EM-SPRINT-055-120907

September 6, 2012

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

RE: Notice of Exempt Modification
113 Brush Hill Road
Goshen, CT 06756
N 41 ° 47' 49.82"
W 73 ° 13' 18.03"

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 113 Brush Hill Road Goshen, CT.

The 113 Brush Hill Road facility consists of a 193' Monopole Tower owned and operated by SBA Communications. 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 antennas and associated 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. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna and equipment configuration 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 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 cal me at (508) 614-0389 with any questions you may have concerning this matter.

Thank you,

Rick Woods
SBA Communications Corporation
One Research Dr. Suite 200C
Westborough, MA 01581
508-366-5505 x 319 + T
508-366-5507 + F
508-614-0389 + C
rwoods@sbasite.com

Sprint Spectrum
Equipment Modification

113 Brush Hill Road Goshen, CT
Site number CT33XC108

Tower Owner: SBA Communications Corporation

Equipment Configuration: Monopole Tower

Current and/or approved:
Six (6) CDMA Antennas @ 196'
Six (6) lines of 1-5/8" coax
One (1) equipment cabinet

Planned Modifications:
Remove Six (6) CDMA antennas & Six (6) lines of 1-5/8"
Install Three (3) Network Vision antennas & Six (6) RRHs @ 196'
Install Three (3) Hybriflex fiber cables
Install Three (3) Filters
Install Four (4) RETs
Install One (1) Fiber Distribution Box
Install Two (2) new equipment cabinets

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 6.365% of the allowable FCC established general public limit. The anticipated composite MPE value for this site assuming all carriers present is 19.745% of the allowable FCC established general public limit sampled at the ground level.

Site Composite MPE %	
Carrier	MPE %
Sprint	6.365%
Verizon Wireless	9.420%
AT&T	3.960%
Total Site MPE %	19.745%

September 6, 2012

Honorable Wilrose Duquettel
First Selectman
Town of Goshen
42A North Street
Goshen, CT 06756

RE: Telecommunications Facility-113 Brush Hill Road Goshen, CT 06756

Dear Mr. Duquettel,

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) 614-0389.

Thank you,

Rick Woods
SBA Communications Company
One Research Dr. Suite 200C
Westborough, MA 01581
508-366-5505 x 319 + T
508-366-5507 + F
508-614-0389 + C
rwoods@sbasite.com

STRUCTURAL NOTE:

STRUCTURAL DESIGNS AND DETAILS FOR ANTENNA MOUNTS AND RRH MOUNTS COMPLETED BY HUDSON DESIGN GROUP LLC ON BEHALF OF ALCATEL–LUCENT ARE INCLUSIVE OF THE ENTIRE ANTENNA FRAME/PLATFORM/ANTENNA/RRH MOUNTS SECURED TO THE TOWER STRUCTURE.

STRUCTURAL NOTE:

G.C. TO REFER TO SPECIAL INSTALLATION REQUIREMENTS AND/OR MODIFICATIONS RECOMMENDED IN STRUCTURAL ANALYSIS REPORT PREPARED BY FDH ENGINEERING, INC. DATED: MAY 24, 2012

SBA SITE #: CT12210-A
SBA SITE NAME: GOSHEN

Sprint® VISION™

SITE NUMBER:
CT33XC108

SITE NAME:
GOSHEN

SITE ADDRESS:
113 BRUSH HILL ROAD
GOSHEN, CT 06756

NOTE:

OWNER AND TENANT MAY, FROM TIME TO TIME AT TENANT'S OPTION, REPLACE THIS EXHIBIT WITH AN EXHIBIT SETTING FORTH THE LEGAL DESCRIPTION OF THE SITE, OR WITH ENGINEERED OR AS–BUILT DRAWING DEPICTING THE SITE OR ILLUSTRATING STRUCTURAL MODIFICATIONS OR CONSTRUCTION PLANS OF THE SITE. ANY VISUAL OR TEXTUAL REPRESENTATION OF THE EQUIPMENT LOCATED WITHIN THE SITE CONTAINED IN THESE OTHER DOCUMENTS IS ILLUSTRATIVE ONLY, AND DOES NOT LIMIT THE RIGHTS OF SPRINT AS PROVIDED FOR IN THE AGREEMENT. THE LOCATIONS OF ANY ACCESS AND UTILITY EASEMENTS ARE ILLUSTRATIVE ONLY. ACTUAL LOCATIONS MAY BE DETERMINED BY TENANT AND/OR THE SERVICING UTILITY COMPANY IN COMPLIANCE WITH LOCAL LAWS AND REGULATIONS.

