



DISH Wireless L.L.C. SITE ID:

SFSFO00026A

DISH Wireless L.L.C. SITE ADDRESS:

**5341 OLD REDWOOD HIGHWAY
PETALUMA, CA 94954**

Approved Plans
Received August 31, 2022

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:

- SECTOR SCOPE OF WORK:**
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
 - INSTALL (3) PROPOSED ANTENNA MOUNTS (1 PER SECTOR)
 - INSTALL (3) PROPOSED RF SCREEN (1 PER SECTOR)
 - INSTALL PROPOSED JUMPERS
 - INSTALL (6) PROPOSED RRHs (2 PER SECTOR)
 - INSTALL (3) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP) (1 PER SECTOR)
 - INSTALL (3) PROPOSED POWER AND FIBER TRUNKS

- EQUIPMENT SCOPE OF WORK:**
- REMOVE EXISTING EQUIPMENT ON EXISTING PLATFORM
 - INSTALL (1) PROPOSED CABLE LADDER TRAY OR CABLE TRAY
 - INSTALL (1) PROPOSED EQUIPMENT CABINET ON EXISTING PLATFORM
 - INSTALL (1) PROPOSED BBU IN CABINET
 - INSTALL (1) PROPOSED POWER CONDUIT
 - INSTALL (1) PROPOSED TELCO CONDUIT
 - INSTALL (1) PROPOSED NEMA 3 TELCO-FIBER BOX
 - INSTALL (1) PROPOSED GPS UNIT



CALIFORNIA CODE OF COMPLIANCE

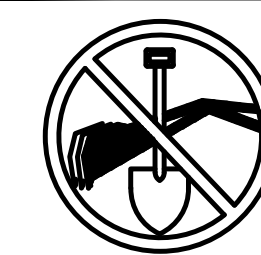
ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES

CODE TYPE	CODE
BUILDING	2019 CALIFORNIA BUILDING CODE (CBC)/2018 IBC
MECHANICAL	2019 CALIFORNIA MECHANICAL CODE (CMC)/2018 UMC
ELECTRICAL	2019 CALIFORNIA ELECTRICAL CODE (CEC)/2020 NEC

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G-1	GROUNDING PLANS AND NOTES
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G-3	GROUNDING DETAILS
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GN-2	GENERAL NOTES
GN-3	GENERAL NOTES
GN-4	GENERAL NOTES
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S-7	STRUCTURAL NOTES

SITE PHOTO



UNDERGROUND SERVICE ALERT
UTILITY NOTIFICATION CENTER OF CALIFORNIA
(800) 642-2444
WWW.CALIFORNIA811.ORG
CALL 2-14 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.

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: SEQUOIA 5341 LLC
ADDRESS: 316 CALIFORNIA AVE #350
RENO, NV 89509

STRUCTURE TYPE: ROOFTOP

COUNTY: SONOMA

LATITUDE (NAD 83): 38.277807

LONGITUDE (NAD 83): -122.66968

ZONING JURISDICTION: CITY OF PETALUMA

ZONING DISTRICT: PCD

PARCEL NUMBER: 047-360-025

OCCUPANCY GROUP: U

CONSTRUCTION TYPE: II-B

POWER COMPANY: PG&E

PROJECT DIRECTORY

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

SITE DESIGNER: THE CBR GROUP
2840 HOWE ROAD, SUITE E
MARTINEZ, CA 94553

SITE ACQUISITION: STEVE PIPER
steve@thecbrgroup.com

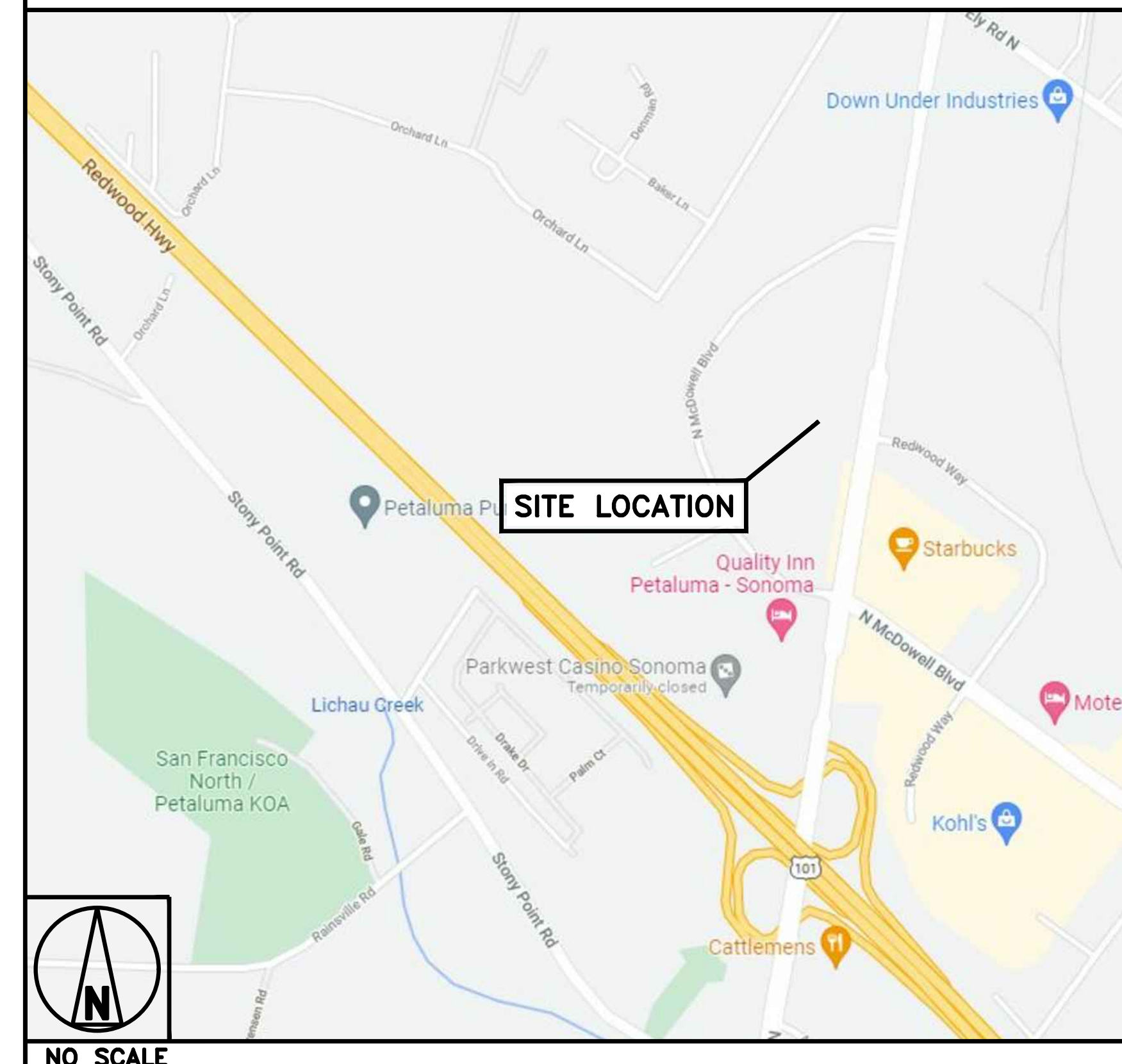
CONSTRUCTION MANAGER: JAMES GONZALEZ
jim@thecbrgroup.com

DIRECTIONS

DIRECTIONS FROM SAN FRANCISCO INTERNATIONAL AIRPORT:

- X MERGE ONTO US-101 N VIA THE RAMP TO SAN FRANCISCO
- X KEEP RIGHT AT THE FORK TO CONTINUE ON I-80 E, FOLLOW SIGNS FOR BAY BRIDGE
- X USE THE RIGHT 2 LANES TO TAKE EXIT 13B FOR I-580 TOWARD SAN RAFAEL/POINT RICHMOND
- X MERGE ONTO US-101 N
- X TAKE EXIT 476 FOR OLD REDWOOD HWY TOWARD PENNGROVE
- X USE THE RIGHT 2 LANES TO TURN RIGHT ONTO OLD REDWOOD HWY N/REDWOOD HWY N
- X TURN LEFT ONTO REDWOOD WAY

VICINITY MAP



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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www.TheCBRGroup.com



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:
MS/W/M

RFDS REV #: 12/20/2021 REV 3

CONSTRUCTION DOCUMENTS

REV	DATE	DESCRIPTION
A	06/06/2022	90% CDS ISSUED FOR REVIEW
B	06/10/2022	100% CONSTRUCTION DRAWINGS
C	06/11/2022	PLAN CHECK COMMENTS

A&E PROJECT NUMBER
SFSFO00026A

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PROJECT INFORMATION
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PETALUMA, CA 94954

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

Radio Frequency - Electromagnetic Energy (RF-EME) Jurisdictional Report

Site No. SFSFO00026A

5341 Old Redwood Highway
Petaluma, California 94954
38° 16' 41.13" N, -122° 40' 6.30" W NAD83

EBI Project No. 6222000884
February 14, 2022



Prepared for:
Dish Wireless



Prepared by:

RF-EME Compliance Report
EBI Project No. 6222000884

Site No. SFSFO00026A
5341 Old Redwood Highway, Petaluma, California

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APPENDICES

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- APPENDIX C FEDERAL COMMUNICATIONS COMMISSION (FCC) REQUIREMENTS

REFERENCE DOCUMENTS (NOT ATTACHED)
CDS: SFSFO00026A_ZD_2022012711717
RFDS: RFDS-SFSFO00026A-PRELIMINARY-20211220-v.3_20211220021330

EBI Consulting

RF-EME Compliance Report
EBI Project No. 6222000884

Site No. SFSFO00026A
5341 Old Redwood Highway, Petaluma, California

EXECUTIVE SUMMARY

Purpose of Report

EnviroBusiness Inc. (dba EBI Consulting) has been contracted by Dish Wireless to conduct radio frequency electromagnetic (RF-EME) modeling for Dish Wireless Site SFSFO00026A located at 5341 Old Redwood Highway in Petaluma, California to determine RF-EME exposure levels from proposed Dish Wireless communications equipment at this site. As described in greater detail in Appendix C of this report, the Federal Communications Commission (FCC) has developed Maximum Permissible Exposure (MPE) Limits for the general public and for occupational activities. This report summarizes the results of RF-EME modeling in relation to relevant FCC RF-EME compliance standards for limiting human exposure to RF-EME fields.

Statement of Compliance

A site is considered out of compliance with FCC regulations if there are areas that exceed the FCC exposure limits and there are no RF hazard mitigation measures in place. Any carrier which has an installation that contributes more than 5% of the applicable MPE must participate in mitigating these RF hazards.

As presented in the sections below, based on worst-case predictive modeling, the worst-case emitted power density may exceed the FCC's general public limit within approximately 110 feet of Dish's proposed antennas at the main roof level. Modeling also indicates that the worst-case emitted power density may exceed the FCC's occupational limit within approximately 48 feet of Dish's proposed antennas at the main roof level. Additionally, there are areas where workers who may be elevated above the rooftop or ground may be exposed to power densities greater than the occupational limits. Therefore, workers should be informed about the presence and locations of antennas and their associated fields.

At the nearest walking/working surfaces to the Dish Wireless antennas, the maximum power density generated by the Dish antennas is approximately 11,143.97 percent of the FCC's general public limit (2,228.79 percent of the FCC's occupational limit).

The maximum composite exposure level from all carriers on this site is approximately 11,143.97 percent of the FCC's general public limit (2,228.79 percent of the FCC's occupational limit) at the nearest walking/working surface to each antenna.

Recommended control measures are outlined in Section 4.0 and within the Site Safety Plan (attached); Dish Wireless should also provide procedures to shut down and lockout/tagout this wireless equipment in accordance with their own standard operating protocol. Non-telecom workers who will be working in areas of exceedance are required to contact Dish Wireless since only Dish has the ability to lockout/tagout the facility, or to authorize others to do so.

EBI Consulting • 21 B Street • Burlington, MA 01803 • 1.800.786.2346

RF-EME Compliance Report
EBI Project No. 6222000884

Site No. SFSFO00026A
5341 Old Redwood Highway, Petaluma, California

1.0 INTRODUCTION

Radio frequency waves are electromagnetic waves from the portion of the electromagnetic spectrum at frequencies lower than visible light and microwaves. The wavelengths of radio waves range from thousands of meters to around 30 centimeters. These wavelengths correspond to frequencies as low as 3 cycles per second (or hertz [Hz]) to as high as one gigahertz (one billion cycles per second).

Personal Communication (PCS) facilities used by Dish Wireless in this area will potentially operate within a frequency range of 600 to 5000 MHz. Facilities typically consist of: 1) electronic transceivers (the radios or cabinets) connected to wired telephone lines; and 2) antennas that send the wireless signals created by the transceivers to be received by individual subscriber units (PCS telephones). Transceivers are typically connected to antennas by coaxial cables.

Because of the short wavelength of PCS services, the antennas require line-of-sight paths for good propagation, and are typically installed a distance above ground level. Antennas are constructed to concentrate energy towards the horizon, with as little energy as possible scattered towards the ground or the sky. This design, combined with the low power of PCS facilities, generally results in no possibility for exposure to approach Maximum Permissible Exposure (MPE) levels, with the exception of in areas in the immediate vicinity of the antennas.

MPE limits do not represent levels where a health risk exists, since they are designed to provide a prudent margin of safety. These limits apply for continuous exposures and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size or health.

2.0 SITE DESCRIPTION

This project site includes the following proposed wireless telecommunication antennas on a rooftop located at 5341 Old Redwood Highway in Petaluma, California.

Ant #	Operator	Antenna Make	Antenna Model	Frequency (MHz)	Azimuth (deg)	Mechanical Down tilt (deg)	Horizontal Beamwidth (deg)	Aperture (feet)	Total Power Input (Watts)	Gain (dBi)	Total ERP (Watts)	Total EIRP (Watts)
1	Dish	JMA	MX08FR0665-21 02DT 600	600	0	0	62	6.0	120	17.45	5945.40	9750.46
1	Dish	JMA	MX08FR0665-21 02DT 1900	1900	0	0	61	6.0	160	22.65	26249.44	43049.08
2	Dish	JMA	MX08FR0665-21 02DT 2100	2100	0	0	65	6.0	160	22.65	26249.44	43049.08
2	Dish	JMA	MX08FR0665-21 02DT 600	600	0	0	62	6.0	120	17.45	5945.40	9750.46
3	Dish	JMA	MX08FR0665-21 02DT 1900	1900	120	0	61	6.0	160	22.65	26249.44	43049.08
3	Dish	JMA	MX08FR0665-21 02DT 2100	2100	120	0	65	6.0	160	22.65	26249.44	43049.08
4	Dish	JMA	MX08FR0665-21 02DT 600	600	120	0	62	6.0	120	17.45	5945.40	9750.46
4	Dish	JMA	MX08FR0665-21 02DT 1900	1900	120	0	61	6.0	160	22.65	26249.44	43049.08
4	Dish	JMA	MX08FR0665-21 02DT 2100	2100	120	0	65	6.0	160	22.65	26249.44	43049.08
5	Dish	JMA	MX08FR0665-21 02DT 600	600	240	0	62	6.0	120	17.45	5945.40	9750.46
5	Dish	JMA	MX08FR0665-21 02DT 1900	1900	240	0	61	6.0	160	22.65	26249.44	43049.08
5	Dish	JMA	MX08FR0665-21 02DT 2100	2100	240	0	65	6.0	160	22.65	26249.44	43049.08
6	Dish	JMA	MX08FR0665-21 02DT 600	600	240	0	62	6.0	120	17.45	5945.40	9750.46
6	Dish	JMA	MX08FR0665-21 02DT 1900	1900	240	0	61	6.0	160	22.65	26249.44	43049.08
6	Dish	JMA	MX08FR0665-21 02DT 2100	2100	240	0	65	6.0	160	22.65	26249.44	43049.08

* Note there are 2 Dish Wireless antennas per sector at this site. For clarity, the different frequencies for each antenna are entered on separate lines.
* Gain includes antenna and combiner.

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RF-EME Compliance Report
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Site No. SFSFO00026A
5341 Old Redwood Highway, Petaluma, California

Ant #	NAME	X	Y	Antenna Radiation Centerline	Z-Height Main Roof	Z-Height HVAC Units	Z-Height Ground
1	Dish	36.7	24.1	65.0	6.0	-4.0	65.0
2	Dish	43.6	23.0	65.0	6.0	-4.0	65.0
3	Dish	64.3	0.3	65.0	6.0	-4.0	65.0
4	Dish	62.8	6.1	65.0	6.0	-4.0	65.0
5	Dish	1.5	16.9	65.0	6.0	-4.0	65.0
6	Dish	1.2	11.1	65.0	6.0	-4.0	65.0

* Note the Z-Height represents the distance from the antenna centerline in feet.

The above tables contain an inventory of proposed Dish Wireless antennas and other carrier antennas if sufficient information was available to model them. Note that EBI uses an assumed set of antenna specifications and powers for unknown and other carrier antennas for modeling purposes. The FCC guidelines incorporate two separate tiers of exposure limits that are based upon occupational/controlled exposure limits (for workers) and general population/uncontrolled exposure limits for members of the general public that may be exposed to antenna fields. While access to this site is considered uncontrolled, the analysis has considered exposures with respect to both controlled and uncontrolled limits as an untrained worker may access adjacent rooftop locations. Additional information regarding controlled/uncontrolled exposure limits is provided in Appendix C. Appendix B presents a site safety plan that provides a plan view of the rooftop with antenna locations.

3.0 WORST-CASE PREDICTIVE MODELING

EBI has performed theoretical MPE modeling using RoofMaster™ software to estimate the worst-case power density at the site's nearby broadcast levels resulting from operation of the antennas. RoofMaster™ is a widely-used predictive modeling program that has been developed by Waterford Consultants to predict RF power density values for rooftop and tower telecommunication sites produced by vertical collinear antennas that are typically used in the cellular, PCS, paging and other communications services. Using the computational methods set forth in Federal Communications Commission (FCC) Office of Engineering & Technology (OET) Bulletin 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields" (OET-65), RoofMaster™ calculates predicted power density in a scalable grid based on the contributions of all RF sources characterized in the study scenario. At each grid location, the cumulative power density is expressed as a percentage of the FCC limits. Manufacturer antenna pattern data is utilized in these calculations. RoofMaster™ models consist of the Far Field model as specified in OET-65 and an implementation of the OET-65 Cylindrical Model (Sula9). The models utilize several operational specifications for different types of antennas to produce a plot of spatially-averaged power densities that can be expressed as a percentage of the applicable exposure limit.

For this report, EBI utilized antenna and power data provided by Dish Wireless and compared the resultant worst-case MPE levels to the FCC's occupational/controlled exposure limits outlined in OET Bulletin 65. The assumptions used in the modeling are based upon information provided by Dish Wireless and information gathered from other sources. Elevations of walking/working surfaces were estimated based on elevations provided and available aerial imagery. Sector orientation assignments were made assuming coverage is directed to areas of site. Changes to antenna mount heights or placement will impact site compliance. The parameters used for modeling are summarized in the Site Description antenna inventory table in Section 2.0.

There are no other wireless carriers with equipment installed at this site.

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RF-EME Compliance Report
EBI Project No. 6222000884

Site No. SFSFO00026A
5341 Old Redwood Highway, Petaluma, California

Based on worst-case predictive modeling, the worst-case emitted power density may exceed the FCC's general public limit within approximately 110 feet of Dish Wireless's Sectors A, B, and C, antennas on the main roof. Modeling also indicates that the worst-case emitted power density may exceed the FCC's occupational limit within approximately 48 feet of Dish Wireless's Sectors A, B, and C, antennas on the main rooftop level. At the nearest walking/working surfaces to the Dish Wireless antennas, the maximum power density generated by the Dish Wireless antennas is approximately 11,143.97 percent of the FCC's general public limit (2,228.79 percent of the FCC's occupational limit). The maximum composite exposure level from all carriers on this site is approximately 11,143.97 percent of the FCC's general public limit (2,228.79 percent of the FCC's occupational limit) at the nearest walking/working surface to each antenna.

The Site Safety Plan also presents areas where Dish Wireless antennas contribute greater than 5% of the applicable MPE limit for a site. A site is considered out of compliance with FCC regulations if there are areas that exceed the FCC exposure limits and there are no RF hazard mitigation measures in place. Any carrier which has an installation that contributes more than 5% of the applicable MPE must participate in mitigating these RF hazards.

The inputs used in the modeling are summarized in the Site Description antenna inventory table in Section 2.0. A graphical representation of the RoofMaster™ modeling results is presented in Appendix B. Microwave dish antennas are designed for point-to-point operations at the elevations of the installed equipment rather than ground level coverage. The maximum power density generated by all carrier antennas, including microwaves and panel antennas, is included in the modeling results presented within this report.

4.0 MITIGATION/SITE CONTROL OPTIONS

EBI's modeling indicates that there are areas in front of the Dish Wireless antennas that exceed the FCC standards for general public and occupational exposure. In order to alert people accessing the rooftop, a Guidelines sign and an NOC Information are recommended for installation at each access point to the rooftop. Additionally, red Warning signs are recommended for installation behind each Sector's antennas and on every 8 feet of barrier to the East and West of the Dish Wireless Sector A antennas, the North and South of the Dish Wireless Sector B antennas, to the North and South of the Dish Wireless Sector C antennas, as well as behind the Dish Wireless Sector C antennas to the North and South restricting access to the area between the Sector C antennas and the HVAC Unit. These signs must be placed in a conspicuous manner so that they are visible to any person approaching the barrier from any direction.

Barriers are recommended for installation when possible to block access to the areas in front of the antennas that exceed the FCC general public and/or occupational limits. Barriers may consist of rope, chain, or fencing. Painted stripes should only be used as a last resort. Barriers are recommended spanning 8 feet to the East and West of the Dish Wireless Sector A antennas and spanning 10 feet to the North and spanning 8 feet to the South of the Dish Wireless Sector B antennas. Barriers are also recommended spanning 8 feet to the North and South of the Dish Wireless Sector C antennas, as well as behind the Dish Wireless Sector C antennas to the North and South spanning 10 feet restricting access to the area between the Sector C antennas and the HVAC Unit. Barriers are only recommended for installation up to 6 feet from the edge of the rooftop because the accessible areas of concern are within 6 feet of an area with no guard rail or parapet greater than 39 inches high.

These protocols and recommended control measures have been summarized and included with a graphic representation of the antennas and associated signage and control areas in a RF-EME Site Safety Plan, which is included as Appendix B. Individuals and workers accessing the rooftop should be provided with a copy of the attached Site Safety Plan, made aware of the posted signage and installation of the recommended barriers, and signify their understanding of the Site Safety Plan.

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RF-EME Compliance Report
EBI Project No. 6222000884

Site No. SFSFO00026A
5341 Old Redwood Highway, Petaluma, California

To reduce the risk of exposure, EBI recommends that access to areas associated with the active antenna installation be restricted and secured where possible.

Implementation of the signage and installation of the recommended barriers recommended in the Site Safety Plan and in this report will bring this site into compliance with the FCC's rules and regulations.

5.0 SUMMARY AND CONCLUSIONS

EBI has prepared a Radiofrequency - Electromagnetic Energy (RF-EME) Compliance Report for telecommunication equipment installed by Dish Wireless Site Number SFSFO00026A, located at 5341 Old Redwood Highway in Petaluma, California to determine worst-case predicted RF-EME exposure levels from wireless communications equipment installed at this site. This report summarizes the results of RF-EME modeling in relation to relevant Federal Communications Commission (FCC) RF-EME compliance standards for limiting human exposure to RF-EME fields.

As presented in the sections above, based on the FCC criteria, the worst-case emitted power density may exceed the FCC's general public limit within approximately 110 feet of Dish Wireless's proposed antennas at the main roof level. Modeling also indicates that the worst-case emitted power density may exceed the FCC's occupational limit within approximately 48 feet of Dish Wireless's proposed antennas at the main roof level.

Workers should be informed about the presence and locations of antennas and their associated fields. Recommended control measures are outlined in Section 4.0 and within the Site Safety Plan (attached); Dish Wireless should also provide procedures to shut down and lockout/tagout this wireless equipment in accordance with their own standard operating protocol. Non-telecom workers who will be working in areas of exceedance are required to contact Dish Wireless since only Dish Wireless has the ability to lockout/tagout the facility, or to authorize others to do so.

6.0 LIMITATIONS

This report was prepared for the use of Dish Wireless. It was prepared in accordance with generally accepted practices of other consultants undertaking similar studies at the same time and in the same locale under like circumstances. The conclusions provided by EBI are based solely on the information provided by the client. The observations in this report are valid on the date of the investigation. Any additional information that becomes available concerning the site should be provided to EBI so that our conclusions may be revised and modified, if necessary. This report has been prepared in accordance with Standard Conditions of Engagement and authorized proposal, both of which are integral parts of this report. No other warranty, expressed or implied, is made.

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RF-EME Compliance Report
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Appendix A Certifications

EBI Consulting • 21 B Street • Burlington, MA 01803 • 1.800.786.2346



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DRAWN BY: CHECKED BY: APPROVED BY:
MS/W/M --- ---

RFDS REV #: 12/20/2021 REV 3

CONSTRUCTION DOCUMENTS

REV	DATE	DESCRIPTION
A	06/06/2022	90% CDS ISSUED FOR REVIEW
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PROJECT INFORMATION
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5341 OLD REDWOOD
HIGHWAY
PETALUMA, CA 94954

SHEET TITLE
EME REPORT
(PAGES 1-8)

SHEET NUMBER
T-2

Preparer Certification

- I, Jacob McAlister, state that:
- I am an employee of EnviroBusiness Inc. (d/b/a EBI Consulting), which provides RF-EME safety and compliance services to the wireless communications industry.
 - I have successfully completed RF-EME safety training, and I am aware of the potential hazards from RF-EME and would be classified "occupational" under the FCC regulations.
 - I am fully aware of and familiar with the Rules and Regulations of both the Federal Communications Commissions (FCC) and the Occupational Safety and Health Administration (OSHA) with regard to Human Exposure to Radio Frequency Radiation.
 - I have reviewed the data provided by the client and incorporated it into this Site Compliance Report such that the information contained in this report is true and accurate to the best of my knowledge.



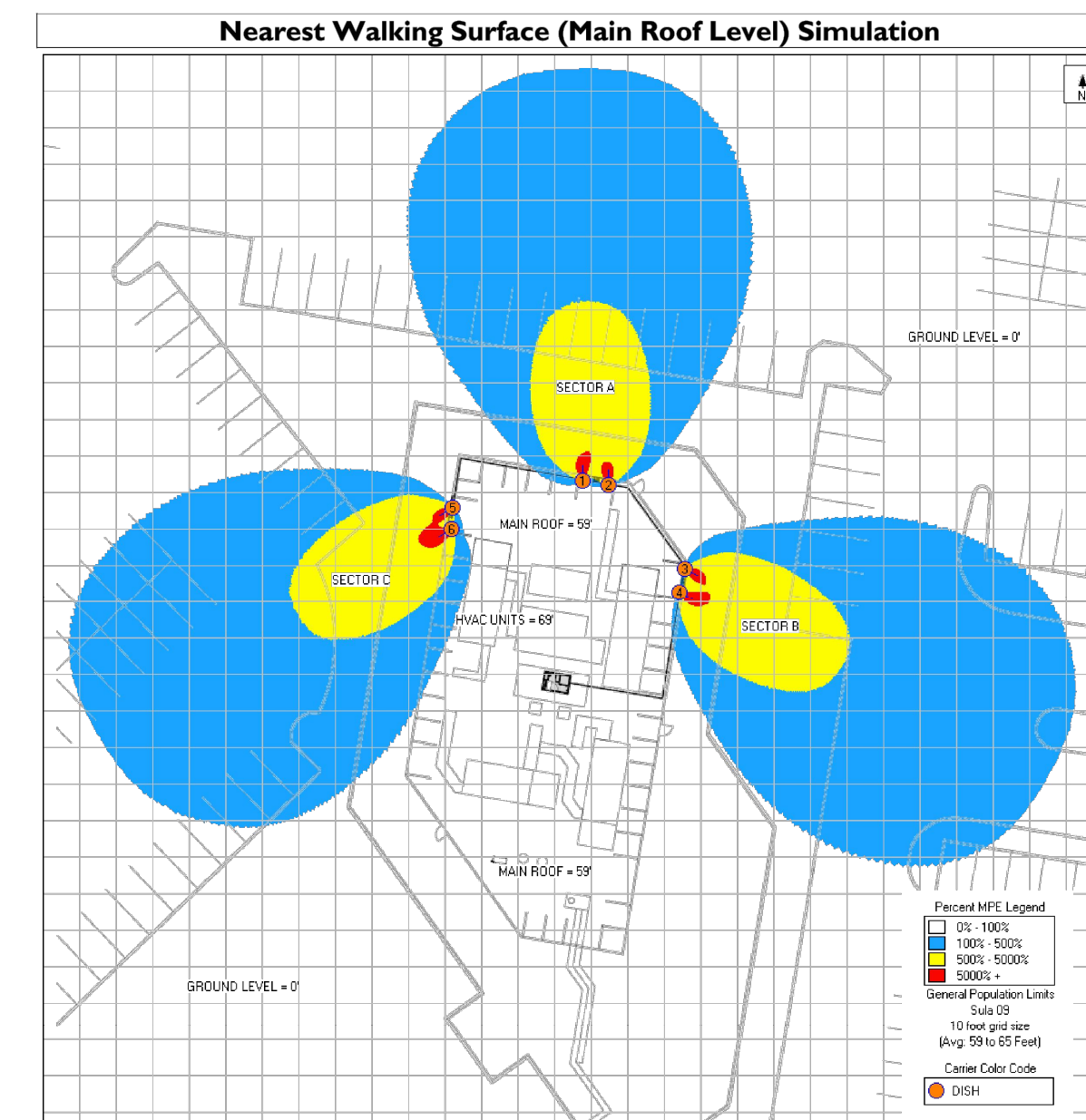
Reviewed and Approved by:



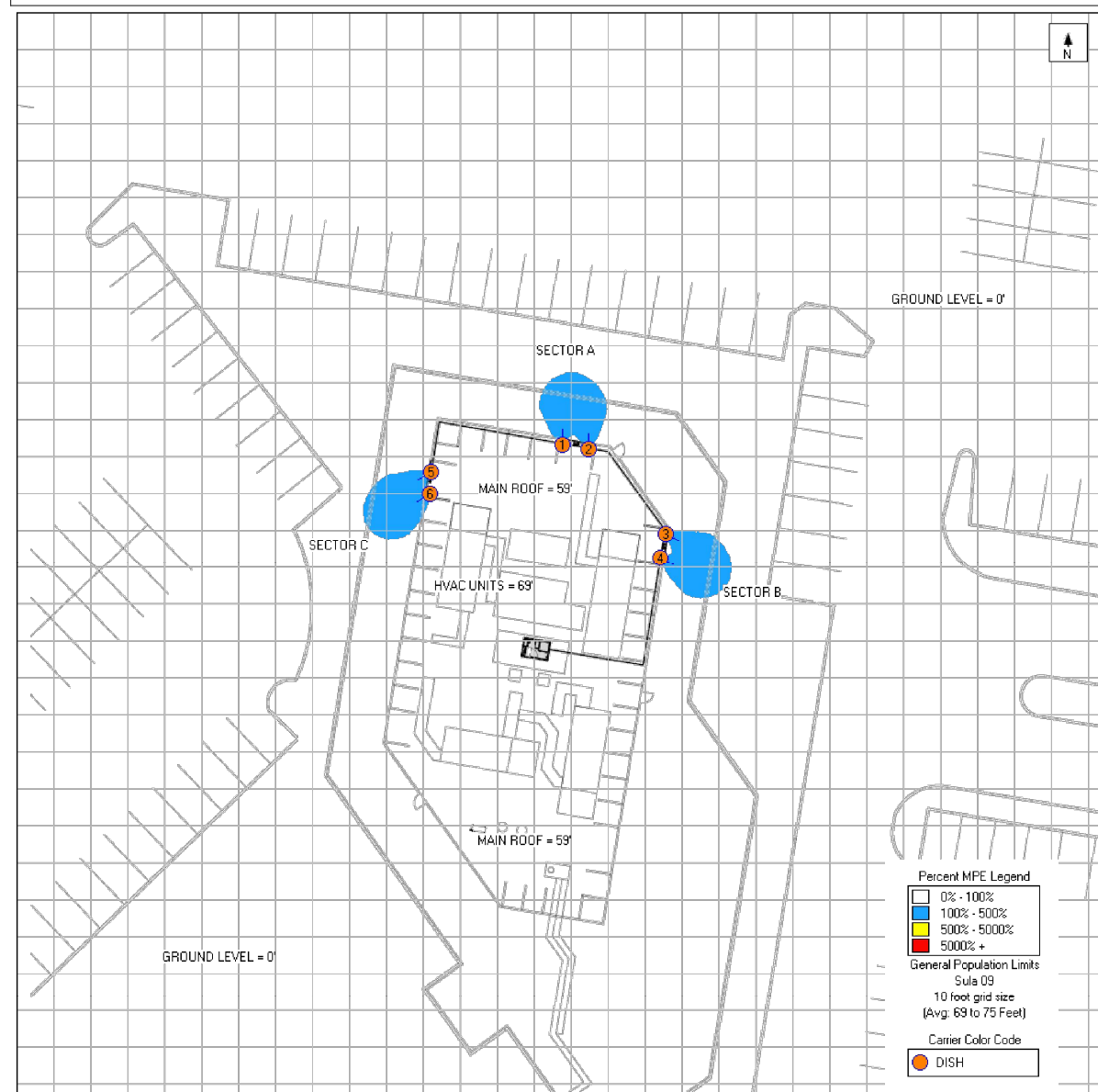
sealed 14feb2022
Michael McGuire
Electrical Engineer
mike@h24c.com

Note that EBI's scope of work is limited to an evaluation of the Radio Frequency - Electromagnetic Energy (RF-EME) field generated by the antennas and broadcast equipment noted in this report. The engineering and design of the building and related structures, as well as the impact of the antennas and broadcast equipment on the structural integrity of the building, are specifically excluded from EBI's scope of work.

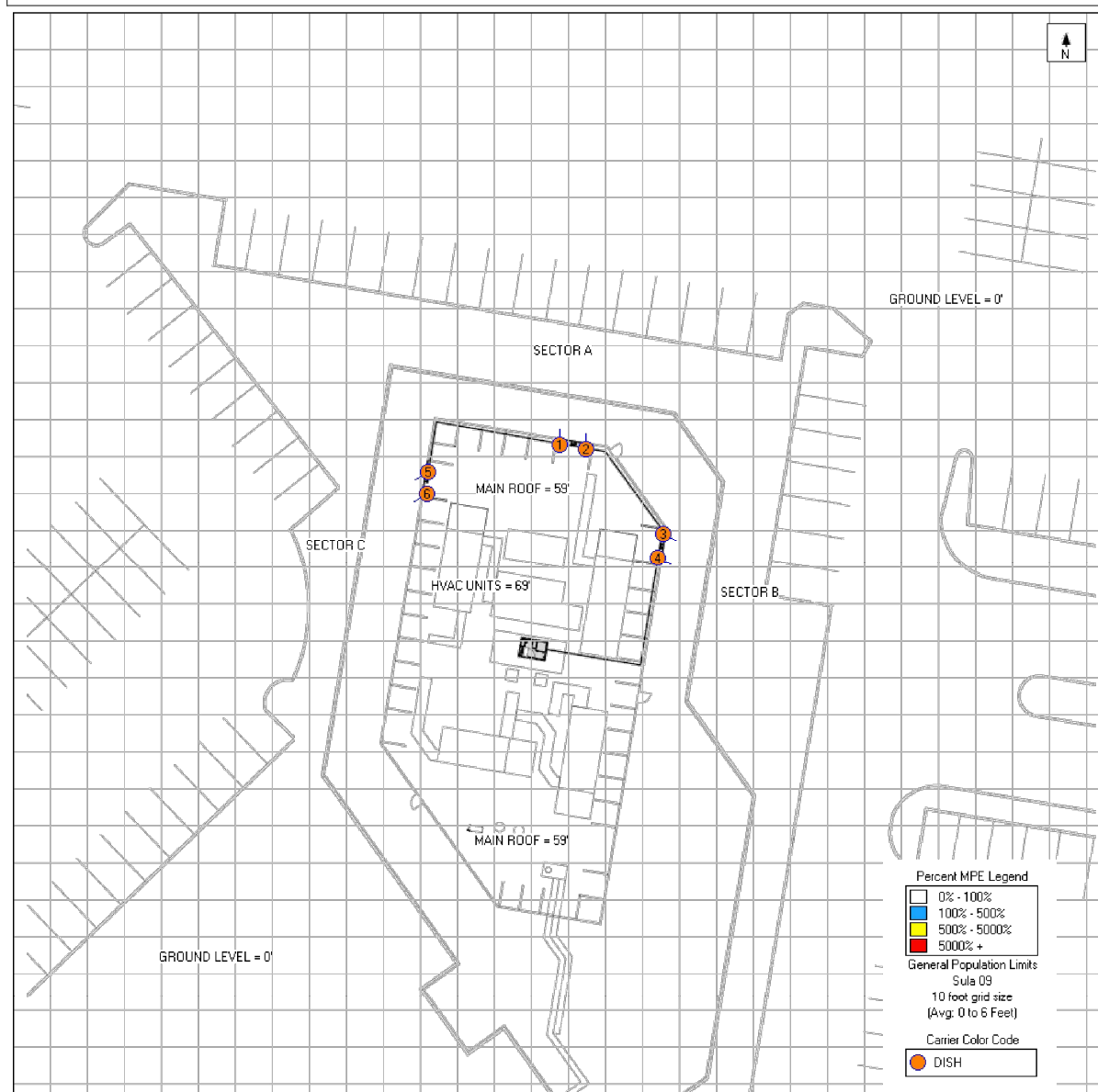
Appendix B
Radio Frequency Electromagnetic Energy
Safety Information and Signage Plans



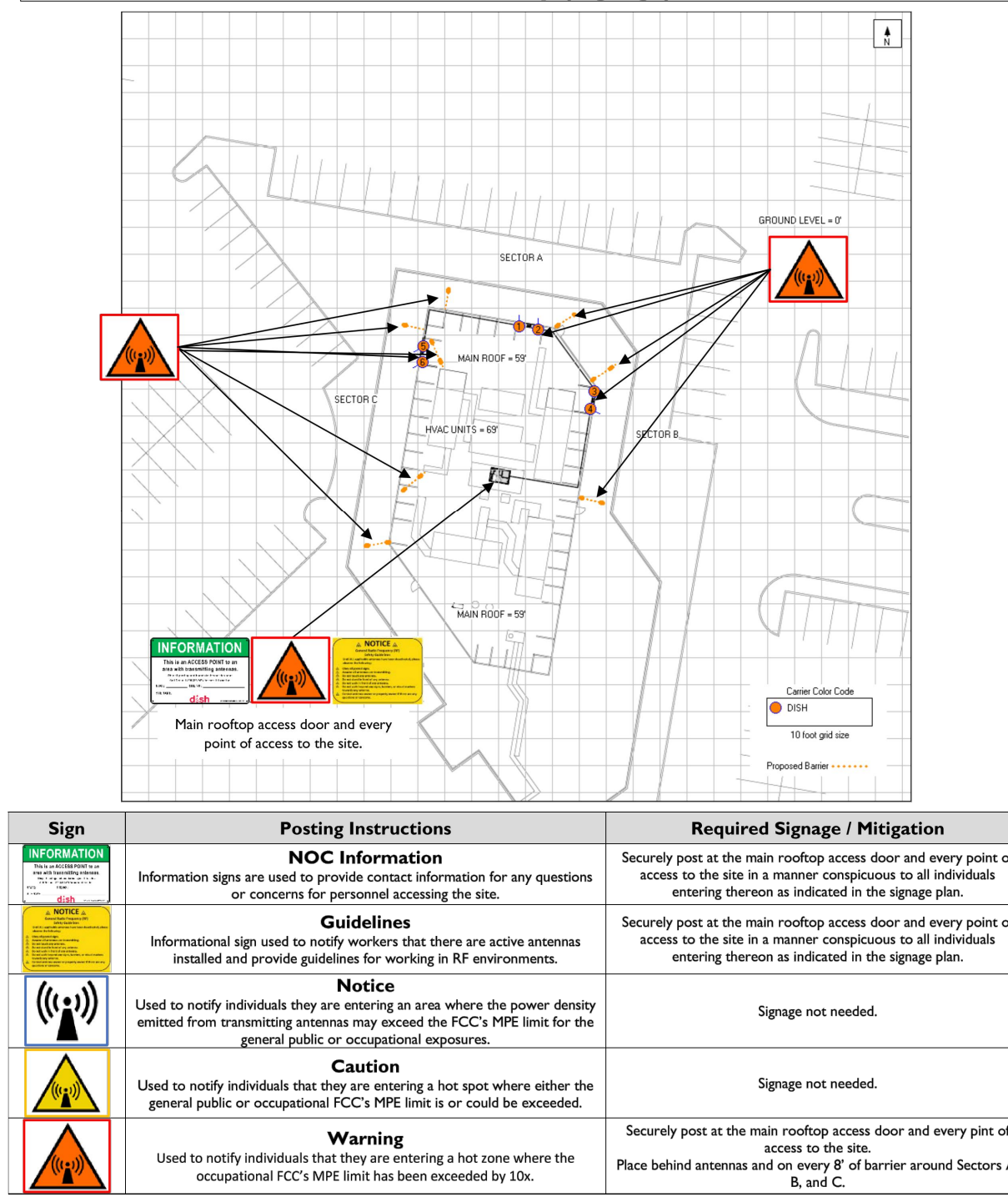
HVAC Units Level Simulation



Ground Level Simulation



Dish Wireless Safety (Signage) Plan



Appendix C
Federal Communications
Commission (FCC) Requirements



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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RFDS REV #: 12/20/2021 REV 3

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	06/06/2022	90% CDS ISSUED FOR REVIEW
B	06/10/2022	100% CONSTRUCTION DRAWINGS
C	06/11/2022	PLAN CHECK COMMENTS

A&E PROJECT NUMBER
SFSFO00026A

DISH Wireless L.L.C.
PROJECT INFORMATION
SFSFO00026A
5341 OLD REDWOOD
HIGHWAY
PETALUMA, CA 94954

SHEET TITLE
EME REPORT
(PAGES 9-16)

SHEET NUMBER

T-3

The FCC has established Maximum Permissible Exposure (MPE) limits for human exposure to Radiofrequency Electromagnetic (RF-EME) energy fields, based on exposure limits recommended by the National Council on Radiation Protection and Measurements (NCRP) and, over a wide range of frequencies, the exposure limits developed by the Institute of Electrical and Electronics Engineers, Inc. (IEEE) and adopted by the American National Standards Institute (ANSI) to replace the 1982 ANSI guidelines. Limits for localized absorption are based on recommendations of both ANSI/IEEE and NCRP.

