



February 10, 2023

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

Re: Tower Share Application – Dish Site 13710333
Dish Wireless Telecommunications Facility @ 168 Catoona Lane, Stamford, CT 06902
TS-DISH-135-220523 - August 19, 2022

Dear Ms. Bachman,

Enclosed please find three (3) sets of Tower Share application packages for the above referenced site and filing a fee check in the amount of Six Hundred Twenty Five Dollars (\$625.00).

A pdf copy of these same documents will be emailed to your office this day.

As always, if you have any questions or comments, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jack Andrews', is written over a circular stamp or seal.

Jack Andrews
Zoning Manager, Centerline Communications
10130 Donleigh Drive
Columbia, MD 21046
443-677-0144

Enclosures



February 6, 2023

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

Re: Tower Share Application – Dish Site 13710333
Dish Wireless Telecommunications Facility @ 168 Catoona Lane, Stamford, CT 06902
TS-DISH-135-220523 - August 19, 2022

Dear Ms. Bachman,

Dish Wireless (“Dish”) is proposing a wireless telecommunications facility on an existing three hundred (300) foot tall lattice tower at 168 Catoona Lane, Stamford, CT 06902 (Latitude: 41.052825 Longitude: -73.56304722) and within the existing fenced compound. The tower is owned and operated by American Tower Corporation. The subject property is owned by American Tower Corporation.

Dish proposes to install a five (5) foot by seven (7) foot metal platform within the existing fenced compound and install three (3) antennas, three (3) antenna mounts, six (6) RRUs, and cables on the existing tower at one hundred fifty four (154) feet as more particularly detailed and described on the enclosed Construction Drawings. The overall height of the existing tower will remain at 300 feet and no changes will be made to the compound dimensions.

In case number TS-DISH-135-220523 dated August 19, 2022, the Council approved a Dish Tower Share application to collocate three (3) new panel antennas at eighty two (82) feet on the tower and install a five (5) foot by seven (7) foot platform with related equipment within the fenced compound area. Dish has since discovered that a more desirable higher RAD center is available on the tower.

Accordingly, Dish now seeks Tower Share approval to allow three (3) antennas at one hundred fifty four (154) feet on the tower. The antennas approved at eighty two (82) feet in TS-DISH-135-220523 will not be installed. The equipment shall be within the compound at the location originally approved by the Council.

I was unable to locate the original tower approval, but the application letter in CSC sub-petition number PE1133-VER-20160805 proffered that ATC obtained the property from American Telephone and Telegraph in 2000, and there are no municipal records of the tower requiring or



receiving any zoning approval. Stamford Building Department records revealed that the tower was constructed in 1968. The sub-petition was approved by the Council on September 6, 2016.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish's intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A §16-50j-73, a copy of this letter is being sent to the following individuals: American Tower Corporation as Tower Operator/Owner; American Tower Corporation as Property Owner; the Honorable Caroline Simmons as Mayor of the City of Stamford, and Ralph Blessing, the Stamford Land Use Bureau Chief.

The applicant's proposal falls squarely within those activities explicitly provided for in R.C.S.A. §16-50j-89. Specifically:

1. The proposed modifications will NOT result in an increase in the height of the existing structure.
2. The proposed modifications will NOT require an extension of the site boundary.
3. The proposed modifications will NOT increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will NOT increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. Please see the RF emissions calculation for Dish's proposed facility enclosed herewith.
5. The proposed modifications will NOT cause an ineligible change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading. Please see the structural analysis enclosed herewith.

Connecticut General Statute 16-50aa indicates that the Council must approve the shared use of a telecommunications facility provided it finds the shared use is technically, legally, environmentally, and economically feasible and meets public safety concerns. As demonstrated in this letter, Dish respectfully indicates that the shared use of this facility satisfies these criteria:

- A. **Technical Feasibility.** The existing tower has been deemed structurally capable of supporting Dish's proposed loading (see attached Structural Analysis).
- B. **Legal Feasibility.** As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit Dish to obtain a building permit for the proposed installation. Further, a Letter of Authorization is attached, authorizing Dish to file this application for shared use.
- C. **Environmental Feasibility.** The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish equipment on the existing 300-foot tall tower would have an insignificant visual impact on the area around the tower. Dish ground equipment would be installed within the existing facility compound. Dish's shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, the attached EME study concludes that the proposed antennas would not increase



radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

D. Economic Feasibility. Dish will be entering into an agreement with the owner of this facility to mutually agreeable terms. As previously mentioned, the Letter of Authorization has been provided by the owner to assist Dish with this tower sharing application.

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting the proposed loading. Dish is not aware of any public safety concerns relative to the proposed sharing of the existing tower. Dish's intentions of providing new and improved wireless service through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through the area.

For the foregoing reasons, Dish respectfully requests that the Council approve this request for the shared use of this tower located at 168 Catoona Lane, Stamford, CT 06902.

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Jack Andrews', is written over a circular stamp or seal.

Jack Andrews
Zoning Manager, Centerline Communications
10130 Donleigh Drive
Columbia, MD 21046
443-677-0144

Enclosures: Exhibit 1 – Letter of Authorization from tower owner
Exhibit 2 – Property Card and GIS
Exhibit 3 – Construction Drawings
Exhibit 4 – Structural Analysis Report
Exhibit 5 – Antenna Mount Analysis Report
Exhibit 6 – EME Study Report
Exhibit 7 – Original Tower Approval/ TS-DISH-135-220523
Exhibit 8 – (4) Notice Confirmations

cc: American Tower Corporation – Tower Operator/ Property Owner
The Honorable Caroline Simmons - Mayor of the City of Stamford
Ralph Blessing - Stamford Land Use Bureau Chief



LETTER OF AUTHORIZATION

SITE NO: See Site List Below

SITE NAME: See Site List Below

ADDRESS: See Site List Below

I, Margaret Robinson, Senior Counsel, US Tower Division on behalf of American Tower*, owner and/or operator of the tower facilities located at the addresses identified below (the "Tower Facilities"), do hereby authorize Centerline Communications, LLC ("Centerline"), its agents, 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 owned and operated by AT&T on the Tower Facilities located at the addresses identified below. This installation shall not affect adjoining lands and will occur only within the areas leased or owned by American Tower.

American Tower understands that the applications 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 installations. Any such conditions of approval or modifications will not be effective unless approved in writing by American Tower.

The above authorization does not permit Centerline 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 installations of telecommunications equipment without the prior written approval of American Tower.

Site Authorized:

ATC Project #	ATC Asset #	Address
13682691	302483	286 Beckley Road, Berlin, CT 06037
13682687	302469	1069 Connecticut Ave. Bridgeport, CT 06607
13682699	383598	1000 Truumball Ave. Bridgeport, CT 06606
13682693	302468	99 Meadow St. Harftford, CT 06114
13682696	370627	605 Willard Ave. Newington, CT 06111
13682689	370629	125 Washington Ave. North Haven, CT 06473
13683386	283418	50 Devine St. North Haven, CT 06473
13683396	88018	168 Catoona Lane, Stamford, CT 06902
13682841	243036	668 Jones Hill Rd. West Haven, CT 06516
13958523	283422	171 Short Beach Rd. Brandford, CT 06405
13958547	302516	438 Bridgeport Ave. Milford, CT 06460
13683394	302479	699 West St. Rocky Hill, CT 06067
13958510	302511	20 Post Office Lane. Westport, CT 06880



AMERICAN TOWER®
CORPORATION

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 (owner and/or operator of the above referenced Tower Facilities), 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 22nd day of April, 2022.

NOTARY SEAL



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

Notary Public

My Commission Expires: August 9th, 2024

* American Tower as used herein is defined as American Tower Corporation and any of its affiliates or subsidiaries.



168 CATOONA LANE

Location 168 CATOONA LANE

Mblu 000/ 0370/ / /

Acct# 000-0370

Owner AMERICAN TOWERS INC

Assessment \$3,019,920

Appraisal \$4,314,160

PID 116

Building Count 2

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2021	\$422,560	\$3,891,600	\$4,314,160

Assessment			
Valuation Year	Improvements	Land	Total
2021	\$295,800	\$2,724,120	\$3,019,920

Owner of Record

Owner AMERICAN TOWERS INC
Co-Owner
Address PO BOX 723597
ATLANTA, GA 31139

Sale Price \$1,040,050
Book & Page 5456/0339
Sale Date 02/17/2000

Ownership History

Ownership History			
Owner	Sale Price	Book & Page	Sale Date
AMERICAN TOWERS INC	\$1,040,050	5456/0339	02/17/2000
AMERICAN T & T CO	\$0	1128/0268	03/15/1968

Building Information

Building 1 : Section 1

Year Built: 1968
Living Area: 3,249

Building Attributes	
Field	Description
STYLE	Telephone Bldg

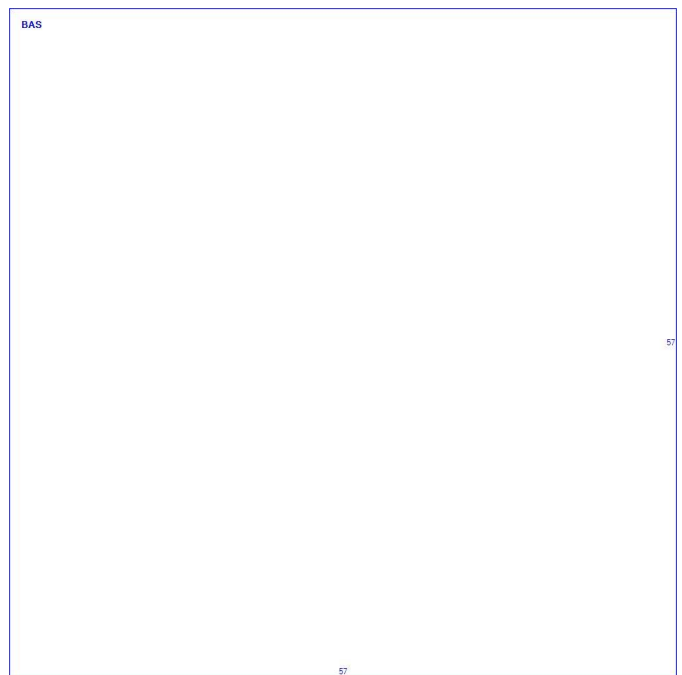
MODEL	Comm/Ind
Grade	C
Stories:	1
Occupancy	1.00
Exterior Wall 1	Reinforc Concr
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Minimum
Interior Wall 2	
Interior Floor 1	Concrete Slab
Interior Floor 2	
Heating Fuel	Gas/LP
Heating Type	Hot Air-no Duc
AC Type	Central
Struct Class	
Bldg Use	Industrial MDL-94
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	300C
Heat/AC	Heat/AC Pkgs
Frame Type	Masonry
Baths/Plumbing	None
Ceiling/Wall	Ceil & Wall
Rooms/Prtns	Average
Wall Height	15.00
% Comn Wall	

Building Photo



(<https://images.vgsi.com/photos/StamfordCTPhotos/A00\11\89\56.jpg>)

Building Layout



(ParcelSketch.ashx?pid=116&bid=116)

Building Sub-Areas (sq ft)			<u>Legend</u>
Code	Description	Gross Area	Living Area
BAS	First Floor	3,249	3,249
		3,249	3,249

Building 2 : Section 1

Year Built: 1989

Living Area: 600

Building Attributes : Bldg 2 of 2	
Field	Description
STYLE	Telephone Bldg
MODEL	Comm/Ind
Grade	C

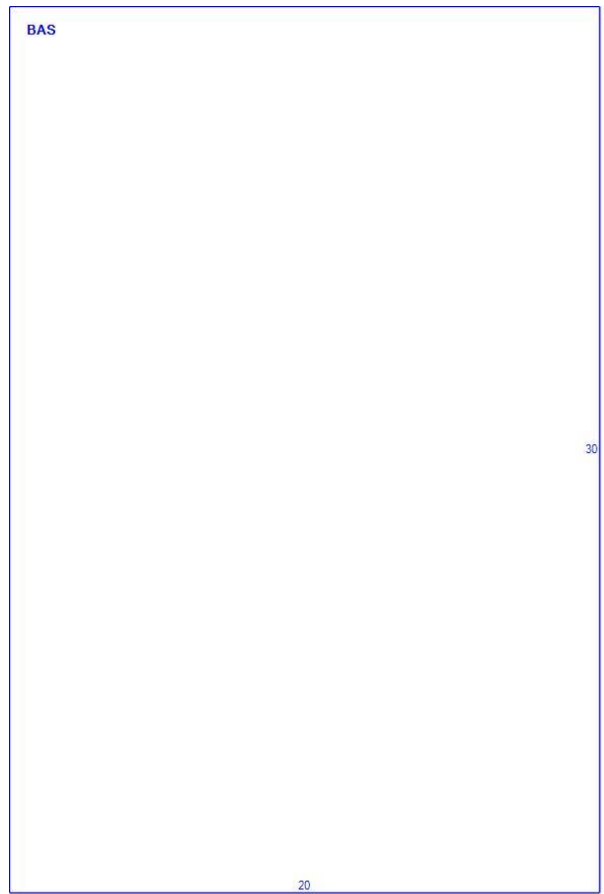
Building Photo



(<https://images.vgsi.com/photos/StamfordCTPhotos/default.jpg>)

Stories:	1
Occupancy	1.00
Exterior Wall 1	Reinforc Concr
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Minimum
Interior Wall 2	
Interior Floor 1	Concrete Slab
Interior Floor 2	
Heating Fuel	Gas/LP
Heating Type	Hot Air-no Duc
AC Type	Central
Struct Class	
Bldg Use	Industrial MDL-94
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	300C
Heat/AC	Heat/AC Pkgs
Frame Type	FireProofSteel
Baths/Plumbing	None
Ceiling/Wall	Ceil & Wall
Rooms/Prtns	Average
Wall Height	10.00
% Comn Wall	

Building Layout



(ParcelSketch.ashx?pid=116&bid=36833)

Building Sub-Areas (sq ft)			<u>Legend</u>
Code	Description	Gross Area	Living Area
BAS	First Floor	600	600
		600	600

Extra Features

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

Land

Land Use

Use Code	300C
Description	Industrial MDL-94
Zone	MZN
Neighborhood	0300
Alt Land Appr Category	No

Land Line Valuation

Size (Acres)	3.64
Depth	
Assessed Value	\$2,724,120
Appraised Value	\$3,891,600

Outbuildings

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
AP1	Fence Chn Lk			2400.00 L.F.	\$20,700	1
LP4	Pavng Aspflt			3880.00 S.F	\$4,660	1
CEL1	Cell Tower			1.00 SITES	\$146,250	1
CSHD	Cell Equipment			240.00 S.F.	\$7,300	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2021	\$422,560	\$3,891,600	\$4,314,160
2020	\$422,560	\$3,891,600	\$4,314,160
2019	\$422,560	\$3,891,600	\$4,314,160

Assessment			
Valuation Year	Improvements	Land	Total
2021	\$295,800	\$2,724,120	\$3,019,920
2020	\$295,800	\$2,724,120	\$3,019,920
2019	\$295,800	\$2,724,120	\$3,019,920



DISH WIRELESS, L.L.C. SITE ID:

NJJER01123B

DISH WIRELESS, L.L.C. SITE ADDRESS:

**168 CATOONA LANE
STAMFORD, CT 06902**

BIRD WATCH SITE:
PLEASE CONTACT BIRD.WATCH@AMERICANTOWER.COM OR
AMERICAN TOWER NOC AT 877-518-6937 FOR ASSISTANCE

SCOPE OF WORK

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

- TOWER SCOPE OF WORK:**
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
 - INSTALL (3) PROPOSED ANTENNA SECTOR FRAME MOUNTS (1 PER SECTOR)
 - INSTALL PROPOSED JUMPERS
 - INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
 - INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
 - INSTALL (1) PROPOSED HYBRID CABLE

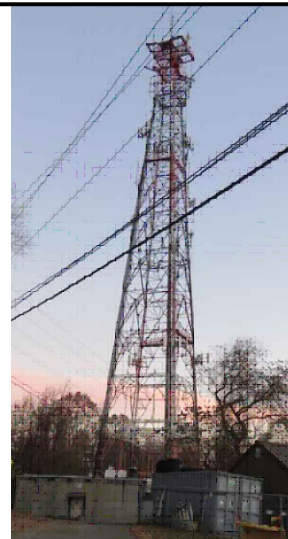
- GROUND SCOPE OF WORK:**
- INSTALL (1) PROPOSED METAL PLATFORM
 - INSTALL (1) PROPOSED ICE BRIDGE
 - INSTALL (1) PROPOSED PPC CABINET
 - INSTALL (1) PROPOSED EQUIPMENT CABINET
 - INSTALL (1) PROPOSED POWER CONDUIT
 - INSTALL (1) PROPOSED TELCO CONDUIT
 - INSTALL (1) PROPOSED TELCO-FIBER BOX
 - INSTALL (1) PROPOSED GPS UNIT
 - INSTALL (1) PROPOSED SAFETY SWITCH (IF REQUIRED)
 - INSTALL (1) PROPOSED CIENA BOX (IF REQUIRED)
 - INSTALL (1) PROPOSED METER SOCKET

CONNECTICUT CODE COMPLIANCE

ALL WORK SHALL BE PERFORMED AND MATERIALS 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 THESE CODES:

CODE TYPE	CODE
BUILDING	2018 CT STATE BUILDING CODE/2015 IBC W/ CT AMENDMENTS
MECHANICAL	2018 CT STATE BUILDING CODE/2015 IMC W/ CT AMENDMENTS
ELECTRICAL	2018 CT STATE BUILDING CODE/2017 NEC W/ CT AMENDMENTS

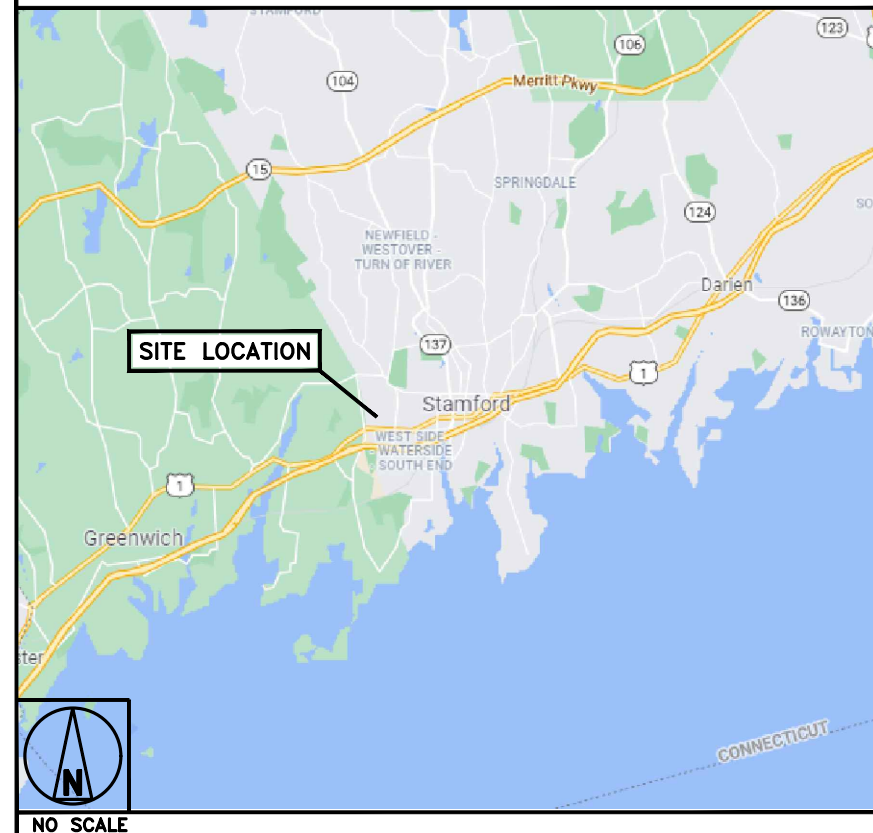
SITE PHOTO



DIRECTIONS

COMING FROM NORTH I-95 TAKE EXIT 6. TURN RIGHT ONTO WEST AVE. TURN LEFT AT FIRST LIGHT ONTO W. MAIN ST. TURN RIGHT AT FIRST LIGHT AND FOLLOW ROAD TO END.

VICINITY MAP



UNDERGROUND SERVICE ALERT CBYD 811
UTILITY NOTIFICATION CENTER OF CONNECTICUT
(800) 922-4455
WWW.CBYD.COM



CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE, NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

THE PROJECT DEPICTED IN THESE PLANS QUALIFIES AS AN ELIGIBLE FACILITIES REQUEST ENTITLED TO EXPEDITED REVIEW UNDER 47 U.S.C. § 1455(A) AS A MODIFICATION OF AN EXISTING WIRELESS TOWER THAT INVOLVES THE COLLOCATION, REMOVAL, AND/OR REPLACEMENT OF TRANSMISSION EQUIPMENT THAT IS NOT A SUBSTANTIAL CHANGE UNDER CFR § 1.61000 (B)(7).

11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED

CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE, AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

SITE INFORMATION

PROPERTY OWNER: AMERICAN TOWER
ADDRESS: 168 CATOONA LANE
STAMFORD, CT 06902

TOWER TYPE: SELF SUPPORT TOWER

TOWER CO SITE ID: 88018

TOWER APP NUMBER: 13710333_D2

COUNTY: FAIRFIELD

LATITUDE (NAD 83): 41° 3' 10.170" N
41.052825

LONGITUDE (NAD 83): 73° 33' 46.970" W
-73.56304722

ZONING JURISDICTION: STAMFORD, CT

ZONING DISTRICT: COMMERCIAL

PARCEL NUMBER: 116

OCCUPANCY GROUP: U

CONSTRUCTION TYPE: II-B

POWER COMPANY: EVERSOURCE

TELEPHONE COMPANY: FRONTIER COMMUNICATIONS

PROJECT DIRECTORY

APPLICANT: DISH WIRELESS, L.L.C.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

TOWER OWNER: AMERICAN TOWER
10 PRESIDENTIAL WAY
WOBBURN, MA 01801

ENGINEER: ATC TOWER SERVICES, LLC
3500 REGENCY PARKWAY SUITE 100
CARY, NC 27518

SITE ACQUISITION: WILLIAM SNIDER
WILLIAM.SNIDER@DISH.COM

CONSTRUCTION MANAGER: VICTOR CORREA
VICTOR.CORREA@DISH.COM

RF ENGINEER: MURUGABIRAN JAYAPAL
MURUGABIRAN.JAYAPAL@DISH.COM



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112

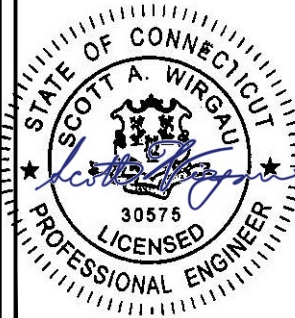
DRAWN BY: CHECKED BY: APPROVED BY:

JW SRF SRF

RFDS REV #: ----

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
0	09/27/2021	ISSUED FOR CONSTRUCTION
1	11/01/2021	PPC UPDATE
2	11/04/2022	RAD CENTER UPDT



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

A&E PROJECT NUMBER
88018-13710333_D2

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
NJJER01123B
168 CATOONA LANE
STAMFORD, CT 06902

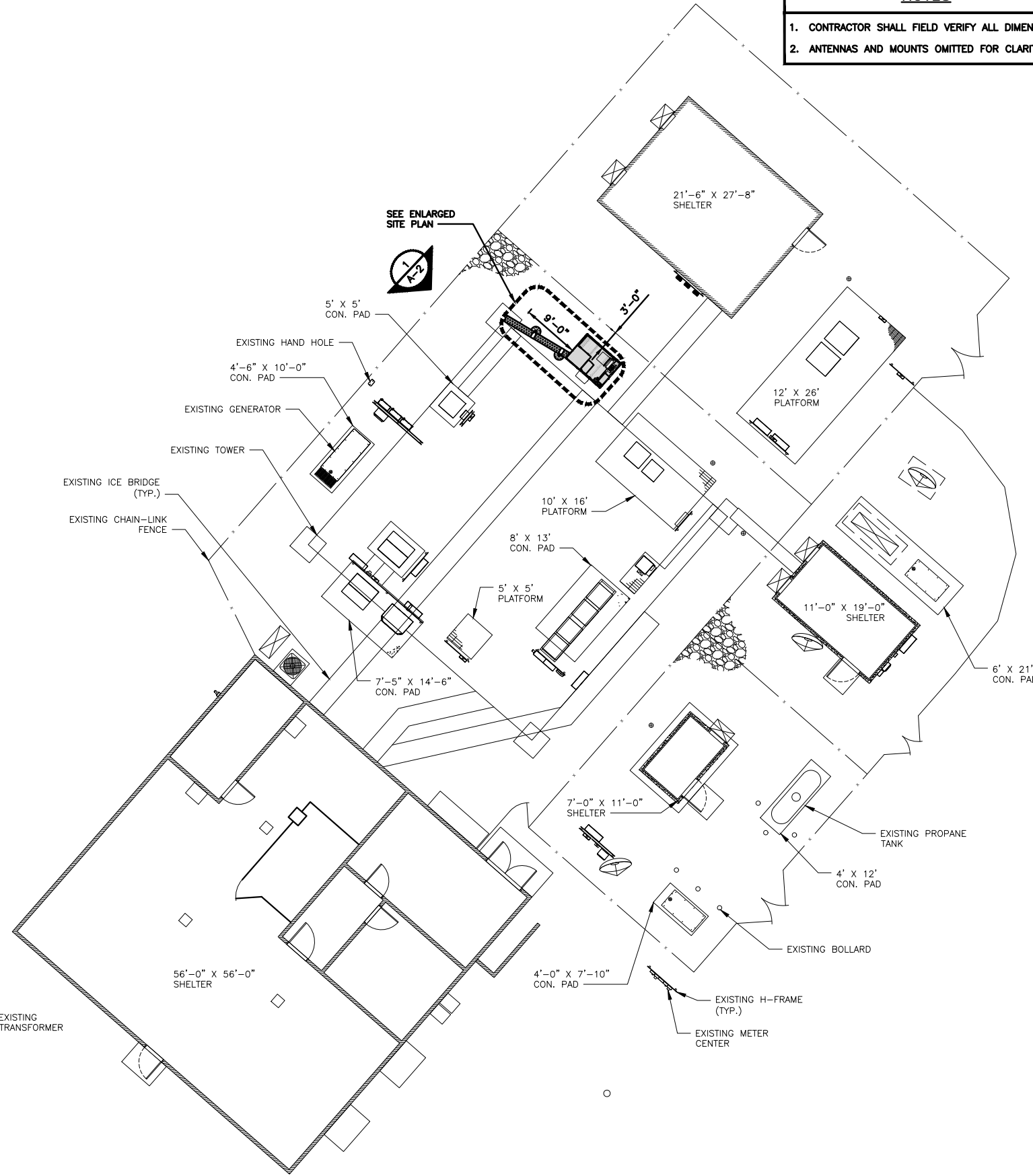
SHEET TITLE
TITLE SHEET

SHEET NUMBER

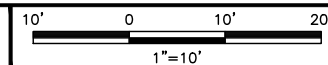
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NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



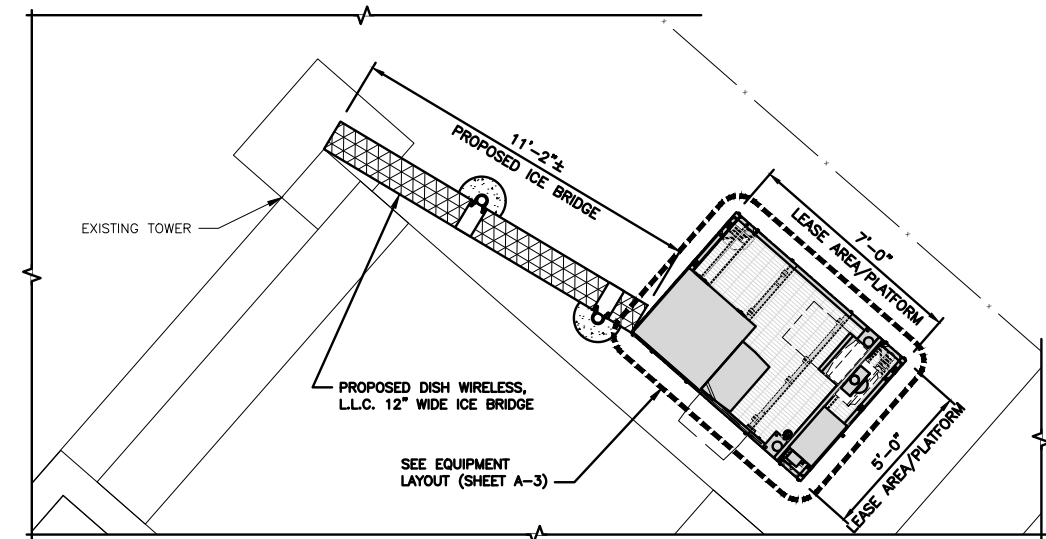
OVERALL SITE PLAN



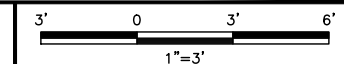
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NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



ENLARGED SITE PLAN



2



AERIAL VIEW

NO SCALE

3



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



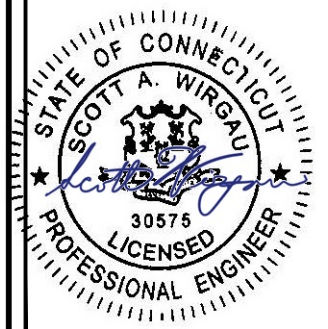
AMERICAN TOWER
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112

DRAWN BY: JW
CHECKED BY: SRF
APPROVED BY: SRF

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
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DISH WIRELESS, L.L.C.
PROJECT INFORMATION
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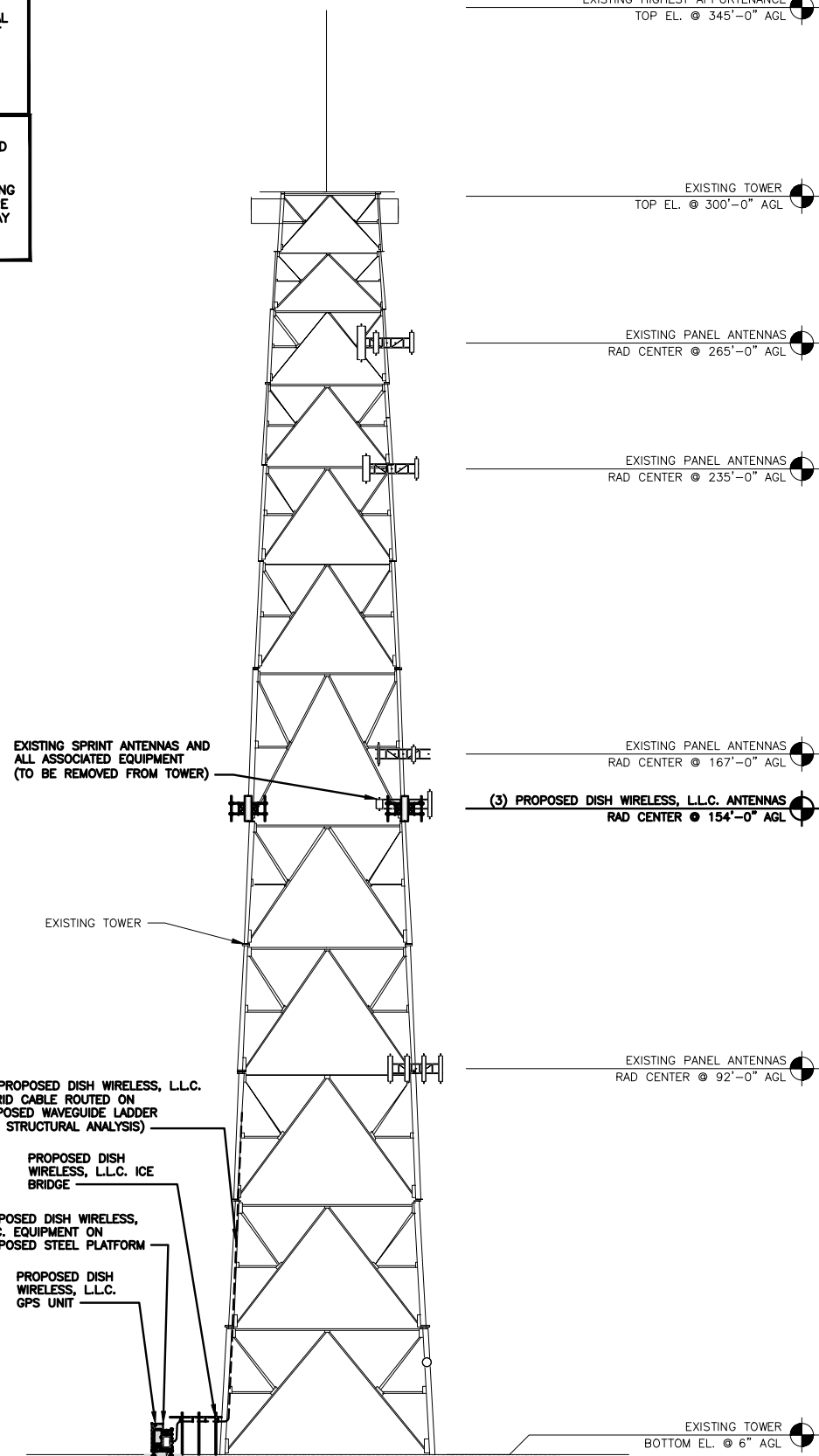
SHEET TITLE
OVERALL AND ENLARGED
SITE PLAN

SHEET NUMBER
A-1

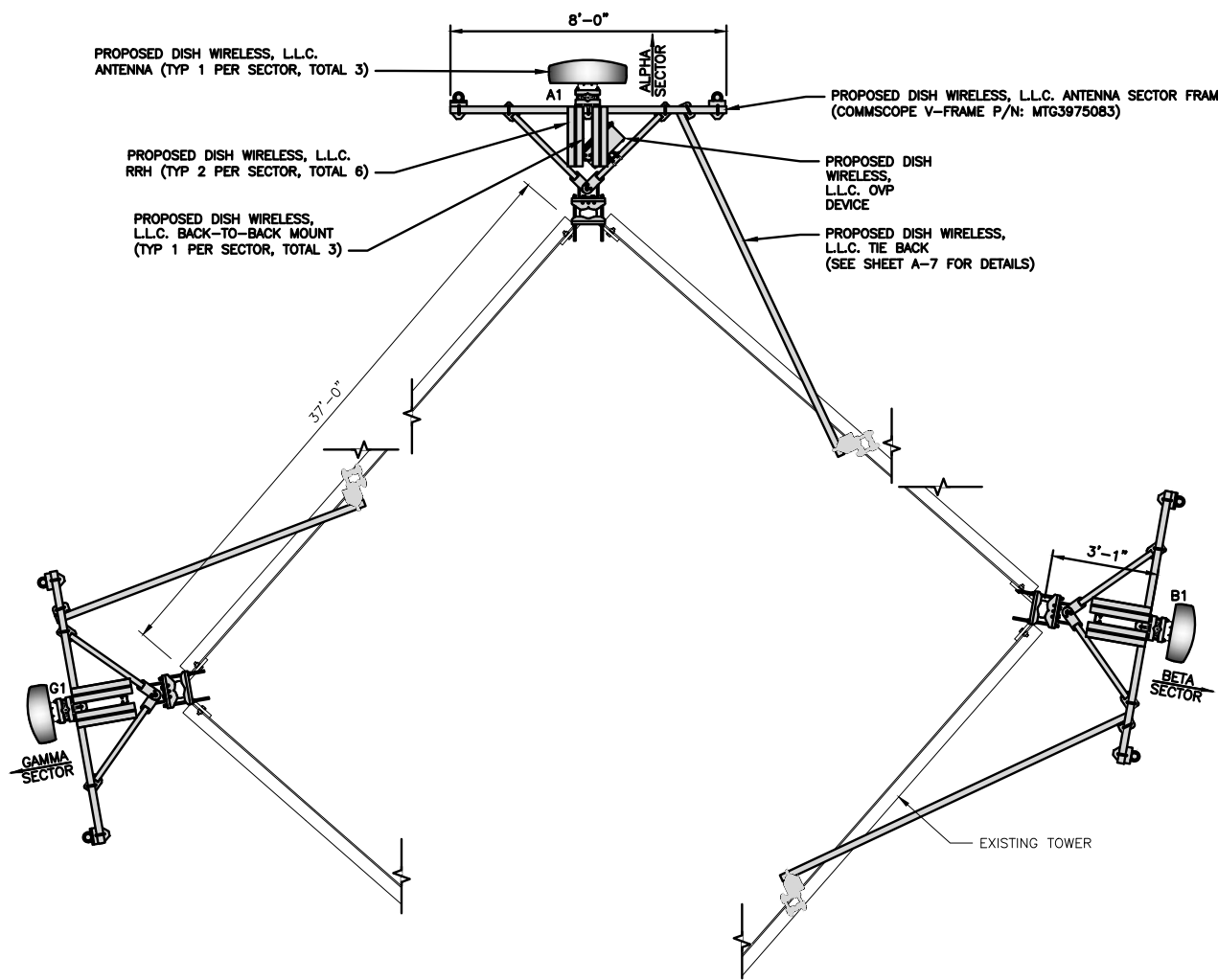
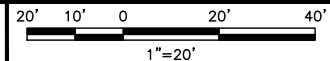
NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.

