

May 27, 2014

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

RE: Notice of Exempt Modification  
86 Voluntown Road  
Stonington, CT 06379  
Sprint Site #: NV2.5\_CT03XC108  
N 41° 24' 19.94"  
W -71° 50' 42.89"

Dear Mr. Martin and Members of the Siting Council:

On behalf of Sprint Spectrum, SBA Communications is submitting an exempt modification application to the Connecticut Siting Council for modification of existing equipment at a tower facility located at 86 Voluntown Road, Stonington, CT.

The 86 Voluntown Road facility consists of a 196' MONOPOLE Tower owned and operated by SBA Towers, LLC. In order to accommodate technological changes and enhance system performance in the State of Connecticut, Sprint Spectrum 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 Sprint's Network Vision modification project, Sprint 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 Sprint'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 Sprint Spectrum, respectfully submits that the 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@sbsite.com](mailto:kpelletier@sbsite.com)



## Sprint Spectrum Equipment Modification

86 Voluntown Road, Stonington, CT  
Site number CT03XC108

**Tower Owner:** SBA Towers, LLC

**Equipment Configuration:** MONOPOLE Tower

### Current and/or approved:

- (3) RFS APXVSP18-C-A20
- (3) ALU 1900MHZ RRHs
- (3) ALU 800MHZ RRHs
- (3) ALU 800MHZ RRH Filters
- (4) RFS ACU-A20-N RETs
- (3) 1-1/4" Feed lines

### Planned Modifications:

- (3) RFS APXVSP18-C-A20 w/ Mount Pipe
- (3) RFS APXVTM14-C-I20 w/ Mount Pipe
- (3) ALU 1900MHZ RRHs
- (3) Alcatel Lucent TD-RRH8x20-25 RRHs
- (3) ALU 800MHZ RRHs
- (3) ALU 800MHZ RRH Filters
- (4) RFS ACU-A20-N RETs
- (4) 1-1/4" 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 Sprint facility are 7.890% of the allowable FCC established general public limit. The anticipated composite MPE value for this site assuming all carriers present is 36.070% of the allowable FCC established general public limit sampled at the ground level.

Site Composite MPE %	
Carrier	MPE %
Sprint	7.890%
Nextel	1.760%
T-Mobile	0.130%
AT&T	15.230%
Verizon Wireless	11.060%
<b>Total Site MPE %</b>	<b>36.070%</b>



May 27, 2014

Mr. Edward Haberek, Jr.  
First Selectman  
Town of Stonington  
152 Elm Street  
Stonington, CT 06378

RE: Telecommunications Facility @ 86 Voluntown Rd, Stonington, CT 06379

Dear Mr. Haberek,

In order to accommodate technological changes and enhance system performance in the State of Connecticut, Sprint Spectrum 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 Sprint'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 Sprint's proposal for the 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  
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RADIO FREQUENCY FCC REGULATORY COMPLIANCE  
MAXIMUM PERMISSIBLE EXPOSURE (MPE) ASSESSMENT

Sprint Existing Facility

Site ID: CT03XC108

Stonington East

86 Voluntown Road  
Stonington, CT 06379

**May 22, 2014**

**EBI Project Number: 62143089**

May 22, 2014

Sprint  
Attn: RF Engineering Manager  
1 International Boulevard, Suite 800  
Mahwah, NJ 07495

Re: Radio Frequency Maximum Permissible Exposure (MPE) Assessment for Site:  
**CT03XC108 - Stonington East**

**Site Total: 36.070% - MPE % in full compliance**

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at 86 Voluntown Road, Stonington, CT, for the purpose of determining whether the radio frequency (RF) exposure levels from the proposed Sprint equipment upgrades on this property are within specified federal limits.

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

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

General population/uncontrolled exposure limits apply to situations in which the general 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 ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limit for the cellular band (850 MHz Band) is approximately  $567 \mu\text{W}/\text{cm}^2$ , and the general population exposure limit for the 1900 MHz and 2500 MHz bands is  $1000 \mu\text{W}/\text{cm}^2$ . Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

## **CALCULATIONS**

Calculations were done for the proposed upgrades to the existing Sprint Wireless antenna facility located at 86 Voluntown Road, Stonington, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario. Actual values seen from this site will be dramatically less than those shown in this report. 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 emissions were calculated using the following assumptions:

- 1) 3 channels in the 1900 MHz Band were considered for each sector of the proposed installation.
- 2) 1 channel in the 800 MHz Band was considered for each sector of the proposed installation
- 3) 2 channels in the 2500 MHz Band were considered for each sector of the proposed installation.
- 4) 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.
- 5) 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 was used in this direction.