SITE INFORMATION

SITE NUMBER:	CT33XC108
SITE NAME:	GOSHEN
SITE ADDRESS:	113 BRUSH HILL ROAD GOSHEN, CT 06756
COUNTY:	LITCHFIELD
ZONING:	RA-5 - RESIDENTIAL
PARCEL ID:	MAP: 4-6: LOT 7
COORDINATES(*):	N 41° 47' 49.82" W 73° 13' 18.03"
GROUND ELEV.(*):	1237'± (AMSL)
STRUCTURE TYPE:	MONOPOLE
STRUCTURE HEIGHT:	193.5' (AGL)
ANTENNA RAD CENTER (**):	193.5' (AGL)
PROPERTY OWNER:	WOODRIDGE LAKE SEWER DISTRICT 113 BRUSH HILL RD GOSHEN, CT 06756
STRUCTURE OWNER:	SBA TOWERS, LLC 5900 BROKEN SOUND PKWY BOCA RATON, FL 33487

(*) SOURCE OF COORDINATES/ELEVATION - SBA AND SPRINT SITERRA DATABASE.

LOCAL POWER COMPANY:	CONNECTICUT LIGHT & POWER
LOCAL TELCO COMPANY:	VERIZON
APPLICANT:	SPRINT 1 INTERNATIONAL BLVD, SUITE 800 MAHWAH, NJ 07495
APPLICANT REPRESENTATIVE:	ALCATEL-LUCENT TODD AMANN 600 MOUNTAIN AVENUE MURRAY HILL, NJ 07974
SITE ACQUISITION CONSULTANT:	SBA COMMUNICATIONS CORP. ONE RESEARCH DRIVE SUITE 200C WESTBOROUGH, MA 01581
A&E CONSULTANT:	HUDSON DESIGN GROUP LLC 1600 OSGOOD STREET BLDG 20 NORTH, SUITE 2-101 NORTH ANDOVER, MA 01845 TEL: (978) 557-5553 FAX: (978) 336-5586

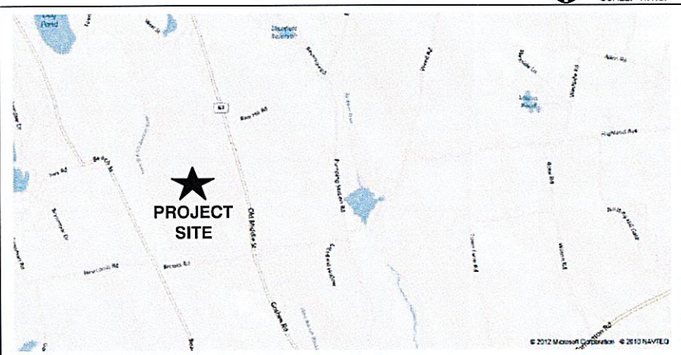
(**) NOTE: NETWORK VISION ANTENNA RADIATION CENTERLINE AGL (FEET) BASED ON SBA EQUIPMENT DATABASE AND SBA TOWER STRUCTURAL ANALYSIS AND WILL SUPERSEDE ANY CONFLICTING INFORMATION DERIVED FROM ALU/SPRINT DATABASE.

GENERAL NOTES

1. THIS IS AN UNMANNED TELECOMMUNICATION FACILITY AND NOT FOR HUMAN HABITATION:
   -HANDICAPPED ACCESS NOT REQUIRED
   - POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED
   - NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED
2. CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACE THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
3. DEVELOPMENT AND USE OF THE SITE WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
   BUILDING CODE: 2003 IBC WITH 2005 CT SUPPLEMENT & 2009 CT AMENDMENT
   ELECTRICAL CODE: 2005 NATIONAL ELECTRICAL CODE
   STRUCTURAL CODE: TIA/EIA-222-F STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS

VICINITY MAP

TRUE NORTH SCALE: N.T.S.



