | 10/24/2019 |

 Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 12:47 PM CDT on 10/24/2019.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.

Kristina Cottone

From: TrackingUpdates@fedex.com
Sent: Thursday, October 24, 2019 1:36 PM
To: Kristina Cottone
Subject: FedEx Shipment 776639934529 Delivered

Your package has been delivered


Tracking # [776639934529](#)

| | |
|---|--|
| Ship date: Wed, 10/23/2019 | Delivery date: Thu, 10/24/2019 1:34 pm |
| Smartlink LLC NORTH BILLERICA, MA 01862 US |  Delivered Leon and Benjamin Price LEON AND BENJAMIN PRICE 104 BUNKER HILL RD ANDOVER, CT 06232130104 US |

Shipment Facts

Our records indicate that the following package has been delivered.

| | |
|--------------------------|--|
| Tracking number: | 776639934529 |
| Status: | Delivered: 10/24/2019 1:34 PM Signed for By: Signature Not Req |
| Reference: | CTL01122 Andover |
| Signed for by: | Signature Not Req |
| Service type: | FedEx Ground |
| Packaging type: | Package |
| Number of pieces: | 1 |
| Weight: | 1.00 lb. |
| Standard transit: | 10/24/2019 |

 Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 12:35 PM CDT on 10/24/2019.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.

Kristina Cottone

From: TrackingUpdates@fedex.com
Sent: Thursday, October 24, 2019 11:12 AM
To: Kristina Cottone
Subject: FedEx Shipment 776640197981 Delivered

Your package has been delivered

Tracking # 776640197981


| | |
|---|---|
| Ship date: Wed, 10/23/2019 | Delivery date: Thu, 10/24/2019 11:09 am |
| Smartlink LLC NORTH BILLERICA, MA 01862 US | Ryan Tierney AMERICAN TOWER CORPORATION 10 PRESIDENTIAL WAY WOBURN, MA 01801105399 US |

 **Delivered**

Shipment Facts

Our records indicate that the following package has been delivered.

| | |
|---------------------------|---|
| Tracking number: | 776640197981 |
| Status: | Delivered: 10/24/2019 11:09 AM Signed for By: IANCRI |
| Reference: | CTL01122 Andover |
| Signed for by: | IANCRI |
| Delivery location: | Woburn, MA |
| Service type: | FedEx Ground |
| Packaging type: | Package |
| Number of pieces: | 1 |
| Weight: | 1.00 lb. |
| Standard transit: | 10/24/2019 |

 Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 10:11 AM CDT on 10/24/2019.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.

SHEET INDEX

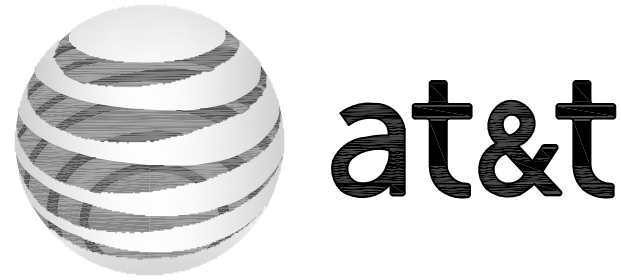
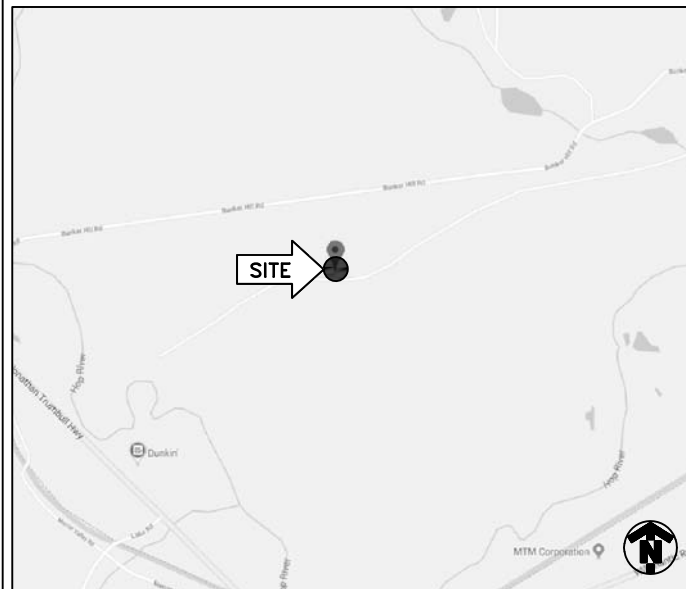
| NO. | DESCRIPTION |
|-----|--------------------------|
| T1 | TITLE SHEET |
| C1 | GENERAL NOTES |
| C2 | OVERALL SITE PLAN |
| C2A | ENLARGED SITE PLAN |
| C3 | ELEVATION VIEW |
| C4 | ANTENNA ORIENTATION PLAN |
| C5 | EQUIPMENT DETAILS |
| C6 | PLUMBING DIAGRAM |
| C7 | GROUNDING DETAILS |
| | |
| | |
| | |

DRIVING DIRECTIONS

FROM 550 COCHITUATE RD.:

GET ON I-90 WEST/MASSACHUSETTS TURNPIKE. HEAD NORTHEAST TOWARD LEGGATT MCCALL CONN. TURN LEFT ONTO LEGGATT MCCALL CONN. CONTINUE ONTO BURR STREET. TURN LEFT ONTO COCHITUATE ROAD. USE THE RIGHT LANE TO TAKE THE RAMP TO I-90 EAST/MASSPIKE WEST/SPRINGFIELD/BOSTON. KEEP LEFT AT THE FORK, FOLLOW SIGNS FOR I-90 WEST/MASSACHUSETTS TURNPIKE/WORCESTER/SPRINGFIELD AND MERGE ONTO I-90 WEST/MASSACHUSETTS TURNPIKE. FOLLOW I-90 WEST/MASSACHUSETTS TURNPIKE AND I-84 TO CT-32 SOUTH IN WILLINGTON. TAKE EXIT 70 FROM I-84. MERGE ONTO I-90 WEST/MASSACHUSETTS TURNPIKE. USE THE RIGHT 2 LANES TO TAKE EXIT 9 FOR I-84 TOWARD US-20/HARTFORD/NEW YORK CITY. CONTINUE ONTO I-84. TAKE EXIT 70 FOR CT-32 TOWARD WILLINGTON/WILLIMANTIC. CONTINUE ON CT-32 SOUTH TO YOUR DESTINATION IN ANDOVER. TURN LEFT ONTO CT-32 SOUTH. TURN RIGHT ONTO US-44 WEST. TURN LEFT ONTO LEWIS HILL ROAD. TURN RIGHT ONTO RIPLEY HILL ROAD. TURN LEFT ONTO CT-31 SOUTH/MAIN STREET. TURN RIGHT ONTO LAKE STREET. CONTINUE ONTO CROSS STREET. TURN LEFT ONTO SOUTH STREET. TURN RIGHT ONTO BUNKER HILL ROAD. TURN LEFT.

LOCATION MAP



PROJECT
LTE 2C/3C/4C/5C/RETROFIT

SITE NAME
ANDOVER EAST

CELL SITE ID
CTL01122
FA SITE NUMBER
10035387

PAGE ID
**MRCTB042111/MRCTB025450/MRCTB025510
MRCTB042112/MRCTB042130**

SITE ADDRESS
**104 BUNKER HILL ROAD
ANDOVER, CT 06232**

STRUCTURE TYPE
MONOPOLE

PROJECT TEAM

PROJECT MANAGER

1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

ENGINEER

- SCOPE OF WORK (PER LTE RFDS, DATED 10/28/19 V5.00):**
- HANDICAP ACCESS REQUIREMENTS ARE NOT REQUIRED.
 - FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.
 - FACILITY HAS NO PLUMBING OR REFRIGERANTS.
 - THIS FACILITY SHALL MEET OR EXCEED ALL FAA AND FCC REGULATORY REQUIREMENTS.
 - ALL NEW MATERIAL SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR UNLESS NOTED OTHERWISE. EQUIPMENT, ANTENNAS/RRU AND CABLES FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR.
- TOWER**
- REMOVE (6) PANEL ANTENNAS
 - INSTALL (6) PANEL ANTENNAS
 - REMOVE (3) RRUS-11 B12
 - INSTALL (3) B14 4478
 - INSTALL (3) 4449 B5/B12
 - INSTALL (3) 8843 B2/B66A
 - INSTALL (2) DC6 SQUID W/ (1) FIBER AND (4) DC CABLES
 - REPLACE EXISTING ANTENNA PLATFORM
 - REMOVE (6) DIPLEXERS
- GROUND**
- SWAP BB WITH (2) 6630
 - ADD XMU
 - ADD IDLc CABLE
 - INSTALL (1) RACK MOUNTED DC 12
 - REMOVE EXISTING DC POWER PLANT AND REPLACE WITH NETSURE 7100 WITH BATTERIES
 - REMOVE (6) DIPLEXERS

