January 23, 2014

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

RE: Notice of Exempt Modification
151 Sand Hill Road
South Windsor, CT 06074
N 41° 33' 09.53"
W -72° 33' 07.17"
Sprint Site #: NV2.5_CT33XC555

Dear Mr. Martin and Members of the Siting Council:

On behalf of Sprint, SBA Communications is submitting an exempt modification application to the Connecticut Siting council for modification of existing equipment at a tower facility located at 151 Sand Hill Road, South Windsor, CT.

The 151 Sand Hill Road facility consists of a 187' Monopole Tower owned and operated by SBA Properties, LLC. In order to accommodate technological changes and enhance system performance in the State of Connecticut, Sprint 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 modernization 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, 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 302 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 302 + T
508-251-1755 + F
203-446-7700 + C
kpelletier@sbasite.com

Sprint

Equipment Modification

151 Sand Hill Road, South Windsor, CT 06074
Site number CT33XC555

Tower Owner: SBA Properties, LLC

Equipment Configuration: Monopole

Current and/or approved:

- (3) RFS APXVSPP18-C-A20
- (3) Alcatel Lucent 1900MHz RRUs
- (3) Alcatel Lucent 800MHz RRUs
- (3) Alcatel Lucent 800MHz Filters
- (4) RFS ACU-A20-N RETs
- (3) 1-1/4" feed lines

Planned Modifications:

- (3) RFS APXVSPP18-C-A20
- (3) RFS APXVTM14-C-I20
- (3) Alcatel Lucent TD-RRH8x20-25 RRHs
- (3) Alcatel Lucent 1900MHz RRUs
- (3) Alcatel Lucent 800MHz RRUs
- (3) Alcatel Lucent 800MHz Filters
- (3) RF Filters
- (4) RFS ACU-A20-N RETs
- (3) 1-1/4" feed lines
- (1) 0.7" Fiber

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 29.065% of the allowable FCC established general public limit. The anticipated composite MPE value for this site assuming all carriers present is 72.575% of the allowable FCC established general public limit sampled at the ground level.

Site Composite MPE %	
Carrier	MPE %
Sprint	29.065%
Town	6.870%
AT&T	13.000%
Metro PCS	2.100%
Clearwire	0.830%
Nextel	2.540%
Verizon Wireless	15.110%
T-Mobiloe	3.060%
Total Site MPE %	72.575%

January 23, 2014

Mayor M. Saud Anwar
Town of South Windsor
1540 Sullivan Avenue
South Windsor, CT 06074

RE: Telecommunications Facility @ 151 Sand Hill Road, South Windsor, CT 06074

Dear Mayor Anwar,

In order to accommodate technological changes and enhance system performance in the State of Connecticut, Sprint 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 302.

Thank you,

Kri Pelletier
SBA Communications Company
33 Boston Post Road West Suite 320
Marlborough, MA 01752
508-251-0720 x 302 + T
508-251-1755 + F
203-446-7700 + C
kpelletier@sbasite.com

Structural Analysis for SBA Network Services, Inc.

187' Monopole Tower

SBA Site Name: South Windsor
SBA Site ID: CT07824-S-00
Sprint Site ID: CT33XC555

FDH Project Number 13TFV91400

Analysis Results

Tower Components	80.2%	Sufficient
Foundation	82.6%	Sufficient

Prepared By:

Mark S. Girgis, EI
Project Engineer

Reviewed By:

J. Darrin Holt, PhD, PE
Principal
CT PE License No.

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

STATE OF CONNECTICUT
J. DARRIN HOLT
No. 22948
LICENSED PROFESSIONAL ENGINEER

12/2/13

December 2, 2013

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

TABLE OF CONTENTS

EXECUTIVE SUMMARY

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

- Sabre Communications Corporation (Job No. 02-10062 Revision B) Structural Design Report dated November 1, 2001
- Sabre Communications Corporation (Job No. 02-10062) Erection Drawings dated November 7, 2001
- Clarence Welti Associates, Inc. (Project Name: Nextel Tower @ Police Station) Geotechnical Study dated September 29, 2000
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and the *2005 CBC* is 80 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 Sprint in place at 130 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and the *2005 CBC* provided the **Recommendations** listed below are satisfied. Furthermore, provided the foundation was designed and constructed to support the original design reactions (see Sabre Communications Corporation Job No. 02-10062 Revision B), 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 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 the *2005 CBC* 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. 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	Feed Lines[1]	Carrier	Mount Elevation (ft)	Mount Type
187	(2) Scala MF-900B Dishes (2) Telewave ANT900D6-9 Omnis (1) Telewave ANT450F6 Omni (2) Decibel DB201 Dipoles	(3) 7/8" (4) 1/2"	Town of South Windsor	187	(1) Low Profile Platform
180	(3) Kathrein 742 213	(6) 1-5/8"	Pocket Communications	180	(1) Collar Mount
170	(3) Powerwave 7770.00 (9) KMW AM-X-CD-16-65-00T-RET (6) CCI DTMABP7819VG12A TMAs (6) Ericsson RRUS 11 RRUs (12) Kathrein 782 10250 Combiners (3) CSS DBC-750 Diplexers (1) Raycap DC6-48-60-18-8F Surge Arrestor (3) Andrew ABT-DFDM-ADBH	(12) 1-5/8" (1) 3" Conduit	New Cingular	170	(1) Low Profile Platform
160	(3) RFS APX16PV-16PVL-C (3) EMS RR90-17-02DPL2 (6) Andrew OneBase Twin Dual Duplex TMAs	(12) 1-5/8"	T-Mobile	160	(1) Low Profile Platform
150	(9) Decibel DB844H90E-XY (3) Kathrein 840 10054 (2) Andrew VHLP2.5 Dishes (3) Samsung U-RAS Flexible RRH Radios (2) Dragonwave Horizon Duo ODUs	(12) 1-5/8" (6) 3/8" (2) 1/2"	Nextel	150	(1) Platform w/ Handrails
140	(6) Antel RWA-80014 (3) Antel BXA-70063/6CF (3) Antel BXA-185090/8CF-2 (6) RFS FD9R6004/2C-3L Diplexers	(12) 1-5/8"	Verizon	140	(1) Low Profile Platform
130	(3) RFS APXVSPP18-C-A20 (3) Alcatel Lucent 1900MHz RRUs (3) Alcatel Lucent 800MHz RRUs (3) Alcatel Lucent 800MHz Filters (4) RFS ACU-A20-N RETs	(3) 1-1/4"	Sprint	130	(1) Low Profile Platform
92	(2) Scala MF-900B Dishes (1) Telewave ANT4506-9 Omni (1) Telewave ANT150D3 Omni (1) Telewave ANT450Y10-WR Omni (1) Decibel DB205 Omni	(6) 1/2"	Town of South Windsor	92	(1) Low Profile Platform

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

Proposed Loading:

Antenna Elevation (ft)	Description	Feed Lines	Carrier	Mount Elevation (ft)	Mount Type
130	(3) RFS APXVSPP18-C-A20 (3) RFS APXVTM14-C-I20 (3) Alcatel Lucent TD-RRH8x20-25 RRHs (3) Alcatel Lucent 1900MHz RRUs (3) Alcatel Lucent 800MHz RRUs (3) Alcatel Lucent 800MHz Filters (3) RF Filters (4) RFS ACU-A20-N RETs	(3) 1-1/4” (1) 0.7” Fiber	Sprint	130	(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

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. **Table 4** displays the maximum foundation reactions. **Table 5** displays the maximum antenna rotations at service wind speed (dishes only).

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	187 - 142.75	Pole	TP34.17x24x0.25	40.6	Pass
L2	142.75 - 93.75	Pole	TP44.94x32.6358x0.375	71.2	Pass
L3	93.75 - 46.25	Pole	TP55.12x42.8101x0.4375	80.2	Pass
L4	46.25 - 0	Pole	TP64.88x52.6344x0.5	78.1	Pass
		Anchor Bolts	(26) 2.25" Ø w/ BC = 72"	69.8	Pass
		Base Plate	PL 78" Ø x 2.5" Thk	63.9	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	65 k	83 k
Shear	41 k	48 k
Moment	5,405 k-ft	6,541 k-ft

Table 5 - Maximum Antenna Rotations at Service Wind Speeds (Dishes Only)

Centerline Elevation (ft)	Antenna	Tilt* (deg)	Twist* (deg)
187	(2) Scala MF-900B Dishes	2.0023	0.0023
150	(2) Andrew VHLP2.5 Dishes	1.8228	0.0015
92	(2) Scala MF-900B Dishes	1.1158	0.0006

*Allowable tilt and twist values to be determined by the carrier.

GENERAL COMMENTS

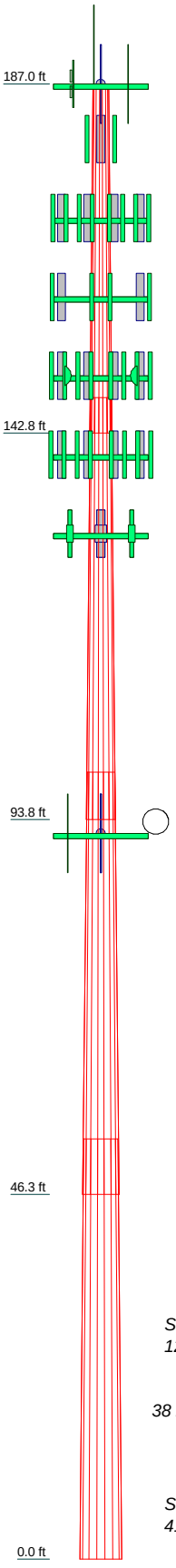
This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading 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.

