STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

IN RE:	:	
	:	
A PETITION FOR A DECLARATORY	:	PETITION NO. ____
RULING ON THE NEED TO OBTAIN A	:	
SITING COUNCIL CERTIFICATE FOR THE	:	
PROPOSED MODIFICATION OF AN	:	
EXISTING WIRELESS	:	
TELECOMMUNICATIONS FACILITY AT	:	
181 CLAPBOARD RIDGE ROAD,	:	JUNE 21, 2022
DANBURY, CONNECTICUT		

PETITION FOR A DECLARATORY RULING:
INSTALLATION HAVING NO
SUBSTANTIAL ADVERSE ENVIRONMENTAL EFFECT

I. Introduction

Pursuant to Sections 16-50j-38 and 16-50j-39 of the Regulations of Connecticut State Agencies ("R.C.S.A."), DISH Wireless, LLC ("DISH") hereby petitions the Connecticut Siting Council (the "Council") for a declaratory ruling ("Petition") that no Certificate of Environmental Compatibility and Public Need ("Certificate") is required under Section 16-50k(a) of the Connecticut General Statutes ("C.G.S.") for the modification of an existing wireless telecommunications facility at 181 Clapboard Ridge Road in Danbury, Connecticut (the "Existing Facility").

II. Existing Facility

The Existing Facility is located on an approximately 2.5-acre parcel that is the site of the St Ann Melkite Catholic Church and is owned by the Diocese of Newtown for the Melkites in the USA. The Facility consists of an 83-foot flagpole tower and associated compound, which is owned by Crown Castle, and currently includes the telecommunications equipment of other wireless carriers. **Attachment 1** contains the owner's authorization permitting DISH to file this Petition. The Facility was originally approved by the City of Danbury Planning Commission on March 5, 2002, as documented in **Attachment 2**.

III. DISH Facility

DISH's proposed facility is illustrated on the plans submitted as **Attachment 3**. DISH proposes the shared use of the Existing Facility to provide FCC licensed services. DISH will install three (3) 600/1900 MHz 5G antennas within a concealment shroud at the centerline height of approximately 68' AGL.

DISH has confirmed that the Existing Facility is capable of supporting the addition of DISH's antennas and tower mounted equipment, as documented in the tower Structural Analysis Report annexed hereto as **Attachment 4**.

DISH's 5' x 7' lease area is located to the West of the tower and adjacent to the existing fenced compound. In order to fully enclose its ground equipment, DISH will install a 9'-0" x 4'-6" fence extension and a 3-foot access gate. The new section of fence will match the existing compound fence. Within its lease area, DISH will install a 5' x 7' steel platform for its ground equipment, supported by four (4) 12" x 12" footpads at grade.

Installation of DISH's facility will cost approximately $48,000 and will take approximately two (2) weeks to complete. Construction will occur during normal business hours, or as allowed by the tower and/or property owner.

IV. The Proposed Modification Will Not Have A Substantial Adverse Environmental Effect

1. Physical Environmental Effects

The attachment of DISH's antennas to the existing tower, and the installation of radio and electrical equipment within the expanded compound will not involve a significant alteration to the physical and environmental characteristics of the Property. No native trees will need to be removed and no on-site or off-site wetlands or watercourses will be impacted by the proposed facility expansion.

2. Visual Effects

Given the height of the existing tower, 83' AGL, which has existing antennas at multiple levels, DISH's proposed antenna installation at a centerline height of approximately 68' AGL would have a minimal visual impact. The proposed compound expansion will impact only a portion of the existing fenced perimeter and will also have a minimal visual impact.

3. FCC Compliance

Radio frequency ("RF") emissions resulting from DISH's shared use of the Existing Facility will be well below the standards adopted by the Federal Communications Commission ("FCC"). Included in **Attachment 5** is a Radio Frequency Emissions Analysis Report prepared by EBI Consulting. This report confirms that the modified facility will operate well within the RF emission standards established by the FCC.

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

On June 21, 2022, a copy of this Petition was sent to Mayor Dean Esposito and Sharon Calitro, Director of Planning & Zoning for the City of Danbury. A notice of DISH's intent to file this Petition was also sent to the owners of land that may be considered to abut the Property. Included in **Attachment 6** is a sample abutter's letter and the list of those abutting landowners who were sent notice.

VI. Conclusion

Based on the information provided above, the Petitioners respectfully requests that the Council issue a determination in the form of a declaratory ruling that the installation of a temporary tower at the Property will not have a substantial adverse environmental effect and does not require the issuance of a Certificate of Environmental Compatibility and Public Need pursuant to § 16-50k of the General Statutes.

Respectfully submitted,

Denise Sabo
Northeast Site Solutions
Agent for DISH Wireless
(860) 209-4690
denise@northeastsitesolutions.com

Attachments

Cc Mayor Dean Esposito
Danbury City Hall
155 Deer Hill Ave.
Danbury, CT 06810

Sharon Calitro, Director of Planning & Zoning
Danbury City Hall
155 Deer Hill Ave.
Danbury, CT 06810

Diocese of Newtown for the Melkites in the US of America Inc.- Property Owner
181 Clapboard Ridge Road
Danbury, CT 06811

Crown Atlantic Company – Tower Owner

ATTACHMENT 1

6325 Ardrey Kell Rd, Suite 600
Charlotte, NC 28277

Phone:
www.crowncastle.com

Crown Castle Letter of Authorization

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

Re: Tower Share Application
Crown Castle telecommunications site at:
181 CLAPBOARD RIDGE ROAD, DANBURY, CT 06811

T-MOBILE USA TOWER LLC ("Crown Castle") hereby authorizes DISH NETWORK, including their Agent, to act as our Agent in the processing of all zoning applications, building permits and approvals through the CT - CONNECTICUT SITING COUNCIL for the existing wireless communications site described below:

Crown Site ID/Name:	**823630/Danbury North / Rt 37**
Customer Site ID:	**NJJER01141A/CT-CCI-T-823630**
Site Address:	**181 Clapboard Ridge Road, Danbury, CT 06811**

Crown Castle

By: _____ Date: 04/07/2022

Robin Cannizzaro
Real Estate Specialist

179-183 CLAPBOARD RIDGE RD

Location	179-183 CLAPBOARD RIDGE RD	**Mblu**	E07/ / 93/ /
		Acct#	
Owner	DIOCESE OF NEWTON FOR THE	**Assessment**	$1,861,500
		Appraisal	$2,659,200
PID	24209	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$1,709,200	$950,000	$2,659,200
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$1,196,500	$665,000	$1,861,500

Owner of Record

Owner	DIOCESE OF NEWTON FOR THE	**Sale Price**	$0
Co-Owner	MELKITES IN THE US OF AMER INC	**Book & Page**	0992/0615
Address	181 CLAPBOARD RIDGE RD DANBURY, CT 06811	**Sale Date**	10/28/1991

Ownership History

Ownership History			
Owner	**Sale Price**	**Book & Page**	**Sale Date**
DIOCESE OF NEWTON FOR THE	$0	0992/0615	10/28/1991

Building Information

Building 1 : Section 1

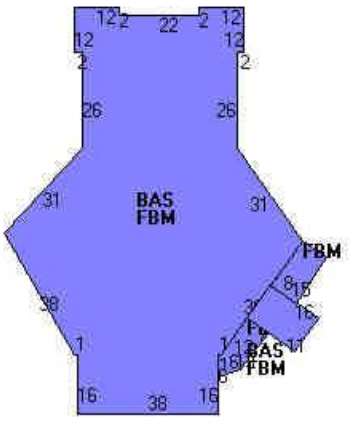
Year Built:	1991
Living Area:	9,413
Replacement Cost:	$2,061,961
Building Percent Good:	81
Replacement Cost Less Depreciation:	$1,670,200

Building Attributes	
Field	**Description**
STYLE	Churches
MODEL	Ind/Comm
Grade	Excellent
Stories:	1
Occupancy	1
Exterior Wall 1	Brick/Masonry
Exterior Wall 2	
Roof Structure	Wood Truss
Roof Cover	Asphalt Shngl.
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Ceram Clay Til
Interior Floor 2	Carpet
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Central
Bldg Use	Commercial MDL-96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	200I
Heat/AC	HEAT/AC PKGS
Frame Type	STEEL
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	AVERAGE
Wall Height	24
% Comn Wall	0

Building Photo

(http://images.vgsi.com/photos2/DanburyCTPhotos//\00\02\66/49.jpg)

Building Layout



(http://images.vgsi.com/photos2/DanburyCTPhotos//Sketches/24209_2420

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	5,799	5,799
FBM	Basement Finished	6,024	3,614
		11,823	9,413

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code 918

Land Line Valuation

Size (Acres) 2.47

Description	Church	**Frontage**	0
Zone		**Depth**	0
Neighborhood	5000	**Assessed Value**	$665,000
Alt Land Appr	No	**Appraised Value**	$950,000
Category			

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
PAV1	Paving-Asphalt			30000 S.F.	$37,800	1
SHD1	Shed-Avg			96 S.F.	$800	1
LT2	Light 2			2 UNITS	$400	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$1,709,200	$950,000	$2,659,200
2018	$1,709,200	$950,000	$2,659,200
2017	$1,709,200	$950,000	$2,659,200

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$1,196,500	$665,000	$1,861,500
2018	$1,196,500	$665,000	$1,861,500
2017	$1,196,500	$665,000	$1,861,500

181 CLAPBOARD RIDGE RD

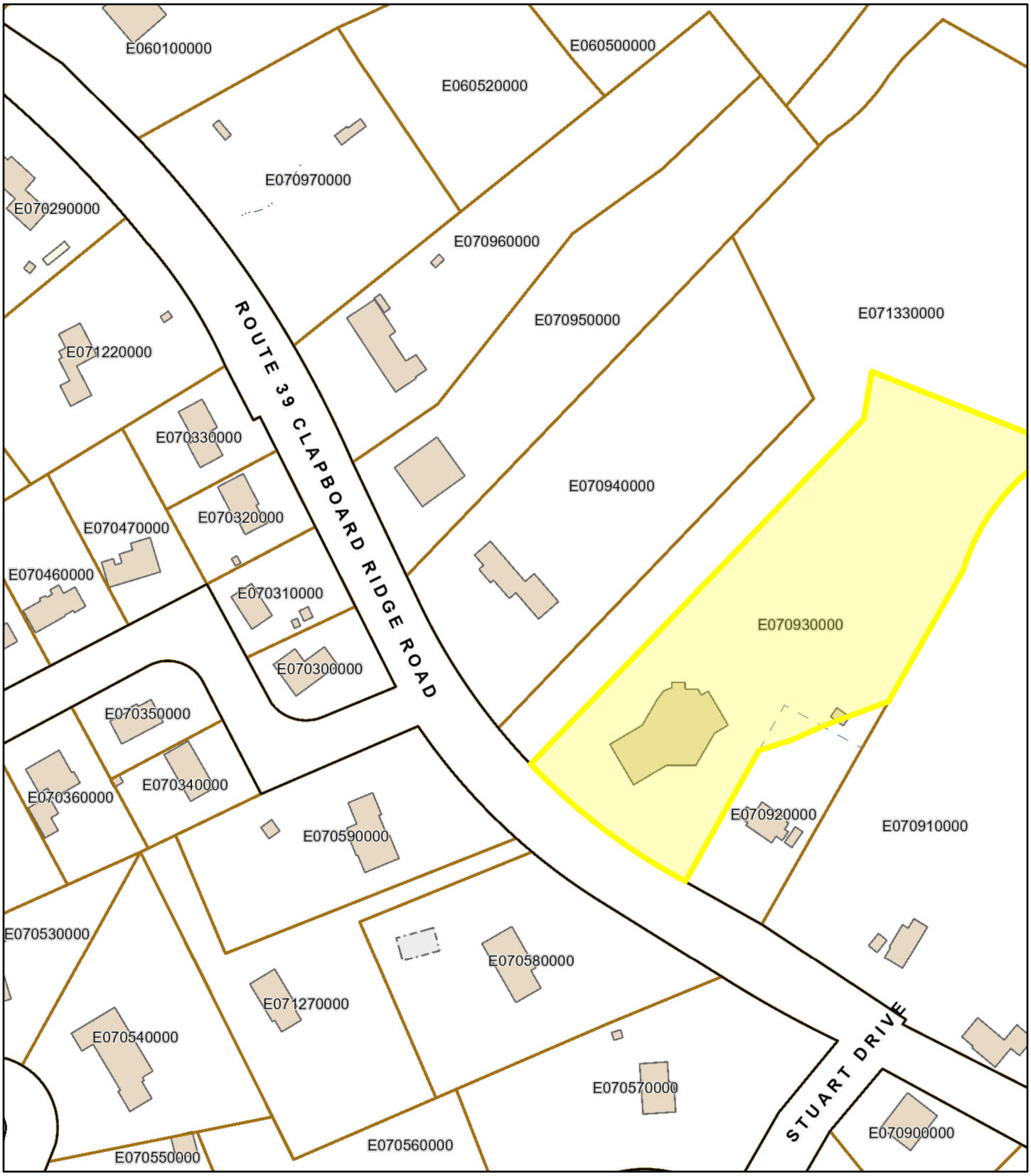
Danbury, CT

1 inch = 141 Feet

0 141 282 423

June 20, 2022

CAI Technologies
Precision Mapping. Geospatial Solutions.
www.cai-tech.com



ATTACHMENT 2

VOL 1485 PAGE 0449

CITY OF DANBURY

155 DEER HILL AVENUE
DANBURY, CONNECTICUT 06810

PLANNING COMMISSION
CITY OF DANBURY
CERTIFIED COPY OF GRANT OF SPECIAL EXCEPTION

APPLICANT – Omnipoint Communications

RECORD HOLDER OF TITLE – Diocese of Newton for the Melkites in the USA (St. Ann's Church)

LEGAL DESCRIPTION OF PREMISES - SEE ATTACHED

NATURE OF SPECIAL EXCEPTION – Application for Special Exception to allow Wireless Communication Facility in the RA-80 Zone - 181 Clapboard Ridge Rd. (#E09073 &#07133) subject to the attached Court Stipulation dated March 5, 2002, signed by Planning Commission Chairman on March 25, 2002.

SECTION OF CITY OF DANBURY ZONING ORDINANCE UNDER WHICH THIS SPECIAL EXCEPTION IS GRANTED: 3.E.6.

THE EFFECTIVE DATE OF THE SPECIAL EXCEPTION IS THE DATE ON WHICH THE APPLICANT FILES THIS CERTIFIED COPY OF GRANT OF SPECIAL EXCEPTION ON THE LAND RECORDS OF THE CITY OF DANBURY.

I hereby certify that the foregoing constitutes a true copy of the Special Exception **(SE #571)** granted by the Planning Commission of the City of Danbury per the attached Court Stipulation of Settlement dated March 5, 2002 and signed and approved by Planning Commission on March 25, 2002.

JoAnne V. Read, Secretary to the
PLANNING COMMISSION - CITY OF DANBURY

Attachments

EXHIBIT A VOL 1485 PAGE 0450

DESCRIPTION OF PROPERTY

Forming a part of the Agreement by and between **DIOCESE OF NEWTON FOR THE MELKITES IN THE UNITED STATES**, as Lessor, and **OMNIPOINT COMMUNICATIONS, INC.**, as Lessee.

The Property is described and/or depicted as follows:

Site Address: 181 Clapboard Ridge Road
Danbury, CT 06811

Section E07, Block 1, Lot 33

ALL THAT CERTAIN piece or parcel of land, together with the improvements located thereon situate in the City of Danbury, County of Fairfield, and State of Connecticut, shown and designated as Parcel B-1 on that certain map entitled, "Subdivision Map Prepared for Saint Ann Melkite - Greek Catholic Church Clapboard Ridge Road - Conn. Route #39 Danbury, Connecticut Area - As Shown RA-80 Zone Scale 1" = 40' June 15, 1989 Rev. October 16, 1989 (Easements)" certified 'Substantially Correct' by David L. Ryan, Connecticut Land Surveyor, and which map is on file in the Office of the Danbury Town Clerk as Map No. 9358.

Being the same premises described in that certain Warranty Deed from Scott Real Estate, Inc. to Diocese of Newton for the Melkites in the United States, Inc. dated December 24, 1987, and recorded December 24, 1987, in the Office of the Danbury Town Clerk. (A Portion)

VOL 1485 PAGE 0451

DOCKET NO. CV 01 0341337 S	SUPERIOR COURT
OMNIPOINT COMMUNICATIONS, INC.	J.D. OF DANBURY
VS.	AT DANBURY
PLANNING COMMISSION OF THE CITY OF DANBURY	March 25th, 2002

STIPULATION

This Stipulation is made this 25th day of March, 2002, by and between the plaintiff Omnipoint Communications, Inc., a Delaware corporation with a principal place of business in Connecticut located at 100 Filley Street, Bloomfield, Connecticut (hereinafter, "Omnipoint"), and the defendant, the Planning Commission of the City of Danbury, an agency of the City of Danbury organized and existing under and pursuant to the laws of the State of Connecticut and the Charter of the City of Danbury, with an office located at 155 Deer Hill Avenue, Danbury, Connecticut 06810 (hereinafter, the "Commission").

WITNESSETH:

1. In July, 2000, Omnipoint made application to the Commission for a special exception, special permit and resubdivision to allow it to construct a personal wireless services facility at 181 Clapboard Ridge Road, Danbury, Connecticut.

2. On December 6, 2000, the Commission denied the applications.

3. Omnipoint appealed that decision to the Superior Court, in an action entitled *Omnipoint Communications v. Planning Commission of the City of Danbury*, now

pending in the Superior Court, judicial district of Danbury at Danbury, as docket no. CV 01 0341337 S.

4. Omnipoint further commenced an action in federal court, entitled *Omnipoint Communications v. Planning Commission of the City of Danbury*, now pending in the United States District Court for the District of Connecticut, as civil action no. 3:01cv00017 (SRU).

5. Omnipoint has since submitted supplemental information to the Commission that satisfies the Commission's concerns as expressed in its denial of the applications.

6. On February 6, 2002, the Commission held a public hearing on whether to resolve this matter through the approval of this Stipulation, and concluded that the supplemental information submitted by Omnipoint would justify an approval of the applications.

7. Omnipoint and the Commission desire to resolve this action and the federal action without further litigation, to avoid the expense and delay associated with continuing the litigation.

NOW THEREFORE, for good and valuable consideration, and for the mutual promises and covenants contained herein, Omnipoint and the Commission stipulate as follows:

1. Omnipoint and the Commission will jointly move the Superior Court to enter a judgment in accordance with this stipulation.

2. The Superior Court may enter a judgment sustaining Omnipoint's appeal from the Commission's denial, and may order that the applications for site plan, for special exception, and for resubdivision may be approved in accordance with the plans submitted to the Commission during the February 6, 2002 public hearing, and as attached hereto as Exhibit A.

3. Upon entering of such judgment by the Superior Court, Omnipoint and the Commission will jointly file a stipulation for dismissal, with prejudice, in the federal action.

4. Each party is to bear its own costs and attorneys fees associated with both the state and federal litigation.

5. This Stipulation has been approved by the Commission after hearing, notice of which was published in the Danbury News-Times, and notice of such approval will be published in the Danbury News-Times.

In witness whereof, the parties hereto have hereunder set their hands and seals.

Omnipoint Communications, Inc.

By: _____
Michael Fulton
Technical Director, duly authorized
This 22 day of March, 2002

Planning Commission of the City of Danbury

By: _____
Joseph Justino
Its Chair, duly authorized
This 25 day of March, 2002

BPRT/59123.3/PSO/417229v1

Received for Record
at 1:20 P. M.
NOV 22 2002
Attest: Michael R Sca
Danbury Town Clerk

ATTACHMENT 3

DISH Wireless L.L.C. SITE ID:

NJJER01141A

DISH Wireless L.L.C. SITE ADDRESS:

181 CLAPBOARD RIDGE RD
DANBURY, CT 06811

CONNECTICUT CODE OF 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

SHEET INDEX

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 (2) PROPOSED ANTENNA FLUSH MOUNTS
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
- INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
- INSTALL (1) PROPOSED 7/8 COAX CABLES
- INSTALL (1) PROPOSED COMMSCOPE CDX623T DIPLEXERS
- INSTALL (1) PROPOSED KAELUS BIAS-T

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 FIBER NID (IF REQUIRED)
- INSTALL (1) PROPOSED METER SOCKET

SITE PHOTO

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

811

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.

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:	DIOCESE OF NEWTON FOR THE MELKITES IN THE USA INC
ADDRESS:	181 CLAPBOARD RIDGE RD DANBURY, CT 06811
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	823630
TOWER APP NUMBER:	548694
COUNTY:	FAIRFIELD
LATITUDE (NAD 83):	41° 25' 59.47" N 41.433185 N
LONGITUDE (NAD 83):	73° 29' 32.76" W 73.492434 W
ZONING JURISDICTION:	CITY OF DANBURY
ZONING DISTRICT:	CN-20
PARCEL NUMBER:	E070930000
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	EVERSOURCE (F/K/A CONNECTICUT LIGHT & POWER)
TELEPHONE COMPANY:	LIGHTOWER

PROJECT DIRECTORY

APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317 (877) 486 - 9377
SITE DESIGNER:	KMB DESIGN GROUP 1800 ROUTE 34, SUITE 209 WALL, NJ 07719 (732) 280-5623
SITE ACQUISITION:	WILLIAM SNIDER william.snider@crowncastle.com
CONSTRUCTION MANAGER:	MIKE NARDUCCI mike.narducci@dish.com
RF ENGINEER:	MURUGABIRAN JAYAPAL murugabiran.jayapal@dish.com

DIRECTIONS

DIRECTIONS FROM 3 ADP BOULEVARD ROSELAND, NJ 07068:

GET ON I-280 E FROM LIVINGSTON AVE, HEAD NORTHEAST ON ADP BLVD TOWARD CHOCTAW WAY, TURN RIGHT ONTO CHOCTAW WAY, USE THE LEFT LANE TO TURN RIGHT ONTO LIVINGSTON AVE, USE THE RIGHT LANE TO TAKE THE RAMP ONTO I-280 E, MERGE WITH I-280 E, TAKE EXIT 12 TOWARD ORATON PKWY, KEEP LEFT, FOLLOW SIGNS FOR GARDEN STATE PARKWAY AND MERGE ONTO GARDEN STATE PKWY, CONTINUE ONTO NJ-444 N/GARDEN STATE PKWY, CONTINUE ONTO GARDEN STATE PARKWAY CONNECTOR, TAKE EXIT 14-1 TO MERGE WITH I-287 E/I-87 S, KEEP LEFT AT THE Y JUNCTION TO CONTINUE ON I-287 E, FOLLOW SIGNS FOR WHITE PLAINS/RYE, TAKE EXIT 9A TO MERGE WITH I-684 N TOWARD BREWSTER, CONTINUE ONTO NY-22 N, TURN RIGHT ONTO MILLTOWN RD, TURN RIGHT ONTO CT-39 S DRIVE UPTO 2.2 MILES THEN THE DESTINATION WILL BE ON LEFT.

