May 18, 2015

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
215 Coatney Hill Road, Woodstock, CT 06281
N 41° 57' 43.41"
W 72° 01' 4.90"
T-Mobile Site #: CTNL181A_L700

Members of the Siting Council:

On behalf of T-Mobile, SBA Communications is submitting an exempt modification application to the Connecticut Siting council for modification of existing equipment at a tower facility located at 215 Coatney Hill Road, Woodstock, CT 06281.

The 215 Coatney Hill Road, Woodstock, CT facility consists of a 190' Monopole Tower owned and operated by SBA Towers V, LLC. In order to accommodate technological changes and enhance system performance in the State of Connecticut, T-Mobile plans to modify the equipment configurations at many of its existing cell sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the chief elected official of the municipality in which the affected cell site is located.

As part of T-Mobile's L700 project, T-Mobile desires to upgrade their equipment to meet the new standards of 4G technology. The new equipment will allow customers to download files and browse the internet at a high rate of speed while also allowing their phones to be compatible with the latest 4G technology.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in T-Mobile's operations at the site along with the required fee of $625.

The changes to the facility do not constitute modifications as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be

significantly changed or altered. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

1. The overall height of the structure will be unaffected.

2. The proposed changes will not extend the site boundaries. There will be no effect on the site compound other than the new equipment cabinets.

3. The proposed changes will not increase the noise level at the existing facility by six decibels or more.

4. The changes in radio frequency power density will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

For the foregoing reasons, SBA Communications on behalf of T-Mobile, respectfully submits that he proposed changes at the referenced site constitute exempt modifications under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at 508.251.0720 x 3804 with any questions you may have concerning this matter.

Thank you,

Kri Pelletier
SBA Communications Corporation
33 Boston Post Road West Suite 320
Marlborough, MA 01752
508-251-0720 x 3804 + T
508-251-1755 + F
203-446-7700 + C
kpelletier@sbasite.com

# T-Mobile

## Equipment Modification

215 Coatney Hill Road, Woodstock, CT 06281
Site number CTNL181A_L700

**Tower Owner:** SBA Towers V, LLC

**Equipment Configuration:** Monopole

**Current and/or approved:**

- (9) EMS RR90-17-02DPL2
- (18) 1-5/8" feed lines

**Planned Modifications:**

- (6) EMS RR90-17-02DPL2
- (3) Commscope LNX-6515DS-VTM
- (3) Ericsson KRY 112 489/2
- (3) Kathrein 782 11056 Bias T
- (18) 1-5/8" feed lines

**Structural Information:**

The attached structural analysis demonstrates that the tower and foundation will have adequate structural capacity to accommodate the proposed modifications.

**Power Density:**

The anticipated Maximum Composite contributions from the T-Mobile facility are 3.10% of the allowable FCC established general public limit. The anticipated composite MPE value for this site assuming all carriers present is 24.21% of the allowable FCC established general public limit sampled at the ground level.

| Site Composite MPE% | |
|---|---|
| Carrier | MPE% |
| T-Mobile | 3.10 |
| AT&T | 10.10 % |
| Verizon Wireless | 11.01 % |
| Site Total MPE %: | 24.21 % |

May 18, 2015

Mr. Allan D. Walker, Jr.
First Selectman
Town of Woodstock
415 Route 169
Woodstock, CT 06281-3039

RE: Telecommunications Facility @ 215 Coatney Hill Road, Woodstock, CT 06281

Dear Mr. Walker,

In order to accommodate technological changes and enhance system performance in the State of Connecticut, T-Mobile will be changing its equipment configuration at certain cell sites.

As required by Regulations of Connecticut State Agencies (R.C.S.A.) Section 16-50j-73, the Connecticut Siting Council has been notified of the changes and will review T-Mobile's proposal. Please accept this letter as notification under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The accompanying letter to the Siting Council fully describes T-Mobile's proposal for the above referenced cell site. However, if you have any questions or require any further information on our plans or the Siting Council's procedures, please call me at 508.251.0720 x 3804.

Thank you,

Kri Pelletier
SBA Communications Company
33 Boston Post Road West Suite 320
Marlborough, MA 01752
508-251-0720 x 3804 + T
508-251-1755 + F
203-446-7700 + C
kpelletier@sbasite.com

EBI Consulting
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# RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
# EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CTNL181A

MCF/ Woodstock
215 Coatney Hill Road
Woodstock, CT 06281

**April 8, 2015**

**EBI Project Number: 6215002471**

| Site Compliance Summary | |
|---|---|
| Compliance Status: | COMPLIANT |
| Site total MPE% of FCC general public allowable limit: | 24.21 % |

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
environmental | engineering | due diligence

April 8, 2015

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CTNL181A – MCF/ Woodstock**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **215 Coatney Hill Road, Woodstock, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the 700 MHz Band is 467 $\mu W/cm^2$, and the general population exposure limit for the PCS band is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

## CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **215 Coatney Hill Road, Woodstock, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel

2) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

4) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

5) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

6) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

7) The antennas used in this modeling are the **EMS RR90_17_02DP** for 1900 MHz (PCS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **EMS RR90_17_02DP** has a maximum gain of **14.4 dBd** at its main lobe. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antenna mounting height centerline of the proposed antennas is **177.5 feet** above ground level (AGL).

9) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

## T-Mobile Site Inventory and Power Data

| Sector: | A | Sector: | B | Sector: | C |
|---|---|---|---|---|---|
| Antenna #: | **1** | Antenna #: | **1** | Antenna #: | **1** |
| Make / Model: | EMS RR90_17_02DP | Make / Model: | EMS RR90_17_02DP | Make / Model: | EMS RR90_17_02DP |
| Gain: | 14.4 dBd | Gain: | 14.4 dBd | Gain: | 14.4 dBd |
| Height (AGL): | 177.5 | Height (AGL): | 177.5 | Height (AGL): | 177.5 |
| Frequency Bands | 1900 MHz(PCS) | Frequency Bands | 1900 MHz(PCS) | Frequency Bands | 1900 MHz(PCS) |
| Channel Count | 6 | Channel Count | 6 | # PCS Channels: | 6 |
| Total TX Power: | 240 | Total TX Power: | 240 | # AWS Channels: | 240 |
| ERP (W): | 6,610.15 | ERP (W): | 6,610.15 | ERP (W): | 6,610.15 |
| Antenna A1 MPE% | 0.81 | Antenna B1 MPE% | 0.81 | Antenna C1 MPE% | 0.81 |
| Antenna #: | **2** | Antenna #: | **2** | Antenna #: | **2** |
| Make / Model: | Commscope LNX-6515DS-VTM | Make / Model: | Commscope LNX-6515DS-VTM | Make / Model: | Commscope LNX-6515DS-VTM |
| Gain: | 14.6 dBd | Gain: | 14.6 dBd | Gain: | 14.6 dBd |
| Height (AGL): | 177.5 | Height (AGL): | 177.5 | Height (AGL): | 177.5 |
| Frequency Bands | 700 MHz | Frequency Bands | 700 MHz | Frequency Bands | 700 MHz |
| Channel Count | 1 | Channel Count | 1 | Channel Count | 1 |
| Total TX Power: | 30 | Total TX Power: | 30 | Total TX Power: | 30 |
| ERP (W): | 865.21 | ERP (W): | 865.21 | ERP (W): | 865.21 |
| Antenna A2 MPE% | 0.23 | Antenna B2 MPE% | 0.23 | Antenna C2 MPE% | 0.23 |

| **Site Composite MPE%** | |
|---|---|
| **Carrier** | **MPE%** |
| T-Mobile | **3.10** |
| AT&T | 10.10 % |
| Verizon Wireless | 11.01 % |
| **Site Total MPE %:** | **24.21 %** |

| | |
|---|---|
| T-Mobile Sector 1 Total: | 1.03 % |
| T-Mobile Sector 2 Total: | 1.03 % |
| T-Mobile Sector 3 Total: | 1.03 % |
| | |
| Site Total: | 24.21 % |

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## Summary

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

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

| T-Mobile Sector | Power Density Value (%) |
|---|---|
| Sector 1: | 1.03 % |
| Sector 2: | 1.03 % |
| Sector 3 : | 1.03 % |
| T-Mobile Total: | 3.10 % |
| | |
| Site Total: | 24.21 % |
| | |
| Site Compliance Status: | **COMPLIANT** |

The anticipated composite MPE value for this site assuming all carriers present is **24.21%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Scott Heffernan
RF Engineering Director

**EBI Consulting**
21 B Street
Burlington, MA 01803

Velocitel, Inc., d.b.a. FDH Velocitel, 6521 Meridien Drive Raleigh, NC 27616, Ph. 919.755.1012

# Structural Analysis for SBA Network Services, Inc.

**190' Monopole Tower**

**SBA Site Name: Woodstock 4, CT**
**SBA Site ID: CT08748-A-02**
**T-Mobile Site ID: CTNL181A**
**Site Address: 215 Coatney Hill Road, Woodstock, CT 06281**

FDH Velocitel Project Number 15BFGC1400 (R2)

**Analysis Results**

| | | |
|---|---|---|
| Tower Components | 89.1% | Sufficient |
| Foundation | 81.6% | Sufficient |

Prepared By:

Christopher Lee, EIT
Project Engineer

Reviewed By:

Dennis D. Abel, PE
Director of Structural Engineering
CT PE License No. 23247

**Velocitel, Inc., d.b.a. FDH Velocitel**

6521 Meridien Drive
Raleigh, NC 27616
(919) 755-1012
info@fdhvelocitel.com


May 6, 2015

*Prepared pursuant to TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and the 2005 Connecticut State Building Code*

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## EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Velocitel performed a structural analysis of the monopole located in Woodstock, CT to determine whether the tower is structurally adequate to support both the existing and proposed loads pursuant to the *Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, TIA/EIA-222-F* and the *2005 Connecticut State Building Code*. Information pertaining to the existing/proposed antenna loading, current tower geometry, foundation dimensions, and member sizes was obtained from:

- Fred A. Nudd Corp. (Project No. 01-8280) Tower Drawings dated June 10, 2001
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and the *2005 Connecticut State Building Code* is 85 mph without ice and 38 mph with 1" radial ice. Ice is considered to increase in thickness with height.

### Conclusions

With the existing and proposed antennas from T-Mobile in place at 177.5 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and the *2005 Connecticut State Building Code* provided the **Recommendations** listed below are satisfied. Furthermore, provided the foundation was designed and constructed to support the original design reactions (see Fred A. Nudd Project No. 01-8280), the foundation should have the necessary capacity to support the existing and proposed loading. For a more detailed description of the analysis of the tower, see the **Results** section of this report.

Our structural analysis has been performed assuming all information provided to FDH Velocitel is accurate (i.e., the steel data, tower layout, existing antenna loading, and proposed antenna loading) and that the tower has been properly erected and maintained per the original design drawings.

### Recommendations

To ensure the requirements of the *TIA/EIA-222-F* standards and the *2005 Connecticut State Building Code* are met with the existing and proposed loading in place, we have the following recommendations:

1. The proposed feed lines should be installed inside the pole's shaft.
2. The proposed TMAs should be installed directly behind the existing and proposed antennas.

