Northeast Site Solutions
Victoria Masse
5 Melrose Drive
Farmington, CT 06032
victoria@northeastsitesolutions.com

December 5, 2023

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Tower Share Application
227 Boombridge Road, North Stonington CT 06359
Latitude: 41.42879694
Longitude: -71.80907720
Site#: BOBOS01171A

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless LLC. Dish Wireless LLC plans to install antennas and related equipment to the guyed lattice tower site located at 227 Boombridge Road, North Stonington, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900/2100 5G MHz antenna and six (6) RRUs, at the 153-foot level of the existing 180-foot guyed lattice tower, one (1) hybrid cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within 8”x11” lease area. Included are plans by Centek, dated December 1, 2023, Exhibit C. Also included is a structural analysis prepared by Centek, dated September 19, 2023 confirming that the existing guyed tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. This facility was originally approved by the Town of North Stonington Zoning and Building Official in 1997 (Building Permit No. 97-012). Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to First Selectman Bob Carlson, Cheryl Konsavitch, Land Use Assistant, for the Town of North Stonington, as well as the property owner and the tower owner.

The planned modifications of the facility fall squarely within those activities explicitly provided for in R.C.S.A. 16-50j-89.

1. The proposed modifications will not result in an increase in the height of the existing structure. The top of the guyed lattice tower is 180-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 153-feet.

2.The proposed modification will not result in the increase of the site boundary as depicted on the attached site plan.

3.The proposed modification will not increase the noise levels at the facility by six decibels or more, or to levels that exceed local and state criteria. The incremental effect of the proposed changes will be negligent.

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4.The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, the combined site operations will result in a total density of 11.75% as evidenced by Exhibit F.

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

A. Technical Feasibility. The existing guyed lattice tower has been deemed structurally capable of supporting Dish Wireless LLC proposed loading. The structural analysis is included in Exhibit D.

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing guyed lattice tower such as this guyed lattice tower in North Stonington. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit Dish Wireless LLC to obtain a building permit for the proposed installation. Further, a letter of Authorization is included as Exhibit G, authorizing Dish Wireless LLC to file this application for shared use.

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish Wireless LLC equipment at the 153-foot level of the existing 180-foot guyed lattice tower would have an insignificant visual impact on the area around the guyed lattice tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

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

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

Sincerely,

Victoria Masse
Mobile: 860-306-2326
Fax: 413-521-0558
Office: 5 Melrose Drive, Farmington CT 06032
Email: victoria@northeastsitesolutions.com

Attachments
Cc:
Bob Carlson, First Selectman
Town of North Stonington
40 Main Street
North Stonington, CT 06359

Cheryl Konsavitch, Land Use Assistant
Town of North Stonington
40 Main Street
North Stonington, CT 06359

LEWIS DAVID BABCOCK LLC, Property Owner
273 BOOMBRIDGE RD
NORTH STONINGTON, CT 06359

Ken Thomas, Tower Owners
Wireless Solutions LLC
PO BOX 284
Old Lyme, CT 06371

Exhibit A

Original Facility Approval

Town of North Stonington

Building Permit

Date: Feb 5 1987 Permit Number: 87002

Expiration Date of Permit: Feb 5 1988

Number of Stories: 0 [illegible] (Proposed Use)

Location: [illegible]

Zoning District: R-60

Subdivision: _____ Lot _____ Map. _____

I HEREBY CERTIFY THAT THE PROPOSED WORK IS AUTHORIZED BY THE OWNER OF RECORD AND I HAVE BEEN AUTHORIZED BY THE OWNER TO MAKE THIS APPLICATION AS HIS OR HER AUTHORIZED AGENT.

Signature of Authorized Agent _____

Address _____

_____ License Number: _____

Area in Square Feet: [illegible]

Estimated Cost of Construction: $2,000 Permit Fee: $25.00

Owner: David Lewis

Address: [illegible]

Building Official: [illegible] Date: 2-5-87

Copy Distribution

White - Applicant Canary - File Pink - Assessor

Exhibit B

Property Card

Town of North Stonington, CT

Property Listing Report | Map Block Lot **119 6314** | Building # | Unique Identifier **L9857560**

Property Information

Property Location	227 BOOMBRIDGE RD
Mailing Address	273 BOOMBRIDGE RD NORTH CT 06359
Land Use	Cell Tower
Zoning Code	R60
Neighborhood	C120

Owner	LEWIS DAVID BABCOCK LLC
Co-Owner	
Book / Page	0140/0513
Land Class	Vacant Land
Census Tract	7071
Acreage	1.38

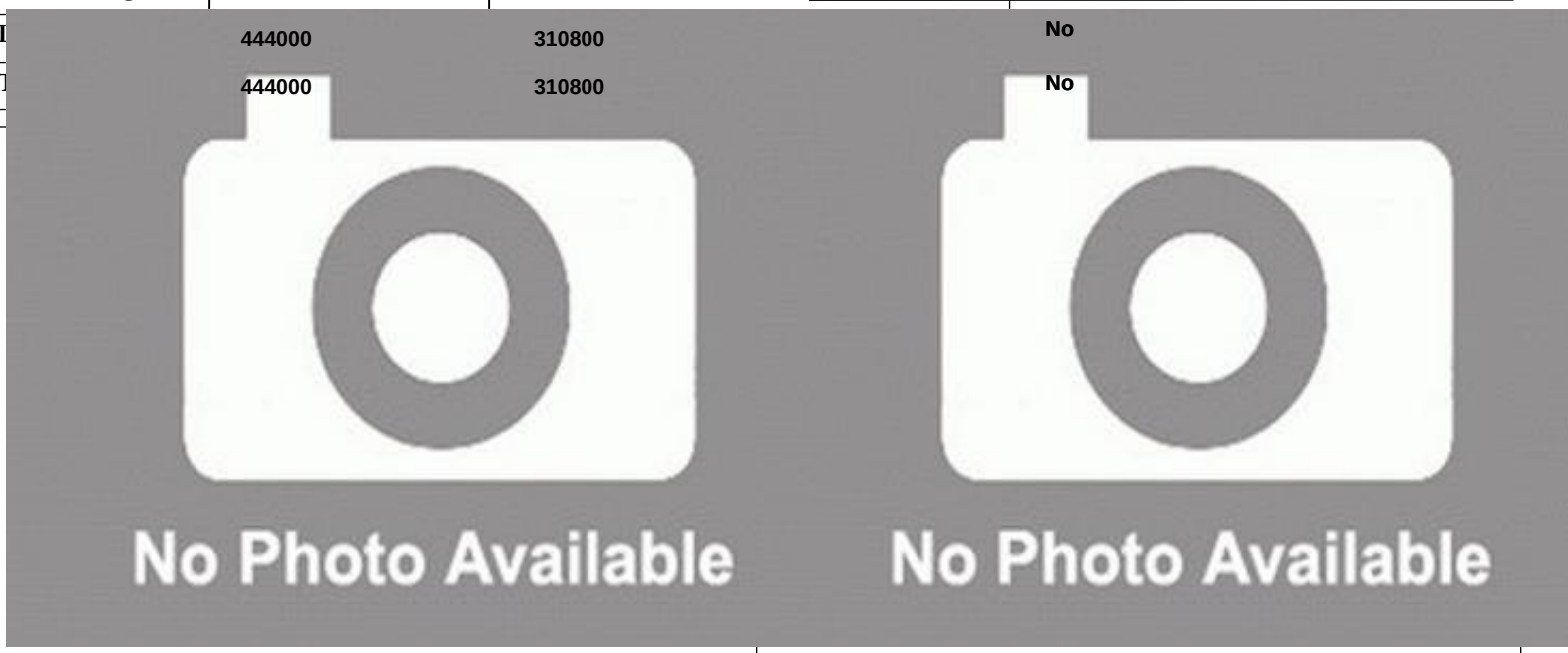
Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	0	0
Outbuildings	0	0
I	444000	310800
T	444000	310800

Utility Information

Electric	No
Gas	No
Sewer	No
	No
	No



Primary Construction Details

Year Built	
Building Desc.	
Building Style	
Stories	
Exterior Walls	
Exterior Walls 2	
Interior Walls	
Interior Walls 2	
Interior Floors 1	
Interior Floors 2	

Heating Fuel	
Heating Type	
AC Type	
Bedrooms	
Full Bathrooms	
Half Bathrooms	
Extra Fixtures	
Total Rooms	
Bath Style	
Kitchen Style	
Occupancy	

Building Use	
Building Condition	
Frame Type	
Fireplaces	
Bsmt Gar	
Fin Bsmt Area	
Fin Bsmt Quality	
Building Grade	
Roof Style	
Roof Cover	

Report Created On 12/6/2023

Town of North Stonington, CT

Property Listing Report | Map Block Lot **119 6314** | Building # | Unique Identifier **L9857560**

Detached Outbuildings

Type	Description	Area (sq ft)	Condition	Year Built

Attached Extra Features

Type	Description	Area (sq ft)	Condition	Year Built

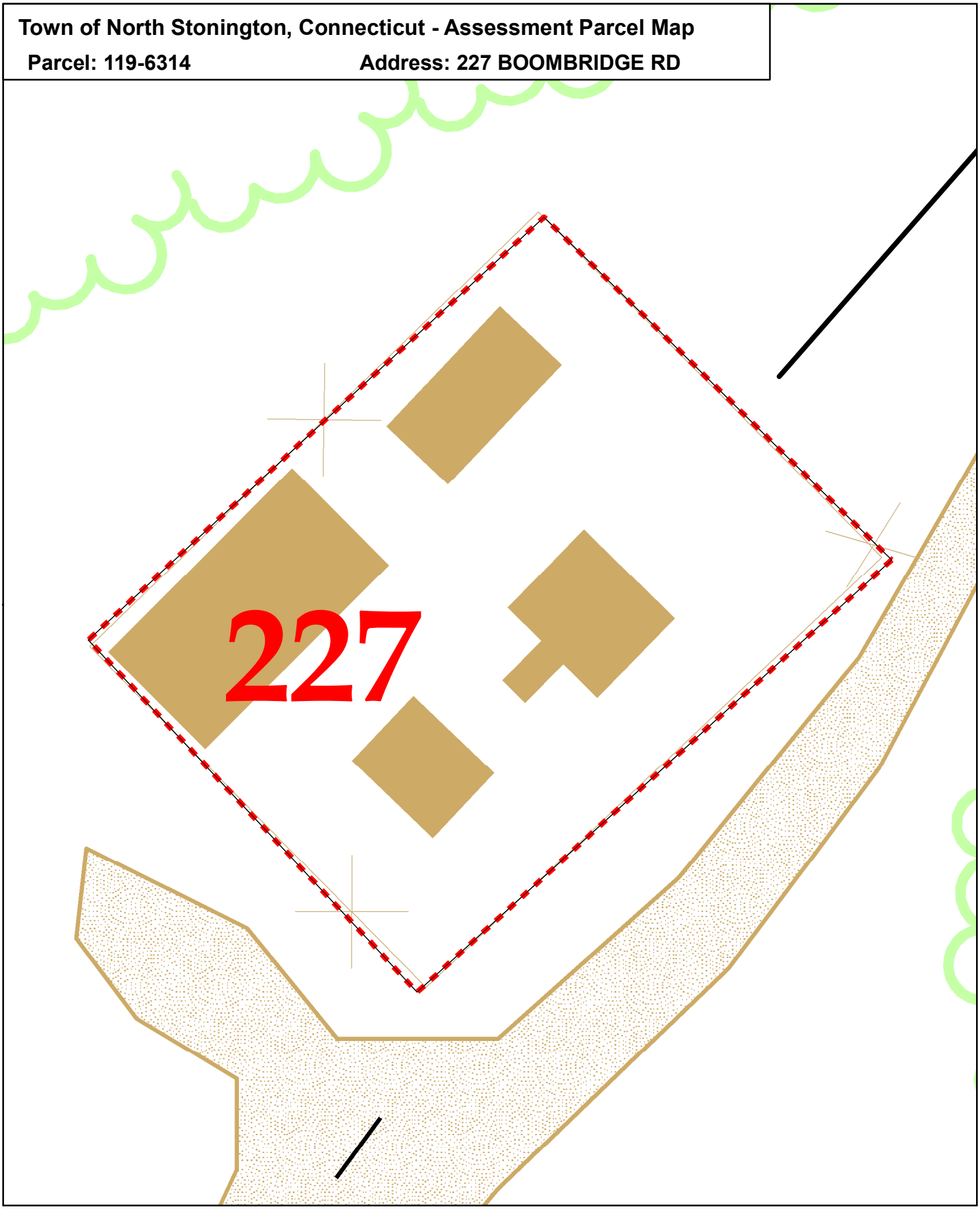
Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
LEWIS DAVID BABCOCK LLC	0140_0513	12/28/2001	0
LEWIS ROSALIND M	0126_0960	8/5/1999	0
LEWIS DAVID B EST & ROSALIND M	0116_0313	10/15/1997	0
LEWIS DAVID B & ROSALIND M	0032_0296	6/9/1964	0

Report Created On **12/6/2023**

Town of North Stonington, Connecticut - Assessment Parcel Map

Parcel: 119-6314 **Address: 227 BOOMBRIDGE RD**



N

Approximate Scale: 1:200

0 3.757.5 15 22.5 30 Feet

Map Produced April 2023

Exhibit C

Construction Drawings

DISH Wireless L.L.C. SITE ID:

BOBOS01171A

DISH Wireless L.L.C. SITE ADDRESS:

227 BOOMBRIDGE ROAD
NORTH STONINGTON, CT 06359

CODE COMPLIANCE

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

CODE TYPE	CODE
BUILDING	2022 CT STATE BUILDING CODE/2021 IBC W/ CT AMENDMENTS
ELECTRICAL	2022 CT STATE BUILDING CODE/2020 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 (3) PROPOSED ANTENNA MOUNT FRAMES (1 PER SECTOR).
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
- INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
- INSTALL (1) PROPOSED HYBRID CABLE

GROUND SCOPE OF WORK:
- INSTALL (1) PROPOSED 5' x 7' STEEL EQUIPMENT PLATFORM ATOP AN EXISTING CONCRETE PAD
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED SAFETY SWITCH (IF REQUIRED)
- INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)
- INSTALL (1) PROPOSED 200A RATED UTILITY METER

SITE PHOTO

UNDERGROUND SERVICE ALERT
UTILITY NOTIFICATION CENTER OF (CT)
1-800-922-4455

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:	LEWIS DAVID BABCOCK LLC
ADDRESS:	227 BOOMBRIDGE RD NORTH STONINGTON, CT 06359
SITE TYPE:	TOWER
COUNTY:	NEW LONDON
LATITUDE (NAD 83):	41° 25' 43.71" N
LONGITUDE (NAD 83):	71° 48' 32.75" W
ZONING JURISDICTION:	CONNECTICUT SITING COUNCIL
ZONING CODE:	R60
PARCEL NUMBER:	119 6314
OCCUPANCY GROUP:	N/A
CONSTRUCTION TYPE:	N/A
POWER COMPANY:	EVERSOURCE
TELEPHONE COMPANY:	TBD

PROJECT DIRECTORY

APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
SITE DESIGNER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD ROAD BRANFORD, CT. 06405 (203) 488-0580
SITE ACQUISITION:	DAVID GOODFELLOW (860) 305-3841
CONSTRUCTION MANAGER:	CHAD WILCOX (860) 573-2758
RF ENGINEER:	IRENE RANGEL (312) 929-9086

DIRECTIONS

DIRECTIONS FROM BRADLEY AIRPORT TO 277 BOOMBRIDGE ROAD, NORTH STONINGTON

1. HEAD NORTHWEST FROM BRADLEY INTL AIRPORT. GO FOR 0.03 MI.
2. KEEP LEFT TOWARD TERMINAL PARKING A/B/ARRIVALS A/B. GO FOR 0.4 MI.
3. CONTINUE STRAIGHT AHEAD. GO FOR 0.3 MI.
4. KEEP RIGHT TOWARD CT-20/I-91. GO FOR 0.1 MI.
5. CONTINUE ON BRADLEY FIELD CONN. GO FOR 0.5 MI.
6. CONTINUE ON CT-20 E (BRADLEY FIELD CONN). GO FOR 3.2 MI.
7. TAKE THE EXIT TOWARD HARTFORD ONTO I-91 S (RICHARD P HORAN MEMORIAL HWY). GO FOR 1.3 MI.
8. KEEP RIGHT ONTO I-91 S (RICHARD P HORAN MEMORIAL HWY) TOWARD I-91. GO FOR 8.5 MI.
9. TAKE THE LEFT EXIT ONTO I-84 E (BULKELEY BRG). GO FOR 0.6 MI.
10. TAKE EXIT 55 TOWARD NORWICH/NEW LONDON ONTO CT-2 E. GO FOR 37.5 MI
11. TURN RIGHT ONTO WASHINGTON ST (CT-2 E/CT-32 S). GO FOR 0.2 MI.
12. CONTINUE ON WASHINGTON ST (CT-2/CT-32). GO FOR 0.4 MI.
13. TURN LEFT ONTO BROADWAY. GO FOR 0.6 MI.
14. CONTINUE ON UNION ST. GO FOR 0.4 MI.
15. KEEP RIGHT ONTO BROADWAY. GO FOR 0.1 MI.
16. TURN LEFT ONTO MAIN ST. GO FOR 0.05 MI.
17. TAKE THE 1ST EXIT FROM ROUNDABOUT ONTO MAIN ST. GO FOR 0.2 MI.
18. CONTINUE ON CT-2. GO FOR 14.1 MI.
19. TAKE THE 3RD EXIT IN ROUNDABOUT ONTO PROVIDENCE NEW LONDON TPKE (CT-184 E). GO FOR 2.8 MI.
20. TURN RIGHT ONTO BOOMBRIDGE RD. GO FOR 0.5 MI.
21. 227 BOOMBRIDGE RD NORTH STONINGTON, CT 06359-1704 ACCESS ROAD WILL BE ON THE LEFT.

VICINITY MAP

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

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Turnkey Wireless Development

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

DRAWN BY:	CHECKED BY:	APPROVED BY:
BSP	TJR	

RFDS REV #: 0 – 08/17/2023

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	10/05/23	ISSUED FOR CLIENT REVIEW
B	10/17/23	REVISED PER CLIENT COMMENTS
0	12/01/23	ISSUED FOR CONSTRUCTION

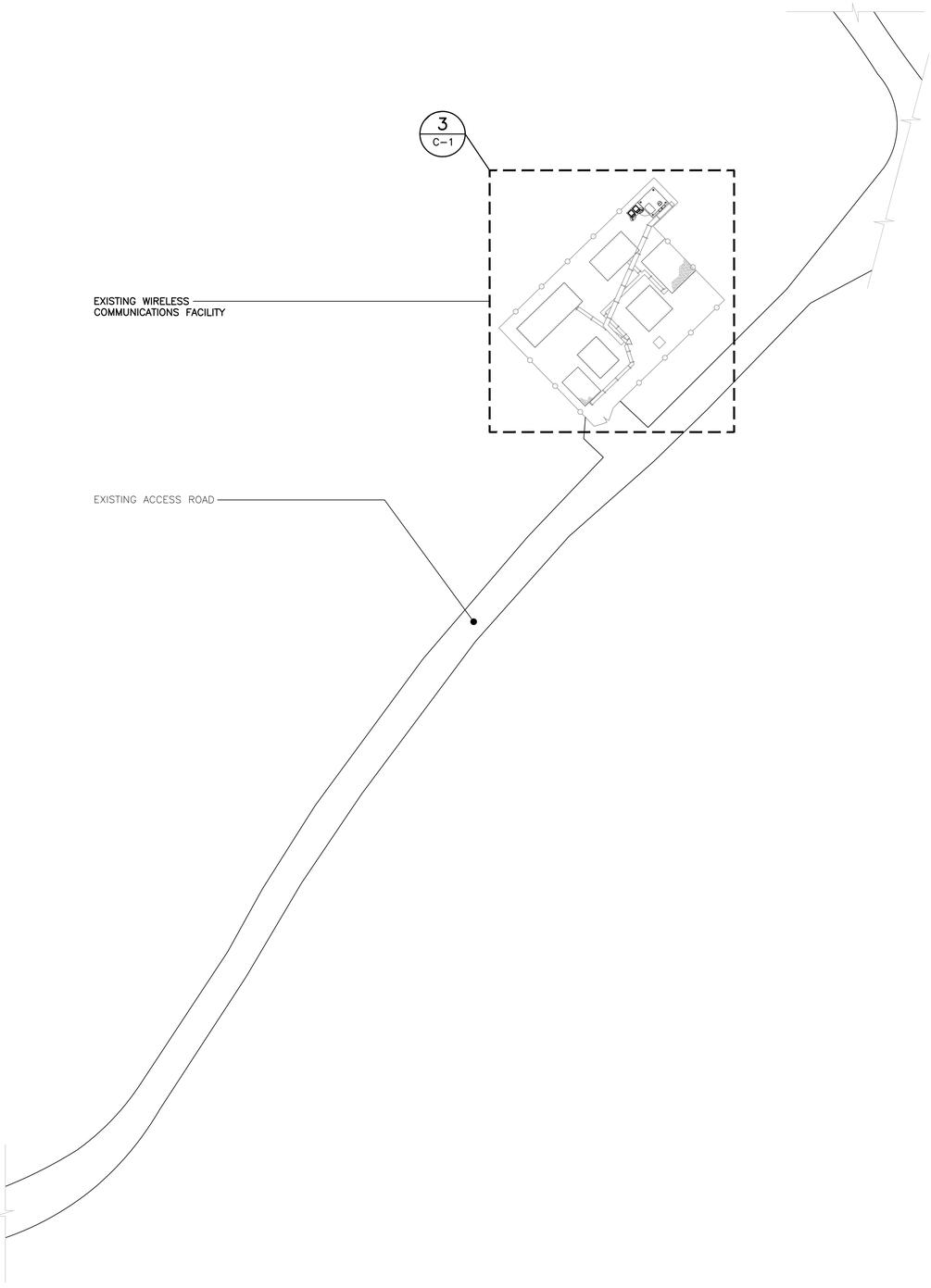
CENTEK PROJECT NUMBER
23009.09

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS01171A
227 BOOMBRIDGE RD
NORTH STONINGTON CT, 06359

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

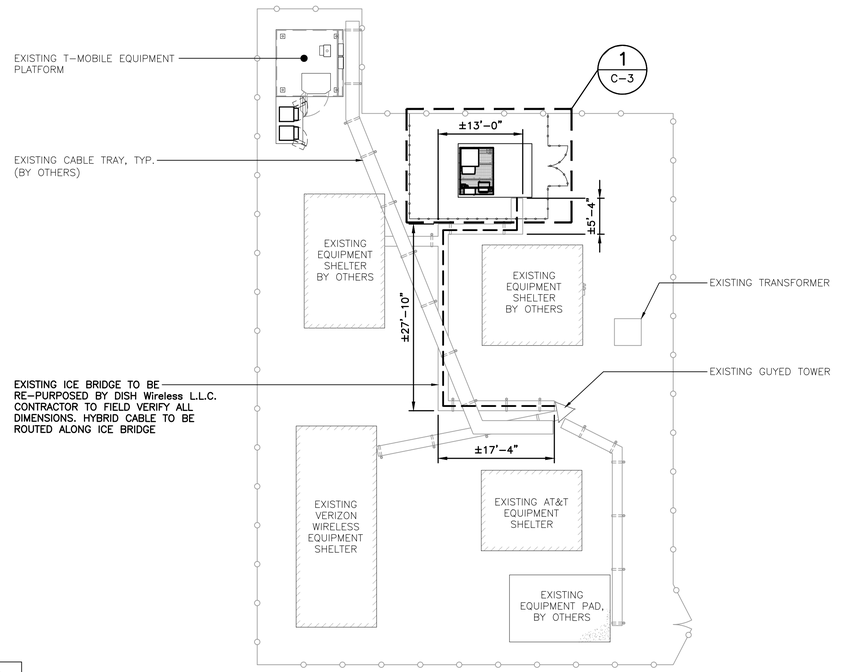


OVERALL SITE PLAN

30' 20' 10' 0 30' 60'
1"=30'

1

AERIAL VIEW PLAN | NO SCALE | 2



ENLARGED SITE PLAN

12' 8' 4' 0 10' 20'
3/32"=1'-0"

3

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LITTLETON, CO 80120

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Turnkey Wireless Development