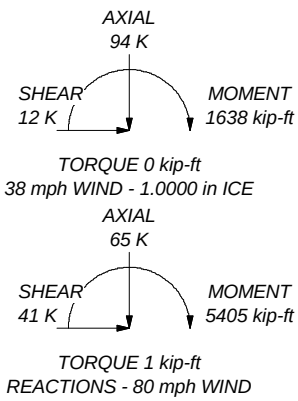
LIMITATIONS

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	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	44.25	18	0.2500	4.50	24.0000	34.1700	A572-65	3.4
2	53.50	18	0.3750	6.00	32.6358	44.9400		8.3
3	53.50	18	0.4375	7.00	42.8101	55.1200		12.3
4	53.25	18	0.5000		52.6344	64.8800		16.8
								40.8





TORQUE 0 kip-ft
38 mph WIND - 1.0000 in ICE

TORQUE 1 kip-ft
REACTIONS - 80 mph WIND

MATERIAL STRENGTH

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

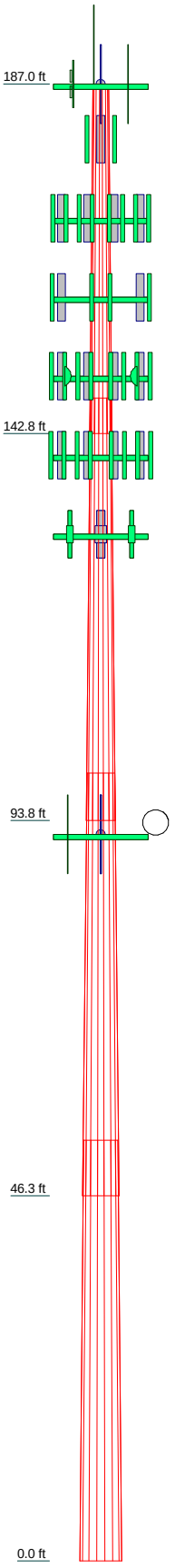
TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 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: 80.2%

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

Job: ***South Windsor, CT07824-S-00***			
Project: ***13TFV91400***			
Client: SBA Network Services, Inc.	Drawn by: Mark S. Girgis	App'd:	
Code: TIA/EIA-222-F	Date: 12/02/13	Scale: NTS	
Path:		Dwg No. E-1	

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	44.25	18	0.2500	4.50	24.0000	34.1700	A572-65	3.4
2	53.50	18	0.3750	6.00	32.6358	44.9400		8.3
3	53.50	18	0.4375	7.00	42.8101	55.1200		12.3
4	53.25	18	0.5000		52.6344	64.8800		16.8
								40.8



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	187	U-RAS Flexible RRH Radio	150
(2) DB201-A	187	U-RAS Flexible RRH Radio	150
(2) ANT900D6-9	187	HORIZON DUO	150
ANT450F6 Omni	187	HORIZON DUO	150
(4) Empty Mount Pipe	187	Platform w/ Handrails	150
(4) Empty Mount Pipe	187	(3) DB844H90E-XY w/Mount Pipe	150
(4) Empty Mount Pipe	187	Andrew VHLP2.5 Dish	150
Low Profile Platform	187	Andrew VHLP2.5 Dish	150
(2) Scala MF-900B Dishes	187	BXA-70063/6CF w/Mount Pipe	140
742 213 w/Mount Pipe	180	BXA-70063/6CF w/Mount Pipe	140
742 213 w/Mount Pipe	180	BXA-70063/6CF w/Mount Pipe	140
Collar Mount	180	BXA-185090-8CF w/Mount Pipe	140
742 213 w/Mount Pipe	180	BXA-185090-8CF w/Mount Pipe	140
7770.00 w/Mount Pipe	170	BXA-185090-8CF w/Mount Pipe	140
7770.00 w/Mount Pipe	170	(2) FD9R6004/2C-3L Diplexer	140
(3) AM-X-CD-16-65-00T-RET w/ Mount Pipe	170	(2) FD9R6004/2C-3L Diplexer	140
		(2) FD9R6004/2C-3L Diplexer	140
(3) AM-X-CD-16-65-00T-RET w/ Mount Pipe	170	Low Profile Platform	140
		(2) RWA-80014 w/Mount Pipe	140
(3) AM-X-CD-16-65-00T-RET w/ Mount Pipe	170	(2) RWA-80014 w/Mount Pipe	140
		(2) RWA-80014 w/Mount Pipe	140
(2) DTMABP7819VG12A TMA	170	APXVTM14-C-I20 w/ Mount Pipe	130
(2) DTMABP7819VG12A TMA	170	APXVTM14-C-I20 w/ Mount Pipe	130
(2) DTMABP7819VG12A TMA	170	APXVTM14-C-I20 w/ Mount Pipe	130
(2) RRUS 11	170	APXVSPP18-C-A20 w/Mount Pipe	130
(2) RRUS 11	170	APXVSPP18-C-A20 w/Mount Pipe	130
(2) RRUS 11	170	APXVSPP18-C-A20 w/Mount Pipe	130
(4) 782 10250 Combiner	170	TD-RRH8x20-25	130
(4) 782 10250 Combiner	170	TD-RRH8x20-25	130
(4) 782 10250 Combiner	170	TD-RRH8x20-25	130
DBC-750 Diplexer	170	RF Filter	130
DBC-750 Diplexer	170	RF Filter	130
DBC-750 Diplexer	170	RF Filter	130
DC6-48-60-18-8F Surge Arrestor	170	RRU-ALU 1900MHZ	130
Low Profile Platform	170	RRU-ALU 1900MHZ	130
7770.00 w/Mount Pipe	170	RRU-ALU 1900MHZ	130
RR90-17-02DPL2 w/Mount Pipe	160	RRU-ALU 800MHZ	130
RR90-17-02DPL2 w/Mount Pipe	160	RRU-ALU 800MHZ	130
APX16PV-16PVL-C W/Mount Pipe	160	RRU-ALU 800MHZ	130
APX16PV-16PVL-C W/Mount Pipe	160	Filter- ALU 800MHZ	130
APX16PV-16PVL-C W/Mount Pipe	160	Filter- ALU 800MHZ	130
Empty Mount Pipe	160	Filter- ALU 800MHZ	130
Empty Mount Pipe	160	(2) ACU-A20-N RET	130
Empty Mount Pipe	160	ACU-A20-N RET	130
(2) OneBase Twin Dual Duplex TMAs	160	ACU-A20-N RET	130
(2) OneBase Twin Dual Duplex TMAs	160	Low Profile Platform	130
(2) OneBase Twin Dual Duplex TMAs	160	ANT450Y10-WR	92
Low Profile Platform	160	(4) Empty Mount Pipe	92
RR90-17-02DPL2 w/Mount Pipe	160	(4) Empty Mount Pipe	92
(3) DB844H90E-XY w/Mount Pipe	150	(4) Empty Mount Pipe	92
(3) DB844H90E-XY w/Mount Pipe	150	Low Profile Platform	92
840 10054 w/Mount Pipe	150	DB205-A	92
840 10054 w/Mount Pipe	150	ANT4506-9	92
840 10054 w/Mount Pipe	150	ANT150D3	92
U-RAS Flexible RRH Radio	150	(2) Scala MF-900B Dishes	92

