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

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

Re: Notice of Exempt Modification Application
2 Hinckley Hill Road, Norwich CT 06360

April 18, 2018

Dear Ms. Bachman:

Sprint Spectrum Realty Company, L.P. ("Sprint"), is submitting to the Connecticut Siting Council for a Notice of Exempt Modification for Proposed Modifications to an Existing Telecommunications Facility located at the above-referenced site. Sprint currently maintains 3 panel antennas and 6 Remote Radio at the 140' level of the Tower. Sprint proposes to add 3 new panel antennas (1 per sector) and 6 new Remote Radio Heads (2 per sector) and further proposes to add 1 new hybrid cable.

The earliest CT Siting Council submission I could find was issued to Sprint on November 29, 2013. The original Building permit for the actual tower construction issued by the Town was unavailable but there is a Building Permit from June 17, 2014. The attached construction and structural documents enclosed reflect the current reality of all the installations on the Tower.

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

Thank you,

By: *Paul F. Sagristano*

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

4 Davis Road West, Suite 5 – Old Lyme, CT 06371

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

Re: Notice of Exempt Modification Application
2 Hinckley Hill Road, Norwich, CT 06360

Lat: N 41.5107
Long: W72.0596

April 18, 2018

Dear Ms. Bachman:

Sprint currently maintains 3 panel antennas and 6 Remote Radio Heads at the 140' level of the above noted wireless tower. Sprint proposes to add 3 panel antennas (1 per sector) and add 6 remote radio heads (2 per sector) at the 140' tower level as well as 1 new hybrid cable. Sprint is performing a new high-performance upgrade for cellular mobile communications. It is designed to increase the capacity and speed of mobile telephone networks.

The earliest CT Siting Council approval available was from November 29, 2013. The earliest building permit for the Tower construction was not available but a recent one from June 17, 2014 is included.
.
Attached is a summary of the planned modifications, including power density calculations reflecting the change in Sprint's operations at the site. Also included is documentation of the structural sufficiency of the tower with proposed modifications to accommodate the revised antenna configuration.

Existing Facility

The Eastford facility is located at 2 Hinckley Hill Road. The address spans part of Preston and Norwich, however, the tower is located in the City of Norwich. The Site coordinates are: N41.5107, W72.0596. The existing facility consists of a 150' Self Supporting Tower. Sprint currently operates wireless communications equipment on a platform on a concrete slab at the facility and has3 antennas and 6 remote radio heads at a centerline of 140' feet on the tower. Please accept this letter as notification to the Council, pursuant to R.C.S.A. Section 16-50j-73, for construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).
In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter is being sent to:

Hon. Peter Nystrom – Mayor of Norwich, – Via Fed Ex
Deanna Rhodes – City Planner – Via Fed Ex
Cordless Data Transfer, Inc., the tower owner – Via Fed Ex
Lavern Irwin – Land Owner – Via Fed Ex

Statutory Considerations

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

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

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

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

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

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

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

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

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

Respectfully submitted,

Paul F. Sagristano

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

PFS/mtf

Additional Recipients:
Hon. Peter Nystrom – Mayor of Norwich, – Via Fed Ex
Deanna Rhodes – City Planner – Via Fed Ex
Cordless Data Transfer, Inc., the tower owner – Via Fed Ex
Lavern Irwin – Land Owner – Via Fed Ex

May 7,2018

Dear Customer:

The following is the proof-of-delivery for tracking number 772134902165.

Delivery Information:

Status:	Delivered	**Delivered to:**	Receptionist/Front Desk
Signed for by:	C.CUPRAK	**Delivery location:**	100 BROADWAY NORWICH, CT 06360
Service type:	FedEx Express Saver	**Delivery date:**	May 7, 2018 11:00
Special Handling:	Deliver Weekday Direct Signature Required		

Shipping Information:

Tracking number:	772134902165	**Ship date:**	May 2, 2018
		Weight:	0.5 lbs/0.2 kg

Recipient:
Hon. Peter Nystrom - Mayor
City of Norwich
100 Broadway
Mayor's office
NORWICH, CT 06360 US
Reference

Shipper:
Paul Sagristano
CCC
4 Davis Road West
Suite 5
OLD LYME, CT 06371 US
CT23XC114 - CSC to Mayor

Thank you for choosing FedEx.

May 7,2018

Dear Customer:

The following is the proof-of-delivery for tracking number 772134959750.

Delivery Information:

Status:	Delivered	**Delivered to:**	Receptionist/Front Desk
Signed for by:	S.SMITH	**Delivery location:**	23 UNION ST NORWICH, CT 06360
Service type:	FedEx Express Saver	**Delivery date:**	May 7, 2018 11:01
Special Handling:	Deliver Weekday Direct Signature Required		

Shipping Information:

Tracking number:	772134959750	**Ship date:**	May 2, 2018
		Weight:	0.5 lbs/0.2 kg

Recipient:
Deanna Rhodes, City Planner
City of Norwich
23 Union Street
NORWICH, CT 06360 US

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

Reference
CT23XC114 - CSC to Planner

Thank you for choosing FedEx.

May 9,2018

Dear Customer:

The following is the proof-of-delivery for tracking number 772135064165.

Delivery Information:

Status:	Delivered	**Delivered to:**	Residence
Signed for by:	L.IRWIN	**Delivery location:**	890 N GRANADA DR CHANDLER, AZ 85226
Service type:	FedEx Express Saver	**Delivery date:**	May 8, 2018 12:31
Special Handling:	Deliver Weekday Residential Delivery Direct Signature Required		

Shipping Information:

Tracking number:	772135064165	**Ship date:**	May 2, 2018
		Weight:	0.5 lbs/0.2 kg

Recipient:
Lavern Irwin
890 North Granada Drive
CHANDLER, AZ 85226 US

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

Reference
CT23XC114 - CSC to LL

Thank you for choosing FedEx.

May 7,2018

Dear Customer:

The following is the proof-of-delivery for tracking number 772132696764.

Delivery Information:

Status:	Delivered	**Delivered to:**	Residence
Signed for by:	V.LEGALT	**Delivery location:**	600 OLD HARTFORD ROAD COLCHESTER, CT 06415
Service type:	FedEx Express Saver	**Delivery date:**	May 7, 2018 14:46
Special Handling:	Deliver Weekday Residential Delivery Direct Signature Required		

Shipping Information:

Tracking number:	772132696764	**Ship date:**	May 2, 2018
		Weight:	0.5 lbs/0.2 kg

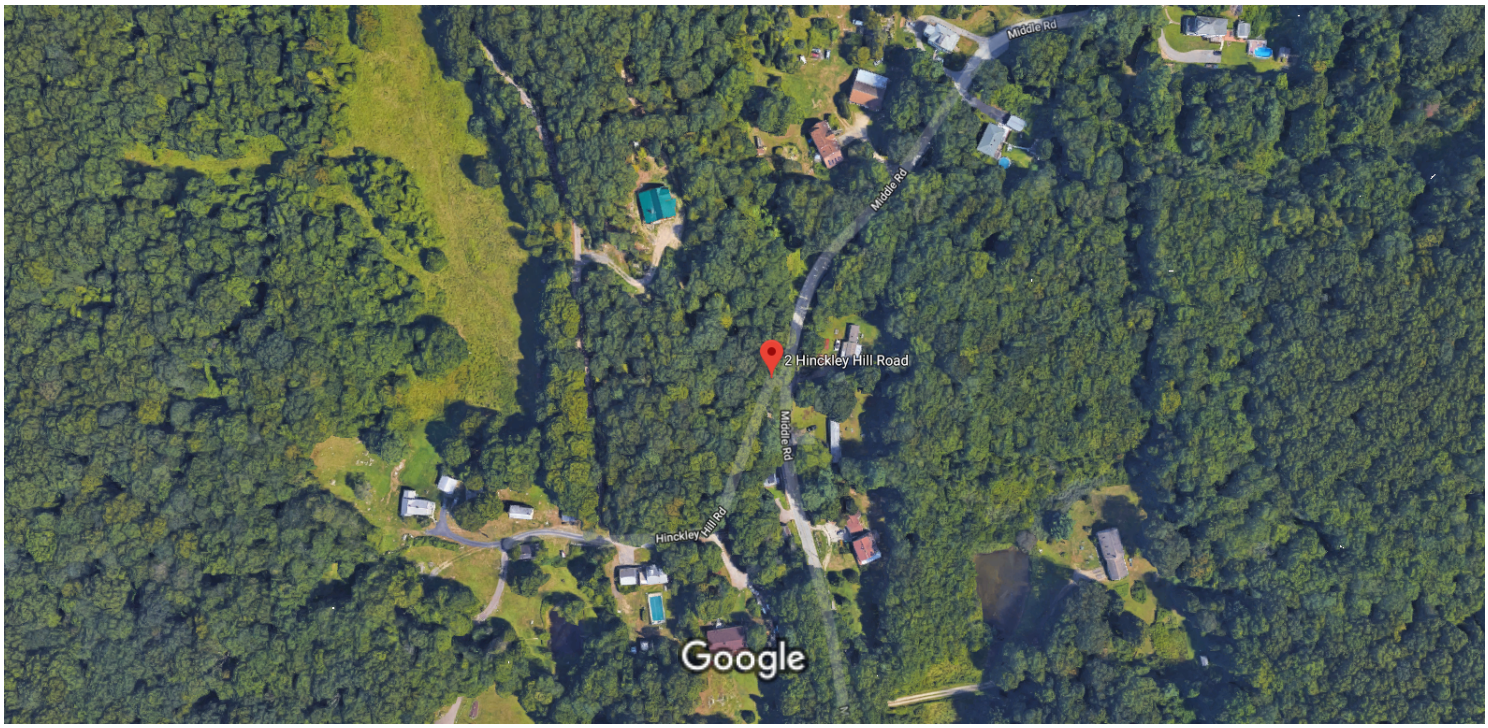
Recipient:
Mark Legault
CDT, Inc
600 Old Hartford Road
COLCHESTER, CT 06415 US

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

Reference
CT33XC016 CSC Sub

Thank you for choosing FedEx.

Google Maps 2 Hinckley Hill Rd



Imagery ©2018 Google, Map data ©2018 Google 100 ft

2B HINCKLEY HILL RD

Location	2B HINCKLEY HILL RD	**Mblu**	17-0/ HIN1/ 2B/ /
Acct#	00112101	**Owner**	IRWIN JAMES C & LAVERNE G
Assessment	$200	**Appraisal**	$300
PID	102142	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2012	$0	$300	$300
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2012	$0	$200	$200

Owner of Record

Owner	IRWIN JAMES C & LAVERNE G	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	890 N GRANADA DR CHANDLER, AZ 85226	**Book & Page**	
		Sale Date	

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
IRWIN JAMES C & LAVERNE G	$0			

Building Information

Building 1 : Section 1

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

Building Attributes	
Field	**Description**

Style	Vacant Land
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	

Building Photo

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

Building Layout

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

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	1320
Description	RES ACLNUD
Zone	R-12
Neighborhood	0050
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0.00
Frontage	
Depth	
Assessed Value	$200
Appraised Value	$300

Outbuildings

Outbuildings	Legend

No Data for Outbuildings

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2011	$0	$300	$300
2006	$0	$49,300	$49,300

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2011	$0	$200	$200
2006	$0	$34,500	$34,500

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: CT23XC114

Northford / Oshencowski
2 Hinckley Hill Road
Preston, CT 06360

October 24, 2017

EBI Project Number: 6217004512

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	14.09 %

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

EBI Consulting
environmental | engineering | due diligence

October 24, 2017

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

Emissions Analysis for Site: **CT23XC114 – Northford / Oshencowski**

EBI Consulting was directed to analyze the proposed SPRINT facility located at **2 Hinckley Hill Road, Preston, CT**, for the purpose of determining whether the emissions from the Proposed SPRINT Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed SPRINT Wireless antenna facility located at **2 Hinckley Hill Road, Preston, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since SPRINT is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

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

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

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

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

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

8) The antennas used in this modeling are the **RFS APXVSPP18-C-A20, RFS APXV9ERR18-C-A20, KMW ET-X-TU-42-15-37-18-IR-RA and the Commscope DT465B-2XR** for transmission in the 850 MHz, 1900 MHz (PCS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerlines of the proposed antennas are **140 feet** above ground level (AGL) for **Sector A**, **140 feet** above ground level (AGL) for **Sector B** and **140 feet** above ground level (AGL) for Sector C.

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

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

SPRINT Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	KMW ET-X-TU-42-15-37-18-IR-RA	Make / Model:	RFS APXVSPP18-C-A20	Make / Model:	RFS APXV9ERR18-C-A20
Gain:	12.9 / 15.9 dBd	Gain:	13.4 / 15.9 dBd	Gain:	11.9 / 14.9 dBd
Height (AGL):	**140 feet**	Height (AGL):	**140 feet**	Height (AGL):	**140 feet**
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	10	Channel Count	10	Channel Count	10
Total TX Power(W):	220 Watts	Total TX Power(W):	220 Watts	Total TX Power(W):	220 Watts
ERP (W):	7,394.63	ERP (W):	7,537.38	ERP (W):	5,873.76
Antenna A1 MPE%	**1.66 %**	Antenna B1 MPE%	**1.71 %**	Antenna C1 MPE%	**1.32 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Commscope DT465B-2XR	Make / Model:	Commscope DT465B-2XR	Make / Model:	Commscope DT465B-2XR
Gain:	15.05 dBd	Gain:	15.05 dBd	Gain:	15.05 dBd
Height (AGL):	**140 feet**	Height (AGL):	**140 feet**	Height (AGL):	**140 feet**
Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)	Frequency Bands	2500 MHz (BRS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts	Total TX Power(W):	160 Watts
ERP (W):	5,118.23	ERP (W):	5,118.23	ERP (W):	5,118.23
Antenna A2 MPE%	**1.02 %**	Antenna B2 MPE%	**1.02 %**	Antenna C2 MPE%	**1.02 %**

Site Composite MPE%	
Carrier	**MPE%**
SPRINT – Max per sector	**2.73 %**
T-Mobile	2.83 %
Verizon Wireless	3.41 %
AT&T	4.74 %
TSR Paging	0.20 %
Aquis Paging	0.18 %
Site Total MPE %:	**14.09 %**

SPRINT Sector A Total:	2.68 %
SPRINT Sector B Total:	2.73 %
SPRINT Sector C Total:	2.34 %
Site Total:	14.09 %

SPRINT _ Max Values per Frequency Band / Technology (Sector B)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Sprint 850 MHz CDMA	1	437.55	140	0.88	850 MHz	567	0.15%
Sprint 850 MHz LTE	2	437.55	140	1.75	850 MHz	567	0.31%
Sprint 1900 MHz (PCS) CDMA	5	622.47	140	6.23	1900 MHz (PCS)	1000	0.62%
Sprint 1900 MHz (PCS) LTE	2	1,556.18	140	6.23	1900 MHz (PCS)	1000	0.62%
Sprint 2500 MHz (BRS) LTE	8	639.78	140	10.25	2500 MHz (BRS)	1000	1.02%
						Total:	**2.73%**

Summary

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

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

SPRINT Sector	Power Density Value (%)
Sector A:	2.68 %
Sector B:	2.73 %
Sector C:	2.34 %
SPRINT Maximum Total (Sector B):	2.73 %
Site Total:	14.09 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **14.09 %** 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.

FRED A. NUDD CORPORATION

1743 ROUTE 104, BOX 577
ONTARIO, NY 14519
(315) 524-2531 FAX (315) 524-4249

www.nuddtowers.com

Mark LeGault
Cordless Data Transfer, Inc.
600 Old Hartford Road
Colchester, CT 06415
January 14, 2017

Fred A. Nudd Job Number: 117-23243.6

Location: 2 Hinkley Hill Road, Norwich, CT 06360, New London County (Lat. & Long: 41-30-53.45, -72-03-42.08)

Subject: Structural Analysis of a 150 ft Self-Supporting Tower

Fred A. Nudd Corporation has completed a three-dimensional, finite element model structural analysis of the above noted self-supporting tower. This tower was analyzed considered appurtenance loads noted in the appurtenance loading table on the following page. The design loading criteria and strength design are per the ANSI/TIA-222-G standard, which is the recommended design standard per the 2012 International Building Code (Sec. 1609 & 3108), , and the 2016 Connecticut State Building Code. Tower and foundation dimensions have been taken from original design drawings by Fred A. Nudd Corporation (Drawing Number 99-6864-1 & 99-6864-2R, dated July 22, 1999 & November 20, 1999). Onsite subsurface conditions were taken from a geotechnical report by Coneco (Project Number C104.0CDT, dated November 15, 1999). The tower is assumed to be in good, undamaged and equivalent to as new condition and has been maintained / inspected per criteria by TIA-222.

The purpose of this analysis is to determine the structure's ability to support new Sprint and AT&T equipment installed at a rad center of 140 ft 115 ft above ground level (AGL), respectively. The new equipment to be installed, which included antennas, coax, mounts and associated hardware are listed on the following page in the appurtenance loading table.

Results of the analysis indicate the tower will be able to the support the design loads noted in the appurtenance loading table on the following page. Specific section design loads, capacities and stress ratios are provided on the following pages. Maximum member usage was found to be 83%. Detailed calculation of the applied forces and member capacities, considering combinations of existing and proposed equipment, are provided in the following pages.

The tower base foundation was analyzed using soil properties from the aforementioned geotechnical report. Based on this analysis, the foundation is capable of supporting the existing and proposed equipment. Detailed calculation of the applied forces and member capacities are provided in the following pages.

In conclusion, the tower superstructure and substructure can support the listed existing and proposed appurtenance loading.

We trust this report satisfies your needs. Please contact us with any questions or concerns regarding this report.

Best Regards,

Fred. A. Nudd Corporation

Code Design Criteria

ANSI/TIA-222-G
Windspeed = 104 mph, 3-second gust, V_{asd} / 132 mph, 3-second gust, V_{ult}
Exposure = B
Radial Ice = 0.75 inch
Ice Windspeed = 50 mph, 3-second gust
Structure Class = II
Topographic Category = 1
S_s < 1.0, thus seismic loading does not need to be considered

Appurtenance Loading (1) – Currently installed equipment on tower

Height (ft)	Carrier	Appurtenance	Mount	Coax (in)
150	T-Mobile	(3) Ericsson AIR32 B66A/B2A (3) Commscope DBXNH-6565B-A2M (3) Ericsson KRY 112 144/2	(3) 12 ft Boom / Frame	(12) 1-5/8 (1) 1-5/8 Fiber
140	Sprint	(1) KMW ET-X-TU-42-15-37-18-IR-RA (1) RFS APXVSPP18-C-A20 (1) RFS APXV9ERR18-C-A20 (3) Alcatel Lucent 4X45 65 RRU (3) Alcatel Lucent 2X50W RRU (3) Alcatel Lucent 1900 MHz RRH, 65 MHz (3) RFS IBC1900BB-3	(3) 12 ft Boom / Frame	(3) 1-1/4 Hybriflex
127.5	Verizon	(4) RFS APL868013 (6) RFS FD9R6004/2C-3L (2) RFS APL866513 (1) RFS DB-T1-6Z-8AB-0Z (3) Commscope LNX-6514DS-1AM (3) Commscope HBXX-9014DS-VTM (3) Commscope HBXX-6517DS-A2M (3) Alcatel Lucent RH_2x60-AWS (3) Alcatel Lucent RH_2x60-70OU (3) Alcatel Lucent RH_2x60-PCS	(3) 12 ft Boom / Frame	(6) 1-5/8 (2) 1-5/8 Fiber Cable
115	AT&T Mobility	(3) Powerwave 7770.00 (6) Powerwave LGP21401 (1) Powerwavce P65-17-XLH-RR (1) KMW AM-X-CD-16-65-00T-RET (6) Ericsson RRUS11 (1) Raycap DC6-48-60-18-8F	(3) 10 ft Boom / Frame	(12) 1-1/4 (2) 0.65 DC (1) 1.34 Fiber

- *Height measurement taken as distance from top of base foundation to center of appurtenance.*

Appurtenance Loading (2) – New Sprint equipment to replace all Sprint equipment noted above

Height (ft)	Carrier	Appurtenance	Mount	Coax (in)
140	Sprint	(3) RFS APXV9ERR18-C-A20 (6) Alcatel Lucent 4x45W, 1900 MHz (3) Alcatel Lucent TD-RRH8x200-25 (6) Alcatel Lucent RRH 2x50, 800 Mhz (3) Commscope DT465B-2XR	(3) 12 ft Boom / Frame	(4) 1-1/4 Hybrid

- *Height measurement taken as distance from top of base foundation to center of appurtenance.*
- *Additional coax to be installed anywhere on the tower.*

Appurtenance Loading (3) – New AT&T equipment to replace all AT&T equipment noted above

Height (ft)	Carrier	Appurtenance	Mount	Coax (in)
115	AT&T	(3) Powerwave 7770 (3) KMW EPBQ-654L8H8-L2 (3) CCI OPA-65R-LCUU-H8 (3) Ericsson RRUS-11 (9) Ericsson RRUS-32 (3) Ericsson B14 4478 (6) Powerwave LGP21401 (2) Raycap DC6-48-60-18-8F (1) Raycap DC6-48-60-0-8F	(3) 12 ft Boom / Frame	(12) 1-1/4 (6) 3/4 DC (2) 3/8 Fiber

- *Height measurement taken as distance from top of base foundation to center of appurtenance.*
- *Additional coax to be installed anywhere on the tower.*

Maximum Member Usage

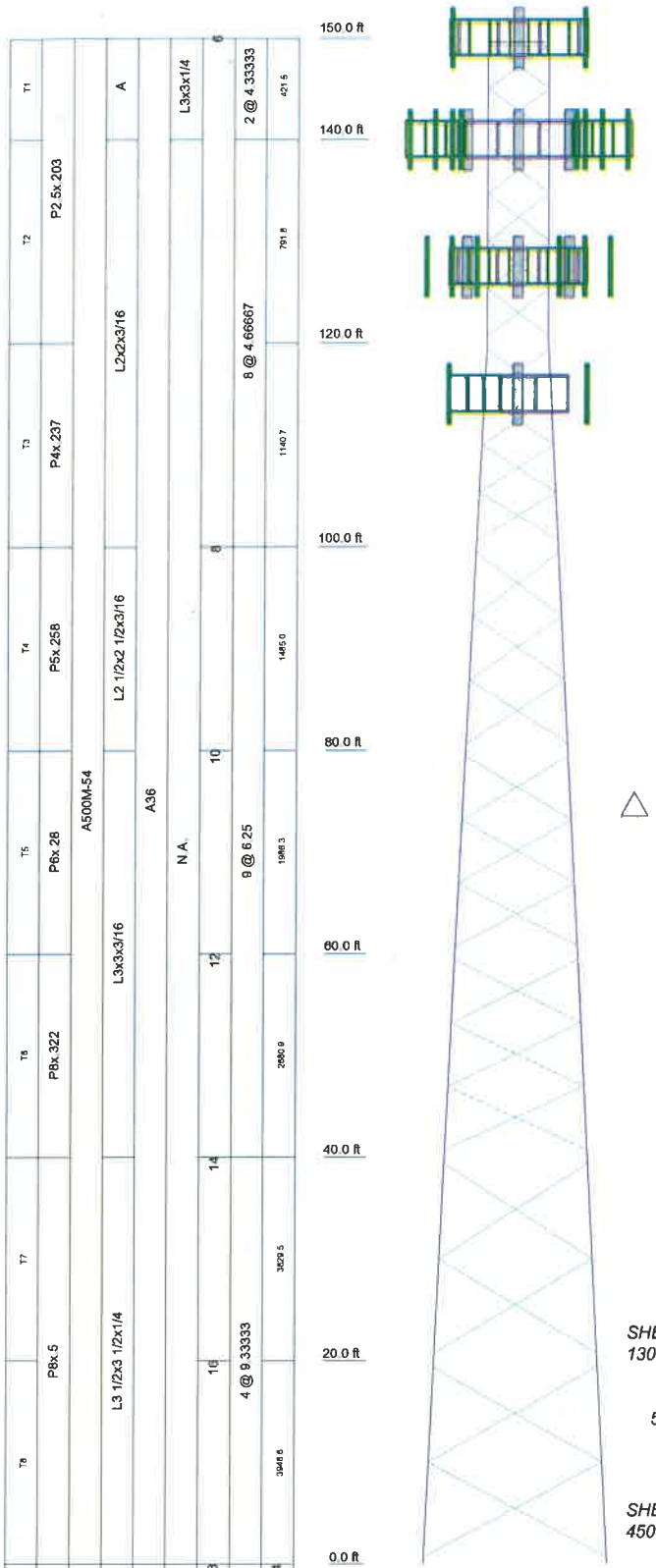
Member	1	1 + 2	1 + 3	1 + 2 + 3
Leg	64	68	67	73
Diagonal	79	80	81	83
Horizontal	2	2	2	2
Splice/Connection Bolts	79	80	81	83