CENTEK engineering
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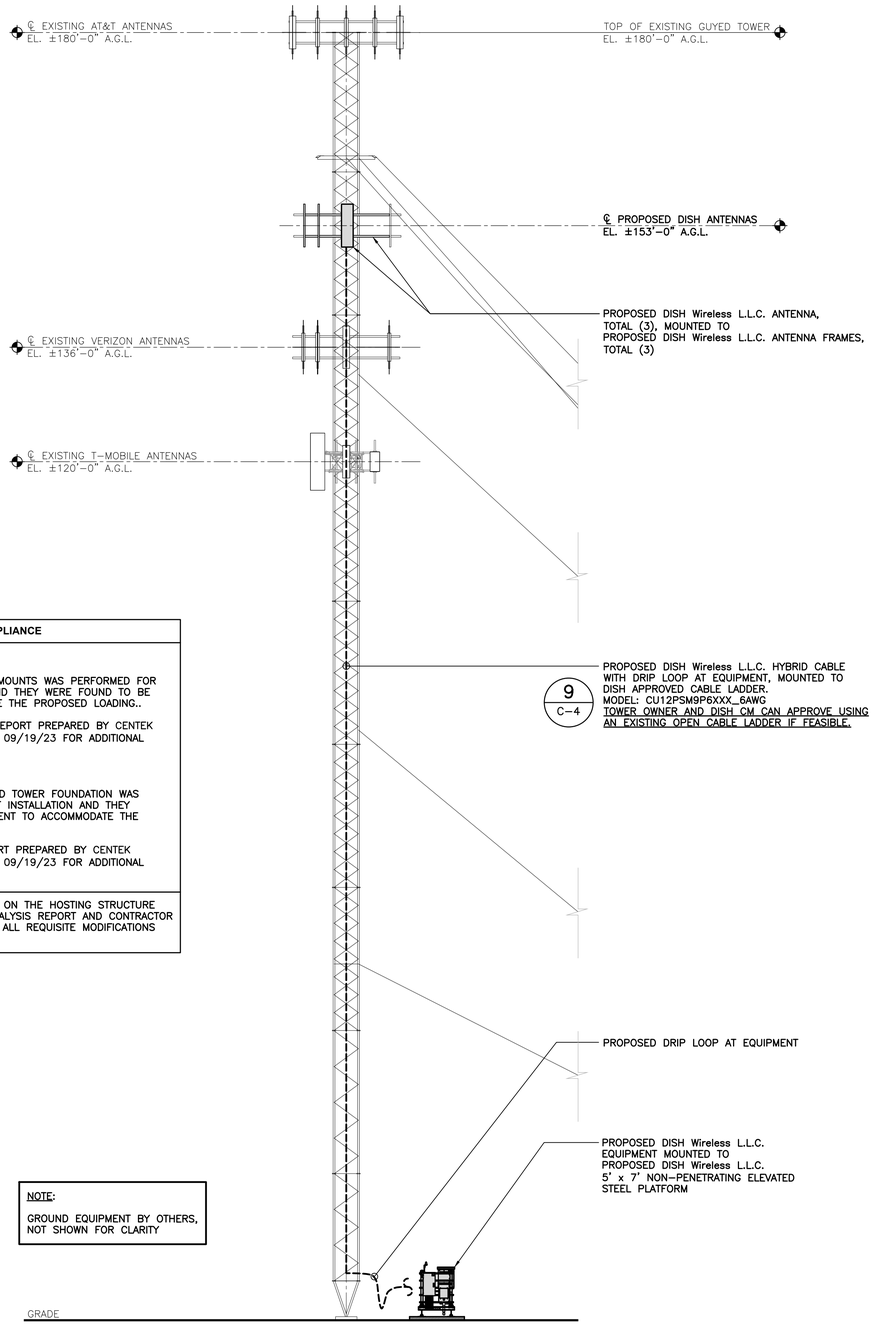
227 BOOMBRIDGE RD
NORTH STONINGTON CT, 06359

SHEET TITLE
OVERALL SITE PLAN

SHEET NUMBER
C-1



STRUCTURAL COMPLIANCE

ANTENNA MOUNTS

A STRUCTURAL ANALYSIS OF THE ANTENNA MOUNTS WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND THEY WERE FOUND TO BE STRUCTURALLY SUFFICIENT TO ACCOMMODATE THE PROPOSED LOADING..

REFER TO THE ANTENNA MOUNT ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING (PROJECT # 23009.09) DATED 09/19/23 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

TOWER AND TOWER FOUNDATION

A STRUCTURAL ANALYSIS OF THE TOWER AND TOWER FOUNDATION WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND THEY WERE FOUND TO BE STRUCTURALLY SUFFICIENT TO ACCOMMODATE THE PROPOSED LOADING.

REFER TO THE STRUCTURAL ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING (PROJECT # 23009.09) DATED 09/19/23 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

NOTE: NO EQUIPMENT SHALL BE INSTALLED ON THE HOSTING STRUCTURE WITHOUT A PASSING STRUCTURAL ANALYSIS REPORT AND CONTRACTOR PRIOR CONFIRMATION THAT ANY AND ALL REQUISITE MODIFICATIONS HAVE BEEN COMPLETED.

NOTE:

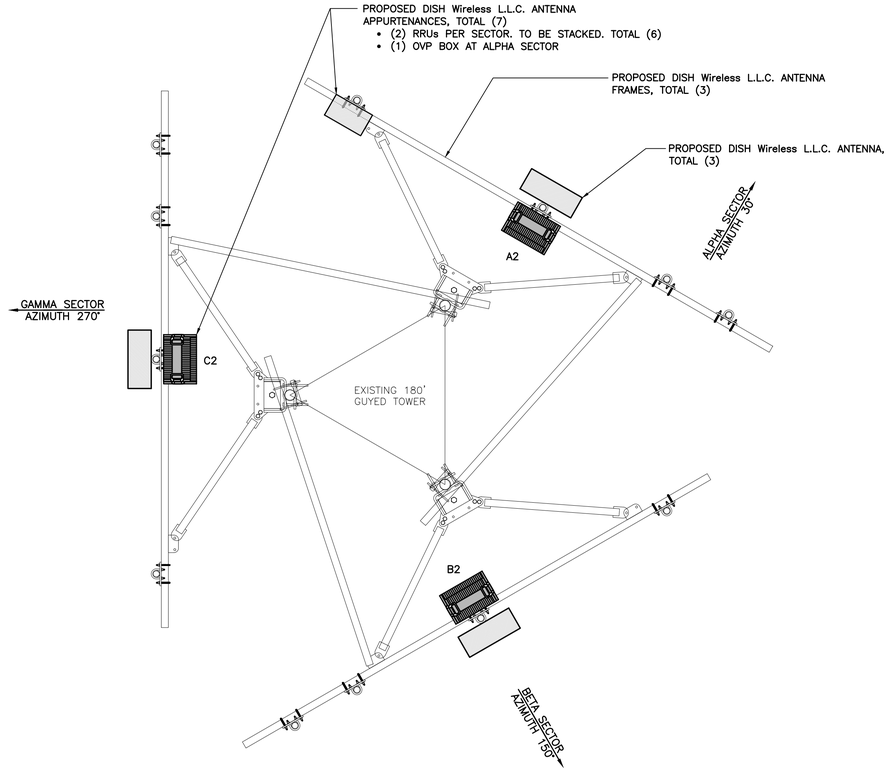
GROUND EQUIPMENT BY OTHERS, NOT SHOWN FOR CLARITY

TOWER ELEVATION

10' 0 10' 20'
1"=10'

1"=10'-0"

2



ALPHA/BETA/GAMMA SECTOR TYP.

N

ANTENNA CONFIGURATION PLAN

4' 2' 0 4' 8'
1/4"=1'-0"

1

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A2	PROPOSED	COMMSCOPE – FFVV-65B-R2	n70, n71, n66	72.0" x 19.6"	30°	153'-0"	CU12PSM6P4XXX_4AWG APPROX. 250FT
BETA	B2	PROPOSED	COMMSCOPE – FFVV-65B-R2	n70, n71, n66	72.0" x 19.6"	150°	153'-0"	SHARED WITH ALPHA
GAMMA	C2	PROPOSED	COMMSCOPE – FFVV-65B-R2	n70, n71, n66	72.0" x 19.6"	270°	153'-0"	SHARED WITH ALPHA

SECTOR	POSITION	RRH	
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY
ALPHA	A2	SAMSUNG – RF4450t-71A / SFG-ARR3J601DI	n71
	A2	SAMSUNG – RF4451d-70A / SFG-ARR3KM01DI	n70 | n66
BETA	B2	SAMSUNG – RF4450t-71A / SFG-ARR3J601DI	n71
	B2	SAMSUNG – RF4451d-70A / SFG-ARR3KM01DI	n70 | n66
GAMMA	C2	SAMSUNG – RF4450t-71A / SFG-ARR3J601DI	n71
	C2	SAMSUNG – RF4451d-70A / SFG-ARR3KM01DI	n70 | n66
ALPHA	RAYCAP – RDIDC-9181-PF-48 (OVP BOX)		

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.
3. ALL HYBRID/COAX LENGTHS TO BE MEASURED AND VERIFIED IN FIELD BEFORE ORDERING.

ANTENNA SCHEDULE

8' 4' 0 8' 16'
1"=8'-0"

3

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LITTLETON, CO 80120

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CENTEK engineering
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63-2 North Branford Road
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www.CentekEng.com

STATE OF CONNECTICUT
CHRISTOPHER D. CRAMER
LICENSED PROFESSIONAL ENGINEER
No. 16894

DRAWN BY:	CHECKED BY:	APPROVED BY:
BSP	TJR	

RFDS REV #: 0 – 08/17/2023

CONSTRUCTION DOCUMENTS

SUBMITTALS

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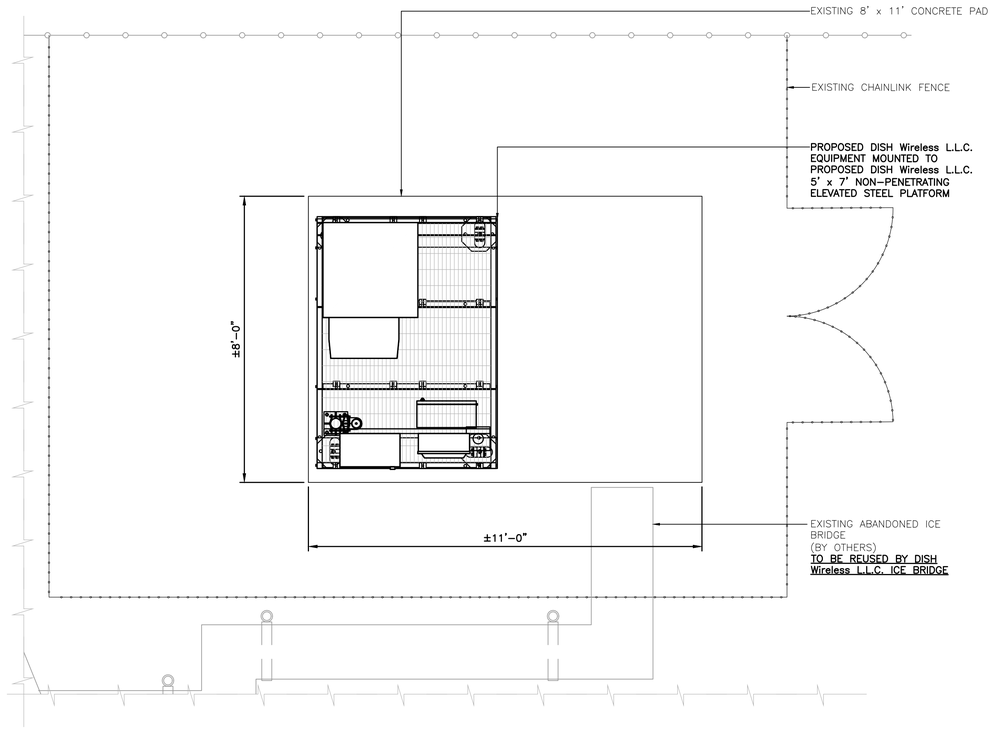
23009.09

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS01171A
227 BOOMBRIDGE RD
NORTH STONINGTON CT, 06359

SHEET TITLE
ELEVATION, ANT. LAYOUT AND SCHEDULE

SHEET NUMBER
C-2

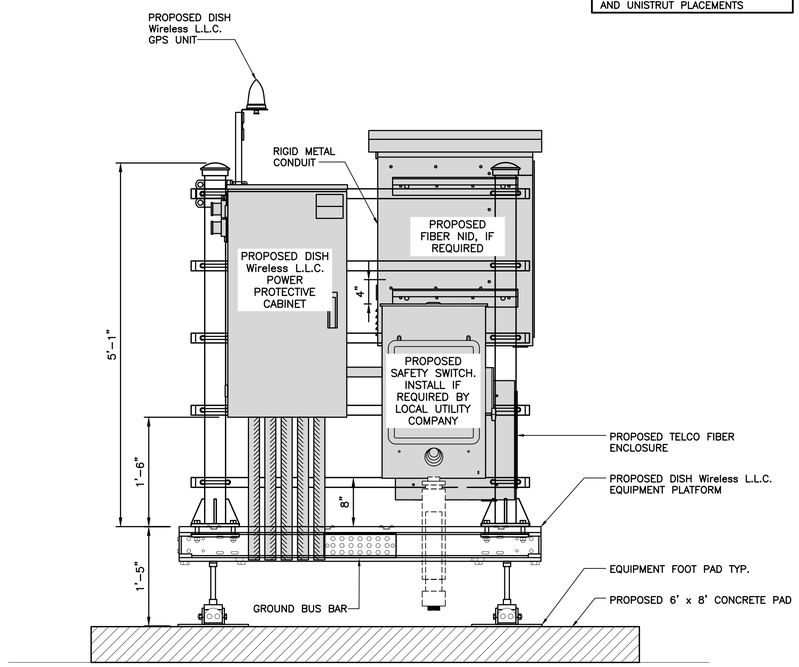


PROPOSED EQUIPMENT PLAN

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

1

NOTE:
FIELD CREW TO CONSULT WITH DISH CM FOR CABINET, H-FRAME POST AND UNISTRUT PLACEMENTS



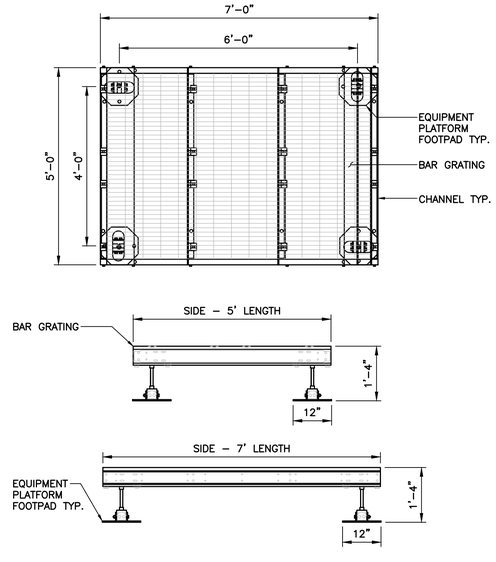
EQUIPMENT ELEVATION

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

2

COMMSCOPE MTC4045LP 5X7 PLATFORM	
DIMENSIONS (HxWxL)	16"X84"X60"
WEIGHT/ VOLUME	423 LBS

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



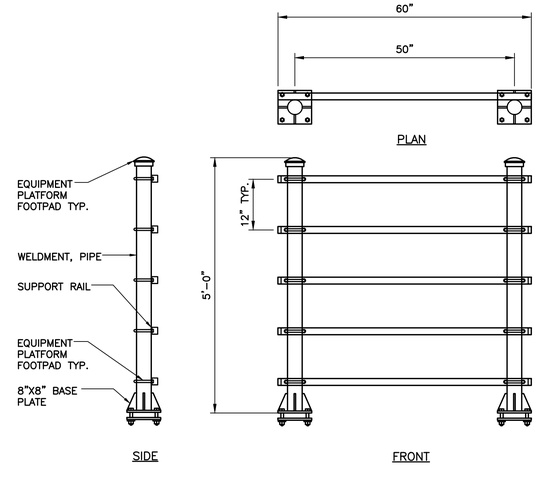
PLATFORM DETAIL

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

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5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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DRAWN BY:	CHECKED BY:	APPROVED BY:
BSP	TJR	

RFDS REV #: 0 – 08/17/2023

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	10/05/23	ISSUED FOR CLIENT REVIEW
B	10/17/23	REVISED PER CLIENT COMMENTS
0	12/01/23	ISSUED FOR CONSTRUCTION

CENTEK PROJECT NUMBER
23009.09

DISH Wireless L.L.C.
PROJECT INFORMATION

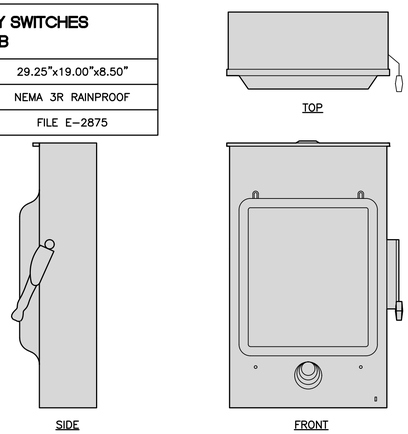
BOBOS01171A
227 BOOMBRIDGE RD
NORTH STONINGTON CT, 06359

SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
C-3

SQUARE D SAFETY SWITCHES D224NRB

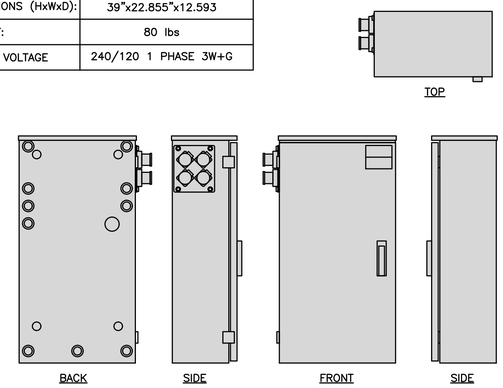
ENCLOSURE DIM (HxWxD)	29.25"x19.00"x8.50"
ENCLOSURE TYPE	NEMA 3R RAINPROOF
UL LISTED	FILE E-2875



SAFETY SWITCH DETAIL | NO SCALE | 1

RAYCAP PPC RDIAC-2465-P-240-MTS

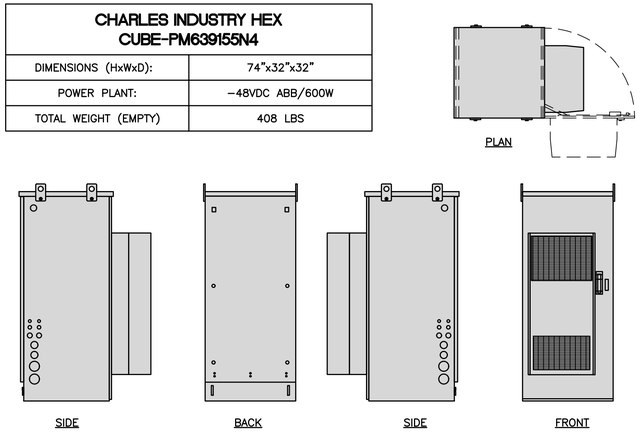
ENCLOSURE DIMENSIONS (HxWxD):	39"x22.855"x12.593
WEIGHT:	80 lbs
OPERATING AC VOLTAGE	240/120 1 PHASE 3W+G



POWER PROTECTIVE CABINET DETAIL | NO SCALE | 2

CHARLES INDUSTRY HEX CUBE-PM639155N4

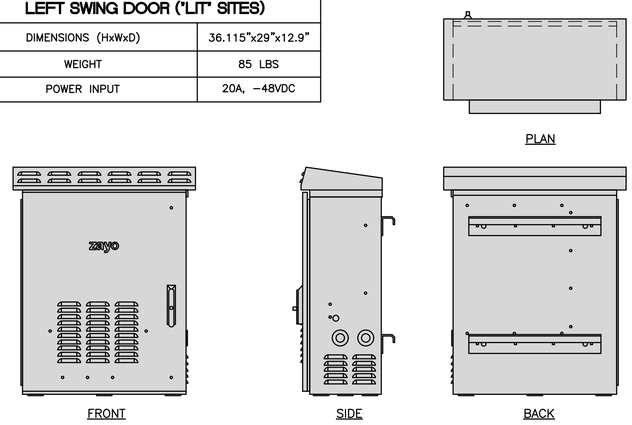
DIMENSIONS (HxWxD):	74"x32"x32"
POWER PLANT:	-48VDC ABB/600W
TOTAL WEIGHT (EMPTY)	408 LBS



CABINET DETAIL | NO SCALE | 3

ZAYO 5RU CABINET LEFT SWING DOOR ("LIT" SITES)

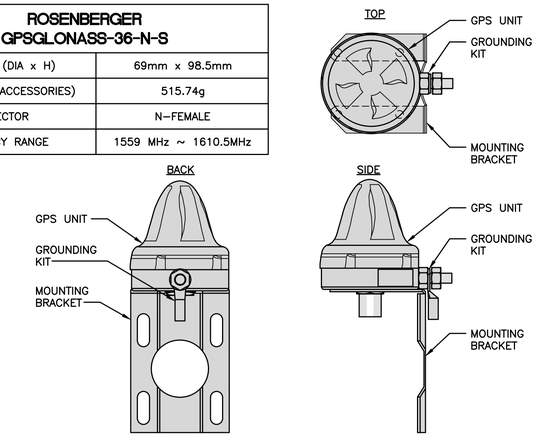
DIMENSIONS (HxWxD)	36.115"x29"x12.9"
WEIGHT	85 LBS
POWER INPUT	20A, -48VDC



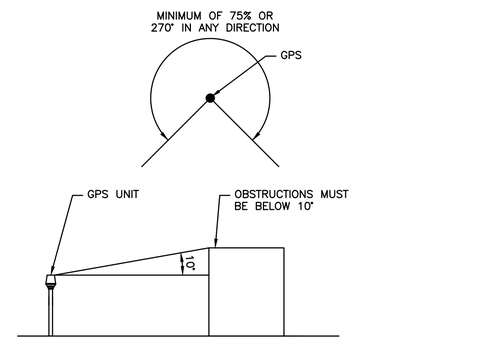
FIBER NID ENCLOSURE DETAIL | NO SCALE | 4

ROSENBERGER GPSGLONASS-36-N-S

DIMENSION (DIA x H)	69mm x 98.5mm
WEIGHT (WITH ACCESSORIES)	515.74g
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1559 MHz ~ 1610.5MHz



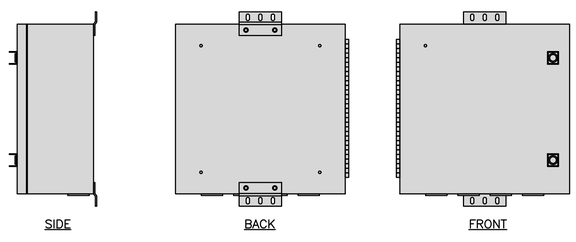
GPS DETAIL | NO SCALE | 5



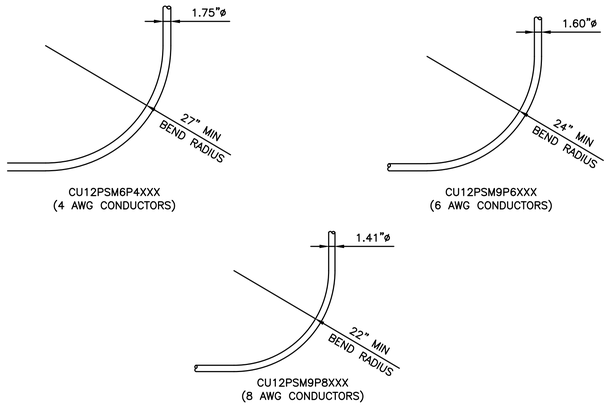
GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 6

CHARLES CFIT-PF2020DSH1 FIBER TELCO ENCLOSURE

ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4



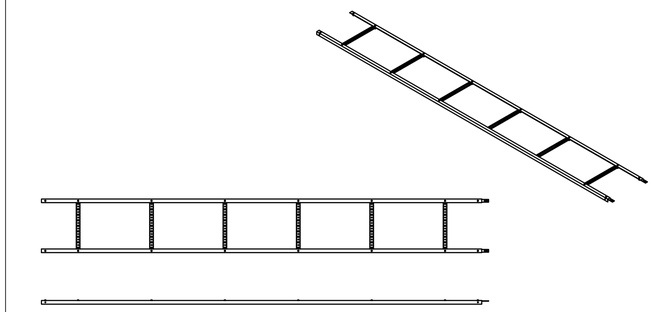
FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 7