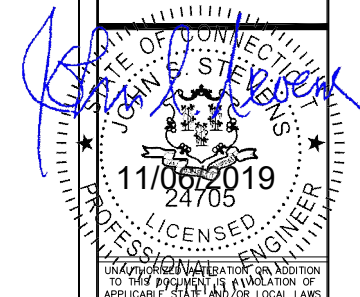
PROJECT SUMMARY

| | |
|------------------------|--|
| SITE NAME: | ANDOVER EAST |
| CELL SITE ID: | CTL01122 |
| FA SITE #: | 10035387 |
| SITE ADDRESS: | 104 BUNKER HILL ROAD ANDOVER, CT 06232 |
| COUNTY: | TOLLAND |
| SITE COORDINATES: | |
| LATITUDE: | 41.7378250° N (NAD 83) |
| LONGITUDE: | 72.3498319° W (NAD 83) |
| RAD CENTER | ±137' (AGL) |
| LANDLORD: | AMERICAN TOWER CORPORATION 10 PRESIDENTAL WAY WOBURN, MA 01801 |
| APPLICANT: | AT&T MOBILITY 550 COCHITUATE RD. FRAMINGHAM, MA 01701 |
| CLIENT REPRESENTATIVE: | SMARTLINK, LLC 85 RANGWAY RD., BUILDING 3, SUITE 102 NORTH BILLERICA, MA 01862 |
| CONTACT: | SHARON KEEFE (978) 930-3918 |
| ENGINEER: | INFINIGY 1033 WATERVLIET SHAKER ROAD ALBANY, NY 12205 |
| CONTACT: | ALEX WELLER (518) 690-0790 |
| BUILDING CODE: | 2018 CT STATE BUILDING CODE 2015 INTERNATIONAL BUILDING CODE ANSI/TIA-222 G 2015 INTERNATIONAL PLUMBING CODE 2015 INTERNATIONAL MECHANICAL CODE 2015 INTERNATIONAL ENERGY CONSERVATION CODE 2017 NFPA 70 |
| ELECTRICAL CODE: | NATIONAL ELECTRICAL CODE (LATEST EDITION) |

TO OBTAIN LOCATION OF PARTICIPANTS UNDERGROUND FACILITIES BEFORE YOU DIG IN CONNECTICUT, CONTACT CALL BEFORE YOU DIG TOLL FREE: 1-800-922-4455 OR www.cbyd.com

CONNECTICUT STATUTE REQUIRES MIN OF 2 WORKING DAYS NOTICE BEFORE YOU EXCAVATE

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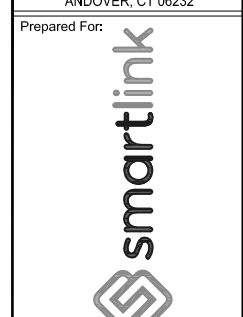


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Drawn: BMM Date: 09/11/19
Designed: ASW Date: 09/11/19
Checked: AD Date: 09/11/19

Project Number: 499-006

Project Title:
**ANDOVER EAST
CTL01122
FA# 10035387
104 BUNKER HILL ROAD
ANDOVER, CT 06232**



Drawing Scale:
AS NOTED

Date:
11/06/19

CD

Drawing Title:
TITLE PAGE

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GENERAL NOTES

PART 1 – GENERAL REQUIREMENTS

- 1.1 THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:
 - A. GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
 - B. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
 - C. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE – "NEC").
 - D. AND NFPA 101 (LIFE SAFETY CODE).
 - E. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM).
 - F. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE).
- 1.2 DEFINITIONS:
 - A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.
 - B. COMPANY: AT&T CORPORATION
 - C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.
 - D. CONTRACTOR: CONSTRUCTION CONTRACTOR; CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.
 - E. THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A&E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.
- 1.3 POINT OF CONTACT: COMMUNICATION BETWEEN THE COMPANY AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE COMPANY SITE DEVELOPMENT SPECIALIST OR OTHER PROJECT COORDINATOR APPOINTED TO MANAGE THE PROJECT FOR THE COMPANY.
- 1.4 ON-SITE SUPERVISION: THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL EMPLOY A COMPETENT SUPERINTENDENT WHO SHALL BE IN ATTENDANCE AT THE SITE AT ALL TIMES DURING PERFORMANCE OF THE WORK.
- 1.5 DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE: THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS, STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES, AND THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.
 - A. THE JOBSITE DRAWINGS, SPECIFICATIONS AND DETAILS SHALL BE CLEARLY MARKED DAILY IN PENCIL WITH ANY CHANGES IN CONSTRUCTION OVER WHAT IS DEPICTED IN THE DOCUMENTS. AT CONSTRUCTION COMPLETION, THIS JOBSITE MARKUP SET SHALL BE DELIVERED TO THE COMPANY OR COMPANY'S DESIGNATED REPRESENTATIVE TO BE FORWARDED TO THE COMPANY'S A&E VENDOR FOR PRODUCTION OF "AS-BUILT" DRAWINGS.
- 1.6 USE OF JOB SITE: THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION AND RELATED OPERATIONS INCLUDING STAGING AND STORAGE OF MATERIALS AND EQUIPMENT, PARKING, TEMPORARY FACILITIES, AND WASTE STORAGE TO THE LEASE PARCEL UNLESS OTHERWISE PERMITTED BY THE CONTRACT DOCUMENTS.
- 1.7 NOTICE TO PROCEED:
 - A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED.
 - B. UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE AT&T WITH AN OPERATIONAL WIRELESS FACILITY.

PART 2 – EXECUTION

- 2.1 TEMPORARY UTILITIES AND FACILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND FACILITIES NECESSARY EXCEPT AS OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS. TEMPORARY UTILITIES AND FACILITIES INCLUDE, POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSAL FACILITIES, AND TELEPHONE/COMMUNICATION SERVICES. PROVIDE TEMPORARY UTILITIES AND FACILITIES IN ACCORDANCE WITH OSHA AND THE AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE COMPANY ELECTRICAL SERVICE IN THE COMPLETION OF THE WORK WHEN IT BECOMES AVAILABLE. USE OF THE LESSORS OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.
- 2.2 ACCESS TO WORK: THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE ARCHITECT/ENGINEER DURING ALL PHASES OF THE WORK.
- 2.3 TESTING: REQUIREMENTS FOR TESTING BY THIS CONTRACTOR SHALL BE AS INDICATED HERewith, ON THE CONSTRUCTION DRAWINGS, AND IN THE INDIVIDUAL SECTIONS OF THESE SPECIFICATIONS. SHOULD COMPANY CHOOSE TO ENGAGE ANY THIRD-PARTY TO CONDUCT ADDITIONAL TESTING, THE CONTRACTOR SHALL COOPERATE WITH AND PROVIDE A WORK AREA FOR COMPANY'S TEST AGENCY.

- 2.4 COMPANY FURNISHED MATERIAL AND EQUIPMENT: ALL HANDLING, STORAGE AND INSTALLATION OF COMPANY FURNISHED MATERIAL AND EQUIPMENT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
 - A. CONTRACTOR SHALL PROCURE ALL OTHER REQUIRED WORK RELATED MATERIALS NOT PROVIDED BY AT&T TO SUCCESSFULLY CONSTRUCT A WIRELESS FACILITY.
- 2.5 DIMENSIONS: VERIFY DIMENSIONS INDICATED ON DRAWINGS WITH FIELD DIMENSIONS BEFORE FABRICATION OR ORDERING OF MATERIALS. DO NOT SCALE DRAWINGS.
- 2.6 EXISTING CONDITIONS: NOTIFY THE COMPANY REPRESENTATIVE OF EXISTING CONDITIONS DIFFERING FROM THOSE INDICATED ON THE DRAWINGS. DO NOT REMOVE OR ALTER STRUCTURAL COMPONENTS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ARCHITECT AND ENGINEER.

PART 3 – RECEIPT OF MATERIAL & EQUIPMENT

- 3.1 RECEIPT OF MATERIAL AND EQUIPMENT: CONTRACTOR IS RESPONSIBLE FOR AT&T PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:
 - A. ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.
 - B. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.
 - C. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.
 - D. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO AT&T OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.
 - E. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.
 - F. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

PART 4 – GENERAL REQUIREMENTS FOR CONSTRUCTION

- 4.1 CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.
- 4.2 EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.
- 4.3 CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.
 - A. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
 - B. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD.
- 4.4 CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION.
- 4.5 CONDUCT TESTING AS REQUIRED HEREIN.

PART 5 – TESTS AND INSPECTIONS

- 5.1 TESTS AND INSPECTIONS:
 - A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.
 - B. CONTRACTOR SHALL COORDINATE TEST AND INSPECTION SCHEDULES WITH COMPANY'S REPRESENTATIVE WHO MUST BE ON SITE TO WITNESS SUCH TESTS AND INSPECTIONS.
 - C. WHEN THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE AGENCY THAT IS SELECTED MUST PERFORM SUCH WORK ON A REGULAR BASIS IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
 - D. THE THIRD PARTY TESTING AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE, EQUIPMENT TO BE USED, AND ASSOCIATED HEALTH AND SAFETY ISSUES.
 - E. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.

