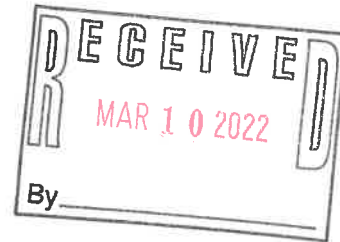




March 7, 2022

Department of Planning and Development  
City Hall Annex  
33 Wakefield Street  
Rochester, NH 03867-1917



RE: Dish Wireless Minor Site Plan Application  
36 Cross Rd., Rochester, NH 03867  
Parcel: 0205/ 0018/ 0000/ /  
Our File: 13741470

Dear Planning Official:

Dish Network is filing for a Minor Site Plan Application to install three (3) new panel antennas and antenna mounts on the existing tower, and to install two (2) new equipment cabinets on a proposed 5 x 7' metal platform within the exiting fenced compound at the above referenced address. There will be no increase in the height of the tower, no compound expansion, and no new impervious surface. Accordingly, enclosed please find the following documents:

- A completed & signed Minor Site Plan application form;
- A letter of Authorization from the property/tower owner;
- Two (2) sets of 11 x 17" signed & sealed construction drawings;
- A Tax Card of the subject property; and
- Check number 031577 in the amount of Three Hundred Thirty Eight Dollars and Fifty Two Cents (338.52).

Please note that the above-referenced proposal falls squarely within Section 6409 of the Middle-Class Tax Relief and Job Creation Act of 2012, signed into law on February 22, 2012.

The law provides that, "a State or local government may not deny, and shall approve, any eligible facilities request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station (emphasis added). An "eligible facilities request" is defined as "any request for modification of an existing wireless tower or base station that involves: (A) collocation of new transmission equipment; (B) removal of transmission equipment; or, (C) replacement of transmission equipment."



Dish Wireless respectfully requests issuance of an administrative Minor Site Plan approval, without the need for discretionary review, as the proposal meets the objectives of Section 6409.

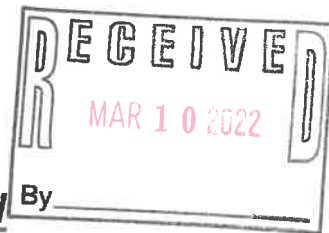
Please be so kind as to email your receipt of this application and advise me as to the next step. Feel free to contact me with any questions or comments; my mobile number is 443-677-0144 and my email address is [jmandrews@clinellc.com](mailto:jmandrews@clinellc.com).

Thank you for your kind attention to this matter.

Very Truly Yours,

A handwritten signature in blue ink, appearing to read 'John Andrews', is written over the printed name and title.

John Andrews  
Zoning Manager,  
Centerline Communications



**MINOR SITE PLAN APPLICATION**  
**City of Rochester, New Hampshire**

Date: 3/7/22

**Property information**

Tax map #: 0205; Lot #'s): 0018; Zoning district: A - Agriculture

Property address/location: 36 Cross Road Rochester, NH 03867

Brief project description: Collocate 3 antennas on existing tower & 35 sq ft platform w/ 2 cabinets within fenced compound

**Property owner**

Name (include name of individual): AUBERT THOMAS R & DIANNE C % AMERICAN TOWER CORPORATIO

Mailing address: P O BOX 723597, ATLANTA GA 31139

Telephone #: 919-468-0112 Email address: Blake.Paynter@AmericanTower.com

**Applicant/developer** (if different from property owner)

Name (include name of individual): John Andrews

Mailing address: 10130 Donleigh Drive, Columbia, MD 21046

Telephone #: 443-677-0144 Email address: jmandrews@clinellc.com

**Engineer/surveyor/designer** (if applicable)

Name (include name of individual): Patrick P. Barry

Mailing address: 3500 Regency Parkway, #

Telephone #: 919-468-0112 Email address:

Check one:

- ☐ Nonresidential project      ☐ Home Occupation II or III  
☐ Multi-Family Residential project

Check all that apply:

- ☐ change of use      ☐ new building      ☐ building addition  
☐ new parking area      ☐ expansion of existing parking area  
☐ new signage;      ☐ exterior lighting      ☐ other site changes

Describe current use/nature of property: Telecommunications Facility

Describe proposed use/activity: Telecommunications Facility

# parking spaces: existing: 1 ; total proposed: 0

Current square footage of building \_\_\_\_\_; Proposed square footage of building 35

City water? yes \_\_\_ no \_\_\_; How far is City water from the site? \_\_\_\_\_

City sewer? yes \_\_\_ no \_\_\_; How far is City sewer from the site? \_\_\_\_\_

If City water, what are the estimated total daily needs? 0 gallons per day

Where will stormwater be discharged? N/A

Number of existing dwelling units: 0 Total number of proposed dwelling units: 0

New building(s)? 1 Addition(s)/modifications to existing building(s)? 0

Describe current use/nature of property: Telecommunications

Describe proposed use/activity: Telecommunications

# of parking spaces: existing: 1 total proposed: 1

Hours of Operation: 27/7 Days of Operation: 7 days a week

Number of employees: 0 Square footage to be used for new proposed use: 35

Maximum Number of Pupils at one time (for classes): 0

## Comments

Please feel free to add any comments, additional information, or requests for waivers here:

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This application must be accompanied by the following:

- Site plan drawing with:
  - All building dimensions (including any additions, if applicable)
  - Parking areas or spaces with size, spaces, flow pattern, and drive aisles as applicable.
  - Location of proposed change of use/addition/home occupation.

## Submission of application & acknowledgement about process

This application must be signed by the property owner, applicant/developer (if different from property owner), *and/or* the agent.

I (we) hereby submit this Site Plan application to the City of Rochester Planning Board pursuant to the City of Rochester Site Plan Regulations and attest that to the best of my knowledge all of the information on this application form and in the accompanying application materials and documentation is true and accurate. As applicant/developer (if different from property owner)/as agent, I attest that I am duly authorized to act in this capacity. **I also acknowledge that this project could be referred to the Planning Board for a new, full Planning Board review at the request of any person after any Minor Site Approval and that I would need to renotify abutters in that case** (in accordance with RSA 674:43 III).

Signature of property owner: Authorization letter is Attached

Date: \_\_\_\_\_

Signature of applicant/developer:  \_\_\_\_\_

Date: 3/7/22

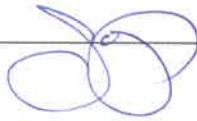
Signature of agent: \_\_\_\_\_

Date: \_\_\_\_\_

## Authorization to enter property

*I hereby authorize members of the Rochester Planning Board, Zoning Board of Adjustment, Conservation Commission, Planning Department, and other pertinent City departments, boards and agencies to enter my property for the purpose of evaluating this application including performing any appropriate inspections during the application phase, review phase, post-approval phase, construction phase, and occupancy phase. This authorization applies specifically to those particular individuals legitimately involved in evaluating, reviewing, or inspecting this specific application/project. It is understood that these individuals must use all reasonable care, courtesy, and diligence when entering the property.*

Signature of property owner: \_\_\_\_\_



Date: 3/7/22

**Home Occupation:** An occupation or business activity which is conducted by a resident within his/her own dwelling or in a garage or barn-type outbuilding and which is clearly subordinate to the principal residential use. Home occupations are designated as Home Occupations – 1,2,and 3. (See Section 42.24 – Home Occupations)

**Requirements for All Home Occupations.** The following standards apply to all home occupations - 1, 2, and 3: *(If any of these cannot be met, it will be deemed **not** an allowed use)*

1. On Resident's Property. Home occupations shall be conducted by the individual on the property in which he/she resides.
2. Inside the Dwelling. All activity related to the home occupation shall be conducted inside the dwelling or inside a garage or barn-type outbuilding.
3. Character. Home occupations must be subordinate to the residential use and must have little or no impact upon the neighborhood. There must be minimal indication of the home occupation evident from the road or from neighboring properties.
4. Retail Sales. There shall be no retail sales of goods or products on the premises, except:
  - a. as may be incidental to the primary office or personal services occupation (such as sales of hair products to a salon customer);
  - b. for goods shipped pursuant to mail/email/telecommunication order;



**AMERICAN TOWER®**  
CORPORATION

**LETTER OF AUTHORIZATION**

**SITE NO/PROJECT NO: 15134 / 13741470**

**SITE NAME: Rochester NH**

**ADDRESS: 36 Cross Road, Rochester, NH 03867**

**LICENSEE: Dish Wireless L.L.C.**

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

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

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

Signature: \_\_\_\_\_

Margaret Robinson, Senior Counsel  
US Tower Division

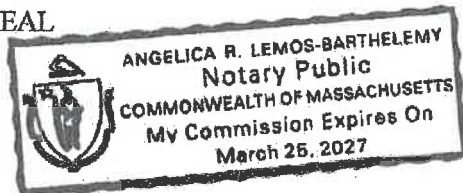
**NOTARY BLOCK**

COMMONWEALTH OF MASSACHUSETTS  
County of Middlesex

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

WITNESS my hand and official seal, this 27<sup>th</sup> day of January 2022.

**NOTARY SEAL**



Notary Public  
My Commission Expires: March 25, 2027

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




Property Location 36 CROSS RD  
Vision ID 554

Parcel ID 0205/ 0018/ 0000/ /

Card # 1 of 1 Account # 554  
Sec # 1 of 1 Bldg # 1

Land Use 046V  
Print Date 11/5/2021 9:59:08 AM

CURRENT OWNER		UTILITIES		TOPO		ZONING		CURRENT ASSESSMENT				<div>VISION ROCHESTER, NH</div> <div></div>	
AUBERT THOMAS R & DIANNE C % AMERICAN TOWER CORPORATIO P O BOX 723597  ATLANTA GA 31139		0	NONE	0	LEVEL	A	AGRICULTURAL	Description	LUC Co	Prior Assessed	Current Assesse		
					NEIGHBORHOOD		NHBD NAME	LAND	432	61,040	60,000		
					4008		INDUSTRIAL NORTH C	OB	432	360,000	359,800		
			UTL/ST/TRAF		EXEMPTIONS			LAND	6710	0	464		
		0	PAVED	Year	Code	Description		LAND	6910	0	575		
		0	MEDIUM					Total				421,040	420,839

Disclaimer: This information is believed to be correct but is subject to change and is not warranted.



Property Location 36 CROSS RD  
 Vision ID 554

Parcel ID 0205/ 0018/ 0000/ /

Card # 1 of 1 Account # 554  
 Sec # 1 of 1 Bldg # 1

Land Use 046V  
 Print Date 11/5/2021 9:59:09 AM

CONSTRUCTION DETAIL			CONSTRUCTION DETAIL (CONTINUED)									
Element	Cd	Description	Element	Cd	Description							
Model	00	Vacant	Half Bath Rati									
Style	99	Vacant Land	Extra Fixture(s)									
Grade			Extra Fix Ratin									
Stories												
Units												
Residential Unit												
Comm Units												
Exterior Wall 1												
Exterior Wall 2												
2nd Ext Wall %												
Roof Structure												
Roof Cover												
Interior Wall 1												
Interior Wall 2												
2nd Int Wall %												
Interior Floor 1												
Interior Floor 2												
Basement Floor												
% Heated												
Heat Fuel												
Heat Type												
2nd Heat Type												
2nd % Heated												
# Heat Systems												
AC Percent												
Bedrooms												
Full Bath(s)												
Bath Rating												
3/4 Bath(s)												
3/4 Bath Rating												
Half Bath(s)												
Half Bath Ratin												
Extra Fixture(s)												
<div> <div>CONDO DATA</div> <div> <div>Condo Main</div> <div>Complex #</div> </div> <div> <div>Adjust Type</div> <div>Code</div> <div>Building #</div> </div> <div> <div>Condo Floor</div> <div>Section #</div> </div> <div> <div>Condo Location</div> <div>% Owner</div> </div> </div>												
COST / MARKET VALUATION												
Building Value New			0									
Year Built												
Depreciation Code												
Remodel Rating												
Year Remodeled												
Depreciation %												
Functional Obsol												
Economic Obsol												
Trend Factor			1.000									
Special Adj												
Condition %												
Percent Good												
RCNLD			0									
Dep % Ovr												
Dep Ovr Comment												
Misc Imp Ovr												
Misc Imp Ovr Comment												
Cost to Cure Ovr												
Cost to Cure Ovr Comment												
OB - OUTBUILDING & YARD ITEMS(L) / XF - BUILDING EXTRA FEATURES(B)												
Code	Description	L/B	Qty	Dim 1	Dim 2	Grade	Condition	Yr Blt	% Gd	Unit Price	Grade Adj	Appr. Value
TT	TOWER TENA	L	3	1	1	C	AV	2015	100	75000.00	1.00	225,000
TU	TOWER SHE	L	1	12	32	C	AV	2006	70	133.33	1.00	35,800
TU	TOWER SHE	L	1	12	20	D	AV	2002	70	133.33	0.87	19,500
TP	TOWER MON	L	1	1	1	C	AV	2001	100	75000.00	1.00	75,000
FC8	FENCE CH 8'	L	1	288	1	C	AV	2000	70	22.50	1.00	4,500
41	GENERATOR	L	1	1	1	C	AV	2019	100	0.00	1.00	0
BUILDING SUB-AREA SUMMARY SECTION												
Code	Description	Living Area	Floor Area	Eff Area	Unit Cost	Undepreciated Value						
Ttl Gross Liv / Lease Area							0	0	0		0	