- 6) The antennas used in this modeling are the RFS APXVSPP18-C-A20 and the RFS APXVTMM-C-120. This is based on feedback from the carrier with regards to anticipated antenna selection. The RFS APXVSPP18-C-A20 has a 15.9 dBd gain value at its main lobe at 1900 MHz and 13.4 dBd at its main lobe for 850 MHz. The RFS APXVTMM-C-120 has a 15.9 dBd gain value at its main lobe at 2500 MHz. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario.
- 7) The antenna mounting height centerline for the proposed antennas is **195 feet** above ground level (AGL).
- 8) 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 calculation were done with respect to uncontrolled / general public threshold limits



Site ID	CT03XC108 - Stonington East
Site Address	86 Voluntown Road, Stonington, CT 06379
Site Type	Monopole

**Sector 1**

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss (dB)	ERP	Power Density Percentage
1a	RFS	APXVSP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	3	60	15.9	195	189	1/2 "	0.5	3	1042.6805	1.04938%
1a	RFS	APXVSP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	195	189	1/2 "	0.5	3	195.44744	0.34692%
1B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	15.9	195	189	1/2 "	0.5	3	695.12033	1.23384%
Sector total Power Density Value:																2.630%

**Sector 2**

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss (dB)	ERP	Power Density Percentage
2a	RFS	APXVSP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	3	60	15.9	195	189	1/2 "	0.5	3	1042.6805	1.04938%
2a	RFS	APXVSP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	195	189	1/2 "	0.5	3	195.44744	0.34692%
2B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	15.9	195	189	1/2 "	0.5	3	695.12033	1.23384%
Sector total Power Density Value:																2.630%

**Sector 3**

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss (dB)	ERP	Power Density Percentage
3a	RFS	APXVSP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	3	60	15.9	195	189	1/2 "	0.5	3	1042.6805	1.04938%
3a	RFS	APXVSP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	195	189	1/2 "	0.5	3	195.44744	0.34692%
3B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	15.9	195	189	1/2 "	0.5	3	695.12033	1.23384%
Sector total Power Density Value:																2.630%

Site Composite MPE %	
Carrier	MPE %
Sprint	7.890%
Nextel	1.760%
T-Mobile	0.130%
AT&T	15.230%
Verizon Wireless	11.060%
<b>Total Site MPE %</b>	<b>36.070%</b>

## Summary

All calculations performed for this analysis yielded results that were well within the allowable limits for general public Maximum Permissible Exposure (MPE) to radio frequency energy.

The anticipated Maximum Composite contributions from the Sprint facility are **7.890% (2.630% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **36.070%** of the allowable FCC established general public limit sampled at 6 feet above ground level. This total composite site value is based upon MPE 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



FDH Engineering, Inc., 6521 Meridien Drive Raleigh, NC 27616, Ph. 919.755.1012

**Structural Analysis for  
SBA Network Services, Inc.**

**196' Monopole Tower**

**SBA Site Name: Stonington East  
SBA Site ID: CT00595-S-02  
Sprint Site ID: CT03XC108**

FDH Project Number 1462FH1400

**Analysis Results**

Tower Components	92.6%	Sufficient
Foundation	92.0%	Sufficient

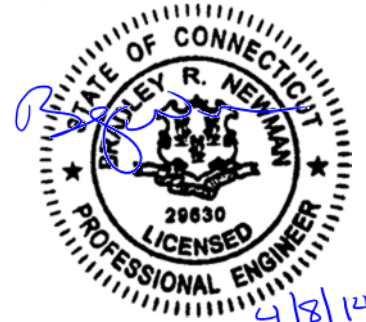
Prepared By:

Dino L. Chirco, EI  
Project Engineer

Reviewed By:

Bradley R. Newman, PE  
Senior Project Engineer  
CT PE License No. 29630

**FDH Engineering, Inc.**  
6521 Meridien Drive  
Raleigh, NC 27616  
(919) 755-1012  
info@fdh-inc.com



April 8, 2014

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

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## EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Engineering, Inc. performed a structural analysis of the monopole located in Stonington, 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 2005 Connecticut Building Code (2005 CT Building Code)*. Information pertaining to the existing/proposed antenna loading, current tower geometry, foundation dimensions, geotechnical data, and member sizes was obtained from:

- Valmont Industries, Inc. (Order No. 17507-98) Communication Pole Record Drawings dated June 23, 1998
- SAGE Environmental, Inc. (Project No. G004) geotechnical report dated June 10, 1998
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and *2005 CT Building Code* is 85 mph without ice and 38 mph with 3/4" radial ice. Ice is considered to increase in thickness with height.

## Conclusions

With the existing and proposed antennas from Sprint in place at 195 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and *2005 CT Building Code* provided the **Recommendations** listed below are satisfied. Furthermore, given the existing foundation dimensions (see Valmont Order No. 17507-98), and utilizing the existing soil parameters (see SAGE Project No. G004) the foundation should have the necessary capacity to support both the proposed and existing 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 Engineering, Inc. 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 *2005 CT Building Code* are met with the existing and proposed loading in place, we have the following recommendations:

1. The proposed feedlines must be installed inside the pole's shaft.
2. RRU/RRH Stipulation: The equipment may be installed in any arrangement as determined by the client.



