



June 18<sup>th</sup>, 2018

Melanie Bachman, Executive Director  
Connecticut Siting Council  
10 Franklin Square  
New Britain, CT 06051

**RE: Notice of Exempt Modification – Antenna Swap for wireless facility located at 135 HONEY HILL ROAD, EAST HADDAM CONNECTICUT – CT33XC537 (lat. 41° 26' 19.982" N, long. - 72° 22' 0.516" W)**

Dear Ms. Bachman:

Sprint Spectrum, LP ("Sprint") currently maintains wireless telecommunications antennas at the (140-foot level) on an existing (151-foot monopole tower) at the above-referenced address. The property is owned by DONALD AND SUSAN PORTER, and the tower is owned by American Tower Corporation.

Sprint's proposed work involves antenna replacement and tower work. Sprint intends to replace six (6) antennas, relocate three (3) RRHs from ground level to the tower and add nine (9) new RRHs onto the tower. All the proposed work is contained within the existing fenced area. Please refer to the attached drawings for site plans prepared by Infinigy Engineering.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to EMMETT LYMAN, FIRST SELECTMAN, and JAMES VENTRES, LAND USE ADMINISTRATOR of the Town of EAST HADDAM. A copy of this letter is also being sent to JUSTINE PAUL the manager for AMERICAN TOWER CORPORATION who manages the site, and DONALD and SUSAN PORTER who own the land where the tower is located.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b).

1. The proposed modifications will not result in an increase in the height of the existing tower.
2. The antennas work is a one-for-one replacement of facility components.



3. The proposed modifications will include the addition of ground base equipment as depicted on the attached drawings; however, the proposed equipment will not require an extension of the site boundaries.
4. The proposed modifications will not increase noise levels at the facility by six decibels or more.
5. The additional ground based equipment will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard.

For the foregoing reasons, Sprint respectfully submits that the proposed modifications to the above referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b).

If you have any questions or require any additional information regarding this request, please do not hesitate to give me a call at (518) 350-4222 or email me to [aperkowski@airosmithdevelopment.com](mailto:aperkowski@airosmithdevelopment.com)

Kind Regards,

A handwritten signature in black ink, appearing to read 'Arthur Perkowski', is written over a large, light blue oval shape that serves as a placeholder for a stamp or seal.

Arthur Perkowski  
Airosmith Development Inc.  
32 Clinton Street  
Saratoga Springs, NY 12866  
518-306-1711 desk & fax  
518-871-3707 cell  
[aperkowski@airosmithdevelopment.com](mailto:aperkowski@airosmithdevelopment.com)

Attachment

CC: EMMETT LYMAN (Town Manager, EAST HADDAM, CT)  
JUSTINE PAUL (Manager, AMERICAN TOWER CORPORATION)  
JAMES VENTRES (LAND USE ADMINISTRATOR / EAST HADDAM, CT)  
DONALD AND SUSAN PORTER (Land Owner)

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

SPRINT Existing Facility

Site ID: CT33XC537

(R2E) CT4996 to CT33-537 E.  
135 Honey Hill Road  
East Haddam, CT 06423

**June 8, 2018**

**EBI Project Number: 6218004305**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>9.98 %</b>



June 8, 2018

SPRINT

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

Emissions Analysis for Site: **CT33XC537 – (R2E) CT4996 to CT33-537 E.**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **135 Honey Hill Road, East Haddam, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT Antenna Installation located on this property are within specified federal limits.

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

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

General population/uncontrolled exposure limits apply to situations in which the general population 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 population 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.

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limits for the 850 MHz Band is approximately  $567 \mu\text{W}/\text{cm}^2$ . The general population exposure limit for the 1900 MHz (PCS) and 2500 MHz (BRS) bands is  $1000 \mu\text{W}/\text{cm}^2$ . Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



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

Additional details can be found in FCC OET 65.

## CALCULATIONS

Calculations were done for the proposed SPRINT Wireless antenna facility located at **135 Honey Hill Road, East Haddam, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

- 1) 1 CDMA channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.
- 2) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 50 Watts per Channel.
- 3) 5 CDMA channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 16 Watts per Channel.
- 4) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 5) 8 LTE channels (2500 MHz (BRS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.





- 6) 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.
- 7) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antennas used in this modeling are the **Commscope NNVV-65B-R4 and the RFS APXVTM14-ALU-I20** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antenna mounting height centerlines of the proposed antennas are **140 feet** above ground level (AGL) for **Sector A**, **140 feet** above ground level (AGL) for **Sector B** and **140 feet** above ground level (AGL) for Sector C.
- 10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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



## SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	<b>1</b>	Antenna #:	<b>1</b>	Antenna #:	<b>1</b>
Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd	Gain:	12.75 / 15.05 dBd
Height (AGL):	<b>140 feet</b>	Height (AGL):	<b>140 feet</b>	Height (AGL):	<b>140 feet</b>
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts	Total TX Power(W):	280 Watts
ERP (W):	7,378.61	ERP (W):	7,378.61	ERP (W):	7,378.61
Antenna A1 MPE%	<b>1.82 %</b>	Antenna B1 MPE%	<b>1.82 %</b>	Antenna C1 MPE%	<b>1.82 %</b>
Antenna #:	<b>2</b>	Antenna #:	<b>2</b>	Antenna #:	<b>2</b>
Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20	Make / Model:	RFS APXVTM14-ALU-I20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	<b>140 feet</b>	Height (AGL):	<b>140 feet</b>	Height (AGL):	<b>140 feet</b>
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A2 MPE%	<b>1.25 %</b>	Antenna B2 MPE%	<b>1.25 %</b>	Antenna C2 MPE%	<b>1.25 %</b>

Site Composite MPE%	
Carrier	MPE%
SPRINT – Max per sector	<b>3.07 %</b>
Nextel	0.73 %
AT&T	2.73 %
Verizon Wireless	3.45 %
<b>Site Total MPE %:</b>	<b>9.98 %</b>

SPRINT Sector A Total:	3.07 %
SPRINT Sector B Total:	3.07 %
SPRINT Sector C Total:	3.07 %
<b>Site Total:</b>	<b>9.98 %</b>

SPRINT _ Frequency Band / Technology (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
Sprint 850 MHz CDMA	1	376.73	140	0.75	850 MHz	567	0.13%
Sprint 850 MHz LTE	2	941.82	140	3.77	850 MHz	567	0.67%
Sprint 1900 MHz (PCS) CDMA	5	511.82	140	5.12	1900 MHz (PCS)	1000	0.51%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	140	5.12	1900 MHz (PCS)	1000	0.51%
Sprint 2500 MHz (BRS) LTE	8	778.09	140	12.46	2500 MHz (BRS)	1000	1.25%
						<b>Total:</b>	<b>3.07%</b>



## Summary

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

The anticipated maximum composite contributions from the SPRINT facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

SPRINT Sector	Power Density Value (%)
Sector A:	3.07 %
Sector B:	3.07 %
Sector C:	3.07 %
SPRINT Maximum Total (per sector):	3.07 %
Site Total:	9.98 %
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **9.98 %** of the allowable FCC established general population 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.





**AMERICAN TOWER®**  
CORPORATION

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## Structural Analysis Report

**Structure** : 150 ft Monopole  
**ATC Site Name** : East Haddam, CT  
**ATC Site Number** : 302527  
**Engineering Number** : OAA710392\_C3\_03  
**Proposed Carrier** : Sprint Nextel  
**Carrier Site Name** : East Haddam  
**Carrier Site Number** : CT33XC537D  
**Site Location** : 135 Honey Hill Road  
East Haddam, CT 06423-1714  
41.436900,-72.366400  
**County** : Middlesex  
**Date** : June 26, 2018  
**Max Usage** : 28%  
**Result** : Pass

Prepared By:  
Christiana Lancaster  
Structural Engineer I

Reviewed By:

**COA: PEC.0001553**



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## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 150 ft monopole to reflect the change in loading by Sprint Nextel.

## Supporting Documents

<b>Tower Drawings</b>	Summit, PJF Job #29201-0876, Rev 1, dated September 24, 2001
<b>Foundation Drawing</b>	Summit, PJF Job #29201-0876, dated October 30, 2001
<b>Geotechnical Report</b>	Clarence Welti, dated June 28, 2001

## Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

<b>Basic Wind Speed:</b>	101 mph (3-Second Gust, $V_{asd}$ ) / 130 mph (3-second Gust, $V_{ult}$ )
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-Second Gust) w/ 1" radial ice concurrent
<b>Code:</b>	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
<b>Structure Class:</b>	II
<b>Exposure Category:</b>	B
<b>Topographic Category:</b>	2
<b>Crest Height:</b>	105 ft
<b>Spectral Response:</b>	$S_s = 0.17$ , $S_1 = 0.06$
<b>Site Class:</b>	D - Stiff Soil

## Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at [Engineering@americantower.com](mailto:Engineering@americantower.com). Please include the American Tower site name, site number, and engineering number in the subject line for any questions.





**Existing and Reserved Equipment**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
140.0	-	-	-	-	(6) 1 5/8" Coax	Sprint Nextel
132.0	132.0	6	RFS FD9R6004/2C-3L	Low Profile Platform	(10) 1 5/8" Coax (2) 1 5/8" Hybriflex	Verizon
		3	Alcatel-Lucent B13 RRH4X30-4R w/ Solar Shield (57.2 lbs)			
		3	Alcatel-Lucent B66A RRH4x45-4R w/o Solar Shield			
		6	RFS APL868013-42T0			
		2	Commscope RC3DC-3315-PF-48			
		3	Antel BXA-70063-6CF-EDIN-X			
		6	Commscope SBNHH-1D65B (72.9")			
122.0	122.0	6	Powerwave LGP21401	Low Profile Platform	(12) 1 1/4" Coax (2) 0.78" 8 AWG 6 (1) 0.39" Fiber Trunk (1) 3" Conduit	AT&T Mobility
		1	Raycap DC6-48-60-18-8F ("Squid")			
		3	Ericsson RRUS-11 1900MHz			
		6	Powerwave 7770.00			
		1	Commscope SBNH-1D4545A			
		1	KMW AM-X-CD-16-65-00T-RET			
		1	Andrew DBXNH-6565B-R2M (72.7")			
		1	96" x 12" Panel			
75.0	-	-	-	Stand-Off	-	Sprint Nextel

**Equipment to be Removed**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
140.0	140.0	12	Decibel DB980F65E-M	-	(18) 1 5/8" Coax	Sprint Nextel

**Proposed Equipment**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
140.0	140.0	6	Alcatel-Lucent RRH2x50-08	T-Arms w/ SitePro1 RMV12-NP	(4) 1 1/4" Hybriflex	Sprint Nextel
		3	Alcatel-Lucent 1900MHz 4x45 RRH			
		3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
		3	RFS APXVTM14-ALU-I20			
		3	Commscope NNVV-65B-R4			
75.0	75.0	1	GPS	Stand-Off	(1) 1/2" Coax	

<sup>1</sup>Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax inside the pole shaft.



**Structure Usages**

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	28%	Pass
Shaft	26%	Pass
Base Plate	16%	Pass

**Foundations**

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	3,269.7	27%
Axial (Kips)	74.3	14%
Shear (Kips)	35.8	30%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

**Deflection and Sway\***

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
140.0	Alcatel-Lucent RRH2x50-08	Sprint Nextel	0.356	0.238
	Alcatel-Lucent 1900 MHz 4x45 RRH			
	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
	RFS APXVTM14-ALU-I20			
75.0	Commscope NNVV-65B-R4			
	GPS		0.114	0.166

\*Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G



## **Standard Conditions**

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

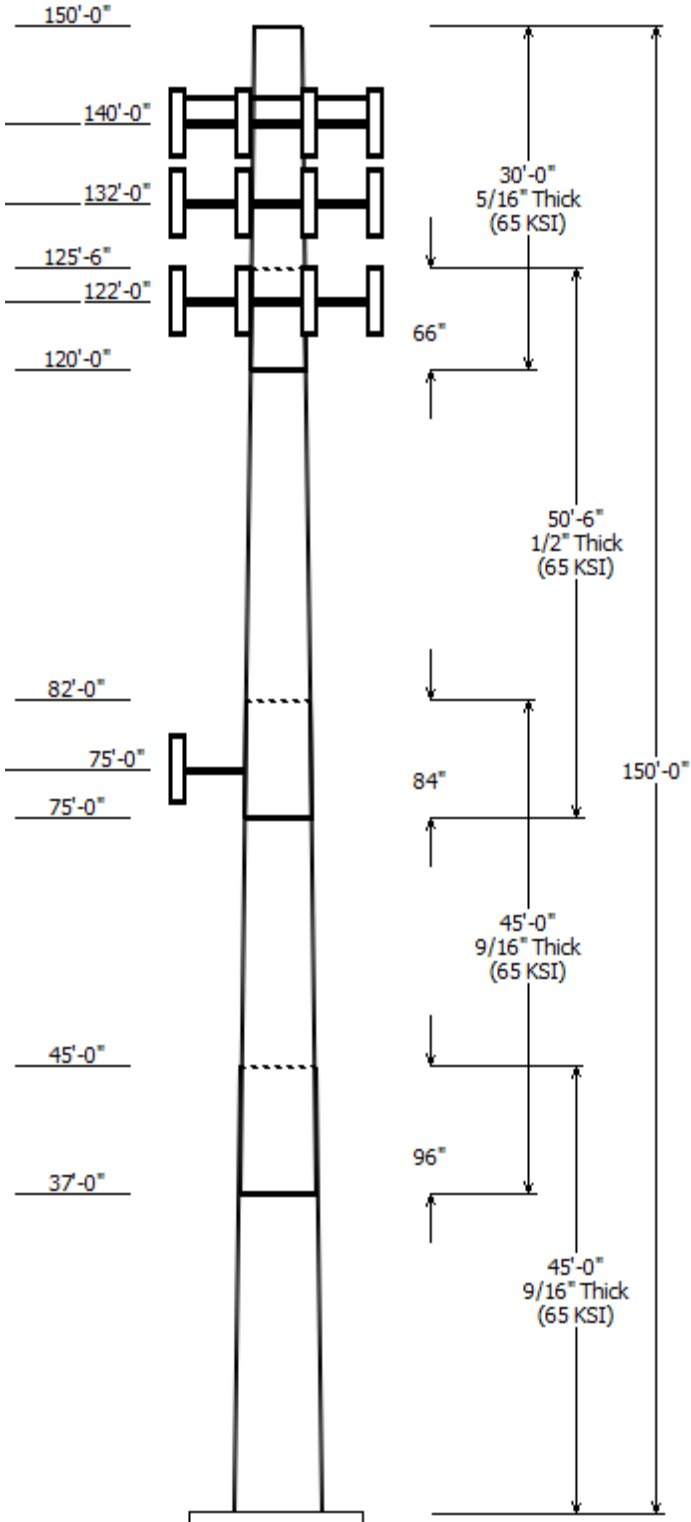
All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.



Job Information	
Pole : 302527	Code: ANSI/TIA-222-G
Location : East Haddam, CT	
Description : 150' Summit Monopole	
Client : SPRINT NEXTEL	Struct Class : II
Shape : 18 Sides	Exposure : B
Height : 150.00 (ft)	Topo : 2
Base Elev (ft): 0.00	
Taper: 0.25362in/ft	



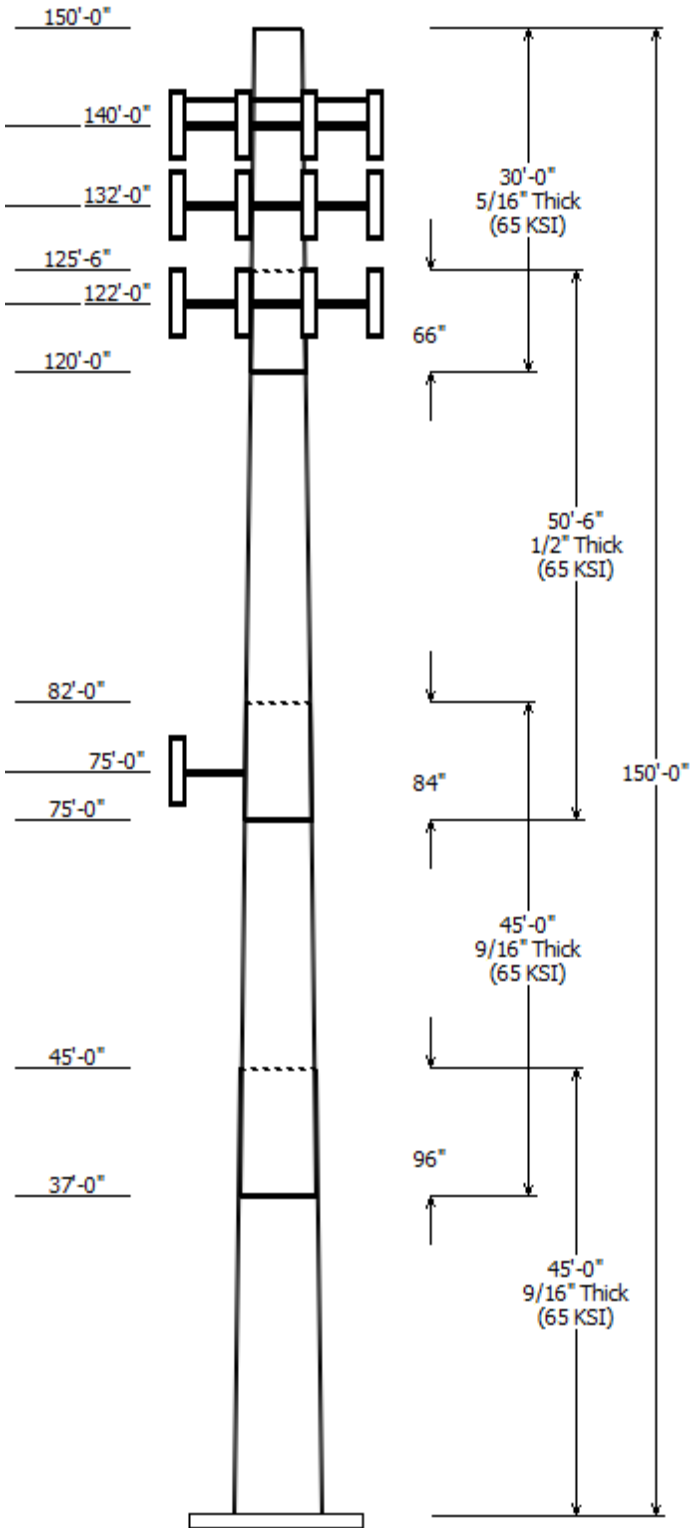
Sections Properties							
Shaft Section	Length (ft)	Diameter (in)		Thick (in)	Joint Type	Overlap Length (in)	Steel Grade
		Top	Bottom				
1	45.000	60.78	72.20	0.563		0.000	18 Sides 65
2	45.000	52.52	63.94	0.563	Slip Joint	96.000	18 Sides 65
3	50.500	42.49	55.30	0.500	Slip Joint	84.000	18 Sides 65
4	30.000	36.90	44.51	0.313	Slip Joint	66.000	18 Sides 65

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
140.000	140.000	3	Commscope NNVV-65B-R4
140.000	140.000	3	RFS APXVTM14-ALU-I20
140.000	140.000	3	Alcatel-Lucent TD-RRH8x20-25
140.000	140.000	3	Alcatel-Lucent 1900 MHz 4x45
140.000	140.000	6	Alcatel-Lucent RRH2x50-08
140.000	140.000	3	Round T-Arms w/ SitePro1
132.000	132.000	3	Amphenol Antel BXA-70063-
132.000	132.000	1	Flat Low Profile Platform
132.000	132.000	6	Commscope SBNHH-1D65B
132.000	132.000	2	Commscope RC3DC-3315-PF-
132.000	132.000	6	RFS APL868013-42T0
132.000	132.000	3	Alcatel-Lucent B66A RRH4x45-
132.000	132.000	3	Alcatel-Lucent B13 RRH4X30-
132.000	132.000	6	RFS FD9R6004/2C-3L
122.000	122.000	1	Andrew DBXNH-6565B-R2M
122.000	122.000	1	KMW AM-X-CD-16-65-00T-RET
122.000	122.000	1	Round Low Profile Platform
122.000	122.000	1	96" x 12" Panel
122.000	122.000	1	Commscope SBNH-1D4545A
122.000	122.000	6	Powerwave Allgon 7770.00
122.000	122.000	3	Ericsson RRUS-11 1900 MHz
122.000	122.000	1	Raycap DC6-48-60-18-8F
122.000	122.000	6	Powerwave Allgon LGP21401
75.000	75.000	1	Stand-Off
75.000	75.000	1	GPS

Linear Appurtenance			
Elev (ft)		Description	Exposed To Wind
From	To		
10.000	75.000	1/2" Coax	No
10.000	122.0	0.39" Fiber Trunk	No
10.000	122.0	0.78" 8 AWG 6	No
10.000	122.0	1 1/4" Coax	No
10.000	122.0	3" Conduit	No
10.000	132.0	1 5/8" Coax	No
10.000	132.0	1 5/8" Hybriflex	No
10.000	140.0	1 1/4" Hybriflex	No
10.000	140.0	1 5/8" Coax	No

Load Cases	

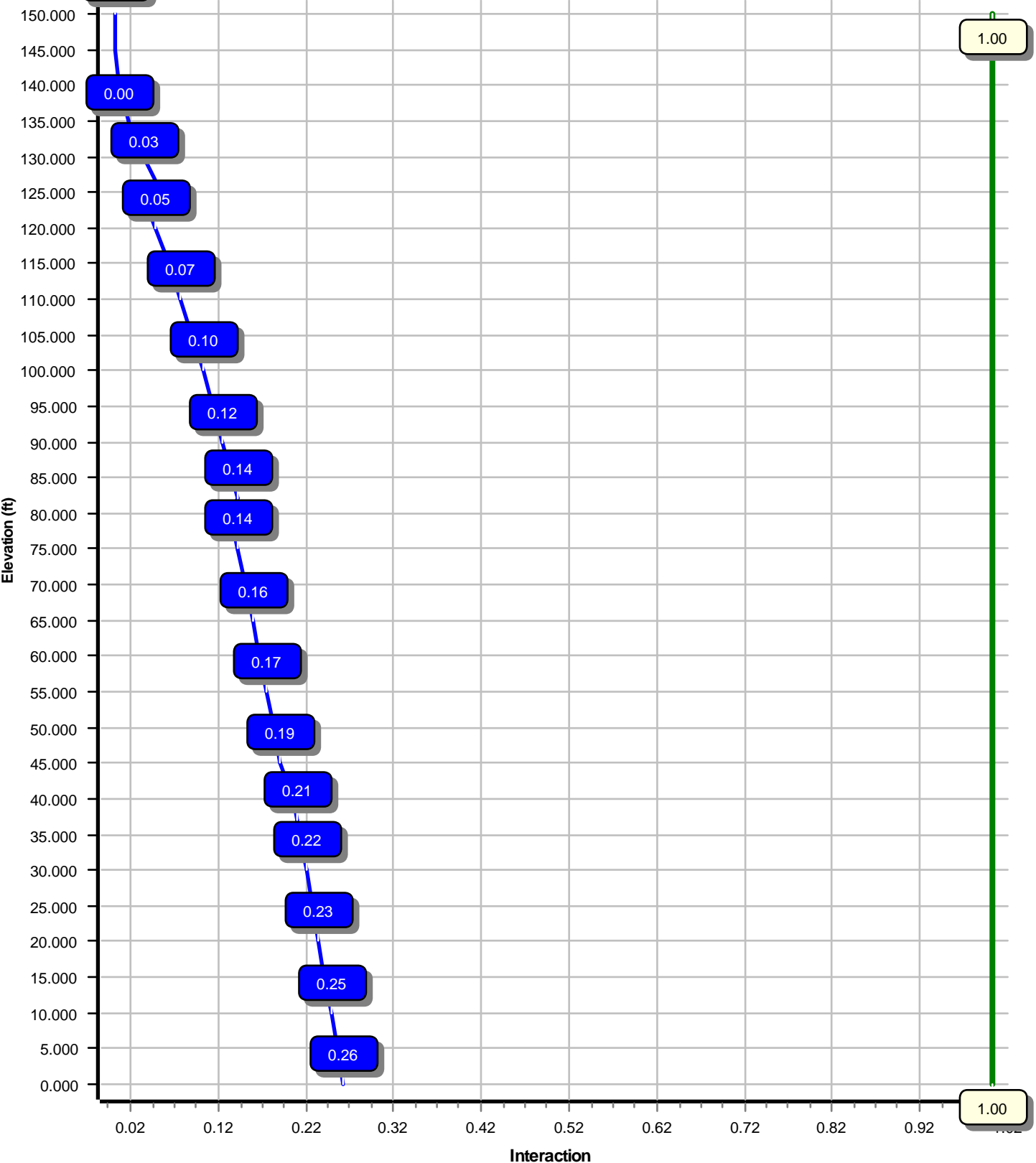
1.2D + 1.6W	101 mph with No Ice
0.9D + 1.6W	101 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph



Reactions			
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	3269.73	35.80	74.27
0.9D + 1.6W	3258.38	35.79	55.70
1.2D + 1.0Di + 1.0Wi	945.47	10.44	112.62
(1.2 + 0.2Sds) * DL + E ELFM	321.70	3.19	73.87
(1.2 + 0.2Sds) * DL + E EMAM	222.98	2.23	73.87
(0.9 - 0.2Sds) * DL + E ELFM	320.42	3.19	51.61
(0.9 - 0.2Sds) * DL + E EMAM	222.06	2.23	51.61
1.0D + 1.0W	719.44	7.89	61.91

Dish Deflections			
Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000

Load Case : 1.2D + 1.6W  
Max Ratio 25.92% at 0.0 ft



Site Number: 302527

Code: ANSI/TIA-222-G

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Site Name: East Haddam, CT

Engineering Number: OAA710392\_C3\_03

6/26/2018 7:44:52 PM

Customer: SPRINT NEXTEL

Analysis Parameters

Location :	MIDDLESEX County, CT	Height (ft) :	150
Code :	ANSI/TIA-222-G	Base Diameter (in) :	72.20
Shape :	18 Sides	Top Diameter (in) :	36.91
Pole Type :	Taper	Taper (in/ft) :	0.254
Pole Manufacturer :	Summit Manufacturing	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	101 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 mph
Topographic Category:	2	Operational Wind Speed:	60 mph
Crest Height:	105 ft	Design Ice Thickness:	1.00 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	1.24		
T <sub>L</sub> (sec):	6	p:	1
S <sub>s</sub> :	0.170	S <sub>1</sub> :	0.060
F <sub>a</sub> :	1.600	F <sub>v</sub> :	2.400
S <sub>ds</sub> :	0.181	S <sub>d1</sub> :	0.096
		C <sub>s</sub> :	0.051
		C <sub>s</sub> Max:	0.051
		C <sub>s</sub> Min:	0.030

Load Cases

1.2D + 1.6W	101 mph with No Ice
0.9D + 1.6W	101 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
(1.2 + 0.2S <sub>ds</sub> ) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2S <sub>ds</sub> ) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2S <sub>ds</sub> ) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2S <sub>ds</sub> ) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 302527

Code: ANSI/TIA-222-G

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Site Name: East Haddam, CT

Engineering Number: OAA710392\_C3\_03

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Customer: SPRINT NEXTEL

**Shaft Section Properties**

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom						Top							
							Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Taper (in/ft)	
1-18	45.000	0.5625	65		0.00	18,024	72.20	0.00	127.89	82924.1	20.87	128.35	60.78	45.00	107.52	49269.2	17.29	108.06	0.253625	
2-18	45.000	0.5625	65	Slip	96.00	15,766	63.94	37.00	113.15	57422.5	18.28	113.67	52.52	82.00	92.77	31651.7	14.70	93.38	0.253625	
3-18	50.500	0.5000	65	Slip	84.00	13,198	55.30	75.00	86.97	33000.6	17.74	110.61	42.49	125.50	66.64	14849.0	13.22	84.99	0.253625	
4-18	30.000	0.3125	65	Slip	66.00	4,090	44.51	120.00	43.84	10822.4	23.35	142.45	36.90	150.00	36.29	6140.5	19.06	118.10	0.253625	
Shaft Weight						51,078														

**Discrete Appurtenance Properties**

Attach Elev (ft)	Description	Qty	Distance From Face (ft)	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor
140.00	Alcatel-Lucent 1900 MHz 4x45 R	3	0.000	0.000	60.00	2.320	0.67
140.00	Alcatel-Lucent RRH2x50-08	6	0.000	0.000	52.90	1.700	0.50
140.00	Alcatel-Lucent TD-RRH8x20-25 w	3	0.000	0.000	70.00	4.050	0.67
140.00	Commscope NNVV-65B-R4	3	0.000	0.000	77.40	12.270	0.64
140.00	RFS APXVTM14-ALU-I20	3	0.000	0.000	56.20	6.340	0.66
140.00	Round T-Arms w/ SitePro1	3	0.000	0.000	300.00	14.400	0.67
132.00	Alcatel-Lucent B13 RRH4X30-4R	3	0.000	0.000	57.20	2.160	0.67
132.00	Alcatel-Lucent B66A RRH4x45-4R	3	0.000	0.000	56.80	2.390	0.67
132.00	Amphenol Antel BXA-70063-6CF-	3	0.000	0.000	17.00	7.570	0.66
132.00	Commscope RC3DC-3315-PF-48	2	0.000	0.000	32.00	3.780	0.67
132.00	Commscope SBNHH-1D65B	6	0.000	0.000	40.60	8.200	0.69
132.00	Flat Low Profile Platform	1	0.000	0.000	1500.00	26.100	1.00
132.00	RFS APL868013-42T0	6	0.000	0.000	6.30	3.610	0.73
132.00	RFS FD9R6004/2C-3L	6	0.000	0.000	2.60	0.370	0.50
122.00	96" x 12" Panel	1	0.000	0.000	45.00	11.470	0.67
122.00	Andrew DBXNH-6565B-R2M	1	0.000	0.000	46.30	8.410	1.00
122.00	Commscope SBNH-1D4545A	1	0.000	0.000	39.70	7.940	0.64
122.00	Ericsson RRUS-11 1900 MHz	3	0.000	0.000	44.00	2.520	0.67
122.00	KMW AM-X-CD-16-65-00T-RET	1	0.000	0.000	48.50	8.020	0.67
122.00	Powerwave Allgon 7770.00	6	0.000	0.000	35.00	5.510	0.65
122.00	Powerwave Allgon LGP21401	6	0.000	0.000	14.10	1.100	0.50
122.00	Raycap DC6-48-60-18-8F ("Squid	1	0.000	0.000	31.80	1.280	1.00
122.00	Round Low Profile Platform	1	0.000	0.000	1500.00	21.700	1.00
75.00	GPS	1	0.000	0.000	10.00	1.000	1.00
75.00	Stand-Off	1	0.000	0.000	100.00	3.000	0.67
Totals	Num Loadings:25	74			6510.10		

**Linear Appurtenance Properties**

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Projected Flat	Projected Width (in)	Exposed To Wind	Carrier
10.00	140.00	4	1 1/4" Hybriflex Cable	1.54	1.00	N	0.00	N	Sprint Nextel
10.00	140.00	6	1 5/8" Coax	1.98	0.82	N	0.00	N	Sprint Nextel
10.00	132.00	10	1 5/8" Coax	1.98	0.82	N	0.00	N	Verizon
10.00	132.00	2	1 5/8" Hybriflex Cable	1.98	1.30	N	0.00	N	Verizon
10.00	122.00	1	0.39" Fiber Trunk	0.39	0.06	N	0.00	N	AT&T Mobility
10.00	122.00	2	0.78" 8 AWG 6	0.78	0.59	N	0.00	N	AT&T Mobility
10.00	122.00	12	1 1/4" Coax	1.55	0.63	N	0.00	N	AT&T Mobility
10.00	122.00	1	3" Conduit	3.50	7.58	N	0.00	N	AT&T Mobility
10.00	75.00	1	1/2" Coax	0.63	0.15	N	0.00	N	Sprint Nextel



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Site Number: 302527

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Site Name: East Haddam, CT

Engineering Number: OAA710392\_C3\_03

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Customer: SPRINT NEXTEL

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Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	F'y (ksi)	S (in <sup>3</sup> )	Z (in <sup>3</sup> )	Weight (lb)
0.00		0.5625	72.200	127.894	82,924.1	20.87	128.35	76.9	2262.	0.0	0.0
5.00		0.5625	70.931	125.630	78,597.9	20.47	126.10	77.3	2182.	0.0	2,156.7
10.00		0.5625	69.663	123.366	74,424.7	20.07	123.85	77.8	2104.	0.0	2,118.2
15.00		0.5625	68.395	121.103	70,402.0	19.68	121.59	78.3	2027.	0.0	2,079.7
20.00		0.5625	67.127	118.839	66,526.9	19.28	119.34	78.7	1952.	0.0	2,041.2
25.00		0.5625	65.859	116.575	62,796.6	18.88	117.08	79.2	1878.	0.0	2,002.6
30.00		0.5625	64.591	114.311	59,208.5	18.48	114.83	79.7	1805.	0.0	1,964.1
35.00		0.5625	63.323	112.047	55,759.7	18.09	112.57	80.1	1734.	0.0	1,925.6
37.00	Bot - Section 2	0.5625	62.815	111.141	54,418.6	17.93	111.67	80.3	1706.	0.0	759.5
40.00		0.5625	62.055	109.783	52,447.5	17.69	110.32	80.6	1664.	0.0	2,275.8
45.00	Top - Section 1	0.5625	61.911	109.527	52,082.2	17.64	110.06	80.6	1656.	0.0	3,731.3
50.00		0.5625	60.643	107.263	48,918.8	17.25	107.81	81.1	1588.	0.0	1,844.2
55.00		0.5625	59.375	104.999	45,886.1	16.85	105.56	81.6	1522.	0.0	1,805.7
60.00		0.5625	58.107	102.735	42,981.5	16.45	103.30	82.1	1456.	0.0	1,767.2
65.00		0.5625	56.839	100.471	40,202.0	16.05	101.05	82.5	1393.	0.0	1,728.7
70.00		0.5625	55.571	98.207	37,545.1	15.66	98.79	82.6	1330.	0.0	1,690.1
75.00	Bot - Section 3	0.5625	54.303	95.943	35,007.9	15.26	96.54	82.6	1269.	0.0	1,651.6
80.00		0.5625	53.035	93.679	32,587.6	14.86	94.28	82.6	1210.	0.0	3,075.7
82.00	Top - Section 2	0.5000	53.527	84.151	29,896.1	17.11	107.05	81.3	1100.	0.0	1,209.9
85.00		0.5000	52.767	82.944	28,627.6	16.85	105.53	81.6	1068.	0.0	852.9
90.00		0.5000	51.498	80.932	26,594.0	16.40	103.00	82.1	1017.	0.0	1,394.1
95.00		0.5000	50.230	78.919	24,659.1	15.95	100.46	82.6	966.9	0.0	1,359.8
100.00		0.5000	48.962	76.907	22,820.3	15.50	97.92	82.6	918.0	0.0	1,325.6
105.00		0.5000	47.694	74.894	21,075.4	15.06	95.39	82.6	870.3	0.0	1,291.4
110.00		0.5000	46.426	72.882	19,421.7	14.61	92.85	82.6	824.0	0.0	1,257.1
115.00		0.5000	45.158	70.869	17,856.9	14.16	90.32	82.6	778.9	0.0	1,222.9
120.00	Bot - Section 4	0.5000	43.890	68.857	16,378.4	13.71	87.78	82.6	735.0	0.0	1,188.6
122.00		0.5000	43.382	68.052	15,810.7	13.54	86.76	82.6	717.8	0.0	762.5
125.00		0.5000	42.622	66.844	14,984.0	13.27	85.24	82.6	692.4	0.0	1,127.1
125.50	Top - Section 3	0.3125	43.120	42.458	9,829.8	22.57	137.98	74.9	449.0	0.0	185.9
130.00		0.3125	41.978	41.326	9,064.3	21.92	134.33	75.6	425.3	0.0	641.5
132.00		0.3125	41.471	40.823	8,737.3	21.64	132.71	76.0	415.0	0.0	279.5
135.00		0.3125	40.710	40.068	8,261.6	21.21	130.27	76.5	399.7	0.0	412.9
140.00		0.3125	39.442	38.810	7,507.8	20.49	126.21	77.3	374.9	0.0	671.0
145.00		0.3125	38.174	37.553	6,801.3	19.78	122.16	78.1	350.9	0.0	649.6
150.00		0.3125	36.906	36.295	6,140.5	19.06	118.10	79.0	327.7	0.0	628.2
51,078.4											

