AIROSMITH DEVELOPMENT
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August 1st, 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 185 Research Dr. MILFORD, CT 06460 – CT52XC078 (lat. 41° 14' 25.5" N, long. -73° 00' 42.9" W)

Dear Ms. Bachman:

Sprint Spectrum, LP ("Sprint") currently maintains wireless telecommunications antennas at the (185-foot level) on an existing (188-foot monopole tower) at the above-referenced address. The property is owned by DAMATO INVESTMENTS LLC 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 and add nine (9) 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 BENJAMIN BLAKE, MAYOR and DAVID SULKIS, CITY PLANNER of the CITY of MILFORD. A copy of this letter is also being sent to AMERICAN TOWER CORPOATION the owner of the tower, and DAMATO INVESTMENTS LLC who owns the property.

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

1. The proposed modifications will not result in an increase in the height of the existing tower.
2. The antennas work is a one-for-one replacement of facility components.
3. The proposed modifications will include the addition of ground base equipment as depicted on the attached drawings; however, the proposed equipment will not require

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

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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: BENJAMIN BLAKE (MAYOR, MILFORD, CT)
DAVID SULKIS (City Planner, MILFORD, CT)
JUSTINE PAUL (Tower Owner - American Tower Corporation)
DAMATO INVESTMENTS LLC (Property Owner)

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City, State, ZIP+4®: Milford CT 06460

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

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City, State, ZIP+4®: Woburn MA 01801

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City, State, ZIP+4®: Milford CT 06460

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Postage $0.50
Total Postage and Fees $6.70

Sent To: David Sikes CT52xC078
Street and Apt. No., or PO Box No.: 70 west River ST
City, State, ZIP+4®: Milford CT 06460

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

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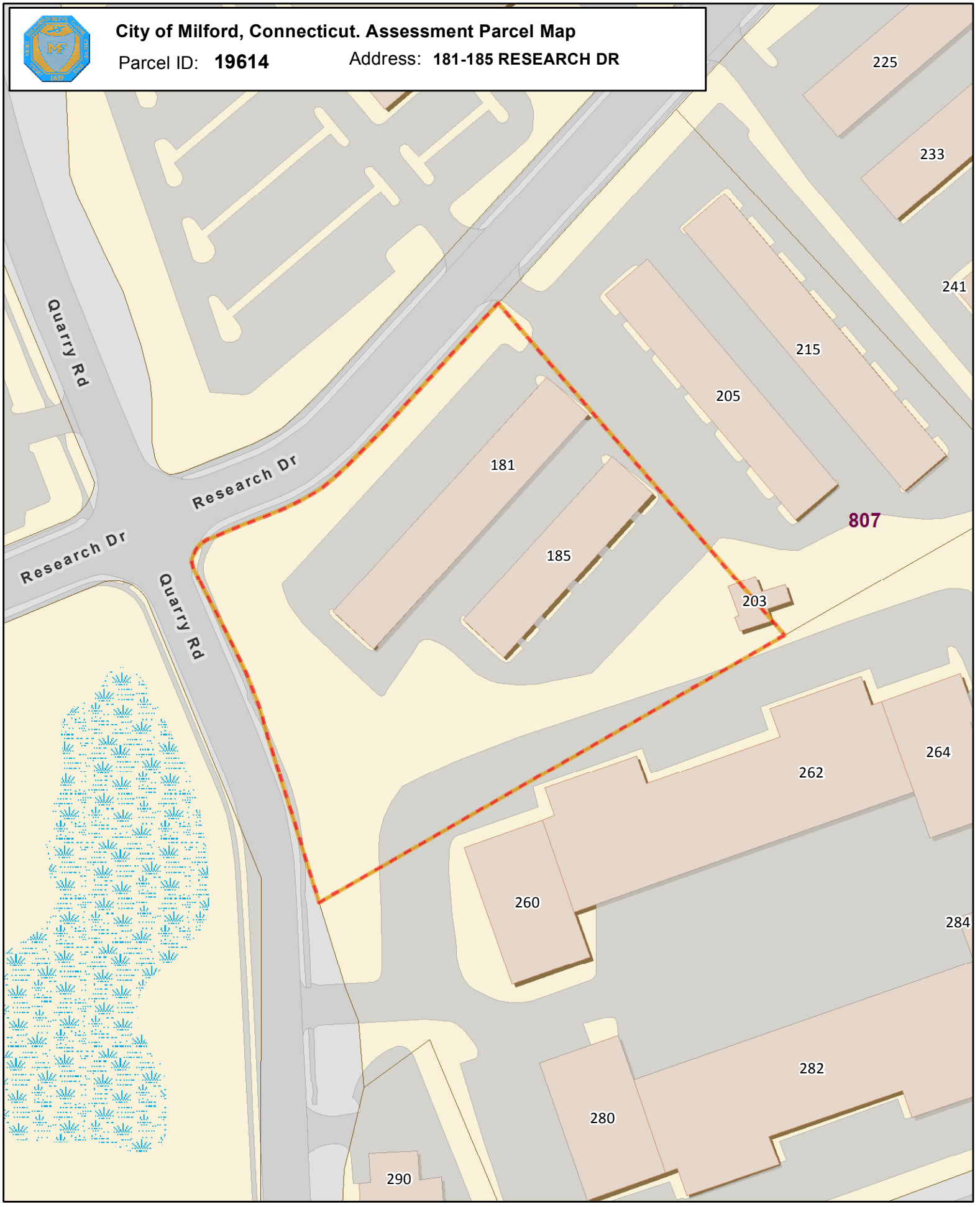

1 inch = 100 feet

0 50 100 150 200 Feet

Disclaimer: This map is for informational purposes only All information is subject to verification by any user. The City of Milford and its mapping contractors assume no legal responsibility for the information contained herein.

Map Produced: July 2016

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

SPRINT Existing Facility

Site ID: CT52XC078

Milford CT 2
185 Research Drive
Milford, CT 06460

July 27, 2018

EBI Project Number: 6218005217

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**7.83 %**

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

EBI Consulting
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July 27, 2018

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

Emissions Analysis for Site: **CT52XC078 – Milford CT 2**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **185 Research Drive, Milford, 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), 2500 MHz (BRS) and 18 GHz microwave 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 **185 Research Drive, Milford, 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 for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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) 1 microwave (18 GHz) backhaul channel was considered for sector C. This channel has a transmit power of 1 Watt.

7) 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.

8) 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 for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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.

9) The antennas used in this modeling are the **Commscope NNVV-65B-R4 and the Nokia AAHC** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands and the **Dragonwave A-ANT-18G-2-C** dish for the 18 GHz microwave link. 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 for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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. It should be noted that there are two antennas per sector (one (1) Andrew 844G65VTZASX and one (1) Decibel DB844H90E-XY that are remaining in place which are dormant and have no contributions toward the Sprint emissions values.

10) The antenna mounting height centerlines of the proposed panel antennas and microwave dish are **185 feet** above ground level (AGL) for **Sector A**, **185 feet** above ground level (AGL) for **Sector B** and **185 feet** above ground level (AGL) for Sector C.

11) 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.

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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):	**185 feet**	Height (AGL):	**185 feet**	Height (AGL):	**185 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%	**1.03 %**	Antenna B1 MPE%	**1.03 %**	Antenna C1 MPE%	**1.03 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Nokia AAHC	Make / Model:	Nokia AAHC	Make / Model:	Nokia AAHC
Gain:	15.05 dBd	Gain:	15.05 dBd	Gain:	15.05 dBd
Height (AGL):	**185 feet**	Height (AGL):	**185 feet**	Height (AGL):	**185 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):	5,118.23	ERP (W):	5,118.23	ERP (W):	5,118.23
Antenna A2 MPE%	**0.57 %**	Antenna B2 MPE%	**0.57 %**	Antenna C2 MPE%	**0.57 %**

Microwave Backhaul Data

Antenna Type:	Gain (dBd)	Height (feet AGL):	Frequency Bands	Channel Count	Total TX Power(W)	ERP (W)	MPE %	Sector
Dragonwave A-ANT-18G-2-C	36.45 dBd	185	18 GHz	1	1	4,415.7	**0.05**	C

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Sector C	**1.65 %**
AT&T	1.72 %
Computer Hospital	0.01 %
MetroPCS	0.43 %
Nextel	0.18 %
Clearwire	0.06 %
T-Mobile	1.00 %
Verizon Wireless	2.78 %
Site Total MPE %:	**7.83 %**

SPRINT Sector A Total:	1.60 %
SPRINT Sector B Total:	1.60 %
SPRINT Sector C Total:	1.65 %
Site Total:	7.83 %

SPRINT _ Frequency Band / Technology (Sector C)	# 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	185	0.42	850 MHz	567	0.08%
Sprint 850 MHz LTE	2	941.82	185	2.11	850 MHz	567	0.37%
Sprint 1900 MHz (PCS) CDMA	5	511.82	185	2.87	1900 MHz (PCS)	1000	0.29%
Sprint 1900 MHz (PCS) LTE	2	1,279.56	185	2.87	1900 MHz (PCS)	1000	0.29%
Sprint 2500 MHz (BRS) LTE	8	639.78	185	5.74	2500 MHz (BRS)	1000	0.57%
Sprint 18 GHz Microwave	1	4,415.70	185	0.50	18 GHz	1000	0.05%
						Total:	**1.65%**

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:	1.60 %
Sector B:	1.60 %
Sector C:	1.65 %
SPRINT Maximum MPE % (Sector C):	1.65 %
Site Total:	7.83 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **7.83 %** 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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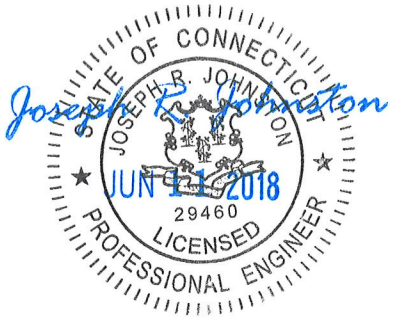
1033 WATERVLIET SHAKER RD, ALBANY, NY 12205

Mount Analysis Report

June 9, 2018

Sprint Site Number	CT52XC078
Sprint Site Name	Milford CT 2
Infinigy Job Number	526-104
Client	Airosmith
Carrier	Sprint
Site Location	185 Research Drive Milford, CT 06460 41.240421 N NAD83 73.011902 W NAD83
Mount Centerline EL.	185
Mount Classification	Platform
Failing Usage Ratio	**>200%**
Passing Usage Ratio	**51.2%**
Overall Result	**Contingent Pass- See Required Modification Below**
Notes	**Existing mount shall be removed and replaced with (1) Site Pro 1 RMQP-496-HK prior the installation of the proposed equipment.**

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



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

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 16.0.3 analysis software.

Supporting Documentation

Colo App	ATC Eng #OAA719635, dated April 19, 2018
Photos	Site Photos, November 15, 2017

Analysis Code Requirements

Wind Speed	97 mph (3-Second Gust, V_{ASD}) / 125 mph (3-Second Gust, V_{ULT})
Wind Speed w/ ice	50 mph (3-Second Gust, V_{ASD}) w/ 0.75" ice
TIA Revision	ANSI/TIA-222-G
Adopted IBC	2015 IBC/ 2016 Connecticut State Building Code
Structure Class	II
Exposure Category	B
Topographic Category	1
Calculated Crest Height	0 ft

Conclusion

Upon reviewing the results of this analysis, it is our opinion that the structure does not meets the specified TIA code requirements. The mounts and connections 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)	Horiz. O/S (ft)*	Qty	Appurtenance	Carrier
185.0	185.0	0.3/11.8	6	Alcatel Lucent 800 MHz 2x50 RRH	Sprint
		0.3	3	Alcatel Lucent 1900 MHz RRH	
		11.8	3	Nokia AAHC	
		0.3	3	Commscope NNVV-65B-R4	
		12.9	3	Andrew 844G65VTZASK	
		7.9	3	Decibel DB844H90E-XY	
		11.8	2	Dragon Wave A-Ant-18G-2-C	
		4.1	2	Dragon Wave Horizon Compact	

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

Structure Usages

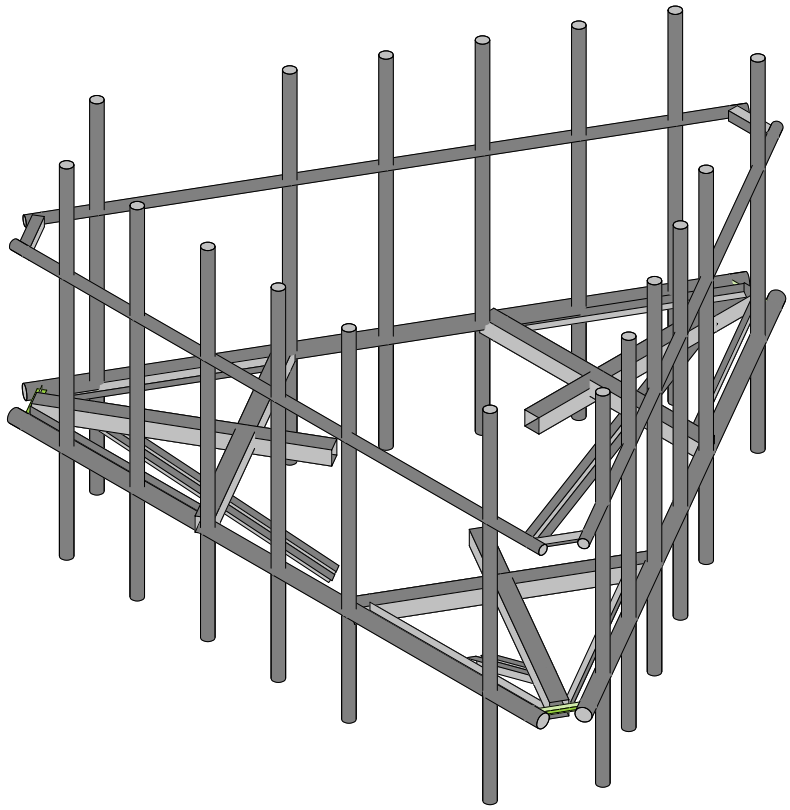
Face Horizontal	32.1%	Pass
Standoff	51.2%	Pass
Mount Pipe	22.6%	Pass
RATING =	**51.2%**	**Pass**

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	CT52XC078	
NRO		June 9, 2018 at 4:25 PM
526-104		CT52X078 Proposed.r3d

Site Name:	CT52XC078
Client:	Airosmith
Carrier:	Sprint
Engineer:	NRO
Date:	6/9/2018

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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:	97	mph (nominal 3-second gus
Wind Centerline 1 (z_1):	185.0	ft
Side Face Angle (θ):	60	degrees
Exposure Category:	B	
Topographic Category:	1	

Wind with No Ice		
q_z (psf)	Gh	F_{ST} (psf)
26.86	1.00	**32.23**

Wind with Ice		
q_z (psf)	Gh	F_{ST} (psf)
7.16	1.00	**19.24**

Ice Loading Inputs:

Is Ice Loading Needed?:	Yes	
Ice Wind Velocity:	50	mph (nominal 3-second gust)
Base Ice Thickness:	0.75	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	185.0	3	1.00	Flat	Flat	26.86	12.27	329.62	154.45	198.24	285.83
Decibel DB844H90E-XY	185.0	3	1.00	Flat	Flat	26.86	3.06	82.23	97.10	93.38	85.94
Andrew 844G65VTZASK	185.0	3	1.00	Flat	Flat	26.86	6.11	164.19	102.49	117.92	148.77
Alcatel-Lucent 800 MHz 2x50 RRH	185.0	3	1.00	Flat	Flat	26.86	2.06	55.29	36.58	41.25	50.61
Alcatel-Lucent 800 MHz 2x50 RRH	185.0	3	1.00	Flat	Flat	26.86	2.06	55.29	36.58	41.25	50.61
Alcatel-Lucent 1900 MHz 4x45 RRH	185.0	2	1.00	Flat	Flat	26.86	2.31	62.12	63.80	63.38	62.54
Nokia AAHC	185.0	3	1.00	Flat	Flat	26.86	4.20	112.89	55.35	69.74	98.50
Dragon Wave A-Ant-18G-2-C	185.0	2	1.00	Flat	Flat	26.86	5.17	138.79	69.39	86.74	121.44
DragonWave Horizon Compact	185.0	3	1.00	Flat	Flat	26.86	0.72	19.36	9.89	12.26	16.99

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2			HSS 4"x4"x1/4"	Beam	None	A53 Gr.B	Typical
2	M2	N3	N4			RIGID	None	None	RIGID	Typical
3	M3	N5	N8			HSS 4"x4"x1/4"	Beam	None	A53 Gr.B	Typical
4	M4	N9	N10			RIGID	None	None	RIGID	Typical
5	M5	N6	N11			HSS 4"x4"x1/4"	Beam	None	A53 Gr.B	Typical
6	M6	N12	N13			RIGID	None	None	RIGID	Typical
7	M7	N16	N15			3" STD Pipe	Beam	None	A53 Gr.B	Typical
8	M8	N19	N18			3" STD Pipe	Beam	None	A53 Gr.B	Typical
9	M9	N22	N21			3" STD Pipe	Beam	None	A53 Gr.B	Typical
10	M10	N26	N27			HSS 4"x4"x1/4"	Beam	None	A53 Gr.B	Typical
11	M11	N28	N29			HSS 4"x4"x1/4"	Beam	None	A53 Gr.B	Typical
12	M12	N30	N31			HSS 4"x4"x1/4"	Beam	None	A53 Gr.B	Typical
13	M13	N33	N34			L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
14	M14	N32	N35		270	L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
15	M15	N37	N38			L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
16	M16	N36	N39		270	L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
17	M17	N41	N42			L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
18	M18	N40	N43		270	L2"x2"x1/8"	Beam	None	A36 Gr.36	Typical
19	MP1	N100	N101			2.5" STD Pipe	Beam	None	A53 Gr.B	Typical
20	MP2	N102	N103			2.5" STD Pipe	Beam	None	A53 Gr.B	Typical
21	MP3	N104	N105			2.5" STD Pipe	Beam	None	A53 Gr.B	Typical
22	MP4	N106	N107			2.5" STD Pipe	Beam	None	A53 Gr.B	Typical
23	MP9	N116	N117			2.5" STD Pipe	Beam	None	A53 Gr.B	Typical
24	MP10	N118	N119			2.5" STD Pipe	Beam	None	A53 Gr.B	Typical
25	MP11	N120	N121			2.5" STD Pipe	Beam	None	A53 Gr.B	Typical
26	MP12	N122	N123			2.5" STD Pipe	Beam	None	A53 Gr.B	Typical
27	MP5	N108	N109			2.5" STD Pipe	Beam	None	A53 Gr.B	Typical
28	MP6	N110	N111			2.5" STD Pipe	Beam	None	A53 Gr.B	Typical
29	MP7	N112	N113			2.5" STD Pipe	Beam	None	A53 Gr.B	Typical
30	MP8	N114	N115			2.5" STD Pipe	Beam	None	A53 Gr.B	Typical
31	M31	N86	N85			2.0" STD Pipe	Beam	None	A53 Gr.B	Typical
32	M32	N88	N87			2.0" STD Pipe	Beam	None	A53 Gr.B	Typical
33	M33	N90	N89			2.0" STD Pipe	Beam	None	A53 Gr.B	Typical
34	M34	N106A	N103A			LL2.5"x2.5"x3"...	Beam	None	A36 Gr.36	Typical
35	M35	N107A	N104A			LL2.5"x2.5"x3"...	Beam	None	A36 Gr.36	Typical
36	M36	N108A	N105A			LL2.5"x2.5"x3"...	Beam	None	A36 Gr.36	Typical
37	M37	N110A	N109A		180	L2.5"2.5"x3/16"	Beam	None	A36 Gr.36	Typical
38	M38	N113A	N114A		90	L2.5"2.5"x3/16"	Beam	None	A36 Gr.36	Typical
39	M39	N111A	N112A		90	L2.5"2.5"x3/16"	Beam	None	A36 Gr.36	Typical
40	MP40	N122A	N120A			2.5" STD Pipe	Beam	None	A53 Gr.B	Typical
41	MP41	N123A	N121A			2.5" STD Pipe	Beam	None	A53 Gr.B	Typical
42	MP42	N129	N127			2.5" STD Pipe	Beam	None	A53 Gr.B	Typical
43	MP43	N130	N128			2.5" STD Pipe	Beam	None	A53 Gr.B	Typical
44	MP44	N134	N132			2.5" STD Pipe	Beam	None	A53 Gr.B	Typical
45	MP45	N135	N133			2.5" STD Pipe	Beam	None	A53 Gr.B	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[K]
1	General				
2	RIGID		3	36	0
3	Total General		3	36	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	L2x2x2	6	303.1	0

Material Takeoff (Continued)

	Material	Size	Pieces	Length[in]	Weight[K]
7	A36 Gr.36	LL2.5x2.5x3x3	3	175.6	0
8	A36 Gr.36	L2.5x2.5x3	3	36	0
9	A53 Gr.B	HSS4x4x4	6	374.3	.4
10	A53 Gr.B	PIPE_2.0	3	450	.1
11	A53 Gr.B	PIPE_2.5	18	1728	.8
12	A53 Gr.B	PIPE_3.0	3	450	.3
13	Total HR Steel		42	3517	1.7

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut..	Area(M...	Surface...
1	Self Weight	DL		-1			42		3	
2	Wind Load AZI 000	WLZ					42		2	
3	Wind Load AZI 090	WLX					42		2	
4	Ice Weight	OL1					42	45		
5	Wind + Ice Load AZI 000	OL2					42		1	
6	Wind + Ice Load AZI 090	OL3					42		1	
7	Service Live 1	LL				6				
8	Seismic Load AZI 000	ELZ								
9	Seismic Load AZI 090	ELX								
10	BLC 1 Transient Area Loads	None						45		
11	BLC 2 Transient Area Loads	None						62		
12	BLC 3 Transient Area Loads	None						56		
13	BLC 5 Transient Area Loads	None						44		
14	BLC 6 Transient Area Loads	None						38		

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...
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														

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..
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...	.096														
40	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	.083	W...	.048												
41	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	.048	W...	.083												
42	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5			W...	.096												
43	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.048	W...	.083												
44	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.083	W...	.048												
45	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.096														
46	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.083	W...	-.048												
47	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	-.048	W...	-.083												
48	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5			W...	-.096												
49	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	.048	W...	-.083												
50	1.2D + 1.5L + 1.0WL (...	Yes	Y		DL	1.2	LL	1.5	W...	.083	W...	-.048												
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														
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	.9	ELZ	1																
64	(0.9-0.2Sds) + 1.0E AZ..	Yes	Y		DL	.9	ELZ	.866	ELX	.5														
65	(0.9-0.2Sds) + 1.0E AZ..	Yes	Y		DL	.9	ELZ	.5	ELX	.866														
66	(0.9-0.2Sds) + 1.0E AZ..	Yes	Y		DL	.9			ELX	1														
67	(0.9-0.2Sds) + 1.0E AZ..	Yes	Y		DL	.9	ELZ	-.5	ELX	.866														
68	(0.9-0.2Sds) + 1.0E AZ..	Yes	Y		DL	.9	ELZ	-.866	ELX	.5														
69	(0.9-0.2Sds) + 1.0E AZ..	Yes	Y		DL	.9	ELZ	-1																
70	(0.9-0.2Sds) + 1.0E AZ..	Yes	Y		DL	.9	ELZ	-.866	ELX	-.5														
71	(0.9-0.2Sds) + 1.0E AZ..	Yes	Y		DL	.9	ELZ	-.5	ELX	-.866														
72	(0.9-0.2Sds) + 1.0E AZ..	Yes	Y		DL	.9			ELX	-1														
73	(0.9-0.2Sds) + 1.0E AZ..	Yes	Y		DL	.9	ELZ	.5	ELX	-.866														
74	(0.9-0.2Sds) + 1.0E AZ..	Yes	Y		DL	.9	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	N6	max	2247.16	5	1432.379	28	5536.939	2	1442.599	27	2363.7	11	272.906	23
2		min	-2245.785	11	210.253	21	-4106.161	20	12.252	20	-2363.837	17	-348.754	5
3	N5	max	3571.516	16	1414.943	38	2465.432	15	356.225	14	1248.825	7	1317.895	37
4		min	-4812.269	10	294.128	19	-3181.43	9	-728.844	8	-1249.098	25	9.657	18
5	N1	max	4545.954	6	1407.911	34	3040.343	25	317.448	14	1750.915	2	-71.5	23

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
6		min	-3308.156	24	307.314	16	-3758.423	7	-914.719	33	-1748.253	20	-1182.284	30
7	N103A	max	554.613	24	2417.337	31	1981.248	31	0	1	0	1	0	1
8		min	-3432.462	31	-383.666	24	-317.537	24	0	1	0	1	0	1
9	N104A	max	3421.586	35	2409.833	35	1974.92	35	0	1	0	1	0	1
10		min	-510.793	16	-353.49	16	-292.384	16	0	1	0	1	0	1
11	N105A	max	25.557	17	2387.773	27	424.882	20	0	1	0	1	0	1
12		min	-25.474	23	-256.319	20	-3913.294	27	0	1	0	1	0	1
13	Totals:	max	7691.41	5	10589.658	32	7888.305	2						
14		min	-7691.41	23	2885.049	25	-7888.305	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	M37	L2.5x2....	.512	12	8	.111	12	z	2	27789....	29192.4	872....	1971...	...	H2-1
2	M39	L2.5x2....	.376	0	...	.095	0	y	6	27789....	29192.4	872....	1971...	...	H2-1
3	M32	PIPE_2.0	.321	14...	8	.122	4.688		2	6295.422	32130	1871...	1871...	...	H1-...
4	M33	PIPE_2.0	.274	14...	...	.098	4.688		6	6295.422	32130	1871...	1871...	...	H1-...
5	M31	PIPE_2.0	.272	14...	...	.079	93.75		6	6295.422	32130	1871...	1871...	...	H1-...
6	M5	HSS4x...	.241	0	4	.111	0	z	5	97436....	106155	1231...	1231...	...	H1-...
7	MP2	PIPE_2.5	.226	27	9	.095	27		9	30038....	50715	3596...	3596...	...	H1-...
8	M1	HSS4x...	.216	0	8	.118	0	z	9	97437.38	106155	1231...	1231...	...	H1-...
9	MP3	PIPE_2.5	.202	27	...	.056	27		13	30038....	50715	3596...	3596...	...	H1-...
10	MP10	PIPE_2.5	.193	27	2	.070	27		13	30038....	50715	3596...	3596...	...	H1-...
11	MP8	PIPE_2.5	.187	27	5	.078	27		4	30038....	50715	3596...	3596...	...	H1-...
12	MP6	PIPE_2.5	.187	27	7	.069	27		6	30038....	50715	3596...	3596...	...	H1-...
13	M10	HSS4x...	.186	31...	...	.086	58.6...	z	6	97364.86	106155	1231...	1231...	...	H1-...
14	M11	HSS4x...	.184	31...	...	.114	3.907	z	2	97364.86	106155	1231...	1231...	...	H1-...
15	M12	HSS4x...	.182	31...	...	.111	58.6...	z	2	97364.86	106155	1231...	1231...	...	H1-...
16	MP4	PIPE_2.5	.181	69	2	.147	69		8	30038....	50715	3596...	3596...	...	H1-...
17	MP11	PIPE_2.5	.180	27	5	.046	27		5	30038....	50715	3596...	3596...	...	H1-...
18	MP7	PIPE_2.5	.171	27	2	.063	27		9	30038....	50715	3596...	3596...	...	H1-...
19	MP40	PIPE_2.5	.171	27	...	.043	69		9	30038....	50715	3596...	3596...	...	H1-...
20	MP12	PIPE_2.5	.166	69	...	.104	69		12	30038....	50715	3596...	3596...	...	H1-...
21	M38	L2.5x2....	.163	0	3	.053	0	y	11	27789....	29192.4	872....	1971...	...	H2-1
22	M3	HSS4x...	.163	0	8	.113	0	z	13	97436....	106155	1231...	1231...	...	H1-...
23	MP44	PIPE_2.5	.163	27	8	.046	27		8	30038....	50715	3596...	3596...	...	H1-...
24	M18	L2x2x2	.160	50...	8	.011	50.52	y	2	6508.508	15908.4	402....	812.14	...	H2-1
25	MP42	PIPE_2.5	.158	27	4	.033	27		3	30038....	50715	3596...	3596...	...	H1-...
26	M13	L2x2x2	.152	50...	8	.012	50.52	z	8	6508.508	15908.4	402....	814....	...	H2-1
27	MP41	PIPE_2.5	.151	27	3	.083	27		7	30038....	50715	3596...	3596...	...	H1-...
28	M14	L2x2x2	.148	50...	...	.011	50.52	z	31	6508.508	15908.4	402....	806.72	...	H2-1
29	MP45	PIPE_2.5	.144	27	...	.066	27		3	30038....	50715	3596...	3596...	...	H1-...
30	M16	L2x2x2	.144	50...	4	.011	50.52	z	35	6508.508	15908.4	402....	810....	...	H2-1
31	M8	PIPE_3.0	.140	4.6...	...	.209	95.3...		2	28250....	65205	5748...	5748...	...	H1-...
32	M9	PIPE_3.0	.140	4.6...	...	.168	95.3...		6	28250....	65205	5748...	5748...	...	H1-...
33	M7	PIPE_3.0	.138	4.6...	...	.142	95.3...		10	28250....	65205	5748...	5748...	...	H1-...
34	M15	L2x2x2	.135	50...	...	.011	50.52	y	31	6508.508	15908.4	402....	810....	...	H2-1
35	M17	L2x2x2	.135	50...	4	.011	50.52	y	35	6508.508	15908.4	402....	809....	...	H2-1
36	MP43	PIPE_2.5	.134	27	8	.055	27		11	30038....	50715	3596...	3596...	...	H1-...
37	MP1	PIPE_2.5	.132	27	...	.098	27		8	30038....	50715	3596...	3596...	...	H1-...
38	MP5	PIPE_2.5	.130	27	8	.070	27		3	30038....	50715	3596...	3596...	...	H1-...
39	MP9	PIPE_2.5	.124	27	3	.074	27		12	30038....	50715	3596...	3596...	...	H1-...
40	M34	LL2.5x2...	.109	58...	...	.002	0	y	31	42546....	58320	3954...	2549...	...	H1-...
41	M35	LL2.5x2...	.109	58...	...	.002	58.5...	y	35	42546....	58320	3954...	2549...	...	H1-...
42	M36	LL2.5x2...	.108	58...	...	.002	0	y	27	42546....	58320	3954...	2549...	1	H1-...

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**183 ft Monopole**
ATC Site Name	:	**Milford CT 2, CT**
ATC Site Number	:	**302535**
Engineering Number	:	**OAA719635_C3_05**
Proposed Carrier	:	**Clearwire Corporation**
Carrier Site Name	:	**Milford CT 2**
Carrier Site Number	:	**CT52XC078**
Site Location	:	**185 Research Drive** **Milford, CT 06460-7733** **41.240400,-73.011900**
County	:	**New Haven**
Date	:	**July 5, 2018**
Max Usage	:	**99%**
Result	:	**Pass**

Prepared By:
Robert D. Barrett, E.I.
Structural Engineer II

Robert D. Barrett

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 183 ft monopole to reflect the change in loading by Clearwire Corporation.

