



Northeast Site Solutions
Denise Sabo
4 Angela's Way, Burlington CT 06013
203-435-3640
denise@northeastsitesolutions.com

June 2, 2022

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

RE: Tower Share Application
36 Sugar Hollow Road, Danbury, CT 06810
Latitude: 41.349813
Longitude: -73.469155
Site #: 823631_Crown_Dish

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless LLC. Dish Wireless LLC plans to install antennas and related equipment to the tower site located at 36 Sugar Hollow Road, Danbury, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 MHz 5G antennas and six (6) RRUs, at the 74-foot level of the existing 105-foot tower, one (1) Fiber cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within a 7' x 5' lease area within the existing fenced compound. Included are plans by Jacobs, dated April 20, 2022, Exhibit C. Also included is a structural analysis prepared by Crown Castle, dated December 28, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. The facility was originally approved by the City of Danbury, however the original decision was not available.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Mayor Dean Esposito and Sharon Calitro, Director of Planning & Zoning for the City of Danbury, as well as the tower owner (Crown Castle) and property owner (Danbury Lodge No. 120 of the BPOE of Elks Inc.).

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the existing tower is 105-feet and the Dish Wireless LLC antennas will be located at a centerline height of 74-feet.
2. The proposed modifications will not result in an increase of the site boundary as depicted on the attached site plan.



NSS **NORTHEAST**
SITE SOLUTIONS

Turnkey Wireless Development

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

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. The combined site operations will result in a total power density of 10.69% as evidenced by Exhibit F.

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

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

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

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish Wireless LLC equipment at the 74-foot level of the existing 105-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

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

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

Sincerely,

Denise Sabo

Denise Sabo

Mobile: 203-435-3640

Fax: 413-521-0558

Office: 4 Angela's Way, Burlington CT 06013

Email: denise@northeastsitesolutions.com



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SITE SOLUTIONS
Turnkey Wireless Development

Attachments

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

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

Danbury Lodge No. 120 of the BPOE of Elks Inc. - Property Owner
3 Sugar Hollow Road
Danbury, CT 06810

Crown Castle – Tower Owner

Exhibit A

Original Facility Approval

Exhibit B

Property Card

36 SUGAR HOLLOW RD

Location 36 SUGAR HOLLOW RD

Mblu G22 / 3 / 1

Acct#

Owner DANBURY LODGE NO 120 OF THE

Assessment \$1,234,200

Appraisal \$1,763,200

PID 10151

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2020	\$830,700	\$932,500	\$1,763,200

Assessment			
Valuation Year	Improvements	Land	Total
2020	\$581,500	\$652,700	\$1,234,200

Owner of Record

Owner	DANBURY LODGE NO 120 OF THE	Sale Price	\$799,000
Co-Owner	BPOE OF ELKS INC	Book & Page	2144/ 191
Address	3 SUGAR HOLLOW RD DANBURY, CT 06810	Sale Date	08/01/2011
		Instrument	00

Ownership History

Ownership History				
Owner	Sale Price	Book & Page	Instrument	Sale Date
DANBURY LODGE NO 120 OF THE	\$799,000	2144/ 191	00	08/01/2011
JACKSON BARBARA B & THOMAS H &	\$0	2089/ 979	01	05/19/2010
JACKSON BARBARA B & THOMAS H	\$0	0875/0703		02/29/1988

Building Information

Building 1 : Section 1

Year Built: 2014
Living Area: 5,155
Replacement Cost: \$538,561

Building Percent Good: 97

Replacement Cost

Less Depreciation: \$522,400

Building Attributes

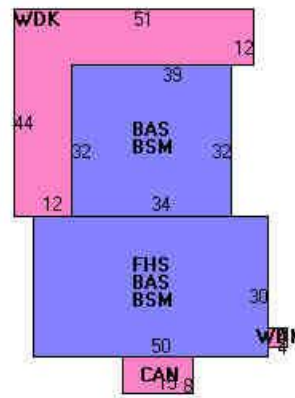
Field	Description
STYLE	Clubs/Lodges
MODEL	Commercial
Grade	Average
Stories:	1.5
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	Stone/Masonry
Roof Structure	Gable/Hip
Roof Cover	Asphalt Shngl.
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Hardwood
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Central
Bldg Use	Commercial MDL-94
Total Rooms	3
Total Bedrms	
Total Baths	
1st Floor Use:	
Heat/AC	HEAT/AC SPLIT
Frame Type	WOOD FRAME
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	LIGHT
Wall Height	12
% Comn Wall	

Building Photo



(<https://images.vgsi.com/photos2/DanburyCTPhotos/A00\02\97\64.jpg>)

Building Layout



(https://images.vgsi.com/photos2/DanburyCTPhotos/Sketches/10151_101)

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	2,588	2,588
FBM	Basement Finished	2,274	1,592
FHS	Finished Half Story	1,500	975
BSM	Basement	314	0
CAN	Canopy	120	0
WDK	Deck, Wood	1,012	0
		7,808	5,155

Building 1 : Section 1

Year Built: 2014

Living Area: 0

Replacement Cost: \$538,561

Building Percent Good: 97

Replacement Cost

Less Depreciation: \$522,400

Building Attributes

--

Field	Description
Style	Vacant Land
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Fireplaces	
Whirlpool	
Addn'l Kitchen	
Bsm Gar	
Fin Bsm Area	
Fin Bsm Qual	
Nhbd	
MH Park	

Building Photo



(<https://images.vgsi.com/photos2/DanburyCTPhotos/default.jpg>)

Building Layout

(https://images.vgsi.com/photos2/DanburyCTPhotos/Sketches/10151_247)

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

Building 1 : Section 1

Year Built:	2014
Living Area:	0
Replacement Cost:	\$538,561
Building Percent Good:	97
Replacement Cost Less Depreciation:	\$522,400

Building Attributes

Field	Description
-------	-------------


Style	Outbuildings
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Fireplaces	
Whirlpool	
Addn'l Kitchen	
Bsm Gar	
Fin Bsm Area	
Fin Bsm Qual	
Nhbd	
MH Park	

Building Photo



(<https://images.vgsi.com/photos2/DanburyCTPhotos/default.jpg>)

