STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

December 14, 2012

Rick Woods
SBA Communications Corporation
33 Boston Post Road West Suite 320
Marlborough, MA 01752

RE: **EM-SPRINT-004-121126** –Sprint Spectrum notice of intent to modify an existing telecommunications facility located at 10 Redwood Lane, Avon, Connecticut.

Dear Mr. Woods:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- The coax lines and accessory equipment shall be installed in accordance with the recommendations made in the Structural Analysis Report prepared by FDH Engineering dated October 5, 2012 and stamped by Christopher Murphy; and
- Not more than 45 days following completion of the antenna installation, Sprint shall provide documentation certifying that its installation complied with the engineer's recommendation.
- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Not more than 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated November 20, 2012. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

CSC
CONNECTICUT SITING COUNCIL

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

LRoberts

Linda Roberts
Executive Director

LR/CDM/cm

c: The Honorable Mark W. Zacchio, Chairman Town Council, Town of Avon
Steven V. Kushner, Town Planner, Town of Avon

EM-SPRINT-004-121126

SBA

November 20, 2012

ORIGINAL

RECEIVED
NOV 26 2012
CONNECTICUT
SITING COUNCIL

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

RE: Notice of Exempt Modification
10 Redwood Lane
Avon, CT 06001
N 41 ° 46' 20.09"
W 72 ° 52' 48.37"

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 10 Redwood Lane Avon, CT.

The 10 Redwood Lane facility consists of a 105' 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

[redacted]

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
33 Boston Post Road West Suite 320
Marlborough, MA 01752
508-251-1691 x 319 + T
508-251-1755 + F
508-614-0389 + C
rwoods@sbasite.com

[redacted]

SBA

Sprint Spectrum
Equipment Modification

10 Redwood Lane Avon, CT
Site number CT33XC533

Tower Owner: SBA Communications Corporation

Equipment Configuration: MONOPOLE Tower

Current and/or approved:
Twelve (12) CDMA Antennas @ 87'
Twelve (12) lines of 1-5/8" coax
Two (2) equipment cabinets

Planned Modifications:
Remove Twelve (12) CDMA antennas & Twelve (12) lines of 1-5/8"
Install Three (3) Network Vision antennas & Six (6) RRHs @ 87'
Install Three (3) Hybriflex fiber cables
Install Three (3) Filters
Install Four (4) RETs
Install One (1) Fiber Distribution Box
Replacing Two (2) equipment cabinets with 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 45.504% of the allowable FCC established general public limit. The anticipated composite MPE value for this site assuming all carriers present is 84.954% of the allowable FCC established general public limit sampled at the ground level.

Site Composite MPE %	
Carrier	MPE %
Sprint	45.504%
AT&T	6.670%
Pocket	11.480%
T-Mobile	8.280%
Clearwire	7.720%
Farmwoods	10.780%
Total Site MPE %	84.954%

[redacted]

November 20, 2012

Brandon Robertson
Town Manager
Town of Avon
60 West Main St.
Avon, CT 06001

RE: Telecommunications Facility-10 Redwood Lane Avon, CT 06001

Dear Mr. Robertson,

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
33 Boston Post Road West Suite 320
Marlborough, MA 01752
508-251-1691 x 319 + T
508-251-1755 + F
508-614-0389 + C
rwoods@sbasite.com

EBI Consulting
environmental | engineering | due diligence

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

Sprint Existing Facility

Site ID: CT33XC533

Avon / SBA
10 Redwood Lane
Avon, CT 06001

October 29, 2012

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

EBI Consulting
environmental | engineering | due diligence

October 29, 2012

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

Re: Emissions Values for Site: **CT33XC533 – Avon / SBA**

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at 10 Redwood Lane, Avon, 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 10 Redwood Lane, Avon, 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 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 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 **87 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	CT33XC533 - Avon / SBA
Site Addresss	10 Redwood Lane, Avon, CT, 06001
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	87	81	1/2 "	0.5	0	2080.4211	113.9954	11.39954%
1a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	87	81	1/2 "	0.5	0	389.96892	21.3681	3.76862%
														Sector total Power Density Value:			15.168%

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	87	81	1/2 "	0.5	0	2080.4211	113.9954	11.39954%
2a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	87	81	1/2 "	0.5	0	389.96892	21.3681	3.76862%
														Sector total Power Density Value:			15.168%

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	87	81	1/2 "	0.5	0	2080.4211	113.9954	11.39954%
3a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	87	81	1/2 "	0.5	0	389.96892	21.3681	3.76862%
														Sector total Power Density Value:			15.168%

Site Composite MPE %	
Carrier	MPE %
Sprint	45.504%
AT&T	6.670%
Pocket	11.480%
T-Mobile	8.280%
Clearwire	2.240%
Farmwoods	10.780%
Total Site MPE %	84.954%

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 exposure to RF Emissions.

The anticipated Maximum Composite contributions from the Sprint facility are **45.504% (15.168%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 **84.954%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions

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

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803

FDH Engineering, Inc., 6521 Meridien Drive Raleigh, NC 27616, Ph. 919.755.1012, Fax 919.755.1031

Structural Analysis for SBA Network Services, Inc.