Supporting Documents

Tower Drawings	Summit Manufacturing Drawing #1237-D1, dated September 9, 1994
Foundation Drawing	Summit Manufacturing Drawing #1237-F1 dated October 10, 1994
Geotechnical Report	French & Parrello Project #93N035CR1, dated November 2, 1993
Modifications	ATC Job #42659834, dated January 16, 2009 ATC Job #43915332, dated September 2, 2009 ATC Job #56682734, dated April 16, 2014

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, V_{asd}) / 125 mph (3-Second Gust, V_{ult})
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.19, 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					
185.0	185.0	2	DragonWave Horizon Compact	-	(2) 1/2" Coax (2) 2" Conduit	Clearwire Corporation
		2	DragonWave A-ANT-18G-2-C			
		6	Decibel DB844H90E-XY		(12) 1 5/8" Coax	Sprint Nextel
		3	Andrew 844G65VTZASX			
171.0	171.0	3	RFS APXV18-206517S-C	Flush	(6) 1 5/8" Coax	Metro PCS
167.0	167.0	6	CCI TPX-070821	Platform w/ Handrails	(18) 1 1/4" Coax (3) 0.39" Fiber Trunk (2) 3" Conduit	AT&T Mobility
		1	Commscope WCS-IMFQ-AMT			
		6	Powerwave LGP21401			
		2	Raycap DC6-48-60-18-8F			
		3	Ericsson RRUS 11 (Band 4)			
		3	Ericsson RRUS 32 B2			
		3	Ericsson RRUS-32			
		3	Powerwave 7770.00			
		3	CCI OPA-65R-LCUU-H4			
		3	Quintel QS66512-2			
146.0	146.0	3	Kathrein Smart Bias Tee	Sector Frames	(18) 1 5/8" Coax	T-Mobile
		3	Andrew ETW200VS12UB			
		3	Andrew ETW190VS12UB			
		3	Andrew SBNHH-1D65A			
127.0	127.0	6	RFS FD9R6004/1C-3L	Platform w/ Handrails	(12) 7/8" Coax (6) 1 5/8" Coax (2) 1 5/8" Fiber	Verizon
		3	Alcatel-Lucent RRH2X60-1900A-4R			
		3	Alcatel-Lucent RRH2X60-AWS			
		3	Alcatel-Lucent RRH2x40-AWS			
		2	RFS DB-T1-6Z-8AB-0Z			
		3	Andrew HBXX-6516DS-A2M			
		3	Andrew LNX-4514DS-A1M			
		3	Antel BXA-80063/6CF			
		3	Andrew HBXX-6517DS-A2M			
7.0	7.0	2	Thales PCS VP/360/2 Type 8100	Stand-Off	-	T-Mobile

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
185.0	185.0	3	Argus LLPX310R	Platform w/ Handrails	(6) 5/16" Coax	Clearwire Corporation
		3	NextNet BTS-2500			

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
185.0	185.0	6	Alcatel-Lucent RRH2x50-08	Site Pro 1 RMQP-496-HK Platform w/ Handrails	(3) 1 1/4" Hybriflex Cable (1) 1.7" Hybrid	Clearwire Corporation
		3	Alcatel-Lucent 1900 MHz 4x45 RRH			
		3	Nokia 2.5G MAA - AAHC(64T64R)			
		3	Andrew 844G65VTZASX			
		3	Commscope NNVV-65B-R4			

[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 outside the pole shaft. Stacking coax is not allowed.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	75%	Pass
Shaft	91%	Pass
Base Plate	85%	Pass
Reinforcement	78%	Pass
Termination Bolts	99%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	4,840.5	72%
Axial (Kips)	72.3	4%

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) (°)
185.0	Alcatel-Lucent RRH2x50-08	Clearwire Corporation	3.420	2.180
	Alcatel-Lucent 1900 MHz 4x45 RRH			
	Nokia 2.5G MAA - AAHC(64T64R)			
	DragonWave A-ANT-18G-2-C			
	Andrew 844G65VTZASX			
	Commscope NNVV-65B-R4			

***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:

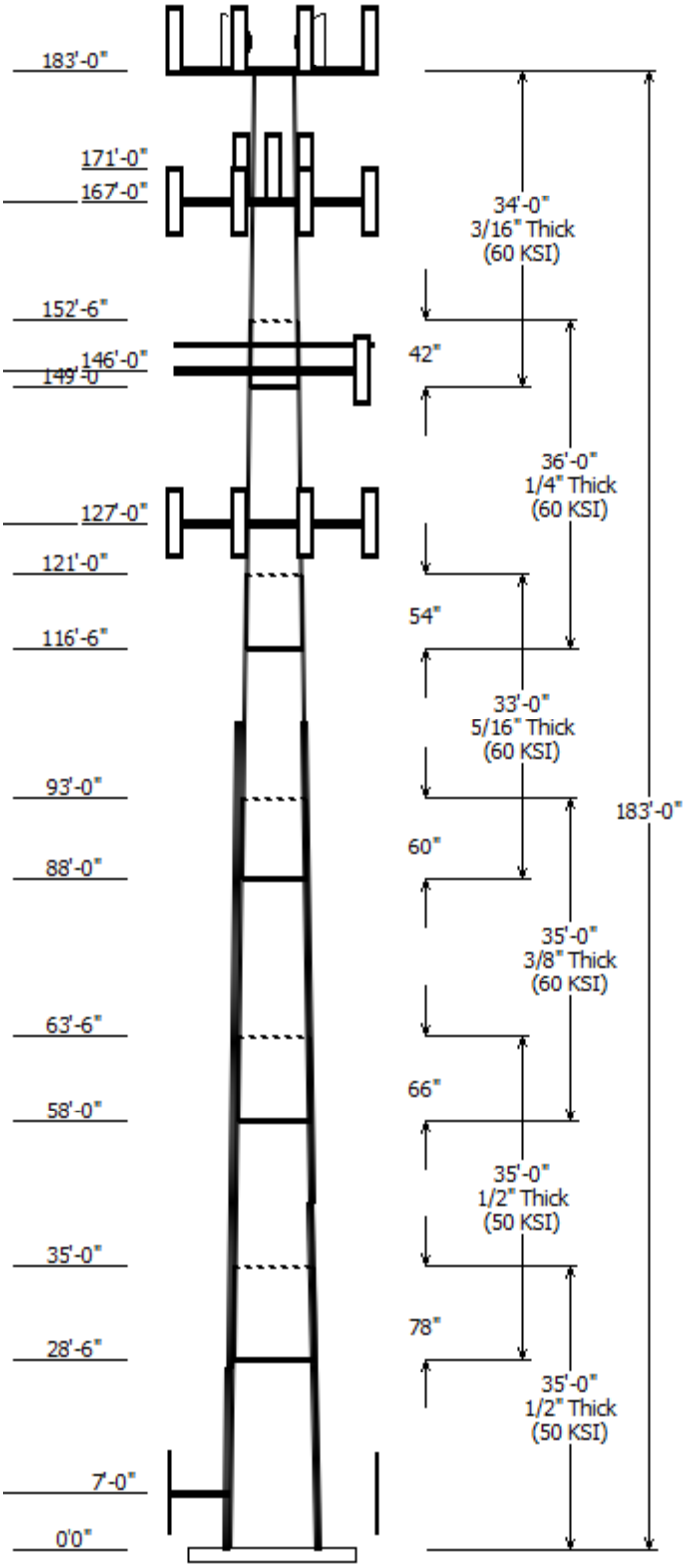
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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

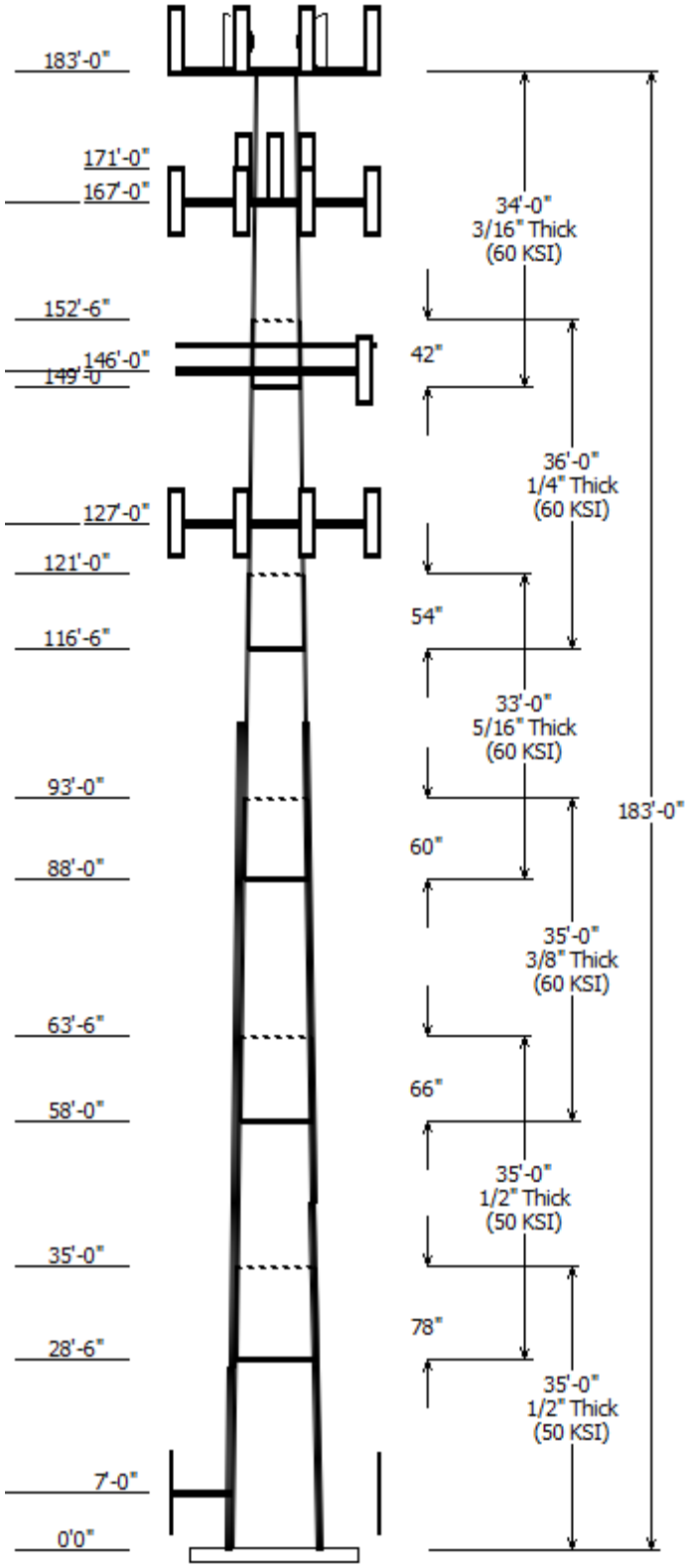
Pole :	302535	Code:	ANSI/TIA-222-G
Location :	Milford CT 2, CT		
Description :	183 ft Summit Monopole		
Client :	CLEARWIRE CORPORATION	Struct Class :	II
Shape :	18 Sides	Exposure :	B
Height :	183.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.174917 (in/ft)		

Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Steel Grade Shape	(ksi)
1	35.000	42.49	48.62	0.500		0.000	18 Sides	50
2	35.000	38.51	44.63	0.500	Slip Joint	78.000	18 Sides	50
3	35.000	34.10	40.22	0.375	Slip Joint	66.000	18 Sides	60
4	33.000	29.83	35.60	0.313	Slip Joint	60.000	18 Sides	60
5	36.000	24.82	31.11	0.250	Slip Joint	54.000	18 Sides	60
6	34.000	19.86	25.80	0.188	Slip Joint	42.000	18 Sides	60

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
183.000	185.000	3	Nokia 2.5G MAA -
183.000	185.000	3	Commscope NNVV-65B-R4
183.000	185.000	3	Andrew 844G65VTZASX
183.000	185.000	3	Alcatel-Lucent 1900 MHz 4x45
183.000	185.000	6	Alcatel-Lucent RRH2x50-08
183.000	185.000	3	Andrew 844G65VTZASX
183.000	183.000	1	Site Pro 1 RMQP-496-HK Platfor
183.000	185.000	6	Decibel DB844H90E-XY
183.000	185.000	2	DragonWave Horizon Compact
183.000	185.000	2	DragonWave A-ANT-18G-2-C
171.000	171.000	3	RFS APXV18-206517S-C
167.000	167.000	6	CCI TPX-070821
167.000	167.000	3	Quintel QS66512-2
167.000	167.000	3	Ericsson RRUS 32 B2
167.000	167.000	1	Commscope WCS-IMFQ-AMT
167.000	167.000	3	CCI OPA-65R-LCUU-H4
167.000	167.000	3	Ericsson RRUS-32
167.000	167.000	2	Raycap DC6-48-60-18-8F
167.000	167.000	3	Ericsson RRUS 11 (Band 4)
167.000	167.000	1	Flat Platform w/ Handrails
167.000	167.000	6	Powerwave Allgon LGP21401
167.000	167.000	3	Powerwave Allgon 7770.00
146.000	146.000	3	Kathrein Scala Smart Bias Tee
146.000	146.000	3	Flat Light Sector Frame
146.000	146.000	3	Andrew SBNHH-1D65A
146.000	146.000	3	Andrew ETW190VS12UB
146.000	146.000	3	Andrew ETW200VS12UB
127.000	127.000	1	Flat Platform w/ Handrails
127.000	127.000	3	Andrew HBXX-6517DS-A2M
127.000	127.000	3	Antel BXA-80063/6CF
127.000	127.000	3	Andrew LNX-4514DS-A1M
127.000	127.000	3	Andrew HBXX-6516DS-A2M
127.000	127.000	1	RFS DB-T1-6Z-8AB-0Z
127.000	127.000	1	RFS DB-T1-6Z-8AB-0Z
127.000	127.000	3	Alcatel-Lucent RRH2x40-AWS
127.000	127.000	3	Alcatel-Lucent RRH2X60-AWS
127.000	127.000	3	Alcatel-Lucent RRH2X60-1900A-
127.000	127.000	6	RFS FD9R6004/1C-3L
7.000	7.000	1	Stand-Off
7.000	7.000	2	Thales PCS VP/360/2 Type 8100



Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
5.000	127.0	1 5/8" Coax	No
5.000	127.0	1 5/8" Fiber	No
5.000	127.0	7/8" Coax	No
5.000	146.0	1 5/8" Coax	No
5.000	146.0	1 5/8" Coax	Yes
5.000	146.0	1 5/8" Coax	Yes
5.000	167.0	0.39" Fiber Trunk	No
5.000	167.0	1 1/4" Coax	No
5.000	167.0	3" Conduit	No
5.000	171.0	1 5/8" Coax	Yes
5.000	183.0	1 1/4" Hybriflex	Yes
5.000	183.0	1 5/8" Coax	No
5.000	183.0	1.7" Hybrid	Yes
5.000	183.0	1/2" Coax	Yes
5.000	183.0	2" Conduit	Yes
0.000	110.7	#20 Dywidag Bars	Yes

Load Cases

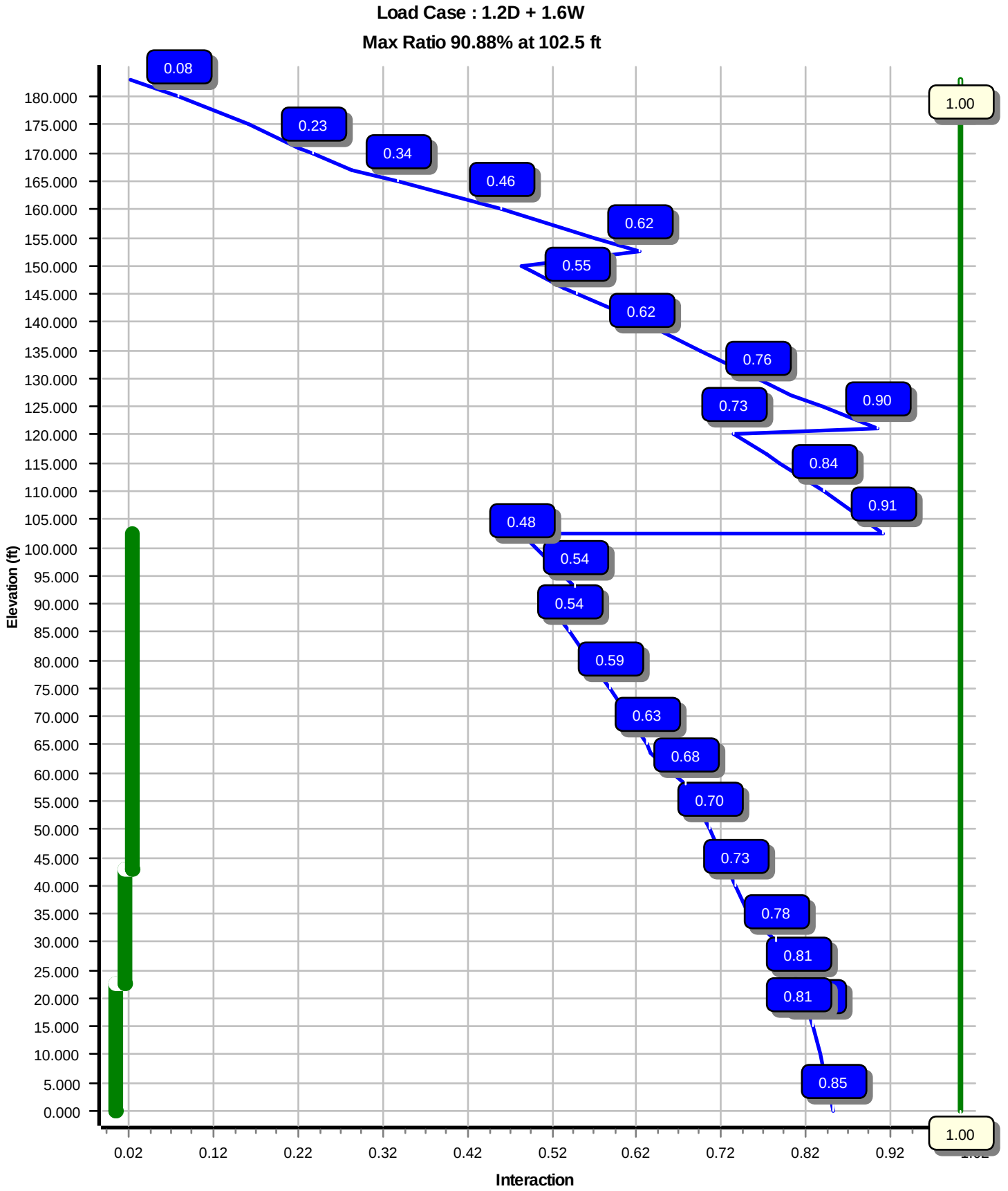
1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) 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	4840.47	37.84	72.34
0.9D + 1.6W	4663.15	36.52	54.24
1.2D + 1.0Di + 1.0Wi	1225.19	8.99	116.38
(1.2 + 0.2Sds) * DL + E ELFM	352.30	2.36	72.86
(1.2 + 0.2Sds) * DL + E EMAM	431.91	3.26	72.86
(0.9 - 0.2Sds) * DL + E ELFM	344.09	2.36	50.46
(0.9 - 0.2Sds) * DL + E EMAM	421.06	3.26	50.46
1.0D + 1.0W	1124.50	8.74	60.34

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	183.00	41.042	2.180


Load Case : 1.2D + 1.6W
Max Ratio 90.88% at 102.5 ft
0.08
0.23
0.34
0.46
0.62
0.55
0.62
0.76
0.73
0.90
0.84
0.91
0.48
0.54
0.54
0.59
0.63
0.68
0.70
0.73
0.78
0.81
0.81
0.85
1.00
1.00
Elevation (ft)
180.000
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
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number:	302535	Code: ANSI/TIA-222-G	
Site Name:	Milford CT 2, CT	Engineering Number:OAA719635_C3_05	7/5/2018 11:49:18 AM
Customer:	CLEARWIRE		

Analysis Parameters

Location :	New Haven County, CT	Height (ft) :	183
Code :	ANSI/TIA-222-G	Base Diameter (in) :	48.62
Shape :	18 Sides	Top Diameter (in) :	19.86
Pole Type :	Taper	Taper (in/ft) :	0.175
Pole Manfacturer :	Summit Manufacturing	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:	1	Operational Wind Speed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	0.75 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	3.14				
T_L (sec):	6	p:	1.3	C_s:	0.030
S_s:	0.191	S_1:	0.063	C_s Max:	0.030
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.204	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 0.75 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: 302535 Code: ANSI/TIA-222-G

Site Name: Milford CT 2, CT Engineering Number:OAA719635_C3_05 7/5/2018 11:49:18 AM

Customer: CLEARWIRE

Shaft Section Properties

							Bottom						Top						
Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Dia (in)	Elev (ft)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-18	35.000	0.5000	50		0.00	8,516	48.62	0.00	76.36	22340.1	15.38	97.24	42.49	35.00	66.65	14852.2	13.22	85.00	0.174917
2-18	35.000	0.5000	50	Slip	78.00	7,763	44.63	28.50	70.04	17236.7	13.98	89.27	38.51	63.50	60.32	11012.7	11.82	77.03	0.174917
3-18	35.000	0.3750	60	Slip	66.00	5,215	40.22	58.00	47.43	9515.8	17.15	107.27	34.10	93.00	40.14	5769.4	14.27	90.94	0.174917
4-18	33.000	0.3125	60	Slip	60.00	3,609	35.60	88.00	35.00	5507.2	18.33	113.93	29.83	121.00	29.28	3222.7	15.07	95.46	0.174917
5-18	36.000	0.2500	60	Slip	54.00	2,694	31.11	116.50	24.49	2948.2	20.18	124.47	24.82	152.50	19.50	1486.9	15.74	99.28	0.174917
6-18	34.000	0.1875	60	Slip	42.00	1,559	25.80	149.00	15.25	1264.3	22.51	137.64	19.86	183.00	11.71	572.4	16.91	105.92	0.174917
				Shaft Weight		29,356													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Distance From Face (ft)	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor
183.00	Alcatel-Lucent 1900 MHz 4x45 R	3	0.000	2.000	60.00	2.320	0.50
183.00	Alcatel-Lucent RRH2x50-08	6	0.000	2.000	52.90	1.700	0.50
183.00	Andrew 844G65VTZASX	3	0.000	2.000	16.00	5.310	0.71
183.00	Andrew 844G65VTZASX	3	0.000	2.000	16.00	5.310	0.71
183.00	Commscope NNVV-65B-R4	3	0.000	2.000	77.40	13.720	0.64
183.00	Decibel DB844H90E-XY	6	0.000	2.000	14.00	3.610	0.74
183.00	DragonWave A-ANT-18G-2-C	2	0.000	2.000	27.10	4.690	0.90
183.00	DragonWave Horizon Compact	2	0.000	2.000	10.60	0.430	0.50
183.00	Nokia 2.5G MAA - AAHC(64T64R)	3	0.000	2.000	103.60	4.200	0.64
183.00	Site Pro 1 RMQP-496-HK Platfor	1	0.000	0.000	2448.72	42.400	1.00
171.00	RFS APXV18-206517S-C	3	0.000	0.000	26.40	5.170	0.68
167.00	CCI OPA-65R-LCUU-H4	3	0.000	0.000	57.00	6.080	0.66
167.00	CCI TPX-070821	6	0.000	0.000	7.50	0.550	0.50
167.00	Commscope WCS-IMFQ-AMT	1	0.000	0.000	29.50	0.990	0.50
167.00	Ericsson RRUS 11 (Band 4)	3	0.000	0.000	44.00	2.570	0.50
167.00	Ericsson RRUS 32 B2	3	0.000	0.000	53.00	2.740	0.50
167.00	Ericsson RRUS-32	3	0.000	0.000	77.00	3.310	0.50
167.00	Flat Platform w/ Handrails	1	0.000	0.000	2000.00	42.400	1.00
167.00	Powerwave Allgon 7770.00	3	0.000	0.000	35.00	5.510	0.65
167.00	Powerwave Allgon LGP21401	6	0.000	0.000	14.10	1.100	0.50
167.00	Quintel QS66512-2	3	0.000	0.000	111.00	8.130	0.74
167.00	Raycap DC6-48-60-18-8F	2	0.000	0.000	20.00	1.110	1.00
146.00	Andrew ETW190VS12UB	3	0.000	0.000	11.00	0.760	0.50
146.00	Andrew ETW200VS12UB	3	0.000	0.000	11.00	0.470	0.50
146.00	Andrew SBNHH-1D65A	3	0.000	0.000	40.90	5.880	0.69
146.00	Flat Light Sector Frame	3	0.000	0.000	400.00	17.900	0.75
146.00	Kathrein Scala Smart Bias Tee	3	0.000	0.000	3.30	0.090	0.50
127.00	Alcatel-Lucent RRH2x40-AWS	3	0.000	0.000	44.00	2.160	0.50
127.00	Alcatel-Lucent RRH2X60-1900A-4	3	0.000	0.000	46.00	1.870	0.50
127.00	Alcatel-Lucent RRH2X60-AWS	3	0.000	0.000	44.00	1.880	0.50
127.00	Andrew HBXX-6516DS-A2M	3	0.000	0.000	30.60	5.420	0.67
127.00	Andrew HBXX-6517DS-A2M	3	0.000	0.000	43.00	8.530	0.68
127.00	Andrew LNX-4514DS-A1M	3	0.000	0.000	29.50	6.780	0.64
127.00	Antel BXA-80063/6CF	3	0.000	0.000	14.90	7.580	0.65
127.00	Flat Platform w/ Handrails	1	0.000	0.000	2000.00	42.400	1.00
127.00	RFS DB-T1-6Z-8AB-0Z	1	0.000	0.000	44.00	4.800	0.50
127.00	RFS DB-T1-6Z-8AB-0Z	1	0.000	0.000	44.00	4.800	0.50
127.00	RFS FD9R6004/1C-3L	6	0.000	0.000	3.10	0.370	0.50
7.00	Stand-Off	1	0.000	0.000	75.00	2.500	1.00
7.00	Thales PCS VP/360/2 Type 8100	2	0.000	0.000	0.30	0.030	1.00
Totals	Num Loadings:40	117			11490.62		

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
5.00	183.00	3	1 1/4" Hybriflex Cable	1.54	1.00	N	0.00	Y	Clearwire Corporation
5.00	183.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	Sprint Nextel
5.00	183.00	1	1.7" Hybrid	1.70	1.78	N	0.00	Y	Clearwire Corporation
5.00	183.00	2	1/2" Coax	0.63	0.15	N	0.00	Y	Clearwire Corporation
5.00	183.00	2	2" Conduit	2.38	3.65	N	2.38	Y	Clearwire Corporation
5.00	171.00	6	1 5/8" Coax	1.98	0.82	N	1.98	Y	Metro PCS Inc
5.00	167.00	3	0.39" Fiber Trunk	0.39	0.06	N	0.00	N	AT&T Mobility
5.00	167.00	18	1 1/4" Coax	1.55	0.63	N	0.00	N	AT&T Mobility
5.00	167.00	2	3" Conduit	3.50	7.58	N	0.00	N	AT&T Mobility
5.00	146.00	6	1 5/8" Coax	1.98	0.82	N	0.00	N	T-Mobile
5.00	146.00	6	1 5/8" Coax	1.98	0.82	N	1.98	Y	T-Mobile
5.00	146.00	6	1 5/8" Coax	1.98	0.82	N	0.00	Y	T-Mobile
5.00	127.00	6	1 5/8" Coax	1.98	0.82	N	0.00	N	Verizon Wireless
5.00	127.00	2	1 5/8" Fiber	1.63	1.61	N	0.00	N	Verizon Wireless
5.00	127.00	12	7/8" Coax	1.09	0.33	N	0.00	N	Verizon Wireless
0.00	110.78	4	#20 Dywidag Bars	2.50	0.00	N	1.82	Y	--

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Intermediate Connections: Description	Spacing (in)	Len (in)	Connectors	Continuation?
0.00	22.50	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	20.0	3.31	5/8" A36 U-Bolt	No
22.50	43.00	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	18.0	3.31	5/8" A36 U-Bolt	Yes
43.00	102.5	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	Yes

Site Number: 302535 Code: ANSI/TIA-222-G

Site Name: Milford CT 2, CT Engineering Number:OAA719635_C3_05 7/5/2018 11:49:19 AM

Customer: CLEARWIRE

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)	Additional Reinforcing Area (in^2)	Additional Reinforcing Ix (in^4)	Additional Reinforcing Weight (lb)
0.00		0.5000	48.620	76.363	22,340.1	15.38	97.24	63.5	905.0	0.0	0.0	19.64	7,654	0.0
5.00		0.5000	47.745	74.975	21,144.0	15.07	95.49	63.5	872.2	0.0	1,287.4	19.64	7,412	334.0
7.00		0.5000	47.395	74.420	20,677.8	14.95	94.79	63.5	859.3	0.0	508.4	19.64	7,317	133.6
10.00		0.5000	46.871	73.588	19,991.4	14.77	93.74	63.5	840.1	0.0	755.5	19.64	7,175	200.4
15.00		0.5000	45.996	72.200	18,881.4	14.46	91.99	63.5	808.5	0.0	1,240.2	19.64	6,941	334.0
20.00		0.5000	45.121	70.812	17,813.3	14.15	90.24	63.5	777.6	0.0	1,216.6	19.64	6,711	334.0
22.50	Reinf. Top Reinf	0.5000	44.684	70.118	17,294.7	13.99	89.37	63.5	762.3	0.0	599.4	19.64	6,598	167.0
25.00		0.5000	44.247	69.424	16,786.3	13.84	88.49	63.5	747.2	0.0	593.5	19.64	6,485	167.0
28.50	Bot - Section 2	0.5000	43.635	68.452	16,091.4	13.62	87.27	63.5	726.3	0.0	821.0	19.64	6,329	233.8
30.00		0.5000	43.372	68.036	15,799.5	13.53	86.74	63.5	717.5	0.0	704.8	19.64	6,517	100.2
35.00	Top - Section 1	0.5000	43.498	68.235	15,938.6	13.58	87.00	63.5	721.7	0.0	2,318.5	19.64	6,295	334.0
40.00		0.5000	42.623	66.847	14,985.6	13.27	85.25	63.5	692.5	0.0	1,149.1	19.64	6,076	334.0
43.00	Reinf. Top Reinf	0.5000	42.098	66.014	14,432.5	13.08	84.20	63.5	675.2	0.0	678.1	19.64	5,947	200.4
45.00		0.5000	41.749	65.459	14,071.5	12.96	83.50	63.5	663.9	0.0	447.4	19.64	5,861	133.6
50.00		0.5000	40.874	64.071	13,195.2	12.65	81.75	63.5	635.8	0.0	1,101.9	19.64	5,650	334.0
55.00		0.5000	39.999	62.683	12,356.2	12.34	80.00	63.5	608.4	0.0	1,078.3	19.64	5,443	334.0
58.00	Bot - Section 3	0.5000	39.475	61.850	11,870.2	12.16	78.95	63.5	592.3	0.0	635.6	19.64	5,321	200.4
60.00		0.5000	39.125	61.295	11,553.4	12.03	78.25	63.5	581.6	0.0	740.4	19.64	5,414	133.6
63.50	Top - Section 2	0.3750	39.263	46.284	8,843.2	16.70	104.70	76.2	443.6	0.0	1,279.8	19.64	5,272	233.8
65.00		0.3750	39.000	45.972	8,665.4	16.57	104.00	76.2	437.6	0.0	235.4	19.64	5,211	100.2
70.00		0.3750	38.126	44.931	8,090.0	16.16	101.67	76.2	417.9	0.0	773.3	19.64	5,012	334.0
75.00		0.3750	37.251	43.890	7,540.6	15.75	99.34	76.2	398.7	0.0	755.6	19.64	4,817	334.0
80.00		0.3750	36.376	42.849	7,016.7	15.34	97.00	76.2	379.9	0.0	737.9	19.64	4,626	334.0
85.00		0.3750	35.502	41.808	6,517.7	14.93	94.67	76.2	361.6	0.0	720.2	19.64	4,439	334.0
88.00	Bot - Section 4	0.3750	34.977	41.184	6,229.9	14.68	93.27	76.2	350.8	0.0	423.6	19.64	4,329	200.4
90.00		0.3750	34.627	40.767	6,042.9	14.52	92.34	76.2	343.7	0.0	515.9	19.64	4,386	133.6
93.00	Top - Section 3	0.3125	34.727	34.134	5,107.8	17.83	111.13	75.0	289.7	0.0	764.1	19.64	4,277	200.4
95.00		0.3125	34.378	33.787	4,953.6	17.63	110.01	75.2	283.8	0.0	231.1	19.64	4,204	133.6
100.0		0.3125	33.503	32.920	4,581.8	17.14	107.21	75.7	269.4	0.0	567.5	19.64	4,026	334.0
102.5	Reinf. Top	0.3125	33.066	32.486	4,403.1	16.89	105.81	76.0	262.3	0.0	278.2	19.64	3,938	167.0
105.0		0.3125	32.628	32.052	4,229.1	16.65	104.41	76.2	255.3	0.0	274.5			
110.0		0.3125	31.754	31.185	3,894.9	16.15	101.61	76.2	241.6	0.0	538.0			
115.0		0.3125	30.879	30.317	3,578.9	15.66	98.81	76.2	228.3	0.0	523.2			
116.5	Bot - Section 5	0.3125	30.617	30.057	3,487.5	15.51	97.97	76.2	224.4	0.0	154.1			
120.0		0.3125	30.005	29.450	3,280.4	15.17	96.02	76.2	215.3	0.0	643.2			
121.0	Top - Section 4	0.2500	30.330	23.867	2,728.4	19.63	121.32	73.1	177.2	0.0	181.4			
125.0		0.2500	29.630	23.312	2,542.4	19.14	118.52	73.6	169.0	0.0	321.1			
127.0		0.2500	29.280	23.035	2,452.7	18.89	117.12	73.9	165.0	0.0	157.7			
130.0		0.2500	28.756	22.618	2,322.1	18.52	115.02	74.3	159.0	0.0	233.0			
135.0		0.2500	27.881	21.924	2,114.8	17.90	111.52	74.9	149.4	0.0	378.9			
140.0		0.2500	27.006	21.230	1,920.3	17.28	108.03	75.6	140.0	0.0	367.1			
145.0		0.2500	26.132	20.536	1,738.1	16.67	104.53	76.2	131.0	0.0	355.3			
146.0		0.2500	25.957	20.398	1,703.1	16.54	103.83	76.2	129.2	0.0	69.6			
149.0	Bot - Section 6	0.2500	25.432	19.981	1,600.9	16.17	101.73	76.2	124.0	0.0	206.1			
150.0		0.2500	25.257	19.842	1,567.8	16.05	101.03	76.2	122.3	0.0	119.5			
152.5	Top - Section 5	0.1875	25.195	14.882	1,175.8	21.93	134.37	70.7	91.9	0.0	295.0			
155.0		0.1875	24.758	14.622	1,115.2	21.52	132.04	71.2	88.7	0.0	125.5			
160.0		0.1875	23.883	14.101	1,000.3	20.70	127.38	72.0	82.5	0.0	244.3			
165.0		0.1875	23.008	13.581	893.6	19.87	122.71	72.9	76.5	0.0	235.5			
167.0		0.1875	22.659	13.373	853.1	19.55	120.85	73.2	74.2	0.0	91.7			
170.0		0.1875	22.134	13.060	794.8	19.05	118.05	73.7	70.7	0.0	134.9			
171.0		0.1875	21.959	12.956	775.9	18.89	117.11	73.9	69.6	0.0	44.3			
175.0		0.1875	21.259	12.540	703.5	18.23	113.38	74.6	65.2	0.0	173.5			
180.0		0.1875	20.385	12.019	619.5	17.41	108.72	75.4	59.9	0.0	208.9			
183.0		0.1875	19.860	11.707	572.4	16.91	105.92	76.0	56.8	0.0	121.1			
											29,356.2			6,847.0

Site Number: 302535 Code: ANSI/TIA-222-G

Site Name: Milford CT 2, CT Engineering Number:OAA719635_C3_05 7/5/2018 11:49:19 AM

Customer: CLEARWIRE

Load Case: 1.2D + 1.6W 97 mph with No Ice 28 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		186.8	0.0					0.0	0.0	186.8	0.0	0.0	0.0
5.00		275.8	1,544.9					0.0	400.8	275.8	1,945.7	0.0	0.0
7.00	Appurtenance(s)	221.8	610.0	72.2	0.0	0.0	90.7	0.0	354.0	294.0	1,054.7	0.0	0.0
10.00		352.3	906.5					0.0	530.9	352.3	1,437.5	0.0	0.0
15.00		436.5	1,488.2					0.0	884.9	436.5	2,373.1	0.0	0.0
20.00		324.7	1,459.9					0.0	884.9	324.7	2,344.8	0.0	0.0
22.50	Reinf. Top Reinf	214.7	719.3					0.0	442.4	214.7	1,161.8	0.0	0.0
25.00		255.9	712.2					0.0	442.4	255.9	1,154.7	0.0	0.0
28.50	Bot - Section 2	213.8	985.2					0.0	619.4	213.8	1,604.7	0.0	0.0
30.00		284.9	845.7					0.0	265.5	284.9	1,111.2	0.0	0.0
35.00	Top - Section 1	444.3	2,782.2					0.0	884.9	444.3	3,667.1	0.0	0.0
40.00		361.6	1,379.0					0.0	884.9	361.6	2,263.8	0.0	0.0
43.00	Reinf. Top Reinf	229.9	813.8					0.0	530.9	229.9	1,344.7	0.0	0.0
45.00		327.1	536.8					0.0	354.0	327.1	890.8	0.0	0.0
50.00		473.2	1,322.3					0.0	884.9	473.2	2,207.2	0.0	0.0
55.00		443.2	1,294.0					0.0	884.9	443.2	2,178.8	0.0	0.0
58.00	Bot - Section 3	343.8	762.8					82.8	530.9	426.6	1,293.7	0.0	0.0
60.00		383.0	888.5					55.9	354.0	438.9	1,242.4	0.0	0.0
63.50	Top - Section 2	348.4	1,535.8					99.0	619.4	447.4	2,155.2	0.0	0.0
65.00		452.8	282.5					42.9	265.5	495.7	548.0	0.0	0.0
70.00		695.6	928.0					145.1	884.9	840.7	1,812.8	0.0	0.0
75.00		693.2	906.7					148.1	884.9	841.3	1,791.6	0.0	0.0
80.00		689.5	885.5					151.0	884.9	840.5	1,770.3	0.0	0.0
85.00		548.6	864.2					153.7	884.9	702.3	1,749.1	0.0	0.0
88.00	Bot - Section 4	343.4	508.3					93.5	530.9	436.9	1,039.3	0.0	0.0
90.00		345.3	619.1					62.8	354.0	408.1	973.0	0.0	0.0
93.00	Top - Section 3	344.0	916.9					95.0	530.9	439.0	1,447.8	0.0	0.0
95.00		477.6	277.3					63.8	354.0	541.4	631.3	0.0	0.0
100.00		509.2	681.0					161.2	884.9	670.4	1,565.8	0.0	0.0
102.50	Reinf. Top	336.4	333.8					81.5	442.4	417.9	776.3	0.0	0.0
105.00		499.7	329.4					82.0	242.0	581.8	571.5	0.0	0.0
110.00		659.3	645.5					165.8	484.1	825.0	1,129.6	0.0	0.0
115.00		424.4	627.8					136.3	484.1	560.7	1,111.9	0.0	0.0
116.50	Bot - Section 5	325.8	184.9					39.5	145.2	365.2	330.1	0.0	0.0
120.00		293.4	771.8					92.6	338.9	386.1	1,110.6	0.0	0.0
121.00	Top - Section 4	321.9	217.6					26.6	96.8	348.5	314.5	0.0	0.0
125.00		384.2	385.3					107.1	387.3	491.3	772.6	0.0	0.0
127.00	Appurtenance(s)	316.1	189.3	4,071.7	0.0	0.0	3,435.1	53.9	193.6	4,441.7	3,818.0	0.0	0.0
130.00		499.0	279.6					81.3	246.9	580.4	526.5	0.0	0.0
135.00		613.7	454.7					136.7	411.5	750.5	866.2	0.0	0.0
140.00		600.7	440.5					138.2	411.5	738.9	852.0	0.0	0.0
145.00		355.6	426.4					139.6	411.5	495.2	837.8	0.0	0.0
146.00	Appurtenance(s)	171.8	83.6	1,841.5	0.0	0.0	1,678.3	28.1	82.3	2,041.4	1,844.2	0.0	0.0
149.00	Bot - Section 6	151.4	247.3					0.0	193.8	151.4	441.1	0.0	0.0
150.00		133.2	143.4					0.0	64.6	133.2	207.9	0.0	0.0
152.50	Top - Section 5	189.0	354.0					0.0	161.5	189.0	515.5	0.0	0.0
155.00		280.3	150.6					0.0	161.5	280.3	312.1	0.0	0.0
160.00		370.5	293.2					0.0	322.9	370.5	616.1	0.0	0.0