<b>Load Case:</b> 1.2D + 1.6W	101 mph with No Ice	17 Iterations
Gust Response Factor :1.10		Wind Importance Factor :1.00
Dead Load Factor :1.20		
Wind Load Factor :1.60		

**Applied Segment Forces Summary**

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		569.2	0.0					0.0	0.0	569.2	0.0	0.0	0.0
5.00		1,110.7	2,588.1					0.0	0.0	1,110.7	2,588.1	0.0	0.0
10.00		1,057.3	2,541.8					0.0	0.0	1,057.3	2,541.8	0.0	0.0
15.00		1,007.5	2,495.6					0.0	217.5	1,007.5	2,713.1	0.0	0.0
20.00		961.0	2,449.4					0.0	217.5	961.0	2,666.9	0.0	0.0
25.00		917.5	2,403.2					0.0	217.5	917.5	2,620.7	0.0	0.0
30.00		887.0	2,357.0					0.0	217.5	887.0	2,574.4	0.0	0.0
35.00		613.9	2,310.7					0.0	217.5	613.9	2,528.2	0.0	0.0
37.00	Bot - Section 2	441.9	911.3					0.0	87.0	441.9	998.3	0.0	0.0
40.00		708.6	2,730.9					0.0	130.5	708.6	2,861.4	0.0	0.0
45.00	Top - Section 1	878.9	4,477.6					0.0	217.5	878.9	4,695.1	0.0	0.0
50.00		868.5	2,213.1					0.0	217.5	868.5	2,430.6	0.0	0.0
55.00		856.1	2,166.8					0.0	217.5	856.1	2,384.3	0.0	0.0
60.00		842.4	2,120.6					0.0	217.5	842.4	2,338.1	0.0	0.0
65.00		827.7	2,074.4					0.0	217.5	827.7	2,291.9	0.0	0.0
70.00		812.1	2,028.2					0.0	217.5	812.1	2,245.7	0.0	0.0
75.00	Bot - Section 3	803.3	1,981.9	160.4	0.0	0.0	132.0	0.0	217.5	963.8	2,331.4	0.0	0.0
80.00		559.4	3,690.8					0.0	216.6	559.4	3,907.4	0.0	0.0
82.00	Top - Section 2	392.9	1,451.9					0.0	86.6	392.9	1,538.5	0.0	0.0
85.00		619.0	1,023.5					0.0	130.0	619.0	1,153.4	0.0	0.0
90.00		760.1	1,672.9					0.0	216.6	760.1	1,889.5	0.0	0.0
95.00		742.7	1,631.8					0.0	216.6	742.7	1,848.4	0.0	0.0
100.00		725.3	1,590.7					0.0	216.6	725.3	1,807.3	0.0	0.0
105.00		707.7	1,549.6					0.0	216.6	707.7	1,766.2	0.0	0.0
110.00		690.1	1,508.5					0.0	216.6	690.1	1,725.1	0.0	0.0
115.00		672.4	1,467.5					0.0	216.6	672.4	1,684.0	0.0	0.0
120.00	Bot - Section 4	463.9	1,426.4					0.0	216.6	463.9	1,643.0	0.0	0.0
122.00	Appurtenance(s)	327.6	915.0	3,683.0	0.0	0.0	2,565.5	0.0	86.6	4,010.5	3,567.1	0.0	0.0
125.00		227.8	1,352.5					0.0	71.0	227.8	1,423.5	0.0	0.0
125.50	Top - Section 3	318.7	223.1					0.0	11.8	318.7	234.9	0.0	0.0
130.00		411.5	769.8					0.0	106.5	411.5	876.2	0.0	0.0
132.00	Appurtenance(s)	309.8	335.4	4,912.5	0.0	0.0	2,704.8	0.0	47.3	5,222.4	3,087.6	0.0	0.0
135.00		485.8	495.5					0.0	32.1	485.8	527.6	0.0	0.0
140.00	Appurtenance(s)	593.0	805.2	3,543.7	0.0	0.0	2,409.8	0.0	53.5	4,136.7	3,268.6	0.0	0.0
145.00		575.2	779.5					0.0	0.0	575.2	779.5	0.0	0.0
150.00		283.1	753.9					0.0	0.0	283.1	753.9	0.0	0.0
Totals:										36,329.3	74,291.8	0.00	0.00

**Load Case: 1.2D + 1.6W**

101 mph with No Ice

17 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

**Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-74.27	-35.80	0.00	-3,269.73	0.00	3,269.73	8,846.37	4,423.19	26,040.2	13,039.4	0.00	0.00	0.259
5.00	-71.65	-34.75	0.00	-3,090.75	0.00	3,090.75	8,742.64	4,371.32	25,275.7	12,656.6	0.03	-0.05	0.252
10.00	-69.08	-33.76	0.00	-2,916.99	0.00	2,916.99	8,637.00	4,318.50	24,516.7	12,276.6	0.12	-0.11	0.246
15.00	-66.34	-32.81	0.00	-2,748.21	0.00	2,748.21	8,529.45	4,264.73	23,763.6	11,899.4	0.26	-0.16	0.239
20.00	-63.65	-31.90	0.00	-2,584.19	0.00	2,584.19	8,420.00	4,210.00	23,016.4	11,525.3	0.46	-0.22	0.232
25.00	-61.00	-31.02	0.00	-2,424.72	0.00	2,424.72	8,308.65	4,154.32	22,275.7	11,154.4	0.72	-0.27	0.225
30.00	-58.40	-30.18	0.00	-2,269.60	0.00	2,269.60	8,195.38	4,097.69	21,541.7	10,786.8	1.03	-0.32	0.218
35.00	-55.86	-29.58	0.00	-2,118.72	0.00	2,118.72	8,080.21	4,040.11	20,814.7	10,422.8	1.40	-0.38	0.210
37.00	-54.85	-29.16	0.00	-2,059.56	0.00	2,059.56	8,033.62	4,016.81	20,525.9	10,278.2	1.56	-0.40	0.207
40.00	-51.97	-28.47	0.00	-1,972.08	0.00	1,972.08	7,963.14	3,981.57	20,094.9	10,062.4	1.82	-0.43	0.203
45.00	-47.26	-27.59	0.00	-1,829.74	0.00	1,829.74	7,949.81	3,974.91	20,014.2	10,021.9	2.30	-0.48	0.189
50.00	-44.82	-26.74	0.00	-1,691.77	0.00	1,691.77	7,830.62	3,915.31	19,302.9	9,665.81	2.83	-0.53	0.181
55.00	-42.42	-25.90	0.00	-1,558.06	0.00	1,558.06	7,709.52	3,854.76	18,599.5	9,313.61	3.41	-0.58	0.173
60.00	-40.07	-25.06	0.00	-1,428.57	0.00	1,428.57	7,586.52	3,793.26	17,904.4	8,965.53	4.05	-0.63	0.165
65.00	-37.77	-24.24	0.00	-1,303.25	0.00	1,303.25	7,461.61	3,730.80	17,217.8	8,621.71	4.73	-0.67	0.156
70.00	-35.51	-23.43	0.00	-1,182.06	0.00	1,182.06	7,296.29	3,648.15	16,453.2	8,238.84	5.45	-0.71	0.148
75.00	-33.18	-22.46	0.00	-1,064.92	0.00	1,064.92	7,128.09	3,564.04	15,699.6	7,861.47	6.22	-0.76	0.140
80.00	-29.27	-21.86	0.00	-952.64	0.00	952.64	6,959.89	3,479.94	14,963.6	7,492.96	7.04	-0.80	0.131
82.00	-27.73	-21.45	0.00	-908.92	0.00	908.92	6,155.25	3,077.63	13,390.8	6,705.38	7.38	-0.81	0.140
85.00	-26.57	-20.83	0.00	-844.56	0.00	844.56	6,090.49	3,045.24	13,058.0	6,538.74	7.90	-0.84	0.134
90.00	-24.68	-20.06	0.00	-740.39	0.00	740.39	5,981.03	2,990.51	12,509.3	6,263.95	8.80	-0.88	0.122
95.00	-22.83	-19.30	0.00	-640.08	0.00	640.08	5,863.29	2,931.65	11,955.1	5,986.47	9.74	-0.91	0.111
100.00	-21.03	-18.56	0.00	-543.56	0.00	543.56	5,713.78	2,856.89	11,350.2	5,683.57	10.71	-0.95	0.099
105.00	-19.26	-17.83	0.00	-450.75	0.00	450.75	5,564.26	2,782.13	10,761.0	5,388.54	11.72	-0.98	0.087
110.00	-17.54	-17.12	0.00	-361.58	0.00	361.58	5,414.75	2,707.38	10,187.5	5,101.37	12.76	-1.01	0.074
115.00	-15.87	-16.43	0.00	-275.97	0.00	275.97	5,265.24	2,632.62	9,629.81	4,822.06	13.83	-1.03	0.060
120.00	-14.23	-15.94	0.00	-193.84	0.00	193.84	5,115.72	2,557.86	9,087.73	4,550.62	14.92	-1.05	0.045
122.00	-10.73	-11.86	0.00	-161.97	0.00	161.97	5,055.92	2,527.96	8,875.29	4,444.24	15.36	-1.05	0.039
125.00	-9.31	-11.61	0.00	-126.39	0.00	126.39	4,966.21	2,483.10	8,561.35	4,287.04	16.03	-1.06	0.031
125.50	-9.08	-11.29	0.00	-120.59	0.00	120.59	2,860.48	1,430.24	5,034.26	2,520.87	16.14	-1.06	0.051
130.00	-8.21	-10.86	0.00	-69.80	0.00	69.80	2,812.39	1,406.19	4,816.69	2,411.93	17.15	-1.07	0.032
132.00	-5.23	-5.58	0.00	-48.08	0.00	48.08	2,790.52	1,395.26	4,720.62	2,363.82	17.60	-1.08	0.022
135.00	-4.71	-5.08	0.00	-31.34	0.00	31.34	2,757.14	1,378.57	4,577.28	2,292.04	18.28	-1.08	0.015
140.00	-1.52	-0.89	0.00	-5.92	0.00	5.92	2,699.99	1,349.99	4,340.61	2,173.53	19.41	-1.08	0.003
145.00	-0.75	-0.30	0.00	-1.49	0.00	1.49	2,640.93	1,320.46	4,106.98	2,056.54	20.54	-1.08	0.001
150.00	0.00	-0.28	0.00	0.00	0.00	0.00	2,579.96	1,289.98	3,876.69	1,941.23	21.68	-1.08	0.000

<b>Load Case:</b> 0.9D + 1.6W	101 mph with No Ice (Reduced DL)	17 Iterations
Gust Response Factor :1.10		Wind Importance Factor :1.00
Dead Load Factor :0.90		
Wind Load Factor :1.60		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		569.2	0.0					0.0	0.0	569.2	0.0	0.0	0.0
5.00		1,110.7	1,941.1					0.0	0.0	1,110.7	1,941.1	0.0	0.0
10.00		1,057.3	1,906.4					0.0	0.0	1,057.3	1,906.4	0.0	0.0
15.00		1,007.5	1,871.7					0.0	163.1	1,007.5	2,034.8	0.0	0.0
20.00		961.0	1,837.0					0.0	163.1	961.0	2,000.2	0.0	0.0
25.00		917.5	1,802.4					0.0	163.1	917.5	1,965.5	0.0	0.0
30.00		887.0	1,767.7					0.0	163.1	887.0	1,930.8	0.0	0.0
35.00		613.9	1,733.0					0.0	163.1	613.9	1,896.2	0.0	0.0
37.00	Bot - Section 2	441.9	683.5					0.0	65.2	441.9	748.8	0.0	0.0
40.00		708.6	2,048.2					0.0	97.9	708.6	2,146.1	0.0	0.0
45.00	Top - Section 1	878.9	3,358.2					0.0	163.1	878.9	3,521.3	0.0	0.0
50.00		868.5	1,659.8					0.0	163.1	868.5	1,822.9	0.0	0.0
55.00		856.1	1,625.1					0.0	163.1	856.1	1,788.2	0.0	0.0
60.00		842.4	1,590.5					0.0	163.1	842.4	1,753.6	0.0	0.0
65.00		827.7	1,555.8					0.0	163.1	827.7	1,718.9	0.0	0.0
70.00		812.1	1,521.1					0.0	163.1	812.1	1,684.2	0.0	0.0
75.00	Bot - Section 3	803.3	1,486.5	160.4	0.0	0.0	99.0	0.0	163.1	963.8	1,748.6	0.0	0.0
80.00		559.4	2,768.1					0.0	162.4	559.4	2,930.5	0.0	0.0
82.00	Top - Section 2	392.9	1,088.9					0.0	65.0	392.9	1,153.9	0.0	0.0
85.00		619.0	767.6					0.0	97.5	619.0	865.1	0.0	0.0
90.00		760.1	1,254.7					0.0	162.4	760.1	1,417.1	0.0	0.0
95.00		742.7	1,223.9					0.0	162.4	742.7	1,386.3	0.0	0.0
100.00		725.3	1,193.0					0.0	162.4	725.3	1,355.5	0.0	0.0
105.00		707.7	1,162.2					0.0	162.4	707.7	1,324.7	0.0	0.0
110.00		690.1	1,131.4					0.0	162.4	690.1	1,293.9	0.0	0.0
115.00		672.4	1,100.6					0.0	162.4	672.4	1,263.0	0.0	0.0
120.00	Bot - Section 4	463.9	1,069.8					0.0	162.4	463.9	1,232.2	0.0	0.0
122.00	Appurtenance(s)	327.6	686.3	3,683.0	0.0	0.0	1,924.1	0.0	65.0	4,010.5	2,675.4	0.0	0.0
125.00		227.8	1,014.4					0.0	53.2	227.8	1,067.6	0.0	0.0
125.50	Top - Section 3	318.7	167.3					0.0	8.9	318.7	176.2	0.0	0.0
130.00		411.5	577.3					0.0	79.9	411.5	657.2	0.0	0.0
132.00	Appurtenance(s)	309.8	251.6	4,912.5	0.0	0.0	2,028.6	0.0	35.5	5,222.4	2,315.7	0.0	0.0
135.00		485.8	371.6					0.0	24.1	485.8	395.7	0.0	0.0
140.00	Appurtenance(s)	593.0	603.9	3,543.7	0.0	0.0	1,807.4	0.0	40.1	4,136.7	2,451.4	0.0	0.0
145.00		575.2	584.7					0.0	0.0	575.2	584.7	0.0	0.0
150.00		283.1	565.4					0.0	0.0	283.1	565.4	0.0	0.0
Totals:										36,329.3	55,718.8	0.00	0.00

Site Number: 302527

Code: ANSI/TIA-222-G

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Site Name: East Haddam, CT

Engineering Number: OAA710392\_C3\_03

6/26/2018 7:44:57 PM

Customer: SPRINT NEXTEL

Load Case: 0.9D + 1.6W

101 mph with No Ice (Reduced DL)

17 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-55.70	-35.79	0.00	-3,258.38	0.00	3,258.38	8,846.37	4,423.19	26,040.2	13,039.4	0.00	0.00	0.256
5.00	-53.73	-34.73	0.00	-3,079.45	0.00	3,079.45	8,742.64	4,371.32	25,275.7	12,656.6	0.03	-0.05	0.250
10.00	-51.79	-33.71	0.00	-2,905.82	0.00	2,905.82	8,637.00	4,318.50	24,516.7	12,276.6	0.12	-0.11	0.243
15.00	-49.73	-32.75	0.00	-2,737.25	0.00	2,737.25	8,529.45	4,264.73	23,763.6	11,899.4	0.26	-0.16	0.236
20.00	-47.70	-31.83	0.00	-2,573.50	0.00	2,573.50	8,420.00	4,210.00	23,016.4	11,525.3	0.46	-0.22	0.229
25.00	-45.71	-30.94	0.00	-2,414.38	0.00	2,414.38	8,308.65	4,154.32	22,275.7	11,154.4	0.72	-0.27	0.222
30.00	-43.76	-30.09	0.00	-2,259.66	0.00	2,259.66	8,195.38	4,097.69	21,541.7	10,786.8	1.03	-0.32	0.215
35.00	-41.85	-29.49	0.00	-2,109.24	0.00	2,109.24	8,080.21	4,040.11	20,814.7	10,422.8	1.39	-0.37	0.208
37.00	-41.09	-29.06	0.00	-2,050.26	0.00	2,050.26	8,033.62	4,016.81	20,525.9	10,278.2	1.55	-0.40	0.205
40.00	-38.93	-28.36	0.00	-1,963.09	0.00	1,963.09	7,963.14	3,981.57	20,094.9	10,062.4	1.81	-0.43	0.200
45.00	-35.39	-27.49	0.00	-1,821.27	0.00	1,821.27	7,949.81	3,974.91	20,014.2	10,021.9	2.29	-0.48	0.186
50.00	-33.55	-26.63	0.00	-1,683.83	0.00	1,683.83	7,830.62	3,915.31	19,302.9	9,665.81	2.82	-0.53	0.179
55.00	-31.75	-25.78	0.00	-1,550.68	0.00	1,550.68	7,709.52	3,854.76	18,599.5	9,313.61	3.40	-0.58	0.171
60.00	-29.98	-24.95	0.00	-1,421.75	0.00	1,421.75	7,586.52	3,793.26	17,904.4	8,965.53	4.03	-0.62	0.163
65.00	-28.26	-24.12	0.00	-1,297.02	0.00	1,297.02	7,461.61	3,730.80	17,217.8	8,621.71	4.71	-0.67	0.154
70.00	-26.56	-23.31	0.00	-1,176.41	0.00	1,176.41	7,296.29	3,648.15	16,453.2	8,238.84	5.43	-0.71	0.146
75.00	-24.81	-22.34	0.00	-1,059.86	0.00	1,059.86	7,128.09	3,564.04	15,699.6	7,861.47	6.20	-0.75	0.138
80.00	-21.88	-21.75	0.00	-948.15	0.00	948.15	6,959.89	3,479.94	14,963.6	7,492.96	7.01	-0.79	0.130
82.00	-20.72	-21.35	0.00	-904.64	0.00	904.64	6,155.25	3,077.63	13,390.8	6,705.38	7.35	-0.81	0.138
85.00	-19.85	-20.73	0.00	-840.58	0.00	840.58	6,090.49	3,045.24	13,058.0	6,538.74	7.86	-0.83	0.132
90.00	-18.44	-19.96	0.00	-736.93	0.00	736.93	5,981.03	2,990.51	12,509.3	6,263.95	8.76	-0.87	0.121
95.00	-17.05	-19.21	0.00	-637.11	0.00	637.11	5,863.29	2,931.65	11,955.1	5,986.47	9.69	-0.91	0.109
100.00	-15.70	-18.47	0.00	-541.07	0.00	541.07	5,713.78	2,856.89	11,350.2	5,683.57	10.67	-0.94	0.098
105.00	-14.37	-17.75	0.00	-448.71	0.00	448.71	5,564.26	2,782.13	10,761.0	5,388.54	11.67	-0.97	0.086
110.00	-13.08	-17.04	0.00	-359.97	0.00	359.97	5,414.75	2,707.38	10,187.5	5,101.37	12.71	-1.00	0.073
115.00	-11.83	-16.35	0.00	-274.77	0.00	274.77	5,265.24	2,632.62	9,629.81	4,822.06	13.77	-1.03	0.059
120.00	-10.60	-15.87	0.00	-193.01	0.00	193.01	5,115.72	2,557.86	9,087.73	4,550.62	14.86	-1.04	0.045
122.00	-8.00	-11.81	0.00	-161.27	0.00	161.27	5,055.92	2,527.96	8,875.29	4,444.24	15.30	-1.05	0.038
125.00	-6.93	-11.56	0.00	-125.84	0.00	125.84	4,966.21	2,483.10	8,561.35	4,287.04	15.96	-1.06	0.031
125.50	-6.76	-11.24	0.00	-120.06	0.00	120.06	2,860.48	1,430.24	5,034.26	2,520.87	16.07	-1.06	0.050
130.00	-6.11	-10.82	0.00	-69.47	0.00	69.47	2,812.39	1,406.19	4,816.69	2,411.93	17.07	-1.07	0.031
132.00	-3.89	-5.55	0.00	-47.84	0.00	47.84	2,790.52	1,395.26	4,720.62	2,363.82	17.52	-1.07	0.022
135.00	-3.51	-5.06	0.00	-31.17	0.00	31.17	2,757.14	1,378.57	4,577.28	2,292.04	18.20	-1.07	0.015
140.00	-1.13	-0.88	0.00	-5.87	0.00	5.87	2,699.99	1,349.99	4,340.61	2,173.53	19.33	-1.08	0.003
145.00	-0.56	-0.29	0.00	-1.47	0.00	1.47	2,640.93	1,320.46	4,106.98	2,056.54	20.45	-1.08	0.001
150.00	0.00	-0.28	0.00	0.00	0.00	0.00	2,579.96	1,289.98	3,876.69	1,941.23	21.58	-1.08	0.000



<b>Load Case:</b> 1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice	17 Iterations
Gust Response Factor :1.10	Ice Dead Load Factor :1.00	Wind Importance Factor :1.00
Dead Load Factor :1.20		Ice Importance Factor :1.00
Wind Load Factor :1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		169.5	0.0					0.0	0.0	169.5	0.0	0.0	0.0
5.00		331.8	3,469.7					0.0	0.0	331.8	3,469.7	0.0	0.0
10.00		317.4	3,500.6					0.0	0.0	317.4	3,500.6	0.0	0.0
15.00		303.3	3,477.5					0.0	217.5	303.3	3,695.0	0.0	0.0
20.00		290.0	3,437.2					0.0	217.5	290.0	3,654.7	0.0	0.0
25.00		277.4	3,388.5					0.0	217.5	277.4	3,606.0	0.0	0.0
30.00		268.7	3,334.7					0.0	217.5	268.7	3,552.2	0.0	0.0
35.00		186.2	3,277.7					0.0	217.5	186.2	3,495.2	0.0	0.0
37.00	Bot - Section 2	134.2	1,296.9					0.0	87.0	134.2	1,383.9	0.0	0.0
40.00		215.2	3,314.0					0.0	130.5	215.2	3,444.4	0.0	0.0
45.00	Top - Section 1	267.4	5,433.9					0.0	217.5	267.4	5,651.4	0.0	0.0
50.00		264.6	3,153.8					0.0	217.5	264.6	3,371.3	0.0	0.0
55.00		261.3	3,091.2					0.0	217.5	261.3	3,308.7	0.0	0.0
60.00		257.6	3,028.0					0.0	217.5	257.6	3,245.5	0.0	0.0
65.00		253.5	2,964.3					0.0	217.5	253.5	3,181.8	0.0	0.0
70.00		249.2	2,900.3					0.0	217.5	249.2	3,117.8	0.0	0.0
75.00	Bot - Section 3	246.8	2,836.0	44.4	0.0	0.0	181.7	0.0	217.5	291.2	3,235.2	0.0	0.0
80.00		172.0	4,541.7					0.0	216.6	172.0	4,758.2	0.0	0.0
82.00	Top - Section 2	121.0	1,789.4					0.0	86.6	121.0	1,876.0	0.0	0.0
85.00		190.9	1,523.0					0.0	130.0	190.9	1,653.0	0.0	0.0
90.00		234.8	2,486.8					0.0	216.6	234.8	2,703.4	0.0	0.0
95.00		229.9	2,427.2					0.0	216.6	229.9	2,643.7	0.0	0.0
100.00		225.0	2,367.4					0.0	216.6	225.0	2,584.0	0.0	0.0
105.00		220.1	2,307.6					0.0	216.6	220.1	2,524.2	0.0	0.0
110.00		215.2	2,247.8					0.0	216.6	215.2	2,464.4	0.0	0.0
115.00		210.2	2,188.0					0.0	216.6	210.2	2,404.6	0.0	0.0
120.00	Bot - Section 4	145.2	2,128.1					0.0	216.6	145.2	2,344.7	0.0	0.0
122.00	Appurtenance(s)	102.7	1,196.6	947.2	0.0	0.0	5,929.1	0.0	86.6	1,049.9	7,212.4	0.0	0.0
125.00		71.5	1,768.0					0.0	71.0	71.5	1,839.0	0.0	0.0
125.50	Top - Section 3	100.2	292.2					0.0	11.8	100.2	304.0	0.0	0.0
130.00		129.5	1,376.1					0.0	106.5	129.5	1,482.6	0.0	0.0
132.00	Appurtenance(s)	97.7	602.0	1,275.3	0.0	0.0	7,600.2	0.0	47.3	1,373.0	8,249.4	0.0	0.0
135.00		153.6	888.5					0.0	32.1	153.6	920.6	0.0	0.0
140.00	Appurtenance(s)	188.0	1,441.3	949.8	0.0	0.0	7,501.2	0.0	53.5	1,137.9	8,996.0	0.0	0.0
145.00		183.0	1,396.8					0.0	0.0	183.0	1,396.8	0.0	0.0
150.00		90.3	1,352.3					0.0	0.0	90.3	1,352.3	0.0	0.0
Totals:										10,591.6	112,622.	0.00	0.00

Site Number: 302527

Code: ANSI/TIA-222-G

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Site Name: East Haddam, CT

Engineering Number: OAA710392\_C3\_03

6/26/2018 7:45:00 PM

Customer: SPRINT NEXTEL

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 1.00 in Radial Ice

17 Iterations

Gust Response Factor :1.10

Ice Dead Load Factor :1.00

Wind Importance Factor :1.00

Dead Load Factor :1.20

Ice Importance Factor :1.00

Wind Load Factor :1.00

Calculated Forces

Seg	Pu	Vu	Tu	Mu	Mu	Resultant	phi	phi	phi	phi	Total		
Elev	FY (-)	FX (-)	MY	MZ	MX	Moment	Pn	Vn	Tn	Mn	Deflect	Rotation	Ratio
(ft)	(kips)	(kips)	(ft-kips)	(ft-kips)	(ft-kips)	(ft-kips)	(kips)	(kips)	(ft-kips)	(ft-kips)	(in)	(deg)	
0.00	-112.62	-10.44	0.00	-945.47	0.00	945.47	8,846.37	4,423.19	26,040.2	13,039.4	0.00	0.00	0.085
5.00	-109.15	-10.14	0.00	-893.28	0.00	893.28	8,742.64	4,371.32	25,275.7	12,656.6	0.01	-0.02	0.083
10.00	-105.65	-9.85	0.00	-842.60	0.00	842.60	8,637.00	4,318.50	24,516.7	12,276.6	0.03	-0.03	0.081
15.00	-101.95	-9.57	0.00	-793.37	0.00	793.37	8,529.45	4,264.73	23,763.6	11,899.4	0.08	-0.05	0.079
20.00	-98.29	-9.30	0.00	-745.54	0.00	745.54	8,420.00	4,210.00	23,016.4	11,525.3	0.13	-0.06	0.076
25.00	-94.68	-9.04	0.00	-699.03	0.00	699.03	8,308.65	4,154.32	22,275.7	11,154.4	0.21	-0.08	0.074
30.00	-91.13	-8.79	0.00	-653.81	0.00	653.81	8,195.38	4,097.69	21,541.7	10,786.8	0.30	-0.09	0.072
35.00	-87.63	-8.62	0.00	-609.84	0.00	609.84	8,080.21	4,040.11	20,814.7	10,422.8	0.40	-0.11	0.069
37.00	-86.25	-8.49	0.00	-592.61	0.00	592.61	8,033.62	4,016.81	20,525.9	10,278.2	0.45	-0.11	0.068
40.00	-82.80	-8.29	0.00	-567.13	0.00	567.13	7,963.14	3,981.57	20,094.9	10,062.4	0.53	-0.12	0.067
45.00	-77.15	-8.03	0.00	-525.69	0.00	525.69	7,949.81	3,974.91	20,014.2	10,021.9	0.66	-0.14	0.062
50.00	-73.78	-7.77	0.00	-485.56	0.00	485.56	7,830.62	3,915.31	19,302.9	9,665.81	0.82	-0.15	0.060
55.00	-70.47	-7.52	0.00	-446.70	0.00	446.70	7,709.52	3,854.76	18,599.5	9,313.61	0.98	-0.17	0.057
60.00	-67.22	-7.27	0.00	-409.11	0.00	409.11	7,586.52	3,793.26	17,904.4	8,965.53	1.17	-0.18	0.054
65.00	-64.04	-7.02	0.00	-372.78	0.00	372.78	7,461.61	3,730.80	17,217.8	8,621.71	1.36	-0.19	0.052
70.00	-60.92	-6.77	0.00	-337.70	0.00	337.70	7,296.29	3,648.15	16,453.2	8,238.84	1.57	-0.21	0.049
75.00	-57.68	-6.48	0.00	-303.85	0.00	303.85	7,128.09	3,564.04	15,699.6	7,861.47	1.79	-0.22	0.047
80.00	-52.93	-6.30	0.00	-271.46	0.00	271.46	6,959.89	3,479.94	14,963.6	7,492.96	2.03	-0.23	0.044
82.00	-51.05	-6.17	0.00	-258.87	0.00	258.87	6,155.25	3,077.63	13,390.8	6,705.38	2.13	-0.23	0.047
85.00	-49.40	-5.98	0.00	-240.35	0.00	240.35	6,090.49	3,045.24	13,058.0	6,538.74	2.27	-0.24	0.045
90.00	-46.69	-5.74	0.00	-210.45	0.00	210.45	5,981.03	2,990.51	12,509.3	6,263.95	2.53	-0.25	0.041
95.00	-44.05	-5.51	0.00	-181.73	0.00	181.73	5,863.29	2,931.65	11,955.1	5,986.47	2.80	-0.26	0.038
100.00	-41.47	-5.28	0.00	-154.18	0.00	154.18	5,713.78	2,856.89	11,350.2	5,683.57	3.08	-0.27	0.034
105.00	-38.94	-5.05	0.00	-127.78	0.00	127.78	5,564.26	2,782.13	10,761.0	5,388.54	3.37	-0.28	0.031
110.00	-36.48	-4.83	0.00	-102.51	0.00	102.51	5,414.75	2,707.38	10,187.5	5,101.37	3.67	-0.29	0.027
115.00	-34.07	-4.61	0.00	-78.36	0.00	78.36	5,265.24	2,632.62	9,629.81	4,822.06	3.98	-0.30	0.023
120.00	-31.73	-4.46	0.00	-55.30	0.00	55.30	5,115.72	2,557.86	9,087.73	4,550.62	4.29	-0.30	0.018
122.00	-24.52	-3.37	0.00	-46.39	0.00	46.39	5,055.92	2,527.96	8,875.29	4,444.24	4.42	-0.30	0.015
125.00	-22.68	-3.29	0.00	-36.29	0.00	36.29	4,966.21	2,483.10	8,561.35	4,287.04	4.61	-0.30	0.013
125.50	-22.38	-3.19	0.00	-34.64	0.00	34.64	2,860.48	1,430.24	5,034.26	2,520.87	4.64	-0.31	0.022
130.00	-20.90	-3.05	0.00	-20.30	0.00	20.30	2,812.39	1,406.19	4,816.69	2,411.93	4.93	-0.31	0.016
132.00	-12.66	-1.63	0.00	-14.20	0.00	14.20	2,790.52	1,395.26	4,720.62	2,363.82	5.06	-0.31	0.011
135.00	-11.74	-1.47	0.00	-9.30	0.00	9.30	2,757.14	1,378.57	4,577.28	2,292.04	5.25	-0.31	0.008
140.00	-2.75	-0.29	0.00	-1.93	0.00	1.93	2,699.99	1,349.99	4,340.61	2,173.53	5.58	-0.31	0.002
145.00	-1.35	-0.10	0.00	-0.49	0.00	0.49	2,640.93	1,320.46	4,106.98	2,056.54	5.90	-0.31	0.001
150.00	0.00	-0.09	0.00	0.00	0.00	0.00	2,579.96	1,289.98	3,876.69	1,941.23	6.23	-0.31	0.000

