AIROSMITH DEVELOPMENT
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October 7th, 2019

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 260 BECKLEY ROAD, BERLIN, CT 06037 – CT03XC088 (lat. 41° 37' 54.06" N, long. -72° 43' 47.56" W)

Dear Ms. Bachman:

Sprint Spectrum, LP ("Sprint") currently maintains wireless telecommunications antennas at the (127-foot level) on an existing (150-foot monopole tower) at the above-referenced address. The property is owned by SO NEW ENGLAND FRONTIER COMMUNICATIONS, and the tower is owned by AMERICAN TOWER CORPORATION.

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

The included MPE report is dated from 2018, but all the equipment which is listed on the report is still the current configuration. The delay for this modification was caused due to another carrier doing modifications to the communication tower.

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 JACK HEALY, TOWN MANAGER, and MAREK KOZIKOWSKI, TOWN PLANNER of the Town of BERLIN. A copy of this letter is also being sent to JUSTINE PAUL the manager for AMERICAN TOWER CORPORATION who manages the site and to the SO NEW ENGLAND FRONTIER COMMUNICATIONS who owns the land.

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.

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

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2. The antennas work is a one-for-one replacement of facility components.

3. The proposed modifications will include the addition of ground base equipment as depicted on the attached drawings; however, the proposed equipment will not require an extension of the site boundaries.

4. The proposed modifications will not increase noise levels at the facility by six decibels or more.

5. The additional ground based equipment will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard.

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

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

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: JACK HEALY (Town Manager, BERLIN, CT)
JUSTINE PAUL (Manager, AMERICAN TOWER CORPORATION)
MAREK KOZIKOWSKI (Town Planner / BERLIN, CT)
SO NEW ENGLAND FRONTIER COMMUNICATIONS (Land Owner)

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BERLIN, CT 06037

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Postage $0.55

Total Postage and Fees $6.85

Sent To Maureen Giusti

Street and Apt. No., or PO Box No. 240 Kensington Rd

City, State, ZIP+4® Berlin CT 06037

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

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Total Postage and Fees $6.85

Sent To Tim Campbell

Street and Apt. No., or PO Box No. 40 Norwalk

City, State, ZIP+4® Norwalk CT 06851

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

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Sent To Justin Paul

Street and Apt. No., or PO Box No. 20 Presidential Way

City, State, ZIP+4® Woburn MA 01801

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

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- Adult Signature Restricted Delivery $

Postage $0.55

Total Postage and Fees $6.85

Sent To Mark Mazynski

Street and Apt. No., or PO Box No. 240 Kensington Rd

City, State, ZIP+4® Berlin CT 06037

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

SARATOGA FINANCE

OCT 07 2019

0867 06

Postmark Here

10/07/2019

7018 0680 0000 3834 5560

Town of Berlin, CT

Property Listing Report

Map Block Lot	11-3-132-7-1	Account	1060060

Property Information

Property Location	264 BECKLEY RD
Owner	SO NEW ENGLAND %FRONTIER COMMUNICATIONS
Co-Owner	ATTENTION TAX DEPT
Mailing Address	401 MERRITT 7 NORWALK CT 06851
Land Use	4310 Tel Rel Twr
Land Class	I
Zoning Code	R-43
Census Tract	

Street Index	2030
Acreage	0
Utilities	
Lot Setting/Desc	Above Street
Additional Info	

Photo

No Photo Available

Sketch

Primary Construction Details

Year Built		Bedrooms		Exterior Walls	
Stories		Full Bathrooms		Interior Walls	
Building Style		Half Bathrooms		Heating Type	
Building Use		Bath Style		Heating Fuel	
Building Condition		Kitchen Style		AC Type	
Floors		Roof Style		Gross Bldg Area	
Total Rooms		Roof Cover		Total Living Area	

Report Created On 3/19/2018

Town of Berlin, CT

Property Listing Report | Map Block Lot **11-3-132-7-1** | Account **1060060**

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings		
Extras		
Improvements		
Outbuildings		
Land		
Total		

Outbuilding and Extra Items

Type	Description
Cell Tower	150 L.F.
FENCE-6' CHAIN	270 L.F.
Shed PreFab Cell	240 S.F.

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area		0

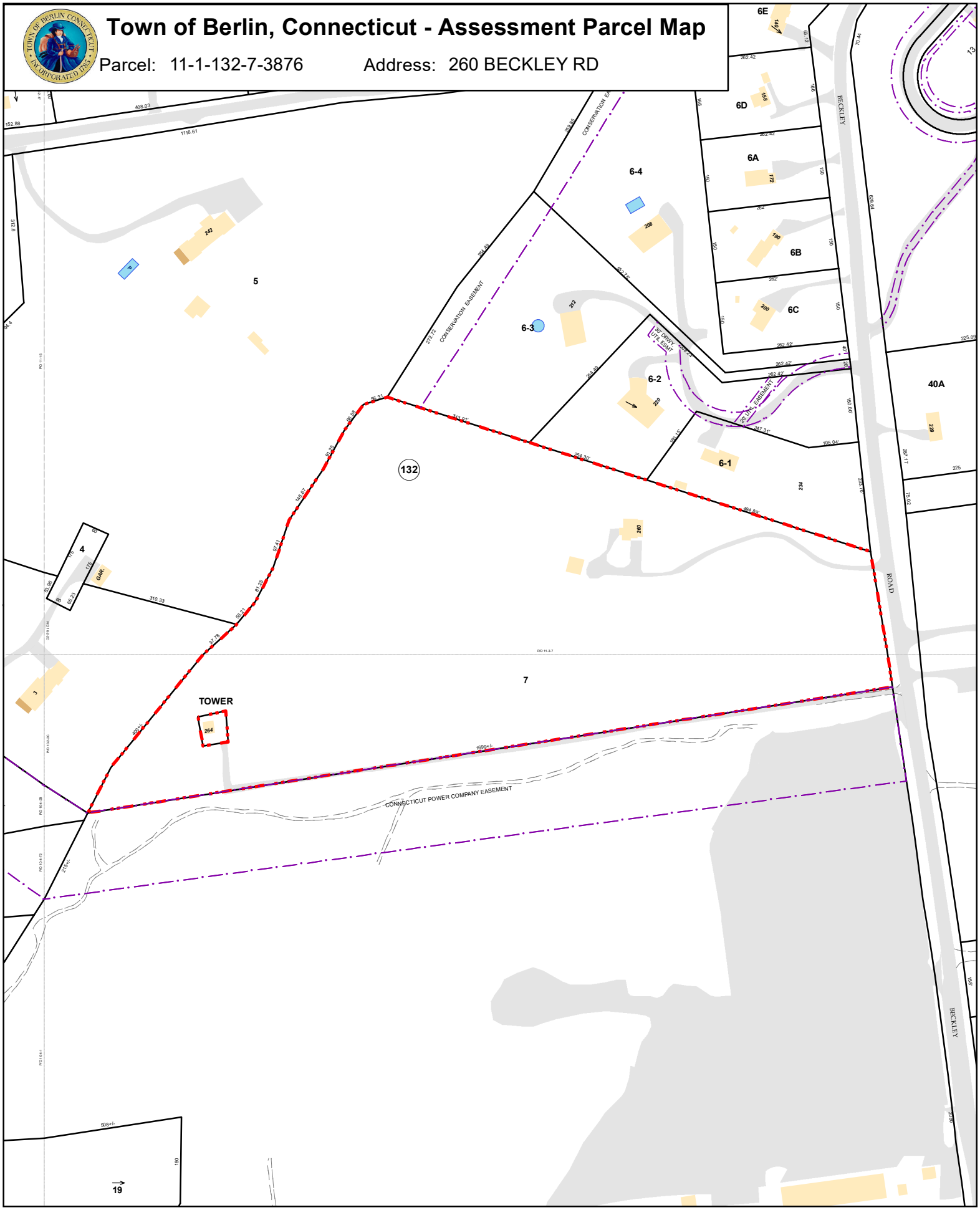
Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
SO NEW ENGLAND %FRONTIER COMMUNICATIONS	230/ 842	10/2/2007	0
SOUTHERN NEW ENGLAND	230/ 0	7/19/1983	

Report Created On **3/19/2018**

Town of Berlin, Connecticut - Assessment Parcel Map

Parcel: 11-1-132-7-3876 Address: 260 BECKLEY RD



N W E S

NEGEO
New England Geosystems
www.negeosystems.com
282 Main Street Extension - C2
Middletown, CT 06457 • (203) 404 - 7129

Approximate Scale: 1 inch = 250 feet

0 125 250 375 500 Feet

Map Produced: December 2017

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

EBI Consulting
environmental | engineering | due diligence

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

SPRINT Existing Facility

Site ID: CT03XC088

SNET Tower
260 Beckley Road
Berlin, CT 06037

February 7, 2018

EBI Project Number: 6218000597

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	15.41 %

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

EBI Consulting
environmental | engineering | due diligence

February 7, 2018

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

Emissions Analysis for Site: **CT03XC088 – SNET Tower**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **260 Beckley Road, Berlin, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed SPRINT Wireless antenna facility located at **260 Beckley Road, Berlin, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 1 CDMA channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

2) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

3) 5 CDMA channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 16 Watts per Channel.

4) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

5) 8 LTE channels (2500 MHz (BRS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.

6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

7) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antennas used in this modeling are the **RFS APXVSPP18-C-A20, RFS APXV9ERR18-C-A20** and the **Commscope DT465B-2XR** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerlines of the proposed antennas are **127 feet** above ground level (AGL) for **Sector A**, **127 feet** above ground level (AGL) for **Sector B** and **127 feet** above ground level (AGL) for Sector C.

10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APXV9ERR18-C-A20	Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20
Gain:	11.9 / 14.9 dBd	Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd
Height (AGL):	**127 feet**	Height (AGL):	**127 feet**	Height (AGL):	**127 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):	220 Watts	Total TX Power(W):	220 Watts	Total TX Power(W):	220 Watts
ERP (W):	5,873.76	ERP (W):	7,537.38	ERP (W):	7,537.38
Antenna A1 MPE%	**1.62 %**	Antenna B1 MPE%	**2.10 %**	Antenna C1 MPE%	**2.10 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Commscope DT465B-2XR	Make / Model:	Commscope DT465B-2XR	Make / Model:	Commscope DT465B-2XR
Gain:	15.05 dBd	Gain:	15.05 dBd	Gain:	15.05 dBd
Height (AGL):	**127 feet**	Height (AGL):	**127 feet**	Height (AGL):	**127 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%	**1.26 %**	Antenna B2 MPE%	**1.26 %**	Antenna C2 MPE%	**1.26 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**3.35 %**
AT&T	2.73 %
MetroPCS	0.66 %
Berlin FD	0.02 %
Verizon Wireless	7.17 %
T-Mobile	0.40 %
Nextel	1.08 %
Site Total MPE %:	**15.41 %**

SPRINT Sector A Total:	2.87 %
SPRINT Sector B Total:	3.35 %
SPRINT Sector C Total:	3.35 %
Site Total:	15.41 %

SPRINT _ Frequency Band / Technology - Max Values (Sectors B&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	437.55	127	1.07	850 MHz	567	0.19%
Sprint 850 MHz LTE	2	437.55	127	2.15	850 MHz	567	0.38%
Sprint 1900 MHz (PCS) CDMA	5	622.47	127	7.64	1900 MHz (PCS)	1000	0.76%
Sprint 1900 MHz (PCS) LTE	2	1,556.18	127	7.64	1900 MHz (PCS)	1000	0.76%
Sprint 2500 MHz (BRS) LTE	8	639.78	127	12.57	2500 MHz (BRS)	1000	1.26%
						Total:	**3.35%**

Summary

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

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

SPRINT Sector	Power Density Value (%)
Sector A:	2.87 %
Sector B:	3.35 %
Sector C:	3.35 %
SPRINT Maximum Total (Sectors B&C):	3.35 %
Site Total:	15.41 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **15.41 %** 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.

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

1033 WATERVLIET SHAKER RD, ALBANY, NY 12205

January 22, 2018

Terri Burkholder
Project Manager
Airosmith Development
tburkholder@asdwireless.com
www.airosmithdevelopment.com

RE: Sprint DO Marco Project Mount Analysis

Sprint Site Number:	CT03XC088
Sprint Site Name:	SNET TOWER
Site Address:	260 Beckley Road, Kensington, CT 06037
Building Code:	2012 IBC / 2016 Connecticut State Building Code
Design Standard:	ANSI/TIA-222-G
Result:	**Pass**
Usage:	**48.6%**
Note:	--

Dear Ms. Burkholder:

At your request, Infinigy Engineering, PLLC has reviewed the existing Sprint Monopole mounted equipment supports at the above referenced site for adequacy to support the existing and proposed loads for the referenced project. This evaluation is based on a review of the information from the Structural Analysis Report (dated 10/04/17) provided by American Tower Corporation, and Construction Drawings (dated 12/11/17) provided by Alcatel - Lucent.

This evaluation assumes that all structural members are in good condition, have not been altered from the manufacturer's original design, and have been installed per the manufacturer's requirements. Prior to installation of any new appurtenances, the contractor shall inspect the condition of all relevant members and connections and shall tighten all connections. The contractor is responsible for the means and methods of construction and shall notify Infinigy Engineering, PLLC immediately if any field conditions differ from those listed above.

Should there be any questions, please do not hesitate to contact us at (518) 690-0790.

Sincerely,
Joseph R. Johnston, P.E.
VP Structural Engineering/Principal
structural@infinigy.com
Connecticut P.E. License Number: PEN.0029460
KC/OTO

Site Name:	CT03XC088
Client:	Airosmith
Carrier:	Sprint
Engineer:	OTO
Date:	1/22/2018

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the solutions are endless

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 2:	Round

Rooftop Inputs:

Rooftop Wind Speed-Up?:	No

Wind Loading Inputs:

Design Wind Velocity:	96	mph (nominal 3-second gust)
Wind Centerline 2 (z_2):	127.0	ft
Side Face Angle (θ):	60	degrees
Exposure Category:	B	
Topographic Category:	1	

Wind with No Ice		
q_z (psf)	Gh	F_{ST} (psf)
23.71	1.00	**28.46**

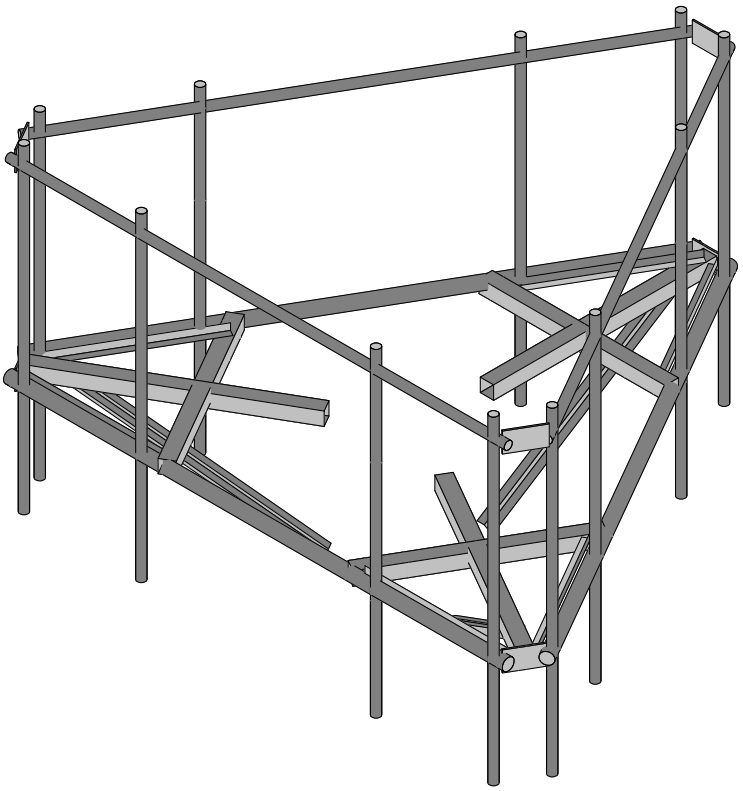
Wind with Ice		
q_z (psf)	Gh	F_{ST} (psf)
6.43	1.00	**20.73**

Ice Loading Inputs:

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

Input Appurtenance Information and Load Placements:

Appurtenance Name	Elevation (ft)	Total Quantity	Ka	Front Shape	Side Shape	q_z (psf)	EPA (ft^2)	Fz (lbs)	Fx (lbs)	Fz(60) (lbs)	Fx(30) (lbs)
Commscope DT465B-2XR	127.0	3	1.00	Flat	Flat	23.71	9.10	215.77	141.66	160.19	197.24
RFS_APXV9ERR18-C-A20	127.0	1	1.00	Flat	Flat	23.71	8.02	190.30	137.74	150.88	177.16
RFS APXVSPP18-C-A20	127.0	2	1.00	Flat	Flat	23.71	8.02	190.30	137.74	150.88	177.16
Alcatel-Lucent 1900 MHz 4X45 RRH	127.0	3	1.00	Flat	Flat	23.71	2.31	54.84	56.32	55.95	55.21
Alcatel-Lucent TD-RRH8x20-25 w/ SS	127.0	3	1.00	Flat	Flat	23.71	4.05	95.94	36.34	51.24	81.04
tel_Lucent 800 MHz 2x50W RRH w/Fi	127.0	6	1.00	Flat	Flat	23.71	2.06	48.81	45.81	46.56	48.06



Envelope Only Solution

Infinigy	SNET Tower	Proposed Mount
OTO		Jan 22, 2018 at 3:46 PM
526.104		CT03XC088__.r3d

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"x4	Beam	Tube	A53 Gr.B	Typical
2	M2	N4	N3			PL6"x3/8"	Beam	BAR	A36 Gr.36	Typical
3	M3	N6	N9			HSS 4"x4"x4	Beam	Tube	A53 Gr.B	Typical
4	M4	N11	N10A			PL6"x3/8"	Beam	BAR	A36 Gr.36	Typical
5	M5	N7	N16			HSS 4"x4"x4	Beam	Tube	A53 Gr.B	Typical
6	M6	N18	N17			PL6"x3/8"	Beam	BAR	A36 Gr.36	Typical
7	M7	N16A	N15			3" STD Pipe	Beam	Pipe	A53 Gr.B	Typical
8	M11	N28	N27			3" STD Pipe	Beam	Pipe	A53 Gr.B	Typical
9	M15	N40	N39			3" STD Pipe	Beam	Pipe	A53 Gr.B	Typical
10	M19	N51	N50			HSS 4"x4"x4	Beam	Tube	A53 Gr.B	Typical
11	M20	N54	N53			HSS 4"x4"x4	Beam	Tube	A53 Gr.B	Typical
12	M21	N57	N56			HSS 4"x4"x4	Beam	Tube	A53 Gr.B	Typical
13	M22	N56A	N57A			L2"x2"x1/8"	Beam	Single Angle	A36 Gr.36	Typical
14	M23	N58	N59		270	L2"x2"x1/8"	Beam	Single Angle	A36 Gr.36	Typical
15	M24	N61	N62			L2"x2"x1/8"	Beam	Single Angle	A36 Gr.36	Typical
16	M25	N63	N64		270	L2"x2"x1/8"	Beam	Single Angle	A36 Gr.36	Typical
17	M26	N66	N67			L2"x2"x1/8"	Beam	Single Angle	A36 Gr.36	Typical
18	M27	N68	N69		270	L2"x2"x1/8"	Beam	Single Angle	A36 Gr.36	Typical
19	M66	N101	N100			2" STD Pipe	Beam	Pipe	A53 Gr.B	Typical
20	M79	N104	N105			2" STD Pipe	Beam	Pipe	A53 Gr.B	Typical
21	M99	N107	N106			2" STD Pipe	Beam	Pipe	A53 Gr.B	Typical
22	M31	N84	N83			2" STD Pipe	Beam	Pipe	A53 Gr.B	Typical
23	M32	N86	N85			2" STD Pipe	Beam	Pipe	A53 Gr.B	Typical
24	M33	N88	N87			2" STD Pipe	Beam	Pipe	A53 Gr.B	Typical
25	M37	N115A	N116A		180	PL6"x3/8"	Beam	BAR	A36 Gr.36	Typical
26	M38	N113A	N114A		180	PL6"x3/8"	Beam	BAR	A36 Gr.36	Typical
27	M39	N112A	N111A			PL6"x3/8"	Beam	BAR	A36 Gr.36	Typical
28	M40	N125	N124			2" STD Pipe	Beam	Pipe	A53 Gr.B	Typical
29	M29	N95	N98			2" STD Pipe	Beam	Pipe	A53 Gr.B	Typical
30	M30	N96	N93			2" STD Pipe	Beam	Pipe	A53 Gr.B	Typical
31	M96	N94	N97			2" STD Pipe	Beam	Pipe	A53 Gr.B	Typical
32	M88	N104A	N103			2" STD Pipe	Beam	Pipe	A53 Gr.B	Typical
33	M91	N114	N117			2" STD Pipe	Beam	Pipe	A53 Gr.B	Typical
34	M34	N115	N112			2" STD Pipe	Beam	Pipe	A53 Gr.B	Typical
35	M35	N113	N116			2" STD Pipe	Beam	Pipe	A53 Gr.B	Typical
36	M36	N123	N122			2" STD Pipe	Beam	Pipe	A53 Gr.B	Typical
37	M37A	N108A	N127			LL2.5"x2.5"x3/...	Beam	Double Angle (...	A36 Gr.36	Typical
38	M38A	N110A	N126B			LL2.5"x2.5"x3/...	Beam	Double Angle (...	A36 Gr.36	Typical
39	M39A	N109A	N125B			LL2.5"x2.5"x3/...	Beam	Double Angle (...	A36 Gr.36	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[K]
1	Hot Rolled Steel				
2	A36 Gr.36	PL6"x3/8"	6	62.1	0
3	A36 Gr.36	L2x2x2	6	273.6	0
4	A36 Gr.36	LL2.5x2.5x3x3	3	201.6	.1
5	A53 Gr.B	HSS4x4x4	6	369.1	.4
6	A53 Gr.B	PIPE_2.0	15	1602	.5
7	A53 Gr.B	PIPE_3.0	3	450	.3

