May 8th, 2017

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

RE: Notice of Exempt Modification – Antenna Swap & Additional Ground Based Equipment for wireless facility located at 12 NEPAUG ROAD, BURLINGTON, CONNECTICUT – CT54XC708 (41°46'56.09"N, - 72°59'22.59"W)

Dear Ms. Bachman:

Sprint Spectrum, LP ("Sprint") currently maintains wireless telecommunications antennas at the (110-foot level) on an existing (120-foot tower) at the above-referenced address. The tower is owned by Crown Castle and the property is owned by Audrey S. Weaver.

Sprint's proposed work involves antenna replacement and tower work. Sprint intends to replace three (3) antennas and add six (6) RET Cables, (3) Diplexers on the tower. Sprint is also proposing to add three (3) ground based remote radio heads (RRH's) and (3) Diplexers to an existing H frame. All the proposed work is contained within the existing fenced area. Please refer to the attached drawings for site plans prepared by Infinigy Engineering.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to THEODORE SHAFER, First Selectman of the Town of Burlington. A copy of this letter is also being sent to AUDREY S. WEAVER the owner of the property on which the tower is located.

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

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

an extension of the site boundaries.

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

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

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

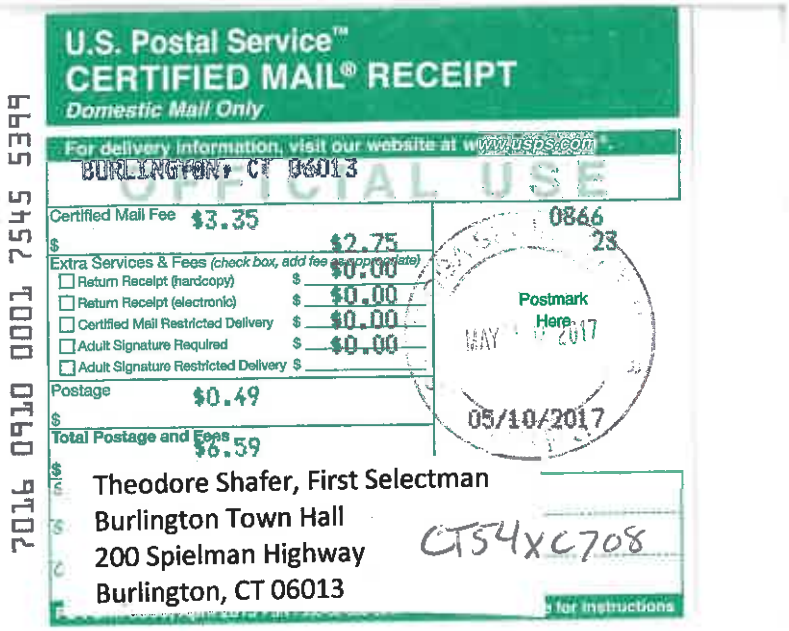
If you have any questions or require any additional information regarding this request, please do not hesitate to give me a call at (518) 306-1711 or email me to aperkowski@airosmithdevelopment.com

Kind Regards,

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

Attachment

CC: THEODORE SHAFER (1st Selectman, Burlington, CT)
AUDREY S. WEAVER (Land Owner)
Maryellen Perrotta, Crown Castle (Tower Owner)



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Burlington Town Hall
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CT54xc708

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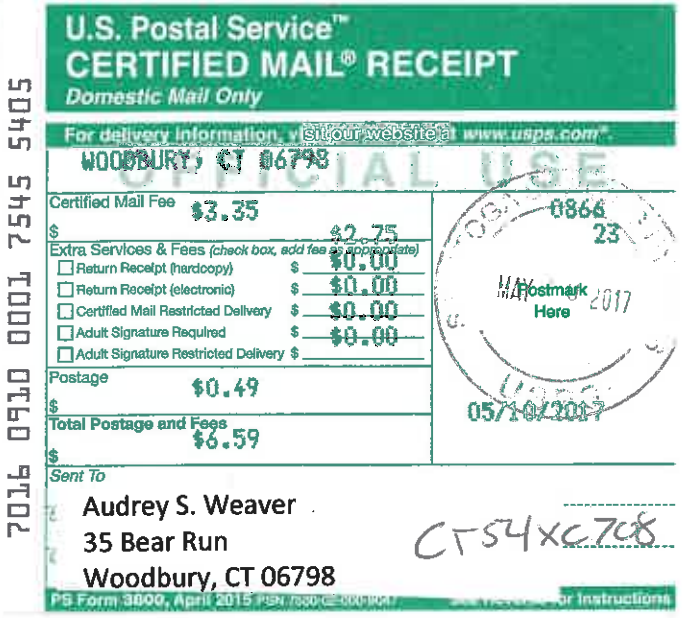

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Sent To
Crown Castle
Attn: Maryellen Perrotta
12 Gill Street, Suite 5800
Woburn, MA 01801

See Reverse for Instructions

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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: CT54XC708

Burlington
12 Nepaug Road
Burlington, CT 06013

April 27, 2017

EBI Project Number: 6217001790

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	13.37 %

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

EBI Consulting
environmental | engineering | due diligence

April 27, 2017

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

Emissions Analysis for Site: **CT54XC708 – Burlington**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **12 Nepaug Road, Burlington, 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 public 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 public 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.

Public 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) band 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 **12 Nepaug Road, Burlington, 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) 2 CDMA channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 2 CDMA channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

4) Since the Remote Radio Heads (RRH) radios are ground mounted there are additional cabling losses accounted for. For each ground mounted RF path the following losses were calculated. 0.92 dB of additional cable loss for all ground mounted 850 MHz Channels and 1.55 dB of additional cable loss for all ground mounted 1900 MHz channels were factored into the calculations used for this analysis. This is based on manufacturers Specifications for 150 feet of 1-5/8" coax cable on each path.

5) 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.

6) 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.

7) The antennas used in this modeling are the **RFS APXVSPP18-C-A20** for transmission in the 850 MHz and 1900 MHz (PCS) 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.

8) The antenna mounting height centerlines of the proposed antennas are **110 feet** above ground level (AGL) for **Sector A**, **110 feet** above ground level (AGL) for **Sector B** and **110 feet** above ground level (AGL) for Sector C.

9) 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 public 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):	**110 feet**	Height (AGL):	**110 feet**	Height (AGL):	**110 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	6	Channel Count	6	Channel Count	6
Total TX Power(W):	240 Watts	Total TX Power(W):	240 Watts	Total TX Power(W):	240 Watts
ERP (W):	5,962.93	ERP (W):	5,962.93	ERP (W):	5,962.93
Antenna A1 MPE%	**2.25 %**	Antenna B1 MPE%	**2.25 %**	Antenna C1 MPE%	**2.25 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**2.25 %**
AT&T	2.52 %
T-Mobile	4.51 %
Verizon Wireless	4.09 %
Site Total MPE %:	**13.37 %**

SPRINT Sector A Total:	2.25 %
SPRINT Sector B Total:	2.25 %
SPRINT Sector C Total:	2.25 %
Site Total:	13.37 %

SPRINT _ Max Values per Frequency Band / Technology	# 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	2	531.03	110	3.53	850 MHz	567	0.62%
Sprint 1900 MHz (PCS) CDMA	2	816.81	110	5.43	1900 MHz (PCS)	1000	0.54%
Sprint 1900 MHz (PCS) LTE	2	1,633.62	110	10.86	1900 MHz (PCS)	1000	1.09%
						Total:	**2.25%**

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public 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 public exposure to RF Emissions are shown here:

SPRINT Sector	Power Density Value (%)
Sector A:	2.25 %
Sector B:	2.25 %
Sector C:	2.25 %
SPRINT Maximum Total (per sector):	2.25 %
Site Total:	13.37 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **13.37 %** of the allowable FCC established general public 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.

Date: **February 04, 2017**

Charles Trask
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Crown Castle
2000 Corporate Drive
Canonsburg, PA
(724) 416-2000

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Sprint PCS* Co-Locate**	
	Carrier Site Number:	CT54XC708
	Carrier Site Name:	Burlington ATT Colo
Crown Castle Designation:	**Crown Castle BU Number:**	845993
	Crown Castle Site Name:	Burlington-Nepaug Road
	Crown Castle JDE Job Number:	417619
	Crown Castle Work Order Number:	1357999
	Crown Castle Application Number:	373440 Rev. 0
Engineering Firm Designation:	**Crown Castle Project Number:**	1357999
Site Data:	**12 NEPAUG ROAD, BURLINGTON, Hartford County, CT** **Latitude *41° 46' 56.86"*, Longitude *-72° 59' 22.68"*** **120 Foot - Monopole Tower**	

Dear Charles Trask,

Crown Castle is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1357999, in accordance with application 373440, revision 0.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

The analysis has been performed in accordance with the 2016 Connecticut State Building Code based on an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G standard per Exception #5 of Section 1609.1.1. Exposure Category B and Risk category II were used in this analysis.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at *Crown Castle* appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Drew Skupien, E.I.T. / AGH

Respectfully submitted by:

STATE OF CONNECTICUT
TERRY P. STYRAN
31522
LICENSED
PROFESSIONAL ENGINEER
2/8/2017

Terry P. Styran, P.E.
Senior Project Engineer
tnxTower Report - version
7.0.5.1

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 120 ft Monopole tower designed by engineered Endeavors Inc. and mapped by FDH in February of 2016. The original design standard and wind speed are not available.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a 3-second gust wind speed of 97 mph with no ice, 50 mph with 1 inch ice thickness and 60 mph under service loads, exposure category B.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
109.0	110.0	3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe	6	5/16	-
		3	rfs celwave	FD9R6004/1C-3L			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
119.0	119.0	3	ericsson	RRUS-11	12 2 2	1-5/8 1/2 7/8	1
		1	gps	GPS_A			
		3	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe			
		6	powerwave technologies	7770.00 w/ Mount Pipe			
		6	powerwave technologies	LGP13519			
		6	powerwave technologies	LGP21401			
		1	raycap	DC6-48-60-18-8F			
		1	tower mounts	Platform Mount [LP 1201-1]			
109.0	109.0	6	andrew	950F85T2E-M w/ Mount Pipe	-	-	3
		1	tower mounts	Platform Mount [LP 1201-1]	6	1-5/8	1
99.0	99.0	3	antel	BXA-171085-8BF-EDIN-2 w/ Mount Pipe	12	1-5/8	1
		3	antel	BXA-70063-6CF-2 w/ Mount Pipe			
		6	antel	LPA-80080/4CF w/ Mount Pipe			
		6	rfs celwave	FD9R6004/2C-3L			
		1	tower mounts	Platform Mount [LP 1201-1]			
88.0	90.0	3	commscope	LNX-6515DS-A1M w/ Mount Pipe	-	-	2
		3	ericsson	ERICSSON AIR 21 B2A	7	1-5/8	1

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
				B4P w/ Mount Pipe			
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe			
	88.0	1	tower mounts	T-Arm Mount [TA 602-3]			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Equipment To Be Removed' Not Considered In This Analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
Information Not Available						

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Jaworski Geotech, Inc.	4551029	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	URS	5072131	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	FDH Velocitel (Foundation Mapping)	6171674	CCISITES
4-TOWER MANUFACTURER DRAWINGS	FDH Velocitel (Tower Mapping)	6172249	CCISITES
4-TOWER MANUFACTURER DRAWINGS	GPD (Tower Mapping)	5117503	CCISITES

3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	120 - 97	Pole	TP28.93x22.69x0.1875	1	-7.86	1079.70	17.2	Pass
L2	97 - 48	Pole	TP39.7x27.5729x0.25	2	-19.75	1957.24	50.0	Pass
L3	48 - 0	Pole	TP51.04x38.0569x0.3125	3	-31.96	3154.51	52.3	Pass
							Summary	
						Pole (L3)	52.3	Pass
						Rating =	52.3	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	45.6	Pass
1	Base Plate	0	59.6	Pass
1	Base Foundation	0	45.9	Pass
1	Base Foundation Soil Interaction	0	39.8	Pass

Structure Rating (max from all components) =	59.6%

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.

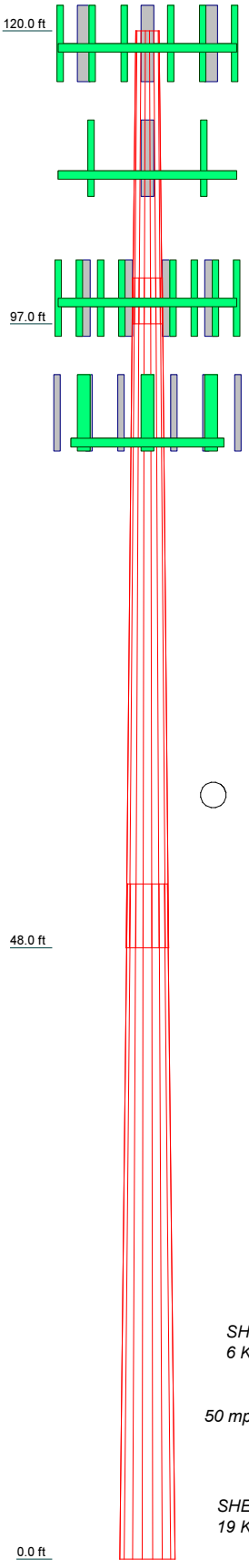
4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the existing, reserved, and proposed loads. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	23.00	18	0.1875	3.62	22.6900	28.9300		1.2
2	52.62	18	0.2500	4.96	27.5729	39.7000	A572-65	4.7
3	52.96	18	0.3125		38.0569	51.0400		7.9



ALL REACTIONS ARE FACTORED

AXIAL 64 K

SHEAR 6 K *MOMENT 523 kip-ft*

TORQUE 0 kip-ft

50 mph WIND - 1.0000 in ICE

AXIAL 32 K

SHEAR 19 K *MOMENT 1690 kip-ft*

TORQUE 0 kip-ft

REACTIONS - 97 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
AM-X-CD-16-65-00T-RET w/ Mount Pipe	119	(3) 6' x 2" Mount Pipe	109
		Platform Mount [LP 1201-1]	109
AM-X-CD-16-65-00T-RET w/ Mount Pipe	119	(2) LPA-80080/4CF w/ Mount Pipe	99
		(2) LPA-80080/4CF w/ Mount Pipe	99
AM-X-CD-16-65-00T-RET w/ Mount Pipe	119	(2) LPA-80080/4CF w/ Mount Pipe	99
(2) 7770.00 w/ Mount Pipe	119	BXA-171085-8BF-EDIN-2 w/ Mount Pipe	99
(2) 7770.00 w/ Mount Pipe	119		
(2) 7770.00 w/ Mount Pipe	119	BXA-171085-8BF-EDIN-2 w/ Mount Pipe	99
GPS_A	119		
(2) LGP21401	119	BXA-171085-8BF-EDIN-2 w/ Mount Pipe	99
(2) LGP21401	119	BXA-70063-6CF-2 w/ Mount Pipe	99
(2) LGP21401	119	BXA-70063-6CF-2 w/ Mount Pipe	99
DC6-48-60-18-8F	119	BXA-70063-6CF-2 w/ Mount Pipe	99
(2) LGP13519	119	(2) FD9R6004/2C-3L	99
(2) LGP13519	119	(2) FD9R6004/2C-3L	99
(2) LGP13519	119	(2) FD9R6004/2C-3L	99
RRUS-11	119	Platform Mount [LP 1201-1]	99
RRUS-11	119	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	88
RRUS-11	119		
6' x 2" Mount Pipe	119	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	88
6' x 2" Mount Pipe	119		
6' x 2" Mount Pipe	119	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	88
4' x 3" Pipe Mount	119	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	88
4' x 3" Pipe Mount	119		
4' x 3" Pipe Mount	119	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	88
Platform Mount [LP 1201-1]	119		
APXVSPP18-C-A20 w/ Mount Pipe	109	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	88
APXVSPP18-C-A20 w/ Mount Pipe	109		
APXVSPP18-C-A20 w/ Mount Pipe	109	LNX-6515DS-A1M w/ Mount Pipe	88
FD9R6004/1C-3L	109	LNX-6515DS-A1M w/ Mount Pipe	88
FD9R6004/1C-3L	109	LNX-6515DS-A1M w/ Mount Pipe	88
FD9R6004/1C-3L	109	T-Arm Mount [TA 602-3]	88
(3) 6' x 2" Mount Pipe	109		
(3) 6' x 2" Mount Pipe	109		

