



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

December 7, 2021

David Hoogasian
Project Manager
Network Building + Consulting, LLC
100 Apollo Drive, Suite 303
Chelmsford, MA 01824
dhoogasian@nbcllc.com

RE: TS-DISH-105-211105 - Dish Wireless LLC request for an order to approve tower sharing at an existing telecommunications facility located at 61-1 Buttonball Road, Old Lyme, Connecticut. .

Dear Mr. Hoogasian:

The Connecticut Siting Council (Council) is in receipt of your correspondence of December 7, 2021 submitted in response to the Council's December 7, 2021 notification of an incomplete request for tower sharing with regard to the above-referenced matter.

The submission renders the request for tower sharing complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/IN/laf

From: David Hoogasian <dhoogasian@nbcllc.com>
Sent: Tuesday, December 7, 2021 3:48 PM
To: Robidoux, Evan <Evan.Robidoux@ct.gov>
Cc: CSC-DL Siting Council <Siting.Council@ct.gov>
Subject: RE: Council Incomplete Letter for TS-DISH-105-211105 (Buttonball Road, Old Lyme)

Good afternoon. Attached please find the requested documentation:

- Original Tower facility approval (CSC Docket No. 393 – Decision and Order)
- Project Narrative referencing the original facility approval
- Property owner record card
- PE Stamped CD's

A hard copy of these materials will be mailed in to you shortly.

If you have any questions or need any further information, please feel free to contact me.
Thank you,

David Hoogasian

Project Manager

NETWORK BUILDING + CONSULTING

100 Apollo Drive | Suite 303 | Chelmsford, MA | 01824
M 508.344.3343



DOCKET NO. 393 - T-Mobile Northeast, LLC application for a }
Certificate of Environmental Compatibility and Public Need for
the construction, maintenance and operation of a }
telecommunications facility located 61-1 Buttonball Road, Old
Lyme, Connecticut. }

Connecticut
Siting
Council

September 23, 2010

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, maintenance, and operation of a telecommunications facility, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to T-Mobile Northeast, LLC (T-Mobile), hereinafter referred to as the Certificate Holder, for a telecommunications facility at the proposed site, located at 61-1 Buttonball Road, Old Lyme, Connecticut.

Unless otherwise approved by the Council, the facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a stealth monopole with flush-mounted antennas consistent with the agreement between T-Mobile and Black Hall Club, and no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of Certificate Holder and other entities, both public and private, but such tower shall not exceed a height of 100 feet above ground level. The height at the top of T-Mobile's antennas shall not exceed 100 feet above ground level.
2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Old Lyme for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
 - a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound including cedar fencing, radio equipment, access road, utility line, and landscaping; and
 - b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
3. Prior to the commencement of operation, the Certificate Holder shall provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

4. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
6. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town of Old Lyme public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.
7. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed with at least one fully operational wireless telecommunications carrier providing wireless service within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.
8. Any request for extension of the time period referred to in Condition 7 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of Old Lyme. Any proposed modifications to this Decision and Order shall likewise be so served.
9. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
10. Any nonfunctioning antenna, and associated antenna mounting equipment, on this facility shall be removed within 60 days of the date the antenna ceased to function.
11. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.
12. The Certificate Holder shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v.
13. This Certificate may be transferred in accordance with Conn. Gen. Stat. §16-50k(b), provided both the Certificate Holder\transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under Conn. Gen. Stat. §16-50v. In addition, both the Certificate Holder\transferor and the transferee shall provide the Council a written agreement as to the

entity responsible for any quarterly assessment charges under Conn. Gen. Stat. §16-50v(b)(2) that may be associated with this facility.

Pursuant to General Statutes § 16-50p, the Council hereby directs that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in *The Day*.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

Applicant

T-Mobile Northeast, LLC

Its Representative

Julie D. Kohler, Esq.
Monte E. Frank, Esq.
Jesse A. Langer, Esq.
Cohen and Wolf, P.C.
1115 Broad Street
Bridgeport, CT 06604

Party

Town of Old Lyme

Its Representative

The Honorable Timothy G. Griswold
Office of the Selectman
Town of Old Lyme
52 Lyme Street
Old Lyme, CT 06371

Intervenor

Black Hall Club

Its Representative

Keith R. Ainsworth, Esq.
Evans Feldman & Ainsworth, LLC
261 Bradley Street
P.O. Box 1694
New Haven, CT 06507-1694



December 7, 2021

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

Re: Request of DISH Wireless LLC for an Order to Approve the Shared Use of an Existing Tower
61-1 Buttonball Road, Old Lyme, CT 06371
Latitude: 41°17'46.3" / Longitude: -72°18'01.5"

Dear Ms. Bachman:

Pursuant to Connecticut General Statutes ("C.G.S.") §16-50aa, as amended, DISH Wireless LLC ("DISH") hereby requests an order from the Connecticut Siting Council ("Council") to approve the shared use by DISH of an existing telecommunication tower at 61-1 Buttonball Road in Old Lyme (the "Property"). The existing 100-foot monopole tower is owned by American Tower Corporation ("ATC"). The underlying property is owned by Landmark Dividend LLC. DISH requests that the Council find that the proposed shared use of the ATC tower satisfies the criteria of C.G.S. §16-50aa and issue an order approving the proposed shared use. A copy of this filing is being sent to Timothy C. Griswold, First Selectman for the Town of Old Lyme, Mark Wayland, Town of Old Lyme Building Official and Landmark Dividend LLC as the property owner.

Background

This facility was approved by the Council under Docket No. 393 on September 23, 2010. A copy of the Decision and Order is included in the filing attachments. The existing ATC facility consists of a 100-foot monopole tower located within an existing leased area. T-Mobile currently maintains antennas at the 95-foot level. Equipment associated with these antennas are located at various positions within the tower and compound.

DISH is licensed by the Federal Communications Commission ("FCC") to provide wireless services throughout the State of Connecticut. DISH and Crown Castle have agreed to the proposed shared use of the 61-1 Buttonball Road tower pursuant to mutually acceptable terms and conditions. Likewise, DISH and ATC have agreed to the proposed installation of equipment cabinets on the ground within the existing compound. ATC has authorized DISH to apply for all necessary permits and approvals that may be required to share the existing tower.
(See attached Letter of Authorization)

DISH proposes to install three (3) antennas, (1) Tower platform mount, (6) Remote radio units at the 74-foot level along with (1) over voltage protection device (OVP) and (1) Hybrid cable. DISH will install an equipment cabinet on a 5'x7' equipment platform. DISH's Construction Drawings provide project specifications for all proposed site improvement locations. The construction drawings also include specifications for DISH's proposed antenna and ground work.

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

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

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

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

1. The proposed installation will have no visual impact on the area of the tower. DISH's equipment cabinet would be installed within the existing facility compound. DISH's shared use of this tower therefore will not cause any significant change or alteration in the physical or environmental characteristics of the existing site.
2. Operation of DISH's antennas at this site would not exceed the RF emissions standard adopted by the Federal Communications Commission ("FCC"). Included in the EME report of this filing are the approximation tables that demonstrate that DISH's proposed facility will operate well within the FCC RF emissions safety standards.
3. Under ordinary operating conditions, the proposed installation would not require the use of any water or sanitary facilities and would not generate air emissions or discharges to water bodies or sanitary facilities. After construction is complete the proposed installations would not generate any increased traffic to the ATC facility other than periodic maintenance. The proposed shared use of the ATC tower, would, therefore, have a minimal environmental effect, and is environmentally feasible.



TOTALLY COMMITTED. 

D. **Economic Feasibility.** As previously mentioned, DISH has entered into an agreement with ATC for the shared use of the existing facility subject to mutually agreeable terms. The proposed tower sharing is, therefore, economically feasible.

E. **Public Safety Concerns.** As discussed above, the tower is structurally capable of supporting DISH's full array of three (3) antennas, (1) Tower platform mount, (6) Remote radio units, (1) over voltage protection device (OVP) and (1) Hybrid cable and all related equipment. DISH is not aware of any public safety concerns relative to the proposed sharing of the existing ATC tower

Conclusion

For the reasons discussed above, the proposed shared use of the existing ATC tower at 61-1 Buttonball Road in satisfies the criteria stated in C.G.S. §16-50aa and advances the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. The Applicant, therefore, respectfully requests that the Council issue an order approving the prosed shared use.

Sincerely,

David Hoogasian

David Hoogasian
Project Manager

61-1X BUTTONBALL RD

Location 61-1X BUTTONBALL RD

Mblu 8/ / 11/ 1X /

Acct# 00017715

Owner LANDMARK DIVIDEND LLC

Assessment \$447,000

Appraisal \$638,500

PID 102970

Building Count 1

Current Value

| Appraisal | | | | Map Links |
|----------------|--------------|-----------|---|-----------|
| Valuation Year | Improvements | Land | All locations identified on Google, Yahoo, and Bing maps are approximate and may not be exact | |
| 2019 | \$238,500 | \$400,000 | \$638,500 | |
| Assessment | | | | |
| Valuation Year | Improvements | Land | Go To Google Maps Total (http://maps.google.com/?q=61-1X BUTTONBALL RD , CA) | |
| 2019 | \$167,000 | \$280,000 | \$447,000 | |

| Owner of Record | | | | | |
|-----------------------|----------|--|------------|-------------|-------------|
| Owner | Co-Owner | Address | Sale Price | Certificate | Book & Page |
| LANDMARK DIVIDEND LLC | | PO BOX 3429 400 CONTINENTAL BLVD STE 500 EL SEGUNDO , CA 90245 | \$400,000 | 431/996 | 01/16/2020 |
| | | | | Instrument | 25 |

[Go To Yahoo Maps](#)
<http://maps.yahoo.com/#q=61-1X%20BUTTONBALL%20RD%20%20%20,%20CA>

[Go To Microsoft Bing Maps](#)
<http://www.bing.com/maps/?q=61-1X BUTTONBALL RD , CA>

Ownership History

| Ownership History | | | | | |
|-----------------------|------------|-------------|-------------|------------|------------|
| Owner | Sale Price | Certificate | Book & Page | Instrument | Sale Date |
| LANDMARK DIVIDEND LLC | \$400,000 | | 431/996 | 25 | 01/16/2020 |

Building Information

Building 1 : Section 1

Year Built:

Living Area: 0

Replacement Cost: \$0

Building Percent Good:

Replacement Cost

Less Depreciation: \$0

| Building Attributes | |
|---------------------|-------------|
| Field | Description |
| Style: | |
| Model | |
| Grade: | |
| Stories: | |

| | |
|--------------------|--|
| Occupancy | |
| Exterior Wall 1 | |
| Exterior Wall 2 | |
| Roof Structure: | |
| Roof Cover | |
| Interior Wall 1 | |
| Interior Wall 2 | |
| Interior Flr 1 | |
| Interior Flr 2 | |
| Heat Fuel | |
| Heat Type: | |
| AC Type: | |
| Total Bedrooms: | |
| Total Bthrms: | |
| Total Half Baths: | |
| Total Xtra Fixtrs: | |
| Total Rooms: | |
| Bath Style: | |
| Kitchen Style: | |
| Num Kitchens | |
| Cndtn | |
| Num Park | |
| Fireplaces | |
| Fndtn Cndtn | |
| Basement | |

Building Photo



(<http://images.vgsi.com/photos/OldLymeCTPhotos//default.jpg>)

Building Layout



(http://images.vgsi.com/photos/OldLymeCTPhotos//Sketches/102970_102970_102970.dwg)

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

Extra Features

| Extra Features | Legend |
|----------------------------|------------------------|
| No Data for Extra Features | |

Land

Land Use

Use Code 4340
Description CELL TWR
Zone RU80
Neighborhood
Alt Land Appr No
Category

Land Line Valuation

Size (Acres) 0.00
Frontage
Depth
Assessed Value \$280,000
Appraised Value \$400,000

Outbuildings

| Outbuildings | | | | | | Legend |
|--------------|-------------|----------|-----------------|-------------|-----------|------------------------|
| Code | Description | Sub Code | Sub Description | Size | Value | Bldg # |
| ARRY | CELL ARRAY | | | 2.00 UNITS | \$153,000 | 1 |
| TWR | CELL TOWER | | | 100.00 L.F. | \$85,500 | 1 |

Valuation History

| Appraisal | | | |
|-----------------------|---------------------|-------------|--------------|
| Valuation Year | Improvements | Land | Total |
| 2020 | \$238,500 | \$400,000 | \$638,500 |

| Assessment | | | |
|-----------------------|---------------------|-------------|--------------|
| Valuation Year | Improvements | Land | Total |
| 2020 | \$167,000 | \$280,000 | \$447,000 |

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DISH Wireless L.L.C. SITE ID:

BOBOS00020A

DISH Wireless L.L.C. SITE ADDRESS:

**61-1 BUTTONBALL ROAD
OLD LYME, CT 06371**

CONNECTICUT CODE COMPLIANCE

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

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

SHEET INDEX

| SHEET NO. | SHEET TITLE |
|-----------|---|
| T-1 | TITLE SHEET |
| LS-1 | SITE SURVEY |
| LS-2 | SITE SURVEY |
| A-1 | OVERALL AND ENLARGED SITE PLAN |
| A-2 | ELEVATION, ANTENNA LAYOUT AND SCHEDULE |
| A-3 | EQUIPMENT PLATFORM AND H-FRAME DETAILS |
| A-4 | EQUIPMENT DETAILS |
| A-5 | EQUIPMENT DETAILS |
| A-6 | EQUIPMENT DETAILS |
| E-1 | ELECTRICAL/FIBER ROUTE PLAN AND NOTES |
| E-2 | ELECTRICAL DETAILS |
| E-3 | ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE |
| G-1 | GROUNDING PLANS AND NOTES |
| G-2 | GROUNDING DETAILS |
| G-3 | GROUNDING DETAILS |
| RF-1 | RF CABLE COLOR CODE |
| GN-1 | LEGEND AND ABBREVIATIONS |
| GN-2 | GENERAL NOTES |
| GN-3 | GENERAL NOTES |
| GN-4 | GENERAL NOTES |