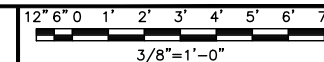
THE EXISTING LINES, ANTENNA, APPURTENANCES AND MOUNT RELATED TO THE EXISTING RAD CENTER @ 150'-155.6' SHALL BE REMOVED BY THE CONTRACTOR PRIOR TO INSTALLING THE PROPOSED INSTALLATION. FAILURE TO COMPLY WITH THE FOREGOING MAY RESULT IN ADDITIONAL CHARGES OR FEES.



PROPOSED NORTH ELEVATION



ANTENNA LAYOUT



SECTOR	POSITION	ANTENNA					RAD CENTER	TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH		
ALPHA	A1	PROPOSED	MX08FRO665-21	5G	72.0" x 20.0"	0°	154'-0"	(1) HIGH-CAPACITY HYBRID CABLE (185' LONG)
BETA	B1	PROPOSED	MX08FRO665-21	5G	72.0" x 20.0"	100°	154'-0"	
GAMMA	G1	PROPOSED	MX08FRO665-21	5G	72.0" x 20.0"	260°	154'-0"	

SECTOR	POSITION	RRH		NOTES
		MANUFACTURER - MODEL NUMBER	TECHNOLOGY	
ALPHA	A1	TA08025-B604	N66 / N70	1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS. 2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES. 3. AZIMUTHS ARE TENTATIVE, NEEDS TO BE CONFIRMED BEFORE CONSTRUCTION STARTS.
	A1	TA08025-B605	N29 / N71	
BETA	B1	TA08025-B604	N66 / N70	
	B1	TA08025-B605	N29 / N71	
GAMMA	G1	TA08025-B604	N66 / N70	
	G1	TA08025-B605	N29 / N71	
-	-	RDIDC-9181-PF-48	-	

ANTENNA SCHEDULE

NO SCALE 3



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

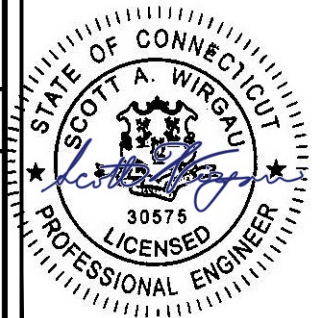
AMERICAN TOWER
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112

DRAWN BY: JW CHECKED BY: SRF APPROVED BY: SRF

RFDS REV #: -----

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
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1	11/01/2021	PPC UPDATE
2	11/04/2022	RAD CENTER UPDT



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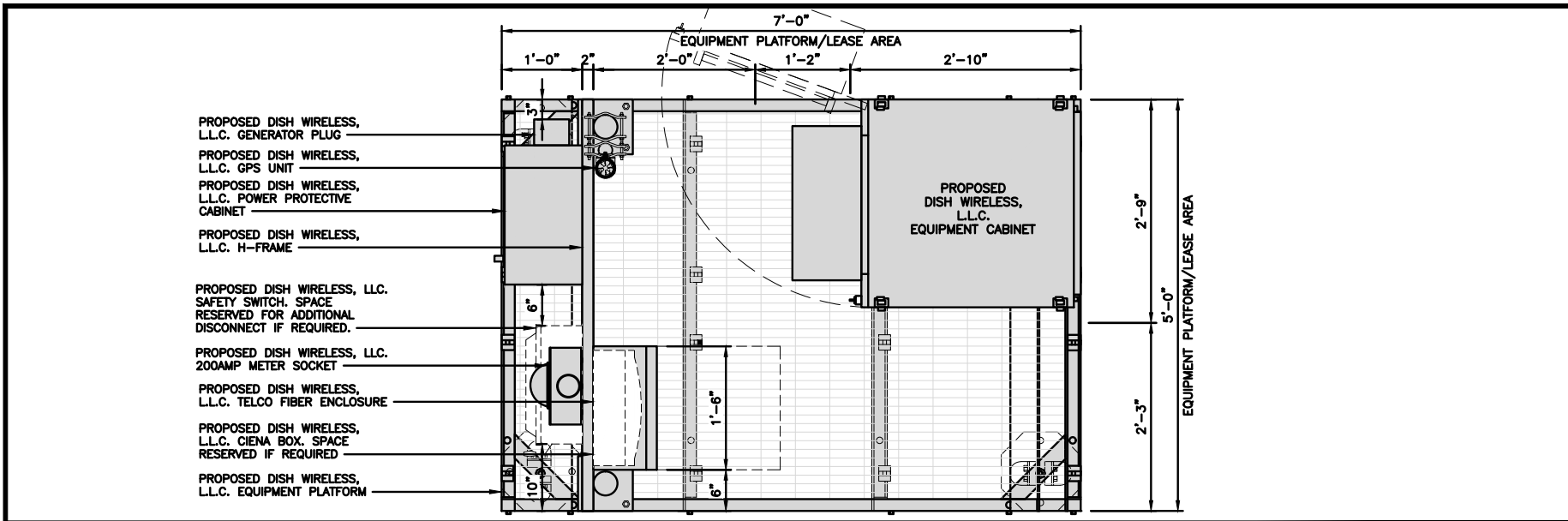
A&E PROJECT NUMBER
88018-13710333_D2

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
NJJER01123B
168 CATOONA LANE
STAMFORD, CT 06902

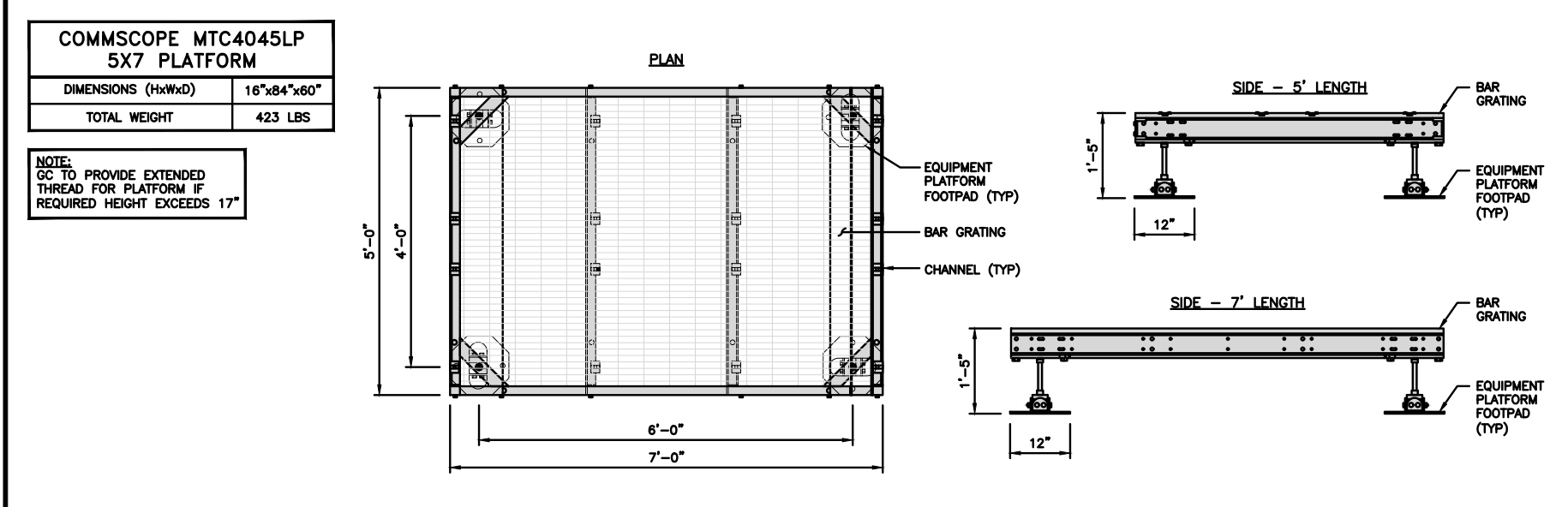
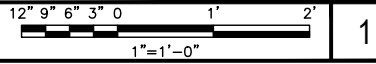
SHEET TITLE
ELEVATION, ANTENNA
LAYOUT AND SCHEDULE

SHEET NUMBER

A-2

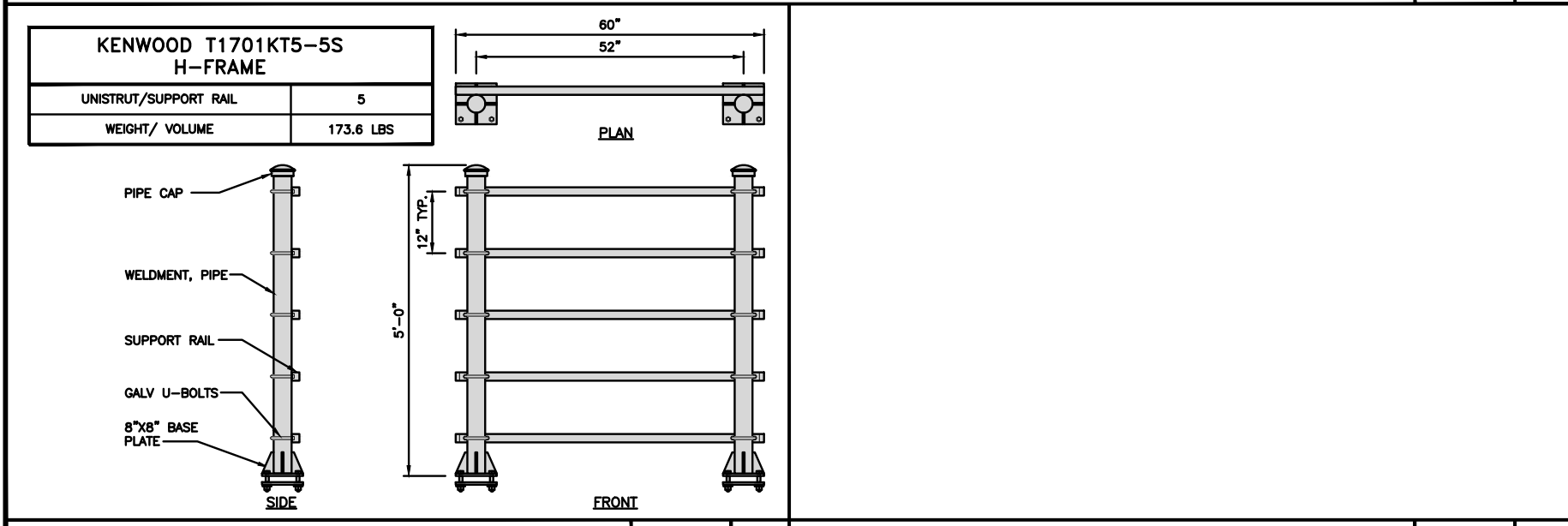


PLATFORM EQUIPMENT PLAN



PLATFORM DETAIL

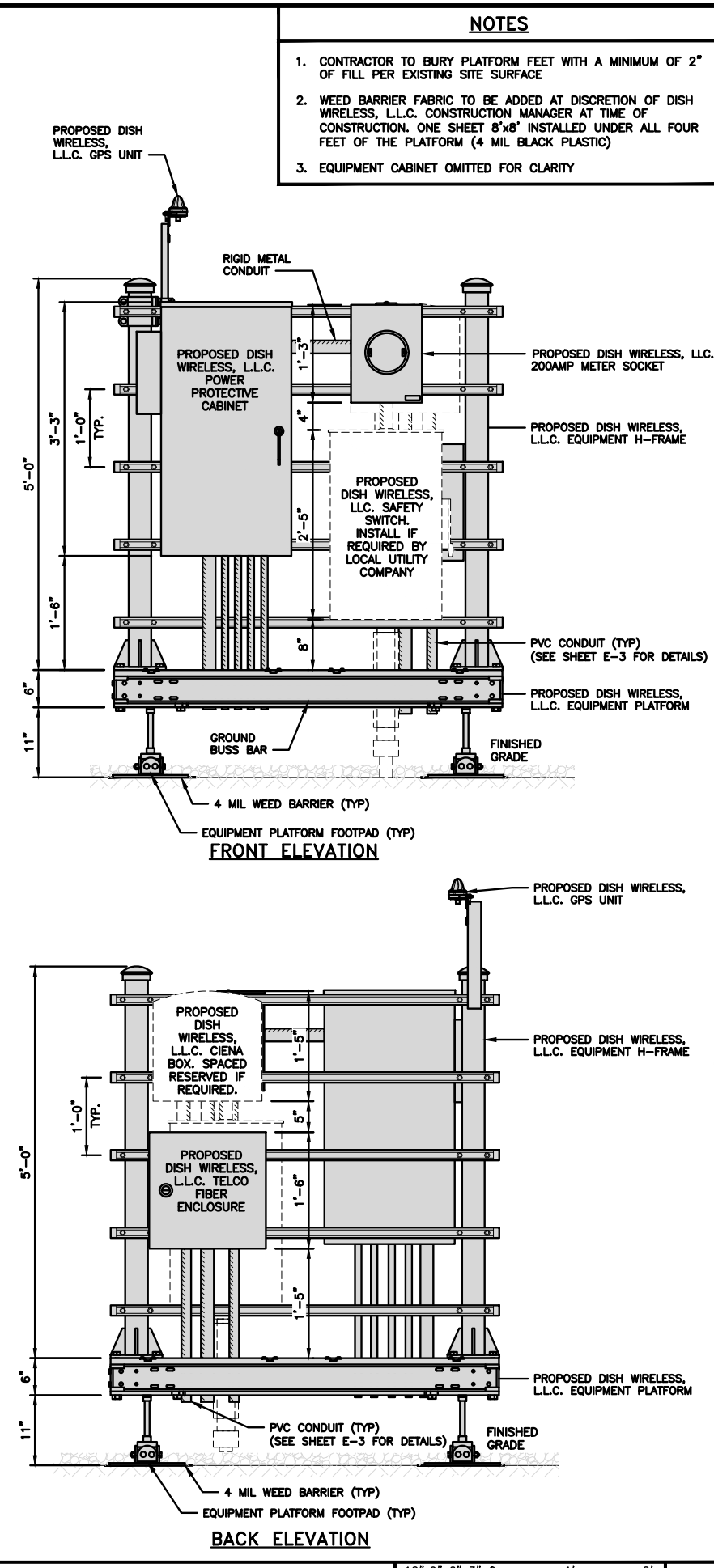
NO SCALE 2



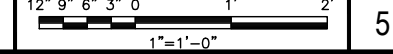
H-FRAME DETAIL

NO SCALE 3

NOT USED NO SCALE 4



H-FRAME EQUIPMENT ELEVATION



NO SCALE 5

- NOTES**
- CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE
 - WEED BARRIER FABRIC TO BE ADDED AT DISCRETION OF DISH WIRELESS, L.L.C. CONSTRUCTION MANAGER AT TIME OF CONSTRUCTION. ONE SHEET 8'x8' INSTALLED UNDER ALL FOUR FEET OF THE PLATFORM (4 MIL BLACK PLASTIC)
 - EQUIPMENT CABINET OMITTED FOR CLARITY

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A.T. ENGINEERING SERVICE, PLLC
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SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112

DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	SRF	SRF
RFDS REV #:		

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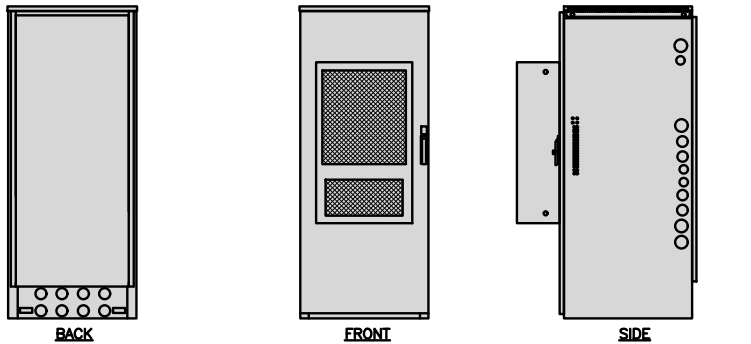
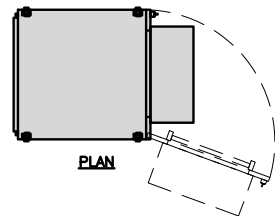
A&E PROJECT NUMBER
88018-13710333_D2

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PROJECT INFORMATION
NJJER01123B
168 CATOONA LANE
STAMFORD, CT 06902

SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-3

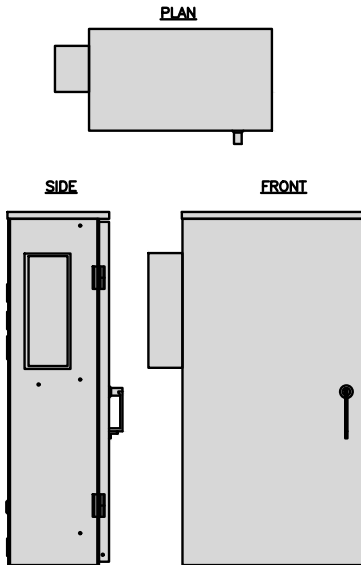
ENERSYS HEX CABINET 2000005996	
DIMENSIONS (HxWxD):	73"x30"x32"
WEIGHT EMPTY:	376 lbs
HEATER	800W
POWER SYSTEM	-48V ALPHA/600A



CABINET DETAIL

NO SCALE 1

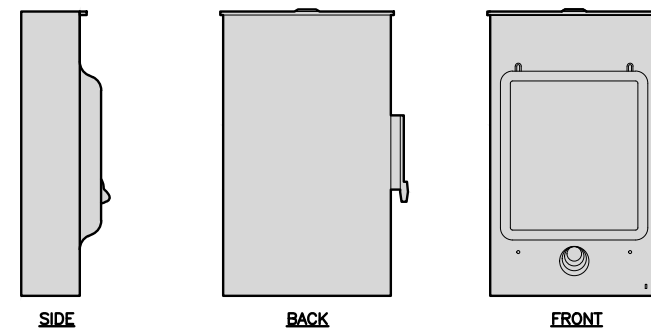
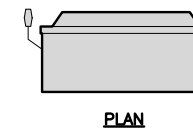
RAYCAP RDIAC-6512-P-240-MTS POWER & TELCO PROTECTION CABINET	
DIMENSIONS (HxWxD):	40"x20"x10"
WEIGHT/ VOLUME	124 LBS
MANUAL TRANSFER SWITCH	200A
LOAD CENTER	30 POSITION
MAIN BREAKER	200A, 65KA AIC
GENERATOR RECEPTACLE	CAMLOCK
NEMA RATING	3R POWDER COATED ALUMINUM
SURGE PROTECTION DEVICE	UL 1449 4TH EDITION LISTED



POWER PROTECTION CABINET (PPC) DETAIL

NO SCALE 2

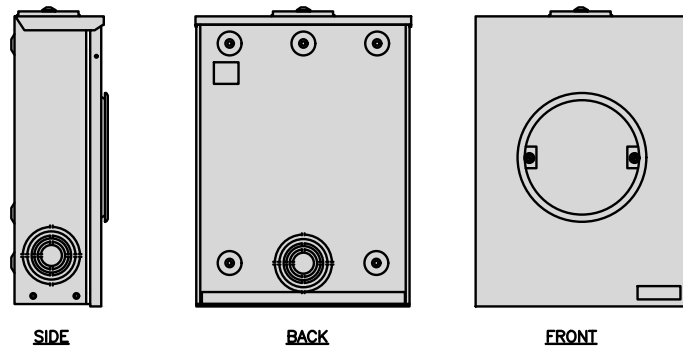
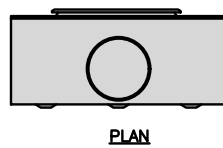
SQUARE D SAFETY SWITCH D324NRB	
ENCLOSURE DIM (HxWxD)	29.25"x17.25"x8.25"
TOTAL WEIGHT (EMPTY)	45.33 LBS
MAX VOLTAGE/AMPS/WATT	240V/200A/48000W
ENCLOSURE RATING	OUTDOOR NEMA 3R



SAFETY SWITCH

NO SCALE 3

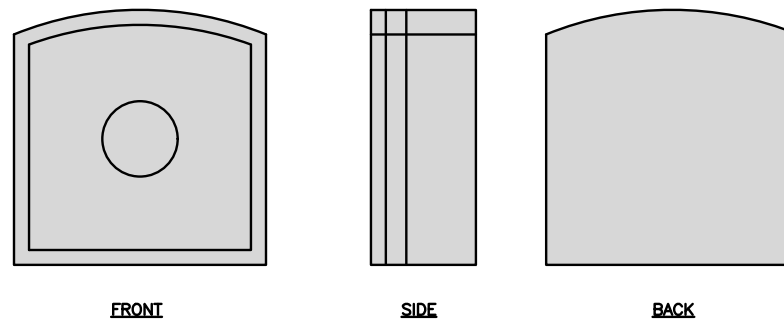
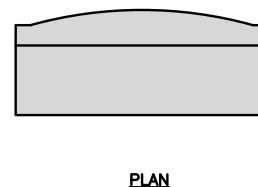
EATON METER SOCKET UNRRS213BEUSE	
METER SOCKET TYPE	RING
ENCLOSURE DIM (HxWxD)	16"x12"x6"
MAIN AMPERE RATING	200A
WEIGHT	18 LBS



METER SOCKET DETAIL

NO SCALE 4

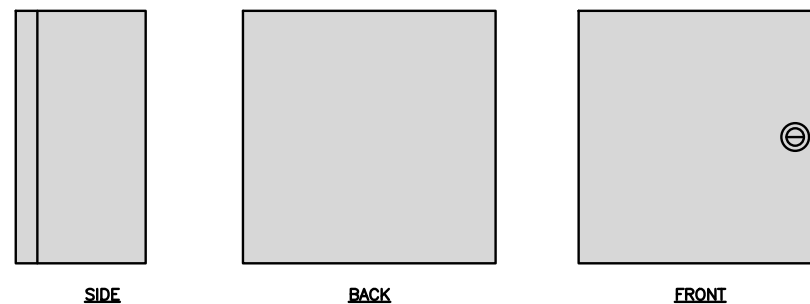
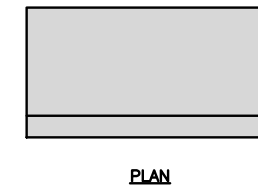
CIENA 3931 SERVICE DELIVERY SWITCH	
DIMENSIONS (HxWxD)	17.0"x16.8"x7.0" 431x427x178mm
WEIGHT	28.6 LBS/13.0 KG
POWER INPUT	60W MAX



CIENA DETAIL

NO SCALE 5

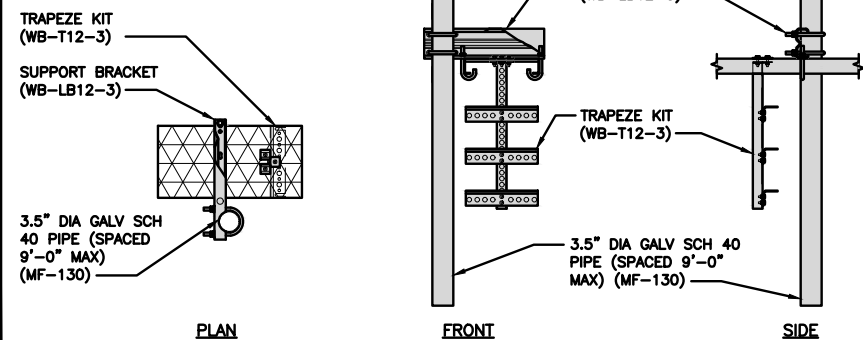
CHARLES FIBER TELCO ENCLOSURE CUBE-MP1818WB-A	
ENCLOSURE DIM (HxWxD)	18.0"x18.0"x9.25"
NEMA RATING	4X
THERMAL	SEALED
MOUNTING BACKBOARD	WOOD



FIBER TELCO ENCLOSURE DETAIL

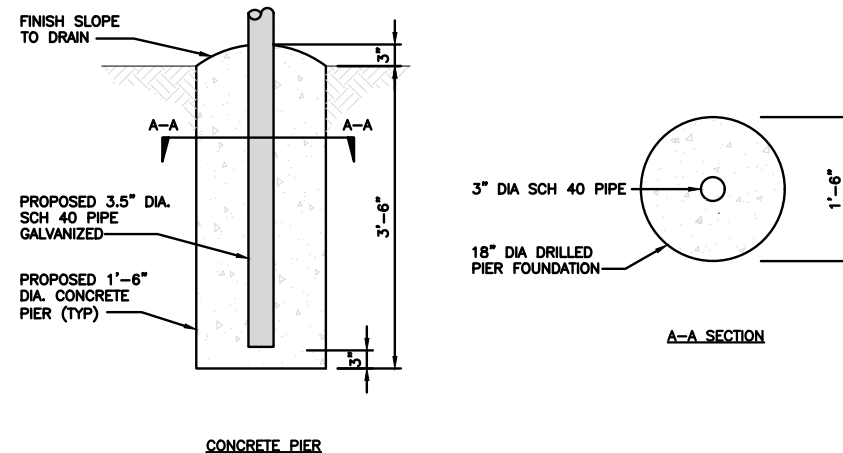
NO SCALE 6

COMMSCOPE WB-K110-B WAVEGUIDE BRIDGE KIT		INCLUDED PRODUCTS:	WB-T12-3 TRAPEZE KIT, 3 RUNGS
DIMENSIONS (HxL)	160"x10'	WB-LB12-3 SUPPORT BRACKET	
WEIGHT/ VOLUME	325.0 LBS	MF-130 DIRECT BURIAL PIPE COLUMN, 13'-4"	
CABLE RUN (QTY)	12		



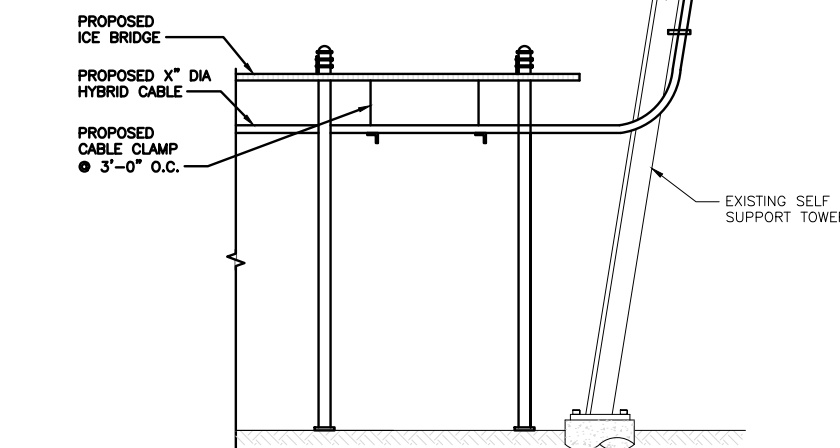
ICE BRIDGE DETAIL

NO SCALE 7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL

NO SCALE 8



HYBRID CABLE RUN

NO SCALE 9



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RFDS REV #:	----	

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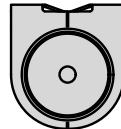
DISH WIRELESS, L.L.C.
PROJECT INFORMATION
NJJER01123B
168 CATOONA LANE
STAMFORD, CT 06902

SHEET TITLE
EQUIPMENT DETAILS

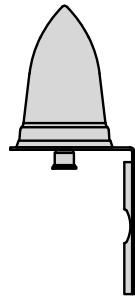
SHEET NUMBER

A-4

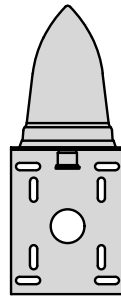
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



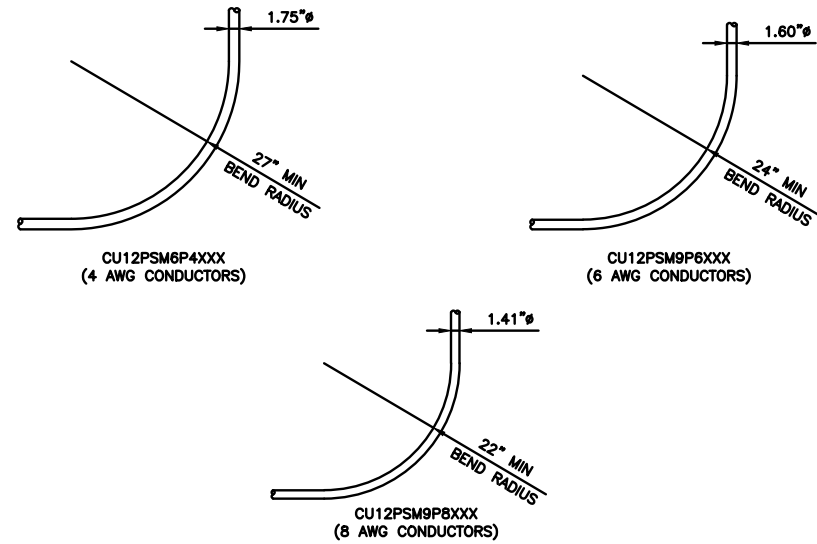
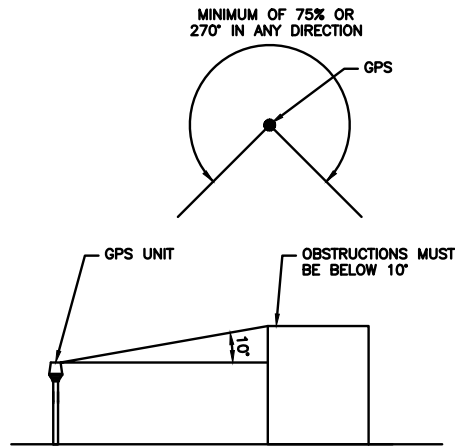
TOP



BACK



SIDE



GPS DETAIL

NO SCALE

1

GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE

2

CABLES UNLIMITED HYBRID CABLE
MINIMUM BEND RADIUSES

NO SCALE

3

NOT USED

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9

dish
wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

AMERICAN TOWER
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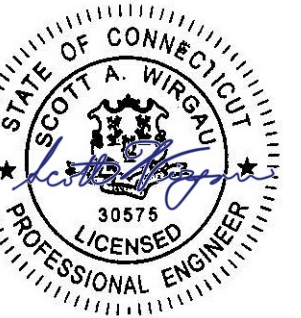
DRAWN BY: CHECKED BY: APPROVED BY:

JW SRF SRF

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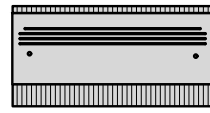
A&E PROJECT NUMBER
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DISH WIRELESS, L.L.C.
PROJECT INFORMATION
NJJER01123B
168 CATOONA LANE
STAMFORD, CT 06902

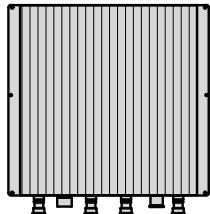
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-5

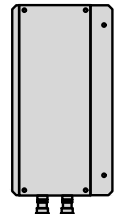
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



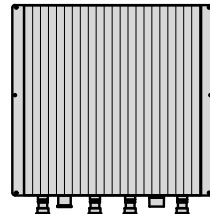
PLAN



BACK



SIDE



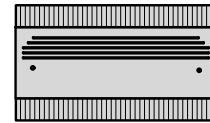
FRONT

RRH DETAIL

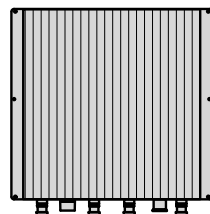
NO SCALE

1

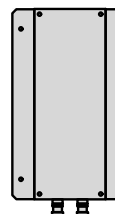
FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



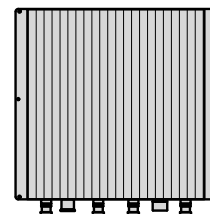
PLAN



BACK



SIDE



FRONT

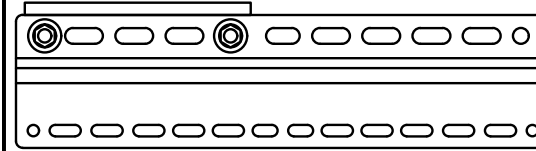
RRH DETAIL

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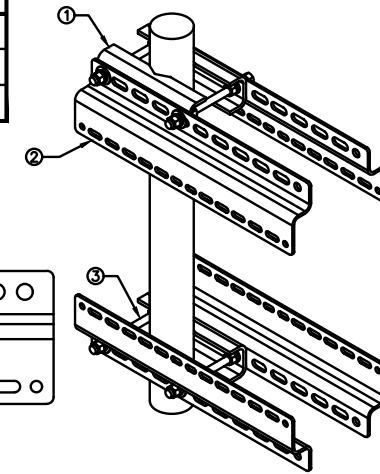
2

SABRE DOUBLE Z-BRACKET G10123155	
DIMENSIONS (HxWxD) (1 BRACKET)	5"x20"x1-13/16"
WEIGHT (FULL ASSEMBLY)	35.79 lbs
PACKAGE QUANTITY	4

#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/16"
3	THREADED ROD ASSEMBLY 1/2"x12"



NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT



RRH MOUNT DETAIL

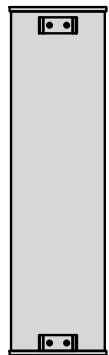
NO SCALE

3

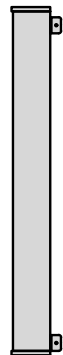
JMA WIRELESS MX08FRO665-21 ANTENNA	
DIMENSIONS (HxWxD)	72.0"x20.0"x8.0"
TOTAL WEIGHT	64.5 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE



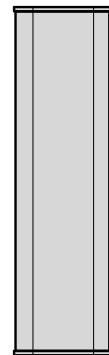
PLAN



BACK



SIDE



FRONT

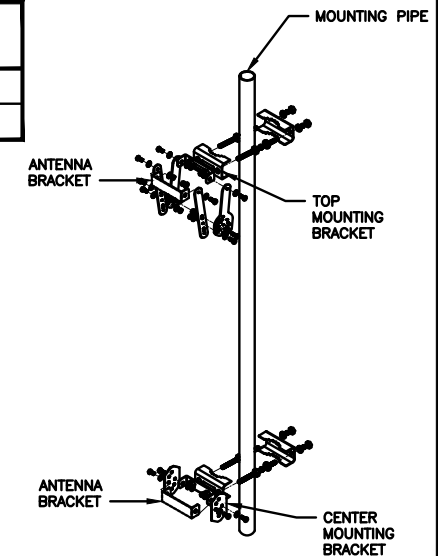
ANTENNA DETAIL

NO SCALE

4

JMA ANTENNA MOUNT BRACKET #91900318	
TOTAL WEIGHT (WITH BRACKETS)	18 lbs (8.18 Kg)
POLE DIAMETER RANGE	2.5" TO 4.5"

NOTE:
KIT #91900318: TOP AND BOTTOM BRACKETS
FOR 4-, 6-, AND 8-FOOT ANTENNAS
ANTENNA BRACKET NOT PART OF KIT



NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

ANTENNA BRACKET DETAIL

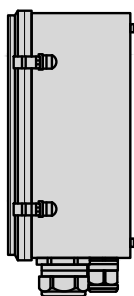
NO SCALE

6

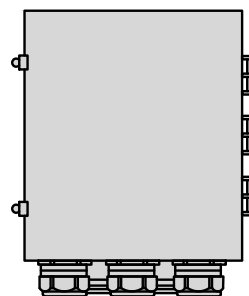
RAYCAP RDIC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



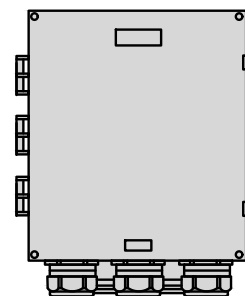
PLAN



SIDE



BACK



FRONT

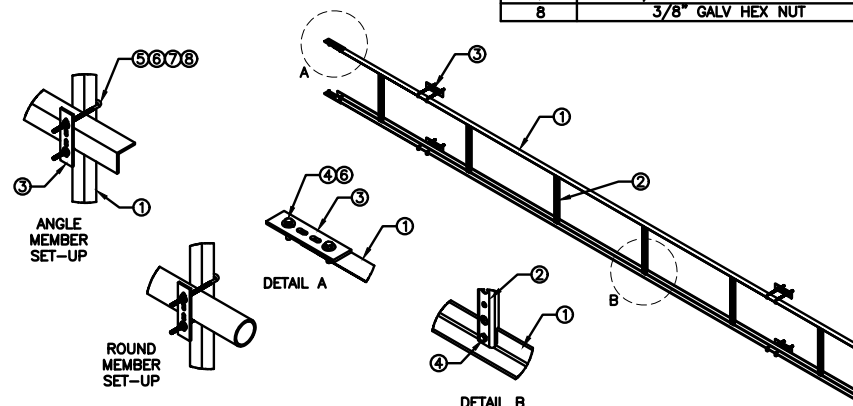
SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

7

COMMSCOPE 20' CABLE LADDER 6 HOLE RUNGS	
DIMENSIONS (WxL)	20.5"x240"
WEIGHT	84.94 lbs

ITEM#	DESCRIPTION
1	20" ANGLE SIDE RAIL
2	20" LADDER RUNG
3	BACKING PLATE
4	3/8"x1-1/2" GALV BOLT KIT
5	8" GALV J-BOLT KIT
6	3/8" GALV FLAT WASHER
7	3/8" GALV LOCK WASHER
8	3/8" GALV HEX NUT

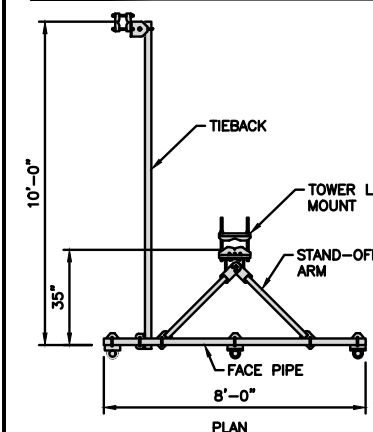


CABLE LADDER DETAIL

NO SCALE

8

COMMSCOPE V-FRAME MTG3975083	
FACE SIZE	8'-0"
WEIGHT	352.136 lbs



ANTENNA FRAME DETAIL

NO SCALE

9



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

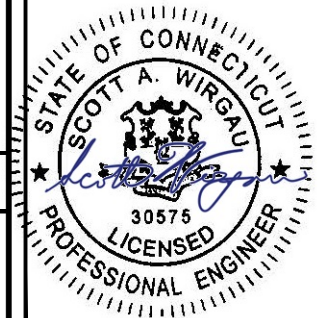


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168 CATOONA LANE
STAMFORD, CT 06902

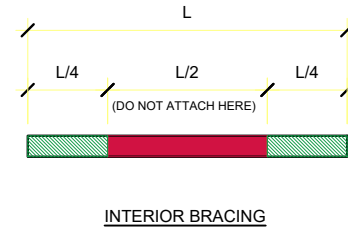
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER

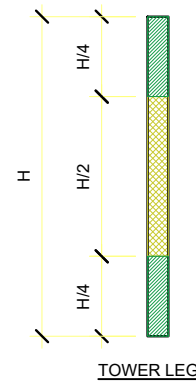
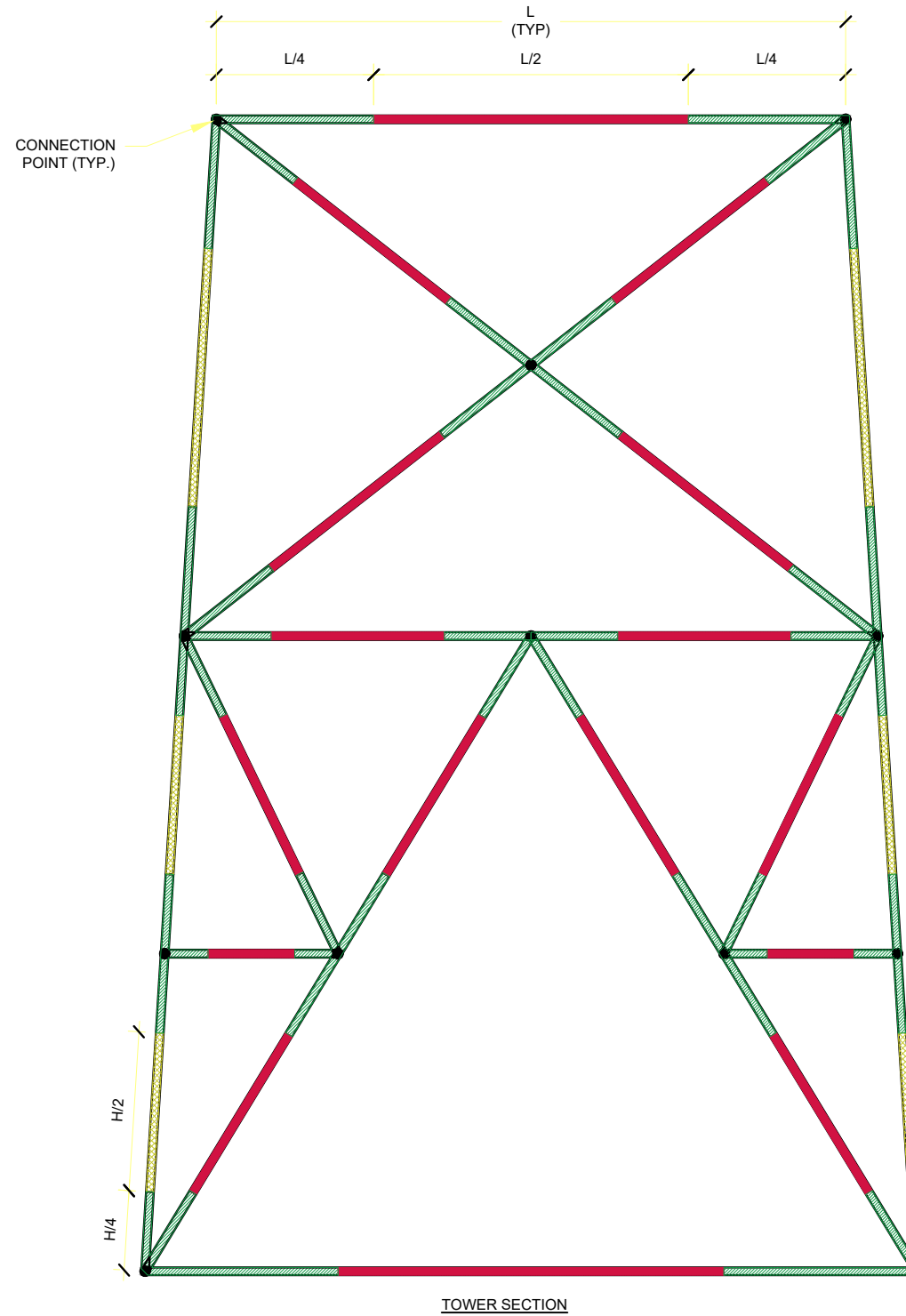
A-6

STIFF ARM LOCATION NOTES:

- TIE BACK SHALL BE CONNECTED PER MANUFACTURER SPECIFICATIONS. IF THE ANGLE OF ATTACHMENT DEVIATES FROM THE MANUFACTURER RANGES, A SITE SPECIFIC ANALYSIS THAT CONSIDERS THESE EFFECTS ON BOTH THE TOWER AND THE MOUNT WILL BE NEEDED.
- ACCEPTABLE STIFF ARM TO TOWER MEMBER ATTACHMENT LOCATIONS:
 - A) INTERIOR BRACING MEMBERS:
 - WITHIN 25% OF EITHER END OF THE MEMBER'S LENGTH.
 - B) TOWER LEGS:
 - WITHIN 25% OF EITHER END OF THE MEMBER'S LENGTH. IF ATTACHMENT IS NOT WITHIN 25% OF EITHER END OF THE MEMBERS LENGTH THEN ADJUST ATTACHMENT POINT TO MINIMIZE DISTANCE TO END OF MEMBER WHILE FOLLOWING MANUFACTURERS SPECIFICATIONS.



- ACCEPTABLE ATTACHMENT REGION & FORCE
- ACCEPTABLE ATTACHMENT REGION & FORCE
- DO NOT ATTACH HERE



H-FRAME EQUIPMENT ELEVATION

dish wireless.
 5701 SOUTH SANTA FE DRIVE
 LITTLETON, CO 80120

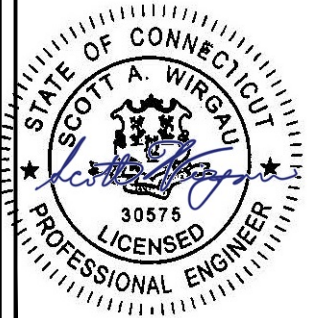
AMERICAN TOWER
 A.T. ENGINEERING SERVICE, PLLC
 3500 REGENCY PARKWAY
 SUITE 100
 CARY, NC 27518
 PHONE: (919) 468-0112

DRAWN BY: JW CHECKED BY: SRF APPROVED BY: SRF

RFDS REV #: -----

CONSTRUCTION DOCUMENTS

SUBMITTALS		
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1	11/01/2021	PPC UPDATE



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A&E PROJECT NUMBER
 88018-13710333_D2

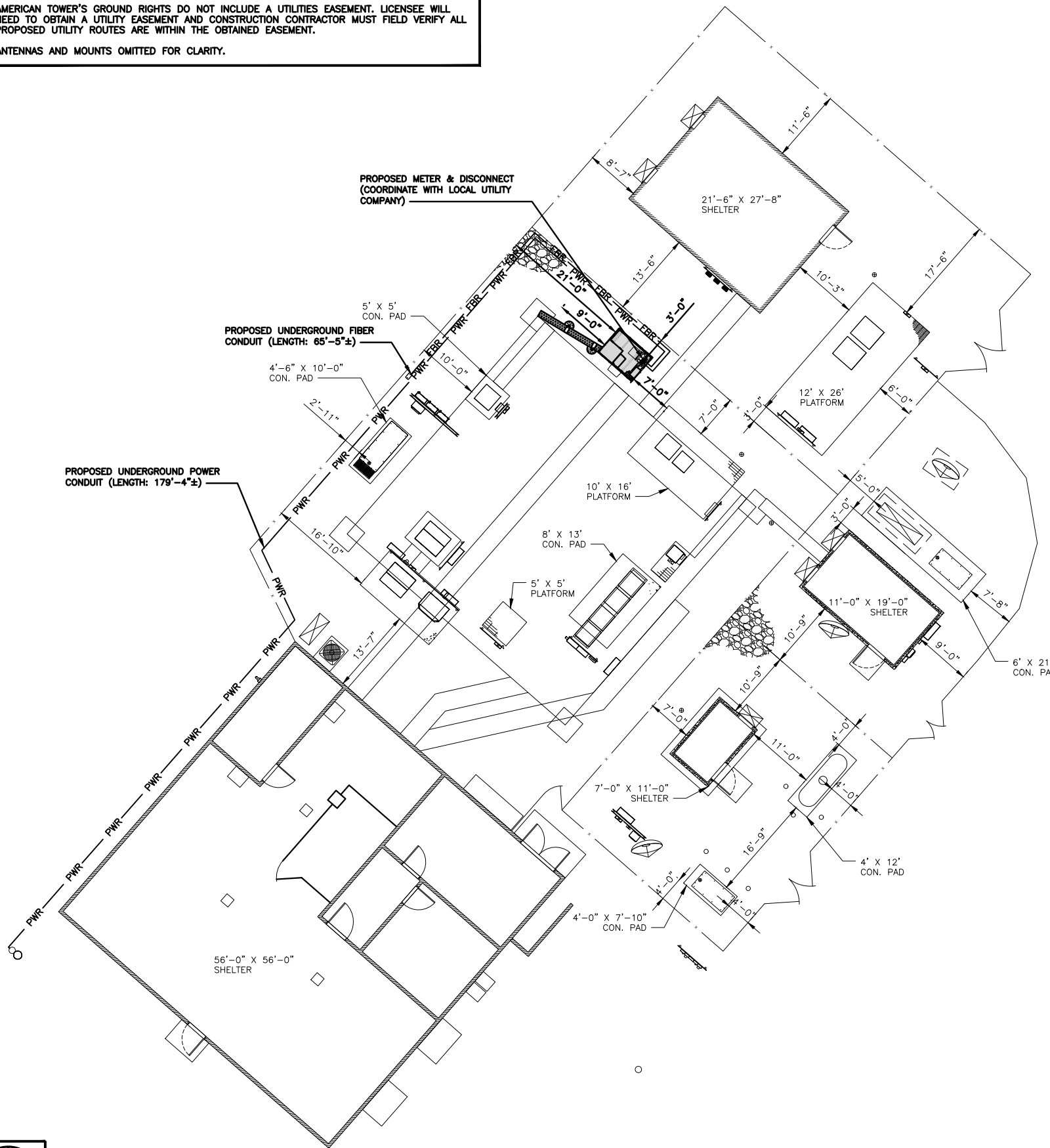
DISH WIRELESS, L.L.C.
 PROJECT INFORMATION
 NJJER01123B
 168 CATOONA LANE
 STAMFORD, CT 06902

SHEET TITLE
 EQUIPMENT DETAILS

SHEET NUMBER
A-7

NOTES

1. AMERICAN TOWER'S GROUND RIGHTS DO NOT INCLUDE A UTILITIES EASEMENT. LICENSEE WILL NEED TO OBTAIN A UTILITY EASEMENT AND CONSTRUCTION CONTRACTOR MUST FIELD VERIFY ALL PROPOSED UTILITY ROUTES ARE WITHIN THE OBTAINED EASEMENT.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND -48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY -48V.

1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
2. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL STATE AND LOCAL CODES, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC STANDARDS.
3. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.
4. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH THE MECHANICAL EQUIPMENT CONTRACTOR AND COMPLY AS REQUIRED.
5. CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETE SYSTEM.
6. CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED BY THE NEC ARTICLE 314.
7. CONTRACTOR SHALL PROVIDE ALL STRAIN RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
8. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM.
9. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC 250. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, AND EQUIPMENT CABINETS.
10. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
11. PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.
13. ALL TRENCHES IN COMPOUND TO BE HAND DUG

ELECTRICAL NOTES

NO SCALE

2

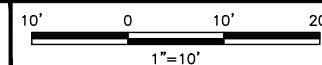


AERIAL VIEW

NO SCALE

3

UTILITY ROUTE PLAN



1



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

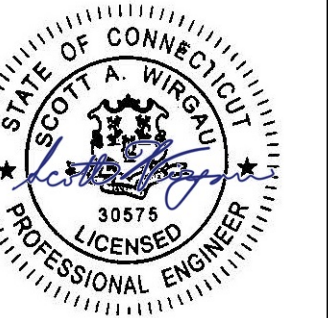


DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	SRF	SRF

RFDS REV #: -----

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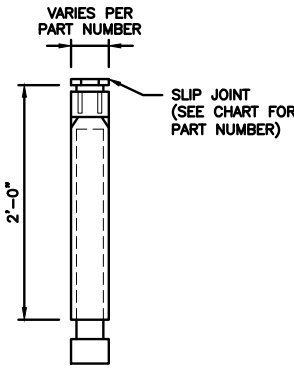
A&E PROJECT NUMBER
88018-13710333_D2

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
NJJER01123B
168 CATOONA LANE
STAMFORD, CT 06902

SHEET TITLE
ELECTRICAL/FIBER ROUTE
PLAN AND NOTES

SHEET NUMBER
E-1

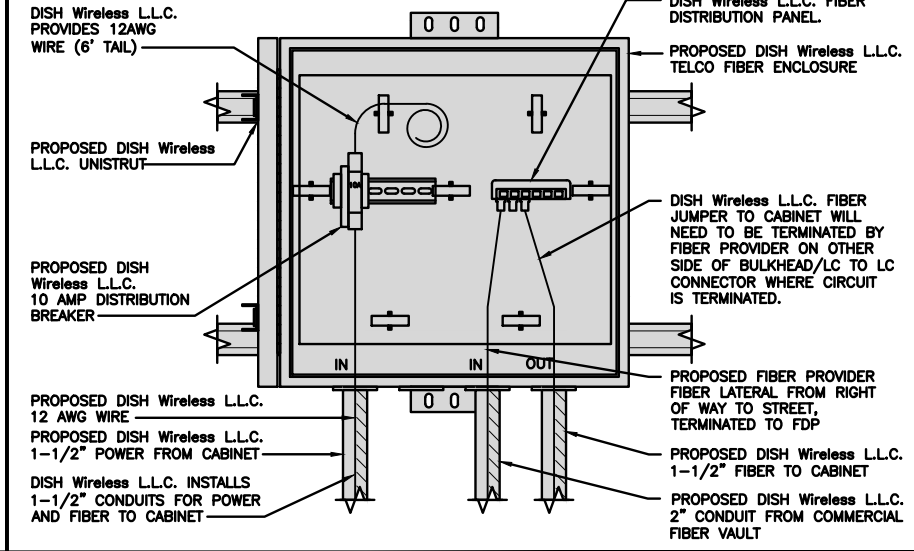
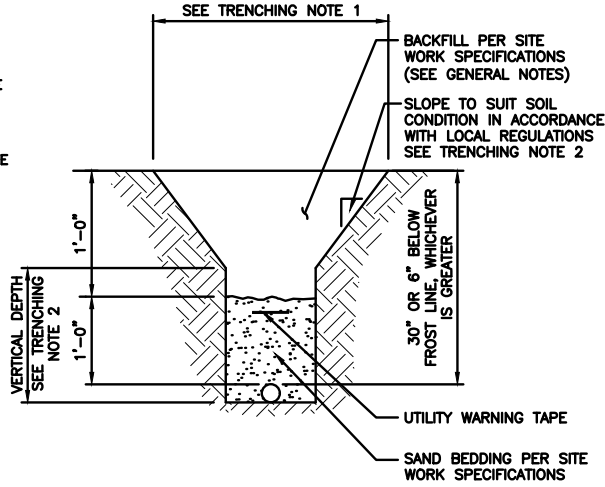
CARLON EXPANSION FITTINGS				
COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"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



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

TRENCHING NOTES

- CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
- TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT OSHA TRENCHING AND EXCAVATION SAFETY STANDARDS.
- ALL CONDUITS SHALL BE INSTALLED IN COMPLIANCE WITH THE CURRENT NATIONAL ELECTRIC CODE (NEC) OR AS REQUIRED BY THE LOCAL JURISDICTION, WHICHEVER IS THE MOST STRINGENT.



DRAWN BY: JW CHECKED BY: SRF APPROVED BY: SRF

RFDS REV #: -----

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88018-13710333_D2

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PROJECT INFORMATION
NJJER01123B
168 CATOONA LANE
STAMFORD, CT 06902

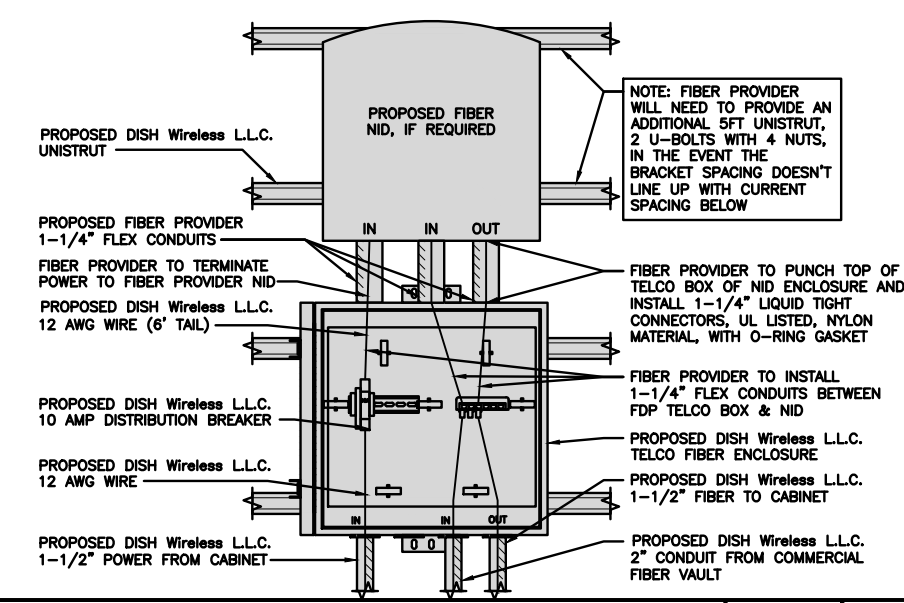
SHEET TITLE
ELECTRICAL
DETAILS

SHEET NUMBER
E-2

EXPANSION JOINT DETAIL NO SCALE 1

TYPICAL UNDERGROUND TRENCH DETAIL NO SCALE 2

DARK TELCO BOX - INTERIOR WIRING LAYOUT NO SCALE 3



LIT TELCO BOX - INTERIOR WIRING LAYOUT (OPTIONAL) NO SCALE 4

NOT USED NO SCALE 5

NOT USED NO SCALE 6

NOT USED NO SCALE 7

NOT USED NO SCALE 8

NOT USED NO SCALE 9



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

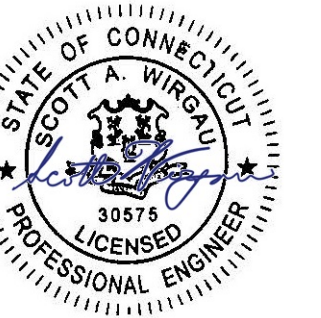


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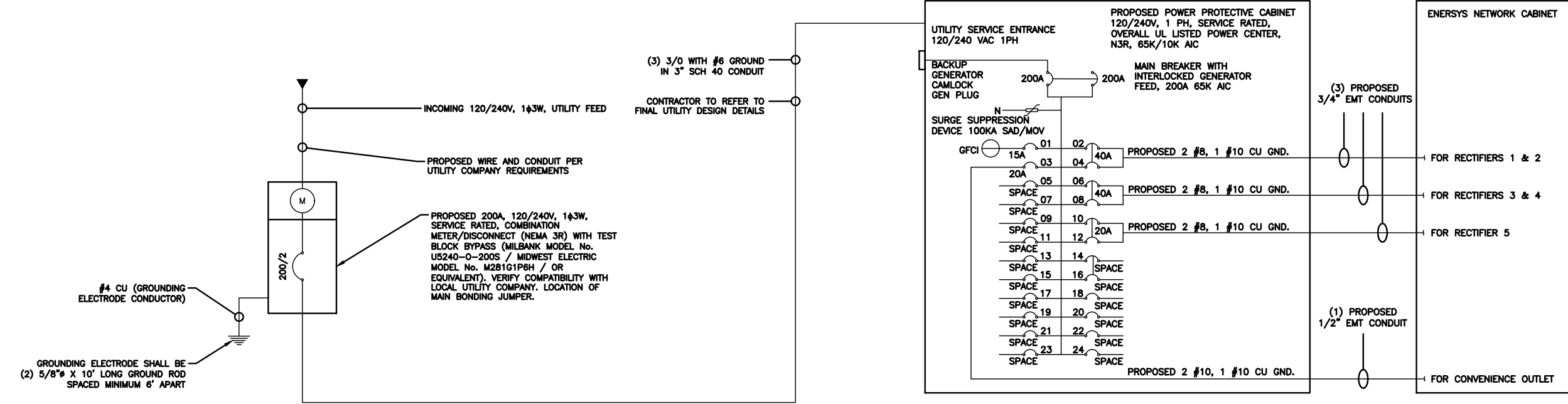
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88018-13710333_D2

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
NJJER01123B
168 CATOONA LANE
STAMFORD, CT 06902

SHEET TITLE
ELECTRICAL ONE-LINE, FAULT
CALCS & PANEL SCHEDULE

SHEET NUMBER
E-3



NOTE:
BRANCH CIRCUIT WIRING SUPPLYING RECTIFIERS ARE TO BE RATED UL1015, 105°C, 600V, AND PVC INSULATED, IN THE SIZES SHOWN IN THE ONE-LINE DIAGRAM. CONTRACTOR MAY SUBSTITUTE UL1015 WIRE FOR THWN-2 FOR CONVENIENCE OUTLET BRANCH CIRCUIT.

