June 15th, 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 104 Bunker Hill Road, Andover, CONNECTICUT – CT33XC573 (lat. 41° 44' 16.008" N, long. -72° 20' 59.3874" W)

Dear Ms. Bachman:

Sprint Spectrum, LP ("Sprint") currently maintains wireless telecommunications antennas at the (168-foot level) on an existing (180-foot monopole tower) at the above-referenced address. The property is owned by PRICE LEON & BENJAMIN, 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, move three (3) RRHs from the ground 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 ROBERT BURBANK, FIRST SELECTMAN, and JOHN VALENTE, ZONING AGENT of the Town of ANDOVER. A copy of this letter is also being sent to PRICE LEON & BENJAMIN the owner of the property on which the tower is located, and JUSTINE PAUL the manager for AMERICAN TOWER CORPORATION who manages the site.

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

32 Clinton Street, Saratoga Springs, NY 12866
Office 518-306-1733 – Fax 518-306-1711
www.airosmithdevelopment.com

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

Kind Regards,

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

Attachment

CC: PRICE LEON & BENJAMIN (Land Owner)
ROBERT BURBANK (1st Selectman, ANDOVER, CT)
JUSTINE PAUL (Manager/American Tower Corporation)
JOHN VALENTE (Zoning Agent / ANDOVER, CT)

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Sent To Robert Barbarik

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PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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Sent To Justin Pal

Street and Apt. No., or PO Box No. 10 Presidential Way

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Total Postage and Fees $6.70

Sent To Ivan and Benjamin Price

Street and Apt. No., or PO Box No. 101 Bunker Hill Rd

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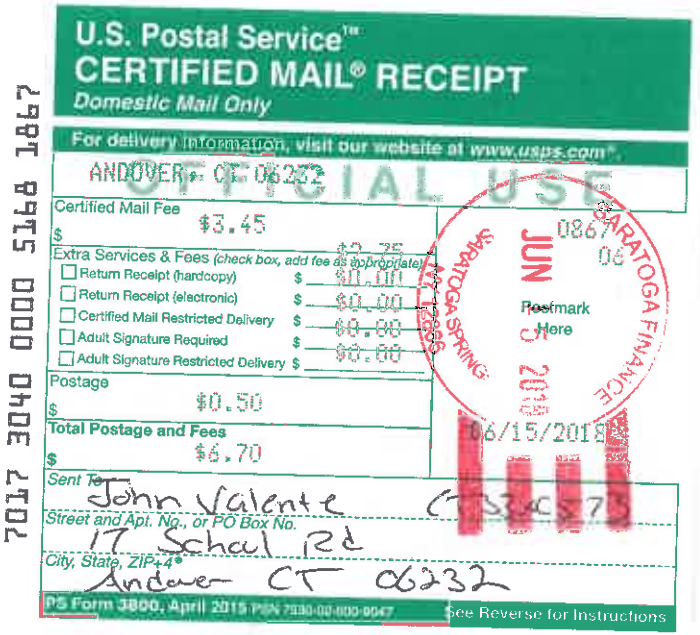

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Total Postage and Fees $6.70

Sent To John Valente

Street and Apt. No., or PO Box No. 17 School Rd

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PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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104 BUNKER HILL RD

Property

Address	104 BUNKER HILL RD, ANDOVER
ID	33-36.3

Land

Area	13.90 A

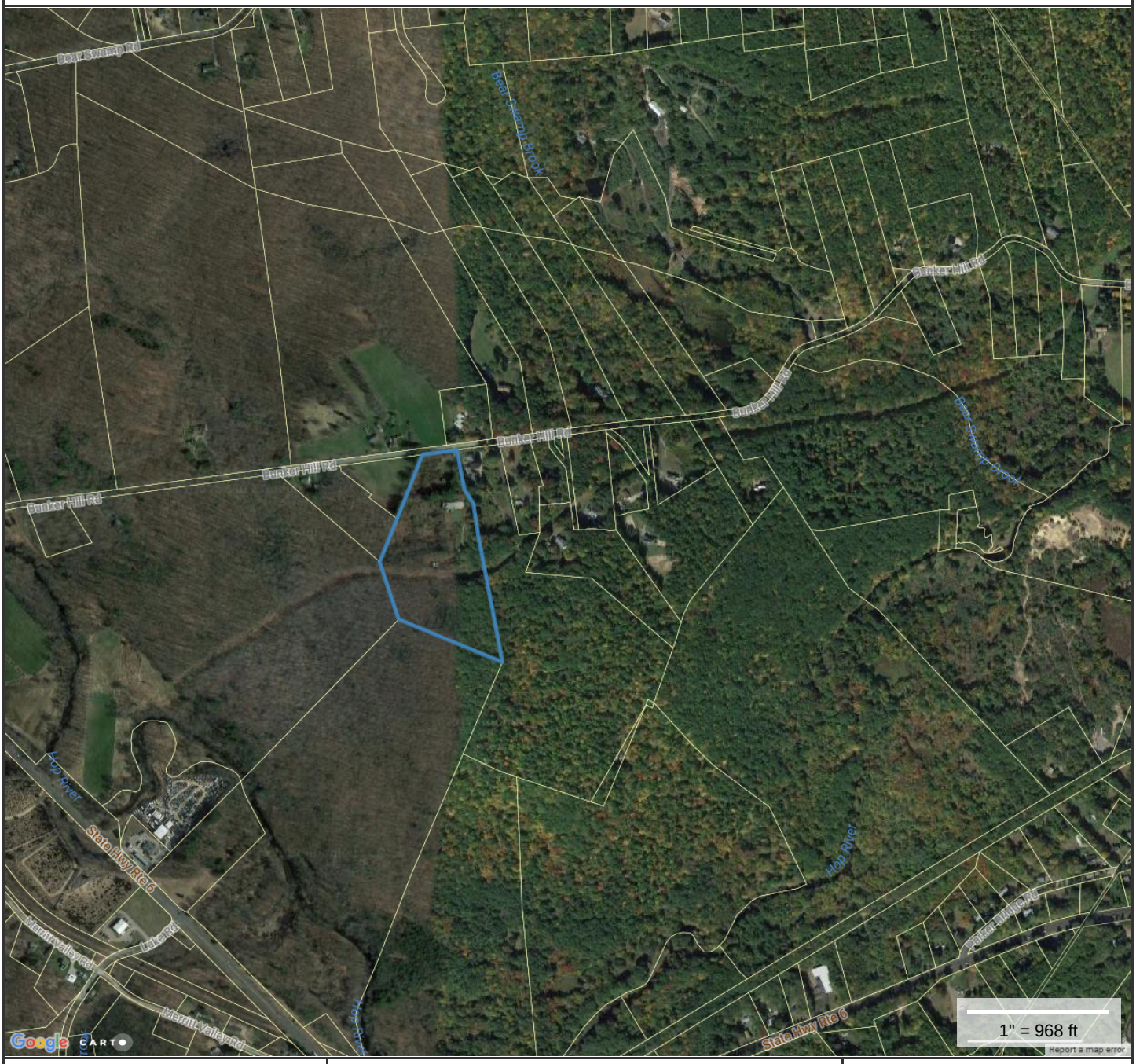
Ownership

Owner	PRICE LEON & BENJAMIN

Valuation

Total Assessment	$323,200
Land Value	$176,200
Building Value	$0
Last Sale	$0 on
Book/Page	/

104 Bunker Hill Road, Andover CT (CT33XC573)



Property Information

Property ID	09013001-33-36-3
Location	104 BUNKER HILL RD
Owner	PRICE LEON & BENJAMIN

CRCOG CAPITOL REGION COUNCIL OF GOVERNMENTS
Working together for a better region.

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

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

SPRINT Existing Facility

Site ID: CT33XC573

Andover / Nextel
104 Bunker Hill Road
Andover, CT 06232

June 13, 2018

EBI Project Number: 6218004334

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	8.18 %

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

EBI Consulting
environmental | engineering | due diligence

June 13, 2018

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

Emissions Analysis for Site: **CT33XC573 – Andover / Nextel**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **104 Bunker Hill Road, Andover, 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 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ 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 ($\mu W/cm^2$). The general population exposure limits for the 850 MHz Band is approximately 567 $\mu W/cm^2$. The general population exposure limit for the 1900 MHz (PCS) and 2500 MHz (BRS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed SPRINT Wireless antenna facility located at **104 Bunker Hill Road, Andover, 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 **168 feet** above ground level (AGL) for **Sector A**, **168 feet** above ground level (AGL) for **Sector B** and **168 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 #:	**1**	Antenna #:	**1**	Antenna #:	**1**
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):	**168 feet**	Height (AGL):	**168 feet**	Height (AGL):	**168 feet**
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%	**1.25 %**	Antenna B1 MPE%	**1.25 %**	Antenna C1 MPE%	**1.25 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
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):	**168 feet**	Height (AGL):	**168 feet**	Height (AGL):	**168 feet**
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%	**0.85 %**	Antenna B2 MPE%	**0.85 %**	Antenna C2 MPE%	**0.85 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**2.10 %**
AT&T	1.87 %
Verizon Wireless	2.90 %
Nextel	0.19 %
T-Mobile	1.12 %
Site Total MPE %:	**8.18 %**

SPRINT Sector A Total:	2.10 %
SPRINT Sector B Total:	2.10 %
SPRINT Sector C Total:	2.10 %
Site Total:	8.18 %

SPRINT _ Frequency Band / Technology Max Power Values (Per Sector)	**# Channels**	**Watts ERP (Per Channel)**	**Height (feet)**	**Total Power Density ($\mu W/cm^2$)**	**Frequency (MHz)**	**Allowable MPE ($\mu W/cm^2$)**	**Calculated % MPE**
Sprint 850 MHz CDMA	1	376.73	168	0.52	850 MHz	567	0.09%
Sprint 850 MHz LTE	2	941.82	168	2.58	850 MHz	567	0.46%
Sprint 1900 MHz (PCS) CDMA	5	511.82	168	3.51	1900 MHz (PCS)	1000	0.35%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	168	3.51	1900 MHz (PCS)	1000	0.35%
Sprint 2500 MHz (BRS) LTE	8	778.09	168	8.53	2500 MHz (BRS)	1000	0.85%
						Total:	**2.10%**

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:	2.10 %
Sector B:	2.10 %
Sector C:	2.10 %
SPRINT Maximum Total (per sector):	2.10 %
Site Total:	8.18 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **8.18 %** 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.

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1033 WATERVLIET SHAKER RD, ALBANY, NY 12205

Mount Analysis Report

May 12, 2018

Site Name	CT33XC573
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.	140.0 ft
Mount Classification	Platform w/ Handrails
Failing Structural Usage	**175.4%**
Passing Structural Usage	**93.2%**
Overall Result	**Contingent Pass- See Required Modification Below.**
Note	**Replace existing mount pipes with (6) new 96" Long 2.875" OD Sch 40 Mount Pipe. Install (1) SitePro1 HRK14, 36" above existing horizontal and (1) PRK-1245 Reinforcement Kit. See appended documents for modifications detail.**

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.

STATE OF CONNECTICUT
JOSEPH R. JOHNSTON
LICENSED
PROFESSIONAL ENGINEER
MAY 14 2018

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

Contents

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 16.0.5 analysis software.

Supporting Documentation

Structural Analysis	ATC Eng #OAA710392_C3_02, dated April 5, 2018

Analysis Code Requirements

Wind Speed	101 mph (3-Second Gust,Vasd) / 130 mph (3-Second Gust,Vult)
Wind Speed w/ ice	50 mph (3-Second Gust,Vasd) w/ 1" 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	5
Calculated Crest Height	105 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 | 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	0.0	3	Commscope NNVV-65B-R4	Sprint
			14.0	3	RFS APXVTM14-ALU-I20	
			14.0	3	Alcatel Lucent 1900 MHz RRH	
			0.0, 14.0	6	Alcatel Lucent RRH2x50-08	
			0.0	3	Alcatel Lucent TD-RRH8x20-25	

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

Structure Usages

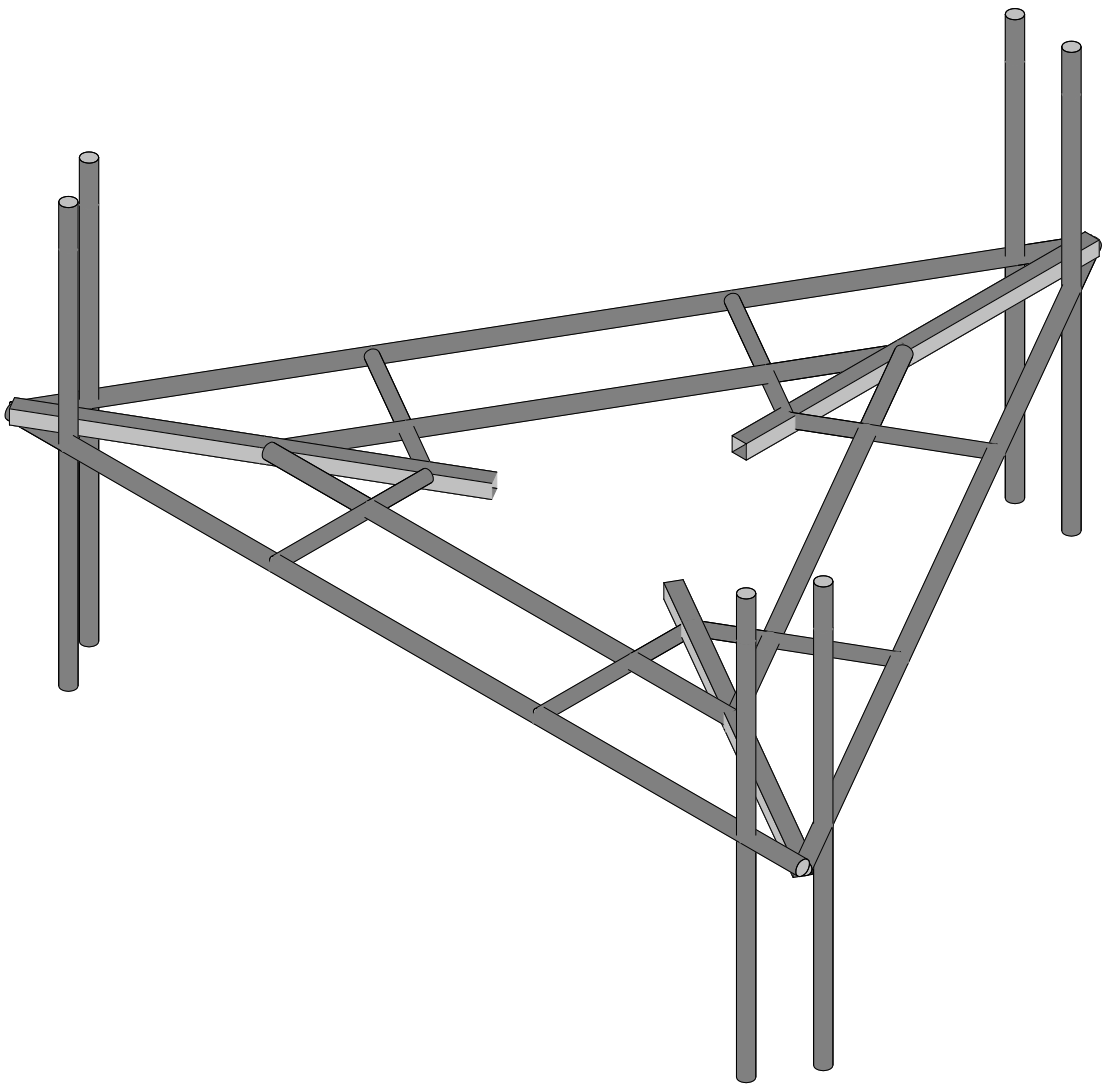
Stand off	56.2	Pass
Horizontal	64.4	Pass
Mount Pipe	93.2	Pass
RATING =	**93.2**	**Pass**

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.

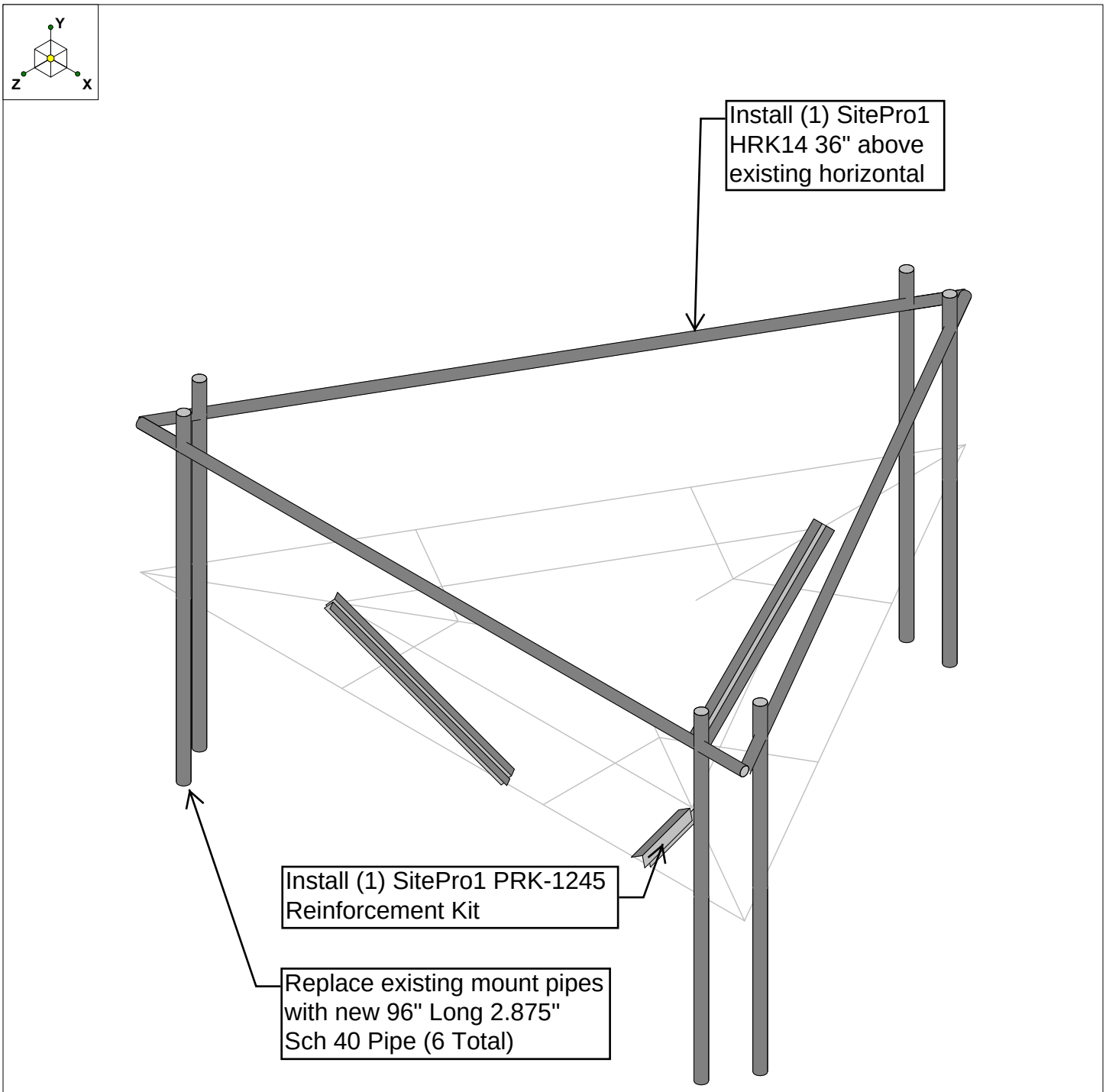
Our evaluation is completed using standard TIA, AISC, ACI, and ASCE methods and procedures. Our structural results are proprietary and should not be used by others as their own. Infinigy Engineering is not responsible for decisions made by others that are or are not based on our supplied assumptions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



Envelope Only Solution

Infinigy Engineering PLLC		
NRO	CT33XC537	May 12, 2018 at 1:47 PM
526-104	Existing Mount	CT33XC573.R3D



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Infinigy Engineering PLLC		
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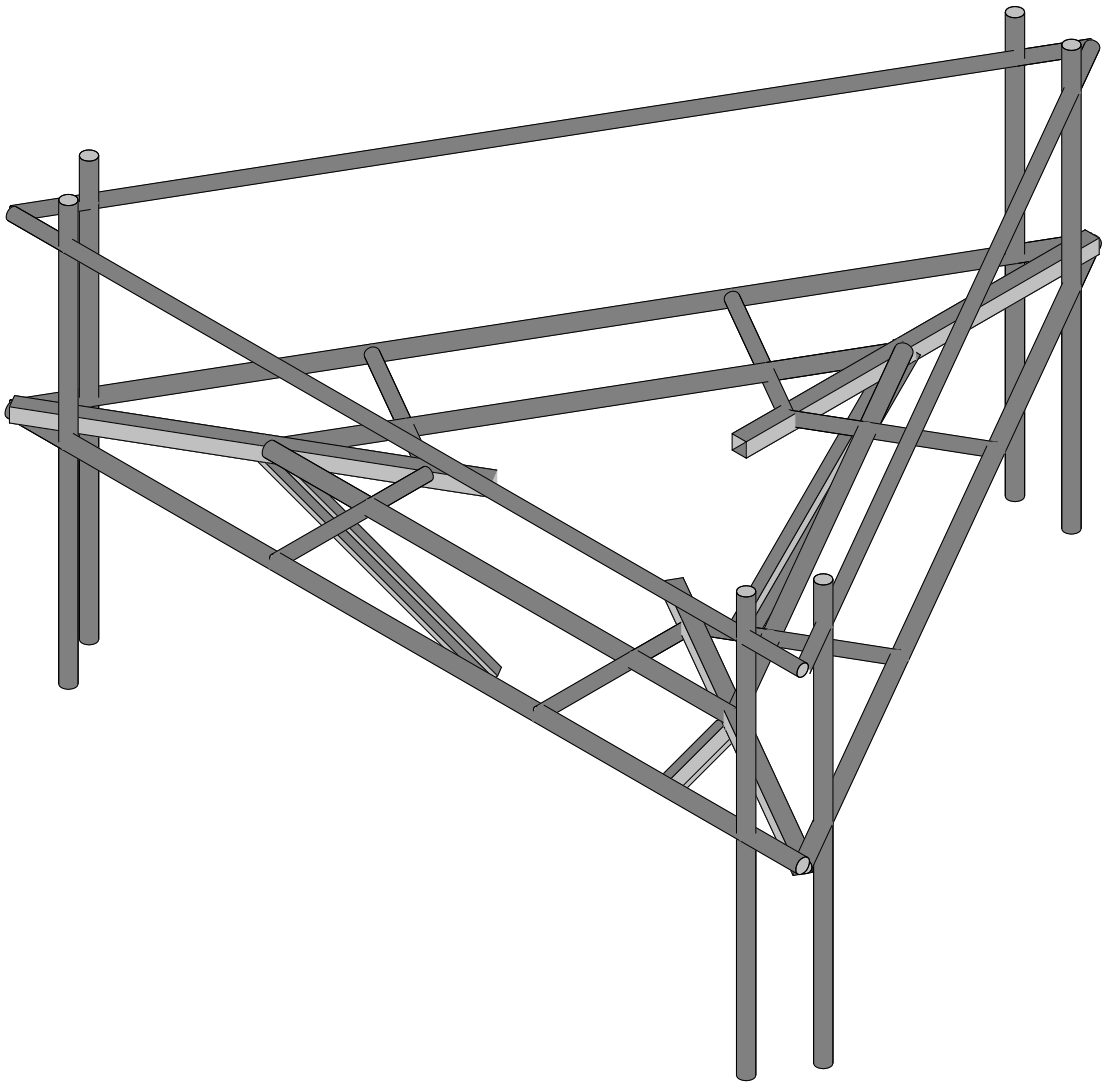
526-104	Proposed Modification	CT33XC573.R3D



Envelope Only Solution

Infinigy Engineering PLLC	CT33XC537	
NRO		May 12, 2018 at 1:47 PM
526-104		CT33XC573.R3D

Site Name:	CT33XC573
Client:	Airosmith
Carrier:	Sprint
Engineer:	NRO
Date:	5/12/2018

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INFINIGY WIND LOAD CALCULATOR 3.0.2

Site Information Inputs:

Adopted Building Code:	2012 IBC
Structure Load Standard:	TIA-222-G
Antenna Load Standard:	TIA-222-G
Structure Risk Category:	II
Structure Type:	Mount - Platform
Number of Sectors:	3
Structure Shape 1:	Round

Rooftop Inputs:

Rooftop Wind Speed-Up?:	No

Wind Loading Inputs:

Design Wind Velocity:	101	mph (nominal 3-second gust)
Wind Centerline 1 (z_1):	140.0	ft
Side Face Angle (θ):	60	degrees
Exposure Category:	B	
Topographic Category:	5	
Crest Height (H):	105	ft
Topographic Feature:	Hill	
Slope Distance (L):	500	ft
Distance from Crest (x):	25	ft

Wind with No Ice		
q_z (psf)	Gh	F_{ST} (psf)
29.20	1.00	**35.04**

Wind with Ice		
q_z (psf)	Gh	F_{ST} (psf)
7.16	1.00	**22.38**

Ice Loading Inputs:

Is Ice Loading Needed?:	Yes	
Ice Wind Velocity:	50	mph (nominal 3-second gust)
Base Ice Thickness:	1.00	in

Input Appurtenance Information and Load Placements:

Appurtenance Name	Elevation (ft)	Total Quantity	Ka	Front Shape	Side Shape	q_z (psf)	EPA (ft^2)	Fz (lbs)	Fx (lbs)	Fz(60) (lbs)	Fx(30) (lbs)
Commscope NNVV-65B-R4	140.0	3	1.00	Flat	Flat	29.20	12.27	358.28	167.88	215.48	310.68
RFS APXVTM14-ALU-I20	140.0	3	1.00	Flat	Flat	29.20	6.34	185.18	105.32	125.29	165.21
TD-RRH8x20-25	140.0	3	1.00	Flat	Flat	29.20	3.70	108.15	37.78	55.37	90.56
RRH2x50-800	140.0	3	1.00	Flat	Flat	29.20	1.70	49.66	37.44	40.49	46.60
RRH2x50-800	140.0	3	1.00	Flat	Flat	29.20	1.70	49.66	37.44	40.49	46.60
Alcatel-Lucent 1900 MHz RRH	140.0	3	1.00	Flat	Flat	29.20	2.31	67.52	69.34	68.89	67.97

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N7	N17			HSS3X3X3/16	Beam	Tube	A500 Gr.B...	Typical
2	M2	N23	N20			HSS3X3X3/16	Beam	Tube	A500 Gr.B...	Typical
3	M3	N26	N36			HSS3X3X3/16	Beam	Tube	A500 Gr.B...	Typical
4	M4	N1	N37			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
5	M5	N2	N38			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
6	M6	N3	N39			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
7	M7	N4	N40			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
8	M8	N5	N41			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
9	M9	N6	N42			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
10	M10	N10	N15			PIPE 2 STD	Beam	Pipe	A53 Gr.B	Typical
11	M11	N13	N15			PIPE 2 STD	Beam	Pipe	A53 Gr.B	Typical
12	M12	N16	N21			PIPE 2 STD	Beam	Pipe	A53 Gr.B	Typical
13	M13	N27	N21			PIPE 2 STD	Beam	Pipe	A53 Gr.B	Typical
14	M14	N28	N30			PIPE 2 STD	Beam	Pipe	A53 Gr.B	Typical
15	M15	N33	N30			PIPE 2 STD	Beam	Pipe	A53 Gr.B	Typical
16	M16	N7	N36			PIPE 2.5 STD	Column	Pipe	A53 Gr.B	Typical
17	M17	N7	N23			PIPE 2.5 STD	Column	Pipe	A53 Gr.B	Typical
18	M18	N11	N22			PIPE 2.5 STD	Column	Pipe	A53 Gr.B	Typical
19	M19	N11	N32			PIPE 2.5 STD	Column	Pipe	A53 Gr.B	Typical
20	M20	N32	N22			PIPE 2.5 STD	Column	Pipe	A53 Gr.B	Typical
21	M21	N36	N23			PIPE 2.5 STD	Column	Pipe	A53 Gr.B	Typical
22	M22	N49	N51			PIPE 2 STD	Beam	Pipe	A53 Gr.B	Typical
23	M23	N49	N50			PIPE 2 STD	Beam	Pipe	A53 Gr.B	Typical
24	M24	N51	N50			PIPE 2 STD	Beam	Pipe	A53 Gr.B	Typical
25	M25	N52	N53			PRK-1245	Beam	Double Angle (...	A36 Gr.36	Typical
26	M26	N55	N56			PRK-1245	Beam	Double Angle (...	A36 Gr.36	Typical
27	M27	N58	N59			PRK-1245	Beam	Double Angle (...	A36 Gr.36	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	Hot Rolled Steel				
2	A36 Gr.36	LL2.5x2.5x3x6	3	152.7	78
3	A500 Gr.B Rect	HSS3x3x3	3	225	129.7
4	A53 Gr.B	PIPE_2.0	9	698	201.9
5	A53 Gr.B	PIPE_2.5	12	1334.2	609.1
6	Total HR Steel		27	2409.9	1018.6

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(M...	Surface...
1	Self Weight	DL		-1			24			
2	Wind Load AZI 000	WLZ					24		1	
3	Wind Load AZI 090	WLX					24		1	
4	Ice Weight	OL1					24	27		
5	Wind + Ice Load AZI 000	OL2					24		1	
6	Wind + Ice Load AZI 090	OL3					24		1	
7	Service Live 1	LL								
8	Seismic Load AZI 000	ELZ								
9	Seismic Load AZI 090	ELX								
10	BLC 2 Transient Area Loads	None						24		
11	BLC 3 Transient Area Loads	None						24		
12	BLC 5 Transient Area Loads	None						24		
13	BLC 6 Transient Area Loads	None						24		

Load Combinations

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
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																		
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...	.082																
40	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	.071	W...	.041														
41	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	.041	W...	.071														
42	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5			W...	.082														
43	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.041	W...	.071														
44	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.071	W...	.041														
45	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.082																
46	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.071	W...	-.041														
47	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.041	W...	-.071														
48	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5			W...	-.082														
49	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	.041	W...	-.071														
50	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	.071	W...	-.041														
51	(1.2+0.2Sds) + 1.0 E A...	Yes	Y		DL	1.2...	ELZ	1																		
52	(1.2+0.2Sds) + 1.0 E A...	Yes	Y		DL	1.2...	ELZ	.866	ELX	.5																
53	(1.2+0.2Sds) + 1.0 E A...	Yes	Y		DL	1.2...	ELZ	.5	ELX	.866																
54	(1.2+0.2Sds) + 1.0 E A...	Yes	Y		DL	1.2...			ELX	1																
55	(1.2+0.2Sds) + 1.0 E A...	Yes	Y		DL	1.2...	ELZ	-.5	ELX	.866																
56	(1.2+0.2Sds) + 1.0 E A...	Yes	Y		DL	1.2...	ELZ	-.866	ELX	.5																

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
57	(1.2+0.2Sds) + 1.0 E A..	Yes	Y		DL	1.2...	ELZ	-1																
58	(1.2+0.2Sds) + 1.0 E A..	Yes	Y		DL	1.2...	ELZ	-.866	ELX	-.5														
59	(1.2+0.2Sds) + 1.0 E A..	Yes	Y		DL	1.2...	ELZ	-.5	ELX	-.866														
60	(1.2+0.2Sds) + 1.0 E A..	Yes	Y		DL	1.2...			ELX	-1														
61	(1.2+0.2Sds) + 1.0 E A..	Yes	Y		DL	1.2...	ELZ	.5	ELX	-.866														
62	(1.2+0.2Sds) + 1.0 E A..	Yes	Y		DL	1.2...	ELZ	.866	ELX	-.5														
63	(0.9-0.2Sds) + 1.0E AZ..	Yes	Y		DL	.862	ELZ	1																
64	(0.9-0.2Sds) + 1.0E AZ..	Yes	Y		DL	.862	ELZ	.866	ELX	.5														
65	(0.9-0.2Sds) + 1.0E AZ..	Yes	Y		DL	.862	ELZ	.5	ELX	.866														
66	(0.9-0.2Sds) + 1.0E AZ..	Yes	Y		DL	.862			ELX	1														
67	(0.9-0.2Sds) + 1.0E AZ..	Yes	Y		DL	.862	ELZ	-.5	ELX	.866														
68	(0.9-0.2Sds) + 1.0E AZ..	Yes	Y		DL	.862	ELZ	-.866	ELX	.5														
69	(0.9-0.2Sds) + 1.0E AZ..	Yes	Y		DL	.862	ELZ	-1																
70	(0.9-0.2Sds) + 1.0E AZ..	Yes	Y		DL	.862	ELZ	-.866	ELX	-.5														
71	(0.9-0.2Sds) + 1.0E AZ..	Yes	Y		DL	.862	ELZ	-.5	ELX	-.866														
72	(0.9-0.2Sds) + 1.0E AZ..	Yes	Y		DL	.862			ELX	-1														
73	(0.9-0.2Sds) + 1.0E AZ..	Yes	Y		DL	.862	ELZ	.5	ELX	-.866														
74	(0.9-0.2Sds) + 1.0E AZ..	Yes	Y		DL	.862	ELZ	.866	ELX	-.5														

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	N26	max	3667.06	6	-137.381	22	3868.889	24	473.638	28	1923.381	12	668.82	33
2		min	-2980.675	24	-1118.405	30	-4282.072	6	-134.111	21	-1925.999	5	49.687	14
3	N17	max	2707.913	5	-86.766	20	4913.846	2	-79.964	20	2597.338	11	244.793	23
4		min	-2696.945	11	-1132.45	27	-4109.959	20	-778.2	27	-2611.76	5	-244.41	17
5	N20	max	4419.032	16	-169.969	19	3857.831	16	434.272	38	1645.461	10	-44.999	25
6		min	-5110.084	10	-1084.094	37	-4259.671	10	-122.147	19	-1668.378	4	-691.041	32
7	N52	max	4.645	36	4295.989	27	-537.55	20	0	1	.508	11	.518	5
8		min	-4.661	30	549.319	20	-4234.2	27	0	1	-.518	5	-.508	11
9	N55	max	-528.74	24	4274.167	31	2109.502	31	.705	4	.799	22	.399	22
10		min	-3646.107	31	621.476	24	303.588	24	-.692	22	-.814	4	-.407	4
11	N58	max	3620.681	35	4244.817	35	2094.929	35	.678	23	.783	23	.391	23
12		min	569.309	16	668.202	16	326.711	16	-.69	5	-.797	5	-.399	5
13	Totals:	max	9335.904	5	9284.466	29	9335.888	2						
14		min	-9335.904	23	1823.932	63	-9335.888	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	M7	PIPE_2.5	.932	44.5	8	.367	44.5		8	32332....	50715	3596...	3596...	...	H3-6
2	M4	PIPE_2.5	.876	44.5	...	.324	44.5		11	32332....	50715	3596...	3596...	...	H3-6
3	M9	PIPE_2.5	.761	44.5	8	.354	44.5		8	32332....	50715	3596...	3596...	...	H3-6
4	M6	PIPE_2.5	.700	44.5	...	.322	44.5		12	32332....	50715	3596...	3596...	...	H3-6
5	M24	PIPE_2.0	.669	12....	2	.314	168		8	5018.672	32130	1871...	1871...	...	H1-...
6	M23	PIPE_2.0	.644	12....	...	.343	0		11	5018.672	32130	1871...	1871...	...	H1-...
7	M1	HSS3x...	.562	39....	...	.169	64.8...	z	17	58509.53	78246	6796.5	6796.5	...	H1-...
8	M3	HSS3x...	.559	35....	...	.122	35.9...	y	28	58509.53	78246	6796.5	6796.5	...	H1-...
9	M2	HSS3x...	.552	39....	...	.121	39.06	y	33	58509.53	78246	6796.5	6796.5	...	H1-...
10	M17	PIPE_2.5	.496	168	...	.277	0		11	11606.18	50715	3596...	3596...	...	H1-...
11	M22	PIPE_2.0	.477	0	...	.226	10.5		5	5018.672	32130	1871...	1871...	...	H1-...
12	M21	PIPE_2.5	.476	168	8	.309	168		8	11606.18	50715	3596...	3596...	...	H1-...
13	M12	PIPE_2.0	.379	0	5	.195	19.87		37	29451....	32130	1871...	1871...	...	H1-...
14	M16	PIPE_2.5	.370	56	4	.182	168		31	11606.18	50715	3596...	3596...	...	H1-...
15	M8	PIPE_2.5	.355	44.5	...	.130	44.5		2	32332....	50715	3596...	3596...	...	H1-...
16	M5	PIPE_2.5	.350	44.5	...	.114	44.5		5	32332....	50715	3596...	3596...	...	H1-...