Site Number: 302527

Code: ANSI/TIA-222-G

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Site Name: East Haddam, CT

Engineering Number: OAA710392\_C3\_03

6/26/2018 7:45:00 PM

Customer: SPRINT NEXTEL

**Load Case: 1.0D + 1.0W**

Serviceability 60 mph

16 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

**Applied Segment Forces Summary**

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		125.5	0.0					0.0	0.0	125.5	0.0	0.0	0.0
5.00		245.0	2,156.7					0.0	0.0	245.0	2,156.7	0.0	0.0
10.00		233.2	2,118.2					0.0	0.0	233.2	2,118.2	0.0	0.0
15.00		222.2	2,079.7					0.0	181.2	222.2	2,260.9	0.0	0.0
20.00		212.0	2,041.2					0.0	181.2	212.0	2,222.4	0.0	0.0
25.00		202.4	2,002.6					0.0	181.2	202.4	2,183.9	0.0	0.0
30.00		195.6	1,964.1					0.0	181.2	195.6	2,145.4	0.0	0.0
35.00		135.4	1,925.6					0.0	181.2	135.4	2,106.8	0.0	0.0
37.00	Bot - Section 2	97.5	759.5					0.0	72.5	97.5	832.0	0.0	0.0
40.00		156.3	2,275.8					0.0	108.7	156.3	2,384.5	0.0	0.0
45.00	Top - Section 1	193.9	3,731.3					0.0	181.2	193.9	3,912.6	0.0	0.0
50.00		191.6	1,844.2					0.0	181.2	191.6	2,025.5	0.0	0.0
55.00		188.8	1,805.7					0.0	181.2	188.8	1,986.9	0.0	0.0
60.00		185.8	1,767.2					0.0	181.2	185.8	1,948.4	0.0	0.0
65.00		182.6	1,728.7					0.0	181.2	182.6	1,909.9	0.0	0.0
70.00		179.1	1,690.1					0.0	181.2	179.1	1,871.4	0.0	0.0
75.00	Bot - Section 3	177.2	1,651.6	35.4	0.0	0.0	110.0	0.0	181.2	212.6	1,942.9	0.0	0.0
80.00		123.4	3,075.7					0.0	180.5	123.4	3,256.2	0.0	0.0
82.00	Top - Section 2	86.7	1,209.9					0.0	72.2	86.7	1,282.1	0.0	0.0
85.00		136.5	852.9					0.0	108.3	136.5	961.2	0.0	0.0
90.00		167.6	1,394.1					0.0	180.5	167.6	1,574.6	0.0	0.0
95.00		163.8	1,359.8					0.0	180.5	163.8	1,540.3	0.0	0.0
100.00		160.0	1,325.6					0.0	180.5	160.0	1,506.1	0.0	0.0
105.00		156.1	1,291.4					0.0	180.5	156.1	1,471.9	0.0	0.0
110.00		152.2	1,257.1					0.0	180.5	152.2	1,437.6	0.0	0.0
115.00		148.3	1,222.9					0.0	180.5	148.3	1,403.4	0.0	0.0
120.00	Bot - Section 4	102.3	1,188.6					0.0	180.5	102.3	1,369.1	0.0	0.0
122.00	Appurtenance(s)	72.3	762.5	812.3	0.0	0.0	2,137.9	0.0	72.2	884.6	2,972.6	0.0	0.0
125.00		50.2	1,127.1					0.0	59.2	50.2	1,186.2	0.0	0.0
125.50	Top - Section 3	70.3	185.9					0.0	9.9	70.3	195.8	0.0	0.0
130.00		90.8	641.5					0.0	88.7	90.8	730.2	0.0	0.0
132.00	Appurtenance(s)	68.3	279.5	1,083.5	0.0	0.0	2,254.0	0.0	39.4	1,151.9	2,573.0	0.0	0.0
135.00		107.1	412.9					0.0	26.8	107.1	439.6	0.0	0.0
140.00	Appurtenance(s)	130.8	671.0	781.6	0.0	0.0	2,008.2	0.0	44.6	912.4	2,723.8	0.0	0.0
145.00		126.9	649.6					0.0	0.0	126.9	649.6	0.0	0.0
150.00		62.4	628.2					0.0	0.0	62.4	628.2	0.0	0.0
Totals:										8,013.04	61,909.8	0.00	0.00

Site Number: 302527

Code: ANSI/TIA-222-G

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Site Name: East Haddam, CT

Engineering Number: OAA710392\_C3\_03

6/26/2018 7:45:02 PM

Customer: SPRINT NEXTEL

Load Case: 1.0D + 1.0W

Serviceability 60 mph

16 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-61.91	-7.89	0.00	-719.44	0.00	719.44	8,846.37	4,423.19	26,040.2	13,039.4	0.00	0.00	0.062
5.00	-59.75	-7.66	0.00	-679.98	0.00	679.98	8,742.64	4,371.32	25,275.7	12,656.6	0.01	-0.01	0.061
10.00	-57.63	-7.44	0.00	-641.68	0.00	641.68	8,637.00	4,318.50	24,516.7	12,276.6	0.03	-0.02	0.059
15.00	-55.37	-7.23	0.00	-604.49	0.00	604.49	8,529.45	4,264.73	23,763.6	11,899.4	0.06	-0.04	0.057
20.00	-53.14	-7.02	0.00	-568.36	0.00	568.36	8,420.00	4,210.00	23,016.4	11,525.3	0.10	-0.05	0.056
25.00	-50.96	-6.83	0.00	-533.24	0.00	533.24	8,308.65	4,154.32	22,275.7	11,154.4	0.16	-0.06	0.054
30.00	-48.81	-6.64	0.00	-499.09	0.00	499.09	8,195.38	4,097.69	21,541.7	10,786.8	0.23	-0.07	0.052
35.00	-46.71	-6.51	0.00	-465.88	0.00	465.88	8,080.21	4,040.11	20,814.7	10,422.8	0.31	-0.08	0.050
37.00	-45.87	-6.42	0.00	-452.86	0.00	452.86	8,033.62	4,016.81	20,525.9	10,278.2	0.34	-0.09	0.050
40.00	-43.49	-6.26	0.00	-433.61	0.00	433.61	7,963.14	3,981.57	20,094.9	10,062.4	0.40	-0.09	0.049
45.00	-39.57	-6.07	0.00	-402.30	0.00	402.30	7,949.81	3,974.91	20,014.2	10,021.9	0.51	-0.11	0.045
50.00	-37.55	-5.88	0.00	-371.95	0.00	371.95	7,830.62	3,915.31	19,302.9	9,665.81	0.62	-0.12	0.043
55.00	-35.56	-5.69	0.00	-342.54	0.00	342.54	7,709.52	3,854.76	18,599.5	9,313.61	0.75	-0.13	0.041
60.00	-33.61	-5.51	0.00	-314.07	0.00	314.07	7,586.52	3,793.26	17,904.4	8,965.53	0.89	-0.14	0.039
65.00	-31.70	-5.33	0.00	-286.52	0.00	286.52	7,461.61	3,730.80	17,217.8	8,621.71	1.04	-0.15	0.037
70.00	-29.83	-5.15	0.00	-259.87	0.00	259.87	7,296.29	3,648.15	16,453.2	8,238.84	1.20	-0.16	0.036
75.00	-27.89	-4.94	0.00	-234.13	0.00	234.13	7,128.09	3,564.04	15,699.6	7,861.47	1.37	-0.17	0.034
80.00	-24.63	-4.81	0.00	-209.45	0.00	209.45	6,959.89	3,479.94	14,963.6	7,492.96	1.55	-0.18	0.031
82.00	-23.35	-4.72	0.00	-199.84	0.00	199.84	6,155.25	3,077.63	13,390.8	6,705.38	1.62	-0.18	0.034
85.00	-22.39	-4.58	0.00	-185.69	0.00	185.69	6,090.49	3,045.24	13,058.0	6,538.74	1.74	-0.18	0.032
90.00	-20.81	-4.41	0.00	-162.79	0.00	162.79	5,981.03	2,990.51	12,509.3	6,263.95	1.93	-0.19	0.029
95.00	-19.27	-4.24	0.00	-140.74	0.00	140.74	5,863.29	2,931.65	11,955.1	5,986.47	2.14	-0.20	0.027
100.00	-17.77	-4.08	0.00	-119.52	0.00	119.52	5,713.78	2,856.89	11,350.2	5,683.57	2.36	-0.21	0.024
105.00	-16.29	-3.92	0.00	-99.12	0.00	99.12	5,564.26	2,782.13	10,761.0	5,388.54	2.58	-0.22	0.021
110.00	-14.86	-3.76	0.00	-79.51	0.00	79.51	5,414.75	2,707.38	10,187.5	5,101.37	2.81	-0.22	0.018
115.00	-13.45	-3.61	0.00	-60.69	0.00	60.69	5,265.24	2,632.62	9,629.81	4,822.06	3.04	-0.23	0.015
120.00	-12.09	-3.50	0.00	-42.63	0.00	42.63	5,115.72	2,557.86	9,087.73	4,550.62	3.28	-0.23	0.012
122.00	-9.12	-2.61	0.00	-35.62	0.00	35.62	5,055.92	2,527.96	8,875.29	4,444.24	3.38	-0.23	0.010
125.00	-7.93	-2.55	0.00	-27.80	0.00	27.80	4,966.21	2,483.10	8,561.35	4,287.04	3.53	-0.23	0.008
125.50	-7.73	-2.48	0.00	-26.52	0.00	26.52	2,860.48	1,430.24	5,034.26	2,520.87	3.55	-0.23	0.013
130.00	-7.00	-2.39	0.00	-15.35	0.00	15.35	2,812.39	1,406.19	4,816.69	2,411.93	3.77	-0.24	0.009
132.00	-4.44	-1.23	0.00	-10.57	0.00	10.57	2,790.52	1,395.26	4,720.62	2,363.82	3.87	-0.24	0.006
135.00	-4.00	-1.12	0.00	-6.89	0.00	6.89	2,757.14	1,378.57	4,577.28	2,292.04	4.02	-0.24	0.004
140.00	-1.28	-0.19	0.00	-1.30	0.00	1.30	2,699.99	1,349.99	4,340.61	2,173.53	4.27	-0.24	0.001
145.00	-0.63	-0.06	0.00	-0.32	0.00	0.32	2,640.93	1,320.46	4,106.98	2,056.54	4.52	-0.24	0.000
150.00	0.00	-0.06	0.00	0.00	0.00	0.00	2,579.96	1,289.98	3,876.69	1,941.23	4.77	-0.24	0.000

### Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period ( $S_s$ ):	0.17
Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):	0.06
Long-Period Transition Period ( $T_L$ ):	6
Importance Factor ( $I_E$ ):	1.00
Site Coefficient $F_a$ :	1.60
Site Coefficient $F_v$ :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):	0.18
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.10
Seismic Response Coefficient ( $C_s$ ):	0.05
Upper Limit $C_s$	0.05
Lower Limit $C_s$	0.03
Period based on Rayleigh Method (sec):	1.24
Redundancy Factor ( $\rho$ ):	1.00
Seismic Force Distribution Exponent (k):	1.37
Total Unfactored Dead Load:	61.91 k
Seismic Base Shear (E):	3.19 k

#### Load Case (1.2 + 0.2Sds) \* DL + E ELFM      Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	$W_z$ (lb-ft)	$C_{vx}$	Horizontal Force (lb)	Vertical Force (lb)
35	147.50	628	593	0.026	82	777
34	142.50	650	585	0.025	81	803
33	137.50	716	613	0.027	85	885
32	133.50	440	362	0.016	50	544
31	131.00	319	256	0.011	35	394
30	127.75	730	566	0.025	78	903
29	125.25	196	148	0.006	20	242
28	123.50	1,186	877	0.038	121	1,467
27	121.00	835	600	0.026	83	1,032
26	117.50	1,369	946	0.041	131	1,693
25	112.50	1,403	913	0.040	126	1,735
24	107.50	1,438	879	0.038	122	1,777
23	102.50	1,472	843	0.037	117	1,820
22	97.50	1,506	806	0.035	111	1,862
21	92.50	1,540	766	0.033	106	1,904
20	87.50	1,575	726	0.032	100	1,947
19	83.50	961	416	0.018	58	1,188
18	81.00	1,282	532	0.023	74	1,585
17	77.50	3,256	1,271	0.055	176	4,025
16	72.50	1,833	653	0.028	90	2,266
15	67.50	1,871	604	0.026	84	2,314
14	62.50	1,910	555	0.024	77	2,361
13	57.50	1,948	505	0.022	70	2,409

Site Number: 302527

Code: ANSI/TIA-222-G

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Site Name: East Haddam, CT

Engineering Number: OAA710392\_C3\_03

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Customer: SPRINT NEXTEL

12	52.50	1,987	455	0.020	63	2,456
11	47.50	2,025	404	0.018	56	2,504
10	42.50	3,913	670	0.029	93	4,837
9	38.50	2,385	357	0.015	49	2,948
8	36.00	832	113	0.005	16	1,029
7	32.50	2,107	250	0.011	35	2,605
6	27.50	2,145	202	0.009	28	2,652
5	22.50	2,184	156	0.007	22	2,700
4	17.50	2,222	113	0.005	16	2,747
3	12.50	2,261	72	0.003	10	2,795
2	7.50	2,118	34	0.001	5	2,619
1	2.50	2,157	8	0.000	1	2,666
Alcatel-Lucent RRH2x	140.00	317	279	0.012	39	392
Alcatel-Lucent 1900	140.00	180	158	0.007	22	223
Alcatel-Lucent TD-RR	140.00	210	184	0.008	26	260
RFS APXVTM14-ALU-I20	140.00	169	148	0.006	20	208
Commscope NNVV-65B-R	140.00	232	204	0.009	28	287
Round T-Arms w/ Site	140.00	900	791	0.034	109	1,113
RFS FD9R6004/2C-3L	132.00	16	13	0.001	2	19
Alcatel-Lucent B13 R	132.00	172	139	0.006	19	212
Alcatel-Lucent B66A	132.00	170	138	0.006	19	211
RFS APL868013-42T0	132.00	38	31	0.001	4	47
Commscope RC3DC-3315	132.00	64	52	0.002	7	79
Amphenol Antel BXA-7	132.00	51	41	0.002	6	63
Commscope SBNHH-1D65	132.00	244	197	0.009	27	301
Flat Low Profile Pla	132.00	1,500	1,216	0.053	168	1,854
Powerwave Allgon LGP	122.00	85	62	0.003	9	105
Raycap DC6-48-60-18-	122.00	32	23	0.001	3	39
Ericsson RRUS-11 190	122.00	132	96	0.004	13	163
Powerwave Allgon 777	122.00	210	153	0.007	21	260
Commscope SBNH-1D454	122.00	40	29	0.001	4	49
KMW AM-X-CD-16-65-00	122.00	49	35	0.002	5	60
Andrew DBXNH-6565B-R	122.00	46	34	0.001	5	57
96" x 12" Panel	122.00	45	33	0.001	5	56
Round Low Profile PI	122.00	1,500	1,091	0.047	151	1,854
GPS	75.00	10	4	0.000	1	12
Stand-Off	75.00	100	37	0.002	5	124
		61,910	23,034	1.000	3,187	76,537

Load Case (0.9 - 0.2Sds) \* DL + E EFLM

Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
35	147.50	628	593	0.026	82	543
34	142.50	650	585	0.025	81	561
33	137.50	716	613	0.027	85	618
32	133.50	440	362	0.016	50	380
31	131.00	319	256	0.011	35	276
30	127.75	730	566	0.025	78	631
29	125.25	196	148	0.006	20	169
28	123.50	1,186	877	0.038	121	1,025
27	121.00	835	600	0.026	83	721
26	117.50	1,369	946	0.041	131	1,183
25	112.50	1,403	913	0.040	126	1,212
24	107.50	1,438	879	0.038	122	1,242
23	102.50	1,472	843	0.037	117	1,271
22	97.50	1,506	806	0.035	111	1,301
21	92.50	1,540	766	0.033	106	1,330
20	87.50	1,575	726	0.032	100	1,360
19	83.50	961	416	0.018	58	830

Site Number: 302527

Code: ANSI/TIA-222-G

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Site Name: East Haddam, CT

Engineering Number: OAA710392\_C3\_03

6/26/2018 7:45:02 PM

Customer: SPRINT NEXTEL

18	81.00	1,282	532	0.023	74	1,107
17	77.50	3,256	1,271	0.055	176	2,812
16	72.50	1,833	653	0.028	90	1,583
15	67.50	1,871	604	0.026	84	1,616
14	62.50	1,910	555	0.024	77	1,650
13	57.50	1,948	505	0.022	70	1,683
12	52.50	1,987	455	0.020	63	1,716
11	47.50	2,025	404	0.018	56	1,749
10	42.50	3,913	670	0.029	93	3,379
9	38.50	2,385	357	0.015	49	2,060
8	36.00	832	113	0.005	16	719
7	32.50	2,107	250	0.011	35	1,820
6	27.50	2,145	202	0.009	28	1,853
5	22.50	2,184	156	0.007	22	1,886
4	17.50	2,222	113	0.005	16	1,920
3	12.50	2,261	72	0.003	10	1,953
2	7.50	2,118	34	0.001	5	1,830
1	2.50	2,157	8	0.000	1	1,863
Alcatel-Lucent RRH2x	140.00	317	279	0.012	39	274
Alcatel-Lucent 1900	140.00	180	158	0.007	22	155
Alcatel-Lucent TD-RR	140.00	210	184	0.008	26	181
RFS APXVTM14-ALU-I20	140.00	169	148	0.006	20	146
Commscope NNVV-65B-R	140.00	232	204	0.009	28	201
Round T-Arms w/ Site	140.00	900	791	0.034	109	777
RFS FD9R6004/2C-3L	132.00	16	13	0.001	2	13
Alcatel-Lucent B13 R	132.00	172	139	0.006	19	148
Alcatel-Lucent B66A	132.00	170	138	0.006	19	147
RFS APL868013-42T0	132.00	38	31	0.001	4	33
Commscope RC3DC-3315	132.00	64	52	0.002	7	55
Amphenol Antel BXA-7	132.00	51	41	0.002	6	44
Commscope SBNHH-1D65	132.00	244	197	0.009	27	210
Flat Low Profile Pla	132.00	1,500	1,216	0.053	168	1,296
Powerwave Allgon LGP	122.00	85	62	0.003	9	73
Raycap DC6-48-60-18-	122.00	32	23	0.001	3	27
Ericsson RRUS-11 190	122.00	132	96	0.004	13	114
Powerwave Allgon 777	122.00	210	153	0.007	21	181
Commscope SBNH-1D454	122.00	40	29	0.001	4	34
KMW AM-X-CD-16-65-00	122.00	49	35	0.002	5	42
Andrew DBXNH-6565B-R	122.00	46	34	0.001	5	40
96" x 12" Panel	122.00	45	33	0.001	5	39
Round Low Profile PI	122.00	1,500	1,091	0.047	151	1,296
GPS	75.00	10	4	0.000	1	9
Stand-Off	75.00	100	37	0.002	5	86
		61,910	23,034	1.000	3,187	53,474



Load Case (1.2 + 0.2Sds) \* DL + E ELFM Seismic Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-73.87	-3.19	0.00	-321.70	0.00	321.70	8,846.37	4,423.19	26,040.2	13,039.4	0.00	0.00	0.033
5.00	-71.25	-3.19	0.00	-305.75	0.00	305.75	8,742.64	4,371.32	25,275.7	12,656.6	0.00	-0.01	0.032
10.00	-68.46	-3.19	0.00	-289.80	0.00	289.80	8,637.00	4,318.50	24,516.7	12,276.6	0.01	-0.01	0.032
15.00	-65.71	-3.18	0.00	-273.87	0.00	273.87	8,529.45	4,264.73	23,763.6	11,899.4	0.03	-0.02	0.031
20.00	-63.01	-3.16	0.00	-257.98	0.00	257.98	8,420.00	4,210.00	23,016.4	11,525.3	0.05	-0.02	0.030
25.00	-60.36	-3.14	0.00	-242.18	0.00	242.18	8,308.65	4,154.32	22,275.7	11,154.4	0.07	-0.03	0.029
30.00	-57.75	-3.11	0.00	-226.50	0.00	226.50	8,195.38	4,097.69	21,541.7	10,786.8	0.10	-0.03	0.028
35.00	-56.72	-3.09	0.00	-210.97	0.00	210.97	8,080.21	4,040.11	20,814.7	10,422.8	0.14	-0.04	0.027
37.00	-53.77	-3.04	0.00	-204.78	0.00	204.78	8,033.62	4,016.81	20,525.9	10,278.2	0.15	-0.04	0.027
40.00	-48.94	-2.95	0.00	-195.65	0.00	195.65	7,963.14	3,981.57	20,094.9	10,062.4	0.18	-0.04	0.026
45.00	-46.43	-2.90	0.00	-180.89	0.00	180.89	7,949.81	3,974.91	20,014.2	10,021.9	0.23	-0.05	0.024
50.00	-43.98	-2.84	0.00	-166.40	0.00	166.40	7,830.62	3,915.31	19,302.9	9,665.81	0.28	-0.05	0.023
55.00	-41.57	-2.77	0.00	-152.22	0.00	152.22	7,709.52	3,854.76	18,599.5	9,313.61	0.34	-0.06	0.022
60.00	-39.21	-2.69	0.00	-138.38	0.00	138.38	7,586.52	3,793.26	17,904.4	8,965.53	0.40	-0.06	0.021
65.00	-36.89	-2.61	0.00	-124.92	0.00	124.92	7,461.61	3,730.80	17,217.8	8,621.71	0.47	-0.07	0.019
70.00	-34.63	-2.52	0.00	-111.88	0.00	111.88	7,296.29	3,648.15	16,453.2	8,238.84	0.54	-0.07	0.018
75.00	-30.47	-2.33	0.00	-99.29	0.00	99.29	7,128.09	3,564.04	15,699.6	7,861.47	0.62	-0.07	0.017
80.00	-28.88	-2.26	0.00	-87.63	0.00	87.63	6,959.89	3,479.94	14,963.6	7,492.96	0.70	-0.08	0.016
82.00	-27.69	-2.20	0.00	-83.11	0.00	83.11	6,155.25	3,077.63	13,390.8	6,705.38	0.73	-0.08	0.017
85.00	-25.75	-2.10	0.00	-76.51	0.00	76.51	6,090.49	3,045.24	13,058.0	6,538.74	0.78	-0.08	0.016
90.00	-23.84	-1.99	0.00	-66.02	0.00	66.02	5,981.03	2,990.51	12,509.3	6,263.95	0.87	-0.09	0.015
95.00	-21.98	-1.88	0.00	-56.06	0.00	56.06	5,863.29	2,931.65	11,955.1	5,986.47	0.96	-0.09	0.013
100.00	-20.16	-1.76	0.00	-46.67	0.00	46.67	5,713.78	2,856.89	11,350.2	5,683.57	1.06	-0.09	0.012
105.00	-18.38	-1.64	0.00	-37.87	0.00	37.87	5,564.26	2,782.13	10,761.0	5,388.54	1.15	-0.09	0.010
110.00	-16.65	-1.51	0.00	-29.69	0.00	29.69	5,414.75	2,707.38	10,187.5	5,101.37	1.25	-0.10	0.009
115.00	-14.96	-1.37	0.00	-22.16	0.00	22.16	5,265.24	2,632.62	9,629.81	4,822.06	1.36	-0.10	0.007
120.00	-13.92	-1.29	0.00	-15.29	0.00	15.29	5,115.72	2,557.86	9,087.73	4,550.62	1.46	-0.10	0.006
122.00	-9.81	-0.95	0.00	-12.71	0.00	12.71	5,055.92	2,527.96	8,875.29	4,444.24	1.50	-0.10	0.005
125.00	-9.57	-0.92	0.00	-9.87	0.00	9.87	4,966.21	2,483.10	8,561.35	4,287.04	1.56	-0.10	0.004
125.50	-8.67	-0.85	0.00	-9.41	0.00	9.41	2,860.48	1,430.24	5,034.26	2,520.87	1.58	-0.10	0.007
130.00	-8.28	-0.81	0.00	-5.61	0.00	5.61	2,812.39	1,406.19	4,816.69	2,411.93	1.67	-0.10	0.005
132.00	-4.95	-0.50	0.00	-3.99	0.00	3.99	2,790.52	1,395.26	4,720.62	2,363.82	1.71	-0.10	0.003
135.00	-4.06	-0.41	0.00	-2.49	0.00	2.49	2,757.14	1,378.57	4,577.28	2,292.04	1.78	-0.10	0.003
140.00	-0.78	-0.08	0.00	-0.42	0.00	0.42	2,699.99	1,349.99	4,340.61	2,173.53	1.89	-0.10	0.000
145.00	0.00	0.00	0.00	0.00	0.00	0.00	2,640.93	1,320.46	4,106.98	2,056.54	1.99	-0.10	0.000
150.00	0.00	0.00	0.00	0.00	0.00	0.00	2,579.96	1,289.98	3,876.69	1,941.23	2.10	-0.10	0.000

Load Case (0.9 - 0.2Sds) \* DL + E ELM

Seismic (Reduced DL) Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-51.61	-3.19	0.00	-320.42	0.00	320.42	8,846.37	4,423.19	26,040.2	13,039.4	0.00	0.00	0.030
5.00	-49.78	-3.19	0.00	-304.48	0.00	304.48	8,742.64	4,371.32	25,275.7	12,656.6	0.00	-0.01	0.030
10.00	-47.83	-3.18	0.00	-288.54	0.00	288.54	8,637.00	4,318.50	24,516.7	12,276.6	0.01	-0.01	0.029
15.00	-45.91	-3.17	0.00	-272.63	0.00	272.63	8,529.45	4,264.73	23,763.6	11,899.4	0.03	-0.02	0.028
20.00	-44.02	-3.15	0.00	-256.78	0.00	256.78	8,420.00	4,210.00	23,016.4	11,525.3	0.05	-0.02	0.028
25.00	-42.17	-3.13	0.00	-241.02	0.00	241.02	8,308.65	4,154.32	22,275.7	11,154.4	0.07	-0.03	0.027
30.00	-40.35	-3.10	0.00	-225.38	0.00	225.38	8,195.38	4,097.69	21,541.7	10,786.8	0.10	-0.03	0.026
35.00	-39.63	-3.08	0.00	-209.91	0.00	209.91	8,080.21	4,040.11	20,814.7	10,422.8	0.14	-0.04	0.025
37.00	-37.57	-3.03	0.00	-203.74	0.00	203.74	8,033.62	4,016.81	20,525.9	10,278.2	0.15	-0.04	0.025
40.00	-34.19	-2.94	0.00	-194.65	0.00	194.65	7,963.14	3,981.57	20,094.9	10,062.4	0.18	-0.04	0.024
45.00	-32.44	-2.89	0.00	-179.95	0.00	179.95	7,949.81	3,974.91	20,014.2	10,021.9	0.23	-0.05	0.022
50.00	-30.72	-2.82	0.00	-165.52	0.00	165.52	7,830.62	3,915.31	19,302.9	9,665.81	0.28	-0.05	0.021
55.00	-29.04	-2.75	0.00	-151.40	0.00	151.40	7,709.52	3,854.76	18,599.5	9,313.61	0.34	-0.06	0.020
60.00	-27.39	-2.68	0.00	-137.63	0.00	137.63	7,586.52	3,793.26	17,904.4	8,965.53	0.40	-0.06	0.019
65.00	-25.77	-2.59	0.00	-124.23	0.00	124.23	7,461.61	3,730.80	17,217.8	8,621.71	0.47	-0.07	0.018
70.00	-24.19	-2.50	0.00	-111.26	0.00	111.26	7,296.29	3,648.15	16,453.2	8,238.84	0.54	-0.07	0.017
75.00	-21.28	-2.32	0.00	-98.74	0.00	98.74	7,128.09	3,564.04	15,699.6	7,861.47	0.61	-0.07	0.016
80.00	-20.18	-2.25	0.00	-87.14	0.00	87.14	6,959.89	3,479.94	14,963.6	7,492.96	0.69	-0.08	0.015
82.00	-19.35	-2.19	0.00	-82.64	0.00	82.64	6,155.25	3,077.63	13,390.8	6,705.38	0.73	-0.08	0.015
85.00	-17.99	-2.09	0.00	-76.08	0.00	76.08	6,090.49	3,045.24	13,058.0	6,538.74	0.78	-0.08	0.015
90.00	-16.66	-1.98	0.00	-65.64	0.00	65.64	5,981.03	2,990.51	12,509.3	6,263.95	0.86	-0.09	0.013
95.00	-15.36	-1.87	0.00	-55.74	0.00	55.74	5,863.29	2,931.65	11,955.1	5,986.47	0.96	-0.09	0.012
100.00	-14.08	-1.75	0.00	-46.41	0.00	46.41	5,713.78	2,856.89	11,350.2	5,683.57	1.05	-0.09	0.011
105.00	-12.84	-1.63	0.00	-37.66	0.00	37.66	5,564.26	2,782.13	10,761.0	5,388.54	1.15	-0.09	0.009
110.00	-11.63	-1.50	0.00	-29.53	0.00	29.53	5,414.75	2,707.38	10,187.5	5,101.37	1.25	-0.10	0.008
115.00	-10.45	-1.37	0.00	-22.03	0.00	22.03	5,265.24	2,632.62	9,629.81	4,822.06	1.35	-0.10	0.007
120.00	-9.73	-1.28	0.00	-15.20	0.00	15.20	5,115.72	2,557.86	9,087.73	4,550.62	1.45	-0.10	0.005
122.00	-6.86	-0.94	0.00	-12.64	0.00	12.64	5,055.92	2,527.96	8,875.29	4,444.24	1.49	-0.10	0.004
125.00	-6.69	-0.92	0.00	-9.82	0.00	9.82	4,966.21	2,483.10	8,561.35	4,287.04	1.56	-0.10	0.004
125.50	-6.06	-0.84	0.00	-9.36	0.00	9.36	2,860.48	1,430.24	5,034.26	2,520.87	1.57	-0.10	0.006
130.00	-5.78	-0.80	0.00	-5.58	0.00	5.58	2,812.39	1,406.19	4,816.69	2,411.93	1.66	-0.10	0.004
132.00	-3.46	-0.50	0.00	-3.97	0.00	3.97	2,790.52	1,395.26	4,720.62	2,363.82	1.71	-0.10	0.003
135.00	-2.84	-0.41	0.00	-2.47	0.00	2.47	2,757.14	1,378.57	4,577.28	2,292.04	1.77	-0.10	0.002
140.00	-0.54	-0.08	0.00	-0.41	0.00	0.41	2,699.99	1,349.99	4,340.61	2,173.53	1.88	-0.10	0.000
145.00	0.00	0.00	0.00	0.00	0.00	0.00	2,640.93	1,320.46	4,106.98	2,056.54	1.98	-0.10	0.000
150.00	0.00	0.00	0.00	0.00	0.00	0.00	2,579.96	1,289.98	3,876.69	1,941.23	2.09	-0.10	0.000

### Equivalent Modal Forces Analysis

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period ( $S_s$ ):	0.17
Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):	0.06
Importance Factor ( $I_E$ ):	1.00
Site Coefficient $F_a$ :	1.60
Site Coefficient $F_v$ :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):	0.18
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.10
Period Based on Rayleigh Method (sec):	1.24
Redundancy Factor ( $p$ ):	1.00

Load Case (1.2 + 0.2Sds) \* DL + E EMAM      Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
35	147.50	628	1.828	1.667	1.025	0.330	138	777
34	142.50	650	1.706	1.144	0.823	0.263	114	803
33	137.50	716	1.588	0.742	0.654	0.204	98	885
32	133.50	440	1.497	0.494	0.539	0.163	48	544
31	131.00	319	1.442	0.367	0.476	0.141	30	394
30	127.75	730	1.371	0.231	0.402	0.114	55	903
29	125.25	196	1.318	0.146	0.352	0.096	12	242
28	123.50	1,186	1.281	0.095	0.320	0.084	66	1,467
27	121.00	835	1.230	0.035	0.278	0.069	38	1,032
26	117.50	1,369	1.160	-0.030	0.226	0.051	47	1,693
25	112.50	1,403	1.063	-0.088	0.165	0.032	30	1,735
24	107.50	1,438	0.971	-0.116	0.117	0.020	19	1,777
23	102.50	1,472	0.883	-0.121	0.081	0.014	13	1,820
22	97.50	1,506	0.799	-0.112	0.053	0.012	12	1,862
21	92.50	1,540	0.719	-0.092	0.034	0.015	15	1,904
20	87.50	1,575	0.643	-0.068	0.020	0.020	20	1,947
19	83.50	961	0.586	-0.048	0.013	0.024	15	1,188
18	81.00	1,282	0.551	-0.035	0.010	0.027	23	1,585
17	77.50	3,256	0.505	-0.018	0.007	0.031	67	4,025
16	72.50	1,833	0.442	0.005	0.006	0.035	43	2,266
15	67.50	1,871	0.383	0.023	0.007	0.039	48	2,314
14	62.50	1,910	0.328	0.039	0.010	0.041	52	2,361
13	57.50	1,948	0.278	0.050	0.014	0.041	53	2,409
12	52.50	1,987	0.232	0.058	0.019	0.041	54	2,456
11	47.50	2,025	0.190	0.064	0.025	0.039	53	2,504
10	42.50	3,913	0.152	0.068	0.030	0.038	98	4,837
9	38.50	2,385	0.125	0.070	0.034	0.036	57	2,948
8	36.00	832	0.109	0.071	0.036	0.035	19	1,029
7	32.50	2,107	0.089	0.071	0.039	0.034	47	2,605
6	27.50	2,145	0.064	0.072	0.041	0.032	46	2,652
5	22.50	2,184	0.043	0.070	0.042	0.030	44	2,700
4	17.50	2,222	0.026	0.067	0.040	0.028	41	2,747
3	12.50	2,261	0.013	0.059	0.034	0.024	36	2,795
2	7.50	2,118	0.005	0.044	0.025	0.018	25	2,619

Site Number: 302527

Code: ANSI/TIA-222-G

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Site Name: East Haddam, CT

Engineering Number: OAA710392\_C3\_03

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Customer: SPRINT NEXTEL

1	2.50	2,157	0.001	0.018	0.010	0.008	11	2,666
Alcatel-Lucent RRH2x	140.00	317	1.646	0.929	0.735	0.233	49	392
Alcatel-Lucent 1900	140.00	180	1.646	0.929	0.735	0.233	28	223
Alcatel-Lucent TD-RR	140.00	210	1.646	0.929	0.735	0.233	33	260
RFS APXVTM14-ALU-I20	140.00	169	1.646	0.929	0.735	0.233	26	208
Commscope NNVV-	140.00	232	1.646	0.929	0.735	0.233	36	287
Round T-Arms w/ Site	140.00	900	1.646	0.929	0.735	0.233	140	1,113
RFS FD9R6004/2C-3L	132.00	16	1.464	0.415	0.501	0.149	2	19
Alcatel-Lucent B13 R	132.00	172	1.464	0.415	0.501	0.149	17	212
Alcatel-Lucent B66A	132.00	170	1.464	0.415	0.501	0.149	17	211
RFS APL868013-42T0	132.00	38	1.464	0.415	0.501	0.149	4	47
Commscope RC3DC-	132.00	64	1.464	0.415	0.501	0.149	6	79
Amphenol Antel BXA-7	132.00	51	1.464	0.415	0.501	0.149	5	63
Commscope SBNHH-	132.00	244	1.464	0.415	0.501	0.149	24	301
Flat Low Profile Pla	132.00	1,500	1.464	0.415	0.501	0.149	149	1,854
Powerwave Allgon LGP	122.00	85	1.250	0.057	0.294	0.075	4	105
Raycap DC6-48-60-18-	122.00	32	1.250	0.057	0.294	0.075	2	39
Ericsson RRUS-11 190	122.00	132	1.250	0.057	0.294	0.075	7	163
Powerwave Allgon 777	122.00	210	1.250	0.057	0.294	0.075	10	260
Commscope SBNH-	122.00	40	1.250	0.057	0.294	0.075	2	49
KMW AM-X-CD-16-65-00	122.00	49	1.250	0.057	0.294	0.075	2	60
Andrew DBXNH-6565B-R	122.00	46	1.250	0.057	0.294	0.075	2	57
96" x 12" Panel	122.00	45	1.250	0.057	0.294	0.075	2	56
Round Low Profile PI	122.00	1,500	1.250	0.057	0.294	0.075	75	1,854
GPS	75.00	10	0.472	-0.006	0.006	0.033	0	12
Stand-Off	75.00	100	0.472	-0.006	0.006	0.033	2	124
		61,910	57.397	14.443	17.078	5.557	2,236	76,537