- F. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
- G. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

PART 6 – TRENCHING AND BACKFILLING

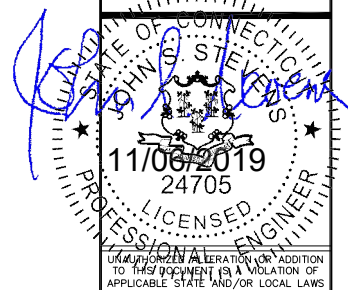
- 6.1 TRENCHING AND BACKFILLING: THE CONTRACTOR SHALL PERFORM ALL EXCAVATION OF EVERY DESCRIPTION AND OF WHATEVER SUBSTANCES ENCOUNTERED, TO THE DEPTHS INDICATED ON THE CONSTRUCTION DRAWINGS OR AS OTHERWISE SPECIFIED.
 - A. PROTECTION OF EXISTING UTILITIES: THE CONTRACTOR SHALL CHECK WITH THE LOCAL UTILITIES AND THE RESPECTIVE UTILITY LOCATOR COMPANIES PRIOR TO STARTING EXCAVATION OPERATIONS IN EACH RESPECTIVE AREA TO ASCERTAIN THE LOCATIONS OF KNOWN UTILITY LINES. THE LOCATIONS, NUMBER AND TYPES OF EXISTING UTILITY LINES DETAILED ON THE CONSTRUCTION DRAWINGS ARE APPROXIMATE AND DO NOT REPRESENT EXACT INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ALL LINES DAMAGED DURING EXCAVATION AND ALL ASSOCIATED OPERATIONS. ALL UTILITY LINES UNCOVERED DURING THE EXCAVATION OPERATIONS, SHALL BE PROTECTED FROM DAMAGE DURING EXCAVATION AND ASSOCIATED OPERATIONS. ALL REPAIRS SHALL BE APPROVED BY THE UTILITY COMPANY.
 - B. HAND DIGGING: UNLESS APPROVED IN WRITING OTHERWISE, ALL DIGGING WITHIN AN EXISTING CELL SITE COMPOUND IS TO BE DONE BY HAND.
 - C. DURING EXCAVATION, MATERIAL SUITABLE FOR BACKFILLING SHALL BE STOCKPILED IN AN ORDERLY MANNER A SUFFICIENT DISTANCE FROM THE BANKS OF THE TRENCH TO AVOID OVERLOADING AND TO PREVENT SLIDES OR CAVE-INS. ALL EXCAVATED MATERIALS NOT REQUIRED OR SUITABLE FOR BACKFILL SHALL BE REMOVED AND DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
 - D. GRADING SHALL BE DONE AS MAY BE NECESSARY TO PREVENT SURFACE WATER FROM FLOWING INTO TRENCHES OR OTHER EXCAVATIONS, AND ANY WATER ACCUMULATING THEREIN SHALL BE REMOVED BY PUMPING OR BY OTHER APPROVED METHOD.
 - E. SHEETING AND SHORING SHALL BE DONE AS NECESSARY FOR THE PROTECTION OF THE WORK AND FOR THE SAFETY OF PERSONNEL. UNLESS OTHERWISE INDICATED, EXCAVATION SHALL BE BY OPEN CUT, EXCEPT THAT SHORT SECTIONS OF A TRENCH MAY BE TUNNELED IF, THE CONDUIT CAN BE SAFELY AND PROPERLY INSTALLED AND BACKFILL CAN BE PROPERLY TAMPED IN SUCH TUNNEL SECTIONS. EARTH EXCAVATION SHALL COMPRISE ALL MATERIALS AND SHALL INCLUDE CLAY, SILT, SAND, MUCK, GRAVEL, HARDPAN, LOOSE SHALE, AND LOOSE STONE.
 - F. TRENCHES SHALL BE OF NECESSARY WIDTH FOR THE PROPER LAYING OF THE CONDUIT OR CABLE, AND THE BANKS SHALL BE AS NEARLY VERTICAL AS PRACTICABLE. THE BOTTOM OF THE TRENCHES SHALL BE ACCURATELY GRADED TO PROVIDE UNIFORM BEARING AND SUPPORT FOR EACH SECTION OF THE CONDUIT OR CABLE ON UNDISTURBED SOIL AT EVERY POINT ALONG ITS ENTIRE LENGTH. EXCEPT WHERE ROCK IS ENCOUNTERED, CARE SHALL BE TAKEN NOT TO EXCAVATE BELOW THE DEPTHS INDICATED. WHERE ROCK EXCAVATIONS ARE NECESSARY, THE ROCK SHALL BE EXCAVATED TO A MINIMUM OVER DEPTH OF 6 INCHES BELOW THE TRENCH DEPTHS INDICATED ON THE CONSTRUCTION DRAWINGS OR SPECIFIED. OVER DEPTHS IN THE ROCK EXCAVATION AND UNAUTHORIZED OVER DEPTHS SHALL BE THOROUGHLY BACK FILLED AND TAMPED TO THE APPROPRIATE GRADE. WHENEVER WET OR OTHERWISE UNSTABLE SOIL THAT IS INCAPABLE OF PROPERLY SUPPORTING THE CONDUIT OR CABLE IS ENCOUNTERED IN THE BOTTOM OF THE TRENCH, SUCH SOLID SHALL BE REMOVED TO A MINIMUM OVER DEPTH OF 6 INCHES AND THE TRENCH BACKFILLED TO THE PROPER GRADE WITH EARTH OF OTHER SUITABLE MATERIAL, AS HEREINAFTER SPECIFIED.
 - G. BACKFILLING OF TRENCHES. TRENCHES SHALL NOT BE BACKFILLED UNTIL ALL SPECIFIED TESTS HAVE BEEN PERFORMED AND ACCEPTED. WHERE COMPACTED BACKFILL IS NOT INDICATED THE TRENCHES SHALL BE CAREFULLY BACKFILLED WITH SELECT MATERIAL SUCH AS EXCAVATED SOILS THAT ARE FREE OF ROOTS, SOD, RUBBISH OR STONES, DEPOSITED IN 6 INCH LAYERS AND THOROUGHLY AND CAREFULLY RAMMED UNTIL THE CONDUIT OR CABLE HAS A COVER OF NOT LESS THAN 1 FOOT. THE REMAINDER OF THE BACKFILL MATERIAL SHALL BE GRANULAR IN NATURE AND SHALL NOT CONTAIN ROOTS, SOD, RUBBING, OR STONES OF 2-1/2 INCH MAXIMUM DIMENSION. BACKFILL SHALL BE CAREFULLY PLACED IN THE TRENCH AND IN 1 FOOT LAYERS AND EACH LAYER TAMPED. SETTLING THE BACKFILL WITH WATER WILL BE PERMITTED. THE SURFACE SHALL BE GRADED TO A REASONABLE UNIFORMITY AND THE MOUNDING OVER THE TRENCHES LEFT IN A UNIFORM AND NEAT CONDITION.

| SYMBOL | DESCRIPTION |
|--------|---------------------------------------|
| | CIRCUIT BREAKER |
| | NON-FUSIBLE DISCONNECT SWITCH |
| | FUSIBLE DISCONNECT SWITCH |
| | SURFACE MOUNTED PANEL BOARD |
| | TRANSFORMER |
| | KILOWATT HOUR METER |
| | JUNCTION BOX |
| | PULL BOX TO NEC/TELCO STANDARDS |
| ----- | UNDERGROUND UTILITIES |
| | EXOTHERMIC WELD CONNECTION |
| | MECHANICAL CONNECTION |
| | GROUND ROD |
| | GROUND ROD WITH INSPECTION SLEEVE |
| | GROUND BAR |
| | 120AC DUPLEX RECEPTACLE |
| | GROUND CONDUCTOR |
| | DC POWER AND FIBER OPTIC TRUNK CABLES |
| | DC POWER CABLES |
| | REPRESENTS DETAIL NUMBER |
| | REF. DRAWING NUMBER |

ABBREVIATIONS

| | |
|-------|-----------------------------------|
| CIGBE | COAX ISOLATED GROUND BAR EXTERNAL |
| MIGB | MASTER ISOLATED GROUND BAR |
| SST | SELF SUPPORTING TOWER |
| GPS | GLOBAL POSITIONING SYSTEM |
| TYP. | TYPICAL |
| DWG | DRAWING |
| BCW | BARE COPPER WIRE |
| BFG | BELOW FINISH GRADE |
| PVC | POLYVINYL CHLORIDE |
| CAB | CABINET |
| C | CONDUIT |
| SS | STAINLESS STEEL |
| G | GROUND |
| AWG | AMERICAN WIRE GAUGE |
| RGS | RIGID GALVANIZED STEEL |
| AHJ | AUTHORITY HAVING JURISDICTION |
| TTLNA | TOWER TOP LOW NOISE AMPLIFIER |
| UNO | UNLESS NOTED OTHERWISE |
| EMT | ELECTRICAL METALLIC TUBING |
| AGL | ABOVE GROUND LEVEL |

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| Project Number: | | | |
| 499-006 | | | |