## APPURTENANCE LISTING

The proposed and existing antennas with their corresponding cables/coax lines are shown in **Table 1**. *If the actual layout determined in the field deviates from the layout, FDH Velocitel should be contacted to perform a revised analysis.*

### Table 1 - Appurtenance Loading

### Existing Loading:

| Antenna Elevation (ft) | Description | Feed Lines[1] | Carrier | Mount Elevation (ft) | Mount Type |
|---|---|---|---|---|---|
| 187.5 | (6) Powerwave 7770.00<br>(3) KMW AM-X-CD-17-65-00T<br>(6) Powerwave LGP21401<br>(6) Ericsson RRUS-11<br>(6) Powerwave LGP21903<br>(6) ADC CG-1900W800-FULL-DIN<br>(1) Raycap DC2-48-60-18-8F | (12) 1-5/8"<br>(2) 3/4" DC<br>(1) 7/16" Fiber Cable | Cingular | 186 | (1) 13' Low Profile Platform |
| 178 | (9) EMS RR90-17-02DPL2 | (18) 1-5/8" | T-Mobile | 178 | (1) 13' Platform w/ Handrails |
| 167 | (3) Antel BXA-70063-6CF<br>(6) Antel LPA-80080/6CF<br>(3) Antel BXA-171085/12BF<br>(6) RFS 9R6004/2C-3L | (12) 1-5/8" | Verizon | 167 | (1) 13' Low Profile Platform |
| 110 | (2) Antenex Y1505 | (2) 7/8" | Town of Woodstock | 110 | (2) Pipe Mounts (Assumed) |
| 120 | (2) Decibel DB212-1 | (2) 7/8" | Town of Woodstock | 100 | (2) Standoffs (Assumed) |
| 86 | (2) Telewave ANT450D6-9 | (2) 7/8" | Town of Woodstock | 80 | (2) Standoffs (Assumed) |

1. Feed lines installed inside the pole's shaft unless otherwise noted.

### Proposed Carrier Final Loading:

| Antenna Elevation (ft) | Description | Feed Lines | Carrier | Mount Elevation (ft) | Mount Type |
|---|---|---|---|---|---|
| 177.5 | (6) EMS RR90-17-02DPL2<br>(3) Commscope LNX-6515DS-VTM<br>(3) Ericsson KRY 112 489/2<br>(3) Kathrein 782 11056 Bias T | (18) 1-5/8" | T-Mobile | 178 | (1) 13' Platform w/ Handrails |

## RESULTS

The following yield strength of steel for individual members was used for analysis:

**Table 2 - Material Strength**

| Member Type | Yield Strength |
|---|---|
| Tower Shaft Sections | 55 ksi |
| Flange Plate | 50 ksi |
| Flange Bolts | 36 ksi |
| Base Plate | 50 ksi |
| Anchor Bolts | 105 ksi |

**Table 3** displays the summary of the ratio (as a percentage) of force in the member to their capacities. Values greater than 100% indicate locations where the maximum force in the member exceeds its capacity. *Note: Capacities up to 100% are considered acceptable.* **Table 4** displays the maximum foundation reactions.

If the assumptions outlined in this report differ from actual field conditions, FDH Velocitel should be contacted to perform a revised analysis. Furthermore, as no information pertaining to the allowable twist and sway requirements for the existing or proposed appurtenances was provided, deflection and rotation were not taken into consideration when performing this analysis.

See the **Appendix** for detailed modeling information

**Table 3 - Summary of Working Percentage of Structural Components**

| Section No. | Elevation ft | Component Type | Size | % Capacity* | Pass Fail |
|---|---|---|---|---|---|
| L1 | 190 - 180 | Pole | TP24x24x0.2813 | 6.9 | Pass |
| | 180 | Flange Bolts | (18) 0.625"Ø w/ BC=27" | 43.3 | Pass |
| | 180 | Flange Plate | PL 30"Ø X 0.5" Thick | 39.9 | Pass |
| L2 | 180 - 130 | Pole | TP35.25x24x0.25 | 76.8 | Pass |
| L3 | 130 - 85 | Pole | TP45.375x33.625x0.3125 | 89.1 | Pass |
| L4 | 85 - 41 | Pole | TP55.275x43.34x0.375 | 86.4 | Pass |
| L5 | 41 - 0 | Pole | TP64.5x52.8541x0.4375 | 76.9 | Pass |
| | | Anchor Bolts | (29) 2"Ø w/ BC=58" | 75.1 | Pass |
| | | Base Plate | PL 64.5"Ø x 2.25" Thick | 82.1 | Pass |

*Capacities include a 1/3 allowable stress increase for wind per *TIA/EIA-222-F* standards.

