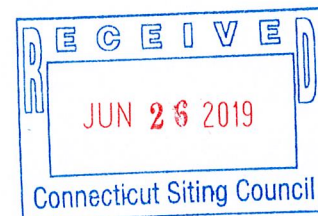


TS-DISH-162-190626

June 21, 2019

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



RE: Request of Dish Network Northeast LLC for an Order to Approve the Shared Use of an Existing Tower at 428 Platt Hill Road, Winsted, CT 06098-2522

Dear Ms. Bachman:

ORIGINAL

Pursuant to Connecticut General Statutes ("C.G.S.") §16-50aa, as amended, Dish Network ("Dish Network") hereby requests an order from the Connecticut Siting Council ("Council") to approve the shared use by Dish Network of an existing telecommunication tower at 428 Platt Hill Road, Winsted, CT 06098-2522 (the "Property"). The existing 244-foot tower and ground is owned by American Tower Corporation. ("ATC") Dish Network requests that the Council find that the proposed shared use of the ATC tower satisfies the criteria of C.G.S. §16-50aa and issue an order approving the proposed shared use. A copy of this filing is being sent to Althea Candy Perez, Mayor for the Town of Winchester as well as the property owner (ATC).

Background

The existing ATC facility consists of a 244' tower on a 3.5-acre parcel along the west side of Platt Hill Road. AT&T has antennas at the 226' level, Sprint has antennas at the 196' level, US Department of Homeland Security has antennas at the 194' level, All-Start Transportation has antennas at the 174' level and Sigfox S.A has antennas at the 160' level. All five (5) carriers have their ground equipment located within the existing 51' by 25' shelter located on the property.

Dish Network is licensed by the Federal Communications Commission ("FCC") to provide wireless services throughout the State of Connecticut. Dish Network and ATC have agreed to the proposed shared use of the 428 Platt Hill Road tower pursuant to mutually acceptable terms and conditions. Likewise, Dish Network and ATC have agreed to the proposed installation of equipment cabinets on the ground on the south east corner of the tower. ATC has authorized Dish Network to apply for all necessary permits and approvals that may be required to share the existing tower.

Dish Network proposes to install three (3) panel antennas, five (5) RRUs, one (1) hybrid fiber lines. Dish will install a new 5' x 7' steel platform within the existing fenced compound to house one (1) equipment cabinet.

The Construction Drawings are Dish Network's project specifications for locations of all proposed site improvements. The Construction Drawings also contain specifications for Dish Network's proposed antennas.

C.G.S. § 16-50aa(c)(1) provides that, upon written request for approval of a proposed shared use, "if the Council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such a shared use." Dish Network respectfully submits that the shared use of the tower satisfies these criteria.

A. Technical Feasibility. The existing ATC tower is structurally capable of supporting Dish Network's proposed improvements. The proposed shared use of this tower is, therefore, technically feasible. A Feasibility Structural Analysis Report ("Structural Report") prepared for this project confirms that this tower can support Dish Network's proposed loading. A copy of the Structural Report has been included in this application.

B. Legal Feasibility. Under C.G.S. § 16-50aa, the Council has been authorized to issue order approving the shared use of an existing tower such as the ATC tower. This authority complements the Council's prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. In addition, § 16-50x(a) directs the Council to "give such consideration to the other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing tower facilities. Under the statutory authority vested in the Council, an order by the Council approving the requested shared use would permit the Applicant to obtain a building permit for the proposed installations.

C. Environmental Feasibility. The proposed shared use of the ATC tower would have a minimal environmental effect for the following reasons:

1. The proposed installation of three (3) panel antennas, five (5) RRUs, and one (1) hybrid fiber lines will have no visual impact on the area of the tower. Dish Network's cabinet would be installed within an existing fenced compound. Dish Network's shared use of this tower therefore will not cause any significant change or alteration in the physical or environmental characteristics of the existing site.
2. Operation of Dish Network's antennas at this site would not exceed the RF emissions standard adopted by the Federal Communications Commission ("FCC"). Included in the EME report of this filing are the approximation tables that demonstrate that Dish Network's proposed facility will operate well within the FCC RF emissions safety standards.

Melanie A. Bachman

June 21, 2019

Page 3

3. Under ordinary operating conditions, the proposed installation would not require the use of any water or sanitary facilities and would not generate air emissions or discharges to water bodies or sanitary facilities. After construction is complete the proposed installations would not generate any increased traffic to the ATC facility other than periodic maintenance. The proposed shared use of the ATC tower, would, therefore, have a minimal environmental effect, and is environmentally feasible.

- D. Economic Feasibility.** As previously mentioned, Dish Network has entered into an agreement with ATC for the shared use of the existing facility subject to mutually agreeable terms. The proposed tower sharing is, therefore, economically feasible. (Please see included authorization.)
- E. Public Safety Concerns.** As discussed above, the tower is structurally capable of supporting Dish Network's full array three (3) panel antennas, five (5) RRUs, one (1) hybrid fiber lines and all related equipment. Dish Network is not aware of any public safety concerns relative to the proposed sharing of the existing ATC tower.

Conclusion

For the reasons discussed above, the proposed shared use of the existing ATC tower at 428 Platt Hill Road satisfies the criteria state in C.G.S. §16-50aa and advances the General Assembly's and the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. The Applicant, therefore, respectfully requests that the Council issue an order approving the proposed shared use.

Sincerely,

Benjamin Pelletier
Land Use Project Manager
6095 Marshalee Dr, Ste 300
Elkridge, MD 21075
757-784-3671
bpelletier@nbcllc.com

Melanie A. Bachman

June 21, 2019

Page 4

Attachments:

Exhibit-1: Letter of Authorization from ATC

Exhibit-2: 428 Platt Hill Road Tax Map

Exhibit-3: Structural Analysis Report

Exhibit-4: General Power Density Table report (RF Emissions Analysis Report)

Exhibit-3: Detailed Construction Drawings

Copies to:

Althea Candy Perez – Mayor for the Town of Winchester

Winchester Town Hall

338 Main Street

Winsted, CT 06611

(860) 379-2713

ATC as Tower and Ground Owner



AMERICAN TOWER®
CORPORATION

LETTER OF AUTHORIZATION

SITE NO: 88019

Site Name: Winstead

ADDRESS: 428 Platt Hill Road, Winsted, CT 06098-2522

I, Margaret Robinson, Senior Counsel, US Tower Division on behalf of American Tower*, owner of the tower facility located at the address identified above (the "Tower Facility"), do hereby authorize NB&C, its successors and assigns, to act as American Tower's non-exclusive agent for the purpose of filing and securing any zoning, land-use, building permit and/or electrical permit application(s) and approvals of the applicable jurisdiction for and to conduct the construction of the installation of antennas and related telecommunications equipment on the Tower Facility located at the above address. This installation shall not affect adjoining lands and will occur only within the area leased by American Tower.

American Tower understands that the application may be denied, modified or approved with conditions. The above authorization is limited to the acceptance by American Tower of conditions related to American Tower's installation. Any such conditions of approval or modifications will not be effective unless approved in writing by American Tower.

The above authorization does not permit NB&C to modify or alter any existing permit(s) and/or zoning or land-use conditions or impose any additional conditions unrelated to American Tower's installation of telecommunications equipment without the prior written approval of American Tower.

Signature: _____

Margaret Robinson, Senior Counsel
US Tower Division

NOTARY BLOCK

COMMONWEALTH OF MASSACHUSETTS
County of Middlesex

This instrument was acknowledged before me by Margaret Robinson, Senior Counsel of American Tower (Tower Facility owner), personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same.

WITNESS my hand and official seal, this 24th day of May, 2019.

NOTARY SEAL



GERARD T. HEFFRON
Notary Public
Commonwealth of Massachusetts
My Commission Expires
August 9, 2024

Notary Public

My Commission Expires: 8/9/24

American Tower as used herein is defined as American Tower Asset Sub, LLC and any of its affiliates or subsidiaries.

428 PLATT HILL RD

Location 428 PLATT HILL RD

Mblu 037/ 154/ 026C/ /

Acct# 000553

Owner AMERICAN TOWERS INC

Assessment \$85,960

Appraisal \$122,800

PID 5318

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2018	\$52,800	\$70,000	\$122,800

Assessment			
Valuation Year	Improvements	Land	Total
2018	\$36,960	\$49,000	\$85,960

Owner of Record

Owner AMERICAN TOWERS INC
Co-Owner C/O AMERICAN TOWER CORP

Sale Price \$167,879
Certificate
Book & Page 00290/00818
Sale Date 02/16/2000

Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
AMERICAN TOWERS INC	\$167,879		00290/00818	02/16/2000

Building Information

Building 1 : Section 1

Year Built: 1965
Living Area: 1,275
Replacement Cost
Less Depreciation: \$51,100

Building Attributes	
Field	Description
STYLE	Telephone Bldg
MODEL	Ind/Comm

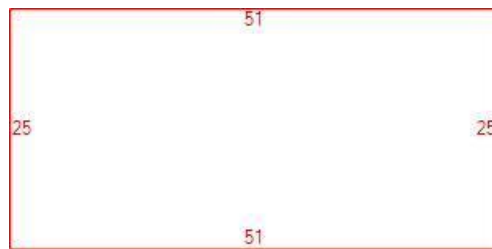
Stories:	1
Occupancy	1.00
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Drywall/Plaste
Interior Wall 2	
Interior Floor 1	Vinyl/Asphalt
Interior Floor 2	
Heating Fuel	Electric
Heating Type	Electr Basebrd
AC Type	None
Struct Class	
Bldg Use	Rad/TV TR
Usrflid 218	
Usrflid 219	
Heat/AC	NONE
Frame Type	WOOD FRAME
Baths/Plumbing	NONE
Ceiling/Wall	NONE
Rooms/Prtns	AVERAGE
Wall Height	14.00

Building Photo



(<http://images.vgsi.com/photos/WinchesterCTPhotos//\01\00\20>)

Building Layout



(ParcelSketch.ashx?pid=5318&bid=3902)

Building Sub-Areas (sq ft)			<u>Legend</u>
Code	Description	Gross Area	Living Area
BAS	First Floor	1,275	1,275
		1,275	1,275

Extra Features

Extra Features	<u>Legend</u>
No Data for Extra Features	

Land

Land Use

Use Code	4330
Description	Rad/TV TR
Zone	RR
Alt Land Appr Category	No

Land Line Valuation

Size (Acres)	3.5
Depth	
Assessed Value	\$49,000
Appraised Value	\$70,000

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
FN6	W/O Top RL-4'			300.00 L.F.	\$1,700	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$52,800	\$70,000	\$122,800
2016	\$50,900	\$70,000	\$120,900
2012	\$50,900	\$70,000	\$120,900

Assessment			
Valuation Year	Improvements	Land	Total
2017	\$36,960	\$49,000	\$85,960
2016	\$35,630	\$49,000	\$84,630
2012	\$35,630	\$49,000	\$84,630

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Radio Frequency Emissions Analysis Report

Dish Wireless Proposed Facility

Site ID: CT01000015A

ATC 88019

428 Platt Hill Road
Winsted, CT 06098

June 18, 2019

Centerline Communications Project Number: 950033-016

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	1.21 %

June 18, 2019

Dish Wireless
9601 South Meriden Blvd
Englewood, CO 80112

Emissions Analysis for Site: **CT01000015A – ATC 88019**

Centerline Communications, LLC (“Centerline”) was directed to analyze the proposed Dish Wireless facility located at **428 Platt Hill Road in, Winsted, CT**, for the purpose of determining whether the emissions from the Proposed DISH WIRELESS 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limit for the 1900 MHz (PCS) – H Block and Band 70 (2000 to 2020 MHz) is $1000 \mu\text{W}/\text{cm}^2$.



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 performed for the proposed Dish Wireless antenna facility located at **428 Platt Hill Road, Winsted, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless 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.

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. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
NB-IoT	1900 MHz (PCS) - H Block	1	40
NB-IoT	Band 70 (2000 to 2020 MHz)	2	29.51

Table 1: Channel Data Table



The following antennas listed in *Table 2* were used in the modeling for transmission in the 1900 MHz (PCS) – H Block and Band 70 (2000 to 2020 MHz) 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.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Comba ODI2-065R18K-GQ	154
B	1	Comba ODI2-065R18K-GQ	154
C	1	Comba ODI2-065R18K-GQ	154

Table 2: Antenna Data

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



RESULTS

Per the calculations completed for the proposed Dish Wireless configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	
Antenna A1	Comba ODI2-065R18K-GQ	1900 MHz (PCS) - H Block / Band 70 (2000 to 2020 MHz)	15.25 / 15.65	3	99.02	3,507.56	0.53
Sector A Composite MPE%							0.53
Antenna B1	Comba ODI2-065R18K-GQ	1900 MHz (PCS) - H Block / Band 70 (2000 to 2020 MHz)	15.25 / 15.65	3	99.02	3,507.56	0.53
Sector B Composite MPE%							0.53
Antenna C1	Comba ODI2-065R18K-GQ	1900 MHz (PCS) - H Block / Band 70 (2000 to 2020 MHz)	15.25 / 15.65	3	99.02	3,507.56	0.53
Sector C Composite MPE%							0.53

Table 3: Dish Wireless Emissions Levels



The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum Dish Wireless MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each Dish Wireless Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	MPE%
Dish Wireless – Max Per Sector Value	0.53 %
AT&T	0.02%
Sprint	0.48%
Dept Homeland Security	0.18%
Site Total MPE % :	1.21%

Table 4: All Carrier MPE Contributions

Dish Wireless Sector A Total:	0.53	%
Dish Wireless Sector B Total:	0.53	%
Dish Wireless Sector C Total:	0.53	%
Site Total:	1.21	%

Table 5: Site MPE Summary



FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated Dish Wireless sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

DISH WIRELESS _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (µW/cm ²)	Frequency (MHz)	Allowable MPE (µW/cm ²)	Calculated % MPE
Dish Wireless 1900 MHz (PCS) - H Block LTE	2	1083.85	154.0	3.29	1900 MHz (PCS) - H Block	1000	0.07%
Dish Wireless Band 70 (2000 to 2020 MHz) LTE	1	1339.86	154.0	2.03	Band 70 (2000 to 2020 MHz)	1000	0.07%
						Total:	1.14%

Table 6: Dish Wireless Maximum Sector MPE Power Values



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 Dish Wireless 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:

DISH WIRELESS Sector	Power Density Value (%)	
Sector A:	0.53	%
Sector B:	0.53	%
Sector C:	0.53	%
Dish Wireless Maximum Total (per sector):	0.53	%
Site Total:	1.21	%
Site Compliance Status:	COMPLIANT	

The anticipated composite MPE value for this site assuming all carriers present is **1.21 %** 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.

A handwritten signature in black ink that reads 'Ryan B. McManus'.

Ryan McManus
Senior RF EME Compliance Manager
Centerline Communications, LLC

95 Ryan Drive, Suite 1
Raynham, MA 02767

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2018.



Information on the Property Records for the Municipality of Franklin was last updated on 6/5/2019.

Parcel Information

Location:	5 TYLER DR	Property Use:	Public Use	Primary Use:	Governmental Building
Unique ID:	L1021300	Map Block Lot:	16 7	Acres:	12.02
490 Acres:	0.00	Zone:	C-2	Volume / Page:	0061/0302
Developers Map / Lot:		Census:			

Value Information

	Appraised Value	Assessed Value
Land	200,760	140,540
Buildings	3,257,021	2,279,910
Detached Outbuildings	49,330	34,530
Total	3,507,111	2,454,980

Owner's Information

Owner's Data

FRANKLIN TOWN OF
7 MEETINGHOUSE HILL RD
FRANKLIN CT 06254

Building 1



	136	32
120	1S Pre-Eng Warehs-	120 S COM RERC-

Category:	Industrial	Use:	Pre-Eng Warehs	GLA:	20,160
Stories:	1.00	Construction:	Steel	Year Built:	1973
Heating:	Forced Hot Air	Fuel:	Natural Gas	Cooling Percent:	19

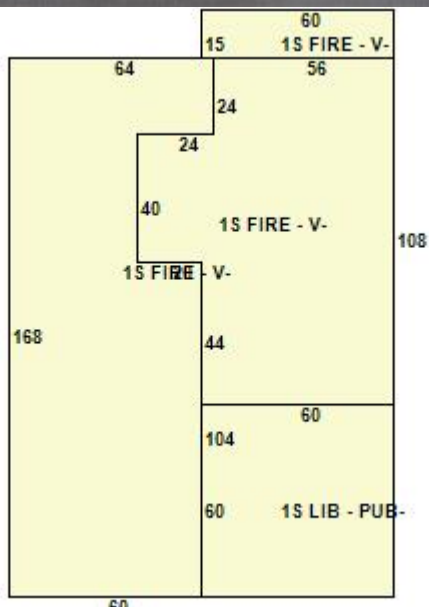
Siding:	Masonry	Roof Material:	Metal	Beds/Units:	0
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Special Features

OH Doors Steel	2
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Attached Components

Building 2



Category:	Public Use	Use:	Fire Station - Volunteer	GLA:	21,060
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Stories:	1.00	Construction:	Masonry	Year Built:	1973
Heating:	Forced Hot Air	Fuel:	Natural Gas	Cooling Percent:	62
Siding:	Masonry	Roof Material:	Metal	Beds/Units:	1

Special Features

OH Doors Steel	5
----------------	---

Attached Components

Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
Farm Utility Storage Shed	2016	12.00	16.00	192
Farm Utility Storage Shed	2010	12.00	20.00	240
10 Ft+ Chain Fence	2013	0.00	0.00	2,240
Paving	1973	0.00	0.00	30,000
Metal Shed	2011	120.00	0.00	120

Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Valid Sale	Sale Price
FRANKLIN TOWN OF	0061	0302	06/13/2001		No	\$0
AMRESKO NEW ENGLAND L P	0051	0793	12/04/1996		No	\$0

Building Permits

Permit Number	Permit Type	Date Opened	Date Closed	Permit Status	Reason
106-19	Comm Renovations	01/29/2019		Closed	REPLACE FIRE ALARM SYS
1208-16	Comm Renovations	12/20/2016		Permit Issued	REPLACE 4 WNDOWS
506-16	Shed	05/16/2016		Closed	12 X 16 SHED
1012-14	Electrical	10/21/2014		Closed	44 KW SOLAR PHOTOVOLTAIC SYSTEM GROUND MOUNTED
913-13	Electrical	09/24/2013		Closed	100 AMP SERVICE & DATA LINE TO ANTENNA
1010-10	Shed	10/26/2010		Closed	10X12 SHED
2/9/2009	Residential Addition	02/09/2009		Closed	12X20 EQ SHED
202-10	Residential Addition	02/09/2009		Closed	180 FT TOWER INC FD FENCE UTL
709-08	Electrical	07/22/2008		Closed	WIRE NEW CONFERENCE RM
1007-07	Electrical	10/09/2007		Closed	INSTAL EMERG GEN.
101005		10/25/2005		Closed	
81204		08/11/2004		Closed	
71004		07/20/2004		Closed	
102-03		12/31/2002		Closed	
301-02	Remodel	03/02/2002		Closed	FIRE DEPT

Information Published With Permission From The Assessor



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 225.5 ft Self Supported Tower
ATC Site Name : Winstead, CT
ATC Site Number : 88019
Engineering Number : 12943526_C3_02
Proposed Carrier : DISH NETWORK CORPORATION
Carrier Site Name : ATC - 88019
Carrier Site Number : CT0100015A
Site Location : 428 Platt Hill Road
Winsted, CT 06098-2522
41.898300,-73.116000
County : Litchfield
Date : April 14, 2019
Max Usage : 82%
Result : Pass

Prepared By:
Timothy Kassakatis
Structural Engineer II

Reviewed By:



Karen Wager
Apr 17 2019 2:10 PM

COA: PEC.0001553



Table of Contents

Introduction	1
Supporting Documents	1
Analysis.....	1
Conclusion	1
Existing and Reserved Equipment.....	2
Equipment to be Removed.....	2
Proposed Equipment.....	2
Structure Usages.....	3
Foundations	3
Standard Conditions	4
Calculations	Attached



Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 225.5 ft self supported tower to reflect the change in loading by DISH NETWORK CORPORATION.

Supporting Documents

Tower Drawings	TEP Mapping: Job #070513, dated April 5, 2007
Foundation Drawing	TEP Mapping: Job #070513, dated April 5, 2007
Geotechnical Report	TEP Project #070513.02, dated April 4, 2007

Analysis

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

Basic Wind Speed:	93 mph (3-Second Gust, Vasd) / 120 mph (3-Second Gust, Vult)
Basic Wind Speed w/ Ice:	No Ice Considered
Code:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft

Conclusion

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

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



Existing and Reserved Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
226.0	226.0	4	KS15676	Platform w/ Handrails	-	AT&T Mobility
196.0	196.0	3	RFS APXVTM14-C-I20	Sector Frame	(4) 1 1/4" Hybriflex	Sprint Nextel
		3	RFS APXVSP18-C-A20			
		3	Alcatel-Lucent 800MHz 2X50W RRH w/ Filter			
		3	Alcatel-Lucent 1900MHz 4X45 RRH			
		3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
194.0	194.0	1	Andrew DB616E-BC	Side Arm	(1) 1 1/4" Coax	US Dept Of Homeland Security
174.0	174.0	1	Comprod 872F-70SM	Side Arm	(1) 7/8" Coax	All-star Transportation
160.0	160.0	1	Procom CXL 900-3LW	Side Arm	(1) 1/2" Coax	SigfoxS.A.
		1	5" x 3" x 2" Cavity Filter			
		1	Low Noise Amplifier			

Equipment to be Removed

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

Proposed Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
154.0	154.0	3	Ericsson Radio 0208	Stand-Off	(1) 1.08" Hybrid	Dish Network
		2	Ericsson Radio 4415 B70			
		3	Comba ODI2-065R18K-GQ			

¹Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax anywhere on tower.



Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Legs	53%	Pass
Diagonals	82%	Pass
Horizontals	47%	Pass
Anchor Bolts	32%	Pass
Lower Diagonal	78%	Pass
Lower Horizontal	41%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Uplift (Kips)	258.4	30%
Axial (Kips)	160.6	6%

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



Standard Conditions

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

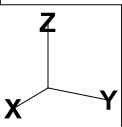
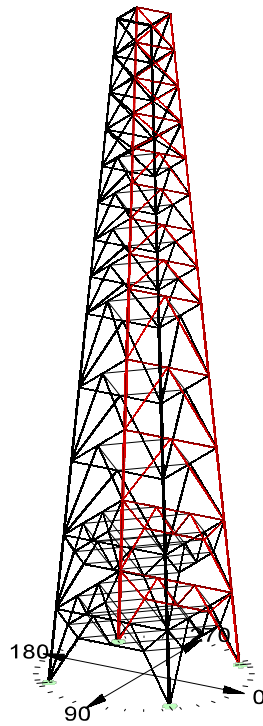
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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

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

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

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



Project Name : 88019 - Winstead, CT
 Project Notes : 223 Type 'A' AT&T Tag Tower
 Project File : X:\W-W\Winstead, CT (88019)\12943526 DISH NETWORK CORPORATION\12943526_02_CUST_STRUCTR\88019 - 2019.04.17.tow
 Date run : 1:27:35 PM Wednesday, April 17, 2019
 by : Tower Version 15.30
 Licensed to : American Tower Corp.

Successfully performed nonlinear analysis

The model has 0 warnings.

Member check option: ANSI/TIA 222-G-1
 Connection rupture check: Not Checked
 Crossing diagonal check: Fixed
 Included angle check: None
 Climbing load check: None
 Redundant members checked with: Actual Force
 Loads from file: X:\W-W\Winstead, CT (88019)\12943526 DISH NETWORK CORPORATION\12943526_02_CUST_STRUCTR\88019 - 2019.04.17.eia

*** Analysis Results:

Maximum element usage is 81.70% for Angle "D 4X" in load case "W -90"

Foundation Design Forces For All Load Cases:

Note: Loads are factored.

Load Case	Foundation Description	Axial Force (kips)	Shear Force (kips)	Bending Moment (ft-k)	Foundation Usage %
W 0	OP	189.67	32.06	2.35	0.00
W 0	OX	182.93	31.05	2.15	0.00
W 0	OXY	92.85	18.67	2.67	0.00
W 0	OY	-94.52	19.39	2.84	0.00
W 180	OP	-91.74	19.25	2.92	0.00
W 180	OX	-90.49	18.60	2.74	0.00
W 180	OXY	189.57	30.94	2.22	0.00
W 180	OY	186.88	31.92	2.41	0.00
W 45	OP	258.36	43.23	2.43	0.00
W 45	OX	43.52	11.49	2.52	0.00
W 45	OXY	-160.13	29.59	3.09	0.00
W 45	OY	43.48	11.49	2.52	0.00
W -45	OP	49.09	12.48	2.73	0.00
W -45	OX	252.80	42.61	2.46	0.00
W -45	OXY	43.98	11.30	2.39	0.00
W -45	OY	-160.64	29.91	3.15	0.00
W 90	OP	189.49	32.06	2.35	0.00
W 90	OX	-94.50	19.40	2.84	0.00
W 90	OXY	-92.82	18.67	2.67	0.00
W 90	OY	182.86	31.04	2.15	0.00
W -90	OP	-91.76	19.25	2.92	0.00
W -90	OX	186.95	31.92	2.41	0.00
W -90	OXY	180.55	30.93	2.21	0.00
W -90	OY	-90.50	18.59	2.73	0.00
W 0 Ice	OP	94.93	12.28	1.56	0.00
W 0 Ice	OX	90.86	11.90	1.49	0.00
W 0 Ice	OXY	44.09	4.07	2.04	0.00
W 0 Ice	OY	46.35	4.13	2.10	0.00
W 180 Ice	OP	49.86	4.44	2.17	0.00
W 180 Ice	OX	47.00	4.30	2.10	0.00
W 180 Ice	OXY	87.95	11.74	1.44	0.00
W 180 Ice	OY	91.42	12.05	1.51	0.00
W 45 Ice	OP	106.71	14.32	1.36	0.00
W 45 Ice	OX	68.50	8.06	1.82	0.00
W 45 Ice	OXY	32.56	1.89	2.19	0.00
W 45 Ice	OY	68.46	8.06	1.82	0.00
W -45 Ice	OP	72.39	8.45	1.89	0.00
W -45 Ice	OX	102.82	14.00	0.93	0.00
W -45 Ice	OXY	66.02	7.98	1.77	0.00
W -45 Ice	OY	35.00	1.99	2.25	0.00
W 90 Ice	OP	94.93	12.28	1.56	0.00
W 90 Ice	OX	46.39	4.13	2.10	0.00
W 90 Ice	OXY	44.10	4.08	2.04	0.00
W 90 Ice	OY	90.81	11.90	1.49	0.00
W -90 Ice	OP	49.85	4.43	2.17	0.00
W -90 Ice	OX	91.47	12.05	1.51	0.00
W -90 Ice	OXY	87.94	11.74	1.44	0.00
W -90 Ice	OY	46.96	4.30	2.10	0.00

Summary of Joint Support Reactions For All Load Cases:

Load Case	Joint Label	Long. Force (kips)	Tran. Force (kips)	Vert. Force (kips)	Shear Force (kips)	Tran. Moment (ft-k)	Long. Moment (ft-k)	Bending Moment (ft-k)	Vert. Moment (ft-k)	Found. Usage %
W 0	OP	-17.25	-189.67	32.06	-0.23	-2.34	0.84	0.00	0.00	0.00
W 0	OX	-25.73	17.38	-182.93	31.05	0.02	-2.15	2.15	0.84	0.00
W 0	OXY	-16.85	-8.05	92.85	18.67	0.41	-2.64	2.67	0.85	0.00
W 0	OY	-17.70	7.92	-94.52	19.39	-0.34	-2.82	2.84	-0.83	0.00
W 180	OP	17.66	7.65	91.74	19.25	-0.34	2.90	2.92	0.84	0.00
W 180	OX	16.87	-7.82	-90.49	18.60	0.41	2.70	2.74	-0.86	0.00
W 180	OXY	25.74	17.15	-180.57	30.94	0.03	2.22	2.22	-0.85	0.00
W 180	OY	27.03	-16.98	-186.88	31.92	-0.23	2.40	2.41	0.85	0.00
W 45	OP	-30.57	-30.57	-258.36	43.23	1.72	-1.72	2.43	0.00	0.00
W 45	OX	-11.23	-2.48	-43.52	11.49	2.02	-1.50	2.52	1.26	0.00
W 45	OXY	-20.93	-20.92	160.13	29.59	2.19	2.18	3.09	-0.00	0.00
W 45	OY	-2.47	-11.22	-43.48	11.49	1.50	-2.02	2.52	-1.26	0.00
W -45	OP	-12.22	2.55	-49.09	12.48	-2.20	-1.63	2.73	-1.26	0.00
W -45	OX	-29.57	30.68	-252.80	42.61	-1.88	-1.58	2.46	-0.00	0.00
W -45	OXY	-1.44	11.13	-49.86	11.30	-1.46	1.89	2.39	0.02	0.00
W -45	OY	-21.46	20.84	160.64	29.91	-2.15	-2.31	3.15	0.02	0.00
W 90	OP	-17.25	-27.03	-189.67	32.06	2.34	0.23	2.35	0.84	0.00
W 90	OX	7.17	-7.17	-94.50	19.40	-2.82	0.94	2.84	0.83	0.00
W 90	OXY	-8.05	-16.85	92.82	18.67	2.64	-0.41	2.67	-0.85	0.00
W 90	OY	17.38	-25.72	-182.86	31.04	2.15	-0.02	2.15	-0.84	0.00
W -90	OP	7.66	17.67	91.76	19.25	-2.90	0.34	2.92	-0.84	0.00
W -90	OX	-16.98	17.03	-186.89	31.92	-0.23	2.40	2.41	0.85	0.00
W -90	OXY	17.16	25.74	-180.55	30.93	-2.21	-0.03	2.21	0.85	0.00
W -90	OY	-7.83	16.87	90.50	18.59	-2.70	-0.41	2.73	0.86	0.00
W 0 Ice	OP	-9.43	-7.84	-94.93	12.28	-1.29	0.87	1.56	-0.14	0.00
W 0 Ice	OX	-8.96	7.84	-90.86	11.90	1.18	0.90	1.49	0.13	0.00
W 0 Ice	OXY	2.07	3.51	-44.09	4.07	1.25	-1.62	2.04	0.14	0.00
W 0 Ice	OY	2.19	-3.50	-46.35	4.13	-1.31	-1.64	2.10	-0.13	0.00
W 180 Ice	OP	-2.22	-3.84	-49.86	4.44	-1.31	1.73	2.17	0.14	0.00
W 180 Ice	OX	-2.04	3.79	-47.00	4.30	1.24	1.70	2.10	-0.15	0.00
W 180 Ice	OXY	8.99	7.56	-87.95	11.74	1.19	-0.82	1.44	-0.14	0.00
W 180 Ice	OY	9.43	-7.50	-91.42	12.05	-1.29	0.79	1.51	0.15	0.00
W 45 Ice	OP	-10.13	-10.13	-106.71	14.32	-0.96	0.96	1.36	0.00	0.00
W 45 Ice	OX	-6.63	4.59	-68.50	8.06	1.52	1.00	1.82	0.20	0.00
W 45 Ice	OXY	1.33	1.33	-32.56	1.89	1.55	-1.55	2.19	-0.00	0.00
W 45 Ice	OY	-7.08	-4.60	-68.46	8.06	-1.82	1.82	1.89	-0.21	0.00
W -45 Ice	OP	-7.08	-4.60	-72.39	8.45	-1.62	0.98	1.89	-0.21	0.00
W -45 Ice	OX	-9.68	10.12	-102.82	14.00	0.86	0.98	1.31	-0.01	0.00
W -45 Ice	OXY	4.42	6.64	-66.02	7.98	0.93	-1.50	1.77	0.21	0.00
W -45 Ice	OY	1.49	-1.32	-35.00	1.99	-1.61	-1.56	2.25	0.01	0.00
W 90 Ice	OP	-7.84	-9.46	-94.93	12.28	-0.87	1.29	1.56	0.14	0.00
W 90 Ice	OX	-3.50	2.19	-46.39	4.13	1.64	1.31	2.10	0.13	0.00
W 90 Ice	OXY	3.51	2.07	-44.10	4.08	1.62	-1.25	2.04	-0.14	0.00
W 90 Ice	OY	7.83	-8.95	-90.81	11.90	-0.90	-1.18	1.49	-0.13	0.00
W -90 Ice	OP	-3.84	-2.22	-49.85	4.43	-1.73	1.31	2.17	-0.14	0.00
W -90 Ice	OX	-7.50	9.43	-91.47	12.05	0.79	1.29	1.51	-0.15	0.00
W -90 Ice	OXY	7.56	8.98	-87.94	11.74	0.82	-1.19	1.44	0.14	0.00
W -90 Ice	OY	3.78	-2.04	-46.96	4.30	-1.70	-1.24	2.10	0.15	0.00

Summary of Joint Support Reactions For All Load Cases in Direction of Leg:

Load Case	Support	Joint	Origin	Leg Force In Residual	Shear Residual	Shear Residual	Shear Residual	Shear Residual	Total	Total	Total	
				Dir.	Perpendicular	Horizontal	Horizontal	Long.	Tran.	Vert.		
				(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	
W 0	OP	1X	L	1X	185.082	13.136	13.191	12.514	-4.170	-25.73	17.38	-182.93
W 0	OX	1XY	L	1XY	-94.155	10.199	10.233	10.144	1.347	-16.85	-8.05	92.85
W 0	OY	1Y	L	1Y	-95.874	10.897	10.931	10.876	-1.095	-17.70	7.92	94.52
W 180	OP	1X	L	1X	93.882	-11.050	-11.084	-11.029	-1.029	17.66	7.65	91.74
W 180	OX	1X	L	1X	-91.791	10.381	10.415	-10.335	1.289	16.87	-7.82	90.49
W 180	OXY	1XY	L	1XY	182.177	13.297	13.352	-12.703	-4.112	25.74	17.15	-180.57
W 180	OY	1Y	L	1Y	191.079	13.915	13.969	-13.527	3.486	27.03	-16.98	-186.88
W 45	OP	1P	L	1P	261.420	16.758	16.845	11.908	11.915	-30.57	-30.57	-258.36
W 45	OX	1X	L	1X	43.923	9.841	9.843	8.082	5.618	-11.23	-2.48	-43.52
W 45	OXY	1XY	L	1XY	-162.306	13.168	13.237	9.361	9.358	-20.93	-20.92	160.13
W 45	OY	1Y	L	1Y	43.879	9.835	9.836	8.082	6.078	-2.47	-11.22	-43.48
W -45	OP	1P	L	1P	49.528	10.600	10.602	8.676	-6.093	-12.22	2.55	-49.09
W -45	OX	1X	L	1X	255.819	16.712	16.798	11.313	-12.418	-29.57	30.68	-252.80
W -45	OXY	1XY	L	1XY	191.079	13.915	13.969	9.457	9.455	-1.44	11.13	-49.86
W -45	OY	1Y	L	1Y	-162.843	13.440	13.510	9.860	-9.235	-21.46	20.84	160.64
W 90	OP	1P	L	1P	191.892	13.741	13.795	3.548	13.331	-17.25	-27.03	-189.67
W 90	OX	1X	L	1X	-95.874	10.902	10.936	-10.994	10.881	7.92	-17.71	94.50
W 90	OXY	1XY	L	1XY	-94.131	10.197	10.230	1.347	10.141	-8.05	-16.85	92.82
W 90	OY	1Y	L	1Y	185.014	13.134	13.189	-4.174	12.511	17.38	-25.72	-182.86

Diag S10	L 4" x 3" x 0.25"	SAU	4X3X0.25	33.0	75.85	Comp	14.15	D 19Y	7.103	W 0	50.193	0.000	0.000	0.000	22.611	0	0.000	0
Diag S11	L 4" x 3" x 0.25"	SAU	4X3X0.25	33.0	67.52	Comp	14.06	D 21P	7.058	W 180	50.193	0.000	0.000	0.000	21.131	0	0.000	0
Diag S12	L 3.5" x 3.5" x 0.25"	SAE	3.5X3.5X0.25	33.0	46.95	Comp	11.79	D 24XY	5.917	W 90	50.193	0.000	0.000	0.000	19.707	0	0.000	0
Diag S13	L 3.5" x 3.5" x 0.25"	SAE	3.5X3.5X0.25	33.0	36.70	Comp	10.33	D 26Y	5.186	W -90	50.193	0.000	0.000	0.000	18.349	0	0.000	0
Horiz 1	B/B L3.5"x3.5"x0.3125"	DAL	3.5X3X0.31	33.0	40.52	Comp	19.38	H 1X	22.272	W -45	114.939	0.000	0.000	0.000	13.796	0	0.000	0
Horiz 2	B/B L3.5"x3.5"x0.3125"	DAB	3X2X0.31	33.0	46.56	Comp	18.97	H 3X	20.004	W -90	105.435	0.000	0.000	0.000	12.593	0	0.000	0
Horiz 3	B/B L3.5"x2.5"x0.3125"	DAL	3.5X2.5X0.31	33.0	33.96	Comp	10.49	H 5P	11.058	W 90	105.435	0.000	0.000	0.000	17.083	0	0.000	0
Horiz 4	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	33.0	45.14	Comp	12.99	H 7X	10.147	W -90	78.111	0.000	0.000	0.000	15.278	0	0.000	0
Horiz 5	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	33.0	36.96	Comp	12.43	H 9X	9.711	W -90	78.111	0.000	0.000	0.000	13.472	0	0.000	0
Horiz 6	B/B L2.5"x2.5"x0.25"	DAB	2.5X2.5X0.25	33.0	42.11	Comp	12.37	H 11X	8.746	W -90	70.686	0.000	0.000	0.000	12.569	0	0.000	0
Horiz 7	B/B L2.5"x2.5"x0.25"	DAB	2.5X2.5X0.25	33.0	37.22	Comp	12.03	H 13X	8.505	W -90	70.686	0.000	0.000	0.000	11.667	0	0.000	0
Horiz 8	B/B L2.5"x2.5"x0.25"	DAB	2.5X2.5X0.25	33.0	32.44	Comp	11.38	H 16Y	8.046	W 180	70.686	0.000	0.000	0.000	10.764	0	0.000	0
Horiz 9	B/B L2.5"x2.5"x0.25"	DAB	2.5X2.5X0.25	33.0	29.85	Comp	12.21	H 18P	8.627	W 0	70.686	0.000	0.000	0.000	9.861	0	0.000	0
Horiz 10	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	33.0	3.66	Tens	3.66	H 20P	2.860	W 90	78.111	0.000	0.000	0.000	17.917	0	0.000	0
Horiz 11	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	33.0	3.08	Tens	3.08	H 22X	2.402	W -90	78.111	0.000	0.000	0.000	16.111	0	0.000	0
Horiz 12	B/B L3.5"x3"x0.3125"	DAL	3.5X3X0.31	33.0	1.58	Tens	1.58	H 24P	1.817	W 90	114.939	0.000	0.000	0.000	14.306	0	0.000	0
Horiz 13	CS8x11.5	CHN	CS8x11.5	33.0	1.13	Comp	0.33	H 26X	0.327	W -90	100.386	0.000	0.000	0.000	12.500	0	0.000	0
LD 1	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	33.0	70.02	Comp	19.62	LD 2Y	12.411	W -45	63.261	0.000	0.000	0.000	11.987	0	0.000	0
LD 2	B/B L2.5"x2.5"x0.25"	DAB	2.5X2.5X0.25	33.0	68.97	Comp	21.03	LD 3P	14.863	W -90	70.686	0.000	0.000	0.000	9.841	0	0.000	0
LD 3	B/B L2.5"x2.5"x0.25"	DAB	2.5X2.5X0.25	33.0	75.63	Comp	26.76	LD 5X	18.917	W -90	70.686	0.000	0.000	0.000	10.434	0	0.000	0
LD 4	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	33.0	66.42	Comp	17.69	LD 8Y	11.190	W -45	63.261	0.000	0.000	0.000	11.425	0	0.000	0
LD 5	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	33.0	74.68	Comp	23.33	LD 9P	14.760	W -90	63.261	0.000	0.000	0.000	9.635	0	0.000	0
LD 6	B/B L2.5"x2"x0.25"	DAL	2.5X2X0.25	33.0	78.18	Comp	29.64	LD 11X	18.749	W -90	63.261	0.000	0.000	0.000	10.462	0	0.000	0
LH 1	B/B L3.5"x3.5"x0.3125"	DAB	3.5X3.5X0.31	33.0	40.72	Comp	10.90	H 2Y	13.531	W -45	124.146	0.000	0.000	0.000	12.099	0	0.000	0
LH 2	B/B L3.5"x3.5"x0.3125"	DAB	3.5X3.5X0.31	33.0	34.87	Comp	9.37	LH 4Y	11.630	W -45	124.146	0.000	0.000	0.000	11.095	0	0.000	0
DUM 1	Dummy Bracing Member	DUM	0.1X0.1X1	36.0	0.00		0.00	BR 7X	0.542	W -45	0.324	0.000	0.000	0.000	21.606	0	0.000	0

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
W 0	80.65	D 3P	Angle
W 180	81.68	D 3Y	Angle
W 45	72.02	D 4P	Angle
W 45	75.11	D 4X	Angle
W 90	80.70	D 4P	Angle
W -90	81.70	D 4X	Angle
W 0 Ice	27.03	D 3P	Angle
W 180 Ice	28.21	D 3Y	Angle
W 45 Ice	25.87	D 4P	Angle
W -45 Ice	27.35	D 4X	Angle
W 90 Ice	27.05	D 4P	Angle
W -90 Ice	28.21	D 4X	Angle

