1280 Route 46 West, Suite 9, Parsippany NJ, 07054

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

Re: Notice of Exempt Modification Application
303 Boxwood Lane Danbury, CT 06810

October 9, 2017

Dear Ms. Bachman:

Sprint Spectrum Realty Company, L.P. ("Sprint"), is submitting to the Connecticut Siting Council for a Notice of Exempt Modification for Proposed Modifications to an Existing Telecommunications Facility located at the above-referenced site. Sprint currently maintains 3 existing panel antenna and 9 remote radio units at the 89' level of the Tower. Sprint proposes to add 3 panel antennas (1 per sector) and 3 remote radio unit (1 per sector) at 89' tower level as well as 1 fiber cable and 3 fiber jumpers, 27 antenna to RRU jumper cables, 8 new batteries in existing ground based battery cabinet and new 2.5 equipment in existing radio cabinet.

The Sprint installation was initially approved on 9/14/2001 by CT Siting Council, however, since this is a State of CT site, no Building permit was issued. The structural documents enclosed reflect the current reality of the installations on the Tower.

If you have any questions, please feel free to contact me.

Thank you,

By: Paul F. Sagristano

Paul F. Sagristano
Cherundolo Consulting
917.841.0247
psagristano@lrivassoc.com

1280 Route 46 West, Suite 9, Parsippany NJ, 07054

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

October 4, 2017

Re: Notice of Exempt Modification –
Existing Sprint Telecommunication Facility
38 Spring Hill Lane
Bethel, CT 06801

Latitude : N41.395
Longitude: W73.4867

Dear Ms. Bachman:

Sprint currently maintains 3 existing panel antenna and 3 remote radio units at the 89' centerline level of the existing monopole. Sprint proposes to add 3 panel antenna and 3 remote radio units at 89' centerline on the tower. Sprint further proposes to add 1 fiber cable, 27 antenna to RRU jumpers, a new 2.5 Equipment cabinet, and 8 new batteries in the existing ground based battery cabinet. Sprint is performing a new high-performance upgrade for cellular mobile communications. It is designed to increase the capacity and speed of mobile telephone networks.

The facility noted is owned by the State of CT, therefore building permits have never been required. The original CSC approval for Sprint's Tower Share was September 14, 2001, is included in this submission.

Please accept this letter as notification to the Council, pursuant to R.C.S.A. Section 16-50j-73, for construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).
In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter is being sent to Sean Loughran, VP of Finance and Admin of the CT State University System, the property owner and to Mark Boughton, Mayor of the City of Danbury as well as Sharon Calitro, Planning director for the City of Danbury.
.
Attached is a summary of the planned modifications, including power density calculations reflecting the change in Sprint's operations at the site. Also included is documentation of the structural sufficiency of the tower with proposed modifications to accommodate the revised antenna configuration.

Existing Facility

The Danbury facility is located at 303 Boxwood Lane, Danbury, CT, the Site coordinates are: N41. 395, W – 73.4867. The facility is owned by CT State University System Board of Trustees. The existing facility consists of a 100' Monopole. Sprint currently operates wireless communications equipment on a platform on a concrete slab at the facility and has 3 antennas and 3 RRU's mounted on at a centerline of 89' feet.

Statutory Considerations

The planned modifications to the facility fall within the activities explicitly provided for in R.C.S.A. 16-50j-72(b)(2)

1. The height of the overall structure will be unaffected.

2. The proposed changes will not require an extension of the property boundaries.

3. The proposed additions will not increase the noise level at the existing facility by

six decibels or more, or to levels that exceed state and/or local criteria

4. The changes will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, Sprint respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A Section §16-50j-72(b)(2).

Respectfully submitted,

Paul F. Sagristano

Paul F. Sagristano
Charles Cherundolo Consulting
917-841-0247
psagristano@lrivassoc.com

PFS/mtf

Additional Recipients:
City of Danbury – Mayor Mark Boughton – Via Fed Ex
CT State University System Board of Trustees – Sean Loughran - Via Fed Ex
City of Danbury – Planning Director – Sharon Calitro – Via Fed Ex

October 12,2017

Dear Customer:

The following is the proof-of-delivery for tracking number **770462603103**.

Delivery Information:

Status:	Delivered	**Delivered to:**	Receptionist/Front Desk
Signed for by:	E.EMITT	**Delivery location:**	181 WHITE ST DANBURY, CT 06810
Service type:	FedEx Express Saver	**Delivery date:**	Oct 12, 2017 09:10
Special Handling:	Deliver Weekday Direct Signature Required		

Shipping Information:

Tracking number:	770462603103	**Ship date:**	Oct 10, 2017
		Weight:	0.5 lbs/0.2 kg

Recipient:
Sean Loughran
CT State University System
181 White Street
DANBURY, CT 06810 US

Shipper:
Paul Sagristano
CCC
4 Davis Road West
Suite 5
OLD LYME, CT 06371 US

Reference
CT43XC836 - CSC to State

Thank you for choosing FedEx.

October 12,2017

Dear Customer:

The following is the proof-of-delivery for tracking number 770462734664.

Delivery Information:

Status:	Delivered	**Delivered to:**	Receptionist/Front Desk
Signed for by:	J.JOANNE	**Delivery location:**	155 DEER HILL RD. DANBURY, CT 06810
Service type:	FedEx Express Saver	**Delivery date:**	Oct 12, 2017 14:05
Special Handling:	Deliver Weekday Direct Signature Required		

Shipping Information:

Tracking number:	770462734664	**Ship date:**	Oct 10, 2017
		Weight:	0.5 lbs/0.2 kg

Recipient:
Hon. Mark Boughton - Mayor
City of Danbury
155 Deer Hill Rd.
DANBURY, CT 06810 US

Shipper:
Paul Sagristano
CCC
4 Davis Road West
Suite 5
OLD LYME, CT 06371 US

Reference
CT43XC836 - CSC to Mayor

Thank you for choosing FedEx.

October 12,2017

Dear Customer:

The following is the proof-of-delivery for tracking number 770462826820.

Delivery Information:

Status:	Delivered	**Delivered to:**	Receptionist/Front Desk
Signed for by:	K.KAREN	**Delivery location:**	155 DEER HILL ROAD DANBURY, CT 06810
Service type:	FedEx Express Saver	**Delivery date:**	Oct 12, 2017 14:08
Special Handling:	Deliver Weekday Direct Signature Required		

Shipping Information:

Tracking number:	770462826820	**Ship date:**	Oct 10, 2017
		Weight:	1.0 lbs/0.5 kg

Recipient:
Sharon Calitro - Planning Dir.
City of Danbury
155 Deer Hill Road
DANBURY, CT 06810 US

Shipper:
Paul Sagristano
CCC
4 Davis Road West
Suite 5
OLD LYME, CT 06371 US

Reference
CT43XC836 CSC to Planning

Thank you for choosing FedEx.

303 BOXWOOD LN

Location	303 BOXWOOD LN	**Mblu**	F14/ / 96/ /
Acct#		**Owner**	STATE OF CONNECTICUT
Assessment	$65,800	**Appraisal**	$94,000
PID	24557	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$0	$94,000	$94,000
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$0	$65,800	$65,800

Owner of Record

Owner	STATE OF CONNECTICUT	**Sale Price**	$0
Co-Owner	WATER STORAGE&PUMPING STATION	**Book & Page**	0482/0104
Address	210 CAPITOL AVE STE 1 HARTFROD, CT 06106	**Sale Date**	01/02/1970

Ownership History

Ownership History			
Owner	**Sale Price**	**Book & Page**	**Sale Date**
STATE OF CONNECTICUT	$0	0482/0104	01/02/1970

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Replacement Cost: $0
Building Percent Good:
Replacement Cost Less Depreciation: $0

Building Attributes	
Field	**Description**
Style	Vacant Land

Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Fireplaces	
Whirlpool	
Addn'l Kitchen	
Bsm Gar	
Fin Bsm Area	
Fin Bsm Qual	
Nhbd	
MH Park	

Building Photo

(http://images.vgsi.com/photos/DanburyCTPhotos//default.jpg)

Building Layout

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	946V
Description	Rec. Vacant

Land Line Valuation

Size (Acres)	1.86
Frontage	0

Zone	RA40	**Depth**	0
Neighborhood		**Assessed Value**	$65,800
Alt Land Appr Category	No	**Appraised Value**	$94,000

Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$0	$94,000	$94,000
2014	$0	$94,000	$94,000
2013	$0	$94,000	$94,000

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$0	$65,800	$65,800
2014	$0	$65,800	$65,800
2013	$0	$65,800	$65,800

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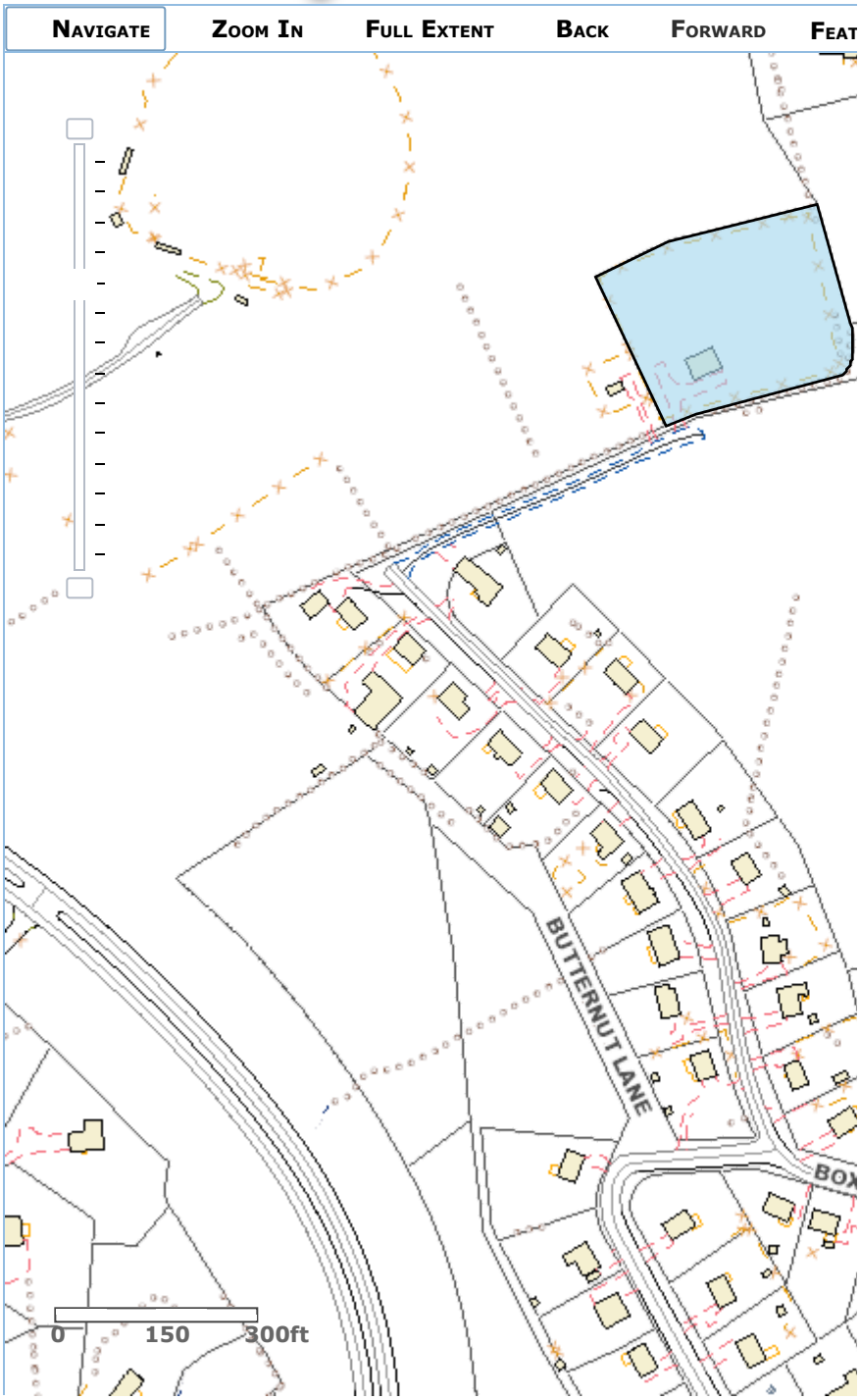
Danbury CT - TaxMap

Tasks

Found 1 results.

Selected | All | Clear

Parcel ID	Owner	Street Name
F140960000	STATE OF CONNECTICU	BOXWOOD



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square
New Britain, Connecticut 06051
Phone: (860) 827-2935
Fax: (860) 827-2950

September 14, 2001

Thomas J. Regan, Esq.
Brown, Rudnick, Freed & Gesmer, P.C.
185 Asylum Street, CityPlace I
Hartford, CT 06103-3402

RE: **TS-SPRINT-034-010820** - Sprint Spectrum, L.P. request for an order to approve tower sharing at an existing telecommunications facility located at Western Connecticut State University on Boxwood Lane, Danbury, Connecticut.

Dear Attorney Regan:

At a public meeting held September 12, 2001, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures: This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility may require an explicit request to this agency pursuant to General Statutes § 16-50aa or notice pursuant to Regulations of Connecticut State Agencies Section 16-50j-73, as applicable. Such request or notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction.

The proposed shared use is to be implemented as specified in your letter dated August 20, 2001.

Thank you for your attention and cooperation.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/RKE/laf

c: Honorable Gene F. Eriquez, Mayor, City of Danbury
Dennis Elpern, City Planner, City of Danbury
James Roach, President, Western Connecticut State University (WCSU)
Richard Sullivan, Vice President for Finance and Administration, WCSU
Thomas Carlone, Director of Engineering, WCSU
Ronald C. Clark, Nextel Communications, Inc.

ClibPDF - www.fastio.com

EBI Consulting
environmental | engineering | due diligence

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

SPRINT Existing Facility

Site ID: CT43XC836

Danbury-W. CT University
303 Boxwood Lane
Danbury, CT 06810

September 13, 2017

EBI Project Number: 6217004030

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	36.40 %

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

EBI Consulting
environmental | engineering | due diligence

September 13, 2017

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

Emissions Analysis for Site: **CT43XC836 – Danbury-W. CT University**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **303 Boxwood Lane, Danbury, 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.

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 **303 Boxwood Lane, Danbury, 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 and the RFS APXVTM14-C-120** 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 **89 feet** above ground level (AGL) for **Sector A**, **89 feet** above ground level (AGL) for **Sector B** and **89 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 APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXVSPP18-C-A20
Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd	Gain:	13.4 / 15.9 dBd
Height (AGL):	**89 feet**	Height (AGL):	**89 feet**	Height (AGL):	**89 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):	7,537.38	ERP (W):	7,537.38	ERP (W):	7,537.38
Antenna A1 MPE%	**4.45 %**	Antenna B1 MPE%	**4.45%**	Antenna C1 MPE%	**4.45 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVTM14-C-120	Make / Model:	RFS APXVTM14-C-120	Make / Model:	RFS APXVTM14-C-120
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	**89 feet**	Height (AGL):	**89 feet**	Height (AGL):	**89 feet**
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	6,224.72	ERP (W):	6,224.72	ERP (W):	6,224.72
Antenna A2 MPE%	**3.25 %**	Antenna B2 MPE%	**3.25 %**	Antenna C2 MPE%	**3.25 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**7.70 %**
AT&T	2.51 %
T-Mobile	10.69 %
WCXI (WCSU)	15.50 %
Site Total MPE %:	**36.40 %**

SPRINT Sector A Total:	7.70 %
SPRINT Sector B Total:	7.70 %
SPRINT Sector C Total:	7.70 %
Site Total:	36.40 %

SPRINT _ Max Values per Frequency Band / Technology Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	437.55	89	2.28	850 MHz	567	0.40%
Sprint 850 MHz LTE	2	437.55	89	4.57	850 MHz	567	0.81%
Sprint 1900 MHz (PCS) CDMA	5	622.47	89	16.24	1900 MHz (PCS)	1000	1.62%
Sprint 1900 MHz (PCS) LTE	2	1,556.18	89	16.24	1900 MHz (PCS)	1000	1.62%
Sprint 2500 MHz (BRS) LTE	8	778.09	89	32.48	2500 MHz (BRS)	1000	3.25%
						Total:	**7.70%**

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:	7.70 %
Sector B:	7.70 %
Sector C:	7.70 %
SPRINT Maximum Total (per sector):	7.70 %
Site Total:	36.40 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **36.40 %** 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

Structural Analysis Report

September 6, 2017

Site Name	CT43XC836
Infinigy Job Number	526-102
Client	Cherundolo Consulting
Proposed Carrier	Sprint
Site Location	303 Boxwood Lane, Danbury, CT 06810 41° 23' 42.00" N NAD83 73° 29' 12.29" W NAD83
Structure Type	100' Self Support Tower
Structural Usage Ratio	**84.2%**
Overall Result	**Pass**

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The tower and foundations are therefore deemed adequate to support the existing and proposed loading as listed in this report.

Richmond Lam, EI
Structural Engineer I

Contents

Introduction

Infinigy Engineering has been requested to perform a structural analysis on the existing 100' Fred A. Nudd Self Support Tower. All supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The tower was analyzed using tnxTower version 7.0.7.0 tower analysis software.

Supporting Documentation

Antenna Loading	Sprint PCD 2.5 Equipment Deployment, dated July 28, 2017
Previous Analysis	Infinigy Engineering Job #333-315, dated September 24, 2014
Design Drawings	Fred A. Nudd Drawing #96-4992-1, dated January 21, 1997
Foundation Drawings	Fred A. Nudd Drawing #96-4992-1, dated January 21, 1997
Mod Drawings	Centek Engineering Project #10106, dated July 23, 2010
Site Photos	Infinigy Site Walk, dated July 18, 2017

Analysis Code Requirements

Wind Speed	93 mph (3-Second Gust, Vasd) / 120 mph (3-Second Gust, Vult)
Wind Speed w/ ice	40 mph (3-Second Gust) w/ 3/4" ice
TIA Revision	ANSI/TIA-222-G
Adopted IBC	2012 IBC/2016 Connecticut State Building Code
Structure Class	II
Exposure Category	C
Topographic Category	1
Calculated Crest Height	0 ft.

Conclusion

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The tower and foundations are therefore deemed adequate to support the existing and proposed loading as listed in this report.

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

Richmond Lam, EI
Structural Engineer I | Infinigy Engineering, PLLC
3000 Aerial Center Pkwy #110, Morrisville, NC 27560
(M) (864) 706-9308
rlam@infinigy.com | www.infinigy.com

Existing and Reserved Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Carrier
98.0	6	Decibel DB844H90	Sector Frame	--
	9	RRH 24”x12”x8”		
	3	RRUS32 B4		
96.0	1	2’x4’ Grid Dish	Pipe	
89.0	3	RFS APXVSPP18-C-A20	Pipe	Sprint
	6	Alcatel Lucent 1900 MHz RRH		
	3	Alcatel Lucent 800 MHz RRH		
83.0	6	RFS APX16PV-16PVL	Pipe T-Arm	T-Mobile
	3	RFS ATMAA1412D-1A20 TMA		
65.0	1	Shively Labs 6810	Pipe	--
30.0	1	GPS	Side Arm	Sprint

To Be Removed Loading

No loading is considered to be removed.

Proposed Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Carrier
89.0	3	RFS APXVTM14-C-120	Sector Frame*	Sprint
	3	Alcatel Lucent TD-RRH8x20		

*New sector frame.

Final Configuration

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Carrier
98.0	6	Decibel DB844H90	Sector Frame	--
	9	RRH 24”x12”x8”		
	3	RRUS32 B4		
96.0	1	2’x4’ Grid Dish	Pipe	
89.0	3	RFS APXVSPP18-C-A20	Sector Frame	Sprint
	6	Alcatel Lucent 1900 MHz RRH		
	3	Alcatel Lucent 800 MHz RRH		
	3	RFS APXVTM14-C-120		
	3	Alcatel Lucent TD-RRH8x20		
83.0	6	RFS APX16PV-16PVL	Pipe T-Arm	T-Mobile
	3	RFS ATMAA1412D-1A20 TMA		
65.0	1	Shively Labs 6810	Pipe	--
30.0	1	GPS	Side Arm	Sprint

Structure Usages

Leg (T7)	82.2	Pass
Diagonal (T12)	84.2	Pass
Horizontal (T1)	51.2	Pass
Secondary Horizontal (T11)	2.7	Pass
Top Girt (T7)	74.6	Pass
Bottom Girt (T7)	45.2	Pass
Bolt Checks	62.0	Pass
RATING =	**84.2**	**Pass**

Foundation Reactions

Reaction Data	Design Reactions	Design Reactions x 1.35	Analysis Reactions	Result
Moment (kip-ft)	--	--	838.8	83.3%
Axial (kips)	--	--	17.0	49.5%
Shear (kips)	--	--	13.0	17.8%

Tower base reactions are acceptable per rigorous structural analysis.