**Table 4 - Maximum Base Reactions**

| Base Reactions | Current Analysis *(TIA/EIA-222-F)* | Original Design *(TIA/EIA-222-F)* |
|---|---|---|
| Axial | 47 k | 60 k |
| Shear | 36 k | 45 k |
| Moment | 4,605 k-ft | 5,640 k-ft |

## GENERAL COMMENTS

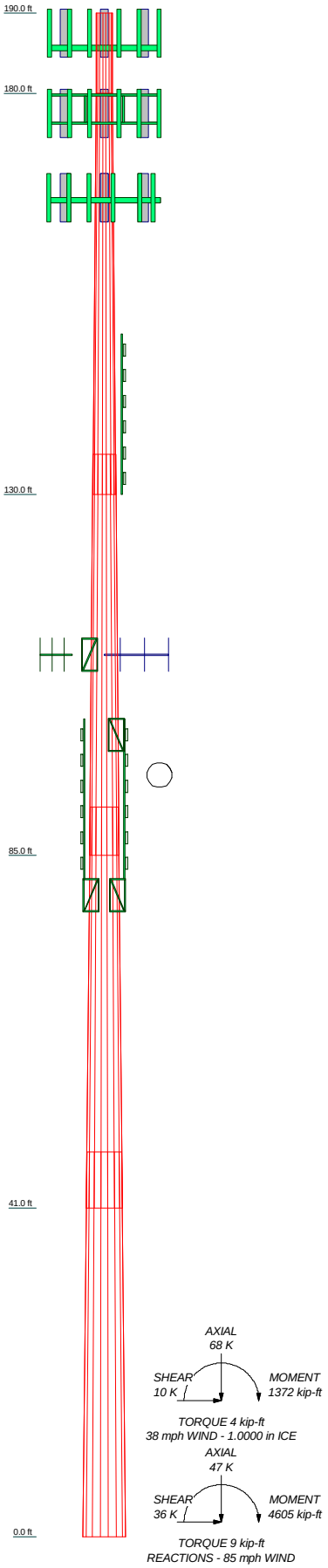
This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading information) modeled. If there are substantial modifications to be made or the assumptions made in this analysis are not accurate, FDH Velocitel should be notified immediately to perform a revised analysis.

## LIMITATIONS

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of this report. All opinions and conclusions are subject to revision based upon receipt of new or additional/updated information. All services are provided exercising a level of care and diligence equivalent to the standard and care of our profession. No other warranty or guarantee, expressed or implied, is offered. Our services are confidential in nature and we will not release this report to any other party without the client's consent. The use of this engineering work is limited to the express purpose for which it was commissioned and it may not be reused, copied, or distributed for any other purpose without the written consent of FDH Velocitel.

# APPENDIX

| Section | Length (ft) | Number of Sides | Thickness (in) | Socket Length (ft) | Top Dia (in) | Bot Dia (in) | Grade | Weight (K) |
|---|---|---|---|---|---|---|---|---|
| 1 | 10.00 | 18 | 0.2813 | | 24.0000 | 24.0000 | | 0.7 |
| 2 | 50.00 | 18 | 0.2500 | 5.00 | 24.0000 | 34.6875 | | 3.9 |
| 3 | 50.00 | 18 | 0.3125 | 6.00 | 33.1187 | 44.6875 | A572-65 | 6.5 |
| 4 | 50.00 | 18 | 0.3750 | 7.00 | 42.6743 | 54.5000 | | 9.8 |
| 5 | 48.00 | 18 | 0.4375 | | 52.0944 | 64.5000 | | 13.1 |
| | | | | | | | | 34.0 |




## DESIGNED APPURTENANCE LOADING

| TYPE | ELEVATION | TYPE | ELEVATION |
|---|---|---|---|
| 13' Low Profile Platform | 186 | KRY 112 489/2 | 178 |
| Pipe Mount | 186 | KRY 112 489/2 | 178 |
| Pipe Mount | 186 | 782 11056 | 178 |
| Pipe Mount | 186 | 782 11056 | 178 |
| (2) 7770.00 w/Mount Pipe | 186 | 782 11056 | 178 |
| (2) 7770.00 w/Mount Pipe | 186 | BXA-70063-6CF-EDIN-x w/Mount Pipe | 167 |
| (2) 7770.00 w/Mount Pipe | 186 | BXA-70063-6CF-EDIN-x w/Mount Pipe | 167 |
| AM-X-WM-17-65-00T w/ Mount Pipe | 186 | BXA-70063-6CF-EDIN-x w/Mount Pipe | 167 |
| AM-X-WM-17-65-00T w/ Mount Pipe | 186 | (2) LPA-80080/8CF w/Mount Pipe | 167 |
| AM-X-WM-17-65-00T w/ Mount Pipe | 186 | (2) LPA-80080/8CF w/Mount Pipe | 167 |
| (2) TMA-LGP21401 | 186 | (2) LPA-80080/8CF w/Mount Pipe | 167 |
| (2) TMA-LGP21401 | 186 | BXA-171085-12BF w/Mount Pipe | 167 |
| (2) TMA-LGP21401 | 186 | BXA-171085-12BF w/Mount Pipe | 167 |
| (2) RRUS-11 | 186 | BXA-171085-12BF w/Mount Pipe | 167 |
| (2) RRUS-11 | 186 | (2) RFS 9R6004/2C-3L | 167 |
| (2) RRUS-11 | 186 | (2) RFS 9R6004/2C-3L | 167 |
| (2) LGP21903 Diplexer | 186 | (2) RFS 9R6004/2C-3L | 167 |
| (2) LGP21903 Diplexer | 186 | 13' Low Profile Platform | 167 |
| (2) LGP21903 Diplexer | 186 | DB212-1 | 120 |
| (2) CG-1900W800-FULL-DIN TMA | 186 | DB212-1 | 120 |
| (2) CG-1900W800-FULL-DIN TMA | 186 | Pipe Mount | 110 |
| (2) CG-1900W800-FULL-DIN TMA | 186 | Pipe Mount | 110 |
| DC2-48-60-18-8F Surge Arrestor | 186 | Y1505 | 110 |
| 13' Platform w/ Handrail | 178 | Y1505 | 110 |
| (2) RR90-17-02DP | 178 | Side Mount Standoff | 100 |
| (2) RR90-17-02DP | 178 | Side Mount Standoff | 100 |
| (2) RR90-17-02DP | 178 | ANT450D6-9 | 86 |
| LNX-6515DS-VTM | 178 | ANT450D6-9 | 86 |
| LNX-6515DS-VTM | 178 | Side Mount Standoff | 80 |
| LNX-6515DS-VTM | 178 | Side Mount Standoff | 80 |
| KRY 112 489/2 | 178 | | |