VICINITY MAP

NO SCALE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 6/9/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
AAB	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	02/21/2022	ISSUED FOR PERMIT FILLING
1	03/16/2022	REVISED PER CLIENT COMMENMT
2	06/08/2022	REVISED PER CLIENT COMMENMT

A&E PROJECT NUMBER

336.4012.AI0

DISH Wireless L.L.C.
PROJECT INFORMATION

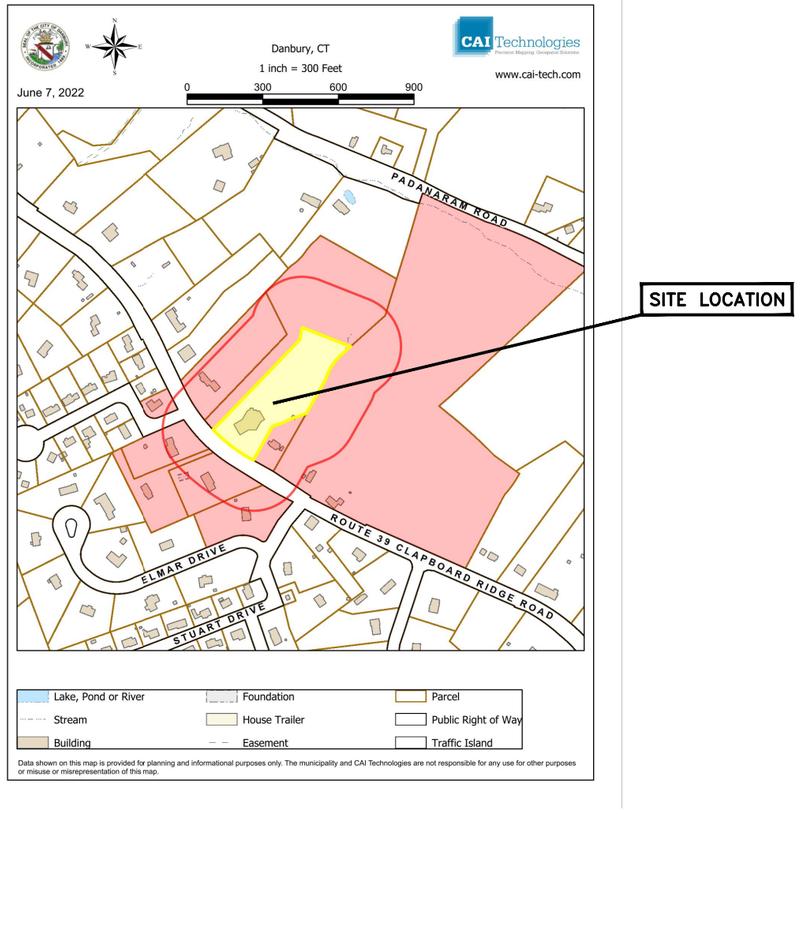
NJJER01141A
181 CLAPBOARD RIDGE RD
DANBURY, CT 06811

SHEET TITLE

TITLE SHEET

SHEET NUMBER

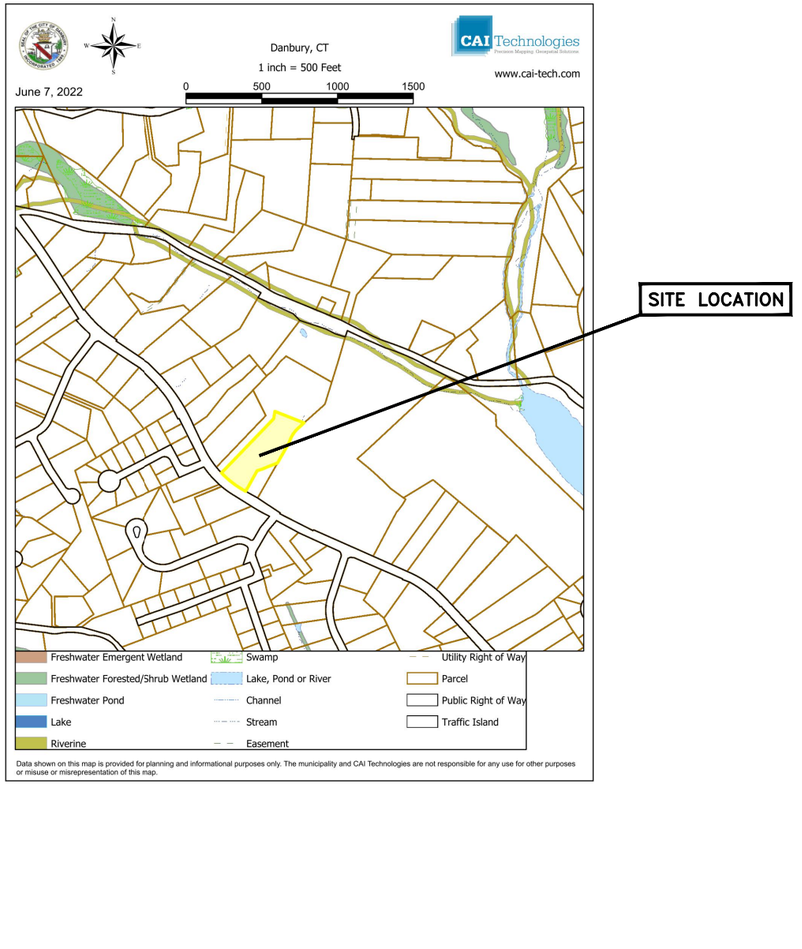
T-1



200 FT ABUTTERS MAP

300' 150' 0 300' 600'
1"=300'

1



WETLANDS MAP

500' 250' 0 500' 1000'
1"=500'

2

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

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 6/9/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
AAB	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

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A&E PROJECT NUMBER
336.4012.AI0

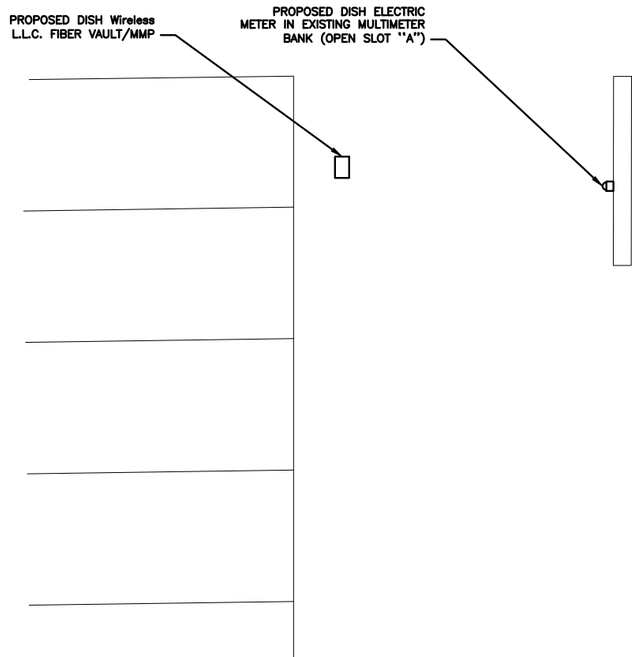
DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER01141A
181 CLAPBOARD RIDGE RD
DANBURY, CT 06811

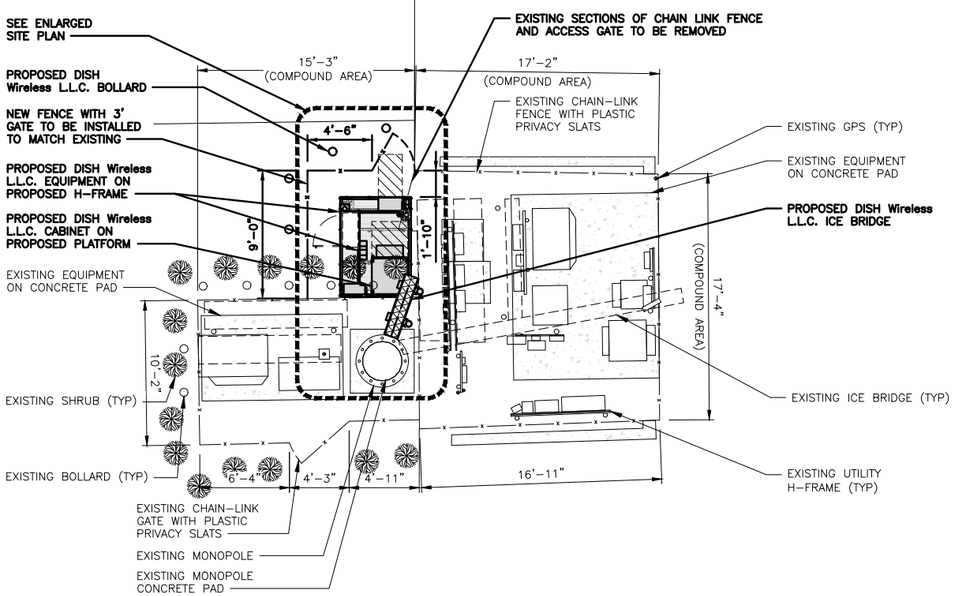
SHEET TITLE
200 FT ABUTTERS MAP AND WETLANDS MAP

SHEET NUMBER
T-2

NOTES

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





1
A-2

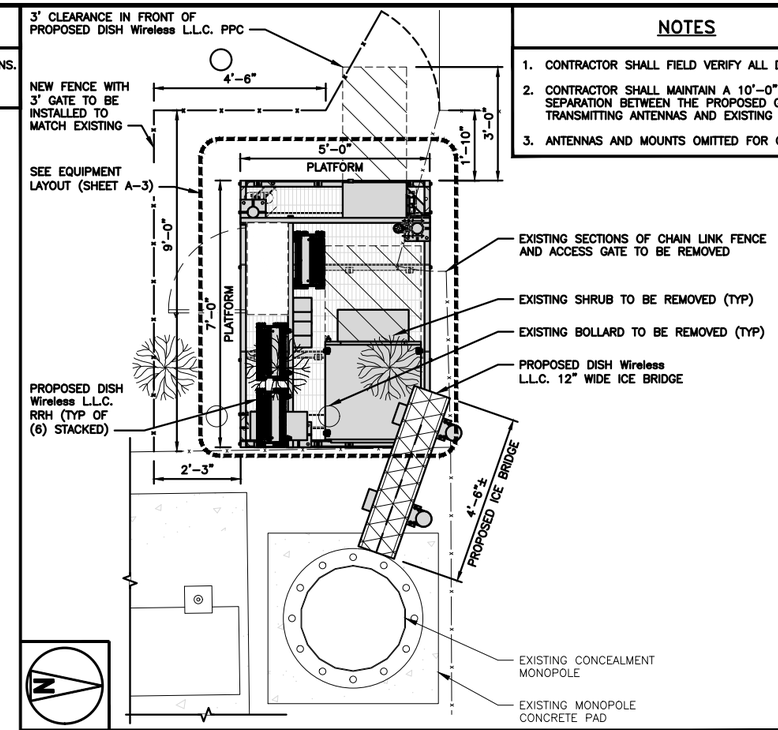
COMPOUND SITE PLAN

6' 4' 2' 0 5' 10'
3/16"=1'-0"

1

NOTES

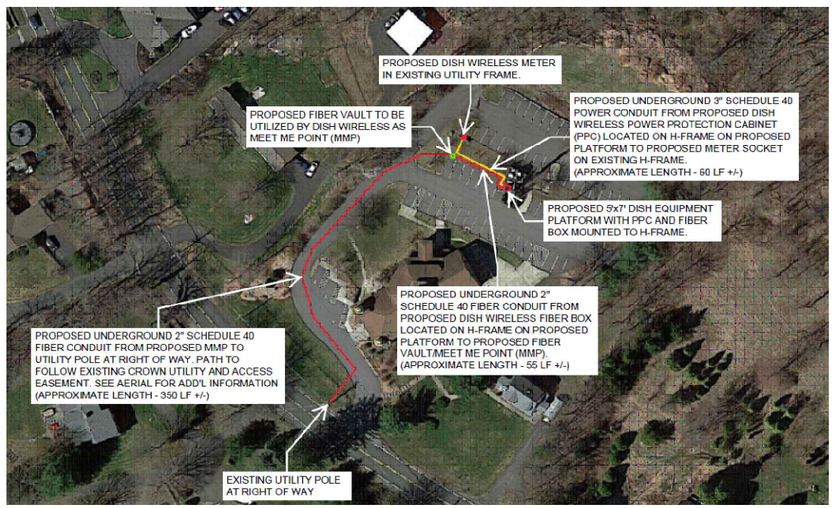
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



ENLARGED SITE PLAN

12" 6" 0 1' 2' 3' 4' 5'
1/2"=1'-0"

2



OVERALL SITE PLAN

NO SCALE

3

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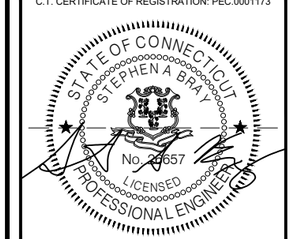
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173



Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 6/9/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
AAB	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	02/21/2022	ISSUED FOR PERMIT FILLING
1	03/16/2022	REVISED PER CLIENT COMMEMNT
2	06/08/2022	REVISED PER CLIENT COMMEMNT

A&E PROJECT NUMBER

336.4012.AI0

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01141A

181 CLAPBOARD RIDGE RD
DANBURY, CT 06811

SHEET TITLE

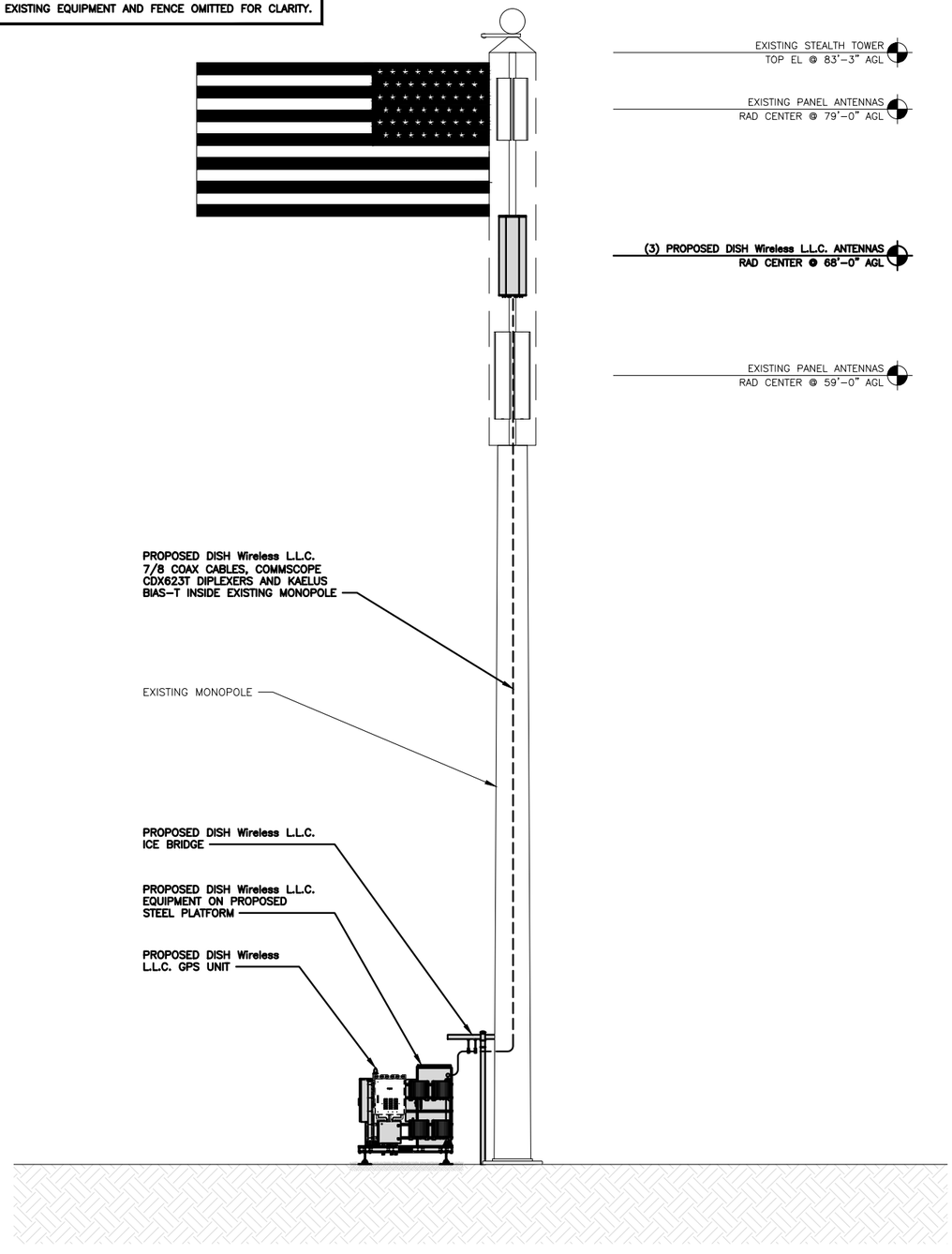
OVERALL, COMPOUND AND ENLARGED SITE PLANS

SHEET NUMBER

A-1

NOTES

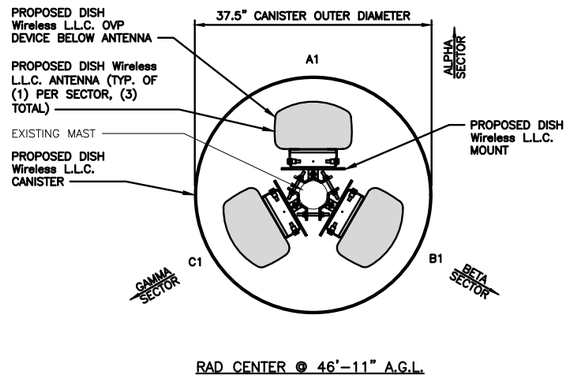
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED NORTH ELEVATION

6' 4' 2' 0 5' 10'
3/16"=1'-0"

1



RAD CENTER @ 46'-11" A.G.L.

ANTENNA LAYOUT

12" 9" 6" 3" 0 1' 2'
1"=1'-0"

2

SECTOR POS.	ANTENNA					TRANSMISSION CABLE	RRH			OVP
	EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECH	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH	MANUFACTURER – MODEL NUMBER	TECH	POS.	MANUFACTURER MODEL
A1	--	--	--	--	--	(1) 7/8 COAX CABLES, COMMSCOPE CDX623T DIPLEXERS AND KAELUS BIAS-T (85' LONG)	FUJITSU – TA08025-B605	5G	A2	RAYCAP RDIDC-9181-PF-48
A2	PROPOSED	COMMSCOPE – FVV-65B-R3	5G	0°	68'-0"		FUJITSU – TA08025-B604	5G	A2	
A3	--	--	--	--	--		--	--	--	
B1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU – TA08025-B605	5G	B2	SHARED W/ALPHA
B2	PROPOSED	COMMSCOPE – FVV-65B-R3	5G	120°	68'-0"		FUJITSU – TA08025-B604	5G	B2	
B3	--	--	--	--	--		--	--	--	
C1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU – TA08025-B605	5G	C2	SHARED W/ALPHA
C2	PROPOSED	COMMSCOPE – FVV-65B-R3	5G	240°	68'-0"		FUJITSU – TA08025-B604	5G	C2	
C3	--	--	--	--	--		--	--	--	

NOTES

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.

ANTENNA SCHEDULE

NO SCALE

3

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LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
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(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 6/9/22

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

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A&E PROJECT NUMBER

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DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01141A

181 CLAPBOARD RIDGE RD
DANBURY, CT 06811

SHEET TITLE

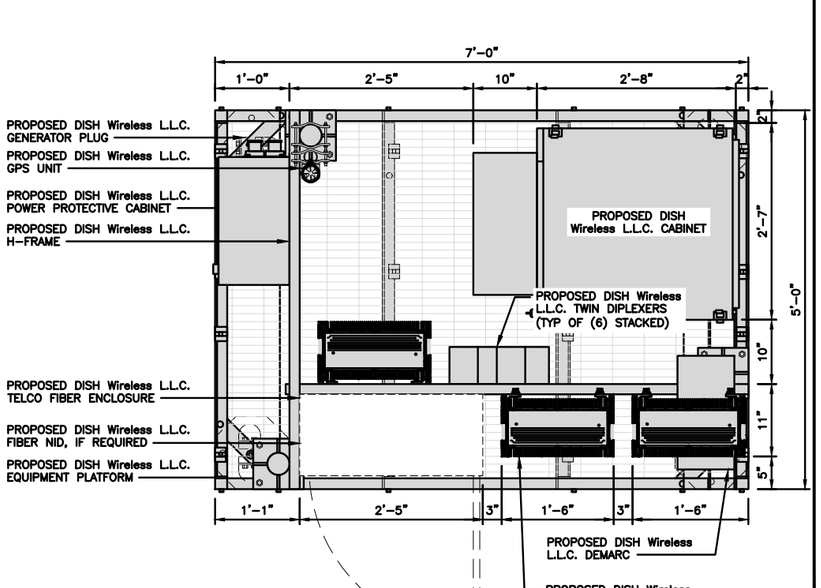
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

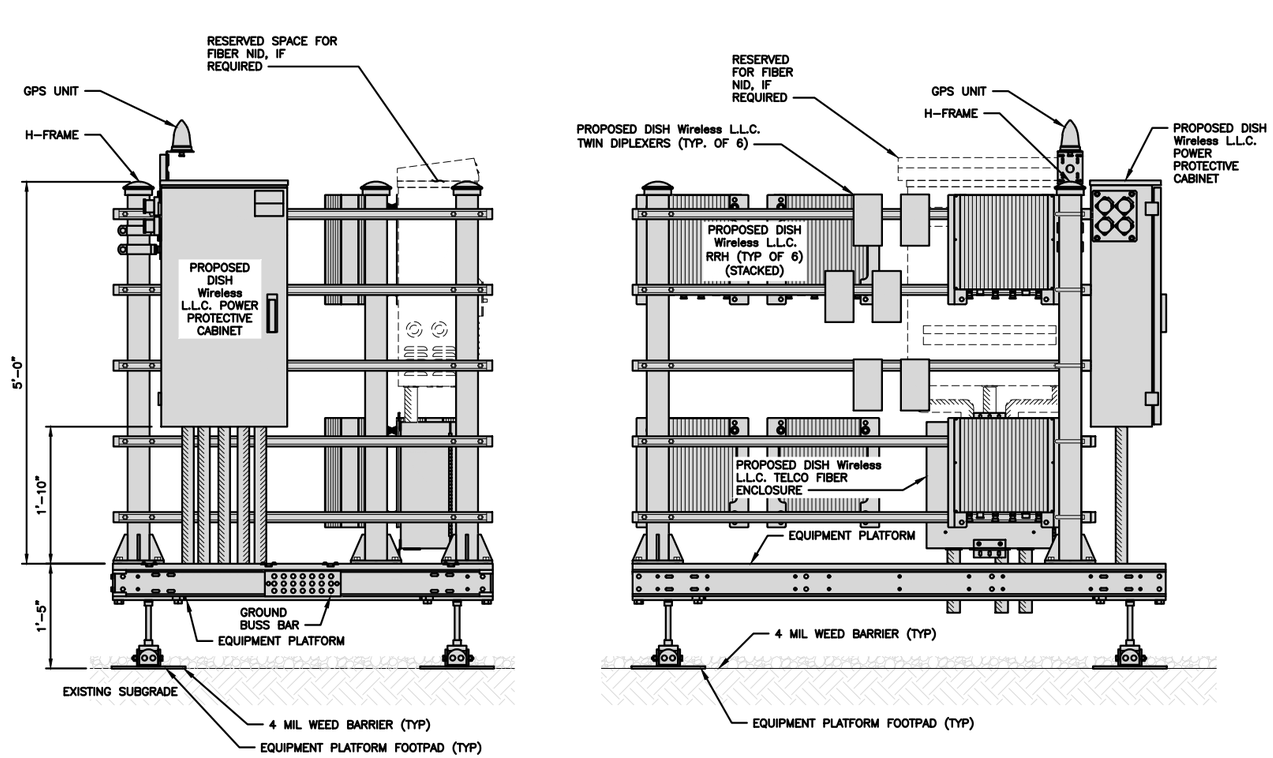
A-2

NOTES

1. CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE
2. 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)
3. EQUIPMENT CABINET OMITTED FOR CLARITY.



