December 27th, 2019

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

RE: Notice of Exempt Modification – Antenna Swap for wireless facility located at 790 Willis Street, Bristol, CONNECTICUT – CT52XC047 (lat. 41° 38' 56.7" N, long. -72° 56' 52.8" W)

Dear Ms. Bachman:

Sprint Spectrum, LP ("Sprint") currently maintains wireless telecommunications antennas at the (90-foot level) on an existing (127-foot Monopole Tower) at the above-referenced address. The property and the tower are owned by AMERICAN TOWER CORPORATION.

Sprint's proposed work involves antenna replacement and tower work. Sprint intends to replace three (3) antennas, add an additional three (3) antennas, and add nine (9) new RRHs onto the tower. All the proposed work is contained within the existing fenced area. Please refer to the attached drawings for site plans prepared by Infinigy Engineering.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Ellen Zoppo-Sassu, MAYOR and Robert Flanagan, City Planner of the City of Bristol. A copy of this letter is also being sent to JUSTINE PAUL the manager for AMERICAN TOWER CORPORATION who manages the tower and Connecticut Light & Power who owns the land.

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

1. The proposed modifications will not result in an increase in the height of the existing tower.
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) 871-3707 or email me to aperkowski@airosmithdevelopment.com

Kind Regards,

Art Perkowski
Airosmith Development Inc.
32 Clinton Street
Saratoga Springs, NY 12866
518-350-4222 fax
518-871-3707 cell
APerkowski@airosmithdevelopment.com

Attachment

CC: Ellen Zoppo-Sassu (MAYOR, Bristol, CT)
Justine Paul (American Tower Corporation)
Robert Flanagan (City Planner, Bristol, CT)
Connecticut Light & Power (Land Owner)

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Street and Apt. No., or PO Box No.: 10 Presidential Way
City, State, ZIP+4®: Woburn MA 01801

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

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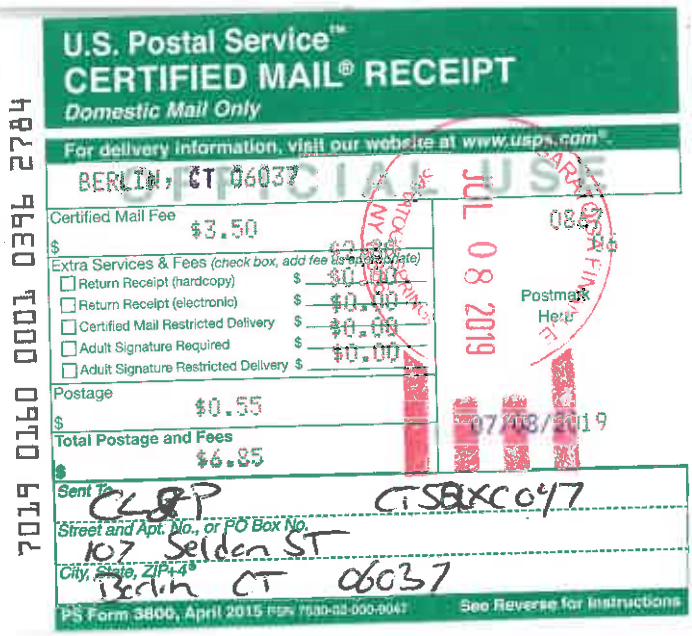

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City, State, ZIP+4®: Berlin CT 06037

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Sent To: Ellen Zoppo-Sassu CT52xc047
Street and Apt. No., or PO Box No.: 111 N Main St 3rd Floor
City, State, ZIP+4®: Bristol CT 06010

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Postage $0.55
Total Postage and Fees $6.85

Sent To: Robert Flannagan CT52xc047
Street and Apt. No., or PO Box No.: 111 N. Main St
City, State, ZIP+4®: Bristol CT 06010

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

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07/08/2019

OFFICIAL USE

7019 0160 0001 0396 2760

790 WILLIS ST

Location	790 WILLIS ST	**Mblu**	06/ / 8A/ /
Acct#	0034800	**Owner**	CONN LIGHT + POWER CO
Assessment	$449,190	**Appraisal**	$641,700
PID	5681	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$392,100	$249,600	$641,700
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$274,470	$174,720	$449,190

Owner of Record

Owner	CONN LIGHT + POWER CO	**Sale Price**	$0
Co-Owner		**Certificate**	1
Address	107 SELDEN ST BERLIN, CT 06037	**Book & Page**	277/ 293
		Sale Date	01/25/1952

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
CONN LIGHT + POWER CO	$0	1	277/ 293	01/25/1952

Building Information

Building 1 : Section 1

Year Built:	1950
Living Area:	900
Replacement Cost:	$40,248
Building Percent Good:	65
Replacement Cost Less Depreciation:	$26,200

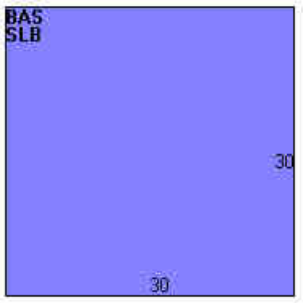
Building Attributes	
Field	**Description**
STYLE	Warehouse
MODEL	Ind/Comm

Stories:	1
Occupancy	1
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Asphalt Shingl
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Electric
Heating Type	Hot Air-no Duc
AC Type	Unit/AC
Bldg Use	Public Utility
Bedrooms	
Full Baths	
Half Baths	
1st Floor Use:	
Heat/AC	Heat/AC Pkgs
Frame Type	Masonry
Baths/Plumbing	Light
Ceiling/Wall	None
Rooms/Prtns	Light
Wall Height	8
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos2/BristolCTPhotos//\00\05\61/14

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	900	900
SLB	Slab	900	0
		1,800	900

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	436
Description	Public Utility
Zone	R-25
Neighborhood	50
Alt Land Appr	No

Land Line Valuation

Size (Acres)	6.9
Frontage	300
Depth	
Assessed Value	$174,720
Appraised Value	$249,600

Category

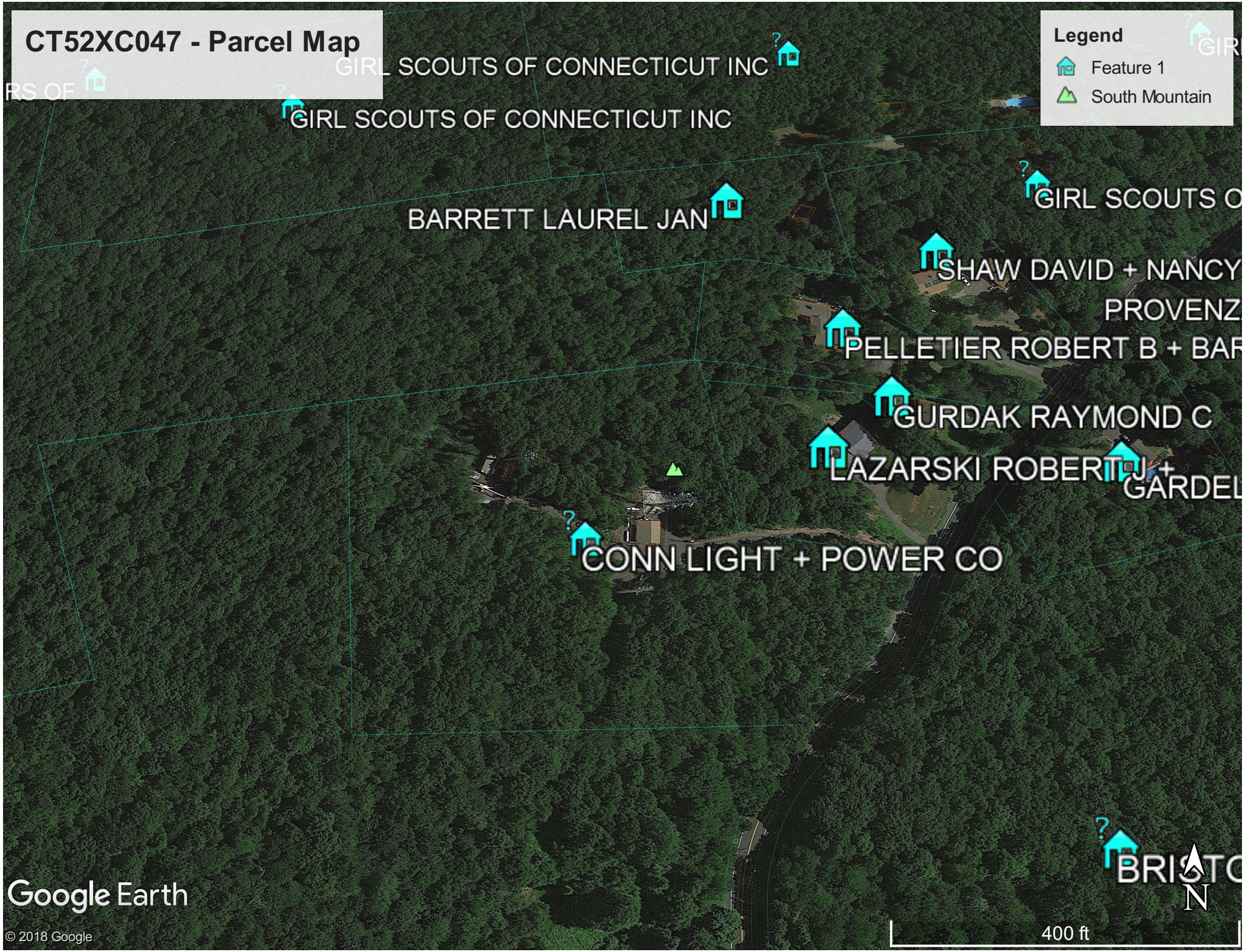
Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
CELL	Cell Tower/Site			2 UNITS	$210,000	1
CB3	PreCastConcCel			300 S.F.	$54,000	1
CB3	PreCastConcCel			300 S.F.	$54,000	1
FCP	Carport			900 S.F.	$5,600	1
GAR1	Garage	FR	Frame	420 S.F.	$6,300	1
CB3	PreCastConcCel			200 S.F.	$36,000	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$392,100	$249,600	$641,700
2017	$392,100	$249,600	$641,700
2016	$377,000	$256,400	$633,400

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$274,470	$174,720	$449,190
2017	$274,470	$174,720	$449,190
2016	$263,900	$179,480	$443,380


CT52XC047 - Parcel Map
Legend
Feature 1
South Mountain
GIRL SCOUTS OF CONNECTICUT INC
GIRL SCOUTS OF CONNECTICUT INC
BARRETT LAUREL JAN
SHAW DAVID + NANCY
PELLETIER ROBERT B + BAR
GURDAK RAYMOND C
LAZARSKI ROBERT J +
CONN LIGHT + POWER CO
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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: CT52XC047

BRST - Bristol Connecticut
790 Willis Street
Bristol, Connecticut 06010

July 3, 2019

EBI Project Number: 6219002921

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**14.46%**

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

July 3, 2019

Sprint
Attn: RF Engineering Manager
1 International Boulevard, Suite 800
Mahwah, New Jersey 07495

Emissions Analysis for Site: CT52XC047 - BRST - Bristol Connecticut

EBI Consulting was directed to analyze the proposed Sprint facility located at **790 Willis Street** in **Bristol, Connecticut** 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 ($\mu W/cm^2$). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits; therefore, it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

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 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Sprint Wireless antenna facility located at 790 Willis Street in Bristol, Connecticut 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 manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 4 CDMA channels (800 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 50 Watts per Channel.

2) 4 PCS channels (1900 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 45 Watts per Channel.

3) 3 BRS channels (2500 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

4) 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.

5) 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 manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

6) The antennas used in this modeling are the Nokia AAHC for the 2500 MHz channel(s), the Commscope NNVV-65B-R4 for the 800 MHz / 1900 MHz channel(s) in Sector A, the Nokia AAHC for the 2500 MHz channel(s), the Commscope NNVV-65B-R4 for the 800 MHz / 1900 MHz channel(s) in Sector B, the Nokia AAHC for the 2500 MHz channel(s), the Commscope NNVV-65B-R4 for the 800 MHz / 1900 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

7) The antenna mounting height centerline of the proposed antennas is 90 feet above ground level (AGL).

8) 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.

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

Sprint Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Nokia AAHC	Make / Model:	Nokia AAHC	Make / Model:	Nokia AAHC
Frequency Bands:	2500 MHz	Frequency Bands:	2500 MHz	Frequency Bands:	2500 MHz
Gain:	13.05 dBd	Gain:	13.05 dBd	Gain:	13.05 dBd
Height (AGL):	90 feet	Height (AGL):	90 feet	Height (AGL):	90 feet
Channel Count:	3	Channel Count:	3	Channel Count:	3
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	2,422.04	ERP (W):	2,422.04	ERP (W):	2,422.04
Antenna A1 MPE %:	**1.08%**	Antenna B1 MPE %:	**1.08%**	Antenna C1 MPE %:	**1.08%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4	Make / Model:	Commscope NNVV-65B-R4
Frequency Bands:	800 MHz / 1900 MHz	Frequency Bands:	800 MHz / 1900 MHz	Frequency Bands:	800 MHz / 1900 MHz
Gain:	12.35 dBd / 15.05 dBd	Gain:	12.35 dBd / 15.05 dBd	Gain:	12.35 dBd / 15.05 dBd
Height (AGL):	90 feet	Height (AGL):	90 feet	Height (AGL):	90 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts
ERP (W):	9,193.83	ERP (W):	9,193.83	ERP (W):	9,193.83
Antenna A2 MPE %:	**5.42%**	Antenna B2 MPE %:	**5.42%**	Antenna C2 MPE %:	**5.42%**

Site Composite MPE %	
Carrier	MPE %
Sprint (Max at Sector A):	6.49%
AT&T	5.69%
Clearwire	0.37%
Metro PCS	1.38%
Nextel	0.53%
Site Total MPE % :	14.46%

Sprint MPE % Per Sector	
Sprint Sector A Total:	6.49%
Sprint Sector B Total:	6.49%
Sprint Sector C Total:	6.49%
Site Total MPE % :	14.46%

Sprint Maximum MPE Power Values (Sector A)

Sprint Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
Sprint 2500 MHz BRS	3	807.35	90.0	10.75	2500 MHz BRS	1000	1.08%
Sprint 800 MHz CDMA	4	858.95	90.0	15.25	800 MHz CDMA	533	2.86%
Sprint 1900 MHz PCS	4	1439.50	90.0	25.56	1900 MHz PCS	1000	2.56%
						Total:	**6.49%**

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

Summary

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

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

Sprint Sector	Power Density Value (%)
Sector A:	6.49%
Sector B:	6.49%
Sector C:	6.49%
Sprint Maximum MPE % (Sector A):	6.49%
Site Total:	14.46%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **14.46%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

1033 WATERVLIET SHAKER RD, ALBANY, NY 12205

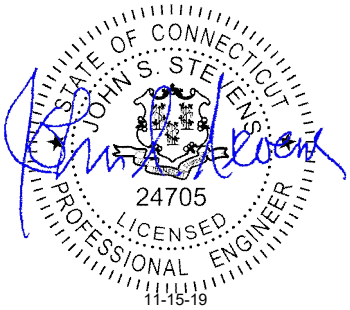
Mount Modification Analysis Report

November 14, 2019

Site ID	CT52XC047
Site Name	BRST – Bristol Connecticut
Client	Airosmith
Carrier	Clearwire Corporation
Infinigy Job Number	1006-B0002-B
Site Location	790 Willis Street Bristol, CT 06010 41º 38' 56.70" N NAD83 72º 56' 52.80" W NAD83
Mount Centerline EL.	90.0 ft
Mount Classification	T-Arm
Mount Usage	**89.5%**
Overall Result	**Pass**
Note	**See appended documents for structural design as well as the recommendations listed below**

Upon reviewing the results of this analysis, it is our opinion that the modified mount connection and the proposed T-Arm mount meet the specified TIA code requirements with the modifications listed within and below. The mounts and connections for the proposed carrier are therefore deemed adequate to support the final loading configuration as listed in this report.

- Install (3) Site Pro 1 RMV12-396 mounts as per manufacturer specifications (total of (1) per sector).
- Install (3) custom tower connection assemblies to be welded directly to the existing monopole (total of (1) per sector).



Michael Downing

Contents

Introduction

Infinigy Engineering has been requested to perform a mount modification analysis on the proposed Clearwire Corporation mounting system. All supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The mount was analyzed using RISA-3D Version 17.0.4 analysis software.

Supporting Documentation

Colo App	Customer Site ID Number CT52XC047, ATC Asset #: 302500, dated March 7, 2019
Structural Analysis	ATC Engineering Number: QAA718326_C3_11, dated September 27, 19
Previous Mount Analysis	Infinigy Engineering Job #526-104, dated January 25, 2018

Analysis Code Requirements

Wind Speed	93 mph (3-Second Gust, V_{ASD}) / 120 mph (3-Second Gust, V_{ULT})
Wind Speed w/ ice	50 mph (3-Second Gust, V_{ASD}) w/ 1" ice
TIA Revision	ANSI/TIA-222-G
Adopted IBC	2015 IBC/ 2018 Connecticut State Building Code
Structure Class	II
Exposure Category	B
Topographic Category	1
Calculated Crest Height	0 ft
Spectral Response	S_s = 0.19g, S_1 = 0.06g
Site Class	D – Stiff Soil

Conclusion

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

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

Michael Downing | **INFINIGY**
1033 Watervliet Shaker Road, Albany, NY 12205
(O) (518) 690-0790
Structural@infinigy.com | www.infinigy.com

Final Configuration Loading

Mount CL (ft)	Rad. HT(ft)	Vert. O/S(ft)	Horiz. O/S(ft)(1)	Qty	Appurtenance(2)	Carrier
90.0	90.0	0.0	7.2	3	Commscope NNVV-65B-R4	Sprint
			12.2	3	Nokia 2.5G MAA-AAHC	
			7.2, 12.2	6	Alcatel-Lucent 800 MHz 2x50 RRH	
			7.2	3	Alcatel-Lucent 1900 MHz 4x45	
			0.3	2	DragonWave A-ANT-11G-2.5-C	
			0.3	2	DragonWave Horizon Compact	

(1)Horizontal Offset is defined as the distance from the left most edge of the mount when viewed facing the tower.
(2)Radios are mounted behind antennas at respective locations see appended documents for vertical locations.

Mount Usages

Standoff	51.8%	Pass
Horizontal	89.5%	Pass
Mount Pipe	48.0%	Pass
Results	**89.5%**	**Pass**

Mount Connection Reactions

Reaction Data	Design Reactions	Analysis Reactions	Result
Max Tension (lbs)	20340	8404	41.3%
Max Shear (lbs)	12425	876	7.1%
Unity Check	--	--	17.6%

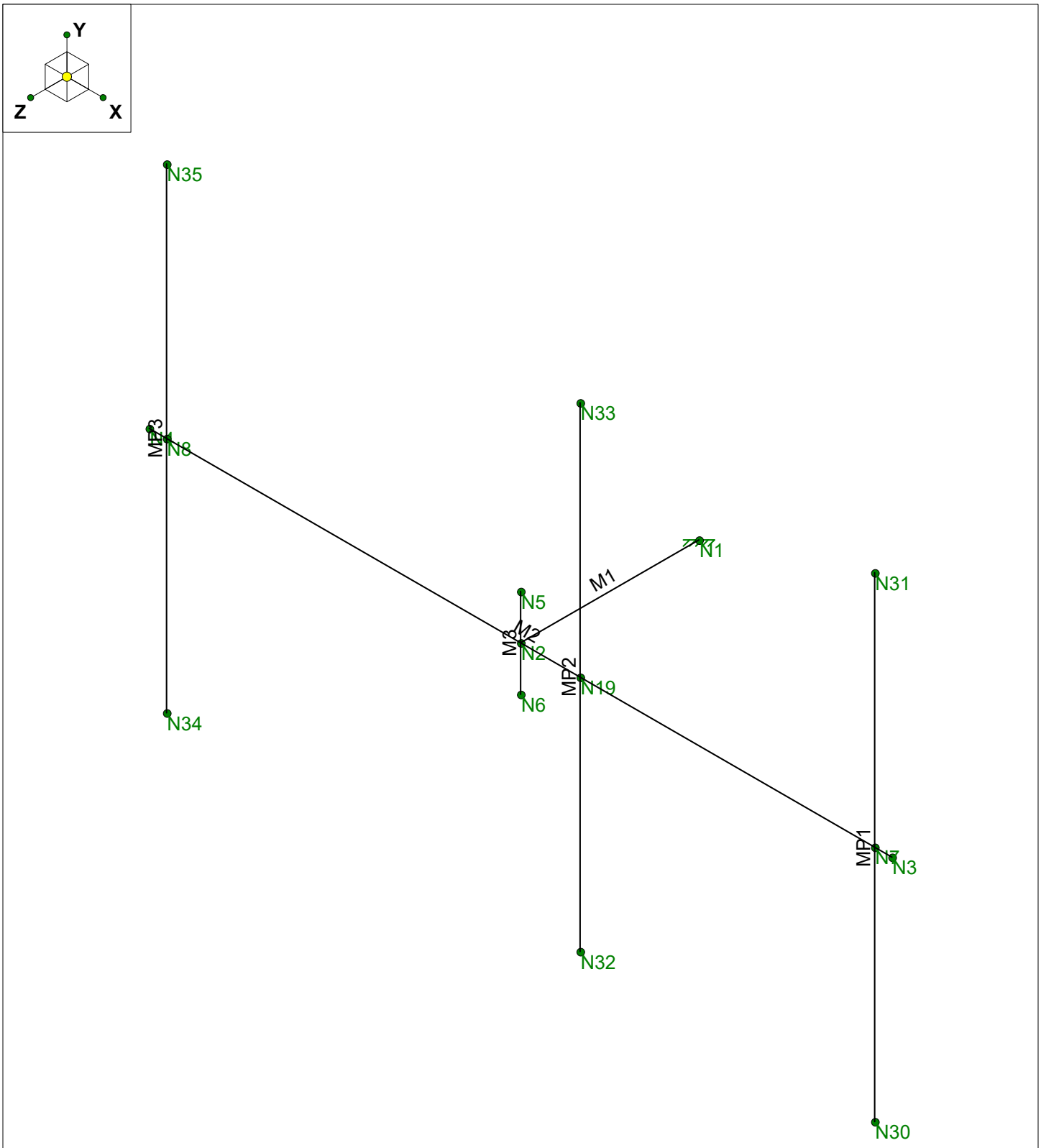
***(1) 5/8" A325 bolt, total of (4) per connection.**

Assumptions and Limitations

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

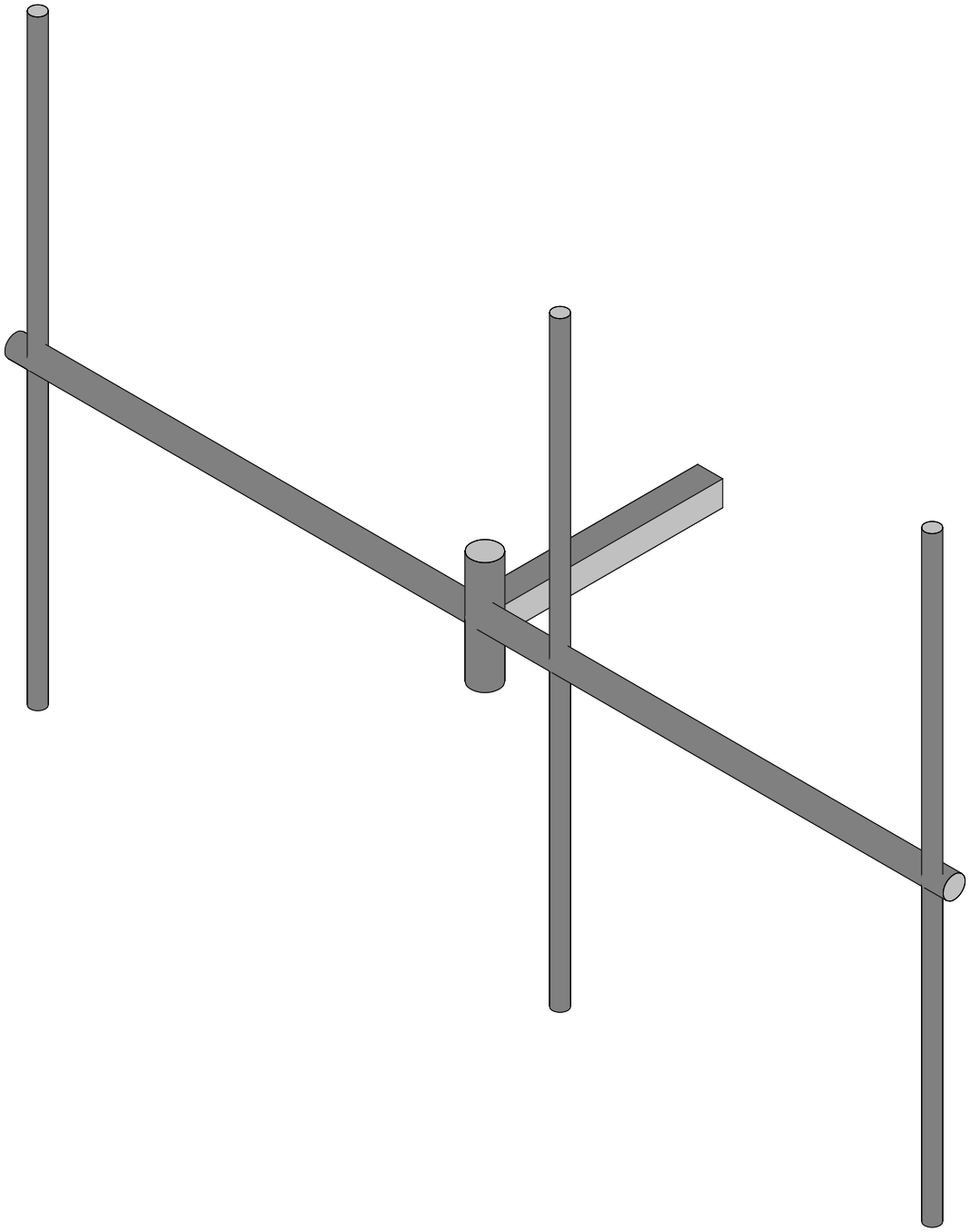
Our evaluation is completed using standard TIA, AISC, ACI, and ASCE methods and procedures. Our structural results are proprietary and should not be used by others as their own. Infinigy Engineering is not responsible for decisions made by others that are or are not based on our supplied assumptions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

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



Envelope Only Solution

Infinigy Engineering PLLC	CT52XC047	Wire Frame
MD		Nov 14, 2019 at 10:17 AM
1006-B0002-B		CT52XC047_loaded.r3d



Envelope Only Solution

Infinigy Engineering PLLC	CT52XC047	Final Configuration
MD		Nov 14, 2019 at 10:18 AM
1006-B0002-B		CT52XC047_loaded.r3d

Program Inputs

PROJECT INFORMATION	
Client:	Airosmith
Carrier:	Sprint
Engineer:	Michael Downing

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	B	
Topo Category:	1	
Site Class:	D - Stiff Soil	
Ground Elevation:	N/A	ft *Rev H

MOUNT INFORMATION		
Mount Type:	T-Arm	
Num Sectors:	3	
Centerline AGL:	90.0	ft
Tower Height AGL:	127.0	ft

TOPOGRAPHIC DATA		
Topo Feature:	N/A	
Crest Height:	N/A	ft
Slope Distance:	N/A	ft
Crest Distance:	N/A	ft

FACTORS		
Directionality Fact. (K_d):	0.95	
Ground Ele. Factor (K_e):	N/A	*Rev H Only
Rooftop Speed-Up (K_s):	N/A	*Rev H Only
Topographic Factor (K_{zt}):	1.00	
Gust Effect Factor (G_h):	1.0	

CODE STANDARDS		
Building Code:	2015 IBC	
TIA Standard:	TIA-222-G	
ASCE Standard:	ASCE 7-10	

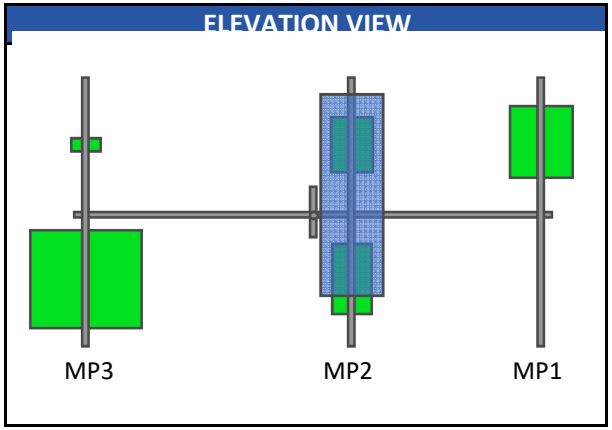
WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	120	mph
Design Wind (V):	93	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	1	in
Flat Pressure:	40.34	psf
Round Pressure:	24.20	psf
Ice Wind Pressure:	7.00	psf

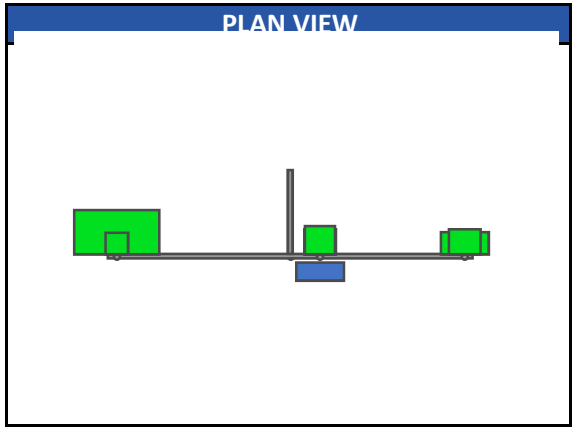
SEISMIC DATA		
Short-Period Accel. (S_s):	0.19	g
1-Second Accel. (S_1):	0.06	g
Short-Period Design (S_{DS}):	0.20	
1-Second Design (S_{D1}):	0.10	
Short-Period Coeff. (F_a):	1.60	
1-Second Coeff. (F_v):	2.40	
Amplification Factor (a_p):	1.00	
Response Mod. (R_p):	2.50	
Overstrength (Ω_o):	1.00	

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Infinigy Wind Load Calculator V2.1.2

Program Inputs





INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Infinigy Wind Load Calculator V2.1.2

APPURTENANCE INFORMATION

Appurtenance Name	Elevation	Qty.	K_a	q_z (psf)	EPA_N (ft^2)	EPA_T (ft^2)	Wind F_z (lbs)	Wind F_x (lbs)	Weight (lbs)	Seismic F (lbs)	Member (α sector)
COMMSCOPE NNVV-65B-R4	90.0	3	1.00	20.17	12.27	5.75	247.51	115.98	77.40	7.64	MP2
NOKIA 2.5G MAA-AAHC	90.0	3	1.00	20.17	4.20	2.06	84.77	41.56	103.60	10.22	MP1
ALCATEL LUCENT TME-800MHZ 2X50W RRH	90.0	3	1.00	20.17	2.13	1.77	43.05	35.76	53.00	5.23	MP1
ALCATEL LUCENT TME-800MHZ 2X50W RRH	90.0	3	1.00	20.17	2.13	1.77	43.05	35.76	53.00	5.23	MP2
ALCATEL LUCENT 1900MHZ 4X45W RRH	90.0	3	1.00	20.17	2.58	2.54	52.11	51.27	70.00	6.91	MP2
DRAGONWAVE A-ANT-11G-2.5-C	90.0	2	1.00	20.17	8.43	4.18	170.03	84.23	47.60	4.70	MP3
DRAGONWAVE HORIZON COMPACT	90.0	2	1.00	20.17	0.36	0.36	7.35	7.35	10.60	1.05	MP3

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N2	N1			HSS 4"x4"x1/4"	Beam	None	A500 Gr.B...	Typical
2	M2	N4	N3			3" STD Pipe	Beam	None	A53 Gr.B	Typical
3	M3	N6	N5			4" STD Pipe	Beam	None	A53 Gr.B	Typical
4	MP1	N30	N31			2.0" STD Pipe	Beam	None	A53 Gr.B	Typical
5	MP3	N34	N35			2.0" STD Pipe	Beam	None	A53 Gr.B	Typical
6	MP2	N32	N33			2.0" STD Pipe	Beam	None	A53 Gr.B	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[K]
1	Hot Rolled Steel				
2	A500 Gr.B Rect	HSS4X4X4	1	36	.037
3	A53 Gr.B	PIPE_2.0	3	288	.083
4	A53 Gr.B	PIPE_3.0	1	150	.088
5	A53 Gr.B	PIPE_4.0	1	18	.015
6	Total HR Steel		6	492	.223

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(...
1	Self Weight	DL		-1			9			
2	Wind Load AZI 0	WLZ					18			
3	Wind Load AZI 30	None					18			
4	Wind Load AZI 60	None					18			
5	Wind Load AZI 90	WLX					18			
6	Wind Load AZI 120	None					18			
7	Wind Load AZI 150	None					18			
8	Wind Load AZI 180	None					18			
9	Wind Load AZI 210	None					18			
10	Wind Load AZI 240	None					18			
11	Wind Load AZI 270	None					18			
12	Wind Load AZI 300	None					18			
13	Wind Load AZI 330	None					18			
14	Distr. Wind Load Z	WLZ						6		
15	Distr. Wind Load X	WLX						6		
16	Ice Weight	OL1					9	6		
17	Ice Wind Load AZI 0	OL2					18			
18	Ice Wind Load AZI 30	None					18			
19	Ice Wind Load AZI 60	None					18			
20	Ice Wind Load AZI 90	OL3					18			
21	Ice Wind Load AZI 120	None					18			
22	Ice Wind Load AZI 150	None					18			
23	Ice Wind Load AZI 180	None					18			
24	Ice Wind Load AZI 210	None					18			
25	Ice Wind Load AZI 240	None					18			
26	Ice Wind Load AZI 270	None					18			
27	Ice Wind Load AZI 300	None					18			
28	Ice Wind Load AZI 330	None					18			
29	Distr. Ice Wind Load Z	OL2						6		
30	Distr. Ice Wind Load X	OL3						6		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(...
31	Seismic Load Z	ELZ			-.099		9			
32	Seismic Load X	ELX	-.099				9			
33	Service Live Loads	LL				2				

Load Combinations

	Description	Sol..	PD..	SR..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact...
1	1.4DL	Yes	Y		1	1.4																				
2	1.2DL + 1.6W...	Yes	Y		1	1.2	2	1.6	14	1.6	15															
3	1.2DL + 1.6W...	Yes	Y		1	1.2	3	1.6	14	1.386	15	.8														
4	1.2DL + 1.6W...	Yes	Y		1	1.2	4	1.6	14	.8	15	1.386														
5	1.2DL + 1.6W...	Yes	Y		1	1.2	5	1.6	14		15	1.6														
6	1.2DL + 1.6W...	Yes	Y		1	1.2	6	1.6	14	-.8	15	1.386														
7	1.2DL + 1.6W...	Yes	Y		1	1.2	7	1.6	14	-1.3...	15	.8														
8	1.2DL + 1.6W...	Yes	Y		1	1.2	8	1.6	14	-1.6	15															
9	1.2DL + 1.6W...	Yes	Y		1	1.2	9	1.6	14	-1.3...	15	-.8														
10	1.2DL + 1.6W...	Yes	Y		1	1.2	10	1.6	14	-.8	15	-1.3...														
11	1.2DL + 1.6W...	Yes	Y		1	1.2	11	1.6	14		15	-1.6														
12	1.2DL + 1.6W...	Yes	Y		1	1.2	12	1.6	14	.8	15	-1.3...														
13	1.2DL + 1.6W...	Yes	Y		1	1.2	13	1.6	14	1.386	15	-.8														
14	0.9DL + 1.6W...	Yes	Y		1	.9	2	1.6	14	1.6	15															
15	0.9DL + 1.6W...	Yes	Y		1	.9	3	1.6	14	1.386	15	.8														
16	0.9DL + 1.6W...	Yes	Y		1	.9	4	1.6	14	.8	15	1.386														
17	0.9DL + 1.6W...	Yes	Y		1	.9	5	1.6	14		15	1.6														
18	0.9DL + 1.6W...	Yes	Y		1	.9	6	1.6	14	-.8	15	1.386														
19	0.9DL + 1.6W...	Yes	Y		1	.9	7	1.6	14	-1.3...	15	.8														
20	0.9DL + 1.6W...	Yes	Y		1	.9	8	1.6	14	-1.6	15															
21	0.9DL + 1.6W...	Yes	Y		1	.9	9	1.6	14	-1.3...	15	-.8														
22	0.9DL + 1.6W...	Yes	Y		1	.9	10	1.6	14	-.8	15	-1.3...														
23	0.9DL + 1.6W...	Yes	Y		1	.9	11	1.6	14		15	-1.6														
24	0.9DL + 1.6W...	Yes	Y		1	.9	12	1.6	14	.8	15	-1.3...														
25	0.9DL + 1.6W...	Yes	Y		1	.9	13	1.6	14	1.386	15	-.8														
26	1.2D + 1.0Di	Yes	Y		1	1.2	16	1																		
27	1.2D + 1.0Di +...	Yes	Y		1	1.2	16	1	17	1	29	1.6	30													
28	1.2D + 1.0Di +...	Yes	Y		1	1.2	16	1	18	1	29	1.386	30	.8												
29	1.2D + 1.0Di +...	Yes	Y		1	1.2	16	1	19	1	29	.8	30	1.386												
30	1.2D + 1.0Di +...	Yes	Y		1	1.2	16	1	20	1	29		30	1.6												
31	1.2D + 1.0Di +...	Yes	Y		1	1.2	16	1	21	1	29	-.8	30	1.386												
32	1.2D + 1.0Di +...	Yes	Y		1	1.2	16	1	22	1	29	-1.3...	30	.8												
33	1.2D + 1.0Di +...	Yes	Y		1	1.2	16	1	23	1	29	-1.6	30													
34	1.2D + 1.0Di +...	Yes	Y		1	1.2	16	1	24	1	29	-1.3...	30	-.8												
35	1.2D + 1.0Di +...	Yes	Y		1	1.2	16	1	25	1	29	-.8	30	-1.3...												
36	1.2D + 1.0Di +...	Yes	Y		1	1.2	16	1	26	1	29		30	-1.6												
37	1.2D + 1.0Di +...	Yes	Y		1	1.2	16	1	27	1	29	.8	30	-1.3...												
38	1.2D + 1.0Di +...	Yes	Y		1	1.2	16	1	28	1	29	1.386	30	-.8												
39	(1.2 + 0.2Sds)...	Yes	Y		1	1.239	31	1	32																	
40	(1.2 + 0.2Sds)...	Yes	Y		1	1.239	31	.866	32	.5																
41	(1.2 + 0.2Sds)...	Yes	Y		1	1.239	31	.5	32	.866																
42	(1.2 + 0.2Sds)...	Yes	Y		1	1.239	31		32	1																
43	(1.2 + 0.2Sds)...	Yes	Y		1	1.239	31	-.5	32	.866																
44	(1.2 + 0.2Sds)...	Yes	Y		1	1.239	31	-.866	32	.5																