Load Case: 1.2D + 1.6W 97 mph with No Ice 28 Iterations

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

Wind Importance Factor 1.00

165.00		257.2	282.6					0.0	322.9	257.2	605.5	0.0	0.0
167.00	Appurtenance(s)	181.9	110.1	4,076.7	0.0	0.0	3,996.1	0.0	129.2	4,258.6	4,235.3	0.0	0.0
170.00		144.9	161.9					0.0	97.7	144.9	259.6	0.0	0.0
171.00	Appurtenance(s)	149.6	53.1	489.3	0.0	0.0	95.0	0.0	32.6	638.8	180.7	0.0	0.0
175.00		252.8	208.2					0.0	106.7	252.8	314.9	0.0	0.0
180.00		221.5	250.7					0.0	133.3	221.5	384.0	0.0	0.0
183.00	Appurtenance(s)	82.2	145.3	5,226.3	0.0	6,441.5	4,493.4	0.0	80.0	5,308.5	4,718.7	0.0	0.0
								Totals:		37,879.6	72,414.2	0.00	0.00

Site Number: 302535 Code: ANSI/TIA-222-G

Site Name: Milford CT 2, CT Engineering Number:OAA719635_C3_05 7/5/2018 11:49:27 AM

Customer: CLEARWIRE

Load Case: 1.2D + 1.6W 97 mph with No Ice 28 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	-72.34	-37.84	0.00	-4,840.47	0.00	4,840.47	4,364.17	2,182.08	8,607.44	4,310.12	0.00	0.00	0.850
5.00	-70.29	-37.75	0.00	-4,651.29	0.00	4,651.29	4,284.85	2,142.42	8,295.82	4,154.08	0.12	-0.23	0.842
7.00	-69.16	-37.59	0.00	-4,575.79	0.00	4,575.79	4,253.12	2,126.56	8,172.78	4,092.46	0.24	-0.32	0.839
10.00	-67.61	-37.45	0.00	-4,463.02	0.00	4,463.02	4,205.53	2,102.76	7,989.95	4,000.91	0.48	-0.45	0.834
15.00	-65.09	-37.25	0.00	-4,275.79	0.00	4,275.79	4,126.21	2,063.10	7,689.82	3,850.62	1.08	-0.68	0.825
20.00	-62.64	-37.08	0.00	-4,089.56	0.00	4,089.56	4,046.89	2,023.44	7,395.44	3,703.21	1.92	-0.91	0.815
22.50	-61.40	-36.97	0.00	-3,996.86	0.00	3,996.86	4,007.23	2,003.61	7,250.40	3,630.59	2.43	-1.03	0.809
22.50	-61.40	-36.97	0.00	-3,996.86	0.00	3,996.86	4,007.23	2,003.61	7,250.40	3,630.59	2.43	-1.03	0.809
25.00	-60.16	-36.84	0.00	-3,904.43	0.00	3,904.43	3,967.57	1,983.78	7,106.80	3,558.68	3.00	-1.15	0.804
28.50	-58.49	-36.71	0.00	-3,775.49	0.00	3,775.49	3,912.04	1,956.02	6,908.17	3,459.22	3.90	-1.31	0.795
30.00	-57.29	-36.55	0.00	-3,720.42	0.00	3,720.42	3,888.25	1,944.12	6,823.91	3,417.03	4.33	-1.38	0.783
35.00	-53.49	-36.23	0.00	-3,537.66	0.00	3,537.66	3,899.62	1,949.81	6,864.12	3,437.16	5.90	-1.62	0.749
40.00	-51.12	-35.96	0.00	-3,356.51	0.00	3,356.51	3,820.30	1,910.15	6,586.15	3,297.97	7.72	-1.85	0.735
43.00	-49.71	-35.79	0.00	-3,248.62	0.00	3,248.62	3,772.71	1,886.36	6,422.13	3,215.84	8.92	-1.98	0.726
43.00	-49.71	-35.79	0.00	-3,248.62	0.00	3,248.62	3,772.71	1,886.36	6,422.13	3,215.84	8.92	-1.98	0.726
45.00	-48.74	-35.56	0.00	-3,177.05	0.00	3,177.05	3,740.98	1,870.49	6,313.93	3,161.66	9.77	-2.07	0.720
50.00	-46.42	-35.18	0.00	-2,999.25	0.00	2,999.25	3,661.66	1,830.83	6,047.45	3,028.22	12.06	-2.29	0.704
55.00	-44.15	-34.78	0.00	-2,823.35	0.00	2,823.35	3,582.34	1,791.17	5,786.72	2,897.66	14.58	-2.51	0.686
58.00	-42.81	-34.38	0.00	-2,719.00	0.00	2,719.00	3,534.75	1,767.38	5,633.04	2,820.71	16.20	-2.64	0.675
60.00	-41.52	-33.97	0.00	-2,650.24	0.00	2,650.24	3,503.02	1,751.51	5,531.73	2,769.98	17.32	-2.73	0.661
63.50	-39.33	-33.49	0.00	-2,531.34	0.00	2,531.34	3,173.44	1,586.72	5,061.87	2,534.70	19.39	-2.89	0.635
65.00	-38.71	-33.08	0.00	-2,481.10	0.00	2,481.10	3,152.76	1,576.38	4,994.62	2,501.02	20.30	-2.95	0.629
70.00	-36.81	-32.30	0.00	-2,315.72	0.00	2,315.72	3,081.37	1,540.68	4,769.94	2,388.51	23.52	-3.20	0.607
75.00	-34.94	-31.50	0.00	-2,154.23	0.00	2,154.23	3,009.98	1,504.99	4,550.42	2,278.59	27.00	-3.44	0.585
80.00	-33.10	-30.69	0.00	-1,996.72	0.00	1,996.72	2,938.59	1,469.30	4,336.07	2,171.26	30.73	-3.68	0.562
85.00	-31.30	-29.97	0.00	-1,843.28	0.00	1,843.28	2,867.21	1,433.60	4,126.90	2,066.52	34.71	-3.91	0.538
88.00	-30.24	-29.53	0.00	-1,753.36	0.00	1,753.36	2,824.37	1,412.19	4,003.88	2,004.91	37.21	-4.05	0.524
90.00	-29.24	-29.11	0.00	-1,694.30	0.00	1,694.30	2,795.82	1,397.91	3,922.90	1,964.36	38.93	-4.15	0.507
93.00	-27.77	-28.62	0.00	-1,606.97	0.00	1,606.97	2,304.06	1,152.03	3,254.27	1,629.55	41.57	-4.28	0.545
95.00	-27.10	-28.11	0.00	-1,549.73	0.00	1,549.73	2,286.90	1,143.45	3,196.90	1,600.83	43.38	-4.37	0.532
100.00	-25.51	-27.39	0.00	-1,409.19	0.00	1,409.19	2,243.44	1,121.72	3,054.90	1,529.72	48.08	-4.60	0.498
102.50	-24.72	-26.96	0.00	-1,340.71	0.00	1,340.71	2,221.40	1,110.70	2,984.67	1,494.55	50.52	-4.71	0.481
102.50	-24.72	-26.96	0.00	-1,340.71	0.00	1,340.71	2,221.40	1,110.70	2,984.67	1,494.55	50.52	-4.71	0.909
105.00	-24.08	-26.45	0.00	-1,273.30	0.00	1,273.30	2,198.14	1,099.07	2,913.61	1,458.97	53.01	-4.83	0.884
110.00	-22.85	-25.69	0.00	-1,141.07	0.00	1,141.07	2,138.65	1,069.33	2,757.31	1,380.70	58.28	-5.23	0.838
115.00	-21.68	-25.12	0.00	-1,012.65	0.00	1,012.65	2,079.16	1,039.58	2,605.31	1,304.59	63.96	-5.62	0.787
116.50	-21.31	-24.79	0.00	-974.97	0.00	974.97	2,061.32	1,030.66	2,560.55	1,282.18	65.75	-5.74	0.771
120.00	-20.17	-24.36	0.00	-888.20	0.00	888.20	2,019.67	1,009.84	2,457.62	1,230.64	70.05	-6.01	0.732
121.00	-19.82	-24.04	0.00	-863.84	0.00	863.84	1,570.79	785.40	1,940.61	971.75	71.32	-6.08	0.903
125.00	-19.01	-23.54	0.00	-767.69	0.00	767.69	1,545.06	772.53	1,864.04	933.41	76.53	-6.37	0.836
127.00	-15.65	-18.76	0.00	-720.60	0.00	720.60	1,531.99	766.00	1,826.09	914.40	79.23	-6.54	0.799
130.00	-15.09	-18.20	0.00	-664.34	0.00	664.34	1,512.16	756.08	1,769.59	886.11	83.41	-6.78	0.760
135.00	-14.21	-17.44	0.00	-573.34	0.00	573.34	1,478.46	739.23	1,676.61	839.55	90.70	-7.16	0.693
140.00	-13.36	-16.68	0.00	-486.13	0.00	486.13	1,443.96	721.98	1,585.19	793.77	98.37	-7.52	0.622
145.00	-12.54	-16.12	0.00	-402.73	0.00	402.73	1,408.39	704.19	1,495.13	748.68	106.39	-7.85	0.547
146.00	-10.97	-13.87	0.00	-386.61	0.00	386.61	1,398.87	699.44	1,474.90	738.54	108.04	-7.91	0.532
149.00	-10.52	-13.68	0.00	-345.01	0.00	345.01	1,370.32	685.16	1,415.01	708.56	113.05	-8.09	0.495
150.00	-10.31	-13.54	0.00	-331.33	0.00	331.33	1,360.80	680.40	1,395.33	698.70	114.75	-8.15	0.482
152.50	-9.80	-13.30	0.00	-297.49	0.00	297.49	947.27	473.64	973.73	487.59	119.04	-8.30	0.621
155.00	-9.48	-13.01	0.00	-264.24	0.00	264.24	936.35	468.18	945.55	473.48	123.41	-8.43	0.569
160.00	-8.87	-12.60	0.00	-199.17	0.00	199.17	913.91	456.96	889.79	445.55	132.37	-8.73	0.457

Site Number: 302535 Code: ANSI/TIA-222-G

Site Name: Milford CT 2, CT Engineering Number:OAA719635_C3_05 7/5/2018 11:49:27 AM

Customer: CLEARWIRE

Load Case: 1.2D + 1.6W 97 mph with No Ice 28 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

165.00	-8.27	-12.27	0.00	-136.19	0.00	136.19	890.67	445.33	834.90	418.07	141.61	-8.96	0.336
167.00	-4.75	-7.41	0.00	-111.64	0.00	111.64	881.14	440.57	813.20	407.21	145.36	-9.04	0.280
170.00	-4.50	-7.23	0.00	-89.41	0.00	89.41	866.62	433.31	780.97	391.06	151.06	-9.14	0.234
171.00	-4.42	-6.58	0.00	-82.18	0.00	82.18	861.71	430.86	770.30	385.72	152.97	-9.17	0.218
175.00	-4.14	-6.28	0.00	-55.88	0.00	55.88	841.76	420.88	728.08	364.58	160.67	-9.28	0.158
180.00	-3.79	-6.01	0.00	-24.46	0.00	24.46	816.11	408.05	676.33	338.67	170.39	-9.36	0.077
183.00	0.00	-5.31	0.00	-6.44	0.00	6.44	800.33	400.16	645.87	323.41	176.25	-9.38	0.020

Site Number: 302535 Code: ANSI/TIA-222-G

Site Name: Milford CT 2, CT Engineering Number:OAA719635_C3_05 7/5/2018 11:49:27 AM

Customer: CLEARWIRE

Load Case: 0.9D + 1.6W 97 mph with No Ice (Reduced DL) 28 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		186.8	0.0					0.0	0.0	186.8	0.0	0.0	0.0
5.00		260.5	1,158.7					0.0	300.6	260.5	1,459.3	0.0	0.0
7.00	Appurtenance(s)	183.4	457.5	72.2	0.0	0.0	68.0	0.0	265.5	255.6	791.0	0.0	0.0
10.00		289.6	679.9					0.0	398.2	289.6	1,078.1	0.0	0.0
15.00		356.6	1,116.2					0.0	663.7	356.6	1,779.8	0.0	0.0
20.00		263.6	1,094.9					0.0	663.7	263.6	1,758.6	0.0	0.0
22.50	Reinf. Top Reinf	173.2	539.5					0.0	331.8	173.2	871.3	0.0	0.0
25.00		205.4	534.2					0.0	331.8	205.4	866.0	0.0	0.0
28.50	Bot - Section 2	171.0	738.9					0.0	464.6	171.0	1,203.5	0.0	0.0
30.00		226.2	634.3					0.0	199.1	226.2	833.4	0.0	0.0
35.00	Top - Section 1	352.5	2,086.6					0.0	663.7	352.5	2,750.3	0.0	0.0
40.00		286.3	1,034.2					0.0	663.7	286.3	1,697.9	0.0	0.0
43.00	Reinf. Top Reinf	180.8	610.3					0.0	398.2	180.8	1,008.5	0.0	0.0
45.00		255.3	402.6					0.0	265.5	255.3	668.1	0.0	0.0
50.00		366.9	991.7					0.0	663.7	366.9	1,655.4	0.0	0.0
55.00		388.7	970.5					0.0	663.7	388.7	1,634.1	0.0	0.0
58.00	Bot - Section 3	343.8	572.1					82.8	398.2	426.6	970.3	0.0	0.0
60.00		383.0	666.4					55.9	265.5	438.9	931.8	0.0	0.0
63.50	Top - Section 2	348.4	1,151.8					99.0	464.6	447.4	1,616.4	0.0	0.0
65.00		452.8	211.9					42.9	199.1	495.7	411.0	0.0	0.0
70.00		695.6	696.0					145.1	663.7	840.7	1,359.6	0.0	0.0
75.00		693.2	680.0					148.1	663.7	841.3	1,343.7	0.0	0.0
80.00		689.5	664.1					151.0	663.7	840.5	1,327.8	0.0	0.0
85.00		548.6	648.2					153.7	663.7	702.3	1,311.8	0.0	0.0
88.00	Bot - Section 4	343.4	381.2					93.5	398.2	436.9	779.4	0.0	0.0
90.00		345.3	464.3					62.8	265.5	408.1	729.8	0.0	0.0
93.00	Top - Section 3	344.0	687.7					95.0	398.2	439.0	1,085.9	0.0	0.0
95.00		477.6	208.0					63.8	265.5	541.4	473.5	0.0	0.0
100.00		509.2	510.7					161.2	663.7	670.4	1,174.4	0.0	0.0
102.50	Reinf. Top	336.4	250.4					81.5	331.8	417.9	582.2	0.0	0.0
105.00		499.7	247.1					82.0	181.5	581.8	428.6	0.0	0.0
110.00		659.3	484.2					165.8	363.1	825.0	847.2	0.0	0.0
115.00		424.4	470.9					136.3	363.1	560.7	833.9	0.0	0.0
116.50	Bot - Section 5	325.8	138.7					39.5	108.9	365.2	247.6	0.0	0.0
120.00		293.4	578.8					92.6	254.1	386.1	833.0	0.0	0.0
121.00	Top - Section 4	321.9	163.2					26.6	72.6	348.5	235.8	0.0	0.0
125.00		384.2	289.0					107.1	290.4	491.3	579.4	0.0	0.0
127.00	Appurtenance(s)	316.1	141.9	4,071.7	0.0	0.0	2,576.3	53.9	145.2	4,441.7	2,863.5	0.0	0.0
130.00		499.0	209.7					81.3	185.2	580.4	394.9	0.0	0.0
135.00		613.7	341.0					136.7	308.6	750.5	649.6	0.0	0.0
140.00		600.7	330.4					138.2	308.6	738.9	639.0	0.0	0.0
145.00		355.6	319.8					139.6	308.6	495.2	628.4	0.0	0.0
146.00	Appurtenance(s)	152.9	62.7	1,841.5	0.0	0.0	1,258.7	28.1	61.7	2,022.4	1,383.1	0.0	0.0
149.00	Bot - Section 6	125.9	185.5					0.0	145.3	125.9	330.8	0.0	0.0
150.00		109.8	107.5					0.0	48.4	109.8	156.0	0.0	0.0
152.50	Top - Section 5	155.5	265.5					0.0	121.1	155.5	386.6	0.0	0.0
155.00		228.8	112.9					0.0	121.1	228.8	234.0	0.0	0.0
160.00		298.9	219.9					0.0	242.2	298.9	462.1	0.0	0.0

Site Number: 302535 Code: ANSI/TIA-222-G

Site Name: Milford CT 2, CT Engineering Number:OAA719635_C3_05 7/5/2018 11:49:35 AM

Customer: CLEARWIRE

Load Case: 0.9D + 1.6W 97 mph with No Ice (Reduced DL) 28 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

165.00		205.2	211.9					0.0	242.2	205.2	454.1	0.0	0.0
167.00	Appurtenance(s)	143.1	82.5	4,076.7	0.0	0.0	2,997.1	0.0	96.9	4,219.8	3,176.5	0.0	0.0
170.00		113.5	121.4					0.0	73.3	113.5	194.7	0.0	0.0
171.00	Appurtenance(s)	138.8	39.8	489.3	0.0	0.0	71.3	0.0	24.4	628.0	135.5	0.0	0.0
175.00		244.9	156.2					0.0	80.0	244.9	236.2	0.0	0.0
180.00		212.6	188.0					0.0	100.0	212.6	288.0	0.0	0.0
183.00	Appurtenance(s)	78.3	109.0	5,226.3	0.0	6,441.5	3,370.1	0.0	60.0	5,304.6	3,539.1	0.0	0.0
								Totals:		36,601.5	54,310.6	0.00	0.00

Site Number: 302535 Code: ANSI/TIA-222-G

Site Name: Milford CT 2, CT Engineering Number:OAA719635_C3_05 7/5/2018 11:49:35 AM

Customer: CLEARWIRE

Load Case: 0.9D + 1.6W 97 mph with No Ice (Reduced DL) 28 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	-54.24	-36.52	0.00	-4,663.15	0.00	4,663.15	4,364.17	2,182.08	8,607.44	4,310.12	0.00	0.00	0.816
5.00	-52.68	-36.40	0.00	-4,480.56	0.00	4,480.56	4,284.85	2,142.42	8,295.82	4,154.08	0.12	-0.22	0.809
7.00	-51.82	-36.24	0.00	-4,407.77	0.00	4,407.77	4,253.12	2,126.56	8,172.78	4,092.46	0.23	-0.31	0.805
10.00	-50.64	-36.10	0.00	-4,299.06	0.00	4,299.06	4,205.53	2,102.76	7,989.95	4,000.91	0.46	-0.44	0.801
15.00	-48.72	-35.91	0.00	-4,118.58	0.00	4,118.58	4,126.21	2,063.10	7,689.82	3,850.62	1.04	-0.66	0.792
20.00	-46.86	-35.76	0.00	-3,939.02	0.00	3,939.02	4,046.89	2,023.44	7,395.44	3,703.21	1.85	-0.88	0.782
22.50	-45.93	-35.66	0.00	-3,849.62	0.00	3,849.62	4,007.23	2,003.61	7,250.40	3,630.59	2.34	-0.99	0.777
22.50	-45.93	-35.66	0.00	-3,849.62	0.00	3,849.62	4,007.23	2,003.61	7,250.40	3,630.59	2.34	-0.99	0.777
25.00	-44.98	-35.55	0.00	-3,760.46	0.00	3,760.46	3,967.57	1,983.78	7,106.80	3,558.68	2.89	-1.11	0.771
28.50	-43.71	-35.44	0.00	-3,636.04	0.00	3,636.04	3,912.04	1,956.02	6,908.17	3,459.22	3.76	-1.26	0.763
30.00	-42.79	-35.30	0.00	-3,582.88	0.00	3,582.88	3,888.25	1,944.12	6,823.91	3,417.03	4.17	-1.33	0.751
35.00	-39.91	-35.04	0.00	-3,406.36	0.00	3,406.36	3,899.62	1,949.81	6,864.12	3,437.16	5.69	-1.56	0.719
40.00	-38.12	-34.82	0.00	-3,231.17	0.00	3,231.17	3,820.30	1,910.15	6,586.15	3,297.97	7.44	-1.78	0.705
43.00	-37.05	-34.68	0.00	-3,126.71	0.00	3,126.71	3,772.71	1,886.36	6,422.13	3,215.84	8.60	-1.91	0.696
43.00	-37.05	-34.68	0.00	-3,126.71	0.00	3,126.71	3,772.71	1,886.36	6,422.13	3,215.84	8.60	-1.91	0.696
45.00	-36.30	-34.49	0.00	-3,057.36	0.00	3,057.36	3,740.98	1,870.49	6,313.93	3,161.66	9.41	-1.99	0.690
50.00	-34.54	-34.19	0.00	-2,884.90	0.00	2,884.90	3,661.66	1,830.83	6,047.45	3,028.22	11.62	-2.21	0.675
55.00	-32.82	-33.84	0.00	-2,713.93	0.00	2,713.93	3,582.34	1,791.17	5,786.72	2,897.66	14.04	-2.42	0.657
58.00	-31.81	-33.43	0.00	-2,612.42	0.00	2,612.42	3,534.75	1,767.38	5,633.04	2,820.71	15.60	-2.55	0.647
60.00	-30.83	-33.01	0.00	-2,545.57	0.00	2,545.57	3,503.02	1,751.51	5,531.73	2,769.98	16.69	-2.63	0.633
63.50	-29.18	-32.54	0.00	-2,430.04	0.00	2,430.04	3,173.44	1,586.72	5,061.87	2,534.70	18.67	-2.78	0.608
65.00	-28.71	-32.10	0.00	-2,381.23	0.00	2,381.23	3,152.76	1,576.38	4,994.62	2,501.02	19.55	-2.84	0.601
70.00	-27.26	-31.30	0.00	-2,220.74	0.00	2,220.74	3,081.37	1,540.68	4,769.94	2,388.51	22.65	-3.08	0.581
75.00	-25.85	-30.49	0.00	-2,064.23	0.00	2,064.23	3,009.98	1,504.99	4,550.42	2,278.59	26.00	-3.31	0.559
80.00	-24.45	-29.67	0.00	-1,911.78	0.00	1,911.78	2,938.59	1,469.30	4,336.07	2,171.26	29.58	-3.54	0.537
85.00	-23.10	-28.96	0.00	-1,763.44	0.00	1,763.44	2,867.21	1,433.60	4,126.90	2,066.52	33.41	-3.76	0.513
88.00	-22.30	-28.51	0.00	-1,676.57	0.00	1,676.57	2,824.37	1,412.19	4,003.88	2,004.91	35.81	-3.90	0.499
90.00	-21.54	-28.10	0.00	-1,619.54	0.00	1,619.54	2,795.82	1,397.91	3,922.90	1,964.36	37.46	-3.98	0.483
93.00	-20.44	-27.62	0.00	-1,535.26	0.00	1,535.26	2,304.06	1,152.03	3,254.27	1,629.55	40.01	-4.11	0.519
95.00	-19.93	-27.10	0.00	-1,480.02	0.00	1,480.02	2,286.90	1,143.45	3,196.90	1,600.83	41.75	-4.20	0.506
100.00	-18.74	-26.40	0.00	-1,344.52	0.00	1,344.52	2,243.44	1,121.72	3,054.90	1,529.72	46.26	-4.42	0.474
102.50	-18.14	-25.97	0.00	-1,278.54	0.00	1,278.54	2,221.40	1,110.70	2,984.67	1,494.55	48.60	-4.53	0.457
102.50	-18.14	-25.97	0.00	-1,278.54	0.00	1,278.54	2,221.40	1,110.70	2,984.67	1,494.55	48.60	-4.53	0.864
105.00	-17.65	-25.43	0.00	-1,213.62	0.00	1,213.62	2,198.14	1,099.07	2,913.61	1,458.97	51.00	-4.63	0.840
110.00	-16.71	-24.65	0.00	-1,086.47	0.00	1,086.47	2,138.65	1,069.33	2,757.31	1,380.70	56.06	-5.02	0.795
115.00	-15.83	-24.08	0.00	-963.23	0.00	963.23	2,079.16	1,039.58	2,605.31	1,304.59	61.51	-5.39	0.746
116.50	-15.54	-23.74	0.00	-927.11	0.00	927.11	2,061.32	1,030.66	2,560.55	1,282.18	63.22	-5.51	0.731
120.00	-14.69	-23.32	0.00	-844.00	0.00	844.00	2,019.67	1,009.84	2,457.62	1,230.64	67.35	-5.76	0.694
121.00	-14.42	-22.99	0.00	-820.68	0.00	820.68	1,570.79	785.40	1,940.61	971.75	68.56	-5.83	0.855
125.00	-13.81	-22.50	0.00	-728.71	0.00	728.71	1,545.06	772.53	1,864.04	933.41	73.56	-6.11	0.790
127.00	-11.38	-17.81	0.00	-683.72	0.00	683.72	1,531.99	766.00	1,826.09	914.40	76.14	-6.26	0.756
130.00	-10.96	-17.25	0.00	-630.29	0.00	630.29	1,512.16	756.08	1,769.59	886.11	80.14	-6.49	0.719
135.00	-10.30	-16.49	0.00	-544.06	0.00	544.06	1,478.46	739.23	1,676.61	839.55	87.12	-6.85	0.656
140.00	-9.67	-15.73	0.00	-461.62	0.00	461.62	1,443.96	721.98	1,585.19	793.77	94.47	-7.19	0.589
145.00	-9.06	-15.19	0.00	-382.96	0.00	382.96	1,408.39	704.19	1,495.13	748.68	102.15	-7.50	0.518
146.00	-7.93	-13.02	0.00	-367.77	0.00	367.77	1,398.87	699.44	1,474.90	738.54	103.72	-7.56	0.504
149.00	-7.59	-12.87	0.00	-328.72	0.00	328.72	1,370.32	685.16	1,415.01	708.56	108.52	-7.74	0.470
150.00	-7.43	-12.75	0.00	-315.85	0.00	315.85	1,360.80	680.40	1,395.33	698.70	110.14	-7.80	0.458
152.50	-7.04	-12.56	0.00	-283.98	0.00	283.98	947.27	473.64	973.73	487.59	114.25	-7.93	0.591
155.00	-6.80	-12.32	0.00	-252.58	0.00	252.58	936.35	468.18	945.55	473.48	118.42	-8.06	0.541
160.00	-6.33	-11.99	0.00	-190.96	0.00	190.96	913.91	456.96	889.79	445.55	126.99	-8.34	0.436

Site Number: 302535 Code: ANSI/TIA-222-G

Site Name: Milford CT 2, CT Engineering Number:OAA719635_C3_05 7/5/2018 11:49:35 AM

Customer: CLEARWIRE

Load Case: 0.9D + 1.6W 97 mph with No Ice (Reduced DL) 28 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

165.00	-5.88	-11.74	0.00	-131.01	0.00	131.01	890.67	445.33	834.90	418.07	135.83	-8.57	0.321
167.00	-3.36	-7.09	0.00	-107.54	0.00	107.54	881.14	440.57	813.20	407.21	139.42	-8.65	0.268
170.00	-3.18	-6.96	0.00	-86.26	0.00	86.26	866.62	433.31	780.97	391.06	144.87	-8.75	0.224
171.00	-3.13	-6.32	0.00	-79.30	0.00	79.30	861.71	430.86	770.30	385.72	146.70	-8.78	0.209
175.00	-2.93	-6.04	0.00	-54.03	0.00	54.03	841.76	420.88	728.08	364.58	154.06	-8.87	0.152
180.00	-2.67	-5.79	0.00	-23.82	0.00	23.82	816.11	408.05	676.33	338.67	163.37	-8.95	0.074
183.00	0.00	-5.30	0.00	-6.44	0.00	6.44	800.33	400.16	645.87	323.41	168.98	-8.97	0.020

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 28 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		Wind FX	Dead Load	Wind FX	Torsion MY	Moment MZ	Dead Load	Wind FX	Dead Load	Wind FX	Dead Load	Torsion MY	Moment MZ
(ft)	Description	(lb)	(lb)	(lb)	(lb-ft)	(lb-ft)	(lb)	(lb)	(lb)	(lb)	(lb)	(lb-ft)	(lb)
0.00		60.0	0.0					0.0	0.0	60.0	0.0	0.0	0.0
5.00		83.8	1,899.9					0.0	464.5	83.8	2,364.4	0.0	0.0
7.00	Appurtenance(s)	59.2	764.3	17.4	0.0	0.0	23.2	0.0	519.0	76.7	1,306.4	0.0	0.0
10.00		93.8	1,143.7					0.0	787.9	93.8	1,931.6	0.0	0.0
15.00		115.8	1,892.0					0.0	1,331.5	115.8	3,223.5	0.0	0.0
20.00		85.8	1,870.2					0.0	1,348.3	85.8	3,218.5	0.0	0.0
22.50	Reinf. Top Reinf	56.5	926.7					0.0	679.2	56.5	1,605.8	0.0	0.0
25.00		67.1	920.0					0.0	682.1	67.1	1,602.1	0.0	0.0
28.50	Bot - Section 2	55.9	1,275.7					0.0	959.4	55.9	2,235.1	0.0	0.0
30.00		74.0	973.4					0.0	412.6	74.0	1,386.1	0.0	0.0
35.00	Top - Section 1	115.4	3,204.3					0.0	1,381.3	115.4	4,585.6	0.0	0.0
40.00		93.9	1,799.0					0.0	1,389.4	93.9	3,188.4	0.0	0.0
43.00	Reinf. Top Reinf	59.4	1,065.4					0.0	837.1	59.4	1,902.5	0.0	0.0
45.00		84.1	704.3					0.0	559.4	84.1	1,263.7	0.0	0.0
50.00		120.9	1,735.7					0.0	1,403.0	120.9	3,138.7	0.0	0.0
55.00		97.4	1,703.0					0.0	1,408.9	97.4	3,112.0	0.0	0.0
58.00	Bot - Section 3	61.6	1,007.0					35.1	848.0	96.6	1,855.0	0.0	0.0
60.00		68.6	1,053.6					23.7	566.4	92.4	1,620.0	0.0	0.0
63.50	Top - Section 2	62.5	1,821.8					42.2	993.1	104.7	2,814.9	0.0	0.0
65.00		81.3	404.9					18.3	426.3	99.7	831.2	0.0	0.0
70.00		125.2	1,329.0					62.2	1,424.2	187.3	2,753.1	0.0	0.0
75.00		125.0	1,301.8					63.7	1,428.6	188.8	2,730.4	0.0	0.0
80.00		124.7	1,274.3					65.2	1,432.8	189.9	2,707.1	0.0	0.0
85.00		99.4	1,246.6					66.7	1,436.7	166.1	2,683.4	0.0	0.0
88.00	Bot - Section 4	62.3	735.7					40.7	863.8	103.0	1,599.5	0.0	0.0
90.00		62.7	772.2					27.4	576.6	90.0	1,348.8	0.0	0.0
93.00	Top - Section 3	62.5	1,144.0					41.5	866.0	104.0	2,010.0	0.0	0.0
95.00		87.0	427.7					27.9	578.0	114.9	1,005.8	0.0	0.0
100.00		92.8	1,049.2					70.6	1,447.5	163.5	2,496.6	0.0	0.0
102.50	Reinf. Top	61.5	516.4					35.8	725.0	97.2	1,241.3	0.0	0.0
105.00		91.5	510.1					36.1	525.4	127.6	1,035.5	0.0	0.0
110.00		121.0	999.0					73.1	1,053.1	194.1	2,052.1	0.0	0.0
115.00		78.0	973.7					59.2	976.8	137.3	1,950.5	0.0	0.0
116.50	Bot - Section 5	60.0	288.1					17.1	289.1	77.1	577.3	0.0	0.0
120.00		54.1	1,012.4					40.2	675.5	94.3	1,687.8	0.0	0.0
121.00	Top - Section 4	59.4	286.1					11.6	193.2	71.0	479.3	0.0	0.0
125.00		71.0	653.9					46.6	773.7	117.6	1,427.6	0.0	0.0
127.00	Appurtenance(s)	58.6	322.4	909.9	0.0	0.0	7,141.1	23.5	387.4	991.9	7,851.0	0.0	0.0
130.00		92.7	476.4					35.5	538.2	128.2	1,014.6	0.0	0.0
135.00		114.4	774.2					59.7	898.8	174.1	1,673.0	0.0	0.0
140.00		112.4	751.8					60.5	901.0	172.9	1,652.8	0.0	0.0
145.00		66.7	729.3					61.3	903.0	128.0	1,632.3	0.0	0.0
146.00	Appurtenance(s)	43.8	143.9	509.0	0.0	0.0	2,875.4	12.3	180.9	565.1	3,200.2	0.0	0.0
149.00	Bot - Section 6	43.7	425.2					0.0	359.3	43.7	784.4	0.0	0.0
150.00		38.2	203.2					0.0	119.9	38.2	323.0	0.0	0.0
152.50	Top - Section 5	54.2	501.3					0.0	299.8	54.2	801.2	0.0	0.0
155.00		80.0	295.8					0.0	300.1	80.0	595.9	0.0	0.0
160.00		104.9	574.7					0.0	601.1	104.9	1,175.8	0.0	0.0