- *Percentage equal to or less than 100% denote member stress levels are satisfactory for loading.*
- *Percentage greater than 100% indicates member strengthening is required.*

Foundation Reaction Usage

Reaction	1	1 + 2	1 + 3	1 + 2 + 3
Compression / Leg	58	60	60	63
Uplift / Leg	46	48	48	51
Shear / Leg	36	37	37	38

- *Percentage equal to or less than 100% denote member stress levels are satisfactory for loading.*
- *Percentage greater than 100% indicates member strengthening is required.*



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Nudd 12' boom	150	Nudd 12' boom	127.5
Nudd 12' boom	150	(2) RFS APL868013 (Verizon)	127.5
Nudd 12' boom	150	(2) RFS APL868013 (Verizon)	127.5
Ericsson AIR 32 B66AA/B2A (T-Mobile)	150	(2) RFS APL866513 (Verizon)	127.5
		(2) RFS FD9R6004/2C-3L (Verizon)	127.5
Ericsson AIR 32 B66AA/B2A (T-Mobile)	150	(2) RFS FD9R6004/2C-3L (Verizon)	127.5
		(2) RFS FD9R6004/2C-3L (Verizon)	127.5
Ericsson AIR 32 B66AA/B2A (T-Mobile)	150	RFS DB-T1-6Z-8AB-0Z (Verizon)	127.5 - 12.75
Commscope DBXHN-6565B-A2M (T-Mobile)	150	Commscope LNX-6514DS-VTM (Verizon)	127.5
Commscope DBXHN-6565B-A2M (T-Mobile)	150	Commscope LNX-6514DS-VTM (Verizon)	127.5
Commscope DBXHN-6565B-A2M (T-Mobile)	150	Commscope LNX-6514DS-VTM (Verizon)	127.5
(2) Ericsson KRY112/2 (T-Mobile)	150	Commscope HBXX-9014DS-VTM (Verizon)	127.5
(2) Ericsson KRY112/2 (T-Mobile)	150	Commscope HBXX-9014DS-VTM (Verizon)	127.5
(2) Ericsson KRY112/2 (T-Mobile)	150	Commscope HBXX-9014DS-VTM (Verizon)	127.5
Alcatel Lucent 1900 MHz RRH (Sprint)	140	Commscope HBXX-6517DS-A2M (Verizon)	127.5
Alcatel Lucent 1900 MHz RRH (Sprint)	140	Commscope HBXX-6517DS-A2M (Verizon)	127.5
Alcatel Lucent 1900 MHz RRH (Sprint)	140	Commscope HBXX-6517DS-A2M (Verizon)	127.5
RFS IBC1900BB-3 (Sprint)	140	Alcatel Lucent RH_2x60-AWS (Verizon)	127.5
RFS IBC1900BB-3 (Sprint)	140	Alcatel Lucent RH_2x60-AWS (Verizon)	127.5
RFS IBC1900BB-3 (Sprint)	140	Nudd 10' boom	115
Nudd 12' boom (Sprint)	140	Powerwave 7770.00 (ATI)	115
Nudd 12' boom (Sprint)	140	Powerwave 7770.00 (ATI)	115
Nudd 12' boom (Sprint)	140	Powerwave 7770.00 (ATI)	115
Commscope DT465B-2XR (Sprint)	140	KMW EPBQ-654L8H8-L2 (ATI)	115
Commscope DT465B-2XR (Sprint)	140	KMW EPBQ-654L8H8-L2 (ATI)	115
Commscope DT465B-2XR (Sprint)	140	KMW EPBQ-654L8H8-L2 (ATI)	115
(2) Alcatel Lucent 4x45 (Sprint)	140	CCI OPA-65R-LCUU-H8 (ATI)	115
(2) Alcatel Lucent 4x45 (Sprint)	140	CCI OPA-65R-LCUU-H8 (ATI)	115
(2) Alcatel Lucent 4x45 (Sprint)	140	CCI OPA-65R-LCUU-H8 (ATI)	115
Alcatel Lucent 8x200-25 (Sprint)	140	Ericsson RRUS11 (ATI)	115
Alcatel Lucent 8x200-25 (Sprint)	140	Ericsson RRUS11 (ATI)	115
Alcatel Lucent 8x200-25 (Sprint)	140	Ericsson RRUS11 (ATI)	115
RFS APXV9ERR18-C-A20 (Sprint)	140	(3) Ericsson RRUS32 (ATI)	115
RFS APXV9ERR18-C-A20 (Sprint)	140	(3) Ericsson RRUS32 (ATI)	115
RFS APXV9ERR18-C-A20 (Sprint)	140	(3) Ericsson RRUS32 (ATI)	115
(2) Alcatel Lucent RRH2x50 (Sprint)	140	Ericsson B14 4478 (ATI)	115
(2) Alcatel Lucent RRH2x50 (Sprint)	140	Ericsson B14 4478 (ATI)	115
(2) Alcatel Lucent RRH2x50 (Sprint)	140	Ericsson B14 4478 (ATI)	115
Alcatel Lucent RH_2x60-AWS (Verizon)	127.5	(2) Powerwave LGP21401 (ATI)	115
Alcatel Lucent RH_2x60-70OU (Verizon)	127.5	(2) Powerwave LGP21401 (ATI)	115
Alcatel Lucent RH_2x60-70OU (Verizon)	127.5	(2) Powerwave LGP21401 (ATI)	115
Alcatel Lucent RH_2x60-70OU (Verizon)	127.5	Nudd 10' boom	115
Alcatel Lucent RH_2x60-PCS (Verizon)	127.5	Nudd 10' boom	115
Alcatel Lucent RH_2x60-PCS (Verizon)	127.5	Raycap DC6-48-60 (ATI)	115
Alcatel Lucent RH_2x60-PCS (Verizon)	127.5	Raycap DC6-48-60 (ATI)	115
Nudd 12' boom	127.5	Raycap DC6-48-60 (ATI)	115
Nudd 12' boom	127.5		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L1 1/2x1 1/2x3/16		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A500M-54	54 ksi	70 ksi	A36	36 ksi	58 ksi

SHEAR
13086 lb

TOI
50 mph

SHEAR
45008 lb

TORQUE 14155 lb-ft
REACTIONS - 104 mph WIND

Job: 150' SS Tower Norwich, CT. Analysis			
Project: 117-23243.6			
Client: CDT	Drawn by: FAN	App'd:	
Code: TIA-222-G	Date: 01/14/18	Scale: NTS	
Path:		Dwg No. E-1	

Phone:
FAX:

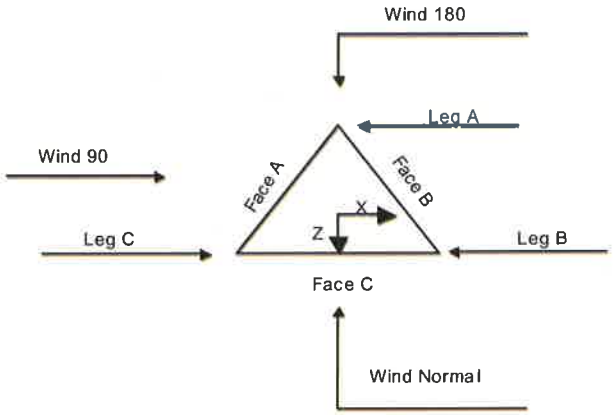
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 150.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 6.00 ft at the top and 18.00 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in New London County, Connecticut.
Basic wind speed of 104 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Weld together tower sections have flange connections..
Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications..
Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards..
Welds are fabricated with ER-70S-6 electrodes..
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Treat Feedline Bundles As Cylinder
Consider Moments - Horizontals	Assume Legs Pinned	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Calculate Redundant Bracing Forces
Use Moment Magnification	√ Use Clear Spans For Wind Area	Ignore Redundant Members in FEA
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	SR Leg Bolts Resist Compression
√ Use Code Safety Factors - Guys	Retension Guys To Initial Tension	All Leg Panels Have Same Allowable
Escalate Ice	Bypass Mast Stability Checks	Offset Girt At Foundation
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Consider Feedline Torque
Use Special Wind Profile	√ Project Wind Area of Appurt.	Include Angle Block Shear Check
√ Include Bolts In Member Capacity	Autocalc Torque Arm Areas	**Poles**
Leg Bolts Are At Top Of Section	SR Members Have Cut Ends	Include Shear-Torsion Interaction
Secondary Horizontal Braces Leg	Sort Capacity Reports By Component	Always Use Sub-Critical Flow
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Use Top Mounted Sockets
Add IBC .6D+W Combination		



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	150.00-140.00			6.00	1	10.00
T2	140.00-120.00			6.00	1	20.00
T3	120.00-100.00			6.00	1	20.00
T4	100.00-80.00			8.00	1	20.00
T5	80.00-60.00			10.00	1	20.00
T6	60.00-40.00			12.00	1	20.00
T7	40.00-20.00			14.00	1	20.00
T8	20.00-0.00			16.00	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	150.00-140.00	4.33	X Brace	No	No	8.0000	8.0000
T2	140.00-120.00	4.67	X Brace	No	No	8.0000	8.0000
T3	120.00-100.00	4.67	X Brace	No	No	8.0000	8.0000
T4	100.00-80.00	6.25	X Brace	No	No	7.5000	7.5000
T5	80.00-60.00	6.25	X Brace	No	No	7.5000	7.5000
T6	60.00-40.00	6.25	X Brace	No	No	7.5000	7.5000
T7	40.00-20.00	9.33	X Brace	No	No	8.0000	8.0000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T8	20.00-0.00	9.33	X Brace	No	No	8.0000	8.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 150.00-140.00	Pipe	P2.5x.203	A500M-54 (54 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T2 140.00-120.00	Pipe	P2.5x.203	A500M-54 (54 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T3 120.00-100.00	Pipe	P4x.237	A500M-54 (54 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T4 100.00-80.00	Pipe	P5x.258	A500M-54 (54 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T5 80.00-60.00	Pipe	P6x.28	A500M-54 (54 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T6 60.00-40.00	Pipe	P8x.322	A500M-54 (54 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T7 40.00-20.00	Pipe	P8x.5	A500M-54 (54 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A36 (36 ksi)
T8 20.00-0.00	Pipe	P8x.5	A500M-54 (54 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T1 150.00-140.00	Solid Round		A572-50 (50 ksi)	Solid Round	9/16	A572-50 (50 ksi)
T2 140.00-120.00	Solid Round		A572-50 (50 ksi)	Solid Round	9/16	A572-50 (50 ksi)
T3 120.00-100.00	Solid Round		A572-50 (50 ksi)	Solid Round	9/16	A572-50 (50 ksi)
T4 100.00-80.00	Solid Round		A572-50 (50 ksi)	Solid Round	9/16	A572-50 (50 ksi)
T5 80.00-60.00	Solid Round		A572-50 (50 ksi)	Solid Round	9/16	A572-50 (50 ksi)
T6 60.00-40.00	Solid Round		A572-50 (50 ksi)	Solid Round	9/16	A572-50 (50 ksi)
T7 40.00-20.00	Solid Round		A572-50 (50 ksi)	Solid Round	9/16	A572-50 (50 ksi)
T8 20.00-0.00	Solid Round		A572-50 (50 ksi)	Solid Round	9/16	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T1 150.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T2 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T3 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T4 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T5 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T6 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T7 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T8 20.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	No	1	1	1	1	1	1	1	1
150.00-140.00				1	1	1	1	1	1	1
T2	Yes	No	1	1	1	1	1	1	1	1
140.00-120.00				1	1	1	1	1	1	1
T3	Yes	No	1	1	1	1	1	1	1	1
120.00-100.00				1	1	1	1	1	1	1
T4	Yes	No	1	1	1	1	1	1	1	1
100.00-80.00				1	1	1	1	1	1	1
T5	Yes	No	1	1	1	1	1	1	1	1
80.00-60.00				1	1	1	1	1	1	1
T6	Yes	No	1	1	1	1	1	1	1	1
60.00-40.00				1	1	1	1	1	1	1
T7	Yes	No	1	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1
T8 20.00-0.00	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 150.00-140.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 140.00-120.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 120.00-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 100.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 150.00-140.00	Flange	0.7500 A325N	4	0.5000 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 140.00-120.00	Flange	1.0000 A325N	4	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 120.00-100.00	Flange	1.0000 A325N	6	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 100.00-80.00	Flange	1.0000 A325N	8	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 80.00-60.00	Flange	1.2500 A325N	8	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 60.00-40.00	Flange	1.2500 A325N	8	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 40.00-20.00	Flange	1.2500 A325N	8	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 20.00-0.00	Flange	1.5000 F1554-36	8	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
LDF7-50A (1-5/8 FOAM) (T-Mobile)	C	No	Ar (CaAa)	150.00 - 5.00	0.0000	0.25	12	9	1.9800	1.9800		0.82
1 1/4 (Sprint)	A	No	Ar (CaAa)	140.00 - 5.00	0.0000	0.25	4	4	1.5500	1.5500		0.66
LDF7-50A	B	No	Ar (CaAa)	127.50 - 5.00	0.0000	0.25	6	6	1.9800	1.9800		0.82

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
(1-3/8 FOAM) (Verizon)												
LDF6-50A (1-1/4 FOAM) (AT&T)	C	No	Ar (CaAa)	115.00 - 5.00	0.0000	0.25	12	6	1.5500	1.5500		0.66
Safety Line 3/8	C	No	Ar (CaAa)	150.00 - 0.00	0.0000	0	1	1	0.3750	0.3750		0.22
Feedline Ladder (Af)	C	No	Ar (CaAa)	150.00 - 0.00	0.0000	0.25	1	1	3.0000	3.0000		8.40
Feedline Ladder (Af)	C	No	Ar (CaAa)	115.00 - 0.00	0.0000	0.25	1	1	3.0000	3.0000		8.40
Feedline Ladder (Af)	B	No	Ar (CaAa)	127.50 - 0.00	0.0000	0.25	1	1	3.0000	3.0000		8.40
Feedline Ladder (Af)	A	No	Ar (CaAa)	140.00 - 0.00	0.0000	0.25	1	1	3.0000	3.0000		8.40
DC (AT&T)	C	No	Ar (CaAa)	115.00 - 5.00	0.0000	0.25	6	6	0.7500	0.0000		0.15
Fiber (AT&T)	C	No	Ar (CaAa)	115.00 - 5.00	0.0000	0.25	2	2	0.6300 0.3750 0.6300	0.0000		0.15
3" Rigid Conduit (AT&T)	C	No	Ar (CaAa)	115.00 - 0.00	0.0000	0.25	1	1	2.0000	3.0000		2.80
LDF7-50A (1-5/8 FOAM) (Verizon)	B	No	Ar (CaAa)	127.50 - 5.00	0.0000	0.25	2	2	1.9800	1.9800		0.82
LDF7-50A (1-5/8 FOAM) (T-Mobile)	C	No	Ar (CaAa)	150.00 - 5.00	0.0000	0.25	1	1	1.9800	1.9800		0.82

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	150.00-140.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	29.115	0.000	192.80
T2	140.00-120.00	A	0.000	0.000	18.400	0.000	220.80
		B	0.000	0.000	14.130	0.000	112.20
		C	0.000	0.000	58.230	0.000	385.60
T3	120.00-100.00	A	0.000	0.000	18.400	0.000	220.80
		B	0.000	0.000	37.680	0.000	299.20
		C	0.000	0.000	95.130	0.000	690.40
T4	100.00-80.00	A	0.000	0.000	18.400	0.000	220.80
		B	0.000	0.000	37.680	0.000	299.20
		C	0.000	0.000	107.430	0.000	792.00
T5	80.00-60.00	A	0.000	0.000	18.400	0.000	220.80
		B	0.000	0.000	37.680	0.000	299.20
		C	0.000	0.000	107.430	0.000	792.00
T6	60.00-40.00	A	0.000	0.000	18.400	0.000	220.80
		B	0.000	0.000	37.680	0.000	299.20
		C	0.000	0.000	107.430	0.000	792.00
T7	40.00-20.00	A	0.000	0.000	18.400	0.000	220.80
		B	0.000	0.000	37.680	0.000	299.20
		C	0.000	0.000	107.430	0.000	792.00
T8	20.00-0.00	A	0.000	0.000	15.300	0.000	207.60

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		B	0.000	0.000	29.760	0.000	266.40
		C	0.000	0.000	85.260	0.000	693.10

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	150.00-140.00	A	1.739	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	63.684	0.000	1237.10
T2	140.00-120.00	A	1.720	0.000	0.000	50.725	0.000	873.69
		B		0.000	0.000	39.172	0.000	625.06
		C		0.000	0.000	127.026	0.000	2454.14
T3	120.00-100.00	A	1.692	0.000	0.000	50.429	0.000	861.65
		B		0.000	0.000	103.982	0.000	1644.32
		C		0.000	0.000	211.118	0.000	4001.13
T4	100.00-80.00	A	1.658	0.000	0.000	50.081	0.000	847.54
		B		0.000	0.000	103.419	0.000	1617.93
		C		0.000	0.000	237.766	0.000	4459.64
T5	80.00-60.00	A	1.617	0.000	0.000	49.655	0.000	830.43
		B		0.000	0.000	102.730	0.000	1585.83
		C		0.000	0.000	235.862	0.000	4378.02
T6	60.00-40.00	A	1.564	0.000	0.000	49.102	0.000	808.42
		B		0.000	0.000	101.835	0.000	1544.48
		C		0.000	0.000	233.390	0.000	4273.01
T7	40.00-20.00	A	1.486	0.000	0.000	48.299	0.000	776.89
		B		0.000	0.000	100.535	0.000	1485.05
		C		0.000	0.000	229.794	0.000	4122.43
T8	20.00-0.00	A	1.331	0.000	0.000	37.863	0.000	614.27
		B		0.000	0.000	76.302	0.000	1104.50
		C		0.000	0.000	177.014	0.000	3092.14

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	150.00-140.00	-3.1280	4.1252	-2.4718	3.4222
T2	140.00-120.00	-1.7879	2.0517	-1.3555	1.6185
T3	120.00-100.00	-1.3601	3.0181	-0.8769	2.2458
T4	100.00-80.00	-1.9508	3.8862	-1.3039	2.9444
T5	80.00-60.00	-2.2696	4.4518	-1.5525	3.4610
T6	60.00-40.00	-2.5506	4.9493	-1.7863	3.9502
T7	40.00-20.00	-2.9597	5.6974	-2.0969	4.6168
T8	20.00-0.00	-3.0799	5.7606	-2.2929	4.9116

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	LDF7-50A (1-5/8 FOAM)	140.00 - 150.00	0.6000	0.6000
T1	5	Safety Line 3/8	140.00 - 150.00	0.6000	0.6000
T1	6	Feedline Ladder (Af)	140.00 - 150.00	0.6000	0.6000
T1	14	LDF7-50A (1-5/8 FOAM)	140.00 - 150.00	0.6000	0.6000
T2	1	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.6000
T2	2	1 1/4	120.00 - 140.00	0.6000	0.6000
T2	3	LDF7-50A (1-5/8 FOAM)	120.00 - 127.50	0.6000	0.6000
T2	5	Safety Line 3/8	120.00 - 140.00	0.6000	0.6000
T2	6	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T2	8	Feedline Ladder (Af)	120.00 - 127.50	0.6000	0.6000
T2	9	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T2	13	LDF7-50A (1-5/8 FOAM)	120.00 - 127.50	0.6000	0.6000
T2	14	LDF7-50A (1-5/8 FOAM)	120.00 - 140.00	0.6000	0.6000
T3	1	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T3	2	1 1/4	100.00 - 120.00	0.6000	0.6000
T3	3	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T3	4	LDF6-50A (1-1/4 FOAM)	100.00 - 115.00	0.6000	0.6000
T3	5	Safety Line 3/8	100.00 - 120.00	0.6000	0.6000
T3	6	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T3	7	Feedline Ladder (Af)	100.00 - 115.00	0.6000	0.6000
T3	8	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T3	9	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T3	10	DC	100.00 - 115.00	0.6000	0.6000
T3	11	Fiber	100.00 - 115.00	0.6000	0.6000
T3	12	3" Rigid Conduit	100.00 - 115.00	0.6000	0.6000
T3	13	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T3	14	LDF7-50A (1-5/8 FOAM)	100.00 - 120.00	0.6000	0.6000
T4	1	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T4	2	1 1/4	80.00 - 100.00	0.6000	0.6000
T4	3	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T4	4	LDF6-50A (1-1/4 FOAM)	80.00 - 100.00	0.6000	0.6000
T4	5	Safety Line 3/8	80.00 - 100.00	0.6000	0.6000
T4	6	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T4	7	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T4	8	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T4	9	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T4	10	DC	80.00 - 100.00	0.6000	0.6000
T4	11	Fiber	80.00 - 100.00	0.6000	0.6000
T4	12	3" Rigid Conduit	80.00 - 100.00	0.6000	0.6000
T4	13	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T4	14	LDF7-50A (1-5/8 FOAM)	80.00 - 100.00	0.6000	0.6000
T5	1	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T5	2	1 1/4	60.00 - 80.00	0.6000	0.6000
T5	3	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T5	4	LDF6-50A (1-1/4 FOAM)	60.00 - 80.00	0.6000	0.6000
T5	5	Safety Line 3/8	60.00 - 80.00	0.6000	0.6000
T5	6	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T5	7	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T5	8	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T5	9	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T5	10	DC	60.00 - 80.00	0.6000	0.6000
T5	11	Fiber	60.00 - 80.00	0.6000	0.6000
T5	12	3" Rigid Conduit	60.00 - 80.00	0.6000	0.6000
T5	13	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T5	14	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.6000
T6	1	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T6	2	1 1/4	40.00 - 60.00	0.6000	0.6000
T6	3	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T6	4	LDF6-50A (1-1/4 FOAM)	40.00 - 60.00	0.6000	0.6000
T6	5	Safety Line 3/8	40.00 - 60.00	0.6000	0.6000
T6	6	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T6	7	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T6	8	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T6	9	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T6	10	DC	40.00 - 60.00	0.6000	0.6000
T6	11	Fiber	40.00 - 60.00	0.6000	0.6000
T6	12	3" Rigid Conduit	40.00 - 60.00	0.6000	0.6000
T6	13	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T6	14	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.6000
T7	1	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T7	2	1 1/4	20.00 - 40.00	0.6000	0.6000
T7	3	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T7	4	LDF6-50A (1-1/4 FOAM)	20.00 - 40.00	0.6000	0.6000
T7	5	Safety Line 3/8	20.00 - 40.00	0.6000	0.6000
T7	6	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T7	7	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T7	8	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T7	9	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T7	10	DC	20.00 - 40.00	0.6000	0.6000
T7	11	Fiber	20.00 - 40.00	0.6000	0.6000
T7	12	3" Rigid Conduit	20.00 - 40.00	0.6000	0.6000
T7	13	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T7	14	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T8	1	LDF7-50A (1-5/8 FOAM)	5.00 - 20.00	0.6000	0.6000
T8	2	1 1/4	5.00 - 20.00	0.6000	0.6000
T8	3	LDF7-50A (1-5/8 FOAM)	5.00 - 20.00	0.6000	0.6000
T8	4	LDF6-50A (1-1/4 FOAM)	5.00 - 20.00	0.6000	0.6000
T8	5	Safety Line 3/8	0.00 - 20.00	0.6000	0.6000
T8	6	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T8	7	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T8	8	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T8	9	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T8	10	DC	5.00 - 20.00	0.6000	0.6000
T8	11	Fiber	5.00 - 20.00	0.6000	0.6000
T8	12	3" Rigid Conduit	0.00 - 20.00	0.6000	0.6000
T8	13	LDF7-50A (1-5/8 FOAM)	5.00 - 20.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T8	14	LDF7-50A (1-5/8 FOAM)	5.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Nudd 12' boom	C	From Leg	1.00		0.0000	150.00	No Ice	17.10	9.30	254.00
			0.00				1/2" Ice	21.40	21.40	376.00
			0.00				1" Ice	26.00	26.00	534.00
Nudd 12' boom	A	From Leg	1.00		0.0000	150.00	No Ice	17.10	9.30	254.00
			0.00				1/2" Ice	21.40	21.40	376.00
			0.00				1" Ice	26.00	26.00	534.00
Nudd 12' boom	B	From Leg	1.00		0.0000	150.00	No Ice	17.10	9.30	254.00
			0.00				1/2" Ice	21.40	21.40	376.00
			0.00				1" Ice	26.00	26.00	534.00
Nudd 12' boom	C	From Leg	1.00		0.0000	127.50	No Ice	17.10	9.30	254.00
			0.00				1/2" Ice	21.40	21.40	376.00
			0.00				1" Ice	26.00	26.00	534.00
Nudd 12' boom	A	From Leg	1.00		0.0000	127.50	No Ice	17.10	9.30	254.00
			0.00				1/2" Ice	21.40	21.40	376.00
			0.00				1" Ice	26.00	26.00	534.00
Nudd 12' boom	B	From Leg	1.00		0.0000	127.50	No Ice	17.10	9.30	254.00
			0.00				1/2" Ice	21.40	21.40	376.00
			0.00				1" Ice	26.00	26.00	534.00
Nudd 10' boom	C	From Leg	1.00		0.0000	115.00	No Ice	15.50	9.30	255.00
			0.00				1/2" Ice	19.60	19.60	367.00
			0.00				1" Ice	24.00	24.00	512.00
Nudd 10' boom	C	From Leg	1.00		0.0000	115.00	No Ice	15.50	9.30	255.00
			0.00				1/2" Ice	19.60	19.60	367.00
			0.00				1" Ice	24.00	24.00	512.00
Nudd 10' boom	A	From Leg	1.00		0.0000	115.00	No Ice	15.50	9.30	255.00
			0.00				1/2" Ice	19.60	19.60	367.00
			0.00				1" Ice	24.00	24.00	512.00
Nudd 12' boom (Sprint)	A	From Leg	1.00		0.0000	140.00	No Ice	17.10	9.30	254.00
			0.00				1/2" Ice	21.40	21.40	376.00
			0.00				1" Ice	26.00	26.00	534.00
Nudd 12' boom (Sprint)	B	From Leg	1.00		0.0000	140.00	No Ice	17.10	9.30	254.00
			0.00				1/2" Ice	21.40	21.40	376.00
			0.00				1" Ice	26.00	26.00	534.00
Nudd 12' boom (Sprint)	C	From Leg	1.00		0.0000	140.00	No Ice	17.10	9.30	254.00
			0.00				1/2" Ice	21.40	21.40	376.00
			0.00				1" Ice	26.00	26.00	534.00
Alcatel Lucent 1900 MHz RRH (Sprint)	A	From Leg	4.00		0.0000	140.00	No Ice	2.58	2.54	60.00
			0.00				1/2" Ice	2.77	2.73	86.50
			0.00				1" Ice	2.96	1.00	110.20
Alcatel Lucent 1900 MHz RRH (Sprint)	B	From Leg	4.00		0.0000	140.00	No Ice	2.91	3.80	60.00
			0.00				1/2" Ice	3.11	4.03	86.50
			0.00				1" Ice	3.33	4.27	110.20
Alcatel Lucent 1900 MHz RRH	C	From Leg	4.00		0.0000	140.00	No Ice	2.91	3.80	60.00
			0.00				1/2" Ice	3.11	4.03	68.50