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

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 (1) PROPOSED TOWER PLATFORM MOUNT
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
- INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
- INSTALL (1) PROPOSED HYBRID CABLE

GROUND SCOPE OF WORK:

- INSTALL (1) PROPOSED METAL PLATFORM
- INSTALL (1) PROPOSED ICE BRIDGE
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED SAFETY SWITCH (IF REQUIRED)
- INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)
- INSTALL (1) PROPOSED METER SOCKET

SITE PHOTO



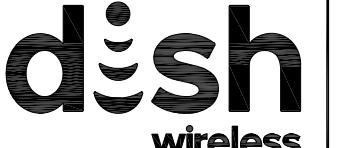
GENERAL NOTES

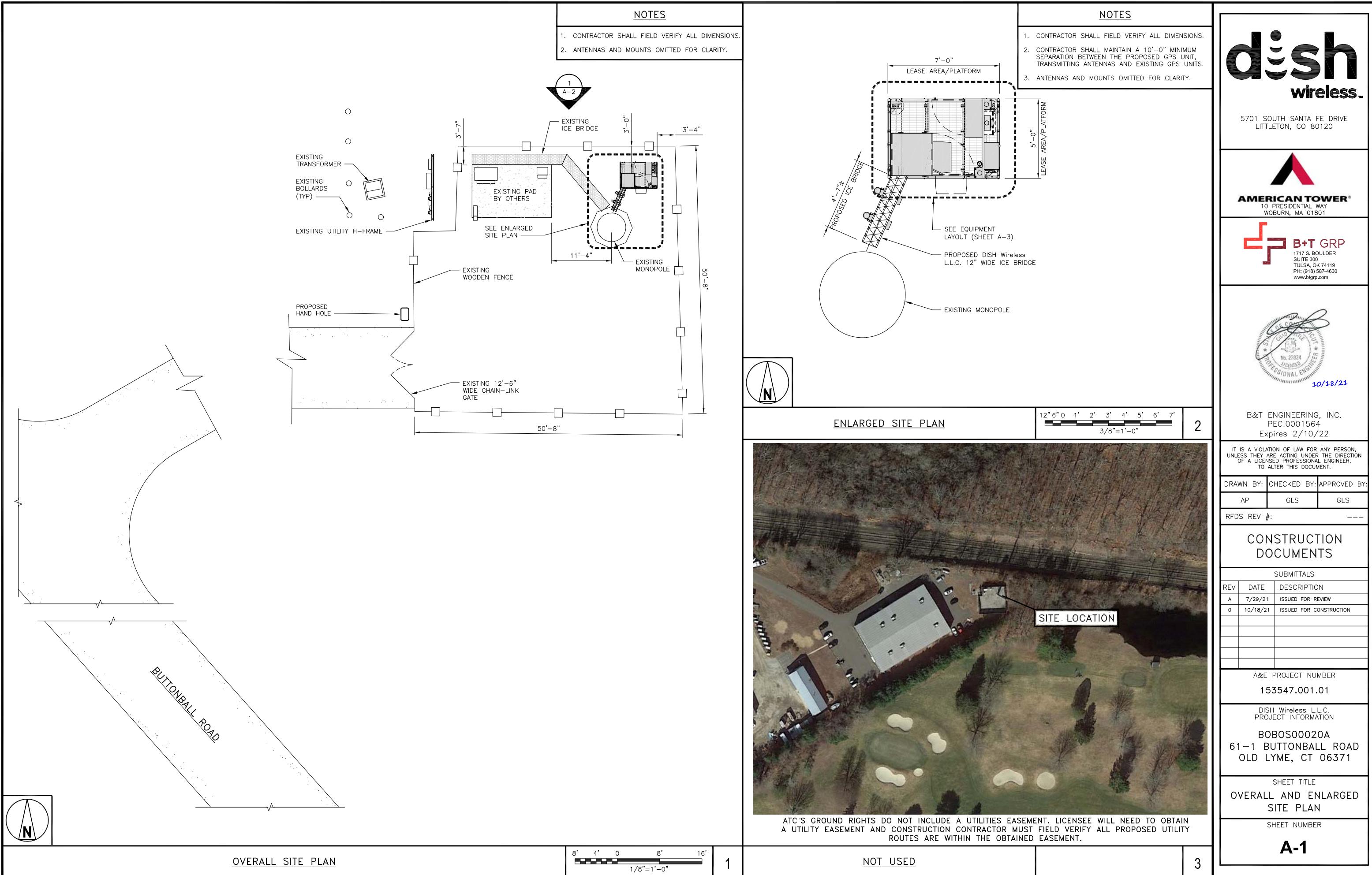
THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE, NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE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

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

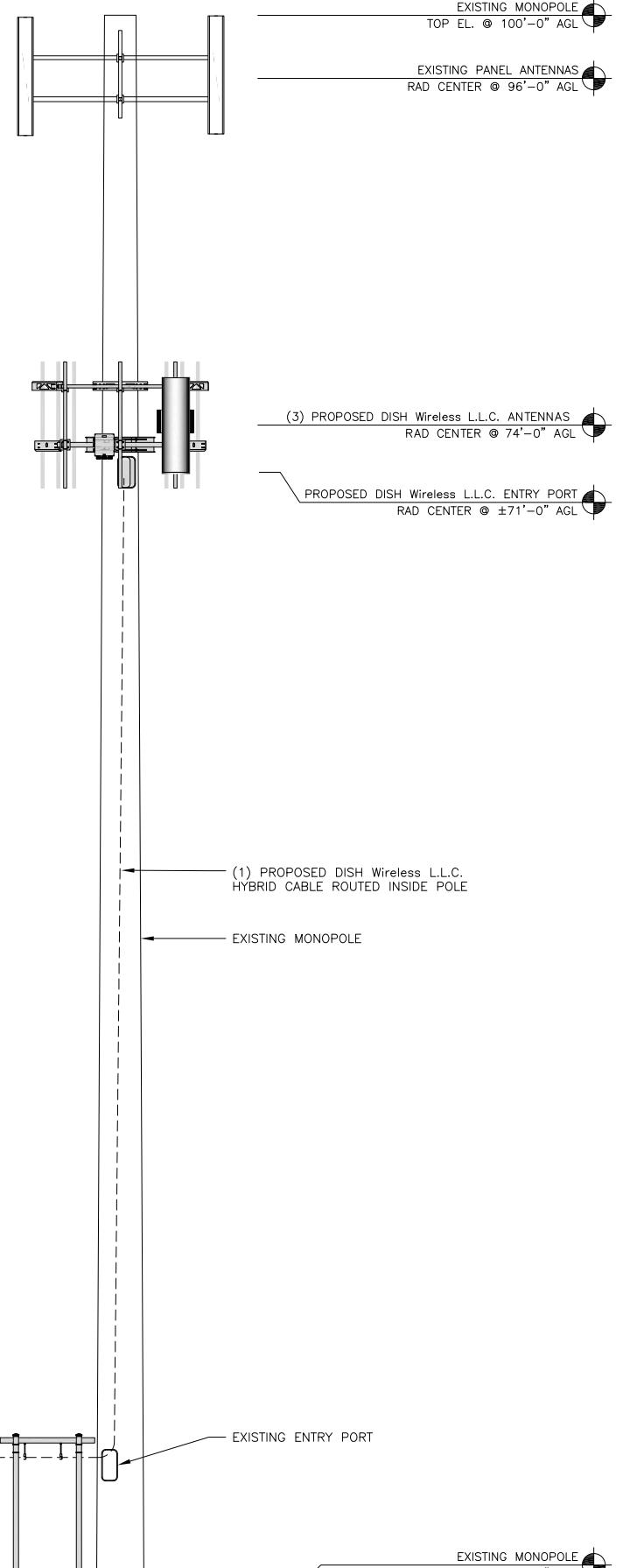
CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE, AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

| SITE INFORMATION | | PROJECT DIRECTORY | |
|----------------------|--|-----------------------|---|
| PROPERTY OWNER: | RON SQANEY LLC | APPLICANT: | DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120 |
| ADDRESS: | 59 BUTTONBALL ROAD OLD LYME, CT 06371 | TOWER OWNER: | AMERICAN TOWER CORPORATION 10 PRESIDENTIAL WAY WOBURN, MA 01801 (781) 926-4500 |
| TOWER TYPE: | MONPOLE | SITE DESIGNER: | B+T GROUP 1717 S. BOULDER AVE, SUITE 300 TULSA, OK 74119 (918) 587-4630 |
| TOWER CO SITE ID: | 284983 | SITE ACQUISITION: | APRIL PARROTT april.parrott@dish.com |
| TOWER APP NUMBER: | 13692735 | CONSTRUCTION MANAGER: | JAVIER SOTO javier.soto@dish.com |
| COUNTY: | NEW LONDON | RF ENGINEER: | ARVIN SEBASTIAN arvin.sebastian@dish.com |
| LATITUDE (NAD 83): | 41° 17' 46.31" N 41.296198 N | CONSTRUCTION TYPE: | II-B |
| LONGITUDE (NAD 83): | 72° 18' 01.20" W 72.300332 W | POWER COMPANY: | T.B.D. |
| ZONING JURISDICTION: | CITY OF OLD LYME | TELEPHONE COMPANY: | T.B.D. |
| ZONING DISTRICT: | INDUSTRIAL/COMMERCIAL | | |
| PARCEL NUMBER: | 8-11-1 | | |
| OCCUPANCY GROUP: | U | | |
| | | | |

| | | |
|---|-------------|-------------------------|
|  5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120 | | |
|  10 PRESIDENTIAL WAY WOBURN, MA 01801 | | |
|  1717 S. BOULDER SUITE 300 TULSA, OK 74119 PH: (918) 587-4630 www.btgrp.com | | |
|  10/18/21 | | |
| B&T ENGINEERING, INC. PEC.0001564 Expires 2/10/22 | | |
| IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT. | | |
| DRAWN BY: | CHECKED BY: | APPROVED BY: |
| AP | GLS | GLS |
| RFDS REV #: --- | | |
| CONSTRUCTION DOCUMENTS | | |
| SUBMITTALS | | |
| REV | DATE | DESCRIPTION |
| A | 7/29/21 | ISSUED FOR REVIEW |
| O | 10/18/21 | ISSUED FOR CONSTRUCTION |
| A&E PROJECT NUMBER 153547.001.01 | | |
| DISH Wireless L.L.C. PROJECT INFORMATION BOBOS00020A 61-1 BUTTONBALL ROAD OLD LYME, CT 06371 | | |
| SHEET TITLE TITLE SHEET | | |
| SHEET NUMBER T-1 | | |



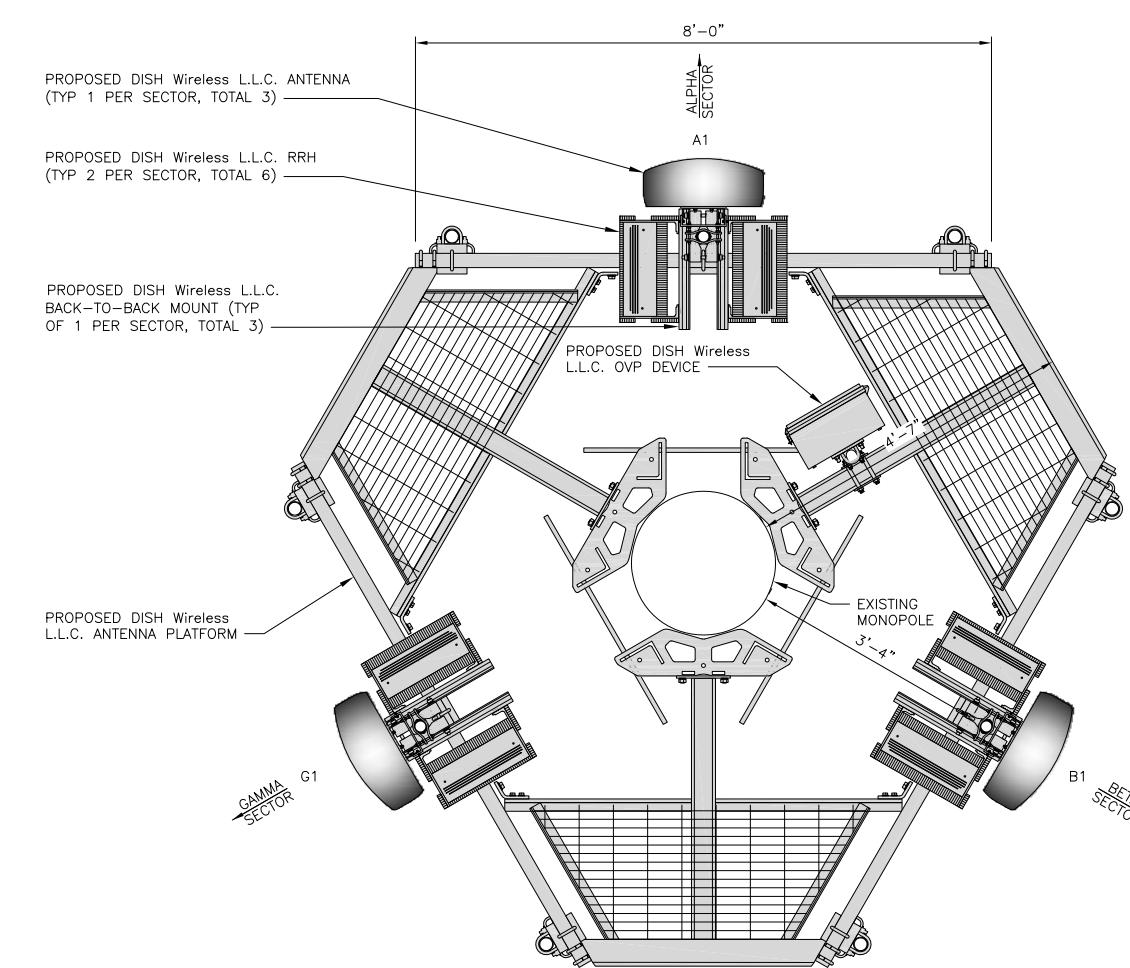
| NOTES |
|--|
| 1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS. |
| 2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS. |
| 3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY. |