No Sketch



DISH Wireless L.L.C. SITE ID:  
**BOBOS00442A**

DISH Wireless L.L.C. SITE ADDRESS:  
**36 CROSS ROAD  
ROCHESTER, NH 03867**

#### NEW HAMPSHIRE 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	NH STATE BUILDING CODE/2015 IBC W/BCR 300 AMENDMENTS
MECHANICAL	NH STATE BUILDING CODE/2015 IMC W/BCR 300 AMENDMENTS
ELECTRICAL	2017 NEC W/ BCR 300 AMENDMENTS

#### SHEET INDEX

SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
A-0	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

#### 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 ANTENNA PLATFORM MOUNT
  - INSTALL PROPOSED JUMPERS
  - INSTALL (8) PROPOSED RRU's (2 PER SECTOR)
  - INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
  - INSTALL (1) PROPOSED HYBRID CABLE

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

#### SITE PHOTO



UNDERGROUND SERVICE ALERT - DIG SAFE  
UTILITY NOTIFICATION CENTER OF NEW HAMPSHIRE  
(888) 344-7233  
WWW.DIGSAFE.COM



CALL 3 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

#### GENERAL NOTES

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

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

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

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

#### SITE INFORMATION

PROPERTY OWNER: THOMAS R AUBERT  
ADDRESS: 36 CROSS ROAD  
ROCHESTER, NH 03867

TOWER TYPE: MONOPOLE

TOWER CO SITE ID: 15134

TOWER APP NUMBER: 13741470\_D3

COUNTY: STRAFFORD

LATITUDE (NAD 83): 43° 20' 54.327" N  
43.34842416

LONGITUDE (NAD 83): 70° 59' 1.663" W  
-70.98379538

ZONING JURISDICTION: ROCHESTER, NEW HAMPSHIRE

ZONING DISTRICT: COMMERCIAL

PARCEL NUMBER: RCHE-000205-000018

OCCUPANCY GROUP: U

CONSTRUCTION TYPE: II-B

POWER COMPANY: PUBLIC SERVICE OF NEW HAMPSHIRE

TELEPHONE COMPANY: VERIZON

#### PROJECT DIRECTORY

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

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

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

SITE ACQUISITION: ALEXANDRA KHOURY  
ALEXANDRA.KHOURY@DISH.COM

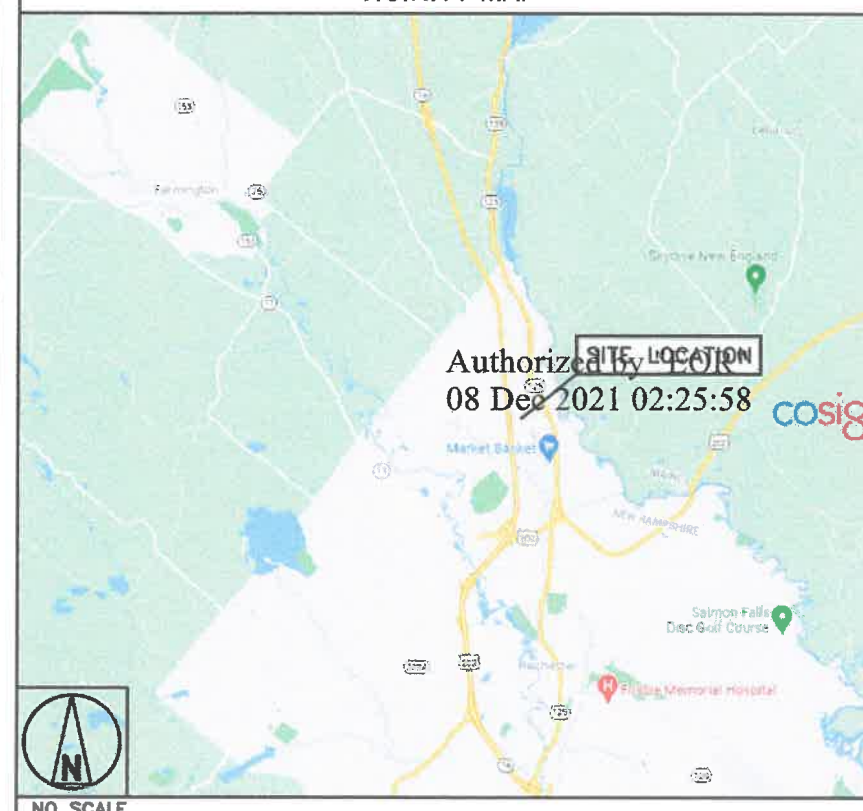
CONSTRUCTION MANAGER: MICHAEL LAWTON  
MICHAEL.LAWTON@DISH.COM

RF ENGINEER: VICTORIEN NDOUNOU  
VICTORIEN.NDOUNOU@DISH.COM

#### DIRECTIONS

RTE 16 NORTH TO RTE 202 EAST. FOLLOW TO RTE 125 NORTH. TAKE LEFT ONTO CROSS STREET. FOLLOW TO MINI SELF STORAGE ON LEFT. ACCESS ROAD IS LOCATED BEHIND SELF STORAGE TO LEFT.

#### VICINITY MAP



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



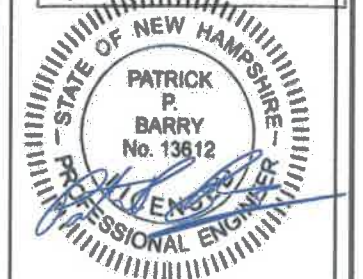
AMERICAN TOWER®  
A.T. ENGINEERING SERVICE, PLLC  
3500 REGENCY PARKWAY  
SUITE 100  
CARY, NC 27518  
PHONE: (919) 468-0112

DRAWN BY: SB CHECKED BY: SRF APPROVED BY: SRF

RFDS REV #: ----

#### CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
0	12/08/2021	ISSUED FOR CONSTRUCTION



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

A&E PROJECT NUMBER  
15134-13741470\_D3

DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOBOS00442A  
36 CROSS ROAD  
ROCHESTER, NH 03867

SHEET TITLE  
TITLE SHEET

SHEET NUMBER

**T-1**



High Rise SR-20 SFAULING TURNPIKE (PUBLIC) 1' x 1' Plate  
 Year Exp. \_\_\_\_\_ Weight 15,000 LBS.

[illegible]

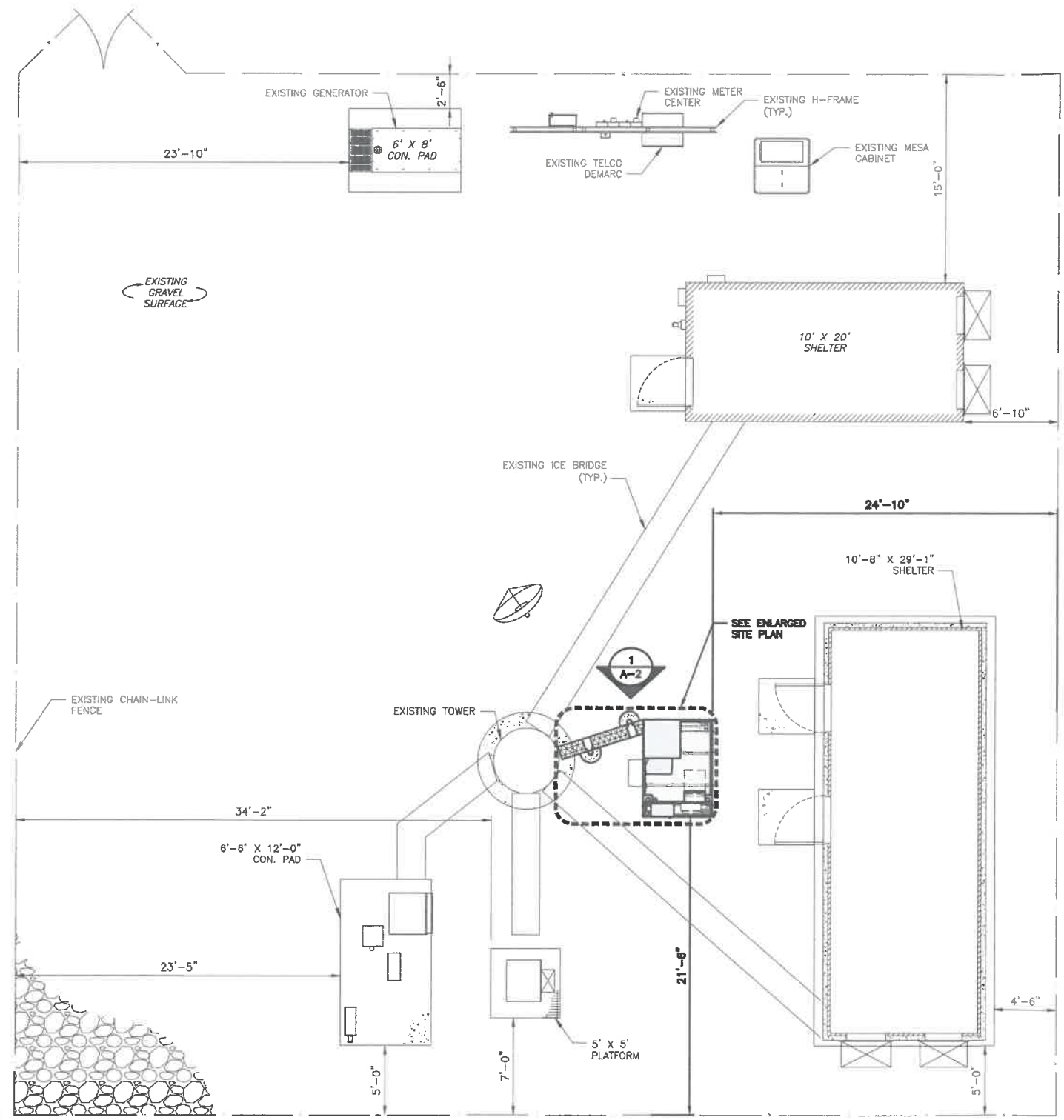
Copyright © 2019 ABC P, LLC. All Rights Reserved.