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(Sprint)			0.00			1" Ice	3.33	4.27	110.20
RFS IBC1900BB-3	A	From Leg	4.00	0.0000	140.00	No Ice	1.41	0.63	22.00
(Sprint)			0.00			1/2" Ice	1.55	0.74	31.00
			0.00			1" Ice	1.71	0.87	42.20
RFS IBC1900BB-3	B	From Leg	4.00	0.0000	140.00	No Ice	1.41	0.63	22.00
(Sprint)			0.00			1/2" Ice	1.55	0.74	31.00
			0.00			1" Ice	1.71	0.87	42.20
RFS IBC1900BB-3	C	From Leg	4.00	0.0000	140.00	No Ice	1.41	0.63	22.00
(Sprint)			0.00			1/2" Ice	1.55	0.74	31.00
			0.00			1" Ice	1.71	0.87	42.20
(2) RFS APL868013	C	From Leg	4.00	0.0000	127.50	No Ice	2.87	3.61	8.20
(Verizon)			0.00			1/2" Ice	3.17	3.92	33.60
			0.00			1" Ice	3.52	4.48	64.96
(2) RFS APL868013	A	From Leg	4.00	0.0000	127.50	No Ice	2.87	3.61	8.20
(Verizon)			0.00			1/2" Ice	3.17	3.92	33.60
			0.00			1" Ice	3.52	4.48	64.96
(2) RFS APL866513	B	From Leg	4.00	0.0000	127.50	No Ice	4.29	3.73	15.70
(Verizon)			0.00			1/2" Ice	4.62	4.05	47.00
			0.00			1" Ice	4.95	4.38	82.70
(2) RFS FD9R6004/2C-3L	C	From Leg	4.00	0.0000	127.50	No Ice	0.31	0.08	3.10
(Verizon)			0.00			1/2" Ice	0.38	0.12	5.40
			0.00			1" Ice	3.52	4.48	64.96
(2) RFS FD9R6004/2C-3L	A	From Leg	4.00	0.0000	127.50	No Ice	0.31	0.08	3.10
(Verizon)			0.00			1/2" Ice	0.38	0.12	5.40
			0.00			1" Ice	3.52	4.48	64.96
(2) RFS FD9R6004/2C-3L	B	From Leg	4.00	0.0000	127.50	No Ice	0.31	0.08	3.10
(Verizon)			0.00			1/2" Ice	0.38	0.12	5.40
			0.00			1" Ice	3.52	4.48	64.96
RFS DB-T1-6Z-8AB-0Z	C	From Leg	4.00	0.0000	12.75 - 127.50	No Ice	4.80	2.00	10.00
(Verizon)			0.00			1/2" Ice	5.04	2.17	46.10
			0.00			1" Ice	5.28	2.34	82.20
Commscope	A	From Leg	4.00	0.0000	127.50	No Ice	8.17	5.41	38.80
LNX-6514DS-VTM			0.00			1/2" Ice	8.63	5.88	89.30
(Verizon)			0.00			1" Ice	3.52	4.48	64.96
Commscope	B	From Leg	4.00	0.0000	127.50	No Ice	8.17	5.41	38.80
LNX-6514DS-VTM			0.00			1/2" Ice	8.63	5.88	89.30
(Verizon)			0.00			1" Ice	3.52	4.48	64.96
Commscope	C	From Leg	4.00	0.0000	127.50	No Ice	8.17	5.41	38.80
LNX-6514DS-VTM			0.00			1/2" Ice	8.63	5.88	89.30
(Verizon)			0.00			1" Ice	3.52	4.48	64.96
Commscope	A	From Leg	4.00	0.0000	127.50	No Ice	5.42	3.28	29.80
HBXX-9014DS-VTM			0.00			1/2" Ice	5.74	3.60	65.10
(Verizon)			0.00			1" Ice	3.52	4.48	64.96
Commscope	B	From Leg	4.00	0.0000	127.50	No Ice	5.42	3.28	29.80
HBXX-9014DS-VTM			0.00			1/2" Ice	5.74	3.60	65.10
(Verizon)			0.00			1" Ice	3.52	4.48	64.96
Commscope	C	From Leg	4.00	0.0000	127.50	No Ice	5.42	3.28	29.80
HBXX-9014DS-VTM			0.00			1/2" Ice	5.74	3.60	65.10
(Verizon)			0.00			1" Ice	3.52	4.48	64.96
Commscope	A	From Leg	4.00	0.0000	127.50	No Ice	8.53	5.24	43.00
HBXX-6517DS-A2M			0.00			1/2" Ice	9.00	5.74	93.50
(Verizon)			0.00			1" Ice	3.52	4.48	64.96
Commscope	B	From Leg	4.00	0.0000	127.50	No Ice	8.53	5.24	43.00
HBXX-6517DS-A2M			0.00			1/2" Ice	9.00	5.74	93.50
(Verizon)			0.00			1" Ice	3.52	4.48	64.96
Commscope	C	From Leg	4.00	0.0000	127.50	No Ice	8.53	5.24	43.00
HBXX-6517DS-A2M			0.00			1/2" Ice	9.00	5.74	93.50

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(Verizon)			0.00			1" Ice	3.52	4.48	64.96
Alcatel Lucent	A	From Leg	4.00	0.0000	127.50	No Ice	1.88	1.24	44.00
RH_2x60-AWS			0.00			1/2" Ice	2.03	1.37	60.00
(Verizon)			0.00			1" Ice	3.52	4.48	64.96
Alcatel Lucent	B	From Leg	4.00	0.0000	127.50	No Ice	1.88	1.24	44.00
RH_2x60-AWS			0.00			1/2" Ice	2.03	1.37	60.00
(Verizon)			0.00			1" Ice	3.52	4.48	64.96
Alcatel Lucent	C	From Leg	4.00	0.0000	127.50	No Ice	1.88	1.24	44.00
RH_2x60-AWS			0.00			1/2" Ice	2.03	1.37	60.00
(Verizon)			0.00			1" Ice	3.52	4.48	64.96
Alcatel Lucent	A	From Leg	4.00	0.0000	127.50	No Ice	2.16	1.62	44.00
RH_2x60-70OU			0.00			1/2" Ice	2.33	1.77	63.60
(Verizon)			0.00			1" Ice	3.52	4.48	64.96
Alcatel Lucent	B	From Leg	4.00	0.0000	127.50	No Ice	2.16	1.62	44.00
RH_2x60-70OU			0.00			1/2" Ice	2.33	1.77	63.60
(Verizon)			0.00			1" Ice	3.52	4.48	64.96
Alcatel Lucent	C	From Leg	4.00	0.0000	127.50	No Ice	2.16	1.62	44.00
RH_2x60-70OU			0.00			1/2" Ice	2.33	1.77	63.60
(Verizon)			0.00			1" Ice	3.52	4.48	64.96
Alcatel Lucent	A	From Leg	4.00	0.0000	127.50	No Ice	1.84	1.34	46.00
RH_2x60-PCS			0.00			1/2" Ice	2.00	1.48	62.60
(Verizon)			0.00			1" Ice	3.52	4.48	64.96
Alcatel Lucent	B	From Leg	4.00	0.0000	127.50	No Ice	1.84	1.34	46.00
RH_2x60-PCS			0.00			1/2" Ice	2.00	1.48	62.60
(Verizon)			0.00			1" Ice	3.52	4.48	64.96
Alcatel Lucent	C	From Leg	4.00	0.0000	127.50	No Ice	1.84	1.34	46.00
RH_2x60-PCS			0.00			1/2" Ice	2.00	1.48	62.60
(Verizon)			0.00			1" Ice	3.52	4.48	64.96
Ericsson AIR 32	A	From Leg	4.00	0.0000	150.00	No Ice	6.51	4.71	100.00
B66AA/B2A			0.00			1/2" Ice	6.87	5.07	145.80
(T-Mobile)			0.00			1" Ice	7.24	5.43	196.90
Ericsson AIR 32	B	From Leg	4.00	0.0000	150.00	No Ice	6.51	4.71	100.00
B66AA/B2A			0.00			1/2" Ice	6.87	5.07	145.80
(T-Mobile)			0.00			1" Ice	7.24	5.43	196.90
Ericsson AIR 32	C	From Leg	4.00	0.0000	150.00	No Ice	6.51	4.71	100.00
B66AA/B2A			0.00			1/2" Ice	6.87	5.07	145.80
(T-Mobile)			0.00			1" Ice	7.24	5.43	196.90
Commscope	A	From Leg	4.00	0.0000	150.00	No Ice	8.17	3.13	46.30
DBXHN-6565B-A2M			0.00			1/2" Ice	8.63	3.60	96.80
(T-Mobile)			0.00			1" Ice	3.60	4.07	153.50
Commscope	B	From Leg	4.00	0.0000	150.00	No Ice	8.17	3.13	46.30
DBXHN-6565B-A2M			0.00			1/2" Ice	8.63	3.60	96.80
(T-Mobile)			0.00			1" Ice	3.60	4.07	153.50
Commscope	C	From Leg	4.00	0.0000	150.00	No Ice	8.17	3.13	46.30
DBXHN-6565B-A2M			0.00			1/2" Ice	8.63	3.60	96.80
(T-Mobile)			0.00			1" Ice	3.60	4.07	153.50
(2) Ericsson KRY112/2	A	From Leg	4.00	0.0000	150.00	No Ice	0.35	0.16	11.00
(T-Mobile)			0.00			1/2" Ice	0.42	0.21	14.10
			0.00			1" Ice	0.50	0.27	18.40
(2) Ericsson KRY112/2	B	From Leg	4.00	0.0000	150.00	No Ice	0.35	0.16	11.00
(T-Mobile)			0.00			1/2" Ice	0.42	0.21	14.10
			0.00			1" Ice	0.50	0.27	18.40
(2) Ericsson KRY112/2	C	From Leg	4.00	0.0000	150.00	No Ice	0.35	0.16	11.00
(T-Mobile)			0.00			1/2" Ice	0.42	0.21	14.10
			0.00			1" Ice	0.50	0.27	18.40
Commscope DT465B-2XR	A	From Leg	4.00	0.0000	140.00	No Ice	9.22	5.87	50.00
(Sprint)			0.00			1/2" Ice	10.14	6.79	172.40

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00				1" Ice	11.07	7.70	320.70
Commscope DT465B-2XR (Sprint)	B	From Leg	4.00		0.0000	140.00	No Ice	9.22	5.87	50.00
			0.00				1/2" Ice	10.14	6.79	172.40
			0.00				1" Ice	11.07	7.70	320.70
Commscope DT465B-2XR (Sprint)	C	From Leg	4.00		0.0000	140.00	No Ice	9.22	5.87	50.00
			0.00				1/2" Ice	10.14	6.79	172.40
			0.00				1" Ice	11.07	7.70	320.70
(2) Alcatel Lucent 4x45 (Sprint)	A	From Leg	4.00		0.0000	140.00	No Ice	2.54	1.61	51.00
			0.00				1/2" Ice	2.92	1.96	94.30
			0.00				1" Ice	3.35	2.33	150.90
(2) Alcatel Lucent 4x45 (Sprint)	B	From Leg	4.00		0.0000	140.00	No Ice	2.54	1.61	51.00
			0.00				1/2" Ice	2.92	1.96	94.30
			0.00				1" Ice	3.35	2.33	150.90
(2) Alcatel Lucent 4x45 (Sprint)	C	From Leg	4.00		0.0000	140.00	No Ice	2.54	1.61	51.00
			0.00				1/2" Ice	2.92	1.96	94.30
			0.00				1" Ice	3.35	2.33	150.90
Alcatel Lucent 8x200-25 (Sprint)	A	From Leg	4.00		0.0000	140.00	No Ice	4.05	1.53	70.00
			0.00				1/2" Ice	4.50	1.88	127.80
			0.00				1" Ice	4.99	2.26	200.50
Alcatel Lucent 8x200-25 (Sprint)	B	From Leg	4.00		0.0000	140.00	No Ice	4.05	1.53	70.00
			0.00				1/2" Ice	4.50	1.88	127.80
			0.00				1" Ice	4.99	2.26	200.50
Alcatel Lucent 8x200-25 (Sprint)	C	From Leg	4.00		0.0000	140.00	No Ice	4.05	1.53	70.00
			0.00				1/2" Ice	4.50	1.88	127.80
			0.00				1" Ice	4.99	2.26	200.50
RFS APXV9ERR18-C-A20 (Sprint)	A	From Leg	4.00		0.0000	140.00	No Ice	8.02	5.81	62.00
			0.00				1/2" Ice	8.93	6.73	172.10
			0.00				1" Ice	9.86	7.64	307.60
RFS APXV9ERR18-C-A20 (Sprint)	B	From Leg	4.00		0.0000	140.00	No Ice	8.02	5.81	62.00
			0.00				1/2" Ice	8.93	6.73	172.10
			0.00				1" Ice	9.86	7.64	307.60
RFS APXV9ERR18-C-A20 (Sprint)	C	From Leg	4.00		0.0000	140.00	No Ice	8.02	5.81	62.00
			0.00				1/2" Ice	8.93	6.73	172.10
			0.00				1" Ice	9.86	7.64	307.60
(2) Alcatel Lucent RRH2x50 (Sprint)	A	From Leg	4.00		0.0000	140.00	No Ice	2.27	1.35	42.00
			0.00				1/2" Ice	2.64	1.68	79.60
			0.00				1" Ice	3.05	2.04	129.60
Powerwave 7770.00 (AT&T)	A	From Leg	4.00		0.0000	115.00	No Ice	5.51	2.93	35.00
			0.00				1/2" Ice	6.21	3.64	105.10
			0.00				1" Ice	6.93	4.33	195.10
Powerwave 7770.00 (AT&T)	B	From Leg	4.00		0.0000	115.00	No Ice	5.51	2.93	35.00
			0.00				1/2" Ice	6.21	3.64	105.10
			0.00				1" Ice	6.93	4.33	195.10
Powerwave 7770.00 (AT&T)	C	From Leg	4.00		0.0000	115.00	No Ice	5.51	2.93	35.00
			0.00				1/2" Ice	6.21	3.64	105.10
			0.00				1" Ice	6.93	4.33	195.10
KMW EPBQ-654L8H8-L2 (AT&T)	A	From Leg	4.00		0.0000	115.00	No Ice	18.09	7.03	200.00
			0.00				1/2" Ice	19.31	8.35	394.70
			0.00				1" Ice	20.55	9.57	622.90
KMW EPBQ-654L8H8-L2 (AT&T)	B	From Leg	4.00		0.0000	115.00	No Ice	18.09	7.03	200.00
			0.00				1/2" Ice	19.31	8.35	394.70
			0.00				1" Ice	20.55	9.57	622.90
KMW EPBQ-654L8H8-L2 (AT&T)	C	From Leg	4.00		0.0000	115.00	No Ice	18.09	7.03	200.00
			0.00				1/2" Ice	19.31	8.35	394.70
			0.00				1" Ice	20.55	9.57	622.90
CCI OPA-65R-LCUU-H8 (AT&T)	A	From Leg	4.00		0.0000	115.00	No Ice	12.76	7.48	70.90
			0.00				1/2" Ice	13.94	8.72	223.30

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00			1" Ice	15.11	9.90	47.00
CCI OPA-65R-LCUU-H8	B	From Leg	4.00	0.0000	115.00	No Ice	12.76	7.48	70.90
(AT&T)			0.00			1/2" Ice	13.94	8.72	223.30
			0.00			1" Ice	15.11	9.90	47.00
CCI OPA-65R-LCUU-H8	C	From Leg	4.00	0.0000	115.00	No Ice	12.76	7.48	70.90
(AT&T)			0.00			1/2" Ice	13.94	8.72	223.30
			0.00			1" Ice	15.11	9.90	47.00
Ericsson RRUS11	A	From Leg	4.00	0.0000	115.00	No Ice	2.78	1.19	55.00
(AT&T)			0.00			1/2" Ice	3.16	1.47	99.60
			0.00			1" Ice	3.57	1.79	157.10
Ericsson RRUS11	B	From Leg	4.00	0.0000	115.00	No Ice	2.78	1.19	55.00
(AT&T)			0.00			1/2" Ice	3.16	1.47	99.60
			0.00			1" Ice	3.57	1.79	157.10
Ericsson RRUS11	C	From Leg	4.00	0.0000	115.00	No Ice	2.78	1.19	55.00
(AT&T)			0.00			1/2" Ice	3.16	1.47	99.60
			0.00			1" Ice	3.57	1.79	157.10
(3) Ericsson RRUS32	A	From Leg	4.00	0.0000	115.00	No Ice	2.06	0.50	22.00
(AT&T)			0.00			1/2" Ice	2.39	0.72	49.80
			0.00			1" Ice	2.75	0.97	88.20
(3) Ericsson RRUS32	B	From Leg	4.00	0.0000	115.00	No Ice	2.06	0.50	22.00
(AT&T)			0.00			1/2" Ice	2.39	0.72	49.80
			0.00			1" Ice	2.75	0.97	88.20
(3) Ericsson RRUS32	C	From Leg	4.00	0.0000	115.00	No Ice	2.06	0.50	22.00
(AT&T)			0.00			1/2" Ice	2.39	0.72	49.80
			0.00			1" Ice	2.75	0.97	88.20
Ericsson B14 4478	A	From Leg	4.00	0.0000	115.00	No Ice	1.84	1.06	50.00
(AT&T)			0.00			1/2" Ice	2.15	1.31	84.40
			0.00			1" Ice	2.50	1.61	130.10
Ericsson B14 4478	B	From Leg	4.00	0.0000	115.00	No Ice	1.84	1.06	50.00
(AT&T)			0.00			1/2" Ice	2.15	1.31	84.40
			0.00			1" Ice	2.50	1.61	130.10
Ericsson B14 4478	C	From Leg	4.00	0.0000	115.00	No Ice	1.84	1.06	50.00
(AT&T)			0.00			1/2" Ice	2.15	1.31	84.40
			0.00			1" Ice	2.50	1.61	130.10
(2) Powerwave LGP21401	A	From Leg	4.00	0.0000	115.00	No Ice	1.67	0.47	31.00
(AT&T)			0.00			1/2" Ice	1.96	0.67	55.30
			0.00			1" Ice	2.30	0.90	89.40
(2) Powerwave LGP21401	A	From Leg	4.00	0.0000	115.00	No Ice	1.67	0.47	31.00
(AT&T)			0.00			1/2" Ice	1.96	0.67	55.30
			0.00			1" Ice	2.30	0.90	89.40
(2) Powerwave LGP21401	A	From Leg	4.00	0.0000	115.00	No Ice	1.67	0.47	31.00
(AT&T)			0.00			1/2" Ice	1.96	0.67	55.30
			0.00			1" Ice	2.30	0.90	89.40
(2) Alcatel Lucent RRH2x50	B	From Leg	4.00	0.0000	140.00	No Ice	2.27	1.35	42.00
(Sprint)			0.00			1/2" Ice	2.64	1.68	79.60
			0.00			1" Ice	3.05	2.04	129.60
(2) Alcatel Lucent RRH2x50	C	From Leg	4.00	0.0000	140.00	No Ice	2.27	1.35	42.00
(Sprint)			0.00			1/2" Ice	2.64	1.68	79.60
			0.00			1" Ice	3.05	2.04	129.60
Raycap DC6-48-60	A	From Leg	4.00	0.0000	115.00	No Ice	1.28	1.28	31.80
(AT&T)			0.00			1/2" Ice	1.64	1.64	80.10
			0.00			1" Ice	2.04	2.04	141.90
Raycap DC6-48-60	B	From Leg	4.00	0.0000	115.00	No Ice	1.28	1.28	31.80
(AT&T)			0.00			1/2" Ice	1.64	1.64	80.10
			0.00			1" Ice	2.04	2.04	141.90
Raycap DC6-48-60	C	From Leg	4.00	0.0000	115.00	No Ice	1.28	1.28	31.80
(AT&T)			0.00			1/2" Ice	1.64	1.64	80.10

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert (ft, ft, ft)	Azimuth Adjustment (°)	Placement (ft)		C_AA_A Front (ft^2)	C_AA_A Side (ft^2)	Weight (lb)
			0.00			1" Ice	2.04	2.04	141.90

Tower Pressures - No Ice

$G_H = 0.850$

Section Elevation (ft)	z (ft)	K_Z	q_z (psf)	A_G (ft^2)	Face	A_F (ft^2)	A_R (ft^2)	A_{leg} (ft^2)	Leg %	C_AA_A In Face (ft^2)	C_AA_A Out Face (ft^2)
T1 150.00-140.00	145.00	1.099	26	62.396	A	4.993	4.792	4.792	48.97	0.000	0.000
					B	4.993	4.792		48.97	0.000	0.000
					C	4.993	4.792		48.97	29.115	0.000
T2 140.00-120.00	130.00	1.065	25	124.792	A	9.730	9.583	9.583	49.62	18.400	0.000
					B	9.730	9.583		49.62	14.130	0.000
					C	9.730	9.583		49.62	58.230	0.000
T3 120.00-100.00	110.00	1.016	24	147.509	A	10.623	15.025	15.025	58.58	18.400	0.000
					B	10.623	15.025		58.58	37.680	0.000
					C	10.623	15.025		58.58	95.130	0.000
T4 100.00-80.00	90.00	0.959	23	189.283	A	12.997	18.574	18.574	58.83	18.400	0.000
					B	12.997	18.574		58.83	37.680	0.000
					C	12.997	18.574		58.83	107.430	0.000
T5 80.00-60.00	70.00	0.892	21	231.055	A	18.030	22.120	22.120	55.09	18.400	0.000
					B	18.030	22.120		55.09	37.680	0.000
					C	18.030	22.120		55.09	107.430	0.000
T6 60.00-40.00	50.00	0.811	19	274.393	A	20.444	28.798	28.798	58.48	18.400	0.000
					B	20.444	28.798		58.48	37.680	0.000
					C	20.444	28.798		58.48	107.430	0.000
T7 40.00-20.00	30.00	0.701	16	314.393	A	19.628	28.798	28.798	59.47	18.400	0.000
					B	19.628	28.798		59.47	37.680	0.000
					C	19.628	28.798		59.47	107.430	0.000
T8 20.00-0.00	10.00	0.7	16	354.393	A	21.673	28.798	28.798	57.06	15.300	0.000
					B	21.673	28.798		57.06	29.760	0.000
					C	21.673	28.798		57.06	85.260	0.000