CABLES UNLIMITED HYBRID CABLE MINIMUM BEND RADIUSES | NO SCALE | 8

SITEPRO1: CABLE LADDER

DIMENSIONS (LxW) (PER CABLE LADDER SECTION)	237.5"x 29.5"
WEIGHT/ VOLUME	81.5 LBS
CABLE RUN (QTY)	9
MODEL	WCL9



CABLE LADDER DETAIL | NO SCALE | 9

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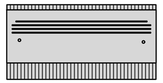
NORTH STONINGTON CT, 06359

SHEET TITLE
TYPICAL EQUIPMENT DETAILS

SHEET NUMBER
C-4

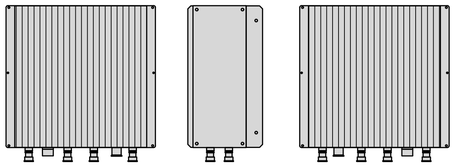
SAMSUNG: RF4450t-71A / SFG-ARR3J601DI	
DIMENSIONS (HxWxD)	16.5"x15.0"x11.0"
WEIGHT	94.58 lbs



PLAN

NOTE:

ALL VISIBLE RRH'S SHALL BE WRAPPED IN CONCEALFAB MMW VINYL FILM WRAP (PART #900864-99 OR APPROVED EQUAL



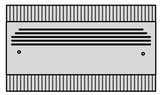
BACK SIDE FRONT

RRH DETAIL | NO SCALE | 1

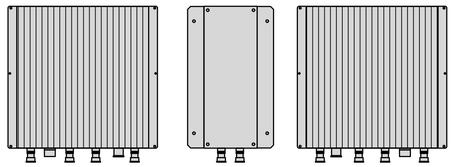
SAMSUNG: RF4451d-70A / SFG-ARR3KM01DI	
DIMENSIONS (HxWxD)	15.0"x15.0"x8.9"
WEIGHT	61.3 lbs

NOTE:

ALL VISIBLE RRH'S SHALL BE WRAPPED IN CONCEALFAB MMW VINYL FILM WRAP (PART #900864-99 OR APPROVED EQUAL



PLAN

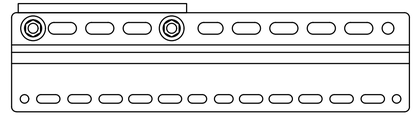


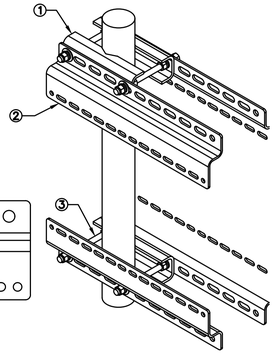
BACK SIDE FRONT

RRH DETAIL | NO SCALE | 2

SABRE DOUBLE Z-BRACKET C10123155	
DIMENSIONS (HxWxD) (1 BRACKET)	5"x20"x1-13/16"
WEIGHT (FULL ASSEMBLY)	35.79 lbs
PACKAGE QUANTITY	4

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

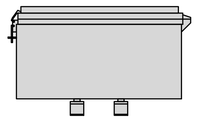




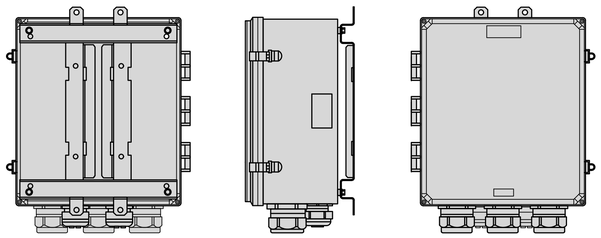
NOTE:
OR DISH Wireless L.L.C. APPROVED EQUIVALENT

RRH MOUNT DETAIL | NO SCALE | 3

RAYCAP RDIDC-9181-PF-48 SURGE PROTECTION DEVICE (OVP)	
DIMENSIONS (HxWxD)	18.97"x16.21"x9.64"
WEIGHT	21 lbs



PLAN



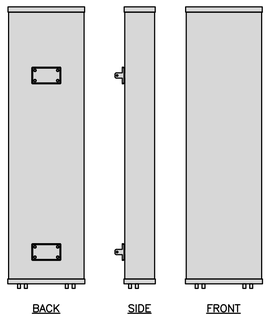
SURGE PROTECTION DEVICE DETAIL (OVP) | NO SCALE | 4

COMMSCOPE FFVV-65B-R2	
DIMENSIONS (HxWxD)(MM/IN)	1828x498x197 72"x19.6"x7.8"
RF CONNECTOR INTERFACE	4.3-10 FEMALE
WEIGHT	70.8 lbs
WEIGHT WITH BRACKETS	98.1 lbs

NOTE:

ALL VISIBLE ANTENNAS SHALL BE WRAPPED IN CONCEALFAB MMW VINYL FILM WRAP (PART #900864-99 OR APPROVED EQUAL

PLAN



BACK SIDE FRONT

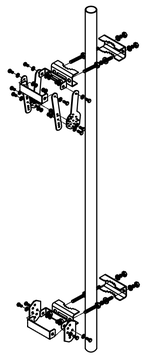
ANTENNA DETAIL | NO SCALE | 5

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

NOTE:
KIT #91900318: TOP AND BOTTOM BRACKETS FOR 4-,6-, AND 8-FOOT ANTENNAS

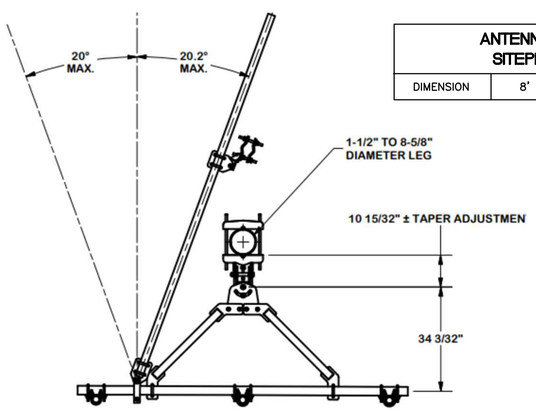
ANTENNA BRACKET NOT PART OF KIT

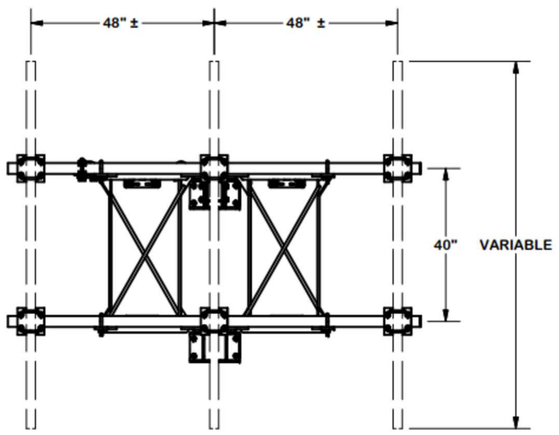
NOTE:
OR DISH Wireless L.L.C. APPROVED EQUIVALENT



ANTENNA BRACKET DETAIL | NO SCALE | 6

ANTENNA SECTOR FRAME SITEPRO P/N: VFA8-HD	
DIMENSION	8' HORIZONTAL FACE, 40" SEPARATION





ANTENNA FRAME DETAIL | NO SCALE | 7

NOT USED | NO SCALE | 8

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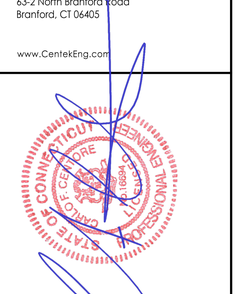

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NORTH STONINGTON CT, 06359

SHEET TITLE
TYPICAL EQUIPMENT DETAILS

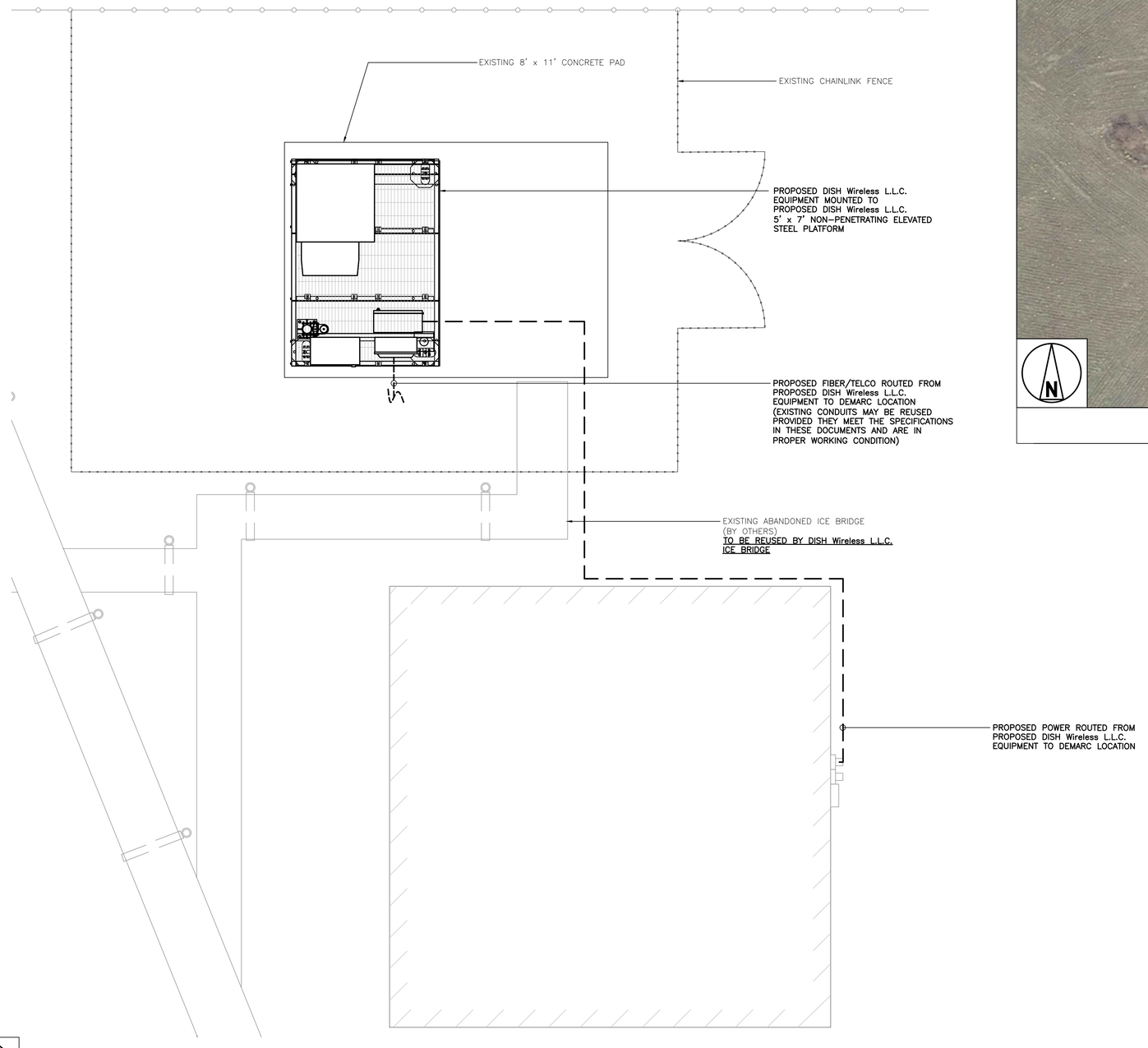
SHEET NUMBER
C-5

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTES. (EXISTING CONDUITS MAY BE REUSED PROVIDED THEY MEET THE SPECIFICATIONS IN THESE DOCUMENTS AND ARE IN PROPER WORKING CONDITION)
2. THE GROUND LEASE PROVIDES BROAD/BLANKET UTILITY RIGHTS. "PWR" AND "FBR" PATH DEPICTED ON C-2 AND E-1 ARE BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO FIELD VERIFICATION, PRIOR PROJECT DOCUMENTATION AND OTHER REAL PROPERTY RIGHTS DOCUMENTS. WHEN INSTALLING THE UTILITIES PLEASE LOCATE AND FOLLOW EXISTING PATH. IF EXISTING PATH IS NOT AN OPTION, PLEASE NOTIFY TOWER OWNER AS FURTHER COORDINATION MAY BE NEEDED.

NOTE

CONTRACTOR IS RESPONSIBLE TO VERIFY FINAL CONDUIT ROUTING, LENGTH OF RUN, AND FEASIBILITY.



ENLARGED SITE PLAN

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

1

AERIAL VIEW PLAN

NO SCALE

2

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NORTH STONINGTON CT, 06359

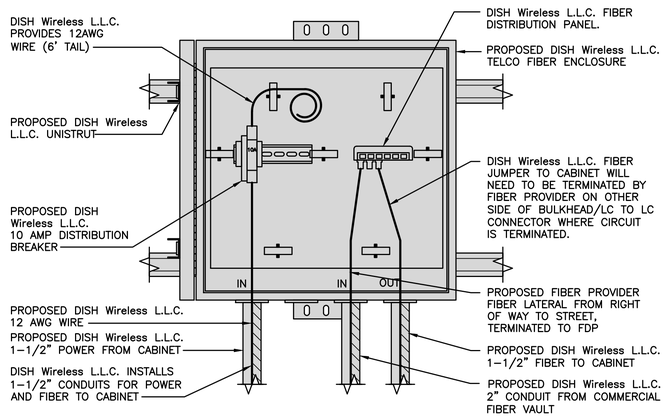
SHEET TITLE
ELECTRICAL AND FIBER ROUTING PLAN WITH NOTES

SHEET NUMBER
E-1

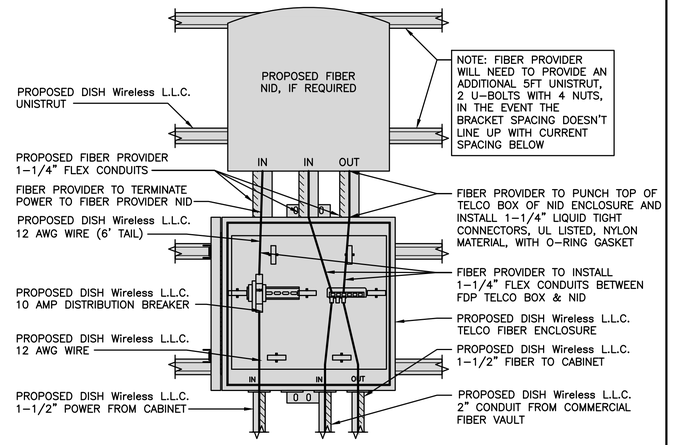
DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND −48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY −48V.

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.

ELECTRICAL NOTES | NO SCALE | 1



DARK TELCO BOX - INTERIOR WIRING LAYOUT | NO SCALE | 2



LIT TELCO BOX - INTERIOR WIRING LAYOUT (OPTIONAL) | NO SCALE | 3

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

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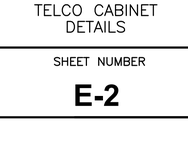

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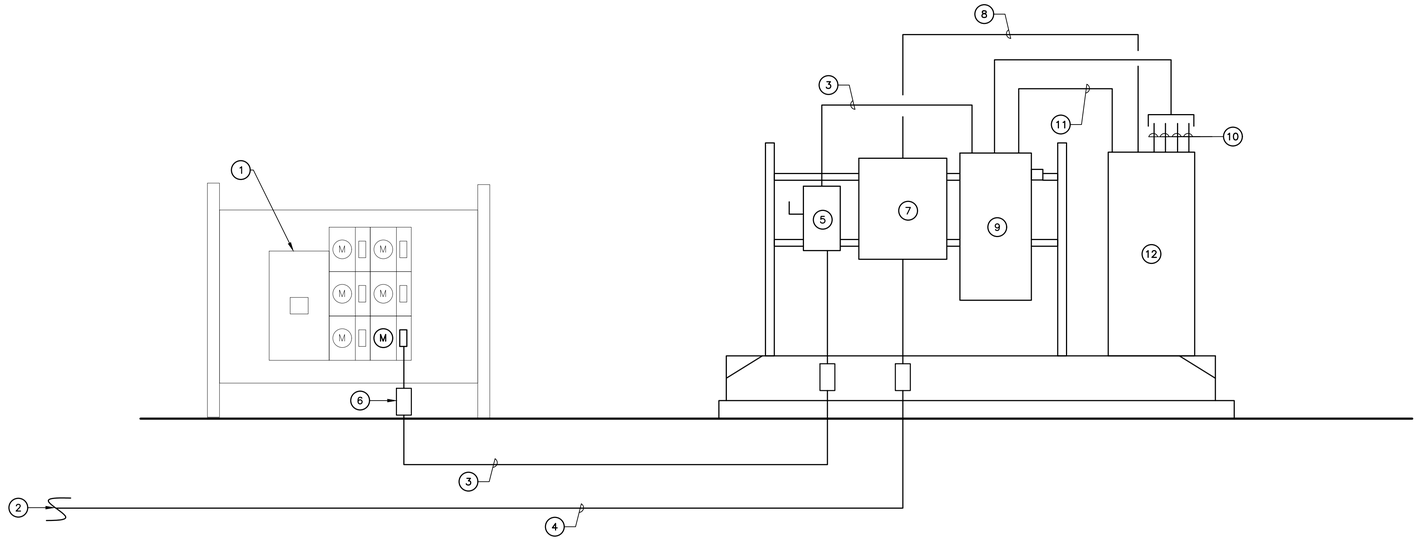
SHEET TITLE
TELCO CABINET DETAILS

SHEET NUMBER
E-2



RISER NOTES

1. EXISTING 800A, TWO GANG MULTIMETER CENTER TO REMAIN. INSTALL NEW 200A, SINGLE PHASE, 240V RATED UTILITY METER WITH 200A/2P CIRCUIT BREAKER IN POSITION PREVIOUSLY SERVING SPRINT. ALL EQUIPMENT TO BE UTILITY APPROVED.
2. ROUTED TO EXISTING FIBER DEMARC. CONTRACTOR TO VERIFY LOCATION IN FIELD.
3. (3) 3/0 AWG, (1) #6 AWG GROUND, 2" CONDUIT.
4. (1) 4" CONDUIT WITH PULL ROPES FOR TELEPHONE COMPANY CONDUCTORS. CONDUCTORS PROVIDED BY TELEPHONE COMPANY FROM EXISTING DEMARC TO EQUIPMENT PLATFORM. PROVIDE ALL COUPLINGS, ADAPTERS, SWEEPS, AND ASSOCIATED HARDWARE. MATERIAL SHALL BE PER TELEPHONE COMPANY SPECIFICATIONS.
5. NEW HEAVY DUTY NEMA-3R, 200A/240V, NON FUSED DISCONNECT.
6. EXPANSION COUPLING TYP.
7. NEW DISH Wireless L.L.C. TELCO/FIBER CABINET.
8. CONDUITS AND CONDUCTORS FOR TELCO CONNECTION TO EQUIPMENT CABINET AS REQUIRED BY MANUFACTURER AND CONSTRUCTION MANAGER FOR PROPER OPERATION OF EQUIPMENT
9. NEW 120/240V, 200A, SINGLE PHASE PPC CABINET.
10. 4 SETS OF (3) #10 AWG, (1) #10 AWG GROUND. 3/4" CONDUIT.
11. (2) #12 AWG, (1) #12 AWG GROUND, 3/4" CONDUIT. FOR CONVENIENCE OUTLET.
12. NEW DISH Wireless L.L.C. EQUIPMENT CABINET.

ELECTRICAL RISER DIAGRAM

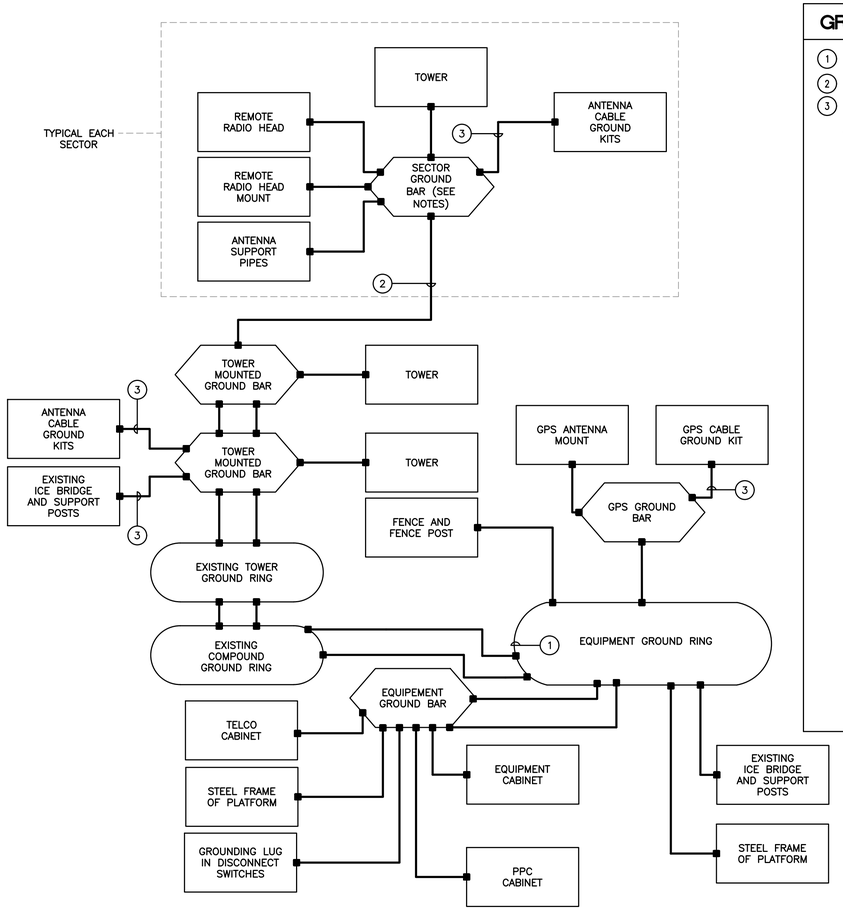
NO SCALE | 1

VOLTAGE:	120/240		PHASE:	1	WIRE:	3	PANEL NO.		MDP						
MAIN BUS:	200	AMPS					TOTAL WATTS, L1		11,700						
MAIN BREAKER:	200	A FRAME	200		A TRIP		TOTAL WATTS, L2		11,700	LOC:	EQUIPMENT FRAME				
MOUNTING:	SURFACE						TOTAL WATTS		23,400						
NOTES:	A) PPC SHALL BE 200A, 120/240V, SINGLE PHASE, 3W, 65 KAIC, 200A MCB, 24 POSITION, NEMA 3R ENCLOSURE, LAMINATED ENGRAVED BAKELITE NAMEPLATE, COPPER EQUIPMENT GROUND KIT, INSULATED COPPER SOLID NEUTRAL BAR.														
	B) BRANCH CIRCUIT BREAKER AND CONDUCTOR SIZE BASED ON SPECIFIC EQUIPMENT. CONFIRM ELECTRICAL REQUIREMENTS PRIOR TO INSTALLATION.														