*** Weight of structure (lbs):
 Weight of Angles*Section DLF: 110646.3
 Total: 110646.3

*** End of Report

Site #: 88019
Name: Winstead, CT

Engineer: mothy.kassakatis
Date: 04/17/19

Windspeed: No Ice: 93 mph
Carrier: Dish Network Corporation

Ice: 40 mph

Taper: -0.144444
FW @ Base: 45.00 ft

Taper Change: 225 ft
FW @ Top: 12.5 ft

Joint Label	Symmetry Code	X Coord. (ft)	Y Coord. (ft)	Z Coord. (ft)	X Disp. Rest.	Y Disp. Rest.	Z Disp. Rest.	X Rot. Rest.	Y Rot. Rest.	Z Rot. Rest.	# Vert	Drop (ft)	Height (ft)	Type	Count	Z Elev. (ft)	FW (ft)	# Sub-Brace
0	XY-Symmetry	22.5	22.5	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	0	8.333	25	2	1	0	45	3
1	XY-Symmetry	20.69444444	20.69444444	25	Free	Free	Free	Free	Free	Free	25	8.333	25	2	2	25	41.38888889	3
2	XY-Symmetry	18.88888889	18.88888889	50	Free	Free	Free	Free	Free	Free	25		25	A	3	50	37.77777778	2
3	XY-Symmetry	17.08333333	17.08333333	75	Free	Free	Free	Free	Free	Free	25		25	A	4	75	34.16666667	2
4	XY-Symmetry	15.27777778	15.27777778	100	Free	Free	Free	Free	Free	Free	25		25	A	5	100	30.55555556	2
5	XY-Symmetry	13.47222222	13.47222222	125	Free	Free	Free	Free	Free	Free	12.5		12.5	A	6	125	26.94444444	1
6	XY-Symmetry	12.56944444	12.56944444	137.5	Free	Free	Free	Free	Free	Free	12.5		12.5	A	7	137.5	25.13888889	1
7	XY-Symmetry	11.66666667	11.66666667	150	Free	Free	Free	Free	Free	Free	12.5		12.5	A	8	150	23.33333333	1
8	XY-Symmetry	10.76388889	10.76388889	162.5	Free	Free	Free	Free	Free	Free	12.5		12.5	A	9	162.5	21.52777778	1
9	XY-Symmetry	9.86111111	9.86111111	175	Free	Free	Free	Free	Free	Free	1		12.5	X	10	175	19.72222222	1
10	XY-Symmetry	8.95833333	8.95833333	187.5	Free	Free	Free	Free	Free	Free	1		12.5	X	11	187.5	17.91666667	1
11	XY-Symmetry	8.05555556	8.05555556	200	Free	Free	Free	Free	Free	Free	1		12.5	X	12	200	16.11111111	1
12	XY-Symmetry	7.15277778	7.15277778	212.5	Free	Free	Free	Free	Free	Free	13		12.5	X	13	212.5	14.30555556	1
13	XY-Symmetry	6.25	6.25	225	Free	Free	Free	Free	Free	Free	14		12.5	X	14	225	12.5	1
A1	XY-Symmetry	20.69444444	6.98148148	25	Free	Free	Free	Free	Free	Free								
A2	XY-Symmetry	6.898148148	20.69444444	25	Free	Free	Free	Free	Free	Free								
A3	XY-Symmetry	18.88888889	6.296296296	50	Free	Free	Free	Free	Free	Free								
A4	XY-Symmetry	6.296296296	18.88888889	50	Free	Free	Free	Free	Free	Free								
A5	Y-Symmetry	17.08333333	0	75	Free	Free	Free	Free	Free	Free								
A6	X-Symmetry	0	17.08333333	75	Free	Free	Free	Free	Free	Free								
A7	Y-Symmetry	15.27777778	0	100	Free	Free	Free	Free	Free	Free								
A8	X-Symmetry	0	15.27777778	100	Free	Free	Free	Free	Free	Free								
A9	Y-Symmetry	13.47222222	0	125	Free	Free	Free	Free	Free	Free								
A10	X-Symmetry	0	13.47222222	125	Free	Free	Free	Free	Free	Free								
A11	Y-Symmetry	12.56944444	0	137.5	Free	Free	Free	Free	Free	Free								
A12	X-Symmetry	0	12.56944444	137.5	Free	Free	Free	Free	Free	Free								
A13	Y-Symmetry	11.66666667	0	150	Free	Free	Free	Free	Free	Free								
A14	X-Symmetry	0	11.66666667	150	Free	Free	Free	Free	Free	Free								
A15	Y-Symmetry	10.76388889	0	162.5	Free	Free	Free	Free	Free	Free								
A16	X-Symmetry	0	10.76388889	162.5	Free	Free	Free	Free	Free	Free								
A17	Y-Symmetry	9.86111111	0	175	Free	Free	Free	Free	Free	Free								
A18	X-Symmetry	0	9.86111111	175	Free	Free	Free	Free	Free	Free								
H1	XY-Symmetry	21.29627222	12.09855741	16.667	Free	Free	Free	Free	Free	Free								
H2	XY-Symmetry	12.09855741	21.29627222	16.667	Free	Free	Free	Free	Free	Free								
H3	Y-Symmetry	21.29627222	0	16.667	Free	Free	Free	Free	Free	Free								
H4	X-Symmetry	0	21.29627222	16.667	Free	Free	Free	Free	Free	Free								
H5	XY-Symmetry	19.49071667	11.09548704	41.667	Free	Free	Free	Free	Free	Free								
H6	XY-Symmetry	11.09548704	19.49071667	41.667	Free	Free	Free	Free	Free	Free								
H7	Y-Symmetry	19.49071667	0	41.667	Free	Free	Free	Free	Free	Free								
H8	X-Symmetry	0	19.49071667	41.667	Free	Free	Free	Free	Free	Free								

NOTES:
1: Built up Horiz. w/A
2: Built up Horiz. w/M
A: Typical A brace
X: Typical X brace

Drop:
Use only for types 1 & 2

Sections: 13

Spreadsheet Version Last Updated: 11/12/2014

Legs

Site No.:	88019
Engineer:	Timothy.Kassakatis
Date:	04/17/2019
Carrier:	Dish Network Corporation

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations (ft)	Type of Shape ^[1]	Diameter or Length (in)	Thickness ^[2] (in)	F _y (ksi)
1	0.000-25.00	L	8	1.125	33
2	25.00-50.00	L	8	1.125	33
3	50.00-75.00	L	8	1	33
4	75.00-100.0	L	8	0.875	33
5	100.0-125.0	L	8	0.75	33
6	125.0-137.5	L	6	0.875	33
7	137.5-150.0	L	6	0.875	33
8	150.0-162.5	L	6	0.875	33
9	162.5-175.0	L	6	0.875	33
10	175.0-187.5	L	6	0.625	33
11	187.5-200.0	L	6	0.625	33
12	200.0-212.5	L	6	0.5	33
13	212.5-225.0	L	6	0.5	33

Notes:

^[1] Type of Leg Shape: **R** = Round or **P** = Bent Plate or **S** = Schifferized Angle. **L** = Even Leg

^[2] For Solid Round Leg Shapes Thickness Equals Zero.

^[3] Adjust for Bent Plate Leg Shapes.

Diagonals

Site No.:	88019
Engineer:	Timothy.Kassakatis
Date:	04/17/2019
Carrier:	Dish Network Corpotation

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations (ft)	Type of Shape ^[1]	Diameter ^[2] (in)	Web Length ^[3] (in)	Flange Length ^[3] (in)	Thickness (in)	F _y (ksi)	Is Diag. Tension Only? (Y/N)
1	0.000-25.00	2L		3	3	0.25	33	
2	25.00-50.00	2L		3	3	0.25	33	
3	50.00-75.00	2L		2.5	3	0.3125	33	
4	75.00-100.0	2L		2.5	3	0.25	33	
5	100.0-125.0	2L		2.5	3	0.25	33	
6	125.0-137.5	2L		2.5	2.5	0.25	33	
7	137.5-150.0	2L		2.5	2.5	0.25	33	
8	150.0-162.5	2L		2.5	2.5	0.25	33	
9	162.5-175.0	2L		2.5	2.5	0.25	33	
10	175.0-187.5	L		4	3	0.25	33	
11	187.5-200.0	L		4	3	0.25	33	
12	200.0-212.5	L		3.5	3.5	0.25	33	
13	212.5-225.0	L		3.5	3.5	0.25	33	

Notes:

^[1] Type of Diagonal Shape: R = Round, L = Single-Angle or 2L = Double-Angle.

^[2] Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

^[3] Applies to Single-Angle and Double-Angle Shapes only.

^[4] Applies to Double-Angle Shapes only.

^[5] Applies to Single-Angle Shapes only.

Horizontals

Site No.:	88019
Engineer:	Timothy.Kassakatis
Date:	04/17/2019
Carrier:	Dish Network Corporation

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations (ft)	Type of Shape ^[1]	Diameter ^[2] (in)	Web Length ^[3] (in)	Flange Length ^[3] (in)	Thickness (in)	F _y (ksi)	
1	0.000-25.00	2L		3.5	3	0.3125	33	
2	25.00-50.00	2L		3	3	0.3125	33	
3	50.00-75.00	2L		3.5	2.5	0.25	33	
4	75.00-100.0	2L		3	2.5	0.25	33	
5	100.0-125.0	2L		3	2.5	0.25	33	
6	125.0-137.5	2L		2.5	2.5	0.25	33	
7	137.5-150.0	2L		2.5	2.5	0.25	33	
8	150.0-162.5	2L		2.5	2.5	0.25	33	
9	162.5-175.0	2L		2.5	2.5	0.25	33	
10	175.0-187.5	2L		3	2.5	0.25	33	
11	187.5-200.0	2L		3	2.5	0.25	33	
12	200.0-212.5	2L		3.5	3	0.3125	33	
13	212.5-225.0	C		8	11.5		33	

Notes:

^[1] Type of Horizontal Shape: **R** = Round, **L** = Single-Angle, **2L** = Double-Angle, **C** = Channel, **W** = W Shape

^[2] Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

^[3] Applies to Single-Angle and Double-Angle Shapes only.

^[4] Applies to Double-Angle Shapes only.

^[5] Applies to Single-Angle Shapes only.

Built-up Diagonals

Site No.:	88019
Engineer:	Timothy.Kassakatis
Date:	04/17/2019
Carrier:	Dish Network Corporation

When inputting thickness values, include all decimal places.

Input diags. from left to center & from base section upward.

Tower Built-up Diag. #	Section Elevations (ft)	Type of Shape ^[1]	Diameter ^[2] (in)	Web Length ^[3] (in)	Flange Length ^[3] (in)	Thickness (in)	F _y (ksi)
1	0.000-25.00	2L		2.5	2	0.25	33
2	0.000-25.00	2L		2.5	2.5	0.25	33
3	0.000-25.00	2L		2.5	2.5	0.25	33
4	25.00-50.00	2L		2.5	2	0.25	33
5	25.00-50.00	2L		2.5	2	0.25	33
6	25.00-50.00	2L		2.5	2	0.25	33

Notes:

^[1] Type of Diagonal Shape: R = Round, L = Single-Angle or 2L = Double-Angle.

^[2] Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

^[3] Applies to Single-Angle and Double-Angle Shapes only.

^[4] Applies to Double-Angle Shapes only.

^[5] Applies to Single-Angle Shapes only.

Built-up Horizontals

Site No.:	88019
Engineer:	Timothy.Kassakatis
Date:	04/17/2019
Carrier:	Dish Network Corporation

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations (ft)	Type of Shape ^[1]	Diameter ^[2] (in)	Web Length ^[3] (in)	Flange Length ^[3] (in)	Thickness (in)	F _y (ksi)	Is Horiz. Tension Only? (Y/N)
1	0.000-25.00	2L		3.5	3.5	0.3125	33	
2	25.00-50.00	2L		3.5	3.5	0.3125	33	

Notes:

^[1] Type of Horizontal Shape: R = Round, L = Single-Angle or 2L = Double-Angle.

^[2] Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

^[3] Applies to Single-Angle and Double-Angle Shapes only.

^[4] Applies to Double-Angle Shapes only.

^[5] Applies to Single-Angle Shapes only.

Site No.:	88019
Engineer:	Timothy.Kassakatis
Date:	04/17/19
Carrier:	Dish Network Corporation

Description	From (ft)	To (ft)	Quantity	Shape	Width or Diameter (in)	Perimeter (in)	Unit Weight (lb/ft)	Part of Face Solidity Ratio (Yes/No)	Include in Wind Load (Yes/No)
1 Ladder	0	225	1	Flat	2	8.0	6	Yes	Yes
2 1-1/4" Hybriflex Cable	0	198	4	Round	1.54	4.8	1	Yes	Yes
3 1-1/4" Coax	0	194	1	Round	1.55	4.9	0.63	Yes	Yes
4 7/8" Coax	0	174	1	Round	1.09	3.4	0.33	Yes	Yes
5 1/2" Coax	0	160	1	Round	0.63	2.0	0.15	Yes	Yes
6 Wave Guide	0	225	1	Flat	2	8.0	6	Yes	Yes

No.	Elevation (ft)	C ₁ A _c (ft ²)	C ₂ A _c (Ice) (ft ²)	Force (lb)	Force (Ice) (lb)	Weight (lb)	Weight (Ice) (lb)	60 Azi Mult.	Force mean	F (Ice) mean	Height Flag	Sum of Forces (No 1)	
												60 Azi	180 Azi
1	225	0.01	0.06	0.510	0.224	1	2	1.00	0.17	0.12			
	225	75.00	101.25	2391.702	373.315	9600	12480	1.00	1315.44	205.32	1.5044444	2392.012192	
2	206.25	0.01	0.06	0.302	0.219	1	2	1.00	0.17	0.12	1.5044454		
	206.25	70.00	94.50	2177.445	339.872	9600	12480	1.00	1197.59	186.93	1.5048485	2177.747152	
3	175	0.01	0.06	0.289	0.209	1	2	1.00	0.16	0.11	1.5048495		
	175	15.00	20.25	445.198	69.490	600	780	1.00	244.86	38.22	1.5057143	445.4862998	
4	125	0.01	0.06	0.262	0.189	1	2	1.00	0.14	0.10	1.5057153		
	125	80.00	108.00	2156.755	336.642	10800	14040	1.00	1186.22	185.15	1.5080000	2157.017124	
5	75	0.01	0.06	0.227	0.164	1	2	1.00	0.12	0.09	1.5080010		
	75	15.00	20.25	349.475	54.549	600	780	1.00	192.21	30.00	1.5133333	349.7020097	
6	25	0.01	0.06	0.174	0.126	1	2	1.00	0.10	0.07	1.5133343		
	25	15.00	20.25	268.753	41.949	600	780	1.00	147.81	23.07	1.5400000	268.9269903	
7	225	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5400010		
	225	435.20	587.52	13878.250	2166.220	12000	15600	1.00	7633.04	1191.42	1.5400010	13878.25038	
8	225	0.00	0.09	0.000	0.323	0	0	1.00	0.00	0.18	1.5400020		
	225	0.00	0.00	0.000	0.000	5	6	1.00	0.00	0.00	1.5404444	13878.25051	
9	198	10.05	12.55	308.884	44.615	190	425	1.00	169.89	24.54	1.5404454		
	198	39.60	53.46	913.146	142.531	1080	1404	1.00	502.23	78.39	1.5404454	1222.029752	
10	198	13.29	15.74	408.563	55.948	205	491	1.00	224.71	30.77	1.5404464		
	198	4.14	5.59	101.844	15.897	230	300	1.00	56.01	8.74	1.5404464	1732.437128	
11	198	4.20	5.24	129.090	18.626	216	354	1.00	71.00	10.24	1.5404474		
	198	8.14	10.99	200.228	31.253	252	328	1.00	110.13	17.19	1.5050505	2061.755193	
12	194	11.23	16.15	343.241	57.062	61	414	1.00	188.78	31.38	1.5050515		
	194	6.30	8.51	192.571	30.058	180	234	1.00	105.91	16.53	1.5051546	535.8121915	
13	174	43.01	51.44	1274.475	176.242	25	1173	1.00	700.96	96.93	1.5051556		
	174	6.30	8.51	186.677	29.138	180	234	1.00	102.67	16.03	1.5057471	1461.152011	
14	160	0.23	0.69	6.654	2.312	2	18	1.00	3.66	1.27	1.5057481		
	160	6.30	8.51	182.256	28.448	180	234	1.00	100.24	15.65	1.5062500	188.9102102	
15	160	0.14	0.31	4.089	1.039	2	8	1.00	2.25	0.57	1.5062510		
	160	0.19	0.26	5.497	0.858	600	780	1.00	3.02	0.47	1.5062500	198.4955471	
16	154	2.73	3.96	78.074	13.112	71	128	1.00	42.94	7.21	1.5062510		
	154	7.50	10.13	214.615	33.499	270	351	1.00	118.04	18.42	1.5064935	292.6888956	
17	154	1.86	2.63	53.117	8.685	93	168	1.00	29.21	4.78	1.5064945		
	154	8.73	11.79	249.812	38.993	90	117	1.00	137.40	21.45	1.5064935	595.6185223	
18					#VALUE!			1.00	#VALUE!	#VALUE!	1.5064945		
19					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
20					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
21					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
22					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
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24					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
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26					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
27					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
28					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
29					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
30					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
31					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
32					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
33					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
34					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
35					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
36					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
37					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
38					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
39					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
40					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
41					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
42					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
43					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
44					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
45					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
46					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
47					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
48					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
49					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	
50					#VALUE!			1.00	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	

Foundation

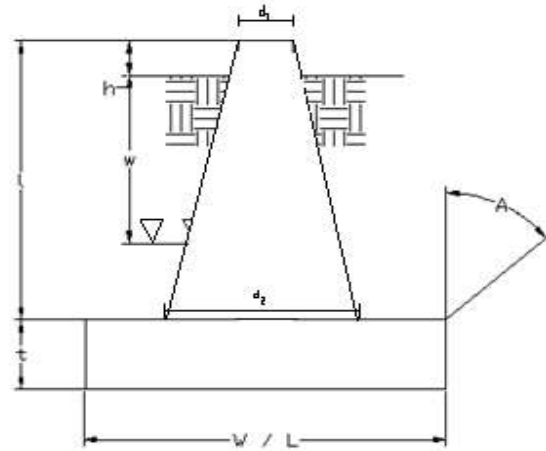
Design Loads (Factored)

Compression/Leg:	258.36	k
Uplift/Leg:	160.64	k
Shear/Leg:	43.23	k

Face Width @ Top of Pier (d_1):	3.50	ft
Face Width @ Bottom of Pier (d_2):	8.50	ft
Total Length of Pier (l):	9.50	ft
Height of Pedestal Above Ground (h):	0.50	ft
Width of Pad (W):	20.50	ft
Length of Pad (L):	20.50	ft
Thickness of Pad (t):	2.00	ft
Water Table Depth (w):	30.00	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Soil (Above Water Table):	115.0	pcf
Unit Weight of Soil (Below Water Table):	52.6	pcf
Friction Angle of Uplift (A):	20	°
Ultimate Compressive Bearing Pressure:	9000	psf
Ultimate Skin Friction:	0	psf

Volume Pier (Total):	361.79	ft ³
Volume Pad (Total):	840.50	ft ³
Volume Soil (Total):	4736.93	ft ³
Volume Pier (Buoyant):	0.00	ft ³
Volume Pad (Buoyant):	0.00	ft ³
Volume Soil (Buoyant):	0.00	ft ³
Weight Pier:	54.27	k
Weight Pad:	126.08	k
Weight Soil:	544.75	k
Uplift Skin Friction:	0.00	k

Site No.:	88019
Engineer:	Timothy.Kassakatis
Date:	04/17/19
Carrier:	Dish Network Corporation



Uplift Check

ϕ_s Uplift Resistance (k)	Ratio	Result
543.82	0.30	OK

Axial Check

ϕ_s Axial Resistance (k)	Ratio	Result
2836.69	0.09	OK

Anchor Bolt Check

Bolt Diameter (in)	2.5
# of Bolts	4
Steel Grade	A36
Steel Fy	36
Steel Fu	58
Detail Type	C

Usage Ratio	Result
0.32	OK

DISH WIRELESS FIRST TIME INSTALL CONSTRUCTION DRAWINGS



DISH WIRELESS SITE ID:
CT0100015A

TOWER OWNER SITE ID:
88019

SITE ADDRESS:
**428 PLATT HILL ROAD
WINSTED, CT 06098
COUNTY: LITCHFIELD**

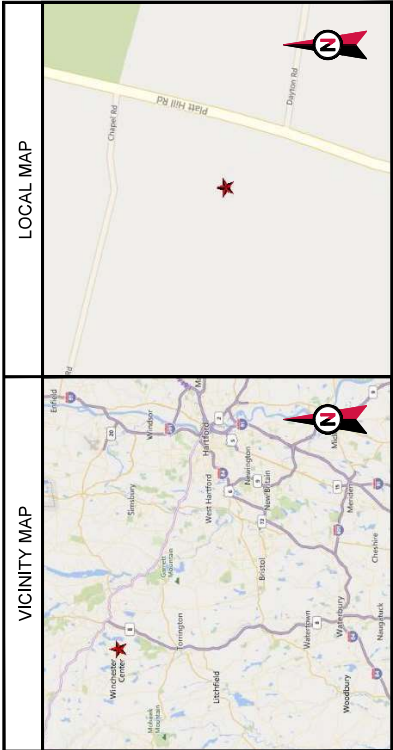
SITE SUMMARY	
PROJECT SCOPE:	PROJECT CONSISTS OF INSTALLING DISH WIRELESS TELECOMMUNICATIONS EQUIPMENT, CABLING, AND ANTENNAS AT AN EXISTING TELECOMMUNICATION SITE
SITE TYPE:	COLOCATION
TELECOMMUNICATIONS TOWER TYPE:	SELF SUPPORT TOWER
TOWER HEIGHT:	225
RAD CENTER:	154'
TOWER LATITUDE:	41° 53' 53.87" N (41.89828611)
TOWER LONGITUDE:	73° 6' 57.84" W (73.11601111)
ZONING JURISDICTION:	LITCHFIELD COUNTY
COUNTY:	LITCHFIELD
PARCEL NUMBER:	019077
POWER SOURCE:	EVER SOURCE
POWER COMPANY:	(877) 659-6325
TELEPHONE COMPANY:	FRONTIER COMMUNICATIONS (800) 375-6643

PROJECT DIRECTORY	
TOWER MANAGER:	AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801 PHONE: (813) 980-8200
APPLICANT:	DISH WIRELESS 10 PRESIDENTIAL BLVD ENGLEWOOD, CO 80112 PHONE: (866) 624-6674
SITE DESIGNER:	AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801 PHONE: (813) 980-8200

GENERAL NOTES	
THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. THEREFORE HANDICAP ACCESS IS NOT REQUIRED. A TECHNICIAN WILL VISIT THE SITE AS PART OF THE CONSTRUCTION PROCESS TO VERIFY THE LOCATION OF ANY SIGNIFICANT DISBURSMENTS OR EFFECT ON DRAINAGE. NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.	