Deflection, Twist, and Sway

Antenna Elevation (ft)	Deflection (in)	Twist (°)	Sway (°)
89.0	3.855	0.0534	0.4112

*Per ANSI/TIA-222-G Section 2.8.2 maximum serviceability structural deflection limit is 3% of structure height.
*Per ANSI/TIA-222-G Section 2.8.2 maximum serviceability structural twist and sway limit is 4 degrees.
*Per ANSI/TIA-222-G Section 2.8.3 deflection, Twist, and sway values were calculated using a basic 3-second gust wind speed of 60 mph.
*It is the responsibility of the client to ensure their proposed and/or existing equipment will meet ANSI/TIA-222-G Annex D or other appropriate microwave signal degradation limits based on the provided values above.

Assumptions and Limitations

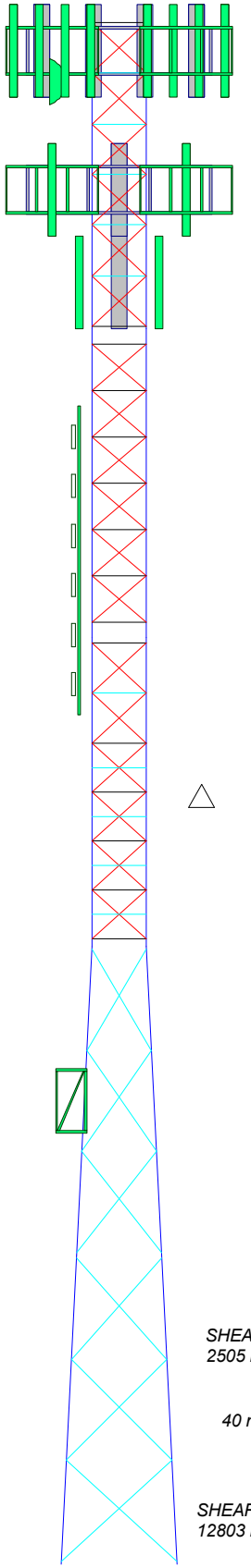
Our structural calculations are completed assuming all information provided to Infinigy Engineering is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition of "like new" and all members and connections to be free of corrosion and/or structural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

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

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

Section	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	P5x.375 GR			A		P3x.3 GR				P2.5x.276 GR				P2.5x.276
Leg Grade	A500-42					A500M-61								A500-50
Diagonals	L2 1/2x2 1/2x3/16	L2x2x3/16			SR 3/4			SR 1 1/4					SR 5/8	
Diagonal Grade		A36												
Top Girts	N.A.						2L1 1/2x1 1/2x3/16x3/8							L1 1/2x1 1/2x3/16
Bottom Girts	N.A.		B		N.A.			B			N.A.			L1 1/2x1 1/2x3/16
Horizontals		N.A.					B				N.A.			L1 1/2x1 1/2x3/16
Sec. Horizontals	N.A.				2L2 1/2x2 1/2x5/16x3/8								N.A.	
Face Width (ft) 7.5	5.5			4 @ 3.16667			2 @ 3.25			6 @ 3			6 @ 3.27778	3.5
# Panels @ (ft)	6 @ 6.55556													
Weight (lb) 6756.4	1760.4	1598.7	335.5	282.4	282.4	282.4	371.9	282.9	222.2	135.6	135.6	135.6	158.6	772.2

100.0 ft
80.0 ft
76.0 ft
73.0 ft
70.0 ft
67.0 ft
64.0 ft
60.0 ft
53.2 ft
50.0 ft
46.8 ft
43.7 ft
40.0 ft
20.0 ft
0.0 ft



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Angle Sector Frame	98	Pipe Sector Frame (Sprint)	89
Angle Sector Frame	98	Pipe Sector Frame (Sprint)	89
Angle Sector Frame	98	Pipe Sector Frame (Sprint)	89
(2) DB844H90	98	APXVTM14-C-120 (Sprint)	89
(2) DB844H90	98	APXVTM14-C-120 (Sprint)	89
(2) DB844H90	98	APXVTM14-C-120 (Sprint)	89
(3) RRU 24"x12"x8"	98	TD-RRH8X20 (Sprint)	89
(3) RRU 24"x12"x8"	98	TD-RRH8X20 (Sprint)	89
(3) RRU 24"x12"x8"	98	TD-RRH8X20 (Sprint)	89
RRUS32 B4	98	APXVSPP18-C-A20 (Sprint)	89
RRUS32 B4	98	(2) APX16PV-16PVL (T-Mobile)	83
RRUS32 B4	98	(2) APX16PV-16PVL (T-Mobile)	83
Dish Pipe Mount	96	(2) APX16PV-16PVL (T-Mobile)	83
2' x 4' Rectangular Grid Dish	96	ATMAA1412D-1A20 TMA (T-Mobile)	83
APXVSPP18-C-A20 (Sprint)	89	ATMAA1412D-1A20 TMA (T-Mobile)	83
APXVSPP18-C-A20 (Sprint)	89	ATMAA1412D-1A20 TMA (T-Mobile)	83
(2) 1900 MHz RRH (Sprint)	89	Antenna Pipe Mount (T-Mobile)	83
(2) 1900 MHz RRH (Sprint)	89	Antenna Pipe Mount (T-Mobile)	83
(2) 1900 MHz RRH (Sprint)	89	Antenna Pipe Mount (T-Mobile)	83
800 MHz RRH (Sprint)	89	6810	65
800 MHz RRH (Sprint)	89	Angle Side Arm (Sprint)	30
800 MHz RRH (Sprint)	89	GPS (Sprint)	30

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	P3x.3 GR w/ .75 TR	B	2L1 1/2x1 1/2x3/16x3/8

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A500-50	50 ksi	62 ksi	A500M-61	61 ksi	75 ksi
A36	36 ksi	58 ksi	A500-42	42 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 93 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 40 mph basic wind with 0.75 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. TOWER RATING: 84.2%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 134787 lb
SHEAR: 9316 lb

UPLIFT: -121826 lb
SHEAR: 8429 lb

AXIAL 42882 lb
SHEAR 2505 lb *MOMENT 175457 lb-ft*
TORQUE 736 lb-ft
40 mph WIND - 0.7500 in ICE
AXIAL 16960 lb
SHEAR 12803 lb *MOMENT 838750 lb-ft*
TORQUE 2243 lb-ft
REACTIONS - 93 mph WIND

Infinigy Engineering, PLLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Phone: (518) 690-0790
FAX: --

Job: **526-102**			
Project: ***CT43XC836***			
Client: Sprint	Drawn by: rlam		App'd:
Code: TIA-222-G	Date: 09/06/17		Scale: NTS
Path: C:\Users\rlam\Desktop\CT43XC836\Calcs\CT43XC836.en			Dwg No. E-1

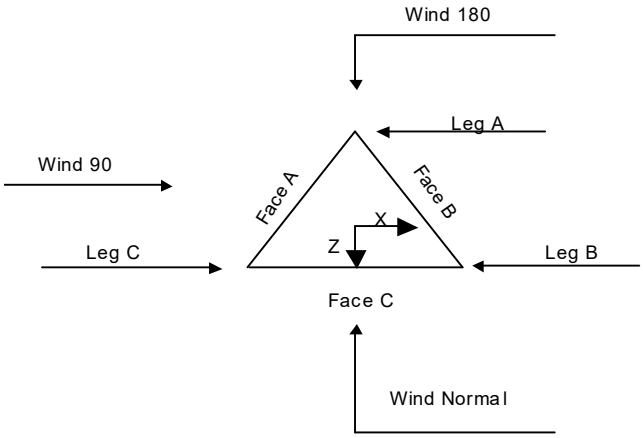
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 100.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 3.50 ft at the top and 7.50 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Fairfield County, Connecticut.
Basic wind speed of 93 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 40 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Tension only take-up is 0.0313 in.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member 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				



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	100.00-80.00			3.50	1	20.00
T2	80.00-76.00			3.50	1	4.00
T3	76.00-73.00			3.50	1	3.00
T4	73.00-70.00			3.50	1	3.00
T5	70.00-67.00			3.50	1	3.00
T6	67.00-64.00			3.50	1	3.00
T7	64.00-60.00			3.50	1	4.00
T8	60.00-53.17			3.50	1	6.83
T9	53.17-50.00			3.50	1	3.17
T10	50.00-46.83			3.50	1	3.17
T11	46.83-43.67			3.50	1	3.17
T12	43.67-40.00			3.50	1	3.67
T13	40.00-20.00			3.50	1	20.00
T14	20.00-0.00			5.50	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	100.00-80.00	3.28	TX Brace	No	Yes	1.9999	1.9999

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T2	80.00-76.00	3.00	TX Brace	No	Yes	12.0000	0.0000
T3	76.00-73.00	3.00	TX Brace	No	Yes	0.0000	0.0000
T4	73.00-70.00	3.00	TX Brace	No	Yes	0.0000	0.0000
T5	70.00-67.00	3.00	TX Brace	No	Yes	0.0000	0.0000
T6	67.00-64.00	3.00	TX Brace	No	Yes	0.0000	0.0000
T7	64.00-60.00	3.00	TX Brace	No	Yes	0.0000	12.0000
T8	60.00-53.17	3.25	TX Brace	No	Yes	3.9996	0.0000
T9	53.17-50.00	3.17	TX Brace	No	Yes	0.0000	0.0000
T10	50.00-46.83	3.17	TX Brace	No	Yes	0.0000	0.0000
T11	46.83-43.67	3.17	TX Brace	No	Yes	0.0000	0.0000
T12	43.67-40.00	3.17	TX Brace	No	Yes	0.0000	6.0002
T13	40.00-20.00	6.56	X Brace	No	No	1.9999	1.9999
T14	20.00-0.00	6.56	X Brace	No	No	1.9999	1.9999

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 100.00-80.00	Pipe	P2.5x.276	A500-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T2 80.00-76.00	Pipe	P2.5x.276 GR	A500-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T3 76.00-73.00	Pipe	P2.5x.276 GR	A500-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T4 73.00-70.00	Pipe	P2.5x.276 GR	A500-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T5 70.00-67.00	Pipe	P2.5x.276 GR	A500-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T6 67.00-64.00	Pipe	P2.5x.276 GR	A500-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T7 64.00-60.00	Pipe	P2.5x.276 GR	A500-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T8 60.00-53.17	Pipe	P3x.3 GR	A500M-61 (61 ksi)	Solid Round	3/4	A36 (36 ksi)
T9 53.17-50.00	Pipe	P3x.3 GR	A500M-61 (61 ksi)	Solid Round	3/4	A36 (36 ksi)
T10 50.00-46.83	Pipe	P3x.3 GR	A500M-61 (61 ksi)	Solid Round	3/4	A36 (36 ksi)
T11 46.83-43.67	Pipe	P3x.3 GR w/ .75 TR	A500M-61 (61 ksi)	Solid Round	3/4	A36 (36 ksi)
T12 43.67-40.00	Pipe	P3x.3 GR w/ .75 TR	A500M-61 (61 ksi)	Solid Round	3/4	A36 (36 ksi)
T13 40.00-20.00	Pipe	P5x.375 GR	A500-42 (42 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T14 20.00-0.00	Pipe	P5x.375 GR	A500-42 (42 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	*Top Girt Type*	*Top Girt Size*	*Top Girt Grade*	*Bottom Girt Type*	*Bottom Girt Size*	*Bottom Girt Grade*
T1 100.00-80.00	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T2 80.00-76.00	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T3 76.00-73.00	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T4 73.00-70.00	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T5 70.00-67.00	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T6 67.00-64.00	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T7 64.00-60.00	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)
T8 60.00-53.17	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T9 53.17-50.00	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T10 50.00-46.83	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T11 46.83-43.67	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T12 43.67-40.00	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	*No. of Mid Girts*	*Mid Girt Type*	*Mid Girt Size*	*Mid Girt Grade*	*Horizontal Type*	*Horizontal Size*	*Horizontal Grade*
T1 100.00-80.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T2 80.00-76.00	None	Flat Bar		A36 (36 ksi)	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)
T3 76.00-73.00	None	Flat Bar		A36 (36 ksi)	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)
T4 73.00-70.00	None	Flat Bar		A36 (36 ksi)	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)
T5 70.00-67.00	None	Flat Bar		A36 (36 ksi)	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)
T6 67.00-64.00	None	Flat Bar		A36 (36 ksi)	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)
T7 64.00-60.00	None	Flat Bar		A36 (36 ksi)	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)
T8 60.00-53.17	None	Flat Bar		A36 (36 ksi)	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)
T9 53.17-50.00	None	Flat Bar		A36 (36 ksi)	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)
T10 50.00-46.83	None	Flat Bar		A36 (36 ksi)	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)
T11 46.83-43.67	None	Flat Bar		A36 (36 ksi)	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)
T12 43.67-40.00	None	Flat Bar		A36 (36 ksi)	Double Angle	2L1 1/2x1 1/2x3/16x3/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T9 53.17-50.00	Double Angle	2L2 1/2x2 1/2x5/16x3/8	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T10 50.00-46.83	Double Angle	2L2 1/2x2 1/2x5/16x3/8	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T11 46.83-43.67	Double Angle	2L2 1/2x2 1/2x5/16x3/8	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T12 43.67-40.00	Double Angle	2L2 1/2x2 1/2x5/16x3/8	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

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
T1 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	0.0000	36.0000
T2 80.00-76.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	0.0000	36.0000
T3 76.00-73.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	0.0000	36.0000
T4 73.00-70.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	0.0000	36.0000
T5 70.00-67.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	0.0000	36.0000
T6 67.00-64.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	0.0000	36.0000
T7 64.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	0.0000	36.0000
T8 60.00-53.17	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	0.0000	36.0000
T9 53.17-50.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	0.0000	36.0000
T10 50.00-46.83	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	0.0000	36.0000
T11 46.83-43.67	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	0.0000	36.0000
T12 43.67-40.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	0.0000	36.0000
T13 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	0.0000	36.0000
T14 20.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	0.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	No	Yes	1	1	1	1	0.65	0.65	1	1
100.00-80.00				1	1	1	0.65	0.65	1	1
T2	No	Yes	0.85	1	1	1	0.65	0.65	1	1
80.00-76.00				1	1	1	0.65	0.65	1	1
T3	No	Yes	0.85	1	1	1	0.65	0.65	1	1
76.00-73.00				1	1	1	0.65	0.65	1	1
T4	No	Yes	0.85	1	1	1	0.65	0.65	1	1
73.00-70.00				1	1	1	0.65	0.65	1	1
T5	No	Yes	0.85	1	1	1	0.65	0.65	1	1
70.00-67.00				1	1	1	0.65	0.65	1	1
T6	No	Yes	0.85	1	1	1	0.65	0.65	1	1
67.00-64.00				1	1	1	0.65	0.65	1	1
T7	No	Yes	0.85	1	1	1	0.65	0.65	1	1
64.00-60.00				1	1	1	0.65	0.65	1	1
T8	No	Yes	0.85	1	1	1	0.65	0.65	1	1
60.00-53.17				1	1	1	0.65	0.65	1	1
T9	No	Yes	0.85	1	1	1	0.65	0.65	1	1
53.17-50.00				1	1	1	0.65	0.65	1	1
T10	No	Yes	0.85	1	1	1	0.65	0.65	1	1
50.00-46.83				1	1	1	0.65	0.65	1	1
T11	No	Yes	0.85	1	1	1	0.65	0.65	1	1
46.83-43.67				1	1	1	0.65	0.65	1	1
T12	No	Yes	0.85	1	1	1	0.65	0.65	1	1
43.67-40.00				1	1	1	0.65	0.65	1	1
T13	Yes	Yes	0.01	1	1	1	0.65	0.65	1	1
40.00-20.00				1	1	1	0.65	0.65	1	1
T14	Yes	Yes	0.01	1	1	1	0.65	0.65	1	1
20.00-0.00				1	1	1	0.65	0.65	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
100.00-80.00														
T2 80.00-76.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 76.00-73.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 73.00-70.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 70.00-67.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 67.00-64.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 64.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 60.00-53.17	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 53.17-50.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T10 50.00-46.83	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 46.83-43.67	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 43.67-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T14 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 100.00-80.00	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 80.00-76.00	Flange	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 76.00-73.00	Flange	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 73.00-70.00	Flange	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 70.00-67.00	Flange	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 67.00-64.00	Flange	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 64.00-60.00	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 60.00-53.17	Flange	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 53.17-50.00	Flange	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 50.00-46.83	Flange	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T11 46.83-43.67	Flange	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T12 43.67-40.00	Flange	1.0000 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T13 40.00-20.00	Flange	1.0000 A325N	6	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T14 20.00-0.00	Flange	1.5000 A36	4	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
7/8	A	No	Ar (CaAa)	98.00 - 10.00	0.0000	0.1	16	9	0.0000	1.1100		0.54
1 5/8	A	No	Ar (CaAa)	98.00 - 10.00	-2.0000	0.12	6	6	0.0000	1.9800		1.04
1 5/8	A	No	Ar (CaAa)	96.00 - 10.00	0.0000	0.22	1	1	0.0000	1.9800		1.04
1/2	A	No	Ar (CaAa)	65.00 - 10.00	0.0000	0.26	1	1	0.0000	0.5800		0.25
1 5/8 (T-Mobile)	C	No	Ar (CaAa)	83.00 - 10.00	0.0000	0	12	6	0.0000	1.9800		1.04
1 1/4" Hybriflex Cable (Sprint)	B	No	Ar (CaAa)	89.00 - 10.00	0.0000	0.25	3	3	0.0000	1.5400		1.00
0.3" (Sprint) ***	B	No	Ar (CaAa)	89.00 - 10.00	0.0000	0.1	1	1	0.0000	0.6960		0.30
1-1/4" Hybrid (Sprint)	B	No	Ar (CaAa)	89.00 - 10.00	0.0000	-0.1	1	1	0.0000	1.2500		0.83

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 lb
T1	100.00-80.00	A	0.000	0.000	56.520	0.000	284.48
		B	0.000	0.000	5.909	0.000	37.20
		C	0.000	0.000	7.128	0.000	37.44
T2	80.00-76.00	A	0.000	0.000	12.648	0.000	63.68
		B	0.000	0.000	2.626	0.000	16.53
		C	0.000	0.000	9.504	0.000	49.92
T3	76.00-73.00	A	0.000	0.000	9.486	0.000	47.76
		B	0.000	0.000	1.970	0.000	12.40
		C	0.000	0.000	7.128	0.000	37.44
T4	73.00-70.00	A	0.000	0.000	9.486	0.000	47.76
		B	0.000	0.000	1.970	0.000	12.40
		C	0.000	0.000	7.128	0.000	37.44
T5	70.00-67.00	A	0.000	0.000	9.486	0.000	47.76
		B	0.000	0.000	1.970	0.000	12.40
		C	0.000	0.000	7.128	0.000	37.44
T6	67.00-64.00	A	0.000	0.000	9.544	0.000	48.01
		B	0.000	0.000	1.970	0.000	12.40
		C	0.000	0.000	7.128	0.000	37.44
T7	64.00-60.00	A	0.000	0.000	12.880	0.000	64.68
		B	0.000	0.000	2.626	0.000	16.53
		C	0.000	0.000	9.504	0.000	49.92
T8	60.00-53.17	A	0.000	0.000	22.003	0.000	110.49
		B	0.000	0.000	4.487	0.000	28.24
		C	0.000	0.000	16.236	0.000	85.28
T9	53.17-50.00	A	0.000	0.000	10.197	0.000	51.21
		B	0.000	0.000	2.079	0.000	13.09
		C	0.000	0.000	7.524	0.000	39.52
T10	50.00-46.83	A	0.000	0.000	10.197	0.000	51.21
		B	0.000	0.000	2.079	0.000	13.09
		C	0.000	0.000	7.524	0.000	39.52
T11	46.83-43.67	A	0.000	0.000	10.197	0.000	51.21
		B	0.000	0.000	2.079	0.000	13.09
		C	0.000	0.000	7.524	0.000	39.52
T12	43.67-40.00	A	0.000	0.000	11.807	0.000	59.29
		B	0.000	0.000	2.408	0.000	15.15
		C	0.000	0.000	8.712	0.000	45.76

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 lb
T13	40.00-20.00	A	0.000	0.000	64.400	0.000	323.40
		B	0.000	0.000	13.132	0.000	82.66
		C	0.000	0.000	47.520	0.000	249.60
T14	20.00-0.00	A	0.000	0.000	32.200	0.000	161.70
		B	0.000	0.000	6.566	0.000	41.33
		C	0.000	0.000	23.760	0.000	124.80