## MATERIAL STRENGTH

| GRADE | Fy | Fu | GRADE | Fy | Fu |
|---|---|---|---|---|---|
| A572-65 | 65 ksi | 80 ksi | | | |

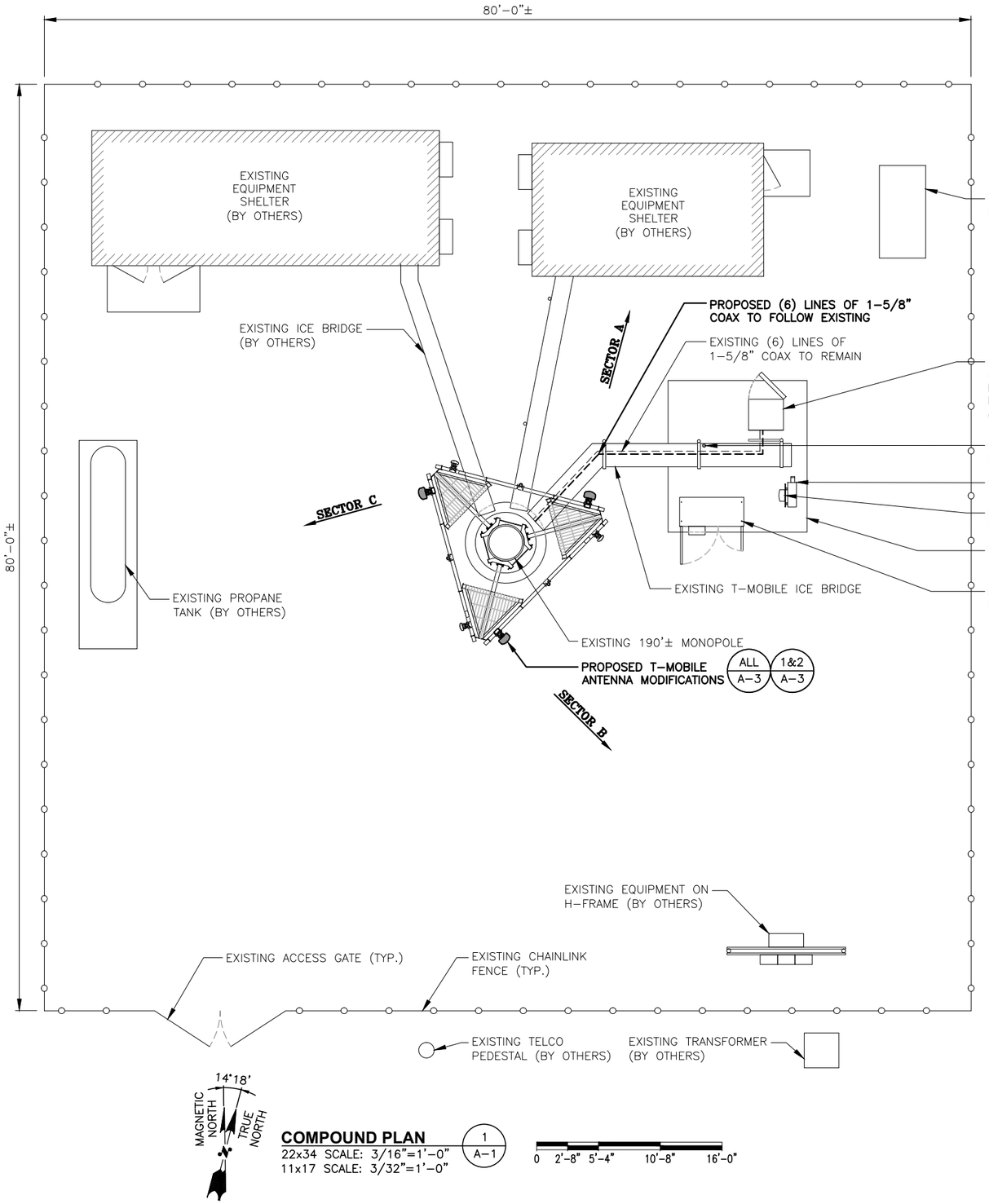
## TOWER DESIGN NOTES

1. Tower is located in Windham County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 89.1%


*Velocitel, Inc., d.b.a. FDH Velocitel*
6521 Meridien Drive, Suite 107
Raleigh, North Carolina 27616
Phone: 9197551012
FAX: 9197551031


Tower Analysis

| | |
|---|---|
| Job: | ***Woodstock 4-CT, CT08748-A-02*** |
| Project: | ***15BFGC1400 (R2)*** |
| Client: SBA Network Services, Inc | Drawn by: CLee / App'd: |
| Code: TIA/EIA-222-F | Date: 05/06/15 / Scale: NTS |
| Path: | Dwg No. E-1 |



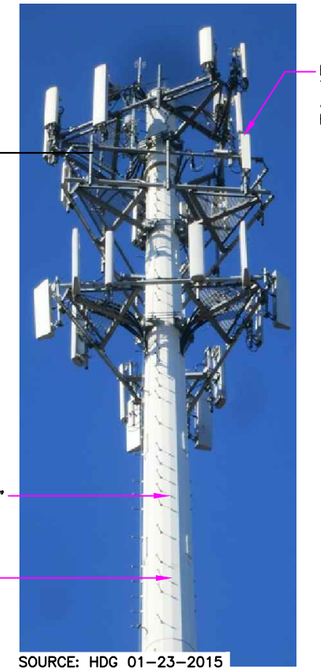

**COMPOUND PLAN** (1 / A-1)
22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"

STRUCTURAL NOTES:
1. ADDITIONAL TOWER MAPPING AND STRUCTURAL ANALYSIS ARE REQUIRED PRIOR TO CONSTRUCTION. DRAWINGS ARE SUBJECT TO CHANGE PENDING OUTCOME OF STRUCTURAL ANALYSIS.
2. MOUNT ALL ANTENNAS, COAX, ETC. IN ACCORDANCE WITH STRUCTURAL ANALYSIS.

