

January 27, 2017

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

Re: **Notice of Exempt Modification – Facility Modification  
202 North Wawecus Hill Road, Norwich, Connecticut**

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains twelve (12) wireless telecommunications antennas at the 116-foot level of the existing 140-foot tower at 202 North Wawecus Hill Road in Norwich, Connecticut (the “Property”). The tower is owned by American Tower Corporation (“ATC”). The Council approved Cellco’s use of the tower in 2014. Cellco now intends to modify its facility by removing nine (9) of its existing antennas and installing six (6) replacement antennas (three (3) model SBNHH-1D65B, 700/2100 MHz antennas and three (3) model SBNHH-1D65B, 1900 MHz antennas), all at the same 116-foot level on the tower. Cellco will also replace three (3) remote radio heads (“RRHs”) with three (3) newer model RRHs. Included in Attachment 1 are specifications for Cellco’s replacement antennas and RRHs.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Deb Hinchey, Mayor for the City of Norwich. A copy of this letter is also being sent to Deanna Rhodes, Norwich City Planner, John J. Polaski, Jr., the owner of the Property and ATC, the tower owner.

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

1. The proposed modifications will not result in an increase in the height of the existing tower. The replacement antennas and RRHs will be located at the 116-foot level on the 140-foot tower.

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2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.

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

4. The operation of the 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 General Power Density table for Cellco's modified facility is included behind Attachment 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 Cellco's proposed modifications. (See Structural Analysis Report<sup>1</sup> included in Attachment 3).

A copy of the City Assessor's Parcel Map and property owner information is included in Attachment 4.

For the foregoing reasons, Cellco 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,



Kenneth C. Baldwin

Enclosures

Copy to:

Deb Hinchey, Norwich Mayor  
Deanna Rhodes, Norwich City Planner  
John J. Polaski, Jr.  
ATC  
Tim Parks

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<sup>1</sup> The attached Structural Analysis Report reflects work previously approved by the Council in EM-VER-104-151117, but not yet completed and the new modifications described above.

# **ATTACHMENT 1**



## SBNHH-1D65B

**Multiband Antenna, 698–896 and 2x 1695–2360 MHz, 65° horizontal beamwidth, internal RET. Both high bands share the same electrical tilt.**

- Interleaved dipole technology providing for attractive, low wind load mechanical package

### Electrical Specifications

| Frequency Band, MHz                  | 698–806    | 806–896    | 1695–1880  | 1850–1990  | 1920–2200  | 2300–2360  |
|--------------------------------------|------------|------------|------------|------------|------------|------------|
| Gain, dBi                            | 14.9       | 14.7       | 17.7       | 18.2       | 18.6       | 18.6       |
| Beamwidth, Horizontal, degrees       | 68         | 66         | 69         | 66         | 63         | 58         |
| Beamwidth, Vertical, degrees         | 12.1       | 10.7       | 5.6        | 5.2        | 5.0        | 4.5        |
| Beam Tilt, degrees                   | 0–14       | 0–14       | 0–7        | 0–7        | 0–7        | 0–7        |
| USLS (First Lobe), dB                | 14         | 13         | 15         | 15         | 15         | 13         |
| Front-to-Back Ratio at 180°, dB      | 27         | 29         | 28         | 28         | 28         | 27         |
| Isolation, dB                        | 25         | 25         | 25         | 25         | 25         | 25         |
| Isolation, Intersystem, dB           | 30         | 30         | 30         | 30         | 30         | 30         |
| VSWR   Return Loss, dB               | 1.5   14.0 | 1.5   14.0 | 1.5   14.0 | 1.5   14.0 | 1.5   14.0 | 1.5   14.0 |
| PIM, 3rd Order, 2 x 20 W, dBc        | -153       | -153       | -153       | -153       | -153       | -153       |
| Input Power per Port, maximum, watts | 350        | 350        | 350        | 350        | 350        | 300        |
| Polarization                         | ±45°       | ±45°       | ±45°       | ±45°       | ±45°       | ±45°       |
| Impedance                            | 50 ohm     | 50 ohm     | 50 ohm     | 50 ohm     | 50 ohm     | 50 ohm     |

### Electrical Specifications, BASTA\*

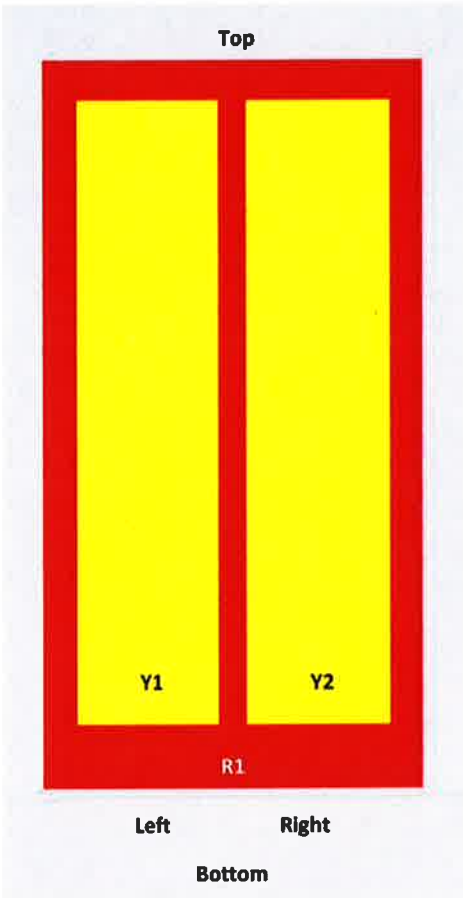
| Frequency Band, MHz                         | 698–806     | 806–896     | 1695–1880  | 1850–1990  | 1920–2200  | 2300–2360  |
|---------------------------------------------|-------------|-------------|------------|------------|------------|------------|
| Gain by all Beam Tilts, average, dBi        | 14.5        | 14.3        | 17.4       | 17.9       | 18.2       | 18.3       |
| Gain by all Beam Tilts Tolerance, dB        | ±0.5        | ±0.8        | ±0.4       | ±0.3       | ±0.5       | ±0.3       |
|                                             | 0 °   14.6  | 0 °   14.5  | 0 °   17.4 | 0 °   17.8 | 0 °   18.1 | 0 °   18.2 |
| Gain by Beam Tilt, average, dBi             | 7 °   14.6  | 7 °   14.4  | 3 °   17.5 | 3 °   17.9 | 3 °   18.3 | 3 °   18.4 |
|                                             | 14 °   14.2 | 14 °   13.6 | 7 °   17.4 | 7 °   17.9 | 7 °   18.2 | 7 °   18.4 |
| Beamwidth, Horizontal Tolerance, degrees    | ±2.2        | ±3.4        | ±2         | ±4.6       | ±5.7       | ±4.3       |
| Beamwidth, Vertical Tolerance, degrees      | ±0.8        | ±1          | ±0.3       | ±0.2       | ±0.3       | ±0.2       |
| USLS, beampeak to 20° above beampeak, dB    | 16          | 14          | 16         | 16         | 16         | 15         |
| Front-to-Back Total Power at 180° ± 30°, dB | 25          | 26          | 27         | 26         | 26         | 26         |
| CPR at Boresight, dB                        | 22          | 23          | 21         | 20         | 20         | 22         |
| CPR at Sector, dB                           | 13          | 11          | 16         | 12         | 11         | 4          |

\* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, [download the whitepaper Time to Raise the Bar on BSAs.](#)

### Array Layout

SBNHH-1D65B

SBNHH 65



| Array | Freq (MHz) | Conns | RET (MRET) | AISG RET UID       |
|-------|------------|-------|------------|--------------------|
| R1    | 698-896    | 1-2   | 1          | ANxxxxxxxxxxxxxx.1 |
| Y1    | 1695-2360  | 3-4   | 2          | ANxxxxxxxxxxxxxx.2 |
| Y2    | 1695-2360  | 5-6   |            |                    |

View from the front of the antenna  
(Sizes of colored boxes are not true depictions of array sizes)

General Specifications

|                          |                                 |
|--------------------------|---------------------------------|
| Operating Frequency Band | 1695 – 2360 MHz   698 – 896 MHz |
| Antenna Type             | Sector                          |
| Band                     | Multiband                       |
| Performance Note         | Outdoor usage                   |

Mechanical Specifications

|                                  |                 |
|----------------------------------|-----------------|
| RF Connector Quantity, total     | 6               |
| RF Connector Quantity, low band  | 2               |
| RF Connector Quantity, high band | 4               |
| RF Connector Interface           | 7-16 DIN Female |

SBNHH-1D65B

|                       |                                                                                  |
|-----------------------|----------------------------------------------------------------------------------|
| Color                 | Light gray                                                                       |
| Grounding Type        | RF connector inner conductor and body grounded to reflector and mounting bracket |
| Radiator Material     | Aluminum   Low loss circuit board                                                |
| Radome Material       | Fiberglass, UV resistant                                                         |
| Reflector Material    | Aluminum                                                                         |
| RF Connector Location | Bottom                                                                           |
| Wind Loading, frontal | 618.0 N @ 150 km/h<br>138.9 lbf @ 150 km/h                                       |
| Wind Loading, lateral | 197.0 N @ 150 km/h<br>44.3 lbf @ 150 km/h                                        |
| Wind Loading, rear    | 728.0 N @ 150 km/h<br>163.7 lbf @ 150 km/h                                       |
| Wind Speed, maximum   | 241 km/h   150 mph                                                               |

## Dimensions

|                                  |                     |
|----------------------------------|---------------------|
| Length                           | 1851.0 mm   72.9 in |
| Width                            | 301.0 mm   11.9 in  |
| Depth                            | 180.0 mm   7.1 in   |
| Net Weight, without mounting kit | 18.4 kg   40.6 lb   |

## Remote Electrical Tilt (RET) Information

|                                               |                                   |
|-----------------------------------------------|-----------------------------------|
| Input Voltage                                 | 10–30 Vdc                         |
| Internal RET                                  | High band (1)   Low band (1)      |
| Power Consumption, idle state, maximum        | 2.0 W                             |
| Power Consumption, normal conditions, maximum | 13.0 W                            |
| Protocol                                      | 3GPP/AISG 2.0 (Multi-RET)         |
| RET Interface                                 | 8-pin DIN Female   8-pin DIN Male |
| RET Interface, quantity                       | 1 female   1 male                 |

## Packed Dimensions

|                 |                     |
|-----------------|---------------------|
| Length          | 2025.0 mm   79.7 in |
| Width           | 390.0 mm   15.4 in  |
| Depth           | 296.0 mm   11.7 in  |
| Shipping Weight | 31.0 kg   68.3 lb   |

## Regulatory Compliance/Certifications

| Agency                     | Classification                                                                 |
|----------------------------|--------------------------------------------------------------------------------|
| RoHS 2011/65/EU            | Compliant by Exemption                                                         |
| China RoHS SJ/T 11364-2006 | Above Maximum Concentration Value (MCV)                                        |
| ISO 9001:2008              | Designed, manufactured and/or distributed under this quality management system |



SBNHH-1D65B

## Included Products

BSAMNT-1 — Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

## \* Footnotes

|                  |                                                                 |
|------------------|-----------------------------------------------------------------|
| Performance Note | Severe environmental conditions may degrade optimum performance |
|------------------|-----------------------------------------------------------------|

# ALCATEL-LUCENT B13 RRH4X30-4R

Alcatel-Lucent B13 Remote Radio Head 4x30-4R is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

**Supporting 2Tx/4Tx MIMO and 4-way Rx diversity,** Alcatel-Lucent B13 RRH4x30-4R allows operators to have a compact radio solution to deploy LTE in the 700U band (700 MHz, 3GPP band 13), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B13 RRH4x30-4R product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity and up to 10MHz instantaneous bandwidth.

The Alcatel-Lucent B13 RRH4x30-4R is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

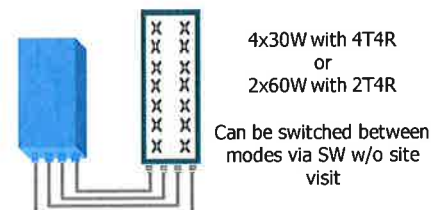


## FEATURES

- Supporting LTE in 700 MHz band (700U, 3GPP band 13)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- 10MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports

## BENEFITS

- Compact to reduce additional footprint when adding LTE in 700U band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through MIMO4
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall



## TECHNICAL SPECIFICATIONS

| Features & performance                     |                                                                                             |
|--------------------------------------------|---------------------------------------------------------------------------------------------|
| <b>Number of TX/RX paths</b>               | 4 duplexed (either 4T4R or 2T4R by SW)                                                      |
| <b>Frequency band</b>                      | U700 (C) (3GPP bands 13):<br>DL: 746 - 756 MHz / UL: 777 - 787 MHz                          |
| <b>Instantaneous bandwidth - #carriers</b> | 10MHz – 1 LTE carrier (in 10MHz occupied bandwidth)                                         |
| <b>LTE carrier bandwidth</b>               | 10 MHz                                                                                      |
| <b>RF output power</b>                     | 2x60W or 4x30W (by SW)                                                                      |
| <b>Noise figure – RX Diversity scheme</b>  | 2 dB typ. (<2.5 dB max) – 2 or 4 way Rx diversity                                           |
| <b>Sizes (HxWxD) in mm (in.)</b>           | 550 x 305 x 230 (21.6" x 12.0" x 9") (with solar shield)                                    |
| <b>Volume in L</b>                         | 38 (with solar shield)                                                                      |
| <b>Weight in kg (lb) (w/o mounting HW)</b> | 26 (57.2) (with solar shield)                                                               |
| <b>DC voltage range</b>                    | -40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption         |
| <b>DC power consumption</b>                | 550W typical @100% RF load ( In 2Tx or 4TX mode)                                            |
| <b>Environmental conditions</b>            | -40°C (-40°F) / +55°C (+131°F)<br>IP65                                                      |
| <b>Wind load (@150km/h or 93mph)</b>       | Frontal: <200N / Lateral : <150N                                                            |
| <b>Antenna ports</b>                       | 4 ports 7/16 DIN female (50 ohms)<br>VSWR < 1.5                                             |
| <b>CPRI ports</b>                          | 2 CPRI ports (HW ready for Rate7, 9.8 Gbps)<br>SFP single mode dual fiber                   |
| <b>AISG interfaces</b>                     | 1 AISG2.0 output (RS485)<br>Integrated Smart Bias Tees (x2)                                 |
| <b>Misc. Interfaces</b>                    | 4 external alarms (1 connector) – 4 RF Tx & 4 RF Rx monitor ports - 1 DC connector (2 pins) |
| <b>Installation conditions</b>             | Pole and wall mounting                                                                      |
| <b>Regulatory compliance</b>               | 3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27          |

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# ALCATEL-LUCENT B25 RRH4X30

Alcatel-Lucent Band 25 Remote Radio Head 4x30W is the new addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

**Supporting 2Tx/4Tx MIMO and 4-way Rx diversity**, Alcatel-Lucent B25 RRH4x30 allows operators to have a compact radio solution to deploy LTE in the PCS band (1.9 GHz, 3GPP band 25), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B25 RRH4x30 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity, LTE carriers from 3 MHz up to 20 MHz and up to 65 MHz instantaneous bandwidth.

The Alcatel-Lucent B25 RRH4x30 is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

Its compactness and slim design makes the Alcatel-Lucent B25 RRH4x30 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

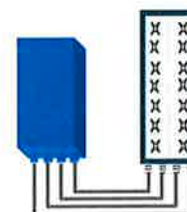


## FEATURES

- Supporting LTE in 1.9 GHz band (PCS, 3GPP band 2 & 25)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- Ready for 3, 5, 10, 15 or 20MHz LTE carrier operation with 4Rx Diversity
- Ready to support up to 4 carriers anywhere in 65MHz instantaneous bandwidth
- Convection-cooled (fan-less)
- Supports AISG 2.0 devices (RET, TMA) through RS485 or RF ports

## BENEFITS

- Compact to reduce additional footprint when adding LTE in PCS band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Full flexibility for multiple carriers operation over entire PCS spectrum
- Improves downlink spectral efficiency and cell edge throughput through MIMO4
- Increases LTE coverage thanks to 4-way Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options (Pole or Wall)



4x30W with 4T4R  
or  
2x60W with 2T4R

Can be switched between  
modes via SW w/o site  
visit

## TECHNICAL SPECIFICATIONS

| Features & performance                     |                                                                                                      |
|--------------------------------------------|------------------------------------------------------------------------------------------------------|
| Number of TX/RX paths                      | 4 duplexed (either 4T4R or 2T4R by SW)                                                               |
| Frequency band                             | 3GPP bands 2 & 25 (PCS-G)<br>DL: 1930 - 1995 MHz<br>UL: 1850 - 1915 MHz                              |
| Instantaneous bandwidth - #carriers        | 65MHz – Up to 4 LTE carriers (in 40MHz occupied bandwidth)                                           |
| LTE carrier bandwidth                      | 3, 5, 10, 15 or 20 MHz                                                                               |
| RF output power                            | 2x60W or 4x30W (by SW)                                                                               |
| Noise figure (3GPP band 2)                 | 2.0 dB typ. (<2.5 dB max)                                                                            |
| RX Diversity scheme                        | 2 or 4 way Rx diversity                                                                              |
| Sizes (HxWxD)(w/ solar shield) in mm (in.) | 538 x 304 x 182 (21.2" x 12.0" x 7.2")                                                               |
| Volume (w/ solar shield) in L              | 30                                                                                                   |
| Weight (w/ solar shield) in kg (lb)        | 24 (53)                                                                                              |
| DC voltage range                           | -40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption                  |
| DC power consumption                       | 580W typical @100% RF load                                                                           |
| Environmental conditions                   | -40°C (-40°F) / +55°C (+131°F)<br>IP65                                                               |
| Wind load (@150km/h or 93mph)              | Frontal: <200N / Lateral : <150N                                                                     |
| Antenna ports                              | 4 ports 7/16 DIN female (50 ohms)<br>VSWR < 1.5 (> 14dB)                                             |
| CPRI ports                                 | 2 CPRI ports (HW ready for Rate7 / 9.8 Gbps)                                                         |
| AISG interfaces                            | 1 AISG2.0 output (RS485), +24V/2A DC power<br>Integrated Smart Bias Tees (x2)                        |
| Misc. Interfaces                           | 1 external alarms connector (4 alarms)<br>4 RF Tx & 4 RF Rx monitor ports<br>1 DC connector (2 pins) |
| Installation conditions                    | Pole and wall mounting                                                                               |
| Regulatory compliance                      | 3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27                   |

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B25 RRH4x30

ALCATEL-LUCENT DATA SHEET REV1.1 – JANUARY 2015

# ALCATEL-LUCENT B66A RRH4X45

The Alcatel-Lucent B66a Remote Radio Head 4x45 is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering. Its operational range covers beyond that of B4 (AWS) and B10 (AWS+).

**Supporting 2Tx/4Tx MIMO and 2-way/4-way Rx diversity**, the Alcatel-Lucent B66a RRH4x45 allows operators to have a compact radio solution to deploy LTE in the 2100 band (3GPP band 4, 10, and 66), providing them with the means to achieve high capacity, high quality, high reliability, large instantaneous bandwidth, and high coverage with minimum site requirements.

The Alcatel-Lucent B66a RRH4x45 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x90W or 4x45W RF output power. It also supports 4-way Rx diversity at the 70 MHz instantaneous bandwidth.



The Alcatel-Lucent B66a RRH4x45 is a compact (near zero-footprint) solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

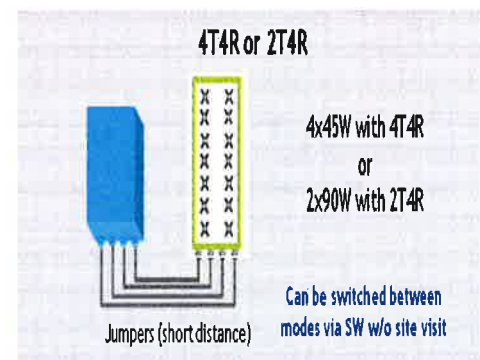
Its compactness and slim design makes the Alcatel-Lucent B66a RRH4x45 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

## FEATURES

- Supporting LTE in 2110 - 2180 MHz band/DL, 1710-1780MHz/UL (3GPP band 4, 10, and 66a)
- LTE 2Tx or 4Tx MIMO (SW selectable)
- Configuration: 2T2R/2T4R/4T4R
- Output power: Up to 2x90W or 4x45W (SW configurable)
- 70MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports

## BENEFITS

- Compact to reduce additional footprint when adding LTE in AWS 1-3 band
- Selection of MIMO configuration (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through 4Tx MIMO
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall



## TECHNICAL SPECIFICATIONS

| Features & Performance                     |                                                                                                                          |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>Number of TX/RX paths</b>               | 4 duplexed (either 4T4R or 2T4R selectable by SW)                                                                        |
| <b>Frequency band</b>                      | AWS 1-3, B4/B66a<br>DL: 2110-2180 MHz / UL: 1710-1780 MHz                                                                |
| <b>Instantaneous bandwidth - #carriers</b> | 70 MHz – 4 LTE MIMO carriers (In 70 MHz occupied bandwidth)                                                              |
| <b>LTE carrier bandwidth</b>               | 5, 10, 15, 20 MHz                                                                                                        |
| <b>RF output power</b>                     | 2x90W or 4x45W (selectable by SW)                                                                                        |
| <b>Noise figure – RX Diversity scheme</b>  | 2 dB typical (<2.5 dB max) – 2 or 4 way Rx diversity                                                                     |
| <b>Receiver Sensivity (FRC A1-3)</b>       | -104.5 dBm maximum                                                                                                       |
| <b>Sizes (HxWxD) in mm (in.)</b>           | 655x299x182 (25.8x11.8x7.2) (with solar shield)<br>640x290x160 (25.2x11.4x6.3) (without solar shield)                    |
| <b>Volume in Liters</b>                    | 35.5 (with solar shield)<br>29.7 (without solar shield)                                                                  |
| <b>Weight in kg (lb) (w/o mounting HW)</b> | 25.8kg (56.8lb) (with solar shield)                                                                                      |
| <b>DC voltage range</b>                    | Nominal: -48V, -40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption                       |
| <b>DC power consumption</b>                | 750W typical @100% RF load (in 2Tx or 4Tx mode); Add 58W for 2A*29V for AISG                                             |
| <b>Environmental conditions</b>            | -40°C (-40°F) / +55°C (+131°F)<br>UL50E Type 4 Enclosure                                                                 |
| <b>Wind load (@150km/h or 93mph)</b>       | 250N (56lb) Frontal/150N (34lb) Lateral                                                                                  |
| <b>Antenna ports</b>                       | 4 ports 4.3-10 female (50 ohms)<br>VSWR < 1.5                                                                            |
| <b>CPRI ports</b>                          | 2 CPRI ports (HW ready for Rate 7, 9.8 Gbps)<br>SFP: SMDF (HW supports also SMSF and MMDF)                               |
| <b>AISG interfaces</b>                     | 1 AISG 2.0 output (RS485)<br>Integrated Smart Bias Tees (x2)                                                             |
| <b>Misc. Interfaces</b>                    | 4 external alarms (1 connector)<br>1 DC connector (2 pins)                                                               |
| <b>Installation conditions</b>             | Pole and wall mounting                                                                                                   |
| <b>Regulatory compliance</b>               | 3GPP 36.141 / 3GPP 36.113 / GR-487 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27 / FCC Part 15 / GR-3178-CORE |

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# **ATTACHMENT 2**



# **ATTACHMENT 3**



**AMERICAN TOWER®**  
CORPORATION

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## Structural Analysis Report

**Structure** : 140 ft Monopole  
**ATC Site Name** : Norwich CT, CT  
**ATC Site Number** : 311014  
**Engineering Number** : OAA684610\_C3\_02  
**Proposed Carrier** : Verizon Wireless  
**Carrier Site Name** : Norwich West CT  
**Carrier Site Number** : 161645  
**Site Location** : 202 N Wawecus Hill Rd  
Norwich, CT 06360-4071  
41.527069,-72.122594  
**County** : New London  
**Date** : December 1, 2016  
**Max Usage** : 33%  
**Result** : Pass

Prepared By:  
Aaron Black  
Structural Engineer I

Reviewed By:



Dec 1 2016 4:34 PM cosign

COA: PEC.0001553



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## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 140 ft monopole to reflect the change in loading by Verizon Wireless.

## Supporting Documents

|                            |                                                                                                                 |
|----------------------------|-----------------------------------------------------------------------------------------------------------------|
| <b>Tower Drawings</b>      | Summit, PJF Job #29205-0119, dated June 1, 2005                                                                 |
| <b>Foundation Drawing</b>  | Summit, PJF Job #29205-0119, dated June 1, 2005                                                                 |
| <b>Geotechnical Report</b> | Clarence Welt Assoc. Geotechnical Study Report for Cell Tower 202 North Wawecus Hill Rd., dated October 3, 2005 |

## Analysis

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

|                                 |                                                                           |
|---------------------------------|---------------------------------------------------------------------------|
| <b>Basic Wind Speed:</b>        | 105 mph (3-Second Gust, $V_{ASD}$ ) / 135 mph (3-Second Gust, $V_{ULT}$ ) |
| <b>Basic Wind Speed w/ Ice:</b> | 50 mph (3-Second Gust) w/ 3/4" radial ice concurrent                      |
| <b>Code:</b>                    | ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code          |
| <b>Structure Class:</b>         | II                                                                        |
| <b>Exposure Category:</b>       | B'                                                                        |
| <b>Topographic Category:</b>    | 1                                                                         |
| <b>Spectral Response:</b>       | $S_s = 0.17$ , $S_1 = 0.06$                                               |
| <b>Site Class:</b>              | D - Stiff Soil                                                            |

## Conclusion

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

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



### Existing and Reserved Equipment

| Elevation <sup>1</sup> (ft) |       | Qty | Antenna                         | Mount Type           | Lines                                    | Carrier          |
|-----------------------------|-------|-----|---------------------------------|----------------------|------------------------------------------|------------------|
| Mount                       | RAD   |     |                                 |                      |                                          |                  |
| 134.0                       | 134.0 | 3   | Ericsson KRY 112 144/1          | Low Profile Platform | (12) 1 5/8" Coax<br>(1) 1 1/4" Hybriflex | T-Mobile         |
|                             |       | 3   | Ericsson RRUS 11 B12            |                      |                                          |                  |
|                             |       | 3   | Ericsson AIR 21, 1.3 M, B2A B4P |                      |                                          |                  |
|                             |       | 3   | Ericsson AIR 21, 1.3M, B4A B2P  |                      |                                          |                  |
|                             |       | 3   | Andrew LNX-6515DS-VTM           |                      |                                          |                  |
| 124.0                       | 124.0 | 3   | RCU                             | Low Profile Platform | (6) 1 5/8" Coax<br>(1) 3/8" Coax         | Metro PCS        |
|                             |       | 6   | Kathrein 800 10504              |                      |                                          |                  |
| 114.0                       | 114.0 | 3   | Alcatel-Lucent RRH2X60-1900A-4R | Low Profile Platform | (12) 1 5/8" Coax<br>(2) 1 5/8" Hybriflex | Verizon Wireless |
|                             |       | 3   | Alcatel-Lucent RRH2x60 700      |                      |                                          |                  |
|                             |       | 2   | RFS DB-T1-6Z-8AB-OZ             |                      |                                          |                  |
|                             |       | 3   | Antel BXA-70063-6CF-EDIN-X      |                      |                                          |                  |

### Equipment to be Removed

| Elevation <sup>1</sup> (ft) |       | Qty | Antenna                                             | Mount Type | Lines | Carrier          |
|-----------------------------|-------|-----|-----------------------------------------------------|------------|-------|------------------|
| Mount                       | RAD   |     |                                                     |            |       |                  |
| 116.0                       | 116.0 | 6   | Commscope HBXX-6517DS-A2M                           | -          | -     | Verizon Wireless |
|                             |       | 3   | Commscope LNX-6514DS-A1M                            |            |       |                  |
|                             |       | 3   | Alcatel-Lucent RRH2x60 - AWS Band 4<br>(20" Height) |            |       |                  |

### Proposed Equipment

| Elevation <sup>1</sup> (ft) |       | Qty | Antenna                                           | Mount Type           | Lines | Carrier          |
|-----------------------------|-------|-----|---------------------------------------------------|----------------------|-------|------------------|
| Mount                       | RAD   |     |                                                   |                      |       |                  |
| 114.0                       | 114.0 | 3   | Alcatel-Lucent B66A RRH4x45-4R w/<br>Solar Shield | Low Profile Platform | -     | Verizon Wireless |
|                             |       | 6   | Commscope SBNHH-1D65B (40.6 lbs)                  |                      |       |                  |

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

### Structure Usages

| Structural Component | Controlling Usage | Pass/Fail |
|----------------------|-------------------|-----------|
| Anchor Bolts         | 27%               | Pass      |
| Shaft                | 33%               | Pass      |
| Base Plate           | 17%               | Pass      |

### Foundations

| Reaction Component | Original Design Reactions | Factored Design Reactions* | Analysis Reactions | % of Design |
|--------------------|---------------------------|----------------------------|--------------------|-------------|
| Moment (Kips-Ft)   | 5,050.0                   | 6,817.5                    | 2,210.5            | 32%         |
| Shear (Kips)       | 43.0                      | 58.1                       | 23.5               | 40%         |

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

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

### Deflection and Sway\*

| Antenna Elevation (ft) | Antenna                                        | Carrier          | Deflection (ft) | Sway (Rotation) (°) |
|------------------------|------------------------------------------------|------------------|-----------------|---------------------|
| 114.0                  | Alcatel-Lucent B66A RRH4x45-4R w/ Solar Shield | Verizon Wireless | 0.375           | 0.355               |
|                        | Commscope SBNHH-1D65B (40.6 lbs)               |                  |                 |                     |

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



## **Standard Conditions**

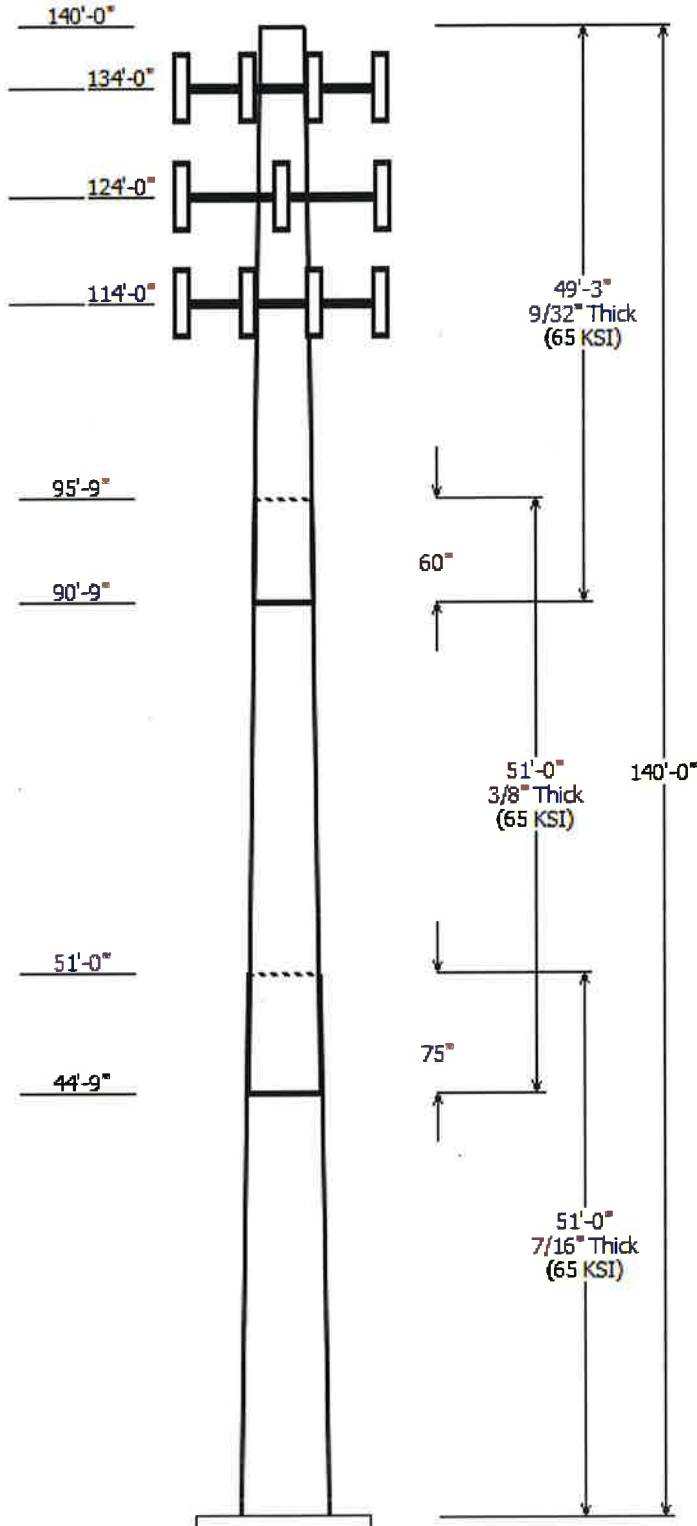
All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.
- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

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. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and American Tower Corporation, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

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 we supply.