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 lb
T1	100.00-80.00	A	1.658	0.000	0.000	77.112	0.000	1148.41
		B		0.000	0.000	18.189	0.000	230.79
		C		0.000	0.000	6.318	0.000	116.32
T2	80.00-76.00	A	1.635	0.000	0.000	17.292	0.000	255.79
		B		0.000	0.000	8.014	0.000	100.81
		C		0.000	0.000	8.393	0.000	153.61
T3	76.00-73.00	A	1.627	0.000	0.000	12.950	0.000	191.09
		B		0.000	0.000	5.994	0.000	75.19
		C		0.000	0.000	6.287	0.000	114.86
T4	73.00-70.00	A	1.621	0.000	0.000	12.933	0.000	190.43
		B		0.000	0.000	5.979	0.000	74.82
		C		0.000	0.000	6.281	0.000	114.55
T5	70.00-67.00	A	1.614	0.000	0.000	12.915	0.000	189.73
		B		0.000	0.000	5.963	0.000	74.43
		C		0.000	0.000	6.274	0.000	114.22
T6	67.00-64.00	A	1.606	0.000	0.000	13.276	0.000	193.56
		B		0.000	0.000	5.947	0.000	74.03
		C		0.000	0.000	6.266	0.000	113.88
T7	64.00-60.00	A	1.598	0.000	0.000	18.677	0.000	268.86
		B		0.000	0.000	7.904	0.000	98.06
		C		0.000	0.000	8.344	0.000	151.30
T8	60.00-53.17	A	1.583	0.000	0.000	31.802	0.000	455.56
		B		0.000	0.000	13.428	0.000	165.70
		C		0.000	0.000	14.220	0.000	256.92
T9	53.17-50.00	A	1.569	0.000	0.000	14.689	0.000	209.38
		B		0.000	0.000	6.188	0.000	75.95
		C		0.000	0.000	6.575	0.000	118.35
T10	50.00-46.83	A	1.559	0.000	0.000	14.657	0.000	208.21
		B		0.000	0.000	6.165	0.000	75.38
		C		0.000	0.000	6.564	0.000	117.86
T11	46.83-43.67	A	1.548	0.000	0.000	14.622	0.000	206.97
		B		0.000	0.000	6.140	0.000	74.78
		C		0.000	0.000	6.553	0.000	117.35
T12	43.67-40.00	A	1.536	0.000	0.000	16.885	0.000	238.00
		B		0.000	0.000	7.077	0.000	85.79
		C		0.000	0.000	7.573	0.000	135.19
T13	40.00-20.00	A	1.486	0.000	0.000	91.051	0.000	1261.12
		B		0.000	0.000	37.856	0.000	450.14
		C		0.000	0.000	40.974	0.000	721.97
T14	20.00-0.00	A	1.331	0.000	0.000	43.919	0.000	575.10
		B		0.000	0.000	17.781	0.000	198.82
		C		0.000	0.000	19.974	0.000	337.64

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	100.00-80.00	-0.8547	-1.3281	-0.3098	-0.7101
T2	80.00-76.00	-0.4365	-0.2338	-0.1186	-0.3854
T3	76.00-73.00	-0.4297	-0.2302	-0.1070	-0.3454
T4	73.00-70.00	-0.4297	-0.2302	-0.1078	-0.3458
T5	70.00-67.00	-0.4297	-0.2302	-0.1086	-0.3461
T6	67.00-64.00	-0.4192	-0.2349	-0.1151	-0.3620
T7	64.00-60.00	-0.4256	-0.2589	-0.1421	-0.4396
T8	60.00-53.17	-0.4297	-0.2614	-0.1508	-0.4622
T9	53.17-50.00	-0.4098	-0.2493	-0.1198	-0.3636
T10	50.00-46.83	-0.4098	-0.2493	-0.1209	-0.3647
T11	46.83-43.67	-0.4098	-0.2493	-0.1222	-0.3659
T12	43.67-40.00	-0.4065	-0.2473	-0.1168	-0.3472
T13	40.00-20.00	-0.5301	-0.3497	-0.2329	-0.6487
T14	20.00-0.00	-0.5568	-0.3904	-0.2705	-0.6681

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	7/8	80.00 - 98.00	0.6000	0.4098
T1	2	1 5/8	80.00 - 98.00	0.6000	0.4098
T1	3	1 5/8	80.00 - 96.00	0.6000	0.4098
T1	5	1 5/8	80.00 - 83.00	0.6000	0.4098
T1	6	1 1/4" Hybriflex Cable	80.00 - 89.00	0.6000	0.4098
T1	7	0.3"	80.00 - 89.00	0.6000	0.4098
T1	9	1-1/4" Hybrid	80.00 - 89.00	0.6000	0.4098
T2	1	7/8	76.00 - 80.00	0.6000	0.4903
T2	2	1 5/8	76.00 - 80.00	0.6000	0.4903
T2	3	1 5/8	76.00 - 80.00	0.6000	0.4903
T2	5	1 5/8	76.00 - 80.00	0.6000	0.4903
T2	6	1 1/4" Hybriflex Cable	76.00 - 80.00	0.6000	0.4903
T2	7	0.3"	76.00 - 80.00	0.6000	0.4903
T2	9	1-1/4" Hybrid	76.00 - 80.00	0.6000	0.4903
T3	1	7/8	73.00 - 76.00	0.6000	0.4072
T3	2	1 5/8	73.00 - 76.00	0.6000	0.4072
T3	3	1 5/8	73.00 - 76.00	0.6000	0.4072
T3	5	1 5/8	73.00 - 76.00	0.6000	0.4072
T3	6	1 1/4" Hybriflex Cable	73.00 - 76.00	0.6000	0.4072
T3	7	0.3"	73.00 - 76.00	0.6000	0.4072
T3	9	1-1/4" Hybrid	73.00 - 76.00	0.6000	0.4072
T4	1	7/8	70.00 - 73.00	0.6000	0.4087
T4	2	1 5/8	70.00 - 73.00	0.6000	0.4087
T4	3	1 5/8	70.00 - 73.00	0.6000	0.4087
T4	5	1 5/8	70.00 - 73.00	0.6000	0.4087
T4	6	1 1/4" Hybriflex Cable	70.00 - 73.00	0.6000	0.4087
T4	7	0.3"	70.00 - 73.00	0.6000	0.4087
T4	9	1-1/4" Hybrid	70.00 - 73.00	0.6000	0.4087
T5	1	7/8	67.00 - 70.00	0.6000	0.4102
T5	2	1 5/8	67.00 - 70.00	0.6000	0.4102
T5	3	1 5/8	67.00 - 70.00	0.6000	0.4102
T5	5	1 5/8	67.00 - 70.00	0.6000	0.4102
T5	6	1 1/4" Hybriflex Cable	67.00 - 70.00	0.6000	0.4102

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T5	7	0.3"	67.00 - 70.00	0.6000	0.4102
T5	9	1-1/4" Hybrid	67.00 - 70.00	0.6000	0.4102
T6	1	7/8	64.00 - 67.00	0.6000	0.3746
T6	2	1 5/8	64.00 - 67.00	0.6000	0.3746
T6	3	1 5/8	64.00 - 67.00	0.6000	0.3746
T6	4	1/2	64.00 - 65.00	0.6000	0.3746
T6	5	1 5/8	64.00 - 67.00	0.6000	0.3746
T6	6	1 1/4" Hybriflex Cable	64.00 - 67.00	0.6000	0.3746
T6	7	0.3"	64.00 - 67.00	0.6000	0.3746
T6	9	1-1/4" Hybrid	64.00 - 67.00	0.6000	0.3746
T7	1	7/8	60.00 - 64.00	0.6000	0.3897
T7	2	1 5/8	60.00 - 64.00	0.6000	0.3897
T7	3	1 5/8	60.00 - 64.00	0.6000	0.3897
T7	4	1/2	60.00 - 64.00	0.6000	0.3897
T7	5	1 5/8	60.00 - 64.00	0.6000	0.3897
T7	6	1 1/4" Hybriflex Cable	60.00 - 64.00	0.6000	0.3897
T7	7	0.3"	60.00 - 64.00	0.6000	0.3897
T7	9	1-1/4" Hybrid	60.00 - 64.00	0.6000	0.3897
T8	1	7/8	53.17 - 60.00	0.6000	0.4298
T8	2	1 5/8	53.17 - 60.00	0.6000	0.4298
T8	3	1 5/8	53.17 - 60.00	0.6000	0.4298
T8	4	1/2	53.17 - 60.00	0.6000	0.4298
T8	5	1 5/8	53.17 - 60.00	0.6000	0.4298
T8	6	1 1/4" Hybriflex Cable	53.17 - 60.00	0.6000	0.4298
T8	7	0.3"	53.17 - 60.00	0.6000	0.4298
T8	9	1-1/4" Hybrid	53.17 - 60.00	0.6000	0.4298
T9	1	7/8	50.00 - 53.17	0.6000	0.2947
T9	2	1 5/8	50.00 - 53.17	0.6000	0.2947
T9	3	1 5/8	50.00 - 53.17	0.6000	0.2947
T9	4	1/2	50.00 - 53.17	0.6000	0.2947
T9	5	1 5/8	50.00 - 53.17	0.6000	0.2947
T9	6	1 1/4" Hybriflex Cable	50.00 - 53.17	0.6000	0.2947
T9	7	0.3"	50.00 - 53.17	0.6000	0.2947
T9	9	1-1/4" Hybrid	50.00 - 53.17	0.6000	0.2947
T10	1	7/8	46.83 - 50.00	0.6000	0.2971
T10	2	1 5/8	46.83 - 50.00	0.6000	0.2971
T10	3	1 5/8	46.83 - 50.00	0.6000	0.2971
T10	4	1/2	46.83 - 50.00	0.6000	0.2971
T10	5	1 5/8	46.83 - 50.00	0.6000	0.2971
T10	6	1 1/4" Hybriflex Cable	46.83 - 50.00	0.6000	0.2971
T10	7	0.3"	46.83 - 50.00	0.6000	0.2971
T10	9	1-1/4" Hybrid	46.83 - 50.00	0.6000	0.2971
T11	1	7/8	43.67 - 46.83	0.6000	0.2998
T11	2	1 5/8	43.67 - 46.83	0.6000	0.2998
T11	3	1 5/8	43.67 - 46.83	0.6000	0.2998
T11	4	1/2	43.67 - 46.83	0.6000	0.2998
T11	5	1 5/8	43.67 - 46.83	0.6000	0.2998
T11	6	1 1/4" Hybriflex Cable	43.67 - 46.83	0.6000	0.2998
T11	7	0.3"	43.67 - 46.83	0.6000	0.2998
T11	9	1-1/4" Hybrid	43.67 - 46.83	0.6000	0.2998
T12	1	7/8	40.00 - 43.67	0.6000	0.2786
T12	2	1 5/8	40.00 - 43.67	0.6000	0.2786
T12	3	1 5/8	40.00 - 43.67	0.6000	0.2786
T12	4	1/2	40.00 - 43.67	0.6000	0.2786
T12	5	1 5/8	40.00 - 43.67	0.6000	0.2786
T12	6	1 1/4" Hybriflex Cable	40.00 - 43.67	0.6000	0.2786
T12	7	0.3"	40.00 - 43.67	0.6000	0.2786
T12	9	1-1/4" Hybrid	40.00 - 43.67	0.6000	0.2786
T13	1	7/8	20.00 - 40.00	0.6000	0.5564
T13	2	1 5/8	20.00 - 40.00	0.6000	0.5564
T13	3	1 5/8	20.00 - 40.00	0.6000	0.5564
T13	4	1/2	20.00 - 40.00	0.6000	0.5564

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T13	5	1 5/8	20.00 - 40.00	0.6000	0.5564
T13	6	1 1/4" Hybriflex Cable	20.00 - 40.00	0.6000	0.5564
T13	7	0.3"	20.00 - 40.00	0.6000	0.5564
T13	9	1-1/4" Hybrid	20.00 - 40.00	0.6000	0.5564
T14	1	7/8	10.00 - 20.00	0.6000	0.6000
T14	2	1 5/8	10.00 - 20.00	0.6000	0.6000
T14	3	1 5/8	10.00 - 20.00	0.6000	0.6000
T14	4	1/2	10.00 - 20.00	0.6000	0.6000
T14	5	1 5/8	10.00 - 20.00	0.6000	0.6000
T14	6	1 1/4" Hybriflex Cable	10.00 - 20.00	0.6000	0.6000
T14	7	0.3"	10.00 - 20.00	0.6000	0.6000
T14	9	1-1/4" Hybrid	10.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

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 lb
Angle Sector Frame	A	From Leg	3.00	0.0000	98.00	No Ice	17.90	8.95	400.00
			0.00			1/2" Ice	22.20	13.00	510.00
			0.00			1" Ice	26.50	17.05	620.00
Angle Sector Frame	B	From Leg	3.00	0.0000	98.00	No Ice	17.90	8.95	400.00
			0.00			1/2" Ice	22.20	13.00	510.00
			0.00			1" Ice	26.50	17.05	620.00
Angle Sector Frame	C	From Leg	3.00	0.0000	98.00	No Ice	17.90	8.95	400.00
			0.00			1/2" Ice	22.20	13.00	510.00
			0.00			1" Ice	26.50	17.05	620.00
(2) DB844H90	A	From Leg	3.00	0.0000	98.00	No Ice	2.87	3.80	10.00
			0.00			1/2" Ice	3.18	4.10	36.27
			0.00			1" Ice	3.49	4.42	66.78
(2) DB844H90	B	From Leg	3.00	0.0000	98.00	No Ice	2.87	3.80	10.00
			0.00			1/2" Ice	3.18	4.10	36.27
			0.00			1" Ice	3.49	4.42	66.78
(2) DB844H90	C	From Leg	3.00	0.0000	98.00	No Ice	2.87	3.80	10.00
			0.00			1/2" Ice	3.18	4.10	36.27
			0.00			1" Ice	3.49	4.42	66.78
(3) RRU 24"x12"x8"	A	From Leg	3.00	0.0000	98.00	No Ice	2.40	1.63	50.00
			0.00			1/2" Ice	2.60	1.80	70.13
			0.00			1" Ice	2.81	1.99	93.30
(3) RRU 24"x12"x8"	B	From Leg	3.00	0.0000	98.00	No Ice	2.40	1.63	50.00
			0.00			1/2" Ice	2.60	1.80	70.13
			0.00			1" Ice	2.81	1.99	93.30
(3) RRU 24"x12"x8"	C	From Leg	3.00	0.0000	98.00	No Ice	2.40	1.63	50.00
			0.00			1/2" Ice	2.60	1.80	70.13
			0.00			1" Ice	2.81	1.99	93.30
RRUS32 B4	A	From Leg	3.00	0.0000	98.00	No Ice	2.73	1.67	52.90
			0.00			1/2" Ice	2.95	1.86	73.96
			0.00			1" Ice	3.18	2.05	98.21
RRUS32 B4	B	From Leg	3.00	0.0000	98.00	No Ice	2.73	1.67	52.90
			0.00			1/2" Ice	2.95	1.86	73.96
			0.00			1" Ice	3.18	2.05	98.21

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 lb
RRUS32 B4	C	From Leg	3.00	0.0000	98.00	No Ice	2.73	1.67	52.90
			0.00			1/2" Ice	2.95	1.86	73.96
			0.00			1" Ice	3.18	2.05	98.21
***									
Dish Pipe Mount	C	From Leg	1.00	0.0000	96.00	No Ice	2.09	2.09	54.66
			0.00			1/2" Ice	2.46	2.46	80.59
			0.00			1" Ice	2.85	2.85	110.49
***									
APXVSPP18-C-A20 (Sprint)	A	From Leg	3.00	0.0000	89.00	No Ice	8.02	5.28	57.00
			0.00			1/2" Ice	8.48	5.74	106.52
			0.00			1" Ice	8.94	6.20	162.12
APXVSPP18-C-A20 (Sprint)	B	From Leg	3.00	0.0000	89.00	No Ice	8.02	5.28	57.00
			0.00			1/2" Ice	8.48	5.74	106.52
			0.00			1" Ice	8.94	6.20	162.12
APXVSPP18-C-A20 (Sprint)	C	From Leg	3.00	0.0000	89.00	No Ice	8.02	5.28	57.00
			0.00			1/2" Ice	8.48	5.74	106.52
			0.00			1" Ice	8.94	6.20	162.12
(2) 1900 MHz RRH (Sprint)	A	From Leg	3.00	0.0000	89.00	No Ice	2.73	1.45	44.09
			0.00			1/2" Ice	2.96	1.64	62.32
			0.00			1" Ice	3.20	1.84	83.43
(2) 1900 MHz RRH (Sprint)	B	From Leg	3.00	0.0000	89.00	No Ice	2.73	1.45	44.09
			0.00			1/2" Ice	2.96	1.64	62.32
			0.00			1" Ice	3.20	1.84	83.43
(2) 1900 MHz RRH (Sprint)	C	From Leg	3.00	0.0000	89.00	No Ice	2.73	1.45	44.09
			0.00			1/2" Ice	2.96	1.64	62.32
			0.00			1" Ice	3.20	1.84	83.43
800 MHz RRH (Sprint)	A	From Leg	3.00	0.0000	89.00	No Ice	1.93	2.06	64.00
			0.00			1/2" Ice	2.11	2.24	86.12
			0.00			1" Ice	2.29	2.43	111.30
800 MHz RRH (Sprint)	B	From Leg	3.00	0.0000	89.00	No Ice	1.93	2.06	64.00
			0.00			1/2" Ice	2.11	2.24	86.12
			0.00			1" Ice	2.29	2.43	111.30
800 MHz RRH (Sprint)	C	From Leg	3.00	0.0000	89.00	No Ice	1.93	2.06	64.00
			0.00			1/2" Ice	2.11	2.24	86.12
			0.00			1" Ice	2.29	2.43	111.30
***									
(2) APX16PV-16PVL (T-Mobile)	A	From Leg	1.00	0.0000	83.00	No Ice	6.19	3.31	46.95
			0.00			1/2" Ice	6.58	3.94	93.66
			0.00			1" Ice	6.99	4.58	147.19
(2) APX16PV-16PVL (T-Mobile)	B	From Leg	1.00	0.0000	83.00	No Ice	6.19	3.31	46.95
			0.00			1/2" Ice	6.58	3.94	93.66
			0.00			1" Ice	6.99	4.58	147.19
(2) APX16PV-16PVL (T-Mobile)	C	From Leg	1.00	0.0000	83.00	No Ice	6.19	3.31	46.95
			0.00			1/2" Ice	6.58	3.94	93.66
			0.00			1" Ice	6.99	4.58	147.19
ATMAA1412D-1A20 TMA (T-Mobile)	A	From Leg	1.00	0.0000	83.00	No Ice	1.00	0.41	13.00
			0.00			1/2" Ice	1.13	0.50	20.62
			0.00			1" Ice	1.26	0.59	30.11
ATMAA1412D-1A20 TMA (T-Mobile)	B	From Leg	1.00	0.0000	83.00	No Ice	1.00	0.41	13.00
			0.00			1/2" Ice	1.13	0.50	20.62
			0.00			1" Ice	1.26	0.59	30.11
ATMAA1412D-1A20 TMA (T-Mobile)	C	From Leg	1.00	0.0000	83.00	No Ice	1.00	0.41	13.00
			0.00			1/2" Ice	1.13	0.50	20.62
			0.00			1" Ice	1.26	0.59	30.11
Antenna Pipe Mount (T-Mobile)	A	From Leg	1.00	0.0000	83.00	No Ice	0.87	0.87	14.60
			0.00			1/2" Ice	1.12	1.12	25.30
			0.00			1" Ice	1.39	1.39	37.43

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 lb
Antenna Pipe Mount	B	From Leg	1.00	0.0000	83.00	No Ice	0.87	0.87	14.60
(T-Mobile)			0.00			1/2" Ice	1.12	1.12	25.30
			0.00			1" Ice	1.39	1.39	37.43
Antenna Pipe Mount	C	From Leg	1.00	0.0000	83.00	No Ice	0.87	0.87	14.60
(T-Mobile)			0.00			1/2" Ice	1.12	1.12	25.30
			0.00			1" Ice	1.39	1.39	37.43
***									
6810	C	From Leg	1.00	0.0000	65.00	No Ice	22.30	22.30	354.00
			0.00			1/2" Ice	40.14	40.14	460.20
			0.00			1" Ice	57.98	57.98	566.40
***									
Angle Side Arm	C	From Leg	1.00	0.0000	30.00	No Ice	6.30	2.14	150.00
(Sprint)			0.00			1/2" Ice	7.00	2.60	230.00
			0.00			1" Ice	7.70	3.06	310.00
GPS	C	From Leg	2.00	0.0000	30.00	No Ice	0.45	0.45	10.00
(Sprint)			0.00			1/2" Ice	0.57	0.57	15.96
			0.00			1" Ice	0.69	0.69	23.49
***									
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***									
Pipe Sector Frame	A	From Leg	3.00	0.0000	89.00	No Ice	14.40	7.20	300.00
(Sprint)			0.00			1/2" Ice	19.50	10.50	415.00
			0.00			1" Ice	24.60	13.80	530.00
Pipe Sector Frame	B	From Leg	3.00	0.0000	89.00	No Ice	14.40	7.20	300.00
(Sprint)			0.00			1/2" Ice	19.50	10.50	415.00
			0.00			1" Ice	24.60	13.80	530.00
Pipe Sector Frame	C	From Leg	3.00	0.0000	89.00	No Ice	14.40	7.20	300.00
(Sprint)			0.00			1/2" Ice	19.50	10.50	415.00
			0.00			1" Ice	24.60	13.80	530.00
APXVTM14-C-120	A	From Leg	3.00	0.0000	89.00	No Ice	5.96	3.38	52.90
(Sprint)			0.00			1/2" Ice	6.31	3.72	90.49
			0.00			1" Ice	6.68	4.07	132.96
APXVTM14-C-120	B	From Leg	3.00	0.0000	89.00	No Ice	5.96	3.38	52.90
(Sprint)			0.00			1/2" Ice	6.31	3.72	90.49
			0.00			1" Ice	6.68	4.07	132.96
APXVTM14-C-120	C	From Leg	3.00	0.0000	89.00	No Ice	5.96	3.38	52.90
(Sprint)			0.00			1/2" Ice	6.31	3.72	90.49
			0.00			1" Ice	6.68	4.07	132.96
TD-RRH8X20	A	From Leg	3.00	0.0000	89.00	No Ice	3.70	1.29	66.14
(Sprint)			0.00			1/2" Ice	3.95	1.46	90.08
			0.00			1" Ice	4.20	1.64	117.36
TD-RRH8X20	B	From Leg	3.00	0.0000	89.00	No Ice	3.70	1.29	66.14
(Sprint)			0.00			1/2" Ice	3.95	1.46	90.08
			0.00			1" Ice	4.20	1.64	117.36
TD-RRH8X20	C	From Leg	3.00	0.0000	89.00	No Ice	3.70	1.29	66.14
(Sprint)			0.00			1/2" Ice	3.95	1.46	90.08
			0.00			1" Ice	4.20	1.64	117.36