The FCC guidelines incorporate two separate tiers of exposure limits that are based upon occupational/controlled exposure limits (for workers) and general public/uncontrolled exposure limits for members of the general public.

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

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

Table 1 and Figure 1 (below), which are included within the FCC's OET Bulletin 65, summarize the MPE limits for RF emissions. These limits are designed to provide a substantial margin of safety. They vary by frequency to take into account the different types of equipment that may be in operation at a particular facility and are "time-averaged" limits to reflect different durations resulting from controlled and uncontrolled exposures.

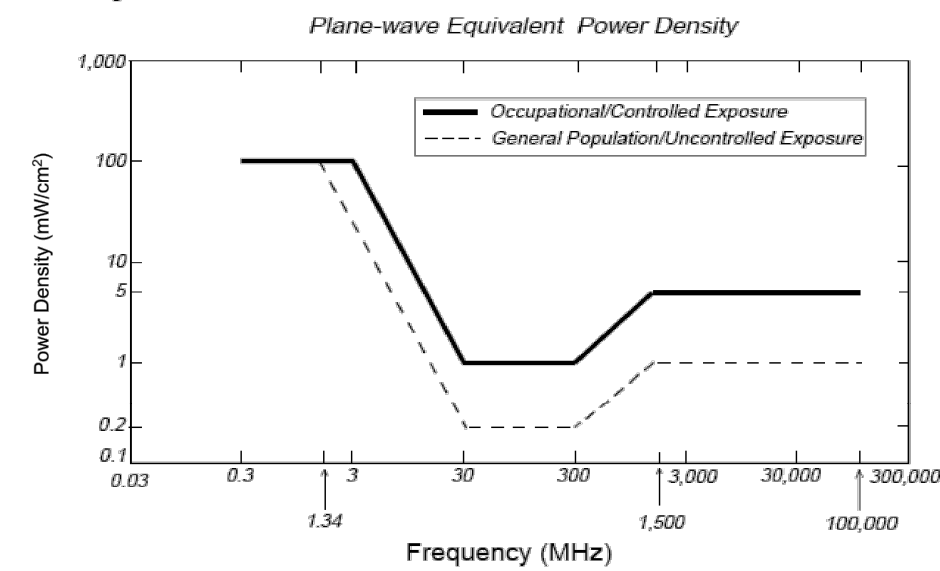
The FCC's MPEs are measured in terms of power (mW) over a unit surface area (cm²). Known as the power density, the FCC has established an occupational MPE of 5 milliwatts per square centimeter (mW/cm²) and an uncontrolled MPE of 1 mW/cm² for equipment operating in the 1900 MHz frequency range. For the Dish Wireless equipment operating at 600 MHz or 850 MHz, the FCC's occupational MPE is 2.83 mW/cm² and an uncontrolled MPE of 0.57 mW/cm². For the Dish Wireless equipment operating at 1900 MHz, the FCC's occupational MPE is 5.0 mW/cm² and an uncontrolled MPE limit of 1.0 mW/cm². These limits are considered protective of these populations.

Table 1: Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time [E], [H], or S (minutes)
0.3-3.0	614	1.63	(100) ^f	6
3.0-30	1842/f	4.89/f	(900/f) ^f	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6
(B) Limits for General Public/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time [E], [H], or S (minutes)
0.3-1.34	614	1.63	(100) ^f	30
1.34-30	824/f	2.19/f	(180/f) ^f	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1,500	30
1500-100,000	--	--	1.0	30

^f = Frequency in (MHz)
^f = Plane-wave equivalent power density

Figure 1. FCC Limits for Maximum Permissible Exposure (MPE)



Based on the above, the most restrictive thresholds for exposures of unlimited duration to RF energy for several personal wireless services are summarized below:

Personal Wireless Service	Approximate Frequency	Occupational MPE	Public MPE
Microwave (Point-to-Point)	5,000 - 80,000 MHz	5.00 mW/cm ²	1.00 mW/cm ²
Broadband Radio (BRS)	2,600 MHz	5.00 mW/cm ²	1.00 mW/cm ²
Wireless Communication (WCS)	2,300 MHz	5.00 mW/cm ²	1.00 mW/cm ²
Advanced Wireless (AWS)	2,100 MHz	5.00 mW/cm ²	1.00 mW/cm ²
Personal Communication (PCS)	1,950 MHz	5.00 mW/cm ²	1.00 mW/cm ²
Cellular Telephone	870 MHz	2.90 mW/cm ²	0.58 mW/cm ²
Specialized Mobile Radio (SMR)	855 MHz	2.85 mW/cm ²	0.57 mW/cm ²
Long Term Evolution (LTE)	700 MHz	2.33 mW/cm ²	0.47 mW/cm ²
Most Restrictive Frequency Range	30-300 MHz	1.00 mW/cm ²	0.20 mW/cm ²

MPE limits are designed to provide a substantial margin of safety. These limits apply for continuous exposures and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health.

Personal Communication (PCS) facilities used by Dish Wireless in this area will potentially operate within a frequency range of 600 to 2100 MHz. Facilities typically consist of: 1) electronic transceivers (the radios or cabinets) connected to wired telephone lines; and 2) antennas that send the wireless signals created by the transceivers to be received by individual subscriber units (PCS telephones). Transceivers are typically connected to antennas by coaxial cables.

Because of the short wavelength of PCS services, the antennas require line-of-site paths for good propagation, and are typically installed above ground level. Antennas are constructed to concentrate energy towards the horizon, with as little energy as possible scattered towards the ground or the sky. This design, combined with the low power of PCS facilities, generally results in no possibility for exposure to approach Maximum Permissible Exposure (MPE) levels, with the exception of areas directly in front of the antennas.

FCC Compliance Requirement

A site is considered out of compliance with FCC regulations if there are areas that exceed the FCC exposure limits and there are no RF hazard mitigation measures in place. Any carrier which has an installation that contributes more than 5% of the applicable MPE must participate in mitigating these RF hazards.



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CONSTRUCTION DOCUMENTS

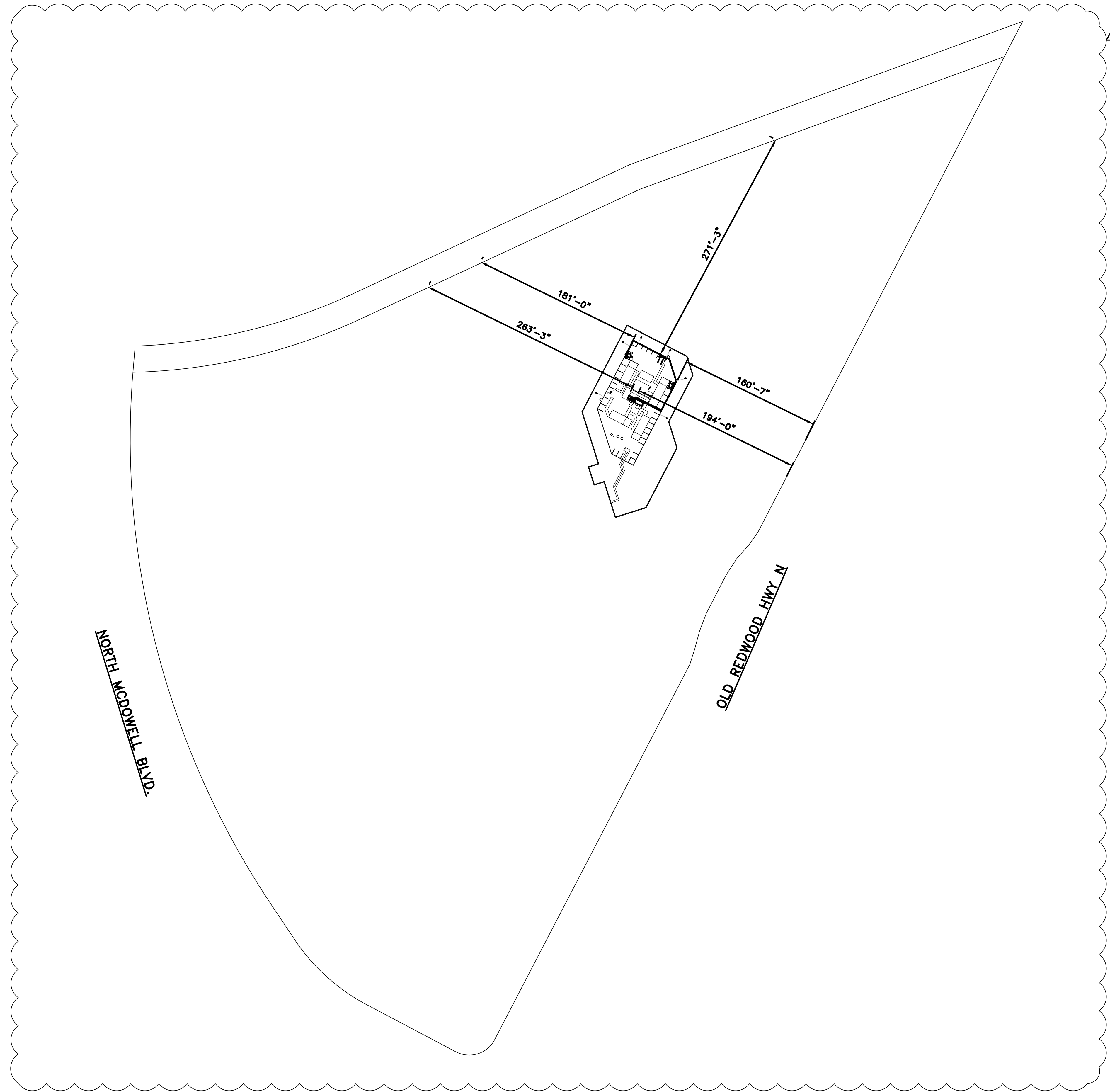
SUBMITTALS		
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A	06/06/2022	90% CDS ISSUED FOR REVIEW
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A&E PROJECT NUMBER
SF5FO00026A

DISH Wireless L.L.C.
PROJECT INFORMATION
SF5FO00026A
5341 OLD REDWOOD
HIGHWAY
PETALUMA, CA 94954

SHEET TITLE
EME REPORT
(PAGES 17-19)

SHEET NUMBER
T-4



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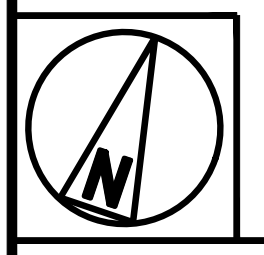
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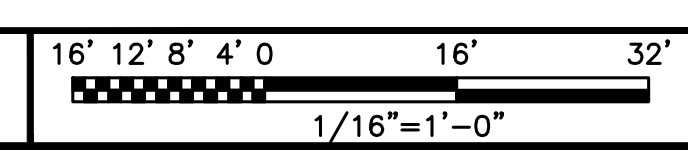
DISH Wireless L.L.C.
PROJECT INFORMATION
SFSF000026A
5341 OLD REDWOOD
HIGHWAY
PETALUMA, CA 94954

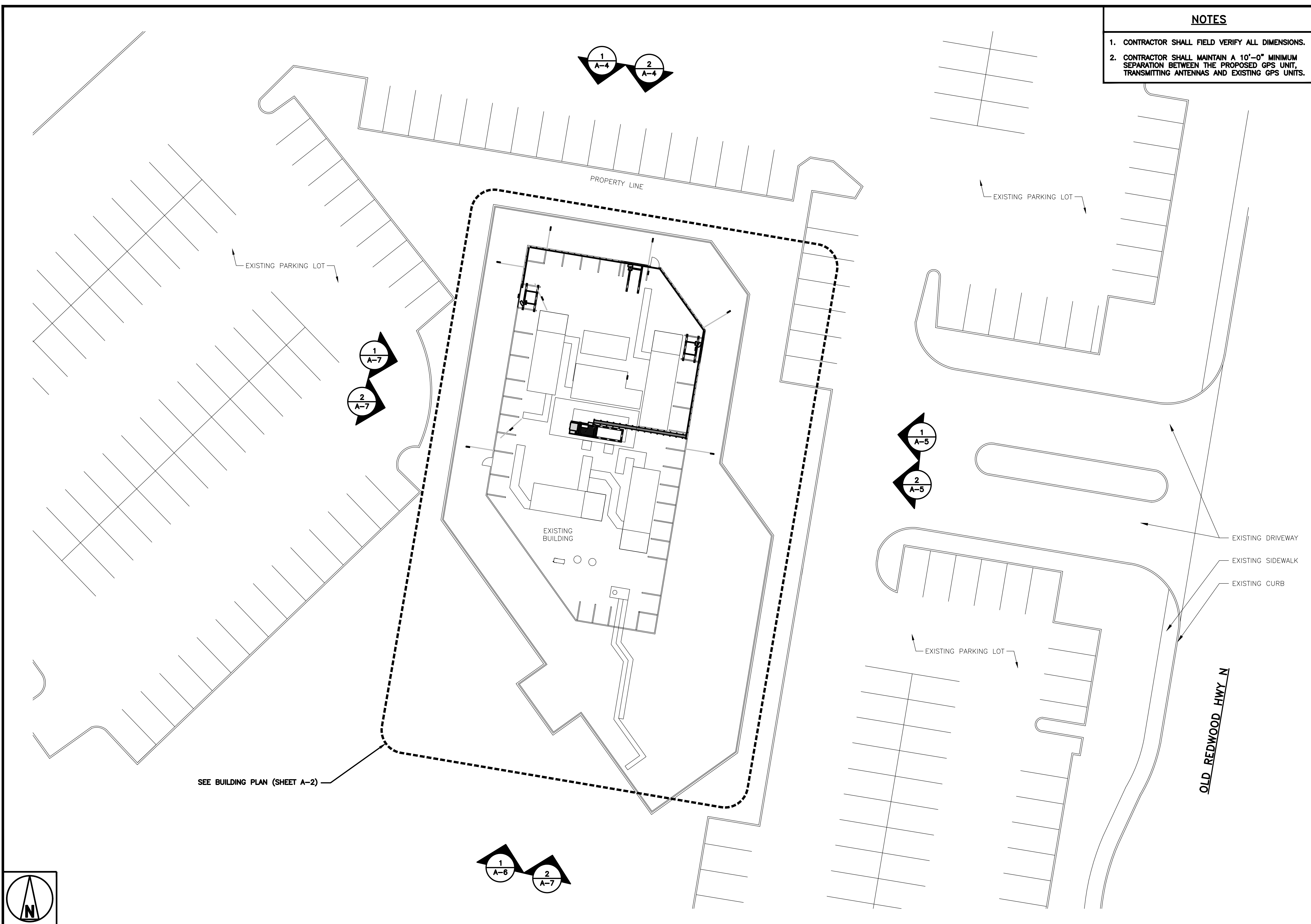
SHEET TITLE
OVERALL
SITE PLAN

SHEET NUMBER
A-1



OVERALL SITE PLAN





NOTES

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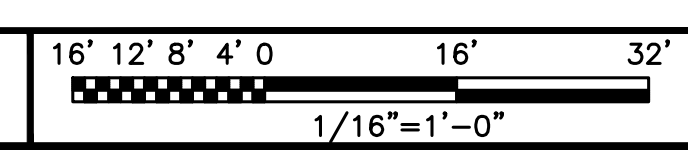
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PROJECT INFORMATION
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5341 OLD REDWOOD HIGHWAY
PETALUMA, CA 94954

SHEET TITLE
SITE PLAN

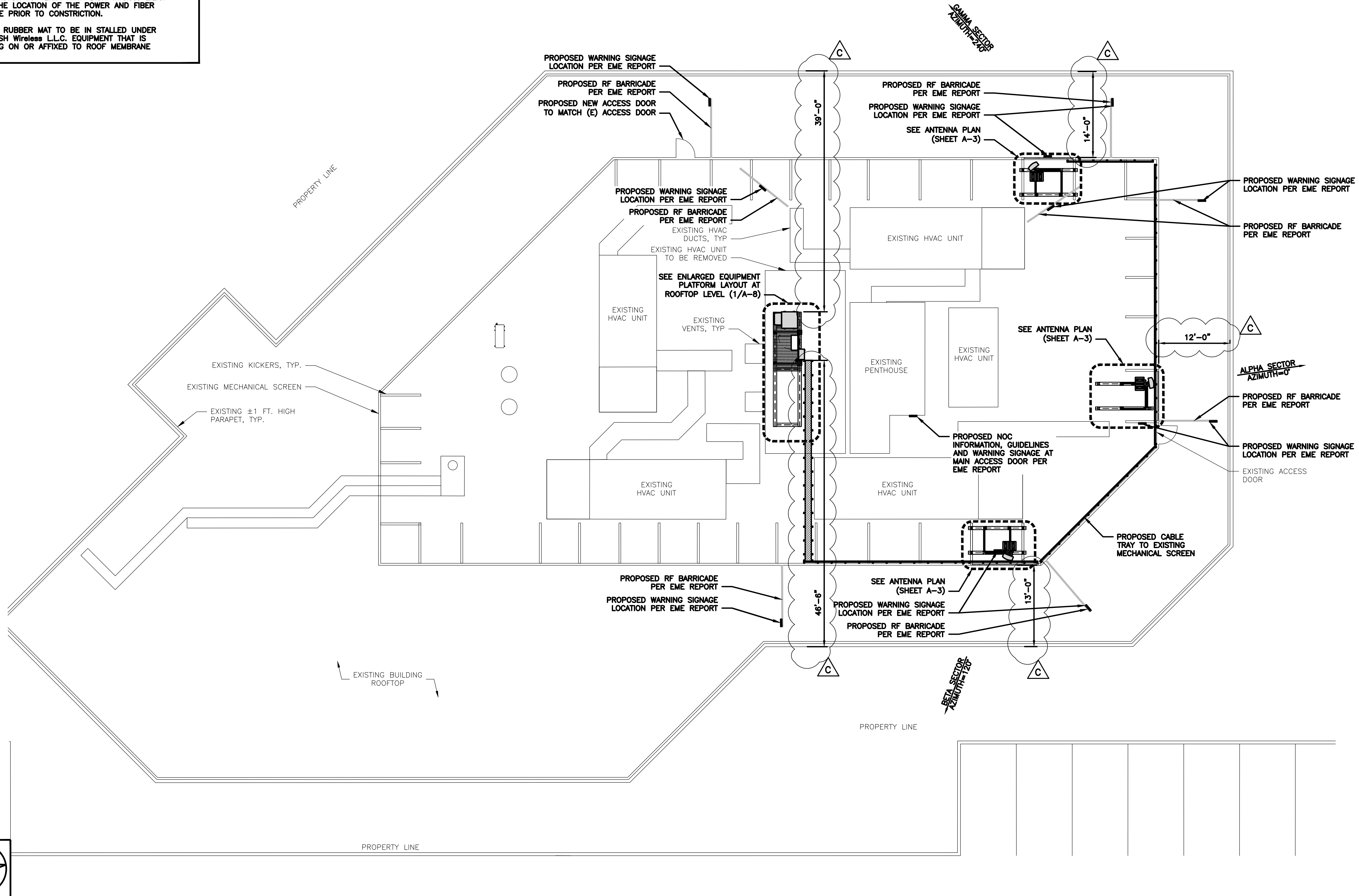
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A-1.1

SITE PLAN



NOTES

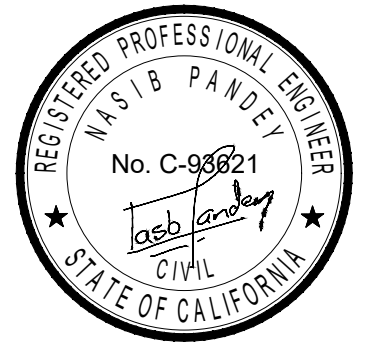
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2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. CONTRACTOR TO VERIFY WITH DISH Wireless L.L.C. C.M. THE LOCATION OF THE POWER AND FIBER SOURCE PRIOR TO CONSTRUCTION.
4. UTILITY RUBBER MAT TO BE INSTALLED UNDER ALL DISH Wireless L.L.C. EQUIPMENT THAT IS RESTING ON OR AFFIXED TO ROOF MEMBRANE



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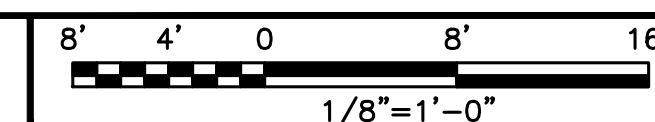
A&E PROJECT NUMBER
SFSF000026A

DISH Wireless L.L.C.
PROJECT INFORMATION
SFSF000026A
5341 OLD REDWOOD
HIGHWAY
PETALUMA, CA 94954

SHEET TITLE
ENLARGED BUILDING
PLAN

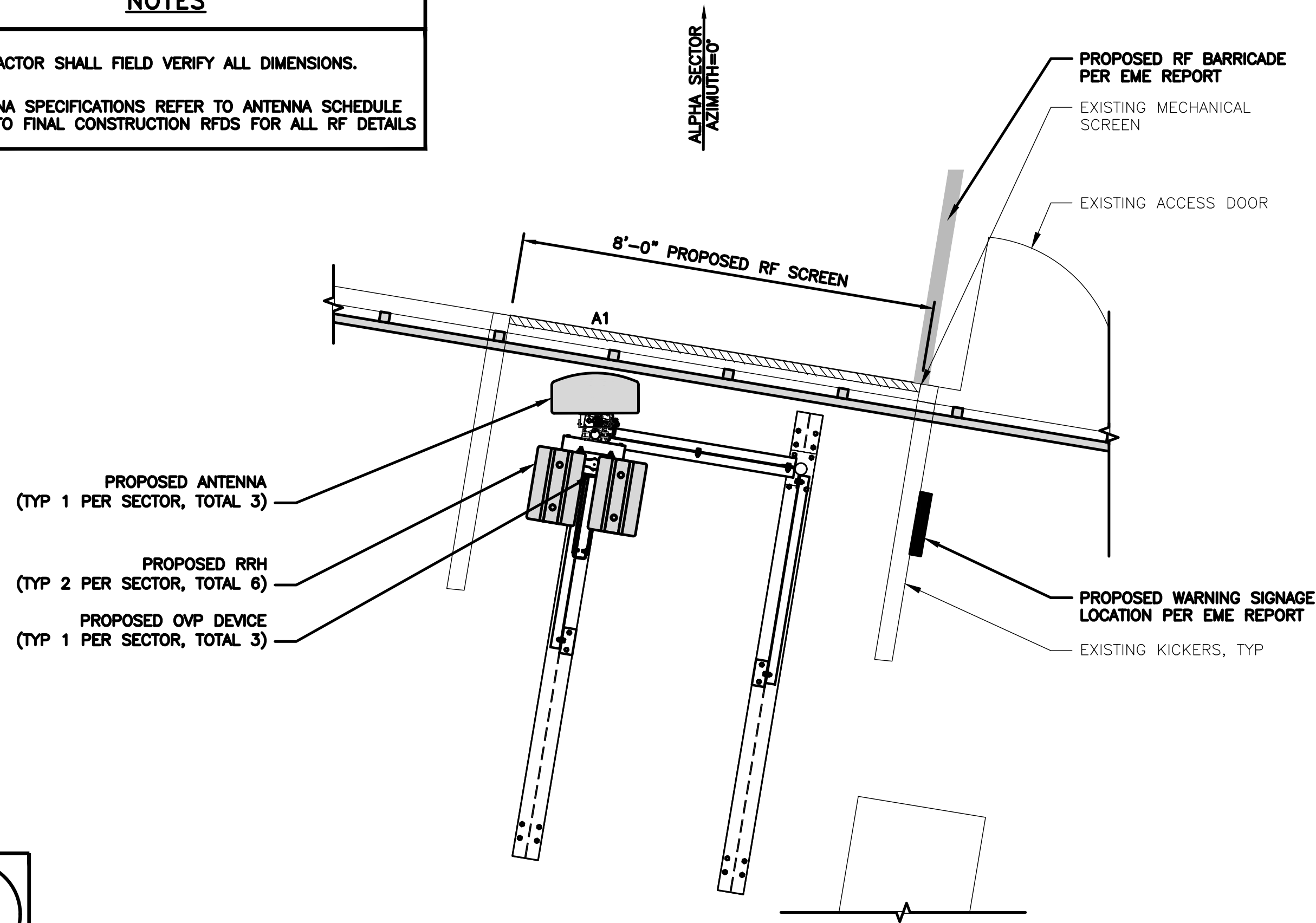
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ENLARGED BUILDING PLAN

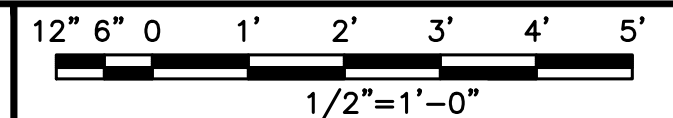


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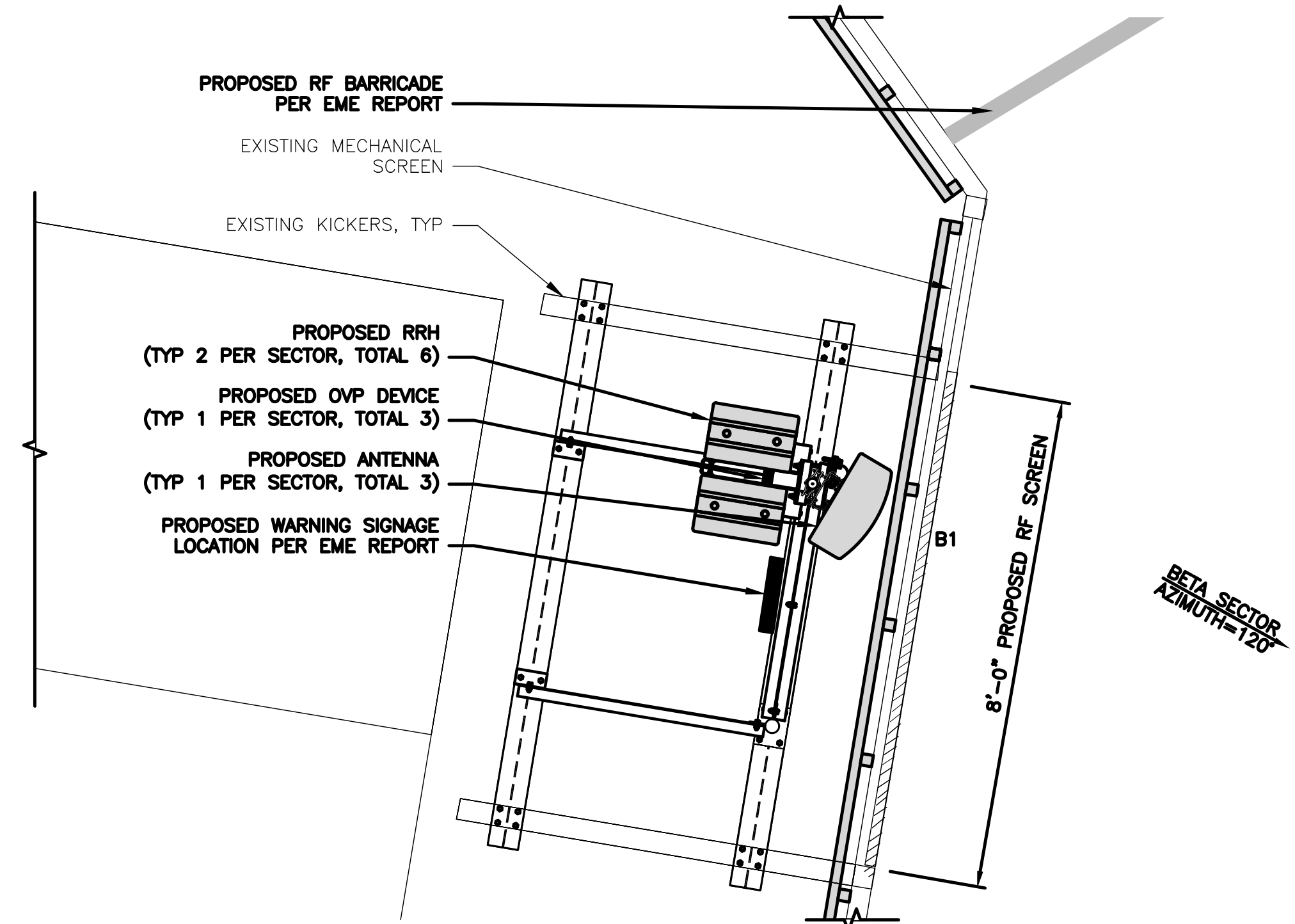
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2. ANTENNA SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS



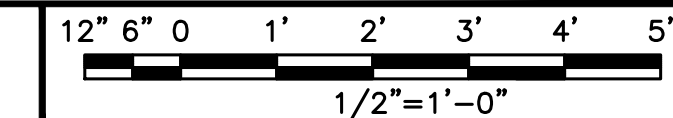
PROPOSED ANTENNA AND RRU PLAN – ALPHA SECTOR



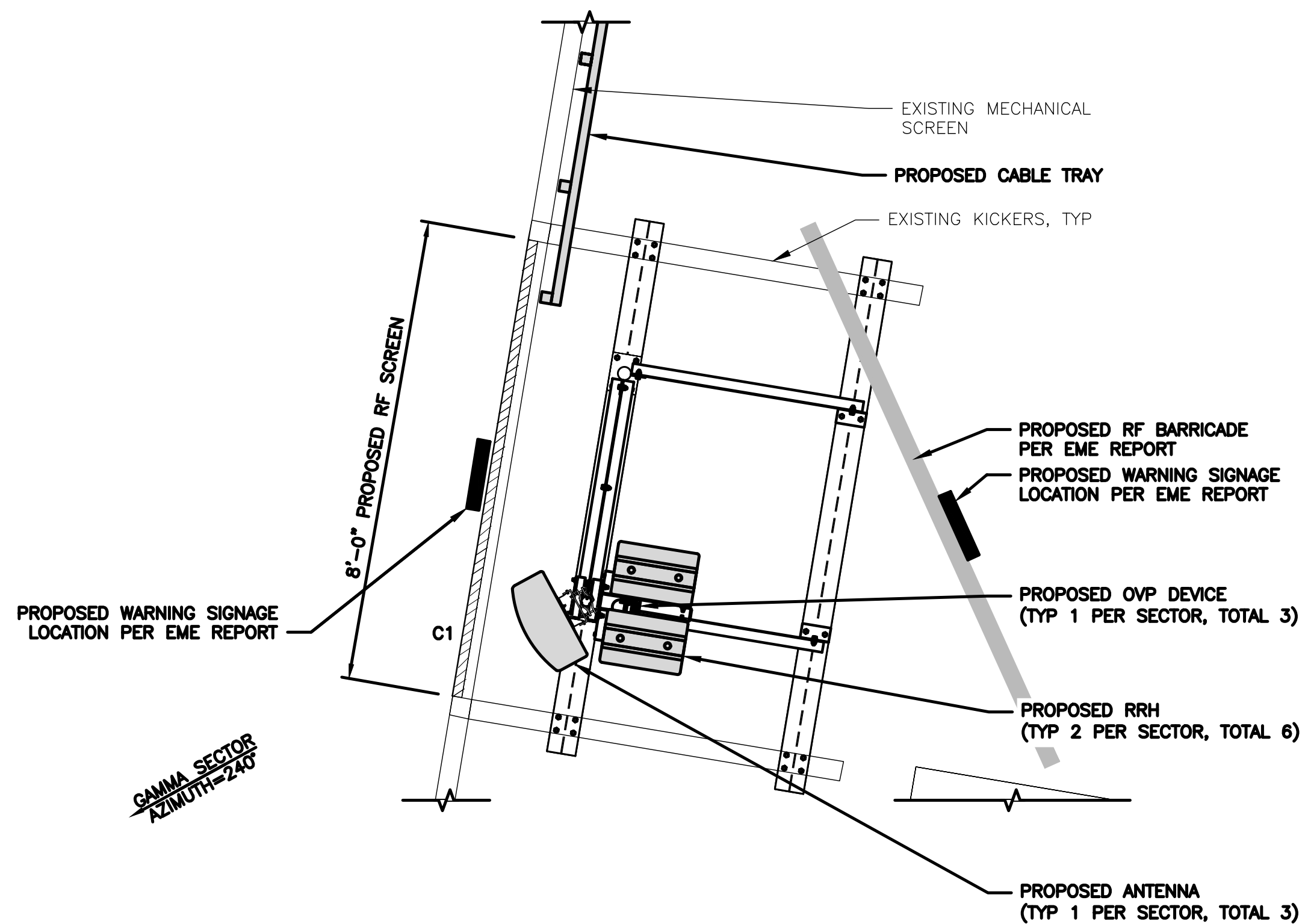
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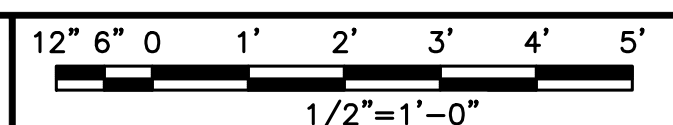
PROPOSED ANTENNA AND RRU PLAN – BETA SECTOR



2



PROPOSED ANTENNA AND RRU PLAN – GAMMA SECTOR



3

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxWxD)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA – MX08FR0665–21	5G	72"x20"x8"	0°	65'–0"	(1) PROPOSED POWER AND FIBER TRUNKS (±130' LONG)
BETA	B1	PROPOSED	JMA – MX08FR0665–21	5G	72"x20"x8"	120°	65'–0"	(1) PROPOSED POWER AND FIBER TRUNKS (±130' LONG)
GAMMA	C1	PROPOSED	JMA – MX08FR0665–21	5G	72"x20"x8"	240°	65'–0"	(1) PROPOSED POWER AND FIBER TRUNKS (±130' LONG)

SECTOR	POSITION	RRH			NOTES
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxWxD)	
ALPHA	A1	MTI – G060708–50–02B	n71	16.93"x13.89"x11.1"	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.
		MTI – G2021–49–02B	n70 n66	16.93"x13.89"x9.84"	
BETA	B1	MTI – G060708–50–02B	n71	16.93"x13.89"x11.1"	
		MTI – G2021–49–02B	n70 n66	16.93"x13.89"x9.84"	
GAMMA	C1	MTI – G060708–50–02B	n71	16.93"x13.89"x11.1"	
		MTI – G2021–49–02B	n70 n66	16.93"x13.89"x9.84"	

ANTENNA SCHEDULE

NO SCALE

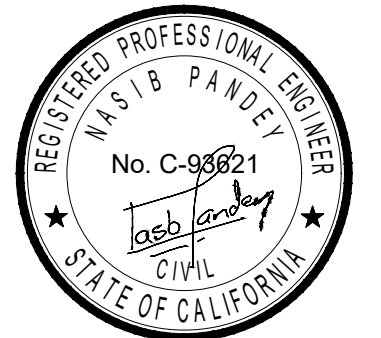
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DISH Wireless L.L.C.
PROJECT INFORMATION
SFSF00026A
5341 OLD REDWOOD
HIGHWAY
PETALUMA, CA 94954

SHEET TITLE
ANTENNA PLAN,
RRU PLAN AND SCHEDULE

SHEET NUMBER

A-3

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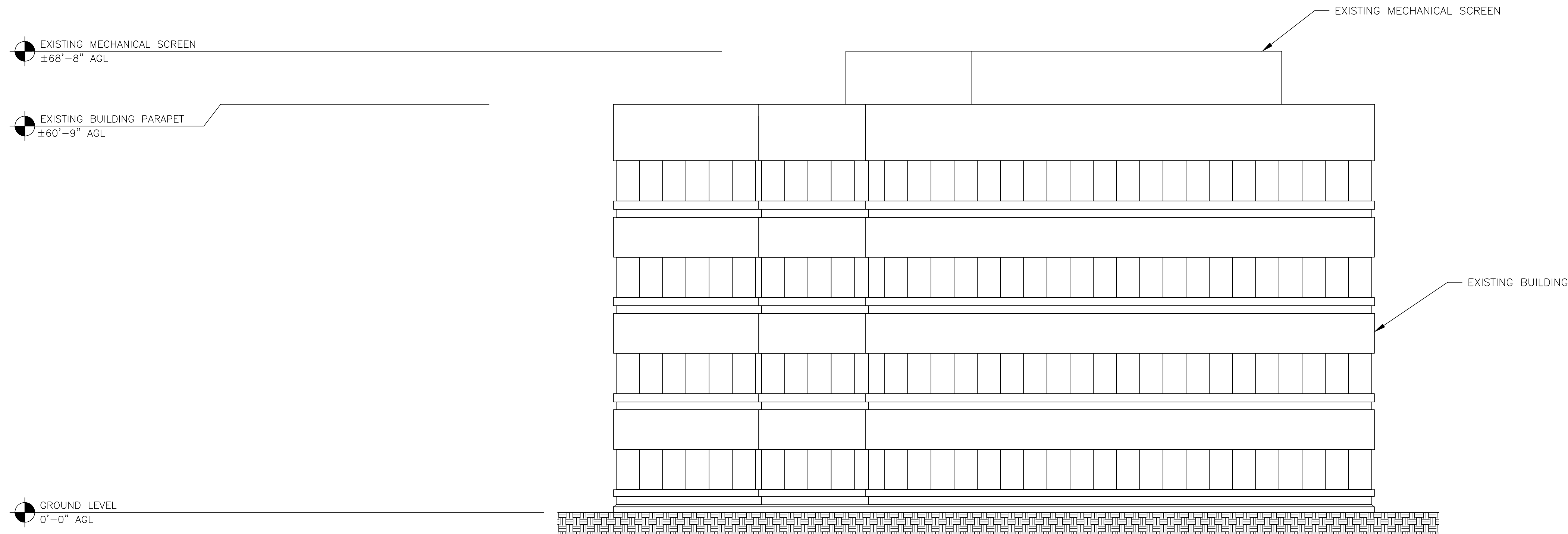
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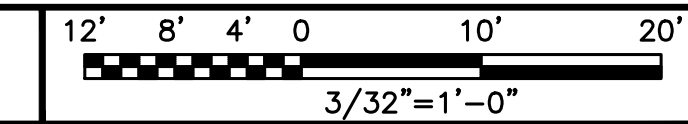
SHEET TITLE
EXISTING AND PROPOSED
NORTH ELEVATIONS

SHEET NUMBER

A-4



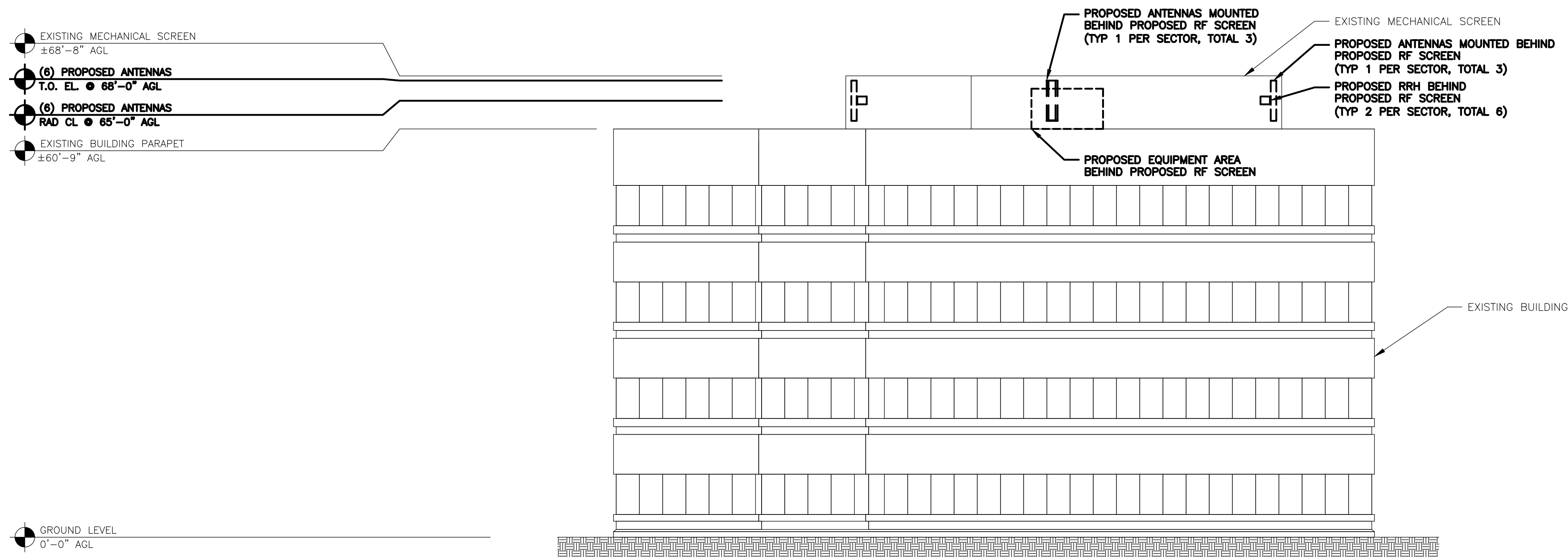
EXISTING NORTH ELEVATION



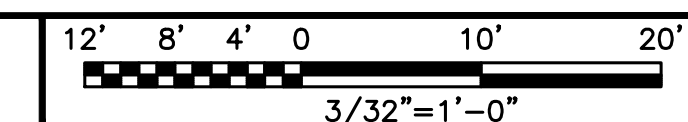
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PROPOSED NORTH ELEVATION