		WATTS LOAD				L1 Y L2 Y		WATTS LOAD				
DIRECTORY	WIRE & CONDUIT	L1	L2	CKT.	AMPS		AMPS	CKT.	L1	L2	WIRE & CONDUIT	DIRECTORY
RECTIFIER #1	3/4" C, 2 #10, #10GND	2,880		1	30/2P		20	2	180		3/4" C, 2 #12, #12GND	CONVENIECE GFCI OUTLET
			2,880	3			20	4		180	3/4" C, 2 #12, #12GND	PPC GFCI OUTLET
RECTIFIER #2	3/4" C, 2 #10, #10GND	2,880		5	30/2P			6			-	SPACE
			2,880	7				8			-	SPACE
RECTIFIER #3	3/4" C, 2 #10, #10GND	2,880		9	30/2P			10			-	SPACE
			2,880	11				12			-	SPACE
RECTIFIER #4	3/4" C, 2 #10, #10GND	2,880		13	30/2P			14			-	SPACE
			2,880	15				16			-	SPACE
SPACE	-			17				18			-	SPACE
SPACE	-			19				20			-	SPACE
SPACE	-			21				22			-	SPACE
SPACE	-			23				24			-	SPACE

ELECTRICAL PANEL SCHEDULE

NO SCALE | 2



ELECTRICAL SCHEMATIC DIAGRAM

NO SCALE | 3

GROUNDING SCHEMATIC NOTES

1. GROUND RING, #2 AWG BCW
2. #2/0 GREEN INSULATED
3. #6 AWG

GENERAL NOTES:

1. ALL SURGE SUPPRESSION EQUIPMENT SHALL BE BONDED TO GROUND PER MANUFACTURER'S SPECIFICATIONS
2. UNLESS OTHERWISE NOTED OR REQUIRED BY CODE, GROUND CONDUCTORS SHOWN SHALL BE #2 AWG (SOLID TINNED BCW – EXTERIOR; STRANDED GREEN INSULATED – INTERIOR).
3. BOND CABLE TRAY AND ICE BRIDGE SECTIONS TOGETHER WITH #6 AWG STRANDED GREEN INSULATED JUMPERS.
4. ALL SECTOR GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW.
5. BOND ALL EQUIPMENT CABINETS AND BATTERY CABINETS TO GROUND PER MANUFACTURER'S SPECIFICATIONS.
6. ALL BONDS TO TOWER SHALL BE MADE IN STRICT ACCORDANCE WITH SPECIFICATIONS OF TOWER MANUFACTURER OR STRUCTURAL ENGINEER.
7. REFER TO GROUNDING PLAN FOR LOCATION OF GROUNDING DEVICES.
8. REFER TO ALL ELECTRICAL AND GROUNDING DETAILS.
9. COORDINATE ALL TOWER MOUNTED EQUIPMENT WITH OWNER.
10. ALL TOWER MOUNTED AMPLIFIERS AND ASSOCIATED EQUIPMENT SHALL BE BONDED TO THE SECTOR GROUND BAR PER MANUFACTURER'S SPECIFICATIONS.
11. ALL GROUNDING SHALL BE IN ACCORDANCE WITH NEC AND OWNER'S REQUIREMENTS.
12. COORDINATE WITH TOWER OWNER BEFORE INSTALLING ANY GROUNDING ELEMENTS ON TOWER OR BONDING TO EXISTING TOWER GROUND RING.

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BSP	TJR	

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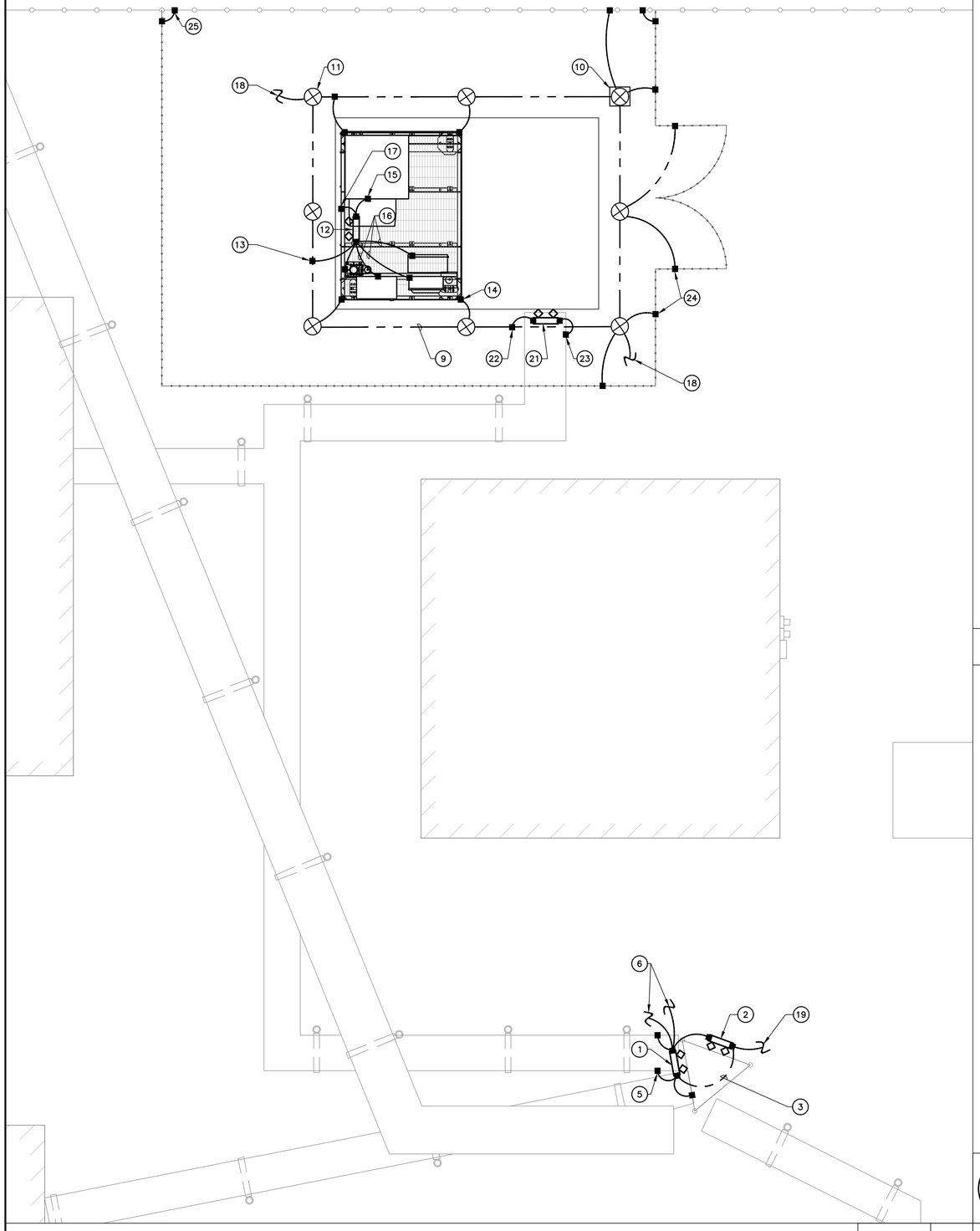
CENTEK PROJECT NUMBER
23009.09

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS01171A
227 BOOMBRIDGE RD
NORTH STONINGTON CT, 06359

SHEET TITLE
ELECTRICAL RISER, PANEL SCHEDULE, AND SCHEMATIC

SHEET NUMBER
E-3

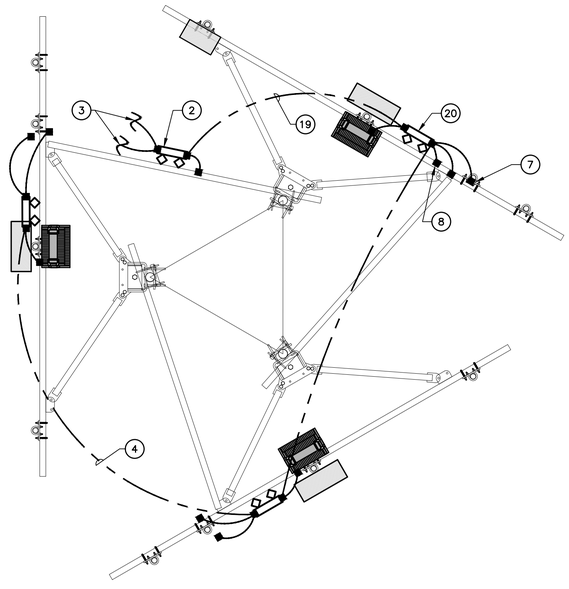


COMPOUND GROUNDING PLAN | NO SCALE | 1

GROUNDING PLAN NOTES:

1. LOWER TOWER MOUNTED GROUND BAR.
2. UPPER TOWER MOUNTED GROUND BAR.
3. BOND LOWER TOWER MOUNTED GROUND BAR TO UPPER TOWER MOUNTED GROUND BAR TYP. 2 LEADS.
4. ALL SECTOR GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW.
5. BOND LOWER TOWER MOUNTED GROUND BAR TO ICE-BRIDGE POST.
6. CONNECT LOWER TOWER MOUNTED GROUND BAR TO EXISTING TOWER GROUND RING TYP. 2 LEADS.
7. BOND ANTENNA AND ANTENNA APPURTENANCES MOUNTING PIPES TO SECTOR GROUND BAR. (TYPICAL).
8. BOND SECTOR GROUND BAR TO TOWER. (TYP)
9. #2 SOLID TINNED BCW GROUND RING (2'-0" FROM OUTSIDE EDGE OF EQUIPMENT PLATFORM FOUNDATION WHEN ROUTED ALONG PLATFORM PERIMETER.) (TYP.).
10. GROUNDING ROD WITH ACCESS (TYP.).
11. GROUNDING ROD (TYP.).
12. MAIN EQUIPMENT GROUND BAR.
13. BOND MAIN GROUND BAR TO GROUND RING.
14. CONNECT PLATFORM TO GROUNDING RING (TYP. EACH CORNER OF GROUND RING).
15. BOND EQUIPMENT CABINETS TO GROUND BAR PER NEC AND MANUFACTURER REQUIREMENTS
16. BOND EQUIPMENT TO GROUND BAR PER NEC AND MANUFACTURER REQUIREMENTS
17. BOND GROUND BAR TO EQUIPMENT PLATFORM STEEL TYP.
18. CONNECT EQUIPMENT GROUND RING TO EXISTING COMPOUND GROUND RING. CONTRACTOR TO VERIFY LOCATION COMPOUND GROUND RING IN FIELD.
19. CONNECT UPPER TOWER MOUNTED GROUND BAR TO SECTOR GROUND BAR TYP.
20. SECTOR GROUND BAR TYP.
21. GROUND BAR MOUNTED TO EXISTING ICE BRIDGE.
22. BOND GROUND BAR TO GROUND RING.
23. BOND GROUND BAR TO EXISTING ICE BRIDGE.
24. BOND FENCE AND FENCE GATE TO GROUND RING PER DETAILS.
25. BOND NEW FENCE TO EXISTING FENCE.

GROUNDING PLAN NOTES | NO SCALE | 2



ANTENNA GROUNDING PLAN | NO SCALE | 3

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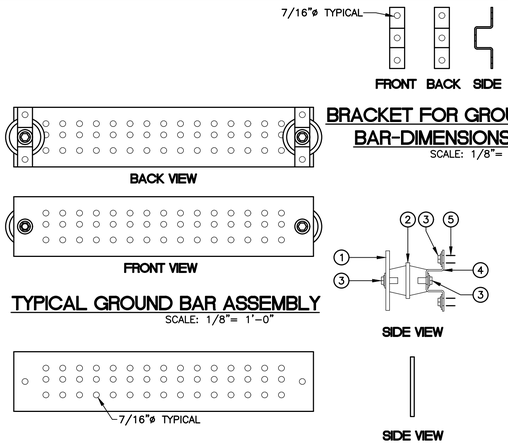
DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS01171A
227 BOOMBRIDGE RD
NORTH STONINGTON CT, 06359

SHEET TITLE
COMPOUND/ANTENNA GROUNDING PLAN AND NOTES

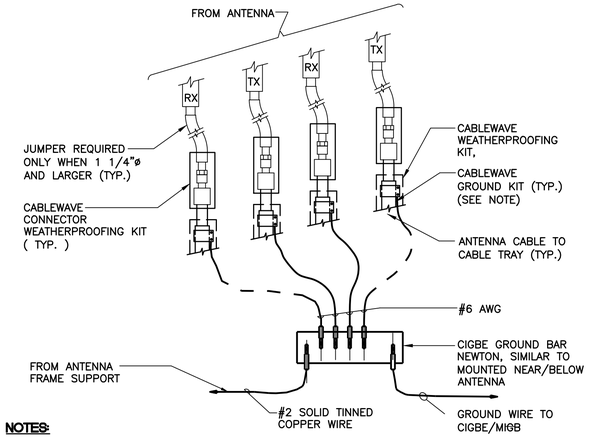
SHEET NUMBER
G-1



NOTES

1. HIGH CONDUCTIVITY TINNED COPPER BAR 1'-8"Lx4"Wx1/4"D.
2. RED COLORED STANDOFF INSULATOR PLASTIC #1872-1A.
3. STAINLESS STEEL TRUSS SPANNER MACHINE SCREWS, SPLIT LOCKWASHER AND FLAT WASHER.
4. 1"Wx1/8"T STAINLESS STEEL TYPE 304 BRACKET.
5. STAINLESS STEEL TYPE 304 HARDWARE - 3/8"ø EXPANSION BOLT FOR CONCRETE.

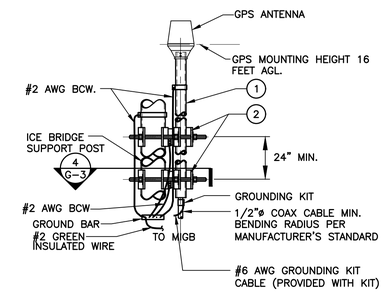
MASTER/EQUIPMENT GROUND BAR DETAIL | NO SCALE | 1



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

CONNECTION OF GROUND WIRES TO GROUND BAR | NO SCALE | 2

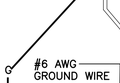


GPS ANTENNA MOUNTING BRACKET

BILL OF MATERIALS

ITEM	DESCRIPTION	QUANTITY
1	2-1/2"ø SCH. 40 x 8'-0" LG. MAX SS OR GALV. PIPE	1
2	UNIVERSAL CLAMP SET.	2

GPS GROUNDING/MOUNTING BRACKET DETAIL | NO SCALE | 3

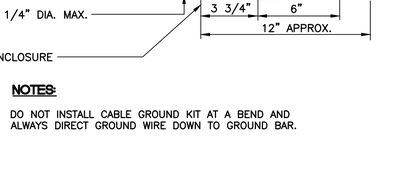


4 G-3 SECTION NOT TO SCALE

NOTES

1. THE ELEVATION AND LOCATION OF THE GPS ANTENNA SHALL BE IN ACCORDANCE WITH THE FINAL RF REPORT.
2. THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A STANDARD 2-1/2" DIAMETER, SCHEDULE 40, GALVANIZED STEEL OR STAINLESS STEEL PIPE. THE PIPE MUST NOT BE THREADED AT THE ANTENNA MOUNT END. THE PIPE SHALL BE CUT TO THE REQUIRED LENGTH (MINIMUM OF 24 INCHES) USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH AND PERPENDICULAR CUT. A HACK SAW SHALL NOT BE USED. THE CUT PIPE END SHALL BE DEBURRED AND SMOOTH IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE ANTENNA MOUNT.

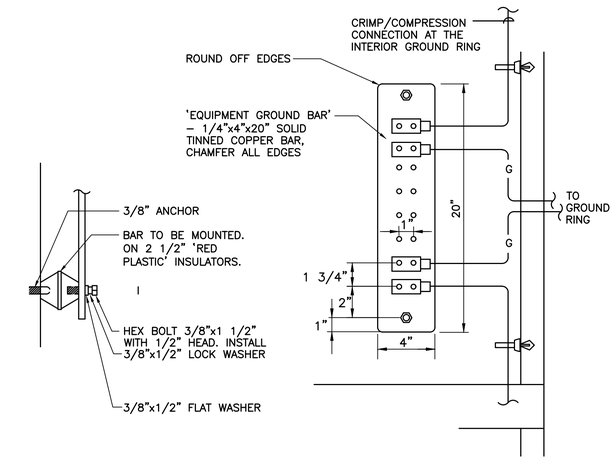
GPS GROUNDING/MOUNTING BRACKET DETAIL | NO SCALE | 4



NOTES

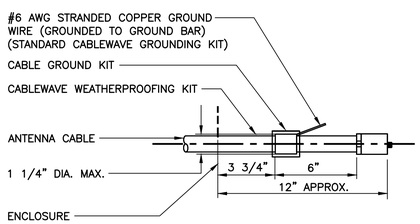
1. TINNED COPPER GROUND BAR, 1/4" x 4" x 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4.
3. 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056.
5. 5/8-11 x 1" STAINLESS STEEL TRUSS SPANNER MACHINE SCREWS.

GROUND BAR DETAIL | NO SCALE | 5



EQUIPMENT GROUND BAR DETAIL | NO SCALE | 6

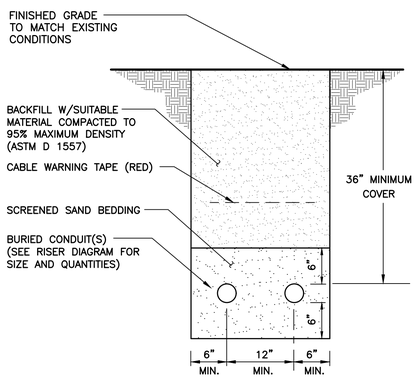
TYPICAL ANTENNA GROUNDING DETAIL | NO SCALE | 7



NOTES:

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

ANTENNA CABLE GROUNDING DETAIL | NO SCALE | 8



NOTES:

1. THE CLEAN FILL SHALL PASS THROUGH A 3/8" MESH SCREEN AND SHALL NOT CONTAIN SHARP STONES. OTHER BACKFILL SHALL NOT CONTAIN ASHES, CINDERS, SHELLS, FROZEN MATERIAL, LOOSE DEBRIS OR STONES LARGER THAN 2" IN MAXIMUM DIMENSION.
2. WHERE EXISTING UTILITIES ARE LIKELY TO BE ENCOUNTERED, CONTRACTOR SHALL HAND DIG AND PROTECT EXISTING UTILITIES.
3. WHERE SHALLOW BEDROCK IS ENCOUNTERED BETWEEN UTILITY SOURCE AND SERVICE EQUIPMENT, COORDINATE WITH UTILITY COMPANY FOR BURIAL DEPTH REQUIREMENTS.
4. COORDINATE WITH ELECTRICAL ENGINEER WHERE SHALLOW BEDROCK IS ENCOUNTERED BETWEEN SERVICE EQUIPMENT AND EQUIPMENT SHELTER.

TYPICAL ELECTRICAL TRENCH DETAIL | NO SCALE | 9

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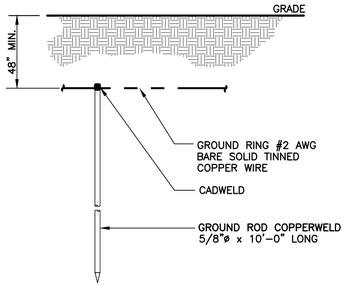
227 BOOMBRIDGE RD
NORTH STONINGTON CT, 06359

SHEET TITLE
TYPICAL GROUNDING DETAILS

SHEET NUMBER
G-2

NOTES:

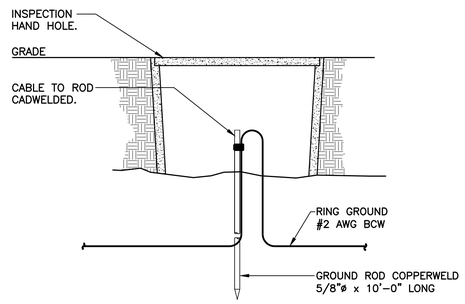
1. USE GROUND PLATE DETAIL IF 10 FT. GROUND ROD DEPTH CANNOT BE ACHIEVED DUE TO LEDGE CONDITION OR IF EXISTING TOWER FOUNDATION IS ENCOUNTERED.



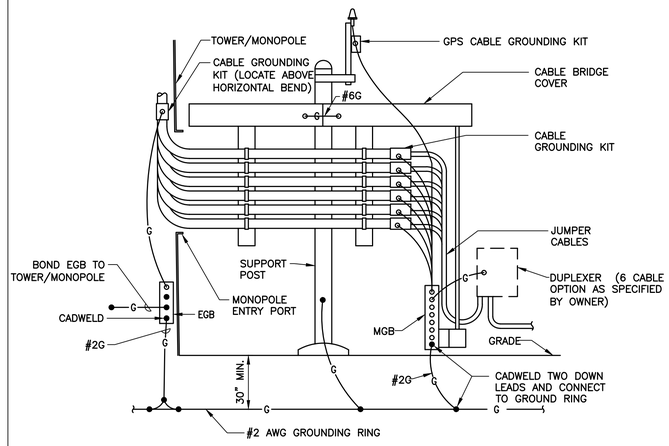
GROUND ROD DETAIL | NO SCALE | 1

NOTES:

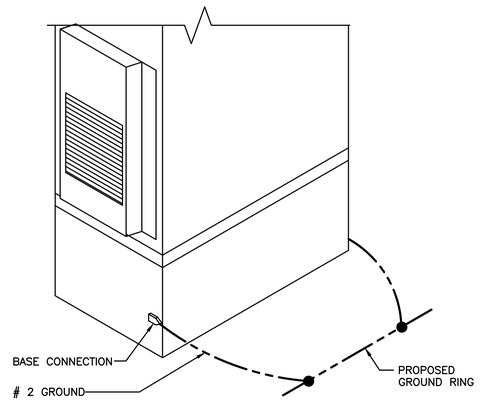
1. INSPECTION HAND HOLE MAY BE CONCRETE OR PVC AND SHALL BE A MINIMUM OF 12" DIA x 18" DEEP.



GROUND ROD WITH ACCESS DETAIL | NO SCALE | 2



ICE-BRIDGE GROUNDING DETAIL | NO SCALE | 3



OUTDOOR CABINET GROUNDING | 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

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PROJECT INFORMATION

BOBOS01171A
227 BOOMBRIDGE RD
NORTH STONINGTON CT, 06359

SHEET TITLE
TYPICAL GROUNDING DETAILS

SHEET NUMBER
G-3

ELECTRICAL SPECIFICATIONS

SECTION 16010

1.01. SCOPE OF WORK

A. WORK SHALL INCLUDE ALL LABOR, EQUIPMENT AND SERVICES REQUIRED TO COMPLETE (MAKE READY FOR OPERATION) ALL THE ELECTRICAL WORK INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

1. 200A, 240/120V, 1P, 3 WIRE ELECTRIC SERVICE METER FOR OWNER AND ASSOCIATED DISTRIBUTION EQUIPMENT. (AS REQUIRED BY UTILITY CO.)
2. NEW SITE TELEPHONE SERVICE AS SPECIFIED BY TELEPHONE COMPANY.
3. CELLULAR GROUNDING SYSTEMS, CONSISTING OF ANTENNA GROUNDING, GROUND RING, GROUND BARS, ETC.
4. FIELD MEASURE EXISTING ELECTRICAL SERVICES TO CONFIRM AVAILABLE EXISTING POWER.
5. COORDINATE ALL WORK SHOWN, ON THESE PLANS WITH LOCAL UTILITY COMPANIES.

B. LOCAL UTILITY COMPANIES SHALL PROVIDE THE FOLLOWING:

1. TELEPHONE CABLES.
2. SHUTDOWN OF SERVICE (COORDINATE WITH OWNER).

C. CONTRACTOR SHALL CONFER WITH LOCAL UTILITY COMPANIES TO ASCERTAIN THE LIMITS OF THEIR WORK AND SHALL INCLUDE IN BID ANY CHARGES OR FEES MADE BY THE UTILITY COMPANIES FOR THEIR PORTION OF THE WORK AND SHALL PROVIDE AND INSTALL ALL ITEMS REQUIRED, BUT NOT PROVIDED BY UTILITY COMPANY.

D. ELECTRICAL CONTRACTOR SHALL COORDINATE ELECTRICAL INSTALLATION WITH ELECTRIC UTILITY CO. PRIOR TO INSTALLATION.

E. CONTRACTOR SHALL COORDINATE WITH TELEPHONE UTILITY COMPANY FOR LOCATION OF TELEPHONE SERVICE AND TO DETERMINE ANY REQUIRED EQUIPMENT TO BE INSTALLED BY CONTRACTOR.

1.02. GENERAL REQUIREMENTS

A. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.

B. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNERS REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES THAT MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS THAT MAY BE REQUIRED BY THE LOCAL AUTHORITY.

D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.

E. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH LOCAL TELEPHONE COMPANY THAT MAY BE REQUIRED FOR THE INSTALLATION OF TELEPHONE SERVICE TO THE PROPOSED CELLULAR SITE.

F. NO MATERIAL OTHER THAN THAT CONTAINED IN THE "LATEST LIST OF ELECTRICAL FITTINGS" APPROVED BY THE UNDERWRITERS' LABORATORIES, SHALL BE USED IN ANY PART OF THE WORK. ALL MATERIAL FOR WHICH LABEL SERVICE HAS BEEN ESTABLISHED SHALL BEAR THE U.L. LABEL.

G. THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.

H. DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.

I. THE ELECTRICAL CONTRACTOR SHALL SUPPLY THREE (3) COMPLETE SETS OF APPROVED DRAWINGS, ENGINEERING DATA SHEETS, MAINTENANCE AND OPERATING INSTRUCTION MANUALS FOR ALL SYSTEMS AND THEIR RESPECTIVE EQUIPMENT. THESE MANUALS SHALL BE INSERTED IN VINYL COVERED 3-RING BINDERS AND TURNED OVER TO OWNER'S REPRESENTATIVE ONE (1) WEEK PRIOR TO FINAL PUNCH LIST.

J. ALL WORK SHALL BE INSTALLED IN A NEAT AND WORKMAN LIKE MANNER AND WILL BE SUBJECT TO THE APPROVAL OF THE OWNER'S REPRESENTATIVE.

K. ALL EQUIPMENT AND MATERIALS TO BE INSTALLED SHALL BE NEW, UNLESS OTHERWISE NOTED.

L. BEFORE FINAL PAYMENT, THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF PRINTS (AS-BUILTS), LEGIBLY MARKED IN RED PENCIL TO SHOW ALL CHANGES FROM THE ORIGINAL PLANS.

M. PROVIDE TEMPORARY POWER AND LIGHTING IN WORK AREAS AS REQUIRED.

N. SHOP DRAWINGS:

1. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF SHOP DRAWINGS ON ALL EQUIPMENT AND MATERIALS PROPOSED FOR USE ON THIS PROJECT, GIVING ALL DETAILS, WHICH INCLUDE DIMENSIONS, CAPACITIES, ETC.
2. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF ALL TEST REPORTS CALLED FOR IN THE SPECIFICATIONS AND DRAWINGS.

O. ENTIRE ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH OWNER'S SPECIFICATIONS, AND REQUIREMENTS OF ALL LOCAL AUTHORITIES HAVING JURISDICTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH APPROPRIATE INDIVIDUALS TO OBTAIN ALL SUCH SPECIFICATIONS AND REQUIREMENTS. NOTHING CONTAINED IN, OR OMITTED FROM, THESE DOCUMENTS SHALL RELIEVE CONTRACTOR FROM THIS OBLIGATION.

SECTION 16111

1.01. CONDUIT

A. MINIMUM CONDUIT SIZE FOR BRANCH CIRCUITS, LOW VOLTAGE CONTROL AND ALARM CIRCUITS SHALL BE 3/4". CONDUITS SHALL BE PROPERLY FASTENED AS REQUIRED BY THE N.E.C.

B. THE INTERIOR OF RACEWAYS/ ENCLOSURES INSTALLED UNDERGROUND SHALL BE CONSIDERED TO BE WET LOCATION, INSULATED CONDUCTORS SHALL BE LISTED FOR USE IN WET LOCATIONS. PROVIDE WEATHERPROOF CONSTRUCTION IN WET LOCATIONS.

C. CONDUIT INSTALLED UNDERGROUND SHALL BE INSTALLED TO MEET MINIMUM COVER REQUIREMENTS OF TABLE 300.5.

D. PROVIDE RIGID GALVANIZED STEEL CONDUIT (RMC) FOR THE FIRST 10 FOOT SECTION WHEN LEAVING A BUILDING OR SECTIONS PASSING THROUGH FLOOR SLABS

E. ONLY LISTED PVC CONDUIT AND FITTINGS ARE PERMITTED FOR THE INSTALLATION OF ELECTRICAL CONDUCTORS, SUITABLE FOR UNDERGROUND APPLICATIONS.

CONDUIT SCHEDULE SECTION 16111

CONDUIT TYPE	NEC REFERENCE	APPLICATION	MIN. BURIAL DEPTH (PER NEC TABLE 300.5) [2,3]
EMT	ARTICLE 358	INTERIOR CIRCUITING, EQUIPMENT ROOMS, SHELTERS	N/A
RMC, RIGID GALV. STEEL	ARTICLE 344, 300.5, 300.50	ALL INTERIOR/ EXTERIOR CIRCUITING, ALL UNDERGROUND INSTALLATIONS.	6 INCHES
PVC, SCHEDULE 40	ARTICLE 352, 300.5, 300.50	INTERIOR/ EXTERIOR CIRCUITING AND GROUNDING SYSTEMS, UNDERGROUND INSTALLATIONS, WHERE NOT SUBJECT TO PHYSICAL DAMAGE. [1]	18 INCHES
PVC, SCHEDULE 80	ARTICLE 352, 300.5, 300.50	INTERIOR/ EXTERIOR CIRCUITING AND GROUNDING SYSTEMS, UNDERGROUND INSTALLATIONS, WHERE SUBJECT TO PHYSICAL DAMAGE. [1]	18 INCHES
LIQUID TIGHT FLEX. METAL	ARTICLE 350	SHORT LENGTHS (MAX. 3FT.) WIRING TO VIBRATING EQUIPMENT IN WET LOCATIONS.	N/A
FLEX. METAL	ARTICLE 348	SHORT LENGTHS (MAX. 3FT.) WIRING TO VIBRATING EQUIPMENT IN WET LOCATIONS.	N/A

[1] PHYSICAL DAMAGE IS SUBJECT TO THE AUTHORITY HAVING JURISDICTION.

[2] UNDERGROUND CONDUIT INSTALLED UNDER ROADS, HIGHWAYS, DRIVEWAYS, PARKING LOTS SHALL HAVE MINIMUM DEPTH OF 24".

[3] WHERE SOLID ROCK PREVENTS COMPLIANCE WITH MINIMUM COVER DEPTHS, WIRING SHALL BE INSTALLED IN PERMITTED RACEWAY FOR DIRECT BURIAL. THE RACEWAY SHALL BE COVERED BY A MINIMUM OF 2" OF CONCRETE EXTENDING DOWN TO ROCK.

SECTION 16123

1.01. CONDUCTORS

A. ALL CONDUCTORS SHALL BE TYPE THWN (INT. APPLICATION) AND XHHW (EXT. APPLICATION), 75 DEGREE C, 600 VOLT INSULATION, SOFT ANNEALED STRANDED COPPER. #10 AWG AND SMALLER SHALL BE SPLICED USING ACCEPTABLE SOLDERLESS PRESSURE CONNECTORS. #8 AWG AND LARGER SHALL BE SPLICED USING COMPRESSION SPLIT-BOLT TYPE CONNECTORS. #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR FOR LINE VOLTAGE BRANCH CIRCUITS. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZE(S). CONDUCTORS SHALL BE COLOR CODED FOR CONSISTENT PHASE IDENTIFICATION:

	120/208/240V	277/480V
LINE	COLOR	COLOR
A	BLACK	BROWN
B	RED	ORANGE
C	BLUE	YELLOW
N	CONTINUOUS WHITE	GREY
G	CONTINUOUS GREEN	GREEN WITH YELLOW STRIPE

B. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.

SECTION 16130

1.01. BOXES

A. FURNISH AND INSTALL OUTLET BOXES FOR ALL DEVICES, SWITCHES, RECEPTACLES, ETC.. BOXES TO BE ZINC COATED STEEL.

B. FURNISH AND INSTALL PULL BOXES IN MAIN FEEDERS RUNS WHERE REQUIRED. PULL BOXES SHALL BE GALVANIZED STEEL WITH SCREW REMOVABLE COVERS, SIZE AND QUANTITY AS REQUIRED. PROVIDE WEATHERPROOF CONSTRUCTION IN WET LOCATIONS.

SECTION 16140

1.01. WIRING DEVICES

A. THE FOLLOWING LIST IS PROVIDED TO CONVEY THE QUALITY AND RATING OF WIRING DEVICES WHICH ARE TO BE INSTALLED. A COMPLETE LIST OF ALL DEVICES MUST BE SUBMITTED BEFORE INSTALLATION FOR APPROVAL.

1. 15 MINUTE TIMER SWITCH – INTERMATIC #FF15M (INTERIOR LIGHTS)
2. DUPLEX RECEPTACLE – P&S #2095 (GFCI) SPECIFICATION GRADE
3. SINGLE POLE SWITCH – P&S #CSB20AC2 (20A-120V HARD USE) SPECIFICATION GRADE
4. DUPLEX RECEPTACLE – P&S #5362 (20A-120V HARD USE) SPECIFICATION GRADE

B. PLATES – ALL PLATES USED SHALL BE CORROSION RESISTANT TYPE 304 STAINLESS STEEL. PLATES SHALL BE FROM SAME MANUFACTURER AS SWITCHES AND RECEPTACLES. PROVIDE WEATHERPROOF HOUSING FOR DEVICES LOCATED IN WET LOCATIONS.

C. OTHER MANUFACTURERS OF THE SWITCHES, RECEPTACLES AND PLATES MAY BE SUBMITTED FOR APPROVAL BY THE ENGINEER.

SECTION 16170

1.01. DISCONNECT SWITCHES

A. FUSIBLE AND NON-FUSIBLE, 600V, HEAVY DUTY DISCONNECT SWITCHES SHALL BE AS MANUFACTURED BY SQUARE "D". PROVIDE FUSES AS CALLED FOR ON THE CONTRACT DRAWINGS. AMPERE RATING SHALL BE CONSISTENT WITH LOAD BEING SERVED. DISCONNECT SWITCH COVER SHALL BE MECHANICALLY INTERLOCKED TO PREVENT COVER FROM OPENING WHEN THE SWITCH IS IN THE "ON" POSITION. EXTERIOR APPLICATIONS SHALL BE NEMA 3R CONSTRUCTION WITH PADLOCK FEATURE.

SECTION 16190

1.01. SEISMIC RESTRAINT

A. ALL DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH ZONE 2 SEISMIC REQUIREMENTS.

SECTION 16195

1.01. LABELING AND IDENTIFICATION NOMENCLATURE FOR ELECTRICAL EQUIPMENT

A. CONTRACTOR SHALL FURNISH AND INSTALL NON-METALLIC ENGRAVED BACK-LIT NAMEPLATES ON ALL PANELS AND MAJOR ITEMS OF ELECTRICAL EQUIPMENT.

B. LETTERS TO BE WHITE ON BLACK BACKGROUND WITH LETTERS 1-1/2 INCH HIGH WITH 1/4 INCH MARGIN.

C. IDENTIFICATION NOMENCLATURE SHALL BE IN ACCORDANCE WITH OWNER'S STANDARDS.

SECTION 16450

1.01. GROUNDING

A. ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.

B. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.

C. GROUNDING OF PANELBOARDS:

1. PANELBOARD SHALL BE GROUNDED BY TERMINATING THE PANELBOARD FEEDER'S EQUIPMENT GROUND CONDUCTOR TO THE EQUIPMENT GROUND BAR KIT(S) LUGGED TO THE CABINET. ENSURE THAT THE SURFACE BETWEEN THE KIT AND CABINET ARE BARE METAL TO BARE METAL. PRIME AND PAINT OVER TO PREVENT CORROSION.
2. CONDUIT(S) TERMINATING INTO THE PANELBOARD SHALL HAVE GROUNDING TYPE BUSHINGS. THE BUSHINGS SHALL BE BONDED TOGETHER WITH BARE #10 AWG COPPER CONDUCTOR WHICH IN TURN IS TERMINATED INTO THE PANELBOARD'S EQUIPMENT GROUND BAR KIT(S).

D. EQUIPMENT GROUNDING CONDUCTOR:

1. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250.
2. THE MINIMUM SIZE OF EQUIPMENT GROUND CONDUCTOR SHALL BE #12 AWG COPPER.
3. EACH FEEDER OR BRANCH CIRCUIT SHALL HAVE EQUIPMENT GROUND CONDUCTOR(S) INSTALLED IN THE SAME RACEWAY(S).

E. CELLULAR GROUNDING SYSTEM:

CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 10 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16960).

PROVIDE THE CELLULAR GROUNDING SYSTEM AS SPECIFIED ON DRAWINGS, INCLUDING, BUT NOT LIMITED TO:

1. GROUND BARS
2. INTERIOR GROUND RING
3. EXTERIOR GROUNDING (WHERE REQUIRED DUE TO MEASURED AC RESISTANCE GREATER THAN SPECIFIED).
4. ANTENNA GROUND CONNECTIONS AND PLATES.

F. CONTRACTOR, AFTER COMPLETION OF THE COMPLETE GROUNDING SYSTEM BUT PRIOR TO CONCEALMENT/BURIAL OF SAME, SHALL NOTIFY OWNER'S PROJECT ENGINEER WHO WILL HAVE A DESIGN ENGINEER VISIT SITE AND MAKE A VISUAL INSPECTION OF THE GROUNDING GRID AND CONNECTIONS OF THE SYSTEM.

G. ALL EQUIPMENT SHALL BE BONDED TO GROUND AS REQUIRED BY N.E.C., MFG. SPECIFICATIONS, AND OWNER'S SPECIFICATIONS.

SECTION 16470

1.01. DISTRIBUTION EQUIPMENT

A. REFER TO CONTRACT DRAWINGS FOR DETAILS AND SCHEDULES.

SECTION 16477

1.01. FUSES

A. FUSES SHALL BE NONRENEWABLE TYPE AS MANUFACTURED BY "BUSSMAN" OR APPROVED EQUAL. FUSES RATED TO 1/10 AMPERE UP TO 600 AMPERES SHALL BE EQUIVALENT TO BUSSMAN TYPE LPN-RK (250V) UL CLASS RK1, LOW PEAK, DUAL ELEMENT, TIME-DELAY FUSES. FUSES SHALL HAVE SEPARATE SHORT CIRCUIT AND OVERLOAD ELEMENTS AND HAVE AN INTERRUPTING RATING OF 200 KAIC. UPON COMPLETION OF WORK, PROVIDE ONE SPARE SET OF FUSES FOR EACH TYPE INSTALLED.

SECTION 16960

1.01. TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM

A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:

TEST 1: THERMAL OVERLOAD AND MAGNETIC TRIP TEST, AND CABLE INSULATION TEST FOR ALL CIRCUIT BREAKERS RATED 100 AMPS OR GREATER.

TEST 2: RESISTANCE TO GROUND TEST ON THE CELLULAR GROUNDING SYSTEM.

THE TESTING FIRM SHALL INCLUDE THE FOLLOWING INFORMATION WITH THE REPORT:

1. TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.
2. CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.
3. GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.

B. THESE TESTS SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNER'S CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION REPRESENTATIVE AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.

C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM'S REPORT/ANALYSIS TO ENGINEER A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE JOB TURNOVER.

D. CONTRACTOR TO PROVIDE A MINIMUM OF ONE (1) WEEK NOTICE TO OWNER AND ENGINEER FOR ALL TESTS REQUIRING WITNESSING.

SECTION 16961

1.01. TESTS BY CONTRACTOR

A. ALL TESTS AS REQUIRED UPON COMPLETION OF WORK, SHALL BE MADE BY THIS CONTRACTOR. THESE SHALL BE CONTINUITY AND INSULATION TESTS; TEST TO DETERMINE THE QUALITY OF MATERIALS, ETC. AND SHALL BE MADE IN ACCORDANCE WITH N.E.C. RECOMMENDATIONS. ALL FEEDERS AND BRANCH CIRCUIT WIRING (EXCEPT CLASS 2 SIGNAL CIRCUITS) MUST BE TESTED FREE FROM SHORT CIRCUIT AND GROUND FAULT CONDITIONS AT 500V IN A REASONABLY DRY AMBIENT OF APPROXIMATELY 70 DEGREES F.

B. CONTRACTOR SHALL PERFORM LOAD PHASE BALANCING TESTS. CIRCUITS SHALL BE SO CONNECTED TO THE PANELBOARDS SUCH THAT THE NEW LOAD IS DISTRIBUTED AS EQUALLY AS POSSIBLE BETWEEN EACH LOAD AND NEUTRAL. 10% SHALL BE CONSIDERED AS A REASONABLE AND ACCEPTABLE ALLOWANCE. BRANCH CIRCUITS SHALL BE BALANCED ON THEIR OWN PANELBOARDS; FEEDER LOADS SHALL, IN TURN, BE BALANCED ON THE SERVICE EQUIPMENT. REASONABLE LOAD TEST SHALL BE ARRANGED TO VERIFY LOAD BALANCE IF REQUESTED BY THE ENGINEER.

C. ALL TESTS, UPON REQUEST, SHALL BE REPEATED IN THE PRESENCE OF OWNER'S REPRESENTATIVE. ALL TESTS SHALL BE DOCUMENTED AND TURNED OVER TO OWNER. OWNER SHALL HAVE THE AUTHORITY TO STOP ANY OF THE WORK NOT BEING PROPERLY INSTALLED. ALL SUCH DETECTED WORK SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER AND THE TESTS SHALL BE REPEATED.

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DRAWN BY:	CHECKED BY:	APPROVED BY:
BSP	TJR	

RFDS REV #: 0 – 08/17/2023

CONSTRUCTION DOCUMENTS

SUBMITTALS

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A	10/05/23	ISSUED FOR CLIENT REVIEW
B	10/17/23	REVISED PER CLIENT COMMENTS
0	12/01/23	ISSUED FOR CONSTRUCTION

CENTEK PROJECT NUMBER
23009.09

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS01171A
227 BOOMBRIDGE RD
NORTH STONINGTON CT, 06359

SHEET TITLE
ELECTRICAL SPECIFICATIONS

SHEET NUMBER
G-4

CENTEK NOTES AND SPECIFICATIONS:

DESIGN BASIS:

GOVERNING CODE: 2021 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2022 CONNECTICUT STATE BUILDING CODE.

1. DESIGN CRITERIA:

- RISK CATEGORY II (BASED ON IBC TABLE 1604.5)
- NOMINAL DESIGN SPEED: 105 MPH (Vasd)
  (EXPOSURE C/ IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-16).

SITE NOTES

1. THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
2. ACTIVE EXISTING UTILITIES, WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY, PRIOR TO PROCEEDING, SHOULD ANY UNCOVERED EXISTING UTILITY PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. THE AREAS OF THE COMPOUND DISTURBED BY THE WORK SHALL BE RETURNED TO THEIR ORIGINAL CONDITION.
4. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
5. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2021 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2022 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "H" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2022 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
3. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
4. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE, WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
5. ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS AND ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
6. AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS, AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.
7. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
8. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
9. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL, AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
10. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN 'AS-BUILT' SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
11. LOCATION OF EQUIPMENT AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS, SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
12. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
13. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
14. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
15. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
16. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
17. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED' ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE DISH Wireless L.L.C. CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
18. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
19. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
20. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
21. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUITS AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND CONFIRMED WITH THE PROJECT MANAGER AND OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK
22. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
23. THE CONTRACTOR SHALL CONTACT 'CALL BEFORE YOU DIG' AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
24. CONTRACTOR SHALL COMPLY WITH THE OWNER'S ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.
25. THE COUNTY/CITY/TOWN MAY MAKE PERIODIC FIELD INSPECTIONS TO ENSURE COMPLIANCE WITH THE DESIGN PLANS, SPECIFICATIONS, AND CONTRACT DOCUMENTS.
26. THE COUNTY/CITY/TOWN MUST BE NOTIFIED (2) WORKING DAYS PRIOR TO CONCEALMENT/BURIAL OF ANY SYSTEM OR MATERIAL THAT WILL PREVENT THE DIRECT INSPECTION OF MATERIALS, METHODS OR WORKMANSHIP. EXAMPLES OF THESE PROCESSES ARE BACKFILLING A GROUND RING OR TOWER FOUNDATION, POURING TOWER FOUNDATIONS, BURYING GROUND RODS, PLATES OR GRIDS, ETC. THE CONTRACTOR MAY PROCEED WITH THE SCHEDULED PROCESS (2) WORKING DAYS AFTER PROVIDING NOTICE UNLESS NOTIFIED OTHERWISE BY THE COUNTY/CITY/TOWN.
27. PRIOR TO THE SUBMISSION OF BIDS, THE CONTRACTOR SHALL VISIT THE 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 ENGINEER ON RECORD, PRIOR TO THE COMMENCEMENT OF ANY WORK.

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NORTH STONINGTON CT, 06359

SHEET TITLE
CENTEK NOTES/SPECIFICATIONS

SHEET NUMBER
GN-1

LEGEND

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE

FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48–T8

SMOKE DETECTION (DC)

EMERGENCY LIGHTING (DC)

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

CHAIN LINK FENCE

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE

UNDERGROUND POWER

UNDERGROUND TELCO

OVERHEAD POWER

OVERHEAD TELCO

UNDERGROUND TELCO/POWER

ABOVE GROUND POWER

ABOVE GROUND TELCO

ABOVE GROUND TELCO/POWER

WORKPOINT

SECTION REFERENCE

DETAIL REFERENCE

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.

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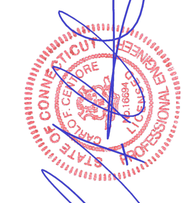

DRAWN BY:	CHECKED BY:	APPROVED BY:
BSP	TJR	

RFDS REV #: 0 – 08/17/2023

CONSTRUCTION DOCUMENTS

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REV	DATE	DESCRIPTION
A	10/05/23	ISSUED FOR CLIENT REVIEW
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CENTEK PROJECT NUMBER
23009.09

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS01171A
227 BOOMBRIDGE RD
NORTH STONINGTON CT, 06359

SHEET TITLE
LEGEND AND ABBREVIATIONS

SHEET NUMBER
GN-1.1

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)

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Site ID: _____

dish

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RF SIGNAGE

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

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CENTEK PROJECT NUMBER
23009.09

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS01171A
227 BOOMBRIDGE RD
NORTH STONINGTON CT, 06359

SHEET TITLE
DISH RF SIGNAGE

SHEET NUMBER
GN-1.2

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.

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS01171A
227 BOOMBRIDGE RD
NORTH STONINGTON CT, 06359

SHEET TITLE
DISH GENERAL NOTES

SHEET NUMBER
GN-1.3

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.
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Turnkey Wireless Development

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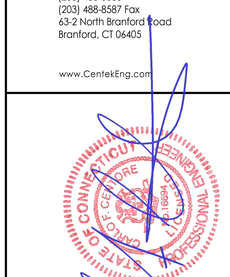

DRAWN BY:	CHECKED BY:	APPROVED BY:
BSP	TJR	

RFDS REV #: 0 – 08/17/2023

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	10/05/23	ISSUED FOR CLIENT REVIEW
B	10/17/23	REVISED PER CLIENT COMMENTS
0	12/01/23	ISSUED FOR CONSTRUCTION

CENTEK PROJECT NUMBER
23009.09

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS01171A
227 BOOMBRIDGE RD
NORTH STONINGTON CT, 06359

SHEET TITLE
DISH GENERAL NOTES

SHEET NUMBER
GN-1.4

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.