PROPOSED NORTH ELEVATION

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

1



ANTENNA LAYOUT

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

2

| SECTOR | POSITION | ANTENNA | | | | | | TRANSMISSION CABLE FEED LINE TYPE AND LENGTH |
|--------|----------|-------------------------|--------------------------------|------------|---------------|---------|---------------|--|
| | | EXISTING OR PROPOSED | MANUFACTURER - MODEL NUMBER | TECHNOLOGY | SIZE (HxW) | AZIMUTH | RAD CENTER | |
| ALPHA | A1 | PROPOSED | JMA WIRELESS - MX08FRO665-21 | 5G | 72.0" x 20.0" | 0° | 74'-0" | (1) HIGH-CAPACITY HYBRID CABLE (102' LONG) |
| BETA | B1 | PROPOSED | JMA WIRELESS - MX08FRO665-21 | 5G | 72.0" x 20.0" | 120° | 74'-0" | |
| GAMMA | C1 | PROPOSED | JMA WIRELESS - MX08FRO665-21 | 5G | 72.0" x 20.0" | 240° | 74'-0" | |

| SECTOR | POSITION | RRH | | NOTES |
|--------|----------|--------------------------------|------------|--|
| | | MANUFACTURER - MODEL NUMBER | TECHNOLOGY | |
| ALPHA | A1 | FUJITSU - TA08025-B604 | 5G | 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. |
| | A1 | FUJITSU - TA08025-B605 | 5G | |
| BETA | B1 | FUJITSU - TA08025-B604 | 5G | |
| | B1 | FUJITSU - TA08025-B605 | 5G | |
| GAMMA | C1 | FUJITSU - TA08025-B604 | 5G | |
| | C1 | FUJITSU - TA08025-B605 | 5G | |

ANTENNA SCHEDULE

NO SCALE 3

dish
wireless.

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LITTLETON, CO 80120

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WOBURN, MA 01801

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1717 S. BOULDER
SUITE 300
TULSA, OK 74119
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PEC.0001564
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UNLESS THEY ARE ACTING UNDER THE DIRECTION
OF A LICENSED PROFESSIONAL ENGINEER,
TO ALTER THIS DOCUMENT.

DRAWN BY: CHECKED BY: APPROVED BY:
AP GLS GLS

RFDS REV #:

10/18/21

CONSTRUCTION DOCUMENTS

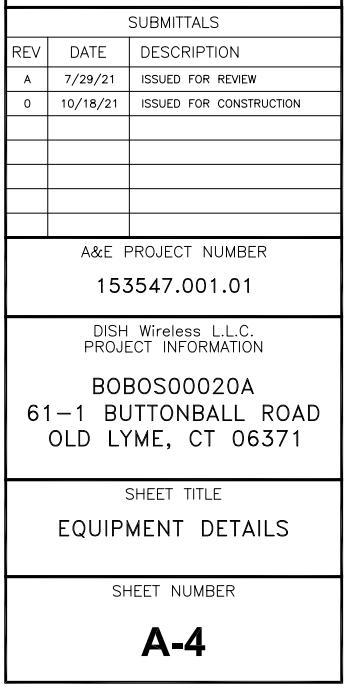
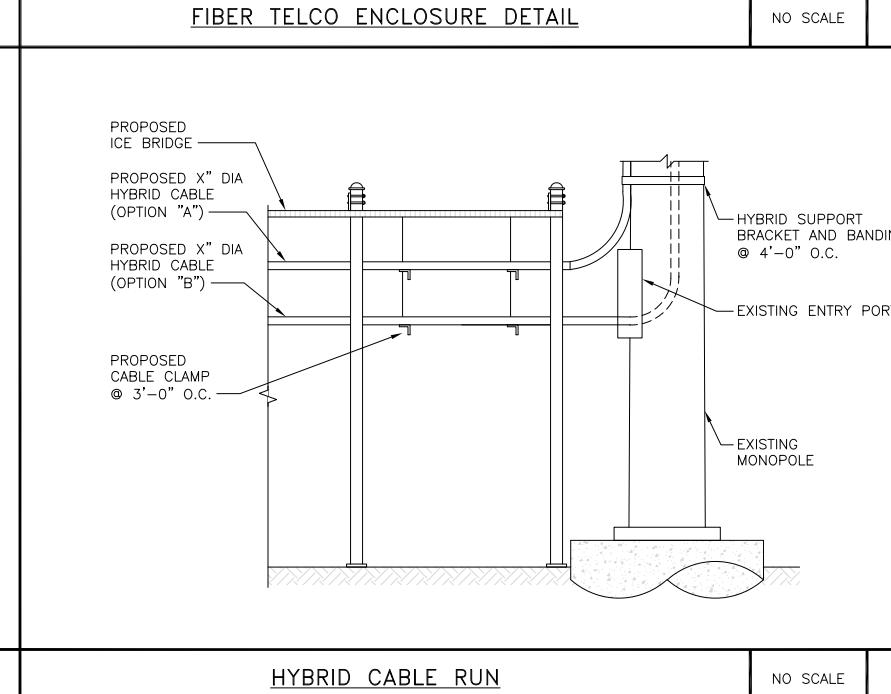
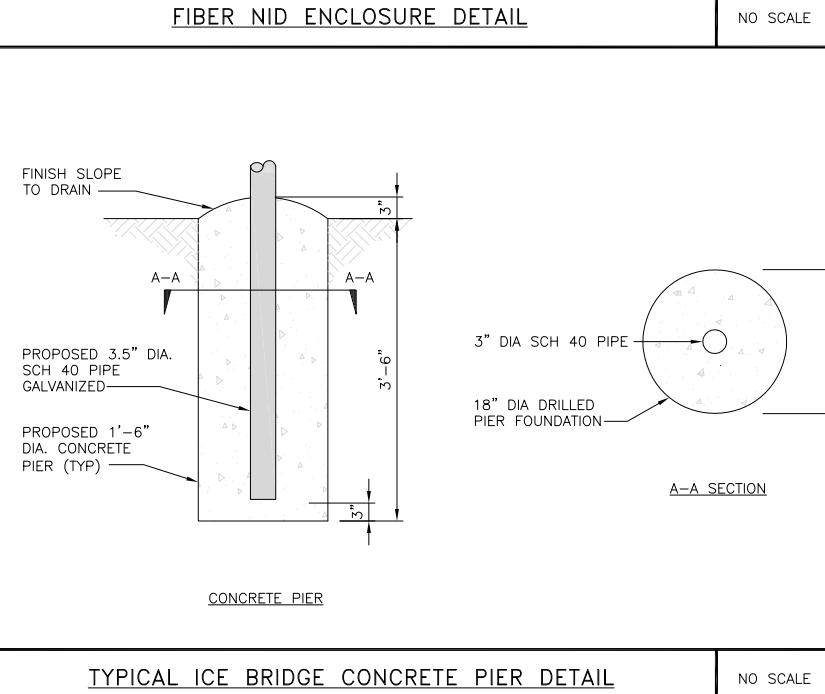
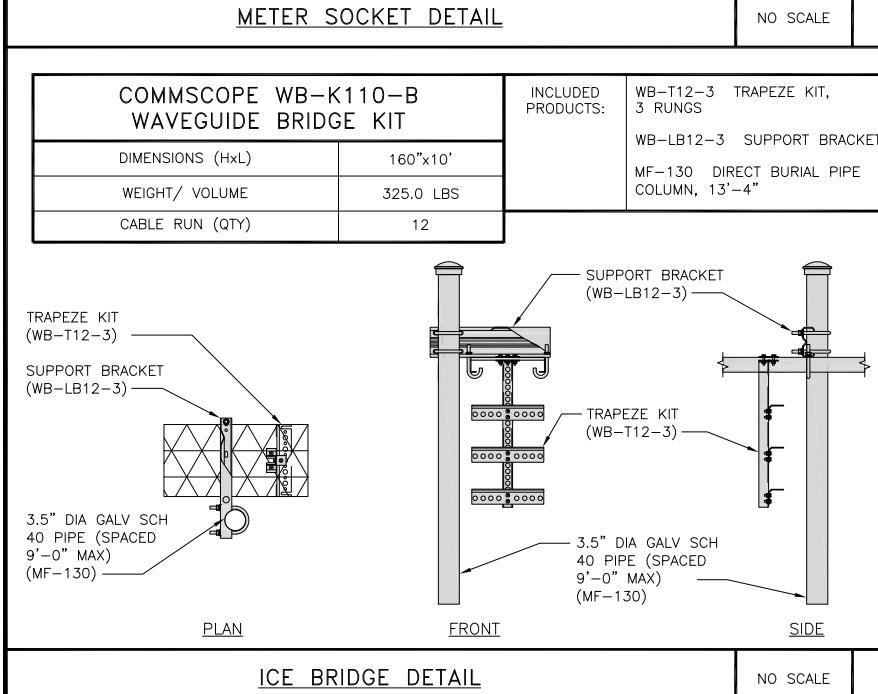
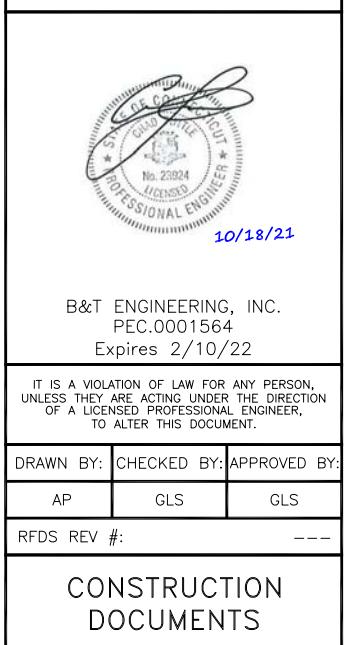
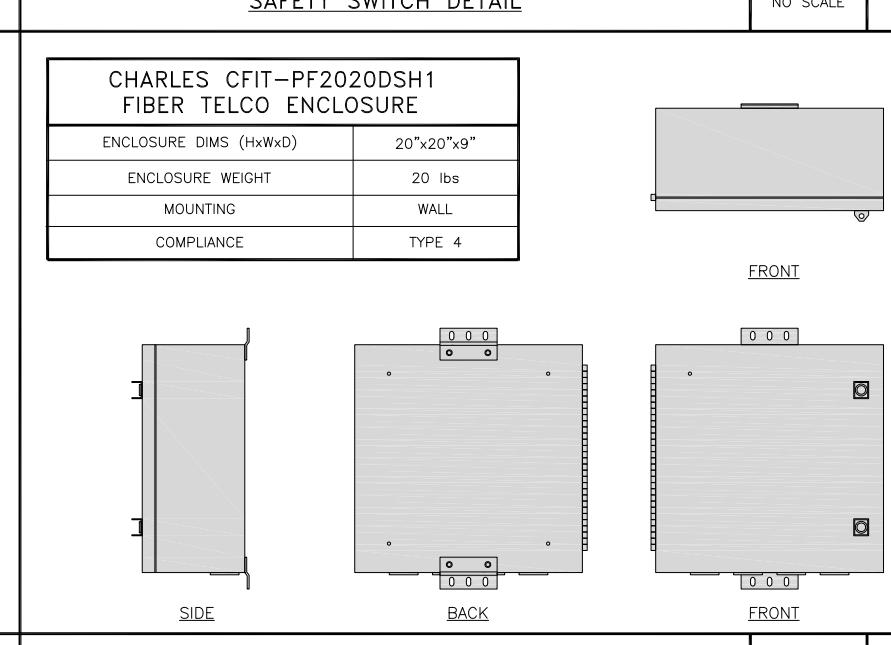
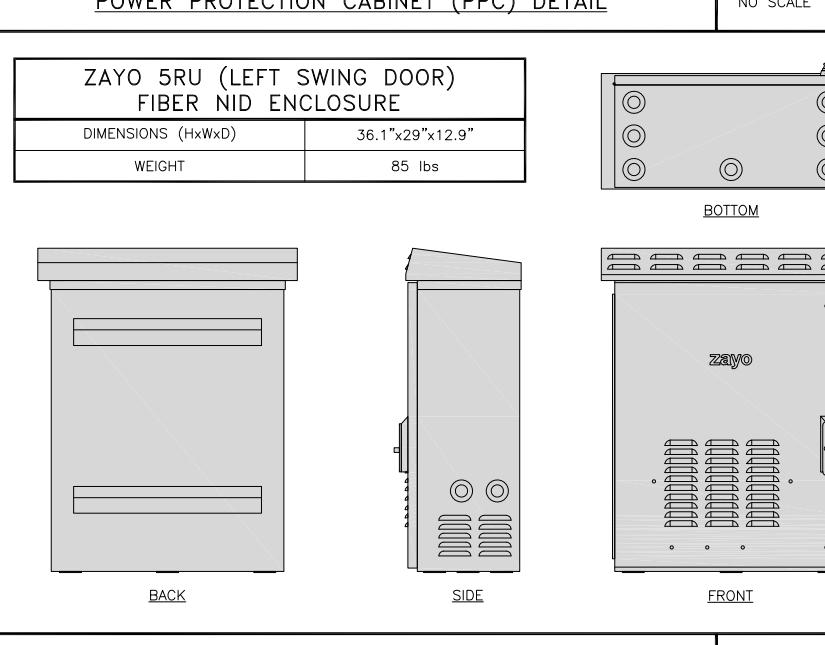
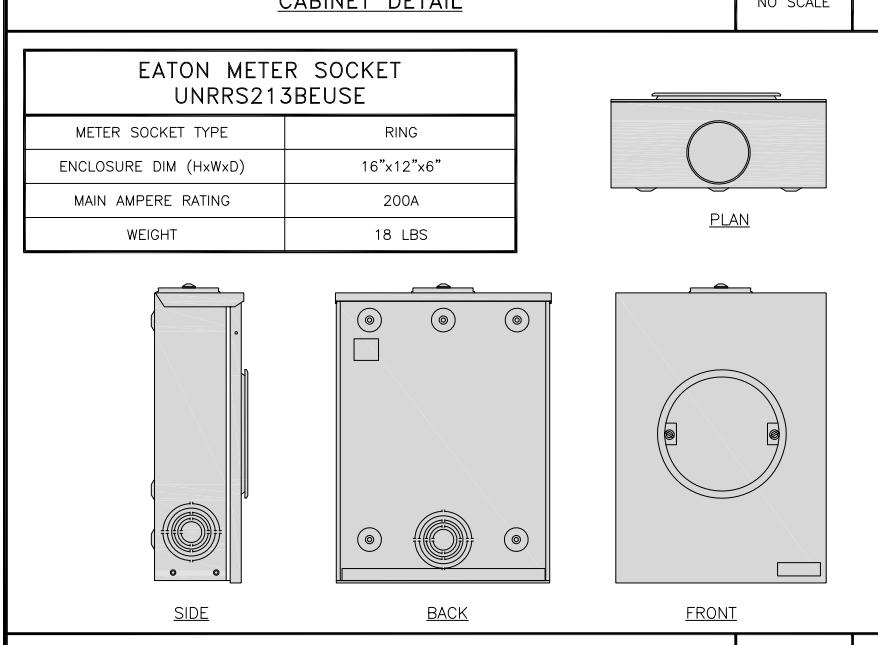
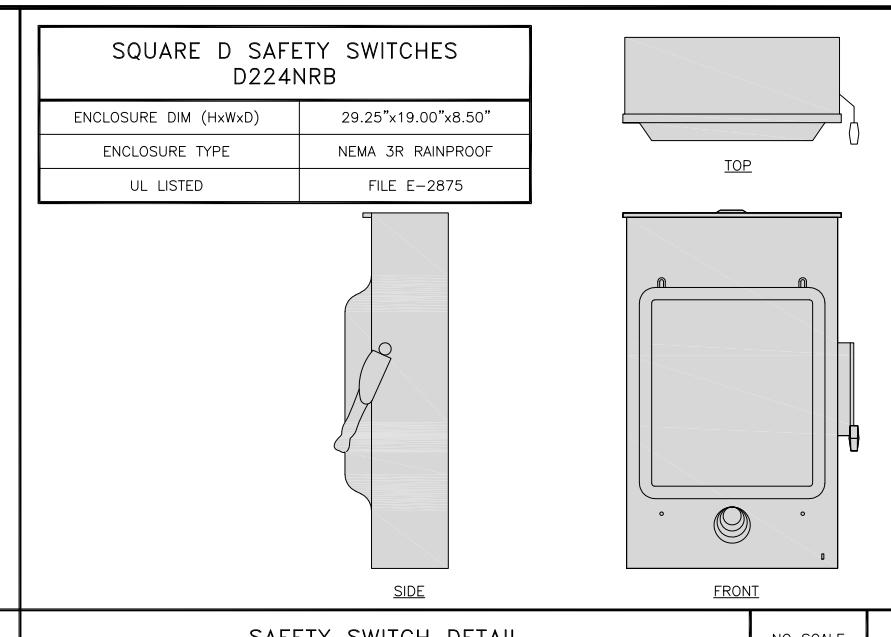
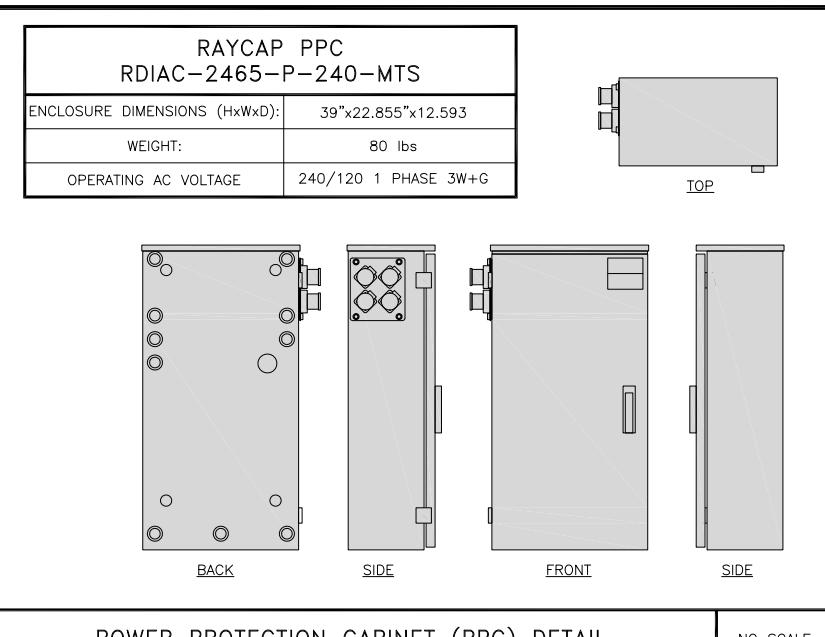
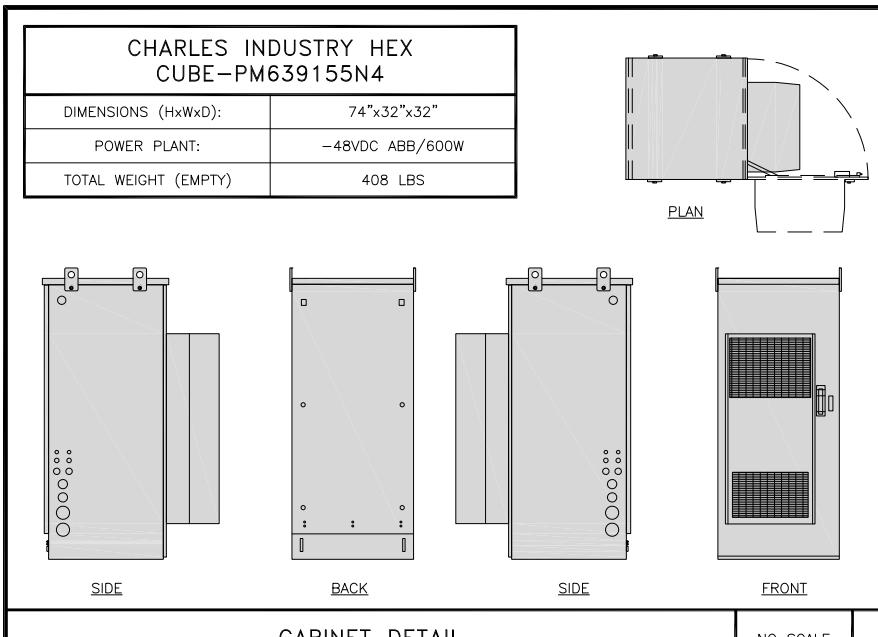
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| 0 | 10/18/21 | ISSUED FOR CONSTRUCTION |
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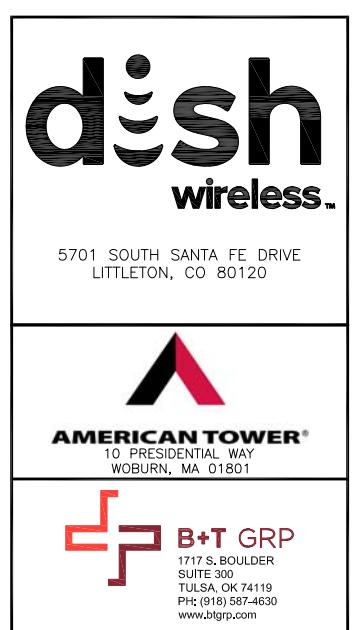
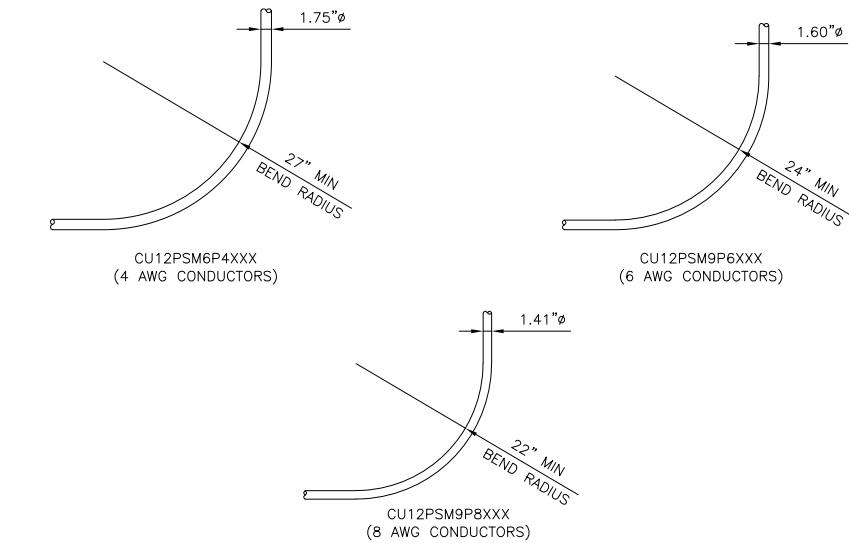
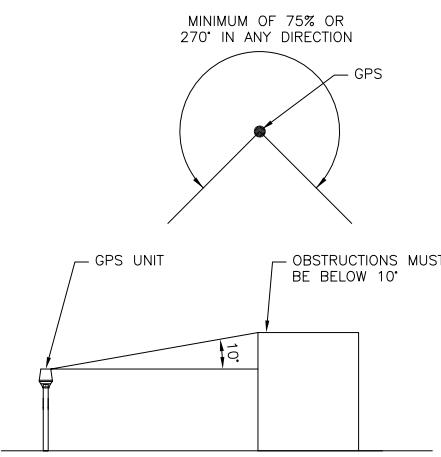
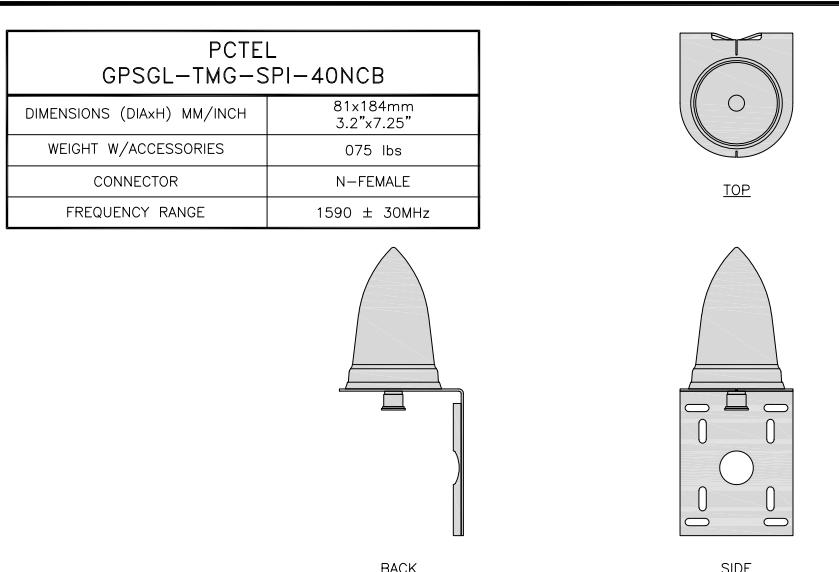
A&E PROJECT NUMBER
153547.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS00020A
61-1 BUTTONBALL ROAD
OLD LYME, CT 06371