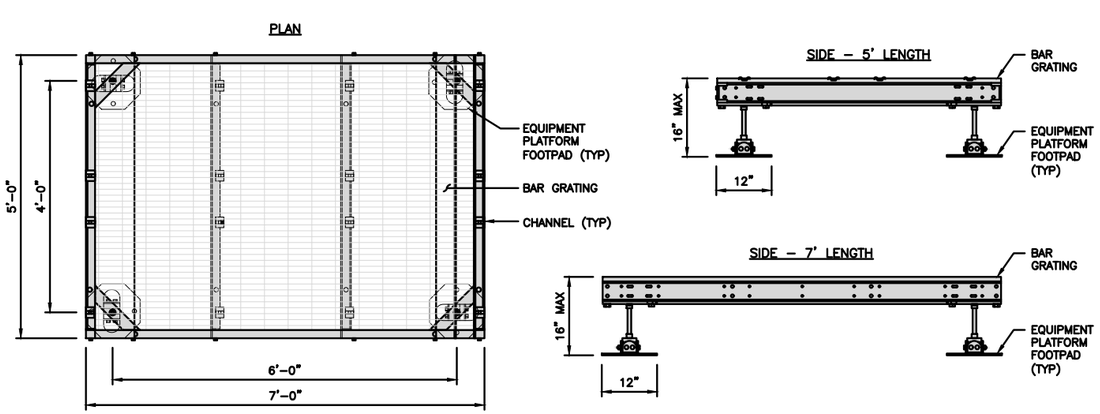
PLATFORM EQUIPMENT PLAN | NO SCALE | 1



H-FRAME EQUIPMENT ELEVATION | NO SCALE | 2

COMMSCOPE MTC4045LP 5X7 PLATFORM	
DIMENSIONS (HxWxD)	16"x84"x60"
TOTAL WEIGHT	423 LBS

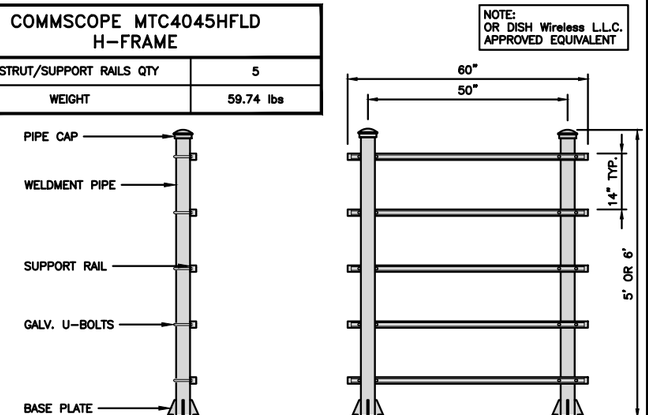
NOTE:
GC TO PROVIDE EXTENDED THREAD FOR PLATFORM IF REQUIRED HEIGHT EXCEEDS 17"



PLATFORM DETAIL | NO SCALE | 3

COMMSCOPE MTC4045HFLD H-FRAME	
UNISTRUT/SUPPORT RAILS QTY	5
WEIGHT	59.74 lbs

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



H-FRAME DETAIL | NO SCALE | 4

DISH Wireless L.L.C. TEMPLATE VERSION 48 - 12/31/2021

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kmbdg.com
1800 ROUTE 34, SUITE 209
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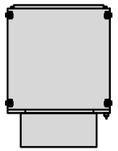
DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER01141A
181 CLAPBOARD RIDGE RD
DANBURY, CT 06811

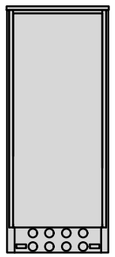
SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-3

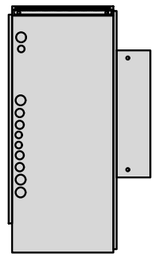
ENERSYS HEX 2000005996	
DIMENSIONS (HxWxD)	73"x30"x32"
POWER SYSTEM	-48V ALPHA/600A
HEATER	800W
TOTAL WEIGHT (EMPTY)	376 lbs



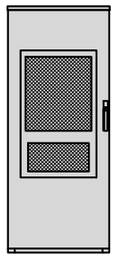
PLAN



BACK



SIDE

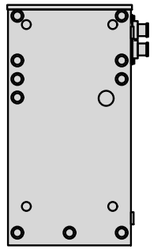


FRONT

CABINET DETAIL | NO SCALE | 1

RAYCAP PPC RDIAC-2465-P-240-MTS	
ENCLOSURE DIMENSIONS (HxWxD):	39"x22.855"x12.593
WEIGHT:	80 lbs
OPERATING AC VOLTAGE	240/120 1 PHASE 3W+G

TOP



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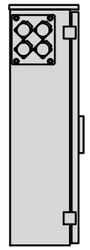
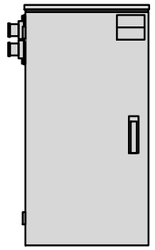


SIDE



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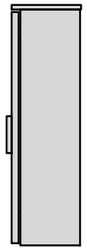
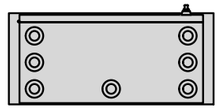


SIDE

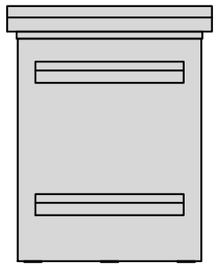
POWER PROTECTION CABINET (PPC) DETAIL | NO SCALE | 2

NOT USED | NO SCALE | 3

ZAYO 5RU (LEFT SWING DOOR) FIBER NID ENCLOSURE	
DIMENSIONS (HxWxD)	36.1"x29"x12.9"
WEIGHT	85 lbs



BOTTOM



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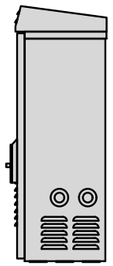
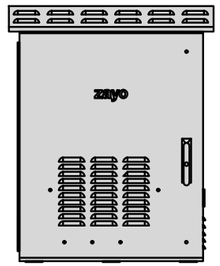


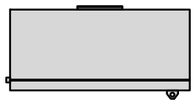
SIDE



FRONT

FIBER NID ENCLOSURE DETAIL | NO SCALE | 5

CHARLES CFIT-PF2020DSH1 FIBER TELCO ENCLOSURE	
ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4



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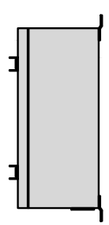

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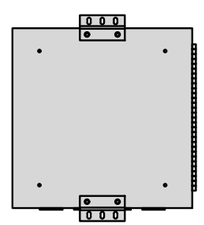

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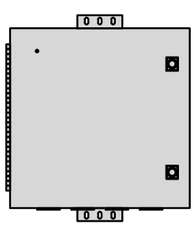


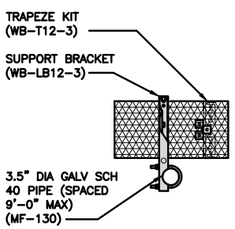
FRONT

FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

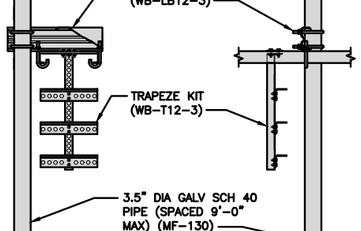
NOT USED | NO SCALE | 4

COMMSCOPE WB-K110-B WAVEGUIDE BRIDGE KIT	
DIMENSIONS (HxL)	160"x10'
WEIGHT/ VOLUME	325.0 LBS
CABLE RUN (QTY)	12

INCLUDED PRODUCTS:	WB-T12-3 TRAPEZE KIT, 3 RUNGS
	WB-LB12-3 SUPPORT BRACKET
	MF-130 DIRECT BURIAL PIPE COLUMN, 13'-4"

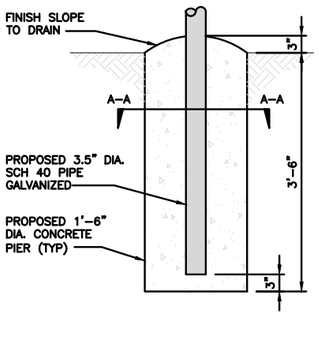


PLAN

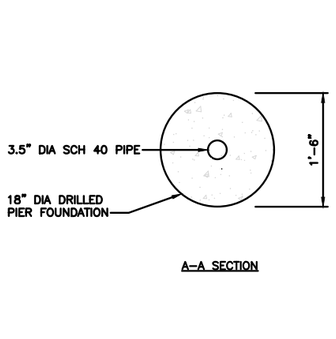


FRONT SIDE

ICE BRIDGE DETAIL | NO SCALE | 7

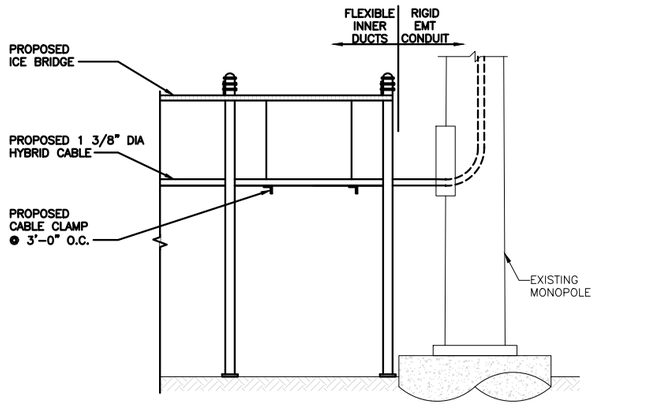


CONCRETE PIER



A-A SECTION

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

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5701 SOUTH SANTA FE DRIVE
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KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
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DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01141A

181 CLAPBOARD RIDGE RD
DANBURY, CT 06811

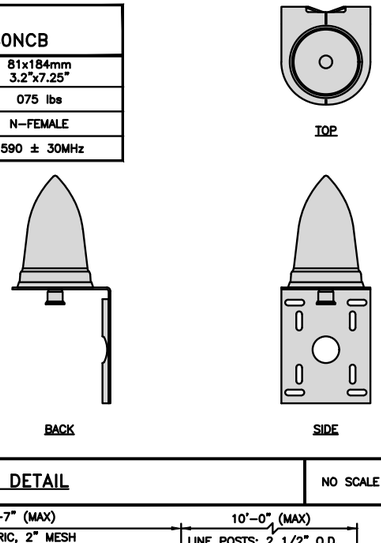
SHEET TITLE

EQUIPMENT DETAILS

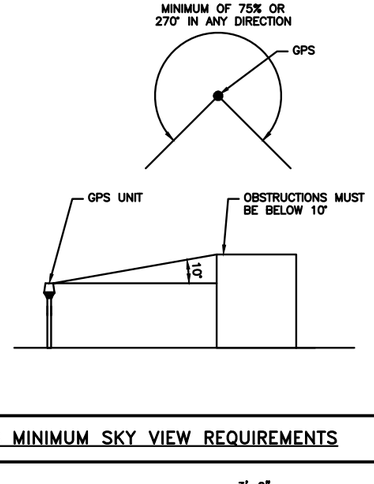
SHEET NUMBER

A-4

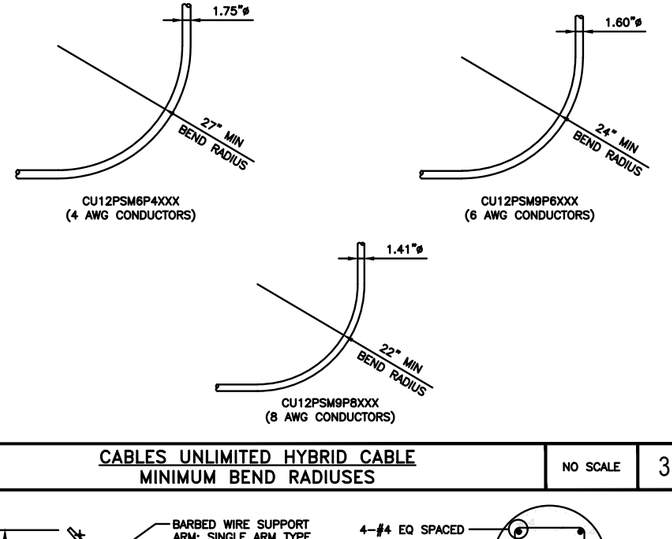
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



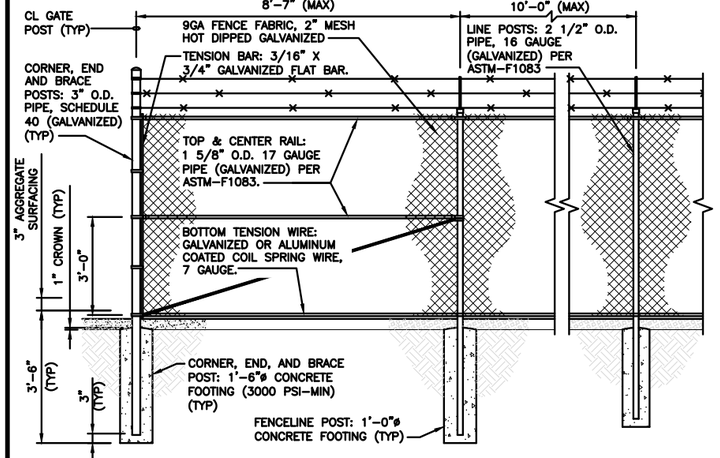
GPS DETAIL — NO SCALE — 1



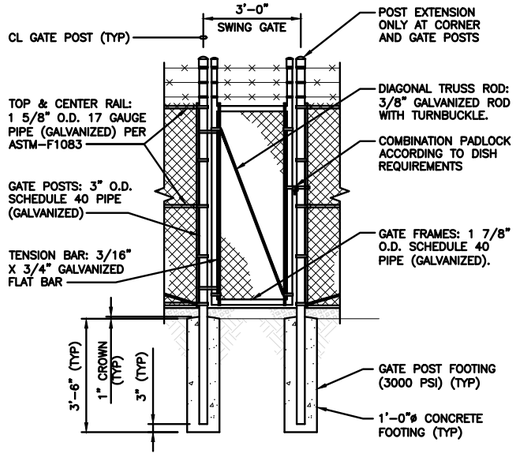
GPS MINIMUM SKY VIEW REQUIREMENTS — NO SCALE — 2



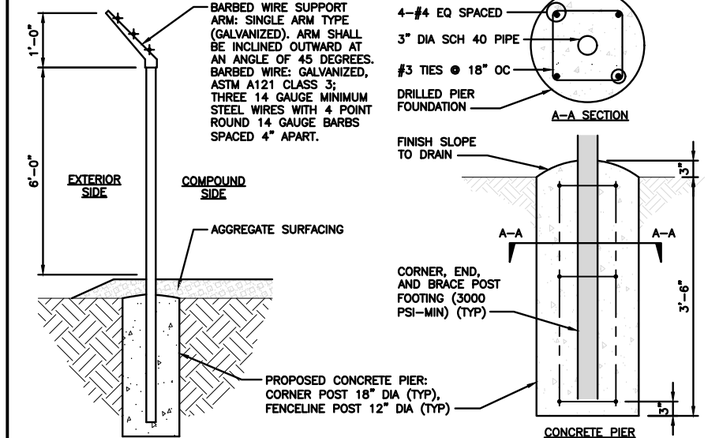
CABLES UNLIMITED HYBRID CABLE MINIMUM BEND RADIUSES — NO SCALE — 3



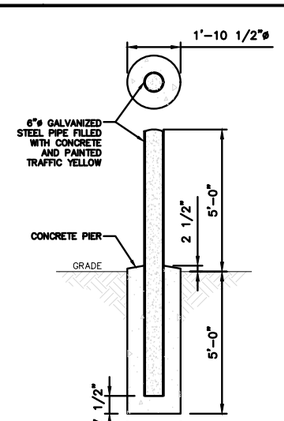
TYPICAL FENCE DETAIL — NO SCALE — 4



TYPICAL MAN-GATE ELEVATION DETAIL — NO SCALE — 5



TYPICAL FENCE & CONCRETE PIER SECTION — NO SCALE — 6



TYPICAL BOLLARD DETAIL — NO SCALE — 7

NOT USED — NO SCALE — 8

NOT USED — NO SCALE — 9

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5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 6/9/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
AAB	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

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A&E PROJECT NUMBER
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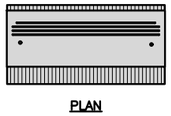
DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER01141A
181 CLAPBOARD RIDGE RD
DANBURY, CT 06811

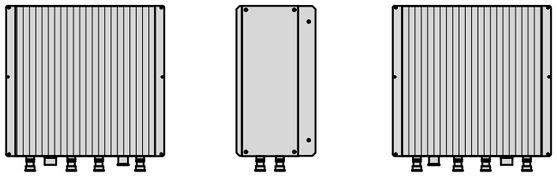
SHEET TITLE
EQUIPMENT DETAILS

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



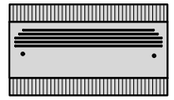
PLAN



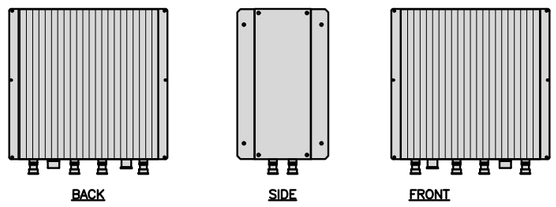
BACK SIDE FRONT

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

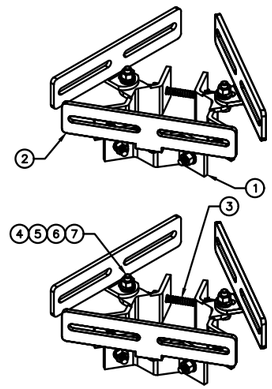


BACK SIDE FRONT

RRH DETAIL | NO SCALE | 2

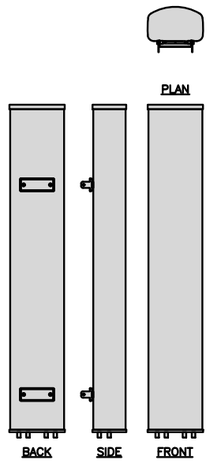
EEI FPS-AB TRIAD FLUH MOUNT	
DESCRIPTION	PART # - QTY
TRIAD-FPS - 1/4" BRACKET ASSEMBLY	PART 1 - QTY: 6
TRIAD-AB - 1/4" HRPO GUSSET ASSEMBLY	PART 2 - QTY: 6
3/8"x5-1/2" A36 THREADED ROD	PART 3 - QTY: 6
3/8"x1-1/4" A307 BOLT	PART 4 - QTY: 6
3/8" HEX NUT	PART 5 - QTY: 6
3/8" FLAT WASHER	PART 6 - QTY: 6
3/8" LOCK WASHER	PART 7 - QTY: 6
TOTAL WEIGHT	±8 lbs

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



MAST MOUNT DETAIL | NO SCALE | 3

COMMSCOPE FVV-65B-R3	
DIMENSIONS (HxWxD)(MM/IN)	1828x300x181 71.9"x11.8"x7.1"
RF CONNECTOR INTERFACE	4.3-10 FEMALE
WEIGHT	43.8 lbs
WEIGHT WITH BRACKETS	70.9 lbs



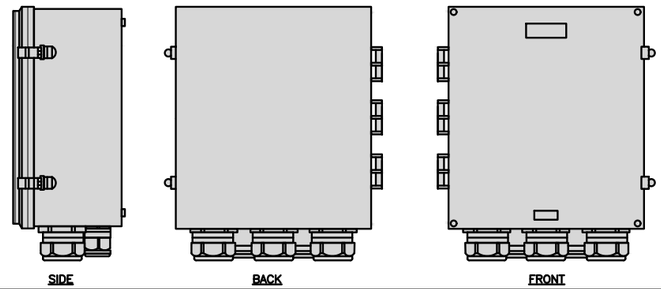
PLAN

BACK SIDE FRONT

ANTENNA DETAIL | NO SCALE | 4

RAYCAP RDIDC-6715-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	16"x14"x8"
WEIGHT	21.85 LBS

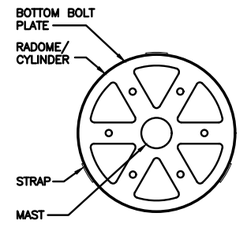
PLAN



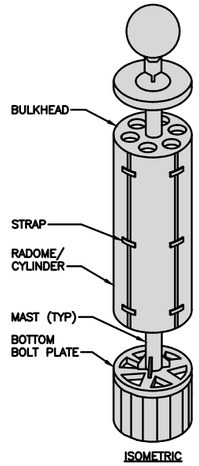
SIDE BACK FRONT

SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 5

RAYCAP STEALTH SMOOTH MULTI-PART	
RADOME OUTSIDE DIAMETERS	24"-60" DIA.
APPROX. MATERIAL THICKNESS	3/16"
MAX. HEIGHT	12'-0"
CONNECTION	BOLTS OR STRAPS