105 ft Monopole

SBA Site Name: Avon
SBA Site ID: CT01498-S
Sprint Site ID: CT33XC533

FDH Project Number 12-06919E S1

Analysis Results

Tower Components	94.5%	Sufficient
Foundation	54.7%	Sufficient

Prepared By:

Randy C. Williams

Randy C. Williams, EI
Project Engineer

Reviewed By:

Christopher M. Murphy

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

October 5, 2012

Prepared pursuant to TIA/EIA-222-F Structural Standard for Steel Antenna Towers and Antenna Supporting Structures and 2005 Connecticut State 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 Avon, CT to determine whether the tower is structurally adequate to support both the existing and proposed loads, pursuant to the *Structural Standard for Antenna Supporting Structures and Antennas, TIA/EIA-222-F and 2005 Connecticut State Building Code*. Information pertaining to the existing/proposed antenna loading, current tower geometry, and member sizes was obtained from:

- ❑ Pirod, Inc. (Eng. File No. A-117586) original design drawings dated September 26, 2000
- ❑ SBA Network Services Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and *2005 Connecticut State Building Code* is 100 mph without ice and 50 mph with 1" radial ice. Ice is considered to increase in thickness with height.

Conclusions

With the current and proposed antennas from Sprint at 87 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and *2005 Connecticut State Building Code* provided the **Recommendations** below are satisfied. Furthermore, provided the foundation was designed and constructed to support the original design reactions (see Pirod Eng. File No. A-117586), 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* standard *and 2005 Connecticut State Building Code* are met with the existing and proposed loading in place, we have the following recommendations:

1. Proposed coax should be installed inside the monopole's shaft unless otherwise noted.
2. RRU/RRH Stipulation: The proposed 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 this 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 [1]	Carrier	Mount Elevation (ft)	Mount Type
116	(1) 20' Omni	(1) 7/8"	Farmington Woods	106	(1) Low Profile Platform
106	(3) EMS RR901702DP w/ Mount Pipe (3) RFS APX16PV-16PVL-C w/ Mount Pipe (6) Allen FE15501P77-75 TMAs (6) Andrew ETW200VA12UB TMAs	(12) 1-5/8"	T-Mobile		
98	(6) Ericsson RRUS-11 RRUs (1) Raycap DC2-48-60-18-8F Surge Arrestor	12) 1-5/8" (1) 3" (1) 10mm Fiber	AT&T	98	(3) Standoff Arms
97	(3) KMW AM-X-CD-16-65-00T-RET w/ Mount Pipe (3) Kathrein 800-10121 w/ Mount Pipe (6) KMW AM-X-CD-16-65-00T-RET w/ Mount Pipe (6) Powerwave LGP 21401 TMAs (6) Kathrein 860-10035 RETs (6) Kathrein 782-10250 Diplexers			97	(1) Low Profile Platform
91	(3) Andrew VHLP2.5 Dishes (3) Samsung RRU Radios (3) Horizon DUO Radio	(6) 5/16" (3) 1/2"	Clearwire	87	(1) Low Profile Platform
87	(9) Decibel DB980H90E-XY w/ Mount Pipe (3) Kathrein 840-10054 w/ Mount Pipe	(12) 1-5/8"	Sprint		
77[2]	(6) Kathrein 742-213 w/ Mount Pipe	(6) 1-5/8"	Pocket	77	(1) Low Profile Platform (assumed)
75	(1) GPS	(1) 1/2"	Sprint	75	Standoff

1. The existing coax is located inside the pole's shaft, unless otherwise noted.
2. The coax for Pocket is installed outside the monopole shaft in a single row.

Proposed Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
91	(3) Andrew VHLP2.5 Dishes (3) Samsung RRU Radios (3) Horizon DUO Radio	(6) 5/16" (3) 1/2"	Clearwire	87	(1) Low Profile Platform
87	(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		

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	42 ksi
Base Plate	36 ksi
Anchor Bolts	105 ksi

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

If the assumptions outlined in this report differ from actual field conditions, FDH 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	105 - 80	Pole	P36x3/8	18.9	Pass
		Flange Bolts	(28) 1" ø Bolts on a 39" BC	16.4	Pass
		Flange Plate	1.25" thick	21.6	Pass
L2	80 - 60	Pole	P42x3/8	35.0	Pass
		Flange Bolts	(32) 1" ø Bolts on a 45" BC	30.7	Pass
		Flange Plate	1.25" thick	39.3	Pass
L3	60 - 40	Pole	P48x3/8	46.1	Pass
		Flange Bolts	(36) 1" ø Bolts on a 51" BC	40.4	Pass
		Flange Plate	1.25" thick	51.1	Pass
L4	40 - 20	Pole	P54x3/8	53.9	Pass
		Flange Bolts	(48) 1" ø Bolts on a 57" BC	39.2	Pass
		Flange Plate	1.25" thick	59.2	Pass
L5	20 - 0	Pole	P60x3/8	59.5	Pass
		Anchor Bolts	(48) 1" Bolts on a 63" BC	41.5	Pass
		Base Plate	1" thick x 66.125" round	94.5	Pass