Material Takeoff (Continued)

	Material	Size	Pieces	Length[in]	Weight[K]
8	Total HR Steel		39	2958.2	1.3

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Self Weight	DL		-1			21		3	
2	Wind Load AZI 000	WLZ					21		2	
3	Wind Load AZI 090	WLX					21		2	
4	Ice Weight	OL1					21	39	3	
5	Wind + Ice Load AZI ...	OL2					21		1	
6	Wind + Ice Load AZI ...	OL3					21		1	
7	Service Live 1	LL				6				
8	BLC 1 Transient Area...	None						48		
9	BLC 2 Transient Area...	None						50		
10	BLC 3 Transient Area...	None						44		
11	BLC 4 Transient Area...	None						48		
12	BLC 5 Transient Area...	None						38		
13	BLC 6 Transient Area...	None						32		

Load Combinations

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
1	1.4D	Yes	Y		DL	1.4																				
2	1.2D + 1.6W AZI 000	Yes	Y		DL	1.2	W...	1.6																		
3	1.2D + 1.6W AZI 030	Yes	Y		DL	1.2	W...	1.3...	W...	.8																
4	1.2D + 1.6W AZI 060	Yes	Y		DL	1.2	W...	.8	W...	1.3...																
5	1.2D + 1.6W AZI 090	Yes	Y		DL	1.2			W...	1.6																
6	1.2D + 1.6W AZI 120	Yes	Y		DL	1.2	W...	-.8	W...	1.3...																
7	1.2D + 1.6W AZI 150	Yes	Y		DL	1.2	W...	-1.3...	W...	.8																
8	1.2D + 1.6W AZI 180	Yes	Y		DL	1.2	W...	-1.6																		
9	1.2D + 1.6W AZI 210	Yes	Y		DL	1.2	W...	-1.3...	W...	-.8																
10	1.2D + 1.6W AZI 240	Yes	Y		DL	1.2	W...	-.8	W...	-1.3...																
11	1.2D + 1.6W AZI 270	Yes	Y		DL	1.2			W...	-1.6																
12	1.2D + 1.6W AZI 300	Yes	Y		DL	1.2	W...	.8	W...	-1.3...																
13	1.2D + 1.6W AZI 330	Yes	Y		DL	1.2	W...	1.3...	W...	-.8																
14	0.9D + 1.6W AZI 000	Yes	Y		DL	.9	W...	1.6																		
15	0.9D + 1.6W AZI 030	Yes	Y		DL	.9	W...	1.3...	W...	.8																
16	0.9D + 1.6W AZI 060	Yes	Y		DL	.9	W...	.8	W...	1.3...																
17	0.9D + 1.6W AZI 090	Yes	Y		DL	.9			W...	1.6																
18	0.9D + 1.6W AZI 120	Yes	Y		DL	.9	W...	-.8	W...	1.3...																
19	0.9D + 1.6W AZI 150	Yes	Y		DL	.9	W...	-1.3...	W...	.8																
20	0.9D + 1.6W AZI 180	Yes	Y		DL	.9	W...	-1.6																		
21	0.9D + 1.6W AZI 210	Yes	Y		DL	.9	W...	-1.3...	W...	-.8																
22	0.9D + 1.6W AZI 240	Yes	Y		DL	.9	W...	-.8	W...	-1.3...																
23	0.9D + 1.6W AZI 270	Yes	Y		DL	.9			W...	-1.6																
24	0.9D + 1.6W AZI 300	Yes	Y		DL	.9	W...	.8	W...	-1.3...																
25	0.9D + 1.6W AZI 330	Yes	Y		DL	.9	W...	1.3...	W...	-.8																
26	1.2D + 1.0Di	Yes	Y		DL	1.2	OL1	1																		
27	1.2D + 1.0Di + 1.0W ...	Yes	Y		DL	1.2	OL1	1	OL2	1																
28	1.2D + 1.0Di + 1.0W ...	Yes	Y		DL	1.2	OL1	1	OL2	.866	OL3	.5														
29	1.2D + 1.0Di + 1.0W ...	Yes	Y		DL	1.2	OL1	1	OL2	.5	OL3	.866														

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..	BLC	Fac...
30	1.2D + 1.0Di + 1.0W ...	Yes	Y		DL	1.2	OL1	1			OL3	1														
31	1.2D + 1.0Di + 1.0W ...	Yes	Y		DL	1.2	OL1	1	OL2	-.5	OL3	.866														
32	1.2D + 1.0Di + 1.0W ...	Yes	Y		DL	1.2	OL1	1	OL2	-.866	OL3	.5														
33	1.2D + 1.0Di + 1.0W ...	Yes	Y		DL	1.2	OL1	1	OL2	-1																
34	1.2D + 1.0Di + 1.0W ...	Yes	Y		DL	1.2	OL1	1	OL2	-.866	OL3	-.5														
35	1.2D + 1.0Di + 1.0W ...	Yes	Y		DL	1.2	OL1	1	OL2	-.5	OL3	-.866														
36	1.2D + 1.0Di + 1.0W ...	Yes	Y		DL	1.2	OL1	1			OL3	-1														
37	1.2D + 1.0Di + 1.0W ...	Yes	Y		DL	1.2	OL1	1	OL2	.5	OL3	-.866														
38	1.2D + 1.0Di + 1.0W ...	Yes	Y		DL	1.2	OL1	1	OL2	.866	OL3	-.5														
39	1.2D + 1.5L + 1.0W ...	Yes	Y		DL	1.2	LL	1.5	W...	.111																
40	1.2D + 1.5L + 1.0W ...	Yes	Y		DL	1.2	LL	1.5	W...	.096	W...	.056														
41	1.2D + 1.5L + 1.0W ...	Yes	Y		DL	1.2	LL	1.5	W...	.056	W...	.096														
42	1.2D + 1.5L + 1.0W ...	Yes	Y		DL	1.2	LL	1.5			W...	.111														
43	1.2D + 1.5L + 1.0W ...	Yes	Y		DL	1.2	LL	1.5	W...	-.056	W...	.096														
44	1.2D + 1.5L + 1.0W ...	Yes	Y		DL	1.2	LL	1.5	W...	-.096	W...	.056														
45	1.2D + 1.5L + 1.0W ...	Yes	Y		DL	1.2	LL	1.5	W...	-.111																
46	1.2D + 1.5L + 1.0W ...	Yes	Y		DL	1.2	LL	1.5	W...	-.096	W...	-.056														
47	1.2D + 1.5L + 1.0W ...	Yes	Y		DL	1.2	LL	1.5	W...	-.056	W...	-.096														
48	1.2D + 1.5L + 1.0W ...	Yes	Y		DL	1.2	LL	1.5			W...	-.111														
49	1.2D + 1.5L + 1.0W ...	Yes	Y		DL	1.2	LL	1.5	W...	.056	W...	-.096														
50	1.2D + 1.5L + 1.0W ...	Yes	Y		DL	1.2	LL	1.5	W...	.096	W...	-.056														

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N1	max	2358.245	16	462.279	29	1672.698	15	400.511	25	1255.539	20	595.764	27
2		min	-5253.048	35	-119.033	22	-3120.932	34	-566.773	7	-1263.238	2	-188.64	20
3	N6	max	913.293	17	520.303	33	5313.187	27	658.556	34	1427.291	11	500.212	23
4		min	-914.626	11	-75.967	14	-3057.952	20	95.958	15	-1423.176	17	-583.435	5
5	N7	max	4119.919	6	565.442	37	1652.579	25	380.199	15	639.649	14	81.096	21
6		min	-2703.335	24	-45.422	18	-2475.145	7	-560.373	9	-636.83	8	-683.213	28
7	N125B	max	5087.785	35	3802.419	35	2937.162	35	0	1	0	1	0	1
8		min	134.581	16	86.953	16	81.402	16	0	1	0	1	0	1
9	N126B	max	43.501	17	3302.414	27	60.745	20	0	1	0	1	0	1
10		min	-43.524	23	-53.221	20	-5084.756	27	0	1	0	1	0	1
11	N127	max	176.703	24	2892.353	31	2218.62	31	0	1	0	1	0	1
12		min	-3844.153	31	-141.136	24	-98.219	24	0	1	0	1	0	1
13	Totals:	max	5445.357	5	10609.283	28	5619.628	14						
14		min	-5445.357	11	2349.611	22	-5619.628	20						

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

	Member	Shape	Code Ch...	Loc[in]	LC	Shea...	Loc[in]	...	L...	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn...	phi*Mn...	...	Eqn
1	M66	PIPE_2.0	.486	63	13	.124	63		6	14916.096	32130	1871.6...	1871.6...	1...	H1-1b
2	M96	PIPE_2.0	.473	63	7	.133	63		2	14916.096	32130	1871.6...	1871.6...	2...	H1-1b
3	M25	L2x2x2	.439	0	12	.019	45.601	y	6	7549.8	15908.4	402.563	817.206	2...	H2-1
4	M35	PIPE_2.0	.435	63	12	.111	63		6	14916.096	32130	1871.6...	1871.6...	2...	H1-1b
5	M24	L2x2x2	.434	0	8	.020	45.601	z	2	7549.8	15908.4	402.563	816.42	2...	H2-1
6	M29	PIPE_2.0	.400	63	4	.096	63		9	14916.096	32130	1871.6...	1871.6...	2...	H1-1b
7	M26	L2x2x2	.397	0	12	.017	0	y	12	7549.8	15908.4	402.563	817.902	2...	H2-1
8	M27	L2x2x2	.388	0	4	.017	45.601	y	10	7549.8	15908.4	402.563	817.239	2...	H2-1

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

	Member	Shape	Code Ch...	Loc[in]	LC	Shea...	Loc[in]	...	L...	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn...	phi*Mn...	...	Eqn
9	M23	L2x2x2	.387	0	8	.018	45.601	y	2	7549.8	15908.4	402.563	818.913	2...	H2-1
10	M22	L2x2x2	.379	0	4	.017	45.601	z	10	7549.8	15908.4	402.563	816.74	2...	H2-1
11	M91	PIPE_2.0	.358	63	8	.099	63		13	14916.096	32130	1871.6...	1871.6...	2...	H1-1b
12	M99	PIPE_2.0	.356	63	4	.096	63		11	14916.096	32130	1871.6...	1871.6...	2...	H1-1b
13	M88	PIPE_2.0	.346	33	9	.103	33		9	14916.096	32130	1871.6...	1871.6...	2...	H1-1b
14	M30	PIPE_2.0	.339	33	3	.116	33		2	14916.096	32130	1871.6...	1871.6...	2...	H1-1b
15	M2	PL6"x3/8"	.338	5.172	5	.436	7.004	y	6	45028.21	72900	569.533	9112.5	1...	H1-1b
16	M40	PIPE_2.0	.331	33	7	.110	33		6	14916.096	32130	1871.6...	1871.6...	2...	H1-1b
17	M34	PIPE_2.0	.309	33	6	.094	33		7	14916.096	32130	1871.6...	1871.6...	2...	H1-1b
18	M4	PL6"x3/8"	.306	5.172	7	.366	7.004	y	10	45028.21	72900	569.533	9112.5	1...	H1-1b
19	M6	PL6"x3/8"	.305	5.172	13	.333	7.004	y	2	45028.21	72900	569.533	9112.5	1...	H1-1b
20	M36	PIPE_2.0	.299	33	13	.097	33		13	14916.096	32130	1871.6...	1871.6...	2...	H1-1b
21	M79	PIPE_2.0	.295	33	11	.097	33		5	14916.096	32130	1871.6...	1871.6...	2...	H1-1b
22	M32	PIPE_2.0	.227	145.301	9	.114	109.3...		3	6296.43	32130	1871.6...	1871.6...	1...	H1-1b
23	M33	PIPE_2.0	.206	145.301	13	.097	109.3...		7	6296.43	32130	1871.6...	1871.6...	2...	H1-1b
24	M31	PIPE_2.0	.202	4.687	11	.107	40.622		6	6296.43	32130	1871.6...	1871.6...	2...	H1-1b
25	M1	HSS4x4x4	.195	56.594	35	.091	57.293	y	34	96102.299	106155	12311...	12311...	2...	H1-1b
26	M39A	LL2.5x2.5...	.181	67.19	35	.004	0	y	35	38697.358	58320	3954.3...	2549.5...	1...	H1-1b*
27	M3	HSS4x4x4	.165	56.595	27	.092	57.294	y	37	96101.935	106155	12311...	12311...	2...	H1-1b
28	M38A	LL2.5x2.5...	.157	67.19	27	.004	67.19	y	27	38697.358	58320	3954.3...	2549.5...	1	H1-1b*
29	M11	PIPE_3.0	.149	40.622	5	.223	46.871		13	28254.335	65205	5748.75	5748.75	1...	H1-1b
30	M7	PIPE_3.0	.144	103.117	8	.220	103.1...		7	28254.335	65205	5748.75	5748.75	1...	H1-1b
31	M5	HSS4x4x4	.141	56.595	31	.071	0	z	3	96101.935	106155	12311...	12311...	2...	H1-1b
32	M37A	LL2.5x2.5...	.137	67.19	31	.004	0	y	31	38697.358	58320	3954.3...	2549.5...	1...	H1-1b*
33	M15	PIPE_3.0	.132	48.434	17	.189	46.871		5	28254.335	65205	5748.75	5748.75	1...	H1-1b
34	M20	HSS4x4x4	.125	27.973	27	.201	53.031	z	6	99056.372	106155	12311...	12311...	1...	H1-1b
35	M21	HSS4x4x4	.122	27.973	35	.183	2.914	z	6	99056.372	106155	12311...	12311...	1...	H1-1b
36	M19	HSS4x4x4	.113	27.973	33	.176	53.031	z	2	99056.372	106155	12311...	12311...	1...	H1-1b
37	M38	PL6"x3/8"	.006	5.172	8	.366	10.344	y	5	45028.21	72900	569.533	9112.5	1...	H1-1b
38	M39	PL6"x3/8"	.006	5.172	4	.449	0	y	13	45028.21	72900	569.533	9112.5	1...	H1-1b
39	M37	PL6"x3/8"	.005	5.172	12	.329	0	y	3	45028.21	72900	569.533	9112.5	1...	H1-1b

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**151.5 ft Monopole**
ATC Site Name	:	**Brln - Berlin, CT**
ATC Asset Number	:	**302483**
Engineering Number	:	**OAA713867_C3_04**
Proposed Carrier	:	**SPRINT NEXTEL**
Carrier Site Name	:	**SNET TOWER**
Carrier Site Number	:	**CT03XC088**
Site Location	:	**286 Beckley Road** **Berlin, CT 06037-2419** **41.631700,-72.729900**
County	:	**Hartford**
Date	:	**August 28, 2019**
Max Usage	:	**96%**
Result	:	**Pass**

Prepared By:
Adam Pittman
Structural Engineer II

Adam S Pittman

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 162 ft monopole to reflect the change in loading by SPRINT NEXTEL.

Supporting Documents

Tower Drawings	ITT Meyer Type "B", dated July 21, 2001 Mapping by Smith Cullum Acq. #CT-0019, dated July 21, 2001 Mapping by ATC Report #0682, dated January 7, 2016
Foundation Drawing	SpectraSite Project #CT-0019, dated May 29, 2003
Geotechnical Report	Daniel G. Loucks Project #CT-0019, dated December 21, 2001
Modifications	Scientel Project #Berlin-CT0019, dated July 30, 2002 ATC Project #11912109_P5_02, dated October 3, 2017

Analysis

The tower was analyzed using tnxTower version 8.0.2.1 tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	97 mph (3-Second Gust, Vasd) / 125 mph (3-Second Gust, Vult)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1" radial ice concurrent
Code:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	C
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.18, S_1 = 0.06
Site Class:	D - Stiff Soil

Conclusion

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

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

Existing and Reserved Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
152.0	152.0	6	CCI TPX-070821	Platform w/ Handrails	(4) 0.78" 8 AWG 6 (12) 1 1/4" Coax (2) 0.39" Fiber Trunk (1) 3" conduit	AT&T Mobility
		6	Powerwave LGP21401			
		2	Raycap DC6-48-60-18-8F			
		3	Ericsson RRUS 4426 B66			
		3	Ericsson RRUS 11 (Band 12) (55 lb)			
		3	Ericsson RRUS 32			
		3	Ericsson RRUS 32 B2			
		3	Powerwave 7770.00			
		3	Quintel QS66512-2			
		3	CCI OPA-65R-LCUU-H6			
142.0	142.0	3	Ericsson KRY 112 144/2	T-Arms	(12) 1 5/8" Coax (2) 1 1/4" Fiber (1) 1 5/8" Fiber	T-Mobile
		3	Ericsson KRY 112 489/2			
		3	Ericsson Radio 4449 B12,B71			
		3	Ericsson AIR32 B66Aa/B2a			
		3	RFS APXVAARR24_43-U-NA20			
127.0	127.0	3	Alcatel-Lucent 800MHz 2X50W RRH w/ Filter	Platform w/ Handrails	(3) 1 1/4" Hybriflex	Sprint Nextel
		1	RFS APXV9ERR18-C-A20			
		2	RFS APXVSPP18-C-A20			
119.0	119.0	3	Alcatel-Lucent RRH2x60	Low Profile Platform	(12) 1 5/8" Coax (2) 1 5/8" Fiber	Verizon
		2	RFS DB-T1-6Z-8AB-0Z			
		3	Commscope LNX-6514DS-A1M			

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
No loading considered as to be removed						

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
127.0	127.0	3	Alcatel-Lucent RRH2x50-08	Platform w/ Handrails	(1) 1 1/4" Hybriflex	Sprint Nextel
		3	Alcatel-Lucent 4x40W RRH			
		3	Alcatel-Lucent TD-RRH8x20			
		3	Commscope DT465B-2XR			

[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	76%	Pass
Shaft	69%	Pass
Base Plate	44%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	3,688.0	96%
Axial (Kips)	50.0	40%
Shear (Kips)	37.0	63%

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)	Carrier	Deflection (ft)	Sway (Rotation) (°)
127.0	Sprint Nextel	7.126	0.005

***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

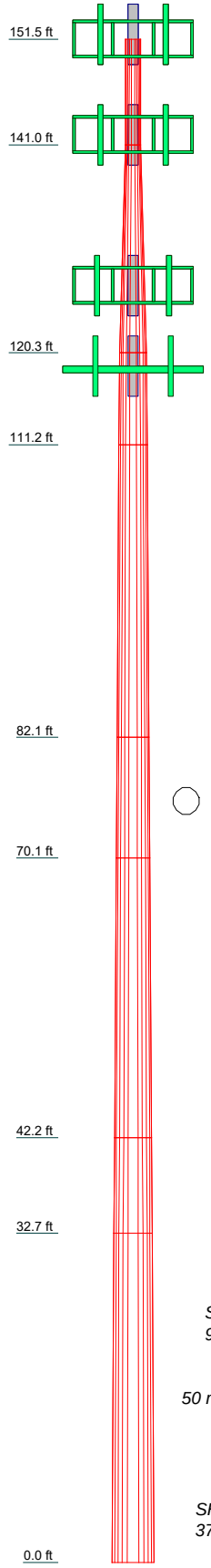
It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

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.