2

NOTES

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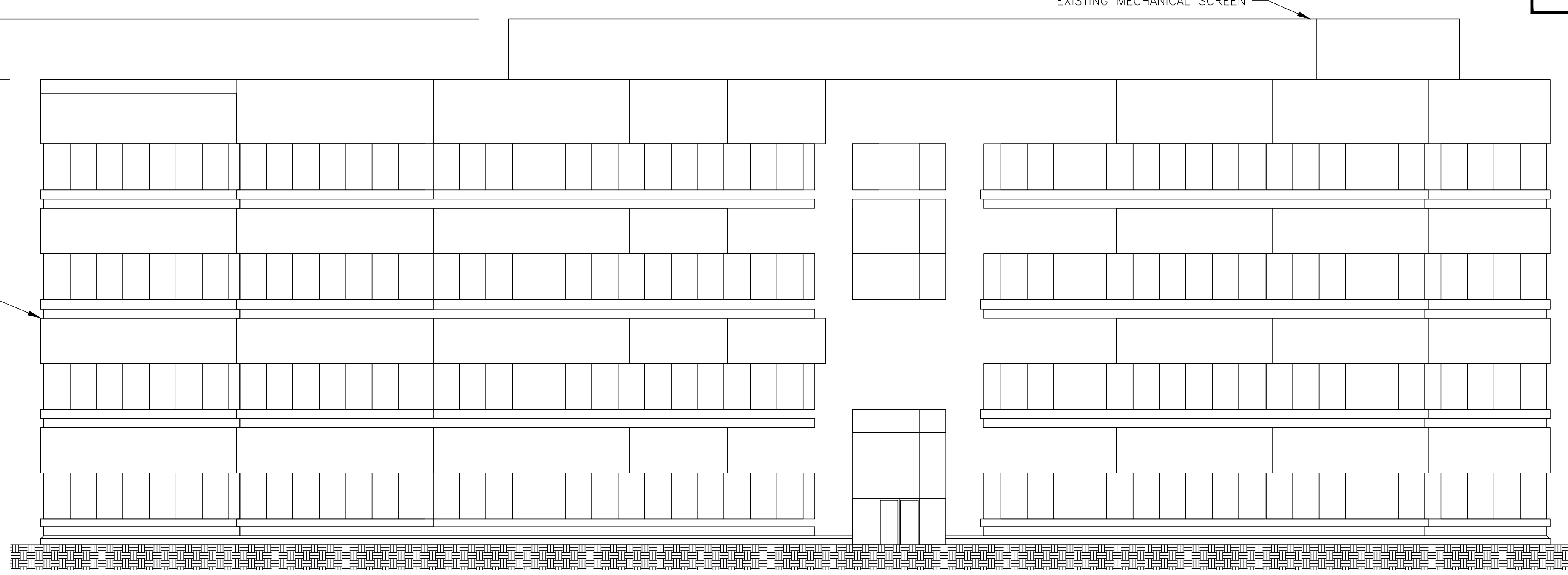
EXISTING MECHANICAL SCREEN
±68'-8" AGL

EXISTING BUILDING PARAPET
±60'-9" AGL

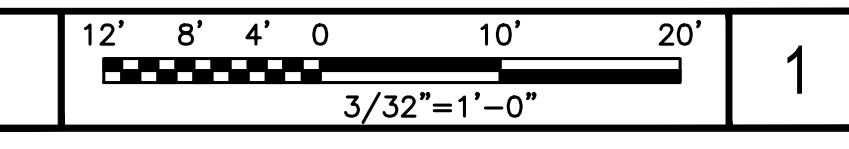
GROUND LEVEL
0'-0" AGL

EXISTING BUILDING

EXISTING MECHANICAL SCREEN



EXISTING EAST ELEVATION



NOTES

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EXISTING MECHANICAL SCREEN
±68'-8" AGL

(6) PROPOSED ANTENNAS
T.O. EL. ● 68'-0" AGL

(6) PROPOSED ANTENNAS
RAD CL ● 65'-0" AGL

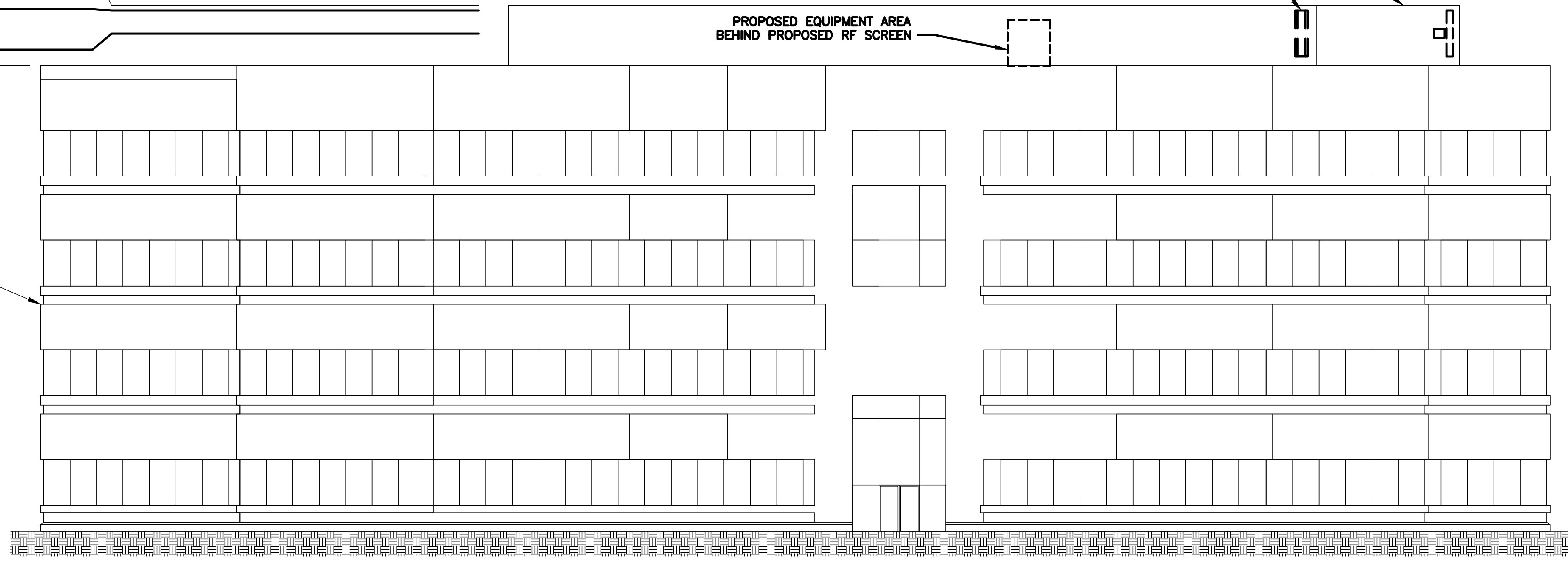
EXISTING BUILDING PARAPET
±60'-9" AGL

GROUND LEVEL
0'-0" AGL

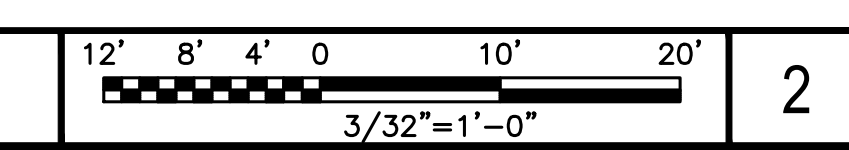
EXISTING BUILDING

EXISTING MECHANICAL SCREEN
PROPOSED ANTENNAS MOUNTED BEHIND
PROPOSED RF SCREEN
(TYP 1 PER SECTOR, TOTAL 3)

PROPOSED EQUIPMENT AREA
BEHIND PROPOSED RF SCREEN



PROPOSED EAST ELEVATION



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RFDS REV #: 12/20/2021 REV 3

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	06/06/2022	90% CDS ISSUED FOR REVIEW
B	06/10/2022	100% CONSTRUCTION DRAWINGS
C	06/11/2022	PLAN CHECK COMMENTS

A&E PROJECT NUMBER
SFSF000026A

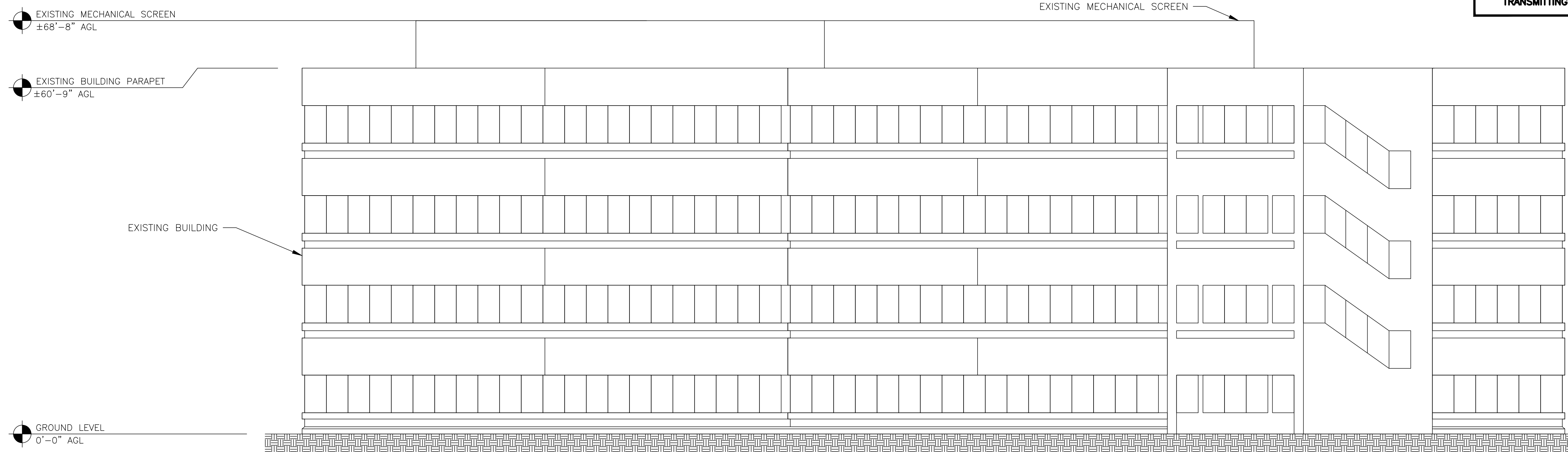
DISH Wireless L.L.C.
PROJECT INFORMATION
SFSF000026A
5341 OLD REDWOOD
HIGHWAY
PETALUMA, CA 94954

SHEET TITLE
EXISTING AND PROPOSED
EAST ELEVATIONS

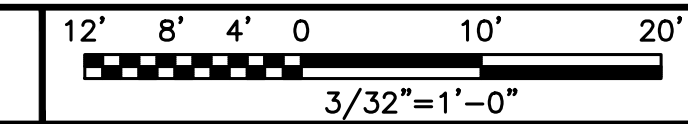
SHEET NUMBER
A-5

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.

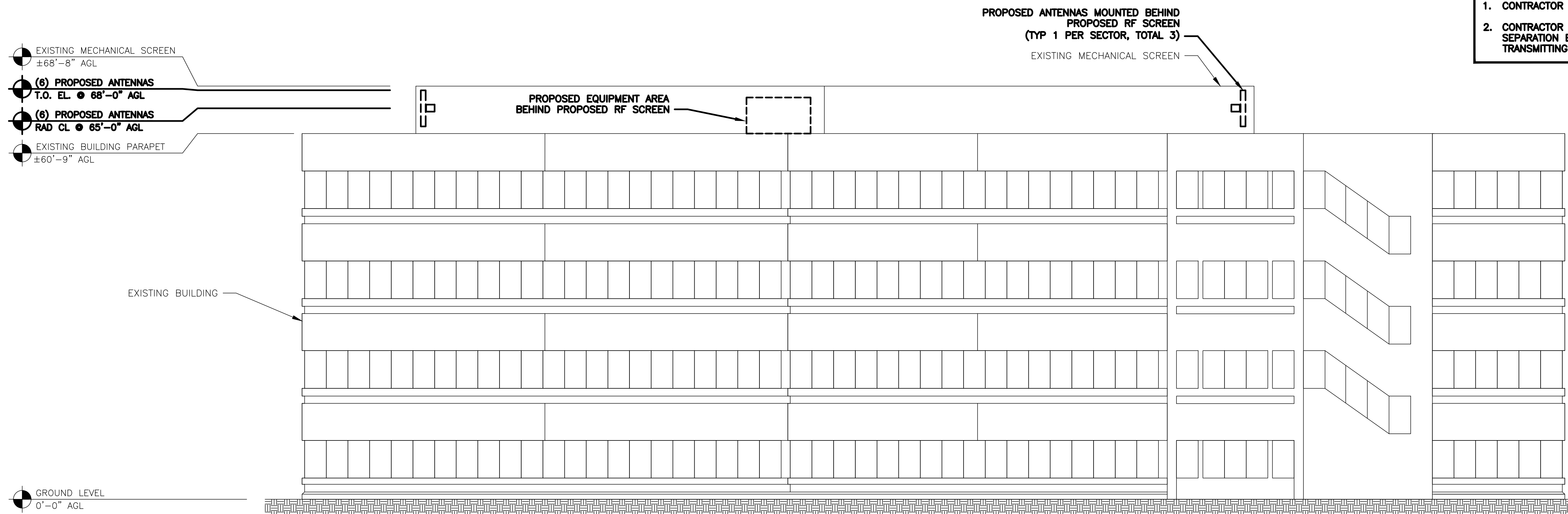


EXISTING SOUTH ELEVATION

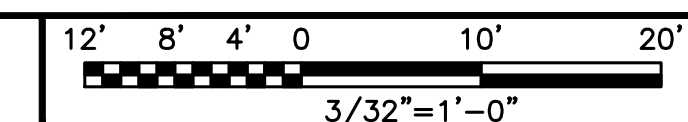


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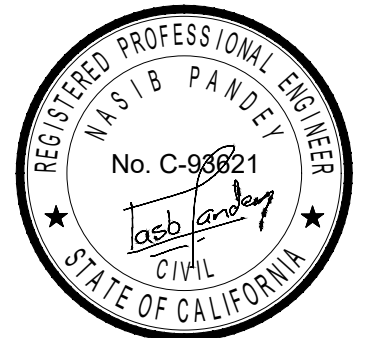
PROPOSED SOUTH ELEVATION



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



2840 HOWE ROAD, SUITE E
MARTINEZ, CA 94553
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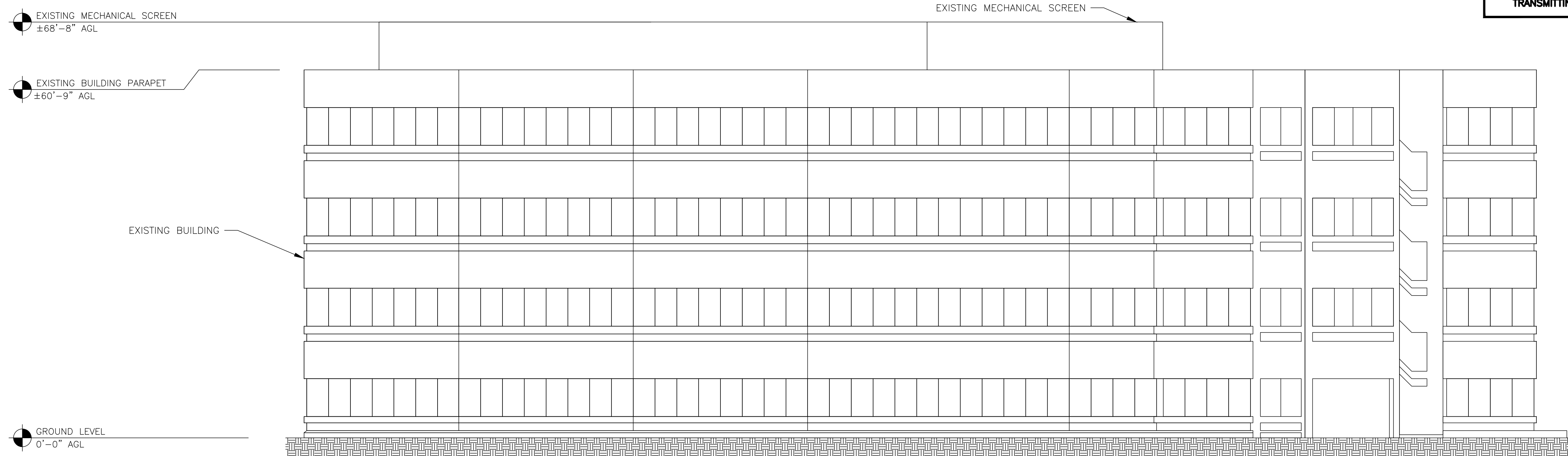
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SFSF000026A
5341 OLD REDWOOD
HIGHWAY
PETALUMA, CA 94954

SHEET TITLE
EXISTING AND PROPOSED
SOUTH ELEVATIONS

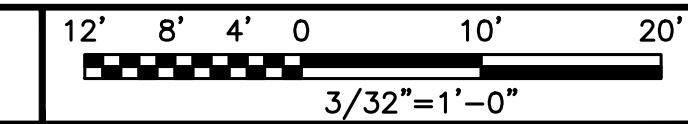
SHEET NUMBER
A-6

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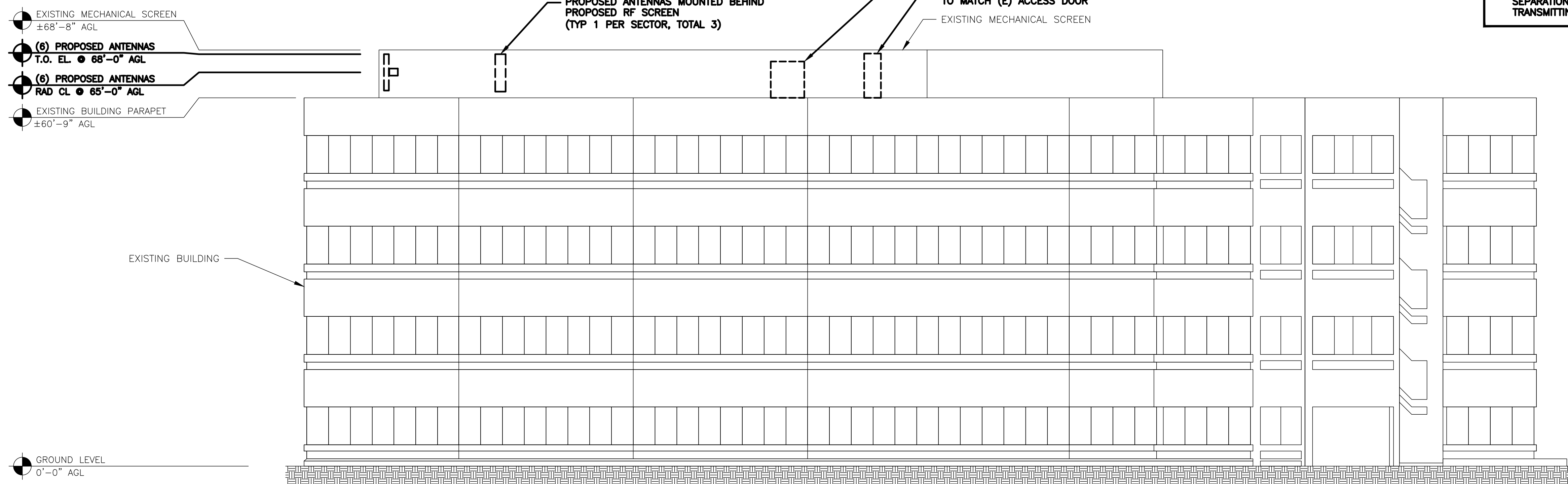
EXISTING WEST ELEVATION



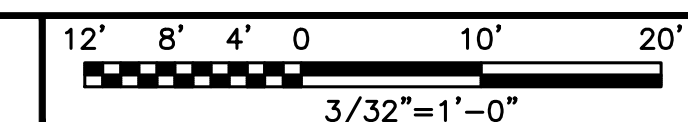
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PROPOSED WEST ELEVATION



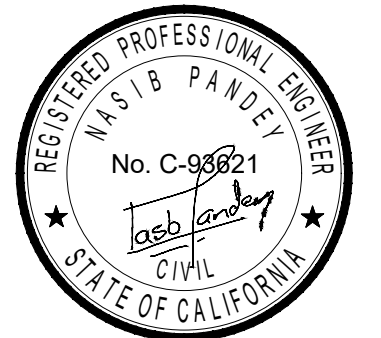
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LITTLETON, CO 80120



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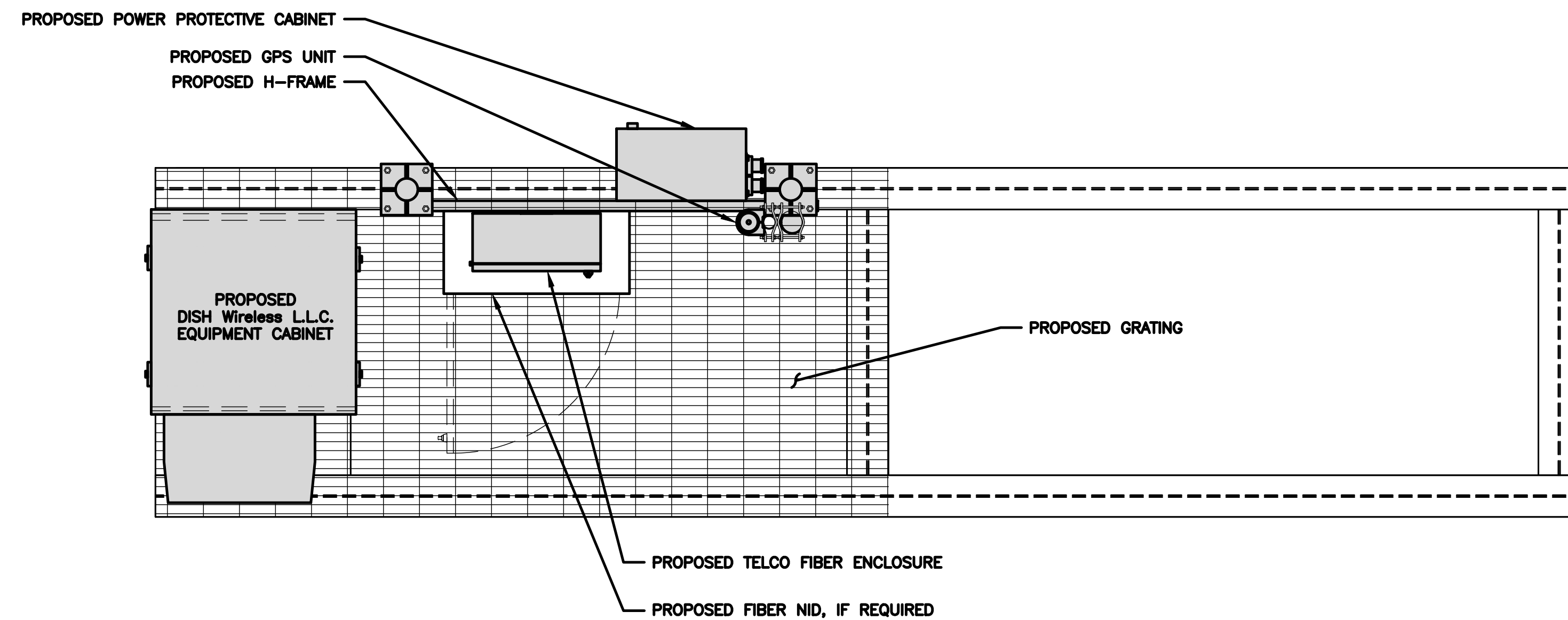
A&E PROJECT NUMBER
SFSF000026A

DISH Wireless L.L.C.
PROJECT INFORMATION
SFSF000026A
5341 OLD REDWOOD
HIGHWAY
PETALUMA, CA 94954

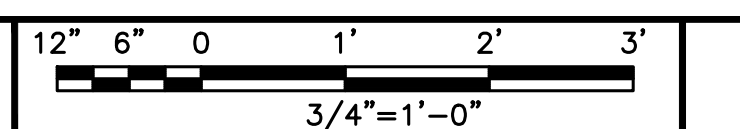
SHEET TITLE
EXISTING AND PROPOSED
WEST ELEVATIONS

SHEET NUMBER

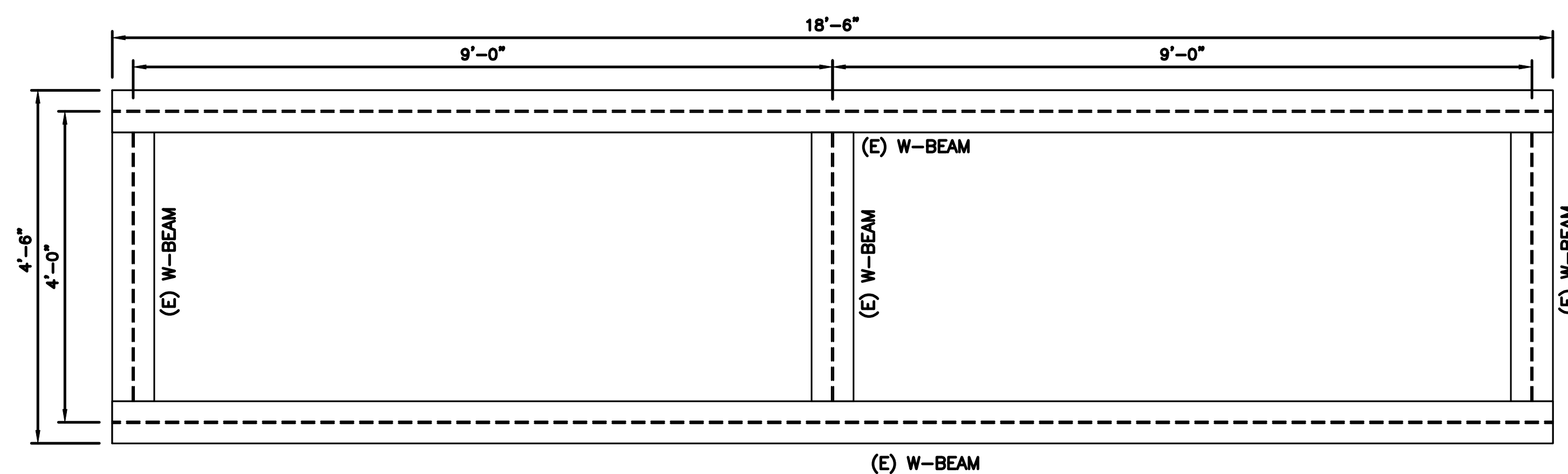
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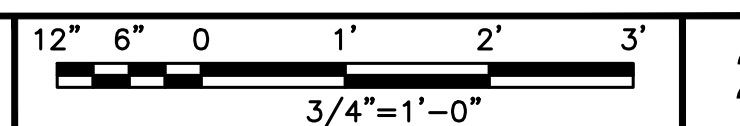
PROPOSED EQUIPMENT PLAN



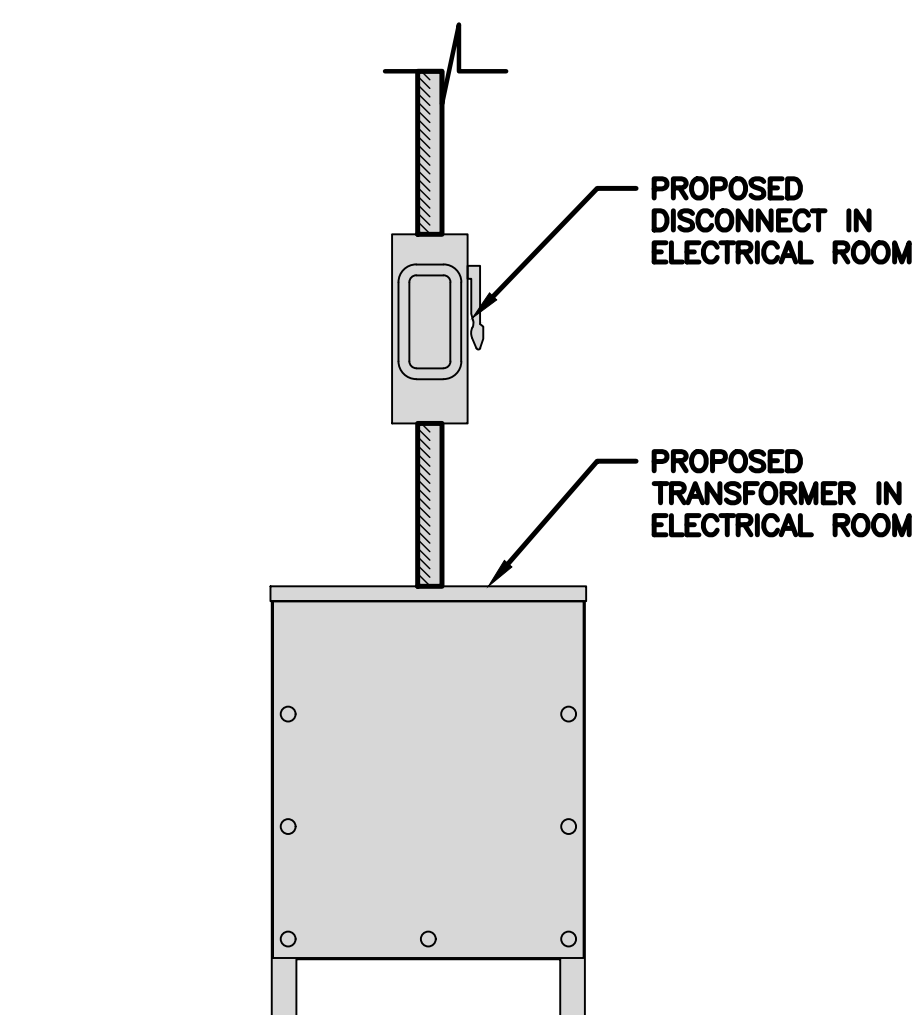
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(E) PLATFORM PLAN



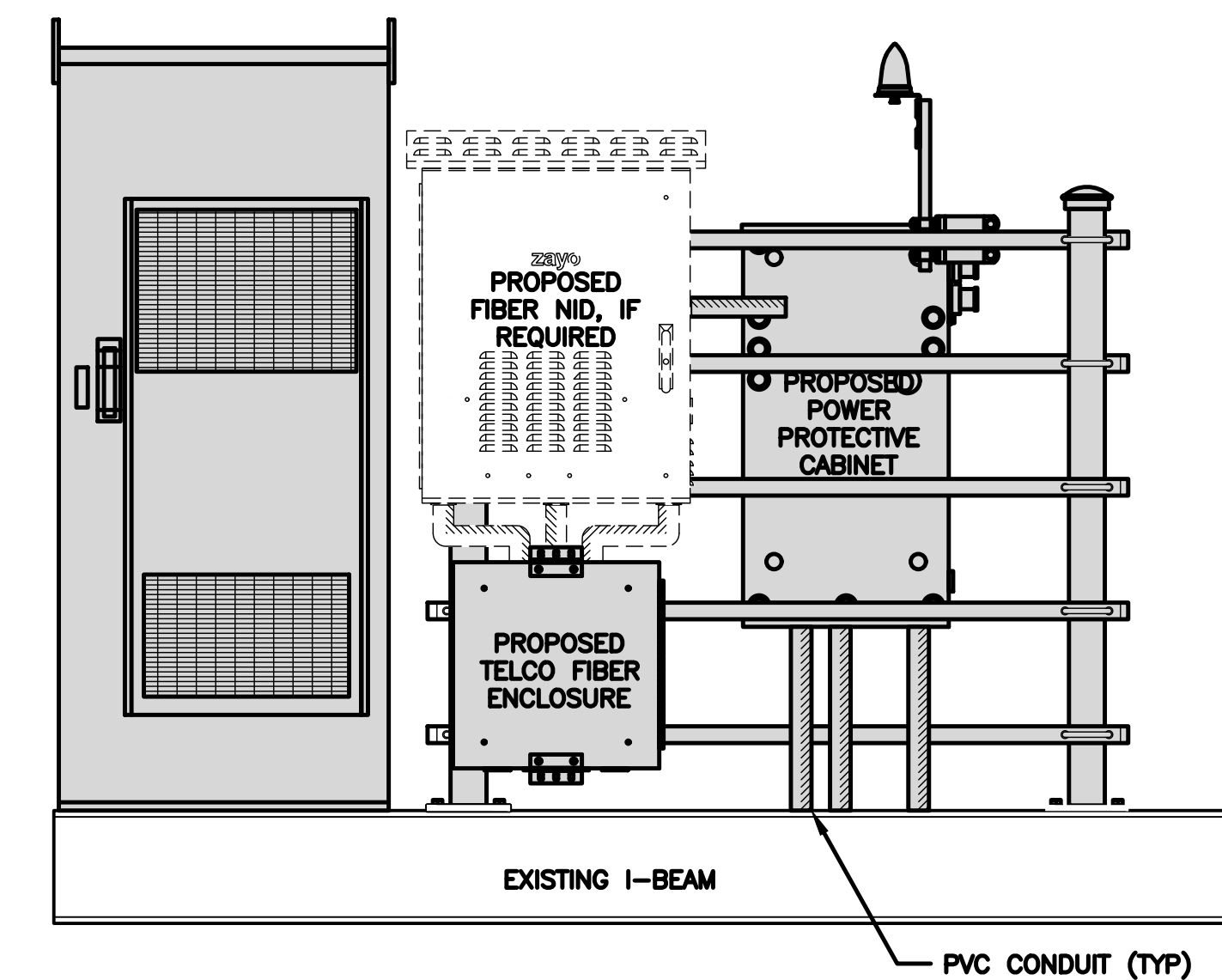
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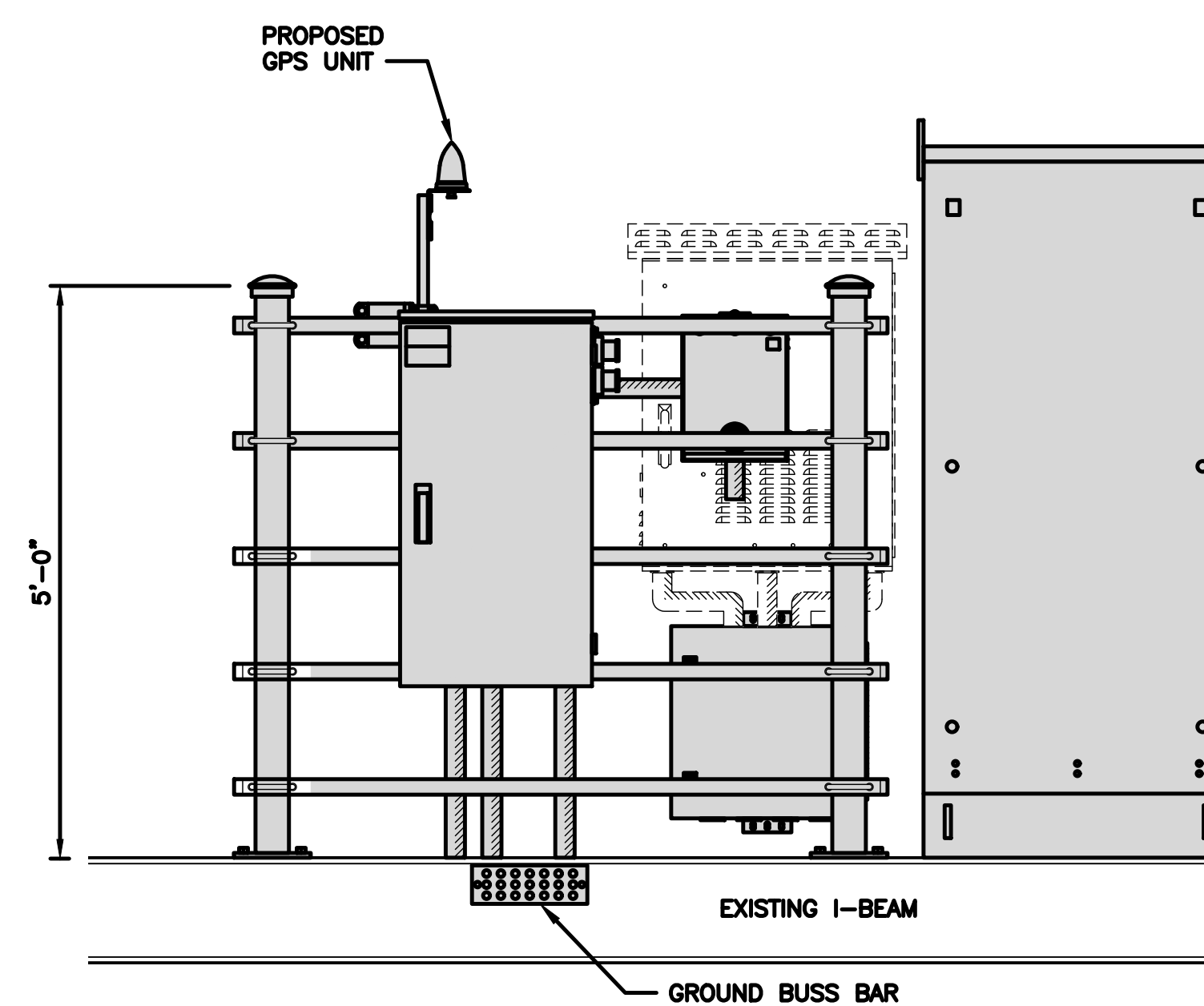
DISCONNECT AND TRANSFORMER LOCATION

NO SCALE 3

NO SCALE 4

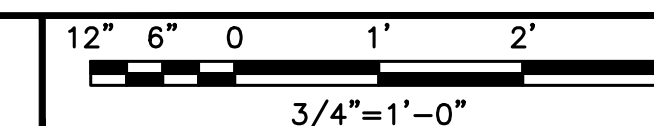


FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION



5

dish
wireless.