Building Layout

 Building Layout

(https://images.vgsi.com/photos2/DanburyCTPhotos/Sketches/10151_104)

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

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code 200
Description Commercial MDL-94
Zone LC14
Neighborhood 5000
Alt Land Appr Category No

Land Line Valuation

Size (Acres) 12.93
Frontage 0
Depth 0
Assessed Value \$652,700
Appraised Value \$932,500
lblndfront

Outbuildings

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
CEL	Cell Tower			1 UNITS	\$300,000	1
FGR1	Garage-Avg			480 S.F.	\$7,000	1
SHD1	Shed-Avg			160 S.F.	\$1,300	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2019	\$830,700	\$932,500	\$1,763,200
2018	\$830,700	\$932,500	\$1,763,200
2017	\$750,000	\$932,500	\$1,682,500

Assessment			
Valuation Year	Improvements	Land	Total
2019	\$581,500	\$652,700	\$1,234,200
2018	\$581,500	\$652,700	\$1,234,200
2017	\$525,000	\$652,700	\$1,177,700



36 SUGAR HOLLOW ROAD

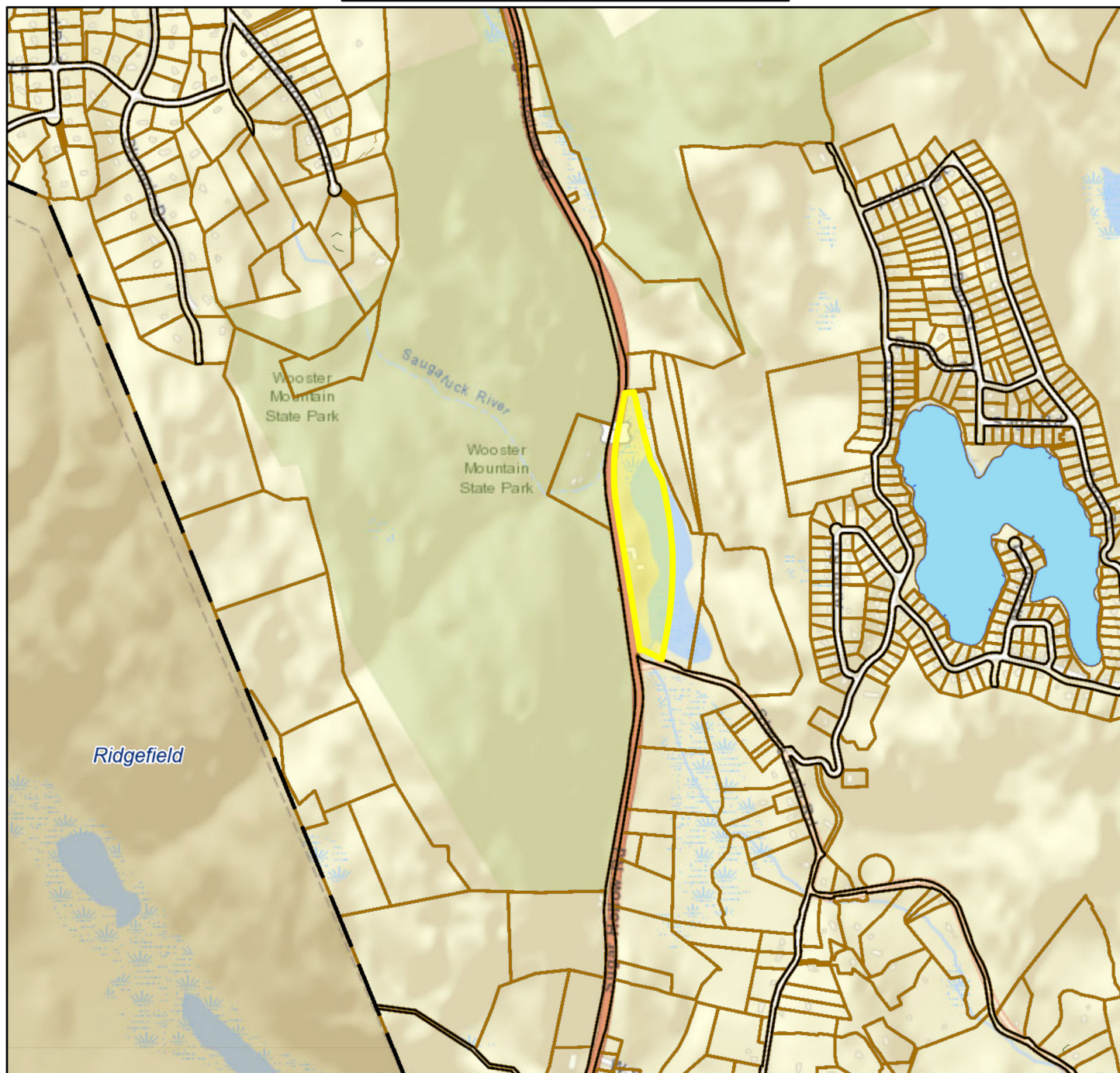
Danbury, CT

1 inch = 1147 Feet



www.cai-tech.com

June 2, 2022



	Easement		Public Right of Way
	Utility Right of Way		Water
	Parcel		Political Boundary

Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.

Exhibit C

Construction Drawings



DISH WIRELESS L.L.C. SITE ID:

NJJER02038A

DISH WIRELESS L.L.C. SITE ADDRESS:

**36 SUGAR HOLLOW RD
DANBURY, CT 06810**

SCOPE OF WORK	
THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:	
TOWER SCOPE OF WORK:	
<ul style="list-style-type: none"> • INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR) • INSTALL (1) PROPOSED ANTENNA PLATFORM MOUNT • INSTALL PROPOSED JUMPERS • INSTALL (6) PROPOSED RRRs (2 PER SECTOR) • INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP) • INSTALL (1) PROPOSED HYBRID CABLE 	
GROUND SCOPE OF WORK:	
<ul style="list-style-type: none"> • INSTALL (1) PROPOSED METAL PLATFORM • INSTALL (1) PROPOSED ICE BRIDGE • INSTALL (1) PROPOSED PPC CABINET • INSTALL (1) PROPOSED EQUIPMENT CABINET • INSTALL (1) PROPOSED POWER CONDUIT • INSTALL (1) PROPOSED TELCO CONDUIT • INSTALL (1) PROPOSED TELCO-FIBER BOX • INSTALL (1) PROPOSED GPS UNIT • INSTALL (1) PROPOSED FIBER NID (IF REQUIRED) • DISH WIRELESS L.L.C. TO UTILIZE POSITION 'A' ON EXISTING METER BANK 	