Section	1	2	3	4	5	6	7	8		
Length (ft)	10.50	20.67	9.14	29.11	12.02	27.82	9.53	32.71		
Number of Sides	12	12	12	12	12	12	12	12		
Thickness (in)	0.2400	0.3059	0.3063	0.3141	0.3804	0.4014	0.4706	0.4906		
Top Dia (in)	17.1872	17.7841	31.5570	33.0280	38.3470	39.7110	43.9500	45.0640		
Bot Dia (in)	17.7841	31.5570	33.0280	38.3470	39.7110	43.9500	45.0640	49.5520		
Grade	A572-65									
Weight (K)	0.5	1.7	1.0	3.5	1.9	5.1	2.2	8.2		24.1



ALL REACTIONS ARE FACTORED

AXIAL 108 K

SHEAR 9 K

MOMENT 1021 kip-ft

TORQUE 1 kip-ft
50 mph WIND - 1.0000 in ICE

AXIAL 50 K

SHEAR 37 K

MOMENT 3688 kip-ft

TORQUE 3 kip-ft
REACTIONS - 97 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(2) TPX-070821	151.5	Radio 4449 B12,B71	142
(2) TPX-070821	151.5	Radio 4449 B12,B71	142
(2) TPX-070821	151.5	AIR32 B66Aa/B2a	142
(2) LGP21401	151.5	AIR32 B66Aa/B2a	142
(2) LGP21401	151.5	AIR32 B66Aa/B2a	142
(2) LGP21401	151.5	APXVAARR24_43-U-NA20	142
DC6-48-60-18-8F(32.8 lbs)	151.5	APXVAARR24_43-U-NA20	142
DC6-48-60-18-8F(32.8 lbs)	151.5	APXVAARR24_43-U-NA20	142
RRUS 4426 B66	151.5	Flat Platform w/ Handrails	142
RRUS 4426 B66	151.5	RRH2x50-08	127
RRUS 4426 B66	151.5	RRH2x50-08	127
RRUS 11 (Band 12) (55 lb)	151.5	RRH2x50-08	127
RRUS 11 (Band 12) (55 lb)	151.5	800 MHz 2X50W RRH w/ Filter	127
RRUS 11 (Band 12) (55 lb)	151.5	800 MHz 2X50W RRH w/ Filter	127
RRUS 32 (50.8 lbs)	151.5	800 MHz 2X50W RRH w/ Filter	127
RRUS 32 (50.8 lbs)	151.5	(2) 4x40W RRH (88 lb)	127
RRUS 32 (50.8 lbs)	151.5	(2) 4x40W RRH (88 lb)	127
RRUS 32 B2	151.5	(2) 4x40W RRH (88 lb)	127
RRUS 32 B2	151.5	TD-RRH8x20	127
RRUS 32 B2	151.5	TD-RRH8x20	127
7770.00	151.5	TD-RRH8x20	127
7770.00	151.5	APXVSPP18-C-A20	127
7770.00	151.5	APXVSPP18-C-A20	127
QS66512-2	151.5	APXV9ERR18-C-A20	127
QS66512-2	151.5	DT465B-2XR	127
QS66512-2	151.5	DT465B-2XR	127
OPA-65R-LCUU-H6	151.5	DT465B-2XR	127
OPA-65R-LCUU-H6	151.5	Round Platform w/ Handrails	127
OPA-65R-LCUU-H6	151.5	RRH2X60-AWS	119
Flat Platform w/ Handrails	151.5	RRH2X60-AWS	119
KRY 112 144/2	142	RRH2X60-AWS	119
KRY 112 144/2	142	DB-T1-6Z-8AB-0Z	119
KRY 112 144/2	142	DB-T1-6Z-8AB-0Z	119
KRY 112 489/2	142	LNX-6514DS-A1M	119
KRY 112 489/2	142	LNX-6514DS-A1M	119
KRY 112 489/2	142	LNX-6514DS-A1M	119
Radio 4449 B12,B71	142	Round Low Profile Platform	119

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. Combined pole and wrap structure.
9. Sections modeled to have equivalent inertia to pole and wrap combined.
10. TOWER RATING: 68.8%

AMERICAN TOWER CORPORATION
Engineering

American Tower
3500 Regency Prkwy Suite 100
Cary, NC
Phone: (919)-466-5124
FAX: (919)-466-5415

Job: *Brln-Berlin (302483)*			
Project: *OAA713867_C3_04*			
Client: Sprint Nextel	Drawn by: Adam.Pittman	App'd:	
Code: TIA-222-G	Date: 08/28/19	Scale: NTS	
Path: X:\A-B\Brln-Berlin_CT (302483)\OAA713867 SPRINT NEXTEL\OAA713867_04_CUST_STRUCTRL\trx\302483 Brln-Berlin_CT.eri		Dwg No. E-1	

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Hartford County, Connecticut.
ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
Basic wind speed of 97 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Combined pole and wrap structure..
Sections modeled to have equivalent inertia to pole and wrap combined..
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	151.50-141.00	10.50	0.00	12	17.1872	17.7841	0.2400	0.9600	A572-65 (65 ksi)
L2	141.00-120.33	20.67	0.00	12	17.7841	31.5570	0.3059	2.0000	A572-65 (65 ksi)
L3	120.33-111.19	9.14	0.00	12	31.5570	33.0280	0.3063	2.0000	A572-65 (65 ksi)
L4	111.19-82.08	29.11	0.00	12	33.0280	38.3470	0.3141	2.2000	A572-65 (65 ksi)
L5	82.08-70.06	12.02	0.00	12	38.3470	39.7110	0.3804	2.4000	A572-65 (65 ksi)
L6	70.06-42.24	27.82	0.00	12	39.7110	43.9500	0.4014	2.6000	A572-65 (65 ksi)
L7	42.24-32.71	9.53	0.00	12	43.9500	45.0640	0.4706	2.8000	A572-65 (65 ksi)
L8	32.71-0.00	32.71		12	45.0640	49.5520	0.4906	3.0000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	17.7088	13.0968	480.1168	6.0671	8.9030	53.9277	972.8469	6.4458	3.9630	16.512
	18.3268	13.5581	532.6554	6.2808	9.2122	57.8209	1079.3043	6.6729	4.1229	17.179
L2	18.3035	17.2160	671.2919	6.2572	9.2122	72.8702	1360.2194	8.4732	3.9463	12.901
	32.5623	30.7823	3837.2246	11.1879	16.3465	234.7425	7775.2574	15.1501	7.6375	24.967
L3	32.5622	30.8221	3842.0947	11.1878	16.3465	235.0404	7785.1256	15.1697	7.6364	24.931
	34.0851	32.2730	4410.5870	11.7144	17.1085	257.8009	8937.0451	15.8838	8.0306	26.218
L4	34.0823	33.0869	4519.6700	11.7116	17.1085	264.1768	9158.0767	16.2844	8.0097	25.501
	39.5889	38.4666	7102.1213	13.6158	19.8637	357.5419	14390.8231	18.9321	9.4352	30.039
L5	39.5655	46.5048	8556.3285	13.5920	19.8637	430.7510	17337.4413	22.8883	9.2575	24.336
	40.9777	48.1756	9512.0483	14.0804	20.5703	462.4166	19273.9886	23.7106	9.6231	25.297
L6	40.9703	50.8080	10021.0923	14.0728	20.5703	487.1632	20305.4499	25.0061	9.5668	23.834
	45.3588	56.2869	13625.1654	15.5904	22.7661	598.4848	27608.2791	27.7027	10.7028	26.664
L7	45.3344	65.8857	15898.0688	15.5656	22.7661	698.3220	32213.7975	32.4270	10.5174	22.349
	46.4877	67.5738	17151.6341	15.9644	23.3432	734.7608	34753.8607	33.2578	10.8159	22.983
L8	46.4806	70.4140	17856.5130	15.9573	23.3432	764.9572	36182.1365	34.6556	10.7623	21.937
	51.1269	77.5039	23811.6328	17.5640	25.6679	927.6801	48248.8237	38.1450	11.9651	24.389

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 151.50-141.00				1	1	1			
L2 141.00-120.33				1	1	1			
L3 120.33-111.19				1	1	1			
L4 111.19-82.08				1	1	1			
L5 82.08-70.06				1	1	1			
L6 70.06-42.24				1	1	1			
L7 42.24-32.71				1	1	1			
L8 32.71-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
***										
1 5/8" Coax	B	No	Surface Ar (CaAa)	119.00 - 5.00	12	6	0.300 0.500	1.9800		0.82
1 5/8" (1.63"-41.3mm) Fiber	C	No	Surface Ar (CaAa)	119.00 - 5.00	2	2	-0.490 -0.480	1.6300		1.61
***										
4" Wrap Seams	A	No	Surface Ar (CaAa)	141.00 - 5.00	1	1	0.000 0.000	4.0000		0.00
4" Wrap Seams	B	No	Surface Ar (CaAa)	141.00 - 5.00	1	1	0.000 0.000	4.0000		0.00
4" Wrap Seams	C	No	Surface Ar (CaAa)	141.00 - 5.00	1	1	0.000 0.000	4.0000		0.00

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
1 1/4" Coax	C	No	No	Inside Pole	151.50 - 5.00	12	No Ice	0.00	0.66
							1/2" Ice	0.00	0.66
							1" Ice	0.00	0.66
0.39" (10mm) Fiber Trunk	C	No	No	Inside Pole	151.50 - 5.00	2	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
0.78" (19.7mm) 8 AWG 6	C	No	No	Inside Pole	151.50 - 5.00	4	No Ice	0.00	0.59
							1/2" Ice	0.00	0.59
							1" Ice	0.00	0.59
3" conduit	C	No	No	Inside Pole	151.50 - 5.00	1	No Ice	0.00	1.78
							1/2" Ice	0.00	1.78
							1" Ice	0.00	1.78
***									
1 5/8" (1.63"-41.3mm) Fiber	C	No	No	Inside Pole	142.00 - 5.00	1	No Ice	0.00	1.61
							1/2" Ice	0.00	1.61
							1" Ice	0.00	1.61
1 1/4" (1.25"-31.8mm) Fiber	C	No	No	Inside Pole	142.00 - 5.00	2	No Ice	0.00	1.05
							1/2" Ice	0.00	1.05
							1" Ice	0.00	1.05
1 5/8" Coax	C	No	No	Inside Pole	142.00 - 5.00	12	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
***									
1 1/4" Hybriflex	C	No	No	Inside Pole	127.00 - 5.00	4	No Ice	0.00	0.66
							1/2" Ice	0.00	0.66
							1" Ice	0.00	0.66

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	151.50-141.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.14
L2	141.00-120.33	A	0.000	0.000	8.268	0.000	0.00
		B	0.000	0.000	8.268	0.000	0.00
		C	0.000	0.000	8.268	0.000	0.55
L3	120.33-111.19	A	0.000	0.000	3.656	0.000	0.00
		B	0.000	0.000	12.934	0.000	0.08
		C	0.000	0.000	6.202	0.000	0.28
L4	111.19-82.08	A	0.000	0.000	11.644	0.000	0.00
		B	0.000	0.000	46.227	0.000	0.29
		C	0.000	0.000	21.134	0.000	0.92
L5	82.08-70.06	A	0.000	0.000	4.808	0.000	0.00
		B	0.000	0.000	19.088	0.000	0.12
		C	0.000	0.000	8.727	0.000	0.38
L6	70.06-42.24	A	0.000	0.000	11.128	0.000	0.00
		B	0.000	0.000	44.178	0.000	0.27
		C	0.000	0.000	20.197	0.000	0.88
L7	42.24-32.71	A	0.000	0.000	3.812	0.000	0.00
		B	0.000	0.000	15.134	0.000	0.09
		C	0.000	0.000	6.919	0.000	0.30
L8	32.71-0.00	A	0.000	0.000	11.084	0.000	0.00
		B	0.000	0.000	44.003	0.000	0.27
		C	0.000	0.000	20.117	0.000	0.88

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	151.50-141.00	A	2.321	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.14
L2	141.00-120.33	A	2.293	0.000	0.000	17.749	0.000	0.36
		B		0.000	0.000	17.749	0.000	0.36
		C		0.000	0.000	17.749	0.000	0.91
L3	120.33-111.19	A	2.267	0.000	0.000	7.801	0.000	0.16
		B		0.000	0.000	23.826	0.000	0.52
		C		0.000	0.000	15.410	0.000	0.55
L4	111.19-82.08	A	2.226	0.000	0.000	24.604	0.000	0.49
		B		0.000	0.000	84.032	0.000	1.82
		C		0.000	0.000	52.666	0.000	1.81
L5	82.08-70.06	A	2.174	0.000	0.000	10.035	0.000	0.20
		B		0.000	0.000	34.417	0.000	0.73
		C		0.000	0.000	21.466	0.000	0.73
L6	70.06-42.24	A	2.108	0.000	0.000	22.859	0.000	0.44
		B		0.000	0.000	78.834	0.000	1.65
		C		0.000	0.000	48.858	0.000	1.66
L7	42.24-32.71	A	2.025	0.000	0.000	7.673	0.000	0.14
		B		0.000	0.000	26.650	0.000	0.54
		C		0.000	0.000	16.382	0.000	0.56
L8	32.71-0.00	A	1.861	0.000	0.000	21.400	0.000	0.37
		B		0.000	0.000	75.445	0.000	1.46
		C		0.000	0.000	45.587	0.000	1.54

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	151.50-141.00	0.0000	0.0000	0.0000	0.0000
L2	141.00-120.33	0.0000	0.0000	0.0000	0.0000
L3	120.33-111.19	3.8072	1.4468	4.1174	1.6832
L4	111.19-82.08	4.4232	1.6820	4.7869	1.9569
L5	82.08-70.06	4.6508	1.7695	5.0417	2.0604
L6	70.06-42.24	4.8305	1.8387	5.2400	2.1396
L7	42.24-32.71	4.9945	1.9017	5.4167	2.2088
L8	32.71-0.00	4.7241	1.7993	5.1291	2.0846

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L2	15	4" Wrap Seams	120.33 - 141.00	1.0000	1.0000
L2	16	4" Wrap Seams	120.33 - 141.00	1.0000	1.0000
L2	17	4" Wrap Seams	120.33 - 141.00	1.0000	1.0000
L3	12	1 5/8" Coax	111.19 - 119.00	1.0000	1.0000
L3	13	1 5/8" (1.63"-41.3mm) Fiber	111.19 - 119.00	1.0000	1.0000
L3	15	4" Wrap Seams	111.19 - 120.33	1.0000	1.0000
L3	16	4" Wrap Seams	111.19 - 120.33	1.0000	1.0000
L3	17	4" Wrap Seams	111.19 - 120.33	1.0000	1.0000
L4	12	1 5/8" Coax	82.08 - 111.19	1.0000	1.0000
L4	13	1 5/8" (1.63"-41.3mm) Fiber	82.08 - 111.19	1.0000	1.0000
L4	15	4" Wrap Seams	82.08 - 111.19	1.0000	1.0000
L4	16	4" Wrap Seams	82.08 - 111.19	1.0000	1.0000
L4	17	4" Wrap Seams	82.08 - 111.19	1.0000	1.0000
L5	12	1 5/8" Coax	70.06 - 82.08	1.0000	1.0000
L5	13	1 5/8" (1.63"-41.3mm) Fiber	70.06 - 82.08	1.0000	1.0000
L5	15	4" Wrap Seams	70.06 - 82.08	1.0000	1.0000
L5	16	4" Wrap Seams	70.06 - 82.08	1.0000	1.0000
L5	17	4" Wrap Seams	70.06 - 82.08	1.0000	1.0000
L6	12	1 5/8" Coax	42.24 - 70.06	1.0000	1.0000
L6	13	1 5/8" (1.63"-41.3mm) Fiber	42.24 - 70.06	1.0000	1.0000
L6	15	4" Wrap Seams	42.24 - 70.06	1.0000	1.0000
L6	16	4" Wrap Seams	42.24 - 70.06	1.0000	1.0000
L6	17	4" Wrap Seams	42.24 - 70.06	1.0000	1.0000
L7	12	1 5/8" Coax	32.71 - 42.24	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L7	13	1 5/8" (1.63"-41.3mm) Fiber	32.71 - 42.24	1.0000	1.0000
L7	15	4" Wrap Seams	32.71 - 42.24	1.0000	1.0000
L7	16	4" Wrap Seams	32.71 - 42.24	1.0000	1.0000
L7	17	4" Wrap Seams	32.71 - 42.24	1.0000	1.0000
L8	12	1 5/8" Coax	5.00 - 32.71	1.0000	1.0000
L8	13	1 5/8" (1.63"-41.3mm) Fiber	5.00 - 32.71	1.0000	1.0000
L8	15	4" Wrap Seams	5.00 - 32.71	1.0000	1.0000
L8	16	4" Wrap Seams	5.00 - 32.71	1.0000	1.0000
L8	17	4" Wrap Seams	5.00 - 32.71	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) TPX-070821	A	From Leg	3.00	0.0000	151.50	No Ice	0.55	0.18	0.01
			0.00			1/2" Ice	0.56	0.25	0.01
			0.50			1" Ice	0.66	0.32	0.02
(2) TPX-070821	B	From Leg	3.00	0.0000	151.50	No Ice	0.55	0.18	0.01
			0.00			1/2" Ice	0.56	0.25	0.01
			0.50			1" Ice	0.66	0.32	0.02
(2) TPX-070821	C	From Leg	3.00	0.0000	151.50	No Ice	0.55	0.18	0.01
			0.00			1/2" Ice	0.56	0.25	0.01
			0.50			1" Ice	0.66	0.32	0.02
(2) LGP21401	A	From Leg	3.00	0.0000	151.50	No Ice	0.00	0.36	0.01
			0.00			1/2" Ice	1.45	0.48	0.02
			0.50			1" Ice	1.61	0.60	0.03
(2) LGP21401	B	From Leg	3.00	0.0000	151.50	No Ice	0.00	0.36	0.01
			0.00			1/2" Ice	1.45	0.48	0.02
			0.50			1" Ice	1.61	0.60	0.03
(2) LGP21401	C	From Leg	3.00	0.0000	151.50	No Ice	0.00	0.36	0.01
			0.00			1/2" Ice	1.45	0.48	0.02
			0.50			1" Ice	1.61	0.60	0.03
DC6-48-60-18-8F(32.8 lbs)	B	From Leg	0.50	0.0000	151.50	No Ice	1.28	0.79	0.02
			0.00			1/2" Ice	1.27	1.27	0.04
			0.50			1" Ice	1.45	1.45	0.05
DC6-48-60-18-8F(32.8 lbs)	C	From Leg	0.50	0.0000	151.50	No Ice	1.28	0.79	0.02
			0.00			1/2" Ice	1.27	1.27	0.04
			0.50			1" Ice	1.45	1.45	0.05
RRUS 4426 B66	A	From Leg	3.00	0.0000	151.50	No Ice	1.65	0.73	0.05
			0.00			1/2" Ice	1.81	0.84	0.06
			0.50			1" Ice	1.98	0.97	0.08
RRUS 4426 B66	B	From Leg	3.00	0.0000	151.50	No Ice	1.65	0.73	0.05
			0.00			1/2" Ice	1.81	0.84	0.06
			0.50			1" Ice	1.98	0.97	0.08
RRUS 4426 B66	C	From Leg	3.00	0.0000	151.50	No Ice	1.65	0.73	0.05
			0.00			1/2" Ice	1.81	0.84	0.06
			0.50			1" Ice	1.98	0.97	0.08
RRUS 11 (Band 12) (55 lb)	A	From Leg	3.00	0.0000	151.50	No Ice	0.00	1.07	0.06
			0.00			1/2" Ice	2.72	1.21	0.07
			0.50			1" Ice	2.92	1.36	0.10