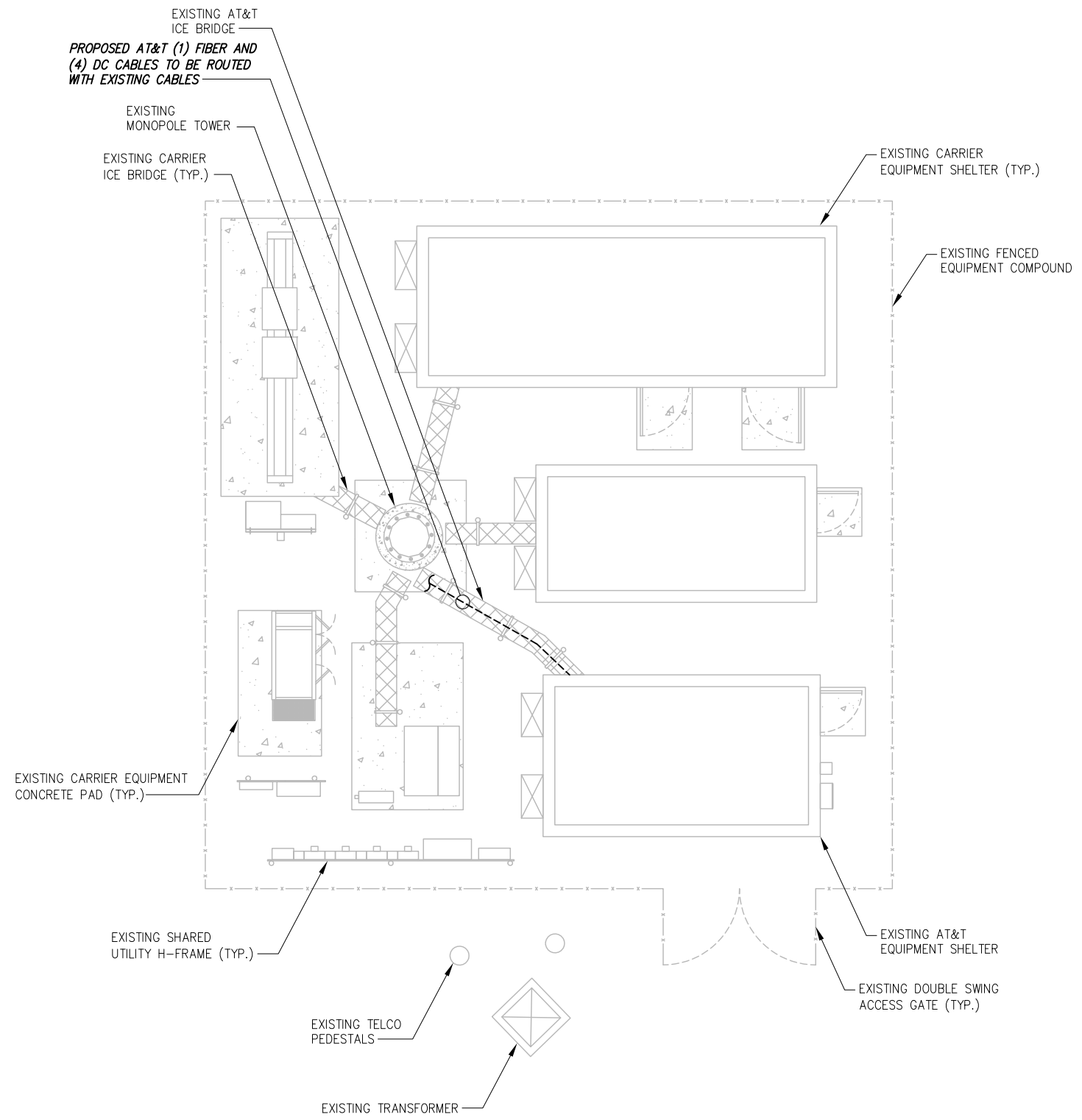
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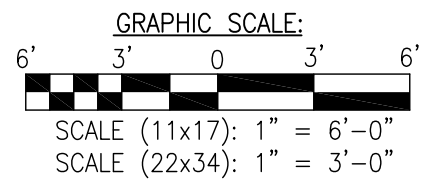
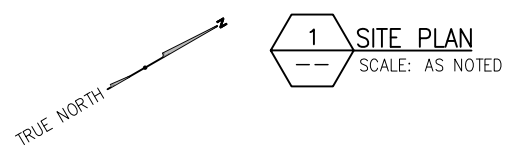
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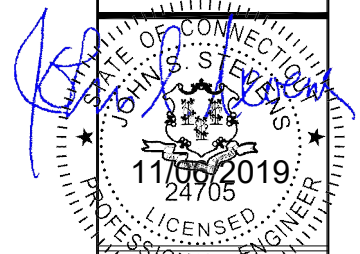


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INFINIGY

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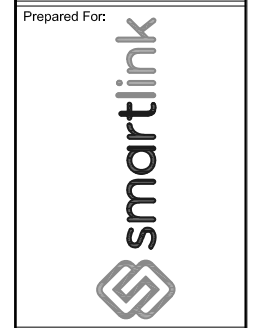
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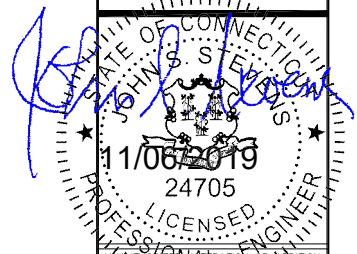
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OVERALL SITE PLAN

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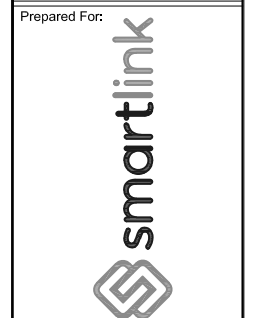
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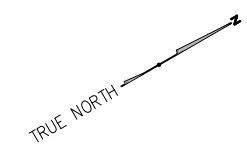
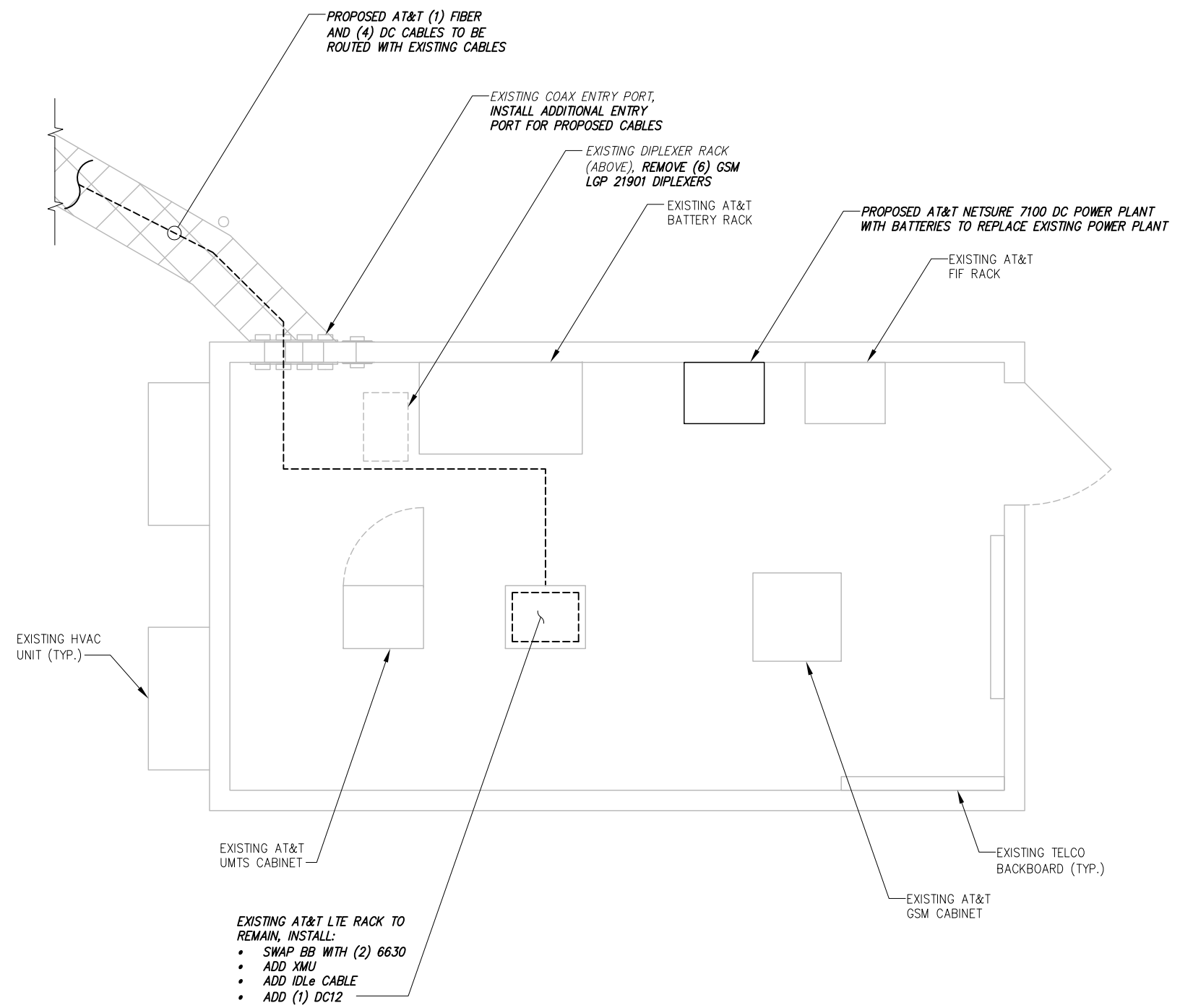
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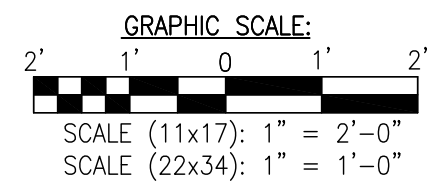
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Drawing Number:
C2A