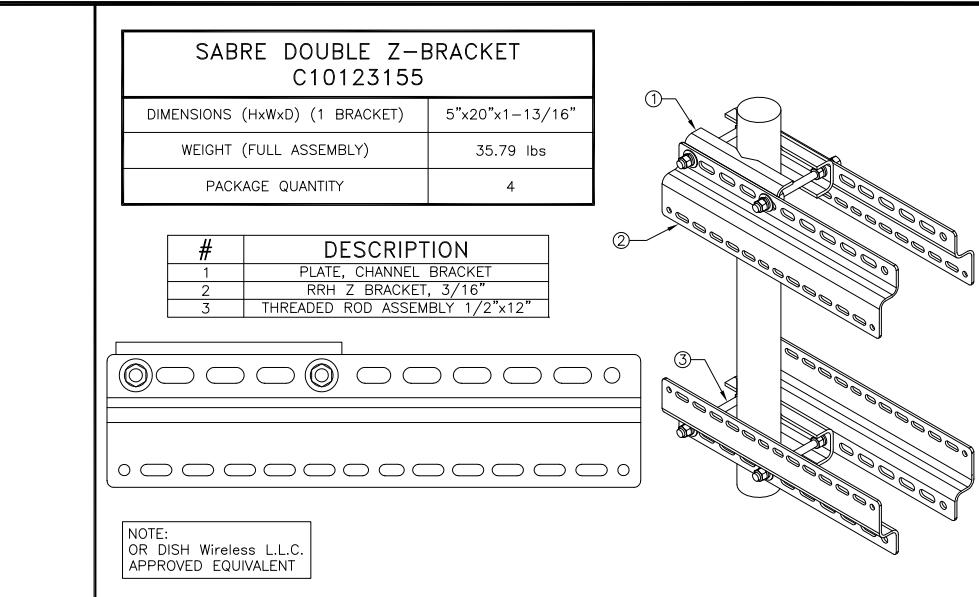
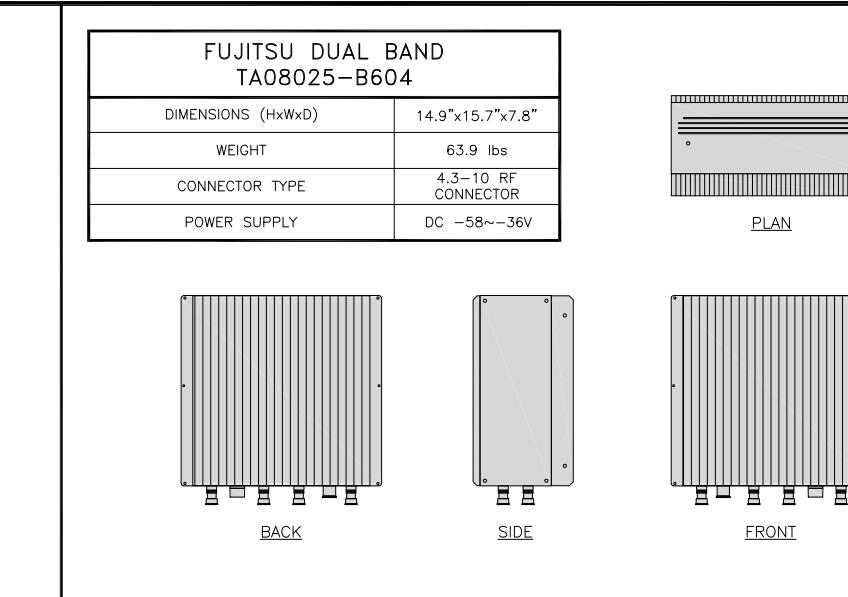
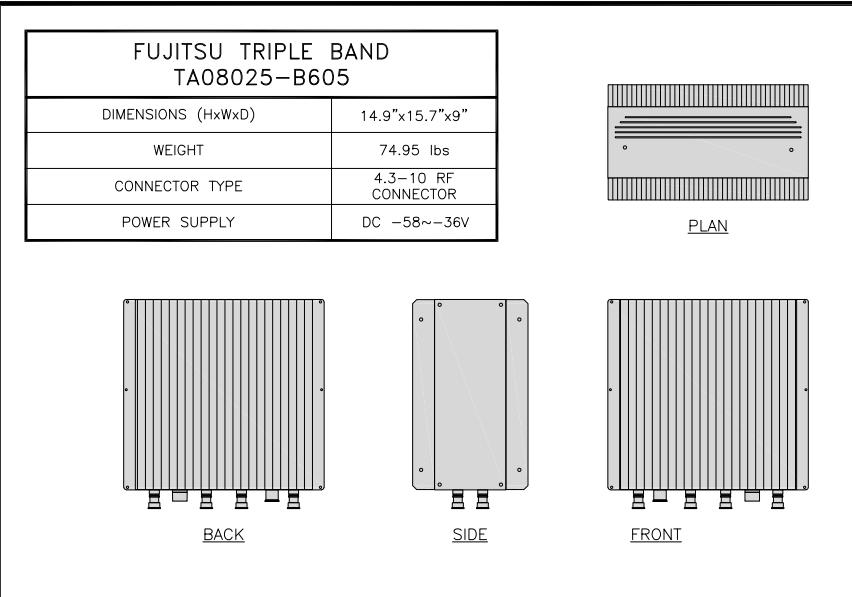
SHEET TITLE
ELEVATION, ANTENNA
LAYOUT AND SCHEDULE

SHEET NUMBER
A-2

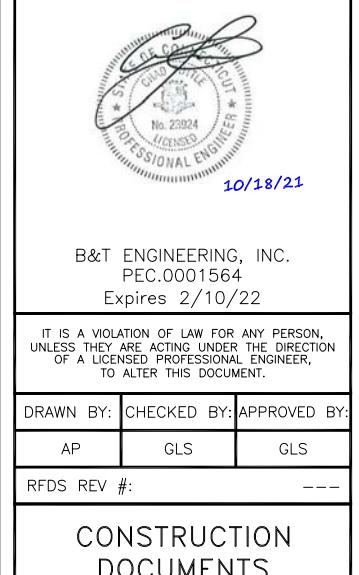
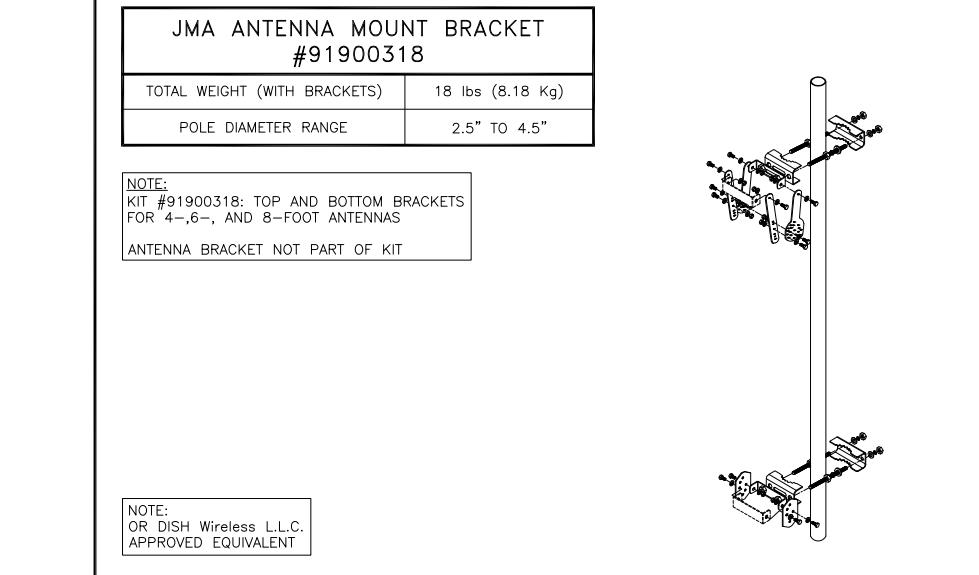
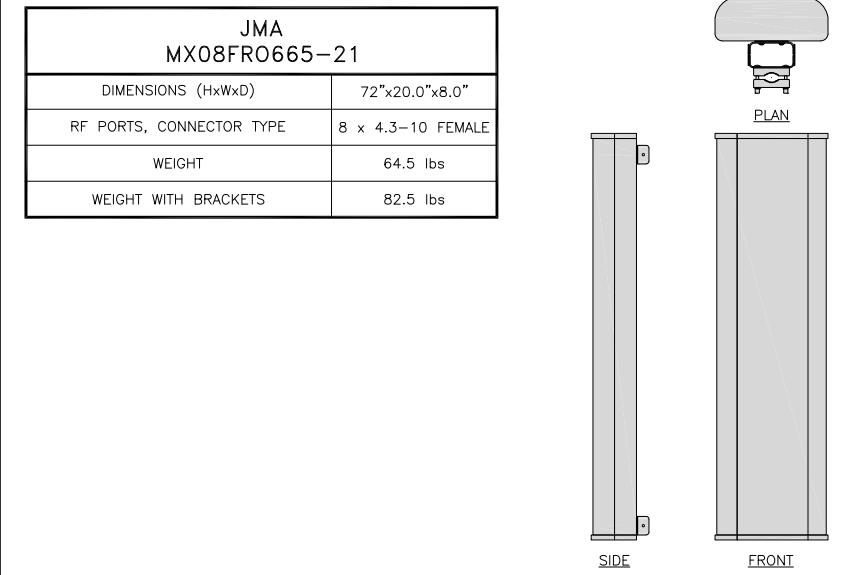




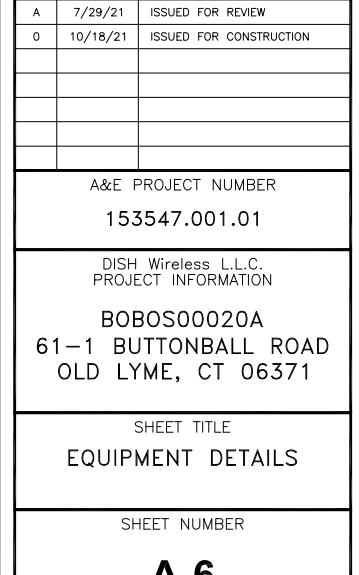
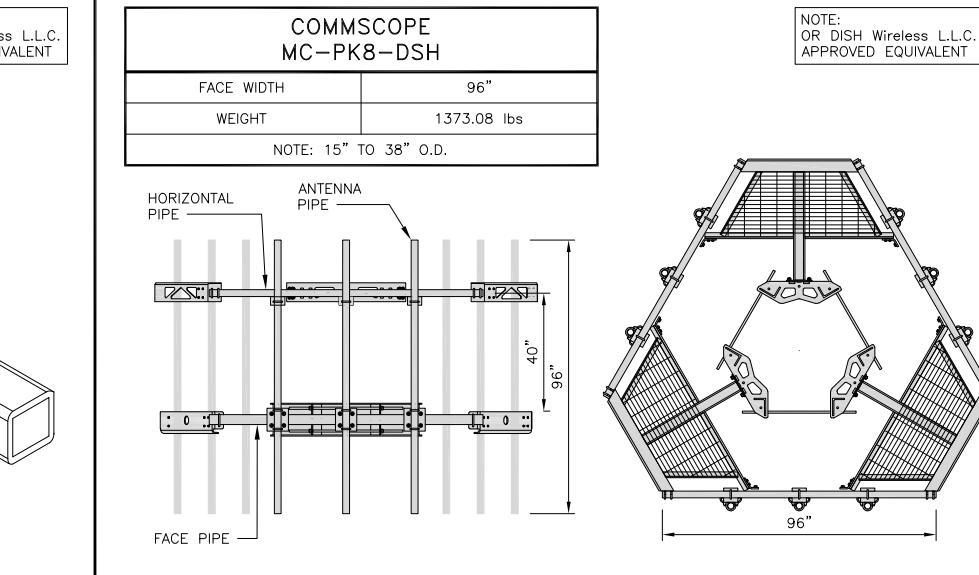
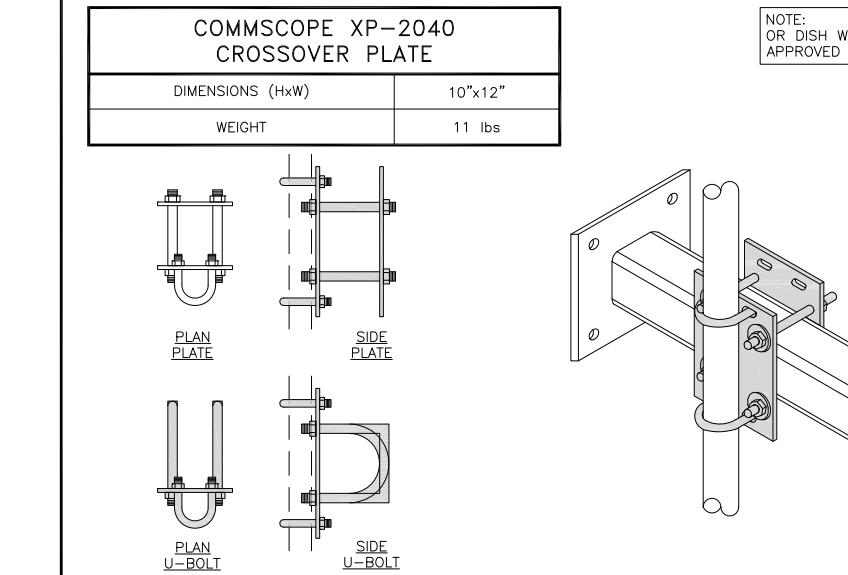
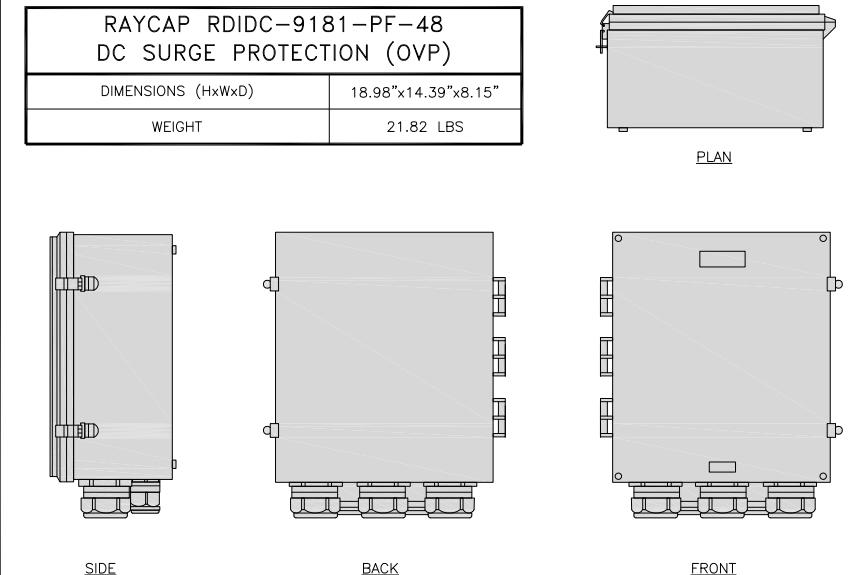
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|-------------------|----------|---|--|--|----------|---|--|--|----------|---|
| <u>GPS DETAIL</u> | NO SCALE | 1 | <u>GPS MINIMUM SKY VIEW REQUIREMENTS</u> | | NO SCALE | 2 | <u>CABLES UNLIMITED HYBRID CABLE MINIMUM BEND RADIUSES</u> | | NO SCALE | 3 |
| | | | | | | | | | | |
| <u>NOT USED</u> | NO SCALE | 4 | <u>NOT USED</u> | | NO SCALE | 5 | <u>NOT USED</u> | | NO SCALE | 6 |
| | | | | | | | | | | |
| <u>NOT USED</u> | NO SCALE | 7 | <u>NOT USED</u> | | NO SCALE | 8 | <u>NOT USED</u> | | NO SCALE | 9 |



| | | | | | | | | |
|------------|----------|---|------------|----------|---|------------------|----------|---|
| RRH DETAIL | NO SCALE | 1 | RRH DETAIL | NO SCALE | 2 | RRH MOUNT DETAIL | NO SCALE | 3 |
|------------|----------|---|------------|----------|---|------------------|----------|---|



| | | | | | | | | |
|----------------|----------|---|----------|----------|---|------------------------|----------|---|
| ANTENNA DETAIL | NO SCALE | 4 | NOT USED | NO SCALE | 5 | ANTENNA BRACKET DETAIL | NO SCALE | 6 |
|----------------|----------|---|----------|----------|---|------------------------|----------|---|