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 28 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

165.00		72.3	555.3					0.0	602.2	72.3	1,157.5	0.0	0.0
167.00	Appurtenance(s)	50.6	217.9	933.1	0.0	0.0	7,827.5	0.0	241.2	983.8	8,286.5	0.0	0.0
170.00		40.2	320.4					0.0	266.0	40.2	586.4	0.0	0.0
171.00	Appurtenance(s)	49.4	105.6	101.0	0.0	0.0	453.9	0.0	88.8	150.4	648.3	0.0	0.0
175.00		87.5	412.4					0.0	243.3	87.5	655.6	0.0	0.0
180.00		76.3	496.9					0.0	304.7	76.3	801.6	0.0	0.0
183.00	Appurtenance(s)	28.2	289.9	1,114.6	0.0	1,226.6	10,102.6	0.0	183.1	1,142.8	10,575.6	0.0	0.0
								Totals:		8,991.64	116,387.	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 28 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	-116.38	-8.99	0.00	-1,225.19	0.00	1,225.19	4,364.17	2,182.08	8,607.44	4,310.12	0.00	0.00	0.233
5.00	-114.01	-8.99	0.00	-1,180.24	0.00	1,180.24	4,284.85	2,142.42	8,295.82	4,154.08	0.03	-0.06	0.231
7.00	-112.70	-8.96	0.00	-1,162.27	0.00	1,162.27	4,253.12	2,126.56	8,172.78	4,092.46	0.06	-0.08	0.231
10.00	-110.76	-8.96	0.00	-1,135.38	0.00	1,135.38	4,205.53	2,102.76	7,989.95	4,000.91	0.12	-0.12	0.230
15.00	-107.53	-8.94	0.00	-1,090.60	0.00	1,090.60	4,126.21	2,063.10	7,689.82	3,850.62	0.27	-0.17	0.228
20.00	-104.31	-8.93	0.00	-1,045.88	0.00	1,045.88	4,046.89	2,023.44	7,395.44	3,703.21	0.49	-0.23	0.225
22.50	-102.70	-8.92	0.00	-1,023.56	0.00	1,023.56	4,007.23	2,003.61	7,250.40	3,630.59	0.62	-0.26	0.224
22.50	-102.70	-8.92	0.00	-1,023.56	0.00	1,023.56	4,007.23	2,003.61	7,250.40	3,630.59	0.62	-0.26	0.224
25.00	-101.09	-8.91	0.00	-1,001.27	0.00	1,001.27	3,967.57	1,983.78	7,106.80	3,558.68	0.76	-0.29	0.223
28.50	-98.85	-8.89	0.00	-970.10	0.00	970.10	3,912.04	1,956.02	6,908.17	3,459.22	0.99	-0.33	0.221
30.00	-97.46	-8.87	0.00	-956.76	0.00	956.76	3,888.25	1,944.12	6,823.91	3,417.03	1.10	-0.35	0.218
35.00	-92.86	-8.83	0.00	-912.39	0.00	912.39	3,899.62	1,949.81	6,864.12	3,437.16	1.50	-0.41	0.209
40.00	-89.67	-8.78	0.00	-868.27	0.00	868.27	3,820.30	1,910.15	6,586.15	3,297.97	1.97	-0.47	0.205
43.00	-87.76	-8.75	0.00	-841.92	0.00	841.92	3,772.71	1,886.36	6,422.13	3,215.84	2.28	-0.51	0.203
43.00	-87.76	-8.75	0.00	-841.92	0.00	841.92	3,772.71	1,886.36	6,422.13	3,215.84	2.28	-0.51	0.203
45.00	-86.49	-8.71	0.00	-824.43	0.00	824.43	3,740.98	1,870.49	6,313.93	3,161.66	2.49	-0.53	0.202
50.00	-83.35	-8.65	0.00	-780.85	0.00	780.85	3,661.66	1,830.83	6,047.45	3,028.22	3.08	-0.59	0.198
55.00	-80.23	-8.58	0.00	-737.62	0.00	737.62	3,582.34	1,791.17	5,786.72	2,897.66	3.73	-0.65	0.194
58.00	-78.37	-8.50	0.00	-711.88	0.00	711.88	3,534.75	1,767.38	5,633.04	2,820.71	4.14	-0.68	0.191
60.00	-76.75	-8.43	0.00	-694.88	0.00	694.88	3,503.02	1,751.51	5,531.73	2,769.98	4.43	-0.70	0.187
63.50	-73.93	-8.33	0.00	-665.37	0.00	665.37	3,173.44	1,586.72	5,061.87	2,534.70	4.96	-0.74	0.181
65.00	-73.09	-8.27	0.00	-652.88	0.00	652.88	3,152.76	1,576.38	4,994.62	2,501.02	5.20	-0.76	0.179
70.00	-70.34	-8.12	0.00	-611.53	0.00	611.53	3,081.37	1,540.68	4,769.94	2,388.51	6.03	-0.83	0.174
75.00	-67.60	-7.97	0.00	-570.90	0.00	570.90	3,009.98	1,504.99	4,550.42	2,278.59	6.93	-0.89	0.168
80.00	-64.89	-7.81	0.00	-531.05	0.00	531.05	2,938.59	1,469.30	4,336.07	2,171.26	7.89	-0.95	0.163
85.00	-62.20	-7.65	0.00	-492.01	0.00	492.01	2,867.21	1,433.60	4,126.90	2,066.52	8.93	-1.02	0.156
88.00	-60.60	-7.55	0.00	-469.07	0.00	469.07	2,824.37	1,412.19	4,003.88	2,004.91	9.58	-1.05	0.153
90.00	-59.25	-7.47	0.00	-453.96	0.00	453.96	2,795.82	1,397.91	3,922.90	1,964.36	10.02	-1.08	0.148
93.00	-57.24	-7.36	0.00	-431.56	0.00	431.56	2,304.06	1,152.03	3,254.27	1,629.55	10.71	-1.11	0.160
95.00	-56.23	-7.26	0.00	-416.85	0.00	416.85	2,286.90	1,143.45	3,196.90	1,600.83	11.18	-1.14	0.156
100.00	-53.73	-7.09	0.00	-380.54	0.00	380.54	2,243.44	1,121.72	3,054.90	1,529.72	12.41	-1.20	0.147
102.50	-52.49	-7.00	0.00	-362.81	0.00	362.81	2,221.40	1,110.70	2,984.67	1,494.55	13.05	-1.23	0.143
102.50	-52.49	-7.00	0.00	-362.81	0.00	362.81	2,221.40	1,110.70	2,984.67	1,494.55	13.05	-1.23	0.266
105.00	-51.45	-6.91	0.00	-345.32	0.00	345.32	2,198.14	1,099.07	2,913.61	1,458.97	13.70	-1.26	0.260
110.00	-49.39	-6.76	0.00	-310.77	0.00	310.77	2,138.65	1,069.33	2,757.31	1,380.70	15.08	-1.37	0.248
115.00	-47.43	-6.63	0.00	-276.96	0.00	276.96	2,079.16	1,039.58	2,605.31	1,304.59	16.57	-1.48	0.235
116.50	-46.85	-6.59	0.00	-267.01	0.00	267.01	2,061.32	1,030.66	2,560.55	1,282.18	17.04	-1.51	0.231
120.00	-45.16	-6.48	0.00	-243.96	0.00	243.96	2,019.67	1,009.84	2,457.62	1,230.64	18.18	-1.58	0.221
121.00	-44.68	-6.44	0.00	-237.48	0.00	237.48	1,570.79	785.40	1,940.61	971.75	18.51	-1.60	0.273
125.00	-43.25	-6.33	0.00	-211.73	0.00	211.73	1,545.06	772.53	1,864.04	933.41	19.89	-1.68	0.255
127.00	-35.42	-5.14	0.00	-199.08	0.00	199.08	1,531.99	766.00	1,826.09	914.40	20.60	-1.73	0.241
130.00	-34.41	-5.03	0.00	-183.67	0.00	183.67	1,512.16	756.08	1,769.59	886.11	21.71	-1.80	0.230
135.00	-32.73	-4.86	0.00	-158.53	0.00	158.53	1,478.46	739.23	1,676.61	839.55	23.65	-1.90	0.211
140.00	-31.08	-4.68	0.00	-134.24	0.00	134.24	1,443.96	721.98	1,585.19	793.77	25.70	-2.00	0.191
145.00	-29.45	-4.52	0.00	-110.84	0.00	110.84	1,408.39	704.19	1,495.13	748.68	27.84	-2.09	0.169
146.00	-26.27	-3.86	0.00	-106.32	0.00	106.32	1,398.87	699.44	1,474.90	738.54	28.28	-2.11	0.163
149.00	-25.48	-3.80	0.00	-94.76	0.00	94.76	1,370.32	685.16	1,415.01	708.56	29.62	-2.16	0.152
150.00	-25.16	-3.76	0.00	-90.96	0.00	90.96	1,360.80	680.40	1,395.33	698.70	30.07	-2.18	0.149
152.50	-24.36	-3.69	0.00	-81.56	0.00	81.56	947.27	473.64	973.73	487.59	31.22	-2.21	0.193
155.00	-23.76	-3.61	0.00	-72.34	0.00	72.34	936.35	468.18	945.55	473.48	32.39	-2.25	0.178
160.00	-22.59	-3.49	0.00	-54.28	0.00	54.28	913.91	456.96	889.79	445.55	34.79	-2.33	0.147

Site Number: 302535 Code: ANSI/TIA-222-G

Site Name: Milford CT 2, CT Engineering Number:OAA719635_C3_05 7/5/2018 11:49:43 AM

Customer: CLEARWIRE

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 28 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

165.00	-21.43	-3.38	0.00	-36.84	0.00	36.84	890.67	445.33	834.90	418.07	37.27	-2.40	0.112
167.00	-13.19	-2.06	0.00	-30.07	0.00	30.07	881.14	440.57	813.20	407.21	38.28	-2.42	0.089
170.00	-12.61	-2.00	0.00	-23.89	0.00	23.89	866.62	433.31	780.97	391.06	39.81	-2.44	0.076
171.00	-11.97	-1.82	0.00	-21.89	0.00	21.89	861.71	430.86	770.30	385.72	40.32	-2.45	0.071
175.00	-11.31	-1.71	0.00	-14.60	0.00	14.60	841.76	420.88	728.08	364.58	42.39	-2.48	0.054
180.00	-10.52	-1.60	0.00	-6.04	0.00	6.04	816.11	408.05	676.33	338.67	45.00	-2.50	0.031
183.00	0.00	-1.14	0.00	-1.23	0.00	1.23	800.33	400.16	645.87	323.41	46.57	-2.51	0.004

Load Case: 1.0D + 1.0W Serviceability 60 mph 27 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		44.7	0.0					0.0	0.0	44.7	0.0	0.0	0.0
5.00		62.3	1,287.4					0.0	334.0	62.3	1,621.4	0.0	0.0
7.00	Appurtenance(s)	43.9	508.4	17.3	0.0	0.0	75.6	0.0	295.0	61.1	878.9	0.0	0.0
10.00		69.3	755.5					0.0	442.4	69.3	1,197.9	0.0	0.0
15.00		85.3	1,240.2					0.0	737.4	85.3	1,977.6	0.0	0.0
20.00		63.0	1,216.6					0.0	737.4	63.0	1,954.0	0.0	0.0
22.50	Reinf. Top Reinf	41.4	599.4					0.0	368.7	41.4	968.1	0.0	0.0
25.00		49.1	593.5					0.0	368.7	49.1	962.2	0.0	0.0
28.50	Bot - Section 2	40.9	821.0					0.0	516.2	40.9	1,337.2	0.0	0.0
30.00		54.1	704.8					0.0	221.2	54.1	926.0	0.0	0.0
35.00	Top - Section 1	84.3	2,318.5					0.0	737.4	84.3	3,055.9	0.0	0.0
40.00		68.5	1,149.1					0.0	737.4	68.5	1,886.5	0.0	0.0
43.00	Reinf. Top Reinf	43.2	678.1					0.0	442.4	43.2	1,120.6	0.0	0.0
45.00		61.1	447.4					0.0	295.0	61.1	742.3	0.0	0.0
50.00		87.7	1,101.9					0.0	737.4	87.7	1,839.3	0.0	0.0
55.00		93.0	1,078.3					0.0	737.4	93.0	1,815.7	0.0	0.0
58.00	Bot - Section 3	82.2	635.6					19.8	442.4	102.0	1,078.1	0.0	0.0
60.00		91.6	740.4					13.4	295.0	105.0	1,035.4	0.0	0.0
63.50	Top - Section 2	83.3	1,279.8					23.7	516.2	107.0	1,796.0	0.0	0.0
65.00		108.3	235.4					10.3	221.2	118.5	456.7	0.0	0.0
70.00		166.3	773.3					34.7	737.4	201.0	1,510.7	0.0	0.0
75.00		165.8	755.6					35.4	737.4	201.2	1,493.0	0.0	0.0
80.00		164.9	737.9					36.1	737.4	201.0	1,475.3	0.0	0.0
85.00		131.2	720.2					36.8	737.4	168.0	1,457.6	0.0	0.0
88.00	Bot - Section 4	82.1	423.6					22.4	442.4	104.5	866.0	0.0	0.0
90.00		82.6	515.9					15.0	295.0	97.6	810.8	0.0	0.0
93.00	Top - Section 3	82.3	764.1					22.7	442.4	105.0	1,206.5	0.0	0.0
95.00		114.2	231.1					15.3	295.0	129.5	526.1	0.0	0.0
100.00		121.8	567.5					38.6	737.4	160.3	1,304.9	0.0	0.0
102.50	Reinf. Top	80.5	278.2					19.5	368.7	99.9	646.9	0.0	0.0
105.00		119.5	274.5					19.6	201.7	139.1	476.2	0.0	0.0
110.00		157.7	538.0					39.6	403.4	197.3	941.4	0.0	0.0
115.00		101.5	523.2					32.6	403.4	134.1	926.6	0.0	0.0
116.50	Bot - Section 5	77.9	154.1					9.4	121.0	87.3	275.1	0.0	0.0
120.00		70.2	643.2					22.2	282.4	92.3	925.5	0.0	0.0
121.00	Top - Section 4	77.0	181.4					6.4	80.7	83.3	262.0	0.0	0.0
125.00		91.9	321.1					25.6	322.7	117.5	643.8	0.0	0.0
127.00	Appurtenance(s)	75.6	157.7	973.7	0.0	0.0	2,862.6	12.9	161.4	1,062.2	3,181.7	0.0	0.0
130.00		119.3	233.0					19.4	205.7	138.8	438.8	0.0	0.0
135.00		146.8	378.9					32.7	342.9	179.5	721.8	0.0	0.0
140.00		143.6	367.1					33.0	342.9	176.7	710.0	0.0	0.0
145.00		85.0	355.3					33.4	342.9	118.4	698.2	0.0	0.0
146.00	Appurtenance(s)	36.6	69.6	440.4	0.0	0.0	1,398.6	6.7	68.6	483.6	1,536.8	0.0	0.0
149.00	Bot - Section 6	30.1	206.1					0.0	161.5	30.1	367.6	0.0	0.0
150.00		26.3	119.5					0.0	53.8	26.3	173.3	0.0	0.0
152.50	Top - Section 5	37.2	295.0					0.0	134.6	37.2	429.6	0.0	0.0
155.00		54.7	125.5					0.0	134.6	54.7	260.0	0.0	0.0
160.00		71.5	244.3					0.0	269.1	71.5	513.4	0.0	0.0

Load Case: 1.0D + 1.0W Serviceability 60 mph 27 Iterations

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

165.00		49.1	235.5					0.0	269.1	49.1	504.6	0.0	0.0
167.00	Appurtenance(s)	34.2	91.7	974.9	0.0	0.0	3,330.1	0.0	107.6	1,009.1	3,529.5	0.0	0.0
170.00		27.1	134.9					0.0	81.4	27.1	216.3	0.0	0.0
171.00	Appurtenance(s)	33.2	44.3	117.0	0.0	0.0	79.2	0.0	27.1	150.2	150.6	0.0	0.0
175.00		58.6	173.5					0.0	88.9	58.6	262.4	0.0	0.0
180.00		50.8	208.9					0.0	111.1	50.8	320.0	0.0	0.0
183.00	Appurtenance(s)	18.7	121.1	1,249.8	0.0	1,540.4	3,744.5	0.0	66.7	1,268.5	3,932.3	0.0	0.0
								Totals:		8,752.63	60,345.1	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 27 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	-60.34	-8.74	0.00	-1,124.50	0.00	1,124.50	4,364.17	2,182.08	8,607.44	4,310.12	0.00	0.00	0.205
5.00	-58.71	-8.71	0.00	-1,080.83	0.00	1,080.83	4,284.85	2,142.42	8,295.82	4,154.08	0.03	-0.05	0.204
7.00	-57.83	-8.67	0.00	-1,063.41	0.00	1,063.41	4,253.12	2,126.56	8,172.78	4,092.46	0.05	-0.07	0.203
10.00	-56.63	-8.65	0.00	-1,037.38	0.00	1,037.38	4,205.53	2,102.76	7,989.95	4,000.91	0.11	-0.11	0.201
15.00	-54.64	-8.61	0.00	-994.15	0.00	994.15	4,126.21	2,063.10	7,689.82	3,850.62	0.25	-0.16	0.199
20.00	-52.68	-8.57	0.00	-951.12	0.00	951.12	4,046.89	2,023.44	7,395.44	3,703.21	0.45	-0.21	0.197
22.50	-51.71	-8.55	0.00	-929.68	0.00	929.68	4,007.23	2,003.61	7,250.40	3,630.59	0.56	-0.24	0.195
22.50	-51.71	-8.55	0.00	-929.68	0.00	929.68	4,007.23	2,003.61	7,250.40	3,630.59	0.56	-0.24	0.195
25.00	-50.74	-8.53	0.00	-908.30	0.00	908.30	3,967.57	1,983.78	7,106.80	3,558.68	0.70	-0.27	0.194
28.50	-49.40	-8.51	0.00	-878.44	0.00	878.44	3,912.04	1,956.02	6,908.17	3,459.22	0.91	-0.31	0.192
30.00	-48.47	-8.48	0.00	-865.68	0.00	865.68	3,888.25	1,944.12	6,823.91	3,417.03	1.01	-0.32	0.189
35.00	-45.41	-8.42	0.00	-823.30	0.00	823.30	3,899.62	1,949.81	6,864.12	3,437.16	1.37	-0.38	0.181
40.00	-43.52	-8.37	0.00	-781.22	0.00	781.22	3,820.30	1,910.15	6,586.15	3,297.97	1.79	-0.43	0.177
43.00	-42.39	-8.33	0.00	-756.12	0.00	756.12	3,772.71	1,886.36	6,422.13	3,215.84	2.07	-0.46	0.175
43.00	-42.39	-8.33	0.00	-756.12	0.00	756.12	3,772.71	1,886.36	6,422.13	3,215.84	2.07	-0.46	0.175
45.00	-41.64	-8.29	0.00	-739.45	0.00	739.45	3,740.98	1,870.49	6,313.93	3,161.66	2.27	-0.48	0.174
50.00	-39.80	-8.23	0.00	-697.98	0.00	697.98	3,661.66	1,830.83	6,047.45	3,028.22	2.80	-0.53	0.170
55.00	-37.98	-8.14	0.00	-656.86	0.00	656.86	3,582.34	1,791.17	5,786.72	2,897.66	3.39	-0.58	0.165
58.00	-36.90	-8.04	0.00	-632.44	0.00	632.44	3,534.75	1,767.38	5,633.04	2,820.71	3.77	-0.62	0.163
60.00	-35.86	-7.95	0.00	-616.35	0.00	616.35	3,503.02	1,751.51	5,531.73	2,769.98	4.03	-0.64	0.159
63.50	-34.06	-7.83	0.00	-588.54	0.00	588.54	3,173.44	1,586.72	5,061.87	2,534.70	4.51	-0.67	0.153
65.00	-33.60	-7.73	0.00	-576.79	0.00	576.79	3,152.76	1,576.38	4,994.62	2,501.02	4.72	-0.69	0.151
70.00	-32.09	-7.54	0.00	-538.13	0.00	538.13	3,081.37	1,540.68	4,769.94	2,388.51	5.47	-0.74	0.146
75.00	-30.59	-7.35	0.00	-500.42	0.00	500.42	3,009.98	1,504.99	4,550.42	2,278.59	6.28	-0.80	0.141
80.00	-29.11	-7.16	0.00	-463.66	0.00	463.66	2,938.59	1,469.30	4,336.07	2,171.26	7.15	-0.86	0.136
85.00	-27.65	-6.99	0.00	-427.87	0.00	427.87	2,867.21	1,433.60	4,126.90	2,066.52	8.07	-0.91	0.130
88.00	-26.78	-6.88	0.00	-406.91	0.00	406.91	2,824.37	1,412.19	4,003.88	2,004.91	8.66	-0.94	0.126
90.00	-25.97	-6.78	0.00	-393.15	0.00	393.15	2,795.82	1,397.91	3,922.90	1,964.36	9.06	-0.96	0.122
93.00	-24.76	-6.67	0.00	-372.80	0.00	372.80	2,304.06	1,152.03	3,254.27	1,629.55	9.67	-1.00	0.131
95.00	-24.23	-6.55	0.00	-359.46	0.00	359.46	2,286.90	1,143.45	3,196.90	1,600.83	10.09	-1.02	0.128
100.00	-22.93	-6.38	0.00	-326.74	0.00	326.74	2,243.44	1,121.72	3,054.90	1,529.72	11.19	-1.07	0.120
102.50	-22.28	-6.28	0.00	-310.79	0.00	310.79	2,221.40	1,110.70	2,984.67	1,494.55	11.75	-1.10	0.116
102.50	-22.28	-6.28	0.00	-310.79	0.00	310.79	2,221.40	1,110.70	2,984.67	1,494.55	11.75	-1.10	0.218
105.00	-21.80	-6.15	0.00	-295.10	0.00	295.10	2,198.14	1,099.07	2,913.61	1,458.97	12.33	-1.12	0.212
110.00	-20.85	-5.97	0.00	-264.36	0.00	264.36	2,138.65	1,069.33	2,757.31	1,380.70	13.56	-1.22	0.201
115.00	-19.92	-5.83	0.00	-234.52	0.00	234.52	2,079.16	1,039.58	2,605.31	1,304.59	14.88	-1.31	0.189
116.50	-19.65	-5.76	0.00	-225.77	0.00	225.77	2,061.32	1,030.66	2,560.55	1,282.18	15.30	-1.33	0.186
120.00	-18.72	-5.65	0.00	-205.63	0.00	205.63	2,019.67	1,009.84	2,457.62	1,230.64	16.30	-1.40	0.176
121.00	-18.46	-5.58	0.00	-199.97	0.00	199.97	1,570.79	785.40	1,940.61	971.75	16.59	-1.41	0.218
125.00	-17.81	-5.46	0.00	-177.66	0.00	177.66	1,545.06	772.53	1,864.04	933.41	17.81	-1.48	0.202
127.00	-14.65	-4.33	0.00	-166.74	0.00	166.74	1,531.99	766.00	1,826.09	914.40	18.43	-1.52	0.192
130.00	-14.21	-4.19	0.00	-153.76	0.00	153.76	1,512.16	756.08	1,769.59	886.11	19.41	-1.57	0.183
135.00	-13.49	-4.01	0.00	-132.79	0.00	132.79	1,478.46	739.23	1,676.61	839.55	21.10	-1.66	0.167
140.00	-12.78	-3.83	0.00	-112.72	0.00	112.72	1,443.96	721.98	1,585.19	793.77	22.89	-1.74	0.151
145.00	-12.08	-3.70	0.00	-93.54	0.00	93.54	1,408.39	704.19	1,495.13	748.68	24.76	-1.82	0.134
146.00	-10.56	-3.18	0.00	-89.84	0.00	89.84	1,398.87	699.44	1,474.90	738.54	25.14	-1.84	0.129
149.00	-10.19	-3.14	0.00	-80.31	0.00	80.31	1,370.32	685.16	1,415.01	708.56	26.31	-1.88	0.121
150.00	-10.02	-3.11	0.00	-77.17	0.00	77.17	1,360.80	680.40	1,395.33	698.70	26.70	-1.89	0.118
152.50	-9.59	-3.07	0.00	-69.39	0.00	69.39	947.27	473.64	973.73	487.59	27.70	-1.93	0.152
155.00	-9.33	-3.01	0.00	-61.72	0.00	61.72	936.35	468.18	945.55	473.48	28.72	-1.96	0.140
160.00	-8.82	-2.93	0.00	-46.67	0.00	46.67	913.91	456.96	889.79	445.55	30.81	-2.03	0.114

Site Number: 302535 Code: ANSI/TIA-222-G

Site Name: Milford CT 2, CT Engineering Number:OAA719635_C3_05 7/5/2018 11:49:51 AM

Customer: CLEARWIRE

Load Case: 1.0D + 1.0W Serviceability 60 mph 27 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

165.00	-8.31	-2.87	0.00	-32.01	0.00	32.01	890.67	445.33	834.90	418.07	32.96	-2.08	0.086
167.00	-4.82	-1.73	0.00	-26.27	0.00	26.27	881.14	440.57	813.20	407.21	33.84	-2.10	0.070
170.00	-4.61	-1.70	0.00	-21.07	0.00	21.07	866.62	433.31	780.97	391.06	35.16	-2.12	0.059
171.00	-4.46	-1.55	0.00	-19.37	0.00	19.37	861.71	430.86	770.30	385.72	35.61	-2.13	0.055
175.00	-4.20	-1.48	0.00	-13.19	0.00	13.19	841.76	420.88	728.08	364.58	37.41	-2.16	0.041
180.00	-3.88	-1.42	0.00	-5.79	0.00	5.79	816.11	408.05	676.33	338.67	39.67	-2.17	0.022
183.00	0.00	-1.27	0.00	-1.54	0.00	1.54	800.33	400.16	645.87	323.41	41.04	-2.18	0.005

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.19	
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}):	0.20	
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):	3.14	
Redundancy Factor (p):	1.30	
Seismic Force Distribution Exponent (k):	2.00	
Total Unfactored Dead Load:	60.35	k
Seismic Base Shear (E):	2.35	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)
54	181.50	188	6,185	0.010	23	233
53	177.50	320	10,083	0.016	38	397
52	173.00	262	7,853	0.013	30	326
51	170.50	71	2,076	0.003	8	89
50	168.50	216	6,142	0.010	23	268
49	166.00	199	5,493	0.009	21	247
48	162.50	505	13,324	0.021	51	626
47	157.50	513	12,737	0.021	48	637
46	153.75	260	6,147	0.010	23	323
45	151.25	430	9,827	0.016	37	533
44	149.50	173	3,873	0.006	15	215
43	147.50	368	7,997	0.013	30	456
42	145.50	138	2,926	0.005	11	172
41	142.50	698	14,178	0.023	54	866
40	137.50	710	13,424	0.022	51	881
39	132.50	722	12,672	0.020	48	896
38	128.50	439	7,245	0.012	28	544
37	126.00	319	5,066	0.008	19	396
36	123.00	644	9,740	0.016	37	799
35	120.50	262	3,805	0.006	14	325
34	118.25	926	12,942	0.021	49	1,148
33	115.75	275	3,686	0.006	14	341
32	112.50	927	11,727	0.019	45	1,150

31	107.50	941	10,879	0.018	41	1,168
30	103.75	476	5,126	0.008	19	591
29	101.25	647	6,632	0.011	25	803
28	97.50	1,305	12,404	0.020	47	1,619
27	94.00	526	4,648	0.007	18	653
26	91.50	1,207	10,101	0.016	38	1,497
25	89.00	811	6,423	0.010	24	1,006
24	86.50	866	6,480	0.010	25	1,075
23	82.50	1,458	9,921	0.016	38	1,808
22	77.50	1,475	8,861	0.014	34	1,830
21	72.50	1,493	7,848	0.013	30	1,852
20	67.50	1,511	6,883	0.011	26	1,874
19	64.25	457	1,885	0.003	7	567
18	61.75	1,796	6,848	0.011	26	2,228
17	59.00	1,035	3,604	0.006	14	1,285
16	56.50	1,078	3,441	0.006	13	1,338
15	52.50	1,816	5,004	0.008	19	2,253
14	47.50	1,839	4,150	0.007	16	2,282
13	44.00	742	1,437	0.002	5	921
12	41.50	1,121	1,930	0.003	7	1,390
11	37.50	1,887	2,653	0.004	10	2,341
10	32.50	3,056	3,228	0.005	12	3,792
9	29.25	926	792	0.001	3	1,149
8	26.75	1,337	957	0.002	4	1,659
7	23.75	962	543	0.001	2	1,194
6	21.25	968	437	0.001	2	1,201
5	17.50	1,954	598	0.001	2	2,424
4	12.50	1,978	309	0.000	1	2,454
3	8.50	1,198	87	0.000	0	1,486
2	6.00	803	29	0.000	0	997
1	2.50	1,621	10	0.000	0	2,012
DragonWave Horizon C	183.00	21	710	0.001	3	26
Alcatel-Lucent RRH2x	183.00	317	10,629	0.017	40	394
Alcatel-Lucent 1900	183.00	180	6,028	0.010	23	223
Decibel DB844H90E-XY	183.00	84	2,813	0.005	11	104
Nokia 2.5G MAA - AAH	183.00	311	10,408	0.017	40	386
DragonWave A-ANT-18G	183.00	54	1,815	0.003	7	67
Andrew 844G65VTZASX	183.00	48	1,607	0.003	6	60
Andrew 844G65VTZASX	183.00	48	1,607	0.003	6	60
Commscope NNVV-65B-R	183.00	232	7,776	0.013	30	288
Site Pro 1 RMQP-496-	183.00	2,449	82,005	0.132	311	3,038
RFS APXV18-206517S-C	171.00	79	2,316	0.004	9	98
CCI TPX-070821	167.00	45	1,255	0.002	5	56
Commscope WCS-IMFQ-A	167.00	30	823	0.001	3	37
Powerwave Allgon LGP	167.00	85	2,359	0.004	9	105
Raycap DC6-48-60-18-	167.00	40	1,116	0.002	4	50
Ericsson RRUS 11 (Ba	167.00	132	3,681	0.006	14	164
Ericsson RRUS 32 B2	167.00	159	4,434	0.007	17	197
Ericsson RRUS-32	167.00	231	6,442	0.010	24	287
Powerwave Allgon 777	167.00	105	2,928	0.005	11	130
CCI OPA-65R-LCUU-H4	167.00	171	4,769	0.008	18	212
Quintel QS66512-2	167.00	333	9,287	0.015	35	413
Flat Platform w/ Han	167.00	2,000	55,778	0.090	212	2,481
Kathrein Scala Smart	146.00	10	211	0.000	1	12
Andrew ETW200VS12UB	146.00	33	703	0.001	3	41
Andrew ETW190VS12UB	146.00	33	703	0.001	3	41
Andrew SBNHH-1D65A	146.00	123	2,615	0.004	10	152
Flat Light Sector Fr	146.00	1,200	25,579	0.041	97	1,489
RFS FD9R6004/1C-3L	127.00	19	300	0.000	1	23
Alcatel-Lucent RRH2X	127.00	138	2,226	0.004	8	171
Alcatel-Lucent RRH2X	127.00	132	2,129	0.003	8	164
Alcatel-Lucent RRH2x	127.00	132	2,129	0.003	8	164
RFS DB-T1-6Z-8AB-0Z	127.00	44	710	0.001	3	55
RFS DB-T1-6Z-8AB-0Z	127.00	44	710	0.001	3	55

Andrew HBXX-6516DS-A	127.00	92	1,481	0.002	6	114
Andrew LNX-4514DS-A1	127.00	89	1,427	0.002	5	110
Antel BXA-80063/6CF	127.00	45	721	0.001	3	55
Andrew HBXX-6517DS-A	127.00	129	2,081	0.003	8	160
Flat Platform w/ Han	127.00	2,000	32,258	0.052	122	2,481
Thales PCS VP/360/2	7.00	1	0	0.000	0	1
Stand-Off	7.00	75	4	0.000	0	93
		60,345	619,874	1.000	2,353	74,873

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)
54	181.50	188	6,185	0.010	23	161
53	177.50	320	10,083	0.016	38	275
52	173.00	262	7,853	0.013	30	225
51	170.50	71	2,076	0.003	8	61
50	168.50	216	6,142	0.010	23	186
49	166.00	199	5,493	0.009	21	171
48	162.50	505	13,324	0.021	51	434
47	157.50	513	12,737	0.021	48	441
46	153.75	260	6,147	0.010	23	223
45	151.25	430	9,827	0.016	37	369
44	149.50	173	3,873	0.006	15	149
43	147.50	368	7,997	0.013	30	316
42	145.50	138	2,926	0.005	11	119
41	142.50	698	14,178	0.023	54	600
40	137.50	710	13,424	0.022	51	610
39	132.50	722	12,672	0.020	48	620
38	128.50	439	7,245	0.012	28	377
37	126.00	319	5,066	0.008	19	274
36	123.00	644	9,740	0.016	37	553
35	120.50	262	3,805	0.006	14	225
34	118.25	926	12,942	0.021	49	795
33	115.75	275	3,686	0.006	14	236
32	112.50	927	11,727	0.019	45	796
31	107.50	941	10,879	0.018	41	809
30	103.75	476	5,126	0.008	19	409
29	101.25	647	6,632	0.011	25	556
28	97.50	1,305	12,404	0.020	47	1,121
27	94.00	526	4,648	0.007	18	452
26	91.50	1,207	10,101	0.016	38	1,037
25	89.00	811	6,423	0.010	24	697
24	86.50	866	6,480	0.010	25	744
23	82.50	1,458	9,921	0.016	38	1,252
22	77.50	1,475	8,861	0.014	34	1,268
21	72.50	1,493	7,848	0.013	30	1,283
20	67.50	1,511	6,883	0.011	26	1,298
19	64.25	457	1,885	0.003	7	392
18	61.75	1,796	6,848	0.011	26	1,543
17	59.00	1,035	3,604	0.006	14	890
16	56.50	1,078	3,441	0.006	13	926
15	52.50	1,816	5,004	0.008	19	1,560
14	47.50	1,839	4,150	0.007	16	1,580
13	44.00	742	1,437	0.002	5	638
12	41.50	1,121	1,930	0.003	7	963
11	37.50	1,887	2,653	0.004	10	1,621
10	32.50	3,056	3,228	0.005	12	2,626
9	29.25	926	792	0.001	3	796
8	26.75	1,337	957	0.002	4	1,149