2 ENLARGED EQUIPMENT PLAN
 SCALE: AS NOTED



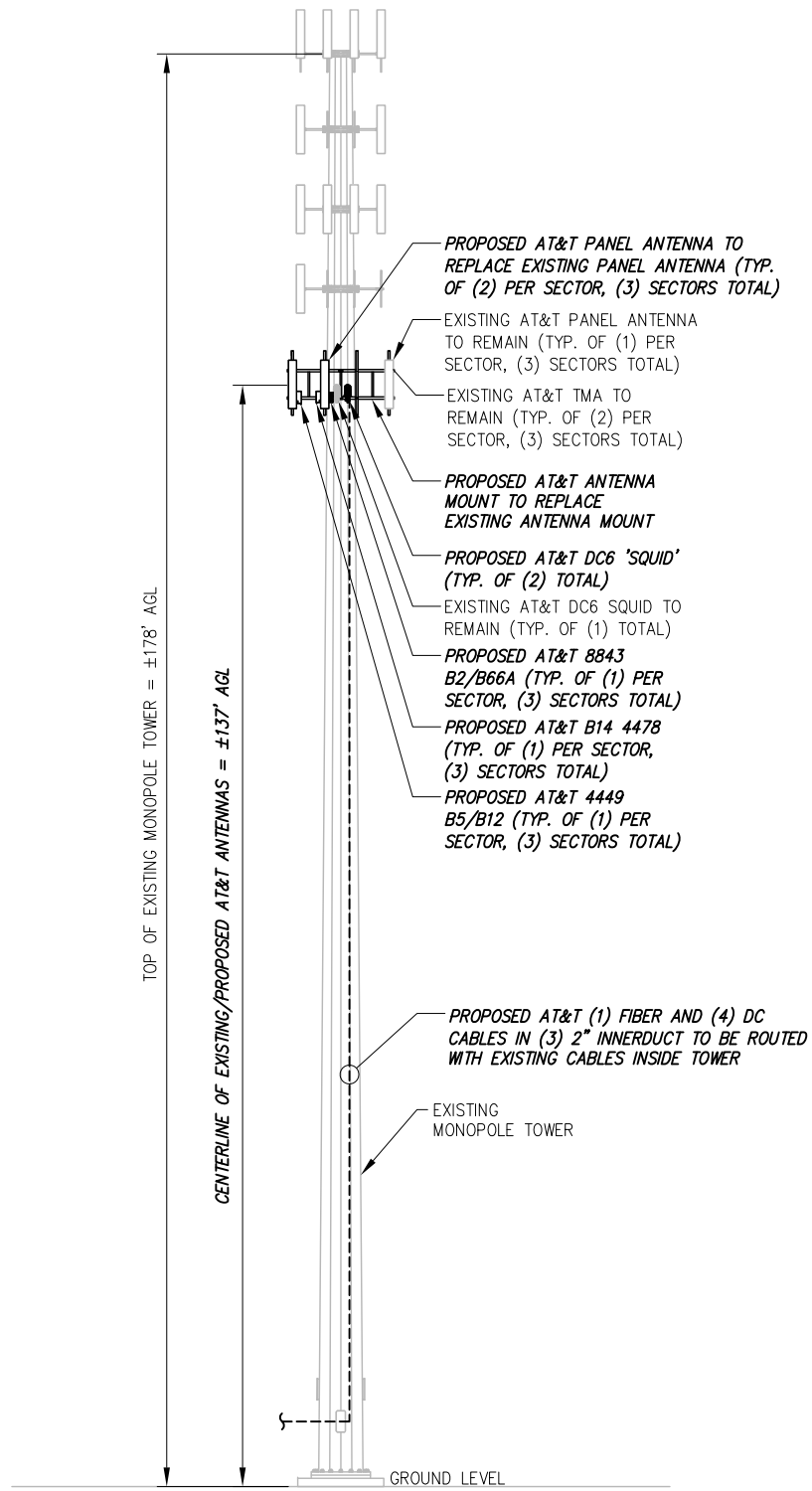
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NOTE:

- INFINIGY ENGINEERING HAS NOT EVALUATED THE TOWER LOADING FOR THIS SITE, AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY REGARDING ITS EXISTING OR PROPOSED LOADING. FINAL INSTALLATION TO COMPLY STRUCTURAL ANALYSIS.
- FOR ADDITIONAL STRUCTURAL INFORMATION PERTAINING TO THE ANTENNA MOUNT, SEE FAILING 'MOUNT ANALYSIS REPORT' COMPLETED BY INFINIGY, DATED 09/05/19. MOUNT TO BE REPLACED PRIOR TO INSTALLATION OF PROPOSED EQUIPMENT.

NOTE:

- 3' MINIMUM SEPARATION BETWEEN ALL LTE ANTENNAS
- 6' MINIMUM SEPARATION BETWEEN 700 BC/700 DE ANTENNAS



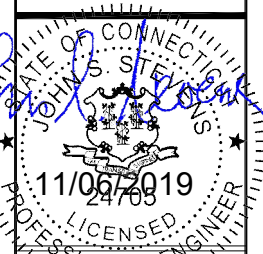
1 ELEVATION VIEW
--- NOT TO SCALE

FINAL ANTENNA CONFIGURATION & CABLE SCHEDULE BASED ON LTE RFDS DATED 10/28/19 V5.00

| SECTOR | ANTENNA POSITION | ANTENNA STATUS & TECHNOLOGY | ANTENNA MANF/MODEL | TMA/DIPLEXER | RRUS | AZIMUTH | ANTENNA CL HEIGHT | CABLE FEEDER | | RAYCAP UNIT |
|--------|------------------|-----------------------------|--------------------|------------------|--|---------|-------------------|--|--------|--|
| | | | | | | | | TYPE | LENGTH | |
| ALPHA | A-1 | (E) UMTS 850/1900 | POWERWAVE 7770 | (2) (E) LGP21401 | -- | 143° | ±137' | (2) (E) 1-1/4" COAX CABLES | ±155' | (1) (E) DC6 'SQUID' (2) (P) DC6 'SQUID' |
| | A-2 | -- | -- | -- | -- | -- | -- | (2) (E) 1-1/4" COAX CABLES | ±155' | |
| | A-3 | (P) LTE 700 B14/1900 | CCI DMP65R-BU6DA | -- | (1) (P) B14 4478 (1) (P) 8843 B2/B66A | 23° | ±137' | (1) (E) FIBER CABLE (2) (E) DC CABLES | -- | |
| | A-4 | (P) LTE 700/850/AWS/5G 850 | CCI DMP65R-BU6DA | -- | (1) (P) 4449 B5/B12 | 23° | ±137' | SEE A-3 FOR CABLE INFORMATION | -- | |
| BETA | B-1 | (E) UMTS 850/1900 | POWERWAVE 7770 | (2) (E) LGP21401 | -- | 263° | ±137' | (2) (E) 1-1/4" COAX CABLES | ±155' | |
| | B-2 | -- | -- | -- | -- | -- | -- | (2) (E) 1-1/4" COAX CABLES | ±155' | |
| | B-3 | (P) LTE 700 B14/1900 | CCI DMP65R-BU6DA | -- | (1) (P) B14 4478 (1) (P) 8843 B2/B66A | 143° | ±137' | (1) (P) FIBER CABLE (4) (P) DC CABLES | -- | |
| | B-4 | (P) LTE 700/850/AWS/5G 850 | CCI DMP65R-BU6DA | -- | (1) (P) 4449 B5/B12 | 143° | ±137' | SEE A-3 FOR CABLE INFORMATION | -- | |
| GAMMA | G-1 | (E) UMTS 850/1900 | POWERWAVE 7770 | (2) (E) LGP21401 | -- | 23° | ±137' | (2) (E) 1-1/4" COAX CABLES | ±155' | |
| | G-2 | -- | -- | -- | -- | -- | -- | (2) (E) 1-1/4" COAX CABLES | ±155' | |
| | G-3 | (P) LTE 700 B14/1900 | CCI DMP65R-BU6DA | -- | (1) (P) B14 4478 (1) (P) 8843 B2/B66A | 253° | ±137' | SEE A-3 FOR CABLE INFORMATION | -- | |
| | G-4 | (P) LTE 700/850/AWS/5G 850 | CCI DMP65R-BU6DA | -- | (1) (P) 4449 B5/B12 | 253° | ±137' | SEE A-3 FOR CABLE INFORMATION | -- | |

2 AT&T ANTENNA SCHEDULE
--- NOT TO SCALE

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Fax # (518) 690-0793



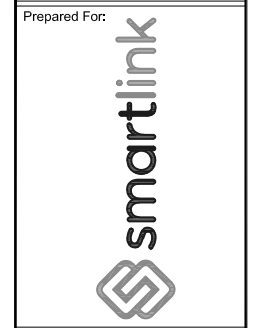
USE OF THIS SEAL IN CONNECTION WITH THIS DOCUMENT IS A VIOLATION OF APPLICABLE STATE AND LOCAL LAWS

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Designed: ASW Date: 09/11/19
Checked: AD Date: 09/11/19

Project Number: 499-006

Project Title:
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FA# 10035387
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ANDOVER, CT 06232