PLAN



ISOMETRIC

RADOME CANISTER DETAIL | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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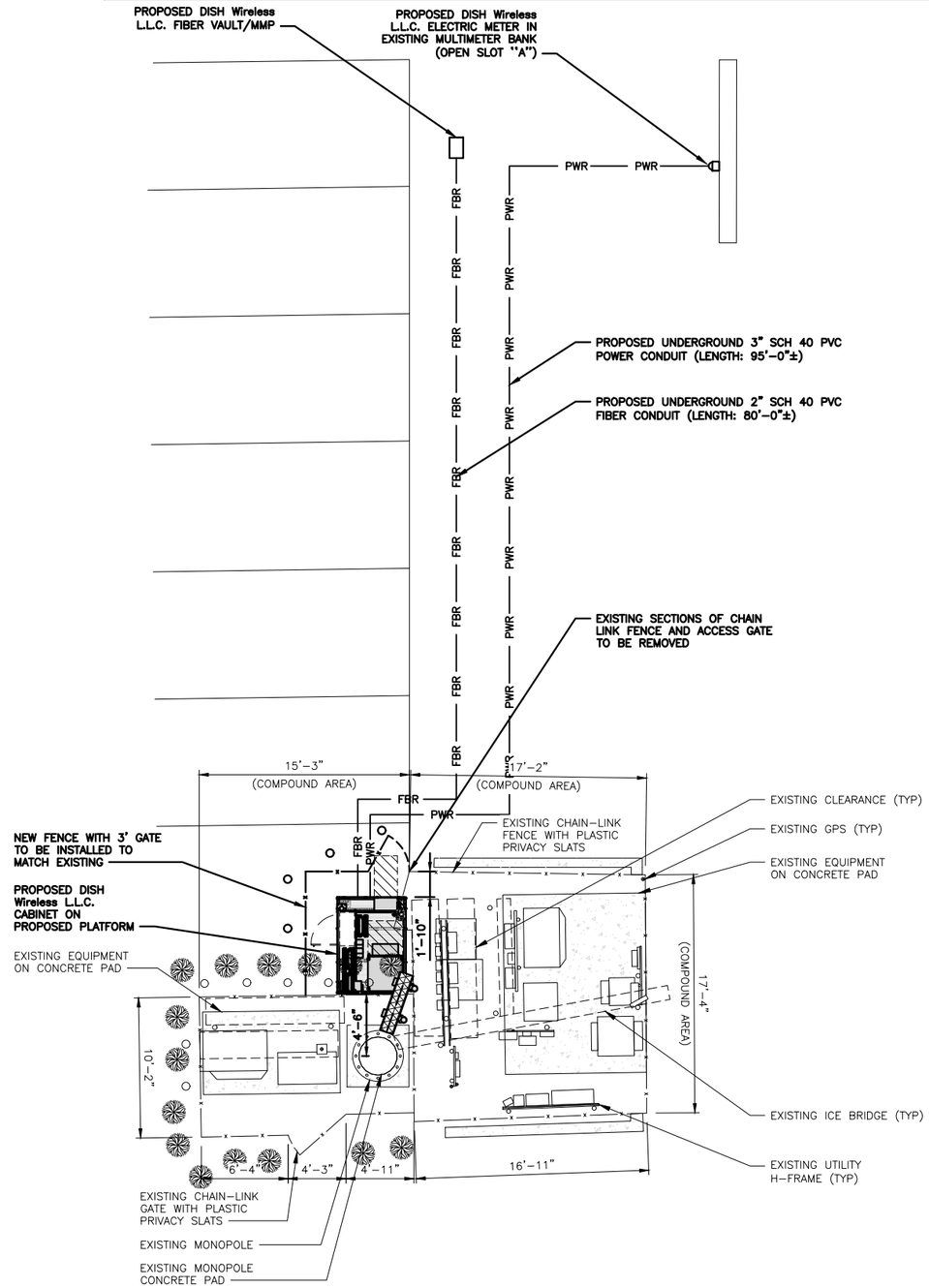
DANBURY, CT 06811

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-6

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. DUE TO UTILITY EASEMENT RIGHTS SPECIFIED IN THE GROUND LEASE, CUSTOMER MAY INSTALL EQUIPMENT WITHIN SPECIFIED UTILITY EASEMENT AREA. "PWR" AND "FBR" PATH DEPICTED ON A–1 AND E–1 REPRESENT PLANNED ROUTING BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO A SURVEY, EXHIBITS, METES AND BOUNDS OF THE UTILITY EASEMENT, FIELD VERIFICATION, PRIOR PROJECT DOCUMENTATION AND OTHER REAL PROPETY RIGHTS DOCUMENTS. WHEN INSTALLING THE UTILITIES PLEASE LOCATE AND FOLLOW EXISTING PATH. IF EXISTING PATH IS MATERIALLY INCONSISTENT WITH "PWR" AND "FBR" PATH DEPICTED ON A–1 AND E–1 AND SAID VARIANCE IS NOT NOTED ON CDs, PLEASE NOTIFY TOWER OWNER AS FURTHER COORDINATION MAY BE NEEDED.



UTILITY ROUTE PLAN

6' 4' 2' 0 5' 10'
3/16"=1'–0"

1

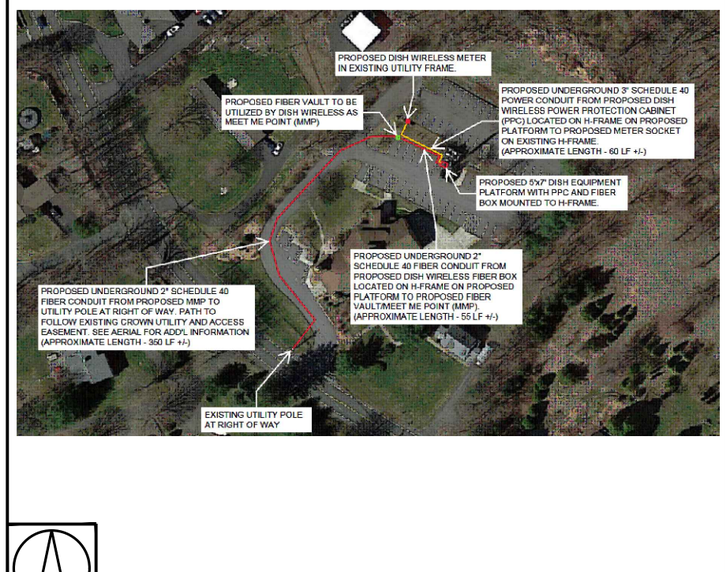
DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND –48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY –48V.

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



FIBER ROUTE

NO SCALE

3

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LITTLETON, CO 80120

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kmbdg.com
1800 ROUTE 34, SUITE 209
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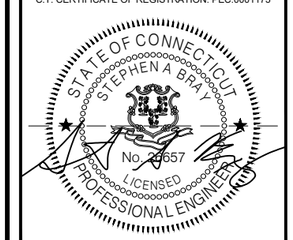

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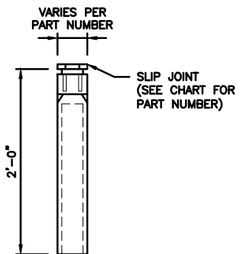
SHEET TITLE
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

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"

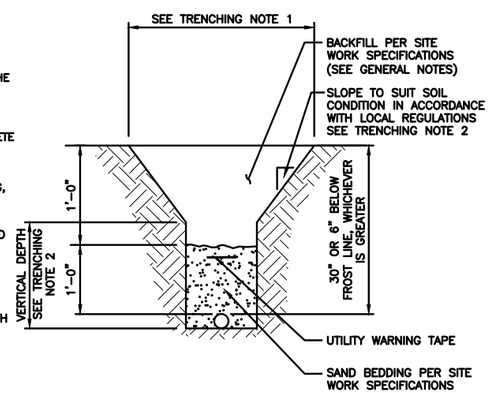


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

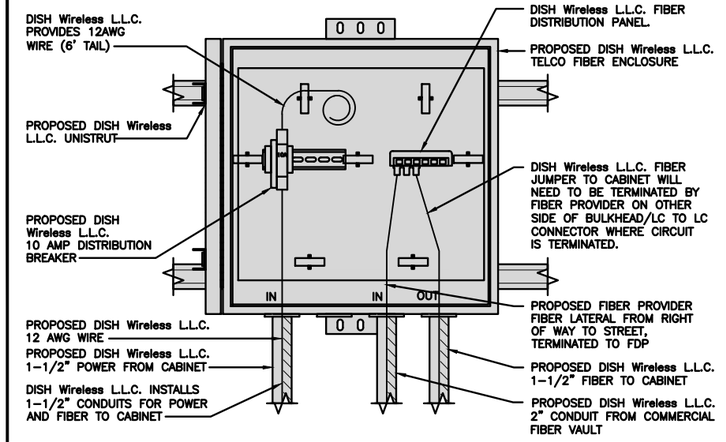
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

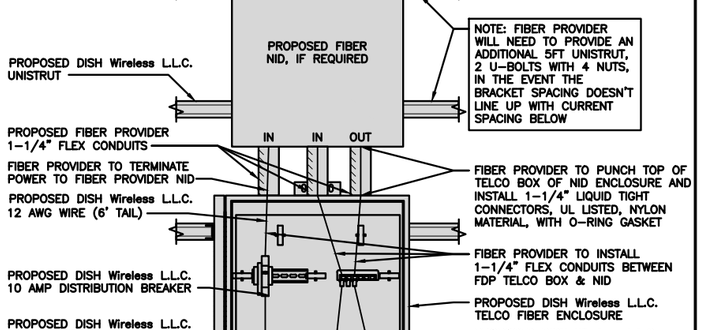
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT OSHA TRENCHING AND EXCAVATION SAFETY STANDARDS.
3. 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.



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

DISH Wireless L.L.C. TEMPLATE VERSION 48 – 12/31/2021

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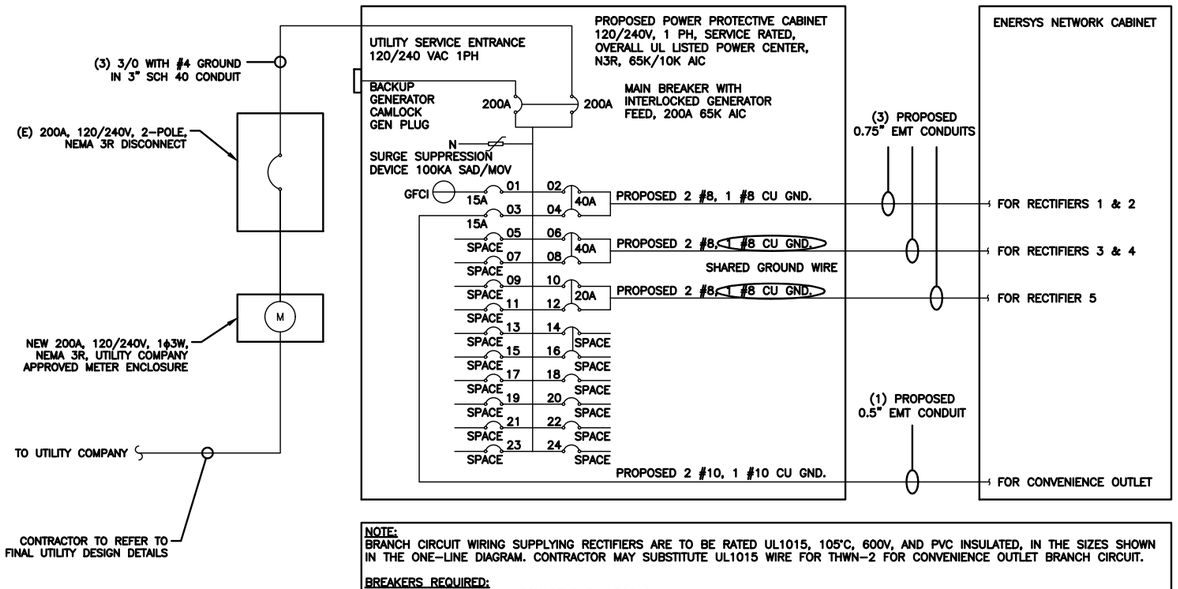
ELECTRICAL DETAILS

SHEET NUMBER
E-2



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:QO240
(1) 20A, 2P BREAKER - SQUARE D P/N:QO220
(1) 20A, 1P BREAKER - SQUARE D P/N:QO120

NOTES

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED SHORT CIRCUIT CALCULATIONS AND THE AIC RATINGS FOR EACH DEVICE IS ADEQUATE TO PROTECT THE EQUIPMENT AND THE ELECTRICAL SYSTEM.

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED VOLTAGE DROP CALCULATIONS AND ALL BRANCH CIRCUIT AND FEEDERS COMPLY WITH THE NEC (LISTED ON T-1) ARTICLE 210.19(A)(1) FPN NO. 4.

CONDUIT SIZING: AT 40% FILL PER NEC CHAPTER 9, TABLE 4, ARTICLE 358.
0.5" CONDUIT - 0.122 SQ. IN AREA
0.75" CONDUIT - 0.213 SQ. IN AREA
2.0" CONDUIT - 1.316 SQ. IN AREA
3.0" CONDUIT - 2.907 SQ. IN AREA

CABINET CONVENIENCE OUTLET CONDUCTORS (1 CONDUIT): USING THWN-2, CU.

#10 - 0.0211 SQ. IN X 2 = 0.0422 SQ. IN
#10 - 0.0211 SQ. IN X 1 = 0.0211 SQ. IN <GROUND
TOTAL = 0.0633 SQ. IN

0.5" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (3) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

RECTIFIER CONDUCTORS (3 CONDUITS): USING UL1015, CU.

#8 - 0.0552 SQ. IN X 2 = 0.1103 SQ. IN
#8 - 0.0131 SQ. IN X 1 = 0.0131 SQ. IN <BARE GROUND
TOTAL = 0.1234 SQ. IN

0.75" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (3) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

PPC FEED CONDUCTORS (1 CONDUIT): USING THWN, CU.

3/0 - 0.2679 SQ. IN X 3 = 0.8037 SQ. IN
#6 - 0.0507 SQ. IN X 1 = 0.0507 SQ. IN <GROUND
TOTAL = 0.8544 SQ. IN

3.0" SCH 40 PVC CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (4) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

PPC ONE-LINE DIAGRAM

NO SCALE | 1

PROPOSED ENERSYS PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	40A	3840		ENERSYS ALPHA CORDEX
ENERSYS GFCI OUTLET		180	15A	3	B	4			3840	RECTIFIERS 1 & 2
-SPACE-				5	A	6	40A	3840		ENERSYS ALPHA CORDEX
-SPACE-				7	B	8			3840	RECTIFIER 3 & 4
-SPACE-				9	A	10	20A	1920		ENERSYS ALPHA CORDEX
-SPACE-				11	B	12			1920	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, 1ϕ, 24 SPACE, 120/240V			L1		L2					
MB RATING: 65,000 AIC			9680		9680		VOLTAGE AMPS			
			81		81		AMPS			
			81				MAX AMPS			
			102				MAX 125%			

PANEL SCHEDULE

NO SCALE | 2

NOT USED

NO SCALE | 3

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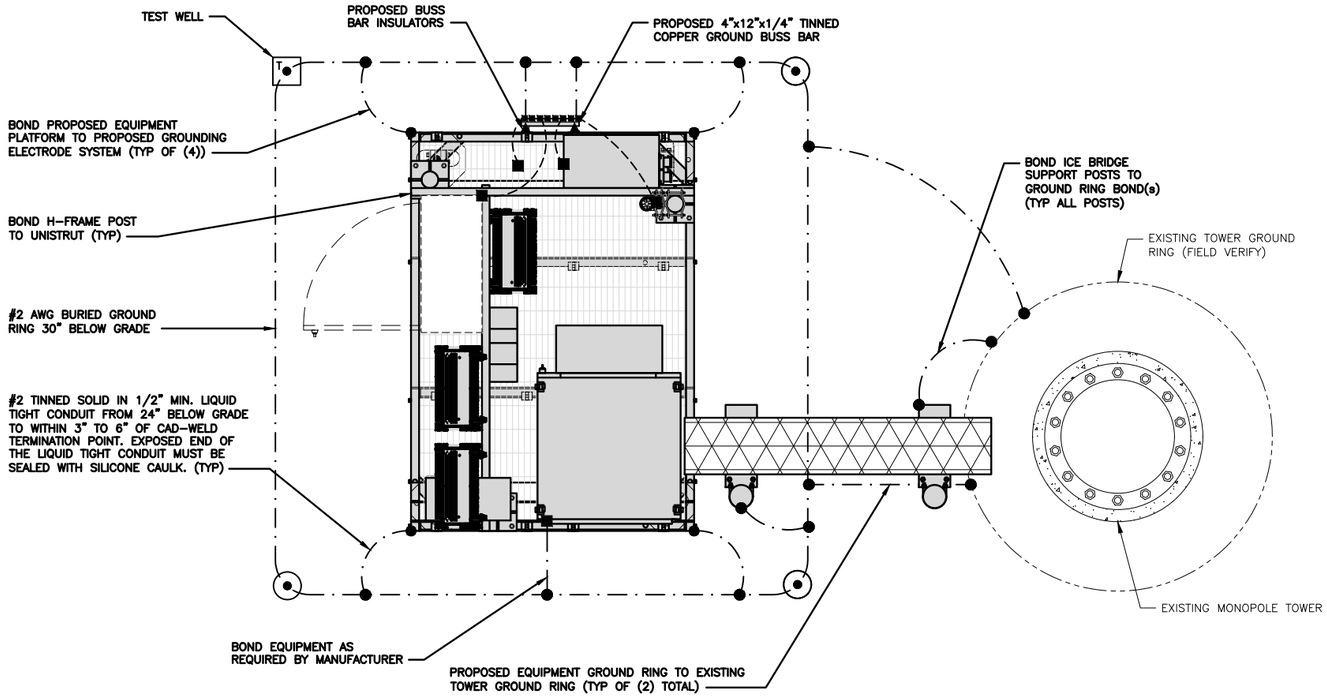
PROJECT INFORMATION
NJJER01141A
181 CLAPBOARD RIDGE RD
DANBURY, CT 06811

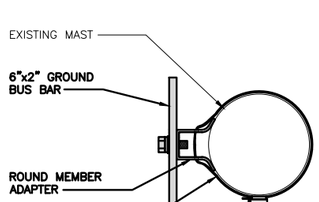
SHEET TITLE
ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE

SHEET NUMBER
E-3

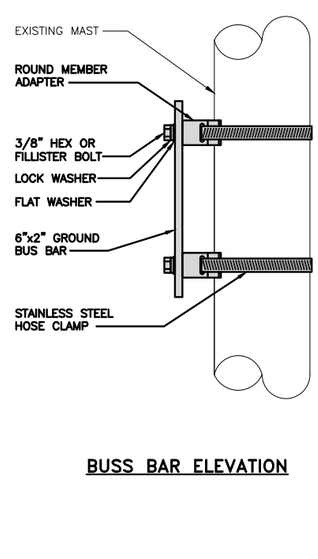


TYPICAL EQUIPMENT GROUNDING PLAN

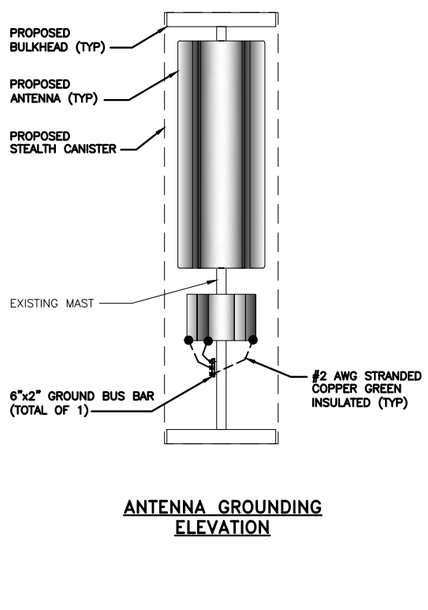
NO SCALE | 1



BUSS BAR PLAN



BUSS BAR ELEVATION



ANTENNA GROUNDING ELEVATION

TYPICAL ANTENNA GROUNDING DETAIL

NO SCALE | 2

- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- GROUND BUS BAR
- GROUND ROD
- TEST GROUND ROD WITH INSPECTION SLEEVE
- #6 AWG STRANDED & INSULATED
- #2 AWG SOLID COPPER TINNED
- BUSS BAR INSULATOR

GROUNDING LEGEND

1. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
2. 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.
3. 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 6 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 1/2" 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.

(I) TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR AND EXTERIOR GROUND RING.

(J) FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.

(K) 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.

(L) 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.

(M) 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

(N) 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.

(O) 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

(P) TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT.

REFER TO DISH Wireless L.L.C. GROUNDING NOTES.