Load Case (0.9 - 0.2Sds) \* DL + E EMAM

Seismic (Reduced DL) Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
35	147.50	628	1.828	1.667	1.025	0.330	138	543
34	142.50	650	1.706	1.144	0.823	0.263	114	561
33	137.50	716	1.588	0.742	0.654	0.204	98	618
32	133.50	440	1.497	0.494	0.539	0.163	48	380
31	131.00	319	1.442	0.367	0.476	0.141	30	276
30	127.75	730	1.371	0.231	0.402	0.114	55	631
29	125.25	196	1.318	0.146	0.352	0.096	12	169
28	123.50	1,186	1.281	0.095	0.320	0.084	66	1,025
27	121.00	835	1.230	0.035	0.278	0.069	38	721
26	117.50	1,369	1.160	-0.030	0.226	0.051	47	1,183
25	112.50	1,403	1.063	-0.088	0.165	0.032	30	1,212
24	107.50	1,438	0.971	-0.116	0.117	0.020	19	1,242
23	102.50	1,472	0.883	-0.121	0.081	0.014	13	1,271
22	97.50	1,506	0.799	-0.112	0.053	0.012	12	1,301
21	92.50	1,540	0.719	-0.092	0.034	0.015	15	1,330
20	87.50	1,575	0.643	-0.068	0.020	0.020	20	1,360
19	83.50	961	0.586	-0.048	0.013	0.024	15	830
18	81.00	1,282	0.551	-0.035	0.010	0.027	23	1,107
17	77.50	3,256	0.505	-0.018	0.007	0.031	67	2,812
16	72.50	1,833	0.442	0.005	0.006	0.035	43	1,583
15	67.50	1,871	0.383	0.023	0.007	0.039	48	1,616
14	62.50	1,910	0.328	0.039	0.010	0.041	52	1,650
13	57.50	1,948	0.278	0.050	0.014	0.041	53	1,683
12	52.50	1,987	0.232	0.058	0.019	0.041	54	1,716
11	47.50	2,025	0.190	0.064	0.025	0.039	53	1,749
10	42.50	3,913	0.152	0.068	0.030	0.038	98	3,379
9	38.50	2,385	0.125	0.070	0.034	0.036	57	2,060

Site Number: 302527

Code: ANSI/TIA-222-G

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Site Name: East Haddam, CT

Engineering Number: OAA710392\_C3\_03

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Customer: SPRINT NEXTEL

8	36.00	832	0.109	0.071	0.036	0.035	19	719
7	32.50	2,107	0.089	0.071	0.039	0.034	47	1,820
6	27.50	2,145	0.064	0.072	0.041	0.032	46	1,853
5	22.50	2,184	0.043	0.070	0.042	0.030	44	1,886
4	17.50	2,222	0.026	0.067	0.040	0.028	41	1,920
3	12.50	2,261	0.013	0.059	0.034	0.024	36	1,953
2	7.50	2,118	0.005	0.044	0.025	0.018	25	1,830
1	2.50	2,157	0.001	0.018	0.010	0.008	11	1,863
Alcatel-Lucent RRH2x	140.00	317	1.646	0.929	0.735	0.233	49	274
Alcatel-Lucent 1900	140.00	180	1.646	0.929	0.735	0.233	28	155
Alcatel-Lucent TD-RR	140.00	210	1.646	0.929	0.735	0.233	33	181
RFS APXVTM14-ALU-I20	140.00	169	1.646	0.929	0.735	0.233	26	146
Commscope NNVV-	140.00	232	1.646	0.929	0.735	0.233	36	201
Round T-Arms w/ Site	140.00	900	1.646	0.929	0.735	0.233	140	777
RFS FD9R6004/2C-3L	132.00	16	1.464	0.415	0.501	0.149	2	13
Alcatel-Lucent B13 R	132.00	172	1.464	0.415	0.501	0.149	17	148
Alcatel-Lucent B66A	132.00	170	1.464	0.415	0.501	0.149	17	147
RFS APL868013-42T0	132.00	38	1.464	0.415	0.501	0.149	4	33
Commscope RC3DC-	132.00	64	1.464	0.415	0.501	0.149	6	55
Amphenol Antel BXA-7	132.00	51	1.464	0.415	0.501	0.149	5	44
Commscope SBNHH-	132.00	244	1.464	0.415	0.501	0.149	24	210
Flat Low Profile Pla	132.00	1,500	1.464	0.415	0.501	0.149	149	1,296
Powerwave Allgon LGP	122.00	85	1.250	0.057	0.294	0.075	4	73
Raycap DC6-48-60-18-	122.00	32	1.250	0.057	0.294	0.075	2	27
Ericsson RRUS-11 190	122.00	132	1.250	0.057	0.294	0.075	7	114
Powerwave Allgon 777	122.00	210	1.250	0.057	0.294	0.075	10	181
Commscope SBNH-	122.00	40	1.250	0.057	0.294	0.075	2	34
KMW AM-X-CD-16-65-00	122.00	49	1.250	0.057	0.294	0.075	2	42
Andrew DBXNH-6565B-R	122.00	46	1.250	0.057	0.294	0.075	2	40
96" x 12" Panel	122.00	45	1.250	0.057	0.294	0.075	2	39
Round Low Profile PI	122.00	1,500	1.250	0.057	0.294	0.075	75	1,296
GPS	75.00	10	0.472	-0.006	0.006	0.033	0	9
Stand-Off	75.00	100	0.472	-0.006	0.006	0.033	2	86
		61,910	57.397	14.443	17.078	5.557	2,236	53,474

Load Case (1.2 + 0.2Sds) \* DL + E EMAM Seismic Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-73.87	-2.23	0.00	-222.98	0.00	222.98	8,846.37	4,423.19	26,040.2	13,039.4	0.00	0.00	0.025
5.00	-71.25	-2.21	0.00	-211.85	0.00	211.85	8,742.64	4,371.32	25,275.7	12,656.6	0.00	0.00	0.025
10.00	-68.46	-2.17	0.00	-200.81	0.00	200.81	8,637.00	4,318.50	24,516.7	12,276.6	0.01	-0.01	0.024
15.00	-65.71	-2.14	0.00	-189.94	0.00	189.94	8,529.45	4,264.73	23,763.6	11,899.4	0.02	-0.01	0.024
20.00	-63.01	-2.10	0.00	-179.25	0.00	179.25	8,420.00	4,210.00	23,016.4	11,525.3	0.03	-0.01	0.023
25.00	-60.36	-2.06	0.00	-168.76	0.00	168.76	8,308.65	4,154.32	22,275.7	11,154.4	0.05	-0.02	0.022
30.00	-57.75	-2.01	0.00	-158.49	0.00	158.49	8,195.38	4,097.69	21,541.7	10,786.8	0.07	-0.02	0.022
35.00	-56.72	-1.99	0.00	-148.43	0.00	148.43	8,080.21	4,040.11	20,814.7	10,422.8	0.10	-0.03	0.021
37.00	-53.78	-1.94	0.00	-144.45	0.00	144.45	8,033.62	4,016.81	20,525.9	10,278.2	0.11	-0.03	0.021
40.00	-48.94	-1.84	0.00	-138.64	0.00	138.64	7,963.14	3,981.57	20,094.9	10,062.4	0.13	-0.03	0.020
45.00	-46.43	-1.79	0.00	-129.45	0.00	129.45	7,949.81	3,974.91	20,014.2	10,021.9	0.16	-0.03	0.019
50.00	-43.98	-1.73	0.00	-120.52	0.00	120.52	7,830.62	3,915.31	19,302.9	9,665.81	0.20	-0.04	0.018
55.00	-41.57	-1.68	0.00	-111.85	0.00	111.85	7,709.52	3,854.76	18,599.5	9,313.61	0.24	-0.04	0.017
60.00	-39.21	-1.63	0.00	-103.44	0.00	103.44	7,586.52	3,793.26	17,904.4	8,965.53	0.28	-0.04	0.017
65.00	-36.89	-1.58	0.00	-95.29	0.00	95.29	7,461.61	3,730.80	17,217.8	8,621.71	0.33	-0.05	0.016
70.00	-34.63	-1.54	0.00	-87.38	0.00	87.38	7,296.29	3,648.15	16,453.2	8,238.84	0.38	-0.05	0.015
75.00	-30.47	-1.47	0.00	-79.69	0.00	79.69	7,128.09	3,564.04	15,699.6	7,861.47	0.43	-0.05	0.014
80.00	-28.88	-1.44	0.00	-72.35	0.00	72.35	6,959.89	3,479.94	14,963.6	7,492.96	0.49	-0.06	0.014
82.00	-27.69	-1.43	0.00	-69.46	0.00	69.46	6,155.25	3,077.63	13,390.8	6,705.38	0.51	-0.06	0.015
85.00	-25.75	-1.41	0.00	-65.18	0.00	65.18	6,090.49	3,045.24	13,058.0	6,538.74	0.55	-0.06	0.014
90.00	-23.84	-1.39	0.00	-58.14	0.00	58.14	5,981.03	2,990.51	12,509.3	6,263.95	0.62	-0.06	0.013
95.00	-21.98	-1.38	0.00	-51.19	0.00	51.19	5,863.29	2,931.65	11,955.1	5,986.47	0.68	-0.07	0.012
100.00	-20.16	-1.36	0.00	-44.30	0.00	44.30	5,713.78	2,856.89	11,350.2	5,683.57	0.75	-0.07	0.011
105.00	-18.38	-1.34	0.00	-37.49	0.00	37.49	5,564.26	2,782.13	10,761.0	5,388.54	0.83	-0.07	0.010
110.00	-16.65	-1.31	0.00	-30.78	0.00	30.78	5,414.75	2,707.38	10,187.5	5,101.37	0.90	-0.07	0.009
115.00	-14.96	-1.26	0.00	-24.23	0.00	24.23	5,265.24	2,632.62	9,629.81	4,822.06	0.98	-0.08	0.008
120.00	-13.92	-1.22	0.00	-17.92	0.00	17.92	5,115.72	2,557.86	9,087.73	4,550.62	1.06	-0.08	0.007
122.00	-9.81	-1.04	0.00	-15.47	0.00	15.47	5,055.92	2,527.96	8,875.29	4,444.24	1.09	-0.08	0.005
125.00	-9.57	-1.03	0.00	-12.34	0.00	12.34	4,966.21	2,483.10	8,561.35	4,287.04	1.14	-0.08	0.005
125.50	-8.67	-0.98	0.00	-11.82	0.00	11.82	2,860.48	1,430.24	5,034.26	2,520.87	1.15	-0.08	0.008
130.00	-8.28	-0.94	0.00	-7.43	0.00	7.43	2,812.39	1,406.19	4,816.69	2,411.93	1.22	-0.08	0.006
132.00	-4.95	-0.67	0.00	-5.54	0.00	5.54	2,790.52	1,395.26	4,720.62	2,363.82	1.26	-0.08	0.004
135.00	-4.06	-0.57	0.00	-3.54	0.00	3.54	2,757.14	1,378.57	4,577.28	2,292.04	1.31	-0.08	0.003
140.00	-0.78	-0.14	0.00	-0.70	0.00	0.70	2,699.99	1,349.99	4,340.61	2,173.53	1.39	-0.08	0.001
145.00	0.00	0.00	0.00	0.00	0.00	0.00	2,640.93	1,320.46	4,106.98	2,056.54	1.47	-0.08	0.000
150.00	0.00	0.00	0.00	0.00	0.00	0.00	2,579.96	1,289.98	3,876.69	1,941.23	1.56	-0.08	0.000

Load Case (0.9 - 0.2Sds) \* DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-51.61	-2.23	0.00	-222.06	0.00	222.06	8,846.37	4,423.19	26,040.2	13,039.4	0.00	0.00	0.023
5.00	-49.78	-2.20	0.00	-210.93	0.00	210.93	8,742.64	4,371.32	25,275.7	12,656.6	0.00	0.00	0.022
10.00	-47.83	-2.17	0.00	-199.91	0.00	199.91	8,637.00	4,318.50	24,516.7	12,276.6	0.01	-0.01	0.022
15.00	-45.91	-2.13	0.00	-189.05	0.00	189.05	8,529.45	4,264.73	23,763.6	11,899.4	0.02	-0.01	0.021
20.00	-44.02	-2.09	0.00	-178.38	0.00	178.38	8,420.00	4,210.00	23,016.4	11,525.3	0.03	-0.01	0.021
25.00	-42.17	-2.05	0.00	-167.92	0.00	167.92	8,308.65	4,154.32	22,275.7	11,154.4	0.05	-0.02	0.020
30.00	-40.35	-2.00	0.00	-157.68	0.00	157.68	8,195.38	4,097.69	21,541.7	10,786.8	0.07	-0.02	0.020
35.00	-39.63	-1.99	0.00	-147.66	0.00	147.66	8,080.21	4,040.11	20,814.7	10,422.8	0.10	-0.03	0.019
37.00	-37.57	-1.93	0.00	-143.69	0.00	143.69	8,033.62	4,016.81	20,525.9	10,278.2	0.11	-0.03	0.019
40.00	-34.19	-1.83	0.00	-137.91	0.00	137.91	7,963.14	3,981.57	20,094.9	10,062.4	0.13	-0.03	0.018
45.00	-32.44	-1.78	0.00	-128.76	0.00	128.76	7,949.81	3,974.91	20,014.2	10,021.9	0.16	-0.03	0.017
50.00	-30.73	-1.72	0.00	-119.87	0.00	119.87	7,830.62	3,915.31	19,302.9	9,665.81	0.19	-0.04	0.016
55.00	-29.04	-1.67	0.00	-111.25	0.00	111.25	7,709.52	3,854.76	18,599.5	9,313.61	0.24	-0.04	0.016
60.00	-27.39	-1.62	0.00	-102.89	0.00	102.89	7,586.52	3,793.26	17,904.4	8,965.53	0.28	-0.04	0.015
65.00	-25.78	-1.57	0.00	-94.78	0.00	94.78	7,461.61	3,730.80	17,217.8	8,621.71	0.33	-0.05	0.014
70.00	-24.19	-1.53	0.00	-86.92	0.00	86.92	7,296.29	3,648.15	16,453.2	8,238.84	0.38	-0.05	0.014
75.00	-21.29	-1.46	0.00	-79.27	0.00	79.27	7,128.09	3,564.04	15,699.6	7,861.47	0.43	-0.05	0.013
80.00	-20.18	-1.44	0.00	-71.98	0.00	71.98	6,959.89	3,479.94	14,963.6	7,492.96	0.49	-0.06	0.013
82.00	-19.35	-1.42	0.00	-69.11	0.00	69.11	6,155.25	3,077.63	13,390.8	6,705.38	0.51	-0.06	0.013
85.00	-17.99	-1.40	0.00	-64.85	0.00	64.85	6,090.49	3,045.24	13,058.0	6,538.74	0.55	-0.06	0.013
90.00	-16.66	-1.38	0.00	-57.86	0.00	57.86	5,981.03	2,990.51	12,509.3	6,263.95	0.61	-0.06	0.012
95.00	-15.36	-1.37	0.00	-50.95	0.00	50.95	5,863.29	2,931.65	11,955.1	5,986.47	0.68	-0.07	0.011
100.00	-14.09	-1.36	0.00	-44.10	0.00	44.10	5,713.78	2,856.89	11,350.2	5,683.57	0.75	-0.07	0.010
105.00	-12.84	-1.34	0.00	-37.33	0.00	37.33	5,564.26	2,782.13	10,761.0	5,388.54	0.82	-0.07	0.009
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115.00	-10.45	-1.26	0.00	-24.13	0.00	24.13	5,265.24	2,632.62	9,629.81	4,822.06	0.97	-0.07	0.007
120.00	-9.73	-1.22	0.00	-17.85	0.00	17.85	5,115.72	2,557.86	9,087.73	4,550.62	1.05	-0.08	0.006
122.00	-6.86	-1.04	0.00	-15.42	0.00	15.42	5,055.92	2,527.96	8,875.29	4,444.24	1.09	-0.08	0.005
125.00	-6.69	-1.03	0.00	-12.30	0.00	12.30	4,966.21	2,483.10	8,561.35	4,287.04	1.13	-0.08	0.004
125.50	-6.06	-0.97	0.00	-11.78	0.00	11.78	2,860.48	1,430.24	5,034.26	2,520.87	1.14	-0.08	0.007
130.00	-5.78	-0.94	0.00	-7.41	0.00	7.41	2,812.39	1,406.19	4,816.69	2,411.93	1.22	-0.08	0.005
132.00	-3.46	-0.67	0.00	-5.53	0.00	5.53	2,790.52	1,395.26	4,720.62	2,363.82	1.25	-0.08	0.004
135.00	-2.84	-0.57	0.00	-3.53	0.00	3.53	2,757.14	1,378.57	4,577.28	2,292.04	1.30	-0.08	0.003
140.00	-0.54	-0.14	0.00	-0.69	0.00	0.69	2,699.99	1,349.99	4,340.61	2,173.53	1.38	-0.08	0.001
145.00	0.00	0.00	0.00	0.00	0.00	0.00	2,640.93	1,320.46	4,106.98	2,056.54	1.47	-0.08	0.000
150.00	0.00	0.00	0.00	0.00	0.00	0.00	2,579.96	1,289.98	3,876.69	1,941.23	1.55	-0.08	0.000



Site Number: 302527

Code: ANSI/TIA-222-G

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Site Name: East Haddam, CT

Engineering Number: OAA710392\_C3\_03

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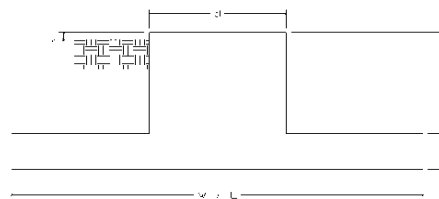
Customer: SPRINT NEXTEL

### Analysis Summary

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	35.80	0.00	74.27	0.00	0.00	3269.73	0.00	0.26
0.9D + 1.6W	35.79	0.00	55.70	0.00	0.00	3258.38	0.00	0.26
1.2D + 1.0Di + 1.0Wi	10.44	0.00	112.62	0.00	0.00	945.47	0.00	0.09
(1.2 + 0.2Sds) * DL + E ELFM	3.19	0.00	73.87	0.00	0.00	321.70	0.00	0.03
(1.2 + 0.2Sds) * DL + E EMAM	2.23	0.00	73.87	0.00	0.00	222.98	0.00	0.03
(0.9 - 0.2Sds) * DL + E ELFM	3.19	0.00	51.61	0.00	0.00	320.42	0.00	0.03
(0.9 - 0.2Sds) * DL + E EMAM	2.23	0.00	51.61	0.00	0.00	222.06	0.00	0.02
1.0D + 1.0W	7.89	0.00	61.91	0.00	0.00	719.44	0.00	0.06

Site Name: East Haddam, CT  
 Site Number: 302527  
 Engineering Number: OAA710392  
 Engineer: Christiana.Lancaster  
 Date: 06/26/18  
 Tower Type: MP

Program Last Updated: 5/13/2014



**Design Loads (Factored) - Analysis per TIA-222-G Standards**

Design / Analysis / Mapping:	Analysis		
Compression/Leg:	74.3 k	Concrete Strength ( $f'_c$ ):	3000 psi
Uplift/Leg:	0.0 k	Pad Tension Steel Depth:	44.00 in
Total Shear:	35.8 k	$\phi_{\text{Shear}}$ :	0.75
Moment:	3269.7 k-ft	$\phi_{\text{Flexure / Tension}}$ :	0.90
Tower + Appurtenance Weight:	74.3 k	$\phi_{\text{Compression}}$ :	0.65
Depth to Base of Foundation (l + t - h):	4.00 ft	$\beta$ :	0.85
Diameter of Pier (d):	6.75 ft	Bottom Pad Rebar Size #:	10
Height of Pier above Ground (h):	0.00 ft	# of Bottom Pad Rebar:	47
Width of Pad (W):	35.00 ft	Pad Bottom Steel Area:	59.69 in <sup>2</sup>
Length of Pad (L):	35.00 ft	Pad Steel $F_y$ :	60000 psi
Thickness of Pad (t):	4.00 ft	Top Pad Rebar Size #:	10
Tower Leg Center to Center:	0.00 ft	# of Top Pad Rebar:	47
Number of Tower Legs:	1.0 (1 if MP or GT)	Pad Top Steel Area:	59.69 in <sup>2</sup>
Tower Center from Mat Center:	0.00 ft		
Depth Below Ground Surface to Water Table:	4.00 ft		
Unit Weight of Concrete:	150.0 pcf		
Unit Weight of Soil Above Water Table:	125.0 pcf		
Unit Weight of Water:	62.4 pcf		
Unit Weight of Soil Below Water Table:	62.6 pcf		
Friction Angle of Uplift:	15.0 Degrees		
Ultimate Coefficient of Shear Friction:	0.20		
Ultimate Compressive Bearing Pressure:	12000.0 psf		
Ultimate Passive Pressure on Pad Face:	0.0 psf		
$\phi_{\text{Soil and Concrete Weight}}$ :	0.9		
$\phi_{\text{Soil}}$ :	0.75		

**Overturning Moment Usage**

Design OTM:	3412.9 k-ft
OTM Resistance:	12849.5 k-ft
Design OTM / OTM Resistance:	0.27 Result: OK

**Soil Bearing Pressure Usage**

Net Bearing Pressure:	865 psf
Factored Nominal Bearing Pressure:	9000 psf
Net Bearing Pressure/Factored Nominal Bearing Pressure:	0.10 Result: OK
Load Direction Controlling Design Bearing Pressure:	Diagonal to Pad Edge

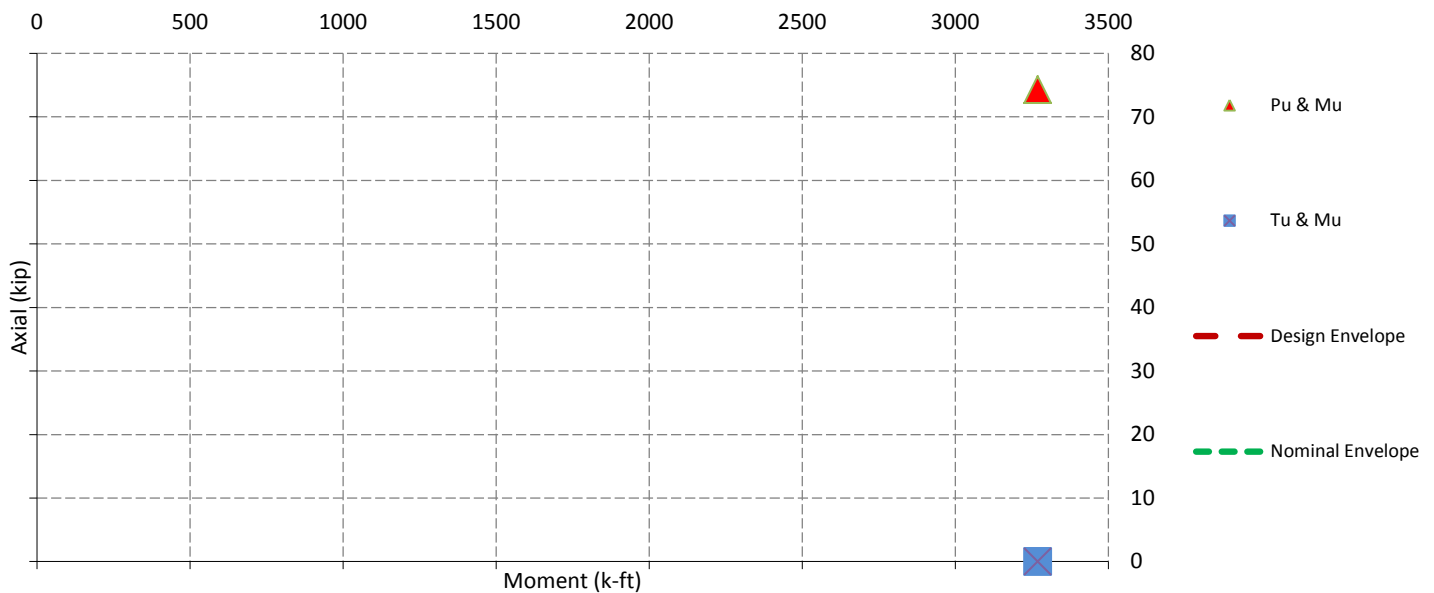
**Sliding Factor of Safety**

Total Factored Sliding Resistance:	119.5 k
Sliding Design / Sliding Resistance:	0.30 Result: OK

## One Way Shear, Flexural Capacity, and Punching Shear

Factored One Way Shear ( $V_u$ ):	208.4 k
One Way Shear Capacity ( $\phi V_c$ ):	1518.3 k - ACI11.3.1.1
$V_u / \phi V_c$ :	0.14 Result: OK
Load Direction Controlling Shear Capacity:	Parallel to Pad Edge
Lower Steel Pad Factored Moment ( $M_u$ ):	2036.3 k-ft
Lower Steel Pad Moment Capacity ( $\phi M_n$ ):	11436.9 k-ft - ACI10.3
$M_u / \phi M_n$ :	0.18 Result: OK
Load Direction Controlling Flexural Capacity:	Parallel to Pad Edge
Upper Steel Pad Factored Moment ( $M_u$ ):	913.1 k-ft
Upper Steel Pad Moment Capacity ( $\phi M_n$ ):	11436.9 k-ft
$M_u / \phi M_n$ :	0.08 Result: OK
Lower Pad Flexural Reinforcement Ratio:	0.0032 OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Upper Pad Flexural Reinforcement Ratio:	0.0032 OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Lower Pad Reinforcement Spacing:	9 in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Upper Pad Reinforcement Spacing:	9 in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Factored Punching Shear ( $V_u$ ):	37.7 k
Nominal Punching Shear Capacity ( $\phi_c V_n$ ):	2839.2 k - ACI11.12.2.1
$V_u / \phi_c V_n$ :	0.01 Result: OK

Nominal and Design Moment Capacity and Factored Design Loads





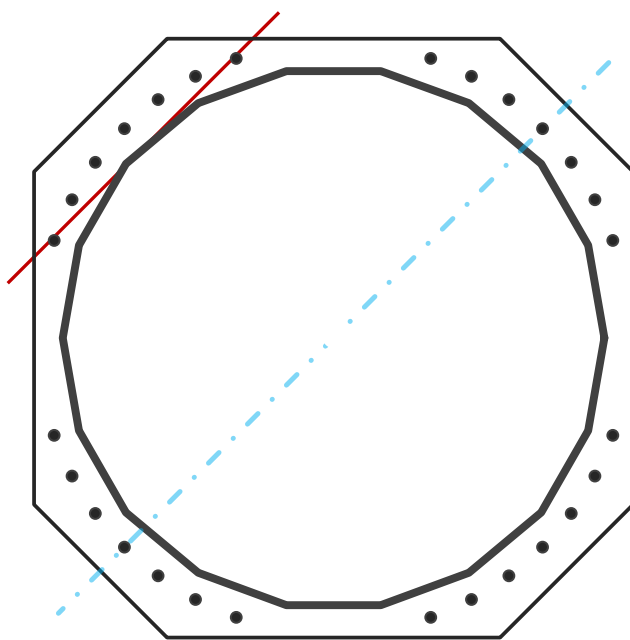
## Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	18	-
Diameter	72.20	in
Thickness	0.563	in
Orientation Offset		°

Base Reactions		
Moment, Mu	3269.7	k-ft
Axial, Pu	74.3	k
Shear, Vu	35.8	k
Neutral Axis	45	°

Report Capacities		
Component	Capacity	Result
Base Plate	16%	Pass
Anchor Rods	28%	Pass
Dwyidag	-	-

Base Plate		
Shape	Square	-
Width	81	in
Thickness	3 1/2	in
Grade	Other	-
Yield Strength, Fy	55	ksi
Tensile Strength, Fu	70	ksi
Clip	18	in
Orientation Offset	0	°
Anchor Rod Detail	d	η=0.5
Clear Distance	3	in
Applied Moment, Mu	1073.9	k
Bending Stress, φMn	6571.8	k



Original Anchor Rods		
Arrangement	Cluster	-
Quantity	28	-
Diameter, φ	2 1/4	in
Bolt Circle	80	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	0	°
Applied Force, Pu	72.7	k
Anchor Rods, φPn	259.8	k

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the solutions are endless

1033 WATERVLIET SHAKER RD, ALBANY, NY 12205

## Mount Analysis Report

April 22, 2018

Site Name	CT33XC537
Infinigy Job Number	526-104
Client	Airosmith
Proposed Carrier	Sprint
Site Location	135 Honey Hill Road East Haddam, CT 06423 41.43690° N NAD83 72.36640° W NAD83
Mount Centerline El.	140 ft.
Mount Classification	T-Arm
Failing Structural Usage	<b>133.8%</b>
Passing Structural Usage	<b>53.3%</b>
Overall Result	<b>Contingent Pass- See Required Modification Below.</b>
Note	<b>Install SitePro1 RMV12-NP 36" above existing horizontal/</b>

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The mounts for the proposed carrier are therefore deemed adequate to support the final loading configuration as listed in this report.



Nathaniel R. Ober, E.I.T.  
Northeast Structural Region Lead

AZ CA CO FL GA MD NC NH NJ NY TX WA

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Mount Connection Reactions.....	4
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Calculations.....	Appended

**Introduction**

Infinigy Engineering has been requested to perform a mount analysis on the existing Sprint mounts. All supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The mount was analyzed using RISA-3D Version 16.0.2 analysis software.

**Supporting Documentation**

<b>Structural Analysis</b>	ATC Eng #OAA710392_C3_02, dated April 5, 2018
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**Analysis Code Requirements**

Wind Speed	101 mph (3-Second Gust,Vasd) / 129 mph (3-Second Gust,Vult)
Wind Speed w/ ice	50 mph (3-Second Gust,Vasd) w/ 3/4" Ice
TIA Revision	ANSI/TIA-222-G
Adopted IBC	2012 IBC
Jurisdictional Code	2016 Connecticut State Building Code
Structure Class	II
Exposure Category	B
Topographic Category	1
Calculated Crest Height	0 ft.

**Conclusion**

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The mounts for the proposed carrier are therefore deemed adequate to support the final loading configuration as listed in this report.

If you have any questions, require additional information, or actual conditions differ from those as detailed in this report please contact me via the information below:

Nathaniel R Ober E.I.T.  
 Northeast Structural Region Lead | Infinigy  
 1033 Watervliet Shaker Road, Albany, NY 12205  
 (O) (518) 690-0790 | (M) (303) 704-0322  
[nober@infinigy.com](mailto:nober@infinigy.com) | [www.infinigy.com](http://www.infinigy.com)

**Final Configuration Loading**

Mount CL (ft)	Rad. HT (ft)	Vert. O/S (ft)	Horiz. O/S (ft)*	Qty	Appurtenance	Carrier
140.0	140.0	0.0	0.25	3	Commscope NNVV-65B-R4	Sprint
			11.75	3	RFS APXVTM14-ALU-I20	
			0.25	3	Alcatel Lucent TD-RRH8x20	
			11.75	3	Alcatel Lucent 1900 MHz RRH w/ S.S.	
			0.25, 11.75	6	Alcatel Lucent 800 MHz 2x50W RRH	

\*Horizontal Offset is defined as the distance from the left most edge of the mount face horizontal when viewed facing the tower

**Structure Usages**

Stand off	48.4	Pass
Horizontal	53.3	Pass
Mount Pipe	48.4	Pass
<b>RATING =</b>	<b>53.3</b>	<b>Pass</b>

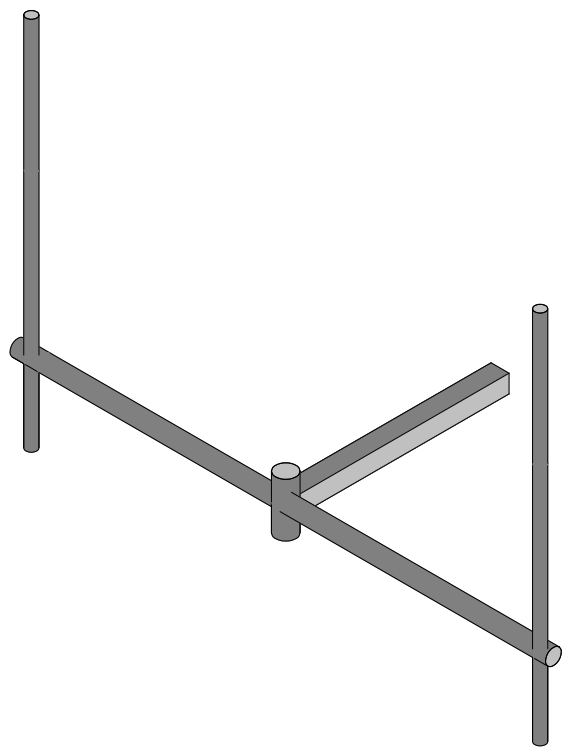
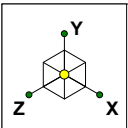
**Assumptions and Limitations**

Our structural calculations are completed assuming all information provided to Infinigy Engineering is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition of “like new” and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure’s condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report Infinigy Engineering should be notified immediately to complete a revised evaluation.

Our evaluation is completed using standard TIA, AISC, ACI, and ASCE methods and procedures. Our structural results are proprietary and should not be used by others as their own. Infinigy Engineering is not responsible for decisions made by others that are or are not based on our supplied assumptions and conclusions.

This report is an evaluation of the proposed carriers mount structure only and does not reflect adequacy of the existing tower, other mounts, or coax mounting attachments. These elements are assumed to be adequate for the purposes of this analysis and are assumed to have been installed per their manufacturer requirements.