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Date: 11/06/19

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ELEVATION VIEW

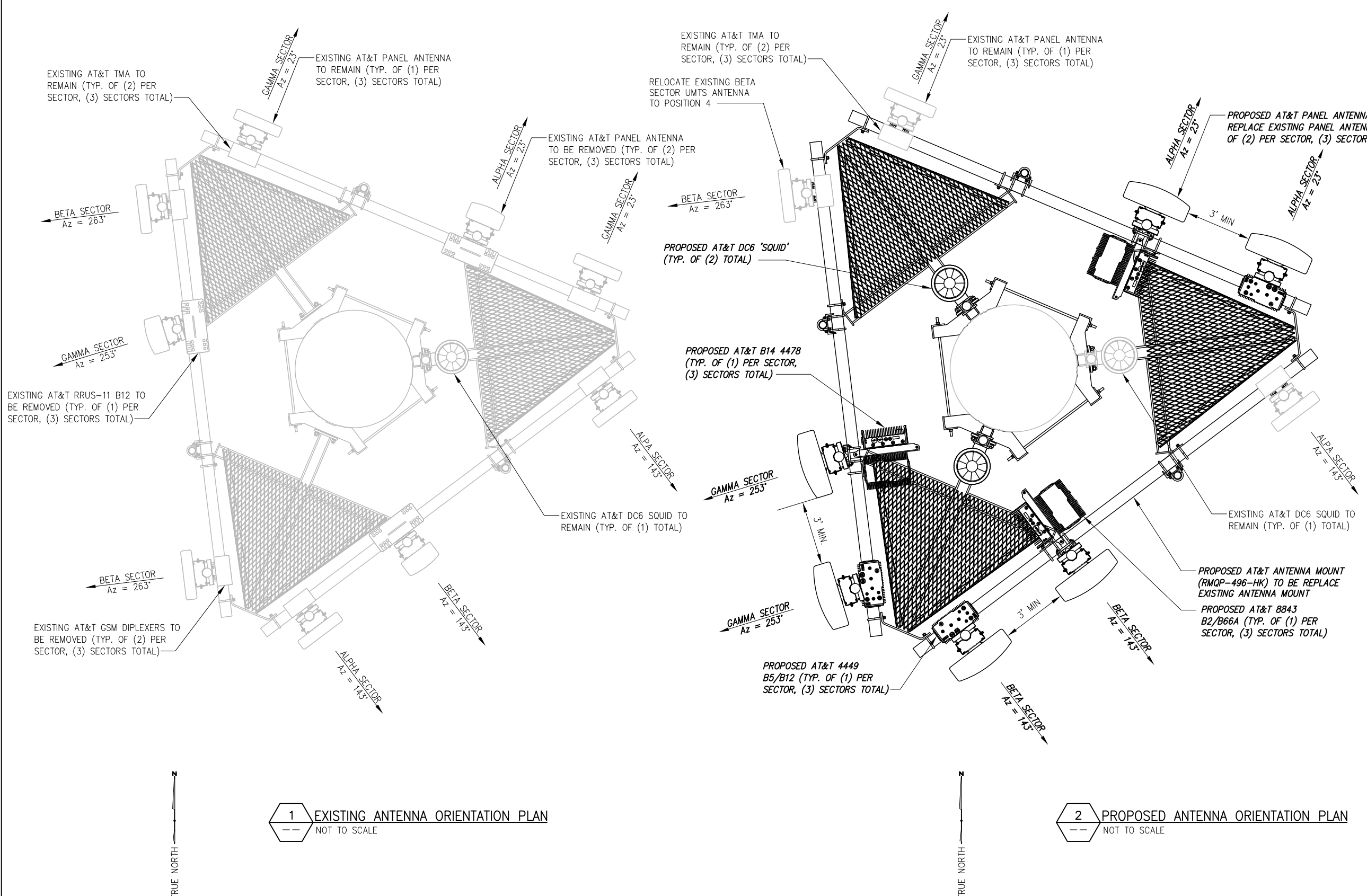
Drawing Number:
C3

NOTE:

- 3' MINIMUM SEPARATION BETWEEN ALL LTE ANTENNAS
- 6' MINIMUM SEPARATION BETWEEN 700 BC/700 DE ANTENNAS

NOTE:

- INFINIGY ENGINEERING HAS NOT EVALUATED THE TOWER LOADING FOR THIS SITE, AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY REGARDING ITS EXISTING OR PROPOSED LOADING. FINAL INSTALLATION TO COMPLY STRUCTURAL ANALYSIS. FOR ADDITIONAL STRUCTURAL INFORMATION PERTAINING TO THE ANTENNA MOUNT, SEE FAILING 'MOUNT ANALYSIS REPORT' COMPLETED BY INFINIGY, DATED 09/05/19. MOUNT TO BE REPLACED PRIOR TO INSTALLATION OF PROPOSED EQUIPMENT.



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Professional Engineer
 JOHN S. EVANS
 11/06/2019
 24705
 PROJECT LICENSED ENGINEER

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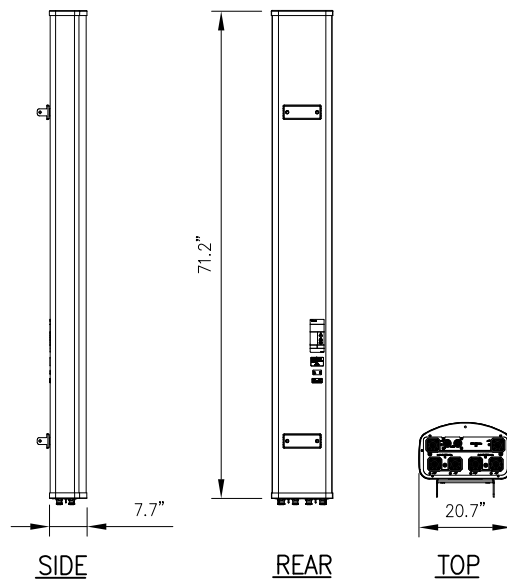
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Prepared For:

Drawing Scale: AS NOTED
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Drawing Title:
ANTENNA ORIENTATION PLAN

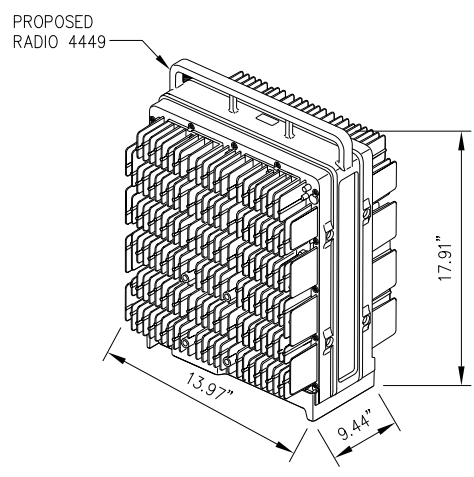
Drawing Number:
C4



CCI MODEL NO.: DMP65R-BU6DA

RADOME MATERIAL: FIBERGLASS, UV RESISTANT
 RADOME COLOR: LIGHT GRAY
 DIMENSIONS, HxWxD: 71.2"x20.7"x7.7"
 WEIGHT, W/ PRE-MOUNTED BRACKETS: 79.4 LBS
 CONNECTOR: 7-16 DIN FEMALE

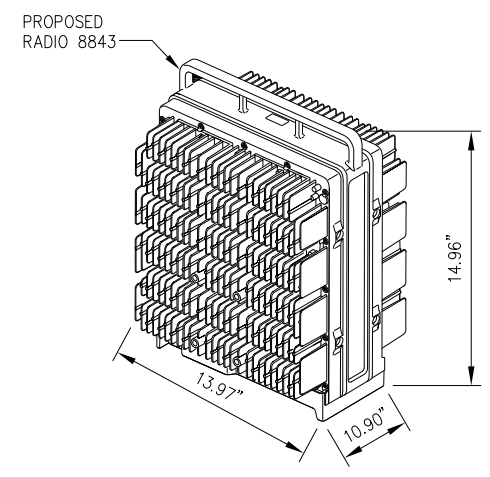
1 ANTENNA DETAIL
 --- NOT TO SCALE



RADIO 4449 SPECIFICATIONS

- HxWxD, (INCHES) : 17.91"x13.97"x9.44"
- WEIGHT (LBS) : 70.54
- COLOR : GRAY

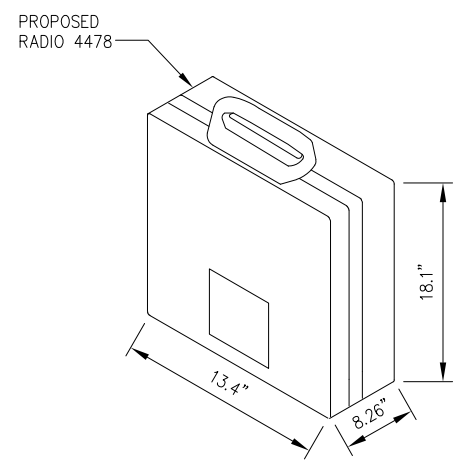
2 ERICSSON RADIO 4449 DETAIL
 --- NOT TO SCALE



RADIO 8843 SPECIFICATIONS

- HxWxD, (INCHES) : 14.96"x13.97"x10.90"
- WEIGHT (LBS) : 71.87
- COLOR : GRAY

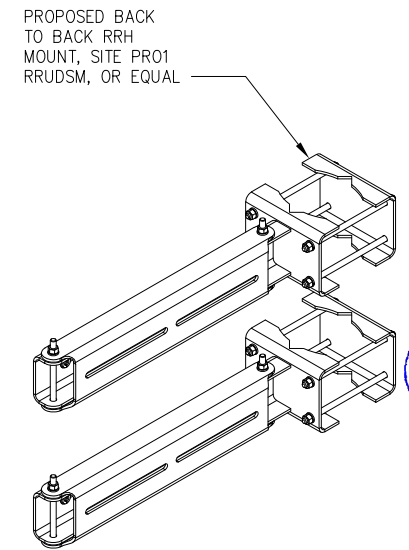
3 ERICSSON RADIO 8843 DETAIL
 --- NOT TO SCALE