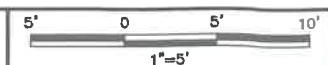
○ PP

### NOTES

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



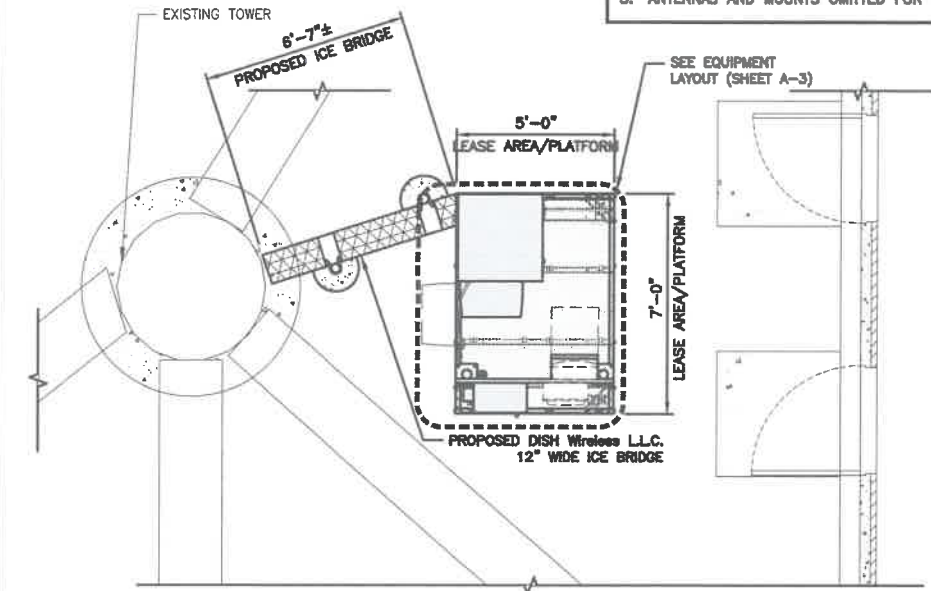
OVERALL SITE PLAN



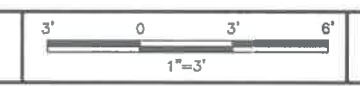
1

### NOTES

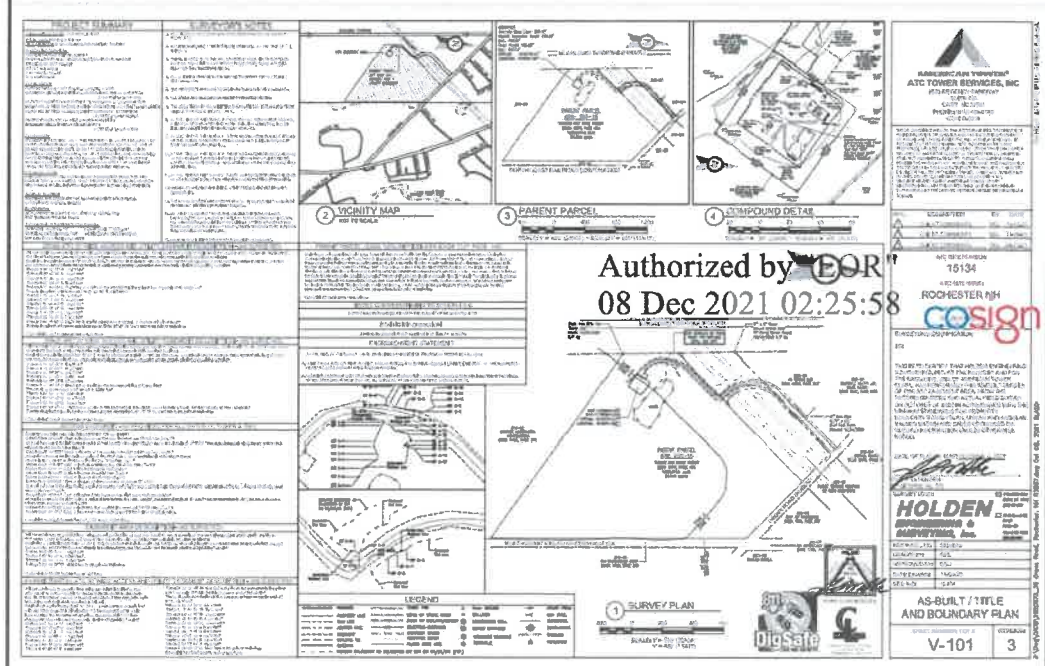
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



ENLARGED SITE PLAN



2



EXISTING SURVEY (BY OTHERS)

NO SCALE

3



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



DRAWN BY:	CHECKED BY:	APPROVED BY:
SB	SRF	SRF

RFDS REV #:

### CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
0	12/08/2021	ISSUED FOR CONSTRUCTION



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

A&E PROJECT NUMBER  
15134-13741470\_D3

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PROJECT INFORMATION  
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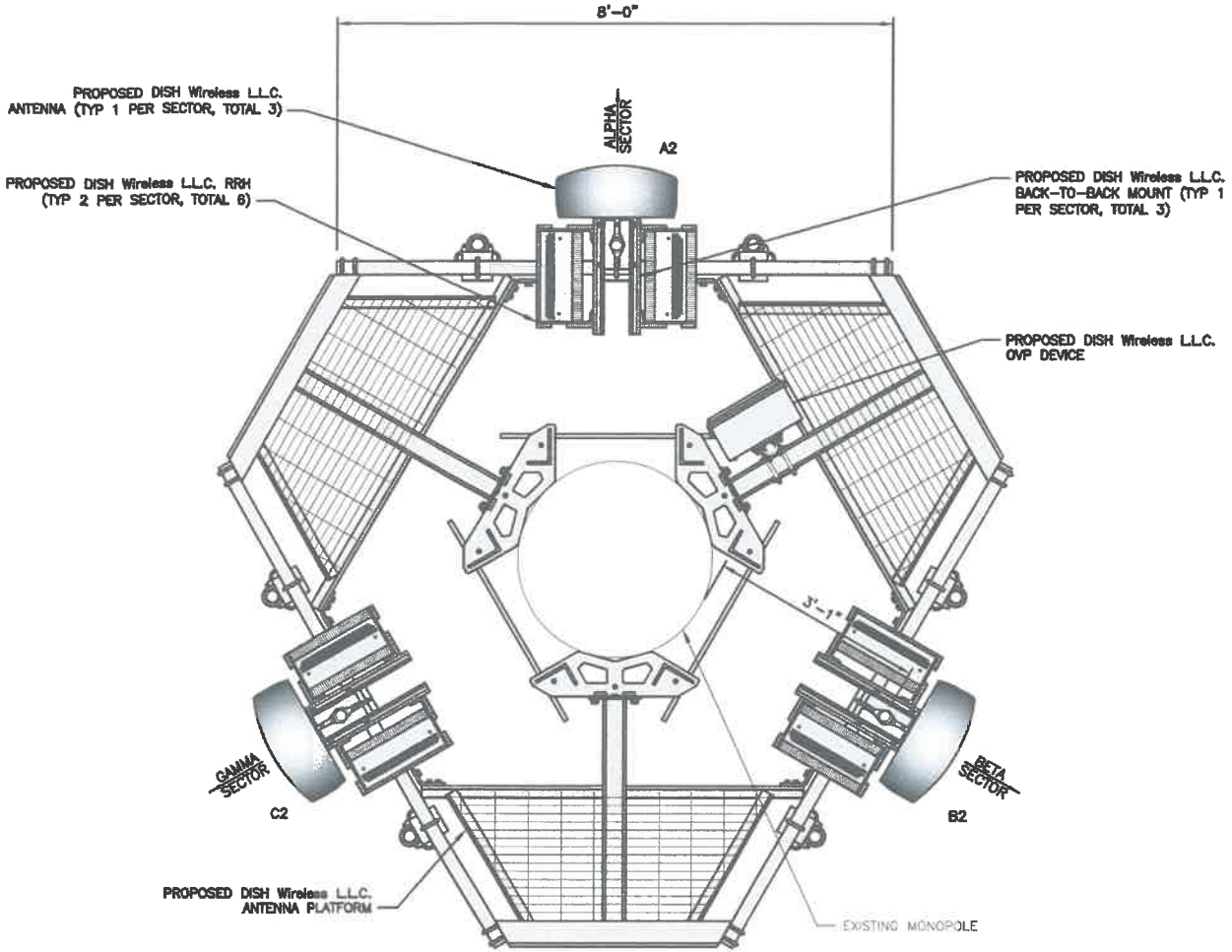
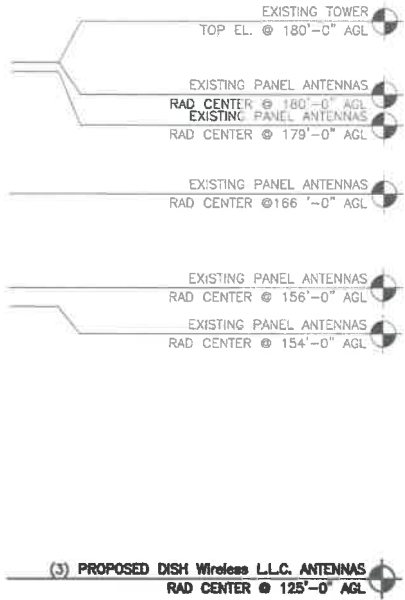
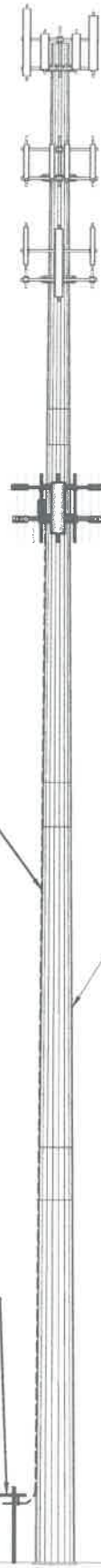
SHEET TITLE  
OVERALL AND ENLARGED  
SITE PLAN

SHEET NUMBER

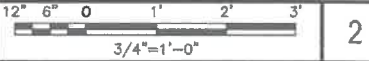
A-1

NOTES

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



ANTENNA LAYOUT

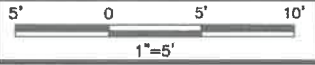


2

SECTOR POS.	ANTENNA					TRANSMISSION CABLE	RRH			OVP
	EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECH	AZIMUTH	RAD CENTER		MANUFACTURER - MODEL NUMBER	TECH	POS.	
A1	---	---	---	---	---	(1) HIGH-CAPACITY HYBRID CABLE (152' LONG)	TA08025-B604	5G	A2	(1) RAYCAP R01DC-9181-PF-48
A2	PROPOSED	COMMOSCOPE - FFW-65B-R2	5G	0°	125'-0"		TA08025-B605	5G	A2	
A3	---	---	---	---	---		---	---	---	
B1	---	---	---	---	---	SHARED W/ALPHA	TA08025-B604	5G	B2	SHARED W/ALPHA
B2	PROPOSED	COMMOSCOPE - FFW-65B-R2	5G	120°	125'-0"		TA08025-B605	5G	B2	
B3	---	---	---	---	---		---	---	---	
C1	---	---	---	---	---	SHARED W/ALPHA	TA08025-B604	5G	C2	SHARED W/ALPHA
C2	PROPOSED	COMMOSCOPE - FFW-65B-R2	5G	240°	125'-0"		TA08025-B605	5G	C2	
C3	---	---	---	---	---		---	---	---	

- NOTES
1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.
  2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.

PROPOSED NORTH ELEVATION



1

ANTENNA SCHEDULE

NO SCALE

3



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



DRAWN BY: CHECKED BY: APPROVED BY:

SB SRF SRF

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
0	12/08/2021	ISSUED FOR CONSTRUCTION



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A&E PROJECT NUMBER  
15134-13741470\_D3