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
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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.
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FDH Engineering, Inc.
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Code: TIA/EIA-222-F	Date: 12/02/13		Scale: NTS
Path:			Dwg No. E-1

EBI Consulting
environmental | engineering | due diligence

RADIO FREQUENCY FCC REGULATORY COMPLIANCE MAXIMUM PERMISSIBLE EXPOSURE (MPE) ASSESSMENT

Sprint Existing Facility

Site ID: CT33XC555

South Windsor PD Property
151 Sand Hill Road
South Windsor, CT 06074

January 13, 2014

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

EBI Consulting
environmental | engineering | due diligence

January 13, 2014

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

Re: Radio Frequency Maximum Permissible Exposure (MPE) Assessment for Site:
CT33XC555– South Windsor PD Property

Site Total: 72.575% - MPE% in full compliance

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at 151 Sand Hill Road, South Windsor, 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 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (µW/cm2). The number of µW/cm2 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 (µW/cm^2). The general population exposure limit for the cellular band is approximately 567 µW/cm^2, and the general population exposure limit for the 1900 MHz and 2500 MHz bands band is 1000 µW/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 151 Sand Hill Road, South Windsor, 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 existing and proposed antennas is**130 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	CT33XC555 - South Windsor PD Property
Site Addresss	151 Sand Hill Road, South Windsor, CT 06074
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	ERP	Power Density Value	Power Density Percentage
1a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	3	60	15.9	130	124	1/2 "	0.5	0	2080.4211	48.64227	4.86423%
1a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	130	124	1/2 "	0.5	0	389.96892	9.117853	1.60809%
1B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	40	1	40	13.4	130	124	1/2 "	0.5	0	779.93784	18.23571	3.21617%
														Sector total Power Density Value:		9.688%	

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	ERP	Power Density Value	Power Density Percentage
2a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	3	60	15.9	130	124	1/2 "	0.5	0	2080.4211	48.64227	4.86423%
2a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	130	124	1/2 "	0.5	0	389.96892	9.117853	1.60809%
2B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	40	1	40	13.4	130	124	1/2 "	0.5	0	779.93784	18.23571	3.21617%
														Sector total Power Density Value:		9.688%	

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	ERP	Power Density Value	Power Density Percentage
3a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	3	60	15.9	130	124	1/2 "	0.5	0	2080.4211	48.64227	4.86423%
3a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	130	124	1/2 "	0.5	0	389.96892	9.117853	1.60809%
3B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	40	1	40	13.4	130	124	1/2 "	0.5	0	779.93784	18.23571	3.21617%
														Sector total Power Density Value:		9.688%	

Site Composite MPE %	
Carrier	MPE %
Sprint	29.065%
Town	6.870%
AT&T	13.000%
Metro PCS	2.100%
Clearwire	0.830%
Nextel	2.540%
Verizon Wireless	15.110%
T-Mobiloe	3.060%
Total Site MPE %	**72.575%**

EBI Consulting
environmental | engineering | due diligence

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 **29.065% (9.688% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