GROUNDING KEY NOTES

NO SCALE | 3

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

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 6/9/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
AAB	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

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A&E PROJECT NUMBER
336.4012.A10

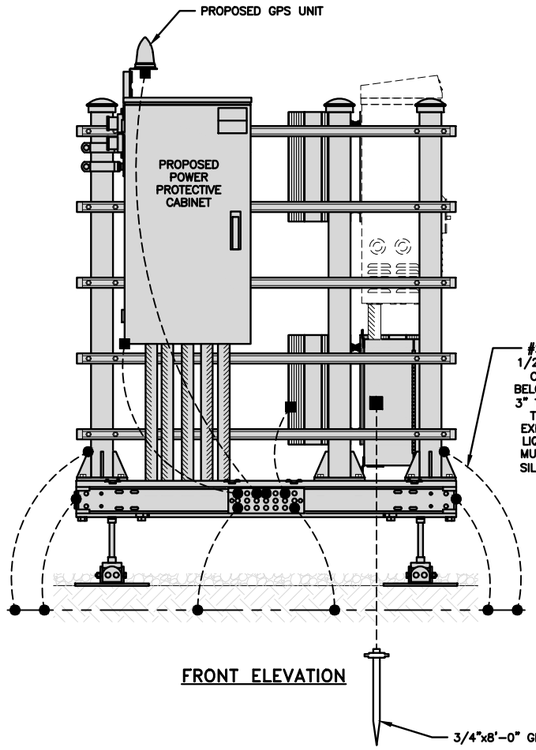
DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER01141A
181 CLAPBOARD RIDGE RD
DANBURY, CT 06811

SHEET TITLE
GROUNDING PLANS AND NOTES

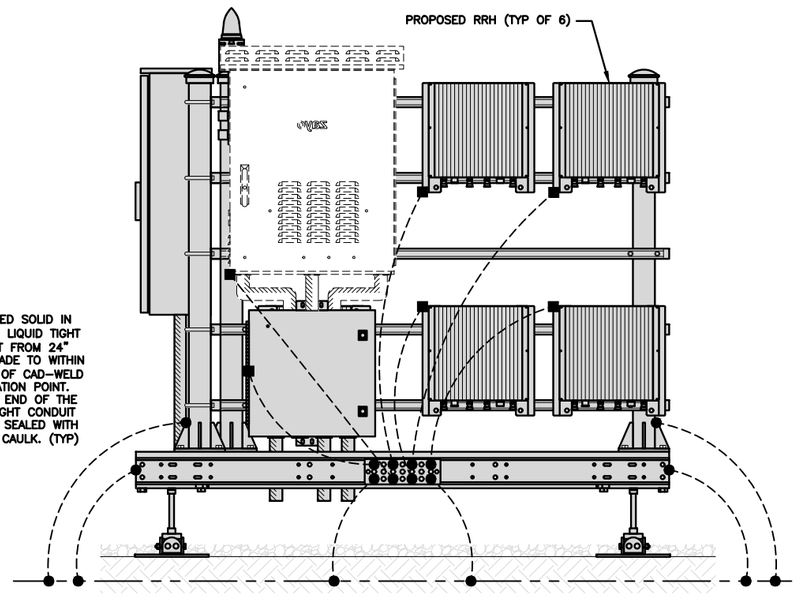
SHEET NUMBER
G-1

NOTES

EQUIPMENT CABINET OMITTED FOR CLARITY



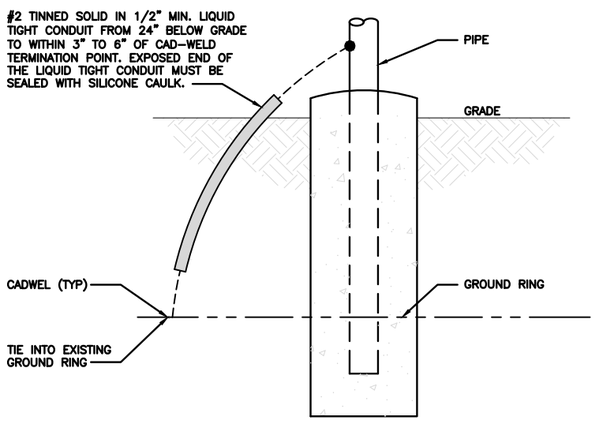
FRONT ELEVATION



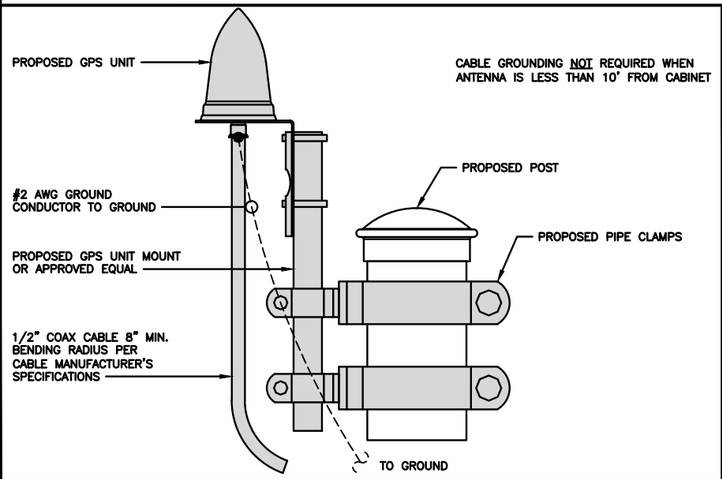
SIDE ELEVATION

NOT USED | NO SCALE | 1

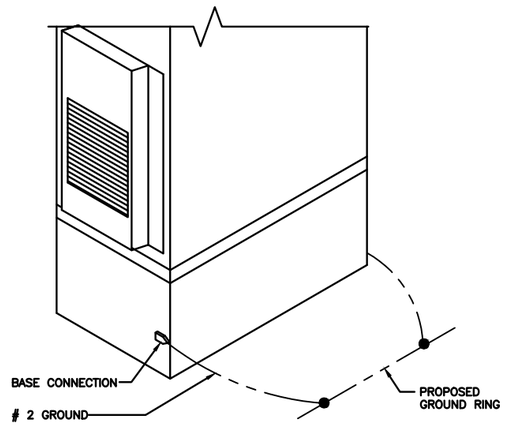
H-FRAME GROUNDING DETAIL | NO SCALE | 4



TRANSITIONING GROUND DETAIL | NO SCALE | 5



TYPICAL GPS UNIT GROUNDING | NO SCALE | 6



OUTDOOR CABINET GROUNDING | NO SCALE | 7

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LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

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Stephen A. Bray
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A&E PROJECT NUMBER

336.4012.AI0

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01141A
181 CLAPBOARD RIDGE RD
DANBURY, CT 06811

SHEET TITLE

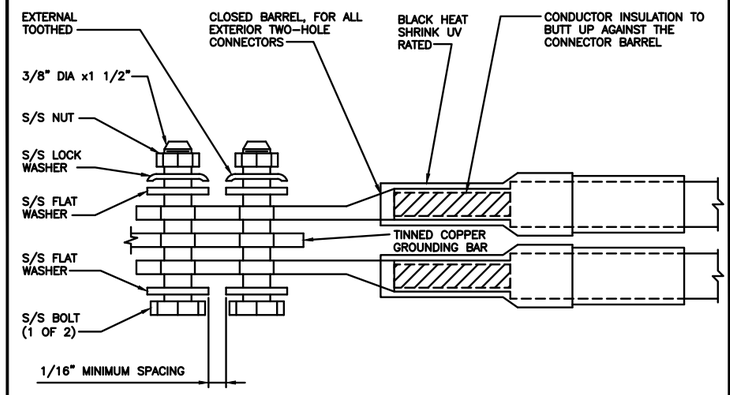
GROUNDING DETAILS

SHEET NUMBER

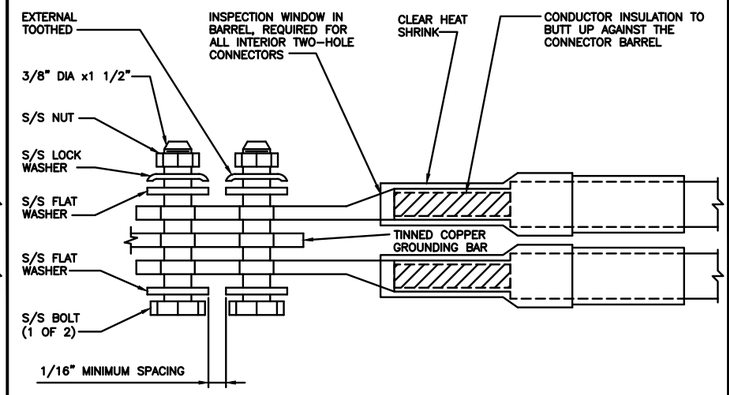
G-2

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).

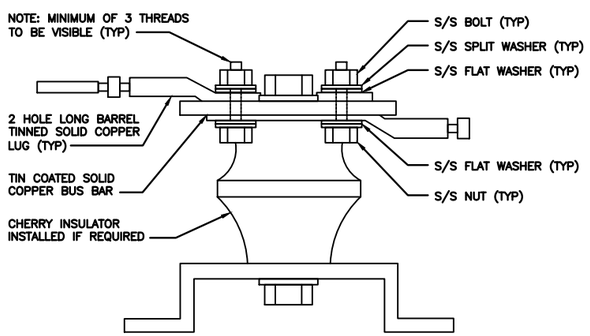
TYPICAL GROUNDING NOTES | NO SCALE | 1



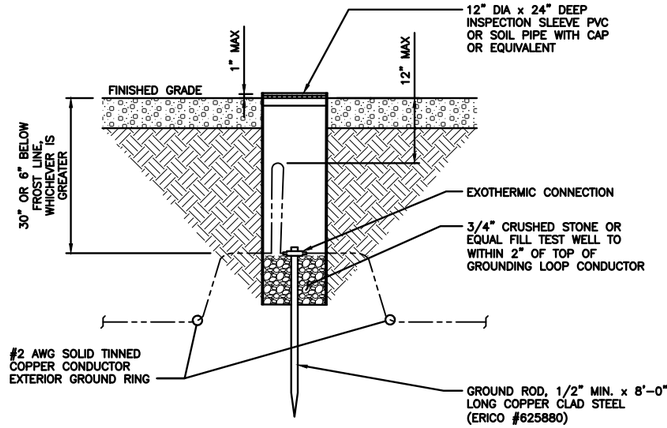
TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE | 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 L.L.C. TEMPLATE VERSION 48 – 12/31/2021

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5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
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336.4012.AI0

DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER01141A
181 CLAPBOARD RIDGE RD
DANBURY, CT 06811

SHEET TITLE
GROUNDING DETAILS

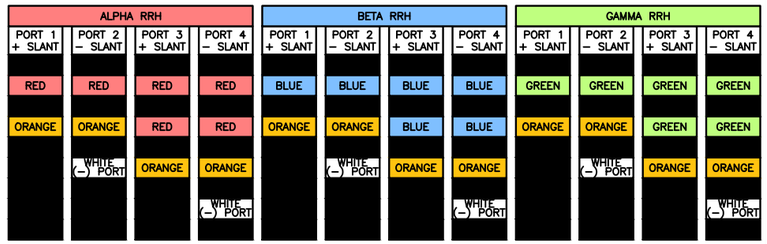
SHEET NUMBER
G-3

HYBRID/DISCREET CABLES

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

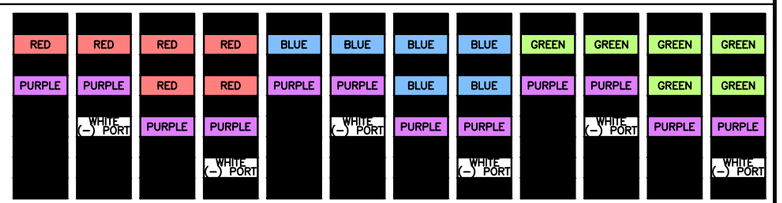
LOW-BAND RRH
(600 MHz N71 BASEBAND) +
(850 MHz N26 BAND) +
(700 MHz N29 BAND) – OPTIONAL PER MARKET

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



MID-BAND RRH
(AWS BANDS N66+N70)

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



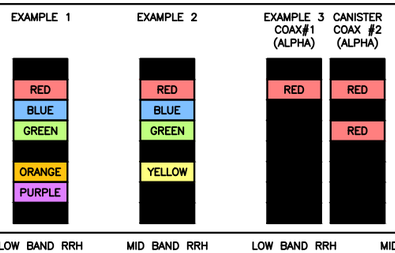
HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS.

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

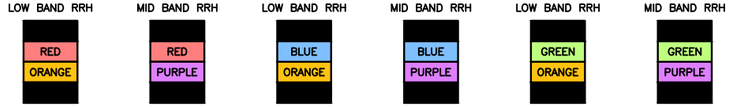
EXAMPLE 2 – HYBRID, OR DISCREET, SUPPORTS CBRS ONLY, ALL SECTORS.

EXAMPLE 3 – MAIN COAX WITH GROUND MOUNTED RRHs.



FIBER JUMPERS TO RRHs

LOW-BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.



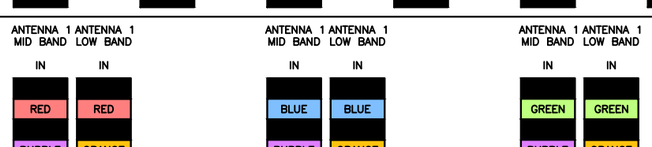
POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY

RET MOTORS AT ANTENNAS

RET CONTROL IS HANDLED BY THE MID-BAND RRH WHEN ONE SET OF RET PORTS EXIST ON ANTENNA.

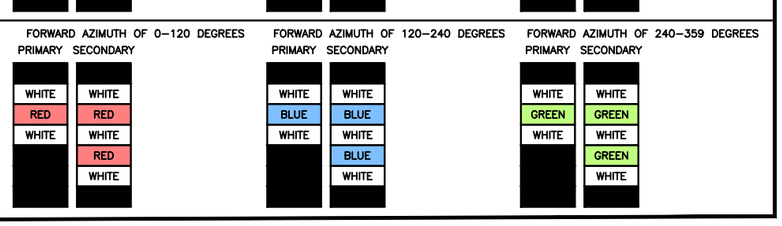
SEPARATE RET CABLES ARE USED WHEN ANTENNA PORTS PROVIDE INPUTS FOR BOTH LOW AND MID BANDS.



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.



RF CABLE COLOR CODES | NO SCALE | 1

LOW BANDS (N71+N26) OPTIONAL – (N29): ORANGE

AWS (N66+N70+H-BLOCK): PURPLE

CBRS TECH (3 GHz): YELLOW

NEGATIVE SLANT PORT ON ANT/RRH: WHITE

ALPHA SECTOR: RED

BETA SECTOR: BLUE

GAMMA SECTOR: GREEN

COLOR IDENTIFIER | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

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5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

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PROJECT INFORMATION
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181 CLAPBOARD RIDGE RD
DANBURY, CT 06811

SHEET TITLE
RF
CABLE COLOR CODE

SHEET NUMBER
RF-1

LEGEND

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM — T

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE — T

SINGLE POLE SWITCH — $

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE — GFCI

FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48–T8 — F

SMOKE DETECTION (DC) — SD

EMERGENCY LIGHTING (DC)

SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW LED–1–25A400/51K–SR4–120–PE–DDBTXD

CHAIN LINK FENCE — X X X X

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE — W W W W W

UNDERGROUND POWER — UGP UGP UGP UGP UGP

UNDERGROUND TELCO — UGT UGT UGT UGT UGT

OVERHEAD POWER — OHP OHP OHP OHP

OVERHEAD TELCO — OHT OHT OHT OHT

UNDERGROUND TELCO/POWER — UGT/P UGT/P UGT/P UGT/P

ABOVE GROUND POWER — AGP AGP AGP AGP AGP

ABOVE GROUND TELCO — AGT AGT AGT AGT AGT

ABOVE GROUND TELCO/POWER — AGT/P AGT/P AGT/P AGT/P

WORKPOINT — W.P.

SECTION REFERENCE — XX / X–X

DETAIL REFERENCE — XX / X–X

ABBREVIATIONS

AB	ANCHOR BOLT
ABV	ABOVE
AC	ALTERNATING CURRENT
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AGL	ABOVE GROUND LEVEL
AIC	AMPERAGE INTERRUPTION CAPACITY
ALUM	ALUMINUM
ALT	ALTERNATE
ANT	ANTENNA
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BTC	BARE TINNED COPPER CONDUCTOR
BOF	BOTTOM OF FOOTING
CAB	CABINET
CANT	CANTILEVERED
CHG	CHARGING
CLG	CEILING
CLR	CLEAR
COL	COLUMN
COMM	COMMON
CONC	CONCRETE
CONSTR	CONSTRUCTION
DBL	DOUBLE
DC	DIRECT CURRENT
DEPT	DEPARTMENT
DF	DOUGLAS FIR
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DWG	DRAWING
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
IN	INCH
INT	INTERIOR
LB(S)	POUND(S)
LF	LINEAR FEET
LTE	LONG TERM EVOLUTION
MAS	MASONRY
MAX	MAXIMUM
MB	MACHINE BOLT
MECH	MECHANICAL
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
MTS	MANUAL TRANSFER SWITCH
MW	MICROWAVE
NEC	NATIONAL ELECTRIC CODE
NM	NEWTON METERS
NO.	NUMBER
#	NUMBER
NTS	NOT TO SCALE
OC	ON–CENTER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OPNG	OPENING
P/C	PRECAST CONCRETE
PCS	PERSONAL COMMUNICATION SERVICES
PCU	PRIMARY CONTROL UNIT
PRC	PRIMARY RADIO CABINET
PP	POLARIZING PRESERVING
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
PWR	POWER CABINET
QTY	QUANTITY
RAD	RADIUS
RECT	RECTIFIER
REF	REFERENCE
REINF	REINFORCEMENT
REQ'D	REQUIRED
RET	REMOTE ELECTRIC TILT
RF	RADIO FREQUENCY
RMC	RIGID METALLIC CONDUIT
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
RWY	RACEWAY
SCH	SCHEDULE
SHT	SHEET
SIAD	SMART INTEGRATED ACCESS DEVICE
SIM	SIMILAR
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
TEMP	TEMPORARY
THK	THICKNESS
TMA	TOWER MOUNTED AMPLIFIER
TN	TOE NAIL
TOA	TOP OF ANTENNA
TOC	TOP OF CURB
TOF	TOP OF FOUNDATION
TOP	TOP OF PLATE (PARAPET)
TOS	TOP OF STEEL
TOW	TOP OF WALL
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
UPS	UNITERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
VIF	VERIFIED IN FIELD
W	WIDE
W/	WITH
WD	WOOD
WP	WEATHERPROOF
WT	WEIGHT

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173

STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 6/9/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
AAB	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	02/21/2022	ISSUED FOR PERMIT FILLING
1	03/16/2022	REVISED PER CLIENT COMMEMNT
2	06/08/2022	REVISED PER CLIENT COMMEMNT

A&E PROJECT NUMBER

336.4012.AI0

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01141A

181 CLAPBOARD RIDGE RD
DANBURY, CT 06811

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SIGN TYPES		
TYPE	COLOR	COLOR CODE PURPOSE
INFORMATION	GREEN	**"INFORMATIONAL SIGN"** TO NOTIFY OTHERS OF SITE OWNERSHIP & CONTACT NUMBER AND POTENTIAL RF EXPOSURE.
NOTICE	BLUE	**"NOTICE BEYOND THIS POINT"** RF FIELDS BEYOND THIS POINT MAY EXCEED THE FCC GENERAL PUBLIC EXPOSURE LIMIT. OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)
CAUTION	YELLOW	**"CAUTION BEYOND THIS POINT"** RF FIELDS BEYOND THIS POINT MAY EXCEED THE FCC GENERAL PUBLIC EXPOSURE LIMIT. OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)
WARNING	ORANGE/RED	**"WARNING BEYOND THIS POINT"** RF FIELDS AT THIS SITE EXCEED FCC RULES FOR HUMAN EXPOSURE. FAILURE TO OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS COULD RESULT IN SERIOUS INJURY. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)

SIGN PLACEMENT:

- RF SIGNAGE PLACEMENT SHALL FOLLOW THE RECOMMENDATIONS OF AN EXISTING EME REPORT, CREATED BY A THIRD PARTY PREVIOUSLY AUTHORIZED BY DISH Wireless L.L.C.
- INFORMATION SIGN (GREEN) SHALL BE LOCATED ON EXISTING DISH Wireless L.L.C EQUIPMENT.
  A) IF THE INFORMATION SIGN IS A STICKER, IT SHALL BE PLACED ON EXISTING DISH Wireless L.L.C EQUIPMENT CABINET.
  B) IF THE INFORMATION SIGH IS A METAL SIGN IT SHALL BE PLACED ON EXISTING DISH Wireless L.L.C H-FRAME WITH A SECURE ATTACH METHOD.
- IF EME REPORT IS NOT AVAILABLE AT THE TIME OF CREATION OF CONSTRUCTION DOCUMENTS; PLEASE CONTACT DISH Wireless L.L.C. CONSTRUCTION MANAGER FOR FURTHER INSTRUCTION ON HOW TO PROCEED.

NOTES:

1. FOR DISH Wireless L.L.C. LOGO, SEE DISH Wireless L.L.C. DESIGN SPECIFICATIONS (PROVIDED BY DISH Wireless L.L.C.)
2. SITE ID SHALL BE APPLIED TO SIGNS USING "LASER ENGRAVING" OR ANY OTHER WEATHER RESISTANT METHOD (DISH Wireless L.L.C. APPROVAL REQUIRED)
3. TEXT FOR SIGNAGE SHALL INDICATE CORRECT SITE NAME AND NUMBER AS PER DISH Wireless L.L.C. CONSTRUCTION MANAGER RECOMMENDATIONS.
4. CABINET/SHELTER MOUNTING APPLICATION REQUIRES ANOTHER PLATE APPLIED TO THE FACE OF THE CABINET WITH WATER PROOF POLYURETHANE ADHESIVE
5. ALL SIGNS WILL BE SECURED WITH EITHER STAINLESS STEEL ZIP TIES OR STAINLESS STEEL TECH SCREWS
6. ALL SIGNS TO BE 8.5"x11" AND MADE WITH 0.04" OF ALUMINUM MATERIAL

INFORMATION

This is an access point to an area with transmitting antennas.

Obey all signs and barriers beyond this point.
Call the DISH Wireless L.L.C. NOC at 1-866-624-6874

Site ID: _____

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

NOTICE

Transmitting Antenna(s)

Radio frequency fields beyond this point MAY *EXCEED* the FCC Occupational exposure limit.

Obey all posted signs and site guidelines for working in radio frequency environments.

Call the DISH Wireless L.L.C. NOC at 1-866-624-6874 prior to working beyond this point.

Site ID: _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

⚠ CAUTION

Transmitting Antenna(s)

Radio frequency fields beyond this point MAY *EXCEED* the FCC Occupational exposure limit.

Obey all posted signs and site guidelines for working in radio frequency environments.

Call the DISH Wireless L.L.C. NOC at 1-866-624-6874 prior to working beyond this point.

Site ID: _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

⚠ WARNING

Transmitting Antenna(s)

Radio frequency fields beyond this point *EXCEED* the FCC Occupational exposure limit.

Obey all posted signs and site guidelines for working in radio frequency environments.

Call the DISH Wireless L.L.C. NOC at 1-866-624-6874 prior to working beyond this point.

Site ID: _____

dish

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RF SIGNAGE

DISH Wireless L.L.C. TEMPLATE VERSION 48 – 12/31/2021

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
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A&E PROJECT NUMBER
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DISH Wireless L.L.C.
PROJECT INFORMATION
NJJER01141A
181 CLAPBOARD RIDGE RD
DANBURY, CT 06811

SHEET TITLE
RF SIGNAGE

SHEET NUMBER
GN-2

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.

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

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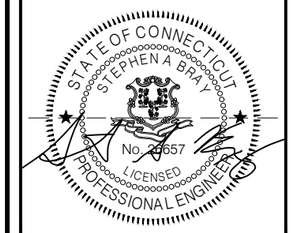

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 6/9/22

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DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01141A

181 CLAPBOARD RIDGE RD
DANBURY, CT 06811

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-3

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. 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.

2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.

3. 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.

4. 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.

5. 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

6. 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"

7. 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:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.

2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.

3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.

4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.

4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.

4.2. 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.

5. 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.

6. 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).

7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.

8. TIE WRAPS ARE NOT ALLOWED.

9. 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.

10. 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.

11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.

12. 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.

13. 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).

14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.

18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.

20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.

21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).

22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).

23. 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.

24. 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.

25. 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.

26. 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.

27. 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.

28. 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.

29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH Wireless L.L.C.".