DIRECTIONS FROM 1 INTERNATIONAL BLVD, MAHWAH, NJ 07495:

HEAD SOUTH ON INTERNATIONAL BLVD TOWARD AVE OF AMERICAS TURN RIGHT ONTO PARK LN 197 CONTINUE STRAIGHT ONTO LEISURE LN SLIGHT RIGHT ONTO NJ–17 N MERGE ONTO I–287 N/NJ–17 N VIA THE RAMP ON THE LEFT TO I–87 THRUWAY ENTERING NEW YORK KEEP RIGHT AT THE FORK, MERGE ONTO I–287 E/I–87N CONTINUE TO FOLLOW I–87N PARTIAL TOLL ROAD TAKE EXIT 8A FOR NY–119/SAW MILL PKWY N TOWARD ELMSFORD KEEP LEFT AT THE FORK AND MERGE ONTO SAW MILL PKWY N TAKE THE EXIT TOWARD I–684N KEEP LEFT AT THE FORK, MERGE ONTO I–684 N TAKE EXIT 9E FOR INTERSTATE 84 E TOWARD DANBURY MERGE ONTO I–84 E ENTERING CONNECTICUT SLIGHT LEFT ONTO US–7 N CONTINUE STRAIGHT ONTO US–202 E/FEDERAL RD CONTINUE TO FOLLOW US–202 TURN RIGHT ONTO US–202 E/BRIDGE ST TURN LEFT ONTO EAST ST CONTINUE ONTO POPLAR ST CONTINUE ONTO US–202 E/PARK LANE RD CONTINUE TO FOLLOW US–202 E TURN LEFT ONTO NORTH ST CONTINUE ONTO CT–63 N/GOSHEN RD TURN LEFT ONTO BRUSH HILL RD DESTINATION WILL BE ON THE LEFT 113 BRUSH HILL RD

SCOPE OF WORK

1. INSTALL RETRO FIT KIT IN EXISTING MOD CELL & INSTALL FIBER DISTRIBUTION BOX WITHIN EXISTING LEASE AREA. INSTALL (2) NEW BBU CABINET.
2. REMOVE (6) EXISTING CDMA ANTENNAS AND REPLACE WITH (3) NETWORK VISION ANTENNAS & (6) RRH'S.
3. REMOVE EXISTING CDMA COAX CABLES & INSTALL (3) HYBRIFLEX CABLES FROM EQUIPMENT CABINET TO ANTENNA
4. REMOVE EXISTING GPS ANTENNA AND REPLACE WITH NEW GPS ANTENNA

CALL BEFORE YOU DIG
1-800-922-4455 OR DIAL 811

SHEET INDEX

SHEET NO.	DESCRIPTION
T-1	TITLE SHEET
GN-1	GENERAL NOTES
A-1	COMPOUND PLAN AND ELEVATION
A-2	ANTENNA SCENARIO & EQUIPMENT LAYOUT
A-3	DETAILS
A-4	RF DATA SHEET
A-5	CABINET & ANTENNA WIRING DIAGRAM
S-1	STRUCTURAL DETAILS
E-1	TYPICAL POWER & GROUNDING ONE LINE DIAGRAM

APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND MAY IMPOSE CHANGES OR MODIFICATIONS.

CONSTRUCTION: _____ DATE: _____

LEASING/
SITE ACQUISITION: _____ DATE: _____

RF ENGINEER: _____ DATE: _____

LANDLORD/
PROPERTY OWNER: _____ DATE: _____

APPROVED
By Bryan Bakis, P.E. for SBA Communications Corp. at 3:00 pm, Jul 18, 2012

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

SBA
SBA COMMUNICATIONS CORP.
5900 BROKEN SOUND PARKWAY
BOCA RATON, FL 33487-2797
TEL: (561) 226-9523
FAX: (561) 226-3572

Hudson Design Group LLC
1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 2-101
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
2	06/07/12	FOR CONSTRUCTION	DB
1	04/05/12	ISSUED FOR REVIEW	DR