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RRUS 11 (Band 12) (55 lb)	B	From Leg	3.00	0.0000	151.50	No Ice	0.00	1.07	0.06
			0.00			1/2" Ice	2.72	1.21	0.07
			0.50			1" Ice	2.92	1.36	0.10
RRUS 11 (Band 12) (55 lb)	C	From Leg	3.00	0.0000	151.50	No Ice	0.00	1.07	0.06
			0.00			1/2" Ice	2.72	1.21	0.07
			0.50			1" Ice	2.92	1.36	0.10
RRUS 32 (50.8 lbs)	B	From Leg	3.00	0.0000	151.50	No Ice	0.00	2.42	0.08
			0.00			1/2" Ice	0.00	2.64	0.10
			0.50			1" Ice	0.00	2.86	0.14
RRUS 32 (50.8 lbs)	C	From Leg	3.00	0.0000	151.50	No Ice	0.00	2.42	0.08
			0.00			1/2" Ice	0.00	2.64	0.10
			0.50			1" Ice	0.00	2.86	0.14
RRUS 32 (50.8 lbs)	C	From Leg	3.00	0.0000	151.50	No Ice	0.00	2.42	0.08
			0.00			1/2" Ice	0.00	2.64	0.10
			0.50			1" Ice	0.00	2.86	0.14
RRUS 32 B2	A	From Leg	3.00	0.0000	151.50	No Ice	0.00	1.67	0.05
			0.00			1/2" Ice	0.00	1.86	0.07
			0.50			1" Ice	0.00	2.05	0.10
RRUS 32 B2	A	From Leg	3.00	0.0000	151.50	No Ice	0.00	1.67	0.05
			0.00			1/2" Ice	0.00	1.86	0.07
			0.50			1" Ice	0.00	2.05	0.10
RRUS 32 B2	C	From Leg	3.00	0.0000	151.50	No Ice	0.00	1.67	0.05
			0.00			1/2" Ice	0.00	1.86	0.07
			0.50			1" Ice	0.00	2.05	0.10
7770.00	A	From Leg	3.00	0.0000	151.50	No Ice	5.51	2.93	0.04
			0.00			1/2" Ice	6.31	3.27	0.07
			0.50			1" Ice	6.75	3.63	0.11
7770.00	B	From Leg	3.00	0.0000	151.50	No Ice	5.51	2.93	0.04
			0.00			1/2" Ice	6.31	3.27	0.07
			0.50			1" Ice	6.75	3.63	0.11
7770.00	C	From Leg	3.00	0.0000	151.50	No Ice	5.51	2.93	0.04
			0.00			1/2" Ice	6.31	3.27	0.07
			0.50			1" Ice	6.75	3.63	0.11
QS66512-2	A	From Leg	3.00	0.0000	151.50	No Ice	8.13	5.00	0.11
			0.00			1/2" Ice	9.23	5.80	0.17
			0.50			1" Ice	10.33	6.60	0.23
QS66512-2	B	From Leg	3.00	0.0000	151.50	No Ice	8.13	5.00	0.11
			0.00			1/2" Ice	9.23	5.80	0.17
			0.50			1" Ice	10.33	6.60	0.23
QS66512-2	C	From Leg	3.00	0.0000	151.50	No Ice	8.13	5.00	0.11
			0.00			1/2" Ice	9.23	5.80	0.17
			0.50			1" Ice	10.33	6.60	0.23
OPA-65R-LCUU-H6	A	From Leg	3.00	0.0000	151.50	No Ice	9.66	5.52	0.07
			0.00			1/2" Ice	10.13	5.97	0.13
			0.50			1" Ice	10.61	6.43	0.20
OPA-65R-LCUU-H6	B	From Leg	3.00	0.0000	151.50	No Ice	9.66	5.52	0.07
			0.00			1/2" Ice	10.13	5.97	0.13
			0.50			1" Ice	10.61	6.43	0.20
OPA-65R-LCUU-H6	C	From Leg	3.00	0.0000	151.50	No Ice	9.66	5.52	0.07
			0.00			1/2" Ice	10.13	5.97	0.13
			0.50			1" Ice	10.61	6.43	0.20
Flat Platform w/ Handrails	C	None		0.0000	151.50	No Ice	42.40	42.40	2.00
						1/2" Ice	48.40	48.40	2.45
						1" Ice	54.40	54.40	2.90
***									
KRY 112 144/2	A	From Leg	3.00	0.0000	142.00	No Ice	0.00	0.23	0.01
			0.00			1/2" Ice	0.00	0.30	0.01

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	0.00	0.38	0.02
KRY 112 144/2	B	From Leg	3.00	0.0000	142.00	No Ice	0.00	0.23	0.01
			0.00			1/2" Ice	0.00	0.30	0.01
			0.00			1" Ice	0.00	0.38	0.02
KRY 112 144/2	C	From Leg	3.00	0.0000	142.00	No Ice	0.00	0.23	0.01
			0.00			1/2" Ice	0.00	0.30	0.01
			0.00			1" Ice	0.00	0.38	0.02
KRY 112 489/2	A	From Leg	3.00	0.0000	142.00	No Ice	0.00	0.36	0.02
			0.00			1/2" Ice	0.00	0.44	0.02
			0.00			1" Ice	0.00	0.54	0.03
KRY 112 489/2	B	From Leg	3.00	0.0000	142.00	No Ice	0.00	0.36	0.02
			0.00			1/2" Ice	0.00	0.44	0.02
			0.00			1" Ice	0.00	0.54	0.03
KRY 112 489/2	C	From Leg	3.00	0.0000	142.00	No Ice	0.00	0.36	0.02
			0.00			1/2" Ice	0.00	0.44	0.02
			0.00			1" Ice	0.00	0.54	0.03
Radio 4449 B12,B71	A	From Leg	3.00	0.0000	142.00	No Ice	1.64	1.16	0.07
			0.00			1/2" Ice	2.20	1.55	0.90
			0.00			1" Ice	2.76	1.94	1.73
Radio 4449 B12,B71	B	From Leg	3.00	0.0000	142.00	No Ice	1.64	1.16	0.07
			0.00			1/2" Ice	2.20	1.55	0.90
			0.00			1" Ice	2.76	1.94	1.73
Radio 4449 B12,B71	C	From Leg	3.00	0.0000	142.00	No Ice	1.64	1.16	0.07
			0.00			1/2" Ice	2.20	1.55	0.90
			0.00			1" Ice	2.76	1.94	1.73
AIR32 B66Aa/B2a	A	From Leg	3.00	0.0000	142.00	No Ice	6.51	2.70	0.13
			0.00			1/2" Ice	7.78	3.22	0.18
			0.00			1" Ice	9.05	3.74	0.22
AIR32 B66Aa/B2a	B	From Leg	3.00	0.0000	142.00	No Ice	6.51	2.70	0.13
			0.00			1/2" Ice	7.78	3.22	0.18
			0.00			1" Ice	9.05	3.74	0.22
AIR32 B66Aa/B2a	C	From Leg	3.00	0.0000	142.00	No Ice	6.51	2.70	0.13
			0.00			1/2" Ice	7.78	3.22	0.18
			0.00			1" Ice	9.05	3.74	0.22
APXVAARR24_43-U-NA20	A	From Leg	3.00	0.0000	142.00	No Ice	20.24	5.15	0.13
			0.00			1/2" Ice	23.53	5.99	0.24
			0.00			1" Ice	26.82	6.83	0.35
APXVAARR24_43-U-NA20	B	From Leg	3.00	0.0000	142.00	No Ice	20.24	5.15	0.13
			0.00			1/2" Ice	23.53	5.99	0.24
			0.00			1" Ice	26.82	6.83	0.35
APXVAARR24_43-U-NA20	C	From Leg	3.00	0.0000	142.00	No Ice	20.24	5.15	0.13
			0.00			1/2" Ice	23.53	5.99	0.24
			0.00			1" Ice	26.82	6.83	0.35
Flat Platform w/ Handrails	C	None		0.0000	142.00	No Ice	42.40	42.40	2.00
						1/2" Ice	48.40	48.40	2.45
						1" Ice	54.40	54.40	2.90
***									
RRH2x50-08	A	From Face	3.00	0.0000	127.00	No Ice	1.70	1.10	0.05
			0.00			1/2" Ice	2.27	1.80	0.07
			0.00			1" Ice	2.84	2.50	0.09
RRH2x50-08	B	From Face	3.00	0.0000	127.00	No Ice	1.70	1.10	0.05
			0.00			1/2" Ice	2.27	1.80	0.07
			0.00			1" Ice	2.84	2.50	0.09
RRH2x50-08	C	From Face	3.00	0.0000	127.00	No Ice	1.70	1.10	0.05
			0.00			1/2" Ice	2.27	1.80	0.07
			0.00			1" Ice	2.84	2.50	0.09
800 MHz 2X50W RRH w/	A	From Leg	3.00	0.0000	127.00	No Ice	0.00	1.93	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Filter			0.00				1/2" Ice	2.24	2.11	0.09
			0.00				1" Ice	2.43	2.29	0.11
800 MHz 2X50W RRH w/ Filter	B	From Leg	3.00	0.00	0.0000	127.00	No Ice	0.00	1.93	0.06
			0.00				1/2" Ice	2.24	2.11	0.09
			0.00				1" Ice	2.43	2.29	0.11
800 MHz 2X50W RRH w/ Filter	C	From Leg	3.00	0.00	0.0000	127.00	No Ice	0.00	1.93	0.06
			0.00				1/2" Ice	2.24	2.11	0.09
			0.00				1" Ice	2.43	2.29	0.11
(2) 4x40W RRH (88 lb)	A	From Leg	3.00	0.00	0.0000	127.00	No Ice	0.00	3.80	0.09
			0.00				1/2" Ice	0.00	4.06	0.12
			0.00				1" Ice	0.00	4.34	0.15
(2) 4x40W RRH (88 lb)	C	From Leg	3.00	0.00	0.0000	127.00	No Ice	0.00	3.80	0.09
			0.00				1/2" Ice	0.00	4.06	0.12
			0.00				1" Ice	0.00	4.34	0.15
(2) 4x40W RRH (88 lb)	B	From Leg	3.00	0.00	0.0000	127.00	No Ice	0.00	3.80	0.09
			0.00				1/2" Ice	0.00	4.06	0.12
			0.00				1" Ice	0.00	4.34	0.15
TD-RRH8x20	A	From Face	3.00	0.00	0.0000	127.00	No Ice	0.00	1.40	0.07
			0.00				1/2" Ice	4.59	1.61	0.09
			0.00				1" Ice	4.88	1.82	0.12
TD-RRH8x20	B	From Face	3.00	0.00	0.0000	127.00	No Ice	0.00	1.40	0.07
			0.00				1/2" Ice	4.59	1.61	0.09
			0.00				1" Ice	4.88	1.82	0.12
TD-RRH8x20	C	From Face	3.00	0.00	0.0000	127.00	No Ice	0.00	1.40	0.07
			0.00				1/2" Ice	4.59	1.61	0.09
			0.00				1" Ice	4.88	1.82	0.12
APXVSPP18-C-A20	A	From Leg	3.00	0.00	0.0000	127.00	No Ice	8.02	5.28	0.06
			0.00				1/2" Ice	8.48	5.74	0.11
			0.00				1" Ice	8.94	6.20	0.16
APXVSPP18-C-A20	B	From Leg	3.00	0.00	0.0000	127.00	No Ice	8.02	5.28	0.06
			0.00				1/2" Ice	8.48	5.74	0.11
			0.00				1" Ice	8.94	6.20	0.16
APXV9ERR18-C-A20	C	From Leg	3.00	0.00	0.0000	127.00	No Ice	8.02	5.81	0.06
			0.00				1/2" Ice	8.48	6.27	0.11
			0.00				1" Ice	8.94	6.73	0.17
DT465B-2XR	A	From Leg	3.00	0.00	0.0000	127.00	No Ice	9.10	5.97	0.06
			0.00				1/2" Ice	9.56	6.43	0.12
			0.00				1" Ice	10.04	6.90	0.18
DT465B-2XR	B	From Leg	3.00	0.00	0.0000	127.00	No Ice	9.10	5.97	0.06
			0.00				1/2" Ice	9.56	6.43	0.12
			0.00				1" Ice	10.04	6.90	0.18
DT465B-2XR	C	From Leg	3.00	0.00	0.0000	127.00	No Ice	9.10	5.97	0.06
			0.00				1/2" Ice	9.56	6.43	0.12
			0.00				1" Ice	10.04	6.90	0.18
Round Platform w/ Handrails	C	None			0.0000	127.00	No Ice	27.20	27.20	2.00
							1/2" Ice	34.20	34.20	2.40
							1" Ice	41.20	41.20	2.80
***										
RRH2X60-AWS	A	From Leg	3.00	0.00	0.0000	119.00	No Ice	0.00	1.49	0.04
			0.00				1/2" Ice	2.40	1.67	0.06
			0.00				1" Ice	2.61	1.86	0.08
RRH2X60-AWS	B	From Leg	3.00	0.00	0.0000	119.00	No Ice	0.00	1.49	0.04
			0.00				1/2" Ice	2.40	1.67	0.06
			0.00				1" Ice	2.61	1.86	0.08
RRH2X60-AWS	C	From Leg	3.00	0.00	0.0000	119.00	No Ice	0.00	1.49	0.04
			0.00				1/2" Ice	2.40	1.67	0.06
			0.00				1" Ice	2.61	1.86	0.08

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
DB-T1-6Z-8AB-0Z	B	From Leg	0.50	0.0000	119.00	No Ice	4.80	2.00	0.04
			0.00			1/2" Ice	5.07	2.19	0.08
			0.00			1" Ice	5.35	2.39	0.12
DB-T1-6Z-8AB-0Z	C	From Leg	0.50	0.0000	119.00	No Ice	4.80	2.00	0.04
			0.00			1/2" Ice	5.07	2.19	0.08
			0.00			1" Ice	5.35	2.39	0.12
LNX-6514DS-A1M	A	From Leg	3.00	0.0000	119.00	No Ice	8.17	5.41	0.04
			0.00			1/2" Ice	8.63	5.86	0.09
			0.00			1" Ice	9.10	6.33	0.15
LNX-6514DS-A1M	B	From Leg	3.00	0.0000	119.00	No Ice	8.17	5.41	0.04
			0.00			1/2" Ice	8.63	5.86	0.09
			0.00			1" Ice	9.10	6.33	0.15
LNX-6514DS-A1M	C	From Leg	3.00	0.0000	119.00	No Ice	8.17	5.41	0.04
			0.00			1/2" Ice	8.63	5.86	0.09
			0.00			1" Ice	9.10	6.33	0.15
Round Low Profile Platform	C	None		0.0000	119.00	No Ice	21.70	21.70	1.50
						1/2" Ice	27.20	27.20	1.70
						1" Ice	32.70	32.70	1.90

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp

Comb. No.	Description
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection ft	Gov. Load Comb.	Tilt °	Twist °
L1	151.5 - 141	1.723	46	1.1624	0.0019
L2	141 - 120.33	1.513	40	1.1268	0.0012
L3	120.33 - 111.19	1.128	40	1.0168	0.0013
L4	111.19 - 82.08	0.970	40	0.9664	0.0014
L5	82.08 - 70.06	0.533	40	0.7358	0.0011
L6	70.06 - 42.24	0.389	40	0.6354	0.0010
L7	42.24 - 32.71	0.142	40	0.3783	0.0005
L8	32.71 - 0	0.086	40	0.2954	0.0004

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection ft	Tilt °	Twist °	Radius of Curvature ft
151.50	(2) TPX-070821	46	1.723	1.1624	0.0019	19418
142.00	KRY 112 144/2	40	1.533	1.1308	0.0012	10766
127.00	RRH2x50-08	40	1.248	1.0545	0.0013	11194
119.00	RRH2X60-AWS	40	1.104	1.0096	0.0014	11406

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection ft	Gov. Load Comb.	Tilt °	Twist °
L1	151.5 - 141	8.115	16	5.4718	0.0091
L2	141 - 120.33	7.126	4	5.3116	0.0054
L3	120.33 - 111.19	5.310	4	4.7971	0.0064
L4	111.19 - 82.08	4.564	4	4.5587	0.0064
L5	82.08 - 70.06	2.510	4	3.4676	0.0053
L6	70.06 - 42.24	1.832	4	2.9934	0.0045
L7	42.24 - 32.71	0.666	4	1.7809	0.0025
L8	32.71 - 0	0.402	4	1.3899	0.0019

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection ft	Tilt °	Twist °	Radius of Curvature ft
151.50	(2) TPX-070821	16	8.115	5.4718	0.0091	4269
142.00	KRY 112 144/2	4	7.219	5.3301	0.0057	2365
127.00	RRH2x50-08	4	5.876	4.9743	0.0062	2414
119.00	RRH2X60-AWS	4	5.199	4.7631	0.0064	2448

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	151.5 - 141 (1)	TP17.7841x17.1872x0.24	10.50	0.00	0.0	13.5581	-7.90	999.37	0.008
L2	141 - 120.33 (2)	TP31.557x17.7841x0.3059	20.67	0.00	0.0	30.7823	-14.35	2146.63	0.007
L3	120.33 - 111.19 (3)	TP33.028x31.557x0.3063	9.14	0.00	0.0	32.2730	-17.83	2210.95	0.008
L4	111.19 - 82.08 (4)	TP38.347x33.028x0.3141	29.11	0.00	0.0	38.4666	-23.54	2491.00	0.009
L5	82.08 - 70.06 (5)	TP39.711x38.347x0.3804	12.02	0.00	0.0	48.1756	-26.54	3343.96	0.008
L6	70.06 - 42.24 (6)	TP43.95x39.711x0.4014	27.82	0.00	0.0	56.2869	-34.40	3831.48	0.009
L7	42.24 - 32.71 (7)	TP45.064x43.95x0.4706	9.53	0.00	0.0	67.5738	-37.65	4843.91	0.008
L8	32.71 - 0 (8)	TP49.552x45.064x0.4906	32.71	0.00	0.0	77.5039	-49.69	5448.80	0.009

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	151.5 - 141 (1)	TP17.7841x17.1872x0.24	59.07	355.17	0.166	0.00	355.17	0.000
L2	141 - 120.33 (2)	TP31.557x17.7841x0.3059	301.47	1364.17	0.221	0.00	1364.17	0.000
L3	120.33 - 111.19 (3)	TP33.028x31.557x0.3063	464.11	1471.78	0.315	0.00	1471.78	0.000
L4	111.19 - 82.08 (4)	TP38.347x33.028x0.3141	1100.48	1929.46	0.570	0.00	1929.46	0.000
L5	82.08 - 70.06 (5)	TP39.711x38.347x0.3804	1411.03	2674.77	0.528	0.00	2674.77	0.000
L6	70.06 - 42.24 (6)	TP43.95x39.711x0.4014	2228.74	3394.93	0.656	0.00	3394.93	0.000
L7	42.24 - 32.71 (7)	TP45.064x43.95x0.4706	2539.15	4389.17	0.579	0.00	4389.17	0.000
L8	32.71 - 0 (8)	TP49.552x45.064x0.4906	3687.97	5434.94	0.679	0.00	5434.94	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	151.5 - 141 (1)	TP17.7841x17.1872x0.24	9.52	499.68	0.019	0.41	723.49	0.001
L2	141 - 120.33 (2)	TP31.557x17.7841x0.3059	15.38	1073.31	0.014	0.59	2775.27	0.000
L3	120.33 - 111.19 (3)	TP33.028x31.557x0.3063	19.13	1105.48	0.017	0.02	2993.78	0.000
L4	111.19 - 82.08 (4)	TP38.347x33.028x0.3141	24.72	1245.50	0.020	1.24	3923.29	0.000
L5	82.08 - 70.06 (5)	TP39.711x38.347x0.3804	26.98	1671.98	0.016	1.75	5441.35	0.000
L6	70.06 - 42.24 (6)	TP43.95x39.711x0.4014	31.83	1915.74	0.017	2.90	6905.35	0.000
L7	42.24 - 32.71 (7)	TP45.064x43.95x0.4706	33.32	2421.95	0.014	3.28	8931.67	0.000
L8	32.71 - 0 (8)	TP49.552x45.064x0.4906	36.91	2724.40	0.014	3.27	11057.67	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	151.5 - 141 (1)	0.008	0.166	0.000	0.019	0.001	0.175 ✔	1.000	4.8.2 ✔
L2	141 - 120.33 (2)	0.007	0.221	0.000	0.014	0.000	0.228 ✔	1.000	4.8.2 ✔
L3	120.33 - 111.19 (3)	0.008	0.315	0.000	0.017	0.000	0.324 ✔	1.000	4.8.2 ✔
L4	111.19 - 82.08 (4)	0.009	0.570	0.000	0.020	0.000	0.580 ✔	1.000	4.8.2 ✔
L5	82.08 - 70.06	0.008	0.528	0.000	0.016	0.000	0.536	1.000	4.8.2 ✔