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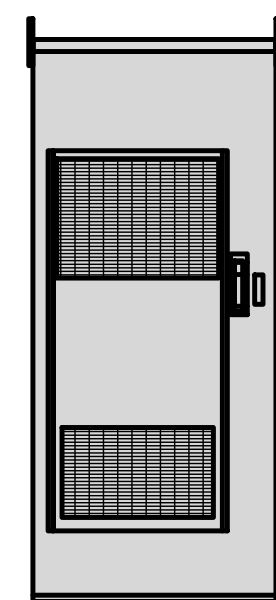
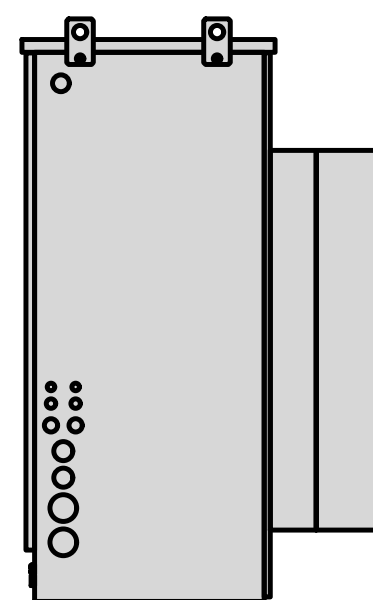
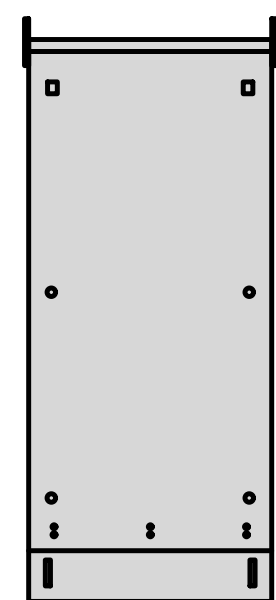
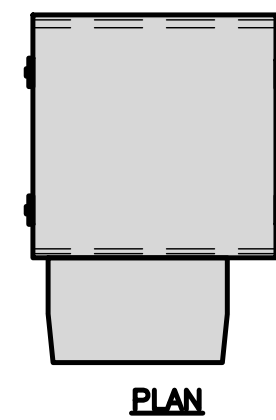
DISH Wireless L.L.C.
PROJECT INFORMATION
SFSF000026A
5341 OLD REDWOOD
HIGHWAY
PETALUMA, CA 94954

SHEET TITLE
EQUIPMENT PLATFORM AND
H-FRAME DETAILS

SHEET NUMBER

A-8

CHARLES INDUSTRY HEX CUBE-PM639155N4	
DIMENSIONS (HxWxD)	74"x32"x32"
POWER PLANT	-48VDC ABB/600W
TOTAL WEIGHT (EMPTY)	408 lbs

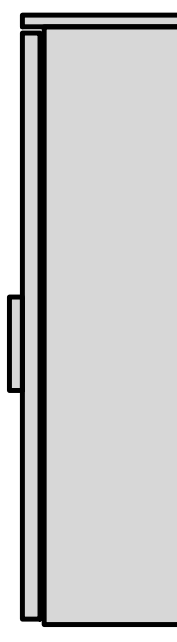
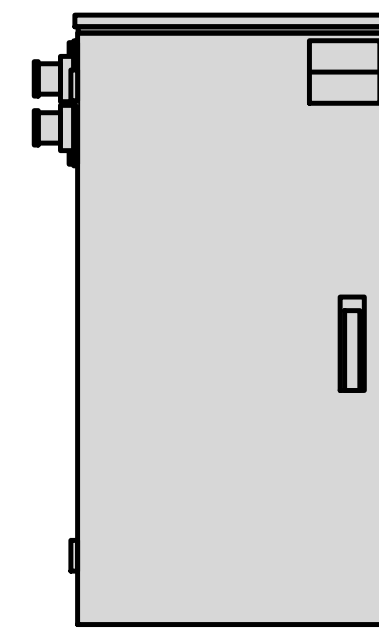
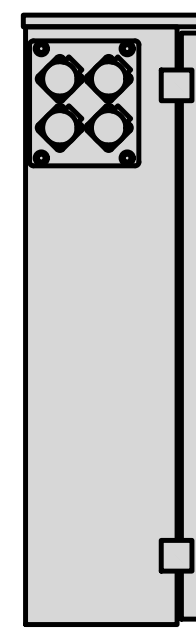
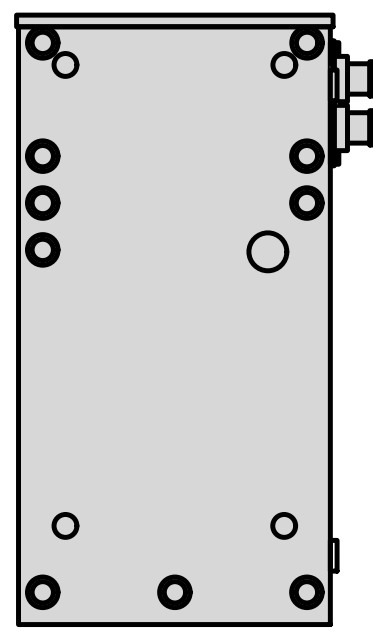
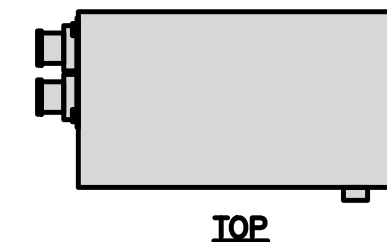


CABINET DETAIL

NO SCALE

1

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

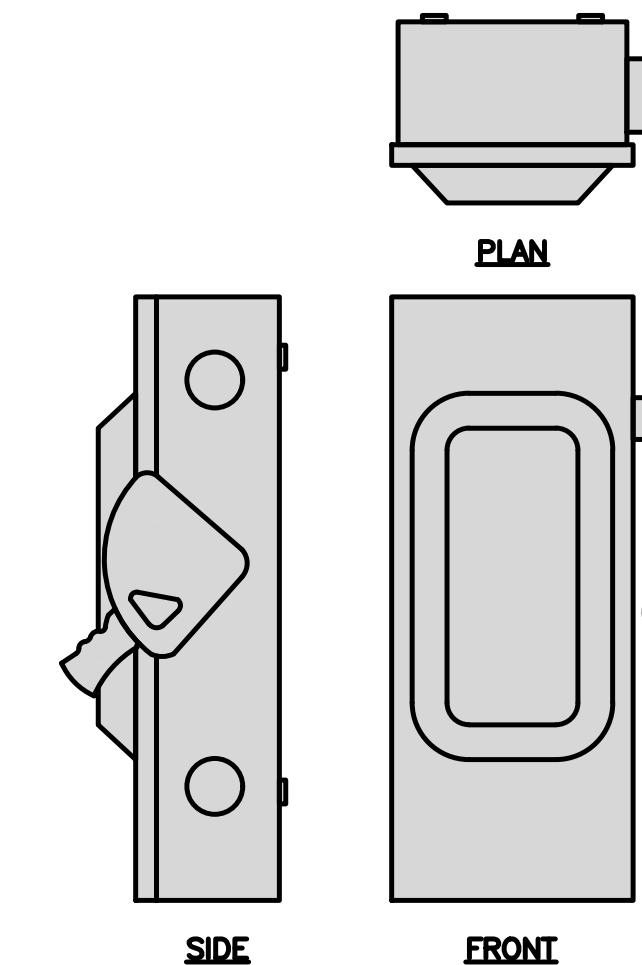


CABINET DETAIL

NO SCALE

2

SQUARE D H363 HEAVY DUTY SAFETY SWITCH	
DIMENSIONS (HxWxD)	21.25"x10.25"x6.38"
WEIGHT	19.84 lbs
PRODUCT	SINGLE THROW
DEVICE APPLICATION	HEAVY APPLICATION
DISCONNECT TYPE	FUSIBLE DISCONNECT
FACTORY INSTALLED NEUTRAL	NONE
PHASE	3 PHASE
NUMBER OF POLES	3
CURRENT RATING	100A
VOLTAGE RATING	600 V AC/DC
ENCLOSURE RATING	NEMA 1 STEEL

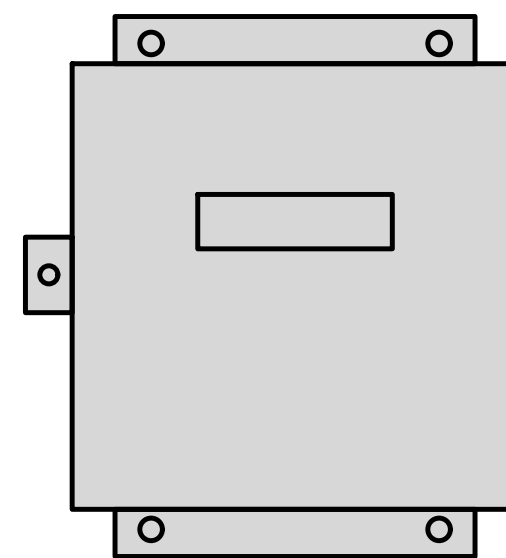
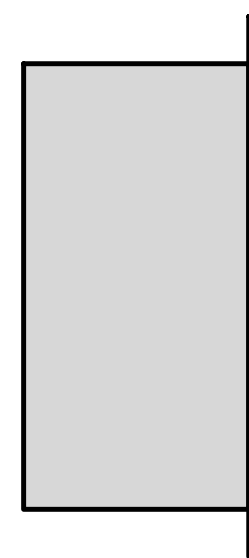
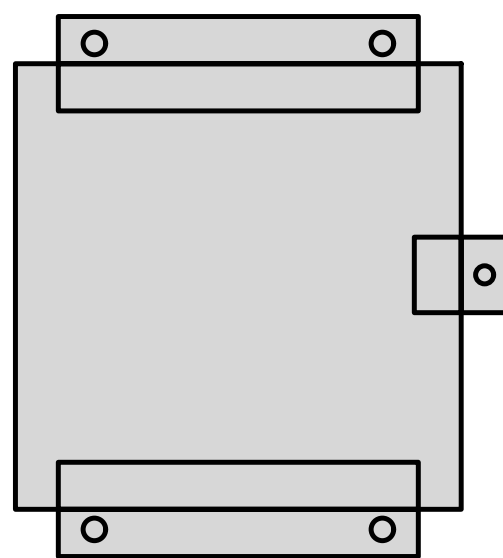
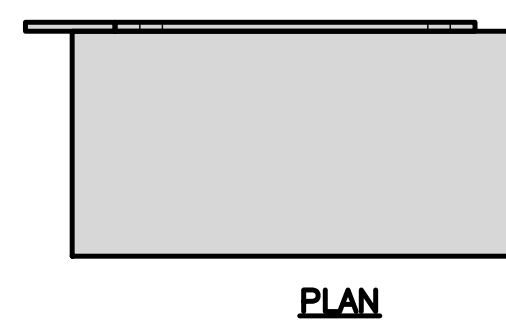


SAFETY SWITCH DETAIL

NO SCALE

3

LEVITON 1N480-1D SUBMETER	
WIRE	3
AMPS	100
VOLTS AC	277/480V
PHASE	1

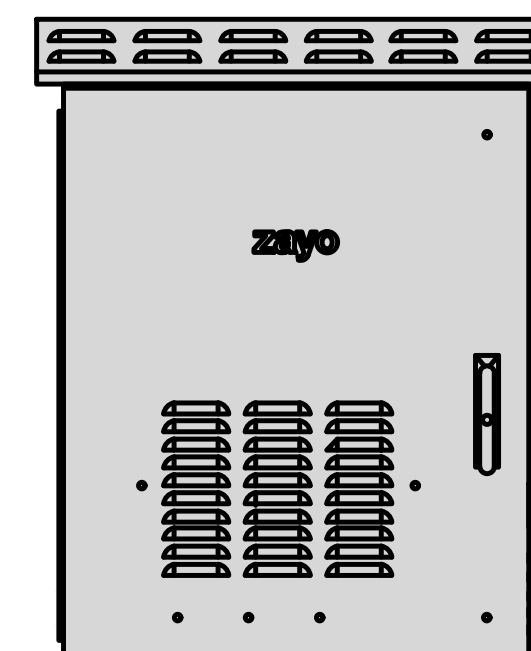
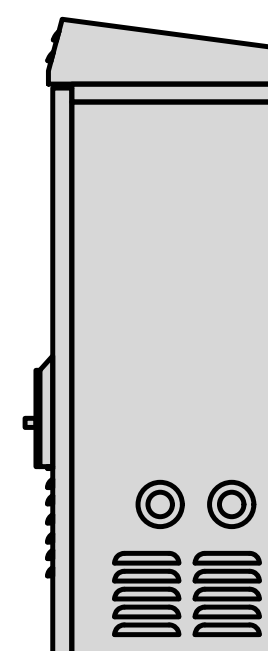
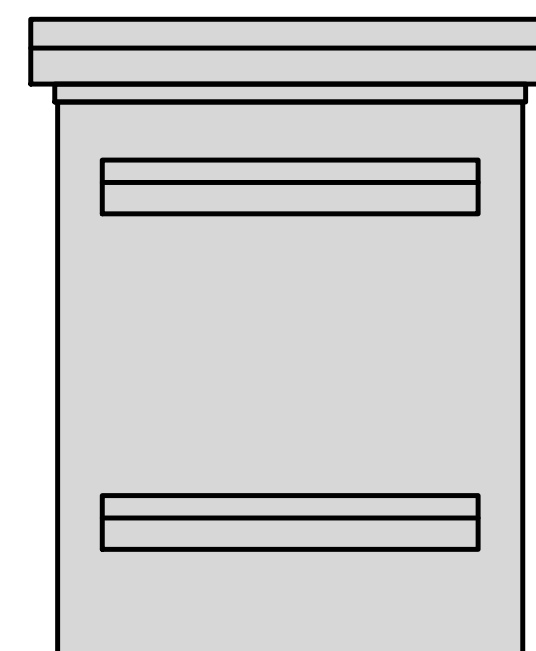
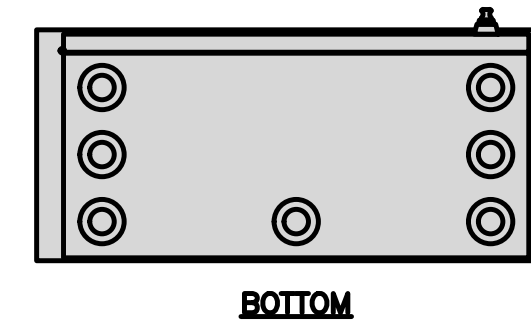


SUBMETER DETAIL

NO SCALE

4

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

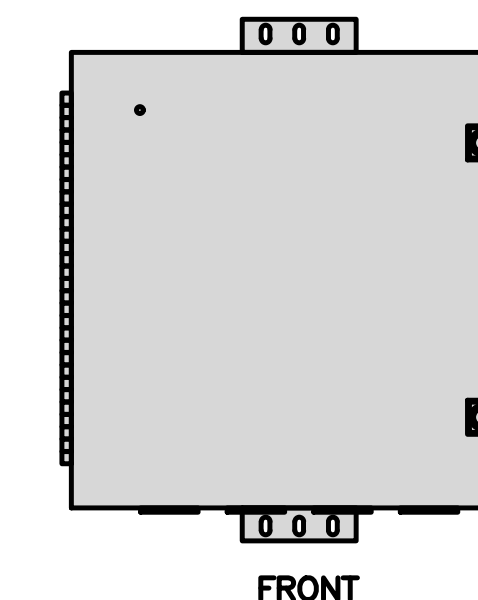
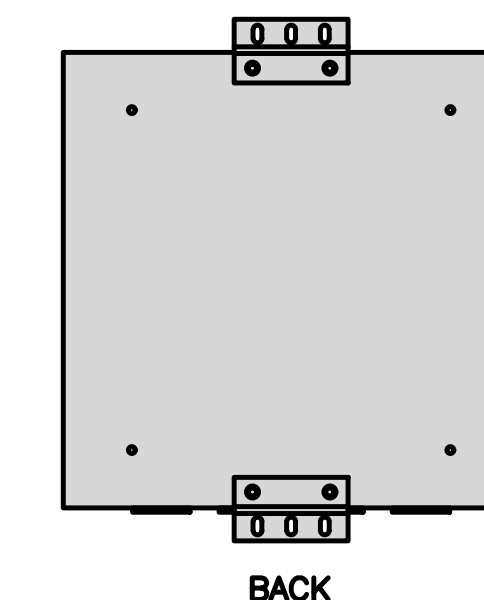
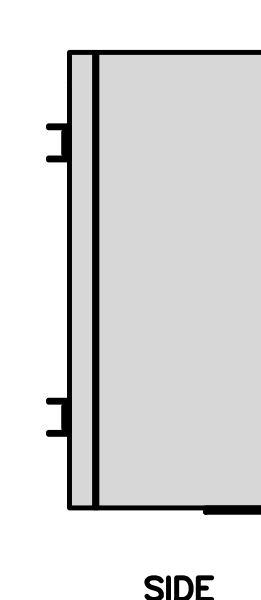
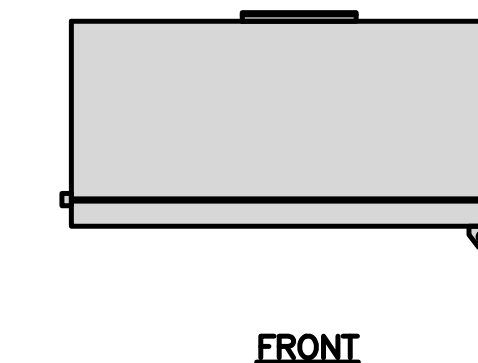


FIBER NID ENCLOSURE DETAIL

NO SCALE

5

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

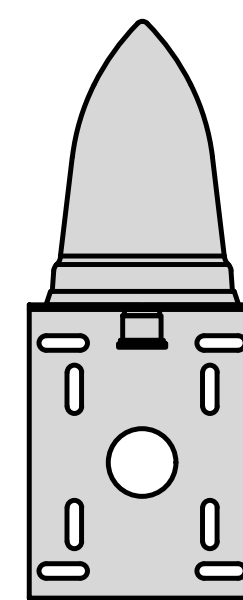
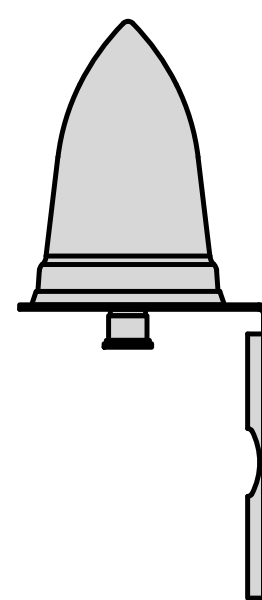
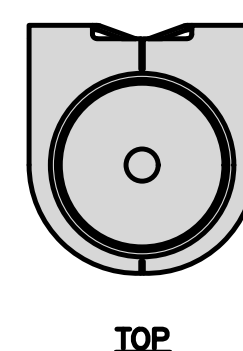


FIBER TELCO ENCLOSURE DETAIL

NO SCALE

6

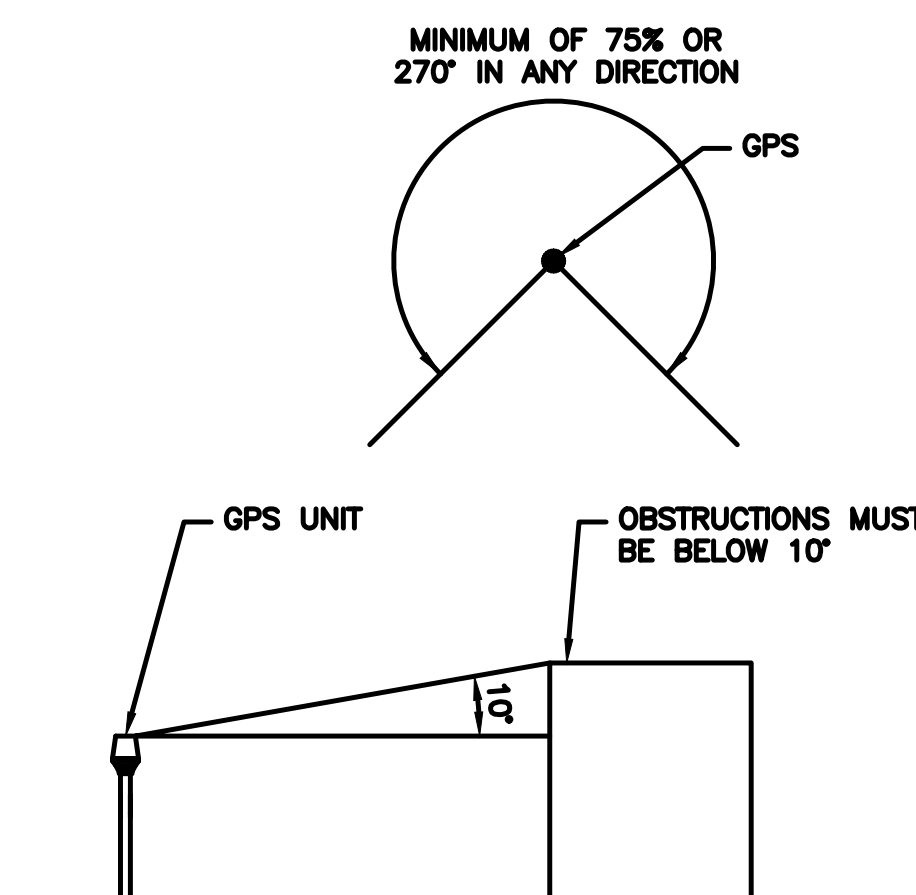
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



GPS DETAIL

NO SCALE

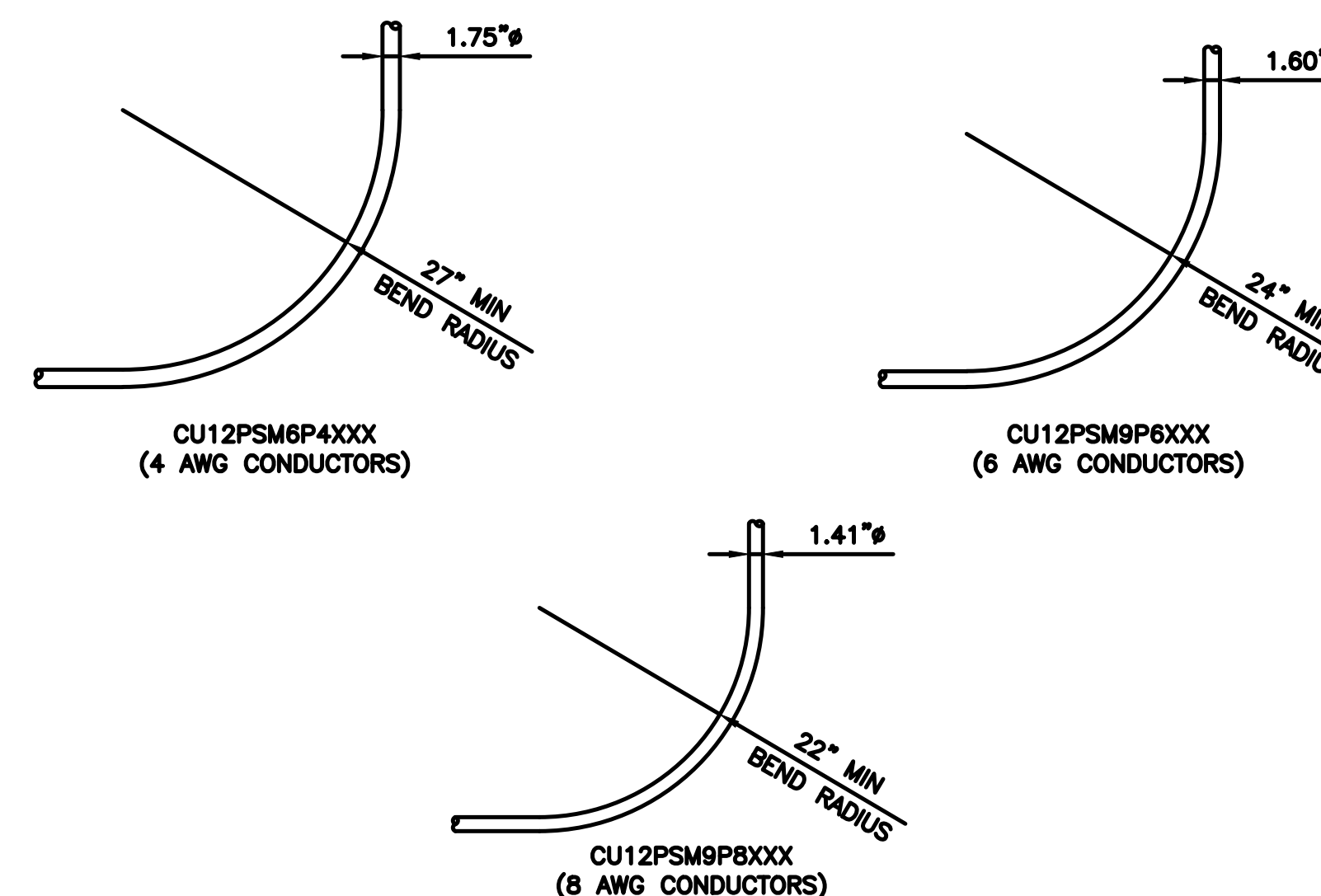
7



GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE

8



CABLES UNLIMITED HYBRID CABLE MINIMUM BEND RADIUS

NO SCALE

9

dish wireless.

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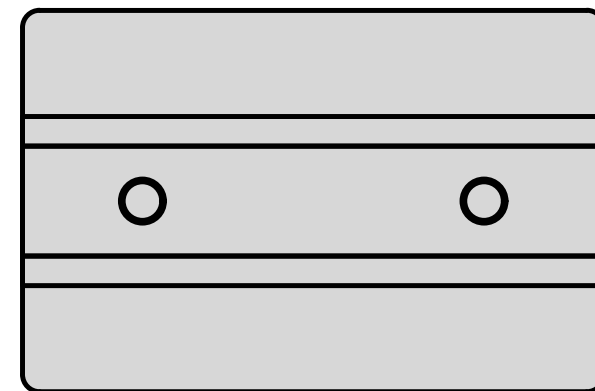
DISH Wireless L.L.C.
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SFSF000026A
5341 OLD REDWOOD HIGHWAY
PETALUMA, CA 94954

SHEET TITLE
EQUIPMENT DETAILS

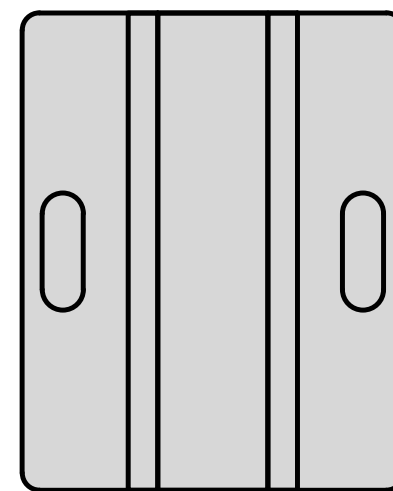
SHEET NUMBER

A-9

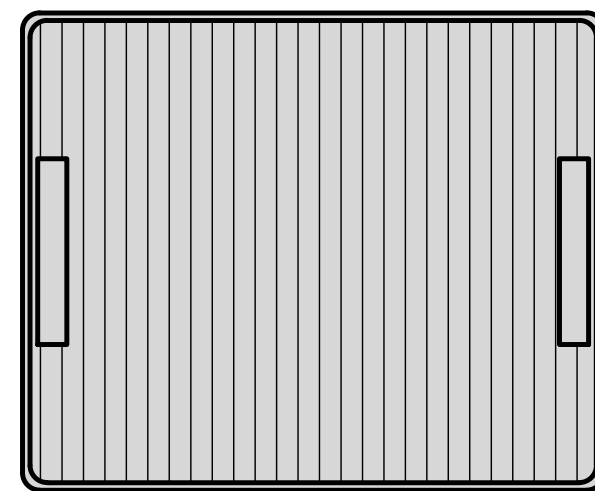
MTI TB GEN-1.5 G060708-50-02B	
DIMENSIONS (HxWxD)	13.9"x16.9"x11"
WEIGHT	97 lbs
DC POWER IN	-40.5V to -57V
POWER SUPPLY VOLTAGE	-48Vdc (NOMINAL)



PLAN

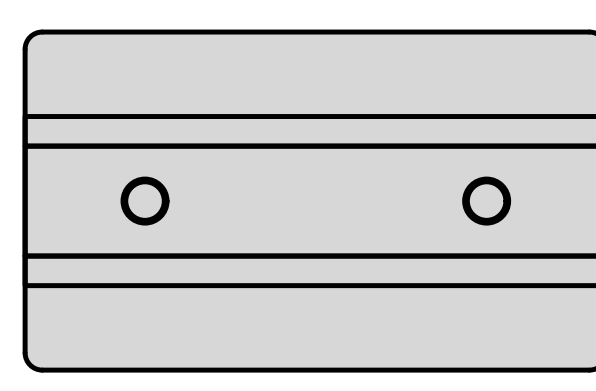


SIDE

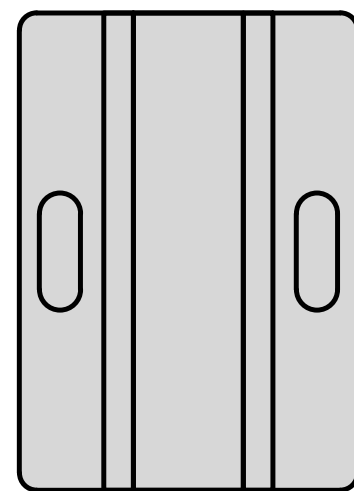


FRONT

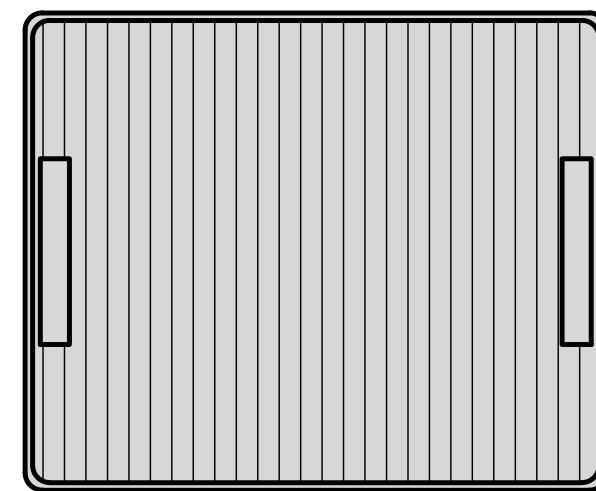
MTI DB GEN-1.5 G2021-49-02B	
DIMENSIONS (HxWxD)	13.9"x16.9"x9.8"
WEIGHT	86 lbs
DC POWER IN	-40.5V to -57V
POWER SUPPLY VOLTAGE	-48Vdc (NOMINAL)



PLAN

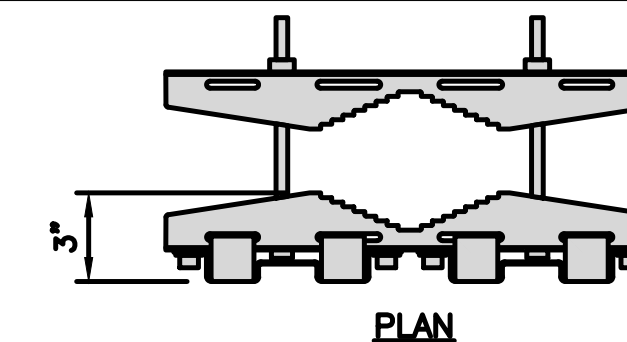


SIDE

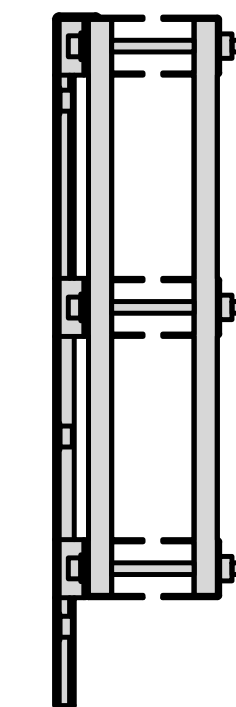
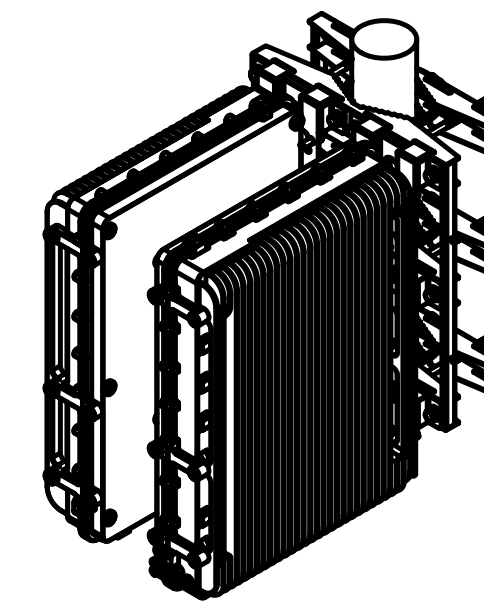


FRONT

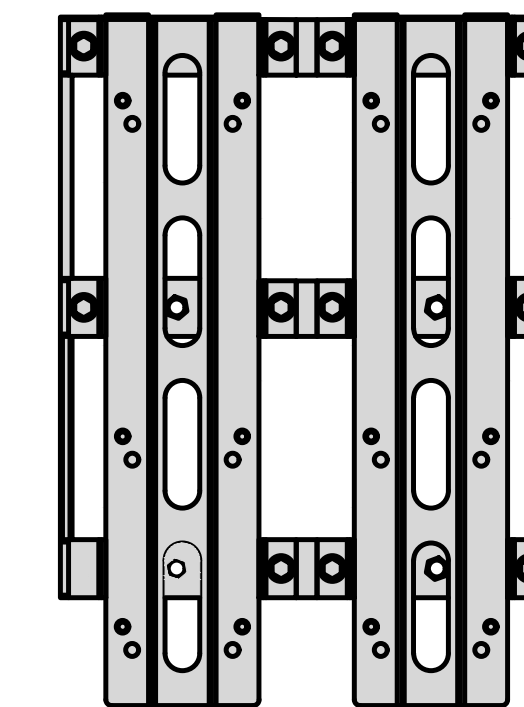
MTI GEN-1 RRH MOUNT BOOK MOUNT	
DIMENSIONS (HxWxD)	23.4"x16.7"x3"
WEIGHT	22 lbs



PLAN



SIDE



FRONT

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

RRH DETAIL

NO SCALE

1

RRH DETAIL

NO SCALE

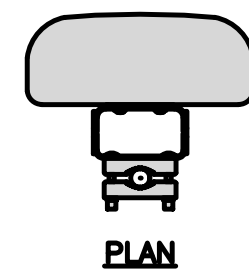
2

RRH MOUNT DETAIL

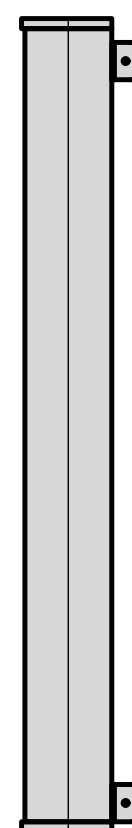
NO SCALE

3

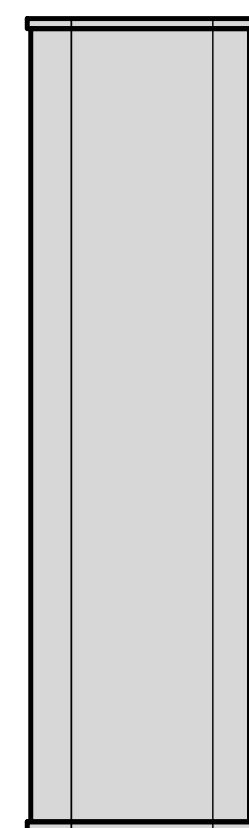
JMA MX08FRO665-21	
DIMENSIONS (HxWxD)	72"x20.0"x8.0"
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE
WEIGHT	64.5 lbs
WEIGHT WITH BRACKETS	82.5 lbs



PLAN



SIDE



FRONT

ANTENNA DETAIL

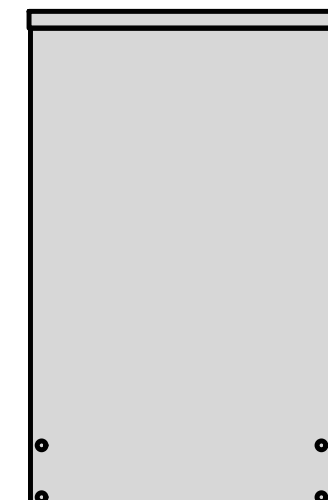
NO SCALE

4

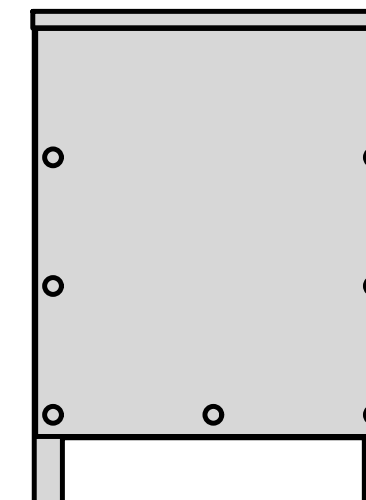
SQUARE D 75T6HNV TRANSFORMER DRY	
DIMENSIONS (HxWxD)	43.75"x32"x27"
WEIGHT	1025 lbs
PRODUCT	NON-VENTILATED
ENCLOSURE CODE	22E
INSULATION TEMP	428°F
PHASE	3 PHASE
PRIMARY VOLTAGE	480 V DELTA
POWER RATING	75kVA
SECONDARY VOLTAGE	240 V DELTA
FULL CAPACITY TAPS	6 2.5 % 2+ 4-
TEMPERATURE RISE	150°C
WINDING MATERIAL	ALUMINIUM



PLAN



SIDE



FRONT

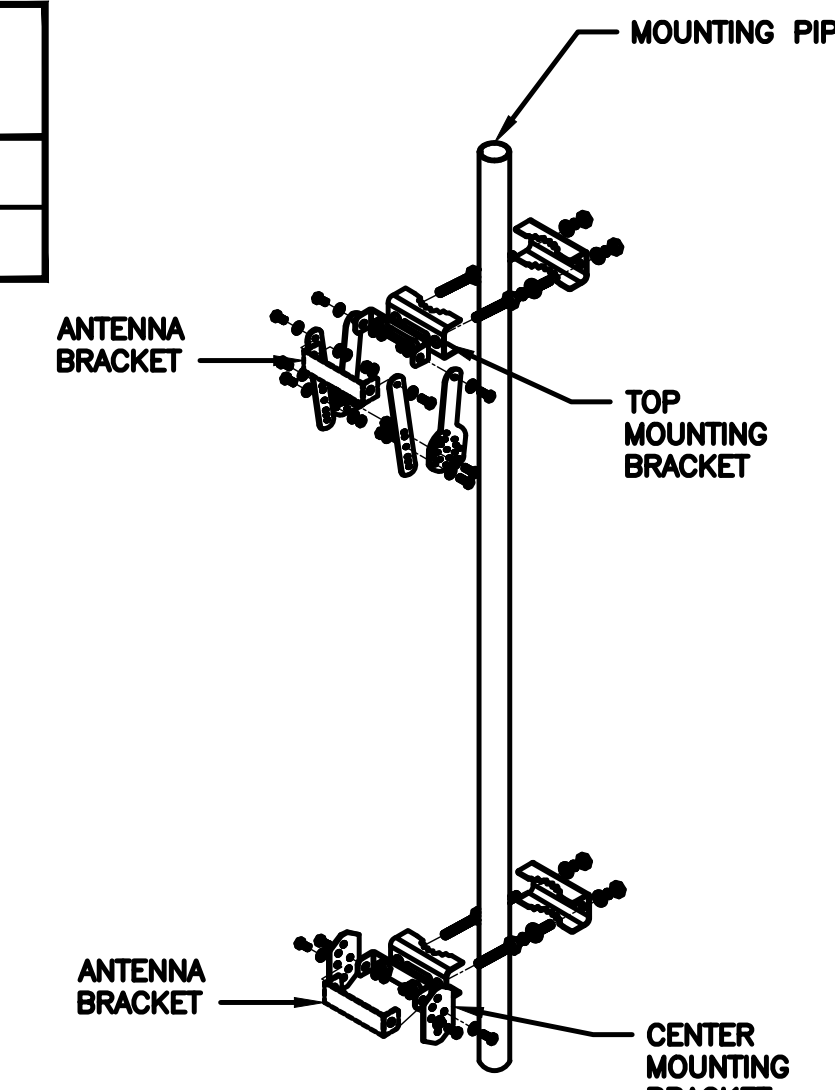
TRANSFORMER DETAIL

NO SCALE

5

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

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



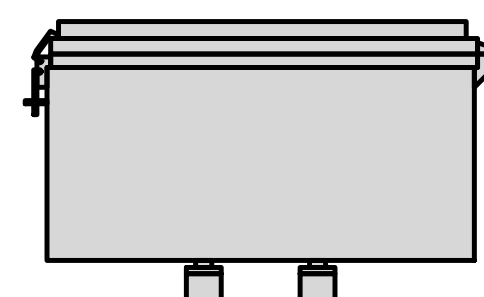
NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

ANTENNA BRACKET DETAIL

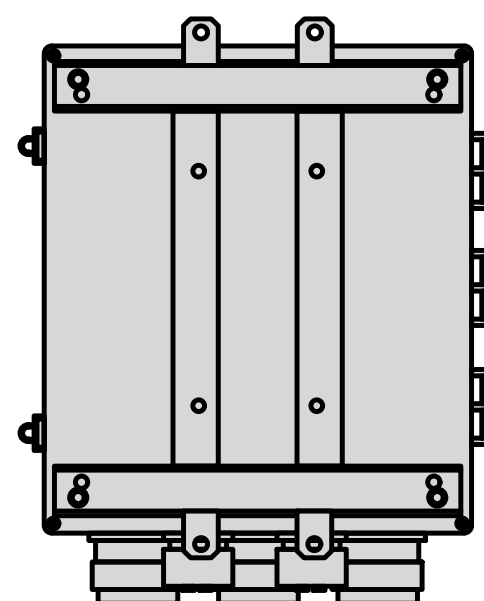
NO SCALE

6

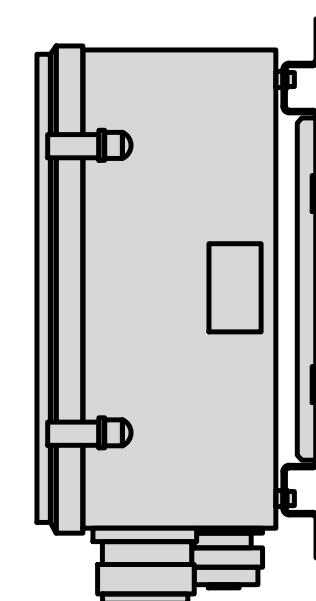
RAYCAP RDIDC-3045-PF-48 SURGE PROTECTION DEVICE (OVP)	
DIMENSIONS (HxWxD)	19"x16.21"x9.64"
WEIGHT	21 lbs



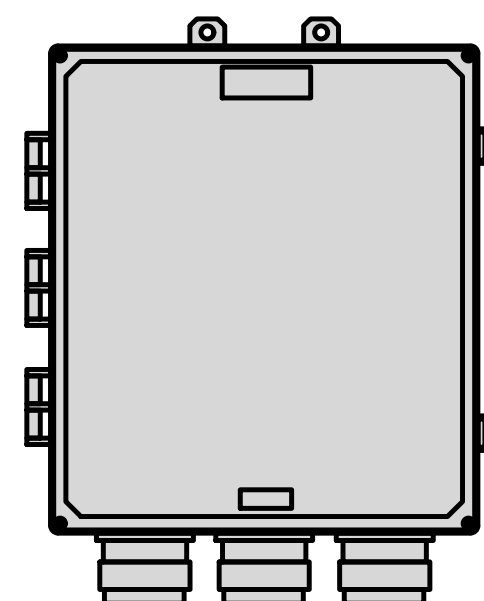
PLAN



BACK



SIDE



FRONT

SURGE PROTECTION DEVICE (OVP) DETAIL

NO SCALE

7

NO SCALE

8

NO SCALE

9

dish
wireless.