BREAKERS REQUIRED:
(2) 40A, 2P BREAKER - SQUARE D P/N:Q0240
(1) 20A, 2P BREAKER - SQUARE D P/N:Q0220
(1) 20A, 1P BREAKER - SQUARE D P/N:Q0120
(1) 15A, 1P BREAKER - SQUARE D P/N:Q0115

PPC ONE-LINE DIAGRAM

NO SCALE 1

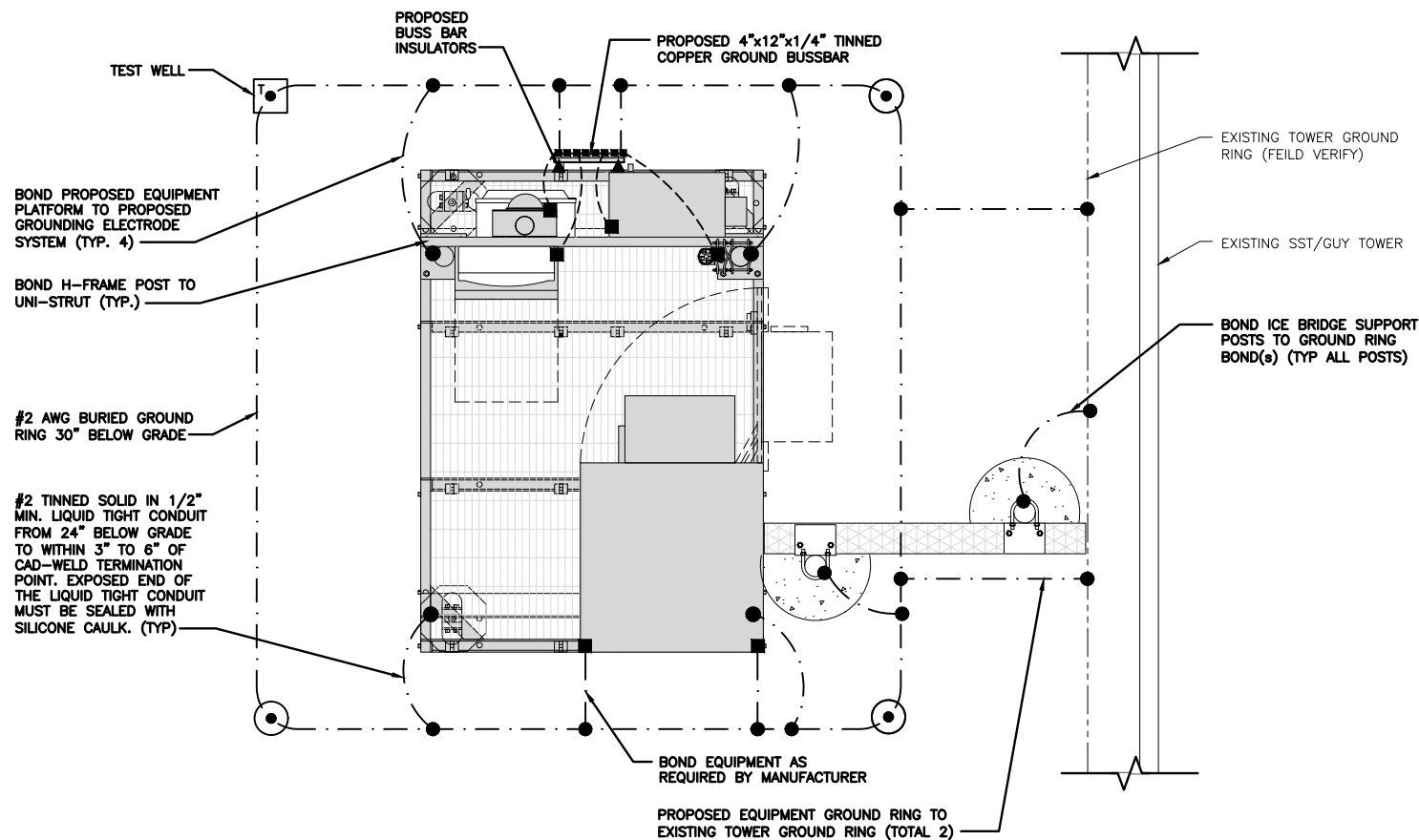
PROPOSED ENERGYS PANEL SCHEDULE											
LOAD SERVED	VOLT AMPS (WATTS)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS)		LOAD SERVED	
	L1	L2						L1	L2		
PPC GFCI OUTLET	180	180	15A	1	A	2	40A	3840	3840	ENERGYS ALPHA CORDEX RECTIFIERS 1 & 2	
ENERGYS GFCI OUTLET	180	180	20A	3	B	4	40A	3840	3840	ENERGYS ALPHA CORDEX RECTIFIERS 3 & 4	
-SPACE-				5	A	6	40A	3840	3840	ENERGYS ALPHA CORDEX RECTIFIER 3 & 4	
-SPACE-				7	B	8	40A	3840	3840	ENERGYS ALPHA CORDEX RECTIFIER 3 & 4	
-SPACE-				9	A	10	20A	1920	1920	ENERGYS ALPHA CORDEX RECTIFIER 5	
-SPACE-				11	B	12	20A	1920	1920	ENERGYS ALPHA CORDEX RECTIFIER 5	
-SPACE-				13	A	14				-SPACE-	
-SPACE-				15	B	16				-SPACE-	
-SPACE-				17	A	18				-SPACE-	
-SPACE-				19	B	20				-SPACE-	
-SPACE-				21	A	22				-SPACE-	
-SPACE-				23	B	24				-SPACE-	
VOLTAGE AMPS	180	180						9500	9500		
200A MCB, 1 ϕ , 24 SPACE, 120/240V				L1	L2						
MB RATING: 65,000 AIC				9680	9680					VOLTAGE AMPS	
				81	81					AMPS	
										MAX AMPS	
										MAX 125%	

PANEL SCHEDULE

NO SCALE 2

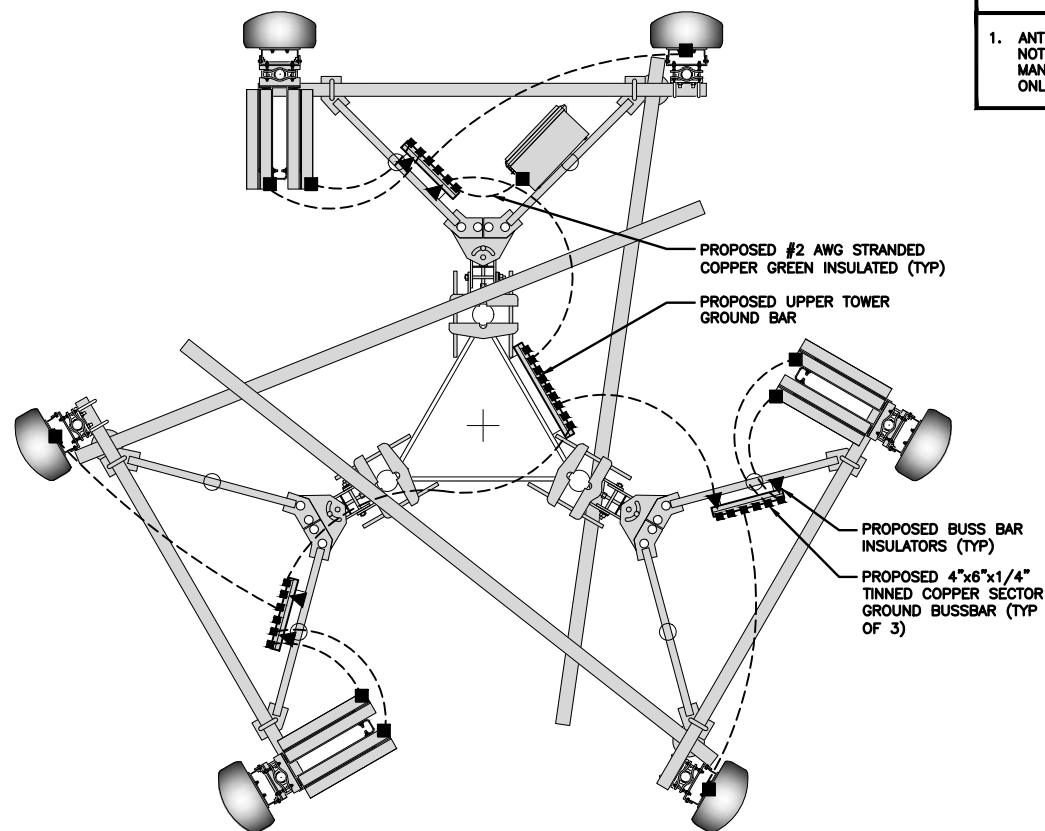
NOT USED

NO SCALE 3



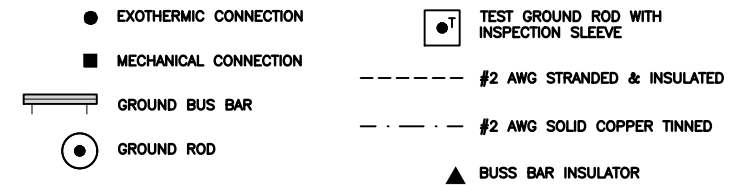
TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2



GROUNDING LEGEND

- GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
- CONTRACTOR SHALL GROUND ALL EQUIPMENT AS A COMPLETE SYSTEM. GROUNDING SHALL BE IN COMPLIANCE WITH NEC SECTION 250 AND DISH WIRELESS, L.L.C. GROUNDING AND BONDING REQUIREMENTS AND MANUFACTURER'S SPECIFICATIONS.
- ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.

GROUNDING KEY NOTES

- (A) **EXTERIOR GROUND RING:** #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 8 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.
- (B) **TOWER GROUND RING:** THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.
- (C) **INTERIOR GROUND RING:** #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.
- (D) **BOND TO INTERIOR GROUND RING:** #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.
- (E) **GROUND ROD:** UL LISTED COPPER CLAD STEEL MINIMUM 5/8" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.
- (F) **CELL REFERENCE GROUND BAR:** POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.
- (G) **HATCH PLATE GROUND BAR:** BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.
- (H) **EXTERIOR CABLE ENTRY PORT GROUND BARS:** LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE.
- (J) **TELCO GROUND BAR:** BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.
- (K) **FRAME BONDING:** THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.
- (L) **INTERIOR UNIT BONDS:** METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.
- (M) **FENCE AND GATE GROUNDING:** METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.
- (N) **EXTERIOR UNIT BONDS:** METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. USING #2 TINNED SOLID COPPER WIRE
- (P) **ICE BRIDGE SUPPORTS:** EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.
- (Q) **DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR**
- (R) **TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT COLLAR. REFER TO DISH WIRELESS, L.L.C. GROUNDING NOTES.**

GROUNDING KEY NOTES

NO SCALE 3



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

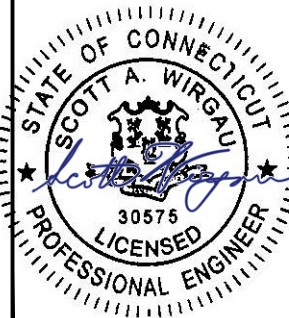


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RFDS REV #: -----

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DISH WIRELESS, L.L.C.
PROJECT INFORMATION
NJJER01123B
168 CATOONA LANE
STAMFORD, CT 06902

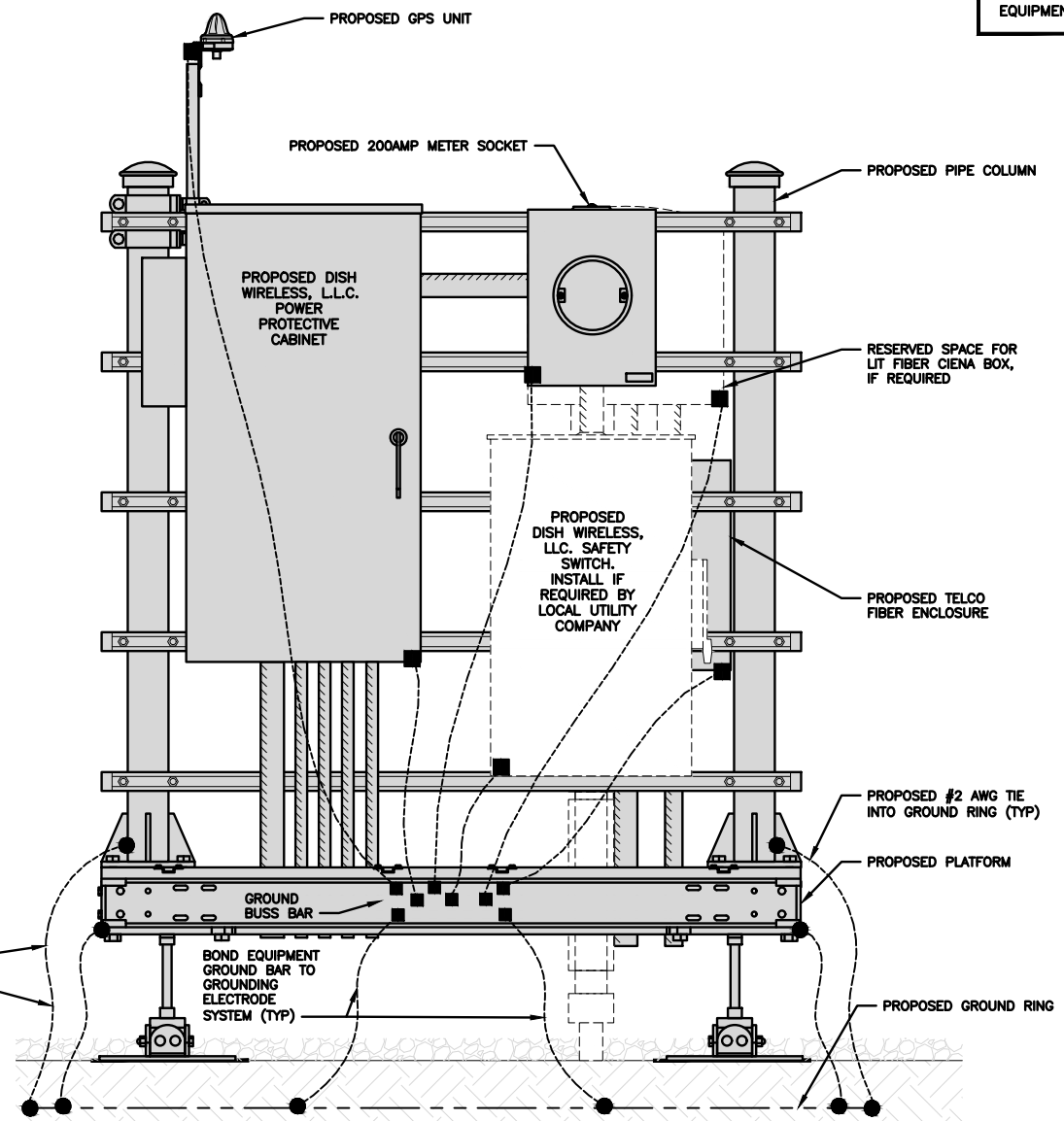
SHEET TITLE
GROUNDING PLANS
AND NOTES

SHEET NUMBER

G-1

NOTES

EQUIPMENT CABINET OMITTED FOR CLARITY

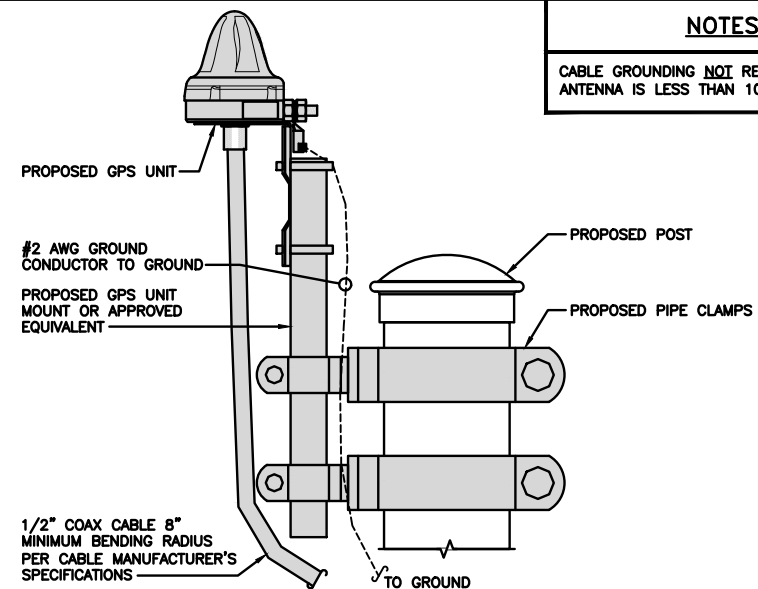


H-FRAME GROUNDING DETAIL

NO SCALE 1

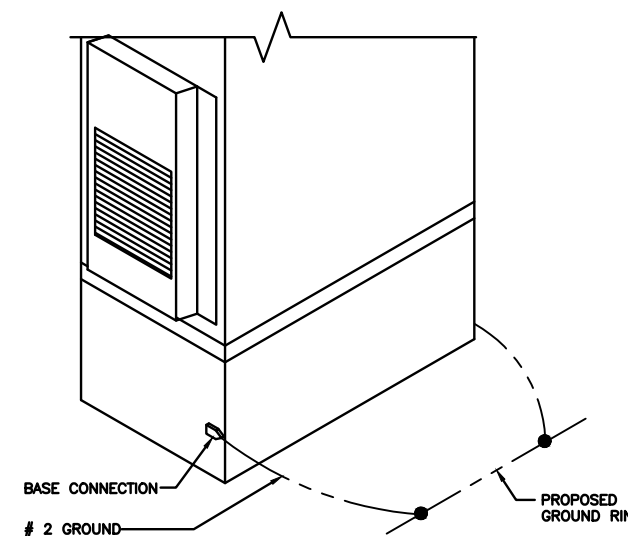
NOTES

CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



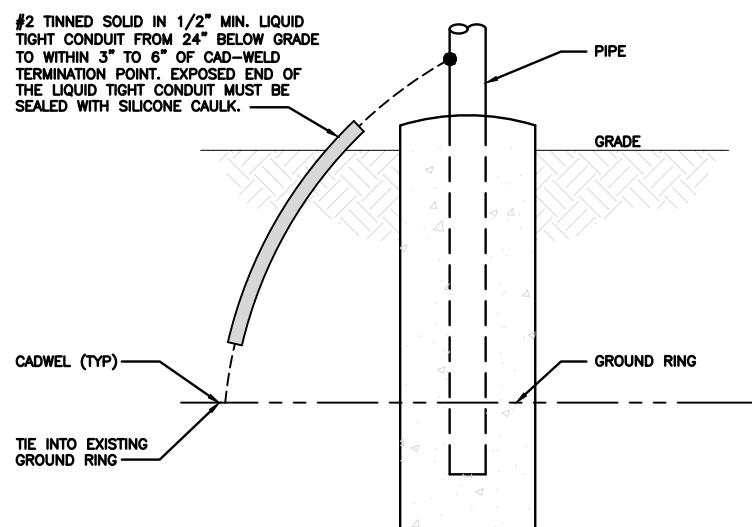
TYPICAL GPS UNIT GROUNDING

NO SCALE 2



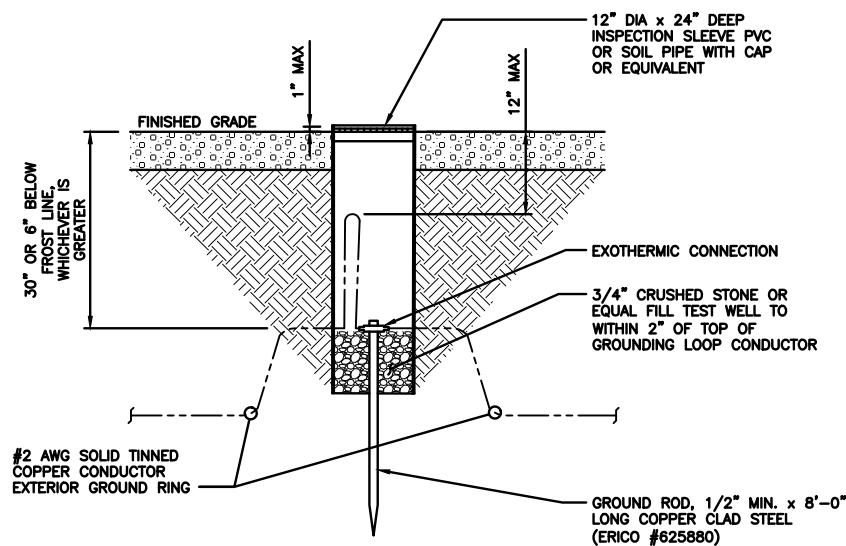
OUTDOOR CABINET GROUNDING

NO SCALE 3



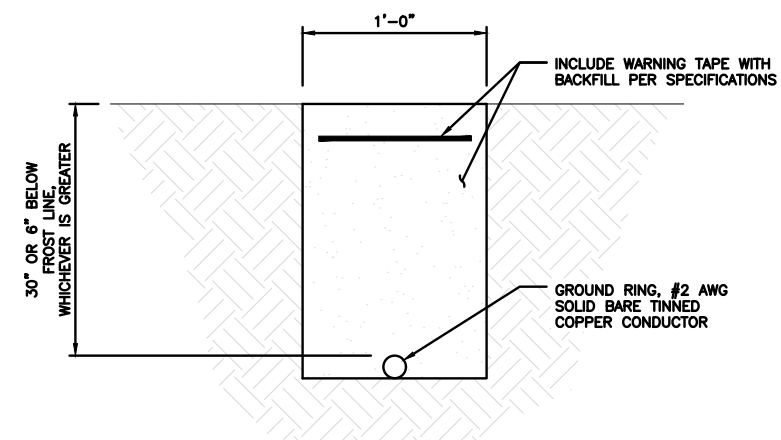
TRANSITIONING GROUND DETAIL

NO SCALE 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE

NO SCALE 5



TYPICAL GROUND RING TRENCH

NO SCALE 6

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

AMERICAN TOWER
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112

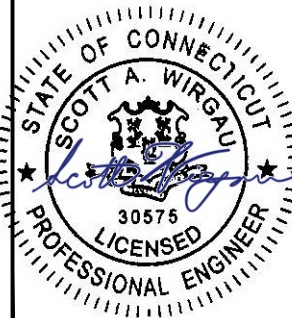
DRAWN BY: CHECKED BY: APPROVED BY:

JW SRF SRF

RFDS REV #: ----

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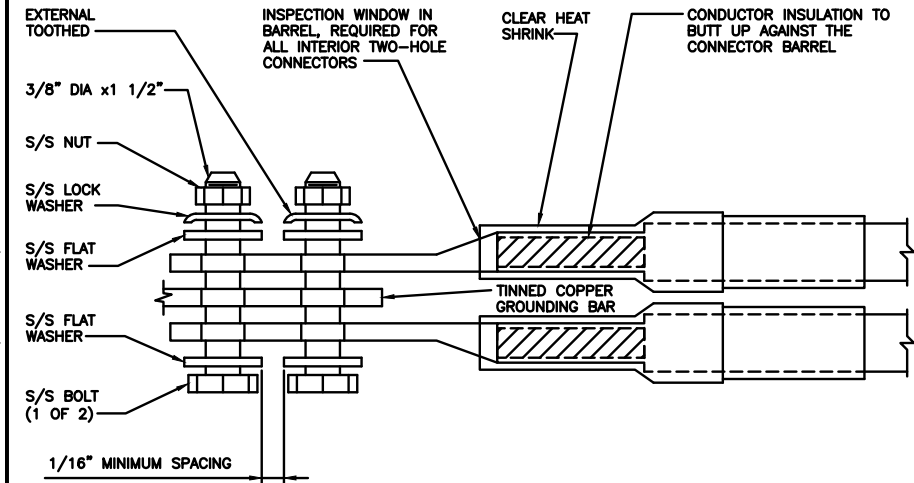
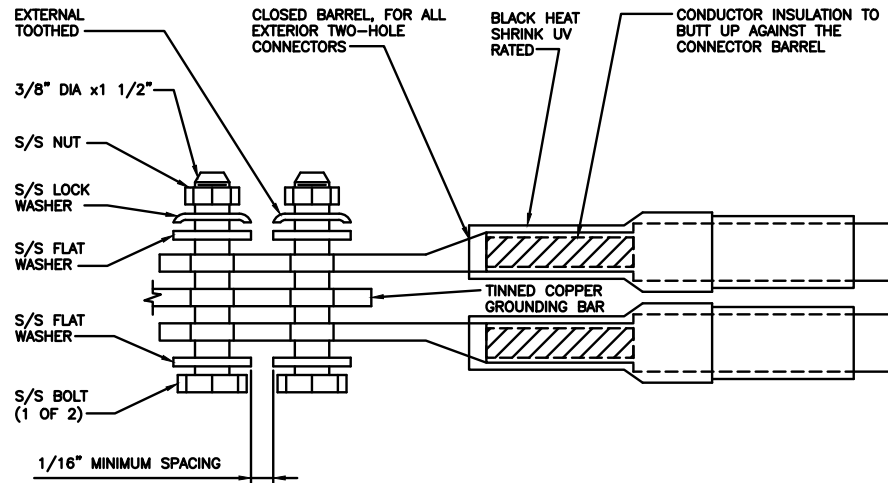
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NJJER01123B
168 CATOONA LANE
STAMFORD, CT 06902

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER

G-2

1. EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUND BAR. ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. ALL EXTERIOR GROUNDING HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
3. FOR GROUND BOND TO STEEL ONLY: COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
4. DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUNDING BUS.
5. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE.
6. ALL GROUNDING PARTS AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED.
8. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).



DRAWN BY:	CHECKED BY:	APPROVED BY:
JW	SRF	SRF
RFDS REV #:	----	

CONSTRUCTION DOCUMENTS		
SUBMITTALS		
REV	DATE	DESCRIPTION
0	09/27/2021	ISSUED FOR CONSTRUCTION
1	11/01/2021	PPC UPDATE



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A&E PROJECT NUMBER
88018-13710333_D2

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
NJJER01123B
168 CATOONA LANE
STAMFORD, CT 06902

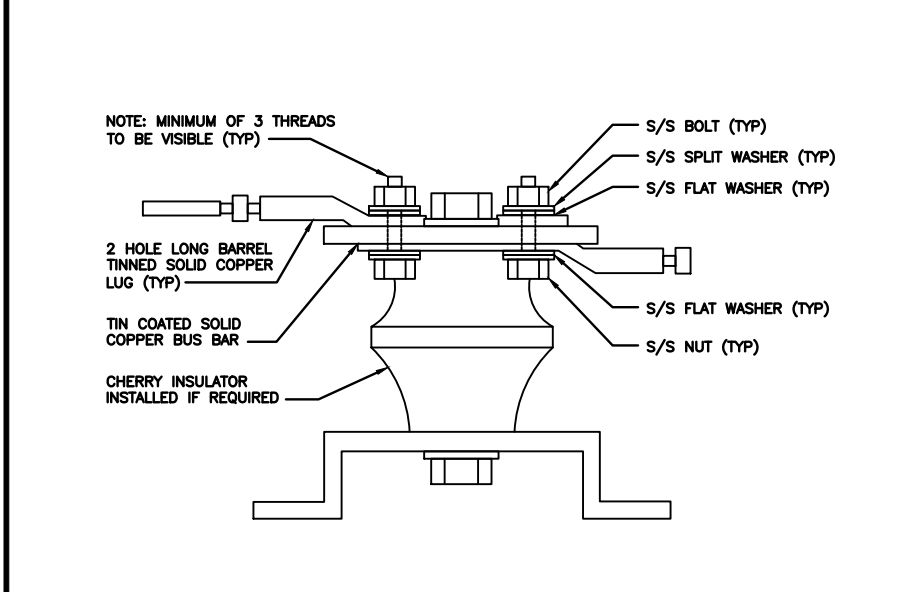
SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-3

TYPICAL GROUNDING NOTES NO SCALE 1

TYPICAL EXTERIOR TWO HOLE LUG NO SCALE 2

TYPICAL INTERIOR TWO HOLE LUG NO SCALE 3



LUG DETAIL NO SCALE 4

NOT USED NO SCALE 5

NOT USED NO SCALE 6

NOT USED NO SCALE 7

NOT USED NO SCALE 8

NOT USED NO SCALE 9

RF JUMPER COLOR CODING

3/4" TAPE WIDTHS WITH 3/4" SPACING

LOW-BAND RRH -
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) - OPTIONAL PER MARKET

ADD FREQUENCY COLOR TO SECTOR BAND
(CBRS WILL USE YELLOW BANDS)

ALPHA RRH				BETA RRH				GAMMA RRH			
PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT
RED	RED	RED	RED	BLUE	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN	GREEN
ORANGE	ORANGE	RED	RED	ORANGE	ORANGE	BLUE	BLUE	ORANGE	ORANGE	GREEN	GREEN
	WHITE (-) PORT	ORANGE	ORANGE		WHITE (-) PORT	ORANGE	ORANGE		WHITE (-) PORT	ORANGE	ORANGE
			WHITE (-) PORT				WHITE (-) PORT				WHITE (-) PORT

MID-BAND RRH -
(AWS BANDS N66+N70)

ADD FREQUENCY COLOR TO SECTOR BAND
(CBRS WILL USE YELLOW BANDS)

RED	RED	RED	RED	BLUE	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN	GREEN
PURPLE	PURPLE	RED	RED	PURPLE	PURPLE	BLUE	BLUE	PURPLE	PURPLE	GREEN	GREEN
	WHITE (-) PORT	PURPLE	PURPLE		WHITE (-) PORT	PURPLE	PURPLE		WHITE (-) PORT	PURPLE	PURPLE
			WHITE (-) PORT				WHITE (-) PORT				WHITE (-) PORT

HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED
ALONG WITH FREQUENCY BANDS

EXAMPLE 1 - HYBRID, OR DISCREET, SUPPORTS
ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS

EXAMPLE 2 - HYBRID, OR DISCREET, SUPPORTS
CBRS ONLY, ALL SECTORS

EXAMPLE 1	EXAMPLE 2	EXAMPLE 3
RED	RED	RED
BLUE	BLUE	
GREEN	GREEN	ORANGE
ORANGE	YELLOW	PURPLE
PURPLE		

FIBER JUMPERS TO RRHs

LOW-BAND RRH FIBER CABLES HAVE SECTOR
STRIPE ONLY

LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH
RED	RED	BLUE	BLUE	GREEN	GREEN
	PURPLE		PURPLE		PURPLE

POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY

LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH
RED	RED	BLUE	BLUE	GREEN	GREEN
	PURPLE		PURPLE		PURPLE

RET MOTORS AT ANTENNAS

ANTENNA 1 LOW BAND/ "IN"	ANTENNA 1 HIGH BAND/ "IN"	ANTENNA 1 LOW BAND/ "IN"	ANTENNA 1 HIGH BAND/ "IN"	ANTENNA 1 LOW BAND/ "IN"	ANTENNA 1 HIGH BAND/ "IN"
RED	RED	BLUE	BLUE	GREEN	GREEN
	PURPLE		PURPLE		PURPLE

MICROWAVE RADIO LINKS

LINKS WILL HAVE A 1.5-2 INCH WHITE WRAP WITH
THE AZIMUTH COLOR OVERLAPPING IN THE MIDDLE.
ADD ADDITIONAL SECTOR COLOR BANDS FOR EACH
ADDITIONAL MW RADIO.

MICROWAVE CABLES WILL REQUIRE P-TOUCH
LABELS INSIDE THE CABINET TO IDENTIFY THE
LOCAL AND REMOTE SITE ID'S

FORWARD AZIMUTH OF 0-120 DEGREES		FORWARD AZIMUTH OF 120-240 DEGREES		FORWARD AZIMUTH OF 240-360 DEGREES	
PRIMARY	SECONDARY	PRIMARY	SECONDARY	PRIMARY	SECONDARY
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
RED	RED	BLUE	BLUE	GREEN	GREEN
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
	RED		BLUE		GREEN
	WHITE		WHITE		WHITE
	WHITE		WHITE		WHITE

RF CABLE COLOR CODES

NO SCALE

1

LOW BANDS (N71+N26)
OPTIONAL - (N29)



AWS
(N66+N70+H-BLOCK)



CBRS TECH
(3 GHz)



NEGATIVE SLANT PORT
ON ANT/RRH



ALPHA SECTOR



BETA SECTOR



GAMMA SECTOR



COLOR IDENTIFIER

NO SCALE

2

NOT USED

NO SCALE

3

NOT USED

NO SCALE

4



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

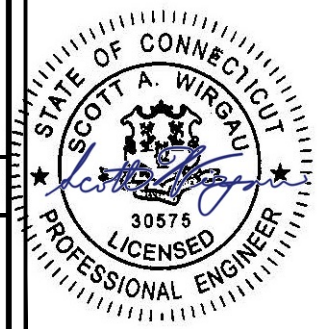


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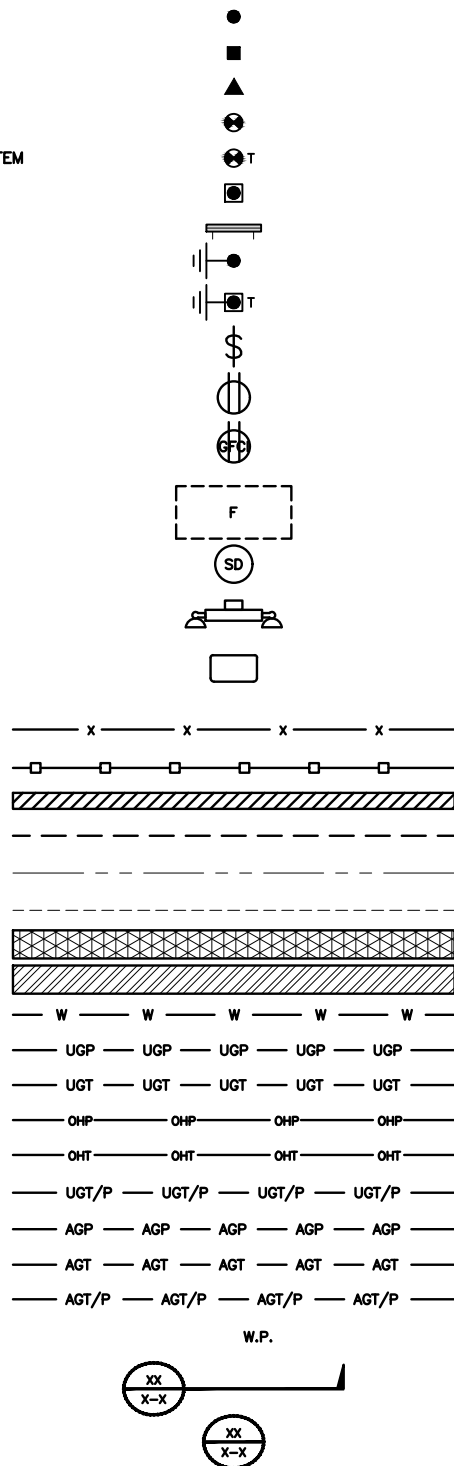
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PROJECT INFORMATION
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168 CATOONA LANE
STAMFORD, CT 06902

SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER
RF-1

EXOTHERMIC CONNECTION
 MECHANICAL CONNECTION
 BUSS BAR INSULATOR
 CHEMICAL ELECTROLYTIC GROUNDING SYSTEM
 TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM
 EXOTHERMIC WITH INSPECTION SLEEVE
 GROUNDING BAR
 GROUND ROD
 TEST GROUND ROD WITH INSPECTION SLEEVE
 SINGLE POLE SWITCH
 DUPLEX RECEPTACLE
 DUPLEX GFCI RECEPTACLE
 FLUORESCENT LIGHTING FIXTURE
 (2) TWO LAMPS 48-T8
 SMOKE DETECTION (DC)
 EMERGENCY LIGHTING (DC)
 SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW
 LED-1-25A400/51K-SR4-120-PE-DEBTDX