## 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 Engineering, Inc. should be contacted to perform a revised analysis.*

**Table 1 - Appurtenance Loading**

### Existing Loading:

Antenna Elevation (ft)	Description	Feedlines <sup>1</sup>	Carrier	Mount Elevation (ft)	Mount Type
195	(3) RFS APXVSP18-C-A20 (3) ALU 1900MHZ RRHs (3) ALU 800MHZ RRHs (3) ALU 800MHZ RRH Filters (4) RFS ACU-A20-N RETs	(3) 1-1/4"	Sprint	193	(1) Low Profile Platform
180	(9) Swedcom ALP 9212-N	(9) 1-5/8"	Nextel <sup>4</sup>	180	(1) T-Arms w/Working Platform
167	(3) Ericsson AIR B2A B4P (3) Ericsson AIR B4A B2P (3) Ericsson KRY 112 144 TMAs	(12) 1-5/8" (1) 1-5/8" Fiber	T-Mobile	165	(1) Low Profile Platform
150	(6) Powerwave 7700.00 (2) Powerwave P65-17-XLH-RR (1) KMW AM-X-CD-14-65-00T (6) Powerwave LGP21401 TMAs (6) Powerwave LGP13519 TMA Diplexers (6) Ericsson RRUS-11 RRUs (1) Raycap DC6-48-60-18-8F Surge Arrestor	(12) 1-5/8" (2) DC (1) Fiber	New Cingular	150	(1) Low Profile Platform
140	(6) Antel RWA-80014 (3) Antel BXA-70063/6CF (3) Ryma MGD5-800T2 (6) RFS FD9R6004/2C-3L Diplexers	(12) 1-5/8"	Verizon <sup>2</sup>	140	(1) Low Profile Platform
130	(6) Kathrein 742 351	(12) 1-5/8"	Metro PCS <sup>3</sup>	130	(1) Low Profile Platform
30	(1) GPS	---	Sprint	30	(1) Standoff

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

2. Verizon's feedlines are installed outside the pole's shaft in a single row.

3. Metro PCS's feedlines are installed outside the pole's shaft in a single row.

4. Nextel equipment must be removed prior to the installation of the proposed loading for this analysis to be considered valid; this equipment was not considered in this analysis.

### Proposed Loading:

Antenna Elevation (ft)	Description	Feedlines	Carrier	Mount Elevation (ft)	Mount Type
195	(3) RFS APXVSP18-C-A20 w/ Mount Pipe (3) RFS APXVTM14-C-I20 w/ Mount Pipe (3) ALU 1900MHZ RRHs (3) Alcatel Lucent TD-RRH8x20-25 RRHs (3) ALU 800MHZ RRHs (3) ALU 800MHZ RRH Filters (4) RFS ACU-A20-N RETs	(4) 1-1/4"	Sprint	193	(1) Low Profile Platform

## 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	65 ksi
Base Plate	60 ksi
Anchor Bolts	75 ksi (assumed)

**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 Engineering, Inc. 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	196 - 154.75	Pole	TP27.76x17.39x0.1875	65.3	Pass
L2	154.75 - 118.75	Pole	TP36.42x26.3166x0.3125	74.1	Pass
L3	118.75 - 74.5	Pole	TP46.91x34.4772x0.375	88.3	Pass
L4	74.5 - 35.5	Pole	TP55.97x44.5274x0.4375	87.1	Pass
L5	35.5 - 0	Pole	TP64x53.2089x0.4688	92.6	Pass
	0	Anchor Bolts	(24) 2.25"Ø on a 72.76" BC	76.9	Pass
	0	Base Plate	PL 2.5" x 78.77"Ø	79.0	Pass

\*Capacities utilize 1/3 allowable stress increase for wind per TIA/EIA-222-F.

**Table 4 - Maximum Base Reactions**

Base Reactions	Current Analysis* (TIA/EIA-222-F)	Original Design (TIA/EIA-222-F)
Axial	55 k	60 k
Shear	47 k	45 k
Moment	5,540 k-ft	5,768 k-ft

\* Foundation determined to be adequate per independent analysis.

## **GENERAL COMMENTS**

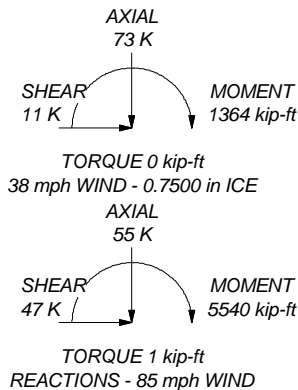
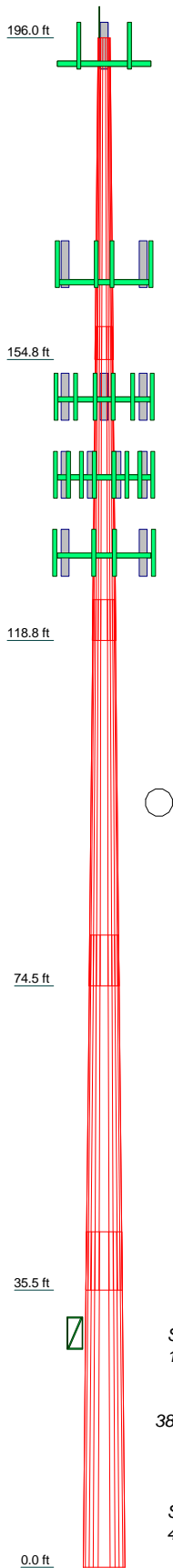
This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading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