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RFDS REV #: 12/20/2021 REV 3

CONSTRUCTION
DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	06/06/2022	90% CDS ISSUED FOR REVIEW
B	06/10/2022	100% CONSTRUCTION DRAWINGS
C	06/11/2022	PLAN CHECK COMMENTS

A&E PROJECT NUMBER

SFSF000026A

DISH Wireless L.L.C.
PROJECT INFORMATION
SFSF000026A
5341 OLD REDWOOD
HIGHWAY
PETALUMA, CA 94954

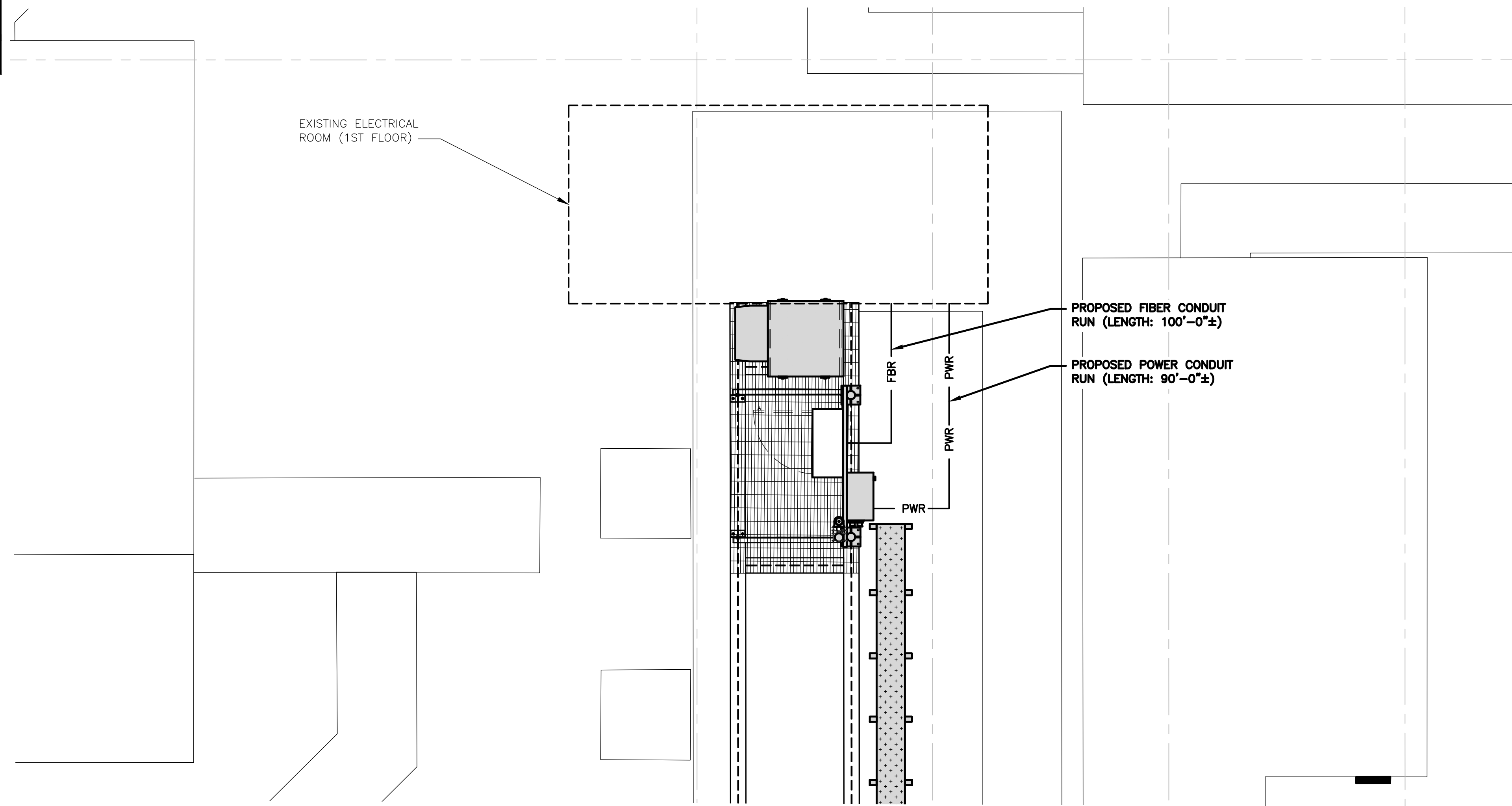
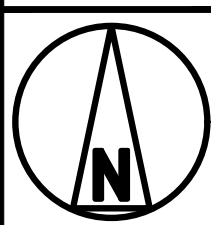
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER

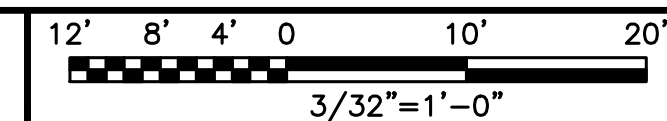
A-10

NOTE

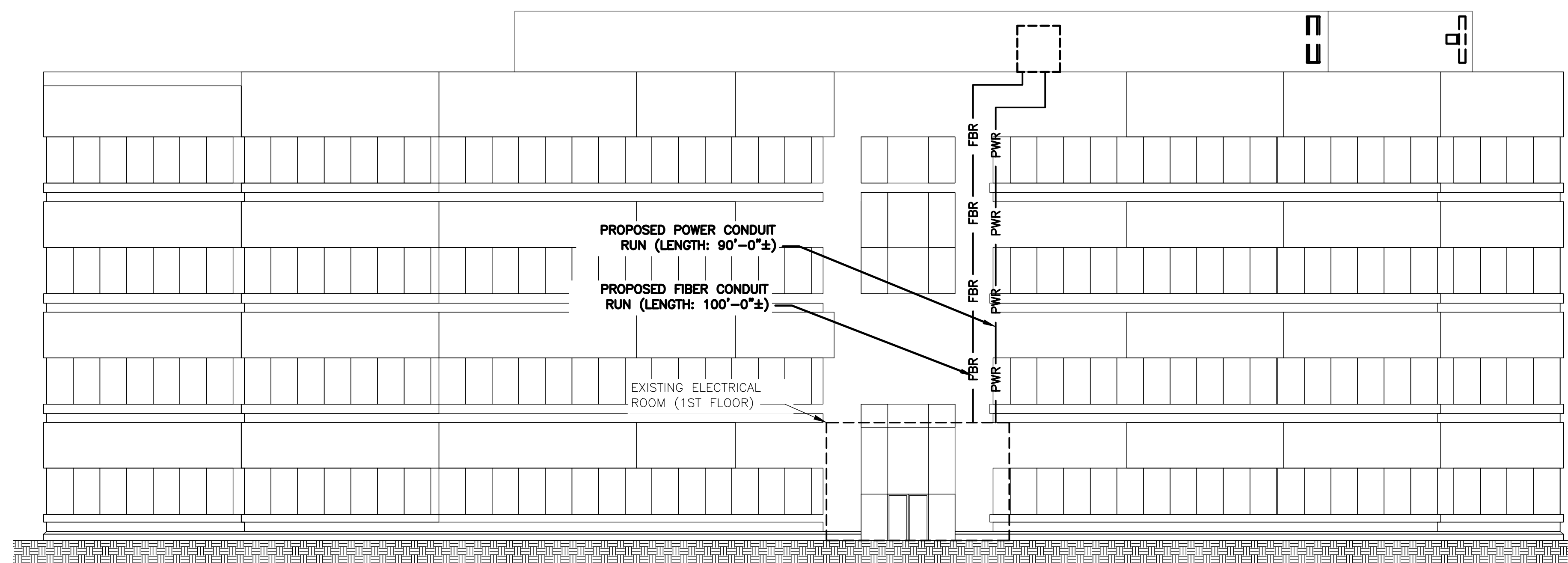
CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.



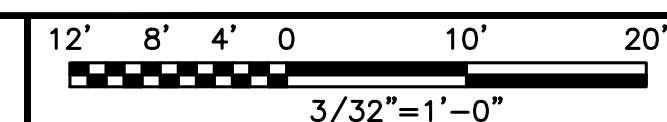
UTILITY ROUTE PLAN



1



UTILITY ROUTE ELEVATION



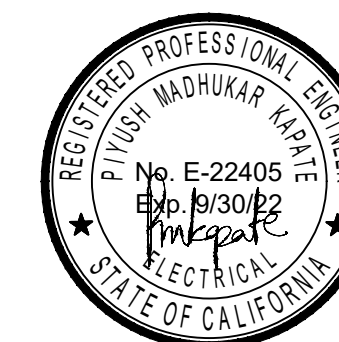
2



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PROJECT INFORMATION

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5341 OLD REDWOOD
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SHEET TITLE

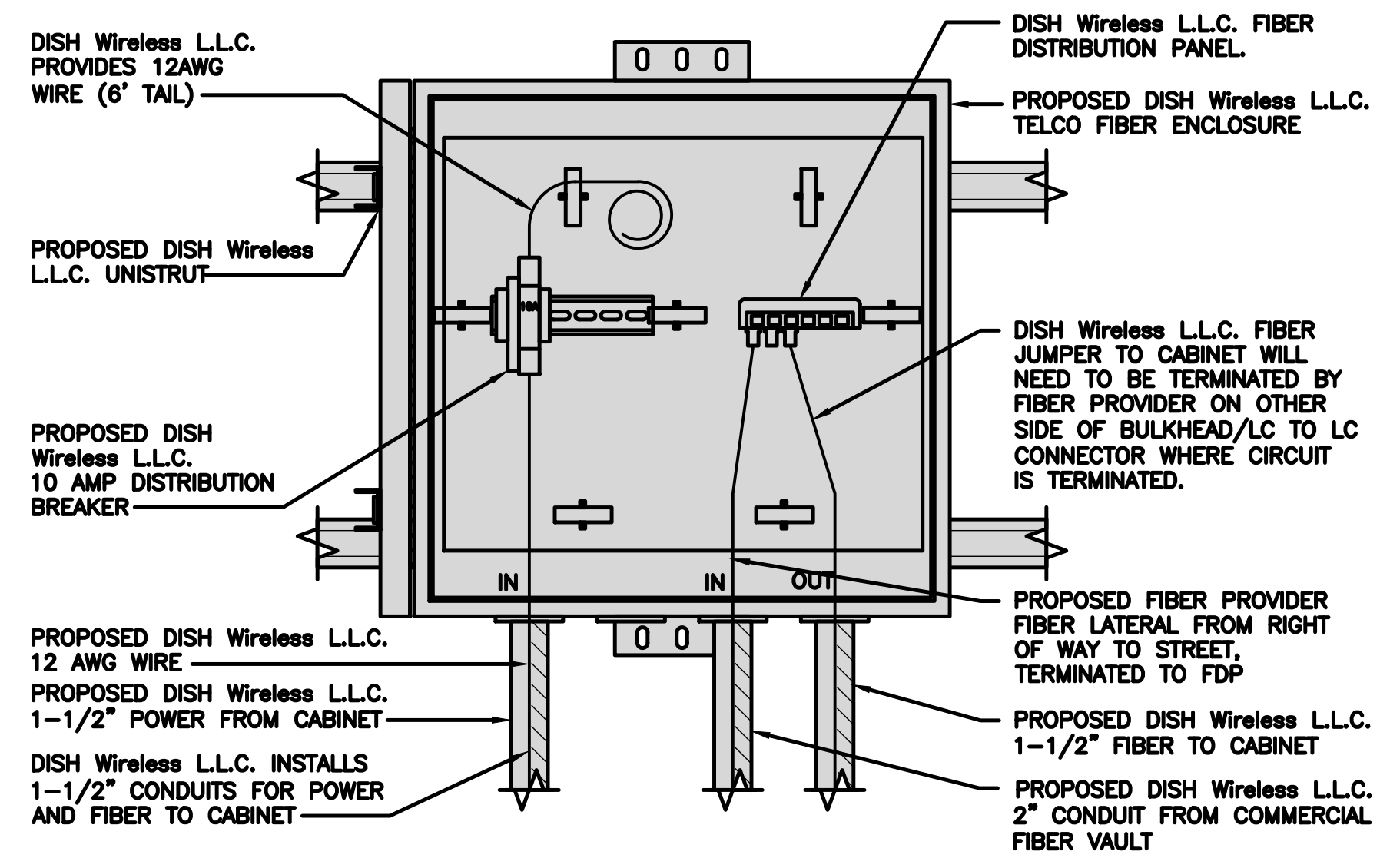
ELECTRICAL/FIBER ROUTE
PLAN AND NOTES

SHEET NUMBER

E-1

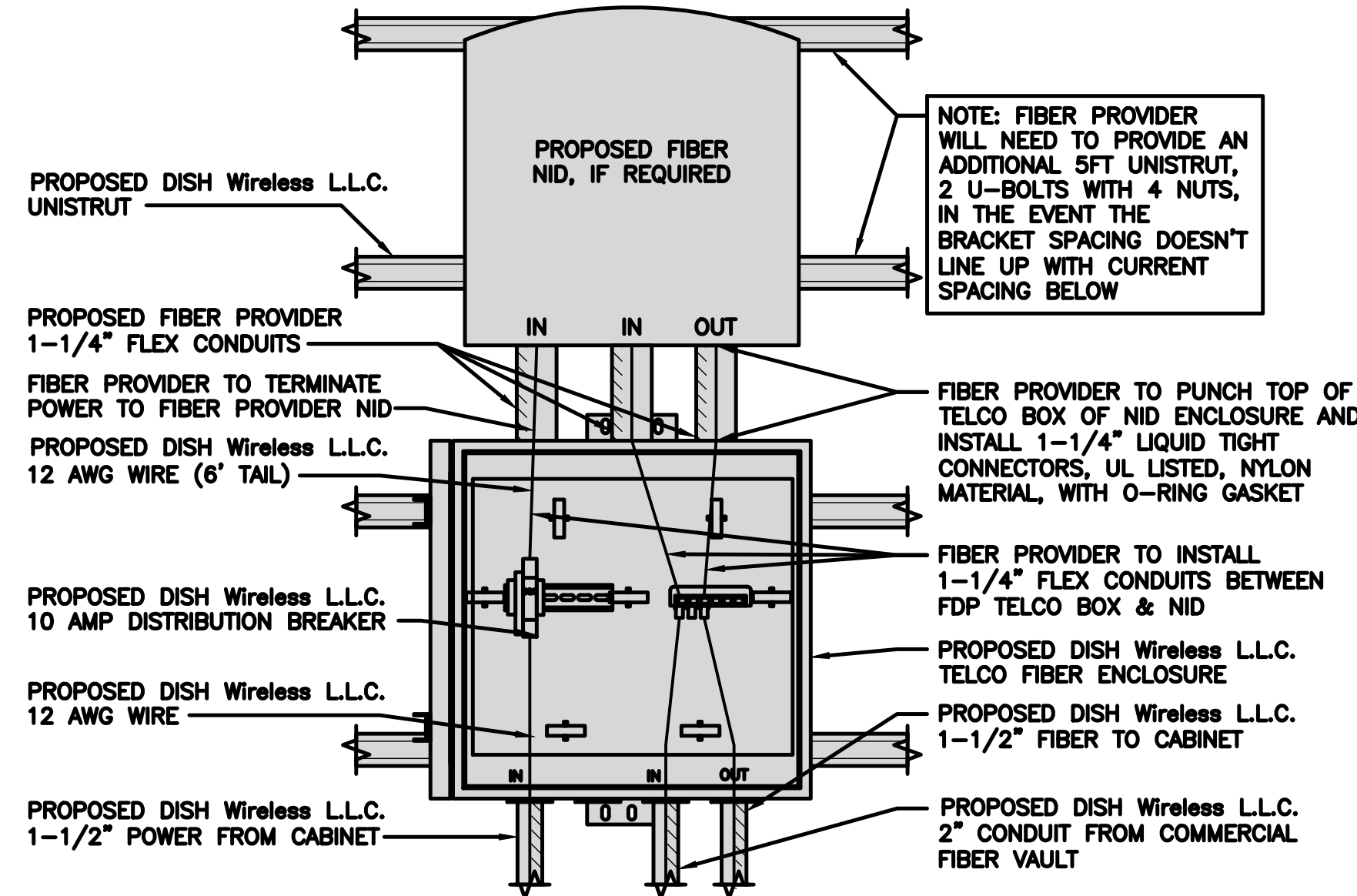
DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND -48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY -48V.

- 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.
- 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.
- LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.
- CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH THE MECHANICAL EQUIPMENT CONTRACTOR AND COMPLY AS REQUIRED.
- CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETE SYSTEM.
- CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED BY THE NEC ARTICLE 314.
- CONTRACTOR SHALL PROVIDE ALL STRAIN RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
- 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.
- 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.
- ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
- PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.
- CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.



DARK TELCO BOX – INTERIOR WIRING LAYOUT

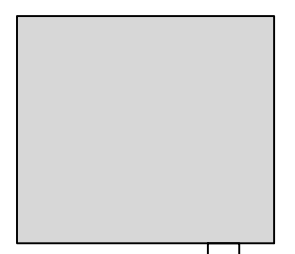
NO SCALE 2



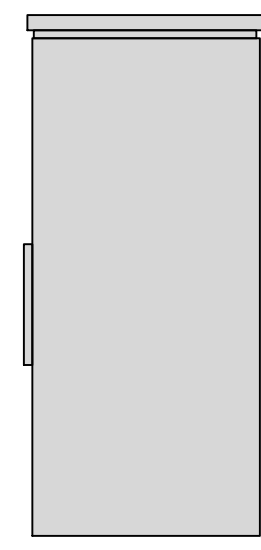
LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL)

NO SCALE 3

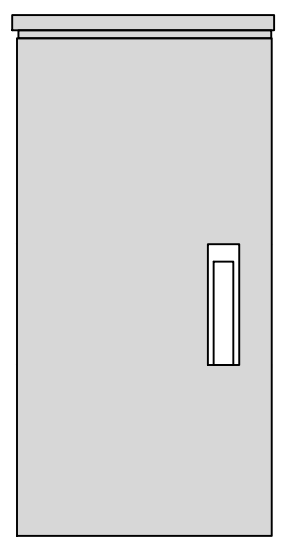
INTERSECT CAM-LOCK GENERATOR CONNECTOR ICGC-1P	
ENCLOSURE DIMENSIONS (HxWxD):	23"x10"x9.5"
	14 lbs
OPERATING AC VOLTAGE	400A, 208/120V



TOP



SIDE



FRONT

GENERATOR PLUG DETAIL

NO SCALE 4

NOT USED

NO SCALE 5

ELECTRICAL NOTES

NO SCALE 1

NOT USED

NO SCALE 6

NOT USED

NO SCALE 7

NOT USED

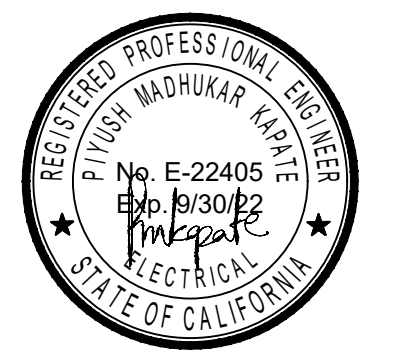
NO SCALE 8



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A&E PROJECT NUMBER
SFSF000026A

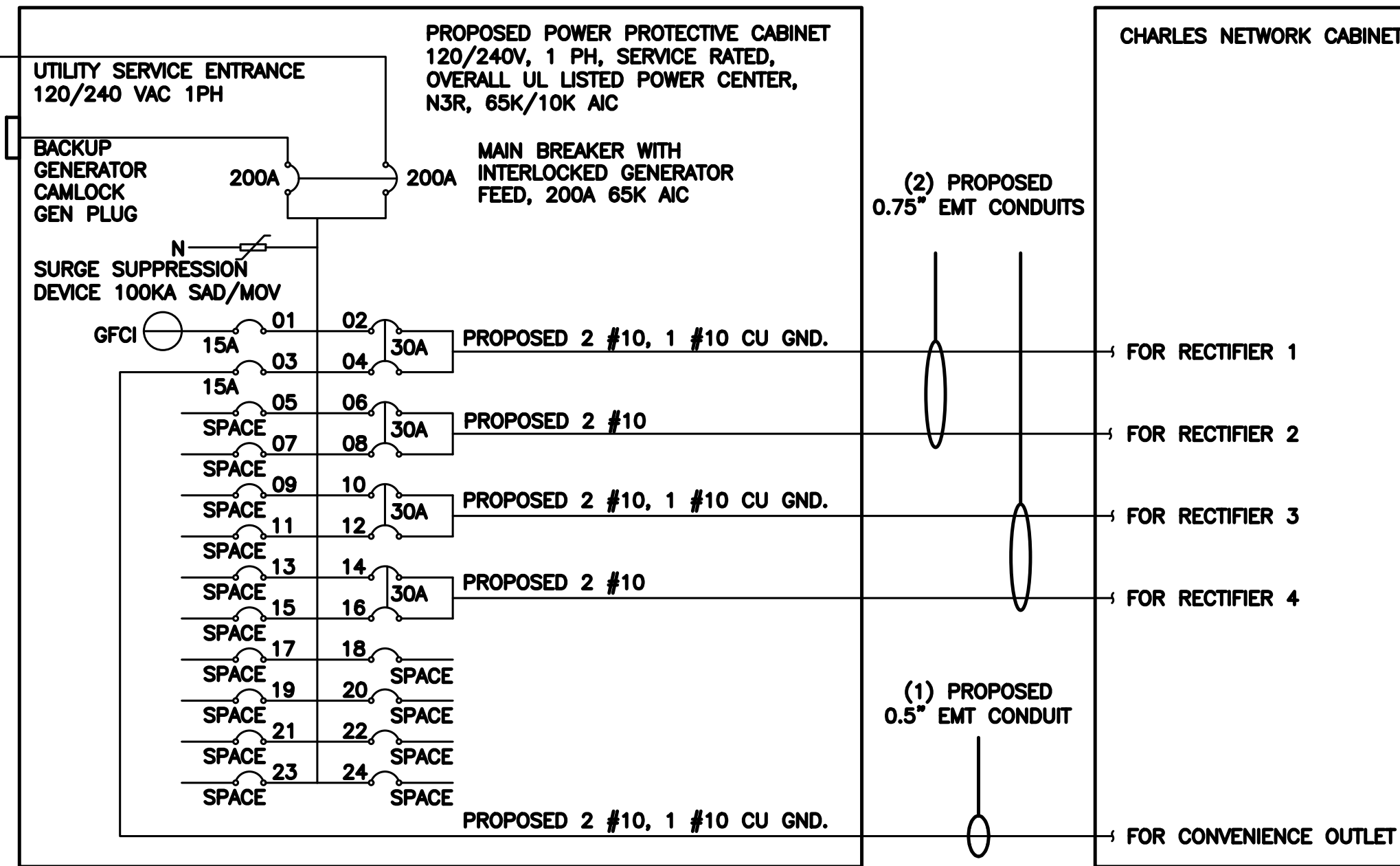
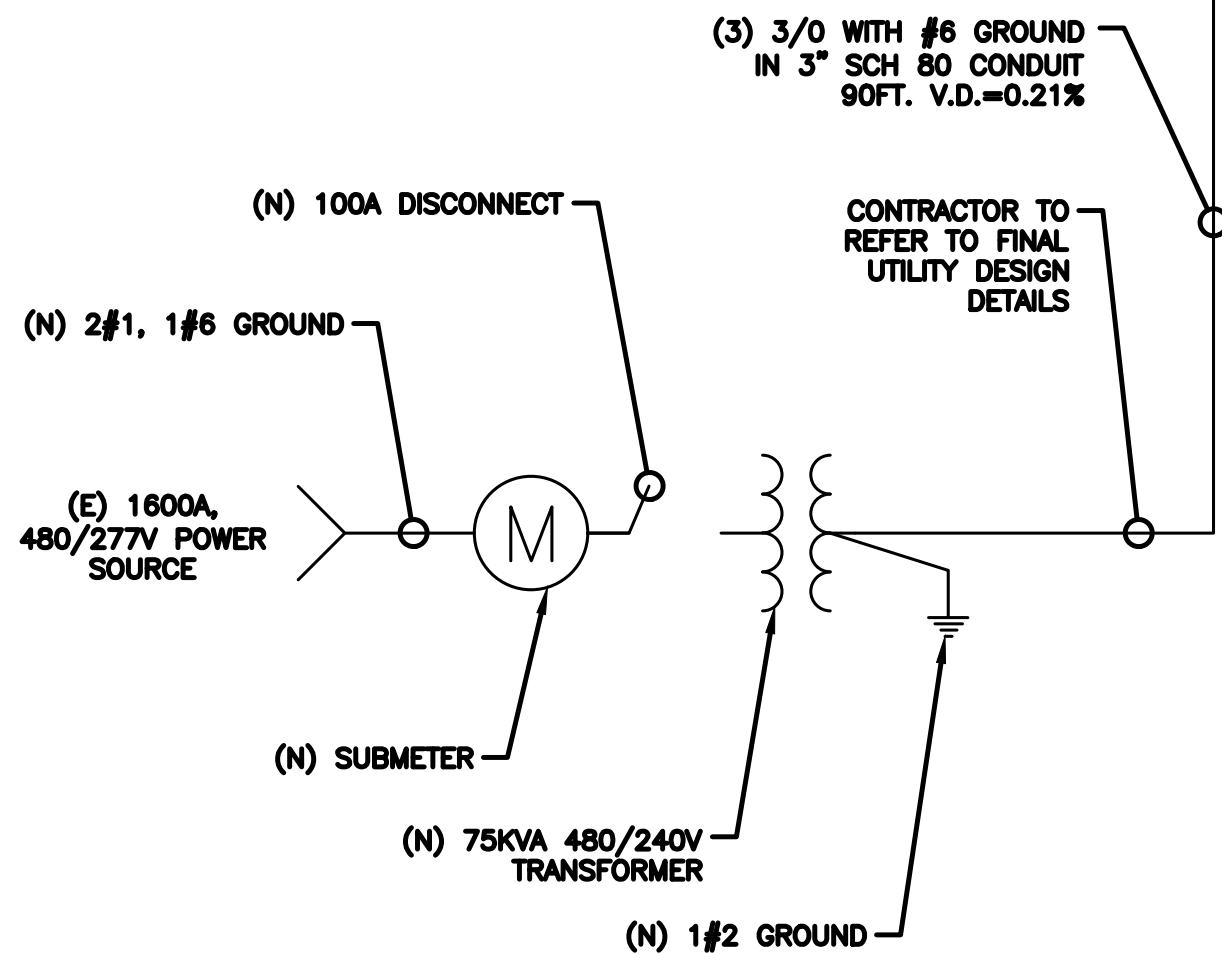
DISH Wireless L.L.C.
PROJECT INFORMATION
SFSF000026A
5341 OLD REDWOOD
HIGHWAY
PETALUMA, CA 94954

SHEET TITLE
ELECTRICAL
DETAILS

SHEET NUMBER
E-2

CONSTRUCTION NOTES

1. CONTRACTOR TO FIND APPROPRIATE LOCATION IN THE ELECTRICAL ROOM TO INSTALL (N) SUBMETER, (N) 100A DISCONNECT AND (N) TRANSFORMER TO STEP DOWN THE VOLTAGE FROM 480/277V TO 240/120V
2. CONTRACTOR TO FIND APPROPRIATE AND ACCESSIBLE LOCATION TO INSTALL (N) CAMLOCK GENERATOR CONNECTOR INTERSECT ICL NEAR THE DISH EQUIPMENT AREA AND RUN 3" CONDUIT FROM CAMLOCK TO THE (N) PPC CONDUIT



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

BREAKERS REQUIRED:
(4) 30A, 2P BREAKER - SQUARE D P/N:Q0230
(1) 15A, 1P BREAKER - SQUARE D P/N:Q0115

NOTES

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

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

THE (2) CONDUITS WITH (4) CURRENT CARRYING CONDUCTORS EACH, SHALL APPLY THE ADJUSTMENT FACTOR OF 80% PER 2014/17 NEC TABLE 310.15(B)(3)(a) OR 2020 NEC TABLE 310.15(C)(1) FOR UL1015 WIRE.

#12 FOR 15A-20A/1P BREAKER: 0.8 x 30A = 24.0A
#10 FOR 25A-30A/2P BREAKER: 0.8 x 40A = 32.0A
#8 FOR 35A-40A/2P BREAKER: 0.8 x 55A = 44.0A
#6 FOR 45A-60A/2P BREAKER: 0.8 x 75A = 60.0A

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

CABINET CONVENIENCE OUTLET CONDUCTORS (1 CONDUIT): USING THWN-2, CU.
#10 - 0.0211 SQ. IN X 2 = 0.0422 SQ. IN
#10 - 0.0211 SQ. IN X 1 = 0.0211 SQ. IN <GROUND
TOTAL = 0.0633 SQ. IN

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

RECTIFIER CONDUCTORS (2 CONDUITS): USING UL1015, CU.
#10 - 0.0266 SQ. IN X 4 = 0.1064 SQ. IN
#10 - 0.0082 SQ. IN X 1 = 0.0082 SQ. IN <BARE GROUND
TOTAL = 0.1146 SQ. IN

0.75" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (5) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

PPC FEED CONDUCTORS (1 CONDUIT): USING THWN, CU.
3/0 - 0.2679 SQ. IN X 3 = 0.8037 SQ. IN
#6 - 0.0507 SQ. IN X 1 = 0.0507 SQ. IN <GROUND
TOTAL = 0.8544 SQ. IN

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



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SUBMITTALS		
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A&E PROJECT NUMBER
SFSF000026A

DISH Wireless L.L.C.
PROJECT INFORMATION
SFSF000026A
5341 OLD REDWOOD HIGHWAY
PETALUMA, CA 94954

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

SHEET NUMBER

E-3

PPC ONE-LINE DIAGRAM

NO SCALE 1

PROPOSED CHARLES PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS)		TRIP	CKT #	PHASE	TRIP	VOLT AMPS (WATTS)		LOAD SERVED	
	L1	L2					L1	L2		
PPC GFCI OUTLET	180	180	15A	1	A	30A	2880	2880	ABB/GE INFINITY RECTIFIER 1	
CHARLES GFCI OUTLET			15A	3	B	30A	2880	2880	ABB/GE INFINITY RECTIFIER 1	
-SPACE-				5	A	30A	2880	2880	ABB/GE INFINITY RECTIFIER 2	
-SPACE-				7	B	30A	2880	2880	ABB/GE INFINITY RECTIFIER 2	
-SPACE-				9	A	30A	2880	2880	ABB/GE INFINITY RECTIFIER 3	
-SPACE-				11	B	30A	2880	2880	ABB/GE INFINITY RECTIFIER 3	
-SPACE-				13	A	30A	2880	2880	ABB/GE INFINITY RECTIFIER 4	
-SPACE-				15	B	30A	2880	2880	ABB/GE INFINITY RECTIFIER 4	
-SPACE-				17	A				-SPACE-	
-SPACE-				19	B				-SPACE-	
-SPACE-				21	A				-SPACE-	
-SPACE-				23	B				-SPACE-	
VOLTAGE AMPS			180	180			11520	11520		
200A MCB, 1, 24 SPACE, 120/240V			L1	L2			VOLTAGE AMPS			
MB RATING: 65,000 AIC			11700	11700			AMPS			
			98	98			MAX AMPS			
			98				MAX 125%			
			123							

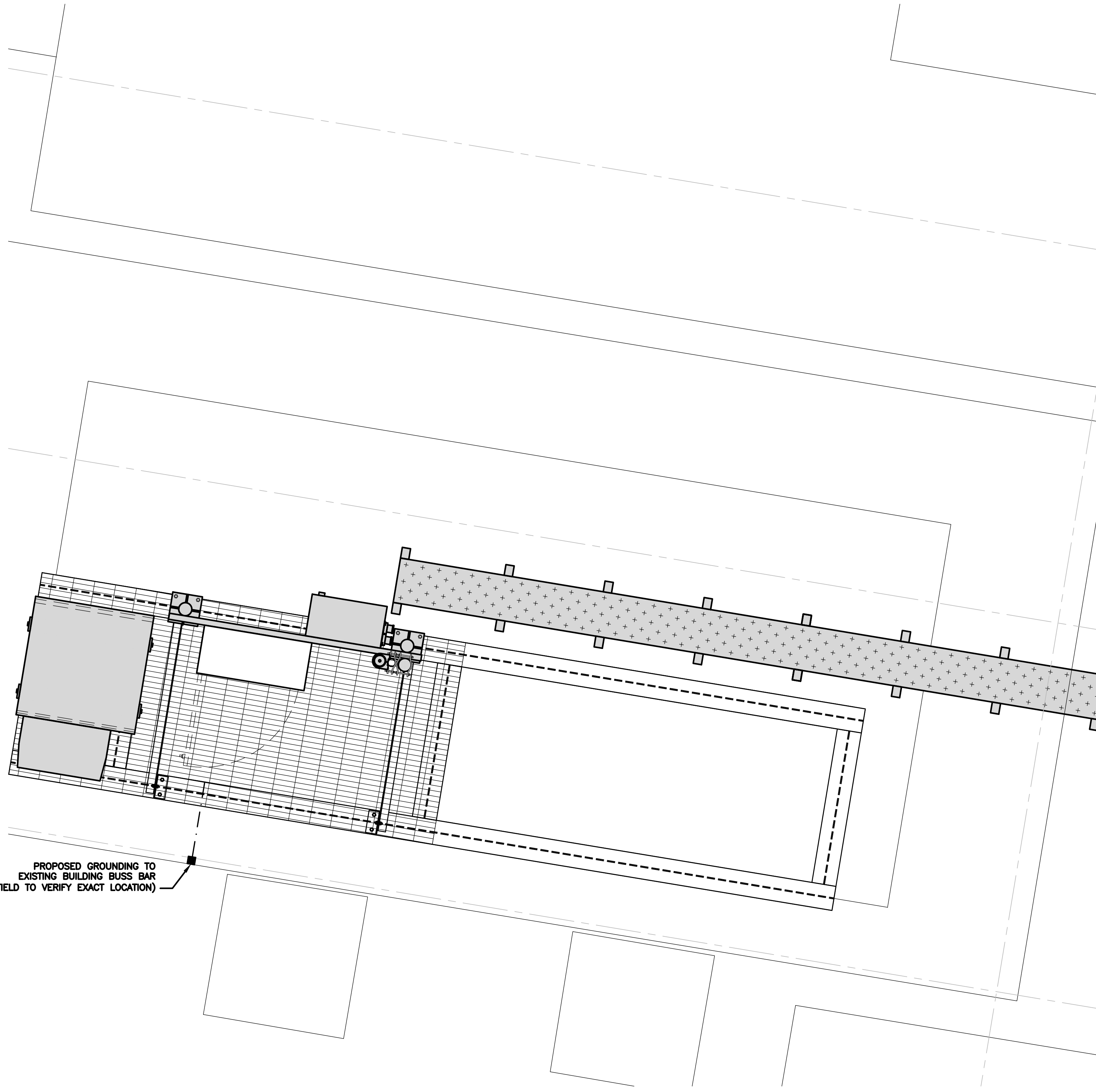
Nominal Voltage	PHASE	WIRE SIZE	DISTANCE	Max I (MAX RMS AMPS PER TERMINAL OF A LOAD)	OHMS/KFT	OHMS (DIST*OHMS/K FT)	MULTIPLIER (1PHASE OR 3PHASE)	FORMULA FOR VOLTAGE DROP	VOLTAGE DROP	FORMULA FOR %VD	%VD
480	1	3/0	80	80	0.08	0.00616	2	80.00 X 0.01386 X 2 =	0.9856	(0.956/480) X 100 =	0.2053

PANEL SCHEDULE

NO SCALE 2

NOT USED

NO SCALE 3



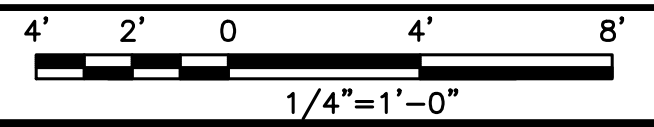
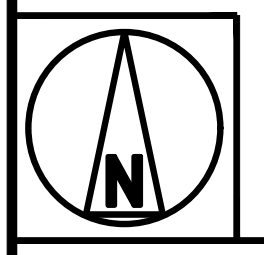
- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- ▬ GROUND BUS BAR
- GROUND ROD
- T TEST GROUND ROD WITH INSPECTION SLEEVE
- #6 AWG STRANDED & INSULATED
- · - · - #2 AWG SOLID COPPER TINNED
- ▲ BUSS BAR INSULATOR

GROUNDING LEGEND

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

GROUNDING ROOFTOP 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) **ROOFTOP GROUND SYSTEM:** THE 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 OR ROOM.
- (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 (CRGB):** 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 COMMON BUILDING GROUND SYSTEM WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.
- (G) **HATCH PLATE GROUND BAR:** BOND TO THE COMMON BUILDING GROUND SYSTEM 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 ROOM. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH MECHANICAL CONNECTIONS.
- (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 EQUIPMENTS METAL FRAMEWORK.
- (K) **INTERIOR UNIT BONDS:** METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.
- (L) **FENCE AND GATE GROUNDING:** METAL FENCES SHALL BE BONDED TO THE COMMON BUILDING GROUND SYSTEM 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 COMMON BUILDING GROUND SYSTEM. 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) **ROOFTOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO COMMON BUILDING GROUND SYSTEM. REFER TO DISH Wireless L.L.C. GROUNDING NOTES.**



GROUNDING PLAN

GROUNDING KEY NOTES

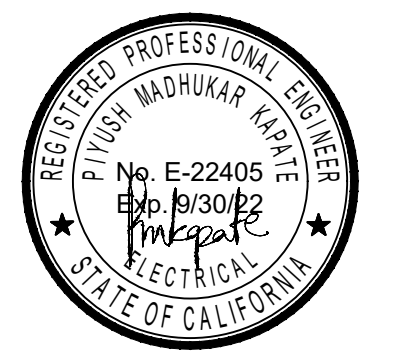
NO SCALE 2



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LITTLETON, CO 80120



2840 HOWE ROAD, SUITE E
MARTINEZ, CA 94553
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RFDS REV #: 12/20/2021 REV 3

CONSTRUCTION DOCUMENTS

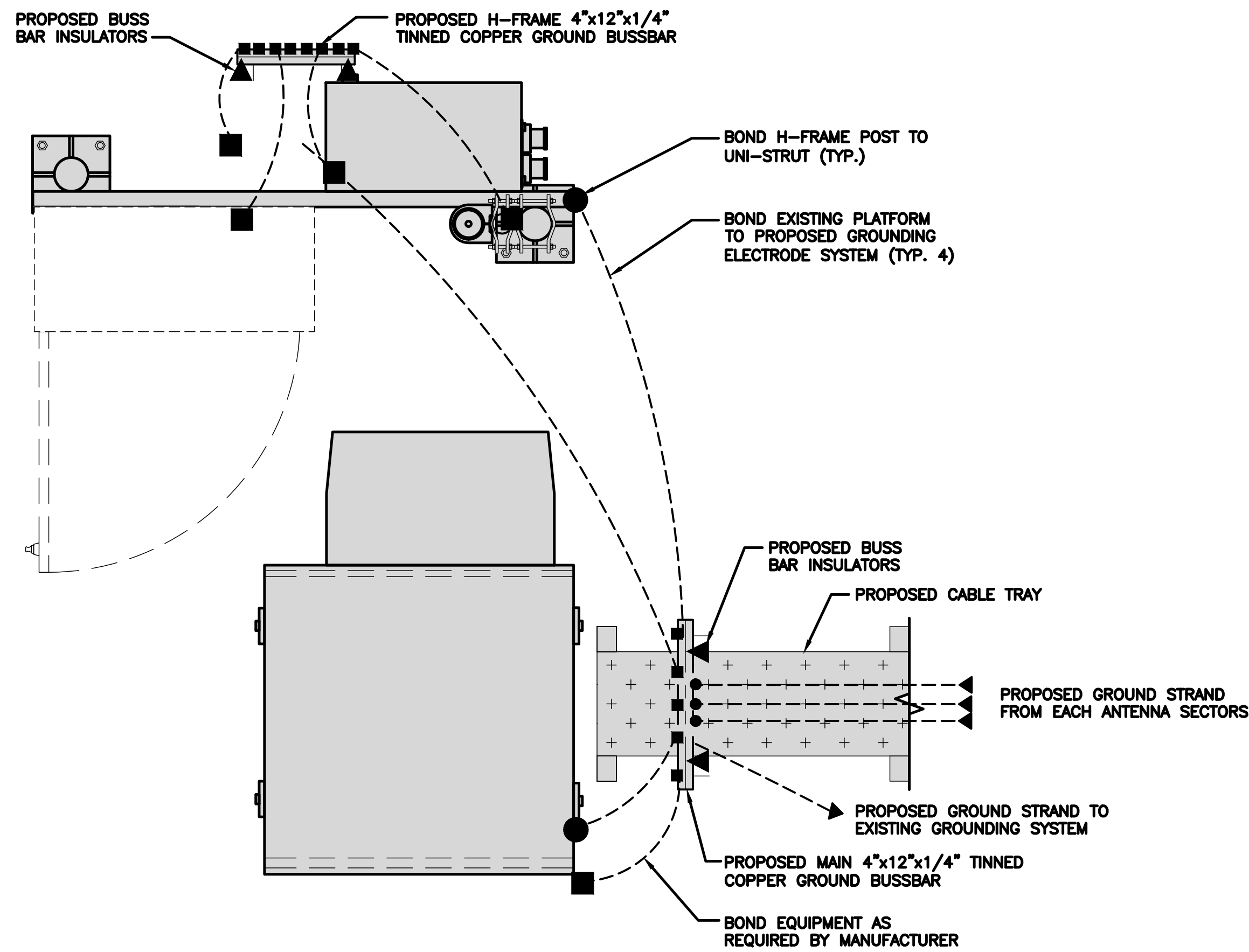
SUBMITTALS		
REV	DATE	DESCRIPTION
A	06/06/2022	90% CDS ISSUED FOR REVIEW
B	06/10/2022	100% CONSTRUCTION DRAWINGS
C	06/11/2022	PLAN CHECK COMMENTS