UNDERGROUND SERVICE ALERT

CALL 811
48 HOURS BEFORE YOU DIG



CODE COMPLIANCE	
ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING.	
•	NATIONAL BUILDING CODE (LOCALLY ADOPTED)
•	ANSI/TIA/EIA-232-C
•	NATIONAL ELECTRIC CODE (LOCALLY ADOPTED)
•	CITY/COUNTY ORDINANCES
•	FAA COMPLIANCE
•	FCC COMPLIANCE

DISH WIRELESS PROJECT MANAGER APPROVAL:

SIGNATURE _____ DATE _____

CONSTRUCTION MANAGER APPROVAL:

SIGNATURE _____ DATE _____

LEASING/SITE ACQUISITION:

SIGNATURE _____ DATE _____

RF ENGINEER:

SIGNATURE _____ DATE _____

LANDLORD/TOWER OWNER APPROVAL:

SIGNATURE _____ DATE _____

SHEET INDEX			
SHEET NO:	DESCRIPTION:	REV:	DATE:
T-1	TITLE SHEET	0	06/03/19 TC
GN-1	GENERAL NOTES	0	06/03/19 TC
GN-2	GENERAL NOTES	0	06/03/19 TC
EN-1	ELECTRICAL NOTES	0	06/03/19 TC
EN-2	ELECTRICAL NOTES	0	06/03/19 TC
C-1	COMPOUND PLAN	0	06/03/19 TC
C-2	EQUIPMENT PLAN	0	06/03/19 TC
C-3	TOWER ELEVATION & ANTENNA LAYOUT	0	06/03/19 TC
1 OF 3	ANTENNA SCHEDULE & DIAGRAM		
2 OF 3	CABLE COLOR CODE		
3 OF 3	ANTENNA MOUNT DETAILS		
C-4	EQUIPMENT DETAILS	0	06/03/19 TC
C-5	EQUIPMENT DETAILS		
C-6	EQUIPMENT DETAILS		
C-7	CIVIL DETAILS	0	06/03/19 TC
E-1	UTILITY PLANS	0	06/03/19 TC
E-2	ELECTRICAL DETAILS	0	06/03/19 TC
G-1	GROUNDING NOTES & DETAILS	0	06/03/19 TC
G-2	GROUNDING NOTES & DETAILS	0	06/03/19 TC
G-3	GROUNDING NOTES & DETAILS	0	06/03/19 TC
RF-1	RF DATA SHEET		
RF-2	PLUMBING DIAGRAM		

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 435-1112
CO. # 04177

Authorized by "EOR"
Jun 11 2019 3:57 PM cosign

APPROVED BY: TPB
DATE DRAWN: 06/03/19
REV. DESCRIPTION BY DATE
FOR CONSTRUCTION TC 06/03/19

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ATC PROJECT NUMBER: 12963795
DISH WIRELESS SITE NUMBER: CT0100015A
ATC SITE NUMBER: 88019
SITE ADDRESS: 428 PLATT HILL ROAD WINSTED, CT 06098

TITLE SHEET
SHEET NUMBER: T-1
REVISION: 0

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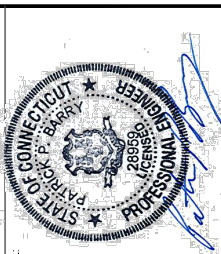
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AMERICAN TOWER, PLLC
3600 REGENCY PARKWAY
SUITE 100
CHRY, NC 27518
PHONE: 919-415-4112
FAX: 919-415-4177



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DATE DRAWN:	06/03/19		
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1	FOR CONSTRUCTION	TC	06/03/19

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GENERAL NOTES

SHEET NUMBER: GN-1
REVISION: 0

12. ANY SUBSTITUTIONS OF MATERIALS AND/OR EQUIPMENT, MUST BE APPROVED BY OWNER.
13. DOCUMENT ALL CHANGES MADE IN THE FIELD BY MARKING UP THE APPROVED CONSTRUCTION DRAWINGS AND SUBMITTING TO THE PROJECT SET. THE TOWER UPON COMPLETION, DOCUMENT ALL WORK PERFORMED WITH PHOTOGRAPHS TO BE SUBMITTED WITH REQUINED CONSTRUCTION DRAWINGS.
14. PROVIDE SUPPORTS FOR CABLES TO THE ELEVATION OF ALL INITIAL AND FUTURE ANTENNAS IN ACCORDANCE WITH ALL MANUFACTURER'S REQUIREMENTS.
15. CONFIRM THAT THE REQUIREMENTS OF THE STRUCTURAL ANALYSIS, MOUNT ANALYSIS AND ANY ASSOCIATED MODIFICATIONS HAVE BEEN FOLLOWED AND COMPLETED AS REQUIRED TO SUPPORT THE EQUIPMENT ASSOCIATED WITH THIS PROJECT.
16. KNOW AND OBSERVE MANUFACTURER'S MINIMUM BEND, RADIUS, SPECIFICATIONS BEFORE HANDLING HYBRID CABLES, RF CABLES, AND FIBER OPTIC LINES.
17. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS STIPULATED IN THE CONSTRUCTION SCOPE OF WORK CONTRACT, REGARDLESS OF INCLUSION OR OMISSION FROM THE CONSTRUCTION DRAWINGS(S).

SCOPE OF WORK

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR EQUIPMENT APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL EQUIPMENT IS LISTED ON THE PROJECT GENERAL NOTES. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
 - INSTALL (3) PROPOSED ANTENNA MOUNTS (1 PER SECTOR)
 - INSTALL (5) PROPOSED RETS
 - INSTALL (5) PROPOSED RRUS AND ASSOCIATED JUMPERS
 - INSTALL (1) PROPOSED HYBRID CABLE
 - INSTALL (1) PROPOSED CABLE JADDER (IF APPLICABLE)
 - INSTALL (1) PROPOSED ICE BRIDGE
 - INSTALL (1) PROPOSED ICE BRIDGE
 - INSTALL (1) PROPOSED BATTERY BACKUP SYSTEM IN CABINET
 - INSTALL (1) PROPOSED LOAD CENTER MOUNTED TO PROPOSED H-FRAME
 - INSTALL (1) PROPOSED SURGE SUPPRESSION DEVICE
 - INSTALL (1) PROPOSED EQUIPMENT CABINET
 - INSTALL (1) PROPOSED RBS CHASSIS IN PROPOSED EQUIPMENT CABINET
 - INSTALL (1) PROPOSED BASEBAND UNIT IN PROPOSED RBS CHASSIS
 - INSTALL (1) PROPOSED POWER CONDUIT FROM PLATFORM TO MEET-WE-POINT DESIGNATED BY POWER COMPANY
 - INSTALL (1) PROPOSED METER BASE FOR POWER METER
 - INSTALL (1) PROPOSED OPS TERMINAL WITH CABLE
 - INSTALL (1) PROPOSED LTE BACKHAUL ANTENNA WITH CABLE
- THE SIZE, HEIGHT AND DIRECTION OF ALL ANTENNAS SHALL BE ADJUSTED TO MEET SYSTEM REQUIREMENT DEPICTED BY THE LATEST APPROVED RFDS.

PROJECT NOTES

1. THE FOLLOWING INFORMATION HAS BEEN PROVIDED BY DISH WIRELESS FOR THIS PROJECT AND HAS NOT BEEN FIELD VERIFIED AS PART OF THIS PROJECT:
 - a. EXISTING TOWER, MOUNT AND EQUIPMENT ELEVATIONS
 - b. DESIGN PACKAGE BASED ON THE APPLICATION #: 12943526, DATED 04/01/19.
2. A STRUCTURAL ANALYSIS TO DETERMINE THE TOWER CAPACITY TO SUPPORT THE PROPOSED EQUIPMENT WAS PERFORMED FOR DISH WIRELESS OUTSIDE THE SCOPE OF THIS PROJECT.
3. CONFIRM THAT THE REQUIREMENTS OF THE STRUCTURAL ANALYSIS AND ANY ASSOCIATED MODIFICATIONS HAVE BEEN FOLLOWED AND COMPLETED AS REQUIRED TO SUPPORT THE EQUIPMENT ASSOCIATED WITH THIS PROJECT.

1. EVERY COMPLETE HAS BEEN MADE IN THE CONSTRUCTION DOCUMENTS TO PROVIDE A COMPLETE SCOPE OF WORK. MINOR DISCREPANCIES IN THE DRAWINGS AND/OR SPECIFICATIONS SHALL NOT EXCLUDE CONTRACTORS FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
2. ALL REFERENCES TO OWNER HEREIN SHALL BE CONSTRUED TO MEAN THE CARRIER OR ITS DESIGNATED REPRESENTATIVE.
3. BIDDING REQUIREMENTS:
 - a. PRIOR TO THE SUBMISSION OF BIDS, VISIT THE JOB SITE TO BECOME FAMILIAR WITH ALL CONDITIONS AFFECTING THE PROPOSED PROJECT. VISIT THE SITE WITH THE CONSTRUCTION DOCUMENTS TO VERIFY FIELD DIMENSIONS AND CONDITIONS TO CONFIRM THAT THE PROJECT WILL BE ACCOMPLISHED AS SHOWN.
 - b. PROVIDE NOTIFICATION TO OWNER IN WRITING OF ANY CONFLICTS, ERRORS, OR OMISSIONS IN THE BIDDING DOCUMENTS PRIOR TO THE BIDDING DEADLINE. DISCREPANCIES, PRICE THE MORE COSTLY OR EXTENSIVE WORK, UNLESS DIRECTED OTHERWISE.
 - c. WHEN TOWER IS OWNED BY A THIRD PARTY, CONTACT TOWER OWNER REPRESENTATIVE FOR PARTICIPATION IN BID WALK.
 - d. WHERE ANCHORING TO A CONCRETE ROOF SLAB, CONFIRM (PRIOR TO SUBMITTING BID) THE PRESENCE OF POST TENSION TENDONS, INCLUDE PROVISIONS FOR X-RAY PROCEDURES TO LOCATE THE TENDONS PRIOR TO CONSTRUCTION.
4. DRAWINGS ARE NOT TO BE SCALED. WRITTEN DIMENSIONS TAKE PRECEDENCE. CONSTRUCTION DOCUMENTS ARE INTENDED FOR DIAGRAMMATIC PURPOSES ONLY, UNO.
5. FIELD VERIFY ALL DIMENSIONS, ELEVATIONS AND EXISTING CONDITIONS PRIOR TO BEGINNING ANY MATERIALS ORDERING, FABRICATION OR CONSTRUCTION WORK ON THIS PROJECT. BRING ANY DISCREPANCIES IMMEDIATELY TO THE ATTENTION OF THE OWNER AND RESOLVE BEFORE PROCEEDING WITH THE WORK.
6. FURNISH ALL MATERIALS, EQUIPMENT, LABOR, AND ANY REQUIREMENTS NECESSARY TO CONSTRUCTION AS DESCRIBED IN THE CONSTRUCTION DOCUMENTS AND CONSTRUCTION SCOPE.
7. SUPERVISE AND DIRECT THE PROJECT DESCRIBED IN THE CONSTRUCTION DOCUMENTS. PROVIDE ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
8. ALL WORK PERFORMED ON THE PROJECT AND MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. GIVE ALL NECESSARY NOTICE TO ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES APPLICABLE TO THE WORK.
9. CONSTRUCTION COORDINATION REQUIREMENTS:
 - a. NOTIFY OWNER OF ANY DISCREPANCIES PRIOR TO START OF WORK.
 - b. OBTAIN ALL PERMITS, SCHEDULE AND COORDINATE ALL INSPECTIONS.
 - c. PROVIDE, AT THE PROJECT SITE, A FULL, CURRENT SET OF CONSTRUCTION DOCUMENTS FOR USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
 - d. RECEIVE WRITTEN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DOCUMENTS.
 - e. REFORM WORK DURING OWNER'S PREFERRED HOURS TO AVOID DISTURBING NORMAL BUSINESS.
 - f. PROVIDE FALL PROTECTION IN ACCORDANCE WITH FEDERAL, STATE, LOCAL, AND OWNER REQUIREMENTS.
 - g. IF FAA LIGHTING AND MARKING IS PRESENT ON SITE AND IS POWERED BY ELECTRICAL SERVICE THAT IS TO BE INTERRUPTED, MAINTAIN THE NECESSARY LIGHTS DURING CONSTRUCTION AND NOTIFY THE PROPER AUTHORITIES IN THE EVENT OF A DISRUPTION.
 - h. PROVIDE A PORTABLE FIRE EXTINGUISHER WITH A RATING OF NOT LESS THAN 2-A OR 2-A10BC WITHIN 75 FEET TRAVEL DISTANCE TO ALL PORTIONS OF PROJECT AREA DURING CONSTRUCTION.
 - i. STRUCTURAL COMPONENTS OF ADJACENT FACILITIES SHALL NOT BE ALTERED BY THIS CONSTRUCTION PROJECT, UNO. ENSURE THAT EXCAVATION DOES NOT AFFECT ADJACENT FACILITIES.
 - j. SEAL ALL PENETRATIONS THROUGH FIRE-RATED AREAS WITH U.L. LISTED OR FIRE MARSHALL-APPROVED MATERIALS, IF APPLICABLE.
 - k. BURIED UTILITIES MAY EXIST IN THE AREA AND UTILITY INFORMATION SHOWN MAY NOT BE COMPLETE. CONTACT THE UTILITY LOCATE SERVICE A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION.
 - l. COORDINATE ALL POWER INSTALLATION WITH POWER COMPANY AS REQUIRED. REPORT POWER INSTALLATION COORDINATION SOLUTION(S) TO OWNER.
 - m. CONSTRUCTION UPON COMPLETION OF WORK REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
 - n. KEEP GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, AND RUBBISH. REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY OR PREMISES. SITE SHALL BE LEFT IN CLEAN AND ORDERLY CONDITION.
 - o. MAINTAIN THE INTEGRITY OF THE BUILDING ENVELOPE AND CONSTRUCT BARRIERS IN THE AREA OF WORK TO PREVENT DAMAGE FROM WEATHER AS WELL AS FROM CONSTRUCTION DUST AND DEBRIS.
10. INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO MANUFACTURER'S SPECIFICATIONS, UNO, OR WHERE LOCAL CODES OR ORDINANCES DIRECT OTHERWISE.
11. PROPOSED CELLULAR EQUIPMENT AND FIXTURES WILL BE FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR, UNLESS NOTED OTHERWISE.

ABBREVIATIONS

A/C	AIR CONDITIONING	MGR	MANAGER
AFF	ABOVE FINISHED FLOOR	MM	MINIMUM
AGL	ABOVE GRADE AND LABEL	MIN	MINIMUM
AMS	ADVANCED WIRELESS SERVICE	MISC	MISCELLANEOUS
BBU	BATTERY BACKUP UNIT	NA	NOT APPLICABLE
BLDG	BUILDING	NC	NOT IN CONTRACT
BLK	BLOCKING	NO	NUMBER
CLG	CEILING	NTS	NOT TO SCALE
CLR	CLEAR	OC	ON CENTER
CONC	CONCRETE	OD	OUTSIDE DIAMETER
CONT	CONTINUOUS	PCS	PERSONAL COMMUNICATION SERVICE
D	DEPTH	PDU	POWER DISTRIBUTION UNIT
DBL	DOUBLE	PROJ	PROJECT
DEC	DEGREE	PROP	PROPERTY
Ø	DIAMETER	PVC	PRESSURE TREATED POLYVINYL CHLORIDE
DIAG	DIAGONAL	REQ	REQUIRED
DET	DETAIL	RF	RADIO FREQUENCY
DWG	DRAWING	RM	ROOM
E	EXISTING	RO	ROUGH OPENING
EA	EACH	RRH	REMOTE RADIO HEAD SHEET
ELEV.	ELEVATION	SHT	SHEET
ELEC	ELECTRICAL	SIM	SIMILAR
EQ	EQUIPMENT	SPEC	SPECIFICATION
EQUIP	EQUIPMENT	SF	SQUARE FOOT
EXT	EXTERIOR	SS	STAINLESS STEEL
FIB	FIBER INTERFACE FRAME	SUSP	SUSPENDED
FIN	FINISH	TWA	TOWER MOUNTED AMPLIFIER
FLR	FLOOR	TYP	TYPICAL
FT	FOOT	UMTS	UNIVERSAL MOBILE TELECOMMUNICATION SERVICE
CA	GALVE	UNO	UNLESS NOTED OTHERWISE
GALV	GALVANIZED	VERT	VERTICAL
GRND	GROUND	W/	WITH
GSM	GLOBAL SYSTEM MOBILE	W/O	WITHOUT
GYP	GYPNUM BOARD	WCS	WIRELESS COMMUNICATION SERVICE
HORIZ	HORIZONTAL	WP	WATER PROOF
HR	HOUR		
HT	HEIGHT		
ID	INSIDE DIAMETER		
IN	INCH, INCHES		
INSUL	INSULATION		
INT	INTERIOR		
L	LENGTH		
LBS	POUNDS		
LTE	LONG TERM EVOLUTION		
MAX	MAXIMUM		
MECH	MECHANICAL		
MFL	METAL		
MFR	MANUFACTURER		

9. CONSTRUCTION COORDINATION REQUIREMENTS:
 - a. NOTIFY OWNER OF ANY DISCREPANCIES PRIOR TO START OF WORK.
 - b. OBTAIN ALL PERMITS, SCHEDULE AND COORDINATE ALL INSPECTIONS.
 - c. PROVIDE, AT THE PROJECT SITE, A FULL, CURRENT SET OF CONSTRUCTION DOCUMENTS FOR USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
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 - j. SEAL ALL PENETRATIONS THROUGH FIRE-RATED AREAS WITH U.L. LISTED OR FIRE MARSHALL-APPROVED MATERIALS, IF APPLICABLE.
 - k. BURIED UTILITIES MAY EXIST IN THE AREA AND UTILITY INFORMATION SHOWN MAY NOT BE COMPLETE. CONTACT THE UTILITY LOCATE SERVICE A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION.
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1	FOR CONSTRUCTION	TC	06/03/19

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ATC PROJECT NUMBER	12963795
DISH WIRELESS SITE NUMBER	CT0100015A
ATC SITE NUMBER	88019
SITE ADDRESS:	428 PLATT HILL ROAD WINSTED, CT 06098

GENERAL NOTES	
SHEET NUMBER:	GN-2
REVISION:	0

SITE NOTES:

- WHEN SITE WORK IS INCLUDED IN SCOPE:
 - CLEAR AND GRUB SITE OF ALL VEGETATION, PAVING, GRAVEL BASE AND OTHER DEBRIS NOT TO REMAIN. SUBGRADES ARE TO BE SET PRIOR TO LANDSCAPE INSTALLATION.
 - PROVIDE ELEVATION OF SUBGRADE WITHIN 0.10 FOOT OF ELEVATIONS SHOWN ON PLAN MINUS DEPTH OF TOPSOIL, FILL, AND MULCH.
 - GRAVEL BASE ELEVATIONS INDICATED BEFORE PLANTING. PROVIDE POSITIVE DRAINAGE AWAY FROM EQUIPMENT SLABS, BUILDINGS AND THROUGH ALL PLANTER AREAS TO AVOID LOW SPOTS AND STANDING WATER.
 - BLENDED NEW GRADES NATURALLY INTO EXISTING GRADES.
 - MAINTAIN POSITIVE DRAINAGE ON THE SITE AT ALL TIMES.
 - IF REQUIRED, MAINTAIN CONTINUOUS EROSION CONTROL ON THE DOWNSTREAM SIDE OF THE SITE.
 - IN LANDSCAPE AREAS, FINISH GRADES ARE TO FOLLOW THE GRADES AND EDGE ELEVATIONS SHOWN ON THE PLAN. FINISH GRADES SHALL BE 6 INCHES IN THE CENTER OF THE BED ABOVE THE EDGE OF THE LANDSCAPE AREA.
 - DO NOT PLACE FILL OR EMBANKMENT MATERIAL ON FROZEN GROUND. DO NOT PLACE FROZEN MATERIALS, SNOW OR ICE IN ANY FILL OR EMBANKMENT.
- NOTIFY OWNER IF MODIFICATIONS TO THE PROPOSED GRADING SEEM NECESSARY AND OBTAIN APPROVAL PRIOR TO START OF WORK.
- FOOTINGS SHALL BEAR ON FIRM, NATURAL, UNDISTURBED SOIL, OR ON ENGINEERED FILL (COMPACTED FILL PER ASTM D 1557). ENSURE THAT EXCAVATIONS ARE FREE OF ORGANIC MATERIALS PER 90% ASTM D 1557. NOTIFY OWNER IF ANY UNUSUAL CONDITIONS ARE ENCOUNTERED.
- FILL AND SLAB BASE MATERIAL SHALL BE 3/4" MINUS CRUSHED ROCK PLACED IN 8" (MAXIMUM) LOOSE LIFTS AND COMPACTED TO 98% ASTM D1557.

CONCRETE NOTES:

- CONCRETE AND REINFORCING SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

CONCRETE CONSTRUCTION CEMENT	ACI 318, Fc=4 KSI, UNO
REINFORCING STEEL	ASTM C150, PORTLAND CEMENT TYPE II, UNO
WELDED WIRE FABRIC	ASTM A615 (INCLUDING SUPPLEMENT S1), GRADE 60, fy=60 KSI, UNO
SERIAL REINFORCEMENT ANCHOR BOLTS	ASTM A419 GRADE 60, fy=60 KSI
GRADE 60 REBAR WELDING	ASTM A307 GRADE 60, fy=60 KSI
- CONCRETE PROTECTION (COVER) FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

FOOTINGS AND OTHER UNFORMED SURFACES, EARTH FACE	3"
FORMED SURFACES EXPOSED TO EARTH OR WEATHER (≥ #6 BARS)	2"
FORMED SURFACES EXPOSED TO EARTH OR WEATHER (≥ #5 BARS)	1 1/2"
SLABS AND WALLS (INTERIOR FACE)	3/4"
- AIR ENTRAIN ALL CONCRETE WITH SURFACES EXPOSED TO WEATHER WITH AN AIR-ENTRAINING AGENT CONFORMING TO ASTM C260, C494, C618, C889 AND C1017. AIR ENTRAIN CONCRETE EXPOSED TO FREEZING AND THAWING WHILE MOIST IN ACCORDANCE WITH ACI 318, SECTION 4.4.1.
- DETAIL REINFORCING STEEL (INCLUDING HOOKS AND BENDS) IN ACCORDANCE WITH ACI 315 AND 318. LAP ALL CONTINUOUS REINFORCEMENT AT LEAST 30 BAR DIAMETERS OR A MINIMUM OF 4'-0". PROVIDE CORNER BARS AT ALL WALL AND FOOTING INTERSECTIONS. PROVIDE 18" MINIMUM CLEARANCE FROM ALL INTERSECTIONS TO THE CENTERLINE OF ADJACENT WALLS OF WELDED WIRE FABRIC A MINIMUM OF 8" AT SIDES AND ENDS.
- PERFORM WELDING OF GRADE 60 REINFORCING BARS (IF REQUIRED) USING LOW HYDROGEN ELECTRODES. PERFORM WELDING OF GRADE 40 REINFORCING BARS (IF REQUIRED) USING E70 XX ELECTRODES. DO NOT WELD WITHIN 4" OF COLD BENDS IN REINFORCING STEEL.
- DO NOT FIELD BEND REINFORCING PARTIALLY EMBEDDED IN CONCRETE UNLESS SPECIFICALLY SO DETAILED OR APPROVED BY THE ENGINEER.
- SUPPORT BARS ON CHAIRS OR DOBBIE BRICKS.
- FURNISH NON-SHRINK GROUT BY AN APPROVED MANUFACTURER. MIX AND PLACE IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED RECOMMENDATIONS. GROUT STRENGTH SHALL BE AT LEAST EQUAL TO THE MATERIAL ON WHICH IT IS PLACED (4 KSI, MINIMUM).
- ALL EXPANSION ANCHORS TO BE HILTI BRAND, UNO. TEST ADHESIVE ANCHORS TO CONFORM CAPACITY UNLESS WAIVED BY ENGINEER AND LOCAL JURISDICTION.