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft²	Weight lb
2' x 4' Rectangular Grid Dish	C	Grid	From Leg	2.00 0.00 0.00	0.0000		96.00	3.00	No Ice 1/2" Ice 1" Ice	7.07 7.47 7.86	40.00 78.35 116.69

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	1.2D+1.6W (pattern 1) 0 deg - No Ice
4	1.2D+1.6W (pattern 2) 0 deg - No Ice
5	0.9 Dead+1.6 Wind 0 deg - No Ice
6	1.2 Dead+1.6 Wind 30 deg - No Ice
7	1.2D+1.6W (pattern 1) 30 deg - No Ice
8	1.2D+1.6W (pattern 2) 30 deg - No Ice
9	0.9 Dead+1.6 Wind 30 deg - No Ice
10	1.2 Dead+1.6 Wind 60 deg - No Ice
11	1.2D+1.6W (pattern 1) 60 deg - No Ice
12	1.2D+1.6W (pattern 2) 60 deg - No Ice
13	0.9 Dead+1.6 Wind 60 deg - No Ice
14	1.2 Dead+1.6 Wind 90 deg - No Ice
15	1.2D+1.6W (pattern 1) 90 deg - No Ice
16	1.2D+1.6W (pattern 2) 90 deg - No Ice
17	0.9 Dead+1.6 Wind 90 deg - No Ice
18	1.2 Dead+1.6 Wind 120 deg - No Ice
19	1.2D+1.6W (pattern 1) 120 deg - No Ice
20	1.2D+1.6W (pattern 2) 120 deg - No Ice
21	0.9 Dead+1.6 Wind 120 deg - No Ice
22	1.2 Dead+1.6 Wind 150 deg - No Ice
23	1.2D+1.6W (pattern 1) 150 deg - No Ice
24	1.2D+1.6W (pattern 2) 150 deg - No Ice
25	0.9 Dead+1.6 Wind 150 deg - No Ice
26	1.2 Dead+1.6 Wind 180 deg - No Ice
27	1.2D+1.6W (pattern 1) 180 deg - No Ice
28	1.2D+1.6W (pattern 2) 180 deg - No Ice
29	0.9 Dead+1.6 Wind 180 deg - No Ice
30	1.2 Dead+1.6 Wind 210 deg - No Ice
31	1.2D+1.6W (pattern 1) 210 deg - No Ice
32	1.2D+1.6W (pattern 2) 210 deg - No Ice
33	0.9 Dead+1.6 Wind 210 deg - No Ice
34	1.2 Dead+1.6 Wind 240 deg - No Ice
35	1.2D+1.6W (pattern 1) 240 deg - No Ice
36	1.2D+1.6W (pattern 2) 240 deg - No Ice
37	0.9 Dead+1.6 Wind 240 deg - No Ice
38	1.2 Dead+1.6 Wind 270 deg - No Ice
39	1.2D+1.6W (pattern 1) 270 deg - No Ice
40	1.2D+1.6W (pattern 2) 270 deg - No Ice
41	0.9 Dead+1.6 Wind 270 deg - No Ice
42	1.2 Dead+1.6 Wind 300 deg - No Ice
43	1.2D+1.6W (pattern 1) 300 deg - No Ice
44	1.2D+1.6W (pattern 2) 300 deg - No Ice
45	0.9 Dead+1.6 Wind 300 deg - No Ice
46	1.2 Dead+1.6 Wind 330 deg - No Ice
47	1.2D+1.6W (pattern 1) 330 deg - No Ice
48	1.2D+1.6W (pattern 2) 330 deg - No Ice

Comb. No.	Description
49	0.9 Dead+1.6 Wind 330 deg - No Ice
50	1.2 Dead+1.0 Ice+1.0 Temp
51	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
52	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
53	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
54	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
55	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
56	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
57	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
58	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
59	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
60	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
61	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
62	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
63	Dead+Wind 0 deg - Service
64	Dead+Wind 30 deg - Service
65	Dead+Wind 60 deg - Service
66	Dead+Wind 90 deg - Service
67	Dead+Wind 120 deg - Service
68	Dead+Wind 150 deg - Service
69	Dead+Wind 180 deg - Service
70	Dead+Wind 210 deg - Service
71	Dead+Wind 240 deg - Service
72	Dead+Wind 270 deg - Service
73	Dead+Wind 300 deg - Service
74	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	100 - 80	4.809	71	0.4155	0.0548
T2	80 - 76	3.066	71	0.3973	0.0494
T3	76 - 73	2.718	71	0.3857	0.0472
T4	73 - 70	2.474	71	0.3746	0.0464
T5	70 - 67	2.236	71	0.3614	0.0455
T6	67 - 64	2.008	71	0.3459	0.0448
T7	64 - 60	1.794	71	0.3285	0.0444
T8	60 - 53.1667	1.515	71	0.3005	0.0389
T9	53.1667 - 50	1.098	71	0.2566	0.0303
T10	50 - 46.8334	0.929	71	0.2326	0.0271
T11	46.8334 - 43.6667	0.778	71	0.2060	0.0239
T12	43.6667 - 40	0.644	71	0.1770	0.0207
T13	40 - 20	0.515	71	0.1401	0.0165
T14	20 - 0	0.114	71	0.0573	0.0036

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
98.00	Angle Sector Frame	71	4.636	0.4152	0.0547	233267
96.00	2' x 4' Rectangular Grid Dish	71	4.463	0.4147	0.0545	233267
89.00	APXVSPP18-C-A20	71	3.855	0.4112	0.0534	106031

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
83.00	(2) APX16PV-16PVL	71	3.330	0.4035	0.0511	85248
65.00	6810	71	1.864	0.3347	0.0448	13539
30.00	Angle Side Arm	71	0.260	0.0806	0.0080	11031

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	100 - 80	18.321	34	1.5812	0.2678
T2	80 - 76	11.684	34	1.5128	0.2464
T3	76 - 73	10.358	34	1.4688	0.2359
T4	73 - 70	9.427	34	1.4262	0.2321
T5	70 - 67	8.523	34	1.3755	0.2277
T6	67 - 64	7.653	34	1.3162	0.2238
T7	64 - 60	6.840	34	1.2499	0.2220
T8	60 - 53.1667	5.776	34	1.1441	0.1992
T9	53.1667 - 50	4.187	34	0.9777	0.1503
T10	50 - 46.8334	3.545	34	0.8862	0.1318
T11	46.8334 - 43.6667	2.967	34	0.7852	0.1110
T12	43.6667 - 40	2.458	34	0.6746	0.0884
T13	40 - 20	1.964	34	0.5340	0.0637
T14	20 - 0	0.436	34	0.2188	0.0139

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
98.00	Angle Sector Frame	34	17.662	1.5801	0.2673	63108
96.00	2' x 4' Rectangular Grid Dish	34	17.003	1.5786	0.2667	63108
89.00	APXVSPP18-C-A20	34	14.689	1.5657	0.2624	28686
83.00	(2) APX16PV-16PVL	34	12.691	1.5366	0.2535	23309
65.00	6810	34	7.108	1.2734	0.2235	3493
30.00	Angle Side Arm	34	0.993	0.3070	0.0311	2849

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	100	Leg	A325N	0.7500	4	0.46	29820.60	0.000 ✔	1	Bolt Tension
T7	64	Leg	A325N	0.7500	4	11072.40	29820.60	0.371 ✔	1	Bolt Tension
T12	43.6667	Leg	A325N	1.0000	4	26387.00	53014.40	0.498 ✔	1	Bolt Tension
T13	40	Leg	A325N	1.0000	6	19833.90	53014.40	0.374 ✔	1	Bolt Tension

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T14	20	Diagonal	A325N	0.6250	1	2557.28	6830.86	0.374 ✔	1	Member Block Shear
		Leg	A36	1.5000	4	29562.60	47712.90	0.620 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	1470.50	7830.00	0.188 ✔	1	Member Bearing

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $P_u / \phi P_n$
T1	100 - 80	P2.5x.276	20.00	3.28	42.6 K=1.00	2.2535	-26458.70	88826.50	0.298 [1] ✔
T2	80 - 76	P2.5x.276 GR	4.00	3.00	33.1 K=0.85	2.2535	-34382.40	93595.70	0.367 [1] ✔
T3	76 - 73	P2.5x.276 GR	3.00	3.00	33.1 K=0.85	2.2535	-40792.60	93595.70	0.436 [1] ✔
T4	73 - 70	P2.5x.276 GR	3.00	3.00	33.1 K=0.85	2.2535	-47060.80	93595.70	0.503 [1] ✔
T5	70 - 67	P2.5x.276 GR	3.00	3.00	33.1 K=0.85	2.2535	-53307.70	93595.70	0.570 [1] ✔
T6	67 - 64	P2.5x.276 GR	3.00	3.00	33.1 K=0.85	2.2535	-67988.30	93595.70	0.726 [1] ✔
T7	64 - 60	P2.5x.276 GR	4.00	3.00	33.1 K=0.85	2.2535	-76920.50	93595.70	0.822 [1] ✔
T8	60 - 53.1667	P3x.3 GR	6.83	3.25	29.2 K=0.85	3.0159	-91410.90	153470.00	0.596 [1] ✔
T9	53.1667 - 50	P3x.3 GR	3.17	1.58	14.2 K=0.85	3.0159	-100438.00	162618.00	0.618 [1] ✔
T10	50 - 46.8334	P3x.3 GR	3.17	1.58	14.2 K=0.85	3.0159	-109804.00	162618.00	0.675 [1] ✔
T11	46.8334 - 43.6667	P3x.3 GR w/ .75 TR	3.17	1.58	14.2 K=0.85	3.0159	-119275.00	162618.00	0.733 [1] ✔
T12	43.6667 - 40	P3x.3 GR w/ .75 TR	3.67	1.58	14.2 K=0.85	3.0159	-129446.00	162618.00	0.796 [1] ✔
T13	40 - 20	P5x.375 GR	20.03	6.57	0.4 K=0.01	6.1114	-129497.00	231008.00	0.561 [1] ✔
T14	20 - 0	P5x.375 GR	20.03	6.57	0.4 K=0.01	6.1114	-135099.00	231008.00	0.585 [1] ✔

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T13	40 - 20	L2x2x3/16	7.60	3.63	112.9 K=1.02	0.7150	-3092.53	11837.70	0.261 [1] ✔
T14	20 - 0	L2 1/2x2 1/2x3/16	9.71	4.64	114.4 K=1.02	0.9020	-1698.86	14675.40	0.116 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	100 - 80	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-5892.79	11503.00	0.512 [1] ✔
T8	60 - 53.1667	2L1 1/2x1 1/2x3/16x3/8	3.50	3.21	54.8 K=0.65	1.0547	-12070.10	29175.30	0.414 [1] ✔

[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T9	53.1667 - 50	2L2 1/2x2 1/2x5/16x3/8	3.50	3.21	50.6 K=1.00	2.9300	-1584.25	82965.00	0.019 [1] ✔
T10	50 - 46.8334	2L2 1/2x2 1/2x5/16x3/8	3.50	3.21	50.6 K=1.00	2.9300	-2176.99	82965.00	0.026 [1] ✔
T11	46.8334 - 43.6667	2L2 1/2x2 1/2x5/16x3/8	3.50	3.21	50.6 K=1.00	2.9300	-2267.24	82965.00	0.027 [1] ✔
T12	43.6667 - 40	2L2 1/2x2 1/2x5/16x3/8	3.50	3.21	50.6 K=1.00	2.9300	-1703.03	82965.00	0.021 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
T1	100 - 80	L1 1/2x1 1/2x3/16	3.50	3.26	86.7	0.5273	-3078.00	11503.00	0.268 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
					K=0.65				✔
T2	80 - 76	2L1 1/2x1 1/2x3/16x3/8	3.50	3.26	55.7 K=0.65	1.0547	-4267.03	29024.70	0.147 [1] ✔
T3	76 - 73	2L1 1/2x1 1/2x3/16x3/8	3.50	3.26	55.7 K=0.65	1.0547	-8197.84	29024.70	0.282 [1] ✔
T4	73 - 70	2L1 1/2x1 1/2x3/16x3/8	3.50	3.26	55.7 K=0.65	1.0547	-7880.25	29024.70	0.272 [1] ✔
T5	70 - 67	2L1 1/2x1 1/2x3/16x3/8	3.50	3.26	55.7 K=0.65	1.0547	-7867.03	29024.70	0.271 [1] ✔
T6	67 - 64	2L1 1/2x1 1/2x3/16x3/8	3.50	3.26	55.7 K=0.65	1.0547	-14434.80	29024.70	0.497 [1] ✔
T7	64 - 60	2L1 1/2x1 1/2x3/16x3/8	3.50	3.26	55.7 K=0.65	1.0547	-21661.40	29024.70	0.746 [1] ✔
T8	60 - 53.1667	2L1 1/2x1 1/2x3/16x3/8	3.50	3.21	54.8 K=0.65	1.0547	-4817.89	29175.30	0.165 [1] ✔
T9	53.1667 - 50	2L1 1/2x1 1/2x3/16x3/8	3.50	3.21	54.8 K=0.65	1.0547	-10941.60	29175.30	0.375 [1] ✔
T10	50 - 46.8334	2L1 1/2x1 1/2x3/16x3/8	3.50	3.21	54.8 K=0.65	1.0547	-10335.10	29175.30	0.354 [1] ✔
T11	46.8334 - 43.6667	2L1 1/2x1 1/2x3/16x3/8	3.50	3.21	54.8 K=0.65	1.0547	-10508.50	29175.30	0.360 [1] ✔
T12	43.6667 - 40	2L1 1/2x1 1/2x3/16x3/8	3.50	3.21	54.8 K=0.65	1.0547	-11317.60	29175.30	0.388 [1] ✔

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-4272.57	11503.00	0.371 [1] ✔
T7	64 - 60	2L1 1/2x1 1/2x3/16x3/8	3.50	3.26	55.7 K=0.65	1.0547	-13122.20	29024.70	0.452 [1] ✔
T12	43.6667 - 40	2L1 1/2x1 1/2x3/16x3/8	3.50	3.21	54.8 K=0.65	1.0547	-5552.31	29175.30	0.190 [1] ✔

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	P2.5x.276	20.00	3.28	42.6	2.2535	20780.30	101409.00	0.205 [1] ✔
T2	80 - 76	P2.5x.276 GR	4.00	3.00	39.0	2.2535	20780.30	101409.00	0.205 [1] ✔
T3	76 - 73	P2.5x.276 GR	3.00	3.00	39.0	2.2535	26011.70	101409.00	0.257 [1] ✔
T4	73 - 70	P2.5x.276 GR	3.00	3.00	39.0	2.2535	31932.30	101409.00	0.315 [1] ✔
T5	70 - 67	P2.5x.276 GR	3.00	3.00	39.0	2.2535	38724.70	101409.00	0.382 [1] ✔
T6	67 - 64	P2.5x.276 GR	3.00	3.00	39.0	2.2535	37287.10	101409.00	0.368 [1] ✔
T7	64 - 60	P2.5x.276 GR	4.00	3.00	39.0	2.2535	62529.10	101409.00	0.617 [1] ✔
T8	60 - 53.1667	P3x.3 GR	6.83	3.25	34.3	3.0159	70365.10	165575.00	0.425 [1] ✔
T9	53.1667 - 50	P3x.3 GR	3.17	1.58	16.7	3.0159	78732.30	165575.00	0.476 [1] ✔
T10	50 - 46.8334	P3x.3 GR	3.17	1.58	16.7	3.0159	87515.80	165575.00	0.529 [1] ✔
T11	46.8334 - 43.6667	P3x.3 GR w/ .75 TR	3.17	1.58	16.7	3.0159	96622.60	165575.00	0.584 [1] ✔
T12	43.6667 - 40	P3x.3 GR w/ .75 TR	3.67	1.58	16.7	3.0159	118894.00	165575.00	0.718 [1] ✔
T13	40 - 20	P5x.375 GR	20.03	6.57	42.9	6.1114	119003.00	231010.00	0.515 [1] ✔
T14	20 - 0	P5x.375 GR	20.03	6.57	42.9	6.1114	122114.00	231010.00	0.529 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	100 - 80	5/8	4.80	4.47	343.1	0.3068	7213.42	9940.20	0.726 [1] ✔
T2	80 - 76	5/8	4.61	4.29	329.8	0.3068	8021.14	9940.20	0.807 [1] ✔
T3	76 - 73	5/8	4.61	4.29	329.8	0.3068	7126.40	9940.20	0.717 [1] ✔
T4	73 - 70	5/8	4.61	4.29	329.8	0.3068	7507.68	9940.20	0.755 [1] ✔
T5	70 - 67	5/8	4.61	4.29	329.8	0.3068	7173.24	9940.20	0.722 [1] ✔
T6	67 - 64	1 1/4	4.61	4.29	164.9	1.2272	15215.10	39760.80	0.383 [1] ✔
T7	64 - 60	1 1/4	4.61	4.29	164.9	1.2272	17448.80	39760.80	0.439 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T8	60 - 53.1667	3/4	4.78	4.38	280.2	0.4418	11680.90	14313.90	0.816 [1]
T9	53.1667 - 50	3/4	4.72	4.33	276.9	0.4418	10853.40	14313.90	0.758 [1]
T10	50 - 46.8334	3/4	4.72	4.33	276.9	0.4418	11097.60	14313.90	0.775 [1]
T11	46.8334 - 43.6667	3/4	4.72	4.33	276.9	0.4418	11252.10	14313.90	0.786 [1]
T12	43.6667 - 40	3/4	4.72	4.33	276.9	0.4418	12046.10	14313.90	0.842 [1]
T13	40 - 20	L2x2x3/16	7.60	3.63	72.9	0.4308	2557.28	18739.00	0.136 [1]
T14	20 - 0	L2 1/2x2 1/2x3/16	9.71	4.64	73.4	0.5710	1470.50	24839.90	0.059 [1]

[1] P_u / ϕP_n controls

Secondary Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T11	46.8334 - 43.6667	2L2 1/2x2 1/2x5/16x3/8	3.50	3.21	50.6	2.9300	70.55	94932.00	0.001 [1]
T12	43.6667 - 40	2L2 1/2x2 1/2x5/16x3/8	3.50	3.21	50.6	2.9300	141.43	94932.00	0.001 [1]