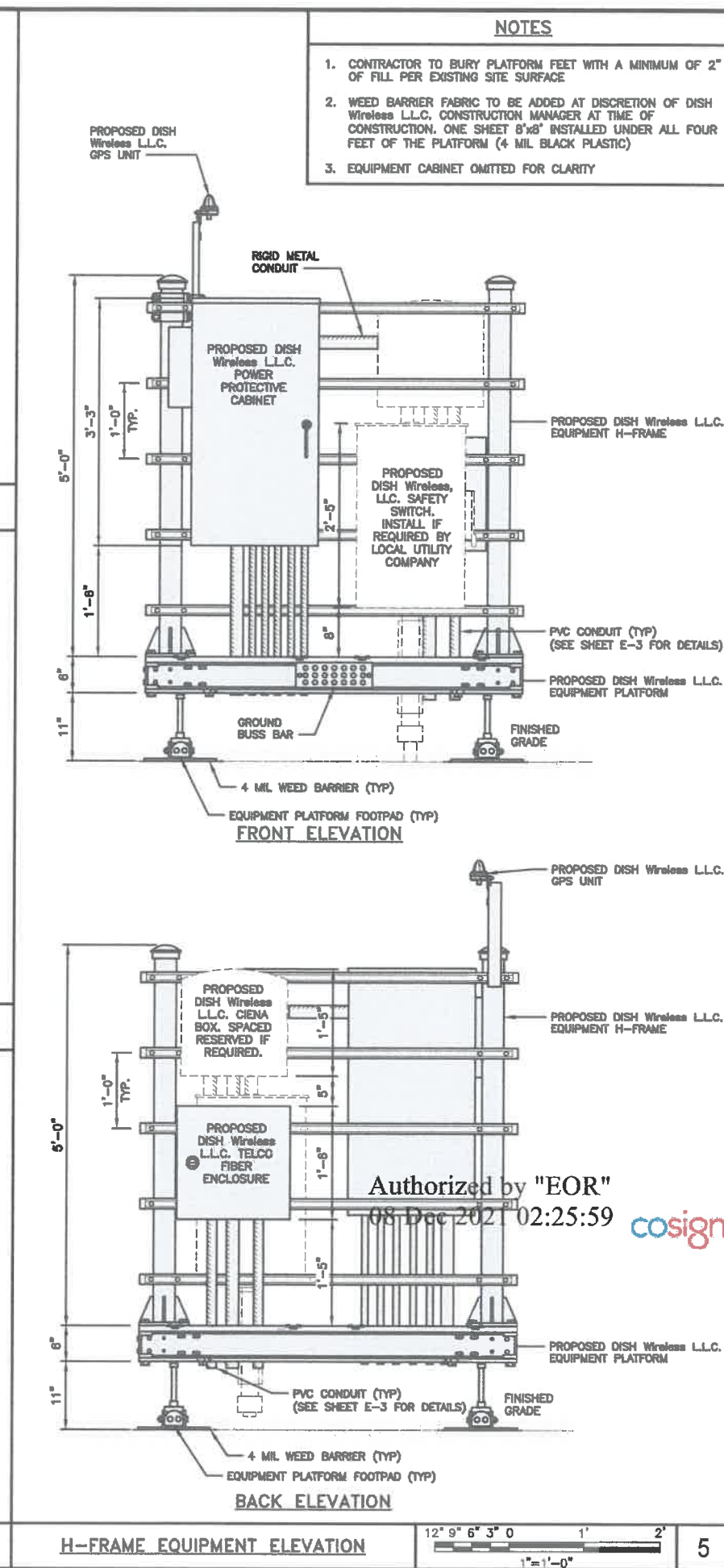
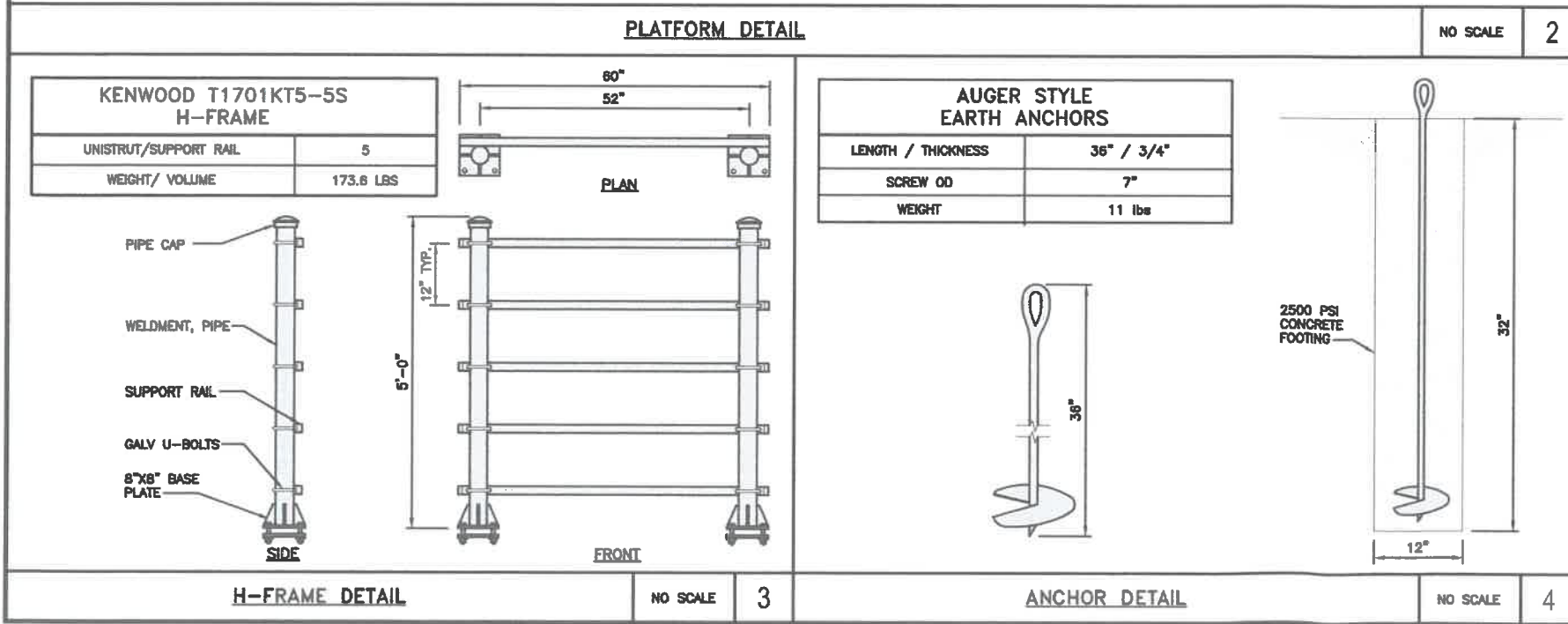
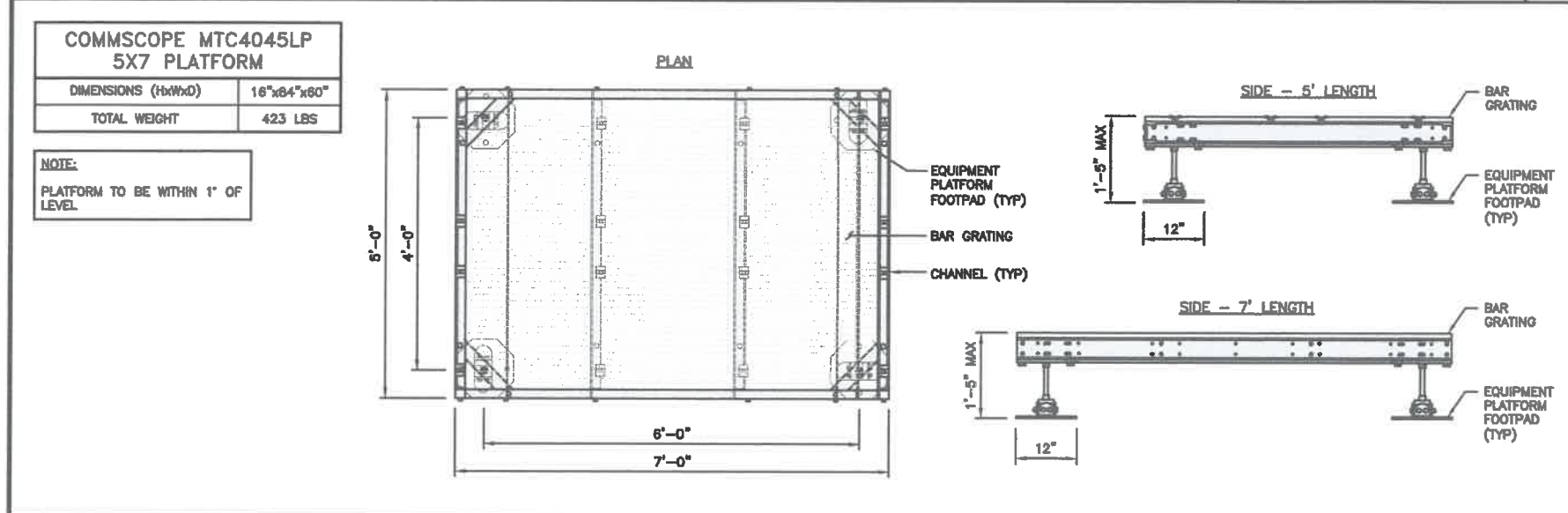
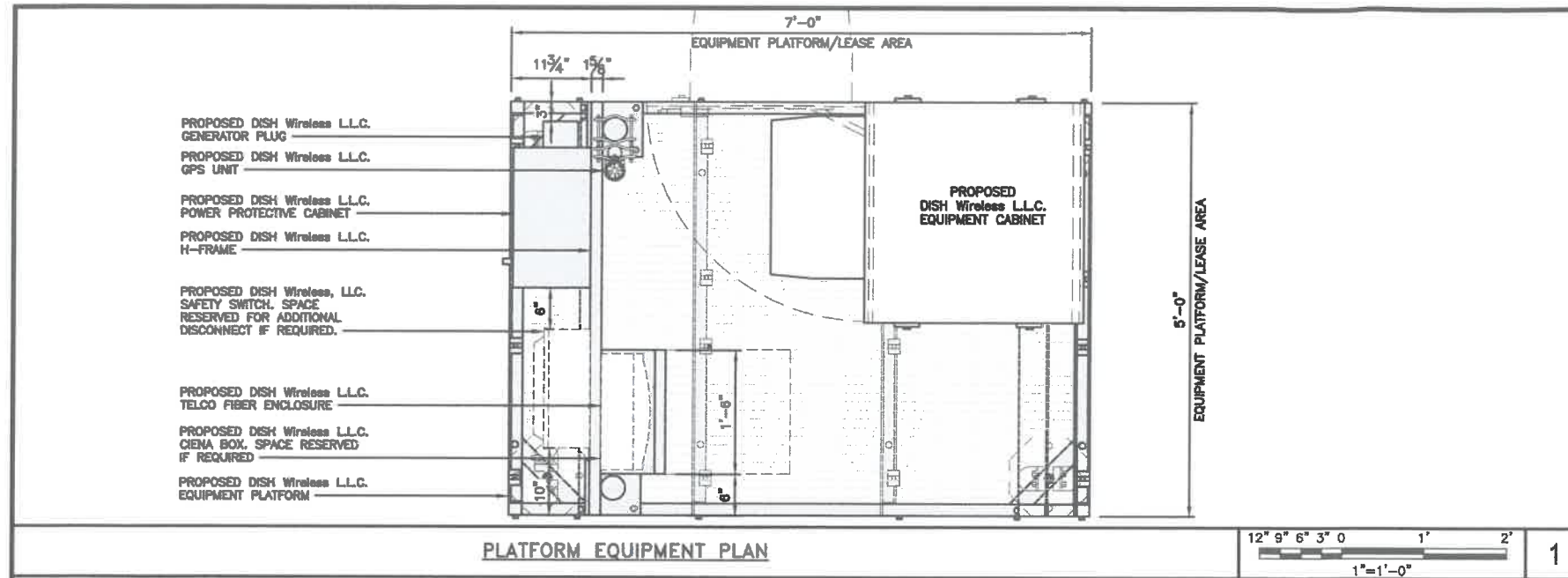
DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOBOS00442A  
36 CROSS ROAD  
ROCHESTER, NH 03867

SHEET TITLE  
ELEVATION, ANTENNA  
LAYOUT AND SCHEDULE

SHEET NUMBER

A-2





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

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120

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

DRAWN BY: SB CHECKED BY: SRF APPROVED BY: SRF

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
0	12/06/2021	ISSUED FOR CONSTRUCTION

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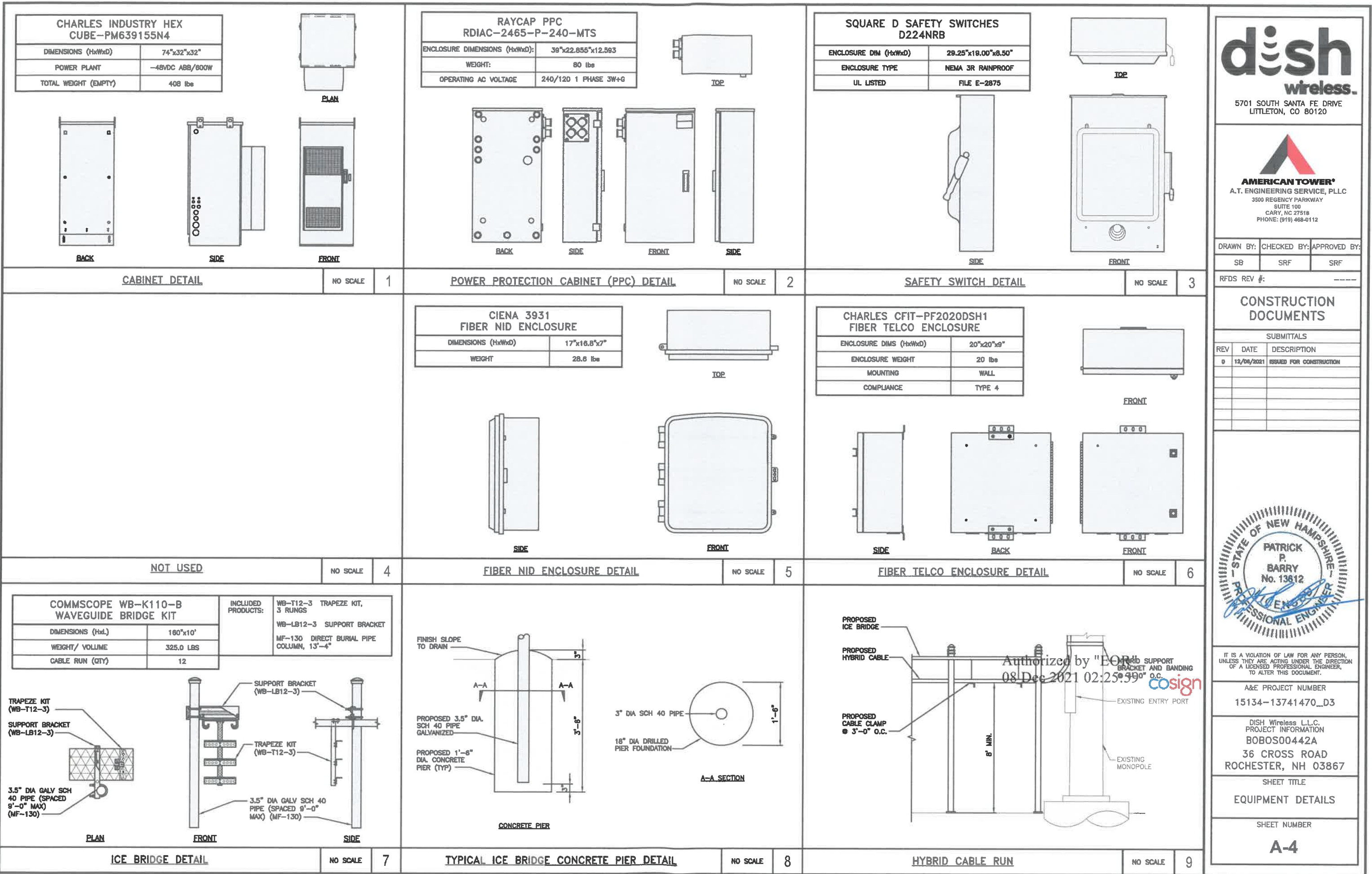
A&E PROJECT NUMBER  
15134-13741470\_D3

DISH Wireless L.L.C. PROJECT INFORMATION  
BOBOS00442A  
36 CROSS ROAD  
ROCHESTER, NH 03867

SHEET TITLE  
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER  
A-3





dish

wireless.