## Job Information

**Pole :** 311014 **Code:** ANSI/TIA-222-G  
**Description :** 140 ft PennSummit Monopole  
**Client :** Verizon Wireless **Struct Class :** II  
**Location :** Norwich CT, CT  
**Shape :** 18 Sides **Exposure :** B  
**Height :** 140.00 (ft) **Topo :** 1  
**Base Elev (ft):** 0.00  
**Taper:** 0.23420 in/ft

## Sections Properties

| Shaft Section | Length (ft) | Diameter (in) |              | Thick (in) | Joint Type | Overlap     |               | Steel Grade |
|---------------|-------------|---------------|--------------|------------|------------|-------------|---------------|-------------|
|               |             | Accross Top   | Flats Bottom |            |            | Length (in) | Taper (in/ft) |             |
| 1             | 51.000      | 48.21         | 60.16        | 0.438      |            | 0.000       | 0.234200      | 65          |
| 2             | 51.000      | 38.48         | 50.42        | 0.375      | Slip Joint | 75.000      | 0.234200      | 65          |
| 3             | 49.250      | 28.68         | 40.21        | 0.281      | Slip Joint | 60.000      | 0.234200      | 65          |

## Discrete Appurtenance

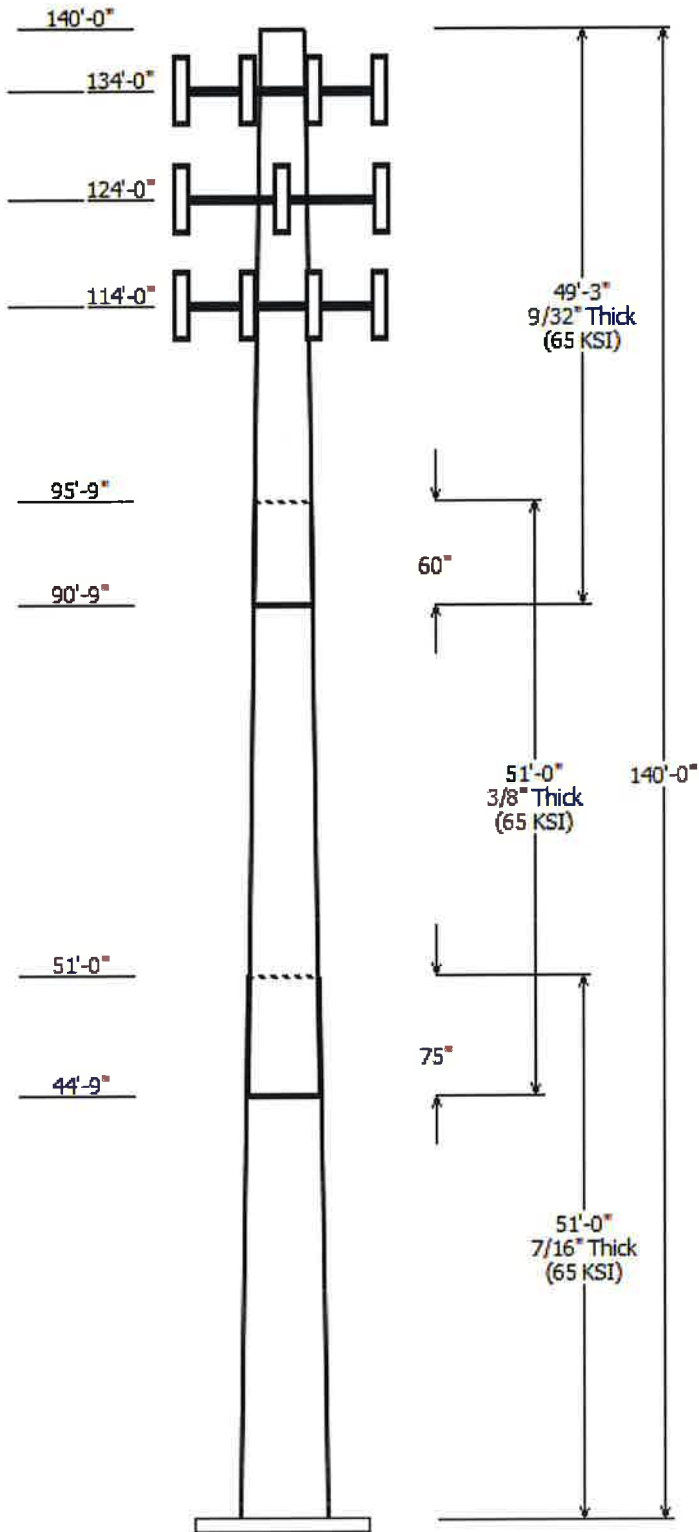
| Attach Elev (ft) | Force Elev (ft) | Qty | Description                    |
|------------------|-----------------|-----|--------------------------------|
| 134.000          | 134.000         | 3   | Andrew LNX-6515DS-VTM          |
| 134.000          | 134.000         | 3   | Ericsson RRUS 11 B12           |
| 134.000          | 134.000         | 1   | Flat Low Profile Platform      |
| 134.000          | 134.000         | 3   | Ericsson AIR 21, 1.3M, B4A B2P |
| 134.000          | 134.000         | 3   | Ericsson AIR 21, 1.3 M, B2A B4 |
| 134.000          | 134.000         | 3   | Ericsson KRY 112 144/1         |
| 124.000          | 124.000         | 1   | Flat Low Profile Platform      |
| 124.000          | 124.000         | 6   | Kathrein 800 10504             |
| 124.000          | 124.000         | 3   | RCU                            |
| 114.000          | 114.000         | 1   | Round Low Profile Platform     |
| 114.000          | 114.000         | 6   | Commscope SBNHH-1D65B          |
| 114.000          | 114.000         | 3   | Amphenol Antel BXA-70063-      |
| 114.000          | 114.000         | 2   | RFS DB-T1-6Z-8AB-0Z            |
| 114.000          | 114.000         | 3   | Alcatel-Lucent RRH2x60 700     |
| 114.000          | 114.000         | 3   | Alcatel-Lucent B66A RRH4x45-   |
| 114.000          | 114.000         | 3   | Alcatel-Lucent RRH2X60-1900A-  |

## Linear Appurtenance

| Elev (ft) |       | Description      | Exposed To Wind |
|-----------|-------|------------------|-----------------|
| From      | To    |                  |                 |
| 5.000     | 114.0 | 1 5/8" Coax      | No              |
| 5.000     | 114.0 | 1 5/8" Hybriflex | No              |
| 5.000     | 124.0 | 1 5/8" Coax      | No              |
| 5.000     | 124.0 | 3/8" Coax        | No              |
| 5.000     | 134.0 | 1 1/4" Hybriflex | No              |
| 5.000     | 134.0 | 1 5/8" Coax      | No              |

## Load Cases

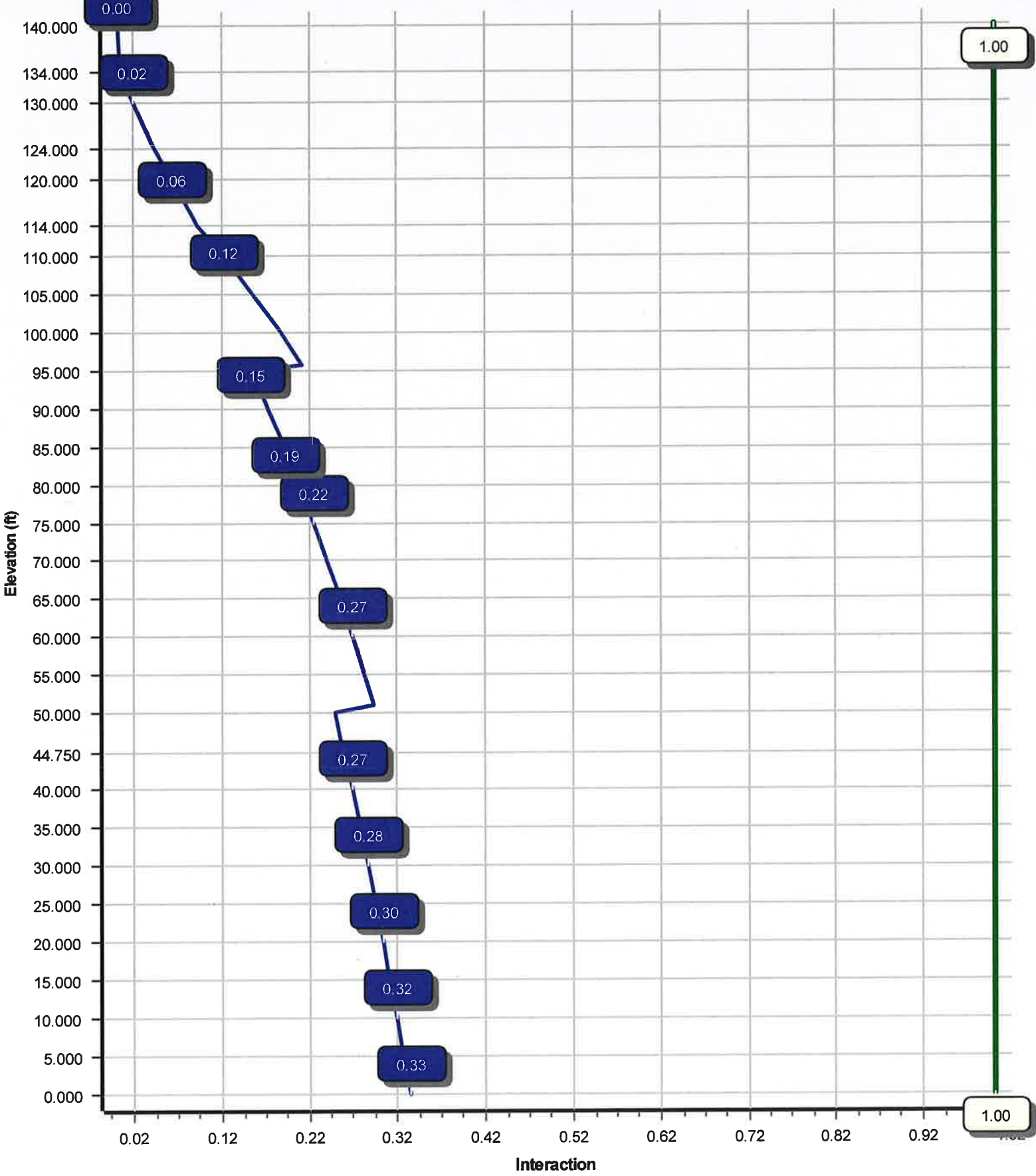
|                         |                                          |
|-------------------------|------------------------------------------|
| 1.2D + 1.6W             | 105 mph with No Ice                      |
| 0.9D + 1.6W             | 105 mph with No Ice (Reduced DL)         |
| 1.2D + 1.0Di + 1.0Wi    | 50 mph with 0.75 in Radial Ice           |
| (1.2 + 0.2Sds) * DL + E | Seismic Equivalent Lateral Forces Method |
| (1.2 + 0.2Sds) * DL + E | Seismic Equivalent Modal Analysis Method |
| (0.9 - 0.2Sds) * DL + E | Seismic (Reduced DL) Equivalent Lateral  |
| (0.9 - 0.2Sds) * DL + E | Seismic (Reduced DL) Equivalent Modal    |
| 1.0D + 1.0W             | Serviceability 60 mph                    |



| Reactions                    |                    |                |                |
|------------------------------|--------------------|----------------|----------------|
| Load Case                    | Moment<br>(kip-ft) | Shear<br>(kip) | Axial<br>(kip) |
| 1.2D + 1.6W                  | 2210.55            | 23.48          | 45.06          |
| 0.9D + 1.6W                  | 2199.69            | 23.48          | 33.79          |
| 1.2D + 1.0Di + 1.0Wi         | 535.45             | 5.85           | 64.32          |
| (1.2 + 0.2Sds) * DL + E ELFM | 217.45             | 2.14           | 44.70          |
| (1.2 + 0.2Sds) * DL + E EMAM | 199.46             | 1.95           | 44.70          |
| (0.9 - 0.2Sds) * DL + E ELFM | 216.21             | 2.13           | 31.25          |
| (0.9 - 0.2Sds) * DL + E EMAM | 198.27             | 1.95           | 31.25          |
| 1.0D + 1.0W                  | 449.68             | 4.79           | 37.56          |

| Dish Deflections |                     |                    |                   |
|------------------|---------------------|--------------------|-------------------|
| Load Case        | Attach<br>Elev (ft) | Deflection<br>(in) | Rotation<br>(deg) |
|                  | 0.00                | 0.000              | 0.000             |

Load Case : 1.2D + 1.6W  
Max Ratio 33.13% at 0.0 ft



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**Site Number: 311014****Code: ANSI/TIA-222-G**

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**Site Name: Norwich CT, CT****Engineering Number: OAA684610\_C3\_02****12/1/2016 8:54:43 AM****Customer: Verizon Wireless**

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### Analysis Parameters

|                           |                              |                            |              |
|---------------------------|------------------------------|----------------------------|--------------|
| <b>Location:</b>          | <b>New London County, CT</b> | <b>Height (ft):</b>        | <b>140</b>   |
| <b>Code:</b>              | <b>ANSI/TIA-222-G</b>        | <b>Base Diameter (in):</b> | <b>60.16</b> |
| <b>Shape:</b>             | <b>18 Sides</b>              | <b>Top Diameter (in):</b>  | <b>28.68</b> |
| <b>Pole Type:</b>         | <b>Taper</b>                 | <b>Taper (in/ft) :</b>     | <b>0.234</b> |
| <b>Pole Manufacturer:</b> | <b>PennSummit Tub</b>        |                            |              |

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### Ice & Wind Parameters

|                              |               |                                       |                |
|------------------------------|---------------|---------------------------------------|----------------|
| <b>Structure Class:</b>      | <b>II</b>     | <b>Design Wind Speed Without Ice:</b> | <b>105 mph</b> |
| <b>Exposure Category:</b>    | <b>B</b>      | <b>Design Wind Speed With Ice:</b>    | <b>50 mph</b>  |
| <b>Topographic Category:</b> | <b>1</b>      | <b>Operational Wind Speed:</b>        | <b>60 mph</b>  |
| <b>Crest Height:</b>         | <b>0.0 ft</b> | <b>Design Ice Thickness:</b>          | <b>0.75 in</b> |

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### Seismic Parameters

|                                               |                                                                         |                           |              |
|-----------------------------------------------|-------------------------------------------------------------------------|---------------------------|--------------|
| <b>Analysis Method:</b>                       | <b>Equivalent Modal Analysis &amp; Equivalent Lateral Force Methods</b> |                           |              |
| <b>Site Class:</b>                            | <b>D - Stiff Soil</b>                                                   |                           |              |
| <b>Period Based on Rayleigh Method (sec):</b> | <b>1.46</b>                                                             |                           |              |
| <b>T<sub>L</sub> (sec):</b>                   | <b>6</b>                                                                | <b>p:</b>                 | <b>1.3</b>   |
| <b>S<sub>s</sub>:</b>                         | <b>0.168</b>                                                            | <b>S<sub>1</sub>:</b>     | <b>0.060</b> |
| <b>F<sub>a</sub>:</b>                         | <b>1.600</b>                                                            | <b>F<sub>v</sub>:</b>     | <b>2.400</b> |
| <b>S<sub>ds</sub>:</b>                        | <b>0.179</b>                                                            | <b>S<sub>d1</sub>:</b>    | <b>0.096</b> |
|                                               |                                                                         | <b>C<sub>s</sub>:</b>     | <b>0.044</b> |
|                                               |                                                                         | <b>C<sub>s</sub> Max:</b> | <b>0.044</b> |
|                                               |                                                                         | <b>C<sub>s</sub> Min:</b> | <b>0.030</b> |

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### Load Cases

|                                                |                                                              |
|------------------------------------------------|--------------------------------------------------------------|
| <b>1.2D + 1.6W</b>                             | <b>105 mph with No Ice</b>                                   |
| <b>0.9D + 1.6W</b>                             | <b>105 mph with No Ice (Reduced DL)</b>                      |
| <b>1.2D + 1.0Di + 1.0Wi</b>                    | <b>50 mph with 0.75 in Radial Ice</b>                        |
| <b>(1.2 + 0.2S<sub>ds</sub>) * DL + E ELFM</b> | <b>Seismic Equivalent Lateral Forces Method</b>              |
| <b>(1.2 + 0.2S<sub>ds</sub>) * DL + E EMAM</b> | <b>Seismic Equivalent Modal Analysis Method</b>              |
| <b>(0.9 - 0.2S<sub>ds</sub>) * DL + E ELFM</b> | <b>Seismic (Reduced DL) Equivalent Lateral Forces Method</b> |
| <b>(0.9 - 0.2S<sub>ds</sub>) * DL + E EMAM</b> | <b>Seismic (Reduced DL) Equivalent Modal Analysis Method</b> |
| <b>1.0D + 1.0W</b>                             | <b>Serviceability 60 mph</b>                                 |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/1/2016 8:54:43 AM

Customer: Verizon Wireless

**Shaft Section Properties**

| Sect<br>Info | Length<br>(ft) | Thick<br>(in) | Fy<br>(ksi) | Slip          |                   | Weight<br>(lb) | Bottom      |              |                            |                          | Top         |              |                            |                          | W/t<br>Ratio | D/t<br>Ratio | Taper<br>(in/ft) |
|--------------|----------------|---------------|-------------|---------------|-------------------|----------------|-------------|--------------|----------------------------|--------------------------|-------------|--------------|----------------------------|--------------------------|--------------|--------------|------------------|
|              |                |               |             | Joint<br>Type | Joint<br>Len (in) |                | Dia<br>(in) | Elev<br>(ft) | Area<br>(in <sup>2</sup> ) | Ix<br>(in <sup>4</sup> ) | Dia<br>(in) | Elev<br>(ft) | Area<br>(in <sup>2</sup> ) | Ix<br>(in <sup>4</sup> ) |              |              |                  |
| 1-18         | 51.000         | 0.4375        | 65          |               | 0.00              | 12,952         | 60.16       | 0.00         | 82.93                      | 37371.0                  | 22.84       | 137.51       | 48.21                      | 51.00                    | 66.34        | 19134.1      | 0.234203         |
| 2-18         | 51.000         | 0.3750        | 65          | Slip          | 75.00             | 9,105          | 50.42       | 44.75        | 59.58                      | 18858.2                  | 22.30       | 134.48       | 38.48                      | 95.75                    | 45.36        | 8323.2       | 0.234203         |
| 3-18         | 49.250         | 0.2813        | 65          | Slip          | 60.00             | 5,112          | 40.21       | 90.75        | 35.65                      | 7184.1                   | 23.80       | 143.00       | 28.68                      | 140.00                   | 25.35        | 2584.2       | 0.234203         |
| Shaft Weight |                |               |             |               |                   | 27,169         |             |              |                            |                          |             |              |                            |                          |              |              |                  |

**Discrete Appurtenance Properties**

| Attach<br>Elev<br>(ft) | Description                 | Qty | No Ice         |              |                       | Ice            |              |                       | Distance<br>From Face<br>(ft) | Vert<br>Ecc<br>(ft) |
|------------------------|-----------------------------|-----|----------------|--------------|-----------------------|----------------|--------------|-----------------------|-------------------------------|---------------------|
|                        |                             |     | Weight<br>(lb) | EPAa<br>(sf) | Orientation<br>Factor | Weight<br>(lb) | EPAa<br>(sf) | Orientation<br>Factor |                               |                     |
| 134.00                 | Andrew LNX-6515DS-VTM       | 3   | 51.30          | 11.430       | 0.84                  | 310.93         | 13.082       | 0.84                  | 0.000                         | 0.000               |
| 134.00                 | Ericsson AIR 21, 1.3 M, B2A | 3   | 83.00          | 6.050        | 0.86                  | 249.48         | 7.133        | 0.86                  | 0.000                         | 0.000               |
| 134.00                 | Ericsson AIR 21, 1.3M, B4A  | 3   | 81.50          | 6.090        | 0.85                  | 247.94         | 7.178        | 0.85                  | 0.000                         | 0.000               |
| 134.00                 | Ericsson KRY 112 144/1      | 3   | 11.00          | 0.410        | 0.50                  | 27.07          | 0.630        | 0.50                  | 0.000                         | 0.000               |
| 134.00                 | Ericsson RRUS 11 B12        | 3   | 50.70          | 2.790        | 0.67                  | 246.92         | 9.294        | 0.67                  | 0.000                         | 0.000               |
| 134.00                 | Flat Low Profile Platform   | 1   | 1500.00        | 26.100       | 1.00                  | 2,140.97       | 44.988       | 1.00                  | 0.000                         | 0.000               |
| 124.00                 | Flat Low Profile Platform   | 1   | 1500.00        | 26.100       | 1.00                  | 2,135.94       | 44.840       | 1.00                  | 0.000                         | 0.000               |
| 124.00                 | Kathrein 800 10504          | 6   | 17.60          | 3.340        | 0.78                  | 97.16          | 4.278        | 0.78                  | 0.000                         | 0.000               |
| 124.00                 | RCU                         | 3   | 1.00           | 0.160        | 0.50                  | 10.83          | 0.356        | 0.50                  | 0.000                         | 0.000               |
| 114.00                 | Alcatel-Lucent B66A         | 3   | 56.80          | 2.540        | 0.67                  | 138.97         | 3.357        | 0.67                  | 0.000                         | 0.000               |
| 114.00                 | Alcatel-Lucent RRH2x60 700  | 3   | 56.70          | 2.150        | 0.67                  | 135.20         | 2.756        | 0.67                  | 0.000                         | 0.000               |
| 114.00                 | Alcatel-Lucent RRH2X60-     | 3   | 46.00          | 1.870        | 0.50                  | 112.47         | 2.441        | 0.50                  | 0.000                         | 0.000               |
| 114.00                 | Amphenol Antel BXA-70063-   | 3   | 17.00          | 7.570        | 0.77                  | 185.22         | 8.797        | 0.77                  | 0.000                         | 0.000               |
| 114.00                 | Commscope SBNHH-1D65B       | 6   | 40.60          | 8.080        | 0.83                  | 235.32         | 9.332        | 0.83                  | 0.000                         | 0.000               |
| 114.00                 | RFS DB-T1-6Z-8AB-0Z         | 2   | 44.00          | 4.800        | 0.67                  | 182.87         | 5.647        | 0.67                  | 0.000                         | 0.000               |
| 114.00                 | Round Low Profile Platform  | 1   | 1500.00        | 21.700       | 1.00                  | 2,130.53       | 40.384       | 1.00                  | 0.000                         | 0.000               |
| Totals                 |                             | 47  | 6302.20        |              |                       | 13,763.18      |              |                       | Number of Loadings : 16       |                     |

**Linear Appurtenance Properties**

| Elev<br>From<br>(ft) | Elev<br>To<br>(ft) | Qty | Description            | Coax<br>Diameter<br>(in) | Coax<br>Weight<br>(lb/ft) | Flat | Projected<br>Width<br>(in) | Exposed<br>To Wind | Carrier          |
|----------------------|--------------------|-----|------------------------|--------------------------|---------------------------|------|----------------------------|--------------------|------------------|
| 5.00                 | 134.00             | 1   | 1 1/4" Hybriflex Cable | 1.54                     | 1.00                      | N    | 0.00                       | N                  | T-Mobile         |
| 5.00                 | 134.00             | 12  | 1 5/8" Coax            | 1.98                     | 1.30                      | N    | 0.00                       | N                  | T-Mobile         |
| 5.00                 | 124.00             | 6   | 1 5/8" Coax            | 1.98                     | 0.82                      | N    | 0.00                       | N                  | Metro PCS        |
| 5.00                 | 124.00             | 1   | 3/8" Coax              | 0.44                     | 0.08                      | N    | 0.00                       | N                  | Metro PCS        |
| 5.00                 | 114.00             | 12  | 1 5/8" Coax            | 1.98                     | 0.82                      | N    | 0.00                       | N                  | Verizon Wireless |
| 5.00                 | 114.00             | 2   | 1 5/8" Hybriflex       | 1.98                     | 1.30                      | N    | 0.00                       | N                  | Verizon Wireless |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/1/2016 8:54:43 AM

Customer: Verizon Wireless

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

| Seg Top<br>Elev<br>(ft) | Description     | Thick<br>(in) | Flat<br>Dia<br>(in) | Area<br>(in <sup>2</sup> ) | Ix<br>(in <sup>4</sup> ) | W/t<br>Ratio | D/t<br>Ratio | F'y<br>(ksi) | S<br>(in <sup>3</sup> ) | Z<br>(in <sup>3</sup> ) | Weight<br>(lb) |
|-------------------------|-----------------|---------------|---------------------|----------------------------|--------------------------|--------------|--------------|--------------|-------------------------|-------------------------|----------------|
| 0.00                    |                 | 0.4375        | 60.160              | 82.929                     | 37,371.0                 | 22.84        | 137.51       | 74.5         | 1223.                   | 0.0                     | 0.0            |
| 5.00                    |                 | 0.4375        | 58.989              | 81.303                     | 35,215.5                 | 22.36        | 134.83       | 75.1         | 1175.                   | 0.0                     | 1,397.1        |
| 10.00                   |                 | 0.4375        | 57.818              | 79.677                     | 33,144.6                 | 21.89        | 132.16       | 75.7         | 1129.                   | 0.0                     | 1,369.4        |
| 15.00                   |                 | 0.4375        | 56.647              | 78.051                     | 31,156.5                 | 21.42        | 129.48       | 76.2         | 1083.                   | 0.0                     | 1,341.8        |
| 20.00                   |                 | 0.4375        | 55.476              | 76.425                     | 29,249.5                 | 20.95        | 126.80       | 76.8         | 1038.                   | 0.0                     | 1,314.1        |
| 25.00                   |                 | 0.4375        | 54.305              | 74.799                     | 27,422.0                 | 20.48        | 124.13       | 77.3         | 994.6                   | 0.0                     | 1,286.5        |
| 30.00                   |                 | 0.4375        | 53.134              | 73.173                     | 25,672.2                 | 20.00        | 121.45       | 77.9         | 951.6                   | 0.0                     | 1,258.8        |
| 35.00                   |                 | 0.4375        | 51.963              | 71.547                     | 23,998.5                 | 19.53        | 118.77       | 78.4         | 909.6                   | 0.0                     | 1,231.1        |
| 40.00                   |                 | 0.4375        | 50.792              | 69.921                     | 22,399.2                 | 19.06        | 116.10       | 79.0         | 868.6                   | 0.0                     | 1,203.5        |
| 44.75                   | Bot - Section 2 | 0.4375        | 49.679              | 68.376                     | 20,947.1                 | 18.61        | 113.55       | 79.5         | 830.5                   | 0.0                     | 1,117.7        |
| 45.00                   |                 | 0.4375        | 49.621              | 68.295                     | 20,872.5                 | 18.59        | 113.42       | 79.5         | 828.5                   | 0.0                     | 108.8          |
| 50.00                   |                 | 0.4375        | 48.450              | 66.669                     | 19,416.8                 | 18.12        | 110.74       | 80.1         | 789.3                   | 0.0                     | 2,148.7        |
| 51.00                   | Top - Section 1 | 0.3750        | 48.966              | 57.833                     | 17,251.7                 | 21.61        | 130.57       | 76.0         | 693.9                   | 0.0                     | 423.6          |
| 55.00                   |                 | 0.3750        | 48.029              | 56.718                     | 16,273.0                 | 21.17        | 128.08       | 76.5         | 667.3                   | 0.0                     | 779.6          |
| 60.00                   |                 | 0.3750        | 46.858              | 55.324                     | 15,102.6                 | 20.62        | 124.95       | 77.1         | 634.8                   | 0.0                     | 953.1          |
| 65.00                   |                 | 0.3750        | 45.687              | 53.930                     | 13,989.7                 | 20.07        | 121.83       | 77.8         | 603.1                   | 0.0                     | 929.4          |
| 70.00                   |                 | 0.3750        | 44.516              | 52.537                     | 12,932.8                 | 19.52        | 118.71       | 78.4         | 572.2                   | 0.0                     | 905.7          |
| 75.00                   |                 | 0.3750        | 43.345              | 51.143                     | 11,930.6                 | 18.97        | 115.59       | 79.1         | 542.1                   | 0.0                     | 882.0          |
| 80.00                   |                 | 0.3750        | 42.174              | 49.749                     | 10,981.5                 | 18.42        | 112.46       | 79.7         | 512.9                   | 0.0                     | 858.3          |
| 85.00                   |                 | 0.3750        | 41.003              | 48.355                     | 10,084.2                 | 17.87        | 109.34       | 80.4         | 484.4                   | 0.0                     | 834.6          |
| 90.00                   |                 | 0.3750        | 39.832              | 46.962                     | 9,237.1                  | 17.32        | 106.22       | 81.0         | 456.8                   | 0.0                     | 810.9          |
| 90.75                   | Bot - Section 3 | 0.3750        | 39.656              | 46.753                     | 9,114.3                  | 17.24        | 105.75       | 81.1         | 452.7                   | 0.0                     | 119.6          |
| 95.00                   |                 | 0.3750        | 38.661              | 45.568                     | 8,438.8                  | 16.77        | 103.10       | 81.7         | 429.9                   | 0.0                     | 1,176.7        |
| 95.75                   | Top - Section 2 | 0.2813        | 39.047              | 34.605                     | 6,570.5                  | 23.07        | 138.84       | 74.3         | 331.4                   | 0.0                     | 204.5          |
| 100.0                   |                 | 0.2813        | 38.052              | 33.716                     | 6,077.3                  | 22.45        | 135.30       | 75.0         | 314.6                   | 0.0                     | 494.0          |
| 105.0                   |                 | 0.2813        | 36.881              | 32.671                     | 5,529.4                  | 21.71        | 131.13       | 75.9         | 295.3                   | 0.0                     | 564.8          |
| 110.0                   |                 | 0.2813        | 35.710              | 31.626                     | 5,015.4                  | 20.98        | 126.97       | 76.7         | 276.6                   | 0.0                     | 547.0          |
| 114.0                   |                 | 0.2813        | 34.773              | 30.789                     | 4,628.0                  | 20.39        | 123.64       | 77.4         | 262.1                   | 0.0                     | 424.8          |
| 115.0                   |                 | 0.2813        | 34.539              | 30.580                     | 4,534.4                  | 20.24        | 122.81       | 77.6         | 258.6                   | 0.0                     | 104.4          |
| 120.0                   |                 | 0.2813        | 33.368              | 29.535                     | 4,085.1                  | 19.51        | 118.64       | 78.5         | 241.1                   | 0.0                     | 511.4          |
| 124.0                   |                 | 0.2813        | 32.431              | 28.699                     | 3,747.8                  | 18.92        | 115.31       | 79.1         | 227.6                   | 0.0                     | 396.3          |
| 125.0                   |                 | 0.2813        | 32.197              | 28.490                     | 3,666.5                  | 18.78        | 114.48       | 79.3         | 224.3                   | 0.0                     | 97.3           |
| 130.0                   |                 | 0.2813        | 31.026              | 27.444                     | 3,277.6                  | 18.04        | 110.31       | 80.2         | 208.1                   | 0.0                     | 475.8          |
| 134.0                   |                 | 0.2813        | 30.089              | 26.608                     | 2,987.0                  | 17.45        | 106.98       | 80.9         | 195.5                   | 0.0                     | 367.9          |
| 135.0                   |                 | 0.2813        | 29.855              | 26.399                     | 2,917.1                  | 17.31        | 106.15       | 81.0         | 192.5                   | 0.0                     | 90.2           |
| 140.0                   |                 | 0.2813        | 28.684              | 25.354                     | 2,584.2                  | 16.57        | 101.99       | 81.9         | 177.4                   | 0.0                     | 440.3          |
|                         |                 |               |                     |                            |                          |              |              |              |                         |                         | 27,169.4       |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/1/2016 8:54:43 AM