A&E PROJECT NUMBER
SFSF00026A

DISH Wireless L.L.C.
PROJECT INFORMATION
SFSF00026A
5341 OLD REDWOOD
HIGHWAY
PETALUMA, CA 94954

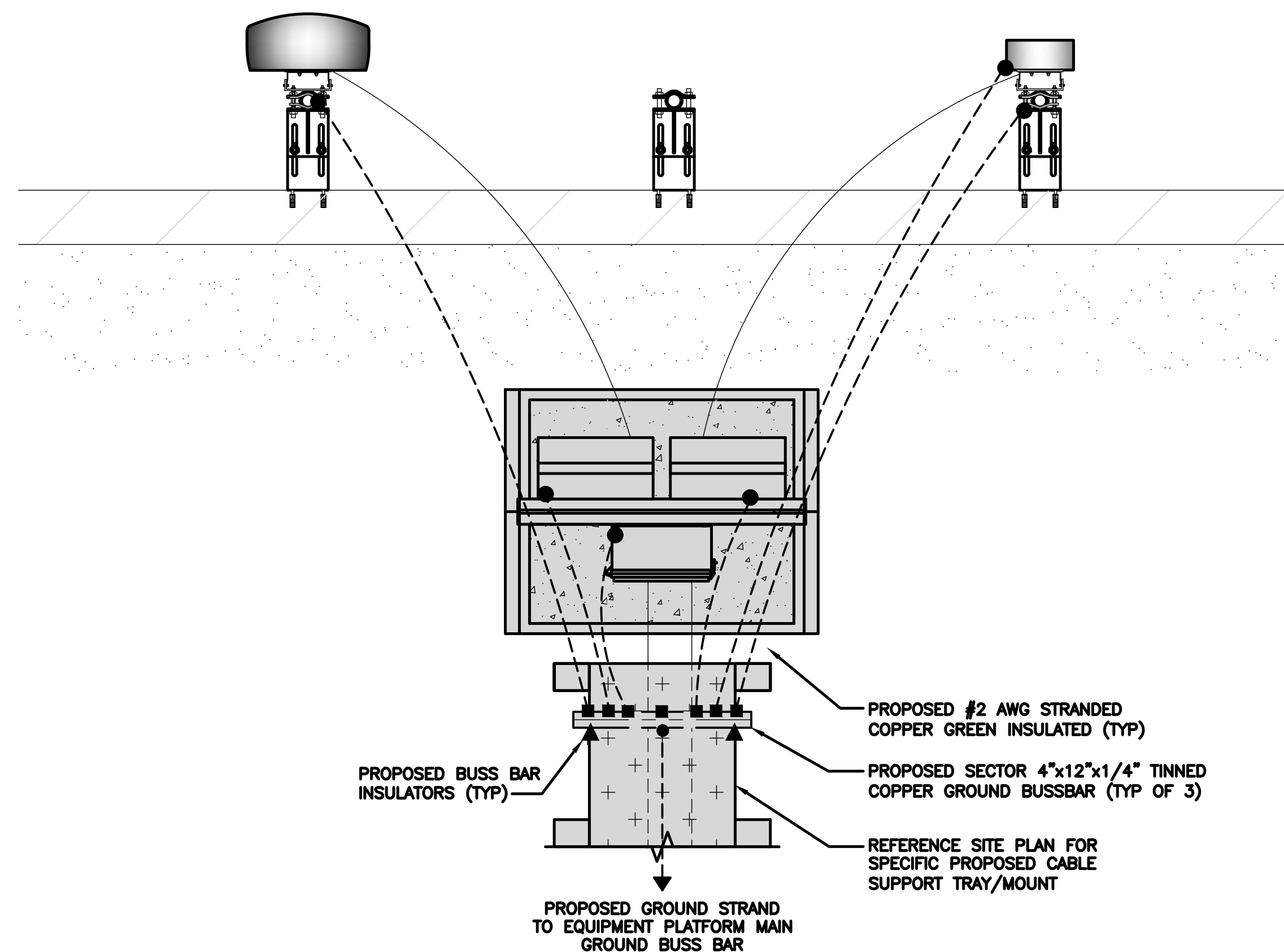
SHEET TITLE
GROUNDING PLANS
AND NOTES

SHEET NUMBER
G-1



TYPICAL ROOFTOP EQUIPMENT GROUNDING PLAN

NO SCALE 1

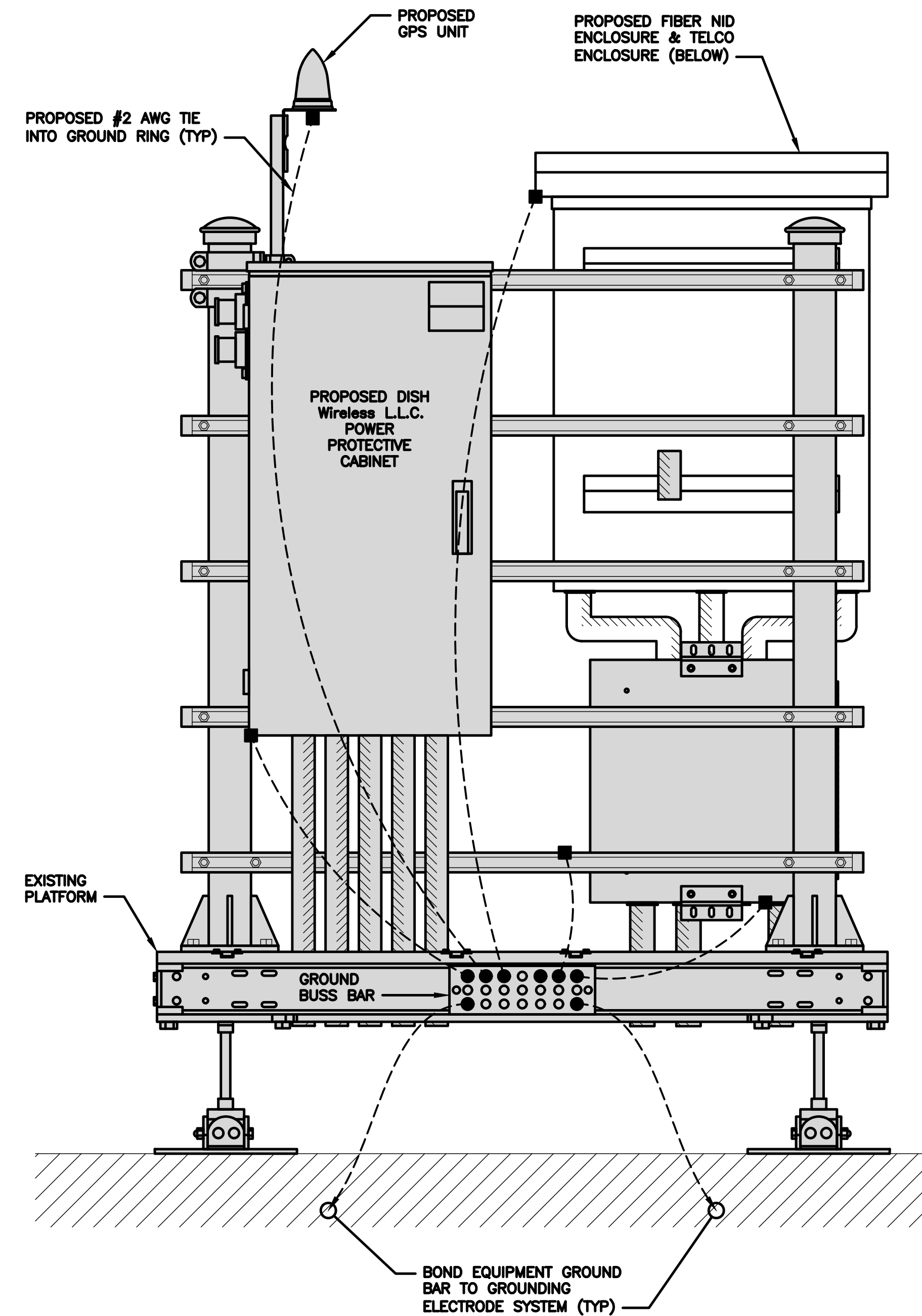


TYPICAL ROOFTOP ANTENNA GROUNDING PLAN

NO SCALE 2

NOTE

EQUIPMENT CABINET OMITTED FOR CLARITY



H-FRAME GROUNDING DETAIL

NO SCALE 3



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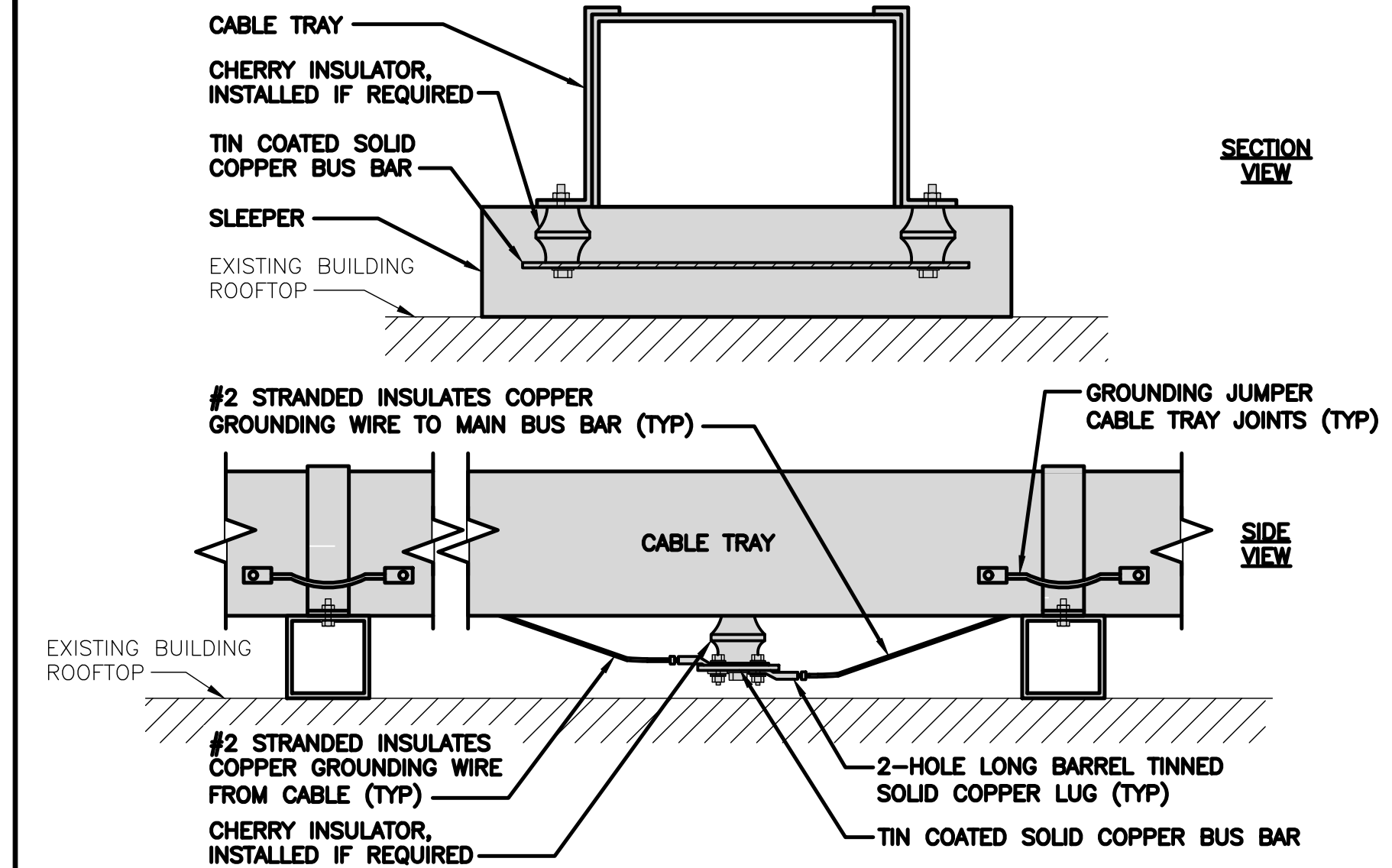
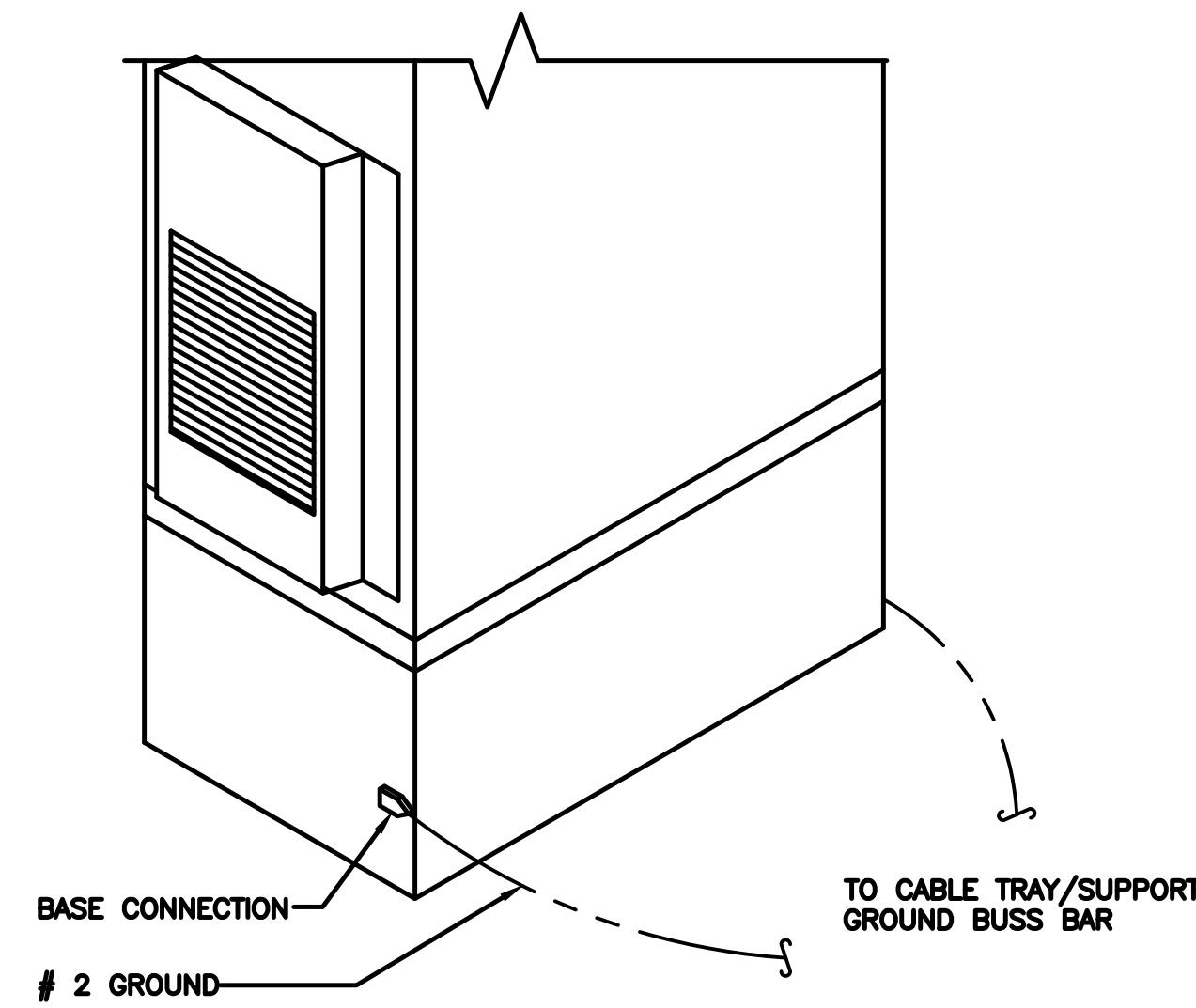
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SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER

G-2

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



TYPICAL GROUNDING NOTES

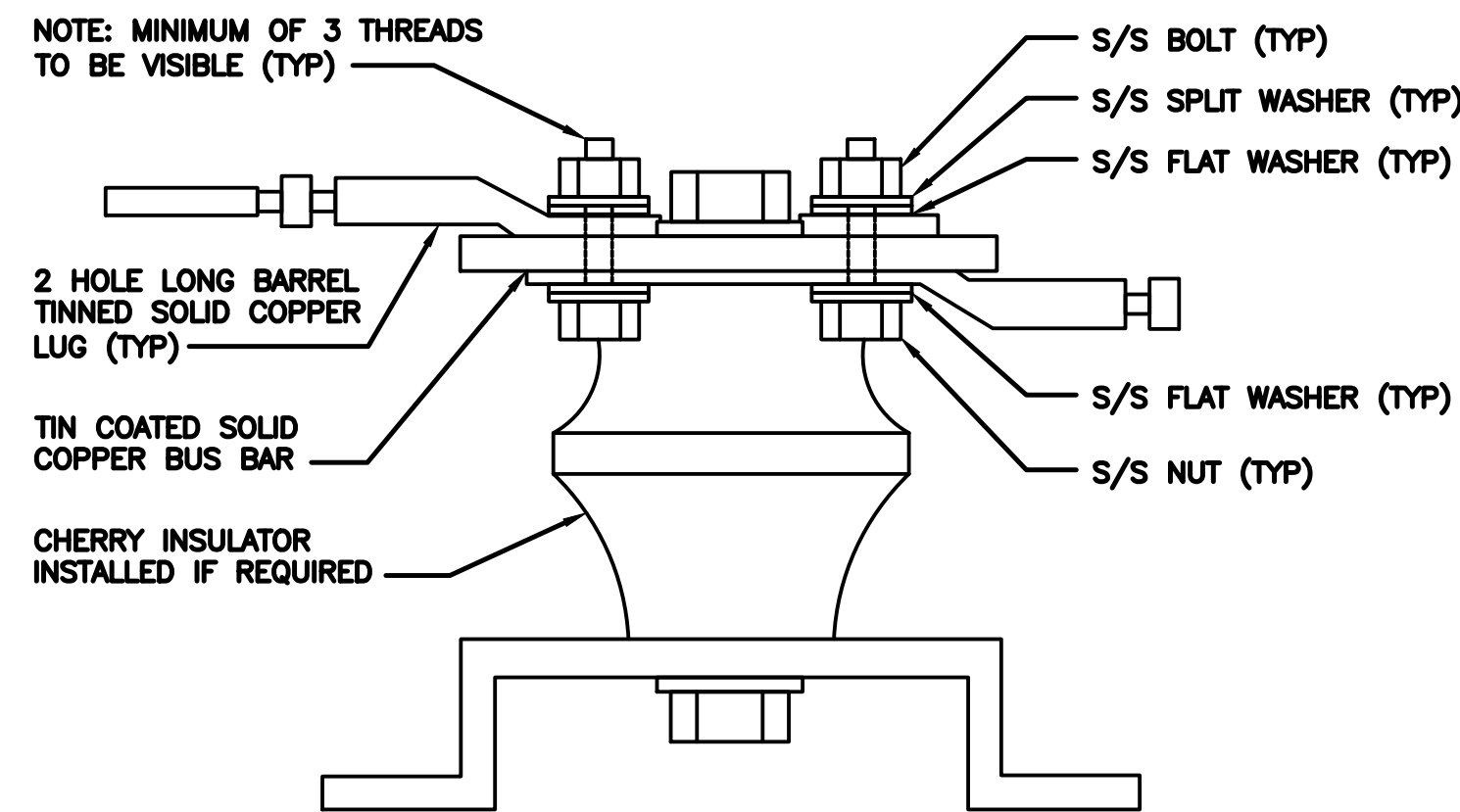
NO SCALE 1

OUTDOOR CABINET GROUNDING

NO SCALE 2

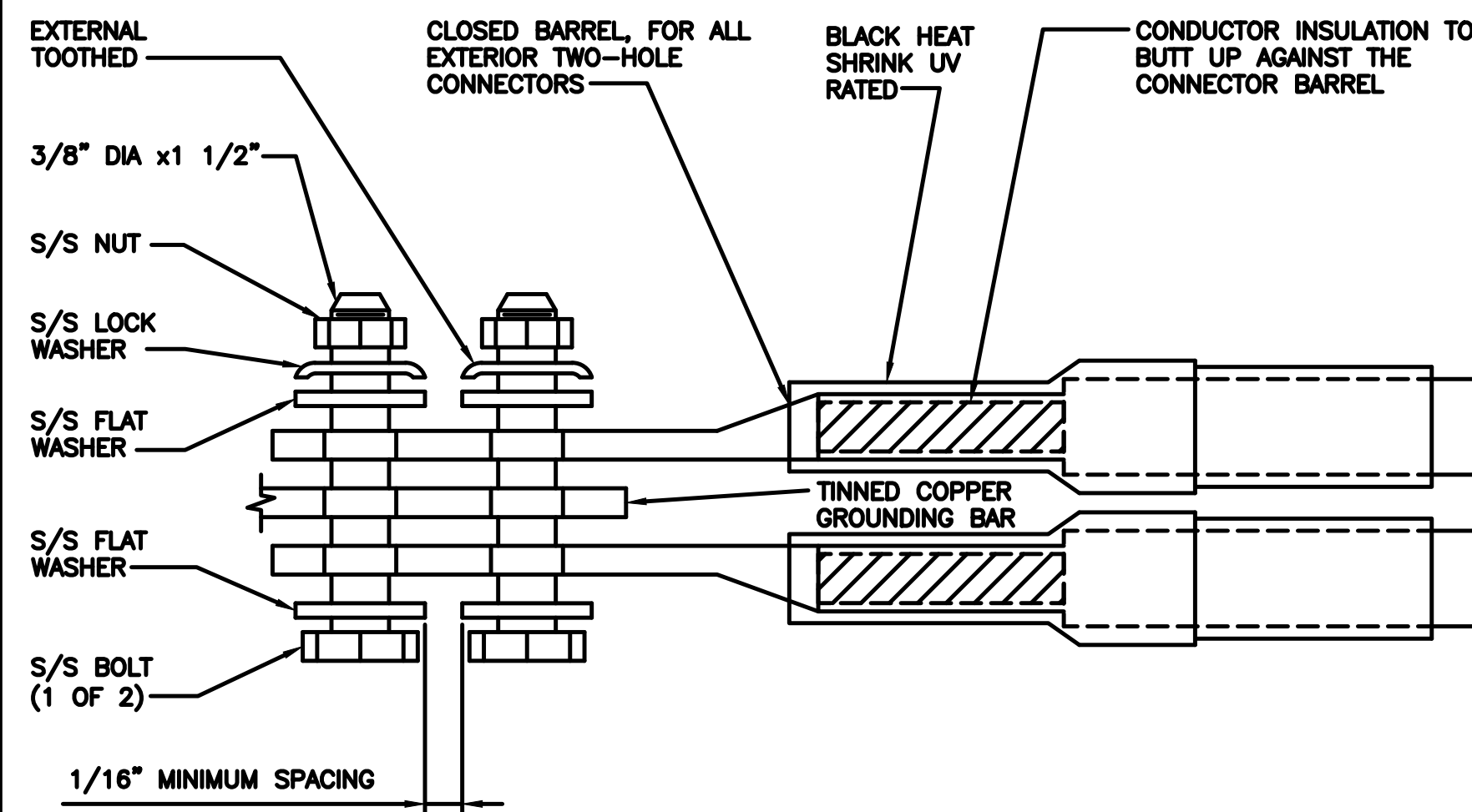
TYPICAL CABLE TRAY GROUND BUSS BAR

NO SCALE 3



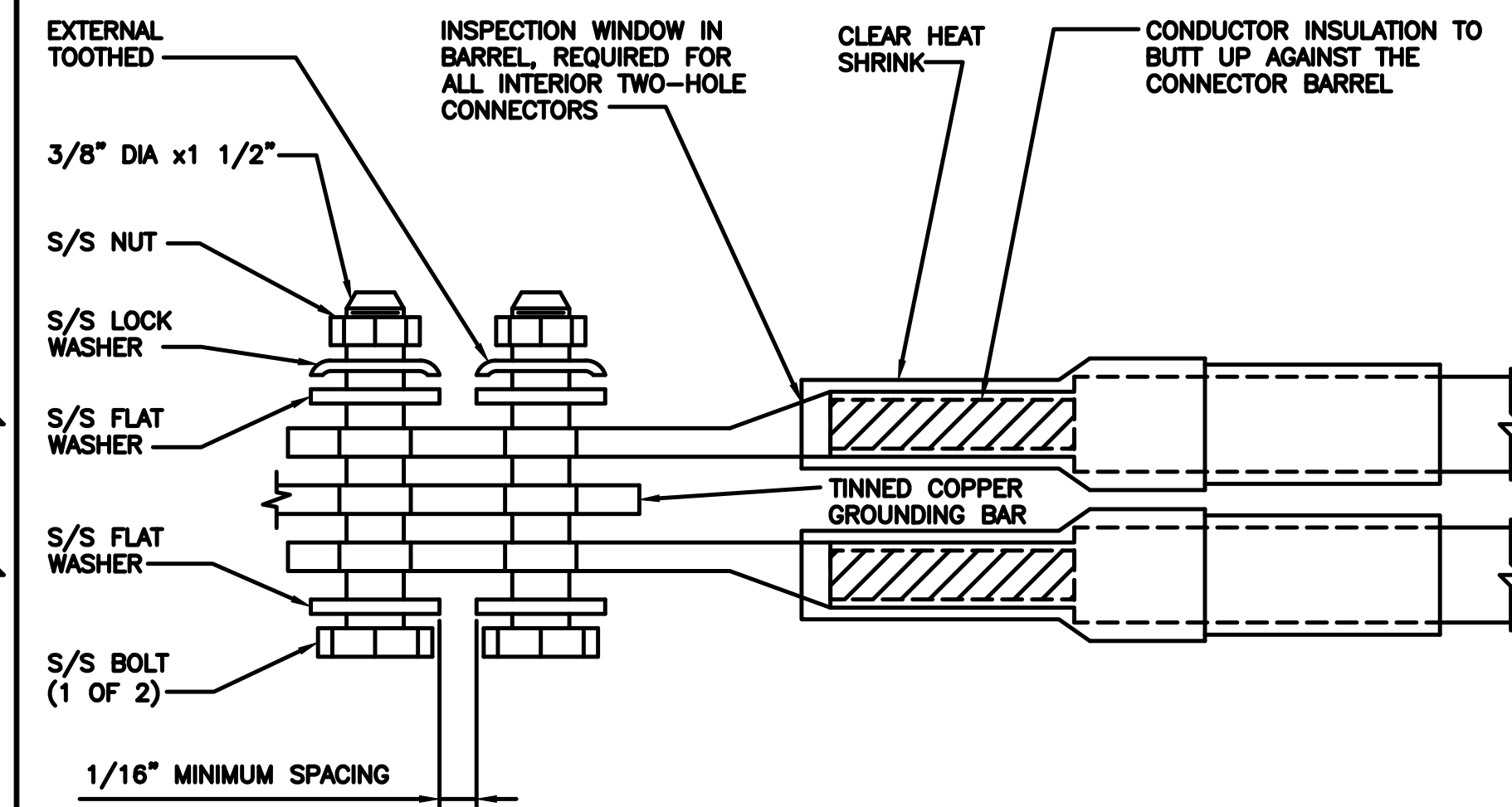
LUG DETAIL

NO SCALE 4



TYPICAL EXTERIOR TWO HOLE LUG

NO SCALE 5



TYPICAL INTERIOR TWO HOLE LUG

NO SCALE 6

NOT USED

NO SCALE 7

NOT USED

NO SCALE 8

NOT USED

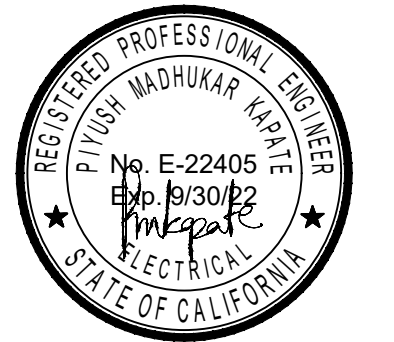
NO SCALE 9



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GROUNDING DETAILS

SHEET NUMBER

G-3

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

RF CABLE COLOR CODES

NO SCALE

1

NOT USED

NO SCALE

4

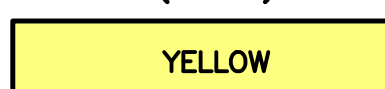
LOW BANDS (N71+N26)
OPTIONAL - (N29)



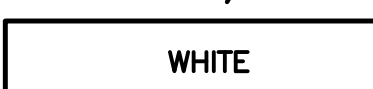
AWS
(N66+N70+H-BLOCK)



CBRS TECH
(3 GHz)



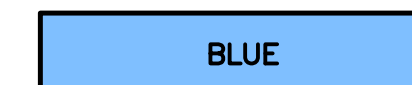
NEGATIVE SLANT PORT
ON ANT/RRH



ALPHA SECTOR



BETA SECTOR



GAMMA SECTOR



COLOR IDENTIFIER

NO SCALE

2

NOT USED

NO SCALE

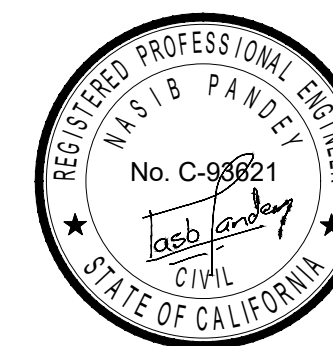
3



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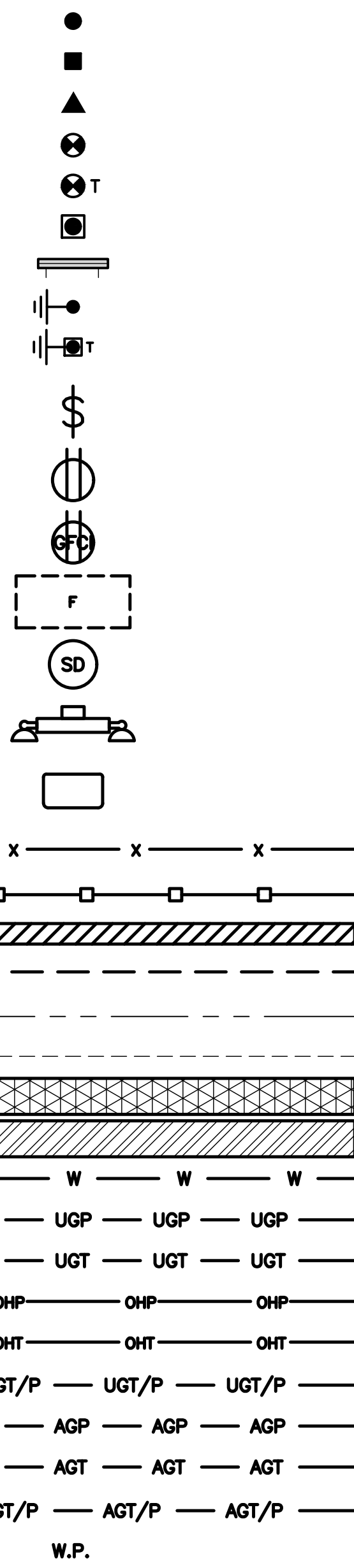
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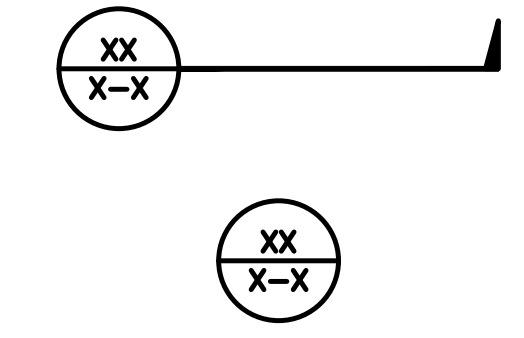
SHEET TITLE
RF
CABLE COLOR CODE

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

ABBREVIATIONS



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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.
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RFDS REV #: 12/20/2021 REV 3

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	06/06/2022	90% CDS ISSUED FOR REVIEW
B	06/10/2022	100% CONSTRUCTION DRAWINGS
C	06/11/2022	PLAN CHECK COMMENTS

A&E PROJECT NUMBER
SFSF00026A

DISH Wireless L.L.C.
PROJECT INFORMATION
SFSF00026A
5341 OLD REDWOOD
HIGHWAY
PETALUMA, CA 94954

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.

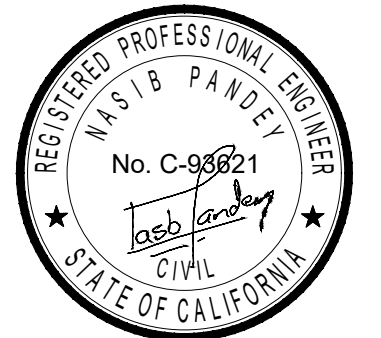
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL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



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RFDS REV #: 12/20/2021 REV 3

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	06/06/2022	90% CDS ISSUED FOR REVIEW
B	06/10/2022	100% CONSTRUCTION DRAWINGS
C	06/11/2022	PLAN CHECK COMMENTS

A&E PROJECT NUMBER
SFSF00026A

DISH Wireless L.L.C.
PROJECT INFORMATION
SFSF00026A
5341 OLD REDWOOD
HIGHWAY
PETALUMA, CA 94954

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-3

GROUNDING NOTES:

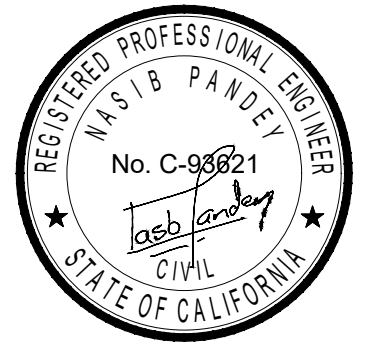
1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (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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RFDS REV #: 12/20/2021 REV 3

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	06/06/2022	90% CDS ISSUED FOR REVIEW
B	06/10/2022	100% CONSTRUCTION DRAWINGS
C	06/11/2022	PLAN CHECK COMMENTS

A&E PROJECT NUMBER
SFSF000026A

DISH Wireless L.L.C.
PROJECT INFORMATION
SFSF000026A
5341 OLD REDWOOD
HIGHWAY
PETALUMA, CA 94954

SHEET TITLE
GENERAL NOTES

SHEET NUMBER

GN-4

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

SIGN PLACEMENT:

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

NOTES:

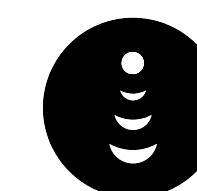
1. FOR DISH Wireless L.L.C. LOGO, SEE DISH Wireless L.L.C. DESIGN SPECIFICATIONS (PROVIDED BY DISH Wireless L.L.C.)
2. SITE ID SHALL BE APPLIED TO SIGNS USING "LASER ENGRAVING" OR ANY OTHER WEATHER RESISTANT METHOD (DISH Wireless L.L.C. APPROVAL REQUIRED)
3. TEXT FOR SIGNAGE SHALL INDICATE CORRECT SITE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

INFORMATION

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

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

Site ID: _____



THIS SIGN IS FOR REFERENCE PURPOSES ONLY



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LITTLETON, CO 80120



2840 HOWE ROAD, SUITE E
MARTINEZ, CA 94553
www.TheCBRGroup.com



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DRAWN BY: _____ CHECKED BY: _____ APPROVED BY: _____
MS/WM

RFDS REV #: 12/20/2021 REV 3

CONSTRUCTION DOCUMENTS

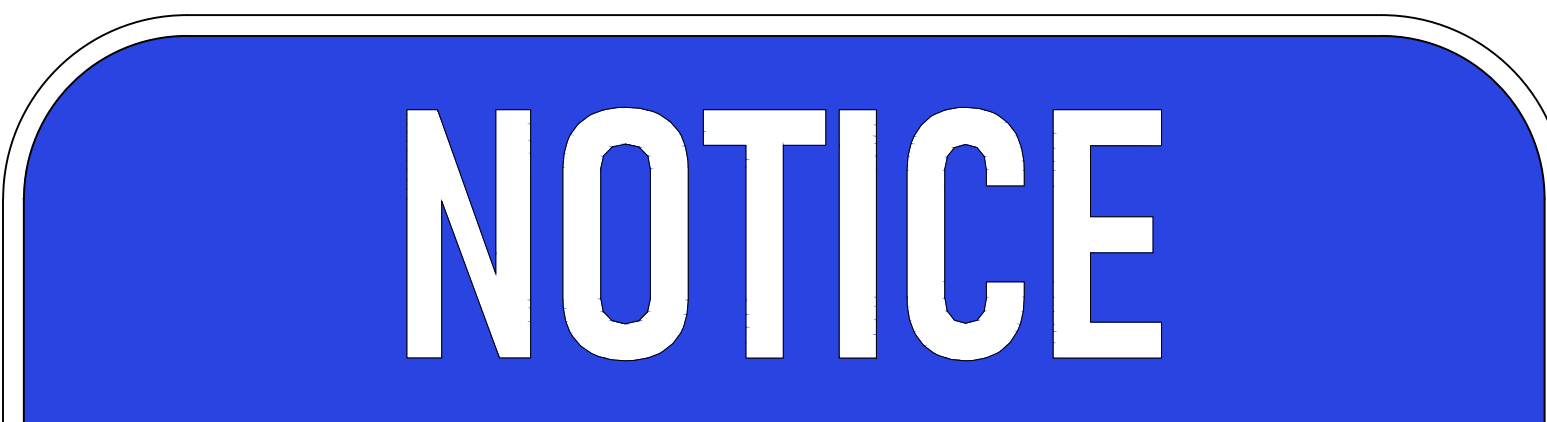
SUBMITTALS		
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C	06/11/2022	PLAN CHECK COMMENTS

A&E PROJECT NUMBER
SFSFO00026A

DISH Wireless L.L.C.
PROJECT INFORMATION
SFSFO00026A
5341 OLD REDWOOD
HIGHWAY
PETALUMA, CA 94954

SHEET TITLE
RF SIGNAGE

SHEET NUMBER
GN-5



Transmitting Antenna(s)

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

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

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

Site ID: _____



THIS SIGN IS FOR REFERENCE PURPOSES ONLY



Transmitting Antenna(s)

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

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Transmitting Antenna(s)

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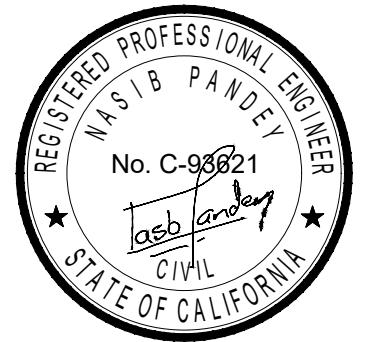
RF SIGNAGE



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LITTLETON, CO 80120



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DISH Wireless L.L.C.
PROJECT INFORMATION

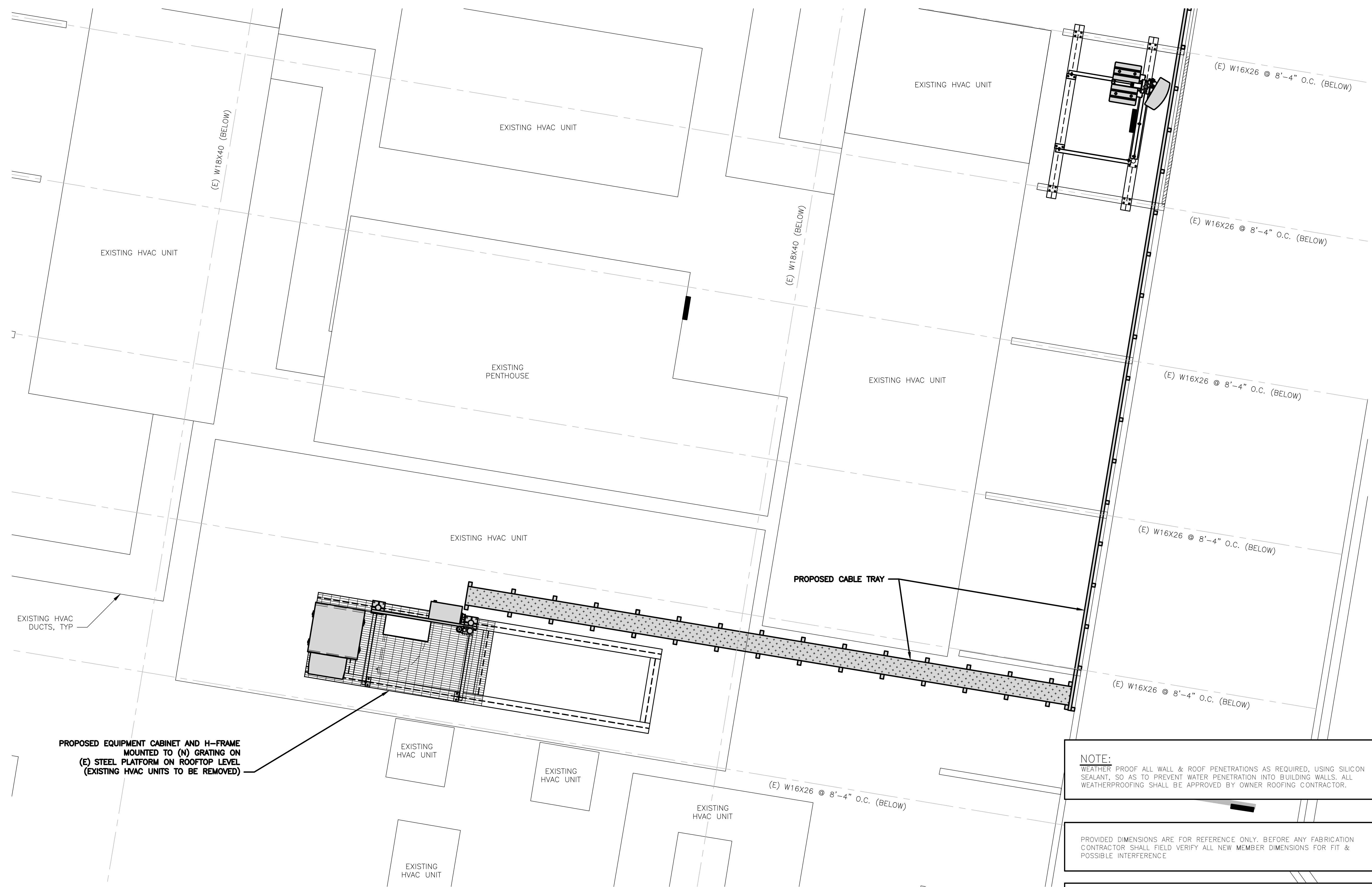
SFSF000026A
5341 OLD REDWOOD
HIGHWAY
PETALUMA, CA 94954

SHEET TITLE

PLAN VIEW

SHEET NUMBER

S-1

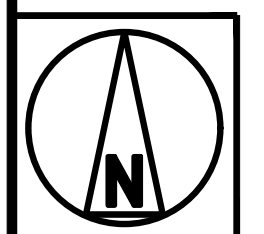


PROPOSED EQUIPMENT CABINET AND H-FRAME MOUNTED TO (N) GRATING ON (E) STEEL PLATFORM ON ROOFTOP LEVEL (EXISTING HVAC UNITS TO BE REMOVED)

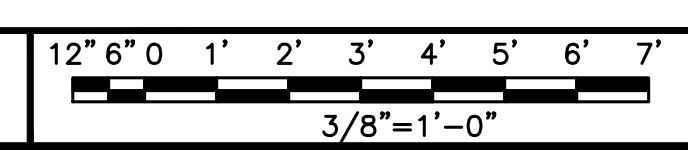
NOTE:
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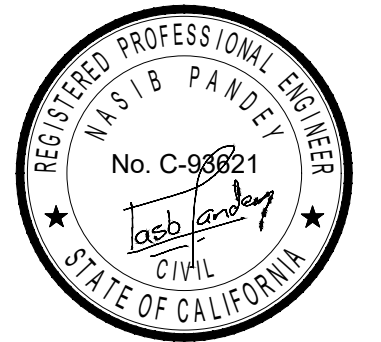
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PLAN VIEW