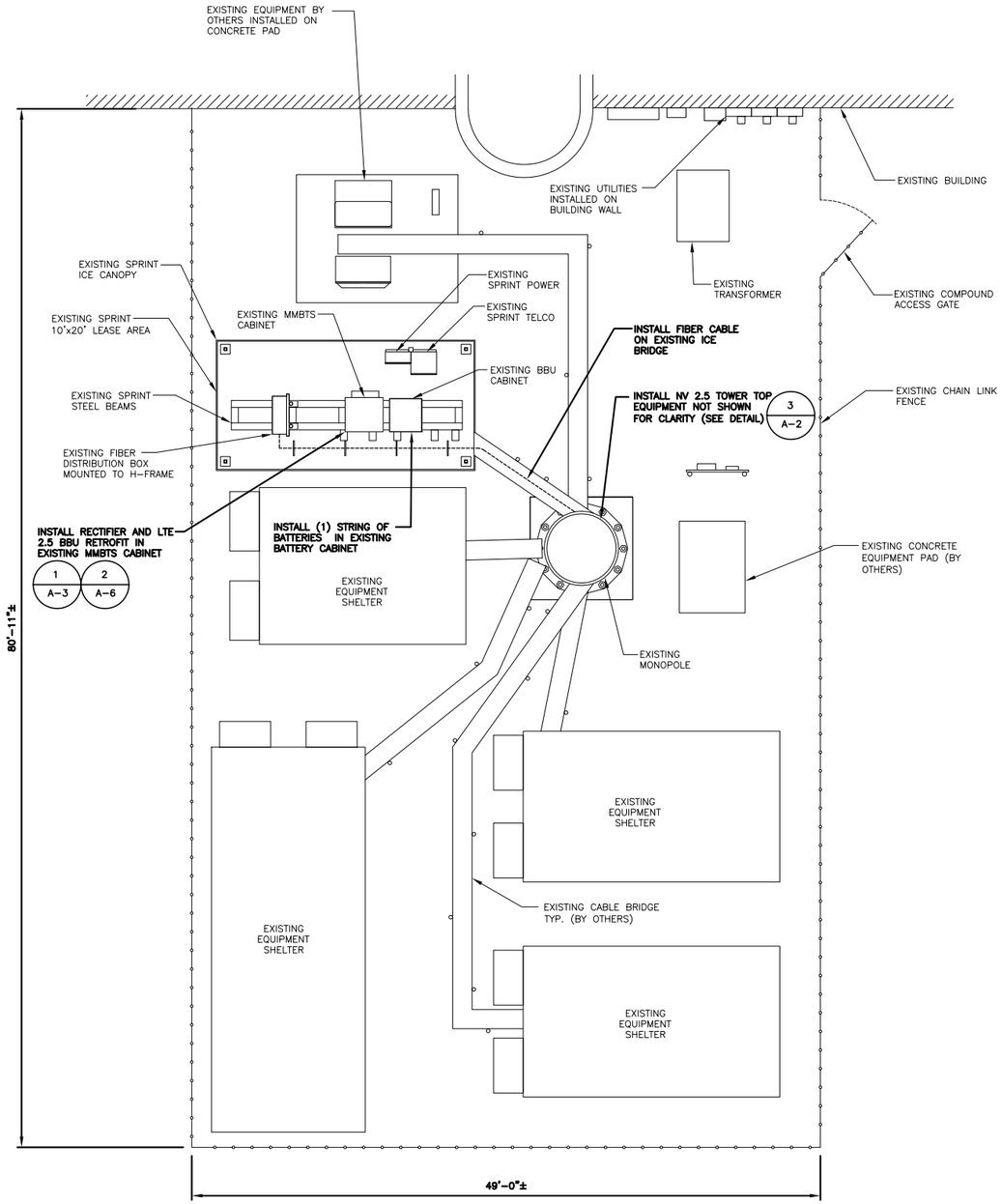
The anticipated composite MPE value for this site assuming all carriers present is **72.575%** of the allowable FCC established general public limit sampled at 6 feet above ground level. This total composite site value is based upon MPE values listed in the Connecticut Siting Council database for existing carrier emissions.

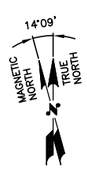
FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100%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

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803

EXISTING
PPC





COMPOUND PLAN 1 A-1
SCALE: 3/16"=1'-0"

GRAPHIC SCALE
0 2'-8" 5'-4" 10'-8" 16'-0"

1 A-3 2 A-6 **INSTALL RECTIFIER AND LTE 2.5 BBU RETROFIT IN EXISTING MMBTS CABINET**

INSTALL (1) STRING OF BATTERIES IN EXISTING BATTERY CABINET 3 A-6

EXISTING BBU CABINET

RAN EQUIPMENT PHOTO DETAIL 2 A-1
SCALE: N.T.S.