Customer: Verizon Wireless

**Load Case: 1.2D + 1.6W**

105 mph with No Ice

20 Iterations

Gust Response Factor :1.10

Wind Importance Factor 1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

## Shaft Segment Forces (Factored)

| Seg Top<br>Elev<br>(ft) | Description     | Kzt  | Kz   | qz<br>(psf) | qzGh<br>(psf) | C<br>(mph-ft) | Cf    | Ice<br>Thick<br>(in) | Tributary<br>(ft) | Ap<br>(sf) | EPAs<br>(sf) | Wind<br>Force X<br>(lb) | Dead<br>Load Ice<br>(lb) | Tot Dead<br>Load<br>(lb) |
|-------------------------|-----------------|------|------|-------------|---------------|---------------|-------|----------------------|-------------------|------------|--------------|-------------------------|--------------------------|--------------------------|
| 0.00                    |                 | 1.00 | 0.70 | 18.769      | 20.64         | 447.21        | 0.650 | 0.000                | 0.00              | 0.000      | 0.00         | 270.6                   | 0.0                      | 0.0                      |
| 5.00                    |                 | 1.00 | 0.70 | 18.769      | 20.64         | 442.85        | 0.650 | 0.000                | 5.00              | 25.206     | 16.38        | 535.9                   | 0.0                      | 1,676.5                  |
| 10.00                   |                 | 1.00 | 0.70 | 18.769      | 20.64         | 434.15        | 0.650 | 0.000                | 5.00              | 24.710     | 16.06        | 525.2                   | 0.0                      | 1,643.3                  |
| 15.00                   |                 | 1.00 | 0.70 | 18.769      | 20.64         | 425.44        | 0.650 | 0.000                | 5.00              | 24.215     | 15.74        | 514.6                   | 0.0                      | 1,610.1                  |
| 20.00                   |                 | 1.00 | 0.70 | 18.769      | 20.64         | 416.74        | 0.650 | 0.000                | 5.00              | 23.719     | 15.42        | 504.0                   | 0.0                      | 1,576.9                  |
| 25.00                   |                 | 1.00 | 0.70 | 18.769      | 20.64         | 408.03        | 0.650 | 0.000                | 5.00              | 23.224     | 15.10        | 493.3                   | 0.0                      | 1,543.7                  |
| 30.00                   |                 | 1.00 | 0.70 | 18.769      | 20.64         | 399.33        | 0.650 | 0.000                | 5.00              | 22.728     | 14.77        | 488.4                   | 0.0                      | 1,510.5                  |
| 35.00                   |                 | 1.00 | 0.71 | 19.219      | 21.14         | 395.28        | 0.650 | 0.000                | 5.00              | 22.233     | 14.45        | 493.4                   | 0.0                      | 1,477.3                  |
| 40.00                   |                 | 1.00 | 0.74 | 20.021      | 22.02         | 394.46        | 0.650 | 0.000                | 5.00              | 21.737     | 14.13        | 488.4                   | 0.0                      | 1,444.1                  |
| 44.75                   | Bot - Section 2 | 1.00 | 0.77 | 20.733      | 22.80         | 392.48        | 0.650 | 0.000                | 4.75              | 20.192     | 13.12        | 252.3                   | 0.0                      | 1,341.2                  |
| 45.00                   |                 | 1.00 | 0.78 | 21.075      | 23.18         | 391.10        | 0.650 | 0.000                | 0.25              | 1.066      | 0.69         | 270.9                   | 0.0                      | 130.5                    |
| 50.00                   |                 | 1.00 | 0.79 | 21.420      | 23.56         | 389.41        | 0.650 | 0.000                | 5.00              | 21.064     | 13.69        | 309.9                   | 0.0                      | 2,578.4                  |
| 51.00                   | Top - Section 1 | 1.00 | 0.81 | 21.799      | 23.97         | 387.20        | 0.650 | 0.000                | 1.00              | 4.153      | 2.70         | 259.3                   | 0.0                      | 508.3                    |
| 55.00                   |                 | 1.00 | 0.82 | 22.102      | 24.31         | 391.21        | 0.650 | 0.000                | 4.00              | 16.415     | 10.67        | 467.3                   | 0.0                      | 935.5                    |
| 60.00                   |                 | 1.00 | 0.84 | 22.622      | 24.88         | 387.19        | 0.650 | 0.000                | 5.00              | 20.073     | 13.05        | 519.2                   | 0.0                      | 1,143.8                  |
| 65.00                   |                 | 1.00 | 0.86 | 23.168      | 25.48         | 382.16        | 0.650 | 0.000                | 5.00              | 19.578     | 12.73        | 517.9                   | 0.0                      | 1,115.3                  |
| 70.00                   |                 | 1.00 | 0.88 | 23.683      | 26.05         | 376.60        | 0.650 | 0.000                | 5.00              | 19.082     | 12.40        | 515.5                   | 0.0                      | 1,086.8                  |
| 75.00                   |                 | 1.00 | 0.90 | 24.171      | 26.58         | 370.59        | 0.650 | 0.000                | 5.00              | 18.587     | 12.08        | 511.9                   | 0.0                      | 1,058.4                  |
| 80.00                   |                 | 1.00 | 0.91 | 24.636      | 27.10         | 364.16        | 0.650 | 0.000                | 5.00              | 18.091     | 11.76        | 507.4                   | 0.0                      | 1,029.9                  |
| 85.00                   |                 | 1.00 | 0.93 | 25.080      | 27.58         | 357.37        | 0.650 | 0.000                | 5.00              | 17.596     | 11.44        | 501.9                   | 0.0                      | 1,001.5                  |
| 90.00                   |                 | 1.00 | 0.95 | 25.505      | 28.05         | 350.24        | 0.650 | 0.000                | 5.00              | 17.100     | 11.12        | 286.6                   | 0.0                      | 973.0                    |
| 90.75                   | Bot - Section 3 | 1.00 | 0.96 | 25.742      | 28.31         | 346.00        | 0.650 | 0.000                | 0.75              | 2.522      | 1.64         | 249.1                   | 0.0                      | 143.5                    |
| 95.00                   |                 | 1.00 | 0.96 | 25.944      | 28.53         | 342.23        | 0.650 | 0.000                | 4.25              | 14.285     | 9.29         | 249.1                   | 0.0                      | 1,412.0                  |
| 95.75                   | Top - Section 2 | 1.00 | 0.97 | 26.141      | 28.75         | 338.39        | 0.650 | 0.000                | 0.75              | 2.484      | 1.61         | 246.0                   | 0.0                      | 245.4                    |
| 100.0                   |                 | 1.00 | 0.98 | 26.335      | 28.96         | 339.45        | 0.650 | 0.000                | 4.25              | 13.864     | 9.01         | 450.8                   | 0.0                      | 592.8                    |
| 105.0                   |                 | 1.00 | 0.99 | 26.685      | 29.35         | 332.09        | 0.650 | 0.000                | 5.00              | 15.852     | 10.30        | 479.6                   | 0.0                      | 677.7                    |
| 110.0                   |                 | 1.00 | 1.00 | 27.050      | 29.75         | 323.91        | 0.650 | 0.000                | 5.00              | 15.356     | 9.98         | 424.4                   | 0.0                      | 656.4                    |
| 114.0                   | Appertunance(s) | 1.00 | 1.02 | 27.369      | 30.10         | 316.35        | 0.650 | 0.000                | 4.00              | 11.928     | 7.75         | 232.9                   | 0.0                      | 509.7                    |
| 115.0                   |                 | 1.00 | 1.02 | 27.542      | 30.29         | 312.08        | 0.650 | 0.000                | 1.00              | 2.933      | 1.91         | 274.2                   | 0.0                      | 125.3                    |
| 120.0                   |                 | 1.00 | 1.03 | 27.747      | 30.52         | 306.88        | 0.650 | 0.000                | 5.00              | 14.366     | 9.34         | 406.6                   | 0.0                      | 613.7                    |
| 124.0                   | Appertunance(s) | 1.00 | 1.04 | 28.046      | 30.85         | 298.96        | 0.650 | 0.000                | 4.00              | 11.136     | 7.24         | 222.8                   | 0.0                      | 475.6                    |
| 125.0                   |                 | 1.00 | 1.05 | 28.209      | 31.03         | 294.49        | 0.650 | 0.000                | 1.00              | 2.734      | 1.78         | 261.4                   | 0.0                      | 116.8                    |
| 130.0                   |                 | 1.00 | 1.05 | 28.402      | 31.24         | 289.07        | 0.650 | 0.000                | 5.00              | 13.375     | 8.69         | 387.0                   | 0.0                      | 571.0                    |
| 134.0                   | Appertunance(s) | 1.00 | 1.07 | 28.685      | 31.55         | 280.82        | 0.650 | 0.000                | 4.00              | 10.343     | 6.72         | 211.5                   | 0.0                      | 441.4                    |
| 135.0                   |                 | 1.00 | 1.07 | 28.839      | 31.72         | 276.18        | 0.650 | 0.000                | 1.00              | 2.536      | 1.65         | 247.4                   | 0.0                      | 108.2                    |
| 140.0                   |                 | 1.00 | 1.08 | 29.021      | 31.92         | 270.55        | 0.650 | 0.000                | 5.00              | 12.384     | 8.05         | 205.6                   | 0.0                      | 528.3                    |
| Totals:                 |                 |      |      |             |               |               |       |                      | 140.00            |            |              | 13,782.3                | 0.0                      | 32,603.3                 |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/1/2016 8:54:44 AM

Customer: Verizon Wireless

**Load Case: 1.2D + 1.6W****105 mph with No Ice****20 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<br>Elev<br>(ft) | Description     | Shaft Forces |              | Discrete Forces |         |         | Linear Forces |         | Sum of Forces |          |              |         |        |
|---------------------|-----------------|--------------|--------------|-----------------|---------|---------|---------------|---------|---------------|----------|--------------|---------|--------|
|                     |                 | Wind FX      | Dead<br>Load | Wind FX         | Torsion | Moment  | Dead<br>Load  | Wind FX | Dead<br>Load  | Wind FX  | Dead<br>Load | Torsion | Moment |
|                     |                 |              |              |                 | MY      | MZ      |               |         |               |          |              |         |        |
| (ft)                |                 | (lb)         | (lb)         | (lb)            | (lb-ft) | (lb-ft) | (lb)          | (lb)    | (lb)          | (lb)     | (lb)         | (lb-ft) | (lb)   |
| 0.00                |                 | 270.6        | 0.0          |                 |         |         |               | 0.0     | 0.0           | 270.6    | 0.0          | 0.0     | 0.0    |
| 5.00                |                 | 535.9        | 1,676.5      |                 |         |         |               | 0.0     | 0.0           | 535.9    | 1,676.5      | 0.0     | 0.0    |
| 10.00               |                 | 525.2        | 1,643.3      |                 |         |         |               | 0.0     | 204.2         | 525.2    | 1,847.6      | 0.0     | 0.0    |
| 15.00               |                 | 514.6        | 1,610.1      |                 |         |         |               | 0.0     | 204.2         | 514.6    | 1,814.4      | 0.0     | 0.0    |
| 20.00               |                 | 504.0        | 1,576.9      |                 |         |         |               | 0.0     | 204.2         | 504.0    | 1,781.2      | 0.0     | 0.0    |
| 25.00               |                 | 493.3        | 1,543.7      |                 |         |         |               | 0.0     | 204.2         | 493.3    | 1,748.0      | 0.0     | 0.0    |
| 30.00               |                 | 488.4        | 1,510.5      |                 |         |         |               | 0.0     | 204.2         | 488.4    | 1,714.8      | 0.0     | 0.0    |
| 35.00               |                 | 493.4        | 1,477.3      |                 |         |         |               | 0.0     | 204.2         | 493.4    | 1,681.6      | 0.0     | 0.0    |
| 40.00               |                 | 488.4        | 1,444.1      |                 |         |         |               | 0.0     | 204.2         | 488.4    | 1,648.4      | 0.0     | 0.0    |
| 44.75               | Bot - Section 2 | 252.3        | 1,341.2      |                 |         |         |               | 0.0     | 194.0         | 252.3    | 1,535.2      | 0.0     | 0.0    |
| 45.00               |                 | 270.9        | 130.5        |                 |         |         |               | 0.0     | 10.2          | 270.9    | 140.8        | 0.0     | 0.0    |
| 50.00               |                 | 309.9        | 2,578.4      |                 |         |         |               | 0.0     | 204.2         | 309.9    | 2,782.7      | 0.0     | 0.0    |
| 51.00               | Top - Section 1 | 259.3        | 508.3        |                 |         |         |               | 0.0     | 40.8          | 259.3    | 549.1        | 0.0     | 0.0    |
| 55.00               |                 | 467.3        | 935.5        |                 |         |         |               | 0.0     | 163.4         | 467.3    | 1,098.9      | 0.0     | 0.0    |
| 60.00               |                 | 519.2        | 1,143.8      |                 |         |         |               | 0.0     | 204.2         | 519.2    | 1,348.0      | 0.0     | 0.0    |
| 65.00               |                 | 517.9        | 1,115.3      |                 |         |         |               | 0.0     | 204.2         | 517.9    | 1,319.5      | 0.0     | 0.0    |
| 70.00               |                 | 515.5        | 1,086.8      |                 |         |         |               | 0.0     | 204.2         | 515.5    | 1,291.1      | 0.0     | 0.0    |
| 75.00               |                 | 511.9        | 1,058.4      |                 |         |         |               | 0.0     | 204.2         | 511.9    | 1,262.6      | 0.0     | 0.0    |
| 80.00               |                 | 507.4        | 1,029.9      |                 |         |         |               | 0.0     | 204.2         | 507.4    | 1,234.2      | 0.0     | 0.0    |
| 85.00               |                 | 501.9        | 1,001.5      |                 |         |         |               | 0.0     | 204.2         | 501.9    | 1,205.7      | 0.0     | 0.0    |
| 90.00               |                 | 286.6        | 973.0        |                 |         |         |               | 0.0     | 204.2         | 286.6    | 1,177.3      | 0.0     | 0.0    |
| 90.75               | Bot - Section 3 | 249.1        | 143.5        |                 |         |         |               | 0.0     | 30.6          | 249.1    | 174.1        | 0.0     | 0.0    |
| 95.00               |                 | 249.1        | 1,412.0      |                 |         |         |               | 0.0     | 173.6         | 249.1    | 1,585.6      | 0.0     | 0.0    |
| 95.75               | Top - Section 2 | 246.0        | 245.4        |                 |         |         |               | 0.0     | 30.6          | 246.0    | 276.1        | 0.0     | 0.0    |
| 100.00              |                 | 450.8        | 592.8        |                 |         |         |               | 0.0     | 173.6         | 450.8    | 766.4        | 0.0     | 0.0    |
| 105.00              |                 | 479.6        | 677.7        |                 |         |         |               | 0.0     | 204.2         | 479.6    | 881.9        | 0.0     | 0.0    |
| 110.00              |                 | 424.4        | 656.4        |                 |         |         |               | 0.0     | 204.2         | 424.4    | 860.6        | 0.0     | 0.0    |
| 114.00              | Appertunance(s) | 232.9        | 509.7        | 4,009.2         | 0.0     | 0.0     | 2,833.3       | 0.0     | 163.4         | 4,242.2  | 3,506.4      | 0.0     | 0.0    |
| 115.00              |                 | 274.2        | 125.3        |                 |         |         |               | 0.0     | 25.9          | 274.2    | 151.2        | 0.0     | 0.0    |
| 120.00              |                 | 406.6        | 613.7        |                 |         |         |               | 0.0     | 129.6         | 406.6    | 743.3        | 0.0     | 0.0    |
| 124.00              | Appertunance(s) | 222.8        | 475.6        | 1,924.0         | 0.0     | 0.0     | 1,930.3       | 0.0     | 103.7         | 2,146.8  | 2,509.6      | 0.0     | 0.0    |
| 125.00              |                 | 261.4        | 116.8        |                 |         |         |               | 0.0     | 19.9          | 261.4    | 136.7        | 0.0     | 0.0    |
| 130.00              |                 | 387.0        | 571.0        |                 |         |         |               | 0.0     | 99.6          | 387.0    | 670.6        | 0.0     | 0.0    |
| 134.00              | Appertunance(s) | 211.5        | 441.4        | 4,007.1         | 0.0     | 0.0     | 2,799.0       | 0.0     | 79.7          | 4,218.7  | 3,320.1      | 0.0     | 0.0    |
| 135.00              |                 | 247.4        | 108.2        |                 |         |         |               | 0.0     | 0.0           | 247.4    | 108.2        | 0.0     | 0.0    |
| 140.00              |                 | 205.6        | 528.3        |                 |         |         |               | 0.0     | 0.0           | 205.6    | 528.3        | 0.0     | 0.0    |
| Totals:             |                 |              |              |                 |         |         |               |         |               | 23,722.6 | 45,076.7     | 0.00    | 0.00   |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/1/2016 8:54:44 AM

Customer: Verizon Wireless

**Load Case: 1.2D + 1.6W****105 mph with No Ice****20 Iterations****Gust Response Factor :1.10****Wind Importance Factor 1.00****Dead Load Factor :1.20****Wind Load Factor :1.60****Calculated Forces**

| Seg<br>Elev<br>(ft) | Pu<br>FY (-)<br>(kips) | Vu<br>FX (-)<br>(kips) | Tu<br>MY<br>(ft-kips) | Mu<br>MZ<br>(ft-kips) | Mu<br>MX<br>(ft-kips) | Resultant<br>Moment<br>(ft-kips) | phi<br>Pn<br>(kips) | phi<br>Vn<br>(kips) | phi<br>Tn<br>(ft-kips) | phi<br>Mn<br>(ft-kips) | Total<br>Deflect<br>(in) | Rotation<br>(deg) | Ratio |
|---------------------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|----------------------------------|---------------------|---------------------|------------------------|------------------------|--------------------------|-------------------|-------|
| 0.00                | -45.06                 | -23.48                 | 0.00                  | -2,210.55             | 0.00                  | 2,210.55                         | 5,563.50            | 2,781.75            | 13,660.1               | 6,840.21               | 0.00                     | 0.00              | 0.331 |
| 5.00                | -43.35                 | -23.01                 | 0.00                  | -2,093.13             | 0.00                  | 2,093.13                         | 5,495.04            | 2,747.52            | 13,225.5               | 6,622.59               | 0.04                     | -0.08             | 0.324 |
| 10.00               | -41.47                 | -22.54                 | 0.00                  | -1,978.08             | 0.00                  | 1,978.08                         | 5,424.94            | 2,712.47            | 12,793.7               | 6,406.38               | 0.17                     | -0.16             | 0.316 |
| 15.00               | -39.63                 | -22.08                 | 0.00                  | -1,865.38             | 0.00                  | 1,865.38                         | 5,353.22            | 2,676.61            | 12,365.0               | 6,191.70               | 0.39                     | -0.25             | 0.309 |
| 20.00               | -37.82                 | -21.62                 | 0.00                  | -1,755.00             | 0.00                  | 1,755.00                         | 5,279.88            | 2,639.94            | 11,939.5               | 5,978.66               | 0.69                     | -0.33             | 0.301 |
| 25.00               | -36.04                 | -21.17                 | 0.00                  | -1,646.91             | 0.00                  | 1,646.91                         | 5,204.91            | 2,602.46            | 11,517.6               | 5,767.39               | 1.08                     | -0.41             | 0.293 |
| 30.00               | -34.30                 | -20.71                 | 0.00                  | -1,541.09             | 0.00                  | 1,541.09                         | 5,128.32            | 2,564.16            | 11,099.4               | 5,557.99               | 1.56                     | -0.49             | 0.284 |
| 35.00               | -32.60                 | -20.25                 | 0.00                  | -1,437.52             | 0.00                  | 1,437.52                         | 5,050.10            | 2,525.05            | 10,685.3               | 5,350.59               | 2.12                     | -0.58             | 0.275 |
| 40.00               | -30.92                 | -19.79                 | 0.00                  | -1,336.27             | 0.00                  | 1,336.27                         | 4,970.26            | 2,485.13            | 10,275.3               | 5,145.31               | 2.77                     | -0.66             | 0.266 |
| 44.75               | -29.38                 | -19.54                 | 0.00                  | -1,242.28             | 0.00                  | 1,242.28                         | 4,892.90            | 2,446.45            | 9,890.02               | 4,952.36               | 3.47                     | -0.74             | 0.257 |
| 45.00               | -29.23                 | -19.29                 | 0.00                  | -1,237.40             | 0.00                  | 1,237.40                         | 4,888.79            | 2,444.40            | 9,869.86               | 4,942.27               | 3.51                     | -0.74             | 0.256 |
| 50.00               | -26.43                 | -18.96                 | 0.00                  | -1,140.97             | 0.00                  | 1,140.97                         | 4,805.70            | 2,402.85            | 9,469.07               | 4,741.57               | 4.33                     | -0.82             | 0.246 |
| 51.00               | -25.87                 | -18.71                 | 0.00                  | -1,122.01             | 0.00                  | 1,122.01                         | 3,954.70            | 1,977.35            | 7,897.06               | 3,954.40               | 4.50                     | -0.84             | 0.290 |
| 55.00               | -24.76                 | -18.26                 | 0.00                  | -1,047.16             | 0.00                  | 1,047.16                         | 3,904.91            | 1,952.45            | 7,646.13               | 3,828.75               | 5.23                     | -0.90             | 0.280 |
| 60.00               | -23.39                 | -17.76                 | 0.00                  | -955.85               | 0.00                  | 955.85                           | 3,841.19            | 1,920.60            | 7,335.11               | 3,673.01               | 6.23                     | -0.99             | 0.266 |
| 65.00               | -22.06                 | -17.25                 | 0.00                  | -867.08               | 0.00                  | 867.08                           | 3,775.86            | 1,887.93            | 7,027.24               | 3,518.84               | 7.31                     | -1.08             | 0.252 |
| 70.00               | -20.75                 | -16.74                 | 0.00                  | -780.85               | 0.00                  | 780.85                           | 3,708.90            | 1,854.45            | 6,722.77               | 3,366.38               | 8.49                     | -1.16             | 0.238 |
| 75.00               | -19.48                 | -16.22                 | 0.00                  | -697.17               | 0.00                  | 697.17                           | 3,640.31            | 1,820.16            | 6,421.93               | 3,215.74               | 9.75                     | -1.24             | 0.222 |
| 80.00               | -18.23                 | -15.71                 | 0.00                  | -616.05               | 0.00                  | 616.05                           | 3,570.10            | 1,785.05            | 6,124.95               | 3,067.03               | 11.09                    | -1.32             | 0.206 |
| 85.00               | -17.02                 | -15.21                 | 0.00                  | -537.48               | 0.00                  | 537.48                           | 3,498.27            | 1,749.13            | 5,832.07               | 2,920.37               | 12.51                    | -1.40             | 0.189 |
| 90.00               | -15.84                 | -14.90                 | 0.00                  | -461.46               | 0.00                  | 461.46                           | 3,424.81            | 1,712.40            | 5,543.53               | 2,775.89               | 14.01                    | -1.47             | 0.171 |
| 90.75               | -15.67                 | -14.66                 | 0.00                  | -450.28               | 0.00                  | 450.28                           | 3,413.65            | 1,706.82            | 5,500.64               | 2,754.41               | 14.24                    | -1.48             | 0.168 |
| 95.00               | -14.08                 | -14.37                 | 0.00                  | -388.00               | 0.00                  | 388.00                           | 3,349.72            | 1,674.86            | 5,259.57               | 2,633.69               | 15.58                    | -1.53             | 0.152 |
| 95.75               | -13.80                 | -14.13                 | 0.00                  | -377.22               | 0.00                  | 377.22                           | 2,312.98            | 1,156.49            | 3,686.59               | 1,846.04               | 15.83                    | -1.54             | 0.210 |
| 100.00              | -13.03                 | -13.67                 | 0.00                  | -317.18               | 0.00                  | 317.18                           | 2,275.87            | 1,137.93            | 3,533.62               | 1,769.44               | 17.22                    | -1.59             | 0.185 |
| 105.00              | -12.15                 | -13.18                 | 0.00                  | -248.83               | 0.00                  | 248.83                           | 2,230.70            | 1,115.35            | 3,355.32               | 1,680.15               | 18.93                    | -1.66             | 0.154 |
| 110.00              | -11.29                 | -12.74                 | 0.00                  | -182.94               | 0.00                  | 182.94                           | 2,183.90            | 1,091.95            | 3,179.03               | 1,591.88               | 20.69                    | -1.71             | 0.120 |
| 114.00              | -7.91                  | -8.39                  | 0.00                  | -132.00               | 0.00                  | 132.00                           | 2,145.30            | 1,072.65            | 3,039.61               | 1,522.06               | 22.15                    | -1.75             | 0.090 |
| 115.00              | -7.77                  | -8.12                  | 0.00                  | -123.60               | 0.00                  | 123.60                           | 2,135.49            | 1,067.74            | 3,004.99               | 1,504.73               | 22.51                    | -1.76             | 0.086 |
| 120.00              | -7.04                  | -7.69                  | 0.00                  | -83.01                | 0.00                  | 83.01                            | 2,085.44            | 1,042.72            | 2,833.45               | 1,418.83               | 24.37                    | -1.79             | 0.062 |
| 124.00              | -4.59                  | -5.47                  | 0.00                  | -52.25                | 0.00                  | 52.25                            | 2,044.24            | 1,022.12            | 2,698.16               | 1,351.09               | 25.88                    | -1.81             | 0.041 |
| 125.00              | -4.46                  | -5.20                  | 0.00                  | -46.78                | 0.00                  | 46.78                            | 2,033.77            | 1,016.89            | 2,664.63               | 1,334.29               | 26.26                    | -1.81             | 0.037 |
| 130.00              | -3.81                  | -4.80                  | 0.00                  | -20.77                | 0.00                  | 20.77                            | 1,980.48            | 990.24              | 2,498.77               | 1,251.24               | 28.17                    | -1.83             | 0.019 |
| 134.00              | -0.62                  | -0.47                  | 0.00                  | -1.58                 | 0.00                  | 1.58                             | 1,936.68            | 968.34              | 2,368.37               | 1,185.94               | 29.70                    | -1.83             | 0.002 |
| 135.00              | -0.52                  | -0.22                  | 0.00                  | -1.11                 | 0.00                  | 1.11                             | 1,925.56            | 962.78              | 2,336.10               | 1,169.79               | 30.08                    | -1.83             | 0.001 |
| 140.00              | 0.00                   | -0.21                  | 0.00                  | 0.00                  | 0.00                  | 0.00                             | 1,869.02            | 934.51              | 2,176.88               | 1,090.06               | 32.00                    | -1.83             | 0.000 |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/1/2016 8:54:44 AM