Table 4 – Maximum Base Reactions

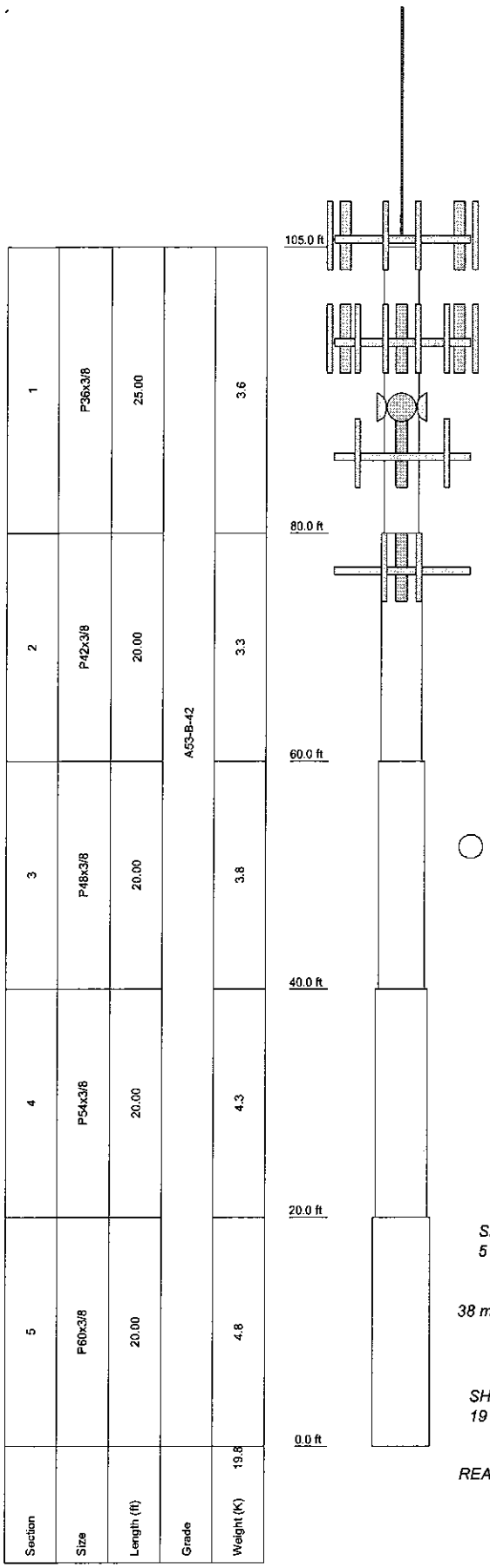
Base Reactions	Current Analysis *(TIA/EIA-222-F)*	Original Design *(TIA/EIA-222-F)*
Axial	32 k	41 k
Shear	19 k	31 k
Moment	1,398 k-ft	2,555 k-ft

GENERAL COMMENTS

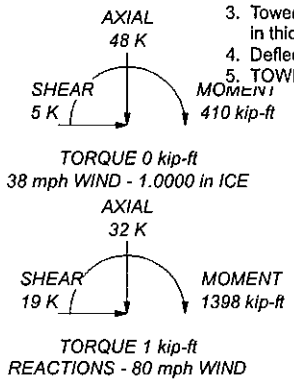
This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading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



Section	Size	Length (ft)	Grade	Weight (K)
1	P36x3/8	25.00	A53-B-42	3.6
2	P42x3/8	20.00		3.3
3	P48x3/8	20.00		3.8
4	P54x3/8	20.00		4.3
5	P60x3/8	20.00		4.8
				19.8



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
20' Omni (Farmington Woods)	106	(2) 860 10025 (ATI)	97
RR90-17-02DP w/Mount Pipe (T-Mobile)	106	(2) 860 10025 (ATI)	97
		(2) 860 10025 (ATI)	97
RR90-17-02DP w/Mount Pipe (T-Mobile)	106	(2) 782 10250 Combiner (ATI)	97
		(2) 782 10250 Combiner (ATI)	97
RR90-17-02DP w/Mount Pipe (T-Mobile)	106	(2) 782 10250 Combiner (ATI)	97
		Low Profile Platform (ATI)	97
RFS APX16PV-16PVL w/ Mount Pipe (T-Mobile)	106	1900 MHz RRH (Clearwire/Sprint)	87
		800 MHz RRH (Clearwire/Sprint)	87
RFS APX16PV-16PVL w/ Mount Pipe (T-Mobile)	106	800 MHz RRH (Clearwire/Sprint)	87
		800 MHz RRH (Clearwire/Sprint)	87
RFS APX16PV-16PVL w/ Mount Pipe (T-Mobile)	106	800 MHz Filter (Clearwire/Sprint)	87
		800 MHz Filter (Clearwire/Sprint)	87
(2) Allen FE15501P77-75 TMA (T-Mobile)	106	800 MHz Filter (Clearwire/Sprint)	87
		(2) ACU-A20-N RET (Clearwire/Sprint)	87
(2) Allen FE15501P77-75 TMA (T-Mobile)	106	ACU-A20-N RET (Clearwire/Sprint)	87
		ACU-A20-N RET (Clearwire/Sprint)	87
(2) ETW200VA12UB TMA (T-Mobile)	106	Dragonwave Horizon Duo ODU (Clearwire/Sprint)	87
(2) ETW200VA12UB TMA (T-Mobile)	106	Dragonwave Horizon Duo ODU (Clearwire/Sprint)	87
(2) ETW200VA12UB TMA (T-Mobile)	106	Dragonwave Horizon Duo ODU (Clearwire/Sprint)	87
Low Profile Platform (T-Mobile)	106	Samsung RRU (Clearwire/Sprint)	87
(2) RRUS-11 (ATI)	98	Samsung RRU (Clearwire/Sprint)	87
(2) RRUS-11 (ATI)	98	APXVSPP18-C-A20 w/Mount Pipe (Clearwire/Sprint)	87
(2) RRUS-11 (ATI)	98	APXVSPP18-C-A20 w/Mount Pipe (Clearwire/Sprint)	87
DC6-48-60-18-8F Surge Arrestor (ATI)	98	APXVSPP18-C-A20 w/Mount Pipe (Clearwire/Sprint)	87
(3) Standoffs (ATI)	98	Samsung RRU (Clearwire/Sprint)	87
AM-X-CD-16-65-00T w/ Mount Pipe (ATI)	97	Low Profile Platform (Clearwire/Sprint)	87
AM-X-CD-16-65-00T w/ Mount Pipe (ATI)	97	1900 MHz RRH (Clearwire/Sprint)	87
AM-X-CD-16-65-00T w/ Mount Pipe (ATI)	97	1900 MHz RRH (Clearwire/Sprint)	87
800 10121 w/ Mount Pipe (ATI)	97	VHLP2.5 (Clearwire/Sprint)	87
800 10121 w/ Mount Pipe (ATI)	97	VHLP2.5 (Clearwire/Sprint)	87
800 10121 w/ Mount Pipe (ATI)	97	VHLP2.5 (Clearwire/Sprint)	87
(2) AM-X-CD-16-65-00T w/ Mount Pipe (ATI)	97	(2) Kathrein 742-213 w/ Mount Pipe (Pocket)	77
(2) AM-X-CD-16-65-00T w/ Mount Pipe (ATI)	97	(2) Kathrein 742-213 w/ Mount Pipe (Pocket)	77
(2) AM-X-CD-16-65-00T w/ Mount Pipe (ATI)	97	(2) Kathrein 742-213 w/ Mount Pipe (Pocket)	77
(2) TMA - Powerwave LGP21401 (ATI)	97	Low Profile Platform (Pocket)	77
(2) TMA - Powerwave LGP21401 (ATI)	97	Side Mount Standoff (1) (Sprint)	75
(2) TMA - Powerwave LGP21401 (ATI)	97	GPS (Sprint)	75