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 52.3%

CROWN CASTLE
The Foundation for a Wireless World

Crown Castle
2000 Corporate Drive
Canonsburg, PA
Phone: (724) 416-2000
FAX:

Job: **BU# 845993**			
Project:			
Client: Crown Castle	Drawn by: dskupien		App'd:
Code: TIA-222-G	Date: 02/04/17		Scale: NTS
Path: R:\SA Models - Letters\Work Area\DSkupien\1_WIP\845993 WO 1357999\Production\845993.eri			Dwg No. E-1

Tower Input Data

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

4) Tower is located in Hartford County, Connecticut.
5) Basic wind speed of 97 mph.
6) Structure Class II.
7) Exposure Category B.
8) Topographic Category 1.
9) Crest Height 0.00 ft.
10) Nominal ice thickness of 1.0000 in.
11) Ice thickness is considered to increase with height.
12) Ice density of 56 pcf.
13) A wind speed of 50 mph is used in combination with ice.
14) Temperature drops of 50 °F.
15) Deflections calculated using a wind speed of 60 mph.
16) A non-linear (P-delta) analysis was used.
17) Pressures are calculated at each section.
18) Stress ratio used in pole design is 1.
19) 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				

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L1	120.00-97.00	23.00	3.62	18	22.6900	28.9300	0.1875	0.7500	A572-65 (65 ksi)
L2	97.00-48.00	52.62	4.96	18	27.5729	39.7000	0.2500	1.0000	A572-65 (65 ksi)
L3	48.00-0.00	52.96		18	38.0569	51.0400	0.3125	1.2500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	23.0400	13.3918	856.7181	7.9884	11.5265	74.3258	1714.5635	6.6972	3.6634	19.538
	29.3763	17.1054	1785.3331	10.2036	14.6964	121.4807	3573.0155	8.5543	4.7617	25.396
L2	28.8454	21.6807	2044.8607	9.6996	14.0070	145.9883	4092.4120	10.8424	4.4128	17.651
	40.3124	31.3036	6154.9624	14.0048	20.1676	305.1906	12318.0236	15.6548	6.5472	26.189
L3	39.8787	37.4377	6738.3192	13.3993	19.3329	348.5416	13485.5048	18.7224	6.1480	19.674
	51.8274	50.3153	16357.7954	18.0083	25.9283	630.8853	32737.1149	25.1625	8.4330	26.986

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 120.00-97.00				1	1	1			
L2 97.00-48.00				1	1	1			
L3 48.00-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
***										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LDF4-50A(1/2")	A	No	Inside Pole	119.00 - 8.00	2	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
LDF5-50A(7/8")	A	No	Inside Pole	119.00 - 8.00	2	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
LDF7-50A(1-5/8")	A	No	Inside Pole	119.00 - 8.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
***								
LDF6-50A(1-1/4")	C	No	Inside Pole	109.00 - 8.00	6	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
						1" Ice	0.00	0.66
ATCB-B01-060(5/16)	C	No	Inside Pole	109.00 - 8.00	6	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
						1" Ice	0.00	0.06
***								
LDF7-50A(1-5/8")	C	No	Inside Pole	99.00 - 8.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
***								
LDF7-50A(1-5/8")	B	No	Inside Pole	88.00 - 8.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
MLE Hybrid 9Power/18Fiber RL	B	No	Inside Pole	88.00 - 8.00	1	No Ice	0.00	1.07
						1/2" Ice	0.00	1.07

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
2(1-5/8") ***						1" Ice	0.00	1.07

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	120.00-97.00	A	0.000	0.000	0.000	0.000	0.24
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.07
L2	97.00-48.00	A	0.000	0.000	0.000	0.000	0.53
		B	0.000	0.000	0.000	0.000	0.24
		C	0.000	0.000	0.000	0.000	0.69
L3	48.00-0.00	A	0.000	0.000	0.000	0.000	0.43
		B	0.000	0.000	0.000	0.000	0.24
		C	0.000	0.000	0.000	0.000	0.57

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	120.00-97.00	A	2.252	0.000	0.000	0.000	0.000	0.24
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.07
L2	97.00-48.00	A	2.162	0.000	0.000	0.000	0.000	0.53
		B		0.000	0.000	0.000	0.000	0.24
		C		0.000	0.000	0.000	0.000	0.69
L3	48.00-0.00	A	1.931	0.000	0.000	0.000	0.000	0.43
		B		0.000	0.000	0.000	0.000	0.24
		C		0.000	0.000	0.000	0.000	0.57

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	120.00-97.00	0.0000	0.0000	0.0000	0.0000
L2	97.00-48.00	0.0000	0.0000	0.0000	0.0000
L3	48.00-0.00	0.0000	0.0000	0.0000	0.0000

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice

Discrete Tower Loads

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* ft ft ft	*Azimuth Adjustment* °	*Placement* ft		C_AA_A *Front* ft^2	C_AA_A *Side* ft^2	*Weight* K
***									
AM-X-CD-16-65-00T-RET w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.30 7.48 8.37	0.07 0.14 0.21
AM-X-CD-16-65-00T-RET w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.30 7.48 8.37	0.07 0.14 0.21
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.30 7.48 8.37	0.07 0.14 0.21
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
GPS_A	A	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	0.26 0.32 0.39	0.26 0.32 0.39	0.00 0.00 0.01
(2) LGP21401	C	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
(2) LGP21401	A	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
(2) LGP21401	B	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
DC6-48-60-18-8F	A	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	0.79 1.27 1.45	0.79 1.27 1.45	0.02 0.04 0.05
(2) LGP13519	C	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	0.29 0.36 0.44	0.18 0.24 0.31	0.01 0.01 0.01
(2) LGP13519	A	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	0.29 0.36 0.44	0.18 0.24 0.31	0.01 0.01 0.01
(2) LGP13519	B	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	0.29 0.36 0.44	0.18 0.24 0.31	0.01 0.01 0.01
RRUS-11	C	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.09
RRUS-11	A	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.09

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* ft ft ft	*Azimuth Adjustment* °	*Placement* ft		*C_AA_A Front* ft^2	*C_AA_A Side* ft^2	*Weight* K
RRUS-11	B	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.09
6' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
6' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
6' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
4' x 3" Pipe Mount	C	From Leg	2.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	1.00 1.25 1.50	1.00 1.25 1.50	0.03 0.04 0.05
4' x 3" Pipe Mount	A	From Leg	2.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	1.00 1.25 1.50	1.00 1.25 1.50	0.03 0.04 0.05
4' x 3" Pipe Mount	B	From Leg	2.00 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice 1" Ice	1.00 1.25 1.50	1.00 1.25 1.50	0.03 0.04 0.05
Platform Mount [LP 1201-1]	B	None		0.0000	119.00	No Ice 1/2" Ice 1" Ice	23.10 26.80 30.50	23.10 26.80 30.50	2.10 2.50 2.90
***									
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	109.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.95 8.13 9.02	0.08 0.15 0.23
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	109.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.95 8.13 9.02	0.08 0.15 0.23
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	109.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.95 8.13 9.02	0.08 0.15 0.23
FD9R6004/1C-3L	A	From Leg	4.00 0.00 1.00	0.0000	109.00	No Ice 1/2" Ice 1" Ice	0.31 0.39 0.47	0.08 0.12 0.17	0.00 0.01 0.01
FD9R6004/1C-3L	B	From Leg	4.00 0.00 1.00	0.0000	109.00	No Ice 1/2" Ice 1" Ice	0.31 0.39 0.47	0.08 0.12 0.17	0.00 0.01 0.01
FD9R6004/1C-3L	C	From Leg	4.00 0.00 1.00	0.0000	109.00	No Ice 1/2" Ice 1" Ice	0.31 0.39 0.47	0.08 0.12 0.17	0.00 0.01 0.01
(3) 6' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	109.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
(3) 6' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	109.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* ft ft ft	*Azimuth Adjustment* °	*Placement* ft		C_AA_A *Front* ft^2	C_AA_A *Side* ft^2	*Weight* K
(3) 6' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	109.00	No Ice 1/2" Ice 1" Ice	1.43 1.92 2.29	1.43 1.92 2.29	0.02 0.03 0.05
Platform Mount [LP 1201-1]	B	None		0.0000	109.00	No Ice 1/2" Ice 1" Ice	23.10 26.80 30.50	23.10 26.80 30.50	2.10 2.50 2.90
***									
(2) LPA-80080/4CF w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	99.00	No Ice 1/2" Ice 1" Ice	2.86 3.22 3.59	6.57 7.19 7.84	0.03 0.08 0.13
(2) LPA-80080/4CF w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	99.00	No Ice 1/2" Ice 1" Ice	2.86 3.22 3.59	6.57 7.19 7.84	0.03 0.08 0.13
(2) LPA-80080/4CF w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	99.00	No Ice 1/2" Ice 1" Ice	2.86 3.22 3.59	6.57 7.19 7.84	0.03 0.08 0.13
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	99.00	No Ice 1/2" Ice 1" Ice	3.18 3.56 3.93	3.35 3.97 4.60	0.03 0.06 0.10
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	99.00	No Ice 1/2" Ice 1" Ice	3.18 3.56 3.93	3.35 3.97 4.60	0.03 0.06 0.10
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	99.00	No Ice 1/2" Ice 1" Ice	3.18 3.56 3.93	3.35 3.97 4.60	0.03 0.06 0.10
BXA-70063-6CF-2 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	99.00	No Ice 1/2" Ice 1" Ice	7.81 8.36 8.87	5.80 6.95 7.82	0.04 0.10 0.17
BXA-70063-6CF-2 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	99.00	No Ice 1/2" Ice 1" Ice	7.81 8.36 8.87	5.80 6.95 7.82	0.04 0.10 0.17
BXA-70063-6CF-2 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	99.00	No Ice 1/2" Ice 1" Ice	7.81 8.36 8.87	5.80 6.95 7.82	0.04 0.10 0.17
(2) FD9R6004/2C-3L	C	From Leg	4.00 0.00 0.00	0.0000	99.00	No Ice 1/2" Ice 1" Ice	0.31 0.39 0.47	0.08 0.12 0.17	0.00 0.01 0.01
(2) FD9R6004/2C-3L	A	From Leg	4.00 0.00 0.00	0.0000	99.00	No Ice 1/2" Ice 1" Ice	0.31 0.39 0.47	0.08 0.12 0.17	0.00 0.01 0.01
(2) FD9R6004/2C-3L	B	From Leg	4.00 0.00 0.00	0.0000	99.00	No Ice 1/2" Ice 1" Ice	0.31 0.39 0.47	0.08 0.12 0.17	0.00 0.01 0.01
Platform Mount [LP 1201-1]	B	None		0.0000	99.00	No Ice 1/2" Ice 1" Ice	23.10 26.80 30.50	23.10 26.80 30.50	2.10 2.50 2.90
***									
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Face	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice	6.33 6.78 7.21	5.64 6.43 7.13	0.11 0.17 0.23

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice			
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Face	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	6.33 6.78 7.21	5.64 6.43 7.13	0.11 0.17 0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Face	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	6.33 6.78 7.21	5.64 6.43 7.13	0.11 0.17 0.23
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Face	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	6.33 6.78 7.21	5.64 6.43 7.13	0.11 0.17 0.23
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Face	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	6.33 6.78 7.21	5.64 6.43 7.13	0.11 0.17 0.23
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Face	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	6.33 6.78 7.21	5.64 6.43 7.13	0.11 0.17 0.23
LNX-6515DS-A1M w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	11.68 12.40 13.14	9.84 11.37 12.91	0.08 0.17 0.27
LNX-6515DS-A1M w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	11.68 12.40 13.14	9.84 11.37 12.91	0.08 0.17 0.27
LNX-6515DS-A1M w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	88.00	No Ice 1/2" Ice 1" Ice	11.68 12.40 13.14	9.84 11.37 12.91	0.08 0.17 0.27
T-Arm Mount [TA 602-3]	B	None		0.0000	88.00	No Ice 1/2" Ice 1" Ice	11.59 15.44 19.29	11.59 15.44 19.29	0.77 0.99 1.21
***									

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice

Comb. No.	Description
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	120 - 97	Pole	Max Tension	14	0.00	0.00	0.00
			Max. Compression	26	-19.65	0.00	0.74
			Max. Mx	8	-7.86	-101.68	0.12
			Max. My	2	-7.86	0.00	101.81
			Max. Vy	8	7.30	-101.68	0.12
			Max. Vx	2	-7.30	0.00	101.81
			Max. Torque	8			0.20
L2	97 - 48	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.99	0.00	0.74
			Max. Mx	8	-19.75	-756.49	0.13
			Max. My	2	-19.75	0.00	756.62
			Max. Vy	8	15.98	-756.49	0.13
			Max. Vx	2	-15.98	0.00	756.62
			Max. Torque	8			0.20
L3	48 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-64.19	0.00	0.74
			Max. Mx	8	-31.96	-1689.37	0.13
			Max. My	2	-31.96	0.00	1689.50
			Max. Vy	8	19.24	-1689.37	0.13
			Max. Vx	2	-19.24	0.00	1689.50
			Max. Torque	8			0.20

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	64.19	0.00	5.83
	Max. H_x	20	31.98	19.22	0.00
	Max. H_z	2	31.98	0.00	19.22
	Max. M_x	2	1689.50	0.00	19.22
	Max. M_z	8	1689.37	-19.22	0.00
	Max. Torsion	8	0.20	-19.22	0.00
	Min. Vert	17	23.98	9.61	-16.65
	Min. H_x	8	31.98	-19.22	0.00
	Min. H_z	14	31.98	0.00	-19.22
	Min. M_x	14	-1689.24	0.00	-19.22
	Min. M_z	20	-1689.37	19.22	0.00
	Min. Torsion	20	-0.20	19.22	0.00