7	23.75	962	543	0.001	2	827
6	21.25	968	437	0.001	2	832
5	17.50	1,954	598	0.001	2	1,679
4	12.50	1,978	309	0.000	1	1,699
3	8.50	1,198	87	0.000	0	1,029
2	6.00	803	29	0.000	0	690
1	2.50	1,621	10	0.000	0	1,393
DragonWave Horizon C	183.00	21	710	0.001	3	18
Alcatel-Lucent RRH2x	183.00	317	10,629	0.017	40	273
Alcatel-Lucent 1900	183.00	180	6,028	0.010	23	155
Decibel DB844H90E-XY	183.00	84	2,813	0.005	11	72
Nokia 2.5G MAA - AAH	183.00	311	10,408	0.017	40	267
DragonWave A-ANT-18G	183.00	54	1,815	0.003	7	47
Andrew 844G65VTZASX	183.00	48	1,607	0.003	6	41
Andrew 844G65VTZASX	183.00	48	1,607	0.003	6	41
Commscope NNVV-65B-R	183.00	232	7,776	0.013	30	200
Site Pro 1 RMQP-496-	183.00	2,449	82,005	0.132	311	2,104
RFS APXV18-206517S-C	171.00	79	2,316	0.004	9	68
CCI TPX-070821	167.00	45	1,255	0.002	5	39
Commscope WCS-IMFQ-A	167.00	30	823	0.001	3	25
Powerwave Allgon LGP	167.00	85	2,359	0.004	9	73
Raycap DC6-48-60-18-	167.00	40	1,116	0.002	4	34
Ericsson RRUS 11 (Ba	167.00	132	3,681	0.006	14	113
Ericsson RRUS 32 B2	167.00	159	4,434	0.007	17	137
Ericsson RRUS-32	167.00	231	6,442	0.010	24	198
Powerwave Allgon 777	167.00	105	2,928	0.005	11	90
CCI OPA-65R-LCUU-H4	167.00	171	4,769	0.008	18	147
Quintel QS66512-2	167.00	333	9,287	0.015	35	286
Flat Platform w/ Han	167.00	2,000	55,778	0.090	212	1,719
Kathrein Scala Smart	146.00	10	211	0.000	1	9
Andrew ETW200VS12UB	146.00	33	703	0.001	3	28
Andrew ETW190VS12UB	146.00	33	703	0.001	3	28
Andrew SBNHH-1D65A	146.00	123	2,615	0.004	10	105
Flat Light Sector Fr	146.00	1,200	25,579	0.041	97	1,031
RFS FD9R6004/1C-3L	127.00	19	300	0.000	1	16
Alcatel-Lucent RRH2X	127.00	138	2,226	0.004	8	119
Alcatel-Lucent RRH2X	127.00	132	2,129	0.003	8	113
Alcatel-Lucent RRH2x	127.00	132	2,129	0.003	8	113
RFS DB-T1-6Z-8AB-0Z	127.00	44	710	0.001	3	38
RFS DB-T1-6Z-8AB-0Z	127.00	44	710	0.001	3	38
Andrew HBXX-6516DS-A	127.00	92	1,481	0.002	6	79
Andrew LNX-4514DS-A1	127.00	89	1,427	0.002	5	76
Antel BXA-80063/6CF	127.00	45	721	0.001	3	38
Andrew HBXX-6517DS-A	127.00	129	2,081	0.003	8	111
Flat Platform w/ Han	127.00	2,000	32,258	0.052	122	1,719
Thales PCS VP/360/2	7.00	1	0	0.000	0	1
Stand-Off	7.00	75	4	0.000	0	64
		60,345	619,874	1.000	2,353	51,852

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	-72.86	-2.36	0.00	-352.30	0.00	352.30	4,364.17	2,182.08	8,607.44	4,310.12	0.00	0.00	0.074
5.00	-71.86	-2.38	0.00	-340.48	0.00	340.48	4,284.85	2,142.42	8,295.82	4,154.08	0.01	-0.02	0.074
7.00	-70.28	-2.39	0.00	-335.73	0.00	335.73	4,253.12	2,126.56	8,172.78	4,092.46	0.02	-0.02	0.074
10.00	-67.83	-2.40	0.00	-328.57	0.00	328.57	4,205.53	2,102.76	7,989.95	4,000.91	0.03	-0.03	0.073
15.00	-65.40	-2.42	0.00	-316.56	0.00	316.56	4,126.21	2,063.10	7,689.82	3,850.62	0.08	-0.05	0.073
20.00	-64.20	-2.43	0.00	-304.48	0.00	304.48	4,046.89	2,023.44	7,395.44	3,703.21	0.14	-0.07	0.072
22.50	-63.01	-2.43	0.00	-298.41	0.00	298.41	4,007.23	2,003.61	7,250.40	3,630.59	0.18	-0.08	0.072
22.50	-63.01	-2.43	0.00	-298.41	0.00	298.41	4,007.23	2,003.61	7,250.40	3,630.59	0.18	-0.08	0.072
25.00	-61.35	-2.44	0.00	-292.33	0.00	292.33	3,967.57	1,983.78	7,106.80	3,558.68	0.22	-0.08	0.071
28.50	-60.20	-2.44	0.00	-283.79	0.00	283.79	3,912.04	1,956.02	6,908.17	3,459.22	0.29	-0.10	0.071
30.00	-56.41	-2.44	0.00	-280.13	0.00	280.13	3,888.25	1,944.12	6,823.91	3,417.03	0.32	-0.10	0.069
35.00	-54.07	-2.44	0.00	-267.95	0.00	267.95	3,899.62	1,949.81	6,864.12	3,437.16	0.44	-0.12	0.067
40.00	-52.67	-2.44	0.00	-255.76	0.00	255.76	3,820.30	1,910.15	6,586.15	3,297.97	0.57	-0.14	0.066
43.00	-51.75	-2.44	0.00	-248.44	0.00	248.44	3,772.71	1,886.36	6,422.13	3,215.84	0.66	-0.15	0.065
43.00	-51.75	-2.44	0.00	-248.44	0.00	248.44	3,772.71	1,886.36	6,422.13	3,215.84	0.66	-0.15	0.065
45.00	-49.47	-2.43	0.00	-243.56	0.00	243.56	3,740.98	1,870.49	6,313.93	3,161.66	0.72	-0.15	0.065
50.00	-47.22	-2.42	0.00	-231.41	0.00	231.41	3,661.66	1,830.83	6,047.45	3,028.22	0.89	-0.17	0.063
55.00	-45.88	-2.41	0.00	-219.33	0.00	219.33	3,582.34	1,791.17	5,786.72	2,897.66	1.08	-0.19	0.062
58.00	-44.59	-2.40	0.00	-212.09	0.00	212.09	3,534.75	1,767.38	5,633.04	2,820.71	1.21	-0.20	0.061
60.00	-42.37	-2.37	0.00	-207.30	0.00	207.30	3,503.02	1,751.51	5,531.73	2,769.98	1.29	-0.21	0.060
63.50	-41.80	-2.37	0.00	-198.99	0.00	198.99	3,173.44	1,586.72	5,061.87	2,534.70	1.45	-0.22	0.058
65.00	-39.92	-2.35	0.00	-195.44	0.00	195.44	3,152.76	1,576.38	4,994.62	2,501.02	1.52	-0.22	0.058
70.00	-38.07	-2.32	0.00	-183.71	0.00	183.71	3,081.37	1,540.68	4,769.94	2,388.51	1.76	-0.24	0.056
75.00	-36.24	-2.29	0.00	-172.11	0.00	172.11	3,009.98	1,504.99	4,550.42	2,278.59	2.02	-0.26	0.054
80.00	-34.43	-2.26	0.00	-160.65	0.00	160.65	2,938.59	1,469.30	4,336.07	2,171.26	2.31	-0.28	0.053
85.00	-33.36	-2.24	0.00	-149.37	0.00	149.37	2,867.21	1,433.60	4,126.90	2,066.52	2.61	-0.30	0.051
88.00	-32.35	-2.21	0.00	-142.67	0.00	142.67	2,824.37	1,412.19	4,003.88	2,004.91	2.80	-0.31	0.050
90.00	-30.85	-2.17	0.00	-138.25	0.00	138.25	2,795.82	1,397.91	3,922.90	1,964.36	2.94	-0.32	0.048
93.00	-30.20	-2.15	0.00	-131.74	0.00	131.74	2,304.06	1,152.03	3,254.27	1,629.55	3.14	-0.33	0.052
95.00	-28.58	-2.10	0.00	-127.44	0.00	127.44	2,286.90	1,143.45	3,196.90	1,600.83	3.28	-0.34	0.051
100.00	-27.78	-2.08	0.00	-116.92	0.00	116.92	2,243.44	1,121.72	3,054.90	1,529.72	3.64	-0.36	0.048
102.50	-27.19	-2.06	0.00	-111.72	0.00	111.72	2,221.40	1,110.70	2,984.67	1,494.55	3.83	-0.37	0.047
102.50	-27.19	-2.06	0.00	-111.72	0.00	111.72	2,221.40	1,110.70	2,984.67	1,494.55	3.83	-0.37	0.087
105.00	-26.02	-2.02	0.00	-106.57	0.00	106.57	2,198.14	1,099.07	2,913.61	1,458.97	4.03	-0.37	0.085
110.00	-24.87	-1.98	0.00	-96.46	0.00	96.46	2,138.65	1,069.33	2,757.31	1,380.70	4.44	-0.41	0.081
115.00	-24.53	-1.98	0.00	-86.54	0.00	86.54	2,079.16	1,039.58	2,605.31	1,304.59	4.88	-0.44	0.078
116.50	-23.38	-1.93	0.00	-83.58	0.00	83.58	2,061.32	1,030.66	2,560.55	1,282.18	5.02	-0.45	0.077
120.00	-23.05	-1.91	0.00	-76.84	0.00	76.84	2,019.67	1,009.84	2,457.62	1,230.64	5.37	-0.48	0.074
121.00	-22.25	-1.88	0.00	-74.92	0.00	74.92	1,570.79	785.40	1,940.61	971.75	5.47	-0.48	0.091
125.00	-21.86	-1.86	0.00	-67.42	0.00	67.42	1,545.06	772.53	1,864.04	933.41	5.88	-0.51	0.086
127.00	-17.76	-1.63	0.00	-63.69	0.00	63.69	1,531.99	766.00	1,826.09	914.40	6.10	-0.52	0.081
130.00	-16.87	-1.58	0.00	-58.81	0.00	58.81	1,512.16	756.08	1,769.59	886.11	6.43	-0.54	0.078
135.00	-15.98	-1.53	0.00	-50.91	0.00	50.91	1,478.46	739.23	1,676.61	839.55	7.02	-0.58	0.071
140.00	-15.12	-1.47	0.00	-43.27	0.00	43.27	1,443.96	721.98	1,585.19	793.77	7.64	-0.61	0.065
145.00	-14.95	-1.47	0.00	-35.89	0.00	35.89	1,408.39	704.19	1,495.13	748.68	8.29	-0.64	0.059
146.00	-12.76	-1.30	0.00	-34.43	0.00	34.43	1,398.87	699.44	1,474.90	738.54	8.43	-0.64	0.056
149.00	-12.54	-1.29	0.00	-30.53	0.00	30.53	1,370.32	685.16	1,415.01	708.56	8.84	-0.66	0.052
150.00	-12.01	-1.24	0.00	-29.24	0.00	29.24	1,360.80	680.40	1,395.33	698.70	8.98	-0.67	0.051
152.50	-11.69	-1.22	0.00	-26.13	0.00	26.13	947.27	473.64	973.73	487.59	9.33	-0.68	0.066
155.00	-11.05	-1.17	0.00	-23.08	0.00	23.08	936.35	468.18	945.55	473.48	9.69	-0.69	0.061
160.00	-10.42	-1.11	0.00	-17.25	0.00	17.25	913.91	456.96	889.79	445.55	10.42	-0.72	0.050
165.00	-10.18	-1.09	0.00	-11.68	0.00	11.68	890.67	445.33	834.90	418.07	11.18	-0.74	0.039
167.00	-5.78	-0.66	0.00	-9.50	0.00	9.50	881.14	440.57	813.20	407.21	11.49	-0.74	0.030
170.00	-5.69	-0.65	0.00	-7.52	0.00	7.52	866.62	433.31	780.97	391.06	11.96	-0.75	0.026
171.00	-5.27	-0.61	0.00	-6.87	0.00	6.87	861.71	430.86	770.30	385.72	12.12	-0.75	0.024
175.00	-4.87	-0.56	0.00	-4.44	0.00	4.44	841.76	420.88	728.08	364.58	12.75	-0.76	0.018

180.00	-4.64	-0.54	0.00	-1.62	0.00	1.62	816.11	408.05	676.33	338.67	13.56	-0.77	0.010
183.00	0.00	-0.48	0.00	0.00	0.00	0.00	800.33	400.16	645.87	323.41	14.04	-0.77	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	-50.46	-2.36	0.00	-344.09	0.00	344.09	4,364.17	2,182.08	8,607.44	4,310.12	0.00	0.00	0.069
5.00	-49.77	-2.37	0.00	-332.29	0.00	332.29	4,284.85	2,142.42	8,295.82	4,154.08	0.01	-0.02	0.068
7.00	-48.67	-2.38	0.00	-327.55	0.00	327.55	4,253.12	2,126.56	8,172.78	4,092.46	0.02	-0.02	0.068
10.00	-46.97	-2.38	0.00	-320.43	0.00	320.43	4,205.53	2,102.76	7,989.95	4,000.91	0.03	-0.03	0.068
15.00	-45.29	-2.39	0.00	-308.51	0.00	308.51	4,126.21	2,063.10	7,689.82	3,850.62	0.08	-0.05	0.067
20.00	-44.46	-2.40	0.00	-296.54	0.00	296.54	4,046.89	2,023.44	7,395.44	3,703.21	0.14	-0.07	0.067
22.50	-43.63	-2.40	0.00	-290.54	0.00	290.54	4,007.23	2,003.61	7,250.40	3,630.59	0.17	-0.07	0.066
22.50	-43.63	-2.40	0.00	-290.54	0.00	290.54	4,007.23	2,003.61	7,250.40	3,630.59	0.17	-0.07	0.066
25.00	-42.48	-2.41	0.00	-284.53	0.00	284.53	3,967.57	1,983.78	7,106.80	3,558.68	0.21	-0.08	0.066
28.50	-41.69	-2.41	0.00	-276.11	0.00	276.11	3,912.04	1,956.02	6,908.17	3,459.22	0.28	-0.09	0.066
30.00	-39.06	-2.40	0.00	-272.49	0.00	272.49	3,888.25	1,944.12	6,823.91	3,417.03	0.31	-0.10	0.064
35.00	-37.44	-2.40	0.00	-260.50	0.00	260.50	3,899.62	1,949.81	6,864.12	3,437.16	0.42	-0.12	0.062
40.00	-36.48	-2.40	0.00	-248.51	0.00	248.51	3,820.30	1,910.15	6,586.15	3,297.97	0.56	-0.13	0.061
43.00	-35.84	-2.39	0.00	-241.32	0.00	241.32	3,772.71	1,886.36	6,422.13	3,215.84	0.64	-0.14	0.060
43.00	-35.84	-2.39	0.00	-241.32	0.00	241.32	3,772.71	1,886.36	6,422.13	3,215.84	0.64	-0.14	0.060
45.00	-34.26	-2.38	0.00	-236.53	0.00	236.53	3,740.98	1,870.49	6,313.93	3,161.66	0.71	-0.15	0.060
50.00	-32.70	-2.37	0.00	-224.62	0.00	224.62	3,661.66	1,830.83	6,047.45	3,028.22	0.87	-0.17	0.059
55.00	-31.77	-2.36	0.00	-212.78	0.00	212.78	3,582.34	1,791.17	5,786.72	2,897.66	1.06	-0.18	0.058
58.00	-30.88	-2.35	0.00	-205.70	0.00	205.70	3,534.75	1,767.38	5,633.04	2,820.71	1.17	-0.19	0.057
60.00	-29.34	-2.32	0.00	-201.01	0.00	201.01	3,503.02	1,751.51	5,531.73	2,769.98	1.26	-0.20	0.056
63.50	-28.94	-2.32	0.00	-192.89	0.00	192.89	3,173.44	1,586.72	5,061.87	2,534.70	1.41	-0.21	0.054
65.00	-27.65	-2.29	0.00	-189.41	0.00	189.41	3,152.76	1,576.38	4,994.62	2,501.02	1.48	-0.22	0.053
70.00	-26.36	-2.26	0.00	-177.96	0.00	177.96	3,081.37	1,540.68	4,769.94	2,388.51	1.71	-0.24	0.052
75.00	-25.09	-2.23	0.00	-166.63	0.00	166.63	3,009.98	1,504.99	4,550.42	2,278.59	1.97	-0.25	0.050
80.00	-23.84	-2.20	0.00	-155.46	0.00	155.46	2,938.59	1,469.30	4,336.07	2,171.26	2.25	-0.27	0.049
85.00	-23.10	-2.18	0.00	-144.47	0.00	144.47	2,867.21	1,433.60	4,126.90	2,066.52	2.54	-0.29	0.047
88.00	-22.40	-2.15	0.00	-137.94	0.00	137.94	2,824.37	1,412.19	4,003.88	2,004.91	2.73	-0.30	0.046
90.00	-21.36	-2.11	0.00	-133.64	0.00	133.64	2,795.82	1,397.91	3,922.90	1,964.36	2.86	-0.31	0.045
93.00	-20.91	-2.09	0.00	-127.31	0.00	127.31	2,304.06	1,152.03	3,254.27	1,629.55	3.05	-0.32	0.048
95.00	-19.79	-2.05	0.00	-123.12	0.00	123.12	2,286.90	1,143.45	3,196.90	1,600.83	3.19	-0.33	0.047
100.00	-19.23	-2.02	0.00	-112.89	0.00	112.89	2,243.44	1,121.72	3,054.90	1,529.72	3.54	-0.35	0.045
102.50	-18.82	-2.00	0.00	-107.84	0.00	107.84	2,221.40	1,110.70	2,984.67	1,494.55	3.73	-0.35	0.043
102.50	-18.82	-2.00	0.00	-107.84	0.00	107.84	2,221.40	1,110.70	2,984.67	1,494.55	3.73	-0.35	0.081
105.00	-18.01	-1.96	0.00	-102.83	0.00	102.83	2,198.14	1,099.07	2,913.61	1,458.97	3.92	-0.36	0.079
110.00	-17.22	-1.92	0.00	-93.02	0.00	93.02	2,138.65	1,069.33	2,757.31	1,380.70	4.31	-0.40	0.075
115.00	-16.98	-1.91	0.00	-83.41	0.00	83.41	2,079.16	1,039.58	2,605.31	1,304.59	4.75	-0.43	0.072
116.50	-16.19	-1.86	0.00	-80.54	0.00	80.54	2,061.32	1,030.66	2,560.55	1,282.18	4.88	-0.44	0.071
120.00	-15.96	-1.85	0.00	-74.02	0.00	74.02	2,019.67	1,009.84	2,457.62	1,230.64	5.21	-0.46	0.068
121.00	-15.41	-1.81	0.00	-72.17	0.00	72.17	1,570.79	785.40	1,940.61	971.75	5.31	-0.47	0.084
125.00	-15.13	-1.80	0.00	-64.92	0.00	64.92	1,545.06	772.53	1,864.04	933.41	5.71	-0.49	0.079
127.00	-12.30	-1.57	0.00	-61.32	0.00	61.32	1,531.99	766.00	1,826.09	914.40	5.92	-0.51	0.075
130.00	-11.68	-1.52	0.00	-56.60	0.00	56.60	1,512.16	756.08	1,769.59	886.11	6.25	-0.53	0.072
135.00	-11.07	-1.47	0.00	-48.98	0.00	48.98	1,478.46	739.23	1,676.61	839.55	6.81	-0.56	0.066
140.00	-10.47	-1.42	0.00	-41.61	0.00	41.61	1,443.96	721.98	1,585.19	793.77	7.42	-0.59	0.060
145.00	-10.35	-1.41	0.00	-34.51	0.00	34.51	1,408.39	704.19	1,495.13	748.68	8.05	-0.62	0.053
146.00	-8.83	-1.25	0.00	-33.10	0.00	33.10	1,398.87	699.44	1,474.90	738.54	8.18	-0.62	0.051
149.00	-8.68	-1.24	0.00	-29.35	0.00	29.35	1,370.32	685.16	1,415.01	708.56	8.57	-0.64	0.048
150.00	-8.31	-1.20	0.00	-28.11	0.00	28.11	1,360.80	680.40	1,395.33	698.70	8.71	-0.64	0.046
152.50	-8.09	-1.17	0.00	-25.12	0.00	25.12	947.27	473.64	973.73	487.59	9.05	-0.66	0.060
155.00	-7.65	-1.12	0.00	-22.19	0.00	22.19	936.35	468.18	945.55	473.48	9.39	-0.67	0.055
160.00	-7.21	-1.07	0.00	-16.58	0.00	16.58	913.91	456.96	889.79	445.55	10.11	-0.69	0.045
165.00	-7.04	-1.05	0.00	-11.23	0.00	11.23	890.67	445.33	834.90	418.07	10.84	-0.71	0.035
167.00	-4.00	-0.63	0.00	-9.13	0.00	9.13	881.14	440.57	813.20	407.21	11.14	-0.72	0.027
170.00	-3.94	-0.63	0.00	-7.23	0.00	7.23	866.62	433.31	780.97	391.06	11.59	-0.73	0.023
171.00	-3.65	-0.58	0.00	-6.61	0.00	6.61	861.71	430.86	770.30	385.72	11.75	-0.73	0.021
175.00	-3.37	-0.54	0.00	-4.27	0.00	4.27	841.76	420.88	728.08	364.58	12.36	-0.74	0.016

180.00	-3.21	-0.52	0.00	-1.55	0.00	1.55	816.11	408.05	676.33	338.67	13.14	-0.74	0.009
183.00	0.00	-0.48	0.00	0.00	0.00	0.00	800.33	400.16	645.87	323.41	13.60	-0.74	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):	0.19
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}):	0.20
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	3.14
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)
54	181.50	188	1.859	1.821	1.082	0.362	59	233
53	177.50	320	1.778	1.441	0.940	0.308	85	397
52	173.00	262	1.689	1.081	0.798	0.252	57	326
51	170.50	71	1.641	0.910	0.727	0.223	14	89
50	168.50	216	1.602	0.786	0.673	0.201	38	268
49	166.00	199	1.555	0.646	0.611	0.175	30	247
48	162.50	505	1.490	0.477	0.531	0.141	61	626
47	157.50	513	1.400	0.284	0.432	0.096	43	637
46	153.75	260	1.334	0.171	0.367	0.066	15	323
45	151.25	430	1.291	0.108	0.328	0.048	18	533
44	149.50	173	1.261	0.070	0.303	0.036	5	215
43	147.50	368	1.228	0.033	0.276	0.023	7	456
42	145.50	138	1.195	0.000	0.251	0.011	1	172
41	142.50	698	1.146	-0.040	0.217	-0.005	-3	866
40	137.50	710	1.067	-0.087	0.167	-0.028	-17	881
39	132.50	722	0.991	-0.112	0.127	-0.046	-29	896
38	128.50	439	0.932	-0.121	0.100	-0.056	-21	544
37	126.00	319	0.896	-0.122	0.086	-0.061	-17	396
36	123.00	644	0.854	-0.119	0.071	-0.065	-36	799
35	120.50	262	0.819	-0.115	0.060	-0.067	-15	325
34	118.25	926	0.789	-0.110	0.051	-0.067	-54	1,148
33	115.75	275	0.756	-0.102	0.042	-0.066	-16	341
32	112.50	927	0.714	-0.091	0.033	-0.062	-50	1,150
31	107.50	941	0.652	-0.071	0.022	-0.052	-43	1,168
30	103.75	476	0.607	-0.056	0.015	-0.041	-17	591
29	101.25	647	0.579	-0.045	0.012	-0.033	-18	803
28	97.50	1,305	0.536	-0.030	0.009	-0.018	-20	1,619
27	94.00	526	0.499	-0.016	0.007	-0.004	-2	653
26	91.50	1,207	0.472	-0.006	0.006	0.006	7	1,497
25	89.00	811	0.447	0.003	0.006	0.016	11	1,006
24	86.50	866	0.422	0.011	0.006	0.025	19	1,075
23	82.50	1,458	0.384	0.023	0.007	0.037	47	1,808
22	77.50	1,475	0.339	0.036	0.009	0.049	62	1,830
21	72.50	1,493	0.297	0.046	0.013	0.056	73	1,852

20	67.50	1,511	0.257	0.054	0.016	0.061	79	1,874
19	64.25	457	0.233	0.058	0.019	0.062	25	567
18	61.75	1,796	0.215	0.061	0.021	0.063	98	2,228
17	59.00	1,035	0.196	0.063	0.024	0.063	57	1,285
16	56.50	1,078	0.180	0.065	0.026	0.063	59	1,338
15	52.50	1,816	0.156	0.067	0.029	0.062	98	2,253
14	47.50	1,839	0.127	0.070	0.033	0.061	98	2,282
13	44.00	742	0.109	0.071	0.036	0.061	39	921
12	41.50	1,121	0.097	0.071	0.038	0.060	58	1,390
11	37.50	1,887	0.079	0.072	0.040	0.059	96	2,341
10	32.50	3,056	0.060	0.072	0.041	0.058	153	3,792
9	29.25	926	0.048	0.071	0.042	0.057	46	1,149
8	26.75	1,337	0.040	0.070	0.042	0.056	65	1,659
7	23.75	962	0.032	0.069	0.041	0.055	46	1,194
6	21.25	968	0.025	0.067	0.040	0.054	45	1,201
5	17.50	1,954	0.017	0.062	0.037	0.052	87	2,424
4	12.50	1,978	0.009	0.053	0.031	0.046	79	2,454
3	8.50	1,198	0.004	0.042	0.023	0.039	40	1,486
2	6.00	803	0.002	0.032	0.018	0.032	22	997
1	2.50	1,621	0.000	0.015	0.008	0.017	24	2,012
DragonWave Horizon C	183.00	21	1.890	1.980	1.140	0.383	7	26
Alcatel-Lucent RRH2x	183.00	317	1.890	1.980	1.140	0.383	105	394
Alcatel-Lucent 1900	183.00	180	1.890	1.980	1.140	0.383	60	223
Decibel DB844H90E-XY	183.00	84	1.890	1.980	1.140	0.383	28	104
Nokia 2.5G MAA - AAH	183.00	311	1.890	1.980	1.140	0.383	103	386
DragonWave A-ANT-18G	183.00	54	1.890	1.980	1.140	0.383	18	67
Andrew 844G65VTZASX	183.00	48	1.890	1.980	1.140	0.383	16	60
Andrew 844G65VTZASX	183.00	48	1.890	1.980	1.140	0.383	16	60
Commscope NNVV-	183.00	232	1.890	1.980	1.140	0.383	77	288
Site Pro 1 RMQP-496-	183.00	2,449	1.890	1.980	1.140	0.383	812	3,038
RFS APXV18-206517S-C	171.00	79	1.650	0.943	0.740	0.229	16	98
CCI TPX-070821	167.00	45	1.574	0.700	0.635	0.185	7	56
Commscope WCS-	167.00	30	1.574	0.700	0.635	0.185	5	37
Powerwave Allgon LGP	167.00	85	1.574	0.700	0.635	0.185	14	105
Raycap DC6-48-60-18-	167.00	40	1.574	0.700	0.635	0.185	6	50
Ericsson RRUS 11 (Ba	167.00	132	1.574	0.700	0.635	0.185	21	164
Ericsson RRUS 32 B2	167.00	159	1.574	0.700	0.635	0.185	26	197
Ericsson RRUS-32	167.00	231	1.574	0.700	0.635	0.185	37	287
Powerwave Allgon 777	167.00	105	1.574	0.700	0.635	0.185	17	130
CCI OPA-65R-LCUU-H4	167.00	171	1.574	0.700	0.635	0.185	27	212
Quintel QS66512-2	167.00	333	1.574	0.700	0.635	0.185	53	413
Flat Platform w/ Han	167.00	2,000	1.574	0.700	0.635	0.185	321	2,481
Kathrein Scala Smart	146.00	10	1.203	0.008	0.257	0.014	0	12
Andrew ETW200VS12UB	146.00	33	1.203	0.008	0.257	0.014	0	41
Andrew ETW190VS12UB	146.00	33	1.203	0.008	0.257	0.014	0	41
Andrew SBNHH-1D65A	146.00	123	1.203	0.008	0.257	0.014	2	152
Flat Light Sector Fr	146.00	1,200	1.203	0.008	0.257	0.014	15	1,489
RFS FD9R6004/1C-3L	127.00	19	0.910	-0.122	0.091	-0.059	-1	23
Alcatel-Lucent RRH2X	127.00	138	0.910	-0.122	0.091	-0.059	-7	171
Alcatel-Lucent RRH2X	127.00	132	0.910	-0.122	0.091	-0.059	-7	164
Alcatel-Lucent RRH2x	127.00	132	0.910	-0.122	0.091	-0.059	-7	164
RFS DB-T1-6Z-8AB-0Z	127.00	44	0.910	-0.122	0.091	-0.059	-2	55
RFS DB-T1-6Z-8AB-0Z	127.00	44	0.910	-0.122	0.091	-0.059	-2	55
Andrew HBXX-6516DS-A	127.00	92	0.910	-0.122	0.091	-0.059	-5	114
Andrew LNX-4514DS-A1	127.00	89	0.910	-0.122	0.091	-0.059	-5	110
Antel BXA-80063/6CF	127.00	45	0.910	-0.122	0.091	-0.059	-2	55
Andrew HBXX-6517DS-A	127.00	129	0.910	-0.122	0.091	-0.059	-7	160
Flat Platform w/ Han	127.00	2,000	0.910	-0.122	0.091	-0.059	-103	2,481
Thales PCS VP/360/2	7.00	1	0.003	0.036	0.020	0.035	0	1
Stand-Off	7.00	75	0.003	0.036	0.020	0.035	2	93
		60,345	89.309	35.123	30.446	8.128	3,276	74,873

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)
54	181.50	188	1.859	1.821	1.082	0.362	59	161
53	177.50	320	1.778	1.441	0.940	0.308	85	275
52	173.00	262	1.689	1.081	0.798	0.252	57	225
51	170.50	71	1.641	0.910	0.727	0.223	14	61
50	168.50	216	1.602	0.786	0.673	0.201	38	186
49	166.00	199	1.555	0.646	0.611	0.175	30	171
48	162.50	505	1.490	0.477	0.531	0.141	61	434
47	157.50	513	1.400	0.284	0.432	0.096	43	441
46	153.75	260	1.334	0.171	0.367	0.066	15	223
45	151.25	430	1.291	0.108	0.328	0.048	18	369
44	149.50	173	1.261	0.070	0.303	0.036	5	149
43	147.50	368	1.228	0.033	0.276	0.023	7	316
42	145.50	138	1.195	0.000	0.251	0.011	1	119
41	142.50	698	1.146	-0.040	0.217	-0.005	-3	600
40	137.50	710	1.067	-0.087	0.167	-0.028	-17	610
39	132.50	722	0.991	-0.112	0.127	-0.046	-29	620
38	128.50	439	0.932	-0.121	0.100	-0.056	-21	377
37	126.00	319	0.896	-0.122	0.086	-0.061	-17	274
36	123.00	644	0.854	-0.119	0.071	-0.065	-36	553
35	120.50	262	0.819	-0.115	0.060	-0.067	-15	225
34	118.25	926	0.789	-0.110	0.051	-0.067	-54	795
33	115.75	275	0.756	-0.102	0.042	-0.066	-16	236
32	112.50	927	0.714	-0.091	0.033	-0.062	-50	796
31	107.50	941	0.652	-0.071	0.022	-0.052	-43	809
30	103.75	476	0.607	-0.056	0.015	-0.041	-17	409
29	101.25	647	0.579	-0.045	0.012	-0.033	-18	556
28	97.50	1,305	0.536	-0.030	0.009	-0.018	-20	1,121
27	94.00	526	0.499	-0.016	0.007	-0.004	-2	452
26	91.50	1,207	0.472	-0.006	0.006	0.006	7	1,037
25	89.00	811	0.447	0.003	0.006	0.016	11	697
24	86.50	866	0.422	0.011	0.006	0.025	19	744
23	82.50	1,458	0.384	0.023	0.007	0.037	47	1,252
22	77.50	1,475	0.339	0.036	0.009	0.049	62	1,268
21	72.50	1,493	0.297	0.046	0.013	0.056	73	1,283
20	67.50	1,511	0.257	0.054	0.016	0.061	79	1,298
19	64.25	457	0.233	0.058	0.019	0.062	25	392
18	61.75	1,796	0.215	0.061	0.021	0.063	98	1,543
17	59.00	1,035	0.196	0.063	0.024	0.063	57	890
16	56.50	1,078	0.180	0.065	0.026	0.063	59	926
15	52.50	1,816	0.156	0.067	0.029	0.062	98	1,560
14	47.50	1,839	0.127	0.070	0.033	0.061	98	1,580
13	44.00	742	0.109	0.071	0.036	0.061	39	638
12	41.50	1,121	0.097	0.071	0.038	0.060	58	963
11	37.50	1,887	0.079	0.072	0.040	0.059	96	1,621
10	32.50	3,056	0.060	0.072	0.041	0.058	153	2,626
9	29.25	926	0.048	0.071	0.042	0.057	46	796
8	26.75	1,337	0.040	0.070	0.042	0.056	65	1,149
7	23.75	962	0.032	0.069	0.041	0.055	46	827
6	21.25	968	0.025	0.067	0.040	0.054	45	832
5	17.50	1,954	0.017	0.062	0.037	0.052	87	1,679
4	12.50	1,978	0.009	0.053	0.031	0.046	79	1,699
3	8.50	1,198	0.004	0.042	0.023	0.039	40	1,029
2	6.00	803	0.002	0.032	0.018	0.032	22	690
1	2.50	1,621	0.000	0.015	0.008	0.017	24	1,393
DragonWave Horizon C	183.00	21	1.890	1.980	1.140	0.383	7	18
Alcatel-Lucent RRH2x	183.00	317	1.890	1.980	1.140	0.383	105	273