SITE INFORMATION	PROJECT DIRECTORY
PROPERTY OWNER: THOMAS & BARBARA JACKSON ADDRESS: 36 SUGAR HOLLOW RD DANBURY, CT 06810 TOWER TYPE: MONOPOLE TOWER CO SITE ID: 823631 TOWER APP NUMBER: 578964 COUNTY: FAIRFIELD LATITUDE (NAD 83): 41° 20' 59.40" N 41.349836 N LONGITUDE (NAD 83): 73° 28' 09.00" W 73.469158 W ZONING JURISDICTION: CITY OF DANBURY ZONING DISTRICT: NOT REQUIRED PARCEL NUMBER: DANB-000000-000000- G022003 OCCUPANCY GROUP: U CONSTRUCTION TYPE: II-B POWER COMPANY: CONNECTICUT LIGHT & POWER CO TELEPHONE COMPANY: AT&T	APPLICANT: DISH WIRELESS L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120 TOWER OWNER: CROWN CASTLE USA, INC. 2000 CORPORATE DRIVE CANONSBURG, PA 15317 877.486.9377 SITE DESIGNER: JACOBS TELECOMMUNICATIONS, INC 5449 BELLS FERRY ROAD ACWORTH, GA 30102 470.785.4050 SITE ACQUISITION: COURTNEY PRESTON COURTNEY.PRESTON.CONTRACTOR@CROWNCastle.COM CONSTRUCTION MANAGER: MICHAEL NARDUCCI MICHAEL.NARDUCCI@DISH.COM RF ENGINEER: MURUGABIRAN JAYAPAL MURUGABIRAN.JAYAPAL@DISH.COM

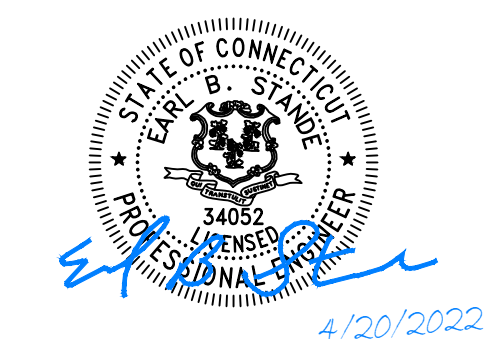


5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



Challenging today.
Reinventing tomorrow.

Jacobs Telecommunications, Inc.
5449 BELLS FERRY ROAD
ACWORTH, GA 30102



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: MWD CHECKED BY: SEL APPROVED BY: KRK

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
1	03/29/2022	ISSUED FOR CONSTRUCTION
2	04/20/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
EUC0309

DISH WIRELESS L.L.C.
PROJECT INFORMATION
NJJER02038A
36 SUGAR HOLLOW RD
DANBURY, CT 06810

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

CONNECTICUT - CODE COMPLIANCE

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

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

SHEET INDEX

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

SITE PHOTO



UNDERGROUND SERVICE ALERT CBYD 811
UTILITY NOTIFICATION CENTER OF CONNECTICUT
(800) 922-4455
WWW.CBYD.COM
CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION



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.

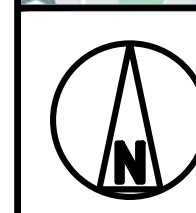
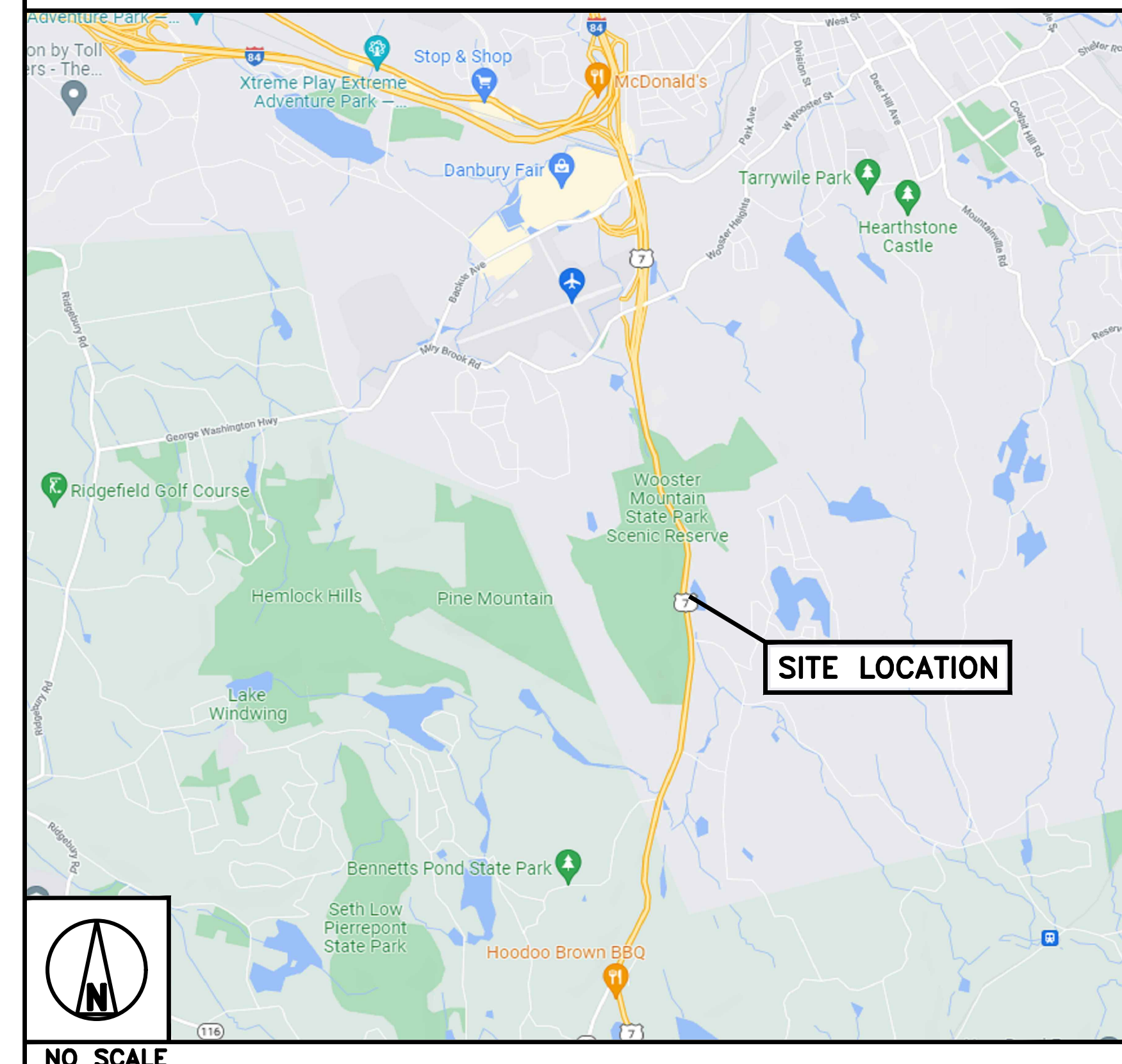
11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED

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.

DIRECTIONS

DIRECTIONS FROM DISH WIRELESS L.L.C. DISTRICT OFFICE: FROM I-84 WEST, TAKE EXIT 3 ON THE LEFT FOR SOUTH US-7S TOWARD NORWALK 0.3 MI. MERGE ONTO US-7S. DESTINATION WILL BE ON THE LEFT APPROX. 2 MI.

VICINITY MAP



NO SCALE

FLOODPLAIN

THE PROPERTY SHOWN HEREON (EITHER IN TOTAL OR A PORTION) IS LOCATED IN THE FOLLOWING ZONE(S) BASED ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP 09001C0226, LAST REVISED JUNE 18, 2010:

BASE FLOOD ELEVATION = 499 FT AMSL

ZONE_A - 1% ANNUAL CHANCE FLOOD HAZARD

NOTES

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

NOTES

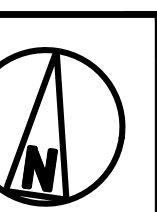
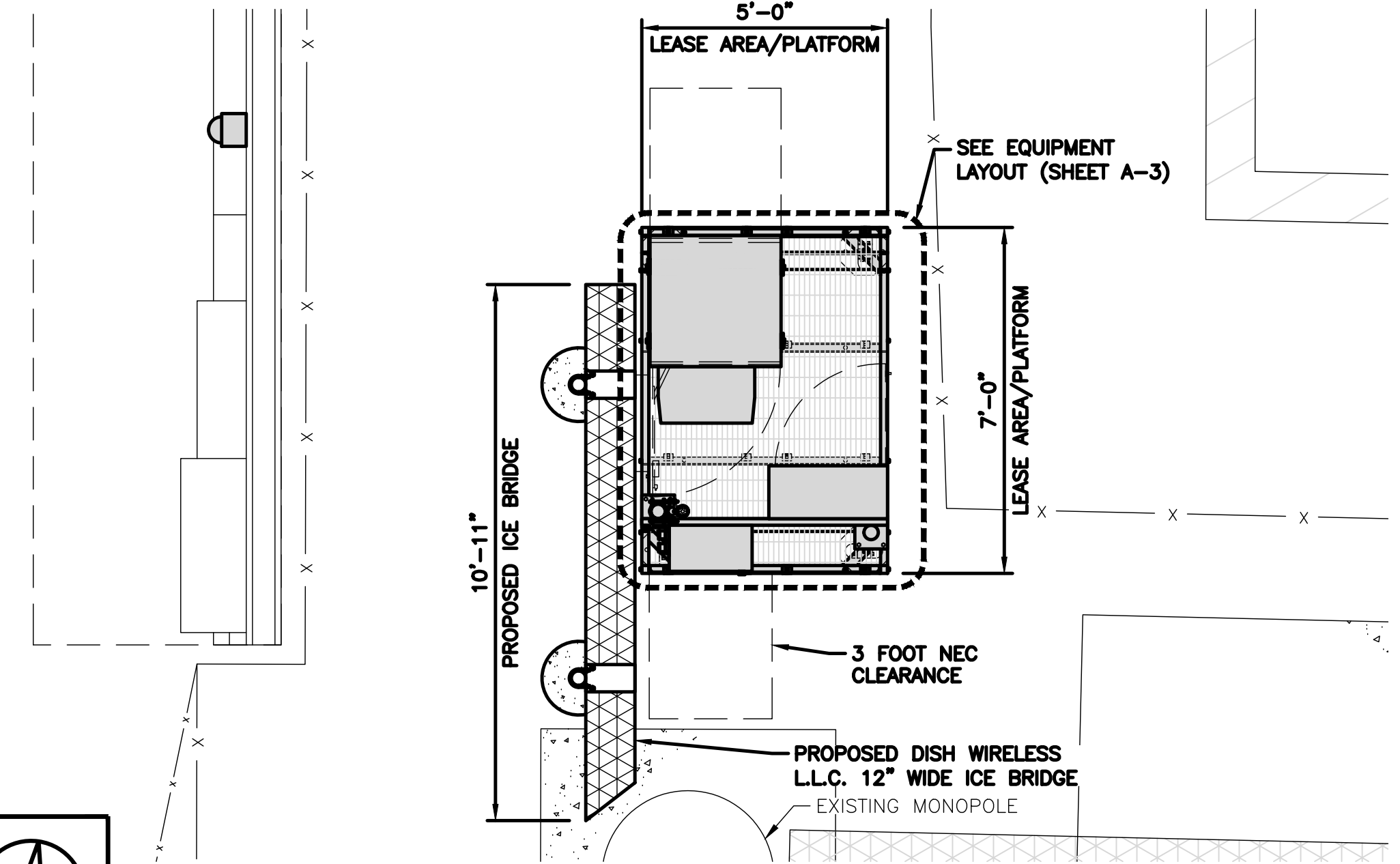
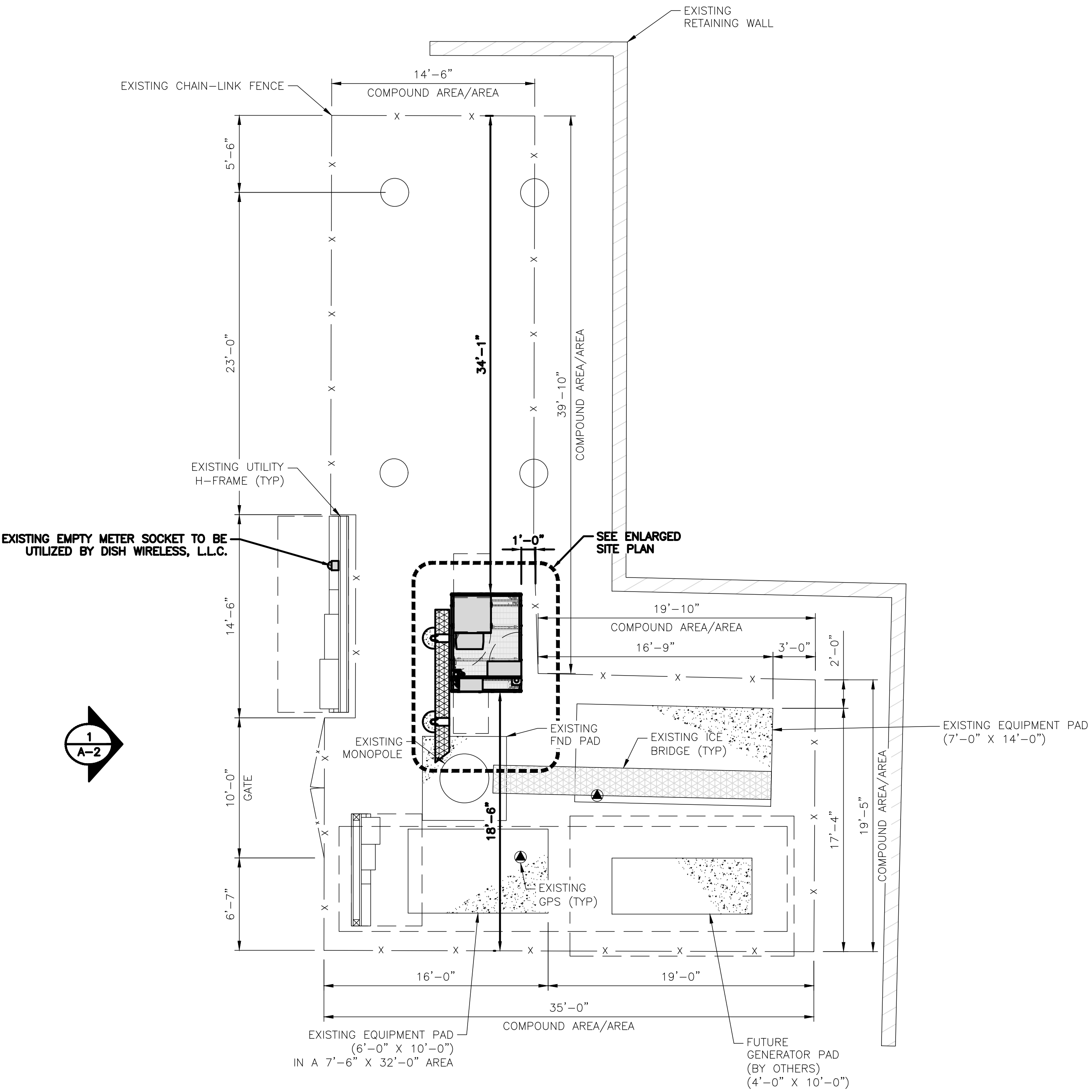
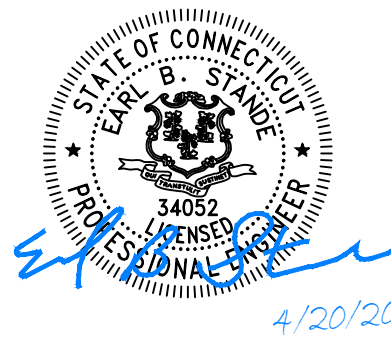
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10' - PROPOSED DISH WIRELESS L.L.C. 12" WIDE ICE BRIDGE SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