SITE NUMBER:
CT33XC108
SITE NAME:
GOSHEN
SITE ADDRESS:
113 BRUSH HILL ROAD
GOSHEN, CT 06756

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T–1

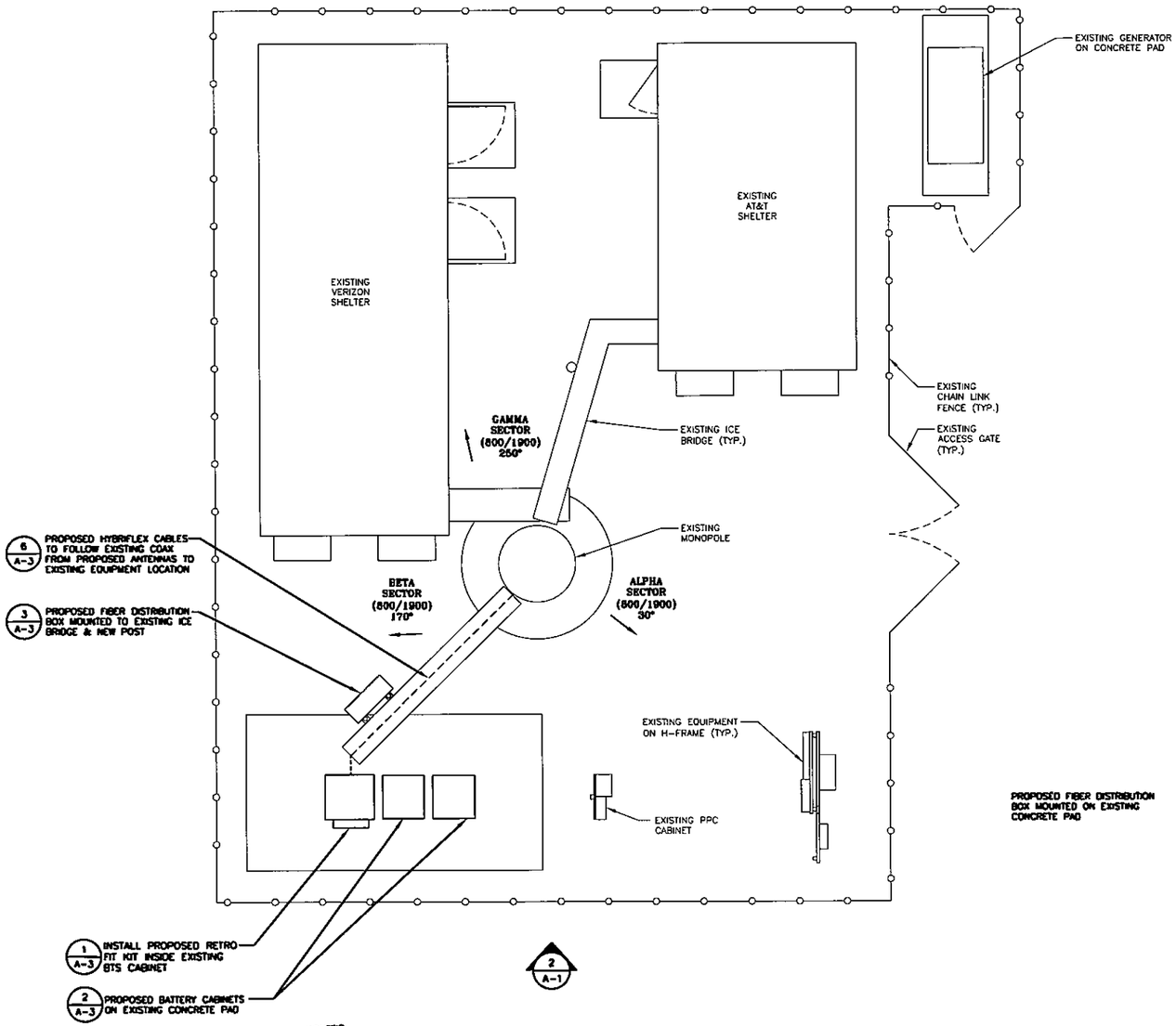
STRUCTURAL NOTE:

G.C. TO REFER TO SPECIAL INSTALLATION REQUIREMENTS AND/OR MODIFICATIONS RECOMMENDED IN STRUCTURAL ANALYSIS REPORT PREPARED BY FDH ENGINEERING, INC. DATED: MAY 24, 2012

NOTES:

1) VERIFY EXACT ANTENNA MODEL & AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION.

2) REMOVE EXISTING GPS ANTENNA AND REPLACE WITH NEW GPS ANTENNA.