Alcatel-Lucent 1900	183.00	180	1.890	1.980	1.140	0.383	60	155
Decibel DB844H90E-XY	183.00	84	1.890	1.980	1.140	0.383	28	72
Nokia 2.5G MAA - AAH	183.00	311	1.890	1.980	1.140	0.383	103	267
DragonWave A-ANT-18G	183.00	54	1.890	1.980	1.140	0.383	18	47
Andrew 844G65VTZASX	183.00	48	1.890	1.980	1.140	0.383	16	41
Andrew 844G65VTZASX	183.00	48	1.890	1.980	1.140	0.383	16	41
Commscope NNVV-	183.00	232	1.890	1.980	1.140	0.383	77	200
Site Pro 1 RMQP-496-	183.00	2,449	1.890	1.980	1.140	0.383	812	2,104
RFS APXV18-206517S-C	171.00	79	1.650	0.943	0.740	0.229	16	68
CCI TPX-070821	167.00	45	1.574	0.700	0.635	0.185	7	39
Commscope WCS-	167.00	30	1.574	0.700	0.635	0.185	5	25
Powerwave Allgon LGP	167.00	85	1.574	0.700	0.635	0.185	14	73
Raycap DC6-48-60-18-	167.00	40	1.574	0.700	0.635	0.185	6	34
Ericsson RRUS 11 (Ba	167.00	132	1.574	0.700	0.635	0.185	21	113
Ericsson RRUS 32 B2	167.00	159	1.574	0.700	0.635	0.185	26	137
Ericsson RRUS-32	167.00	231	1.574	0.700	0.635	0.185	37	198
Powerwave Allgon 777	167.00	105	1.574	0.700	0.635	0.185	17	90
CCI OPA-65R-LCUU-H4	167.00	171	1.574	0.700	0.635	0.185	27	147
Quintel QS66512-2	167.00	333	1.574	0.700	0.635	0.185	53	286
Flat Platform w/ Han	167.00	2,000	1.574	0.700	0.635	0.185	321	1,719
Kathrein Scala Smart	146.00	10	1.203	0.008	0.257	0.014	0	9
Andrew ETW200VS12UB	146.00	33	1.203	0.008	0.257	0.014	0	28
Andrew ETW190VS12UB	146.00	33	1.203	0.008	0.257	0.014	0	28
Andrew SBNHH-1D65A	146.00	123	1.203	0.008	0.257	0.014	2	105
Flat Light Sector Fr	146.00	1,200	1.203	0.008	0.257	0.014	15	1,031
RFS FD9R6004/1C-3L	127.00	19	0.910	-0.122	0.091	-0.059	-1	16
Alcatel-Lucent RRH2X	127.00	138	0.910	-0.122	0.091	-0.059	-7	119
Alcatel-Lucent RRH2X	127.00	132	0.910	-0.122	0.091	-0.059	-7	113
Alcatel-Lucent RRH2x	127.00	132	0.910	-0.122	0.091	-0.059	-7	113
RFS DB-T1-6Z-8AB-0Z	127.00	44	0.910	-0.122	0.091	-0.059	-2	38
RFS DB-T1-6Z-8AB-0Z	127.00	44	0.910	-0.122	0.091	-0.059	-2	38
Andrew HBXX-6516DS-A	127.00	92	0.910	-0.122	0.091	-0.059	-5	79
Andrew LNX-4514DS-A1	127.00	89	0.910	-0.122	0.091	-0.059	-5	76
Antel BXA-80063/6CF	127.00	45	0.910	-0.122	0.091	-0.059	-2	38
Andrew HBXX-6517DS-A	127.00	129	0.910	-0.122	0.091	-0.059	-7	111
Flat Platform w/ Han	127.00	2,000	0.910	-0.122	0.091	-0.059	-103	1,719
Thales PCS VP/360/2	7.00	1	0.003	0.036	0.020	0.035	0	1
Stand-Off	7.00	75	0.003	0.036	0.020	0.035	2	64
		60,345	89.309	35.123	30.446	8.128	3,276	51,852

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	-72.86	-3.26	0.00	-431.91	0.00	431.91	4,364.17	2,182.08	8,607.44	4,310.12	0.00	0.00	0.088
5.00	-71.86	-3.26	0.00	-415.59	0.00	415.59	4,284.85	2,142.42	8,295.82	4,154.08	0.01	-0.02	0.087
7.00	-70.28	-3.23	0.00	-409.08	0.00	409.08	4,253.12	2,126.56	8,172.78	4,092.46	0.02	-0.03	0.087
10.00	-67.83	-3.17	0.00	-399.39	0.00	399.39	4,205.53	2,102.76	7,989.95	4,000.91	0.04	-0.04	0.086
15.00	-65.40	-3.10	0.00	-383.55	0.00	383.55	4,126.21	2,063.10	7,689.82	3,850.62	0.10	-0.06	0.085
20.00	-64.20	-3.07	0.00	-368.04	0.00	368.04	4,046.89	2,023.44	7,395.44	3,703.21	0.17	-0.08	0.085
22.50	-63.01	-3.04	0.00	-360.36	0.00	360.36	4,007.23	2,003.61	7,250.40	3,630.59	0.22	-0.09	0.084
22.50	-63.01	-3.04	0.00	-360.36	0.00	360.36	4,007.23	2,003.61	7,250.40	3,630.59	0.22	-0.09	0.084
25.00	-61.35	-2.98	0.00	-352.77	0.00	352.77	3,967.57	1,983.78	7,106.80	3,558.68	0.27	-0.10	0.084
28.50	-60.20	-2.95	0.00	-342.34	0.00	342.34	3,912.04	1,956.02	6,908.17	3,459.22	0.35	-0.12	0.083
30.00	-56.41	-2.80	0.00	-337.92	0.00	337.92	3,888.25	1,944.12	6,823.91	3,417.03	0.39	-0.12	0.081
35.00	-54.06	-2.72	0.00	-323.93	0.00	323.93	3,899.62	1,949.81	6,864.12	3,437.16	0.53	-0.15	0.078
40.00	-52.67	-2.67	0.00	-310.35	0.00	310.35	3,820.30	1,910.15	6,586.15	3,297.97	0.69	-0.17	0.078
43.00	-51.75	-2.64	0.00	-302.35	0.00	302.35	3,772.71	1,886.36	6,422.13	3,215.84	0.80	-0.18	0.077
43.00	-51.75	-2.64	0.00	-302.35	0.00	302.35	3,772.71	1,886.36	6,422.13	3,215.84	0.80	-0.18	0.077
45.00	-49.47	-2.54	0.00	-297.07	0.00	297.07	3,740.98	1,870.49	6,313.93	3,161.66	0.88	-0.19	0.077
50.00	-47.22	-2.46	0.00	-284.35	0.00	284.35	3,661.66	1,830.83	6,047.45	3,028.22	1.09	-0.21	0.076
55.00	-45.88	-2.40	0.00	-272.08	0.00	272.08	3,582.34	1,791.17	5,786.72	2,897.66	1.32	-0.23	0.075
58.00	-44.59	-2.35	0.00	-264.86	0.00	264.86	3,534.75	1,767.38	5,633.04	2,820.71	1.46	-0.24	0.074
60.00	-42.36	-2.25	0.00	-260.16	0.00	260.16	3,503.02	1,751.51	5,531.73	2,769.98	1.57	-0.25	0.073
63.50	-41.80	-2.23	0.00	-252.28	0.00	252.28	3,173.44	1,586.72	5,061.87	2,534.70	1.76	-0.27	0.072
65.00	-39.92	-2.16	0.00	-248.93	0.00	248.93	3,152.76	1,576.38	4,994.62	2,501.02	1.84	-0.27	0.071
70.00	-38.07	-2.09	0.00	-238.14	0.00	238.14	3,081.37	1,540.68	4,769.94	2,388.51	2.14	-0.30	0.070
75.00	-36.24	-2.04	0.00	-227.69	0.00	227.69	3,009.98	1,504.99	4,550.42	2,278.59	2.46	-0.32	0.069
80.00	-34.43	-1.99	0.00	-217.51	0.00	217.51	2,938.59	1,469.30	4,336.07	2,171.26	2.82	-0.35	0.068
85.00	-33.35	-1.98	0.00	-207.55	0.00	207.55	2,867.21	1,433.60	4,126.90	2,066.52	3.20	-0.37	0.068
88.00	-32.35	-1.97	0.00	-201.61	0.00	201.61	2,824.37	1,412.19	4,003.88	2,004.91	3.44	-0.39	0.067
90.00	-30.85	-1.96	0.00	-197.67	0.00	197.67	2,795.82	1,397.91	3,922.90	1,964.36	3.60	-0.40	0.066
93.00	-30.20	-1.96	0.00	-191.79	0.00	191.79	2,304.06	1,152.03	3,254.27	1,629.55	3.86	-0.42	0.072
95.00	-28.58	-1.98	0.00	-187.87	0.00	187.87	2,286.90	1,143.45	3,196.90	1,600.83	4.04	-0.43	0.071
100.00	-27.77	-2.00	0.00	-177.96	0.00	177.96	2,243.44	1,121.72	3,054.90	1,529.72	4.50	-0.46	0.070
102.50	-27.18	-2.02	0.00	-172.95	0.00	172.95	2,221.40	1,110.70	2,984.67	1,494.55	4.74	-0.47	0.069
102.50	-27.18	-2.02	0.00	-172.95	0.00	172.95	2,221.40	1,110.70	2,984.67	1,494.55	4.74	-0.47	0.128
105.00	-26.01	-2.07	0.00	-167.89	0.00	167.89	2,198.14	1,099.07	2,913.61	1,458.97	4.99	-0.49	0.127
110.00	-24.86	-2.14	0.00	-157.53	0.00	157.53	2,138.65	1,069.33	2,757.31	1,380.70	5.53	-0.54	0.126
115.00	-24.52	-2.16	0.00	-146.85	0.00	146.85	2,079.16	1,039.58	2,605.31	1,304.59	6.12	-0.60	0.124
116.50	-23.37	-2.22	0.00	-143.60	0.00	143.60	2,061.32	1,030.66	2,560.55	1,282.18	6.31	-0.61	0.123
120.00	-23.04	-2.24	0.00	-135.84	0.00	135.84	2,019.67	1,009.84	2,457.62	1,230.64	6.78	-0.65	0.122
121.00	-22.24	-2.28	0.00	-133.60	0.00	133.60	1,570.79	785.40	1,940.61	971.75	6.92	-0.66	0.152
125.00	-21.84	-2.30	0.00	-124.49	0.00	124.49	1,545.06	772.53	1,864.04	933.41	7.49	-0.71	0.148
127.00	-17.74	-2.43	0.00	-119.89	0.00	119.89	1,531.99	766.00	1,826.09	914.40	7.80	-0.74	0.143
130.00	-16.85	-2.46	0.00	-112.60	0.00	112.60	1,512.16	756.08	1,769.59	886.11	8.27	-0.78	0.138
135.00	-15.96	-2.49	0.00	-100.29	0.00	100.29	1,478.46	739.23	1,676.61	839.55	9.12	-0.84	0.130
140.00	-15.09	-2.49	0.00	-87.86	0.00	87.86	1,443.96	721.98	1,585.19	793.77	10.04	-0.91	0.121
145.00	-14.92	-2.50	0.00	-75.40	0.00	75.40	1,408.39	704.19	1,495.13	748.68	11.02	-0.97	0.111
146.00	-12.73	-2.44	0.00	-72.91	0.00	72.91	1,398.87	699.44	1,474.90	738.54	11.22	-0.98	0.108
149.00	-12.51	-2.44	0.00	-65.59	0.00	65.59	1,370.32	685.16	1,415.01	708.56	11.85	-1.01	0.102
150.00	-11.98	-2.41	0.00	-63.15	0.00	63.15	1,360.80	680.40	1,395.33	698.70	12.06	-1.02	0.099
152.50	-11.66	-2.40	0.00	-57.12	0.00	57.12	947.27	473.64	973.73	487.59	12.61	-1.05	0.129
155.00	-11.02	-2.35	0.00	-51.13	0.00	51.13	936.35	468.18	945.55	473.48	13.17	-1.08	0.120
160.00	-10.39	-2.29	0.00	-39.38	0.00	39.38	913.91	456.96	889.79	445.55	14.33	-1.14	0.100
165.00	-10.14	-2.26	0.00	-27.94	0.00	27.94	890.67	445.33	834.90	418.07	15.54	-1.18	0.078
167.00	-5.76	-1.59	0.00	-23.43	0.00	23.43	881.14	440.57	813.20	407.21	16.04	-1.20	0.064
170.00	-5.67	-1.58	0.00	-18.65	0.00	18.65	866.62	433.31	780.97	391.06	16.80	-1.22	0.054
171.00	-5.24	-1.50	0.00	-17.07	0.00	17.07	861.71	430.86	770.30	385.72	17.06	-1.23	0.050
175.00	-4.85	-1.41	0.00	-11.07	0.00	11.07	841.76	420.88	728.08	364.58	18.10	-1.25	0.036

180.00	-4.62	-1.34	0.00	-4.03	0.00	4.03	816.11	408.05	676.33	338.67	19.42	-1.26	0.018
183.00	0.00	-1.24	0.00	0.00	0.00	0.00	800.33	400.16	645.87	323.41	20.21	-1.27	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	-50.46	-3.26	0.00	-421.06	0.00	421.06	4,364.17	2,182.08	8,607.44	4,310.12	0.00	0.00	0.082
5.00	-49.77	-3.25	0.00	-404.76	0.00	404.76	4,284.85	2,142.42	8,295.82	4,154.08	0.01	-0.02	0.081
7.00	-48.67	-3.22	0.00	-398.26	0.00	398.26	4,253.12	2,126.56	8,172.78	4,092.46	0.02	-0.03	0.081
10.00	-46.97	-3.15	0.00	-388.62	0.00	388.62	4,205.53	2,102.76	7,989.95	4,000.91	0.04	-0.04	0.080
15.00	-45.29	-3.08	0.00	-372.88	0.00	372.88	4,126.21	2,063.10	7,689.82	3,850.62	0.09	-0.06	0.079
20.00	-44.46	-3.04	0.00	-357.50	0.00	357.50	4,046.89	2,023.44	7,395.44	3,703.21	0.17	-0.08	0.079
22.50	-43.63	-3.00	0.00	-349.90	0.00	349.90	4,007.23	2,003.61	7,250.40	3,630.59	0.21	-0.09	0.078
22.50	-43.63	-3.00	0.00	-349.90	0.00	349.90	4,007.23	2,003.61	7,250.40	3,630.59	0.21	-0.09	0.078
25.00	-42.48	-2.94	0.00	-342.40	0.00	342.40	3,967.57	1,983.78	7,106.80	3,558.68	0.26	-0.10	0.078
28.50	-41.69	-2.90	0.00	-332.10	0.00	332.10	3,912.04	1,956.02	6,908.17	3,459.22	0.34	-0.11	0.077
30.00	-39.06	-2.75	0.00	-327.74	0.00	327.74	3,888.25	1,944.12	6,823.91	3,417.03	0.38	-0.12	0.076
35.00	-37.44	-2.67	0.00	-313.97	0.00	313.97	3,899.62	1,949.81	6,864.12	3,437.16	0.51	-0.14	0.073
40.00	-36.48	-2.62	0.00	-300.63	0.00	300.63	3,820.30	1,910.15	6,586.15	3,297.97	0.67	-0.16	0.072
43.00	-35.84	-2.58	0.00	-292.78	0.00	292.78	3,772.71	1,886.36	6,422.13	3,215.84	0.78	-0.17	0.072
43.00	-35.84	-2.58	0.00	-292.78	0.00	292.78	3,772.71	1,886.36	6,422.13	3,215.84	0.78	-0.17	0.072
45.00	-34.26	-2.49	0.00	-287.62	0.00	287.62	3,740.98	1,870.49	6,313.93	3,161.66	0.85	-0.18	0.071
50.00	-32.70	-2.40	0.00	-275.18	0.00	275.18	3,661.66	1,830.83	6,047.45	3,028.22	1.06	-0.20	0.070
55.00	-31.77	-2.34	0.00	-263.20	0.00	263.20	3,582.34	1,791.17	5,786.72	2,897.66	1.28	-0.22	0.070
58.00	-30.88	-2.29	0.00	-256.17	0.00	256.17	3,534.75	1,767.38	5,633.04	2,820.71	1.42	-0.24	0.069
60.00	-29.34	-2.19	0.00	-251.59	0.00	251.59	3,503.02	1,751.51	5,531.73	2,769.98	1.52	-0.24	0.068
63.50	-28.94	-2.17	0.00	-243.93	0.00	243.93	3,173.44	1,586.72	5,061.87	2,534.70	1.71	-0.26	0.067
65.00	-27.64	-2.09	0.00	-240.67	0.00	240.67	3,152.76	1,576.38	4,994.62	2,501.02	1.79	-0.26	0.066
70.00	-26.36	-2.02	0.00	-230.22	0.00	230.22	3,081.37	1,540.68	4,769.94	2,388.51	2.08	-0.29	0.065
75.00	-25.09	-1.97	0.00	-220.10	0.00	220.10	3,009.98	1,504.99	4,550.42	2,278.59	2.39	-0.31	0.065
80.00	-23.84	-1.92	0.00	-210.27	0.00	210.27	2,938.59	1,469.30	4,336.07	2,171.26	2.73	-0.34	0.064
85.00	-23.10	-1.91	0.00	-200.66	0.00	200.66	2,867.21	1,433.60	4,126.90	2,066.52	3.10	-0.36	0.063
88.00	-22.40	-1.90	0.00	-194.94	0.00	194.94	2,824.37	1,412.19	4,003.88	2,004.91	3.33	-0.38	0.063
90.00	-21.36	-1.89	0.00	-191.15	0.00	191.15	2,795.82	1,397.91	3,922.90	1,964.36	3.49	-0.39	0.062
93.00	-20.91	-1.89	0.00	-185.49	0.00	185.49	2,304.06	1,152.03	3,254.27	1,629.55	3.74	-0.40	0.068
95.00	-19.79	-1.91	0.00	-181.71	0.00	181.71	2,286.90	1,143.45	3,196.90	1,600.83	3.92	-0.41	0.067
100.00	-19.23	-1.93	0.00	-172.16	0.00	172.16	2,243.44	1,121.72	3,054.90	1,529.72	4.36	-0.44	0.065
102.50	-18.82	-1.95	0.00	-167.34	0.00	167.34	2,221.40	1,110.70	2,984.67	1,494.55	4.60	-0.46	0.064
102.50	-18.82	-1.95	0.00	-167.34	0.00	167.34	2,221.40	1,110.70	2,984.67	1,494.55	4.60	-0.46	0.120
105.00	-18.01	-2.00	0.00	-162.46	0.00	162.46	2,198.14	1,099.07	2,913.61	1,458.97	4.84	-0.47	0.120
110.00	-17.21	-2.05	0.00	-152.49	0.00	152.49	2,138.65	1,069.33	2,757.31	1,380.70	5.36	-0.52	0.118
115.00	-16.97	-2.08	0.00	-142.21	0.00	142.21	2,079.16	1,039.58	2,605.31	1,304.59	5.94	-0.58	0.117
116.50	-16.18	-2.13	0.00	-139.09	0.00	139.09	2,061.32	1,030.66	2,560.55	1,282.18	6.12	-0.59	0.116
120.00	-15.95	-2.15	0.00	-131.63	0.00	131.63	2,019.67	1,009.84	2,457.62	1,230.64	6.57	-0.63	0.115
121.00	-15.40	-2.19	0.00	-129.48	0.00	129.48	1,570.79	785.40	1,940.61	971.75	6.71	-0.64	0.143
125.00	-15.12	-2.21	0.00	-120.72	0.00	120.72	1,545.06	772.53	1,864.04	933.41	7.26	-0.69	0.139
127.00	-12.28	-2.35	0.00	-116.30	0.00	116.30	1,531.99	766.00	1,826.09	914.40	7.56	-0.71	0.135
130.00	-11.66	-2.38	0.00	-109.24	0.00	109.24	1,512.16	756.08	1,769.59	886.11	8.02	-0.75	0.131
135.00	-11.05	-2.40	0.00	-97.32	0.00	97.32	1,478.46	739.23	1,676.61	839.55	8.84	-0.82	0.123
140.00	-10.44	-2.41	0.00	-85.30	0.00	85.30	1,443.96	721.98	1,585.19	793.77	9.73	-0.88	0.115
145.00	-10.32	-2.41	0.00	-73.25	0.00	73.25	1,408.39	704.19	1,495.13	748.68	10.68	-0.94	0.105
146.00	-8.80	-2.37	0.00	-70.83	0.00	70.83	1,398.87	699.44	1,474.90	738.54	10.88	-0.95	0.102
149.00	-8.66	-2.36	0.00	-63.73	0.00	63.73	1,370.32	685.16	1,415.01	708.56	11.49	-0.98	0.096
150.00	-8.29	-2.34	0.00	-61.37	0.00	61.37	1,360.80	680.40	1,395.33	698.70	11.69	-0.99	0.094
152.50	-8.06	-2.33	0.00	-55.52	0.00	55.52	947.27	473.64	973.73	487.59	12.22	-1.02	0.122
155.00	-7.62	-2.28	0.00	-49.71	0.00	49.71	936.35	468.18	945.55	473.48	12.76	-1.05	0.113
160.00	-7.19	-2.22	0.00	-38.30	0.00	38.30	913.91	456.96	889.79	445.55	13.89	-1.10	0.094
165.00	-7.01	-2.19	0.00	-27.22	0.00	27.22	890.67	445.33	834.90	418.07	15.07	-1.15	0.073
167.00	-3.98	-1.55	0.00	-22.84	0.00	22.84	881.14	440.57	813.20	407.21	15.55	-1.16	0.061
170.00	-3.92	-1.54	0.00	-18.18	0.00	18.18	866.62	433.31	780.97	391.06	16.29	-1.18	0.051
171.00	-3.62	-1.46	0.00	-16.64	0.00	16.64	861.71	430.86	770.30	385.72	16.54	-1.19	0.047
175.00	-3.35	-1.37	0.00	-10.79	0.00	10.79	841.76	420.88	728.08	364.58	17.55	-1.21	0.034

180.00	-3.19	-1.31	0.00	-3.93	0.00	3.93	816.11	408.05	676.33	338.67	18.82	-1.23	0.016
183.00	0.00	-1.24	0.00	0.00	0.00	0.00	800.33	400.16	645.87	323.41	19.59	-1.23	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	37.84	0.00	72.34	0.00	0.00	4840.47	102.50	0.91
0.9D + 1.6W	36.52	0.00	54.24	0.00	0.00	4663.15	102.50	0.86
1.2D + 1.0Di + 1.0Wi	8.99	0.00	116.38	0.00	0.00	1225.19	121.00	0.27
(1.2 + 0.2Sds) * DL + E ELFM	2.36	0.00	72.86	0.00	0.00	352.30	121.00	0.09
(1.2 + 0.2Sds) * DL + E EMAM	3.26	0.00	72.86	0.00	0.00	431.91	121.00	0.15
(0.9 - 0.2Sds) * DL + E ELFM	2.36	0.00	50.46	0.00	0.00	344.09	121.00	0.08
(0.9 - 0.2Sds) * DL + E EMAM	3.26	0.00	50.46	0.00	0.00	421.06	121.00	0.14
1.0D + 1.0W	8.74	0.00	60.34	0.00	0.00	1124.50	102.50	0.22

Additional Steel Summary

			Intermediate Connectors			Upper Termination Connectors				Lower Termination Connectors				Max Member		
Elev From (ft)	Elev To (ft)	Member	VQ/I (lb/in)	Shear Applied (kips)	Shear phiVn (kips)	MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Pu (kip)	phiPn (kip)	Ratio
0.00	22.5	(4) SOL-#20 All Thre	196.8	3.9	16.8	0.0	12.0	0	0	0.0	12.0	0	0	269.0	343.1	0.784
22.5	43.0	(4) SOL-#20 All Thre	212.9	3.8	16.8	0.0	12.0	0	0	0.0	12.0	0	0	258.7	345.0	0.750
43.0	102.	(4) SOL-#20 All Thre	317.5	9.5	16.8	189.5	12.0	16	16	0.0	12.0	0	0	245.4	330.5	0.743

Base Plate & Anchor Rod Analysis

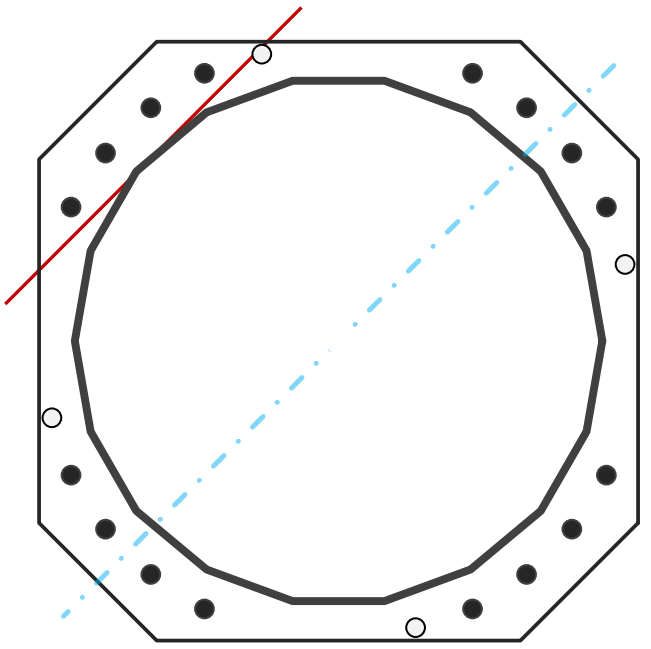
Pole Dimensions		
Number of Sides	18	-
Diameter	48.62	in
Thickness	0.500	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	4840.5	k-ft
Axial, Pu	72.3	k
Shear, Vu	37.8	k
Neutral Axis	45	°

Report Capacities		
Component	Capacity	Result
Base Plate	85%	Pass
Anchor Rods	75%	Pass
Dwyidag	61%	Pass

Base Plate		
Shape	Square	-
Width	56	in
Thickness	2 3/4	in
Grade	A572-50	-
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Clip	11	in
Orientation Offset	0	°
Anchor Rod Detail	c	η=0.55
Clear Distance	N/A	in
Applied Moment, Mu	2211.7	k
Bending Stress, ϕMn	2601.3	k

Original Anchor Rods		
Arrangement	Cluster	-
Quantity	16	-
Diameter, ø	2 1/4	in
Bolt Circle	56	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	0	°
Applied Force, Pu	194.6	k
Anchor Rods, ϕPn	259.8	k



Dywidag Reinforcement		
Quantity	4	-
Bar Size	#20	in
Diameter, ø	2.5	in
Bracket Type	Angle	-
Circle	55.50	in
Orientation Offset	15	°
Applied Force, Pu	238.2	k
Dywidag Bar, ϕPn	392.7	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	37.8	3592.0	0.74
Anchor Rod Forces	37.8	3592.0	0.74
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	1248.5	0.26
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	75.2036	4.1780	0.3500		21773.35
Bolt	3.9761	3.2477	0.8393	4.5	20382.94
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	4.9087	4.9087	1.9175		7567.74
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Square	-
Width, W	56	in
Thickness, t	2.75	in
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Base Plate Chord	27.787	in
Detail Type	c	-
Detail Factor	0.55	-
Clear Distance	N/A	-

External Base Plate		
Chord Length AA	30.576	in
Additional AA	0.000	in
Section Modulus, Z	57.808	in^3
Applied Moment, Mu	2211.7	k-ft
Bending Capacity, ϕMn	2601.3	k-ft
Capacity, Mu/ϕMn	0.850	OK
Chord Length AB	29.826	in
Additional AB	0.000	in
Section Modulus, Z	56.390	in^3
Applied Moment, Mu	1926.4	k-ft
Bending Capacity, ϕMn	2537.5	k-ft
Capacity, Mu/ϕMn	0.759	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	16	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	56	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	194.6	k
Applied Shear, Vu	0.0	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.749	OK
Interaction Capacity	0.749	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	4	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	55.5	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	238.2	k
Compressive Capacity, ϕPn	392.7	k
Capacity, Pu/ϕPn	0.607	OK

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

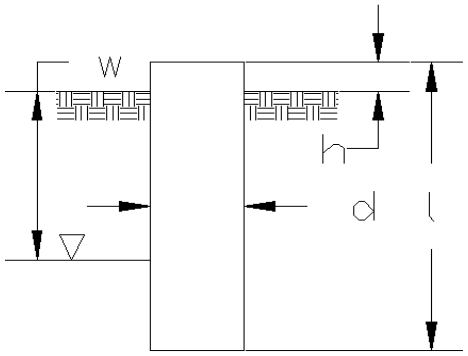
Vertical Weld		
Vert.-to-Stiffener a=e_x/l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Compressive Capacity, ϕPn	#DIV/0!	k
Vert.-to-Plate a=e_x/l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Shear Capacity, ϕVn	#DIV/0!	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$		

Horizontal Weld		
Horz.-to-Stiffener a=e_x/l	0.000	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Effective Fillet	0.000	in
Compressive Capacity, ϕPn	#DIV/0!	k
Horz.-to-Pole a=e_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		

Site Name:	Milford CT 2, CT	*Program Last Updated:*	*5/13/2014*
Site Number:	302535	*American Tower Corporation*	
Engineer:	RDB		
Engineering Number:	OAA719635_C3_05		
Date:	07/05/18		



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

Analyze or Design a Foundation?	Analyze	
Foundation Mapped:	N	
Moment (M):	4840.5	k-ft
Shear/Leg (V):	37.8	k
Axial Load (P):	72.3	k
Uplift/Leg (U):	0.0	k
Tower Type (GT / SST / MP):	MP	
Diameter of Caisson (d):	6.0	ft
Caisson Embedment (L-h):	20.0	ft
Caisson Height Above Ground (h):	0.5	ft
Depth Below Ground Surface to Water Table (w):	99.0	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Water:	62.4	pcf
Tension Skin Friction/Compression Skin Friction:	1.00	
Pullout Angle:	30.0	degrees

Engineer Notes

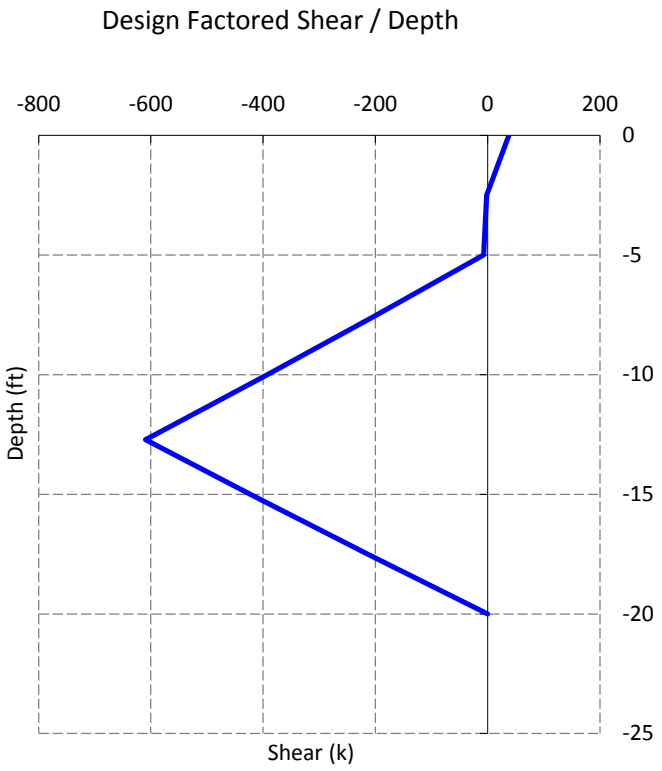
Soil Mechanical Properties

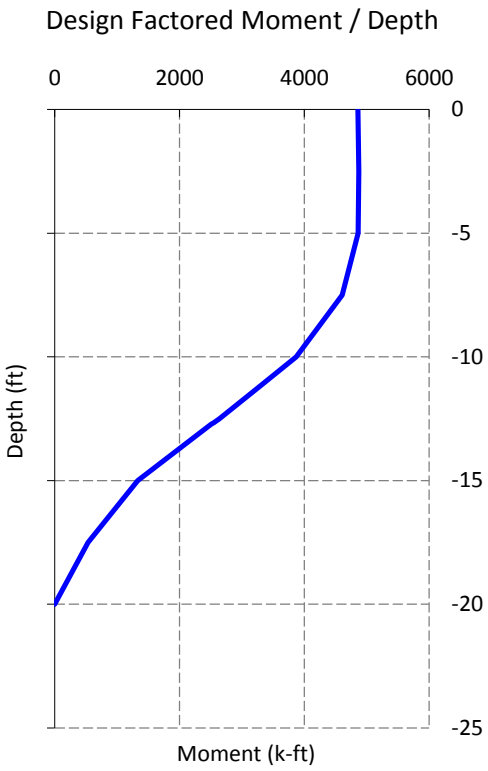
Depth (ft) Top	Depth (ft) Bottom	γ_{Soil} (pcf)	Cohesion (psf)	ϕ (degree)	Ultimate Skin Friction (psf)	Ultimate Bearing Pressure (psf)
0.0	3.5	105	0	0	0	0
3.5	21.0	140	5000	0	2250	69294

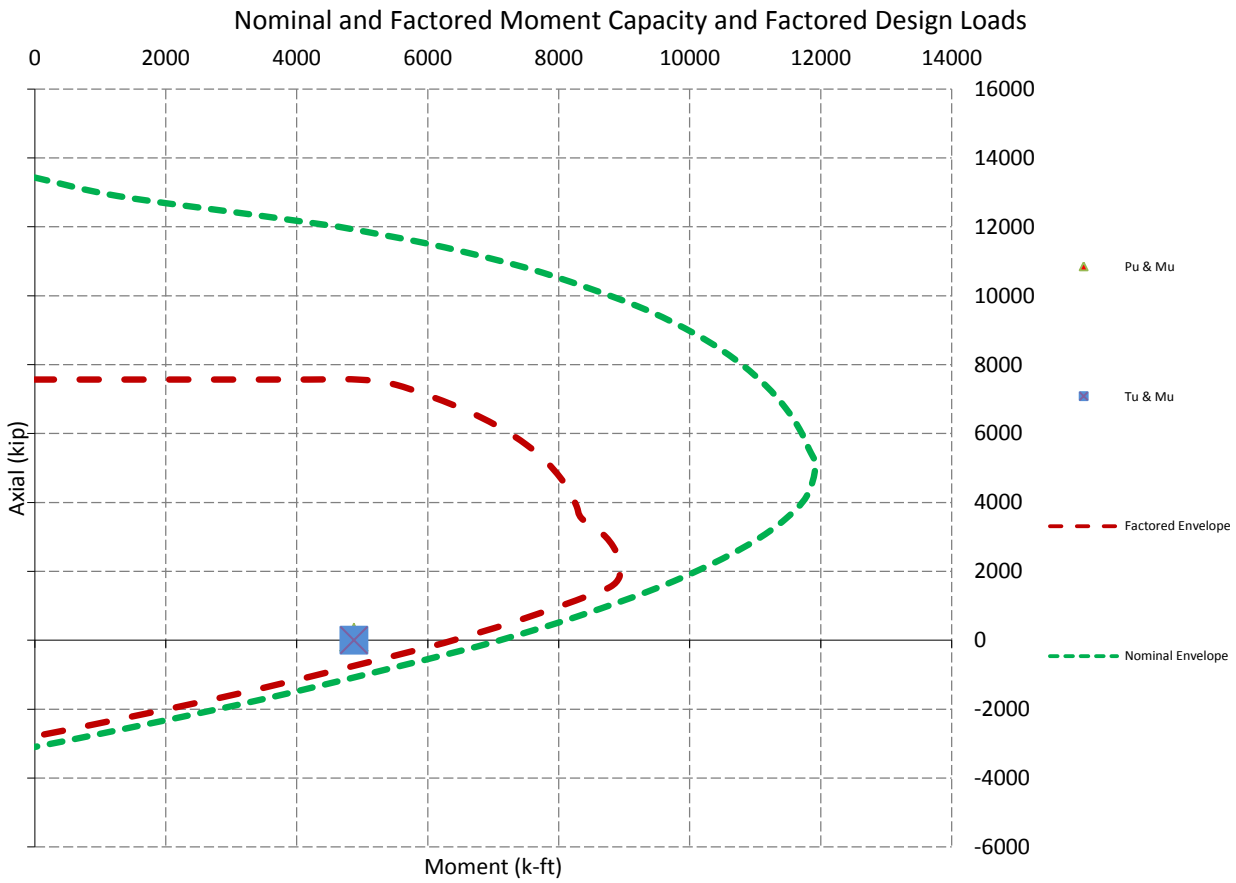
Volume of Concrete:	579.6 ft^3 = 21.5 yd^3	
Weight of Concrete (Buoyancy Effect Considered):	86.9	k
Average Soil Unit Weight:	133.9	pcf
Skin Friction Resistance:	699.8	k
Compressive Bearing Resistance:	1959.2	k
Pullout Weight (Minus Concrete Weight):	665.2	k
Nominal Uplift Capacity per Leg ($\phi_s T_n$):	498.9	k
Nominal Compressive Capacity per Leg ($\phi_s P_n$):	1994.3	k
P_u:	83.3	k
$T_u/\phi_s T_n$:	0.00	Result: OK
$P_u/\phi_s P_n$:	0.04	Result: OK
Total Lateral Resistance:	3454.9	k
Inflection Point (Below Ground Surface):	12.7	ft
Design Overturning Moment At Inflection Point (M_D):	5340.6	k-ft
Nominal Moment Capacity ($\phi_s M_n$):	9794.1	k-ft
$M_D/\phi_s M_n$:	0.55	Result: OK
ϕ_s:	0.75	