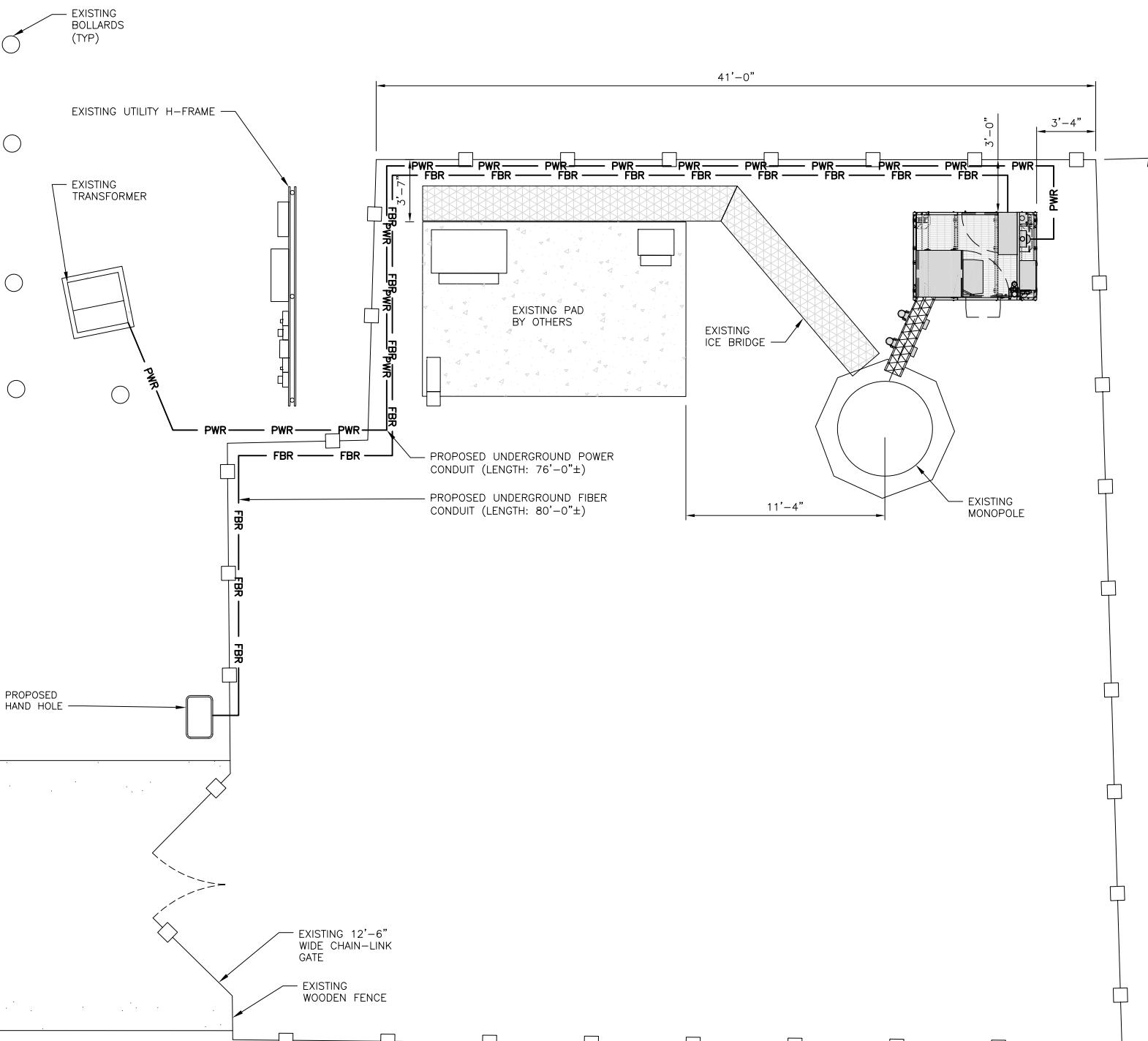
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|--------------------------------|----------|---|----------------------|----------|---|-------------------------|----------|---|
| SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7 | RRH/OVP MOUNT DETAIL | NO SCALE | 8 | ANTENNA PLATFORM DETAIL | NO SCALE | 9 |
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FINAL POWER OR FIBER DESIGN
NOT AVAILABLE AT TIME OF ISSUE

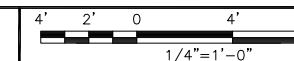
NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.

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



UTILITY ROUTE PLAN



1

ELECTRICAL NOTES

NO SCALE

E-1

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

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10/18/21

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PEC.0001564
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DRAWN BY: CHECKED BY: APPROVED BY:
AP GLS GLS

RFDS REV #:

CONSTRUCTION DOCUMENTS

SUBMITTALS

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| 0 | 10/18/21 | ISSUED FOR CONSTRUCTION |

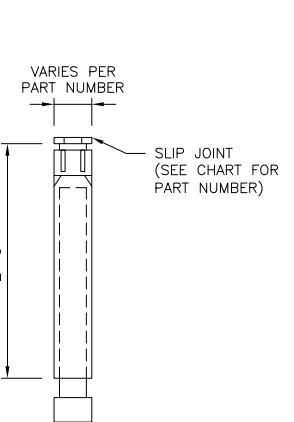
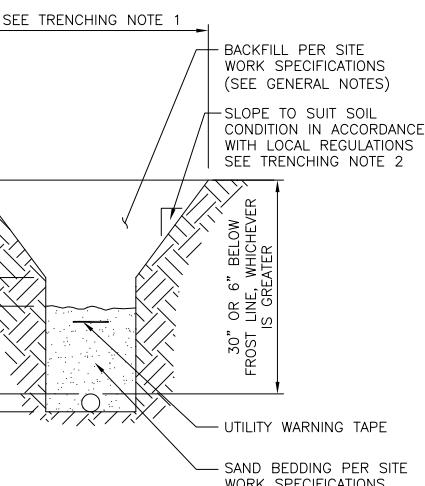
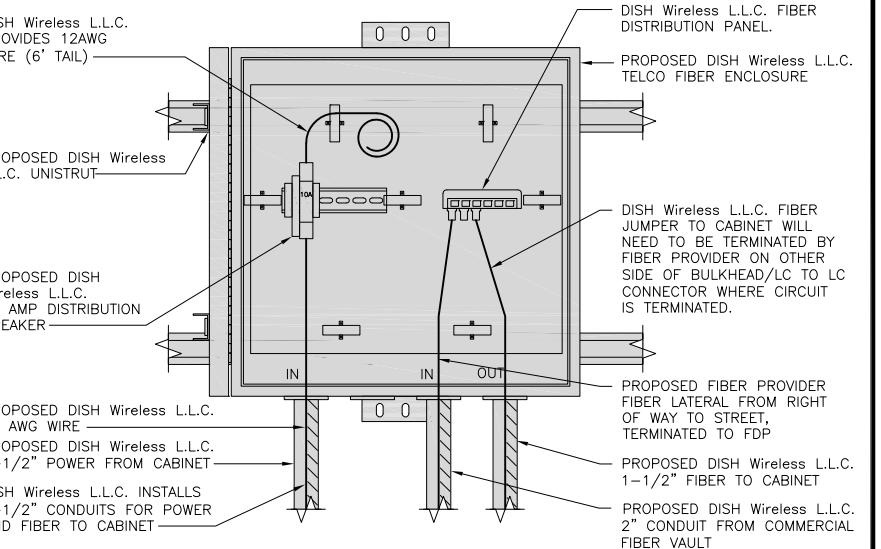
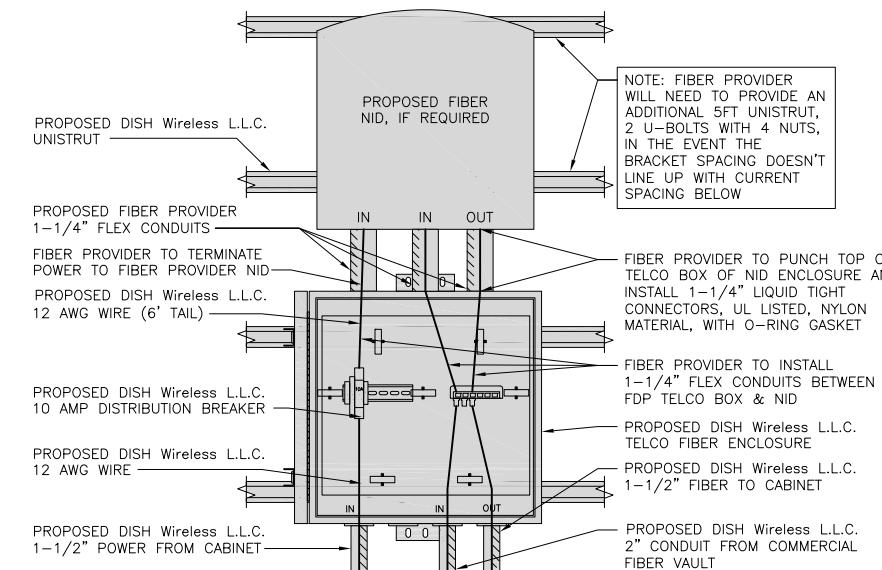
A&E PROJECT NUMBER
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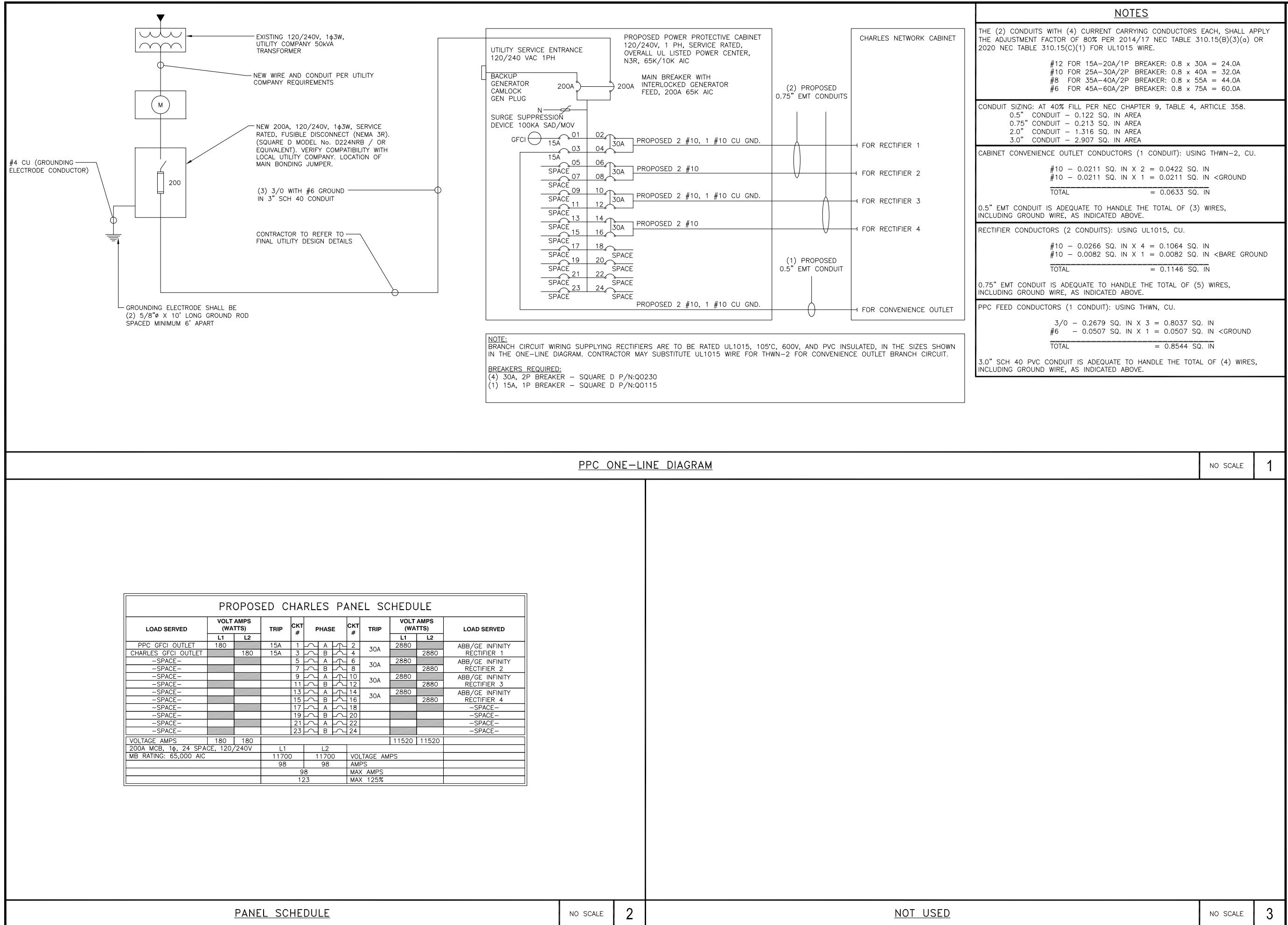
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS00020A
61-1 BUTTONBALL ROAD
OLD LYME, CT 06371