Customer: Verizon Wireless

**Load Case: 0.9D + 1.6W****105 mph with No Ice (Reduced DL)****20 Iterations****Gust Response Factor :1.10****Wind Importance Factor 1.00****Dead Load Factor :0.90****Wind Load Factor :1.60****Shaft Segment Forces (Factored)**

| Seg Top<br>Elev<br>(ft) | Description     | Kzt  | Kz   | qz<br>(psf) | qzGh<br>(psf) | C<br>(mph-ft) | Cf    | Ice<br>Thick<br>(in) | Tributary<br>(ft) | Ap<br>(sf) | EPAs<br>(sf) | Wind<br>Force X<br>(lb) | Dead<br>Load Ice<br>(lb) | Tot Dead<br>Load<br>(lb) |
|-------------------------|-----------------|------|------|-------------|---------------|---------------|-------|----------------------|-------------------|------------|--------------|-------------------------|--------------------------|--------------------------|
| 0.00                    |                 | 1.00 | 0.70 | 18.769      | 20.64         | 447.21        | 0.650 | 0.000                | 0.00              | 0.000      | 0.00         | 270.6                   | 0.0                      | 0.0                      |
| 5.00                    |                 | 1.00 | 0.70 | 18.769      | 20.64         | 442.85        | 0.650 | 0.000                | 5.00              | 25.206     | 16.38        | 535.9                   | 0.0                      | 1,257.4                  |
| 10.00                   |                 | 1.00 | 0.70 | 18.769      | 20.64         | 434.15        | 0.650 | 0.000                | 5.00              | 24.710     | 16.06        | 525.2                   | 0.0                      | 1,232.5                  |
| 15.00                   |                 | 1.00 | 0.70 | 18.769      | 20.64         | 425.44        | 0.650 | 0.000                | 5.00              | 24.215     | 15.74        | 514.6                   | 0.0                      | 1,207.6                  |
| 20.00                   |                 | 1.00 | 0.70 | 18.769      | 20.64         | 416.74        | 0.650 | 0.000                | 5.00              | 23.719     | 15.42        | 504.0                   | 0.0                      | 1,182.7                  |
| 25.00                   |                 | 1.00 | 0.70 | 18.769      | 20.64         | 408.03        | 0.650 | 0.000                | 5.00              | 23.224     | 15.10        | 493.3                   | 0.0                      | 1,157.8                  |
| 30.00                   |                 | 1.00 | 0.70 | 18.769      | 20.64         | 399.33        | 0.650 | 0.000                | 5.00              | 22.728     | 14.77        | 488.4                   | 0.0                      | 1,132.9                  |
| 35.00                   |                 | 1.00 | 0.71 | 19.219      | 21.14         | 395.28        | 0.650 | 0.000                | 5.00              | 22.233     | 14.45        | 493.4                   | 0.0                      | 1,108.0                  |
| 40.00                   |                 | 1.00 | 0.74 | 20.021      | 22.02         | 394.46        | 0.650 | 0.000                | 5.00              | 21.737     | 14.13        | 488.4                   | 0.0                      | 1,083.1                  |
| 44.75                   | Bot - Section 2 | 1.00 | 0.77 | 20.733      | 22.80         | 392.48        | 0.650 | 0.000                | 4.75              | 20.192     | 13.12        | 252.3                   | 0.0                      | 1,005.9                  |
| 45.00                   |                 | 1.00 | 0.78 | 21.075      | 23.18         | 391.10        | 0.650 | 0.000                | 0.25              | 1.066      | 0.69         | 270.9                   | 0.0                      | 97.9                     |
| 50.00                   |                 | 1.00 | 0.79 | 21.420      | 23.56         | 389.41        | 0.650 | 0.000                | 5.00              | 21.064     | 13.69        | 309.9                   | 0.0                      | 1,933.8                  |
| 51.00                   | Top - Section 1 | 1.00 | 0.81 | 21.799      | 23.97         | 387.20        | 0.650 | 0.000                | 1.00              | 4.153      | 2.70         | 259.3                   | 0.0                      | 381.2                    |
| 55.00                   |                 | 1.00 | 0.82 | 22.102      | 24.31         | 391.21        | 0.650 | 0.000                | 4.00              | 16.415     | 10.67        | 467.3                   | 0.0                      | 701.6                    |
| 60.00                   |                 | 1.00 | 0.84 | 22.622      | 24.88         | 387.19        | 0.650 | 0.000                | 5.00              | 20.073     | 13.05        | 519.2                   | 0.0                      | 857.8                    |
| 65.00                   |                 | 1.00 | 0.86 | 23.168      | 25.48         | 382.16        | 0.650 | 0.000                | 5.00              | 19.578     | 12.73        | 517.9                   | 0.0                      | 836.5                    |
| 70.00                   |                 | 1.00 | 0.88 | 23.683      | 26.05         | 376.60        | 0.650 | 0.000                | 5.00              | 19.082     | 12.40        | 515.5                   | 0.0                      | 815.1                    |
| 75.00                   |                 | 1.00 | 0.90 | 24.171      | 26.58         | 370.59        | 0.650 | 0.000                | 5.00              | 18.587     | 12.08        | 511.9                   | 0.0                      | 793.8                    |
| 80.00                   |                 | 1.00 | 0.91 | 24.636      | 27.10         | 364.16        | 0.650 | 0.000                | 5.00              | 18.091     | 11.76        | 507.4                   | 0.0                      | 772.5                    |
| 85.00                   |                 | 1.00 | 0.93 | 25.080      | 27.58         | 357.37        | 0.650 | 0.000                | 5.00              | 17.596     | 11.44        | 501.9                   | 0.0                      | 751.1                    |
| 90.00                   |                 | 1.00 | 0.95 | 25.505      | 28.05         | 350.24        | 0.650 | 0.000                | 5.00              | 17.100     | 11.12        | 286.6                   | 0.0                      | 729.8                    |
| 90.75                   | Bot - Section 3 | 1.00 | 0.96 | 25.742      | 28.31         | 346.00        | 0.650 | 0.000                | 0.75              | 2.522      | 1.64         | 249.1                   | 0.0                      | 107.6                    |
| 95.00                   |                 | 1.00 | 0.96 | 25.944      | 28.53         | 342.23        | 0.650 | 0.000                | 4.25              | 14.285     | 9.29         | 249.1                   | 0.0                      | 1,059.0                  |
| 95.75                   | Top - Section 2 | 1.00 | 0.97 | 26.141      | 28.75         | 338.39        | 0.650 | 0.000                | 0.75              | 2.484      | 1.61         | 246.0                   | 0.0                      | 184.1                    |
| 100.0                   |                 | 1.00 | 0.98 | 26.335      | 28.96         | 339.45        | 0.650 | 0.000                | 4.25              | 13.864     | 9.01         | 450.8                   | 0.0                      | 444.6                    |
| 105.0                   |                 | 1.00 | 0.99 | 26.685      | 29.35         | 332.09        | 0.650 | 0.000                | 5.00              | 15.852     | 10.30        | 479.6                   | 0.0                      | 508.3                    |
| 110.0                   |                 | 1.00 | 1.00 | 27.050      | 29.75         | 323.91        | 0.650 | 0.000                | 5.00              | 15.356     | 9.98         | 424.4                   | 0.0                      | 492.3                    |
| 114.0                   | Appertunance(s) | 1.00 | 1.02 | 27.369      | 30.10         | 316.35        | 0.650 | 0.000                | 4.00              | 11.928     | 7.75         | 232.9                   | 0.0                      | 382.3                    |
| 115.0                   |                 | 1.00 | 1.02 | 27.542      | 30.29         | 312.08        | 0.650 | 0.000                | 1.00              | 2.933      | 1.91         | 274.2                   | 0.0                      | 94.0                     |
| 120.0                   |                 | 1.00 | 1.03 | 27.747      | 30.52         | 306.88        | 0.650 | 0.000                | 5.00              | 14.366     | 9.34         | 406.6                   | 0.0                      | 460.3                    |
| 124.0                   | Appertunance(s) | 1.00 | 1.04 | 28.046      | 30.85         | 298.96        | 0.650 | 0.000                | 4.00              | 11.136     | 7.24         | 222.8                   | 0.0                      | 356.7                    |
| 125.0                   |                 | 1.00 | 1.05 | 28.209      | 31.03         | 294.49        | 0.650 | 0.000                | 1.00              | 2.734      | 1.78         | 261.4                   | 0.0                      | 87.6                     |
| 130.0                   |                 | 1.00 | 1.05 | 28.402      | 31.24         | 289.07        | 0.650 | 0.000                | 5.00              | 13.375     | 8.69         | 387.0                   | 0.0                      | 428.2                    |
| 134.0                   | Appertunance(s) | 1.00 | 1.07 | 28.685      | 31.55         | 280.82        | 0.650 | 0.000                | 4.00              | 10.343     | 6.72         | 211.5                   | 0.0                      | 331.1                    |
| 135.0                   |                 | 1.00 | 1.07 | 28.839      | 31.72         | 276.18        | 0.650 | 0.000                | 1.00              | 2.536      | 1.65         | 247.4                   | 0.0                      | 81.2                     |
| 140.0                   |                 | 1.00 | 1.08 | 29.021      | 31.92         | 270.55        | 0.650 | 0.000                | 5.00              | 12.384     | 8.05         | 205.6                   | 0.0                      | 396.2                    |
| Totals:                 |                 |      |      |             |               |               |       |                      | 140.00            |            |              | 13,782.3                | 0.0                      | 24,452.5                 |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/1/2016 8:54:45 AM

Customer: Verizon Wireless

**Load Case: 0.9D + 1.6W****105 mph with No Ice (Reduced DL)****20 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<br>Elev<br>(ft) | Description     | Shaft Forces    |                      | Discrete Forces |                          |                         | Linear Forces        |                 | Sum of Forces        |                 |                      |                          |                      |
|---------------------|-----------------|-----------------|----------------------|-----------------|--------------------------|-------------------------|----------------------|-----------------|----------------------|-----------------|----------------------|--------------------------|----------------------|
|                     |                 | Wind FX<br>(lb) | Dead<br>Load<br>(lb) | Wind FX<br>(lb) | Torsion<br>MY<br>(lb-ft) | Moment<br>MZ<br>(lb-ft) | Dead<br>Load<br>(lb) | Wind FX<br>(lb) | Dead<br>Load<br>(lb) | Wind FX<br>(lb) | Dead<br>Load<br>(lb) | Torsion<br>MY<br>(lb-ft) | Moment<br>MZ<br>(lb) |
|                     |                 |                 |                      |                 |                          |                         |                      |                 |                      |                 |                      |                          |                      |
| 0.00                |                 | 270.6           | 0.0                  |                 |                          |                         |                      | 0.0             | 0.0                  | 270.6           | 0.0                  | 0.0                      | 0.0                  |
| 5.00                |                 | 535.9           | 1,257.4              |                 |                          |                         |                      | 0.0             | 0.0                  | 535.9           | 1,257.4              | 0.0                      | 0.0                  |
| 10.00               |                 | 525.2           | 1,232.5              |                 |                          |                         |                      | 0.0             | 153.2                | 525.2           | 1,385.7              | 0.0                      | 0.0                  |
| 15.00               |                 | 514.6           | 1,207.6              |                 |                          |                         |                      | 0.0             | 153.2                | 514.6           | 1,360.8              | 0.0                      | 0.0                  |
| 20.00               |                 | 504.0           | 1,182.7              |                 |                          |                         |                      | 0.0             | 153.2                | 504.0           | 1,335.9              | 0.0                      | 0.0                  |
| 25.00               |                 | 493.3           | 1,157.8              |                 |                          |                         |                      | 0.0             | 153.2                | 493.3           | 1,311.0              | 0.0                      | 0.0                  |
| 30.00               |                 | 488.4           | 1,132.9              |                 |                          |                         |                      | 0.0             | 153.2                | 488.4           | 1,286.1              | 0.0                      | 0.0                  |
| 35.00               |                 | 493.4           | 1,108.0              |                 |                          |                         |                      | 0.0             | 153.2                | 493.4           | 1,261.2              | 0.0                      | 0.0                  |
| 40.00               |                 | 488.4           | 1,083.1              |                 |                          |                         |                      | 0.0             | 153.2                | 488.4           | 1,236.3              | 0.0                      | 0.0                  |
| 44.75               | Bot - Section 2 | 252.3           | 1,005.9              |                 |                          |                         |                      | 0.0             | 145.5                | 252.3           | 1,151.4              | 0.0                      | 0.0                  |
| 45.00               |                 | 270.9           | 97.9                 |                 |                          |                         |                      | 0.0             | 7.7                  | 270.9           | 105.6                | 0.0                      | 0.0                  |
| 50.00               |                 | 309.9           | 1,933.8              |                 |                          |                         |                      | 0.0             | 153.2                | 309.9           | 2,087.0              | 0.0                      | 0.0                  |
| 51.00               | Top - Section 1 | 259.3           | 381.2                |                 |                          |                         |                      | 0.0             | 30.6                 | 259.3           | 411.9                | 0.0                      | 0.0                  |
| 55.00               |                 | 467.3           | 701.6                |                 |                          |                         |                      | 0.0             | 122.5                | 467.3           | 824.2                | 0.0                      | 0.0                  |
| 60.00               |                 | 519.2           | 857.8                |                 |                          |                         |                      | 0.0             | 153.2                | 519.2           | 1,011.0              | 0.0                      | 0.0                  |
| 65.00               |                 | 517.9           | 836.5                |                 |                          |                         |                      | 0.0             | 153.2                | 517.9           | 989.7                | 0.0                      | 0.0                  |
| 70.00               |                 | 515.5           | 815.1                |                 |                          |                         |                      | 0.0             | 153.2                | 515.5           | 968.3                | 0.0                      | 0.0                  |
| 75.00               |                 | 511.9           | 793.8                |                 |                          |                         |                      | 0.0             | 153.2                | 511.9           | 947.0                | 0.0                      | 0.0                  |
| 80.00               |                 | 507.4           | 772.5                |                 |                          |                         |                      | 0.0             | 153.2                | 507.4           | 925.6                | 0.0                      | 0.0                  |
| 85.00               |                 | 501.9           | 751.1                |                 |                          |                         |                      | 0.0             | 153.2                | 501.9           | 904.3                | 0.0                      | 0.0                  |
| 90.00               |                 | 286.6           | 729.8                |                 |                          |                         |                      | 0.0             | 153.2                | 286.6           | 883.0                | 0.0                      | 0.0                  |
| 90.75               | Bot - Section 3 | 249.1           | 107.6                |                 |                          |                         |                      | 0.0             | 23.0                 | 249.1           | 130.6                | 0.0                      | 0.0                  |
| 95.00               |                 | 249.1           | 1,059.0              |                 |                          |                         |                      | 0.0             | 130.2                | 249.1           | 1,189.2              | 0.0                      | 0.0                  |
| 95.75               | Top - Section 2 | 246.0           | 184.1                |                 |                          |                         |                      | 0.0             | 23.0                 | 246.0           | 207.1                | 0.0                      | 0.0                  |
| 100.00              |                 | 450.8           | 444.6                |                 |                          |                         |                      | 0.0             | 130.2                | 450.8           | 574.8                | 0.0                      | 0.0                  |
| 105.00              |                 | 479.6           | 508.3                |                 |                          |                         |                      | 0.0             | 153.2                | 479.6           | 661.5                | 0.0                      | 0.0                  |
| 110.00              |                 | 424.4           | 492.3                |                 |                          |                         |                      | 0.0             | 153.2                | 424.4           | 645.5                | 0.0                      | 0.0                  |
| 114.00              | Appertunance(s) | 232.9           | 382.3                | 4,009.2         | 0.0                      | 0.0                     | 2,125.0              | 0.0             | 122.5                | 4,242.2         | 2,629.8              | 0.0                      | 0.0                  |
| 115.00              |                 | 274.2           | 94.0                 |                 |                          |                         |                      | 0.0             | 19.4                 | 274.2           | 113.4                | 0.0                      | 0.0                  |
| 120.00              |                 | 406.6           | 460.3                |                 |                          |                         |                      | 0.0             | 97.2                 | 406.6           | 557.5                | 0.0                      | 0.0                  |
| 124.00              | Appertunance(s) | 222.8           | 356.7                | 1,924.0         | 0.0                      | 0.0                     | 1,447.7              | 0.0             | 77.8                 | 2,146.8         | 1,882.2              | 0.0                      | 0.0                  |
| 125.00              |                 | 261.4           | 87.6                 |                 |                          |                         |                      | 0.0             | 14.9                 | 261.4           | 102.5                | 0.0                      | 0.0                  |
| 130.00              |                 | 387.0           | 428.2                |                 |                          |                         |                      | 0.0             | 74.7                 | 387.0           | 502.9                | 0.0                      | 0.0                  |
| 134.00              | Appertunance(s) | 211.5           | 331.1                | 4,007.1         | 0.0                      | 0.0                     | 2,099.2              | 0.0             | 59.8                 | 4,218.7         | 2,490.1              | 0.0                      | 0.0                  |
| 135.00              |                 | 247.4           | 81.2                 |                 |                          |                         |                      | 0.0             | 0.0                  | 247.4           | 81.2                 | 0.0                      | 0.0                  |
| 140.00              |                 | 205.6           | 396.2                |                 |                          |                         |                      | 0.0             | 0.0                  | 205.6           | 396.2                | 0.0                      | 0.0                  |
| Totals:             |                 |                 |                      |                 |                          |                         |                      |                 |                      | 23,722.6        | 33,807.5             | 0.00                     | 0.00                 |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/1/2016 8:54:45 AM

Customer: Verizon Wireless

**Load Case: 0.9D + 1.6W**

105 mph with No Ice (Reduced DL)

20 Iterations

Gust Response Factor :1.10

Wind Importance Factor 1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

**Calculated Forces**

| Seg<br>Elev<br>(ft) | Pu<br>FY (-)<br>(kips) | Vu<br>FX (-)<br>(kips) | Tu<br>MY<br>(ft-kips) | Mu<br>MZ<br>(ft-kips) | Mu<br>MX<br>(ft-kips) | Resultant<br>Moment<br>(ft-kips) | phi<br>Pn<br>(kips) | phi<br>Vn<br>(kips) | phi<br>Tn<br>(ft-kips) | phi<br>Mn<br>(ft-kips) | Total<br>Deflect<br>(in) | Rotation<br>(deg) | Ratio |
|---------------------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|----------------------------------|---------------------|---------------------|------------------------|------------------------|--------------------------|-------------------|-------|
| 0.00                | -33.79                 | -23.48                 | 0.00                  | -2,199.69             | 0.00                  | 2,199.69                         | 5,563.50            | 2,781.75            | 13,660.1               | 6,840.21               | 0.00                     | 0.00              | 0.328 |
| 5.00                | -32.50                 | -22.99                 | 0.00                  | -2,082.31             | 0.00                  | 2,082.31                         | 5,495.04            | 2,747.52            | 13,225.5               | 6,622.59               | 0.04                     | -0.08             | 0.320 |
| 10.00               | -31.08                 | -22.50                 | 0.00                  | -1,967.38             | 0.00                  | 1,967.38                         | 5,424.94            | 2,712.47            | 12,793.7               | 6,406.38               | 0.17                     | -0.16             | 0.313 |
| 15.00               | -29.69                 | -22.03                 | 0.00                  | -1,854.87             | 0.00                  | 1,854.87                         | 5,353.22            | 2,676.61            | 12,365.0               | 6,191.70               | 0.39                     | -0.25             | 0.305 |
| 20.00               | -28.33                 | -21.56                 | 0.00                  | -1,744.75             | 0.00                  | 1,744.75                         | 5,279.88            | 2,639.94            | 11,939.5               | 5,978.66               | 0.69                     | -0.33             | 0.297 |
| 25.00               | -26.99                 | -21.09                 | 0.00                  | -1,636.97             | 0.00                  | 1,636.97                         | 5,204.91            | 2,602.46            | 11,517.6               | 5,767.39               | 1.08                     | -0.41             | 0.289 |
| 30.00               | -25.68                 | -20.63                 | 0.00                  | -1,531.51             | 0.00                  | 1,531.51                         | 5,128.32            | 2,564.16            | 11,099.4               | 5,557.99               | 1.55                     | -0.49             | 0.281 |
| 35.00               | -24.39                 | -20.16                 | 0.00                  | -1,428.36             | 0.00                  | 1,428.36                         | 5,050.10            | 2,525.05            | 10,685.3               | 5,350.59               | 2.11                     | -0.57             | 0.272 |
| 40.00               | -23.14                 | -19.69                 | 0.00                  | -1,327.56             | 0.00                  | 1,327.56                         | 4,970.26            | 2,485.13            | 10,275.3               | 5,145.31               | 2.76                     | -0.66             | 0.263 |
| 44.75               | -21.97                 | -19.44                 | 0.00                  | -1,234.03             | 0.00                  | 1,234.03                         | 4,892.90            | 2,446.45            | 9,890.02               | 4,952.36               | 3.45                     | -0.73             | 0.254 |
| 45.00               | -21.86                 | -19.18                 | 0.00                  | -1,229.17             | 0.00                  | 1,229.17                         | 4,888.79            | 2,444.40            | 9,869.86               | 4,942.27               | 3.49                     | -0.74             | 0.253 |
| 50.00               | -19.76                 | -18.86                 | 0.00                  | -1,133.25             | 0.00                  | 1,133.25                         | 4,805.70            | 2,402.85            | 9,469.07               | 4,741.57               | 4.30                     | -0.82             | 0.243 |
| 51.00               | -19.34                 | -18.61                 | 0.00                  | -1,114.39             | 0.00                  | 1,114.39                         | 3,954.70            | 1,977.35            | 7,897.06               | 3,954.40               | 4.48                     | -0.83             | 0.287 |
| 55.00               | -18.50                 | -18.16                 | 0.00                  | -1,039.95             | 0.00                  | 1,039.95                         | 3,904.91            | 1,952.45            | 7,646.13               | 3,828.75               | 5.20                     | -0.90             | 0.276 |
| 60.00               | -17.47                 | -17.65                 | 0.00                  | -949.17               | 0.00                  | 949.17                           | 3,841.19            | 1,920.60            | 7,335.11               | 3,673.01               | 6.19                     | -0.99             | 0.263 |
| 65.00               | -16.46                 | -17.13                 | 0.00                  | -860.94               | 0.00                  | 860.94                           | 3,775.86            | 1,887.93            | 7,027.24               | 3,518.84               | 7.27                     | -1.07             | 0.249 |
| 70.00               | -15.48                 | -16.62                 | 0.00                  | -775.27               | 0.00                  | 775.27                           | 3,708.90            | 1,854.45            | 6,722.77               | 3,366.38               | 8.44                     | -1.15             | 0.235 |
| 75.00               | -14.52                 | -16.11                 | 0.00                  | -692.15               | 0.00                  | 692.15                           | 3,640.31            | 1,820.16            | 6,421.93               | 3,215.74               | 9.69                     | -1.23             | 0.219 |
| 80.00               | -13.59                 | -15.60                 | 0.00                  | -611.60               | 0.00                  | 611.60                           | 3,570.10            | 1,785.05            | 6,124.95               | 3,067.03               | 11.02                    | -1.31             | 0.203 |
| 85.00               | -12.68                 | -15.09                 | 0.00                  | -533.59               | 0.00                  | 533.59                           | 3,498.27            | 1,749.13            | 5,832.07               | 2,920.37               | 12.44                    | -1.39             | 0.186 |
| 90.00               | -11.79                 | -14.79                 | 0.00                  | -458.12               | 0.00                  | 458.12                           | 3,424.81            | 1,712.40            | 5,543.53               | 2,775.89               | 13.93                    | -1.46             | 0.169 |
| 90.75               | -11.66                 | -14.55                 | 0.00                  | -447.02               | 0.00                  | 447.02                           | 3,413.65            | 1,706.82            | 5,500.64               | 2,754.41               | 14.16                    | -1.47             | 0.166 |
| 95.00               | -10.47                 | -14.27                 | 0.00                  | -385.19               | 0.00                  | 385.19                           | 3,349.72            | 1,674.86            | 5,259.57               | 2,633.69               | 15.49                    | -1.52             | 0.149 |
| 95.75               | -10.26                 | -14.03                 | 0.00                  | -374.49               | 0.00                  | 374.49                           | 2,312.98            | 1,156.49            | 3,686.59               | 1,846.04               | 15.73                    | -1.53             | 0.207 |
| 100.00              | -9.68                  | -13.57                 | 0.00                  | -314.87               | 0.00                  | 314.87                           | 2,275.87            | 1,137.93            | 3,533.62               | 1,769.44               | 17.12                    | -1.58             | 0.182 |
| 105.00              | -9.02                  | -13.08                 | 0.00                  | -247.01               | 0.00                  | 247.01                           | 2,230.70            | 1,115.35            | 3,355.32               | 1,680.15               | 18.81                    | -1.65             | 0.151 |
| 110.00              | -8.38                  | -12.65                 | 0.00                  | -181.59               | 0.00                  | 181.59                           | 2,183.90            | 1,091.95            | 3,179.03               | 1,591.88               | 20.57                    | -1.70             | 0.118 |
| 114.00              | -5.88                  | -8.33                  | 0.00                  | -131.00               | 0.00                  | 131.00                           | 2,145.30            | 1,072.65            | 3,039.61               | 1,522.06               | 22.01                    | -1.74             | 0.089 |
| 115.00              | -5.77                  | -8.05                  | 0.00                  | -122.67               | 0.00                  | 122.67                           | 2,135.49            | 1,067.74            | 3,004.99               | 1,504.73               | 22.37                    | -1.75             | 0.084 |
| 120.00              | -5.22                  | -7.63                  | 0.00                  | -82.40                | 0.00                  | 82.40                            | 2,085.44            | 1,042.72            | 2,833.45               | 1,418.83               | 24.22                    | -1.78             | 0.061 |
| 124.00              | -3.40                  | -5.43                  | 0.00                  | -51.87                | 0.00                  | 51.87                            | 2,044.24            | 1,022.12            | 2,698.16               | 1,351.09               | 25.72                    | -1.80             | 0.040 |
| 125.00              | -3.31                  | -5.17                  | 0.00                  | -46.44                | 0.00                  | 46.44                            | 2,033.77            | 1,016.89            | 2,664.63               | 1,334.29               | 26.10                    | -1.80             | 0.036 |
| 130.00              | -2.82                  | -4.76                  | 0.00                  | -20.61                | 0.00                  | 20.61                            | 1,980.48            | 990.24              | 2,498.77               | 1,251.24               | 27.99                    | -1.81             | 0.018 |
| 134.00              | -0.46                  | -0.47                  | 0.00                  | -1.56                 | 0.00                  | 1.56                             | 1,936.68            | 968.34              | 2,368.37               | 1,185.94               | 29.51                    | -1.82             | 0.002 |
| 135.00              | -0.39                  | -0.22                  | 0.00                  | -1.09                 | 0.00                  | 1.09                             | 1,925.56            | 962.78              | 2,336.10               | 1,169.79               | 29.89                    | -1.82             | 0.001 |
| 140.00              | 0.00                   | -0.21                  | 0.00                  | 0.00                  | 0.00                  | 0.00                             | 1,869.02            | 934.51              | 2,176.88               | 1,090.06               | 31.79                    | -1.82             | 0.000 |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/1/2016 8:54:45 AM

Customer: Verizon Wireless

**Load Case: 1.2D + 1.0Di + 1.0Wi****50 mph with 0.75 in Radial Ice****19 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****Shaft Segment Forces (Factored)**

| Seg Top<br>Elev<br>(ft) | Description     | Kzt  | Kz   | qz<br>(psf) | qzGh<br>(psf) | C<br>(mph-ft) | Cf    | Ice<br>Thick<br>(in) | Tributary<br>(ft) | Ap<br>(sf) | EPAs<br>(sf) | Wind<br>Force X<br>(lb) | Dead<br>Load Ice<br>(lb) | Tot Dead<br>Load<br>(lb) |
|-------------------------|-----------------|------|------|-------------|---------------|---------------|-------|----------------------|-------------------|------------|--------------|-------------------------|--------------------------|--------------------------|
| 0.00                    |                 | 1.00 | 0.70 | 4.256       | 4.682         | 0.000         | 1.200 | 0.000                | 0.00              | 0.000      | 0.00         | 73.5                    | 0.0                      | 0.0                      |
| 5.00                    |                 | 1.00 | 0.70 | 4.256       | 4.682         | 0.000         | 1.200 | 1.159                | 5.00              | 26.171     | 31.41        | 146.0                   | 436.7                    | 2,113.2                  |
| 10.00                   |                 | 1.00 | 0.70 | 4.256       | 4.682         | 0.000         | 1.200 | 1.293                | 5.00              | 25.788     | 30.95        | 143.6                   | 479.0                    | 2,122.3                  |
| 15.00                   |                 | 1.00 | 0.70 | 4.256       | 4.682         | 0.000         | 1.200 | 1.361                | 5.00              | 25.349     | 30.42        | 141.1                   | 494.7                    | 2,104.8                  |
| 20.00                   |                 | 1.00 | 0.70 | 4.256       | 4.682         | 0.000         | 1.200 | 1.408                | 5.00              | 24.892     | 29.87        | 138.5                   | 501.7                    | 2,078.6                  |
| 25.00                   |                 | 1.00 | 0.70 | 4.256       | 4.682         | 0.000         | 1.200 | 1.444                | 5.00              | 24.427     | 29.31        | 135.9                   | 504.1                    | 2,047.9                  |
| 30.00                   |                 | 1.00 | 0.70 | 4.256       | 4.682         | 0.000         | 1.200 | 1.473                | 5.00              | 23.956     | 28.75        | 134.8                   | 503.8                    | 2,014.4                  |
| 35.00                   |                 | 1.00 | 0.71 | 4.358       | 4.794         | 0.000         | 1.200 | 1.498                | 5.00              | 23.481     | 28.18        | 136.5                   | 501.5                    | 1,978.9                  |
| 40.00                   |                 | 1.00 | 0.74 | 4.540       | 4.994         | 0.000         | 1.200 | 1.519                | 5.00              | 23.004     | 27.60        | 135.4                   | 497.8                    | 1,942.0                  |
| 44.75                   | Bot - Section 2 | 1.00 | 0.77 | 4.701       | 5.171         | 0.000         | 1.200 | 1.538                | 4.75              | 21.409     | 25.69        | 70.0                    | 468.7                    | 1,809.9                  |
| 45.00                   |                 | 1.00 | 0.78 | 4.779       | 5.257         | 0.000         | 1.200 | 1.547                | 0.25              | 1.131      | 1.36         | 75.2                    | 25.2                     | 155.7                    |
| 50.00                   |                 | 1.00 | 0.79 | 4.857       | 5.343         | 0.000         | 1.200 | 1.556                | 5.00              | 22.360     | 26.83        | 86.1                    | 494.6                    | 3,073.0                  |
| 51.00                   | Top - Section 1 | 1.00 | 0.81 | 4.943       | 5.437         | 0.000         | 1.200 | 1.565                | 1.00              | 4.414      | 5.30         | 72.2                    | 99.1                     | 607.4                    |
| 55.00                   |                 | 1.00 | 0.82 | 5.012       | 5.513         | 0.000         | 1.200 | 1.573                | 4.00              | 17.464     | 20.96        | 130.2                   | 390.9                    | 1,326.4                  |
| 60.00                   |                 | 1.00 | 0.84 | 5.130       | 5.643         | 0.000         | 1.200 | 1.586                | 5.00              | 21.394     | 25.67        | 144.9                   | 481.1                    | 1,624.9                  |
| 65.00                   |                 | 1.00 | 0.86 | 5.253       | 5.779         | 0.000         | 1.200 | 1.599                | 5.00              | 20.910     | 25.09        | 144.9                   | 473.6                    | 1,588.9                  |
| 70.00                   |                 | 1.00 | 0.88 | 5.370       | 5.907         | 0.000         | 1.200 | 1.611                | 5.00              | 20.425     | 24.51        | 144.5                   | 465.5                    | 1,552.4                  |
| 75.00                   |                 | 1.00 | 0.90 | 5.481       | 6.029         | 0.000         | 1.200 | 1.623                | 5.00              | 19.939     | 23.93        | 143.9                   | 457.1                    | 1,515.5                  |
| 80.00                   |                 | 1.00 | 0.91 | 5.586       | 6.145         | 0.000         | 1.200 | 1.634                | 5.00              | 19.453     | 23.34        | 142.9                   | 448.2                    | 1,478.2                  |
| 85.00                   |                 | 1.00 | 0.93 | 5.687       | 6.256         | 0.000         | 1.200 | 1.644                | 5.00              | 18.966     | 22.76        | 141.7                   | 439.1                    | 1,440.6                  |
| 90.00                   |                 | 1.00 | 0.95 | 5.784       | 6.362         | 0.000         | 1.200 | 1.654                | 5.00              | 18.478     | 22.17        | 81.1                    | 429.6                    | 1,402.7                  |
| 90.75                   | Bot - Section 3 | 1.00 | 0.96 | 5.837       | 6.421         | 0.000         | 1.200 | 1.659                | 0.75              | 2.730      | 3.28         | 70.6                    | 64.4                     | 207.9                    |
| 95.00                   |                 | 1.00 | 0.96 | 5.883       | 6.471         | 0.000         | 1.200 | 1.664                | 4.25              | 15.463     | 18.56        | 70.6                    | 362.1                    | 1,774.1                  |
| 95.75                   | Top - Section 2 | 1.00 | 0.97 | 5.928       | 6.520         | 0.000         | 1.200 | 1.668                | 0.75              | 2.692      | 3.23         | 69.8                    | 63.8                     | 309.2                    |
| 100.0                   |                 | 1.00 | 0.98 | 5.972       | 6.569         | 0.000         | 1.200 | 1.672                | 4.25              | 15.048     | 18.06        | 128.2                   | 353.6                    | 946.5                    |
| 105.0                   |                 | 1.00 | 0.99 | 6.051       | 6.656         | 0.000         | 1.200 | 1.680                | 5.00              | 17.252     | 20.70        | 136.8                   | 405.7                    | 1,083.4                  |
| 110.0                   |                 | 1.00 | 1.00 | 6.134       | 6.747         | 0.000         | 1.200 | 1.688                | 5.00              | 16.763     | 20.12        | 121.4                   | 395.3                    | 1,051.7                  |
| 114.0                   | Appertunance(s) | 1.00 | 1.02 | 6.206       | 6.827         | 0.000         | 1.200 | 1.695                | 4.00              | 13.058     | 15.67        | 66.7                    | 309.7                    | 819.4                    |
| 115.0                   |                 | 1.00 | 1.02 | 6.245       | 6.870         | 0.000         | 1.200 | 1.699                | 1.00              | 3.216      | 3.86         | 78.8                    | 77.1                     | 202.4                    |
| 120.0                   |                 | 1.00 | 1.03 | 6.292       | 6.921         | 0.000         | 1.200 | 1.703                | 5.00              | 15.785     | 18.94        | 117.1                   | 374.0                    | 987.7                    |
| 124.0                   | Appertunance(s) | 1.00 | 1.04 | 6.360       | 6.996         | 0.000         | 1.200 | 1.710                | 4.00              | 12.275     | 14.73        | 64.3                    | 292.4                    | 768.0                    |
| 125.0                   |                 | 1.00 | 1.05 | 6.397       | 7.036         | 0.000         | 1.200 | 1.713                | 1.00              | 3.020      | 3.62         | 75.7                    | 72.7                     | 189.5                    |
| 130.0                   |                 | 1.00 | 1.05 | 6.440       | 7.084         | 0.000         | 1.200 | 1.717                | 5.00              | 14.806     | 17.77        | 112.3                   | 352.0                    | 923.0                    |
| 134.0                   | Appertunance(s) | 1.00 | 1.07 | 6.504       | 7.155         | 0.000         | 1.200 | 1.723                | 4.00              | 11.492     | 13.79        | 61.5                    | 274.6                    | 716.0                    |
| 135.0                   |                 | 1.00 | 1.07 | 6.539       | 7.193         | 0.000         | 1.200 | 1.726                | 1.00              | 2.824      | 3.39         | 72.2                    | 68.3                     | 176.5                    |
| 140.0                   |                 | 1.00 | 1.08 | 6.581       | 7.239         | 0.000         | 1.200 | 1.730                | 5.00              | 13.826     | 16.59        | 60.0                    | 329.5                    | 857.8                    |
| Totals:                 |                 |      |      |             |               |               |       |                      | 140.00            |            |              | 3,868.8                 | 12,387.2                 | 44,990.5                 |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/1/2016 8:54:46 AM