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L6	70.06 - 42.24 (5)	0.009	0.656	0.000	0.017	0.000	0.666 ✔	1.000	4.8.2 ✔
L7	42.24 - 32.71 (6)	0.008	0.579	0.000	0.014	0.000	0.586 ✔	1.000	4.8.2 ✔
L8	32.71 - 0 (7) (8)	0.009	0.679	0.000	0.014	0.000	0.688 ✔	1.000	4.8.2 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	151.5 - 141	Pole	TP17.7841x17.1872x0.24	1	-7.90	999.37	17.5	Pass
L2	141 - 120.33	Pole	TP31.557x17.7841x0.3059	2	-14.35	2146.63	22.8	Pass
L3	120.33 - 111.19	Pole	TP33.028x31.557x0.3063	3	-17.83	2210.95	32.4	Pass
L4	111.19 - 82.08	Pole	TP38.347x33.028x0.3141	4	-23.54	2491.00	58.0	Pass
L5	82.08 - 70.06	Pole	TP39.711x38.347x0.3804	5	-26.54	3343.96	53.6	Pass
L6	70.06 - 42.24	Pole	TP43.95x39.711x0.4014	6	-34.40	3831.48	66.6	Pass
L7	42.24 - 32.71	Pole	TP45.064x43.95x0.4706	7	-37.65	4843.91	58.6	Pass
L8	32.71 - 0	Pole	TP49.552x45.064x0.4906	8	-49.69	5448.80	68.8	Pass
							Summary	
						Pole (L8)	68.8	Pass
						RATING =	**68.8**	**Pass**

Base Plate & Anchor Rod Analysis

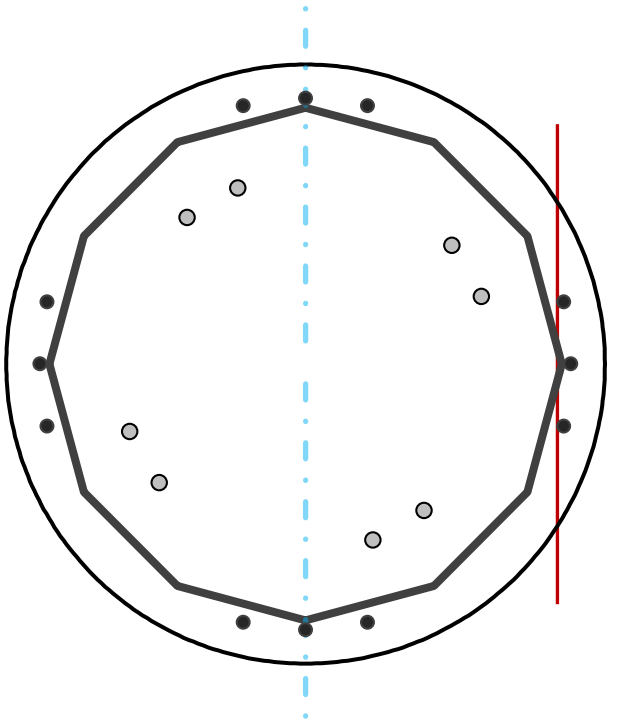
Pole Dimensions		
Number of Sides	12	-
Diameter	51	in
Thickness	0.75	in
Orientation Offset		°

Base Reactions		
Moment, Mu	3688	k-ft
Axial, Pu	50	k
Shear, Vu	37	k
Neutral Axis	270	°

Report Capacities		
Component	Capacity	Result
Base Plate	44%	Pass
Anchor Rods	76%	Pass
Dwyidag	-	-

Base Plate		
Shape	Round	-
Diameter, ø	62	in
Thickness	2	in
Grade	A572-60	-
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	N/A	in
Orientation Offset		°
Anchor Rod Detail	c	η=0.55
Clear Distance	N/A	in
Applied Moment, Mu	693.8	k
Bending Stress, ϕMn	1563.2	k

Original Anchor Rods		
Arrangement	Cluster	-
Quantity	12	-
Diameter, ø	1 3/4	in
Bolt Circle	55	in
Grade	Other	
Yield Strength, Fy	127.7	ksi
Tensile Strength, Fu	150	ksi
Spacing	6.5	in
Orientation Offset	45	°
Applied Force, Pu	172.0	k
Anchor Rods, ϕPn	227.9	k



Additional Anchor Rods		
Quantity	8	-
Diameter, ø	2 1/4	in
Bolt Circle	39	in
Grade	A325	
Yield Strength, Fy	92	ksi
Tensile Strength, Fu	120	ksi
Bypass Base?	No	
Orientation Offset		°
Applied Force, Pu	193.8	k
Additional Rod, ϕPn	311.8	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	37.0	3688.0	1.00
Anchor Rod Forces	33.4	2343.5	0.64
Additional Bolt (Grp1) Forces	3.6	1344.5	0.36
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	117.0509	9.7542	1.8426		36967.22
Bolt	2.4053	1.8995	0.2871	5	8622.24
Bolt1	3.9761	3.2477	0.8393	4.5	4946.45
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Round	-
Diameter, D	62	in
Thickness, t	2	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	35.256	in
Detail Type	c	-
Detail Factor	0.55	-
Clear Distance	N/A	-

External Base Plate		
Chord Length AA	24.949	in
Additional AA	4.000	in
Section Modulus, Z	28.949	in^3
Applied Moment, Mu	693.8	k-ft
Bending Capacity, ϕMn	1563.2	k-ft
Capacity, Mu/ϕMn	0.444	OK
Chord Length AB	20.829	in
Additional AB	4.000	in
Section Modulus, Z	24.829	in^3
Applied Moment, Mu	236.0	k-ft
Bending Capacity, ϕMn	1340.8	k-ft
Capacity, Mu/ϕMn	0.176	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	12	-
Rod Diameter, d	1.75	in
Bolt Circle, BC	55	in
Yield Strength, Fy	127.7	ksi
Tensile Strength, Fu	150	ksi
Applied Axial, Pu	172.0	k
Applied Shear, Vu	1.1	k
Compressive Capacity, ϕPn	227.9	k
Tensile Capacity, ϕRnt	0.754	OK
Interaction Capacity	0.764	OK

Additional Bolt Group 1		
Bolt Quantity, N	8	-
Bolt Diameter, d	2.25	in
Bolt Circle, BC	39	in
Yield Strength, Fy	92	ksi
Tensile Strength, Fu	120	ksi
Applied Axial, Pu	193.8	k
Applied Shear, Vu	2.2	k
Compressive Capacity, ϕPn	311.8	k
Compressive Capacity, ϕPn	0.621	OK
Interaction Capacity	0.634	OK

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

Dywidag Reinforcement		
Dywidag Quantity, N	0	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	57.88	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	0.0	k
Compressive Capacity, ϕPn	0.0	k
Capacity, Pu/ϕPn		

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

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

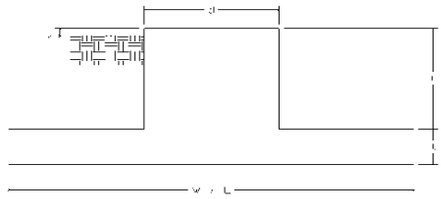
Horizontal Weld		
Horz.-to-Stiffener a=e_x/l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Effective Fillet	0.000	in
Compressive Capacity, ϕPn	#DIV/0!	k
Horz.-to-Pole a=e_x/l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Shear Capacity, ϕVn	#DIV/0!	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$	-	

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

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

Site Name:	Brln-Berlin
Site Number:	302483
Engineering Number:	OAA713867
Engineer:	ASP
Date:	08/28/19
Tower Type:	MP

Program Last Updated: *5/13/2014*



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

Design / Analysis / Mapping:	Mapping	
Compression/Leg:	**50**	
Total Shear:	**37**	k
Moment:	**3688**	k-ft
Tower + Appurtenance Weight:	**50**	k
Depth to Base of Foundation (l + t - h):	8	ft
Diameter of Pier (d):	7	ft
Height of Pier above Ground (h):	0.5	ft
Width of Pad (W):	11	ft
Length of Pad (L):	11	ft
Thickness of Pad (t):	2.6	ft
Tower Leg Center to Center:	0	ft
Number of Tower Legs:	1	(1 if MP or GT)
Tower Center from Mat Center:	0	ft
Depth Below Ground Surface to Water Table:	99	ft
Unit Weight of Concrete:	150	pcf
Unit Weight of Soil Above Water Table:	135	pcf
Unit Weight of Water:	62.4	pcf
Unit Weight of Soil Below Water Table:	72.6	pcf
Friction Angle of Uplift:	40	Degrees
Ultimate Coefficient of Shear Friction:	0.35	
Ultimate Compressive Bearing Pressure:	52000	psf
Ultimate Passive Pressure on Pad Face:	500	psf
Factored Moment Applied to Rock Anchors	**2766**	**k-ft**
$\phi_{Soil\ and\ Concrete\ Weight}$:	0.9	
ϕ_{Soil}:	0.75	

Rock Anchor Usage

Rock Anchor Resistance:	3360.0	k
Rock Anchor Tensile Resistance:	0.864	Result: OK

Overturning Moment Usage

Design OTM:	4002.5	k-ft
Weight of Soil and Concrete OTM Resistance:	141.4	k
OTM Resistance from Soil and Concrete:	777.6	k-ft
OTM Resistance from Tower:	229.2	k-ft
OTM Resistance from Soil Facture:	527.8	k-ft
OTM Resistance from Passive Pressure on Pad Face:	16.5	k-ft
OTM Resistance:	4162.0	k-ft
Design OTM / OTM Resistance:	0.962	Result: OK

Soil Bearing Pressure Usage

Total Weight (Foundation, Soil, Tower):	187.0	k
Factored Nominal Bearing Pressure:	39000	psf
Net Bearing Pressure/Factored Nominal Bearing Pressure:	0.40	Result: OK
Load Direction Controling Design Bearing Pressure:	Diagonal to Pad Edge	

Sliding Factor of Safety

Total Factored Sliding Resistance:	58.7	k
Sliding Design / Sliding Resistance:	0.63	Result: OK

Sprint

PROJECT:	DO MACRO UPGRADE
SITE NAME:	SNET TOWER
SITE CASCADE:	CT03XC088
SITE ADDRESS:	260 BECKLEY ROAD BERLIN, CT 06037
SITE TYPE:	MONOPOLE TOWER
MARKET:	NORTHERN CONNECTICUT

SITE INFORMATION

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

LATITUDE (NAD83):
41° 37' 54.06" N
41.63168333°

LONGITUDE (NAD83):
72° 43' 47.56" W
-72.72987777°

COUNTY:
HARTFORD COUNTY

ZONING JURISDICTION:
CONNECTICUT SITTING COUNCIL

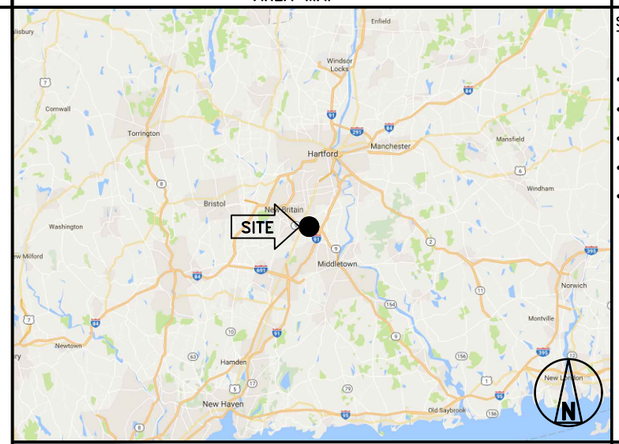
ZONING DISTRICT:
N/A

POWER COMPANY:
CONNECTICUT LIGHT & POWER
PHONE: (800) 322-3223

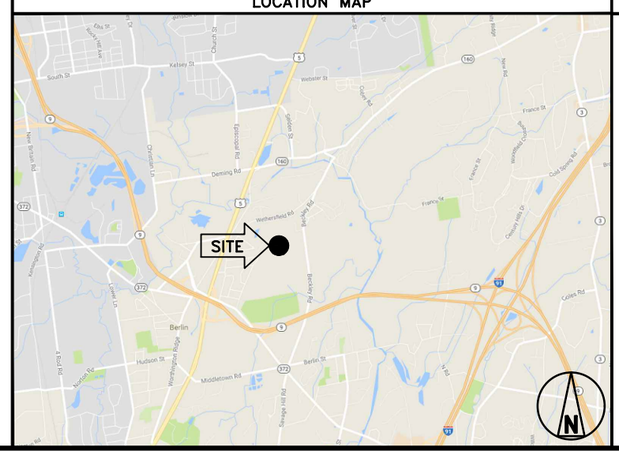
AAV PROVIDER:
AT&T
PHONE: (210) 821-4105

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.

- INSTALL (3) PANEL ANTENNAS
- INSTALL (3) 2.5 GHz AND (3) 800 MHz RRH'S BEHIND ANTENNAS
- INSTALL (30) JUMPER CABLES
- INSTALL (1) HYBRID CABLE
- INSTALL 2.5 EQUIPMENT INSIDE EXISTING N.V. MMBS CABINET

THESE PLANS HAVE BEEN DEVELOPED FOR THE MODIFICATION OF AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY OWNED OR LEASED BY SPRINT IN ACCORDANCE WITH THE SCOPE OF WORK PROVIDED BY SPRINT. INFINIGY HAS INCORPORATED THIS SCOPE OF WORK IN THE PLANS. THESE PLANS ARE NOT FOR CONSTRUCTION UNLESS ACCOMPANIED BY A PASSING STRUCTURAL STABILITY ANALYSIS PREPARED BY A LICENSED STRUCTURAL ENGINEER. STRUCTURAL ANALYSIS MUST INCLUDE BOTH TOWER AND MOUNT.

APPLICABLE CODES

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALL IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

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

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

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PLANS PREPARED FOR:
Sprint

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

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

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
24705
LICENSED PROFESSIONAL ENGINEER
10/04/2019

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
REVISED/ ISSUED FOR PERMIT	10/5/19	JLM	1
ISSUED FOR PERMIT	1/25/18	JDL	0

SITE NAME:
SNET TOWER

SITE NUMBER:
CT03XC088

SITE ADDRESS:
260 BECKLEY ROAD
BERLIN, CT 06037

SHEET DESCRIPTION:
TITLE SHEET
& PROJECT DATA

SHEET NUMBER:
T-1

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

SECTION 01 100 – SCOPE OF WORK

PART 1 – GENERAL

1.1 THE WORK: THESE STANDARD CONSTRUCTION SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT CONSTRUCTION STANDARDS FOR WIRELESS SITES, CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 PRECEDENCE: SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES INCLUDING THE STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE. NOTIFY SPRINT CONSTRUCTION MANAGER IF THIS OCCURS.

1.4 NATIONALLY RECOGNIZED CODES AND STANDARDS:

A. THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL AND LOCAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:

1. GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
5. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
3. GR-1089 CORE, ELECTROMAGNETIC COMPATIBILITY AND ELECTRICAL SAFETY –GENERIC CRITERIA FOR NETWORK TELECOMMUNICATIONS EQUIPMENT.
4. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE – "NEC") AND NFPA 101 (LIFE SAFETY CODE).
5. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM)
6. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE)
7. AMERICAN CONCRETE INSTITUTE (ACI)
8. AMERICAN WIRE PRODUCERS ASSOCIATION (AWPA)
9. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
10. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
11. PORTLAND CEMENT ASSOCIATION (PCA)
12. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
13. BRICK INDUSTRY ASSOCIATION (BIA)
14. AMERICAN WELDING SOCIETY (AWS)
15. NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA)
16. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
17. DOOR AND HARDWARE INSTITUTE (DHI)
18. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
19. APPLICABLE BUILDING CODES INCLUDING UNIFORM BUILDING CODE, SOUTHERN BUILDING CODE, BOCA, AND THE INTERNATIONAL BUILDING CODE.

1.5 DEFINITIONS:

A. WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.

B. COMPANY: SPRINT CORPORATION

C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.

D. CONTRACTOR: CONSTRUCTION CONTRACTOR; CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.

E. THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A&E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.

F. OFCI: OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT.

G. CONSTRUCTION MANAGER – ALL PROJECTS RELATED COMMUNICATION TO FLOW THROUGH SPRINT REPRESENTATIVE IN CHARGE OF PROJECT...

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

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

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

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

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

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

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

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

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

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

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

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

NOTE: IN SHORT-FORM SPECIFICATIONS ON THE DRAWINGS, A/E TO INSERT LIST OF APPLICABLE MOPS INCLUDING EN-2012-001, EN-2013-002, EL-0568, AND TS-0193

1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

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

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

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

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

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

SECTION 01 200 – COMPANY FURNISHED MATERIAL AND EQUIPMENT

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 RECEIPT OF MATERIAL AND EQUIPMENT:

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

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

1 ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.

2. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.

3. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.

4. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO SPRINT OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.

5. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.

6. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

3.2 DELIVERABLES:

A. COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.

B. IF APPLICABLE, COMPLETE LOST/STOLEN/DAMAGED DOCUMENTATION REPORT AS NECESSARY IN ACCORDANCE WITH COMPANY PRACTICE, AND AS DIRECTED BY COMPANY.

C. UPLOAD DOCUMENTATION INTO SPRINT SITE MANAGEMENT SYSTEM (SMS) AND/OR PROVIDE HARD COPY DOCUMENTATION AS REQUESTED.

SECTION 01 300 – CELL SITE CONSTRUCTION CO.

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

1.3 NOTICE TO PROCEED

A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF THE WORK ORDER.

B. UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE SPRINT WITH AN OPERATIONAL WIRELESS FACILITY.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FUNCTIONAL REQUIREMENTS:

A. THE ACTIVITIES DESCRIBED IN THIS PARAGRAPH REPRESENT MINIMUM ACTIONS AND PROCESSES REQUIRED TO SUCCESSFULLY COMPLETE THE WORK. THE ACTIVITIES DESCRIBED ARE NOT EXHAUSTIVE, AND CONTRACTOR SHALL TAKE ANY AND ALL ACTIONS AS NECESSARY TO SUCCESSFULLY COMPLETE THE CONSTRUCTION OF A FULLY FUNCTIONING WIRELESS FACILITY AT THE SITE IN ACCORDANCE WITH COMPANY PROCESSES.

B. SUBMIT SPECIFIC DOCUMENTATION AS INDICATED HEREIN, AND OBTAIN REQUIRED APPROVALS WHILE THE WORK IS BEING PERFORMED.

C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES

D. PROVIDE CONSTRUCTION ACTIVITIES TO THE EXTENT REQUIRED BY THE CONTRACT DOCUMENTS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

PLANS PREPARED FOR:

Sprint

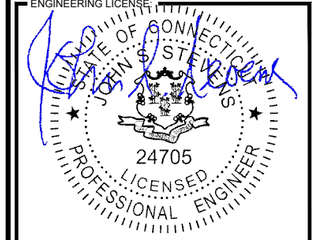
PLANS PREPARED BY:

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

PROJECT MANAGER:

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

ENGINEERING LICENSE:



10/04/2019

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
REVISED/ ISSUED FOR PERMIT	10/5/19	JLM	1
ISSUED FOR PERMIT	1/25/18	JDL	0

SITE NAME:

SNET TOWER

SITE NUMBER:

CT03XC088

SITE ADDRESS:

260 BECKLEY ROAD
BERLIN, CT 06037

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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OFFICE#. (518) 306-3740

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
24705
LICENSED PROFESSIONAL ENGINEER
10/04/2019

REVISIONS:

DESCRIPTION	DATE	BY	REV.
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ISSUED FOR PERMIT	1/25/18	JDL	0

SITE NAME:
SNET TOWER

SITE NUMBER:
CT03XC088

SITE ADDRESS:
260 BECKLEY ROAD
BERLIN, CT 06037

SHEET DESCRIPTION:
SPRINT SPECIFICATIONS

SHEET NUMBER:
SP-2

CONTINUE FROM SP-2

7. VERIFICATION DOCUMENTED WITH THE ANTENNA CHECKLIST REPORT, BY A&E, SITE DEVELOPMENT REP, OR RF REP.

8. FINAL INSPECTION CHECKLIST AND HANDOFF WALK (HOC.). SIGNED FORM SHOWING ACCEPTANCE BY FIELD OPS IS TO BE UPLOADED INTO SMS.