Tower Pressure - With Ice

$G_H = 0.850$

Section Elevation (ft)	z (ft)	K_Z	q_z (psf)	t_Z (in)	A_G (ft^2)	Face	A_F (ft^2)	A_R (ft^2)	A_{leg} (ft^2)	Leg %	C_AA_A In Face (ft^2)	C_AA_A Out Face (ft^2)
T1 150.00-140.00	145.00	1.099	6	1.7393	65.295	A	4.993	20.499	10.589	41.54	0.000	0.000
						B	4.993	20.499		41.54	0.000	0.000
						C	4.993	20.499		41.54	63.684	0.000
T2	130.00	1.065	6	1.7204	130.526	A	9.730	37.793	21.053	44.30	50.725	0.000

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
140.00-120.00						B	9.730	37.793		44.30	39.172	0.000
						C	9.730	37.793		44.30	127.026	0.000
T3 120.00-100.00	110.00	1.016	6	1.6919	153.156	A	10.623	44.297	26.323	47.93	50.429	0.000
						B	10.623	44.297		47.93	103.982	0.000
						C	10.623	44.297		47.93	211.118	0.000
T4 100.00-80.00	90.00	0.959	5	1.6583	194.818	A	12.997	46.890	29.648	49.51	50.081	0.000
						B	12.997	46.890		49.51	103.419	0.000
						C	12.997	46.890		49.51	237.766	0.000
T5 80.00-60.00	70.00	0.892	5	1.6171	236.453	A	18.030	52.357	32.919	46.77	49.655	0.000
						B	18.030	52.357		46.77	102.730	0.000
						C	18.030	52.357		46.77	235.862	0.000
T6 60.00-40.00	50.00	0.811	4	1.5636	279.612	A	20.444	60.551	39.240	48.45	49.102	0.000
						B	20.444	60.551		48.45	101.835	0.000
						C	20.444	60.551		48.45	233.390	0.000
T7 40.00-20.00	30.00	0.701	4	1.4858	319.352	A	19.628	55.384	38.720	51.62	48.299	0.000
						B	19.628	55.384		51.62	100.535	0.000
						C	19.628	55.384		51.62	229.794	0.000
T8 20.00-0.00	10.00	0.7	4	1.3312	358.836	A	21.673	54.173	37.687	49.69	37.863	0.000
						B	21.673	54.173		49.69	76.302	0.000
						C	21.673	54.173		49.69	177.014	0.000

Tower Pressure - Service

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1 150.00-140.00	145.00	1.099	9	62.396	A	4.993	4.792	4.792	48.97	0.000	0.000
					B	4.993	4.792		48.97	0.000	0.000
					C	4.993	4.792		48.97	29.115	0.000
T2 140.00-120.00	130.00	1.065	8	124.792	A	9.730	9.583	9.583	49.62	18.400	0.000
					B	9.730	9.583		49.62	14.130	0.000
					C	9.730	9.583		49.62	58.230	0.000
T3 120.00-100.00	110.00	1.016	8	147.509	A	10.623	15.025	15.025	58.58	18.400	0.000
					B	10.623	15.025		58.58	37.680	0.000
					C	10.623	15.025		58.58	95.130	0.000
T4 100.00-80.00	90.00	0.959	8	189.283	A	12.997	18.574	18.574	58.83	18.400	0.000
					B	12.997	18.574		58.83	37.680	0.000
					C	12.997	18.574		58.83	107.430	0.000
T5 80.00-60.00	70.00	0.892	7	231.055	A	18.030	22.120	22.120	55.09	18.400	0.000
					B	18.030	22.120		55.09	37.680	0.000
					C	18.030	22.120		55.09	107.430	0.000
T6 60.00-40.00	50.00	0.811	6	274.393	A	20.444	28.798	28.798	58.48	18.400	0.000
					B	20.444	28.798		58.48	37.680	0.000
					C	20.444	28.798		58.48	107.430	0.000
T7 40.00-20.00	30.00	0.701	5	314.393	A	19.628	28.798	28.798	59.47	18.400	0.000
					B	19.628	28.798		59.47	37.680	0.000
					C	19.628	28.798		59.47	107.430	0.000
T8 20.00-0.00	10.00	0.7	5	354.393	A	21.673	28.798	28.798	57.06	15.300	0.000
					B	21.673	28.798		57.06	29.760	0.000
					C	21.673	28.798		57.06	85.260	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	192.80	421.53	A	0.157	2.747	26	1	1	7.716	849.93	84.99	C
150.00-140.00			B	0.157	2.747		1	1	7.716			
			C	0.157	2.747		1	1	7.716			
T2	718.60	791.76	A	0.155	2.754	25	1	1	15.174	2050.87	102.54	C
140.00-120.00			B	0.155	2.754		1	1	15.174			
			C	0.155	2.754		1	1	15.174			
T3	1210.40	1140.72	A	0.174	2.686	24	1	1	18.716	2864.29	143.21	C
120.00-100.00			B	0.174	2.686		1	1	18.716			
			C	0.174	2.686		1	1	18.716			
T4	1312.00	1485.02	A	0.167	2.711	23	1	1	22.320	3042.67	152.13	C
100.00-80.00			B	0.167	2.711		1	1	22.320			
			C	0.167	2.711		1	1	22.320			
T5	1312.00	1986.33	A	0.174	2.686	21	1	1	28.506	3118.68	155.93	C
80.00-60.00			B	0.174	2.686		1	1	28.506			
			C	0.174	2.686		1	1	28.506			
T6	1312.00	2680.91	A	0.179	2.666	19	1	1	32.950	3015.74	150.79	C
60.00-40.00			B	0.179	2.666		1	1	32.950			
			C	0.179	2.666		1	1	32.950			
T7	1312.00	3829.48	A	0.154	2.757	16	1	1	31.934	2608.86	130.44	C
40.00-20.00			B	0.154	2.757		1	1	31.934			
			C	0.154	2.757		1	1	31.934			
T8 20.00-0.00	1167.10	3948.61	A	0.142	2.8	16	1	1	33.820	2420.89	121.04	C
			B	0.142	2.8		1	1	33.820			
			C	0.142	2.8		1	1	33.820			
Sum Weight:	8536.90	16284.35						OTM	1450335.4 0 lb-ft	19971.93		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	192.80	421.53	A	0.157	2.747	26	0.8	1	6.717	789.64	78.96	C
150.00-140.00			B	0.157	2.747		0.8	1	6.717			
			C	0.157	2.747		0.8	1	6.717			
T2	718.60	791.76	A	0.155	2.754	25	0.8	1	13.228	1936.67	96.83	C
140.00-120.00			B	0.155	2.754		0.8	1	13.228			
			C	0.155	2.754		0.8	1	13.228			
T3	1210.40	1140.72	A	0.174	2.686	24	0.8	1	16.592	2748.37	137.42	C
120.00-100.00			B	0.174	2.686		0.8	1	16.592			
			C	0.174	2.686		0.8	1	16.592			
T4	1312.00	1485.02	A	0.167	2.711	23	0.8	1	19.721	2907.50	145.38	C
100.00-80.00			B	0.167	2.711		0.8	1	19.721			
			C	0.167	2.711		0.8	1	19.721			
T5	1312.00	1986.33	A	0.174	2.686	21	0.8	1	24.900	2945.75	147.29	C
80.00-60.00			B	0.174	2.686		0.8	1	24.900			
			C	0.174	2.686		0.8	1	24.900			
T6	1312.00	2680.91	A	0.179	2.666	19	0.8	1	28.861	2838.95	141.95	C
60.00-40.00			B	0.179	2.666		0.8	1	28.861			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
			C	0.179	2.666		0.8	1	28.861			
T7	1312.00	3829.48	A	0.154	2.757	16	0.8	1	28.009	2457.19	122.86	C
40.00-20.00			B	0.154	2.757		0.8	1	28.009			
			C	0.154	2.757		0.8	1	28.009			
T8 20.00-0.00	1167.10	3948.61	A	0.142	2.8	16	0.8	1	29.485	2250.95	112.55	C
			B	0.142	2.8		0.8	1	29.485			
			C	0.142	2.8		0.8	1	29.485			
Sum Weight:	8536.90	16284.35						OTM	1374635.97 lb-ft	18875.02		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	192.80	421.53	A	0.157	2.747	26	0.85	1	6.967	804.71	80.47	C
150.00-140.00			B	0.157	2.747		0.85	1	6.967			
			C	0.157	2.747		0.85	1	6.967			
T2	718.60	791.76	A	0.155	2.754	25	0.85	1	13.714	1965.22	98.26	C
140.00-120.00			B	0.155	2.754		0.85	1	13.714			
			C	0.155	2.754		0.85	1	13.714			
T3	1210.40	1140.72	A	0.174	2.686	24	0.85	1	17.123	2777.35	138.87	C
120.00-100.00			B	0.174	2.686		0.85	1	17.123			
			C	0.174	2.686		0.85	1	17.123			
T4	1312.00	1485.02	A	0.167	2.711	23	0.85	1	20.371	2941.29	147.06	C
100.00-80.00			B	0.167	2.711		0.85	1	20.371			
			C	0.167	2.711		0.85	1	20.371			
T5	1312.00	1986.33	A	0.174	2.686	21	0.85	1	25.802	2988.98	149.45	C
80.00-60.00			B	0.174	2.686		0.85	1	25.802			
			C	0.174	2.686		0.85	1	25.802			
T6	1312.00	2680.91	A	0.179	2.666	19	0.85	1	29.883	2883.15	144.16	C
60.00-40.00			B	0.179	2.666		0.85	1	29.883			
			C	0.179	2.666		0.85	1	29.883			
T7	1312.00	3829.48	A	0.154	2.757	16	0.85	1	28.990	2495.10	124.76	C
40.00-20.00			B	0.154	2.757		0.85	1	28.990			
			C	0.154	2.757		0.85	1	28.990			
T8 20.00-0.00	1167.10	3948.61	A	0.142	2.8	16	0.85	1	30.569	2293.44	114.67	C
			B	0.142	2.8		0.85	1	30.569			
			C	0.142	2.8		0.85	1	30.569			
Sum Weight:	8536.90	16284.35						OTM	1393560.82 lb-ft	19149.25		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 150.00-140.00	1237.10	1673.10	A	0.39	2.083	6	1	1	17.951	384.19	38.42	C
			B	0.39	2.083		1	1	17.951			
			C	0.39	2.083		1	1	17.951			
T2 140.00-120.00	3952.89	3115.53	A	0.364	2.139	6	1	1	33.216	991.07	49.55	C
			B	0.364	2.139		1	1	33.216			
			C	0.364	2.139		1	1	33.216			
T3 120.00-100.00	6507.10	3797.93	A	0.359	2.152	6	1	1	38.057	1414.40	70.72	C
			B	0.359	2.152		1	1	38.057			
			C	0.359	2.152		1	1	38.057			
T4 100.00-80.00	6925.11	4440.73	A	0.307	2.277	5	1	1	41.190	1456.72	72.84	C
			B	0.307	2.277		1	1	41.190			
			C	0.307	2.277		1	1	41.190			
T5 80.00-60.00	6794.28	5602.28	A	0.298	2.302	5	1	1	49.350	1430.21	71.51	C
			B	0.298	2.302		1	1	49.350			
			C	0.298	2.302		1	1	49.350			
T6 60.00-40.00	6625.91	6731.16	A	0.29	2.324	4	1	1	56.519	1356.75	67.84	C
			B	0.29	2.324		1	1	56.519			
			C	0.29	2.324		1	1	56.519			
T7 40.00-20.00	6384.37	7409.58	A	0.235	2.484	4	1	1	51.831	1152.96	57.65	C
			B	0.235	2.484		1	1	51.831			
			C	0.235	2.484		1	1	51.831			
T8 20.00-0.00	4810.91	7299.43	A	0.211	2.558	4	1	1	52.907	1003.63	50.18	C
			B	0.211	2.558		1	1	52.907			
			C	0.211	2.558		1	1	52.907			
Sum Weight:	43237.67	40069.74						OTM	683812.12 lb-ft	9189.93		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 150.00-140.00	1237.10	1673.10	A	0.39	2.083	6	0.8	1	16.952	373.62	37.36	C
			B	0.39	2.083		0.8	1	16.952			
			C	0.39	2.083		0.8	1	16.952			
T2 140.00-120.00	3952.89	3115.53	A	0.364	2.139	6	0.8	1	31.270	970.56	48.53	C
			B	0.364	2.139		0.8	1	31.270			
			C	0.364	2.139		0.8	1	31.270			
T3 120.00-100.00	6507.10	3797.93	A	0.359	2.152	6	0.8	1	35.932	1392.93	69.65	C
			B	0.359	2.152		0.8	1	35.932			
			C	0.359	2.152		0.8	1	35.932			
T4 100.00-80.00	6925.11	4440.73	A	0.307	2.277	5	0.8	1	38.591	1430.48	71.52	C
			B	0.307	2.277		0.8	1	38.591			
			C	0.307	2.277		0.8	1	38.591			
T5 80.00-60.00	6794.28	5602.28	A	0.298	2.302	5	0.8	1	45.744	1395.95	69.80	C
			B	0.298	2.302		0.8	1	45.744			
			C	0.298	2.302		0.8	1	45.744			
T6 60.00-40.00	6625.91	6731.16	A	0.29	2.324	4	0.8	1	52.430	1321.13	66.06	C
			B	0.29	2.324		0.8	1	52.430			
			C	0.29	2.324		0.8	1	52.430			
T7 40.00-20.00	6384.37	7409.58	A	0.235	2.484	4	0.8	1	47.905	1121.38	56.07	C
			B	0.235	2.484		0.8	1	47.905			
			C	0.235	2.484		0.8	1	47.905			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T8 20.00-0.00	4810.91	7299.43	A	0.211	2.558	4	0.8	1	48.573	967.74	48.39	C
			B	0.211	2.558		0.8	1	48.573			
			C	0.211	2.558		0.8	1	48.573			
Sum Weight:	43237.67	40069.74						OTM	669404.94 lb-ft	8973.79		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	1237.10	1673.10	A	0.39	2.083	6	0.85	1	17.202	376.26	37.63	C
150.00-140.00			B	0.39	2.083		0.85	1	17.202			
			C	0.39	2.083		0.85	1	17.202			
T2	3952.89	3115.53	A	0.364	2.139	6	0.85	1	31.757	975.69	48.78	C
140.00-120.00			B	0.364	2.139		0.85	1	31.757			
			C	0.364	2.139		0.85	1	31.757			
T3	6507.10	3797.93	A	0.359	2.152	6	0.85	1	36.463	1398.29	69.91	C
120.00-100.00			B	0.359	2.152		0.85	1	36.463			
			C	0.359	2.152		0.85	1	36.463			
T4	6925.11	4440.73	A	0.307	2.277	5	0.85	1	39.240	1437.04	71.85	C
100.00-80.00			B	0.307	2.277		0.85	1	39.240			
			C	0.307	2.277		0.85	1	39.240			
T5	6794.28	5602.28	A	0.298	2.302	5	0.85	1	46.646	1404.51	70.23	C
80.00-60.00			B	0.298	2.302		0.85	1	46.646			
			C	0.298	2.302		0.85	1	46.646			
T6	6625.91	6731.16	A	0.29	2.324	4	0.85	1	53.452	1330.04	66.50	C
60.00-40.00			B	0.29	2.324		0.85	1	53.452			
			C	0.29	2.324		0.85	1	53.452			
T7	6384.37	7409.58	A	0.235	2.484	4	0.85	1	48.886	1129.28	56.46	C
40.00-20.00			B	0.235	2.484		0.85	1	48.886			
			C	0.235	2.484		0.85	1	48.886			
T8 20.00-0.00	4810.91	7299.43	A	0.211	2.558	4	0.85	1	49.656	976.71	48.84	C
			B	0.211	2.558		0.85	1	49.656			
			C	0.211	2.558		0.85	1	49.656			
Sum Weight:	43237.67	40069.74						OTM	673006.73 lb-ft	9027.82		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	192.80	421.53	A	0.157	2.747	9	1	1	7.716	282.89	28.29	C
150.00-140.00			B	0.157	2.747		1	1	7.716			
			C	0.157	2.747		1	1	7.716			
T2	718.60	791.76	A	0.155	2.754	8	1	1	15.174	682.61	34.13	C

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
140.00-120.00			B	0.155	2.754		1	1	15.174			
			C	0.155	2.754		1	1	15.174			
T3	1210.40	1140.72	A	0.174	2.686	8	1	1	18.716	953.35	47.67	C
120.00-100.00			B	0.174	2.686		1	1	18.716			
			C	0.174	2.686		1	1	18.716			
T4	1312.00	1485.02	A	0.167	2.711	8	1	1	22.320	1012.72	50.64	C
100.00-80.00			B	0.167	2.711		1	1	22.320			
			C	0.167	2.711		1	1	22.320			
T5	1312.00	1986.33	A	0.174	2.686	7	1	1	28.506	1038.02	51.90	C
80.00-60.00			B	0.174	2.686		1	1	28.506			
			C	0.174	2.686		1	1	28.506			
T6	1312.00	2680.91	A	0.179	2.666	6	1	1	32.950	1003.76	50.19	C
60.00-40.00			B	0.179	2.666		1	1	32.950			
			C	0.179	2.666		1	1	32.950			
T7	1312.00	3829.48	A	0.154	2.757	5	1	1	31.934	868.33	43.42	C
40.00-20.00			B	0.154	2.757		1	1	31.934			
			C	0.154	2.757		1	1	31.934			
T8 20.00-0.00	1167.10	3948.61	A	0.142	2.8	5	1	1	33.820	805.77	40.29	C
			B	0.142	2.8		1	1	33.820			
			C	0.142	2.8		1	1	33.820			
Sum Weight:	8536.90	16284.35						OTM	482729.98 lb-ft	6647.46		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1	192.80	421.53	A	0.157	2.747	9	0.8	1	6.717	262.82	26.28	C
150.00-140.00			B	0.157	2.747		0.8	1	6.717			
			C	0.157	2.747		0.8	1	6.717			
T2	718.60	791.76	A	0.155	2.754	8	0.8	1	13.228	644.60	32.23	C
140.00-120.00			B	0.155	2.754		0.8	1	13.228			
			C	0.155	2.754		0.8	1	13.228			
T3	1210.40	1140.72	A	0.174	2.686	8	0.8	1	16.592	914.77	45.74	C
120.00-100.00			B	0.174	2.686		0.8	1	16.592			
			C	0.174	2.686		0.8	1	16.592			
T4	1312.00	1485.02	A	0.167	2.711	8	0.8	1	19.721	967.73	48.39	C
100.00-80.00			B	0.167	2.711		0.8	1	19.721			
			C	0.167	2.711		0.8	1	19.721			
T5	1312.00	1986.33	A	0.174	2.686	7	0.8	1	24.900	980.46	49.02	C
80.00-60.00			B	0.174	2.686		0.8	1	24.900			
			C	0.174	2.686		0.8	1	24.900			
T6	1312.00	2680.91	A	0.179	2.666	6	0.8	1	28.861	944.92	47.25	C
60.00-40.00			B	0.179	2.666		0.8	1	28.861			
			C	0.179	2.666		0.8	1	28.861			
T7	1312.00	3829.48	A	0.154	2.757	5	0.8	1	28.009	817.85	40.89	C
40.00-20.00			B	0.154	2.757		0.8	1	28.009			
			C	0.154	2.757		0.8	1	28.009			
T8 20.00-0.00	1167.10	3948.61	A	0.142	2.8	5	0.8	1	29.485	749.21	37.46	C
			B	0.142	2.8		0.8	1	29.485			
			C	0.142	2.8		0.8	1	29.485			
Sum Weight:	8536.90	16284.35						OTM	457534.16	6282.37		

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
									lb-ft			

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	192.80	421.53	A	0.157	2.747	9	0.85	1	6.967	267.84	26.78	C
150.00-140.00			B	0.157	2.747		0.85	1	6.967			
			C	0.157	2.747		0.85	1	6.967			
T2	718.60	791.76	A	0.155	2.754	8	0.85	1	13.714	654.11	32.71	C
140.00-120.00			B	0.155	2.754		0.85	1	13.714			
			C	0.155	2.754		0.85	1	13.714			
T3	1210.40	1140.72	A	0.174	2.686	8	0.85	1	17.123	924.41	46.22	C
120.00-100.00			B	0.174	2.686		0.85	1	17.123			
			C	0.174	2.686		0.85	1	17.123			
T4	1312.00	1485.02	A	0.167	2.711	8	0.85	1	20.371	978.98	48.95	C
100.00-80.00			B	0.167	2.711		0.85	1	20.371			
			C	0.167	2.711		0.85	1	20.371			
T5	1312.00	1986.33	A	0.174	2.686	7	0.85	1	25.802	994.85	49.74	C
80.00-60.00			B	0.174	2.686		0.85	1	25.802			
			C	0.174	2.686		0.85	1	25.802			
T6	1312.00	2680.91	A	0.179	2.666	6	0.85	1	29.883	959.63	47.98	C
60.00-40.00			B	0.179	2.666		0.85	1	29.883			
			C	0.179	2.666		0.85	1	29.883			
T7	1312.00	3829.48	A	0.154	2.757	5	0.85	1	28.990	830.47	41.52	C
40.00-20.00			B	0.154	2.757		0.85	1	28.990			
			C	0.154	2.757		0.85	1	28.990			
T8 20.00-0.00	1167.10	3948.61	A	0.142	2.8	5	0.85	1	30.569	763.35	38.17	C
			B	0.142	2.8		0.85	1	30.569			
			C	0.142	2.8		0.85	1	30.569			
Sum Weight:	8536.90	16284.35						OTM	463833.11 lb-ft	6373.64		

Force Totals

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M_x lb-ft	Sum of Overturning Moments, M_z lb-ft	Sum of Torques lb-ft
Leg Weight	10129.62					
Bracing Weight	6154.73					
Total Member Self-Weight	16284.35			11535.77	10513.67	
Total Weight	32268.85			11535.77	10513.67	
Wind 0 deg - No Ice		81.10	-28129.64	-2501715.82	2203.54	-5253.55
Wind 30 deg - No Ice		13677.38	-23689.07	-2119990.80	-1219080.05	-1000.18
Wind 60 deg - No Ice		24321.29	-14135.05	-1252286.81	-2160063.21	3536.94
Wind 90 deg - No Ice		27214.30	-81.10	3225.65	-2434280.20	6814.36