Load Combinations (Continued)

	Description	Sol..	PD..	SR..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..
45	(1.2 + 0.2Sds)...	Yes	Y		1	1.239	31	-1	32															
46	(1.2 + 0.2Sds)...	Yes	Y		1	1.239	31	-.866	32	-.5														
47	(1.2 + 0.2Sds)...	Yes	Y		1	1.239	31	-.5	32	-.866														
48	(1.2 + 0.2Sds)...	Yes	Y		1	1.239	31		32	-1														
49	(1.2 + 0.2Sds)...	Yes	Y		1	1.239	31	.5	32	-.866														
50	(1.2 + 0.2Sds)...	Yes	Y		1	1.239	31	.866	32	-.5														
51	(0.9 - 0.2Sds)...	Yes	Y		1	.861	31	1	32															
52	(0.9 - 0.2Sds)...	Yes	Y		1	.861	31	.866	32	.5														
53	(0.9 - 0.2Sds)...	Yes	Y		1	.861	31	.5	32	.866														
54	(0.9 - 0.2Sds)...	Yes	Y		1	.861	31		32	1														
55	(0.9 - 0.2Sds)...	Yes	Y		1	.861	31	-.5	32	.866														
56	(0.9 - 0.2Sds)...	Yes	Y		1	.861	31	-.866	32	.5														
57	(0.9 - 0.2Sds)...	Yes	Y		1	.861	31	-1	32															
58	(0.9 - 0.2Sds)...	Yes	Y		1	.861	31	-.866	32	-.5														
59	(0.9 - 0.2Sds)...	Yes	Y		1	.861	31	-.5	32	-.866														
60	(0.9 - 0.2Sds)...	Yes	Y		1	.861	31		32	-1														
61	(0.9 - 0.2Sds)...	Yes	Y		1	.861	31	.5	32	-.866														
62	(0.9 - 0.2Sds)...	Yes	Y		1	.861	31	.866	32	-.5														
63	1.0DL + 1.5LL...	Yes	Y		1	1	2	.416	14	.416	15		33	1.5										
64	1.0DL + 1.5LL...	Yes	Y		1	1	3	.416	14	.36	15	.208	33	1.5										
65	1.0DL + 1.5LL...	Yes	Y		1	1	4	.416	14	.208	15	.36	33	1.5										
66	1.0DL + 1.5LL...	Yes	Y		1	1	5	.416	14		15	.416	33	1.5										
67	1.0DL + 1.5LL...	Yes	Y		1	1	6	.416	14	-.208	15	.36	33	1.5										
68	1.0DL + 1.5LL...	Yes	Y		1	1	7	.416	14	-.36	15	.208	33	1.5										
69	1.0DL + 1.5LL...	Yes	Y		1	1	8	.416	14	-.416	15		33	1.5										
70	1.0DL + 1.5LL...	Yes	Y		1	1	9	.416	14	-.36	15	-.208	33	1.5										
71	1.0DL + 1.5LL...	Yes	Y		1	1	10	.416	14	-.208	15	-.36	33	1.5										
72	1.0DL + 1.5LL...	Yes	Y		1	1	11	.416	14		15	-.416	33	1.5										
73	1.0DL + 1.5LL...	Yes	Y		1	1	12	.416	14	.208	15	-.36	33	1.5										
74	1.0DL + 1.5LL...	Yes	Y		1	1	13	.416	14	.36	15	-.208	33	1.5										

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N1	max	1002.635	17	2738.468	38	1383.539	14	-1554.562	20	2909.224	17	1180.622	11
2		min	-1002.635	11	549.584	51	-1383.539	8	-8112.17	33	-2924.152	22	534.108	30
3	Totals:	max	1002.635	17	2738.468	38	1383.539	14						
4		min	-1002.635	11	549.584	51	-1383.539	8						

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

	Member	Shape	Code Check	Loc[...	LC	Shear Check	Loc[..	Dir	LC	phi*Pnc..	phi*Pnt...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	M2	PIPE_3.0	.895	75	29	.180	75		8	52901....	65205	5748.75	5748.75	1	H1-1b
2	M1	HSS4X4X4	.518	36	32	.122	36	y	36	137315...	139518	16180.5	16180.5	1...	H1-1b
3	MP2	PIPE_2.0	.480	48	8	.032	48		8	14916....	32130	1871.625	1871.625	1...	H1-1b
4	MP3	PIPE_2.0	.327	48	7	.031	48		7	14916....	32130	1871.625	1871.625	1...	H1-1b
5	MP1	PIPE_2.0	.183	48	8	.017	48		20	14916....	32130	1871.625	1871.625	1...	H1-1b
6	M3	PIPE_4.0	.000	9	10	.000	9		10	92571....	93240	10631.25	10631.25	1...	H1-1b

Additional Calculations

PROJECT DATA	
Site Name:	BRST - Bristol Connecticut
Site Number:	CT52XC047
Job Code:	1006-B0002-B

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Steel Bolt Calculator V2.0.0

BOLT INFORMATION		
Code:	LRFD	
Bolt Diameter	5/8	in
Bolt Grade:	A325	
Threads Excluded?:	N	
Yield Strength (F_{yb})	92.0	ksi
Ultimate Strength (F_{ub})	120.0	ksi
Threads/in (n)	11	
Gross Area (A_{gb})	0.307 in²	in^2
Net Area (A_{nb})	0.226 in²	in^2
Applied Axial:	8404.00	lbs
Applied Shear	876.35	lbs

BOLT CAPCITIES				
	Ult Load / Bolt	Factored Load (ϕ=0.75)	# of Bolts	Factor Joint Capacity
Axial (lb)	27120.2	20340.1	1	20340.1
Shear(lb)	16567.0	12425.2	1	12425.2

INTERACTION CHECK	
T /ϕT_n	**41.3%**
V /ϕVn	**7.1%**
≤1.0	**17.6%**
Result	**OK**

INFINIGY

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WELDED CONNECTION ANALYSIS, V1.2

PROJECT DATA	
Site Name:	BRST - Bristol Connecticut
Site Number:	CT52XC047
Job Code:	1006-B0002-B
Date:	11/14/2019

WELD INFORMATION		
Design:	LRFD	-
Weld Strength (F_EXX):	70	ksi
Weld Thickness:	0.1875	in

MAIN SHAPE INFORMATION		
Main Shape:	None	-
Main Shape Material:	A 500 Gr. B Rect.	-
Main Shape Thickness:	0.250	in
Main Shape Size:	N/A	in

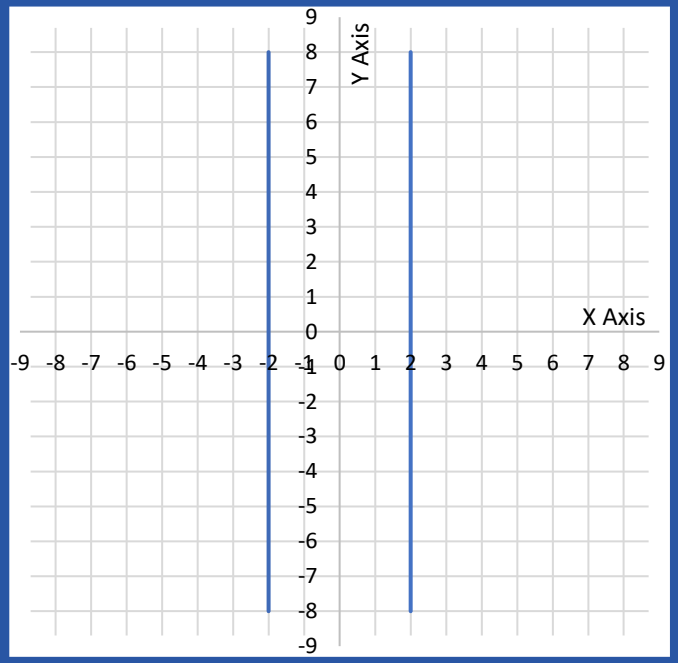
TOTAL SUM OF LINES PROPERTIES		
Polar Moment of Inertia:	810.667	in^3
Section Modulus X-X dir.:	85.333	in^2
Section Modulus Y-Y dir.:	64.000	in^2
Critical Usage Mode*:	Weld Critical	-
Critical Thickness Used:	0.188	in

SECONDARY SHAPE INFORMATION		
Secondary Shape:	Custom	-
Secondary Shape Material:	A36	-
Secondary Shape Thickness:	0.5	in
Secondary Shape Size:	N/A	in

WELD DESCRIPTION
1/2" thk. x 16" long Bent Plate welded to monopole

RESULTS		
Critical Risa Combination:	LC 33	-
Critical Member Label:	M1	-
Member End:	j	-
Weld Strength (Phi*Rn):	4176.349	lb/in
Weld Demand (Ru):	1148.530	lb/in
Usage ratio:	27.5%	OK

WELD DIAGRAM (NOT TO SCALE)



NOTES
*The strength of the weld governs the design compared to the effective strength of the base shape.

GENERAL NOTES:

1. THESE DOCUMENTS WERE DESIGNED IN ACCORDANCE WITH THE LATEST VERSION OF APPLICABLE LOCAL/STATE/COUNTY/CITY BUILDING CODES, AS WELL AS ANSI/TIA–222 STANDARD, AWWA–D100 STANDARD, NDS, NEC, MSJC, AND/OR THE LATEST VERSION OF THE INTERNATIONAL BUILDING CODE, UNLESS NOTED OTHERWISE IN THE CORRESPONDING STRUCTURAL REPORT.
2. ALL CONSTRUCTION METHODS SHOULD FOLLOW STANDARDS OF GOOD CONSTRUCTION PRACTICE.
3. ALL WORK INDICATED ON THESE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN SIMILAR CONSTRUCTION.
4. ALL NEW WORK SHALL ACCOMMODATE EXISTING CONDITIONS. IF OBSTRUCTIONS ARE FOUND, CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD PRIOR TO CONTINUING WORK.
5. ANY CHANGES OR ADDITIONS MUST CONFORM TO THE REQUIREMENTS OF THESE NOTES AND SPECIFICATIONS, AND SHOULD BE SIMILAR TO THOSE SHOWN. ALL CHANGES OR ADDITIONS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO FABRICATION AND/OR CONSTRUCTION.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND EXECUTION OF ALL MISCELLANEOUS SHORING, BRACING, TEMPORARY SUPPORTS, ETC. NECESSARY TO PROVIDE A COMPLETE AND STABLE STRUCTURE DURING CONSTRUCTION. TIA–1019–A–2011 IS AN APPROPRIATE REFERENCE FOR THOSE DESIGNS MEETING TIA STANDARDS. THE ENGINEER OF RECORD MAY PROVIDE FORMAL RIGGING PLANS AT THE REQUEST AND EXPENSE OF THE CONTRACTOR.
7. INSTALLATION SHALL NOT INTERFERE NOR DENY ADEQUATE ACCESS TO OR FROM ANY EXISTING OR PROPOSED OPERATIONAL AND SAFETY EQUIPMENT.
8. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO ANY FABRICATION. CONTACT INFINIGY ENGINEERING IF ANY DISCREPANCIES EXIST.

STEEL CONSTRUCTION NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE AISC MANUAL OF STEEL CONSTRUCTION 14TH EDITION, FOR THE DESIGN AND FABRICATION OF STEEL COMPONENTS.
2. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES, AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS' RECOMMENDATIONS.
3. ALL FIELD DRILLED HOLES TO BE USED FOR FIELD BOLTING INSTALLATION SHALL BE STANDARD HOLES, AS DEFINED BY AISC, UNLESS NOTED OTHERWISE.
4. ALL EXTERIOR STEEL WORK SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.
5. ALL STEEL MEMBERS AND CONNECTIONS SHALL MEET THE FOLLOWING GRADES:
   - ANGLES, CHANNELS, PLATES AND BARS TO BE A36. Fy=36 KSI, U.N.O.
   - W SHAPES TO BE A992. Fy=50 KSI, U.N.O.
   - RECTANGULAR HSS TO BE A500, GRADE B. FY=46 KSI, U.N.O.
   - ROUND HSS TO BE A500, GRADE B. FY=42 KSI, U.N.O.
   - STEEL PIPE TO BE A53, GRADE B. Fy=35 KSI, U.N.O.
   - BOLTS TO BE A325–X. Fu=120 KSI, U.N.O.
   - U–BOLTS AND LAG SCREWS TO BE A307 GR A. Fu=60 KSI, U.N.O.
6. ALL WELDING SHALL BE DONE USING E70XX ELECTRODES, U.N.O.
7. ALL WELDING SHALL CONFORM TO AISC AND AWS D1.1 LATEST EDITION.
8. ALL HILTI ANCHORS TO BE CARBON STEEL, U.N.O.
   - MECHANICAL ANCHORS: KWIK BOLT–TZ, U.N.O.
   - CMU BLOCK ANCHORS: ADHESIVE – HY120, U.N.O.
   - CONCRETE ANCHORS: ADHESIVE – HY150, U.N.O.
   - CONCRETE REBAR: ADHESIVE – RE500, U.N.O.
9. ALL STUDS TO BE NELSON CAPACITOR DISCHARGE 1/4"–20 LOW CARBON STEEL COPPER–FLASH AT 55 KSI ULT/50 KSI YIELD, U.N.O.
10. BOLTS SHALL BE TIGHTENED TO A "SNUG TIGHT" CONDITION AS DEFINED BY AISC.
11. MINIMUM EDGE DISTANCES SHALL CONFORM TO AISC TABLE J3.4.

CONCRETE CONSTRUCTION NOTES:

1. CONCRETE TO BE 4000 PSI @ 28 DAYS. REINFORCING BAR TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. CONCRETE INSTALLATION TO CONFORM TO ACI–318 BUILDING REQUIREMENTS FOR REINFORCED CONCRETE. ALL CONCRETE TO BE PLACED AGAINST UNDISTURBED EARTH FREE OF WATER AND ALL FOREIGN OBJECTS AND MATERIALS. A MINIMUM OF THREE INCHES OF CONCRETE SHALL COVER ALL REINFORCEMENT. WELDING OF REBAR IS NOT PERMITTED.
2. EXISTING CONCRETE SURFACES THAT ARE TO BE IN CONTACT WITH NEW PROPOSED CONCRETE SHOULD BE WIRE BRUSHED CLEAN AND TREATED WITH APPROPRIATE MECHANICAL SCRATCH COAT AND REPAIR MATERIALS OR APPROPRIATE CHEMICAL METHODS SUCH AS THE APPLICATION OF A BONDING AGENT, EX. SAKRETE OR EQUIVALENT, TO ENSURE A QUALITY BOND BETWEEN EXISTING AND PROPOSED CONCRETE SURFACES.

FIBER REINFORCED POLYMER (FRP) NOTES:

1. FRP PLATES, SHAPES, BOLTS AND NUTS (STUD/NUT ASSEMBLIES) SHALL CONFORM TO ASTM D638, 695, 790. PLATES AND SHAPES TO BE FY = 5.35 KSI LW (SAFETY FACTOR OF 8), .945 KSI CW (SAFETY FACTOR OF 8) MIN.
2. IF FIELD FABRICATION IS REQUIRED, ALL CUT EDGES AND DRILLED HOLES TO BE SEALED USING VINYL ESTER SEALING KIT SUPPLIED BY THE MANUFACTURER.
3. ALL FASTENERS TO BE 1/2" DIA FRP THREADED ROD WITH FIBER REINFORCED THERMOPLASTIC NUT, SPACED AT 12 INCHES ON CENTER MAXIMUM, U.N.O., FOR PANELS AND AS DESIGNED FOR STRUCTURAL MEMBERS.
4. THE COLOR AND SURFACE PATTERN OF EXPOSED FRP PANELS SHALL MATCH THE EXTERIOR OF THE EXISTING BUILDING, U.N.O.
5. STUD/NUT ASSEMBLIES SHOULD BE LUBRICATED FOR INSTALLATION
6. ENSURE BEARING SURFACES OF THE NUTS ARE PARALLEL TO THE SURFACES BEING FASTENED.
7. TORQUE BOLTS ACCORDING TO THE FOLLOWING TABLE:

INSTALLATION TORQUE TABLE

SIZE	ULTIMATE TORQUE STRENGTH	RECOMMENDED MAXIMUM INSTALLATION TORQUE
3/8–16 UNC	8 FT–LBS	4 FT–LBS
1/2–13 UNC	18 FT–LBS	8 FT–LBS
5/8–11 UNC	35 FT–LBS	16 FT–LBS
3/4–10 UNC	50 FT–LBS	24 FT–LBS
1–8 UNC	110 FT–LBS	50 FT–LBS

8. WHEN TIGHTENING FRP STUD/NUT ASSEMBLIES, WRENCHES MUST MAKE FULL CONTACT WITH ALL NUT EDGES. A STANDARD SIX POINT SOCKET IS RECOMMENDED.
9. STUD/NUT ASSEMBLIES SHOULD BE BONDED BY APPLYING BONDING AGENT TO ENTIRE NUT AND EXPOSED STUD.
10. ALL FRP MATERIALS TO BE PROVIDED BY FIBERGRATE COMPOSITE STRUCTURES, DALLAS TX, OR APPROVED EQUAL.
11. ALL FRP SHAPES TO BE DYNAFORM PULTRUDED STRUCTURAL SHAPES.
12. ALL FRP PLATES TO BE FIBERPLATE MOLDED FRP PLATE.
13. ALL FRP PANELS TO BE FIBERPLATE CLADDING PANEL.
14. EACH FRP PANEL TO BE IDENTIFIED WITH LARR#25536 AND FIBERGRATE COMPOSITE STRUCTURAL LABEL.
15. FRP MATERIAL TO BE CLASSIFIED AS CC1 OR BETTER, AND HAVE MAXIMUM FLAME SPREAD OF 50.
16. ALL DESIGN AND CONSTRUCTION TO BE COMPLETED IN ACCORDANCE WITH LOS ANGELES RESEARCH REPORT RR25536, DATED FEBRUARY 1, 2016.
17. SPECIAL INSPECTIONS MUST BE PROVIDED FOR ALL FRP INSTALLMENTS. SEE SPECIAL INSPECTION SECTION, THIS SHEET.

RATIO OF EDGE DISTANCE TO FRP FASTENER DIAMETER

	RANGE	RECOMMENDED
EDGE DISTANCE – CL* BOLT TO END	2.0–4.0	3.0
EDGE DISTANCE – CL* BOLT TO SIDE	1.5–3.5	2.5
BOLT PITCH – CL* TO CL*	4.0–5.0	5.0

WOOD CONSTRUCTION NOTES:

1. ALL EXISTING WOOD SHAPES ARE ASSUMED TO BE DOUGLAS FIR–LARCH WITH A REFERENCE DESIGN BENDING VALUE OF 1000 PSI MIN.
2. ALL PROPOSED WOOD SHAPES ARE TO BE DOUGLAS FIR–LARCH WITH A REFERENCE DESIGN BENDING VALUE OF 1000 PSI MIN. U.N.O.
3. ALL EXISTING AND PROPOSED GLUED LAMINATED TIMBERS ARE TO BE 24F–1.8C DOUGLAS FIR BALANCED WITH A REFERENCE DESIGN BENDING VALUE OF 2400 PSI MIN. U.N.O.

MASONRY CONSTRUCTION NOTES:

1. ALL BRICK TO BE 1500 PSI MIN. REINFORCING BAR (IF APPLICABLE) TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. ALL MORTAR TO BE 2000 PSI MIN.
   - FOR INTERIOR/ABOVE GRADE APPLICATIONS TYPE N MORTAR HAVING MINIMUM MODULUS OF RUPTURE OF 100 PSI SHALL BE USED. FOR EXTERIOR/BELOW GRADE APPLICATIONS TYPE M OR S MORTAR HAVING A MINIMUM MODULUS OF RUPTURE OF 133 PSI.
   - BRICK AND MORTAR INSTALLATION TO CONFORM TO MSJC BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES.
2. ALL CMU TO BE 1500 PSI MIN. REINFORCING BAR (IF APPLICABLE) TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. ALL MORTAR TO BE 2000 PSI MIN.
   - FOR INTERIOR/ABOVE GRADE APPLICATIONS, TYPE N MORTAR HAVING MINIMUM MODULUS OF RUPTURE OF 64 PSI SHALL BE USED FOR UNGROUTED BLOCKS, AND 158 PSI FOR FULLY GROUTED BLOCKS.
   - FOR EXTERIOR/BELOW GRADE APPLICATIONS TYPE M OR S MORTAR HAVING A MINIMUM MODULUS OF RUPTURE OF 84 PSI SHALL BE USED FOR UNGROUTED BLOCKS, AND 163 PSI FOR FULLY GROUTED BLOCKS.
   - BRICK AND MORTAR INSTALLATION TO CONFORM TO MSJC BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES.

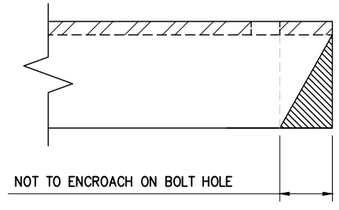
TOWER PLUMB & TENSION NOTES:

1. PLUMB AND TENSION TOWER UPON COMPLETION OF STRUCTURAL MODIFICATIONS DETAILED IN THESE DRAWINGS.
2. RETENSIONING OF EXISTING GUY WIRES SHALL BE PERFORMED AT A TIME WHEN THE WIND VELOCITY IS LESS THAN 10 MPH AT GROUND LEVEL AND WITH NO ICE ON THE STRUCTURE AND GUY WIRES.
3. PLUMB THE TOWER WHILE RETENSIONING THE EXISTING GUY WIRES. THE HORIZONTAL DISTANCE BETWEEN THE VERTICAL CENTERLINES AT ANY TWO ELEVATIONS SHALL NOT EXCEED 0.25% OF THE VERTICAL DISTANCE BETWEEN TWO ELEVATIONS FOR LATTICED STRUCTURES.
4. THE TWIST BETWEEN ANY TWO ELEVATIONS THROUGHOUT THE HEIGHT OF A LATTICE STRUCTURE SHALL NOT EXCEED 0.5 DEGREES IN 10 FEET. THE MAXIMUM TWIST OVER THE LATTICE STRUCTURE HEIGHT SHALL NOT EXCEED 5 DEGREES.

SPECIAL INSPECTIONS NOTES:

1. A QUALIFIED INDEPENDENT TESTING LABORATORY, EMPLOYED BY THE OWNER AND APPROVED BY THE JURISDICTION, SHALL PERFORM INSPECTION AND TESTING IN ACCORDANCE WITH THE THE GOVERNING BUILDING CODE, APPLICABLE SECTION(S) AS REQUIRED BY PROJECT SPECIFICATIONS FOR THE FOLLOWING CONSTRUCTION WORK:
   a. STRUCTURAL WELDING (CONTINUOUS INSPECTION OF FIELD WELDS ONLY).
   b. HIGH STRENGTH BOLTS (PERIODIC INSPECTION OF A325 AND/OR A490 BOLTS) TO BE TIGHTENED PER "TURN–OF–THE–NUT" METHOD.
   c. MECHANICAL AND EPOXIED ANCHORAGES.
   d. FIBER REINFORCED POLYMER.
      - THE SPECIAL INSPECTOR MUST VERIFY THAT THE FRP MATERIAL SPECIFIED ON THE APPROVED DESIGN DOCUMENTS IS BEING INSTALLED.
      - THE SPECIAL INSPECTOR MUST VERIFY THAT ALL CUT EDGES AND DRILLED HOLES ARE PROPERLY SEALED USING A VINYL ESTER SEALING KIT SUPPLIED BY THE MANUFACTURER.
      - THE SPECIAL INSPECTOR MUST VERIFY THAT THE STRUCTURE IS BUILT IN ACCORDANCE WITH THE APPROVED DESIGN DOCUMENTS.
2. THE INSPECTION AGENCY SHALL SUBMIT INSPECTION AND TEST REPORTS TO THE BUILDING DEPARTMENT, THE ENGINEER OF RECORD, AND THE OWNER UNLESS THE FABRICATOR IS APPROVED BY THE BUILDING OFFICIAL TO PERFORM WORK WITHOUT THE SPECIAL INSPECTIONS.

MAXIMUM ALLOWABLE ANGLE CLIP



PLANS PREPARED FOR:

Sprint

15395 SE 30TH PL
BELLEVUE, WASHINGTON 98007

PLANS PREPARED BY:

INFINIGY ENGINEERING PLLC
Design. Build. Deliver.
1033 Watervliet Shaker Road | Albany, NY 12205
Phone: 518-690-0790 | Fax: 518-690-0793
www.infinigy.com

JOB NUMBER 1006–B0002–B

SITE ACQ:

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

ENGINEERING LICENSE:

11-15-19

REVISIONS:

DESCRIPTION	APP'D	DATE	BY	REV
ISSUED FOR REVIEW		11/14/19	PR	0

SITE NAME:
BRST - BRISTOL CONNECTICUT

SPRINT SITE #:
CT52XC047

SITE ADDRESS:
790 WILLIS ST
BRISTOL, CT 06010

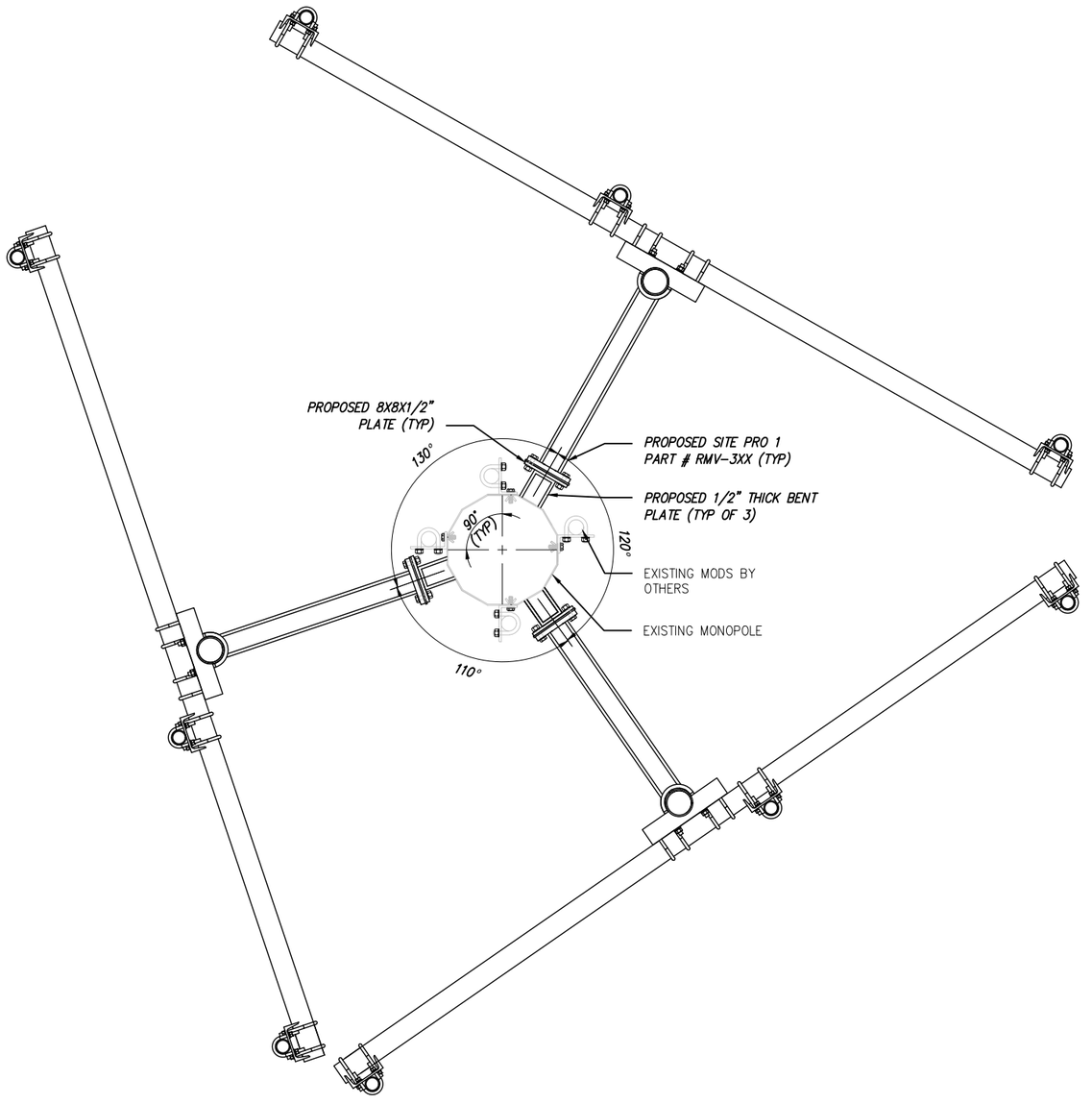
SHEET DESCRIPTION:
GENERAL NOTES

SHEET NUMBER:
S1

NOTES:

1. VARIOUS EXISTING CONDITIONS AND EXISTING MODIFICATIONS ARE NOT SHOWN FOR CLARITY.

2. ALL SITE PRO 1 PARTS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.



1 PLAN VIEW
SCALE: NOT TO SCALE

PLANS PREPARED FOR:

Sprint

15395 SE 30TH PL
BELLEVUE, WASHINGTON 98007

PLANS PREPARED BY:

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SITE ACQ:

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

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
24705
LICENSED PROFESSIONAL ENGINEER
11-15-19

REVISIONS:

DESCRIPTION	APP'D	DATE	BY	REV
ISSUED FOR REVIEW		11/14/19	PR	0

SITE NAME:

BRST - BRISTOL CONNECTICUT

SPRINT SITE #:

CT52XC047

SITE ADDRESS:

790 WILLIS ST
BRISTOL, CT 06010

SHEET DESCRIPTION:

MODIFICATIONS DETAILS

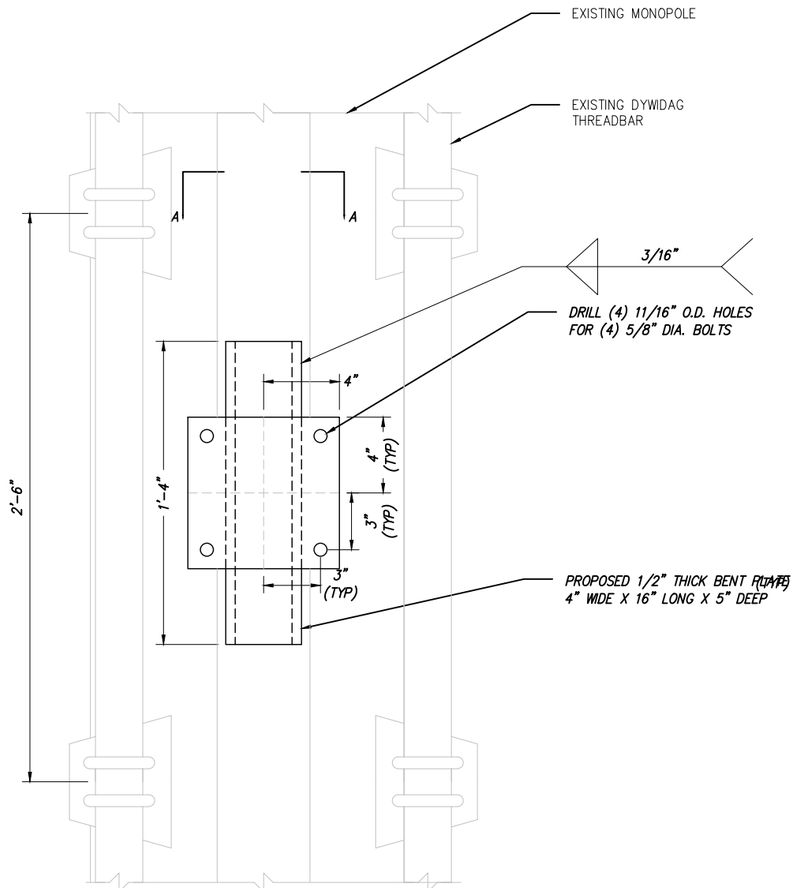
SHEET NUMBER:

S2

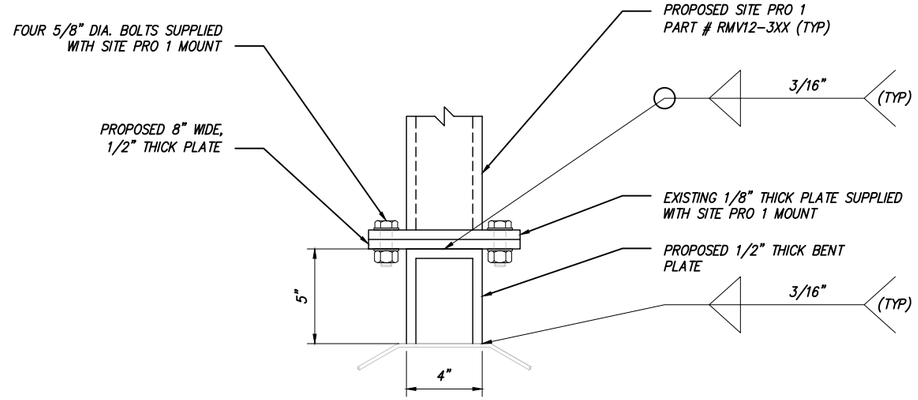
NOTES:

1. VARIOUS EXISTING CONDITIONS AND EXISTING MODIFICATIONS ARE NOT SHOWN FOR CLARITY.

2. ALL SITE PRO 1 PARTS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.



1 ELEVATION VIEW AT 90'-0"
SCALE: NOT TO SCALE



2 SECTION A - A
SCALE: NOT TO SCALE

PLANS PREPARED FOR:

Sprint

15395 SE 30TH PL
BELLEVUE, WASHINGTON 98007

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OFFICE#. (518) 306-3740

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEIN
24705
LICENSED PROFESSIONAL ENGINEER
11-15-19

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	APP'D	DATE	BY	REV
ISSUED FOR REVIEW		11/14/19	PR	0

SITE NAME:

BRST - BRISTOL CONNECTICUT

SPRINT SITE #:

CT52XC047

SITE ADDRESS:

790 WILLIS ST
BRISTOL, CT 06010

SHEET DESCRIPTION:

MODIFICATIONS DETAILS

SHEET NUMBER:

S3

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**120 ft Monopole**
ATC Site Name	:	**Brst - Bristol, CT**
ATC Asset Number	:	**302500**
Engineering Number	:	**OAA718326_C3_12**
Proposed Carrier	:	**CLEARWIRE CORPORATION**
Carrier Site Name	:	**BRST - BRISTOL**
Carrier Site Number	:	**CT52XC047**
Site Location	:	**790 Willis Street** **Bristol, CT 06010-7269** **41.649100,-72.948000**
County	:	**Hartford**
Date	:	**December 11, 2019**
Max Usage	:	**80%**
Result	:	**Pass**

Prepared By:
Thomas Pham
Structural Engineer I

Reviewed By:

COA: PEC.0001553

AMERICAN TOWER®
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Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 120 ft monopole to reflect the change in loading by CLEARWIRE CORPORATION.