9. COAX SWEEP AND FIBER TESTING DOCUMENTS SUBMITTED VIA SMS FOR RF APPROVAL.

10. SCAN-ABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT

11. ALL AVAILABLE JURISDICTIONAL INFORMATION

12. PDF SCAN OF REDLINES PRODUCED IN FIELD

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.

D. CONSTRUCTION INSPECTIONS AND CORRECTIVE MEASURES SHALL BE DOCUMENTED BY THE CONTRACTOR WITH WRITTEN REPORTS AND PHOTOGRAPHS. PHOTOGRAPHS MUST BE DIGITAL AND OF SUFFICIENT QUALITY TO CLEARLY SHOW THE SITE CONSTRUCTION. PHOTOGRAPHS MUST CLEARLY IDENTIFY THE PHOTOGRAPHED ITEM AND BE LABELED WITH THE SITE CASCADE NUMBER, SITE NAME, DESCRIPTION, AND DATE.

3.4 DELIVERABLES: TEST AND INSPECTION REPORTS AND CLOSEOUT DOCUMENTATION SHALL BE UPLOADED TO THE SMS AND/OR FORWARDED TO SPRINT FOR INCLUSION INTO THE PERMANENT SITE FILES.

A. THE FOLLOWING TEST AND INSPECTION REPORTS SHALL BE PROVIDED AS APPLICABLE.

1. CONCRETE MIX AND CYLINDER BREAK REPORTS.

2. STRUCTURAL BACKFILL COMPACTION REPORTS.

3. SITE RESISTANCE TO EARTH TEST.

4. ANTENNA AZIMUTH AND DOWN TILT VERIFICATION

5. TOWER ERECTION INSPECTIONS AND MEASUREMENTS DOCUMENTING TOWER INSTALLED PER SUPPLIER'S REQUIREMENTS AND THE APPLICABLE SECTIONS HEREIN.

6. COAX CABLE SWEEP TESTS PER COMPANY'S "ANTENNA LINE ACCEPTANCE STANDARDS".

B. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES THE FOLLOWING;

1. TEST WELLS AND TRENCHES: PHOTOGRAPHS OF ALL TEST WELLS; PHOTOGRAPHS SHOWING ALL OPEN EXCAVATIONS AND TRENCHING PRIOR TO BACKFILLING SHOWING A TAPE MEASURE VISIBLE IN THE EXCAVATIONS INDICATING DEPTH.

2. CONDUITS, CONDUCTORS AND GROUNDING: PHOTOGRAPHS SHOWING TYPICAL INSTALLATION OF CONDUCTORS AND CONNECTORS; PHOTOGRAPHS SHOWING TYPICAL BEND RADIUS OF INSTALLED GROUND WIRES AND GROUND ROD SPACING;

3. CONCRETE FORMS AND REINFORCING: CONCRETE FORMING AT TOWER AND EQUIPMENT/SHELTER PAD/FOUNDATIONS – PHOTOGRAPHS SHOWING ALL REINFORCING STEEL, UTILITY AND CONDUIT STUB OUTS; PHOTOGRAPHS SHOWING CONCRETE POUR OF SHELTER SLAB/FOUNDATION, TOWER FOUNDATION AND GUY ANCHORS WITH VIBRATOR IN USE; PHOTOGRAPHS SHOWING EACH ANCHOR ON GUYED TOWERS, BEFORE CONCRETE POUR.

4. TOWER, ANTENNAS AND MAINLINE: INSPECTION AND PHOTOGRAPHS OF SECTION STACKING; INSPECTION AND PHOTOGRAPHS OF PLATFORM COMPONENT ATTACHMENT POINTS; PHOTOGRAPHS OF TOWER TOP GROUNDING; PHOTOS OF TOWER COAX LINE COLOR CODING AT THE TOP AND AT GROUND LEVEL; INSPECTION AND PHOTOGRAPHS OF OPERATIONAL OF TOWER LIGHTING, AND PLACEMENT OF FAA REGISTRATION SIGN; PHOTOGRAPHS SHOWING ADDITIONAL GROUNDING POINTS FOR TOWERS GREATER THAN 200 FEET.; PHOTOS OF ANTENNA GROUND BAR, EQUIPMENT GROUND BAR, AND MASTER GROUND BAR; PHOTOS OF GPS ANTENNA(S); PHOTOS OF EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA; PHOTOS OF COAX WEATHERPROOFING – TOP AND BOTTOM; PHOTOS OF COAX GROUNDING--TOP AND BOTTOM; PHOTOS OF ANTENNA AND MAST GROUNDING; PHOTOS OF COAX CABLE ENTRY INTO SHELTER; PHOTOS OF PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.

5. ROOF TOPS: PRE-CONSTRUCTION AND POST-CONSTRUCTION VISUAL INSPECTION AND PHOTOGRAPHS OF THE ROOF AND INTERIOR TO DETERMINE AND DOCUMENT CONDITIONS; ROOF TOP CONSTRUCTION INSPECTIONS AS REQUIRED BY THE JURISDICTION; PHOTOGRAPHS OF CABLE TRAY AND/OR ICE BRIDGE; PHOTOGRAPHS OF DOGHOUSE/CABLE EXIT FROM ROOF;

6. SITE LAYOUT – PHOTOGRAPHS OF THE OVERALL COMPOUND, INCLUDING EQUIPMENT PLATFORM FROM ALL FOUR CORNERS.

7. FINISHED UTILITIES: CLOSE-UP PHOTOGRAPHS OF THE PPC BREAKER PANEL; CLOSE-UP PHOTOGRAPH OF THE INSIDE OF THE TELCO PANEL AND NIU; CLOSE-UP PHOTOGRAPH OF THE POWER METER AND DISCONNECT; PHOTOS OF POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE; PHOTOGRAPHS AT METER BOX AND/OR FACILITY DISTRIBUTION PANEL.

8. REQUIRED MATERIALS CERTIFICATIONS: CONCRETE MIX DESIGNS; MILL CERTIFICATION FOR ALL REINFORCING AND STRUCTURAL STEEL; AND ASPHALT PAVING MIX DESIGN.

9. ANY AND ALL SUBMITTALS BY THE JURISDICTION OR COMPANY.

SECTION 01 400 – SUBMITTALS & TESTS

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THIS SECTION APPLY TO ALL SECTIONS IN THIS SPECIFICATION.

B. SPRINT "STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES" ARE INCLUDED IN AND MADE A PART OF THESE SPECIFICATIONS HEREWITH.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 WEEKLY REPORTS:

A. CONTRACTOR SHALL PROVIDE SPRINT WITH WEEKLY REPORTS SHOWING PROJECT STATUS. THIS STATUS REPORT FORMAT WILL BE PROVIDED TO THE CONTRACTOR BY SPRINT. THE REPORT WILL CONTAIN SITE ID NUMBER, THE MILESTONES FOR EACH SITE, INCLUDING THE BASELINE DATE, ESTIMATED COMPLETION DATE AND ACTUAL COMPLETION DATE.

B. REPORT INFORMATION WILL BE TRANSMITTED TO SPRINT VIA ELECTRONIC MEANS AS REQUIRED. THIS INFORMATION WILL PROVIDE A BASIS FOR PROGRESS MONITORING AND PAYMENT.

3.2 PROJECT CONFERENCE CALLS:

A. SPRINT MAY HOLD WEEKLY PROJECT CONFERENCE CALLS. CONTRACTOR WILL BE REQUIRED TO COMMUNICATE SITE STATUS, MILESTONE COMPLETIONS AND UPCOMING MILESTONE PROJECTIONS, AND ANSWER ANY OTHER SITE STATUS QUESTIONS AS NECESSARY.

3.3 PROJECT TRACKING IN SMS:

A. CONTRACTOR SHALL PROVIDE SCHEDULE UPDATES AND PROJECTIONS IN THE SMS SYSTEM ON A WEEKLY BASIS.

3.4 ADDITIONAL REPORTING:

A. ADDITIONAL OR ALTERNATE REPORTING REQUIREMENTS MAY BE ADDED TO THE REPORT AS DETERMINED TO BE REASONABLY NECESSARY BY COMPANY.

3.5 PROJECT PHOTOGRAPHS:

A. FILE DIGITAL PHOTOGRAPHS OF COMPLETED SITE IN JPEG FORMAT IN THE SMS PHOTO LIBRARY FOR THE RESPECTIVE SITE. PHOTOGRAPHS SHALL BE CLEARLY LABELED WITH SITE NUMBER, NAME AND DESCRIPTION, AND SHALL INCLUDE AT A MINIMUM THE FOLLOWING AS APPLICABLE:

1. 1SHELTER AND TOWER OVERVIEW.

2. TOWER FOUNDATION(S) – FORMS AND STEEL BEFORE POUR (EACH ANCHOR ON GUYED TOWERS).

3. TOWER FOUNDATION(S) POUR WITH VIBRATOR IN USE (EACH ANCHOR ON GUYED TOWERS).

4. TOWER STEEL AS BEING INSTALLED INTO HOLE (SHOW ANCHOR STEEL ON GUYED TOWERS).

5. PHOTOS OF TOWER SECTION STACKING.

6. CONCRETE TESTING / SAMPLES.

7. PLACING OF ANCHOR BOLTS IN TOWER FOUNDATION.

8. BUILDING/WATER TANK FROM ROAD FOR TENANT IMPROVEMENTS OR COMMENTS.

9. SHELTER FOUNDATION--FORMS AND STEEL BEFORE POURING.

10. SHELTER FOUNDATION POUR WITH VIBRATOR IN USE.

11. COAX CABLE ENTRY INTO SHELTER.

12. PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.

13. ROOFTOP PRE AND POST CONSTRUCTION PHOTOS TO INCLUDE PENETRATIONS AND INTERIOR CEILING.

14. PHOTOS OF TOWER TOP COAX LINE COLOR CODING AND COLOR CODING AT GROUND LEVEL.

15. PHOTOS OF ALL APPROPRIATE COMPANY OR REGULATORY SIGNAGE.

16. PHOTOS OF EQUIPMENT BOLT DOWN INSIDE SHELTER.

17. POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE AND POWER AND TELCO SUPPLY LOCATIONS INCLUDING METER/DISCONNECT.

18. ELECTRICAL TRENCH(S) WITH ELECTRICAL / CONDUIT BEFORE BACKFILL.

19. ELECTRICAL TRENCH(S) WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.

20. TELCO TRENCH WITH TELEPHONE / CONDUIT BEFORE BACKFILL.

21. TELCO TRENCH WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.

22. SHELTER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).

23. TOWER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).

24. FENCE GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).

25. ALL BTS GROUND CONNECTIONS.

26. ALL GROUND TEST WELLS.

27. ANTENNA GROUND BAR AND EQUIPMENT GROUND BAR.

28. ADDITIONAL GROUNDING POINTS ON TOWERS ABOVE 200'.

29. HVAC UNITS INCLUDING CONDENSERS ON SPLIT SYSTEMS.

30. GPS ANTENNAS.

31. CABLE TRAY AND/OR WAVEGUIDE BRIDGE.

32. DOGHOUSE/CABLE EXIT FROM ROOF.

33. EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA.

34. MASTER BUS BAR.

35. TELCO BOARD AND NIU.

36. ELECTRICAL DISTRIBUTION WALL.

37. CABLE ENTRY WITH SURGE SUPPRESSION.

38. ENTRANCE TO EQUIPMENT ROOM.

39. COAX WEATHERPROOFING-TOP AND BOTTOM OF TOWER.

40. COAX GROUNDING -TOP AND BOTTOM OF TOWER.

41. ANTENNA AND MAST GROUNDING.

42. LANDSCAPING – WHERE APPLICABLE.

3.6 FINAL PROJECT ACCEPTANCE: COMPLETE ALL REQUIRED REPORTING TASKS PER CONTRACT, CONTRACT DOCUMENTS OR THE SPRINT INTEGRATED CONSTRUCTION STANDARDS FOR WIRELESS SITES AND UPLOAD INTO SITERRA.

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JOB NUMBER 526-104

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

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOAN S. STEVENS
24705
LICENSED PROFESSIONAL ENGINEER

10/04/2019

REVISIONS:

DESCRIPTION	DATE	BY	REV.
REVISED/ ISSUED FOR PERMIT	10/5/19	JLM	1
ISSUED FOR PERMIT	1/25/18	JDL	0

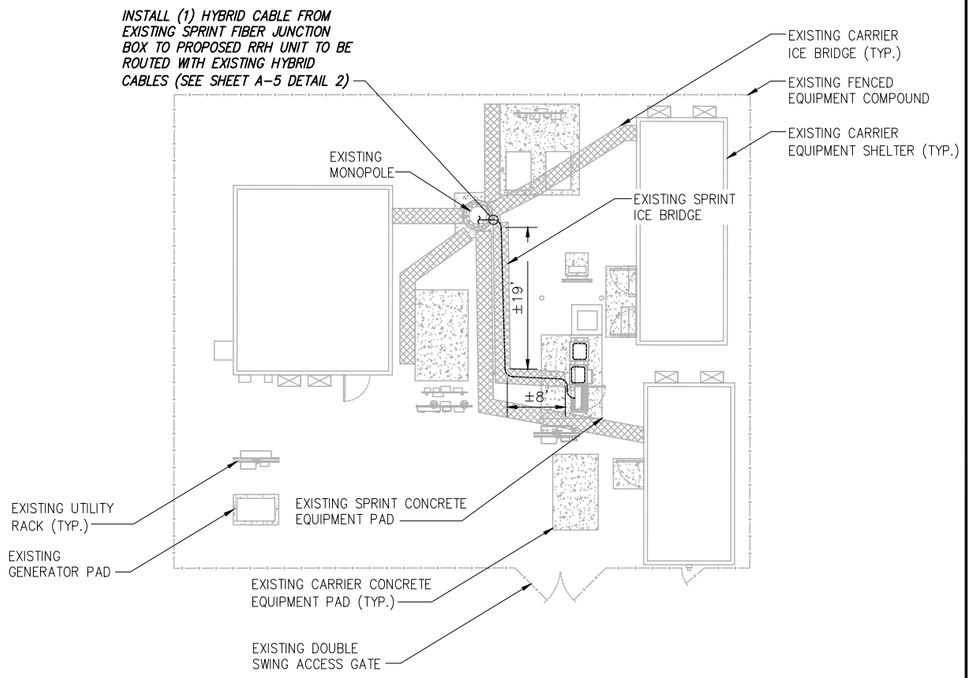
SITE NAME:
SNET TOWER

SITE NUMBER:
CT03XC088

SITE ADDRESS:
260 BECKLEY ROAD
BERLIN, CT 06037

SHEET DESCRIPTION:
SPRINT SPECIFICATIONS

SHEET NUMBER:
SP-3



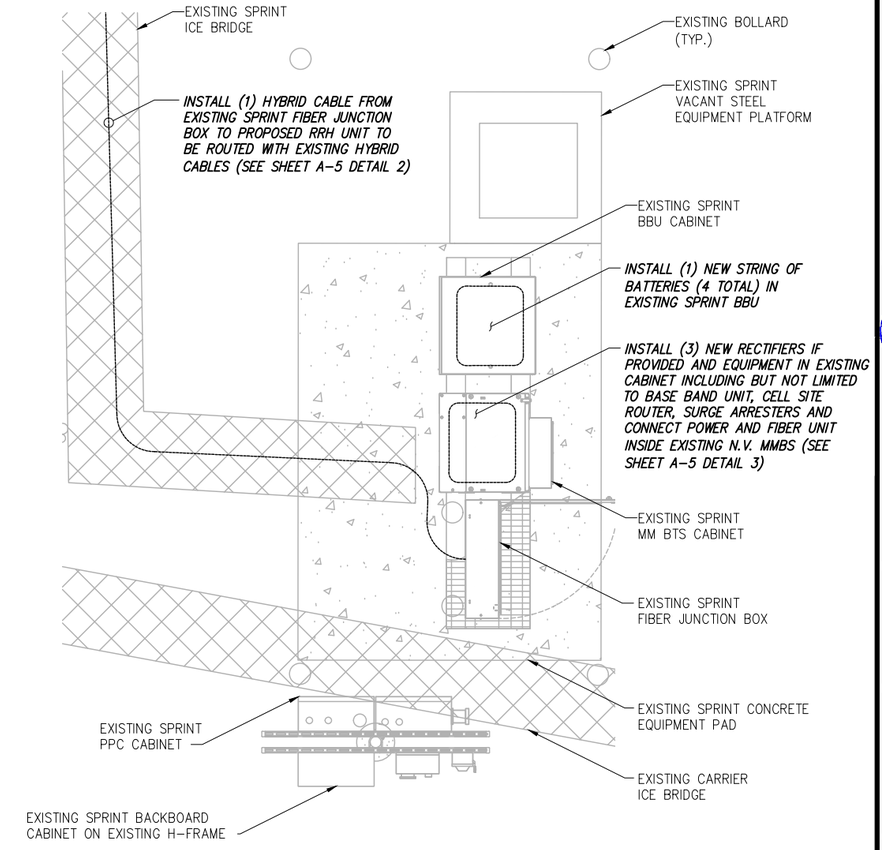
INFORMATION CONTAINED WITHIN DRAWINGS ARE BASED ON PROVIDED INFORMATION AND ARE NOT THE RESULT OF A FIELD SURVEY.

GRAPHIC SCALE:

20' 10' 0 10' 20'

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

OVERALL SITE PLAN | SCALE: AS NOTED | 1



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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DRAWING NOTICE:

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260 BECKLEY ROAD
BERLIN, CT 06037

SHEET DESCRIPTION:

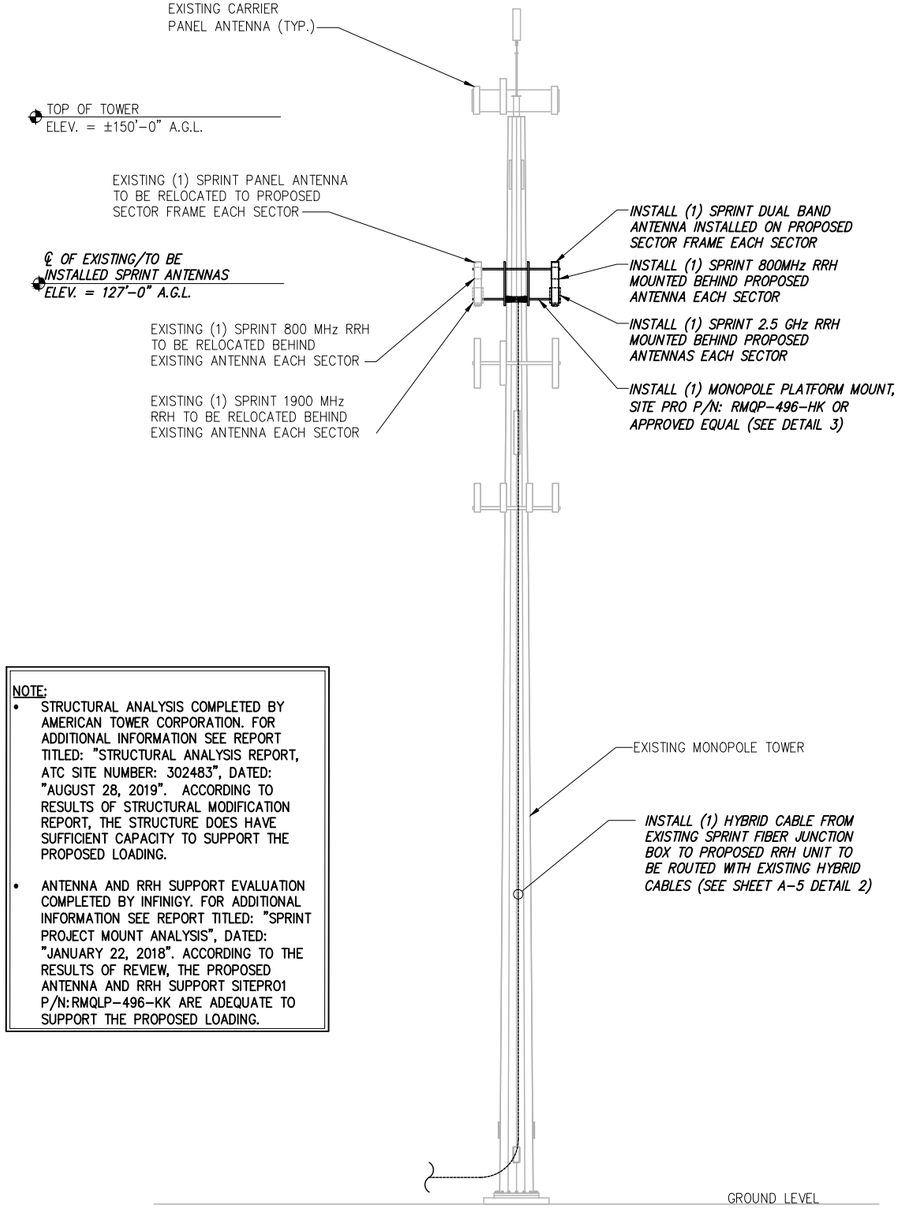
SITE PLAN

SHEET NUMBER:

A-1

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

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



NOTE:
- STRUCTURAL ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "STRUCTURAL ANALYSIS REPORT, ATC SITE NUMBER: 302483", DATED: "AUGUST 28, 2019". ACCORDING TO RESULTS OF STRUCTURAL MODIFICATION REPORT, THE STRUCTURE DOES HAVE SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING.
- ANTENNA AND RRH SUPPORT EVALUATION COMPLETED BY INFINIGY. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "SPRINT PROJECT MOUNT ANALYSIS", DATED: "JANUARY 22, 2018". ACCORDING TO THE RESULTS OF REVIEW, THE PROPOSED ANTENNA AND RRH SUPPORT SITEPRO1 P/N:RMQLP-496-KK ARE ADEQUATE TO SUPPORT THE PROPOSED LOADING.