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DRAWN BY:	CHECKED BY:	APPROVED BY:
BSP	TJR	

RFDS REV #: 0 – 08/17/2023

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CENTEK PROJECT NUMBER
23009.09

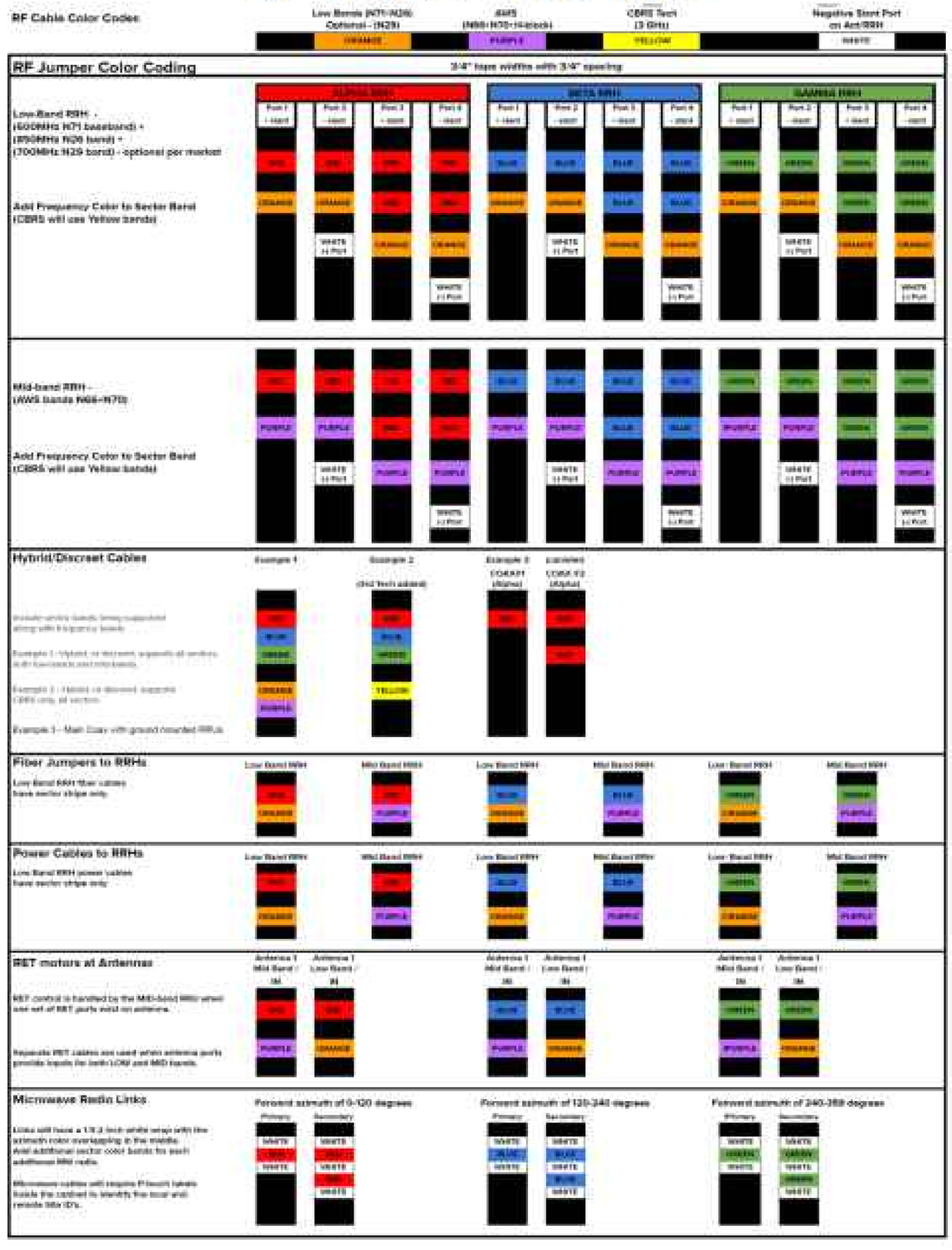
DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS01171A
227 BOOMBRIDGE RD
NORTH STONINGTON CT, 06359

SHEET TITLE
DISH GENERAL NOTES

SHEET NUMBER
GN-1.5

RF COLOR CODING



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CENTEK PROJECT NUMBER
23009.09

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS01171A
227 BOOMBRIDGE RD
NORTH STONINGTON CT, 06359

SHEET TITLE
RF CABLE COLOR CODES

SHEET NUMBER
RF-1

Exhibit D

Structural Analysis Report

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

180-ft Existing Guyed Lattice Tower

Proposed Dish Antenna Installation

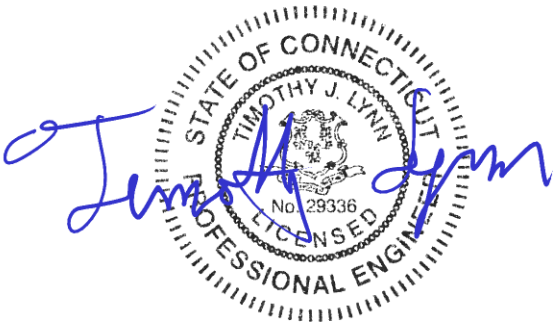
Dish Site Ref: BOBOS01171A

227 Boombridge Road, North Stonington, CT

Centek Project No. 23009.09

Date: September 19, 2023

Max Stress Ratio = 70.2%



Prepared for:

Northeast Site Solutions
5 Melrose Road
Farmington, CT 06032

Table of Contents

Introduction

The purpose of this report is to summarize the results of the non-linear, P-Δ structural analysis of the antenna installation proposed by Dish on the existing guyed lattice tower located in North Stonington, CT.

The host tower is a 180-ft, three face, guyed steel lattice tower originally manufactured by UNR ROHN circa 1997; job no. 33353PH. The tower geometry and structure member information was obtained from UNR-ROHN assembly drawing D951097, file no. 33353PH dated November 10, 1997. Subsequent tower reinforcement design information was obtained from a structural analysis and reinforcement design report prepared for Verizon Wireless by Centek Engineering, dated December 1, 2011. Guy anchor foundation information was obtained from the standard UNR-ROHN foundation drawing no. C620643, dated August 18, 1977.

Antenna and appurtenance information were obtained from a structural analysis report prepared by Centek Engineering; job no. 22022.04 dated May 6, 2022 and an RF data sheet provided by Dish dated August 17, 2023.

The tower consists of ten (10) vertical sections constructed of steel pipe legs conforming to ASTM A572-50. Diagonal and horizontal lateral support bracing consists of a combination of steel angle and steel pipe construction conforming to ASTM A36 and ASTM A53-B-42. The vertical tower sections are connected by bolted flange plates with the diagonal and horizontal bracing to pipe legs consisting of bolted connections. The width of the tower face is 3.42-ft throughout its length with the exception of a 5'-0" high tapered base section.

Antenna and Appurtenance Summary

- AT&T (Existing):
  Antennas: Three (3) Powerwave 7770, three (3) CCI TPA-65RLCUUUU-H8, two (2) Powerwave P65-17-XLH-RR, one (1) Commscope SBNH-1D6565C, three (3) Ericsson RRUS-11, three (3) Ericsson 4415 B25, six (6) Kaelus DBC0061F1V51-2 and three (3) TMAs mounted on three (3) existing 15-ft ROHN boom gates with a RAD center elevation of ±180-ft above grade.
  Coax Cables: Twelve (12) 1-5/8" ∅ coax, one (1) fiber trunk and two (2) DC trunk cables running on the leg/face(s) of the existing tower as specified within Section 3 of this report.
- VERIZON (Existing):
  Antennas: Six (6) Antel LPA 80080/4CF, six (6) Qunitel QS6656-5D, three (3) Samsung B2/B66A, three (3) Samsung B5/B13 and one (1) OVP mounted on three (3) SitePro VFA12-HD 12-ft V-Frames with a RAD center elevation of ±136-ft above grade.
  Coax Cables: Six (6) 1-5/8" ∅ coax and two (2) 1-5/8" ∅ hybriflex cables running on a leg/face of the existing tower as specified within Section 3 of this report.
- T-MOBILE (Existing):
  Antennas: Three (3) RFS APXVAALL24-43-U-NA20 panel antenna, three (3) Ericsson AIR6419 B41 panel antennas, three (3) Commscope VV-65A-R1 panel antennas, three (3) Ericsson 4460 B25+B66 remote radio heads and three (3) Ericsson 4449 B71+B12 remote radio heads with a RAD center elevation of ±120-ft above grade.
  Coax Cables: Three (3) 6x12 and one (1) 6x24 hybrid cables running on a leg/face of the existing tower as specified within Section 3 of this report.

- Unknown (Existing):
  Antennas: One (1) GPS antenna mounted on a 1-ft stand-off frame with a RAD center elevation of ±98-ft above grade.
  Coax Cables: One (1) 1/2" ∅ coax cable running on the face of the existing tower as specified within Section 3 of this report.
- **DISH (PROPOSED):**
  Antennas: Three (3) Commscope FFVV-65B-R2 panel antennas, three (3) Samsung RF4450t-71A remote radio heads, three (3) Samsung RF4451d-70A remote radio heads and one (1) Raycap RD1DC-9181-PF-48 OVP box mounted on three (3) existing 8-ft V-Frames (Sitepro p/n VFA8-HD) with a RAD center elevation of ±153-ft above grade.
  Coax Cables: One (1) 1-1/4"∅ Hybriflex cable running on the face of the existing tower as specified in Section 3 of this report.

Primary Assumptions Used in the Analysis

- The tower structure's theoretical capacity not including any assessment of the condition of the tower.
- The tower carries the horizontal and vertical loads due to the weight of antennas, ice load and wind.
- Tower is properly installed and maintained.
- Tower is in plumb condition.
- Tower loading for antennas and mounts as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds are fabricated with ER-70S-6 electrodes.
- All members are assumed to be as specified in the original tower design documents or reinforcement drawings.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.
- All tower members were properly designed, detailed, fabricated, installed and have been properly maintained since erection.
- Any deviation from the analyzed antenna loading will require a new analysis for verification of structural adequacy.
- All coax cables to be installed as indicated in this report.

Analysis

The existing tower was analyzed using a comprehensive computer program entitled tnxTower. The program analyzes the tower, considering the worst case loading condition. The tower is considered as loaded by concentric forces along the tower, and the model assumes that the tower members are subjected to bending, axial, and shear forces.

The existing tower was analyzed for the controlling basic wind speed (3-second gust) with no ice and the applicable wind and ice combination to determine stresses in members as per guidelines of TIA-222-H entitled "Structural Standard for Antenna Support Structures and Antennas", the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Load and Resistance Factor Design (LRFD).

The controlling wind speed is determined by evaluating the local available wind speed data as provided in Appendix P of the CSBC[1] and the wind speed data available in the TIA-222-H Standard.

Tower Loading

Tower loading was determined by the basic wind speed as applied to projected surface areas with modification factors per TIA-222-H, gravity loads of the tower structure and its components, and the application of 1.0" radial ice on the tower structure and its components.

Load Cases:	Load Case 1; 130 mph (Ultimate) wind speed w/ no ice plus gravity load – used in calculation of tower stresses and rotation.	*[Appendix P of the 2022 CT Building Code]*
	Load Case 2; 50 mph wind speed w/ 1.0" radial ice plus gravity load – used in calculation of tower stresses.	*[Annex B of TIA-222-H]*
	Load Case 3; 60 mph (Nominal) wind speed used for deflection calculation.	

[1] The 2021 International Building Code as amended by the 2022 Connecticut State Building Code (CSBC).

Tower Capacity

- Calculated stresses were found to be within allowable limits. This tower was found to be at **70.2%** of its total capacity.

Tower Section	Elevation	Stress Ratio (percentage of capacity)	Result
Leg (T4)	20' - 40'	70.2%	**PASS**
Diagonal (T5)	80' - 100'	64.2%	**PASS**
Bottom Girt (T9)	5' - 20'	61.2%	**PASS**
Guy A (T3)	132.159'	61.6%	**PASS**
Bolt Check	-	63.1%	**PASS**

Foundations and Anchorage

The existing tower base foundation, type CB No. 9, consists of a 2-ft square pedestal with a 6-ft square reinforced concrete pad bearing directly on the existing sub grade, obtained from the standard ROHN 'Concrete Base Foundation Schedule', drawing No. C610621, dated January 9, 1985. The reinforced concrete anchor support blocks at the 142-ft guy radius were based on the typical ROHN 10a foundation and the reinforced concrete anchor support blocks at the 162-ft radius were based on the ROHN 10e foundation. The guy anchor foundation information was obtained from ROHN drawing No. C620643, dated August 18, 1977. Three (3) additional guy anchor foundations consistent of 12'x6'x4' reinforced concrete blocks were installed at a 100-ft guy radius. Reinforcement information was attained from construction drawings prepared by Centek Engineering, job no. 11079, dated December 13, 2011.

The worst case tower base and guy anchor reactions developed from the governing Load Case were used in the verification of the anchorage foundations:

Tower Guy Reactions			
Vector	**Inner** (100' Rad.)	**Center** (142' Rad.)	**Outer** (162' Rad.)
Horizontal (In Plane of GW)	22 kips	24 kips	11 kips
Horizontal (Out of Plane of GW)	0 kips	1 kips	0 kips
Vertical	16 kips	25 kips	11 kips
Resultant Force at end of Guy Wire	27 kips	34 kips	16 kips

Tower Base Reactions	
Vector	**Proposed Reaction**
Horizontal Shear	2 kips
Axial Compression	138 kips

Foundation	Design Limit	TIA-222-H (FS)[1]	Proposed Loading (FS)[1]	Result
Reinf. Conc. Anchor Block (C) at 142-ft radius.	Uplift	1.0	2.4	**PASS**
	Sliding	1.0	1.4	**PASS**
		Ultimate Bearing	**Proposed**	
Base Foundation	Bearing	12.0 ksf	4.0 ksf	**PASS**

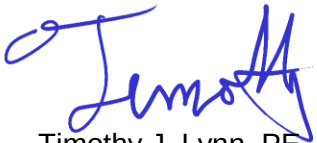
Conclusion

This analysis shows that the subject tower **is adequate** to support the proposed antenna configuration.

The analysis is based, in part, on the information provided to this office by Dish. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:



Timothy J. Lynn, PE
Structural Engineer

Standard Conditions for Furnishing of Professional Engineering Services on Existing Structures

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessarily limited to:

- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of Centek Engineering, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provided to Centek Engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the “as new” condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222
- All services performed, results obtained, and recommendations made are in accordance with generally accepted engineering principles and practices. Centek Engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

tnxTower, is an integrated structural analysis and design software package for Designed specifically for the telecommunications industry, tnxTower, formerly RISA Tower, automates much of the tower analysis and design required by the TIA/EIA 222 Standard.

tnxTower Features:

- tnxTower can analyze and design 3- and 4-sided guyed towers, 3- and 4-sided self-supporting towers and either round or tapered ground mounted poles with or without guys.
- The program analyzes towers using the TIA-222-H standard or any of the previous TIA/EIA standards back to RS-222 (1959). Steel design is checked using the AISC ASD or the AISC LRFD specifications.
- Linear and non-linear (P-delta) analyses can be used in determining displacements and forces in the structure. Wind pressures and forces are automatically calculated.
- Extensive graphics plots include material take-off, shear-moment, leg compression, displacement, twist, feed line, guy anchor and stress plots.
- tnxTower contains unique features such as True Cable behavior, hog rod take-up, foundation stiffness and much more.
- such as True Cable behavior, hog rod take-up, foundation stiffness and much more.

RF DESIGN SHEET

Issue Date	8/17/2023
Revision	0

RFDS Status	Preliminary
Created By	Rangel, Irene

SITE INFORMATION	
DISH Site Number	BOBOS01171A
DISH Site Name	
Prequal Asset ID	
AOI	BOS
PEA	7
Latitude	41.428796
Longitude	-71.809077
Address	227 Boombridge Rd
City	North Stonington
State	CT
ZIP Code	06359
County	New London
Rad Center (ft)	153
RAD Confirmed	***No Confirmed RAD***
Structure Type	Guyed

PROJECT ASSIGNMENTS	
Market Manager	Bradford Rainey
Site Development Mgr.	David Goodfellow
RF Engineer	Irene Rangel
Site Acq Specialist/Develop. Cord.	David Goodfellow /
SAQ Vendor/A&E Vendor	NORTHEAST SITE SOLUTIONS LLC / NORTHEAST SITE SOLUTIONS LLC
Asset Owner/Asset #	/
Construction Mgr. (Lead/Field)	/
Contractor (General/Tower/Civil)	/ /
Power Company / Transport Provider	EVERSOURCE ELECTRIC /

EMERGENCY CONTACT INFORMATION	
Name	Temporary Emergency Line
Phone	866-624-6874

LEASE AREA	
Dimensions (ft.)	5x7
Type	Steel Platform
Baseband Cabinet	Charles(Amphenol)-H/EX
Dimensions (in)	32" x 32.1" x 74"
Baseband	gNB-CU
Generator Required	
Make/Model	

DESIGN COMMENTS
Preliminary RFDS version, not to be used for construction. To be updated as needed

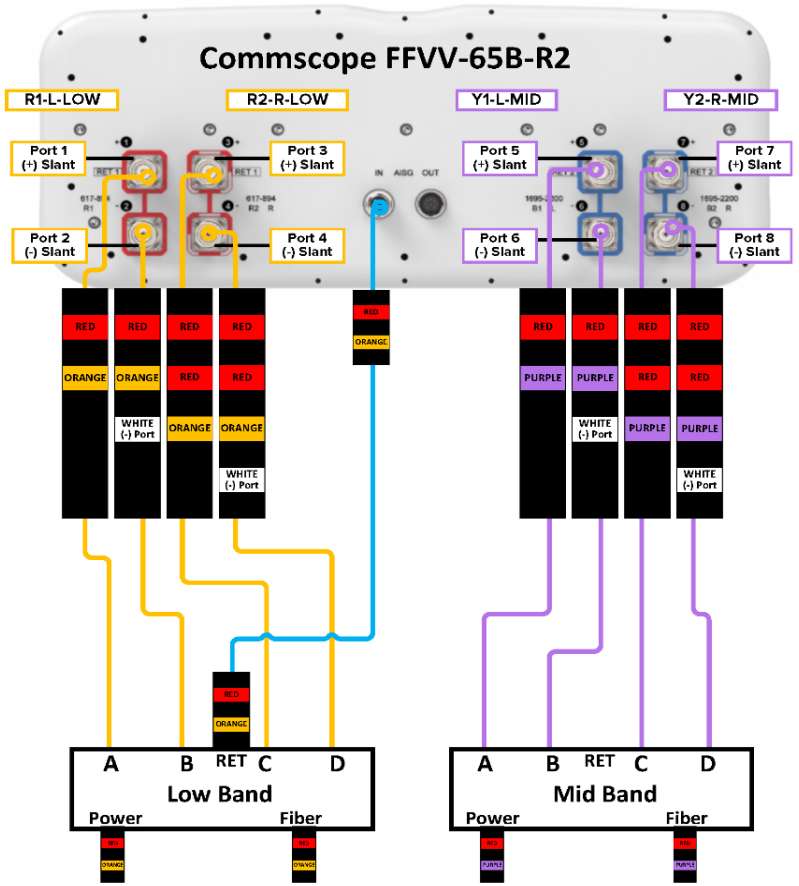
RF EQUIPMENT INFORMATION

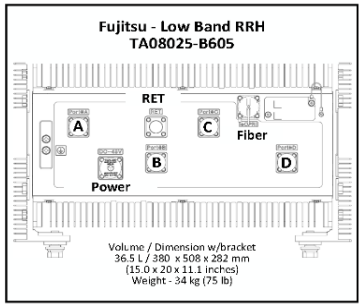
Issue Date/Revision	8/17/2023	**Revision:**	0	**Latitude**	41.428796
Site ID	BOBOS01171A			**Prequal Asset ID**	0
Site Address	227 Boombridge Rd, North Stonington CT 06359			**SOW / RF Comments**	Dish proposes to place 3 antennas, 6 RRUs, 1 junction box(s), and 1 (power/hybrid) cable(s), at the 153 foot RAD. Dish will require a 5x7 lease area for ground equipment. Preliminary RFDS version, not to be used for construction. To be updated as needed
Structure Type	Guyed				
sectors >20' apart?	No	***Confirmed RAD?***	***No Confirmed RAD*** 153		

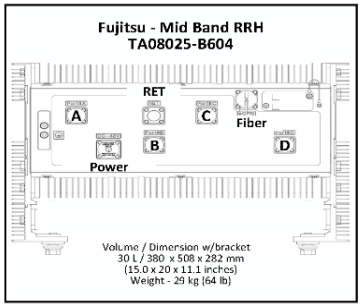
	Sector 1 (alpha)			Sector 2 (beta)			Sector 3 (gamma)		
ANTENNA									
Antenna Mount Position	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Antenna ID		1			2			3	
Manufacturer		Commscope			Commscope			Commscope	
Model Number		FFVV-65B-R2			FFVV-65B-R2			FFVV-65B-R2	
Dimensions H x W x D (in)		72.0" x 19.6" 7.8"			72.0" x 19.6" 7.8"			72.0" x 19.6" 7.8"	
Weight (lbs.)		70.8			70.8			70.8	
TX Power Output (watts)		40000			40000			40000	
ERP (dBm)		76.02			76.02			76.02	
RAD Centerline Height (ft.)		153			153			153	
Azimuths (True North)		30°			150°			270°	
Mech Down Tilt		0°			0°			0°	
Default Mount		Generic							
LOW BAND/RADIO #1									
Manufacturer		Samsung			Samsung			Samsung	
Model Number		RF4450t-71A			RF4450t-71A			RF4450t-71A	
Dimensions H x W x D (in.)		16.5" x 15.0" x 11.0"			16.5" x 15.0" x 11.0"			16.5" x 15.0" x 11.0"	
Weight (lbs.)		94.58			94.58			94.58	
Location		Antenna			Antenna			Antenna	
Band		n71 |			n71 |			n71 |	
Quantity		1			1			1	
Port Assignment		Port 1-4			Port 1-4			Port 1-4	
Elec Down Tilt		2°			2°			2°	
MID BAND/RADIO #2									
Manufacturer		Samsung			Samsung			Samsung	
Model Number		RF4451d-70A			RF4451d-70A			RF4451d-70A	
Dimensions H x W x D (in)		15.0" x 15.0" x 8.9"			15.0" x 15.0" x 8.9"			15.0" x 15.0" x 8.9"	
Weight (lbs.)		61.3			61.3			61.3	
Location		Antenna			Antenna			Antenna	
Quantity		1			1			1	
Band		n70 |n66			n70 |n66			n70 |n66	
Port Assignment		Port 5-8			Port 5-8			Port 5-8	
Elec Down Tilt		2°			2°			2°	
OVP (Junction Box)									
Manufacturer		Raycap							
Model Number		RDIDC-9181-PF-48							
Dimensions H x W x D (in.)		16" x 14" x 8"							
Weight (lbs.)		21							
Quantity		1							
LINE DETAILS									
Line Type	Hybrid								
Manufacturer	Cables Unlimited								
Model Number	CU12PSM6P4XXX_4AWG								
Diameter (O.D. in.)	1.75"								
Weight (lbs. per ft.)	2.716 lbs/ft								
Quantity	1								
Approx. Cable Length	183								
OTHER EQUIPMENT									
Type of Equipment									
Manufacturer									
Model Number									
Dimensions H x W x D (in)									
Weight (lbs.)									
Equipment Location									
Quantity									

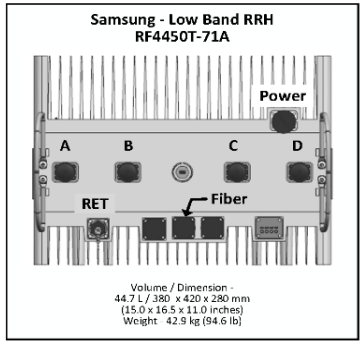
Frequencies	**n29**	**n66**	**n70**	**n71**
Downlink (TX)	-	|2160 - 2165| |2180 - 2200|	|1995 - 2020|	|632 - 652|
Uplink (RX)	-	|1760 - 1765|	|1695 - 1710|	|678 - 698|

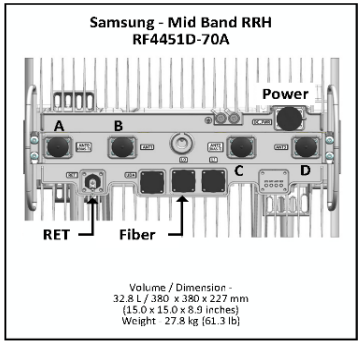
PLUMBING DIAGRAM ANTENNA











Wireless Engineering

Chuck Iversen

20 - Sept – 2022

ALPHA SECTOR (1 Antenna)
RRU AND ANTENNA
RF CABLING CONFIGURATION

Commscope FFVV-65B-R2 - 8 Port - 6ft
LOW/MID Radios
LOW Band RET cable

SIZE	CAGE CODE	DWG NAME	REV
	50HD6	FFVV-65B-R2-Commscope-6ft_ALPHA	1
SCALE	None	SHEET	1 OF 1

Dimensions

Length	1828 mm | 72.0 in	
Width	498 mm | 19.6 in	
Depth	197 mm | 7.8 in	

Mechanical Specifications

/ind Loading at Velocity, frontal	685 N @ 150 km/h | 154.0 bf @ 150 km/h
/ind Loading at Velocity, lateral	232 N @ 150 km/h | 52.2 bf @ 150 km/h
/ind Loading at Velocity, rear	164 N @ 150 km/h | 126.8 bf @ 150 km/h
/ind Loading at Velocity, maximum	889 N @ 150 km/h | 199.8 bf @ 150 km/h
/ind Speed, maximum	241 km/h | 150 mph