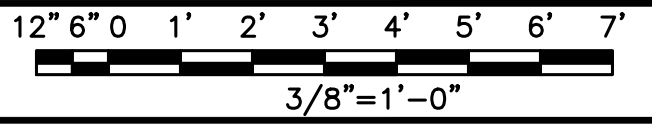
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Jacobs.
Challenging today.
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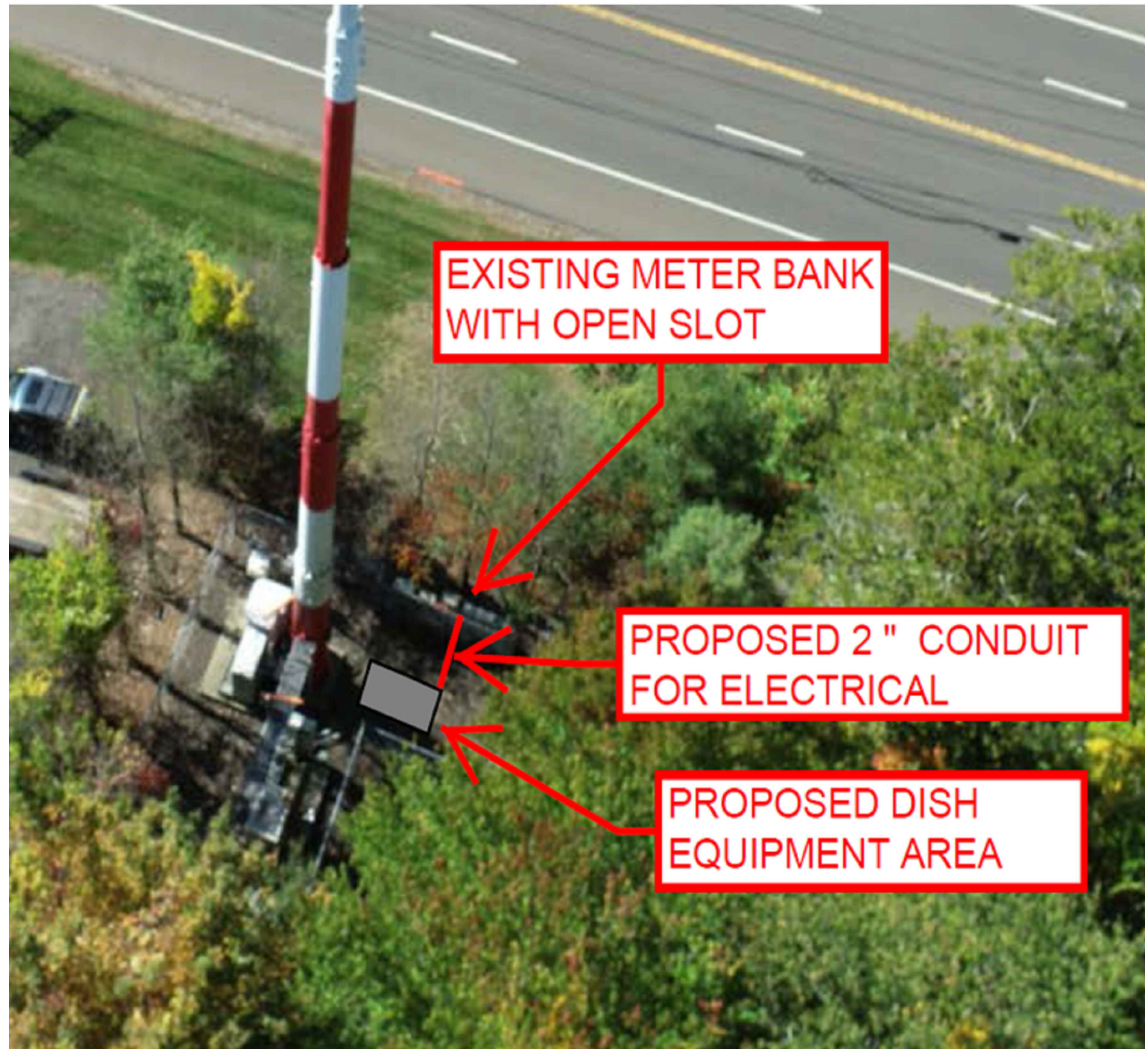
Jacobs Telecommunications, Inc.
5449 BELLS FERRY ROAD
ACWORTH, GA 30102



ENLARGED SITE PLAN



2



EXISTING METER BANK WITH OPEN SLOT

PROPOSED 2" CONDUIT FOR ELECTRICAL

PROPOSED DISH EQUIPMENT AREA

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:

MWD SEL KRK

RFDS REV #: 1

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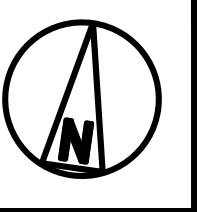
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DISH WIRELESS L.L.C.
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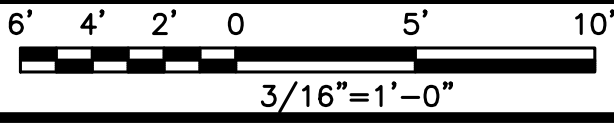
NJJer02038A
36 SUGAR HOLLOW RD
DANBURY, CT 06810

SHEET TITLE
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER
A-1



OVERALL SITE PLAN



1

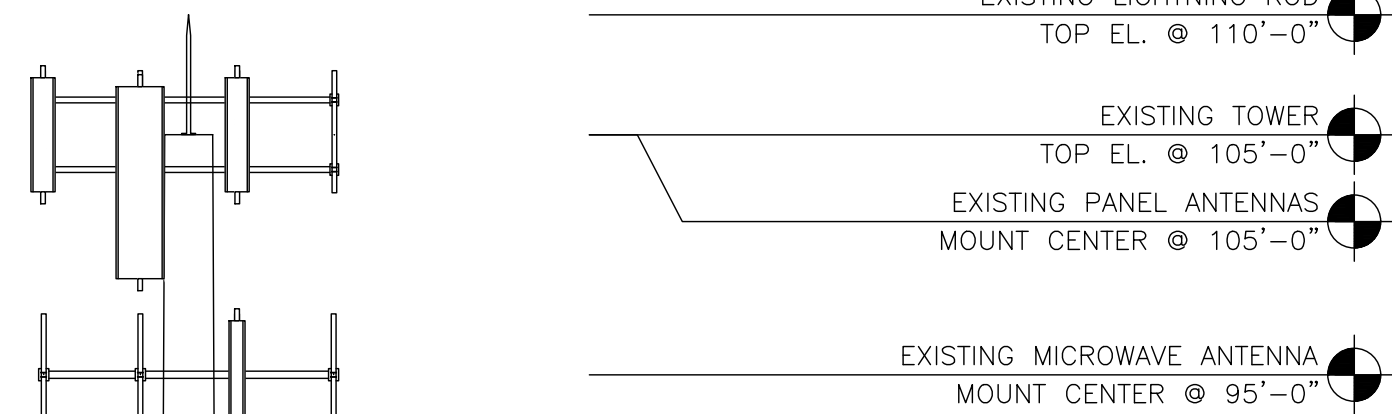
ESA

NO SCALE

3

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. FOR ANTENNA SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.
4. JACOBS HAS NOT EVALUATED OR CONFIRMED THE STRUCTURAL CAPACITY OF THE TOWER OR ANTENNA/RADIO MOUNTS. REFER TO LATEST STRUCTURAL ANALYSIS FOR VERIFICATION OF TOWER AND MOUNTING COMPONENTS PRIOR TO CONSTRUCTION. ANY MODIFICATIONS SHALL BE PERFORMED PRIOR TO THE INSTALLATION OF THE EQUIPMENT SHOWN IN THE DRAWING.