SPECIAL CONSTRUCTION NOTE:
THE T-MOBILE TOWER TOP WORK IS CONTINGENT UPON COMPLETION OF ALL REQUIRED TOWER STRUCTURAL MODIFICATIONS, ENGINEERING CONSTRUCTION CONTROL INSPECTIONS, FINAL ENGINEERING AFFIDAVIT, AND ACCEPTANCE/APPROVAL BY SBA COMMUNICATIONS CORP.

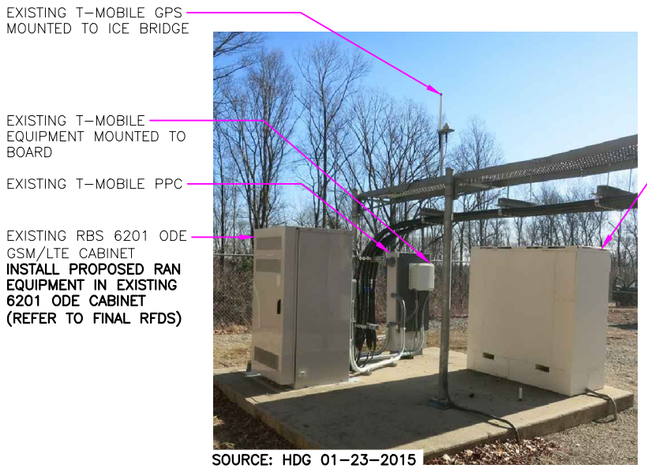
ANTENNA MOUNT STRUCTURAL ASSESSMENT REQUIREMENT:
ENGINEER OF RECORD HAS MADE A VISUAL ASSESSMENT ONLY AND DETERMINED THAT THE EXISTING ANTENNA MOUNT IS ADEQUATE TO ACCOMMODATE ADDITIONAL EQUIPMENT LOADS. STRUCTURAL DESIGNS AND DETAILS AS SHOWN HEREIN FOR STRUCTURAL MODIFICATIONS OF THE EXISTING ANTENNA MOUNT ARE PRELIMINARY ONLY AND FINAL CONSTRUCTION DETAILS ARE SUBJECT TO CHANGE PENDING THE COMPLETION OF AN ANTENNA MOUNT STRUCTURAL ASSESSMENT.

2 / A-2 — 1&2 / A-3 — T-MOBILE PLATFORM ELEV. = 177.0'± A.G.L



SOURCE: HDG 01-23-2015

**PARTIAL ELEVATION PHOTO DETAIL** (2 / A-1)
SCALE: N.T.S



SOURCE: HDG 01-23-2015

**EQUIPMENT PHOTO DETAIL** (3 / A-1)
SCALE: N.T.S


**T-MOBILE NORTHEAST LLC**
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 648-1116

SBA
SBA COMMUNICATIONS CORP.
33 BOSTON POST ROAD WEST, SUITE 320 TEL: (508) 251-0720
MARLBOROUGH, MA 01752 FAX: (508) 251-1755

Hudson Design Group LLC
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090 TEL: (978) 557-5553
N. ANDOVER, MA 01845 FAX: (978) 336-5586


STATE OF CONNECTICUT — DANIEL P. HAMM — No. 24178 — LICENSED PROFESSIONAL ENGINEER

Daniel P. Hamm

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| CHECKED BY: | KB |
| APPROVED BY: | DPH |

SUBMITTALS

| REV. | DATE | DESCRIPTION | BY |
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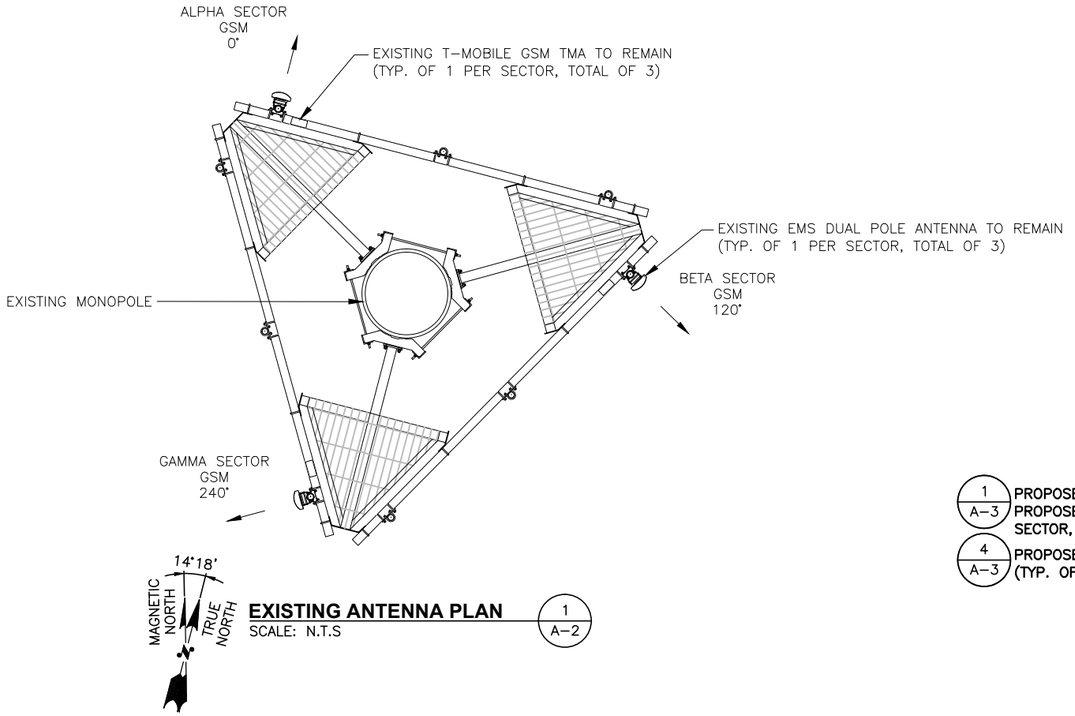
| 0 | 02/27/15 | ISSUED FOR CONSTRUCTION | KMS |