Caisson Strength Capacity

Concrete Compressive Strength (f'_c):	3000	psi
Vertical Steel Rebar Size #:	11	
Vertical Steel Rebar Area:	1.56	in^2
# of Vertical Steel Rebars:	33	
Vertical Steel Rebar Yield Strength (F_y):	60	ksi
Horizontal Tie / Stirrup Size #:	4	
Horizontal Tie / Stirrup Area:	0.20	in^2
Design Horizontal Tie / Stirrup Spacing:	12.0	in
Horizontal Tie / Stirrup Steel Yield Strength (F_y):	60	ksi
Rebar Cage Diameter:	64.0	in
Strength Bending/Tension Reduction Factor (ϕ_B):	0.90	ACI318-05 - 9.3.2.1
Strength Shear Reduction Factor (ϕ_V):	0.75	ACI318-05 - 9.3.2.3
Strength Compression Reduction Factor (ϕ_V):	0.65	ACI318-05 - 9.3.2.2
Steel Elastic Modulus:	29000	ksi
Design Moment (M_u):	4873.9	k-ft
Nominal Moment Capacity ($\phi_B M_n$):	6808.9	k-ft - ACI318-005 - 10.2
$M_u/\phi_B M_n$:	0.72	Result: OK
Design Tension (T_u):	0.0	k
Nominal Tension Capacity ($\phi_T T_n$):	2779.9	k - ACI318-05 - 10.2
$T_u/\phi_T T_n$:	0.00	Result: OK
Design Compression (P_u):	83.3	k
Nominal Compression Capacity ($\phi_P P_n$):	5330.6	k - ACI318-05 - 10.3.6.2
$P_u/\phi_P P_n$:	0.02	Result: OK
Bending Reinforcement Ratio:	0.013	ACI318-05 - 10.8.4 & 10.9.1
$M_u/\phi_B M_n + T_u/\phi_T T_n$:	0.72	Result: OK


Design Factored Shear / Depth
-800
-600
-400
-200
0
200
0
-5
-10
-15
-20
-25
Depth (ft)
Shear (k)


Design Factored Moment / Depth
0
2000
4000
6000
0
-5
-10
-15
-20
-25
Depth (ft)
Moment (k-ft)


Nominal and Factored Moment Capacity and Factored Design Loads
0
2000
4000
6000
8000
10000
12000
14000
16000
14000
12000
10000
8000
6000
4000
2000
0
-2000
-4000
-6000
Axial (kip)
Moment (k-ft)
Pu & Mu
Tu & Mu
Factored Envelope
Nominal Envelope

Sprint

PROJECT:	DO MACRO UPGRADE
SITE NAME:	MILFORD CT 2
SITE CASCADE:	CT52XC078
SITE ADDRESS:	185 RESEARCH DR. MILFORD, CT 06460
SITE TYPE:	MONOPOLE TOWER
MARKET:	SOUTHERN CONNECTICUT

SITE INFORMATION

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

LATITUDE (NAD83):
41° 14' 25.5" N
41.240421

LONGITUDE (NAD83):
73° 00' 42.9" W
-73.011902

COUNTY:
NEW HAVEN

ZONING JURISDICTION:
CONNECTICUT SITING COUNCIL

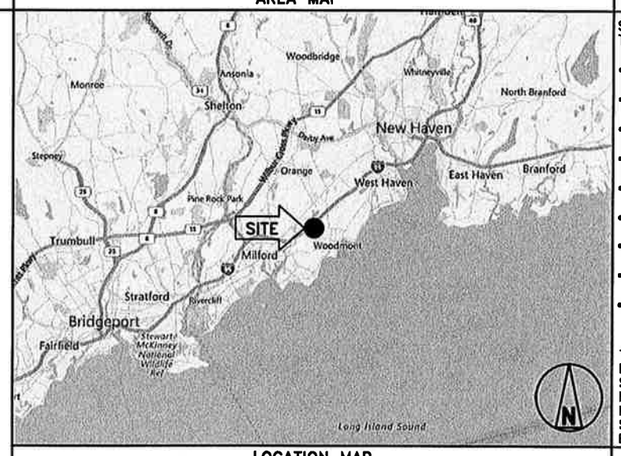
ZONING DISTRICT:
TBD

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

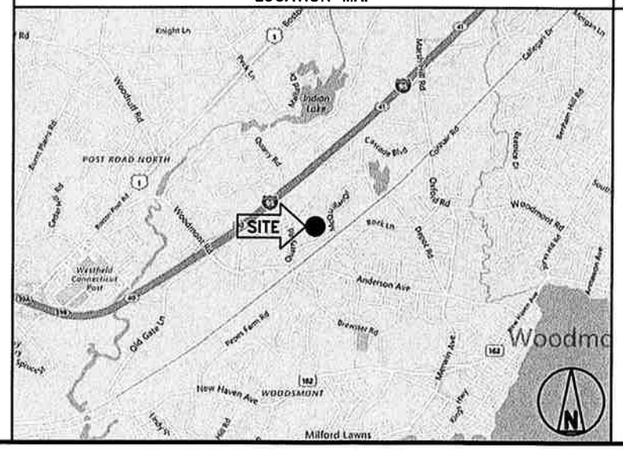
AAV PROVIDER:
TBD

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 AND RRH'S
- INSTALL (6) PANEL ANTENNAS
- INSTALL (3) 1900 RRH'S BEHIND ANTENNAS
- INSTALL (6) 800 RRH'S BEHIND ANTENNAS
- INSTALL (24) JUMPER CABLES
- INSTALL (4) HYBRID CABLES
- REMOVE EXISTING CLEARWIRE GROUND EQUIPMENT
- INSTALL (2) EQUIPMENT CABINETS WITHIN EXISTING LEASE AREA
- INSTALL 7'x7' CONCRETE EQUIPMENT PAD

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

DRAWING INDEX

SHEET NO.	SHEET TITLE	REV.
T-1	TITLE SHEET & PROJECT DATA	0
SP-1	SPRINT SPECIFICATIONS	0
SP-2	SPRINT SPECIFICATIONS	0
SP-3	SPRINT SPECIFICATIONS	0
A-1	SITE PLAN	0
A-2	TOWER ELEVATION	0
A-3	ANTENNA LAYOUT & MOUNTING DETAILS	0
A-4	EQUIPMENT & MOUNTING DETAILS	0
A-5	EQUIPMENT DETAILS	0
A-6	CIVIL DETAILS	0
A-7	PLUMBING DIAGRAM	0
E-1	ONE LINE & NOTES	0
E-2	ELECTRICAL & GROUNDING DETAILS	0
E-3	ELECTRICAL & GROUNDING DETAILS	0

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. 24038
LICENSED PROFESSIONAL ENGINEER
JUL 18 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	06/27/18	MAP	0

SITE NAME:
MILFORD CT 2

SITE NUMBER:
CT52XC078

SITE ADDRESS:
185 RESEARCH DR.
MILFORD, CT 06460

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:

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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
1/8/2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	06/27/18	MAP	0

SITE NAME:

MILFORD CT 2

SITE NUMBER:

CT52XC078

SITE ADDRESS:

185 RESEARCH DR.
MILFORD, CT 06460

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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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.
ISSUED FOR PERMIT	06/27/18	MAP	0

SITE NAME:

MILFORD CT 2

SITE NUMBER:

CT52XC078

SITE ADDRESS:

185 RESEARCH DR.
MILFORD, CT 06460

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.

PLANS PREPARED FOR:

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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. 24705
REGISTERED PROFESSIONAL ENGINEER
Jul. 18 2018

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	06/27/18	MAP	0

SITE NAME:

MILFORD CT 2

SITE NUMBER:

CT52XC078

SITE ADDRESS:

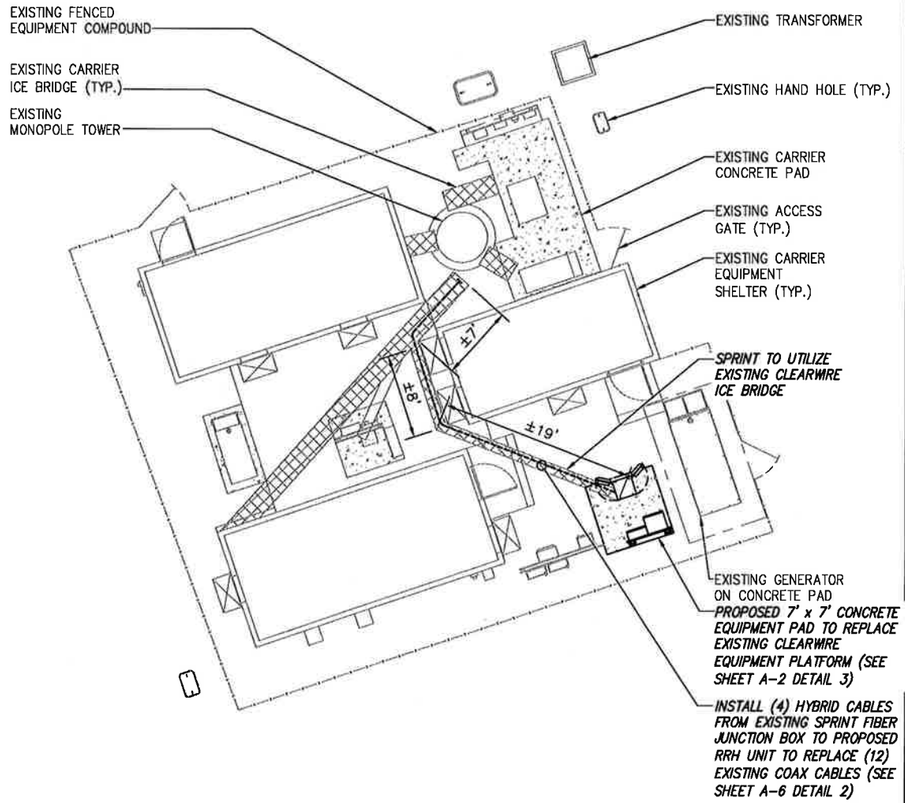
185 RESEARCH DR.
MILFORD, CT 06460

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.

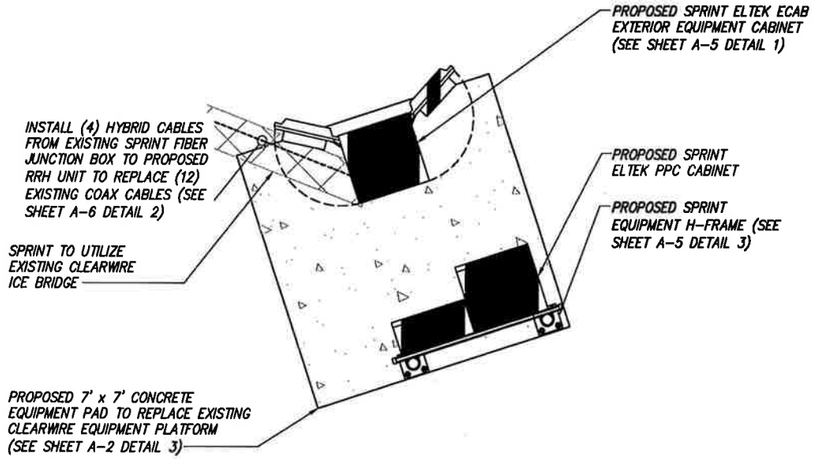
N

GRAPHIC SCALE:

15' 7.5' 0 7.5' 15'

SCALE (11x17): 1" = 15'-0"
SCALE (22x34): 1" = 7'-6"

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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No. 21705
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SITE NUMBER:

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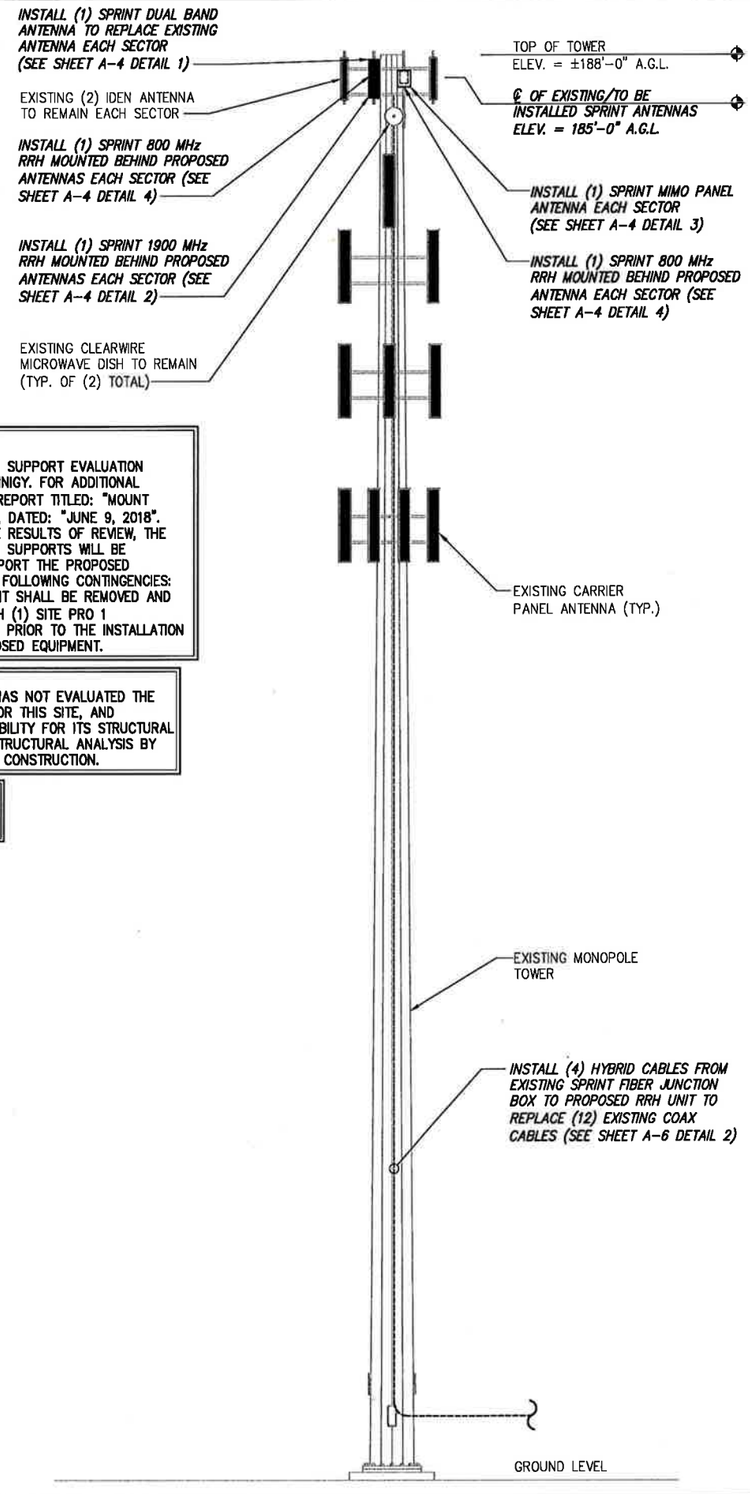
185 RESEARCH DR.
MILFORD, CT 06460

SHEET DESCRIPTION:

SITE PLAN

SHEET NUMBER:

A-1



NOTE:
- ANTENNA AND RRH SUPPORT EVALUATION COMPLETED BY INFINIGY. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "MOUNT ANALYSIS REPORT", DATED: "JUNE 9, 2018". ACCORDING TO THE RESULTS OF REVIEW, THE ANTENNA AND RRH SUPPORTS WILL BE ADEQUATE TO SUPPORT THE PROPOSED LOADING WITH THE FOLLOWING CONTINGENCIES:
  - EXISTING MOUNT SHALL BE REMOVED AND REPLACED WITH (1) SITE PRO 1 RMQP-496-HL PRIOR TO THE INSTALLATION OF THE PROPOSED EQUIPMENT.

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

TOWER ELEVATION | NO SCALE | 1

SITE LOADING CHART

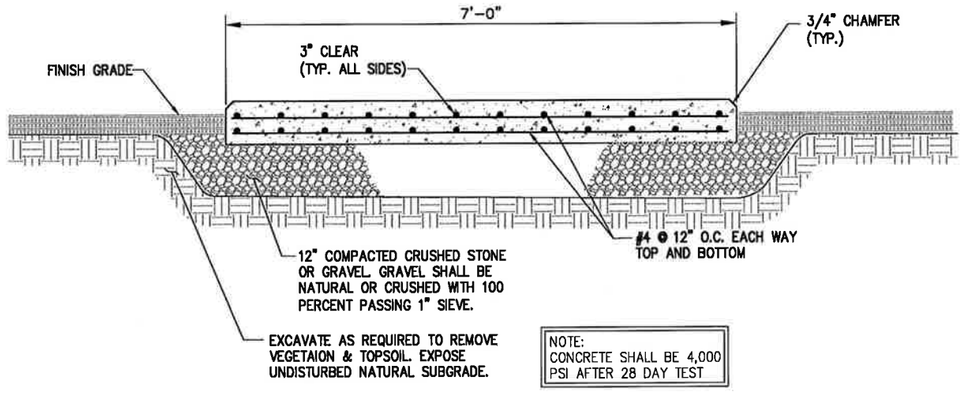
SECTOR	EXISTING/ PROPOSED	ANTENNA MODEL #	VENDOR	AZIMUTH	QTY.	REMAIN/ REMOVED	RRH (QTY/MODEL)	CABLE	CABLE LENGTH	RAD CENTER
ALPHA	PROPOSED	NNVV-65B-R4	COMMSCOPE	30°	1	-	(2) 800 MHZ 2X50W RRH (1) 1900 MHz 4X45 RRH	SEE SHEET A-5 DETAIL 1	±240'*	±185' AGL
	PROPOSED	2.5G MAA - AAHC (64T64R)	NOKIA	30°	1	-		SEE SHEET A-5 DETAIL 1		
	EXISTING	LLPX3105	ARGUS	30°	1	REMOVE		EXISTING COAX		
	EXISTING	B44G65VTZASX	ANDREW	30°	1	REMAIN		EXISTING COAX		
	EXISTING	DB844H90E-XY	DECIBEL	30°	1	REMAIN		EXISTING COAX		
BETA	PROPOSED	NNVV-65B-R4	COMMSCOPE	150°	1	-	(2) 800 MHZ 2X50W RRH (1) 1900 MHz 4X45 RRH	SEE SHEET A-5 DETAIL 1		±185' AGL
	PROPOSED	2.5G MAA - AAHC (64T64R)	NOKIA	150°	1	-		SEE SHEET A-5 DETAIL 1		
	EXISTING	LLPX3105	ARGUS	150°	1	REMOVE		EXISTING COAX		
	EXISTING	B44G65VTZASX	ANDREW	150°	1	REMAIN		EXISTING COAX		
	EXISTING	DB844H90E-XY	DECIBEL	150°	1	REMAIN		EXISTING COAX		
GAMMA	PROPOSED	NNVV-65B-R4	COMMSCOPE	270°	1	-	(2) 800 MHZ 2X50W RRH (1) 1900 MHz 4X45 RRH	SEE SHEET A-5 DETAIL 1		±185' AGL
	PROPOSED	2.5G MAA - AAHC (64T64R)	NOKIA	270°	1	-		SEE SHEET A-5 DETAIL 1		
	EXISTING	LLPX3105	ARGUS	270°	1	REMOVE		EXISTING COAX		
	EXISTING	B44G65VTZASX	ANDREW	270°	1	REMAIN		EXISTING COAX		
	EXISTING	DB844H90E-XY	DECIBEL	270°	1	REMAIN		EXISTING COAX		

PROJECT SCOPE:

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



EQUIPMENT CABINET FOUNDATION | NO SCALE | 3

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OFFICE#. (518) 306-3740

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
JUL 31 2018
LICENSED PROFESSIONAL ENGINEER

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REVISIONS:

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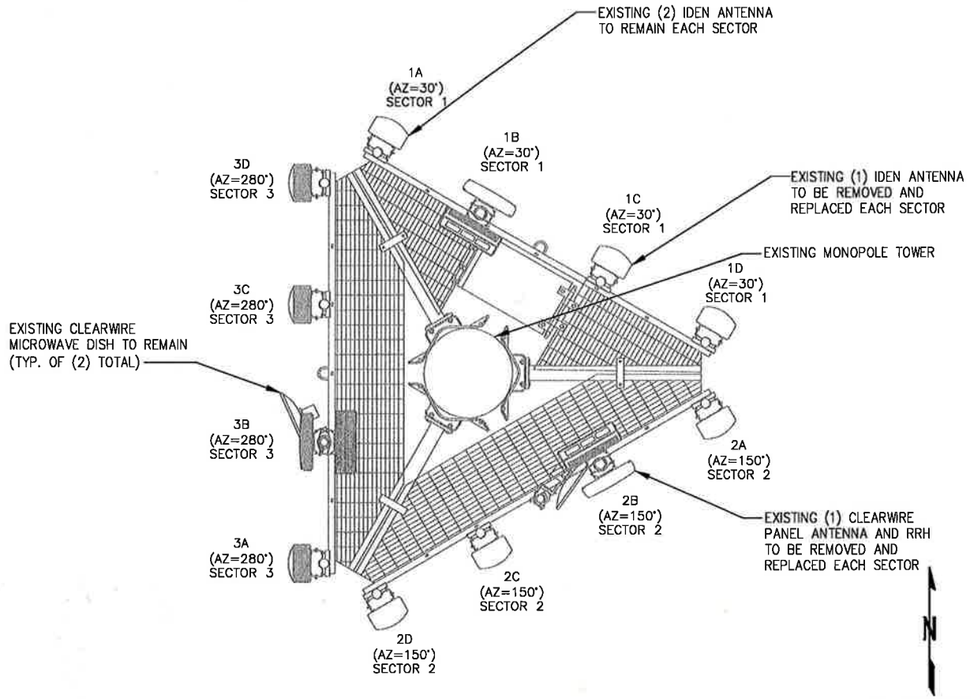
SITE NUMBER:
CT52XC078

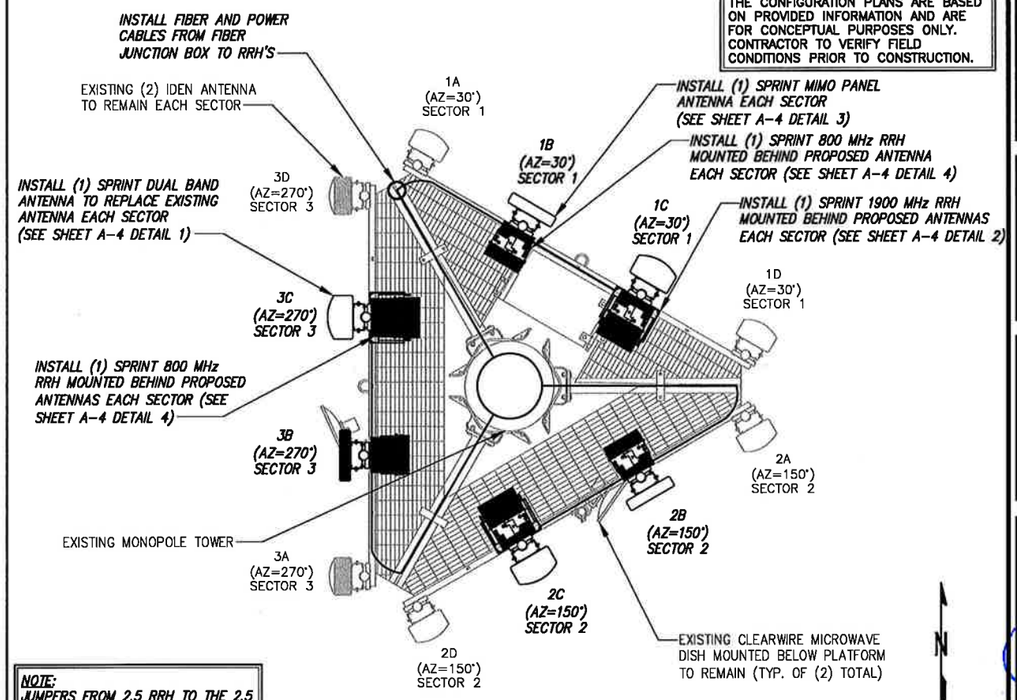
SITE ADDRESS:
185 RESEARCH DR.
MILFORD, CT 06460

SHEET DESCRIPTION:
TOWER ELEVATION

SHEET NUMBER:
A-2



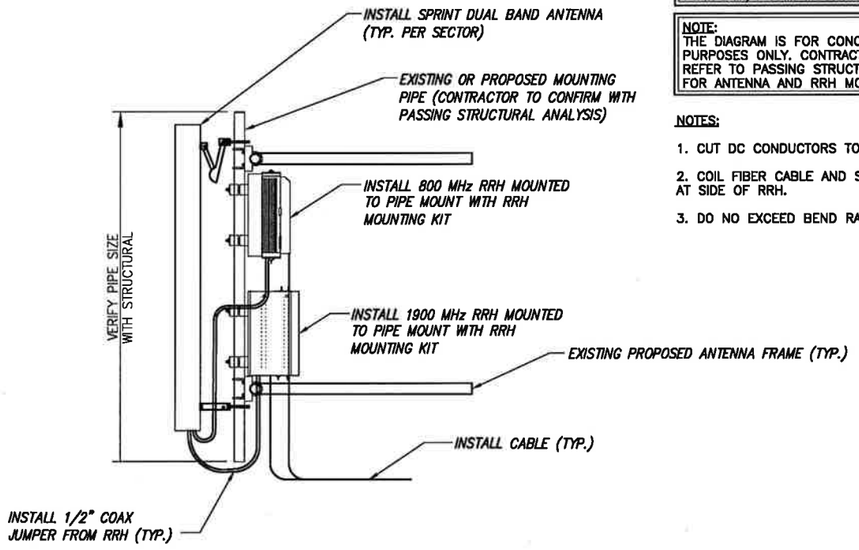
EXISTING ANTENNA & RRH LAYOUT | NO SCALE | 1



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 & RRH LAYOUT | NO SCALE | 2



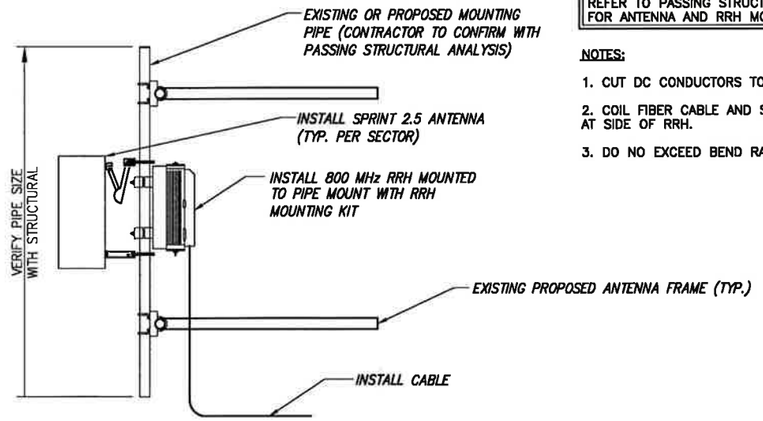
NOTE:
CONTRACTOR TO POSITION RRH ON MOUNT BEHIND ANTENNA SUCH THAT THE RRH DOES NOT INTERFERE WITH THE EXISTING PLATFORM/T-ARM MOUNTING HARDWARE.

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 DUAL BAND ANTENNA & MOUNTING DETAIL | NO SCALE | 3



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

NOTE:
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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 | 4

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OFFICE#. (518) 306-3740

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24006
PROFESSIONAL ENGINEER
JUL 18 2018

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SITE NUMBER:
CT52XC078

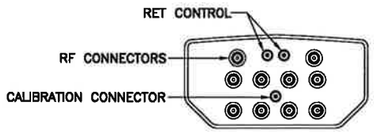
SITE ADDRESS:
185 RESEARCH DR.
MILFORD, CT 06460

SHEET DESCRIPTION:
ANTENNA LAYOUT & MOUNTING DETAILS

SHEET NUMBER:
A-3

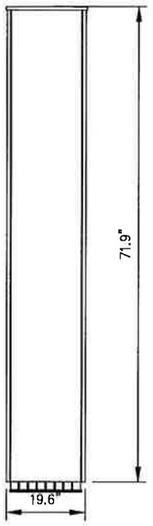
ANTENNA COMMSCOPE NNVV-65B-R4

RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mim):	71.9"x19.6"x7.8" (1826x498x198mm)
WEIGHT:	77.4 lbs
CONNECTORS:	(2) 7/16" DIN FEMALE
	(8) 4.1/9.5 DIN FEMALE



PLAN VIEW

SIDE VIEW

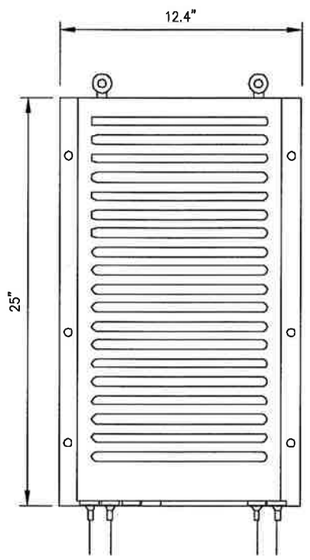


FRONT VIEW

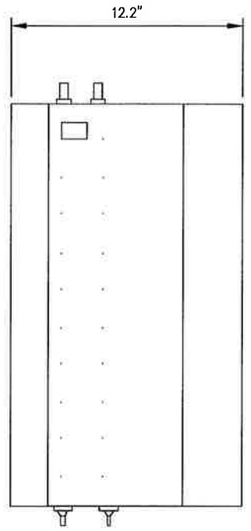
DUAL BAND ANTENNA	NO SCALE	1

RRH: ALCATEL LUCENT 1900 MHz

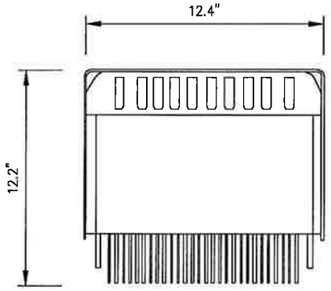
COLOR: LIGHT GREY
WEIGHT: 70 LBS.
(INCLUDING OPTIONAL SOLAR SHIELD)



FRONT VIEW



SIDE VIEW

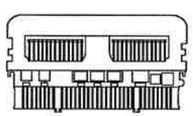


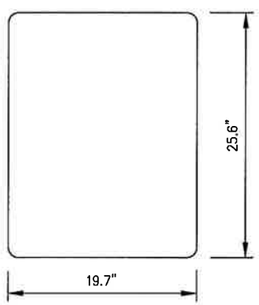
TOP VIEW

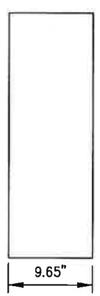
1900 MHz RRH	NO SCALE	2

ANTENNA NOKIA AAHC

RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mim):	25.6"x19.7"x9.9" (651x501x245mm)
WEIGHT:	99.2 lbs
CONNECTORS:	(2) 7/16" DIN FEMALE
	(8) 4.1/9.5 DIN FEMALE



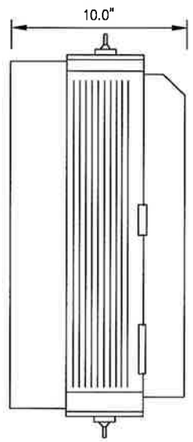




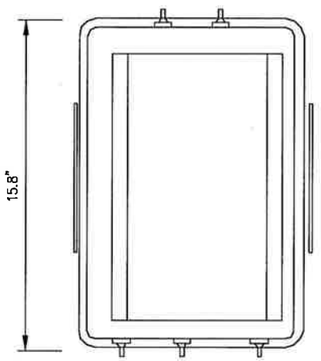
2.5 ANTENNA DETAIL	NO SCALE	3

RRH: ALCATEL LUCENT RRH 800 MHz 2x50W

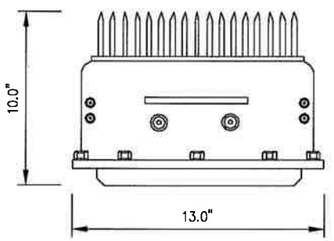
COLOR: LIGHT GREY
WEIGHT: 53 LBS.



SIDE VIEW



FRONT VIEW



PLAN VIEW

800 MHz RRH	NO SCALE	4

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.