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

	Member	Shape	Code Check	Lo...	...	Shear C...	Loc[in]	...	LC	phi*Pnc...	phi*Pnt ...	phi*...	phi*...	...	Eqn
17	M19	PIPE_2.5	.329	0	...	.095	0		28	29148....	50715	3596...	3596...	....	H1-...
18	M18	PIPE_2.5	.329	0	...	.095	98.7...		36	29148....	50715	3596...	3596...	....	H1-...
19	M20	PIPE_2.5	.327	0	...	.093	0		30	29148....	50715	3596...	3596...	....	H1-...
20	M10	PIPE_2.0	.315	19....	....	.201	19.87		36	29451....	32130	1871...	1871...	....	H1-...
21	M14	PIPE_2.0	.315	19....	....	.200	19.87		28	29451....	32130	1871...	1871...	....	H1-...
22	M11	PIPE_2.0	.313	19....	....	.195	19.87		30	29451....	32130	1871...	1871...	....	H1-...
23	M13	PIPE_2.0	.308	19....	....	.201	19.87		31	29451....	32130	1871...	1871...	....	H1-...
24	M15	PIPE_2.0	.297	19....	....	.191	19.87		34	29451....	32130	1871...	1871...	....	H1-...
25	M25	LL2.5x2...	.141	0	...	.004	50.9...	y	5	42809....	58320	4643...	2549...	1	H1-...
26	M26	LL2.5x2...	.140	0	...	.005	0	y	4	42809....	58320	4643...	2549...	1	H1-...
27	M27	LL2.5x2...	.139	0	...	.005	50.9...	y	5	42809....	58320	4643...	2549...	1	H1-...

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**178 ft Monopole**
ATC Site Name	:	**Andover-bunker Hill Road, CT**
ATC Site Number	:	**302472**
Engineering Number	:	**OAA710391_C3_05**
Proposed Carrier	:	**Sprint Nextel**
Carrier Site Name	:	**Andover-Bunker Hill Road**
Carrier Site Number	:	**CT33XC573**
Site Location	:	**104 Bunker Hill Road** **Andover, CT 06232-1301** **41.737800,-72.349800**
County	:	**Tolland**
Date	:	**June 21, 2018**
Max Usage	:	**70%**
Result	:	**Pass**

Prepared By:
John Smith
Engineer Intern

Reviewed By:

COA: PEC.0001553

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Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 178 ft monopole to reflect the change in loading by Sprint Nextel.

Supporting Documents

Tower Drawings	PJF Job #29200-028, dated January 14, 2000
Foundation Drawing	PJF Job #29200-012, dated January 14, 2000
Geotechnical Report	Tectonic Project #1170.C966, dated November 30, 1999

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.

Basic Wind Speed:	97 mph (3-Second Gust, Vasd)/ 125 mph (3-second Gust Vult)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1" radial ice concurrent
Code:	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	3
Crest Height:	143 ft
Spectral Response:	Ss = 0.18, S_1 = 0.06
Site Class:	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. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
178.0	182.0	12	Powerwave 7120.16.05.00 / A-800-110-13I-0-N	Low Profile Platform	(2) 1 1/4" Coax	Sprint Nextel
168.0	-	-	-	-	(6) 1 5/8" Coax	
160.0	160.0	3	Alcatel-Lucent RRH2x60 700	Platform w/ Handrails	(12) 1 5/8" Coax (2) 1.58" Hybrid	Verizon
		3	Alcatel-Lucent B66a RRH4x45 (AWS-3)			
		2	RFS DB-T1-6Z-8AB-0Z			
		6	Antel LPA-80080/4CF ___			
		6	Andrew SBNHH-1D65B			
	158.0	6	RFS FD9R6004/2C-3L			
147.0	147.0	3	Kathrein Smart Bias Tee	Low Profile Platform	(12) 1 5/8" Coax	T-Mobile
		3	Ericsson KRY 112 144/1			
		3	EMS RR90-17-02DP			
		3	Andrew LNX-6515DS-VTM			
137.0	137.0	6	LGP LGP21903	Low Profile Platform	(12) 1 1/4" Coax (2) 0.78" 8 AWG 6 (1) 0.39" Cable (1) 3" Conduit	AT&T Mobility
		6	Powerwave LGP21401			
		1	Raycap DC6-48-60-18-8F			
		3	Ericsson RRUS 11 (Band 12) (55 lb)			
		6	Powerwave 7770.00			
		3	KMW AM-X-CD-16-65-00T-RET			
110.0	110.0	1	GPS	Stand-Off	(1) 1/2" Coax	Verizon
88.0	88.0	1	GPS	Stand-Off	(2) 1/2" Coax	Sprint Nextel
12.0	12.0	1	PCTEL GPS-TMG-HR-26N	Stand-Off	(1) 1/2" Coax	AT&T Mobility

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
168.0	168.0	9	72" x 6" Panel	Low Profile PLatform	-	Sprint Nextel

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
168.0	168.0	6	Alcatel-Lucent RRH2x50-08	Platform w/ Handrails	(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			
97.0	97.0	1	GPS	Stand-Off	(1) 1/2" Coax	

[1]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	68%	Pass
Shaft	70%	Pass
Base Plate	59%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	4,619.8	53%
Axial (Kips)	62.0	55%
Shear (Kips)	38.0	24%

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) (°)
168.0	Alcatel-Lucent RRH2x50-08	Sprint Nextel	2.516	1.707
	Alcatel-Lucent 1900 MHz 4X45 RRH			
	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
	RFS APXVTM14-ALU-I20			
	Commscope NNVV-65B-R4			
97.0	GPS		0.783	0.993

***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:

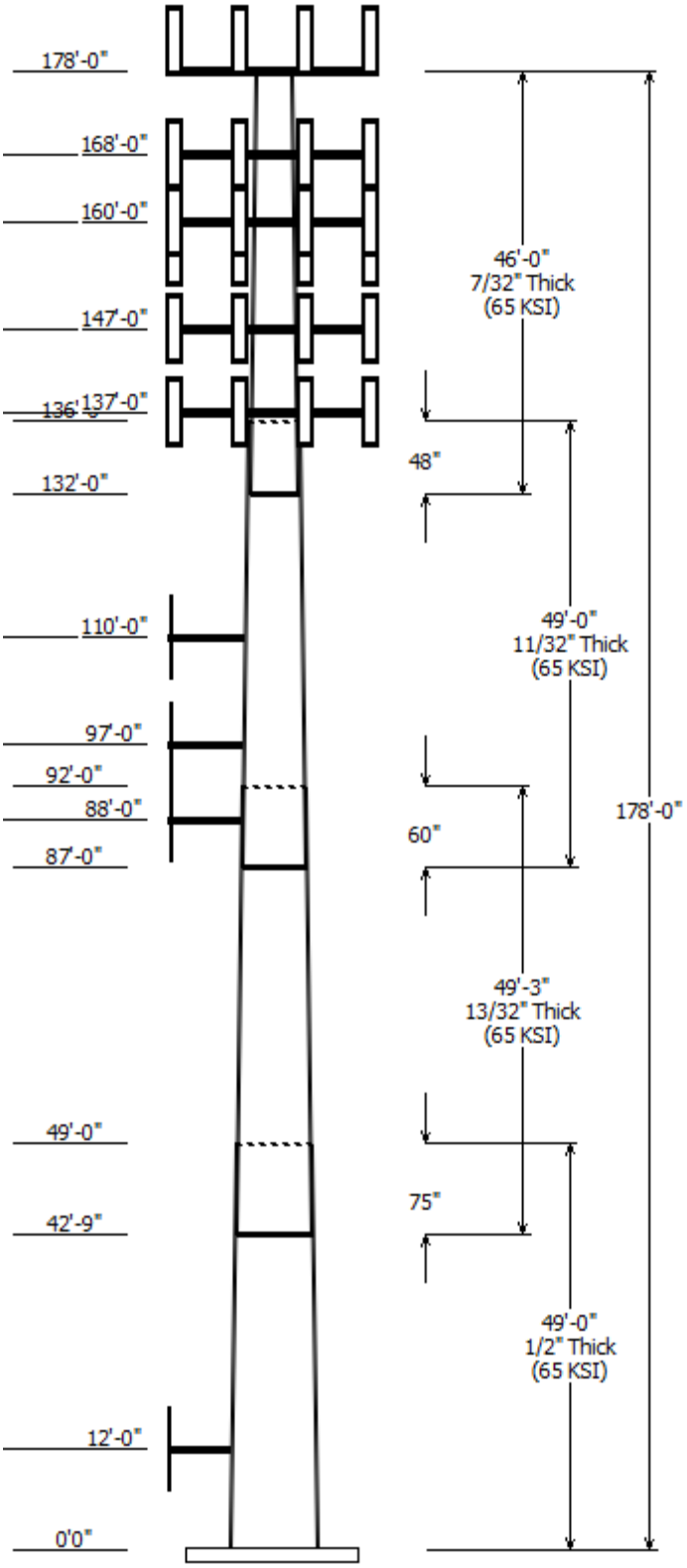
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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 :	302472	Code:	ANSI/TIA-222-G
Location :	Andover-bunker Hill Road, CT		
Description :			
Client :	SPRINT NEXTEL	Struct Class :	II
Shape :	18 Sides	Exposure :	B
Height :	178.00 (ft)	Topo :	3
Base Elev (ft):	0.00		
Taper:	0.207008 (in/ft)		

Sections Properties

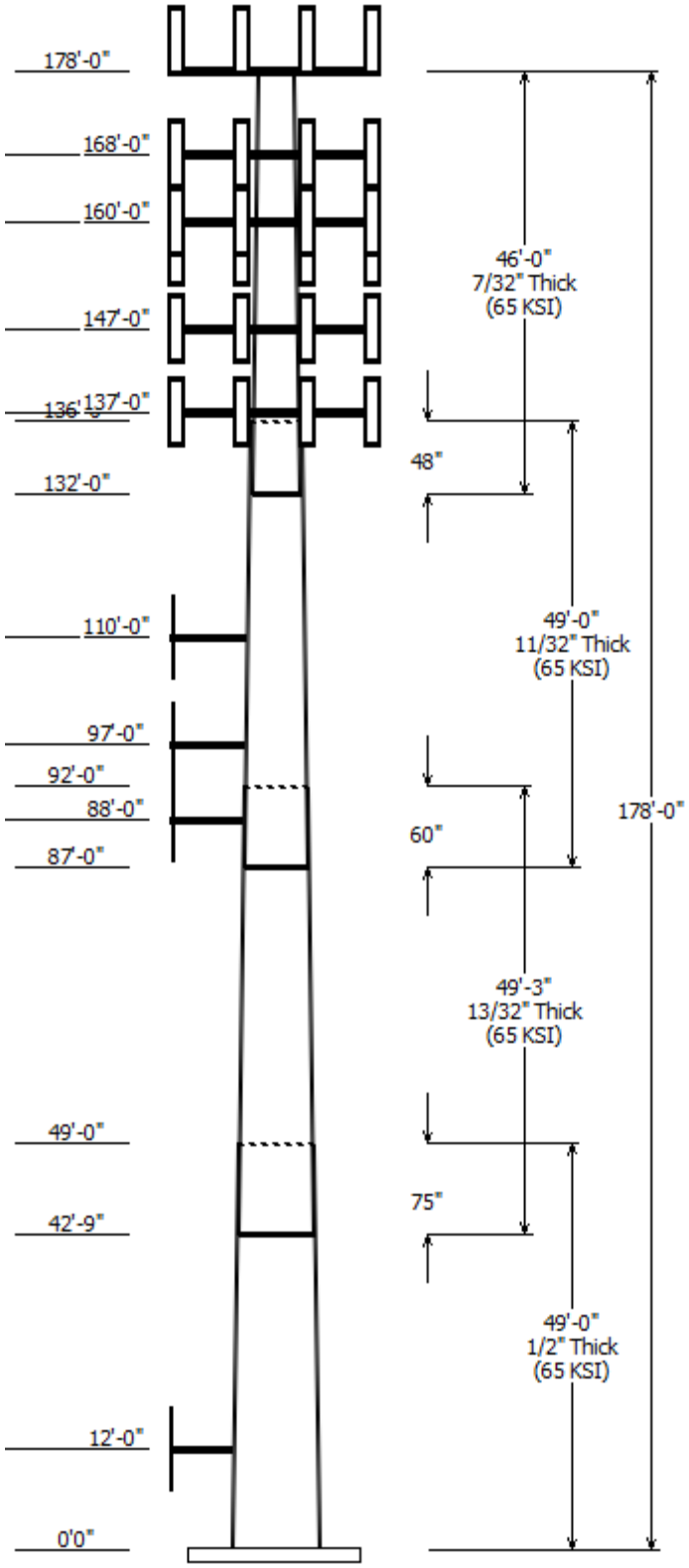
Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	49.000	46.76	56.91	0.500		0.000	18 Sides	65
2	49.250	38.67	48.87	0.406	Slip Joint	75.000	18 Sides	65
3	49.000	30.25	40.40	0.344	Slip Joint	60.000	18 Sides	65
4	46.000	22.00	31.52	0.219	Slip Joint	48.000	18 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
178.000	178.000	1	Flat Low Profile Platform
178.000	182.000	12	Powerwave Allgon
168.000	168.000	3	Commscope NNVV-65B-R4
168.000	168.000	3	Alcatel-Lucent TD-RRH8x20-25
168.000	168.000	3	Alcatel-Lucent 1900 MHz 4X45
168.000	168.000	6	Alcatel-Lucent RRH2x50-08
168.000	168.000	1	Flat Platform w/ Handrails
168.000	168.000	3	RFS APXVTM14-ALU-I20
160.000	160.000	1	Flat Platform w/ Handrails
160.000	160.000	6	Andrew SBNHH-1D65B
160.000	160.000	6	Antel LPA-80080/4CF ___
160.000	160.000	2	RFS DB-T1-6Z-8AB-0Z
160.000	160.000	3	Alcatel-Lucent B66a RRH4x45
160.000	160.000	3	Alcatel-Lucent RRH2x60 700
160.000	158.000	6	RFS FD9R6004/2C-3L
147.000	147.000	1	Round Low Profile Platform
147.000	147.000	3	Andrew LNX-6515DS-VTM
147.000	147.000	3	EMS RR90-17-02DP
147.000	147.000	3	Ericsson KRY 112 144/1
147.000	147.000	3	Kathrein Smart Bias Tee
137.000	137.000	1	Flat Low Profile Platform
137.000	137.000	3	KMW AM-X-CD-16-65-00T-RET
137.000	137.000	6	Powerwave 7770.00
137.000	137.000	3	Ericsson RRUS 11 (Band 12) (55
137.000	137.000	1	Raycap DC6-48-60-18-8F
137.000	137.000	6	Powerwave LGP21401
137.000	137.000	6	LGP Allgon LGP21903
110.000	110.000	1	Stand-Off
110.000	110.000	1	GPS
97.000	97.000	1	Stand-Off
97.000	97.000	1	GPS
88.000	88.000	1	Stand-Off
88.000	88.000	1	GPS
12.000	12.000	1	Stand-Off
12.000	12.000	1	PCTEL GPS-TMG-HR-26N

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	12.000	1/2" Coax	No
0.000	88.000	1/2" Coax	No
0.000	97.000	1/2" Coax	No



0.000	110.0	1/2" Coax	No
0.000	137.0	0.39" (10 mm)	No
0.000	137.0	0.78" (19.7mm) 8	No
0.000	137.0	1 1/4" Coax	No
0.000	137.0	3" Conduit	No
0.000	147.0	1 5/8" Coax	No
0.000	160.0	1 5/8" Coax	No
0.000	160.0	1.58" (40.1mm)	No
0.000	168.0	1 1/4" Hybriflex	No
0.000	168.0	1 5/8" Coax	No
0.000	178.0	1 1/4" Coax	No

Load Cases

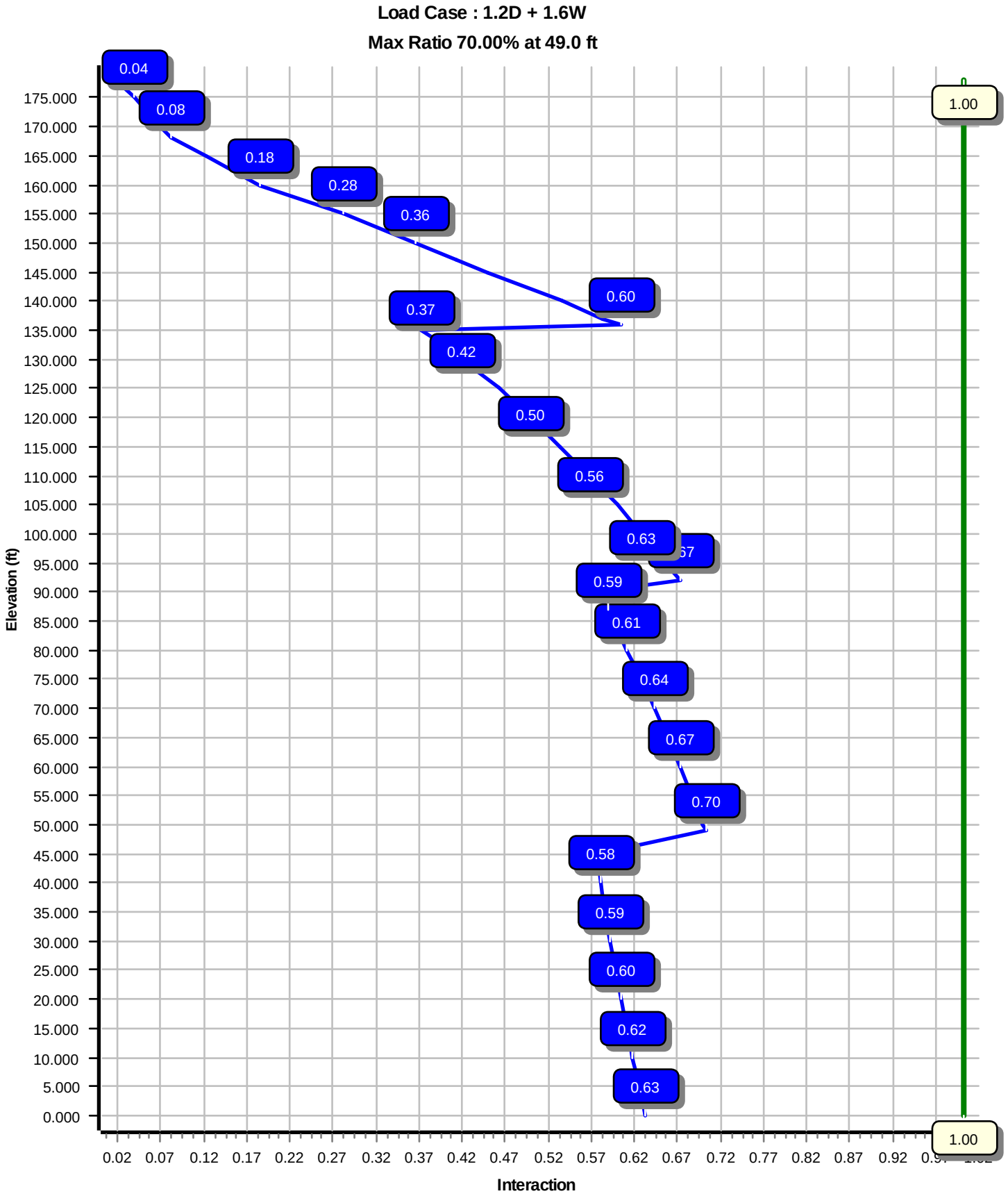
1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) 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	4619.80	37.96	62.04
0.9D + 1.6W	4554.40	37.93	46.51
1.2D + 1.0Di + 1.0Wi	1385.39	11.27	104.95
(1.2 + 0.2Sds) * DL + E ELFM	295.39	2.02	61.86
(1.2 + 0.2Sds) * DL + E EMAM	354.19	2.67	61.86
(0.9 - 0.2Sds) * DL + E ELFM	290.03	2.02	43.11
(0.9 - 0.2Sds) * DL + E EMAM	347.54	2.67	43.11
1.0D + 1.0W	1096.39	9.07	51.75

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 70.00% at 49.0 ft
0.04
0.08
0.18
0.28
0.36
0.60
0.37
0.42
0.50
0.56
0.63
0.59
0.61
0.64
0.67
0.70
0.58
0.59
0.60
0.62
0.63
1.00
1.00
Elevation (ft)
175.000
170.000
165.000
160.000
155.000
150.000
145.000
140.000
135.000
130.000
125.000
120.000
115.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
0.02 0.07 0.12 0.17 0.22 0.27 0.32 0.37 0.42 0.47 0.52 0.57 0.62 0.67 0.72 0.77 0.82 0.87 0.92
Interaction

Site Number: 302472 Code: ANSI/TIA-222-G

Site Name: Andover-bunker Hill Road, CT Engineering Number:OAA710391_C3_05 6/21/2018 4:55:53 PM

Customer: SPRINT NEXTEL

Analysis Parameters

Location :	TOLLAND County, CT	Height (ft) :	178
Code :	ANSI/TIA-222-G	Base Diameter (in) :	56.91
Shape :	18 Sides	Top Diameter (in) :	22.00
Pole Type :	Taper	Taper (in/ft) :	0.207
Pole Manfacturer :	PJF	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	97 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 mph
Topographic Category:	3	Operational Wind Speed:	60 mph
Crest Height:	143 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):	2.80				
T_L (sec):	6	p:	1.3	C_s:	0.030
S_s:	0.176	S_1:	0.063	C_s Max:	0.030
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.188	S_{d1}:	0.101		

Load Cases

1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 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 ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 302472 Code: ANSI/TIA-222-G

Site Name: Andover-bunker Hill Road, CT Engineering Number:OAA710391_C3_05 6/21/2018 4:55:53 PM

Customer: SPRINT NEXTEL

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	49.000	0.5000	65		0.00	13,584	56.91	0.00	89.52	35990.1	18.31	113.82	46.76	49.00	73.42	19857.1	14.73	93.53	0.207008
2-18	49.250	0.4063	65	Slip	75.00	9,371	48.87	42.75	62.49	18546.7	19.45	120.30	38.67	92.00	49.35	9131.9	15.02	95.21	0.207008
3-18	49.000	0.3438	65	Slip	60.00	6,364	40.40	87.00	43.70	8859.4	18.96	117.53	30.25	136.00	32.64	3689.5	13.76	88.02	0.207008
4-18	46.000	0.2188	65	Slip	48.00	2,885	31.52	132.00	21.73	2690.8	23.65	144.10	22.00	178.00	15.12	906.4	15.97	100.57	0.207008
				Shaft Weight		32,204													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Distance From Face (ft)	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor
178.00	Flat Low Profile Platform	1	0.000	0.000	1500.00	26.100	1.00
178.00	Powerwave Allgon 7120.16.05.00	12	0.000	4.000	15.40	5.320	0.71
168.00	Alcatel-Lucent 1900 MHz 4X45 R	3	0.000	0.000	60.00	2.320	0.67
168.00	Alcatel-Lucent RRH2x50-08	6	0.000	0.000	52.90	1.700	0.50
168.00	Alcatel-Lucent TD-RRH8x20-25 w	3	0.000	0.000	70.00	4.050	0.67
168.00	Commscope NNVV-65B-R4	3	0.000	0.000	77.40	12.270	0.64
168.00	Flat Platform w/ Handrails	1	0.000	0.000	2000.00	42.400	1.00
168.00	RFS APXVTM14-ALU-I20	3	0.000	0.000	56.20	6.340	0.66
160.00	Alcatel-Lucent B66a RRH4x45 (A	3	0.000	0.000	67.00	2.660	0.67
160.00	Alcatel-Lucent RRH2x60 700	3	0.000	0.000	56.70	2.150	0.67
160.00	Andrew SBNHH-1D65B	6	0.000	0.000	50.70	8.170	0.69
160.00	Antel LPA-80080/4CF ___	6	0.000	0.000	12.00	5.400	0.64
160.00	Flat Platform w/ Handrails	1	0.000	0.000	2000.00	42.400	1.00
160.00	RFS DB-T1-6Z-8AB-0Z	2	0.000	0.000	44.00	4.800	0.67
160.00	RFS FD9R6004/2C-3L	6	0.000	-2.000	2.60	0.370	0.50
147.00	Andrew LNX-6515DS-VTM	3	0.000	0.000	51.30	11.430	0.70
147.00	EMS RR90-17-02DP	3	0.000	0.000	13.50	4.360	0.64
147.00	Ericsson KRY 112 144/1	3	0.000	0.000	11.00	0.410	0.50
147.00	Kathrein Smart Bias Tee	3	0.000	0.000	3.31	0.090	0.50
147.00	Round Low Profile Platform	1	0.000	0.000	1500.00	21.700	1.00
137.00	Ericsson RRUS 11 (Band 12) (55	3	0.000	0.000	55.00	2.520	0.67
137.00	Flat Low Profile Platform	1	0.000	0.000	1500.00	26.100	1.00
137.00	KMW AM-X-CD-16-65-00T-RET	3	0.000	0.000	48.50	8.020	0.67
137.00	LGP Allgon LGP21903	6	0.000	0.000	5.50	0.270	0.50
137.00	Powerwave 7770.00	6	0.000	0.000	35.00	5.510	0.65
137.00	Powerwave LGP21401	6	0.000	0.000	14.10	1.100	0.50
137.00	Raycap DC6-48-60-18-8F	1	0.000	0.000	31.80	1.280	1.00
110.00	GPS	1	0.000	0.000	10.00	1.000	1.00
110.00	Stand-Off	1	0.000	0.000	100.00	3.000	1.00
97.00	GPS	1	0.000	0.000	10.00	1.000	1.00
97.00	Stand-Off	1	0.000	0.000	100.00	3.000	1.00
88.00	GPS	1	0.000	0.000	10.00	1.000	1.00
88.00	Stand-Off	1	0.000	0.000	100.00	3.000	1.00
12.00	PCTEL GPS-TMG-HR-26N	1	0.000	0.000	0.60	0.090	1.00
12.00	Stand-Off	1	0.000	0.000	100.00	3.000	1.00
Totals	Num Loadings:35	106			11981.73		

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Projected Width (in)	Exposed To Wind	Carrier
0.00	178.00	2	1 1/4" Coax	1.55	0.63	N	0.00	N	Sprint Nextel
0.00	168.00	4	1 1/4" Hybriflex Cable	1.54	1.00	N	0.00	N	Sprint Nextel

0.00	168.00	6	1 5/8" Coax	1.98	0.82	N	0.00	N	Sprint Nextel
0.00	160.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	Verizon
0.00	160.00	2	1.58" (40.1mm) Hybrid	1.58	1.61	N	0.00	N	Verizon
0.00	147.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	T-Mobile
0.00	137.00	1	0.39" (10 mm) Cable	0.39	0.07	N	0.00	N	AT&T Mobility
0.00	137.00	2	0.78" (19.7mm) 8	0.78	0.59	N	0.00	N	AT&T Mobility
0.00	137.00	12	1 1/4" Coax	1.55	0.63	N	0.00	N	AT&T Mobility
0.00	137.00	1	3" Conduit	3.50	7.58	N	0.00	N	AT&T Mobility
0.00	110.00	1	1/2" Coax	0.63	0.15	N	0.00	N	Verizon
0.00	97.00	1	1/2" Coax	0.63	0.15	N	0.00	N	Sprint Nextel
0.00	88.00	2	1/2" Coax	0.63	0.15	N	0.00	N	Sprint Nextel
0.00	12.00	1	1/2" Coax	0.63	0.15	N	0.00	N	AT&T Mobility