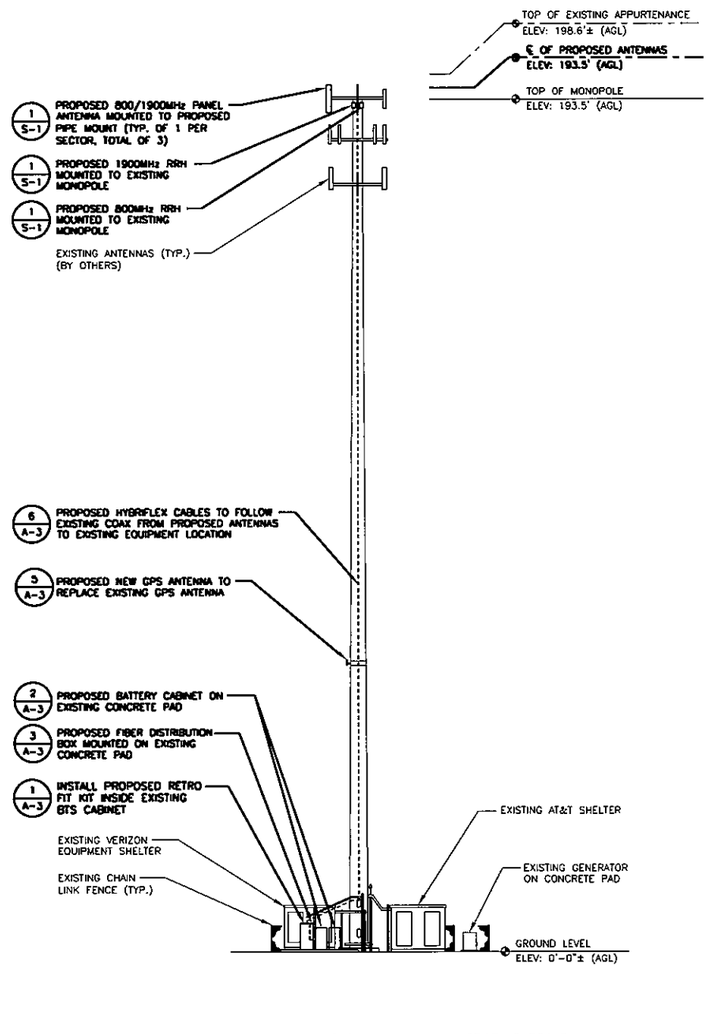
COMPOUND PLAN

SCALE: 1/4"=1'-0"

1 A-1

GRAPHIC SCALE

0 2'-0" 4'-0" 8'-0" 12'-0"



PROPOSED FIBER DISTRIBUTION BOX MOUNTED ON EXISTING CONCRETE PAD

EAST ELEVATION

SCALE: 1/16"=1'-0"

2 A-1

GRAPHIC SCALE

0 8'-0" 16'-0" 32'-0" 48'-0"

Sprint VISION
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
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STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

Daniel Hamm

CHECKED BY: KB

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	06/07/12	FOR CONSTRUCTION	DB
1	04/05/12	ISSUED FOR REVIEW	DR

SITE NUMBER:
CT33XC108

SITE NAME:
GOSHEN

SITE ADDRESS:
113 BRUSH HILL ROAD
GOSHEN, CT 06756

SHEET TITLE

COMPOUND PLAN AND ELEVATION

SHEET NUMBER

A-1

Structural Analysis for SBA Network Services, Inc.

193.5' Monopole Tower

SBA Site Name: Goshen 3
SBA Site ID: CT12210-A
Sprint Site ID: CT33XC108
Sprint Site Name: Woodridge Lake Sewer District

FDH Project Number 12-05182E S1

Analysis Results

Tower Components	67.5%	Sufficient
Foundation	65.2%	Sufficient

Prepared By:

Daniel Struemph, EI
Project Engineer

Reviewed By:

Christopher M Murphy, PE
President
CT PE License No. 25842

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

STATE OF CONNECTICUT
Christopher Michael Murphy
No. 25842
LICENSED PROFESSIONAL ENGINEER
5/24/12

May 24, 2012

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 Goshen, 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.* Information pertaining to the existing/proposed antenna loading, current tower geometry, geotechnical data, and member sizes was obtained from:

- Engineered Endeavors, Inc. (Project No. 12782 Rev.II) Design Calculations for a Spread Footing Foundation dated July 28, 2004
- Engineered Endeavors, Inc. (Project No. 12782) original design drawings dated July 28, 2004
- Dr. Clarence Welti, PE,PC Geotechnical Engineering (Project Name Sprint Site CT33XC108) Geotechnical Study dated December 18, 2003
- FDH, Inc. (Job no 09-11016T T1) TIA Inspection Report dated December 1, 2009
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and the 2005 Connecticut Building Code is 80 mph without ice and 28 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 196 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and the 2005 Connecticut Building Code provided the **Recommendations** listed below are satisfied. Furthermore, provided the foundation was designed and constructed to support the original design reactions (see Engineered Endeavors, Inc. Project No. 12782), 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 the 2005 Connecticut Building Code are met with the existing and proposed loading in place, we have the following recommendations:

1. The proposed coax 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	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
196	(6) Decibel 950F85T2E-M w/Mount Pipe	(6) 1-5/8"	Sprint	195.25	(1) 13' LP Platform Mount
186.25	(6) Antel LBA-80080/6CF w/Mount Pipe (6) Antel LBA-185080/12CF w/Mount Pipe	(12) 1-5/8"	Verizon	185.25	(1) 12.5' LP Platform Mount
172.5	(6) Powerwave 7770.00 w/Mount Pipe (6) Powerwave LGP13519 TMAs (6) Powerwave LGP21401 TMAs	(12) 1-5/8"	AT&T	170	(1) 12.5' LP Platform Mount

Proposed Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
196	(3) RFS APXVSPP18-C-A20 w/Mount Pipe (3) ALU 1900 MHz RRUs (3) ALU 800 MHz RRUs (3) ALU 800 MHz Filters (4) RFS ACU-A20-N RETs	(3) 1-1/4"	Sprint	195.25	(1) 13' LP Platform Mount

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. *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	193.5 - 142.74	Pole	TP38.2813x22.5x0.25	52.1	Pass
L2	142.74 - 94.2	Pole	TP40.875x36.3729x0.375	55.6	Pass
L3	94.2 - 46.68	Pole	TP49.0938x39.6499x0.4375	58.2	Pass
L4	46.68 - 0	Pole	TP57x47.0383x0.5	57.3	Pass
		Anchor Bolts	(24) 2.25"ø w/66" BC	46.3	Pass
		Base Plate	PL 72"ø x 2.25" Thk.	67.5	Pass

Table 4 - Maximum Base Reactions

Base Reactions	Current Analysis *(TIA/EIA-222-F)*	Original Design *(TIA/EIA-222-F)*
Axial	48 k	51 k
Shear	23 k	34 k
Moment	3,047 k-ft	4,719 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 Engineering, Inc. should be notified immediately to perform a revised analysis.

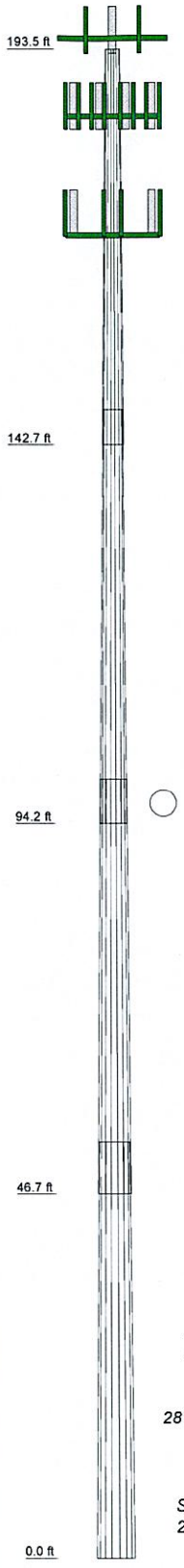
LIMITATIONS

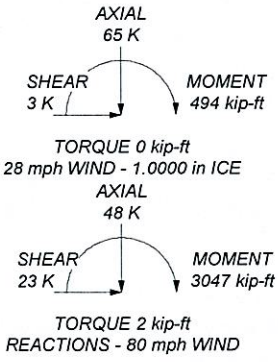
All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of this report. All opinions and conclusions are subject to revision based upon receipt of new or additional/updated information. All services are provided 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
Length (ft)	50.79	53.13	53.17	53.33
Number of Sides	18	18	18	18
Thickness (in)	0.2500	0.3750	0.4375	0.5000
Socket Length (ft)	4.58	5.67	6.67	
Top Dia (in)	22.5000	30.8344	39.0490	46.9466
Bot Dia (in)	32.2100	40.8700	49.0800	57.0000
Grade	A572-65			
Weight (K)	3.7	7.6	11.0	14.8