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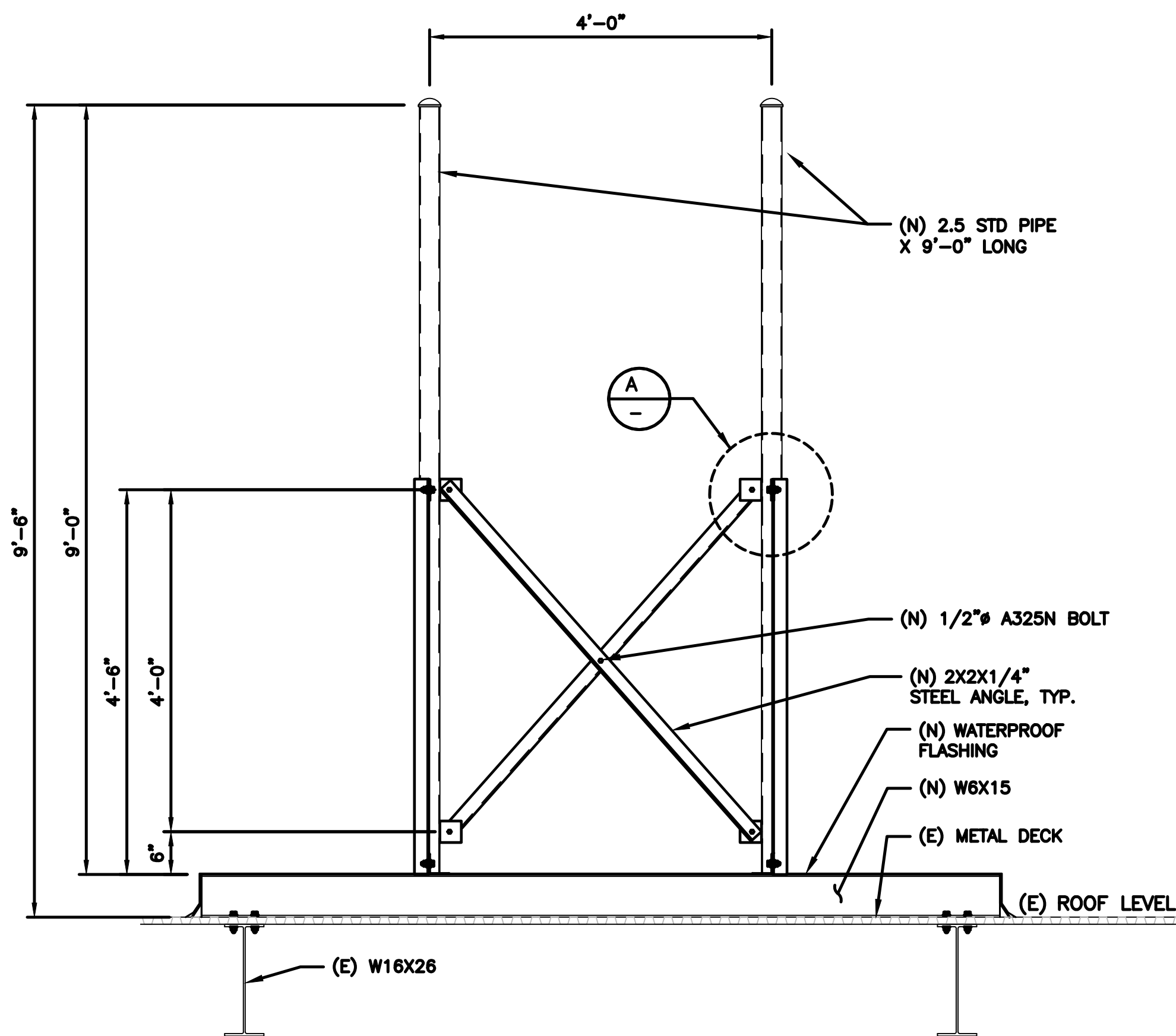
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PROJECT INFORMATION
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PETALUMA, CA 94954

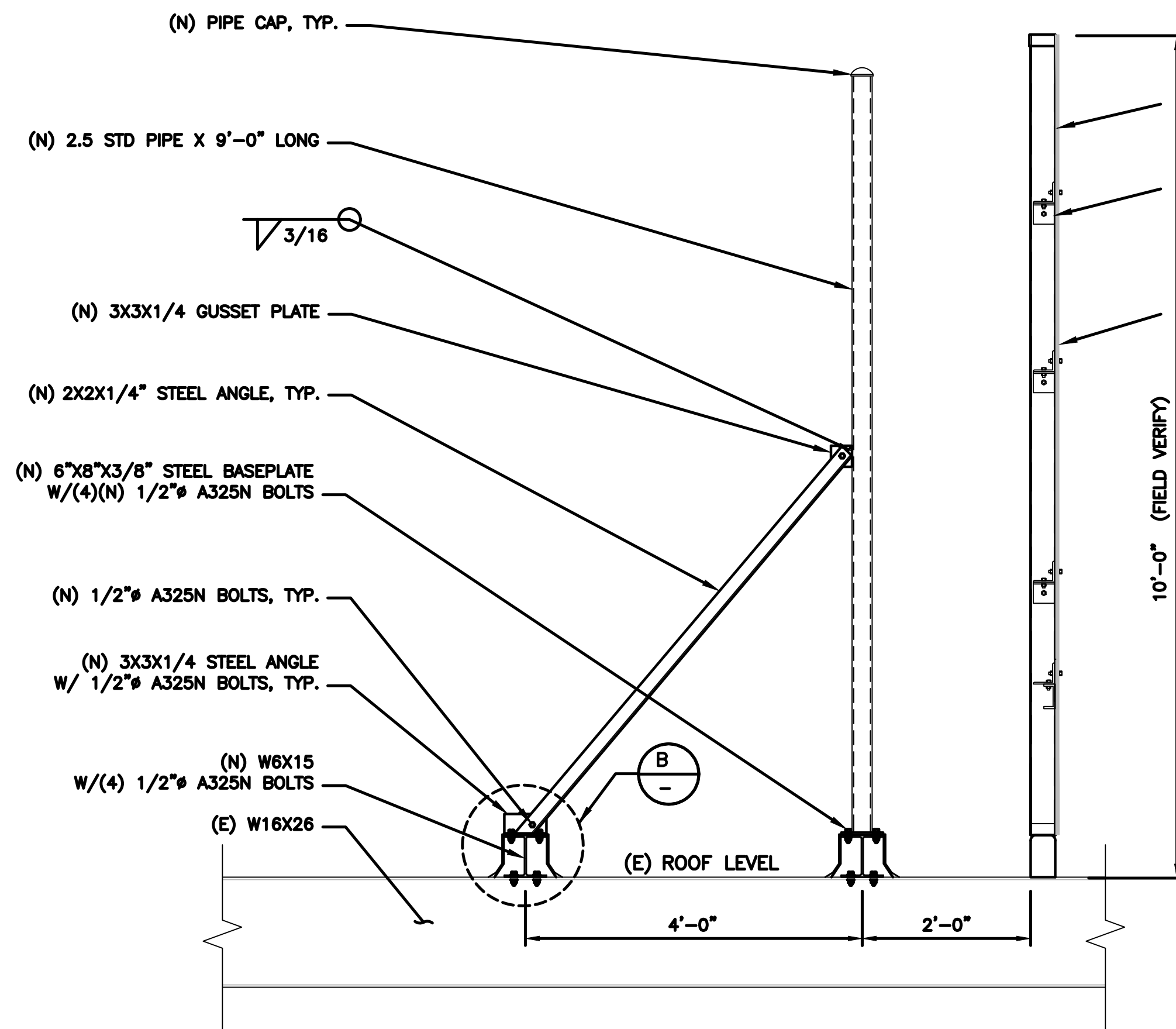
SHEET TITLE
STRUCTURAL DETAILS

SHEET NUMBER

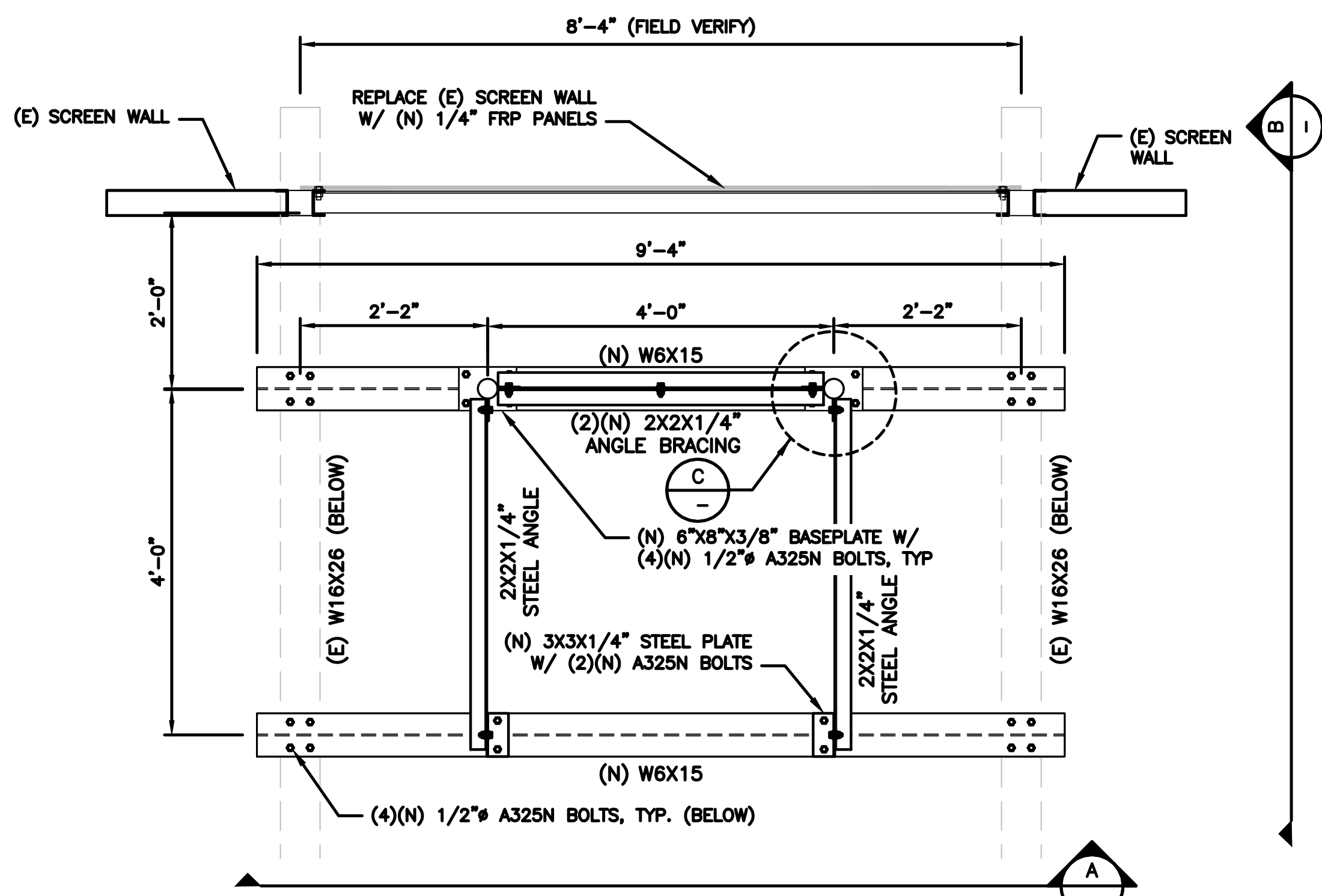
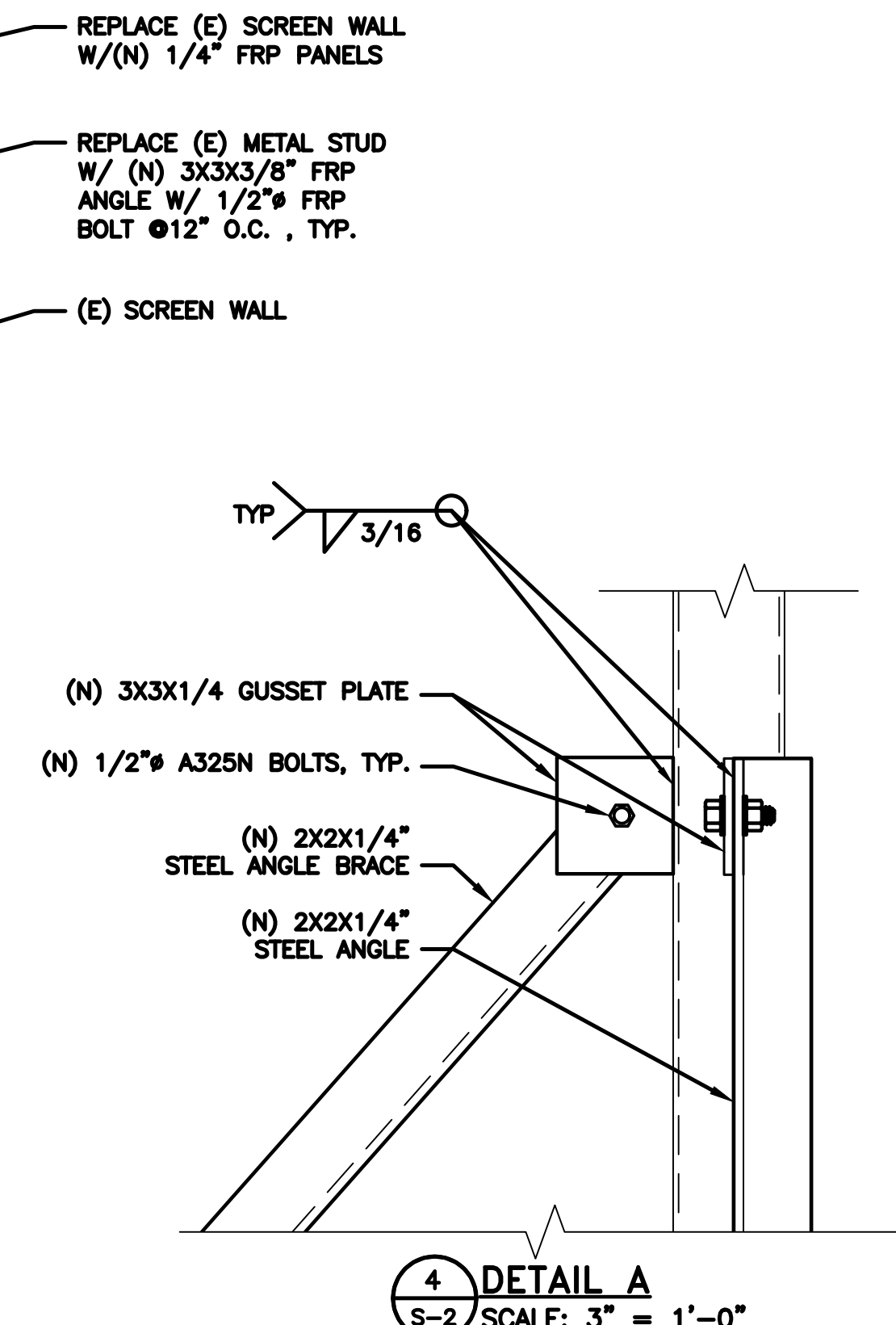
S-2



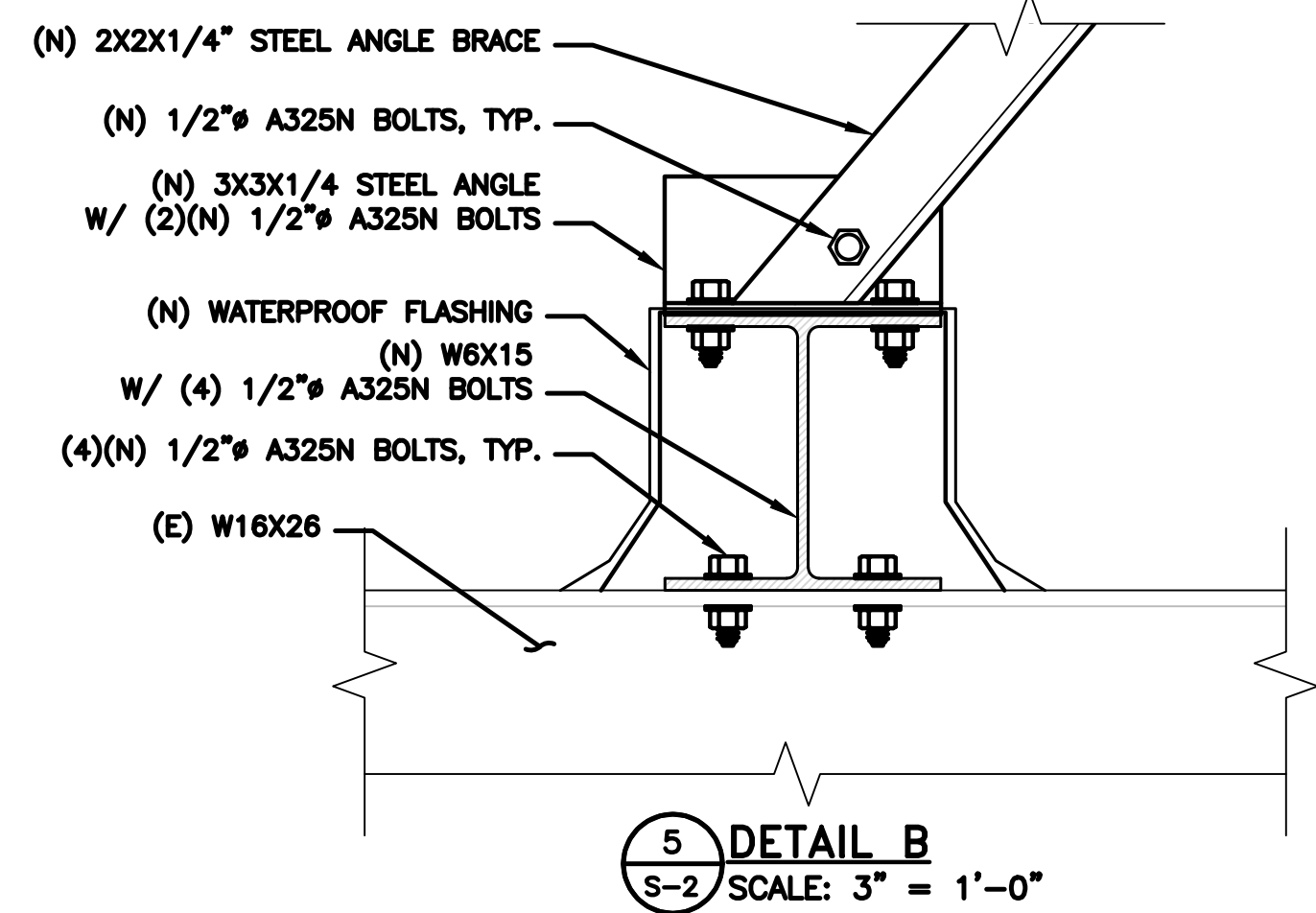
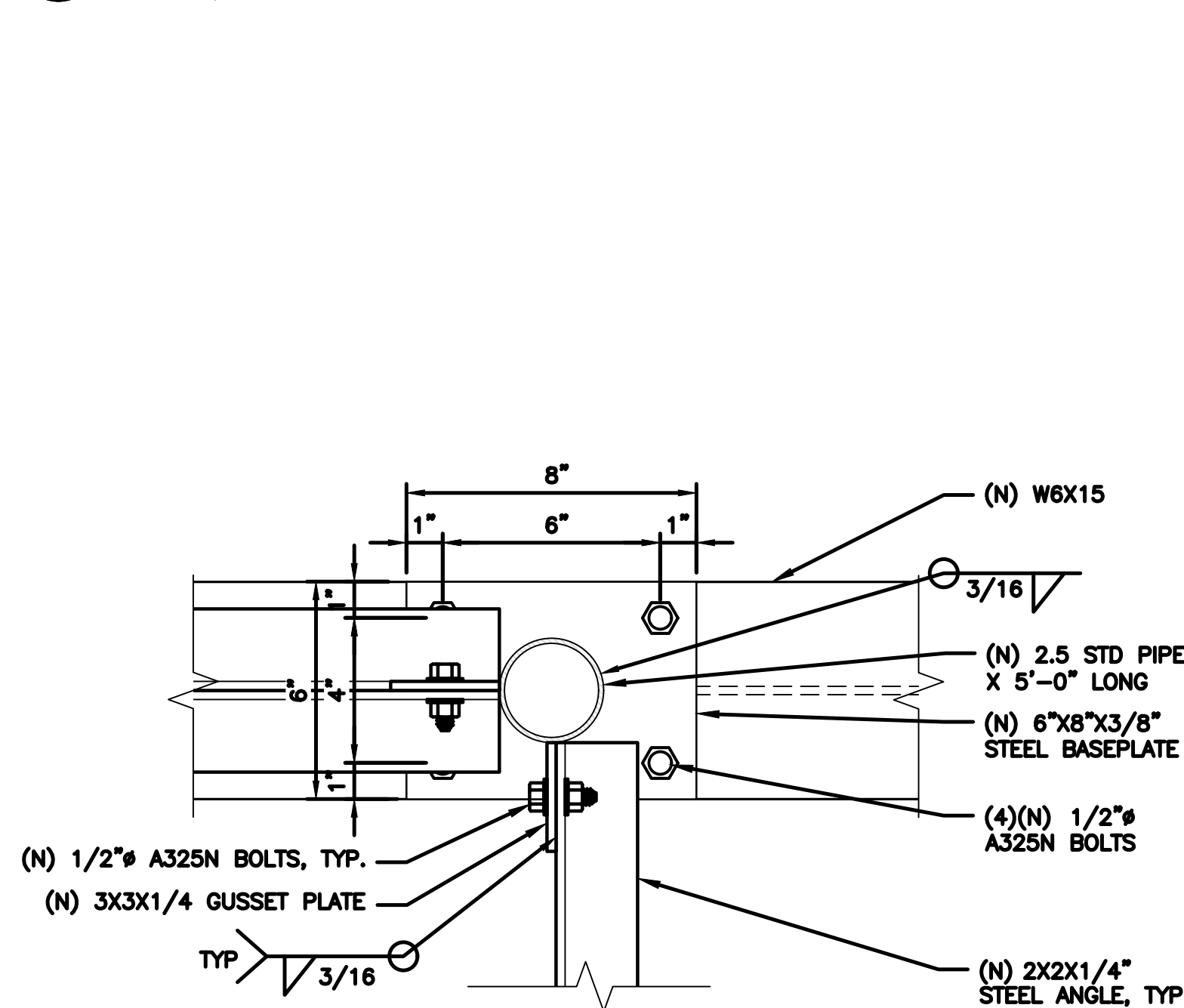
2 (N) ANTENNA FRAME MOUNTED TO (E) I-BEAM ELEVATION (A-A)
S-2 SCALE: 3/4" = 1'-0"



3 (N) ANTENNA FRAME MOUNTED TO (E) I-BEAM ELEVATION (B-B)
S-2 SCALE: 3/4" = 1'-0"



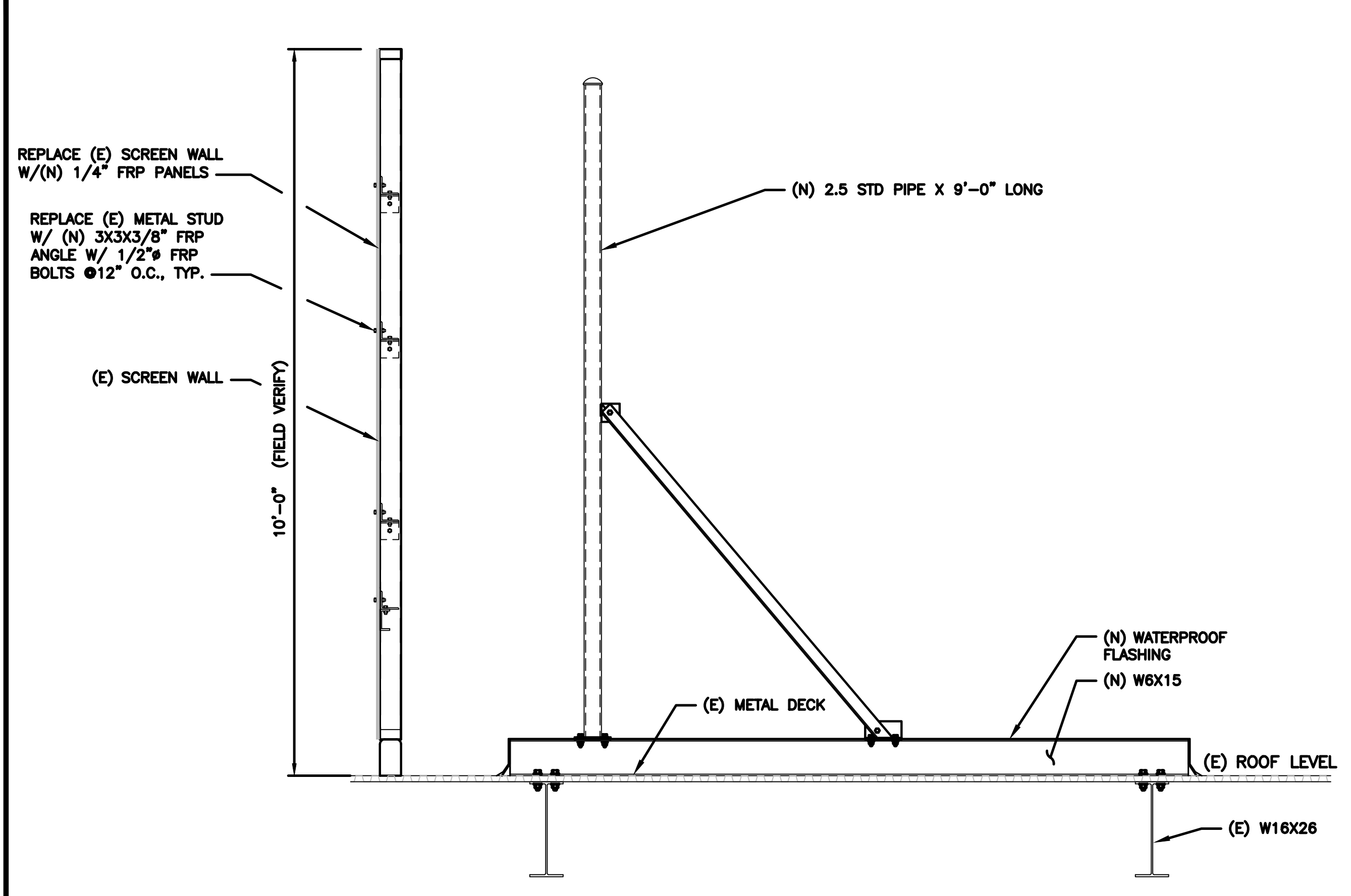
1 (N) ANTENNA FRAME MOUNTED TO (E) I-BEAM PLAN (BETA AND GAMMA SECTORS)
S-2 SCALE: 3/4" = 1'-0"



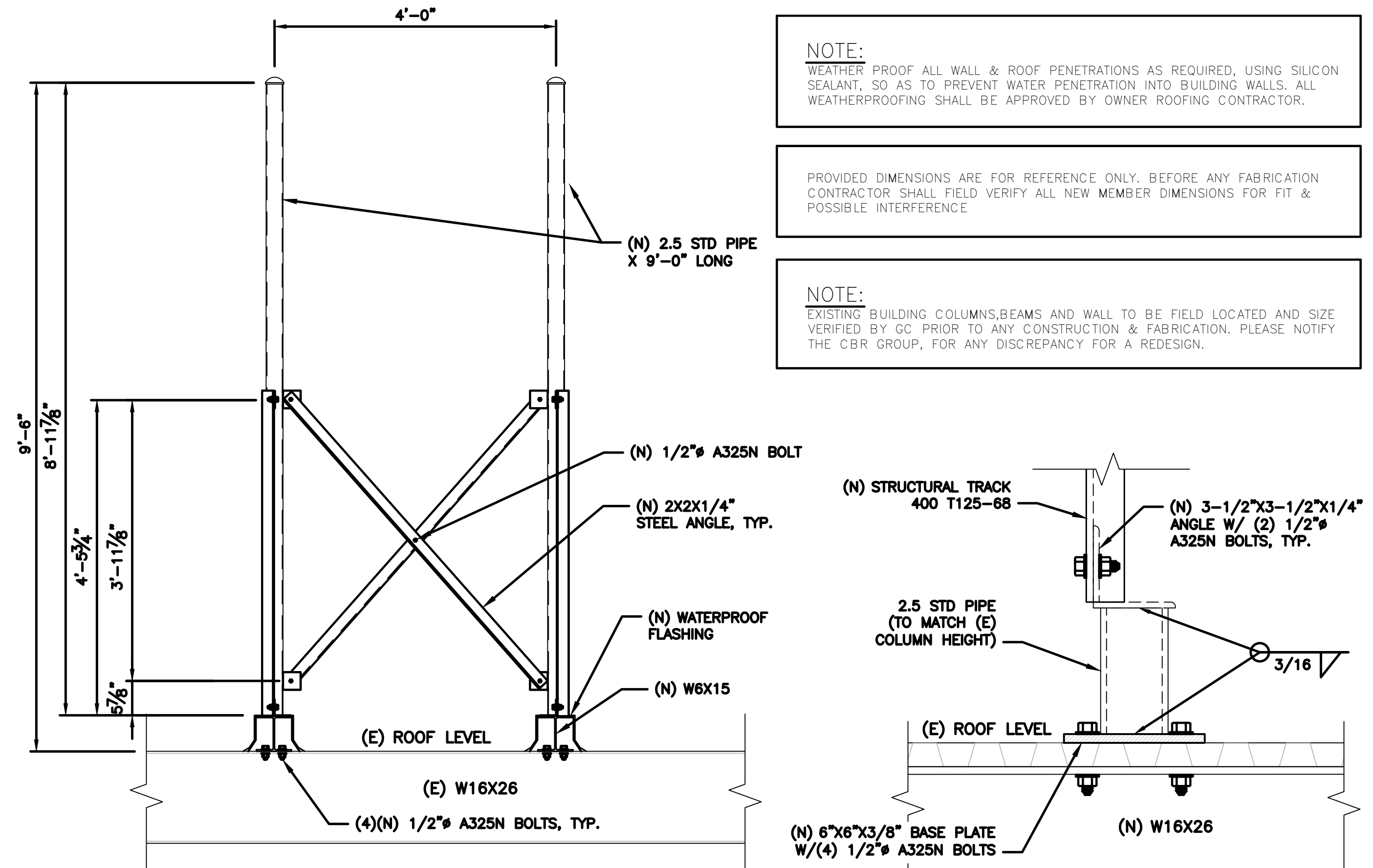
NOTE:
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PROVIDED DIMENSIONS ARE FOR REFERENCE ONLY. BEFORE ANY FABRICATION CONTRACTOR SHALL FIELD VERIFY ALL NEW MEMBER DIMENSIONS FOR FIT & POSSIBLE INTERFERENCE

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2 (N) ANTENNA FRAME MOUNTED TO (E) I-BEAM ELEVATION (A-A)
S-3 SCALE: 3/4" = 1'-0"



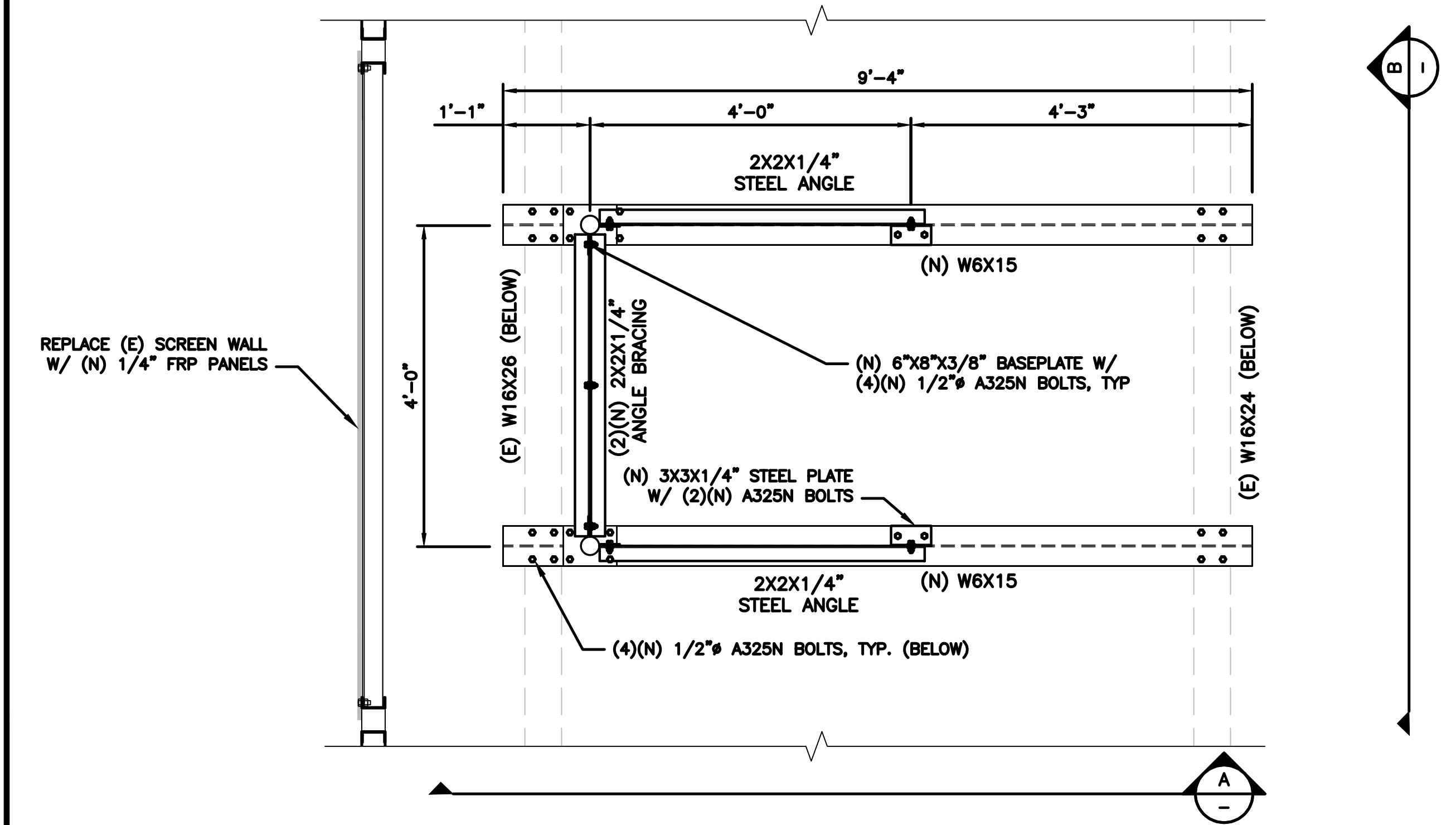
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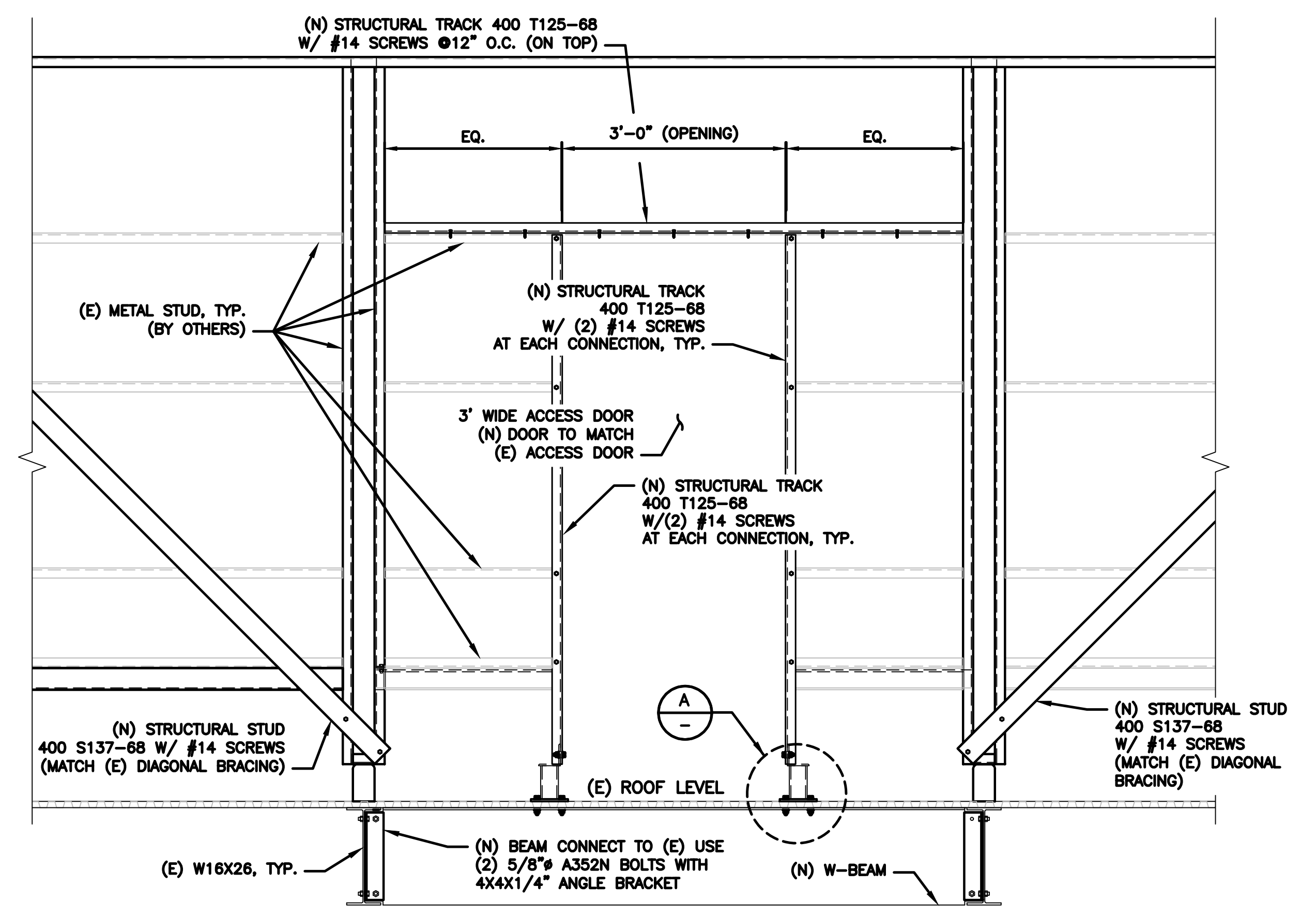
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3 (N) ANTENNA FRAME MOUNTED TO (E) I-BEAM ELEVATION (B-B)
S-3 SCALE: 3/4" = 1'-0"

5 DETAIL A
S-3 SCALE: 3" = 1'-0"



1 (N) ANTENNA FRAME MOUNTED TO (E) I-BEAM PLAN (ALPHA SECTOR)
S-3 SCALE: 3/4" = 1'-0"



4 (N) 3' WIDE ACCESS DOOR OPENING DETAILS
S-3 SCALE: 3/4" = 1'-0"



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LITTLETON, CO 80120



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DRAWN BY: CHECKED BY: APPROVED BY:
MS/WM --- ---
RFDS REV #: 12/20/2021 REV 3

CONSTRUCTION DOCUMENTS

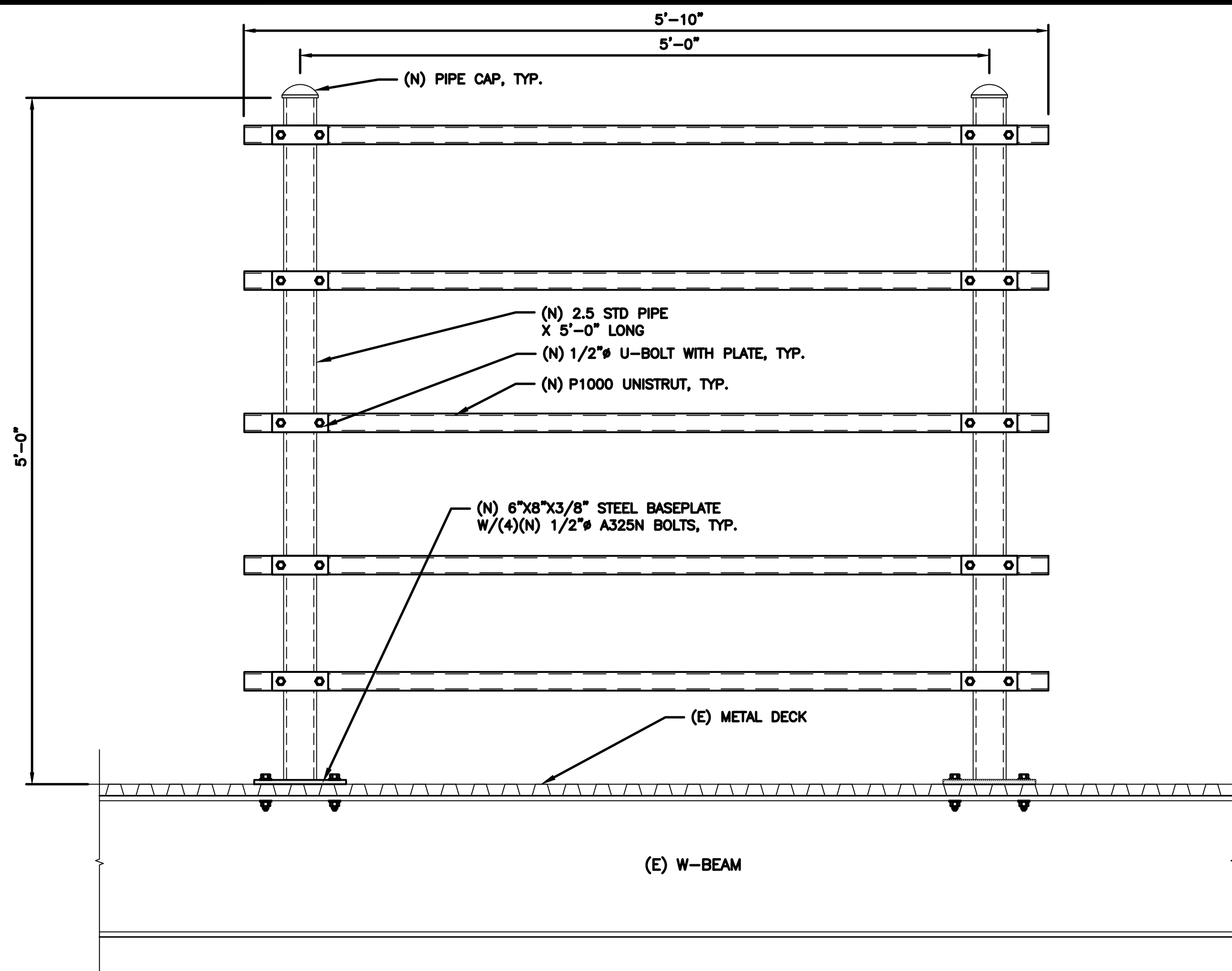
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SFSF000026A

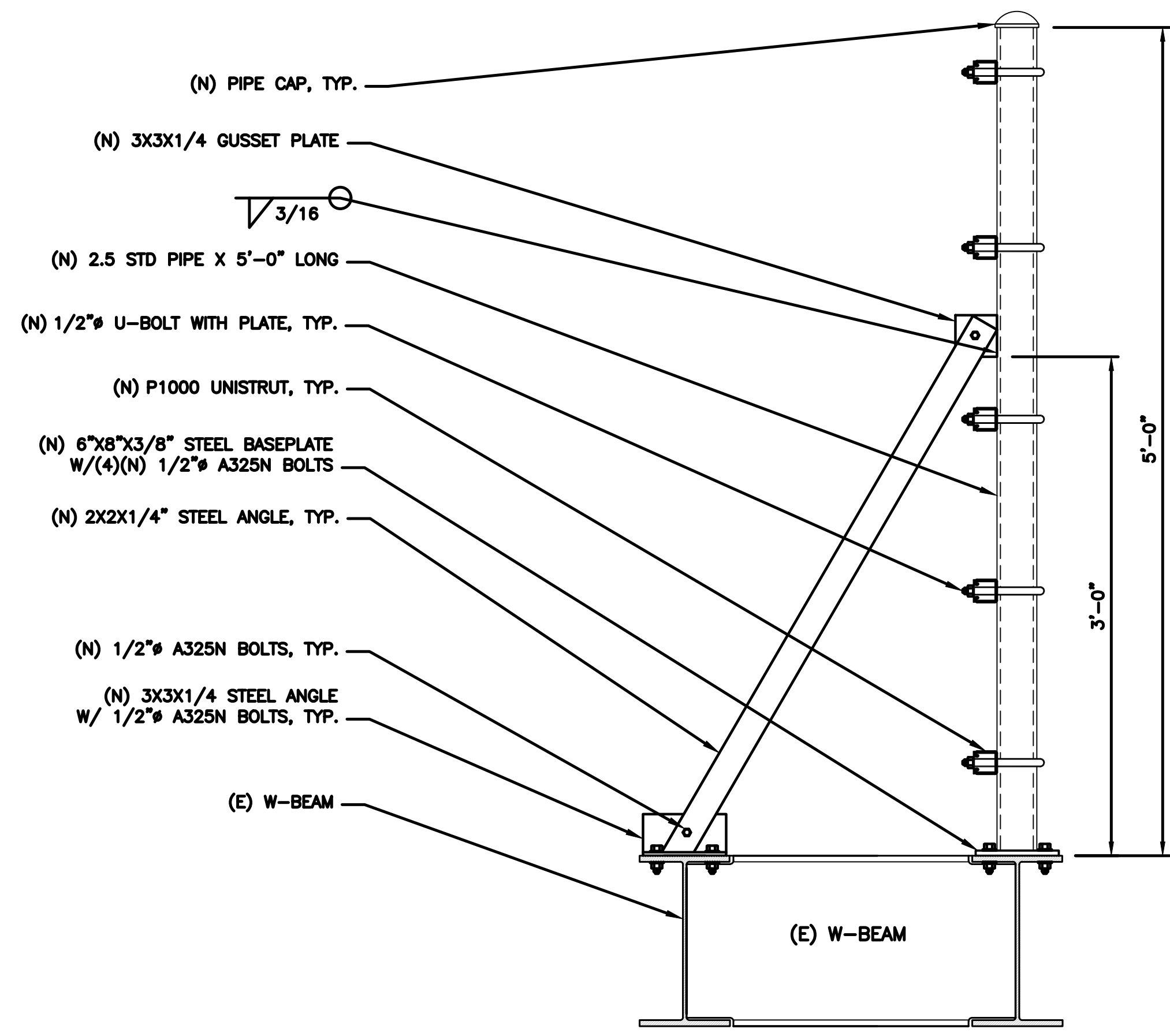
DISH Wireless L.L.C.
PROJECT INFORMATION
SFSF000026A
5341 OLD REDWOOD HIGHWAY
PETALUMA, CA 94954

SHEET TITLE
STRUCTURAL DETAILS

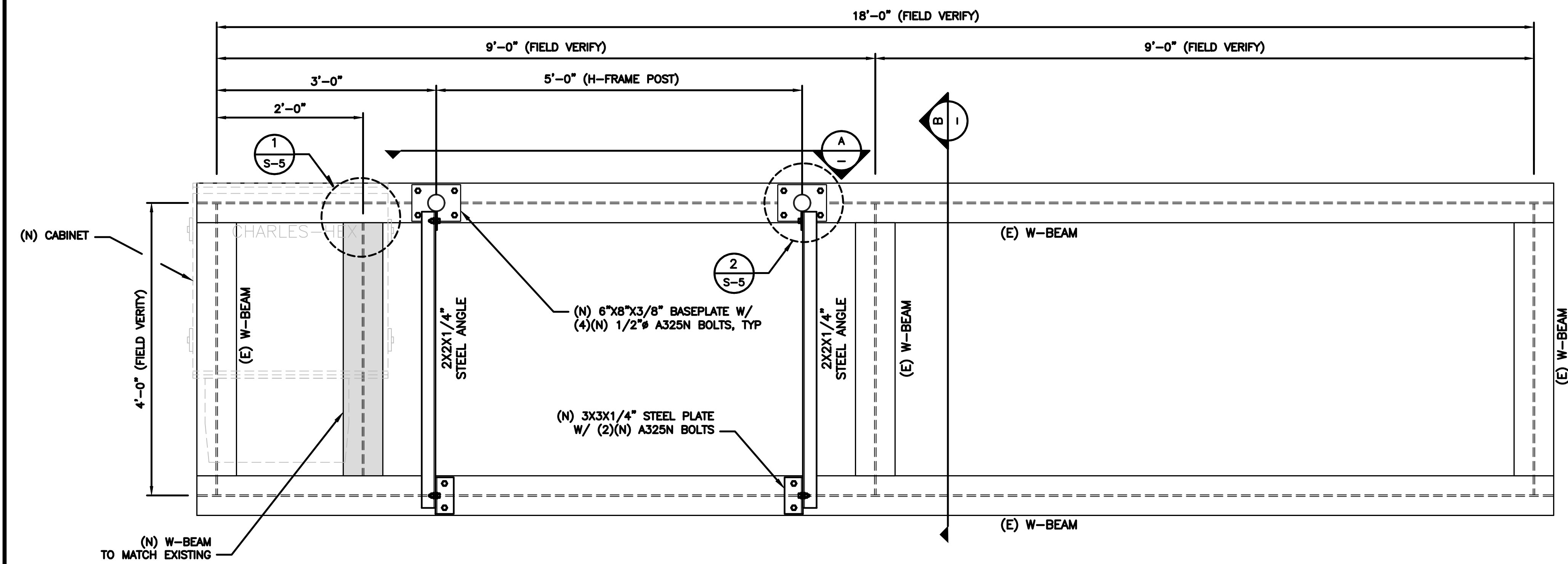
SHEET NUMBER
S-3



2 (N) H-FRAME MOUNTED TO (E) I-BEAM ELEVATION (A-A)
S-4 N.T.S.