## APPENDIX

Section	1	2	3	4	5
Length (ft)	41.25	40.25	49.50	45.50	43.00
Number of Sides	12	12	12	12	12
Thickness (in)	0.1875	0.3125	0.3750	0.4375	0.4688
Socket Length (ft)	4.25	5.25	6.50	7.50	53.2089
Top Dia (in)	17.3900	26.3166	34.4772	44.5274	64.0000
Bot Dia (in)	27.7600	36.4200	46.9100	55.9700	
Grade			A572-65		
Weight (K)	1.9	4.3	8.2	10.9	12.8



### DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	196	P65-17-XLH-RR w/Mount Pipe	150
APXVSP18-C-A20 w/Mount Pipe	193	P65-17-XLH-RR w/Mount Pipe	150
APXVSP18-C-A20 w/Mount Pipe	193	AM-X-CD-14-65-00T w/ Mount Pipe	150
APXVSP18-C-A20 w/Mount Pipe	193	(2) Powerwave LGP21401 TMAs	150
1900 MHz RRH	193	(2) Powerwave LGP21401 TMAs	150
1900 MHz RRH	193	(2) Powerwave LGP21401 TMAs	150
1900 MHz RRH	193	(2) Powerwave LGP13519 TMA Diplexers	150
800 MHz RRH	193	(2) Powerwave LGP13519 TMA Diplexers	150
800 MHz RRH	193	(2) Powerwave LGP13519 TMA Diplexers	150
800 MHz RRH	193	(2) Powerwave LGP13519 TMA Diplexers	150
800 MHz Filter	193	(2) Powerwave LGP13519 TMA Diplexers	150
800 MHz Filter	193	(2) RRU5-11	150
800 MHz Filter	193	(2) RRU5-11	150
ACU-A20-N RET	193	(2) RRU5-11	150
ACU-A20-N RET	193	DC6-48-60-18-8F Surge Arrestor	150
(2) ACU-A20-N RET	193	(1) Low Profile Platform MNT	150
(1) Low Profile Platform MNT	193	(2) RWA-80014 w/Mount Pipe	140
APXVTM14-C-I20 w/ Mount Pipe	193	(2) RWA-80014 w/Mount Pipe	140
APXVTM14-C-I20 w/ Mount Pipe	193	(2) RWA-80014 w/Mount Pipe	140
APXVTM14-C-I20 w/ Mount Pipe	193	BXA-70063/6CF w/ Mount Pipe	140
TD-RRH8x20-25	193	BXA-70063/6CF w/ Mount Pipe	140
TD-RRH8x20-25	193	BXA-70063/6CF w/ Mount Pipe	140
TD-RRH8x20-25	193	MGD5-800TX w/Mount Pipe	140
AIR 21 B2A/B4P w/Mount Pipe	165	MGD5-800TX w/Mount Pipe	140
AIR 21 B2A/B4P w/Mount Pipe	165	MGD5-800TX w/Mount Pipe	140
AIR 21 B2A/B4P w/Mount Pipe	165	(2) RFS FD9R6004/2C-3L Diplexers	140
AIR 21 B4A/B2P w/Mount Pipe	165	(2) RFS FD9R6004/2C-3L Diplexers	140
AIR 21 B4A/B2P w/Mount Pipe	165	(2) RFS FD9R6004/2C-3L Diplexers	140
AIR 21 B4A/B2P w/Mount Pipe	165	(1) Low Profile Platform MNT	140
KRY 112 144/1	165	(2) 742 351 w/Mount Pipe	130
KRY 112 144/1	165	(2) 742 351 w/Mount Pipe	130
KRY 112 144/1	165	(2) 742 351 w/Mount Pipe	130
(1) Low Profile Platform MNT	165	(1) Low Profile Platform MNT	130
(2) 7700.00 w/Mount Pipe	150	GPS	30
(2) 7700.00 w/Mount Pipe	150	(1) Standoff MNT	30
(2) 7700.00 w/Mount Pipe	150		

### MATERIAL STRENGTH

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

### TOWER DESIGN NOTES

1. Tower is located in New London 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 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 92.6%