Supporting Documents

Tower Drawings	Valmont Drawing #DC1671Z, dated December 29, 1993
Foundation Drawing	Mapping by FDH Project #01-0612, dated June 23, 2001
Geotechnical Report	Johnson Soils Job #15220-B, dated May 21, 2002
Modifications	Spectrasite Site #CT-0036, dated June 12, 2002 ATC Project #64490338, dated May 5, 2016

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	117 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 2
Feature:	Hill
Crest Height (H):	198 ft
Crest Length (L):	2957 ft
Spectral Response:	Ss = 0.19, S_1 = 0.06
Site Class:	D - Stiff Soil

Conclusion

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

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

Existing and Reserved Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
124.0	1	CCI DMP65R-BU6DA	Platform with Handrails	(2) 0.39" (10mm) Fiber Trunk (4) 0.78" (19.7mm) 8 AWG 6 (12) 1 1/4" Coax (4) 1.24" (31.6mm) 4 AWG 6 (2) 3" conduit (1) 7/8" Coax	AT&T MOBILITY
	2	CCI TPA-65R-LCUUUU-H8			
	1	Quintel QS66512-3 (112 lbs.)			
	3	Powerwave Allgon 7770.00			
	1	Generic 2' Std. Dish			
	3	Ericsson RRUS 32 B2			
	3	Ericsson RRUS 32 (50.8 lbs)			
	3	Ericsson RRUS-11 1900 MHz			
	2	Kathrein Scala 80010966			
	2	CCI DMP65R-BU8D			
	6	CCI TPX-070821			
	6	CCI TPX-070821			
	6	Powerwave Allgon LGP21401			
	2	Raycap DC6-48-60-18-8F			
	2	Raycap DC6-48-60-18-8F ("Squid")			
	3	Ericsson RRUS A2			
	3	Ericsson Radio 8843 - B2 + B66A			
	3	Ericsson RRUS 4478 B14			
	3	Ericsson RRUS 4449 B5, B12			
110.0	8	Andrew DB844H90E-XY	T-Arm	(8) 1 1/4" Coax	SPRINT NEXTEL
100.0	1	RFS APXV18-206517S-C	Flush	(6) 1 5/8" Coax	METRO PCS INC
	2	Kathrein Scala 742 213			
90.0	2	DragonWave Horizon Compact	T-Arm	(2) 2" conduit (2) 1/2" Coax	CLEARWIRE CORPORATION
	2	DragonWave A-ANT-11G-2.5-C			

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
90.0	2	DragonWave Horizon Compact	-	(2) 1/2" Coax (6) 5/16" (0.31"-7.9mm) Coax	CLEARWIRE CORPORATION
	3	NextNet BTS-2500			
	1	DragonWave A-ANT-11G-2.5-C			
	1	DragonWave A-ANT-18G-2-C			
	3	Argus LLPX310R			

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
90.0	6	Alcatel-Lucent RRH2x50-08	T-Arm	(3) 1 5/8" (1.63"-41.3mm) Fiber (2) 2" conduit	CLEARWIRE CORPORATION
	3	Alcatel-Lucent 1900 MHz 4X45 RRH			
	3	Nokia 2.5G MAA - AAHC(64T64R)			
	3	Commscope NNVV-65B-R4			

[1] Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed coax outside the pole shaft. Stacking coax is not allowed.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	33%	Pass
Shaft	68%	Pass
Base Plate	9%	Pass
Reinforcement	80%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	1,658.1	69%
Axial (Kips)	32.5	22%
Total Shear (Kips)	19.2	11%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
120.0	Generic 2' Std. Dish	AT&T MOBILITY	1.627	1.545
90.0	Alcatel-Lucent RRH2x50-08	CLEARWIRE CORPORATION	0.926	1.128
	Alcatel-Lucent 1900 MHz 4X45 RRH			
	Nokia 2.5G MAA - AAHC(64T64R)			
	DragonWave A-ANT-11G-2.5-C			
	Commscope NNVV-65B-R4			

***Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-H**

AMERICAN TOWER®
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Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

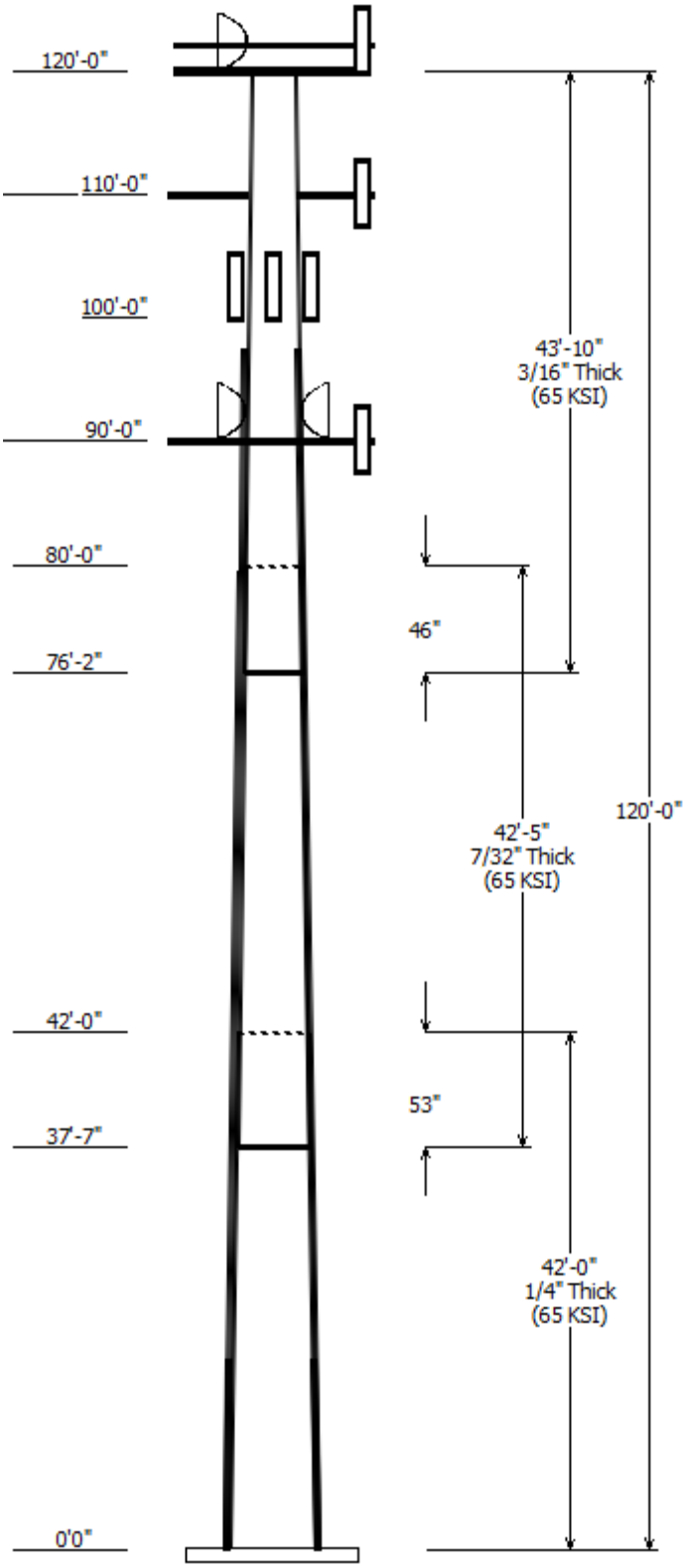
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.



Job Information

Client :	CLEARWIRE CORPORATION		
Pole :	302500	Code:	ANSI/TIA-222-H
Location :	Brst - Bristol, CT		
Description :	120' Valmont Monopole	Risk Category :	II
Shape :	12 Sides	Exposure :	B
Height :	120.00 (ft)	Topo Method :	Method 2
Base Elev (ft):	0.00	Topographic Feature :	Hill
Taper:	0.145021 (in/ft)		

Sections Properties

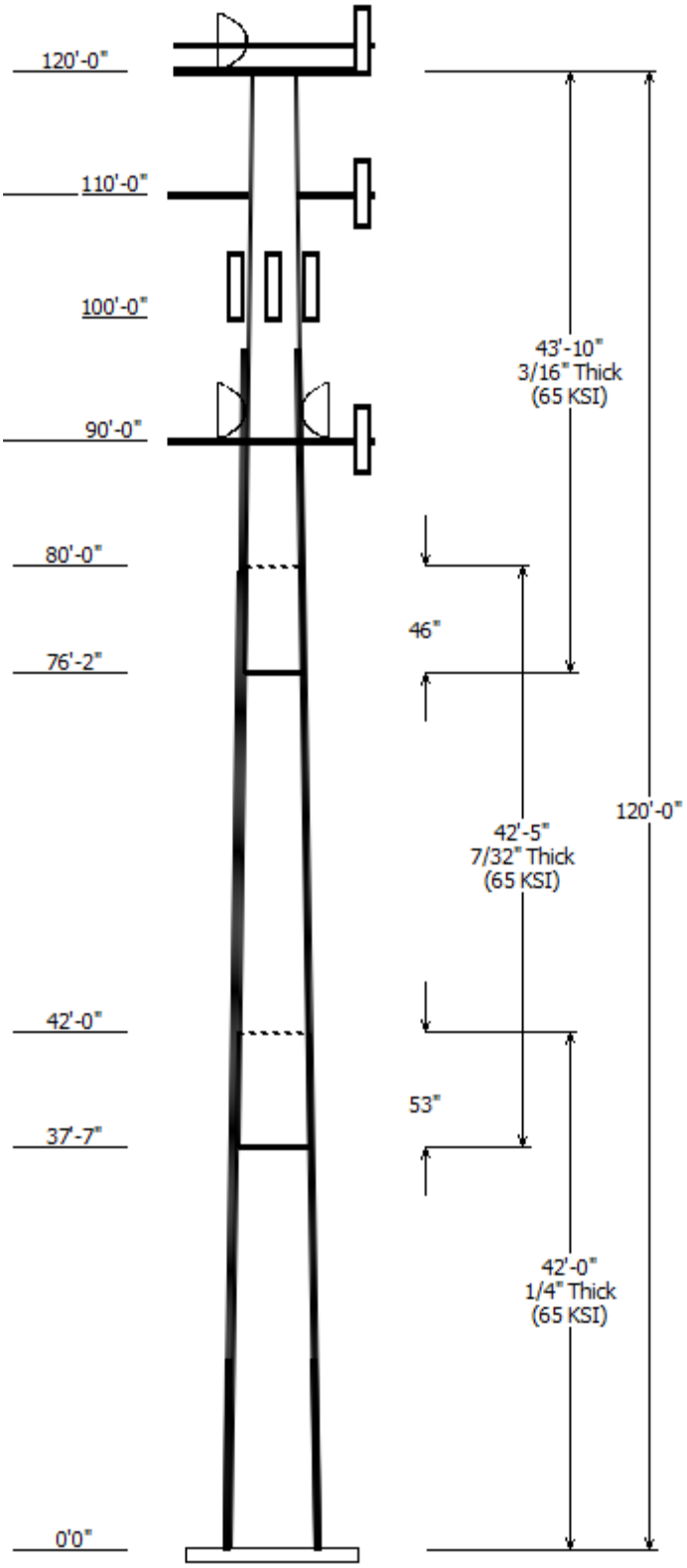
Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	42.000	24.90	31.00	0.250		0.000	12 Sides	65
2	42.417	19.83	25.98	0.219	Slip Joint	53.000	12 Sides	65
3	43.833	14.41	20.76	0.188	Slip Joint	46.000	12 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
120.000	124.000	2	CCI DMP65R-BU8D
120.000	124.000	2	Kathrein Scala 80010966
120.000	124.000	2	CCI TPA-65R-LCUUUU-H8
120.000	124.000	1	CCI DMP65R-BU6DA
120.000	124.000	1	Quintel QS66512-3 (112 lbs.)
120.000	124.000	3	Powerwave Allgon 7770.00
120.000	124.000	1	Generic 2' Std. Dish
120.000	124.000	3	Ericsson RRUS 32 B2
120.000	124.000	3	Ericsson RRUS 32 (50.8 lbs)
120.000	124.000	3	Ericsson RRUS 4449 B5, B12
120.000	124.000	3	Ericsson RRUS 4478 B14
120.000	124.000	3	Ericsson Radio 8843 - B2 + B66
120.000	124.000	3	Ericsson RRUS A2
120.000	124.000	2	Raycap DC6-48-60-18-8F
120.000	124.000	2	Raycap DC6-48-60-18-8F
120.000	124.000	6	Powerwave Allgon LGP21401
120.000	124.000	6	CCI TPX-070821
120.000	124.000	6	CCI TPX-070821
120.000	120.000	1	Platform w/ Handrails
110.000	110.000	2	Round T-Arm
110.000	110.000	8	Andrew DB844H90E-XY
100.000	101.000	1	RFS APXV18-206517S-C
100.000	101.000	2	Kathrein Scala 742 213
90.000	90.000	3	Generic Flat T-Arm
90.000	90.000	3	Commscope NNVV-65B-R4
90.000	92.000	2	DragonWave A-ANT-11G-2.5-C
90.000	90.000	3	Nokia 2.5G MAA -
90.000	90.000	3	Alcatel-Lucent 1900 MHz 4X45
90.000	90.000	6	Alcatel-Lucent RRH2x50-08
90.000	92.000	2	DragonWave Horizon Compact

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
92.000	102.0	#20	Yes
92.000	102.0	#20	Yes
92.000	102.0	#20	Yes
92.000	102.0	#20	Yes
22.500	92.000	#20	Yes
22.500	92.000	#20	Yes
22.500	92.000	#20	Yes
22.500	92.000	#20	Yes



7.000	100.0	1 5/8" Coax	Yes
7.000	110.0	1 1/4" Coax	No
7.000	124.0	0.39" (10mm)	No
7.000	124.0	0.78" (19.7mm) 8	No
7.000	124.0	1 1/4" Coax	No
7.000	124.0	3" conduit	No
7.000	124.0	3" conduit	No
7.000	124.0	7/8" Coax	No
7.000	90.000	1/2" Coax	Yes
0.000	124.0	1.24" (31.6mm) 4	No
0.000	22.500	#20	Yes
0.000	22.500	#20	Yes
0.000	22.500	#20	Yes
0.000	22.500	#20	Yes
0.000	22.500	#20	Yes
0.000	22.500	#20	Yes
0.000	22.500	#20	Yes
0.000	22.500	#20	Yes
0.000	90.000	1 5/8" (1.63"-	Yes
0.000	90.000	2" conduit	Yes

Load Cases

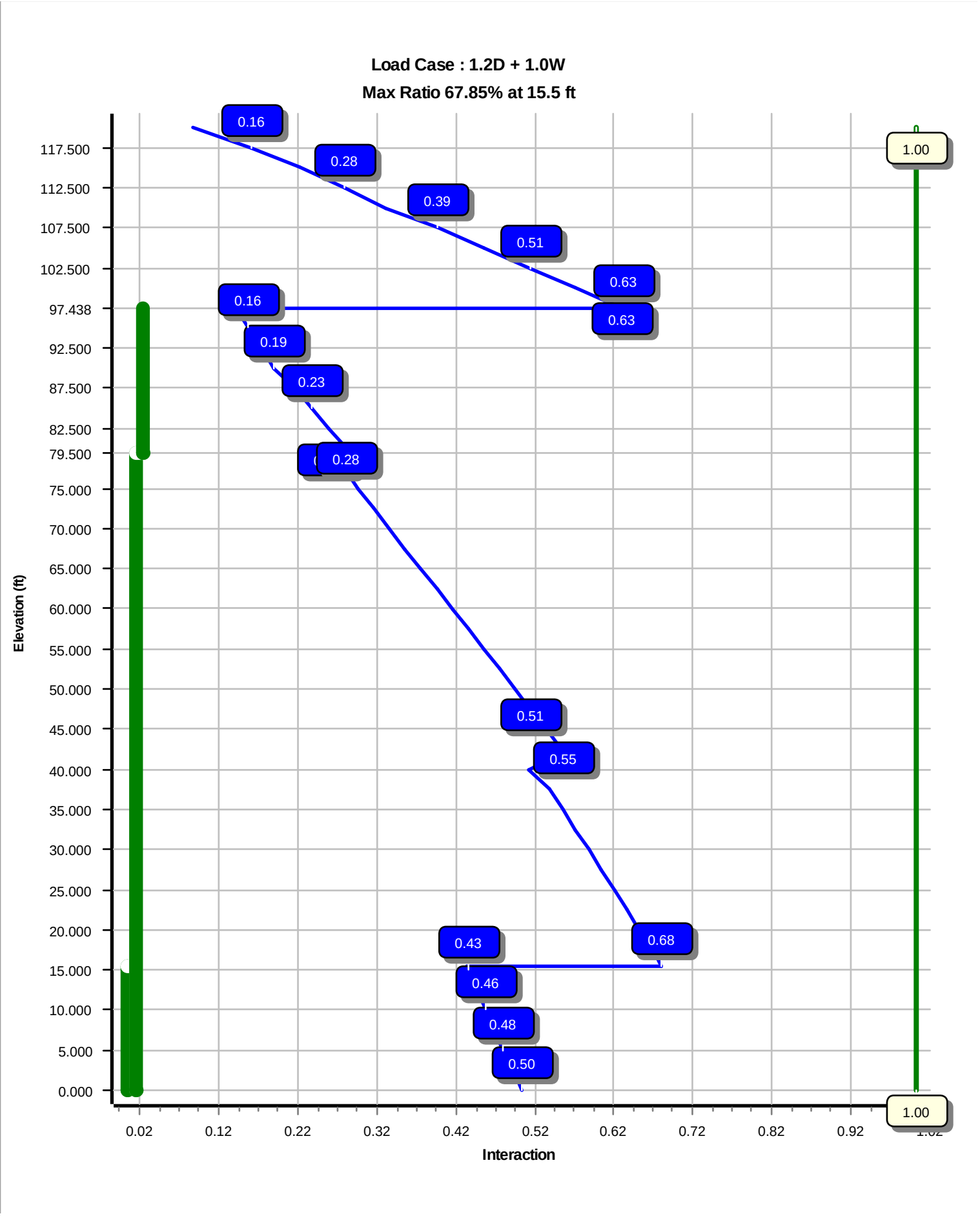
1.2D + 1.0W	117 mph with No Ice
0.9D + 1.0W	117 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.0W	1658.14	19.16	32.45
0.9D + 1.0W	1634.16	19.16	24.33
1.2D + 1.0Di + 1.0Wi	403.42	4.12	53.18
1.2D + 1.0Ev + 1.0Eh	83.79	0.81	32.84
0.9D - 1.0Ev + 1.0Eh	82.24	0.81	22.75
1.0D + 1.0W	386.96	4.51	27.06

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	90.00	11.110	1.128
1.0D + 1.0W	120.00	19.524	1.545


Load Case : 1.2D + 1.0W
Max Ratio 67.85% at 15.5 ft
0.16
0.28
0.39
0.51
0.63
0.16
0.63
0.19
0.23
0.28
0.51
0.55
0.68
0.43
0.46
0.48
0.50
1.00
1.00
117.500
112.500
107.500
102.500
97.438
92.500
87.500
82.500
79.500
75.000
70.000
65.000
60.000
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
Elevation (ft)
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number: 302500 Code: ANSI/TIA-222-H

Site Name: Brst - Bristol, CT Engineering Number:OAA718326_C3_12 12/11/2019 4:18:32 PM

Customer: CLEARWIRE CORPORATION

Analysis Parameters

Location :	Hartford County, CT	Height (ft) :	120
Code :	ANSI/TIA-222-H	Base Diameter (in) :	31.00
Shape :	12 Sides	Top Diameter (in) :	14.41
Pole Type :	Taper	Taper (in/ft) :	0.145
Pole Manfacturer :	Valmont	Rotation (deg) :	0.00
Kd (non-service) :	0.95	Ke :	0.96

Ice & Wind Parameters

Exposure Category:	B	Design Wind Speed Without Ice:	117 mph
Risk Category:	II	Design Wind Speed With Ice:	50 mph
Topographic Factor Procedure:	Method 2	Operational Wind Speed:	60 mph
Feature:	Hill	Design Ice Thickness:	1.00 in
Crest Height (H):	198 ft	HMSL:	1027.00 ft
Crest Length (L):	2957 ft		
Distance from Apex (x):	0 ft		
Upwind / Downwind	Upwind		

Seismic Parameters

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	2.38				
T_L (sec):	6	p:	1	C_s:	0.030
S_s:	0.190	S_1:	0.060	C_s Max:	0.030
F_a:	1.600	F_v :	2.400	C_s Min:	0.030
S_{ds}:	0.203	S_{d1}:	0.096		

Load Cases

1.2D + 1.0W	117 mph with No Ice
0.9D + 1.0W	117 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-12	42.000	0.2500	65		0.00	3,187	31.00	0.00	24.75	2987.6	30.55	124.00	24.90	42.00	19.85	1540.7	24.02	99.64	0.145021
2-12	42.417	0.2188	65	Slip	53.00	2,307	25.98	37.58	18.15	1538.3	29.15	118.80	19.83	80.00	13.82	678.7	21.62	90.68	0.145021
3-12	43.833	0.1875	65	Slip	46.00	1,567	20.76	76.17	12.42	671.6	27.00	110.76	14.41	120.00	8.59	221.7	17.91	76.85	0.145021
				Shaft Weight		7,061													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor
120.00	CCI TPX-070821	6	0.75	4.000	7.50	0.469	0.50	15.41	0.782	0.50
120.00	CCI TPX-070821	6	0.75	4.000	7.50	0.469	0.50	15.41	0.782	0.50
120.00	Powerwave Allgon LGP21401	6	0.75	4.000	14.10	1.104	0.50	30.38	1.570	0.50
120.00	Raycap DC6-48-60-18-8F	2	0.75	4.000	20.00	1.260	1.00	54.36	1.690	1.00
120.00	Raycap DC6-48-60-18-8F	2	0.75	4.000	31.80	1.470	1.00	72.06	1.926	1.00
120.00	Ericsson RRUS A2	3	0.75	4.000	15.00	1.600	0.50	38.69	2.146	0.50
120.00	Ericsson Radio 8843 - B2 + B66A	3	0.75	4.000	71.90	1.650	0.50	112.11	2.203	0.50
120.00	Ericsson RRUS 4478 B14	3	0.75	4.000	59.90	1.842	0.50	95.98	2.427	0.50
120.00	Ericsson RRUS 4449 B5, B12	3	0.75	4.000	71.00	1.969	0.50	113.06	2.578	0.50
120.00	Ericsson RRUS 32 (50.8 lbs)	3	0.75	4.000	50.80	2.692	0.50	97.48	3.446	0.50
120.00	Ericsson RRUS 32 B2	3	0.75	4.000	53.00	2.743	0.50	101.00	3.506	0.50
120.00	Generic 2' Std. Dish	1	1.00	4.000	14.00	5.228	1.00	50.16	6.238	1.00
120.00	Powerwave Allgon 7770.00	3	0.75	4.000	35.00	5.508	0.65	116.15	6.178	0.65
120.00	Quintel QS66512-3 (112 lbs.)	1	0.75	4.000	112.00	8.133	1.00	242.05	9.952	1.00
120.00	CCI DMP65R-BU6DA	1	0.75	4.000	79.40	12.709	1.00	247.51	14.529	1.00
120.00	CCI TPA-65R-LCUUUU-H8	2	0.75	4.000	81.60	13.298	0.77	262.23	15.734	0.77
120.00	Kathrein Scala 80010966	2	0.75	4.000	114.60	17.363	0.63	324.16	19.771	0.63
120.00	CCI DMP65R-BU8D	2	0.75	4.000	95.70	17.871	0.72	317.51	20.276	0.72
120.00	Platform w/ Handrails	1	1.00	0.000	2,000.00	27.200	1.00	2,845.64	43.153	1.00
110.00	Andrew DB844H90E-XY	8	0.90	0.000	14.00	3.610	0.73	79.28	3.598	0.73
110.00	Round T-Arm	2	0.90	0.000	250.00	9.700	0.90	385.20	15.033	0.90
100.00	Kathrein Scala 742 213	2	1.00	1.000	22.00	5.135	0.75	86.01	5.925	0.75
100.00	RFS APXV18-206517S-C	1	1.00	1.000	26.40	5.160	1.00	85.76	6.675	1.00
90.00	DragonWave Horizon Compact	2	0.80	2.000	10.60	0.721	0.50	24.85	1.082	0.50
90.00	Alcatel-Lucent RRH2x50-08	6	0.80	0.000	52.90	1.701	0.50	90.46	2.248	0.50
90.00	Alcatel-Lucent 1900 MHz 4X45	3	0.80	0.000	60.00	2.322	0.50	111.08	3.007	0.50
90.00	Nokia 2.5G MAA - AAHC(64T64R)	3	0.80	0.000	103.60	4.203	0.64	175.06	5.053	0.64
90.00	DragonWave A-ANT-11G-2.5-C	2	1.00	2.000	47.60	8.670	1.00	159.91	9.765	1.00
90.00	Commscope NNVV-65B-R4	3	0.80	0.000	77.40	12.271	0.64	236.68	14.048	0.64
90.00	Generic Flat T-Arm	3	0.75	0.000	312.50	12.900	0.67	478.10	18.084	0.67
Totals	Num Loadings:30	88			6,913.90			13,414.15		

Linear Appurtenance Properties

Load Case Azimuth (deg) : 90

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax / Row	Dist Between Rows (in)	Dist Between Cols (in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	124.00	4	1.24" (31.6mm) 4 AWG	1.24	1.17	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
7.00	124.00	2	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
7.00	124.00	4	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
7.00	124.00	12	1 1/4" Coax	1.55	0.63	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
7.00	124.00	1	3" conduit	3.50	7.58	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
7.00	124.00	1	3" conduit	3.50	7.58	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
7.00	124.00	1	7/8" Coax	1.09	0.33	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY

7.00	110.00	8	1 1/4" Coax	1.55	0.63	N	0	0.00	0.00	0	0.00	N	SPRINT NEXTEL
92.00	102.00	1	#20 Reinforcement	4.00	0.00	N	1	0.00	0.00	0	0.00	Y	
92.00	102.00	1	#20 Reinforcement	4.00	0.00	N	1	0.00	0.00	90	0.00	Y	
92.00	102.00	1	#20 Reinforcement	4.00	0.00	N	1	0.00	0.00	180	0.00	Y	
92.00	102.00	1	#20 Reinforcement	4.00	0.00	N	1	0.00	0.00	270	0.00	Y	
7.00	100.00	6	1 5/8" Coax	1.98	0.82	N	6	1.00	1.00	160	0.50	Y	METRO PCS INC
22.50	92.00	1	#20 Reinforcement	4.00	0.00	N	1	0.00	0.00	0	0.00	Y	
22.50	92.00	1	#20 Reinforcement	4.00	0.00	N	1	0.00	0.00	90	0.00	Y	
22.50	92.00	1	#20 Reinforcement	4.00	0.00	N	1	0.00	0.00	180	0.00	Y	
22.50	92.00	1	#20 Reinforcement	4.00	0.00	N	1	0.00	0.00	270	0.00	Y	
0.00	90.00	3	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	3	1.00	0.00	60	0.50	Y	CLEARWIRE
0.00	90.00	2	2" conduit	2.38	3.65	N	2	1.00	0.00	60	0.50	Y	CLEARWIRE
7.00	90.00	2	1/2" Coax	0.63	0.15	N	2	1.00	0.00	60	0.50	Y	CLEARWIRE
0.00	22.50	1	#20 Reinforcement	4.00	0.00	N	1	0.00	0.00	0	0.00	Y	
0.00	22.50	1	#20 Reinforcement	4.00	0.00	N	1	0.00	0.00	45	0.00	Y	
0.00	22.50	1	#20 Reinforcement	4.00	0.00	N	1	0.00	0.00	90	0.00	Y	
0.00	22.50	1	#20 Reinforcement	4.00	0.00	N	1	0.00	0.00	135	0.00	Y	
0.00	22.50	1	#20 Reinforcement	4.00	0.00	N	1	0.00	0.00	180	0.00	Y	
0.00	22.50	1	#20 Reinforcement	4.00	0.00	N	1	0.00	0.00	225	0.00	Y	
0.00	22.50	1	#20 Reinforcement	4.00	0.00	N	1	0.00	0.00	270	0.00	Y	
0.00	22.50	1	#20 Reinforcement	4.00	0.00	N	1	0.00	0.00	315	0.00	Y	

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Intermediate Connections Description	Spacing (in)	Len (in)	Connectors	Continuation?
0.00	15.48	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	No
0.00	79.50	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	Yes
79.50	97.44	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	Yes

Segment Properties (Max Len : 2. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)	Additional Reinforcing Area (in^2)	Additional Reinforcing Ix (in^4)	Additional Reinforcing Weight (lb)
0.00		0.2500	31.000	24.754	2,987.6	30.55	124.00	71.4	186.2	0.0	0.0	39.28	7,139	0.0
2.50		0.2500	30.637	24.462	2,883.1	30.16	122.55	71.8	181.8	0.0	209.3	39.28	7,001	334.0
5.00		0.2500	30.275	24.170	2,781.2	29.77	121.10	72.2	177.5	0.0	206.9	39.28	6,865	334.0
7.50		0.2500	29.912	23.878	2,681.6	29.38	119.65	72.7	173.2	0.0	204.4	39.28	6,731	334.0
10.00		0.2500	29.550	23.586	2,584.5	28.99	118.20	73.1	169.0	0.0	201.9	39.28	6,597	334.0
12.50		0.2500	29.187	23.294	2,489.7	28.60	116.75	73.5	164.8	0.0	199.4	39.28	6,465	334.0
15.00		0.2500	28.825	23.003	2,397.3	28.21	115.30	73.9	160.7	0.0	196.9	39.28	6,335	334.0
15.48	Reinf. Top	0.2500	28.755	22.947	2,379.9	28.14	115.02	74.0	159.9	0.0	37.5	39.28	6,310	64.0
17.50		0.2500	28.462	22.711	2,307.2	27.83	113.85	74.4	156.6	0.0	157.0	19.64	3,073	135.0
20.00		0.2500	28.100	22.419	2,219.4	27.44	112.40	74.8	152.6	0.0	192.0	19.64	3,010	167.0
22.50		0.2500	27.737	22.127	2,133.9	27.05	110.95	75.2	148.6	0.0	189.5	19.64	2,948	167.0
25.00		0.2500	27.374	21.835	2,050.5	26.66	109.50	75.6	144.7	0.0	187.0	19.64	2,887	167.0
27.50		0.2500	27.012	21.543	1,969.4	26.27	108.05	76.1	140.8	0.0	184.5	19.64	2,827	167.0
30.00		0.2500	26.649	21.251	1,890.4	25.88	106.60	76.5	137.0	0.0	182.0	19.64	2,767	167.0
32.50		0.2500	26.287	20.960	1,813.6	25.49	105.15	76.9	133.3	0.0	179.5	19.64	2,707	167.0
35.00		0.2500	25.924	20.668	1,738.9	25.11	103.70	77.3	129.6	0.0	177.1	19.64	2,648	167.0
37.50		0.2500	25.562	20.376	1,666.3	24.72	102.25	77.8	125.9	0.0	174.6	19.64	2,590	167.0
37.58	Bot - Section 2	0.2500	25.550	20.366	1,663.9	24.70	102.20	77.8	125.8	0.0	5.8	19.64	2,588	5.6
40.00		0.2500	25.199	20.084	1,595.7	24.33	100.80	78.2	122.3	0.0	314.6	19.64	2,602	161.4
42.00	Top - Section 1	0.2188	25.347	17.699	1,426.5	28.37	115.87	73.8	108.7	0.0	257.0	19.64	2,556	133.6
42.50		0.2188	25.274	17.648	1,414.1	28.28	115.54	73.9	108.1	0.0	30.1	19.64	2,545	33.4
45.00		0.2188	24.912	17.393	1,353.6	27.83	113.88	74.4	105.0	0.0	149.0	19.64	2,488	167.0
47.50		0.2188	24.549	17.138	1,294.9	27.39	112.22	74.8	101.9	0.0	146.9	19.64	2,432	167.0
50.00		0.2188	24.186	16.882	1,237.9	26.95	110.57	75.3	98.9	0.0	144.7	19.64	2,376	167.0
52.50		0.2188	23.824	16.627	1,182.5	26.50	108.91	75.8	95.9	0.0	142.5	19.64	2,321	167.0
55.00		0.2188	23.461	16.372	1,128.9	26.06	107.25	76.3	93.0	0.0	140.4	19.64	2,267	167.0
57.50		0.2188	23.099	16.116	1,076.9	25.61	105.59	76.8	90.1	0.0	138.2	19.64	2,213	167.0
60.00		0.2188	22.736	15.861	1,026.5	25.17	103.94	77.3	87.2	0.0	136.0	19.64	2,160	167.0
62.50		0.2188	22.374	15.605	977.7	24.73	102.28	77.7	84.4	0.0	133.8	19.64	2,108	167.0
65.00		0.2188	22.011	15.350	930.5	24.28	100.62	78.2	81.7	0.0	131.7	19.64	2,056	167.0
67.50		0.2188	21.649	15.095	884.8	23.84	98.97	78.7	79.0	0.0	129.5	19.64	2,005	167.0
70.00		0.2188	21.286	14.839	840.7	23.39	97.31	79.2	76.3	0.0	127.3	19.64	1,954	167.0
72.50		0.2188	20.923	14.584	798.0	22.95	95.65	79.7	73.7	0.0	125.2	19.64	1,904	167.0
75.00		0.2188	20.561	14.329	756.8	22.51	93.99	80.2	71.1	0.0	123.0	19.64	1,855	167.0
76.17	Bot - Section 3	0.2188	20.392	14.209	738.1	22.30	93.22	80.4	69.9	0.0	56.6	19.64	1,833	77.9
77.50		0.2188	20.198	14.073	717.1	22.06	92.34	80.7	68.6	0.0	120.3	19.64	1,857	89.1
79.50	Reinf. Top Reinf	0.2188	19.908	13.869	686.3	21.71	91.01	81.0	66.6	0.0	178.2	19.64	1,818	133.6
80.00	Top - Section 2	0.1875	20.211	12.089	618.7	26.20	107.79	76.1	59.1	0.0	44.2	19.64	1,808	33.4
82.50		0.1875	19.848	11.870	585.7	25.68	105.86	76.7	57.0	0.0	101.9	19.64	1,761	167.0
85.00		0.1875	19.486	11.651	553.9	25.17	103.92	77.3	54.9	0.0	100.0	19.64	1,713	167.0
87.50		0.1875	19.123	11.432	523.2	24.65	101.99	77.8	52.9	0.0	98.2	19.64	1,667	167.0
90.00		0.1875	18.761	11.214	493.7	24.13	100.06	78.4	50.8	0.0	96.3	19.64	1,621	167.0
92.50		0.1875	18.398	10.995	465.4	23.61	98.12	79.0	48.9	0.0	94.5	19.64	1,575	167.0
95.00		0.1875	18.036	10.776	438.1	23.09	96.19	79.5	46.9	0.0	92.6	19.64	1,531	167.0
97.44	Reinf. Top	0.1875	17.682	10.562	412.6	22.59	94.30	80.1	45.1	0.0	88.5	19.64	1,488	162.8
97.50		0.1875	17.673	10.557	412.0	22.58	94.26	80.1	45.0	0.0	2.2			
100.0		0.1875	17.310	10.338	386.9	22.06	92.32	80.7	43.2	0.0	88.9			
102.5		0.1875	16.948	10.119	362.8	21.54	90.39	81.2	41.4	0.0	87.0			
105.0		0.1875	16.585	9.900	339.8	21.02	88.46	81.8	39.6	0.0	85.2			
107.5		0.1875	16.223	9.681	317.7	20.50	86.52	81.9	37.8	0.0	83.3			
110.0		0.1875	15.860	9.462	296.7	19.99	84.59	81.9	36.1	0.0	81.4			
112.5		0.1875	15.498	9.244	276.6	19.47	82.65	81.9	34.5	0.0	79.6			
115.0		0.1875	15.135	9.025	257.4	18.95	80.72	81.9	32.9	0.0	77.7			
117.5		0.1875	14.773	8.806	239.1	18.43	78.79	81.9	31.3	0.0	75.8			
120.0		0.1875	14.410	8.587	221.7	17.91	76.85	81.9	29.7	0.0	74.0			
											7,061.4			7,542.8