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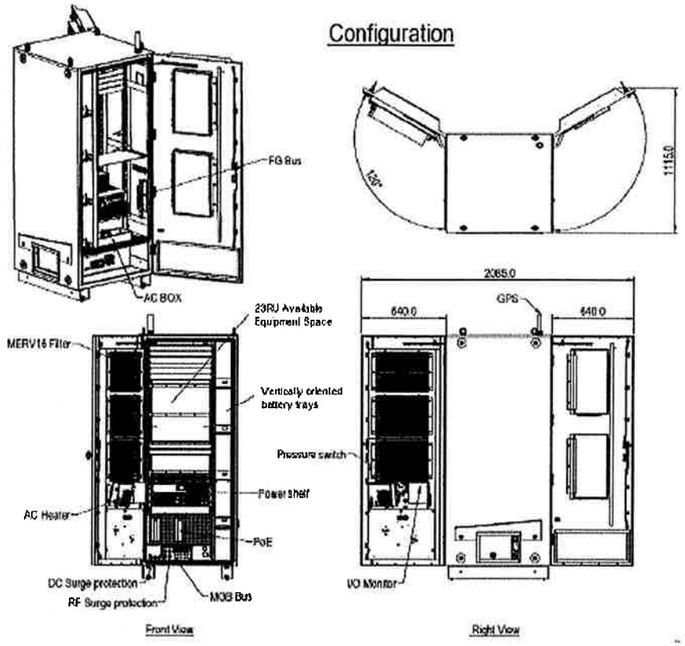
MILFORD, CT 06460

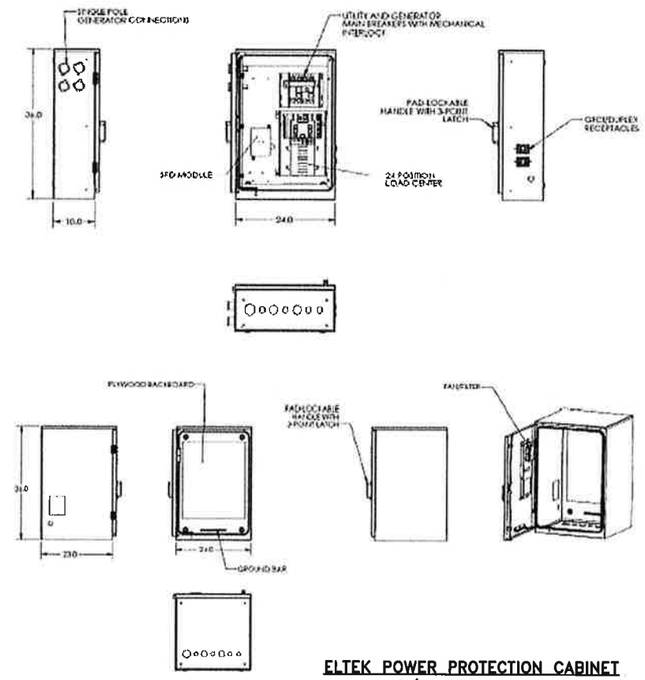
SHEET DESCRIPTION:
EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:
A-4



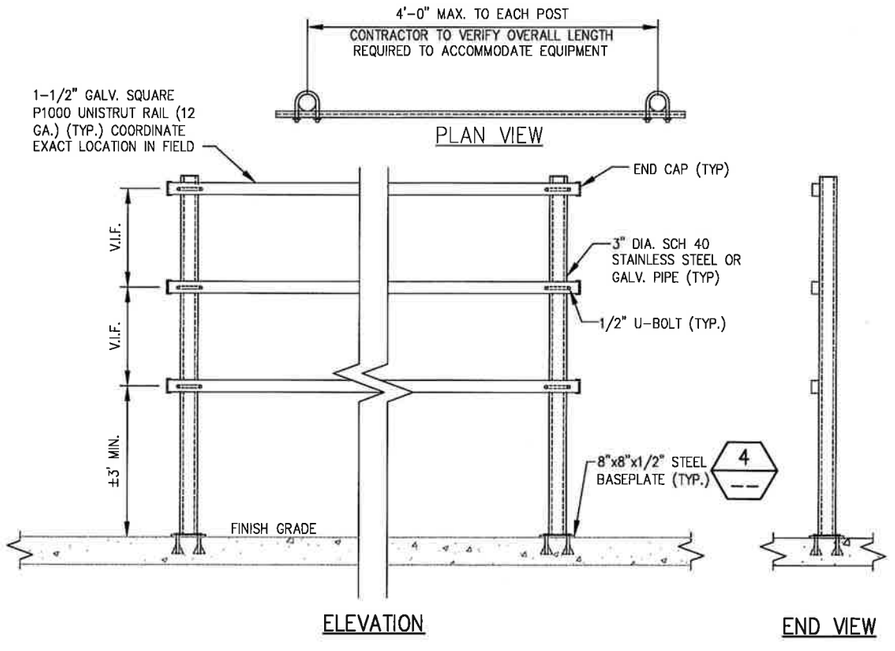
ELTEK ECAB EXTERIOR CABINET
P/N: ESOA220-SCA02

EQUIPMENT CABINET DETAIL	NO SCALE	1

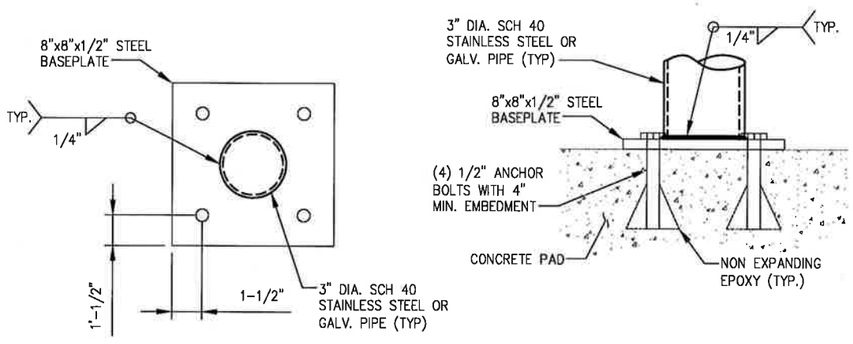


ELTEK POWER PROTECTION CABINET
P/N: 5811122212

EQUIPMENT CABINET DETAIL	NO SCALE	2



H-FRAME DETAIL	NO SCALE	3



SUPPORT POST MOUNTING DETAIL	NO SCALE	4

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LICENSED
JUL 18 2018

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185 RESEARCH DR.
MILFORD, CT 06460

SHEET DESCRIPTION:
EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:
A-5

RFS HYBRIFLEX RISER CABLE SCHEDULE

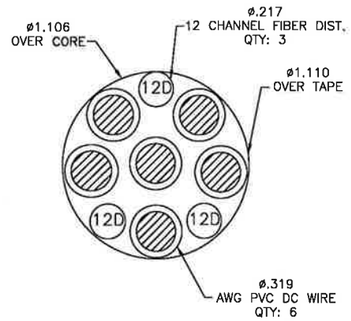
Fiber Only (Existing DC Power)	**Hybrid cable** MN: HB058-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 5/8 cable, 50 ft	50 ft
	MN: HB058-M12-075F	75 ft
	MN: HB058-M12-100F	100 ft
	MN: HB058-M12-125F	125 ft
	MN: HB058-M12-150F	150 ft
	MN: HB058-M12-175F	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
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 (4)*
	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

RFS HYBRIFLEX JUMPER CABLE SCHEDULE

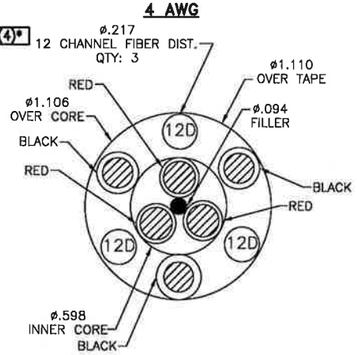
Fiber Only	**Hybrid Jumper cable** MN: HBF012-M3-5F1 5 ft, 3x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft
	MN: HBF012-M3-10F1	10 ft
	MN: HBF012-M3-15F1	15 ft
	MN: HBF012-M3-20F1	20 ft
	MN: HBF012-M3-25F1	25 ft
	MN: HBF012-M3-30F1	30 ft
8 AWG Power	**Hybrid Jumper cable** MN: HBF058-08U1M3-5F1 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

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.

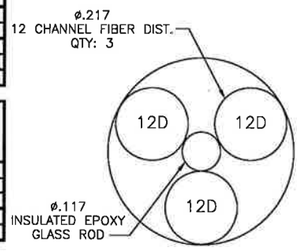
* PROPOSED CABLE LENGTH WAS DETERMINED USING THE SUM OF THE RAD CENTER OF ANTENNAS, AND DISTANCE FROM EXISTING EQUIPMENT AREA TO TOWER BASE WITH AN ADDITIONAL 20' BUFFER. LENGTH TO BE VERIFIED IN FIELD PRIOR TO ORDERING MATERIALS.



4 AWG

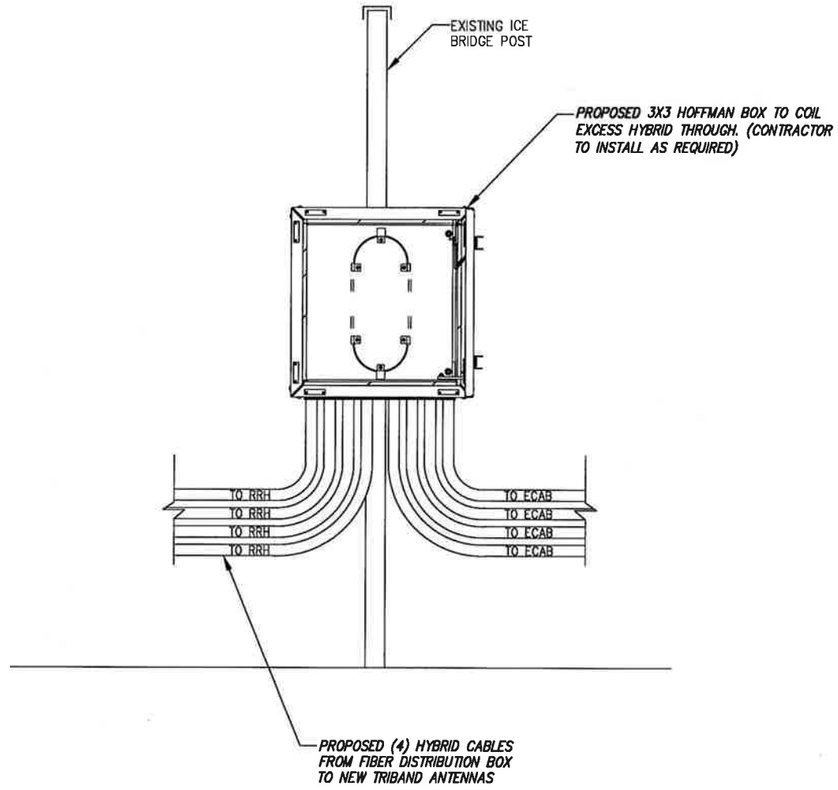


8 & 6 AWG



FIBER ONLY

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



OPTIONAL HYBRID SLACK BOX | NO SCALE | 2

DETAIL NOT USED | NO SCALE | 3

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ENGINEERING LICENSE:
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JOHN S. STEVENS
No. 18720
LICENSED PROFESSIONAL ENGINEER
JUL 18 2018

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CIVIL DETAILS

SHEET NUMBER:
A-6

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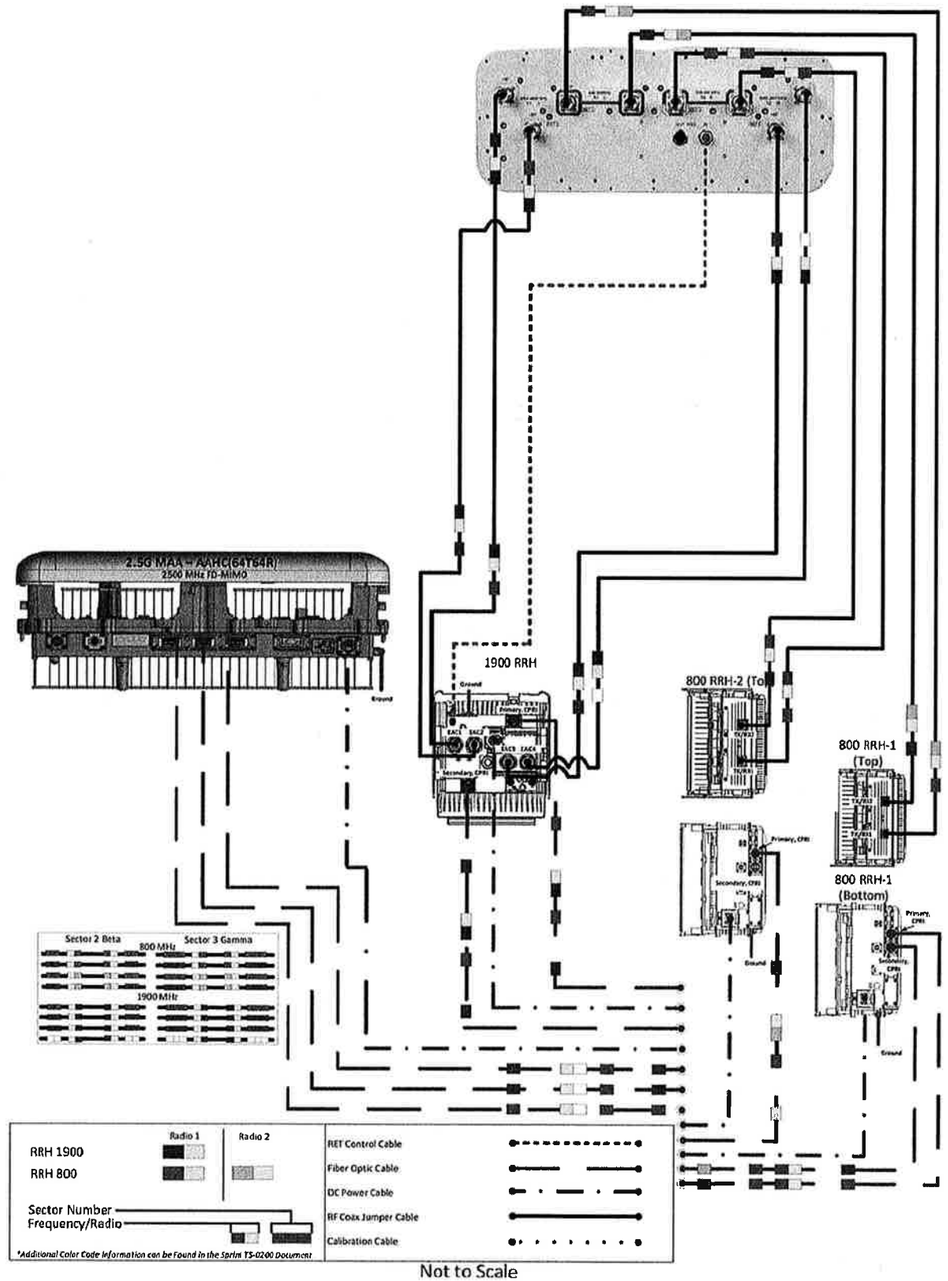

Not to Scale

PLUMBING DIAGRAM | NO SCALE | 1

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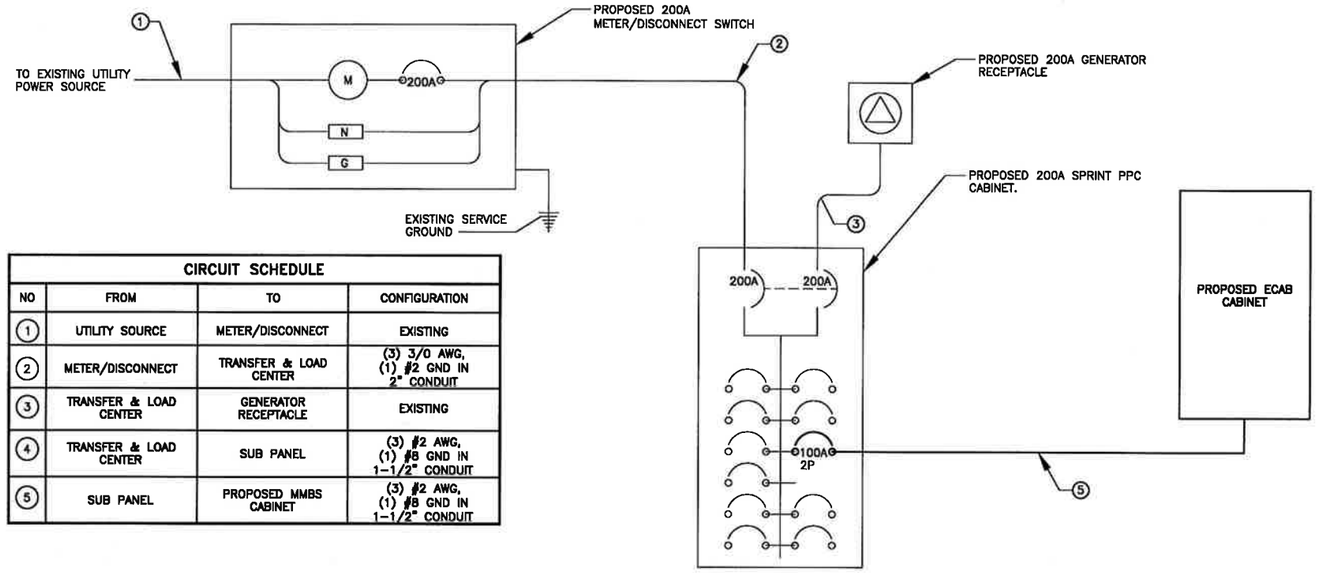
PLUMBING DIAGRAM

SHEET NUMBER:

A-7



CIRCUIT SCHEDULE			
NO	FROM	TO	CONFIGURATION
1	UTILITY SOURCE	METER/DISCONNECT	EXISTING
2	METER/DISCONNECT	TRANSFER & LOAD CENTER	(3) 3/0 AWG, (1) #2 GND IN 2" CONDUIT
3	TRANSFER & LOAD CENTER	GENERATOR RECEPTACLE	EXISTING
4	TRANSFER & LOAD CENTER	SUB PANEL	(3) #2 AWG, (1) #8 GND IN 1-1/2" CONDUIT
5	SUB PANEL	PROPOSED MMBS CABINET	(3) #2 AWG, (1) #8 GND IN 1-1/2" CONDUIT

ONE LINE DIAGRAM | NO SCALE | 1

GENERAL ELECTRICAL NOTES:

1. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF THE NATIONAL ELECTRICAL CODE AND ALL LOCAL AND STATE CODES, LAWS, AND ORDINANCES.
2. ALL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40 UNLESS OTHERWISE INDICATED. CONDUITS EXPOSED ABOVE GROUND SHALL BE RIGID GALVANIZED STEEL. ALL UNDERGROUND CONDUIT SHALL TRANSITION FROM PVC TO RIGID ABOVE GRADE. PROVIDE 36" SEPARATION BETWEEN UNDERGROUND POWER AND TELEPHONE CONDUITS. SUPPLY UTILITY MARKING TAPE BURIED 12" BELOW GRADE ALONG ENTIRE LENGTH OF UNDERGROUND CONDUITS.
3. ALL CONDUCTORS SHALL BE COPPER WITH THHN/THWN INSULATION. CONTROL CONDUCTORS SHALL BE STRANDED, POWER & LIGHTING CONDUCTORS SHALL BE SOLID FOR #10 & #12 CONDUCTORS AND STRANDED FOR ALL OTHER SIZES.
4. ELECTRICAL DRAWINGS ARE IN PART DIAGRAMMATIC. COORDINATE ELECTRICAL WORK WITH SITE CONDITIONS.
5. LOCATE ALL UNDERGROUND UTILITIES BEFORE TRENCHING. IF CONFLICTS ARISE, CONTACT UTILITY COMPANY AND ENGINEER IMMEDIATELY.
6. ALL EXPOSED CONDUITS SHALL HAVE WEATHERPROOF CAPS NOT DUCT TAPE.
7. PROVIDE 200 LB TEST PULL WIRES IN EACH TELEPHONE AND POWER CONDUIT.
8. PULL BOXES SHALL BE INSTALLED AS NEEDED PER NEC UTILITY REQUIREMENTS.

ELECTRICAL NOTES | NO SCALE | 2

GENERAL GROUNDING NOTES:

1. TO ENSURE PROPER BONDING, ALL CONNECTIONS SHALL BE AS FOLLOWS:
   - #2/0 BARE TINNED SOLID COPPER CONDUCTOR: CADWELD TO RODS OR GROUND RING
   - LUGS AND BUS BAR (UNLESS NOTED OTHERWISE): SANDED CLEAN, COATED WITH OXIDE INHIBITOR AND BOLTED FOR MAXIMUM SURFACE CONTACT. ALL LUGS SHALL BE COPPER (NO ALUMINUM SHALL BE PERMITTED). PROVIDE LOCK WASHERS FOR ALL MECHANICAL CONNECTIONS FOR GROUND CONDUCTORS. USE STAINLESS STEEL HARDWARE THROUGHOUT.
2. ALL GROUNDING CABLE IN CONCRETE OR THROUGH WALLS SHALL BE IN 3/4" PVC CONDUIT. SEAL AROUND CONDUIT THROUGH WALLS. NO METALLIC CONDUIT SHALL BE USED FOR GROUNDING CONDUCTORS.
3. OWNER'S REPRESENTATIVE WILL INSPECT CADWELDS AND CONDUCT MEGGER TEST PRIOR TO BURIAL. MAXIMUM 5 OHMS RESISTANCE IS REQUIRED.
4. DO NOT INSTALL GROUND RING OUTSIDE OF LEASED AREA.
5. MAKE ALL GROUND CONNECTIONS AS SHORT AND DIRECT AS POSSIBLE. AVOID SHARP BENDS. ALL BENDS SHALL BE A MINIMUM 8" RADIUS AND NO GREATER THAN 90 DEGREES.
6. ALL CADWELDS TO BURIED GROUND RING SHALL BE THE PARALLEL TYPE, EXCEPT FOR THE GROUND RODS WHICH SHALL BE THE TEE TYPE.
7. BOND SERVICE CONDUITS TO GROUND RING AS THEY CROSS. DO NOT EXOTHERMICALLY WELD TO CONDUITS.
8. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER WHEN THE GROUNDING SYSTEM IS COMPLETE. THE CONSTRUCTION MANAGER SHALL INSPECT THE GROUNDING SYSTEM PRIOR TO BACKFILLING.
9. THE MINIMUM SPACING BETWEEN GROUND RODS SHALL BE 10'-0" (MAX. 15'-0").
10. BOND CIGBE TO EXTERNAL GROUND RING WITH 2 RUNS OF #2 BARE, TINNED, SOLID COPPER CONDUCTOR IN PVC. CONNECT BAR END WITH 2 HOLE LUG, AND "CADWELD" THE OTHER END TO THE EXTERNAL GROUND ROD.
11. THE PREFERRED LOCATION FOR COAX GROUNDING IS AT THE BASE OF THE TOWER PRIOR TO THE COAX BEND. BONDING IS SHOWN ON THE ICE BRIDGE DUE TO DIFFICULTY WITH WELDING OR ATTACHING TO TOWER LEGS. CONTRACTOR SHALL ADVISE CONSTRUCTION MANAGER PRIOR TO PLACING CIGBE ON ICE BRIDGE IF MOUNTING TO TOWER LEG IS POSSIBLE.
12. BONDING OF THE GROUNDED CONDUCTOR (NEUTRAL) AND THE GROUNDING CONDUCTOR SHALL BE AT THE SERVICE DISCONNECTING MEANS. BONDING JUMPER SHALL BE INSTALLED PER N.E.C. ARTICLE 250-30.

GROUNDING NOTES | NO SCALE | 3

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OFFICE#, (518) 306-3740

ENGINEERING LICENSE:
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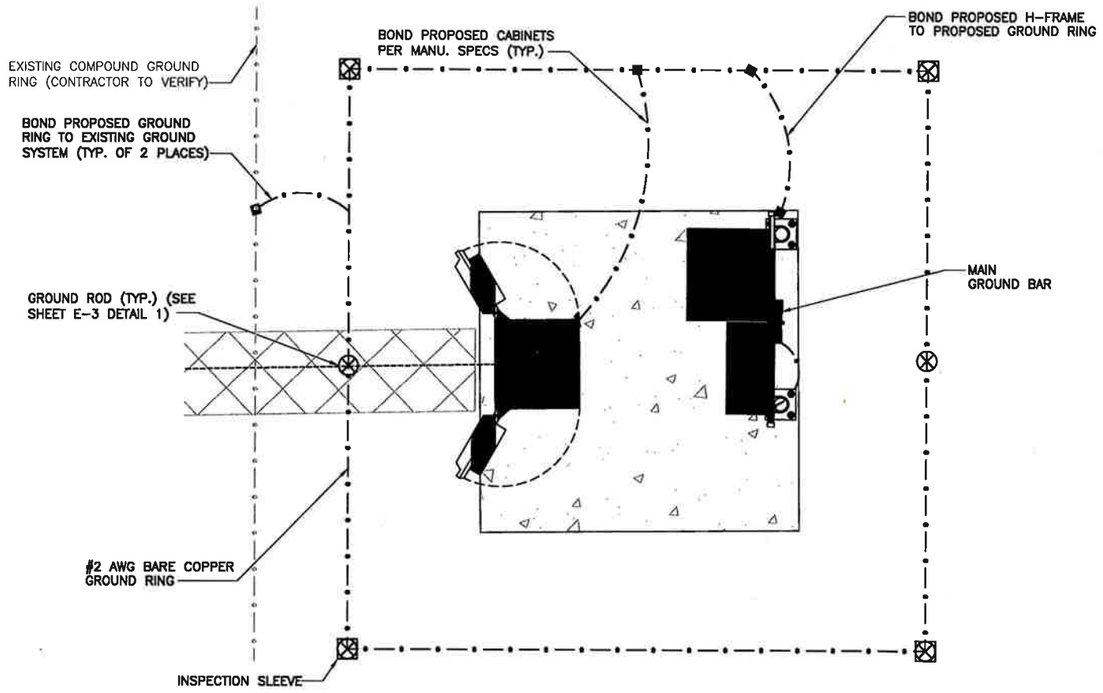
SHEET DESCRIPTION:
ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:
E-1



LEGEND:

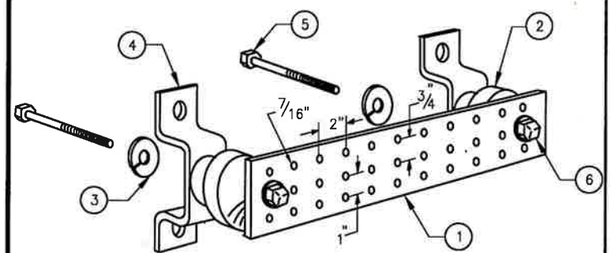
- EXISTING GROUND RING
- CADWELD CONNECTION (EXOTHERMIC WELD)
- MECHANICAL CONNECTION
- GROUND ROD

GROUNDING PLAN

NO SCALE | 1

NOTE:

1. COPPER GROUND BAR 1/4"x4"x24" 2-HOLE CONTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. SIMILAR INSTALLATION FOR TOP AND BOTTOM TOWER GROUND BARS AND FOR COAX ENTRY PORT GROUND BARS.

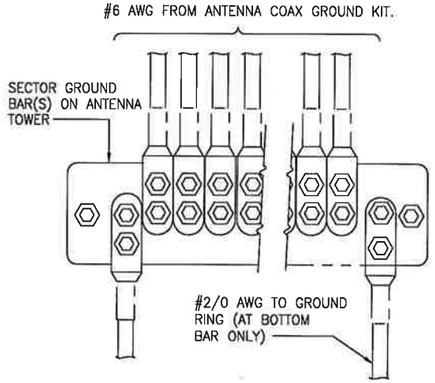


LEGEND

1 – TINNED COPPER GROUND BAR, 1/4"x 4"x 24"
2 – INSULATORS (NO INSULATORS ON TOWER)
3 – 5/8" LOCK WASHERS
4 – MOUNTING BRACKET (MOUNT HORIZONTAL ON VERTICAL CABLE LADDER)
5 – 5/8-11 X 1" H.H.C.S.BOLTS
6 – "LOCTITE" THREAD LOCK (RED) ON ALL REMOVABLE BOLTS

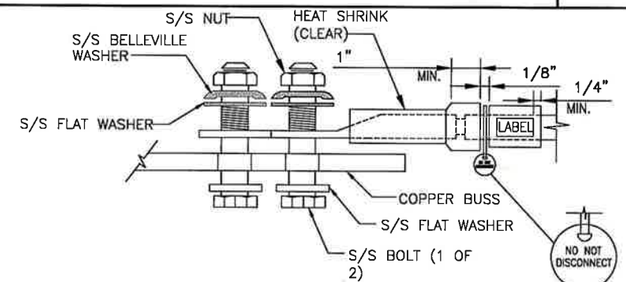
TINNED GROUND BAR DETAIL

NO SCALE | 2



ANTENNA GROUND WIRE INSTALLATION

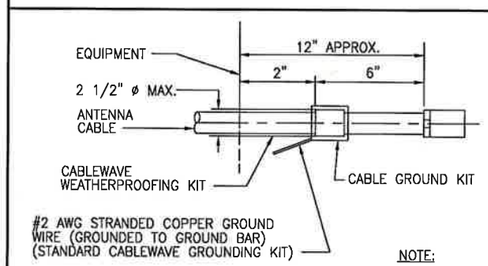
NO SCALE | 3



NOTE:
ALL MECHANICAL EXTERNAL TERMINATION SURFACES SHALL BE TREATED WITH T&B KOPR-SHIELD CP8 ANTI-OXIDATION COMPOUND.

EQUIPMENT GROUND CONNECTION

NO SCALE | 4



NOTE:
DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

CABLE GROUND KIT CONNECTION

NO SCALE | 5

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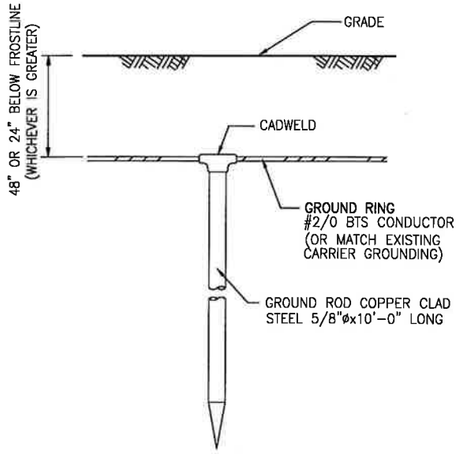
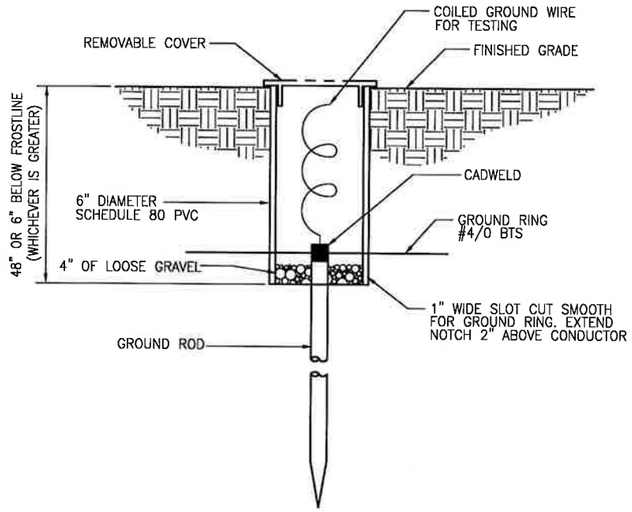
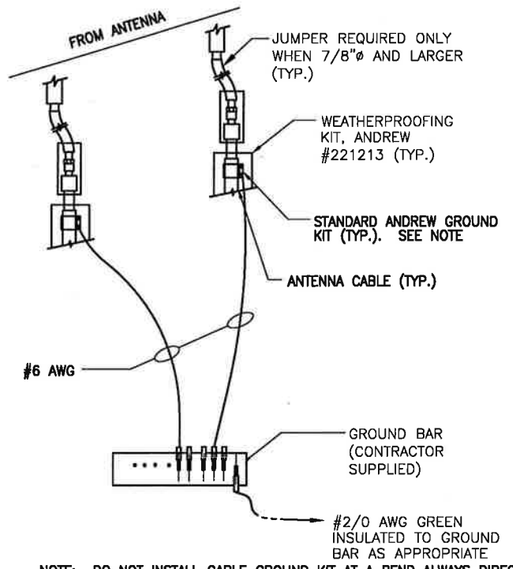
SHEET NUMBER:

E-2





GROUND ROD & INSPECTION SLEEVE DETAIL | NO SCALE | 1

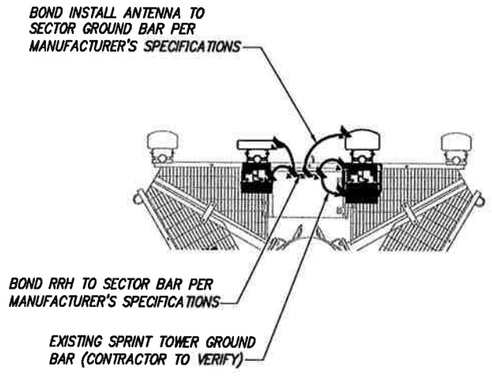


NOTE: DO NOT INSTALL CABLE GROUND KIT AT A BEND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

CONNECTION OF GROUND WIRES TO GROUND BARS @ ANTENNAS | NO SCALE | 2

LEGEND:

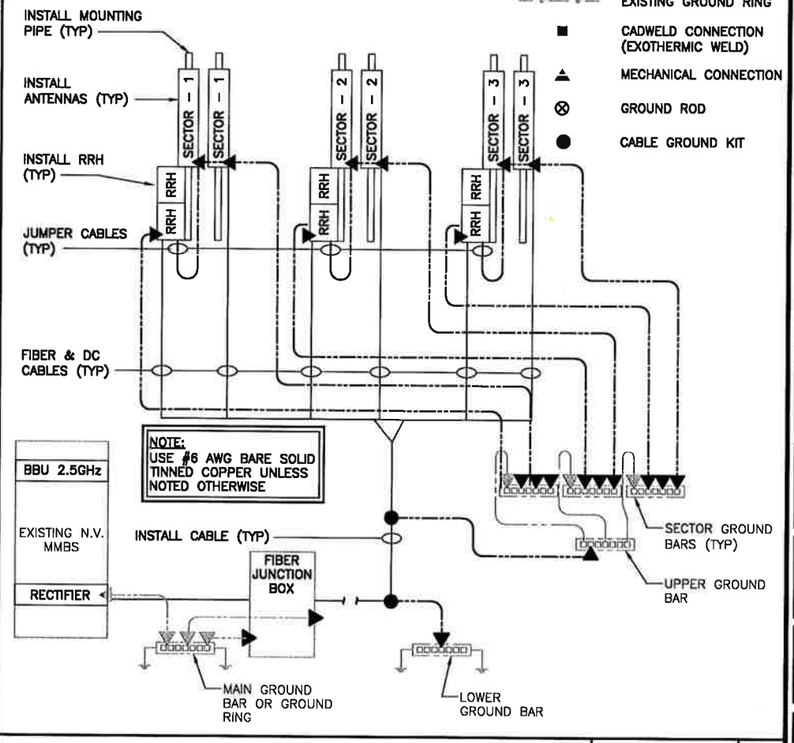
- EXISTING GROUND RING
- CADWELD CONNECTION (EXOTHERMIC WELD)
- MECHANICAL CONNECTION
- GROUND ROD
- CABLE GROUND KIT



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 3

LEGEND:

- EXISTING GROUND RING
- CADWELD CONNECTION (EXOTHERMIC WELD)
- MECHANICAL CONNECTION
- GROUND ROD
- CABLE GROUND KIT



GROUNDING RISER DIAGRAM | NO SCALE | 4

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