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.5000	56.910	89.519	35,990.1	18.31	113.82	79.9	1245.	0.0	0.0
5.00		0.5000	55.875	87.877	34,045.1	17.94	111.75	80.3	1200.	0.0	1,509.1
10.00		0.5000	54.840	86.234	32,171.5	17.58	109.68	80.7	1155.	0.0	1,481.2
12.00		0.5000	54.426	85.577	31,441.7	17.43	108.85	80.9	1137.	0.0	584.6
15.00		0.5000	53.805	84.592	30,367.9	17.21	107.61	81.2	1111.	0.0	868.6
20.00		0.5000	52.770	82.949	28,633.1	16.85	105.54	81.6	1068.	0.0	1,425.3
25.00		0.5000	51.735	81.307	26,965.5	16.48	103.47	82.0	1026.	0.0	1,397.3
30.00		0.5000	50.700	79.664	25,364.1	16.12	101.40	82.4	985.4	0.0	1,369.4
35.00		0.5000	49.665	78.022	23,827.3	15.75	99.33	82.6	944.9	0.0	1,341.4
40.00		0.5000	48.630	76.379	22,353.9	15.39	97.26	82.6	905.4	0.0	1,313.5
42.75	Bot - Section 2	0.5000	48.060	75.476	21,570.0	15.19	96.12	82.6	884.0	0.0	710.5
45.00		0.5000	47.595	74.736	20,942.5	15.02	95.19	82.6	866.7	0.0	1,051.2
49.00	Top - Section 1	0.4063	47.579	60.824	17,100.7	18.89	117.12	79.2	707.9	0.0	1,843.5
50.00		0.4063	47.372	60.557	16,876.6	18.80	116.61	79.3	701.7	0.0	206.5
55.00		0.4063	46.337	59.223	15,785.2	18.35	114.06	79.8	671.0	0.0	1,019.0
60.00		0.4063	45.302	57.888	14,741.9	17.90	111.51	80.3	640.9	0.0	996.3
65.00		0.4063	44.267	56.554	13,745.6	17.45	108.96	80.9	611.6	0.0	973.5
70.00		0.4063	43.232	55.219	12,795.3	17.00	106.42	81.4	582.9	0.0	950.8
75.00		0.4063	42.197	53.884	11,889.8	16.55	103.87	81.9	555.0	0.0	928.1
80.00		0.4063	41.162	52.550	11,028.1	16.10	101.32	82.5	527.7	0.0	905.4
85.00		0.4063	40.127	51.215	10,209.0	15.65	98.77	82.6	501.1	0.0	882.7
87.00	Bot - Section 3	0.4063	39.713	50.681	9,893.1	15.47	97.75	82.6	490.7	0.0	346.7
88.00		0.4063	39.506	50.415	9,737.6	15.38	97.24	82.6	485.5	0.0	320.3
90.00		0.4063	39.092	49.881	9,431.5	15.20	96.23	82.6	475.2	0.0	635.6
92.00	Top - Section 2	0.3438	39.365	42.573	8,190.3	18.43	114.52	79.7	409.8	0.0	628.9
95.00		0.3438	38.744	41.896	7,805.4	18.11	112.71	80.1	396.8	0.0	431.1
97.00		0.3438	38.330	41.444	7,555.7	17.90	111.51	80.3	388.3	0.0	283.6
100.0		0.3438	37.709	40.767	7,191.1	17.58	109.70	80.7	375.6	0.0	419.6
105.0		0.3438	36.674	39.637	6,609.9	17.05	106.69	81.3	355.0	0.0	684.0
110.0		0.3438	35.639	38.508	6,060.9	16.52	103.68	82.0	335.0	0.0	664.8
115.0		0.3438	34.604	37.379	5,543.2	15.99	100.67	82.6	315.5	0.0	645.6
120.0		0.3438	33.569	36.250	5,055.8	15.46	97.66	82.6	296.6	0.0	626.4
125.0		0.3438	32.534	35.120	4,597.9	14.93	94.64	82.6	278.4	0.0	607.1
130.0		0.3438	31.499	33.991	4,168.5	14.39	91.63	82.6	260.7	0.0	587.9
132.0	Bot - Section 4	0.3438	31.085	33.539	4,004.5	14.18	90.43	82.6	253.7	0.0	229.8
135.0		0.3438	30.464	32.862	3,766.7	13.86	88.62	82.6	243.5	0.0	558.6
136.0	Top - Section 3	0.2188	30.694	21.159	2,482.8	22.98	140.32	74.4	159.3	0.0	183.7
137.0		0.2188	30.487	21.015	2,432.6	22.81	139.37	74.6	157.2	0.0	71.8
140.0		0.2188	29.866	20.584	2,285.9	22.31	136.53	75.2	150.8	0.0	212.3
145.0		0.2188	28.831	19.865	2,054.8	21.48	131.80	76.1	140.4	0.0	344.1
147.0		0.2188	28.417	19.578	1,966.8	21.14	129.91	76.5	136.3	0.0	134.2
150.0		0.2188	27.796	19.147	1,839.7	20.64	127.07	77.1	130.4	0.0	197.7
155.0		0.2188	26.761	18.428	1,640.3	19.81	122.34	78.1	120.7	0.0	319.6
160.0		0.2188	25.726	17.709	1,455.8	18.97	117.61	79.1	111.5	0.0	307.4
165.0		0.2188	24.691	16.991	1,285.6	18.14	112.87	80.1	102.6	0.0	295.2
168.0		0.2188	24.070	16.560	1,190.2	17.64	110.03	80.7	97.4	0.0	171.2
170.0		0.2188	23.656	16.272	1,129.3	17.31	108.14	81.0	94.0	0.0	111.7
175.0		0.2188	22.621	15.554	986.2	16.47	103.41	82.0	85.9	0.0	270.7
178.0		0.2188	22.000	15.122	906.4	15.97	100.57	82.6	81.2	0.0	156.6
											32,204.2

Site Number: 302472 Code: ANSI/TIA-222-G

Site Name: Andover-bunker Hill Road, CT Engineering Number:OAA710391_C3_05 6/21/2018 4:55:54 PM

Customer: SPRINT NEXTEL

Load Case: 1.2D + 1.6W 97 mph with No Ice 26 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

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	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		466.4	0.0					0.0	0.0	466.4	0.0	0.0	0.0
5.00		904.9	1,810.9					0.0	301.3	904.9	2,112.2	0.0	0.0
10.00		606.7	1,777.4					0.0	301.3	606.7	2,078.7	0.0	0.0
12.00	Appurtenance(s)	413.1	701.6	171.5	0.0	0.0	120.7	0.0	120.5	584.6	942.8	0.0	0.0
15.00		634.6	1,042.3					0.0	180.3	634.6	1,222.5	0.0	0.0
20.00		757.9	1,710.3					0.0	300.4	757.9	2,010.7	0.0	0.0
25.00		716.6	1,676.8					0.0	300.4	716.6	1,977.2	0.0	0.0
30.00		686.5	1,643.2					0.0	300.4	686.5	1,943.7	0.0	0.0
35.00		672.3	1,609.7					0.0	300.4	672.3	1,910.1	0.0	0.0
40.00		515.9	1,576.2					0.0	300.4	515.9	1,876.6	0.0	0.0
42.75	Bot - Section 2	331.5	852.6					0.0	165.2	331.5	1,017.8	0.0	0.0
45.00		413.3	1,261.4					0.0	135.2	413.3	1,396.6	0.0	0.0
49.00	Top - Section 1	328.6	2,212.1					0.0	240.3	328.6	2,452.5	0.0	0.0
50.00		387.4	247.8					0.0	60.1	387.4	307.9	0.0	0.0
55.00		637.4	1,222.8					0.0	300.4	637.4	1,523.2	0.0	0.0
60.00		623.3	1,195.5					0.0	300.4	623.3	1,495.9	0.0	0.0
65.00		608.9	1,168.3					0.0	300.4	608.9	1,468.7	0.0	0.0
70.00		594.2	1,141.0					0.0	300.4	594.2	1,441.4	0.0	0.0
75.00		579.5	1,113.8					0.0	300.4	579.5	1,414.2	0.0	0.0
80.00		564.7	1,086.5					0.0	300.4	564.7	1,386.9	0.0	0.0
85.00		388.1	1,059.3					0.0	300.4	388.1	1,359.7	0.0	0.0
87.00	Bot - Section 3	164.6	416.1					0.0	120.2	164.6	536.2	0.0	0.0
88.00	Appurtenance(s)	164.7	384.4	199.2	0.0	0.0	132.0	0.0	60.1	364.0	576.5	0.0	0.0
90.00		217.9	762.8					0.0	119.4	217.9	882.2	0.0	0.0
92.00	Top - Section 2	268.7	754.7					0.0	119.4	268.7	874.2	0.0	0.0
95.00		265.8	517.4					0.0	179.2	265.8	696.5	0.0	0.0
97.00	Appurtenance(s)	261.5	340.3	199.0	0.0	0.0	132.0	0.0	119.4	460.4	591.8	0.0	0.0
100.00		410.3	503.5					0.0	178.6	410.3	682.2	0.0	0.0
105.00		501.4	820.8					0.0	297.7	501.4	1,118.5	0.0	0.0
110.00	Appurtenance(s)	487.2	797.7	198.8	0.0	0.0	132.0	0.0	297.7	686.0	1,227.5	0.0	0.0
115.00		473.1	774.7					0.0	296.8	473.1	1,071.5	0.0	0.0
120.00		459.1	751.6					0.0	296.8	459.1	1,048.4	0.0	0.0
125.00		445.2	728.6					0.0	296.8	445.2	1,025.4	0.0	0.0
130.00		304.9	705.5					0.0	296.8	304.9	1,002.3	0.0	0.0
132.00	Bot - Section 4	214.1	275.7					0.0	118.7	214.1	394.5	0.0	0.0
135.00		170.6	670.3					0.0	178.1	170.6	848.4	0.0	0.0
136.00	Top - Section 3	84.2	220.4					0.0	59.4	84.2	279.8	0.0	0.0
137.00	Appurtenance(s)	166.2	86.1	3,219.5	0.0	0.0	2,603.9	0.0	59.4	3,385.7	2,749.3	0.0	0.0
140.00		325.8	254.8					0.0	119.1	325.8	373.9	0.0	0.0
145.00		280.3	412.9					0.0	198.5	280.3	611.4	0.0	0.0
147.00	Appurtenance(s)	194.8	161.1	2,411.0	0.0	0.0	2,084.8	0.0	79.4	2,605.8	2,325.2	0.0	0.0
150.00		304.1	237.2					0.0	83.7	304.1	320.9	0.0	0.0
155.00		369.2	383.6					0.0	139.4	369.2	523.0	0.0	0.0
160.00	Appurtenance(s)	355.7	368.9	4,837.5	0.0	-83.6	3,421.1	0.0	139.4	5,193.2	3,929.4	0.0	0.0
165.00		275.9	354.2					0.0	61.1	275.9	415.3	0.0	0.0
168.00	Appurtenance(s)	167.7	205.5	4,183.4	0.0	0.0	3,729.8	0.0	36.6	4,351.1	3,972.0	0.0	0.0
170.00		227.2	134.1					0.0	3.0	227.2	137.1	0.0	0.0
175.00		254.2	324.9					0.0	7.6	254.2	332.4	0.0	0.0

Load Case: 1.2D + 1.6W 97 mph with No Ice 26 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :1.20
Wind Load Factor :1.60

178.00	Appurtenance(s)	93.3	187.9	3,166.7	0.0	7,372.2	2,021.8	0.0	4.5	3,260.0	2,214.2	0.0	0.0
									Totals:	38,325.7	62,099.4	0.00	0.00

Site Number: 302472 Code: ANSI/TIA-222-G

Site Name: Andover-bunker Hill Road, CT Engineering Number:OAA710391_C3_05 6/21/2018 4:55:58 PM

Customer: SPRINT NEXTEL

Load Case: 1.2D + 1.6W 97 mph with No Ice 26 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	-62.04	-37.96	0.00	-4,619.80	0.00	4,619.80	6,434.86	3,217.43	14,900.4	7,461.32	0.00	0.00	0.629
5.00	-59.81	-37.24	0.00	-4,430.01	0.00	4,430.01	6,350.74	3,175.37	14,433.5	7,227.48	0.10	-0.18	0.622
10.00	-57.65	-36.75	0.00	-4,243.83	0.00	4,243.83	6,265.35	3,132.68	13,970.9	6,995.84	0.38	-0.36	0.616
12.00	-56.66	-36.25	0.00	-4,170.33	0.00	4,170.33	6,230.84	3,115.42	13,787.1	6,903.82	0.55	-0.43	0.613
15.00	-55.35	-35.75	0.00	-4,061.58	0.00	4,061.58	6,178.70	3,089.35	13,512.8	6,766.48	0.86	-0.55	0.609
20.00	-53.23	-35.14	0.00	-3,882.84	0.00	3,882.84	6,090.77	3,045.39	13,059.5	6,539.47	1.53	-0.73	0.603
25.00	-51.15	-34.57	0.00	-3,707.13	0.00	3,707.13	6,001.58	3,000.79	12,611.0	6,314.89	2.40	-0.92	0.596
30.00	-49.10	-34.01	0.00	-3,534.29	0.00	3,534.29	5,911.12	2,955.56	12,167.6	6,092.85	3.46	-1.11	0.589
35.00	-47.09	-33.46	0.00	-3,364.23	0.00	3,364.23	5,796.61	2,898.31	11,683.4	5,850.41	4.73	-1.31	0.583
40.00	-45.14	-33.02	0.00	-3,196.94	0.00	3,196.94	5,674.58	2,837.29	11,194.2	5,605.46	6.20	-1.50	0.578
42.75	-44.08	-32.74	0.00	-3,106.14	0.00	3,106.14	5,607.46	2,803.73	10,929.6	5,472.97	7.10	-1.61	0.576
45.00	-42.62	-32.38	0.00	-3,032.48	0.00	3,032.48	5,552.55	2,776.27	10,715.5	5,365.75	7.88	-1.70	0.573
49.00	-40.12	-32.04	0.00	-2,902.97	0.00	2,902.97	4,334.74	2,167.37	8,395.94	4,204.21	9.38	-1.86	0.700
50.00	-39.75	-31.74	0.00	-2,870.93	0.00	2,870.93	4,321.48	2,160.74	8,333.21	4,172.80	9.77	-1.91	0.697
55.00	-38.12	-31.21	0.00	-2,712.22	0.00	2,712.22	4,254.40	2,127.20	8,021.52	4,016.72	11.89	-2.14	0.684
60.00	-36.53	-30.68	0.00	-2,556.18	0.00	2,556.18	4,186.06	2,093.03	7,713.24	3,862.35	14.26	-2.38	0.671
65.00	-34.96	-30.15	0.00	-2,402.78	0.00	2,402.78	4,116.45	2,058.22	7,408.53	3,709.77	16.88	-2.62	0.656
70.00	-33.42	-29.63	0.00	-2,252.01	0.00	2,252.01	4,045.56	2,022.78	7,107.57	3,559.07	19.75	-2.86	0.641
75.00	-31.92	-29.12	0.00	-2,103.85	0.00	2,103.85	3,973.41	1,986.71	6,810.50	3,410.31	22.87	-3.10	0.625
80.00	-30.45	-28.60	0.00	-1,958.27	0.00	1,958.27	3,899.99	1,950.00	6,517.51	3,263.60	26.25	-3.34	0.608
85.00	-29.03	-28.22	0.00	-1,815.25	0.00	1,815.25	3,805.04	1,902.52	6,195.74	3,102.48	29.88	-3.59	0.593
87.00	-28.47	-28.06	0.00	-1,758.81	0.00	1,758.81	3,765.38	1,882.69	6,066.61	3,037.81	31.40	-3.69	0.587
88.00	-27.88	-27.70	0.00	-1,730.75	0.00	1,730.75	3,745.55	1,872.77	6,002.55	3,005.74	32.18	-3.74	0.583
90.00	-26.96	-27.47	0.00	-1,675.36	0.00	1,675.36	3,705.89	1,852.94	5,875.46	2,942.10	33.76	-3.84	0.577
92.00	-26.05	-27.20	0.00	-1,620.43	0.00	1,620.43	3,054.73	1,527.36	4,893.34	2,450.31	35.39	-3.94	0.670
95.00	-25.32	-26.94	0.00	-1,538.84	0.00	1,538.84	3,020.24	1,510.12	4,760.42	2,383.75	37.91	-4.08	0.654
97.00	-24.70	-26.50	0.00	-1,484.97	0.00	1,484.97	2,996.99	1,498.50	4,672.40	2,339.67	39.64	-4.19	0.643
100.00	-23.95	-26.13	0.00	-1,405.48	0.00	1,405.48	2,961.74	1,480.87	4,541.28	2,274.01	42.33	-4.36	0.626
105.00	-22.75	-25.64	0.00	-1,274.85	0.00	1,274.85	2,901.98	1,450.99	4,325.26	2,165.84	47.03	-4.62	0.597
110.00	-21.48	-24.96	0.00	-1,146.63	0.00	1,146.63	2,840.94	1,420.47	4,112.52	2,059.32	52.00	-4.88	0.565
115.00	-20.34	-24.48	0.00	-1,021.86	0.00	1,021.86	2,777.06	1,388.53	3,901.02	1,953.41	57.25	-5.14	0.531
120.00	-19.24	-24.01	0.00	-899.46	0.00	899.46	2,693.16	1,346.58	3,667.73	1,836.59	62.75	-5.38	0.497
125.00	-18.17	-23.54	0.00	-779.43	0.00	779.43	2,609.26	1,304.63	3,441.64	1,723.38	68.51	-5.62	0.460
130.00	-17.14	-23.18	0.00	-661.73	0.00	661.73	2,525.36	1,262.68	3,222.75	1,613.77	74.51	-5.84	0.417
132.00	-16.73	-22.96	0.00	-615.37	0.00	615.37	2,491.80	1,245.90	3,137.20	1,570.93	76.97	-5.93	0.399
135.00	-15.87	-22.72	0.00	-546.50	0.00	546.50	2,441.46	1,220.73	3,011.04	1,507.76	80.73	-6.05	0.369
136.00	-15.58	-22.62	0.00	-523.77	0.00	523.77	1,416.30	708.15	1,774.76	888.70	82.00	-6.09	0.601
137.00	-13.18	-18.99	0.00	-501.15	0.00	501.15	1,410.39	705.20	1,755.27	878.94	83.28	-6.13	0.580
140.00	-12.77	-18.67	0.00	-444.20	0.00	444.20	1,392.36	696.18	1,697.02	849.77	87.18	-6.30	0.533
145.00	-12.14	-18.36	0.00	-350.86	0.00	350.86	1,361.30	680.65	1,600.81	801.59	93.90	-6.55	0.447
147.00	-10.10	-15.52	0.00	-314.15	0.00	314.15	1,348.51	674.26	1,562.66	782.49	96.66	-6.64	0.409
150.00	-9.78	-15.21	0.00	-267.59	0.00	267.59	1,328.96	664.48	1,505.82	754.03	100.86	-6.76	0.363
155.00	-9.26	-14.80	0.00	-191.55	0.00	191.55	1,295.36	647.68	1,412.23	707.16	108.03	-6.94	0.279
160.00	-5.98	-9.18	0.00	-117.54	0.00	117.54	1,260.48	630.24	1,320.18	661.07	115.36	-7.08	0.183
165.00	-5.59	-8.86	0.00	-71.63	0.00	71.63	1,224.34	612.17	1,229.85	615.84	122.80	-7.17	0.121
168.00	-2.19	-4.05	0.00	-45.05	0.00	45.05	1,202.05	601.02	1,176.54	589.15	127.31	-7.21	0.078
170.00	-2.08	-3.81	0.00	-36.95	0.00	36.95	1,186.93	593.46	1,141.40	571.55	130.33	-7.23	0.066
175.00	-1.78	-3.51	0.00	-17.91	0.00	17.91	1,148.25	574.12	1,054.98	528.28	137.89	-7.26	0.036
178.00	0.00	-3.26	0.00	-7.37	0.00	7.37	1,123.52	561.76	1,003.37	502.43	142.45	-7.27	0.015

Site Number: 302472 Code: ANSI/TIA-222-G

Site Name: Andover-bunker Hill Road, CT Engineering Number:OAA710391_C3_05 6/21/2018 4:55:58 PM

Customer: SPRINT NEXTEL

Load Case: 0.9D + 1.6W 97 mph with No Ice (Reduced DL) 26 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

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	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		466.4	0.0					0.0	0.0	466.4	0.0	0.0	0.0
5.00		904.9	1,358.2					0.0	226.0	904.9	1,584.2	0.0	0.0
10.00		606.7	1,333.0					0.0	226.0	606.7	1,559.0	0.0	0.0
12.00	Appurtenance(s)	413.1	526.2	171.5	0.0	0.0	90.5	0.0	90.4	584.6	707.1	0.0	0.0
15.00		634.6	781.7					0.0	135.2	634.6	916.9	0.0	0.0
20.00		757.9	1,282.7					0.0	225.3	757.9	1,508.1	0.0	0.0
25.00		716.6	1,257.6					0.0	225.3	716.6	1,482.9	0.0	0.0
30.00		686.5	1,232.4					0.0	225.3	686.5	1,457.7	0.0	0.0
35.00		672.3	1,207.3					0.0	225.3	672.3	1,432.6	0.0	0.0
40.00		515.9	1,182.1					0.0	225.3	515.9	1,407.4	0.0	0.0
42.75	Bot - Section 2	331.5	639.5					0.0	123.9	331.5	763.4	0.0	0.0
45.00		413.3	946.1					0.0	101.4	413.3	1,047.5	0.0	0.0
49.00	Top - Section 1	328.6	1,659.1					0.0	180.3	328.6	1,839.4	0.0	0.0
50.00		387.4	185.9					0.0	45.1	387.4	230.9	0.0	0.0
55.00		637.4	917.1					0.0	225.3	637.4	1,142.4	0.0	0.0
60.00		623.3	896.6					0.0	225.3	623.3	1,121.9	0.0	0.0
65.00		608.9	876.2					0.0	225.3	608.9	1,101.5	0.0	0.0
70.00		594.2	855.8					0.0	225.3	594.2	1,081.1	0.0	0.0
75.00		579.5	835.3					0.0	225.3	579.5	1,060.6	0.0	0.0
80.00		564.7	814.9					0.0	225.3	564.7	1,040.2	0.0	0.0
85.00		388.1	794.5					0.0	225.3	388.1	1,019.8	0.0	0.0
87.00	Bot - Section 3	164.6	312.1					0.0	90.1	164.6	402.2	0.0	0.0
88.00	Appurtenance(s)	164.7	288.3	199.2	0.0	0.0	99.0	0.0	45.1	364.0	432.4	0.0	0.0
90.00		217.9	572.1					0.0	89.6	217.9	661.7	0.0	0.0
92.00	Top - Section 2	268.7	566.0					0.0	89.6	268.7	655.6	0.0	0.0
95.00		265.8	388.0					0.0	134.4	265.8	522.4	0.0	0.0
97.00	Appurtenance(s)	261.5	255.2	199.0	0.0	0.0	99.0	0.0	89.6	460.4	443.8	0.0	0.0
100.00		410.3	377.7					0.0	134.0	410.3	511.6	0.0	0.0
105.00		501.4	615.6					0.0	223.3	501.4	838.9	0.0	0.0
110.00	Appurtenance(s)	487.2	598.3	198.8	0.0	0.0	99.0	0.0	223.3	686.0	920.6	0.0	0.0
115.00		473.1	581.0					0.0	222.6	473.1	803.6	0.0	0.0
120.00		459.1	563.7					0.0	222.6	459.1	786.3	0.0	0.0
125.00		445.2	546.4					0.0	222.6	445.2	769.0	0.0	0.0
130.00		304.9	529.1					0.0	222.6	304.9	751.7	0.0	0.0
132.00	Bot - Section 4	214.1	206.8					0.0	89.0	214.1	295.9	0.0	0.0
135.00		170.6	502.7					0.0	133.6	170.6	636.3	0.0	0.0
136.00	Top - Section 3	84.2	165.3					0.0	44.5	84.2	209.8	0.0	0.0
137.00	Appurtenance(s)	166.2	64.6	3,219.5	0.0	0.0	1,952.9	0.0	44.5	3,385.7	2,062.0	0.0	0.0
140.00		325.8	191.1					0.0	89.3	325.8	280.4	0.0	0.0
145.00		280.3	309.7					0.0	148.9	280.3	458.5	0.0	0.0
147.00	Appurtenance(s)	194.8	120.8	2,411.0	0.0	0.0	1,563.6	0.0	59.5	2,605.8	1,743.9	0.0	0.0
150.00		304.1	177.9					0.0	62.7	304.1	240.6	0.0	0.0
155.00		369.2	287.7					0.0	104.6	369.2	392.3	0.0	0.0
160.00	Appurtenance(s)	355.7	276.7	4,837.5	0.0	-83.6	2,565.8	0.0	104.6	5,193.2	2,947.1	0.0	0.0
165.00		275.9	265.7					0.0	45.8	275.9	311.5	0.0	0.0
168.00	Appurtenance(s)	167.7	154.1	4,183.4	0.0	0.0	2,797.4	0.0	27.5	4,351.1	2,979.0	0.0	0.0
170.00		227.2	100.5					0.0	2.3	227.2	102.8	0.0	0.0
175.00		254.2	243.7					0.0	5.7	254.2	249.3	0.0	0.0

Load Case: 0.9D + 1.6W 97 mph with No Ice (Reduced DL) 26 Iterations

Gust Response Factor :1.10
Dead Load Factor :0.90
Wind Load Factor :1.60

Wind Importance Factor 1.00

178.00	Appurtenance(s)	93.3	140.9	3,166.7	0.0	7,372.2	1,516.3	0.0	3.4	3,260.0	1,660.6	0.0	0.0
								Totals:		38,325.7	46,574.6	0.00	0.00

Site Number: 302472 Code: ANSI/TIA-222-G

Site Name: Andover-bunker Hill Road, CT Engineering Number:OAA710391_C3_05 6/21/2018 4:56:03 PM

Customer: SPRINT NEXTEL

Load Case: 0.9D + 1.6W 97 mph with No Ice (Reduced DL) 26 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	-46.51	-37.93	0.00	-4,554.40	0.00	4,554.40	6,434.86	3,217.43	14,900.4	7,461.32	0.00	0.00	0.618
5.00	-44.82	-37.16	0.00	-4,364.74	0.00	4,364.74	6,350.74	3,175.37	14,433.5	7,227.48	0.09	-0.18	0.611
10.00	-43.18	-36.64	0.00	-4,178.93	0.00	4,178.93	6,265.35	3,132.68	13,970.9	6,995.84	0.38	-0.35	0.604
12.00	-42.42	-36.12	0.00	-4,105.64	0.00	4,105.64	6,230.84	3,115.42	13,787.1	6,903.82	0.54	-0.43	0.602
15.00	-41.42	-35.59	0.00	-3,997.27	0.00	3,997.27	6,178.70	3,089.35	13,512.8	6,766.48	0.84	-0.54	0.598
20.00	-39.81	-34.94	0.00	-3,819.34	0.00	3,819.34	6,090.77	3,045.39	13,059.5	6,539.47	1.51	-0.72	0.591
25.00	-38.22	-34.33	0.00	-3,644.64	0.00	3,644.64	6,001.58	3,000.79	12,611.0	6,314.89	2.36	-0.91	0.584
30.00	-36.66	-33.74	0.00	-3,473.01	0.00	3,473.01	5,911.12	2,955.56	12,167.6	6,092.85	3.41	-1.09	0.576
35.00	-35.14	-33.15	0.00	-3,304.33	0.00	3,304.33	5,796.61	2,898.31	11,683.4	5,850.41	4.66	-1.28	0.571
40.00	-33.66	-32.69	0.00	-3,138.57	0.00	3,138.57	5,674.58	2,837.29	11,194.2	5,605.46	6.11	-1.48	0.566
42.75	-32.85	-32.40	0.00	-3,048.67	0.00	3,048.67	5,607.46	2,803.73	10,929.6	5,472.97	6.99	-1.58	0.563
45.00	-31.74	-32.02	0.00	-2,975.78	0.00	2,975.78	5,552.55	2,776.27	10,715.5	5,365.75	7.76	-1.67	0.560
49.00	-29.86	-31.69	0.00	-2,847.70	0.00	2,847.70	4,334.74	2,167.37	8,395.94	4,204.21	9.23	-1.83	0.684
50.00	-29.57	-31.36	0.00	-2,816.01	0.00	2,816.01	4,321.48	2,160.74	8,333.21	4,172.80	9.62	-1.87	0.682
55.00	-28.32	-30.80	0.00	-2,659.19	0.00	2,659.19	4,254.40	2,127.20	8,021.52	4,016.72	11.70	-2.10	0.669
60.00	-27.10	-30.25	0.00	-2,505.18	0.00	2,505.18	4,186.06	2,093.03	7,713.24	3,862.35	14.03	-2.34	0.655
65.00	-25.91	-29.70	0.00	-2,353.95	0.00	2,353.95	4,116.45	2,058.22	7,408.53	3,709.77	16.60	-2.57	0.641
70.00	-24.73	-29.16	0.00	-2,205.47	0.00	2,205.47	4,045.56	2,022.78	7,107.57	3,559.07	19.42	-2.81	0.626
75.00	-23.59	-28.62	0.00	-2,059.69	0.00	2,059.69	3,973.41	1,986.71	6,810.50	3,410.31	22.49	-3.04	0.610
80.00	-22.46	-28.09	0.00	-1,916.59	0.00	1,916.59	3,899.99	1,950.00	6,517.51	3,263.60	25.80	-3.28	0.593
85.00	-21.39	-27.71	0.00	-1,776.12	0.00	1,776.12	3,805.04	1,902.52	6,195.74	3,102.48	29.36	-3.52	0.578
87.00	-20.96	-27.55	0.00	-1,720.71	0.00	1,720.71	3,765.38	1,882.69	6,066.61	3,037.81	30.86	-3.62	0.572
88.00	-20.52	-27.18	0.00	-1,693.16	0.00	1,693.16	3,745.55	1,872.77	6,002.55	3,005.74	31.62	-3.67	0.569
90.00	-19.82	-26.95	0.00	-1,638.80	0.00	1,638.80	3,705.89	1,852.94	5,875.46	2,942.10	33.18	-3.76	0.563
92.00	-19.13	-26.68	0.00	-1,584.89	0.00	1,584.89	3,054.73	1,527.36	4,893.34	2,450.31	34.77	-3.86	0.653
95.00	-18.57	-26.42	0.00	-1,504.85	0.00	1,504.85	3,020.24	1,510.12	4,760.42	2,383.75	37.24	-4.01	0.638
97.00	-18.10	-25.97	0.00	-1,452.00	0.00	1,452.00	2,996.99	1,498.50	4,672.40	2,339.67	38.94	-4.11	0.627
100.00	-17.53	-25.59	0.00	-1,374.08	0.00	1,374.08	2,961.74	1,480.87	4,541.28	2,274.01	41.58	-4.27	0.610
105.00	-16.62	-25.10	0.00	-1,246.12	0.00	1,246.12	2,901.98	1,450.99	4,325.26	2,165.84	46.19	-4.53	0.581
110.00	-15.65	-24.41	0.00	-1,120.60	0.00	1,120.60	2,840.94	1,420.47	4,112.52	2,059.32	51.07	-4.79	0.550
115.00	-14.78	-23.94	0.00	-998.54	0.00	998.54	2,777.06	1,388.53	3,901.02	1,953.41	56.21	-5.04	0.517
120.00	-13.95	-23.47	0.00	-878.86	0.00	878.86	2,693.16	1,346.58	3,667.73	1,836.59	61.61	-5.28	0.484
125.00	-13.13	-23.00	0.00	-761.53	0.00	761.53	2,609.26	1,304.63	3,441.64	1,723.38	67.25	-5.51	0.447
130.00	-12.35	-22.66	0.00	-646.52	0.00	646.52	2,525.36	1,262.68	3,222.75	1,613.77	73.13	-5.72	0.406
132.00	-12.04	-22.44	0.00	-601.20	0.00	601.20	2,491.80	1,245.90	3,137.20	1,570.93	75.54	-5.81	0.388
135.00	-11.40	-22.22	0.00	-533.89	0.00	533.89	2,441.46	1,220.73	3,011.04	1,507.76	79.23	-5.93	0.359
136.00	-11.18	-22.12	0.00	-511.67	0.00	511.67	1,416.30	708.15	1,774.76	888.70	80.47	-5.97	0.585
137.00	-9.45	-18.55	0.00	-489.55	0.00	489.55	1,410.39	705.20	1,755.27	878.94	81.72	-6.01	0.564
140.00	-9.14	-18.23	0.00	-433.89	0.00	433.89	1,392.36	696.18	1,697.02	849.77	85.55	-6.17	0.518
145.00	-8.66	-17.93	0.00	-342.73	0.00	342.73	1,361.30	680.65	1,600.81	801.59	92.13	-6.41	0.435
147.00	-7.20	-15.16	0.00	-306.87	0.00	306.87	1,348.51	674.26	1,562.66	782.49	94.83	-6.50	0.398
150.00	-6.95	-14.85	0.00	-261.40	0.00	261.40	1,328.96	664.48	1,505.82	754.03	98.95	-6.63	0.352
155.00	-6.57	-14.45	0.00	-187.17	0.00	187.17	1,295.36	647.68	1,412.23	707.16	105.97	-6.80	0.270
160.00	-4.25	-8.95	0.00	-114.91	0.00	114.91	1,260.48	630.24	1,320.18	661.07	113.15	-6.93	0.177
165.00	-3.96	-8.64	0.00	-70.16	0.00	70.16	1,224.34	612.17	1,229.85	615.84	120.44	-7.02	0.117
168.00	-1.54	-3.96	0.00	-44.23	0.00	44.23	1,202.05	601.02	1,176.54	589.15	124.86	-7.06	0.076
170.00	-1.46	-3.72	0.00	-36.31	0.00	36.31	1,186.93	593.46	1,141.40	571.55	127.81	-7.08	0.065
175.00	-1.24	-3.44	0.00	-17.69	0.00	17.69	1,148.25	574.12	1,054.98	528.28	135.23	-7.11	0.035
178.00	0.00	-3.26	0.00	-7.37	0.00	7.37	1,123.52	561.76	1,003.37	502.43	139.69	-7.12	0.015