Sprint
1 INTERNATIONAL BLVD, SUITE 800
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TEL: (800) 357-7641

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SBA COMMUNICATIONS CORP.
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MARLBOROUGH, MA 01752 TEL: (508) 251-1807

PLANS PREPARED BY:
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Civil Engineering - Site Development
Surveying - Telecommunications
500 NORTH BROADWAY EAST PROVIDENCE, RI 02914
PH: (401) 354-2403 FAX: (401) 633-6354

STATE OF CONNECTICUT MARC R. CHESTNUT No. 22507 LICENSED PROFESSIONAL ENGINEER

CHECKED BY: MRC

APPROVED BY: MRC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
0	12/25/13	ISSUED FOR BP	AL

SITE NUMBER:
CT33XC555

SITE NAME:
SOUTH WINDSOR

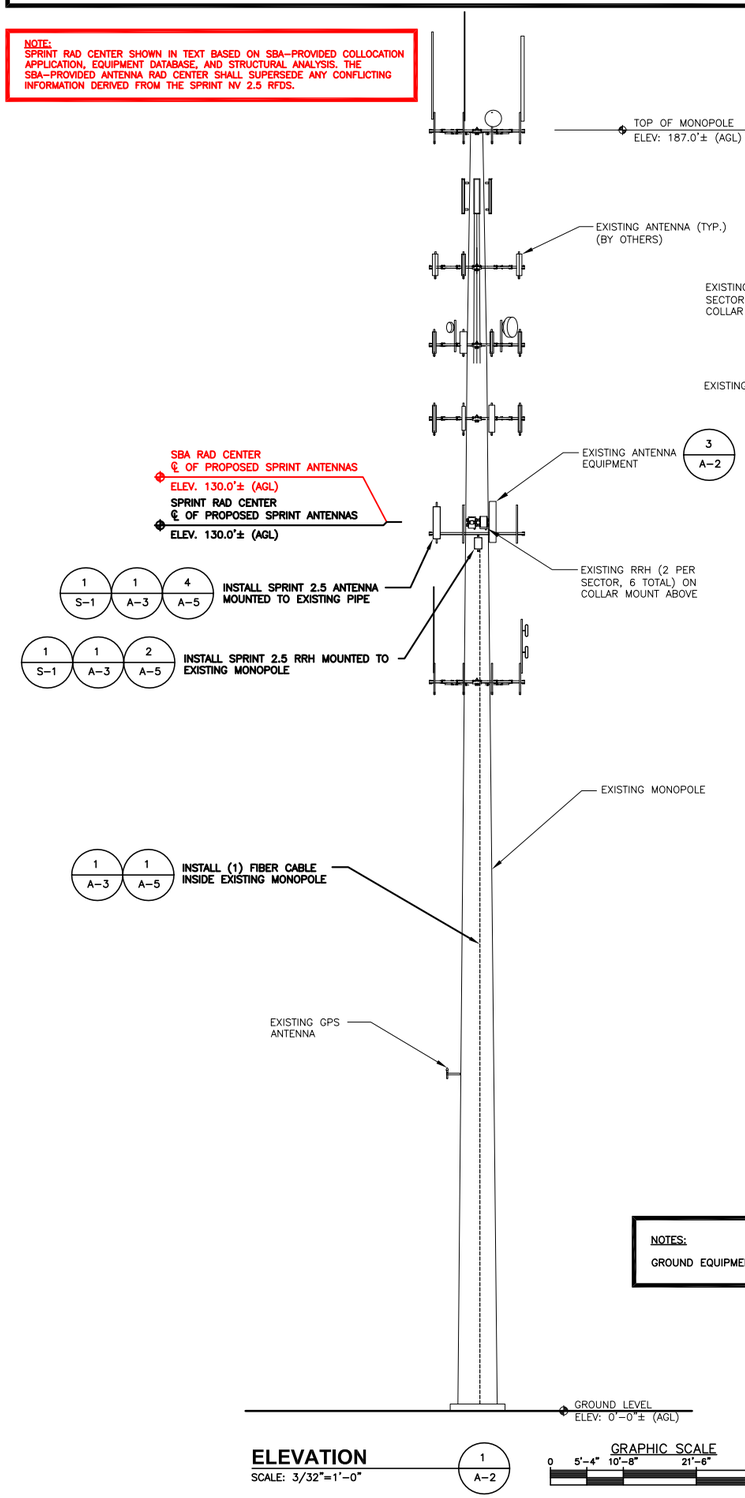
SITE ADDRESS:
151 SAND HILL ROAD
SOUTH WINDSOR, CT 06074

SHEET TITLE
COMPOUND PLAN

SHEET NUMBER
A-1

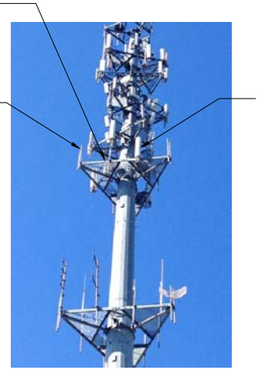
SPECIAL CONSTRUCTION NOTE:
SPRINT TOWER TOP WORK IS CONTINGENT ON THE FOLLOWING:
* COMPLETION OF A GLOBAL STRUCTURAL STABILITY ANALYSIS (PROVIDED BY TOWER OWNER).
* COMPLETION OF AN ANTENNA/RRH MOUNT STRUCTURAL ASSESSMENT (PROVIDED BY A&E VENDOR).
* GC SHALL FURNISH, INSTALL AND COMPLETE ALL REQUIRED 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:
SPRINT RAD CENTER SHOWN IN 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.