STRUCTURAL STEEL NOTES:

- STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

WIDE FLANGE SHAPES	ASTM A992, GRADE 50
SHAPES, PLATES, ANGLES, & RODS	ASTM A36, Fy 36 KSI
SPECIAL SHAPES AND PLATES	ASTM A572, Fy 50 KSI
PIPE COLUMNS	ASTM A53, GR B, Fy 35 KSI
STRUCTURAL TUBING	ASTM A500, GR B, Fy 46KSI
ANCHOR BOLTS	ASTM A307
CONNECTION BOLTS	ASTM A325 TWIST-OFF
- BASE STRUCTURAL STEEL DESIGN, FABRICATION AND ERECTION (INCLUDING FIELD WELDING, HIGH STRENGTH FIELD BOLTING, EXPANSION BOLTS, AND THROUGH EXPANSION ANCHORS) ON THE AISI "SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" LATEST EDITION.
- HOT DIP GALVANIZE AFTER FABRICATION PER A123/A123M-00 ALL STEEL EXPOSED TO WEATHER AND WHERE NOTED.
- CONFORM TO ALL AISI AND AWS STANDARDS FOR WELDING. PERFORM WELDING BY ANS/AWS D1.1 CERTIFIED WELDERS USING E70 XX ELECTRODES. USE ONLY PRE-QUALIFIED WELDS AS DEFINED BY AWS.
- PROVIDE COLD-FORMED STEEL FRAMING MEMBERS OF THE SHAPE, SIZE, AND GAUGE SHOWN ON THE PLANS. PROVIDE MINIMUM SECTION PROPERTIES INDICATED. ALL COLD-FORMED STEEL FRAMING SHALL CONFORM TO THE AISI "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS."
- FOR BOLTED CONNECTIONS, USE 3/4" DIA., BEARING-TYPE, A325 BOLTS WITH A MINIMUM OF TWO BOLTS, UNO.
- FOR NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING, USE 5/8" DIA. A307 BOLTS, UNO.
- PREPARE AND PAINT IN ACCORDANCE WITH THE PAINT MANUFACTURERS WRITTEN INSTRUCTIONS, UNO.
- TOUCH UP ALL FIELD DRILLING, WELDING AND CUT SURFACES WITH 2 COATS OF GALVAQUON (ZINC RICH PAINT) OR APPROVED EQUAL.
- THE STRUCTURAL INTEGRITY OF THE EQUIPMENT PLATFORM HAS NOT BEEN REVIEWED BY AMERICAN TOWER.

SPECIAL INSPECTIONS:

- WHEN REQUIRED, PROVIDE SPECIAL INSPECTIONS, PERFORMED BY AN INDEPENDENT INSPECTOR, APPROVED BY OWNER'S REPRESENTATIVE AND THE LOCAL JURISDICTION.
- THE SPECIAL INSPECTOR SHALL PROVIDE A COPY OF THE REPORT TO THE OWNER'S REPRESENTATIVE, STRUCTURAL ENGINEER, CONTRACTOR, AND BUILDING OFFICIAL.



AMERICAN TOWER, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: 919-434-1112
COB: 04177



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DATE DRAWN:	06/03/19		
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1	FOR CONSTRUCTION	TC	06/03/19

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ATC PROJECT NUMBER
12963795

DISH WIRELESS SITE NUMBER
CT0100015A

ATC SITE NUMBER
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SITE ADDRESS:
428 PLATT HILL ROAD
WINSTED, CT 06098

ELECTRICAL NOTES

SHEET NUMBER: **EN-2** REVISION: **0**

ELECTRICAL NOTES (CONTINUED)

COORDINATION:

- A. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ELECTRICAL ITEMS WITH THE OWNER-FURNISHED EQUIPMENT DELIVERY SCHEDULE TO PREVENT UNNECESSARY DELAYS IN THE TOTAL WORK.

INSTALLATION:

A. CONDUIT:

- ALL ELECTRICAL WIRING SHALL BE INSTALLED IN CONDUIT AS SPECIFIED. NO CONDUIT OR TUBING OF LESS THAN 3/4 INCH TRADE SIZE.
- PROVIDE RIGID PVC SCHEDULE 80 CONDUITS FOR ALL RISERS, OR WHERE RMC OTHERWISE NOTED.
- INSTALL SCHEDULE 40 PVC CONDUIT WITH A MINIMUM COVER OF 24" UNDER ROADWAYS, PARKING LOTS, STREETS, AND ALLEYS. CONDUIT SHALL HAVE A MINIMUM COVER OF 18" IN ALL OTHER NON-TRAFFIC APPLICATIONS (REFER TO 2017 NEC, TABLE 300.3).
- USE GALVANIZED FLEXIBLE STEEL CONDUIT WHERE DIRECT CONNECTION TO EQUIPMENT WITH MOVEMENT, VIBRATION, OR FOR EASE OF MAINTENANCE. USE LIQUID TIGHT, FLEXIBLE METAL CONDUIT FOR OUTDOOR APPLICATIONS. INSTALL GALVANIZED FLEXIBLE STEEL CONDUIT AT ALL POINTS OF CONNECTION TO EQUIPMENT MOUNTED ON SUPPORT TO ALLOW FOR EXPANSION AND CONTRACTION.
- A RUN OF CONDUIT BETWEEN BOXES OR EQUIPMENT SHALL NOT CONTAIN MORE THAN THE EQUIVALENT OF THREE 90 DEGREE BENDS MAX. CONDUIT BEND SHALL BE MADE WITH THE UL LISTED BENDER OR FACTORY 90 DEGREE ELBOWS MAY BE USED.
- FIELD FABRICATED CONDUITS SHALL BE CUT SQUARE WITH A CONDUIT CUTTING TOOL AND REAMED TO PROVIDE A SMOOTH INSIDE SURFACE.
- PROVIDE INSULATED GROUNDING BUSHING FOR ALL CONDUITS.
- CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL CONDUITS DURING CONSTRUCTION. TEMPORARY OPENINGS IN THE CONDUIT SYSTEM SHALL BE PLUGGED OR CAPPED TO PREVENT ENTRANCE OF MOISTURE OR FOREIGN MATERIALS. CONTRACTOR SHALL REPLACE ANY CONDUITS CONTAINING FOREIGN MATERIALS THAT CANNOT BE REPAIRED.
- ALL CONDUITS SHALL BE SWABBED CLEAN BY PULLING AN APPROPRIATE SIZE MANDREL THROUGH THE CONDUIT BEFORE INSTALLATION OF CONDUCTORS OR CABLES. CONDUIT SHALL BE FREE OF DIRT AND DEBRIS.
- INSTALL PULL STRINGS IN ALL CLEAN EMPTY CONDUITS. IDENTIFY PULL STRINGS AT EACH END.
- INSTALL 2" HIGHLY VISIBLE AND DETECTABLE TAPE 12" ABOVE ALL UNDERGROUND CONDUITS AND CONDUCTORS.
- CONDUITS SHALL BE INSTALLED IN SUCH A MANNER AS TO INSURE AGAINST COLLECTION OF TRAPPED CONDENSATION.
- PROVIDE CORE DRILLING AS NECESSARY FOR PENETRATIONS TO ALLOW FOR RACEWAYS AND CABLES TO BE ROUTED THROUGH THE BUILDING. DO NOT PENETRATE STRUCTURAL MEMBERS AND/OR SLABS. PENETRATIONS IN FIRE RATED CONSTRUCTION SHALL BE EFFECTIVELY SEALED WITH FIRE RATED MATERIAL WHICH SHALL MAINTAIN THE FIRE RATING OF THE WALL OR STRUCTURE. FIRE STOPS AT FLOOR PENETRATIONS SHALL PREVENT PASSAGE OF WATER, SMOKE, FIRE, AND FUMES. ALL MATERIAL SHALL BE UL APPROVED FOR THE PURPOSE.

B. CONDUCTORS AND CABLE:

- SPICES SHALL BE MADE ONLY AT OUTLETS, JUNCTION BOXES, OR ACCESSIBLE RACEWAY CONDUITS APPROVED FOR THIS PURPOSE.
- PULLING LUBRICANTS SHALL BE UL APPROVED. CONTRACTOR SHALL USE NYLON OR HEMP ROPE FOR PULLING CONDUIT OR CABLES INTO THE CONDUIT.
- CABLES SHALL BE NEATLY TRAINED, WITHOUT INTERLACING, AND BE OF SUFFICIENT LENGTH IN ALL BOXES AND EQUIPMENT TO PERMIT MAKING A NEAT ARRANGEMENT. CABLES SHALL BE SECURED IN A MANNER TO AVOID TENSION ON CONDUCTORS OR TERMINALS. CONDUCTORS SHALL BE PROTECTED FROM MECHANICAL INJURY AND MOISTURE. SHARP BENDS OVER CONDUIT BUSHINGS IS PROHIBITED. DAMAGED CABLES SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.

C. DISCONNECT SWITCHES:

- INSTALL DISCONNECT SWITCHES LEVEL AND PLUMB. CONNECT TO WIRING SYSTEM AND GROUNDING SYSTEM AS INDICATED.

D. GROUNDING:

- ALL METALLIC PARTS OF ELECTRICAL EQUIPMENT WHICH DO NOT CARRY CURRENT SHALL BE GROUNDED IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING MANUFACTURER, DISH WIRELESS GROUNDING AND BONDING STANDARDS, LATEST EDITION, AND COMPLY WITH DISH WIRELESS GROUNDING CHECKLIST, LATEST VERSION, AND THE NATIONAL ELECTRICAL CODE.
- PROVIDE ELECTRICAL GROUNDING AND BONDING SYSTEM INDICATED WITH ASSEMBLY OF MATERIALS, INCLUDING GROUNDING ELECTRODES, BONDING JUMPERS AND ADDITIONAL ACCESSORIES AS REQUIRED FOR A COMPLETE INSTALLATION.

- ALL GROUNDING CONDUCTORS SHALL PROVIDE A STRAIGHT DOWNWARD PATH TO GROUND, WITH GRADUAL BEND AS REQUIRED. GROUNDING CONDUCTORS SHALL NOT BE LOOPED OR SHARPLY BENT. ROUTE GROUNDING CONNECTIONS AND CONDUCTORS TO GROUND IN THE SHORTEST AND STRAIGHTEST PATHS POSSIBLE TO MINIMIZE TRANSIENT VOLTAGE RISES.

- BUILDINGS AND/OR NEW TOWERS GREATER THAN 75 FEET IN HEIGHT AND WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO EXISTING GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWER, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 AWG COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM. THE CONTRACTOR SHALL VERIFY THE EXISTING GROUNDING SYSTEM IS A BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). SEE STANDARD 6.3.2.2.

- TIGHTEN GROUNDING AND BONDING CONNECTORS, INCLUDING SCREWS AND BOLTS, IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED TORQUE TIGHTENING VALUES FOR CONNECTORS AND BOLTS, WHERE MANUFACTURER'S TORQUE REQUIREMENTS ARE NOT AVAILABLE. TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUE VALUES SPECIFIED IN UL TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.
- CONTRACTOR SHALL VERIFY THE LOCATIONS OF GROUNDING TIE-IN POINTS TO THE EXISTING GROUNDING SYSTEM. ALL UNDERGROUND GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC WELD PROCESS AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

- ALL GROUNDING CONNECTIONS SHALL BE INSPECTED FOR TIGHTNESS. EXOTHERMIC WELDED CONNECTIONS SHALL BE APPROVED BY THE INSPECTOR HAVING JURISDICTION BEFORE BEING PERMANENTLY CONCEALED.

- APPLY CORROSION-RESISTANT FINISH TO FIELD CONNECTIONS AND PLACES WHERE FACTORY APPLIED PROTECTIVE COATINGS HAVE BEEN DESTROYED. USE KOPR-SHIELD ANTI-OXIDATION COMPOUND ON ALL COMPRESSION GROUNDING CONNECTIONS.

- A SEPARATE CONTINUOUS, INSULATED EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED IN ALL FEEDER AND BRANCH CIRCUITS.

- BOND ALL INSULATED GROUNDING BUSHINGS WITH A BARE #6 AWG GROUNDING CONDUCTOR TO A GROUND BUS.

- DIRECT BURIED GROUNDING CONDUCTORS SHALL BE INSTALLED AT A NOMINAL DEPTH OF 30" MINIMUM BELOW GRADE, OR 6" BELOW THE FROST LINE, USE THE GREATER OF THE TWO DISTANCES.

- ALL GROUNDING CONDUCTORS EMBEDDED IN OR PENETRATING CONCRETE SHALL BE INSTALLED IN SCHEDULE 40 PVC CONDUIT.

- THE INSTALLATION OF CHEMICAL ELECTROLYTIC GROUNDING SYSTEM SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. REMOVE SEALING TAPE FROM LEACHING AND BREATHER HOLES. INSTALL PROTECTIVE BOX FLUSH WITH GRADE.

- DRIVE GROUND RODS UNTIL TOPS ARE A MINIMUM DISTANCE OF 30" DEPTH OR 6" BELOW FROST LINE, USING THE GREATER OF THE TWO DISTANCES.

- CONTRACTOR SHALL REPAIR, AND/OR REPLACE, EXISTING GROUNDING SYSTEM COMPONENTS DAMAGED DURING CONSTRUCTION AT THE CONTRACTOR'S EXPENSE.

ACCEPTANCE TESTING:

- CERTIFIED PERSONNEL USING CERTIFIED EQUIPMENT SHALL PERFORM REQUIRED TESTS AND SUBMIT WRITTEN TEST REPORTS UPON COMPLETION.
 - WHEN MATERIAL AND/OR WORKMANSHIP IS FOUND NOT TO COMPLY WITH THE SPECIFIED REQUIREMENTS, THE NON-COMPLYING ITEMS SHALL BE REMOVED FROM THE PROJECT SITE AND REPLACED WITH ITEMS COMPLYING WITH THE SPECIFIED REQUIREMENTS PROMPTLY AFTER RECEIPT OF NOTICE FOR NON-COMPLIANCE.
- C. TEST PROCEDURES:**
- ALL FEEDERS SHALL HAVE INSULATION TESTED AFTER INSTALLATION, BEFORE CONNECTION TO DEVICES. THE CONDUCTORS SHALL BE TEST FREE FROM SHORTS, GROUNDING, AND OPEN CIRCUITS. TESTING SHALL BE FOR ONE MINUTE USING 1000V DC. PROVIDE WRITTEN DOCUMENTATION FOR ALL TEST RESULTS.
 - PRIOR TO ENERGIZING CIRCUITRY, TEST WIRING DEVICES FOR ELECTRICAL CONTINUITY AND PROPER POLARITY CONNECTIONS.
 - MEASURE AND RECORD VOLTAGES BETWEEN PHASES AND BETWEEN PHASE CONDUCTORS AND NEUTRALS, SUBMIT A REPORT OF MAXIMUM AND MINIMUM VOLTAGES.
 - PERFORM GROUNDING TEST TO MEASURE GROUNDING RESISTANCE OF GROUNDING SYSTEM USING THE IEEE STANDARD 3-POINT "FALL-OF-POTENTIAL" METHOD. PROVIDE PLOTTED TEST VALUES AND LOCATION SKETCH. NOTIFY THE ENGINEER IMMEDIATELY IF MEASURED VALUE IS OVER 5 OHMS.



AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3600 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: 919.411.1112
FAX: 919.411.1112
COR. 04177

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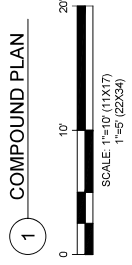
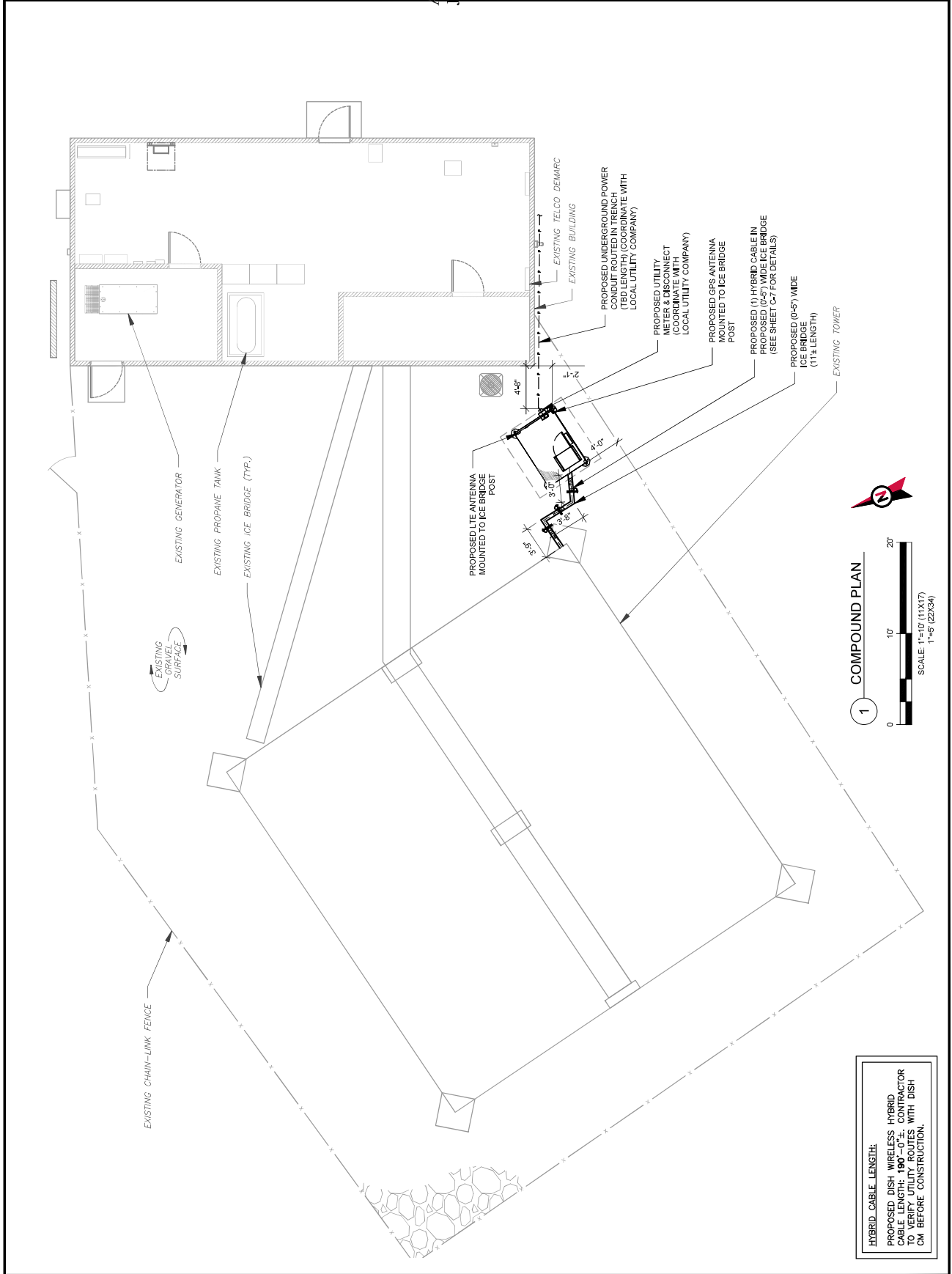
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ATC PROJECT NUMBER:	12963795
DISH WIRELESS SITE NUMBER:	CT0100015A
ATC SITE NUMBER:	88019
SITE ADDRESS:	428 PLATT HILL ROAD WINSTED, CT 06098

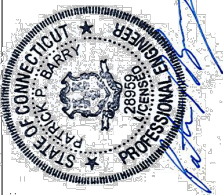
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REVISION:	0



HYBRID CABLE LENGTH:
PROPOSED DISH WIRELESS HYBRID CABLE LENGTH: 190'-0". CONTRACTOR TO VERIFY UTILITY ROUTES WITH DISH CM BEFORE CONSTRUCTION.