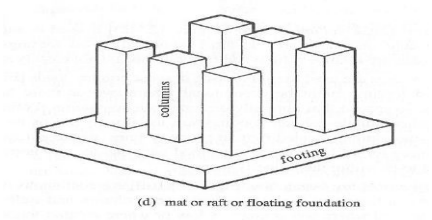
[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	100 - 80	Leg	P2.5x.276	1	-26458.70	88826.50	29.8	Pass
		Diagonal	5/8	15	7213.42	9940.20	72.6	Pass
		Horizontal	L1 1/2x1 1/2x3/16	53	-5892.79	11503.00	51.2	Pass
		Top Girt	L1 1/2x1 1/2x3/16	4	-3078.00	11503.00	26.8	Pass
		Bottom Girt	L1 1/2x1 1/2x3/16	8	-4272.57	11503.00	37.1	Pass
T2	80 - 76	Leg	P2.5x.276 GR	61	-34382.40	93595.70	36.7	Pass
		Diagonal	5/8	72	8021.14	9940.20	80.7	Pass
		Top Girt	2L1 1/2x1 1/2x3/16x3/8	65	-4267.03	29024.70	14.7	Pass
T3	76 - 73	Leg	P2.5x.276 GR	73	-40792.60	93595.70	43.6	Pass
		Diagonal	5/8	83	7126.40	9940.20	71.7	Pass
		Top Girt	2L1 1/2x1 1/2x3/16x3/8	77	-8197.84	29024.70	28.2	Pass
T4	73 - 70	Leg	P2.5x.276 GR	85	-47060.80	93595.70	50.3	Pass
		Diagonal	5/8	95	7507.68	9940.20	75.5	Pass
		Top Girt	2L1 1/2x1 1/2x3/16x3/8	89	-7880.25	29024.70	27.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T5	70 - 67	Leg	P2.5x.276 GR	97	-53307.70	93595.70	57.0	Pass
		Diagonal	5/8	107	7173.24	9940.20	72.2	Pass
		Top Girt	2L1 1/2x1 1/2x3/16x3/8	101	-7867.03	29024.70	27.1	Pass
T6	67 - 64	Leg	P2.5x.276 GR	109	-67988.30	93595.70	72.6	Pass
		Diagonal	1 1/4	116	15215.10	39760.80	38.3	Pass
		Top Girt	2L1 1/2x1 1/2x3/16x3/8	113	-14434.80	29024.70	49.7	Pass
T7	64 - 60	Leg	P2.5x.276 GR	121	-76920.50	93595.70	82.2	Pass
		Diagonal	1 1/4	134	17448.80	39760.80	43.9	Pass
		Top Girt	2L1 1/2x1 1/2x3/16x3/8	125	-21661.40	29024.70	74.6	Pass
		Bottom Girt	2L1 1/2x1 1/2x3/16x3/8	128	-13122.20	29024.70	45.2	Pass
T8	60 - 53.1667	Leg	P3x.3 GR	136	-91410.90	153470.00	59.6	Pass
		Diagonal	3/4	155	11680.90	14313.90	81.6	Pass
		Horizontal	2L1 1/2x1 1/2x3/16x3/8	149	-12070.10	29175.30	41.4	Pass
		Top Girt	2L1 1/2x1 1/2x3/16x3/8	140	-4817.89	29175.30	16.5	Pass
T9	53.1667 - 50	Leg	P3x.3 GR	157	-100438.00	162618.00	61.8	Pass
		Diagonal	3/4	167	10853.40	14313.90	75.8	Pass
		Secondary Horizontal	2L2 1/2x2 1/2x5/16x3/8	170	-1584.25	82965.00	1.9	Pass
		Top Girt	2L1 1/2x1 1/2x3/16x3/8	161	-10941.60	29175.30	37.5	Pass
T10	50 - 46.8334	Leg	P3x.3 GR	172	-109804.00	162618.00	67.5	Pass
		Diagonal	3/4	182	11097.60	14313.90	77.5	Pass
		Secondary Horizontal	2L2 1/2x2 1/2x5/16x3/8	185	-2176.99	82965.00	2.6	Pass
		Top Girt	2L1 1/2x1 1/2x3/16x3/8	176	-10335.10	29175.30	35.4	Pass
T11	46.8334 - 43.6667	Leg	P3x.3 GR w/ .75 TR	187	-119275.00	162618.00	73.3	Pass
		Diagonal	3/4	197	11252.10	14313.90	78.6	Pass
		Secondary Horizontal	2L2 1/2x2 1/2x5/16x3/8	200	-2267.24	82965.00	2.7	Pass
		Top Girt	2L1 1/2x1 1/2x3/16x3/8	191	-10508.50	29175.30	36.0	Pass
T12	43.6667 - 40	Leg	P3x.3 GR w/ .75 TR	202	-129446.00	162618.00	79.6	Pass
		Diagonal	3/4	215	12046.10	14313.90	84.2	Pass
		Secondary Horizontal	2L2 1/2x2 1/2x5/16x3/8	218	-1703.03	82965.00	2.1	Pass
		Top Girt	2L1 1/2x1 1/2x3/16x3/8	206	-11317.60	29175.30	38.8	Pass
		Bottom Girt	2L1 1/2x1 1/2x3/16x3/8	209	-5552.31	29175.30	19.0	Pass
T13	40 - 20	Leg	P5x.375 GR	220	-129497.00	231008.00	56.1	Pass
		Diagonal	L2x2x3/16	236	-3092.53	11837.70	26.1	Pass
							37.4 (b)	
T14	20 - 0	Leg	P5x.375 GR	241	-135099.00	231008.00	58.5	Pass
							62.0 (b)	
		Diagonal	L2 1/2x2 1/2x3/16	248	-1698.86	14675.40	11.6	Pass
							18.8 (b)	
							Summary	
							Leg (T7) 82.2	Pass
							Diagonal (T12) 84.2	Pass
							Horizontal (T1) 51.2	Pass
							Secondary Horizontal (T11) 2.7	Pass
							Top Girt (T7) 74.6	Pass
							Bottom Girt (T7) 45.2	Pass
							Bolt Checks 62.0	Pass
							RATING = 84.2	**Pass**

Date:	9/6/2017
Site Name:	CT43XC836
Client:	Sprint
Infinigy Job #:	526-102
Analysis/Design:	Analysis
Column Shape:	Circle
Footing Shape:	Square
Tower Type:	Self Support



(d) mat or raft or floating foundation

Infinigy Engineering PLLC
Mat Calculations
ACI 318-11

Loading Data		
TIA Code Revision:	ANSI/TIA-222-G	
Uplift/Leg:	121.9	kips
Compression/Leg:	134.8	kips
Total Axial:	17	kips
Total Shear:	13	kips
Overturning Moment:	838.8	k-ft
Vertical Tower Eccentricity:	0	ft
Tower Face Width:	7.5	ft
Diagonal Shear Width:	14.14	ft
Diagonal Shear Arm:	7.14	ft

Soil Data		
Soil Type:	Sand	
Water Table Depth:	10	ft
Soil Dry Unit Weight:	110	pcf
ø Angle:	30	deg
Cohesion:	0	psf
Ultimate Skin Friction:	500	psf
Friction Coefficient:	0.35	
Ultimate Bearing Pressure:	15000	psf

Column Data		
Concrete Strength:	4000	psi
Column Diameter:	2	ft
Column Total Length:	4.25	ft
Column Height above ground:	0.25	ft
Vertical Rebar Strength:	60000	psi
Vertical Rebar Size:	#8	(#10) max.
Vertical Rebar Quantity:	8	(4) min.
Tie Rebar Strength:	60000	psi
Tie Rebar Size:	#4	(#3) max.
Tie Rebar Spacing:	8	in
Rebar Clear Distance:	3	in

Footing Data		
Concrete Strength:	4000	psi
Footing Length:	14.5	ft
Footing Width:	14.5	ft
Footing Thickness:	3	ft
Horizontal Rebar Strength:	60000	psi
Horizontal Rebar Size:	#8	
Horizontal Rebar Quantity:	15	
Rebar Clear Distance:	3	in
Dowel Strength:		psi
Dowel Size:		(#11) max.
Dowel Development Length:		in
Dowel Quantity:		

Concrete Strength Check		
Footing One-Way Shear Ratio:	8.77	%
Footing Two-Way Shear Ratio:	10.87	%
Footing Moment Ratio:	12.8	%
Column Tension Ratio:	35.72	%
Column Shear Strength Ratio:	4.42	%
Column Moment Ratio:	16.19	%
Column Tension Interaction Equation:	51.91	%

Soil Stability Check		
ϕs Bearing:	0.75	
ϕs Uplift:	0.75	
Uplift Ratio:	58.37	%
Bearing Ratio:	49.45	%
Sliding Ratio:	17.79	%
Toe Pressure Ratio:	0.03	%
Overturning Ratio:	83.31	%

Sprint

PROJECT:	2.5 EQUIPMENT DEPLOYMENT
SITE NAME:	DANBURY-W. CT UNIVERSITY
SITE CASCADE:	CT43XC836
SITE ADDRESS:	303 BOXWOOD LANE DANBURY, CT 06810
SITE TYPE:	SELF SUPPORT TOWER
MARKET:	SOUTHERN CONNECTICUT

SITE INFORMATION

PROPERTY OWNER:
CT STATE UNIVERSITY SYSTEM. BOARD OF TRUSTEES MIDTOWN CAMPUS
181 WHITE ST
DANBURY, CT 06810

LATITUDE (NAD83):
41° 23' 42" N
41.395°

LONGITUDE (NAD83):
73° 29' 12.2926" W
-73.486748°

COUNTY:
FAIRFEILD

ZONING JURISDICTION:
DANBURY

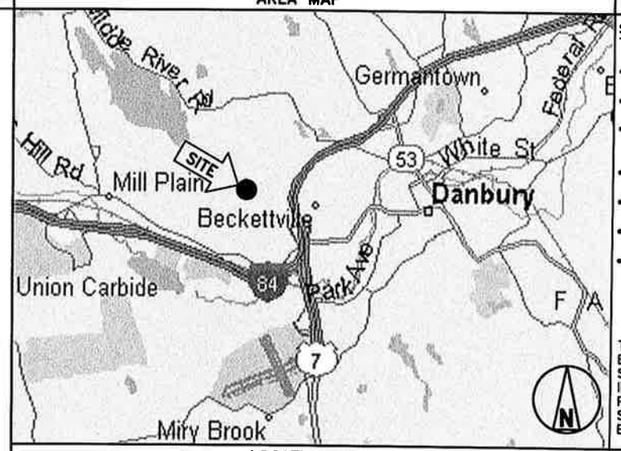
ZONING DISTRICT:
RA-40

POWER COMPANY:
CONNECTICUT LIGHT & POWER
(800) 286-2000

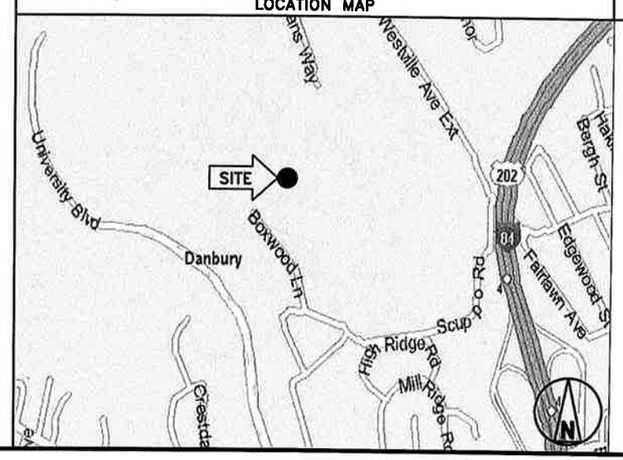
AAV PROVIDER:
AT&T
(800) 246-2020

SPRINT CONSTRUCTION MANAGER:
GARY WOOD
PHONE: (860) 940-9168
gary.wood@sprint.com

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- INSTALL 2.5 EQUIPMENT IN EXISTING N.V. MMBS CABINET
- INSTALL (8) NEW BATTERIES IN EXISTING SPRINT BATTERY CABINET
- INSTALL EXISTING SPRINT ANTENNA MOUNT, REPLACE WITH NEW SECTOR FRAMES
- INSTALL (3) PANEL ANTENNAS
- INSTALL (3) RRU'S NEAR ANTENNAS
- INSTALL (27) JUMPER CABLES
- INSTALL (1) FIBER CABLE

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 (2012 IBC)
2. TIA-EIA-222-G OR LATEST EDITION
3. NFPA 780 – LIGHTNING PROTECTION CODE
4. 2011 NATIONAL ELECTRIC CODE OR LATEST EDITION
5. ANY OTHER NATIONAL OR LOCAL APPLICABLE CODES, MOST RECENT EDITIONS
6. CT BUILDING CODE
7. LOCAL BUILDING CODE
8. CITY/COUNTY ORDINANCES

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

DRAWING INDEX

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

PLANS PREPARED FOR:
Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:
INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
PROFESSIONAL ENGINEER
SEP 07 2017

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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	09/07/17	ASW	0

SITE NAME:
DANBURY-W. CT UNIVERSITY

SITE CASCADE:
CT43XC836

SITE ADDRESS:
303 BOXWOOD LANE
DANBURY, CT 06810

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
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 21709
LICENSED
PROFESSIONAL ENGINEER
SEP 07 2017

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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	09/07/17	ASW	0

SITE NAME:
DANBURY-W. CT UNIVERSITY

SITE CASCADE:
CT43XC836

SITE ADDRESS:
303 BOXWOOD LANE
DANBURY, CT 06810

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)

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY
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the solutions are endless

1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790

JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
SEP 07 2017

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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	09/07/17	ASW	0

SITE NAME:

DANBURY-W. CT UNIVERSITY

SITE CASCADE:

CT43XC836

SITE ADDRESS:

303 BOXWOOD LANE
DANBURY, CT 06810

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-2

CONTINUE FROM SP-2

7. VERIFICATION DOCUMENTED WITH THE ANTENNA CHECKLIST REPORT, BY A&E, SITE DEVELOPMENT REP, OR RF REP.
8. FINAL INSPECTION CHECKLIST AND HANDOFF WALK (HOC.). SIGNED FORM SHOWING ACCEPTANCE BY FIELD OPS IS TO BE UPLOADED INTO SMS.
9. COAX SWEEP AND FIBER TESTING DOCUMENTS SUBMITTED VIA SMS FOR RF APPROVAL.
10. SCAN-ABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
11. ALL AVAILABLE JURISDICTIONAL INFORMATION
12. PDF SCAN OF REDLINES PRODUCED IN FIELD

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

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

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

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

1. CONCRETE MIX AND CYLINDER BREAK REPORTS.
2. STRUCTURAL BACKFILL COMPACTION REPORTS.
3. SITE RESISTANCE TO EARTH TEST.
4. ANTENNA AZIMUTH AND DOWN TILT VERIFICATION
5. TOWER ERECTION INSPECTIONS AND MEASUREMENTS DOCUMENTING TOWER INSTALLED PER SUPPLIER'S REQUIREMENTS AND THE APPLICABLE SECTIONS HEREIN.
6. COAX CABLE SWEEP TESTS PER COMPANY'S "ANTENNA LINE ACCEPTANCE STANDARDS".

B. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES THE FOLLOWING;

1. TEST WELLS AND TRENCHES: PHOTOGRAPHS OF ALL TEST WELLS; PHOTOGRAPHS SHOWING ALL OPEN EXCAVATIONS AND TRENCHING PRIOR TO BACKFILLING SHOWING A TAPE MEASURE VISIBLE IN THE EXCAVATIONS INDICATING DEPTH.
2. CONDUITS, CONDUCTORS AND GROUNDING: PHOTOGRAPHS SHOWING TYPICAL INSTALLATION OF CONDUCTORS AND CONNECTORS; PHOTOGRAPHS SHOWING TYPICAL BEND RADIUS OF INSTALLED GROUND WIRES AND GROUND ROD SPACING;
3. CONCRETE FORMS AND REINFORCING: CONCRETE FORMING AT TOWER AND EQUIPMENT/SHELTER PAD/FOUNDATIONS – PHOTOGRAPHS SHOWING ALL REINFORCING STEEL, UTILITY AND CONDUIT STUB OUTS; PHOTOGRAPHS SHOWING CONCRETE POUR OF SHELTER SLAB/FOUNDATION, TOWER FOUNDATION AND GUY ANCHORS WITH VIBRATOR IN USE; PHOTOGRAPHS SHOWING EACH ANCHOR ON GUYED TOWERS, BEFORE CONCRETE POUR.
4. TOWER, ANTENNAS AND MAINLINE: INSPECTION AND PHOTOGRAPHS OF SECTION STACKING; INSPECTION AND PHOTOGRAPHS OF PLATFORM COMPONENT ATTACHMENT POINTS; PHOTOGRAPHS OF TOWER TOP GROUNDING; PHOTOS OF TOWER COAX LINE COLOR CODING AT THE TOP AND AT GROUND LEVEL; INSPECTION AND PHOTOGRAPHS OF OPERATIONAL OF TOWER LIGHTING, AND PLACEMENT OF FAA REGISTRATION SIGN; PHOTOGRAPHS SHOWING ADDITIONAL GROUNDING POINTS FOR TOWERS GREATER THAN 200 FEET.; PHOTOS OF ANTENNA GROUND BAR, EQUIPMENT GROUND BAR, AND MASTER GROUND BAR; PHOTOS OF GPS ANTENNA(S); PHOTOS OF EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA; PHOTOS OF COAX WEATHERPROOFING – TOP AND BOTTOM; PHOTOS OF COAX GROUNDING--TOP AND BOTTOM; PHOTOS OF ANTENNA AND MAST GROUNDING; PHOTOS OF COAX CABLE ENTRY INTO SHELTER; PHOTOS OF PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
5. ROOF TOPS: PRE-CONSTRUCTION AND POST-CONSTRUCTION VISUAL INSPECTION AND PHOTOGRAPHS OF THE ROOF AND INTERIOR TO DETERMINE AND DOCUMENT CONDITIONS; ROOF TOP CONSTRUCTION INSPECTIONS AS REQUIRED BY THE JURISDICTION; PHOTOGRAPHS OF CABLE TRAY AND/OR ICE BRIDGE; PHOTOGRAPHS OF DOGHOUSE/CABLE EXIT FROM ROOF;
6. SITE LAYOUT – PHOTOGRAPHS OF THE OVERALL COMPOUND, INCLUDING EQUIPMENT PLATFORM FROM ALL FOUR CORNERS.
7. FINISHED UTILITIES: CLOSE-UP PHOTOGRAPHS OF THE PPC BREAKER PANEL; CLOSE-UP PHOTOGRAPH OF THE INSIDE OF THE TELCO PANEL AND NIU; CLOSE-UP PHOTOGRAPH OF THE POWER METER AND DISCONNECT; PHOTOS OF POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE; PHOTOGRAPHS AT METER BOX AND/OR FACILITY DISTRIBUTION PANEL.
8. REQUIRED MATERIALS CERTIFICATIONS: CONCRETE MIX DESIGNS; MILL CERTIFICATION FOR ALL REINFORCING AND STRUCTURAL STEEL; AND ASPHALT PAVING MIX DESIGN.
9. ANY AND ALL SUBMITTALS BY THE JURISDICTION OR COMPANY.

SECTION 01 400 – SUBMITTALS & TESTS

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 WEEKLY REPORTS:

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

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

3.2 PROJECT CONFERENCE CALLS:

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

3.3 PROJECT TRACKING IN SMS:

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

3.4 ADDITIONAL REPORTING:

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

3.5 PROJECT PHOTOGRAPHS:

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

1. 1SHELTER AND TOWER OVERVIEW.
2. TOWER FOUNDATION(S) – FORMS AND STEEL BEFORE POUR (EACH ANCHOR ON GUYED TOWERS).
3. TOWER FOUNDATION(S) POUR WITH VIBRATOR IN USE (EACH ANCHOR ON GUYED TOWERS).
4. TOWER STEEL AS BEING INSTALLED INTO HOLE (SHOW ANCHOR STEEL ON GUYED TOWERS).
5. PHOTOS OF TOWER SECTION STACKING.
6. CONCRETE TESTING / SAMPLES.
7. PLACING OF ANCHOR BOLTS IN TOWER FOUNDATION.
8. BUILDING/WATER TANK FROM ROAD FOR TENANT IMPROVEMENTS OR COMMENTS.
9. SHELTER FOUNDATION--FORMS AND STEEL BEFORE POURING.
10. SHELTER FOUNDATION POUR WITH VIBRATOR IN USE.
11. COAX CABLE ENTRY INTO SHELTER.
12. PLATFORM MECHANICAL CONNECTIONS TO TOWER/MONOPOLE.
13. ROOFTOP PRE AND POST CONSTRUCTION PHOTOS TO INCLUDE PENETRATIONS AND INTERIOR CEILING.
14. PHOTOS OF TOWER TOP COAX LINE COLOR CODING AND COLOR CODING AT GROUND LEVEL.
15. PHOTOS OF ALL APPROPRIATE COMPANY OR REGULATORY SIGNAGE.
16. PHOTOS OF EQUIPMENT BOLT DOWN INSIDE SHELTER.
17. POWER AND TELCO ENTRANCE TO COMPANY ENCLOSURE AND POWER AND TELCO SUPPLY LOCATIONS INCLUDING METER/DISCONNECT.
18. ELECTRICAL TRENCH(S) WITH ELECTRICAL / CONDUIT BEFORE BACKFILL.
19. ELECTRICAL TRENCH(S) WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.
20. TELCO TRENCH WITH TELEPHONE / CONDUIT BEFORE BACKFILL.
21. TELCO TRENCH WITH FOIL-BACKED TAPE BEFORE FURTHER BACKFILL.
22. SHELTER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
23. TOWER GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
24. FENCE GROUND-RING TRENCH WITH GROUND-WIRE BEFORE BACKFILL (SHOW ALL CAD WELDS AND BEND RADII).
25. ALL BTS GROUND CONNECTIONS.
26. ALL GROUND TEST WELLS.
27. ANTENNA GROUND BAR AND EQUIPMENT GROUND BAR.
28. ADDITIONAL GROUNDING POINTS ON TOWERS ABOVE 200'.
29. HVAC UNITS INCLUDING CONDENSERS ON SPLIT SYSTEMS.
30. GPS ANTENNAS.
31. CABLE TRAY AND/OR WAVEGUIDE BRIDGE.
32. DOGHOUSE/CABLE EXIT FROM ROOF.
33. EACH SECTOR OF ANTENNAS; ONE PHOTOGRAPH LOOKING AT THE SECTOR AND ONE FROM BEHIND SHOWING THE PROJECTED COVERAGE AREA.
34. MASTER BUS BAR.
35. TELCO BOARD AND NIU.
36. ELECTRICAL DISTRIBUTION WALL.
37. CABLE ENTRY WITH SURGE SUPPRESSION.
38. ENTRANCE TO EQUIPMENT ROOM.
39. COAX WEATHERPROOFING-TOP AND BOTTOM OF TOWER.
40. COAX GROUNDING -TOP AND BOTTOM OF TOWER.
41. ANTENNA AND MAST GROUNDING.
42. LANDSCAPING – WHERE APPLICABLE.