**FDH Engineering, Inc.**  
 6521 Meridien Drive  
 Raleigh, NC 27616  
 Phone: (919) 755-1012  
 FAX: (919) 755-1031

Job: **Stonington East, CT00595-S-02**  
 Project: **1462FH1400**  
 Client: SBA Network Services, Inc. Drawn by: Dino L. Chirco App'd:  
 Code: TIA/EIA-222-F Date: 04/08/14 Scale: NTS  
 Path: Dwg No. E-1



CHECKED BY: KB

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	05/19/14	ISSUED FOR CONSTRUCTION	SF
0	05/02/14	ISSUED FOR CONSTRUCTION	SF

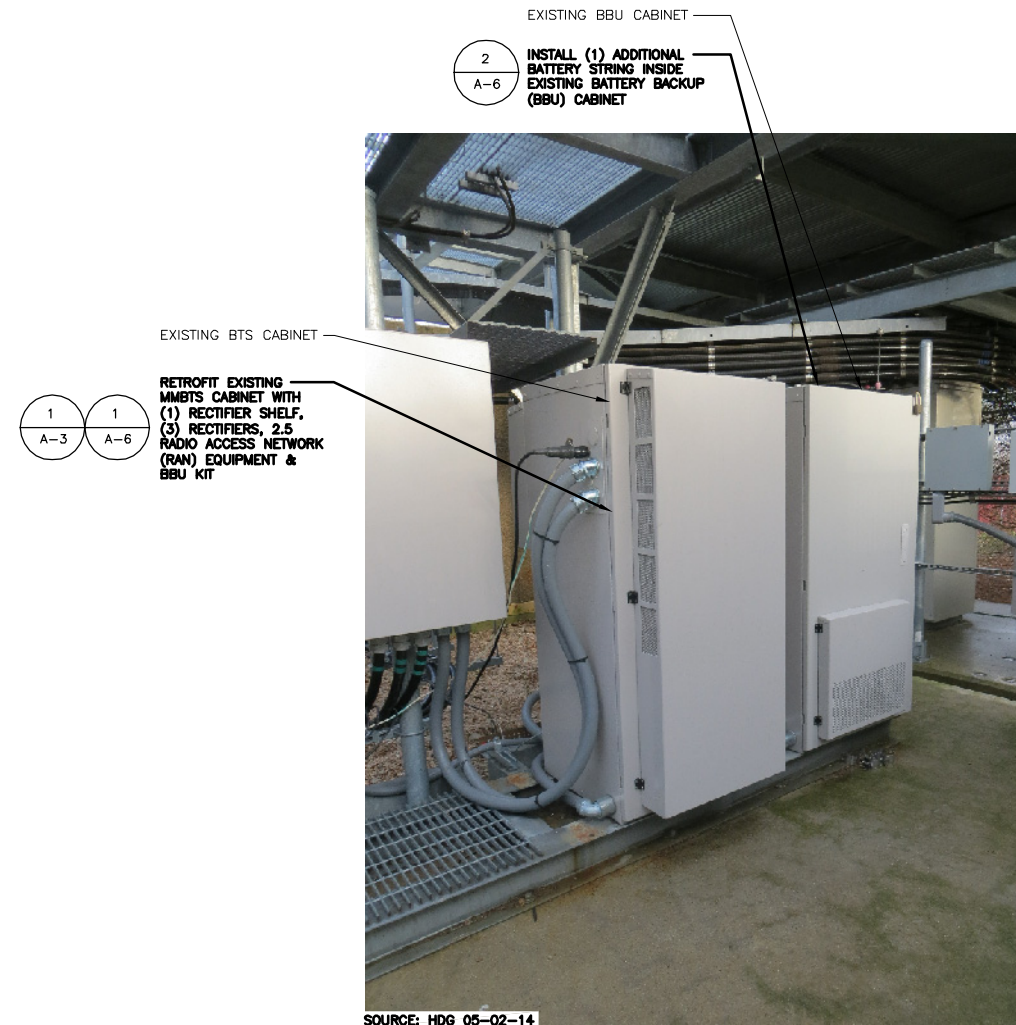
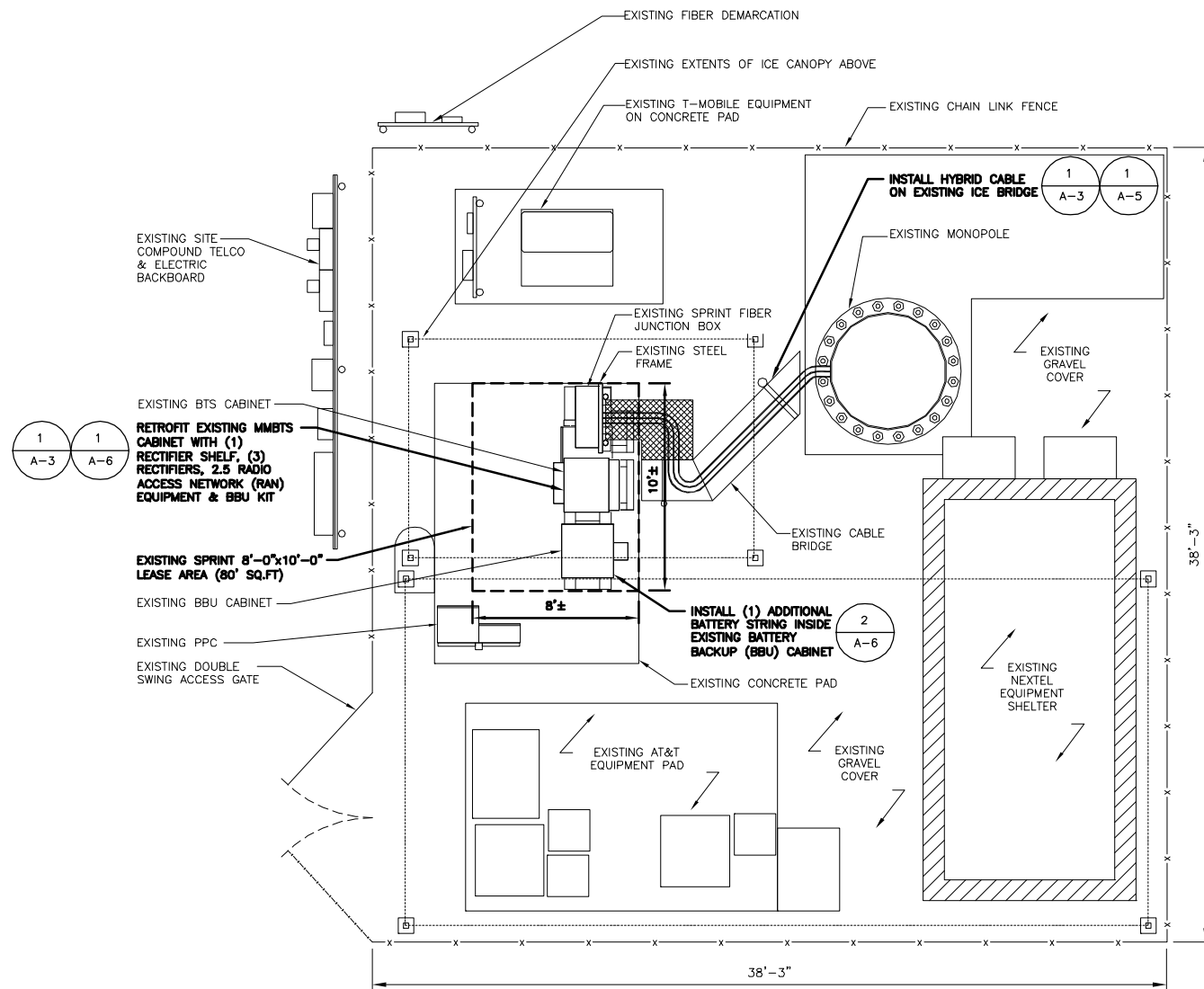
SITE NUMBER:  
CT03XC108-A