AMERICAN TOWER
A.T. ENGINEERING SERVICE, PLLC
3600 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: 919.434.1112
FAX: 919.434.1177



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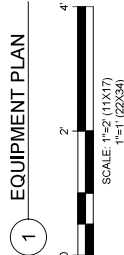
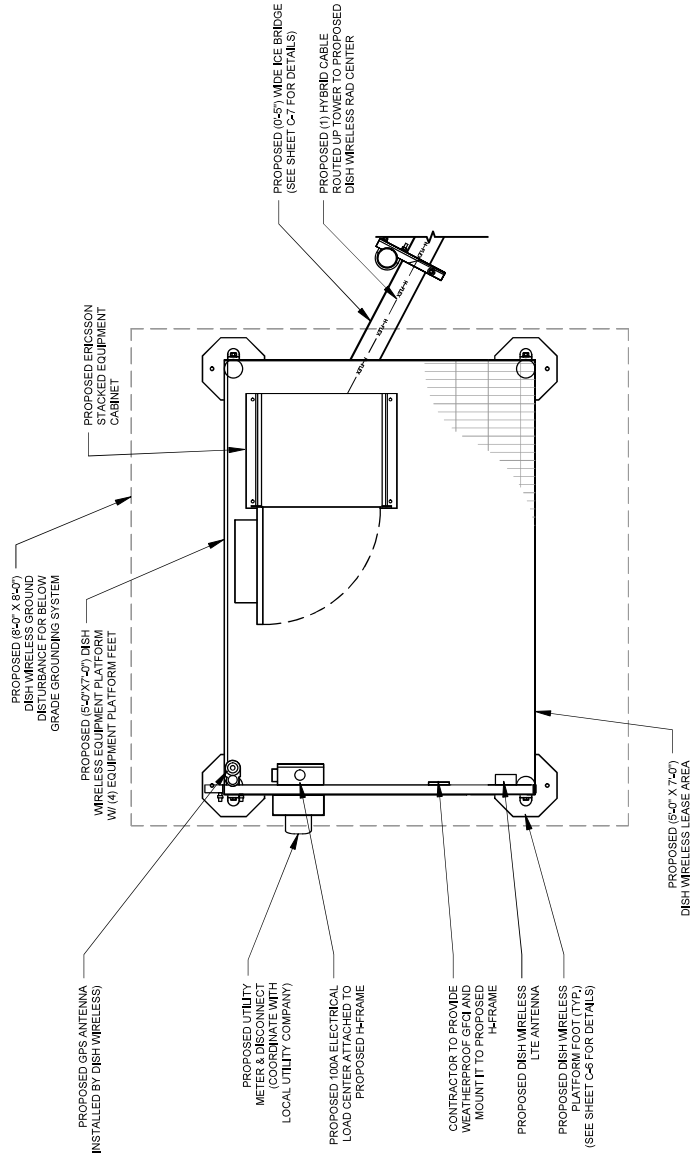
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EQUIPMENT PLAN

SHEET NUMBER: **C-2**

REVISION: **0**

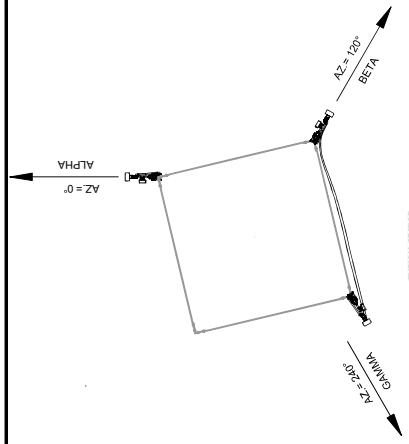


- NOTES:**
- PROPOSED SATELLITE DISH OR LTE BACKHAUL LOCATION TO BE VERIFIED, WITH DISH CM, IN THE FIELD AT TIME OF CONSTRUCTION.
 - CONTRACTOR TO PROVIDE 4MIL BLACK PLASTIC BENEATH PROPOSED DISH WIRELESS EQUIPMENT PLATFORM AND LEGS.

PROPOSED ERICSSON EQUIPMENT SCHEDULE

SECTOR	ANTENNA MANUFACTURER	HYBRID CABLES	AZ/MUTH	RAD CENTER	MECH D-TILT	ELECT D-TILT	RRU MANUFACTURER	RRU TECHNOLOGY	RRU LOCATION	JUMPER SIZE	JUMPER QTY	JUMPER LENGTH
ALPHA 1	-	-	-	-	-	-	-	-	-	-	-	-
ALPHA 2	ODI2-06SR18K-GQ	HYBRID-DISHYBNT-18612-70M	0°	154°-0"	-	-	-	-	-	-	-	-
ALPHA 3	-	-	-	-	0°	2°	ERICSSON 0208 ERICSSON 4415	H BLOCK BAND 70	SECTOR MOUNT	1/2"	2	10'-0"
BETA 1	-	-	-	-	-	-	-	-	-	-	-	-
BETA 2	ODI2-06SR18K-GQ	SHARE WITH ALPHA	120°	154°-0"	-	-	-	-	-	-	-	-
BETA 3	-	-	-	-	0°	2°	ERICSSON 0208 ERICSSON 4415	H BLOCK BAND 70	SECTOR MOUNT	1/2"	2	10'-0"
GAMMA 1	-	-	-	-	-	-	-	-	-	-	-	-
GAMMA 2	ODI2-06SR18K-GQ	SHARE WITH ALPHA	240°	154°-0"	-	-	-	-	-	-	-	-
GAMMA 3	-	-	-	-	0°	2°	ERICSSON 0208 ERICSSON 4415	H BLOCK BAND 70	SECTOR MOUNT	1/2"	2	30'-0"

PROPOSED RET CABLE 4415 RRU TO ANTENNA. (1) PER SECTOR. BETA SECTOR TO BE DMISY CHAINED TO GAMMA.

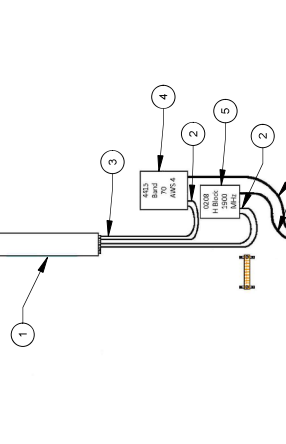


NOTE:

- CONTRACTOR TO REFER TO, AND VALIDATE, THE LATEST RFDS PRIOR TO CONSTRUCTION.

KEY NOTES:

- ANTENNA - COMBA ODI2-06SR18K-GQ - (DISH PROVIDED)
- CLAM-SHELL WEATHER PROOFING (CONTRACTOR PROVIDED)
- PROPOSED (6 EA) 1/2" COAX JUMPERS FROM RRUS TO ANTENNA - (DISH PROVIDED) - VARIABLE LENGTHS
- RRU - 4415 (X2) BAND 70 AWS 4+ - (DISH PROVIDED)
- RRU - 0208 (X3) H BLOCK 1900 MHZ - (DISH PROVIDED)
- DC/FIBER JUMPER CABLES (BREAKOUT CYLINDER TO RRU)
- SECTOR GROUND BUS BAR - 12"x4"x1/4" (DISH PROVIDED)
- FIBER/POWER BREAKOUT CYLINDER
- GROUND KIT ON HYBRID CABLE
- UPPER TOWER GROUND BUS BAR - 12"x4"x1/4" (DISH PROVIDED)
- HYBRID CABLE
- LOWER TOWER GROUND BUS BAR - 12"x4"x1/4" (DISH PROVIDED)
- EQUIPMENT GROUND BUS BAR - 12"x4"x1/4" (DISH PROVIDED)
- ADD ADDITIONAL BUS BARS AND GROUND KITS ON TOWER IN 50, 100, OR 200-FOOT INCREMENTS BASED ON TOWER HEIGHT AND LIGHTING ZONE REQUIREMENTS



ANTENNA NOTES:

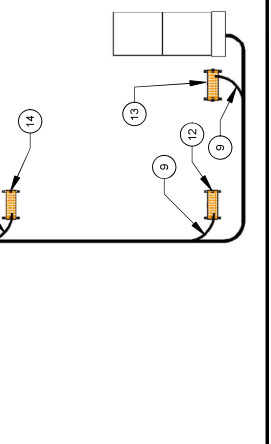
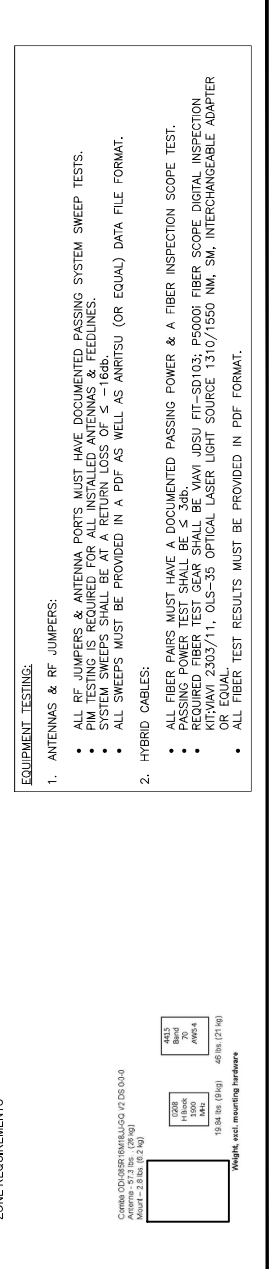
- ANTENNA FEEDERS AND ANTENNA JUMPERS SHALL BE COLOR CODED PER DISH WIRELESS REQUIREMENTS. CABLE TRIPPING SHALL BE ADDED TO EACH ANTENNA FEEDLINE AND ANTENNA JUMPER PER SHEET A-4.0 DETAIL 5.
- TERMINATE UNUSED ANTENNA PORTS WITH CONNECTOR CAP AND WEATHERPROOF THOROUGHLY.
- CONTRACTOR MUST FOLLOW ALL MANUFACTURERS' RECOMMENDATIONS AND DISH SPECIFICATIONS REGARDING INSTALLATION OF FEEDLINES, CONNECTORS, AND ANTENNAS.
- WEATHERPROOF ALL ANTENNA CONNECTORS WITH CLAM SHELLS.
- ANTENNA CONTRACTOR SHALL PERFORM A "TAPE DROP" MEASUREMENT TO CONFIRM/VALIDATE ANTENNA CENTERLINE (ACL) HEIGHT.
- CONTRACTOR TO CONFIRM/VALIDATE THE LATEST RFDS PRIOR TO CONSTRUCTION.

INSTALLER NOTE:

- SCHEMATIC LAYOUT ONLY. REFER TO EXACT EQUIPMENT LAYOUT, SIZES AND LOCATIONS OF ICE BRIDGE OR RMC.
- ALL CABLE SUPPORTS SHOULD BE BLOCKS AND GROMMETS. BUTTERFLIES AND SNAP-INS ARE NOT ALLOWED.
- STRAIN-RELIEVE SUPPORT FOR ALL TOWER CABLES AND/OR FIBERS, SHALL OCCUR EVERY 48" VERTICALLY, AND 24" HORIZONTALLY.
- CONTRACTOR TO REFERENCE DISH NETWORK LATEST ISSUE RFDS AND GIVE PRECEDENCE TO INFORMATION PROVIDED IN LATEST RFDS OVER INFORMATION PROVIDED IN ANTENNA SCHEDULE TABLE.
- CONTRACTOR TO VERIFY PROPOSED LOADING, TOWER FOUNDATION MODIFICATIONS AND REMOVED EQUIPMENT AS STATED IN PASSING STRUCTURAL ANALYSIS AND MOD DESIGNS AND CONTACT DISH NETWORK IMMEDIATELY IN THE EVENT OF ANY DISCREPANCIES.
- CONTRACTOR IS TO NOTE ANY APPURTENANCES ON TOWER THAT EXTENDS WITHIN 2' OF THE TOP OF AND 5' BELOW THE DISH ANTENNAS. IF ANY APPURTENANCE IS ENCRACHING THIS THRESHOLD, THE CONTRACTOR IS TO COMMUNICATE THE FINDING WITH DISH NETWORK IMMEDIATELY AND BEFORE CONSTRUCTION STARTS.

EQUIPMENT TESTING:

- ANTENNAS & RF JUMPERS:
 - ALL RF JUMPERS & ANTENNA PORTS MUST HAVE DOCUMENTED PASSING SYSTEM SWEEP TESTS.
 - ALL ANTENNAS & FEEDLINES MUST PASS SYSTEM SWEEP TESTS.
 - SYSTEM SWEEPS SHALL BE AT A RETURN LOSS OF ≤ 1.6 dB.
 - ALL SWEEPS MUST BE PROVIDED IN A PDF AS WELL AS ANRITSU (OR EQUAL) DATA FILE FORMAT.
- HYBRID CABLES:
 - ALL FIBER PAIRS MUST HAVE A DOCUMENTED PASSING POWER & A FIBER INSPECTION SCOPE TEST.
 - PASSING POWER TEST SHALL BE ≤ 3 dB.
 - REQUIRED FIBER TEST GEAR SHALL BE VIA JDSU FIT-SD103; P5000; FIBER SCOPE DIGITAL INSPECTION KIT; WAVE 2303/11; OL3-35 OPTICAL LASER LIGHT SOURCE 1310/1550 NM, SM, INTERCHANGEABLE ADAPTER OR EQUAL.
 - ALL FIBER TEST RESULTS MUST BE PROVIDED IN PDF FORMAT.



THIS SHEET HAS BEEN PROVIDED BY THE APPLICANT AND REPRODUCED AT THEIR REQUEST

Alpha Sector		Technology	
(+) Port [Tx]	700 MHz	800 MHz	White
Antenna/RRH - 1	Black	Red	Black
Antenna/RRH - 2	Black	Red	Black
Antenna/RRH - 3	Black	Red	Black
(-) Port [Rx]	White	Yellow	Black
Antenna/RRH - 1	Black	Red	Black
Antenna/RRH - 2	Black	Red	Black
Antenna/RRH - 3	Black	Red	Black
Beta Sector		Technology	
(+) Port [Tx]	White	Blue	Black
Antenna/RRH - 1	Black	Blue	Black
Antenna/RRH - 2	Black	Blue	Black
Antenna/RRH - 3	Black	Blue	Black
(-) Port [Rx]	White	Yellow	Black
Antenna/RRH - 1	Black	Blue	Black
Antenna/RRH - 2	Black	Blue	Black
Antenna/RRH - 3	Black	Blue	Black
Gamma Sector		Technology	
(+) Port [Tx]	White	Green	Black
Antenna/RRH - 1	Black	Green	Black
Antenna/RRH - 2	Black	Green	Black
Antenna/RRH - 3	Black	Green	Black
(-) Port [Rx]	White	Yellow	Black
Antenna/RRH - 1	Black	Green	Black
Antenna/RRH - 2	Black	Green	Black
Antenna/RRH - 3	Black	Green	Black

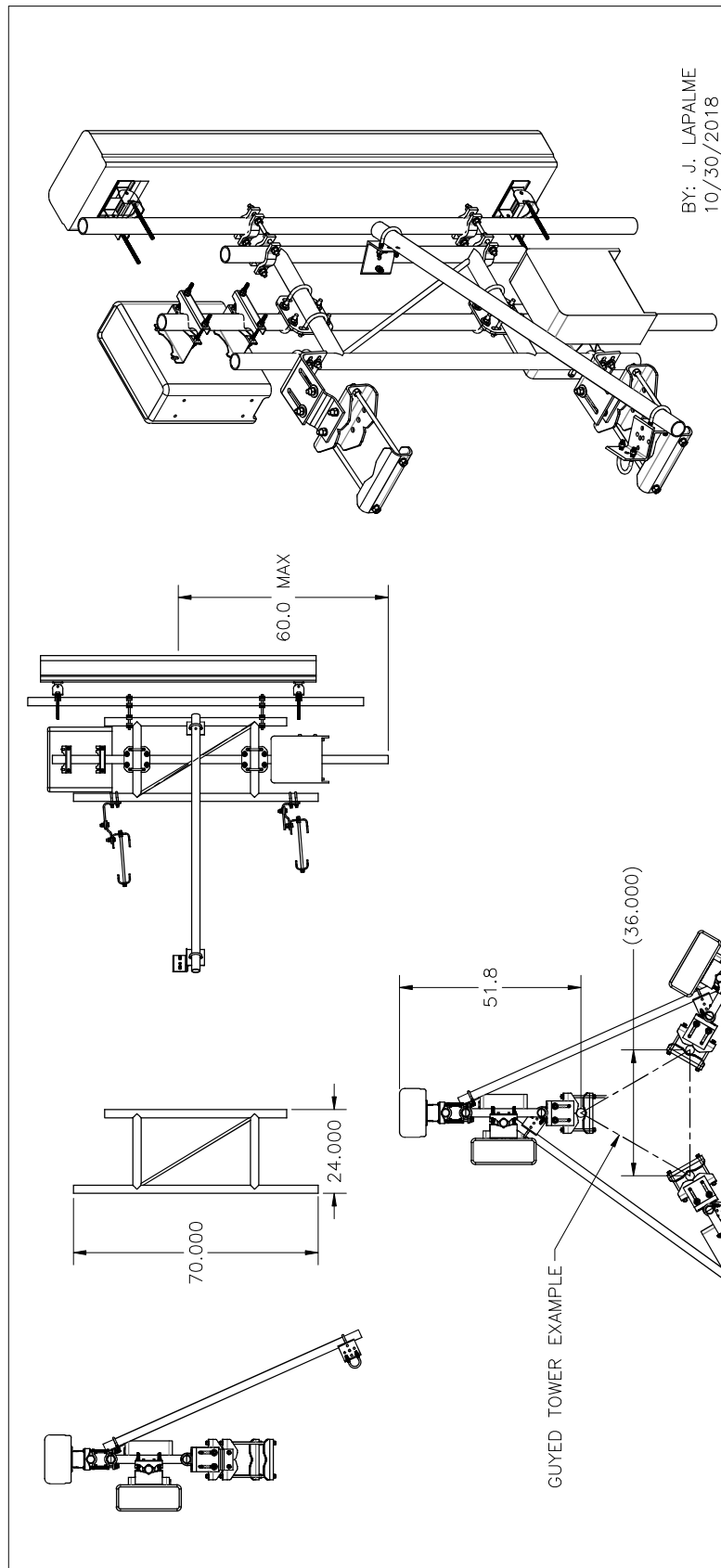
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ATC PROJECT NUMBER: 12963795
DISH WIRELESS SITE NUMBER: CT0100015A
ATC SITE NUMBER: 88019
SITE ADDRESS: 428 PLATT HILL ROAD WINSTED, CT 06098
CABLE COLOR CODE
SHEET NUMBER: 2 OF 3
REVISION: 0

NOTE:
CONTRACTOR TO REFER TO AND VALIDATE THE LATEST RISBS PRIOR TO CONSTRUCTION.

CABLE COLOR CODE

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BY: J. LAPALME
10/30/2018



COMMSCOPE P-200 STAND-OFF FRAME,
PM-SU2-B UNIVERSAL TOWER MOUNT KIT,
BC-30-10 PIPE-TO-PIPE CLAMP SET,
XP-2020 CROSSOVER BRKTS. (2),
SA-B12 STIFF ARM KIT AND
PLUS 2X MT-651-96 PLAIN END PIPES

SCALE 1:28



TITLE		TOP VIEW, GUYED TOWER P-200 CONFIG.	
SIZE	DWG. NO.	REV.	
B	XXXXX	WC01	
SCALE	NONE	SHEET	1 OF 1

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DISH WIRELESS SITE NUMBER:	CT0100015A
ATC SITE NUMBER:	88019
SITE ADDRESS:	428 PLATT HILL ROAD WINSTED, CT 06098
ANTENNA MOUNT DETAILS	
SHEET NUMBER:	3 OF 3
REVISION:	0



AMERICAN TOWER
 A.T. ENGINEERING SERVICE, PLLC
 3600 REGENCY PARKWAY
 SUITE 100
 CARY, NC 27518
 PHONE: 919-471-1112
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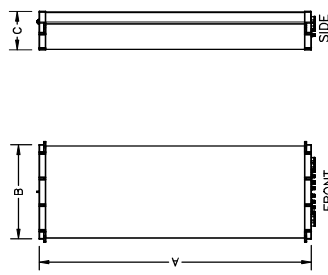


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APPROVED BY:	FPB		
DATE DRAWN:	06/03/19		
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DISH WIRELESS SITE NUMBER	CT0100015A
ATC SITE NUMBER	88019
SITE ADDRESS:	428 PLATT HILL ROAD WINSTED, CT 06098

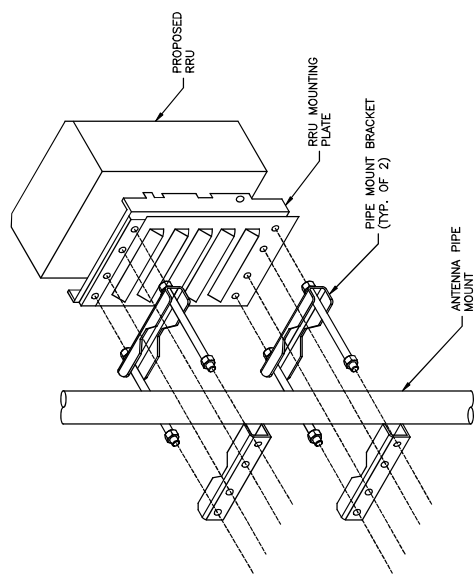
EQUIPMENT DETAILS	
SHEET NUMBER:	C-4
REVISION:	0



NOTE: NO BAND 29 ANTENNA

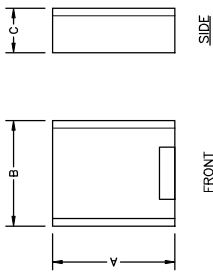
ANTENNA SPECIFICATIONS				
MODEL	LENGTH (A)	WIDTH (B)	DEPTH (C)	WEIGHT (lb)
COMBA - 0D-066R16M16J-GQ V2	78.7"	14.0"	7.6"	57.3
PANORAMA - WMG-7-27	6.10"	6.10"	2.95"	2.43

ANTENNA SPECIFICATIONS
 N.T.S.