Customer: Verizon Wireless

**Load Case:** 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

19 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<br>Elev<br>(ft) | Description     | Shaft Forces |              | Discrete Forces |         |         | Linear Forces |         | Sum of Forces |          |              |         |        |
|---------------------|-----------------|--------------|--------------|-----------------|---------|---------|---------------|---------|---------------|----------|--------------|---------|--------|
|                     |                 | Wind FX      | Dead<br>Load | Wind FX         | Torsion | Moment  | Dead<br>Load  | Wind FX | Dead<br>Load  | Wind FX  | Dead<br>Load | Torsion | Moment |
|                     |                 |              |              |                 | MY      | MZ      |               |         |               |          |              |         |        |
|                     |                 | (lb)         | (lb)         | (lb)            | (lb-ft) | (lb-ft) | (lb)          | (lb)    | (lb)          | (lb)     | (lb)         | (lb-ft) | (lb)   |
| 0.00                |                 | 73.5         | 0.0          |                 |         |         |               | 0.0     | 0.0           | 73.5     | 0.0          | 0.0     | 0.0    |
| 5.00                |                 | 146.0        | 2,113.2      |                 |         |         |               | 0.0     | 0.0           | 146.0    | 2,113.2      | 0.0     | 0.0    |
| 10.00               |                 | 143.6        | 2,122.3      |                 |         |         |               | 0.0     | 204.2         | 143.6    | 2,326.5      | 0.0     | 0.0    |
| 15.00               |                 | 141.1        | 2,104.8      |                 |         |         |               | 0.0     | 204.2         | 141.1    | 2,309.0      | 0.0     | 0.0    |
| 20.00               |                 | 138.5        | 2,078.6      |                 |         |         |               | 0.0     | 204.2         | 138.5    | 2,282.8      | 0.0     | 0.0    |
| 25.00               |                 | 135.9        | 2,047.9      |                 |         |         |               | 0.0     | 204.2         | 135.9    | 2,252.1      | 0.0     | 0.0    |
| 30.00               |                 | 134.8        | 2,014.4      |                 |         |         |               | 0.0     | 204.2         | 134.8    | 2,218.6      | 0.0     | 0.0    |
| 35.00               |                 | 136.5        | 1,978.9      |                 |         |         |               | 0.0     | 204.2         | 136.5    | 2,183.1      | 0.0     | 0.0    |
| 40.00               |                 | 135.4        | 1,942.0      |                 |         |         |               | 0.0     | 204.2         | 135.4    | 2,146.2      | 0.0     | 0.0    |
| 44.75               | Bot - Section 2 | 70.0         | 1,809.9      |                 |         |         |               | 0.0     | 194.0         | 70.0     | 2,004.0      | 0.0     | 0.0    |
| 45.00               |                 | 75.2         | 155.7        |                 |         |         |               | 0.0     | 10.2          | 75.2     | 165.9        | 0.0     | 0.0    |
| 50.00               |                 | 86.1         | 3,073.0      |                 |         |         |               | 0.0     | 204.2         | 86.1     | 3,277.2      | 0.0     | 0.0    |
| 51.00               | Top - Section 1 | 72.2         | 607.4        |                 |         |         |               | 0.0     | 40.8          | 72.2     | 648.2        | 0.0     | 0.0    |
| 55.00               |                 | 130.2        | 1,326.4      |                 |         |         |               | 0.0     | 163.4         | 130.2    | 1,489.8      | 0.0     | 0.0    |
| 60.00               |                 | 144.9        | 1,624.9      |                 |         |         |               | 0.0     | 204.2         | 144.9    | 1,829.1      | 0.0     | 0.0    |
| 65.00               |                 | 144.9        | 1,588.9      |                 |         |         |               | 0.0     | 204.2         | 144.9    | 1,793.1      | 0.0     | 0.0    |
| 70.00               |                 | 144.5        | 1,552.4      |                 |         |         |               | 0.0     | 204.2         | 144.5    | 1,756.6      | 0.0     | 0.0    |
| 75.00               |                 | 143.9        | 1,515.5      |                 |         |         |               | 0.0     | 204.2         | 143.9    | 1,719.7      | 0.0     | 0.0    |
| 80.00               |                 | 142.9        | 1,478.2      |                 |         |         |               | 0.0     | 204.2         | 142.9    | 1,682.4      | 0.0     | 0.0    |
| 85.00               |                 | 141.7        | 1,440.6      |                 |         |         |               | 0.0     | 204.2         | 141.7    | 1,644.8      | 0.0     | 0.0    |
| 90.00               |                 | 81.1         | 1,402.7      |                 |         |         |               | 0.0     | 204.2         | 81.1     | 1,606.9      | 0.0     | 0.0    |
| 90.75               | Bot - Section 3 | 70.6         | 207.9        |                 |         |         |               | 0.0     | 30.6          | 70.6     | 238.5        | 0.0     | 0.0    |
| 95.00               |                 | 70.6         | 1,774.1      |                 |         |         |               | 0.0     | 173.6         | 70.6     | 1,947.7      | 0.0     | 0.0    |
| 95.75               | Top - Section 2 | 69.8         | 309.2        |                 |         |         |               | 0.0     | 30.6          | 69.8     | 339.9        | 0.0     | 0.0    |
| 100.00              |                 | 128.2        | 946.5        |                 |         |         |               | 0.0     | 173.6         | 128.2    | 1,120.1      | 0.0     | 0.0    |
| 105.00              |                 | 136.8        | 1,083.4      |                 |         |         |               | 0.0     | 204.2         | 136.8    | 1,287.6      | 0.0     | 0.0    |
| 110.00              |                 | 121.4        | 1,051.7      |                 |         |         |               | 0.0     | 204.2         | 121.4    | 1,255.9      | 0.0     | 0.0    |
| 114.00              | Appertunance(s) | 66.7         | 819.4        | 772.8           | 0.0     | 0.0     | 5,896.0       | 0.0     | 163.4         | 839.6    | 6,878.8      | 0.0     | 0.0    |
| 115.00              |                 | 78.8         | 202.4        |                 |         |         |               | 0.0     | 25.9          | 78.8     | 228.3        | 0.0     | 0.0    |
| 120.00              |                 | 117.1        | 987.7        |                 |         |         |               | 0.0     | 129.6         | 117.1    | 1,117.3      | 0.0     | 0.0    |
| 124.00              | Appertunance(s) | 64.3         | 768.0        | 430.7           | 0.0     | 0.0     | 2,873.1       | 0.0     | 103.7         | 495.0    | 3,744.8      | 0.0     | 0.0    |
| 125.00              |                 | 75.7         | 189.5        |                 |         |         |               | 0.0     | 19.9          | 75.7     | 209.4        | 0.0     | 0.0    |
| 130.00              |                 | 112.3        | 923.0        |                 |         |         |               | 0.0     | 99.6          | 112.3    | 1,022.6      | 0.0     | 0.0    |
| 134.00              | Appertunance(s) | 61.5         | 716.0        | 836.6           | 0.0     | 0.0     | 5,654.5       | 0.0     | 79.7          | 898.1    | 6,450.2      | 0.0     | 0.0    |
| 135.00              |                 | 72.2         | 176.5        |                 |         |         |               | 0.0     | 0.0           | 72.2     | 176.5        | 0.0     | 0.0    |
| 140.00              |                 | 60.0         | 857.8        |                 |         |         |               | 0.0     | 0.0           | 60.0     | 857.8        | 0.0     | 0.0    |
| Totals:             |                 |              |              |                 |         |         |               |         |               | 5,908.99 | 64,324.9     | 0.00    | 0.00   |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/1/2016 8:54:46 AM

Customer: Verizon Wireless

**Load Case:** 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

19 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<br>Elev<br>(ft) | Pu<br>FY (-)<br>(kips) | Vu<br>FX (-)<br>(kips) | Tu<br>MY<br>(ft-kips) | Mu<br>MZ<br>(ft-kips) | Mu<br>MX<br>(ft-kips) | Resultant<br>Moment<br>(ft-kips) | phi<br>Pn<br>(kips) | phi<br>Vn<br>(kips) | phi<br>Tn<br>(ft-kips) | phi<br>Mn<br>(ft-kips) | Total<br>Deflect<br>(in) | Rotation<br>(deg) | Ratio |
|---------------------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|----------------------------------|---------------------|---------------------|------------------------|------------------------|--------------------------|-------------------|-------|
| 0.00                | -64.32                 | -5.85                  | 0.00                  | -535.45               | 0.00                  | 535.45                           | 5,563.50            | 2,781.75            | 13,660.1               | 6,840.21               | 0.00                     | 0.00              | 0.090 |
| 5.00                | -62.21                 | -5.72                  | 0.00                  | -506.22               | 0.00                  | 506.22                           | 5,495.04            | 2,747.52            | 13,225.5               | 6,622.59               | 0.01                     | -0.02             | 0.088 |
| 10.00               | -59.88                 | -5.60                  | 0.00                  | -477.62               | 0.00                  | 477.62                           | 5,424.94            | 2,712.47            | 12,793.7               | 6,406.38               | 0.04                     | -0.04             | 0.086 |
| 15.00               | -57.57                 | -5.47                  | 0.00                  | -449.63               | 0.00                  | 449.63                           | 5,353.22            | 2,676.61            | 12,365.0               | 6,191.70               | 0.09                     | -0.06             | 0.083 |
| 20.00               | -55.28                 | -5.35                  | 0.00                  | -422.26               | 0.00                  | 422.26                           | 5,279.88            | 2,639.94            | 11,939.5               | 5,978.66               | 0.17                     | -0.08             | 0.081 |
| 25.00               | -53.03                 | -5.23                  | 0.00                  | -395.50               | 0.00                  | 395.50                           | 5,204.91            | 2,602.46            | 11,517.6               | 5,767.39               | 0.26                     | -0.10             | 0.079 |
| 30.00               | -50.81                 | -5.11                  | 0.00                  | -369.34               | 0.00                  | 369.34                           | 5,128.32            | 2,564.16            | 11,099.4               | 5,557.99               | 0.38                     | -0.12             | 0.076 |
| 35.00               | -48.63                 | -4.99                  | 0.00                  | -343.79               | 0.00                  | 343.79                           | 5,050.10            | 2,525.05            | 10,685.3               | 5,350.59               | 0.51                     | -0.14             | 0.074 |
| 40.00               | -46.48                 | -4.86                  | 0.00                  | -318.87               | 0.00                  | 318.87                           | 4,970.26            | 2,485.13            | 10,275.3               | 5,145.31               | 0.67                     | -0.16             | 0.071 |
| 44.75               | -44.47                 | -4.79                  | 0.00                  | -295.78               | 0.00                  | 295.78                           | 4,892.90            | 2,446.45            | 9,890.02               | 4,952.36               | 0.84                     | -0.18             | 0.069 |
| 45.00               | -44.31                 | -4.72                  | 0.00                  | -294.59               | 0.00                  | 294.59                           | 4,888.79            | 2,444.40            | 9,869.86               | 4,942.27               | 0.85                     | -0.18             | 0.069 |
| 50.00               | -41.03                 | -4.63                  | 0.00                  | -270.97               | 0.00                  | 270.97                           | 4,805.70            | 2,402.85            | 9,469.07               | 4,741.57               | 1.04                     | -0.20             | 0.066 |
| 51.00               | -40.38                 | -4.57                  | 0.00                  | -266.34               | 0.00                  | 266.34                           | 3,954.70            | 1,977.35            | 7,897.06               | 3,954.40               | 1.08                     | -0.20             | 0.078 |
| 55.00               | -38.89                 | -4.44                  | 0.00                  | -248.07               | 0.00                  | 248.07                           | 3,904.91            | 1,952.45            | 7,646.13               | 3,828.75               | 1.26                     | -0.22             | 0.075 |
| 60.00               | -37.06                 | -4.30                  | 0.00                  | -225.85               | 0.00                  | 225.85                           | 3,841.19            | 1,920.60            | 7,335.11               | 3,673.01               | 1.50                     | -0.24             | 0.071 |
| 65.00               | -35.27                 | -4.16                  | 0.00                  | -204.32               | 0.00                  | 204.32                           | 3,775.86            | 1,887.93            | 7,027.24               | 3,518.84               | 1.76                     | -0.26             | 0.067 |
| 70.00               | -33.51                 | -4.02                  | 0.00                  | -183.50               | 0.00                  | 183.50                           | 3,708.90            | 1,854.45            | 6,722.77               | 3,366.38               | 2.04                     | -0.28             | 0.064 |
| 75.00               | -31.79                 | -3.88                  | 0.00                  | -163.39               | 0.00                  | 163.39                           | 3,640.31            | 1,820.16            | 6,421.93               | 3,215.74               | 2.34                     | -0.30             | 0.060 |
| 80.00               | -30.11                 | -3.74                  | 0.00                  | -143.98               | 0.00                  | 143.98                           | 3,570.10            | 1,785.05            | 6,124.95               | 3,067.03               | 2.66                     | -0.31             | 0.055 |
| 85.00               | -28.46                 | -3.60                  | 0.00                  | -125.29               | 0.00                  | 125.29                           | 3,498.27            | 1,749.13            | 5,832.07               | 2,920.37               | 3.00                     | -0.33             | 0.051 |
| 90.00               | -26.85                 | -3.51                  | 0.00                  | -107.31               | 0.00                  | 107.31                           | 3,424.81            | 1,712.40            | 5,543.53               | 2,775.89               | 3.36                     | -0.35             | 0.047 |
| 90.75               | -26.62                 | -3.44                  | 0.00                  | -104.68               | 0.00                  | 104.68                           | 3,413.65            | 1,706.82            | 5,500.64               | 2,754.41               | 3.41                     | -0.35             | 0.046 |
| 95.00               | -24.67                 | -3.36                  | 0.00                  | -90.05                | 0.00                  | 90.05                            | 3,349.72            | 1,674.86            | 5,259.57               | 2,633.69               | 3.73                     | -0.36             | 0.042 |
| 95.75               | -24.33                 | -3.29                  | 0.00                  | -87.53                | 0.00                  | 87.53                            | 2,312.98            | 1,156.49            | 3,686.59               | 1,846.04               | 3.79                     | -0.37             | 0.058 |
| 100.00              | -23.21                 | -3.16                  | 0.00                  | -73.53                | 0.00                  | 73.53                            | 2,275.87            | 1,137.93            | 3,533.62               | 1,769.44               | 4.12                     | -0.38             | 0.052 |
| 105.00              | -21.92                 | -3.02                  | 0.00                  | -57.72                | 0.00                  | 57.72                            | 2,230.70            | 1,115.35            | 3,355.32               | 1,680.15               | 4.52                     | -0.39             | 0.044 |
| 110.00              | -20.67                 | -2.90                  | 0.00                  | -42.60                | 0.00                  | 42.60                            | 2,183.90            | 1,091.95            | 3,179.03               | 1,591.88               | 4.94                     | -0.41             | 0.036 |
| 114.00              | -13.79                 | -2.01                  | 0.00                  | -31.02                | 0.00                  | 31.02                            | 2,145.30            | 1,072.65            | 3,039.61               | 1,522.06               | 5.29                     | -0.41             | 0.027 |
| 115.00              | -13.56                 | -1.93                  | 0.00                  | -29.01                | 0.00                  | 29.01                            | 2,135.49            | 1,067.74            | 3,004.99               | 1,504.73               | 5.37                     | -0.42             | 0.026 |
| 120.00              | -12.45                 | -1.81                  | 0.00                  | -19.36                | 0.00                  | 19.36                            | 2,085.44            | 1,042.72            | 2,833.45               | 1,418.83               | 5.81                     | -0.42             | 0.020 |
| 124.00              | -8.71                  | -1.28                  | 0.00                  | -12.14                | 0.00                  | 12.14                            | 2,044.24            | 1,022.12            | 2,698.16               | 1,351.09               | 6.17                     | -0.43             | 0.013 |
| 125.00              | -8.50                  | -1.21                  | 0.00                  | -10.85                | 0.00                  | 10.85                            | 2,033.77            | 1,016.89            | 2,664.63               | 1,334.29               | 6.26                     | -0.43             | 0.012 |
| 130.00              | -7.48                  | -1.09                  | 0.00                  | -4.82                 | 0.00                  | 4.82                             | 1,980.48            | 990.24              | 2,498.77               | 1,251.24               | 6.71                     | -0.43             | 0.008 |
| 134.00              | -1.03                  | -0.14                  | 0.00                  | -0.47                 | 0.00                  | 0.47                             | 1,936.68            | 968.34              | 2,368.37               | 1,185.94               | 7.08                     | -0.43             | 0.001 |
| 135.00              | -0.86                  | -0.07                  | 0.00                  | -0.33                 | 0.00                  | 0.33                             | 1,925.56            | 962.78              | 2,336.10               | 1,169.79               | 7.17                     | -0.43             | 0.001 |
| 140.00              | 0.00                   | -0.06                  | 0.00                  | 0.00                  | 0.00                  | 0.00                             | 1,869.02            | 934.51              | 2,176.88               | 1,090.06               | 7.62                     | -0.43             | 0.000 |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/1/2016 8:54:47 AM

Customer: Verizon Wireless

**Load Case: 1.0D + 1.0W****Serviceability 60 mph****19 Iterations****Gust Response Factor :1.10****Wind Importance Factor 1.00****Dead Load Factor :1.00****Wind Load Factor :1.00****Shaft Segment Forces (Factored)**

| Seg Top |                 |      |      |       |       |          |       |           |           |        |       |         |           |               |
|---------|-----------------|------|------|-------|-------|----------|-------|-----------|-----------|--------|-------|---------|-----------|---------------|
| Elev    | Description     | Kzt  | Kz   | qz    | qzGh  | C        | Cf    | Ice Thick | Tributary | Ap     | EPAs  | Force X | Dead Load | Tot Dead Load |
| (ft)    |                 |      |      | (psf) | (psf) | (mph-ft) |       | (in)      | (ft)      | (sf)   | (sf)  | (lb)    | (lb)      | (lb)          |
| 0.00    |                 | 1.00 | 0.70 | 6.129 | 6.742 | 255.54   | 0.650 | 0.000     | 0.00      | 0.000  | 0.00  | 55.2    | 0.0       | 0.0           |
| 5.00    |                 | 1.00 | 0.70 | 6.129 | 6.742 | 253.06   | 0.650 | 0.000     | 5.00      | 25.206 | 16.38 | 109.4   | 0.0       | 1,397.1       |
| 10.00   |                 | 1.00 | 0.70 | 6.129 | 6.742 | 248.08   | 0.650 | 0.000     | 5.00      | 24.710 | 16.06 | 107.2   | 0.0       | 1,369.4       |
| 15.00   |                 | 1.00 | 0.70 | 6.129 | 6.742 | 243.11   | 0.650 | 0.000     | 5.00      | 24.215 | 15.74 | 105.0   | 0.0       | 1,341.8       |
| 20.00   |                 | 1.00 | 0.70 | 6.129 | 6.742 | 238.13   | 0.650 | 0.000     | 5.00      | 23.719 | 15.42 | 102.9   | 0.0       | 1,314.1       |
| 25.00   |                 | 1.00 | 0.70 | 6.129 | 6.742 | 233.16   | 0.650 | 0.000     | 5.00      | 23.224 | 15.10 | 100.7   | 0.0       | 1,286.5       |
| 30.00   |                 | 1.00 | 0.70 | 6.129 | 6.742 | 228.19   | 0.650 | 0.000     | 5.00      | 22.728 | 14.77 | 99.7    | 0.0       | 1,258.8       |
| 35.00   |                 | 1.00 | 0.71 | 6.276 | 6.903 | 225.87   | 0.650 | 0.000     | 5.00      | 22.233 | 14.45 | 100.7   | 0.0       | 1,231.1       |
| 40.00   |                 | 1.00 | 0.74 | 6.538 | 7.191 | 225.40   | 0.650 | 0.000     | 5.00      | 21.737 | 14.13 | 99.7    | 0.0       | 1,203.5       |
| 44.75   | Bot - Section 2 | 1.00 | 0.77 | 6.770 | 7.447 | 224.27   | 0.650 | 0.000     | 4.75      | 20.192 | 13.12 | 51.5    | 0.0       | 1,117.7       |
| 45.00   |                 | 1.00 | 0.78 | 6.882 | 7.570 | 223.48   | 0.650 | 0.000     | 0.25      | 1.066  | 0.69  | 55.3    | 0.0       | 108.8         |
| 50.00   |                 | 1.00 | 0.79 | 6.994 | 7.694 | 222.52   | 0.650 | 0.000     | 5.00      | 21.064 | 13.69 | 63.2    | 0.0       | 2,148.7       |
| 51.00   | Top - Section 1 | 1.00 | 0.81 | 7.118 | 7.830 | 221.25   | 0.650 | 0.000     | 1.00      | 4.153  | 2.70  | 52.9    | 0.0       | 423.6         |
| 55.00   |                 | 1.00 | 0.82 | 7.217 | 7.939 | 223.55   | 0.650 | 0.000     | 4.00      | 16.415 | 10.67 | 95.4    | 0.0       | 779.6         |
| 60.00   |                 | 1.00 | 0.84 | 7.387 | 8.126 | 221.25   | 0.650 | 0.000     | 5.00      | 20.073 | 13.05 | 106.0   | 0.0       | 953.1         |
| 65.00   |                 | 1.00 | 0.86 | 7.565 | 8.321 | 218.37   | 0.650 | 0.000     | 5.00      | 19.578 | 12.73 | 105.7   | 0.0       | 929.4         |
| 70.00   |                 | 1.00 | 0.88 | 7.733 | 8.506 | 215.20   | 0.650 | 0.000     | 5.00      | 19.082 | 12.40 | 105.2   | 0.0       | 905.7         |
| 75.00   |                 | 1.00 | 0.90 | 7.893 | 8.682 | 211.76   | 0.650 | 0.000     | 5.00      | 18.587 | 12.08 | 104.5   | 0.0       | 882.0         |
| 80.00   |                 | 1.00 | 0.91 | 8.044 | 8.849 | 208.09   | 0.650 | 0.000     | 5.00      | 18.091 | 11.76 | 103.5   | 0.0       | 858.3         |
| 85.00   |                 | 1.00 | 0.93 | 8.189 | 9.008 | 204.21   | 0.650 | 0.000     | 5.00      | 17.596 | 11.44 | 102.4   | 0.0       | 834.6         |
| 90.00   |                 | 1.00 | 0.95 | 8.328 | 9.161 | 200.13   | 0.650 | 0.000     | 5.00      | 17.100 | 11.12 | 58.5    | 0.0       | 810.9         |
| 90.75   | Bot - Section 3 | 1.00 | 0.96 | 8.406 | 9.246 | 197.71   | 0.650 | 0.000     | 0.75      | 2.522  | 1.64  | 50.8    | 0.0       | 119.6         |
| 95.00   |                 | 1.00 | 0.96 | 8.471 | 9.318 | 195.56   | 0.650 | 0.000     | 4.25      | 14.285 | 9.29  | 50.8    | 0.0       | 1,176.7       |
| 95.75   | Top - Section 2 | 1.00 | 0.97 | 8.536 | 9.389 | 193.37   | 0.650 | 0.000     | 0.75      | 2.484  | 1.61  | 50.2    | 0.0       | 204.5         |
| 100.0   |                 | 1.00 | 0.98 | 8.599 | 9.459 | 193.97   | 0.650 | 0.000     | 4.25      | 13.864 | 9.01  | 92.0    | 0.0       | 494.0         |
| 105.0   |                 | 1.00 | 0.99 | 8.713 | 9.585 | 189.76   | 0.650 | 0.000     | 5.00      | 15.852 | 10.30 | 97.9    | 0.0       | 564.8         |
| 110.0   |                 | 1.00 | 1.00 | 8.833 | 9.716 | 185.09   | 0.650 | 0.000     | 5.00      | 15.356 | 9.98  | 86.6    | 0.0       | 547.0         |
| 114.0   | Appertunance(s) | 1.00 | 1.02 | 8.937 | 9.831 | 180.77   | 0.650 | 0.000     | 4.00      | 11.928 | 7.75  | 47.5    | 0.0       | 424.8         |
| 115.0   |                 | 1.00 | 1.02 | 8.993 | 9.893 | 178.33   | 0.650 | 0.000     | 1.00      | 2.933  | 1.91  | 56.0    | 0.0       | 104.4         |
| 120.0   |                 | 1.00 | 1.03 | 9.060 | 9.966 | 175.36   | 0.650 | 0.000     | 5.00      | 14.366 | 9.34  | 83.0    | 0.0       | 511.4         |
| 124.0   | Appertunance(s) | 1.00 | 1.04 | 9.158 | 10.07 | 170.83   | 0.650 | 0.000     | 4.00      | 11.136 | 7.24  | 45.5    | 0.0       | 396.3         |
| 125.0   |                 | 1.00 | 1.05 | 9.211 | 10.13 | 168.28   | 0.650 | 0.000     | 1.00      | 2.734  | 1.78  | 53.3    | 0.0       | 97.3          |
| 130.0   |                 | 1.00 | 1.05 | 9.274 | 10.20 | 165.18   | 0.650 | 0.000     | 5.00      | 13.375 | 8.69  | 79.0    | 0.0       | 475.8         |
| 134.0   | Appertunance(s) | 1.00 | 1.07 | 9.366 | 10.30 | 160.46   | 0.650 | 0.000     | 4.00      | 10.343 | 6.72  | 43.2    | 0.0       | 367.9         |
| 135.0   |                 | 1.00 | 1.07 | 9.417 | 10.35 | 157.81   | 0.650 | 0.000     | 1.00      | 2.536  | 1.65  | 50.5    | 0.0       | 90.2          |
| 140.0   |                 | 1.00 | 1.08 | 9.476 | 10.42 | 154.60   | 0.650 | 0.000     | 5.00      | 12.384 | 8.05  | 42.0    | 0.0       | 440.3         |
| Totals: |                 |      |      |       |       |          |       |           | 140.00    |        |       | 2,812.7 | 0.0       | 27,169.4      |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/1/2016 8:54:47 AM