TOWER ELEVATION | NO SCALE | 1

SITE LOADING CHART

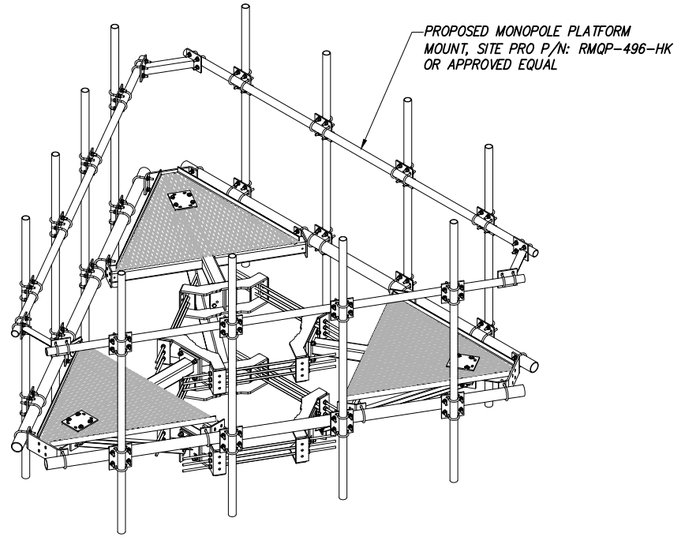
SECTOR	EXISTING/ PROPOSED	ANTENNA MODEL #	VENDOR	AZIMUTH	QTY.	REMAIN/ REMOVED	RRH (QTY/MODEL)	CABLE	CABLE LENGTH	RAD CENTER
ALPHA	PROPOSED	DT465B-2XR	COMMSCOPE	10°	1	–	(2) 800 MHZ 2X50W RRH W/ FILTER (1) TD-RRH8X20-25 W/ SOLAR SHIELD	SEE SHEET A-5 DETAIL 1	±182'*	±127' AGL
	--	--	--	--	--	--		--		
	EXISTING	APXV9ERR18-C-A20	RFS	10°	1	REMAIN	(1) 1900 MHz 4X45 RRH	EXISTING HYBRID		
BETA	PROPOSED	DT465B-2XR	COMMSCOPE	150°	1	–	(2) 800 MHZ 2X50W RRH W/ FILTER (1) TD-RRH8X20-25 W/ SOLAR SHIELD	SEE SHEET A-5 DETAIL 1		±127' AGL
	--	--	--	--	--	--		--		
	EXISTING	APXVSPP18-C-A20	RFS	150°	1	REMAIN	(1) 1900 MHz 4X45 RRH	EXISTING HYBRID		
GAMMA	PROPOSED	DT465B-2XR	COMMSCOPE	250°	1	–	(2) 800 MHZ 2X50W RRH W/ FILTER (1) TD-RRH8X20-25 W/ SOLAR SHIELD	SEE SHEET A-5 DETAIL 1		±127' AGL
	--	--	--	--	--	--		--		
	EXISTING	APXVSPP18-C-A20	RFS	250°	1	REMAIN	(1) 1900 MHz 4X45 RRH	EXISTING HYBRID		

PROJECT SCOPE:

INSTALL: (3) PANEL ANTENNAS AND (6) 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



LOW PROFILE PLATFORM MOUNT DETAIL | NO SCALE | 3

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10/04/2019

DRAWING NOTICE:

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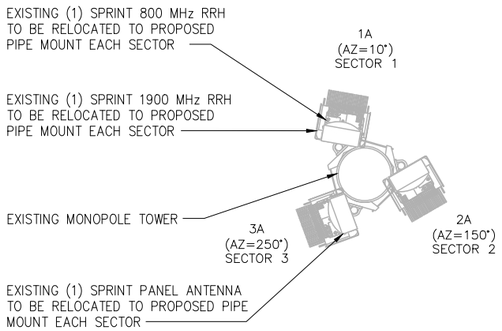
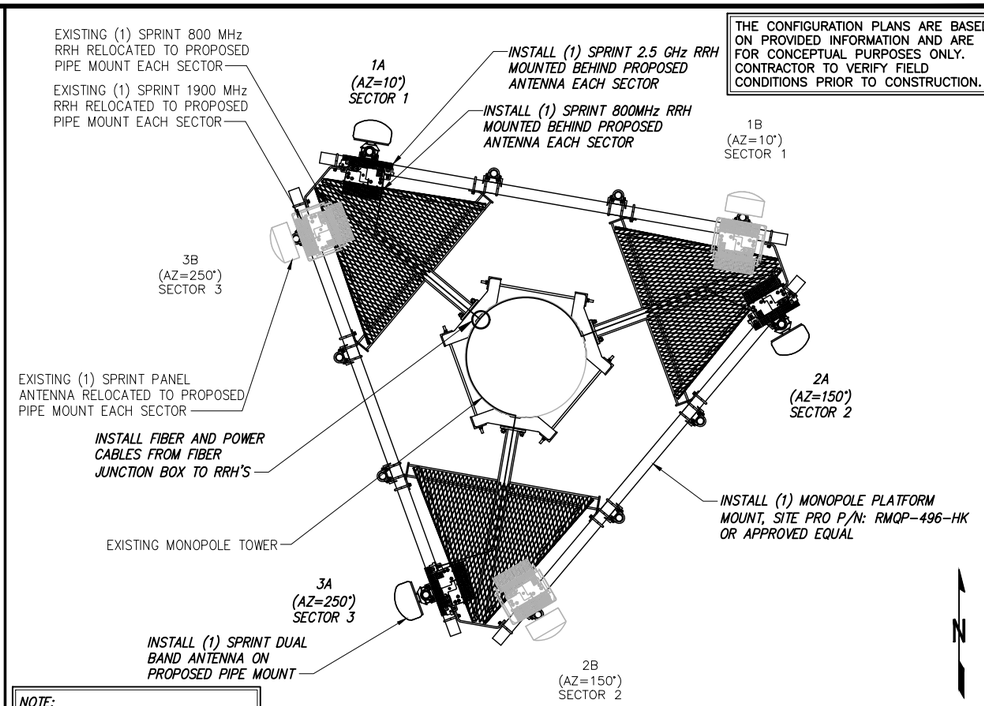
SHEET DESCRIPTION:
TOWER ELEVATION

SHEET NUMBER:
A-2



EXISTING ANTENNA & RRH LAYOUT

NO SCALE | 1

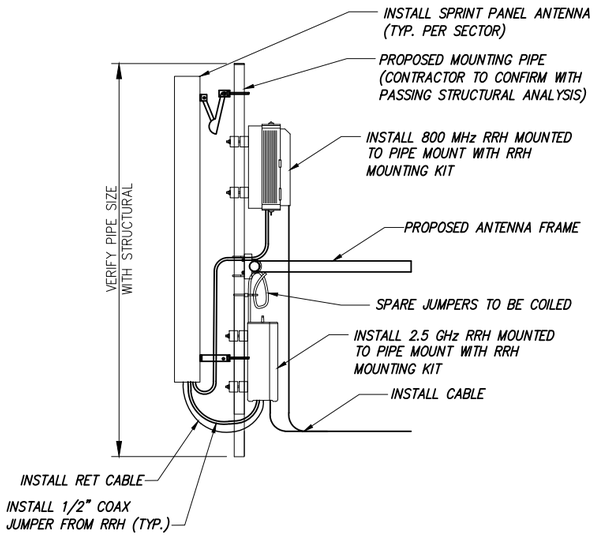


THE CONFIGURATION PLANS ARE BASED ON PROVIDED INFORMATION AND ARE FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR TO VERIFY FIELD CONDITIONS PRIOR TO CONSTRUCTION.

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

FINAL ANTENNA & RRH LAYOUT

NO SCALE | 2



TYPICAL ANTENNA & RRH MOUNTING DETAILS

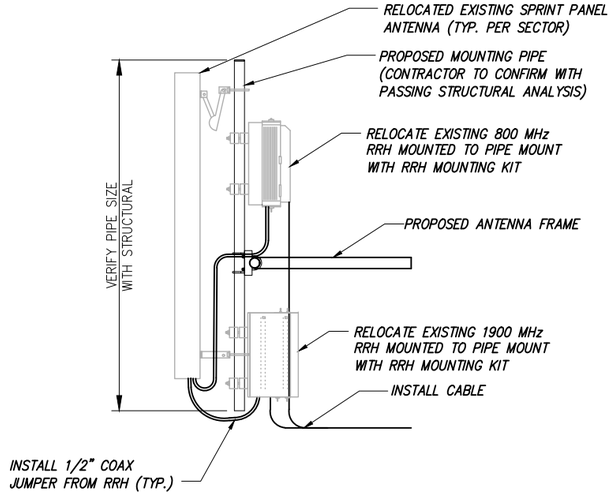
NO SCALE | 3

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

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

NOTES:

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



TYPICAL RRH MOUNTING DETAILS

NO SCALE | 4

PLANS PREPARED FOR:

Sprint

PLANS PREPARED BY:

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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
24705
LICENSED PROFESSIONAL ENGINEER

10/04/2019

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
REVISED/ ISSUED FOR PERMIT	10/5/19	JLM	1
ISSUED FOR PERMIT	1/25/18	JDL	0

SITE NAME:

SNET TOWER

SITE NUMBER:

CT03XC088

SITE ADDRESS:

260 BECKLEY ROAD
BERLIN, CT 06037

SHEET DESCRIPTION:

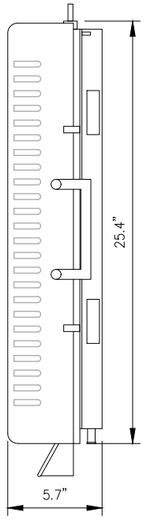
ANTENNA LAYOUT
& MOUNTING DETAILS

SHEET NUMBER:

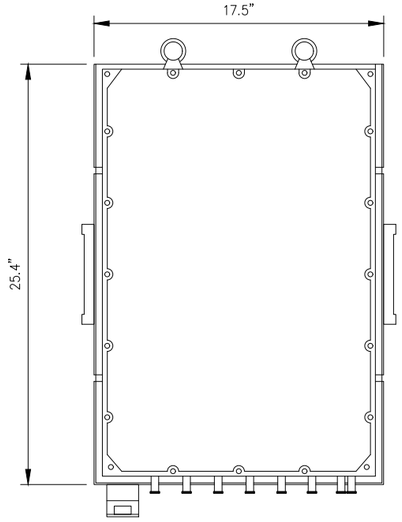
A-3

RRH: ALCATEL LUCENT TD-RRH8X20

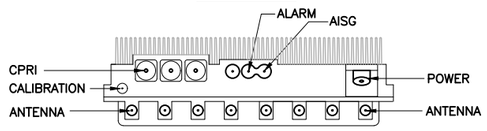
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



SIDE VIEW



FRONT VIEW



PLAN VIEW

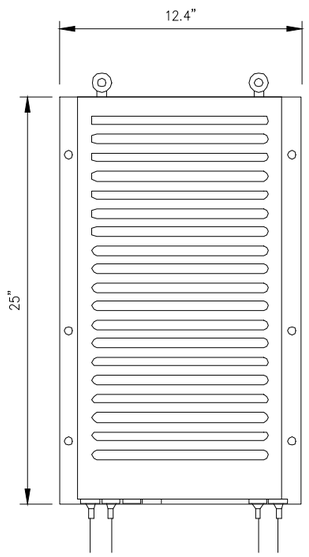
NOTES

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

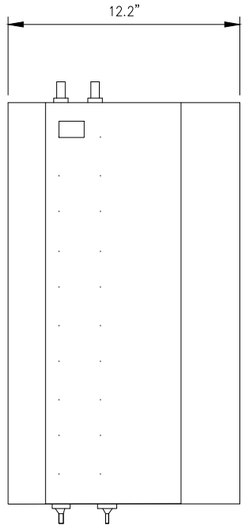
2.5 MHz RRH	NO SCALE	1

RRH: ALCATEL LUCENT 1900 MHz

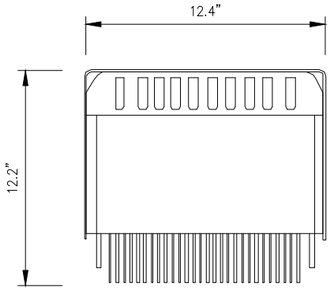
COLOR: LIGHT GREY
WEIGHT: 70 LBS.
(INCLUDING OPTIONAL SOLAR SHIELD)



FRONT VIEW



SIDE VIEW

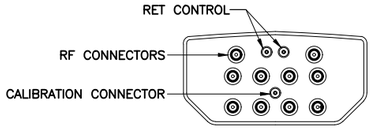


TOP VIEW

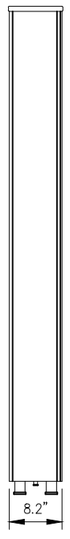
1900 MHz RRH	NO SCALE	2

ANTENNA COMMSCOPE DT465B-2XR

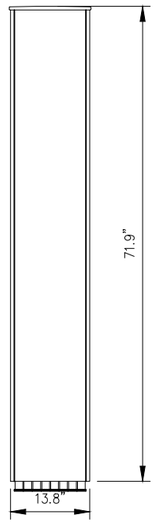
RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mim):	71.9"x13.8"x8.2" (1825x350x209mm)
WEIGHT:	58 lbs
CONNECTORS:	(2) 7/16" DIN FEMALE
	(8) 4.1/9.5 DIN FEMALE



PLAN VIEW



SIDE VIEW



FRONT VIEW

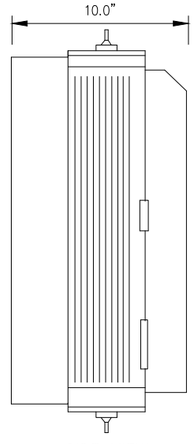
TRIBAND ANTENNA	NO SCALE	3

RRH: ALCATEL LUCENT RRH 800 MHz 2x50W

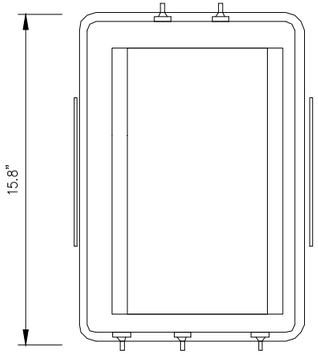
COLOR: LIGHT GREY
WEIGHT: 53 LBS.

NOTES

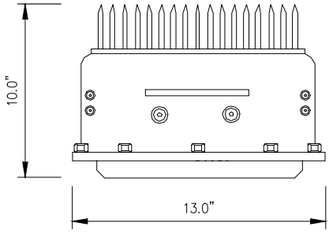
COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRH'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRH PACKAGES IN THE RAIN.



SIDE VIEW



FRONT VIEW



PLAN VIEW

800 MHz RRH	NO SCALE	4

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

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN L. STEVENS
24705
LICENSED PROFESSIONAL ENGINEER

10/04/2019

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ISSUED FOR PERMIT	1/25/18	JDL	0

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SNET TOWER

SITE NUMBER:

CT03XC088

SITE ADDRESS:

260 BECKLEY ROAD
BERLIN, CT 06037

SHEET DESCRIPTION:

EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:

A-4

RFS HYBRIFLEX RISER CABLE SCHEDULE

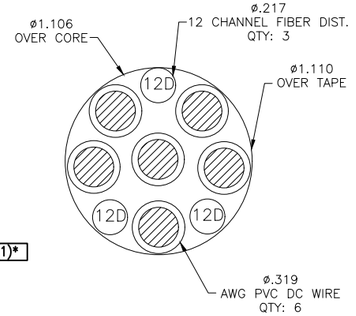
Fiber Only (Existing DC Power)	**Hybrid cable** MN: HB058-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 5/8 cable, 50 ft	50 ft
	MN: HB058-M12-075F	75 ft
	MN: HB058-M12-100F	100 ft
	MN: HB058-M12-125F	125 ft
	MN: HB058-M12-150F	150 ft
	MN: HB058-M12-175F	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 (1)*
	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
	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

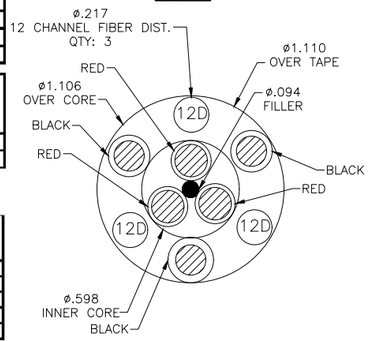
Fiber Only	**Hybrid Jumper cable** MN: HBF012-M3-5F1 5 ft, 3x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft
	MN: HBF012-M3-10F1	10 ft
	MN: HBF012-M3-15F1	15 ft
	MN: HBF012-M3-20F1	20 ft
	MN: HBF012-M3-25F1	25 ft
	MN: HBF012-M3-30F1	30 ft
8 AWG Power	**Hybrid Jumper cable** MN: HBF058-08U1M3-5F1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

* 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.