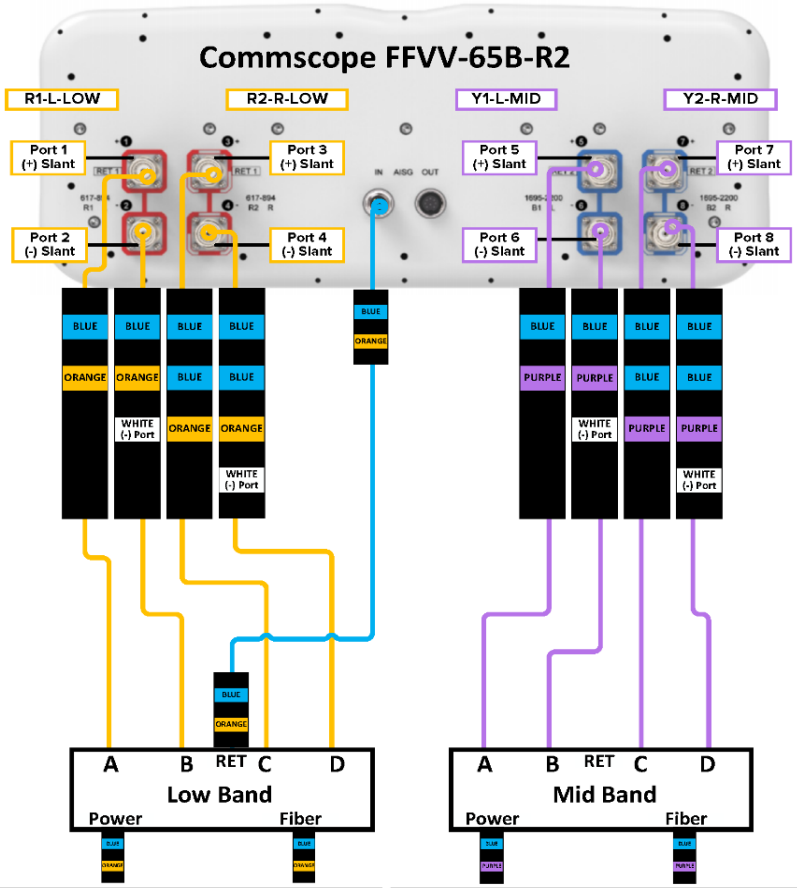
Packaging and Weights

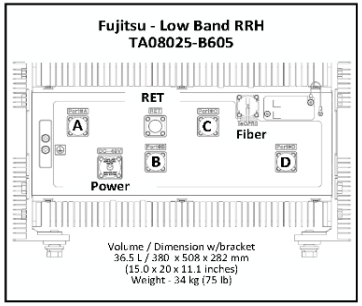
Length, packed	2010 mm | 79.1 in
Width, packed	608 mm | 23.9 in
Depth, packed	352 mm | 13.9 in
Net Weight, without mounting kit	32.1 kg | 70.8 lb
Weight, gross	44.5 kg | 98.1 lb

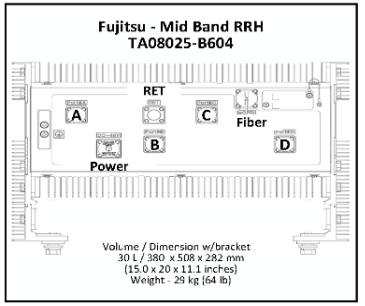
- Refer to the color coding chart for RF Cables
- Check RRH SFPs are 'I-temp' rated, (industrial-temp range)
- RF Connector recommended torque: 50 inch-lbs.
- RET connector recommended torque: 4.3-8.6 inch-lbs.
- Weatherproof boots required on all RF jumpers.
- RET cables require self-sealing tape.
- Protect unused ports with weather-sealing caps.
- **When OOBE filters are used, provide straight-through connectivity (Ant port 1 --> RU port A) with each port and each set of RF jumpers color-coded accordingly.**

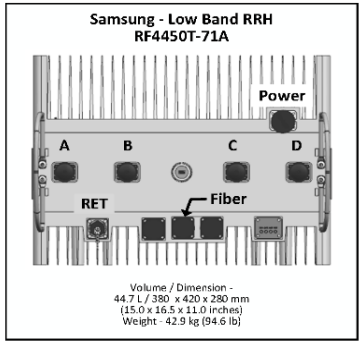
Sector Color Bands	Frequency Color Bands	Main Coax
ALPHA SECTOR	LOW BAND (LB)	RET Cable
BETA SECTOR	MID BAND (MB)	RF Jumper - Low Band
GAMMA SECTOR	FUTURE	RF Jumper - Mid Band

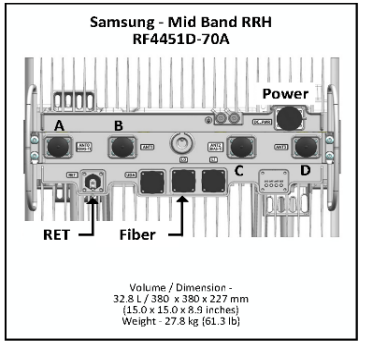
PLUMBING DIAGRAM ANTENNA











Wireless Engineering

BETA SECTOR (1 Antenna)
RRU AND ANTENNA
RF CABLING CONFIGURATION

Commscope FFVV-65B-R2 - 8 Port - 6ft
LOW/MID Radios
LOW Band RET cable

	SIZE	CAGE CODE	DWG NAME	REV
Chuck Iversen		50HD6	FFVV-65B-R2-Commscope-6ft_BETA	1
20 - Sept – 2022	SCALE None		SHEET 1 OF 1	

Dimensions

Length	1828 mm | 72.0 in
Width	498 mm | 19.6 in
Depth	197 mm | 7.8 in

Mechanical Specifications

Axial Loading at Velocity, frontal	685 N @ 150 km/h | 154.0 lbf @ 150 km/h
Axial Loading at Velocity, lateral	232 N @ 150 km/h | 52.2 lbf @ 150 km/h
Axial Loading at Velocity, rear	564 N @ 150 km/h | 126.8 lbf @ 150 km/h
Axial Loading at Velocity, maximum	889 N @ 150 km/h | 199.8 lbf @ 150 km/h
Wind Speed, maximum	241 km/h | 150 mph

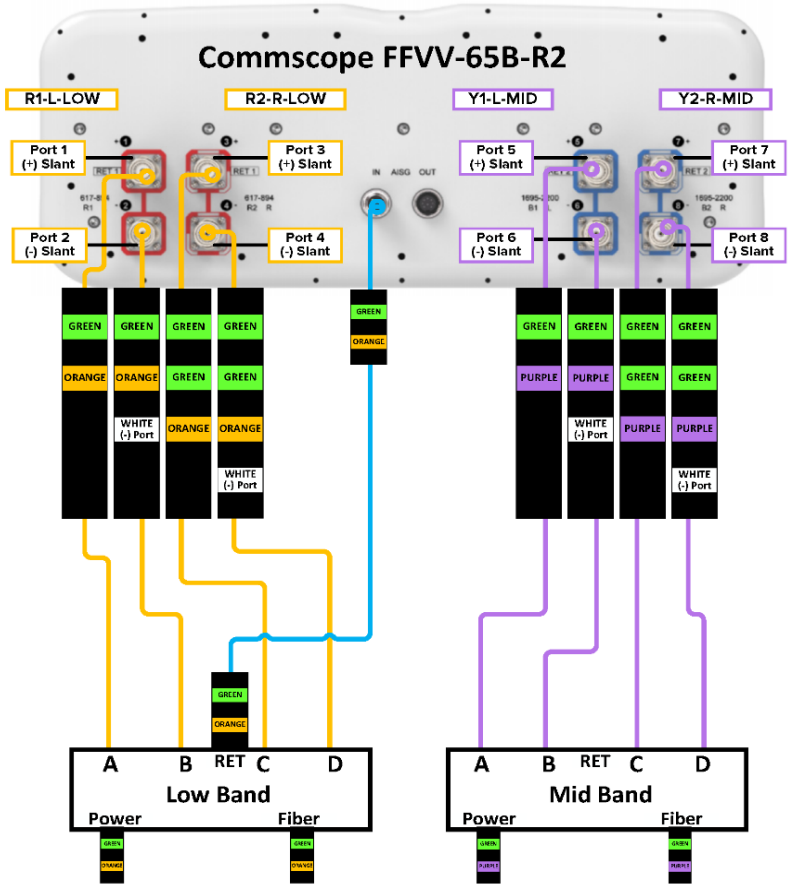
Packaging and Weights

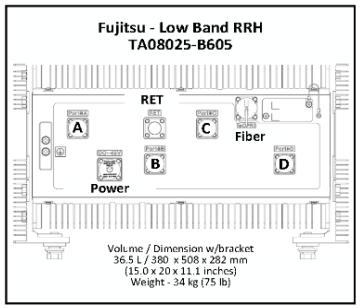
Length, packed	2090 mm | 79.1 in
Width, packed	608 mm | 23.9 in
Depth, packed	352 mm | 13.9 in
Net Weight, without mounting kit	32.1 kg | 70.8 lb
Weight, gross	44.5 kg | 98.1 lb

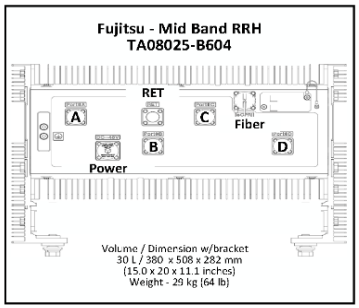
- Refer to the color coding chart for RF Cables
- Check RRH SFPs are 'I-temp' rated, (industrial-temp range)
- RF Connector recommended torque: 50 inch-lbs.
- RET connector recommended torque: 4.3-8.6 inch-lbs.
- Weatherproof boots required on all RF jumpers.
- RET cables require self-sealing tape.
- Protect unused ports with weather-sealing caps.
- **When OOBE filters are used, provide straight-through connectivity (Ant port 1 --> RU port A) with each port and each set of RF jumpers color-coded accordingly.**

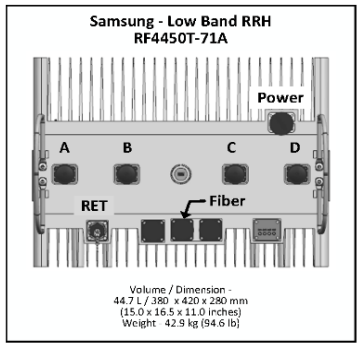
Sector Color Bands	Frequency Color Bands	Main Coax
ALPHA SECTOR	LOW BAND (LB)	RET Cable
BETA SECTOR	MID BAND (MB)	RF Jumper - Low Band
GAMMA SECTOR	FUTURE	RF Jumper - Mid Band

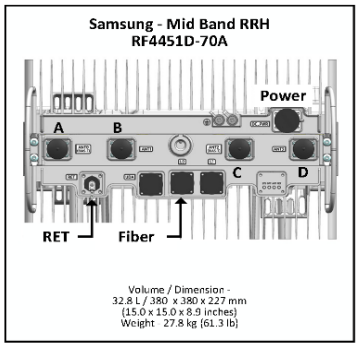
PLUMBING DIAGRAM ANTENNA











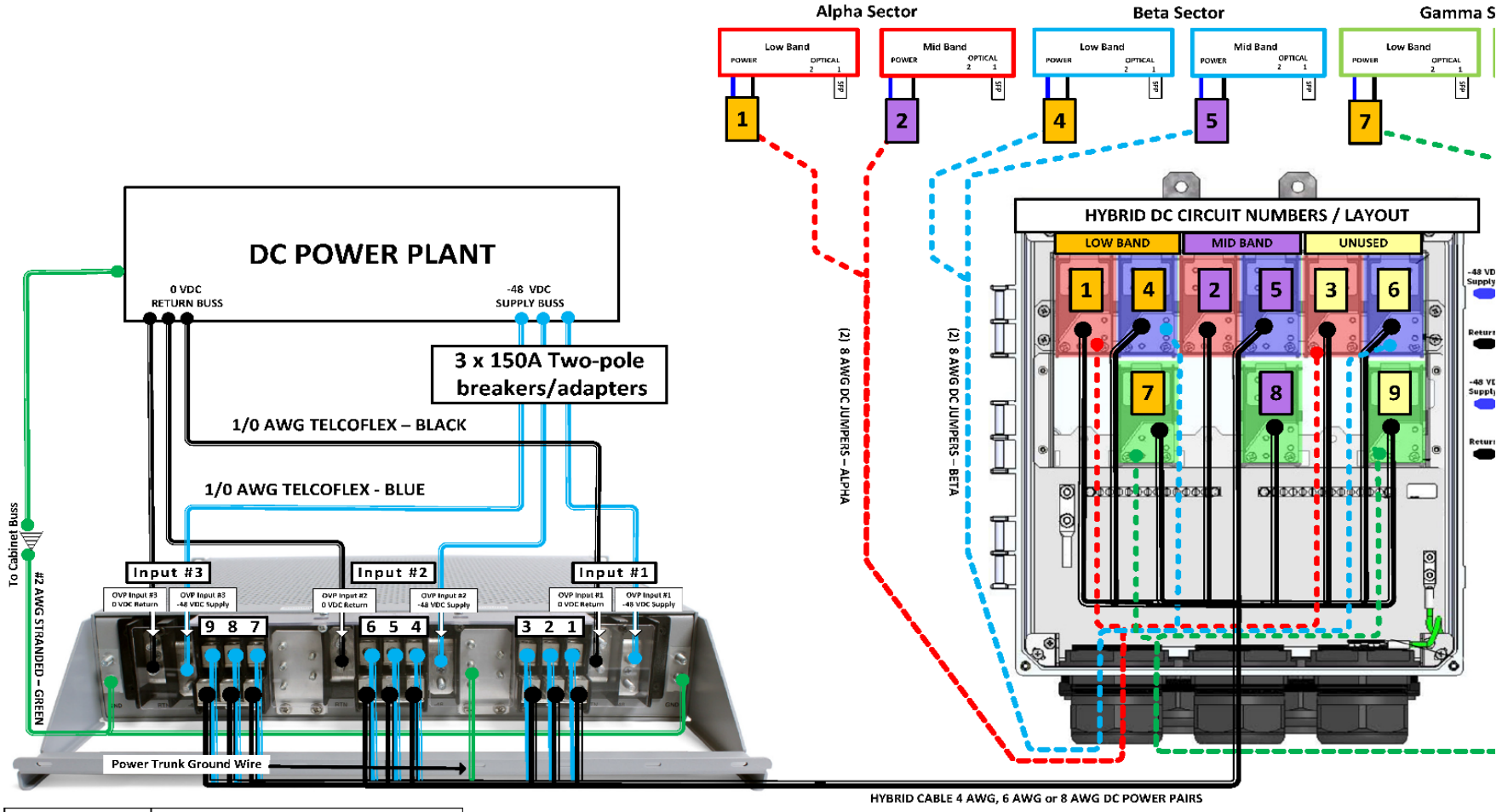
Wireless Engineering	GAMMA SECTOR (1 Antenna) RRU AND ANTENNA RF CABLING CONFIGURATION			
	Commscope FFVV-65B-R2 - 8 Port - 6ft LOW/MID Radios LOW Band RET cable			
Chuck Iversen	SIZE	CAGE CODE	DWG NAME	REV
		50HD6	FFVV-65B-R2-Commscope-6ft_GAMMA	1
20 - Sept – 2022	SCALE None		SHEET 1 OF 1	

Dimensions		Mechanical Specifications	
Length	1828 mm | 72.0 in	/ind Loading at Velocity, frontal	685 N @ 150 km/h | 154.0 lbf @ 150 km/h
Width	498 mm | 19.6 in	/ind Loading at Velocity, lateral	232 N @ 150 km/h | 52.2 lbf @ 150 km/h
Depth	197 mm | 7.8 in	/ind Loading at Velocity, rear	564 N @ 150 km/h | 126.8 lbf @ 150 km/h
		/ind Loading at Velocity, maximum	889 N @ 150 km/h | 199.8 lbf @ 150 km/h
		/ind Speed, maximum	241 km/h | 150 mph
		Packaging and Weights	
		Length, packed	2030 mm | 79.1 in
		Width, packed	608 mm | 23.9 in
		Depth, packed	352 mm | 13.9 in
		Net Weight, without mounting kit	32.1 kg | 70.8 lb
		Weight, gross	44.5 kg | 98.1 lb

- Refer to the color coding chart for RF Cables
- Check RRH SFPs are 'I-temp' rated. (Industrial-temp range)
- RF Connector recommended torque: 50 inch-lbs.
- RET connector recommended torque: 4.3-8.6 inch-lbs.
- Weatherproof boots required on all RF jumpers.
- RET cables require self-sealing tape.
- Protect unused ports with weather-sealing caps.
- **When OOBE filters are used, provide straight-through connectivity (Ant port 1 --> RU port A) with each port and each set of RF jumpers color-coded accordingly.**

Sector Color Bands	Frequency Color Bands	Main Coax
ALPHA SECTOR	LOW BAND (LB)	RET Cable
BETA SECTOR	MID BAND (MB)	RF Jumper - Low Band
GAMMA SECTOR	FUTURE	RF Jumper - Mid Band

PLUMBING DIAGRAM OVP

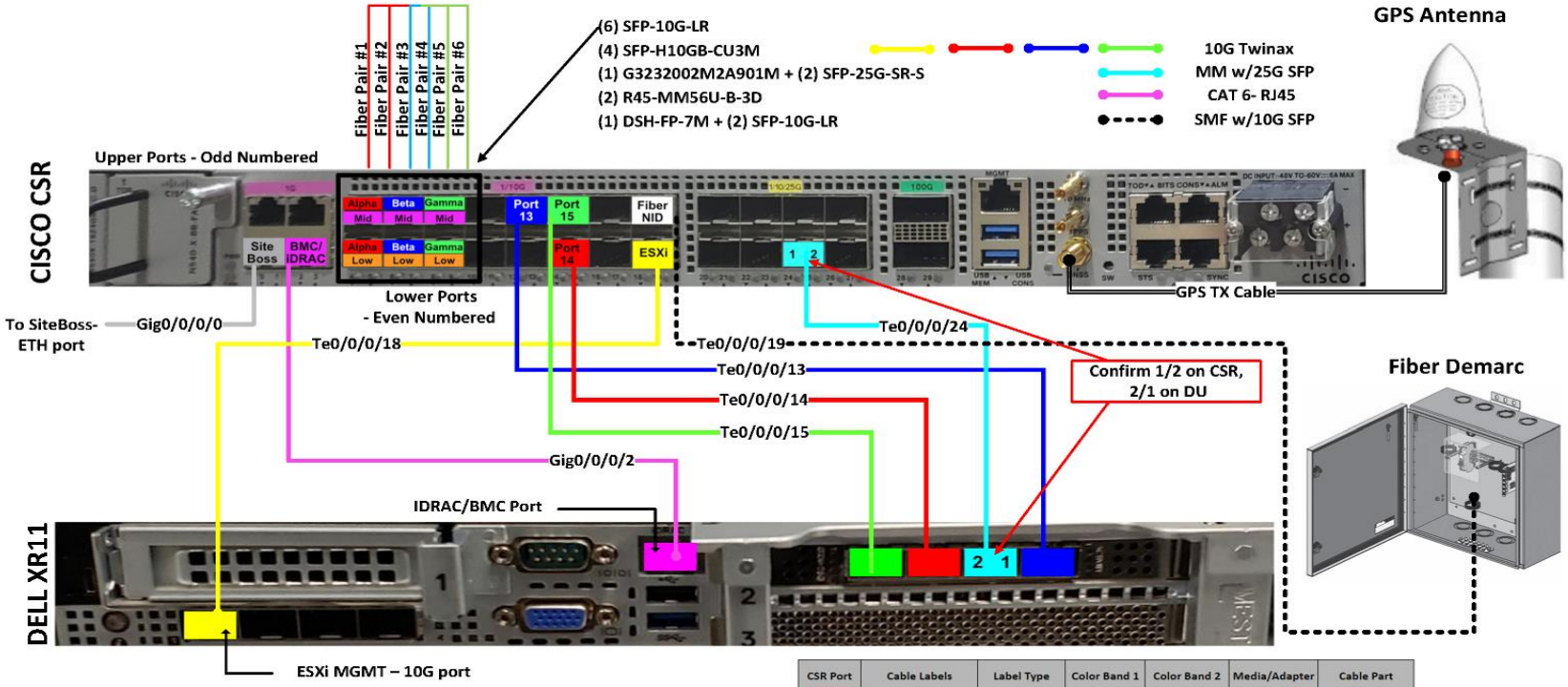


Wireless Engineering	5G Macro Site Communications Diagram			
	Raycap 9303 (3 x 3 Circuits) No Booster Raycap 9181 (TOWER) Top OVP			
Chuck Iversen	SIZE	CAGE CODE	DWG NAME	REV
		50HD6	9303-NoBoost-Tower OVP	1
20 - Nov - 2022	SCALE None		SHEET 1 OF 1	

DC Circuit pair #

RF Color Coding Sector color bands	RF Color Coding Frequency color bands
ALPHA SECTOR	LOW BAND (LB)
BETA SECTOR	MID BAND (MB)
GAMMA SECTOR	UNUSED

PLUMBING DIAGRAM NETWORK



CSR Port	Cable Labels	Label Type	Color Band 1	Color Band 2	Media/Adapter	Cable Part
CSR - Port 0	SiteBoss/ETH port CSR Port 0/16	Tag or Flag	NONE/GREY RIBBON CABLE		Native RJ45	CAT 5
CSR - Port 2	BMC/IDRAC CSR Port 2/17 DU IDRAC port	Tag or Flag	PURPLE		Native RJ46	CAT 5
CSR - Port 4	Alpha Low	Tag or Flag	RED	ORANGE	SFP-10G-LR-S	Hybrid Fiber Pair
CSR - Port 5	Alpha Mid	Tag or Flag	RED	PURPLE	SFP-10G-LR-S	Hybrid Fiber Pair
CSR - Port 6	Beta Low	Tag or Flag	BLUE	ORANGE	SFP-10G-LR-S	Hybrid Fiber Pair
CSR - Port 7	Beta Mid	Tag or Flag	BLUE	PURPLE	SFP-10G-LR-S	Hybrid Fiber Pair
CSR - Port 8	Gamma Low	Tag or Flag	GREEN	ORANGE	SFP-10G-LR-S	Hybrid Fiber Pair
CSR - Port 9	Gamma Mid	Tag or Flag	GREEN	PURPLE	SFP-10G-LR-S	Hybrid Fiber Pair
CSR - Port 13	PTP CSR PORT 13 DU PORT 1	Flag	BLUE		DAC/10G	SFP-H10GB-CU3M
CSR - Port 14	VMWARE-MGMT CSR PORT 14 DU PORT 3	Flag	RED		DAC/10G	SFP-H10GB-CU3M
CSR - Port 15	MIDHAUL CSR PORT 15 DU PORT 4	Flag	GREEN		DAC/10G	SFP-H10GB-CU3M
CSR - Port 18	ESXi CSR PORT 18 DU ESXi MGMT PORT	Flag	YELLOW		DAC/10G	SFP-H10GB-CU3M
CSR - Port 19	To XHAUL NID (CKT ID) CSR PORT 19	Flag	LABEL ONLY		SFP-10G-LR-S (Typically)	SM Fiber
CSR - Port 24	FRONTHAUL CSR PORT 24 DU PORT 2	Flag	LABEL ONLY		SFP-25G-SR-S	G3232002M2A901M

Wireless Engineering	5G Macro Site Communications Diagram			
	Cisco CSR – NCS-540 Lit Fiber-Dell XR11 DU			
Chuck Iversen	SIZE	CAGE CODE 50HD6	DWG NAME CSR-DU-Good CSR-Dell	REV 2
1 - July - 2022	SCALE None		SHEET 1 OF 1	

RF COLOR CODING

RF Cable Color Codes

Low Bands (N71+N26) Optional - (N29)	AWS (N66+N70+H-block)	CBRS Tech (3 GHz)	Negative Slant Port on Ant/RRH
ORANGE	PURPLE	YELLOW	WHITE

RF Jumper Color Coding

3/4" tape widths with 3/4" spacing

Low-Band RRH -
(600MHz N71 baseband) +
(850MHz N26 band) +
(700MHz N29 band) - optional per market

Add Frequency Color to Sector Band
(CBRS will use Yellow bands)

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

Mid-band RRH -
(AWS bands N66+N70)

Add Frequency Color to Sector Band
(CBRS will use Yellow bands)

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

Hybrid/Discreet Cables

Include sector bands being supported along with frequency bands

Example 1 - Hybrid, or discreet, supports all sectors, both low-bands and mid-bands

Example 2 - Hybrid, or discreet, supports CBRS only, all sectors

Example 3 - Main Coax with ground mounted RRUs

Example 1	Example 2 (3rd Tech added)	Example 3 COAX#1 (Alpha)	(canister) COAX #2 (Alpha)
RED	RED	RED	RED
BLUE	BLUE		
GREEN	GREEN		RED
ORANGE	YELLOW		
PURPLE			

Fiber Jumpers to RRHs

Low Band RRH fiber cables have sector stripe only

Low Band RRH	Mid Band RRH	Low Band RRH	Mid Band RRH	Low Band RRH	Mid Band RRH
RED	RED	BLUE	BLUE	GREEN	GREEN
ORANGE	PURPLE	ORANGE	PURPLE	ORANGE	PURPLE

Power Cables to RRHs

Low Band RRH power cables have sector stripe only

Low Band RRH	Mid Band RRH	Low Band RRH	Mid Band RRH	Low Band RRH	Mid Band RRH
RED	RED	BLUE	BLUE	GREEN	GREEN
ORANGE	PURPLE	ORANGE	PURPLE	ORANGE	PURPLE

RET motors at Antennas

RET control is handled by the MID-band RRU 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.