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M_x lb-ft	Sum of Overturning Moments, M_z lb-ft	Sum of Torques lb-ft
Wind 120 deg - No Ice		24240.19	13994.59	1260964.79	-2151753.09	8790.48
Wind 150 deg - No Ice		13536.92	23607.97	2134752.22	-1204686.48	7814.54
Wind 180 deg - No Ice		-81.10	28129.64	2524787.37	18823.79	5253.55
Wind 210 deg - No Ice		-13677.38	23689.07	2143062.35	1240107.38	1000.18
Wind 240 deg - No Ice		-24321.29	14135.05	1275358.35	2181090.55	-3536.94
Wind 270 deg - No Ice		-27214.30	81.10	19845.90	2455307.53	-6814.36
Wind 300 deg - No Ice		-24240.19	-13994.59	-1237893.24	2172780.42	-8790.48
Wind 330 deg - No Ice		-13536.92	-23607.97	-2111680.67	1225713.82	-7814.54
Member Ice	23785.39					
Total Weight Ice	117112.05			68628.88	49693.32	
Wind 0 deg - Ice		2.86	-13087.04	-1126812.42	49576.96	-2242.56
Wind 30 deg - Ice		6441.66	-11194.76	-957354.09	-539906.53	-1003.34
Wind 60 deg - Ice		11294.80	-6546.00	-529192.54	-980764.96	511.83
Wind 90 deg - Ice		12878.36	-2.86	68512.52	-1129304.84	1837.24
Wind 120 deg - Ice		11291.94	6541.04	666248.76	-980648.60	2754.39
Wind 150 deg - Ice		6436.70	11191.89	1094495.49	-539704.99	2840.58
Wind 180 deg - Ice		-2.86	13087.04	1264070.18	49809.68	2242.56
Wind 210 deg - Ice		-6441.66	11194.76	1094611.85	639293.17	1003.34
Wind 240 deg - Ice		-11294.80	6546.00	666450.30	1080151.60	-511.83
Wind 270 deg - Ice		-12878.36	2.86	68745.24	1228691.48	-1837.24
Wind 300 deg - Ice		-11291.94	-6541.04	-528991.00	1080035.25	-2754.39
Wind 330 deg - Ice		-6436.70	-11191.89	-957237.73	639091.63	-2840.58
Total Weight	32268.85			11535.77	10513.67	
Wind 0 deg - Service		26.99	-9362.68	-837845.50	-674.03	-1748.59
Wind 30 deg - Service		4552.38	-7884.68	-710792.06	-407166.35	-332.90
Wind 60 deg - Service		8095.10	-4704.71	-421985.25	-720363.41	1177.23
Wind 90 deg - Service		9058.01	-26.99	-4100.19	-811633.86	2268.09
Wind 120 deg - Service		8068.11	4657.96	414526.00	-717597.47	2925.83
Wind 150 deg - Service		4505.63	7857.68	705357.62	-402375.59	2600.99
Wind 180 deg - Service		-26.99	9362.68	835177.01	4857.86	1748.59
Wind 210 deg - Service		-4552.38	7884.68	708123.56	411350.18	332.90
Wind 240 deg - Service		-8095.10	4704.71	419316.76	724547.24	-1177.23
Wind 270 deg - Service		-9058.01	26.99	1431.70	815817.68	-2268.09
Wind 300 deg - Service		-8068.11	-4657.96	-417194.50	721781.29	-2925.83
Wind 330 deg - Service		-4505.63	-7857.68	-708026.11	406559.42	-2600.99

Load Combinations

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

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

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Leg C	Max. Vert	18	272806.66	23814.42	-13543.39
	Max. H_x	18	272806.66	23814.42	-13543.39
	Max. H_z	5	-208750.54	-18078.01	12445.05
	Min. Vert	7	-240181.19	-21809.66	12390.38
	Min. H_x	7	-240181.19	-21809.66	12390.38
	Min. H_z	18	272806.66	23814.42	-13543.39
Leg B	Max. Vert	10	269916.79	-23819.74	-13214.11
	Max. H_x	23	-239754.99	21844.03	12093.41
	Max. H_z	23	-239754.99	21844.03	12093.41
	Min. Vert	23	-239754.99	21844.03	12093.41
	Min. H_x	10	269916.79	-23819.74	-13214.11
	Min. H_z	10	269916.79	-23819.74	-13214.11
Leg A	Max. Vert	2	270928.95	-287.75	27361.05
	Max. H_x	21	8156.43	2882.53	568.14
	Max. H_z	2	270928.95	-287.75	27361.05
	Min. Vert	15	-241871.06	274.43	-25113.60
	Min. H_x	9	9866.39	-2904.15	726.10
	Min. H_z	15	-241871.06	274.43	-25113.60

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	32268.85	0.00	-0.00	11538.53	10517.42	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	38722.62	129.76	-45006.84	-4022155.66	-636.93	-8489.63
0.9 Dead+1.6 Wind 0 deg - No Ice	29041.96	129.76	-45007.00	-4021880.76	-3804.10	-8468.15
1.2 Dead+1.6 Wind 30 deg - No Ice	38722.62	21883.48	-37902.00	-3409204.07	-1961954.76	-1640.14
0.9 Dead+1.6 Wind 30 deg - No Ice	29041.96	21883.57	-37902.14	-3409488.89	-1963292.10	-1628.83
1.2 Dead+1.6 Wind 60 deg - No Ice	38722.62	37393.59	-21738.24	-1954940.59	-3367859.56	5664.59
0.9 Dead+1.6 Wind 60 deg - No Ice	29041.96	37393.73	-21738.32	-1956579.92	-3367881.18	5663.24
1.2 Dead+1.6 Wind 90 deg - No Ice	38722.62	43542.27	-129.73	570.54	-3913494.44	10952.72
0.9 Dead+1.6 Wind 90 deg - No Ice	29041.96	43542.43	-129.73	-2895.36	-3913010.93	10939.05
1.2 Dead+1.6 Wind 120 deg - No Ice	38722.62	38783.80	22391.04	2020385.87	-3459696.20	14155.39
0.9 Dead+1.6 Wind 120 deg - No Ice	29041.96	38783.94	22391.13	2015044.57	-3459653.46	14137.12
1.2 Dead+1.6 Wind 150 deg - No Ice	38722.62	21658.80	37772.21	3423641.99	-1938822.28	12606.46
0.9 Dead+1.6 Wind 150 deg - No Ice	29041.96	21658.87	37772.35	3416982.96	-1940179.67	12581.45
1.2 Dead+1.6 Wind 180 deg - No Ice	38722.62	-129.75	43251.73	3928437.07	26042.04	8487.72
0.9 Dead+1.6 Wind 180 deg - No Ice	29041.96	-129.75	43251.90	3921303.16	22852.73	8466.91
1.2 Dead+1.6 Wind 210 deg - No Ice	38722.62	-21883.53	37901.97	3436952.84	1987314.89	1639.90
0.9 Dead+1.6 Wind 210 deg - No Ice	29041.96	-21883.61	37902.11	3430283.25	1982296.65	1628.63
1.2 Dead+1.6 Wind 240 deg - No Ice	38722.62	-38913.55	22615.79	2043459.37	3498392.41	-5665.71
0.9 Dead+1.6 Wind 240 deg - No Ice	29041.96	-38913.69	22615.87	2038097.24	3491975.43	-5664.24
1.2 Dead+1.6 Wind 270 deg - No Ice	38722.62	-43542.27	129.78	27247.46	3938834.73	-10953.22
0.9 Dead+1.6 Wind 270 deg - No Ice	29041.96	-43542.43	129.78	23760.30	3931994.99	-10939.61
1.2 Dead+1.6 Wind 300 deg - No Ice	38722.62	-37263.83	-21513.50	-1931811.47	3379876.25	-14152.27
0.9 Dead+1.6 Wind 300 deg - No Ice	29041.96	-37263.97	-21513.58	-1933469.20	3373552.66	-14130.12
1.2 Dead+1.6 Wind 330 deg - No Ice	38722.62	-21658.73	-37772.24	-3395839.86	1964236.09	-12605.63
0.9 Dead+1.6 Wind 330 deg - No Ice	29041.96	-21658.82	-37772.38	-3396135.41	1959236.29	-12580.63
1.2 Dead+1.0 Ice+1.0 Temp	123565.82	0.05	-0.04	71555.05	52562.00	-0.52
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	123565.81	2.91	-13086.22	-1140780.24	52557.63	-2347.34
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	123565.81	6441.27	-11194.05	-968936.64	-545332.92	-1048.92
1.2 Dead+1.0 Wind 60 deg+1.0	123565.81	11106.92	-6437.53	-527366.90	-979835.09	536.63

Load Combination	Vertical lb	Shear$_x$ lb	Shear$_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Ice+1.0 Temp						
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	123565.81	12877.55	-2.89	71562.89	-1143141.23	1925.68
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	123565.81	11291.25	6540.57	677809.31	-992339.87	2884.20
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	123565.81	6436.33	11191.10	1112177.96	-545136.31	2974.41
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	123565.81	-2.81	12869.99	1269566.85	52783.45	2346.08
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	123565.81	-6441.18	11193.96	1112291.42	650671.07	1048.77
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	123565.81	-11294.01	6545.53	678007.62	1097789.08	-536.90
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	123565.81	-12877.45	2.83	71794.94	1248475.94	-1925.66
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	123565.81	-11103.96	-6432.58	-527163.23	1085058.72	-2882.70
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	123565.81	-6436.21	-11191.19	-968817.91	650476.75	-2974.45
Dead+Wind 0 deg - Service	32268.85	26.99	-9362.57	-827535.78	7779.43	-1763.22
Dead+Wind 30 deg - Service	32268.85	4552.33	-7884.58	-700098.57	-399975.90	-343.51
Dead+Wind 60 deg - Service	32268.85	7778.83	-4522.11	-397758.11	-692260.69	1178.16
Dead+Wind 90 deg - Service	32268.85	9057.91	-26.99	8790.73	-805700.09	2280.67
Dead+Wind 120 deg - Service	32268.85	8068.02	4657.91	428710.81	-711362.03	2941.58
Dead+Wind 150 deg - Service	32268.85	4505.58	7857.59	720450.03	-395170.81	2615.39
Dead+Wind 180 deg - Service	32268.85	-26.99	8997.47	825399.81	13326.67	1762.84
Dead+Wind 210 deg - Service	32268.85	-4552.33	7884.58	723222.20	421080.26	343.41
Dead+Wind 240 deg - Service	32268.85	-8095.01	4704.66	433513.08	735239.69	-1178.40
Dead+Wind 270 deg - Service	32268.85	-9057.90	26.99	14336.68	826803.83	-2280.54
Dead+Wind 300 deg - Service	32268.85	-7751.83	-4475.36	-392953.56	710591.30	-2941.08
Dead+Wind 330 deg - Service	32268.85	-4505.57	-7857.59	-697324.15	416277.24	-2615.35

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0.00	-32268.85	-0.00	-0.00	32268.85	0.00	0.000%
2	129.76	-38722.62	-45007.43	-129.76	38722.62	45006.84	0.001%
3	129.76	-29041.97	-45007.43	-129.76	29041.96	45007.00	0.001%
4	21883.81	-38722.62	-37902.51	-21883.48	38722.62	37902.00	0.001%
5	21883.81	-29041.97	-37902.51	-21883.57	29041.96	37902.14	0.001%
6	37394.13	-38722.62	-21738.56	-37393.59	38722.62	21738.24	0.001%
7	37394.13	-29041.97	-21738.56	-37393.73	29041.96	21738.32	0.001%
8	43542.88	-38722.62	-129.76	-43542.27	38722.62	129.73	0.001%
9	43542.88	-29041.97	-129.76	-43542.43	29041.96	129.73	0.001%
10	38784.30	-38722.62	22391.34	-38783.80	38722.62	-22391.04	0.001%
11	38784.30	-29041.97	22391.34	-38783.94	29041.96	-22391.13	0.001%
12	21659.07	-38722.62	37772.75	-21658.80	38722.62	-37772.21	0.001%
13	21659.07	-29041.97	37772.75	-21658.87	29041.96	-37772.35	0.001%
14	-129.76	-38722.62	43252.37	129.75	38722.62	-43251.73	0.001%
15	-129.76	-29041.97	43252.37	129.75	29041.96	-43251.90	0.001%
16	-21883.81	-38722.62	37902.51	21883.53	38722.62	-37901.97	0.001%
17	-21883.81	-29041.97	37902.51	21883.61	29041.96	-37902.11	0.001%
18	-38914.06	-38722.62	22616.09	38913.55	38722.62	-22615.79	0.001%
19	-38914.06	-29041.97	22616.09	38913.69	29041.96	-22615.87	0.001%
20	-43542.88	-38722.62	129.76	43542.27	38722.62	-129.78	0.001%
21	-43542.88	-29041.97	129.76	43542.43	29041.96	-129.78	0.001%

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
22	-37264.38	-38722.62	-21513.81	37263.83	38722.62	21513.50	0.001%
23	-37264.38	-29041.97	-21513.81	37263.97	29041.96	21513.58	0.001%
24	-21639.07	-38722.62	-37772.75	21638.73	38722.62	37772.24	0.001%
25	-21639.07	-29041.97	-37772.75	21638.82	29041.96	37772.38	0.001%
26	0.00	-123565.82	-0.00	-0.05	123565.82	0.04	0.000%
27	2.86	-123565.82	-13087.04	-2.91	123565.81	13086.22	0.001%
28	6441.66	-123565.82	-11194.76	-6441.27	123565.81	11194.05	0.001%
29	11107.62	-123565.82	-6437.93	-11106.92	123565.81	6437.53	0.001%
30	12878.36	-123565.82	-2.86	-12877.55	123565.81	2.89	0.001%
31	11291.94	-123565.82	6541.04	-11291.25	123565.81	-6540.57	0.001%
32	6436.70	-123565.82	11191.89	-6436.33	123565.81	-11191.10	0.001%
33	-2.86	-123565.82	12870.90	2.81	123565.81	-12869.99	0.001%
34	-6441.66	-123565.82	11194.76	6441.18	123565.81	-11193.96	0.001%
35	-11294.80	-123565.82	6546.00	11294.01	123565.81	-6545.53	0.001%
36	-12878.36	-123565.82	2.86	12877.45	123565.81	-2.83	0.001%
37	-11104.76	-123565.82	-6432.97	11103.96	123565.81	6432.58	0.001%
38	-6436.70	-123565.82	-11191.89	6436.21	123565.81	11191.19	0.001%
39	26.99	-32268.85	-9362.68	-26.99	32268.85	9362.57	0.000%
40	4552.38	-32268.85	-7884.68	-4552.33	32268.85	7884.58	0.000%
41	7778.92	-32268.85	-4522.17	-7778.83	32268.85	4522.11	0.000%
42	9058.01	-32268.85	-26.99	-9057.91	32268.85	26.99	0.000%
43	8068.11	-32268.85	4657.96	-8068.02	32268.85	-4657.91	0.000%
44	4505.63	-32268.85	7857.68	-4505.58	32268.85	-7857.59	0.000%
45	-26.99	-32268.85	8997.58	26.99	32268.85	-8997.47	0.000%
46	-4552.38	-32268.85	7884.68	4552.33	32268.85	-7884.58	0.000%
47	-8095.10	-32268.85	4704.71	8095.01	32268.85	-4704.66	0.000%
48	-9058.01	-32268.85	26.99	9057.90	32268.85	-26.99	0.000%
49	-7751.93	-32268.85	-4475.41	7751.83	32268.85	4475.36	0.000%
50	-4505.63	-32268.85	-7857.68	4505.57	32268.85	7857.59	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00011615
3	Yes	4	0.00000001	0.00008419
4	Yes	4	0.00000001	0.00012001
5	Yes	4	0.00000001	0.00008794
6	Yes	4	0.00000001	0.00012364
7	Yes	4	0.00000001	0.00009145
8	Yes	4	0.00000001	0.00012012
9	Yes	4	0.00000001	0.00008807
10	Yes	4	0.00000001	0.00011616
11	Yes	4	0.00000001	0.00008424
12	Yes	4	0.00000001	0.00012024
13	Yes	4	0.00000001	0.00008816
14	Yes	4	0.00000001	0.00012372
15	Yes	4	0.00000001	0.00009151
16	Yes	4	0.00000001	0.00011994
17	Yes	4	0.00000001	0.00008790
18	Yes	4	0.00000001	0.00011593
19	Yes	4	0.00000001	0.00008403
20	Yes	4	0.00000001	0.00012009
21	Yes	4	0.00000001	0.00008800
22	Yes	4	0.00000001	0.00012389

23	Yes	4	0.00000001	0.00009161
24	Yes	4	0.00000001	0.00012028
25	Yes	4	0.00000001	0.00008813
26	Yes	4	0.00000001	0.00005100
27	Yes	4	0.00000001	0.00044825
28	Yes	4	0.00000001	0.00044169
29	Yes	4	0.00000001	0.00043902
30	Yes	4	0.00000001	0.00043946
31	Yes	4	0.00000001	0.00044497
32	Yes	4	0.00000001	0.00045274
33	Yes	4	0.00000001	0.00046003
34	Yes	4	0.00000001	0.00046330
35	Yes	4	0.00000001	0.00046461
36	Yes	4	0.00000001	0.00046426
37	Yes	4	0.00000001	0.00046210
38	Yes	4	0.00000001	0.00045576
39	Yes	4	0.00000001	0.00009718
40	Yes	4	0.00000001	0.00009770
41	Yes	4	0.00000001	0.00009824
42	Yes	4	0.00000001	0.00009745
43	Yes	4	0.00000001	0.00009676
44	Yes	4	0.00000001	0.00009770
45	Yes	4	0.00000001	0.00009849
46	Yes	4	0.00000001	0.00009785
47	Yes	4	0.00000001	0.00009718
48	Yes	4	0.00000001	0.00009809
49	Yes	4	0.00000001	0.00009893
50	Yes	4	0.00000001	0.00009819

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	150 - 140	3.104	47	0.1977	0.0184
T2	140 - 120	2.672	47	0.1959	0.0175
T3	120 - 100	1.854	47	0.1649	0.0145
T4	100 - 80	1.194	47	0.1256	0.0105
T5	80 - 60	0.712	47	0.0870	0.0075
T6	60 - 40	0.387	47	0.0539	0.0051
T7	40 - 20	0.177	47	0.0311	0.0028
T8	20 - 0	0.056	47	0.0156	0.0014

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	Nudd 12' boom	47	3.104	0.1977	0.0184	313572
140.00	Nudd 12' boom	47	2.672	0.1959	0.0175	139521
127.50	Nudd 12' boom	47	2.147	0.1794	0.0158	37588
122.28	RFS DB-T1-6Z-8AB-0Z	47	1.941	0.1695	0.0149	28688
117.07	RFS DB-T1-6Z-8AB-0Z	47	1.745	0.1591	0.0140	25998
115.00	Nudd 10' boom	47	1.672	0.1551	0.0135	26042
111.85	RFS DB-T1-6Z-8AB-0Z	47	1.563	0.1489	0.0129	26213
106.64	RFS DB-T1-6Z-8AB-0Z	47	1.393	0.1387	0.0118	26502

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
101.42	RFS DB-T1-6Z-8AB-0Z	47	1.235	0.1284	0.0108	26813
96.20	RFS DB-T1-6Z-8AB-0Z	47	1.089	0.1182	0.0098	27301
90.99	RFS DB-T1-6Z-8AB-0Z	47	0.956	0.1079	0.0090	27902
85.77	RFS DB-T1-6Z-8AB-0Z	47	0.834	0.0979	0.0083	28530
80.56	RFS DB-T1-6Z-8AB-0Z	47	0.723	0.0880	0.0076	29402
75.34	RFS DB-T1-6Z-8AB-0Z	47	0.624	0.0786	0.0070	31765
70.13	RFS DB-T1-6Z-8AB-0Z	47	0.534	0.0696	0.0064	35133
64.91	RFS DB-T1-6Z-8AB-0Z	47	0.455	0.0611	0.0057	39300
59.69	RFS DB-T1-6Z-8AB-0Z	47	0.383	0.0534	0.0051	43847
54.48	RFS DB-T1-6Z-8AB-0Z	47	0.319	0.0465	0.0045	46480
49.26	RFS DB-T1-6Z-8AB-0Z	47	0.262	0.0404	0.0038	48816
44.05	RFS DB-T1-6Z-8AB-0Z	47	0.211	0.0349	0.0032	51399
38.83	RFS DB-T1-6Z-8AB-0Z	47	0.167	0.0300	0.0027	54138
33.61	RFS DB-T1-6Z-8AB-0Z	47	0.129	0.0257	0.0022	56870
28.40	RFS DB-T1-6Z-8AB-0Z	47	0.097	0.0218	0.0019	59853
23.18	RFS DB-T1-6Z-8AB-0Z	47	0.070	0.0179	0.0016	63262
17.97	RFS DB-T1-6Z-8AB-0Z	47	0.049	0.0141	0.0012	73329
12.75	RFS DB-T1-6Z-8AB-0Z	47	0.031	0.0101	0.0009	102547

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	150 - 140	14.715	18	0.9338	0.0886
T2	140 - 120	12.671	18	0.9252	0.0842
T3	120 - 100	8.799	18	0.7794	0.0700
T4	100 - 80	5.674	18	0.5945	0.0506
T5	80 - 60	3.387	18	0.4120	0.0363
T6	60 - 40	1.844	18	0.2552	0.0248
T7	40 - 20	0.844	18	0.1472	0.0134
T8	20 - 0	0.271	18	0.0740	0.0065

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	Nudd 12' boom	18	14.715	0.9338	0.0886	70033
140.00	Nudd 12' boom	18	12.671	0.9252	0.0842	30757
127.50	Nudd 12' boom	18	10.188	0.8476	0.0760	8004
122.28	RFS DB-T1-6Z-8AB-0Z	18	9.210	0.8007	0.0719	6093
117.07	RFS DB-T1-6Z-8AB-0Z	18	8.287	0.7522	0.0673	5517
115.00	Nudd 10' boom	18	7.937	0.7330	0.0652	5526
111.85	RFS DB-T1-6Z-8AB-0Z	18	7.422	0.7039	0.0620	5562
106.64	RFS DB-T1-6Z-8AB-0Z	18	6.616	0.6558	0.0568	5623
101.42	RFS DB-T1-6Z-8AB-0Z	18	5.868	0.6076	0.0519	5689
96.20	RFS DB-T1-6Z-8AB-0Z	18	5.178	0.5593	0.0475	5787
90.99	RFS DB-T1-6Z-8AB-0Z	18	4.544	0.5110	0.0435	5906
85.77	RFS DB-T1-6Z-8AB-0Z	18	3.965	0.4634	0.0399	6029
80.56	RFS DB-T1-6Z-8AB-0Z	18	3.440	0.4169	0.0367	6205
75.34	RFS DB-T1-6Z-8AB-0Z	18	2.968	0.3720	0.0336	6705

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
70.13	RFS DB-T1-6Z-8AB-0Z	18	2.545	0.3294	0.0306	7422
64.91	RFS DB-T1-6Z-8AB-0Z	18	2.165	0.2896	0.0277	8310
59.69	RFS DB-T1-6Z-8AB-0Z	18	1.825	0.2531	0.0246	9277
54.48	RFS DB-T1-6Z-8AB-0Z	18	1.521	0.2204	0.0215	9821
49.26	RFS DB-T1-6Z-8AB-0Z	18	1.249	0.1912	0.0183	10294
44.05	RFS DB-T1-6Z-8AB-0Z	18	1.009	0.1653	0.0154	10815
38.83	RFS DB-T1-6Z-8AB-0Z	18	0.799	0.1423	0.0128	11379
33.61	RFS DB-T1-6Z-8AB-0Z	18	0.618	0.1219	0.0108	11971
28.40	RFS DB-T1-6Z-8AB-0Z	18	0.465	0.1031	0.0090	12624
23.18	RFS DB-T1-6Z-8AB-0Z	18	0.337	0.0851	0.0075	13373
17.97	RFS DB-T1-6Z-8AB-0Z	18	0.233	0.0668	0.0059	15523
12.75	RFS DB-T1-6Z-8AB-0Z	18	0.151	0.0479	0.0043	21710

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	150	Leg	A325N	0.7500	4	1236.07	29820.60	0.041 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	1	1705.87	7952.16	0.215 ✔	1	Bolt Shear
T2	140	Leg	A325N	1.0000	4	9945.66	53014.40	0.188 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	6334.85	9787.50	0.647 ✔	1	Member Bearing
T3	120	Leg	A325N	1.0000	6	13755.70	53014.40	0.259 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	6634.20	9787.50	0.678 ✔	1	Member Bearing
T4	100	Leg	A325N	1.0000	8	15082.30	53014.40	0.284 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	7175.78	9787.50	0.733 ✔	1	Member Bearing
T5	80	Leg	A325N	1.2500	8	19322.10	82835.00	0.233 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	7417.88	9787.50	0.758 ✔	1	Member Bearing
T6	60	Leg	A325N	1.2500	8	23279.90	82835.00	0.281 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	8102.48	9787.50	0.828 ✔	1	Member Bearing
T7	40	Leg	A325N	1.2500	8	26947.60	82835.00	0.325 ✔	1	Bolt Tension
		Diagonal	A325N	0.7500	1	8988.72	14355.00	0.626 ✔	1	Member Bearing
T8	20	Leg	F1554-36	1.5000	8	30369.50	57653.10	0.527 ✔	1	Bolt Tension
		Diagonal	A325N	0.7500	1	9429.93	14355.00	0.657 ✔	1	Member Bearing