Customer: Verizon Wireless

**Load Case: 1.0D + 1.0W****Serviceability 60 mph****19 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<br>Elev<br>(ft) | Description     | Shaft Forces |              | Discrete Forces |               |              | Linear Forces |         | Sum of Forces |          |              |               |              |
|---------------------|-----------------|--------------|--------------|-----------------|---------------|--------------|---------------|---------|---------------|----------|--------------|---------------|--------------|
|                     |                 | Wind FX      | Dead<br>Load | Wind FX         | Torsion<br>MY | Moment<br>MZ | Dead<br>Load  | Wind FX | Dead<br>Load  | Wind FX  | Dead<br>Load | Torsion<br>MY | Moment<br>MZ |
|                     |                 |              |              |                 |               |              |               |         |               |          |              |               |              |
|                     |                 | (lb)         | (lb)         | (lb)            | (lb-ft)       | (lb-ft)      | (lb)          | (lb)    | (lb)          | (lb)     | (lb)         | (lb-ft)       | (lb)         |
| 0.00                |                 | 55.2         | 0.0          |                 |               |              |               | 0.0     | 0.0           | 55.2     | 0.0          | 0.0           | 0.0          |
| 5.00                |                 | 109.4        | 1,397.1      |                 |               |              |               | 0.0     | 0.0           | 109.4    | 1,397.1      | 0.0           | 0.0          |
| 10.00               |                 | 107.2        | 1,369.4      |                 |               |              |               | 0.0     | 170.2         | 107.2    | 1,539.6      | 0.0           | 0.0          |
| 15.00               |                 | 105.0        | 1,341.8      |                 |               |              |               | 0.0     | 170.2         | 105.0    | 1,512.0      | 0.0           | 0.0          |
| 20.00               |                 | 102.9        | 1,314.1      |                 |               |              |               | 0.0     | 170.2         | 102.9    | 1,484.3      | 0.0           | 0.0          |
| 25.00               |                 | 100.7        | 1,286.5      |                 |               |              |               | 0.0     | 170.2         | 100.7    | 1,456.7      | 0.0           | 0.0          |
| 30.00               |                 | 99.7         | 1,258.8      |                 |               |              |               | 0.0     | 170.2         | 99.7     | 1,429.0      | 0.0           | 0.0          |
| 35.00               |                 | 100.7        | 1,231.1      |                 |               |              |               | 0.0     | 170.2         | 100.7    | 1,401.3      | 0.0           | 0.0          |
| 40.00               |                 | 99.7         | 1,203.5      |                 |               |              |               | 0.0     | 170.2         | 99.7     | 1,373.7      | 0.0           | 0.0          |
| 44.75               | Bot - Section 2 | 51.5         | 1,117.7      |                 |               |              |               | 0.0     | 161.7         | 51.5     | 1,279.3      | 0.0           | 0.0          |
| 45.00               |                 | 55.3         | 108.8        |                 |               |              |               | 0.0     | 8.5           | 55.3     | 117.3        | 0.0           | 0.0          |
| 50.00               |                 | 63.2         | 2,148.7      |                 |               |              |               | 0.0     | 170.2         | 63.2     | 2,318.9      | 0.0           | 0.0          |
| 51.00               | Top - Section 1 | 52.9         | 423.6        |                 |               |              |               | 0.0     | 34.0          | 52.9     | 457.6        | 0.0           | 0.0          |
| 55.00               |                 | 95.4         | 779.6        |                 |               |              |               | 0.0     | 136.2         | 95.4     | 915.7        | 0.0           | 0.0          |
| 60.00               |                 | 106.0        | 953.1        |                 |               |              |               | 0.0     | 170.2         | 106.0    | 1,123.3      | 0.0           | 0.0          |
| 65.00               |                 | 105.7        | 929.4        |                 |               |              |               | 0.0     | 170.2         | 105.7    | 1,099.6      | 0.0           | 0.0          |
| 70.00               |                 | 105.2        | 905.7        |                 |               |              |               | 0.0     | 170.2         | 105.2    | 1,075.9      | 0.0           | 0.0          |
| 75.00               |                 | 104.5        | 882.0        |                 |               |              |               | 0.0     | 170.2         | 104.5    | 1,052.2      | 0.0           | 0.0          |
| 80.00               |                 | 103.5        | 858.3        |                 |               |              |               | 0.0     | 170.2         | 103.5    | 1,028.5      | 0.0           | 0.0          |
| 85.00               |                 | 102.4        | 834.6        |                 |               |              |               | 0.0     | 170.2         | 102.4    | 1,004.8      | 0.0           | 0.0          |
| 90.00               |                 | 58.5         | 810.9        |                 |               |              |               | 0.0     | 170.2         | 58.5     | 981.1        | 0.0           | 0.0          |
| 90.75               | Bot - Section 3 | 50.8         | 119.6        |                 |               |              |               | 0.0     | 25.5          | 50.8     | 145.1        | 0.0           | 0.0          |
| 95.00               |                 | 50.8         | 1,176.7      |                 |               |              |               | 0.0     | 144.7         | 50.8     | 1,321.4      | 0.0           | 0.0          |
| 95.75               | Top - Section 2 | 50.2         | 204.5        |                 |               |              |               | 0.0     | 25.5          | 50.2     | 230.1        | 0.0           | 0.0          |
| 100.00              |                 | 92.0         | 494.0        |                 |               |              |               | 0.0     | 144.7         | 92.0     | 638.7        | 0.0           | 0.0          |
| 105.00              |                 | 97.9         | 564.8        |                 |               |              |               | 0.0     | 170.2         | 97.9     | 735.0        | 0.0           | 0.0          |
| 110.00              |                 | 86.6         | 547.0        |                 |               |              |               | 0.0     | 170.2         | 86.6     | 717.2        | 0.0           | 0.0          |
| 114.00              | Appertunance(s) | 47.5         | 424.8        | 818.2           | 0.0           | 0.0          | 2,361.1       | 0.0     | 136.2         | 865.7    | 2,922.0      | 0.0           | 0.0          |
| 115.00              |                 | 56.0         | 104.4        |                 |               |              |               | 0.0     | 21.6          | 56.0     | 126.0        | 0.0           | 0.0          |
| 120.00              |                 | 83.0         | 511.4        |                 |               |              |               | 0.0     | 108.0         | 83.0     | 619.4        | 0.0           | 0.0          |
| 124.00              | Appertunance(s) | 45.5         | 396.3        | 392.7           | 0.0           | 0.0          | 1,608.6       | 0.0     | 86.4          | 438.1    | 2,091.3      | 0.0           | 0.0          |
| 125.00              |                 | 53.3         | 97.3         |                 |               |              |               | 0.0     | 16.6          | 53.3     | 113.9        | 0.0           | 0.0          |
| 130.00              |                 | 79.0         | 475.8        |                 |               |              |               | 0.0     | 83.0          | 79.0     | 558.8        | 0.0           | 0.0          |
| 134.00              | Appertunance(s) | 43.2         | 367.9        | 817.8           | 0.0           | 0.0          | 2,332.5       | 0.0     | 66.4          | 861.0    | 2,766.8      | 0.0           | 0.0          |
| 135.00              |                 | 50.5         | 90.2         |                 |               |              |               | 0.0     | 0.0           | 50.5     | 90.2         | 0.0           | 0.0          |
| 140.00              |                 | 42.0         | 440.3        |                 |               |              |               | 0.0     | 0.0           | 42.0     | 440.3        | 0.0           | 0.0          |
| Totals:             |                 |              |              |                 |               |              |               |         |               | 4,841.36 | 37,563.9     | 0.00          | 0.00         |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/1/2016 8:54:47 AM

Customer: Verizon Wireless

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

Serviceability 60 mph

19 Iterations

Gust Response Factor :1.10

Wind Importance Factor 1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

**Calculated Forces**

| Seg<br>Elev<br>(ft) | Pu<br>FY (-)<br>(kips) | Vu<br>FX (-)<br>(kips) | Tu<br>MY<br>(ft-kips) | Mu<br>MZ<br>(ft-kips) | Mu<br>MX<br>(ft-kips) | Resultant<br>Moment<br>(ft-kips) | phi<br>Pn<br>(kips) | phi<br>Vn<br>(kips) | phi<br>Tn<br>(ft-kips) | phi<br>Mn<br>(ft-kips) | Total<br>Deflect<br>(in) | Rotation<br>(deg) | Ratio |
|---------------------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|----------------------------------|---------------------|---------------------|------------------------|------------------------|--------------------------|-------------------|-------|
| 0.00                | -37.56                 | -4.79                  | 0.00                  | -449.68               | 0.00                  | 449.68                           | 5,563.50            | 2,781.75            | 13,660.1               | 6,840.21               | 0.00                     | 0.00              | 0.072 |
| 5.00                | -36.16                 | -4.69                  | 0.00                  | -425.73               | 0.00                  | 425.73                           | 5,495.04            | 2,747.52            | 13,225.5               | 6,622.59               | 0.01                     | -0.02             | 0.071 |
| 10.00               | -34.62                 | -4.59                  | 0.00                  | -402.27               | 0.00                  | 402.27                           | 5,424.94            | 2,712.47            | 12,793.7               | 6,406.38               | 0.04                     | -0.03             | 0.069 |
| 15.00               | -33.11                 | -4.50                  | 0.00                  | -379.29               | 0.00                  | 379.29                           | 5,353.22            | 2,676.61            | 12,365.0               | 6,191.70               | 0.08                     | -0.05             | 0.067 |
| 20.00               | -31.63                 | -4.40                  | 0.00                  | -356.80               | 0.00                  | 356.80                           | 5,279.88            | 2,639.94            | 11,939.5               | 5,978.66               | 0.14                     | -0.07             | 0.066 |
| 25.00               | -30.17                 | -4.31                  | 0.00                  | -334.79               | 0.00                  | 334.79                           | 5,204.91            | 2,602.46            | 11,517.6               | 5,767.39               | 0.22                     | -0.08             | 0.064 |
| 30.00               | -28.74                 | -4.22                  | 0.00                  | -313.24               | 0.00                  | 313.24                           | 5,128.32            | 2,564.16            | 11,099.4               | 5,557.99               | 0.32                     | -0.10             | 0.062 |
| 35.00               | -27.33                 | -4.12                  | 0.00                  | -292.17               | 0.00                  | 292.17                           | 5,050.10            | 2,525.05            | 10,685.3               | 5,350.59               | 0.43                     | -0.12             | 0.060 |
| 40.00               | -25.96                 | -4.03                  | 0.00                  | -271.56               | 0.00                  | 271.56                           | 4,970.26            | 2,485.13            | 10,275.3               | 5,145.31               | 0.56                     | -0.13             | 0.058 |
| 44.75               | -24.68                 | -3.97                  | 0.00                  | -252.45               | 0.00                  | 252.45                           | 4,892.90            | 2,446.45            | 9,890.02               | 4,952.36               | 0.71                     | -0.15             | 0.056 |
| 45.00               | -24.56                 | -3.92                  | 0.00                  | -251.45               | 0.00                  | 251.45                           | 4,888.79            | 2,444.40            | 9,869.86               | 4,942.27               | 0.71                     | -0.15             | 0.056 |
| 50.00               | -22.24                 | -3.86                  | 0.00                  | -231.84               | 0.00                  | 231.84                           | 4,805.70            | 2,402.85            | 9,469.07               | 4,741.57               | 0.88                     | -0.17             | 0.054 |
| 51.00               | -21.79                 | -3.81                  | 0.00                  | -227.99               | 0.00                  | 227.99                           | 3,954.70            | 1,977.35            | 7,897.06               | 3,954.40               | 0.92                     | -0.17             | 0.063 |
| 55.00               | -20.87                 | -3.71                  | 0.00                  | -212.77               | 0.00                  | 212.77                           | 3,904.91            | 1,952.45            | 7,646.13               | 3,828.75               | 1.06                     | -0.18             | 0.061 |
| 60.00               | -19.74                 | -3.61                  | 0.00                  | -194.20               | 0.00                  | 194.20                           | 3,841.19            | 1,920.60            | 7,335.11               | 3,673.01               | 1.27                     | -0.20             | 0.058 |
| 65.00               | -18.64                 | -3.50                  | 0.00                  | -176.16               | 0.00                  | 176.16                           | 3,775.86            | 1,887.93            | 7,027.24               | 3,518.84               | 1.49                     | -0.22             | 0.055 |
| 70.00               | -17.57                 | -3.40                  | 0.00                  | -158.64               | 0.00                  | 158.64                           | 3,708.90            | 1,854.45            | 6,722.77               | 3,366.38               | 1.73                     | -0.24             | 0.052 |
| 75.00               | -16.52                 | -3.30                  | 0.00                  | -141.63               | 0.00                  | 141.63                           | 3,640.31            | 1,820.16            | 6,421.93               | 3,215.74               | 1.98                     | -0.25             | 0.049 |
| 80.00               | -15.49                 | -3.19                  | 0.00                  | -125.15               | 0.00                  | 125.15                           | 3,570.10            | 1,785.05            | 6,124.95               | 3,067.03               | 2.25                     | -0.27             | 0.045 |
| 85.00               | -14.48                 | -3.09                  | 0.00                  | -109.19               | 0.00                  | 109.19                           | 3,498.27            | 1,749.13            | 5,832.07               | 2,920.37               | 2.54                     | -0.28             | 0.042 |
| 90.00               | -13.50                 | -3.03                  | 0.00                  | -93.75                | 0.00                  | 93.75                            | 3,424.81            | 1,712.40            | 5,543.53               | 2,775.89               | 2.85                     | -0.30             | 0.038 |
| 90.75               | -13.36                 | -2.98                  | 0.00                  | -91.48                | 0.00                  | 91.48                            | 3,413.65            | 1,706.82            | 5,500.64               | 2,754.41               | 2.90                     | -0.30             | 0.037 |
| 95.00               | -12.03                 | -2.92                  | 0.00                  | -78.83                | 0.00                  | 78.83                            | 3,349.72            | 1,674.86            | 5,259.57               | 2,633.69               | 3.17                     | -0.31             | 0.034 |
| 95.75               | -11.80                 | -2.87                  | 0.00                  | -76.64                | 0.00                  | 76.64                            | 2,312.98            | 1,156.49            | 3,686.59               | 1,846.04               | 3.22                     | -0.31             | 0.047 |
| 100.00              | -11.16                 | -2.78                  | 0.00                  | -64.44                | 0.00                  | 64.44                            | 2,275.87            | 1,137.93            | 3,533.62               | 1,769.44               | 3.50                     | -0.32             | 0.041 |
| 105.00              | -10.43                 | -2.68                  | 0.00                  | -50.55                | 0.00                  | 50.55                            | 2,230.70            | 1,115.35            | 3,355.32               | 1,680.15               | 3.85                     | -0.34             | 0.035 |
| 110.00              | -9.71                  | -2.59                  | 0.00                  | -37.16                | 0.00                  | 37.16                            | 2,183.90            | 1,091.95            | 3,179.03               | 1,591.88               | 4.21                     | -0.35             | 0.028 |
| 114.00              | -6.80                  | -1.70                  | 0.00                  | -26.81                | 0.00                  | 26.81                            | 2,145.30            | 1,072.65            | 3,039.61               | 1,522.06               | 4.50                     | -0.36             | 0.021 |
| 115.00              | -6.67                  | -1.65                  | 0.00                  | -25.11                | 0.00                  | 25.11                            | 2,135.49            | 1,067.74            | 3,004.99               | 1,504.73               | 4.58                     | -0.36             | 0.020 |
| 120.00              | -6.05                  | -1.56                  | 0.00                  | -16.86                | 0.00                  | 16.86                            | 2,085.44            | 1,042.72            | 2,833.45               | 1,418.83               | 4.95                     | -0.36             | 0.015 |
| 124.00              | -3.96                  | -1.11                  | 0.00                  | -10.61                | 0.00                  | 10.61                            | 2,044.24            | 1,022.12            | 2,698.16               | 1,351.09               | 5.26                     | -0.37             | 0.010 |
| 125.00              | -3.85                  | -1.06                  | 0.00                  | -9.50                 | 0.00                  | 9.50                             | 2,033.77            | 1,016.89            | 2,664.63               | 1,334.29               | 5.34                     | -0.37             | 0.009 |
| 130.00              | -3.29                  | -0.97                  | 0.00                  | -4.22                 | 0.00                  | 4.22                             | 1,980.48            | 990.24              | 2,498.77               | 1,251.24               | 5.73                     | -0.37             | 0.005 |
| 134.00              | -0.53                  | -0.10                  | 0.00                  | -0.32                 | 0.00                  | 0.32                             | 1,936.68            | 968.34              | 2,368.37               | 1,185.94               | 6.04                     | -0.37             | 0.001 |
| 135.00              | -0.44                  | -0.04                  | 0.00                  | -0.22                 | 0.00                  | 0.22                             | 1,925.56            | 962.78              | 2,336.10               | 1,169.79               | 6.11                     | -0.37             | 0.000 |
| 140.00              | 0.00                   | -0.04                  | 0.00                  | 0.00                  | 0.00                  | 0.00                             | 1,869.02            | 934.51              | 2,176.88               | 1,090.06               | 6.50                     | -0.37             | 0.000 |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/1/2016 8:54:48 AM

Customer: Verizon Wireless

**Equivalent Lateral Forces Method Analysis**

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

|                                                                          |         |
|--------------------------------------------------------------------------|---------|
| Spectral Response Acceleration for Short Period ( $S_s$ ):               | 0.17    |
| Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):           | 0.06    |
| Long-Period Transition Period ( $T_L$ ):                                 | 6       |
| Importance Factor ( $I_E$ ):                                             | 1.00    |
| Site Coefficient $F_a$ :                                                 | 1.60    |
| Site Coefficient $F_v$ :                                                 | 2.40    |
| Response Modification Coefficient (R):                                   | 1.50    |
| Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):      | 0.18    |
| Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ): | 0.10    |
| Seismic Response Coefficient ( $C_s$ ):                                  | 0.04    |
| Upper Limit $C_s$                                                        | 0.04    |
| Lower Limit $C_s$                                                        | 0.03    |
| Period based on Rayleigh Method (sec):                                   | 1.46    |
| Redundancy Factor (p):                                                   | 1.30    |
| Seismic Force Distribution Exponent (k):                                 | 1.48    |
| Total Unfactored Dead Load:                                              | 37.56 k |
| Seismic Base Shear (E):                                                  | 2.13 k  |

**Load Case (1.2 + 0.2S<sub>ds</sub>) \* DL + E ELFM****Seismic Equivalent Lateral Forces Method**

| Segment | Height<br>Above<br>Base<br>(ft) | Weight<br>(lb) | $W_z$<br>(lb-ft) | $C_{vx}$ | Horizontal<br>Force<br>(lb) | Vertical<br>Force<br>(lb) |
|---------|---------------------------------|----------------|------------------|----------|-----------------------------|---------------------------|
| 35      | 137.50                          | 440            | 651              | 0.029    | 61                          | 544                       |
| 34      | 134.50                          | 90             | 129              | 0.006    | 12                          | 111                       |
| 33      | 132.00                          | 434            | 604              | 0.027    | 57                          | 537                       |
| 32      | 127.50                          | 559            | 739              | 0.033    | 70                          | 691                       |
| 31      | 124.50                          | 114            | 145              | 0.006    | 14                          | 141                       |
| 30      | 122.00                          | 483            | 598              | 0.026    | 56                          | 597                       |
| 29      | 117.50                          | 619            | 725              | 0.032    | 68                          | 765                       |
| 28      | 114.50                          | 126            | 142              | 0.006    | 13                          | 156                       |
| 27      | 112.00                          | 561            | 612              | 0.027    | 58                          | 693                       |
| 26      | 107.50                          | 717            | 736              | 0.033    | 69                          | 886                       |
| 25      | 102.50                          | 735            | 703              | 0.031    | 66                          | 908                       |
| 24      | 97.88                           | 639            | 571              | 0.025    | 54                          | 789                       |
| 23      | 95.38                           | 230            | 198              | 0.009    | 19                          | 284                       |
| 22      | 92.88                           | 1,321          | 1,092            | 0.048    | 103                         | 1,633                     |
| 21      | 90.38                           | 145            | 115              | 0.005    | 11                          | 179                       |
| 20      | 87.50                           | 981            | 742              | 0.033    | 70                          | 1,212                     |
| 19      | 82.50                           | 1,005          | 697              | 0.031    | 66                          | 1,242                     |
| 18      | 77.50                           | 1,028          | 650              | 0.029    | 61                          | 1,271                     |
| 17      | 72.50                           | 1,052          | 602              | 0.027    | 57                          | 1,300                     |
| 16      | 67.50                           | 1,076          | 554              | 0.025    | 52                          | 1,330                     |
| 15      | 62.50                           | 1,100          | 505              | 0.022    | 48                          | 1,359                     |
| 14      | 57.50                           | 1,123          | 456              | 0.020    | 43                          | 1,388                     |
| 13      | 53.00                           | 916            | 329              | 0.015    | 31                          | 1,132                     |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/1/2016 8:54:48 AM

Customer: Verizon Wireless

|                      |        |        |        |       |       |        |
|----------------------|--------|--------|--------|-------|-------|--------|
| 12                   | 50.50  | 458    | 153    | 0.007 | 14    | 566    |
| 11                   | 47.50  | 2,319  | 709    | 0.031 | 67    | 2,866  |
| 10                   | 44.88  | 117    | 33     | 0.001 | 3     | 145    |
| 9                    | 42.38  | 1,279  | 330    | 0.015 | 31    | 1,581  |
| 8                    | 37.50  | 1,374  | 296    | 0.013 | 28    | 1,698  |
| 7                    | 32.50  | 1,401  | 244    | 0.011 | 23    | 1,732  |
| 6                    | 27.50  | 1,429  | 194    | 0.009 | 18    | 1,766  |
| 5                    | 22.50  | 1,457  | 147    | 0.007 | 14    | 1,800  |
| 4                    | 17.50  | 1,484  | 103    | 0.005 | 10    | 1,834  |
| 3                    | 12.50  | 1,512  | 64     | 0.003 | 6     | 1,869  |
| 2                    | 7.50   | 1,540  | 31     | 0.001 | 3     | 1,903  |
| 1                    | 2.50   | 1,397  | 5      | 0.000 | 1     | 1,727  |
| Ericsson KRY 112 144 | 134.00 | 33     | 47     | 0.002 | 4     | 41     |
| Ericsson RRUS 11 B12 | 134.00 | 152    | 216    | 0.010 | 20    | 188    |
| Ericsson AIR 21, 1.3 | 134.00 | 249    | 354    | 0.016 | 33    | 308    |
| Ericsson AIR 21, 1.3 | 134.00 | 244    | 348    | 0.015 | 33    | 302    |
| Andrew LNX-6515DS-VT | 134.00 | 154    | 219    | 0.010 | 21    | 190    |
| Flat Low Profile Pla | 134.00 | 1,500  | 2,135  | 0.094 | 201   | 1,854  |
| RCU                  | 124.00 | 3      | 4      | 0.000 | 0     | 4      |
| Kathrein 800 10504   | 124.00 | 106    | 134    | 0.006 | 13    | 131    |
| Flat Low Profile Pla | 124.00 | 1,500  | 1,903  | 0.084 | 180   | 1,854  |
| Alcatel-Lucent RRH2X | 114.00 | 138    | 155    | 0.007 | 15    | 171    |
| Alcatel-Lucent RRH2x | 114.00 | 170    | 190    | 0.008 | 18    | 210    |
| Alcatel-Lucent B66A  | 114.00 | 170    | 191    | 0.008 | 18    | 211    |
| RFS DB-T1-6Z-8AB-0Z  | 114.00 | 88     | 99     | 0.004 | 9     | 109    |
| Amphenol Antel BXA-7 | 114.00 | 51     | 57     | 0.003 | 5     | 63     |
| Commscope SBNHH-1D65 | 114.00 | 244    | 273    | 0.012 | 26    | 301    |
| Round Low Profile PI | 114.00 | 1,500  | 1,680  | 0.074 | 159   | 1,854  |
|                      |        | 37,564 | 22,610 | 1.000 | 2,134 | 46,423 |

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

| Segment | Height<br>Above<br>Base<br>(ft) | Weight<br>(lb) | $W_z$<br>(lb-ft) | $C_{vx}$ | Horizontal<br>Force<br>(lb) | Vertical<br>Force<br>(lb) |
|---------|---------------------------------|----------------|------------------|----------|-----------------------------|---------------------------|
| 35      | 137.50                          | 440            | 651              | 0.029    | 61                          | 380                       |
| 34      | 134.50                          | 90             | 129              | 0.006    | 12                          | 78                        |
| 33      | 132.00                          | 434            | 604              | 0.027    | 57                          | 375                       |
| 32      | 127.50                          | 559            | 739              | 0.033    | 70                          | 483                       |
| 31      | 124.50                          | 114            | 145              | 0.006    | 14                          | 98                        |
| 30      | 122.00                          | 483            | 598              | 0.026    | 56                          | 417                       |
| 29      | 117.50                          | 619            | 725              | 0.032    | 68                          | 535                       |
| 28      | 114.50                          | 126            | 142              | 0.006    | 13                          | 109                       |
| 27      | 112.00                          | 561            | 612              | 0.027    | 58                          | 485                       |
| 26      | 107.50                          | 717            | 736              | 0.033    | 69                          | 620                       |
| 25      | 102.50                          | 735            | 703              | 0.031    | 66                          | 635                       |
| 24      | 97.88                           | 639            | 571              | 0.025    | 54                          | 552                       |
| 23      | 95.38                           | 230            | 198              | 0.009    | 19                          | 199                       |
| 22      | 92.88                           | 1,321          | 1,092            | 0.048    | 103                         | 1,142                     |
| 21      | 90.38                           | 145            | 115              | 0.005    | 11                          | 125                       |
| 20      | 87.50                           | 981            | 742              | 0.033    | 70                          | 848                       |
| 19      | 82.50                           | 1,005          | 697              | 0.031    | 66                          | 868                       |
| 18      | 77.50                           | 1,028          | 650              | 0.029    | 61                          | 889                       |
| 17      | 72.50                           | 1,052          | 602              | 0.027    | 57                          | 909                       |
| 16      | 67.50                           | 1,076          | 554              | 0.025    | 52                          | 930                       |
| 15      | 62.50                           | 1,100          | 505              | 0.022    | 48                          | 950                       |
| 14      | 57.50                           | 1,123          | 456              | 0.020    | 43                          | 971                       |
| 13      | 53.00                           | 916            | 329              | 0.015    | 31                          | 791                       |
| 12      | 50.50                           | 458            | 153              | 0.007    | 14                          | 395                       |
| 11      | 47.50                           | 2,319          | 709              | 0.031    | 67                          | 2,004                     |
| 10      | 44.88                           | 117            | 33               | 0.001    | 3                           | 101                       |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/1/2016 8:54:48 AM

Customer: Verizon Wireless

|                      |        |        |        |       |       |        |
|----------------------|--------|--------|--------|-------|-------|--------|
| 9                    | 42.38  | 1,279  | 330    | 0.015 | 31    | 1,106  |
| 8                    | 37.50  | 1,374  | 296    | 0.013 | 28    | 1,187  |
| 7                    | 32.50  | 1,401  | 244    | 0.011 | 23    | 1,211  |
| 6                    | 27.50  | 1,429  | 194    | 0.009 | 18    | 1,235  |
| 5                    | 22.50  | 1,457  | 147    | 0.007 | 14    | 1,259  |
| 4                    | 17.50  | 1,484  | 103    | 0.005 | 10    | 1,283  |
| 3                    | 12.50  | 1,512  | 64     | 0.003 | 6     | 1,307  |
| 2                    | 7.50   | 1,540  | 31     | 0.001 | 3     | 1,331  |
| 1                    | 2.50   | 1,397  | 5      | 0.000 | 1     | 1,207  |
| Ericsson KRY 112 144 | 134.00 | 33     | 47     | 0.002 | 4     | 29     |
| Ericsson RRUS 11 B12 | 134.00 | 152    | 216    | 0.010 | 20    | 131    |
| Ericsson AIR 21, 1.3 | 134.00 | 249    | 354    | 0.016 | 33    | 215    |
| Ericsson AIR 21, 1.3 | 134.00 | 244    | 348    | 0.015 | 33    | 211    |
| Andrew LNX-6515DS-VT | 134.00 | 154    | 219    | 0.010 | 21    | 133    |
| Flat Low Profile Pla | 134.00 | 1,500  | 2,135  | 0.094 | 201   | 1,296  |
| RCU                  | 124.00 | 3      | 4      | 0.000 | 0     | 3      |
| Kathrein 800 10504   | 124.00 | 106    | 134    | 0.006 | 13    | 91     |
| Flat Low Profile Pla | 124.00 | 1,500  | 1,903  | 0.084 | 180   | 1,296  |
| Alcatel-Lucent RRH2X | 114.00 | 138    | 155    | 0.007 | 15    | 119    |
| Alcatel-Lucent RRH2x | 114.00 | 170    | 190    | 0.008 | 18    | 147    |
| Alcatel-Lucent B66A  | 114.00 | 170    | 191    | 0.008 | 18    | 147    |
| RFS DB-T1-6Z-8AB-0Z  | 114.00 | 88     | 99     | 0.004 | 9     | 76     |
| Amphenol Antel BXA-7 | 114.00 | 51     | 57     | 0.003 | 5     | 44     |
| Commscope SBNHH-1D65 | 114.00 | 244    | 273    | 0.012 | 26    | 211    |
| Round Low Profile PI | 114.00 | 1,500  | 1,680  | 0.074 | 159   | 1,296  |
|                      |        | 37,564 | 22,610 | 1.000 | 2,134 | 32,461 |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/1/2016 8:54:48 AM