(3) PROPOSED DISH WIRELESS L.L.C. ANTENNAS
RAD CENTER @ 74'-0"

(1) PROPOSED DISH WIRELESS L.L.C. HYBRID CABLE ROUTED UP POLE EXTERIOR PER STRUCTURAL ANALYSIS (BY CROWN CASTLE DATED DECEMBER 22, 2021)

EXISTING MONOPOLE

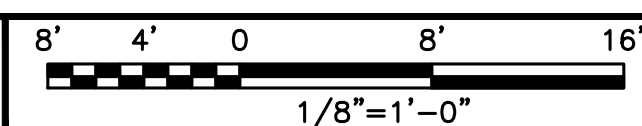
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BASE FLOOD ELEVATION = 499 FT AMSL
ZONE A - 1% ANNUAL CHANCE FLOOD HAZARD

PROPOSED DISH WIRELESS L.L.C. ICE BRIDGE
PROPOSED DISH WIRELESS L.L.C. GPS UNIT
PROPOSED DISH WIRELESS L.L.C. EQUIPMENT

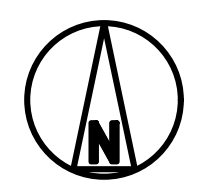
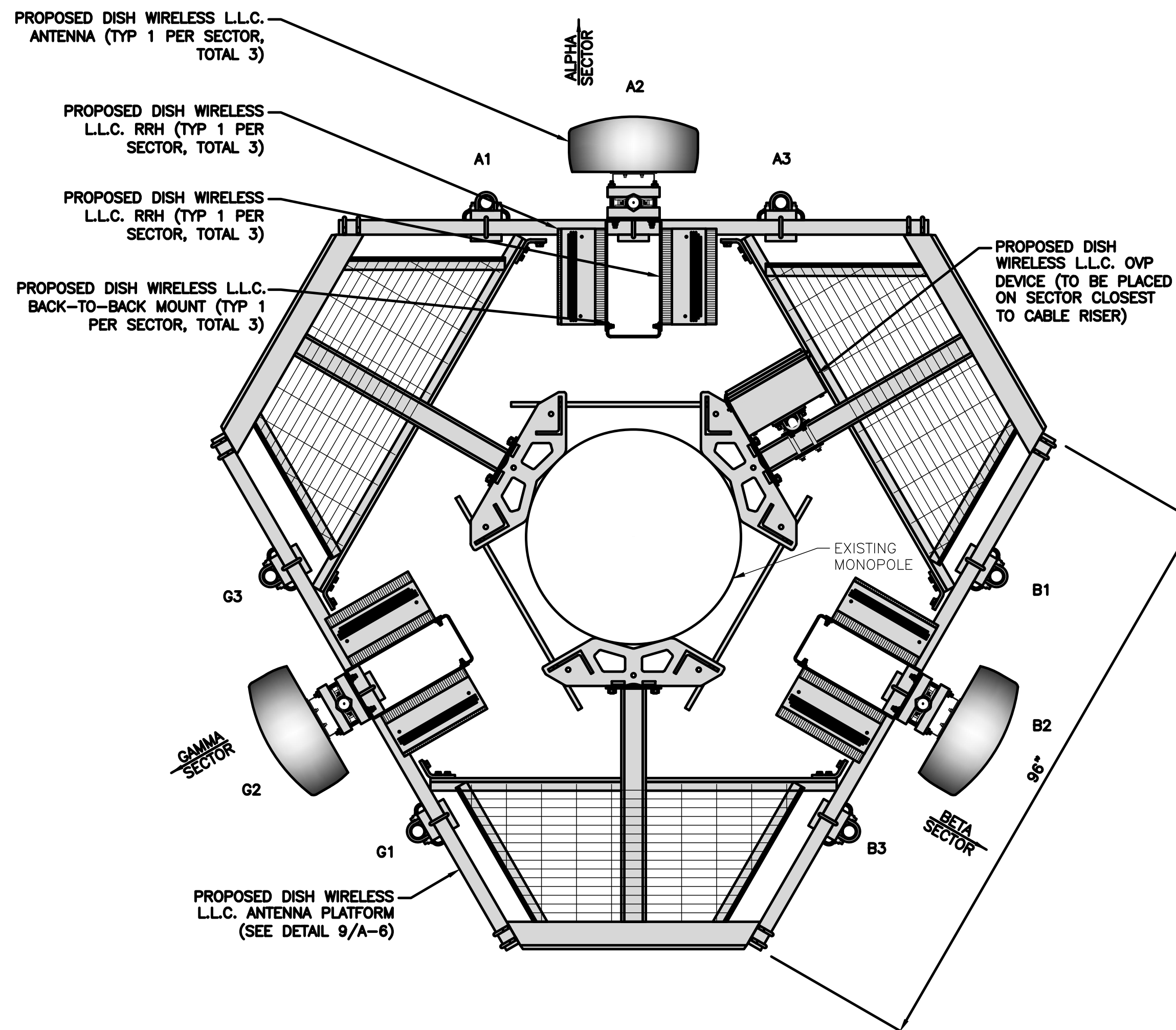
EXISTING ENTRY PORT

EXISTING TOWER
BOTTOM EL. @ 9" AGL

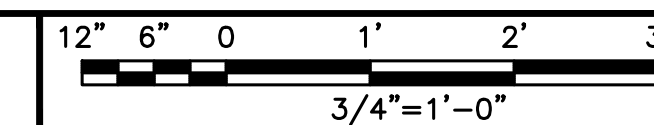
PROPOSED WEST ELEVATION



1



ANTENNA LAYOUT



2

SECTOR POS.	ANTENNA					RRH		OVP	TRANSMISSION CABLE
	EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECH	AZIMUTH	RAD CENTER	MANUFACTURER - MODEL NUMBER	TECH	MANUFACTURER MODEL	FEED LINE TYPE AND LENGTH
A1	---	---	---	---	---	---	---	RAYCAP RDIDC-9181-PF-48	(1) HIGH-CAPACITY HYBRID CABLE (110' LONG)
A2	PROPOSED	JMA WIRELESS - MX08FR0665-21	5G	0°	74'-0"	FUJITSU - TA08025-B604 FUJITSU - TA08025-B605	5G		
A3	---	---	---	---	---	---	---		
B1	---	---	---	---	---	---	---	SHARED W/ALPHA	SHARED W/ALPHA
B2	PROPOSED	JMA WIRELESS - MX08FR0665-21	5G	120°	74'-0"	FUJITSU - TA08025-B604 FUJITSU - TA08025-B605	5G		
B3	---	---	---	---	---	---	---		
G1	---	---	---	---	---	---	---	SHARED W/ALPHA	SHARED W/ALPHA
G2	PROPOSED	JMA WIRELESS - MX08FR0665-21	5G	240°	74'-0"	FUJITSU - TA08025-B604 FUJITSU - TA08025-B605	5G		
G3	---	---	---	---	---	---	---		