ELEVATION 1 / A-2
SCALE: 3/32"=1'-0"

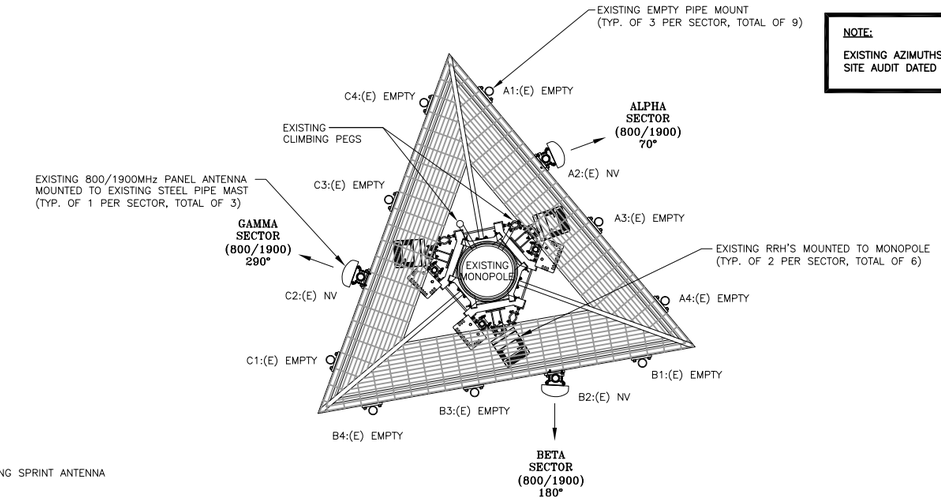
GRAPHIC SCALE
0 5'-4" 10'-8" 21'-6" 32'-0"



SOURCE: SPRINT SITE AUDIT 10.01.13

EXISTING PARTIAL ELEVATION PHOTO DETAIL
SCALE: N.T.S.

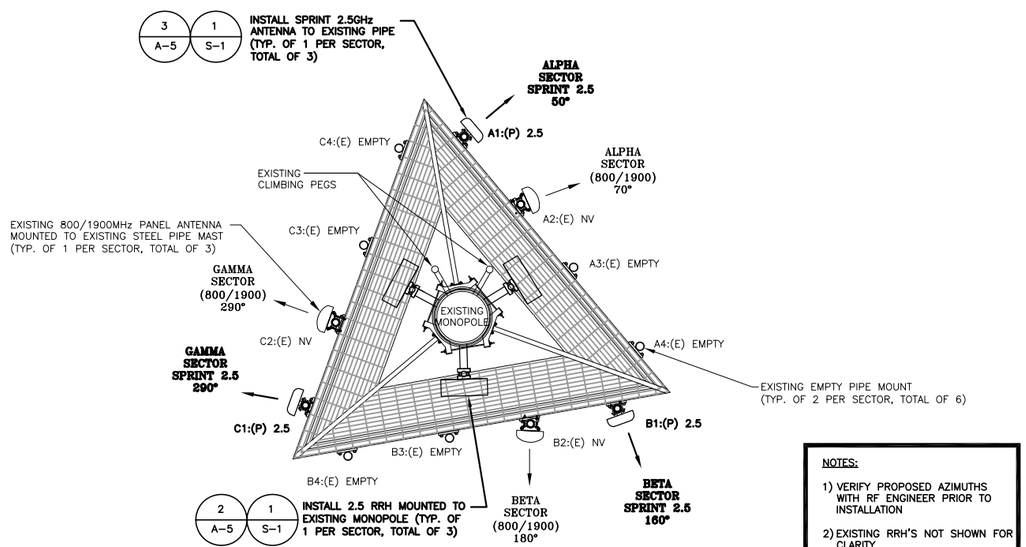
NOTES:
GROUND EQUIPMENT NOT SHOWN FOR CLARITY

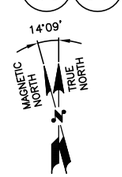


NOTE:
EXISTING AZIMUTHS FROM SPRINT SITE AUDIT DATED 09/04/13

EXISTING ANTENNA PLAN
2 / A-2
SCALE: N.T.S.

ANTENNA STATUS LEGEND:
EMPTY – EMPTY PIPE
(E) – EXISTING
(P) – INSTALL
NV – SPRINT ANTENNA
2.5 – SPRINT ANTENNA





PROPOSED ANTENNA PLAN
3 / A-2
SCALE: N.T.S.

NOTES:
1) VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION
2) EXISTING RRH'S NOT SHOWN FOR CLARITY

Sprint
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MARLBOROUGH, MA 01752 TEL: (508) 251-1807

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EAST PROVIDENCE, RI 02914 FAX: (401) 633-6354

STATE OF CONNECTICUT
MARC R. CHRETIEN
NO. 28307
LICENSED
PROFESSIONAL ENGINEER

CHECKED BY: MRC

APPROVED BY: MRC

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
0	12/25/13	ISSUED FOR BP	AL