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	150 - 140	P2.5x.203	10.00	0.67	8.4 K=1.00	1.7040	-6345.62	82351.90	0.077 [1]
T2	140 - 120	P2.5x.203	20.00	4.67	59.1 K=1.00	1.7040	-39142.50	62849.30	0.623 [1]
T3	120 - 100	P4x.237	20.03	4.67	37.2 K=1.00	3.1741	-86765.70	138323.00	0.627 [1]
T4	100 - 80	P5x.258	20.03	6.26	40.0 K=1.00	4.2999	-133951.00	184163.00	0.727 [1]
T5	80 - 60	P6x.28	20.03	6.26	33.5 K=1.00	5.5813	-171372.00	248307.00	0.690 [1]
T6	60 - 40	P8x.322	20.03	6.26	25.6 K=1.00	8.3993	-207170.00	387660.00	0.534 [1]
T7	40 - 20	P8x.5	20.03	9.35	39.0 K=1.00	12.7627	-232686.00	550137.00	0.423 [1]
T8	20 - 0	P8x.5	20.03	9.35	39.0 K=1.00	12.7627	-264972.00	550137.00	0.482 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	150 - 140	L1 1/2x1 1/2x3/16	7.40	3.42	139.8 K=1.00	0.5273	-1644.62	6096.07	0.270 [1]
T2	140 - 120	L2x2x3/16	7.60	3.51	110.3 K=1.03	0.7150	-6285.55	12215.70	0.515 [1]
T3	120 - 100	L2x2x3/16	9.00	4.28	130.5 K=1.00	0.7150	-6585.27	9453.47	0.697 [1]
T4	100 - 80	L2 1/2x2 1/2x3/16	11.48	5.51	133.7 K=1.00	0.9020	-7097.17	11410.90	0.622 [1]
T5	80 - 60	L3x3x3/16	13.20	6.33	127.4 K=1.00	1.0900	-7487.52	14941.00	0.501 [1]
T6	60 - 40	L3x3x3/16	14.99	7.14	143.7 K=1.00	1.0900	-8214.75	11926.10	0.689 [1]
T7	40 - 20	L3 1/2x3 1/2x1/4	18.07	8.74	151.1 K=1.00	1.6900	-9098.83	16715.90	0.544 [1]
T8	20 - 0	L3 1/2x3 1/2x1/4	19.81	9.61	166.2 K=1.00	1.6900	-9604.27	13815.30	0.695 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	150 - 140	L3x3x1/4	6.00	5.76	118.4 K=1.01	1.4400	-391.71	22309.60	0.018 [1] ✔

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	150 - 140	P2.5x.203	10.00	0.67	8.4	1.7040	4944.28	82816.80	0.060 [1] ✔
T2	140 - 120	P2.5x.203	20.00	0.67	8.4	1.7040	39782.60	82816.80	0.480 [1] ✔
T3	120 - 100	P4x.237	20.03	0.67	5.3	3.1741	82534.50	154259.00	0.535 [1] ✔
T4	100 - 80	P5x.258	20.03	0.63	4.0	4.2999	120658.00	208974.00	0.577 [1] ✔
T5	80 - 60	P6x.28	20.03	0.63	3.3	5.5813	154577.00	271254.00	0.570 [1] ✔
T6	60 - 40	P8x.322	20.03	0.63	2.6	8.3993	186239.00	408204.00	0.456 [1] ✔
T7	40 - 20	P8x.5	20.03	0.67	2.8	12.7627	215580.00	620268.00	0.348 [1] ✔
T8	20 - 0	P8x.5	20.03	0.67	2.8	12.7627	242956.00	620268.00	0.392 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	150 - 140	L1 1/2x1 1/2x3/16	7.40	3.42	93.4	0.3076	1705.87	13381.30	0.127 [1] ✔
T2	140 - 120	L2x2x3/16	7.60	3.51	71.0	0.4308	6334.85	18739.00	0.338 [1] ✔
T3	120 - 100	L2x2x3/16	9.00	4.28	86.0	0.4308	6634.20	18739.00	0.354 [1] ✔
T4	100 - 80	L2 1/2x2 1/2x3/16	10.45	5.01	79.3	0.5710	7175.78	24839.90	0.289 [1] ✔
T5	80 - 60	L3x3x3/16	12.11	5.79	75.7	0.7120	7417.88	30973.40	0.239 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T6	60 - 40	L3x3x3/16	14.99	7.14	92.9	0.7120	8102.48	30973.40	0.262 [1]
T7	40 - 20	L3 1/2x3 1/2x1/4	18.07	8.74	97.8	1.1034	8988.72	47999.50	0.187 [1]
T8	20 - 0	L3 1/2x3 1/2x1/4	19.81	9.61	107.4	1.1034	9429.93	47999.50	0.196 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	150 - 140	L3x3x1/4	6.00	5.76	74.3	1.4400	363.47	46656.00	0.008 [1]

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	150 - 140	Leg	P2.5x.203	1	-6345.62	82351.90	7.7	Pass
		Diagonal	L1 1/2x1 1/2x3/16	8	-1644.62	6096.07	27.0	Pass
		Top Girt	L3x3x1/4	4	-391.71	22309.60	1.8	Pass
T2	140 - 120	Leg	P2.5x.203	19	-39142.50	62849.30	62.3	Pass
		Diagonal	L2x2x3/16	23	-6285.55	12215.70	51.5	Pass
							64.7 (b)	
T3	120 - 100	Leg	P4x.237	46	-86765.70	138323.00	62.7	Pass
		Diagonal	L2x2x3/16	53	-6585.27	9453.47	69.7	Pass
T4	100 - 80	Leg	P5x.258	73	-133951.00	184163.00	72.7	Pass
		Diagonal	L2 1/2x2 1/2x3/16	77	-7097.17	11410.90	62.2	Pass
							73.3 (b)	
T5	80 - 60	Leg	P6x.28	94	-171372.00	248307.00	69.0	Pass
		Diagonal	L3x3x3/16	98	-7487.52	14941.00	50.1	Pass
							75.8 (b)	
T6	60 - 40	Leg	P8x.322	115	-207170.00	387660.00	53.4	Pass
		Diagonal	L3x3x3/16	119	-8214.75	11926.10	68.9	Pass
							82.8 (b)	
T7	40 - 20	Leg	P8x.5	136	-232686.00	550137.00	42.3	Pass
		Diagonal	L3 1/2x3 1/2x1/4	140	-9098.83	16715.90	54.4	Pass
							62.6 (b)	
T8	20 - 0	Leg	P8x.5	151	-264972.00	550137.00	48.2	Pass
							52.7 (b)	
		Diagonal	L3 1/2x3 1/2x1/4	155	-9604.27	13815.30	69.5	Pass
							Summary	
						Leg (T4)	72.7	Pass
						Diagonal	82.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
						(T6) Top Girt	1.8	Pass
						(T1) Bolt Checks	82.8	Pass
						RATING =	82.8	Pass

Site Name:	Norwich, CT
Client:	CDT
Project Number:	117-23243.6
Date:	1/14/2018

Design Base Loads (Factored) - Design per TIA-222-G Standard

Moment (Overturning) (M_u):	0.0	k-ft
Shear/Leg (V_u):	27.4	k
Compression/Leg (P_u):	272.8	k
Uplift/Leg (T_u):	241.9	k

Diameter of Caisson (d):	3.5	ft
Length of Caisson (l):	4.3	ft
Caisson Height Above Ground (h):	0.5	ft
Depth Below Ground Surface to Water Table (w):	100.0	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Soil:	135.0	pcf
Unit Weight of Water:	62.4	pcf
Ultimate Compressive Bearing Pressure:	60000	psf
Pullout Angle:	30.0	degrees
Rod Diameter:	1.00	in
Rod Ultimate Strength:	150	ksi
Rod Net Area:	0.85	in^2
Number of Rods:	5	
Diameter of Cored Hole:	3.00	in
Ultimate Grout / Rock Interface Bond Strength:	250	psi
Rod Embedment Length:	228	in
Rod Exposure Above Lock Off Nut in Foundation:	60	in
Rod Embedment Circle:	26	in
Free Stress Length:	150	in
Volume of Concrete:	41.7	ft^3
Weight of Concrete (Buoyancy Effect Considered):	6.3	k
Compressive Bearing Resistance:	577.3	k
Pullout Weight:	2428.7	k
Rod Bond Strength:	918.9	k
Williams Rod Strength:	637.5	k
Maximum Lock Off Load:	95.6	k > Design Lock Off Load, OK
Nominal Uplift Capacity per Leg ($\phi_s T_n$):	478.1	k
Nominal Compressive Capacity per Leg ($\phi_s P_n$):	433.0	k
T_u:	241.9	k
P_u:	273.5	k
$T_u/\phi_s T_n$:	0.51	Result: OK
$P_u/\phi_s P_n$:	0.63	Result: OK

Lateral Capacity

Depth (ft) Top	Depth (ft) Bottom	Ultimate Lateral Bearing Pressure (psf)	Increment (psf/ft)	γ_{Soil} (pcf)	Cohesion (psf)	ϕ (degree)
0.0	0.5	0.0	100.0	100	0	0
0.5	1.0	47.9	100.0	100	0	0
1.0	1.5	100.0	100.0	100	0	0
1.5	2.5	41636.6	567.5	135	10000	38
2.5	3.0	42204.1	567.5	135	10000	38
3.0	3.5	42274.6	567.5	135	10000	38
3.5	3.9	42327.6	567.5	135	10000	38
3.9	3.8	42389.4	567.5	135	10000	38

Total Lateral Resistance:	461.1	k
Inflection Point (Below Ground Surface):	3.8	ft
Design Overturning Moment At Inflection Point (M_{uip}):	118.7	k-ft
Nominal Moment Capacity per Leg ($\phi_s M_n$):	310.4	k-ft
$M_{uip}/\phi_s M_n$:	0.38	Result: OK

Caisson Strength Capacity

Concrete Compressive Strength (f'_c):	3000	psi
Vertical Steel Rebar Size #:	6	
Vertical Steel Rebar Area:	0.44	in^2
# of Vertical Steel Rebars:	23	Minimum # of vertical rebar met
Vertical Steel Rebar Yield Strength (F_y):	60	ksi
Horizontal Tie / Stirrup Size #:	4	
Horizontal Tie / Stirrup Area:	0.20	in^2
Horizontal Tie / Stirrup Spacing:	12.0	in
Horizontal Tie / Stirrup Steel Yield Strength (F_y):	40	ksi
Rebar Cage Diameter:	34.0	in
Strength Bending/Tension Reduction Factor (ϕ_B):	0.90	ACI318-05 - 9.3.2.1
Strength Shear Reduction Factor (ϕ_V):	0.75	ACI318-05 - 9.3.2.3
Strength Compression/Bearing Reduction Factor ($\phi_{P/B}$):	0.65	ACI318-05 - 9.3.2.2
Steel Elastic Modulus:	29000	ksi
Design Moment (M_u):	118.7	k-ft
Nominal Moment Capacity ($\phi_B M_n$):	692.9	k-ft - ACI318-005 - 10.2
$M_u/\phi_B M_n$:	0.17	Result: OK
Design Shear (V_u):	27.4	k
Nominal Shear Capacity ($\phi_V V_n$):	158.6	k - ACI318-05 - 11.3.1.1 or 11.5.7.2
$V_u/\phi_V V_n$:	0.17	Result: OK
Design Tension (T_u):	241.9	k
Nominal Tension Capacity ($\phi_T T_n$):	546.5	k - ACI318-05 - 10.2
$T_u/\phi_T T_n$:	0.44	Result: OK
Design Compression (P_u):	272.8	k
Nominal Compression Capacity ($\phi_P P_n$):	2145.5	k - ACI318-05 - 10.3.6.2
$P_u/\phi_P P_n$:	0.13	Result: OK
Bending Reinforcement Ratio:	0.007	Reinforcement Ratio is Satisfactory - ACI318-05 - 10.8.4 & 10.9.1

"DO MACRO UPGRADE"

CT23XC114
2 HINCKLEY HILL ROAD
PRESTON, CT 06360

KEY MAP

SCALE = N.T.S.

SITE LOCATION INFORMATION

SITE ID NUMBER:	CT23XC114
SITE NAME:	MONTVILLE / NORWICH CDT
SITE ADDRESS:	2 HINCKLEY HILL ROAD PRESTON, CT 06360
PARCEL ID:	17-0 HIN1 2A
CENSUS TRACT:	700100
CENSUS BLOCK:	3012
PROPERTY OWNER:	JAMES C IRWIN 2 -A HINCKLEY HILL RD PRESTON, CT 06365
APPLICANT:	SPRINT 6100 SPRINT PARKWAY OVERLAND PARK, KS 66251

SITE CHARACTERISTICS

LATITUDE:	41.510732
LONGITUDE:	-72.059624
STRUCTURE TYPE:	SELF-SUPPORT TOWER
LOCATION OF PROPOSED EQUIPMENT:	EXISTING EQUIPMENT PLATFORM
STRUCTURE HEIGHT:	±150'-0" AGL
ANTENNA (RAD CENTER):	±140'-0" AGL (ALPHA) ±140'-0" AGL (BETA) ±140'-0" AGL (GAMMA)

SHEET INDEX

SHEET NO.	SHEET DESCRIPTION
T-1	TITLE SHEET
C-1	COMPOUND PLAN & GENERAL NOTES
C-2	EXISTING & FINAL ANTENNA PLANS
C-3	TOWER ELEVATION & FINAL EQUIPMENT PLAN
C-4	CONSTRUCTION DETAILS
C-5	FIBER PLUMBING DIAGRAM
C-6	CABLE COLOR CODING
C-7	EQUIPMENT DETAILS
E-1	GROUNDING DETAILS
E-2	DC POWER DETAILS & PANEL SCHEDULES

SCOPE OF WORK

THE APPLICANT PROPOSES TO INSTALL THREE (3) NEW ANTENNAS AND SIX (6) NEW RADIO HEADS ON EXISTING ANTENNA MOUNTS ON THE EXISTING TOWER.

SIGNATURE BLOCK:

SPRINT REPRESENTATIVE:	DATE
SPRINT RF ENGINEER:	DATE
PROPERTY OWNER:	DATE

COM-EX Consultants
115 Route 46
Suite E39
Mountain Lakes, NJ 07046
PHONE: 862.209.4300
FAX: 862.209.4301

Sprint
6100 SPRINT PARKWAY
OVERLAND PARK, KS 66251

Cherundolo Consulting

SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
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DRAWN BY:	AM
CHECKED BY:	NDB
SCALE:	AS NOTED
JOB NO:	17043-CHE

INFORMATION ON THIS SET OF DRAWINGS IS NOT FOR CONSTRUCTION PURPOSE UNLESS ACCOMPANIED BY UNDERSIGNED SEAL & SIGNATURE OF A PROFESSIONAL ENGINEER

NICHOLAS D. BARILE
PROFESSIONAL ENGINEER, CT LIC. No. 28643

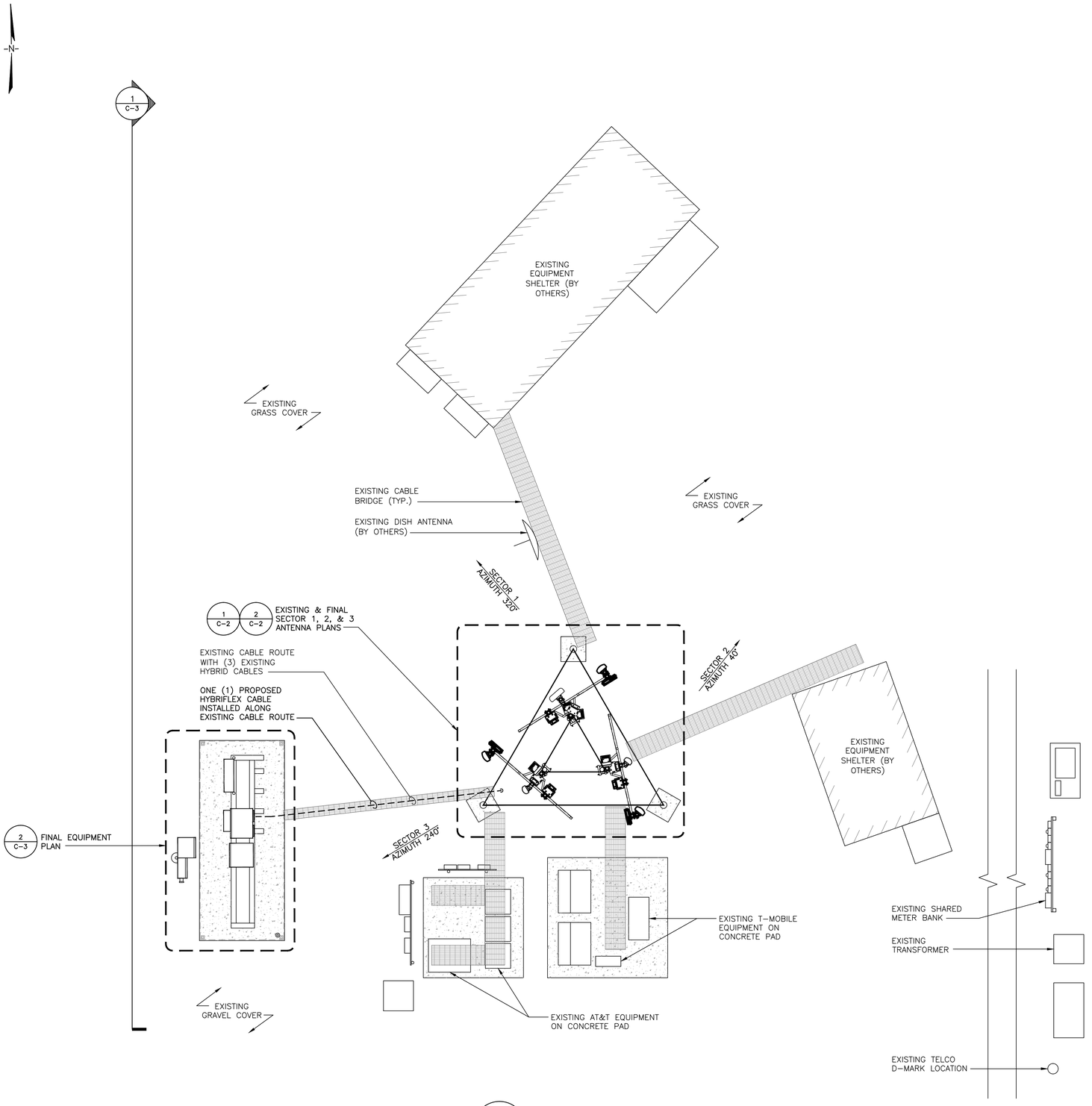
CT23XC114
2 HINCKLEY HILL ROAD
PRESTON, CT 06360

DRAWING TITLE:

TITLE SHEET

DRAWING SHEET: 1 OF 10

T-1



1 C-1 COMPOUND PLAN
SCALE: 3/16"=1'
(24"x36" SHEET SIZE)

GENERAL NOTES:

1. SUBJECT PROPERTY IS KNOWN AS TAX PARCEL ID 17-0 HIN1 2A, CENSUS TRACT 700100, CENSUS BLOCK 3012 AS SHOWN THE OFFICIAL TAX MAP OF THE TOWN OF PRESTON, CT.
2. THE APPLICANT PROPOSES TO INSTALL THREE (3) NEW ANTENNAS AND SIX (6) NEW RADIO HEADS ON EXISTING ANTENNA MOUNTS ON THE EXISTING TOWER.
3. CONTRACTOR SHALL NOT COMMENCE ANY WORK UNTIL HE OBTAINS, AT HIS OWN EXPENSE, ALL INSURANCE REQUIRED BY SPRINT, THE PROPERTY OWNER AND/OR PROPERTY MANAGEMENT COMPANY.
4. THIS SET OF PLANS HAS BEEN PREPARED FOR THE PURPOSES OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL. THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL CONDITIONS OF APPROVAL HAVE BEEN SATISFIED AND EACH OF THE DRAWINGS HAVE BEEN REVISED TO INDICATED "ISSUED FOR CONSTRUCTION".
5. SITE INFORMATION SHOWN TAKEN FROM PLANS PREPARED BY FULLERTON ENGINEERING DESIGN FOR SPRINT'S INSTALLATION ON THIS FACILITY. DRAWINGS ENTITLED "SPRINT, SITE NAME: NORTHERN CT, SPRINT NUMBER: CT23XC114" DATED 09/26/12 REVISED 05/28/14. ADDITIONAL SITE INFORMATION WAS SUPPLEMENTED WITH A LIMITED SITE VISIT BY COM-EX CONSULTANTS 05/10/17.
6. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITIES OR OTHER PUBLIC AUTHORITIES.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
8. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THIS PROJECT IN ACCORDANCE WITH THE OVERALL INTENT OF THESE DRAWINGS.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OF THIS FACILITY.
10. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
11. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
12. CONTRACTOR SHALL VERIFY ANTENNA ELEVATION AND AZIMUTH WITH RF ENGINEERING PRIOR TO INSTALLATION.
13. ALL STRUCTURAL ELEMENTS SHALL BE HOT DIPPED GALVANIZED STEEL.
14. THE CONSTRUCTION CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ALL CONSTRUCTION MEANS AND METHODS. THE CONSTRUCTION CONTRACTOR IS ALSO RESPONSIBLE FOR ALL JOB SITE SAFETY.
15. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.
16. THE CONTRACTOR IS TO REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. THE CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND RELATED PARTIES. THE SUBCONTRACTOR SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT EFFECTS THEIR WORK.
17. THE CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON THE SITE AT ALL TIMES AND INSURE THE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA CONTRACTOR FURNISH 3 SETS OF REDLINE "AS-BUILT" DRAWINGS TO SPRINT UPON COMPLETION OF THE WORK.
18. DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. MINOR MODIFICATIONS MAT BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL INCLUDED AS PART OF THE WORK.
19. ALL MATERIAL PROVIDED BY IS TO BE REVIEWED BY THE CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTOR PRIOR TO INSTALLATION. ANY DEFICIENCIES TO PROVIDE MATERIALS SHALL BE BROUGHT TO THE CONSTRUCTION MANAGERS ATTENTION IMMEDIATELY.
20. THE MATERIALS INSTALLED SHALL MEET REQUIREMENTS OF CONTRACTORS DOCUMENTS. NO SUBSTITUTIONS ARE ALLOWED.
21. THE CONTRACTOR SHALL COORDINATE ALL CIVIL, STRUCTURAL AND ELECTRICAL DRAWINGS FOR THE LOCATIONS OF ALL OPENINGS, RECESSES, BUILT-IN WORK, ETC..
22. THE CONTRACTOR SHALL RECEIVE CLARIFICATION IN WRITING AND SHALL RECEIVE IN WRITING AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEMS NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTACT DOCUMENTS.
23. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ALL PRODUCTS OR ITEMS NOTED AS "EXISTING" WHICH ARE NOT FOUND TO BE IN THE FIELD.
24. ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMEN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST-ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAND PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
25. THE CONTRACTOR SHALL COORDINATE HIS WORK AND SCHEDULE HIS ACTIVITIES AND WORKING HOURS IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROPERTY OWNER AND/OR PROPERTY MANAGEMENT COMPANY.
26. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH THE WORK OF OTHERS AS IT MAY RELATE TO RADIO EQUIPMENT, ANTENNAS AND ANY OTHER PORTIONS OF THE WORK.
27. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE MANUFACTURE'S RECOMMENDATIONS UNLESS SPECIFICALLY INDICATED OR WHERE LOCAL CODES OR REGULATIONS MAY TAKE PRECEDENCE.
28. THE CONTRACTOR SHALL REPAIR ALL EXISTING SURFACES DAMAGED DURING CONSTRUCTION SUCH THAT THEY MATCH AND BLEND WITH ADJACENT SURFACES.
29. THE CONTRACTOR SHALL KEEP CONTRACT AREA CLEAN, HAZARD FREE AND DISPOSE OF ALL DEBRIS AND RUBBISH. LEAVE PREMISES IN CLEAN CONDITION AND FREE FROM PAINT SPOTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ITEMS UNTIL COMPLETION OF CONSTRUCTION.
30. BEFORE FINAL ACCEPTANCE OF THE WORK, THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT, TEMPORARY WORKS, UNUSED AND USELESS MATERIALS, RUBBISH AND TEMPORARY STRUCTURES.
31. DESIGN REQUIREMENTS PER INTERNATIONAL BUILDING CODE 2015 AND THE EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.