37.1





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(1) 13' Platform Mount	195.25	(2) LBA-80080/6CF w/ Mount Pipe	185.25
APXVSPP18-C-A20 w/Mount Pipe	195.25	(2) LBA-80080/6CF w/ Mount Pipe	185.25
APXVSPP18-C-A20 w/Mount Pipe	195.25	(2) LBA-80080/6CF w/ Mount Pipe	185.25
APXVSPP18-C-A20 w/Mount Pipe	195.25	(2) LBA-185080/12CF W/Mount Pipe	185.25
1900 MHz RRU	195.25	(2) LBA-185080/12CF W/Mount Pipe	185.25
1900 MHz RRU	195.25	(2) LBA-185080/12CF W/Mount Pipe	185.25
1900 MHz RRU	195.25	(1) 12.5 Platform Mount	185.25
800 MHz RRU	195.25	(2) 7770.00 w/Mount Pipe	170
800 MHz RRU	195.25	(2) 7770.00 w/Mount Pipe	170
800 MHz RRU	195.25	(2) 7770.00 w/Mount Pipe	170
800 MHz Filter	195.25	(2) LGP13519 TMA	170
800 MHz Filter	195.25	(2) LGP13519 TMA	170
800 MHz Filter	195.25	(2) LGP13519 TMA	170
ACU-A20-N RET	195.25	(2) LGP21401 TMA	170
ACU-A20-N RET	195.25	Empty Pipe Mount	170
(2) ACU-A20-N RET	195.25	Empty Pipe Mount	170
(2) Empty Pipe Mount	195.25	Empty Pipe Mount	170
(2) Empty Pipe Mount	195.25	(2) LGP21401 TMA	170
(2) Empty Pipe Mount	195.25	(2) LGP21401 TMA	170
Lightning Rod	193.5	(1) 12.5 Platform Mount	170

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Litchfield 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 28 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: 58.2%

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

Job: Goshen 3, CT12210-A			
Project: 12-05182E S1			
Client: SBA	Drawn by: Dan Struemph	App'd:	
Code: TIA/EIA-222-F	Date: 05/24/12	Scale: NTS	
Path: C:\Users\Dan Struemph\Desktop\Goshen 3\Analysis\Goshen.eri		Dwg No. E-1	

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

Sprint Existing Facility

Site ID: CT33XC108

Goshen
113 Brush Hill Road
Goshen, CT 06751

August 22, 2012

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

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August 22, 2012

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

Re: Emissions Values for Site **CT33XC108 – Goshen**

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at 113 Brush Hill Road, Goshen, CT, for the purpose of determining whether the emissions 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 ($\mu W/cm^2$). The general population exposure limit for the cellular band is approximately 567 $\mu W/cm^2$, 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 upgrades to the existing Sprint Wireless antenna facility located at 113 Brush Hill Road, Goshen, 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) 2 CDMA Carriers (1900 MHz) were considered for each sector of the proposed installation.
2) 1 CDMA Carrier (850 MHz) was considered for each sector of the proposed installation
3) 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.
4) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The actual gain in this direction was used per the manufactures supplied specifications.
5) The antenna used in this modeling is the RFS APXVSPP18-C-A20. This is based on feedback from the carrier with regards to anticipated antenna selection. This antenna 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. 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.

6) The antenna mounting height centerline of the proposed antennas is **193.5 feet** above ground level (AGL)
7) 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	CT33XC108 - Goshen
Site Addresss	113 Brush Hill Road, Goshen, CT 06756
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	2	40	15.9	193.5	187.5	1/2 "	0.5	0	1386.9474	14.18285	1.41828%
1a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	193.5	187.5	1/2 "	0.5	0	389.96892	3.987801	0.70332%
															Sector total Power Density Value:		2.122%

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	2	40	15.9	193.5	187.5	1/2 "	0.5	0	1386.9474	14.18285	1.41828%
2a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	193.5	187.5	1/2 "	0.5	0	389.96892	3.987801	0.70332%
															Sector total Power Density Value:		2.122%

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	2	40	15.9	193.5	187.5	1/2 "	0.5	0	1386.9474	14.18285	1.41828%
3a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	193.5	187.5	1/2 "	0.5	0	389.96892	3.987801	0.70332%
															Sector total Power Density Value:		2.122%

Site Composite MPE %	
Carrier	MPE %
Sprint	6.365%
Verizon Wireless	9.420%
AT&T	3.960%
Total Site MPE %	**19.745%**

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Summary

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

The anticipated Maximum Composite contributions from the Sprint facility are **6.365% (2.122% 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 **19.745%** 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

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21 B Street
Burlington, MA 01803