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

PLANS PREPARED FOR:
Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:
INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd
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JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
SEP 07 2017
No. 24705
LICENSED PROFESSIONAL ENGINEER

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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	09/07/17	ASW	0

SITE NAME:
DANBURY-W, CT
UNIVERSITY

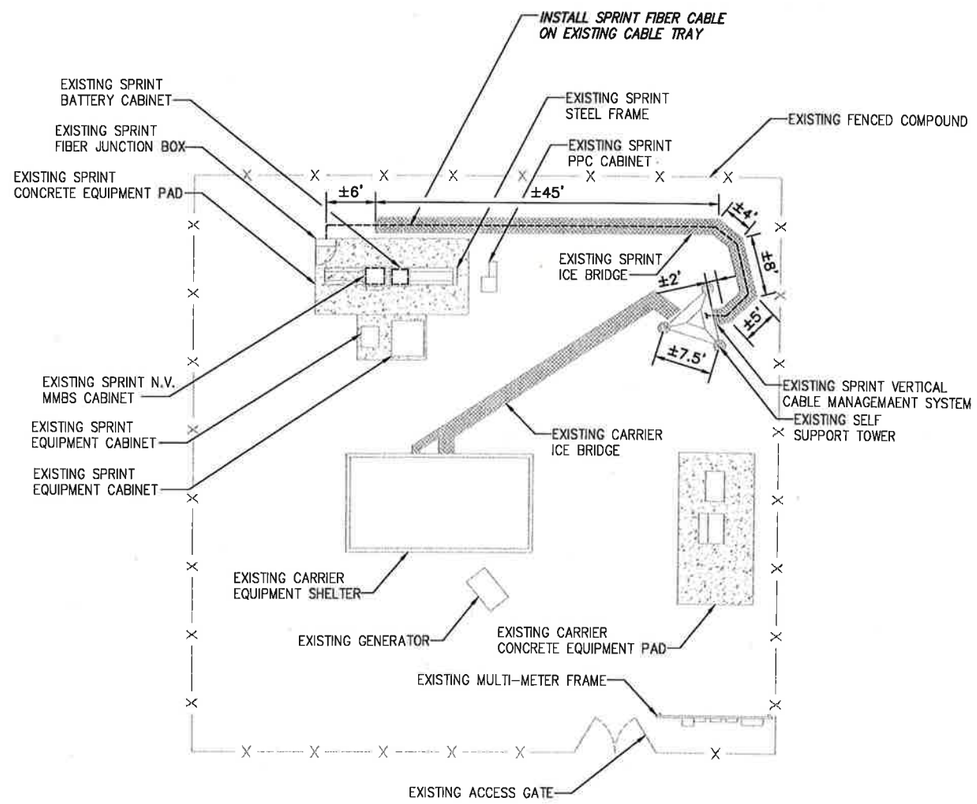
SITE CASCADE:
CT43XC836

SITE ADDRESS:
303 BOXWOOD LANE
DANBURY, CT 06810

SHEET DESCRIPTION:
SPRINT SPECIFICATIONS

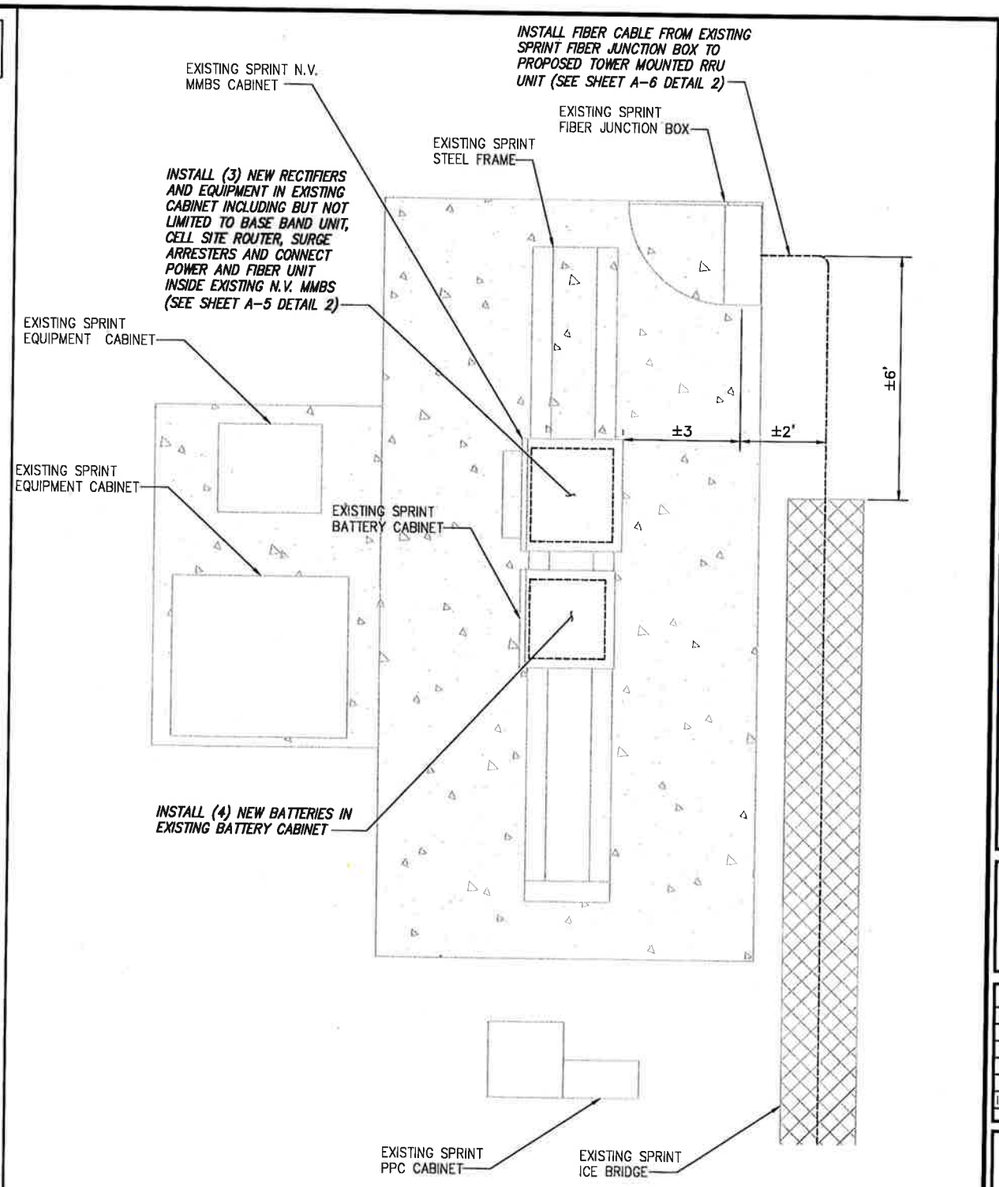
SHEET NUMBER:
SP-3

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



5' 0 5' 10' 20'
(IN FEET)
SCALE: 24"x36" SHEET 1" = 10'-0"
SCALE: 11"x17" SHEET 1" = 20'-0"

OVERALL SITE PLAN | SCALE: AS NOTED | 1



1' 0 1' 2' 4'
(IN FEET)
SCALE: 24"x36" SHEET 1" = 2'-0"
SCALE: 11"x17" SHEET 1" = 4'-0"

SPRINT EQUIPMENT PLAN | SCALE: AS NOTED | 2

PLANS PREPARED FOR:

Sprint
6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
JOB NUMBER 526-102

Cherundolo Consulting

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
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SEP 07 2017

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REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FOR PERMIT	09/07/17	ASW	0

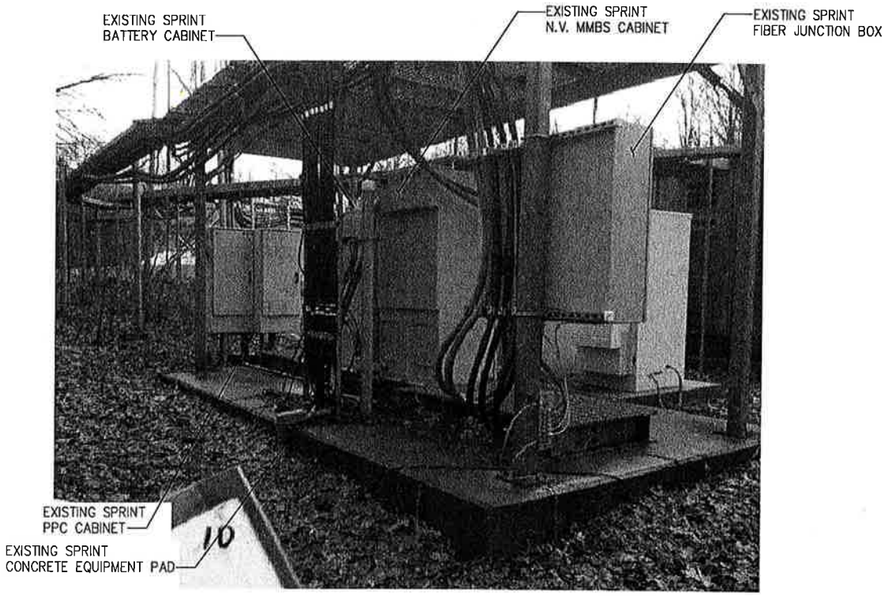
SITE NAME:
DANBURY-W. CT UNIVERSITY

SITE CASCADE:
CT43XC836

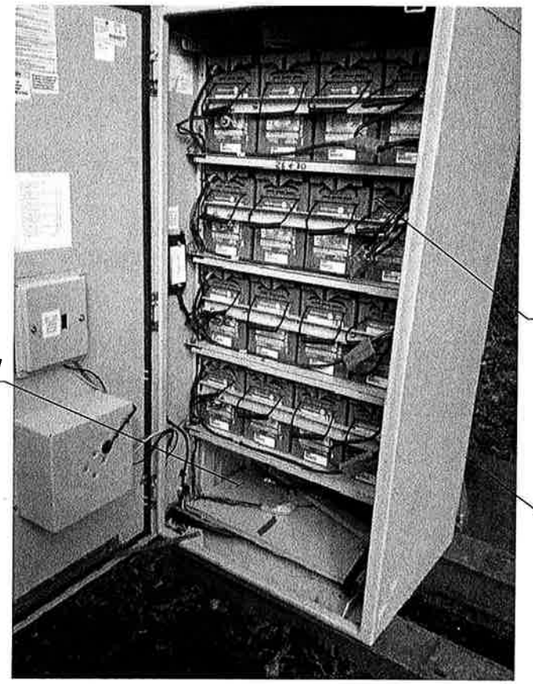
SITE ADDRESS:
303 BOXWOOD LANE
DANBURY, CT 06810

SHEET DESCRIPTION:
SITE PLAN

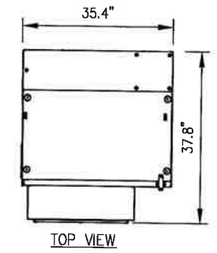
SHEET NUMBER:
A-1



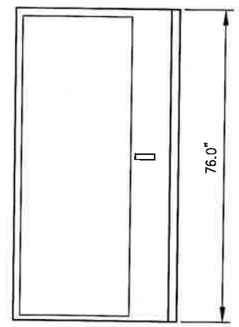
CABINET LINEUP PHOTO | SCALE: AS NOTED | 1



EXISTING BATTERY CABINET PHOTO | SCALE: AS NOTED | 2



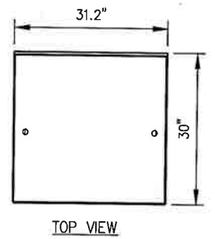
TOP VIEW



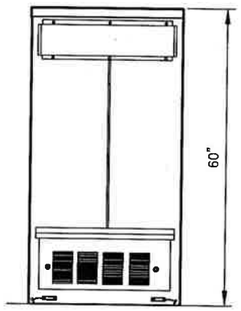
FRONT VIEW

MANUFACTURER: ALU
MODEL: 9928

N.V. MMBS CABINET



TOP VIEW



REAR VIEW

MANUFACTURER: TBD
MODEL: 60ECv2

BATTERY CABINET

EXISTING EQUIPMENT DETAIL | SCALE: AS NOTED | 3

PLANS PREPARED FOR:

Sprint

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

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Office # (518) 690-0790
JOB NUMBER 526-102

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No. 24726
LICENSED
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SITE CASCADE:

CT43XC836

SITE ADDRESS:

303 BOXWOOD LANE
DANBURY, CT 06810

SHEET DESCRIPTION:

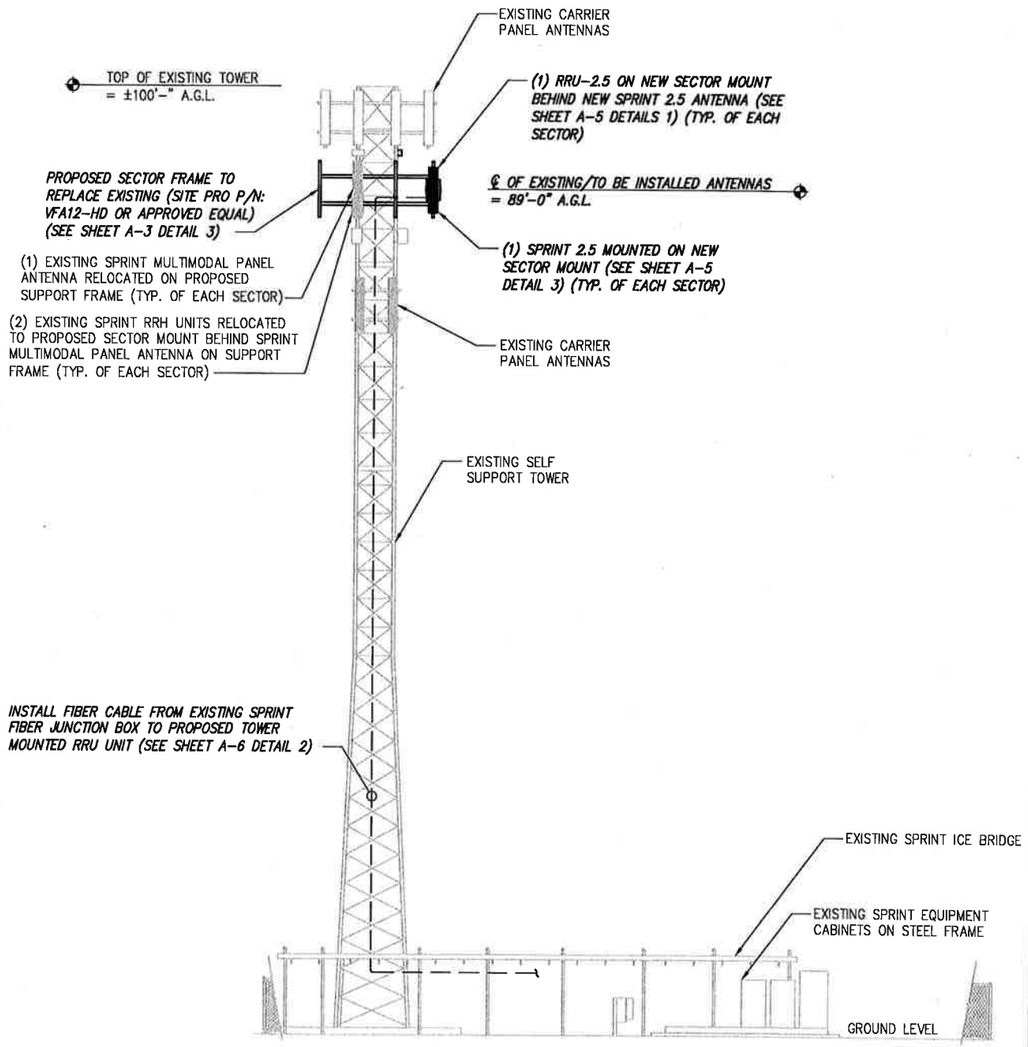
EXISTING EQUIPMENT DETAILS

SHEET NUMBER:

A-1A

NOTE:
FOR ADDITIONAL STRUCTURAL INFORMATION, SEE STRUCTURAL ANALYSIS REPORT COMPLETED BY INFINIGY, DATED 9/6/17.

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



TOWER ELEVATION | NO SCALE | 1

PROPOSED SECTOR FRAME TO REPLACE EXISTING (SITE PRO P/N: VFA12-U OR APPROVED EQUAL) (SEE SHEET A-3 DETAIL 3) (TYP. OF (3) SECTORS)

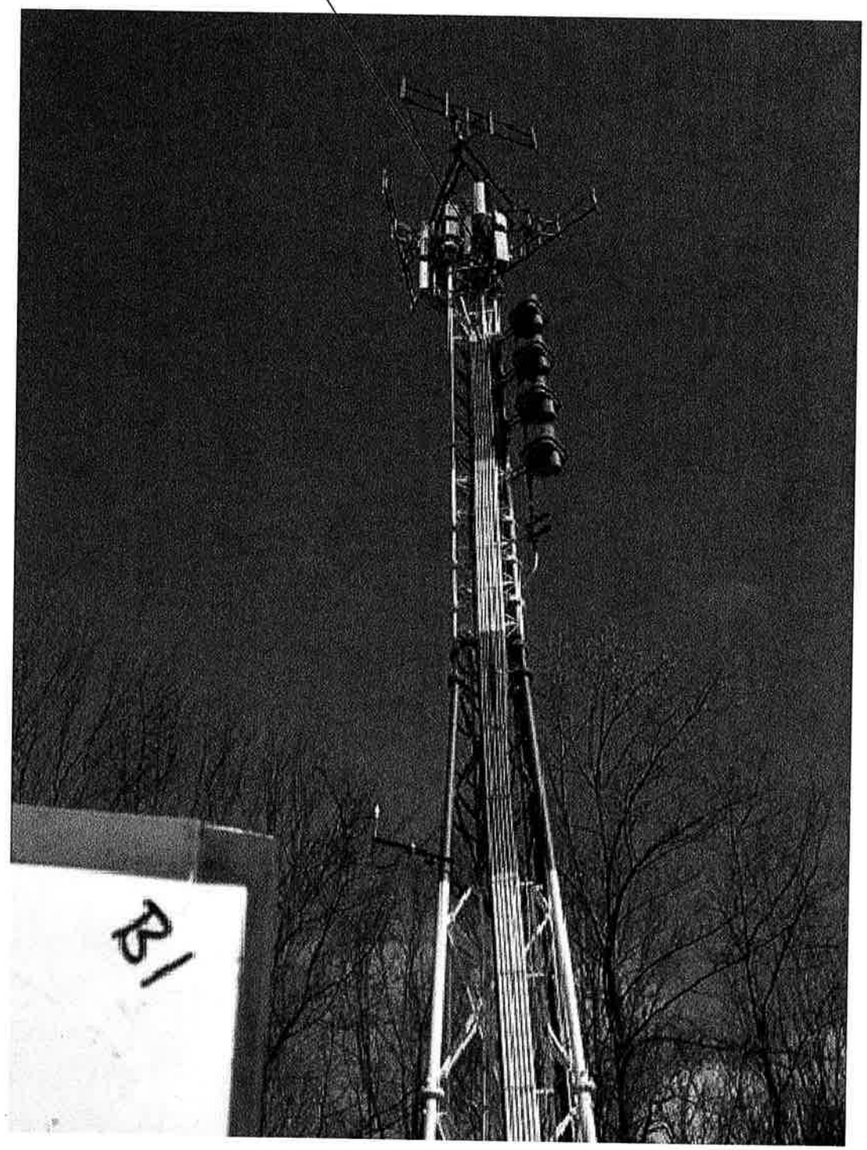


PHOTO | NO SCALE | 2

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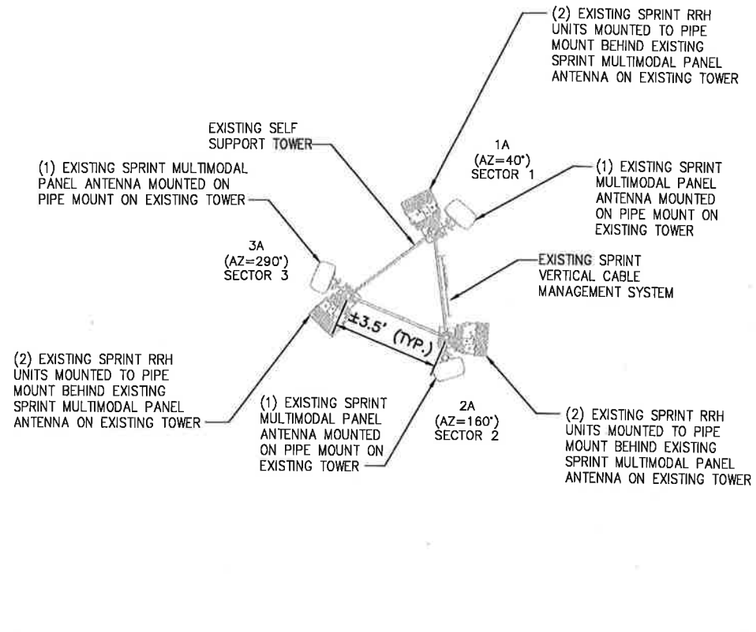
DANBURY, CT 06810