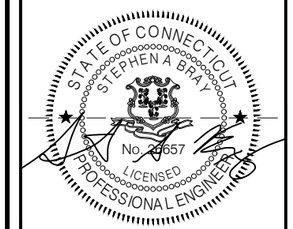
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
WALL, NJ 07719
(732) 280-5623

C.T. CERTIFICATE OF REGISTRATION: PEC.0001173



Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 6/9/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
AAB	JRB	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	02/21/2022	ISSUED FOR PERMIT FILLING
1	03/16/2022	REVISED PER CLIENT COMMEMNT
2	06/08/2022	REVISED PER CLIENT COMMEMNT

A&E PROJECT NUMBER

336.4012.AI0

DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01141A

181 CLAPBOARD RIDGE RD
DANBURY, CT 06811

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

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.

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

KMB DESIGN GROUP
kmbdg.com
1800 ROUTE 34, SUITE 209
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(732) 280-5623

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STATE OF CONNECTICUT
STEPHEN A BRAY
No. 26657
LICENSED PROFESSIONAL ENGINEER

Stephen A. Bray
PROFESSIONAL ENGINEER
CT LICENSE: 26657 6/9/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
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A&E PROJECT NUMBER

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DISH Wireless L.L.C.
PROJECT INFORMATION

NJJER01141A

181 CLAPBOARD RIDGE RD
DANBURY, CT 06811

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-5

ATTACHMENT 4

Date: **February 03, 2022**

Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
724-416-2000

Subject:	**Structural Analysis Report**	
Carrier Designation:	***DISH Network* Equipment Swap**	
	Site Number:	NJJER01141A
	Site Name:	CT-CCI-T-823630
Crown Castle Designation:	**BU Number:**	823630
	Site Name:	Danbury North / Rt 37
	JDE Job Number:	640180
	Work Order Number:	2072709
	Order Number:	548694 Rev. 7
Engineering Firm Designation:	**Crown Castle Project Number:**	2072709
Site Data:	**181 Clapboard Ridge Road, Danbury, Fairfield County, CT** **Latitude *41° 25' 59.467"*, Longitude *-73° 29' 32.761"*** **83.25 Foot - Concealment Tower**	

Crown Castle is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower.

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

LC6.5: Existing Equipment + Maintenance Configuration Change (MCC) **Sufficient Capacity-39%**

This analysis utilizes an ultimate 3-second gust wind speed of 120 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

The tower in this analysis is a stealth type structure; the antennas are installed behind concealment canisters and do not affect the tower's wind profile. The proposed antenna installation is therefore considered in conformance to the existing building code.

Structural analysis prepared by: Subhash Mandal

Respectfully submitted by:

Terry P Styran
2022.02.08
15:17:58 -05'00'

Terry P. Styran, P.E.
Senior Project Engineer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 83.25 ft Concealment tower designed by STEALTH NETWORK TECHNOLOGIES INC. The base tower is 53.75ft and canister section is from 53.75ft to 83.25ft. The tower has been modified previously to accommodate additional loading.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	120 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
68.0	68.0	3	commscope	FVV-65B-R3	1	1-3/8
		1	raycap	RDIDC-9181-PF-48		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
78.4	78.4	1	-	42" X 9.75' Concealment Canister	-	-
78.0	79.0	3	rfs celwave	APXVAR18_43-C-NA20	12	1-5/8
	76.0	3	andrew	ATSBT-BOTTOM-MF		
68.6	68.6	1	-	42" X 9.75' Concealment Canister	-	-
58.8	58.8	1	-	42" X 10' Concealment Canister	-	-
58.0	59.0	3	kathrein	80010798	12	7/8
	56.0	4	cci antennas	DTMABP7819VG12A		
	55.0	2	cci antennas	DTMABP7819VG12A		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	3501507	CCISITES
4-POST-MODIFICATION INSPECTION	9821727	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	3501506	CCISITES
4-TOWER MANUFACTURER DRAWINGS	3771879	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	8667341	CCISITES

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

1) Tower and structures were maintained in accordance with the TIA-222 Standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	83.25 - 53.75	Pole	TP6x6x0.75	1	-4.23	841.66	33.2	Pass
L2	53.75 - 0	Pole	TP33.075x26.625x0.25	2	-10.98	1599.92	17.0	Pass
							Summary	
						Pole (L1)	33.2	Pass
						Rating =	33.2	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC6.5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Flange Bolts	53.75	20.4	Pass
1	Anchor Rods	0	22.7	Pass
1	Base Plate	0	27.1	Pass
1	Base Foundation (Structure)	0	25.1	Pass
1	Base Foundation (Soil Interaction)	0	39.0	Pass

Structure Rating (max from all components) =	39%

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

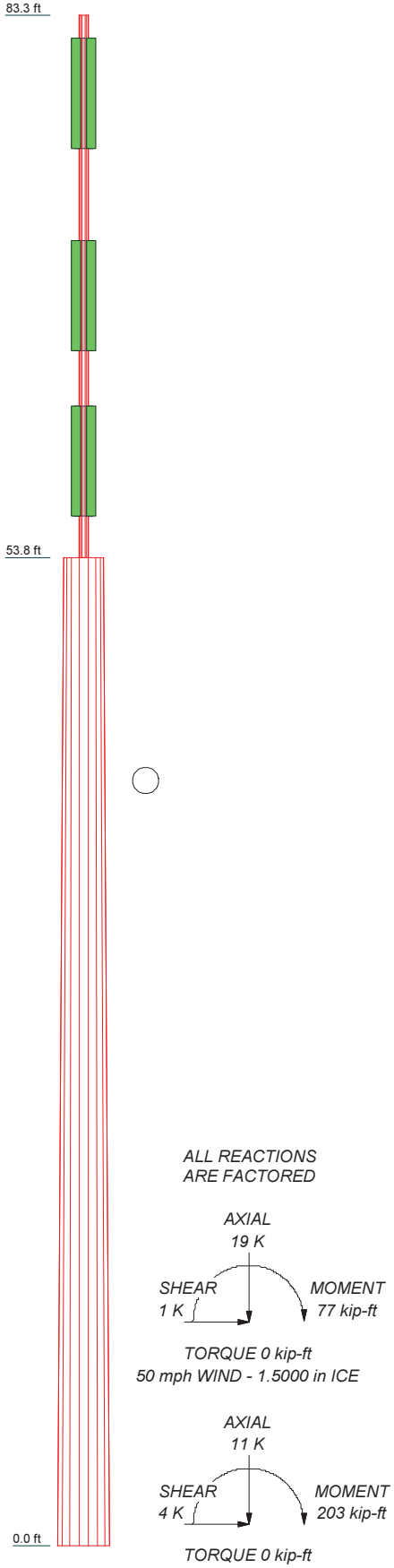
4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	29.50	0	0.7500	6.0000	6.0000	A519 Type 1026	1.2
2	53.75	18	0.2500	26.6250	33.0750	A572-65	4.3
							5.5



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A519 Type 1026	72 ksi	87 ksi	A572-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 33.2%

ALL REACTIONS ARE FACTORED

AXIAL 19 K

SHEAR 1 K *MOMENT 77 kip-ft*

TORQUE 0 kip-ft

50 mph WIND - 1.5000 in ICE

AXIAL 11 K

SHEAR 4 K *MOMENT 203 kip-ft*

TORQUE 0 kip-ft

REACTIONS - 120 mph WIND

CROWN CASTLE
The Pathway to Possible

Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
Phone: 724-416-2000
FAX: -

Job: *BU# 823630*			
Project:			
Client: Crown Castle	Drawn by: S.Mandal	App'd:	
Code: TIA-222-H	Date: 02/03/22	Scale: NTS	
Path: C:\WIP\823630\WO 2072709 - SA\Prod\823630.eri		Dwg No. E-1	

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

- Tower is located in Fairfield County, Connecticut.
- Tower base elevation above sea level: 771.00 ft.
- Basic wind speed of 120 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.5000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs	√	Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	83.25-53.75	29.50	0.00	Round	6.0000	6.0000	0.7500		A519 Type 1026 (72 ksi)
L2	53.75-0.00	53.75		18	26.6250	33.0750	0.2500	1.0000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	6.0000	12.3700	43.4884	1.8750	3.0000	14.4961	86.9767	6.1813	0.0000	0
	6.0000	12.3700	43.4884	1.8750	3.0000	14.4961	86.9767	6.1813	0.0000	0
L2	26.9972	20.9286	1839.3390	9.3631	13.5255	135.9905	3681.0983	10.4663	4.2460	16.984
	33.5467	26.0466	3545.6722	11.6529	16.8021	211.0255	7096.0099	13.0258	5.3812	21.525

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 83.25-53.75				1	0	1			
L2 53.75-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LDF7-50A(1-5/8)	C	No	No	Inside Pole	78.00 - 0.00	12	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
***									
CU12PSM9P8XXX (1-3/8)	C	No	No	Inside Pole	68.00 - 0.00	1	No Ice	0.00	1.66
							1/2" Ice	0.00	1.66
							1" Ice	0.00	1.66
							2" Ice	0.00	1.66
***									
LDF5-50A(7/8)	C	No	No	Inside Pole	58.00 - 0.00	12	No Ice	0.00	0.33
							1/2" Ice	0.00	0.33
							1" Ice	0.00	0.33
							2" Ice	0.00	0.33

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	83.25-53.75	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.28
L2	53.75-0.00	A	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.83

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	83.25-53.75	A	1.372	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.28
L2	53.75-0.00	A	1.247	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.83

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	83.25-53.75	0.0000	0.0000	0.0000	0.0000
L2	53.75-0.00	0.0000	0.0000	0.0000	0.0000

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

User Defined Loads

Description	Elevation ft	Offset From Centroid ft	Azimuth Angle °		Weight K	F_x K	F_z K	Wind Force K	C_AA_C ft^2
Flag	83.25	0.00	0.0000	No Ice	0.02	0.00	0.00	0.41	**12.32**
				Ice	0.69	0.00	0.00	0.07	**12.72**
				Service	0.02	0.00	0.00	0.10	**13.08**

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft
Truck Ball	C	None		0.0000	84.00
Canister Load1	C	None		0.0000	83.25
Canister Load2	C	None		0.0000	73.50
Canister Load3	C	None		0.0000	63.75
Canister Load4	C	None		0.0000	53.75
Truck Ball	C	None		0.0000	84.00
***					
APXVAR18_43-C-NA20	A	From Leg	0.25	0.0000	78.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
			0.00 1.00		
APXVAR18_43-C-NA20	B	From Leg	0.25 0.00	0.0000	78.00
			1.00		
APXVAR18_43-C-NA20	C	From Leg	0.25 0.00	0.0000	78.00
			1.00		
ATSBT-BOTTOM-MF	A	From Leg	0.25 0.00	0.0000	78.00
			-2.00		
ATSBT-BOTTOM-MF	B	From Leg	0.25 0.00	0.0000	78.00
			-2.00		
ATSBT-BOTTOM-MF	C	From Leg	0.25 0.00	0.0000	78.00
			-2.00		
***					
FVV-65B-R3	A	From Leg	0.25 0.00	0.0000	68.00
			0.00		
FVV-65B-R3	B	From Leg	0.25 0.00	0.0000	68.00
			0.00		
FVV-65B-R3	C	From Leg	0.25 0.00	0.0000	68.00
			0.00		
RDIDC-9181-PF-48	A	From Leg	0.25 0.00	0.0000	68.00
			0.00		
***					
80010798	A	From Leg	0.25 0.00	0.0000	58.00
			1.00		
80010798	B	From Leg	0.25 0.00	0.0000	58.00
			1.00		
80010798	C	From Leg	0.25 0.00	0.0000	58.00
			1.00		
(2) DTMABP7819VG12A	A	From Leg	0.25 0.00	0.0000	58.00
			-2.00		
(2) DTMABP7819VG12A	B	From Leg	0.25 0.00	0.0000	58.00
			-2.00		
(2) DTMABP7819VG12A	C	From Leg	0.25 0.00	0.0000	58.00
			-3.00		
***					
42" X 10' Concealment Canister	C	None		0.0000	58.75
42" X 9.75' Concealment Canister	C	None		0.0000	68.63
42" X 9.75' Concealment Canister	C	None		0.0000	78.38

Load Combinations

Comb. No.	Description
1	Dead Only

Comb. No.	Description
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	83.25 - 53.75	Pole	Max Tension	27	0.00	0.00	-0.00
			Max. Compression	26	-9.01	-0.00	0.04
			Max. Mx	8	-4.23	-38.59	0.01
			Max. My	2	-4.23	0.00	38.60
			Max. Vy	8	1.84	-22.64	0.01
			Max. Vx	2	-1.84	0.00	22.66
			Max. Torque	30			-0.00
L2	53.75 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-18.67	0.00	0.04
			Max. Mx	8	-10.98	-203.47	0.01
			Max. My	2	-10.98	0.00	203.49

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	8	4.15	-203.47	0.01
			Max. Vx	2	-4.15	0.00	203.49
			Max. Torque	30			-0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	18.67	0.00	0.00
	Max. H_x	20	10.98	4.15	-0.00
	Max. H_z	2	10.98	0.00	4.15
	Max. M_x	2	203.49	0.00	4.15
	Max. M_z	8	203.47	-4.15	-0.00
	Max. Torsion	36	0.00	1.48	-0.00
	Min. Vert	3	8.24	0.00	4.15
	Min. H_x	8	10.98	-4.15	-0.00
	Min. H_z	14	10.98	0.00	-4.15
	Min. M_x	14	-203.46	0.00	-4.15
	Min. M_z	20	-203.47	4.15	-0.00
	Min. Torsion	30	-0.00	-1.48	-0.00

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	9.15	0.00	0.00	-0.01	0.00	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	10.98	0.00	-4.15	-203.49	0.00	0.00
0.9 Dead+1.0 Wind 0 deg - No Ice	8.24	0.00	-4.15	-202.21	0.00	0.00
1.2 Dead+1.0 Wind 30 deg - No Ice	10.98	2.07	-3.59	-176.23	-101.74	0.00
0.9 Dead+1.0 Wind 30 deg - No Ice	8.24	2.07	-3.59	-175.14	-101.11	0.00
1.2 Dead+1.0 Wind 60 deg - No Ice	10.98	3.59	-2.07	-101.75	-176.21	0.00
0.9 Dead+1.0 Wind 60 deg - No Ice	8.24	3.59	-2.07	-101.12	-175.13	0.00
1.2 Dead+1.0 Wind 90 deg - No Ice	10.98	4.15	0.00	-0.01	-203.47	0.00
0.9 Dead+1.0 Wind 90 deg - No Ice	8.24	4.15	0.00	-0.01	-202.20	0.00
1.2 Dead+1.0 Wind 120 deg - No Ice	10.98	3.59	2.07	101.72	-176.21	0.00
0.9 Dead+1.0 Wind 120 deg - No Ice	8.24	3.59	2.07	101.10	-175.13	0.00
1.2 Dead+1.0 Wind 150 deg - No Ice	10.98	2.07	3.59	176.20	-101.74	0.00
0.9 Dead+1.0 Wind 150 deg - No Ice	8.24	2.07	3.59	175.12	-101.11	0.00
1.2 Dead+1.0 Wind 180 deg - No Ice	10.98	0.00	4.15	203.46	0.00	0.00
0.9 Dead+1.0 Wind 180 deg - No Ice	8.24	0.00	4.15	202.19	0.00	0.00
1.2 Dead+1.0 Wind 210 deg - No Ice	10.98	-2.07	3.59	176.20	101.74	-0.00
0.9 Dead+1.0 Wind 210 deg - No Ice	8.24	-2.07	3.59	175.12	101.11	-0.00
1.2 Dead+1.0 Wind 240 deg	10.98	-3.59	2.07	101.72	176.21	-0.00

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
- No Ice 0.9 Dead+1.0 Wind 240 deg	8.24	-3.59	2.07	101.10	175.13	-0.00
- No Ice 1.2 Dead+1.0 Wind 270 deg	10.98	-4.15	0.00	-0.01	203.47	-0.00
- No Ice 0.9 Dead+1.0 Wind 270 deg	8.24	-4.15	0.00	-0.01	202.20	-0.00
- No Ice 1.2 Dead+1.0 Wind 300 deg	10.98	-3.59	-2.07	-101.75	176.21	-0.00
- No Ice 0.9 Dead+1.0 Wind 300 deg	8.24	-3.59	-2.07	-101.12	175.13	-0.00
- No Ice 1.2 Dead+1.0 Wind 330 deg	10.98	-2.07	-3.59	-176.23	101.74	-0.00
- No Ice 0.9 Dead+1.0 Wind 330 deg	8.24	-2.07	-3.59	-175.14	101.11	-0.00
- No Ice 1.2 Dead+1.0 Ice+1.0 Temp	18.67	-0.00	-0.00	-0.04	0.00	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	18.67	0.00	-1.48	-76.62	-0.00	0.00
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	18.67	0.74	-1.28	-66.37	-38.29	0.00
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	18.67	1.28	-0.74	-38.34	-66.31	0.00
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	18.67	1.48	0.00	-0.05	-76.57	0.00
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	18.67	1.28	0.74	38.23	-66.31	0.00
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	18.67	0.74	1.28	66.26	-38.29	0.00
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	18.67	0.00	1.48	76.52	-0.00	-0.00
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	18.67	-0.74	1.28	66.26	38.29	-0.00
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	18.67	-1.28	0.74	38.23	66.31	-0.00
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	18.67	-1.48	0.00	-0.05	76.57	-0.00
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	18.67	-1.28	-0.74	-38.34	66.31	-0.00
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	18.67	-0.74	-1.28	-66.37	38.29	-0.00
Dead+Wind 0 deg - Service	9.15	0.00	-0.98	-48.22	0.00	0.00
Dead+Wind 30 deg - Service	9.15	0.49	-0.85	-41.76	-24.11	0.00
Dead+Wind 60 deg - Service	9.15	0.85	-0.49	-24.12	-41.75	0.00
Dead+Wind 90 deg - Service	9.15	0.98	0.00	-0.01	-48.21	0.00
Dead+Wind 120 deg - Service	9.15	0.85	0.49	24.10	-41.75	0.00
Dead+Wind 150 deg - Service	9.15	0.49	0.85	41.74	-24.11	0.00
Dead+Wind 180 deg - Service	9.15	0.00	0.98	48.20	0.00	0.00
Dead+Wind 210 deg - Service	9.15	-0.49	0.85	41.74	24.11	-0.00
Dead+Wind 240 deg - Service	9.15	-0.85	0.49	24.10	41.75	-0.00
Dead+Wind 270 deg - Service	9.15	-0.98	0.00	-0.01	48.21	-0.00
Dead+Wind 300 deg - Service	9.15	-0.85	-0.49	-24.12	41.75	-0.00
Dead+Wind 330 deg - Service	9.15	-0.49	-0.85	-41.76	24.11	-0.00

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.00	-9.15	0.00	0.00	9.15	0.00	0.000%
2	0.00	-10.98	-4.15	0.00	10.98	4.15	0.003%
3	0.00	-8.24	-4.15	0.00	8.24	4.15	0.006%
4	2.07	-10.98	-3.59	-2.07	10.98	3.59	0.003%
5	2.07	-8.24	-3.59	-2.07	8.24	3.59	0.003%
6	3.59	-10.98	-2.07	-3.59	10.98	2.07	0.003%
7	3.59	-8.24	-2.07	-3.59	8.24	2.07	0.003%
8	4.15	-10.98	0.00	-4.15	10.98	-0.00	0.003%
9	4.15	-8.24	0.00	-4.15	8.24	-0.00	0.006%
10	3.59	-10.98	2.07	-3.59	10.98	-2.07	0.003%
11	3.59	-8.24	2.07	-3.59	8.24	-2.07	0.003%
12	2.07	-10.98	3.59	-2.07	10.98	-3.59	0.003%
13	2.07	-8.24	3.59	-2.07	8.24	-3.59	0.003%
14	0.00	-10.98	4.15	0.00	10.98	-4.15	0.003%
15	0.00	-8.24	4.15	0.00	8.24	-4.15	0.006%
16	-2.07	-10.98	3.59	2.07	10.98	-3.59	0.003%
17	-2.07	-8.24	3.59	2.07	8.24	-3.59	0.003%
18	-3.59	-10.98	2.07	3.59	10.98	-2.07	0.003%
19	-3.59	-8.24	2.07	3.59	8.24	-2.07	0.003%
20	-4.15	-10.98	0.00	4.15	10.98	-0.00	0.003%
21	-4.15	-8.24	0.00	4.15	8.24	-0.00	0.006%
22	-3.59	-10.98	-2.07	3.59	10.98	2.07	0.003%
23	-3.59	-8.24	-2.07	3.59	8.24	2.07	0.003%
24	-2.07	-10.98	-3.59	2.07	10.98	3.59	0.003%
25	-2.07	-8.24	-3.59	2.07	8.24	3.59	0.003%
26	0.00	-18.67	0.00	0.00	18.67	0.00	0.001%
27	0.00	-18.67	-1.48	-0.00	18.67	1.48	0.003%
28	0.74	-18.67	-1.28	-0.74	18.67	1.28	0.003%
29	1.28	-18.67	-0.74	-1.28	18.67	0.74	0.003%
30	1.48	-18.67	0.00	-1.48	18.67	-0.00	0.003%
31	1.28	-18.67	0.74	-1.28	18.67	-0.74	0.003%
32	0.74	-18.67	1.28	-0.74	18.67	-1.28	0.003%
33	0.00	-18.67	1.48	-0.00	18.67	-1.48	0.003%
34	-0.74	-18.67	1.28	0.74	18.67	-1.28	0.003%
35	-1.28	-18.67	0.74	1.28	18.67	-0.74	0.003%
36	-1.48	-18.67	0.00	1.48	18.67	-0.00	0.003%
37	-1.28	-18.67	-0.74	1.28	18.67	0.74	0.003%
38	-0.74	-18.67	-1.28	0.74	18.67	1.28	0.003%
39	0.00	-9.15	-0.98	0.00	9.15	0.98	0.004%
40	0.49	-9.15	-0.85	-0.49	9.15	0.85	0.004%
41	0.85	-9.15	-0.49	-0.85	9.15	0.49	0.004%
42	0.98	-9.15	0.00	-0.98	9.15	-0.00	0.004%
43	0.85	-9.15	0.49	-0.85	9.15	-0.49	0.004%
44	0.49	-9.15	0.85	-0.49	9.15	-0.85	0.004%
45	0.00	-9.15	0.98	0.00	9.15	-0.98	0.004%
46	-0.49	-9.15	0.85	0.49	9.15	-0.85	0.004%
47	-0.85	-9.15	0.49	0.85	9.15	-0.49	0.004%
48	-0.98	-9.15	0.00	0.98	9.15	-0.00	0.004%
49	-0.85	-9.15	-0.49	0.85	9.15	0.49	0.004%
50	-0.49	-9.15	-0.85	0.49	9.15	0.85	0.004%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	14	0.00000001	0.00006380
3	Yes	13	0.00000001	0.00012569
4	Yes	14	0.00000001	0.00010540
5	Yes	14	0.00000001	0.00009060
6	Yes	14	0.00000001	0.00010537
7	Yes	14	0.00000001	0.00009058
8	Yes	14	0.00000001	0.00006378
9	Yes	13	0.00000001	0.00012566
10	Yes	14	0.00000001	0.00010526