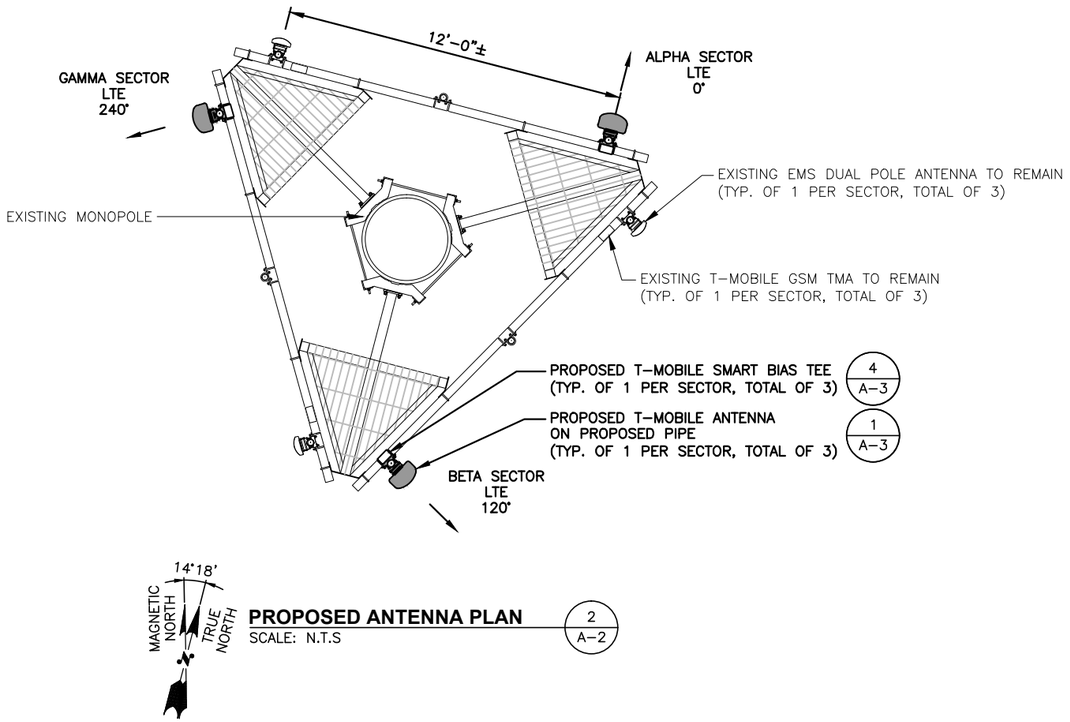
SITE NUMBER:
CTNL181A
SITE NAME:
NL181/MCF WOODSTOCK
SITE ADDRESS:
215 COATNEY HILL ROAD
WOODSTOCK, CT 06281
WINDHAM COUNTY

SHEET TITLE
COMPOUND PLAN & ELEVATION

SHEET NUMBER
A-1




**EXISTING ANTENNA PLAN** (1 / A–2)
SCALE: N.T.S




**PROPOSED ANTENNA PLAN** (2 / A–2)
SCALE: N.T.S

**STRUCTURAL NOTES:**
1. ADDITIONAL TOWER MAPPING AND STRUCTURAL ANALYSIS ARE REQUIRED PRIOR TO CONSTRUCTION. DRAWINGS ARE SUBJECT TO CHANGE PENDING OUTCOME OF STRUCTURAL ANALYSIS.
2. MOUNT ALL ANTENNAS, COAX, ETC. IN ACCORDANCE WITH STRUCTURAL ANALYSIS.

**ANTENNA MOUNT STRUCTURAL ASSESSMENT REQUIREMENT:**
ENGINEER OF RECORD HAS MADE A VISUAL ASSESSMENT ONLY AND DETERMINED THAT THE EXISTING ANTENNA MOUNT IS ADEQUATE TO ACCOMMODATE ADDITIONAL EQUIPMENT LOADS. STRUCTURAL DESIGNS AND DETAILS AS SHOWN HEREIN FOR STRUCTURAL MODIFICATIONS OF THE EXISTING ANTENNA MOUNT ARE PRELIMINARY ONLY AND FINAL CONSTRUCTION DETAILS ARE SUBJECT TO CHANGE PENDING THE COMPLETION OF AN ANTENNA MOUNT STRUCTURAL ASSESSMENT.