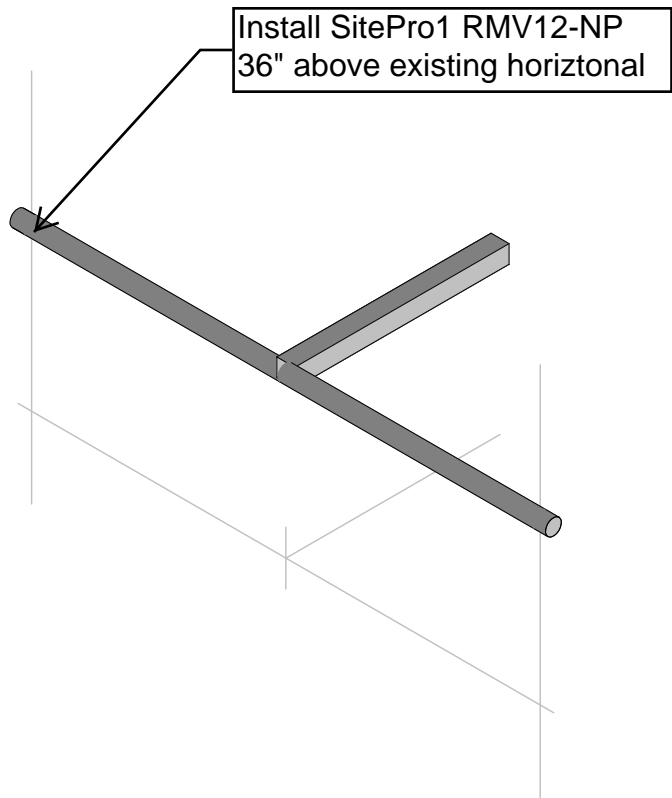
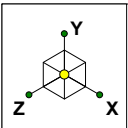




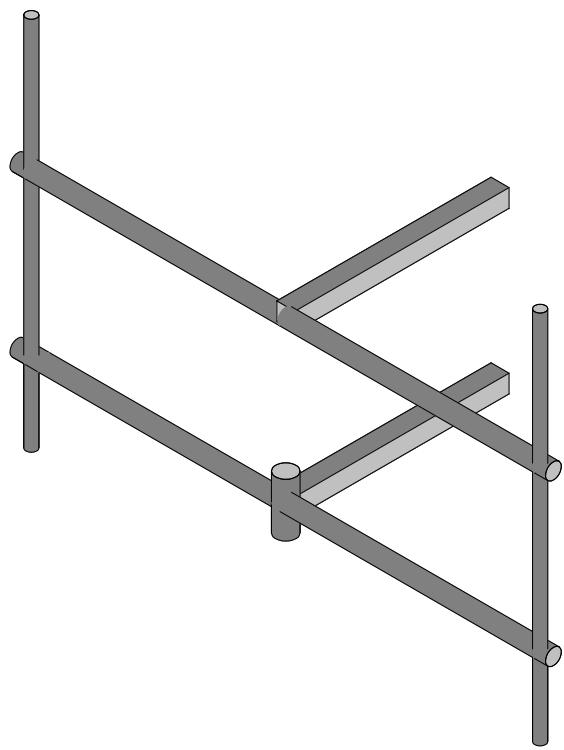
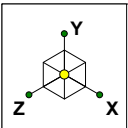
Infinigy Engineering, PLLC
NRO
317-406

CT33XC537
Existing Configuration

Apr 22, 2018 at 9:32 PM
CT33XC537.r3d



Infinigy Engineering, PLLC	CT33XC537 Proposed Modification	Apr 22, 2018 at 9:34 PM
NRO		CT33XC537.r3d
317-406		



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NRO  
317-406

CT33XC537  
Final Configuration

Apr 22, 2018 at 9:31 PM  
CT33XC537.r3d



## Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N4	N3			Horizontal	Beam	Pipe	A53 Gr.B	Typical
2	M8	N9	N13			Pipe Mount	Beam	Pipe	A53 Gr.B	Typical
3	M9	N10	N14			Pipe Mount	Beam	Pipe	A53 Gr.B	Typical
4	M6	N2	N1			Arm	Beam	SquareTube	A53 Gr.B	Typical
5	M5	N16	N17A			PIPE 4.0	Beam	Pipe	A53 Gr.B	Typical
6	M6A	N30	N29			Horizontal	Beam	Pipe	A53 Gr.B	Typical
7	M7	N28	N27			Arm	Beam	SquareTube	A53 Gr.B	Typical

## Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[K]
1	Hot Rolled Steel				
2	A53 Gr.B	HSS4x4x3	2	96	0
3	A53 Gr.B	PIPE 2.0	2	167.9	0
4	A53 Gr.B	PIPE 3.0	2	239.9	.1
5	A53 Gr.B	PIPE 4.0	1	12	0
6	Total HR Steel		7	515.8	.3

## Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut..	Area(M...	Surface...
1	Self Weight	DL		-1			8			
2	Wind Load AZI 000	WLZ					8		3	
3	Wind Load AZI 090	WLX					8		3	
4	Ice Weight	OL1					8	7		
5	Wind + Ice Load AZI 000	OL2					8			
6	Wind + Ice Load AZI 090	OL3					8			
7	Service Live 1	LL					4			
8	BLC 2 Transient Area Loads	None						11		
9	BLC 3 Transient Area Loads	None						11		

## Load Combinations

	Description	So...	P...	S...	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..
1	1.4D	Yes	Y		DL	1.4									
2	1.2D + 1.6W AZI 000	Yes	Y		DL	1.2	W...	1.6							
3	1.2D + 1.6W AZI 030	Yes	Y		DL	1.2	W...	1.3...	W...	.8					
4	1.2D + 1.6W AZI 060	Yes	Y		DL	1.2	W...	.8	W...	1.3...					
5	1.2D + 1.6W AZI 090	Yes	Y		DL	1.2			W...	1.6					
6	1.2D + 1.6W AZI 120	Yes	Y		DL	1.2	W...	-.8	W...	1.3...					
7	1.2D + 1.6W AZI 150	Yes	Y		DL	1.2	W...	-1.3...	W...	.8					
8	1.2D + 1.6W AZI 180	Yes	Y		DL	1.2	W...	-1.6							
9	1.2D + 1.6W AZI 210	Yes	Y		DL	1.2	W...	-1.3...	W...	-.8					
10	1.2D + 1.6W AZI 240	Yes	Y		DL	1.2	W...	-.8	W...	-1.3...					
11	1.2D + 1.6W AZI 270	Yes	Y		DL	1.2			W...	-1.6					
12	1.2D + 1.6W AZI 300	Yes	Y		DL	1.2	W...	.8	W...	-1.3...					
13	1.2D + 1.6W AZI 330	Yes	Y		DL	1.2	W...	1.3...	W...	-.8					
14	0.9D + 1.6W AZI 000	Yes	Y		DL	.9	W...	1.6							
15	0.9D + 1.6W AZI 030	Yes	Y		DL	.9	W...	1.3...	W...	.8					
16	0.9D + 1.6W AZI 060	Yes	Y		DL	.9	W...	.8	W...	1.3...					
17	0.9D + 1.6W AZI 090	Yes	Y		DL	.9			W...	1.6					
18	0.9D + 1.6W AZI 120	Yes	Y		DL	.9	W...	-.8	W...	1.3...					
19	0.9D + 1.6W AZI 150	Yes	Y		DL	.9	W...	-1.3...	W...	.8					
20	0.9D + 1.6W AZI 180	Yes	Y		DL	.9	W...	-1.6							

## Load Combinations (Continued)

Description	So...	P...	S...	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..
21	0.9D + 1.6W AZI 210	Yes	Y	DL	.9	W...	-1.3...	W...	-.8				
22	0.9D + 1.6W AZI 240	Yes	Y	DL	.9	W...	-.8	W...	-1.3...				
23	0.9D + 1.6W AZI 270	Yes	Y	DL	.9			W...	-1.6				
24	0.9D + 1.6W AZI 300	Yes	Y	DL	.9	W...	.8	W...	-1.3...				
25	0.9D + 1.6W AZI 330	Yes	Y	DL	.9	W...	1.3...	W...	-.8				
26	1.2D + 1.0Di	Yes	Y	DL	1.2	OL1	1						
27	1.2D + 1.0Di + 1.0Wi A...	Yes	Y	DL	1.2	OL1	1	OL2	1				
28	1.2D + 1.0Di + 1.0Wi A...	Yes	Y	DL	1.2	OL1	1	OL2	.866	OL3	.5		
29	1.2D + 1.0Di + 1.0Wi A...	Yes	Y	DL	1.2	OL1	1	OL2	.5	OL3	.866		
30	1.2D + 1.0Di + 1.0Wi A...	Yes	Y	DL	1.2	OL1	1			OL3	1		
31	1.2D + 1.0Di + 1.0Wi A...	Yes	Y	DL	1.2	OL1	1	OL2	-.5	OL3	.866		
32	1.2D + 1.0Di + 1.0Wi A...	Yes	Y	DL	1.2	OL1	1	OL2	-.866	OL3	.5		
33	1.2D + 1.0Di + 1.0Wi A...	Yes	Y	DL	1.2	OL1	1	OL2	-.1				
34	1.2D + 1.0Di + 1.0Wi A...	Yes	Y	DL	1.2	OL1	1	OL2	-.866	OL3	-.5		
35	1.2D + 1.0Di + 1.0Wi A...	Yes	Y	DL	1.2	OL1	1	OL2	-.5	OL3	-.866		
36	1.2D + 1.0Di + 1.0Wi A...	Yes	Y	DL	1.2	OL1	1			OL3	-.1		
37	1.2D + 1.0Di + 1.0Wi A...	Yes	Y	DL	1.2	OL1	1	OL2	.5	OL3	-.866		
38	1.2D + 1.0Di + 1.0Wi A...	Yes	Y	DL	1.2	OL1	1	OL2	.866	OL3	-.5		
39	1.2D + 1.5L + 1.0WL (...)	Yes	Y	DL	1.2	LL	1.5	W...	.131				
40	1.2D + 1.5L + 1.0WL (...)	Yes	Y	DL	1.2	LL	1.5	W...	.114	W...	.066		
41	1.2D + 1.5L + 1.0WL (...)	Yes	Y	DL	1.2	LL	1.5	W...	.066	W...	.114		
42	1.2D + 1.5L + 1.0WL (...)	Yes	Y	DL	1.2	LL	1.5			W...	.131		
43	1.2D + 1.5L + 1.0WL (...)	Yes	Y	DL	1.2	LL	1.5	W...	-.066	W...	.114		
44	1.2D + 1.5L + 1.0WL (...)	Yes	Y	DL	1.2	LL	1.5	W...	-.114	W...	.066		
45	1.2D + 1.5L + 1.0WL (...)	Yes	Y	DL	1.2	LL	1.5	W...	-.131				
46	1.2D + 1.5L + 1.0WL (...)	Yes	Y	DL	1.2	LL	1.5	W...	-.114	W...	-.066		
47	1.2D + 1.5L + 1.0WL (...)	Yes	Y	DL	1.2	LL	1.5	W...	-.066	W...	-.114		
48	1.2D + 1.5L + 1.0WL (...)	Yes	Y	DL	1.2	LL	1.5			W...	-.131		
49	1.2D + 1.5L + 1.0WL (...)	Yes	Y	DL	1.2	LL	1.5	W...	.066	W...	-.114		
50	1.2D + 1.5L + 1.0WL (...)	Yes	Y	DL	1.2	LL	1.5	W...	.114	W...	-.066		

## Envelope Joint Reactions

Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC	
1	N1	max	426.308	17	1148.262	45	943.554	2	-751.616	14	1720.601	16	142.012	23
2		min	-446.285	11	242.404	14	-802.517	20	-4145.718	45	-1780.665	10	-244.717	30
3	N27	max	720.876	5	1148.138	39	1143.478	14	-500.06	14	2528.313	5	72.737	23
4		min	-701.039	23	237.733	20	-1285.219	8	-4155.654	45	-2474.522	23	-230.006	30
5	Totals:	max	1144.392	17	2287.409	39	2067.134	2						
6		min	-1144.392	11	590.557	20	-2067.134	20						

## Envelope AISC 14th(360-10): LRFD Steel Code Checks

Member	Shape	Code Check	Lo.....	Shear C...	Loc[in]...	LC	phi*Pnc...	phi*Pnt...	phi*...	phi*...	Eqn	
1	M6A PIPE_3.0	.533	59...	.8	.135	59.97	2	54346...	65205	5748...	5748...1	H1-...
2	M7 HSS4x...	.484	47...		.078	47.9...	y	77387...	81270	9633...	9633...	H1-...
3	M8 PIPE_2.0	.484	65...		.139	30.6...		17863...	32130	1871...	1871...	H1-...
4	M9 PIPE_2.0	.475	65...		.137	30.6...		17863...	32130	1871...	1871...	H1-...
5	M6 HSS4x...	.472	47...		.080	47.9...	y	77387...	81270	9633...	9633...	H1-...
6	M1 PIPE_3.0	.395	59...	.2	.069	59.97		54346...	65205	5748...	5748...1	H1-...
7	M5 PIPE_4.0	.000	6	7	.001	6		92942.22	93240	1063...	1063...	H1-...

# Calculations for Monopole Base Plate & Anchor Rod Analysis

## Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	35.8	3269.7	1.00
Anchor Rod Forces	35.8	3269.7	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	0.0	0.0	0.00

## Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in <sup>2</sup>	in <sup>2</sup>	in <sup>4</sup>	#	in <sup>4</sup>
Pole	125.9522	6.9973	0.7409		80810.58
Bolt	3.9761	3.2477	0.8393	4.5	72771.75
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Square	-
Width, W	81	in
Thickness, t	3.5	in
Yield Strength, Fy	55	ksi
Tensile Strength, Fu	70	ksi
Base Plate Chord	36.717	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods		
Anchor Rod Quantity, N	28	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	80	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	72.7	k
Applied Shear, Vu	0.0	k
Compressive Capacity, φPn	259.8	k
Tensile Capacity, φRnt	0.280	OK
Interaction Capacity	0.280	OK

Base Plate Stiffeners		
Applied Axial Force, Pu	0.0	k
Applied Horizontal Force, Vu	0.00	k

External Base Plate		
Chord Length AA	42.351	in
Additional AA	1.000	in
Section Modulus, Z	132.763	in <sup>3</sup>
Applied Moment, Mu	1073.9	k-ft
Bending Capacity, φMn	6571.8	k-ft
Capacity, Mu/φMn	0.163	OK

Additional Bolt Group 1		
Bolt Quantity, N	0	-
Bolt Diameter, d	0	in
Bolt Circle, BC	0	in
Yield Strength, Fy	0	ksi
Tensile Strength, Fu	0	ksi
Applied Axial, Pu	0.0	k
Applied Shear, Vu	0.0	k
Compressive Capacity, φPn	0.0	k
Compressive Capacity, φPn		
Interaction Capacity		

Vertical Weld		
Vert.-to-Stiffener a=e <sub>x</sub> /l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Compressive Capacity, φPn	#DIV/0!	k
Vert.-to-Plate a=e <sub>x</sub> /l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Shear Capacity, φVn	#DIV/0!	k
P <sub>u</sub> /φ <sub>p</sub> P <sub>n</sub> + V <sub>u</sub> /φ <sub>v</sub> V <sub>n</sub>		

Chord Length AB	41.237	in
Additional AB	1.000	in
Section Modulus, Z	129.352	in <sup>3</sup>
Applied Moment, Mu	875.8	k-ft
Bending Capacity, φMn	6402.9	k-ft
Capacity, Mu/φMn	0.137	OK

Additional Bolt Group 2		
Bolt Quantity, N	0	-
Bolt Diameter, d	0	in
Bolt Circle, BC	0	in
Yield Strength, Fy	0	ksi
Tensile Strength, Fu	0	ksi
Applied Axial, Pu	0.0	k
Applied Shear, Vu	0.0	k
Compressive Capacity, φPn	0.0	k
Compressive Capacity, φPn		
Interaction Capacity		

Horizontal Weld		
Horz.-to-Stiffener a=e <sub>x</sub> /l	0.000	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Effective Fillet	0.000	in
Compressive Capacity, φPn	#DIV/0!	k
Horz.-to-Pole a=e <sub>x</sub> /l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Shear Capacity, φVn	#DIV/0!	k
P <sub>u</sub> /φ <sub>p</sub> P <sub>n</sub> + V <sub>u</sub> /φ <sub>v</sub> V <sub>n</sub>		

Bend Line Length	0.000	in
Additional Bend Line	0.000	in
Section Modulus, Z	0.000	in <sup>3</sup>
Applied Moment, Mu	0.0	k-ft
Bending Capacity, φMn	0.0	k-ft
Capacity, Mu/φMn		

Plate Tension		
Gross Cross Section	0.000	in <sup>2</sup>
Net Cross Section	0.000	in <sup>2</sup>
Tensile Capacity, φTn	0.0	k
Capacity, Tu/φTn		

Internal Base Plate		
Arc Length	0.000	in
Section Modulus, Z	0.000	in <sup>3</sup>
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, φMn	0.0	k-ft
Capacity, Mu/φMn		

Dywidag Reinforcement		
Dywidag Quantity, N	0	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	79.08	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	0.0	k
Compressive Capacity, φPn	0.0	k
Capacity, Pu/φPn		

Plate Compression		
Radius of Gyration	#DIV/0!	in <sup>3</sup>
kl/r	#DIV/0!	-
4.71 √(E/Fy)	0.00	-
Buckling Stress(F <sub>e</sub> )	0.0	-
Crit. Buckling Stress(F <sub>cr</sub> )	0.0	ksi
Compressive Capacity, φPn	0.0	k
Capacity, Pu/φPn		



# Sprint



PROJECT: DO MACRO UPGRADE  
 SITE NAME: (R2E) CT4996 TO CT 33-537 E. HADDAM SPECTRA-SITE  
 SITE CASCADE: CT33XC537  
 SITE ADDRESS: 135 HONEY HILL ROAD EAST HADDAM, CT 06423  
 SITE TYPE: MONOPOLE TOWER  
 MARKET: NORTHERN CONNECTICUT

PLANS PREPARED FOR:



PLANS PREPARED BY:

**INFINIGY**  
 FROM ZERO TO INFINIGY  
 the solutions are endless  
 1033 Watervliet Shaker Rd | Albany, NY 12205  
 Phone: 518-690-0790 | Fax: 518-690-0793  
 www.infinigy.com  
 JOB NUMBER: 526-104

PROJECT MANAGER:

**AIROSMITH**  
 DEVELOPMENT  
 32 CLINTON ST.  
 SARATOGA SPRINGS, NY 12866  
 OFFICE# (518) 306-3740

ENGINEERING LICENSE:



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REVISIONS:

DESCRIPTION	DATE	BY	REV
REVISED/ISSUED FOR PERMIT	06/28/18	MAP	1
ISSUED FOR PERMIT	05/23/18	ETC	0

SITE NAME:  
 (R2E) CT4996 TO CT 33-537 E. HADDAM SPECTRA-SITE

SITE NUMBER:  
 CT33XC537

SITE ADDRESS:  
 135 HONEY HILL ROAD EAST HADDAM, CT 06423

SHEET DESCRIPTION:  
 TITLE SHEET & PROJECT DATA

SHEET NUMBER:  
 T-1

SITE INFORMATION	AREA MAP	PROJECT DESCRIPTION	DRAWING INDEX																																										
<p><b>TOWER OWNER:</b>            AMERICAN TOWER CORPORATION            10 PRESIDENTIAL WAY            WOBURN, MA 01801</p> <p><b>LATITUDE (NAD83):</b>            41° 26' 19.982" N            41.43694</p> <p><b>LONGITUDE (NAD83):</b>            72° 22' 0.516" W            -72.366810</p> <p><b>COUNTY:</b>            MIDDLESEX COUNTY</p> <p><b>ZONING JURISDICTION:</b>            CONNECTICUT SITING COUNCIL</p> <p><b>ZONING DISTRICT:</b>            TBD</p> <p><b>POWER COMPANY:</b>            CL&amp;P            PHONE: (800) 286-2000</p> <p><b>AAV PROVIDER:</b>            AT&amp;T            PHONE: (800) 286-2020</p> <p><b>PROJECT MANAGER:</b>            AIROSMITH DEVELOPMENT            TERRI BURKHOLDER            (315) 719-2928            TBURKHOLDER@AIROSMITHDEVELOPMENT.COM</p>		<p>SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.</p> <ul style="list-style-type: none"> <li>REMOVE (6) PANEL ANTENNAS</li> <li>INSTALL (6) PANEL ANTENNAS</li> <li>RELOCATE (3) 1900 RRH'S BEHIND ANTENNAS</li> <li>INSTALL (3) 800 RRH'S BEHIND ANTENNAS</li> <li>INSTALL (3) 800 MHz RRH'S ON PROPOSED PIPE MOUNT</li> <li>INSTALL (3) 2.5 GHz RRH'S BEHIND ANTENNAS</li> <li>INSTALL (48) JUMPER CABLES</li> <li>INSTALL (4) HYBRID CABLE</li> <li>INSTALL 2.5 EQUIPMENT INSIDE EXISTING N.V. MMBS CABINET</li> </ul> <p>THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY OWNED OR LEASED BY SPRINT IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY SPRINT. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.</p>	<table border="1"> <thead> <tr> <th>SHEET NO.</th> <th>SHEET TITLE</th> <th>REV</th> </tr> </thead> <tbody> <tr> <td>T-1</td> <td>TITLE SHEET &amp; PROJECT DATA</td> <td>1</td> </tr> <tr> <td>SP-1</td> <td>SPRINT SPECIFICATIONS</td> <td>1</td> </tr> <tr> <td>SP-2</td> <td>SPRINT SPECIFICATIONS</td> <td>1</td> </tr> <tr> <td>SP-3</td> <td>SPRINT SPECIFICATIONS</td> <td>1</td> </tr> <tr> <td>A-1</td> <td>SITE PLAN</td> <td>1</td> </tr> <tr> <td>A-2</td> <td>TOWER ELEVATION</td> <td>1</td> </tr> <tr> <td>A-3</td> <td>ANTENNA LAYOUT &amp; MOUNTING DETAILS</td> <td>1</td> </tr> <tr> <td>A-4</td> <td>EQUIPMENT &amp; MOUNTING DETAILS</td> <td>1</td> </tr> <tr> <td>A-5</td> <td>EQUIPMENT &amp; MOUNTING DETAILS</td> <td>1</td> </tr> <tr> <td>A-6</td> <td>CIVIL DETAILS</td> <td>1</td> </tr> <tr> <td>A-7</td> <td>PLUMBING DIAGRAM</td> <td>1</td> </tr> <tr> <td>E-1</td> <td>ELECTRICAL &amp; GROUNDING PLAN</td> <td>1</td> </tr> <tr> <td>E-2</td> <td>ELECTRICAL &amp; GROUNDING DETAILS</td> <td>1</td> </tr> </tbody> </table>	SHEET NO.	SHEET TITLE	REV	T-1	TITLE SHEET & PROJECT DATA	1	SP-1	SPRINT SPECIFICATIONS	1	SP-2	SPRINT SPECIFICATIONS	1	SP-3	SPRINT SPECIFICATIONS	1	A-1	SITE PLAN	1	A-2	TOWER ELEVATION	1	A-3	ANTENNA LAYOUT & MOUNTING DETAILS	1	A-4	EQUIPMENT & MOUNTING DETAILS	1	A-5	EQUIPMENT & MOUNTING DETAILS	1	A-6	CIVIL DETAILS	1	A-7	PLUMBING DIAGRAM	1	E-1	ELECTRICAL & GROUNDING PLAN	1	E-2	ELECTRICAL & GROUNDING DETAILS	1
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A-1	SITE PLAN	1																																											
A-2	TOWER ELEVATION	1																																											
A-3	ANTENNA LAYOUT & MOUNTING DETAILS	1																																											
A-4	EQUIPMENT & MOUNTING DETAILS	1																																											
A-5	EQUIPMENT & MOUNTING DETAILS	1																																											
A-6	CIVIL DETAILS	1																																											
A-7	PLUMBING DIAGRAM	1																																											
E-1	ELECTRICAL & GROUNDING PLAN	1																																											
E-2	ELECTRICAL & GROUNDING DETAILS	1																																											
	<p><b>LOCATION MAP</b></p>	<p><b>APPLICABLE CODES</b></p> <p>ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALL IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.</p> <ol style="list-style-type: none"> <li>INTERNATIONAL BUILDING CODE (2015 IBC)</li> <li>TIA-222-G OR LATEST EDITION</li> <li>NFPA 780 - LIGHTNING PROTECTION CODE</li> <li>2011 NATIONAL ELECTRIC CODE OR LATEST EDITION</li> <li>ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS</li> <li>CT BUILDING CODE</li> <li>LOCAL BUILDING CODE</li> <li>CITY/COUNTY ORDINANCES</li> </ol>																																											





THESE OUTLINE SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT STANDARD CONSTRUCTION SPECIFICATIONS, INCLUDING CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

**SECTION 01 100 - SCOPE OF WORK**

**PART 1 - GENERAL**

- 1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT CONSTRUCTION STANDARDS FOR WIRELESS SITES, CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.
- 1.2 RELATED DOCUMENTS:
  - A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
  - B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.
- 1.3 PRECEDENCE: SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES INCLUDING THE STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE. NOTIFY SPRINT CONSTRUCTION MANAGER IF THIS OCCURS.
- 1.4 NATIONALLY RECOGNIZED CODES AND STANDARDS:
  - A. THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:
    - 1. GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
    - 5. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
    - 3. GR-1089 CORE, ELECTROMAGNETIC COMPATIBILITY AND ELECTRICAL SAFETY -GENERIC CRITERIA FOR NETWORK TELECOMMUNICATIONS EQUIPMENT.
    - 4. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE - "NEC") AND NFPA 101 (LIFE SAFETY CODE).
    - 5. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM)
    - 6. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE)
    - 7. AMERICAN CONCRETE INSTITUTE (ACI)
    - 8. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
    - 9. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
    - 10. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
    - 11. PORTLAND CEMENT ASSOCIATION (PCA)
    - 12. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
    - 13. BRICK INDUSTRY ASSOCIATION (BIA)
    - 14. AMERICAN WELDING SOCIETY (AWS)
    - 15. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
    - 16. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
    - 17. DOOR AND HARDWARE INSTITUTE (DHI)
    - 18. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
    - 19. APPLICABLE BUILDING CODES INCLUDING UNIFORM BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.

**1.5 DEFINITIONS:**

- A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.
- B. COMPANY: SPRINT CORPORATION
- C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.
- D. CONTRACTOR: CONSTRUCTION CONTRACTOR; CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.
- E. THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A&E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.
- F. OFCI: OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT.
- G. CONSTRUCTION MANAGER - ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT...

1.6 SITE FAMILIARITY: CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE SPRINT CONSTRUCTION MANAGER PRIOR TO THE COMMENCEMENT OF WORK. NO COMPENSATION WILL BE AWARDED BASED ON CLAIM OF LACK OF KNOWLEDGE OR FIELD CONDITIONS.

1.7 POINT OF CONTACT: COMMUNICATION BETWEEN SPRINT AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE SPRINT CONSTRUCTION MANAGER APPOINTED TO MANAGE THE PROJECT FOR SPRINT.

1.8 ON-SITE SUPERVISION: THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL EMPLOY A COMPETENT SUPERINTENDENT WHO SHALL BE IN ATTENDANCE AT THE SITE AT ALL TIMES DURING PERFORMANCE OF THE WORK.

1.9 DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE: THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS, STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.

A. THE JOBSITE DRAWINGS, SPECIFICATIONS AND DETAILS SHALL BE CLEARLY MARKED DAILY IN RED PENCIL WITH ANY CHANGES IN CONSTRUCTION OVER WHAT IS DEPICTED IN THE DOCUMENTS. AT CONSTRUCTION COMPLETION, THIS JOBSITE MARKUP SET SHALL BE DELIVERED TO THE COMPANY OR COMPANY'S DESIGNATED REPRESENTATIVE TO BE FORWARDED TO THE COMPANY'S A&E VENDOR FOR PRODUCTION OF "AS-BUILT" DRAWINGS.

B. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK. CONTRACTOR SHALL NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY VARIATIONS PRIOR TO PROCEEDING WITH THE WORK.

C. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS NOTED OTHERWISE. SPACING BETWEEN EQUIPMENT IS THE REQUIRED CLEARANCE. SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS AND/OR DESIGN INTENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE SPRINT CONSTRUCTION MANAGER PRIOR TO PROCEEDING WITH THE WORK.

1.10 USE OF JOB SITE: THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION AND RELATED OPERATIONS INCLUDING STAGING AND STORAGE OF MATERIALS AND EQUIPMENT, PARKING, TEMPORARY FACILITIES, AND WASTE STORAGE TO THE LEASE PARCEL UNLESS OTHERWISE PERMITTED BY THE CONTRACT DOCUMENTS.

1.11 UTILITIES SERVICES: WHERE NECESSARY TO CUT EXISTING PIPES, ELECTRICAL WIRES, CONDUITS, CABLES, ETC., OF UTILITY SERVICES, OR OF FIRE PROTECTION OR COMMUNICATIONS SYSTEMS, THEY SHALL BE CUT AND CAPPED AT SUITABLE PLACES OR WHERE SHOWN. ALL SUCH ACTIONS SHALL BE COORDINATED WITH THE UTILITY COMPANY INVOLVED:

1.12 PERMITS / FEES: WHEN REQUIRED THAT A PERMIT OR CONNECTION FEE BE PAID TO A PUBLIC UTILITY PROVIDER FOR NEW SERVICE TO THE CONSTRUCTION PROJECT, PAYMENT OF SUCH FEE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

1.13 CONTRACTOR SHALL TAKE ALL MEASURES AND PROVIDE ALL MATERIAL NECESSARY FOR PROTECTING EXISTING EQUIPMENT AND PROPERTY.

1.14 METHODS OF PROCEDURE (MOPS) FOR CONSTRUCTION: CONTRACTOR SHALL PERFORM WORK AS DESCRIBED IN THE FOLLOWING INSTALLATION AND COMMISSIONING MOPS.

NOTE: IN SHORT-FORM SPECIFICATIONS ON THE DRAWINGS, A/E TO INSERT LIST OF APPLICABLE MOPS INCLUDING EN-2012-001, EN-2013-002, EL-056B, AND TS-0193

1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION**

3.1 TEMPORARY UTILITIES AND FACILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND FACILITIES NECESSARY EXCEPT AS OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS. TEMPORARY UTILITIES AND FACILITIES INCLUDE POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSAL FACILITIES, AND TELEPHONE/COMMUNICATION SERVICES. PROVIDE TEMPORARY UTILITIES AND FACILITIES IN ACCORDANCE WITH OSHA AND THE AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE COMPANY ELECTRICAL SERVICE IN THE COMPLETION OF THE WORK WHEN IT BECOMES AVAILABLE. USE OF THE LESSORS OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.

3.2 ACCESS TO WORK: THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE ARCHITECT/ENGINEER DURING ALL PHASES OF THE WORK.

3.3 TESTING: REQUIREMENTS FOR TESTING BY THIS CONTRACTOR SHALL BE AS INDICATED HEREWITH, ON THE CONSTRUCTION DRAWINGS, AND IN THE INDIVIDUAL SECTIONS OF THESE SPECIFICATIONS. SHOULD COMPANY CHOOSE TO ENGAGE ANY THIRD-PARTY TO CONDUCT ADDITIONAL TESTING, THE CONTRACTOR SHALL COOPERATE WITH AND PROVIDE A WORK AREA FOR COMPANY'S TEST AGENCY.

3.4 DIMENSIONS: VERIFY DIMENSIONS INDICATED ON DRAWINGS WITH FIELD DIMENSIONS BEFORE FABRICATION OR ORDERING OF MATERIALS. DO NOT SCALE DRAWINGS.

3.5 EXISTING CONDITIONS: NOTIFY THE SPRINT CONSTRUCTION MANAGER OF EXISTING CONDITIONS DIFFERING FROM THOSE INDICATED ON THE DRAWINGS. DO NOT REMOVE OR ALTER STRUCTURAL COMPONENTS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ARCHITECT AND ENGINEER.

**SECTION 01 200 - COMPANY FURNISHED MATERIAL AND EQUIPMENT**

**PART 1 - GENERAL**

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

**1.2 RELATED DOCUMENTS:**

- A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
- B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION**

**3.1 RECEIPT OF MATERIAL AND EQUIPMENT:**

A. A COMPANY FURNISHED MATERIAL AND EQUIPMENT IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DOCUMENTS.

B. THE CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:

- 1. ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.
- 2. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.
- 3. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.
- 4. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO SPRINT OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.
- 5. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.
- 6. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

**3.2 DELIVERABLES:**

- A. COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.
- B. IF APPLICABLE, COMPLETE LOST/STOLEN/DAMAGED DOCUMENTATION REPORT AS NECESSARY IN ACCORDANCE WITH COMPANY PRACTICE, AND AS DIRECTED BY COMPANY.
- C. UPLOAD DOCUMENTATION INTO SPRINT SITE MANAGEMENT SYSTEM (SMS) AND/OR PROVIDE HARD COPY DOCUMENTATION AS REQUESTED.

**SECTION 01 300 - CELL SITE CONSTRUCTION CO.**

**PART 1 - GENERAL**

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

**1.2 RELATED DOCUMENTS:**

- A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
- B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

**1.3 NOTICE TO PROCEED**

- A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF THE WORK ORDER.
- B. UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE SPRINT WITH AN OPERATIONAL WIRELESS FACILITY.

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION**

**3.1 FUNCTIONAL REQUIREMENTS:**

- A. THE ACTIVITIES DESCRIBED IN THIS PARAGRAPH REPRESENT MINIMUM ACTIONS AND PROCESSES REQUIRED TO SUCCESSFULLY COMPLETE THE WORK. THE ACTIVITIES DESCRIBED ARE NOT EXHAUSTIVE, AND CONTRACTOR SHALL TAKE ANY AND ALL ACTIONS AS NECESSARY TO SUCCESSFULLY COMPLETE THE CONSTRUCTION OF A FULLY FUNCTIONING WIRELESS FACILITY AT THE SITE IN ACCORDANCE WITH COMPANY PROCESSES.
- B. SUBMIT SPECIFIC DOCUMENTATION AS INDICATED HEREIN, AND OBTAIN REQUIRED APPROVALS WHILE THE WORK IS BEING PERFORMED.
- C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES
- D. PROVIDE CONSTRUCTION ACTIVITIES TO THE EXTENT REQUIRED BY THE CONTRACT DOCUMENTS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

PLANS PREPARED FOR:



PLANS PREPARED BY:



PROJECT MANAGER:



ENGINEERING LICENSE:



DRAWING NOTICE:

THESE DOCUMENTS ARE CONFIDENTIAL AND ARE THE SOLE PROPERTY OF SPRINT AND MAY NOT BE REPRODUCED, DISSEMINATED OR REDISTRIBUTED WITHOUT THE EXPRESS WRITTEN CONSENT OF SPRINT.