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-42	42 ksi	63 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 60 mph wind.
5. TOWER RATING: 61.0%

FDH Engineering, Inc.
6521 Meridien Drive
Raleigh, North Carolina
Phone: (919) 755-1012
FAX: (919) 755-1031
Tower Analysis

Job: Avon, CT01498-S			
Project: 12-06919E S2			
Client: SBA Network Services, Inc	Drawn by: Randy Williams	App'd:	
Code: TIA/EIA-222-F	Date: 10/05/12	Scale: NTS	
Path: C:\Users\Randy Williams\Desktop\Avon-CT\S2 - SA_SNWA\nalysis\Avon_CT01498-S.eri		Dwg No. E-1	

STRUCTURAL DESIGNS AND DETAILS FOR ANTENNA MOUNTS AND RRH MOUNTS COMPLETED BY COM-EX CONSULTANTS ON BEHALF OF ALCATEL-LUCENT ARE INCLUSIVE OF THE ENTIRE ANTENNA STRUCTURE, INCLUDING TOWERS (ANALYZED BY OTHERS), TOWER PLATFORMS, ARMS AND ALL OTHER ASPECTS OF THE STRUCTURE THAT WILL SUPPORT THE SPRINT NETWORK VISIONS EQUIPMENT DEPLOYMENT FOR THE INTERIM AND FINAL EQUIPMENT SCENARIOS.

Sprint® VISION

SITE NUMBER:

CT33XC533

SITE NAME:

AVON

SITE ADDRESS:

10 REDWOOD LANE
AVON, CT 06001

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 MAY BE DETERMINED BY TENANT AND/OR THE SERVICING UTILITY COMPANY IN COMPLIANCE WITH LOCAL LAWS AND REGULATIONS.

SBA SITE #: CT01498-S-02
SBA SITE NAME: AVON

CONNECTICUT ONE CALL SYSTEM, INC. 1-800-922-4455 DIG SAFE CALL BEFORE YOU DIG!

CONNECTICUT LAW REQUIRES TWO WORKING DAYS NOTICE PRIOR TO ANY EARTH MOVING ACTIVITIES BY CALLING 800-922-4455 OR DIAL 811

Sprint VISION
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
PHONE: (201) 684-4000 FAX (201) 684-4223

Alcatel·Lucent
1 ROBBINS ROAD
WESTFORD, MA 01886
OFFICE: (978) 692-1153

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

COM-EX Consultants
4 SECOND AVENUE
SUITE 204
DENVILLE, NJ 07834
PHONE: 862.209.4300
FAX: 862.209.4301

INFORMATION ON THIS SET OF DRAWINGS IS NOT FOR OFFICIAL USE UNLESS ACCOMPANIED BY THE STAMPED SEAL & SIGNATURE OF A PROFESSIONAL ENGINEER

STATE OF CONNECTICUT · NICHOLAS D. BARILE · No. 28643 · LICENSED PROFESSIONAL ENGINEER

NICHOLAS D. BARILE
PROFESSIONAL ENGINEER CT LIC No. 28643

SITE INFORMATION

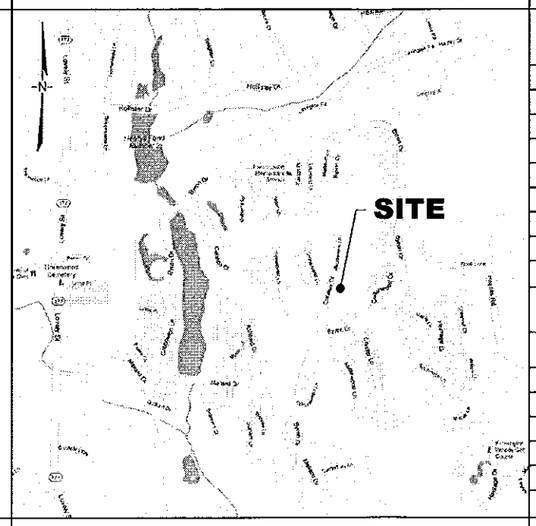
SITE ID NUMBER:	CT33XC533
SITE NAME:	AVON
SITE ADDRESS:	10 REDWOOD LANE AVON, CT 05001
COUNTY:	HARTFORD COUNTY
COORDINATES: (*)	N 41° 46' 20.09" W 72° 52' 48.37"
GROUND ELEVATION: (*)	434' AMSL
STRUCTURE TYPE:	MONOPOLE
STRUCTURE HEIGHT:	±107' AGL
ANTENNA HEIGHT (**) (RAD CENTER):	SECTOR 1: ±87.0' SECTOR 2: ±87.0' SECTOR 3: ±87.0'