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	26.65	0.00	0.00	-0.10	0.00	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	31.98	0.00	-19.22	-1689.50	0.00	0.00
0.9 Dead+1.6 Wind 0 deg - No Ice	23.98	0.00	-19.22	-1675.34	0.00	0.00
1.2 Dead+1.6 Wind 30 deg - No Ice	31.98	9.61	-16.65	-1463.17	-844.69	-0.10
0.9 Dead+1.6 Wind 30 deg - No Ice	23.98	9.61	-16.65	-1450.90	-837.62	-0.10
1.2 Dead+1.6 Wind 60 deg - No Ice	31.98	16.65	-9.61	-844.82	-1463.04	-0.17
0.9 Dead+1.6 Wind 60 deg - No Ice	23.98	16.65	-9.61	-837.72	-1450.81	-0.17
1.2 Dead+1.6 Wind 90 deg - No Ice	31.98	19.22	-0.00	-0.13	-1689.37	-0.20
0.9 Dead+1.6 Wind 90 deg - No Ice	23.98	19.22	0.00	-0.10	-1675.25	-0.20
1.2 Dead+1.6 Wind 120 deg - No Ice	31.98	16.65	9.61	844.55	-1463.04	-0.17
0.9 Dead+1.6 Wind 120 deg - No Ice	23.98	16.65	9.61	837.53	-1450.81	-0.17
1.2 Dead+1.6 Wind 150 deg - No Ice	31.98	9.61	16.65	1462.91	-844.69	-0.10
0.9 Dead+1.6 Wind 150 deg - No Ice	23.98	9.61	16.65	1450.71	-837.62	-0.10
1.2 Dead+1.6 Wind 180 deg - No Ice	31.98	0.00	19.22	1689.24	0.00	0.00
0.9 Dead+1.6 Wind 180 deg - No Ice	23.98	0.00	19.22	1675.15	0.00	0.00
1.2 Dead+1.6 Wind 210 deg - No Ice	31.98	-9.61	16.65	1462.91	844.69	0.10
0.9 Dead+1.6 Wind 210 deg - No Ice	23.98	-9.61	16.65	1450.71	837.62	0.10
1.2 Dead+1.6 Wind 240 deg - No Ice	31.98	-16.65	9.61	844.55	1463.04	0.17
0.9 Dead+1.6 Wind 240 deg - No Ice	23.98	-16.65	9.61	837.53	1450.81	0.17
1.2 Dead+1.6 Wind 270 deg - No Ice	31.98	-19.22	-0.00	-0.13	1689.37	0.20
0.9 Dead+1.6 Wind 270 deg - No Ice	23.98	-19.22	0.00	-0.10	1675.25	0.20
1.2 Dead+1.6 Wind 300 deg - No Ice	31.98	-16.65	-9.61	-844.82	1463.04	0.17
0.9 Dead+1.6 Wind 300 deg - No Ice	23.98	-16.65	-9.61	-837.72	1450.81	0.17
1.2 Dead+1.6 Wind 330 deg - No Ice	31.98	-9.61	-16.65	-1463.17	844.69	0.10

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
0.9 Dead+1.6 Wind 330 deg - No Ice	23.98	-9.61	-16.65	-1450.90	837.62	0.10
1.2 Dead+1.0 Ice+1.0 Temp	64.19	0.00	0.00	-0.74	0.00	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	64.19	0.00	-5.83	-523.07	0.00	0.00
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	64.19	2.91	-5.05	-453.10	-261.10	-0.05
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	64.19	5.05	-2.91	-261.96	-452.25	-0.08
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	64.19	5.83	-0.00	-0.86	-522.21	-0.09
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	64.19	5.05	2.91	260.25	-452.25	-0.08
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	64.19	2.91	5.05	451.39	-261.10	-0.05
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	64.19	0.00	5.83	521.35	0.00	0.00
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	64.19	-2.91	5.05	451.39	261.10	0.05
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	64.19	-5.05	2.91	260.25	452.25	0.08
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	64.19	-5.83	-0.00	-0.86	522.21	0.09
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	64.19	-5.05	-2.91	-261.96	452.25	0.08
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	64.19	-2.91	-5.05	-453.10	261.10	0.05
Dead+Wind 0 deg - Service	26.65	0.00	-4.11	-359.71	0.00	0.00
Dead+Wind 30 deg - Service	26.65	2.06	-3.56	-311.54	-179.80	-0.02
Dead+Wind 60 deg - Service	26.65	3.56	-2.06	-179.91	-311.43	-0.04
Dead+Wind 90 deg - Service	26.65	4.11	0.00	-0.11	-359.60	-0.04
Dead+Wind 120 deg - Service	26.65	3.56	2.06	179.69	-311.43	-0.04
Dead+Wind 150 deg - Service	26.65	2.06	3.56	311.32	-179.80	-0.02
Dead+Wind 180 deg - Service	26.65	0.00	4.11	359.49	0.00	0.00
Dead+Wind 210 deg - Service	26.65	-2.06	3.56	311.32	179.80	0.02
Dead+Wind 240 deg - Service	26.65	-3.56	2.06	179.69	311.43	0.04
Dead+Wind 270 deg - Service	26.65	-4.11	0.00	-0.11	359.60	0.04
Dead+Wind 300 deg - Service	26.65	-3.56	-2.06	-179.91	311.43	0.04
Dead+Wind 330 deg - Service	26.65	-2.06	-3.56	-311.54	179.80	0.02

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-26.65	0.00	0.00	26.65	0.00	0.000%
2	0.00	-31.98	-19.22	0.00	31.98	19.22	0.000%
3	0.00	-23.98	-19.22	0.00	23.98	19.22	0.000%
4	9.61	-31.98	-16.65	-9.61	31.98	16.65	0.000%
5	9.61	-23.98	-16.65	-9.61	23.98	16.65	0.000%
6	16.65	-31.98	-9.61	-16.65	31.98	9.61	0.000%
7	16.65	-23.98	-9.61	-16.65	23.98	9.61	0.000%
8	19.22	-31.98	0.00	-19.22	31.98	0.00	0.000%
9	19.22	-23.98	0.00	-19.22	23.98	0.00	0.000%
10	16.65	-31.98	9.61	-16.65	31.98	-9.61	0.000%
11	16.65	-23.98	9.61	-16.65	23.98	-9.61	0.000%
12	9.61	-31.98	16.65	-9.61	31.98	-16.65	0.000%
13	9.61	-23.98	16.65	-9.61	23.98	-16.65	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
14	0.00	-31.98	19.22	0.00	31.98	-19.22	0.000%
15	0.00	-23.98	19.22	0.00	23.98	-19.22	0.000%
16	-9.61	-31.98	16.65	9.61	31.98	-16.65	0.000%
17	-9.61	-23.98	16.65	9.61	23.98	-16.65	0.000%
18	-16.65	-31.98	9.61	16.65	31.98	-9.61	0.000%
19	-16.65	-23.98	9.61	16.65	23.98	-9.61	0.000%
20	-19.22	-31.98	0.00	19.22	31.98	0.00	0.000%
21	-19.22	-23.98	0.00	19.22	23.98	0.00	0.000%
22	-16.65	-31.98	-9.61	16.65	31.98	9.61	0.000%
23	-16.65	-23.98	-9.61	16.65	23.98	9.61	0.000%
24	-9.61	-31.98	-16.65	9.61	31.98	16.65	0.000%
25	-9.61	-23.98	-16.65	9.61	23.98	16.65	0.000%
26	0.00	-64.19	0.00	0.00	64.19	0.00	0.000%
27	0.00	-64.19	-5.83	0.00	64.19	5.83	0.000%
28	2.91	-64.19	-5.05	-2.91	64.19	5.05	0.000%
29	5.05	-64.19	-2.91	-5.05	64.19	2.91	0.000%
30	5.83	-64.19	0.00	-5.83	64.19	0.00	0.000%
31	5.05	-64.19	2.91	-5.05	64.19	-2.91	0.000%
32	2.91	-64.19	5.05	-2.91	64.19	-5.05	0.000%
33	0.00	-64.19	5.83	0.00	64.19	-5.83	0.000%
34	-2.91	-64.19	5.05	2.91	64.19	-5.05	0.000%
35	-5.05	-64.19	2.91	5.05	64.19	-2.91	0.000%
36	-5.83	-64.19	0.00	5.83	64.19	0.00	0.000%
37	-5.05	-64.19	-2.91	5.05	64.19	2.91	0.000%
38	-2.91	-64.19	-5.05	2.91	64.19	5.05	0.000%
39	0.00	-26.65	-4.11	0.00	26.65	4.11	0.000%
40	2.06	-26.65	-3.56	-2.06	26.65	3.56	0.000%
41	3.56	-26.65	-2.06	-3.56	26.65	2.06	0.000%
42	4.11	-26.65	0.00	-4.11	26.65	0.00	0.000%
43	3.56	-26.65	2.06	-3.56	26.65	-2.06	0.000%
44	2.06	-26.65	3.56	-2.06	26.65	-3.56	0.000%
45	0.00	-26.65	4.11	0.00	26.65	-4.11	0.000%
46	-2.06	-26.65	3.56	2.06	26.65	-3.56	0.000%
47	-3.56	-26.65	2.06	3.56	26.65	-2.06	0.000%
48	-4.11	-26.65	0.00	4.11	26.65	0.00	0.000%
49	-3.56	-26.65	-2.06	3.56	26.65	2.06	0.000%
50	-2.06	-26.65	-3.56	2.06	26.65	3.56	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00010633
3	Yes	4	0.00000001	0.00004696
4	Yes	5	0.00000001	0.00036737
5	Yes	5	0.00000001	0.00017420
6	Yes	5	0.00000001	0.00037418
7	Yes	5	0.00000001	0.00017760
8	Yes	4	0.00000001	0.00025411
9	Yes	4	0.00000001	0.00015935
10	Yes	5	0.00000001	0.00036524
11	Yes	5	0.00000001	0.00017319
12	Yes	5	0.00000001	0.00037194
13	Yes	5	0.00000001	0.00017654
14	Yes	4	0.00000001	0.00010628
15	Yes	4	0.00000001	0.00004695
16	Yes	5	0.00000001	0.00037194
17	Yes	5	0.00000001	0.00017654
18	Yes	5	0.00000001	0.00036524
19	Yes	5	0.00000001	0.00017319
20	Yes	4	0.00000001	0.00025411
21	Yes	4	0.00000001	0.00015935
22	Yes	5	0.00000001	0.00037418
23	Yes	5	0.00000001	0.00017760

24	Yes	5	0.00000001	0.00036737
25	Yes	5	0.00000001	0.00017420
26	Yes	4	0.00000001	0.00000001
27	Yes	5	0.00000001	0.00025995
28	Yes	5	0.00000001	0.00033196
29	Yes	5	0.00000001	0.00033380
30	Yes	5	0.00000001	0.00025922
31	Yes	5	0.00000001	0.00032858
32	Yes	5	0.00000001	0.00033027
33	Yes	5	0.00000001	0.00025806
34	Yes	5	0.00000001	0.00033027
35	Yes	5	0.00000001	0.00032858
36	Yes	5	0.00000001	0.00025922
37	Yes	5	0.00000001	0.00033380
38	Yes	5	0.00000001	0.00033196
39	Yes	4	0.00000001	0.00001765
40	Yes	4	0.00000001	0.00010354
41	Yes	4	0.00000001	0.00011012
42	Yes	4	0.00000001	0.00002082
43	Yes	4	0.00000001	0.00010167
44	Yes	4	0.00000001	0.00010780
45	Yes	4	0.00000001	0.00001763
46	Yes	4	0.00000001	0.00010780
47	Yes	4	0.00000001	0.00010167
48	Yes	4	0.00000001	0.00002082
49	Yes	4	0.00000001	0.00011012
50	Yes	4	0.00000001	0.00010354

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	120 - 97	9.634	39	0.6676	0.0005
L2	100.62 - 48	6.973	39	0.6308	0.0003
L3	52.96 - 0	1.915	39	0.3366	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
119.00	AM-X-CD-16-65-00T-RET w/ Mount Pipe	39	9.494	0.6664	0.0005	65106
109.00	APXVSPP18-C-A20 w/ Mount Pipe	39	8.106	0.6517	0.0004	29594
99.00	(2) LPA-80080/4CF w/ Mount Pipe	39	6.759	0.6252	0.0003	15952
88.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	39	5.364	0.5752	0.0002	11621

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	120 - 97	45.298	2	3.1394	0.0025
L2	100.62 - 48	32.787	2	2.9674	0.0013
L3	52.96 - 0	9.003	2	1.5826	0.0004

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
119.00	AM-X-CD-16-65-00T-RET w/ Mount Pipe	2	44.641	3.1337	0.0024	13940
109.00	APXVSPP18-C-A20 w/ Mount Pipe	2	38.116	3.0653	0.0018	6336
99.00	(2) LPA-80080/4CF w/ Mount Pipe	2	31.781	2.9415	0.0013	3413
88.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	2	25.220	2.7063	0.0009	2482

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	120 - 97 (1)	TP28.93x22.69x0.1875	23.00	0.00	0.0	16.5209	-7.86	1079.70	0.007
L2	97 - 48 (2)	TP39.7x27.5729x0.25	52.62	0.00	0.0	30.3965	-19.75	1957.24	0.010
L3	48 - 0 (3)	TP51.04x38.0569x0.3125	52.96	0.00	0.0	50.3153	-31.96	3154.51	0.010

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	120 - 97 (1)	TP28.93x22.69x0.1875	101.81	617.02	0.165	0.00	617.02	0.000
L2	97 - 48 (2)	TP39.7x27.5729x0.25	756.62	1543.79	0.490	0.00	1543.79	0.000
L3	48 - 0 (3)	TP51.04x38.0569x0.3125	1689.50	3296.10	0.513	0.00	3296.10	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	120 - 97 (1)	TP28.93x22.69x0.1875	7.30	539.85	0.014	0.00	1235.55	0.000
L2	97 - 48 (2)	TP39.7x27.5729x0.25	15.98	978.62	0.016	0.00	3091.35	0.000
L3	48 - 0 (3)	TP51.04x38.0569x0.3125	19.24	1577.25	0.012	0.00	6600.26	0.000