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CARY, NC 27518  
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RFDS REV #: ----

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	12/08/2021	ISSUED FOR CONSTRUCTION

STATE OF NEW HAMPSHIRE

PATRICK P. BARRY

No. 13612

PROFESSIONAL ENGINEER

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A&E PROJECT NUMBER  
15134-13741470\_D3

DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOBOS00442A  
36 CROSS ROAD  
ROCHESTER, NH 03867

SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER  
A-4

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



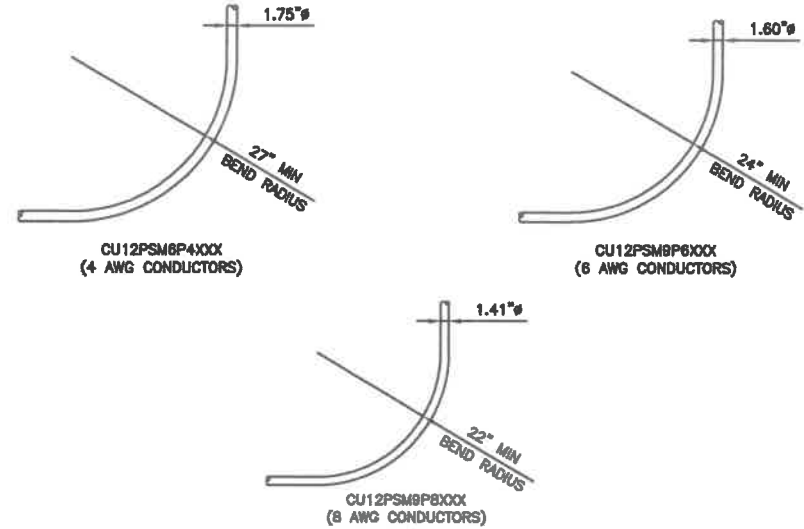
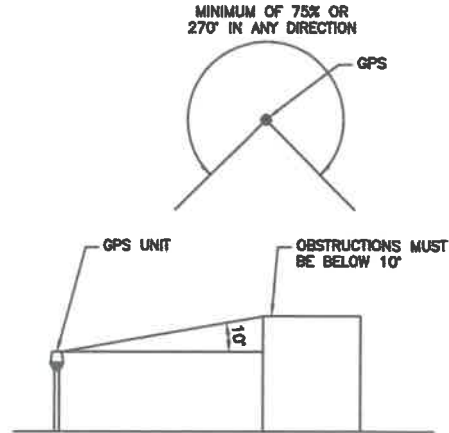
TOP



BACK



SIDE



GPS DETAIL

NO SCALE

1

GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE

2

CABLES UNLIMITED HYBRID CABLE  
MINIMUM BEND RADIUSES

NO SCALE

3

NOT USED

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9

**dish**  
wireless.

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DRAWN BY: CHECKED BY: APPROVED BY:

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DISH Wireless L.L.C.  
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SHEET TITLE  
EQUIPMENT DETAILS

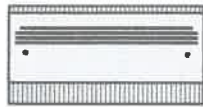
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**A-5**

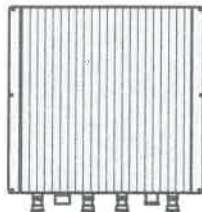
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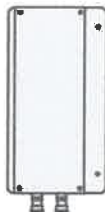
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~+38V



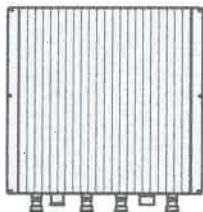
PLAN



BACK

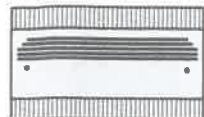


SIDE



FRONT

FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x8"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~+38V



PLAN



BACK



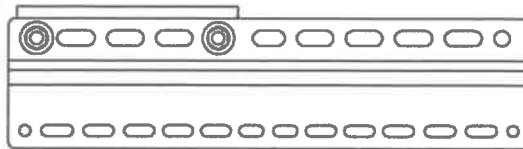
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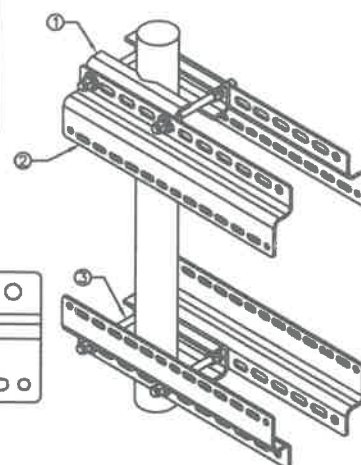
FRONT

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

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



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



RRH DETAIL

NO SCALE

1

RRH DETAIL

NO SCALE

2

RRH MOUNT DETAIL

NO SCALE

3

COMMSCOPE FFV-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



PLAN



BACK



SIDE



FRONT

ANTENNA DETAIL

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

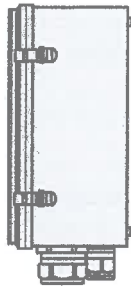
NO SCALE

6

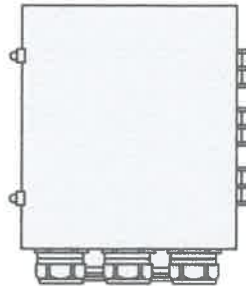
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



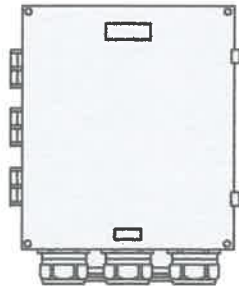
PLAN



SIDE



BACK



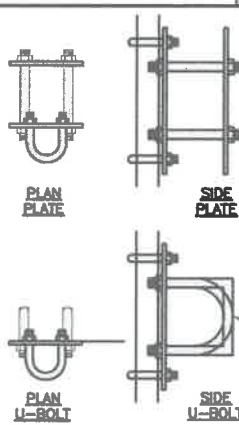
FRONT

SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

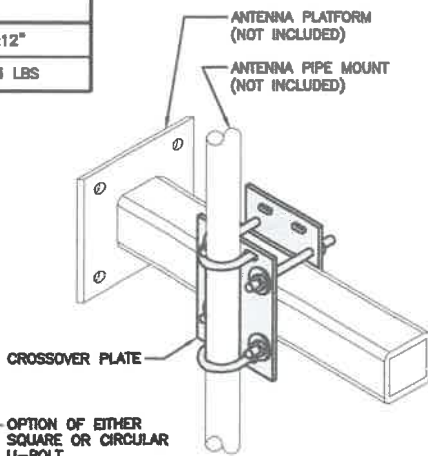
7

COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11.023 LBS



PLAN  
U-BOLT

SIDE  
U-BOLT



CROSSOVER PLATE

OPTION OF EITHER  
SQUARE OR CIRCULAR  
U-BOLT

RRH/OVP MOUNT DETAIL

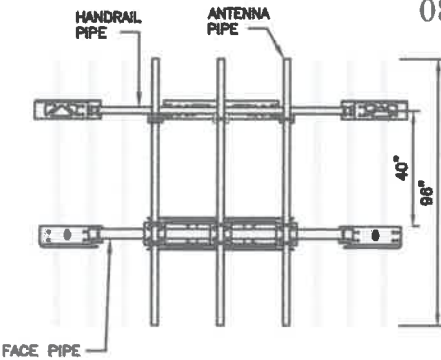
NO SCALE

8

COMMSCOPE MC-PK8-DSH	
FACE WIDTH	96"
WEIGHT	1373.08 lbs

NOTE: 15" TO 38" O.D.

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



FACE PIPE



PLATFORM

ANTENNA PLATFORM DETAIL

NO SCALE

9

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

DRAWN BY: SB CHECKED BY: SRF APPROVED BY: SRF

RFDS REV #: ----

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SUBMITTALS		
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A&E PROJECT NUMBER  
15134-13741470\_D3

DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOBOS00442A  
36 CROSS ROAD  
ROCHESTER, NH 03867

SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER

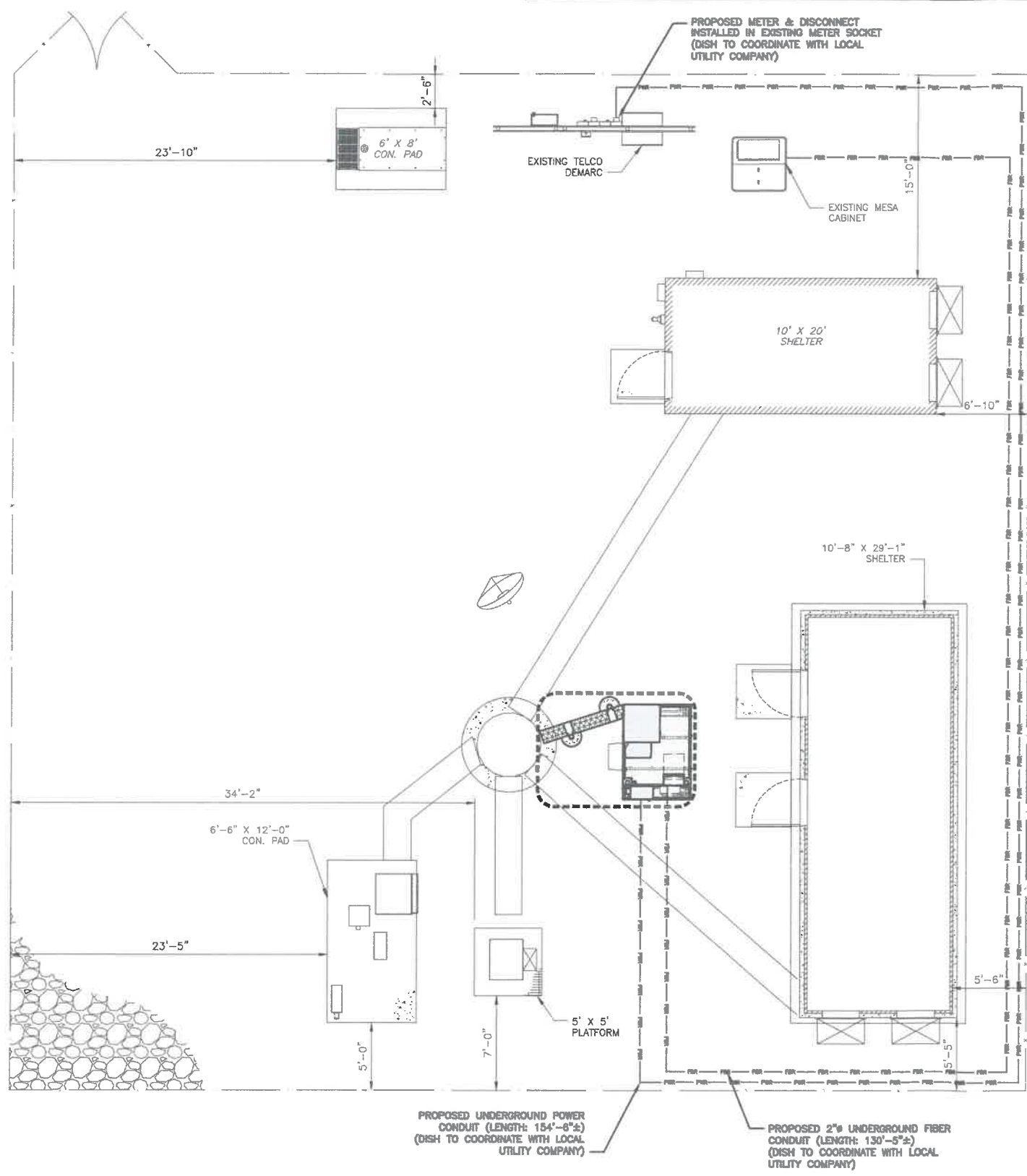
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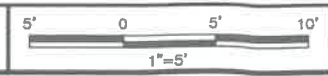
OPP

# NOTES

1. THE EASEMENT RIGHTS FOR THIS SITE DO NOT INCLUDE A SPECIFIED AREA FOR THE LOCATION OF UTILITIES. CONSTRUCTION CONTRACTOR MUST FIELD VERIFY THE APPROPRIATENESS OF ALL PROPOSED UTILITY ROUTES
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. GC TO REFER TO FINAL UTILITY COORDINATION DOCUMENT FOR ALL MEET ME POINTS AND ROUTING DETAILS.