SECTION REFERENCE
 DETAIL REFERENCE

LEGEND

AB	ANCHOR BOLT	IN	INCH	INT	INTERIOR
ABV	ABOVE	LB(S)	POUND(S)	LF	LINEAR FEET
AC	ALTERNATING CURRENT	LTE	LONG TERM EVOLUTION	MAS	MASONRY
ADDL	ADDITIONAL	MAX	MAXIMUM	MB	MACHINE BOLT
AFF	ABOVE FINISHED FLOOR	MECH	MECHANICAL	MFR	MANUFACTURER
AFG	ABOVE FINISHED GRADE	MGB	MASTER GROUND BAR	MIN	MINIMUM
AGL	ABOVE GROUND LEVEL	MISC	MISCELLANEOUS	MTL	METAL
AIC	AMPERAGE INTERRUPTION CAPACITY	MTS	MANUAL TRANSFER SWITCH	MW	MICROWAVE
ALUM	ALUMINUM	NEC	NATIONAL ELECTRIC CODE	NM	NEWTON METERS
ALT	ALTERNATE	NO.	NUMBER	#	NUMBER
ANT	ANTENNA	NTS	NOT TO SCALE	OC	ON-CENTER
APPROX	APPROXIMATE	OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION	OPNG	OPENING
ARCH	ARCHITECTURAL	P/C	PRECAST CONCRETE	PCS	PERSONAL COMMUNICATION SERVICES
ATS	AUTOMATIC TRANSFER SWITCH	PCU	PRIMARY CONTROL UNIT	PRC	PRIMARY RADIO CABINET
AWG	AMERICAN WIRE GAUGE	PP	POLARIZING PRESERVING	PSF	POUNDS PER SQUARE FOOT
BATT	BATTERY	PSI	POUNDS PER SQUARE INCH	PT	PRESSURE TREATED
BLDG	BUILDING	PWR	POWER CABINET	QTY	QUANTITY
BLK	BLOCK	RAD	RADIUS	RECT	RECTIFIER
BLKG	BLOCKING	REF	REFERENCE	REINF	REINFORCEMENT
BM	BEAM	REQ'D	REQUIRED	RET	REMOTE ELECTRIC TILT
BTC	BARE TINNED COPPER CONDUCTOR	RF	RADIO FREQUENCY	RMC	RIGID METALLIC CONDUIT
BOF	BOTTOM OF FOOTING	RRH	REMOTE RADIO HEAD	RRU	REMOTE RADIO UNIT
CAB	CABINET	RWY	RACEWAY	SCH	SCHEDULE
CANT	CANTILEVERED	SHT	SHEET	SIAD	SMART INTEGRATED ACCESS DEVICE
CHG	CHARGING	SIM	SIMILAR	SPEC	SPECIFICATION
CLG	CEILING	SQ	SQUARE	SS	STAINLESS STEEL
CLR	CLEAR	STD	STANDARD	STL	STEEL
COL	COLUMN	TEMP	TEMPORARY	THK	THICKNESS
COMM	COMMON	TMA	TOWER MOUNTED AMPLIFIER	TN	TOE NAIL
CONC	CONCRETE	TOA	TOP OF ANTENNA	TOC	TOP OF CURB
CONSTR	CONSTRUCTION	TOF	TOP OF FOUNDATION	TOP	TOP OF PLATE (PARAPET)
DBL	DOUBLE	TOS	TOP OF STEEL	TOW	TOP OF WALL
DC	DIRECT CURRENT	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION	TYP	TYPICAL
DEPT	DEPARTMENT	UG	UNDERGROUND	UL	UNDERWRITERS LABORATORY
DF	DOUGLAS FIR	UNO	UNLESS NOTED OTHERWISE	UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
DIA	DIAMETER	UPS	UNINTERRUPTIBLE POWER SYSTEM (DC POWER PLANT)	VIF	VERIFIED IN FIELD
DIAG	DIAGONAL	W	WIDE	W	WIDE
DIM	DIMENSION	W/	WITH	WD	WOOD
DWG	DRAWING	WP	WEATHERPROOF	WT	WEIGHT
DWL	DOWEL				
EA	EACH				
EC	ELECTRICAL CONDUCTOR				
EL	ELEVATION				
ELEC	ELECTRICAL				
EMT	ELECTRICAL METALLIC TUBING				
ENG	ENGINEER				
EQ	EQUAL				
EXP	EXPANSION				
EXT	EXTERIOR				
EW	EACH WAY				
FAB	FABRICATION				
FF	FINISH FLOOR				
FG	FINISH GRADE				
FIF	FACILITY INTERFACE FRAME				
FIN	FINISH(ED)				
FLR	FLOOR				
FDN	FOUNDATION				
FOC	FACE OF CONCRETE				
FOM	FACE OF MASONRY				
FOS	FACE OF STUD				
FOW	FACE OF WALL				
FS	FINISH SURFACE				
FT	FOOT				
FTG	FOOTING				
GA	GAUGE				
GEN	GENERATOR				
GFCI	GROUND FAULT CIRCUIT INTERRUPTER				
GLB	GLUE LAMINATED BEAM				
GLV	GALVANIZED				
GPS	GLOBAL POSITIONING SYSTEM				
GND	GROUND				
GSM	GLOBAL SYSTEM FOR MOBILE				
HDG	HOT DIPPED GALVANIZED				
HDR	HEADER				
HGR	HANGER				
HVAC	HEAT/VENTILATION/AIR CONDITIONING				
HT	HEIGHT				
IGR	INTERIOR GROUND RING				

ABBREVIATIONS



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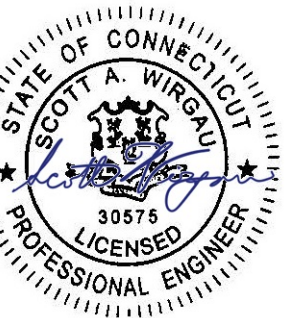


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 168 CATOONA LANE
 STAMFORD, CT 06902

SHEET TITLE
 LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH WIRELESS, L.L.C. AND TOWER OWNER NOC & THE DISH WIRELESS, L.L.C. AND TOWER OWNER CONSTRUCTION MANAGER.
2. "LOOK UP" – DISH WIRELESS, L.L.C. AND TOWER OWNER SAFETY CLIMB REQUIREMENT:
THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR DISH WIRELESS, L.L.C. AND DISH WIRELESS, L.L.C. AND TOWER OWNER POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND DISH WIRELESS, L.L.C. AND TOWER OWNER STANDARDS, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA-322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH DISH WIRELESS, L.L.C. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH WIRELESS, L.L.C. AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH WIRELESS, L.L.C. AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF DISH WIRELESS, L.L.C. AND TOWER OWNER, AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS AND RADIOS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
CARRIER: DISH WIRELESS, L.L.C.
TOWER OWNER: TOWER OWNER
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CARRIER POC AND TOWER OWNER.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF DISH WIRELESS, L.L.C. AND TOWER OWNER
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.



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A&E PROJECT NUMBER
88018-13710333_D2

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
NJJER01123B
168 CATOONA LANE
STAMFORD, CT 06902

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
- UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°F AT TIME OF PLACEMENT.
- CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.
- ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
 #4 BARS AND SMALLER 40 ksi
 #5 BARS AND LARGER 60 ksi
- THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
 - CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
 - CONCRETE EXPOSED TO EARTH OR WEATHER:
 - #6 BARS AND LARGER 2"
 - #5 BARS AND SMALLER 1-1/2"
 - CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
 - SLAB AND WALLS 3/4"
 - BEAMS AND COLUMNS 1-1/2"
- A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
- CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
- ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
- ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
- EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
- ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
- PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
- TIE WRAPS ARE NOT ALLOWED.
- ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
- ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

- ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
- WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
- SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
- CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
- EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3 (OR BETTER) FOR EXTERIOR LOCATIONS.
- METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
- NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
- THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR DISH WIRELESS, L.L.C. AND TOWER OWNER BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
- THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
- INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH WIRELESS, L.L.C."
- ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.



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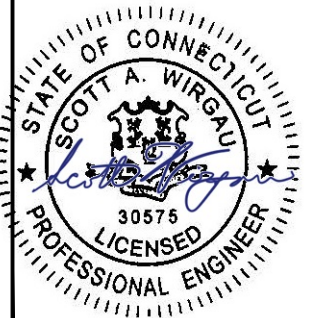
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JW	SRF	SRF

RFDS REV #: -----

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REV	DATE	DESCRIPTION
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1	11/01/2021	PPC UPDATE



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A&E PROJECT NUMBER
88018-13710333_D2

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
NJJERO1123B
168 CATOONA LANE
STAMFORD, CT 06902

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-3

GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
2. STRUCTURAL STEEL ROLLED SHAPES, PLATES AND BARS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:
 - A. ASTM A-572, GRADE 50 - ALL W SHAPES, UNLESS NOTED OR A992 OTHERWISE
 - B. ASTM A-36 - ALL OTHER ROLLED SHAPES, PLATES AND BARS UNLESS NOTED OTHERWISE.
 - C. ASTM A-500, GRADE B - HSS SECTION (SQUARE, RECTANGULAR, AND ROUND)
 - D. ASTM A-325, TYPE SC OR N - ALL BOLTS FOR CONNECTING STRUCTURAL MEMBERS
 - E. ASTM F-1554 07 - ALL ANCHOR BOLTS, UNLESS NOTED OTHERWISE
3. ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
4. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.
5. DO NOT DRILL HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
6. CONNECTIONS:
 - A. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
 - B. ALL WELDS SHALL BE INSPECTED VISUALLY. 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.
 - C. INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
 - D. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE BURNING/WELDING PERMITS AS REQUIRED BY LOCAL GOVERNING AUTHORITY AND IF REQUIRED SHALL HAVE FIRE DEPARTMENT DETAIL FOR ANY WELDING ACTIVITY.
 - E. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.
 - F. MINIMUM WELD SIZE TO BE 0.1875 INCH FILLET WELDS, UNLESS NOTED OTHERWISE.
 - G. PRIOR TO FIELD WELDING GALVANIZING MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING 1/2" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.
 - H. THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE REQUIRED DURING CONSTRUCTION UNTIL ALL CONNECTIONS ARE COMPLETE.
 - I. ANY FIELD CHANGES OR SUBSTITUTIONS SHALL HAVE PRIOR APPROVAL FROM THE ENGINEER, AND DISH WIRELESS L.L.C. PROJECT MANAGER IN WRITING



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LITTLETON, CO 80120



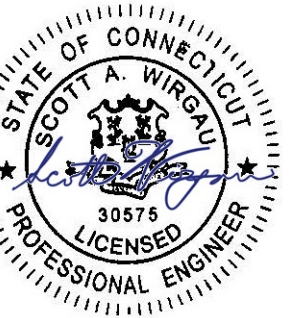
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A&E PROJECT NUMBER
88018-13710333_D2

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
NJJER01123B
168 CATOONA LANE
STAMFORD, CT 06902

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-4



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 300 ft Self Support Tower
ATC Asset Name : STAMFORD (KATOONA)
ATC Asset Number : 88018
Engineering Number : 14174724_C3_01
Proposed Carrier : DISH WIRELESS L.L.C.
Carrier Site Name : NJJER01123B
Carrier Site Number : NJJER01123B
Site Location : 168 Catoona Lane
Stamford, CT 06902-4573
41.0528, -73.5631
County : Fairfield
Date : December 1, 2022
Max Usage : 88%
Analysis Result : Pass

Prepared By:

Daniel K. Sheek
Structural Engineer I

Reviewed



COA: PEC.0001553



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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 300 ft Self Support tower to reflect the change in loading by DISH WIRELESS L.L.C..

Supporting Documents

Tower Drawing:	CSEI Analysis, ATC Eng. #73123451, dated September 28, 2005
Foundation Drawing:	Rose, Chulkoff, and Rose Job #C67229, dated August 9, 1967
Geotechnical Report:	Rose, Chulkoff, and Rose Job #C67229, dated August 9, 1967
Modification:	ATC Eng. #42439132, dated September 26, 2008 ATC Eng. #44209632, dated December 2, 2009

Analysis

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

Basic Wind Speed:	117 mph (3-second gust)
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.00" radial ice concurrent
Code(s):	ANSI/TIA-222-H / 2021 IBC / 2022 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Spectral Response:	$S_s = 0.26$, $S_i = 0.06$
Site Class:	D - Stiff Soil - Default

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/Reserved Loading

Elev.*	Qty	Equipment	Lines	Carrier
338.0'	-	-	(1) 1 1/4" Coax	MARCUS COMMUNICATIONS LLC
337.8'	1	TX RX Systems 101-68-10-X-03N	-	MARCUS COMMUNICATIONS LLC
324.0'	-	-	(1) 1 5/8" Coax	MARCUS COMMUNICATIONS LLC
323.3'	1	15' Omni-Grid	-	MARCUS COMMUNICATIONS LLC
318.5'	1	12' Omni	-	UNITED WIRELESS HOLDINGS INC
311.0'	1	Radio Waves SPD4-5.2 w/ Radome	(1) 1/2" Coax	MARCUS COMMUNICATIONS LLC
310.5'	1	Radio/ODU	-	MARCUS COMMUNICATIONS LLC
307.1'	1	Radio/ODU	-	OTHER
307.0'	1	3' HP Dish	(1) 1/2" Coax	OTHER
304.0'	2	DragonWave A-ANT-18G-2-C	-	CLEARWIRE CORPORATION
303.9'	3	DragonWave Horizon Compact	-	CLEARWIRE CORPORATION
301.0'	1	1' HP Dish	(5) 7/8" Coax	CLEARWIRE CORPORATION
300.0'	1	4' Std. Dish	(1) 7/8" Coax	MARCUS COMMUNICATIONS LLC
299.1'	1	Procom CXL 900-3LW	-	SIGFOX S.A.
297.4'	1	5" x 3" x 2" Cavity Filter	-	SIGFOX S.A.
	1	Low Noise Amplifier		
297.0'	-	-	(1) 7/8" Coax	SIGFOX S.A.
275.0'	1	Rohde & Schwarz ADD090	(2) 7/8" Coax	US DEPT OF HOMELAND SECURITY
273.0'	-	-	(1) 1 5/8" Coax (1) EW20	XM SATELLITE RADIO INC.
272.5'	2	Alive ATC-GCSXMV100-D7	-	XM SATELLITE RADIO INC.
271.8'	1	Dielectric TLP-08M-2E	-	QUALCOMM
271.7'	1	24" x 24" Junction Box	-	US DEPT OF HOMELAND SECURITY
265.0'	3	Ericsson 4424 B25	(3) 1 1/4" (1.25"- 31.8mm) Fiber (3) 1 5/8" Hybriflex	T-MOBILE
	3	Ericsson Air 3246 B66		
	3	Ericsson Air6449 B41		
	3	Ericsson Radio 4449 B71 B85A		
	3	RFS APXVAARR24_43-U-NA20		
250.0'	1	Sinclair SC281-L	(1) 7/8" Coax	US DEPT OF HOMELAND SECURITY
245.0'	1	Sinclair SC381-HL	(1) 7/8" Coax	US DEPT OF HOMELAND SECURITY
239.1'	2	Ericsson RRUS 4415 B30	-	AT&T MOBILITY
	2	Ericsson RRUS 4426 B66		
237.0'	3	Ericsson AIR 6449 n77D	(3) 2" conduit	AT&T MOBILITY
235.0'	2	CCI DMP65R-BU6DA	(2) 0.40" (10.3mm) Fiber (7) 0.82" (20.8mm) 8 AWG 6 (10) 1 5/8" Coax (3) 1.15" (29.2mm) Cable	AT&T MOBILITY
	2	Ericsson RRUS 32 B2		
	2	Ericsson RRUS 32 B30 (53 lbs)		
	2	Ericsson RRUS 8843 B2, B66A		
	2	Quintel QD6616-7		
	2	Raycap DC6-48-60-18-8C-EV		
	2	Raycap DC9-48-60-24-8C-EV		
	3	CCI BSA-M65R-BUU-H6 (101 lbs)		
	3	Ericsson RRUS 4449 B5, B12		
	3	Ericsson RRUS 4478 B14		
	3	Powerwave Allgon TT19-08BP111-001		
4	Ericsson RRUS E2 B29			

Elev.*	Qty	Equipment	Lines	Carrier
233.0'	3	Ericsson AIR 6419 N77G	-	AT&T MOBILITY
220.0'	1	8' Omni	-	OTHER
210.0'	1	Sinclair SC281-L	(1) 7/8" Coax	US DEPT OF HOMELAND SECURITY
201.2'	2	TX RX Systems 101-68-10-X-03N	-	MARCUS COMMUNICATIONS LLC
201.0'	-	-	(2) 1 1/4" Coax	MARCUS COMMUNICATIONS LLC
192.9'	1	30" x 30" Reflector	-	SPOK HOLDINGS, INC.
185.0'	-	-	(2) 7/8" Coax	SPOK HOLDINGS, INC.
184.8'	1	Antel BCD-87010 ____	-	SPOK HOLDINGS, INC.
	2	Antel BCD-87010 ____		
175.4'	1	12" x 12" Junction Box	-	CLEARWIRE CORPORATION
171.0'	3	Argus LLPX310R	(1) 2" conduit	CLEARWIRE CORPORATION
170.5'	3	NextNet BTS-2500	-	CLEARWIRE CORPORATION
160.0'	6	Kathrein Scala 800 10504	(12) 1 5/8" Coax	METRO PCS INC
	15	RCU (Remote Control Unit)	(1) 3/8" Coax	
142.0'	1	Antel BCD-87010 ____ 4°	(1) 7/8" Coax	SENSUS USA INC.
137.0'	1	6' Omni	-	SENET, INC.
135.0'	-	-	(1) 1/2" Coax	SENET, INC.
133.4'	1	TTA	-	SENET, INC.
120.0'	1	Channel Master Type 120	(1) 1/2" Coax	SPOK HOLDINGS, INC.
107.0'	1	TX RX Systems 101-68-10-X-03N	(1) 1 1/4" Coax	MARCUS COMMUNICATIONS LLC
92.1'	6	Andrew SBNHH-1D65B	-	VERIZON WIRELESS
92.0'	2	JMA Wireless MX06FRO660-03	(3) 1 5/8" Hybriflex	VERIZON WIRELESS
	3	RFS DB-T1-6Z-8AB-0Z		
	3	Samsung B2/B66A RRH-BR049		
	3	Samsung B5/B13 RRH-BR04C		
	3	Samsung MT6407-77A		
	3	Samsung Outdoor CBRS 20W RRH –Clip-on Antenna		
	3	Samsung RT4401-48A		
	4	Quintel QS6656-5D		
91.9'	4	JMA Wireless MX06FRO660-03	-	VERIZON WIRELESS
25.0'	1	Til-Tek TA-2324-LHCP	(1) 7/8" Coax	XM SATELLITE RADIO INC.
6.0'	1	Channel Master Type 120	(1) 1/2" Coax	SPOK HOLDINGS, INC.
	1	Trimble Acutime 2000	(1) 1/4" Coax	

(If table breaks across pages, please see previous page for data in merged cells)

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

Proposed Carrier Final Loading

Elev.*	Qty	Equipment	Lines	Carrier
154.0'	1	Raycap RDIDC-9181-PF-48	(1) 1.75" (44.5mm) Hybrid	DISH WIRELESS L.L.C.
	3	Fujitsu TA08025-B604		
	3	Fujitsu TA08025-B605		
	3	Light Sector Frame		
	3	JMA Wireless MX08FRO665-21		

(If table breaks across pages, please see previous page for data in merged cells)

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

Install proposed lines alongside existing DISH WIRELESS L.L.C. lines.

Structure Usages

Structural Component	Usage	Pass/Fail
Legs	72%	Pass
Diagonals	79%	Pass
Lower Diagonals	76%	Pass
Horizontals	57%	Pass
Lower Horizontals	88%	Pass
Anchor Bolts	47%	Pass

Foundation Reactions & Usages

Reaction Component	Analysis Reactions	Usage
Uplift (Kips)	311.5	81%
Download (k)	443.3	5%

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 Services LLC 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:

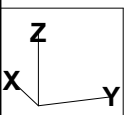
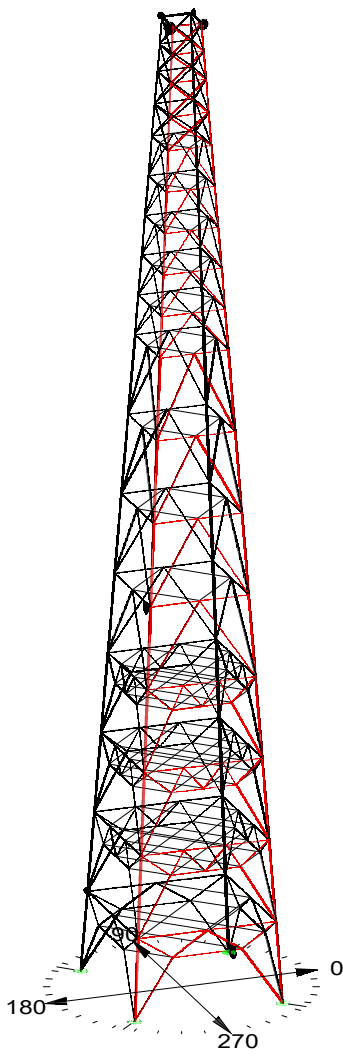
- Information supplied by the client regarding antenna, mounts, and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Services LLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Services LLC 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 Services LLC, 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 Services LLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.



Site #: 88018
Name: Stamford (Katoona), CT

Engineer: Daniel Sheek
Date: 12/09/22

Windspeed: No Ice: 117 mph Ice: 50 mph
Carrier: Dish Wireless

Taper: -0.123333
FW @ Base: 46.00 ft

Taper Change: 300 ft
FW @ Top: 9 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.	Drop Sub-Brace (Y or Blank)	Spreadsheet Version Last Updated: 11/12/2014							
												# Vert	Drop (ft)	Height (ft)	Type	Count	Z-Elev. (ft)	FW (ft)	# Sub-Brace
0	XY-Symmetry	23	23	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed		3	7.033	25	1	1	0	46	3
1	XY-Symmetry	21.45833333	21.45833333	25	Free	Free	Free	Free	Free	Free		2	7.033	25	2	2	25	42.91666667	3
2	XY-Symmetry	19.91666667	19.91666667	50	Free	Free	Free	Free	Free	Free		2	7.033	25	2	3	50	39.83333333	3
3	XY-Symmetry	18.375	18.375	75	Free	Free	Free	Free	Free	Free		2	7.033	25	2	4	75	36.75	3
4	XY-Symmetry	16.83333333	16.83333333	100	Free	Free	Free	Free	Free	Free				25	A	5	100	33.66666667	2
5	XY-Symmetry	15.29166667	15.29166667	125	Free	Free	Free	Free	Free	Free				25	A	6	125	30.58333333	2
6	XY-Symmetry	13.75	13.75	150	Free	Free	Free	Free	Free	Free				25	A	7	150	27.5	2
7	XY-Symmetry	12.20833333	12.20833333	175	Free	Free	Free	Free	Free	Free				25	A	8	175	24.41666667	2
8	XY-Symmetry	10.66666667	10.66666667	200	Free	Free	Free	Free	Free	Free				12.5	A	9	200	21.33333333	1
9	XY-Symmetry	9.895833333	9.895833333	212.5	Free	Free	Free	Free	Free	Free				12.5	A	10	212.5	19.79166667	1
10	XY-Symmetry	9.125	9.125	225	Free	Free	Free	Free	Free	Free				12.5	A	11	225	18.25	1
11	XY-Symmetry	8.354166667	8.354166667	237.5	Free	Free	Free	Free	Free	Free				12.5	A	12	237.5	16.70833333	1
12	XY-Symmetry	7.583333333	7.583333333	250	Free	Free	Free	Free	Free	Free				12.5	A	13	250	15.16666667	1
13	XY-Symmetry	6.8125	6.8125	262.5	Free	Free	Free	Free	Free	Free		1		10.167	X	14	262.5	13.625	1
14	XY-Symmetry	6.185535	6.185535	272.667	Free	Free	Free	Free	Free	Free		1		10.167	X	15	272.667	12.37107	1
15	XY-Symmetry	5.55857	5.55857	282.834	Free	Free	Free	Free	Free	Free		1		8.583	X	16	282.834	11.11714	1
16	XY-Symmetry	5.029285	5.029285	291.417	Free	Free	Free	Free	Free	Free				8.583	X	17	291.417	10.05857	1
A1	Y-Symmetry	21.45833333	0	25	Free	Free	Free	Free	Free	Free									
A2	X-Symmetry	0	21.45833333	25	Free	Free	Free	Free	Free	Free									
A3	XY-Symmetry	19.91666667	6.638888889	50	Free	Free	Free	Free	Free	Free									
A4	XY-Symmetry	6.638888889	19.91666667	50	Free	Free	Free	Free	Free	Free									
A5	XY-Symmetry	18.375	6.125	75	Free	Free	Free	Free	Free	Free									
A6	XY-Symmetry	6.125	18.375	75	Free	Free	Free	Free	Free	Free									
A7	XY-Symmetry	16.83333333	5.611111111	100	Free	Free	Free	Free	Free	Free									
A8	XY-Symmetry	5.611111111	16.83333333	100	Free	Free	Free	Free	Free	Free									
A9	Y-Symmetry	15.29166667	0	125	Free	Free	Free	Free	Free	Free									
A10	X-Symmetry	0	15.29166667	125	Free	Free	Free	Free	Free	Free									
A11	Y-Symmetry	13.75	0	150	Free	Free	Free	Free	Free	Free									
A14	X-Symmetry	0	12.20833333	175	Free	Free	Free	Free	Free	Free									
A15	Y-Symmetry	10.66666667	0	200	Free	Free	Free	Free	Free	Free									
A16	X-Symmetry	0	10.66666667	200	Free	Free	Free	Free	Free	Free									
A17	Y-Symmetry	9.895833333	0	212.5	Free	Free	Free	Free	Free	Free									
A18	X-Symmetry	0	9.895833333	212.5	Free	Free	Free	Free	Free	Free									
A19	Y-Symmetry	9.125	0	225	Free	Free	Free	Free	Free	Free									
A20	X-Symmetry	0	9.125	225	Free	Free	Free	Free	Free	Free									
A21	Y-Symmetry	8.354166667	0	237.5	Free	Free	Free	Free	Free	Free									
A22	X-Symmetry	0	8.354166667	237.5	Free	Free	Free	Free	Free	Free									
A23	Y-Symmetry	7.583333333	0	250	Free	Free	Free	Free	Free	Free									
A24	X-Symmetry	0	7.583333333	250	Free	Free	Free	Free	Free	Free									
A25	Y-Symmetry	6.8125	0	262.5	Free	Free	Free	Free	Free	Free									
A26	X-Symmetry	0	6.8125	262.5	Free	Free	Free	Free	Free	Free									
H1	XY-Symmetry	21.892035	10.72916667	17.967	Free	Free	Free	Free	Free	Free									
H2	XY-Symmetry	10.72916667	21.892035	17.967	Free	Free	Free	Free	Free	Free									
H5	XY-Symmetry	20.35036833	10.807895	42.967	Free	Free	Free	Free	Free	Free									
H6	XY-Symmetry	10.807895	20.35036833	42.967	Free	Free	Free	Free	Free	Free									
H7	Y-Symmetry	20.35036833	0	42.967	Free	Free	Free	Free	Free	Free									
H8	X-Symmetry	0	20.35036833	42.967	Free	Free	Free	Free	Free	Free									
H9	XY-Symmetry	18.80870167	10.00487167	67.967	Free	Free	Free	Free	Free	Free									
H10	XY-Symmetry	10.00487167	18.80870167	67.967	Free	Free	Free	Free	Free	Free									
H11	Y-Symmetry	18.80870167	0	67.967	Free	Free	Free	Free	Free	Free									
H12	X-Symmetry	0	18.80870167	67.967	Free	Free	Free	Free	Free	Free									
H13	XY-Symmetry	17.267035	9.201848333	92.967	Free	Free	Free	Free	Free	Free									
H14	XY-Symmetry	9.201848333	17.267035	92.967	Free	Free	Free	Free	Free	Free									
H15	Y-Symmetry	17.267035	0	92.967	Free	Free	Free	Free	Free	Free									
H16	X-Symmetry	0	17.267035	92.967	Free	Free	Free	Free	Free	Free									

NOTES
Types:
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: 17

Legs

Site No.:	88018
Engineer:	Daniel.Sheek
Date:	12/09/2022
Carrier:	Dish Wireless

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	36
2	25.00-50.00	L	8	1.125	36
3	50.00-75.00	L	8	1.125	36
4	75.00-100.0	L	8	1	36
5	100.0-125.0	L	8	0.875	36
6	125.0-150.0	L	8	0.875	36
7	150.0-175.0	L	8	0.75	36
8	175.0-200.0	L	8	0.625	36
9	200.0-212.5	L	6	0.75	36
10	212.5-225.0	L	6	0.75	36
17	291.4-300.0	L	5	0.3125	36

Notes:

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

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

Horizontals

Site No.:	88018
Engineer:	Daniel.Sheek
Date:	12/09/2022
Carrier:	Dish Wireless

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)	B/B Spacing (in.)
1	0.000-25.00	2L		3.5	2.5	0.25	36	
2	25.00-50.00	2L		3.5	2.5	0.25	36	
3	50.00-75.00	2L		3.5	2.5	0.25	36	
4	75.00-100.0	2L		3	2.5	0.25	36	
5	100.0-125.0	2L		3	2.5	0.25	36	
6	125.0-150.0	2L		3	2.5	0.25	36	
7	150.0-175.0	2L		2.5	2.5	0.25	36	
8	175.0-200.0	2L		2.5	2.5	0.25	36	
9	200.0-212.5	2L		2.5	2.5	0.25	36	
10	212.5-225.0	2L		2.5	2.5	0.25	36	
17	291.4-300.0	C		8	11.5		36	

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.

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

Diagonals

Site No.:	88018
Engineer:	Daniel.Sheek
Date:	12/09/2022
Carrier:	Dish Wireless

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	4	0.3125	36	
2	25.00-50.00	2L		3	3.5	0.25	36	
3	50.00-75.00	2L		2.5	3.5	0.25	36	
4	75.00-100.0	2L		2.5	3.5	0.25	36	
5	100.0-125.0	2L		3	4	0.25	36	
6	125.0-150.0	2L		3	4	0.25	36	
7	150.0-175.0	2L		3	4	0.25	36	
8	175.0-200.0	2L		3.5	3.5	0.25	36	
9	200.0-212.5	2L		2.5	2.5	0.25	36	
10	212.5-225.0	2L		2.5	2.5	0.25	36	
17	291.4-300.0	L		3	3	0.25	36	

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.