SHEET TITLE
ELECTRICAL/FIBER ROUTE
PLAN AND NOTES

SHEET NUMBER



| | | | | | | | | | |
|---------------------------|---------------------------------|--------|--------------|---------------|---|--|--|--|--|
| CARLON EXPANSION FITTINGS | | | | |  <p>NOTE: CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.</p> | | | | |
| COUPLING END PART# | MALE TERMINAL ADAPTER END PART# | SIZE | STD CTN QTY. | TRAVEL LENGTH | <p>TRENCHING NOTES</p> <ol style="list-style-type: none"> 1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION. 2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT OSHA TRENCHING AND EXCAVATION SAFETY STANDARDS. 3. ALL CONDUITS SHALL BE INSTALLED IN COMPLIANCE WITH THE CURRENT NATIONAL ELECTRIC CODE (NEC) OR AS REQUIRED BY THE LOCAL JURISDICTION, WHICHEVER IS THE MOST STRINGENT.  <p>SEE TRENCHING NOTE 1 SEE TRENCHING NOTE 2 VERTICAL DEPTH FROST LINE 30" OR 6" BELOW FROST LINE, WHICHEVER IS GREATER UTILITY WARNING TAPE SAND BEDDING PER SITE WORK SPECIFICATIONS</p> | | | | |
| E945D | E945DX | 1/2" | 20 | 4" |  <p>DISH Wireless L.L.C. PROVIDES 12AWG WIRE (6' TAIL) PROPOSED DISH Wireless L.L.C. FIBER DISTRIBUTION PANEL PROPOSED DISH Wireless L.L.C. TELCO FIBER ENCLOSURE PROPOSED DISH Wireless L.L.C. UNISTRUT PROPOSED DISH Wireless L.L.C. 10 AMP DISTRIBUTION BREAKER PROPOSED DISH Wireless L.L.C. 12 AWG WIRE (6' TAIL) PROPOSED DISH Wireless L.L.C. 1-1/2" POWER FROM CABINET DISH Wireless L.L.C. INSTALLS 1-1/2" CONDUITS FOR POWER PROPOSED DISH Wireless L.L.C. 2" CONDUIT FROM COMMERCIAL FIBER VAULT</p> | | | | |
| E945E | E945EX | 3/4" | 15 | 4" | <p>EXPANSION JOINT DETAIL</p> | | | | |
| E945F | E945FX | 1" | 10 | 4" | <p>TYPICAL UNDERGROUND TRENCH DETAIL</p> | | | | |
| E945G | E945GX | 1 1/4" | 5 | 4" | <p>NO SCALE 1</p> | | | | |
| E945H | E945HX | 1 1/2" | 5 | 4" | <p>NO SCALE 2</p> | | | | |
| E945J | E945JX | 2" | 15 | 8" | <p>DARK TELCO BOX - INTERIOR WIRING LAYOUT</p> | | | | |
| E945K | E945KX | 2 1/2" | 10 | 8" | <p>NO SCALE 3</p> | | | | |
| E945L | E945LX | 3" | 10 | 8" |  <p>NOTE: FIBER PROVIDER WILL NEED TO PROVIDE AN ADDITIONAL 5FT UNISTRUT, 2 U-BOLTS WITH 4 NUTS, IN THE EVENT THE BRACKET SPACING DOESN'T LINE UP WITH CURRENT SPACING BELOW</p> <p>PROPOSED DISH Wireless L.L.C. UNISTRUT PROPOSED FIBER PROVIDER 1-1/4" FLEX CONDUITS FIBER PROVIDER TO TERMINATE POWER TO FIBER PROVIDER NID PROPOSED DISH Wireless L.L.C. 12 AWG WIRE (6' TAIL) PROPOSED DISH Wireless L.L.C. 10 AMP DISTRIBUTION BREAKER PROPOSED DISH Wireless L.L.C. 12 AWG WIRE PROPOSED DISH Wireless L.L.C. 1-1/2" POWER FROM CABINET PROPOSED DISH Wireless L.L.C. 2" CONDUIT FROM COMMERCIAL FIBER VAULT</p> | | | | |
| E945M | E945MX | 3 1/2" | 5 | 8" | <p>LIT TELCO BOX - INTERIOR WIRING LAYOUT (OPTIONAL)</p> | | | | |
| E945N | E945NX | 4" | 5 | 8" | <p>NO SCALE 4</p> | | | | |
| E945P | E945PX | 5" | 1 | 8" | <p>NOT USED</p> | | | | |
| E945R | E945RX | 6" | 1 | 8" | <p>NO SCALE 5</p> | | | | |
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wireless.

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CONSTRUCTION DOCUMENTS

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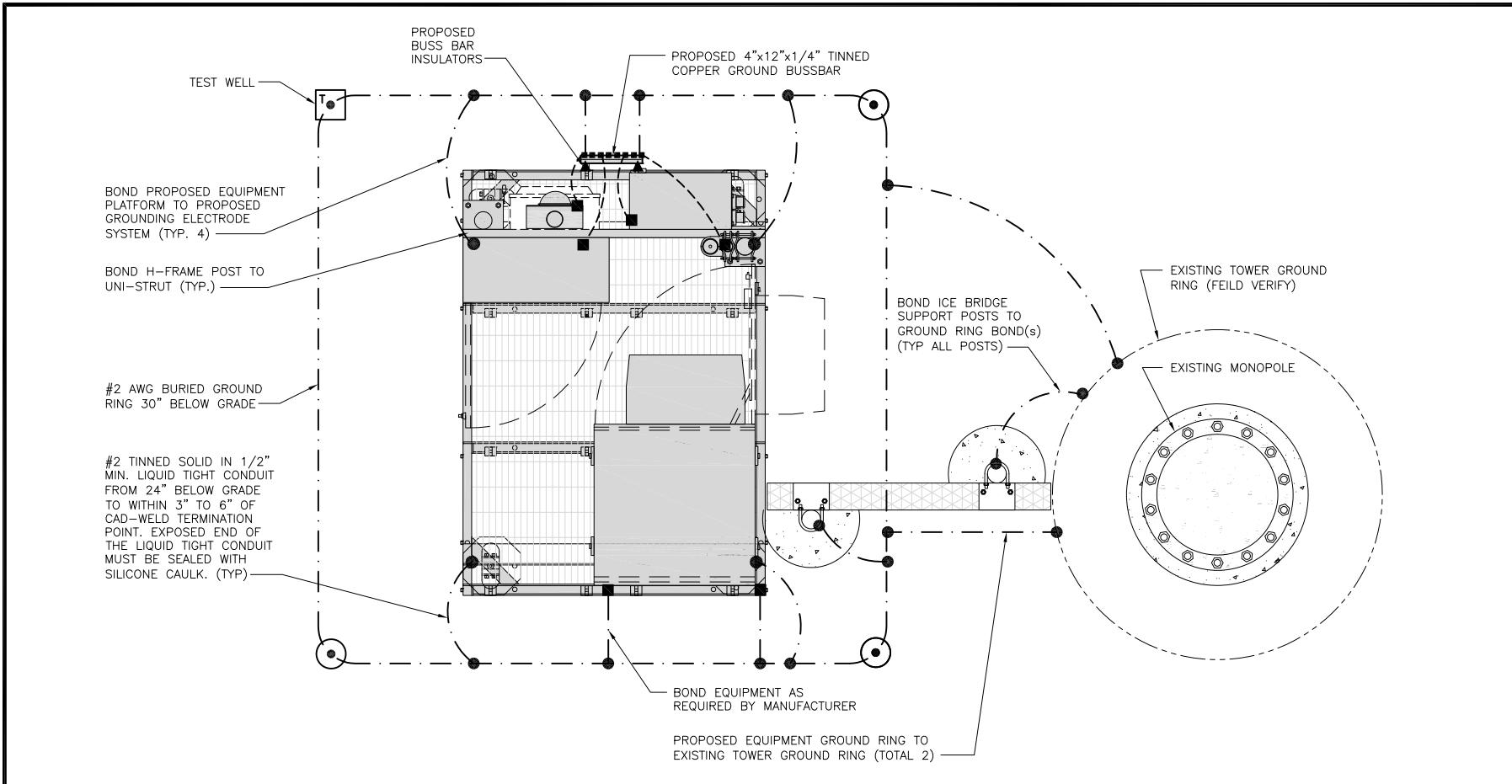
A&E PROJECT NUMBER
153547.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS00020A
61-1 BUTTONBALL ROAD
OLD LYME, CT 06371

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

SHEET NUMBER

E-3



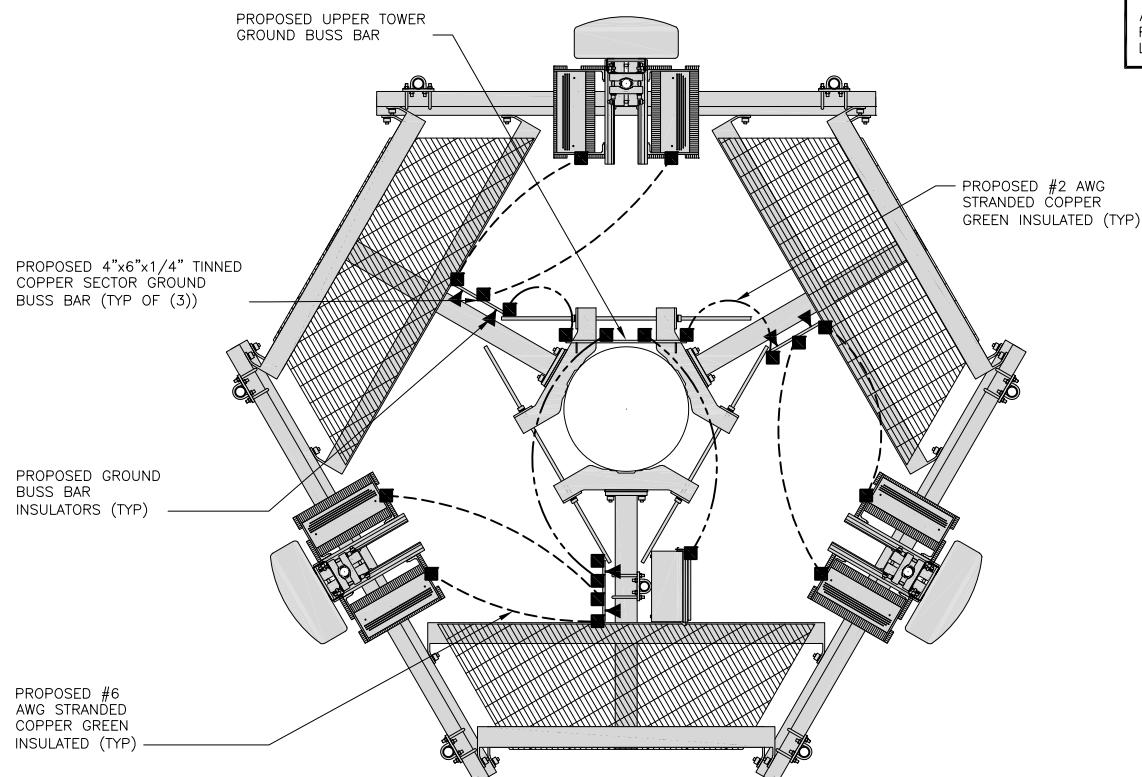
TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE

1

NOTES

ANTENNAS AND OVP SHOWN ARE GENERIC AND NOT REFERENCING TO A SPECIFIC MANUFACTURER. THIS LAYOUT IS FOR REFERENCE PURPOSES ONLY



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE

2

GROUNDING KEY NOTES

| | |
|-------------------------|-------------------------------|
| ● EXOTHERMIC CONNECTION | ■ MECHANICAL CONNECTION |
| ■ GROUND BUS BAR | — #6 AWG STRANDED & INSULATED |
| ● GROUND ROD | — #2 AWG SOLID COPPER TINNED |
| ▲ BUSS BAR INSULATOR | |

GROUNDING LEGEND

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

GROUNDING KEY NOTES

- (A) EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.
- (B) TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.
- (C) INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.
- (D) BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.
- (E) GROUND ROD: UL LISTED COPPER CLAD STEEL. MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.
- (F) CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.
- (G) HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.
- (H) EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE.
- (I) TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.
- (J) FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENT'S METAL FRAMEWORK.
- (K) INTERIOR UNIT BONDS: METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITHIN THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.
- (L) FENCE AND GATE GROUNDING: METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.
- (M) EXTERIOR UNIT BONDS: METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. USING #2 TINNED SOLID COPPER WIRE
- (N) ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.
- (O) DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR
- (P) TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT COLLAR. REFER TO DISH Wireless L.L.C. GROUNDING NOTES.