11	Yes	14	0.00000001	0.00009051
12	Yes	14	0.00000001	0.00010524
13	Yes	14	0.00000001	0.00009050
14	Yes	14	0.00000001	0.00006376
15	Yes	13	0.00000001	0.00012563
16	Yes	14	0.00000001	0.00010524
17	Yes	14	0.00000001	0.00009050
18	Yes	14	0.00000001	0.00010526
19	Yes	14	0.00000001	0.00009051
20	Yes	14	0.00000001	0.00006378
21	Yes	13	0.00000001	0.00012566
22	Yes	14	0.00000001	0.00010537
23	Yes	14	0.00000001	0.00009058
24	Yes	14	0.00000001	0.00010540
25	Yes	14	0.00000001	0.00009060
26	Yes	6	0.00000001	0.00000001
27	Yes	14	0.00000001	0.00002949
28	Yes	14	0.00000001	0.00002972
29	Yes	14	0.00000001	0.00002966
30	Yes	14	0.00000001	0.00002884
31	Yes	14	0.00000001	0.00002952
32	Yes	14	0.00000001	0.00002947
33	Yes	14	0.00000001	0.00002926
34	Yes	14	0.00000001	0.00002947
35	Yes	14	0.00000001	0.00002952
36	Yes	14	0.00000001	0.00002884
37	Yes	14	0.00000001	0.00002966
38	Yes	14	0.00000001	0.00002972
39	Yes	12	0.00000001	0.00007397
40	Yes	12	0.00000001	0.00007227
41	Yes	12	0.00000001	0.00007224
42	Yes	12	0.00000001	0.00007389
43	Yes	12	0.00000001	0.00007217
44	Yes	12	0.00000001	0.00007213
45	Yes	12	0.00000001	0.00007380
46	Yes	12	0.00000001	0.00007213
47	Yes	12	0.00000001	0.00007217
48	Yes	12	0.00000001	0.00007389
49	Yes	12	0.00000001	0.00007224
50	Yes	12	0.00000001	0.00007227

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	83.25 - 53.75	5.042	39	0.8807	0.0000
L2	53.75 - 0	0.948	39	0.1465	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
84.00	Truck Ball	39	5.042	0.8807	0.0000	16226
83.25	Canister Load1	39	5.042	0.8807	0.0000	16226
78.38	42" X 9.75' Concealment Canister	39	4.264	0.7409	0.0000	16226
78.00	APXVAR18_43-C-NA20	39	4.204	0.7301	0.0000	15454
73.50	Canister Load2	39	3.503	0.6039	0.0000	8321
68.63	42" X 9.75' Concealment Canister	39	2.777	0.4735	0.0000	5549
68.00	FVV-65B-R3	39	2.686	0.4573	0.0000	5320
63.75	Canister Load3	39	2.100	0.3522	0.0000	4160

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
58.75	42" X 10' Concealment Canister	39	1.479	0.2411	0.0000	3311
58.00	80010798	39	1.393	0.2257	0.0000	3213
53.75	Canister Load4	39	0.948	0.1465	0.0000	2876

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	83.25 - 53.75	21.168	2	3.6900	0.0000
L2	53.75 - 0	3.999	2	0.6172	0.0000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
84.00	Truck Ball	2	21.168	3.6900	0.0000	3888
83.25	Canister Load1	2	21.168	3.6900	0.0000	3888
78.38	42" X 9.75' Concealment Canister	2	17.907	3.1049	0.0000	3888
78.00	APXVAR18_43-C-NA20	2	17.655	3.0596	0.0000	3703
73.50	Canister Load2	2	14.712	2.5318	0.0000	1993
68.63	42" X 9.75' Concealment Canister	2	11.667	1.9860	0.0000	1329
68.00	FVV-65B-R3	2	11.287	1.9180	0.0000	1274
63.75	Canister Load3	2	8.831	1.4785	0.0000	996
58.75	42" X 10' Concealment Canister	2	6.225	1.0132	0.0000	792
58.00	80010798	2	5.865	0.9490	0.0000	768
53.75	Canister Load4	2	3.999	0.6172	0.0000	687

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	83.25 - 53.75 (1)	TP6x6x0.75	29.50	0.00	0.0	12.3700	-4.23	801.58	0.005
L2	53.75 - 0 (2)	TP33.075x26.625x0.25	53.75	0.00	0.0	26.0466	-10.98	1523.73	0.007

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	83.25 - 53.75 (1)	TP6x6x0.75	38.60	112.39	0.343	0.00	112.39	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L2	53.75 - 0 (2)	TP33.075x26.625x0.25	203.49	1187.79	0.171	0.00	1187.79	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	83.25 - 53.75 (1)	TP6x6x0.75	1.76	240.47	0.007	0.00	111.00	0.000
L2	53.75 - 0 (2)	TP33.075x26.625x0.25	4.15	457.12	0.009	0.00	1314.06	0.000

Pole Interaction Design Data

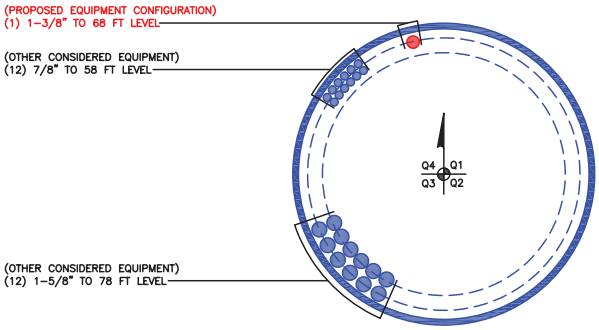
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	83.25 - 53.75 (1)	0.005	0.343	0.000	0.007	0.000	0.349	1.050	4.8.2
L2	53.75 - 0 (2)	0.007	0.171	0.000	0.009	0.000	0.179	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	83.25 - 53.75	Pole	TP6x6x0.75	1	-4.23	841.66	33.2	Pass
L2	53.75 - 0	Pole	TP33.075x26.625x0.25	2	-10.98	1599.92	17.0	Pass
							Summary	
						Pole (L1)	33.2	Pass
						RATING =	**33.2**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1-3/8" TO 68 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(12) 7/8" TO 58 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(12) 1-5/8" TO 78 FT LEVEL
Q4
Q1
Q3
Q2

APPENDIX C

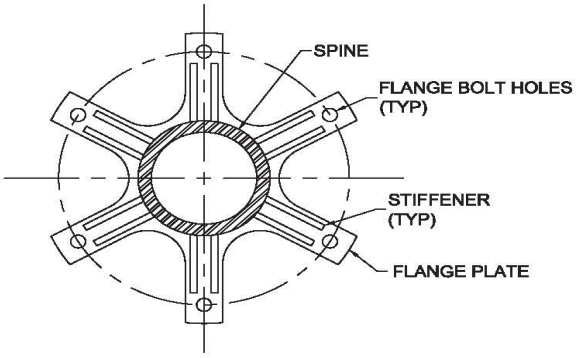
ADDITIONAL CALCULATIONS

CCI Flagpole Tool

Site Data	
BU#:	823630
Site Name:	Danbury North / Rt 37
Order #:	548694 Rev.7

Code		
Code:	TIA-222-H	
Ice Thickness:	1.5	in
Windspeed (V):	120	mph
Ice Wind Speed (V):	50	mph
Exposure Category:	B	
Topographic Feature:	N/A	
Risk Category:	II	

Tower Information		
Total Tower Height:	83.25	ft
Base Tower Height:	53.75	ft
Total Canister Length:	29.5	ft
Number of Canister Assembly Sections:	3	



FLANGE PLATE
(TYPE 3: SOLIDITY RATIO 0.5)

Canister Section Number *:	Canister Assembly Length (ft):	Canister Assembly Diameter (in):	Number of Sides Canister Section	Plate Type:	Mating Flange Plate Thickness (in)**:	Mating Flange Plate Diameter (in):	Solidity Ratio	Plate Weight (Kip):	Canister Weight (Kip)	Vent Length (ft):
1	9.75	42	Round	3	0.75	42	0.5	0.295	0.214	0-0
2	9.75	42	Round	3	0.75	42	0.5	0.295	0.214	0-0
3	10	42	Round	3	2.50	25.75	0.5	0.369	0.220	0-0

* Sections are numbered from the top of the tower down ** Mating Flange Plate Thickness at the bottom of canister section

Flag on Tower:	Yes	
Flag Width:	18	ft
Flag Height:	12	ft
Flag Elevation(z):	83.25	ft

Truck Ball on Tower:	Yes	
Diameter of Ball:	18	in

Geometry : Base Tower + Spine

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Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material	Delete
83.25	29.5	0	0	6	6	0.75	n/a	A519 Type 1026	[x]
53.75	53.75	0	18	26.625	33.075	0.25	1	A572-65	[x]

Discrete Loads: Truck Ball	Apply C_aA_A at Elevation(z) (ft)	C_aA_A No Ice (ft^2)	C_aA_A 1/2" Ice (ft^2)	C_aA_A 1" Ice (ft^2)	C_aA_A 2" Ice (ft^2)	C_aA_A 4" Ice (ft^2)	Weight No Ice (Kip)	Weight 1/2" Ice (Kip)
	84	0.884	1.378	1.527	1.848	2.581	0.05	0.067

Discrete Loads : C_FA_F for Canister Assembly								
Canister Loading	Apply C_FA_F at Elevation(z) (ft)	C_FA_F No Ice (ft^2)	C_FA_F 1/2" Ice (ft^2)	C_FA_F 1" Ice (ft^2)	C_FA_F 2" Ice (ft^2)	C_FA_F 4" Ice (ft^2)	Canister Assembly Weight No Ice (Kip)	Canister Assembly Weight 1/2" Ice (Kip)
Canister Load 1	83.25	7.678	19.216	19.663	20.556	22.344	0.107	0.234
Canister Load 2	73.5	15.356	38.431	39.325	41.113	44.688	0.509	0.762
Canister Load 3	63.75	15.553	38.924	39.829	41.640	45.260	0.512	0.768
Canister Load 4	53.75	7.875	19.708	20.167	21.083	22.917	0.479	0.609

User Forces: Flag Force Calculation Per ANSI/NAAMM FP 1001-07	
$Wind_{FORCE}$=	0.411 Kip
Weight=	0.023 Kip
$Wind_{FORCE, ICE}$=	0.074 Kip
$Weight_{ICE}$=	0.686 Kip
$W_{FORCE, SERVICE WIND}$=	0.103 Kip
Weight=	0.023 Kip

←Flag force should be included at the top of the flag attachment elevation. If the attachment of the flag to the halyard distributes forces equally to the pole, apply flag forces accordingly in tnx file.

Monopole Flange Plate Connection

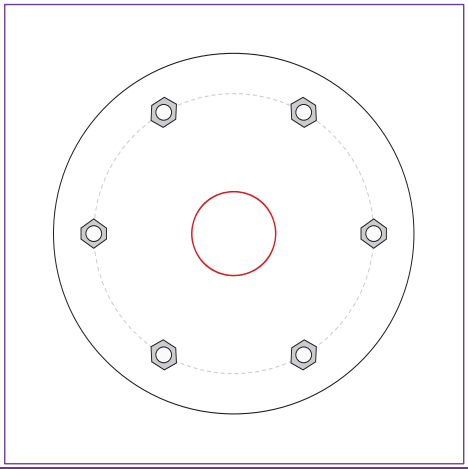
Elevation = 53.75 ft.

BU #	823630
Site Name	Danbury North / Rt 37
Order #	548694 Rev.7
TIA-222 Revision	H

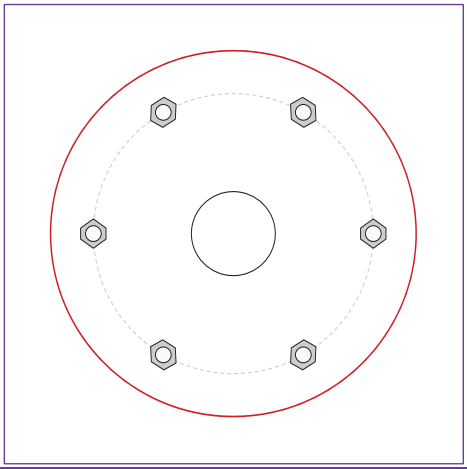
Applied Loads	
Moment (kip-ft)	38.60
Axial Force (kips)	4.23
Shear Force (kips)	1.76

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(6) 1-1/8" ø bolts (A325 N; Fy=81 ksi, Fu=120 ksi) on 20" BC

Top Plate Data

25.75" OD x 2.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Bottom Plate Data

6" ID x 1.25" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

6" x 0.75" round pole (A519 Type 1026; Fy=72 ksi, Fu=87 ksi)

Bottom Pole Data

26.625" x 0.25" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	14.72	
Allowable (kips)	68.67	
Stress Rating:	**20.4%**	Pass

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**N/A**
Tension Side Stress Rating:	**N/A**

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**N/A**
Tension Side Stress Rating:	**N/A**

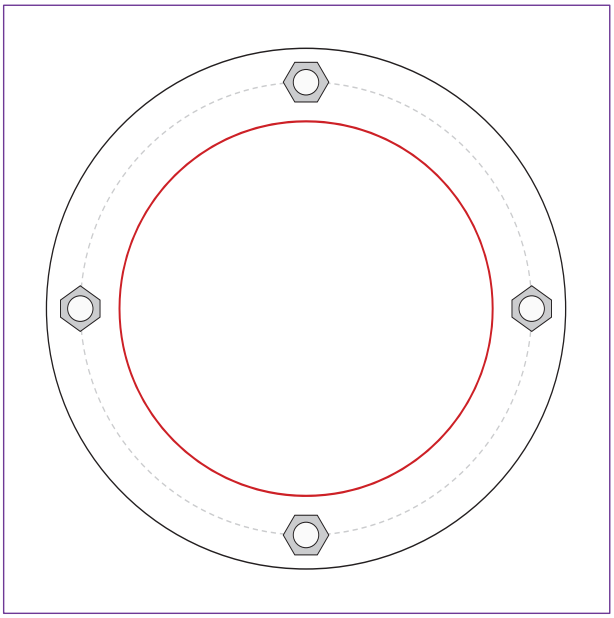
Monopole Base Plate Connection

Site Info	
BU #	823630
Site Name	Danbury North / Rt 37
Order #	548694 Rev.7

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
I_{ar} (in)	0.25

Applied Loads	
Moment (kip-ft)	203.49
Axial Force (kips)	10.98
Shear Force (kips)	4.15

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(4) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 40" BC

Base Plate Data

46" OD x 1.75" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Stiffener Data

N/A

Pole Data

33.075" x 0.25" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

Pu_t = 58.22	ϕPn_t = 243.75	**Stress Rating**
Vu = 1.04	ϕVn = 149.1	**22.7%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	12.81	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**27.1%**	**Pass**

Pier and Pad Foundation

BU # :	823630
Site Name:	Danbury North / Rt
App. Number:	548694 Rev.7

TIA-222 Revision:	H
Tower Type:	Monopole

Top & Bot. Pad Rein. Different?:	☐
Block Foundation?:	☐
Rectangular Pad?:	☐

Superstructure Analysis Reactions		
Compression, P_{comp}:	10.98	kips
Base Shear, Vu_comp:	4.15	kips
Moment, M_u:	203.49	ft-kips
Tower Height, **H**:	83.25	ft
BP Dist. Above Fdn, bp_{dist}:	5	in

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, **dpier**:	4	ft
Ext. Above Grade, **E**:	0	ft
Pier Rebar Size, **Sc**:	8	
Pier Rebar Quantity, **mc**:	12	
Pier Tie/Spiral Size, **St**:	3	
Pier Tie/Spiral Quantity, **mt**:	5	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	8.5	ft
Pad Width, W_1:	10	ft
Pad Thickness, **T**:	4	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	8	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	13	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	3	ksi
Dry Concrete Density, δc:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	120	pcf
Ultimate Net Bearing, Qnet:	12.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	30	degrees
SPT Blow Count, N_{blows}:	1	
Base Friction, μ:	0.5	
Neglected Depth, **N**:	4.00	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

Foundation Analysis Checks				
	Capacity	**Demand**	**Rating***	**Check**
Lateral (Sliding) (kips)	114.63	4.15	**3.4%**	**Pass**
Bearing Pressure (ksf)	9.77	2.47	**24.1%**	**Pass**
*Overturning (kip*ft)*	616.31	240.49	**39.0%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	842.10	222.17	**25.1%**	**Pass**
Pier Compression (kip)	5998.68	21.16	**0.3%**	**Pass**
*Pad Flexure (kip*ft)*	1963.82	57.97	**2.8%**	**Pass**
Pad Shear - 1-way (kips)	428.87	0.00	**0.0%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.004	**2.1%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	3927.64	133.30	**3.2%**	**Pass**

**Rating per TIA-222-H Section 15.5*

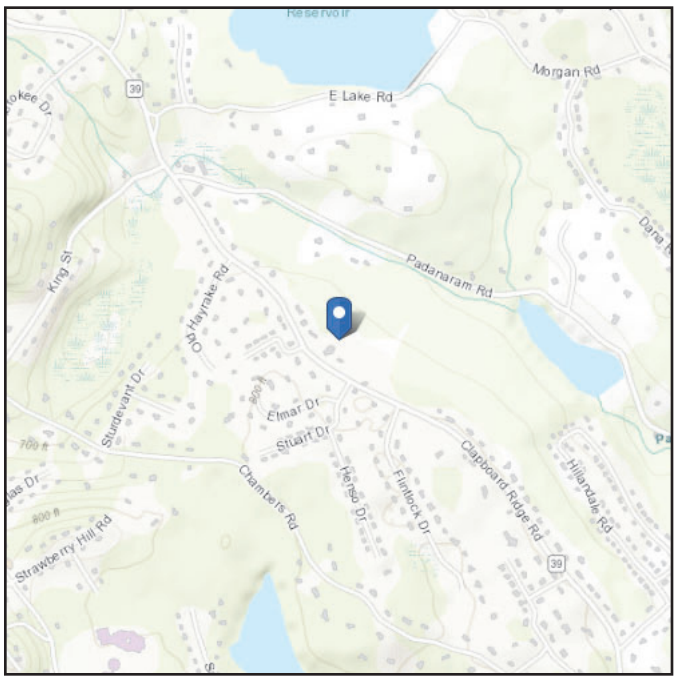
Structural Rating*:	**25.1%**
Soil Rating*:	**39.0%**

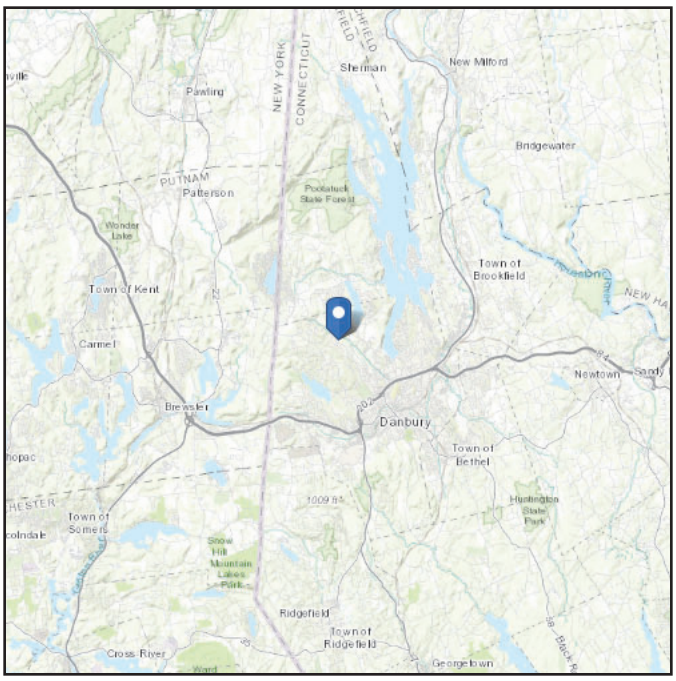
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 770.61 ft (NAVD 88)
Latitude: 41.433185
Longitude: -73.492434





Wind

Results:

Wind Speed	115 Vmph
10-year MRI	76 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	96 Vmph

Data Accessed: Wed Feb 02 2022

Date Source: ASCE/SEI 7-22 Fig. 26.5-1A and Figs. CC-1–CC-4, and Section 26.5.2, incorporating errata of March 12, 2014

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2.

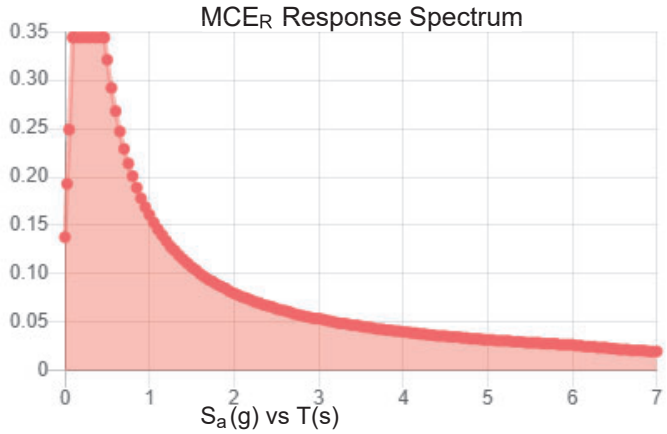
Seismic

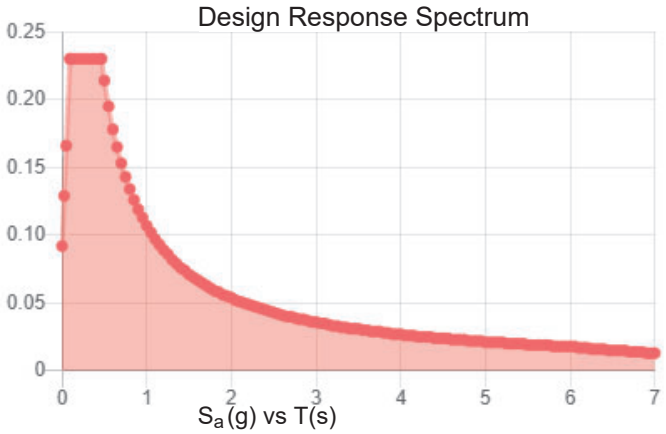
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.215	S_{DS} :	0.23
S_1 :	0.067	S_{D1} :	0.107
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.117
S_{MS} :	0.344	PGA_M :	0.183
S_{M1} :	0.161	F_{PGA} :	1.566
		I_e :	1

Seismic Design Category B





Data Accessed: **Wed Feb 02 2022**

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Wed Feb 02 2022

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

ATTACHMENT 5

EBI Consulting

environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

Dish Wireless Existing Facility

Site ID: 823630

NJJER01141A
181 Clapboard Ridge Road
Danbury, Connecticut 06811

May 26, 2022

EBI Project Number: 6222003436

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**32.84%**

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

May 26, 2022

Attn: Dish Wireless

Emissions Analysis for Site: 823630 - NJJER01141A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **181 Clapboard Ridge Road** in **Danbury, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

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

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

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

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

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless Wireless antenna facility located at 181 Clapboard Ridge Road in Danbury, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 4 n71 channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 4 n70 channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

3) 4 n66 channels (AWS Band - 2190 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

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

5) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative

estimate as gain reductions for these particular antennas are typically much higher in this direction.