Pole Interaction Design Data

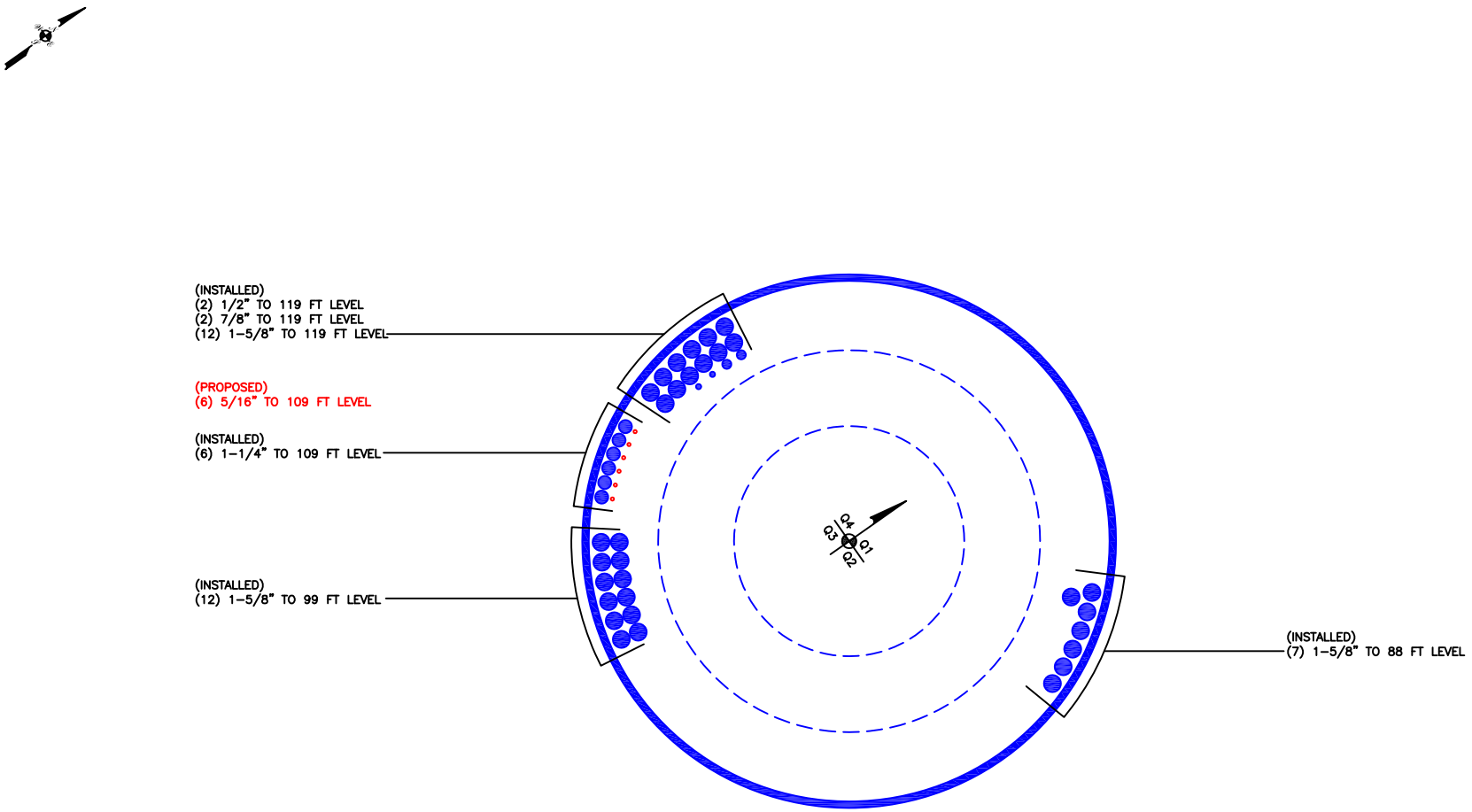
Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	120 - 97 (1)	0.007	0.165	0.000	0.014	0.000	0.172 ✔	1.000	4.8.2 ✔
L2	97 - 48 (2)	0.010	0.490	0.000	0.016	0.000	0.500 ✔	1.000	4.8.2 ✔
L3	48 - 0 (3)	0.010	0.513	0.000	0.012	0.000	0.523 ✔	1.000	4.8.2 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	120 - 97	Pole	TP28.93x22.69x0.1875	1	-7.86	1079.70	17.2	Pass
L2	97 - 48	Pole	TP39.7x27.5729x0.25	2	-19.75	1957.24	50.0	Pass
L3	48 - 0	Pole	TP51.04x38.0569x0.3125	3	-31.96	3154.51	52.3	Pass
							Summary	
						Pole (L3)	52.3	Pass
						RATING =	**52.3**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 845993 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev G Assumption: Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#: *845993*
Site Name: *BURLINGTON-NEPAUG ROAD*
App #: *373440 Rev.0*

Pole Manufacturer:	*Other*

Anchor Rod Data		
Qty:	12	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	60	in

Plate Data		
Diam:	66	in
Thick:	2.25	in
Grade:	36	ksi
Single-Rod B-eff:	13.50	in

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:		
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	51.04	in
Thick:	0.3125	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Reactions		
Mu:	1690	ft-kips
Axial, Pu:	32	kips
Shear, Vu:	19	kips
Eta Factor, ɳ	0.5	TIA G (Fig. 4-4)

If No stiffeners, Criteria:	AISC LRFD	<-Only Applcable to Unstiffened Cases

Anchor Rod Results

		Rigid
Max Rod (Cu+ Vu/ɱ):	118.5 Kips	AISC LRFD
Allowable Axial, Φ*Fu*Anet:	260.0 Kips	φ*Tn
Anchor Rod Stress Ratio:	45.6% **Pass**	

Base Plate Results

	Flexural Check	Rigid
Base Plate Stress:	19.3 ksi	AISC LRFD
Allowable Plate Stress:	32.4 ksi	φ*Fy
Base Plate Stress Ratio:	59.6% **Pass**	Y.L. Length: 31.54

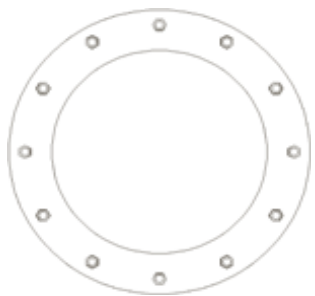
n/a

Stiffener Results

Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

Pole Punching Shear Check:	n/a



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt
** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Anchor Rods - Shear, Axial and Bending Interaction Check

TIA-222-G Section 4.9.9

Description:

Applies to detail type (d) anchors when the clear distance from the top of the concrete to the bottom leveling nut exceeds 1.0 times the diameter of the anchor rod.

Assumptions:

1. The tower is a monopole.
2. The anchor rods are evenly spaced in a circular pattern.

1. INPUTS

Tower Reactions (from tnxTower)

Base Moment:	$M := 1609kip \cdot ft$
Axial Force:	$P := 32kip$
Base Shear:	$V := 19kip$

Anchor Rods Properties

Number of Anchors:	$N := 12$
Bolt Circle Diameter:	$BC := 60in$
Yield Strength of Rods:	$F_y := 75ksi$
Ultimate Strength of Rods:	$F_{ub} := 100ksi$
Distance from Bottom Nut to Concrete:	$l_{ar} := 4.3125 \cdot in$
Rod Diameter:	2-1/4"
Per photos, are the bolts threaded at the top of the concrete?:	○ Not Threaded ◉ Threaded

[Section 4.9.6.3(a) applies]

[Section 4.9.6.3(b) applies]

Gross Area:	$A_b := \frac{1}{4} \cdot \pi \cdot d^2 = 3.98 \cdot in^2$
Net Area:	$A_n = 3.25 \cdot in^2$
Moment of Inertia of Group:	$I := \frac{1}{8} \cdot N \cdot A_n \cdot BC^2 = 17550 \cdot in^4$

2. CALCULATIONS

Shear Force per Anchor

$$V_u := \frac{V}{N} = 1.58 \cdot kip$$

Maximum Axial Force per Anchor

$$P_u := \frac{M \cdot (0.5 \cdot BC)}{I} \cdot A_n + \frac{P}{N} = 109.93 \cdot kip$$

Bending Moment (due to Shear) [TIA-222-G Section 4.9.9]

$$M_u := 0.65 \cdot l_{ar} \cdot V_u = 4.44 \cdot kip \cdot in$$

Shear Strength [TIA-222-G Section 4.9.6.3]

Thread Factor: $t_h = 0.45$

Strength: $\phi R_{nv} := 0.75 \cdot (t_h) \cdot F_{ub} \cdot A_b = 134.19 \cdot kip$

Tensile Strength [TIA-222-G Section 4.9.6.1]

$$\phi R_{nt} := 0.8 \cdot F_{ub} \cdot A_n = 260 \cdot kip$$

Flexural Strength [TIA-222-G Section 4.7.1]

Per Section 4.9.9, calculate "Z" based on the tensile root diameter of the rod:

Tensile Root Diameter: (back-calculated) $d_{tr} := \sqrt{\frac{4 \cdot A_n}{\pi}} = 2.03 \cdot in$

Plastic Modulus: $Z := \frac{1}{6} \cdot d_{tr}^{\ 3} = 1.4 \cdot in^3$

Strength: $\phi R_{nm} := 0.9 \cdot F_y \cdot Z = 94.7 \cdot kip \cdot in$

Capacity Check [TIA-222-G Section 4.9.9]

Interaction Equation: $Capacity := \left(\frac{V_u}{\phi R_{nv}}\right)^2 + \left[\left(\frac{P_u}{\phi R_{nt}}\right) + \left(\frac{M_u}{\phi R_{nm}}\right)\right]^2$

$Capacity = 22.1 \cdot \%$

$Check = "Okay"$

Monopole Pier and Pad Foundation

BU # : 845993
Site Name: BURLINGTON-NEPAUG RO
App. Number: 373440 Rev.0

TIA-222 Revision: G

Design Reactions		
Shear, **S**:	19	kips
Moment, **M**:	1690	ft-kips
Tower Height, **H**:	120	ft
Tower Weight, **Wt**:	32	kips
Base Diameter, **BD**:	4.25	ft

Foundation Dimensions		
Depth, **D**:	5	ft
Pad Width, **W**:	23.8	ft
Neglected Depth, **N**:	3.5	ft
Thickness, **T**:	3.00	ft
Pier Diameter, **Pd**:	7.00	ft
Ext. Above Grade, **E**:	0.90	ft
BP Dist. Above Pier:	6.125	in.
Clear Cover, **Cc**:	3.0	in

Soil Properties		
Soil Unit Weight, **γ**:	0.120	kcf
Ult. Bearing Capacity, Bc:	12.0	ksf
Angle of Friction, **Φ**:	30	deg
Cohesion, **Co**:	0.000	ksf
Passive Pressure, **Pp**:	0.000	ksf
Base Friction, **μ**:	0.45	

Material Properties		
Rebar Yield Strength, **Fy**:	60000	psi
Concrete Strength, **F'c**:	3000	psi
Concrete Unit Weight, **δc**:	0.150	kcf
Seismic Zone, **z**:	1	

Rebar Properties		
Pier Rebar Size, **Sp**:	8	
Pier Rebar Quanity, **mp**:	29	36
Pad Rebar Size, **Spad**:	8	
Pad Rebar Quanity, **mpad**:	29	12
Pier Tie Size, **St**:	3	3
Tie Quanity, **mt**:	5	5

Design Checks	Capacity/ Availability	Demand/ Limits	Check
Req'd Pier Diam.(ft)	7	5.75	**OK**
Overturning (ft-kips)	4244.05	1690.00	**39.8%**
Shear Capacity (kips)	149.84	19.00	**12.7%**
Bearing (ksf)	9.00	1.44	**16.0%**
Pad Shear - 1-way (kips)	762.59	188.86	**24.8%**
Pad Shear - 2-way (kips)	1954.52	66.06	**3.4%**
Pad Moment Capacity (k-ft)	3253.29	562.54	**17.3%**
Pier Moment Capacity (k-ft)	3801.53	1745.10	**45.9%**

Maximum Allowable Moment of a Circular Pier

Axial Load (Negative for Compression) = -32.00 kips

Pier Properties

Concrete:

Pier Diameter = 7.0 ft

Concrete Area = 5541.8 in^2

Reinforcement:

Clear Cover = 3.00 in

Cage Diameter = 6.42 ft

Bar Size = 8

Bar Diameter = 1.00 in

Bar Area = 0.79 in^2

Number of Bars = 29

Material Properties

Concrete compressive strength = 3000 psi

Reinforcement yield strength = 60000 psi

Modulus of elasticity = 29000 ksi

Reinforcement yield strain = 0.00207

Limiting compressive strain = 0.003

Seismic Properties

Seismic Zone = 1

Minimum Area of Steel

Required area of steel = 27.71 in^2

Provided area of steel = 27.71 in^2 **OK**

Axial Loading

Load factor = 1

Reduction factor = 0.9

Factored axial load = -35.5556 kips

Neutral Axis

Distance from extreme edge to neutral axis =	11.23	in
Equivalent compression zone factor =	0.85	
Distance from extreme edge to equivalent compression zone factor =	9.55	in
Distance from centroid to neutral axis =	30.77	in

Compression Zone

Area of steel in compression zone =	3.95	in^2
Angle from centroid of pier to intersection of equivalent compression zone and edge of pier =	39.40	deg
Area of concrete in compression =	347.94	in^2
Force in concrete = 0.85 * f`c * Acc =	887.24	kips
Total reinforcement forces =	-851.68	kips
Factored axial load =	-35.56	kips
Force in concrete =	-887.24	kips
Sum of the forces in concrete =	0.00	kips **OK**

Maximum Moment

First moment of the concrete area in compression about the centoid =	12634.09	in^3
Distance between centroid of concrete in compression and centroid of pier =	36.31	in
Moment of concrete in compression =	32216.92	in-kips
Total reinforcement moment =	18470.11	in-kips
Nominal moment strength of column =	50687.02	in-kips
Factored moment strength of column =	45618.32	in-kips

Maximum Allowable Moment = **3801.53** **ft-kips**

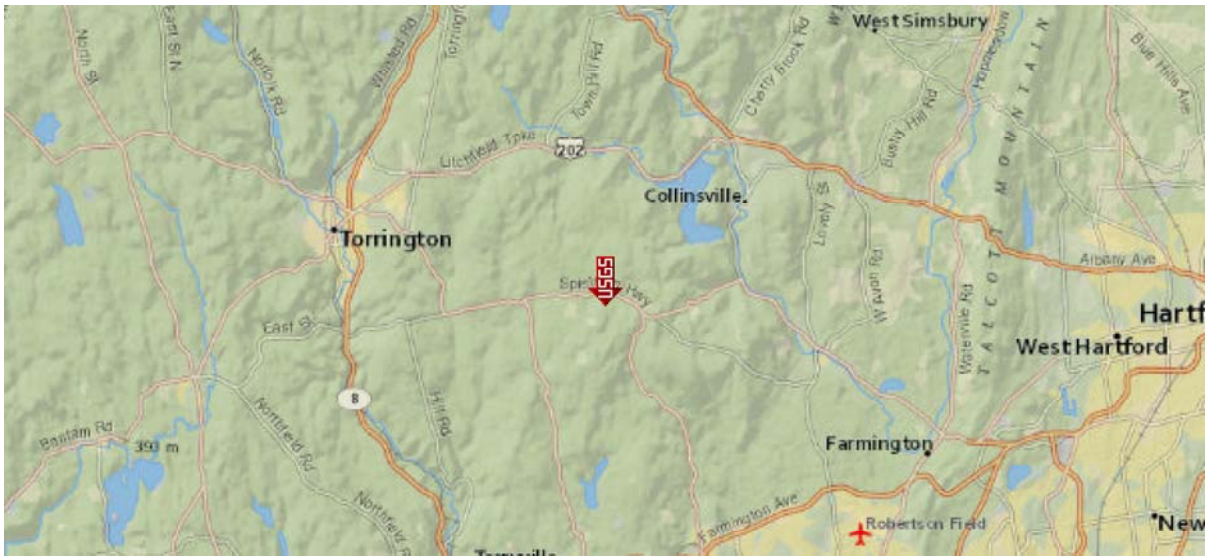
Individual Bars

Bar #	Angle from first bar (deg)	Distance to centroid (in)	Distance to neutral axis (in)	Distance to equivalent comp. zone (in)	Strain	Area of steel in compression (in^2)	Stress (ksi)	Axial force (kips)
1	0.00	0.00	-30.77	-32.45	-0.008218	0.00	-60.00	-47.40
2	12.41	8.28	-22.49	-24.18	-0.0060074	0.00	-60.00	-47.40
3	24.83	16.17	-14.60	-16.29	-0.0039002	0.00	-60.00	-47.40
4	37.24	23.30	-7.47	-9.15	-0.0019949	0.00	-57.85	-45.70
5	49.66	29.34	-1.42	-3.11	-0.0003805	0.00	-11.04	-8.72
6	62.07	34.02	3.25	1.56	0.0008673	0.79	25.15	17.86
7	74.48	37.10	6.33	4.64	0.0016903	0.79	49.02	36.71
8	86.90	38.44	7.68	5.99	0.0020501	0.79	59.45	44.95
9	99.31	37.99	7.22	5.54	0.0019297	0.79	55.96	42.20
10	111.72	35.77	5.00	3.31	0.0013348	0.79	38.71	28.57
11	124.14	31.87	1.10	-0.59	0.0002933	0.00	8.50	6.72
12	136.55	26.48	-4.29	-5.98	-0.0011463	0.00	-33.24	-26.26
13	148.97	19.85	-10.92	-12.60	-0.0029165	0.00	-60.00	-47.40
14	161.38	12.29	-18.47	-20.16	-0.0049345	0.00	-60.00	-47.40
15	173.79	4.16	-26.61	-28.29	-0.0071062	0.00	-60.00	-47.40
16	186.21	-4.16	-34.93	-36.62	-0.0093298	0.00	-60.00	-47.40
17	198.62	-12.29	-43.06	-44.75	-0.0115014	0.00	-60.00	-47.40
18	211.03	-19.85	-50.62	-52.30	-0.0135195	0.00	-60.00	-47.40
19	223.45	-26.48	-57.24	-58.93	-0.0152897	0.00	-60.00	-47.40
20	235.86	-31.87	-62.63	-64.32	-0.0167292	0.00	-60.00	-47.40
21	248.28	-35.77	-66.53	-68.22	-0.0177707	0.00	-60.00	-47.40
22	260.69	-37.99	-68.76	-70.45	-0.0183656	0.00	-60.00	-47.40
23	273.10	-38.44	-69.21	-70.90	-0.018486	0.00	-60.00	-47.40
24	285.52	-37.10	-67.86	-69.55	-0.0181263	0.00	-60.00	-47.40
25	297.93	-34.02	-64.78	-66.47	-0.0173032	0.00	-60.00	-47.40
26	310.34	-29.34	-60.11	-61.80	-0.0160554	0.00	-60.00	-47.40
27	322.76	-23.30	-54.07	-55.75	-0.014441	0.00	-60.00	-47.40
28	335.17	-16.17	-46.93	-48.62	-0.0125357	0.00	-60.00	-47.40
29	347.59	-8.28	-39.04	-40.73	-0.0104285	0.00	-60.00	-47.40