Load Case: 1.2D + 1.0W — 117 mph with No Ice — 26 Iterations

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

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		98.5	0.0					0.0	0.0	98.5	0.0	0.0	0.0
2.50		195.9	251.2					49.4	451.2	245.3	702.4	0.0	0.0
5.00		193.5	248.2					49.4	451.2	242.9	699.5	0.0	0.0
7.50		191.2	245.2					49.4	472.7	240.6	717.9	0.0	0.0
10.00		188.9	242.3					49.4	558.6	238.3	800.9	0.0	0.0
12.50		186.6	239.3					49.4	558.6	236.0	797.9	0.0	0.0
15.00		110.4	236.3					49.4	558.6	159.7	794.9	0.0	0.0
15.48	Reinf. Top	91.6	45.0					9.5	107.1	101.0	152.0	0.0	0.0
17.50		164.3	188.4					39.9	289.5	204.2	477.9	0.0	0.0
20.00		179.6	230.3					49.4	358.2	229.0	588.5	0.0	0.0
22.50		177.3	227.4					49.4	358.2	226.7	585.6	0.0	0.0
25.00		175.0	224.4					49.4	358.2	224.4	582.6	0.0	0.0
27.50		172.7	221.4					49.4	358.2	222.1	579.6	0.0	0.0
30.00		171.4	218.4					49.4	358.2	220.8	576.6	0.0	0.0
32.50		172.0	215.5					50.0	358.2	222.1	573.7	0.0	0.0
35.00		173.3	212.5					51.1	358.2	224.4	570.7	0.0	0.0
37.50		89.8	209.5					52.2	358.2	142.0	567.7	0.0	0.0
37.58	Bot - Section 2	88.8	6.9					1.8	11.9	90.6	18.9	0.0	0.0
40.00		157.2	377.5					51.4	346.3	208.7	723.7	0.0	0.0
42.00	Top - Section 1	89.2	308.4					43.2	286.6	132.4	595.0	0.0	0.0
42.50		107.3	36.1					10.9	71.6	118.2	107.7	0.0	0.0
45.00		178.9	178.9					55.1	358.2	234.0	537.1	0.0	0.0
47.50		179.1	176.3					55.9	358.2	235.0	534.4	0.0	0.0
50.00		179.0	173.6					56.8	358.2	235.8	531.8	0.0	0.0
52.50		178.8	171.0					57.6	358.2	236.4	529.2	0.0	0.0
55.00		178.5	168.4					58.4	358.2	236.9	526.6	0.0	0.0
57.50		178.0	165.8					59.2	358.2	237.1	524.0	0.0	0.0
60.00		177.3	163.2					59.9	358.2	237.2	521.4	0.0	0.0
62.50		176.5	160.6					60.6	358.2	237.2	518.8	0.0	0.0
65.00		175.6	158.0					61.3	358.2	236.9	516.2	0.0	0.0
67.50		174.6	155.4					62.0	358.2	236.6	513.6	0.0	0.0
70.00		173.5	152.8					62.7	358.2	236.1	511.0	0.0	0.0
72.50		172.2	150.2					63.3	358.2	235.5	508.4	0.0	0.0
75.00		125.6	147.6					63.9	358.2	189.5	505.8	0.0	0.0
76.17	Bot - Section 3	85.9	68.0					30.0	167.1	116.0	235.1	0.0	0.0
77.50		115.0	144.3					34.5	191.0	149.5	335.4	0.0	0.0
79.50	Reinf. Top Reinf	85.9	213.9					52.1	286.6	138.0	500.5	0.0	0.0
80.00	Top - Section 2	102.3	53.0					13.1	71.6	115.4	124.6	0.0	0.0
82.50		169.5	122.3					65.7	358.2	235.3	480.5	0.0	0.0
85.00		167.9	120.1					66.3	358.2	234.2	478.3	0.0	0.0
87.50		166.1	117.8					66.9	358.2	233.0	476.0	0.0	0.0
90.00	Appurtenance(s)	164.3	115.6	2,356.6	0.0	1,220.1	2,513.2	67.4	358.2	2,588.3	2,986.9	0.0	0.0
92.50		162.4	113.4					67.9	320.9	230.3	434.3	0.0	0.0
95.00		158.4	111.1					68.5	320.9	226.9	432.0	0.0	0.0
97.44	Reinf. Top	79.7	106.2					67.2	312.9	146.9	419.1	0.0	0.0
97.50		80.6	2.7					1.7	3.0	82.4	5.7	0.0	0.0
100.00	Appurtenance(s)	156.2	106.7	449.8	0.0	449.8	84.5	69.5	120.5	675.5	311.6	0.0	0.0
102.50		138.1	104.4					70.0	105.8	208.1	210.2	0.0	0.0

Load Case: 1.2D + 1.0W — 117 mph with No Ice — 26 Iterations

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

105.00		120.2	102.2					0.0	105.8	120.2	207.9	0.0	0.0
107.50		118.3	99.9					0.0	105.8	118.3	205.7	0.0	0.0
110.00	Appurtenance(s)	116.4	97.7	1,242.9	0.0	0.0	734.4	0.0	105.8	1,359.4	937.9	0.0	0.0
112.50		114.5	95.5					0.0	90.6	114.5	186.1	0.0	0.0
115.00		112.5	93.2					0.0	90.6	112.5	183.9	0.0	0.0
117.50		110.5	91.0					0.0	90.6	110.5	181.6	0.0	0.0
120.00	Appurtenance(s)	54.7	88.8	4,808.3	0.0	15,236.7	4,964.6	0.0	90.6	4,863.1	5,144.0	0.0	0.0
								Totals:		19,230.3	32,469.4	0.00	0.00

Load Case: 1.2D + 1.0W 117 mph with No Ice 26 Iterations

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-32.45	-19.16	0.00	-1,658.14	0.00	1,658.14	1,590.66	434.43	1,260.13	996.98	0.00	0.00	0.500
2.50	-31.71	-18.98	0.00	-1,610.23	0.00	1,610.23	1,581.24	429.31	1,230.60	979.29	0.03	-0.11	0.489
5.00	-30.97	-18.80	0.00	-1,562.77	0.00	1,562.77	1,571.59	424.18	1,201.42	961.61	0.12	-0.23	0.478
7.50	-30.22	-18.61	0.00	-1,515.78	0.00	1,515.78	1,561.72	419.06	1,172.59	943.94	0.27	-0.34	0.467
10.00	-29.38	-18.43	0.00	-1,469.24	0.00	1,469.24	1,551.63	413.94	1,144.11	926.28	0.49	-0.46	0.456
12.50	-28.55	-18.24	0.00	-1,423.17	0.00	1,423.17	1,541.32	408.82	1,115.98	908.64	0.75	-0.57	0.444
15.00	-27.74	-18.10	0.00	-1,377.57	0.00	1,377.57	1,530.78	403.70	1,088.20	891.03	1.08	-0.68	0.433
15.48	-27.57	-18.03	0.00	-1,368.89	0.00	1,368.89	1,528.74	402.71	1,082.91	887.65	1.15	-0.70	0.431
15.48	-27.57	-18.03	0.00	-1,368.89	0.00	1,368.89	1,528.74	402.71	1,082.91	887.65	1.15	-0.70	0.678
17.50	-27.05	-17.88	0.00	-1,332.46	0.00	1,332.46	1,520.02	398.57	1,060.77	873.44	1.47	-0.79	0.666
20.00	-26.42	-17.72	0.00	-1,287.76	0.00	1,287.76	1,509.04	393.45	1,033.69	855.89	1.93	-0.96	0.650
22.50	-25.78	-17.56	0.00	-1,243.46	0.00	1,243.46	1,497.83	388.33	1,006.96	838.37	2.48	-1.13	0.634
25.00	-25.15	-17.40	0.00	-1,199.56	0.00	1,199.56	1,486.41	383.21	980.58	820.91	3.12	-1.31	0.618
27.50	-24.53	-17.24	0.00	-1,156.06	0.00	1,156.06	1,474.76	378.09	954.55	803.49	3.85	-1.48	0.602
30.00	-23.91	-17.07	0.00	-1,112.97	0.00	1,112.97	1,462.88	372.96	928.87	786.12	4.67	-1.64	0.585
32.50	-23.29	-16.90	0.00	-1,070.30	0.00	1,070.30	1,450.79	367.84	903.54	768.81	5.57	-1.81	0.569
35.00	-22.68	-16.72	0.00	-1,028.06	0.00	1,028.06	1,438.47	362.72	878.56	751.57	6.57	-1.98	0.552
37.50	-22.10	-16.59	0.00	-986.26	0.00	986.26	1,425.93	357.60	853.93	734.39	7.65	-2.14	0.536
37.58	-22.06	-16.53	0.00	-984.88	0.00	984.88	1,425.51	357.43	853.11	733.82	7.68	-2.14	0.535
40.00	-21.30	-16.35	0.00	-944.93	0.00	944.93	1,413.16	352.48	829.65	717.29	8.81	-2.30	0.510
42.00	-20.69	-16.22	0.00	-912.24	0.00	912.24	1,175.20	310.63	736.31	601.57	9.80	-2.43	0.554
42.50	-20.56	-16.13	0.00	-904.14	0.00	904.14	1,173.35	309.73	732.07	598.87	10.06	-2.46	0.550
45.00	-19.99	-15.93	0.00	-863.81	0.00	863.81	1,163.96	305.25	711.04	585.40	11.39	-2.62	0.531
47.50	-19.43	-15.72	0.00	-824.00	0.00	824.00	1,154.34	300.77	690.32	571.97	12.80	-2.77	0.511
50.00	-18.87	-15.51	0.00	-784.70	0.00	784.70	1,144.49	296.28	669.91	558.56	14.29	-2.93	0.492
52.50	-18.31	-15.29	0.00	-745.94	0.00	745.94	1,134.43	291.80	649.80	545.20	15.86	-3.08	0.472
55.00	-17.76	-15.07	0.00	-707.71	0.00	707.71	1,124.14	287.32	630.00	531.88	17.52	-3.22	0.452
57.50	-17.21	-14.85	0.00	-670.04	0.00	670.04	1,113.63	282.84	610.51	518.62	19.24	-3.37	0.433
60.00	-16.67	-14.62	0.00	-632.92	0.00	632.92	1,102.90	278.36	591.32	505.40	21.04	-3.51	0.413
62.50	-16.13	-14.39	0.00	-596.37	0.00	596.37	1,091.95	273.87	572.44	492.25	22.92	-3.65	0.393
65.00	-15.60	-14.15	0.00	-560.41	0.00	560.41	1,080.77	269.39	553.86	479.16	24.86	-3.78	0.373
67.50	-15.07	-13.92	0.00	-525.02	0.00	525.02	1,069.37	264.91	535.59	466.14	26.88	-3.91	0.354
70.00	-14.55	-13.68	0.00	-490.23	0.00	490.23	1,057.74	260.43	517.63	453.19	28.96	-4.03	0.334
72.50	-14.03	-13.43	0.00	-456.04	0.00	456.04	1,045.90	255.95	499.97	440.33	31.10	-4.15	0.314
75.00	-13.52	-13.23	0.00	-422.45	0.00	422.45	1,033.83	251.47	482.62	427.54	33.31	-4.27	0.295
76.17	-13.29	-13.11	0.00	-407.02	0.00	407.02	1,028.12	249.37	474.63	421.61	34.36	-4.32	0.285
77.50	-12.95	-12.95	0.00	-389.54	0.00	389.54	1,021.54	246.98	465.58	414.85	35.57	-4.38	0.270
79.50	-12.45	-12.78	0.00	-363.64	0.00	363.64	1,011.55	243.40	452.16	404.77	37.42	-4.46	0.254
79.50	-12.45	-12.78	0.00	-363.64	0.00	363.64	1,011.55	243.40	452.16	404.77	37.42	-4.46	0.254
80.00	-12.32	-12.67	0.00	-357.25	0.00	357.25	828.38	212.16	400.77	337.67	37.89	-4.48	0.279
82.50	-11.84	-12.42	0.00	-325.57	0.00	325.57	819.42	208.32	386.39	327.92	40.27	-4.58	0.257
85.00	-11.36	-12.17	0.00	-294.52	0.00	294.52	810.23	204.48	372.28	318.20	42.69	-4.68	0.235
87.50	-10.89	-11.91	0.00	-264.11	0.00	264.11	800.82	200.64	358.43	308.54	45.16	-4.76	0.213

Load Case: 1.2D + 1.0W 117 mph with No Ice 26 Iterations

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

90.00	-8.12	-9.09	0.00	-233.11	0.00	233.11	791.19	196.80	344.84	298.94	47.68	-4.84	0.188
92.50	-7.69	-8.84	0.00	-210.38	0.00	210.38	781.34	192.96	331.51	289.40	50.23	-4.92	0.171
95.00	-7.27	-8.58	0.00	-188.29	0.00	188.29	771.27	189.11	318.45	279.92	52.82	-4.99	0.155
97.44	-6.86	-8.40	0.00	-167.38	0.00	167.38	761.23	185.37	305.96	270.75	55.39	-5.05	0.139
97.44	-6.86	-8.40	0.00	-167.38	0.00	167.38	761.23	185.37	305.96	270.75	55.39	-5.05	0.629
97.50	-6.84	-8.34	0.00	-166.85	0.00	166.85	760.97	185.27	305.65	270.51	55.45	-5.05	0.628
100.00	-6.56	-7.66	0.00	-145.57	0.00	145.57	750.45	181.43	293.11	261.18	58.17	-5.32	0.568
102.50	-6.34	-7.46	0.00	-126.41	0.00	126.41	739.70	177.59	280.83	251.93	61.02	-5.57	0.512
105.00	-6.12	-7.35	0.00	-107.75	0.00	107.75	728.74	173.75	268.82	242.77	64.00	-5.80	0.454
107.50	-5.90	-7.23	0.00	-89.38	0.00	89.38	713.61	169.91	257.07	232.42	67.09	-6.01	0.395
110.00	-5.09	-5.79	0.00	-71.31	0.00	71.31	697.47	166.07	245.58	221.97	70.28	-6.19	0.330
112.50	-4.91	-5.67	0.00	-56.83	0.00	56.83	681.34	162.22	234.35	211.76	73.55	-6.34	0.277
115.00	-4.73	-5.55	0.00	-42.66	0.00	42.66	665.20	158.38	223.39	201.79	76.90	-6.47	0.220
117.50	-4.55	-5.42	0.00	-28.79	0.00	28.79	649.07	154.54	212.69	192.06	80.31	-6.57	0.158
120.00	0.00	-4.86	0.00	-15.24	0.00	15.24	632.94	150.70	202.25	182.57	83.76	-6.63	0.084

Load Case: 0.9D + 1.0W — 117 mph with No Ice (Reduced DL) — 26 Iterations

Gust Response Factor :1.10
Dead Load Factor :0.90
Wind Load Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		98.5	0.0					0.0	0.0	98.5	0.0	0.0	0.0
2.50		195.9	188.4					49.4	338.4	245.3	526.8	0.0	0.0
5.00		193.5	186.2					49.4	338.4	242.9	524.6	0.0	0.0
7.50		191.2	183.9					49.4	354.5	240.6	538.5	0.0	0.0
10.00		188.9	181.7					49.4	418.9	238.3	600.6	0.0	0.0
12.50		186.6	179.5					49.4	418.9	236.0	598.4	0.0	0.0
15.00		110.4	177.2					49.4	418.9	159.7	596.2	0.0	0.0
15.48	Reinf. Top	91.6	33.7					9.5	80.3	101.0	114.0	0.0	0.0
17.50		164.3	141.3					39.9	217.2	204.2	358.4	0.0	0.0
20.00		179.6	172.8					49.4	268.6	229.0	441.4	0.0	0.0
22.50		177.3	170.5					49.4	268.6	226.7	439.2	0.0	0.0
25.00		175.0	168.3					49.4	268.6	224.4	436.9	0.0	0.0
27.50		172.7	166.1					49.4	268.6	222.1	434.7	0.0	0.0
30.00		171.4	163.8					49.4	268.6	220.8	432.5	0.0	0.0
32.50		172.0	161.6					50.0	268.6	222.1	430.2	0.0	0.0
35.00		173.3	159.4					51.1	268.6	224.4	428.0	0.0	0.0
37.50		89.8	157.1					52.2	268.6	142.0	425.8	0.0	0.0
37.58	Bot - Section 2	88.8	5.2					1.8	9.0	90.6	14.2	0.0	0.0
40.00		157.2	283.1					51.4	259.7	208.7	542.8	0.0	0.0
42.00	Top - Section 1	89.2	231.3					43.2	214.9	132.4	446.3	0.0	0.0
42.50		107.3	27.1					10.9	53.7	118.2	80.8	0.0	0.0
45.00		178.9	134.1					55.1	268.6	234.0	402.8	0.0	0.0
47.50		179.1	132.2					55.9	268.6	235.0	400.8	0.0	0.0
50.00		179.0	130.2					56.8	268.6	235.8	398.9	0.0	0.0
52.50		178.8	128.3					57.6	268.6	236.4	396.9	0.0	0.0
55.00		178.5	126.3					58.4	268.6	236.9	395.0	0.0	0.0
57.50		178.0	124.4					59.2	268.6	237.1	393.0	0.0	0.0
60.00		177.3	122.4					59.9	268.6	237.2	391.1	0.0	0.0
62.50		176.5	120.5					60.6	268.6	237.2	389.1	0.0	0.0
65.00		175.6	118.5					61.3	268.6	236.9	387.2	0.0	0.0
67.50		174.6	116.5					62.0	268.6	236.6	385.2	0.0	0.0
70.00		173.5	114.6					62.7	268.6	236.1	383.2	0.0	0.0
72.50		172.2	112.6					63.3	268.6	235.5	381.3	0.0	0.0
75.00		125.6	110.7					63.9	268.6	189.5	379.3	0.0	0.0
76.17	Bot - Section 3	85.9	51.0					30.0	125.4	116.0	176.3	0.0	0.0
77.50		115.0	108.2					34.5	143.3	149.5	251.5	0.0	0.0
79.50	Reinf. Top Reinf	85.9	160.4					52.1	214.9	138.0	375.3	0.0	0.0
80.00	Top - Section 2	102.3	39.7					13.1	53.7	115.4	93.5	0.0	0.0
82.50		169.5	91.7					65.7	268.7	235.3	360.4	0.0	0.0
85.00		167.9	90.0					66.3	268.6	234.2	358.7	0.0	0.0
87.50		166.1	88.4					66.9	268.6	233.0	357.0	0.0	0.0
90.00	Appurtenance(s)	164.3	86.7	2,356.6	0.0	1,220.1	1,884.9	67.4	268.6	2,588.3	2,240.2	0.0	0.0
92.50		162.4	85.0					67.9	240.7	230.3	325.7	0.0	0.0
95.00		158.4	83.3					68.5	240.7	226.9	324.0	0.0	0.0
97.44	Reinf. Top	79.7	79.6					67.2	234.7	146.9	314.3	0.0	0.0
97.50		80.6	2.0					1.7	2.3	82.4	4.3	0.0	0.0
100.00	Appurtenance(s)	156.2	80.0	449.8	0.0	449.8	63.4	69.5	90.4	675.5	233.7	0.0	0.0
102.50		138.1	78.3					70.0	79.3	208.1	157.6	0.0	0.0

Load Case: 0.9D + 1.0W 117 mph with No Ice (Reduced DL) 26 Iterations

Gust Response Factor :1.10
Dead Load Factor :0.90
Wind Load Factor :1.00

105.00		120.2	76.6					0.0	79.3	120.2	155.9	0.0	0.0
107.50		118.3	75.0					0.0	79.3	118.3	154.3	0.0	0.0
110.00	Appurtenance(s)	116.4	73.3	1,242.9	0.0	0.0	550.8	0.0	79.3	1,359.4	703.4	0.0	0.0
112.50		114.5	71.6					0.0	68.0	114.5	139.6	0.0	0.0
115.00		112.5	69.9					0.0	68.0	112.5	137.9	0.0	0.0
117.50		110.5	68.3					0.0	68.0	110.5	136.2	0.0	0.0
120.00	Appurtenance(s)	54.7	66.6	4,808.3	0.0	15,236.7	3,723.5	0.0	68.0	4,863.1	3,858.0	0.0	0.0
								Totals:		19,230.3	24,352.0	0.00	0.00

Load Case: 0.9D + 1.0W 117 mph with No Ice (Reduced DL) 26 Iterations

Gust Response Factor :1.10
Dead Load Factor :0.90
Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-24.33	-19.16	0.00	-1,634.16	0.00	1,634.16	1,590.66	434.43	1,260.13	996.98	0.00	0.00	0.491
2.50	-23.77	-18.96	0.00	-1,586.27	0.00	1,586.27	1,581.24	429.31	1,230.60	979.29	0.03	-0.11	0.480
5.00	-23.21	-18.76	0.00	-1,538.88	0.00	1,538.88	1,571.59	424.18	1,201.42	961.61	0.12	-0.23	0.469
7.50	-22.63	-18.56	0.00	-1,491.98	0.00	1,491.98	1,561.72	419.06	1,172.59	943.94	0.27	-0.34	0.458
10.00	-22.00	-18.36	0.00	-1,445.59	0.00	1,445.59	1,551.63	413.94	1,144.11	926.28	0.48	-0.45	0.447
12.50	-21.37	-18.16	0.00	-1,399.69	0.00	1,399.69	1,541.32	408.82	1,115.98	908.64	0.74	-0.56	0.435
15.00	-20.75	-18.02	0.00	-1,354.29	0.00	1,354.29	1,530.78	403.70	1,088.20	891.03	1.07	-0.67	0.424
15.48	-20.62	-17.93	0.00	-1,345.66	0.00	1,345.66	1,528.74	402.71	1,082.91	887.65	1.13	-0.69	0.422
15.48	-20.62	-17.93	0.00	-1,345.66	0.00	1,345.66	1,528.74	402.71	1,082.91	887.65	1.13	-0.69	0.665
17.50	-20.23	-17.77	0.00	-1,309.42	0.00	1,309.42	1,520.02	398.57	1,060.77	873.44	1.45	-0.78	0.652
20.00	-19.74	-17.59	0.00	-1,265.00	0.00	1,265.00	1,509.04	393.45	1,033.69	855.89	1.90	-0.95	0.636
22.50	-19.25	-17.42	0.00	-1,221.01	0.00	1,221.01	1,497.83	388.33	1,006.96	838.37	2.44	-1.12	0.620
25.00	-18.77	-17.24	0.00	-1,177.48	0.00	1,177.48	1,486.41	383.21	980.58	820.91	3.07	-1.28	0.604
27.50	-18.29	-17.06	0.00	-1,134.39	0.00	1,134.39	1,474.76	378.09	954.55	803.49	3.79	-1.45	0.588
30.00	-17.82	-16.88	0.00	-1,091.74	0.00	1,091.74	1,462.88	372.96	928.87	786.12	4.59	-1.62	0.572
32.50	-17.35	-16.69	0.00	-1,049.56	0.00	1,049.56	1,450.79	367.84	903.54	768.81	5.48	-1.78	0.556
35.00	-16.88	-16.50	0.00	-1,007.83	0.00	1,007.83	1,438.47	362.72	878.56	751.57	6.46	-1.94	0.540
37.50	-16.44	-16.37	0.00	-966.58	0.00	966.58	1,425.93	357.60	853.93	734.39	7.52	-2.10	0.523
37.58	-16.40	-16.30	0.00	-965.22	0.00	965.22	1,425.51	357.43	853.11	733.82	7.56	-2.11	0.523
40.00	-15.83	-16.11	0.00	-925.83	0.00	925.83	1,413.16	352.48	829.65	717.29	8.66	-2.26	0.498
42.00	-15.37	-15.98	0.00	-893.62	0.00	893.62	1,175.20	310.63	736.31	601.57	9.63	-2.38	0.541
42.50	-15.26	-15.88	0.00	-885.63	0.00	885.63	1,173.35	309.73	732.07	598.87	9.89	-2.41	0.537
45.00	-14.83	-15.67	0.00	-845.93	0.00	845.93	1,163.96	305.25	711.04	585.40	11.19	-2.57	0.518
47.50	-14.40	-15.45	0.00	-806.75	0.00	806.75	1,154.34	300.77	690.32	571.97	12.58	-2.72	0.499
50.00	-13.97	-15.24	0.00	-768.12	0.00	768.12	1,144.49	296.28	669.91	558.56	14.04	-2.87	0.479
52.50	-13.55	-15.01	0.00	-730.03	0.00	730.03	1,134.43	291.80	649.80	545.20	15.59	-3.02	0.460
55.00	-13.13	-14.79	0.00	-692.49	0.00	692.49	1,124.14	287.32	630.00	531.88	17.21	-3.16	0.441
57.50	-12.72	-14.56	0.00	-655.52	0.00	655.52	1,113.63	282.84	610.51	518.62	18.90	-3.30	0.421
60.00	-12.31	-14.33	0.00	-619.12	0.00	619.12	1,102.90	278.36	591.32	505.40	20.67	-3.44	0.402
62.50	-11.90	-14.10	0.00	-583.30	0.00	583.30	1,091.95	273.87	572.44	492.25	22.51	-3.58	0.383
65.00	-11.50	-13.86	0.00	-548.05	0.00	548.05	1,080.77	269.39	553.86	479.16	24.42	-3.71	0.364
67.50	-11.10	-13.62	0.00	-513.40	0.00	513.40	1,069.37	264.91	535.59	466.14	26.39	-3.83	0.344
70.00	-10.71	-13.39	0.00	-479.34	0.00	479.34	1,057.74	260.43	517.63	453.19	28.43	-3.96	0.325
72.50	-10.32	-13.14	0.00	-445.88	0.00	445.88	1,045.90	255.95	499.97	440.33	30.53	-4.07	0.306
75.00	-9.93	-12.94	0.00	-413.01	0.00	413.01	1,033.83	251.47	482.62	427.54	32.70	-4.19	0.287
76.17	-9.75	-12.82	0.00	-397.92	0.00	397.92	1,028.12	249.37	474.63	421.61	33.73	-4.24	0.278
77.50	-9.50	-12.67	0.00	-380.82	0.00	380.82	1,021.54	246.98	465.58	414.85	34.92	-4.30	0.262
79.50	-9.12	-12.51	0.00	-355.48	0.00	355.48	1,011.55	243.40	452.16	404.77	36.73	-4.38	0.247
79.50	-9.12	-12.51	0.00	-355.48	0.00	355.48	1,011.55	243.40	452.16	404.77	36.73	-4.38	0.247
80.00	-9.03	-12.40	0.00	-349.23	0.00	349.23	828.38	212.16	400.77	337.67	37.19	-4.40	0.271
82.50	-8.67	-12.15	0.00	-318.24	0.00	318.24	819.42	208.32	386.39	327.92	39.52	-4.49	0.250
85.00	-8.31	-11.90	0.00	-287.87	0.00	287.87	810.23	204.48	372.28	318.20	41.90	-4.58	0.228
87.50	-7.95	-11.65	0.00	-258.12	0.00	258.12	800.82	200.64	358.43	308.54	44.32	-4.67	0.207

Load Case: 0.9D + 1.0W — 117 mph with No Ice (Reduced DL) — 26 Iterations

Gust Response Factor :1.10
Dead Load Factor :0.90
Wind Load Factor :1.00

90.00	-5.92	-8.89	0.00	-227.78	0.00	227.78	791.19	196.80	344.84	298.94	46.78	-4.75	0.183
92.50	-5.61	-8.64	0.00	-205.55	0.00	205.55	781.34	192.96	331.51	289.40	49.29	-4.82	0.167
95.00	-5.29	-8.40	0.00	-183.94	0.00	183.94	771.27	189.11	318.45	279.92	51.83	-4.89	0.151
97.44	-4.99	-8.23	0.00	-163.47	0.00	163.47	761.23	185.37	305.96	270.75	54.34	-4.95	0.135
97.44	-4.99	-8.23	0.00	-163.47	0.00	163.47	761.23	185.37	305.96	270.75	54.34	-4.95	0.612
97.50	-4.97	-8.15	0.00	-162.96	0.00	162.96	760.97	185.27	305.65	270.51	54.41	-4.95	0.611
100.00	-4.77	-7.48	0.00	-142.12	0.00	142.12	750.45	181.43	293.11	261.18	57.07	-5.22	0.552
102.50	-4.60	-7.28	0.00	-123.42	0.00	123.42	739.70	177.59	280.83	251.93	59.86	-5.46	0.498
105.00	-4.43	-7.16	0.00	-105.22	0.00	105.22	728.74	173.75	268.82	242.77	62.78	-5.68	0.441
107.50	-4.26	-7.04	0.00	-87.31	0.00	87.31	713.61	169.91	257.07	232.42	65.80	-5.89	0.383
110.00	-3.69	-5.63	0.00	-69.71	0.00	69.71	697.47	166.07	245.58	221.97	68.93	-6.06	0.320
112.50	-3.55	-5.51	0.00	-55.64	0.00	55.64	681.34	162.22	234.35	211.76	72.14	-6.21	0.269
115.00	-3.42	-5.39	0.00	-41.87	0.00	41.87	665.20	158.38	223.39	201.79	75.42	-6.34	0.214
117.50	-3.29	-5.27	0.00	-28.40	0.00	28.40	649.07	154.54	212.69	192.06	78.76	-6.43	0.154
120.00	0.00	-4.86	0.00	-15.24	0.00	15.24	632.94	150.70	202.25	182.57	82.14	-6.50	0.084

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.00 in Radial Ice 25 Iterations

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

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		19.8	0.0					0.0	0.0	19.8	0.0	0.0	0.0
2.50		39.4	324.4					0.0	508.1	39.4	832.5	0.0	0.0
5.00		39.3	329.2					0.0	514.9	39.3	844.1	0.0	0.0
7.50		39.0	329.6					0.0	547.2	39.0	876.7	0.0	0.0
10.00		38.7	328.5					0.0	665.7	38.7	994.2	0.0	0.0
12.50		38.5	326.8					0.0	668.2	38.5	995.0	0.0	0.0
15.00		22.8	324.5					0.0	670.3	22.8	994.8	0.0	0.0
15.48	Reinf. Top	19.0	62.0					0.0	128.7	19.0	190.7	0.0	0.0
17.50		34.2	260.1					0.0	381.4	34.2	641.5	0.0	0.0
20.00		37.6	319.2					0.0	473.2	37.6	792.4	0.0	0.0
22.50		37.3	316.3					0.0	474.6	37.3	790.8	0.0	0.0
25.00		37.0	313.2					0.0	449.3	37.0	762.5	0.0	0.0
27.50		36.7	310.0					0.0	450.1	36.7	760.1	0.0	0.0
30.00		36.6	306.7					0.0	450.9	36.6	757.6	0.0	0.0
32.50		36.9	303.3					0.0	451.6	36.9	754.9	0.0	0.0
35.00		37.4	299.8					0.0	452.3	37.4	752.1	0.0	0.0
37.50		19.4	296.3					0.0	452.9	19.4	749.2	0.0	0.0
37.58	Bot - Section 2	19.3	9.8					0.0	15.1	19.3	24.9	0.0	0.0
40.00		34.2	462.2					0.0	438.4	34.2	900.6	0.0	0.0
42.00	Top - Section 1	19.4	378.2					0.0	363.2	19.4	741.4	0.0	0.0
42.50		23.4	53.5					0.0	90.8	23.4	144.4	0.0	0.0
45.00		39.2	265.2					0.0	454.5	39.2	719.8	0.0	0.0
47.50		39.4	261.9					0.0	455.0	39.4	716.9	0.0	0.0
50.00		39.7	258.5					0.0	455.5	39.7	714.1	0.0	0.0
52.50		39.8	255.1					3.9	456.0	43.7	711.1	0.0	0.0
55.00		40.0	251.7					5.6	456.4	45.6	708.1	0.0	0.0
57.50		40.1	248.3					6.9	456.8	47.1	705.1	0.0	0.0
60.00		40.2	244.8					8.1	457.2	48.3	702.0	0.0	0.0
62.50		40.3	241.3					9.1	457.6	49.4	698.9	0.0	0.0
65.00		40.4	237.8					10.0	458.0	50.4	695.7	0.0	0.0
67.50		40.4	234.2					10.8	458.3	51.3	692.6	0.0	0.0
70.00		40.5	230.7					11.6	458.7	52.1	689.3	0.0	0.0
72.50		40.5	227.1					12.3	459.0	52.8	686.1	0.0	0.0
75.00		29.7	223.5					13.0	459.4	42.7	682.8	0.0	0.0
76.17	Bot - Section 3	20.4	103.2					6.3	214.5	26.7	317.7	0.0	0.0
77.50		27.4	185.0					7.4	245.2	34.8	430.2	0.0	0.0
79.50	Reinf. Top Reinf	20.5	274.2					11.4	368.0	31.9	642.2	0.0	0.0
80.00	Top - Section 2	24.5	68.0					2.9	92.0	27.4	160.0	0.0	0.0
82.50		40.8	196.4					14.4	460.3	55.2	656.7	0.0	0.0
85.00		40.7	193.1					15.0	460.6	55.7	653.7	0.0	0.0
87.50		40.5	189.8					15.6	460.9	56.0	650.7	0.0	0.0
90.00	Appurtenance(s)	40.1	186.5	532.2	0.0	253.6	6,428.2	26.2	461.1	598.5	7,075.9	0.0	0.0
92.50		39.7	183.2					16.6	391.0	56.3	574.3	0.0	0.0
95.00		38.8	179.9					17.1	391.2	55.9	571.1	0.0	0.0
97.44	Reinf. Top	19.6	172.2					17.1	381.6	36.7	553.7	0.0	0.0
97.50		19.8	4.4					0.4	4.8	20.3	9.2	0.0	0.0
100.00	Appurtenance(s)	38.5	173.2	99.4	0.0	99.4	298.3	18.0	191.1	155.9	662.5	0.0	0.0
102.50		34.9	169.8					14.7	130.7	49.6	300.5	0.0	0.0

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.00 in Radial Ice 25 Iterations

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

105.00		31.3	166.4					0.0	105.8	31.3	272.1	0.0	0.0
107.50		31.0	163.0					0.0	105.8	31.0	268.8	0.0	0.0
110.00	Appurtenance(s)	30.6	159.6	283.1	0.0	0.0	2,027.0	0.0	105.8	313.7	2,292.4	0.0	0.0
112.50		30.1	156.2					0.0	90.6	30.1	246.8	0.0	0.0
115.00		29.7	152.8					0.0	90.6	29.7	243.4	0.0	0.0
117.50		29.3	149.3					0.0	90.6	29.3	240.0	0.0	0.0
120.00	Appurtenance(s)	14.5	145.9	1,123.8	0.0	3,337.3	12,696.3	0.0	90.6	1,138.3	12,932.9	0.0	0.0
								Totals:		4,131.65	53,177.8	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.00 in Radial Ice 25 Iterations

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-53.18	-4.12	0.00	-403.42	0.00	403.42	1,590.66	434.43	1,260.13	996.98	0.00	0.00	0.132
2.50	-52.34	-4.11	0.00	-393.11	0.00	393.11	1,581.24	429.31	1,230.60	979.29	0.01	-0.03	0.130
5.00	-51.50	-4.10	0.00	-382.84	0.00	382.84	1,571.59	424.18	1,201.42	961.61	0.03	-0.06	0.127
7.50	-50.62	-4.08	0.00	-372.60	0.00	372.60	1,561.72	419.06	1,172.59	943.94	0.07	-0.08	0.125
10.00	-49.62	-4.06	0.00	-362.40	0.00	362.40	1,551.63	413.94	1,144.11	926.28	0.12	-0.11	0.122
12.50	-48.62	-4.05	0.00	-352.25	0.00	352.25	1,541.32	408.82	1,115.98	908.64	0.18	-0.14	0.120
15.00	-47.63	-4.03	0.00	-342.13	0.00	342.13	1,530.78	403.70	1,088.20	891.03	0.26	-0.17	0.117
15.48	-47.44	-4.03	0.00	-340.20	0.00	340.20	1,528.74	402.71	1,082.91	887.65	0.28	-0.17	0.117
15.48	-47.44	-4.03	0.00	-340.20	0.00	340.20	1,528.74	402.71	1,082.91	887.65	0.28	-0.17	0.183
17.50	-46.79	-4.02	0.00	-332.06	0.00	332.06	1,520.02	398.57	1,060.77	873.44	0.36	-0.19	0.180
20.00	-46.00	-4.01	0.00	-322.02	0.00	322.02	1,509.04	393.45	1,033.69	855.89	0.47	-0.24	0.176
22.50	-45.20	-4.00	0.00	-312.00	0.00	312.00	1,497.83	388.33	1,006.96	838.37	0.61	-0.28	0.172
25.00	-44.44	-4.00	0.00	-301.99	0.00	301.99	1,486.41	383.21	980.58	820.91	0.77	-0.32	0.169
27.50	-43.68	-3.99	0.00	-292.00	0.00	292.00	1,474.76	378.09	954.55	803.49	0.95	-0.37	0.165
30.00	-42.92	-3.98	0.00	-282.03	0.00	282.03	1,462.88	372.96	928.87	786.12	1.15	-0.41	0.161
32.50	-42.16	-3.97	0.00	-272.09	0.00	272.09	1,450.79	367.84	903.54	768.81	1.38	-0.45	0.157
35.00	-41.40	-3.95	0.00	-262.17	0.00	262.17	1,438.47	362.72	878.56	751.57	1.63	-0.49	0.153
37.50	-40.65	-3.94	0.00	-252.29	0.00	252.29	1,425.93	357.60	853.93	734.39	1.90	-0.53	0.149
37.58	-40.63	-3.94	0.00	-251.96	0.00	251.96	1,425.51	357.43	853.11	733.82	1.91	-0.54	0.149
40.00	-39.72	-3.92	0.00	-242.45	0.00	242.45	1,413.16	352.48	829.65	717.29	2.19	-0.58	0.143
42.00	-38.98	-3.91	0.00	-234.61	0.00	234.61	1,175.20	310.63	736.31	601.57	2.44	-0.61	0.156
42.50	-38.84	-3.90	0.00	-232.66	0.00	232.66	1,173.35	309.73	732.07	598.87	2.50	-0.62	0.155
45.00	-38.11	-3.88	0.00	-222.92	0.00	222.92	1,163.96	305.25	711.04	585.40	2.83	-0.66	0.150
47.50	-37.40	-3.86	0.00	-213.22	0.00	213.22	1,154.34	300.77	690.32	571.97	3.19	-0.70	0.145
50.00	-36.68	-3.83	0.00	-203.59	0.00	203.59	1,144.49	296.28	669.91	558.56	3.57	-0.74	0.140
52.50	-35.97	-3.80	0.00	-194.01	0.00	194.01	1,134.43	291.80	649.80	545.20	3.96	-0.78	0.135
55.00	-35.26	-3.77	0.00	-184.50	0.00	184.50	1,124.14	287.32	630.00	531.88	4.38	-0.82	0.130
57.50	-34.55	-3.74	0.00	-175.07	0.00	175.07	1,113.63	282.84	610.51	518.62	4.82	-0.85	0.125
60.00	-33.85	-3.70	0.00	-165.73	0.00	165.73	1,102.90	278.36	591.32	505.40	5.27	-0.89	0.120
62.50	-33.15	-3.66	0.00	-156.48	0.00	156.48	1,091.95	273.87	572.44	492.25	5.75	-0.93	0.114
65.00	-32.45	-3.62	0.00	-147.33	0.00	147.33	1,080.77	269.39	553.86	479.16	6.25	-0.96	0.109
67.50	-31.75	-3.57	0.00	-138.29	0.00	138.29	1,069.37	264.91	535.59	466.14	6.76	-0.99	0.104
70.00	-31.06	-3.53	0.00	-129.36	0.00	129.36	1,057.74	260.43	517.63	453.19	7.29	-1.03	0.099
72.50	-30.38	-3.48	0.00	-120.55	0.00	120.55	1,045.90	255.95	499.97	440.33	7.83	-1.06	0.093
75.00	-29.69	-3.43	0.00	-111.86	0.00	111.86	1,033.83	251.47	482.62	427.54	8.40	-1.09	0.088
76.17	-29.38	-3.41	0.00	-107.85	0.00	107.85	1,028.12	249.37	474.63	421.61	8.67	-1.10	0.086
77.50	-28.95	-3.37	0.00	-103.31	0.00	103.31	1,021.54	246.98	465.58	414.85	8.98	-1.12	0.081
79.50	-28.30	-3.34	0.00	-96.56	0.00	96.56	1,011.55	243.40	452.16	404.77	9.45	-1.14	0.077
79.50	-28.30	-3.34	0.00	-96.56	0.00	96.56	1,011.55	243.40	452.16	404.77	9.45	-1.14	0.077
80.00	-28.14	-3.31	0.00	-94.89	0.00	94.89	828.38	212.16	400.77	337.67	9.57	-1.15	0.085
82.50	-27.49	-3.26	0.00	-86.61	0.00	86.61	819.42	208.32	386.39	327.92	10.18	-1.17	0.079
85.00	-26.83	-3.20	0.00	-78.46	0.00	78.46	810.23	204.48	372.28	318.20	10.80	-1.20	0.073
87.50	-26.18	-3.14	0.00	-70.47	0.00	70.47	800.82	200.64	358.43	308.54	11.43	-1.22	0.067