6) The antennas used in this modeling are the JMA FVV-65B-R3 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector A, the JMA FVV-65B-R3 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector B, the JMA FVV-65B-R3 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

7) The antenna mounting height centerline of the proposed antennas is 68 feet above ground level (AGL).

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

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

Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA FVV-65B-R3	Make / Model:	JMA FVV-65B-R3	Make / Model:	JMA FVV-65B-R3
Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz
Gain:	11.48 dBd / 15.17 dBd / 16.12 dBd	Gain:	11.48 dBd / 15.17 dBd / 16.12 dBd	Gain:	11.48 dBd / 15.17 dBd / 16.12 dBd
Height (AGL):	68 feet	Height (AGL):	68 feet	Height (AGL):	68 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	440.00 Watts	Total TX Power (W):	440.00 Watts	Total TX Power (W):	440.00 Watts
ERP (W):	2,391.07	ERP (W):	2,391.07	ERP (W):	2,391.07
Antenna A1 MPE %:	**2.87%**	Antenna B1 MPE %:	**2.87%**	Antenna C1 MPE %:	**2.87%**

Site Composite MPE %	
Carrier	**MPE %**
Dish Wireless (Max at Sector A):	2.87%
T-Mobile	10.7%
AT&T	18.8%
Clearwire	0.47%
Site Total MPE % :	32.84%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	2.87%
Dish Wireless Sector B Total:	2.87%
Dish Wireless Sector C Total:	2.87%
Site Total MPE % :	32.84%

Dish Wireless Maximum MPE Power Values (Sector A)

Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
Dish Wireless 600 MHz n71	4	112.49	68.0	4.21	600 MHz n71	400	1.05%
Dish Wireless 1900 MHz n70	4	229.38	68.0	8.58	1900 MHz n70	1000	0.86%
Dish Wireless 2190 MHz n66	4	255.89	68.0	9.57	2190 MHz n66	1000	0.96%
						Total:	**2.87%**

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

Summary

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

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

Dish Wireless Sector	Power Density Value (%)
Sector A:	2.87%
Sector B:	2.87%
Sector C:	2.87%
Dish Wireless Maximum MPE % (Sector A):	2.87%
Site Total:	32.84%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **32.84%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

ATTACHMENT 6

CERTIFICATION OF SERVICE

I hereby certify that on the 21st day of June 2022, DISH Wireless, LLC provided notice of its intent to file a Petition for a declaratory ruling that a Certificate of Environmental Compatibility and Public Need is not required for the modification of a wireless telecommunications facility at 181 Clapboard Ridge Road in Danbury, Connecticut, to the following:

Abutters

MERCURIO MARK S
E070300000
1 HIGHLAND PARK DR
DANBURY, CT 06811

OVERTHROW BRYAN
E070570000
5 ELMAR DR
DANBURY, CT 06811

CHIAPPA RICHARD E & MARGARET A
E070580000
108A CLAPBOARD RIDGE RD
DANBURY, CT 06811

CARNESELLA CATALINA & FISCHER ROBERT S
E070590000
108 CLAPBOARD RIDGE RD
DANBURY, CT 06811

JUDD FLORENCE M EST
E070910000
59 MAIN ST
DANBURY, CT 06810

SABIO JASON M
E070940000
185 CLAPBOARD RIDGE RD
DANBURY, CT 06811

HAVASI ANDRE DAVID & SONIA PASSOS
E071270000
108B CLAPBOARD RIDGE RD
DANBURY, CT 06811

DIOCESE OF NEWTON FOR THE MELKITES IN THE UNITED STATES
E071330000
181 CLAPBOARD RIDGE RD
DANBURY, CT 06811

Owner

Diocese of Newtown for the Melkites in the US of America Inc.
181 Clapboard Ridge Road
Danbury, CT 06811

Respectfully Submitted,

Victoria Masse
Northeast Site Solutions
420 Main Street #2
Sturbridge, MA 01566

June 21, 2022

VIA USPS CERTIFIED MAIL/
RETURN RECEIPT REQUESTED

Diocese of Newtown for the Melkites in the US of America Inc.
181 Clapboard Ridge Road
Danbury, CT 06811

RE: Proposed Modification to Existing Wireless Telecommunications Facility at 181 Clapboard Ridge Road in Danbury, Connecticut

To Whom It May Concern:

I am writing to you on behalf of DISH Wireless, LLC ("DISH"). DISH intends to file with the Connecticut Siting Council ("Council") a petition for declaratory ruling ("Petition") that a Certificate of Environmental Compatibility and Public Need is not required.

The Petition will provide details of the Existing Facility modification and explain why it will have no significant adverse environmental effect.

This letter serves as notice to you as an abutting property owner pursuant to § 16-50j-40 of the Regulations of Connecticut State Agencies. DISH will file the Petition on or about June 21, 2022 and will request that the Council place the Petition on some future agenda.

You may review the Petition at the office of the Council, which is located at Ten Franklin Square, New Britain, Connecticut, 06051, or at the Office of the City Clerk at the Danbury City Hall. All inquiries should be addressed to Council or to the undersigned.

Sincerely,

Victoria Masse
Northeast Site Solutions
420 Main Street #2
Sturbridge, MA 01566

Danbury, CT

1 inch = 120 Feet

0 120 240 360

June 7, 2022

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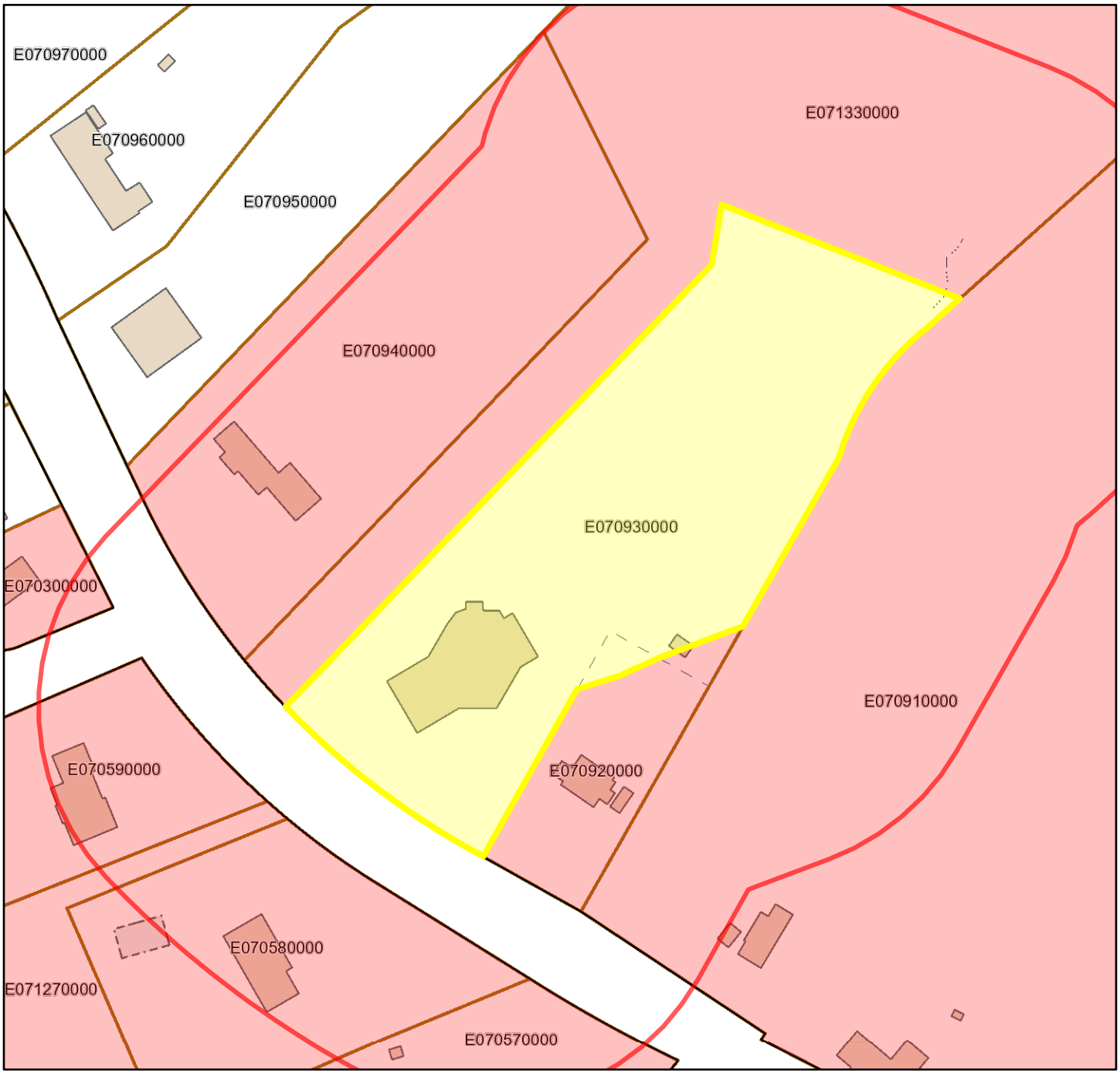

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Total Postage and Fees	$7.38

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Sent To: Diocese of newton for Melkites
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City, State, ZIP+4® Danbury CT 06811

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WORCESTER, MA 01605-1925
(800)275-8777

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Estimated Delivery Date			
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Certified Mail®			$3.75
Tracking #:			
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Return Receipt			$3.05
Tracking #:			
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Total			$7.38
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Danbury, CT 06811			
Weight: 0 lb 0.40 oz			
Estimated Delivery Date			
Mon 06/27/2022			
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Return Receipt			$3.05
Tracking #:			
9590 9402 7040 1225 8323 72			
Total			$7.38
First-Class Mail® Letter	1		$0.58
Danbury, CT 06811			
Weight: 0 lb 0.40 oz			
Estimated Delivery Date			
Mon 06/27/2022			
Certified Mail®			$3.75
Tracking #:			
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Return Receipt			$3.05
Tracking #:			
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Total			$7.38
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Danbury, CT 06811			
Weight: 0 lb 0.40 oz			
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Mon 06/27/2022			
Certified Mail®			$3.75
Tracking #:			
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Tracking #:			
9590 9402 6930 1104 6428 15			
Total			$7.38

First-Class Mail® 1 $0.58
Letter
Danbury, CT 06811
Weight: 0 lb 0.40 oz
Estimated Delivery Date
Mon 06/27/2022
Certified Mail® $3.75
Tracking #:
70211970000122844406
Return Receipt $3.05
Tracking #:
9590 9402 6930 1104 6428 22
Total $7.38

First-Class Mail® 1 $0.58
Letter
Danbury, CT 06810
Weight: 0 lb 0.40 oz
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Certified Mail® $3.75
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Return Receipt $3.05
Tracking #:
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Total $7.38

First-Class Mail® 1 $0.58
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Danbury, CT 06811
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Estimated Delivery Date
Mon 06/27/2022
Certified Mail® $3.75
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70211970000122844383
Return Receipt $3.05
Tracking #:
9590 9402 6930 1104 6428 53
Total $7.38

Grand Total: $51.66

Credit Card Remitted $51.66
Card Name: VISA
Account #: XXXXXXXXXXXX7594
Approval #: 05890G
Transaction #: 510
AID: A0000000031010 Chip
AL: VISA CREDIT
PIN: Not Required CHASE VISA

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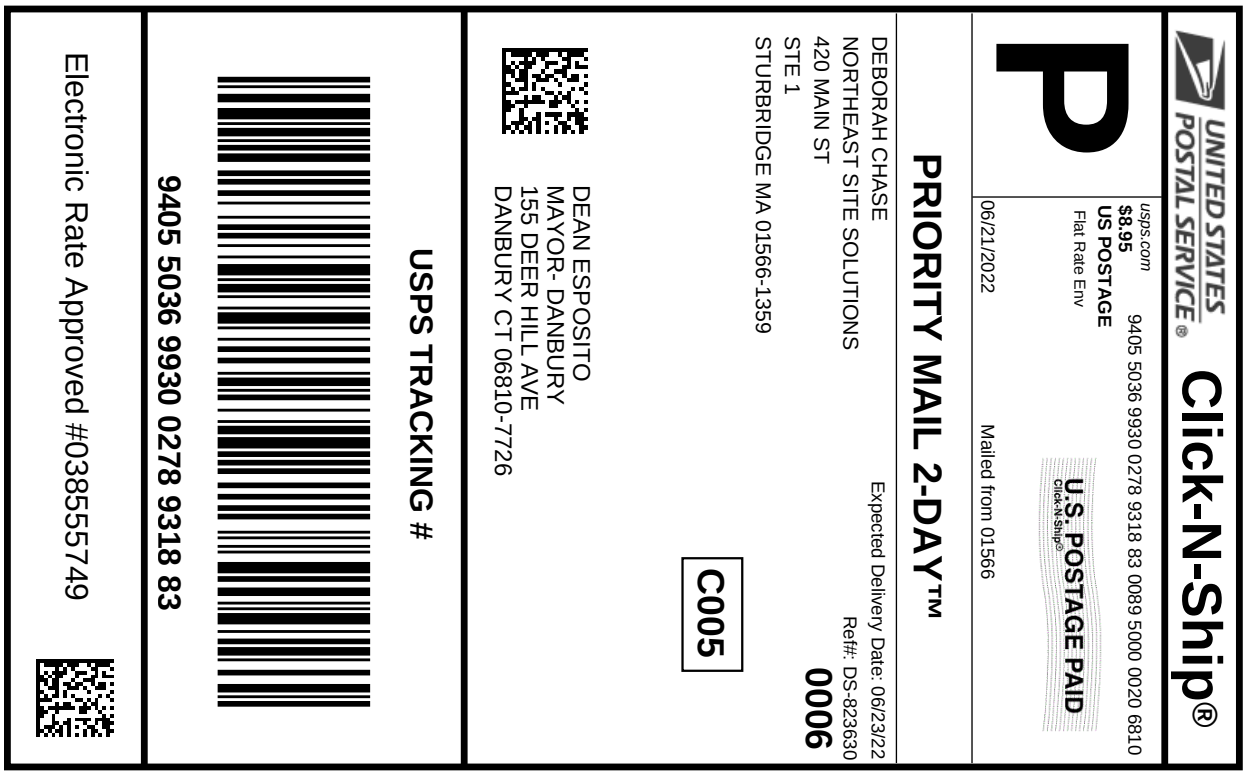

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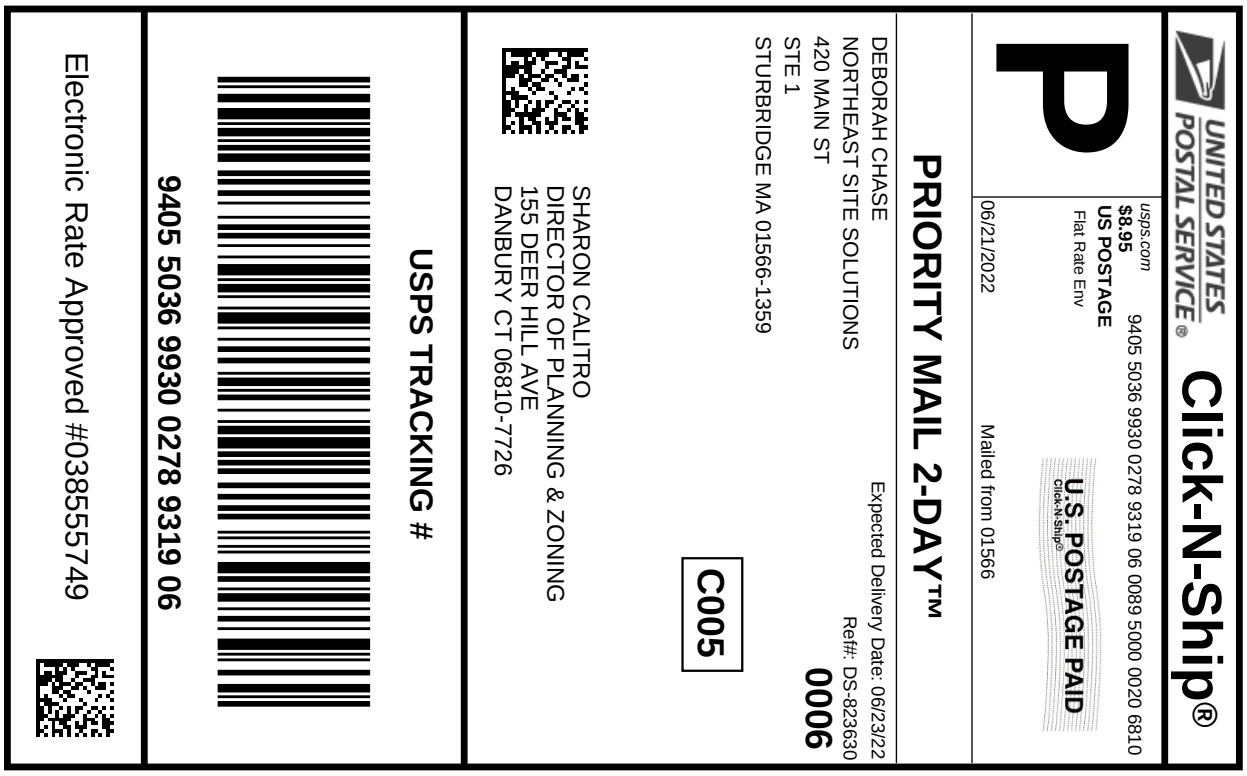

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NORTHEAST SITE SOLUTIONS
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To: SHARON CALITRO
DIRECTOR OF PLANNING & ZONING
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DIOCESE OF NEWTOWN FOR THE MELKITES IN
181 CLAPBOARD RIDGE RD
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Ship Date:	06/21/2022
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Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

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* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

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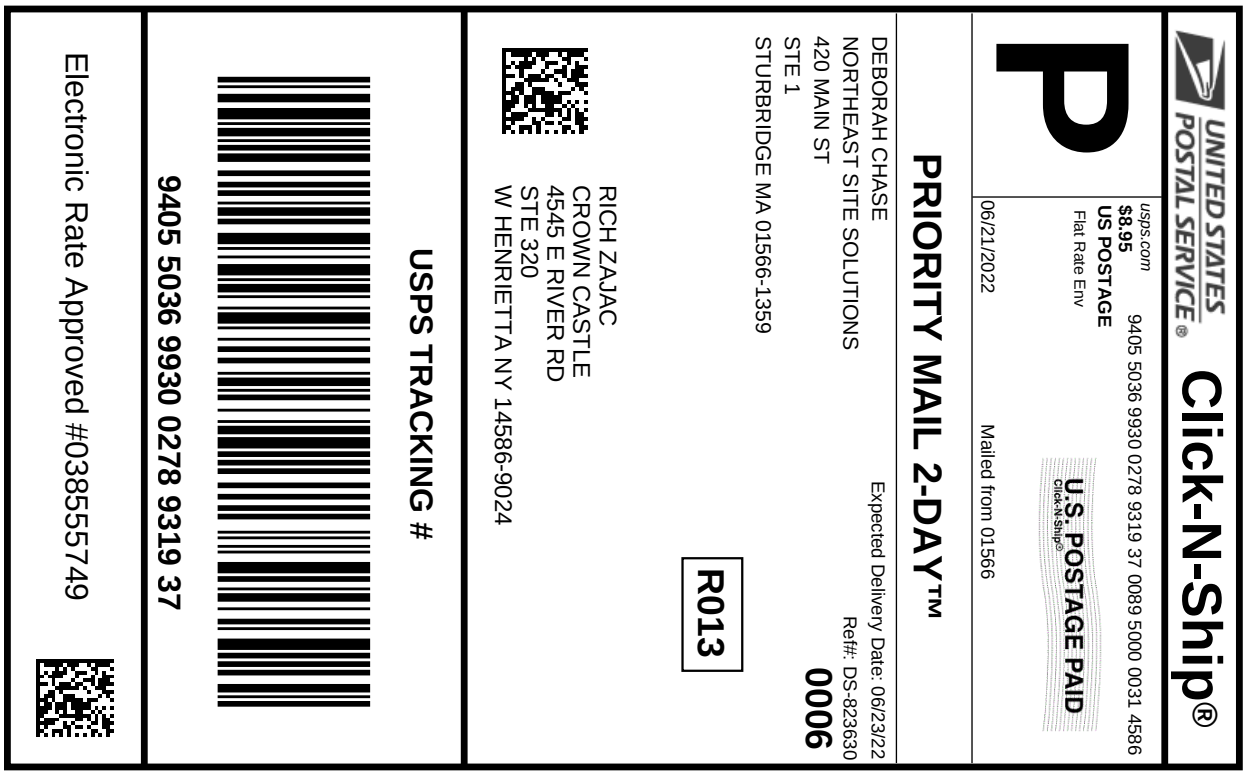
Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0278 9319 37

Trans. #:	566083518
Print Date:	06/21/2022
Ship Date:	06/21/2022
Expected Delivery Date:	06/23/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DS-823630

To: RICH ZAJAC
CROWN CASTLE
4545 E RIVER RD
STE 320
W HENRIETTA NY 14586-9024

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Y23630 CROWN DISL

UNITED STATES POSTAL SERVICE.

FARMINGTON
210 MAIN ST
FARMINGTON, CT 06032-9998
(800)275-8777

06/23/2022 04:40 PM

Product	Qty	Unit Price	Price
Prepaid Mail West Henrietta, NY 14586 Weight: 0 lb 2.00 oz Acceptance Date: Thu 06/23/2022 Tracking #: 9405 5036 9930 0278 9319 37	1		$0.00
Prepaid Mail Danbury, CT 06811 Weight: 0 lb 8.40 oz Acceptance Date: Thu 06/23/2022 Tracking #: 9405 5036 9930 0278 9319 13	1		$0.00
Prepaid Mail Danbury, CT 06810 Weight: 0 lb 8.30 oz Acceptance Date: Thu 06/23/2022 Tracking #: 9405 5036 9930 0278 9319 06	1		$0.00
Prepaid Mail Danbury, CT 06810 Weight: 0 lb 8.40 oz Acceptance Date: Thu 06/23/2022 Tracking #: 9405 5036 9930 0278 9318 83	1		$0.00

Grand Total: $0.00

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Every household in the U.S. is now
eligible to receive a third set
of 8 free test kits.
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****

Preview your Mail
Track your Packages
Sign up for FREE @
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or scan this code with your mobile device,