Site Number: 302472 Code: ANSI/TIA-222-G

Site Name: Andover-bunker Hill Road, CT Engineering Number:OAA710391_C3_05 6/21/2018 4:56:03 PM

Customer: SPRINT NEXTEL

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.00 in Radial Ice 26 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

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	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		153.0	0.0					0.0	0.0	153.0	0.0	0.0	0.0
5.00		298.1	2,541.3					0.0	301.3	298.1	2,842.6	0.0	0.0
10.00		200.8	2,568.8					0.0	301.3	200.8	2,870.1	0.0	0.0
12.00	Appurtenance(s)	137.2	1,025.2	49.9	0.0	0.0	151.5	0.0	120.5	187.1	1,297.2	0.0	0.0
15.00		211.2	1,529.1					0.0	180.3	211.2	1,709.4	0.0	0.0
20.00		252.8	2,519.3					0.0	300.4	252.8	2,819.8	0.0	0.0
25.00		239.6	2,480.7					0.0	300.4	239.6	2,781.2	0.0	0.0
30.00		230.1	2,438.2					0.0	300.4	230.1	2,738.6	0.0	0.0
35.00		225.8	2,393.3					0.0	300.4	225.8	2,693.7	0.0	0.0
40.00		173.5	2,346.8					0.0	300.4	173.5	2,647.2	0.0	0.0
42.75	Bot - Section 2	111.6	1,272.4					0.0	165.2	111.6	1,437.7	0.0	0.0
45.00		139.2	1,607.6					0.0	135.2	139.2	1,742.7	0.0	0.0
49.00	Top - Section 1	110.8	2,817.9					0.0	240.3	110.8	3,058.2	0.0	0.0
50.00		130.8	398.7					0.0	60.1	130.8	458.8	0.0	0.0
55.00		215.5	1,961.7					0.0	300.4	215.5	2,262.1	0.0	0.0
60.00		211.2	1,918.9					0.0	300.4	211.2	2,219.3	0.0	0.0
65.00		206.8	1,876.0					0.0	300.4	206.8	2,176.4	0.0	0.0
70.00		202.3	1,832.9					0.0	300.4	202.3	2,133.3	0.0	0.0
75.00		197.7	1,789.7					0.0	300.4	197.7	2,090.1	0.0	0.0
80.00		193.2	1,746.5					0.0	300.4	193.2	2,046.9	0.0	0.0
85.00		133.0	1,703.4					0.0	300.4	133.0	2,003.8	0.0	0.0
87.00	Bot - Section 3	56.5	671.1					0.0	120.2	56.5	791.3	0.0	0.0
88.00	Appurtenance(s)	56.5	513.4	52.2	0.0	0.0	210.4	0.0	60.1	108.7	783.9	0.0	0.0
90.00		74.8	1,018.2					0.0	119.4	74.8	1,137.6	0.0	0.0
92.00	Top - Section 2	92.4	1,007.6					0.0	119.4	92.4	1,127.0	0.0	0.0
95.00		91.5	891.0					0.0	179.2	91.5	1,070.2	0.0	0.0
97.00	Appurtenance(s)	90.1	586.8	52.1	0.0	0.0	210.4	0.0	119.4	142.2	916.7	0.0	0.0
100.00		141.7	867.7					0.0	178.6	141.7	1,046.3	0.0	0.0
105.00		173.7	1,411.9					0.0	297.7	173.7	1,709.7	0.0	0.0
110.00	Appurtenance(s)	169.3	1,373.2	52.0	0.0	0.0	210.3	0.0	297.7	221.3	1,881.2	0.0	0.0
115.00		165.0	1,334.4					0.0	296.8	165.0	1,631.3	0.0	0.0
120.00		160.7	1,295.8					0.0	296.8	160.7	1,592.6	0.0	0.0
125.00		156.5	1,257.1					0.0	296.8	156.5	1,554.0	0.0	0.0
130.00		107.5	1,218.5					0.0	296.8	107.5	1,515.4	0.0	0.0
132.00	Bot - Section 4	75.6	478.5					0.0	118.7	75.6	597.2	0.0	0.0
135.00		60.3	972.8					0.0	178.1	60.3	1,150.9	0.0	0.0
136.00	Top - Section 3	29.8	320.6					0.0	59.4	29.8	380.0	0.0	0.0
137.00	Appurtenance(s)	59.0	185.7	862.0	0.0	0.0	6,344.6	0.0	59.4	921.0	6,589.7	0.0	0.0
140.00		115.9	548.0					0.0	119.1	115.9	667.1	0.0	0.0
145.00		100.0	886.2					0.0	198.5	100.0	1,084.7	0.0	0.0
147.00	Appurtenance(s)	69.8	347.9	678.8	0.0	0.0	4,540.5	0.0	79.4	748.6	4,967.9	0.0	0.0
150.00		109.3	511.9					0.0	83.7	109.3	595.6	0.0	0.0
155.00		133.4	826.0					0.0	139.4	133.4	965.5	0.0	0.0
160.00	Appurtenance(s)	129.3	795.9	1,082.8	0.0	-26.9	9,191.0	0.0	139.4	1,212.1	10,126.4	0.0	0.0
165.00		100.8	765.9					0.0	61.1	100.8	827.0	0.0	0.0
168.00	Appurtenance(s)	61.6	447.0	1,026.7	0.0	0.0	8,815.9	0.0	36.6	1,088.2	9,299.5	0.0	0.0
170.00		83.9	292.6					0.0	3.0	83.9	295.6	0.0	0.0
175.00		94.3	705.8					0.0	7.6	94.3	713.3	0.0	0.0

Site Number: 302472 Code: ANSI/TIA-222-G

Site Name: Andover-bunker Hill Road, CT Engineering Number:OAA710391_C3_05 6/21/2018 4:56:07 PM

Customer: SPRINT NEXTEL

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.00 in Radial Ice 26 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

178.00	Appurtenance(s)	34.7	410.9	748.8	0.0	1,218.0	5,493.4	0.0	4.5	783.6	5,908.9	0.0	0.0
									Totals:	11,373.3	104,955.	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.00 in Radial Ice 26 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 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	-104.95	-11.27	0.00	-1,385.39	0.00	1,385.39	6,434.86	3,217.43	14,900.4	7,461.32	0.00	0.00	0.202
5.00	-102.10	-11.07	0.00	-1,329.04	0.00	1,329.04	6,350.74	3,175.37	14,433.5	7,227.48	0.03	-0.05	0.200
10.00	-99.22	-10.93	0.00	-1,273.71	0.00	1,273.71	6,265.35	3,132.68	13,970.9	6,995.84	0.11	-0.11	0.198
12.00	-97.92	-10.79	0.00	-1,251.85	0.00	1,251.85	6,230.84	3,115.42	13,787.1	6,903.82	0.16	-0.13	0.197
15.00	-96.20	-10.65	0.00	-1,219.49	0.00	1,219.49	6,178.70	3,089.35	13,512.8	6,766.48	0.26	-0.16	0.196
20.00	-93.37	-10.48	0.00	-1,166.26	0.00	1,166.26	6,090.77	3,045.39	13,059.5	6,539.47	0.46	-0.22	0.194
25.00	-90.58	-10.31	0.00	-1,113.89	0.00	1,113.89	6,001.58	3,000.79	12,611.0	6,314.89	0.72	-0.28	0.191
30.00	-87.83	-10.16	0.00	-1,062.32	0.00	1,062.32	5,911.12	2,955.56	12,167.6	6,092.85	1.04	-0.33	0.189
35.00	-85.13	-10.00	0.00	-1,011.54	0.00	1,011.54	5,796.61	2,898.31	11,683.4	5,850.41	1.42	-0.39	0.188
40.00	-82.48	-9.87	0.00	-961.53	0.00	961.53	5,674.58	2,837.29	11,194.2	5,605.46	1.86	-0.45	0.186
42.75	-81.04	-9.79	0.00	-934.37	0.00	934.37	5,607.46	2,803.73	10,929.6	5,472.97	2.13	-0.48	0.185
45.00	-79.29	-9.69	0.00	-912.34	0.00	912.34	5,552.55	2,776.27	10,715.5	5,365.75	2.37	-0.51	0.184
49.00	-76.23	-9.59	0.00	-873.57	0.00	873.57	4,334.74	2,167.37	8,395.94	4,204.21	2.82	-0.56	0.225
50.00	-75.76	-9.51	0.00	-863.97	0.00	863.97	4,321.48	2,160.74	8,333.21	4,172.80	2.93	-0.57	0.225
55.00	-73.49	-9.37	0.00	-816.41	0.00	816.41	4,254.40	2,127.20	8,021.52	4,016.72	3.57	-0.64	0.221
60.00	-71.26	-9.22	0.00	-769.58	0.00	769.58	4,186.06	2,093.03	7,713.24	3,862.35	4.28	-0.71	0.216
65.00	-69.08	-9.07	0.00	-723.49	0.00	723.49	4,116.45	2,058.22	7,408.53	3,709.77	5.07	-0.79	0.212
70.00	-66.94	-8.92	0.00	-678.15	0.00	678.15	4,045.56	2,022.78	7,107.57	3,559.07	5.93	-0.86	0.207
75.00	-64.84	-8.77	0.00	-633.55	0.00	633.55	3,973.41	1,986.71	6,810.50	3,410.31	6.87	-0.93	0.202
80.00	-62.78	-8.63	0.00	-589.68	0.00	589.68	3,899.99	1,950.00	6,517.51	3,263.60	7.89	-1.01	0.197
85.00	-60.77	-8.51	0.00	-546.55	0.00	546.55	3,805.04	1,902.52	6,195.74	3,102.48	8.98	-1.08	0.192
87.00	-59.98	-8.46	0.00	-529.53	0.00	529.53	3,765.38	1,882.69	6,066.61	3,037.81	9.44	-1.11	0.190
88.00	-59.20	-8.36	0.00	-521.07	0.00	521.07	3,745.55	1,872.77	6,002.55	3,005.74	9.67	-1.12	0.189
90.00	-58.06	-8.30	0.00	-504.34	0.00	504.34	3,705.89	1,852.94	5,875.46	2,942.10	10.15	-1.15	0.187
92.00	-56.93	-8.22	0.00	-487.75	0.00	487.75	3,054.73	1,527.36	4,893.34	2,450.31	10.64	-1.18	0.218
95.00	-55.85	-8.14	0.00	-463.10	0.00	463.10	3,020.24	1,510.12	4,760.42	2,383.75	11.40	-1.23	0.213
97.00	-54.93	-8.02	0.00	-446.82	0.00	446.82	2,996.99	1,498.50	4,672.40	2,339.67	11.92	-1.26	0.209
100.00	-53.88	-7.91	0.00	-422.77	0.00	422.77	2,961.74	1,480.87	4,541.28	2,274.01	12.73	-1.31	0.204
105.00	-52.17	-7.77	0.00	-383.20	0.00	383.20	2,901.98	1,450.99	4,325.26	2,165.84	14.14	-1.39	0.195
110.00	-50.28	-7.57	0.00	-344.34	0.00	344.34	2,840.94	1,420.47	4,112.52	2,059.32	15.64	-1.47	0.185
115.00	-48.64	-7.43	0.00	-306.48	0.00	306.48	2,777.06	1,388.53	3,901.02	1,953.41	17.22	-1.54	0.174
120.00	-47.05	-7.28	0.00	-269.34	0.00	269.34	2,693.16	1,346.58	3,667.73	1,836.59	18.88	-1.62	0.164
125.00	-45.49	-7.14	0.00	-232.93	0.00	232.93	2,609.26	1,304.63	3,441.64	1,723.38	20.61	-1.69	0.153
130.00	-43.97	-7.02	0.00	-197.25	0.00	197.25	2,525.36	1,262.68	3,222.75	1,613.77	22.42	-1.76	0.140
132.00	-43.38	-6.95	0.00	-183.21	0.00	183.21	2,491.80	1,245.90	3,137.20	1,570.93	23.16	-1.78	0.134
135.00	-42.22	-6.87	0.00	-162.37	0.00	162.37	2,441.46	1,220.73	3,011.04	1,507.76	24.29	-1.82	0.125
136.00	-41.84	-6.84	0.00	-155.50	0.00	155.50	1,416.30	708.15	1,774.76	888.70	24.67	-1.83	0.205
137.00	-35.28	-5.72	0.00	-148.67	0.00	148.67	1,410.39	705.20	1,755.27	878.94	25.06	-1.84	0.194
140.00	-34.61	-5.62	0.00	-131.50	0.00	131.50	1,392.36	696.18	1,697.02	849.77	26.23	-1.89	0.180
145.00	-33.53	-5.52	0.00	-103.38	0.00	103.38	1,361.30	680.65	1,600.81	801.59	28.25	-1.96	0.154
147.00	-28.59	-4.61	0.00	-92.35	0.00	92.35	1,348.51	674.26	1,562.66	782.49	29.08	-1.99	0.139
150.00	-27.99	-4.50	0.00	-78.52	0.00	78.52	1,328.96	664.48	1,505.82	754.03	30.34	-2.03	0.125
155.00	-27.03	-4.36	0.00	-56.00	0.00	56.00	1,295.36	647.68	1,412.23	707.16	32.50	-2.08	0.100
160.00	-16.95	-2.78	0.00	-34.21	0.00	34.21	1,260.48	630.24	1,320.18	661.07	34.70	-2.12	0.065
165.00	-16.13	-2.66	0.00	-20.29	0.00	20.29	1,224.34	612.17	1,229.85	615.84	36.93	-2.15	0.046
168.00	-6.88	-1.22	0.00	-12.32	0.00	12.32	1,202.05	601.02	1,176.54	589.15	38.29	-2.16	0.027
170.00	-6.58	-1.13	0.00	-9.88	0.00	9.88	1,186.93	593.46	1,141.40	571.55	39.19	-2.16	0.023
175.00	-5.87	-1.01	0.00	-4.24	0.00	4.24	1,148.25	574.12	1,054.98	528.28	41.46	-2.17	0.013
178.00	0.00	-0.78	0.00	-1.22	0.00	1.22	1,123.52	561.76	1,003.37	502.43	42.83	-2.17	0.002

Site Number: 302472 Code: ANSI/TIA-222-G

Site Name: Andover-bunker Hill Road, CT Engineering Number:OAA710391_C3_05 6/21/2018 4:56:08 PM

Customer: SPRINT NEXTEL

Load Case: 1.0D + 1.0W Serviceability 60 mph 25 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

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	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		111.5	0.0					0.0	0.0	111.5	0.0	0.0	0.0
5.00		216.4	1,509.1					0.0	251.1	216.4	1,760.2	0.0	0.0
10.00		145.1	1,481.2					0.0	251.1	145.1	1,732.3	0.0	0.0
12.00	Appurtenance(s)	98.8	584.6	41.0	0.0	0.0	100.6	0.0	100.4	139.8	785.7	0.0	0.0
15.00		151.7	868.6					0.0	150.2	151.7	1,018.8	0.0	0.0
20.00		181.2	1,425.3					0.0	250.4	181.2	1,675.6	0.0	0.0
25.00		171.4	1,397.3					0.0	250.4	171.4	1,647.7	0.0	0.0
30.00		164.2	1,369.4					0.0	250.4	164.2	1,619.7	0.0	0.0
35.00		160.8	1,341.4					0.0	250.4	160.8	1,591.8	0.0	0.0
40.00		123.4	1,313.5					0.0	250.4	123.4	1,563.8	0.0	0.0
42.75	Bot - Section 2	79.3	710.5					0.0	137.7	79.3	848.2	0.0	0.0
45.00		98.8	1,051.2					0.0	112.7	98.8	1,163.8	0.0	0.0
49.00	Top - Section 1	78.6	1,843.5					0.0	200.3	78.6	2,043.7	0.0	0.0
50.00		92.6	206.5					0.0	50.1	92.6	256.6	0.0	0.0
55.00		152.4	1,019.0					0.0	250.4	152.4	1,269.3	0.0	0.0
60.00		149.1	996.3					0.0	250.4	149.1	1,246.6	0.0	0.0
65.00		145.6	973.5					0.0	250.4	145.6	1,223.9	0.0	0.0
70.00		142.1	950.8					0.0	250.4	142.1	1,201.2	0.0	0.0
75.00		138.6	928.1					0.0	250.4	138.6	1,178.5	0.0	0.0
80.00		135.0	905.4					0.0	250.4	135.0	1,155.8	0.0	0.0
85.00		92.8	882.7					0.0	250.4	92.8	1,133.1	0.0	0.0
87.00	Bot - Section 3	39.4	346.7					0.0	100.1	39.4	446.9	0.0	0.0
88.00	Appurtenance(s)	39.4	320.3	47.6	0.0	0.0	110.0	0.0	50.1	87.0	480.4	0.0	0.0
90.00		52.1	635.6					0.0	99.5	52.1	735.2	0.0	0.0
92.00	Top - Section 2	64.3	628.9					0.0	99.5	64.3	728.5	0.0	0.0
95.00		63.6	431.1					0.0	149.3	63.6	580.5	0.0	0.0
97.00	Appurtenance(s)	62.5	283.6	47.6	0.0	0.0	110.0	0.0	99.5	110.1	493.1	0.0	0.0
100.00		98.1	419.6					0.0	148.9	98.1	568.5	0.0	0.0
105.00		119.9	684.0					0.0	248.1	119.9	932.1	0.0	0.0
110.00	Appurtenance(s)	116.5	664.8	47.5	0.0	0.0	110.0	0.0	248.1	164.0	1,022.9	0.0	0.0
115.00		113.1	645.6					0.0	247.4	113.1	892.9	0.0	0.0
120.00		109.8	626.4					0.0	247.4	109.8	873.7	0.0	0.0
125.00		106.5	607.1					0.0	247.4	106.5	854.5	0.0	0.0
130.00		72.9	587.9					0.0	247.4	72.9	835.3	0.0	0.0
132.00	Bot - Section 4	51.2	229.8					0.0	98.9	51.2	328.7	0.0	0.0
135.00		40.8	558.6					0.0	148.4	40.8	707.0	0.0	0.0
136.00	Top - Section 3	20.1	183.7					0.0	49.5	20.1	233.2	0.0	0.0
137.00	Appurtenance(s)	39.7	71.8	769.9	0.0	0.0	2,169.9	0.0	49.5	809.6	2,291.1	0.0	0.0
140.00		77.9	212.3					0.0	99.2	77.9	311.6	0.0	0.0
145.00		67.0	344.1					0.0	165.4	67.0	509.5	0.0	0.0
147.00	Appurtenance(s)	46.6	134.2	576.6	0.0	0.0	1,737.3	0.0	66.2	623.1	1,937.7	0.0	0.0
150.00		72.7	197.7					0.0	69.7	72.7	267.4	0.0	0.0
155.00		88.3	319.6					0.0	116.2	88.3	435.8	0.0	0.0
160.00	Appurtenance(s)	85.1	307.4	1,156.8	0.0	-20.0	2,850.9	0.0	116.2	1,241.9	3,274.5	0.0	0.0
165.00		66.0	295.2					0.0	50.9	66.0	346.1	0.0	0.0
168.00	Appurtenance(s)	40.1	171.2	1,000.4	0.0	0.0	3,108.2	0.0	30.5	1,040.5	3,310.0	0.0	0.0
170.00		54.3	111.7					0.0	2.5	54.3	114.2	0.0	0.0
175.00		60.8	270.7					0.0	6.3	60.8	277.0	0.0	0.0

Load Case: 1.0D + 1.0W Serviceability 60 mph 25 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :1.00
Wind Load Factor :1.00

178.00	Appurtenance(s)	22.3	156.6	757.3	0.0	1,762.9	1,684.8	0.0	3.8	779.6	1,845.2	0.0	0.0
									Totals:	9,164.94	51,749.5	0.00	0.00

Site Number: 302472 Code: ANSI/TIA-222-G

Site Name: Andover-bunker Hill Road, CT Engineering Number:OAA710391_C3_05 6/21/2018 4:56:12 PM

Customer: SPRINT NEXTEL

Load Case: 1.0D + 1.0W Serviceability 60 mph 25 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	-51.75	-9.07	0.00	-1,096.39	0.00	1,096.39	6,434.86	3,217.43	14,900.4	7,461.32	0.00	0.00	0.155
5.00	-49.98	-8.89	0.00	-1,051.03	0.00	1,051.03	6,350.74	3,175.37	14,433.5	7,227.48	0.02	-0.04	0.153
10.00	-48.24	-8.77	0.00	-1,006.57	0.00	1,006.57	6,265.35	3,132.68	13,970.9	6,995.84	0.09	-0.09	0.152
12.00	-47.45	-8.65	0.00	-989.02	0.00	989.02	6,230.84	3,115.42	13,787.1	6,903.82	0.13	-0.10	0.151
15.00	-46.43	-8.52	0.00	-963.08	0.00	963.08	6,178.70	3,089.35	13,512.8	6,766.48	0.20	-0.13	0.150
20.00	-44.75	-8.37	0.00	-920.46	0.00	920.46	6,090.77	3,045.39	13,059.5	6,539.47	0.36	-0.17	0.148
25.00	-43.10	-8.23	0.00	-878.60	0.00	878.60	6,001.58	3,000.79	12,611.0	6,314.89	0.57	-0.22	0.146
30.00	-41.47	-8.09	0.00	-837.46	0.00	837.46	5,911.12	2,955.56	12,167.6	6,092.85	0.82	-0.26	0.144
35.00	-39.87	-7.95	0.00	-797.01	0.00	797.01	5,796.61	2,898.31	11,683.4	5,850.41	1.12	-0.31	0.143
40.00	-38.30	-7.85	0.00	-757.24	0.00	757.24	5,674.58	2,837.29	11,194.2	5,605.46	1.47	-0.36	0.142
42.75	-37.45	-7.78	0.00	-735.66	0.00	735.66	5,607.46	2,803.73	10,929.6	5,472.97	1.68	-0.38	0.141
45.00	-36.29	-7.69	0.00	-718.16	0.00	718.16	5,552.55	2,776.27	10,715.5	5,365.75	1.87	-0.40	0.140
49.00	-34.24	-7.61	0.00	-687.41	0.00	687.41	4,334.74	2,167.37	8,395.94	4,204.21	2.22	-0.44	0.171
50.00	-33.98	-7.53	0.00	-679.80	0.00	679.80	4,321.48	2,160.74	8,333.21	4,172.80	2.32	-0.45	0.171
55.00	-32.70	-7.40	0.00	-642.13	0.00	642.13	4,254.40	2,127.20	8,021.52	4,016.72	2.82	-0.51	0.168
60.00	-31.45	-7.27	0.00	-605.11	0.00	605.11	4,186.06	2,093.03	7,713.24	3,862.35	3.38	-0.56	0.164
65.00	-30.22	-7.15	0.00	-568.74	0.00	568.74	4,116.45	2,058.22	7,408.53	3,709.77	4.00	-0.62	0.161
70.00	-29.02	-7.02	0.00	-533.01	0.00	533.01	4,045.56	2,022.78	7,107.57	3,559.07	4.68	-0.68	0.157
75.00	-27.83	-6.89	0.00	-497.92	0.00	497.92	3,973.41	1,986.71	6,810.50	3,410.31	5.42	-0.73	0.153
80.00	-26.67	-6.77	0.00	-463.45	0.00	463.45	3,899.99	1,950.00	6,517.51	3,263.60	6.22	-0.79	0.149
85.00	-25.54	-6.68	0.00	-429.61	0.00	429.61	3,805.04	1,902.52	6,195.74	3,102.48	7.08	-0.85	0.145
87.00	-25.09	-6.64	0.00	-416.25	0.00	416.25	3,765.38	1,882.69	6,066.61	3,037.81	7.44	-0.87	0.144
88.00	-24.61	-6.55	0.00	-409.61	0.00	409.61	3,745.55	1,872.77	6,002.55	3,005.74	7.63	-0.88	0.143
90.00	-23.87	-6.50	0.00	-396.50	0.00	396.50	3,705.89	1,852.94	5,875.46	2,942.10	8.00	-0.91	0.141
92.00	-23.14	-6.44	0.00	-383.50	0.00	383.50	3,054.73	1,527.36	4,893.34	2,450.31	8.39	-0.93	0.164
95.00	-22.56	-6.37	0.00	-364.19	0.00	364.19	3,020.24	1,510.12	4,760.42	2,383.75	8.99	-0.97	0.160
97.00	-22.06	-6.27	0.00	-351.44	0.00	351.44	2,996.99	1,498.50	4,672.40	2,339.67	9.40	-0.99	0.158
100.00	-21.49	-6.18	0.00	-332.64	0.00	332.64	2,961.74	1,480.87	4,541.28	2,274.01	10.03	-1.03	0.154
105.00	-20.55	-6.06	0.00	-301.74	0.00	301.74	2,901.98	1,450.99	4,325.26	2,165.84	11.15	-1.09	0.146
110.00	-19.53	-5.90	0.00	-271.42	0.00	271.42	2,840.94	1,420.47	4,112.52	2,059.32	12.33	-1.16	0.139
115.00	-18.63	-5.79	0.00	-241.91	0.00	241.91	2,777.06	1,388.53	3,901.02	1,953.41	13.57	-1.22	0.131
120.00	-17.75	-5.68	0.00	-212.96	0.00	212.96	2,693.16	1,346.58	3,667.73	1,836.59	14.88	-1.27	0.123
125.00	-16.90	-5.57	0.00	-184.57	0.00	184.57	2,609.26	1,304.63	3,441.64	1,723.38	16.24	-1.33	0.114
130.00	-16.06	-5.49	0.00	-156.73	0.00	156.73	2,525.36	1,262.68	3,222.75	1,613.77	17.66	-1.38	0.103
132.00	-15.73	-5.43	0.00	-145.76	0.00	145.76	2,491.80	1,245.90	3,137.20	1,570.93	18.25	-1.40	0.099
135.00	-15.02	-5.38	0.00	-129.46	0.00	129.46	2,441.46	1,220.73	3,011.04	1,507.76	19.14	-1.43	0.092
136.00	-14.79	-5.36	0.00	-124.08	0.00	124.08	1,416.30	708.15	1,774.76	888.70	19.44	-1.44	0.150
137.00	-12.52	-4.50	0.00	-118.72	0.00	118.72	1,410.39	705.20	1,755.27	878.94	19.74	-1.45	0.144
140.00	-12.20	-4.42	0.00	-105.24	0.00	105.24	1,392.36	696.18	1,697.02	849.77	20.67	-1.49	0.133
145.00	-11.69	-4.35	0.00	-83.14	0.00	83.14	1,361.30	680.65	1,600.81	801.59	22.26	-1.55	0.112
147.00	-9.77	-3.68	0.00	-74.44	0.00	74.44	1,348.51	674.26	1,562.66	782.49	22.92	-1.57	0.102
150.00	-9.50	-3.60	0.00	-63.42	0.00	63.42	1,328.96	664.48	1,505.82	754.03	23.92	-1.60	0.091
155.00	-9.07	-3.51	0.00	-45.41	0.00	45.41	1,295.36	647.68	1,412.23	707.16	25.62	-1.64	0.071
160.00	-5.83	-2.17	0.00	-27.87	0.00	27.87	1,260.48	630.24	1,320.18	661.07	27.36	-1.68	0.047
165.00	-5.49	-2.10	0.00	-17.00	0.00	17.00	1,224.34	612.17	1,229.85	615.84	29.13	-1.70	0.032
168.00	-2.21	-0.96	0.00	-10.71	0.00	10.71	1,202.05	601.02	1,176.54	589.15	30.20	-1.71	0.020
170.00	-2.10	-0.90	0.00	-8.78	0.00	8.78	1,186.93	593.46	1,141.40	571.55	30.91	-1.71	0.017
175.00	-1.82	-0.83	0.00	-4.27	0.00	4.27	1,148.25	574.12	1,054.98	528.28	32.71	-1.72	0.010
178.00	0.00	-0.78	0.00	-1.76	0.00	1.76	1,123.52	561.76	1,003.37	502.43	33.79	-1.72	0.004

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.18	
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 Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10	
Seismic Response Coefficient (C_s):	0.03	
Upper Limit C_s	0.03	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	2.80	
Redundancy Factor (p):	1.30	
Seismic Force Distribution Exponent (k):	2.00	
Total Unfactored Dead Load:	51.75	k
Seismic Base Shear (E):	2.02	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)
48	176.50	160	4,995	0.009	18	198
47	172.50	277	8,244	0.015	30	343
46	169.00	114	3,263	0.006	12	141
45	166.50	202	5,594	0.010	20	250
44	162.50	346	9,139	0.016	33	428
43	157.50	424	10,508	0.019	38	524
42	152.50	436	10,136	0.018	37	539
41	148.50	267	5,896	0.011	21	331
40	146.00	200	4,271	0.008	16	248
39	142.50	509	10,346	0.019	38	631
38	138.50	312	5,977	0.011	22	386
37	136.50	121	2,259	0.004	8	150
36	135.50	233	4,281	0.008	16	289
35	133.50	707	12,600	0.023	46	875
34	131.00	329	5,641	0.010	21	407
33	127.50	835	13,578	0.024	49	1,034
32	122.50	854	12,823	0.023	47	1,057
31	117.50	874	12,063	0.022	44	1,081
30	112.50	893	11,301	0.020	41	1,105
29	107.50	913	10,549	0.019	38	1,130
28	102.50	932	9,793	0.018	36	1,154
27	98.50	568	5,516	0.010	20	704
26	96.00	383	3,531	0.006	13	474

25	93.50	580	5,074	0.009	18	718
24	91.00	728	6,032	0.011	22	902
23	89.00	735	5,823	0.010	21	910
22	87.50	370	2,836	0.005	10	458
21	86.00	447	3,305	0.006	12	553
20	82.50	1,133	7,712	0.014	28	1,402
19	77.50	1,156	6,942	0.012	25	1,430
18	72.50	1,178	6,194	0.011	23	1,458
17	67.50	1,201	5,473	0.010	20	1,487
16	62.50	1,224	4,781	0.009	17	1,515
15	57.50	1,247	4,122	0.007	15	1,543
14	52.50	1,269	3,499	0.006	13	1,571
13	49.50	257	629	0.001	2	318
12	47.00	2,044	4,515	0.008	16	2,529
11	43.88	1,164	2,240	0.004	8	1,440
10	41.38	848	1,452	0.003	5	1,050
9	37.50	1,564	2,199	0.004	8	1,935
8	32.50	1,592	1,681	0.003	6	1,970
7	27.50	1,620	1,225	0.002	4	2,004
6	22.50	1,648	834	0.002	3	2,039
5	17.50	1,676	513	0.001	2	2,074
4	13.50	1,019	186	0.000	1	1,261
3	11.00	685	83	0.000	0	848
2	7.50	1,732	97	0.000	0	2,144
1	2.50	1,760	11	0.000	0	2,178
Powerwave Allgon 712	178.00	185	5,855	0.011	21	229
Flat Low Profile Pla	178.00	1,500	47,526	0.086	173	1,856
Alcatel-Lucent RRH2x	168.00	317	8,958	0.016	33	393
Alcatel-Lucent 1900	168.00	180	5,080	0.009	18	223
Alcatel-Lucent TD-RR	168.00	210	5,927	0.011	22	260
RFS APXVTM14-ALU-I20	168.00	169	4,759	0.009	17	209
Commscope NNVV-65B-R	168.00	232	6,554	0.012	24	287
Flat Platform w/ Han	168.00	2,000	56,448	0.102	205	2,475
RFS FD9R6004/2C-3L	160.00	16	399	0.001	1	19
Alcatel-Lucent RRH2x	160.00	170	4,355	0.008	16	211
Alcatel-Lucent B66a	160.00	201	5,146	0.009	19	249
RFS DB-T1-6Z-8AB-0Z	160.00	88	2,253	0.004	8	109
Antel LPA-80080/4CF	160.00	72	1,843	0.003	7	89
Andrew SBNHH-1D65B	160.00	304	7,788	0.014	28	376
Flat Platform w/ Han	160.00	2,000	51,200	0.092	186	2,475
Kathrein Smart Bias	147.00	10	215	0.000	1	12
Ericsson KRY 112 144	147.00	33	713	0.001	3	41
EMS RR90-17-02DP	147.00	41	875	0.002	3	50
Andrew LNX-6515DS-VT	147.00	154	3,326	0.006	12	190
Round Low Profile Pl	147.00	1,500	32,414	0.058	118	1,856
LGP Allgon LGP21903	137.00	33	619	0.001	2	41
Powerwave LGP21401	137.00	85	1,588	0.003	6	105
Raycap DC6-48-60-18-	137.00	32	597	0.001	2	39
Ericsson RRUS 11 (Ba	137.00	165	3,097	0.006	11	204
Powerwave 7770.00	137.00	210	3,941	0.007	14	260
KMW AM-X-CD-16-65-00	137.00	146	2,731	0.005	10	180
Flat Low Profile Pla	137.00	1,500	28,154	0.051	102	1,856
GPS	110.00	10	121	0.000	0	12
Stand-Off	110.00	100	1,210	0.002	4	124
GPS	97.00	10	94	0.000	0	12
Stand-Off	97.00	100	941	0.002	3	124
GPS	88.00	10	77	0.000	0	12
Stand-Off	88.00	100	774	0.001	3	124
PCTEL GPS-TMG-HR-26N	12.00	1	0	0.000	0	1
Stand-Off	12.00	100	14	0.000	0	124
		51,750	555,354	1.000	2,018	64,043

Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
48	176.50	160	4,995	0.009	18	138
47	172.50	277	8,244	0.015	30	239
46	169.00	114	3,263	0.006	12	99
45	166.50	202	5,594	0.010	20	174
44	162.50	346	9,139	0.016	33	298
43	157.50	424	10,508	0.019	38	365
42	152.50	436	10,136	0.018	37	376
41	148.50	267	5,896	0.011	21	231
40	146.00	200	4,271	0.008	16	173
39	142.50	509	10,346	0.019	38	439
38	138.50	312	5,977	0.011	22	269
37	136.50	121	2,259	0.004	8	105
36	135.50	233	4,281	0.008	16	201
35	133.50	707	12,600	0.023	46	610
34	131.00	329	5,641	0.010	21	284
33	127.50	835	13,578	0.024	49	720
32	122.50	854	12,823	0.023	47	737
31	117.50	874	12,063	0.022	44	754
30	112.50	893	11,301	0.020	41	770
29	107.50	913	10,549	0.019	38	787
28	102.50	932	9,793	0.018	36	804
27	98.50	568	5,516	0.010	20	490
26	96.00	383	3,531	0.006	13	330
25	93.50	580	5,074	0.009	18	501
24	91.00	728	6,032	0.011	22	628
23	89.00	735	5,823	0.010	21	634
22	87.50	370	2,836	0.005	10	319
21	86.00	447	3,305	0.006	12	385
20	82.50	1,133	7,712	0.014	28	977
19	77.50	1,156	6,942	0.012	25	997
18	72.50	1,178	6,194	0.011	23	1,016
17	67.50	1,201	5,473	0.010	20	1,036
16	62.50	1,224	4,781	0.009	17	1,056
15	57.50	1,247	4,122	0.007	15	1,075
14	52.50	1,269	3,499	0.006	13	1,095
13	49.50	257	629	0.001	2	221
12	47.00	2,044	4,515	0.008	16	1,763
11	43.88	1,164	2,240	0.004	8	1,004
10	41.38	848	1,452	0.003	5	732
9	37.50	1,564	2,199	0.004	8	1,349
8	32.50	1,592	1,681	0.003	6	1,373
7	27.50	1,620	1,225	0.002	4	1,397
6	22.50	1,648	834	0.002	3	1,421
5	17.50	1,676	513	0.001	2	1,445
4	13.50	1,019	186	0.000	1	879
3	11.00	685	83	0.000	0	591
2	7.50	1,732	97	0.000	0	1,494
1	2.50	1,760	11	0.000	0	1,518
Powerwave Allgon 712	178.00	185	5,855	0.011	21	159
Flat Low Profile Pla	178.00	1,500	47,526	0.086	173	1,294
Alcatel-Lucent RRH2x	168.00	317	8,958	0.016	33	274
Alcatel-Lucent 1900	168.00	180	5,080	0.009	18	155
Alcatel-Lucent TD-RR	168.00	210	5,927	0.011	22	181
RFS APXVTM14-ALU-I20	168.00	169	4,759	0.009	17	145
Commscope NNVV-65B-R	168.00	232	6,554	0.012	24	200
Flat Platform w/ Han	168.00	2,000	56,448	0.102	205	1,725
RFS FD9R6004/2C-3L	160.00	16	399	0.001	1	13

Alcatel-Lucent RRH2x	160.00	170	4,355	0.008	16	147
Alcatel-Lucent B66a	160.00	201	5,146	0.009	19	173
RFS DB-T1-6Z-8AB-0Z	160.00	88	2,253	0.004	8	76
Antel LPA-80080/4CF	160.00	72	1,843	0.003	7	62
Andrew SBNHH-1D65B	160.00	304	7,788	0.014	28	262
Flat Platform w/ Han	160.00	2,000	51,200	0.092	186	1,725
Kathrein Smart Bias	147.00	10	215	0.000	1	9
Ericsson KRY 112 144	147.00	33	713	0.001	3	28
EMS RR90-17-02DP	147.00	41	875	0.002	3	35
Andrew LNX-6515DS-VT	147.00	154	3,326	0.006	12	133
Round Low Profile Pl	147.00	1,500	32,414	0.058	118	1,294
LGP Allgon LGP21903	137.00	33	619	0.001	2	28
Powerwave LGP21401	137.00	85	1,588	0.003	6	73
Raycap DC6-48-60-18-	137.00	32	597	0.001	2	27
Ericsson RRUS 11 (Ba	137.00	165	3,097	0.006	11	142
Powerwave 7770.00	137.00	210	3,941	0.007	14	181
KMW AM-X-CD-16-65-00	137.00	146	2,731	0.005	10	125
Flat Low Profile Pla	137.00	1,500	28,154	0.051	102	1,294
GPS	110.00	10	121	0.000	0	9
Stand-Off	110.00	100	1,210	0.002	4	86
GPS	97.00	10	94	0.000	0	9
Stand-Off	97.00	100	941	0.002	3	86
GPS	88.00	10	77	0.000	0	9
Stand-Off	88.00	100	774	0.001	3	86
PCTEL GPS-TMG-HR-26N	12.00	1	0	0.000	0	1
Stand-Off	12.00	100	14	0.000	0	86
		51,750	555,354	1.000	2,018	44,632

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	-61.86	-2.02	0.00	-295.39	0.00	295.39	6,434.86	3,217.43	14,900.4	7,461.32	0.00	0.00	0.049
5.00	-59.72	-2.04	0.00	-285.27	0.00	285.27	6,350.74	3,175.37	14,433.5	7,227.48	0.01	-0.01	0.049
10.00	-58.87	-2.04	0.00	-275.10	0.00	275.10	6,265.35	3,132.68	13,970.9	6,995.84	0.02	-0.02	0.049
12.00	-57.49	-2.05	0.00	-271.01	0.00	271.01	6,230.84	3,115.42	13,787.1	6,903.82	0.04	-0.03	0.048
15.00	-55.41	-2.05	0.00	-264.87	0.00	264.87	6,178.70	3,089.35	13,512.8	6,766.48	0.06	-0.04	0.048
20.00	-53.37	-2.06	0.00	-254.59	0.00	254.59	6,090.77	3,045.39	13,059.5	6,539.47	0.10	-0.05	0.048
25.00	-51.37	-2.07	0.00	-244.29	0.00	244.29	6,001.58	3,000.79	12,611.0	6,314.89	0.15	-0.06	0.047
30.00	-49.40	-2.07	0.00	-233.96	0.00	233.96	5,911.12	2,955.56	12,167.6	6,092.85	0.22	-0.07	0.047
35.00	-47.46	-2.07	0.00	-223.61	0.00	223.61	5,796.61	2,898.31	11,683.4	5,850.41	0.31	-0.09	0.046
40.00	-46.41	-2.07	0.00	-213.27	0.00	213.27	5,674.58	2,837.29	11,194.2	5,605.46	0.40	-0.10	0.046
42.75	-44.97	-2.06	0.00	-207.57	0.00	207.57	5,607.46	2,803.73	10,929.6	5,472.97	0.46	-0.11	0.046
45.00	-42.44	-2.05	0.00	-202.93	0.00	202.93	5,552.55	2,776.27	10,715.5	5,365.75	0.51	-0.11	0.045
49.00	-42.12	-2.05	0.00	-194.73	0.00	194.73	4,334.74	2,167.37	8,395.94	4,204.21	0.61	-0.12	0.056
50.00	-40.55	-2.04	0.00	-192.68	0.00	192.68	4,321.48	2,160.74	8,333.21	4,172.80	0.64	-0.13	0.056
55.00	-39.01	-2.03	0.00	-182.46	0.00	182.46	4,254.40	2,127.20	8,021.52	4,016.72	0.78	-0.14	0.055
60.00	-37.49	-2.02	0.00	-172.29	0.00	172.29	4,186.06	2,093.03	7,713.24	3,862.35	0.93	-0.16	0.054
65.00	-36.01	-2.01	0.00	-162.17	0.00	162.17	4,116.45	2,058.22	7,408.53	3,709.77	1.11	-0.17	0.052
70.00	-34.55	-1.99	0.00	-152.12	0.00	152.12	4,045.56	2,022.78	7,107.57	3,559.07	1.30	-0.19	0.051
75.00	-33.12	-1.97	0.00	-142.16	0.00	142.16	3,973.41	1,986.71	6,810.50	3,410.31	1.50	-0.21	0.050
80.00	-31.71	-1.95	0.00	-132.30	0.00	132.30	3,899.99	1,950.00	6,517.51	3,263.60	1.73	-0.22	0.049
85.00	-31.16	-1.94	0.00	-122.56	0.00	122.56	3,805.04	1,902.52	6,195.74	3,102.48	1.97	-0.24	0.048
87.00	-30.70	-1.93	0.00	-118.68	0.00	118.68	3,765.38	1,882.69	6,066.61	3,037.81	2.07	-0.25	0.047
88.00	-29.66	-1.90	0.00	-116.75	0.00	116.75	3,745.55	1,872.77	6,002.55	3,005.74	2.12	-0.25	0.047
90.00	-28.76	-1.88	0.00	-112.94	0.00	112.94	3,705.89	1,852.94	5,875.46	2,942.10	2.23	-0.26	0.046
92.00	-28.04	-1.86	0.00	-109.18	0.00	109.18	3,054.73	1,527.36	4,893.34	2,450.31	2.34	-0.26	0.054
95.00	-27.56	-1.85	0.00	-103.59	0.00	103.59	3,020.24	1,510.12	4,760.42	2,383.75	2.51	-0.27	0.053
97.00	-26.72	-1.83	0.00	-99.88	0.00	99.88	2,996.99	1,498.50	4,672.40	2,339.67	2.62	-0.28	0.052
100.00	-25.57	-1.79	0.00	-94.39	0.00	94.39	2,961.74	1,480.87	4,541.28	2,274.01	2.80	-0.29	0.050
105.00	-24.44	-1.76	0.00	-85.42	0.00	85.42	2,901.98	1,450.99	4,325.26	2,165.84	3.12	-0.31	0.048
110.00	-23.20	-1.71	0.00	-76.63	0.00	76.63	2,840.94	1,420.47	4,112.52	2,059.32	3.45	-0.33	0.045
115.00	-22.12	-1.67	0.00	-68.07	0.00	68.07	2,777.06	1,388.53	3,901.02	1,953.41	3.80	-0.34	0.043
120.00	-21.06	-1.62	0.00	-59.73	0.00	59.73	2,693.16	1,346.58	3,667.73	1,836.59	4.17	-0.36	0.040
125.00	-20.02	-1.57	0.00	-51.62	0.00	51.62	2,609.26	1,304.63	3,441.64	1,723.38	4.55	-0.37	0.038
130.00	-19.62	-1.55	0.00	-43.77	0.00	43.77	2,525.36	1,262.68	3,222.75	1,613.77	4.95	-0.39	0.035
132.00	-18.74	-1.50	0.00	-40.67	0.00	40.67	2,491.80	1,245.90	3,137.20	1,570.93	5.12	-0.40	0.033
135.00	-18.45	-1.49	0.00	-36.16	0.00	36.16	2,441.46	1,220.73	3,011.04	1,507.76	5.37	-0.40	0.032
136.00	-18.30	-1.48	0.00	-34.68	0.00	34.68	1,416.30	708.15	1,774.76	888.70	5.45	-0.41	0.052
137.00	-15.23	-1.29	0.00	-33.20	0.00	33.20	1,410.39	705.20	1,755.27	878.94	5.54	-0.41	0.049
140.00	-14.60	-1.25	0.00	-29.34	0.00	29.34	1,392.36	696.18	1,697.02	849.77	5.80	-0.42	0.045
145.00	-14.36	-1.23	0.00	-23.09	0.00	23.09	1,361.30	680.65	1,600.81	801.59	6.25	-0.44	0.039
147.00	-11.88	-1.06	0.00	-20.62	0.00	20.62	1,348.51	674.26	1,562.66	782.49	6.43	-0.44	0.035
150.00	-11.34	-1.02	0.00	-17.45	0.00	17.45	1,328.96	664.48	1,505.82	754.03	6.71	-0.45	0.032
155.00	-10.81	-0.98	0.00	-12.35	0.00	12.35	1,295.36	647.68	1,412.23	707.16	7.19	-0.46	0.026
160.00	-6.86	-0.65	0.00	-7.45	0.00	7.45	1,260.48	630.24	1,320.18	661.07	7.68	-0.47	0.017
165.00	-6.61	-0.63	0.00	-4.20	0.00	4.20	1,224.34	612.17	1,229.85	615.84	8.18	-0.48	0.012
168.00	-2.62	-0.26	0.00	-2.32	0.00	2.32	1,202.05	601.02	1,176.54	589.15	8.48	-0.48	0.006
170.00	-2.28	-0.23	0.00	-1.79	0.00	1.79	1,186.93	593.46	1,141.40	571.55	8.68	-0.48	0.005
175.00	-2.08	-0.21	0.00	-0.63	0.00	0.63	1,148.25	574.12	1,054.98	528.28	9.18	-0.48	0.003
178.00	0.00	-0.19	0.00	0.00	0.00	0.00	1,123.52	561.76	1,003.37	502.43	9.48	-0.48	0.000

Load Case (0.9 - 0.2Sds) * DL + E ELFM 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	-43.11	-2.02	0.00	-290.03	0.00	290.03	6,434.86	3,217.43	14,900.4	7,461.32	0.00	0.00	0.046
5.00	-41.62	-2.03	0.00	-279.93	0.00	279.93	6,350.74	3,175.37	14,433.5	7,227.48	0.01	-0.01	0.045
10.00	-41.03	-2.03	0.00	-269.78	0.00	269.78	6,265.35	3,132.68	13,970.9	6,995.84	0.02	-0.02	0.045
12.00	-40.06	-2.04	0.00	-265.72	0.00	265.72	6,230.84	3,115.42	13,787.1	6,903.82	0.03	-0.03	0.045
15.00	-38.62	-2.04	0.00	-259.61	0.00	259.61	6,178.70	3,089.35	13,512.8	6,766.48	0.05	-0.03	0.045
20.00	-37.20	-2.04	0.00	-249.40	0.00	249.40	6,090.77	3,045.39	13,059.5	6,539.47	0.10	-0.05	0.044
25.00	-35.80	-2.05	0.00	-239.18	0.00	239.18	6,001.58	3,000.79	12,611.0	6,314.89	0.15	-0.06	0.044
30.00	-34.42	-2.05	0.00	-228.95	0.00	228.95	5,911.12	2,955.56	12,167.6	6,092.85	0.22	-0.07	0.043
35.00	-33.08	-2.04	0.00	-218.71	0.00	218.71	5,796.61	2,898.31	11,683.4	5,850.41	0.30	-0.08	0.043
40.00	-32.34	-2.04	0.00	-208.49	0.00	208.49	5,674.58	2,837.29	11,194.2	5,605.46	0.40	-0.10	0.043
42.75	-31.34	-2.04	0.00	-202.88	0.00	202.88	5,607.46	2,803.73	10,929.6	5,472.97	0.45	-0.10	0.043
45.00	-29.58	-2.02	0.00	-198.29	0.00	198.29	5,552.55	2,776.27	10,715.5	5,365.75	0.50	-0.11	0.042
49.00	-29.36	-2.02	0.00	-190.21	0.00	190.21	4,334.74	2,167.37	8,395.94	4,204.21	0.60	-0.12	0.052
50.00	-28.26	-2.01	0.00	-188.19	0.00	188.19	4,321.48	2,160.74	8,333.21	4,172.80	0.63	-0.12	0.052
55.00	-27.18	-2.00	0.00	-178.13	0.00	178.13	4,254.40	2,127.20	8,021.52	4,016.72	0.76	-0.14	0.051
60.00	-26.13	-1.99	0.00	-168.12	0.00	168.12	4,186.06	2,093.03	7,713.24	3,862.35	0.91	-0.15	0.050
65.00	-25.09	-1.97	0.00	-158.18	0.00	158.18	4,116.45	2,058.22	7,408.53	3,709.77	1.08	-0.17	0.049
70.00	-24.08	-1.95	0.00	-148.32	0.00	148.32	4,045.56	2,022.78	7,107.57	3,559.07	1.27	-0.19	0.048
75.00	-23.08	-1.93	0.00	-138.55	0.00	138.55	3,973.41	1,986.71	6,810.50	3,410.31	1.47	-0.20	0.046
80.00	-22.10	-1.91	0.00	-128.89	0.00	128.89	3,899.99	1,950.00	6,517.51	3,263.60	1.69	-0.22	0.045
85.00	-21.71	-1.90	0.00	-119.36	0.00	119.36	3,805.04	1,902.52	6,195.74	3,102.48	1.93	-0.23	0.044
87.00	-21.39	-1.89	0.00	-115.57	0.00	115.57	3,765.38	1,882.69	6,066.61	3,037.81	2.03	-0.24	0.044
88.00	-20.67	-1.86	0.00	-113.68	0.00	113.68	3,745.55	1,872.77	6,002.55	3,005.74	2.08	-0.24	0.043
90.00	-20.04	-1.84	0.00	-109.96	0.00	109.96	3,705.89	1,852.94	5,875.46	2,942.10	2.18	-0.25	0.043
92.00	-19.54	-1.82	0.00	-106.28	0.00	106.28	3,054.73	1,527.36	4,893.34	2,450.31	2.29	-0.26	0.050
95.00	-19.21	-1.81	0.00	-100.81	0.00	100.81	3,020.24	1,510.12	4,760.42	2,383.75	2.45	-0.27	0.049
97.00	-18.62	-1.79	0.00	-97.19	0.00	97.19	2,996.99	1,498.50	4,672.40	2,339.67	2.57	-0.27	0.048
100.00	-17.82	-1.75	0.00	-91.83	0.00	91.83	2,961.74	1,480.87	4,541.28	2,274.01	2.74	-0.28	0.046
105.00	-17.03	-1.71	0.00	-83.08	0.00	83.08	2,901.98	1,450.99	4,325.26	2,165.84	3.05	-0.30	0.044
110.00	-16.16	-1.67	0.00	-74.51	0.00	74.51	2,840.94	1,420.47	4,112.52	2,059.32	3.37	-0.32	0.042
115.00	-15.41	-1.62	0.00	-66.17	0.00	66.17	2,777.06	1,388.53	3,901.02	1,953.41	3.71	-0.33	0.039
120.00	-14.67	-1.58	0.00	-58.05	0.00	58.05	2,693.16	1,346.58	3,667.73	1,836.59	4.07	-0.35	0.037
125.00	-13.95	-1.53	0.00	-50.16	0.00	50.16	2,609.26	1,304.63	3,441.64	1,723.38	4.45	-0.37	0.034
130.00	-13.67	-1.51	0.00	-42.52	0.00	42.52	2,525.36	1,262.68	3,222.75	1,613.77	4.84	-0.38	0.032
132.00	-13.06	-1.46	0.00	-39.51	0.00	39.51	2,491.80	1,245.90	3,137.20	1,570.93	5.00	-0.39	0.030
135.00	-12.86	-1.44	0.00	-35.13	0.00	35.13	2,441.46	1,220.73	3,011.04	1,507.76	5.24	-0.39	0.029
136.00	-12.75	-1.44	0.00	-33.69	0.00	33.69	1,416.30	708.15	1,774.76	888.70	5.33	-0.40	0.047
137.00	-10.61	-1.25	0.00	-32.25	0.00	32.25	1,410.39	705.20	1,755.27	878.94	5.41	-0.40	0.044
140.00	-10.18	-1.21	0.00	-28.50	0.00	28.50	1,392.36	696.18	1,697.02	849.77	5.66	-0.41	0.041
145.00	-10.00	-1.20	0.00	-22.43	0.00	22.43	1,361.30	680.65	1,600.81	801.59	6.10	-0.43	0.035
147.00	-8.27	-1.03	0.00	-20.04	0.00	20.04	1,348.51	674.26	1,562.66	782.49	6.28	-0.43	0.032
150.00	-7.90	-0.99	0.00	-16.95	0.00	16.95	1,328.96	664.48	1,505.82	754.03	6.56	-0.44	0.028
155.00	-7.53	-0.95	0.00	-12.00	0.00	12.00	1,295.36	647.68	1,412.23	707.16	7.02	-0.45	0.023
160.00	-4.78	-0.63	0.00	-7.24	0.00	7.24	1,260.48	630.24	1,320.18	661.07	7.50	-0.46	0.015
165.00	-4.60	-0.61	0.00	-4.09	0.00	4.09	1,224.34	612.17	1,229.85	615.84	7.98	-0.46	0.010
168.00	-1.83	-0.26	0.00	-2.26	0.00	2.26	1,202.05	601.02	1,176.54	589.15	8.27	-0.47	0.005
170.00	-1.59	-0.22	0.00	-1.74	0.00	1.74	1,186.93	593.46	1,141.40	571.55	8.47	-0.47	0.004
175.00	-1.45	-0.21	0.00	-0.62	0.00	0.62	1,148.25	574.12	1,054.98	528.28	8.96	-0.47	0.002
178.00	0.00	-0.19	0.00	0.00	0.00	0.00	1,123.52	561.76	1,003.37	502.43	9.25	-0.47	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):	0.18
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}):	0.19
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.80
Redundancy Factor (p):	1.30

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)
48	176.50	160	1.858	1.817	1.081	0.335	47	198
47	172.50	277	1.775	1.427	0.935	0.284	68	343
46	169.00	114	1.704	1.136	0.820	0.243	24	141
45	166.50	202	1.654	0.954	0.745	0.215	38	250
44	162.50	346	1.575	0.704	0.637	0.174	52	428
43	157.50	424	1.480	0.452	0.519	0.128	47	524
42	152.50	436	1.387	0.260	0.419	0.087	33	539
41	148.50	267	1.315	0.142	0.350	0.058	13	331
40	146.00	200	1.272	0.083	0.312	0.041	7	248
39	142.50	509	1.211	0.016	0.263	0.021	9	631
38	138.50	312	1.144	-0.042	0.215	0.000	0	386
37	136.50	121	1.111	-0.063	0.194	-0.009	-1	150
36	135.50	233	1.095	-0.073	0.184	-0.013	-3	289
35	133.50	707	1.063	-0.088	0.165	-0.021	-13	875
34	131.00	329	1.024	-0.103	0.143	-0.029	-8	407
33	127.50	835	0.970	-0.116	0.117	-0.039	-28	1,034
32	122.50	854	0.895	-0.122	0.085	-0.048	-35	1,057
31	117.50	874	0.824	-0.116	0.061	-0.051	-39	1,081
30	112.50	893	0.755	-0.102	0.042	-0.050	-39	1,105
29	107.50	913	0.689	-0.084	0.028	-0.043	-34	1,130
28	102.50	932	0.627	-0.063	0.018	-0.032	-26	1,154
27	98.50	568	0.579	-0.045	0.012	-0.020	-10	704
26	96.00	383	0.550	-0.034	0.010	-0.012	-4	474
25	93.50	580	0.521	-0.024	0.008	-0.004	-2	718
24	91.00	728	0.494	-0.014	0.007	0.004	2	902
23	89.00	735	0.472	-0.006	0.006	0.010	6	910
22	87.50	370	0.457	-0.001	0.006	0.015	5	458
21	86.00	447	0.441	0.005	0.006	0.019	7	553
20	82.50	1,133	0.406	0.016	0.006	0.028	28	1,402
19	77.50	1,156	0.358	0.031	0.008	0.039	39	1,430
18	72.50	1,178	0.314	0.042	0.011	0.046	47	1,458
17	67.50	1,201	0.272	0.051	0.015	0.051	53	1,487
16	62.50	1,224	0.233	0.058	0.019	0.053	56	1,515
15	57.50	1,247	0.197	0.063	0.024	0.054	58	1,543

14	52.50	1,269	0.164	0.067	0.028	0.054	59	1,571
13	49.50	257	0.146	0.068	0.031	0.053	12	318
12	47.00	2,044	0.132	0.069	0.033	0.053	93	2,529
11	43.88	1,164	0.115	0.070	0.035	0.052	53	1,440
10	41.38	848	0.102	0.071	0.037	0.052	38	1,050
9	37.50	1,564	0.084	0.071	0.039	0.051	69	1,935
8	32.50	1,592	0.063	0.072	0.041	0.050	69	1,970
7	27.50	1,620	0.045	0.071	0.042	0.048	68	2,004
6	22.50	1,648	0.030	0.068	0.041	0.047	67	2,039
5	17.50	1,676	0.018	0.063	0.037	0.044	64	2,074
4	13.50	1,019	0.011	0.056	0.033	0.040	36	1,261
3	11.00	685	0.007	0.050	0.029	0.037	22	848
2	7.50	1,732	0.003	0.039	0.022	0.030	45	2,144
1	2.50	1,760	0.000	0.016	0.008	0.014	21	2,178
Powerwave Allgon 712	178.00	185	1.890	1.980	1.140	0.355	57	229
Flat Low Profile Pla	178.00	1,500	1.890	1.980	1.140	0.355	461	1,856
Alcatel-Lucent RRH2x	168.00	317	1.684	1.061	0.790	0.232	64	393
Alcatel-Lucent 1900	168.00	180	1.684	1.061	0.790	0.232	36	223
Alcatel-Lucent TD-RR	168.00	210	1.684	1.061	0.790	0.232	42	260
RFS APXVTM14-ALU-I20	168.00	169	1.684	1.061	0.790	0.232	34	209
Commscope NNVV-	168.00	232	1.684	1.061	0.790	0.232	47	287
Flat Platform w/ Han	168.00	2,000	1.684	1.061	0.790	0.232	402	2,475
RFS FD9R6004/2C-3L	160.00	16	1.527	0.570	0.576	0.150	2	19
Alcatel-Lucent RRH2x	160.00	170	1.527	0.570	0.576	0.150	22	211
Alcatel-Lucent B66a	160.00	201	1.527	0.570	0.576	0.150	26	249
RFS DB-T1-6Z-8AB-0Z	160.00	88	1.527	0.570	0.576	0.150	11	109
Antel LPA-80080/4CF	160.00	72	1.527	0.570	0.576	0.150	9	89
Andrew SBNHH-1D65B	160.00	304	1.527	0.570	0.576	0.150	40	376
Flat Platform w/ Han	160.00	2,000	1.527	0.570	0.576	0.150	260	2,475
Kathrein Smart Bias	147.00	10	1.289	0.106	0.326	0.048	0	12
Ericsson KRY 112 144	147.00	33	1.289	0.106	0.326	0.048	1	41
EMS RR90-17-02DP	147.00	41	1.289	0.106	0.326	0.048	2	50
Andrew LNX-6515DS-VT	147.00	154	1.289	0.106	0.326	0.048	6	190
Round Low Profile Pl	147.00	1,500	1.289	0.106	0.326	0.048	62	1,856
LGP Allgon LGP21903	137.00	33	1.120	-0.058	0.199	-0.007	0	41
Powerwave LGP21401	137.00	85	1.120	-0.058	0.199	-0.007	0	105
Raycap DC6-48-60-18-	137.00	32	1.120	-0.058	0.199	-0.007	0	39
Ericsson RRUS 11 (Ba	137.00	165	1.120	-0.058	0.199	-0.007	-1	204
Powerwave 7770.00	137.00	210	1.120	-0.058	0.199	-0.007	-1	260
KMW AM-X-CD-16-65-00	137.00	146	1.120	-0.058	0.199	-0.007	-1	180
Flat Low Profile Pla	137.00	1,500	1.120	-0.058	0.199	-0.007	-9	1,856
GPS	110.00	10	0.722	-0.093	0.034	-0.047	0	12
Stand-Off	110.00	100	0.722	-0.093	0.034	-0.047	-4	124
GPS	97.00	10	0.561	-0.039	0.011	-0.016	0	12
Stand-Off	97.00	100	0.561	-0.039	0.011	-0.016	-1	124
GPS	88.00	10	0.462	-0.003	0.006	0.013	0	12
Stand-Off	88.00	100	0.462	-0.003	0.006	0.013	1	124
PCTEL GPS-TMG-HR-	12.00	1	0.009	0.053	0.030	0.038	0	1
Stand-Off	12.00	100	0.009	0.053	0.030	0.038	3	124
		51,750	74.005	21.287	22.162	5.480	2,685	64,043

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)
48	176.50	160	1.858	1.817	1.081	0.335	47	138
47	172.50	277	1.775	1.427	0.935	0.284	68	239
46	169.00	114	1.704	1.136	0.820	0.243	24	99
45	166.50	202	1.654	0.954	0.745	0.215	38	174

44	162.50	346	1.575	0.704	0.637	0.174	52	298
43	157.50	424	1.480	0.452	0.519	0.128	47	365
42	152.50	436	1.387	0.260	0.419	0.087	33	376
41	148.50	267	1.315	0.142	0.350	0.058	13	231
40	146.00	200	1.272	0.083	0.312	0.041	7	173
39	142.50	509	1.211	0.016	0.263	0.021	9	439
38	138.50	312	1.144	-0.042	0.215	0.000	0	269
37	136.50	121	1.111	-0.063	0.194	-0.009	-1	105
36	135.50	233	1.095	-0.073	0.184	-0.013	-3	201
35	133.50	707	1.063	-0.088	0.165	-0.021	-13	610
34	131.00	329	1.024	-0.103	0.143	-0.029	-8	284
33	127.50	835	0.970	-0.116	0.117	-0.039	-28	720
32	122.50	854	0.895	-0.122	0.085	-0.048	-35	737
31	117.50	874	0.824	-0.116	0.061	-0.051	-39	754
30	112.50	893	0.755	-0.102	0.042	-0.050	-39	770
29	107.50	913	0.689	-0.084	0.028	-0.043	-34	787
28	102.50	932	0.627	-0.063	0.018	-0.032	-26	804
27	98.50	568	0.579	-0.045	0.012	-0.020	-10	490
26	96.00	383	0.550	-0.034	0.010	-0.012	-4	330
25	93.50	580	0.521	-0.024	0.008	-0.004	-2	501
24	91.00	728	0.494	-0.014	0.007	0.004	2	628
23	89.00	735	0.472	-0.006	0.006	0.010	6	634
22	87.50	370	0.457	-0.001	0.006	0.015	5	319
21	86.00	447	0.441	0.005	0.006	0.019	7	385
20	82.50	1,133	0.406	0.016	0.006	0.028	28	977
19	77.50	1,156	0.358	0.031	0.008	0.039	39	997
18	72.50	1,178	0.314	0.042	0.011	0.046	47	1,016
17	67.50	1,201	0.272	0.051	0.015	0.051	53	1,036
16	62.50	1,224	0.233	0.058	0.019	0.053	56	1,056
15	57.50	1,247	0.197	0.063	0.024	0.054	58	1,075
14	52.50	1,269	0.164	0.067	0.028	0.054	59	1,095
13	49.50	257	0.146	0.068	0.031	0.053	12	221
12	47.00	2,044	0.132	0.069	0.033	0.053	93	1,763
11	43.88	1,164	0.115	0.070	0.035	0.052	53	1,004
10	41.38	848	0.102	0.071	0.037	0.052	38	732
9	37.50	1,564	0.084	0.071	0.039	0.051	69	1,349
8	32.50	1,592	0.063	0.072	0.041	0.050	69	1,373
7	27.50	1,620	0.045	0.071	0.042	0.048	68	1,397
6	22.50	1,648	0.030	0.068	0.041	0.047	67	1,421
5	17.50	1,676	0.018	0.063	0.037	0.044	64	1,445
4	13.50	1,019	0.011	0.056	0.033	0.040	36	879
3	11.00	685	0.007	0.050	0.029	0.037	22	591
2	7.50	1,732	0.003	0.039	0.022	0.030	45	1,494
1	2.50	1,760	0.000	0.016	0.008	0.014	21	1,518
Powerwave Allgon 712	178.00	185	1.890	1.980	1.140	0.355	57	159
Flat Low Profile Pla	178.00	1,500	1.890	1.980	1.140	0.355	461	1,294
Alcatel-Lucent RRH2x	168.00	317	1.684	1.061	0.790	0.232	64	274
Alcatel-Lucent 1900	168.00	180	1.684	1.061	0.790	0.232	36	155
Alcatel-Lucent TD-RR	168.00	210	1.684	1.061	0.790	0.232	42	181
RFS APXVTM14-ALU-I20	168.00	169	1.684	1.061	0.790	0.232	34	145
Commscope NNVV-	168.00	232	1.684	1.061	0.790	0.232	47	200
Flat Platform w/ Han	168.00	2,000	1.684	1.061	0.790	0.232	402	1,725
RFS FD9R6004/2C-3L	160.00	16	1.527	0.570	0.576	0.150	2	13
Alcatel-Lucent RRH2x	160.00	170	1.527	0.570	0.576	0.150	22	147
Alcatel-Lucent B66a	160.00	201	1.527	0.570	0.576	0.150	26	173
RFS DB-T1-6Z-8AB-0Z	160.00	88	1.527	0.570	0.576	0.150	11	76
Antel LPA-80080/4CF	160.00	72	1.527	0.570	0.576	0.150	9	62
Andrew SBNHH-1D65B	160.00	304	1.527	0.570	0.576	0.150	40	262
Flat Platform w/ Han	160.00	2,000	1.527	0.570	0.576	0.150	260	1,725
Kathrein Smart Bias	147.00	10	1.289	0.106	0.326	0.048	0	9
Ericsson KRY 112 144	147.00	33	1.289	0.106	0.326	0.048	1	28
EMS RR90-17-02DP	147.00	41	1.289	0.106	0.326	0.048	2	35
Andrew LNX-6515DS-VT	147.00	154	1.289	0.106	0.326	0.048	6	133
Round Low Profile Pl	147.00	1,500	1.289	0.106	0.326	0.048	62	1,294