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.00 in Radial Ice 25 Iterations

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

90.00	-19.12	-2.40	0.00	-62.36	0.00	62.36	791.19	196.80	344.84	298.94	12.08	-1.24	0.058
92.50	-18.55	-2.33	0.00	-56.37	0.00	56.37	781.34	192.96	331.51	289.40	12.74	-1.26	0.053
95.00	-17.98	-2.27	0.00	-50.54	0.00	50.54	771.27	189.11	318.45	279.92	13.40	-1.28	0.049
97.44	-17.42	-2.22	0.00	-45.00	0.00	45.00	761.23	185.37	305.96	270.75	14.06	-1.30	0.044
97.44	-17.42	-2.22	0.00	-45.00	0.00	45.00	761.23	185.37	305.96	270.75	14.06	-1.30	0.189
97.50	-17.41	-2.22	0.00	-44.86	0.00	44.86	760.97	185.27	305.65	270.51	14.08	-1.30	0.189
100.00	-16.75	-2.06	0.00	-39.23	0.00	39.23	750.45	181.43	293.11	261.18	14.78	-1.37	0.173
102.50	-16.45	-2.03	0.00	-34.07	0.00	34.07	739.70	177.59	280.83	251.93	15.52	-1.44	0.158
105.00	-16.18	-2.00	0.00	-29.00	0.00	29.00	728.74	173.75	268.82	242.77	16.29	-1.50	0.142
107.50	-15.91	-1.98	0.00	-23.99	0.00	23.99	713.61	169.91	257.07	232.42	17.09	-1.56	0.126
110.00	-13.62	-1.61	0.00	-19.04	0.00	19.04	697.47	166.07	245.58	221.97	17.92	-1.60	0.105
112.50	-13.38	-1.59	0.00	-15.00	0.00	15.00	681.34	162.22	234.35	211.76	18.77	-1.65	0.091
115.00	-13.13	-1.56	0.00	-11.04	0.00	11.04	665.20	158.38	223.39	201.79	19.64	-1.68	0.075
117.50	-12.89	-1.52	0.00	-7.15	0.00	7.15	649.07	154.54	212.69	192.06	20.52	-1.70	0.057
120.00	0.00	-1.14	0.00	-3.34	0.00	3.34	632.94	150.70	202.25	182.57	21.42	-1.72	0.018

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

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

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		23.2	0.0					0.0	0.0	23.2	0.0	0.0	0.0
2.50		46.1	209.3					11.6	376.0	57.7	585.4	0.0	0.0
5.00		45.5	206.9					11.6	376.0	57.2	582.9	0.0	0.0
7.50		45.0	204.4					11.6	393.9	56.6	598.3	0.0	0.0
10.00		44.4	201.9					11.6	465.5	56.1	667.4	0.0	0.0
12.50		43.9	199.4					11.6	465.5	55.5	664.9	0.0	0.0
15.00		26.0	196.9					11.6	465.5	37.6	662.4	0.0	0.0
15.48	Reinf. Top	21.5	37.5					2.2	89.2	23.8	126.7	0.0	0.0
17.50		38.7	157.0					9.4	241.3	48.1	398.3	0.0	0.0
20.00		42.3	192.0					11.6	298.5	53.9	490.5	0.0	0.0
22.50		41.7	189.5					11.6	298.5	53.3	488.0	0.0	0.0
25.00		41.2	187.0					11.6	298.5	52.8	485.5	0.0	0.0
27.50		40.6	184.5					11.6	298.5	52.3	483.0	0.0	0.0
30.00		40.3	182.0					11.6	298.5	52.0	480.5	0.0	0.0
32.50		40.5	179.5					11.8	298.5	52.2	478.0	0.0	0.0
35.00		40.8	177.1					12.0	298.5	52.8	475.6	0.0	0.0
37.50		21.1	174.6					12.3	298.5	33.4	473.1	0.0	0.0
37.58	Bot - Section 2	20.9	5.8					0.4	9.9	21.3	15.7	0.0	0.0
40.00		37.0	314.6					12.1	288.5	49.1	603.1	0.0	0.0
42.00	Top - Section 1	21.0	257.0					10.2	238.8	31.2	495.8	0.0	0.0
42.50		25.2	30.1					2.6	59.7	27.8	89.8	0.0	0.0
45.00		42.1	149.0					13.0	298.5	55.1	447.5	0.0	0.0
47.50		42.1	146.9					13.2	298.5	55.3	445.4	0.0	0.0
50.00		42.1	144.7					13.4	298.5	55.5	443.2	0.0	0.0
52.50		42.1	142.5					13.6	298.5	55.6	441.0	0.0	0.0
55.00		42.0	140.4					13.7	298.5	55.7	438.9	0.0	0.0
57.50		41.9	138.2					13.9	298.5	55.8	436.7	0.0	0.0
60.00		41.7	136.0					14.1	298.5	55.8	434.5	0.0	0.0
62.50		41.5	133.8					14.3	298.5	55.8	432.3	0.0	0.0
65.00		41.3	131.7					14.4	298.5	55.8	430.2	0.0	0.0
67.50		41.1	129.5					14.6	298.5	55.7	428.0	0.0	0.0
70.00		40.8	127.3					14.7	298.5	55.6	425.8	0.0	0.0
72.50		40.5	125.2					14.9	298.5	55.4	423.6	0.0	0.0
75.00		29.6	123.0					15.0	298.5	44.6	421.5	0.0	0.0
76.17	Bot - Section 3	20.2	56.6					7.1	139.3	27.3	195.9	0.0	0.0
77.50		27.0	120.3					8.1	159.2	35.2	279.5	0.0	0.0
79.50	Reinf. Top Reinf	20.2	178.2					12.3	238.8	32.5	417.0	0.0	0.0
80.00	Top - Section 2	24.1	44.2					3.1	59.7	27.1	103.8	0.0	0.0
82.50		39.9	101.9					15.5	298.5	55.4	400.4	0.0	0.0
85.00		39.5	100.0					15.6	298.5	55.1	398.5	0.0	0.0
87.50		39.1	98.2					15.7	298.5	54.8	396.7	0.0	0.0
90.00	Appurtenance(s)	38.7	96.3	554.5	0.0	287.1	2,094.3	15.9	298.5	609.0	2,489.1	0.0	0.0
92.50		38.2	94.5					16.0	267.4	54.2	361.9	0.0	0.0
95.00		37.3	92.6					16.1	267.4	53.4	360.0	0.0	0.0
97.44	Reinf. Top	18.8	88.5					15.8	260.7	34.6	349.2	0.0	0.0
97.50		19.0	2.2					0.4	2.5	19.4	4.8	0.0	0.0
100.00	Appurtenance(s)	36.8	88.9	105.8	0.0	105.8	70.4	16.4	100.4	158.9	259.7	0.0	0.0
102.50		32.5	87.0					16.5	88.1	49.0	175.1	0.0	0.0

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

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

105.00		28.3	85.2					0.0	88.1	28.3	173.3	0.0	0.0
107.50		27.8	83.3					0.0	88.1	27.8	171.4	0.0	0.0
110.00	Appurtenance(s)	27.4	81.4	292.5	0.0	0.0	612.0	0.0	88.1	319.9	781.6	0.0	0.0
112.50		26.9	79.6					0.0	75.5	26.9	155.1	0.0	0.0
115.00		26.5	77.7					0.0	75.5	26.5	153.2	0.0	0.0
117.50		26.2	75.8					0.0	75.5	26.2	151.4	0.0	0.0
120.00	Appurtenance(s)	13.0	74.0	1,131.4	0.0	3,585.2	4,137.2	0.0	75.5	1,144.4	4,286.7	0.0	0.0
								Totals:		4,525.27	27,057.8	0.00	0.00

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

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-27.06	-4.51	0.00	-386.96	0.00	386.96	1,590.66	434.43	1,260.13	996.98	0.00	0.00	0.121
2.50	-26.47	-4.46	0.00	-375.70	0.00	375.70	1,581.24	429.31	1,230.60	979.29	0.01	-0.03	0.118
5.00	-25.88	-4.42	0.00	-364.54	0.00	364.54	1,571.59	424.18	1,201.42	961.61	0.03	-0.05	0.116
7.50	-25.28	-4.37	0.00	-353.50	0.00	353.50	1,561.72	419.06	1,172.59	943.94	0.06	-0.08	0.113
10.00	-24.61	-4.33	0.00	-342.57	0.00	342.57	1,551.63	413.94	1,144.11	926.28	0.11	-0.11	0.110
12.50	-23.95	-4.28	0.00	-331.76	0.00	331.76	1,541.32	408.82	1,115.98	908.64	0.18	-0.13	0.107
15.00	-23.28	-4.25	0.00	-321.06	0.00	321.06	1,530.78	403.70	1,088.20	891.03	0.25	-0.16	0.105
15.48	-23.16	-4.23	0.00	-319.02	0.00	319.02	1,528.74	402.71	1,082.91	887.65	0.27	-0.16	0.104
15.48	-23.16	-4.23	0.00	-319.02	0.00	319.02	1,528.74	402.71	1,082.91	887.65	0.27	-0.16	0.164
17.50	-22.76	-4.19	0.00	-310.48	0.00	310.48	1,520.02	398.57	1,060.77	873.44	0.34	-0.18	0.161
20.00	-22.26	-4.15	0.00	-300.01	0.00	300.01	1,509.04	393.45	1,033.69	855.89	0.45	-0.22	0.157
22.50	-21.77	-4.11	0.00	-289.63	0.00	289.63	1,497.83	388.33	1,006.96	838.37	0.58	-0.26	0.153
25.00	-21.29	-4.07	0.00	-279.36	0.00	279.36	1,486.41	383.21	980.58	820.91	0.73	-0.30	0.149
27.50	-20.80	-4.03	0.00	-269.18	0.00	269.18	1,474.76	378.09	954.55	803.49	0.90	-0.34	0.145
30.00	-20.32	-3.99	0.00	-259.11	0.00	259.11	1,462.88	372.96	928.87	786.12	1.09	-0.38	0.141
32.50	-19.84	-3.95	0.00	-249.14	0.00	249.14	1,450.79	367.84	903.54	768.81	1.30	-0.42	0.137
35.00	-19.36	-3.90	0.00	-239.28	0.00	239.28	1,438.47	362.72	878.56	751.57	1.53	-0.46	0.133
37.50	-18.88	-3.87	0.00	-229.52	0.00	229.52	1,425.93	357.60	853.93	734.39	1.78	-0.50	0.129
37.58	-18.87	-3.86	0.00	-229.20	0.00	229.20	1,425.51	357.43	853.11	733.82	1.79	-0.50	0.129
40.00	-18.26	-3.81	0.00	-219.88	0.00	219.88	1,413.16	352.48	829.65	717.29	2.05	-0.54	0.123
42.00	-17.77	-3.78	0.00	-212.26	0.00	212.26	1,175.20	310.63	736.31	601.57	2.28	-0.57	0.134
42.50	-17.68	-3.76	0.00	-210.37	0.00	210.37	1,173.35	309.73	732.07	598.87	2.34	-0.57	0.133
45.00	-17.23	-3.71	0.00	-200.97	0.00	200.97	1,163.96	305.25	711.04	585.40	2.65	-0.61	0.128
47.50	-16.78	-3.66	0.00	-191.69	0.00	191.69	1,154.34	300.77	690.32	571.97	2.98	-0.65	0.123
50.00	-16.33	-3.61	0.00	-182.54	0.00	182.54	1,144.49	296.28	669.91	558.56	3.33	-0.68	0.119
52.50	-15.89	-3.56	0.00	-173.52	0.00	173.52	1,134.43	291.80	649.80	545.20	3.70	-0.72	0.114
55.00	-15.45	-3.51	0.00	-164.62	0.00	164.62	1,124.14	287.32	630.00	531.88	4.08	-0.75	0.109
57.50	-15.01	-3.45	0.00	-155.85	0.00	155.85	1,113.63	282.84	610.51	518.62	4.48	-0.78	0.105
60.00	-14.58	-3.40	0.00	-147.21	0.00	147.21	1,102.90	278.36	591.32	505.40	4.90	-0.82	0.100
62.50	-14.14	-3.35	0.00	-138.71	0.00	138.71	1,091.95	273.87	572.44	492.25	5.34	-0.85	0.095
65.00	-13.71	-3.29	0.00	-130.35	0.00	130.35	1,080.77	269.39	553.86	479.16	5.79	-0.88	0.090
67.50	-13.28	-3.24	0.00	-122.12	0.00	122.12	1,069.37	264.91	535.59	466.14	6.26	-0.91	0.086
70.00	-12.86	-3.18	0.00	-114.03	0.00	114.03	1,057.74	260.43	517.63	453.19	6.75	-0.94	0.081
72.50	-12.43	-3.12	0.00	-106.08	0.00	106.08	1,045.90	255.95	499.97	440.33	7.25	-0.97	0.076
75.00	-12.01	-3.08	0.00	-98.27	0.00	98.27	1,033.83	251.47	482.62	427.54	7.76	-0.99	0.072
76.17	-11.82	-3.05	0.00	-94.69	0.00	94.69	1,028.12	249.37	474.63	421.61	8.01	-1.01	0.069
77.50	-11.54	-3.01	0.00	-90.62	0.00	90.62	1,021.54	246.98	465.58	414.85	8.29	-1.02	0.066
79.50	-11.12	-2.97	0.00	-84.60	0.00	84.60	1,011.55	243.40	452.16	404.77	8.72	-1.04	0.062
79.50	-11.12	-2.97	0.00	-84.60	0.00	84.60	1,011.55	243.40	452.16	404.77	8.72	-1.04	0.062
80.00	-11.02	-2.95	0.00	-83.11	0.00	83.11	828.38	212.16	400.77	337.67	8.83	-1.04	0.068
82.50	-10.62	-2.89	0.00	-75.75	0.00	75.75	819.42	208.32	386.39	327.92	9.38	-1.07	0.063
85.00	-10.22	-2.83	0.00	-68.53	0.00	68.53	810.23	204.48	372.28	318.20	9.95	-1.09	0.057
87.50	-9.82	-2.77	0.00	-61.45	0.00	61.45	800.82	200.64	358.43	308.54	10.52	-1.11	0.052

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

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

90.00	-7.34	-2.12	0.00	-54.24	0.00	54.24	791.19	196.80	344.84	298.94	11.11	-1.13	0.046
92.50	-6.98	-2.06	0.00	-48.95	0.00	48.95	781.34	192.96	331.51	289.40	11.71	-1.15	0.042
95.00	-6.62	-2.00	0.00	-43.81	0.00	43.81	771.27	189.11	318.45	279.92	12.31	-1.16	0.038
97.44	-6.27	-1.96	0.00	-38.95	0.00	38.95	761.23	185.37	305.96	270.75	12.91	-1.18	0.034
97.44	-6.27	-1.96	0.00	-38.95	0.00	38.95	761.23	185.37	305.96	270.75	12.91	-1.18	0.152
97.50	-6.27	-1.94	0.00	-38.82	0.00	38.82	760.97	185.27	305.65	270.51	12.92	-1.18	0.152
100.00	-6.01	-1.78	0.00	-33.87	0.00	33.87	750.45	181.43	293.11	261.18	13.55	-1.24	0.138
102.50	-5.83	-1.74	0.00	-29.41	0.00	29.41	739.70	177.59	280.83	251.93	14.22	-1.30	0.125
105.00	-5.66	-1.71	0.00	-25.07	0.00	25.07	728.74	173.75	268.82	242.77	14.91	-1.35	0.111
107.50	-5.49	-1.68	0.00	-20.80	0.00	20.80	713.61	169.91	257.07	232.42	15.63	-1.40	0.097
110.00	-4.71	-1.34	0.00	-16.60	0.00	16.60	697.47	166.07	245.58	221.97	16.38	-1.44	0.082
112.50	-4.56	-1.32	0.00	-13.24	0.00	13.24	681.34	162.22	234.35	211.76	17.14	-1.48	0.069
115.00	-4.41	-1.29	0.00	-9.95	0.00	9.95	665.20	158.38	223.39	201.79	17.92	-1.51	0.056
117.50	-4.25	-1.26	0.00	-6.73	0.00	6.73	649.07	154.54	212.69	192.06	18.72	-1.53	0.042
120.00	0.00	-1.14	0.00	-3.59	0.00	3.59	632.94	150.70	202.25	182.57	19.52	-1.54	0.020

Equivalent Lateral Forces Method Analysis

Spectral Response Acceleration for Short Period (S_s):	0.19
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coeffiecient F_v:	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.20
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_s	0.03
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	2.38
Redundancy Factor (p):	1.00
Seismic Force Distribution Exponent (k):	1.94
Total Unfactored Dead Load:	27.06 k
Seismic Base Shear (E):	0.81 k

Load Case 1.2D + 1.0Ev + 1.0Eh Seismic

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
54	118.75	150	1,584	0.013	11	185
53	116.25	151	1,539	0.013	11	188
52	113.75	153	1,493	0.013	10	190
51	111.25	155	1,448	0.012	10	192
50	108.75	170	1,514	0.013	10	210
49	106.25	171	1,464	0.012	10	213
48	103.75	173	1,413	0.012	10	215
47	101.25	175	1,362	0.012	9	217
46	98.75	189	1,402	0.012	10	235
45	97.47	5	34	0.000	0	6
44	96.22	349	2,460	0.021	17	433
43	93.75	360	2,411	0.021	17	447
42	91.25	362	2,300	0.020	16	449
41	88.75	395	2,378	0.020	16	490
40	86.25	397	2,260	0.019	16	492
39	83.75	399	2,145	0.018	15	494
38	81.25	400	2,032	0.017	14	497
37	79.75	104	508	0.004	4	129
36	78.50	417	1,979	0.017	14	517
35	76.83	279	1,272	0.011	9	347
34	75.58	196	864	0.007	6	243
33	73.75	421	1,772	0.015	12	523
32	71.25	424	1,666	0.014	11	526
31	68.75	426	1,562	0.013	11	528
30	66.25	428	1,461	0.012	10	531

29	63.75	430	1,363	0.012	9	534
28	61.25	432	1,268	0.011	9	536
27	58.75	435	1,175	0.010	8	539
26	56.25	437	1,086	0.009	7	542
25	53.75	439	999	0.008	7	544
24	51.25	441	915	0.008	6	547
23	48.75	443	835	0.007	6	550
22	46.25	445	757	0.006	5	553
21	43.75	448	683	0.006	5	555
20	42.25	90	128	0.001	1	111
19	41.00	496	667	0.006	5	615
18	38.79	603	729	0.006	5	748
17	37.54	16	18	0.000	0	20
16	36.25	473	501	0.004	3	587
15	33.75	476	439	0.004	3	590
14	31.25	478	380	0.003	3	593
13	28.75	481	325	0.003	2	596
12	26.25	483	274	0.002	2	599
11	23.75	485	227	0.002	2	602
10	21.25	488	184	0.002	1	605
9	18.75	490	145	0.001	1	608
8	16.49	398	92	0.001	1	494
7	15.24	127	25	0.000	0	157
6	13.75	662	107	0.001	1	822
5	11.25	665	73	0.001	1	825
4	8.75	667	45	0.000	0	828
3	6.25	598	21	0.000	0	742
2	3.75	583	8	0.000	0	723
1	1.25	585	1	0.000	0	726
CCI TPX-070821	120.00	45	487	0.004	3	56
CCI TPX-070821	120.00	45	487	0.004	3	56
Powerwave Allgon LGP	120.00	85	915	0.008	6	105
Raycap DC6-48-60-18-	120.00	40	432	0.004	3	50
Raycap DC6-48-60-18-	120.00	64	688	0.006	5	79
Ericsson RRUS A2	120.00	45	487	0.004	3	56
Ericsson Radio 8843	120.00	216	2,332	0.020	16	268
Ericsson RRUS 4478 B	120.00	180	1,943	0.017	13	223
Ericsson RRUS 4449 B	120.00	213	2,303	0.020	16	264
Ericsson RRUS 32 (50	120.00	152	1,648	0.014	11	189
Ericsson RRUS 32 B2	120.00	159	1,719	0.015	12	197
Generic 2' Std. Dish	120.00	14	151	0.001	1	17
Powerwave Allgon 777	120.00	105	1,135	0.010	8	130
Quintel QS66512-3 (1	120.00	112	1,211	0.010	8	139
CCI DMP65R-BU6DA	120.00	79	858	0.007	6	98
CCI TPA-65R-LCUUUU-H	120.00	163	1,764	0.015	12	202
Kathrein Scala 80010	120.00	229	2,478	0.021	17	284
CCI DMP65R-BU8D	120.00	191	2,069	0.018	14	237
Platform w/ Handrail	120.00	2,000	21,624	0.184	149	2,481
Andrew DB844H90E-XY	110.00	112	1,023	0.009	7	139
Round T-Arm	110.00	500	4,566	0.039	32	620
Kathrein Scala 742 2	100.00	44	334	0.003	2	55
RFS APXV18-206517S-C	100.00	26	200	0.002	1	33
DragonWave Horizon C	90.00	21	131	0.001	1	26
Alcatel-Lucent RRH2x	90.00	317	1,964	0.017	14	394
Alcatel-Lucent 1900	90.00	180	1,114	0.009	8	223
Nokia 2.5G MAA - AAH	90.00	311	1,923	0.016	13	386
DragonWave A-ANT-11G	90.00	95	589	0.005	4	118
Commscope NNVV-65B-R	90.00	232	1,437	0.012	10	288
Generic Flat T-Arm	90.00	938	5,801	0.049	40	1,163
		27,058	117,603	1.000	812	33,566

Load Case 0.9D - 1.0Ev + 1.0Eh Seismic (Reduced DL)

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
54	118.75	150	1,584	0.013	11	128
53	116.25	151	1,539	0.013	11	130
52	113.75	153	1,493	0.013	10	132
51	111.25	155	1,448	0.012	10	133
50	108.75	170	1,514	0.013	10	146
49	106.25	171	1,464	0.012	10	147
48	103.75	173	1,413	0.012	10	149
47	101.25	175	1,362	0.012	9	151
46	98.75	189	1,402	0.012	10	163
45	97.47	5	34	0.000	0	4
44	96.22	349	2,460	0.021	17	300
43	93.75	360	2,411	0.021	17	309
42	91.25	362	2,300	0.020	16	311
41	88.75	395	2,378	0.020	16	339
40	86.25	397	2,260	0.019	16	341
39	83.75	399	2,145	0.018	15	343
38	81.25	400	2,032	0.017	14	344
37	79.75	104	508	0.004	4	89
36	78.50	417	1,979	0.017	14	358
35	76.83	279	1,272	0.011	9	240
34	75.58	196	864	0.007	6	168
33	73.75	421	1,772	0.015	12	362
32	71.25	424	1,666	0.014	11	364
31	68.75	426	1,562	0.013	11	366
30	66.25	428	1,461	0.012	10	368
29	63.75	430	1,363	0.012	9	370
28	61.25	432	1,268	0.011	9	372
27	58.75	435	1,175	0.010	8	373
26	56.25	437	1,086	0.009	7	375
25	53.75	439	999	0.008	7	377
24	51.25	441	915	0.008	6	379
23	48.75	443	835	0.007	6	381
22	46.25	445	757	0.006	5	383
21	43.75	448	683	0.006	5	385
20	42.25	90	128	0.001	1	77
19	41.00	496	667	0.006	5	426
18	38.79	603	729	0.006	5	518
17	37.54	16	18	0.000	0	14
16	36.25	473	501	0.004	3	407
15	33.75	476	439	0.004	3	409
14	31.25	478	380	0.003	3	411
13	28.75	481	325	0.003	2	413
12	26.25	483	274	0.002	2	415
11	23.75	485	227	0.002	2	417
10	21.25	488	184	0.002	1	419
9	18.75	490	145	0.001	1	422
8	16.49	398	92	0.001	1	342
7	15.24	127	25	0.000	0	109
6	13.75	662	107	0.001	1	569
5	11.25	665	73	0.001	1	571
4	8.75	667	45	0.000	0	574
3	6.25	598	21	0.000	0	514
2	3.75	583	8	0.000	0	501
1	1.25	585	1	0.000	0	503
CCI TPX-070821	120.00	45	487	0.004	3	39
CCI TPX-070821	120.00	45	487	0.004	3	39
Powerwave Allgon LGP	120.00	85	915	0.008	6	73

Raycap DC6-48-60-18-	120.00	40	432	0.004	3	34
Raycap DC6-48-60-18-	120.00	64	688	0.006	5	55
Ericsson RRUS A2	120.00	45	487	0.004	3	39
Ericsson Radio 8843	120.00	216	2,332	0.020	16	185
Ericsson RRUS 4478 B	120.00	180	1,943	0.017	13	154
Ericsson RRUS 4449 B	120.00	213	2,303	0.020	16	183
Ericsson RRUS 32 (50	120.00	152	1,648	0.014	11	131
Ericsson RRUS 32 B2	120.00	159	1,719	0.015	12	137
Generic 2' Std. Dish	120.00	14	151	0.001	1	12
Powerwave Allgon 777	120.00	105	1,135	0.010	8	90
Quintel QS66512-3 (1	120.00	112	1,211	0.010	8	96
CCI DMP65R-BU6DA	120.00	79	858	0.007	6	68
CCI TPA-65R-LCUUUU-H	120.00	163	1,764	0.015	12	140
Kathrein Scala 80010	120.00	229	2,478	0.021	17	197
CCI DMP65R-BU8D	120.00	191	2,069	0.018	14	165
Platform w/ Handrail	120.00	2,000	21,624	0.184	149	1,719
Andrew DB844H90E-XY	110.00	112	1,023	0.009	7	96
Round T-Arm	110.00	500	4,566	0.039	32	430
Kathrein Scala 742 2	100.00	44	334	0.003	2	38
RFS APXV18-206517S-C	100.00	26	200	0.002	1	23
DragonWave Horizon C	90.00	21	131	0.001	1	18
Alcatel-Lucent RRH2x	90.00	317	1,964	0.017	14	273
Alcatel-Lucent 1900	90.00	180	1,114	0.009	8	155
Nokia 2.5G MAA - AAH	90.00	311	1,923	0.016	13	267
DragonWave A-ANT-11G	90.00	95	589	0.005	4	82
Commscope NNVV-65B-R	90.00	232	1,437	0.012	10	200
Generic Flat T-Arm	90.00	938	5,801	0.049	40	806
		27,058	117,603	1.000	812	23,255

Load Case 1.2D + 1.0Ev + 1.0Eh Seismic

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-32.84	-0.81	0.00	-83.79	0.00	83.79	1,590.66	434.43	1,260.13	996.98	0.00	0.00	0.033
2.50	-32.12	-0.82	0.00	-81.76	0.00	81.76	1,581.24	429.31	1,230.60	979.29	0.00	-0.01	0.032
5.00	-31.37	-0.82	0.00	-79.72	0.00	79.72	1,571.59	424.18	1,201.42	961.61	0.01	-0.01	0.032
7.50	-30.55	-0.82	0.00	-77.68	0.00	77.68	1,561.72	419.06	1,172.59	943.94	0.01	-0.02	0.031
10.00	-29.72	-0.82	0.00	-75.62	0.00	75.62	1,551.63	413.94	1,144.11	926.28	0.02	-0.02	0.030
12.50	-28.90	-0.82	0.00	-73.57	0.00	73.57	1,541.32	408.82	1,115.98	908.64	0.04	-0.03	0.029
15.00	-28.74	-0.83	0.00	-71.51	0.00	71.51	1,530.78	403.70	1,088.20	891.03	0.06	-0.03	0.029
15.48	-28.25	-0.83	0.00	-71.11	0.00	71.11	1,528.74	402.71	1,082.91	887.65	0.06	-0.04	0.029
15.48	-28.25	-0.83	0.00	-71.11	0.00	71.11	1,528.74	402.71	1,082.91	887.65	0.06	-0.04	0.045
17.50	-27.64	-0.83	0.00	-69.44	0.00	69.44	1,520.02	398.57	1,060.77	873.44	0.07	-0.04	0.044
20.00	-27.03	-0.83	0.00	-67.37	0.00	67.37	1,509.04	393.45	1,033.69	855.89	0.10	-0.05	0.043
22.50	-26.43	-0.83	0.00	-65.29	0.00	65.29	1,497.83	388.33	1,006.96	838.37	0.13	-0.06	0.042
25.00	-25.83	-0.83	0.00	-63.21	0.00	63.21	1,486.41	383.21	980.58	820.91	0.16	-0.07	0.041
27.50	-25.24	-0.84	0.00	-61.12	0.00	61.12	1,474.76	378.09	954.55	803.49	0.20	-0.08	0.040
30.00	-24.64	-0.84	0.00	-59.03	0.00	59.03	1,462.88	372.96	928.87	786.12	0.24	-0.09	0.039
32.50	-24.05	-0.84	0.00	-56.94	0.00	56.94	1,450.79	367.84	903.54	768.81	0.29	-0.09	0.038
35.00	-23.47	-0.83	0.00	-54.86	0.00	54.86	1,438.47	362.72	878.56	751.57	0.34	-0.10	0.037
37.50	-23.45	-0.84	0.00	-52.77	0.00	52.77	1,425.93	357.60	853.93	734.39	0.40	-0.11	0.037
37.58	-22.70	-0.83	0.00	-52.70	0.00	52.70	1,425.51	357.43	853.11	733.82	0.40	-0.11	0.036
40.00	-22.08	-0.83	0.00	-50.69	0.00	50.69	1,413.16	352.48	829.65	717.29	0.46	-0.12	0.035
42.00	-21.97	-0.83	0.00	-49.03	0.00	49.03	1,175.20	310.63	736.31	601.57	0.51	-0.13	0.038
42.50	-21.42	-0.83	0.00	-48.62	0.00	48.62	1,173.35	309.73	732.07	598.87	0.52	-0.13	0.038
45.00	-20.86	-0.82	0.00	-46.55	0.00	46.55	1,163.96	305.25	711.04	585.40	0.59	-0.14	0.036
47.50	-20.31	-0.82	0.00	-44.50	0.00	44.50	1,154.34	300.77	690.32	571.97	0.67	-0.15	0.035
50.00	-19.77	-0.81	0.00	-42.46	0.00	42.46	1,144.49	296.28	669.91	558.56	0.74	-0.15	0.034
52.50	-19.22	-0.81	0.00	-40.42	0.00	40.42	1,134.43	291.80	649.80	545.20	0.83	-0.16	0.033
55.00	-18.68	-0.80	0.00	-38.41	0.00	38.41	1,124.14	287.32	630.00	531.88	0.91	-0.17	0.032
57.50	-18.14	-0.79	0.00	-36.41	0.00	36.41	1,113.63	282.84	610.51	518.62	1.01	-0.18	0.030
60.00	-17.61	-0.79	0.00	-34.42	0.00	34.42	1,102.90	278.36	591.32	505.40	1.10	-0.19	0.029
62.50	-17.07	-0.78	0.00	-32.46	0.00	32.46	1,091.95	273.87	572.44	492.25	1.20	-0.19	0.028
65.00	-16.54	-0.77	0.00	-30.52	0.00	30.52	1,080.77	269.39	553.86	479.16	1.30	-0.20	0.027
67.50	-16.01	-0.76	0.00	-28.60	0.00	28.60	1,069.37	264.91	535.59	466.14	1.41	-0.21	0.025
70.00	-15.49	-0.74	0.00	-26.71	0.00	26.71	1,057.74	260.43	517.63	453.19	1.52	-0.21	0.024
72.50	-14.96	-0.73	0.00	-24.85	0.00	24.85	1,045.90	255.95	499.97	440.33	1.64	-0.22	0.023
75.00	-14.72	-0.73	0.00	-23.02	0.00	23.02	1,033.83	251.47	482.62	427.54	1.75	-0.23	0.022
76.17	-14.37	-0.72	0.00	-22.18	0.00	22.18	1,028.12	249.37	474.63	421.61	1.81	-0.23	0.021
77.50	-13.86	-0.70	0.00	-21.22	0.00	21.22	1,021.54	246.98	465.58	414.85	1.87	-0.23	0.020
79.50	-13.73	-0.70	0.00	-19.82	0.00	19.82	1,011.55	243.40	452.16	404.77	1.97	-0.24	0.019
79.50	-13.73	-0.70	0.00	-19.82	0.00	19.82	1,011.55	243.40	452.16	404.77	1.97	-0.24	0.019
80.00	-13.23	-0.68	0.00	-19.47	0.00	19.47	828.38	212.16	400.77	337.67	2.00	-0.24	0.021
82.50	-12.74	-0.67	0.00	-17.76	0.00	17.76	819.42	208.32	386.39	327.92	2.12	-0.24	0.019
85.00	-12.24	-0.65	0.00	-16.09	0.00	16.09	810.23	204.48	372.28	318.20	2.25	-0.25	0.018
87.50	-11.75	-0.63	0.00	-14.47	0.00	14.47	800.82	200.64	358.43	308.54	2.39	-0.25	0.017
90.00	-8.71	-0.51	0.00	-12.88	0.00	12.88	791.19	196.80	344.84	298.94	2.52	-0.26	0.014
92.50	-8.26	-0.50	0.00	-11.60	0.00	11.60	781.34	192.96	331.51	289.40	2.66	-0.26	0.013
95.00	-7.83	-0.48	0.00	-10.35	0.00	10.35	771.27	189.11	318.45	279.92	2.80	-0.27	0.012
97.44	-7.82	-0.48	0.00	-9.19	0.00	9.19	761.23	185.37	305.96	270.75	2.93	-0.27	0.011

97.44	-7.82	-0.48	0.00	-9.19	0.00	9.19	761.23	185.37	305.96	270.75	2.93	-0.27	0.044
97.50	-7.59	-0.47	0.00	-9.16	0.00	9.16	760.97	185.27	305.65	270.51	2.94	-0.27	0.044
100.00	-7.28	-0.46	0.00	-7.99	0.00	7.99	750.45	181.43	293.11	261.18	3.08	-0.28	0.040
102.50	-7.07	-0.45	0.00	-6.85	0.00	6.85	739.70	177.59	280.83	251.93	3.23	-0.30	0.037
105.00	-6.86	-0.44	0.00	-5.73	0.00	5.73	728.74	173.75	268.82	242.77	3.39	-0.31	0.033
107.50	-6.64	-0.43	0.00	-4.64	0.00	4.64	713.61	169.91	257.07	232.42	3.56	-0.32	0.029
110.00	-5.69	-0.37	0.00	-3.57	0.00	3.57	697.47	166.07	245.58	221.97	3.73	-0.33	0.024
112.50	-5.50	-0.36	0.00	-2.64	0.00	2.64	681.34	162.22	234.35	211.76	3.91	-0.34	0.021
115.00	-5.32	-0.35	0.00	-1.73	0.00	1.73	665.20	158.38	223.39	201.79	4.09	-0.34	0.017
117.50	-5.13	-0.34	0.00	-0.85	0.00	0.85	649.07	154.54	212.69	192.06	4.27	-0.35	0.012
120.00	0.00	-0.31	0.00	0.00	0.00	0.00	632.94	150.70	202.25	182.57	4.45	-0.35	0.000

Load Case 0.9D - 1.0Ev + 1.0Eh Seismic (Reduced DL)