SITE NAME:  
STONINGTON EAST

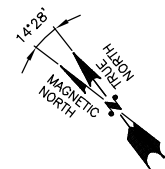
SITE ADDRESS:  
86 VOLUNTOWN ROAD  
STONINGTON, CT 06379

SHEET TITLE  
COMPOUND PLAN

SHEET NUMBER  
A-1

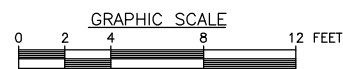


**RAN EQUIPMENT PHOTO DETAIL**  
SCALE: N.T.S.

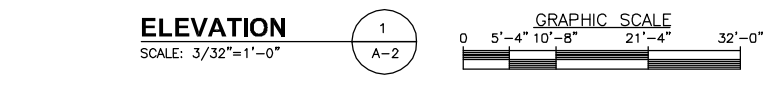
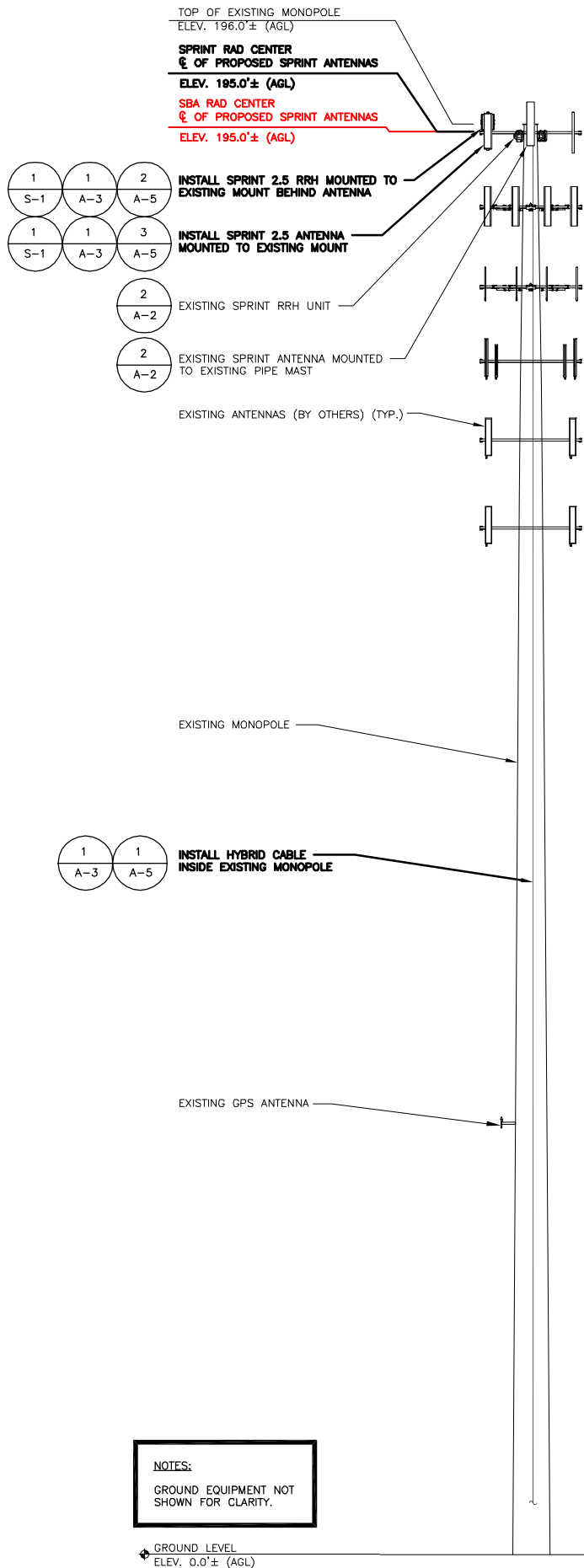


**COMPOUND PLAN**  
SCALE: 1/4"=1'-0"

1  
A-1



2  
A-1



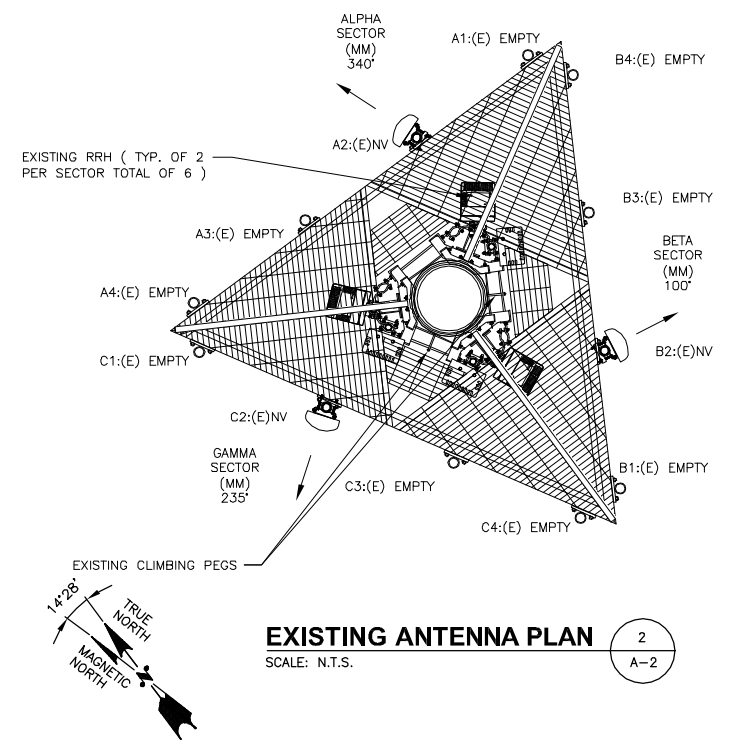
**SPECIAL CONSTRUCTION NOTE:**  
SPRINT TOWER TOP WORK IS CONTINGENT ON THE FOLLOWING:  
 \* COMPLETION OF A GLOBAL STRUCTURAL STABILITY ANALYSIS (PROVIDED BY TOWER OWNER).  
 \* COMPLETION OF AN ANTENNA/RRH MOUNT STRUCTURAL ASSESSMENT (PROVIDED BY A&E VENDOR).  
 \* GC SHALL FURNISH, INSTALL AND COMPLETE ALL REQUIRED STRUCTURAL MODIFICATIONS AS INDICATED IN BEFORE-MENTIONED ANALYSIS AND ASSESSMENT.  
 \* SBA COMMUNICATIONS CORPORATION SHALL PROVIDE WRITTEN ACCEPTANCE/APPROVAL FOR THE COMPLETION OF ALL TOWER/FOUNDATION STRUCTURAL MODIFICATIONS INCLUDING (AS NECESSARY) CONTROLLED CONSTRUCTION INSPECTIONS, SHOP-DRAWING APPROVALS, MATERIALS TEST RESULTS, AND FINAL ENGINEER'S AFFIDAVIT.