USGS Design Maps Summary Report

User–Specified Input

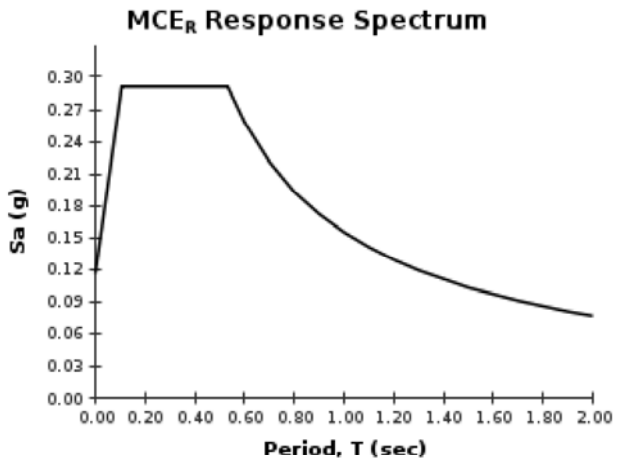
Building Code Reference Document	2012/2015 International Building Code (which utilizes USGS hazard data available in 2008)
Site Coordinates	41.7825°N, 72.9896°W
Site Soil Classification	Site Class D – "Stiff Soil"
Risk Category	I/II/III

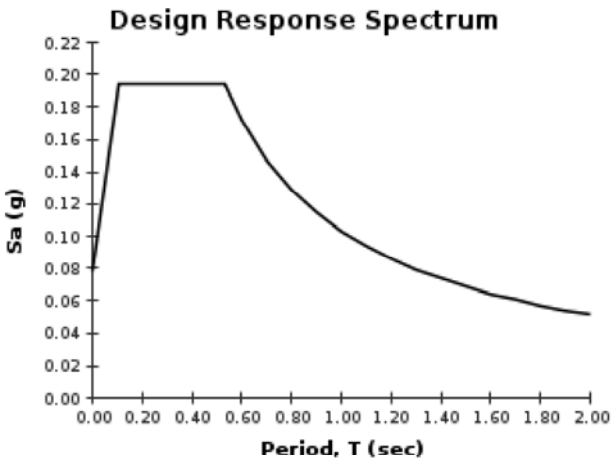


USGS–Provided Output

S_S =	0.182 g	S_{MS} =	0.291 g	S_{DS} =	0.194 g
S_1 =	0.064 g	S_{M1} =	0.155 g	S_{D1} =	0.103 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.





CCISeismic - Design Category

Per *2012/2015 IBC*

Site BU:	845993
Work Order:	1357999
Application:	373440 Rev. 0

	Degrees	Minutes	Seconds		
Site Latitude =	41	46	56.86	41.7825	degrees
Site Longitude =	-72	59	22.68	-72.9896	degrees
Ground Supported Structure =	Yes				
Structure Class =	II				*(Table 2-1)*
Site Class =	D - Stiff Soil				*(Table 2-11)*

Spectral response acceleration short periods, S_S =	0.182	USGS Seismic Tool
Spectral response acceleration 1 s period, S_1 =	0.064	

Importance Factor, I =	1.0	*(Table 2-3)*
Acceleration-based site coefficient, F_a =	1.6	*(Table 2-12)*
Velocity-based site coefficient, F_v =	2.4	*(Table 2-13)*

Design spectral response acceleration short period, S_{DS} =	0.194	*(2.7.6)*
Design spectral response acceleration 1 s period, S_{D1} =	0.102	*(2.7.6)*

Seismic Design Category - Short Period Response =	B	*ASCE 7-05 Table 11.6-1*
Seismic Design Category - 1s Period Response =	B	*ASCE 7-05 Table 11.6-2*

Worst Case Seismic Design Category =	B	*ASCE 7-05 Tables 11.6-1 and 6-2*

TOWN OF BURLINGTON
CONNECTICUT
GIS & Real Property Information
200 Spielman Highway
Burlington, CT 06013
ph 860.673.6789

Property Search

Name: ex. Smith

House No:
12

Street:
NEPAUG RD

Parcel Id: ex. 12-06-16

GO

Information Updates

GIS Parcel Maps Updated
July 2016

Property Info Data Updated
Nightly

Current Parcel Count
3,833 +/-

5-11-17-A

Owner
WEAVER AUDREY S TR
AND HERBERT F EST OF

Location
12 NEPAUG RD

MAILING ADDRESS
35 BEAR RUN
WOODBURY CT 06798

Quick Links: **Quick Map** **Summary Card** **Assessor Tax Map** **FEMA Firm Panel**

Scroll Down For Complete Property Detail

PARCEL VALUATIONS

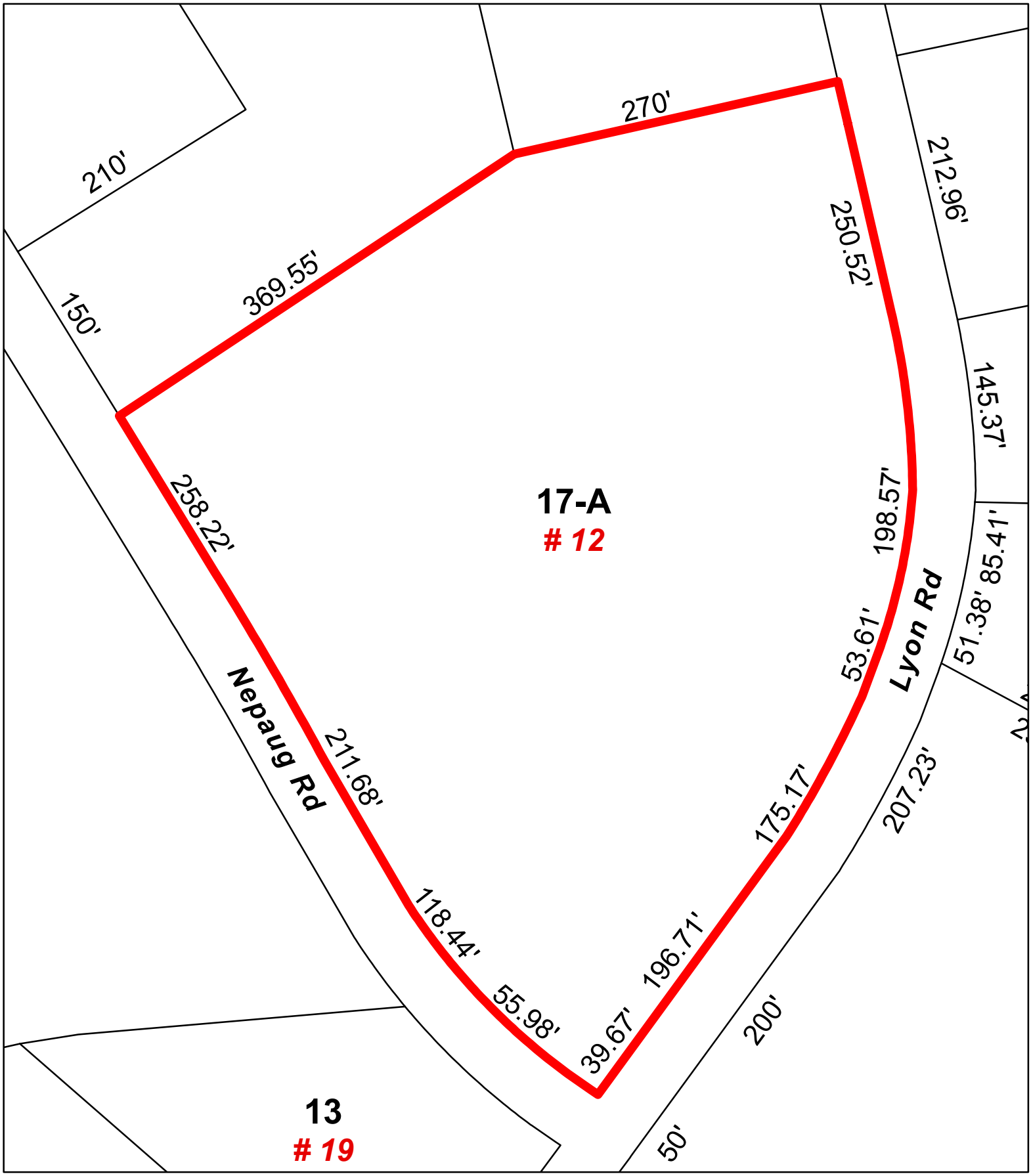
	Appraised Value	Assessed Value
Buildings	0	0
Land	269100	188370
TOTAL:	269100	188370

PROPERTY INFORMATION

Town of Burlington, Connecticut. Assessment Parcel Map

Map-Block-Lot **5-11-17-A**

Address: **12 NEPAUG RD**



1 inch = 100 feet

0 50 100 150 200 Feet

N W E S

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

Map Produced: July 2016

Sprint

PROJECT:	DO ESS GROUND MOUNT OPTION 2
SITE NAME:	BURLINGTON
SITE CASCADE:	CT54XC708
SITE ADDRESS:	12 NEPAUG ROAD BURLINGTON, CT 06013
SITE TYPE:	MONOPOLE TOWER
MARKET:	NORTHERN CONNECTICUT

SITE INFORMATION

TOWER OWNER:
CROWN ATLANTIC COMPANY LLC.
2000 CORPORATE DRIVE
CANONSBURG, PA 15317
(704) 405-6555

LATITUDE (NAD83):
41° 45' 56.844" N
41.76579000°

LONGITUDE (NAD83):
72° 59' 22.668" W
-72.98963000°

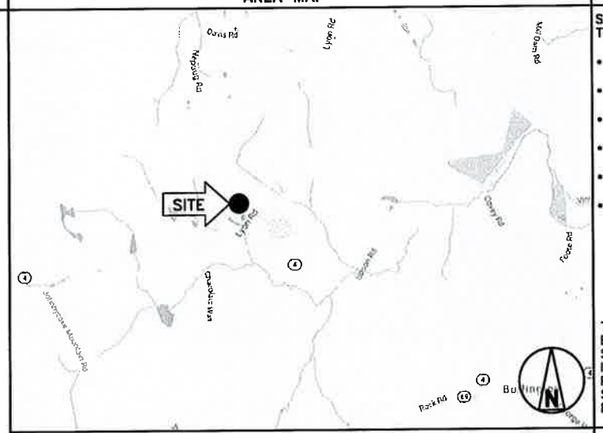
COUNTY:
HARTFORD

ZONING JURISDICTION:
CONNECTICUT SITING COUNCIL

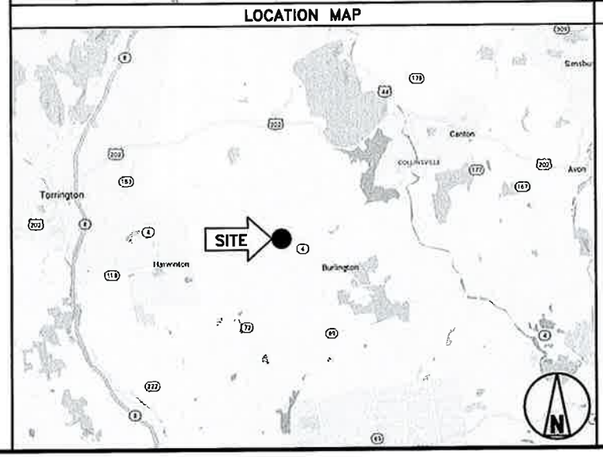
ZONING DISTRICT:
N/A

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

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- REMOVE (6) PANEL ANTENNAS
- INSTALL (3) PANEL ANTENNAS
- INSTALL (3) DIPLEXERS TO TOWER TOP
- INSTALL (3) DIPLEXERS TO EXISTING H-FRAME
- INSTALL (3) RRH'S TO EXISTING H-FRAME
- INSTALL (6) RET CABLES

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-F 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. 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	OVERALL SITE PLAN	0
A-2	SITE PLAN	0
A-3	TOWER ELEVATION & ANTENNA LAYOUT	0
A-4	ANTENNA LOADING AND COLOR CODING CHART	0
A-5	EQUIPMENT & MOUNTING DETAILS	0
A-6	SCENARIO 354 V2.5 SPECIFICATIONS	0
A-7	SCENARIO 354 V2.5 SPECIFICATIONS	0
E-1	ELECTRICAL & GROUNDING PLAN	0

PLANS PREPARED FOR:
Sprint

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JOB NUMBER 514-000

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

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/02/17	JLM	0
ISSUED FOR REVIEW	1/30/17	JLM	A

SITE NAME:
BURLINGTON

SITE NUMBER:
CT54XC708

SITE ADDRESS:
12 NEPAUG ROAD
BURLINGTON, CT 06013

SHEET DESCRIPTION:
TITLE SHEET
& PROJECT DATA

SHEET NUMBER:
T-1

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

SECTION 01 100 – SCOPE OF WORK

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

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

1.4 NATIONALLY RECOGNIZED CODES AND STANDARDS:

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

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

1.5 DEFINITIONS:

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

B. COMPANY: SPRINT CORPORATION

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

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

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

F. OFCI: OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1.15 USE OF ELECTRONIC PROJECT MANAGEMENT SYSTEMS:

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

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

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

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

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

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

SECTION 01 200 – COMPANY FURNISHED MATERIAL AND EQUIPMENT

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 RECEIPT OF MATERIAL AND EQUIPMENT:

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

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

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

3.2 DELIVERABLES:

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

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

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

SECTION 01 300 – CELL SITE CONSTRUCTION CO.