Customer: Verizon Wireless

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

| Seg<br>Elev<br>(ft) | Pu<br>FY (-)<br>(kips) | Vu<br>FX (-)<br>(kips) | Tu<br>MY<br>(ft-kips) | Mu<br>MZ<br>(ft-kips) | Mu<br>MX<br>(ft-kips) | Resultant<br>Moment<br>(ft-kips) | phi<br>Pn<br>(kips) | phi<br>Vn<br>(kips) | phi<br>Tn<br>(ft-kips) | phi<br>Mn<br>(ft-kips) | Total<br>Deflect<br>(in) | Rotation<br>(deg) | Ratio |
|---------------------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|----------------------------------|---------------------|---------------------|------------------------|------------------------|--------------------------|-------------------|-------|
| 0.00                | -44.70                 | -2.14                  | 0.00                  | -217.45               | 0.00                  | 217.45                           | 5,563.50            | 2,781.75            | 13,660.1               | 6,840.21               | 0.00                     | 0.00              | 0.040 |
| 5.00                | -42.79                 | -2.14                  | 0.00                  | -206.77               | 0.00                  | 206.77                           | 5,495.04            | 2,747.52            | 13,225.5               | 6,622.59               | 0.00                     | -0.01             | 0.039 |
| 10.00               | -40.92                 | -2.14                  | 0.00                  | -196.08               | 0.00                  | 196.08                           | 5,424.94            | 2,712.47            | 12,793.7               | 6,406.38               | 0.02                     | -0.02             | 0.038 |
| 15.00               | -39.09                 | -2.13                  | 0.00                  | -185.39               | 0.00                  | 185.39                           | 5,353.22            | 2,676.61            | 12,365.0               | 6,191.70               | 0.04                     | -0.02             | 0.037 |
| 20.00               | -37.29                 | -2.12                  | 0.00                  | -174.72               | 0.00                  | 174.72                           | 5,279.88            | 2,639.94            | 11,939.5               | 5,978.66               | 0.07                     | -0.03             | 0.036 |
| 25.00               | -35.52                 | -2.11                  | 0.00                  | -164.11               | 0.00                  | 164.11                           | 5,204.91            | 2,602.46            | 11,517.6               | 5,767.39               | 0.11                     | -0.04             | 0.035 |
| 30.00               | -33.79                 | -2.09                  | 0.00                  | -153.56               | 0.00                  | 153.56                           | 5,128.32            | 2,564.16            | 11,099.4               | 5,557.99               | 0.15                     | -0.05             | 0.034 |
| 35.00               | -32.09                 | -2.06                  | 0.00                  | -143.11               | 0.00                  | 143.11                           | 5,050.10            | 2,525.05            | 10,685.3               | 5,350.59               | 0.21                     | -0.06             | 0.033 |
| 40.00               | -30.51                 | -2.04                  | 0.00                  | -132.79               | 0.00                  | 132.79                           | 4,970.26            | 2,485.13            | 10,275.3               | 5,145.31               | 0.27                     | -0.07             | 0.032 |
| 44.75               | -30.37                 | -2.04                  | 0.00                  | -123.12               | 0.00                  | 123.12                           | 4,892.90            | 2,446.45            | 9,890.02               | 4,952.36               | 0.34                     | -0.07             | 0.031 |
| 45.00               | -27.50                 | -1.97                  | 0.00                  | -122.61               | 0.00                  | 122.61                           | 4,888.79            | 2,444.40            | 9,869.86               | 4,942.27               | 0.35                     | -0.07             | 0.030 |
| 50.00               | -26.94                 | -1.95                  | 0.00                  | -112.77               | 0.00                  | 112.77                           | 4,805.70            | 2,402.85            | 9,469.07               | 4,741.57               | 0.43                     | -0.08             | 0.029 |
| 51.00               | -25.80                 | -1.92                  | 0.00                  | -110.82               | 0.00                  | 110.82                           | 3,954.70            | 1,977.35            | 7,897.06               | 3,954.40               | 0.45                     | -0.08             | 0.035 |
| 55.00               | -24.41                 | -1.88                  | 0.00                  | -103.13               | 0.00                  | 103.13                           | 3,904.91            | 1,952.45            | 7,646.13               | 3,828.75               | 0.52                     | -0.09             | 0.033 |
| 60.00               | -23.06                 | -1.83                  | 0.00                  | -93.73                | 0.00                  | 93.73                            | 3,841.19            | 1,920.60            | 7,335.11               | 3,673.01               | 0.62                     | -0.10             | 0.032 |
| 65.00               | -21.73                 | -1.78                  | 0.00                  | -84.56                | 0.00                  | 84.56                            | 3,775.86            | 1,887.93            | 7,027.24               | 3,518.84               | 0.73                     | -0.11             | 0.030 |
| 70.00               | -20.43                 | -1.73                  | 0.00                  | -75.64                | 0.00                  | 75.64                            | 3,708.90            | 1,854.45            | 6,722.77               | 3,366.38               | 0.84                     | -0.11             | 0.028 |
| 75.00               | -19.15                 | -1.66                  | 0.00                  | -67.01                | 0.00                  | 67.01                            | 3,640.31            | 1,820.16            | 6,421.93               | 3,215.74               | 0.97                     | -0.12             | 0.026 |
| 80.00               | -17.91                 | -1.60                  | 0.00                  | -58.69                | 0.00                  | 58.69                            | 3,570.10            | 1,785.05            | 6,124.95               | 3,067.03               | 1.10                     | -0.13             | 0.024 |
| 85.00               | -16.70                 | -1.53                  | 0.00                  | -50.69                | 0.00                  | 50.69                            | 3,498.27            | 1,749.13            | 5,832.07               | 2,920.37               | 1.24                     | -0.14             | 0.022 |
| 90.00               | -16.52                 | -1.52                  | 0.00                  | -43.06                | 0.00                  | 43.06                            | 3,424.81            | 1,712.40            | 5,543.53               | 2,775.89               | 1.39                     | -0.14             | 0.020 |
| 90.75               | -14.89                 | -1.41                  | 0.00                  | -41.92                | 0.00                  | 41.92                            | 3,413.65            | 1,706.82            | 5,500.64               | 2,754.41               | 1.41                     | -0.14             | 0.020 |
| 95.00               | -14.60                 | -1.39                  | 0.00                  | -35.92                | 0.00                  | 35.92                            | 3,349.72            | 1,674.86            | 5,259.57               | 2,633.69               | 1.54                     | -0.15             | 0.018 |
| 95.75               | -13.81                 | -1.34                  | 0.00                  | -34.88                | 0.00                  | 34.88                            | 2,312.98            | 1,156.49            | 3,686.59               | 1,846.04               | 1.56                     | -0.15             | 0.025 |
| 100.00              | -12.91                 | -1.27                  | 0.00                  | -29.19                | 0.00                  | 29.19                            | 2,275.87            | 1,137.93            | 3,533.62               | 1,769.44               | 1.70                     | -0.16             | 0.022 |
| 105.00              | -12.02                 | -1.20                  | 0.00                  | -22.84                | 0.00                  | 22.84                            | 2,230.70            | 1,115.35            | 3,355.32               | 1,680.15               | 1.87                     | -0.16             | 0.019 |
| 110.00              | -11.33                 | -1.14                  | 0.00                  | -16.85                | 0.00                  | 16.85                            | 2,183.90            | 1,091.95            | 3,179.03               | 1,591.88               | 2.04                     | -0.17             | 0.016 |
| 114.00              | -8.25                  | -0.87                  | 0.00                  | -12.28                | 0.00                  | 12.28                            | 2,145.30            | 1,072.65            | 3,039.61               | 1,522.06               | 2.18                     | -0.17             | 0.012 |
| 115.00              | -7.49                  | -0.80                  | 0.00                  | -11.41                | 0.00                  | 11.41                            | 2,135.49            | 1,067.74            | 3,004.99               | 1,504.73               | 2.22                     | -0.17             | 0.011 |
| 120.00              | -6.89                  | -0.74                  | 0.00                  | -7.42                 | 0.00                  | 7.42                             | 2,085.44            | 1,042.72            | 2,833.45               | 1,418.83               | 2.40                     | -0.17             | 0.009 |
| 124.00              | -4.76                  | -0.53                  | 0.00                  | -4.46                 | 0.00                  | 4.46                             | 2,044.24            | 1,022.12            | 2,698.16               | 1,351.09               | 2.54                     | -0.18             | 0.006 |
| 125.00              | -4.07                  | -0.46                  | 0.00                  | -3.93                 | 0.00                  | 3.93                             | 2,033.77            | 1,016.89            | 2,664.63               | 1,334.29               | 2.58                     | -0.18             | 0.005 |
| 130.00              | -3.54                  | -0.40                  | 0.00                  | -1.65                 | 0.00                  | 1.65                             | 1,980.48            | 990.24              | 2,498.77               | 1,251.24               | 2.76                     | -0.18             | 0.003 |
| 134.00              | -0.54                  | -0.06                  | 0.00                  | -0.06                 | 0.00                  | 0.06                             | 1,936.68            | 968.34              | 2,368.37               | 1,185.94               | 2.91                     | -0.18             | 0.000 |
| 135.00              | 0.00                   | 0.00                   | 0.00                  | 0.00                  | 0.00                  | 0.00                             | 1,925.56            | 962.78              | 2,336.10               | 1,169.79               | 2.95                     | -0.18             | 0.000 |
| 140.00              | 0.00                   | 0.00                   | 0.00                  | 0.00                  | 0.00                  | 0.00                             | 1,869.02            | 934.51              | 2,176.88               | 1,090.06               | 3.14                     | -0.18             | 0.000 |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/1/2016 8:54:48 AM

Customer: Verizon Wireless

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

| Seg<br>Elev<br>(ft) | Pu<br>FY (-)<br>(kips) | Vu<br>FX (-)<br>(kips) | Tu<br>MY<br>(ft-kips) | Mu<br>MZ<br>(ft-kips) | Mu<br>MX<br>(ft-kips) | Resultant<br>Moment<br>(ft-kips) | phi<br>Pn<br>(kips) | phi<br>Vn<br>(kips) | phi<br>Tn<br>(ft-kips) | phi<br>Mn<br>(ft-kips) | Total<br>Deflect<br>(in) | Rotation<br>(deg) | Ratio |
|---------------------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|----------------------------------|---------------------|---------------------|------------------------|------------------------|--------------------------|-------------------|-------|
| 0.00                | -31.25                 | -2.13                  | 0.00                  | -216.21               | 0.00                  | 216.21                           | 5,563.50            | 2,781.75            | 13,660.1               | 6,840.21               | 0.00                     | 0.00              | 0.037 |
| 5.00                | -29.92                 | -2.14                  | 0.00                  | -205.54               | 0.00                  | 205.54                           | 5,495.04            | 2,747.52            | 13,225.5               | 6,622.59               | 0.00                     | -0.01             | 0.036 |
| 10.00               | -28.62                 | -2.13                  | 0.00                  | -194.86               | 0.00                  | 194.86                           | 5,424.94            | 2,712.47            | 12,793.7               | 6,406.38               | 0.02                     | -0.02             | 0.036 |
| 15.00               | -27.33                 | -2.13                  | 0.00                  | -184.20               | 0.00                  | 184.20                           | 5,353.22            | 2,676.61            | 12,365.0               | 6,191.70               | 0.04                     | -0.02             | 0.035 |
| 20.00               | -26.07                 | -2.12                  | 0.00                  | -173.56               | 0.00                  | 173.56                           | 5,279.88            | 2,639.94            | 11,939.5               | 5,978.66               | 0.07                     | -0.03             | 0.034 |
| 25.00               | -24.84                 | -2.10                  | 0.00                  | -162.98               | 0.00                  | 162.98                           | 5,204.91            | 2,602.46            | 11,517.6               | 5,767.39               | 0.11                     | -0.04             | 0.033 |
| 30.00               | -23.63                 | -2.08                  | 0.00                  | -152.47               | 0.00                  | 152.47                           | 5,128.32            | 2,564.16            | 11,099.4               | 5,557.99               | 0.15                     | -0.05             | 0.032 |
| 35.00               | -22.44                 | -2.05                  | 0.00                  | -142.07               | 0.00                  | 142.07                           | 5,050.10            | 2,525.05            | 10,685.3               | 5,350.59               | 0.21                     | -0.06             | 0.031 |
| 40.00               | -21.33                 | -2.02                  | 0.00                  | -131.80               | 0.00                  | 131.80                           | 4,970.26            | 2,485.13            | 10,275.3               | 5,145.31               | 0.27                     | -0.07             | 0.030 |
| 44.75               | -21.23                 | -2.02                  | 0.00                  | -122.18               | 0.00                  | 122.18                           | 4,892.90            | 2,446.45            | 9,890.02               | 4,952.36               | 0.34                     | -0.07             | 0.029 |
| 45.00               | -19.23                 | -1.96                  | 0.00                  | -121.68               | 0.00                  | 121.68                           | 4,888.79            | 2,444.40            | 9,869.86               | 4,942.27               | 0.35                     | -0.07             | 0.029 |
| 50.00               | -18.83                 | -1.94                  | 0.00                  | -111.90               | 0.00                  | 111.90                           | 4,805.70            | 2,402.85            | 9,469.07               | 4,741.57               | 0.43                     | -0.08             | 0.028 |
| 51.00               | -18.04                 | -1.91                  | 0.00                  | -109.96               | 0.00                  | 109.96                           | 3,954.70            | 1,977.35            | 7,897.06               | 3,954.40               | 0.44                     | -0.08             | 0.032 |
| 55.00               | -17.07                 | -1.87                  | 0.00                  | -102.32               | 0.00                  | 102.32                           | 3,904.91            | 1,952.45            | 7,646.13               | 3,828.75               | 0.52                     | -0.09             | 0.031 |
| 60.00               | -16.12                 | -1.82                  | 0.00                  | -92.98                | 0.00                  | 92.98                            | 3,841.19            | 1,920.60            | 7,335.11               | 3,673.01               | 0.61                     | -0.10             | 0.030 |
| 65.00               | -15.19                 | -1.77                  | 0.00                  | -83.87                | 0.00                  | 83.87                            | 3,775.86            | 1,887.93            | 7,027.24               | 3,518.84               | 0.72                     | -0.11             | 0.028 |
| 70.00               | -14.28                 | -1.71                  | 0.00                  | -75.02                | 0.00                  | 75.02                            | 3,708.90            | 1,854.45            | 6,722.77               | 3,366.38               | 0.84                     | -0.11             | 0.026 |
| 75.00               | -13.39                 | -1.65                  | 0.00                  | -66.45                | 0.00                  | 66.45                            | 3,640.31            | 1,820.16            | 6,421.93               | 3,215.74               | 0.96                     | -0.12             | 0.024 |
| 80.00               | -12.52                 | -1.59                  | 0.00                  | -58.19                | 0.00                  | 58.19                            | 3,570.10            | 1,785.05            | 6,124.95               | 3,067.03               | 1.09                     | -0.13             | 0.022 |
| 85.00               | -11.68                 | -1.52                  | 0.00                  | -50.26                | 0.00                  | 50.26                            | 3,498.27            | 1,749.13            | 5,832.07               | 2,920.37               | 1.23                     | -0.14             | 0.021 |
| 90.00               | -11.55                 | -1.50                  | 0.00                  | -42.69                | 0.00                  | 42.69                            | 3,424.81            | 1,712.40            | 5,543.53               | 2,775.89               | 1.38                     | -0.14             | 0.019 |
| 90.75               | -10.41                 | -1.40                  | 0.00                  | -41.56                | 0.00                  | 41.56                            | 3,413.65            | 1,706.82            | 5,500.64               | 2,754.41               | 1.40                     | -0.14             | 0.018 |
| 95.00               | -10.21                 | -1.38                  | 0.00                  | -35.61                | 0.00                  | 35.61                            | 3,349.72            | 1,674.86            | 5,259.57               | 2,633.69               | 1.53                     | -0.15             | 0.017 |
| 95.75               | -9.66                  | -1.33                  | 0.00                  | -34.57                | 0.00                  | 34.57                            | 2,312.98            | 1,156.49            | 3,686.59               | 1,846.04               | 1.55                     | -0.15             | 0.023 |
| 100.00              | -9.02                  | -1.26                  | 0.00                  | -28.94                | 0.00                  | 28.94                            | 2,275.87            | 1,137.93            | 3,533.62               | 1,769.44               | 1.69                     | -0.15             | 0.020 |
| 105.00              | -8.40                  | -1.19                  | 0.00                  | -22.64                | 0.00                  | 22.64                            | 2,230.70            | 1,115.35            | 3,355.32               | 1,680.15               | 1.85                     | -0.16             | 0.017 |
| 110.00              | -7.92                  | -1.13                  | 0.00                  | -16.70                | 0.00                  | 16.70                            | 2,183.90            | 1,091.95            | 3,179.03               | 1,591.88               | 2.02                     | -0.17             | 0.014 |
| 114.00              | -5.77                  | -0.86                  | 0.00                  | -12.18                | 0.00                  | 12.18                            | 2,145.30            | 1,072.65            | 3,039.61               | 1,522.06               | 2.16                     | -0.17             | 0.011 |
| 115.00              | -5.24                  | -0.79                  | 0.00                  | -11.32                | 0.00                  | 11.32                            | 2,135.49            | 1,067.74            | 3,004.99               | 1,504.73               | 2.20                     | -0.17             | 0.010 |
| 120.00              | -4.82                  | -0.73                  | 0.00                  | -7.36                 | 0.00                  | 7.36                             | 2,085.44            | 1,042.72            | 2,833.45               | 1,418.83               | 2.38                     | -0.17             | 0.007 |
| 124.00              | -3.33                  | -0.52                  | 0.00                  | -4.42                 | 0.00                  | 4.42                             | 2,044.24            | 1,022.12            | 2,698.16               | 1,351.09               | 2.52                     | -0.17             | 0.005 |
| 125.00              | -2.85                  | -0.45                  | 0.00                  | -3.90                 | 0.00                  | 3.90                             | 2,033.77            | 1,016.89            | 2,664.63               | 1,334.29               | 2.56                     | -0.17             | 0.004 |
| 130.00              | -2.47                  | -0.39                  | 0.00                  | -1.64                 | 0.00                  | 1.64                             | 1,980.48            | 990.24              | 2,498.77               | 1,251.24               | 2.74                     | -0.18             | 0.003 |
| 134.00              | -0.38                  | -0.06                  | 0.00                  | -0.06                 | 0.00                  | 0.06                             | 1,936.68            | 968.34              | 2,368.37               | 1,185.94               | 2.89                     | -0.18             | 0.000 |
| 135.00              | 0.00                   | 0.00                   | 0.00                  | 0.00                  | 0.00                  | 0.00                             | 1,925.56            | 962.78              | 2,336.10               | 1,169.79               | 2.93                     | -0.18             | 0.000 |
| 140.00              | 0.00                   | 0.00                   | 0.00                  | 0.00                  | 0.00                  | 0.00                             | 1,869.02            | 934.51              | 2,176.88               | 1,090.06               | 3.11                     | -0.18             | 0.000 |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/1/2016 8:54:48 AM

Customer: Verizon Wireless

**Equivalent Modal Forces Analysis**

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

|                                                                          |      |
|--------------------------------------------------------------------------|------|
| Spectral Response Acceleration for Short Period ( $S_s$ ):               | 0.17 |
| Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):           | 0.06 |
| Importance Factor ( $I_E$ ):                                             | 1.00 |
| Site Coefficient $F_a$ :                                                 | 1.60 |
| Site Coefficient $F_v$ :                                                 | 2.40 |
| Response Modification Coefficient (R):                                   | 1.50 |
| Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):      | 0.18 |
| Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ): | 0.10 |
| Period Based on Rayleigh Method (sec):                                   | 1.46 |
| Redundancy Factor (p):                                                   | 1.30 |

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

| Segment | Height<br>Above<br>Base<br>(ft) | Weight<br>(lb) | a     | b      | c     | Saz    | Horizontal<br>Force<br>(lb) | Vertical<br>Force<br>(lb) |
|---------|---------------------------------|----------------|-------|--------|-------|--------|-----------------------------|---------------------------|
| 35      | 137.50                          | 440            | 1.823 | 1.646  | 1.018 | 0.316  | 120                         | 544                       |
| 34      | 134.50                          | 90             | 1.744 | 1.298  | 0.885 | 0.272  | 21                          | 111                       |
| 33      | 132.00                          | 434            | 1.680 | 1.049  | 0.784 | 0.238  | 90                          | 537                       |
| 32      | 127.50                          | 559            | 1.568 | 0.682  | 0.627 | 0.183  | 89                          | 691                       |
| 31      | 124.50                          | 114            | 1.495 | 0.488  | 0.536 | 0.151  | 15                          | 141                       |
| 30      | 122.00                          | 483            | 1.435 | 0.354  | 0.469 | 0.126  | 53                          | 597                       |
| 29      | 117.50                          | 619            | 1.331 | 0.166  | 0.364 | 0.087  | 47                          | 765                       |
| 28      | 114.50                          | 126            | 1.264 | 0.074  | 0.305 | 0.066  | 7                           | 156                       |
| 27      | 112.00                          | 561            | 1.210 | 0.014  | 0.262 | 0.050  | 24                          | 693                       |
| 26      | 107.50                          | 717            | 1.114 | -0.061 | 0.196 | 0.027  | 17                          | 886                       |
| 25      | 102.50                          | 735            | 1.013 | -0.106 | 0.138 | 0.010  | 6                           | 908                       |
| 24      | 97.88                           | 639            | 0.924 | -0.121 | 0.097 | 0.001  | 1                           | 789                       |
| 23      | 95.38                           | 230            | 0.877 | -0.121 | 0.079 | -0.001 | 0                           | 284                       |
| 22      | 92.88                           | 1,321          | 0.832 | -0.117 | 0.063 | -0.002 | -3                          | 1,633                     |
| 21      | 90.38                           | 145            | 0.788 | -0.110 | 0.050 | -0.002 | 0                           | 179                       |
| 20      | 87.50                           | 981            | 0.738 | -0.098 | 0.038 | 0.000  | 0                           | 1,212                     |
| 19      | 82.50                           | 1,005          | 0.656 | -0.073 | 0.022 | 0.007  | 6                           | 1,242                     |
| 18      | 77.50                           | 1,028          | 0.579 | -0.045 | 0.012 | 0.015  | 13                          | 1,271                     |
| 17      | 72.50                           | 1,052          | 0.507 | -0.019 | 0.007 | 0.023  | 21                          | 1,300                     |
| 16      | 67.50                           | 1,076          | 0.439 | 0.005  | 0.006 | 0.031  | 29                          | 1,330                     |
| 15      | 62.50                           | 1,100          | 0.377 | 0.025  | 0.007 | 0.036  | 34                          | 1,359                     |
| 14      | 57.50                           | 1,123          | 0.319 | 0.041  | 0.011 | 0.039  | 38                          | 1,388                     |
| 13      | 53.00                           | 916            | 0.271 | 0.051  | 0.015 | 0.041  | 32                          | 1,132                     |
| 12      | 50.50                           | 458            | 0.246 | 0.056  | 0.018 | 0.041  | 16                          | 566                       |
| 11      | 47.50                           | 2,319          | 0.218 | 0.060  | 0.021 | 0.041  | 82                          | 2,866                     |
| 10      | 44.88                           | 117            | 0.194 | 0.063  | 0.024 | 0.040  | 4                           | 145                       |
| 9       | 42.38                           | 1,279          | 0.173 | 0.066  | 0.027 | 0.040  | 44                          | 1,581                     |
| 8       | 37.50                           | 1,374          | 0.136 | 0.069  | 0.032 | 0.038  | 46                          | 1,698                     |
| 7       | 32.50                           | 1,401          | 0.102 | 0.071  | 0.037 | 0.037  | 45                          | 1,732                     |
| 6       | 27.50                           | 1,429          | 0.073 | 0.072  | 0.040 | 0.035  | 43                          | 1,766                     |
| 5       | 22.50                           | 1,457          | 0.049 | 0.071  | 0.042 | 0.033  | 42                          | 1,800                     |
| 4       | 17.50                           | 1,484          | 0.030 | 0.068  | 0.040 | 0.031  | 40                          | 1,834                     |
| 3       | 12.50                           | 1,512          | 0.015 | 0.061  | 0.036 | 0.027  | 36                          | 1,869                     |
| 2       | 7.50                            | 1,540          | 0.005 | 0.046  | 0.026 | 0.021  | 28                          | 1,903                     |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/1/2016 8:54:48 AM

Customer: Verizon Wireless

|                      |        |        |        |        |        |       |       |        |
|----------------------|--------|--------|--------|--------|--------|-------|-------|--------|
| 1                    | 2.50   | 1,397  | 0.001  | 0.019  | 0.010  | 0.009 | 11    | 1,727  |
| Ericsson KRY 112 144 | 134.00 | 33     | 1.731  | 1.245  | 0.864  | 0.265 | 8     | 41     |
| Ericsson RRUS 11 B12 | 134.00 | 152    | 1.731  | 1.245  | 0.864  | 0.265 | 35    | 188    |
| Ericsson AIR 21, 1.3 | 134.00 | 249    | 1.731  | 1.245  | 0.864  | 0.265 | 57    | 308    |
| Ericsson AIR 21, 1.3 | 134.00 | 244    | 1.731  | 1.245  | 0.864  | 0.265 | 56    | 302    |
| Andrew LNX-6515DS-VT | 134.00 | 154    | 1.731  | 1.245  | 0.864  | 0.265 | 35    | 190    |
| Flat Low Profile Pla | 134.00 | 1,500  | 1.731  | 1.245  | 0.864  | 0.265 | 344   | 1,854  |
| RCU                  | 124.00 | 3      | 1.483  | 0.459  | 0.522  | 0.145 | 0     | 4      |
| Kathrein 800 10504   | 124.00 | 106    | 1.483  | 0.459  | 0.522  | 0.145 | 13    | 131    |
| Flat Low Profile Pla | 124.00 | 1,500  | 1.483  | 0.459  | 0.522  | 0.145 | 189   | 1,854  |
| Alcatel-Lucent RRH2X | 114.00 | 138    | 1.253  | 0.061  | 0.296  | 0.062 | 7     | 171    |
| Alcatel-Lucent RRH2x | 114.00 | 170    | 1.253  | 0.061  | 0.296  | 0.062 | 9     | 210    |
| Alcatel-Lucent B66A  | 114.00 | 170    | 1.253  | 0.061  | 0.296  | 0.062 | 9     | 211    |
| RFS DB-T1-6Z-8AB-0Z  | 114.00 | 88     | 1.253  | 0.061  | 0.296  | 0.062 | 5     | 109    |
| Amphenol Antel BXA-7 | 114.00 | 51     | 1.253  | 0.061  | 0.296  | 0.062 | 3     | 63     |
| Commscope SBNHH-     | 114.00 | 244    | 1.253  | 0.061  | 0.296  | 0.062 | 13    | 301    |
| Round Low Profile PI | 114.00 | 1,500  | 1.253  | 0.061  | 0.296  | 0.062 | 81    | 1,854  |
|                      |        | 37,564 | 47.834 | 15.017 | 15.169 | 4.570 | 1,964 | 46,423 |

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

| Segment              | Height<br>Above<br>Base<br>(ft) | Weight<br>(lb) | a     | b      | c     | Saz    | Horizontal<br>Force<br>(lb) | Vertical<br>Force<br>(lb) |
|----------------------|---------------------------------|----------------|-------|--------|-------|--------|-----------------------------|---------------------------|
| 35                   | 137.50                          | 440            | 1.823 | 1.646  | 1.018 | 0.316  | 120                         | 380                       |
| 34                   | 134.50                          | 90             | 1.744 | 1.298  | 0.885 | 0.272  | 21                          | 78                        |
| 33                   | 132.00                          | 434            | 1.680 | 1.049  | 0.784 | 0.238  | 90                          | 375                       |
| 32                   | 127.50                          | 559            | 1.568 | 0.682  | 0.627 | 0.183  | 89                          | 483                       |
| 31                   | 124.50                          | 114            | 1.495 | 0.488  | 0.536 | 0.151  | 15                          | 98                        |
| 30                   | 122.00                          | 483            | 1.435 | 0.354  | 0.469 | 0.126  | 53                          | 417                       |
| 29                   | 117.50                          | 619            | 1.331 | 0.166  | 0.364 | 0.087  | 47                          | 535                       |
| 28                   | 114.50                          | 126            | 1.264 | 0.074  | 0.305 | 0.066  | 7                           | 109                       |
| 27                   | 112.00                          | 561            | 1.210 | 0.014  | 0.262 | 0.050  | 24                          | 485                       |
| 26                   | 107.50                          | 717            | 1.114 | -0.061 | 0.196 | 0.027  | 17                          | 620                       |
| 25                   | 102.50                          | 735            | 1.013 | -0.106 | 0.138 | 0.010  | 6                           | 635                       |
| 24                   | 97.88                           | 639            | 0.924 | -0.121 | 0.097 | 0.001  | 1                           | 552                       |
| 23                   | 95.38                           | 230            | 0.877 | -0.121 | 0.079 | -0.001 | 0                           | 199                       |
| 22                   | 92.88                           | 1,321          | 0.832 | -0.117 | 0.063 | -0.002 | -3                          | 1,142                     |
| 21                   | 90.38                           | 145            | 0.788 | -0.110 | 0.050 | -0.002 | 0                           | 125                       |
| 20                   | 87.50                           | 981            | 0.738 | -0.098 | 0.038 | 0.000  | 0                           | 848                       |
| 19                   | 82.50                           | 1,005          | 0.656 | -0.073 | 0.022 | 0.007  | 6                           | 868                       |
| 18                   | 77.50                           | 1,028          | 0.579 | -0.045 | 0.012 | 0.015  | 13                          | 889                       |
| 17                   | 72.50                           | 1,052          | 0.507 | -0.019 | 0.007 | 0.023  | 21                          | 909                       |
| 16                   | 67.50                           | 1,076          | 0.439 | 0.005  | 0.006 | 0.031  | 29                          | 930                       |
| 15                   | 62.50                           | 1,100          | 0.377 | 0.025  | 0.007 | 0.036  | 34                          | 950                       |
| 14                   | 57.50                           | 1,123          | 0.319 | 0.041  | 0.011 | 0.039  | 38                          | 971                       |
| 13                   | 53.00                           | 916            | 0.271 | 0.051  | 0.015 | 0.041  | 32                          | 791                       |
| 12                   | 50.50                           | 458            | 0.246 | 0.056  | 0.018 | 0.041  | 16                          | 395                       |
| 11                   | 47.50                           | 2,319          | 0.218 | 0.060  | 0.021 | 0.041  | 82                          | 2,004                     |
| 10                   | 44.88                           | 117            | 0.194 | 0.063  | 0.024 | 0.040  | 4                           | 101                       |
| 9                    | 42.38                           | 1,279          | 0.173 | 0.066  | 0.027 | 0.040  | 44                          | 1,106                     |
| 8                    | 37.50                           | 1,374          | 0.136 | 0.069  | 0.032 | 0.038  | 46                          | 1,187                     |
| 7                    | 32.50                           | 1,401          | 0.102 | 0.071  | 0.037 | 0.037  | 45                          | 1,211                     |
| 6                    | 27.50                           | 1,429          | 0.073 | 0.072  | 0.040 | 0.035  | 43                          | 1,235                     |
| 5                    | 22.50                           | 1,457          | 0.049 | 0.071  | 0.042 | 0.033  | 42                          | 1,259                     |
| 4                    | 17.50                           | 1,484          | 0.030 | 0.068  | 0.040 | 0.031  | 40                          | 1,283                     |
| 3                    | 12.50                           | 1,512          | 0.015 | 0.061  | 0.036 | 0.027  | 36                          | 1,307                     |
| 2                    | 7.50                            | 1,540          | 0.005 | 0.046  | 0.026 | 0.021  | 28                          | 1,331                     |
| 1                    | 2.50                            | 1,397          | 0.001 | 0.019  | 0.010 | 0.009  | 11                          | 1,207                     |
| Ericsson KRY 112 144 | 134.00                          | 33             | 1.731 | 1.245  | 0.864 | 0.265  | 8                           | 29                        |

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**Site Number: 311014****Code: ANSI/TIA-222-G**

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**Site Name: Norwich CT, CT****Engineering Number: OAA684610\_C3\_02****12/1/2016 8:54:48 AM****Customer: Verizon Wireless**

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|                      |        |        |        |        |        |       |       |        |
|----------------------|--------|--------|--------|--------|--------|-------|-------|--------|
| Ericsson RRUS 11 B12 | 134.00 | 152    | 1.731  | 1.245  | 0.864  | 0.265 | 35    | 131    |
| Ericsson AIR 21, 1.3 | 134.00 | 249    | 1.731  | 1.245  | 0.864  | 0.265 | 57    | 215    |
| Ericsson AIR 21, 1.3 | 134.00 | 244    | 1.731  | 1.245  | 0.864  | 0.265 | 56    | 211    |
| Andrew LNX-6515DS-VT | 134.00 | 154    | 1.731  | 1.245  | 0.864  | 0.265 | 35    | 133    |
| Flat Low Profile Pla | 134.00 | 1,500  | 1.731  | 1.245  | 0.864  | 0.265 | 344   | 1,296  |
| RCU                  | 124.00 | 3      | 1.483  | 0.459  | 0.522  | 0.145 | 0     | 3      |
| Kathrein 800 10504   | 124.00 | 106    | 1.483  | 0.459  | 0.522  | 0.145 | 13    | 91     |
| Flat Low Profile Pla | 124.00 | 1,500  | 1.483  | 0.459  | 0.522  | 0.145 | 189   | 1,296  |
| Alcatel-Lucent RRH2X | 114.00 | 138    | 1.253  | 0.061  | 0.296  | 0.062 | 7     | 119    |
| Alcatel-Lucent RRH2x | 114.00 | 170    | 1.253  | 0.061  | 0.296  | 0.062 | 9     | 147    |
| Alcatel-Lucent B66A  | 114.00 | 170    | 1.253  | 0.061  | 0.296  | 0.062 | 9     | 147    |
| RFS DB-T1-6Z-8AB-0Z  | 114.00 | 88     | 1.253  | 0.061  | 0.296  | 0.062 | 5     | 76     |
| Amphenol Antel BXA-7 | 114.00 | 51     | 1.253  | 0.061  | 0.296  | 0.062 | 3     | 44     |
| Commscope SBNHH-     | 114.00 | 244    | 1.253  | 0.061  | 0.296  | 0.062 | 13    | 211    |
| Round Low Profile PI | 114.00 | 1,500  | 1.253  | 0.061  | 0.296  | 0.062 | 81    | 1,296  |
|                      |        | 37,564 | 47.834 | 15.017 | 15.169 | 4.570 | 1,964 | 32,461 |