SITE NUMBER:
CT33XC555
SITE NAME:
SOUTH WINDSOR
SITE ADDRESS:
151 SAND HILL ROAD
SOUTH WINDSOR, CT 06074

SHEET TITLE
ELEVATION AND ANTENNA PLANS

SHEET NUMBER
A-2

Market	Northern Connecticut		
Site ID	CT33XC555		
Equipment Vendor	ALU		
2500 MHz RAN Equipment			
Incremental Additional AC Power for New Equipment (amps)	0		
BBU Kit	ALU BBU Kit		
BBU Kit Quantity	1		
BBU Kit Dimensions (in.)	11.8x19x3.5		
Growth Cabinet	None		
Growth Cabinet Quantity	NA		
Growth Cabinet Dimensions (in.)	NA		
Growth Cabinet Weight (lbs.)	NA		
ALU ONLY: Top Hat	None		
ALU ONLY: Top Hat Quantity	NA		
ALU ONLY: Top Hat Dimensions (in.)	NA		
ALU ONLY: Top Hat Weight (lbs.)	NA		
Batteries	ALU Battery		
Battery Quantity	4		
Battery Dimensions (in.)	10.1" x 6.9" x 17.6"		
Battery Weight (lbs./each)	105		
Rectifier Shelf	ALU Rectifier Shelf		
Rectifier Shelf Quantity	1		
Rectifier	ALU Rectifier		
Rectifier Quantity	3		
Rectifier Dimensions (in.)	11.5" x 5.5" x 2.5"		
Rectifier Weight (lbs./each)	5.5		
Power/Fiber Junction Box Manufacturer	None		
2500 MHz Tower Top Equipment	SECTOR 1 (ALPHA)	SECTOR 2 (BETA)	SECTOR 3 (GAMMA)
Azimuth	50	160	290
Antenna Quantity	1	1	1
Antenna RAD Center (ft.)	130 (* SBA 130.0)	130 (* SBA 130.0)	130 (* SBA 130.0)
Antenna Make/Model	RFS APXVTM14-C-I20	RFS APXVTM14-C-I20	RFS APXVTM14-C-I20
E-Tilt (degrees)	-2	-2	-2
M-Tilt (degrees)	0	0	0
RF Filter Make/Model	TBD	TBD	TBD
RF Filter Quantity	0	0	0
RRH Make/Model	TD-RRH8x20-25	TD-RRH8x20-25	TD-RRH8x20-25
RRH Quantity	1	1	1
Tower Top Coax Jumper Manufacturer	Coax Jumper. Mfg TBD.		
Tower Top Coax Jumper Diameter (in.)	0.5		
Tower Top Coax Jumper Quantity	27		
Tower Top Coax Jumper Length (ft.)	8 (** A&E 15)		
AISG Cable Manufacturer	Commscope ATCB-B01-006		
AISG Cable Diameter (in.)	0.315		
AISG Cable Quantity	3		
AISG Cable Length (ft.)	8 (** A&E 15)		
Power and Fiber Cable Manufacturer	ALU Fiber only (** A&E SEE DETAIL 1/A-5)		
Power and Fiber Cable Diameter (in.)	0.70		
Power and Fiber Cable Quantity	1		
Power and Fiber Cable Length Calculated as Antenna RAD plus 20% (ft.)	156 (** A&E 175)		
Power Junction Cylinder Manufacturer	0		
Optic Fiber Junction Cylinder Manufacturer	0		
GPS Antenna Manufacturer	NA		
Comments			
RFDS generated from document entitled: "2.5 Northeast Site List 10-26-13" prepared by Vertix Consulting, LLC.			
Comments in Red Text provided by A&E Vendor.			
IMPORTANT CONSTRUCTION NOTE: General Contractor/Tower Crew shall verify that the latest RF Data Sheet is used for equipment installation.			
* Note: Antenna Rad Center 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 or ALU Database.			
** Note: Sprint/ALU CM shall confirm Tower Top Coax Jumper Length and Power and Fiber Cable Length before preparing BOM. Recommended Power and Fiber Cable Length based on NV 2.5 Equipment Audit plus 20 Feet for (2) 10-foot coils at each end of the fiber trunk.			

RF DATA SHEET
SCALE: N.T.S.

1
A-3

SPRINT CONSTRUCTION STANDARDS:

GENERAL CONTRACTOR SHALL ADHERE TO THE FOLLOWING SPRINT CONSTRUCTION STANDARDS.

- CONSTRUCTION STANDARDS: INTEGRATED CONSTRUCTION STANDARDS FOR WIRELESS SITES – VERSION 4.0, INCLUDING EXHIBITS A–M.
- CONSTRUCTION SPECIFICATIONS: CONSTRUCTION STANDARDS EXHIBIT A – STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES (VERSION 4.0).
- GROUNDING STANDARDS: EXTERIOR GROUNDING SYSTEM DESIGN. GROUNDING STANDARDS (SUPPLEMENT): ANTI–THEFT UPDATE TO SPRINT GROUNDING 082412 AND SPRINT ENGINEERING LETTER EL–0504 DATED 04.20.12.
- WEATHER PROOFING STANDARDS: EXCERPT FROM CONSTRUCTION STANDARDS EXHIBIT A, SECTION 3.6 WEATHERPROOFING CONNECTORS AND GROUND KITS.
- COLOR CODING: SPRINT NEXTEL ANT AND LINE COLOR CODING (DRAFT) V3 09–08–11.

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