(*) - COORDINATES DETERMINED FROM SPRINT SITERRA DATABASE AND CONFIRMED BY ALCATEL-LUCENT USING GOOGLE EARTH

(**) - 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 THE ALU/SPRINT DATABASE

PROPERTY OWNER:	AVON WATER CO. PO BOX 424 AVON, CT 06001
STRUCTURE OWNER:	SBA TOWERS, LLC 5900 BROKEN SOUND PARKWAY BOCA RATON, FL 33487
LOCAL POWER COMPANY:	CONNECTICUT LIGHT & POWER CO.
LOCAL TELEPHONE COMPANY:	COX
APPLICANT:	SPRINT 1 INTERNATIONAL BLVD - SUITE 800 MAHWAH, NJ 07495 PHONE: (201) 684-4000
APPLICANT REPRESENTATIVE:	ALCATEL-LUCENT 1 ROBBINS ROAD WESTFORD, MA 01886 PHONE: (978) 952-1600
SITE ACQUISITION REPRESENTATIVE:	SBA COMMUNICATIONS CORPORATION 33 BOSTON POST ROAD WEST, SUITE 320 MARLBOROUGH, MA 01752 (508) 251-1807
ARCHITECT/ENGINEER:	COM-EX CONSULTANTS 4 SECOND AVENUE DENVILLE, NJ 07834 PHONE (862) 209-4300

VICINITY MAP (NOT TO SCALE)



CONSTRUCTION DRAWING SHEET INDEX

SHEET NUMBER:	SHEET DESCRIPTION
T-1	TITLE SHEET
GN-1	GENERAL NOTES
A-1	COMPOUND PLAN, EQUIPMENT PLANS & ELEVATION
A-2	ANTENNA SCENARIOS
A-3	CONSTRUCTION DETAILS
A-4	RF DATA SHEET & ANTENNA SECTOR INSTALLATION DETAIL
A-5	CABINET AND ANTENNA WIRING DIAGRAM
E-1	ELECTRIC , TELCO , GROUNDING PLANS AND DETAILS
E-2	TYPICAL POWER AND GROUNDING ONE-LINE DIAGRAM

AAV DRAWING SHEET INDEX

SHEET NUMBER:	SHEET DESCRIPTION
T-1	TITLE SHEET
C-1	SITE SURVEY PHOTOS 1
C-2	SITE SURVEY PHOTOS 2
C-3	SITE PLAN
C-4	SPECIFICATIONS & DETAILS

GENERAL NOTES

1. THIS IS AN UNMANNED TELECOMMUNICATIONS FACILITY AND NOT FOR HUMAN HABITATION:
   - HANDICAP ACCESS REQUIREMENTS ARE NOT REQUIRED
   - FACILITY HAS NO PLUMBING OR REFRIGERANTS
   - THIS FACILITY SHALL MEET OR EXCEED ALL FAA AND FCC REGULATOR REQUIREMENTS
2. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE PROJECT OWNER'S REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
3. DEVELOPMENT AND USE OF THE SITE WILL CONFORM TO ALL APPLICABLE CODES AND ORDINACES.
   BUILDING CODE: 2003 IBC; 2003 IRC (STATE BUILDING CODE, 2005 CT SUPPLEMENT)
   ELECTRICAL CODE: 2005 NEC (NFPA-70)

SCOPE OF WORK

SPRINT PROPOSES TO MODIFY THIS EXISTING WIRELESS COMMUNICATIONS FACILITY AS FOLLOWS:

1. ONE (1) EXISTING CDMA OUTDOOR EQUIPMENT CABINET TO BE REPLACED WITH ONE (1) MULTIMODAL EQUIPMENT CABINET WITHIN THE EXISTING SPRINT LEASE AREA.
2. ONE (1) EXISTING POWERHOUSE CABINET TO BE REPLACED WITH ONE (1) BATTERY CABINETS.
3. ONE (1) PROPOSED FIBER DISTRIBUTION BOX (J-BOX) INSTALLED ON PROPOSED H-FRAME WITHIN EXISTING SPRINT LEASE AREA.
4. SIX (6) EXISTING ANTENNAS TO BE REPLACED WITH THREE (3) PROPOSED ANTENNAS AND SIX (6) RRH'S INSTALLED ON EXISTING SPRINT ANTENNA FRAME ON EXISTING ANTENNA SUPPORT STRUCTURE.
5. SIX (6) EXISTING COAXIAL CABLES TO BE REPLACED WITH THREE (3) PROPOSED HYBRIFLEX CABLES
6. ONE (1) GPS ANTENNA TO REPLACE EXISTING GPS ANTENNA
7. EXISTING LOCAL EXCHANGE CARRIER LANDLINE BACKHAUL FACILITIES TO BE REPLACED WITH PROPOSED ALTERNATIVE ACCESS VENDOR (AAV) FIBER OPTIC FACILITIES INCLUDING PROPOSED OVERHEAD/UNDERGROUND CONDUITS AND NETWORK INTERFACE DEVICE.