Antenna 1 Mid Band / IN	Antenna 1 Low Band / IN	Antenna 1 Mid Band / IN	Antenna 1 Low Band / IN	Antenna 1 Mid Band / IN	Antenna 1 Low Band / IN
RED	RED	BLUE	BLUE	GREEN	GREEN
PURPLE	ORANGE	PURPLE	ORANGE	PURPLE	ORANGE

Microwave Radio Links

Links will have a 1.5-2 inch white wrap with the azimuth color overlapping in the middle. Add additional sector color bands for each additional MW radio.

Microwave cables will require P-touch labels inside the cabinet to identify the local and remote Site ID's.

Forward azimuth of 0-120 degrees		Forward azimuth of 120-240 degrees		Forward azimuth of 240-359 degrees	
Primary	Secondary	Primary	Secondary	Primary	Secondary
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
RED	RED	BLUE	BLUE	GREEN	GREEN
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
	RED		BLUE		GREEN
	WHITE		WHITE		WHITE

Exhibit E

Mount Analysis

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

Antenna Mount Analysis

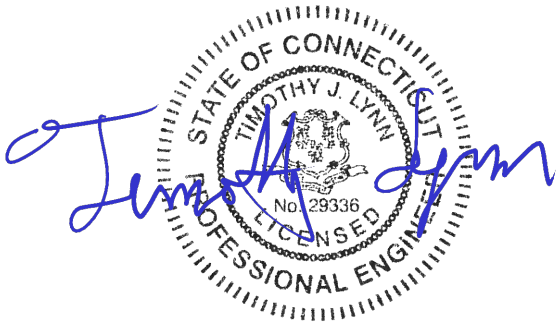
Dish Site #: BOBOS01171A

227 Boombridge Road
North Stonington, CT

Centek Project No. 23009.09

Date: September 19, 2023

Max Stress Ratio = 25%



Prepared for:

Northeast Site Solutions
5 Melrose Road
Farmington, CT 06032

Table of Contents

CENTEK engineering

Centered on Solutions℠

September 19, 2023

Mr. Chuck Regulbuto
Northeast Site Solutions
5 Melrose Road
Farmington, CT 06032

Re: Structural Letter ~ Antenna Mount
Dish – Site Ref: BOBOS01171A
227 Boombridge Road
North Stonington, CT

Centek Project No. 23009.09

Dear Mr. Regulbuto,

Centek Engineering, Inc. has reviewed the Dish antenna installation at the above referenced site. The purpose of the review is to determine the structural adequacy of the **proposed mounts, consisting of three (3) V-frame sector mounts (SitePro P/N: VFA8-HD)** to support the proposed equipment configuration. The review considered the effects of wind load, dead load and ice load in accordance with the 2021 International Building Code as modified by the 2022 Connecticut State Building Code (CTBC) including ASCE 7-16 and ANSI/TIA-222-H *Structural Standard for Antenna Supporting Structures, Antennas and Small Wind Turbine Support Structures"*.

The loads considered in this analysis consist of the following:

- **Dish:**
  V-Frames: Three (3) Commscope FFVV-65B-R2 panel antennas, three (3) Samsung RF4450t-71A remote radio heads, three (3) Samsung RF4451d-70A remote radio heads and one (1) Raycap OVP box mounted on three (3) V-Frame mounts with a RAD center elevation of 153-ft +/- AGL.

The antenna mounts were analyzed per the requirements of the 2021 International Building Code as modified by the 2022 Connecticut State Building Code considering a Ultimate design wind speed of 130 mph for North Stonington as required in Appendix P of the 2022 Connecticut State Building Code.

A structural analysis of tower and foundation needs to be completed prior to any work.

Based on our review of the installation, it is our opinion that the **subject antenna mounts have sufficient capacity** to support the aforementioned antenna configurations. If there are any questions regarding this matter, please feel free to call.

Respectfully Submitted by:

Timothy J. Lynn, PE
Structural Engineer

STATE OF CONNECTICUT TIMOTHY J. LYNN No. 29336 LICENSED PROFESSIONAL ENGINEER

Exhibit F

Power Density/RF Emissions Report

FOX HILL TELECOM

Radio Frequency Emissions Analysis Report

Site ID: BOBOS01171A

227 Boombridge Road
North Stonington, CT 06359

October 19, 2023

Fox Hill Telecom Project Number: 231030

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**11.75 %**

FOX HILL TELECOM

October 19, 2023

Dish Wireless
5701 South Santa Fe Drive
Littleton, CO 80120

Emissions Analysis for Site: **BOBOS01171A**

Fox Hill Telecom, Inc ("Fox Hill") was directed to analyze the proposed radio installation for Dish Wireless, LLC (Dish) facility located at **227 Boombridge Road, North Stonington, CT**, for the purpose of determining whether the emissions from the Proposed Dish radio and antenna installation located on this property are within specified federal limits.

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

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

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

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the 600 MHz band is approximately 400 $\mu W/cm^2$. The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS / AWS-4) 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 the percentage of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed upgrades to the Dish Wireless antenna facility located at **227 Boombridge Road, North Stonington, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65 for far field modeling calculations.

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

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

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

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

Equation 9 per FCC OET65 for Far Field Modeling

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

S = Power Density (in μw/cm^2)
ERP = Effective Radiated Power from antenna (watts)
R = Distance from the antenna (meters)

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

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

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
5G	n71 (600 MHz)	4	61.5
5G	n70 (AWS-4 / 1995-2020)	4	40
5G	n66 (AWS-4 / 2180-2200)	4	40

Table 1: Channel Data Table

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

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Commscope FFVV-65B-R2	153
B	1	Commscope FFVV-65B-R2	153
C	1	Commscope FFVV-65B-R2	153

Table 2: Antenna Data

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

RESULTS

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

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Commscope FFVV-65B-R2	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	12.15 / 15.95 / 16.25	12	566	17,079.80	1.58
						Sector A Composite MPE%	**1.58**
Antenna B1	Commscope FFVV-65B-R2	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	12.15 / 15.95 / 16.25	12	566	17,079.80	1.58
						Sector B Composite MPE%	**1.58**
Antenna C1	Commscope FFVV-65B-R2	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	12.15 / 15.95 / 16.25	12	566	17,079.80	1.58
						Sector C Composite MPE%	**1.58**

Table 3: Dish Emissions Levels

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

Site Composite MPE%	
Carrier	**MPE%**
Dish – Max Per Sector Value	**1.58 %**
AT&T	2.99 %
Verizon Wireless	3.70 %
T-Mobile	3.48 %
Site Total MPE %:	**11.75 %**

Table 4: All Carrier MPE Contributions

Dish Sector A Total:	1.58 %
Dish Sector B Total:	1.58 %
Dish Sector C Total:	1.58 %
Site Total:	11.75 %

Table 5: Site MPE Summary

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

Dish _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
Dish n71 (600 MHz) 5G	4	1,008.96	153	4.16	n71 (600 MHz)	400	1.04%
Dish n70 (AWS-4 / 1995-2020) 5G	4	1,574.20	153	2.70	n70 (AWS-4 / 1995-2020)	1000	0.27%
Dish n66 (AWS-4 / 2180-2200) 5G	4	1,686.79	153	2.70	n66 (AWS-4 / 2180-2200)	1000	0.27%
						Total:	**1.58 %**

Table 6: Dish Maximum Sector MPE Power Values

Summary

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

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

Dish Sector	Power Density Value (%)
Sector A:	1.58 %
Sector B:	1.58 %
Sector C:	1.58 %
Dish Maximum Total (per sector):	1.58 %
Site Total:	11.75 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite emissions value for this site, assuming all carriers present, is **11.75 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon the far field calculations performed for all carriers identified in this report.

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

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

Exhibit G

Letter of Authorization

Wireless Solutions, LLC 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
Wireless Solutions, LLC Telecommunications Site at:
227 Boombridge Road, North Stonington CT

Wireless Solutions, LLC hereby authorizes DISH Wireless LLC, 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 communicationssite described below:

Customer Site ID: BOBDL01171A

Site Address: 227 Boombridge Road, North Stonington CT

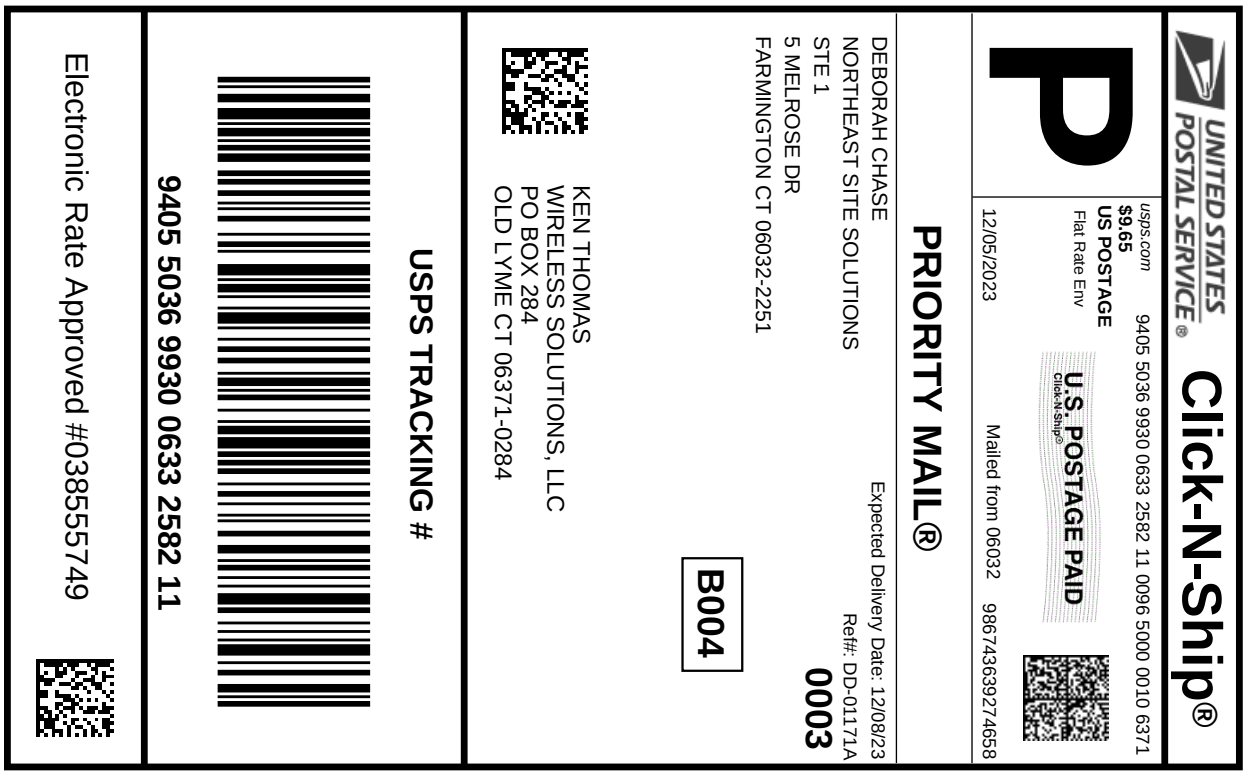
Wireless Solutions, LLC

By: _____ Date: 10-17-2023

Ken Thomas
Wireless Solutions, LLC

Exhibit H

Recipient Mailings



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9405 5036 9930 0633 2582 11

Trans. #:	597524603
Print Date:	12/05/2023
Ship Date:	12/05/2023
Expected Delivery Date:	12/08/2023

Priority Mail® Postage:	**$9.65**
Total:	**$9.65**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
5 MELROSE DR
FARMINGTON CT 06032-2251

Ref#: DD-01171A

To: KEN THOMAS
WIRELESS SOLUTIONS, LLC
PO BOX 284
OLD LYME CT 06371-0284

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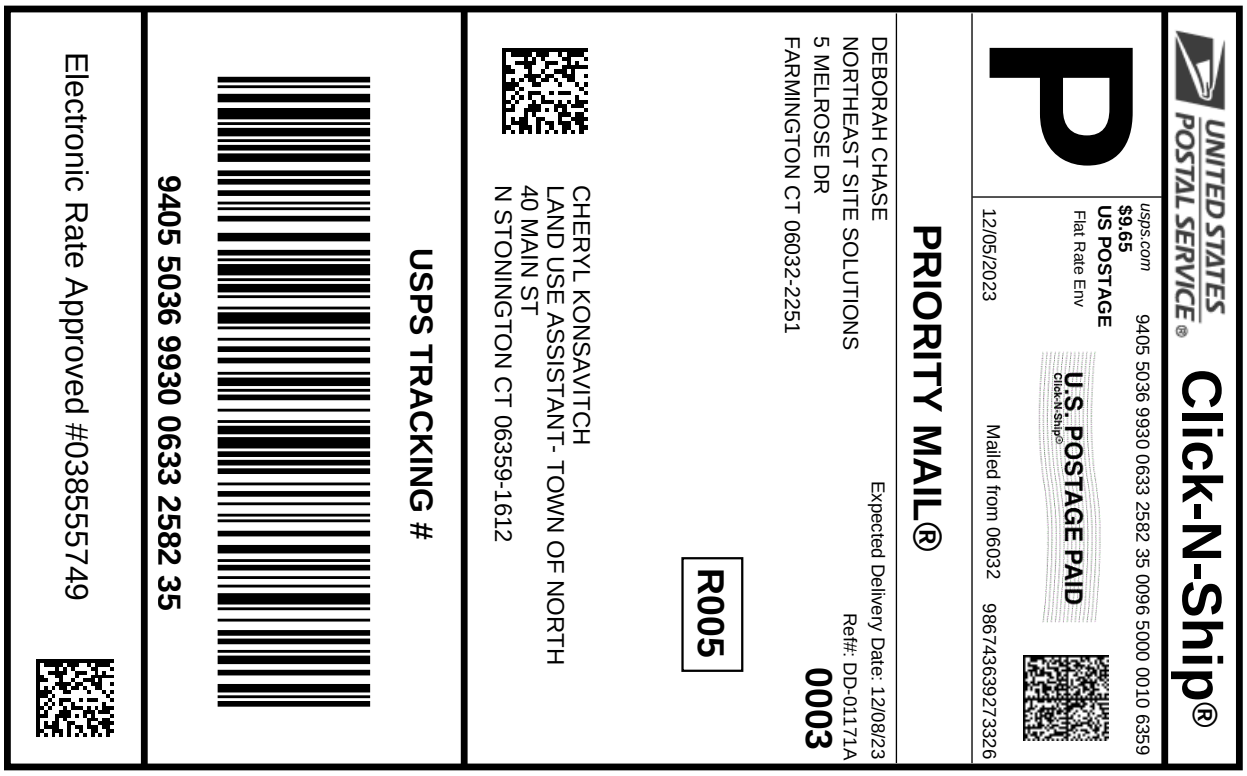

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Expected Delivery Date:	12/08/2023

Priority Mail® Postage:	**$9.65**
Total:	**$9.65**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
5 MELROSE DR
FARMINGTON CT 06032-2251

Ref#: DD-01171A

To: CHERYL KONSAVITCH
LAND USE ASSISTANT- TOWN OF NORTH STONINGTON
40 MAIN ST
N STONINGTON CT 06359-1612

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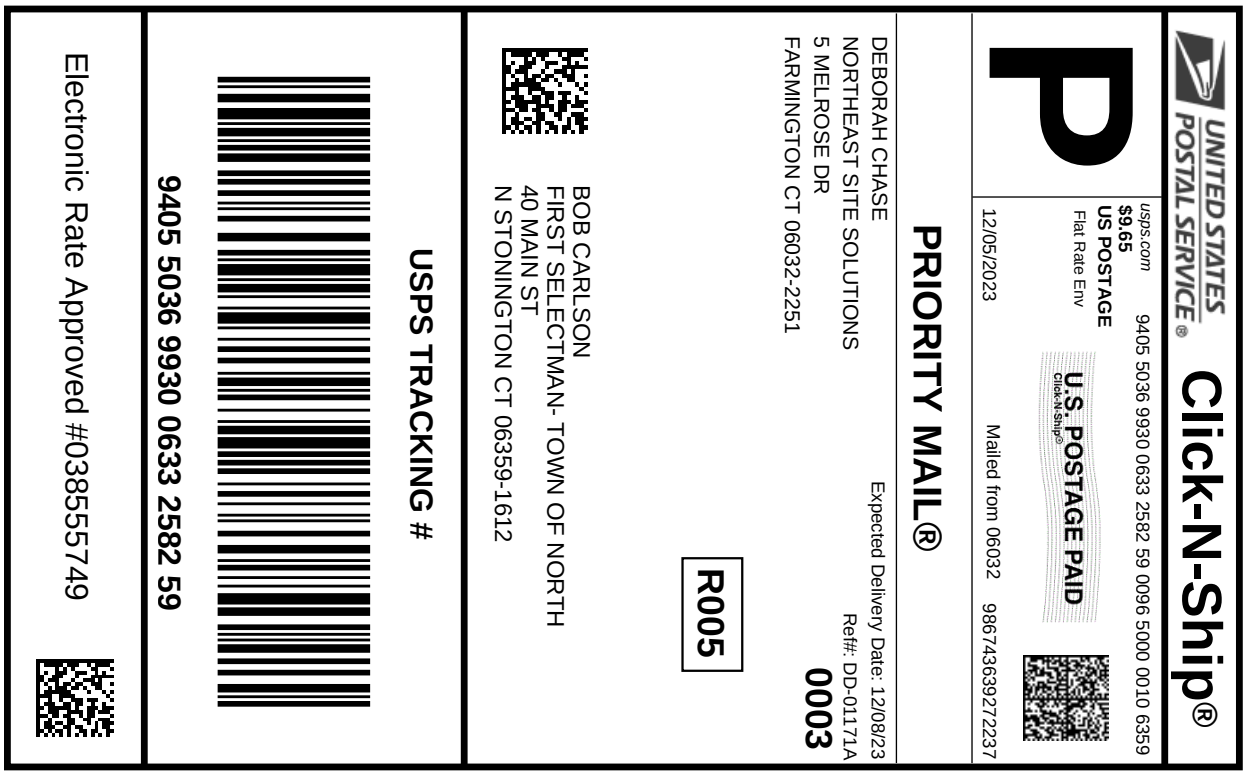

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Ship Date:	12/05/2023
Expected Delivery Date:	12/08/2023

Priority Mail® Postage:	**$9.65**
Total:	**$9.65**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
5 MELROSE DR
FARMINGTON CT 06032-2251

Ref#: DD-01171A

To: BOB CARLSON
FIRST SELECTMAN- TOWN OF NORTH STONINGTON
40 MAIN ST
N STONINGTON CT 06359-1612

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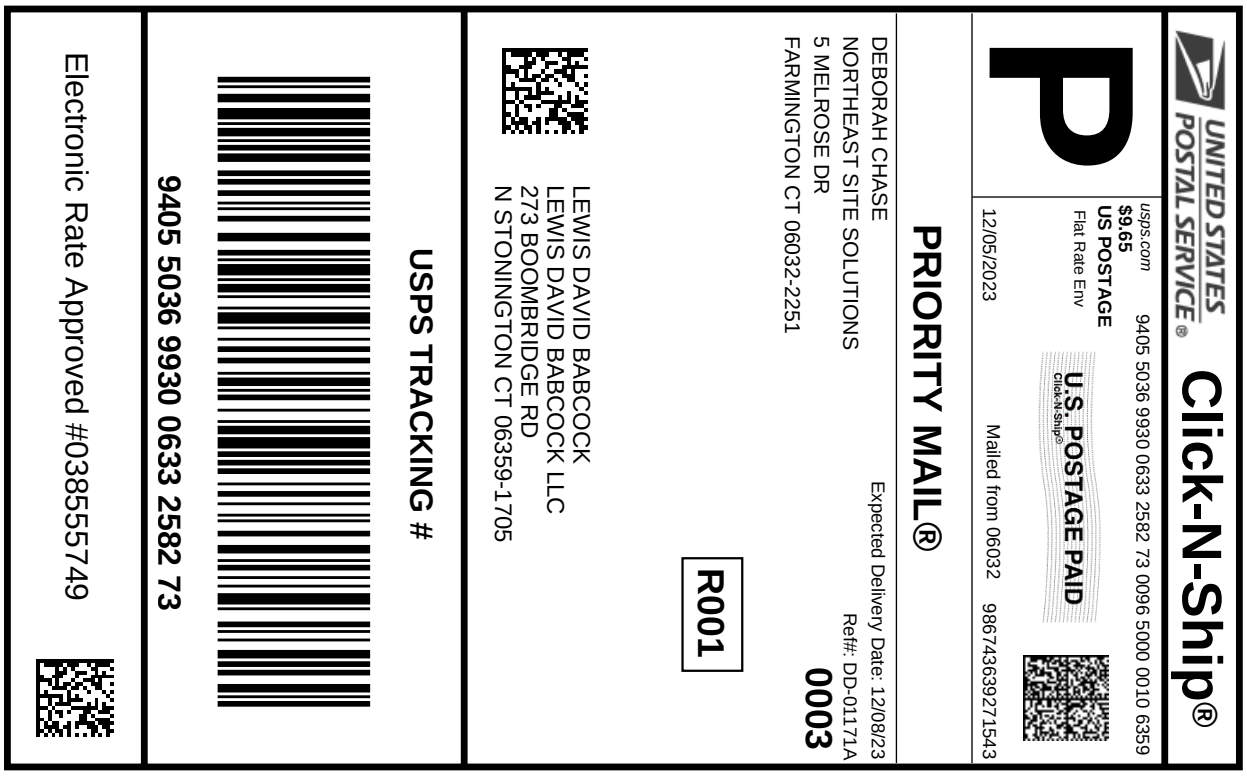

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Ship Date:	12/05/2023
Expected Delivery Date:	12/08/2023

Priority Mail® Postage:	**$9.65**
Total:	**$9.65**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
5 MELROSE DR
FARMINGTON CT 06032-2251

Ref#: DD-01171A

To: LEWIS DAVID BABCOCK
LEWIS DAVID BABCOCK LLC
273 BOOMBRIDGE RD
N STONINGTON CT 06359-1705

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BOBOS 911711A - North Stonington

UNITED STATES POSTAL SERVICE.

GREENDALE
290 W BOYLSTON ST
WORCESTER, MA 01606-2378
(800)275-8777

12/07/2023 12:55 PM

Product	Qty	Unit Price	Price
Prepaid Mail	1		$0.00
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Prepaid Mail	1		$0.00
North Stonington, CT 06359 Weight: 0 lb 12.20 oz Acceptance Date: Thu 12/07/2023 Tracking #: 9405 5036 9930 0633 2582 35			
Prepaid Mail	1		$0.00
North Stonington, CT 06359 Weight: 0 lb 12.30 oz Acceptance Date: Thu 12/07/2023 Tracking #: 9405 5036 9930 0633 2582 73			
Prepaid Mail	1		$0.00
Old Lyme, CT 06371 Weight: 0 lb 12.30 oz Acceptance Date: Thu 12/07/2023 Tracking #: 9405 5036 9930 0633 2582 11			
Grand Total:			$0.00