SHEET DESCRIPTION:
BUILDING ELEVATION & CABLE PLAN

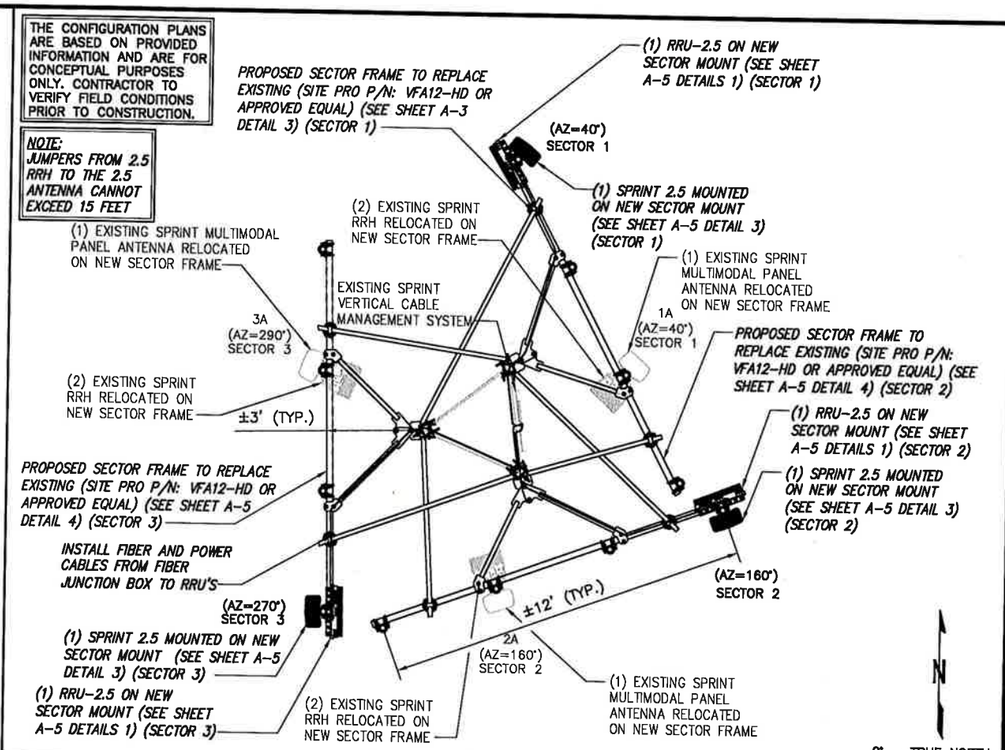
SHEET NUMBER:
A-2



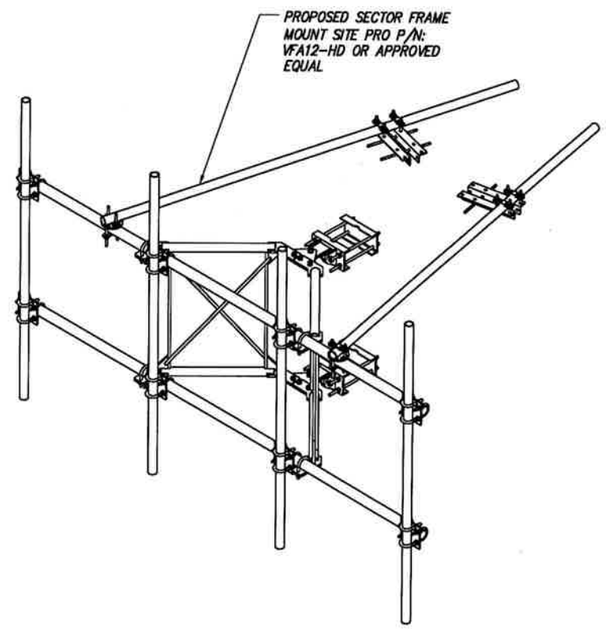
EXISTING ANTENNA & RRU LAYOUT | NO SCALE | 1

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

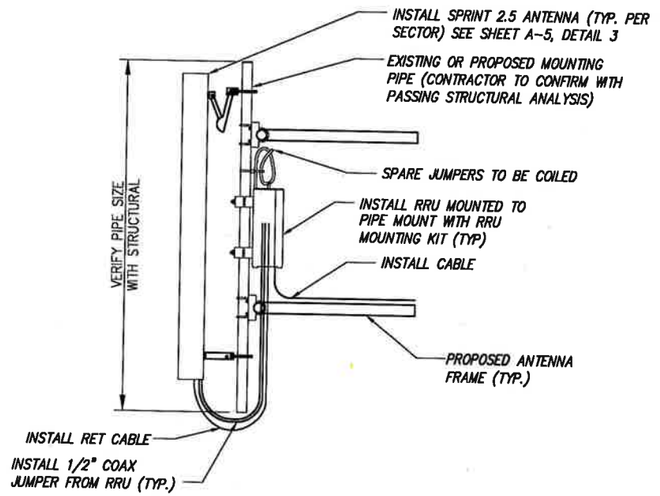
NOTE: JUMPERS FROM 2.5 RRH TO THE 2.5 ANTENNA CANNOT EXCEED 15 FEET



FINAL ANTENNA LAYOUT | NO SCALE | 2



SECTOR FRAME DETAIL | NO SCALE | 3



NOTES:

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

NOTE: SPARE DC CABLES ARE COILED UP ON NV RRHS AT SPRINT ARRAY. THESE ARE TO BE USED TO POWER UP THE 2.5 RRHS AND TIED INTO EXISTING DC BREAKERS INSIDE THE FIBER JUNCTION BOX LOCATED AT EQUIPMENT.

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

TYPICAL ANTENNA & RRU MOUNTING DETAILS | NO SCALE | 4

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SITE ADDRESS:

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DANBURY, CT 06810

SHEET DESCRIPTION:

ANTENNA LAYOUT & MOUNTING DETAILS

SHEET NUMBER:

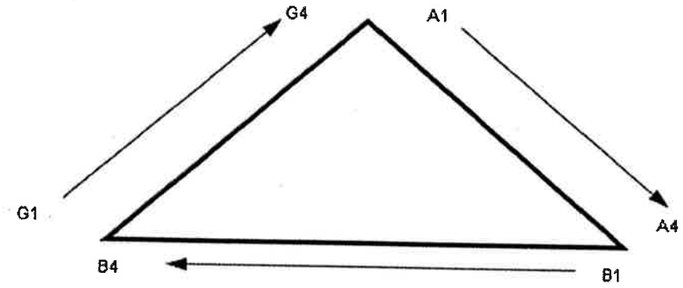
A-3

NV CABLES			
BAND	INDICATOR	PORT	COLOR
800-1	YEL GRN	NV-1	GRN
1900-1	YEL RED	NV-2	BLU
1900-2	YEL BRN	NV-3	BRN
1900-3	YEL BLU	NV-4	WHT
1900-4	YEL SLT	NV-5	RED
800-2	YEL ORG	NV-6	SLT
SPARE	YEL WHT	NV-7	PPL
2500	YEL PPL	NV-8	ORG

HYBRID	
HYBRID	COLOR
1	GRN
2	BLU
3	BRN
4	WHT
5	RED
6	SLT
7	PPL
8	ORG

2.5 Band		
2500 Radio 1		COLOR
YEL	WHT	GRN
YEL	WHT	BLU
YEL	WHT	BRN
YEL	WHT	WHT
YEL	WHT	RED
YEL	WHT	SLT
YEL	WHT	PPL
YEL	WHT	ORG

Figure 1: Antenna Orientation



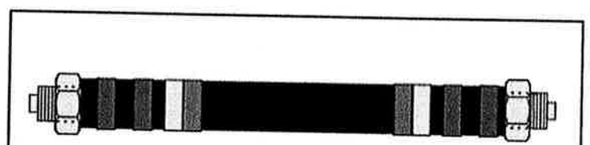
NOTES:

1. ALL CABLES SHALL BE MARKED WITH 2" WIDE, UV STABILIZED, UL APPROVED TAPE.
2. THE FIRST RING SHALL BE CLOSEST TO THE END OF THE CABLE AND SPACED APPROXIMATELY 2" FROM THE END CONNECTOR, WEATHERPROOFING, OR BREAK-OUT CYLINDER. THERE SHALL BE A 1" SPACE BETWEEN EACH RING FOR THE CABLE IDENTIFIER, AND NO SPACES BETWEEN THE FREQUENCY BANDS.
3. A 2" GAP SHALL SEPARATE THE CABLE COLOR CODE FROM THE FREQUENCY COLOR CODE. THE 2" COLOR RINGS FOR THE FREQUENCY CODE SHALL BE PLACED NEXT TO EACH OTHER WITH NO SPACES.
4. THE 2" COLORED TAPE(S) SHALL EACH BE WRAPPED A MINIMUM OF 3 TIMES AROUND THE INDIVIDUAL CABLES, AND THE TAPE SHALL BE KEPT IN THE SAME LOCATION AS MUCH AS POSSIBLE.
5. SITES WITH MORE THAN FOUR (4) SECTORS WILL REQUIRE ADDITIONAL RINGS FOR EACH SECTOR, FOLLOWING THE PATTERN. HIGH CAPACITY SITES WILL USE THE NEXT COLOR IN THE SEQUENCE FOR ADDITIONAL CABLES IN EACH SECTOR.
6. HYBRID FIBER CABLE SHALL BE SECTOR IDENTIFIED INSIDE THE CABINET ON FREQUENCY BUNDLES, ON THE SEALTITE, ON THE MAIN LINE UPON EXIT OF SEALTITE, AND BEFORE AND AFTER THE BREAKOUT UNIT (MEDUSA), AS WELL AS BEFORE AND AFTER ANY ENTRANCE OR EXIT.
7. HFC "MAIN TRUNK" WILL NOT BE MARKED WITH THE FREQUENCY CODES, AS IT CONTAINS ALL FREQUENCIES.
8. INDIVIDUAL POWER PAIRS AND FIBER BUNDLES SHALL BE LABELED WITH BOTH THE CABLE AND FREQUENCY.

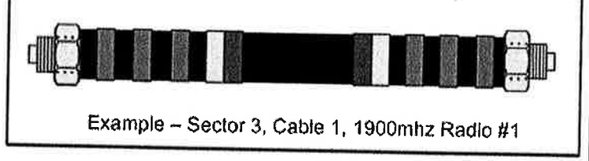
Sector	Cable	First Ring	Second Ring	Third Ring
1 Alpha	1	Green	No Tape	No Tape
1	2		No Tape	No Tape
1	3	Brown	No Tape	No Tape
1	4	White	No Tape	No Tape
1	5	Red	No Tape	No Tape
1	6	Grey	No Tape	No Tape
1	7	Purple	No Tape	No Tape
1	8	Orange	No Tape	No Tape
2 Beta	1	Green	Green	No Tape
2	2			No Tape
2	3	Brown	Brown	No Tape
2	4	White	White	No Tape
2	5	Red	Red	No Tape
2	6	Grey	Grey	No Tape
2	7	Purple	Purple	No Tape
2	8	Orange	Orange	No Tape
3 Gamma	1	Green	Green	Green
3	2			
3	3	Brown	Brown	Brown
3	4	White	White	White
3	5	Red	Red	Red
3	6	Grey	Grey	Grey
3	7	Purple	Purple	Purple
3	8	Orange	Orange	Orange

NV FREQUENCY	INDICATOR	ID
800-1	YEL	GRN
1900-1	YEL	RED
1900-2	YEL	BRN
1900-3	YEL	BLU
1900-4	YEL	SLT
800-1	YEL	ORG
RESERVED	YEL	WHT
RESERVED	YEL	PPL

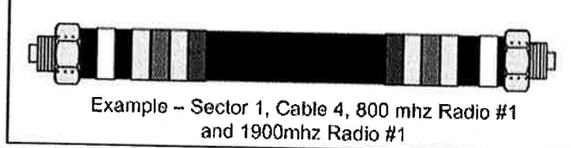
2.5 FREQUENCY	INDICATOR		ID
2500 -1	YEL	WHT	GRN
2500 -2	YEL	WHT	RED
2500 -3	YEL	WHT	BRN
2500 -4	YEL	WHT	BLU
2500 -5	YEL	WHT	SLT
2500 -6	YEL	WHT	ORG
2500 -7	YEL	WHT	WHT
2500 -8	YEL	WHT	PPL



Example – Sector 2, Cable 2, 800mhz Radio #1



Example – Sector 3, Cable 1, 1900mhz Radio #1



Example – Sector 1, Cable 4, 800 mhz Radio #1 and 1900mhz Radio #1

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SITE CASCADE:

CT43XC836

SITE ADDRESS:

303 BOXWOOD LANE
DANBURY, CT 06810

SHEET DESCRIPTION:

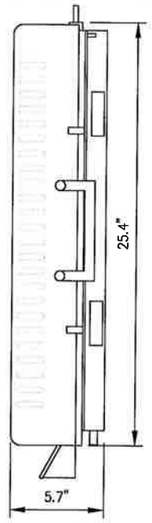
COLOR CODING & NOTES

SHEET NUMBER:

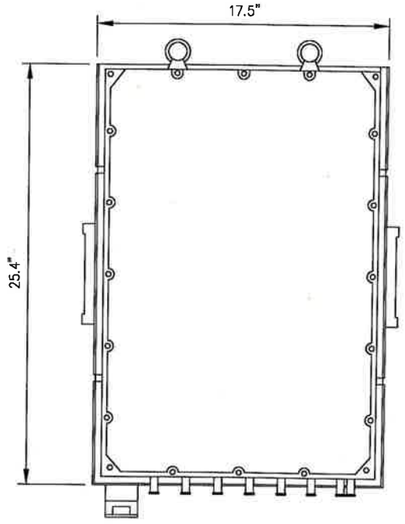
A-4

RRU: ALCATEL LUCENT TD-RRH8X20

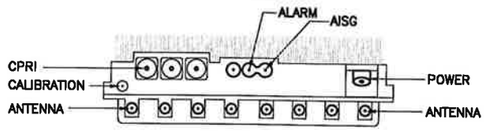
COLOR: LIGHT GREY
WEIGHT: 70 LBS.



SIDE VIEW



FRONT VIEW

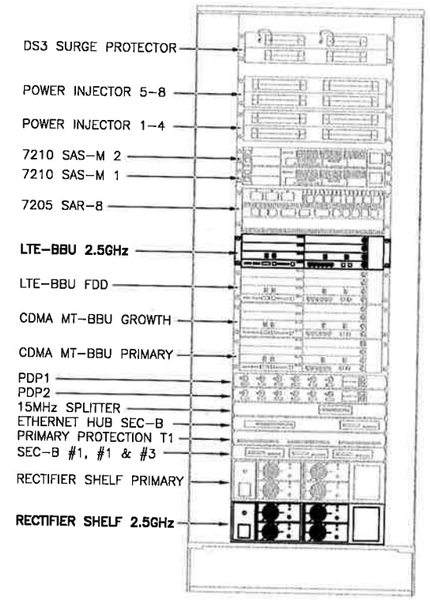


PLAN VIEW

NOTES

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

2.5 RRU'S | NO SCALE | 1

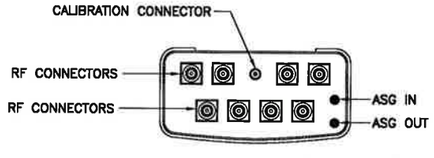


FRONT VIEW

2.5 EQUIPMENT IN EXISTING CABINET | NO SCALE | 2

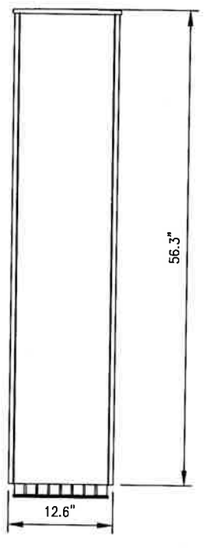
ANTENNA RFS APXVTM14-C-I20

RADOME MATERIAL:	ASA
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.In(mim):	56.3"x12.6"x6.3" (1430x320x160mm)
WEIGHT:	52.9 lbs
CONNECTORS:	(8) 4.1/9.5 DIN FEMALE (1) NF - CALIBRATION CONNECTOR



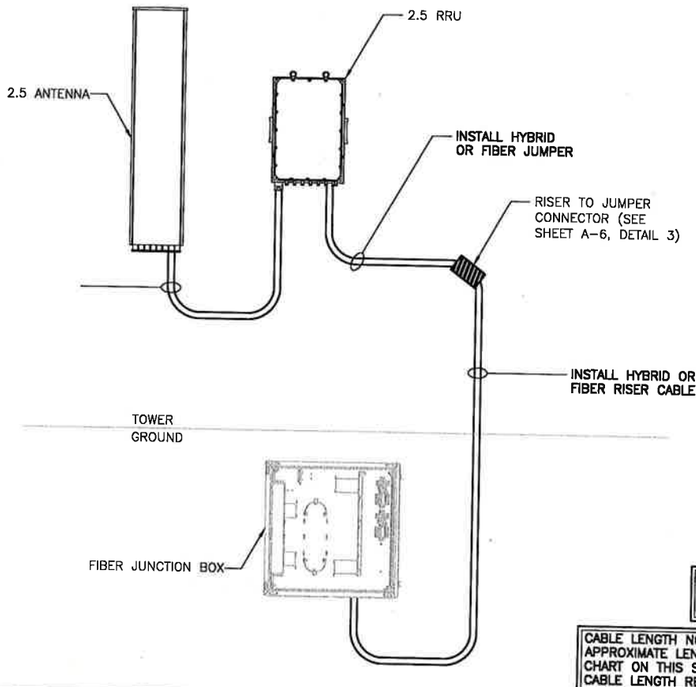
PLAN VIEW

SIDE VIEW



FRONT VIEW

2.5 ANTENNA | NO SCALE | 3



INFINIGY ESTIMATES

*	*Riser Cable Length Estimate		
			Units
	At Grade	74	Feet
	Vertical Rise	89	Feet
	At Sprint Centerline	0	Feet
	Sub-Total	163	Feet
	15% Buffer	25	Feet
	Total	188	Feet

ABOVE LENGTH IS AN ESTIMATE AND SHOULD BE VERIFIED IN FIELD PRIOR TO ORDERING MATERIALS.

**	Hybrid/Fiber Jumper Length Estimate		
			Units
	From Connector To RRU	25	Feet

ABOVE LENGTH IS AN ESTIMATE AND SHOULD BE VERIFIED IN FIELD PRIOR TO ORDERING MATERIALS.

Coax Jumper Length Estimate		
		Units
From RRU to Antenna	5	Feet

ABOVE LENGTH IS AN ESTIMATE AND SHOULD BE VERIFIED IN FIELD PRIOR TO ORDERING MATERIALS.

NOTE:
* & **: REFERENCE SHEET A-6, DETAIL 1 FOR CORRESPONDING PART NUMBERS.

CABLE LENGTH NOTE:
APPROXIMATE LENGTH OF NEW CABLE IS SHOWN IN CHART ON THIS SHEET. CONTRACTOR TO CONFIRM EXACT CABLE LENGTH REQUIRED PRIOR TO ORDERING MATERIALS.

CABLING SCHEMATIC | NO SCALE | 4

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DANBURY, CT 06810

SHEET DESCRIPTION:
EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:
A-5

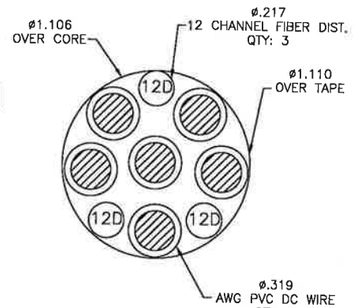
RFS HYBRIFLEX RISER CABLE SCHEDULE

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

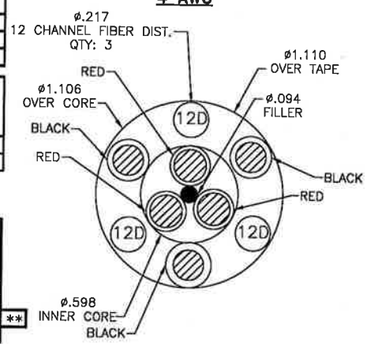
RFS HYBRIFLEX JUMPER CABLE SCHEDULE

Fiber Only	Hybrid Jumper cable MN: HBF012-M3-5F1 5 ft, 3x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft	
	MN: HBF012-M3-10F1	10 ft	
	MN: HBF012-M3-15F1	15 ft	
	MN: HBF012-M3-20F1	20 ft	
	MN: HBF012-M3-25F1	25 ft	**
	MN: HBF012-M3-30F1	30 ft	
8 AWG Power	Hybrid Jumper cable MN: HBF058-08U1M3-5F1 5 ft, 1x 8 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft	
	MN: HBF058-08U1M3-10F1	10 ft	
	MN: HBF058-08U1M3-15F1	15 ft	
	MN: HBF058-08U1M3-20F1	20 ft	
	MN: HBF058-08U1M3-25F1	25 ft	
	MN: HBF058-08U1M3-30F1	30 ft	
6 AWG Power	Hybrid Jumper cable MN: HBF058-13U1M3-5F1 5 ft, 1x 6 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 5/8 cable	5 ft	
	MN: HBF058-13U1M3-10F1	10 ft	
	MN: HBF058-13U1M3-15F1	15 ft	
	MN: HBF058-13U1M3-20F1	20 ft	
	MN: HBF058-13U1M3-25F1	25 ft	
	MN: HBF058-13U1M3-30F1	30 ft	
4 AWG Power	Hybrid Jumper cable MN: HBF078-21U1M3-5F1 5 ft, 1x 4 AWG power pair, 3x multi-mode fiber pairs, Outdoor & LC Connectors, 7/8 cable	5 ft	
	MN: HBF078-21U1M3-10F1	10 ft	
	MN: HBF078-21U1M3-15F1	15 ft	
	MN: HBF078-21U1M3-20F1	20 ft	
	MN: HBF078-21U1M3-25F1	25 ft	
	MN: HBF078-21U1M3-30F1	30 ft	

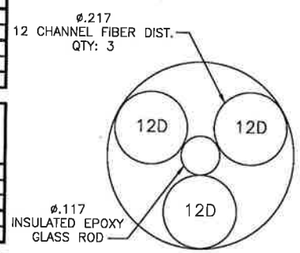
NOTE:
SPRINT CM TO CONFIRM HYBRID OR FIBER RISER CABLE AND HYBRID OR FIBER JUMPER CABLE MODEL NUMBERS IF HYBRID CABLES ARE REQUIRED BEFORE PREPARING BOM.