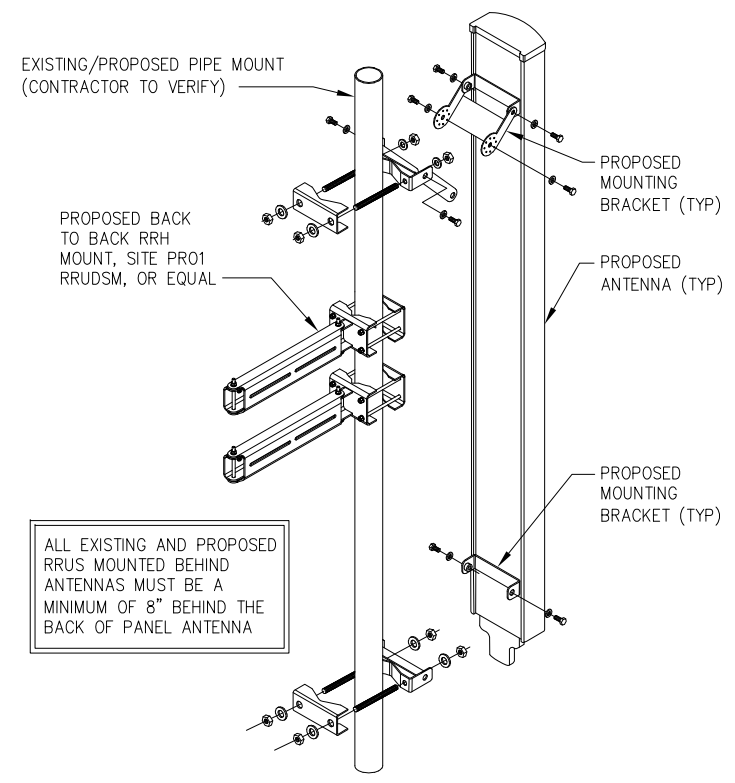
RADIO 4478-B14 SPECIFICATIONS

- HxWxD, (INCHES) : 18.1"x13.4"x8.26"
- WEIGHT (LBS) : 59.5
- COLOR : GRAY
- MOUNTING BRACKET: SXK1250244/1

4 ERICSSON RADIO 4478-B14 DETAIL
 --- NOT TO SCALE

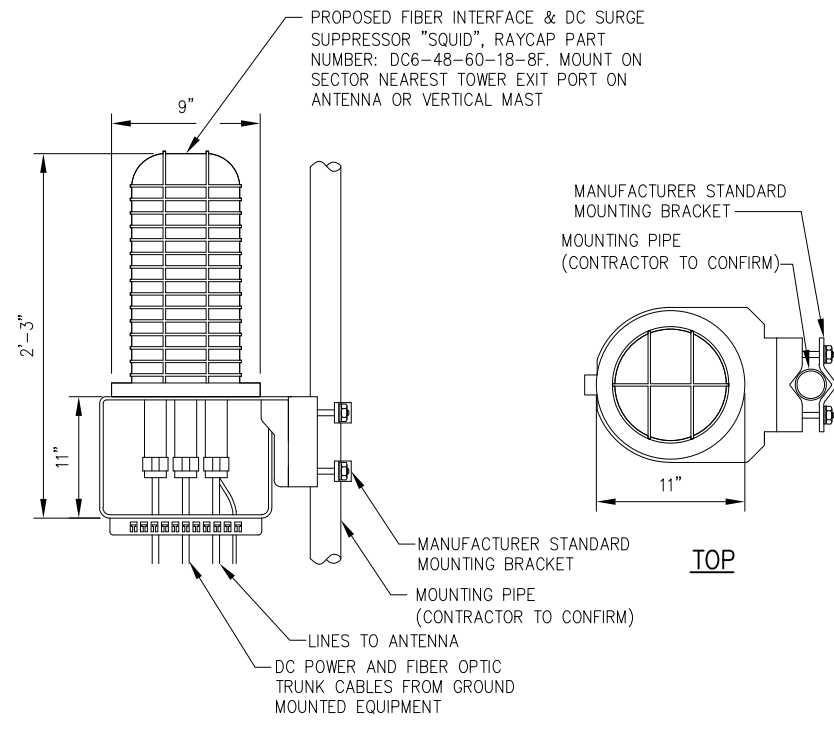


5 BACK TO BACK PIPE MOUNT DETAIL
 --- NOT TO SCALE

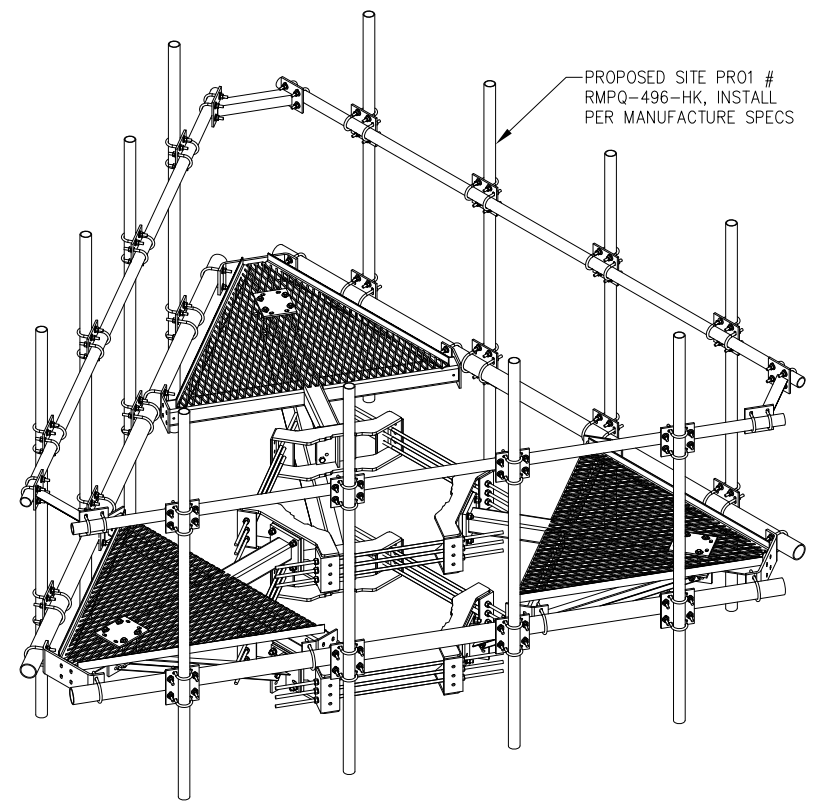


ALL EXISTING AND PROPOSED RRUS MOUNTED BEHIND ANTENNAS MUST BE A MINIMUM OF 8" BEHIND THE BACK OF PANEL ANTENNA

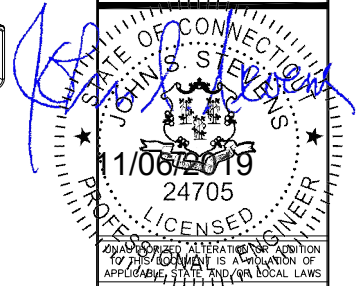
6 ANTENNA MOUNTING DETAIL
 --- NOT TO SCALE



7 SQUID DETAIL
 --- NOT TO SCALE



8 PLATFORM MOUNT DETAIL
 --- NOT TO SCALE

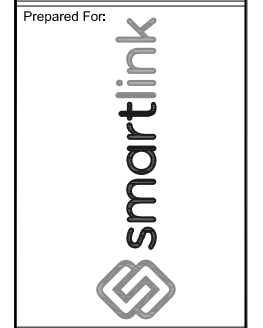


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| | Designed: ASW | Date: 09/11/19 | |
| | Checked: A.D. | Date: 09/11/19 | |
| Project Number: 499-006 | | | |

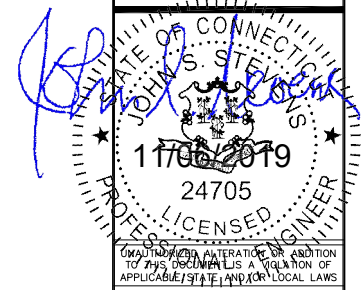
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EQUIPMENT DETAILS

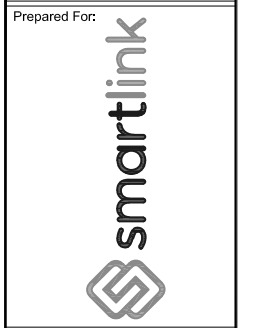
Drawing Number:
C5



IN ADDITION TO HIS REGISTRATION AS A PROFESSIONAL ENGINEER IN THE STATE OF CONNECTICUT, HE IS ALSO LICENSED AS A PROFESSIONAL ENGINEER IN THE STATE OF ALABAMA AND/OR LOCAL LAWS.