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

R.F. ENGINEER DATE

LANDLORD/ PROPERTY OWNER DATE

SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
9		
8		
7		
6		
5		
4		
3		
2	10/31/12	REVISED PER CLIENT COMMENTS
1	09/28/12	CONSTRUCTION REVIEW

DRAWN BY:	GSB
CHECKED BY:	NB
SCALE:	AS NOTED
JOB NO:	12035-SBA

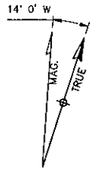
CT33XC533
AVON
10 REDWOOD LANE
AVON, CT 06001
HARTFORD COUNTY

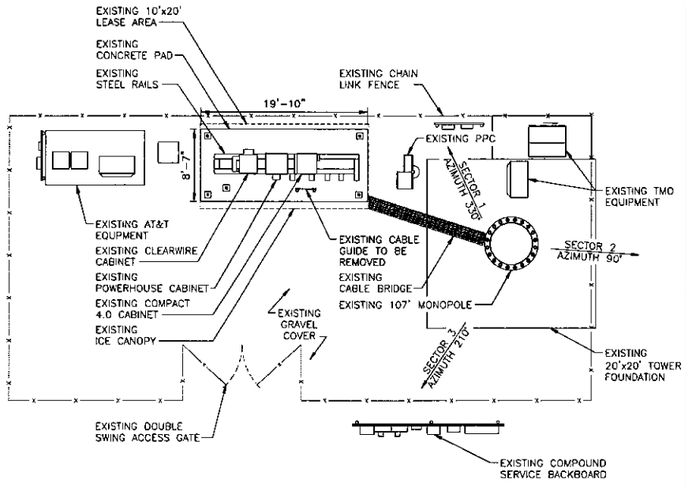
DRAWING TITLE:

TITLE SHEET

DRAWING SHEET: 1 OF 9

T-1

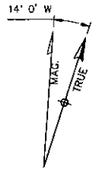


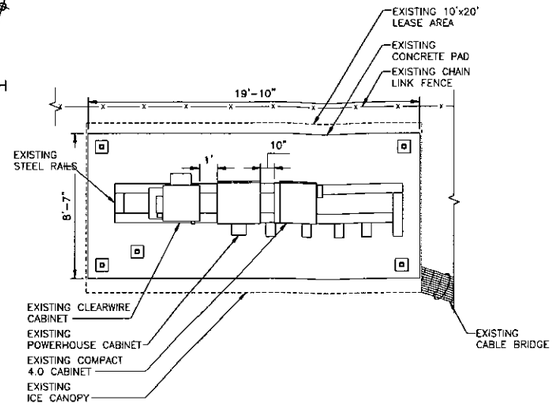


1 / A-1 EXISTING COMPOUND PLAN
SCALE: 1/8"=1'

GRAPHIC SCALE

(IN FEET)
1/8 Inch = 1 Foot
(24"x36" SHEET SIZE)

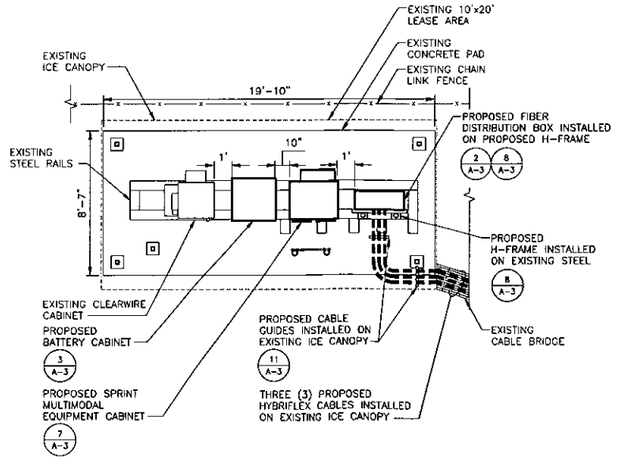




2 / A-1 EXISTING EQUIPMENT PLAN
SCALE: 1/4"=1'

GRAPHIC SCALE

(IN FEET)
1/4 Inch = 1 Foot
(24"x36" SHEET SIZE)

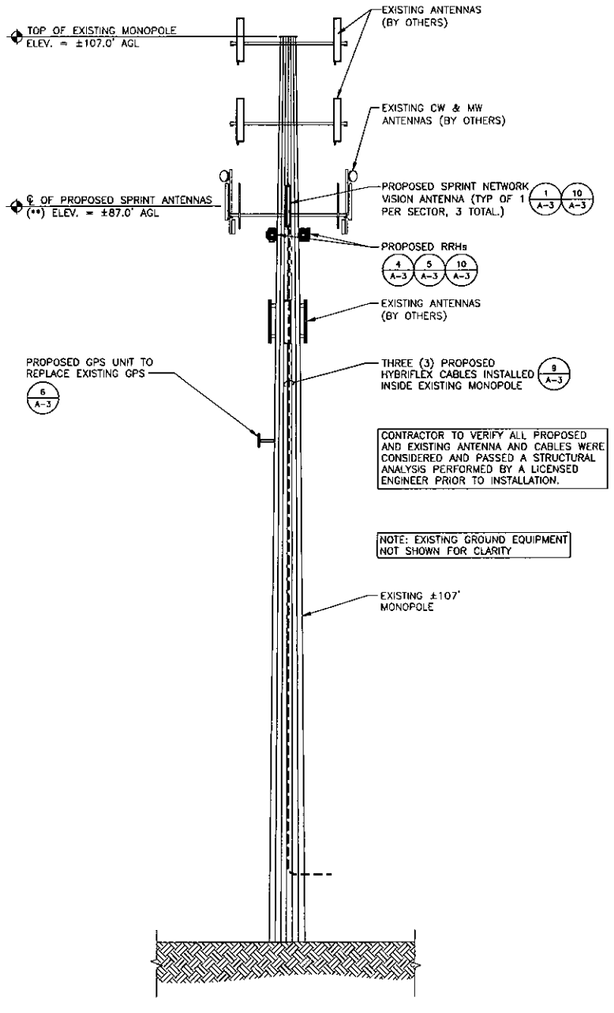


3 / A-1 FINAL EQUIPMENT PLAN
SCALE: 1/4"=1'

GRAPHIC SCALE

(IN FEET)
1/4 Inch = 1 Foot
(24"x36" SHEET SIZE)

(**) - 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 THE ALU/SPRINT DATABASE