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

1.3 NOTICE TO PROCEED

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

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 FUNCTIONAL REQUIREMENTS:

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

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

C. MANAGE AND CONDUCT ALL FIELD CONSTRUCTION SERVICE RELATED ACTIVITIES

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

PLANS PREPARED FOR:

Sprint

PLANS PREPARED BY:

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
1033 Watervliet Shaker Rd | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com
JOB NUMBER 514-000

PROJECT MANAGER:

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

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24795
LICENSED PROFESSIONAL ENGINEER

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/02/17	JJM	0
ISSUED FOR REVIEW	1/30/17	JJM	A

SITE NAME:

BURLINGTON

SITE NUMBER:

CT54XC708

SITE ADDRESS:

12 NEPAUG ROAD
BURLINGTON, CT 06013

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-1

CONTINUE FROM SP-1

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

3.2 GENERAL REQUIREMENTS FOR CIVIL CONSTRUCTION:

A. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.

B. EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.

C. CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.

1. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
2. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD.

D. CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION

E. CONDUCT TESTING AS REQUIRED HEREIN.

3.3 DELIVERABLES:

A. CONTRACTOR SHALL REVIEW, APPROVE, AND SUBMIT TO SPRINT SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND SIMILAR SUBMITTALS AS REQUIRED HEREINAFTER

B. PROVIDE DOCUMENTATION INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING. DOCUMENTATION SHALL BE FORWARDED IN ORIGINAL FORMAT AND/OR UPLOADED INTO SMS.

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

SECTION 01 400 – SUBMITTALS & TESTS

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

1.3 SUBMITTALS:

A. THE WORK IN ALL ASPECTS SHALL COMPLY WITH THE CONSTRUCTION DRAWINGS AND THESE SPECIFICATIONS.

B. SUBMIT THE FOLLOWING TO COMPANY REPRESENTATIVE FOR APPROVAL.

1. CONCRETE MIX-DESIGNS FOR TOWER FOUNDATIONS, ANCHORS PIERS, AND CONCRETE PAVING.
2. CONCRETE BREAK TESTS AS SPECIFIED HEREIN.
3. SPECIAL FINISHES FOR INTERIOR SPACES, IF ANY.
4. ALL EQUIPMENT AND MATERIALS SO IDENTIFIED ON THE CONSTRUCTION DRAWINGS.
5. CHEMICAL GROUNDING DESIGN

D. ALTERNATES: AT THE COMPANY'S REQUEST, ANY ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINT'S CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO BEING SHIPPED TO SITE. SPRINT WILL REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED. SUBMITTAL FOR APPROVAL SHALL INCLUDE A STATEMENT OF COST REDUCTION PROPOSED FOR USE OF ALTERNATE PRODUCT.

1.4 TESTS AND INSPECTIONS:

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.

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

1. COAX SWEEPS AND FIBER TESTS PER TS-0200 REV 4 ANTENNA LINE ACCEPTANCE STANDARDS.
2. AGL, AZIMUTH AND DOWNTILT USING ELECTRONIC COMMERCIAL MADE-FOR-THE-PURPOSE ANTENNA ALIGNMENT TOOL.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.

C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING;

1. AZIMUTH, DOWNTILT, AGL – UPLOAD REPORT FROM ANTENNA ALIGNMENT TOOL TO SITERRA TASK 465. INSTALLED AZIMUTH, DOWNTILT, AND AGL MUST CONFORM TO THE RF DATA SHEETS. SWEEP AND FIBER TESTS
2. SCANABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
3. ALL AVAILABLE JURISDICTIONAL INFORMATION
4. PDF SCAN OF REDLINES PRODUCED IN FIELD
5. ELECTRONIC AS-BUILT DRAWINGS IN AUTOCAD AND PDF FORMATS. ANY FIELD CHANGE MUST BE REFLECTED BY MODIFYING THE PLANS, ELEVATIONS, AND DETAILS IN THE DRAWING SETS. GENERAL NOTES INDICATING MODIFICATIONS WILL NOT BE ACCEPTED. CHANGES SHALL BE HIGHLIGHTED AS "CLOUDS" IDENTIFIED AS THE "AS-BUILT" CONDITION.
6. LIEN WAIVERS
7. FINAL PAYMENT APPLICATION
8. REQUIRED FINAL CONSTRUCTION PHOTOS
9. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
10. ALL POST NTP TASKS INCLUDING DOCUMENT UPLOADS COMPLETED IN SITERRA (SPRINTS DOCUMENT REPOSITORY OF RECORD).

1.5 COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPs

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 REQUIREMENTS FOR TESTING:

A. THIRD PARTY TESTING AGENCY:

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

3.2 REQUIRED TESTS:

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

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

3.3 REQUIRED INSPECTIONS

A. SCHEDULE INSPECTIONS WITH COMPANY REPRESENTATIVE.

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

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

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JOB NUMBER 514-000

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AIROSMITH DEVELOPMENT
32 CLINTON ST.
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OFFICE#: (516) 306-3740

ENGINEERING LICENSE:

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

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR PERMIT	02/02/17	JJM	0
ISSUED FOR REVIEW	1/30/17	JJM	A

SITE NAME:
BURLINGTON

SITE NUMBER:
CT54XC708

SITE ADDRESS:
12 NEPAUG ROAD
BURLINGTON, CT 06013

SHEET DESCRIPTION:
SPRINT SPECIFICATIONS

SHEET NUMBER:
SP-2

CONTINUE FROM SP-2

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

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

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

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

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

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

B. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES THE FOLLOWING;

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

SECTION 01 400 – SUBMITTALS & TESTS

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 WEEKLY REPORTS:

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

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

3.2 PROJECT CONFERENCE CALLS:

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

3.3 PROJECT TRACKING IN SMS:

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

3.4 ADDITIONAL REPORTING:

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

3.5 PROJECT PHOTOGRAPHS:

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

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

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

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ENGINEERING LICENSE:

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No. 24705
LICENSED PROFESSIONAL ENGINEER

REVISIONS:

DESCRIPTION	DATE	BY	REV.
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ISSUED FOR REVIEW	1/30/17	JLM	A

SITE NAME:
BURLINGTON

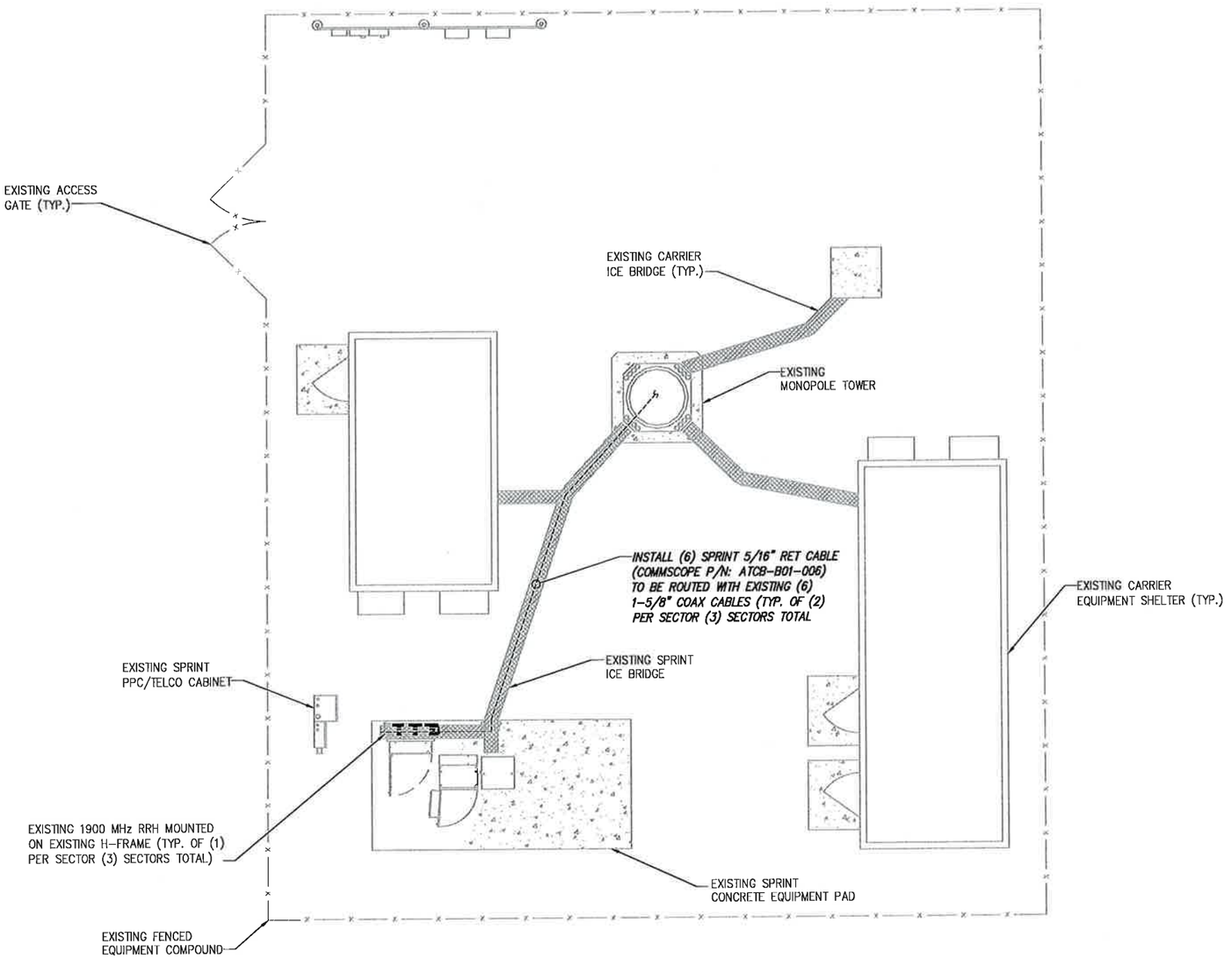
SITE NUMBER:
CT54XC708

SITE ADDRESS:
12 NEPAUG ROAD
BURLINGTON, CT 06013

SHEET DESCRIPTION:
SPRINT SPECIFICATIONS

SHEET NUMBER:
SP-3

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



N

GRAPHIC SCALE:

10' 5' 0 5' 10'

SCALE (11x17): 1" = 10'-0"
SCALE (22x34): 1" = 5'-0"

OVERALL SITE PLAN

SCALE: AS NOTED | 1

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CT54XC708

SITE ADDRESS:

12 NEPAUG ROAD
BURLINGTON, CT 06013

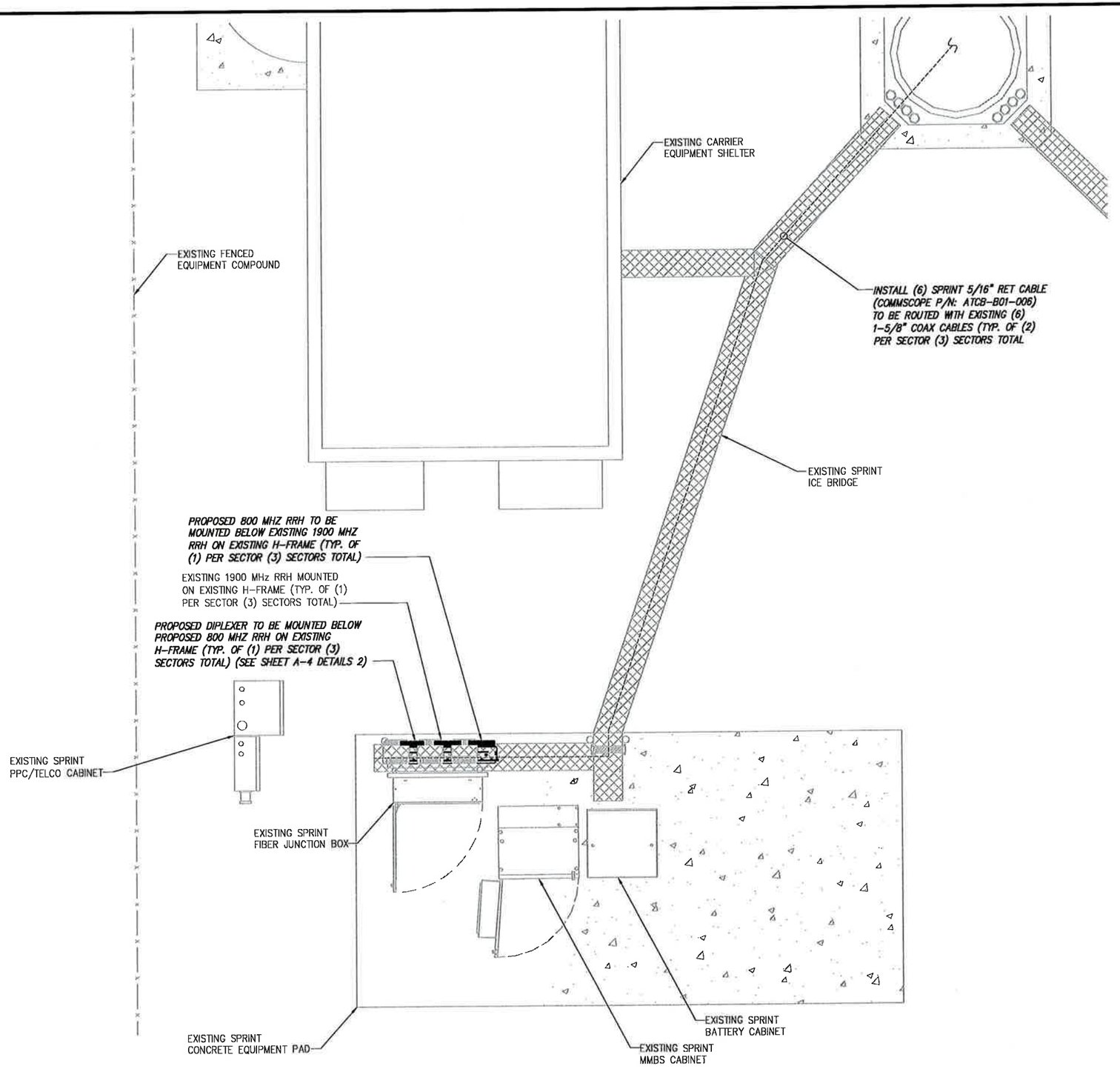
SHEET DESCRIPTION:

OVERALL SITE PLAN

SHEET NUMBER:

A-1

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



SPRINT SITE PLAN

SCALE: AS NOTED | 1

N

GRAPHIC SCALE:

4' 2' 0 2' 4'

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

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12 NEPAUG ROAD
BURLINGTON, CT 06013