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DRAWN BY:	AM
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SCALE:	AS NOTED
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NICHOLAS D. BARILE
PROFESSIONAL ENGINEER, CT LIC. No. 28643

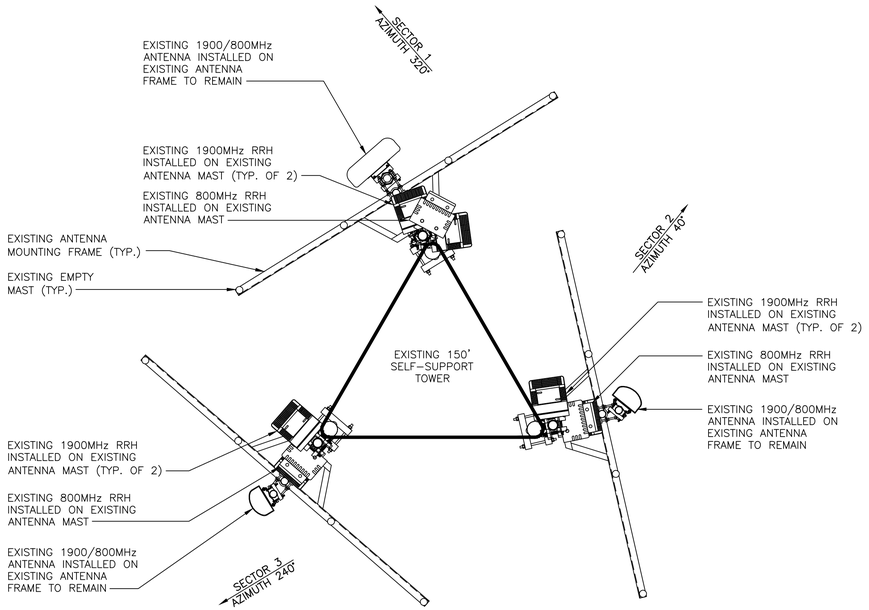
CT23XC114
2 HINCKLEY HILL ROAD
PRESTON, CT 06360

DRAWING TITLE:

COMPOUND PLAN & GENERAL NOTES

DRAWING SHEET: 2 OF 10

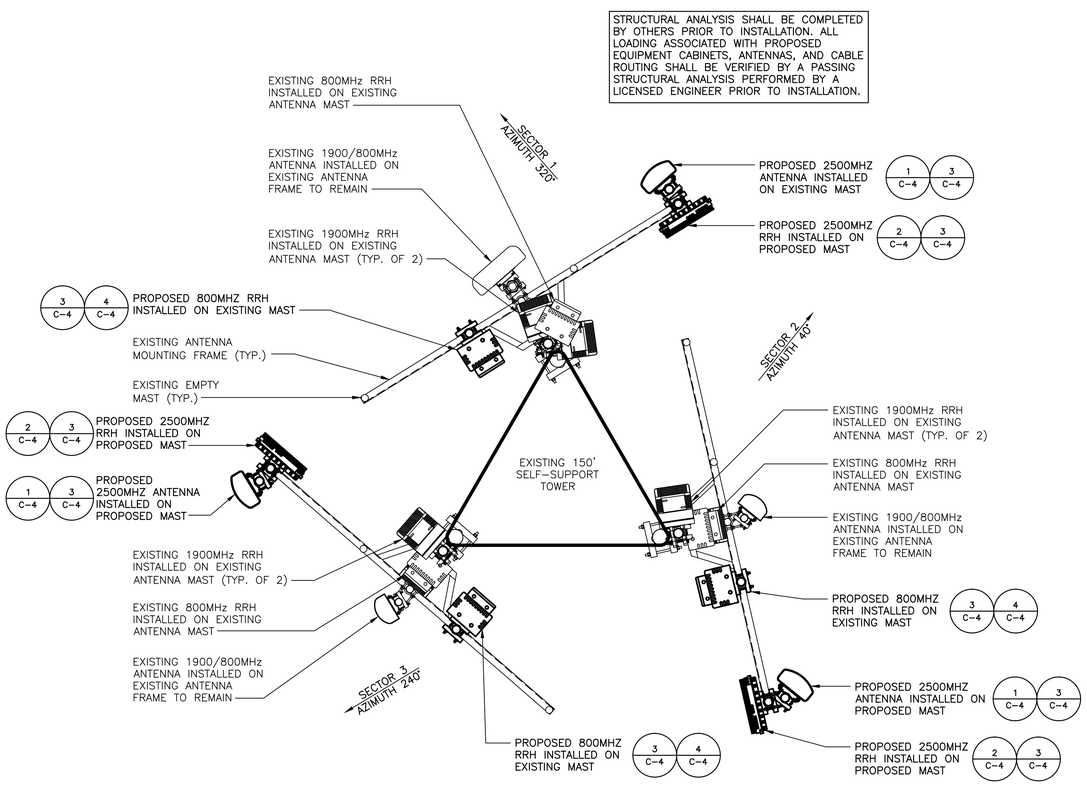
C-1



1 / C-2 EXISTING SECTOR 1, 2, & 3 ANTENNA PLAN

SCALE: 1/2"=1'

STRUCTURAL ANALYSIS SHALL BE COMPLETED BY OTHERS PRIOR TO INSTALLATION. ALL LOADING ASSOCIATED WITH PROPOSED EQUIPMENT CABINETS, ANTENNAS, AND CABLE ROUTING SHALL BE VERIFIED BY A PASSING STRUCTURAL ANALYSIS PERFORMED BY A LICENSED ENGINEER PRIOR TO INSTALLATION.



2 / C-2 FINAL SECTOR 1, 2, & 3 ANTENNA PLAN

SCALE: 1/2"=1'

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STATE OF CONNECTICUT
NICHOLAS D. BARILE
No. 28643
REGISTERED PROFESSIONAL ENGINEER

NICHOLAS D. BARILE
PROFESSIONAL ENGINEER, CT LIC. No. 28643

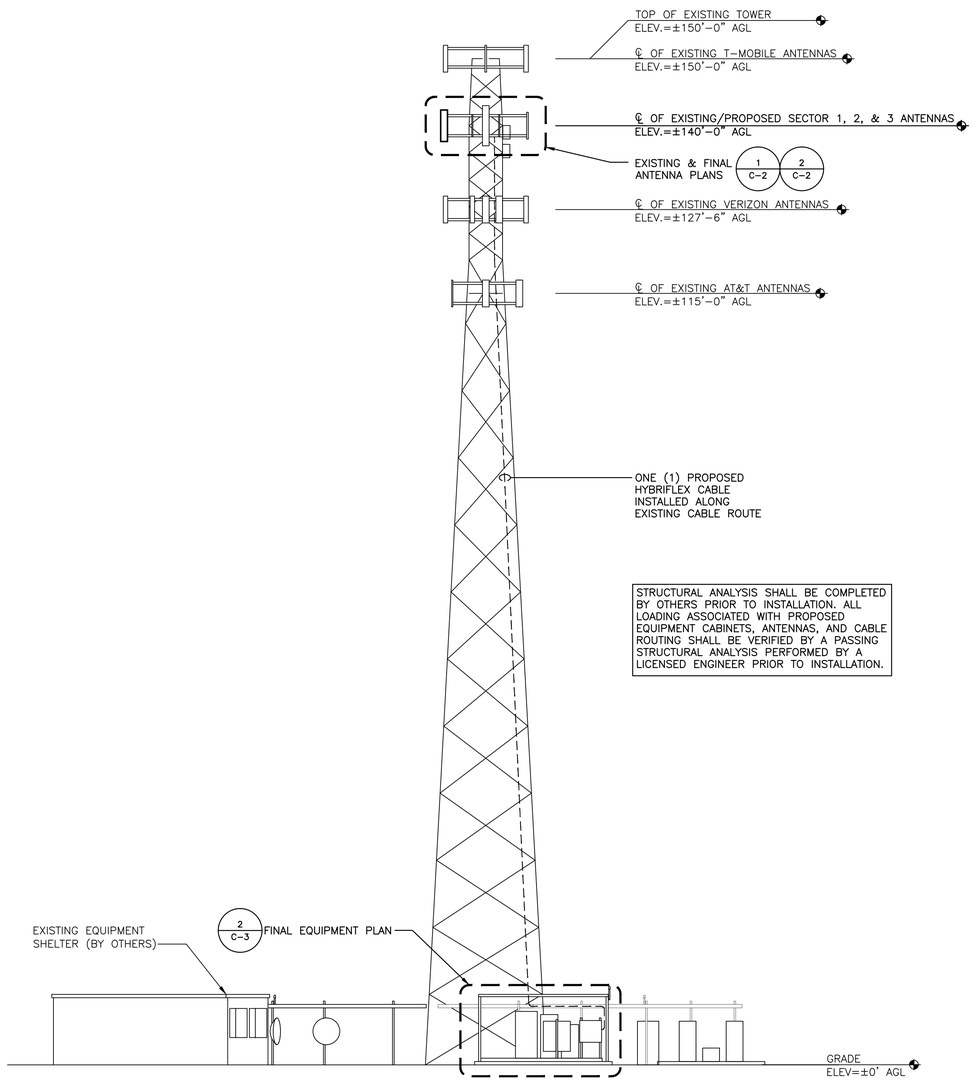
CT23XC114
2 HINCKLEY HILL ROAD
PRESTON, CT 06360

DRAWING TITLE:

EXISTING & FINAL ANTENNA PLANS

DRAWING SHEET: 3 OF 10

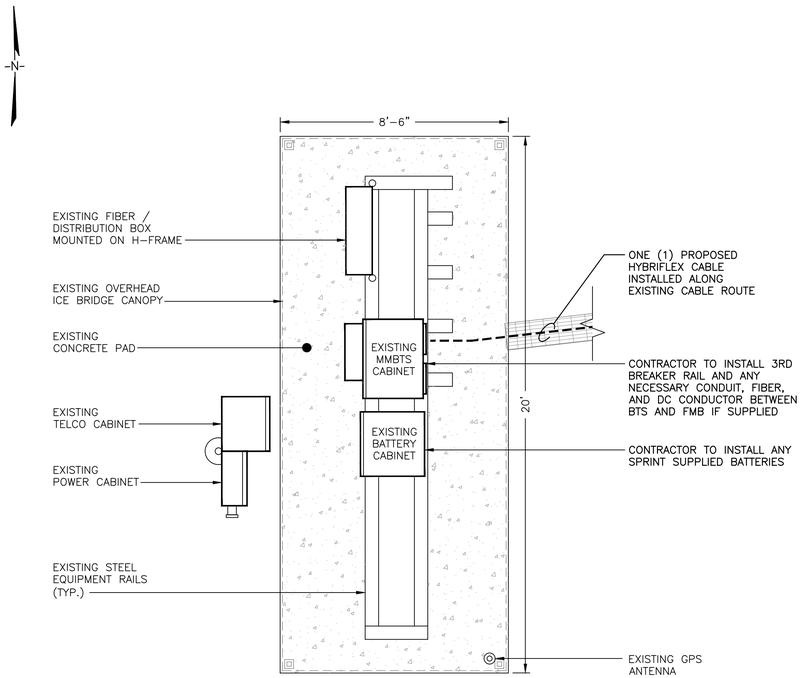
C-2



1 C-3 TOWER ELEVATION
SCALE: 3/32"=1'
(24"x36" SHEET SIZE)

BILL OF MATERIALS

	DESCRIPTION	QUANTITY EACH	DIMENSIONS (HxWxD)	WEIGHT (LBS) EACH	MANUFACTURER: PART/ MODEL#
ANTENNAS	2500 MHz PANEL ANTENNA – SECTOR 1	1	72.0"x14.0"x8.0"	58 LBS W/OUT MOUNTING HARDWARE	COMMSCOPE: DT465B-2XR
	2500 MHz RRH, 8x20-25	1	26.1"x18.6"x6.7"	70 LBS W/OUT MOUNTING HARDWARE	ALCATEL LUCENT
	800 MHz RRH, 2x50W, -48V	1	19.4"x12.9"x10.7"	69.1 LBS W/OUT MOUNTING HARDWARE	ALCATEL LUCENT
	800MHz RRH NOTCH FILTER	1	8.9"x8.9"x4.5"	9.45 LBS W/OUT MOUNTING HARDWARE	ALCATEL LUCENT
	2500 MHz PANEL ANTENNA – SECTOR 2	1	72.0"x14.0"x8.0"	58 LBS W/OUT MOUNTING HARDWARE	COMMSCOPE: DT465B-2XR
	2500 MHz RRH, 8x20-25	1	26.1"x18.6"x6.7"	76.2 LBS W/OUT MOUNTING HARDWARE	ALCATEL LUCENT
	800 MHz RRH, 2x50W, -48V	1	19.4"x12.9"x10.7"	69.1 LBS W/OUT MOUNTING HARDWARE	ALCATEL LUCENT
	800MHz RRH NOTCH FILTER	1	8.9"x8.9"x4.5"	9.45 LBS W/OUT MOUNTING HARDWARE	ALCATEL LUCENT
	2500 MHz PANEL ANTENNA – SECTOR 3	1	72.0"x14.0"x8.0"	58 LBS W/OUT MOUNTING HARDWARE	COMMSCOPE: DT465B-2XR
	2500 MHz RRH, 8x20-25	1	26.1"x18.6"x6.7"	70 LBS W/OUT MOUNTING HARDWARE	ALCATEL LUCENT
	800 MHz RRH, 2x50W, -48V	1	19.4"x12.9"x10.7"	69.1 LBS W/OUT MOUNTING HARDWARE	ALCATEL LUCENT
	800MHz RRH NOTCH FILTER	1	8.9"x8.9"x4.5"	9.45 LBS W/OUT MOUNTING HARDWARE	ALCATEL LUCENT
	DESCRIPTION	QUANTITY EACH	DIMENSIONS (LENGTH)	WEIGHT (LBS/FOOT)	MANUFACTURER: SIZE/PART/MODEL#
CABLES	SECTOR 1 HYBRIFLEX RUN (BTS TO RRH)	1	±175'	1.3 LBS	RFS: 1-1/4" / HB114-1-08U4-M5J
	SECTOR 1 COAX CABLE JUMPERS	11	10'	N/A	LDF4-50 (OR EQUIVALENT)
	SECTOR 1 R.E.T. CABLES	4	(3) 10' / (1) 2'	N/A	TBD
	SECTOR 2 HYBRIFLEX RUN (BTS TO RRH)	N/A	N/A	N/A	N/A
	SECTOR 2 COAX CABLE JUMPERS	11	10'	N/A	LDF4-50 (OR EQUIVALENT)
	SECTOR 2 R.E.T. CABLES	4	(3) 10' / (1) 2'	N/A	TBD
	SECTOR 3 HYBRIFLEX RUN (BTS TO RRH)	N/A	N/A	N/A	N/A
	SECTOR 3 COAX CABLE JUMPERS	11	10'	N/A	LDF4-50 (OR EQUIVALENT)
	SECTOR 3 R.E.T. CABLES	4	(3) 10' / (1) 2'	N/A	TBD



2 C-3 FINAL EQUIPMENT PLAN
SCALE: 3/8"=1'

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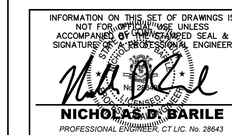


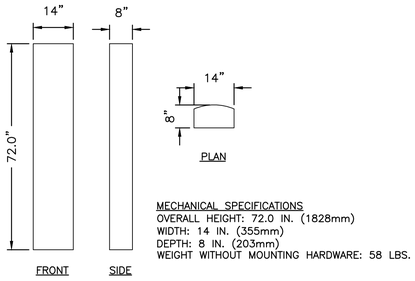
CT23XC114
2 HINCKLEY HILL ROAD
PRESTON, CT 06360

DRAWING TITLE:

TOWER ELEVATION, B.O.M. & FINAL EQUIPMENT PLAN

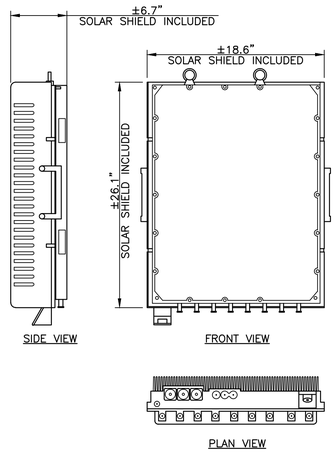
DRAWING SHEET: 4 OF 10

C-3

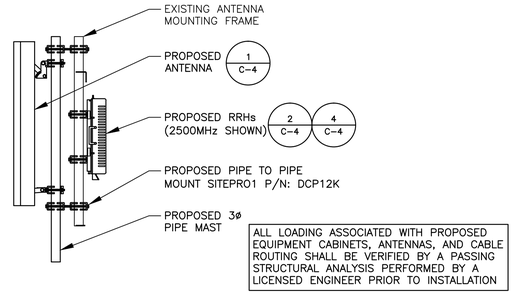


MECHANICAL SPECIFICATIONS
OVERALL HEIGHT: 72.0 IN. (1828mm)
WIDTH: 14 IN. (355mm)
DEPTH: 8 IN. (203mm)
WEIGHT WITHOUT MOUNTING HARDWARE: 58 LBS.

1 / C-4 — 2500MHz ANTENNA
COMMSCOPE: DT465B-2XR
SCALE: NTS

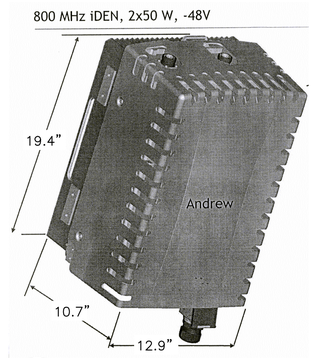


2 / C-4 — 2500MHz RRH DETAIL
SCALE: N.T.S.

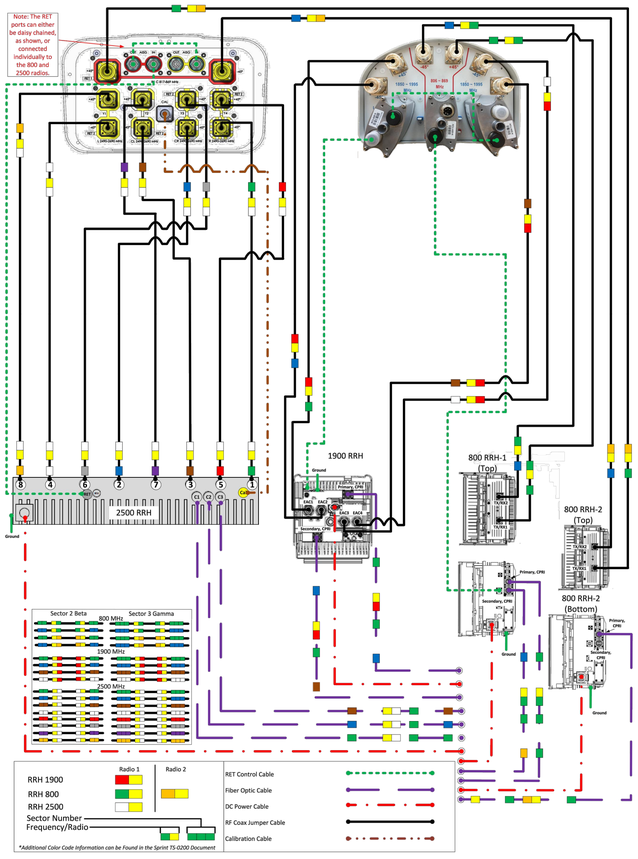


ALL LOADING ASSOCIATED WITH PROPOSED EQUIPMENT CABINETS, ANTENNAS, AND CABLE ROUTING SHALL BE VERIFIED BY A PASSING STRUCTURAL ANALYSIS PERFORMED BY A LICENSED ENGINEER PRIOR TO INSTALLATION

3 / C-4 — SECTOR 1, 2, & 3 ANTENNA & RRH INSTALLATION DETAIL
SCALE: N.T.S.



4 / ANT-005 — 800MHz RRH DETAIL
SCALE: N.T.S.



5 / ANT-005 — ANTENNA PLUMBING DIAGRAM
SCALE: N.T.S.

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SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
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0	05/18/17	INITIAL SUBMISSION

DRAWN BY:	AM
CHECKED BY:	NDB
SCALE:	AS NOTED
JOB NO:	17043-CHE

INFORMATION ON THIS SET OF DRAWINGS IS NOT FOR CONSTRUCTION PURPOSE UNLESS ACCOMPANIED BY ORIGINAL INK STAMPED SEAL & SIGNATURE OF A PROFESSIONAL ENGINEER

NICHOLAS D. BARILE
PROFESSIONAL ENGINEER, CT LIC. No. 28643

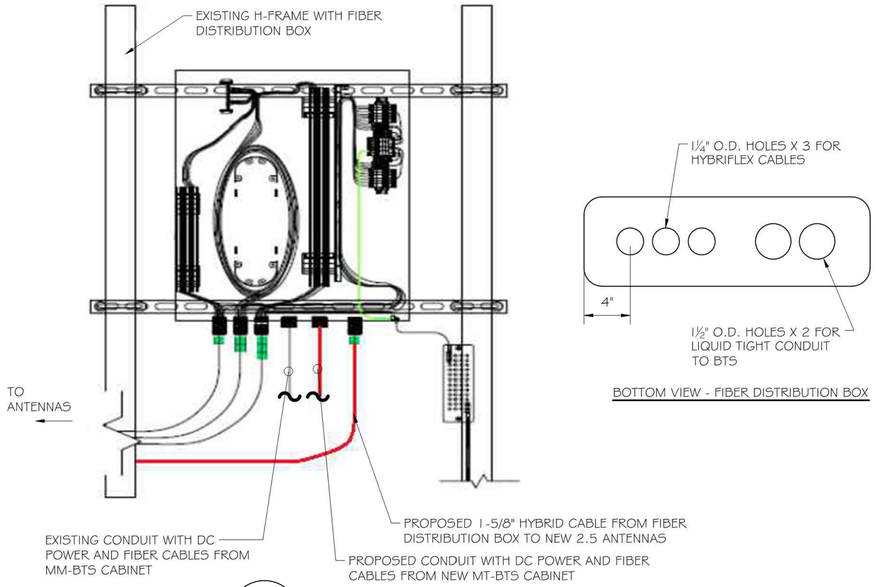
CT23XC114
2 HINCKLEY HILL ROAD
PRESTON, CT 06360

DRAWING TITLE:

CONSTRUCTION DETAILS

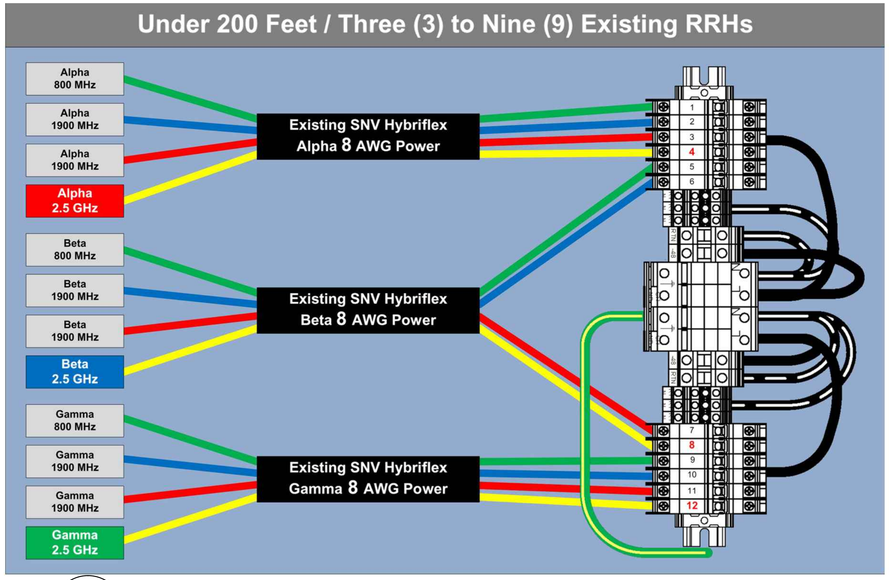
DRAWING SHEET: 5 OF 10

C-4

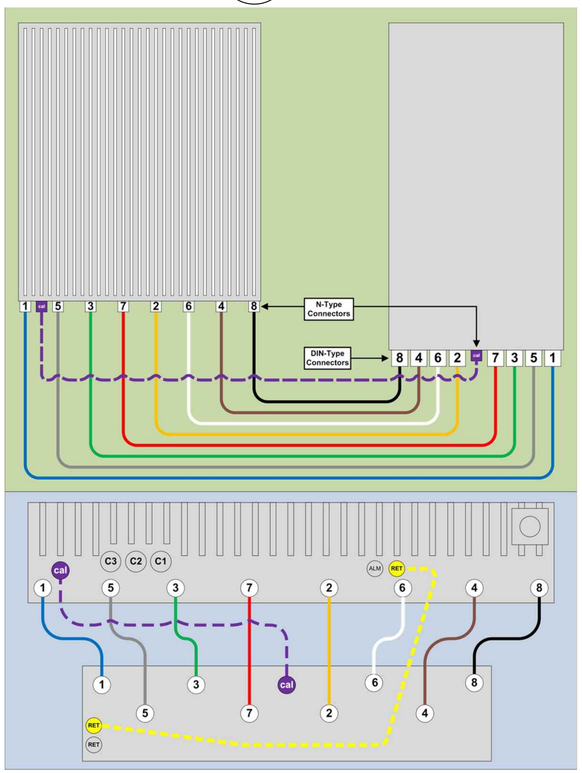


BOTTOM VIEW - FIBER DISTRIBUTION BOX

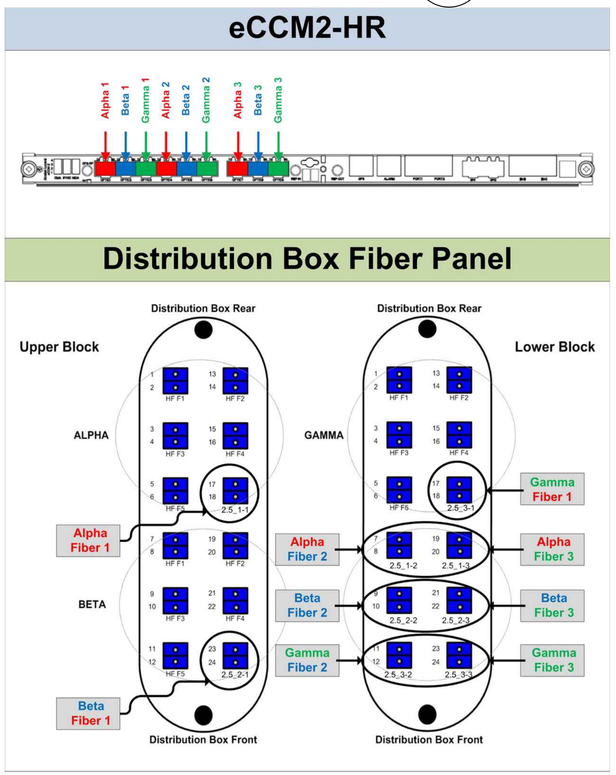
1 / C-5 TYPICAL FIBER DISTRIBUTION BOX DETAIL
SCALE: NTS



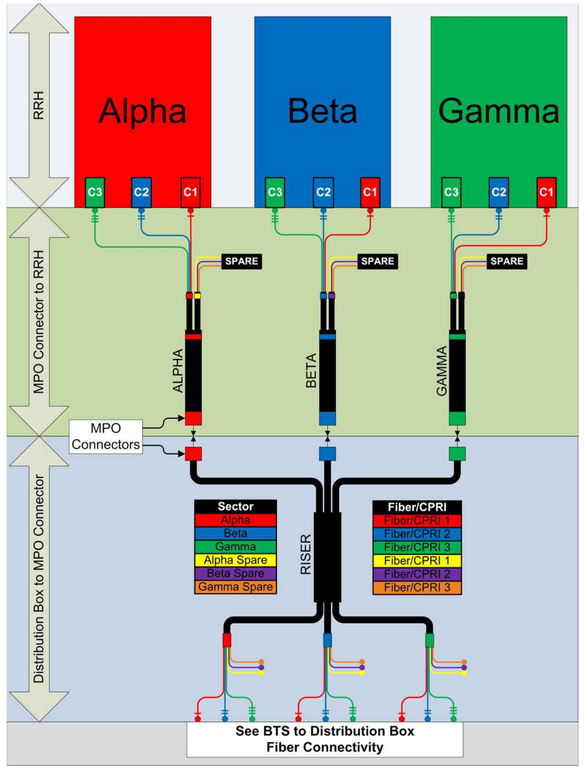
2 / C-5 RRH TO DISTRIBUTION BOX POWER CONNECTIVITY DETAIL
SCALE: NTS



3 / C-5 8T8R DETAIL
SCALE: NTS



4 / C-5 BTS TO DISTRIBUTION BOX FIBER CONNECTIVITY DETAIL
SCALE: NTS



5 / C-5 RRH TO DISTRIBUTION BOX FIBER CONNECTIVITY DETAIL
SCALE: NTS

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PRESTON, CT 06360

DRAWING TITLE:

FIBER PLUMBING DIAGRAM

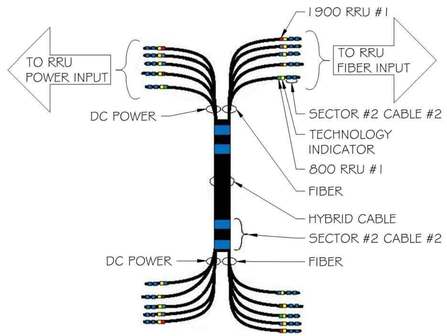
DRAWING SHEET: 6 OF 10

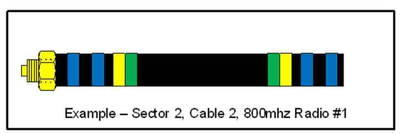
C-5

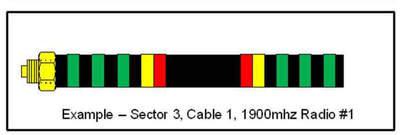
2.5 FREQUENCY	INDICATOR		ID
2500 -1	YEL	WHT	GRN
2500 -2	YEL	WHT	RED
2500 -3	YEL	WHT	BRN
2500 -4	YEL	WHT	BLU
2500 -5	YEL	WHT	SLT
2500 -6	YEL	WHT	ORG
2500 -7	YEL	WHT	WHT
2500 -8	YEL	WHT	PPL

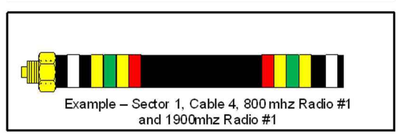
NV FREQUENCY	INDICATOR	ID
800-1	YEL	GRN
1900-1	YEL	RED
1900-2	YEL	BRN
1900-3	YEL	BLU
1900-4	YEL	SLT
800-1	YEL	ORG
RESERVED	YEL	WHT
RESERVED	YEL	PPL

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




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


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


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

1 / C-6 COLOR CODING CHARTS
SCALE: NTS

CABLE MARKING NOTES

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

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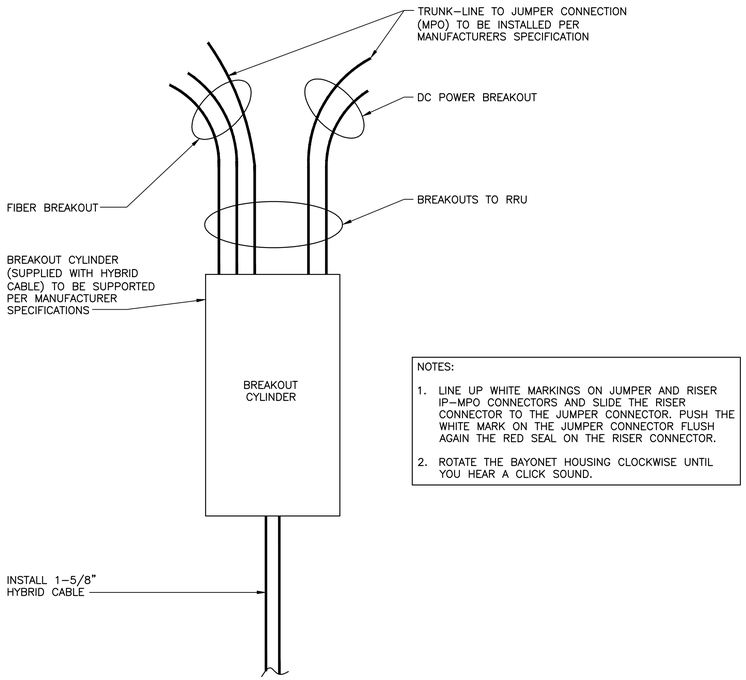
2 HINCKLEY HILL ROAD
PRESTON, CT 06360

DRAWING TITLE:

CABLE COLOR CODING

DRAWING SHEET: 7 OF 10

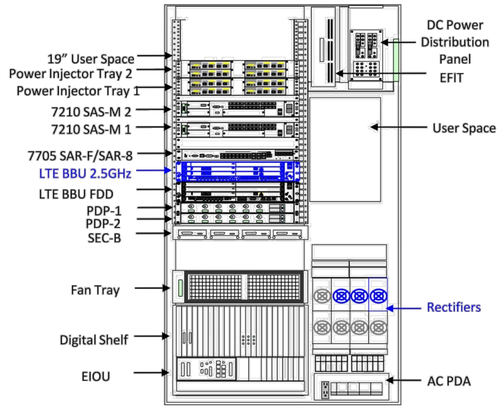
C-6



NOTES:

1. LINE UP WHITE MARKINGS ON JUMPER AND RISER IP–MPO CONNECTORS AND SLIDE THE RISER CONNECTOR TO THE JUMPER CONNECTOR. PUSH THE WHITE MARK ON THE JUMPER CONNECTOR FLUSH AGAIN THE RED SEAL ON THE RISER CONNECTOR.
2. ROTATE THE BAYONET HOUSING CLOCKWISE UNTIL YOU HEAR A CLICK SOUND.

1 / C–7 HYBRID BREAKOUT DETAIL
SCALE: NTS



3 / C–7 EXISTING MMBS CABINET
SCALE: NTS

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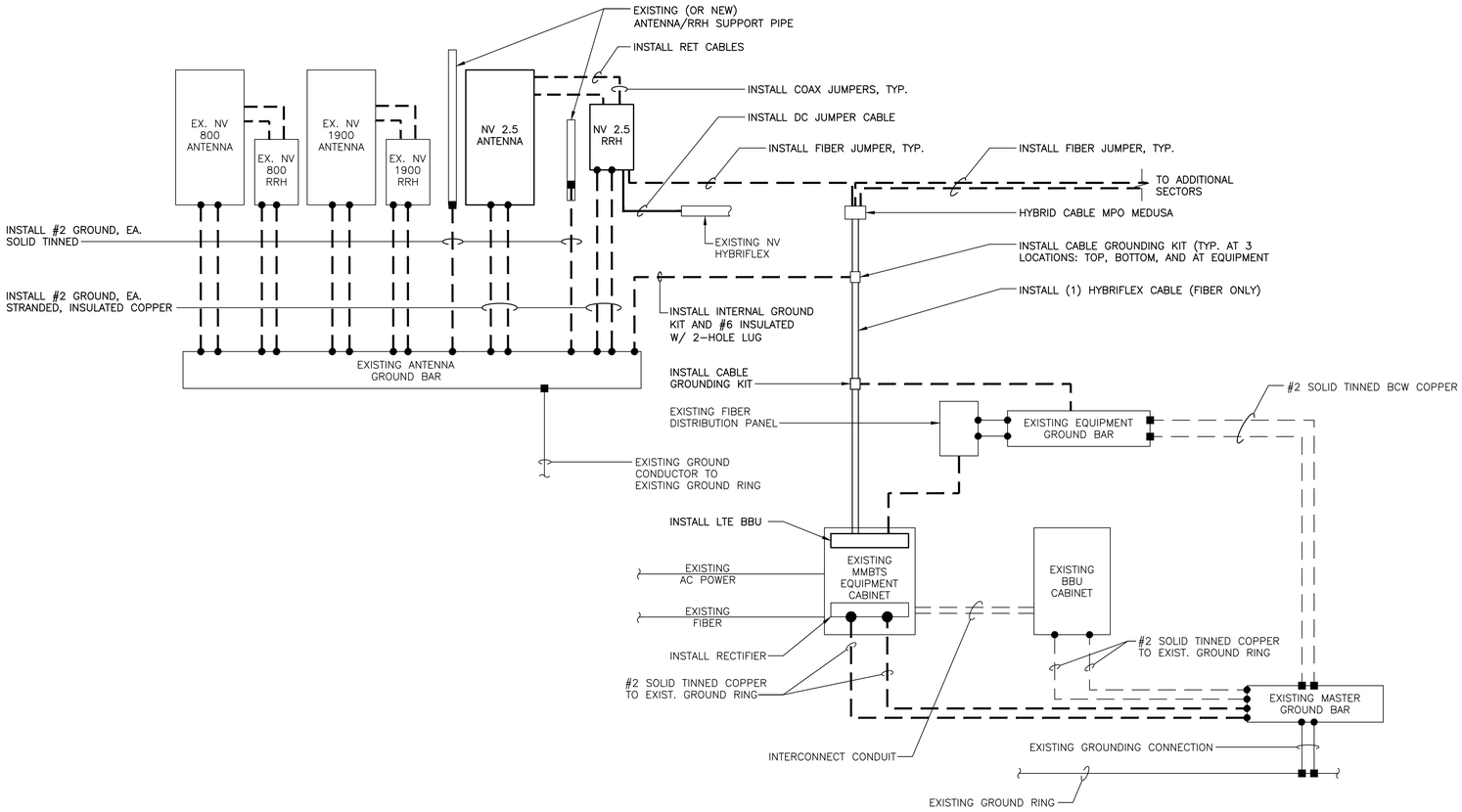
CT23XC114
2 HINCKLEY HILL ROAD
PRESTON, CT 06360

DRAWING TITLE:

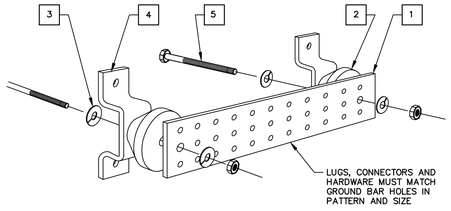
EQUIPMENT DETAILS

DRAWING SHEET: 8 OF 10

C-7



1 / E-1 TYPICAL POWER & GROUNDING ONE-LINE DIAGRAM
SCALE: N.T.S.



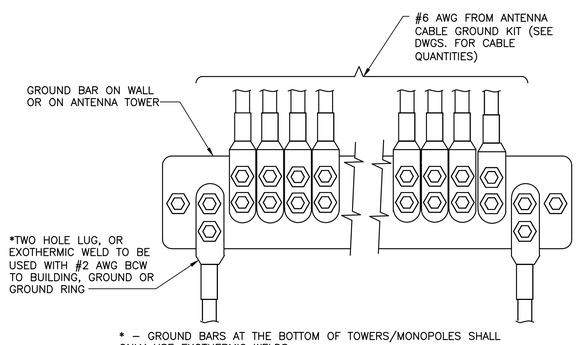
LEGEND

1. COPPER GROUND BAR, 7/16"X 4" X 20", NEWTON INSTRUMENT CO. CAT. NO. B-6142. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4.
3. 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056.
5. 5/8-11 X 1" H.H.C.S.BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012-1

GROUND BAR SCHEDULE

TYPE	QTY.	MANUFACTURER	CAT. NO.	REMARKS
MGB	2	HARGER	GB14420TMGB	OR EQUAL
CGB	3	HARGER	GB14412TMGB	OR EQUAL

2 / E-1 TYPICAL GROUND BAR DETAIL
SCALE: NTS

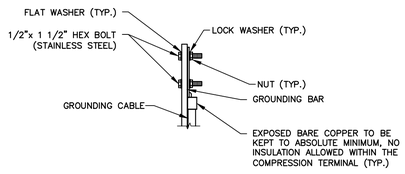


* - GROUND BARS AT THE BOTTOM OF TOWERS/MONOPOLES SHALL ONLY USE EXOTHERMIC WELDS.

- ATTACH "DO NOT DISCONNECT" LABELS TO GROUND BARS. CAN USE BRASS TAG "DO NOT DISCONNECT" AT EACH HYBRIFLEX GROUND POINT OR BACK-A-LITE PLATE LABEL ON GROUND BAR.

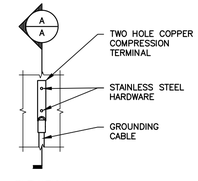
- CONNECT SEQUENCE- BOLT/WASHER/NO-OX/GROUND BAR/NO-OX/WASHER/LOCK-WASHER/NUT. THIS IS REPEATED FOR EACH LUG CONNECTION POINT.

3 / E-1 TYPICAL GROUND BAR CONNECTION PLAN
SCALE: NTS



SECTION "A-A"

NOTE:
1. "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.



ELEVATION

4 / E-1 TYPICAL GROUND BAR CONNECTION DETAIL
SCALE: NTS

ELECTRICAL AND GROUNDING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
4. BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
5. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THNN INSULATION.
6. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
7. WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.
8. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
9. GROUNDING SHALL COMPLY WITH NEC ART. 250.
10. GROUND HYBRIFLEX CABLE SHIELDS AT 3 LOCATIONS USING MANUFACTURER'S HYBRIFLEX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
11. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
12. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
13. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
14. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
15. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
16. BOND ANTENNA MOUNTING BRACKETS, HYBRIFLEX CABLE GROUND KITS, AND RRHs TO EGB PLACED NEAR THE ANTENNA LOCATION.
17. BOND ANTENNA EGB'S AND MGB TO GROUND RING.
18. CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULT FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMS MINIMUM RESISTANCE REQUIRED.
19. CONTRACTOR SHALL CONDUCT ANTENNA, HYBRIFLEX CABLES, AND RRH RETURN-LOSS AND DISTANCE- TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.
20. CONTRACTOR (CERTIFIED ELECTRICIAN) SHALL CHECK CAPACITY OF EXISTING SERVICE & PANEL ON SITE TO DETERMINE IF CAPACITY EXISTS TO ACCOMMODATE THE ADDED LOAD OF THIS PROJECT. ADVISE ENGINEER OF ANY DISCREPANCY.

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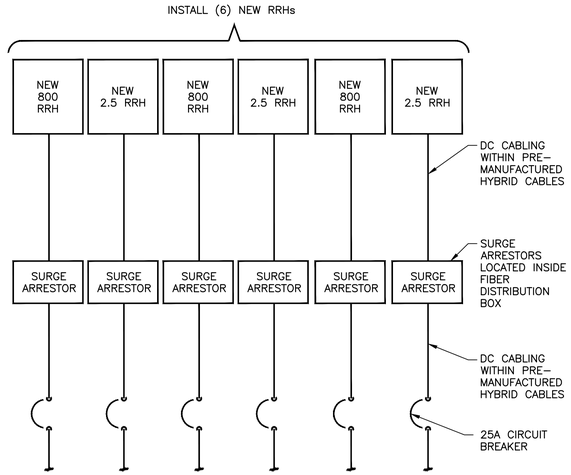
PRESTON, CT 06360

DRAWING TITLE:

GROUNDING DETAILS

DRAWING SHEET: 9 OF 10

E-1



1 / E–2 DC ONE–LINE DIAGRAM
SCALE: NTS

A/C PANEL SCHEDULE

VOLTAGE:	240V/120		PANEL STATUS:	EXISTING		N TO GROUND BOND:	YES
MAIN BREAKER:	200 AMP		MODEL NUMBER:	TBD		INTERNAL TVSS:	YES
MOUNT:	GRADE		PHASE:	1		WIRE:	3
ENCLOSURE:	NEMA 3R		BUSS RATING:	200 AMP		GROUND BAR:	YES
			NEUTRAL BAR:	YES			

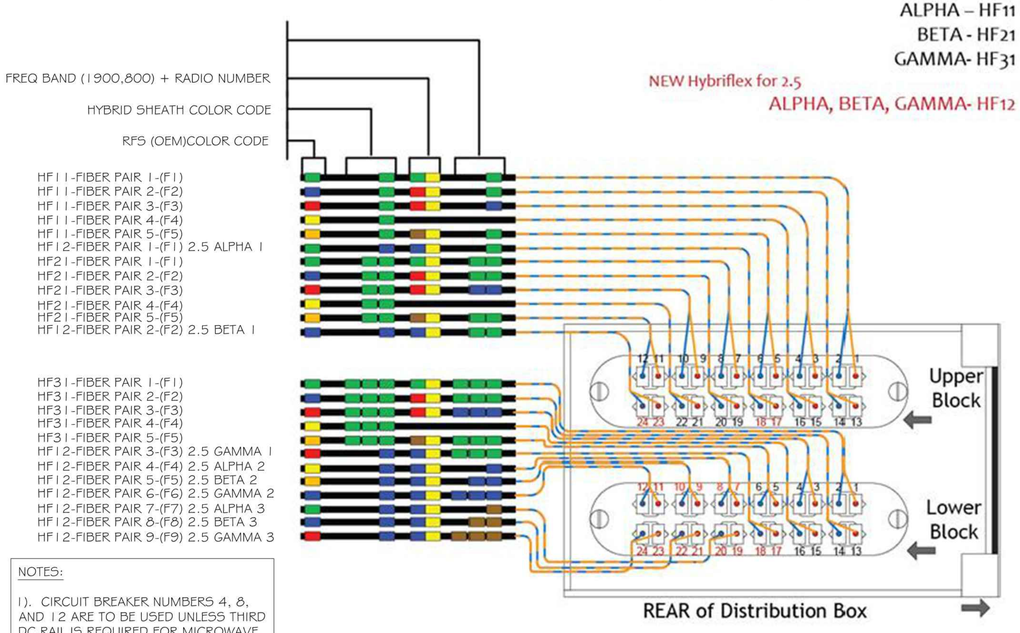
2 / E–2 AC PANEL SCHEDULE
SCALE: NTS

Each sector has separate Hybriflex cable .
Hybriflex cable naming as follows:

ALPHA – HF11
BETA - HF21
GAMMA- HF31

NEW Hybriflex for 2.5

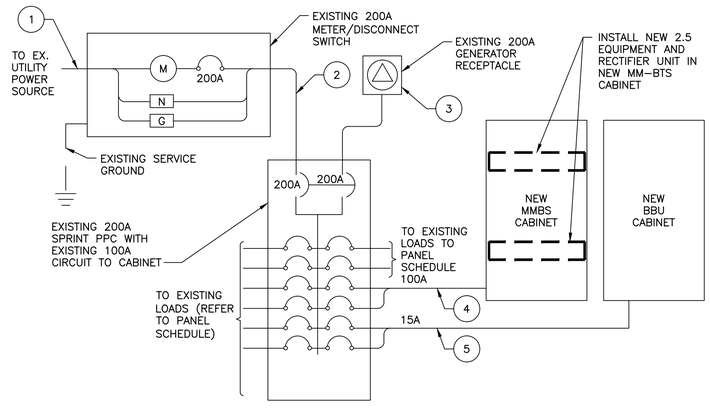
ALPHA, BETA, GAMMA- HF12



NOTES:

1). CIRCUIT BREAKER NUMBERS 4, 8, AND 12 ARE TO BE USED UNLESS THIRD DC RAIL IS REQUIRED FOR MICROWAVE.
2). USE DC POWER LOOP.
3). ALL UNUSED DC FEEDERS TO BE TERMINATED WITH WIRE NUTS AND TAPED.
4). REMOVE ALL DEBRIS FROM INTERIOR OF FIBER DISTRIBUTION BOX WHEN COMPLETE.

3 / E–2 TYPICAL FIBER DISTRIBUTION
SCALE: NTS



CIRCUIT SCHEDULE

NO.	FROM	TO	CONFIGURATION
1	UTILITY SOURCE	METER/ DISCONNECT	EXISTING
2	METER/ DISCONNECT	TRANSFER & LOAD CENTER	EXISTING
3	TRANSFER & LOAD CENTER	GENERATOR RECEPTACLE	EXISTING
4	TRANSFER & LOAD CENTER	EX. MMBS CABINET	(3) #2 AWG, (1) #8 GND IN 1–1/2" CONDUIT
5	TRANSFER & LOAD CENTER	EX. BBU CABINET	(2) #12 AWG, (1) #12 GND IN 3/4" CONDUIT

4 / E–2 ELECTRICAL ONE–LINE DIAGRAM
SCALE: NTS

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SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
7		
6		
5		
4	11/21/17	REVISED PER COMMENT
3	10/09/17	ISSUED FOR CONSTRUCTION
2	10/04/17	REVISED PER RFDS
1	09/22/17	REVISED PER RFDS
0	05/18/17	INITIAL SUBMISSION

DRAWN BY:	AM
CHECKED BY:	NDB
SCALE:	AS NOTED
JOB NO:	17043-CHE

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NICHOLAS D. BARILE
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PRESTON, CT 06360

DRAWING TITLE:

DC POWER DETAILS & PANEL SCHEDULES

DRAWING SHEET: 10 OF 10

E-2