UTILITY ROUTE PLAN

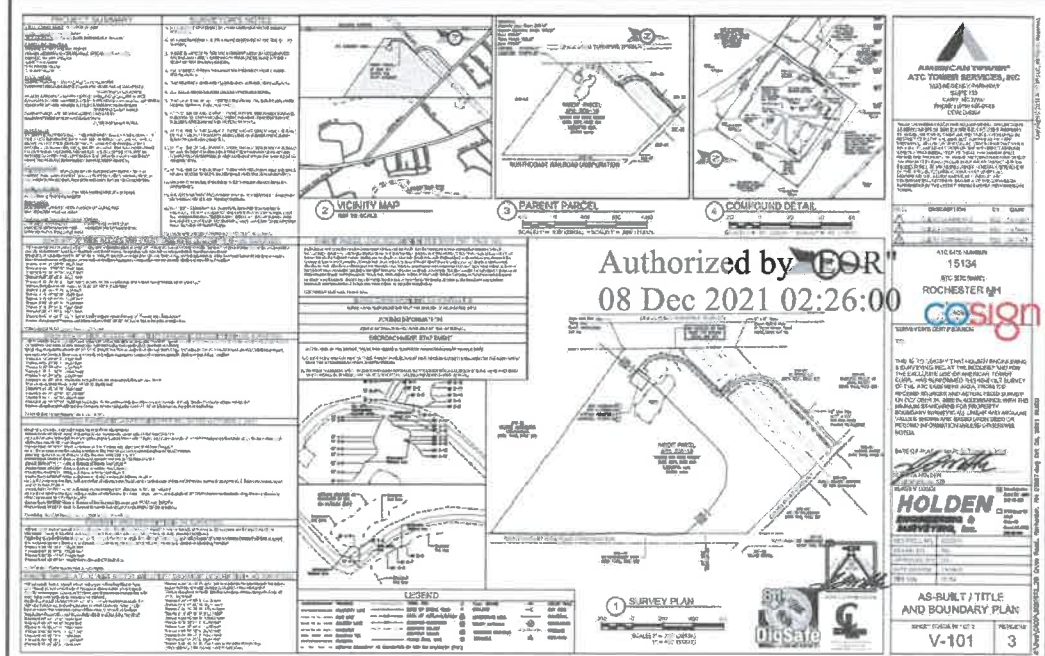


DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND -48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY -48V.

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

# ELECTRICAL NOTES

NO SCALE



EXISTING SURVEY (BY OTHERS)

NO SCALE

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LITTLETON, CO 80120

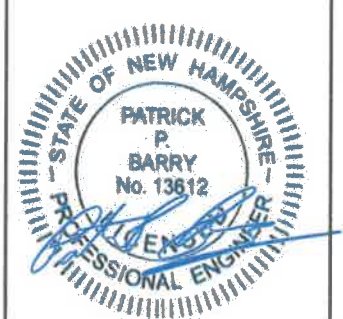
**AMERICAN TOWER**  
A.T. ENGINEERING SERVICE, PLLC  
3500 REGENCY PARKWAY  
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CARY, NC 27518  
PHONE: (919) 468-0112

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SB	SRF	SRF

RFDS REV #:

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A&E PROJECT NUMBER  
15134-13741470\_D3

DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOBOS00442A  
36 CROSS ROAD  
ROCHESTER, NH 03867

SHEET TITLE  
ELECTRICAL/FIBER ROUTE  
PAN AND NOTES

SHEET NUMBER

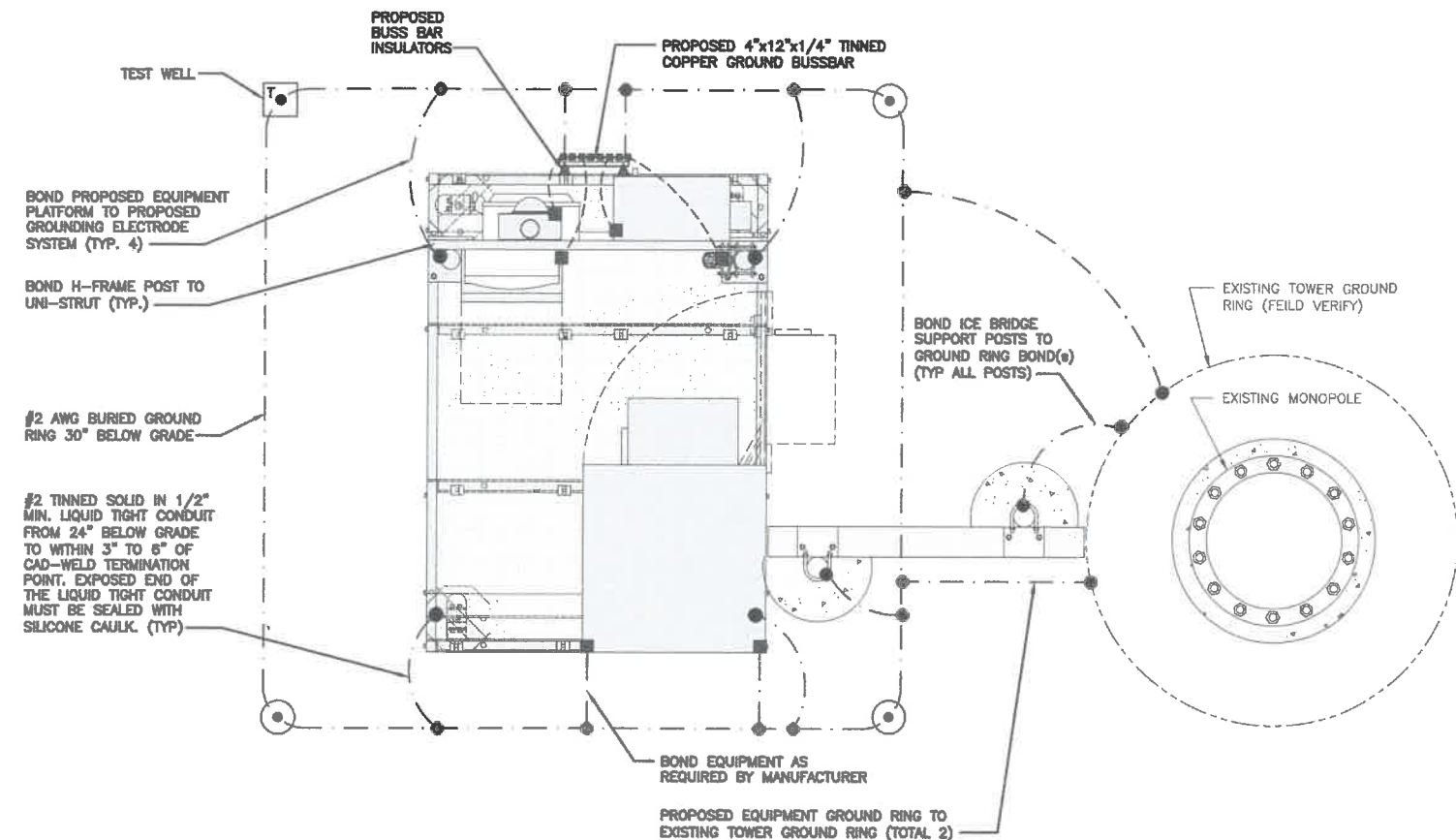
E-1





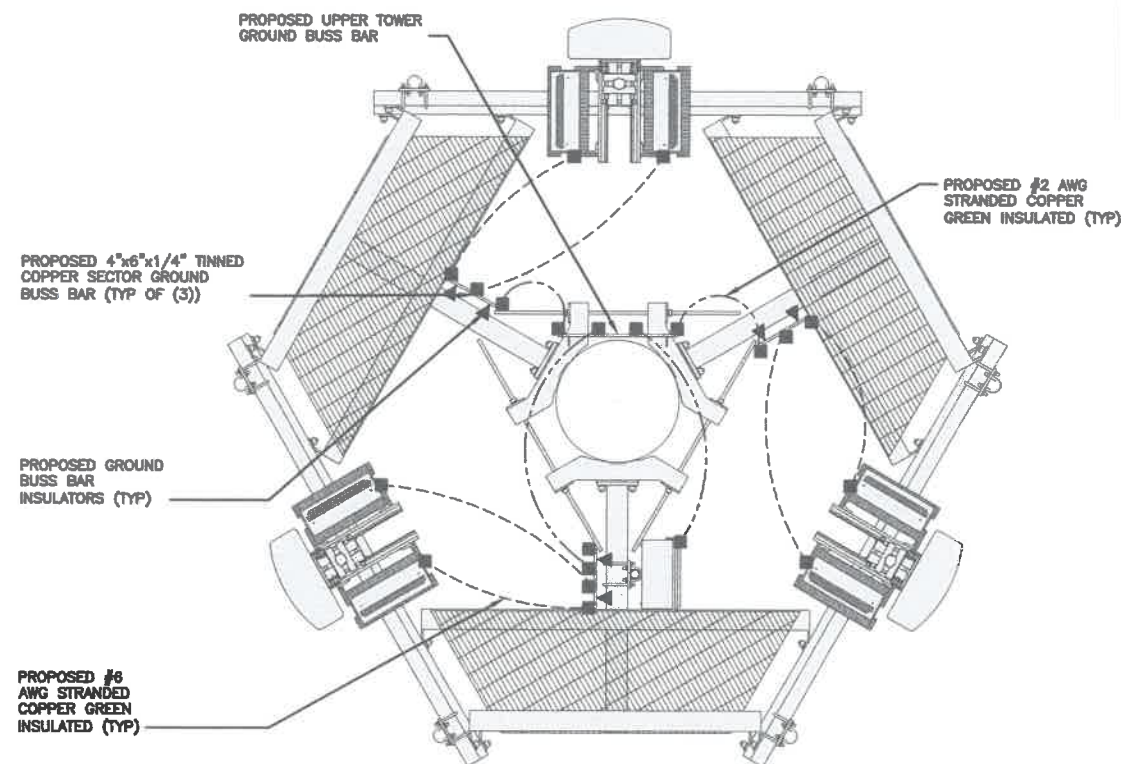






TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

- 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.
- 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.
- 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.
- 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.
- GROUND ROD:** UL LISTED COPPER CLAD STEEL, MINIMUM 5/8" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.
- 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.
- 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.
- 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.
- JELCO GROUND BAR:** BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.
- FRAME BONDING:** THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENT'S METAL FRAMEWORK.
- INTERIOR UNIT BONDS:** METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.
- 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.
- 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.
- 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.
- 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
- TOWER TOP COLLECTOR BUSS BAR** IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT COLLAR. REFER TO DISH Wireless L.L.C. GROUNDING NOTES.