LGP Allgon LGP21903	137.00	33	1.120	-0.058	0.199	-0.007	0	28
Powerwave LGP21401	137.00	85	1.120	-0.058	0.199	-0.007	0	73
Raycap DC6-48-60-18-	137.00	32	1.120	-0.058	0.199	-0.007	0	27
Ericsson RRUS 11 (Ba	137.00	165	1.120	-0.058	0.199	-0.007	-1	142
Powerwave 7770.00	137.00	210	1.120	-0.058	0.199	-0.007	-1	181
KMW AM-X-CD-16-65-00	137.00	146	1.120	-0.058	0.199	-0.007	-1	125
Flat Low Profile Pla	137.00	1,500	1.120	-0.058	0.199	-0.007	-9	1,294
GPS	110.00	10	0.722	-0.093	0.034	-0.047	0	9
Stand-Off	110.00	100	0.722	-0.093	0.034	-0.047	-4	86
GPS	97.00	10	0.561	-0.039	0.011	-0.016	0	9
Stand-Off	97.00	100	0.561	-0.039	0.011	-0.016	-1	86
GPS	88.00	10	0.462	-0.003	0.006	0.013	0	9
Stand-Off	88.00	100	0.462	-0.003	0.006	0.013	1	86
PCTEL GPS-TMG-HR-	12.00	1	0.009	0.053	0.030	0.038	0	1
Stand-Off	12.00	100	0.009	0.053	0.030	0.038	3	86
		51,750	74.005	21.287	22.162	5.480	2,685	44,632

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	-61.86	-2.67	0.00	-354.19	0.00	354.19	6,434.86	3,217.43	14,900.4	7,461.32	0.00	0.00	0.057
5.00	-59.72	-2.64	0.00	-340.83	0.00	340.83	6,350.74	3,175.37	14,433.5	7,227.48	0.01	-0.01	0.057
10.00	-58.87	-2.63	0.00	-327.64	0.00	327.64	6,265.35	3,132.68	13,970.9	6,995.84	0.03	-0.03	0.056
12.00	-57.49	-2.59	0.00	-322.38	0.00	322.38	6,230.84	3,115.42	13,787.1	6,903.82	0.04	-0.03	0.056
15.00	-55.41	-2.54	0.00	-314.60	0.00	314.60	6,178.70	3,089.35	13,512.8	6,766.48	0.07	-0.04	0.055
20.00	-53.37	-2.49	0.00	-301.89	0.00	301.89	6,090.77	3,045.39	13,059.5	6,539.47	0.12	-0.06	0.055
25.00	-51.37	-2.43	0.00	-289.46	0.00	289.46	6,001.58	3,000.79	12,611.0	6,314.89	0.18	-0.07	0.054
30.00	-49.40	-2.37	0.00	-277.32	0.00	277.32	5,911.12	2,955.56	12,167.6	6,092.85	0.27	-0.09	0.054
35.00	-47.46	-2.31	0.00	-265.46	0.00	265.46	5,796.61	2,898.31	11,683.4	5,850.41	0.37	-0.10	0.054
40.00	-46.41	-2.28	0.00	-253.91	0.00	253.91	5,674.58	2,837.29	11,194.2	5,605.46	0.48	-0.12	0.053
42.75	-44.97	-2.23	0.00	-247.63	0.00	247.63	5,607.46	2,803.73	10,929.6	5,472.97	0.55	-0.13	0.053
45.00	-42.44	-2.14	0.00	-242.61	0.00	242.61	5,552.55	2,776.27	10,715.5	5,365.75	0.61	-0.13	0.053
49.00	-42.12	-2.13	0.00	-234.05	0.00	234.05	4,334.74	2,167.37	8,395.94	4,204.21	0.73	-0.15	0.065
50.00	-40.55	-2.08	0.00	-231.92	0.00	231.92	4,321.48	2,160.74	8,333.21	4,172.80	0.76	-0.15	0.065
55.00	-39.01	-2.03	0.00	-221.53	0.00	221.53	4,254.40	2,127.20	8,021.52	4,016.72	0.93	-0.17	0.064
60.00	-37.49	-1.98	0.00	-211.38	0.00	211.38	4,186.06	2,093.03	7,713.24	3,862.35	1.11	-0.19	0.064
65.00	-36.01	-1.94	0.00	-201.47	0.00	201.47	4,116.45	2,058.22	7,408.53	3,709.77	1.32	-0.21	0.063
70.00	-34.55	-1.90	0.00	-191.79	0.00	191.79	4,045.56	2,022.78	7,107.57	3,559.07	1.55	-0.23	0.062
75.00	-33.12	-1.86	0.00	-182.31	0.00	182.31	3,973.41	1,986.71	6,810.50	3,410.31	1.80	-0.25	0.062
80.00	-31.71	-1.84	0.00	-172.99	0.00	172.99	3,899.99	1,950.00	6,517.51	3,263.60	2.07	-0.27	0.061
85.00	-31.16	-1.84	0.00	-163.78	0.00	163.78	3,805.04	1,902.52	6,195.74	3,102.48	2.36	-0.29	0.061
87.00	-30.70	-1.84	0.00	-160.10	0.00	160.10	3,765.38	1,882.69	6,066.61	3,037.81	2.49	-0.30	0.061
88.00	-29.66	-1.83	0.00	-158.27	0.00	158.27	3,745.55	1,872.77	6,002.55	3,005.74	2.55	-0.31	0.061
90.00	-28.75	-1.82	0.00	-154.62	0.00	154.62	3,705.89	1,852.94	5,875.46	2,942.10	2.68	-0.31	0.060
92.00	-28.04	-1.83	0.00	-150.97	0.00	150.97	3,054.73	1,527.36	4,893.34	2,450.31	2.82	-0.32	0.071
95.00	-27.56	-1.84	0.00	-145.48	0.00	145.48	3,020.24	1,510.12	4,760.42	2,383.75	3.02	-0.34	0.070
97.00	-26.72	-1.85	0.00	-141.81	0.00	141.81	2,996.99	1,498.50	4,672.40	2,339.67	3.17	-0.35	0.070
100.00	-25.57	-1.88	0.00	-136.27	0.00	136.27	2,961.74	1,480.87	4,541.28	2,274.01	3.39	-0.36	0.069
105.00	-24.44	-1.91	0.00	-126.89	0.00	126.89	2,901.98	1,450.99	4,325.26	2,165.84	3.79	-0.39	0.067
110.00	-23.19	-1.96	0.00	-117.33	0.00	117.33	2,840.94	1,420.47	4,112.52	2,059.32	4.21	-0.42	0.065
115.00	-22.11	-2.00	0.00	-107.54	0.00	107.54	2,777.06	1,388.53	3,901.02	1,953.41	4.66	-0.44	0.063
120.00	-21.05	-2.04	0.00	-97.54	0.00	97.54	2,693.16	1,346.58	3,667.73	1,836.59	5.14	-0.47	0.061
125.00	-20.02	-2.06	0.00	-87.36	0.00	87.36	2,609.26	1,304.63	3,441.64	1,723.38	5.64	-0.49	0.058
130.00	-19.61	-2.07	0.00	-77.04	0.00	77.04	2,525.36	1,262.68	3,222.75	1,613.77	6.17	-0.52	0.056
132.00	-18.73	-2.08	0.00	-72.89	0.00	72.89	2,491.80	1,245.90	3,137.20	1,570.93	6.39	-0.53	0.054
135.00	-18.45	-2.09	0.00	-66.64	0.00	66.64	2,441.46	1,220.73	3,011.04	1,507.76	6.73	-0.55	0.052
136.00	-18.30	-2.09	0.00	-64.56	0.00	64.56	1,416.30	708.15	1,774.76	888.70	6.85	-0.55	0.086
137.00	-15.22	-2.07	0.00	-62.47	0.00	62.47	1,410.39	705.20	1,755.27	878.94	6.96	-0.56	0.082
140.00	-14.59	-2.07	0.00	-56.25	0.00	56.25	1,392.36	696.18	1,697.02	849.77	7.32	-0.58	0.077
145.00	-14.34	-2.06	0.00	-45.92	0.00	45.92	1,361.30	680.65	1,600.81	801.59	7.94	-0.61	0.068
147.00	-11.86	-1.95	0.00	-41.80	0.00	41.80	1,348.51	674.26	1,562.66	782.49	8.20	-0.62	0.062
150.00	-11.32	-1.92	0.00	-35.95	0.00	35.95	1,328.96	664.48	1,505.82	754.03	8.59	-0.64	0.056
155.00	-10.80	-1.87	0.00	-26.36	0.00	26.36	1,295.36	647.68	1,412.23	707.16	9.27	-0.66	0.046
160.00	-6.85	-1.40	0.00	-17.01	0.00	17.01	1,260.48	630.24	1,320.18	661.07	9.98	-0.68	0.031
165.00	-6.60	-1.36	0.00	-10.01	0.00	10.01	1,224.34	612.17	1,229.85	615.84	10.70	-0.69	0.022
168.00	-2.62	-0.66	0.00	-5.92	0.00	5.92	1,202.05	601.02	1,176.54	589.15	11.13	-0.70	0.012
170.00	-2.28	-0.59	0.00	-4.59	0.00	4.59	1,186.93	593.46	1,141.40	571.55	11.43	-0.70	0.010
175.00	-2.08	-0.54	0.00	-1.63	0.00	1.63	1,148.25	574.12	1,054.98	528.28	12.16	-0.70	0.005
178.00	0.00	-0.52	0.00	0.00	0.00	0.00	1,123.52	561.76	1,003.37	502.43	12.61	-0.71	0.000

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

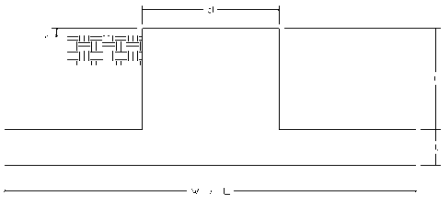
Calculated Forces

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	-43.11	-2.67	0.00	-347.54	0.00	347.54	6,434.86	3,217.43	14,900.4	7,461.32	0.00	0.00	0.053
5.00	-41.62	-2.63	0.00	-334.20	0.00	334.20	6,350.74	3,175.37	14,433.5	7,227.48	0.01	-0.01	0.053
10.00	-41.03	-2.62	0.00	-321.03	0.00	321.03	6,265.35	3,132.68	13,970.9	6,995.84	0.03	-0.03	0.052
12.00	-40.06	-2.58	0.00	-315.80	0.00	315.80	6,230.84	3,115.42	13,787.1	6,903.82	0.04	-0.03	0.052
15.00	-38.62	-2.53	0.00	-308.05	0.00	308.05	6,178.70	3,089.35	13,512.8	6,766.48	0.06	-0.04	0.052
20.00	-37.19	-2.47	0.00	-295.42	0.00	295.42	6,090.77	3,045.39	13,059.5	6,539.47	0.12	-0.06	0.051
25.00	-35.80	-2.41	0.00	-283.08	0.00	283.08	6,001.58	3,000.79	12,611.0	6,314.89	0.18	-0.07	0.051
30.00	-34.42	-2.35	0.00	-271.05	0.00	271.05	5,911.12	2,955.56	12,167.6	6,092.85	0.26	-0.08	0.050
35.00	-33.07	-2.28	0.00	-259.33	0.00	259.33	5,796.61	2,898.31	11,683.4	5,850.41	0.36	-0.10	0.050
40.00	-32.34	-2.25	0.00	-247.91	0.00	247.91	5,674.58	2,837.29	11,194.2	5,605.46	0.47	-0.11	0.050
42.75	-31.34	-2.20	0.00	-241.73	0.00	241.73	5,607.46	2,803.73	10,929.6	5,472.97	0.54	-0.12	0.050
45.00	-29.58	-2.11	0.00	-236.78	0.00	236.78	5,552.55	2,776.27	10,715.5	5,365.75	0.60	-0.13	0.049
49.00	-29.35	-2.10	0.00	-228.35	0.00	228.35	4,334.74	2,167.37	8,395.94	4,204.21	0.71	-0.14	0.061
50.00	-28.26	-2.04	0.00	-226.25	0.00	226.25	4,321.48	2,160.74	8,333.21	4,172.80	0.74	-0.15	0.061
55.00	-27.18	-1.99	0.00	-216.03	0.00	216.03	4,254.40	2,127.20	8,021.52	4,016.72	0.91	-0.16	0.060
60.00	-26.13	-1.94	0.00	-206.08	0.00	206.08	4,186.06	2,093.03	7,713.24	3,862.35	1.09	-0.18	0.060
65.00	-25.09	-1.89	0.00	-196.38	0.00	196.38	4,116.45	2,058.22	7,408.53	3,709.77	1.29	-0.20	0.059
70.00	-24.07	-1.85	0.00	-186.92	0.00	186.92	4,045.56	2,022.78	7,107.57	3,559.07	1.51	-0.22	0.058
75.00	-23.08	-1.82	0.00	-177.66	0.00	177.66	3,973.41	1,986.71	6,810.50	3,410.31	1.76	-0.24	0.058
80.00	-22.10	-1.79	0.00	-168.59	0.00	168.59	3,899.99	1,950.00	6,517.51	3,263.60	2.02	-0.26	0.057
85.00	-21.71	-1.79	0.00	-159.63	0.00	159.63	3,805.04	1,902.52	6,195.74	3,102.48	2.31	-0.29	0.057
87.00	-21.39	-1.78	0.00	-156.05	0.00	156.05	3,765.38	1,882.69	6,066.61	3,037.81	2.43	-0.29	0.057
88.00	-20.66	-1.78	0.00	-154.27	0.00	154.27	3,745.55	1,872.77	6,002.55	3,005.74	2.50	-0.30	0.057
90.00	-20.04	-1.77	0.00	-150.71	0.00	150.71	3,705.89	1,852.94	5,875.46	2,942.10	2.62	-0.31	0.057
92.00	-19.54	-1.78	0.00	-147.17	0.00	147.17	3,054.73	1,527.36	4,893.34	2,450.31	2.75	-0.32	0.066
95.00	-19.20	-1.78	0.00	-141.84	0.00	141.84	3,020.24	1,510.12	4,760.42	2,383.75	2.96	-0.33	0.066
97.00	-18.62	-1.79	0.00	-138.28	0.00	138.28	2,996.99	1,498.50	4,672.40	2,339.67	3.10	-0.34	0.065
100.00	-17.81	-1.82	0.00	-132.89	0.00	132.89	2,961.74	1,480.87	4,541.28	2,274.01	3.31	-0.36	0.064
105.00	-17.03	-1.86	0.00	-123.78	0.00	123.78	2,901.98	1,450.99	4,325.26	2,165.84	3.70	-0.38	0.063
110.00	-16.16	-1.90	0.00	-114.49	0.00	114.49	2,840.94	1,420.47	4,112.52	2,059.32	4.11	-0.41	0.061
115.00	-15.40	-1.94	0.00	-104.98	0.00	104.98	2,777.06	1,388.53	3,901.02	1,953.41	4.55	-0.43	0.059
120.00	-14.67	-1.98	0.00	-95.26	0.00	95.26	2,693.16	1,346.58	3,667.73	1,836.59	5.02	-0.46	0.057
125.00	-13.95	-2.01	0.00	-85.37	0.00	85.37	2,609.26	1,304.63	3,441.64	1,723.38	5.51	-0.48	0.055
130.00	-13.66	-2.02	0.00	-75.33	0.00	75.33	2,525.36	1,262.68	3,222.75	1,613.77	6.03	-0.51	0.052
132.00	-13.05	-2.03	0.00	-71.30	0.00	71.30	2,491.80	1,245.90	3,137.20	1,570.93	6.25	-0.52	0.051
135.00	-12.85	-2.03	0.00	-65.22	0.00	65.22	2,441.46	1,220.73	3,011.04	1,507.76	6.58	-0.53	0.049
136.00	-12.74	-2.03	0.00	-63.19	0.00	63.19	1,416.30	708.15	1,774.76	888.70	6.69	-0.54	0.080
137.00	-10.60	-2.03	0.00	-61.16	0.00	61.16	1,410.39	705.20	1,755.27	878.94	6.80	-0.54	0.077
140.00	-10.16	-2.02	0.00	-55.08	0.00	55.08	1,392.36	696.18	1,697.02	849.77	7.15	-0.56	0.072
145.00	-9.99	-2.01	0.00	-45.00	0.00	45.00	1,361.30	680.65	1,600.81	801.59	7.75	-0.59	0.063
147.00	-8.26	-1.91	0.00	-40.97	0.00	40.97	1,348.51	674.26	1,562.66	782.49	8.01	-0.61	0.058
150.00	-7.89	-1.88	0.00	-35.24	0.00	35.24	1,328.96	664.48	1,505.82	754.03	8.39	-0.62	0.053
155.00	-7.52	-1.83	0.00	-25.86	0.00	25.86	1,295.36	647.68	1,412.23	707.16	9.06	-0.65	0.042
160.00	-4.77	-1.37	0.00	-16.71	0.00	16.71	1,260.48	630.24	1,320.18	661.07	9.74	-0.66	0.029
165.00	-4.59	-1.34	0.00	-9.84	0.00	9.84	1,224.34	612.17	1,229.85	615.84	10.45	-0.68	0.020
168.00	-1.82	-0.65	0.00	-5.83	0.00	5.83	1,202.05	601.02	1,176.54	589.15	10.87	-0.68	0.011
170.00	-1.58	-0.58	0.00	-4.52	0.00	4.52	1,186.93	593.46	1,141.40	571.55	11.16	-0.68	0.009
175.00	-1.45	-0.54	0.00	-1.61	0.00	1.61	1,148.25	574.12	1,054.98	528.28	11.88	-0.69	0.004
178.00	0.00	-0.52	0.00	0.00	0.00	0.00	1,123.52	561.76	1,003.37	502.43	12.31	-0.69	0.000

Analysis Summary

	Reactions						Max Usage	
Load Case	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	37.96	0.00	62.04	0.00	0.00	4619.80	49.00	0.70
0.9D + 1.6W	37.93	0.00	46.51	0.00	0.00	4554.40	49.00	0.68
1.2D + 1.0Di + 1.0Wi	11.27	0.00	104.95	0.00	0.00	1385.39	49.00	0.23
(1.2 + 0.2Sds) * DL + E ELFM	2.02	0.00	61.86	0.00	0.00	295.39	49.00	0.06
(1.2 + 0.2Sds) * DL + E EMAM	2.67	0.00	61.86	0.00	0.00	354.19	136.00	0.09
(0.9 - 0.2Sds) * DL + E ELFM	2.02	0.00	43.11	0.00	0.00	290.03	49.00	0.05
(0.9 - 0.2Sds) * DL + E EMAM	2.67	0.00	43.11	0.00	0.00	347.54	136.00	0.08
1.0D + 1.0W	9.07	0.00	51.75	0.00	0.00	1096.39	49.00	0.17

Site Name:	Andover-bunker Hill Rd, CT	*Program Last Updated:*	*5/13/2014*
Site Number:	302472		
Engineering Number:	OAA710391		
Engineer:	John.Smith		
Date:	06/21/18		
Tower Type:	MP		



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

Design / Analysis / Mapping:	Analysis				
Compression/Leg:	62.0	k	Concrete Strength (f'_c):	3000	psi
Uplift/Leg:	0.0	k	Pad Tension Steel Depth:	44.00	in
Total Shear:	38.0	k	ϕ_{Shear}:	0.75	
Moment:	4619.8	k-ft	$\phi_{Flexure\ /\ Tension}$:	0.90	
Tower + Appurtenance Weight:	62.0	k	$\phi_{Compression:}$	0.65	
Depth to Base of Foundation (l + t - h):	9.50	ft	β:	0.85	
Diameter of Pier (d):	8.00	ft	Bottom Pad Rebar Size #:	11	
Height of Pier above Ground (h):	0.50		# of Bottom Pad Rebar:	24	
Width of Pad (W):	24.00	ft	Pad Bottom Steel Area:	37.44	in^2
Length of Pad (L):	24.00	ft	Pad Steel F_y:	60000	psi
Thickness of Pad (t):	4.00	ft	Top Pad Rebar Size #:	11	
Tower Leg Center to Center:	0.00	ft	# of Top Pad Rebar:	24	
Number of Tower Legs:	1.0	(1 if MP or GT)	Pad Top Steel Area:	37.44	in^2
Tower Center from Mat Center:	0.00	ft	Pier Rebar Size #:	11	
Depth Below Ground Surface to Water Table:	99.00	ft	Pier Steel Area (Single Bar):	1.56	in^2
Unit Weight of Concrete:	150.0	pcf	# of Pier Rebar:	40	
Unit Weight of Soil Above Water Table:	125.0	pcf	Pier Steel F_y:	60000	psi
Unit Weight of Water:	62.4	pcf	Pier Cage Diameter:	88.0	in
Unit Weight of Soil Below Water Table:	62.6	pcf	Rebar Strain Limit:	0.008	
Friction Angle of Uplift:	15.0	Degrees	Steel Elastic Modulus:	29000	ksi
Ultimate Coefficient of Shear Friction:	0.35		Tie Rebar Size #:	5	
Ultimate Compressive Bearing Pressure:	8000.0	psf	Tie Steel Area (Single Bar):	0.31	in^2
Ultimate Passive Pressure on Pad Face:	0.0	psf	Tie Spacing:	6	in
$\phi_{Soil\ and\ Concrete\ Weight}$:	0.9		Tie Steel F_y:	40000	psi
ϕ_{Soil}:	0.75				

Overturning Moment Usage

Design OTM:	4999.4	k-ft
OTM Resistance:	9493.7	k-ft
Design OTM / OTM Resistance:	0.53	Result: OK

Soil Bearing Pressure Usage

Net Bearing Pressure:	3326	psf
Factored Nominal Bearing Pressure:	6000	psf
Net Bearing Pressure/Factored Nominal Bearing Pressure:	0.55	Result: OK
Load Direction Controling Design Bearing Pressure:	Diagonal to Pad Edge	

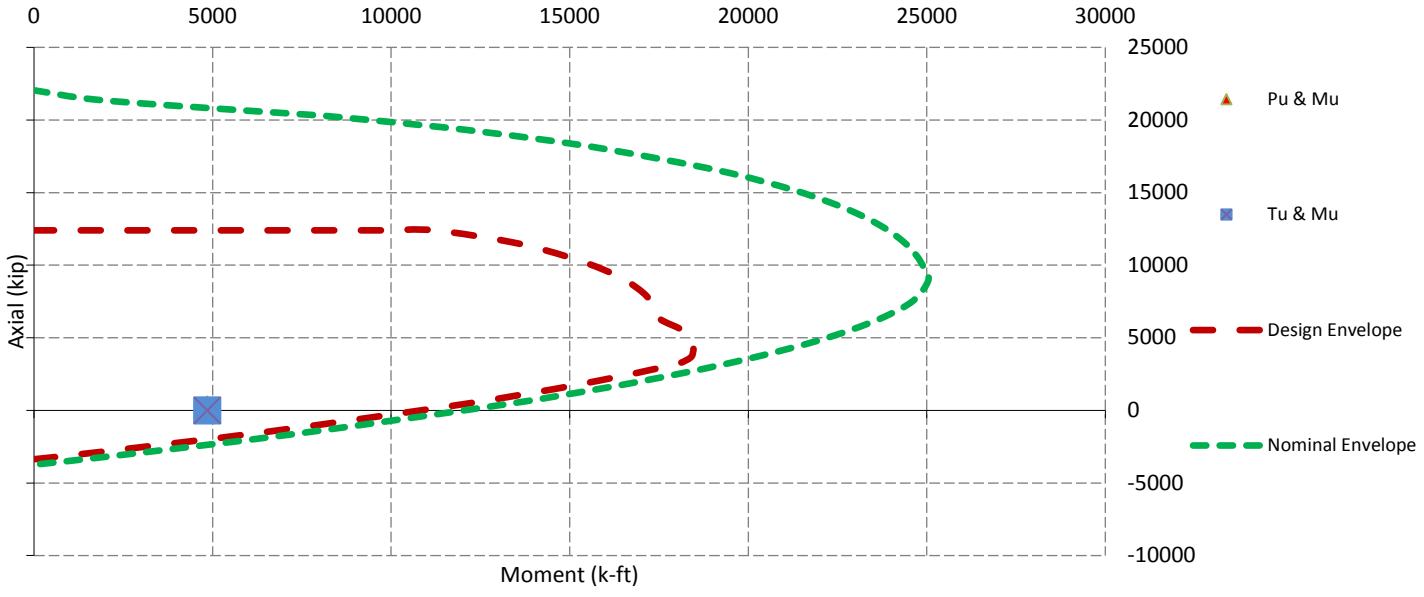
Sliding Factor of Safety

Total Factored Sliding Resistance:	211.0	k
Sliding Design / Sliding Resistance:	0.18	Result: OK

One Way Shear, Flexual Capacity, and Punching Shear

Factored One Way Shear (V_u):	192.9	k
One Way Shear Capacity (ϕV_c):	807.2	k - ACI11.3.1.1
V_u / ϕV_c:	0.24	Result: OK
Load Direction Controling Shear Capacity:	Diagonal to Pad Edge	
Lower Steel Pad Factored Moment (M_u):	1534.9	k-ft
Lower Steel Pad Moment Capacity (ϕM_n):	7194.1	k-ft - ACI10.3
M_u / ϕM_n:	0.21	Result: OK
Load Direction Controling Flexural Capacity:	Parallel to Pad Edge	
Upper Steel Pad Factored Moment (M_u):	1146.0	k-ft
Upper Steel Pad Moment Capacity (ϕM_n):	7194.1	k-ft
M_u / ϕM_n:	0.16	Result: OK
Lower Pad Flexural Reinforcement Ratio:	0.0030	OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Upper Pad Flexural Reinforcement Ratio:	0.0030	OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Lower Pad Reinforcement Spacing:	12	in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Upper Pad Reinforcement Spacing:	12	in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Factored Punching Shear (V_u):	0.0	k
Nominal Punching Shear Capacity ($\phi_c V_n$):	3179.9	k - ACI11.12.2.1
V_u / ϕV_c:	0.00	Result: OK
Factored Moment in Pier (M_u):	4847.6	k-ft
Pier Moment Capacity (ϕM_n):	12085.4	k-ft
M_u / ϕM_n:	0.40	Result: OK
Factored Shear in Pier (V_u):	38.0	k
Pier Shear Capacity (ϕV_n):	597.2	k
V_u / ϕV_c:	0.06	Result: OK
Pier Shear Reinforcement Ratio:	0.0005	No Ties Necessary for Shear - ACI11.5.6.1
Factored Tension in Pier (T_u):	0.0	k
Pier Tension Capacity (ϕT_n):	3369.6	k
T_u / ϕT_n:	0.00	Result: OK
Factored Compression in Pier (P_u):	62.0	k
Pier Compression Capacity (ϕP_n):	9515.1	k - ACI10.3.6.2
P_u / ϕP_n:	0.01	Result: OK
Pier Compression Reinforcement Ratio:	0.009	OK - Reinforcement Ratio Met - ACI10.9.1 & 10.8.4
$M_u/\phi_B M_n + T_u/\phi_T T_n$:	0.40	Result: OK

Nominal and Design Moment Capacity and Factored Design Loads



Base Plate & Anchor Rod Analysis

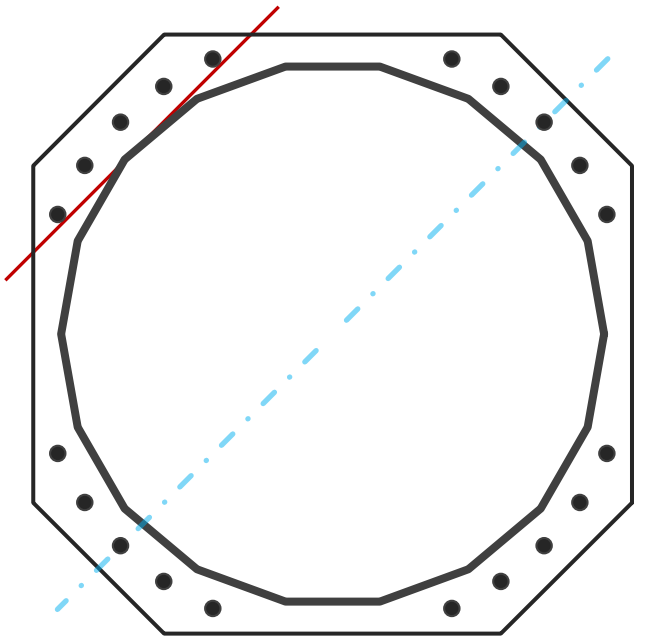
Pole Dimensions		
Number of Sides	18	-
Diameter	56.91	in
Thickness	0.5	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	4619.8	k-ft
Axial, Pu	62.0	k
Shear, Vu	38.0	k
Neutral Axis	45	°

Report Capacities		
Component	Capacity	Result
Base Plate	59%	Pass
Anchor Rods	68%	Pass
Dwyidag	-	-

Base Plate		
Shape	Square	-
Width	64	in
Thickness	3	in
Grade	A572-50	-
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Clip	14	in
Orientation Offset	0	°
Anchor Rod Detail	d	η=0.5
Clear Distance	3	in
Applied Moment, Mu	1986.2	k
Bending Stress, ϕMn	3376.7	k

Original Anchor Rods		
Arrangement	Cluster	-
Quantity	20	-
Diameter, ø	2 1/4	in
Bolt Circle	64	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	0	°
Applied Force, Pu	176.3	k
Anchor Rods, ϕPn	259.8	k



Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	38.0	4619.8	1.00
Anchor Rod Forces	38.0	4619.8	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^2	in^2	in^4	#	in^4
Pole	88.1594	4.8977	0.4100		35073.77
Bolt	3.9761	3.2477	0.8393	4.5	33273.13
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	64	in
Thickness, t	3	in
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Base Plate Chord	29.279	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

External Base Plate		
Chord Length AA	33.350	in
Additional AA	0.000	in
Section Modulus, Z	75.037	in^3
Applied Moment, Mu	1986.2	k-ft
Bending Capacity, ϕMn	3376.7	k-ft
Capacity, Mu/ϕMn	0.588	OK
Chord Length AB	32.468	in
Additional AB	0.000	in
Section Modulus, Z	73.053	in^3
Applied Moment, Mu	1611.0	k-ft
Bending Capacity, ϕMn	3287.4	k-ft
Capacity, Mu/ϕMn	0.490	OK
Bend Line Length	0.000	in
Additional Bend Line	0.000	in
Section Modulus, Z	0.000	in^3
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		

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

Anchor Rods		
Anchor Rod Quantity, N	20	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	64	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	176.3	k
Applied Shear, Vu	0.0	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.678	OK
Interaction Capacity	0.678	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		

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		

Dywidag Reinforcement		
Dywidag Quantity, N	0	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	63.79	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		

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

Vertical Weld		
Vert.-to-Stiffener a=e_x/l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Compressive Capacity, ϕPn	#DIV/0!	k
Vert.-to-Plate a=e_x/l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Shear Capacity, ϕVn	#DIV/0!	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$	-	

Horizontal Weld		
Horz.-to-Stiffener a=e_x/l	#DIV/0!	-
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_x/l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Shear Capacity, ϕVn	#DIV/0!	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$	-	

Plate Tension		
Gross Cross Section	0.000	in^2
Net Cross Section	0.000	in^2
Tensile Capacity, ϕTn	0.0	k
Capacity, Tu/ϕTn	-	

Plate Compression		
Radius of Gyration	#DIV/0!	in^3
kl/r	#DIV/0!	-
4.71 √(E/Fy)	0.00	-
Buckling Stress(Fe)	0.0	-
Crit. Buckling Stress(Fcr)	0.0	ksi
Compressive Capacity, ϕPn	0.0	k
Capacity, Pu/ϕPn	-	

Sprint

PROJECT:	DO MACRO UPGRADE
SITE NAME:	ANDOVER / NEXTEL
SITE CASCADE:	CT33XC573
SITE ADDRESS:	104 BUNKER HILL RD. ANDOVER, CT 06232
SITE TYPE:	MONOPOLE TOWER
MARKET:	NORTHERN CONNECTICUT

SITE INFORMATION

TOWER OWNER:
AMERICAN TOWER CORPORATION
10 PRESIDENTIAL WAY
WOBURN, MA 01801

LATITUDE (NAD83):
41° 44' 16.008" N
41.73778°

LONGITUDE (NAD83):
-72° 20' 59.3874" W
-72.34983°

COUNTY:
TOLLAND COUNTY

ZONING JURISDICTION:
CONNECTICUT SITING COUNCIL

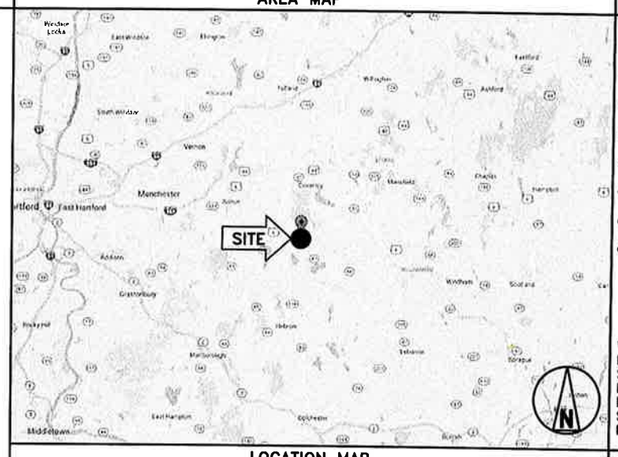
ZONING DISTRICT:
TBD

POWER COMPANY:
CL&P
PHONE: (800) 286-2000

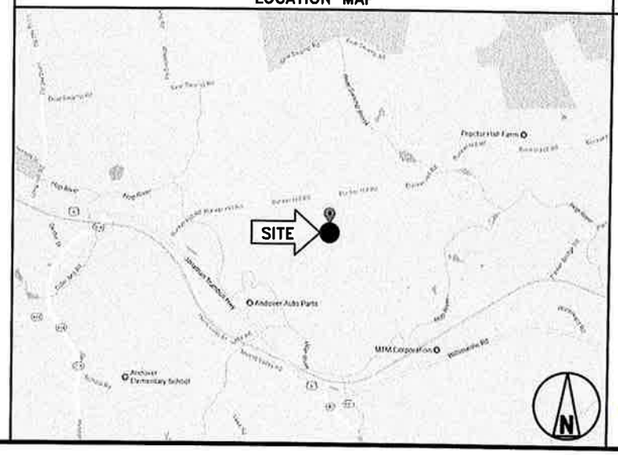
AAV PROVIDER:
AT&T
(800) 288-2020

PROJECT MANAGER:
AIROSMITH DEVELOPMENT
TERRI BURKHOLDER
(315) 719-2928
TBURKHOLDER@AIROSMITHDEVELOPMENT.COM

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- REMOVE (6) PANEL ANTENNAS
- INSTALL (6) PANEL ANTENNAS
- RELOCATE (3) RRHS BEHIND ANTENNAS
- INSTALL (3) 2.5 GHz & (6) 800 MHz RRH'S BEHIND ANTENNAS
- INSTALL (48) JUMPER CABLES
- INSTALL (4) HYBRID CABLE
- INSTALL 2.5 EQUIPMENT INSIDE EXISTING N.V. MMBS CABINET

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.