Site Number: 311014

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Site Name: Norwich CT, CT

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12/1/2016 8:54:48 AM

Customer: Verizon Wireless

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

| Seg<br>Elev<br>(ft) | Pu<br>FY (-)<br>(kips) | Vu<br>FX (-)<br>(kips) | Tu<br>MY<br>(ft-kips) | Mu<br>MZ<br>(ft-kips) | Mu<br>MX<br>(ft-kips) | Resultant<br>Moment<br>(ft-kips) | phi<br>Pn<br>(kips) | phi<br>Vn<br>(kips) | phi<br>Tn<br>(ft-kips) | phi<br>Mn<br>(ft-kips) | Total<br>Deflect<br>(in) | Rotation<br>(deg) | Ratio |
|---------------------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|----------------------------------|---------------------|---------------------|------------------------|------------------------|--------------------------|-------------------|-------|
| 0.00                | -44.70                 | -1.95                  | 0.00                  | -199.46               | 0.00                  | 199.46                           | 5,563.50            | 2,781.75            | 13,660.1               | 6,840.21               | 0.00                     | 0.00              | 0.037 |
| 5.00                | -42.79                 | -1.93                  | 0.00                  | -189.69               | 0.00                  | 189.69                           | 5,495.04            | 2,747.52            | 13,225.5               | 6,622.59               | 0.00                     | -0.01             | 0.036 |
| 10.00               | -40.92                 | -1.90                  | 0.00                  | -180.03               | 0.00                  | 180.03                           | 5,424.94            | 2,712.47            | 12,793.7               | 6,406.38               | 0.02                     | -0.01             | 0.036 |
| 15.00               | -39.09                 | -1.87                  | 0.00                  | -170.52               | 0.00                  | 170.52                           | 5,353.22            | 2,676.61            | 12,365.0               | 6,191.70               | 0.04                     | -0.02             | 0.035 |
| 20.00               | -37.29                 | -1.83                  | 0.00                  | -161.19               | 0.00                  | 161.19                           | 5,279.88            | 2,639.94            | 11,939.5               | 5,978.66               | 0.06                     | -0.03             | 0.034 |
| 25.00               | -35.52                 | -1.79                  | 0.00                  | -152.05               | 0.00                  | 152.05                           | 5,204.91            | 2,602.46            | 11,517.6               | 5,767.39               | 0.10                     | -0.04             | 0.033 |
| 30.00               | -33.79                 | -1.75                  | 0.00                  | -143.10               | 0.00                  | 143.10                           | 5,128.32            | 2,564.16            | 11,099.4               | 5,557.99               | 0.14                     | -0.05             | 0.032 |
| 35.00               | -32.09                 | -1.70                  | 0.00                  | -134.36               | 0.00                  | 134.36                           | 5,050.10            | 2,525.05            | 10,685.3               | 5,350.59               | 0.19                     | -0.05             | 0.031 |
| 40.00               | -30.51                 | -1.66                  | 0.00                  | -125.84               | 0.00                  | 125.84                           | 4,970.26            | 2,485.13            | 10,275.3               | 5,145.31               | 0.25                     | -0.06             | 0.031 |
| 44.75               | -30.37                 | -1.66                  | 0.00                  | -117.94               | 0.00                  | 117.94                           | 4,892.90            | 2,446.45            | 9,890.02               | 4,952.36               | 0.32                     | -0.07             | 0.030 |
| 45.00               | -27.50                 | -1.58                  | 0.00                  | -117.52               | 0.00                  | 117.52                           | 4,888.79            | 2,444.40            | 9,869.86               | 4,942.27               | 0.32                     | -0.07             | 0.029 |
| 50.00               | -26.94                 | -1.56                  | 0.00                  | -109.64               | 0.00                  | 109.64                           | 4,805.70            | 2,402.85            | 9,469.07               | 4,741.57               | 0.40                     | -0.08             | 0.029 |
| 51.00               | -25.80                 | -1.53                  | 0.00                  | -108.07               | 0.00                  | 108.07                           | 3,954.70            | 1,977.35            | 7,897.06               | 3,954.40               | 0.41                     | -0.08             | 0.034 |
| 55.00               | -24.42                 | -1.49                  | 0.00                  | -101.95               | 0.00                  | 101.95                           | 3,904.91            | 1,952.45            | 7,646.13               | 3,828.75               | 0.48                     | -0.08             | 0.033 |
| 60.00               | -23.06                 | -1.46                  | 0.00                  | -94.48                | 0.00                  | 94.48                            | 3,841.19            | 1,920.60            | 7,335.11               | 3,673.01               | 0.57                     | -0.09             | 0.032 |
| 65.00               | -21.73                 | -1.43                  | 0.00                  | -87.18                | 0.00                  | 87.18                            | 3,775.86            | 1,887.93            | 7,027.24               | 3,518.84               | 0.67                     | -0.10             | 0.031 |
| 70.00               | -20.43                 | -1.41                  | 0.00                  | -80.01                | 0.00                  | 80.01                            | 3,708.90            | 1,854.45            | 6,722.77               | 3,366.38               | 0.79                     | -0.11             | 0.029 |
| 75.00               | -19.15                 | -1.40                  | 0.00                  | -72.95                | 0.00                  | 72.95                            | 3,640.31            | 1,820.16            | 6,421.93               | 3,215.74               | 0.90                     | -0.12             | 0.028 |
| 80.00               | -17.91                 | -1.39                  | 0.00                  | -65.95                | 0.00                  | 65.95                            | 3,570.10            | 1,785.05            | 6,124.95               | 3,067.03               | 1.03                     | -0.13             | 0.027 |
| 85.00               | -16.70                 | -1.39                  | 0.00                  | -58.99                | 0.00                  | 58.99                            | 3,498.27            | 1,749.13            | 5,832.07               | 2,920.37               | 1.17                     | -0.13             | 0.025 |
| 90.00               | -16.52                 | -1.39                  | 0.00                  | -52.03                | 0.00                  | 52.03                            | 3,424.81            | 1,712.40            | 5,543.53               | 2,775.89               | 1.31                     | -0.14             | 0.024 |
| 90.75               | -14.89                 | -1.39                  | 0.00                  | -50.98                | 0.00                  | 50.98                            | 3,413.65            | 1,706.82            | 5,500.64               | 2,754.41               | 1.34                     | -0.14             | 0.023 |
| 95.00               | -14.60                 | -1.39                  | 0.00                  | -45.06                | 0.00                  | 45.06                            | 3,349.72            | 1,674.86            | 5,259.57               | 2,633.69               | 1.47                     | -0.15             | 0.021 |
| 95.75               | -13.81                 | -1.39                  | 0.00                  | -44.01                | 0.00                  | 44.01                            | 2,312.98            | 1,156.49            | 3,686.59               | 1,846.04               | 1.49                     | -0.15             | 0.030 |
| 100.00              | -12.91                 | -1.38                  | 0.00                  | -38.10                | 0.00                  | 38.10                            | 2,275.87            | 1,137.93            | 3,533.62               | 1,769.44               | 1.63                     | -0.16             | 0.027 |
| 105.00              | -12.02                 | -1.37                  | 0.00                  | -31.17                | 0.00                  | 31.17                            | 2,230.70            | 1,115.35            | 3,355.32               | 1,680.15               | 1.80                     | -0.16             | 0.024 |
| 110.00              | -11.33                 | -1.34                  | 0.00                  | -24.34                | 0.00                  | 24.34                            | 2,183.90            | 1,091.95            | 3,179.03               | 1,591.88               | 1.97                     | -0.17             | 0.020 |
| 114.00              | -8.25                  | -1.20                  | 0.00                  | -18.97                | 0.00                  | 18.97                            | 2,145.30            | 1,072.65            | 3,039.61               | 1,522.06               | 2.12                     | -0.18             | 0.016 |
| 115.00              | -7.49                  | -1.15                  | 0.00                  | -17.77                | 0.00                  | 17.77                            | 2,135.49            | 1,067.74            | 3,004.99               | 1,504.73               | 2.16                     | -0.18             | 0.015 |
| 120.00              | -6.89                  | -1.10                  | 0.00                  | -12.03                | 0.00                  | 12.03                            | 2,085.44            | 1,042.72            | 2,833.45               | 1,418.83               | 2.35                     | -0.18             | 0.012 |
| 124.00              | -4.76                  | -0.87                  | 0.00                  | -7.65                 | 0.00                  | 7.65                             | 2,044.24            | 1,022.12            | 2,698.16               | 1,351.09               | 2.50                     | -0.19             | 0.008 |
| 125.00              | -4.07                  | -0.78                  | 0.00                  | -6.78                 | 0.00                  | 6.78                             | 2,033.77            | 1,016.89            | 2,664.63               | 1,334.29               | 2.54                     | -0.19             | 0.007 |
| 130.00              | -3.54                  | -0.69                  | 0.00                  | -2.88                 | 0.00                  | 2.88                             | 1,980.48            | 990.24              | 2,498.77               | 1,251.24               | 2.74                     | -0.19             | 0.004 |
| 134.00              | -0.54                  | -0.12                  | 0.00                  | -0.12                 | 0.00                  | 0.12                             | 1,936.68            | 968.34              | 2,368.37               | 1,185.94               | 2.89                     | -0.19             | 0.000 |
| 135.00              | 0.00                   | 0.00                   | 0.00                  | 0.00                  | 0.00                  | 0.00                             | 1,925.56            | 962.78              | 2,336.10               | 1,169.79               | 2.93                     | -0.19             | 0.000 |
| 140.00              | 0.00                   | 0.00                   | 0.00                  | 0.00                  | 0.00                  | 0.00                             | 1,869.02            | 934.51              | 2,176.88               | 1,090.06               | 3.13                     | -0.19             | 0.000 |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/11/2016 8:54:48 AM

Customer: Verizon Wireless

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

| Seg<br>Elev<br>(ft) | Pu<br>FY (-)<br>(kips) | Vu<br>FX (-)<br>(kips) | Tu<br>MY<br>(ft-kips) | Mu<br>MZ<br>(ft-kips) | Mu<br>MX<br>(ft-kips) | Resultant<br>Moment<br>(ft-kips) | phi<br>Pn<br>(kips) | phi<br>Vn<br>(kips) | phi<br>Tn<br>(ft-kips) | phi<br>Mn<br>(ft-kips) | Total<br>Deflect<br>(in) | Rotation<br>(deg) | Ratio |
|---------------------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|----------------------------------|---------------------|---------------------|------------------------|------------------------|--------------------------|-------------------|-------|
| 0.00                | -31.25                 | -1.95                  | 0.00                  | -198.27               | 0.00                  | 198.27                           | 5,563.50            | 2,781.75            | 13,660.1               | 6,840.21               | 0.00                     | 0.00              | 0.035 |
| 5.00                | -29.92                 | -1.93                  | 0.00                  | -188.50               | 0.00                  | 188.50                           | 5,495.04            | 2,747.52            | 13,225.5               | 6,622.59               | 0.00                     | -0.01             | 0.034 |
| 10.00               | -28.62                 | -1.90                  | 0.00                  | -178.85               | 0.00                  | 178.85                           | 5,424.94            | 2,712.47            | 12,793.7               | 6,406.38               | 0.02                     | -0.01             | 0.033 |
| 15.00               | -27.33                 | -1.86                  | 0.00                  | -169.36               | 0.00                  | 169.36                           | 5,353.22            | 2,676.61            | 12,365.0               | 6,191.70               | 0.04                     | -0.02             | 0.032 |
| 20.00               | -26.07                 | -1.82                  | 0.00                  | -160.06               | 0.00                  | 160.06                           | 5,279.88            | 2,639.94            | 11,939.5               | 5,978.66               | 0.06                     | -0.03             | 0.032 |
| 25.00               | -24.84                 | -1.78                  | 0.00                  | -150.95               | 0.00                  | 150.95                           | 5,204.91            | 2,602.46            | 11,517.6               | 5,767.39               | 0.10                     | -0.04             | 0.031 |
| 30.00               | -23.63                 | -1.74                  | 0.00                  | -142.04               | 0.00                  | 142.04                           | 5,128.32            | 2,564.16            | 11,099.4               | 5,557.99               | 0.14                     | -0.04             | 0.030 |
| 35.00               | -22.44                 | -1.70                  | 0.00                  | -133.35               | 0.00                  | 133.35                           | 5,050.10            | 2,525.05            | 10,685.3               | 5,350.59               | 0.19                     | -0.05             | 0.029 |
| 40.00               | -21.34                 | -1.65                  | 0.00                  | -124.87               | 0.00                  | 124.87                           | 4,970.26            | 2,485.13            | 10,275.3               | 5,145.31               | 0.25                     | -0.06             | 0.029 |
| 44.75               | -21.23                 | -1.65                  | 0.00                  | -117.02               | 0.00                  | 117.02                           | 4,892.90            | 2,446.45            | 9,890.02               | 4,952.36               | 0.32                     | -0.07             | 0.028 |
| 45.00               | -19.23                 | -1.57                  | 0.00                  | -116.61               | 0.00                  | 116.61                           | 4,888.79            | 2,444.40            | 9,869.86               | 4,942.27               | 0.32                     | -0.07             | 0.028 |
| 50.00               | -18.83                 | -1.55                  | 0.00                  | -108.78               | 0.00                  | 108.78                           | 4,805.70            | 2,402.85            | 9,469.07               | 4,741.57               | 0.39                     | -0.08             | 0.027 |
| 51.00               | -18.04                 | -1.52                  | 0.00                  | -107.22               | 0.00                  | 107.22                           | 3,954.70            | 1,977.35            | 7,897.06               | 3,954.40               | 0.41                     | -0.08             | 0.032 |
| 55.00               | -17.07                 | -1.48                  | 0.00                  | -101.14               | 0.00                  | 101.14                           | 3,904.91            | 1,952.45            | 7,646.13               | 3,828.75               | 0.48                     | -0.08             | 0.031 |
| 60.00               | -16.12                 | -1.45                  | 0.00                  | -93.73                | 0.00                  | 93.73                            | 3,841.19            | 1,920.60            | 7,335.11               | 3,673.01               | 0.57                     | -0.09             | 0.030 |
| 65.00               | -15.19                 | -1.42                  | 0.00                  | -86.49                | 0.00                  | 86.49                            | 3,775.86            | 1,887.93            | 7,027.24               | 3,518.84               | 0.67                     | -0.10             | 0.029 |
| 70.00               | -14.28                 | -1.40                  | 0.00                  | -79.38                | 0.00                  | 79.38                            | 3,708.90            | 1,854.45            | 6,722.77               | 3,366.38               | 0.78                     | -0.11             | 0.027 |
| 75.00               | -13.39                 | -1.39                  | 0.00                  | -72.39                | 0.00                  | 72.39                            | 3,640.31            | 1,820.16            | 6,421.93               | 3,215.74               | 0.90                     | -0.12             | 0.026 |
| 80.00               | -12.52                 | -1.38                  | 0.00                  | -65.45                | 0.00                  | 65.45                            | 3,570.10            | 1,785.05            | 6,124.95               | 3,067.03               | 1.03                     | -0.13             | 0.025 |
| 85.00               | -11.68                 | -1.38                  | 0.00                  | -58.55                | 0.00                  | 58.55                            | 3,498.27            | 1,749.13            | 5,832.07               | 2,920.37               | 1.16                     | -0.13             | 0.023 |
| 90.00               | -11.55                 | -1.38                  | 0.00                  | -51.65                | 0.00                  | 51.65                            | 3,424.81            | 1,712.40            | 5,543.53               | 2,775.89               | 1.31                     | -0.14             | 0.022 |
| 90.75               | -10.41                 | -1.38                  | 0.00                  | -50.61                | 0.00                  | 50.61                            | 3,413.65            | 1,706.82            | 5,500.64               | 2,754.41               | 1.33                     | -0.14             | 0.021 |
| 95.00               | -10.21                 | -1.38                  | 0.00                  | -44.74                | 0.00                  | 44.74                            | 3,349.72            | 1,674.86            | 5,259.57               | 2,633.69               | 1.46                     | -0.15             | 0.020 |
| 95.75               | -9.66                  | -1.38                  | 0.00                  | -43.70                | 0.00                  | 43.70                            | 2,312.98            | 1,156.49            | 3,686.59               | 1,846.04               | 1.48                     | -0.15             | 0.028 |
| 100.00              | -9.02                  | -1.37                  | 0.00                  | -37.84                | 0.00                  | 37.84                            | 2,275.87            | 1,137.93            | 3,533.62               | 1,769.44               | 1.62                     | -0.16             | 0.025 |
| 105.00              | -8.40                  | -1.36                  | 0.00                  | -30.97                | 0.00                  | 30.97                            | 2,230.70            | 1,115.35            | 3,355.32               | 1,680.15               | 1.78                     | -0.16             | 0.022 |
| 110.00              | -7.92                  | -1.33                  | 0.00                  | -24.19                | 0.00                  | 24.19                            | 2,183.90            | 1,091.95            | 3,179.03               | 1,591.88               | 1.96                     | -0.17             | 0.019 |
| 114.00              | -5.77                  | -1.19                  | 0.00                  | -18.86                | 0.00                  | 18.86                            | 2,145.30            | 1,072.65            | 3,039.61               | 1,522.06               | 2.11                     | -0.18             | 0.015 |
| 115.00              | -5.23                  | -1.14                  | 0.00                  | -17.67                | 0.00                  | 17.67                            | 2,135.49            | 1,067.74            | 3,004.99               | 1,504.73               | 2.14                     | -0.18             | 0.014 |
| 120.00              | -4.82                  | -1.09                  | 0.00                  | -11.96                | 0.00                  | 11.96                            | 2,085.44            | 1,042.72            | 2,833.45               | 1,418.83               | 2.33                     | -0.18             | 0.011 |
| 124.00              | -3.33                  | -0.87                  | 0.00                  | -7.61                 | 0.00                  | 7.61                             | 2,044.24            | 1,022.12            | 2,698.16               | 1,351.09               | 2.48                     | -0.18             | 0.007 |
| 125.00              | -2.85                  | -0.78                  | 0.00                  | -6.74                 | 0.00                  | 6.74                             | 2,033.77            | 1,016.89            | 2,664.63               | 1,334.29               | 2.52                     | -0.18             | 0.006 |
| 130.00              | -2.47                  | -0.69                  | 0.00                  | -2.86                 | 0.00                  | 2.86                             | 1,980.48            | 990.24              | 2,498.77               | 1,251.24               | 2.72                     | -0.19             | 0.004 |
| 134.00              | -0.38                  | -0.12                  | 0.00                  | -0.12                 | 0.00                  | 0.12                             | 1,936.68            | 968.34              | 2,368.37               | 1,185.94               | 2.87                     | -0.19             | 0.000 |
| 135.00              | 0.00                   | 0.00                   | 0.00                  | 0.00                  | 0.00                  | 0.00                             | 1,925.56            | 962.78              | 2,336.10               | 1,169.79               | 2.91                     | -0.19             | 0.000 |
| 140.00              | 0.00                   | 0.00                   | 0.00                  | 0.00                  | 0.00                  | 0.00                             | 1,869.02            | 934.51              | 2,176.88               | 1,090.06               | 3.11                     | -0.19             | 0.000 |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/1/2016 8:54:48 AM

Customer: Verizon Wireless

## Analysis Summary

| Load Case                    | Reactions             |                       |                       |                           |                           |                           | Max Usage    |                      |
|------------------------------|-----------------------|-----------------------|-----------------------|---------------------------|---------------------------|---------------------------|--------------|----------------------|
|                              | Shear<br>FX<br>(kips) | Shear<br>FZ<br>(kips) | Axial<br>FY<br>(kips) | Moment<br>MX<br>(ft-kips) | Moment<br>MY<br>(ft-kips) | Moment<br>MZ<br>(ft-kips) | Elev<br>(ft) | Interaction<br>Ratio |
| 1.2D + 1.6W                  | 23.48                 | 0.00                  | 45.06                 | 0.00                      | 0.00                      | 2210.55                   | 0.00         | 0.33                 |
| 0.9D + 1.6W                  | 23.48                 | 0.00                  | 33.79                 | 0.00                      | 0.00                      | 2199.69                   | 0.00         | 0.33                 |
| 1.2D + 1.0Di + 1.0Wi         | 5.85                  | 0.00                  | 64.32                 | 0.00                      | 0.00                      | 535.45                    | 0.00         | 0.09                 |
| (1.2 + 0.2Sds) * DL + E ELFM | 2.14                  | 0.00                  | 44.70                 | 0.00                      | 0.00                      | 217.45                    | 0.00         | 0.04                 |
| (1.2 + 0.2Sds) * DL + E EMAM | 1.95                  | 0.00                  | 44.70                 | 0.00                      | 0.00                      | 199.46                    | 0.00         | 0.04                 |
| (0.9 - 0.2Sds) * DL + E ELFM | 2.13                  | 0.00                  | 31.25                 | 0.00                      | 0.00                      | 216.21                    | 0.00         | 0.04                 |
| (0.9 - 0.2Sds) * DL + E EMAM | 1.95                  | 0.00                  | 31.25                 | 0.00                      | 0.00                      | 198.27                    | 0.00         | 0.03                 |
| 1.0D + 1.0W                  | 4.79                  | 0.00                  | 37.56                 | 0.00                      | 0.00                      | 449.68                    | 0.00         | 0.07                 |

Site Number: 311014

Code: ANSI/TIA-222-G

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Site Name: Norwich CT, CT

Engineering Number: OAA684610\_C3\_02

12/1/2016 8:54:48 AM

Customer: Verizon Wireless

## Base Summary

### Reactions

| Original Design    |                |                | Analysis           |                |                | Moment<br>Design % |
|--------------------|----------------|----------------|--------------------|----------------|----------------|--------------------|
| Moment<br>(kip-ft) | Axial<br>(kip) | Shear<br>(kip) | Moment<br>(kip-ft) | Axial<br>(kip) | Shear<br>(kip) |                    |
| 5,050.00           | 42.00          | 43.00          | 2,210.55           | 64.32          | 23.48          | 32.42              |

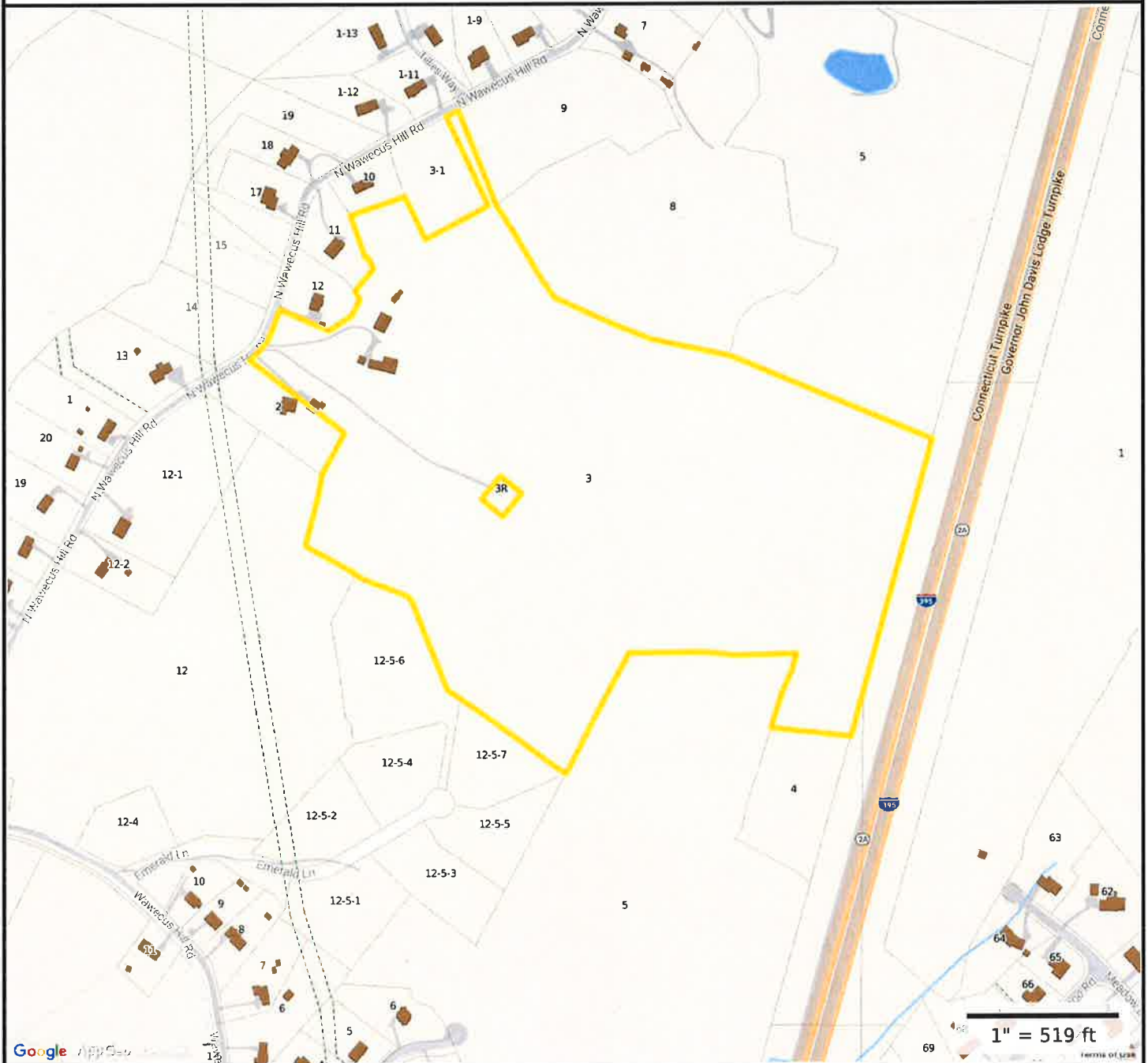
### Base Plate

| Yield<br>(ksi) | Thick<br>(in) | Width<br>(in) | Style   | Poly<br>Sides | Clip Len<br>(in) | Effective<br>Len (in) | Mu<br>(kip-in) | Phi Mn<br>(kip-in) | Ratio |
|----------------|---------------|---------------|---------|---------------|------------------|-----------------------|----------------|--------------------|-------|
| 50.0           | 3.000         | 69.000        | Clipped | 0             | 16.00            | 7.956                 | 138.56         | 805.53             | 0.17  |

### Anchor Bolts

| Bolt<br>Circle | Num<br>Bolts | Bolt Type | Bolt<br>Dia (in) | Yield<br>(ksi) | Ultimate<br>(ksi) | Arrange   | Cluster<br>Dist (in) | Start<br>Angle<br>(deg) | Compression    |                |       | Tension        |                |       |
|----------------|--------------|-----------|------------------|----------------|-------------------|-----------|----------------------|-------------------------|----------------|----------------|-------|----------------|----------------|-------|
|                |              |           |                  |                |                   |           |                      |                         | Force<br>(kip) | Allow<br>(kip) | Ratio | Force<br>(kip) | Allow<br>(kip) | Ratio |
| 67.00          | 24           | 2.25" 18J | 2.25             | 75.00          | 100.00            | Clustered | 6.00                 | 45.0                    | 68.67          | 260.00         | 0.27  | 63.31          | 260.00         | 0.25  |

# **ATTACHMENT 4**

**Property Information**

**Property ID** 098-001-003.000-0000  
**Location** 180 NORTH WAWECUS HILL RD  
**Owner** POLASKI JOHN J JR

**MAP FOR REFERENCE ONLY  
NOT A LEGAL DOCUMENT**

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Parcels updated 10/1/2015  
Properties updated 01/23/2017

## 202 R NORTH WAWECUS HILL RD

**Location** 202 R NORTH WAWECUS  
HILL RD

**Mblu** 98/ 1/ 3/ R/

**Acct#** 0980010003

**Owner** POLASKI JOHN J JR

**Assessment** \$176,900

**Appraisal** \$252,700

**PID** 111087

**Building Count** 1

### Current Value

| Appraisal      |              |           |           |
|----------------|--------------|-----------|-----------|
| Valuation Year | Improvements | Land      | Total     |
| 2013           | \$102,700    | \$150,000 | \$252,700 |
| Assessment     |              |           |           |
| Valuation Year | Improvements | Land      | Total     |
| 2013           | \$71,900     | \$105,000 | \$176,900 |

### Parcel Addresses

| Additional Addresses |                             |                 |         |
|----------------------|-----------------------------|-----------------|---------|
| Line Number          | Address                     | City, State Zip | Type    |
| 1                    | 202 R NORTH WAWECUS HILL RD |                 | Primary |

### Owner of Record

**Owner** POLASKI JOHN J JR  
% SPECTRASITE COMMUNICATIONS INC CT #311  
**Address** PO BOX 723597  
ATLANTA, GA 31139

**Sale Price** \$0  
**Certificate**  
**Book & Page** 590/ 144  
**Sale Date** 01/03/1983

### Ownership History

| Ownership History |            |             |             |            |
|-------------------|------------|-------------|-------------|------------|
| Owner             | Sale Price | Certificate | Book & Page | Sale Date  |
| POLASKI JOHN J JR | \$0        |             | 590/ 144    | 01/03/1983 |

### Building Information

**Building 1 : Section 1**

**Building Photo**

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

| Building Attributes |              |
|---------------------|--------------|
| Field               | Description  |
| Style               | Outbuildings |
| Model               |              |
| Grade:              |              |
| Stories:            |              |
| Occupancy           |              |
| Exterior Wall 1     |              |
| Exterior Wall 2     |              |
| Roof Structure:     |              |
| Roof Cover          |              |
| Interior Wall 1     |              |
| Interior Wall 2     |              |
| Interior Flr 1      |              |
| Interior Flr 2      |              |
| Heat Fuel           |              |
| Heat Type:          |              |
| AC Type:            |              |
| Total Bedrooms:     |              |
| Total Bthrms:       |              |
| Total Half Baths:   |              |
| Total Xtra Fixtrs:  |              |
| Total Rooms:        |              |
| Bath Style:         |              |
| Kitchen Style:      |              |
| Fireplace (s)       |              |
| Whirlpool           |              |
| park                |              |

Building Photo



(<http://images.vgsi.com/photos/NorwichCTPhotos//\00\02\05\7>)

Building Layout

Building Layout

| Building Sub-Areas (sq ft)     | Legend |
|--------------------------------|--------|
| No Data for Building Sub-Areas |        |

Extra Features

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

Land

**Land Use**

**Use Code** 431V  
**Description** TEL REL TW M00  
**Zone**  
**Neighborhood**  
**Alt Land Appr** No  
**Category**

**Land Line Valuation**

**Size (Acres)** 0.23  
**Frontage**  
**Depth**  
**Assessed Value** \$105,000  
**Appraised Value** \$150,000

**Outbuildings**

| Outbuildings |                |          |                 |           |          | Legend |
|--------------|----------------|----------|-----------------|-----------|----------|--------|
| Code         | Description    | Sub Code | Sub Description | Size      | Value    | Bldg # |
| FN4          | Fence Chain 8' |          |                 | 380 L.F.  | \$4,200  | 1      |
| SHD5         | Shed Comm Mas  |          |                 | 360 S.F.  | \$10,800 | 1      |
| TWR          | CELL TOWER     |          |                 | 140 UNITS | \$87,700 | 1      |

**Valuation History**

| Appraisal      |              |           |           |
|----------------|--------------|-----------|-----------|
| Valuation Year | Improvements | Land      | Total     |
| 2015           | \$102,700    | \$150,000 | \$252,700 |
| 2012           | \$0          | \$78,000  | \$78,000  |
| 2011           | \$0          | \$78,000  | \$78,000  |

| Assessment     |              |           |           |
|----------------|--------------|-----------|-----------|
| Valuation Year | Improvements | Land      | Total     |
| 2015           | \$71,900     | \$105,000 | \$176,900 |
| 2012           | \$0          | \$55,000  | \$55,000  |
| 2011           | \$0          | \$55,000  | \$55,000  |

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