- NOTES:
- ERICSSON VIA DISH WIRELESS SUPPLIES RRU, RRU PIPE-MOUNTING BRACKET, RRU MOUNTING HARDWARE INCLUDING RRU PIPE-MOUNTING BRACKET.
 - NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED

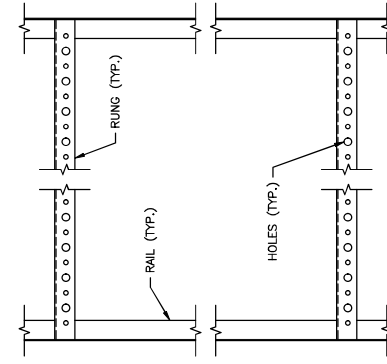
REMOTE RADIO UNIT (RRU) PIPE MOUNT
 N.T.S.



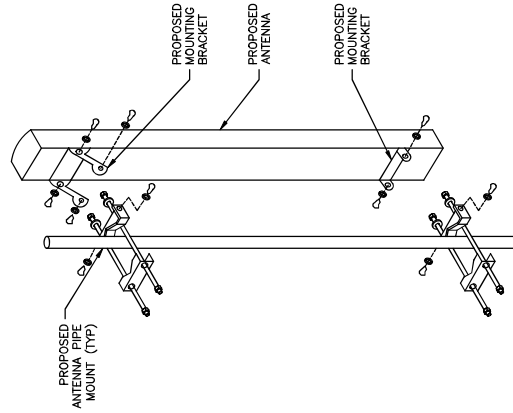
RADIO SPECIFICATIONS				
MODEL	LENGTH (A)	WIDTH (B)	DEPTH (C)	WEIGHT (lb)
ERICSSON - RADIO 4415	16.54"	13.64"	4.84"	44.09
ERICSSON - RADIO 0208	13.82"	11.73"	3.31"	18.52

RADIO SPECIFICATIONS
 N.T.S.

LADDER NOTE:
 LADDER TO BE PLACED ON TOWER IN 20'-0" SECTIONS UP TO PROPOSED DISH WIRELESS RAD CENTER.



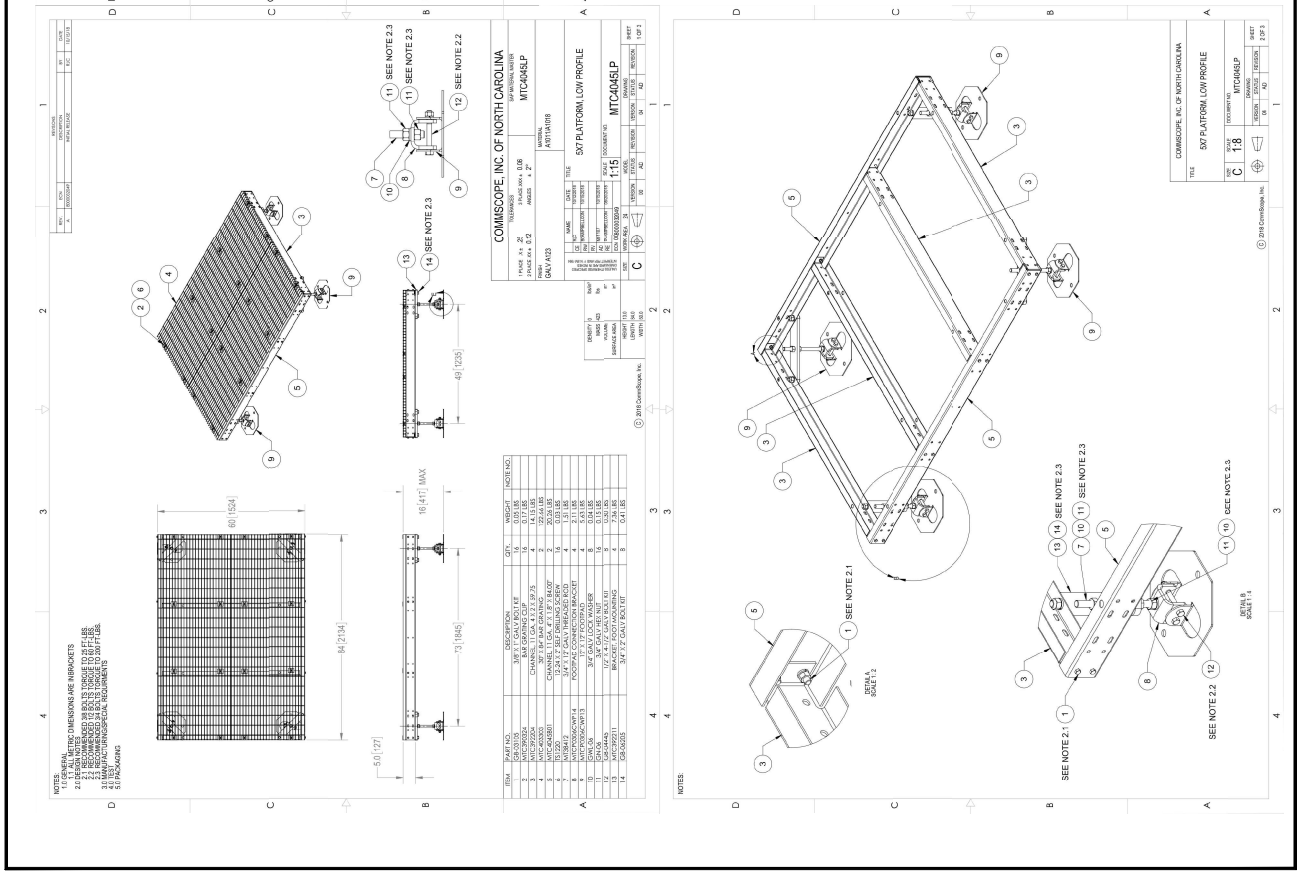
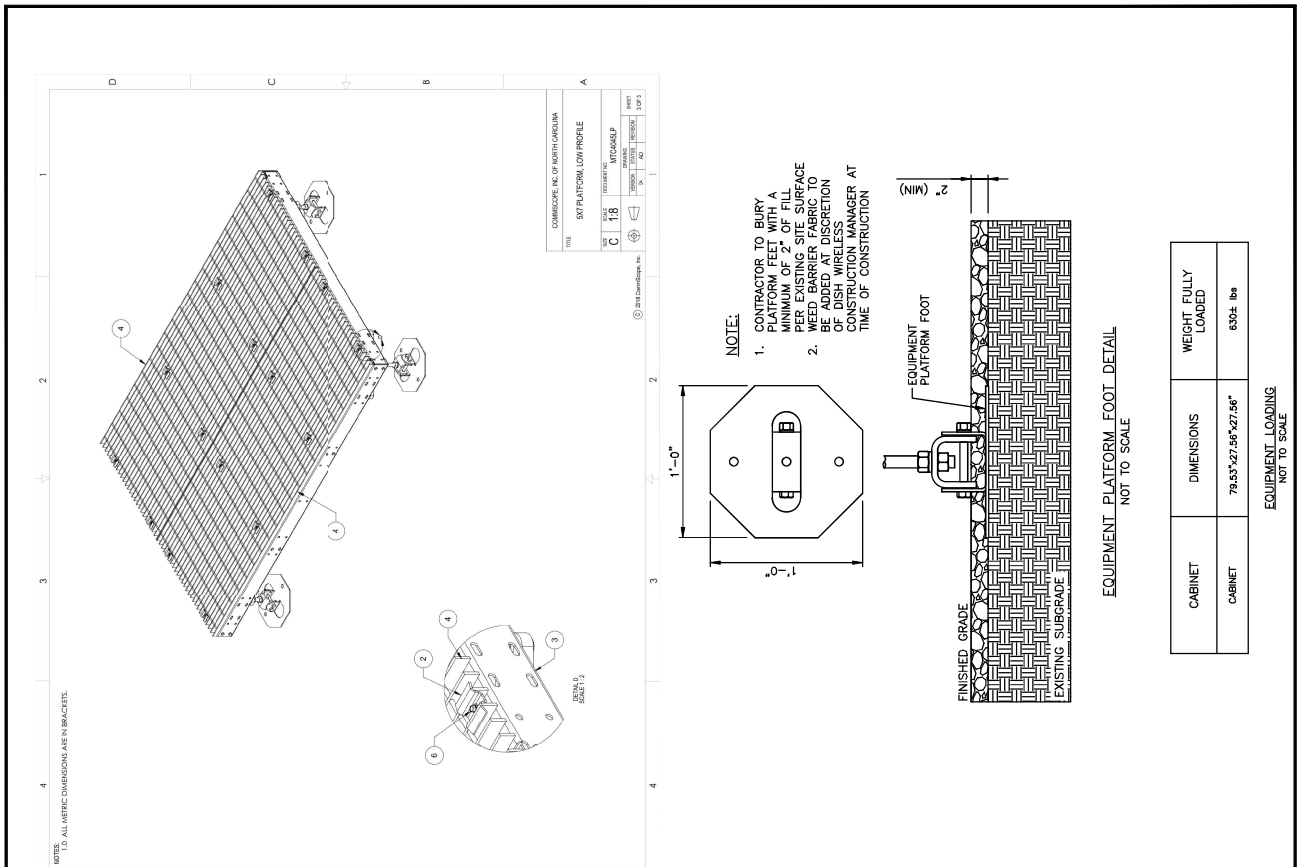
CABLE LADDER DETAIL (OPTIONAL)
 N.T.S.



ANTENNA MOUNTING
 N.T.S.

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ATC PROJECT NUMBER: 12963795	DISH WIRELESS SITE NUMBER: CT0100015A	ATC SITE NUMBER: 88019
SITE ADDRESS: 428 PLATT HILL ROAD WINSTED, CT 06098		
EQUIPMENT DETAILS		
SHEET NUMBER: C-6		REVISION: 0





AMERICAN TOWER
A.T. ENGINEERING SERVICE, PLLC
 3600 REGENCY PARKWAY
 SUITE 100
 CAREY, NC 27518
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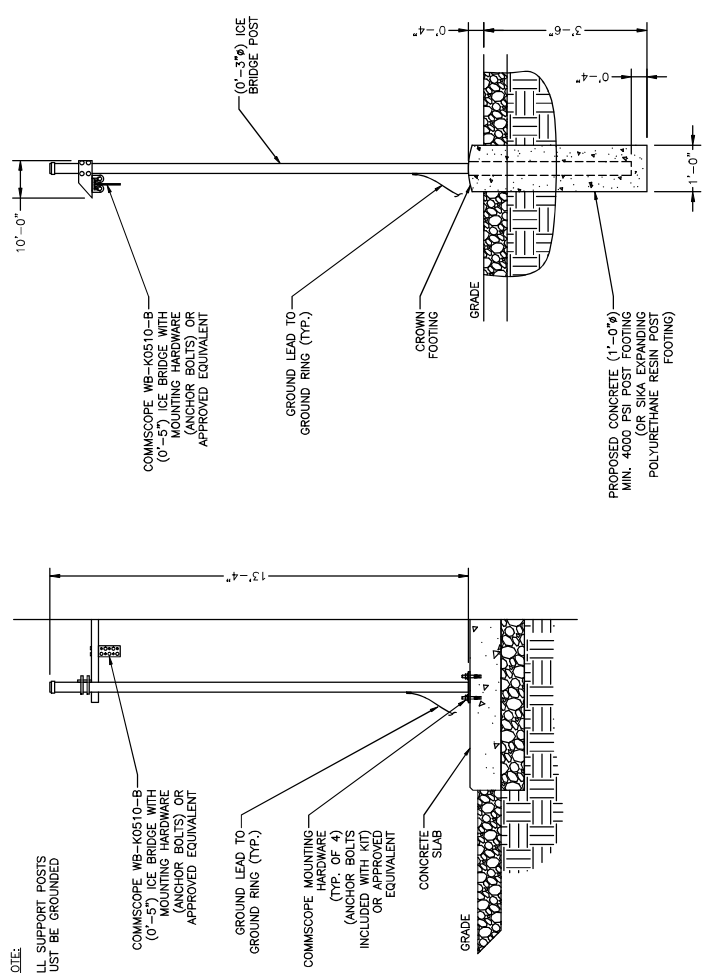
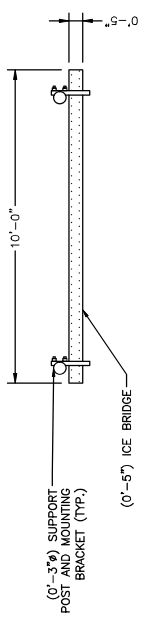
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REV.	DESCRIPTION	BY	DATE
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ATC PROJECT NUMBER:
12963795
 DISH WIRELESS SITE NUMBER:
CT0100015A
 ATC SITE NUMBER:
88019
 SITE ADDRESS:
 428 PLATT HILL ROAD
 WINSTED, CT 06098

CIVIL DETAILS
 SHEET NUMBER: **C-7**
 REVISION: **0**





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A.T. ENGINEERING SERVICE, PLLC
 3500 REGENCY PARKWAY
 SUITE 100
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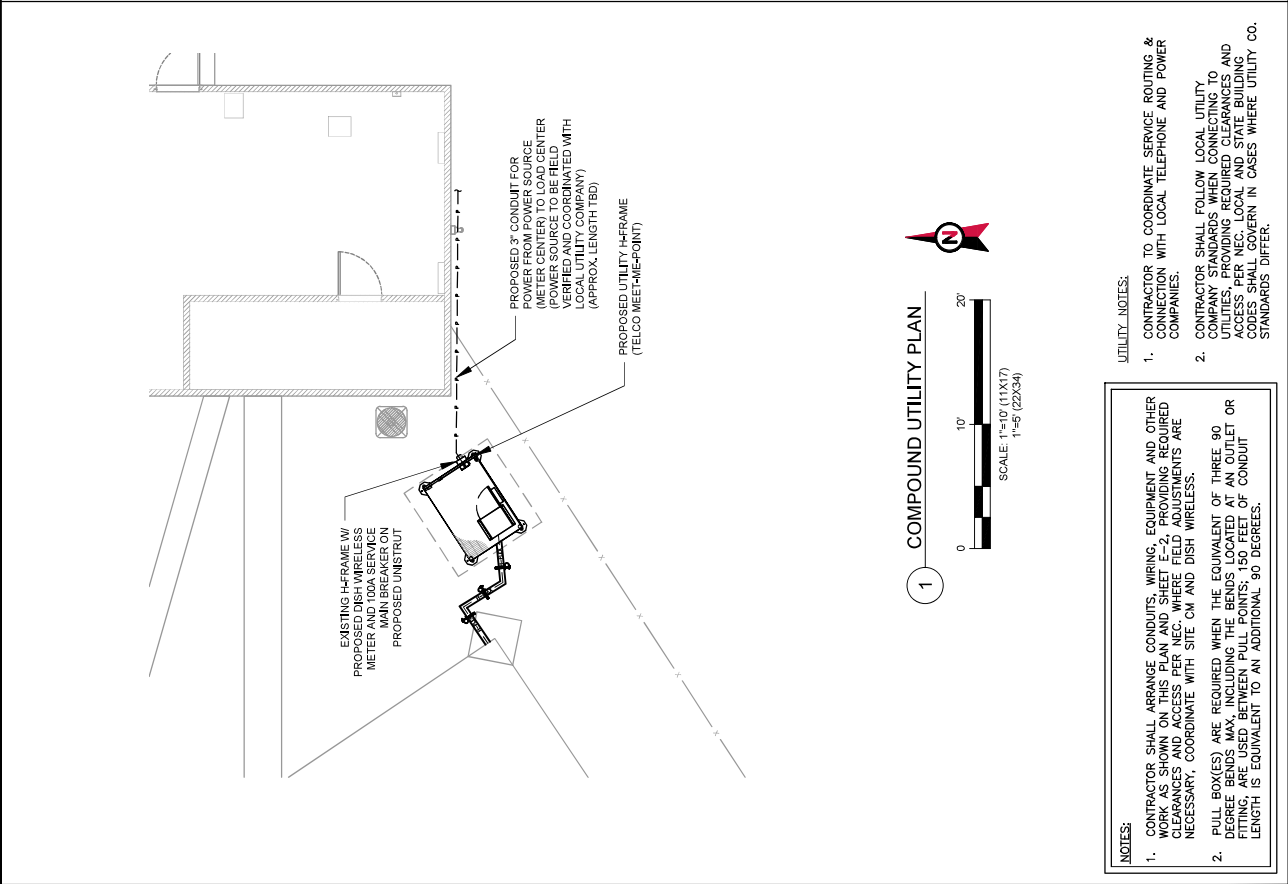
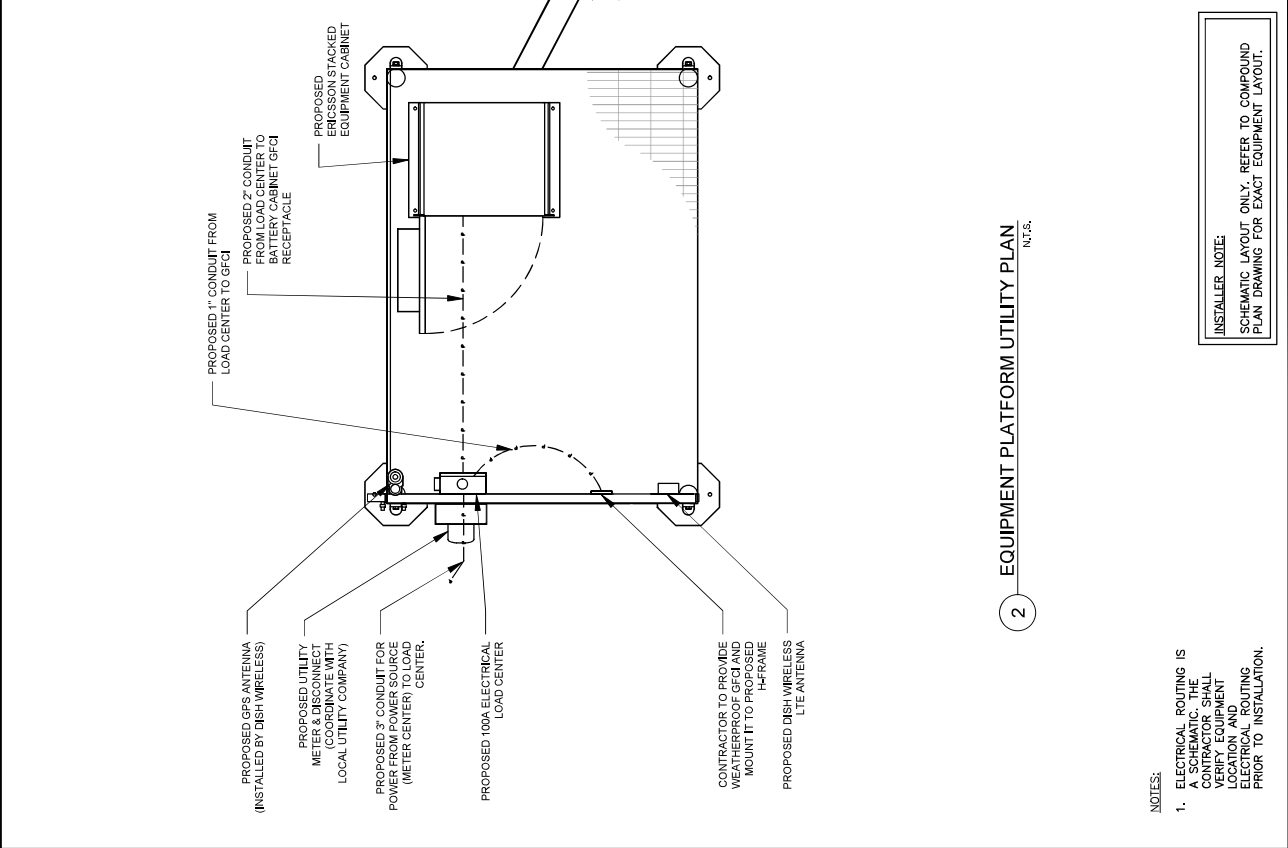
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DATE DRAWN:	06/03/19		
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DISH WIRELESS SITE NUMBER:	CT0100015A
ATC SITE NUMBER:	88019
SITE ADDRESS:	428 PLATT HILL ROAD WINSTED, CT 06098

UTILITY PLANS

SHEET NUMBER:	E-1	REVISION:	0
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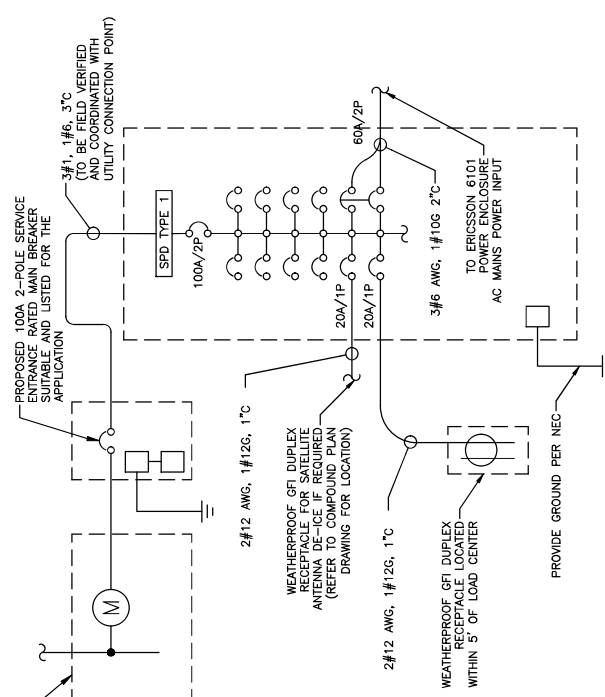
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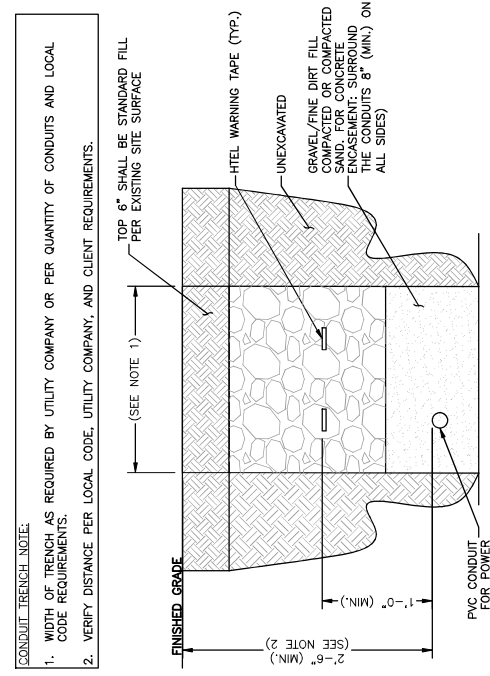
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ATC PROJECT NUMBER	12963795
DISH WIRELESS SITE NUMBER	CT0100015A
ATC SITE NUMBER	88019
SITE ADDRESS:	428 PLATT HILL ROAD WINSTED, CT 06098