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-22.75	-0.81	0.00	-82.24	0.00	82.24	1,590.66	434.43	1,260.13	996.98	0.00	0.00	0.030
2.50	-22.25	-0.81	0.00	-80.21	0.00	80.21	1,581.24	429.31	1,230.60	979.29	0.00	-0.01	0.029
5.00	-21.74	-0.82	0.00	-78.18	0.00	78.18	1,571.59	424.18	1,201.42	961.61	0.01	-0.01	0.029
7.50	-21.16	-0.82	0.00	-76.14	0.00	76.14	1,561.72	419.06	1,172.59	943.94	0.01	-0.02	0.028
10.00	-20.59	-0.82	0.00	-74.09	0.00	74.09	1,551.63	413.94	1,144.11	926.28	0.02	-0.02	0.027
12.50	-20.02	-0.82	0.00	-72.05	0.00	72.05	1,541.32	408.82	1,115.98	908.64	0.04	-0.03	0.027
15.00	-19.91	-0.82	0.00	-70.00	0.00	70.00	1,530.78	403.70	1,088.20	891.03	0.05	-0.03	0.026
15.48	-19.57	-0.82	0.00	-69.61	0.00	69.61	1,528.74	402.71	1,082.91	887.65	0.06	-0.04	0.026
15.48	-19.57	-0.82	0.00	-69.61	0.00	69.61	1,528.74	402.71	1,082.91	887.65	0.06	-0.04	0.041
17.50	-19.15	-0.82	0.00	-67.95	0.00	67.95	1,520.02	398.57	1,060.77	873.44	0.07	-0.04	0.040
20.00	-18.73	-0.82	0.00	-65.89	0.00	65.89	1,509.04	393.45	1,033.69	855.89	0.10	-0.05	0.039
22.50	-18.31	-0.82	0.00	-63.84	0.00	63.84	1,497.83	388.33	1,006.96	838.37	0.12	-0.06	0.038
25.00	-17.90	-0.82	0.00	-61.78	0.00	61.78	1,486.41	383.21	980.58	820.91	0.16	-0.07	0.038
27.50	-17.48	-0.82	0.00	-59.72	0.00	59.72	1,474.76	378.09	954.55	803.49	0.19	-0.07	0.037
30.00	-17.07	-0.82	0.00	-57.66	0.00	57.66	1,462.88	372.96	928.87	786.12	0.24	-0.08	0.036
32.50	-16.66	-0.82	0.00	-55.60	0.00	55.60	1,450.79	367.84	903.54	768.81	0.28	-0.09	0.035
35.00	-16.26	-0.82	0.00	-53.54	0.00	53.54	1,438.47	362.72	878.56	751.57	0.33	-0.10	0.034
37.50	-16.24	-0.82	0.00	-51.49	0.00	51.49	1,425.93	357.60	853.93	734.39	0.39	-0.11	0.033
37.58	-15.73	-0.82	0.00	-51.42	0.00	51.42	1,425.51	357.43	853.11	733.82	0.39	-0.11	0.033
40.00	-15.30	-0.81	0.00	-49.45	0.00	49.45	1,413.16	352.48	829.65	717.29	0.45	-0.12	0.032
42.00	-15.22	-0.81	0.00	-47.82	0.00	47.82	1,175.20	310.63	736.31	601.57	0.50	-0.12	0.035
42.50	-14.84	-0.81	0.00	-47.41	0.00	47.41	1,173.35	309.73	732.07	598.87	0.51	-0.13	0.034
45.00	-14.45	-0.81	0.00	-45.39	0.00	45.39	1,163.96	305.25	711.04	585.40	0.58	-0.13	0.033
47.50	-14.07	-0.80	0.00	-43.38	0.00	43.38	1,154.34	300.77	690.32	571.97	0.65	-0.14	0.032
50.00	-13.69	-0.80	0.00	-41.38	0.00	41.38	1,144.49	296.28	669.91	558.56	0.73	-0.15	0.031
52.50	-13.32	-0.79	0.00	-39.39	0.00	39.39	1,134.43	291.80	649.80	545.20	0.81	-0.16	0.030
55.00	-12.94	-0.78	0.00	-37.42	0.00	37.42	1,124.14	287.32	630.00	531.88	0.90	-0.17	0.029
57.50	-12.57	-0.77	0.00	-35.46	0.00	35.46	1,113.63	282.84	610.51	518.62	0.98	-0.17	0.027
60.00	-12.20	-0.77	0.00	-33.52	0.00	33.52	1,102.90	278.36	591.32	505.40	1.08	-0.18	0.026
62.50	-11.83	-0.76	0.00	-31.61	0.00	31.61	1,091.95	273.87	572.44	492.25	1.17	-0.19	0.025
65.00	-11.46	-0.75	0.00	-29.71	0.00	29.71	1,080.77	269.39	553.86	479.16	1.28	-0.20	0.024
67.50	-11.09	-0.74	0.00	-27.85	0.00	27.85	1,069.37	264.91	535.59	466.14	1.38	-0.20	0.023
70.00	-10.73	-0.73	0.00	-26.00	0.00	26.00	1,057.74	260.43	517.63	453.19	1.49	-0.21	0.022
72.50	-10.37	-0.71	0.00	-24.19	0.00	24.19	1,045.90	255.95	499.97	440.33	1.60	-0.22	0.020
75.00	-10.20	-0.71	0.00	-22.41	0.00	22.41	1,033.83	251.47	482.62	427.54	1.71	-0.22	0.019
76.17	-9.96	-0.70	0.00	-21.58	0.00	21.58	1,028.12	249.37	474.63	421.61	1.77	-0.22	0.019
77.50	-9.60	-0.68	0.00	-20.65	0.00	20.65	1,021.54	246.98	465.58	414.85	1.83	-0.23	0.018
79.50	-9.51	-0.68	0.00	-19.29	0.00	19.29	1,011.55	243.40	452.16	404.77	1.93	-0.23	0.017
79.50	-9.51	-0.68	0.00	-19.29	0.00	19.29	1,011.55	243.40	452.16	404.77	1.93	-0.23	0.017
80.00	-9.17	-0.67	0.00	-18.95	0.00	18.95	828.38	212.16	400.77	337.67	1.95	-0.23	0.019
82.50	-8.82	-0.65	0.00	-17.28	0.00	17.28	819.42	208.32	386.39	327.92	2.08	-0.24	0.017
85.00	-8.48	-0.63	0.00	-15.66	0.00	15.66	810.23	204.48	372.28	318.20	2.20	-0.24	0.016
87.50	-8.14	-0.62	0.00	-14.08	0.00	14.08	800.82	200.64	358.43	308.54	2.33	-0.25	0.015
90.00	-6.03	-0.50	0.00	-12.54	0.00	12.54	791.19	196.80	344.84	298.94	2.46	-0.25	0.013
92.50	-5.72	-0.48	0.00	-11.28	0.00	11.28	781.34	192.96	331.51	289.40	2.60	-0.26	0.012
95.00	-5.42	-0.47	0.00	-10.07	0.00	10.07	771.27	189.11	318.45	279.92	2.73	-0.26	0.010
97.44	-5.42	-0.47	0.00	-8.93	0.00	8.93	761.23	185.37	305.96	270.75	2.86	-0.26	0.010

97.44	-5.42	-0.47	0.00	-8.93	0.00	8.93	761.23	185.37	305.96	270.75	2.86	-0.26	0.040
97.50	-5.26	-0.46	0.00	-8.90	0.00	8.90	760.97	185.27	305.65	270.51	2.87	-0.26	0.040
100.00	-5.05	-0.44	0.00	-7.76	0.00	7.76	750.45	181.43	293.11	261.18	3.01	-0.28	0.036
102.50	-4.90	-0.43	0.00	-6.65	0.00	6.65	739.70	177.59	280.83	251.93	3.16	-0.29	0.033
105.00	-4.75	-0.42	0.00	-5.56	0.00	5.56	728.74	173.75	268.82	242.77	3.32	-0.30	0.029
107.50	-4.60	-0.41	0.00	-4.50	0.00	4.50	713.61	169.91	257.07	232.42	3.48	-0.31	0.026
110.00	-3.94	-0.36	0.00	-3.47	0.00	3.47	697.47	166.07	245.58	221.97	3.64	-0.32	0.021
112.50	-3.81	-0.35	0.00	-2.56	0.00	2.56	681.34	162.22	234.35	211.76	3.81	-0.33	0.018
115.00	-3.68	-0.34	0.00	-1.68	0.00	1.68	665.20	158.38	223.39	201.79	3.99	-0.34	0.014
117.50	-3.55	-0.33	0.00	-0.82	0.00	0.82	649.07	154.54	212.69	192.06	4.17	-0.34	0.010
120.00	0.00	-0.31	0.00	0.00	0.00	0.00	632.94	150.70	202.25	182.57	4.34	-0.34	0.000

Analysis Summary

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W	19.16	0.00	32.45	0.00	0.00	1658.14	15.48	0.68
0.9D + 1.0W	19.16	0.00	24.33	0.00	0.00	1634.16	15.48	0.66
1.2D + 1.0Di + 1.0Wi	4.12	0.00	53.18	0.00	0.00	403.42	97.44	0.19
1.2D + 1.0Ev + 1.0Eh	0.81	0.00	32.84	0.00	0.00	83.79	15.48	0.04
0.9D - 1.0Ev + 1.0Eh	0.81	0.00	22.75	0.00	0.00	82.24	15.48	0.04
1.0D + 1.0W	4.51	0.00	27.06	0.00	0.00	386.96	15.48	0.16

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors VQ/I (lb/in)	Intermediate Connectors Shear Applied (kips)	Intermediate Connectors Shear phiVn (kips)	Intermediate Connectors Ratio	Max Member Pu (kip)	Max Member phiPn (kip)	Max Member Ratio
0.00	15.48	(4) SOL-#20 All Thread Bar	183.5	5.5	16.8	0.327	187.3	330.5	0.567
0.00	79.50	(4) SOL-#20 All Thread Bar	341.3	10.2	16.8	0.609	264.2	330.5	0.800
79.50	97.44	(4) SOL-#20 All Thread Bar	347.2	10.4	16.8	0.620	118.0	330.5	0.357

Elev From (ft)	Elev To (ft)	Member	Upper Termination Connectors MQ/I (kips)	Upper Termination Connectors phiVn (kips)	Upper Termination Connectors Num Reqd	Upper Termination Connectors Num Actual	Upper Termination Connectors Ratio	Lower Termination Connectors MQ/I (kips)	Lower Termination Connectors phiVn (kips)	Lower Termination Connectors Num Reqd	Lower Termination Connectors Num Actual	Lower Termination Connectors Ratio
0.00	15.48	(4) SOL-#20 All Thread Bar	167.0	12.0	14	20	0.696	0.0	12.0	0	0	0.000
0.00	79.50	(4) SOL-#20 All Thread Bar	0.0	12.0	0	12	0.000	0.0	12.0	0	0	0.000
79.50	97.44	(4) SOL-#20 All Thread Bar	63.7	12.0	6	12	0.442	0.0	12.0	0	0	0.000

Site Name: BRST-Bristol, CT
Site Number: 302500
Tower Type: MP
Design Loads (Factored) - Analysis per TIA-222-H Standards

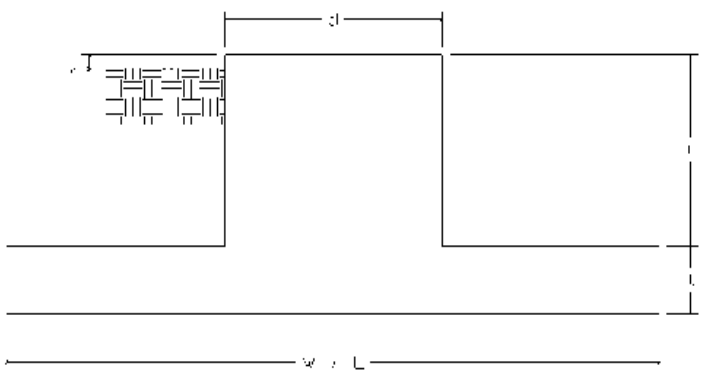
Monolithic Mat & Pier Foundation Analysis

Foundation Analysis Parameters		
Design / Analysis / Mapping:	Mapping	-
Compression/Leg:	32.5	k
Uplift/Leg:	0.0	k
Total Shear:	19.2	k
Moment:	1,658.1	k-ft
Tower + Appurtenance Weight:	32.5	k
Depth to Base of Foundation (l + t - h):	6.5	ft
Diameter of Pier (d):	6	ft
Length of Pier (l):	6.7	ft
Height of Pier above Ground (h):	2.7	ft
Width of Pad (W):	17.5	ft
Length of Pad (L):	18.4	ft
Thickness of Pad (t):	2.5	ft
Tower Leg Center to Center:	0	ft
Number of Tower Legs:	1	-
Tower Center from Mat Center:	0	ft
Depth Below Ground Surface to Water Table:	99	ft
Unit Weight of Concrete:	150	pcf
Unit Weight of Soil Above Water Table:	115	pcf
Unit Weight of Water:	62.4	pcf
Unit Weight of Soil Below Water Table:	52.6	pcf
Friction Angle of Uplift:	15	°
Coefficient of Shear Friction:	0.50	-
Ultimate Compressive Bearing Pressure:	32,000	psf
Ultimate Passive Pressure on Pad Face:	2,000	psf
$f_{Soil\ and\ Concrete\ Weight}$:	0.9	-
f_{Soil}:	0.75	-

Overturning Moment Usage		
Design OTM:	1834.4	k-ft
OTM Resistance:	2657.5	k-ft
Design OTM / OTM Resistance:	69%	Pass

Soil Bearing Pressure Usage		
Net Bearing Pressure:	5234	psf
Factored Nominal Bearing Pressure:	24000	psf
Factored Nominal (Net) Bearing Pressure:	22%	Pass
Load Direction Controling Design Bearing Pressure:	*Diagonal to Pad Edge*	

Sliding Factor of Safety		
Ultimate Friction Resistance:	155.7	k
Ultimate Passive Pressure Resistance:	69.0	k
Total Factored Sliding Resistance:	168.5	k
Sliding Design / Sliding Resistance:	11%	Pass



Base Plate & Anchor Rod Analysis

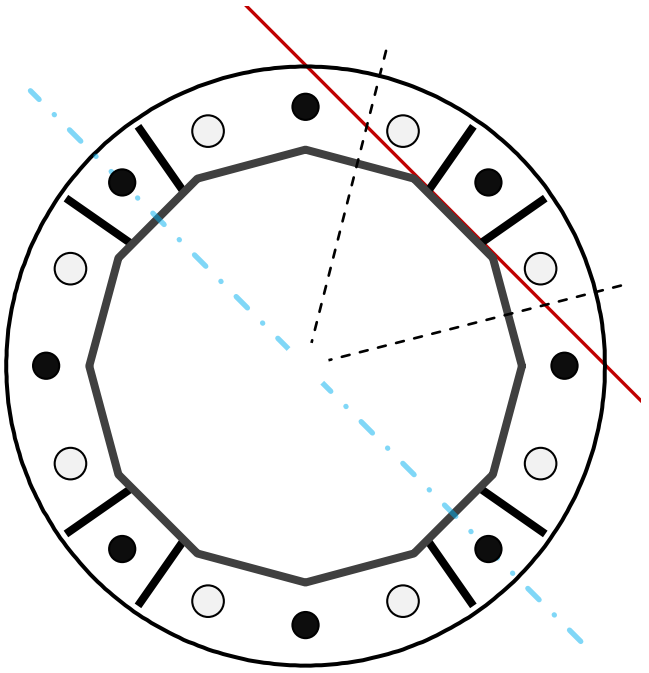
Pole Dimensions		
Number of Sides	12	-
Diameter	31	in
Thickness	0.25	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	1658.1	k-ft
Axial, Pu	32.5	k
Shear, Vu	19.2	k
Neutral Axis	315	°

Report Capacities		
Component	Capacity	Result
Base Plate	9%	Pass
Anchor Rods	33%	Pass
Dwyidag	48%	Pass

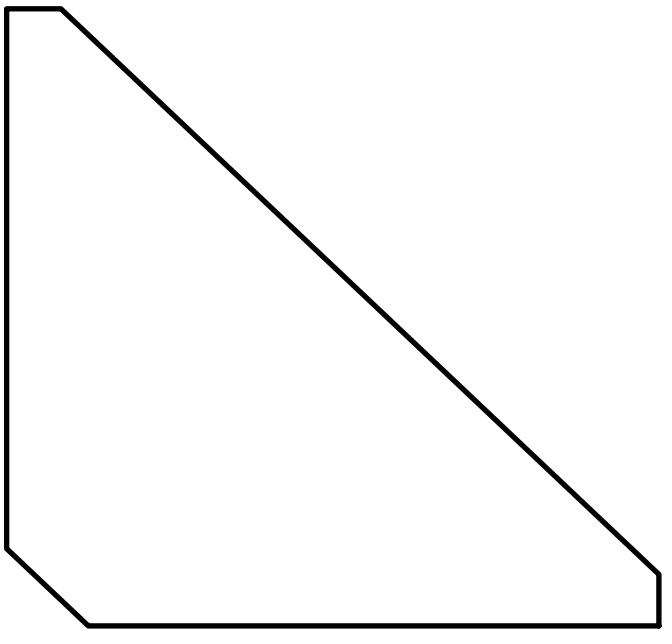
Base Plate		
Shape	Round	-
Diameter, ø	44.59	in
Thickness	2 1/8	in
Grade	A633 Gr. E	
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	80	ksi
Clip	N/A	in
Orientation Offset	0	°
Anchor Rod Detail	c	η=0.55
Clear Distance	N/A	in
Applied Moment, Mu	202.3	k
Bending Stress, ϕMn	2202.4	k

Dywidag Reinforcement		
Quantity	8	-
Bar Size	#20	in
Diameter, ø	2.5	in
Bracket Type	Angle	-
Circle	37.88	in
Orientation Offset	22.5	°
Applied Force, Pu	175.9	k
Dywidag Bar, ϕPn	368.2	k



Original Anchor Rods		
Arrangement	Radial	-
Quantity	8	-
Diameter, ø	2 1/4	in
Bolt Circle	38.59	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	15.2	in
Orientation Offset	0	°
Applied Force, Pu	79.5	k
Anchor Rods, ϕPn	243.6	k

Stiffeners		
Arrangement	Radial	-
Quantity	8	-
Height	6	in
Width	6	in
Effective Width	5.460	in
Thickness	5/8	in
Effective Thickness	0.625	in
Notch	0.75	in
Flat Edge	0.5	in
Grade	A572-50	-
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Horizontal Weld	Fillet	
Horizontal Fillet Size	3/16	in
Bevel Depth	0	in
Vertical Weld	Fillet	
Vertical Fillet Size	3/16	in
Weld Strength	70	ksi
Electrode Coefficient	1	-
Orientation Offset	0	°
Vertical Weld, ϕRn	41.7	k
Horz. Weld, ϕRn	53.2	k
Ten. Capacity, ϕTn	144.0	k
Comp. Capacity, ϕPn	1861.9	k



Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	19.2	473.6	0.29
Anchor Rod Forces	19.2	473.6	0.29
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	1184.5	0.71
Stiffener Forces	10.7	264.1	0.16

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	23.8761	1.9897	0.0416		2822.54
Bolt	3.9761	3.2477	0.8393	4.5	4266.14
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	4.9087	4.9087	1.9175		7058.86
Stiffener	2.9438	2.6494	33.9107		3556.25

Base Plate		
Shape	Round	-
Diameter, D	44.59	in
Thickness, t	2.125	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	80	ksi
Base Plate Chord	32.051	in
Detail Type	c	-
Detail Factor	0.55	-
Clear Distance	N/A	-

External Base Plate		
Chord Length AA	26.826	in
Additional AA	9.303	in
Section Modulus, Z	40.786	in^3
Applied Moment, Mu	202.3	k-ft
Bending Capacity, ϕMn	2202.4	k-ft
Capacity, Mu/ϕMn	0.092	OK
Chord Length AB	25.496	in
Additional AB	8.430	in
Section Modulus, Z	38.299	in^3
Applied Moment, Mu	158.7	k-ft
Bending Capacity, ϕMn	2068.2	k-ft
Capacity, Mu/ϕMn	0.077	OK
Bend Line Length	22.428	in
Additional Bend Line	22.372	in
Section Modulus, Z	50.576	in^3
Applied Moment, Mu	202.3	k-ft
Bending Capacity, ϕMn	2731.1	k-ft
Capacity, Mu/ϕMn	0.074	OK

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

Anchor Rods		
Anchor Rod Quantity, N	8	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	38.59	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	79.5	k
Applied Shear, Vu	0.7	k
Compressive Capacity, ϕPn	243.6	k
Tensile Capacity, ϕRnt	0.326	OK
Interaction Capacity	0.332	OK

Dywidag Reinforcement		
Dywidag Quantity, N	8	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	37.88	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	175.9	k
Compressive Capacity, ϕPn	368.2	k
Capacity, Pu/ϕPn	0.478	OK

Base Plate Stiffeners		
Applied Axial Force, Pu	43.0	k
Applied Horizontal Force, Vu	0.67	k

Vertical Weld		
Vert.-to-Stiffener a=e_x/l	0.333	-
Spacing Ratio, k	0.104	-
Weld Coefficient, C	3.090	-
Compressive Capacity, ϕPn	41.7	k
Vert.-to-Plate a=e_x/l	0.333	-
Spacing Ratio, k	0.104	-
Weld Coefficient, C	2.970	-
Shear Capacity, ϕVn	40.1	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$	1.048	OK

Horizontal Weld		
Horz.-to-Stiffener a=e_x/l	0.183	-
Spacing Ratio, k	0.104	-
Weld Coefficient, C	3.940	-
Effective Fillet	0.188	in
Compressive Capacity, ϕPn	53.2	k
Horz.-to-Pole a=e_x/l	0.167	-
Spacing Ratio, k	0.104	-
Weld Coefficient, C	3.660	-
Shear Capacity, ϕVn	49.4	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$	0.822	OK

Plate Tension		
Gross Cross Section	2.944	in^2
Net Cross Section	2.649	in^2
Tensile Capacity, ϕTn	144.0	k
Capacity, Tu/ϕTn	0.149	OK

Plate Compression		
Radius of Gyration	0.180	in^3
kl/r	19.95	-
4.71 $\sqrt{(E/Fy)}$	113.43	-
Buckling Stress(Fe)	718.9	-
Crit. Buckling Stress(Fcr)	630.5	ksi
Compressive Capacity, ϕPn	1861.9	k
Capacity, Pu/ϕPn	0.012	OK

Sprint

PROJECT:	DO MACRO UPGRADE
SITE NAME:	BRST - BRISTOL CONNECTICUT
SITE CASCADE:	CT52XC047
SITE ADDRESS:	790 WILLIS ST BRISTOL, CT 06010
SITE TYPE:	MONOPOLE
MARKET:	NORTHERN CONNECTICUT

SITE INFORMATION

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

LATITUDE (NAD83):
41° 38' 56.7" N
41.649078

LONGITUDE (NAD83):
72° 56' 52.8" W
-72.947998

COUNTY:
HARTFORD

ZONING JURISDICTION:
CONNECTICUT SITING COUNCIL

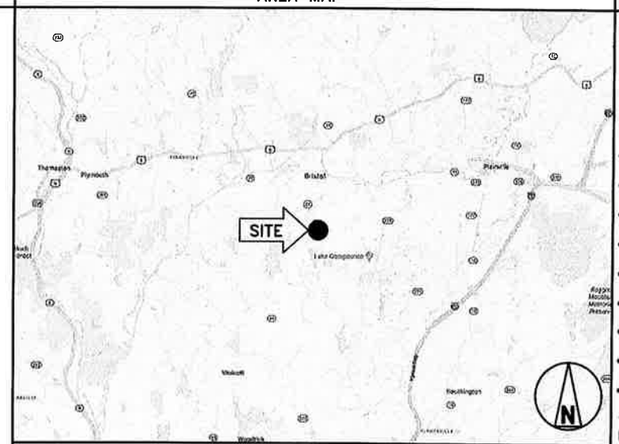
ZONING DISTRICT:
TBD

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

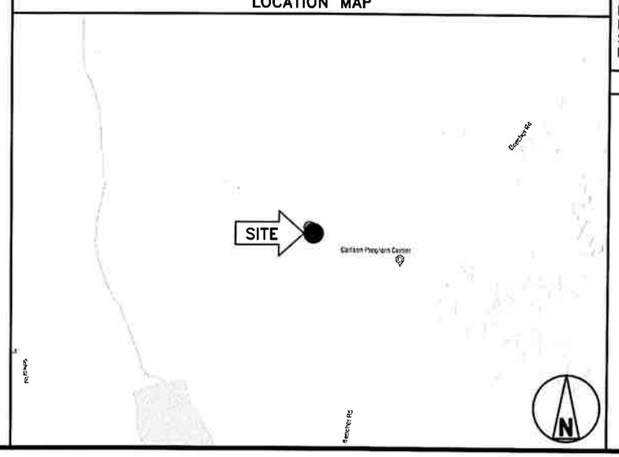
AAV PROVIDER:
TBD

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

AREA MAP



LOCATION MAP



PROJECT DESCRIPTION

SPRINT PROPOSES TO MODIFY AN EXISTING UNMANNED TELECOMMUNICATIONS FACILITY.

- REMOVE (3) PANEL ANTENNAS AND RRH'S
- REMOVE (2) MW DISHES AND ASSOCIATED CABLING
- REMOVE (2) ODU RADIO'S
- INSTALL (6) PANEL ANTENNAS
- INSTALL (3) 1900 MHz RRH'S BEHIND ANTENNAS
- INSTALL (6) 800 MHz RRH'S BEHIND ANTENNAS
- INSTALL (48) JUMPER CABLES
- INSTALL (4) HYBRID CABLES
- REMOVE (6) COAX CABLES
- REMOVE EXISTING CLEARWIRE GROUND EQUIPMENT
- INSTALL (2) EQUIPMENT CABINETS WITHIN EXISTING LEASE AREA
- INSTALL 7'x7' CONCRETE EQUIPMENT PAD

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

APPLICABLE CODES

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

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

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

DRAWING INDEX

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

PLANS PREPARED FOR:
Sprint

PLANS PREPARED BY:
INFINIGY
INFINIGY ENGINEERING, PLLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793
JOB NUMBER 526-104

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

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 27175
LICENSED PROFESSIONAL ENGINEER
DEC 27 2019

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION	12/27/19	MAP	0

SITE NAME:
BRST - BRISTOL CONNECTICUT

SITE NUMBER:
CT52XC047

SITE ADDRESS:
790 WILLIS ST
BRISTOL, CT 06010

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

INFINIGY ENGINEERING, PLLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793
JOB NUMBER 526-104

PROJECT MANAGER:

AIROSMITH DEVELOPMENT

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

ENGINEERING LICENSE:

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION	12/27/19	MAP	0

SITE NAME:

BRST - BRISTOL CONNECTICUT

SITE NUMBER:

CT52XC047

SITE ADDRESS:

790 WILLIS ST
BRISTOL, CT 06010

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-1

CONTINUE FROM SP-1

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

3.2 GENERAL REQUIREMENTS FOR CIVIL CONSTRUCTION:

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

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

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

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

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

E. CONDUCT TESTING AS REQUIRED HEREIN.

3.3 DELIVERABLES:

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

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

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

SECTION 01 400 – SUBMITTALS & TESTS

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

1.3 SUBMITTALS:

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

B. SUBMIT THE FOLLOWING TO COMPANY REPRESENTATIVE FOR APPROVAL.

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

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

1.4 TESTS AND INSPECTIONS:

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

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

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

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

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

1.5 COMMISSIONING: PERFORM ALL COMMISSIONING AS REQUIRED BY APPLICABLE MOPs

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 REQUIREMENTS FOR TESTING:

A. THIRD PARTY TESTING AGENCY:

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

3.2 REQUIRED TESTS:

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

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

3.3 REQUIRED INSPECTIONS

A. SCHEDULE INSPECTIONS WITH COMPANY REPRESENTATIVE.

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

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

PLANS PREPARED FOR:

Sprint

PLANS PREPARED BY:

INFINIGY
INFINIGY ENGINEERING, PLLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793
JOB NUMBER 526-104

PROJECT MANAGER:

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

ENGINEERING LICENSE:

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION	12/27/19	MAP	0

SITE NAME:

BRST - BRISTOL CONNECTICUT

SITE NUMBER:

CT52XC047

SITE ADDRESS:

790 WILLIS ST
BRISTOL, CT 06010

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-2

CONTINUE FROM SP-2

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

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

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

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

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

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

B. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES THE FOLLOWING;

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

SECTION 01 400 – SUBMITTALS & TESTS

PART 1 – GENERAL

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

1.2 RELATED DOCUMENTS:

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

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

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 WEEKLY REPORTS:

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

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

3.2 PROJECT CONFERENCE CALLS:

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

3.3 PROJECT TRACKING IN SMS:

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

3.4 ADDITIONAL REPORTING:

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

3.5 PROJECT PHOTOGRAPHS:

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

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

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

PLANS PREPARED FOR:

Sprint

PLANS PREPARED BY:

INFINIGY

INFINIGY ENGINEERING, PLLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

JOB NUMBER 526-104

PROJECT MANAGER:

AIROSMITH DEVELOPMENT

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

ENGINEERING LICENSE:

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION	12/27/19	MAP	0

SITE NAME:

BRST - BRISTOL CONNECTICUT

SITE NUMBER:

CT52XC047

SITE ADDRESS:

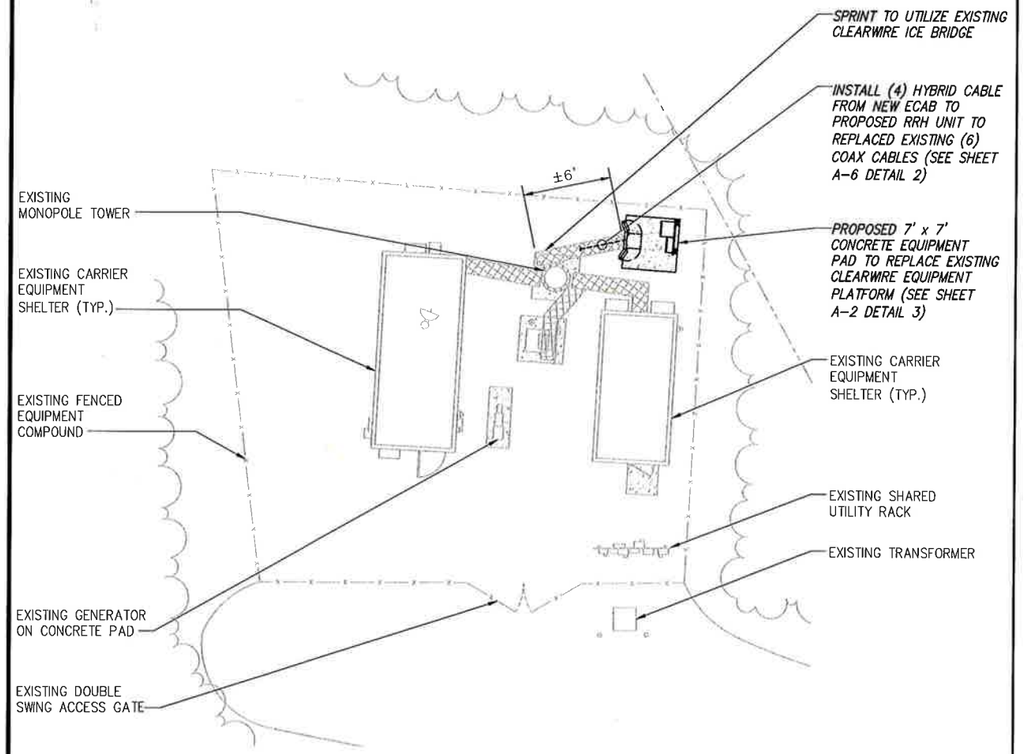
790 WILLIS ST
BRISTOL, CT 06010

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-3



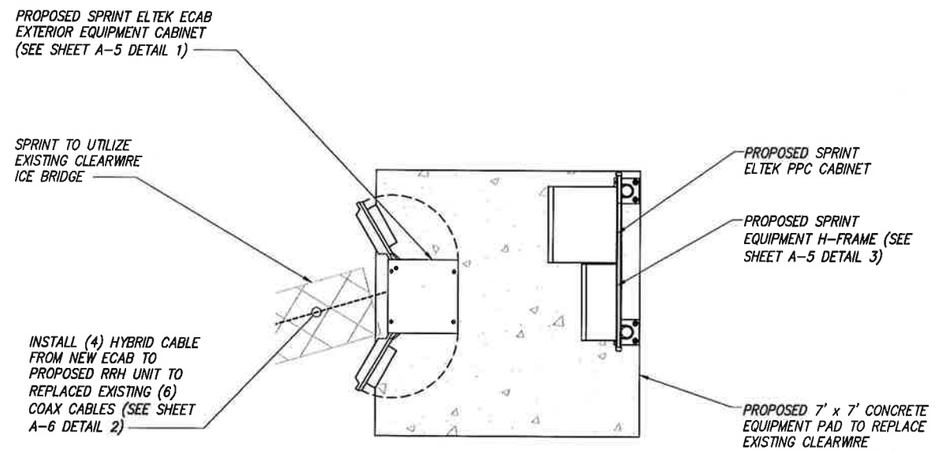
INFORMATION CONTAINED WITHIN DRAWINGS ARE BASED ON PROVIDED INFORMATION AND ARE NOT THE RESULT OF A FIELD SURVEY.

GRAPHIC SCALE:

20' 10' 0 10' 20'

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

OVERALL SITE PLAN | SCALE: AS NOTED | 1



GRAPHIC SCALE:

4' 2' 0 2' 4'

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

SPRINT EQUIPMENT PLAN | SCALE: AS NOTED | 2

PLANS PREPARED FOR:

Sprint

PLANS PREPARED BY:

INFINIGY

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OFFICE#. (518) 306-3740

ENGINEERING LICENSE:

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
DEC 27 2019

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790 WILLIS ST
BRISTOL, CT 06010

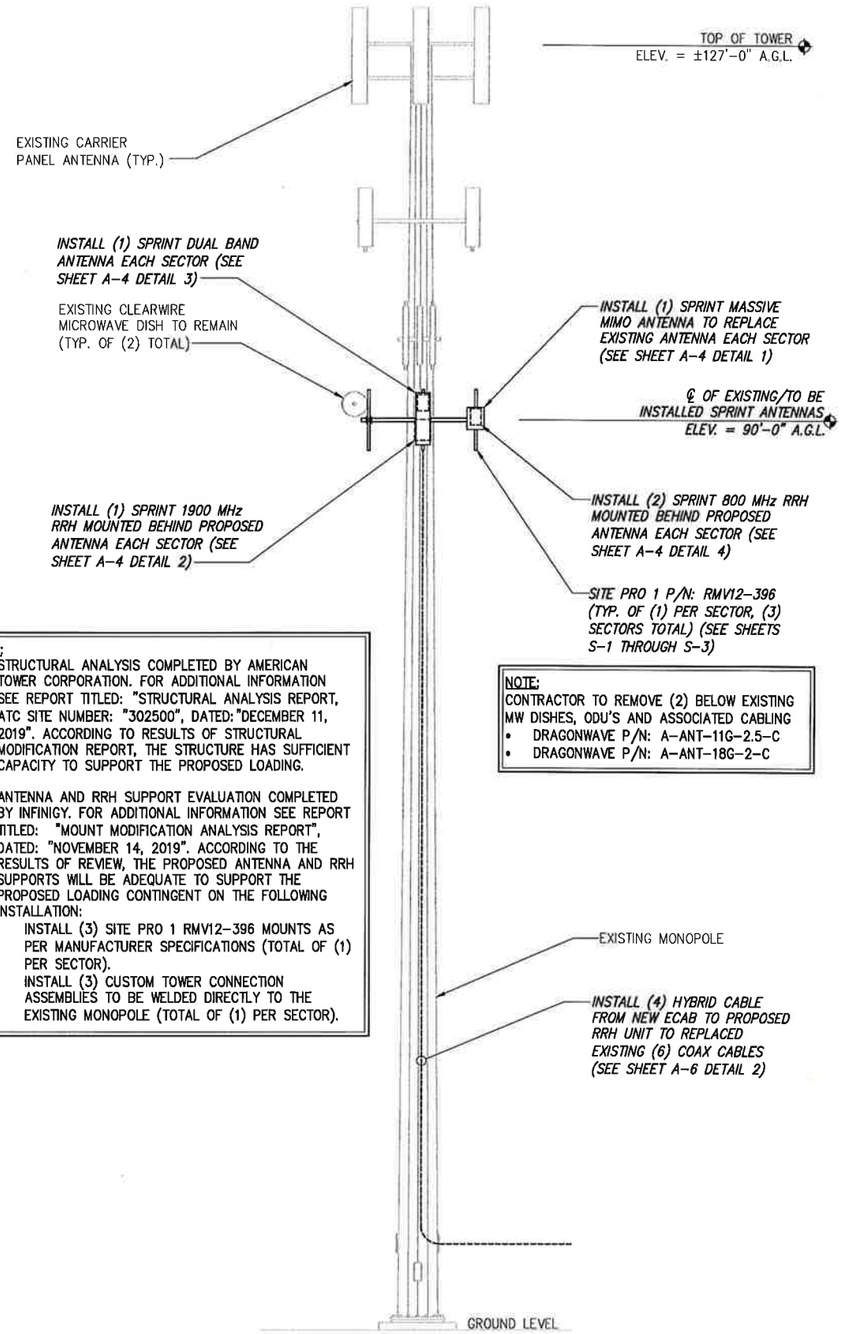
SHEET DESCRIPTION:

SITE PLAN

SHEET NUMBER:

A-1

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



NOTE:
- STRUCTURAL ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "STRUCTURAL ANALYSIS REPORT, ATC SITE NUMBER: "302500", DATED:"DECEMBER 11, 2019". ACCORDING TO RESULTS OF STRUCTURAL MODIFICATION REPORT, THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING.
- ANTENNA AND RRH SUPPORT EVALUATION COMPLETED BY INFINIGY. FOR ADDITIONAL INFORMATION SEE REPORT TITLED: "MOUNT MODIFICATION ANALYSIS REPORT", DATED: "NOVEMBER 14, 2019". ACCORDING TO THE RESULTS OF REVIEW, THE PROPOSED ANTENNA AND RRH SUPPORTS WILL BE ADEQUATE TO SUPPORT THE PROPOSED LOADING CONTINGENT ON THE FOLLOWING INSTALLATION:
  - INSTALL (3) SITE PRO 1 RMV12-396 MOUNTS AS PER MANUFACTURER SPECIFICATIONS (TOTAL OF (1) PER SECTOR).
  - INSTALL (3) CUSTOM TOWER CONNECTION ASSEMBLIES TO BE WELDED DIRECTLY TO THE EXISTING MONOPOLE (TOTAL OF (1) PER SECTOR).