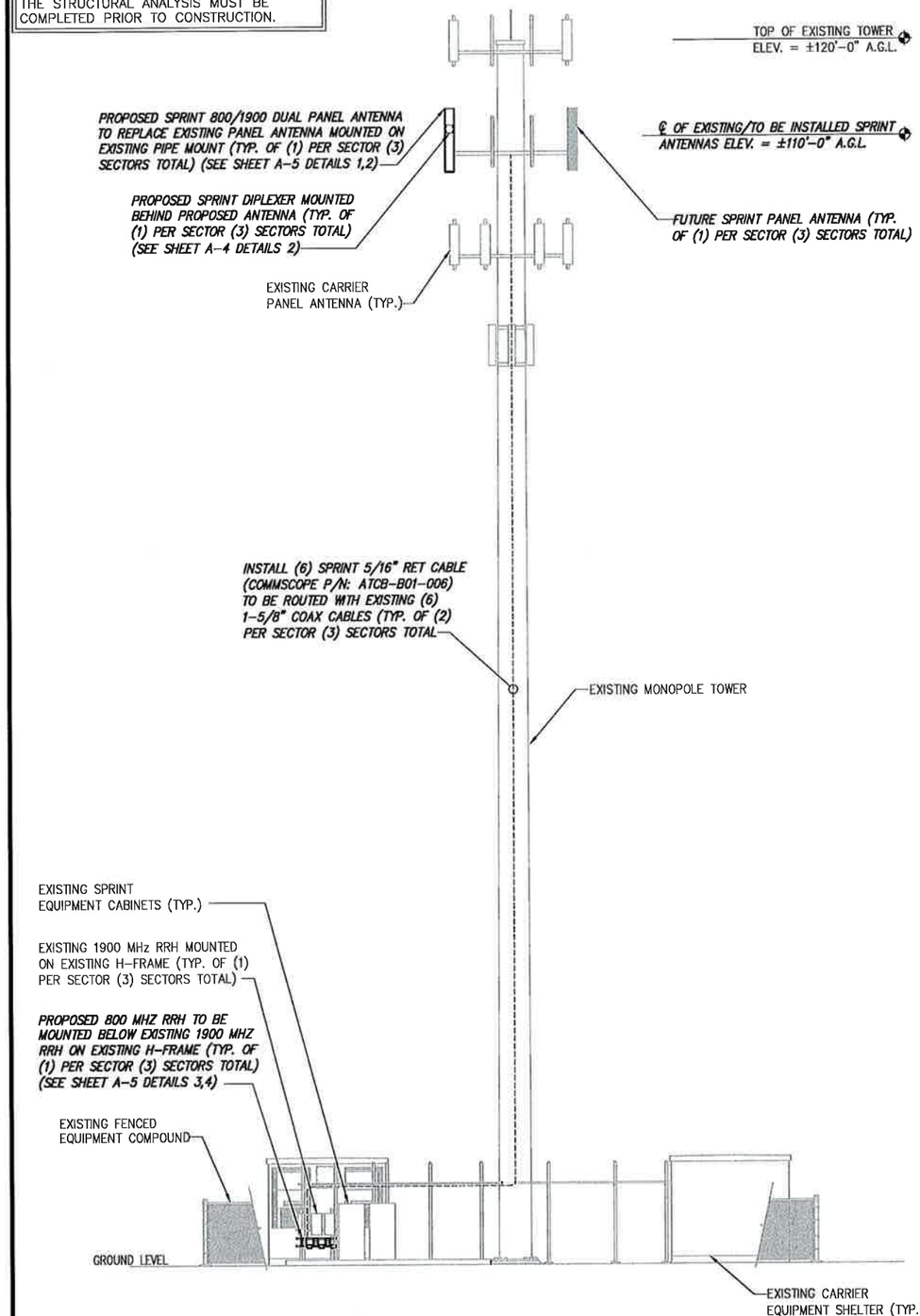
SHEET DESCRIPTION:

SITE PLAN

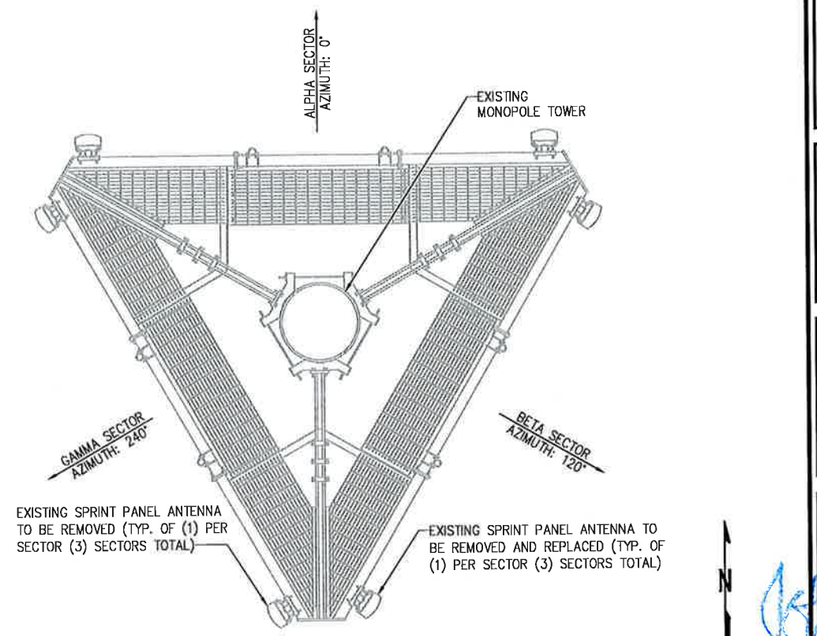
SHEET NUMBER:

A-2

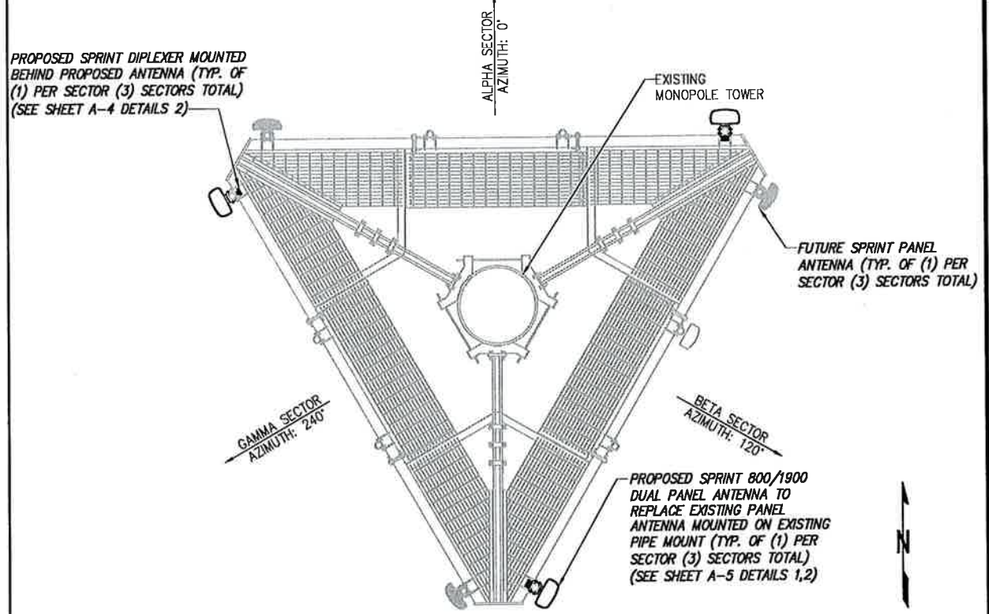
STRUCTURAL ANALYSIS NOT COMPLETED AT TIME OF ISSUANCE OF THESE DRAWINGS. THE STRUCTURAL ANALYSIS MUST BE COMPLETED PRIOR TO CONSTRUCTION.



TOWER ELEVATION | NO SCALE | 1



EXISTING ANTENNA LAYOUT | NO SCALE | 2



PROPOSED ANTENNA LAYOUT | NO SCALE | 3

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CT54XC708

SITE ADDRESS:

12 NEPAUG ROAD
BURLINGTON, CT 06013

SHEET DESCRIPTION:

TOWER ELEVATION & ANTENNA LAYOUT

SHEET NUMBER:

A-3

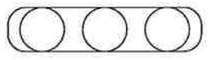
EXISTING AND PROPOSED ANTENNA AND RRH MODEL NUMBERS

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	ANTENNA ℄ HEIGHT	AZIMUTH	RRH	JUNCTION CYLINDERS	CABLE	CABLE LENGTH
ALPHA	FUTURE	---	---	---	---	---	---	---	---
	PROPOSED	*800MHZ / 1900MHZ*	*RFS/CELWAVE APXVSPP18-C-A20*	*110'-0"*	*0°*	*(P) GROUND MOUNTED 800 MHZ RRH* (E) GROUND MOUNTED 1900 MHZ RRH	---	*(2) (P) RET CABLES* (2) (E) 1-5/8" COAX	*±150'* EXISTING
BETA	FUTURE	---	---	---	---	---	---	---	---
	PROPOSED	*800MHZ / 1900MHZ*	*RFS/CELWAVE APXVSPP18-C-A20*	*110'-0"*	*120°*	*(P) GROUND MOUNTED 800 MHZ RRH* (E) GROUND MOUNTED 1900 MHZ RRH	---	*(2) (P) RET CABLES* (2) (E) 1-5/8" COAX	*±150'* EXISTING
GAMMA	FUTURE	---	---	---	---	---	---	---	---
	PROPOSED	*800MHZ / 1900MHZ*	*RFS/CELWAVE APXVSPP18-C-A20*	*110'-0"*	*240°*	*(P) GROUND MOUNTED 800 MHZ RRH* (E) GROUND MOUNTED 1900 MHZ RRH	---	*(2) (P) RET CABLES* (2) (E) 1-5/8" COAX	*±150'* EXISTING

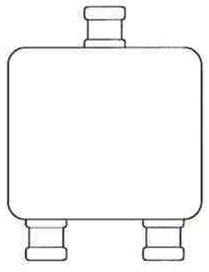
ANTENNA LOADING CHART — NO SCALE — 1

DIPLEXER: RFS/CELWAVE FD9R6004/1C-3L

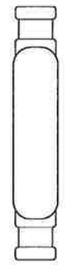
HOUSING: ALUMINUM
DIMENSIONS, HxWxD.in(mim): 5.8"x6.5"x1.5" (147x164x37mm)
WEIGHT, kg (lb) 1.2 (2.6 lb)
CONNECTORS: in-line long-neck 7-16-female



TOP VIEW



FRONT VIEW

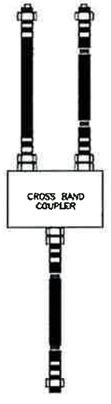


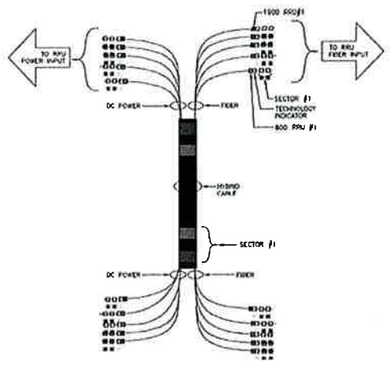
SIDE VIEW

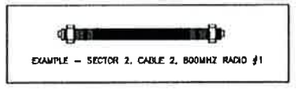
DIPLEXER DETAIL — NO SCALE — 2

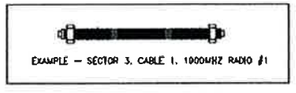
SECTOR	CABLE	FIRST RING	SECOND RING	THIRD RING
1 ALPHA	1	GREEN	NO TAPE	NO TAPE
1	2	BLUE	NO TAPE	NO TAPE
1	3	BROWN	NO TAPE	NO TAPE
1	4	WHITE	NO TAPE	NO TAPE
1	5		NO TAPE	NO TAPE
1	6	SLATE	NO TAPE	NO TAPE
1	7	PURPLE	NO TAPE	NO TAPE
1	8	ORANGE	NO TAPE	NO TAPE
2 BETA	1	GREEN	GREEN	NO TAPE
2	2	BLUE	BLUE	NO TAPE
2	3	BROWN	BROWN	NO TAPE
2	4			NO TAPE
2	5			NO TAPE
2	6	SLATE	SLATE	NO TAPE
2	7	PURPLE	PURPLE	NO TAPE
2	8	ORANGE	ORANGE	NO TAPE
3 GAMMA	1	GREEN	GREEN	GREEN
3	2	BLUE	BLUE	BLUE
3	3	BROWN	BROWN	BROWN
3	4			
3	5			
3	6	SLATE	SLATE	SLATE
3	7	PURPLE	PURPLE	PURPLE
3	8	ORANGE	ORANGE	ORANGE

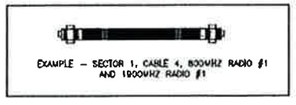
FREQUENCY COLOR CODE		
FREQUENCY	INDICATOR	ID
800#1	YELLOW	
1900#1	YELLOW	RED
1900#2	YELLOW	
RESERVED	YELLOW	
RESERVED	YELLOW	
RESERVED	YELLOW	
RESERVED	YELLOW	WHITE
1600#1	YELLOW	











COLOR CODING CHARTS — NO SCALE — 3

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No. 24705
LICENSED PROFESSIONAL ENGINEER

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BURLINGTON

SITE NUMBER:
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SITE ADDRESS:
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BURLINGTON, CT 06013

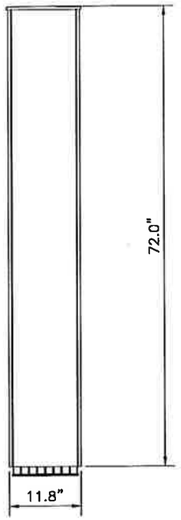
SHEET DESCRIPTION:
ANTENNA LOADING & COLOR CODING CHARTS

SHEET NUMBER:
A-4

ANTENNA: RFS/CELWAVE APXVSPP18-C-A20

RADOME MATERIAL:	ASA
RADOME COLOR:	LIGHT GRAY
DIMENSIONS, HxWxD.in(mim):	72.0"x11.8"x7" (1829x302x178mm)
WEIGHT:	25.8 lbs
CONNECTORS:	(6) 7/16" DIN FEMALE/BOTTOM

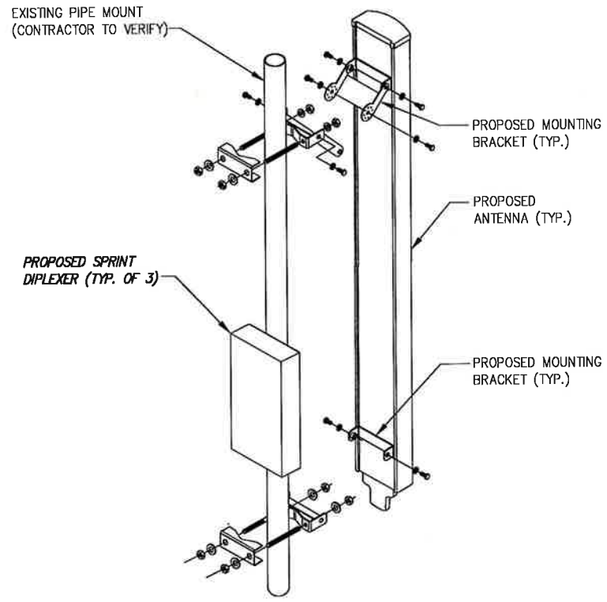
BOTTOM VIEW



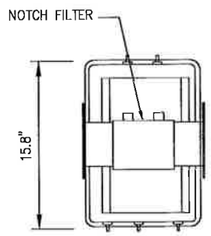
FRONT VIEW

SIDE VIEW

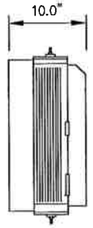
PANEL ANTENNA DETAIL | NO SCALE | 1



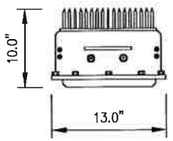
PANEL ANTENNA MOUNTING DETAIL | NO SCALE | 2



FRONT VIEW



SIDE VIEW

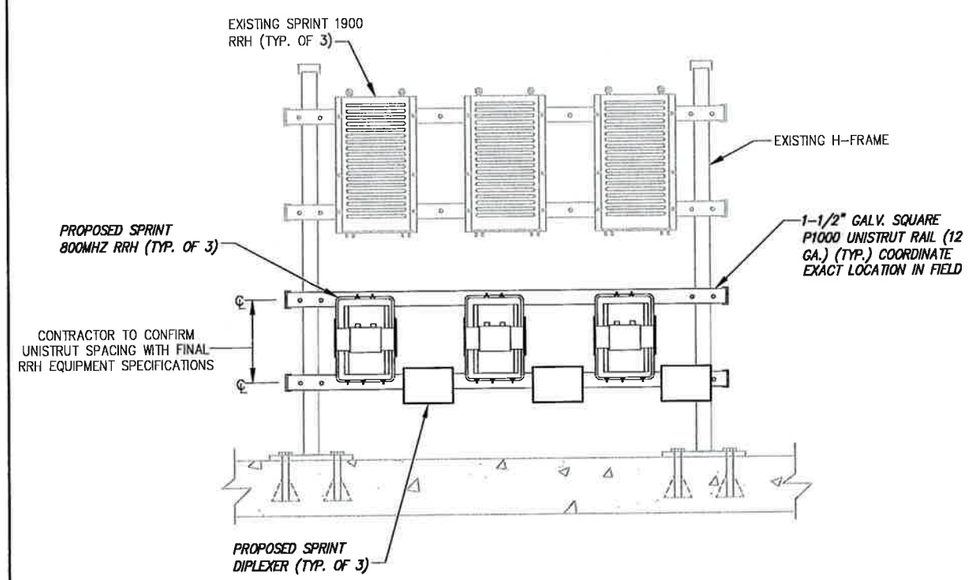


TOP VIEW

800 MHz RRH
(ALU)
WEIGHT = 53 LBS.

NOTE:
REFER TO R.F. SYSTEM SCHEDULE FOR EXACT RRH SPECIFICATIONS AND QUANTITIES.