APPLICABLE CODES

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.

1. INTERNATIONAL BUILDING CODE (2015 IBC)
2. TIA-222-G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2011 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. CT BUILDING CODE
7. LOCAL BUILDING CODE
8. CITY/COUNTY ORDINANCES

811 Know what's below. Call before you dig. www.call811.com

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PLANS PREPARED FOR:
Sprint

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#. (516) 306-3740

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
REGISTERED PROFESSIONAL ENGINEER
DATE: 8/6/2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
REVISED/ ISSUED FOR PERMIT	08/25/18	JLM	1
ISSUED FOR PERMIT	05/25/18	BMM	0

SITE NAME:
ANDOVER / NEXTEL

SITE NUMBER:
CT33XC573

SITE ADDRESS:
104 BUNKER HILL RD.
ANDOVER, CT 06232

SHEET DESCRIPTION:
TITLE SHEET
& PROJECT DATA

SHEET NUMBER:
T-1

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-0568, 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:

Sprint

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:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
JUL 26 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
REVISED/ ISSUED FOR PERMIT	06/25/18	JLM	1
ISSUED FOR PERMIT	05/25/18	BMM	0

SITE NAME:

ANDOVER / NEXTEL

SITE NUMBER:

CT33XC573

SITE ADDRESS:

104 BUNKER HILL RD.
ANDOVER, CT 06232

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 ANTENNAL 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 CIVIL 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, AASJTO, AND OTHER METHODS IS NEEDED.
4. EXPERIENCE IN SOILS, CONCRETE, MASONRY, AGGREGATE, AND ASPHALT TESTING USING ASTM, AASJTO, 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)

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www.infinigy.com
JOB NUMBER 526-104

PROJECT MANAGER:
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OFFICE#. (518) 306-3740

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN D. STEVENS
No. 20705
LICENSED PROFESSIONAL ENGINEER
JUN 26 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
REVISED/ ISSUED FOR PERMIT	06/25/18	JLM	1
ISSUED FOR PERMIT	05/25/18	BMM	0

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ANDOVER / NEXTEL

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SITE ADDRESS:
104 BUNKER HILL RD.
ANDOVER, CT 06232

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. 1SHELTER 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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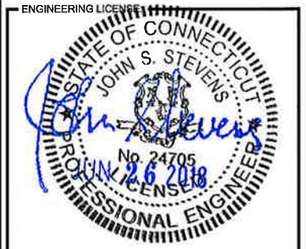
JOB NUMBER 526-104

PROJECT MANAGER:

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

ENGINEERING LICENSE:



DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
REVISED/ ISSUED FOR PERMIT	06/25/18	JLM	1
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ANDOVER / NEXTEL

SITE NUMBER:

CT33XC573

SITE ADDRESS:

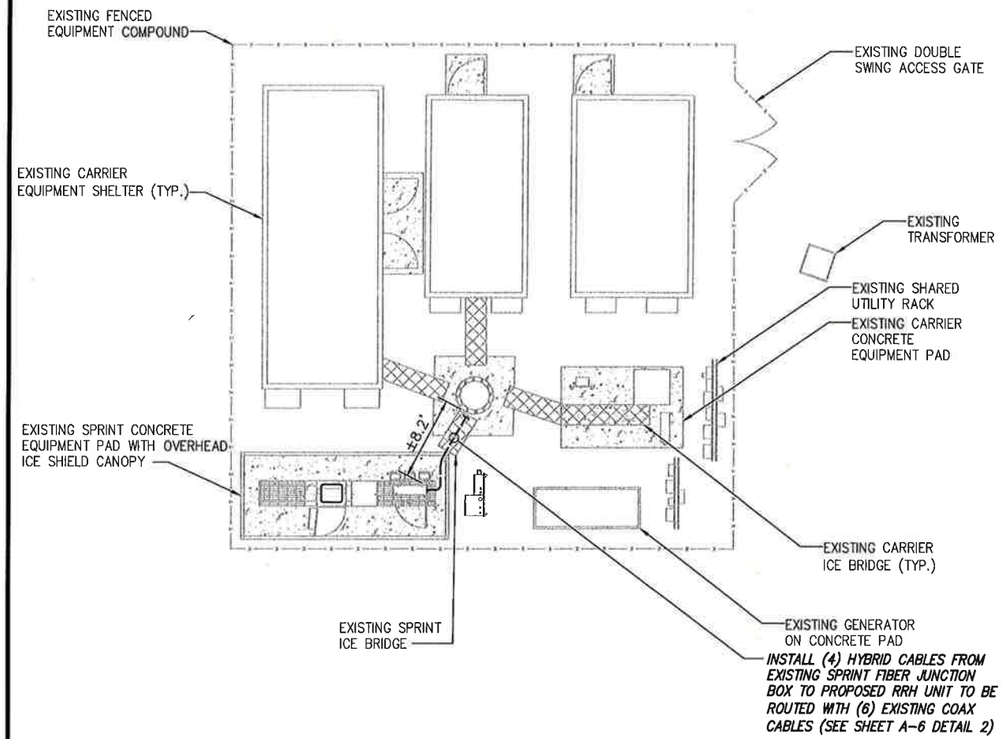
104 BUNKER HILL RD.
ANDOVER, CT 06232

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-3

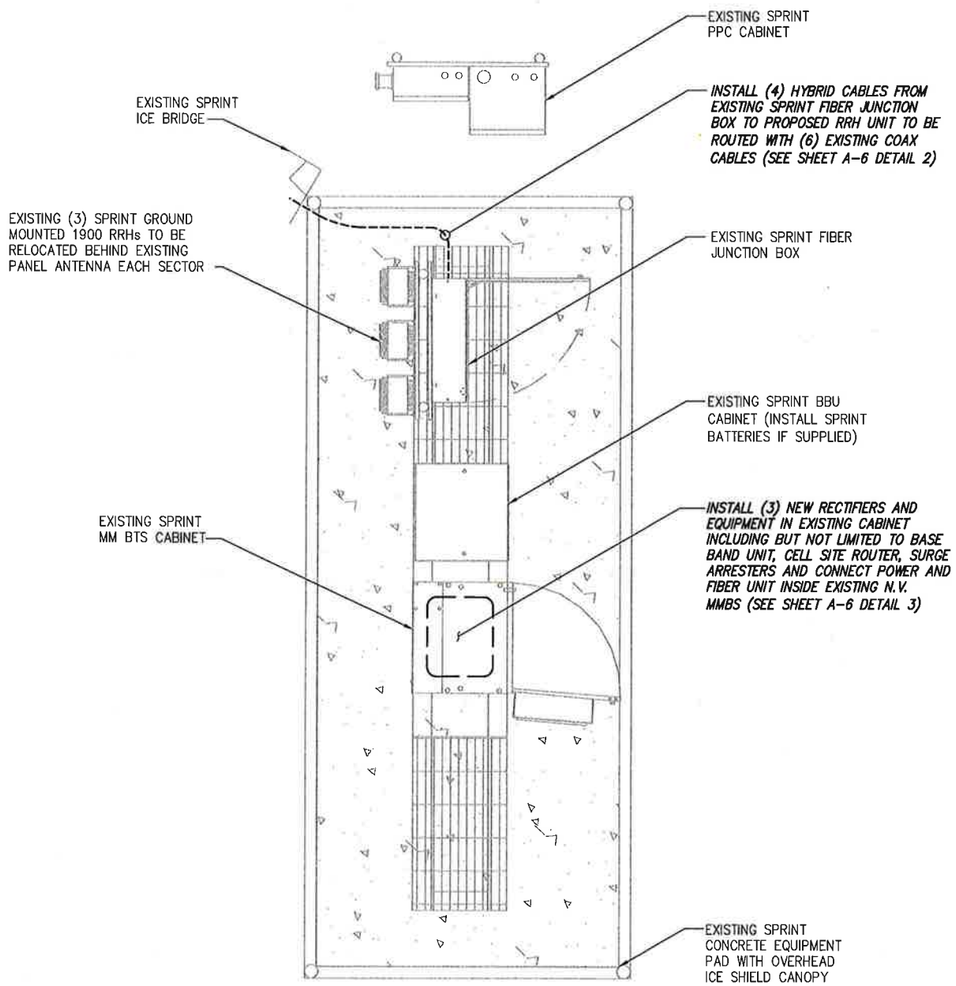


INFORMATION CONTAINED WITHIN DRAWINGS ARE BASED ON PROVIDED INFORMATION AND ARE NOT THE RESULT OF A FIELD SURVEY.

N

GRAPHIC SCALE:
20' 10' 0 10' 20'
SCALE (11x17): 1" = 20'-0"
SCALE (22x34): 1" = 10'-0"

OVERALL SITE PLAN | SCALE: AS NOTED | 1



N

GRAPHIC SCALE:
4' 2' 0 2' 4'
SCALE (11x17): 1" = 4'-0"
SCALE (22x34): 1" = 2'-0"

SPRINT EQUIPMENT PLAN | SCALE: AS NOTED | 2

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OFFICE#. (518) 306-3740

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN D. STEVENS
No. 24709
LICENSED PROFESSIONAL ENGINEER
JUN 26 2018

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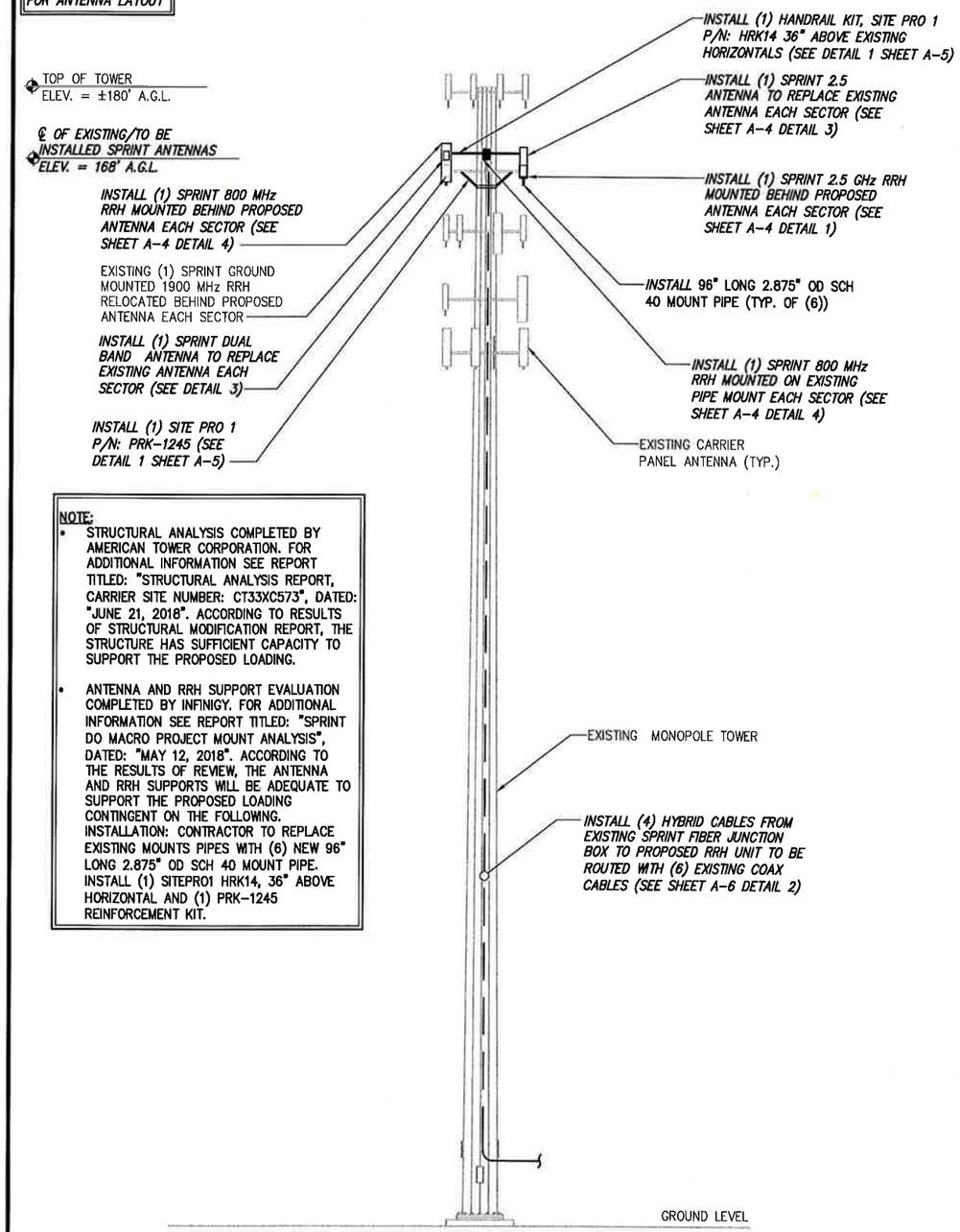
ANDOVER, CT 06232

SHEET DESCRIPTION:
SITE PLAN

SHEET NUMBER:
A-1

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



NOTE:
- STRUCTURAL ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "STRUCTURAL ANALYSIS REPORT, CARRIER SITE NUMBER: CT33XC573", DATED: "JUNE 21, 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: "MAY 12, 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 MOUNTS PIPES WITH (6) NEW 96" LONG 2.875" OD SCH 40 MOUNT PIPE. INSTALL (1) SITEPRO1 HRK14, 36" ABOVE HORIZONTAL AND (1) PRK-1245 REINFORCEMENT KIT.

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	0°	1	–	(2) 800 MHZ 2X50W RRH	SEE SHEET A-5 DETAIL 1	±199'*	±168' AGL
	PROPOSED	NNVV-65B-R4	COMMSCOPE	0°	1	–	(1) TD-RRH8X20-25	SEE SHEET A-5 DETAIL 1		
	EXISTING	72"x6" PANEL	GENERIC	0°	2	REMOVE	(1) 1900 MHz 4X45 RRH	EXISTING COAX		
BETA	PROPOSED	APXVTM14-ALU-120	RFS	120°	1	–	(2) 800 MHZ 2X50W RRH	SEE SHEET A-5 DETAIL 1		±168' AGL
	PROPOSED	NNVV-65B-R4	COMMSCOPE	120°	1	–	(1) TD-RRH8X20-25	SEE SHEET A-5 DETAIL 1		
	EXISTING	72"x6" PANEL	GENERIC	120°	2	REMOVE	(1) 1900 MHz 4X45 RRH	EXISTING COAX		
GAMMA	PROPOSED	APXVTM14-ALU-120	RFS	240°	1	–	(2) 800 MHZ 2X50W RRH	SEE SHEET A-5 DETAIL 1		±168' AGL
	PROPOSED	NNVV-65B-R4	COMMSCOPE	240°	1	–	(1) TD-RRH8X20-25	SEE SHEET A-5 DETAIL 1		
	EXISTING	72"x6" PANEL	GENERIC	240°	2	REMOVE	(1) 1900 MHz 4X45 RRH	EXISTING COAX		

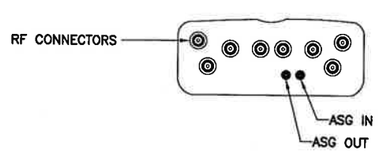
PROJECT SCOPE:
REMOVE: (6) PANEL ANTENNAS INSTALL: (6) PANEL ANTENNAS (3) 2.5 GHz RRH'S AND (6) 800 MHz RRH'S
RELOCATE: (3) EXISTING 1900 MHz RRH'S

* 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

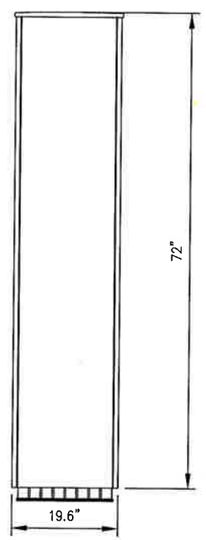
ANTENNA COMMSCOPE NNVV-65B-R4

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



PLAN VIEW

SIDE VIEW



FRONT VIEW

DUAL BAND ANTENNA DETAIL | NO SCALE | 3

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ENGINEERING LICENSE:
STATE OF CONNECTICUT
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LICENSED PROFESSIONAL ENGINEER
JUN 26 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
REVISED/ ISSUED FOR PERMIT	06/25/18	JLM	1
ISSUED FOR PERMIT	05/25/18	BMM	0

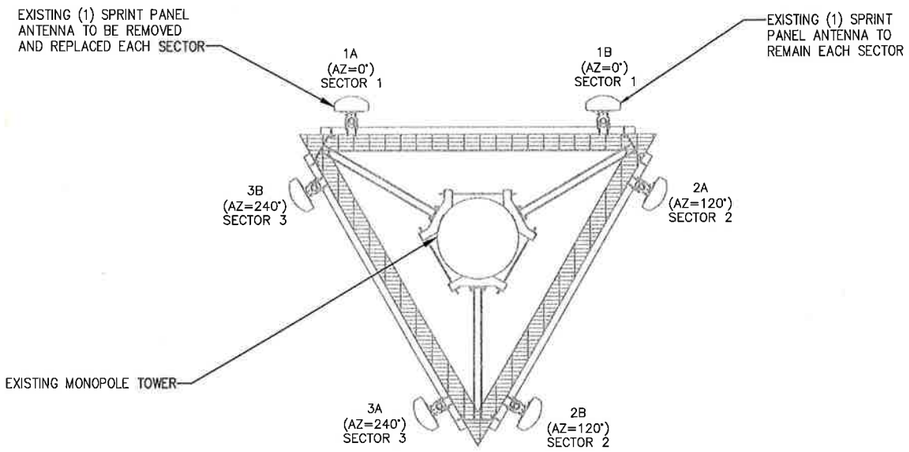
SITE NAME:
ANDOVER / NEXTEL

SITE NUMBER:
CT33XC573

SITE ADDRESS:
104 BUNKER HILL RD.
ANDOVER, CT 06232

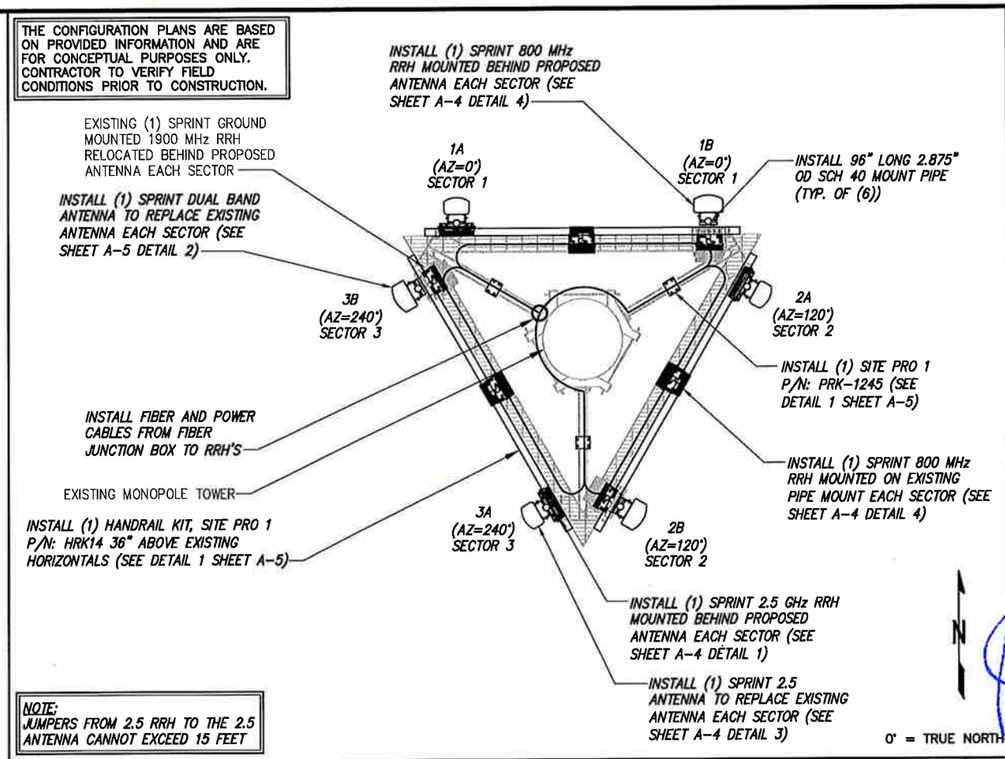
SHEET DESCRIPTION:
TOWER ELEVATION

SHEET NUMBER:
A-2



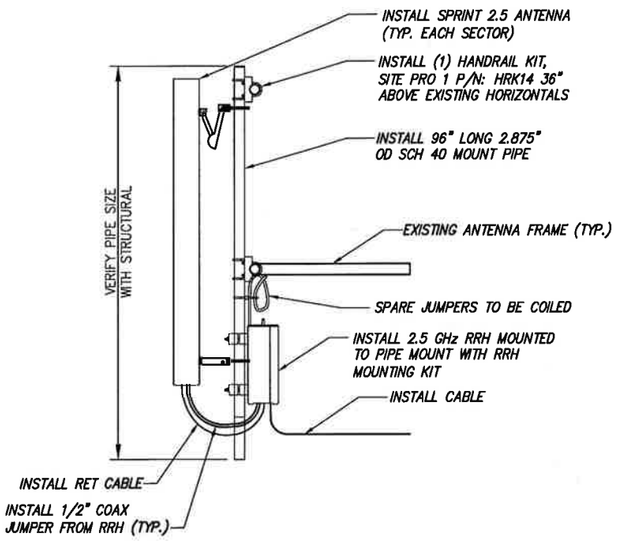
EXISTING ANTENNA LAYOUT | NO SCALE | 1

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



NOTE:
JUMPERS FROM 2.5 RRH TO THE 2.5 ANTENNA CANNOT EXCEED 15 FEET

FINAL ANTENNA AND RRH LAYOUT | NO SCALE | 2



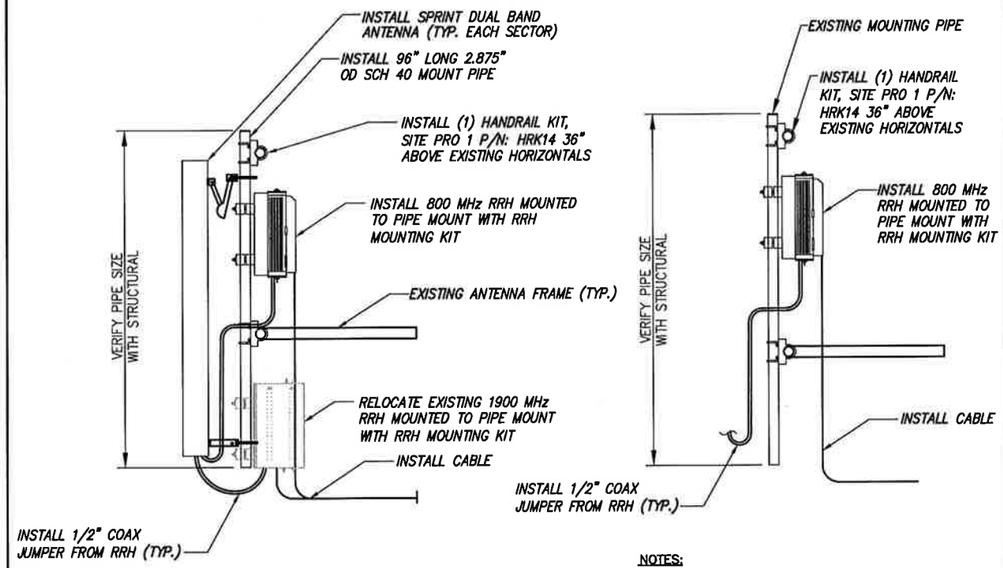
NOTE:
CONTRACTOR TO POSITION RRH ON MOUNT BEHIND ANTENNA SUCH THAT THE RRH DOES NOT INTERFERE WITH THE EXISTING PLATFORM/T-ARM MOUNTING HARDWARE.

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

NOTES:

1. CUT DC CONDUCTORS TO LENGTH.
2. COIL FIBER CABLE AND SECURE AT SIDE OF RRH.
3. DO NO EXCEED BEND RADIUS.

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



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3. DO NO EXCEED BEND RADIUS.

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

PLANS PREPARED FOR:
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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:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
JUL 26 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
REVISED/ ISSUED FOR PERMIT	06/25/18	JLM	1
ISSUED FOR PERMIT	05/25/18	BMM	0

SITE NAME:
ANDOVER / NEXTEL

SITE NUMBER:
CT33XC573

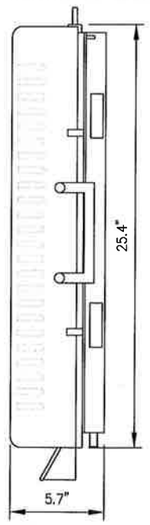
SITE ADDRESS:
104 BUNKER HILL RD.
ANDOVER, CT 06232

SHEET DESCRIPTION:
ANTENNA LAYOUT & MOUNTING DETAILS

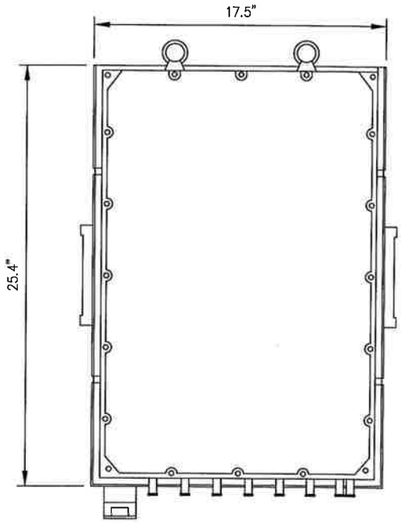
SHEET NUMBER:
A-3

RRH: ALCATEL LUCENT TD-RRH8X20

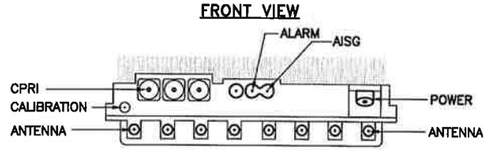
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



SIDE VIEW



FRONT VIEW



PLAN VIEW

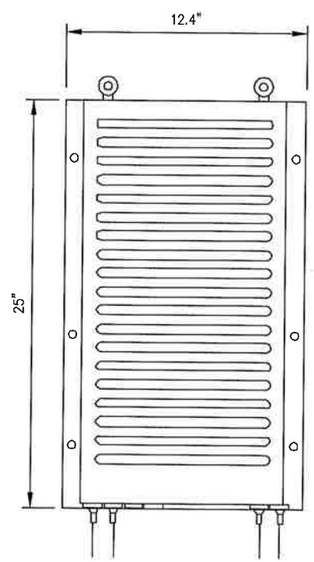
NOTES

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.

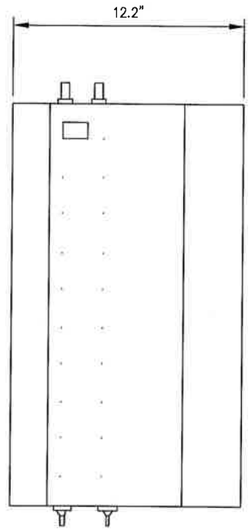
2.5 RRH'S | NO SCALE | 1

RRH: ALCATEL LUCENT 1900 MHz

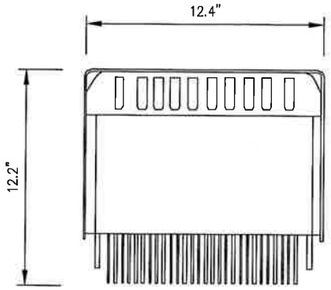
COLOR: LIGHT GREY
WEIGHT: 70 LBS.
(INCLUDING OPTIONAL SOLAR SHIELD)



FRONT VIEW



SIDE VIEW

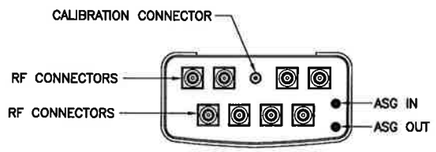


TOP VIEW

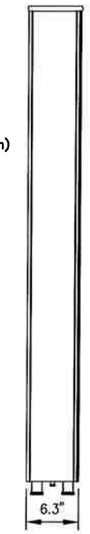
1900 MHz RRH | NO SCALE | 2

ANTENNA RFS APXVTM14-ALU-I20

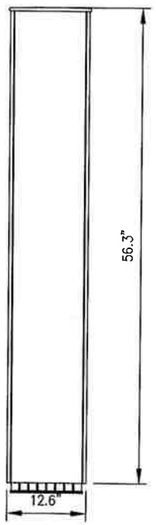
RADOME MATERIAL:	ASA
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mlm):	56.3"x12.6"x6.3" (1549x439x300mm)
WEIGHT:	56.2 lbs
CONNECTORS:	(8) 4.1/9.5 DIN FEMALE (1) NF – CALIBRATION CONNECTOR



PLAN VIEW



SIDE VIEW

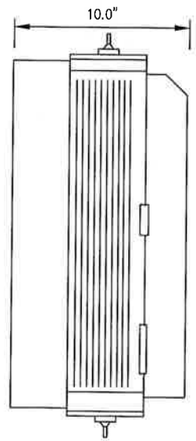


FRONT VIEW

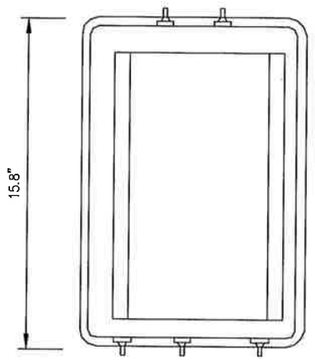
2.5 ANTENNA DETAIL | NO SCALE | 3

RRH: ALCATEL LUCENT RRH 800 MHz 2x50W

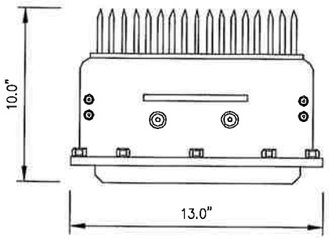
COLOR: LIGHT GREY
WEIGHT: 53 LBS.