**NOTE:**  
EXISTING AZIMUTHS FROM SPRINT  
SITE AUDIT DATED 12/02/13

**NOTE:**  
SPRINT RAD CENTER SHOWN IN RED TEXT BASED ON SBA-PROVIDED COLLOCATION APPLICATION, EQUIPMENT DATABASE, AND STRUCTURAL ANALYSIS. THE SBA-PROVIDED ANTENNA RAD CENTER SHALL SUPERSEDE ANY CONFLICTING INFORMATION DERIVED FROM THE SPRINT NV 2.5 RFDS.



**EXISTING PARTIAL ELEVATION DETAIL**  
SCALE: 1/4"=1'-0"



**SPECIAL WORK NOTE:**  
JUMPERS FROM 2.5 RRH TO 2.5 ANTENNA CAN NOT EXCEED 15'. NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY DISCREPANCY.

**NOTES:**  
1) VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION.

**ANTENNA STATUS LEGEND:**

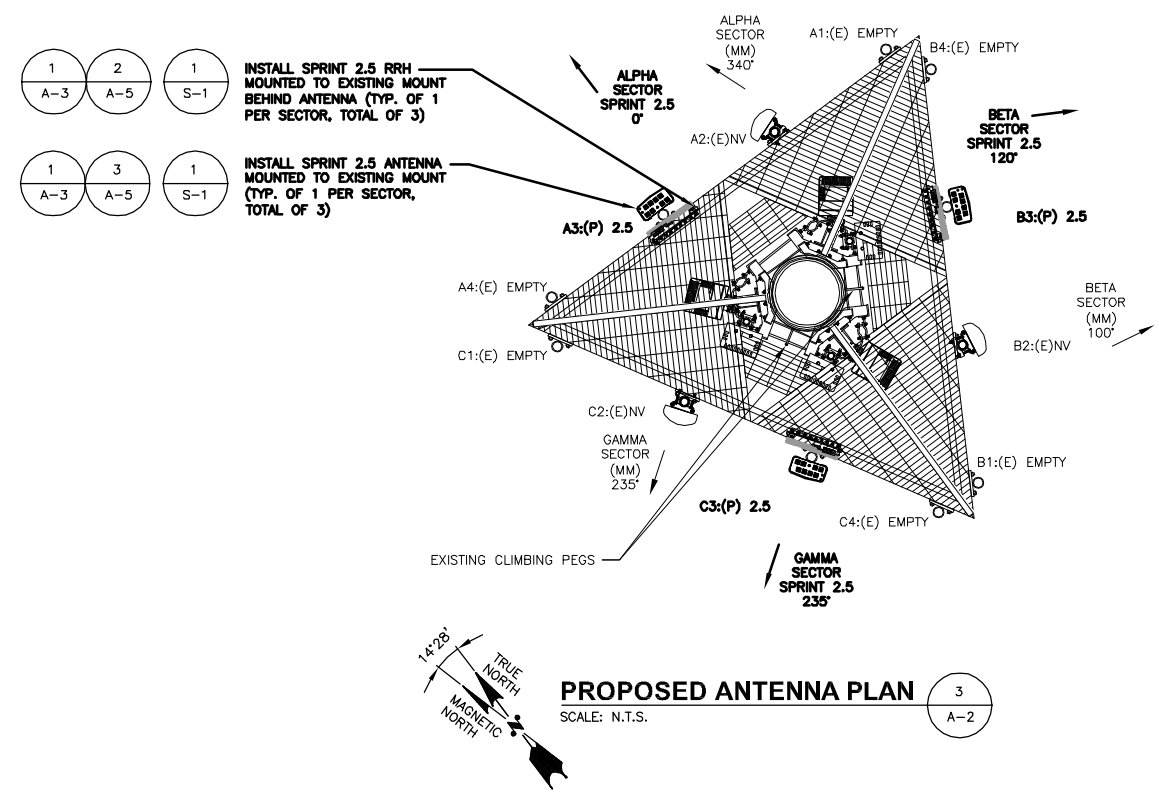
EMPTY - EMPTY PIPE

(E) - EXISTING

(P) - INSTALL

NV - SPRINT ANTENNA MODEL APXVSFP18-C-A20

2.5 - SPRINT ANTENNA



**Sprint**

1 INTERNATIONAL BLVD, SUITE 800  
MAHWAH, NJ 07495  
TEL: (800) 357-7641

**SBA**

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

**Hudson Design Group LLC**

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

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
1	05/19/14	ISSUED FOR CONSTRUCTION	SF
0	05/02/14	ISSUED FOR CONSTRUCTION	SF

SITE NUMBER:  
CT03XC108-A

SITE NAME:  
STONINGTON EAST

SITE ADDRESS:  
86 VOLUNTOWN ROAD  
STONINGTON, CT 06379

SHEET TITLE  
ELEVATION AND ANTENNA PLANS

SHEET NUMBER  
A-2