RRH DETAIL | NO SCALE | 3



RRH MOUNTING DETAILS | NO SCALE | 4

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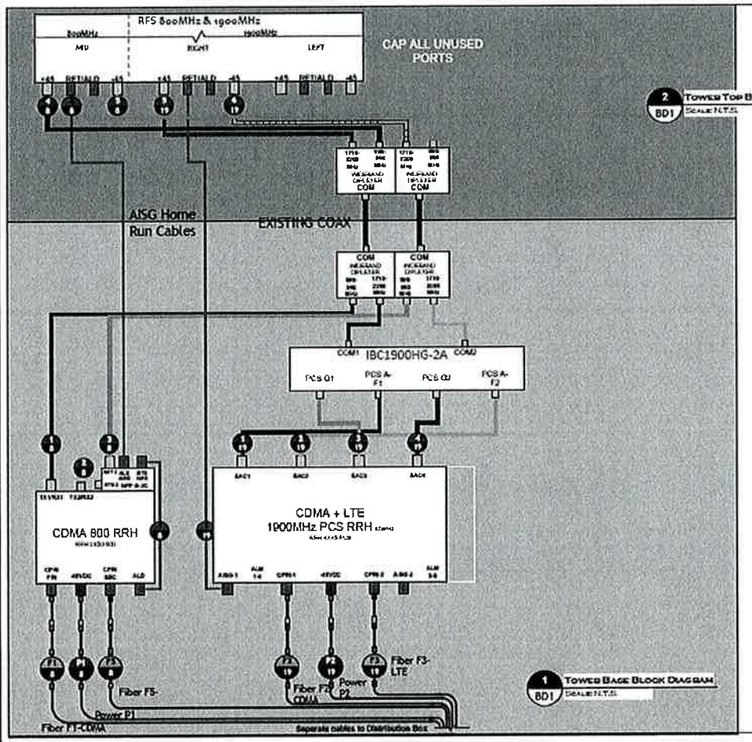
SHEET DESCRIPTION:
EQUIPMENT
& MOUNTING DETAILS

SHEET NUMBER:
A-5



2 BD1 Tower Top Block Diagram
Scale: N.T.S.

1 BD1 Tower Base Block Diagram
Scale: N.T.S.

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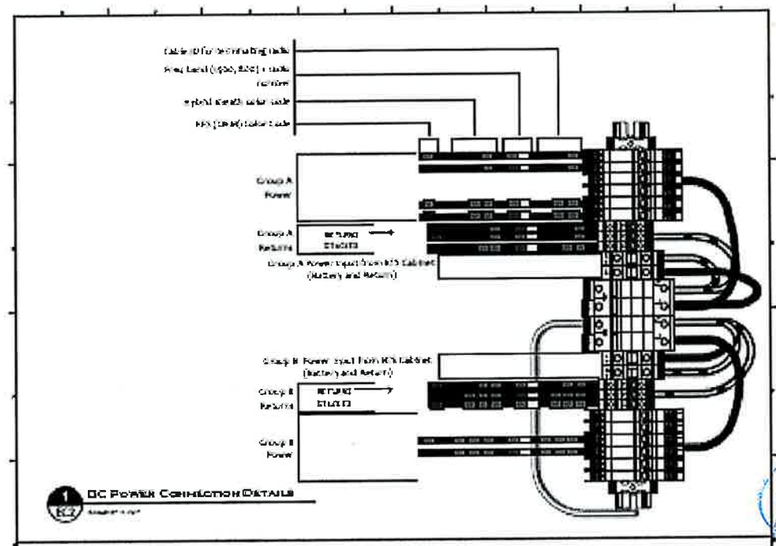
3 BD1 Diagram Legend
Scale: N.T.S.

Back to Title Sheet

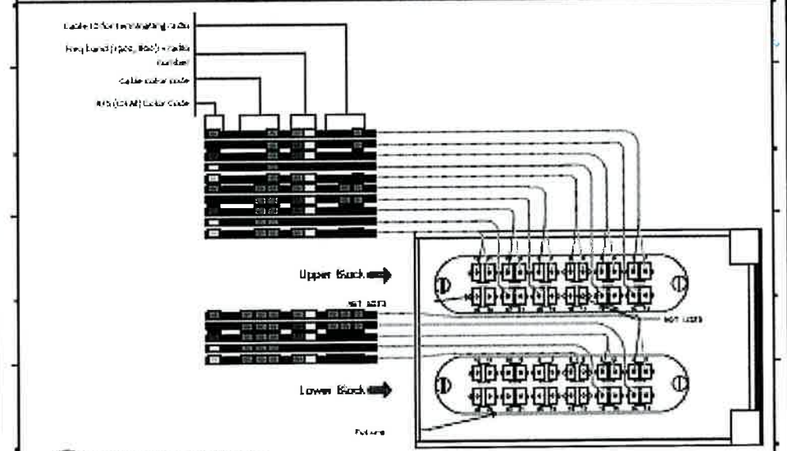
SCENARIO 354_V2.5.vsd

SHEET DESCRIPTION
GROUND MOUNTED BLOCK DIAGRAM

SHEET NUMBER
BD1



1 K2 DC Power Connection Details



2 K2 Fiber Connection Details

SHEET NUMBER
K2

SHEET DESCRIPTION
DISTRIBUTION BOX CONNECTION DETAILS FOR GROUND MOUNTED RRH

SCENARIO 354_V2.5.VSD

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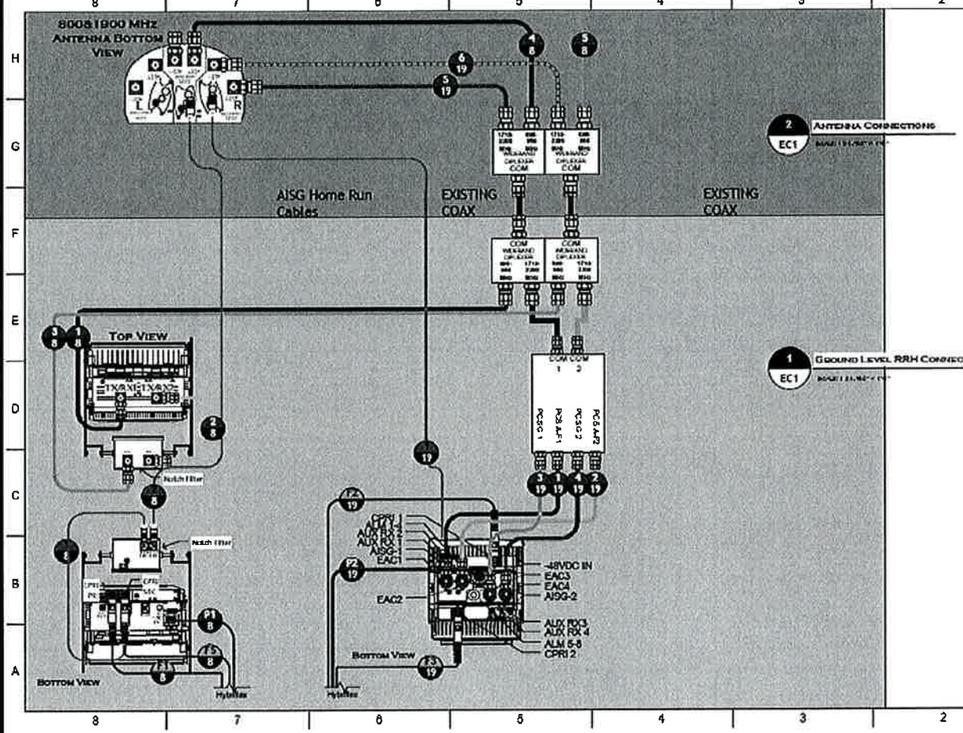
SHEET DESCRIPTION:
SCENARIO 354 V2.5 SPECIFICATIONS

SHEET NUMBER:
A-6



2 EC1 Antenna Connections

1 EC1 Ground Level RRH Connections

3 EC1 Diagram Legend

Back to Title Sheet

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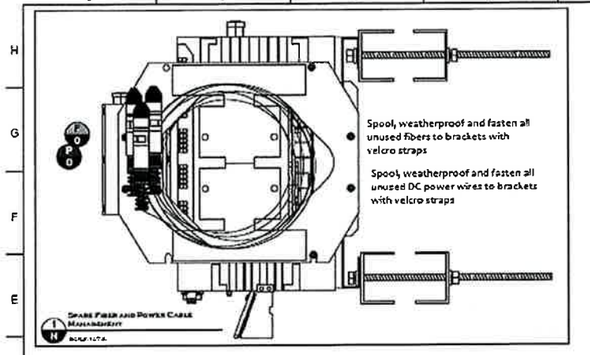
SCENARIO
354_V2.5.vco

SHEET DESCRIPTION
GROUND MOUNTED RRH CONNECTIONS

SHEET NUMBER
EC1



1 N Spare Fiber and Power Cable Management

4 N RET Motor Connector Detail

1 N Spare Fiber Pairs & DC Power terminated, weatherproofed, spooled and tie wrapped to side of 800MV RRH (cable management)
Notes

4 N RFS ACU-A20-N RET Motor connection details
Notes

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SCENARIO
354_V2.5.vco

SHEET DESCRIPTION
DRAWING NOTES

SHEET NUMBER
N1

SCENARIO 354 V2.5 SPECIFICATIONS

NO SCALE | 1

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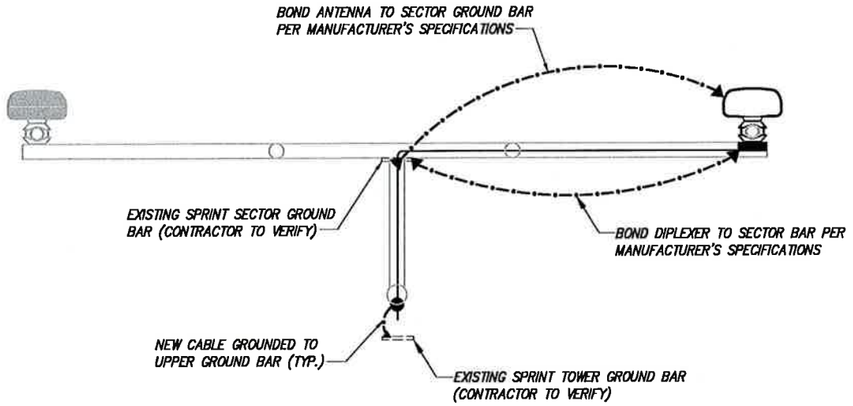
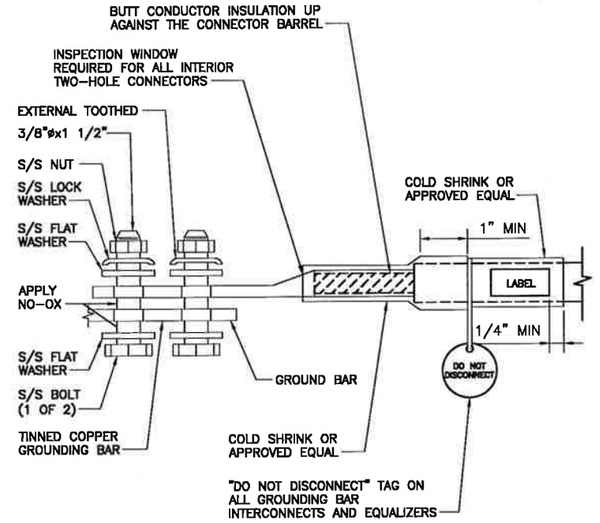
SCENARIO 354 V2.5
SPECIFICATIONS

SHEET NUMBER:

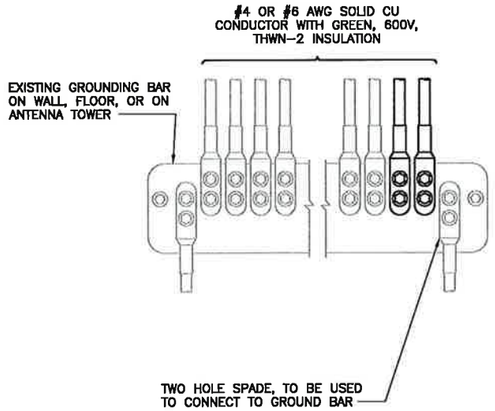
A-7



TYPICAL ANTENNA TOP GROUNDING PLAN | NO SCALE | 1



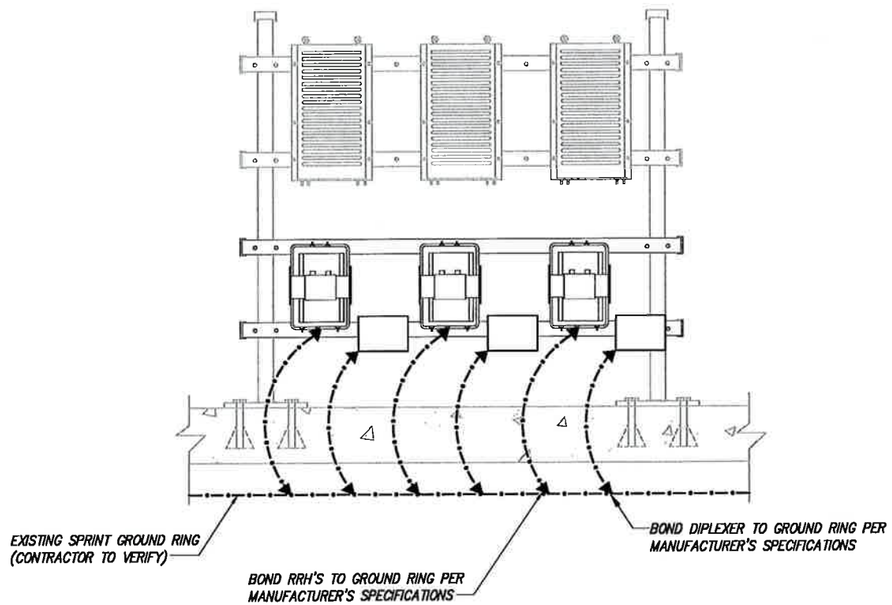
TWO HOLE LUG | NO SCALE | 2



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 | 3



TYPICAL RRH GROUNDING PLAN | NO SCALE | 4

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SHEET DESCRIPTION:
ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:
E-1