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.

800 MHz RRH | NO SCALE | 4

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www.infinigy.com
JOB NUMBER 526-104

PROJECT MANAGER:
AIROSMITH DEVELOPMENT
32 CLINTON ST.
SARATOGA SPRINGS, NY 12866
OFFICE#. (516) 306-3740

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
JUN 26 2018
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
REVISED/ ISSUED FOR PERMIT	06/25/18	JLM	1
ISSUED FOR PERMIT	05/25/18	BMM	0

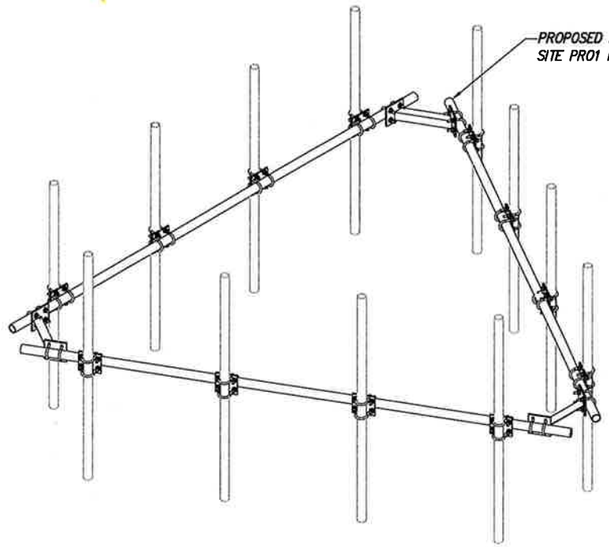
SITE NAME:
ANDOVER / NEXTEL

SITE NUMBER:
CT33XC573

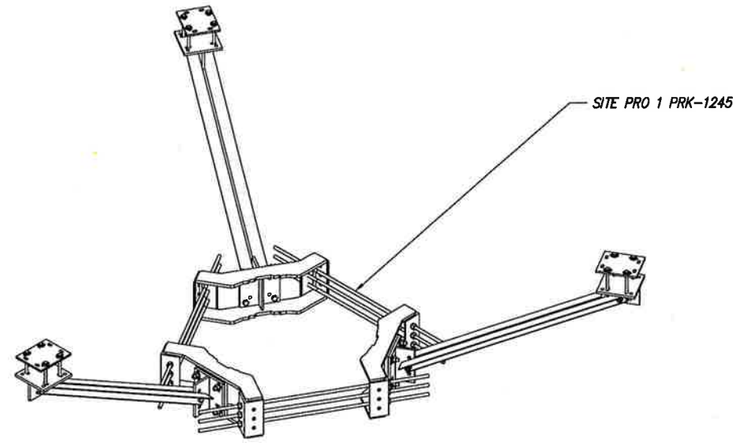
SITE ADDRESS:
104 BUNKER HILL RD.
ANDOVER, CT 06232

SHEET DESCRIPTION:
EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:
A-4



HANDRAIL KIT DETAIL | NO SCALE | 1



ANTENNA MOUNT DETAIL | NO SCALE | 2

DETAIL NOT USED | NO SCALE | 3

DETAIL NOT USED | NO SCALE | 4

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JOB NUMBER 526-104

PROJECT MANAGER:

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

ENGINEER'S LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 21705
LICENSED PROFESSIONAL ENGINEER
DATE: 2.6.2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
REVISED/ ISSUED FOR PERMIT	06/25/18	JLM	1
ISSUED FOR PERMIT	05/25/18	BMM	0

SITE NAME:

ANDOVER / NEXTEL

SITE NUMBER:

CT33XC573

SITE ADDRESS:

104 BUNKER HILL RD.
ANDOVER, CT 06232

SHEET DESCRIPTION:

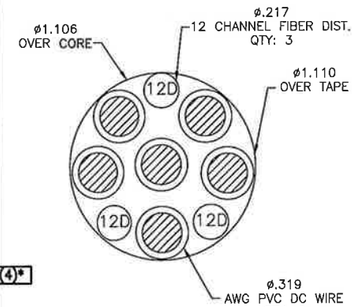
EQUIPMENT &
MOUNTING DETAILS

SHEET NUMBER:

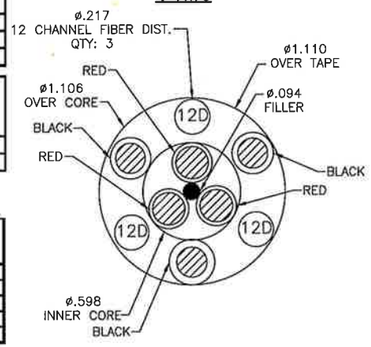
A-5

RFS HYBRIFLEX RISER CABLE SCHEDULE

Fiber Only (Existing DC Power)	**Hybrid cable** MN: HB058-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 5/8 cable, 50 ft	50 ft
	MN: HB058-M12-075F	75 ft
	MN: HB058-M12-100F	100 ft
	MN: HB058-M12-125F	125 ft
	MN: HB058-M12-150F	150 ft
	MN: HB058-M12-175F	175 ft
	MN: HB058-M12-200F	200 ft
8 AWG Power	**Hybrid cable** MN: HB114-08U3M12-050F 3x 8 AWG power pairs, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 50 ft	50 ft
	MN: HB114-08U3M12-075F	75 ft
	MN: HB114-08U3M12-100F	100 ft
	MN: HB114-08U3M12-125F	125 ft
	MN: HB114-08U3M12-150F	150 ft
	MN: HB114-08U3M12-175F	175 ft
	MN: HB114-08U3M12-200F	200 ft (4)*
6 AWG Power	**Hybrid cable** MN: HB114-13U3M12-225F 3x 6 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 225 ft	225 ft
	MN: HB114-13U3M12-250F	250 ft
	MN: HB114-13U3M12-275F	275 ft
	MN: HB114-13U3M12-300F	300 ft
4 AWG Power	**Hybrid cable** MN: HB114-21U3M12-325F 3x 4 AWG power pair, 12x multi-mode fiber pairs, Outdoor rated connectors & LC Connectors, 1 1/4 cable, 325 ft	325 ft
	MN: HB114-21U3M12-350F	350 ft
	MN: HB114-21U3M12-375F	375 ft



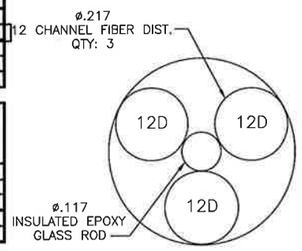
4 AWG



8 & 6 AWG

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
	MN: HBF012-M3-30F1	30 ft
8 AWG Power	**Hybrid Jumper cable** MN: HBF058-08U1M3-5F1 5 ft, 1x 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
	MN: HBF058-08U1M3-30F1	30 ft
6 AWG Power	**Hybrid Jumper cable** MN: HBF058-13U1M3-5F1 5 ft, 1x 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
	MN: HBF058-13U1M3-30F1	30 ft
4 AWG Power	**Hybrid Jumper cable** MN: HBF078-21U1M3-5F1 5 ft, 1x 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
	MN: HBF078-21U1M3-30F1	30 ft

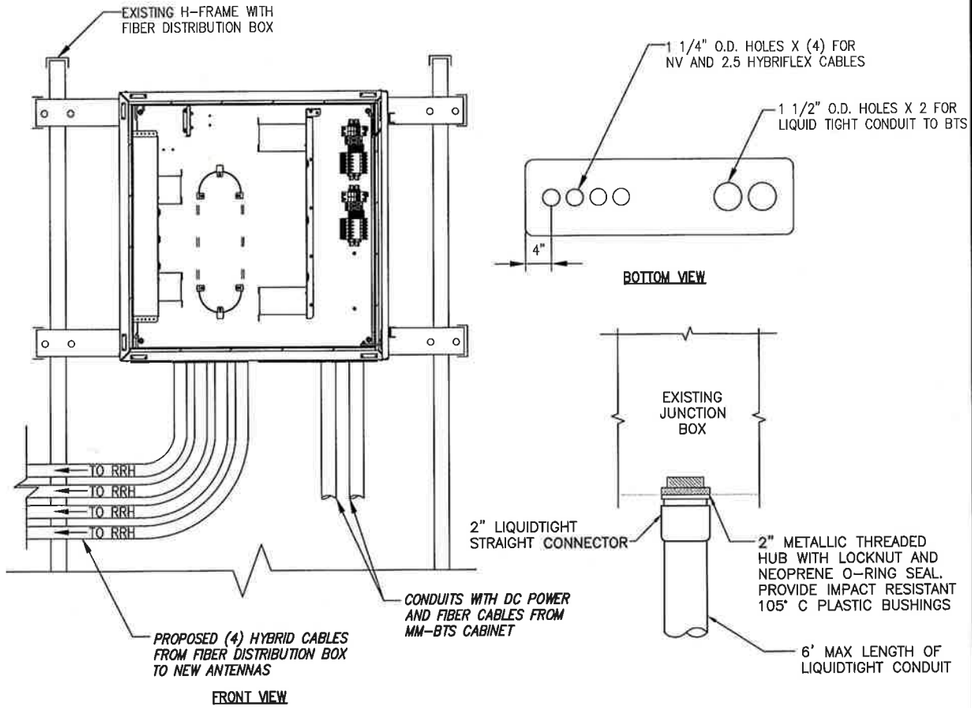


FIBER ONLY

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.

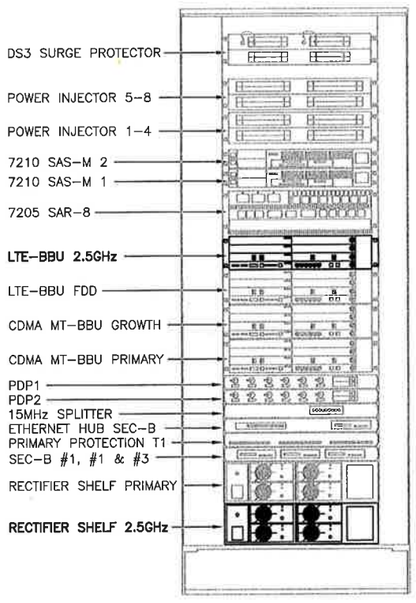
800/1900/2500 CABLE CROSS SECTION DATA | NO SCALE | 1



FRONT VIEW

BOTTOM VIEW

FIBER JUNCTION BOX & PENETRATION | NO SCALE | 2



FRONT VIEW

NEW EQUIPMENT IN EXISTING CABINET | NO SCALE | 3

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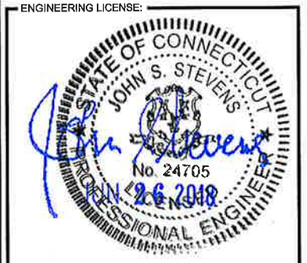
JOB NUMBER 526-104

PROJECT MANAGER:

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

ENGINEERING LICENSE:



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SITE ADDRESS:

104 BUNKER HILL RD.
ANDOVER, CT 06232

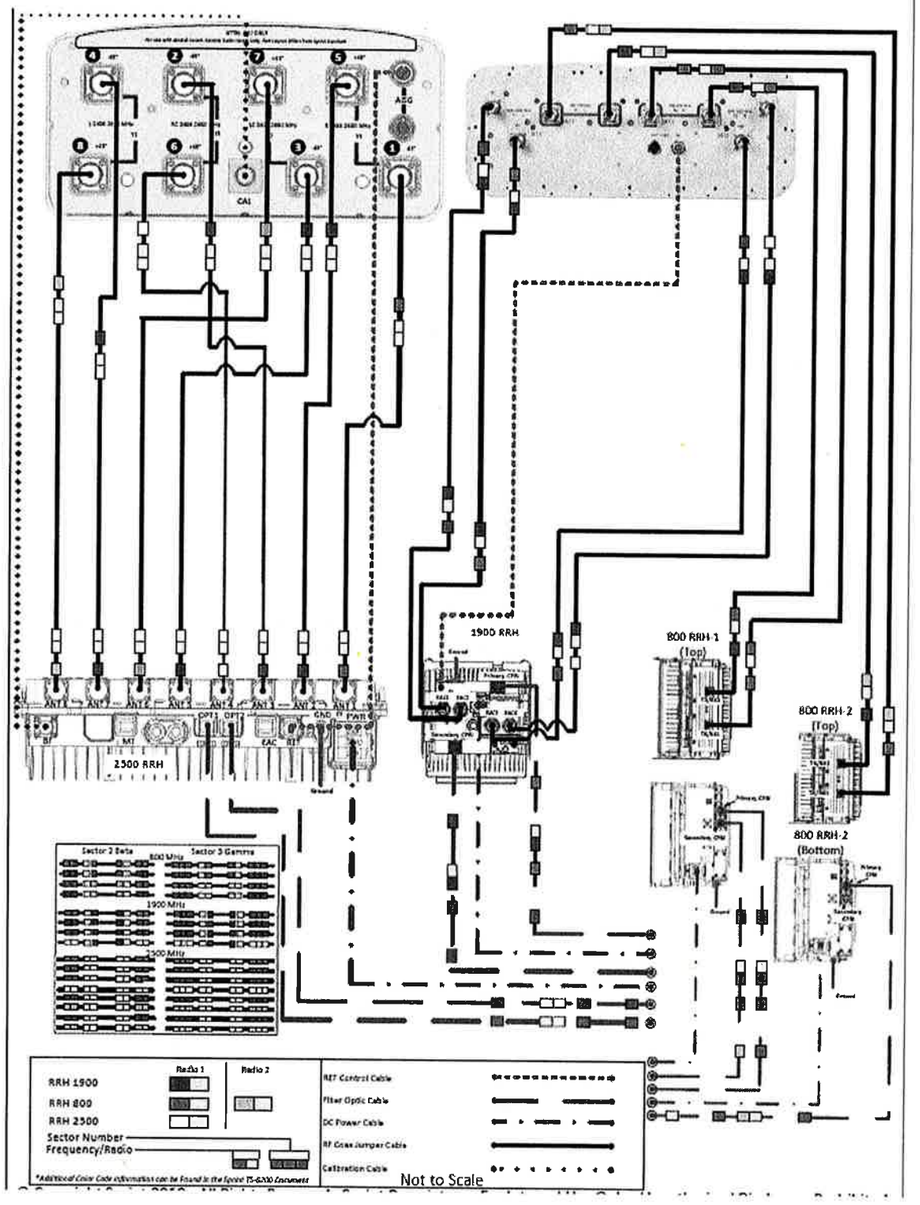
SHEET DESCRIPTION:

CIVIL DETAILS

SHEET NUMBER:

A-6

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



PLUMBING DIAGRAM | NO SCALE | 1

PLANS PREPARED FOR:

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PLANS PREPARED BY:

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

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
6/26/2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
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ISSUED FOR PERMIT	05/25/18	BMM	0

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ANDOVER / NEXTEL

SITE NUMBER:

CT33XC573

SITE ADDRESS:

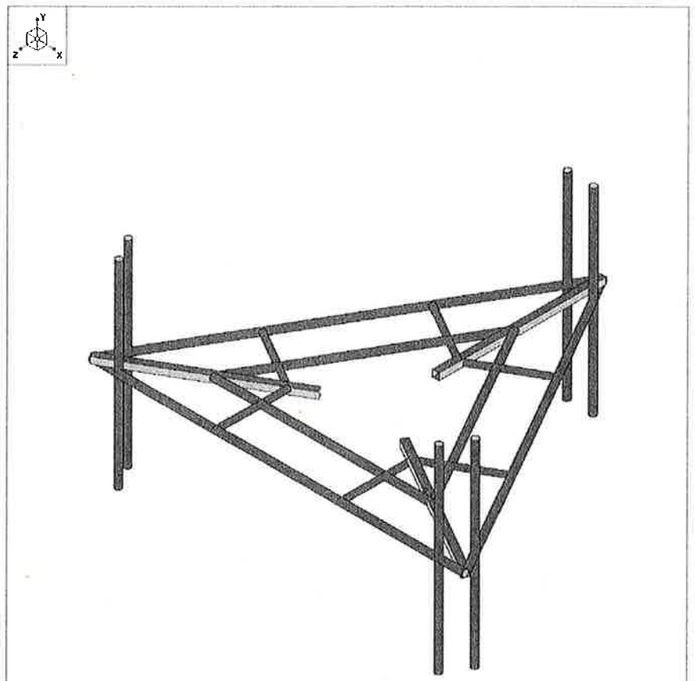
104 BUNKER HILL RD.
ANDOVER, CT 06232

SHEET DESCRIPTION:

PLUMBING DIAGRAM

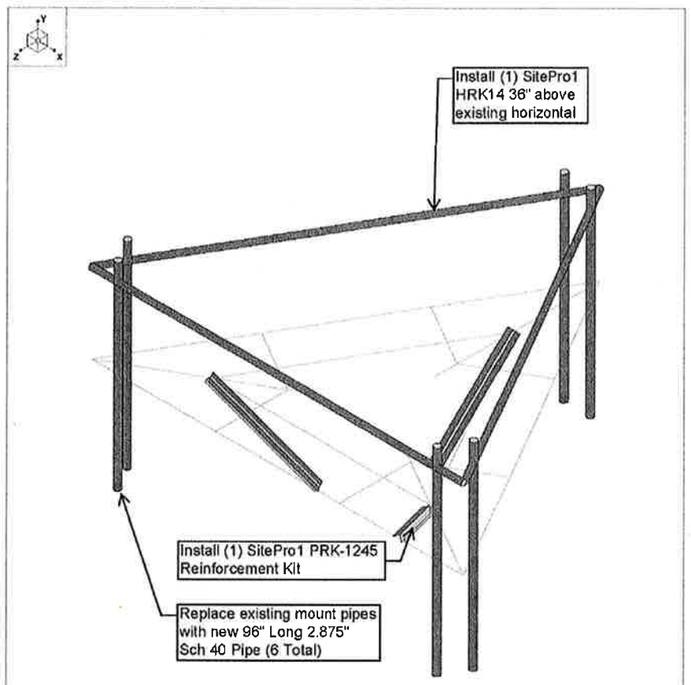
SHEET NUMBER:

A-7



Envelope Only Solution

Infinigy Engineering PLLC		
NRO	CT33XC537	May 12, 2018 at 1:47 PM
526-104	Existing Mount	CT33XC573.R3D



Envelope Only Solution

Infinigy Engineering PLLC		
NRO	CT33XC537	May 12, 2018 at 1:48 PM
526-104	Proposed Modification	CT33XC573.R3D

MOUNT MODIFICATION DETAILS | NO SCALE | 1

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PLANS PREPARED BY:

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JOB NUMBER 526-104

PROJECT MANAGER:

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

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
LICENSED PROFESSIONAL ENGINEER
JUN 26 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
REVISED/ ISSUED FOR PERMIT	06/25/18	JLM	1
ISSUED FOR PERMIT	05/25/18	BMM	0

SITE NAME:

ANDOVER / NEXTEL

SITE NUMBER:

CT33XC573

SITE ADDRESS:

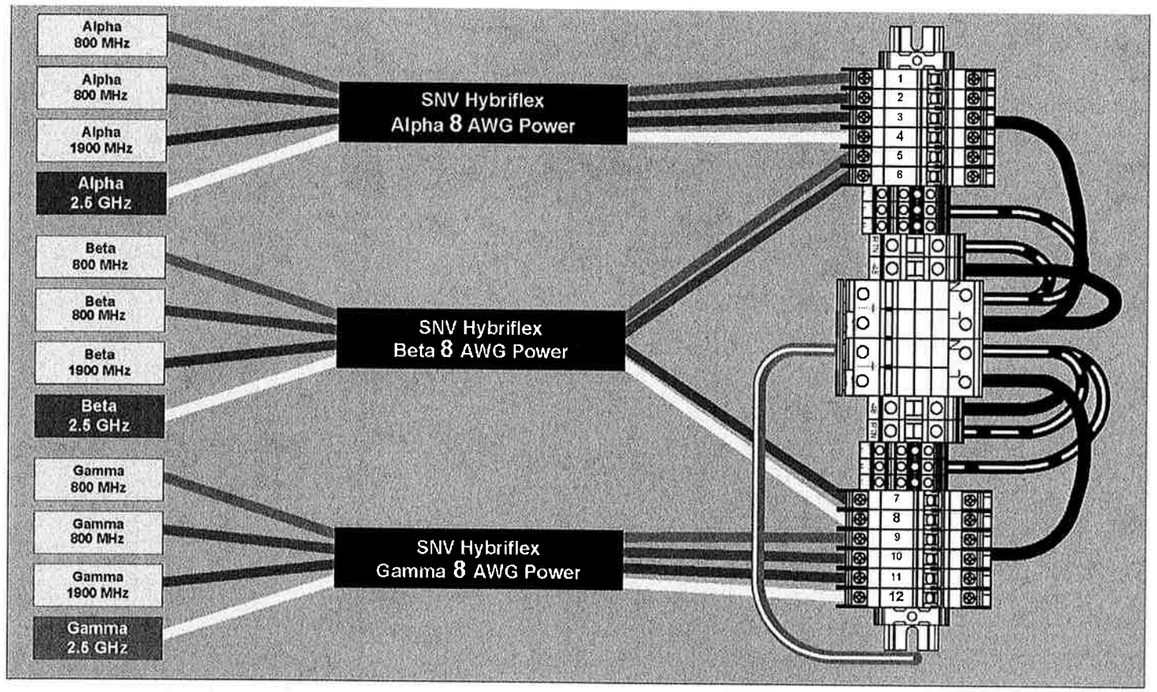
104 BUNKER HILL RD.
ANDOVER, CT 06232

SHEET DESCRIPTION:

MOUNT MODIFICATION DETAILS

SHEET NUMBER:

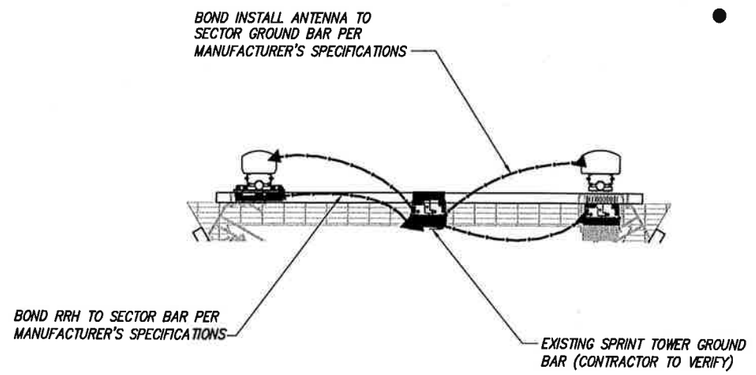
A-8



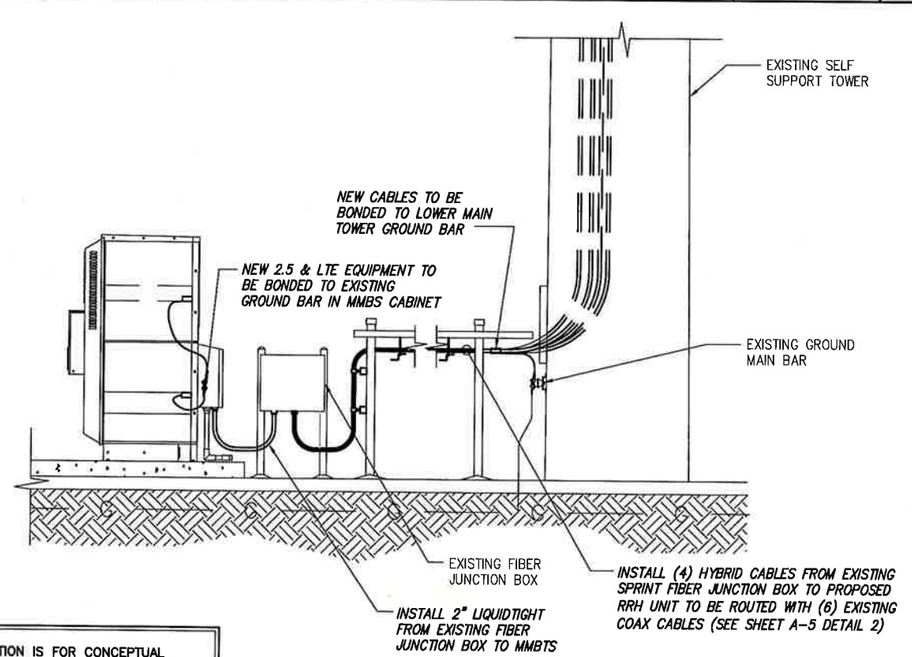
RRH TO DISTRIBUTION BOX POWER CONNECTIVITY | NO SCALE | 1

LEGEND:

- EXISTING GROUND RING
- ■ CADWELD CONNECTION (EXOTHERMIC WELD)
- ▲ MECHANICAL CONNECTION
- ⊗ GROUND ROD
- ● CABLE GROUND KIT



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

PLANS PREPARED FOR:
Sprint

PLANS PREPARED BY:
INFINIGY
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Phone: 518-690-0790 | Fax: 518-690-0793
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JOB NUMBER 526-104

PROJECT MANAGER:
AIROSMITH DEVELOPMENT
32 CLINTON ST,
SARATOGA SPRINGS, NY 12866
OFFICE#, (518) 306-3740

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 26
LICENSED PROFESSIONAL ENGINEER
JUN 26 2018

DRAWING NOTICE:

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CT33XC573

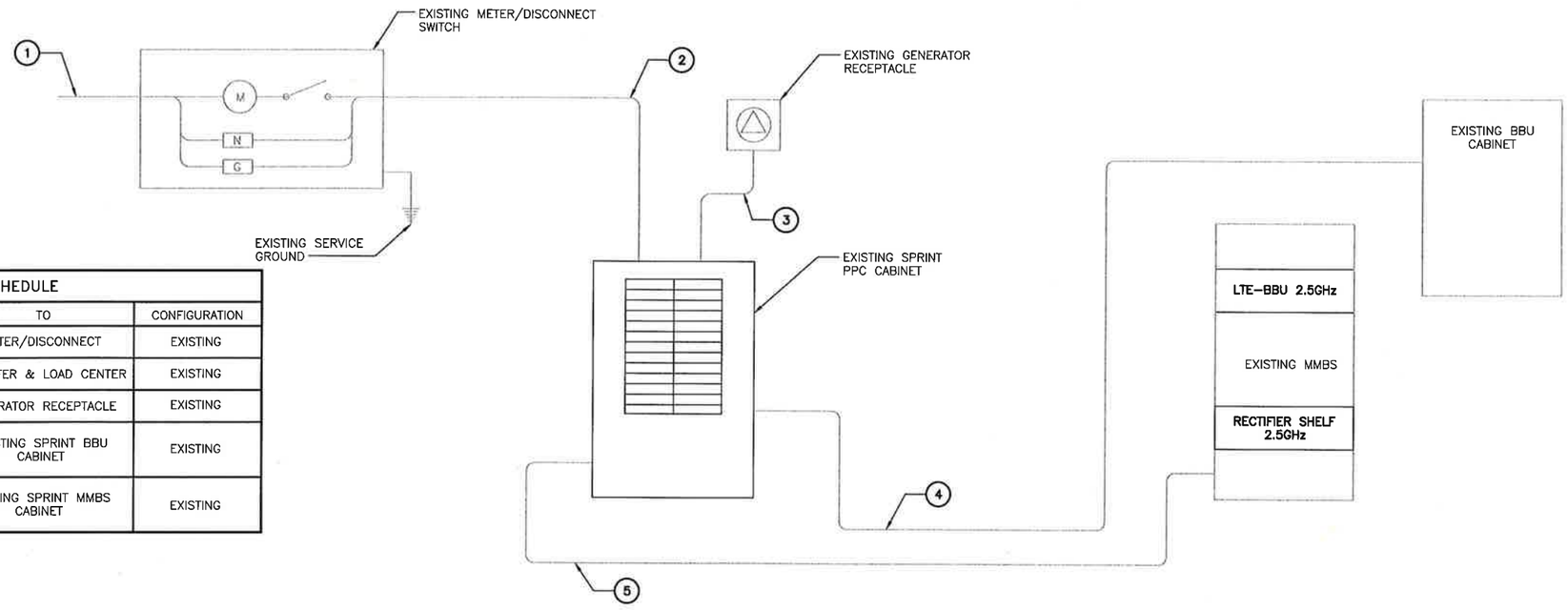
SITE ADDRESS:
104 BUNKER HILL RD.
ANDOVER, CT 06232

SHEET DESCRIPTION:
ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:
E-1

NOTES

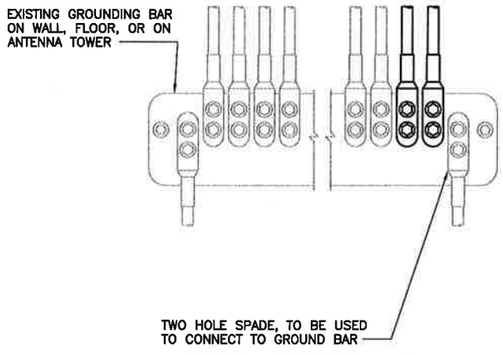
CG SHALL REFERENCE ALL SPECS FOR "CONNECTING THE POWER SUPPLY" OF THE NEW INSTALLATION DOCUMENTS, FOR ALL CONNECTION SPECIFICATIONS.



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

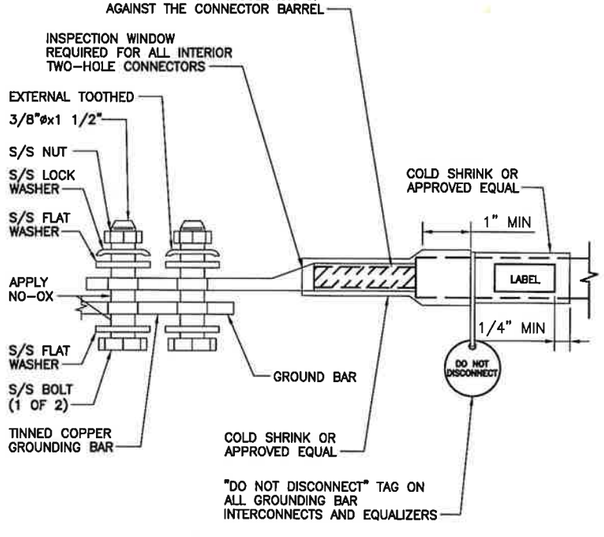
ELECTRICAL ONE–LINE DIAGRAM — NO SCALE — 1



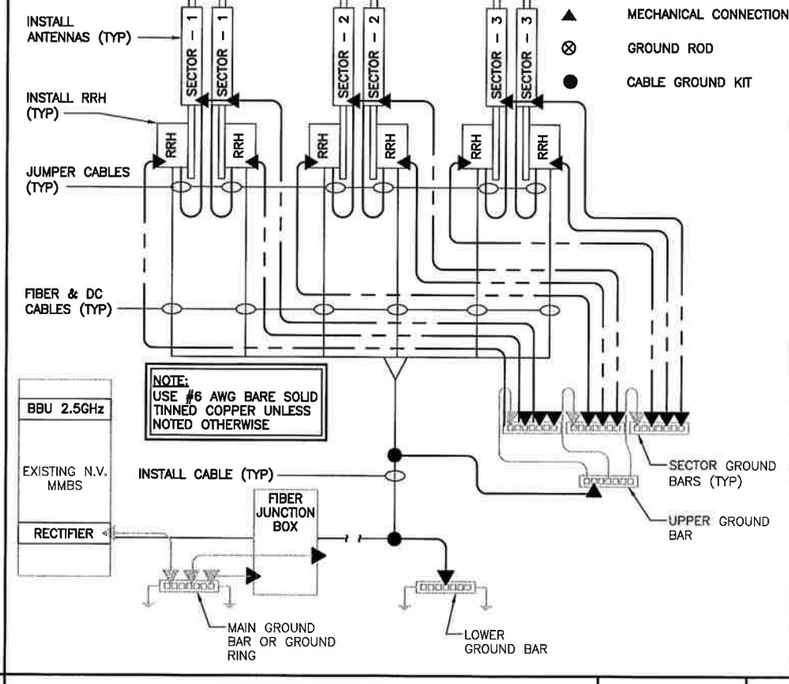
NOTES

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

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SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-2