REVISIONS:	DESCRIPTION	DATE	BY	REV.
REVISED/ISSUED FOR PERMIT		06/28/18	MAP	1
ISSUED FOR PERMIT		05/23/18	ETC	0

SITE NAME:  
**(R2E) CT4996 TO CT 33-537 E. HADDAM SPECTRA-SITE**

SITE NUMBER:  
**CT33XC537**

SITE ADDRESS:  
**135 HONEY HILL ROAD EAST HADDAM, CT 06423**

SHEET DESCRIPTION:  
**SPRINT SPECIFICATIONS**

SHEET NUMBER:  
**SP-1**



CONTINUE FROM SP-1

1. PERFORM ANY REQUIRED SITE ENVIRONMENTAL MITIGATION.
2. PREPARE GROUND SITES; PROVIDE DE-GRUBBING; AND ROUGH AND FINAL GRADING, AND COMPOUND SURFACE TREATMENTS.
3. MANAGE AND CONDUCT ALL ACTIVITIES FOR INSTALLATION OF UTILITIES INCLUDING ELECTRICAL AND TELCO BACKHAUL.
4. INSTALL UNDERGROUND FACILITIES INCLUDING UNDERGROUND POWER AND COMMUNICATIONS CONDUITS, AND UNDERGROUND GROUNDING SYSTEM.
5. INSTALL ABOVE GROUND GROUNDING SYSTEMS.
6. PROVIDE NEW HVAC INSTALLATIONS AND MODIFICATIONS.
7. INSTALL "H-FRAMES", CABINETS AND SHELTERS AS INDICATED.
8. INSTALL ROADS, ACCESS WAYS, CURBS AND DRAINS AS INDICATED.
9. ACCOMPLISH REQUIRED MODIFICATION OF EXISTING FACILITIES.
10. PROVIDE ANTENNA SUPPORT STRUCTURE FOUNDATIONS.
11. PROVIDE SLABS AND EQUIPMENT PLATFORMS.
12. INSTALL COMPOUND FENCING, SIGHT SHIELDING, LANDSCAPING AND ACCESS BARRIERS.
13. PERFORM INSPECTION AND MATERIAL TESTING AS REQUIRED HEREINAFTER.
14. CONDUCT SITE RESISTANCE TO EARTH TESTING AS REQUIRED HEREINAFTER
15. INSTALL FIXED GENERATOR SETS AND OTHER STANDBY POWER SOLUTIONS.
16. INSTALL TOWERS, ANTENNA SUPPORT STRUCTURES AND PLATFORMS ON EXISTING TOWERS AS REQUIRED.
17. INSTALL CELL SITE RADIOS, MICROWAVE, GPS, COAXIAL MAINLINE, ANTENNAS, CROSS BAND COUPLERS, TOWER TOP AMPLIFIERS, LOW NOISE AMPLIFIERS AND RELATED EQUIPMENT.
18. PERFORM, DOCUMENT, AND CLOSE OUT ANY CONSTRUCTION CONTROL DOCUMENTS THAT MAY BE REQUIRED BY GOVERNMENT AGENCIES AND LANDLORDS.
19. PERFORM ANTENNA AND COAX SWEEP TESTING AND MAKE ANY AND ALL NECESSARY CORRECTIONS.
20. REMAIN ON SITE MOBILIZED THROUGHOUT HAND-OFF AND INTEGRATION TO ASSIST AS NEEDED UNTIL SITE IS DEEMED SUBSTANTIALLY COMPLETE AND PLACED "ON AIR."

3.2 GENERAL REQUIREMENTS FOR CIVL CONSTRUCTION:

- A. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.
- B. EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.
- C. CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.
  1. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
  2. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD.
- D. CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION
- E. CONDUCT TESTING AS REQUIRED HEREIN.

3.3 DELIVERABLES:

- A. CONTRACTOR SHALL REVIEW, APPROVE, AND SUBMIT TO SPRINT SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND SIMILAR SUBMITTALS AS REQUIRED HEREINAFTER
- B. PROVIDE DOCUMENTATION INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING. DOCUMENTATION SHALL BE FORWARDED IN ORIGINAL FORMAT AND/OR UPLOADED INTO SMS.
  1. ALL CORRESPONDENCE AND PRELIMINARY CONSTRUCTION REPORTS.
  2. PROJECT PROGRESS REPORTS.
  3. CIVIL CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
  4. ELECTRICAL SERVICE COMPLETION DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).

5. LINES AND ANTENNA INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
6. POWER INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
7. TELCO READY DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
8. PPC (OR SHELTER) INSTALL DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
9. TOWER CONSTRUCTION START DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
10. TOWER CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
11. BTS AND RADIO EQUIPMENT DELIVERED AT SITE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
12. NETWORK OPERATIONS HANDOFF CHECKLIST (HOC WALK) COMPLETE (UPLOAD FORM IN SMS)
13. CIVIL CONSTRUCTION COMPLETE DATE (POPULATE FIELD IN SMS AND/OR FORWARD NOTIFICATION).
14. SITE CONSTRUCTION PROGRESS PHOTOS UNLOADED INTO SMS.

SECTION 01 400 - SUBMITTALS & TESTS

PART 1 - GENERAL

- 1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.
- 1.2 RELATED DOCUMENTS:
  - A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
  - B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.
- 1.3 SUBMITTALS:
  - A. THE WORK IN ALL ASPECTS SHALL COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS.
  - B. SUBMIT THE FOLLOWING TO COMPANY REPRESENTATIVE FOR APPROVAL.
    1. CONCRETE MIX-DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PIERS, AND CONCRETE PAVING.
    2. CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
    3. SPECIAL FINISHES FOR INTERIOR SPACES, IF ANY.
    4. ALL EQUIPMENT AND MATERIALS SO IDENTIFIED ON THE CONSTRUCTION DRAWINGS.
    5. CHEMICAL GROUNDING DESIGN
  - D. ALTERNATES: AT THE COMPANY'S REQUEST, ANY ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINT'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO BEING SHIPPED TO SITE. SPRINT WILL REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED. SUBMITTAL FOR APPROVAL SHALL INCLUDE A STATEMENT OF COST REDUCTION PROPOSED FOR USE OF ALTERNATE PRODUCT.

1.4 TESTS AND INSPECTIONS:

- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.
- B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
  1. COAX SWEEPS AND FIBER TESTS PER TS-0200 REV 4 ANTENNA LINE ACCEPTANCE STANDARDS.
  2. AGL, AZIMUTH AND DOWNTILT USING ELECTRONIC COMMERCIAL MADE-FOR-THE-PURPOSE ANTENNA ALIGNMENT TOOL.
  3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.
- C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:
  1. AZIMUTH, DOWNTILT, AGL - UPLOAD REPORT FROM ANTENNA ALIGNMENT TOOL TO SITERRA TASK 465. INSTALLED AZIMUTH, DOWNTILT, AND AGL MUST CONFORM TO THE RF DATA SHEETS. SWEEP AND FIBER TESTS
  2. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
  3. ALL AVAILABLE JURISDICTIONAL INFORMATION
  4. PDF SCAN OF REDLINES PRODUCED IN FIELD

5. ELECTRONIC AS-BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS. ANY FIELD CHANGE MUST BE REFLECTED BY MODIFYING THE PLANS, ELEVATIONS, AND DETAILS IN THE DRAWING SETS. GENERAL NOTES INDICATING MODIFICATIONS WILL NOT BE ACCEPTED. CHANGES SHALL BE HIGHLIGHTED AS "CLOUDS" IDENTIFIED AS THE "AS-BUILT" CONDITION.
6. LIEN WAIVERS
7. FINAL PAYMENT APPLICATION
8. REQUIRED FINAL CONSTRUCTION PHOTOS
9. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
10. ALL POST NTP TASKS INCLUDING DOCUMENT UPLOADS COMPLETED IN SITERRA (SPRINTS DOCUMENT REPOSITORY OF RECORD).

1.5 COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPs

1.6 INTEGRATION: PERFORM ALL INTEGRATION ACTIVITIES AS REQUIRED BY APPLICABLE MOPs

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 REQUIREMENTS FOR TESTING:

A. THIRD PARTY TESTING AGENCY:

1. WHEN THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE AGENCY THAT IS SELECTED MUST PERFORM SUCH WORK ON A REGULAR BASIS IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
2. THE THIRD PARTY TESTING AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE, EQUIPMENT TO BE USED, AND ASSOCIATED HEALTH AND SAFETY ISSUES.
3. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASHTO, AND OTHER METHODS IS NEEDED.
4. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASHTO, AND OTHER METHODS IS NEEDED.

3.2 REQUIRED TESTS:

A. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. CONCRETE CYLINDER BREAK TESTS FOR THE TOWER AND ANCHOR FOUNDATIONS AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
2. ASPHALT ROADWAY COMPACTED THICKNESS, SURFACE SMOOTHNESS, AND COMPACTED DENSITY TESTING AS SPECIFIED IN SECTION: HOT MIX ASPHALT PAVING.
3. FIELD QUALITY CONTROL TESTING AS SPECIFIED IN SECTION: PORTLAND CEMENT CONCRETE PAVING.
4. TESTING REQUIRED UNDER SECTION: AGGREGATE BASE FOR ACCESS ROADS, PADS AND ANCHOR LOCATIONS
5. STRUCTURAL BACKFILL COMPACTION TESTS FOR THE TOWER FOUNDATION.
6. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.
7. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
8. GROUNDING AT ANTENNA MASTS FOR GPS AND ANTENNAS
9. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

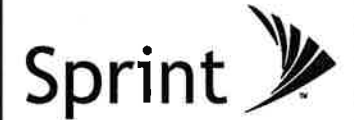
3.3 REQUIRED INSPECTIONS

A. SCHEDULE INSPECTIONS WITH COMPANY REPRESENTATIVE.

B. CONDUCT INSPECTIONS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. GROUNDING SYSTEM INSTALLATION PRIOR TO EARTH CONCEALMENT DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
2. FORMING FOR CONCRETE AND REBAR PLACEMENT PRIOR TO POUR DOCUMENTED WITH DIGITAL PHOTOGRAPHS BY CONTRACTOR, APPROVED BY A&E OR SPRINT REPRESENTATIVE.
3. COMPACTION OF BACKFILL MATERIALS; AGGREGATE BASE FOR ROADS, PADS, AND ANCHORS; ASPHALT PAVING; AND SHAFT BACKFILL FOR CONCRETE AND WOOD POLES, BY INDEPENDENT THIRD PARTY AGENCY.
4. PRE- AND POST-CONSTRUCTION ROOFTOP AND STRUCTURAL INSPECTIONS ON EXISTING FACILITIES.
5. TOWER ERECTION SECTION STACKING AND PLATFORM ATTACHMENT DOCUMENTED BY DIGITAL PHOTOGRAPHS BY THIRD PARTY AGENCY.
6. ANTENNA AZIMUTH , DOWN TILT AND PER SUNLIGHT TOOL SUNSIGHT INSTRUMENTS - ANTENNALIGN ALIGNMENT TOOL (AAT)

PLANS PREPARED FOR:



PLANS PREPARED BY:

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JOB NUMBER 526-104

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SITE NAME:  
**(R2E) CT4996 TO CT  
33-537 E. HADDAM  
SPECTRA-SITE**

SITE NUMBER:  
**CT33XC537**

SITE ADDRESS:  
**135 HONEY HILL ROAD  
EAST HADDAM, CT 06423**

SHEET DESCRIPTION:  
**SPRINT SPECIFICATIONS**

SHEET NUMBER:  
**SP-2**



CONTINUE FROM SP-2

- 7. VERIFICATION DOCUMENTED WITH THE ANTENNA CHECKLIST REPORT, BY A&E, SITE DEVELOPMENT REP, OR RF REP.
- 8. FINAL INSPECTION CHECKLIST AND HANDOFF WALK (HOC). SIGNED FORM SHOWING ACCEPTANCE BY FIELD OPS IS TO BE UPLOADED INTO SMS.
- 9. COAX SWEEP AND FIBER TESTING DOCUMENTS SUBMITTED VIA SMS FOR RF APPROVAL
- 10. SCAN-ABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
- 11. ALL AVAILABLE JURISDICTIONAL INFORMATION
- 12. PDF SCAN OF REDLINES PRODUCED IN FIELD
- C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.
- D. CONSTRUCTION INSPECTIONS AND CORRECTIVE MEASURES SHALL BE DOCUMENTED BY THE CONTRACTOR WITH WRITTEN REPORTS AND PHOTOGRAPHS. PHOTOGRAPHS MUST BE DIGITAL AND OF SUFFICIENT QUALITY TO CLEARLY SHOW THE SITE CONSTRUCTION. PHOTOGRAPHS MUST CLEARLY IDENTIFY THE PHOTOGRAPHED ITEM AND BE LABELED WITH THE SITE CASCADE NUMBER, SITE NAME, DESCRIPTION, AND DATE.
- 3.4 DELIVERABLES: TEST AND INSPECTION REPORTS AND CLOSEOUT DOCUMENTATION SHALL BE UPLOADED TO THE SMS AND/OR FORWARDED TO SPRINT FOR INCLUSION INTO THE PERMANENT SITE FILES.
  - A. THE FOLLOWING TEST AND INSPECTION REPORTS SHALL BE PROVIDED AS APPLICABLE.
    - 1. CONCRETE MIX AND CYLINDER BREAK REPORTS.
    - 2. STRUCTURAL BACKFILL COMPACTION REPORTS.
    - 3. SITE RESISTANCE TO EARTH TEST.
    - 4. ANTENNA AZIMUTH AND DOWN TILT VERIFICATION
    - 5. TOWER ERECTION INSPECTIONS AND MEASUREMENTS DOCUMENTING TOWER INSTALLED PER SUPPLIER'S REQUIREMENTS AND THE APPLICABLE SECTIONS HEREIN.
    - 6. COAX CABLE SWEEP TESTS PER COMPANY'S "ANTENNA LINE ACCEPTANCE STANDARDS".
  - B. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES THE FOLLOWING;
    - 1. TEST WELLS AND TRENCHES: PHOTOGRAPHS OF ALL TEST WELLS; PHOTOGRAPHS SHOWING ALL OPEN EXCAVATIONS AND TRENCHING PRIOR TO BACKFILLING SHOWING A TAPE MEASURE VISIBLE IN THE EXCAVATIONS INDICATING DEPTH.
    - 2. CONDUITS, CONDUCTORS AND GROUNDING: PHOTOGRAPHS SHOWING TYPICAL INSTALLATION OF CONDUCTORS AND CONNECTORS; PHOTOGRAPHS SHOWING TYPICAL BEND RADIUS OF INSTALLED GROUND WIRES AND GROUND ROD SPACING;
    - 3. CONCRETE FORMS AND REINFORCING: CONCRETE FORMING AT TOWER AND EQUIPMENT/SHELTER PAD/FOUNDATIONS - PHOTOGRAPHS SHOWING ALL REINFORCING STEEL, UTILITY AND CONDUIT STUB OUTS; PHOTOGRAPHS SHOWING CONCRETE POUR OF SHELTER SLAB/FOUNDATION, TOWER FOUNDATION AND GUY ANCHORS WITH VIBRATOR IN USE; PHOTOGRAPHS SHOWING EACH ANCHOR ON GUYED TOWERS, BEFORE CONCRETE POUR.
    - 4. TOWER, ANTENNAS AND MAINLINE: INSPECTION AND PHOTOGRAPHS OF SECTION STACKING; INSPECTION AND PHOTOGRAPHS OF PLATFORM COMPONENT ATTACHMENT POINTS; PHOTOGRAPHS OF TOWER TOP GROUNDING; PHOTOS OF TOWER COAX LINE COLOR CODING AT THE TOP AND AT GROUND LEVEL; INSPECTION AND PHOTOGRAPHS OF OPERATIONAL OF TOWER LIGHTING, AND PLACEMENT OF FAA REGISTRATION SIGN; PHOTOGRAPHS SHOWING ADDITIONAL GROUNDING POINTS FOR TOWERS GREATER THAN 200 FEET.; PHOTOS OF ANTENNA GROUND BAR, EQUIPMENT GROUND BAR, AND MASTER GROUND BAR; PHOTOS OF GPS ANTENNA(S); PHOTOS OF EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA; PHOTOS OF COAX WEATHERPROOFING - TOP AND BOTTOM; PHOTOS OF COAX GROUNDING--TOP AND BOTTOM; PHOTOS OF ANTENNA AND MAST GROUNDING; PHOTOS OF COAX CABLE ENTRY INTO SHELTER; PHOTOS OF PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
    - 5. ROOF TOPS: PRE-CONSTRUCTION AND POST-CONSTRUCTION VISUAL INSPECTION AND PHOTOGRAPHS OF THE ROOF AND INTERIOR TO DETERMINE AND DOCUMENT CONDITIONS; ROOF TOP CONSTRUCTION INSPECTIONS AS REQUIRED BY THE JURISDICTION; PHOTOGRAPHS OF CABLE TRAY AND/OR ICE BRIDGE; PHOTOGRAPHS OF DOGHOUSE/CABLE EXIT FROM ROOF;
    - 6. SITE LAYOUT - PHOTOGRAPHS OF THE OVERALL COMPOUND, INCLUDING EQUIPMENT PLATFORM FROM ALL FOUR CORNERS.
    - 7. FINISHED UTILITIES: CLOSE-UP PHOTOGRAPHS OF THE PPC BREAKER PANEL; CLOSE-UP PHOTOGRAPH OF THE INSIDE OF THE TELCO PANEL AND NIU; CLOSE-UP PHOTOGRAPH OF THE POWER METER AND DISCONNECT; PHOTOS OF POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE; PHOTOGRAPHS AT METER BOX AND/OR FACILITY DISTRIBUTION PANEL.
    - 8. REQUIRED MATERIALS CERTIFICATIONS: CONCRETE MIX DESIGNS; MILL CERTIFICATION FOR ALL REINFORCING AND STRUCTURAL STEEL; AND ASPHALT PAVING MIX DESIGN.
    - 9. ANY AND ALL SUBMITTALS BY THE JURISDICTION OR COMPANY.

SECTION 01 400 - SUBMITTALS & TESTS

PART 1 - GENERAL

- 1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE OTHER CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.
- 1.2 RELATED DOCUMENTS:
  - A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.
  - B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HERewith.

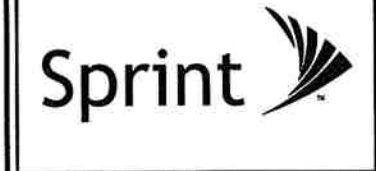
PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

- 3.1 WEEKLY REPORTS:
  - A. CONTRACTOR SHALL PROVIDE SPRINT WITH WEEKLY REPORTS SHOWING PROJECT STATUS. THIS STATUS REPORT FORMAT WILL BE PROVIDED TO THE CONTRACTOR BY SPRINT. THE REPORT WILL CONTAIN SITE ID NUMBER, THE MILESTONES FOR EACH SITE, INCLUDING THE BASELINE DATE, ESTIMATED COMPLETION DATE AND ACTUAL COMPLETION DATE.
  - B. REPORT INFORMATION WILL BE TRANSMITTED TO SPRINT VIA ELECTRONIC MEANS AS REQUIRED. THIS INFORMATION WILL PROVIDE A BASIS FOR PROGRESS MONITORING AND PAYMENT.
- 3.2 PROJECT CONFERENCE CALLS:
  - A. SPRINT MAY HOLD WEEKLY PROJECT CONFERENCE CALLS. CONTRACTOR WILL BE REQUIRED TO COMMUNICATE SITE STATUS, MILESTONE COMPLETIONS AND UPCOMING MILESTONE PROJECTIONS, AND ANSWER ANY OTHER SITE STATUS QUESTIONS AS NECESSARY.
- 3.3 PROJECT TRACKING IN SMS:
  - A. CONTRACTOR SHALL PROVIDE SCHEDULE UPDATES AND PROJECTIONS IN THE SMS SYSTEM ON A WEEKLY BASIS.
- 3.4 ADDITIONAL REPORTING:
  - A. ADDITIONAL OR ALTERNATE REPORTING REQUIREMENTS MAY BE ADDED TO THE REPORT AS DETERMINED TO BE REASONABLY NECESSARY BY COMPANY.
- 3.5 PROJECT PHOTOGRAPHS:
  - A. FILE DIGITAL PHOTOGRAPHS OF COMPLETED SITE IN JPEG FORMAT IN THE SMS PHOTO LIBRARY FOR THE RESPECTIVE SITE. PHOTOGRAPHS SHALL BE CLEARLY LABELED WITH SITE NUMBER, NAME AND DESCRIPTION, AND SHALL INCLUDE AT A MINIMUM THE FOLLOWING AS APPLICABLE:
    - 1. SHELTER AND TOWER OVERVIEW.
    - 2. TOWER FOUNDATION(S) - FORMS AND STEEL BEFORE POUR (EACH ANCHOR ON GUYED TOWERS).
    - 3. TOWER FOUNDATION(S) POUR WITH VIBRATOR IN USE (EACH ANCHOR ON GUYED TOWERS).
    - 4. TOWER STEEL AS BEING INSTALLED INTO HOLE (SHOW ANCHOR STEEL ON GUYED TOWERS).
    - 5. PHOTOS OF TOWER SECTION STACKING.
    - 6. CONCRETE TESTING / SAMPLES.
    - 7. PLACING OF ANCHOR BOLTS IN TOWER FOUNDATION.
    - 8. BUILDING/WATER TANK FROM ROAD FOR TENANT IMPROVEMENTS OR COMMENTS.
    - 9. SHELTER FOUNDATION--FORMS AND STEEL BEFORE POURING.
    - 10. SHELTER FOUNDATION POUR WITH VIBRATOR IN USE.
    - 11. COAX CABLE ENTRY INTO SHELTER.
    - 12. PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
    - 13. ROOFTOP PRE AND POST CONSTRUCTION PHOTOS TO INCLUDE PENETRATIONS AND INTERIOR CEILING.
    - 14. PHOTOS OF TOWER TOP COAX LINE COLOR CODING AND COLOR CODING AT GROUND LEVEL.
    - 15. PHOTOS OF ALL APPROPRIATE COMPANY OR REGULATORY SIGNAGE.
    - 16. PHOTOS OF EQUIPMENT BOLT DOWN INSIDE SHELTER.
    - 17. POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE AND POWER AND TELCO SUPPLY LOCATIONS INCLUDING METER/DISCONNECT.
    - 18. ELECTRICAL TRENCH(S) WITH ELECTRICAL / CONDUIT BEFORE BACKFILL.
    - 19. ELECTRICAL TRENCH(S) WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.
    - 20. TELCO TRENCH WITH TELEPHONE / CONDUIT BEFORE BACKFILL.
    - 21. TELCO TRENCH WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.
    - 22. SHELTER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
    - 23. TOWER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).

- 24. FENCE GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
  - 25. ALL BTS GROUND CONNECTIONS.
  - 26. ALL GROUND TEST WELLS.
  - 27. ANTENNA GROUND BAR AND EQUIPMENT GROUND BAR.
  - 28. ADDITIONAL GROUNDING POINTS ON TOWERS ABOVE 200'.
  - 29. HVAC UNITS INCLUDING CONDENSERS ON SPLIT SYSTEMS.
  - 30. GPS ANTENNAS.
  - 31. CABLE TRAY AND/OR WAVEGUIDE BRIDGE.
  - 32. DOGHOUSE/CABLE EXIT FROM ROOF.
  - 33. EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA.
  - 34. MASTER BUS BAR.
  - 35. TELCO BOARD AND NIU.
  - 36. ELECTRICAL DISTRIBUTION WALL.
  - 37. CABLE ENTRY WITH SURGE SUPPRESSION.
  - 38. ENTRANCE TO EQUIPMENT ROOM.
  - 39. COAX WEATHERPROOFING--TOP AND BOTTOM OF TOWER.
  - 40. COAX GROUNDING --TOP AND BOTTOM OF TOWER.
  - 41. ANTENNA AND MAST GROUNDING.
  - 42. LANDSCAPING - WHERE APPLICABLE.
- 3.6 FINAL PROJECT ACCEPTANCE: COMPLETE ALL REQUIRED REPORTING TASKS PER CONTRACT, CONTRACT DOCUMENTS OR THE SPRINT INTEGRATED CONSTRUCTION STANDARDS FOR WIRELESS SITES AND UPLOAD INTO SITERRA.

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PROJECT MANAGER:

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REVISED/ISSUED FOR PERMIT		06/28/18	MAP	1
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SITE NAME:  
**(R2E) CT4996 TO CT  
33-537 E. HADDAM  
SPECTRA-SITE**

SITE NUMBER:  
**CT33XC537**

SITE ADDRESS:  
**135 HONEY HILL ROAD  
EAST HADDAM, CT 06423**

SHEET DESCRIPTION:  
**SPRINT SPECIFICATIONS**

SHEET NUMBER:  
**SP-3**

PLANS PREPARED FOR:



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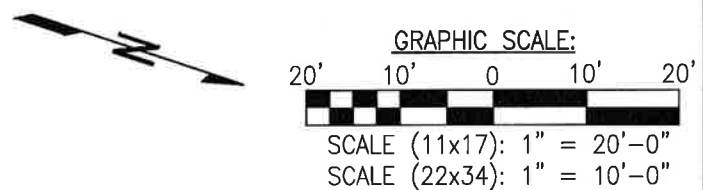
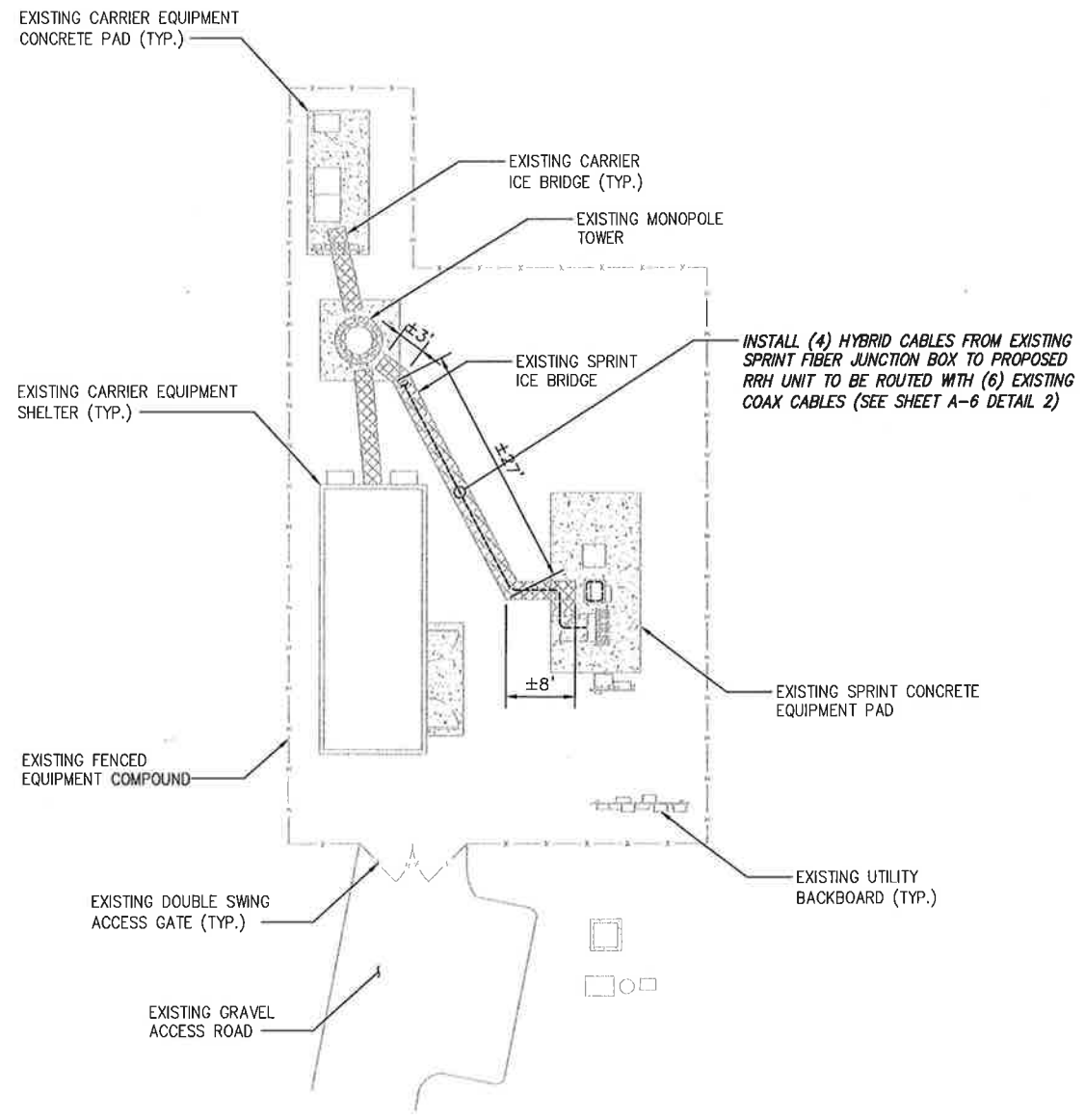
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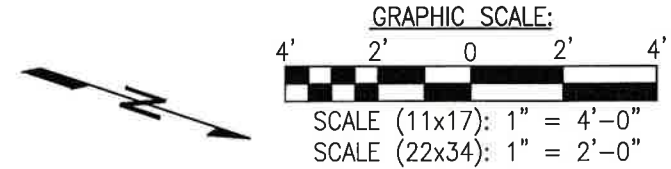
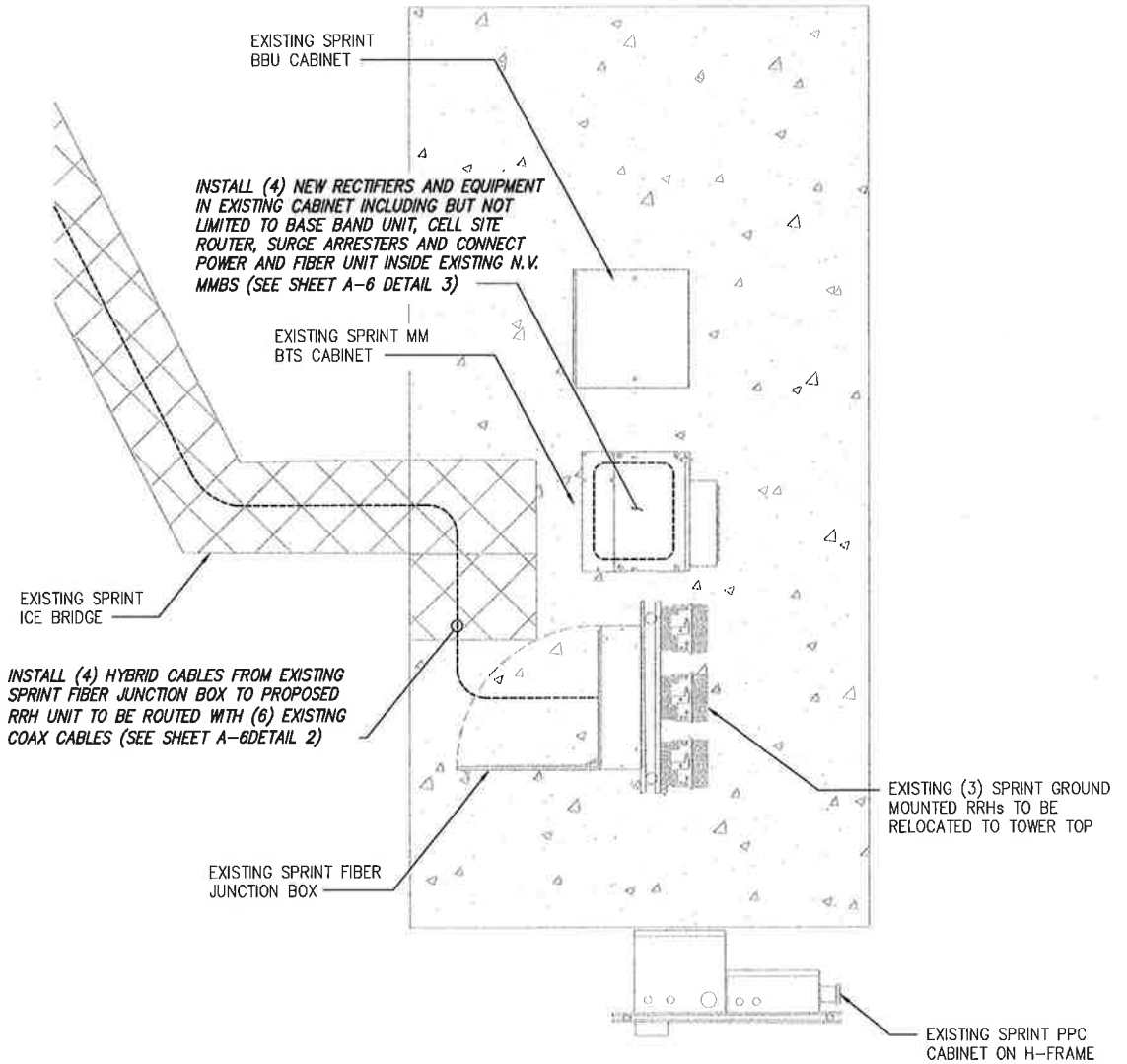
SHEET DESCRIPTION:  
**SITE PLAN**

SHEET NUMBER:  
**A-1**



INFORMATION CONTAINED WITHIN DRAWINGS ARE BASED ON PROVIDED INFORMATION AND ARE NOT THE RESULT OF A FIELD SURVEY.

**OVERALL SITE PLAN** SCALE: AS NOTED 1



**SPRINT EQUIPMENT PLAN** SCALE: AS NOTED 2



**NOTE:**  
 INFINIGY ENGINEERING HAS NOT EVALUATED THE EXISTING STRUCTURE FOR THIS SITE, AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY. REFER TO STRUCTURAL ANALYSIS BY OTHERS PRIOR TO ANY CONSTRUCTION.

**NOTE:**  
 SEE DETAIL 2 ON A-3 FOR ANTENNA LAYOUT

TOP OF TOWER  
 ELEV. = ±151' A.G.L.

Q OF EXISTING/TO BE  
 INSTALLED SPRINT ANTENNAS  
 ELEV. = 140' A.G.L.