GROUNDING KEY NOTES

NO SCALE 3

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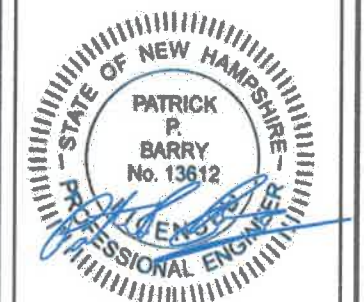
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CONSTRUCTION DOCUMENTS

SUBMITTALS

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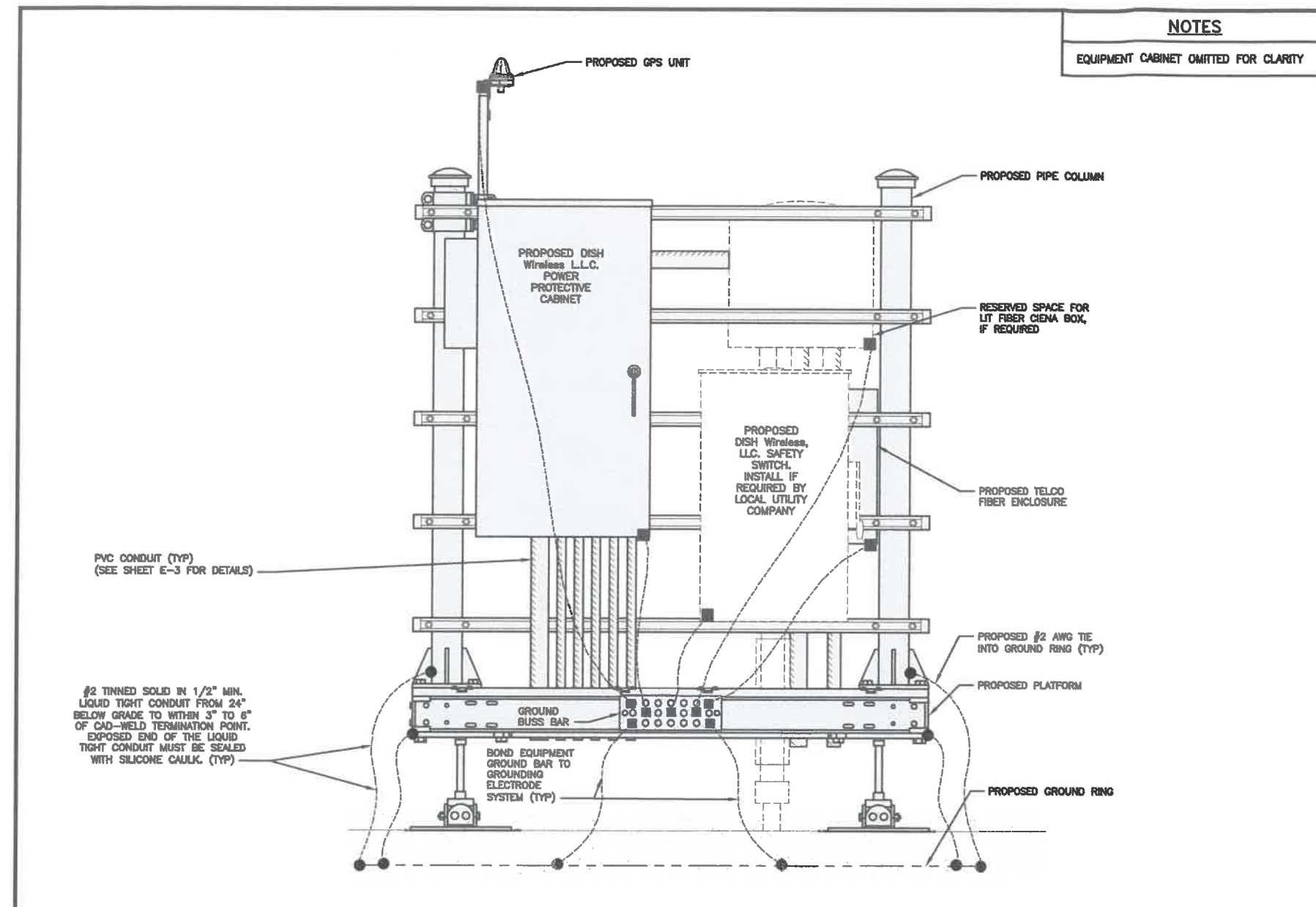
DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOBOS00442A  
36 CROSS ROAD  
ROCHESTER, NH 03867

SHEET TITLE  
GROUNDING PLAN AND NOTES

SHEET NUMBER

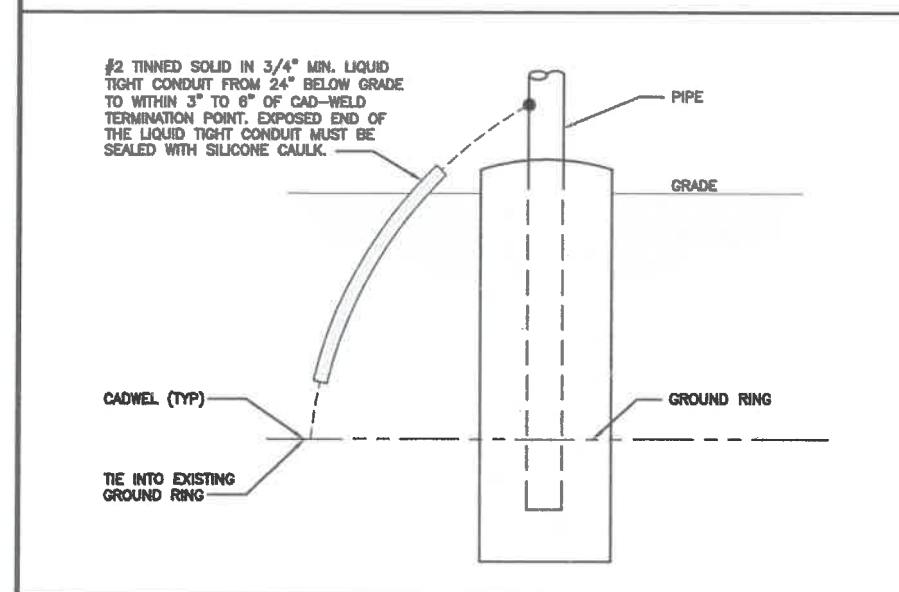
G-1





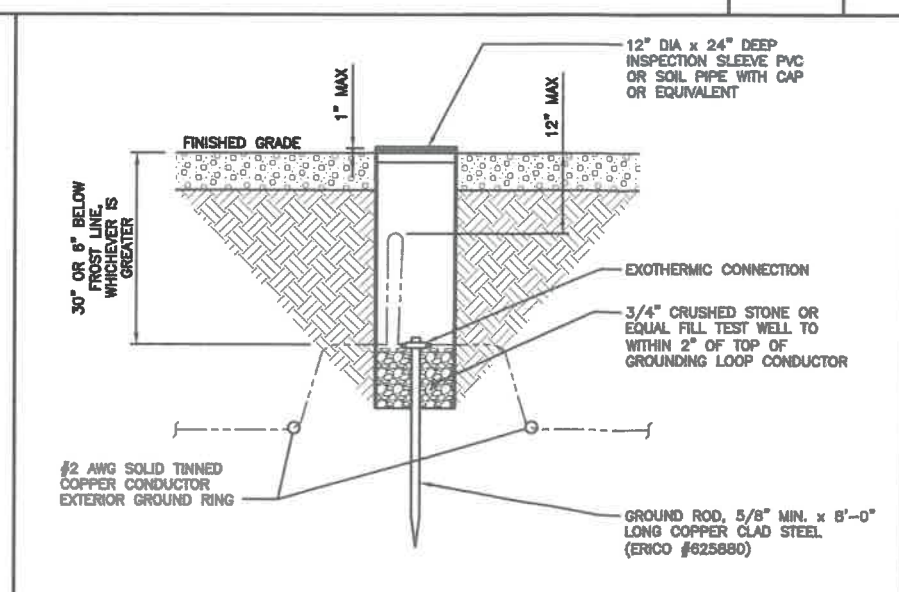
**H-FRAME GROUNDING DETAIL**

NO SCALE 1



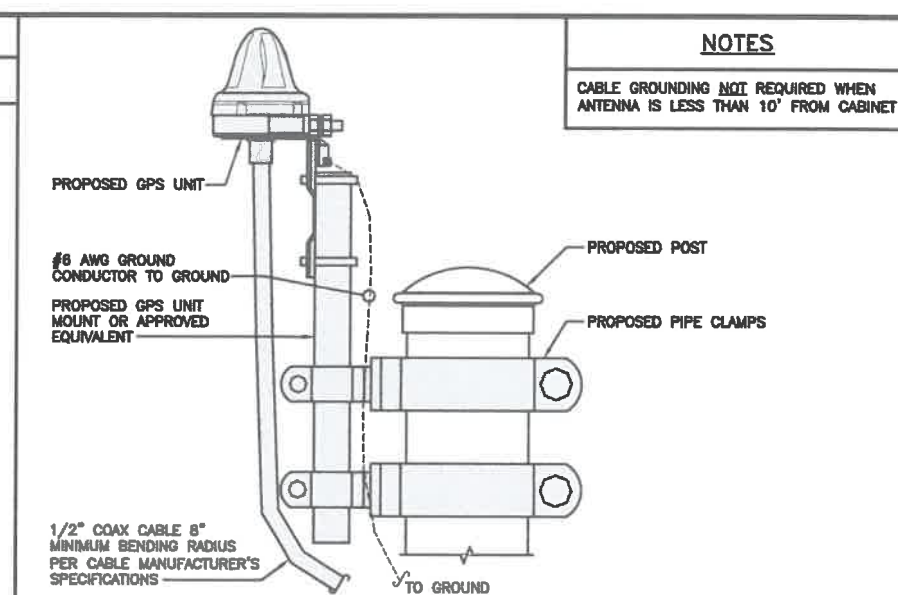
**TRANSITIONING GROUND DETAIL**

NO SCALE 4



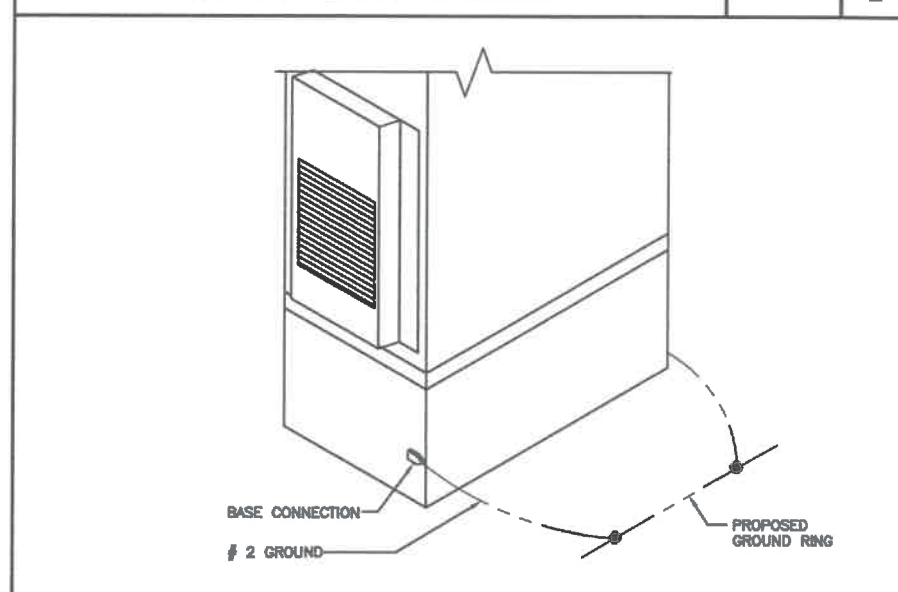
**TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE**