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

Built-up Diagonals

Site No.:	88018
Engineer:	Daniel.Sheek
Date:	12/09/2022
Carrier:	Dish Wireless

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		3	2	0.25	36
2	0.000-25.00	2L		4	3	0.25	36
3	25.00-50.00	2L		2.5	2	0.25	36
4	25.00-50.00	2L		2.5	2	0.25	36
5	25.00-50.00	2L		3	3	0.25	36
6	50.00-75.00	2L		3	3	0.25	36
7	50.00-75.00	2L		2.5	2	0.25	36
8	50.00-75.00	2L		3	2	0.25	36
9	75.00-100.0	2L		3	3	0.25	36

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.:	88018
Engineer:	Daniel.Sheek
Date:	12/09/2022
Carrier:	Dish Wireless

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		2.5	3	0.25	36	Y
2	25.00-50.00	2L		2.5	3	0.25	36	
3	50.00-75.00	2L		2.5	3	0.375	36	
4	75.00-100.0	2L		3.5	3.5	0.25	36	

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.:	88018
Engineer:	Daniel Sheek
Date:	12/09/22
Carrier:	Dish Wireless

Tia Code:	TIA-222-H
Exposure	B
Topo Cat:	1

Ke	0.998264
α	7 $K_{c,max}$ 2.01
Z_c	1200 $K_{c,min}$ 0.7
K_c	0.9 K_c

Site No.:	88018
Engineer:	Daniel Sheek
Date:	12/09/22
Carrier:	Dish Wireless

Description	From	To	Quantity	Shape	Width or Diameter**	Perimeter	Unit Weight	In Face Zone?	Include in Wind Load
	(ft)	(ft)			(in)	(in)	(lb/ft)	(Yes/No)	(Yes/No)
1 Ladder	0	300	1	Flat	1.5	6.0	6	No	Yes
2 Short Ladder	8.3333	33.3333	2	Flat	1.5	6.0	6	Yes	Yes
3 Short Ladder	8.3333	33.3333	2	Flat	1.5	6.0	6	Yes	Yes
5 WG	5	300	1	Flat	1.5	6.0	6	Yes	Yes
6 WG	5	272	1	Flat	1.5	6.0	6	Yes	Yes
7 WG	5	235	1	Flat	1.5	6.0	6	Yes	Yes
8 WG	5	223	1	Flat	1.5	6.0	6	Yes	Yes
9 WG	5	160	1	Flat	1.5	6.0	6	Yes	Yes
10 Marcus Communications LLC	5	300	1	Round	1.55	4.9	0.63	No	Yes
11 Marcus Communications LLC	5	300	1	Round	1.98	6.2	0.82	No	Yes
12 Marcus Communications LLC	5	300	1	Round	1.09	3.4	0.33	No	Yes
13 Other	5	300	4	Round	0.63	2.0	0.15	No	Yes
14 Clearwire Corporation	5	300	5	Round	1.09	3.4	0.33	Yes	Yes
21 US Dept Of Homeland Security	5	250	1	Round	1.09	3.4	0.33	Yes	Yes
22 US Dept Of Homeland Security	5	245	1	Round	1.09	3.4	0.33	Yes	Yes
23 AT&T Mobility	5	235	1	Flat	8.19	43.7	8.2	Yes	Yes
24 AT&T Mobility	5	235	1	Round	0.78	2.8	0.51	Yes	No
25 AT&T Mobility	5	235	2	Round	0.78	2.5	0.59	Yes	Yes
26 AT&T Mobility	5	235	1	Round	1.85	6.8	1.96	Yes	No
27 AT&T Mobility	5	235	1	Round	2.4	8.8	3.52	Yes	No
28 US Dept Of Homeland Security	5	210	1	Round	1.09	3.4	0.33	Yes	Yes
29 Marcus Communications LLC	5	200	2	Round	1.55	4.9	0.63	No	Yes
30 Spok Holdings, Inc.	5	193	2	Round	1.09	3.4	0.33	No	Yes
32 Clearwire Corporation	5	167	2	Round	2.38	7.5	3.65	Yes	Yes
33 Clearwire Corporation	5	167	6	Round	0.31	1.0	0.05	Yes	Yes
34 Metro PCS Inc	5	165	1	Flat	8.19	43.7	9.84	Yes	Yes
35 Metro PCS Inc	5	165	1	Round	0.38	1.2	0.23	Yes	Yes
37 Sprint Nextel	5	155	3	Round	1	3.1	0.65	Yes	Yes
39 Dish Wireless	0	154	1	Round	1.75	5.5	2.72	Yes	Yes
40 Sensus USA Inc.	5	142	1	Round	1.09	3.4	0.33	No	Yes
42 Senet, Inc.	5	135	1	Round	0.63	2.0	0.2	Yes	Yes
43 Spok Holdings, Inc.	5	120	1	Round	0.63	2.0	0.2	No	Yes
44 Marcus Communications LLC	5	107	1	Round	1.55	4.9	0.63	No	Yes
46 Verizon Wireless	5	92	3	Round	1.98	6.2	1.3	Yes	Yes
47 Sirius XM Radio Inc.	5	25	1	Round	1.09	3.4	0.33	Yes	Yes
48 Spok Holdings, Inc.	0	6	1	Round	0.63	2.0	0.2	No	Yes
49 Spok Holdings, Inc.	0	6	1	Round	0.34	1.1	0.1	No	Yes

**N/A - Actual block width multiplied by 0.75 (1.5 block drag factor actual divided by 2.0 flat)

Description	From	To	Quantity	Face #	Coax Width	Coax Shape	% Exposed	Spacing	Shape	Block Width	Block Depth	Perimeter	Unit Weight	In Face Zone?	Include in Wind Load
	(ft)	(ft)		(1-4, A-D)	(in)	(Block / Flat / Ind)		(in)	(Round/Flat)	(# coax)	(# coax)	(in)	(lb/ft)	(Yes/No)	(Yes/No)
Ladder	0	300	1	B	1.50	Flat	100		Flat	1	1	6.0	6	No	Yes
Short Ladder	8.3333	33.3333	2	1	1.50	Flat	100		Flat	2	1	6.0	6	Yes	Yes
Short Ladder	8.3333	33.3333	2	3	1.50	Flat	100		Flat	2	1	6.0	6	Yes	Yes
WG	5	300	1	2	1.50	Flat	100		Flat	1	1	6.0	6	Yes	Yes
WG	5	272	1	3	1.50	Flat	100		Flat	1	1	6.0	6	Yes	Yes
WG	5	235	1	1	1.50	Flat	100		Flat	1	1	6.0	6	Yes	Yes
WG	5	223	1	2	1.50	Flat	100		Flat	1	1	6.0	6	Yes	Yes
WG	5	160	1	1	1.50	Flat	100		Flat	1	1	6.0	6	Yes	Yes
Marcus Communications LLC	5	300	1	B	1.55	Ind	100		Round	1	1	4.9	0.63	No	Yes
Marcus Communications LLC	5	300	1	B	1.98	Ind	100		Round	1	1	6.2	0.82	No	Yes
Marcus Communications LLC	5	300	1	B	1.09	Ind	100		Round	1	1	3.4	0.33	No	Yes
Other	5	300	4	B	0.63	Ind	100		Round	4	1	2.0	0.15	No	Yes
Clearwire Corporation	5	300	5	2	1.09	Ind	100		Round	5	1	3.4	0.33	Yes	Yes
US Dept Of Homeland Security	5	250	1	2	1.09	Ind	100		Round	1	1	3.4	0.33	Yes	Yes
US Dept Of Homeland Security	5	245	1	2	1.09	Ind	100		Round	1	1	3.4	0.33	Yes	Yes
AT&T Mobility	5	235	10	1	1.98	Block	60	1	Flat	6	2	43.7	8.2	Yes	Yes
AT&T Mobility	5	235	3	1	0.39	Ind	0		Round	1	3	2.8	0.51	Yes	No
AT&T Mobility	5	235	2	1	0.78	Ind	100		Round	2	1	2.5	0.59	Yes	Yes
AT&T Mobility	5	235	4	1	0.74	Ind	0		Round	1	4	6.8	1.96	Yes	No
AT&T Mobility	5	235	4	1	0.96	Ind	0		Round	1	4	8.8	3.52	Yes	No
US Dept Of Homeland Security	5	210	1	2	1.09	Ind	100		Round	1	1	3.4	0.33	Yes	Yes
Marcus Communications LLC	5	200	2	B	1.55	Ind	100		Round	2	1	4.9	0.63	No	Yes
Spok Holdings, Inc.	5	193	2	B	1.09	Ind	100		Round	2	1	3.4	0.33	No	Yes
Clearwire Corporation	5	167	2	2	2.38	Ind	100		Round	2	1	7.5	3.65	Yes	Yes
Clearwire Corporation	5	167	6	2	0.31	Ind	100		Round	6	1	1.0	0.05	Yes	Yes
Metro PCS Inc	5	165	12	1	1.98	Block	50	1	Flat	6	2	43.7	9.84	Yes	Yes
Metro PCS Inc	5	165	1	1	0.38	Ind	100		Round	1	1	1.2	0.23	Yes	Yes
Sprint Nextel	5	155	3	2	1.00	Ind	100		Round	3	1	3.1	0.65	Yes	Yes
Dish Wireless	0	154	1	2	1.75	Ind	100		Round	1	1	5.5	2.72	Yes	Yes
Sensus USA Inc.	5	142	1	B	1.09	Ind	100		Round	1	1	3.4	0.33	No	Yes
Senet, Inc.	5	135	1	3	0.63	Ind	100		Round	1	1	2.0	0.15	Yes	Yes
Spok Holdings, Inc.	5	120	1	B	0.63	Ind	100		Round	1	1	2.0	0.15	No	Yes
Marcus Communications LLC	5	107	1	B	1.55	Ind	100		Round	1	1	4.9	0.63	No	Yes
Verizon Wireless	5	92	3	4	1.98	Ind	100		Round	3	1	6.2	1.3	Yes	Yes
Sirius XM Radio Inc.	5	25	1	4	1.09	Ind	100		Round	1	1	3.4	0.33	Yes	Yes
Spok Holdings, Inc.	0	6	1	B	0.63	Ind	100		Round	1	1	2.0	0.15	No	Yes
Spok Holdings, Inc.	0	6	1	B	0.34	Ind	100		Round	1	1	1.1	0.06	No	Yes

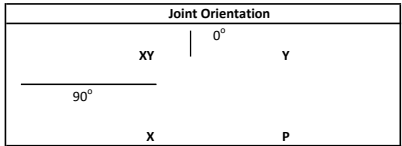
Dishes

Dish Types	
S	Standard
R	Standard w/ Radome
H	High Performance
G	Grid

Site No.:	88018
Engineer:	Daniel.Sheek
Date:	12/09/22
Carrier:	Dish Wireless

Dish Number	Dish Elevation (ft)	Dish Dia. (ft)	Dish Angle (deg)	Dish Type	Joint Orientation	Equipment Staus
1	307	3	0	H	Y	
2	300	4	51.4	S	XY	
3	300	2	90	H	XY	
4	300	2	180	H	X	
5	300	2	270	H	P	
6	120	4	90	S	XY	
7	25	2	197	R	X	
8	6	4	270	S	P	
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Equipment Label	Attach Label	Equipment Property Set	EIA Antenna Orientation Angle (deg)
3' HP 1 @ 307'	17Y	3 ft HP Dish	0
4' STD 2 @ 300'	17XY	4 ft STD Dish	51.4
2' HP 3 @ 300'	17XY	2 ft HP Dish	90
2' HP 4 @ 300'	17X	2 ft HP Dish	180
2' HP 5 @ 300'	17P	2 ft HP Dish	270
4' STD 6 @ 120'	5XY	4 ft STD Dish	90
2' RAD 7 @ 25'	1X	2 ft RAD Dish	197
4' STD 8 @ 6'	0P	4 ft STD Dish	270



	Spok Holdings, Inc.	193	1	1		30" x 30" Reflector					1.000	7.50	0.03	1	
34	Clearwire Corporation	175	1	1		-	0.0001	0.0001	0.0001	0.0001	F	0.000		1	
	Clearwire Corporation	175	1	1		12" x 12" Junction Box						1.000	1.20	0.01	1
35	Clearwire Corporation	167	3	3	NextNet	BTS-2500	19.3	11.3	5.1	35	F	0.500		0.8	
	Clearwire Corporation	167	3	3	Argus	LLPX310R						0.630	4.29	0.03	0.8
36	Clearwire Corporation	167	1	1		-	0.0001	0.0001	0.0001	0.0001	F	0.000		1	
	Clearwire Corporation	167	3	3		Flat T-Arm						0.670	12.90	0.25	0.75
37	Mtero PCS Inc	165	15	3	Generic	RCU (Remote Control Unit)	8	2	2	1	F	0.500		1	
	Mtero PCS Inc	165	6	3	Kathrein Scala	800 10504						0.660	3.34	0.02	1
38	Sprint Nextel	155	3	3	Nokia	2.5G MAA - AAHC(64T64R)	25.6	19.7	9.6	103.6	F	0.640		0.8	
	Sprint Nextel	155	1	3		(12) Filter/RRU						0.500	27.95	0.45	0.8
39	Sprint Nextel	155	3	3	RFS	APXVSP18-C-A20	72	11.8	7	57	F	0.690		0.8	
	Sprint Nextel	155	3	3		Flat Sector Frame						0.750	17.90	0.40	0.75
40	Sensus USA Inc.	142	1	1	Antel	BCD-87010 ___ 4°	134	2.6	2.6	26.5	R	1.000		1	
	Sensus USA Inc.	142	1	1		Round Side Arm						1.000	5.20	0.15	1
41	Senet, Inc.	135	1	1	L-com	HG908U-PRO	63	1.5	1.5	3.8	R	1.000		1	
	Senet, Inc.	135	1	1		Round Side Arm						1.000	5.20	0.15	1
42	Senet, Inc.	130	1	1		-	0.0001	0.0001	0.0001	0.0001	F	0.000		1	
	Senet, Inc.	130	1	1		Stand-Off						1.000	2.50	0.08	1
43	Marcus Communications LLC	107	1	1	TX RX Systems	101-68-10-X-03N	189.6	3.5	3.5	70	R	1.000		1	
	Marcus Communications LLC	107	1	1		Round Side Arm						1.000	5.20	0.15	1
44	Verizon Wireless	92	3	3	Samsung	Outdoor CBRS 20W RRH -Clip-on Antenna	12.3	8.7	1.4	4.4	F	0.500		0.8	
	Verizon Wireless	92	1	3		(12) RRU/BOB						0.500	28.64	0.65	0.8
45	Verizon Wireless	92	4	3	Quintel	QS6656-5D	72	12	9.6	88	F	0.740		0.8	
	Verizon Wireless	92	2	2	JMA Wireless	MX06FRO660-03						0.780	9.87	0.06	0.8
46	Verizon Wireless	92	1	1		-	0.0001	0.0001	0.0001	0.0001	F	0.000		1	
	Verizon Wireless	92	3	3		Modified Sector Frame						0.670	17.90	0.40	0.75
47	-	42	1	1		-	0.0001	0.0001	0.0001	0.0001	F	0.000		1	
	-	42	4	4		Ice Shield						1.000	6.00	0.15	1
48	Spok Holdings, Inc.	6	1	1		-	0.0001	0.0001	0.0001	0.0001	F	0.000		1	
	Spok Holdings, Inc.	6	1	1	Trimble	Acutime 2000						1.000	0.30	1.30	1
49	Dish Wireless	154	3	3		-	0.0001	0.0001	0.0001	0.0001	F	0.010		0.8	
	Dish Wireless	154	3	3	Generic	Flat Light Sector Frame						1.000	17.90	0.40	0.75
50	Dish Wireless	154	3	3		-	0.0001	0.0001	0.0001	0.0001	F	0.010		0.8	
	Dish Wireless	154	3	3		Dish Total Antena Loading						1.000	10.58	0.23	0.75

38	155	6.46	8.94	182.747	46.241	373	532	1.00	100.51	25.43	1.5060616	
	155	11.18	15.09	253.210	62.429	539	701	1.00	139.27	34.34	1.5064516	435.9571908
39	155	13.29	16.44	376.192	85.004	205	399	1.00	206.91	46.75	1.5064526	
	155	30.21	40.78	641.345	158.123	1440	1872	1.00	352.74	86.97	1.5064516	1453.494403
40	142	2.90	5.21	80.161	26.287	32	130	1.00	44.09	14.46	1.5064526	
	142	5.20	7.02	143.571	35.397	180	234	1.00	78.96	19.47	1.5070423	223.7320121
41	135	0.79	1.67	21.431	8.301	5	34	1.00	11.79	4.57	1.5070433	
	135	5.20	7.02	141.513	34.890	180	234	1.00	77.83	19.19	1.5074074	162.9435653
42	130	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5074084	
	130	2.50	3.38	67.305	16.594	96	125	1.00	37.02	9.13	1.5076923	67.30521577
43	107	5.53	8.78	140.823	40.841	84	259	1.00	77.45	22.46	1.5076933	
	107	5.20	7.02	132.420	32.648	180	234	1.00	72.83	17.96	1.5093458	273.2426922
44	92	1.07	1.79	26.099	7.951	16	36	1.00	14.35	4.37	1.5093468	
	92	11.46	15.46	223.511	55.106	782	1017	1.00	122.93	30.31	1.5108696	249.6109192
45	92	19.26	23.85	469.740	106.239	422	667	1.00	258.36	58.43	1.5108706	
	92	12.32	16.63	240.342	59.256	144	187	1.00	132.19	32.59	1.5108696	959.6923182
46	92	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5108706	
	92	26.98	36.43	493.604	121.697	1440	1872	1.00	271.48	66.93	1.5108696	1453.296407
47	42	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5108706	
	42	24.00	32.40	467.866	115.352	720	936	1.00	257.33	63.44	1.5238095	467.8661772
48	6	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5238105	
	6	0.30	0.41	5.308	1.309	1560	2028	1.00	2.92	0.72	1.6666667	5.307795781
49	154	0.00	0.00	0.000	0.005	0	0	1.00	0.00	0.00	1.6666677	
	154	40.28	54.37	853.547	210.441	1440	1872	1.00	469.45	115.74	1.5064935	853.5473729
50	154	0.00	0.00	0.000	0.005	0	0	1.00	0.00	0.00	1.5064945	
	154	23.80	32.13	504.370	124.352	811	1054	1.00	277.40	68.39	1.5064935	1357.917258

Foundation

Design Loads (Factored)

Compression/Leg:	447.47	k
Uplift/Leg:	312.01	k
Shear/Leg:	62.53	k

Face Width @ Top of Pier (d_1):	4.00	ft
Face Width @ Bottom of Pier (d_2):	8.00	ft
Total Length of Pier (l):	8.00	ft
Height of Pedestal Above Ground (h):	0.50	ft
Width of Pad (W):	18.00	ft
Length of Pad (L):	18.00	ft
Thickness of Pad (t):	3.00	ft
Water Table Depth (w):	99.00	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Soil (Above Water Table):	100.0	pcf
Unit Weight of Soil (Below Water Table):	37.6	pcf
Friction Angle of Uplift (A):	20	°
Ultimate Compressive Bearing Pressure:	40000	psf
Ultimate Skin Friction:	197	psf

Volume Pier (Total):	298.67	ft ³
Volume Pad (Total):	972.00	ft ³
Volume Soil (Total):	2935.41	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:	44.80	k
Weight Pad:	145.80	k
Weight Soil:	293.54	k
Uplift Skin Friction:	31.91	k

Uplift Check

ϕ_s Uplift Resistance (k)	Ratio	Result
387.04	0.81	OK

Axial Check

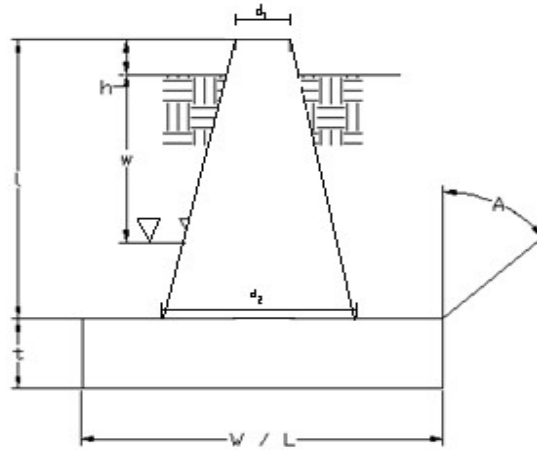
ϕ_s Axial Resistance (k)	Ratio	Result
9720.00	0.05	OK

Anchor Bolt Check

Bolt Diameter (in)	2.25
# of Bolts	6
Steel Grade	A36
Steel Fy	36
Steel Fu	58
Detail Type	C

Usage Ratio	Result
0.47	OK

Site No.:	88018
Engineer:	Daniel.Sheek
Date:	12/09/22
Carrier:	Dish Wireless





AMERICAN TOWER®
CORPORATION

Mount Analysis Report

ATC Asset Name : STAMFORD (KATOONA)
ATC Asset Number : 88018
Engineering Number : 13710333_C8_06
Mount Elevation : 154 ft
Proposed Carrier : Dish Wireless L.L.C.
Carrier Site Name : NJJER01123B
Carrier Site Number : NJJER01123B
Site Location : 168 Catoona Lane
Stamford, CT 06902-4573
41.052817, -73.563073
County : Fairfield
Date : November 3, 2022
Max Usage : 34%
Analysis Result : Contingent Pass

Prepared By:
Molly Li
Structural Engineer

Reviewed I



COA: PEC.0001553



Table of Contents

Introduction	1
Supporting Documents	1
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Conclusion.....	1
Application Loading	2
Structure Usages	2
Mount Layout.....	3
Equipment Layout.....	4
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Calculations.....	Attached

Introduction

The purpose of this report is to summarize results of the mount analysis performed for Dish Wireless L.L.C. at 154 ft.

Supporting Documents

Specifications Sheet:	Commscope MTC3975083, dated March 17, 2021
Radio Frequency Data Sheet:	RFDS ID #NJJER01123B, dated August 4, 2021
Reference Photos:	Site photos from 2020

Analysis

This mount was analyzed using American Tower Corporation's Mount Analysis Program and RISA-3D

Basic Wind Speed:	117 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1.00" radial ice concurrent
Codes:	ANSI/TIA-222-H
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 2
Feature:	Flat
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Spectral Response:	Ss = 0.265, S1 = 0.059
Site Class:	D - Stiff Soil
Live Loads:	Lm = 500 lbs, Lv = 250 lbs

Conclusion

Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above provided the modifications listed below are completed:

- Analysis based on new installation of Commscope MTC3975083 V-Frames (M2450R(2400)-3[6]).
- Install (1) P2 (2.375" x 60") antenna mounting pipe (Mount Pipe D) on the right Support Arm 9 viewing from behind) with Site Pro 1 SCX7-U (or approved equivalent) crossover plate kits.
- No structural failures were addressed with the noted contingencies. Contingencies address Carrier's antenna spacing requirements.

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.

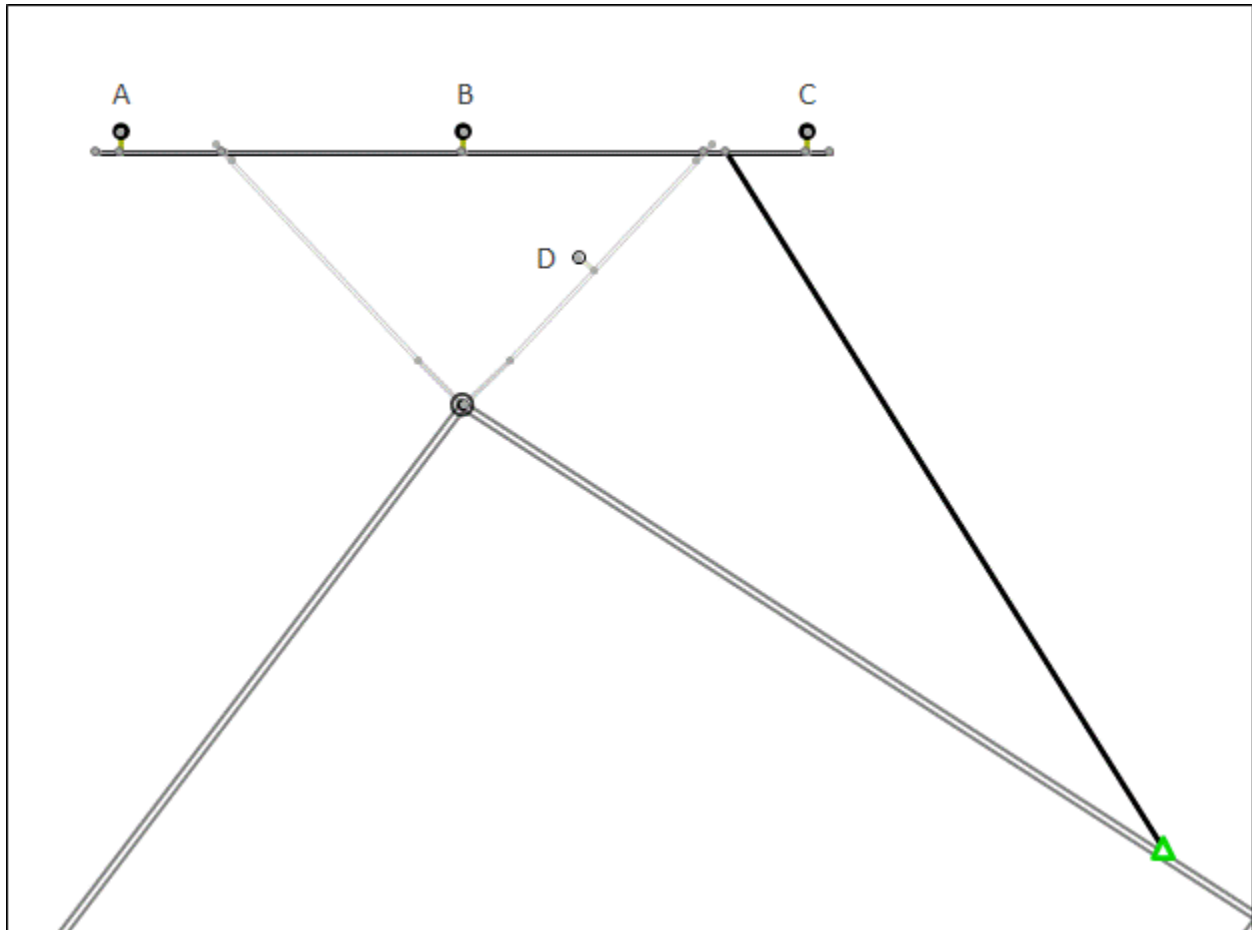
Application Loading

Mount Centerline (ft)	Equipment Centerline (ft)	Qty	Equipment Manufacturer & Model
154.0	154.0	3	JMA Wireless MX08FRO665-21
		1	Commscope RDIDC-9181-PF-48
		3	Fujitsu TA08025-B604
		3	Fujitsu TA08025-B605

Structure Usages

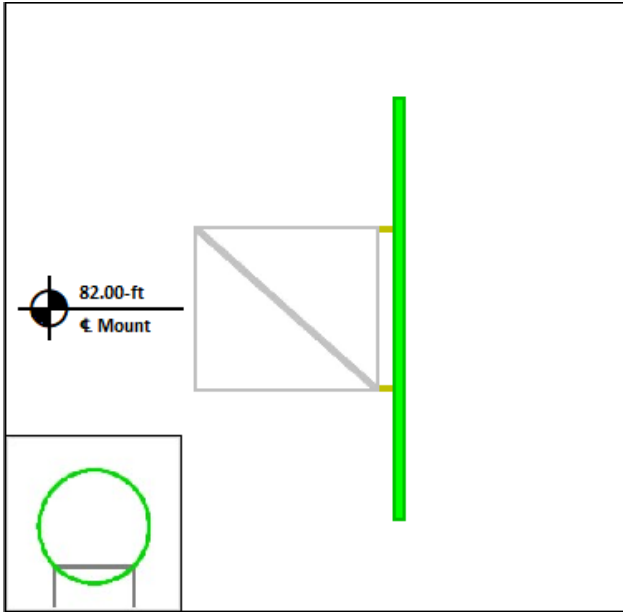
Structural Component	Controlling Usage	Pass/Fail
Horizontals	28%	Pass
Verticals	5%	Pass
Diagonals	34%	Pass
Tie-Backs	6%	Pass
Mount Pipes	6%	Pass
Tower Leg Check	8%	Pass

Mount Layout

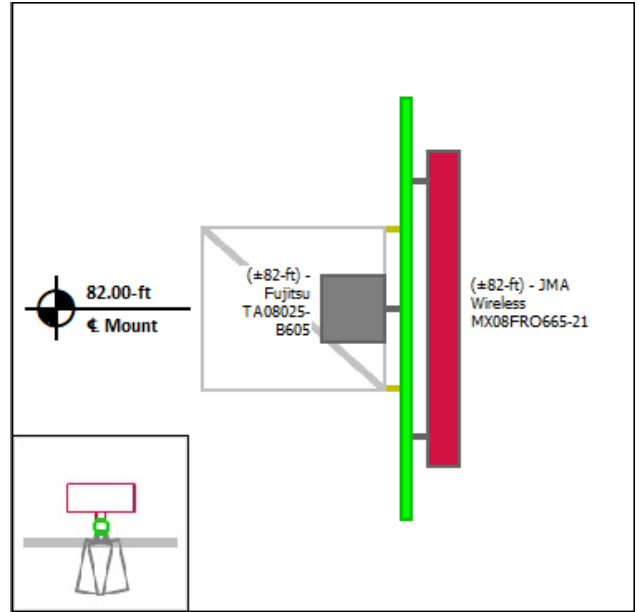


Equipment Layout

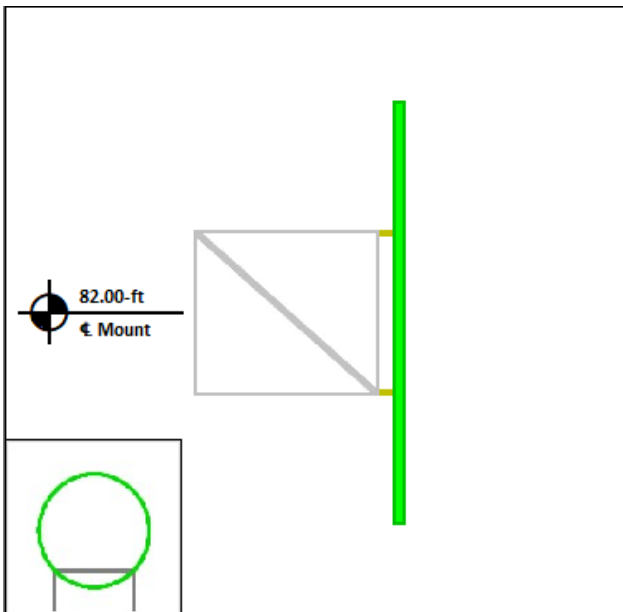
Mount Pipe A



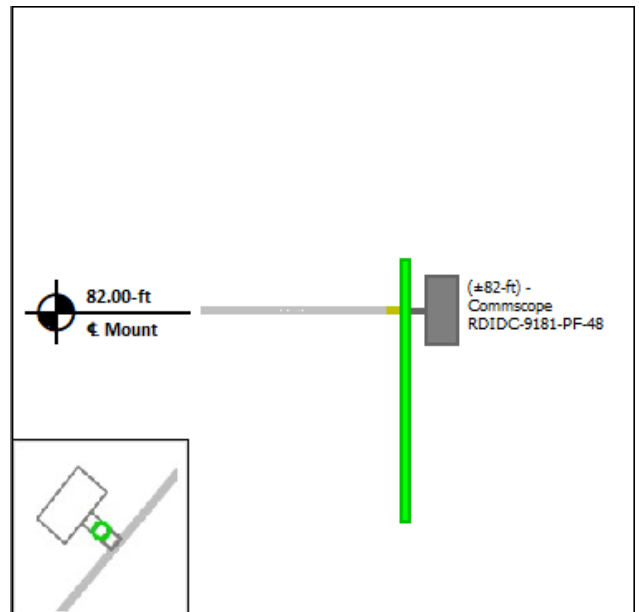
Mount Pipe B



Mount Pipe C



Mount Pipe D



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 equipment, 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.

American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

All connections are to be verified for condition and tightness by the installation contractor preceding any changes to the appurtenance mounting system and/or equipment attached to it.

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.

Installation of all equipment and steel should be confirmed not to cause tower conflicts nor impede the tower climbing pegs.

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.



Site Number: 88018
Project Number: 13710333_C8_06
Carrier: Dish Wireless L.L.C.
Mount Elevation: 154 ft
Date: 11/3/2022

Mount Analysis Force Calculations

Wind & Ice Load Calculations			
Velocity Pressure Coefficient	K_z	1.12	
Topographic Factor	K_{zt}	1.00	
Rooftop Wind Speed-up Factor	K_s	1.00	
Shielding Factor	K_a	0.90	
Ground Elevation Factor	K_e	1.00	
Wind Direction Probability Factor	K_d	0.95	
Basic Wind Speed	V	117	mph
Velocity Pressure	q_z	37.2	psf
Height Escalation Factor	K_{iz}	1.17	
Thickness of Radial Glaze Ice	T_{iz}	1.17	in

Seismic Load Calculations			
Short Period DSRAP	S_{DS}	0.281	
1 Second DSRAP	S_{D1}	0.094	
Importance Factor	I	1.0	
Response Modification Coefficient	R	2.0	
Seismic Response Coefficient	C_s	0.140	
Amplification Factor	A	1.0	
Total Weight	W	574.3	lbs
Total Shear Force	V_s	80.6	lbs
Horizontal Seismic Load	E_h	80.6	lbs
Vertical Seismic Load	E_v	32.2	lbs

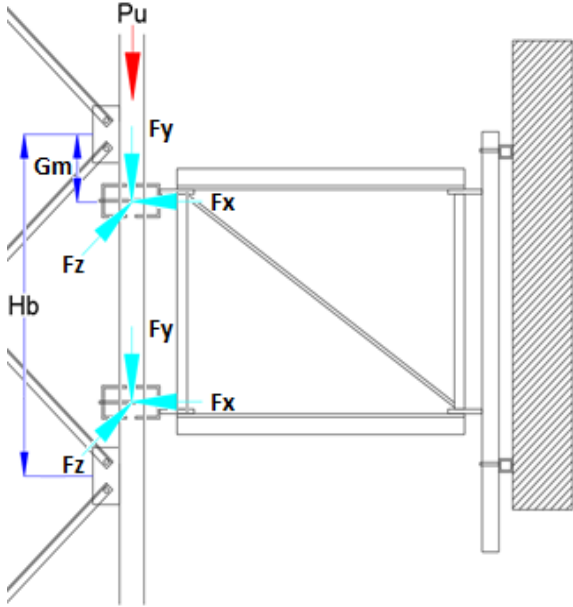
Antenna Calculations (Elevations per Application/RFDS)*								
Equipment	Height	Width	Depth	Weight	EPA_N	EPA_T	EPA_{Ni}	EPA_{Ti}
Model #	in	in	in	lbs	sqft	sqft	sqft	sqft

* Equipment with EPA values N/A were not considered in the mount analysis

Tower Leg Reaction Analysis

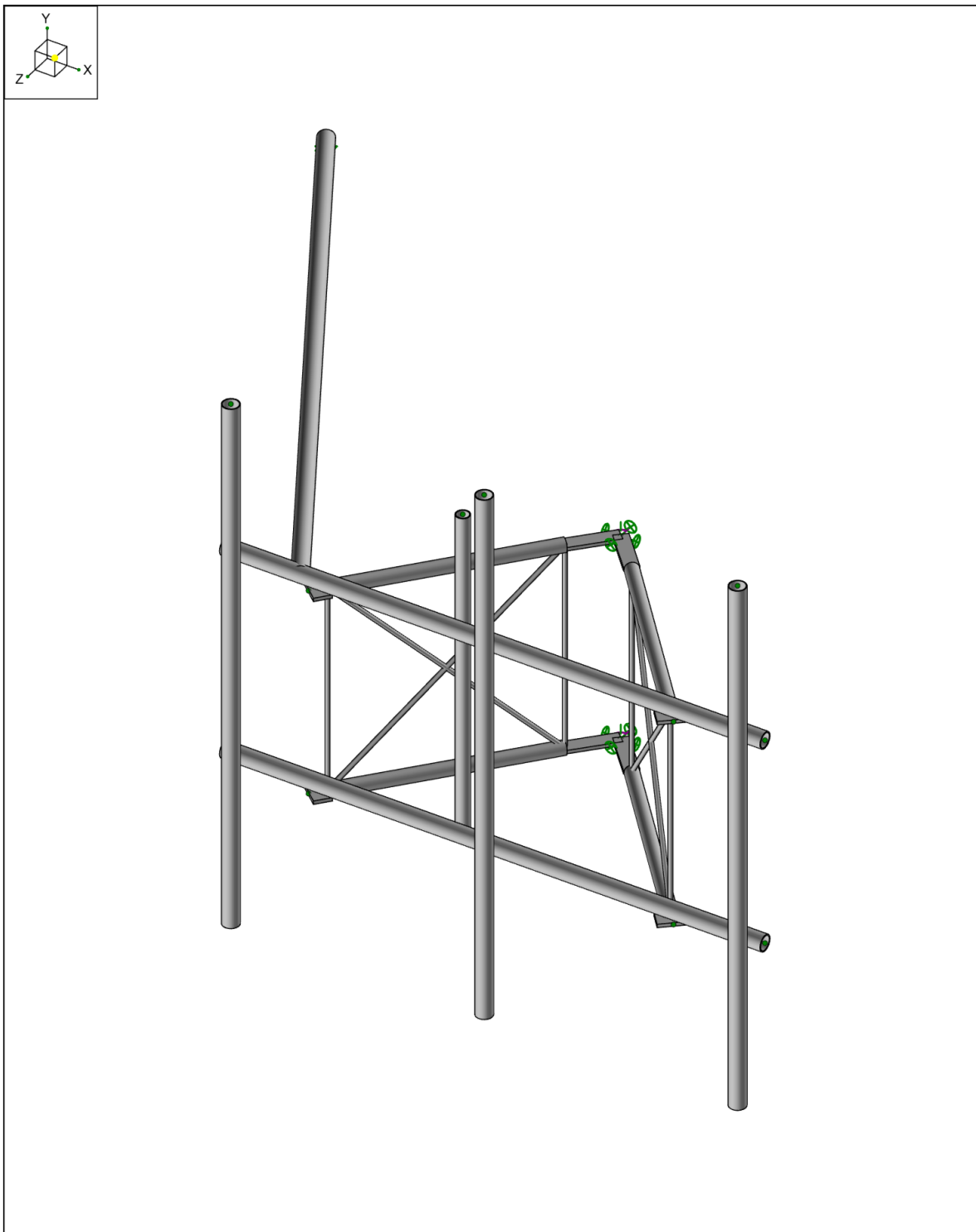
Applied Loads from RISA 3D			
Controlling Load Combination	7		
Leg Node Label(s)	N001	N006	
Force in X, F_x	175.8	177.5	lbs
Force in Y, F_y	334.6	315.3	lbs
Force in Z, F_z	-1304.1	174.2	lbs
Moment about X, M_x	-104.3	-99.4	lb-ft
Moment about Y, M_y	5.0	90.8	lb-ft
Moment about Z, M_z	12.6	10.9	lb-ft