ELECTRICAL DETAILS	
SHEET NUMBER:	E-2
REVISION:	0



3 ELECTRICAL ONE-LINE DIAGRAM N.T.S.



4 CONDUIT TRENCH DETAIL N.T.S.

NOTE: CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TUERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT

COUPLING END PART #	MALE TERMINAL ADAPTER END PART #	SIZE	STD. CTN. QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1-1/4"	5	4"
E945H	E945HX	1-1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2-1/2"	10	8"
E945L	E945LX	3"	10	8"
E945M	E945MX	3-1/2"	5	8"
E945N	E945NX	4"	5	8"
E945P	E945PX	5"	1	8"
E945R	E945RX	6"	1	8"

1 EXPANSION FITTING UTILITY PLAN TABLE

LOAD SERVED	VOLT AMPERES (WATTS)		TRIP	CKT #	PHASE	CKT #	VOLT AMPERES (WATTS)		LOAD SERVED
	L1	L2					L1	L2	
SPARE	-	-	-	1	A	2	-	-	SPARE
SPARE	-	-	-	3	B	4	-	-	SPARE
SPARE	-	-	-	5	A	6	-	-	SPARE
SPARE	-	-	-	7	B	8	-	-	SPARE
GFCI	180	180	-	9	A	10	2000	2000	ERICSSON EQUIPMENT CABINET
GFCI	180	180	-	11	B	12	2000	2000	VOLT AMPS
VOLT AMPS	180	180					2000	2000	
	L1 VOLT AMPERES			2180		2180	L2 VOLT AMPERES		
	L1 AMPS			18.2		18.2	L2 AMPS		
				18.2			MAX AMPS		
				22.8			MAX AMPS x125%		

2 ELECTRICAL PANEL SCHEDULE



AMERICAN TOWER
A.T. ENGINEERING SERVICE, PLLC
3600 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: 919.434.1112
FAX: 919.434.1177



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ATC PROJECT NUMBER	12963795
DISH WIRELESS SITE NUMBER	CT0100015A
ATC SITE NUMBER	88019
SITE ADDRESS:	428 PLATT HILL ROAD WINSTED, CT 06098

GROUNDING NOTES & DETAILS

SHEET NUMBER:	G-1
REVISION:	0

6. BUSBARS, TOTAL:

- ONE PER SECTOR ON ANTENNA FRAME= (3=TOTAL)
- ONE PER SECTOR ON EQUIPMENT COLLECTOR
- ONE AT BOTTOM OF TOWER AT APPROX. 10' AGL
- ONE ON PLATFORM BEHIND CABINET

INSTALLER NOTE:

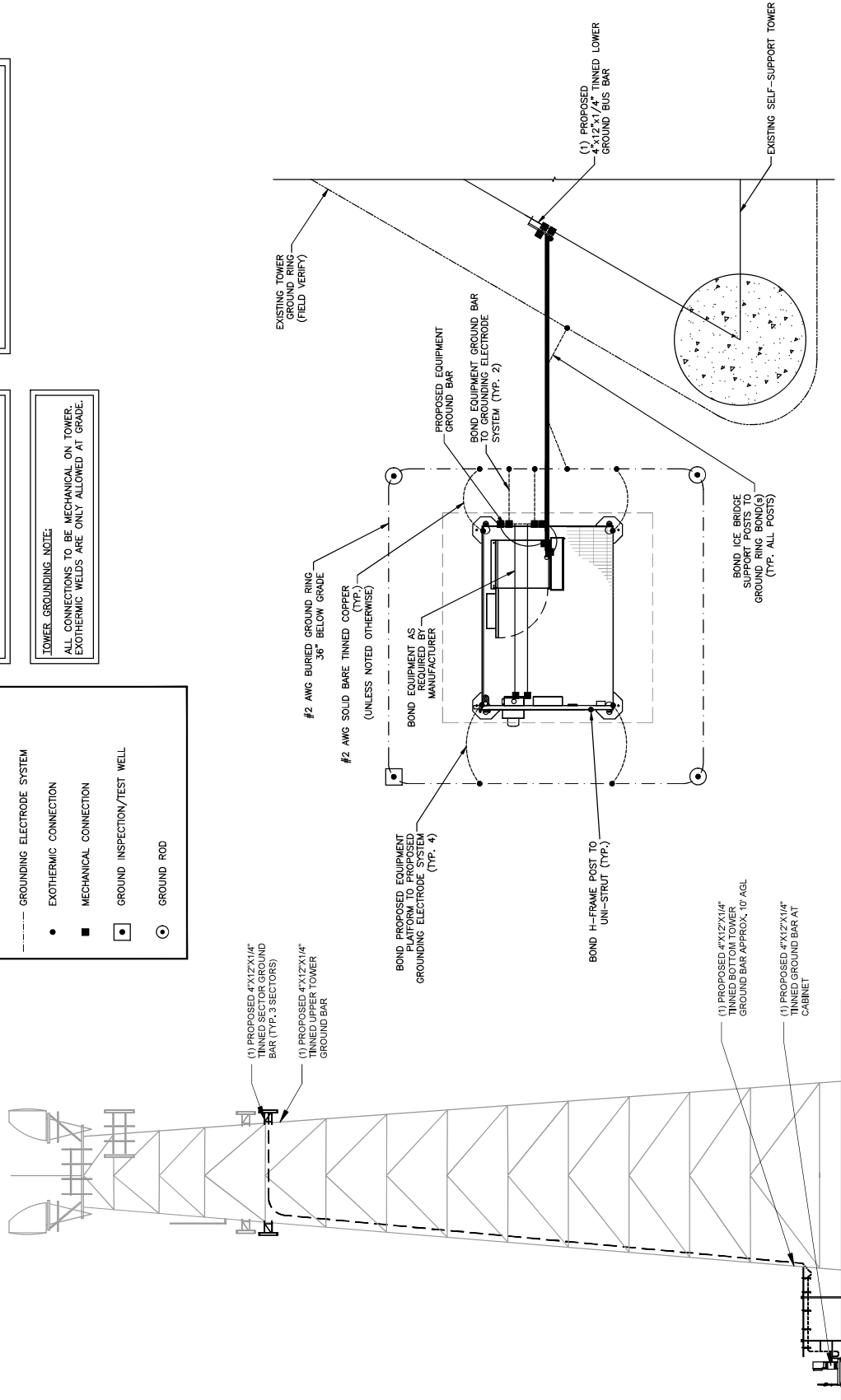
SCHEMATIC LAYOUT ONLY. REFER TO SHEETS C-1 AND C-2 FOR EXACT EQUIPMENT LAYOUT, SIZES AND C-2 FOR DETAILS OF BRIDGE AND ANTENNA SUPPORT STRUCTURE.

TOWER GROUNDING NOTE:

ALL CONNECTIONS TO BE MECHANICAL ON TOWER. EXOTHERMIC WELDS ARE ONLY ALLOWED AT GRADE.

LEGEND

- GROUNDING CONDUCTOR - ABOVE GRADE
- - - - GROUNDING CONDUCTOR - BELOW GRADE
- - - - GROUNDING ELECTRODE SYSTEM
- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- GROUND INSPECTION/TEST WELL
- GROUND ROD



TYPICAL GROUNDING PLAN SCHEMATIC
N.T.S.

TOWER ELEVATION GROUNDING
11"x17" SCALE: N.T.S.
24"x36" SCALE: N.T.S.



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A.T. ENGINEERING SERVICE, PLLC
3600 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: 919.471.4112
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ATC PROJECT NUMBER
12963795

DISH WIRELESS SITE NUMBER
CT0100015A

ATC SITE NUMBER
88019

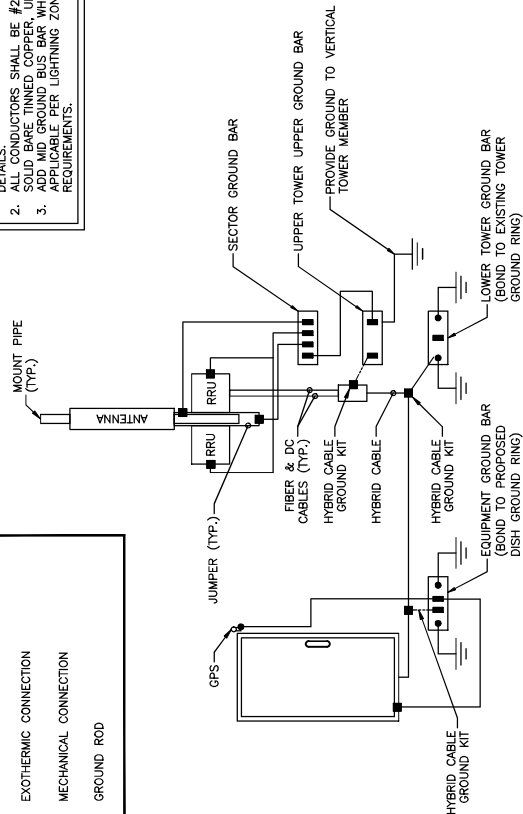
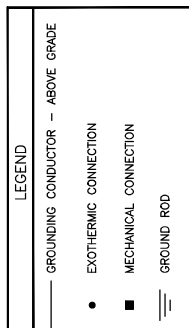
SITE ADDRESS:
428 PLATT HILL ROAD
WINSTED, CT 06098

GROUNDING NOTES & DETAILS

SHEET NUMBER: **G-2**

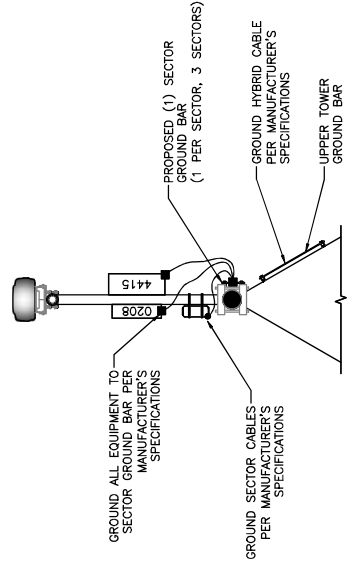
REVISION: **0**

- NOTE:
- SEE SHEET G-3 FOR GROUND BAR DETAILS.
 - ALL CONDUCTORS SHALL BE #2 AWG SOLID BARE TINNED COPPER, UNO. ADD MID GROUND BUS BAR WHERE APPLICABLE PER LIGHTNING ZONE REQUIREMENTS.
 -



GROUNDING RISER DIAGRAM (TYP. PER SECTOR)

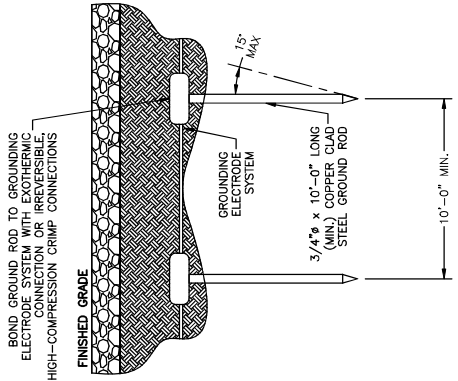
N.T.S.



NOTE:
GROUNDING SHOWN FOR (1) SECTOR ONLY.
GROUNDING REQUIRED FOR ALL (3) SECTORS.

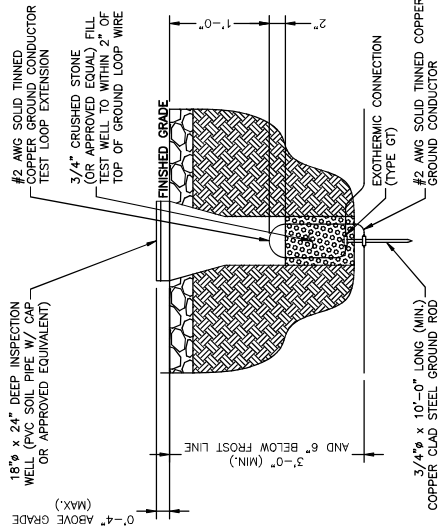
GROUND BAR AT MOUNT

N.T.S.



GROUND ROD DETAIL

N.T.S.



TEST WELL DETAIL

N.T.S.

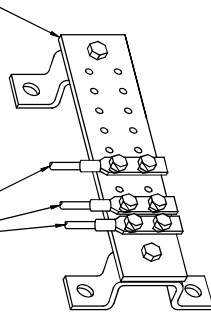
ERICSSON CONFIGURATION

NOTES:

1. ALL HARDWARE SHALL BE 18-8 STAINLESS STEEL INCLUDING BELLEVILLE WASHERS. COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
2. IF BONDING TO STEEL, INSERT A TOOTH WASHER BETWEEN LUG AND STEEL AND COAT ALL SURFACE WITH KOPR-SHIELD.
3. USE A THIN COAT OF NO-OX OR UL LISTED ANTIOXIDANT COMPOUND BETWEEN CONNECTIONS.

#2 AWG GREEN JACKETED STRANDED COPPER WIRE OR AS PER MANUFACTURER'S REQUIREMENTS TO SECTOR EQUIPMENT & ANTENNA MOUNTING PIPES W/ TIN PLATED LONG BARREL COMPRESSION TWO-HOLE LUGS (AS REQUIRED)

2"x12"x1/4" COPPER GROUND BAR (VALMONT CAT# MG21218-K) WITHOUT MOUNTING INSULATORS AND SECURE DIRECTLY TO STEEL



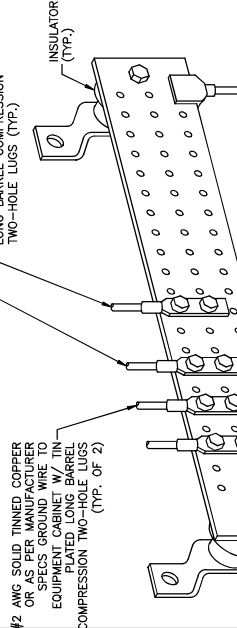
(MECHANICALLY BOND TO PROPOSED ANTENNA MOUNTS)

SECTOR GROUND BAR DETAIL

NOT TO SCALE

GROUND LEAD FROM HYBRID CABLE PER MANUFACTURER REQUIREMENTS

#2 AWG SOLID TINNED COPPER OR AS PER MANUFACTURER SPECS GROUND WIRE TO GPS ANTENNA W/ TIN PLATED LONG BARREL COMPRESSION TWO-HOLE LUGS (TYP. OF 2)



(EXOTHERMICALLY BOND TO PROPOSED U/G GROUNDING RING)

NOTES:

1. #2 AWG SOLID BARE TINNED COPPER WIRE FROM EACH ICE BRIDGE POST TO EXTERNAL GROUNDING SYSTEM USING EXOTHERMIC WELDS.
2. IN CASES OF SHEATHED STRANDED WIRES, CONNECTOR SHALL HAVE INSPECTION WINDOW AND NO MORE THAN 1/8" GAP BETWEEN CONNECTOR BODY AND SHEATH.

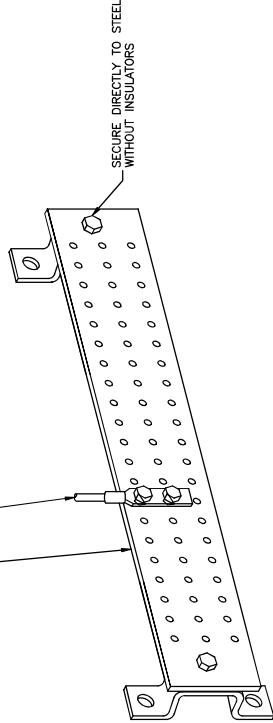
#2 AWG SOLID TINNED COPPER GROUND WIRE TO NEW #2 AWG W/ EXOTHERMIC WELDS (TYP. OF 2)

EQUIPMENT GROUND BAR DETAIL

NOT TO SCALE

4"x12"x1/4" TINNED GROUND BAR (VALMONT CAT# HDG42483-K) WITH TIN PLATING (TIN21218) (MOUNT WITH UNISTRUT TO TOWER)

GROUND LEAD FROM HYBRID CABLE TO UPPER GROUND BUS BAR USING HYBRID CABLE GROUNDING KIT PER CABLE MANUFACTURER'S REQUIREMENTS



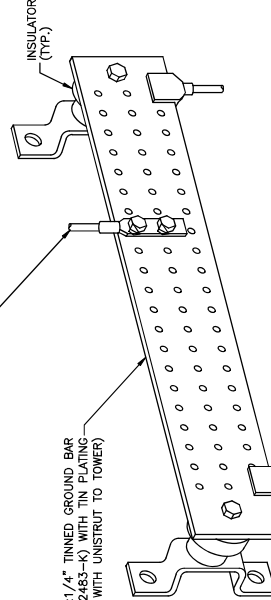
(MECHANICALLY BOND TO EXISTING TOWER)

UPPER TOWER GROUND BAR DETAIL

NOT TO SCALE

GROUND LEAD FROM HYBRID CABLE TO LOWER TOWER GROUND BAR USING HYBRID CABLE GROUNDING KIT PER CABLE MANUFACTURER REQUIREMENTS

4"x12"x1/4" TINNED GROUND BAR (VALMONT CAT# HDG42483-K) WITH TIN PLATING (TIN21218) (MOUNT WITH UNISTRUT TO TOWER)



#2 AWG SOLID TINNED COPPER GROUND WIRE TO NEW EQUIPMENT GROUND RING W/ EXOTHERMIC WELDS (TYP. OF 2)

LOWER TOWER GROUND BAR DETAIL

NOT TO SCALE

NOTE:

#2 AWG SOLID TINNED COPPER GROUND CONDUCTOR FROM ICE BRIDGE POSTS TO BURIED GROUND RING USING EXOTHERMIC WELDS.



AMERICAN TOWER
A.T. ENGINEERING SERVICE, PLLC
3600 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: 919.471.4112
CO.#: 919.471.1177

SEAL:



Authorized by "EOR"
Jun 11 2019 3:59 PM
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APPROVED BY:	TC		
DATE DRAWN:	06/03/19		
REV.	DESCRIPTION	BY	DATE
△	FOR CONSTRUCTION	TC	06/03/19
△			
△			
△			

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ATC PROJECT NUMBER:
12963795

DISH WIRELESS SITE NUMBER:
CT0100015A

ATC SITE NUMBER:
88019

SITE ADDRESS:
428 PLATT HILL ROAD
WINSTED, CT 06098

GROUNDING NOTES & DETAILS

SHEET NUMBER:
G-3

REVISION:
0



RF Design Data Sheet

Site Information	
State	CT
Site Name	88019
Address	428 Platt Hill Road
Latitude (degrees)	41.89828611
Longitude (degrees)	-73.11601111
RHDS Revision	2.0
RF Engineer	Neil Nocete
Technology	NB-IoT
Vendor	Ericsson
Site Configuration	441.5-2 No Band 29
Site Type - Equipment - Band	AWS-4
Sector Information (Expected Configuration)	
LTE Sector Number	Sector-1 (Alpha) CT0100015A_1
Antenna Center Line (ft)	154
Antenna Model Number	ODI2-065R18K-GQ
Number of Antennas / Sector	1
Antenna Dimensions (LxWxD) (in)	53.5 x 9.8 x 2.4
Antenna Weight (lbs.)	25
Antenna Manufacturer	Comba
Horizontal Beamwidth	64
Gain (dBi)	17.8
Azimuth (deg) (relative to True North)	0
Antenna Downtilt (Mechanical)	0
Antenna Downtilt (Electrical)	2
Antenna Downtilt 700 (Electrical)	-
Radio Model (Band 70)	Radio 4415
Radio Quant by (Band 70)	1
Radio Model (H-Block)	Radio 0208
Radio Quant by (H-Block)	1
Radio Model (700 band)	-
Radio Quant by (700 band)	-
Number of Feeders / Sector	4
Feeder Diameter (Nominal) (in)	1/2
Feeder Length (m)	3
700 MHz Radio location	-
700 MHz Coax Cable Type (in)	-
TX/RX Diplexer Model	-
TX/RX Diplexer Qty	-
TX/RX Diplexer Dim (inch) / Wt (lbs)	-
Description of Cabling Configuration Changes / Additions	
Mandatory: Append Sketches indicating Locations of all new Antennas, Cabling, Duplexor, Diplexors (if applicable), TMA's etc.....	
Sector Alpha	
Sector Beta	
Sector Gamma	
General Comments	4/1 - RAD change from 169 to 154 6/1 - Tills for 700 put to fill as No B29

NOTE:
CONTRACTOR TO REFER TO AND VALIDATE THE LATEST RISBS PRIOR TO CONSTRUCTION.

THIS SHEET HAS BEEN PROVIDED BY THE APPLICANT AND REPRODUCED AT THEIR REQUEST

ATC PROJECT NUMBER: 12963795
DISH WIRELESS SITE NUMBER: CT0100015A
ATC SITE NUMBER: 88019
SITE ADDRESS: 428 PLATT HILL ROAD WINSTED, CT 06098
RF DATA SHEET
SHEET NUMBER: RF-1
REVISION: 0