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| Project Number: 499-006 | | | |

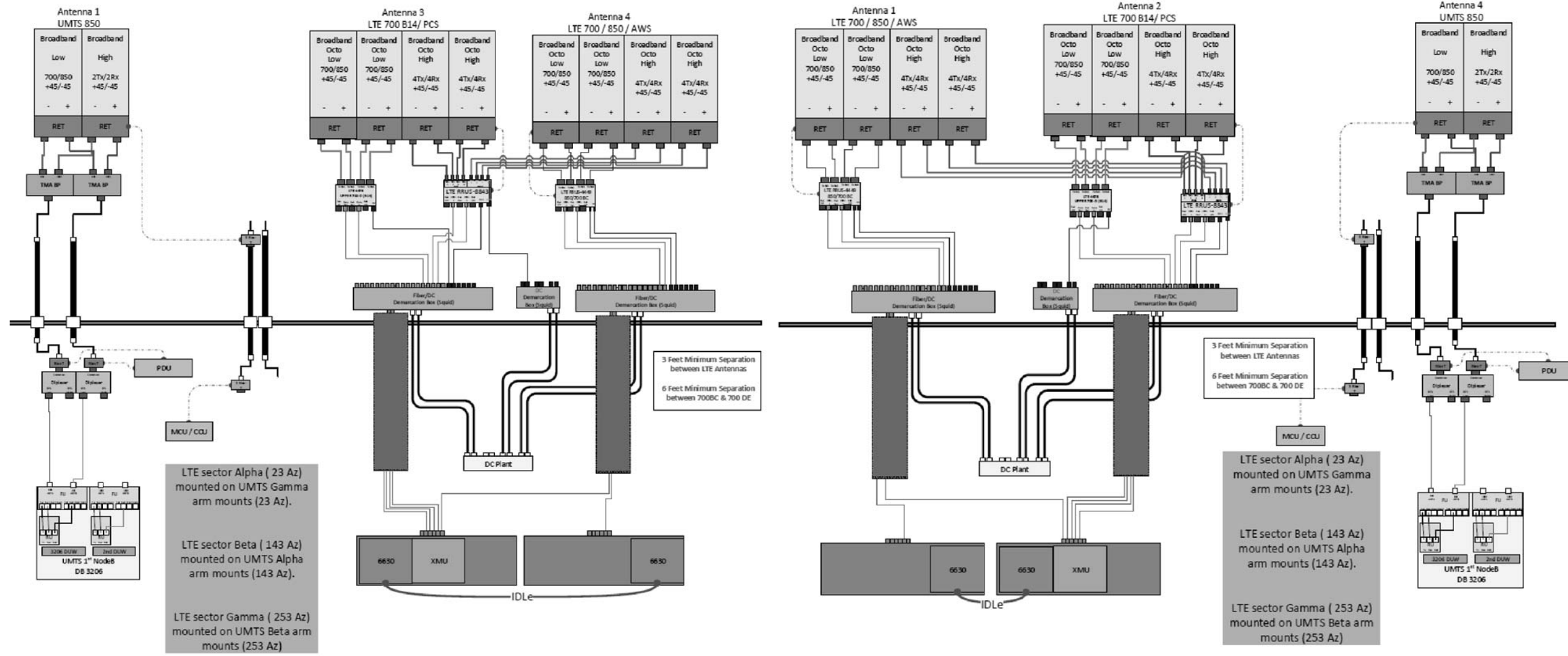
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Drawing Title:
PLUMBING DIAGRAM

Drawing Number:
C6

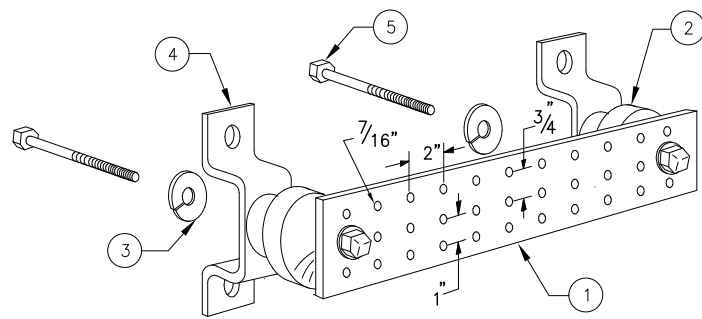


ALPHA/BETA

GAMMA

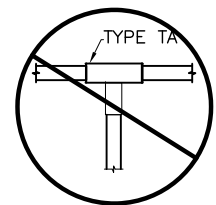
1 PLUMBING DIAGRAM (FINAL CONFIGURATION)
 NOT TO SCALE

*BASED ON LTE RFDS, DATED 10/28/19 V5.00

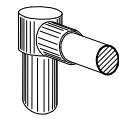


LEGEND

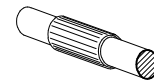
- 1 - SOLID TINNED COPPER GROUND BAR, 1/4"x 4"x 20" MIN., NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION
- 2 - INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4
- 3 - 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8
- 4 - WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056
- 5 - 5/8-11 X 1" H.H.C.S. BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012-1
- 6 - GROUND BAR SHALL BE SIZED TO ACCOMMODATE ALL GROUNDING CONNECTIONS REQUIRED PLUS PROVIDE 50% SPARE CAPACITY
- 7 - GROUND BARS SHALL NEITHER BE FIELD FABRICATED NOR NEW HOLES DRILLED
- 8 - GROUND LUGS SHALL MATCH THE HOLE SPACING ON THE BAR
- 9 - HARDWARE DIAMETER SHALL BE MINIMUM 3/8"



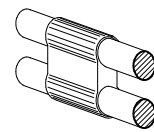
NOT PERMITTED



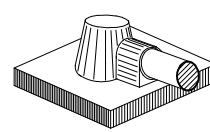
TYPE GR



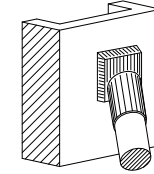
TYPE SV



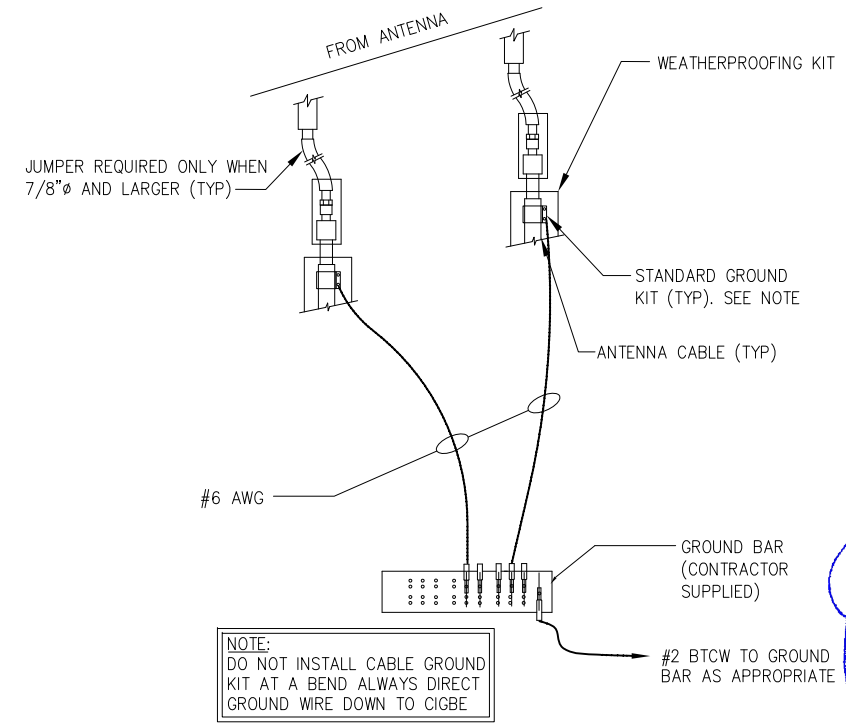
TYPE PH



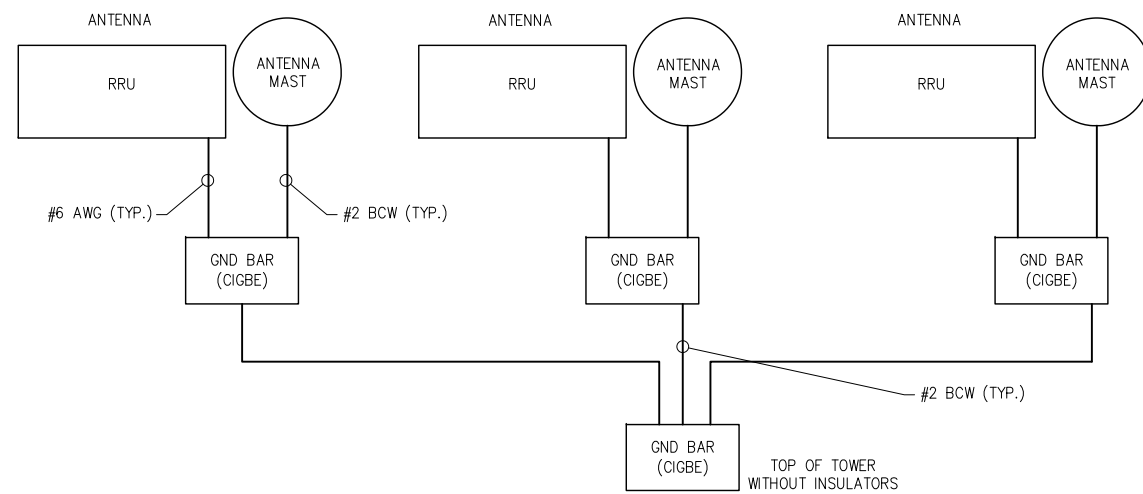
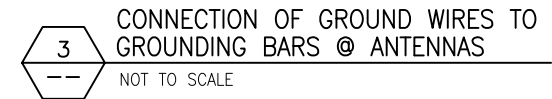
TYPE KA



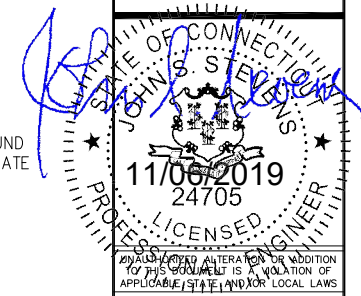
TYPE VS



NOTE:
DO NOT INSTALL CABLE GROUND KIT AT A BEND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE



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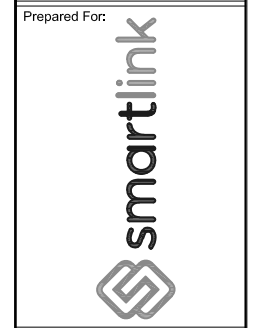


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Date: 11/06/19

Drawing Title:
GROUNDING DETAILS

Drawing Number:
C7