NOTE:
CONTRACTOR TO REMOVE (2) BELOW EXISTING MW DISHES, ODU'S AND ASSOCIATED CABLING
- DRAGONWAVE P/N: A-ANT-11G-2.5-C
- DRAGONWAVE P/N: A-ANT-18G-2-C

TOWER ELEVATION | NO SCALE | 1

SITE LOADING CHART

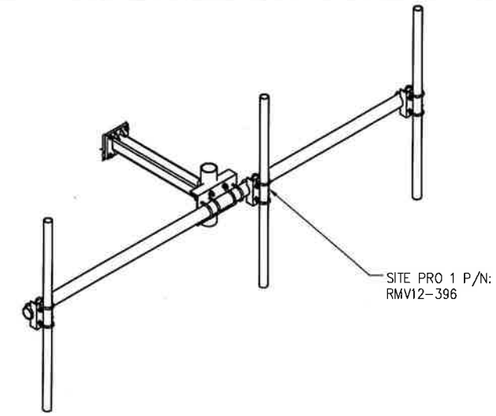
SECTOR	EXISTING/ PROPOSED	ANTENNA MODEL #	VENDOR	AZIMUTH	QTY.	REMAIN/ REMOVED	RRH (QTY/MODEL)	CABLE	CABLE LENGTH	RAD CENTER
ALPHA	PROPOSED	AAHC	NOKIA	25°	1	-	(2) 800 MHZ 2X50W RRH W/ FILTER (1) 1900 MHz 4X45 RRH	SEE SHEET A-5 DETAIL 1	±120'*	±90' AGL
	PROPOSED	NNVV-65B-R4	COMMSCOPE	25°	1	-		SEE SHEET A-5 DETAIL 1		
	EXISTING	LLPX310R	ARGUS	30°	1	REMOVE		EXISTING COAX		
BETA	PROPOSED	AAHC	NOKIA	155°	1	-	(2) 800 MHZ 2X50W RRH W/ FILTER (1) 1900 MHz 4X45 RRH	SEE SHEET A-5 DETAIL 1		±90' AGL
	PROPOSED	NNVV-65B-R4	COMMSCOPE	155°	1	-		SEE SHEET A-5 DETAIL 1		
	EXISTING	LLPX310R	ARGUS	150°	1	REMOVE		EXISTING COAX		
GAMMA	PROPOSED	AAHC	NOKIA	265°	1	-	(2) 800 MHZ 2X50W RRH W/ FILTER (1) 1900 MHz 4X45 RRH	SEE SHEET A-5 DETAIL 1		±90' AGL
	PROPOSED	NNVV-65B-R4	COMMSCOPE	265°	1	-		SEE SHEET A-5 DETAIL 1		
	EXISTING	LLPX310R	ARGUS	270°	1	REMOVE		EXISTING COAX		

PROJECT SCOPE:

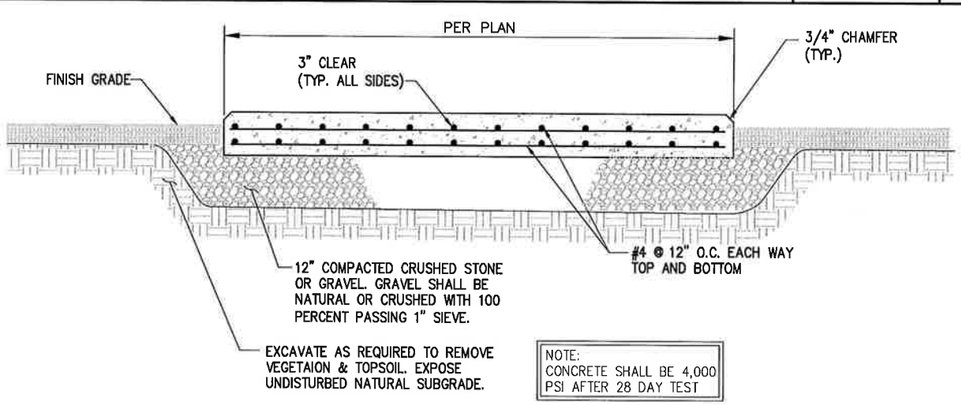
REMOVE: (3) PANEL ANTENNAS (2) MW DISHES W/ RADIOS AND (8) COAX CABLES INSTALL: (6) PANEL ANTENNAS, (9) RRH'S AND (4) HYBRID CABLES

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

SITE LOADING CHART | NO SCALE | 2



ANTENNA MOUNT DETAIL | NO SCALE | 3



NOTE:
CONCRETE SHALL BE 4,000 PSI AFTER 28 DAY TEST

EQUIPMENT CABINET FOUNDATION | NO SCALE | 4

PLANS PREPARED FOR:
Sprint

PLANS PREPARED BY:
INFINIGY
INFINIGY ENGINEERING, PLLC
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JOB NUMBER 526-104

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

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24...
LICENSED PROFESSIONAL ENGINEER
DEC 27 2019

DRAWING NOTICE:

REVISIONS:

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ISSUED FOR CONSTRUCTION	12/27/19	MAP	0

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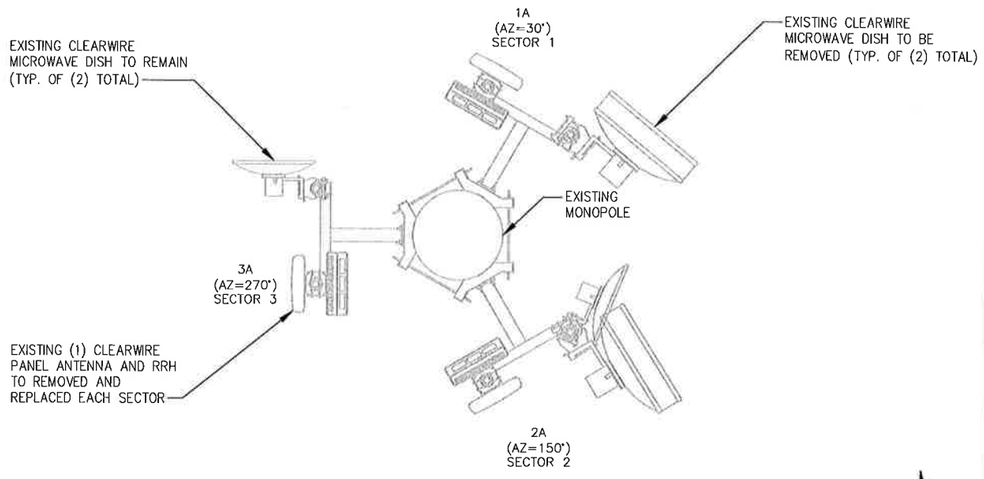
SITE NUMBER:
CT52XC047

SITE ADDRESS:
790 WILLIS ST
BRISTOL, CT 06010

SHEET DESCRIPTION:
TOWER ELEVATION

SHEET NUMBER:
A-2

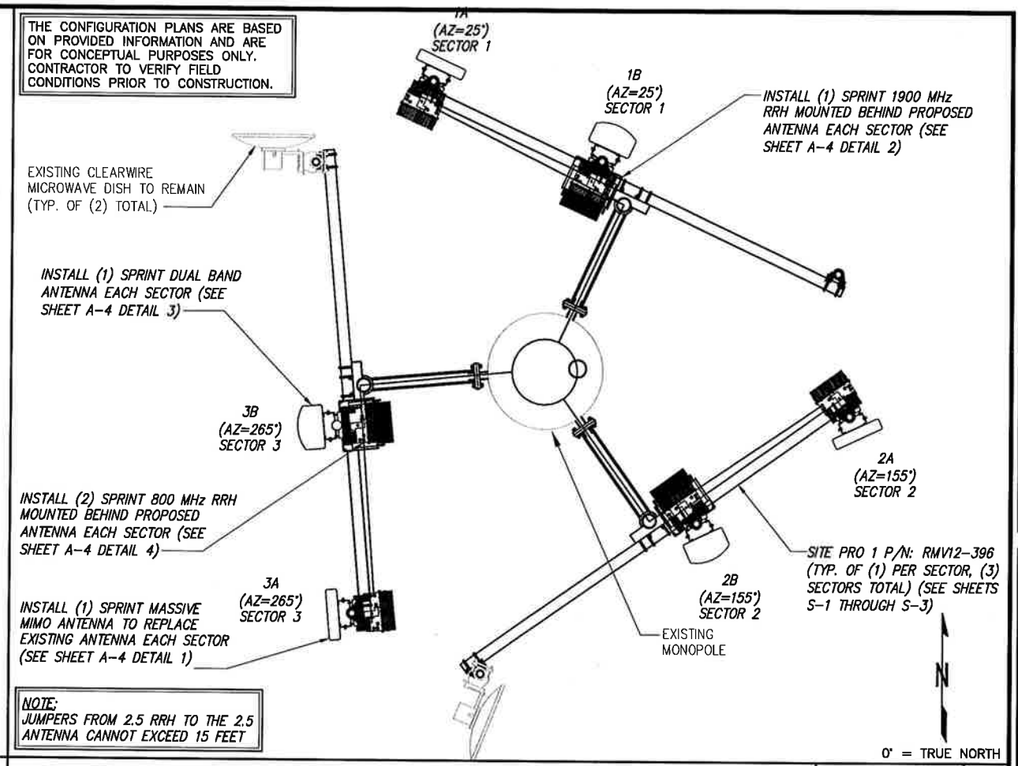


NOTE:
CONTRACTOR TO REMOVE (2) BELOW EXISTING MW DISHES, ODU'S AND ASSOCIATED CABLING
- DRAGONWAVE P/N: A-ANT-11G-2.5-C
- DRAGONWAVE P/N: A-ANT-18G-2-C

N
0° = TRUE NORTH

EXISTING ANTENNA LAYOUT | NO SCALE | 1

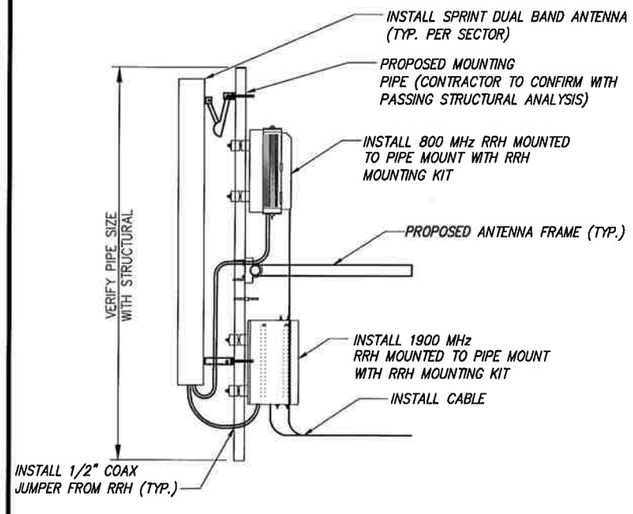
THE CONFIGURATION PLANS ARE BASED ON PROVIDED INFORMATION AND ARE FOR CONCEPTUAL PURPOSES ONLY. CONTRACTOR TO VERIFY FIELD CONDITIONS PRIOR TO CONSTRUCTION.



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

N
0° = TRUE NORTH

FINAL ANTENNA & RRH LAYOUT | NO SCALE | 2



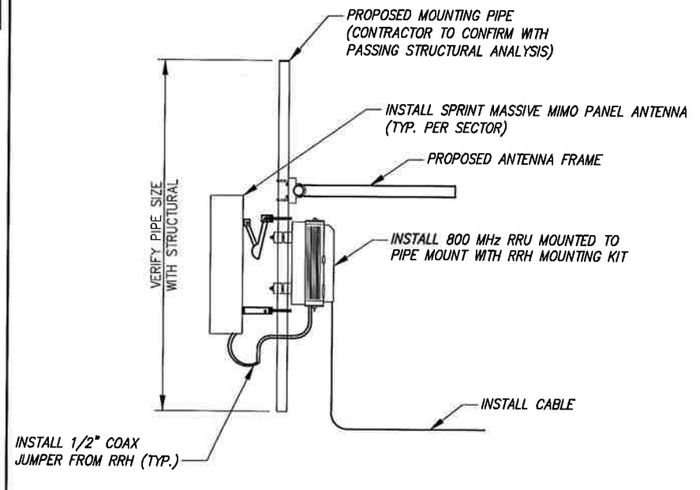
NOTE:
CONTRACTOR TO POSITION RRH ON MOUNT BEHIND ANTENNA SUCH THAT THE RRH DOES NOT INTERFERE WITH THE EXISTING PLATFORM/T-ARM MOUNTING HARDWARE.

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

NOTES:

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

TYPICAL DUAL BAND ANTENNA & RRH MOUNTING DETAILS | NO SCALE | 3



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

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

NOTES:

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

TYPICAL MASSIVE MIMO ANTENNA & RRH MOUNTING DETAILS | NO SCALE | 4

PLANS PREPARED FOR:
Sprint

PLANS PREPARED BY:
INFINIGY
INFINIGY ENGINEERING, PLLC
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793
JOB NUMBER 526-104

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

ENGINEERING LICENSE:
STATE OF CONNECTICUT
JOHN S. STEVENS
DEC 27 2019
LICENSED
PROFESSIONAL ENGINEER

REVISIONS:

DESCRIPTION	DATE	BY	REV.
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SITE NAME:
BRST - BRISTOL CONNECTICUT

SITE NUMBER:
CT52XC047

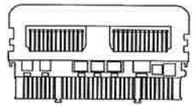
SITE ADDRESS:
790 WILLIS ST
BRISTOL, CT 06010

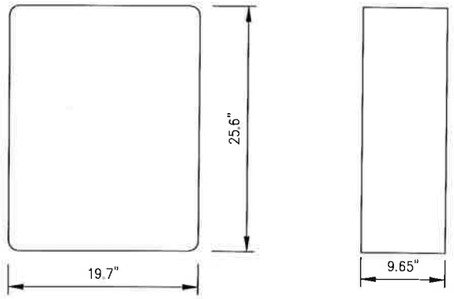
SHEET DESCRIPTION:
ANTENNA LAYOUT & MOUNTING DETAILS

SHEET NUMBER:
A-3

ANTENNA: NOKIA AAHC

RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mim):	25.6"x19.7"x9.65" (651x501x245mm)
WEIGHT:	103.6 lbs

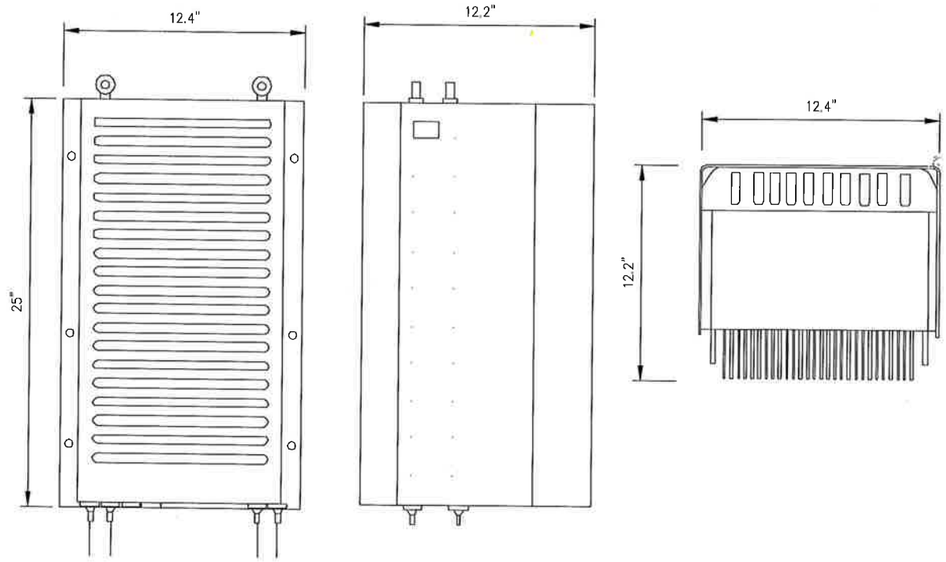




MASSIVE MIMO ANTENNA DETAIL | NO SCALE | 1

RRH: ALCATEL LUCENT 1900 MHz

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

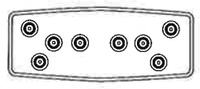


FRONT VIEW | SIDE VIEW | TOP VIEW

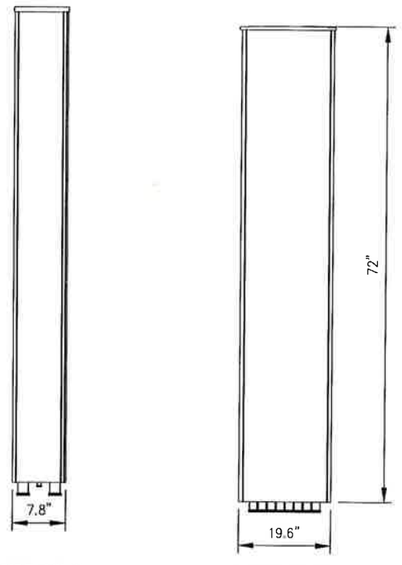
1900 MHz RRH | NO SCALE | 2

ANTENNA COMMSCOPE NNVV-65B-R4

RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GREY
DIMENSIONS, HxWxD.in(mim):	72"x19.6"x7.8" (1828x498x198mm)
WEIGHT:	77.4 lbs
CONNECTORS:	8 PIN DIN FEMALE
	8 PIN DIN MALE



PLAN VIEW



SIDE VIEW | FRONT VIEW

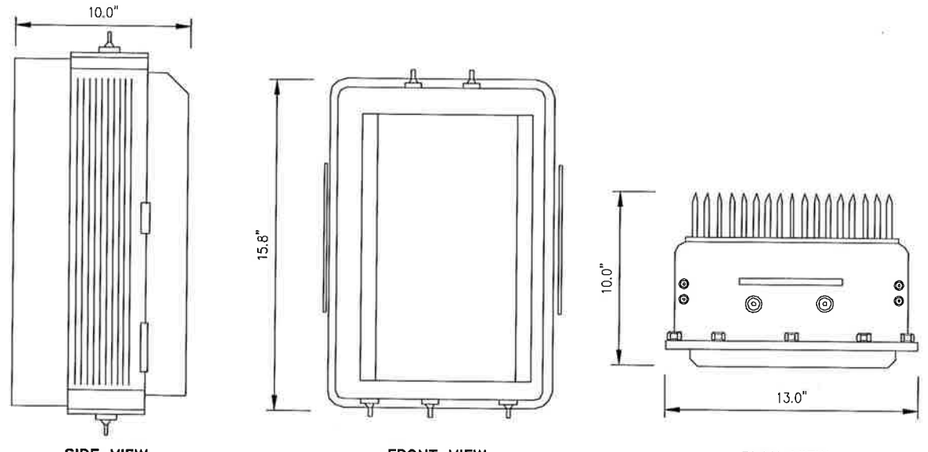
DUAL BAND ANTENNA DETAIL | NO SCALE | 3

RRH: ALCATEL LUCENT RRH 800 MHz 2x50W

COLOR: LIGHT GREY
WEIGHT: 53 LBS.

NOTES

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



SIDE VIEW | FRONT VIEW | PLAN VIEW

800 MHz RRH | NO SCALE | 4

PLANS PREPARED FOR:
Sprint

PLANS PREPARED BY:
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JOHN C. STEVENS
No. 24013
LICENSED PROFESSIONAL ENGINEER
DEC 27 2019

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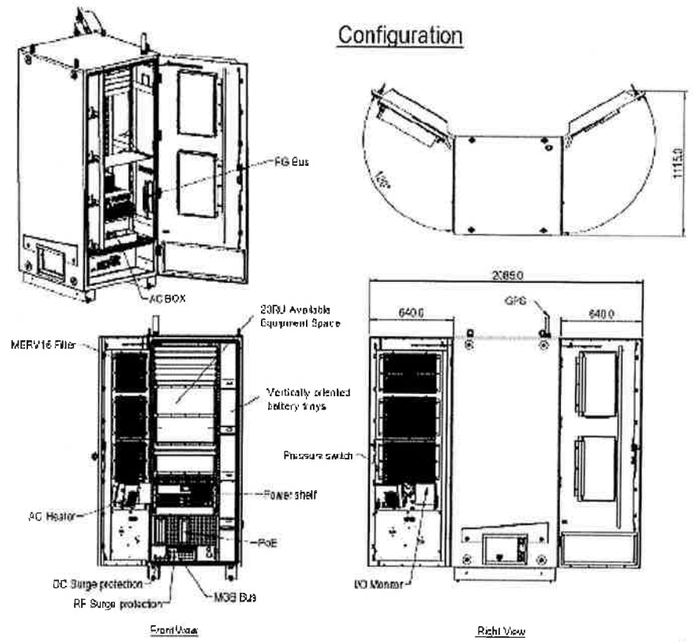
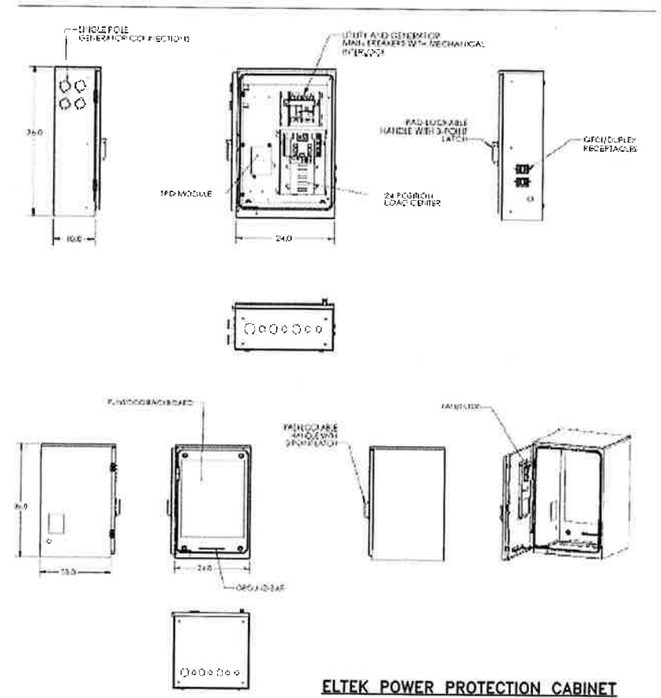
SHEET DESCRIPTION:
EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:
A-4



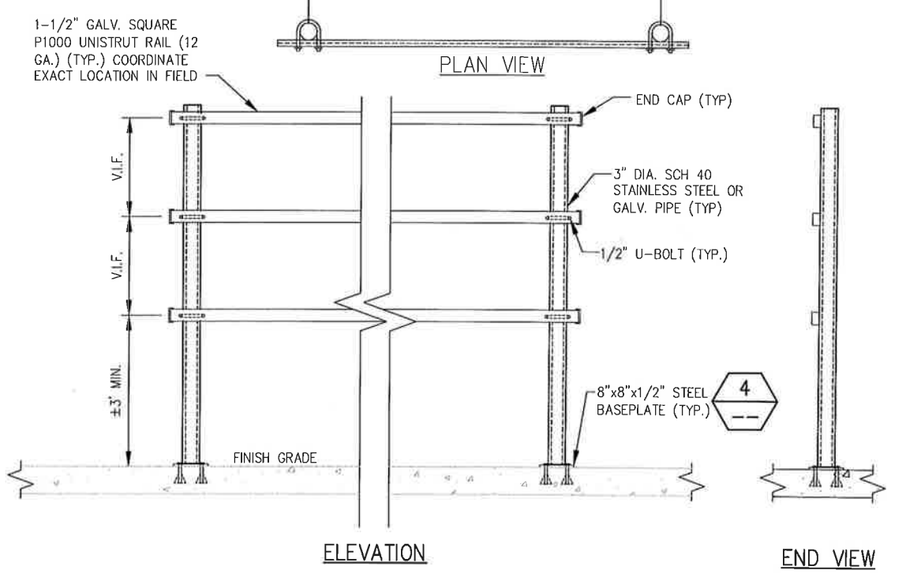
ELTEK ECAB EXTERIOR CABINET
P/N: ESOA220-SCA02

EQUIPMENT CABINET DETAIL | NO SCALE | 1

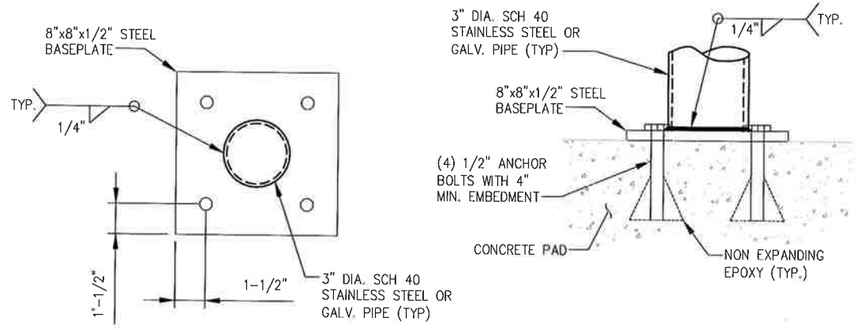


ELTEK POWER PROTECTION CABINET
P/N: 5811122212

EQUIPMENT CABINET DETAIL | NO SCALE | 2



H-FRAME DETAIL | NO SCALE | 3



SUPPORT POST MOUNTING DETAIL | NO SCALE | 4

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DEC 27 2019
No. 24705
LICENSED PROFESSIONAL ENGINEER

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SHEET DESCRIPTION:
EQUIPMENT & MOUNTING DETAILS

SHEET NUMBER:
A-5

RFS HYBRIFLEX RISER CABLE SCHEDULE

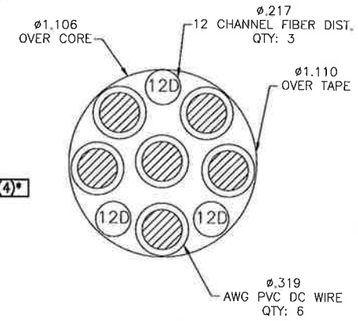
Fiber Only (Existing DC Power)	**Hybrid cable** MN: HB058-M12-050F 12x multi-mode fiber pairs, Top: Outdoor protected connectors, Bottom: LC Connectors, 5/8 cable, 50 ft	50 ft
	MN: HB058-M12-075F	75 ft
	MN: HB058-M12-100F	100 ft
	MN: HB058-M12-125F	125 ft
	MN: HB058-M12-150F	150 ft
	MN: HB058-M12-175F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

RFS HYBRIFLEX JUMPER CABLE SCHEDULE

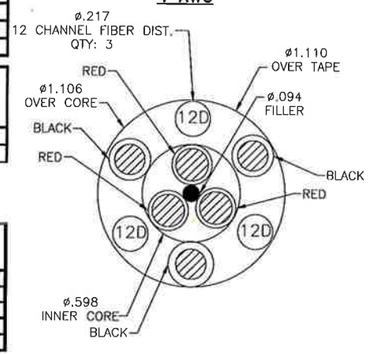
Fiber Only	**Hybrid Jumper cable** MN: HBF012-M3-5F1 5 ft, 3x multi-mode fiber pairs, Outdoor & LC connectors, 1/2 cable	5 ft
	MN: HBF012-M3-10F1	10 ft
	MN: HBF012-M3-15F1	15 ft
	MN: HBF012-M3-20F1	20 ft
	MN: HBF012-M3-25F1	25 ft
	MN: HBF012-M3-30F1	30 ft
8 AWG Power	**Hybrid Jumper cable** MN: HBF058-08U1M3-5F1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

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

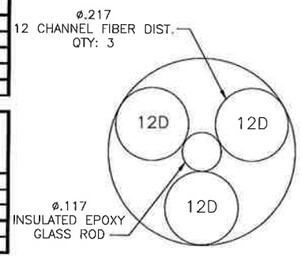
* PROPOSED CABLE LENGTH WAS DETERMINED USING THE SUM OF THE RAD CENTER OF ANTENNAS, AND DISTANCE FROM EXISTING EQUIPMENT AREA TO TOWER BASE WITH AN ADDITIONAL 20' BUFFER. LENGTH TO BE VERIFIED IN FIELD PRIOR TO ORDERING MATERIALS.



4 AWG

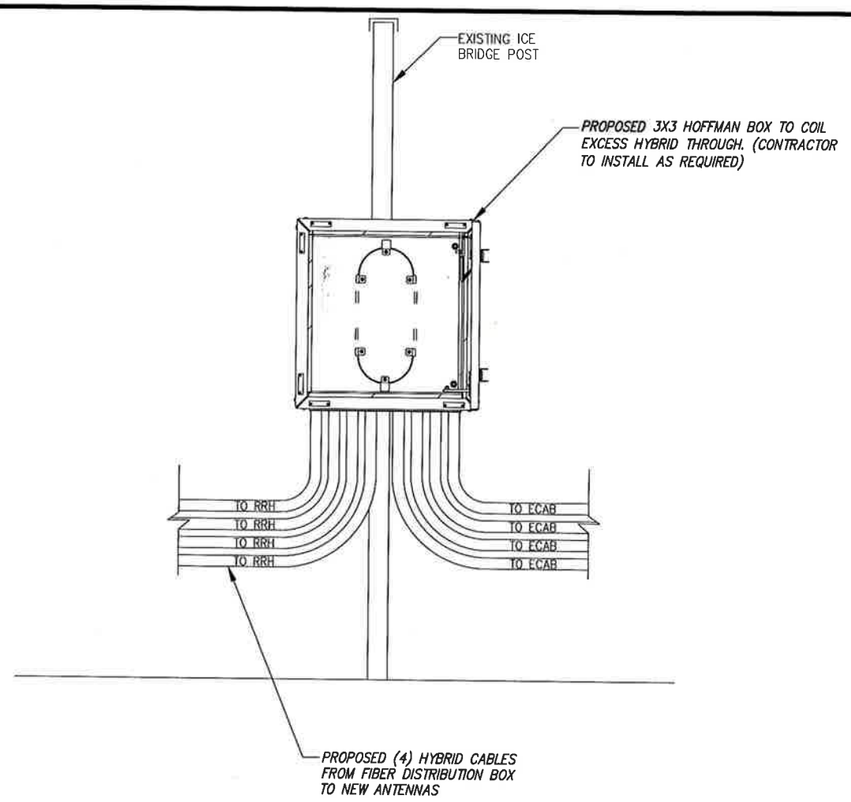


8 & 6 AWG



FIBER ONLY

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



OPTIONAL HYBRID SLACK BOX | NO SCALE | 2

FIBER JUNCTION BOX | NO SCALE | 3

PLANS PREPARED FOR:
Sprint

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DEC 27 2019

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION	12/27/19	MAP	0

SITE NAME:
BRST - BRISTOL CONNECTICUT

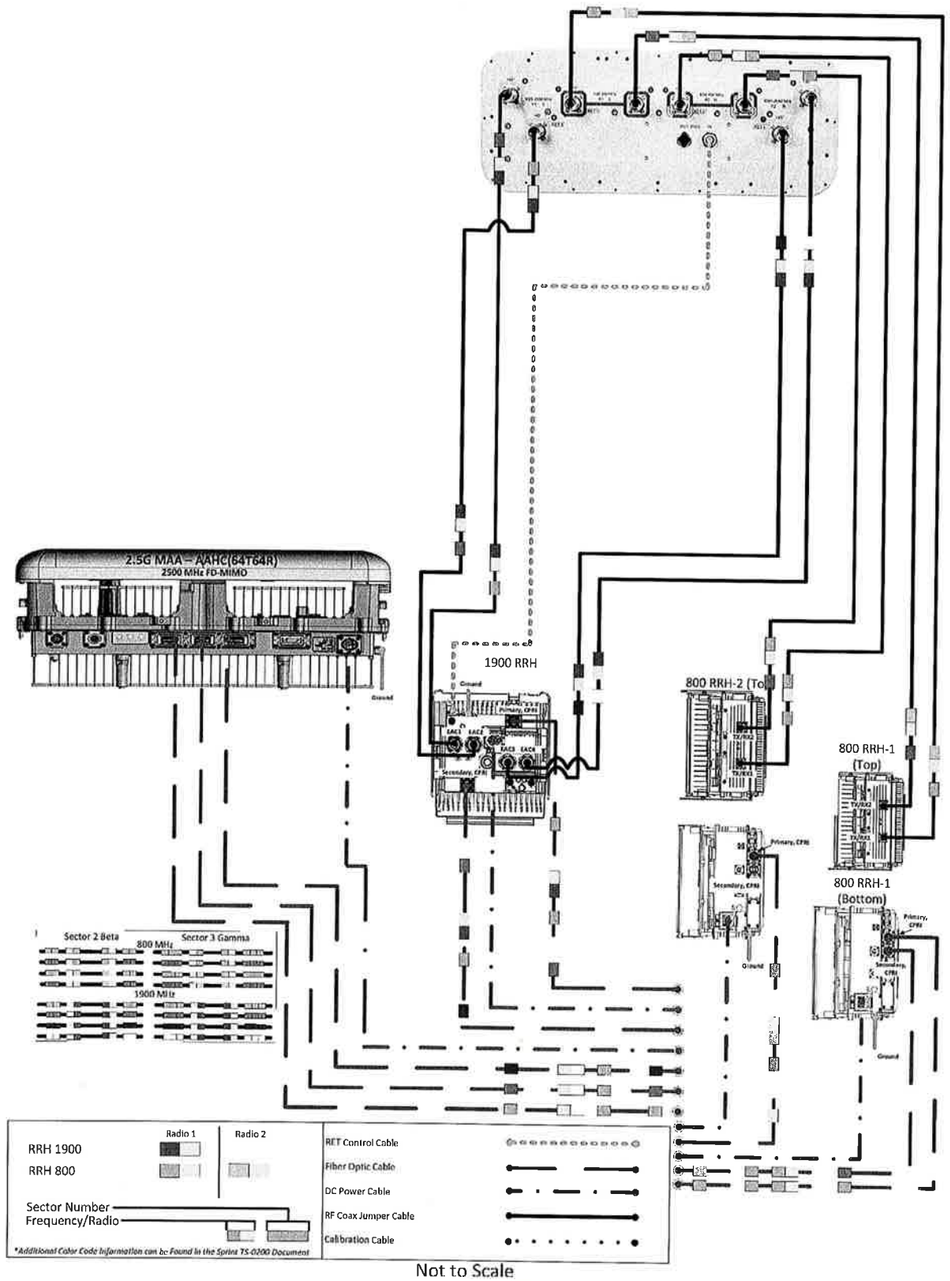
SITE NUMBER:
CT52XC047

SITE ADDRESS:
790 WILLIS ST
BRISTOL, CT 06010

SHEET DESCRIPTION:
CIVIL DETAILS

SHEET NUMBER:
A-6

ALU 21-MIMO NNVV-65B-R4 wo Filters



Not to Scale

PLUMBING DIAGRAM | NO SCALE | 1

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Sprint

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SITE NUMBER:

CT52XC047

SITE ADDRESS:

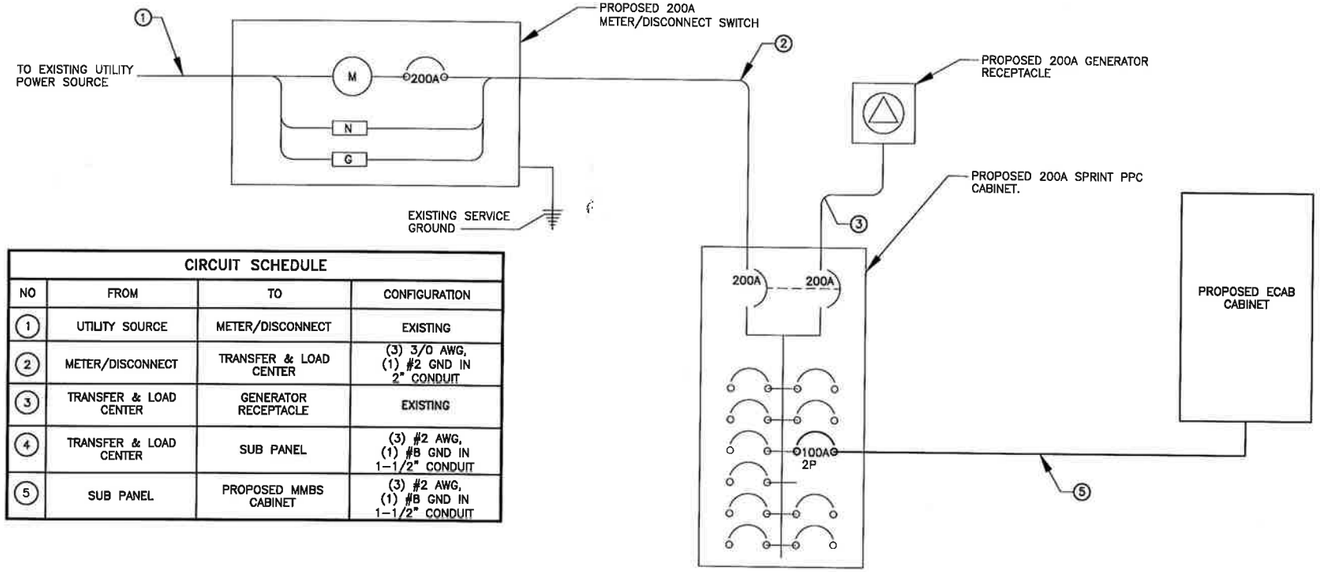
790 WILLIS ST
BRISTOL, CT 06010

SHEET DESCRIPTION:

PLUMBING DIAGRAM

SHEET NUMBER:

A-7



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

ONE LINE DIAGRAM | NO SCALE | 1

GENERAL ELECTRICAL NOTES:

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

ELECTRICAL NOTES | NO SCALE | 2

GENERAL GROUNDING NOTES:

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

GROUNDING NOTES | NO SCALE | 3

PLANS PREPARED FOR:
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DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV.
ISSUED FOR CONSTRUCTION	12/27/19	MAP	0

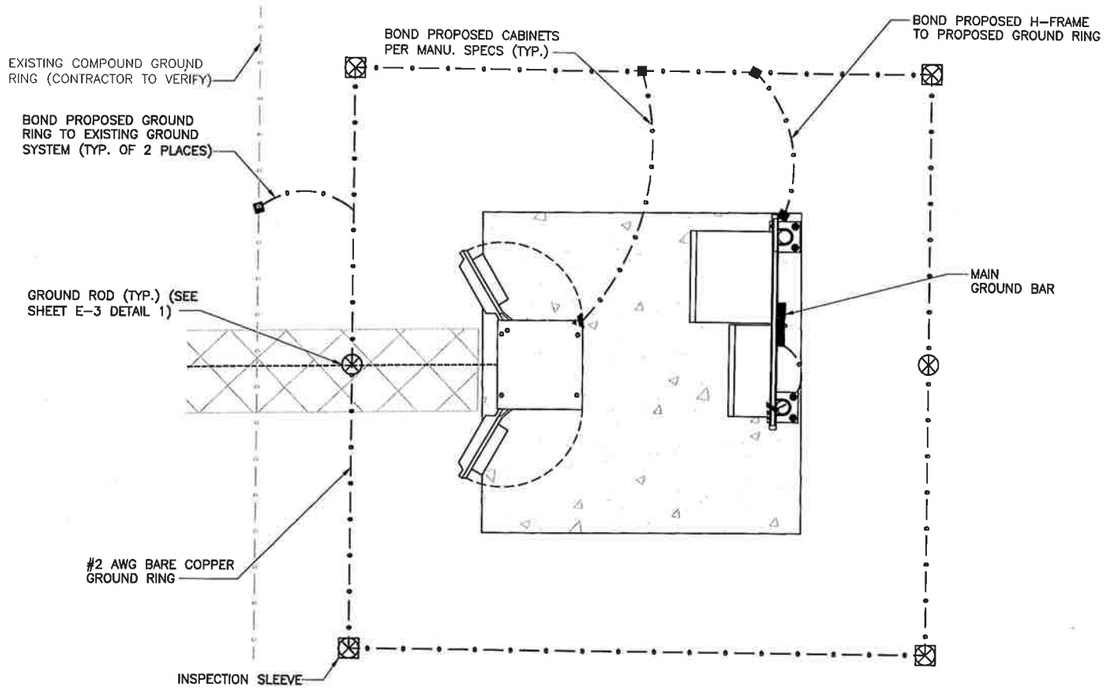
SITE NAME:
BRST - BRISTOL CONNECTICUT

SITE NUMBER:
CT52XC047

SITE ADDRESS:
790 WILLIS ST
BRISTOL, CT 06010

SHEET DESCRIPTION:
ELECTRICAL & GROUNDING PLAN

SHEET NUMBER:
E-1



LEGEND:

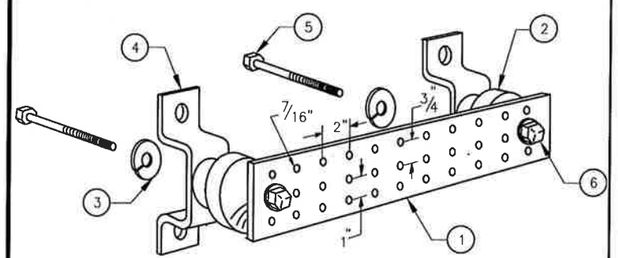
- EXISTING GROUND RING
- CADWELD CONNECTION (EXOTHERMIC WELD)
- MECHANICAL CONNECTION
- GROUND ROD

GROUNDING PLAN

NO SCALE | 1

NOTE:

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

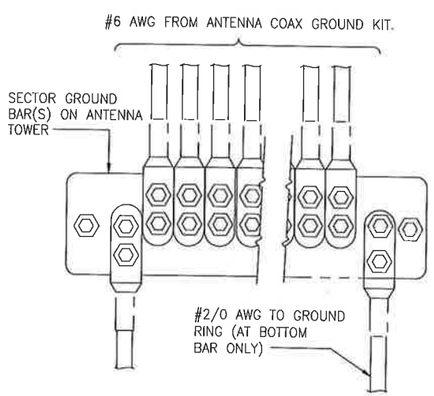


LEGEND

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

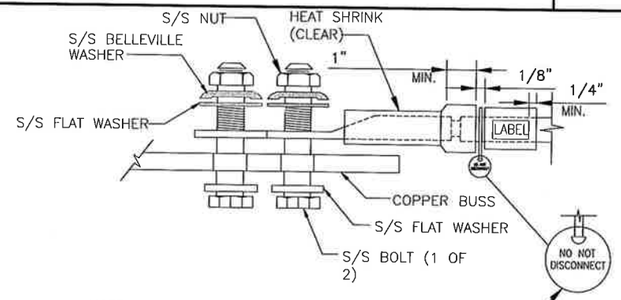
TINNED GROUND BAR DETAIL

NO SCALE | 2



ANTENNA GROUND WIRE INSTALLATION

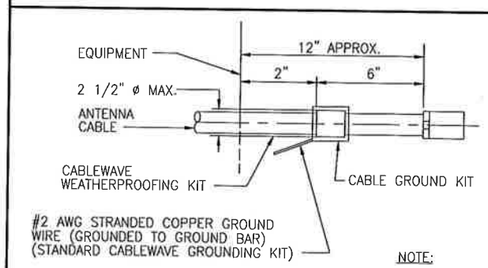
NO SCALE | 3



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

EQUIPMENT GROUND CONNECTION

NO SCALE | 4



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

CABLE GROUND KIT CONNECTION

NO SCALE | 5

PLANS PREPARED FOR:

Sprint

PLANS PREPARED BY:

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DEC 27 2019

DRAWING NOTICE:

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CT52XC047

SITE ADDRESS:

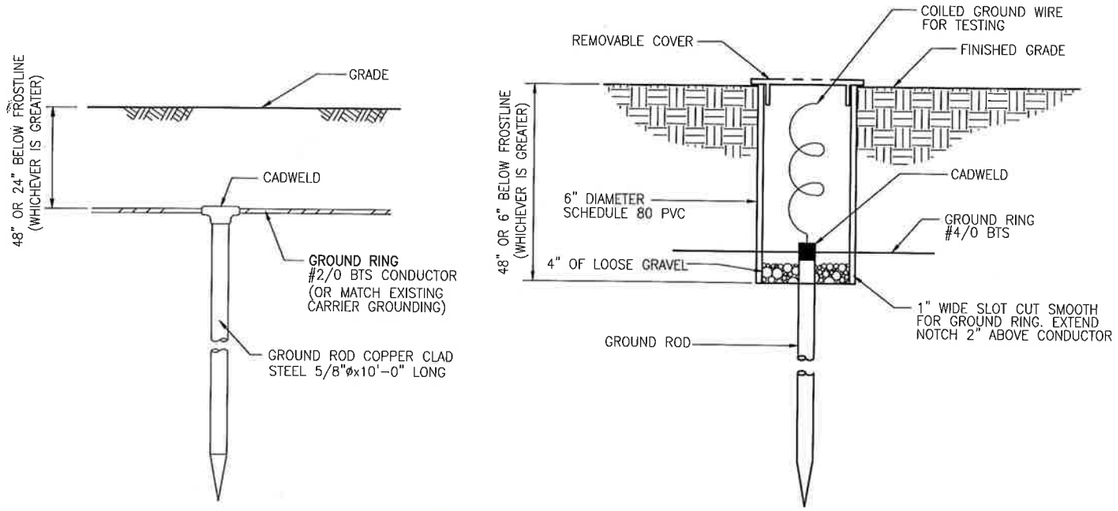
790 WILLIS ST
BRISTOL, CT 06010

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

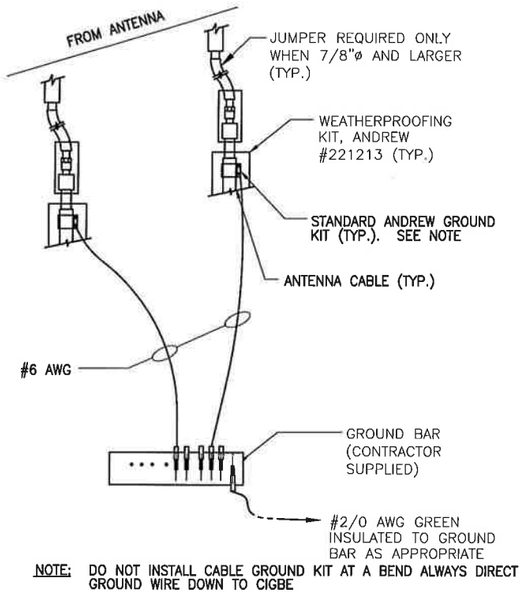
SHEET NUMBER:

E-2



GROUND ROD & INSPECTION SLEEVE DETAIL

NO SCALE | 1



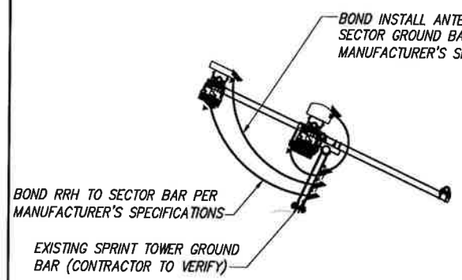
NOTE: DO NOT INSTALL CABLE GROUND KIT AT A BEND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

CONNECTION OF GROUND WIRES TO GROUND BARS @ ANTENNAS

NO SCALE | 2

LEGEND:

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

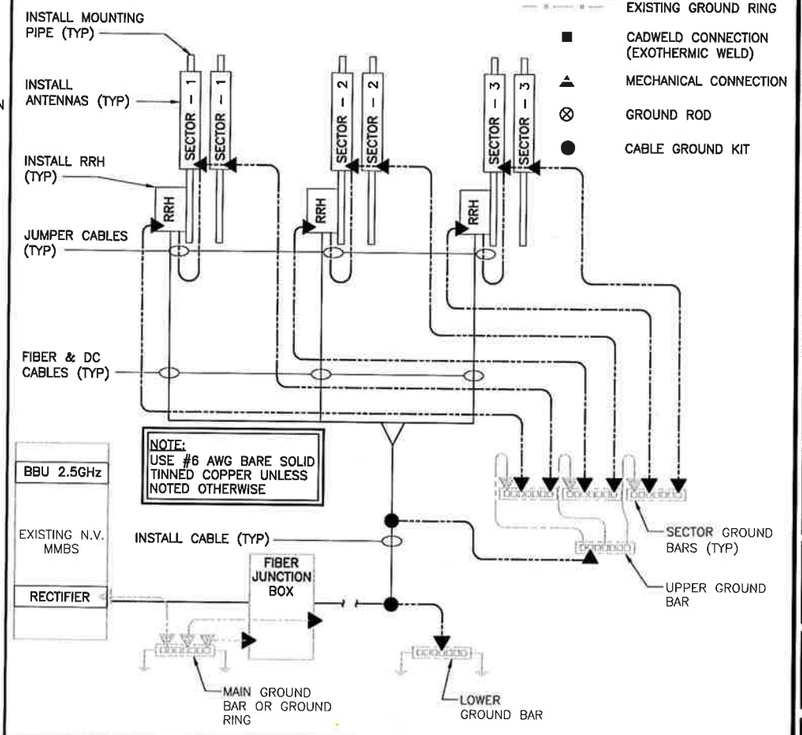


TYPICAL ANTENNA GROUNDING PLAN

NO SCALE | 3

LEGEND:

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



GROUNDING RISER DIAGRAM

NO SCALE | 4

PLANS PREPARED FOR:

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PLANS PREPARED BY:

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CT52XC047

SITE ADDRESS:

790 WILLIS ST
BRISTOL, CT 06010

SHEET DESCRIPTION:

ELECTRICAL & GROUNDING DETAILS

SHEET NUMBER:

E-3

GENERAL NOTES:

1. THESE DOCUMENTS WERE DESIGNED IN ACCORDANCE WITH THE LATEST VERSION OF APPLICABLE LOCAL/STATE/COUNTY/CITY BUILDING CODES, AS WELL AS ANSI/TIA–222 STANDARD, AWWA–D100 STANDARD, NDS, NEC, MSJC, AND/OR THE LATEST VERSION OF THE INTERNATIONAL BUILDING CODE, UNLESS NOTED OTHERWISE IN THE CORRESPONDING STRUCTURAL REPORT.
2. ALL CONSTRUCTION METHODS SHOULD FOLLOW STANDARDS OF GOOD CONSTRUCTION PRACTICE.
3. ALL WORK INDICATED ON THESE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN SIMILAR CONSTRUCTION.
4. ALL NEW WORK SHALL ACCOMMODATE EXISTING CONDITIONS. IF OBSTRUCTIONS ARE FOUND, CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD PRIOR TO CONTINUING WORK.
5. ANY CHANGES OR ADDITIONS MUST CONFORM TO THE REQUIREMENTS OF THESE NOTES AND SPECIFICATIONS, AND SHOULD BE SIMILAR TO THOSE SHOWN. ALL CHANGES OR ADDITIONS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO FABRICATION AND/OR CONSTRUCTION.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND EXECUTION OF ALL MISCELLANEOUS SHORING, BRACING, TEMPORARY SUPPORTS, ETC. NECESSARY TO PROVIDE A COMPLETE AND STABLE STRUCTURE DURING CONSTRUCTION. TIA–1019–A–2011 IS AN APPROPRIATE REFERENCE FOR THOSE DESIGNS MEETING TIA STANDARDS. THE ENGINEER OF RECORD MAY PROVIDE FORMAL RIGGING PLANS AT THE REQUEST AND EXPENSE OF THE CONTRACTOR.
7. INSTALLATION SHALL NOT INTERFERE NOR DENY ADEQUATE ACCESS TO OR FROM ANY EXISTING OR PROPOSED OPERATIONAL AND SAFETY EQUIPMENT.
8. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO ANY FABRICATION. CONTACT INFINIGY ENGINEERING IF ANY DISCREPANCIES EXIST.

STEEL CONSTRUCTION NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE AISC MANUAL OF STEEL CONSTRUCTION 14TH EDITION, FOR THE DESIGN AND FABRICATION OF STEEL COMPONENTS.
2. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES, AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS' RECOMMENDATIONS.
3. ALL FIELD DRILLED HOLES TO BE USED FOR FIELD BOLTING INSTALLATION SHALL BE STANDARD HOLES, AS DEFINED BY AISC, UNLESS NOTED OTHERWISE.
4. ALL EXTERIOR STEEL WORK SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.
5. ALL STEEL MEMBERS AND CONNECTIONS SHALL MEET THE FOLLOWING GRADES:
   - ANGLES, CHANNELS, PLATES AND BARS TO BE A36. Fy=36 KSI, U.N.O.
   - W SHAPES TO BE A992. Fy=50 KSI, U.N.O.
   - RECTANGULAR HSS TO BE A500, GRADE B. FY=46 KSI, U.N.O.
   - ROUND HSS TO BE A500, GRADE B. FY=42 KSI, U.N.O.
   - STEEL PIPE TO BE A53, GRADE B. Fy=35 KSI, U.N.O.
   - BOLTS TO BE A325–X. Fu=120 KSI, U.N.O.
   - U–BOLTS AND LAG SCREWS TO BE A307 GR A. Fu=60 KSI, U.N.O.
6. ALL WELDING SHALL BE DONE USING E70XX ELECTRODES, U.N.O.
7. ALL WELDING SHALL CONFORM TO AISC AND AWS D1.1 LATEST EDITION.
8. ALL HILTI ANCHORS TO BE CARBON STEEL, U.N.O.
   - MECHANICAL ANCHORS: KWIK BOLT–TZ, U.N.O.
   - CMU BLOCK ANCHORS: ADHESIVE – HY120, U.N.O.
   - CONCRETE ANCHORS: ADHESIVE – HY150, U.N.O.
   - CONCRETE REBAR: ADHESIVE – RE500, U.N.O.
9. ALL STUDS TO BE NELSON CAPACITOR DISCHARGE 1/4"–20 LOW CARBON STEEL COPPER–FLASH AT 55 KSI ULT/50 KSI YIELD, U.N.O.
10. BOLTS SHALL BE TIGHTENED TO A "SNUG TIGHT" CONDITION AS DEFINED BY AISC.
11. MINIMUM EDGE DISTANCES SHALL CONFORM TO AISC TABLE J3.4.

CONCRETE CONSTRUCTION NOTES:

1. CONCRETE TO BE 4000 PSI @ 28 DAYS. REINFORCING BAR TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. CONCRETE INSTALLATION TO CONFORM TO ACI–318 BUILDING REQUIREMENTS FOR REINFORCED CONCRETE. ALL CONCRETE TO BE PLACED AGAINST UNDISTURBED EARTH FREE OF WATER AND ALL FOREIGN OBJECTS AND MATERIALS. A MINIMUM OF THREE INCHES OF CONCRETE SHALL COVER ALL REINFORCEMENT. WELDING OF REBAR IS NOT PERMITTED.
2. EXISTING CONCRETE SURFACES THAT ARE TO BE IN CONTACT WITH NEW PROPOSED CONCRETE SHOULD BE WIRE BRUSHED CLEAN AND TREATED WITH APPROPRIATE MECHANICAL SCRATCH COAT AND REPAIR MATERIALS OR APPROPRIATE CHEMICAL METHODS SUCH AS THE APPLICATION OF A BONDING AGENT, EX. SAKRETE OR EQUIVALENT, TO ENSURE A QUALITY BOND BETWEEN EXISTING AND PROPOSED CONCRETE SURFACES.

FIBER REINFORCED POLYMER (FRP) NOTES:

1. FRP PLATES, SHAPES, BOLTS AND NUTS (STUD/NUT ASSEMBLIES) SHALL CONFORM TO ASTM D638, 695, 790. PLATES AND SHAPES TO BE FY = 5.35 KSI LW (SAFETY FACTOR OF 8), .945 KSI CW (SAFETY FACTOR OF 8) MIN.
2. IF FIELD FABRICATION IS REQUIRED, ALL CUT EDGES AND DRILLED HOLES TO BE SEALED USING VINYL ESTER SEALING KIT SUPPLIED BY THE MANUFACTURER.
3. ALL FASTENERS TO BE 1/2" DIA FRP THREADED ROD WITH FIBER REINFORCED THERMOPLASTIC NUT, SPACED AT 12 INCHES ON CENTER MAXIMUM, U.N.O., FOR PANELS AND AS DESIGNED FOR STRUCTURAL MEMBERS.
4. THE COLOR AND SURFACE PATTERN OF EXPOSED FRP PANELS SHALL MATCH THE EXTERIOR OF THE EXISTING BUILDING, U.N.O.
5. STUD/NUT ASSEMBLIES SHOULD BE LUBRICATED FOR INSTALLATION
6. ENSURE BEARING SURFACES OF THE NUTS ARE PARALLEL TO THE SURFACES BEING FASTENED.
7. TORQUE BOLTS ACCORDING TO THE FOLLOWING TABLE:

INSTALLATION TORQUE TABLE

SIZE	ULTIMATE TORQUE STRENGTH	RECOMMENDED MAXIMUM INSTALLATION TORQUE
3/8–16 UNC	8 FT–LBS	4 FT–LBS
1/2–13 UNC	18 FT–LBS	8 FT–LBS
5/8–11 UNC	35 FT–LBS	16 FT–LBS
3/4–10 UNC	50 FT–LBS	24 FT–LBS
1–8 UNC	110 FT–LBS	50 FT–LBS

8. WHEN TIGHTENING FRP STUD/NUT ASSEMBLIES, WRENCHES MUST MAKE FULL CONTACT WITH ALL NUT EDGES. A STANDARD SIX POINT SOCKET IS RECOMMENDED.
9. STUD/NUT ASSEMBLIES SHOULD BE BONDED BY APPLYING BONDING AGENT TO ENTIRE NUT AND EXPOSED STUD.
10. ALL FRP MATERIALS TO BE PROVIDED BY FIBERGRATE COMPOSITE STRUCTURES, DALLAS TX, OR APPROVED EQUAL.
11. ALL FRP SHAPES TO BE DYNAFORM PULTRUDED STRUCTURAL SHAPES.
12. ALL FRP PLATES TO BE FIBERPLATE MOLDED FRP PLATE.
13. ALL FRP PANELS TO BE FIBERPLATE CLADDING PANEL.
14. EACH FRP PANEL TO BE IDENTIFIED WITH LARR#25536 AND FIBERGRATE COMPOSITE STRUCTURAL LABEL.
15. FRP MATERIAL TO BE CLASSIFIED AS CC1 OR BETTER, AND HAVE MAXIMUM FLAME SPREAD OF 50.
16. ALL DESIGN AND CONSTRUCTION TO BE COMPLETED IN ACCORDANCE WITH LOS ANGELES RESEARCH REPORT RR25536, DATED FEBRUARY 1, 2016.
17. SPECIAL INSPECTIONS MUST BE PROVIDED FOR ALL FRP INSTALLMENTS. SEE SPECIAL INSPECTION SECTION, THIS SHEET.

RATIO OF EDGE DISTANCE TO FRP FASTENER DIAMETER

	RANGE	RECOMMENDED
EDGE DISTANCE – CL* BOLT TO END	2.0–4.0	3.0
EDGE DISTANCE – CL* BOLT TO SIDE	1.5–3.5	2.5
BOLT PITCH – CL* TO CL*	4.0–5.0	5.0

WOOD CONSTRUCTION NOTES:

1. ALL EXISTING WOOD SHAPES ARE ASSUMED TO BE DOUGLAS FIR–LARCH WITH A REFERENCE DESIGN BENDING VALUE OF 1000 PSI MIN.
2. ALL PROPOSED WOOD SHAPES ARE TO BE DOUGLAS FIR–LARCH WITH A REFERENCE DESIGN BENDING VALUE OF 1000 PSI MIN. U.N.O.
3. ALL EXISTING AND PROPOSED GLUED LAMINATED TIMBERS ARE TO BE 24F–1.8C DOUGLAS FIR BALANCED WITH A REFERENCE DESIGN BENDING VALUE OF 2400 PSI MIN. U.N.O.

MASONRY CONSTRUCTION NOTES:

1. ALL BRICK TO BE 1500 PSI MIN. REINFORCING BAR (IF APPLICABLE) TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. ALL MORTAR TO BE 2000 PSI MIN.
   - FOR INTERIOR/ABOVE GRADE APPLICATIONS TYPE N MORTAR HAVING MINIMUM MODULUS OF RUPTURE OF 100 PSI SHALL BE USED. FOR EXTERIOR/BELOW GRADE APPLICATIONS TYPE M OR S MORTAR HAVING A MINIMUM MODULUS OF RUPTURE OF 133 PSI.
   - BRICK AND MORTAR INSTALLATION TO CONFORM TO MSJC BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES.
2. ALL CMU TO BE 1500 PSI MIN. REINFORCING BAR (IF APPLICABLE) TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. ALL MORTAR TO BE 2000 PSI MIN.
   - FOR INTERIOR/ABOVE GRADE APPLICATIONS, TYPE N MORTAR HAVING MINIMUM MODULUS OF RUPTURE OF 64 PSI SHALL BE USED FOR UNGROUTED BLOCKS, AND 158 PSI FOR FULLY GROUTED BLOCKS.
   - FOR EXTERIOR/BELOW GRADE APPLICATIONS TYPE M OR S MORTAR HAVING A MINIMUM MODULUS OF RUPTURE OF 84 PSI SHALL BE USED FOR UNGROUTED BLOCKS, AND 163 PSI FOR FULLY GROUTED BLOCKS.
   - BRICK AND MORTAR INSTALLATION TO CONFORM TO MSJC BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES.

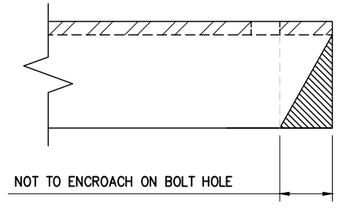
TOWER PLUMB & TENSION NOTES:

1. PLUMB AND TENSION TOWER UPON COMPLETION OF STRUCTURAL MODIFICATIONS DETAILED IN THESE DRAWINGS.
2. RETENSIONING OF EXISTING GUY WIRES SHALL BE PERFORMED AT A TIME WHEN THE WIND VELOCITY IS LESS THAN 10 MPH AT GROUND LEVEL AND WITH NO ICE ON THE STRUCTURE AND GUY WIRES.
3. PLUMB THE TOWER WHILE RETENSIONING THE EXISTING GUY WIRES. THE HORIZONTAL DISTANCE BETWEEN THE VERTICAL CENTERLINES AT ANY TWO ELEVATIONS SHALL NOT EXCEED 0.25% OF THE VERTICAL DISTANCE BETWEEN TWO ELEVATIONS FOR LATTICED STRUCTURES.
4. THE TWIST BETWEEN ANY TWO ELEVATIONS THROUGHOUT THE HEIGHT OF A LATTICE STRUCTURE SHALL NOT EXCEED 0.5 DEGREES IN 10 FEET. THE MAXIMUM TWIST OVER THE LATTICE STRUCTURE HEIGHT SHALL NOT EXCEED 5 DEGREES.

SPECIAL INSPECTIONS NOTES:

1. A QUALIFIED INDEPENDENT TESTING LABORATORY, EMPLOYED BY THE OWNER AND APPROVED BY THE JURISDICTION, SHALL PERFORM INSPECTION AND TESTING IN ACCORDANCE WITH THE THE GOVERNING BUILDING CODE, APPLICABLE SECTION(S) AS REQUIRED BY PROJECT SPECIFICATIONS FOR THE FOLLOWING CONSTRUCTION WORK:
   a. STRUCTURAL WELDING (CONTINUOUS INSPECTION OF FIELD WELDS ONLY).
   b. HIGH STRENGTH BOLTS (PERIODIC INSPECTION OF A325 AND/OR A490 BOLTS) TO BE TIGHTENED PER "TURN–OF–THE–NUT" METHOD.
   c. MECHANICAL AND EPOXIED ANCHORAGES.
   d. FIBER REINFORCED POLYMER.
      - THE SPECIAL INSPECTOR MUST VERIFY THAT THE FRP MATERIAL SPECIFIED ON THE APPROVED DESIGN DOCUMENTS IS BEING INSTALLED.
      - THE SPECIAL INSPECTOR MUST VERIFY THAT ALL CUT EDGES AND DRILLED HOLES ARE PROPERLY SEALED USING A VINYL ESTER SEALING KIT SUPPLIED BY THE MANUFACTURER.
      - THE SPECIAL INSPECTOR MUST VERIFY THAT THE STRUCTURE IS BUILT IN ACCORDANCE WITH THE APPROVED DESIGN DOCUMENTS.
2. THE INSPECTION AGENCY SHALL SUBMIT INSPECTION AND TEST REPORTS TO THE BUILDING DEPARTMENT, THE ENGINEER OF RECORD, AND THE OWNER UNLESS THE FABRICATOR IS APPROVED BY THE BUILDING OFFICIAL TO PERFORM WORK WITHOUT THE SPECIAL INSPECTIONS.

MAXIMUM ALLOWABLE ANGLE CLIP



PLANS PREPARED FOR:

Sprint

15395 SE 30TH PL
BELLEVUE, WASHINGTON 98007

PLANS PREPARED BY:

INFINIGY ENGINEERING PLLC
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JOB NUMBER 1006–B0002–B

SITE ACQ:

AIROSMITH DEVELOPMENT
32 CLINTON ST.
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OFFICE#. (518) 306–3740

ENGINEERING LICENSE:

11-15-19

REVISIONS:

DESCRIPTION	APP'D	DATE	BY	REV
ISSUED FOR REVIEW		11/14/19	PR	0

SITE NAME:
BRST - BRISTOL CONNECTICUT

SPRINT SITE #:
CT52XC047

SITE ADDRESS:
790 WILLIS ST
BRISTOL, CT 06010

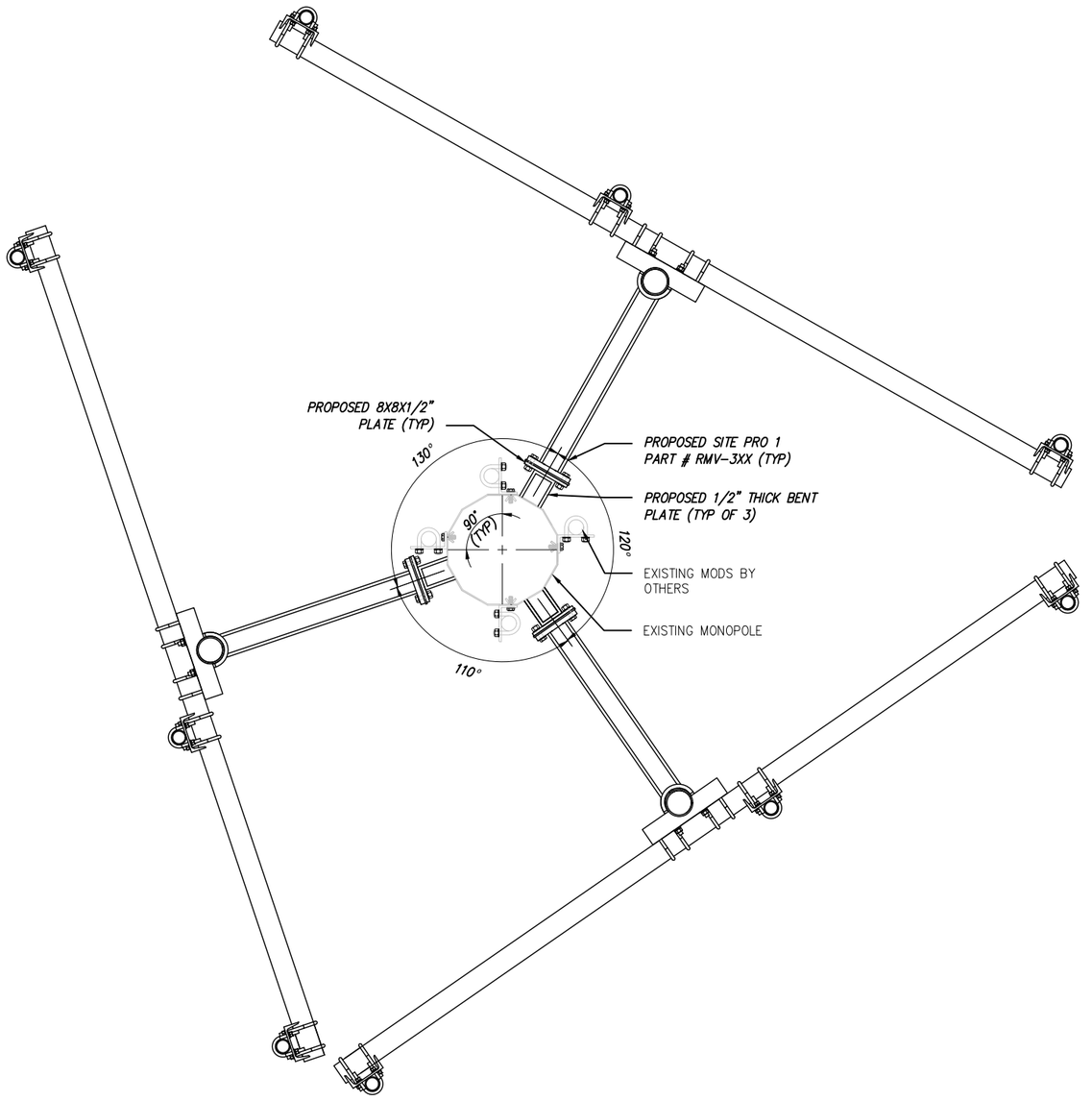
SHEET DESCRIPTION:
GENERAL NOTES

SHEET NUMBER:
S1

NOTES:

1. VARIOUS EXISTING CONDITIONS AND EXISTING MODIFICATIONS ARE NOT SHOWN FOR CLARITY.

2. ALL SITE PRO 1 PARTS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.



1 PLAN VIEW
SCALE: NOT TO SCALE

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STATE OF CONNECTICUT
JOHN S. STEVENS
24705
LICENSED PROFESSIONAL ENGINEER
11-15-19

REVISIONS:

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790 WILLIS ST
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SHEET DESCRIPTION:

MODIFICATIONS DETAILS

SHEET NUMBER:

S2

NOTES:

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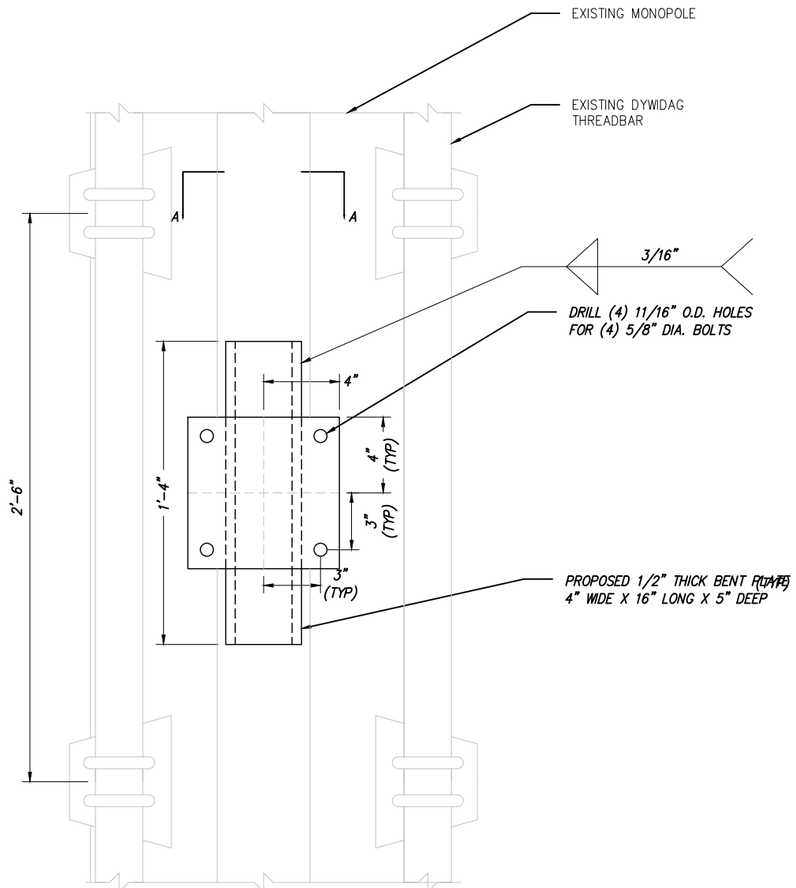
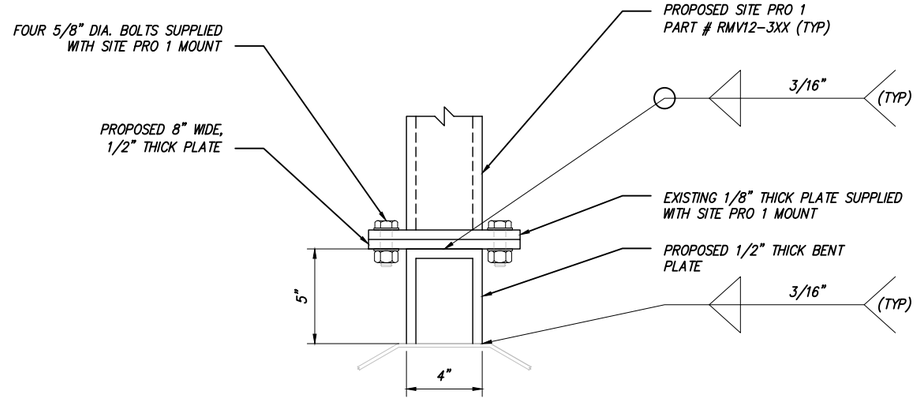
2. ALL SITE PRO 1 PARTS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.



1 ELEVATION VIEW AT 90'-0"
SCALE: NOT TO SCALE



2 SECTION A - A
SCALE: NOT TO SCALE

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DRAWING NOTICE:

REVISIONS:

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ISSUED FOR REVIEW		11/14/19	PR	0

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MODIFICATIONS DETAILS

SHEET NUMBER:

S3