4 / A-1 FINAL MONOPOLE ELEVATION
SCALE: 1/8"=1'

GRAPHIC SCALE

(IN FEET)
1/8 Inch = 1 Foot
(24"x36" SHEET SIZE)

Sprint VISION
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
PHONE: (201) 684-4000 FAX (201) 684-4223

Alcatel·Lucent
1 ROBBINS ROAD
WESTFORD, MA 01886
OFFICE: (978) 692-1153

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

COM-EX Consultants
4 SECOND AVENUE
SUITE 204
DENVILLE, NJ 07834
PHONE: 862.209.4300
FAX: 862.209.4301

NICHOLAS D. BARILE
PROFESSIONAL ENGINEER CT LIC No. 29643

SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
9		
8		
7		
6		
5		
4		
3		
2	10/31/12	REVISED PER CLIENT COMMENTS
1	09/28/12	CONSTRUCTION REVIEW

DRAWN BY:	GSB
CHECKED BY:	NB
SCALE:	AS NOTED
JOB NO:	12035-SBA

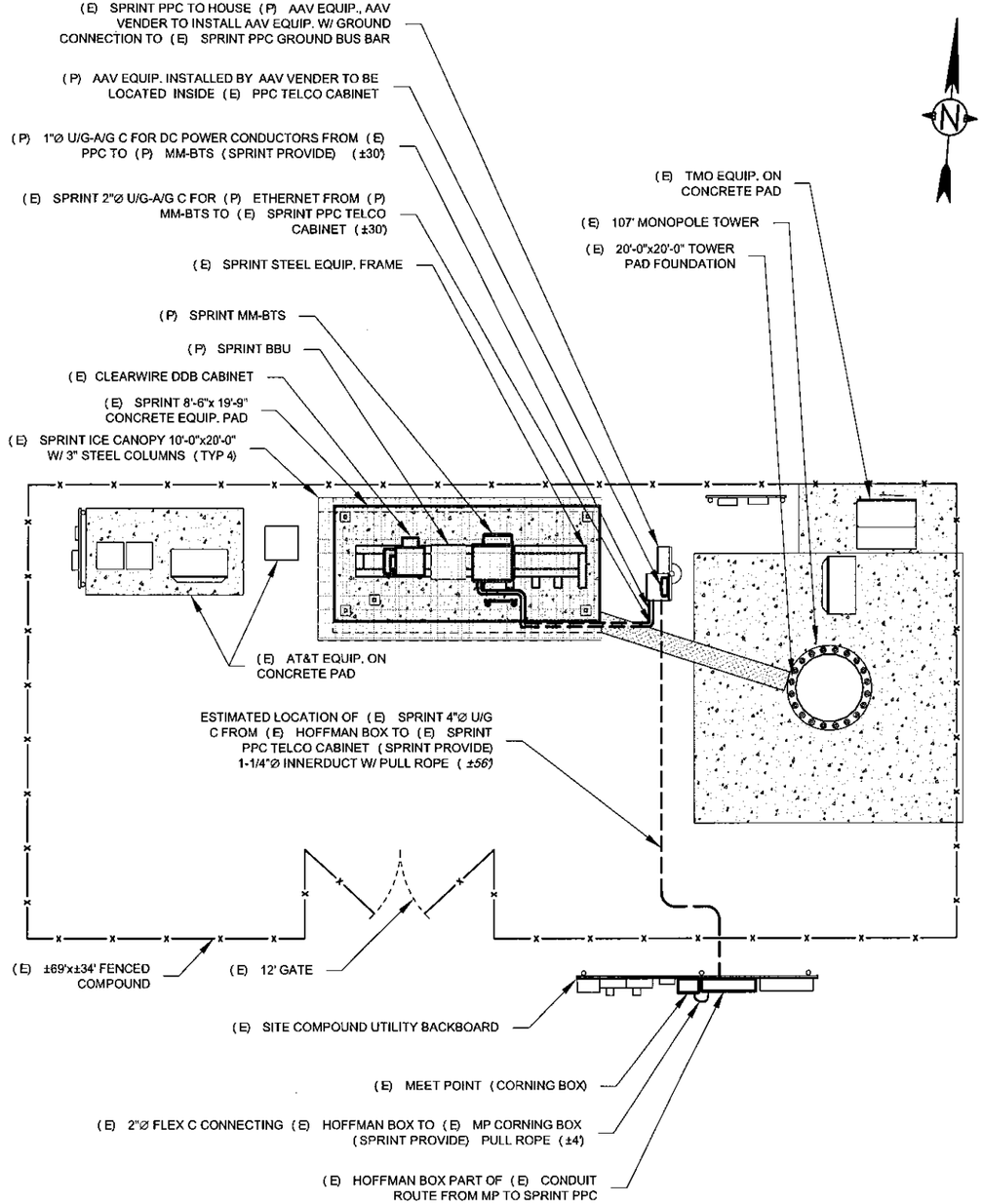
CT33XC533
AVON
10 REDWOOD LANE
AVON, CT 06001
HARTFORD COUNTY

DRAWING TITLE:

COMPOUND PLAN, EQUIPMENT PLANS & ELEVATION

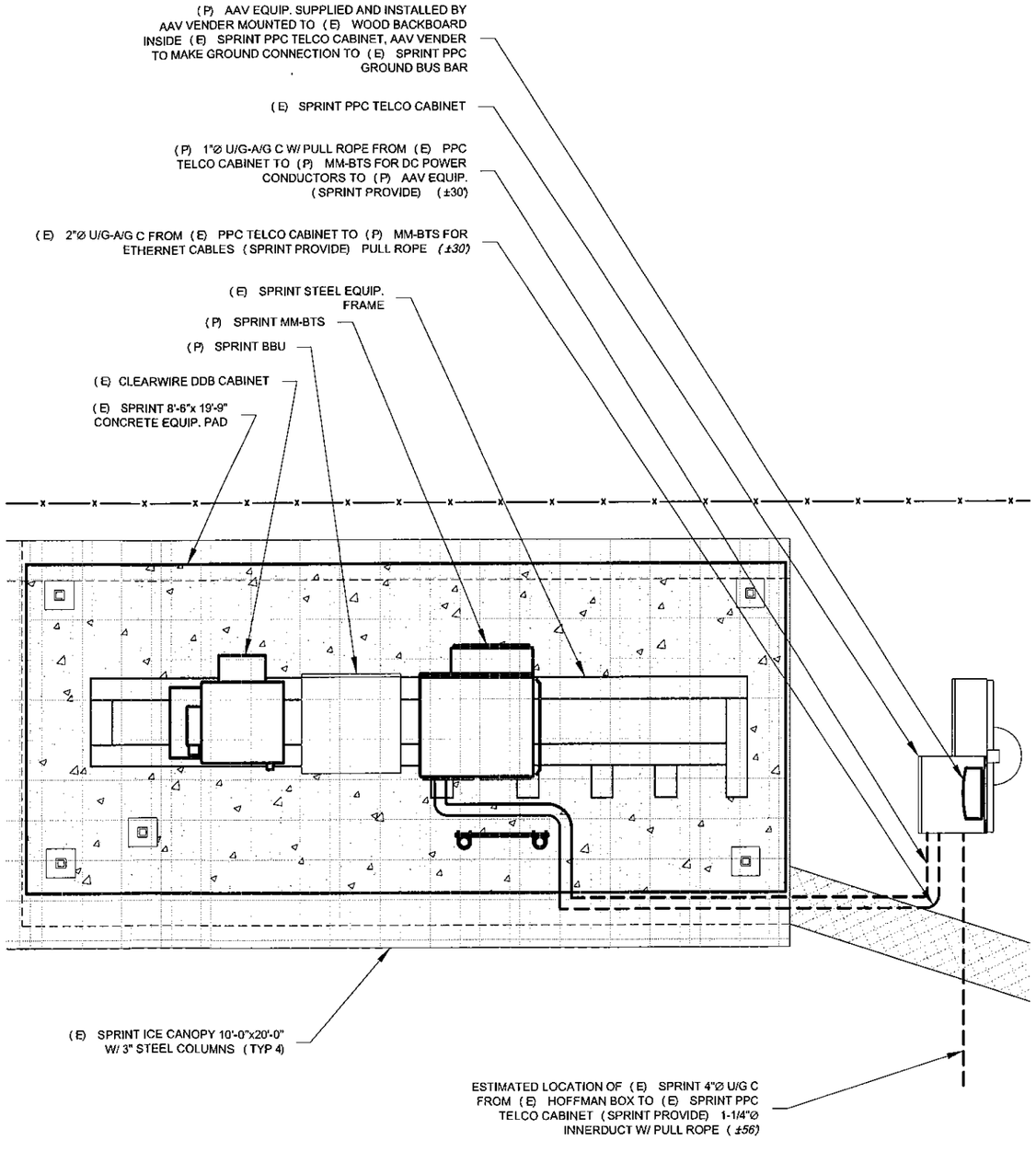
DRAWING SHEET: 3 OF 9

A-1



1 / C-3 FIBER SERVICE PLAN
SCALE: 3/32"=1'-0"

4 0 4 8 12 FT
SCALE 3/32"=1'-0"



2 / C-3 FIBER SERVICE PLAN-EQUIPMENT SPACE
SCALE: N.T.S.

COM-EX Consultants
4 RECOND AVENUE
SUITE 204
DENVILLE, NJ 07834
PHONE: 862.209.4300
FAX: 862.209.4301
NEW JERSEY STATE BOARD OF PROFESSIONAL ENGINEERS CERTIFICATE OF AUTHORIZATION # 24GA28017100

Sprint
Together with Nextel.
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
PHONE: (201) 684-4000 FAX (201) 684-4223

SBA
SBA COMMUNICATIONS CORP.
ONE RESEARCH DRIVE, SUITE 200C
WESTBOROUGH, MA 01581
TEL: (508) 366-5505
FAX: (508) 366-5507

Alcatel·Lucent
1 ROBBINS ROAD
WESTFORD, MA 01886
TEL: (978) 952-1600

SCHEDULE OF REVISIONS

REV NO.	DATE	DESCRIPTION OF CHANGES
5		
4		
3		
2		
1		
0	09/05/12	INITIAL SUBMISSION

DRAWN BY:	ELP
CHECKED BY:	JCP
SCALE:	AS NOTED
JOB NO:	12035-S8A

CT33XC533
10 REDWOOD LANE
AVON, CT 06001

DRAWING TITLE:

SITE PLAN

DRAWING SHEET: 1 OF 4

C-3

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

November 27, 2012

The Honorable Mark W. Zacchio
Chairman Town Council
Town of Avon
60 West Main Street
Avon, CT 06001-3743

RE: **EM-SPRINT-004-121126** –Sprint Spectrum notice of intent to modify an existing telecommunications facility located at 10 Redwood Lane, Avon, Connecticut.

Dear Chairman Town Council Zacchio:

The Connecticut Siting Council (Council) received a request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72. A copy of which has already been provided to you.

If you have any questions or comments regarding the proposal, please call me or inform the Council by December 11, 2012.

Thank you for your cooperation and consideration.

Very truly yours,

Linda Roberts

Linda Roberts
Executive Director

LR/cm

c: Steven V. Kushner, Town Planner, Town of Avon