NO SCALE 5



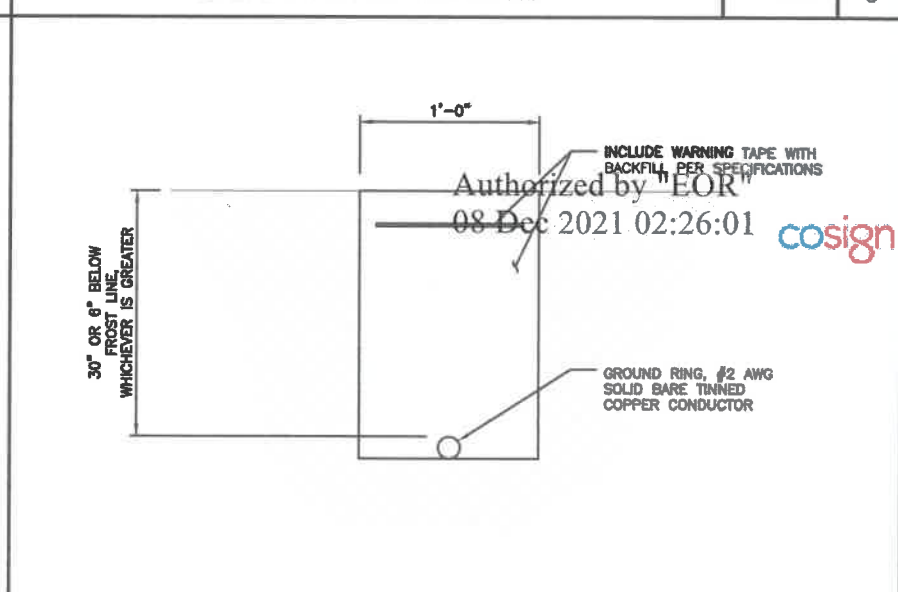
**TYPICAL GPS UNIT GROUNDING**

NO SCALE 2



**OUTDOOR CABINET GROUNDING**

NO SCALE 3



**TYPICAL GROUND RING TRENCH**

NO SCALE 6

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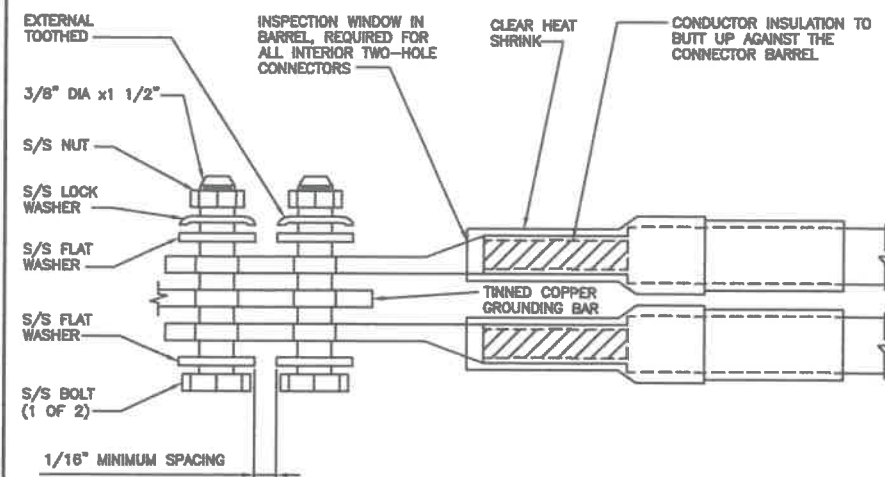
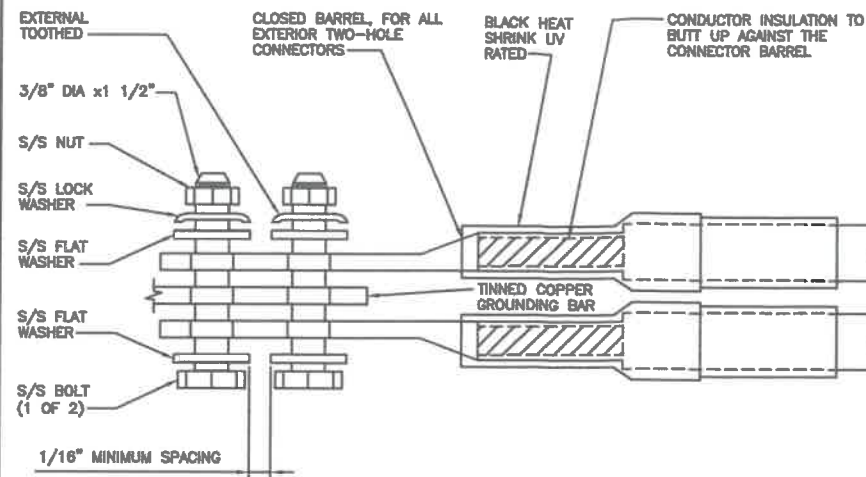
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PROJECT INFORMATION  
BOBOS00442A  
36 CROSS ROAD  
ROCHESTER, NH 03867

SHEET TITLE  
GROUNDING DETAILS

SHEET NUMBER  
**G-2**

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



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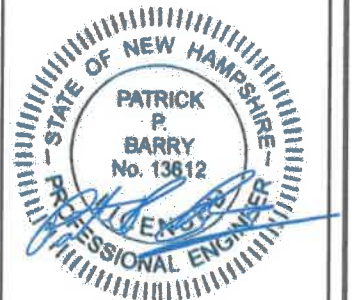
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SHEET TITLE  
GROUNDING DETAILS

SHEET NUMBER

**G-3**

#### TYPICAL GROUNDING NOTES

NO SCALE

1

#### TYPICAL EXTERIOR TWO HOLE LUG

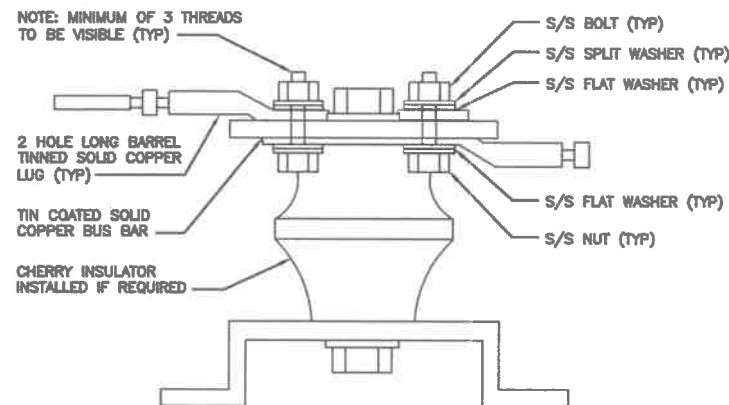
NO SCALE

2

#### TYPICAL INTERIOR TWO HOLE LUG

NO SCALE

3



#### LUG DETAIL

NO SCALE

4

#### NOT USED

NO SCALE

5

#### NOT USED

NO SCALE

6

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#### NOT USED

NO SCALE

7

#### NOT USED

NO SCALE

8

#### NOT USED

NO SCALE

9



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

RF CABLE COLOR CODES

1

NOT USED

4

LOW BANDS (N71+N26)  
OPTIONAL - (N28)

ORANGE

AWS  
(N66+N70+H-BLOCK)

PURPLE

CBRS TECH  
(3 GHz)

YELLOW

NEGATIVE SLANT PORT  
ON ANT/RRH

WHITE

ALPHA SECTOR

RED

BETA SECTOR

BLUE

GAMMA SECTOR

GREEN

COLOR IDENTIFIER

2

NOT USED

3

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DISH Wireless L.L.C.  
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BOBOS00442A  
36 CROSS ROAD  
ROCHESTER, NH 03867

SHEET TITLE  
RF CABLE COLOR CODES

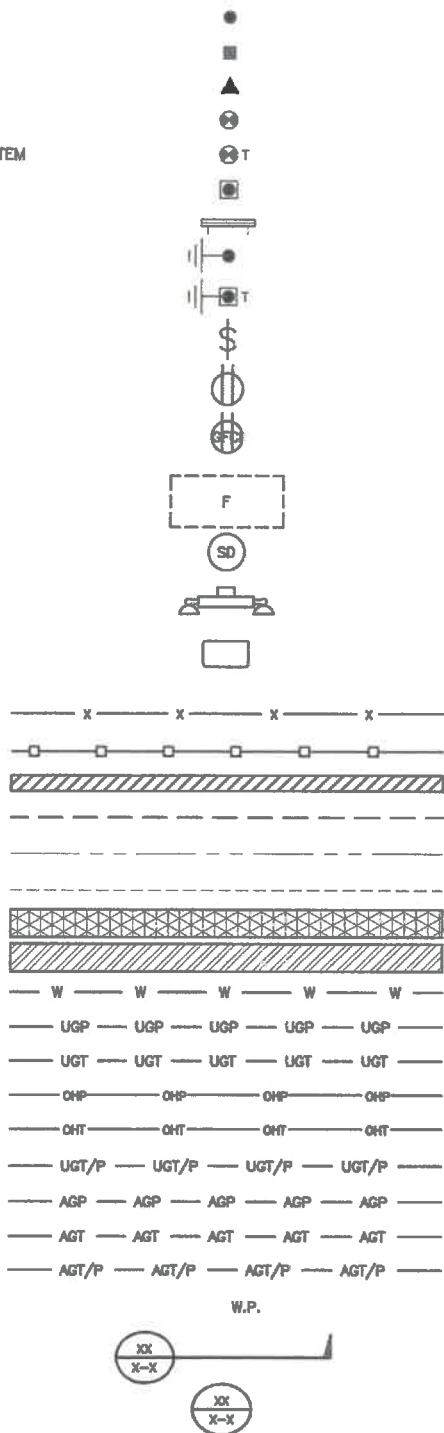
SHEET NUMBER

RF-1

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



LEGEND

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
AFG	ABOVE FINISHED GRADE	MAS	MASONRY
AGL	ABOVE GROUND LEVEL	MAX	MAXIMUM
ACC	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		

ABBREVIATIONS

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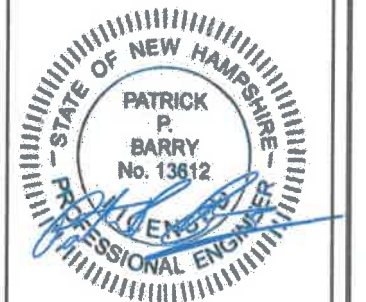
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SHEET TITLE  
LEGEND AND  
ABBREVIATIONS

SHEET NUMBER

GN-1




SITE ACTIVITY REQUIREMENTS:

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

GENERAL NOTES:

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

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5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



DRAWN BY:	CHECKED BY:	APPROVED BY:
SB	SRF	SRF

RFDS REV #:

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
0	12/08/2021	ISSUED FOR CONSTRUCTION



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

A&E PROJECT NUMBER  
15134–13741470\_D3

DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOBOS00442A  
36 CROSS ROAD  
ROCHESTER, NH 03867

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 (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/90° 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.

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DRAWN BY:	CHECKED BY:	APPROVED BY:
SB	SRF	SRF

RFDS REV #: ----

CONSTRUCTION  
DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
0	12/08/2021	ISSUED FOR CONSTRUCTION



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OF A LICENSED PROFESSIONAL ENGINEER,  
TO ALTER THIS DOCUMENT.

A&E PROJECT NUMBER  
15134-13741470\_D3

DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOBOS00442A  
36 CROSS ROAD  
ROCHESTER, NH 03867

SHEET TITLE  
GENERAL NOTES

SHEET NUMBER  
GN-3

GROUNDING NOTES:

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

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
2. STRUCTURAL STEEL ROLLED SHAPES, PLATES AND BARS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:

A. ASTM A-572, GRADE 50 – ALL W SHAPES, UNLESS NOTED OR A992 OTHERWISE

B. ASTM A-36 – ALL OTHER ROLLED SHAPES, PLATES AND BARS UNLESS NOTED OTHERWISE.

C. ASTM A-500, GRADE B – HSS SECTION (SQUARE, RECTANGULAR, AND ROUND)

D. ASTM A-325, TYPE SC OR N – ALL BOLTS FOR CONNECTING STRUCTURAL MEMBERS

E. ASTM F-1554 07 – ALL ANCHOR BOLTS, UNLESS NOTED OTHERWISE
3. ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
4. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.
5. DO NOT DRILL HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
6. CONNECTIONS:

A. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.

B. ALL WELDS SHALL BE INSPECTED VISUALLY. 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.

C. INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.

D. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE BURNING/WELDING PERMITS AS REQUIRED BY LOCAL GOVERNING AUTHORITY AND IF REQUIRED SHALL HAVE FIRE DEPARTMENT DETAIL FOR ANY WELDING ACTIVITY.

E. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.

F. MINIMUM WELD SIZE TO BE 0.1875 INCH FILLET WELDS, UNLESS NOTED OTHERWISE.

G. PRIOR TO FIELD WELDING GALVANIZING MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING ¼" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.

H. THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE REQUIRED DURING CONSTRUCTION UNTIL ALL CONNECTIONS ARE COMPLETE.

I. ANY FIELD CHANGES OR SUBSTITUTIONS SHALL HAVE PRIOR APPROVAL FROM THE ENGINEER, AND DISH WIRELESS L.L.C. PROJECT MANAGER IN WRITING

Authorized by "EOR"

08 Dec 2021 02:26:04

cosign



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



AMERICAN TOWER®  
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PHONE: (919) 468-0112

DRAWN BY: CHECKED BY: APPROVED BY:

SB SRF SRF

RFDS REV #: ----

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
0	12/08/2021	ISSUED FOR CONSTRUCTION



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

A&E PROJECT NUMBER  
15134-13741470\_D3

DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOBOS00442A  
36 CROSS ROAD  
ROCHESTER, NH 03867

SHEET TITLE  
GENERAL NOTES

SHEET NUMBER  
GN-4