3 (N) H-FRAME MOUNTED TO (E) I-BEAM (B-B)
S-4 N.T.S.



1 (N) H-FRAME AND (N) CABINET MOUNTED TO (E) I-BEAM PLAN
S-4 N.T.S.

NOTE:
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CONSTRUCTION DOCUMENTS

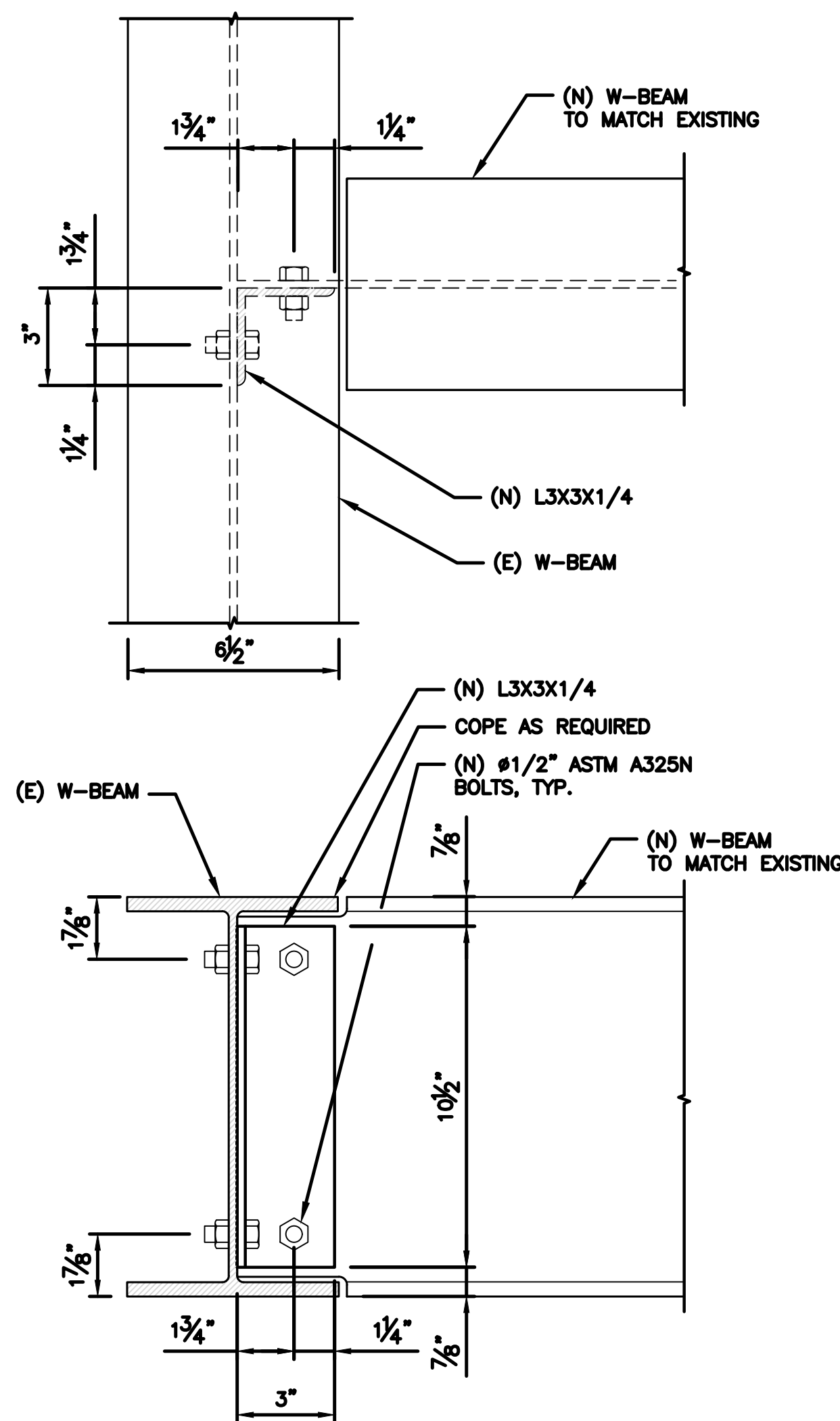
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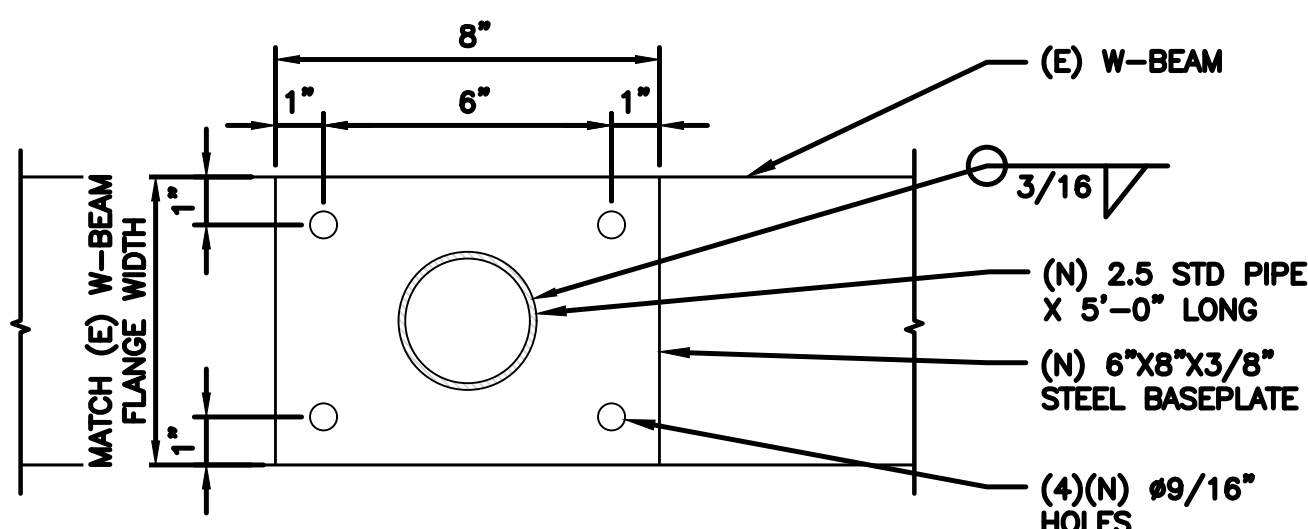
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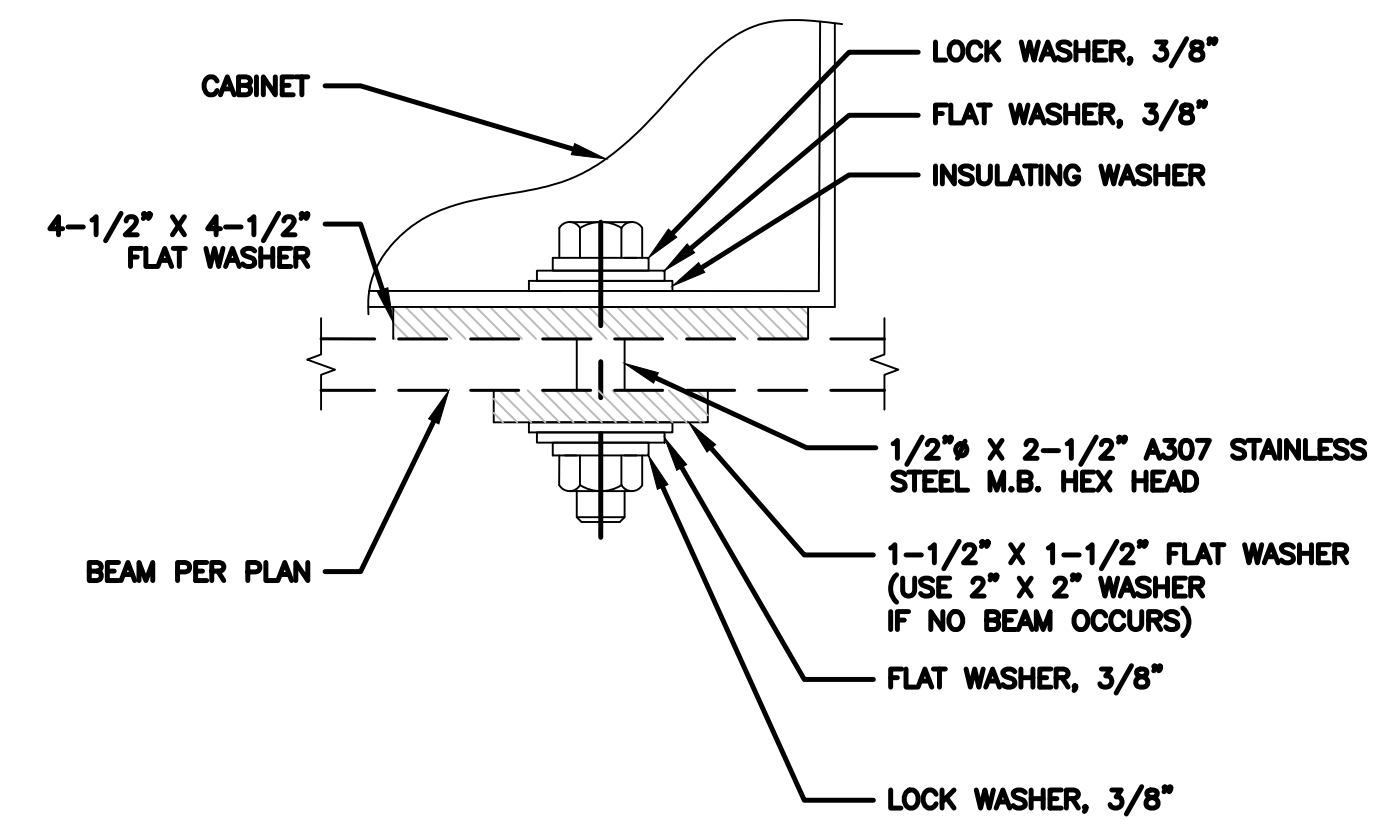
SHEET NUMBER
S-4



1 I-BEAM TO I-BEAM CONNECTION DETAILS
S-5 N.T.S.



2 BASEPLATE DETAIL
S-5 N.T.S.



3 CABINET ANCHORAGE DETAIL
S-5 N.T.S.

NOTE:
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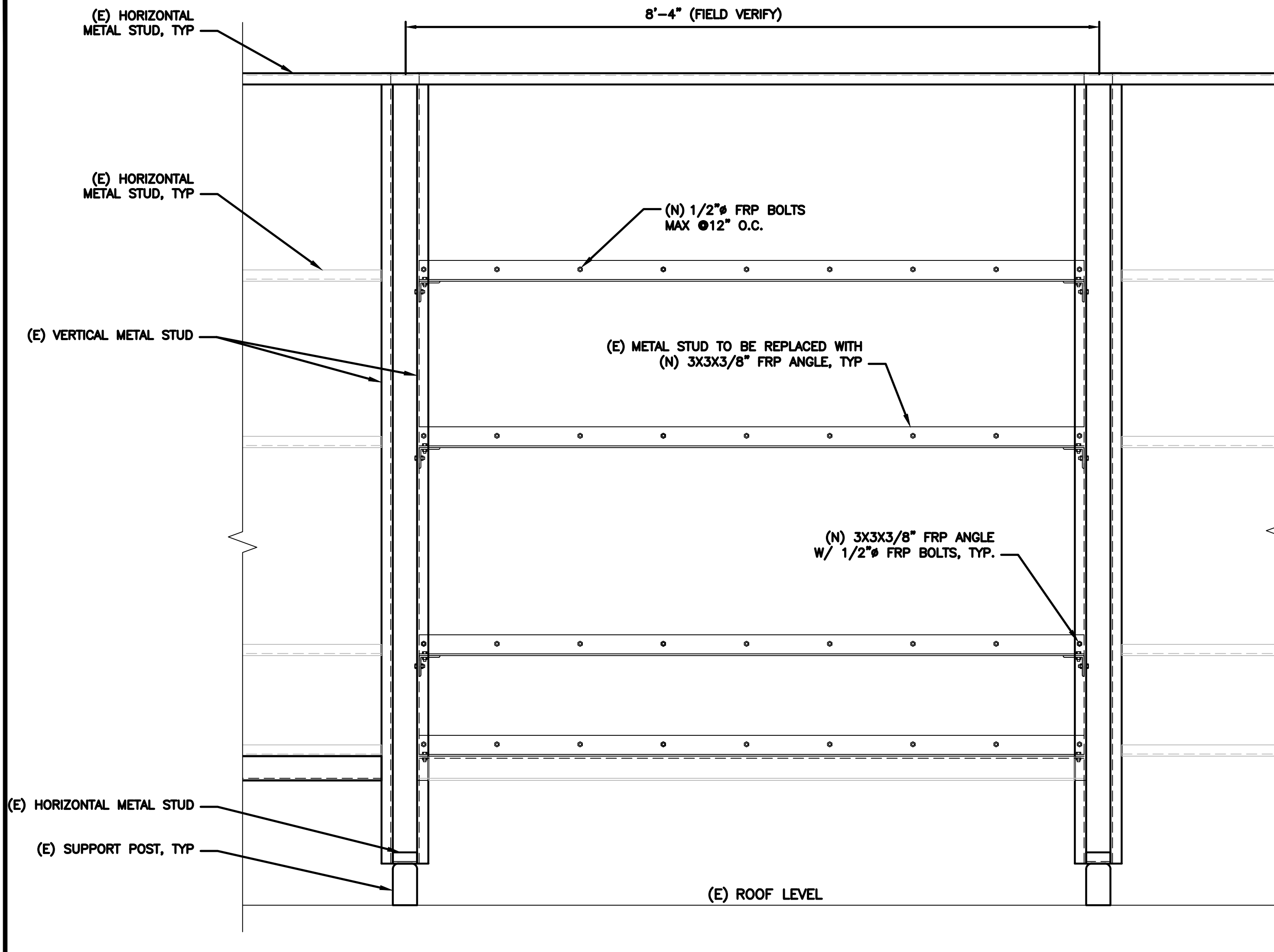
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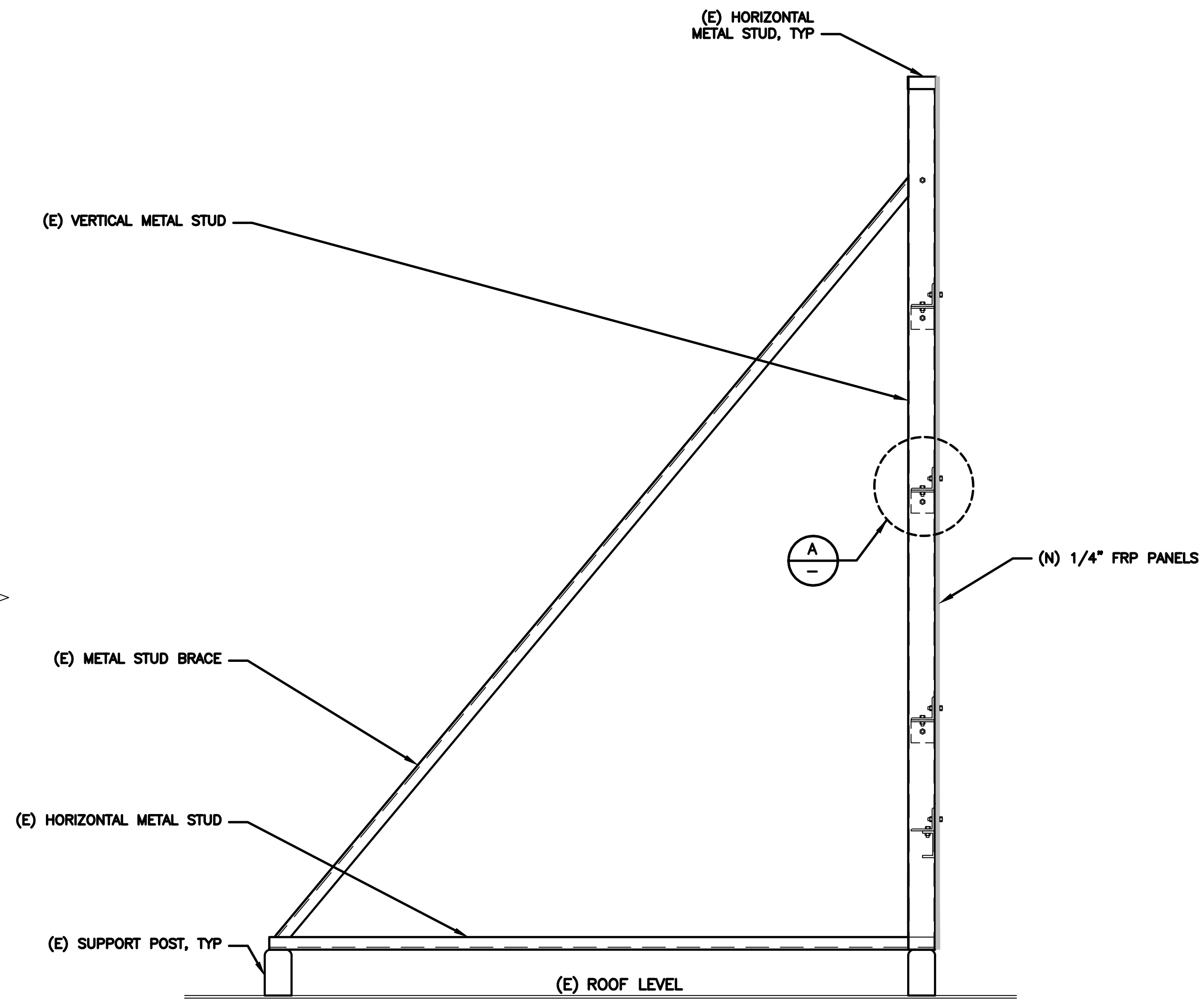
DISH Wireless L.L.C.
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5341 OLD REDWOOD HIGHWAY
PETALUMA, CA 94954

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CONNECTION DETAILS

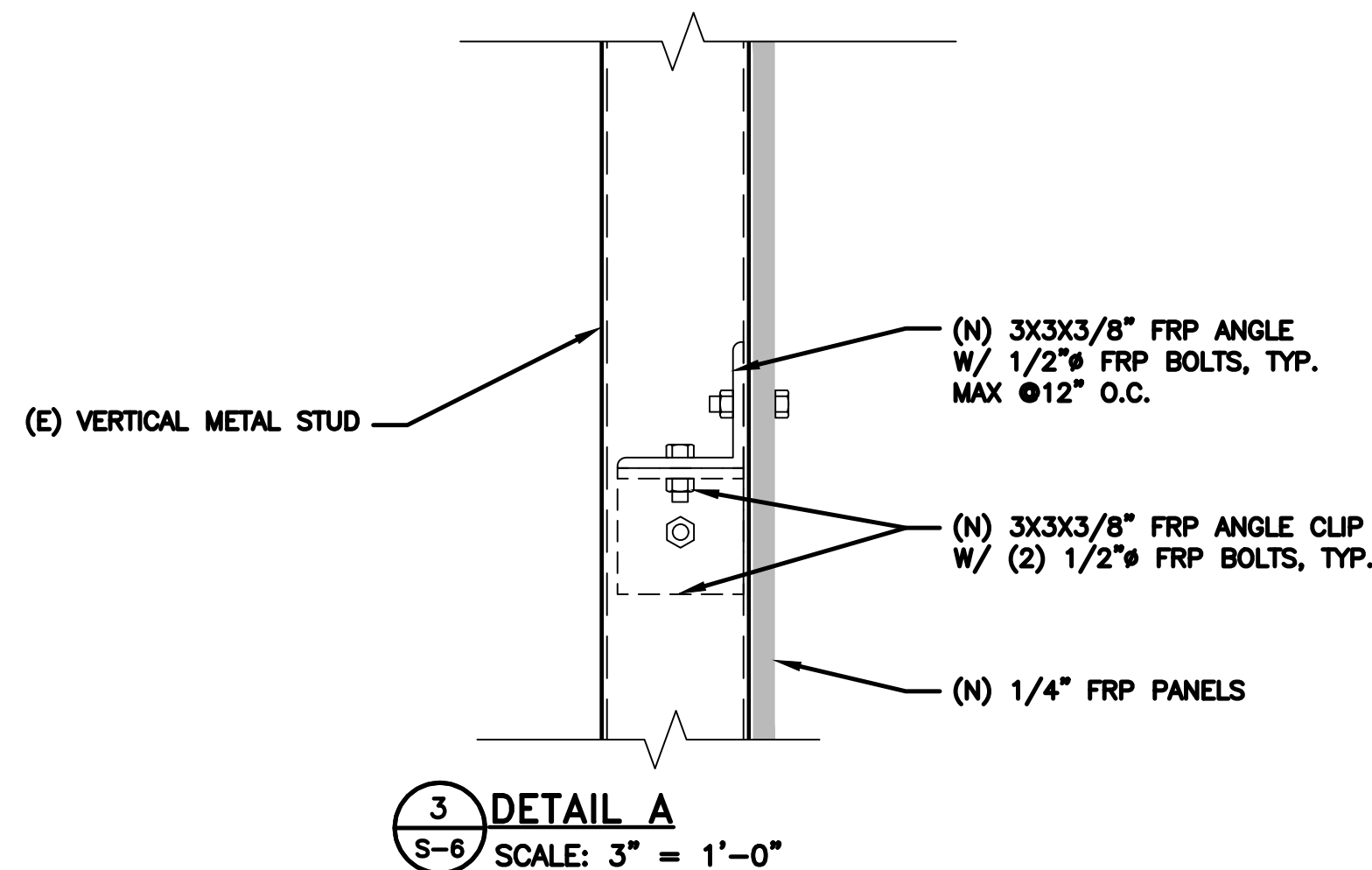
SHEET NUMBER
S-5



1 (N) FRP ANGLE MOUNTED TO (E) SCREEN WALL ELEVATION
S-6 SCALE: 1" = 1'-0"



2 (N) FRP ANGLE MOUNTED TO (E) SCREEN WALL SIDE VIEW
S-6 SCALE: 1" = 1'-0"



3 DETAIL A
S-6 SCALE: 3" = 1'-0"

NOTE:
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DISH Wireless L.L.C.
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5341 OLD REDWOOD
HIGHWAY
PETALUMA, CA 94954

SHEET TITLE
STRUCTURAL DETAILS

SHEET NUMBER
S-6

DESIGN NOTES

- SS: 1.664
- S1: 0.676
- SDS: 1.331
- RISK CATEGORY: II
- IMPORTANCE FACTOR: 1.0
- ULTIMATE WIND SPEED (ASCE 7-16): 92 MPH
- ROOF DEAD LOAD: 20PSF
- ROOF LIVE LOAD: 20PSF

STRUCTURAL STEEL

1. ALL STEEL WORK SHALL BE ACCORDANCE WITH STEEL CONSTRUCTION MANUAL, 15th EDITION AND ALL EXTERIOR EXPOSED STEEL AND HARDWARE SHALL BE HOT DIP GALVANIZED. FILL MODIFICATIONS ARE TO BE COATED WITH ZINC ENRICHED PAINTED.
2. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 1/2" DIA. ASTM A307 BOLTS UNLESS NOTED OTHERWISE. BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYP 1/2" DIA. CONNECTIONS AND SHALL BE HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
3. ALL STEEL CONSTRUCTION INCLUDING FABRICATION, ERECTION AND MATERIALS SHALL COMPLY WITH ALL REQUIREMENTS OF THE AISC SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS AND THE 2019 CBC.
4. STRUCTURAL STEEL MEMBERS SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS UNLESS OTHERWISE NOTED (U.O.N.):
 - A. WIDE FLANGE & TEE SHAPES, ASTM A992 (Fy=50,000 PSI).
 - B. STRUCTURAL TUBING (TS OR HSS), ASTM A500 GRADE B (Fy=46,000 PSI).
 - C. STEEL PIPE, ASTM A53 (TYPE E OR S, GRADE B (Fy=35,000 PSI)) SCHEDULE 40 WITH OUTSIDE DIAMETERS GIVEN.
 - D. ALL STRUCTURAL STEEL, ASTM A36.
5. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND SHALL CONFORM TO AISC & AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC SPECIFICATION. PAINTED SURFACES SHALL BE TOUCHED UP. WELDING SHALL CONFORM TO AISC AND THE LATEST EDITION OF AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION" PAINTED SURFACES SHALL BE TOUCHED UP.
6. ALL WELDING SHALL BE PERFORMED BY QUALIFIED, CERTIFIED WELDERS.
7. BOLTS SHALL BE ASTM A307 GRADE A MINIMUM AND HOT DIP GALVANIZED PER ASTM A153. BOLTED CONNECTIONS SHALL BE BEARING TYPE. SEE PLANS FOR LOCATION, NUMBER, AND SIZE OF BOLTS. SPECIAL INSPECTION NOT REQUIRED U.O.N.
8. THREADED RODS SHALL BE ASTM F593 CW 304 /316 STAINLESS STEEL. BOLTED CONNECTIONS SHALL BE BEARING TYPE. SEE PLANS FOR LOCATION, NUMBER, & SIZE OF BOLTS.
9. ALL HOLES FOR BOLTED CONNECTIONS SHALL BE 1/16" LARGER THAN THE NOMINAL BOLT DIAMETER. USE STANDARD AISC GAGE AND PITCH FOR BOLTS EXCEPT AS NOTED OTHERWISE. HOLES FOR ANCHOR BOLTS IN BASE PLATES MAY BE AISC "OVERSIZE" HOLES WHERE ACCOMPANIED BY OVERSIZED HARDENED HOT DIP GALVANIZED WASHERS.
10. ALL SHOP FABRICATED STEEL STRUCTURAL MEMBERS FOR EXTERIOR USE SHALL BE HOT DIP GALVANIZED PER ASTM A123 AFTER FABRICATION & PAINTED PER CUSTOMER SPECIFICATIONS AS REQUIRED. STEEL FOR INTERIOR USE SHALL BE SHOP COAT OR GALVANIZED & PAINTED PER PLAN.
11. ALL FIELD FABRICATED GALVANIZED STEEL THAT IS CUT, GROUND, DRILLED, WELDED OR DAMAGED SHALL BE TREATED WITH "ZINC RICH" COLD GALVANIZING SPRAY OR COATING. NO RAW STEEL SHALL BE EXPOSED.

EXPANSION AND EPOXY ANCHOR NOTES

1. ALL ANCHORS PROVIDED SHALL BE INCLUDED IN EVALUATION REPORTS OF THE INTERNATIONAL CODE COUNCIL (ICC), AND SHALL BE EVALUATED FOR 2018 IBC MINIMUM REQUIREMENTS IN THE ICC REPORT.
2. CONCRETE EXPANSION ANCHORS SHALL BE KWIK BOLT TZ BY HILTI, INC., TULSA, OKLAHOMA AS PER ICC REPORT NO. ESR-1917 OR APPROVED EQUIVALENT.
3. CMU EXPANSION ANCHORS SHALL BE KWIK BOLT 3 BY HILTI, INC., TULSA, OKLAHOMA AS PER ICC REPORT NO. ESR-1385 OR APPROVED EQUIVALENT. ANCHORS SHALL BE INSTALLED A MINIMUM OF 1 1/2" FROM ANY VERTICAL MORTAR JOINT TYPICAL.
4. CONCRETE & GROUT FILLED CMU ADHESIVE EPOXY ANCHORS SHALL BE HIT RE-500SD BY HILTI, INC., TULSA, OKLAHOMA AS PER ICC REPORT NO. ESR-2322 OR APPROVED EQUIVALENT.
5. INSTALL EXPANSION AND EPOXY ANCHORS WITH SPECIAL INSPECTION AND PER ALL REQUIREMENTS OF THE MANUFACTURER, THE MANUFACTURER'S ICC APPROVAL AND THESE DRAWINGS.
6. EXPANSION ANCHORS SHALL BE 304/316 STAINLESS STEEL U.O.N. EPOXY ANCHOR THREADED ROD SHALL BE ASTM F993 CW 304/316 STAINLESS STEEL U.O.N.
7. LOCATE AND AVOID REINFORCEMENT AND OTHER EMBEDDED ITEMS WHEN INSTALLING ANCHORS, TYPICAL. SEE CONCRETE CORE DRILLING NOTES FOR ADDITIONAL INFORMATION.

FLASHING

1. ALL FLASHING SHALL BE 26 GA. GALV. IRON UNLESS OTHERWISE NOTED. PRIME AND PAINT TO MATCH ADJACENT CONSTRUCTION
2. FLASH AND COUNTER-FLASH AT ALL ROOF/WALL CONNECTIONS

WOOD

3. NOTCHES ON THE ENDS OF JOISTS SHALL NOT EXCEED ONE-FOURTH OF THE JOIST DEPTH
4. HOLES BORED IN JOISTS SHALL NOT BE WITHIN 2" OF THE TOP OR BOTTOM OF THE JOIST, AND THE DIAMETER OF ANY HOLE SHALL NOT EXCEED ONE-THIRD THE DEPTH OF THE JOIST. NOTCHES IN THE TOP OR BOTTOM OF JOISTS SHALL NOT EXCEED ONE-SIXTH THE DEPTH AND SHALL NOT BE LOCATED IN THE MIDDLE THIRD OF THE JOIST SPAN.
5. NOTCHING IN EXTERIOR WALLS AND BEARING PARTITIONS SHALL NOT EXCEED 25% OF THE STUD WIDTH. CUTTING OR NOTCHING OF STUDS IN NON-BEARING PARTITIONS SHALL NOT EXCEED 40% OF THE STUD WIDTH.
6. ALL NUTS SHALL BE TIGHTENED WHEN PLACED AND RE-TIGHTENED PRIOR TO APPLICATION OF FINISH OR AT COMPLETION OF JOB.
7. CONNECTIONS FOR WOOD MEMBERS SHALL BE DESIGNED IN ACCORDANCE WITH THE APPROPRIATE METHODOLOGY IN SECTION 2302.1. THE NUMBER AND SIZE OF FASTENERS CONNECTING WOOD MEMBERS SHALL BE NOT LESS THAN THAT SET FORTH IN TABLE 2304.10.1.

TABLE 2304.10.1
FASTENING SCHEDULE

DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION
ROOF		
BLOCKING BETWEEN CEILING JOISTS, RAFTERS OR TRUSSES TO TOP PLATE OR OTHER FRAMING BELOW	3-8D COMMON (2 1/2"x0.131") OR 3-10D BOX (3"x0.128") OR 3-3"x0.131" NAILS OR 3-3" 14 GAUGE STAPLES, 7/8" CROWN	EACH END, TOENAIL
BLOCKING BETWEEN RAFTERS OR TRUSS NOT AT THE WALL TOP PLATE, TO RAFTER OR TRUSS	2-8D COMMON (2 1/2"x0.131") 2-3" X 0.131" NAILS 2-3" GAUGE STAPLES	EACH END, TOENAIL
	2-16D COMMON (3 1/2"x0.162") 3-3"x0.131" NAILS 3-3" 14 GAUGE STAPLES	END NAIL
FLAT BLOCKING TO TRUSS AND WEB FILLER	16D COMMON (3 1/2"x0.162") @ 6" O.C. 3"x0.131" NAILS @ 6" O.C. 3"x14 GAUGE STAPLES @ 6" O.C.	END NAIL
CEILING JOISTS TO TOP PLATE	3-8D COMMON (2 1/2"x0.131") OR 3-10D BOX (3"x0.128") OR 3-3"x0.131" NAILS OR 3-3" 14 GAUGE STAPLES, 7/8" CROWN	EACH END, TOENAIL
CEILING JOIST NOT ATTACHED TO PARALLEL RAFTER, LAPS OVER PARTITIONS (NO THRUST) (SEE SECTION 2308.7.3.1, TABLE 2308.7.3.1)	3-16D COMMON (3 1/2"x0.162") OR 4-10D BOX (3"x0.128") OR 4-3"x0.131" NAILS OR 4-3" 14 GAUGE STAPLES, 7/8" CROWN	FACE NAIL
CEILING JOIST ATTACHED TO PARALLEL RAFTER (HEEL JOIST) (SEE SECTION 2308.7.3.1, TABLE 2308.7.3.1)	PER TABLE 2308.7.3.1	FACE NAIL
COLLAR TIE TO RAFTER	3-10D COMMON (3"x0.148") OR 4-10D BOX (3"x0.128") OR 4-3"x0.131" NAILS OR 4-3" 14 GAUGE STAPLES, 7/8" CROWN	FACE NAIL
RAFTER OR ROOF TRUSS TO TOP PLATE (SEE SECTION 2308.7.5, TABLE 2308.7.3.5)	3-10 COMMON (3"x0.148") OR 3-16D BOX (3 1/2"x0.135") OR 4-10D BOX (3"x0.128") OR 4-3"x0.131" NAILS OR 4-3" GAUGE STAPLES, 7/8" CROWN	TOENAIL
ROOF RAFTERS TO RIDGE VALLEY OR HIP RAFTERS; OR ROOF RAFTER TO 2" RIDGE BEAM	2-16D COMMON (3 1/2"x0.162") OR 3-10D BOX (3"x0.128") OR 3-3"x0.131" NAILS OR 3-3" 14 GAUGE STAPLES, 7/8" CROWN	END NAIL
	3-10 COMMON (3"x0.148") OR 4-16D BOX (3 1/2"x0.135") OR 4-10D BOX (3"x0.128") OR 4-3"x0.131" NAILS OR 4-3" GAUGE STAPLES, 7/8" CROWN	TOENAIL

PAINTING

1. PERFORM ALL WORK NECESSARY AND REQUIRED FOR COMPLETION OF THE PROJECT AS REQUIRED TO COMPLETE THE FINISHING OF THE BUILDING. PAINTING OF ELECTRICAL WORK IN FINISHED AREAS OF THE BUILDING AND ACCESS DOORS ARE INCLUDED.
2. NO PAINTING OR FINISHING SHALL BE STARTED UNTIL THE SURFACES TO BE PAINTED OR FINISHED ARE IN THE PROPER CONDITION IN EVERY RESPECT. APPLICATION OF THE FIRST COAT SHALL CONSTITUTE ACCEPTANCE.
3. WOOD SURFACES SHALL BE SANDED AND DUSTED CLEAN. PUTTY ALL NAIL HOLES, CRACKS, ETC. AFTER FIRST PRIME COAT.
4. LEAVE ALL GLASS AREA, STUCCO SURFACES, FLOOR WALKS, HARDWARE, AND ANY OTHER SURFACES CLEAN AND FREE OF PAINT, STAIN, SPATTERINGS, SMEARS, SMUDGES WHICH ARE THE RESULT OF THESE OPERATIONS. REPLACE ANY GLASS DAMAGED IN ANY WAY.

SPECIAL INSPECTION

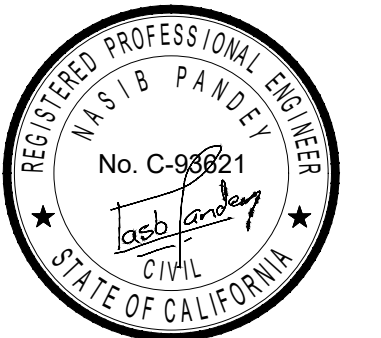
1. SPECIAL INSPECTION IS REQUIRED FOR THE INSTALLATION OF HILTI STAINLESS STEEL ANCHOR BOLTS ACCORDING TO ICC-ESR# 1917. THE INSTALLATION OF ANCHOR BOLTS BY OTHER MANUFACTURERS ARE NOT ALLOWED.
2. HILTI ANCHORS SHALL BE INSTALLED IN NORMAL WEIGHT CONCRETE WITH A MINIMUM CONCRETE STRENGTH OF 2,500 PSI AT 28 DAYS. UNDER NO CIRCUMSTANCES SHALL THE ANCHORS BE INSTALLED IN MASONRY CONCRETE.
3. HOLES TO RECEIVE EXPANSION/WEDGE ANCHORS SHALL BE 1/8" LARGER IN DIAMETER THAN THE ANCHOR BOLTS, DOWEL OR ROD.
4. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THE INSTALLATION OF HILTI ANCHORS DOES NOT CUT THE EXISTING REBARS IN CONCRETE. ANY ISSUES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD IMMEDIATELY.



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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:
MS/WM	---	---

RFDS REV #: 12/20/2021 REV 3

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	06/06/2022	90% CDS ISSUED FOR REVIEW
B	06/10/2022	100% CONSTRUCTION DRAWINGS
C	06/11/2022	PLAN CHECK COMMENTS

A&E PROJECT NUMBER
SFSF00026A

DISH Wireless L.L.C.
PROJECT INFORMATION
SFSF00026A
5341 OLD REDWOOD
HIGHWAY
PETALUMA, CA 94954

SHEET TITLE
STRUCTURAL NOTES

SHEET NUMBER
S-7