Tower Leg Properties			
Leg Type	Single Angle		
Leg Member	L8x8x3/4		
Leg Bay Height	Hb	8.35	ft
Upper Mount Offset	Gm	37.50	in
Tower Axial Load	P_{U_T}	0	k
Leg Grade	A36		
Leg Yield Strength	F_y	36	ksi
Cross Sectional Area	A_g	11.500	in ²
Radius of Gyration	r	1.570	in
Moment of Inertia	I	28.500	in ⁴
Major Section Modulus	S_{max}	19.622	in ³
Minimum Section Modulus	S_{min}	8.900	in ³
Plastic Modulus	Z_{min}	22.000	in ³
Torsional Constant	J	2.210	in ⁴
Elastic Modulus	E	29,000	ksi
Shear Modulus	G	11,200	ksi
Slenderness Limit	$4.44\sqrt{E/F_y}$	126.0	-
Member Slenderness	KL/r	63.8	-
Rotation of Leg	Θ	0.0006	rads
Leg Torsional Stiffness	k	1806.3	k-in/rad

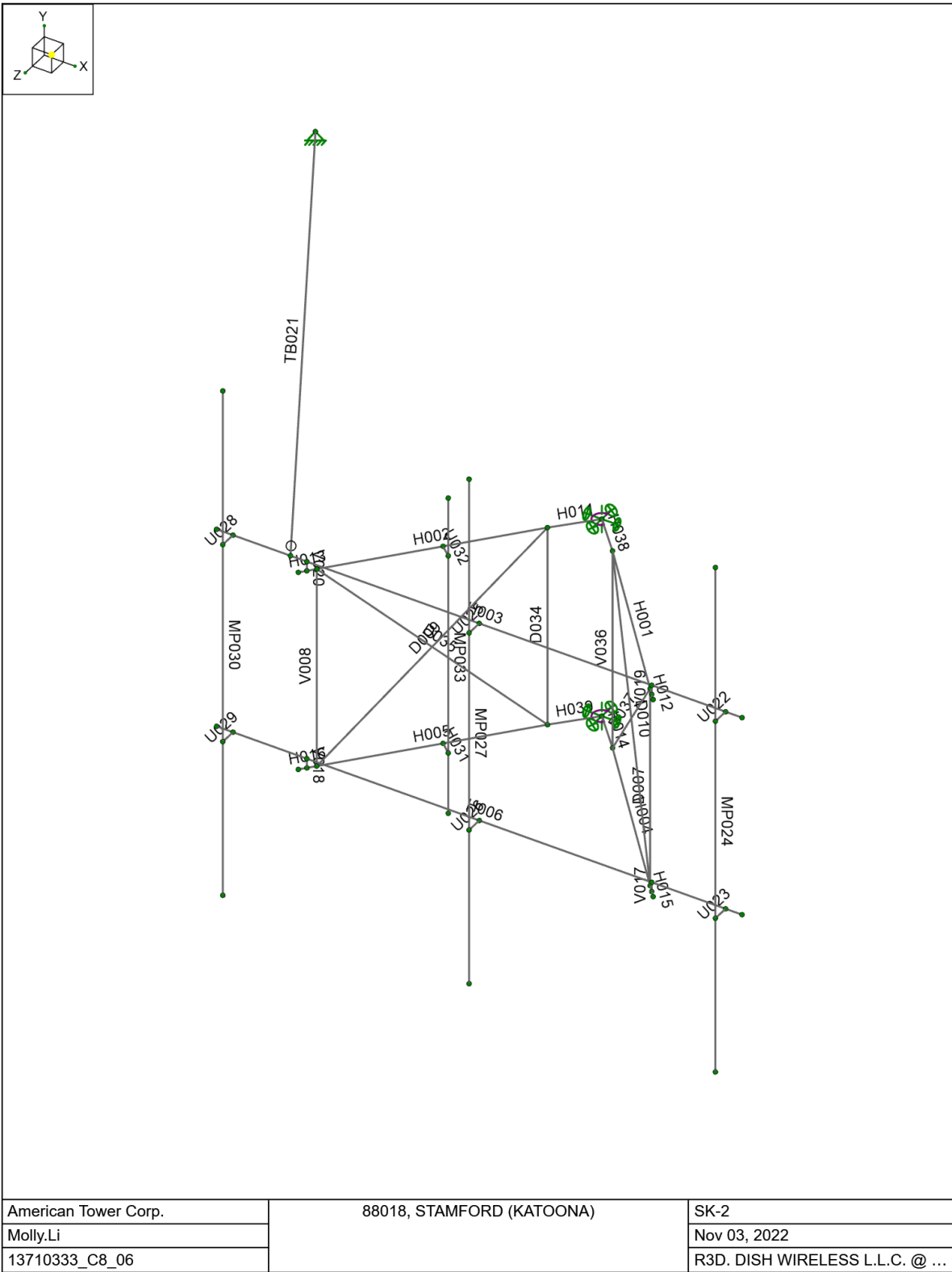


Tower Leg Analysis			
Critical Stress	F_{cr}	31.4	ksi
Axial Stress	σ_a	0.06	ksi
Shear Stress	τ_b	0.04	ksi
Maj. Bending Stress	σ_{bw}	0.30	ksi
Min. Bending Stress	σ_{bz}	3.36	ksi
Torsional Stress	τ_t	0.28	ksi
Normal Stress Limit State	F_{un}	32.4	ksi
Shear Stress Limit State	F_{uv}	19.4	ksi
Maj. Bend. Stress Limit State	F_{cbw}	48.6	ksi
Min. Bend. Stress Limit State	F_{cbz}	48.6	ksi
Buckling Limit State	F_{ca}	31.4	ksi
Torsional/Shear Impact	$\Sigma\tau / F_{uv}$	2%	Pass
Buckling/Axial Impact	$\Sigma\sigma / F_{un}$	8%	Pass

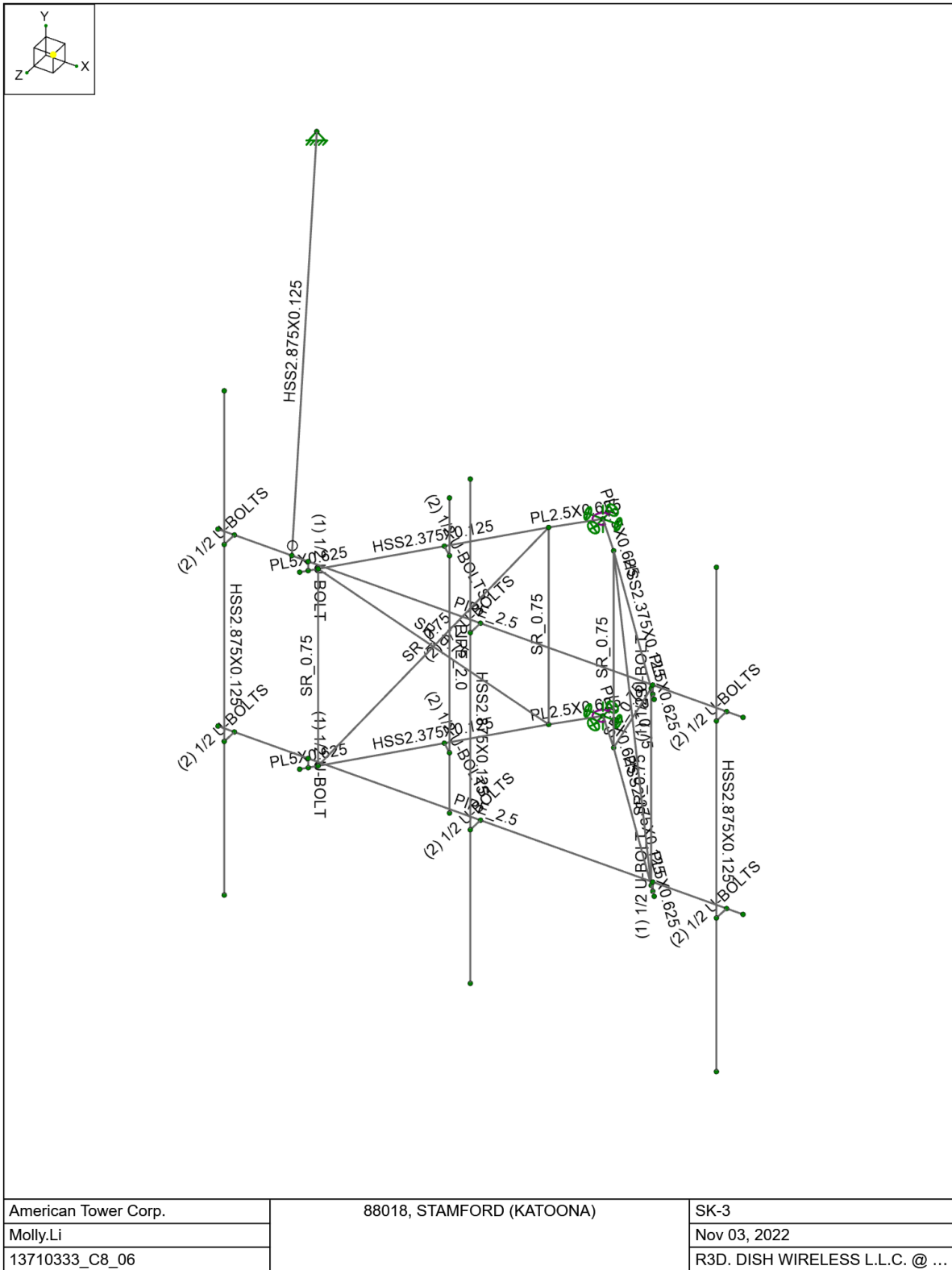
* This analysis confirms the impact of the antenna mount on the tower leg. Axial loads in the leg from the tower analysis were not considered.

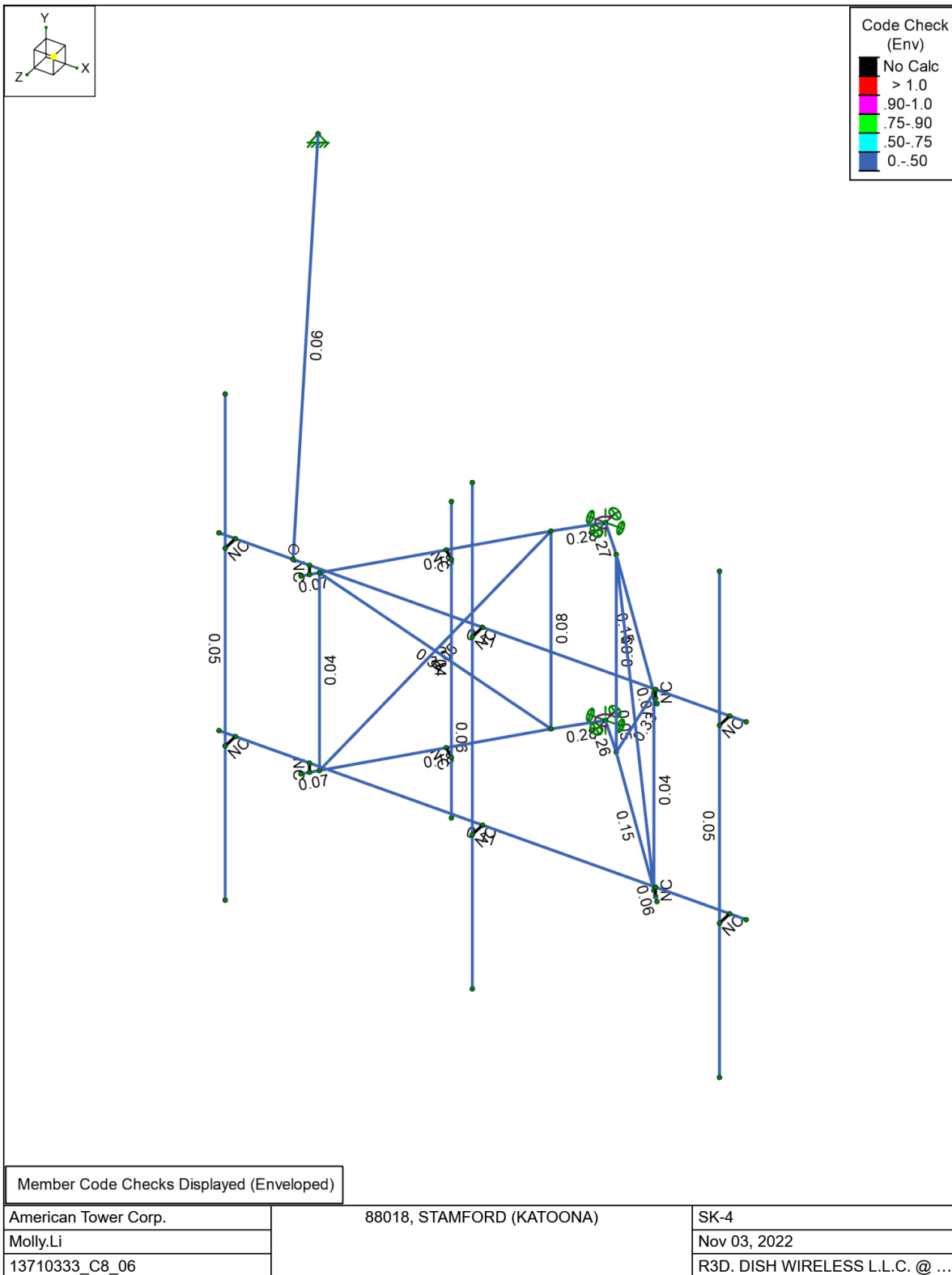


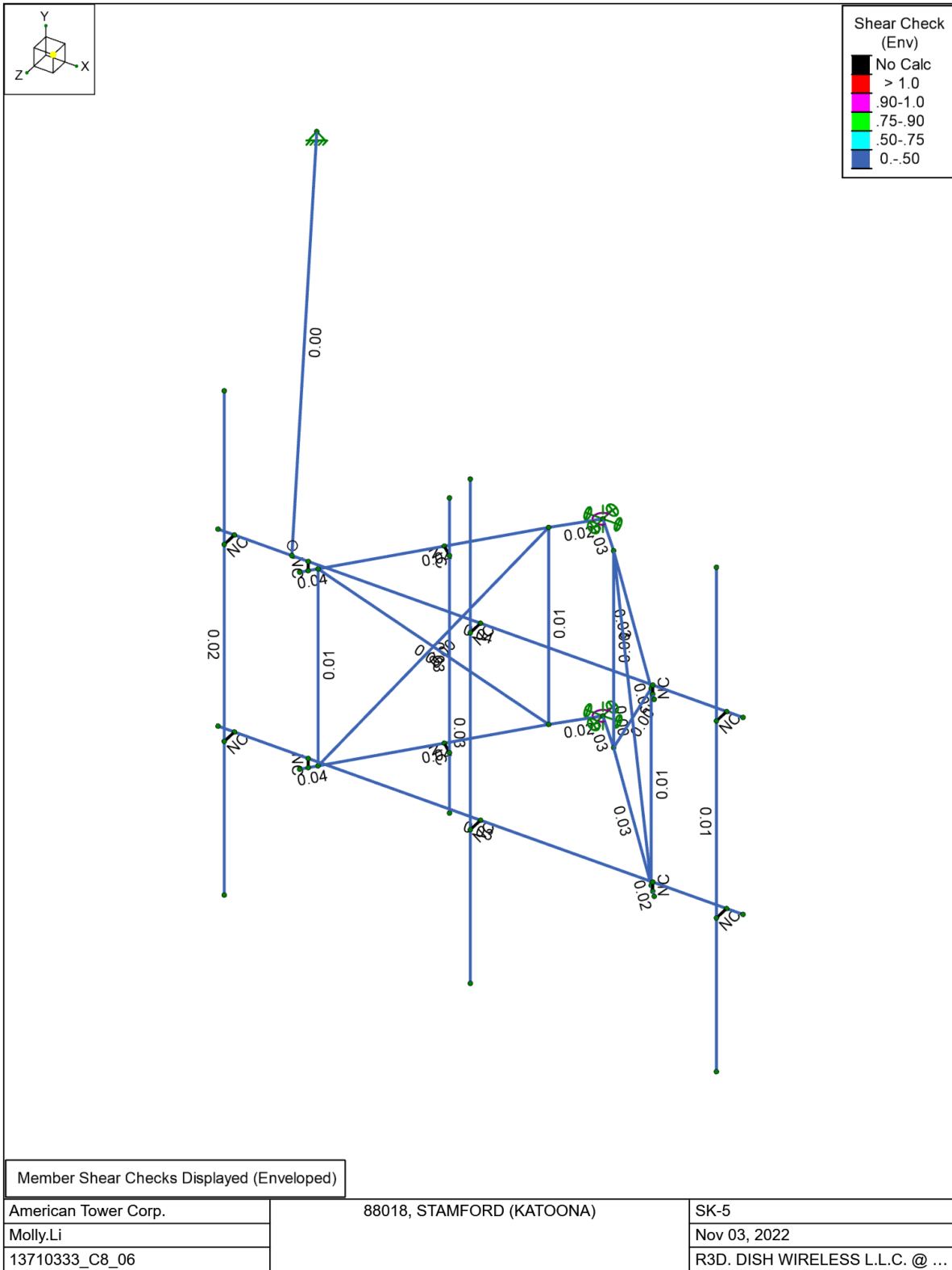
American Tower Corp.	88018, STAMFORD (KATOONA)	SK-1
Molly.Li		Nov 03, 2022
13710333_C8_06		R3D. DISH WIRELESS L.L.C. @ ...



American Tower Corp.	88018, STAMFORD (KATOONA)	SK-2
Molly.Li		Nov 03, 2022
13710333_C8_06		R3D. DISH WIRELESS L.L.C. @ ...







Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed
1	D	DL	-1		5	
2	Di	IL			5	27
3	W 0	WL			5	40
4	W 30	WL			10	79
5	W 60	WL			10	79
6	W 90	WL			5	41
7	W 120	WL			10	79
8	W 150	WL			10	79
9	W 180	WL			5	40
10	W 210	WL			10	79
11	W 240	WL			10	79
12	W 270	WL			5	41
13	W 300	WL			10	79
14	W 330	WL			10	79
15	Wi 0	WL			5	40
16	Wi 30	WL			10	79
17	Wi 60	WL			10	79
18	Wi 90	WL			5	41
19	Wi 120	WL			10	79
20	Wi 150	WL			10	79
21	Wi 180	WL			5	40
22	Wi 210	WL			10	79
23	Wi 240	WL			10	79
24	Wi 270	WL			5	41
25	Wi 300	WL			10	79
26	Wi 330	WL			10	79
27	Ws 0	WL			5	40
28	Ws 30	WL			10	79
29	Ws 60	WL			10	79
30	Ws 90	WL			5	41
31	Ws 120	WL			10	79
32	Ws 150	WL			10	79
33	Ws 180	WL			5	40
34	Ws 210	WL			10	79
35	Ws 240	WL			10	79
36	Ws 270	WL			5	41
37	Ws 300	WL			10	79
38	Ws 330	WL			10	79
39	Ev -Y	ELY				27
40	Eh -Z	ELZ				27
41	Eh -X	ELX				27
42	Lv (1)	LL			1	
43	Lv (2)	LL			1	
44	Lv (3)	LL			1	
45	Lv (4)	LL			1	
46	Lv (5)	LL			1	
47	Lv (6)	LL			1	
48	Lv (7)	LL			1	
49	Lv (8)	LL			1	
50	Lv (9)	LL			1	
51	Lv (10)	LL			1	
52	Lv (11)	LL		1		
53	Lv (12)	LL		1		
54	Lm (1)	LL		1		
55	Lm (2)	LL		1		

Basic Load Cases (Continued)

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed
56	Lm (3)	LL		1		
57	Lm (4)	LL		1		

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4D	Yes	Y	DL	1.4						
2	1.2D + 1.0W [0°]	Yes	Y	DL	1.2	3	1				
3	1.2D + 1.0W [30°]	Yes	Y	DL	1.2	4	1				
4	1.2D + 1.0W [60°]	Yes	Y	DL	1.2	5	1				
5	1.2D + 1.0W [90°]	Yes	Y	DL	1.2	6	1				
6	1.2D + 1.0W [120°]	Yes	Y	DL	1.2	7	1				
7	1.2D + 1.0W [150°]	Yes	Y	DL	1.2	8	1				
8	1.2D + 1.0W [180°]	Yes	Y	DL	1.2	9	1				
9	1.2D + 1.0W [210°]	Yes	Y	DL	1.2	10	1				
10	1.2D + 1.0W [240°]	Yes	Y	DL	1.2	11	1				
11	1.2D + 1.0W [270°]	Yes	Y	DL	1.2	12	1				
12	1.2D + 1.0W [300°]	Yes	Y	DL	1.2	13	1				
13	1.2D + 1.0W [330°]	Yes	Y	DL	1.2	14	1				
14	0.9D + 1.0W [0°]	Yes	Y	DL	0.9	3	1				
15	0.9D + 1.0W [30°]	Yes	Y	DL	0.9	4	1				
16	0.9D + 1.0W [60°]	Yes	Y	DL	0.9	5	1				
17	0.9D + 1.0W [90°]	Yes	Y	DL	0.9	6	1				
18	0.9D + 1.0W [120°]	Yes	Y	DL	0.9	7	1				
19	0.9D + 1.0W [150°]	Yes	Y	DL	0.9	8	1				
20	0.9D + 1.0W [180°]	Yes	Y	DL	0.9	9	1				
21	0.9D + 1.0W [210°]	Yes	Y	DL	0.9	10	1				
22	0.9D + 1.0W [240°]	Yes	Y	DL	0.9	11	1				
23	0.9D + 1.0W [270°]	Yes	Y	DL	0.9	12	1				
24	0.9D + 1.0W [300°]	Yes	Y	DL	0.9	13	1				
25	0.9D + 1.0W [330°]	Yes	Y	DL	0.9	14	1				
26	1.2D + 1.0Di + 1.0Wi [0°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	15	1		
27	1.2D + 1.0Di + 1.0Wi [30°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	16	1		
28	1.2D + 1.0Di + 1.0Wi [60°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	17	1		
29	1.2D + 1.0Di + 1.0Wi [90°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	18	1		
30	1.2D + 1.0Di + 1.0Wi [120°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	19	1		
31	1.2D + 1.0Di + 1.0Wi [150°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	20	1		
32	1.2D + 1.0Di + 1.0Wi [180°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	21	1		
33	1.2D + 1.0Di + 1.0Wi [210°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	22	1		
34	1.2D + 1.0Di + 1.0Wi [240°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	23	1		
35	1.2D + 1.0Di + 1.0Wi [270°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	24	1		
36	1.2D + 1.0Di + 1.0Wi [300°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	25	1		
37	1.2D + 1.0Di + 1.0Wi [330°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	26	1		
38	1.2D + 1.0Ev + 1.0Eh [0°]	Yes	Y	DL	1.2	ELY	1	ELZ	1	ELX	0.001
39	1.2D + 1.0Ev + 1.0Eh [30°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.866	ELX	0.5
40	1.2D + 1.0Ev + 1.0Eh [60°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.5	ELX	0.866
41	1.2D + 1.0Ev + 1.0Eh [90°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.001	ELX	1
42	1.2D + 1.0Ev + 1.0Eh [120°]	Yes	Y	DL	1.2	ELY	1	ELZ	-0.5	ELX	0.866
43	1.2D + 1.0Ev + 1.0Eh [150°]	Yes	Y	DL	1.2	ELY	1	ELZ	-0.866	ELX	0.5
44	1.2D + 1.0Ev + 1.0Eh [180°]	Yes	Y	DL	1.2	ELY	1	ELZ	-1	ELX	0.001
45	1.2D + 1.0Ev + 1.0Eh [210°]	Yes	Y	DL	1.2	ELY	1	ELZ	-0.866	ELX	-0.5
46	1.2D + 1.0Ev + 1.0Eh [240°]	Yes	Y	DL	1.2	ELY	1	ELZ	-0.5	ELX	-0.866
47	1.2D + 1.0Ev + 1.0Eh [270°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.001	ELX	-1
48	1.2D + 1.0Ev + 1.0Eh [300°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.5	ELX	-0.866
49	1.2D + 1.0Ev + 1.0Eh [330°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.866	ELX	-0.5
50	0.9D + 1.0Ev + 1.0Eh [0°]	Yes	Y	DL	0.9	ELY	1	ELZ	1	ELX	0.001

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
51	0.9D + 1.0Ev + 1.0Eh [30°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.866	ELX	0.5
52	0.9D + 1.0Ev + 1.0Eh [60°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.5	ELX	0.866
53	0.9D + 1.0Ev + 1.0Eh [90°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.001	ELX	1
54	0.9D + 1.0Ev + 1.0Eh [120°]	Yes	Y	DL	0.9	ELY	1	ELZ	-0.5	ELX	0.866
55	0.9D + 1.0Ev + 1.0Eh [150°]	Yes	Y	DL	0.9	ELY	1	ELZ	-0.866	ELX	0.5
56	0.9D + 1.0Ev + 1.0Eh [180°]	Yes	Y	DL	0.9	ELY	1	ELZ	-1	ELX	0.001
57	0.9D + 1.0Ev + 1.0Eh [210°]	Yes	Y	DL	0.9	ELY	1	ELZ	-0.866	ELX	-0.5
58	0.9D + 1.0Ev + 1.0Eh [240°]	Yes	Y	DL	0.9	ELY	1	ELZ	-0.5	ELX	-0.866
59	0.9D + 1.0Ev + 1.0Eh [270°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.001	ELX	-1
60	0.9D + 1.0Ev + 1.0Eh [300°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.5	ELX	-0.866
61	0.9D + 1.0Ev + 1.0Eh [330°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.866	ELX	-0.5
62	1.2D + 1.5Lv(1)	Yes	Y	DL	1.2	42	1.5				
63	1.2D + 1.5Lv(2)	Yes	Y	DL	1.2	43	1.5				
64	1.2D + 1.5Lv(3)	Yes	Y	DL	1.2	44	1.5				
65	1.2D + 1.5Lv(4)	Yes	Y	DL	1.2	45	1.5				
66	1.2D + 1.5Lv(5)	Yes	Y	DL	1.2	46	1.5				
67	1.2D + 1.5Lv(6)	Yes	Y	DL	1.2	47	1.5				
68	1.2D + 1.5Lv(7)	Yes	Y	DL	1.2	48	1.5				
69	1.2D + 1.5Lv(8)	Yes	Y	DL	1.2	49	1.5				
70	1.2D + 1.5Lv(9)	Yes	Y	DL	1.2	50	1.5				
71	1.2D + 1.5Lv(10)	Yes	Y	DL	1.2	51	1.5				
72	1.2D + 1.5Lv(11)	Yes	Y	DL	1.2	52	1.5				
73	1.2D + 1.5Lv(12)	Yes	Y	DL	1.2	53	1.5				
74	1.2D + 1.5Lm(1) + 1.0Wm [0°]	Yes	Y	DL	1.2	54	1.5	27	1		
75	1.2D + 1.5Lm(1) + 1.0Wm [30°]	Yes	Y	DL	1.2	54	1.5	28	1		
76	1.2D + 1.5Lm(1) + 1.0Wm [60°]	Yes	Y	DL	1.2	54	1.5	29	1		
77	1.2D + 1.5Lm(1) + 1.0Wm [90°]	Yes	Y	DL	1.2	54	1.5	30	1		
78	1.2D + 1.5Lm(1) + 1.0Wm [120°]	Yes	Y	DL	1.2	54	1.5	31	1		
79	1.2D + 1.5Lm(1) + 1.0Wm [150°]	Yes	Y	DL	1.2	54	1.5	32	1		
80	1.2D + 1.5Lm(1) + 1.0Wm [180°]	Yes	Y	DL	1.2	54	1.5	33	1		
81	1.2D + 1.5Lm(1) + 1.0Wm [210°]	Yes	Y	DL	1.2	54	1.5	34	1		
82	1.2D + 1.5Lm(1) + 1.0Wm [240°]	Yes	Y	DL	1.2	54	1.5	35	1		
83	1.2D + 1.5Lm(1) + 1.0Wm [270°]	Yes	Y	DL	1.2	54	1.5	36	1		
84	1.2D + 1.5Lm(1) + 1.0Wm [300°]	Yes	Y	DL	1.2	54	1.5	37	1		
85	1.2D + 1.5Lm(1) + 1.0Wm [330°]	Yes	Y	DL	1.2	54	1.5	38	1		
86	1.2D + 1.5Lm(2) + 1.0Wm [0°]	Yes	Y	DL	1.2	55	1.5	27	1		
87	1.2D + 1.5Lm(2) + 1.0Wm [30°]	Yes	Y	DL	1.2	55	1.5	28	1		
88	1.2D + 1.5Lm(2) + 1.0Wm [60°]	Yes	Y	DL	1.2	55	1.5	29	1		
89	1.2D + 1.5Lm(2) + 1.0Wm [90°]	Yes	Y	DL	1.2	55	1.5	30	1		
90	1.2D + 1.5Lm(2) + 1.0Wm [120°]	Yes	Y	DL	1.2	55	1.5	31	1		
91	1.2D + 1.5Lm(2) + 1.0Wm [150°]	Yes	Y	DL	1.2	55	1.5	32	1		
92	1.2D + 1.5Lm(2) + 1.0Wm [180°]	Yes	Y	DL	1.2	55	1.5	33	1		
93	1.2D + 1.5Lm(2) + 1.0Wm [210°]	Yes	Y	DL	1.2	55	1.5	34	1		
94	1.2D + 1.5Lm(2) + 1.0Wm [240°]	Yes	Y	DL	1.2	55	1.5	35	1		
95	1.2D + 1.5Lm(2) + 1.0Wm [270°]	Yes	Y	DL	1.2	55	1.5	36	1		
96	1.2D + 1.5Lm(2) + 1.0Wm [300°]	Yes	Y	DL	1.2	55	1.5	37	1		
97	1.2D + 1.5Lm(2) + 1.0Wm [330°]	Yes	Y	DL	1.2	55	1.5	38	1		
98	1.2D + 1.5Lm(3) + 1.0Wm [0°]	Yes	Y	DL	1.2	56	1.5	27	1		
99	1.2D + 1.5Lm(3) + 1.0Wm [30°]	Yes	Y	DL	1.2	56	1.5	28	1		
100	1.2D + 1.5Lm(3) + 1.0Wm [60°]	Yes	Y	DL	1.2	56	1.5	29	1		
101	1.2D + 1.5Lm(3) + 1.0Wm [90°]	Yes	Y	DL	1.2	56	1.5	30	1		
102	1.2D + 1.5Lm(3) + 1.0Wm [120°]	Yes	Y	DL	1.2	56	1.5	31	1		
103	1.2D + 1.5Lm(3) + 1.0Wm [150°]	Yes	Y	DL	1.2	56	1.5	32	1		
104	1.2D + 1.5Lm(3) + 1.0Wm [180°]	Yes	Y	DL	1.2	56	1.5	33	1		
105	1.2D + 1.5Lm(3) + 1.0Wm [210°]	Yes	Y	DL	1.2	56	1.5	34	1		

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
106	1.2D + 1.5Lm(3) + 1.0Wm [240°]	Yes	Y	DL	1.2	56	1.5	35	1		
107	1.2D + 1.5Lm(3) + 1.0Wm [270°]	Yes	Y	DL	1.2	56	1.5	36	1		
108	1.2D + 1.5Lm(3) + 1.0Wm [300°]	Yes	Y	DL	1.2	56	1.5	37	1		
109	1.2D + 1.5Lm(3) + 1.0Wm [330°]	Yes	Y	DL	1.2	56	1.5	38	1		
110	1.2D + 1.5Lm(4) + 1.0Wm [0°]	Yes	Y	DL	1.2	57	1.5	27	1		
111	1.2D + 1.5Lm(4) + 1.0Wm [30°]	Yes	Y	DL	1.2	57	1.5	28	1		
112	1.2D + 1.5Lm(4) + 1.0Wm [60°]	Yes	Y	DL	1.2	57	1.5	29	1		
113	1.2D + 1.5Lm(4) + 1.0Wm [90°]	Yes	Y	DL	1.2	57	1.5	30	1		
114	1.2D + 1.5Lm(4) + 1.0Wm [120°]	Yes	Y	DL	1.2	57	1.5	31	1		
115	1.2D + 1.5Lm(4) + 1.0Wm [150°]	Yes	Y	DL	1.2	57	1.5	32	1		
116	1.2D + 1.5Lm(4) + 1.0Wm [180°]	Yes	Y	DL	1.2	57	1.5	33	1		
117	1.2D + 1.5Lm(4) + 1.0Wm [210°]	Yes	Y	DL	1.2	57	1.5	34	1		
118	1.2D + 1.5Lm(4) + 1.0Wm [240°]	Yes	Y	DL	1.2	57	1.5	35	1		
119	1.2D + 1.5Lm(4) + 1.0Wm [270°]	Yes	Y	DL	1.2	57	1.5	36	1		
120	1.2D + 1.5Lm(4) + 1.0Wm [300°]	Yes	Y	DL	1.2	57	1.5	37	1		
121	1.2D + 1.5Lm(4) + 1.0Wm [330°]	Yes	Y	DL	1.2	57	1.5	38	1		