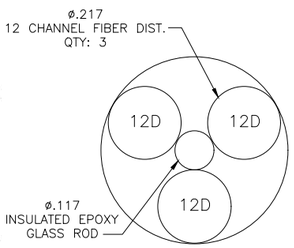
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



4 AWG

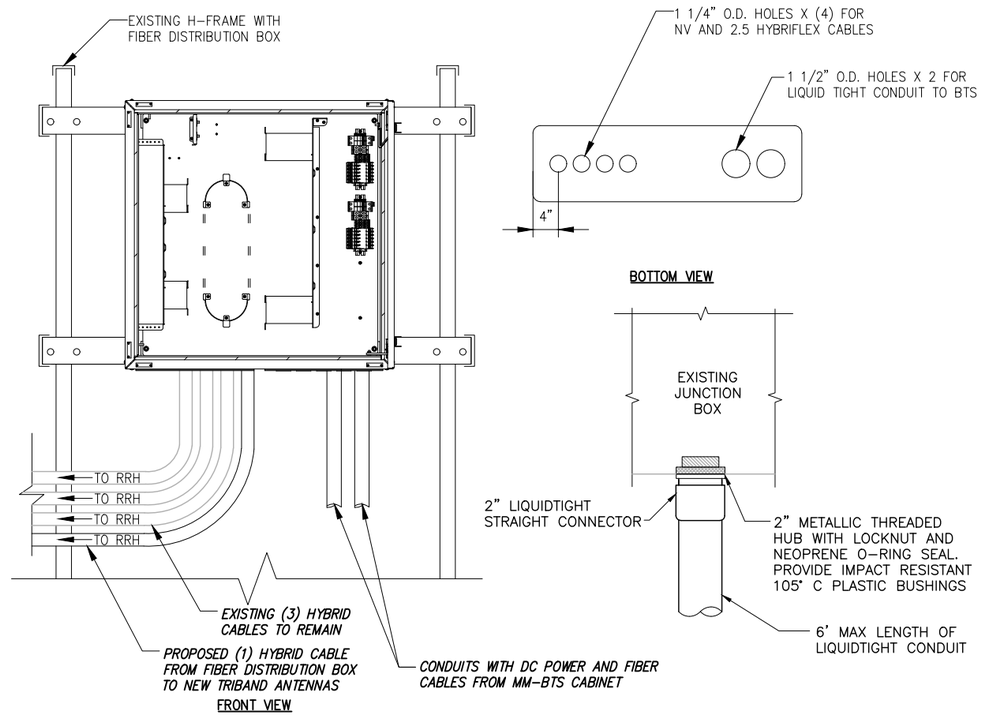


8 & 6 AWG



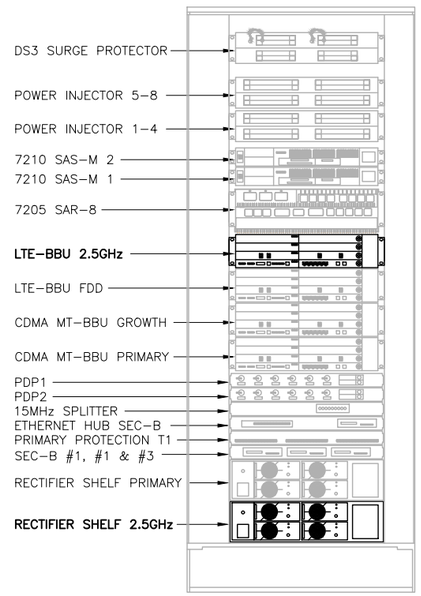
FIBER ONLY

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



FRONT VIEW

FIBER JUNCTION BOX PENETRATION | NO SCALE | 2



FRONT VIEW

NEW EQUIPMENT IN EXISTING CABINET | NO SCALE | 3

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
24705
LICENSED PROFESSIONAL ENGINEER
10/04/2019

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
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ISSUED FOR PERMIT	1/25/18	JDL	0

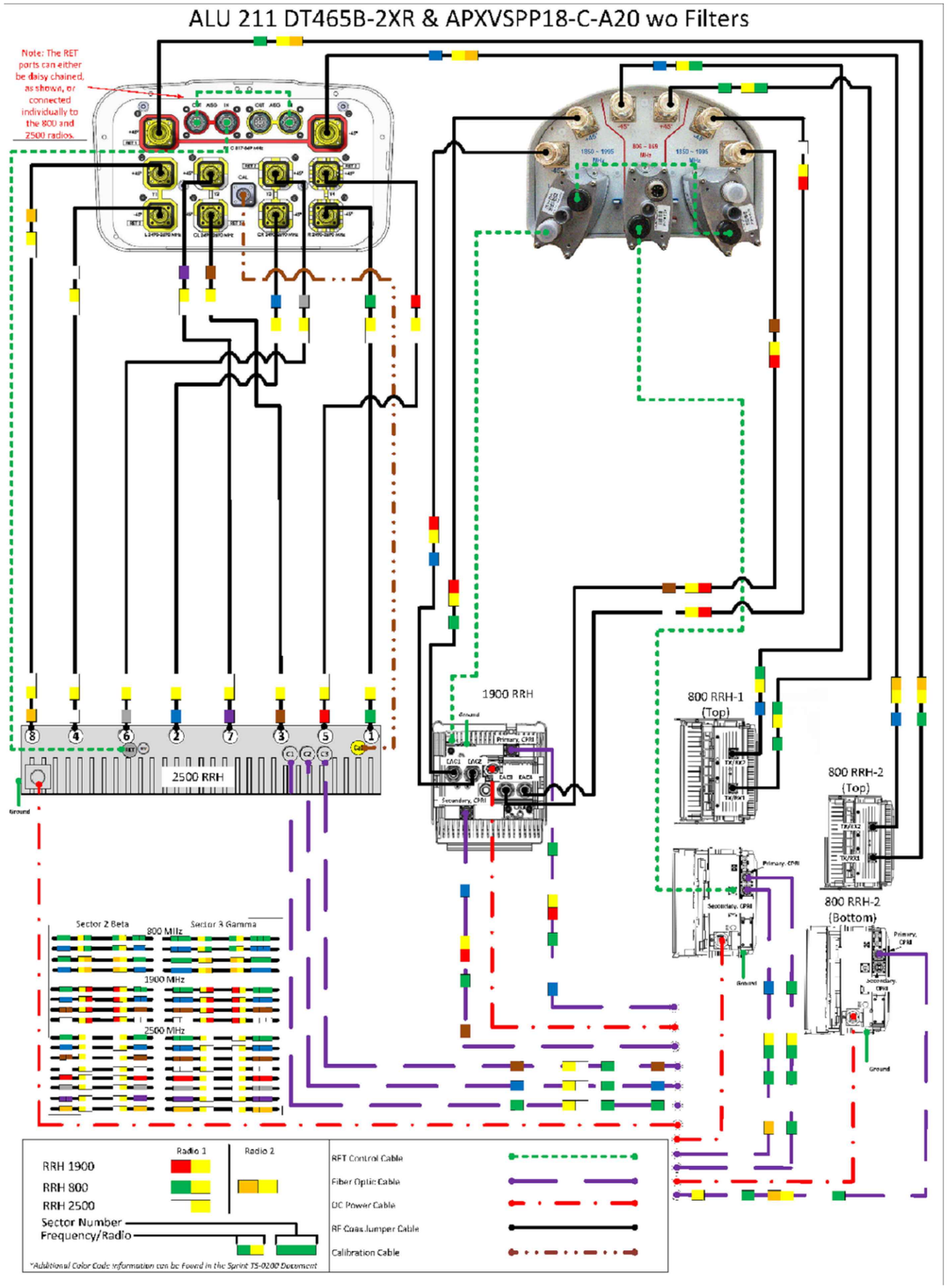
SITE NAME:
SNET TOWER

SITE NUMBER:
CT03XC088

SITE ADDRESS:
260 BECKLEY ROAD
BERLIN, CT 06037

SHEET DESCRIPTION:
CIVIL DETAILS

SHEET NUMBER:
A-5



PLUMBING DIAGRAM | NO SCALE | 1

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SITE NUMBER:

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SITE ADDRESS:

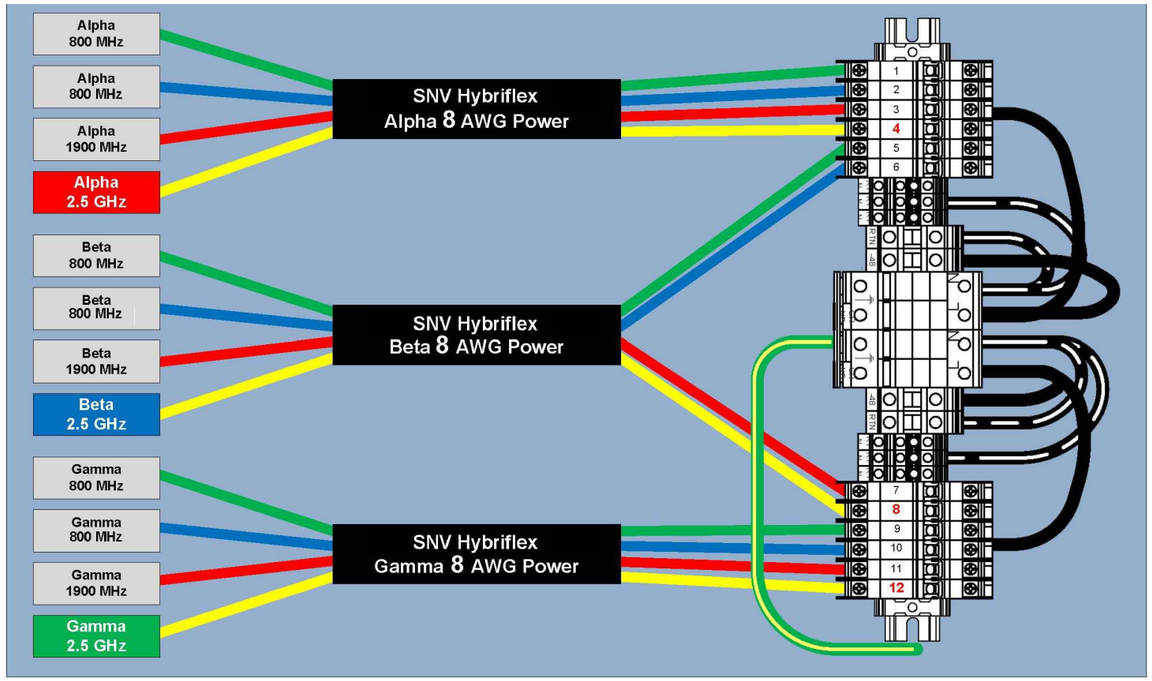
260 BECKLEY ROAD
BERLIN, CT 06037

SHEET DESCRIPTION:

PLUMBING DIAGRAM

SHEET NUMBER:

A-6

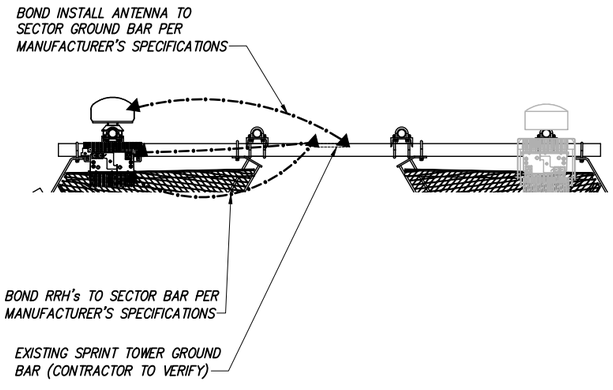


RRH TO DISTRIBUTION BOX POWER CONNECTIVITY

NO SCALE | 1

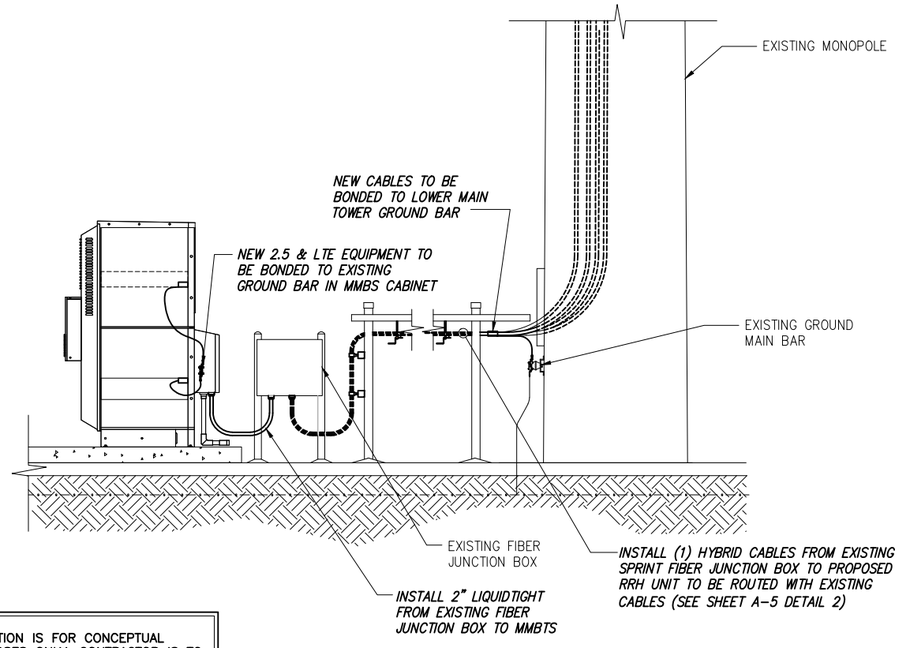
LEGEND:

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



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE | 2



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

TYPICAL EQUIPMENT GROUNDING PLAN (ELEVATION)

NO SCALE | 3

PLANS PREPARED FOR:

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PLANS PREPARED BY:

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ENGINEERING LICENSE:

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JOHN S. STEVENS
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10/04/2019

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ISSUED FOR PERMIT	1/25/18	JDL	0

SITE NAME:

SNET TOWER

SITE NUMBER:

CT03XC088

SITE ADDRESS:

260 BECKLEY ROAD
BERLIN, CT 06037

SHEET DESCRIPTION:

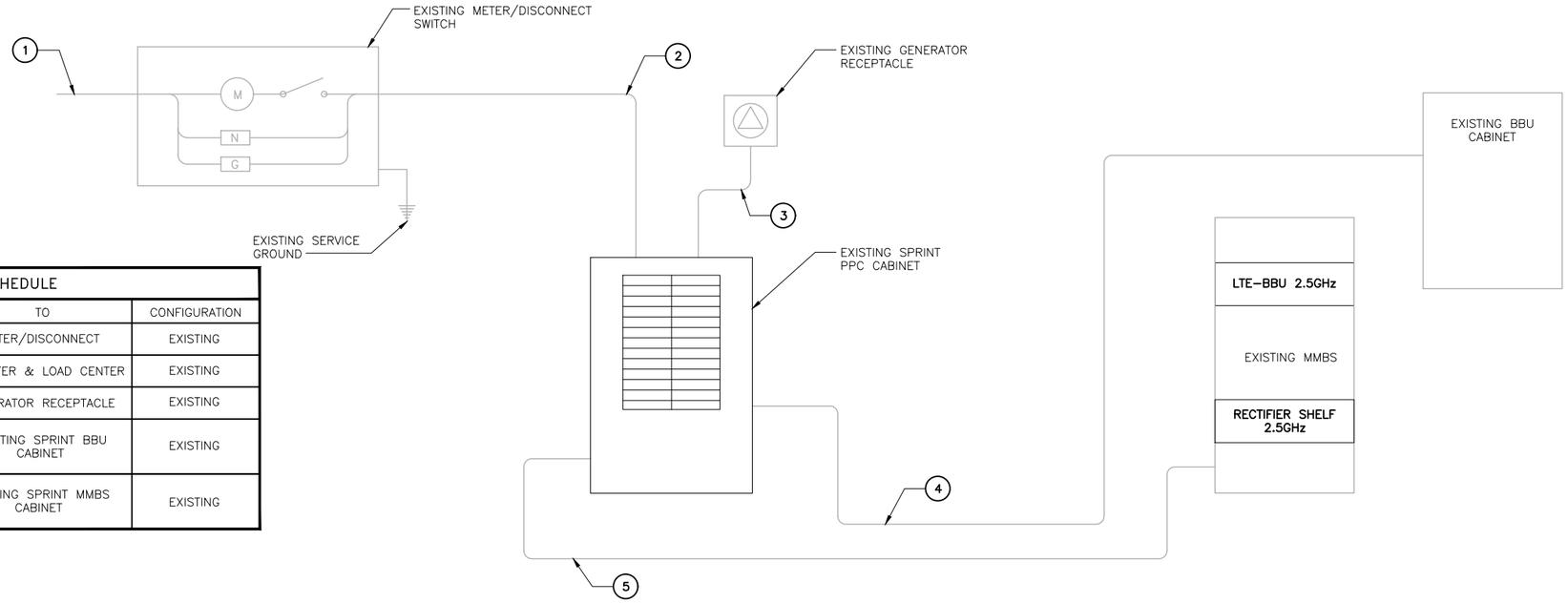
ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:

E-1

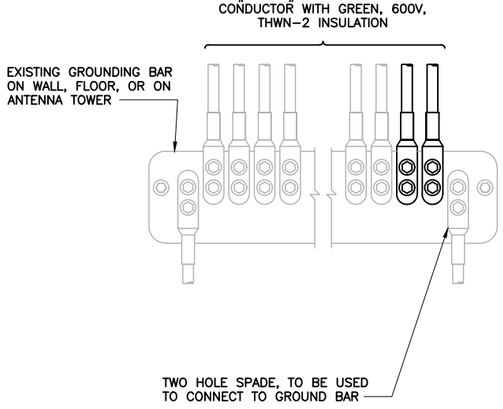
NOTES

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



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

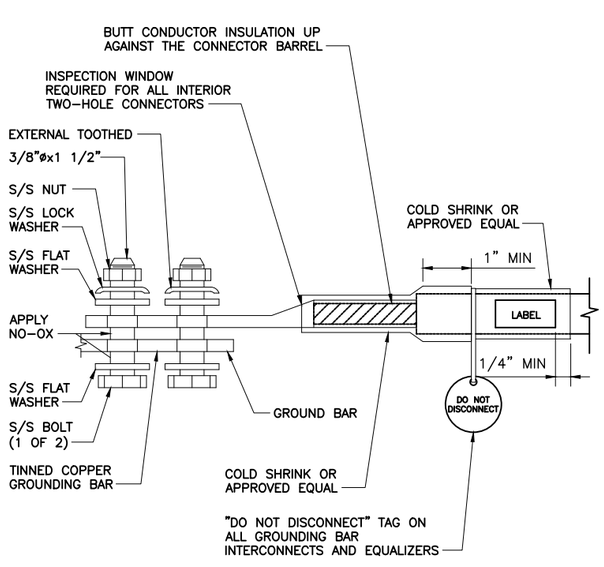
ELECTRICAL ONE–LINE DIAGRAM — NO SCALE — 1



NOTES

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

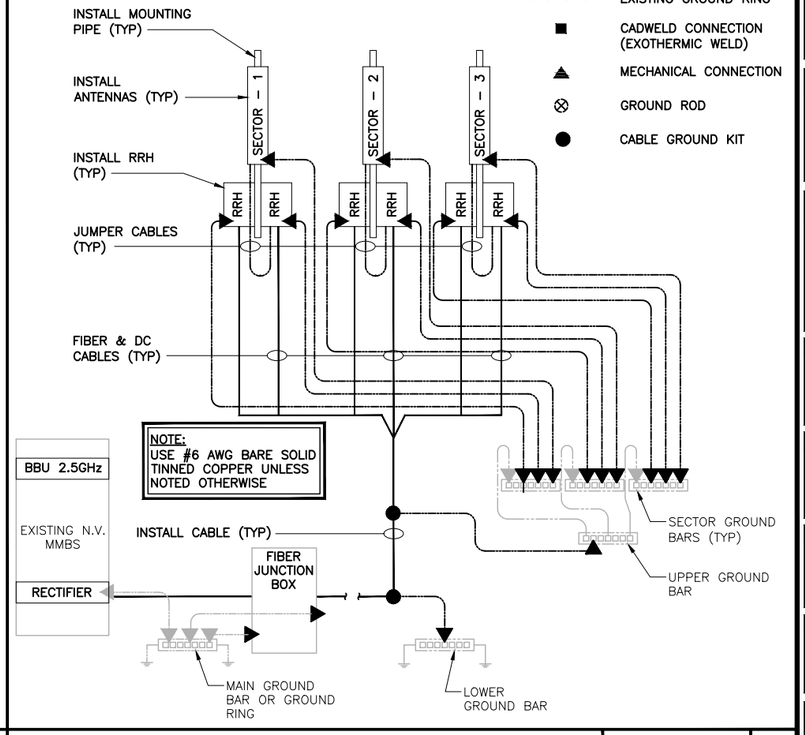
INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR — NO SCALE — 2



TWO HOLE LUG — NO SCALE — 3

LEGEND:

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



GROUNDING RISER DIAGRAM — NO SCALE — 4

PLANS PREPARED FOR:

Sprint

PLANS PREPARED BY:

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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
24705
LICENSED PROFESSIONAL ENGINEER

10/04/2019

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
REVISED/ ISSUED FOR PERMIT	10/5/19	JLM	1
ISSUED FOR PERMIT	1/25/18	JDL	0

SITE NAME:

SNET TOWER

SITE NUMBER:

CT03XC088

SITE ADDRESS:

260 BECKLEY ROAD
BERLIN, CT 06037

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-2