4 AWG

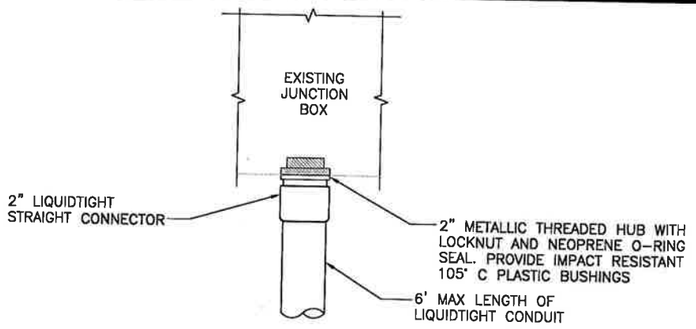


8 & 6 AWG



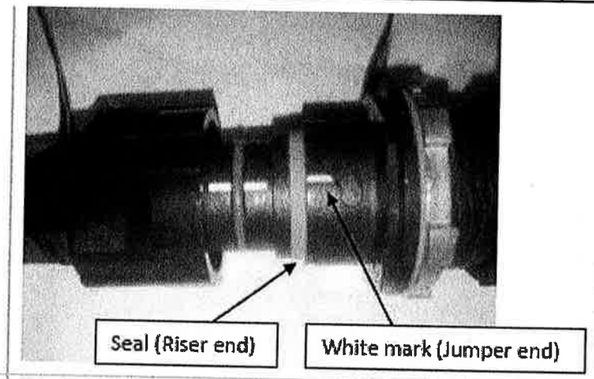
FIBER ONLY

2.5 CABLE CROSS SECTION DATA — NO SCALE — 1

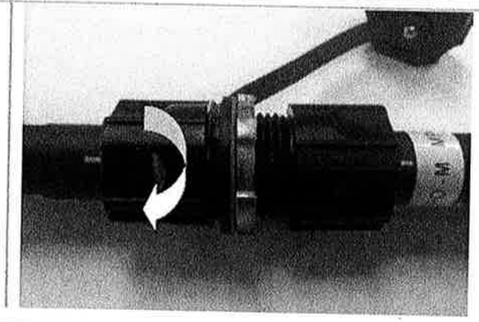


FIBER JUNCTION BOX PENETRATION — NO SCALE — 2

IMPORTANT!! Line up white markings on jumper and riser IP-MPO connectors and slide the riser connector to the jumper connector. Push the white mark on the jumper connector flush again the red seal on the riser connector.

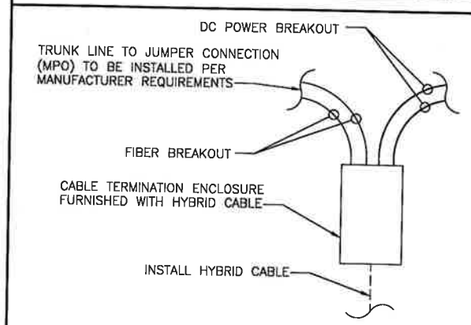


IMPORTANT!! Rotate the bayonet housing clock wise until you hear a click sound (means a good connection is in place).

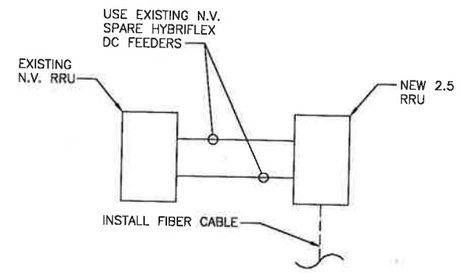


INFORMATION BASED ON PROVIDED INFORMATION FROM ALCATEL-LUCENT 2.5 GHz UPGRADE INSTALLATION GUIDE.

HYBRIFLEX RISER/JUMPER CONNECTION DETAIL — NO SCALE — 3



2.5 HYBRID RISER CABLE (FIBER AND DC FEEDERS)



FIBER ONLY RISER CABLE

TRUNK LINE DETAIL (TYP.) — NO SCALE — 4

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JOB NUMBER 526-102

Cherundolo Consulting

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JOHN S. STEVENS
SEP 07 2017
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SITE ADDRESS:
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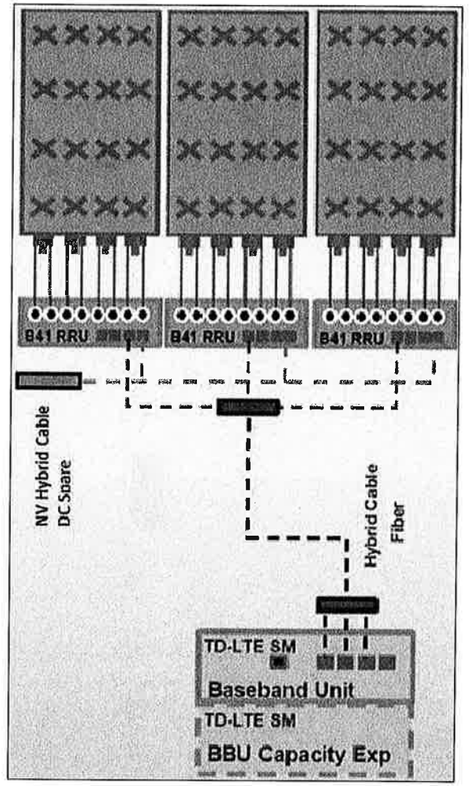
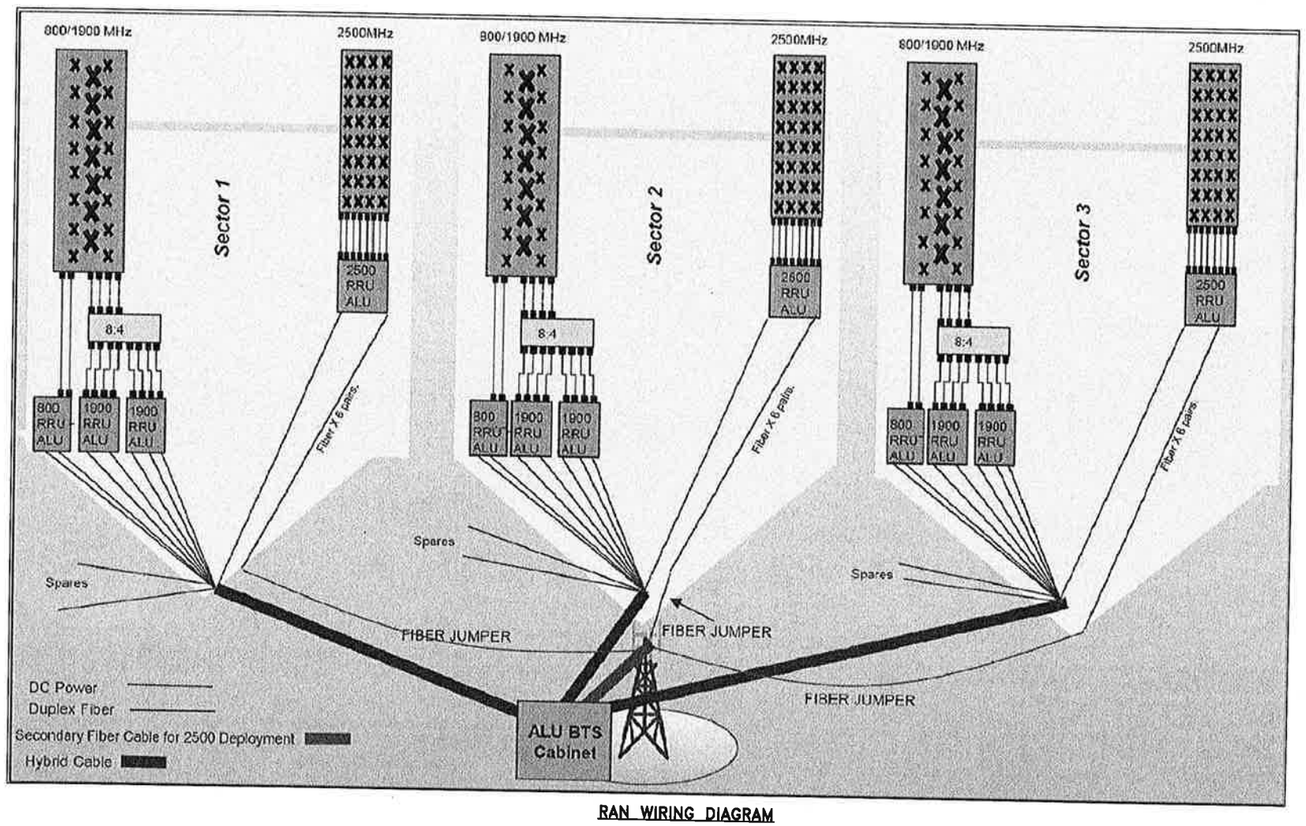
DANBURY, CT 06810

SHEET DESCRIPTION:
CIVIL DETAILS

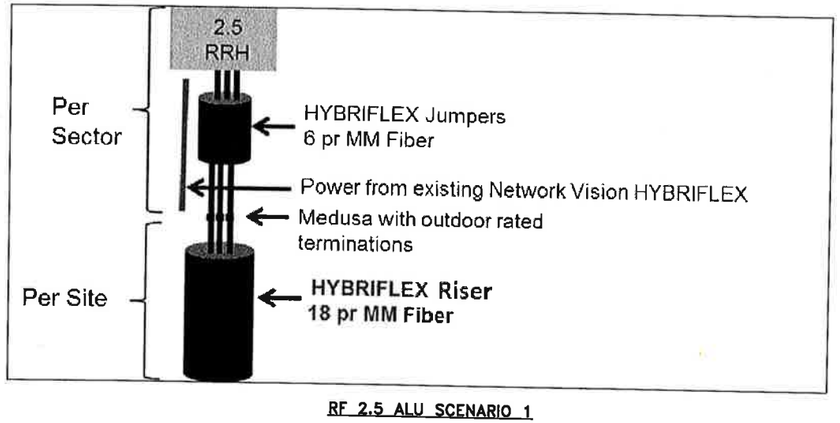
SHEET NUMBER:
A-6



ALU 2.5 ALU SCENARIO 1



RAN WIRING DIAGRAM



RF 2.5 ALU SCENARIO 1

PLUMBING DIAGRAM

NO SCALE

1

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SHEET DESCRIPTION:

PLUMBING DIAGRAM

SHEET NUMBER:

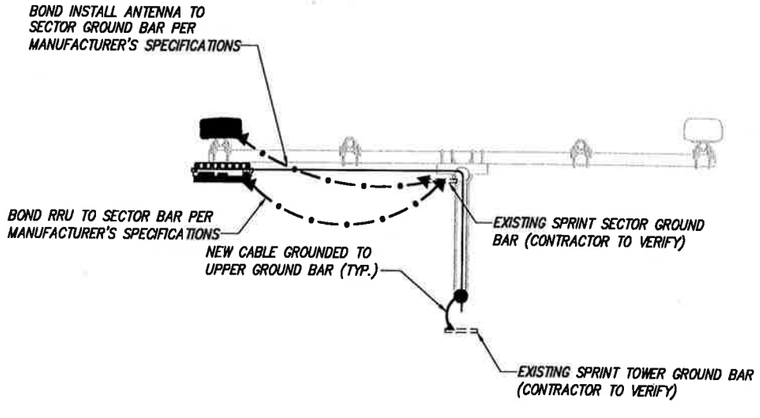
A-7

PLAN NOT USED

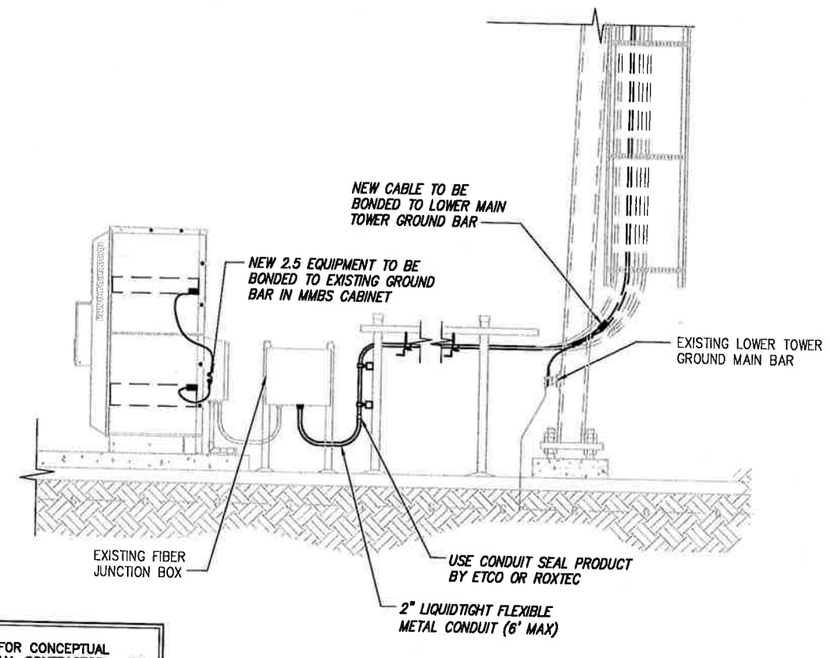
NO SCALE | 1

LEGEND:

- G — 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

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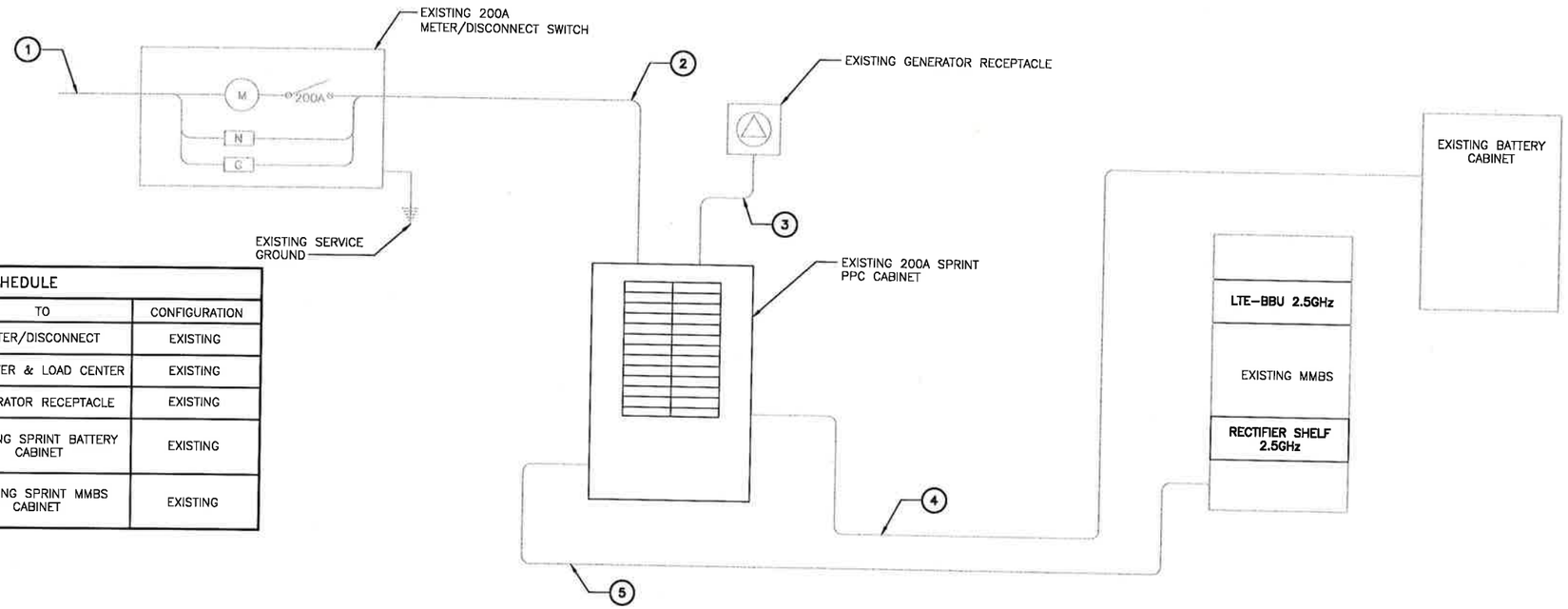
ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:

E-1

NOTES

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

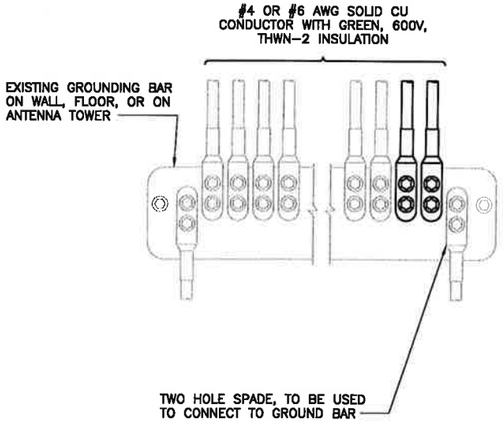


CIRCUIT SCHEDULE

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 BATTERY CABINET	EXISTING
5	TRANSFER & LOAD CENTER	EXISTING SPRINT MMBS CABINET	EXISTING

ELECTRICAL ONE–LINE DIAGRAM

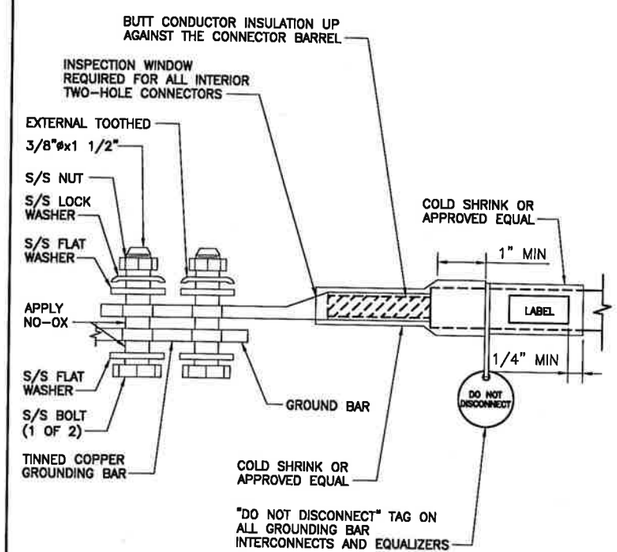
NO SCALE | 1



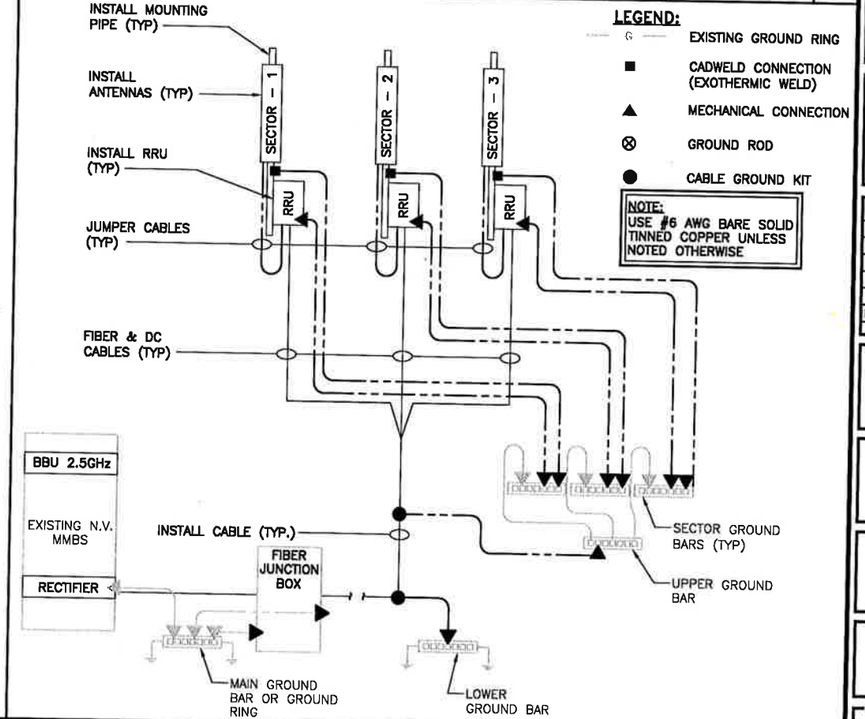
NOTES

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

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



TWO HOLE LUG | NO SCALE | 3



GROUNDING RISER DIAGRAM | NO SCALE | 4

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SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-2