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	H001	N015	N011		HSS2.375X0.125	Beam	None	A500 Gr. B [RND]	Typical
2	H002	N017	N019		HSS2.375X0.125	Beam	None	A500 Gr. B [RND]	Typical
3	H003	N004	N005		PIPE 2.5	Beam	None	A500 Gr. C	Typical
4	H004	N016	N012		HSS2.375X0.125	Beam	None	A500 Gr. B [RND]	Typical
5	H005	N018	N021		HSS2.375X0.125	Beam	None	A500 Gr. B [RND]	Typical
6	H006	N009	N010		PIPE 2.5	Beam	None	A500 Gr. C	Typical
7	D007	N012	N011		SR 0.75	Column	None	A572-50	Typical
8	V008	N021	N019		SR 0.75	Column	None	A572-50	Typical
9	D009	N017	N021		SR 0.75	Column	None	A572-50	Typical
10	D010	N015	N012		SR 0.75	Column	None	A572-50	Typical
11	H011	N001	N017	90	PL2.5X0.625	Beam	None	A572-50	Typical
12	H012	N011	N013	90	PL5X0.625	Beam	None	A572-50	Typical
13	H013	N019	N020	90	PL5X0.625	Beam	None	A572-50	Typical
14	H014	N006	N016	90	PL2.5X0.625	Beam	None	A572-50	Typical
15	H015	N012	N014	90	PL5X0.625	Beam	None	A572-50	Typical
16	H016	N021	N022	90	PL5X0.625	Beam	None	A572-50	Typical
17	V017	N007	N023		(1) 1/2 U-BOLT	Column	None	A36	Typical
18	V018	N024	N008		(1) 1/2 U-BOLT	Column	None	A36	Typical
19	V019	N002	N025		(1) 1/2 U-BOLT	Column	None	A36	Typical
20	V020	N026	N003		(1) 1/2 U-BOLT	Column	None	A36	Typical
21	TB021	N028	N027		HSS2.875X0.125	Beam	None	A500 Gr. B [RND]	Typical
22	U022	N029	N032		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
23	U023	N033	N034		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
24	MP024	N035	N036		HSS2.875X0.125	Column	None	A500 Gr. C	Typical
25	U025	N030	N037		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
26	U026	N038	N039		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
27	MP027	N040	N041		HSS2.875X0.125	Column	None	A500 Gr. C	Typical
28	U028	N031	N042		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
29	U029	N043	N044		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
30	MP030	N045	N046		HSS2.875X0.125	Column	None	A500 Gr. C	Typical
31	H031	N048	N047		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
32	U032	N049	N050		(2) 1/2 U-BOLTS	Beam	None	A36	Typical
33	MP033	N051	N052		PIPE 2.0	Column	None	A53 Gr. B	Typical
34	D034	N018	N017		SR 0.75	Column	None	A572-50	Typical
35	D035	N018	N019		SR 0.75	Column	None	A572-50	Typical
36	V036	N016	N015		SR 0.75	Column	None	A572-50	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
37	D037	N016	N011		SR 0.75	Column	None	A572-50	Typical
38	H038	N015	N001	90	PL2.5X0.625	Beam	None	A572-50	Typical
39	H039	N018	N006	90	PL2.5X0.625	Beam	None	A572-50	Typical

Hot Rolled Steel Design Parameters

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Lcomp top [in]	L-Torque [in]	K y-y	K z-z	Function
1	H001	HSS2.375X0.125	37.5				Lbyy	0.65	0.65	Lateral
2	H002	HSS2.375X0.125	37.5				Lbyy	0.65	0.65	Lateral
3	H003	PIPE 2.5	96				Lbyy	1	1	Lateral
4	H004	HSS2.375X0.125	37.5				Lbyy	0.65	0.65	Lateral
5	H005	HSS2.375X0.125	37.5				Lbyy	0.65	0.65	Lateral
6	H006	PIPE 2.5	96				Lbyy	1	1	Lateral
7	D007	SR 0.75	37.5				Lbyy	0.65	0.65	Lateral
8	V008	SR 0.75	37.5				Lbyy	0.65	0.65	Lateral
9	D009	SR 0.75	53.033				Lbyy	0.65	0.65	Lateral
10	D010	SR 0.75	53.033				Lbyy	0.65	0.65	Lateral
11	H011	PL2.5X0.625	8.737				Lbyy	1	1	Lateral
12	H012	PL5X0.625	3				Lbyy	2.1	2.1	Lateral
13	H013	PL5X0.625	3				Lbyy	2.1	2.1	Lateral
14	H014	PL2.5X0.625	8.737				Lbyy	1	1	Lateral
15	H015	PL5X0.625	3				Lbyy	2.1	2.1	Lateral
16	H016	PL5X0.625	3				Lbyy	2.1	2.1	Lateral
17	V017	(1) 1/2 U-BOLT	1.75				Lbyy	0.65	0.65	Lateral
18	V018	(1) 1/2 U-BOLT	1.75				Lbyy	0.65	0.65	Lateral
19	V019	(1) 1/2 U-BOLT	1.75				Lbyy	0.65	0.65	Lateral
20	V020	(1) 1/2 U-BOLT	1.75				Lbyy	0.65	0.65	Lateral
21	TB021	HSS2.875X0.125	114.237				Lbyy	1	1	Lateral
22	U022	(2) 1/2 U-BOLTS	3				Lbyy	0.5	0.5	Lateral
23	U023	(2) 1/2 U-BOLTS	3				Lbyy	0.5	0.5	Lateral
24	MP024	HSS2.875X0.125	96	Segment	Segment		Lbyy	2.1	2.1	Lateral
25	U025	(2) 1/2 U-BOLTS	3				Lbyy	0.5	0.5	Lateral
26	U026	(2) 1/2 U-BOLTS	3				Lbyy	0.5	0.5	Lateral
27	MP027	HSS2.875X0.125	96	Segment	Segment		Lbyy	2.1	2.1	Lateral
28	U028	(2) 1/2 U-BOLTS	3				Lbyy	0.5	0.5	Lateral
29	U029	(2) 1/2 U-BOLTS	3				Lbyy	0.5	0.5	Lateral
30	MP030	HSS2.875X0.125	96	Segment	Segment		Lbyy	2.1	2.1	Lateral
31	H031	(2) 1/2 U-BOLTS	2.684				Lbyy	0.65	0.65	Lateral
32	U032	(2) 1/2 U-BOLTS	2.683				Lbyy	0.5	0.5	Lateral
33	MP033	PIPE 2.0	60	Segment	Segment		Lbyy	2.1	2.1	Lateral
34	D034	SR 0.75	37.5				Lbyy	0.65	0.65	Lateral
35	D035	SR 0.75	53.033				Lbyy	0.65	0.65	Lateral
36	V036	SR 0.75	37.5				Lbyy	0.65	0.65	Lateral
37	D037	SR 0.75	53.033				Lbyy	0.65	0.65	Lateral
38	H038	PL2.5X0.625	8.737				Lbyy	1	1	Lateral
39	H039	PL2.5X0.625	8.737				Lbyy	1	1	Lateral

Node Boundary Conditions

	Node Label	X [lb/in]	Y [lb/in]	Z [lb/in]	X Rot [k-in/rad]	Y Rot [k-in/rad]	Z Rot [k-in/rad]
1	N001	Reaction	Reaction	Reaction	Reaction	S1806.299	Reaction
2	N006	Reaction	Reaction	Reaction	Reaction	S1806.299	Reaction
3	N028	Reaction	Reaction	Reaction			

Member Advanced Data

	Label	J Release	Physical	Deflection Ratio Options	Activation	Seismic DR
1	H001		Yes	N/A		None
2	H002		Yes	N/A		None
3	H003		Yes	N/A		None
4	H004		Yes	N/A		None
5	H005		Yes	N/A		None
6	H006		Yes	N/A		None
7	D007		Yes	** NA **		None
8	V008		Yes	** NA **		None
9	D009		Yes	** NA **		None
10	D010		Yes	** NA **		None
11	H011		Yes	N/A		None
12	H012		Yes	Default		None
13	H013		Yes	Default		None
14	H014		Yes	N/A		None
15	H015		Yes	Default		None
16	H016		Yes	Default		None
17	V017		Yes	** NA **	Exclude	None
18	V018		Yes	** NA **	Exclude	None
19	V019		Yes	** NA **	Exclude	None
20	V020		Yes	** NA **	Exclude	None
21	TB021	BenPIN	Yes	N/A		None
22	U022		Yes	N/A	Exclude	None
23	U023		Yes	N/A	Exclude	None
24	MP024		Yes	** NA **		None
25	U025		Yes	N/A	Exclude	None
26	U026		Yes	N/A	Exclude	None
27	MP027		Yes	** NA **		None
28	U028		Yes	N/A	Exclude	None
29	U029		Yes	N/A	Exclude	None
30	MP030		Yes	** NA **		None
31	H031		Yes	N/A	Exclude	None
32	U032		Yes	N/A	Exclude	None
33	MP033		Yes	** NA **		None
34	D034		Yes	** NA **		None
35	D035		Yes	** NA **		None
36	V036		Yes	** NA **		None
37	D037		Yes	** NA **		None
38	H038		Yes	N/A		None
39	H039		Yes	N/A		None

Hot Rolled Steel Properties

	Label	E [psi]	G [psi]	Nu	Therm. Coeff. [1e ⁵ F ⁻¹]	Density [lb/ft ³]	Yield [psi]	Ry	Fu [psi]	Rt
1	A500 Gr. B [RND]	2.9e+07	1.115e+07	0.3	0.65	490	42000	1.4	58000	1.3
2	A500 Gr. C	2.9e+07	1.115e+07	0.3	0.65	490	46000	1.4	62000	1.3
3	A572-50	2.9e+07	1.115e+07	0.3	0.65	490	50000	1.1	65000	1.1
4	A36	2.9e+07	1.115e+07	0.3	0.65	490	36000	1.5	58000	1.2
5	A53 Gr. B	2.9e+07	1.115e+07	0.3	0.65	490	35000	1.6	60000	1.2

Envelope Node Reactions

Node Label	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1 N001	max 859.717	102	707.154	79	409.26	25	-73.541	25	45.481	16	130.87	78
2	min -792.339	84	235.614	25	-1323.181	31	-234.038	115	-51.023	10	-145.213	108

Envelope Node Reactions (Continued)

Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC	
3	N006	max	802.155	78	698.175	121	1256.598	74	-73.676	20	148.165	4	130.72	76
4		min	-868.082	108	234.55	19	-39.999	20	-234.483	110	-145.102	22	-145.356	106
5	N028	max	297.411	6	47.089	34	489.975	4	0	121	0	121	0	121
6		min	-297.322	24	14.689	18	-489.284	22	0	1	0	1	0	1
7	Totals:	max	846.796	18	1442.807	36	1034.482	2						
8		min	-846.796	24	502.135	18	-1034.482	20						

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks

Member	Shape	Code Check	Loc[in]	LC	Shear	Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
1	H001	HSS2.375X0.125	0.147	18.75	62	0.028	37.5		62	29386.129	31109.4	1864.8	1864.8	1.362	H1-1b
2	H002	HSS2.375X0.125	0.181	16.797	117	0.039	37.5		118	29386.129	31109.4	1864.8	1864.8	1.406	H1-1b
3	H003	PIPE 2.5	0.114	48	90	0.036	82		10	33487.322	66654	4726.5	4726.5	1.893	H1-1b
4	H004	HSS2.375X0.125	0.148	18.75	65	0.028	37.5		65	29386.102	31109.4	1864.8	1864.8	1.363	H1-1b
5	H005	HSS2.375X0.125	0.179	16.797	121	0.037	37.5		117	29386.132	31109.4	1864.8	1864.8	1.403	H1-1b
6	H006	PIPE 2.5	0.112	48	88	0.028	79		12	33487.322	66654	4726.5	4726.5	1.901	H1-1b
7	D007	SR 0.75	0.037	37.5	6	0.008	37.5		4	5905.621	19880.391	248.505	248.505	2.349	H1-1b
8	V008	SR 0.75	0.038	37.5	120	0.011	37.5		10	5905.621	19880.391	248.505	248.505	2.276	H1-1b
9	D009	SR 0.75	0.048	0	104	0.004	53.033		12	2952.81	19880.391	248.505	248.505	1.931	H1-1b*
10	D010	SR 0.75	0.046	0	79	0.004	53.033		4	2952.786	19880.391	248.505	248.505	2.01	H1-1b*
11	H011	PL2.5X0.625	0.278	0	105	0.021	0	y	4	59233.995	70312.5	915.527	3662.109	2.186	H1-1b
12	H012	PL5X0.625	0.067	0	81	0.025	1.594	y	91	128630.838	140625	1831.055	14648.438	1.524	H1-1b
13	H013	PL5X0.625	0.074	0	102	0.039	1.594	y	92	128630.838	140625	1831.055	14648.438	1.697	H1-1b
14	H014	PL2.5X0.625	0.263	0	74	0.027	0	z	76	59233.995	70312.5	915.527	3662.109	2.167	H1-1b
15	H015	PL5X0.625	0.063	0	82	0.024	1.594	y	96	128633.174	140625	1831.055	14648.438	1.345	H1-1b
16	H016	PL5X0.625	0.068	0	102	0.038	1.594	y	86	128630.838	140625	1831.055	14648.438	1.322	H1-1b
17	TB021	HSS2.875X0.125	0.058	57.118	6	0.004	114.237		12	16399.356	38178	2784.6	2784.6	1.136	H1-1b
18	MP024	HSS2.875X0.125	0.052	30	81	0.012	30		6	26934.865	41814	3049.8	3049.8	3	H1-1b
19	MP027	HSS2.875X0.125	0.062	30	6	0.031	30		6	26934.865	41814	3049.8	3049.8	3	H1-1b
20	MP030	HSS2.875X0.125	0.053	30	103	0.019	30		10	26934.865	41814	3049.8	3049.8	2.275	H1-1b
21	MP033	PIPE 2.0	0.042	11.25	117	0.027	11.25		10	19171.622	32130	1871.625	1871.625	1.705	H1-1b
22	D034	SR 0.75	0.075	0	120	0.005	37.5		6	5905.621	19880.391	248.505	248.505	2.272	H1-1b
23	D035	SR 0.75	0.341	53.033	108	0.005	53.033		9	2952.813	19880.391	248.505	248.505	1.94	H1-1a
24	V036	SR 0.75	0.054	37.5	62	0.005	0		12	5905.621	19880.391	248.505	248.505	2.23	H1-1b
25	D037	SR 0.75	0.328	53.033	75	0.003	53.033		7	2952.81	19880.391	248.505	248.505	2.027	H1-1a
26	H038	PL2.5X0.625	0.267	8.737	78	0.027	8.737	z	78	59233.995	70312.5	915.527	3662.109	1.854	H1-1b
27	H039	PL2.5X0.625	0.278	8.737	106	0.02	8.737	z	114	59233.947	70312.5	915.527	3662.109	1.385	H1-1b



Radio Frequency Emissions Analysis Report



Site ID: BOHVN00152C

ATC_Mdfd - Middlefield,CT
134 Kikapoo Road
Middlefield, CT 06455

January 26, 2023

Fox Hill Telecom Project Number: 230058

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	48.46 %

January 26, 2023

Dish Wireless
5701 South Santa Fe Drive
Littleton, CO 80120

Emissions Analysis for Site: **BOHVN00152C – ATC_Mdfd - Middlefield,CT**

Fox Hill Telecom, Inc (“Fox Hill”) was directed to analyze the proposed radio installation for Dish Wireless, LLC (Dish) facility located at **134 Kikapoo Road, Middlefield, CT**, for the purpose of determining whether the emissions from the Proposed Dish radio and 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.

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 600 MHz band is approximately $400 \mu\text{W}/\text{cm}^2$. The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS / AWS-4) bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



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

Additional details can be found in FCC OET 65.



CALCULATIONS

Calculations were performed for the proposed upgrades to the Dish Wireless antenna facility located at **134 Kikapoo Road, Middlefield, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65 for far field modeling calculations.

In OET-65, plane wave power densities in the Far Field of an antenna are calculated by considering antenna gain and reflective waves that would contribute to exposure.

Since the radiation pattern of an antenna has developed in the **Far Field** region the power gain in specific directions needs to be considered in exposure predictions to yield an Effective Radiated Power (ERP) in each specific direction from the antenna. Also, since the vertical radiation pattern of the antenna is considered, the exposure calculations would most likely be reduced significantly at ground level, resulting in a more realistic estimate of the actual exposure levels. To determine a worst-case scenario at each point along the calculation radials, each point was calculated using the antenna gain value at each angle of incident and compared against the result using an isotropic radiator at the antenna height with the greater of the two used to yield the more pessimistic far field value for each point along the calculation radial.

Additionally, to model a truly "worst case" prediction of exposure levels at or near a surface, such as at ground-level or on a rooftop, reflection off the surface of antenna radiation power can be assumed, resulting in a potential 1.6 times increase in power density in calculating far field power density values.

With these factors Considered, the worst case **Far Field prediction model** utilized in this analysis is determined by the following equation:

Equation 9 per FCC OET65 for Far Field Modeling

$$S = \frac{33.4 \text{ ERP}}{R^2}$$

S = Power Density (in $\mu\text{w}/\text{cm}^2$)

ERP = Effective Radiated Power from antenna (watts)

R = Distance from the antenna (meters)

Predicted far field power density values for all carriers identified in this report were calculated 6 feet above the ground level and are displayed as a percentage of the applicable FCC standards. All emissions values for other carriers were calculated using the same Far Field model outlined above, using industry standard radio configurations and frequency band selection based upon available licenses in this geographic area for emissions contribution estimates.



For each Dish 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)
5G	n71 (600 MHz)	4	61.5
5G	n70 (AWS-4 / 1995-2020)	4	40
5G	n66 (AWS-4 / 2180-2200)	4	40

Table 1: Channel Data Table



The following **Dish** antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz (n71) frequency band and the 2100 MHz (AWS 4) frequency bands at 1995-2020 MHz (n70) and 2180-2200 MHz (n66). This is based on feedback from Dish regarding anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	JMA MX08FRO665-21	53
B	1	JMA MX08FRO665-21	53
C	1	JMA MX08FRO665-21	53

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** 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)	MPE %
Antenna A1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	15.37
Sector A Composite MPE%							15.37
Antenna B1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	15.37
Sector B Composite MPE%							15.37
Antenna C1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	15.37
Sector C Composite MPE%							15.37

Table 3: Dish Emissions Levels



The Following table (*Table 4*) shows all additional carriers on site and their emissions contribution estimates, along with the newly calculated **Dish** far field emissions 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 emissions 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** Sector as well as the composite emissions value for the site.

Site Composite MPE%	
Carrier	MPE%
Dish – Max Per Sector Value	15.37 %
AT&T	17.43 %
T-Mobile	13.91 %
Omni Antennas (800 Mhz)	1.75 %
Site Total MPE %:	48.46 %

Table 4: All Carrier MPE Contributions

Dish Sector A Total:	15.37 %
Dish Sector B Total:	15.37 %
Dish Sector C Total:	15.37 %
<hr/>	
Site Total:	48.46 %

Table 5: Site MPE Summary

Table 6 below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated **Dish** sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

Dish _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowab le MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
Dish n71 (600 MHz) 5G	4	858.77	53	40.68	n71 (600 MHz)	400	10.17%
Dish n70 (AWS-4 / 1995-2020) 5G	4	1,648.39	53	26.00	n70 (AWS-4 / 1995-2020)	1000	2.60%
Dish n66 (AWS-4 / 2180-2200) 5G	4	1,849.52	53	26.00	n66 (AWS-4 / 2180-2200)	1000	2.60%
Total:							15.37 %

Table 6: Dish 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 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 Sector	Power Density Value (%)
Sector A:	15.37 %
Sector B:	15.37 %
Sector C:	15.37 %
Dish Maximum Total (per sector):	15.37 %
Site Total:	48.46 %
Site Compliance Status:	COMPLIANT

The anticipated composite emissions value for this site, assuming all carriers present, is **48.46 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon the far field calculations performed for all carriers identified in this report.

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.

Scott Heffernan
Principal RF Engineer
Fox Hill Telecom, Inc
Worcester, MA 01609
(978)660-3998

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

IN RE:	:	
	:	
A SUB-PETITION OF CELLCO	:	SUB-PETITION NO. 1133
PARTNERSHIP D/B/A VERIZON WIRELESS	:	168 CATOONA LANE
FOR THE SHARED USE OF AN EXISTING	:	STAMFORD, CT
WIRELESS TELECOMMUNICATIONS	:	
FACILITY AT 168 CATOONA LANE,	:	
STAMFORD, CONNECTICUT	:	AUGUST 4, 2016

SUB-PETITION FOR DECLARATORY RULING:
ELIGIBLE FACILITIES REQUEST FOR MODIFICATIONS
THAT WILL NOT SUBSTANTIALLY CHANGE THE
PHYSICAL DIMENSIONS OF AN EXISTING BASE STATION

I. Introduction

Pursuant to Section 6409(a) of the Middle Class Tax Relief and Job Creation Act of 2012, codified at 47 U.S.C. § 1455(a) (“Section 6409(a)”) and the October 21, 2014 Report and Order (FCC-14-153) issued by the Federal Communications Commission (“FCC”) (the “FCC Order”), Cellco Partnership d/b/a Verizon Wireless (“Cellco”) hereby petitions the Connecticut Siting Council (the “Council”) for a declaratory ruling (“Sub-Petition”) that the installation of a single canister antenna and related telecommunications equipment at the existing wireless telecommunications base station at 168 Catoona Lane in Stamford, Connecticut (the “Property”) constitutes an Eligible Facilities Request (“EFR”) under the FCC Order. Cellco has designated this site as its “Stamford West 3 Facility”.

II. Factual Background

The Property is a 3.64-acre parcel located in Stamford’s M-L (Light Industrial) zone district. The Property and the existing 300-foot lattice tower are owned by American Tower Corporation (“ATC”). The Property is surrounded by commercial and residential uses along

Catoona Lane, Myano Lane and Progress Drive. See Attachment 1 – Site Vicinity Map and Site Schematic (Aerial Photograph). According to information available at Stamford City Hall, ATC acquired this former American Telephone and Telegraph (AT&T) Corporation in 2000. There is no information available in City records that indicates when the tower ever received or was required to receive local zoning approval. Stamford Building Department records, however, indicate that the tower was built in 1968. (See Attachment 2). The tower is currently shared by T-Mobile, with antennas at the 265-foot level; AT&T, with antennas at the 238-foot level; Sprint, with antennas at the 222-foot and 150-foot levels; Clearwire, with antennas at the 171-foot level; and Metro PCS, with antennas at the 150-foot level. Equipment associated with the existing antennas and several other buildings are located near the base of the tower. The entire Property is surrounded by a security fence with access off Catoona Lane.

Cellco is licensed to provide wireless telecommunications services in the 850 MHz, 1900 MHz, 700 MHz and 2100 MHz frequency ranges in Stamford and throughout the State of Connecticut. Cellco's proposed Stamford West 3 Facility described in this filing will provide improved wireless coverage and, more importantly, significant capacity relief to Cellco's existing wireless network in Stamford.

III. Proposed Stamford West 3 Facility

Cellco intends to install a total of twelve (12) antennas and nine (9) remote radio heads ("RRHs") on the northwest, northeast and southeast corners of this square lattice tower at a height of 92 feet above ground level. Cellco will also install a 12' x 26' equipment platform and canopy structure near the base of the tower. The platform will support Cellco's equipment cabinets. Power and telephone service will extend from the existing service at the tower site. Project Plans for the Stamford West 3 Facility are included in Attachment 3. Specifications for

Cellco's antennas and equipment are included in Attachment 4. A Structural Analysis Report confirming that the tower can support Cellco's antenna and related equipment modifications is included in Attachment 5.

IV. Discussion

A. The Proposed Modification Will Not Cause a Substantial Change to the Physical Dimensions of the Existing Base Station

Section 6409(a) provides, in relevant part, that "a State or local government may not deny, and shall approve, any eligible facilities request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station." Pursuant to the FCC Order, the proposed modification does not substantially change the physical dimensions of the base station if the following criteria are satisfied.

1. *The proposed modified facility will not increase the height of the tower by more than ten (10) percent of the height.* Cellco does not intend to increase the height of the existing tower. Cellco's antennas and RRHs will be located at the 92-foot level on the existing 300-foot tower.

2. *The proposed facility modification will not protrude from the edge of the structure more than six (6) feet.* Cellco's antennas and RRHs will not protrude more than six (6) feet from the face of the tower.

3. *The proposed facility does not involve installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four cabinets.* Cellco intends to install two equipment cabinets on a steel equipment platform.

4. *The proposed facility does not entail any excavation or deployment outside the current site of the base station.* Cellco's proposed modification will remain within the limits of the Property.

5. *The proposed facility does not defeat the existing concealment elements of the base station.* There are no concealment elements incorporated into the existing base station tower and none are proposed by Cellco.

6. *The proposed facility complies with conditions associated with the prior approval of construction or modification of the base station.* There is no information available in City of Stamford records that would indicate whether the existing tower has received or was required to receive any type of local zoning approval. Building Department records indicate the tower was originally constructed in 1968. (See Attachment 2).

B. FCC Compliance

Included in Attachment 6 is a cumulative worst case General Power Density table for Cellco's proposed antennas confirming that the facility will operate within the FCC safety standards for radio frequency emissions.

C. Notice to the City, Property Owner and Abutting Landowners

On August 4, 2016, a copy of this Sub-Petition was sent to Stamford's Mayor, David Martin; and ATC, the owner of the Property and the tower. A copy of the cover letter sent to Mr. Martin and ATC are included in Attachment 7. A copy of this Sub-Petition was also sent to the owners of land that abuts the Property. A sample abutter's cover letter and the list of those abutting landowners who were sent notice and a copy of this filing is included in Attachment 8.

V. Conclusion

Based on the information provided above, Cellco respectfully submits that the proposed modification of the existing base station at the Property constitutes an "eligible facilities request" under Section 6409(a) and the FCC Order.

Respectfully submitted,

CELLCO PARTNERSHIP d/b/a VERIZON
WIRELESS

By  _____

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597
(860) 275-8200
Its Attorneys



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

August 19, 2022

Jack Andrews
Zoning Manager
Centerline Communications, LLC
10130 Donleigh Drive
Columbia, MD 21046
jmandrews@clinellc.com

RE: **TS-DISH-135-220523** - Dish Wireless, LLC request for an order to approve tower sharing at an existing telecommunications facility located at 168 Catoona Lane, Stamford, Connecticut.

Dear Mr. Andrews:

At a public meeting held on August 18, 2022, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures with the following conditions:

1. Approval of any changes be delegated to Council staff;
2. Install four caution signs 6-feet below the proposed DISH antennas and NOC information signs at the base of the tower consistent with the Antenna Site FCC RF Compliance Assessment and Report prepared by Pinnacle Telecom Group dated March 11, 2022;
3. Any deviation from the proposed installation as specified in the original tower share request and supporting materials with the Council shall render this decision invalid;
4. Any material changes to the proposed installation as specified in the original tower share request and supporting materials filed with the Council shall require an explicit request for modification to the Council pursuant to Connecticut General Statutes § 16-50aa, including all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65;
5. The Council shall be notified in writing at least two weeks prior to the commencement of site construction activities;
6. Not less than 45 days after completion of the proposed installation, the Council shall be notified in writing that the installation has been completed;
7. Deployment of any 5G services must comply with FCC and FAA guidance relative to air navigation, as applicable;

8. Any nonfunctioning antenna and associated antenna mounting equipment, or other equipment at this facility owned and operated by Dish shall be removed within 60 days of the date the antenna or equipment ceased to function;
9. The validity of this action shall expire one year from the date of this letter; and
10. The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration.

This decision is under the exclusive jurisdiction of the Council and applies only to this request for tower sharing dated April 28, 2022, and additional information received July 29, 2022. This facility has been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower. Any deviation from the approved tower sharing request is enforceable under the provisions of Connecticut General Statutes § 16-50u.

The proposed shared use is to be implemented as specified in your letter dated April 28, 2022, and additional information received July 29, 2022, including the placement of all necessary equipment and shelters within the tower compound.

Please be advised that the validity of this action shall expire one year from the date of this letter.

Thank you for your attention and cooperation.

Sincerely,



Melanie Bachman
Executive Director

MAB/IN/emr

c: The Honorable Caroline Simmons, Mayor, City of Stamford (mayorsoffice@stamfordct.gov)



February 6, 2023

Ralph Blessing, Land Use Bureau Chief
Stamford Government Center
888 Washington Boulevard
Stamford, CT 06901

Re: Tower Share Application – Dish Site 13710333
Dish Wireless Telecommunications Facility @ 168 Catoona Lane, Stamford, CT 06902
TS-DISH-135-220523

Dear Mr. Blessing:

Dish proposes to install a five (5) foot by seven (7) foot metal platform within the existing fenced compound and install three (3) antennas, three (3) antenna mounts, six (6) RRUs, and cables on the existing tower at one hundred fifty four (154) feet (“RAD center”) as more particularly detailed and described on the enclosed Construction Drawings. The overall height of the existing tower will remain at 300 feet and no changes will be made to the compound dimensions.

In case number TS-DISH-135-220523, the CSC approved a Dish Tower Share application to collocate three (3) new panel antennas at eighty two (82) feet on the tower and install a platform with related equipment within the fenced compound area. Dish has since discovered that a higher RAD center is available on the tower. Accordingly, Dish now seeks Council approval to allow three (3) antennas at one hundred fifty four (154) feet on the tower. The antennas approved at eighty two (82) feet in TS-DISH-135-220523 will not be installed. The equipment shall be placed within the compound at the location originally approved by the Council.

This letter is intended to serve as the required notice to the municipality’s Planning and Zoning Department. As required by Regulations of Connecticut State Agencies (“RCSA”) 16-50j-73 the Connecticut Siting Council (“CSC”) has been notified of this proposal and will review this application. Please accept this letter as notification pursuant to RSCA 16-50j-73.

The enclosed letter and attachments to the CSC fully describe Dish’s proposal for the site. However, if you have any questions or require any additional information concerning our plans or the CSC procedures, please contact me at 443-677-0144 or contact Melanie Bachmann, Executive Director of the CSC at 860-972-2935.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read 'Jack Andrews', is written over a circular stamp.

Jack Andrews
Zoning Manager

Centerline Communications obo Dish

Enclosures



February 6, 2023

The Honorable Caroline Simmons
Stamford Government Center
888 Washington Boulevard
10th Floor
Stamford, CT 06901

Re: Tower Share Application – Dish Site 13710333
Dish Wireless Telecommunications Facility @ 168 Catoona Lane, Stamford, CT 06902
TS-DISH-135-220523

Dear Mayor Simmons:

Dish proposes to install a five (5) foot by seven (7) foot metal platform within the existing fenced compound and install three (3) antennas, three (3) antenna mounts, six (6) RRUs, and cables on the existing tower at one hundred fifty four (154) feet (“RAD center”) as more particularly detailed and described on the enclosed Construction Drawings. The overall height of the existing tower will remain at 300 feet and no changes will be made to the compound dimensions.

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This letter is intended to serve as the required notice to the chief elected official of the municipality. As required by Regulations of Connecticut State Agencies (“RCSA”) 16-50j-73 the Connecticut Siting Council (“CSC”) has been notified of this proposal and will review this application. Please accept this letter as notification pursuant to RCSA 16-50j-73.

The enclosed letter and attachments to the CSC fully describe Dish’s proposal for the site. However, if you have any questions or require any additional information concerning our plans or the CSC procedures, please contact me at 443-677-0144 or contact Melanie Bachmann, Executive Director of the CSC at 860-972-2935.

Respectfully Submitted,

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Jack Andrews
Zoning Manager
Centerline Communications obo Dish

Enclosures

Jack Andrews, Zoning Manager 10130 Donleigh Drive, Columbia, MD 21046 (443) 677-0144
Centerline Communications • 750 W Center Street, Suite 301, W Bridgewater, MA 02379



February 6, 2023

Dave Cooper
Project Manager, Site Development
American Tower Corporation
10 Presidential Way
Woburn, MA 01801

Re: Tower Share Application – Dish Site 13710333
Dish Wireless Telecommunications Facility @ 168 Catoona Lane, Stamford, CT 06902
TS-DISH-135-220523

Dear Mr. Cooper:

Dish proposes to install a five (5) foot by seven (7) foot metal platform within the existing fenced compound and install three (3) antennas, three (3) antenna mounts, six (6) RRUs, and cables on the existing tower at one hundred fifty four (154) feet (“RAD center”) as more particularly detailed and described on the enclosed Construction Drawings. The overall height of the existing tower will remain at 300 feet and no changes will be made to the compound dimensions.

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This letter is intended to serve as the required notice to both the tower owner and the property owner. As required by Regulations of Connecticut State Agencies (“RCSA”) 16-50j-73 the Connecticut Siting Council (“CSC”) has been notified of this proposal and will review this application. Please accept this letter as notification pursuant to RSCA 16-50j-73.

The enclosed letter and attachments to the CSC fully describe Dish’s proposal for the site. However, if you have any questions or require any additional information concerning our plans or the CSC procedures, please contact me at 443-677-0144 or contact Melanie Bachmann, Executive Director of the CSC at 860-972-2935.

Respectfully Submitted,

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Jack Andrews
Zoning Manager

Centerline Communications obo Dish

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