INSTALL (1) SPRINT DUAL BAND  
 ANTENNA TO REPLACE EXISTING  
 ANTENNA EACH SECTOR (SEE  
 SHEET A-5 DETAIL 2)

INSTALL SPRINT 800 MHz RRH  
 MOUNTED BEHIND PROPOSED  
 ANTENNA EACH SECTOR (SEE  
 SHEET A-4 DETAIL 4)

EXISTING SPRINT GROUND MOUNTED  
 1900 MHz RRH RELOCATED FROM  
 H-FRAME EACH SECTOR

REPLACE EXISTING MOUNTS WITH (1)  
 SITEPRO1 P/N: RMV12-NP 36" ABOVE  
 EXISTING HORIZONTAL EACH SECTOR

INSTALL (1) SPRINT 2.5 PANEL  
 ANTENNA TO REPLACE EXISTING  
 ANTENNA EACH SECTOR  
 (SEE SHEET A-5 DETAIL 1)

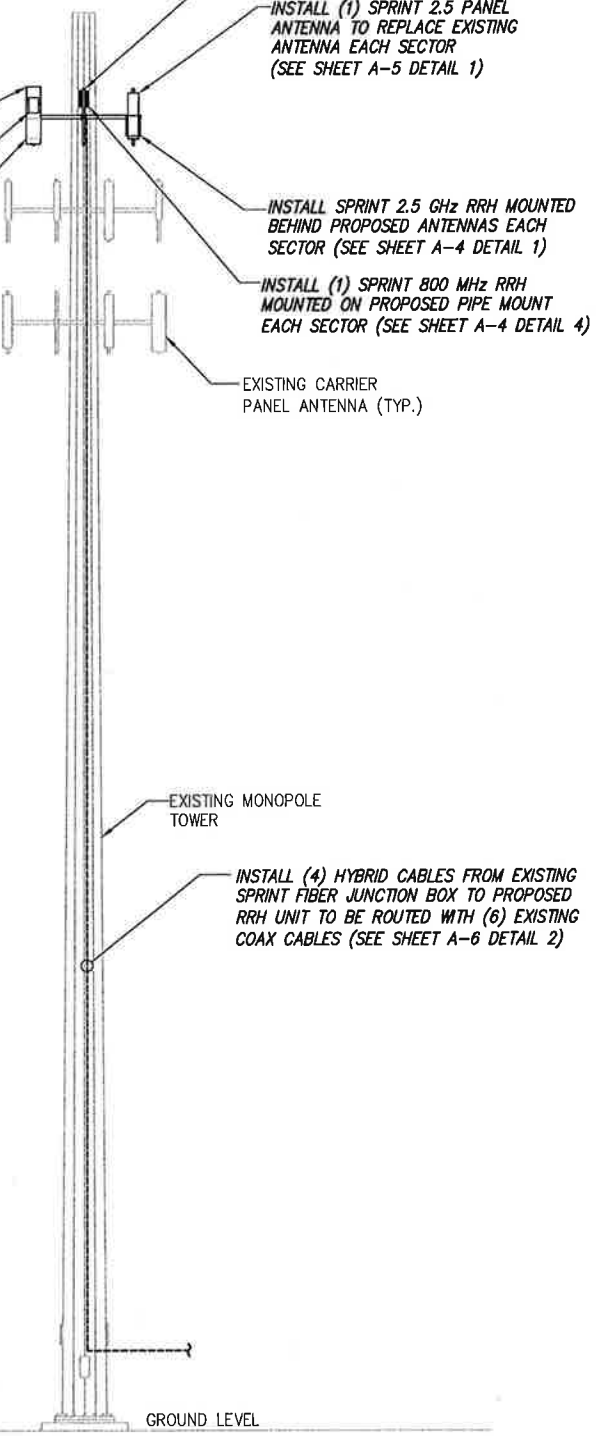
INSTALL SPRINT 2.5 GHz RRH MOUNTED  
 BEHIND PROPOSED ANTENNAS EACH  
 SECTOR (SEE SHEET A-4 DETAIL 1)

INSTALL (1) SPRINT 800 MHz RRH  
 MOUNTED ON PROPOSED PIPE MOUNT  
 EACH SECTOR (SEE SHEET A-4 DETAIL 4)

EXISTING CARRIER  
 PANEL ANTENNA (TYP.)

**NOTE:**

- STRUCTURAL ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "STRUCTURAL ANALYSIS REPORT, CARRIER SITE NUMBER: CT33XC537", DATED: "JUNE 26, 2018". ACCORDING TO RESULTS OF STRUCTURAL MODIFICATION REPORT, THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING.
- ANTENNA AND RRH SUPPORT EVALUATION COMPLETED BY INFINIGY. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "SPRINT DO MACRO PROJECT MOUNT ANALYSIS", DATED: "APRIL 22, 2018". ACCORDING TO THE RESULTS OF REVIEW, THE ANTENNA AND RRH SUPPORTS WILL BE ADEQUATE TO SUPPORT THE PROPOSED LOADING CONTINGENT ON THE FOLLOWING INSTALLATION: CONTRACTOR TO REPLACE EXISTING MOUNT WITH (1) SITEPRO1 RMV12-NP 36" ABOVE EXISTING HORIZONTAL.



TOWER ELEVATION

NO SCALE

1

SITE LOADING CHART

SECTOR	EXISTING/ PROPOSED	ANTENNA MODEL #	VENDOR	AZIMUTH	QTY.	REMAIN/ REMOVED	RRH (QTY/MODEL)	CABLE	CABLE LENGTH	RAD CENTER
ALPHA	PROPOSED	APXVTM14-ALU-120	RFS	70°	1	-	(2) 800 MHz 2X50W RRH W/ FILTER	SEE SHEET A-5 DETAIL 1	±140' AGL	±140' AGL
	PROPOSED	NNVV-65B-R4	COMMSCOPE	70°	1	-	(1) TD-RRHBX20-25 W/ SOLAR SHIELD	SEE SHEET A-5 DETAIL 1		
	EXISTING	DB980F65E-M	DECIBEL	70°	2	REMOVE	(1) 1900 MHz 4X45 RRH	EXISTING COAX		
BETA	PROPOSED	APXVTM14-ALU-120	RFS	160°	1	-	(2) 800 MHz 2X50W RRH W/ FILTER	SEE SHEET A-5 DETAIL 1	±205'	±140' AGL
	PROPOSED	NNVV-65B-R4	COMMSCOPE	160°	1	-	(1) TD-RRHBX20-25 W/ SOLAR SHIELD	SEE SHEET A-5 DETAIL 1		
	EXISTING	DB980F65E-M	DECIBEL	160°	2	REMOVE	(1) 1900 MHz 4X45 RRH	EXISTING COAX		
GAMMA	PROPOSED	APXVTM14-ALU-120	RFS	250°	1	-	(2) 800 MHz 2X50W RRH W/ FILTER	SEE SHEET A-5 DETAIL 1	±140' AGL	±140' AGL
	PROPOSED	NNVV-65B-R4	COMMSCOPE	250°	1	-	(1) TD-RRHBX20-25 W/ SOLAR SHIELD	SEE SHEET A-5 DETAIL 1		
	EXISTING	DB980F65E-M	DECIBEL	250°	2	REMOVE	(1) 1900 MHz 4X45 RRH	EXISTING COAX		

PROJECT SCOPE:

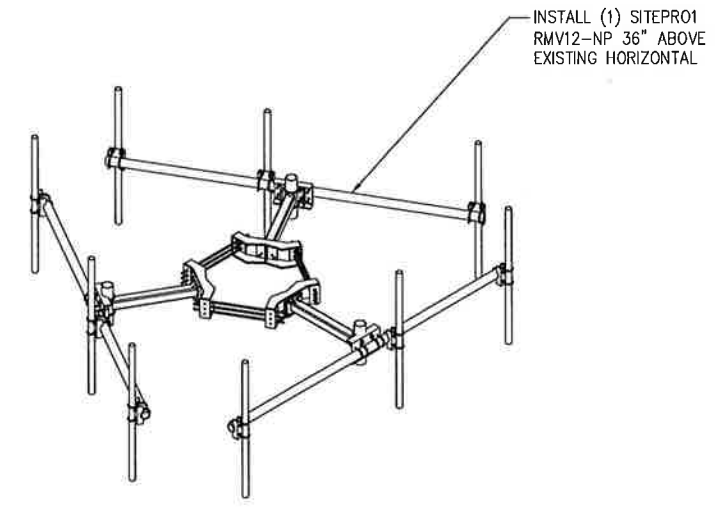
REMOVE: (6) PANEL ANTENNAS INSTALL: (6) PANEL ANTENNAS AND (9) RRH'S RELOCATE: (3) EXISTING RRH'S

\* PROPOSED CABLE LENGTH WAS DETERMINED USING THE SUM OF THE RAD CENTER OF ANTENNAS, AND DISTANCE FROM EXISTING EQUIPMENT AREA TO TOWER BASE WITH AN ADDITIONAL 20' BUFFER. LENGTH TO BE VERIFIED IN FIELD PRIOR TO ORDERING MATERIALS.

SITE LOADING CHART

NO SCALE

2

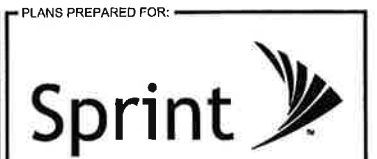


INSTALL (1) SITEPRO1  
 RMV12-NP 36" ABOVE  
 EXISTING HORIZONTAL

ANTENNA MOUNT DETAIL

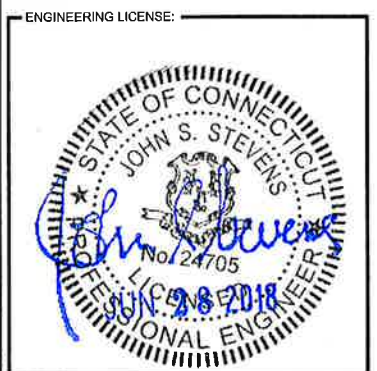
NO SCALE

3



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 33-537 E. HADDAM  
 SPECTRA-SITE

SITE NUMBER:  
 CT33XC537

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SHEET DESCRIPTION:  
 TOWER ELEVATION

SHEET NUMBER:  
 A-2



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SITE NAME:  
**(R2E) CT4996 TO CT 33-537 E. HADDAM SPECTRA-SITE**

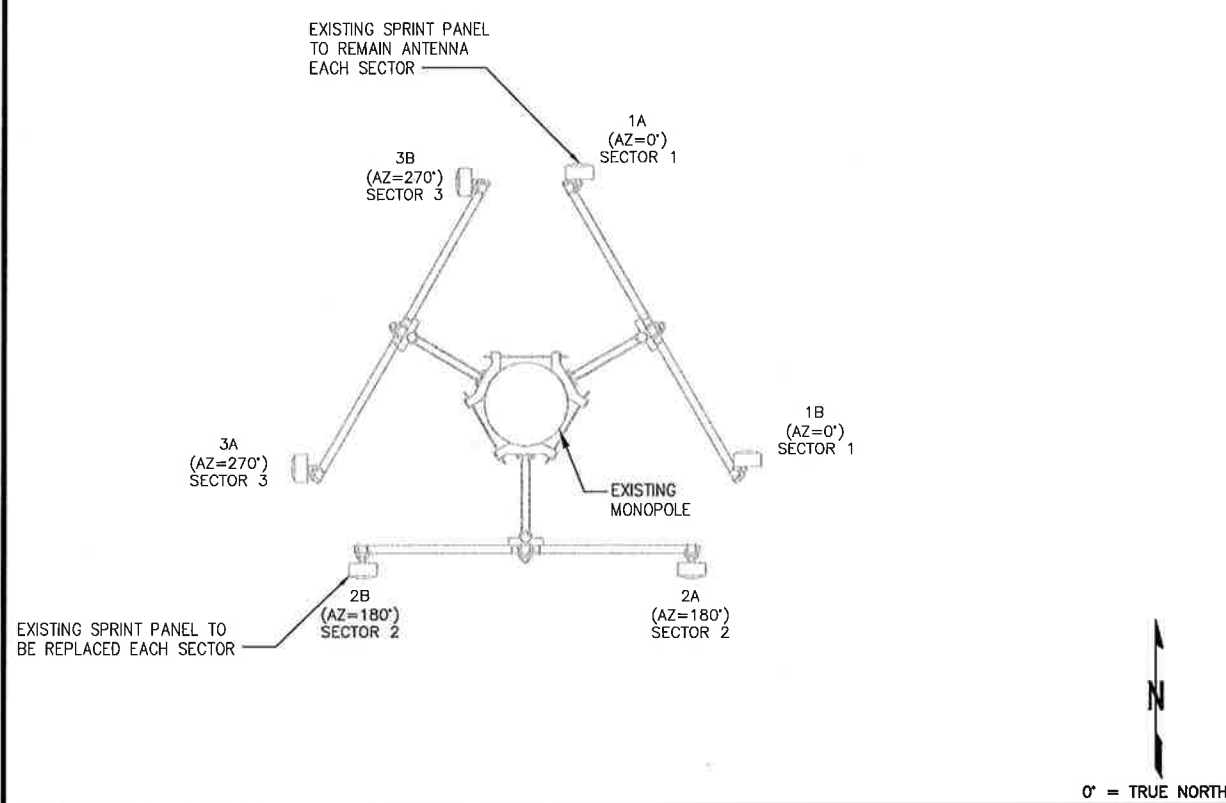
SITE NUMBER:  
**CT33XC537**

SITE ADDRESS:  
**135 HONEY HILL ROAD EAST HADDAM, CT 06423**

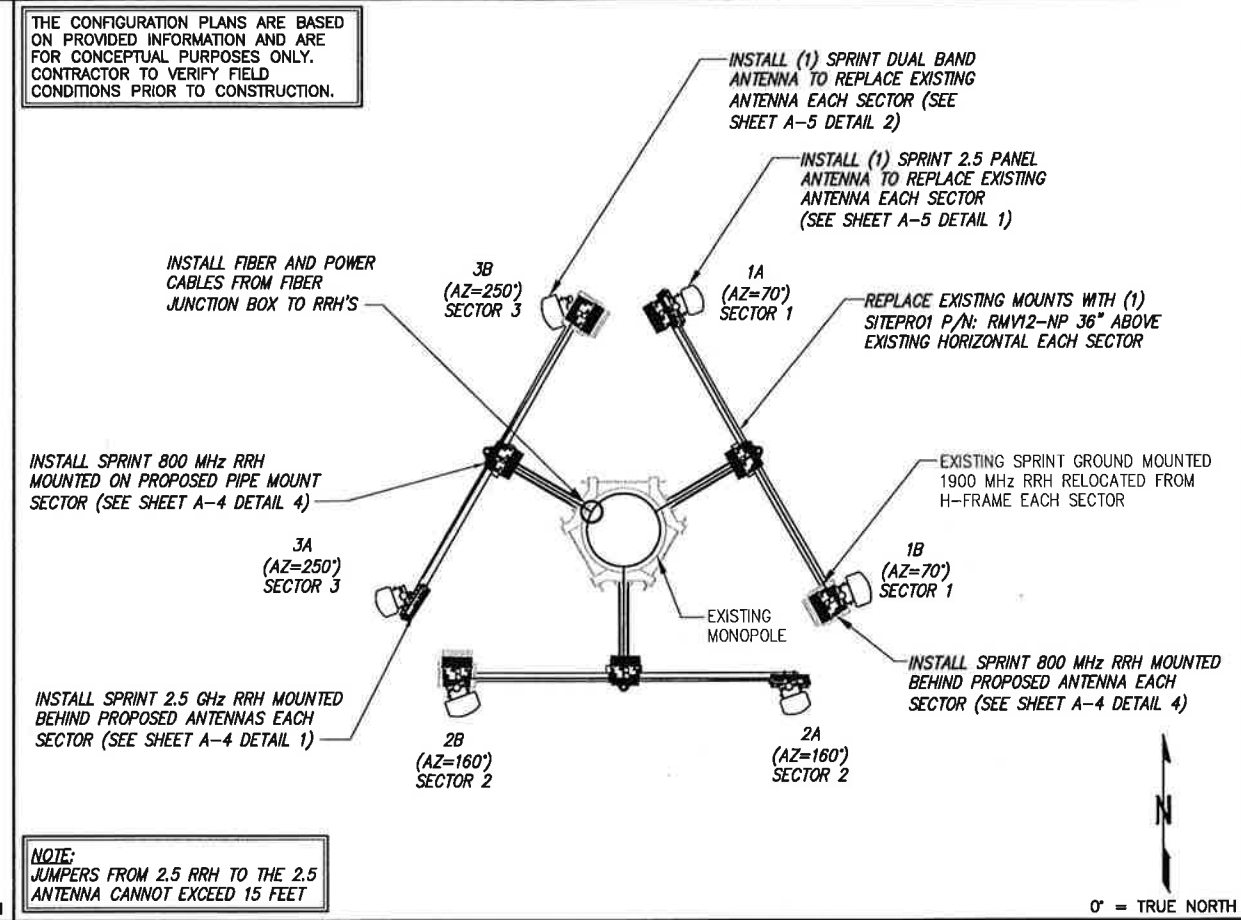
SHEET DESCRIPTION:  
**ANTENNA LAYOUT & MOUNTING DETAILS**

SHEET NUMBER:  
**A-3**

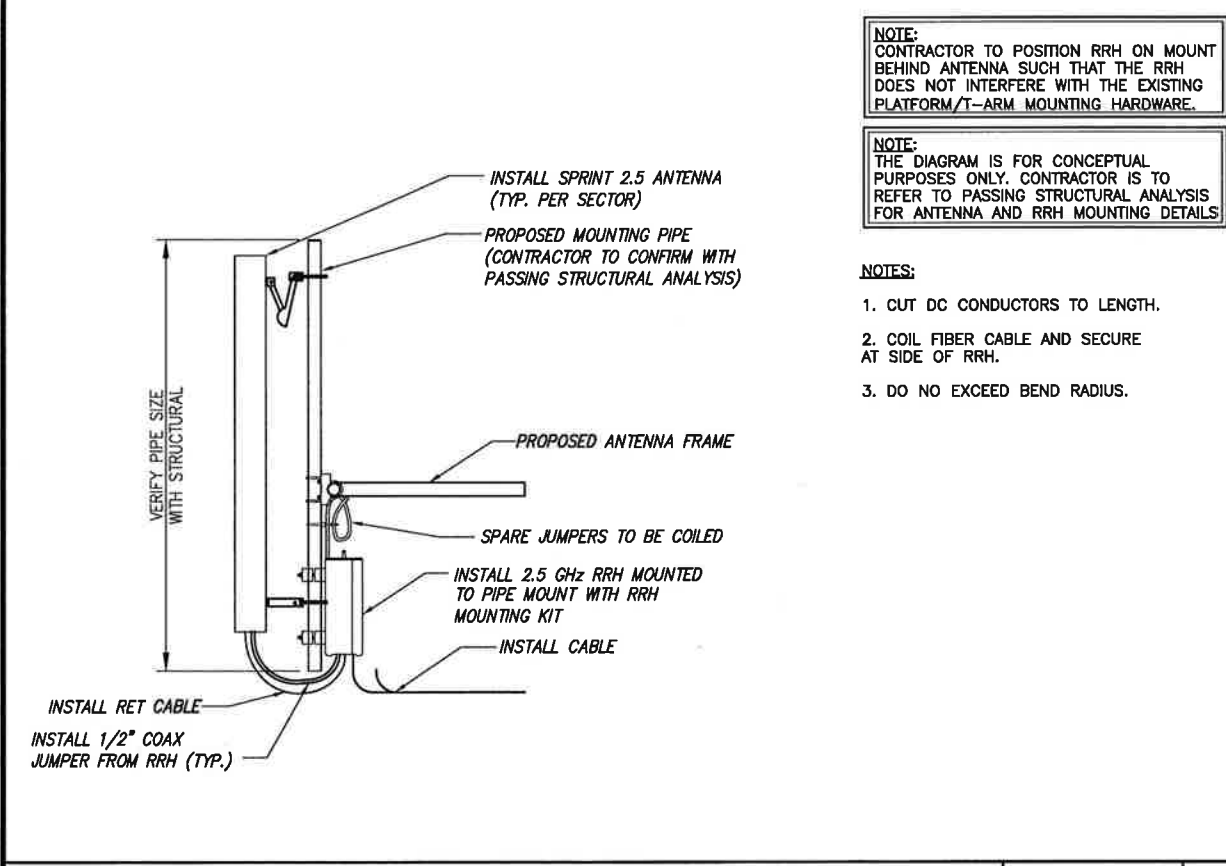
THE CONFIGURATION PLANS ARE BASED ON PROVIDED INFORMATION AND ARE FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR TO VERIFY FIELD CONDITIONS PRIOR TO CONSTRUCTION.



**EXISTING ANTENNA LAYOUT** NO SCALE 1



**FINAL ANTENNA LAYOUT** NO SCALE 2

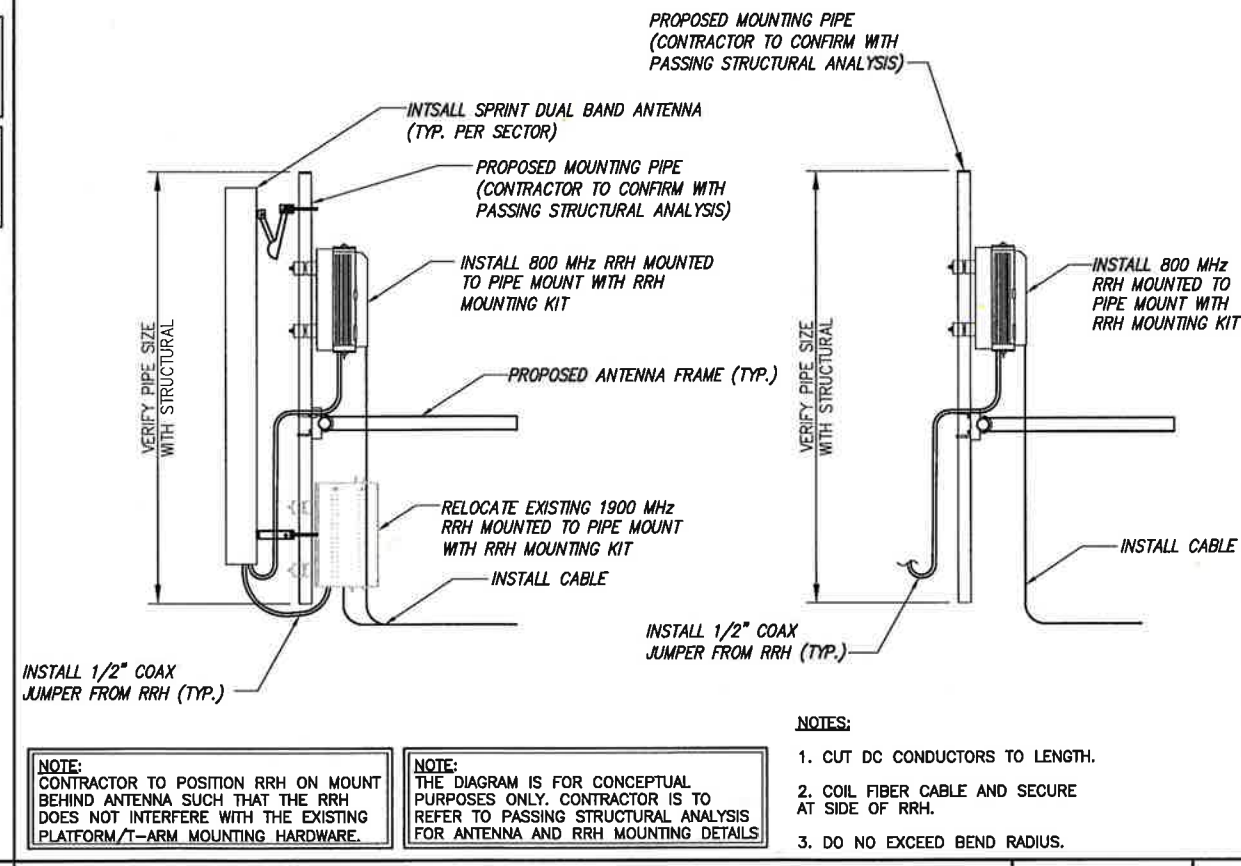


**TYPICAL 2.5 ANTENNA & RRH MOUNTING DETAILS** NO SCALE 3

NOTE: CONTRACTOR TO POSITION RRH ON MOUNT BEHIND ANTENNA SUCH THAT THE RRH DOES NOT INTERFERE WITH THE EXISTING PLATFORM/T-ARM MOUNTING HARDWARE.

NOTE: THE DIAGRAM IS FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR IS TO REFER TO PASSING STRUCTURAL ANALYSIS FOR ANTENNA AND RRH MOUNTING DETAILS.

- NOTES:
- CUT DC CONDUCTORS TO LENGTH.
  - COIL FIBER CABLE AND SECURE AT SIDE OF RRH.
  - DO NOT EXCEED BEND RADIUS.



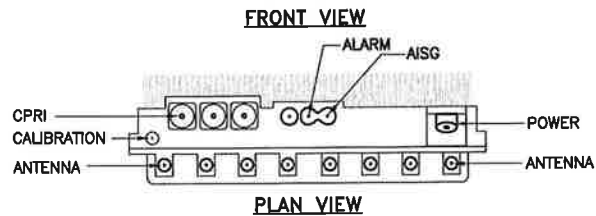
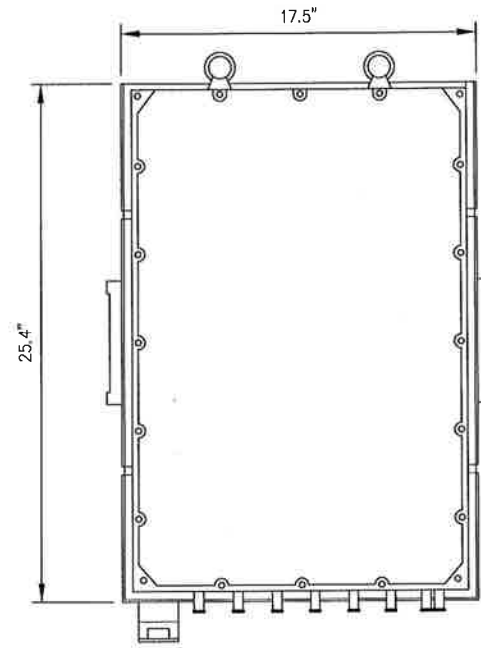
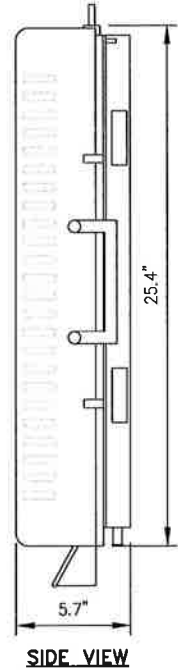
**TYPICAL DUAL BAND ANTENNA & RRH MOUNTING DETAILS** NO SCALE 4

- NOTES:
- CUT DC CONDUCTORS TO LENGTH.
  - COIL FIBER CABLE AND SECURE AT SIDE OF RRH.
  - DO NOT EXCEED BEND RADIUS.



RRH: ALCATEL LUCENT TD-RRH8X20

COLOR: LIGHT GREY  
WEIGHT: 70 LBS.



**NOTES**

COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRH'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRH PACKAGES IN THE RAIN.

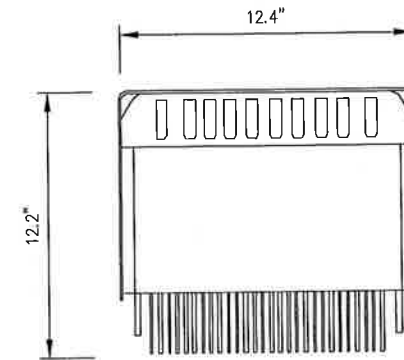
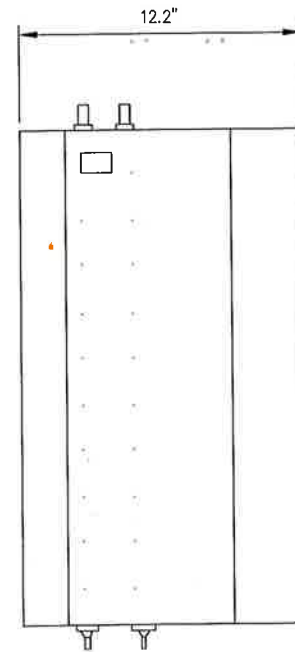
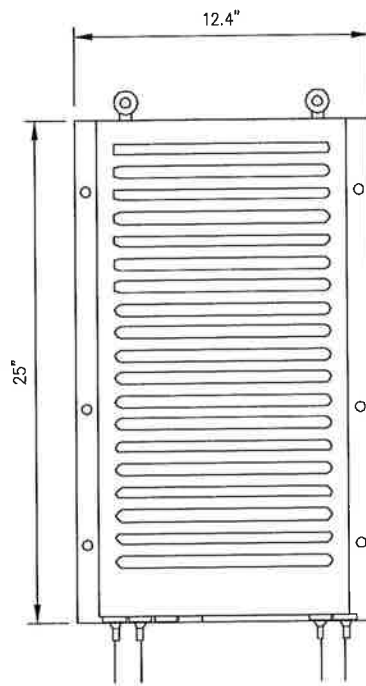
2.5 GHz RRH

NO SCALE

1

RRH: ALCATEL LUCENT 1900 MHz

COLOR: LIGHT GREY  
WEIGHT: 70 LBS.  
(INCLUDING OPTIONAL SOLAR SHIELD)



FRONT VIEW

SIDE VIEW

TOP VIEW

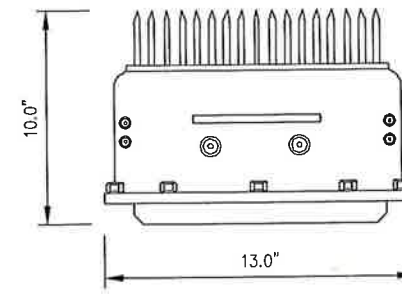
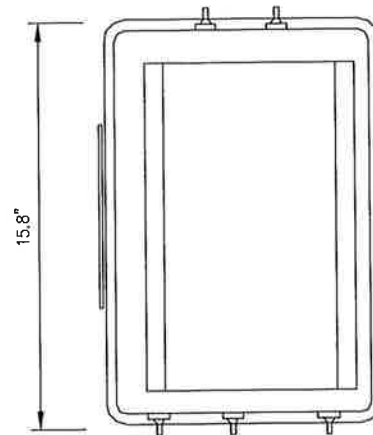
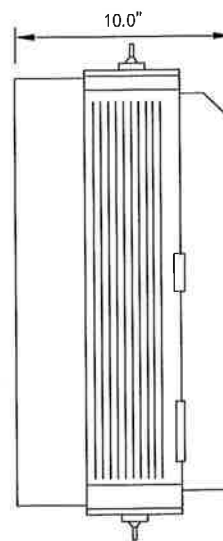
EXISTING 1900 MHz RRH

NO SCALE

2

RRH: ALCATEL LUCENT RRH 800 MHz 2x50W

COLOR: LIGHT GREY  
WEIGHT: 53 LBS.



SIDE VIEW

FRONT VIEW

PLAN VIEW

**NOTES**

COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRH'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRH PACKAGES IN THE RAIN.