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DISH Wireless L.L.C.
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61-1 BUTTONBALL ROAD
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SHEET TITLE
GROUNDING PLANS
AND NOTES

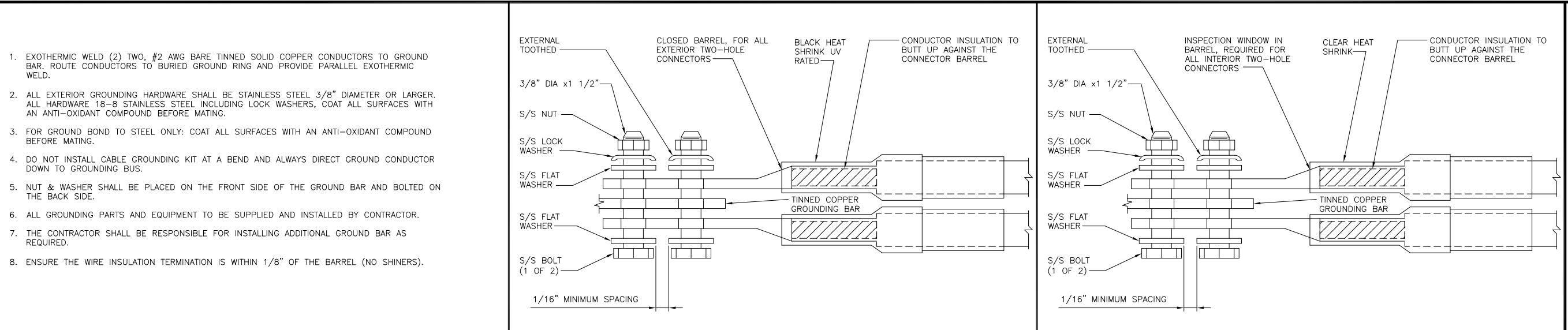
SHEET NUMBER

G-1

NO SCALE

3

| | | |
|-----------------------------|---|------------|
| | NOTES | |
| | EQUIPMENT CABINET OMITTED FOR CLARITY | |
| | NOTES | |
| | CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET | |
| | TYPICAL GPS UNIT GROUNDING | NO SCALE 2 |
| | H-FRAME GROUNDING DETAIL | NO SCALE 1 |
| | TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE | NO SCALE 5 |
| | TYPICAL GROUND RING TRENCH | NO SCALE 6 |
| TRANSITIONING GROUND DETAIL | NO SCALE 4 | |



| | | | | | | | | |
|--------------------------------|----------|---|--------------------------------------|----------|---|--------------------------------------|----------|---|
| <u>TYPICAL GROUNDING NOTES</u> | NO SCALE | 1 | <u>TYPICAL EXTERIOR TWO HOLE LUG</u> | NO SCALE | 2 | <u>TYPICAL INTERIOR TWO HOLE LUG</u> | NO SCALE | 3 |
|--------------------------------|----------|---|--------------------------------------|----------|---|--------------------------------------|----------|---|

| | | | | | | | | |
|-------------------|----------|---|-----------------|----------|---|-----------------|----------|---|
| <u>LUG DETAIL</u> | NO SCALE | 4 | <u>NOT USED</u> | NO SCALE | 5 | <u>NOT USED</u> | NO SCALE | 6 |
|-------------------|----------|---|-----------------|----------|---|-----------------|----------|---|

| | | | | | | | | |
|-----------------|----------|---|-----------------|----------|---|-----------------|----------|---|
| <u>NOT USED</u> | NO SCALE | 7 | <u>NOT USED</u> | NO SCALE | 8 | <u>NOT USED</u> | NO SCALE | 9 |
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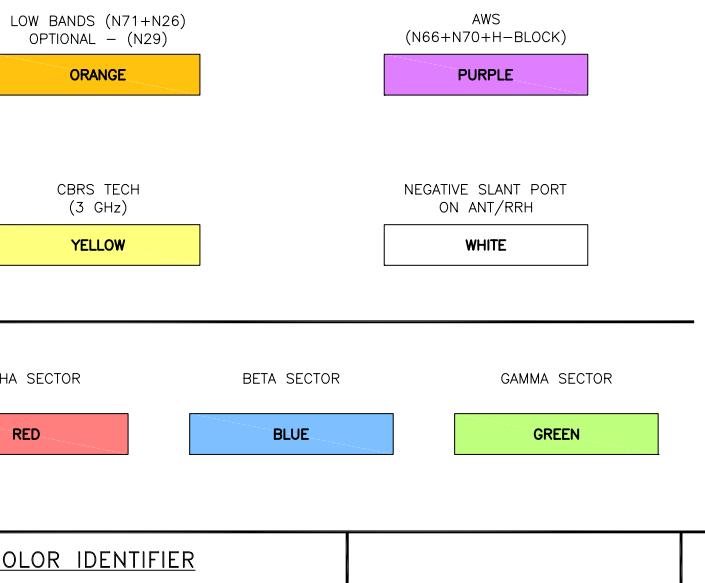
DISH Wireless L.L.C.
PROJECT INFORMATION
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61-1 BUTTONBALL ROAD
OLD LYME, CT 06371

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER

G-3

| 3/4" TAPE WIDTHS WITH 3/4" SPACING | | | | | | | | | | | | | | | | | | | | |
|---|--|--|------------------------------------|--|--|------------------------------------|--|--|----------------|--|--|--|--|--|--|--|--|--|--|--|
| HYBRID/DISCREET CABLES | | | | | | | | | | | | | | | | | | | | |
| <p>LOW-BAND RRH (600 MHz N71 BASEBAND) + (850 MHz N26 BAND) + (700 MHz N29 BAND) – OPTIONAL PER MARKET</p> <p>ADD FREQUENCY COLOR TO SECTOR BAND (CBRS WILL USE YELLOW BAND)</p> | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| <p>MID-BAND RRH (AWS BANDS N66+N70)</p> <p>ADD FREQUENCY COLOR TO SECTOR BAND (CBRS WILL USE YELLOW BANDS)</p> | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| HYBRID/DISCREET CABLES | | | | | | | | | | | | | | | | | | | | |
| EXAMPLE 1 | | | EXAMPLE 2 | | | EXAMPLE 3 CANISTER COAX#1 (ALPHA) | | | COAX#2 (ALPHA) | | | | | | | | | | | |
| <p>INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS.</p> <p>EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS.</p> <p>EXAMPLE 2 – HYBRID, OR DISCREET, SUPPORTS CBRS ONLY, ALL SECTORS.</p> <p>EXAMPLE 3 – MAIN COAX WITH GROUND MOUNTED RRHs.</p> | | | | | | | | | | | | | | | | | | | | |
| FIBER JUMPERS TO RRHs | | | | | | | | | | | | | | | | | | | | |
| <p>LOW-BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.</p> | | | | | | | | | | | | | | | | | | | | |
| POWER CABLES TO RRHs | | | | | | | | | | | | | | | | | | | | |
| <p>LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY</p> | | | | | | | | | | | | | | | | | | | | |
| RET MOTORS AT ANTENNAS | | | | | | | | | | | | | | | | | | | | |
| <p>RET CONTROL IS HANDLED BY THE MID-BAND RRH WHEN ONE SET OF RET PORTS EXIST ON ANTENNA.</p> <p>SEPARATE RET CABLES ARE USED WHEN ANTENNA PORTS PROVIDE INPUTS FOR BOTH LOW AND MID BANDS.</p> | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| MICROWAVE RADIO LINKS | | | | | | | | | | | | | | | | | | | | |
| <p>LINKS WILL HAVE A 1.5-2 INCH WHITE WRAP WITH THE AZIMUTH COLOR OVERLAPPING IN THE MIDDLE.</p> <p>ADD ADDITIONAL SECTOR COLOR BANDS FOR EACH ADDITIONAL MW RADIO.</p> <p>MICROWAVE CABLES WILL REQUIRE P-TOUCH LABELS INSIDE THE CABINET TO IDENTIFY THE LOCAL AND REMOTE SITE ID's.</p> | | | | | | | | | | | | | | | | | | | | |
| FORWARD AZIMUTH OF 0-120 DEGREES | | | FORWARD AZIMUTH OF 120-240 DEGREES | | | FORWARD AZIMUTH OF 240-359 DEGREES | | | | | | | | | | | | | | |
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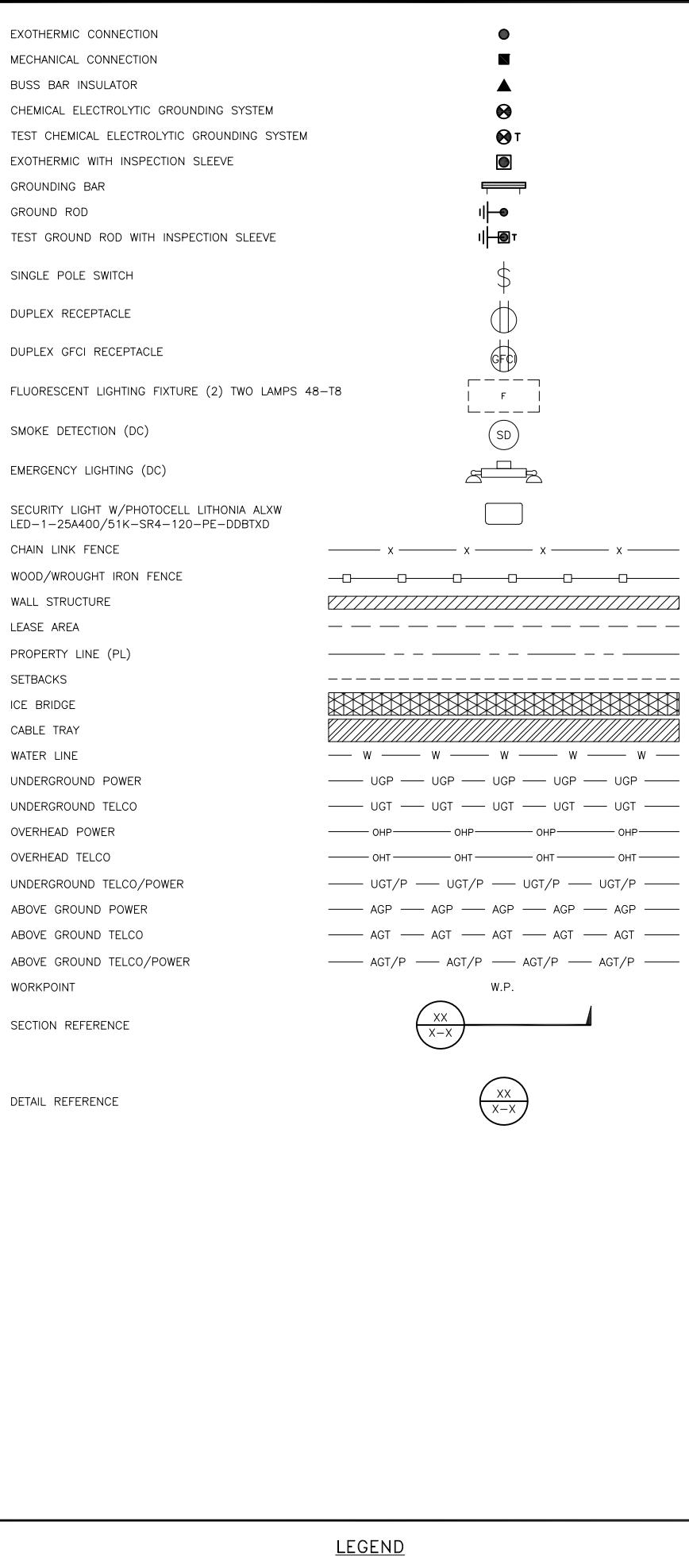
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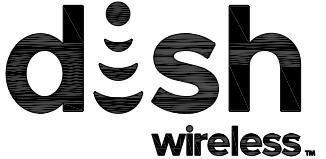
SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER

RF-1



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

|  <p>5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120</p> | | | | | | | | | | | | | | | | | | | | | | | | | | |
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|  <p>AMERICAN TOWER® 10 PRESIDENTIAL WAY WOBURN, MA 01801</p> | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <h3>CONSTRUCTION DOCUMENTS</h3> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <h4>SUBMITTALS</h4> <table border="1"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td>A</td><td>7/29/21</td><td>ISSUED FOR REVIEW</td></tr> <tr><td>0</td><td>10/18/21</td><td>ISSUED FOR CONSTRUCTION</td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> </tbody> </table> | | | REV | DATE | DESCRIPTION | A | 7/29/21 | ISSUED FOR REVIEW | 0 | 10/18/21 | ISSUED FOR CONSTRUCTION | | | | | | | | | | | | | | | |
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| <h4>DISH Wireless L.L.C. PROJECT INFORMATION</h4> <p>BOBOS00020A 61-1 BUTTONBALL ROAD OLD LYME, CT 06371</p> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <h4>Sheet Title</h4> <p>LEGEND AND ABBREVIATIONS</p> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <h4>Sheet Number</h4> <p>GN-1</p> | | | | | | | | | | | | | | | | | | | | | | | | | | |

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.



5701 SOUTH SANTA FE DRIVE
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B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

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OF A LICENSED PROFESSIONAL ENGINEER,
TO ALTER THIS DOCUMENT.

DRAWN BY: CHECKED BY: APPROVED BY:
AP GLS GLS

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

| REV | DATE | DESCRIPTION |
|-----|----------|-------------------------|
| A | 7/29/21 | ISSUED FOR REVIEW |
| 0 | 10/18/21 | ISSUED FOR CONSTRUCTION |
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A&E PROJECT NUMBER
153547.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00020A
61-1 BUTTONBALL ROAD
OLD LYME, CT 06371

SHEET TITLE
GENERAL NOTES

SHEET NUMBER

GN-2

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 (F_y) 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 DOWNTOWARDS (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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LITTLETON, CO 80120

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B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

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DRAWN BY: CHECKED BY: APPROVED BY:
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A&E PROJECT NUMBER
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DISH Wireless L.L.C.
PROJECT INFORMATION
BOBOS00020A
61-1 BUTTONBALL ROAD
OLD LYME, CT 06371

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-3

GROUNDING NOTES:

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

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10/18/21

B&T ENGINEERING, INC.
PEC.0001564

Expires 2/10/22

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

DRAWN BY: CHECKED BY: APPROVED BY:
AP GLS GLS

RFDS REV #: ---

**CONSTRUCTION
DOCUMENTS**

SUBMITTALS

| REV | DATE | DESCRIPTION |
|-----|----------|-------------------------|
| A | 7/29/21 | ISSUED FOR REVIEW |
| 0 | 10/18/21 | ISSUED FOR CONSTRUCTION |
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A&E PROJECT NUMBER

153547.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBOS00020A
61-1 BUTTONBALL ROAD
OLD LYME, CT 06371

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4