**SPECIAL CONSTRUCTION NOTE:**
THE T–MOBILE TOWER TOP WORK IS CONTINGENT UPON COMPLETION OF ALL REQUIRED TOWER STRUCTURAL MODIFICATIONS, ENGINEERING CONSTRUCTION CONTROL INSPECTIONS, FINAL ENGINEERING AFFIDAVIT, AND ACCEPTANCE/APPROVAL BY SBA COMMUNICATIONS CORP.

**SPECIAL WORK NOTE:**
VERTICALLY CENTER ON EXISTING MOUNTING RAIL, THE PIPE MAST AND ANTENNA

1 / A–3 PROPOSED T–MOBILE ANTENNA ON PROPOSED PIPE (TYP. OF 1 PER SECTOR, TOTAL OF 3)
4 / A–3 PROPOSED T–MOBILE SMART BIAS TEE (TYP. OF 1 PER SECTOR, TOTAL OF 3)

EXISTING EMS DUAL POLE ANTENNA TO REMAIN (TYP. OF 1 PER SECTOR, TOTAL OF 3)

SOURCE: HDG 01–23–2015

**PROPOSED ANTENNA PHOTO DETAIL** (3 / A–2)
SCALE: N.T.S


**T-MOBILE NORTHEAST LLC**
35 GRIFFIN ROAD SOUTH
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STATE OF CONNECTICUT — DANIEL P. HAMM — No. 24178 — LICENSED PROFESSIONAL ENGINEER

Daniel P. Hamm

CHECKED BY: KB

APPROVED BY: DPH

SUBMITTALS

| REV. | DATE | DESCRIPTION | BY |
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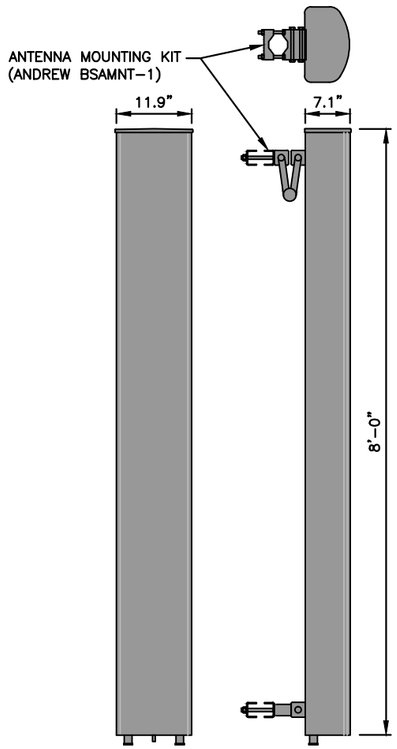
SITE NUMBER:
CTNL181A
SITE NAME:
NL181/MCF WOODSTOCK
SITE ADDRESS:
215 COATNEY HILL ROAD
WOODSTOCK, CT 06281
WINDHAM COUNTY

SHEET TITLE
EXISTING & PROPOSED ANTENNA PLANS

SHEET NUMBER
A-2




**LNX ANTENNA DETAIL** (1 / A-3)
SCALE: N.T.S

**SPECIAL CONSTRUCTION NOTE:**
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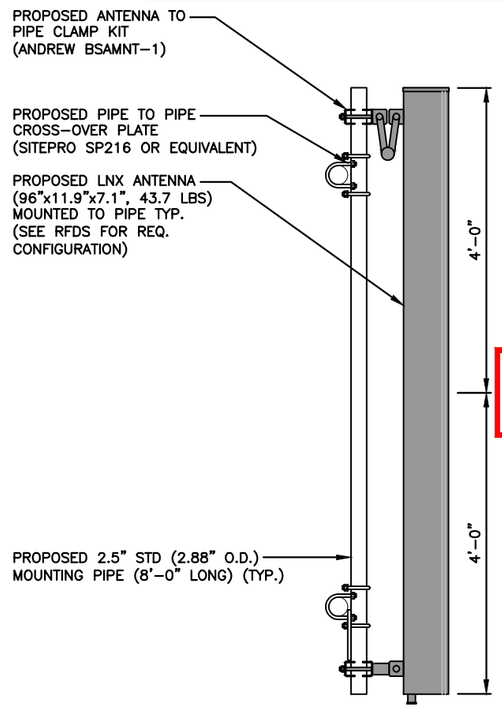


**PROPOSED ANTENNA MOUNTING DETAIL** (2 / A-3)
SCALE: N.T.S

**ANTENNA MOUNT STRUCTURAL ASSESSMENT REQUIREMENT:**
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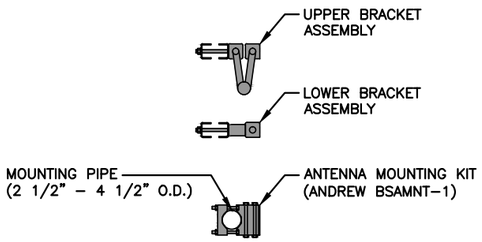
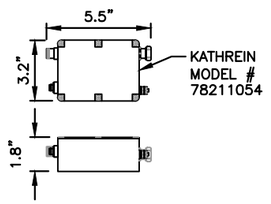
**SPECIAL WORK NOTE:**
VERTICALLY CENTER ON EXISTING MOUNTING RAIL, THE PIPE MAST AND ANTENNA




**ANTENNA MOUNTING BRACKET** (3 / A-3)
SCALE: N.T.S




**SMART BIAS TEE (SBT)** (4 / A-3)
SCALE: N.T.S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DANIEL P. HAMM
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LICENSED PROFESSIONAL ENGINEER

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