DETAIL NOT USED

NO SCALE

3

800 MHz RRH

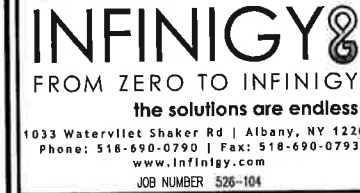
NO SCALE

4

PLANS PREPARED FOR:



PLANS PREPARED BY:



PROJECT MANAGER:



ENGINEERING LICENSE:



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SPECTRA-SITE**

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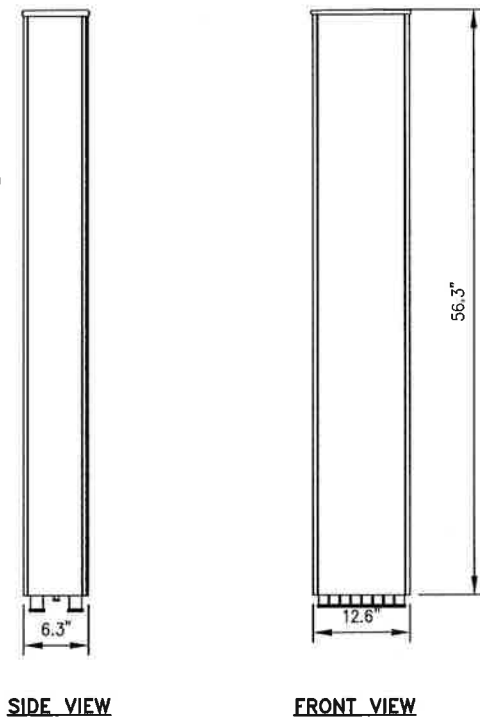
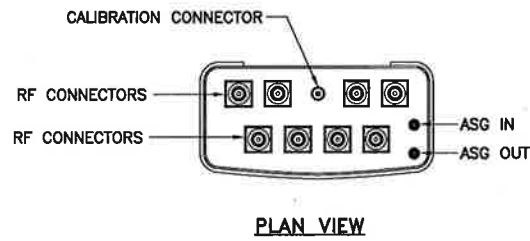
SITE ADDRESS:  
**135 HONEY HILL ROAD  
EAST HADDAM, CT 06423**

SHEET DESCRIPTION:  
**EQUIPMENT &  
MOUNTING DETAILS**

SHEET NUMBER:  
**A-4**

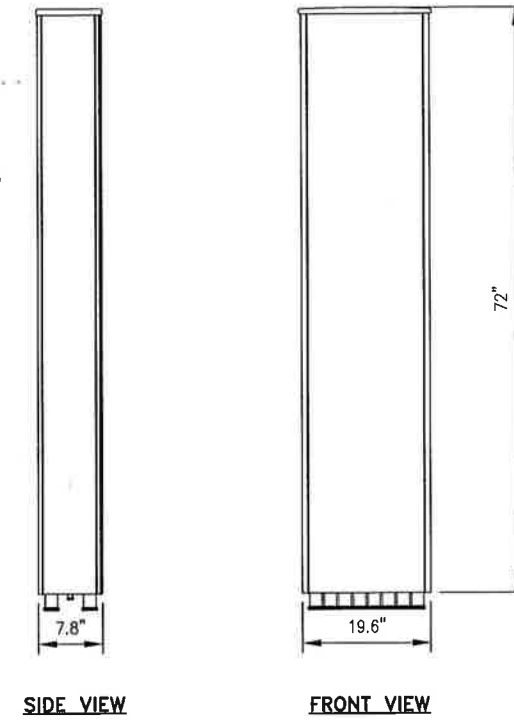
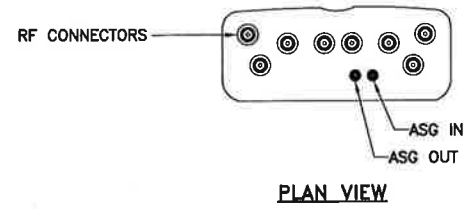
**ANTENNA RFS APXVTM14-ALU-120**

RADOME MATERIAL: ASA  
RADOME COLOR: LIGHT GREY  
DIMENSIONS, HxWxD.in(mim): 56.3"x12.6"x6.3" (1549x439x300mm)  
WEIGHT: 56.2 lbs  
CONNECTORS: (8) 4.1/9.5 DIN FEMALE  
(1) NF - CALIBRATION CONNECTOR



**ANTENNA COMMSCOPE NNVV-65B-R4**

RADOME MATERIAL: FIBERGLASS  
RADOME COLOR: LIGHT GREY  
DIMENSIONS, HxWxD.in(mim): 72"x19.6"x7.8" (1829x498x198mm)  
WEIGHT: 77.4 lbs  
CONNECTORS: (8) PIN DIN FEMALE  
(8) 8 PIN DIN MALE



2.5 ANTENNA DETAIL

NO SCALE

1

DUAL BAND ANTENNA DETAIL

NO SCALE

2

DETAIL NOT USED

NO SCALE

3

DETAIL NOT USED

NO SCALE

4

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SPECTRA-SITE**

SITE NUMBER:  
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SITE ADDRESS:  
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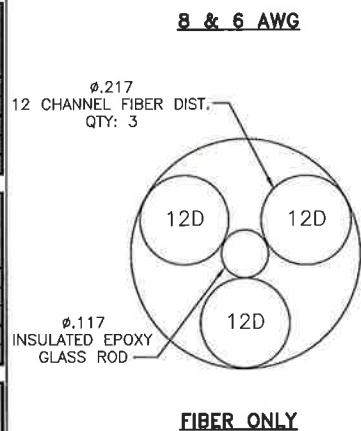
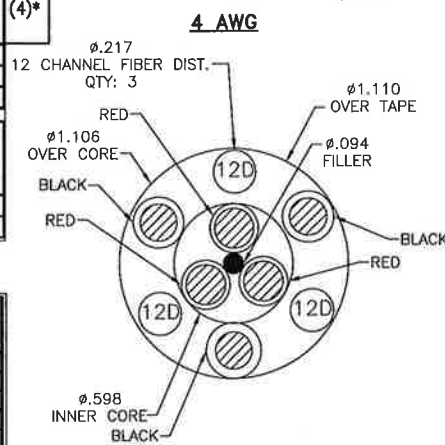
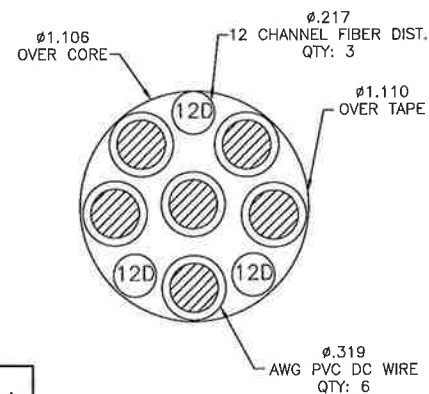
SHEET DESCRIPTION:  
**EQUIPMENT &  
MOUNTING DETAILS**

SHEET NUMBER:  
**A-5**



**RFS HYBRIFLEX RISER CABLE SCHEDULE**

Fiber Only (Existing DC Power)	Hybrid cable MN: H B058-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 5/8 cable, 50 ft	50 ft
	MN: H B058-M12-075F	75 ft
	MN: H B058-M12-100F	100 ft
	MN: H B058-M12-125F	125 ft
	MN: H B058-M12-150F	150 ft
8 AWG Power	Hybrid cable MN: H B114-08U3M12-050F 3x 8 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 50 ft	50 ft
	MN: H B114-08U3M12-075F	75 ft
	MN: H B114-08U3M12-100F	100 ft
	MN: H B114-08U3M12-125F	125 ft
	MN: H B114-08U3M12-150F	150 ft
6 AWG Power	Hybrid cable MN: H B114-13U3M12-225F 3x 6 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 225 ft	225 ft
	MN: H B114-13U3M12-250F	250 ft
	MN: H B114-13U3M12-275F	275 ft
	MN: H B114-13U3M12-300F	300 ft
	4 AWG Power	Hybrid cable MN: H B114-21U3M12-325F 3x 4 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 325 ft
MN: H B114-21U3M12-350F		350 ft
MN: H B114-21U3M12-375F		375 ft



**RFS HYBRIFLEX JUMPER CABLE SCHEDULE**

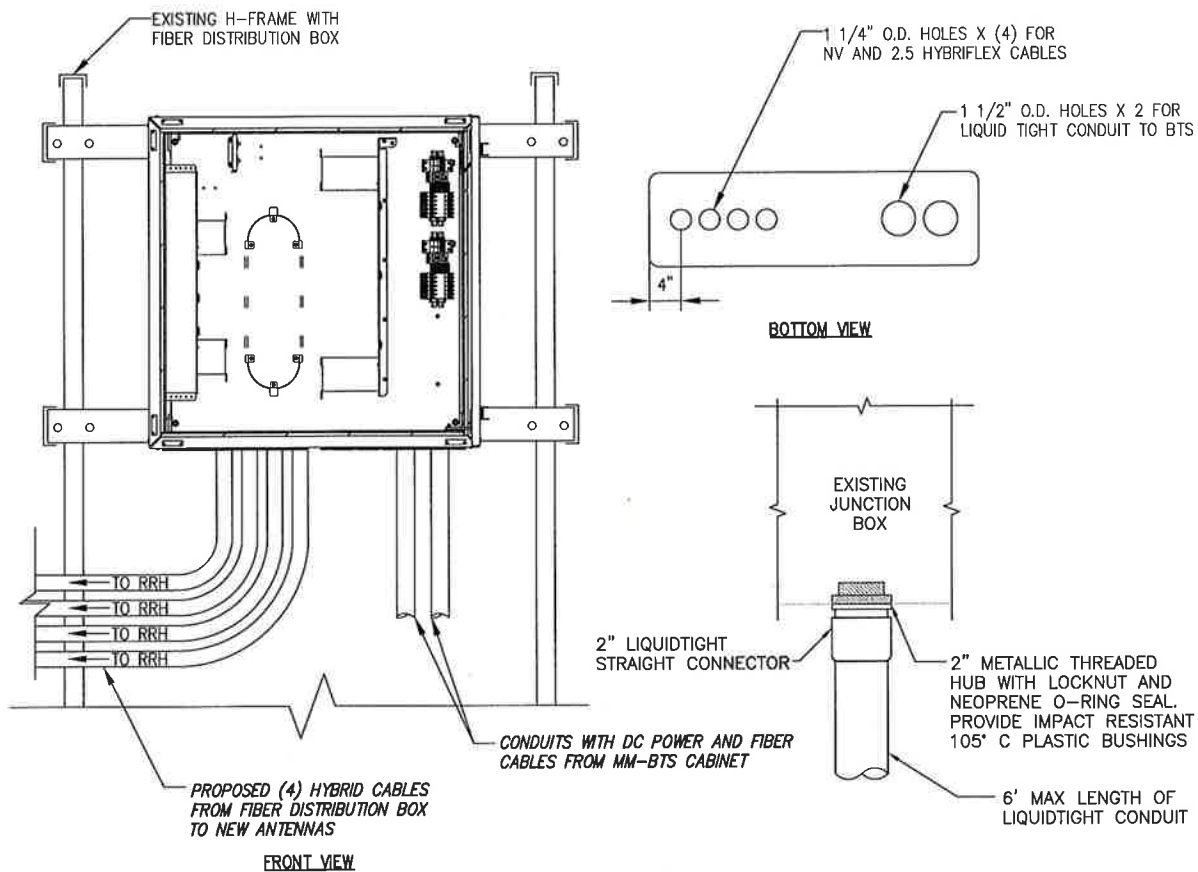
Fiber Only	Hybrid Jumper cable MN: HBF012-M3-5F1 5 ft, 3x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft
	MN: HBF012-M3-10F1	10 ft
	MN: HBF012-M3-15F1	15 ft
	MN: HBF012-M3-20F1	20 ft
	MN: HBF012-M3-25F1	25 ft
8 AWG Power	Hybrid Jumper cable MN: HBF058-08U1M3-5F1 5 ft, 3x 8 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-08U1M3-10F1	10 ft
	MN: HBF058-08U1M3-15F1	15 ft
	MN: HBF058-08U1M3-20F1	20 ft
	MN: HBF058-08U1M3-25F1	25 ft
6 AWG Power	Hybrid Jumper cable MN: HBF058-13U1M3-5F1 5 ft, 3x 6 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft
	MN: HBF058-13U1M3-10F1	10 ft
	MN: HBF058-13U1M3-15F1	15 ft
	MN: HBF058-13U1M3-20F1	20 ft
	MN: HBF058-13U1M3-25F1	25 ft
4 AWG Power	Hybrid Jumper cable MN: HBF078-21U1M3-5F1 5 ft, 3x 4 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 7/8 cable	5 ft
	MN: HBF078-21U1M3-10F1	10 ft
	MN: HBF078-21U1M3-15F1	15 ft
	MN: HBF078-21U1M3-20F1	20 ft
	MN: HBF078-21U1M3-25F1	25 ft

**NOTE:**  
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.

\* PROPOSED CABLE LENGTH WAS DETERMINED USING THE SUM OF THE RAD CENTER OF ANTENNAS, AND DISTANCE FROM EXISTING EQUIPMENT AREA TO TOWER BASE WITH AN ADDITIONAL 20' BUFFER. LENGTH TO BE VERIFIED IN FIELD PRIOR TO ORDERING MATERIALS.

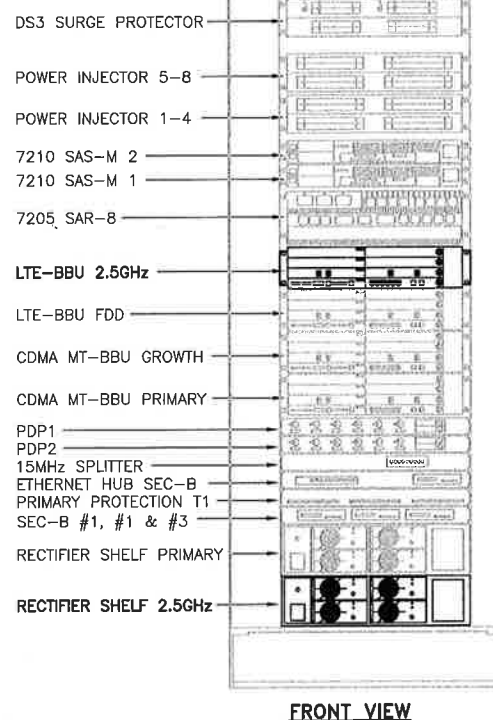
800/1900/2500 CROSS SECTION DATA

NO SCALE 1



**FIBER JUNCTION BOX & PENETRATION**

NO SCALE 2

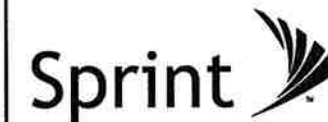


**FRONT VIEW**

NEW EQUIPMENT IN EXISTING CABINET

NO SCALE 3

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JOB NUMBER 526-104

PROJECT MANAGER:

**AIROSMITH**  
DEVELOPMENT  
32 CLINTON ST.  
SARATOGA SPRINGS, NY 12866  
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SITE NAME:  
**(R2E) CT4996 TO CT  
33-537 E. HADDAM  
SPECTRA-SITE**

SITE NUMBER:  
**CT33XC537**

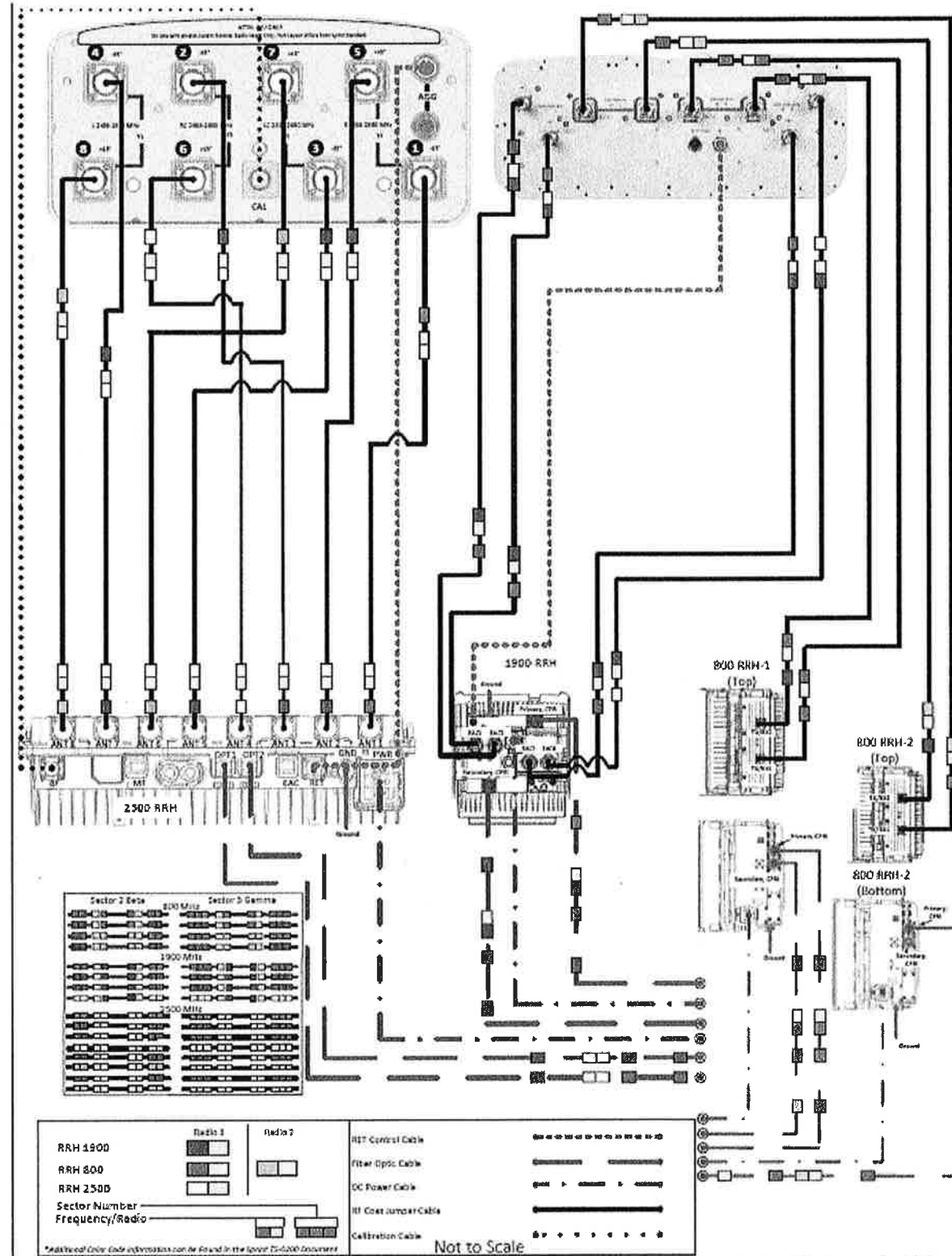
SITE ADDRESS:  
**135 HONEY HILL ROAD  
EAST HADDAM, CT 06423**

SHEET DESCRIPTION:  
**CIVIL DETAILS**

SHEET NUMBER:  
**A-6**



ALU-NSN 211 APXVTM14-ALU-I20 & NNVV-65B-R4 wo Filters



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 (R2E) CT4996 TO CT  
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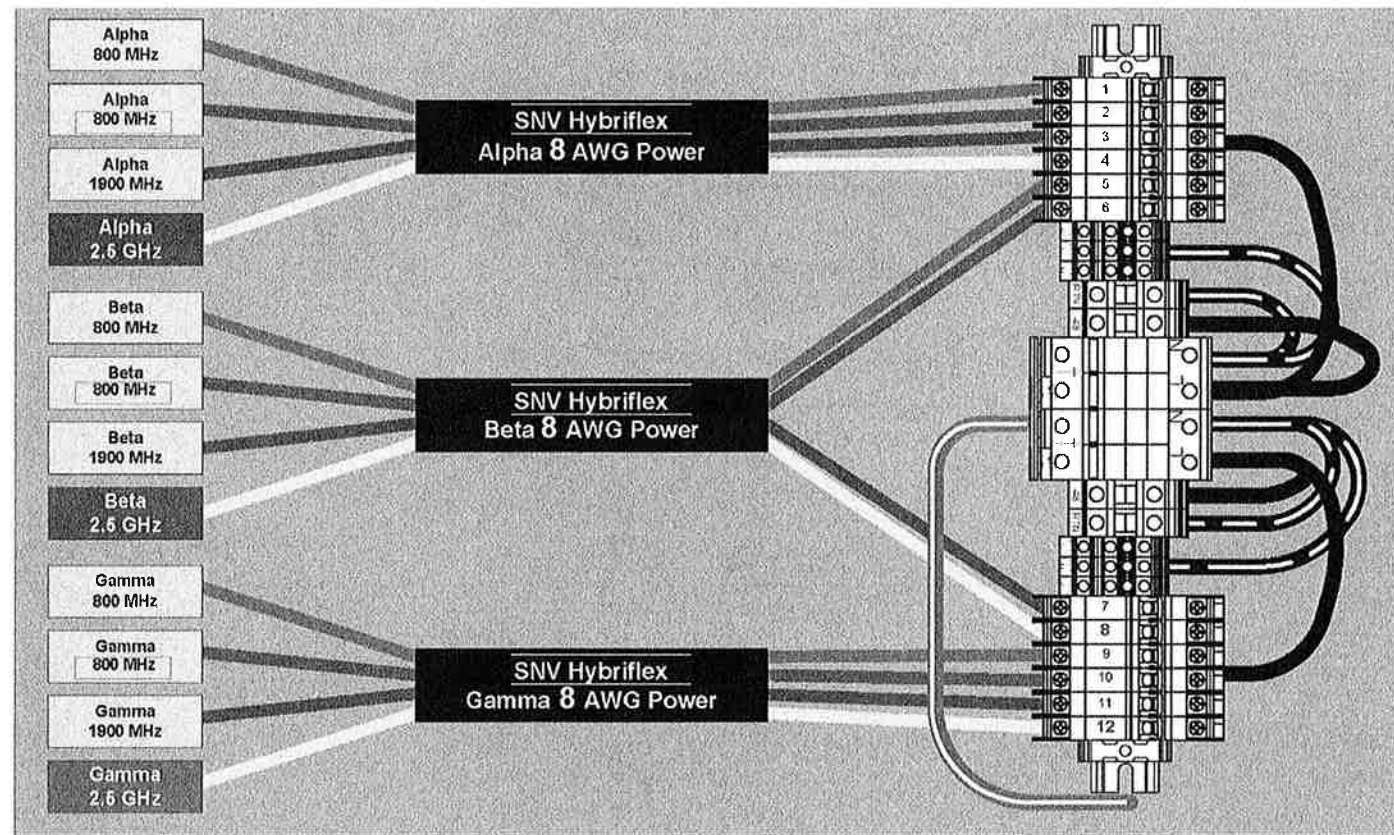
SITE NUMBER:  
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SITE ADDRESS:  
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SHEET DESCRIPTION:  
 PLUMBING DIAGRAM

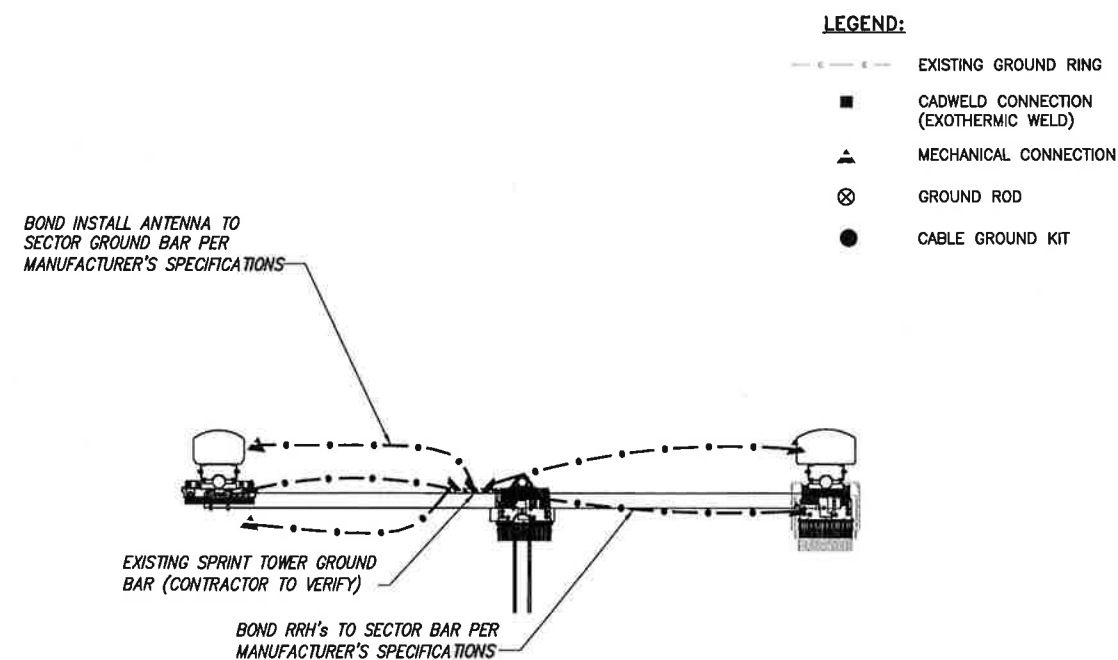
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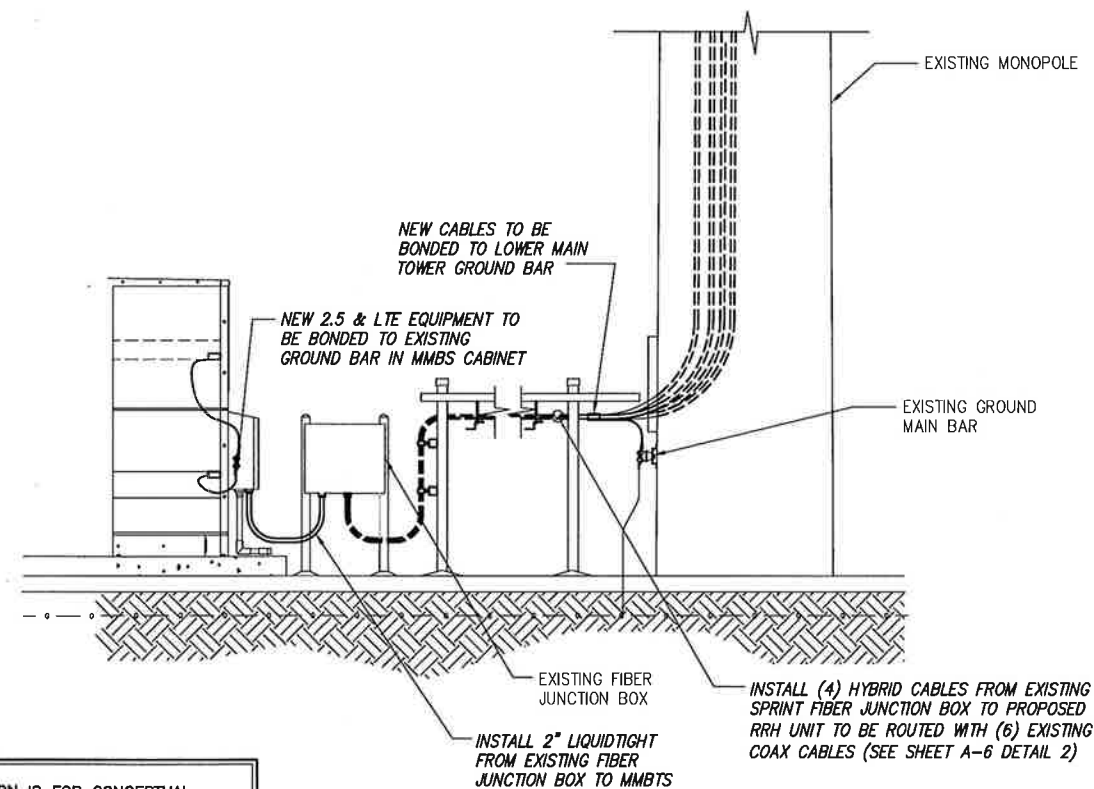
RRH TO DISTRIBUTION BOX POWER CONNECTIVITY

NO SCALE 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2



NOTE:  
DEPICTION IS FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR IS TO FIELD VERIFY PRIOR TO CONSTRUCTION

TYPICAL EQUIPMENT GROUNDING PLAN (ELEVATION)

NO SCALE 3

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SITE NUMBER:  
**CT33XC537**

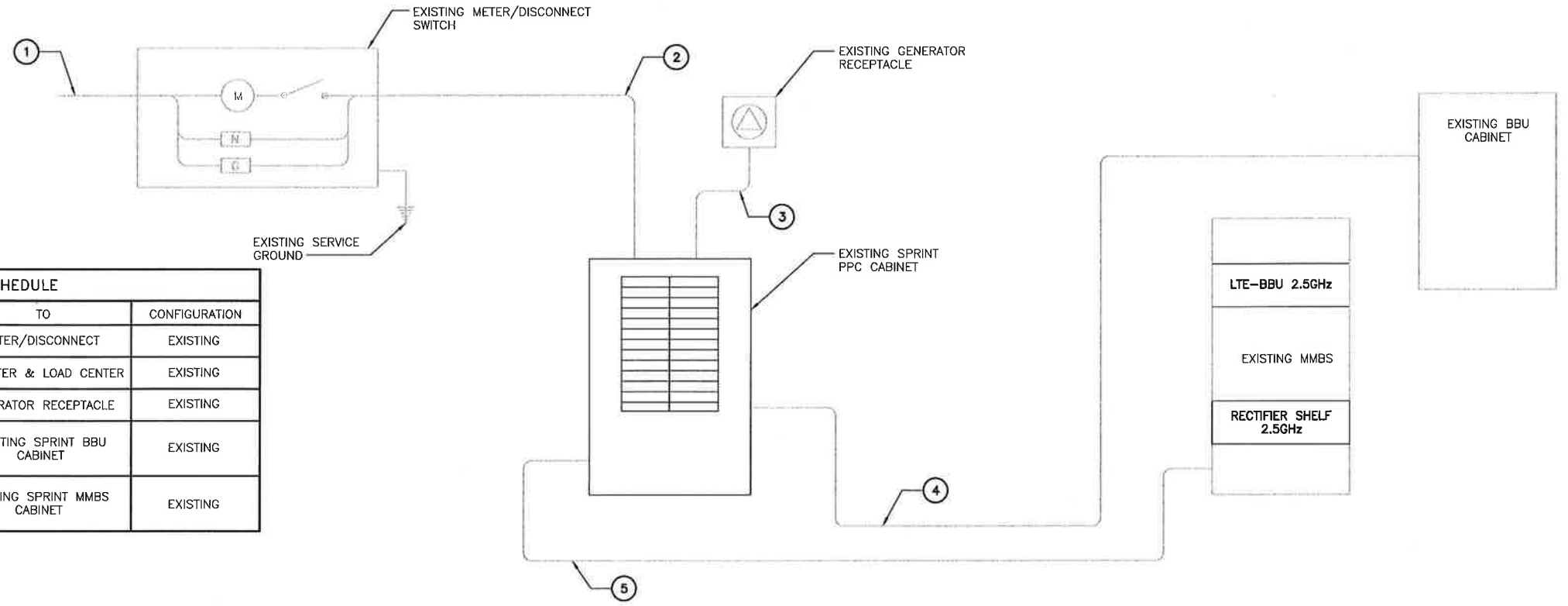
SITE ADDRESS:  
**135 HONEY HILL ROAD EAST HADDAM, CT 06423**

SHEET DESCRIPTION:  
**ELECTRICAL & GROUNDING PLAN**

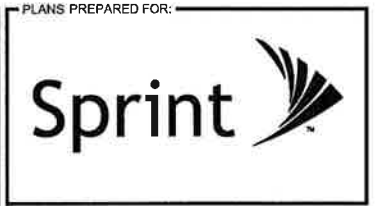
SHEET NUMBER:  
**E-1**



**NOTES**  
 CG SHALL REFERENCE ALL SPECS FOR "CONNECTING THE POWER SUPPLY" OF THE NEW INSTALLATION DOCUMENTS, FOR ALL CONNECTION SPECIFICATIONS.

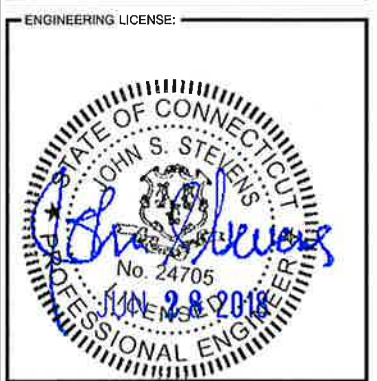


CIRCUIT SCHEDULE			
NO	FROM	TO	CONFIGURATION
①	UTILITY SOURCE	METER/DISCONNECT	EXISTING
②	METER/DISCONNECT	TRANSFER & LOAD CENTER	EXISTING
③	TRANSFER & LOAD CENTER	GENERATOR RECEPTACLE	EXISTING
④	TRANSFER & LOAD CENTER	EXISTING SPRINT BBU CABINET	EXISTING
⑤	TRANSFER & LOAD CENTER	EXISTING SPRINT MMBS CABINET	EXISTING



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SITE NUMBER:  
 CT33XC537

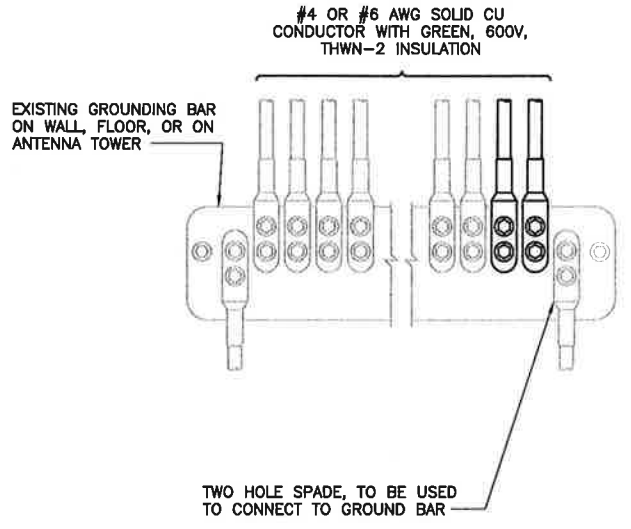
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 135 HONEY HILL ROAD  
 EAST HADDAM, CT 06423

SHEET DESCRIPTION:  
 ELECTRICAL &  
 GROUNDING DETAILS

SHEET NUMBER:  
**E-2**

ELECTRICAL ONE-LINE DIAGRAM

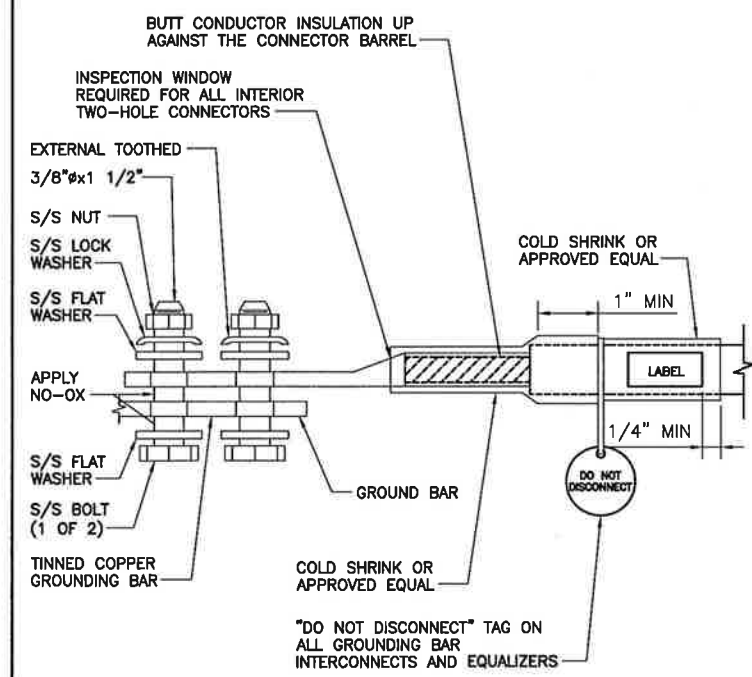
NO SCALE 1



**NOTES**  
 1. APPLY NO-OX TO LUG AND BAR CONTACT SURFACE. DO NOT COAT INLINE LUG.  
 2. IF STOLEN GROUND BARS ARE ENCOUNTERED, CONTACT SPRINT CM FOR REPLACEMENT THREADED ROD KIT.

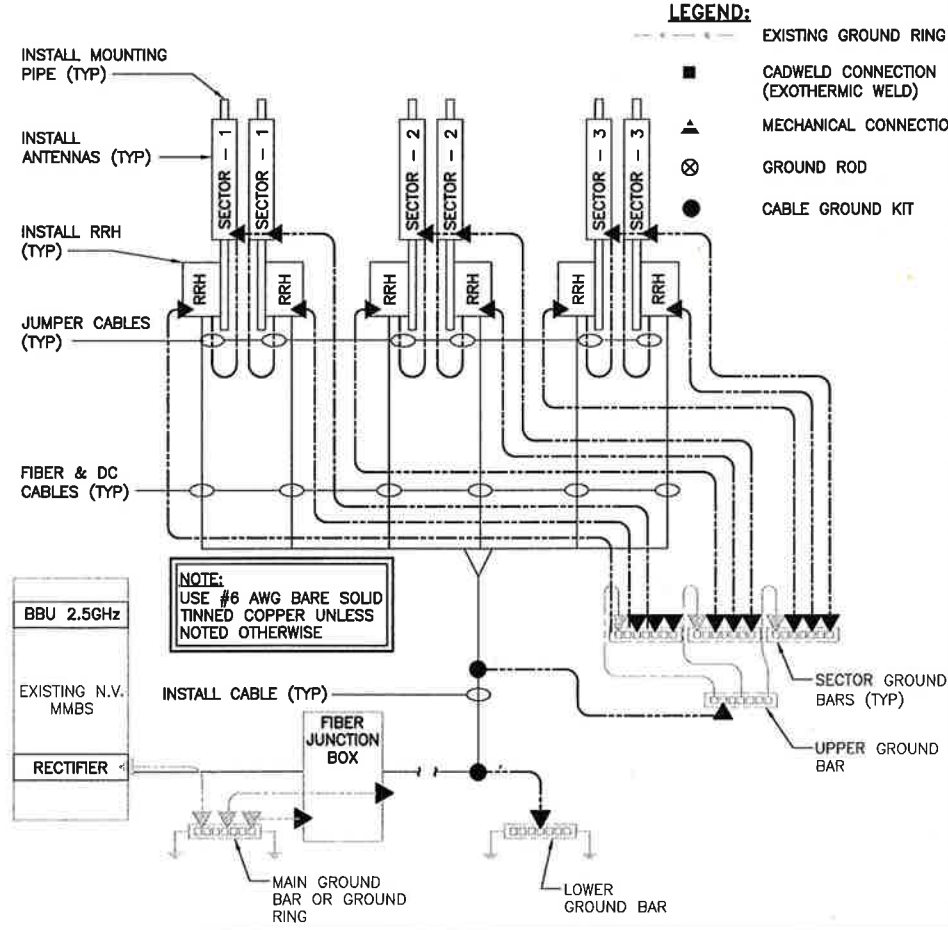
INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR

NO SCALE 2



TWO HOLE LUG

NO SCALE 3



GROUNDING RISER DIAGRAM

NO SCALE 4