NOTES

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

*SEE LATEST DISH RFDS FOR AZIMUTH INFORMATION AT TIME OF BUILD

ANTENNA SCHEDULE

NO SCALE

3

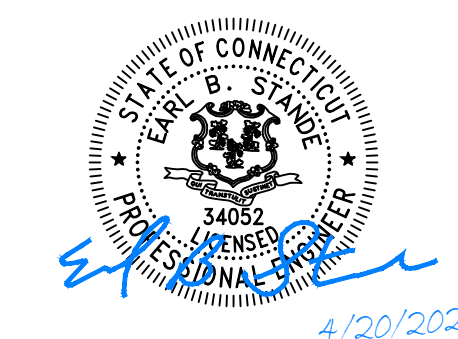


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DRAWN BY: CHECKED BY: APPROVED BY:

MWD SEL KRK

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

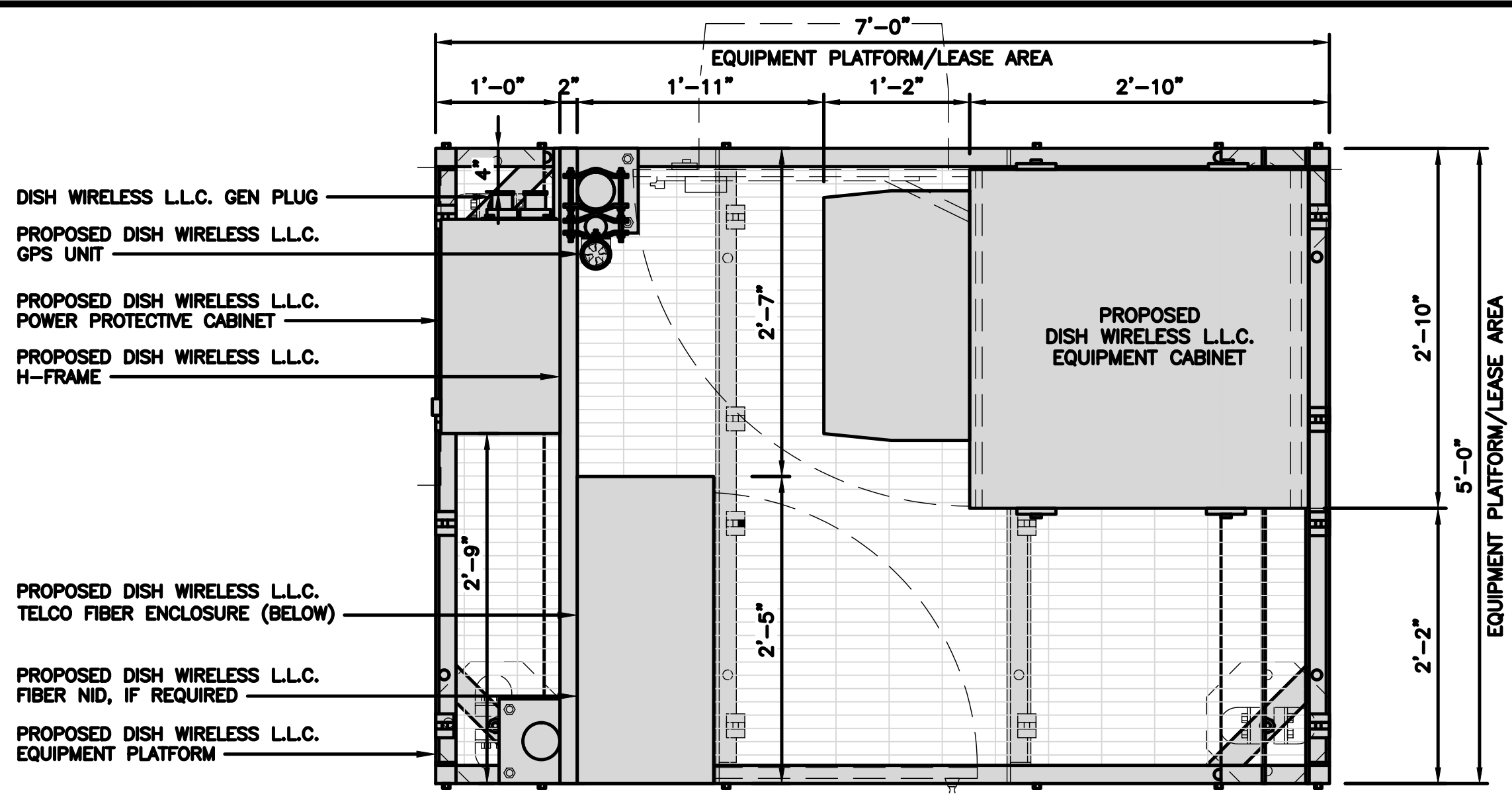
REV	DATE	DESCRIPTION
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2	04/20/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
EUC0309

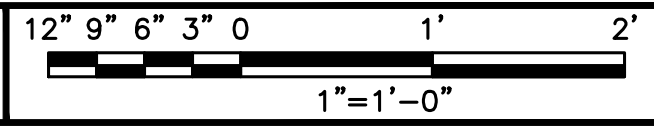
DISH WIRELESS L.L.C. PROJECT INFORMATION
NJJER02038A
36 SUGAR HOLLOW RD
DANBURY, CT 06810

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2

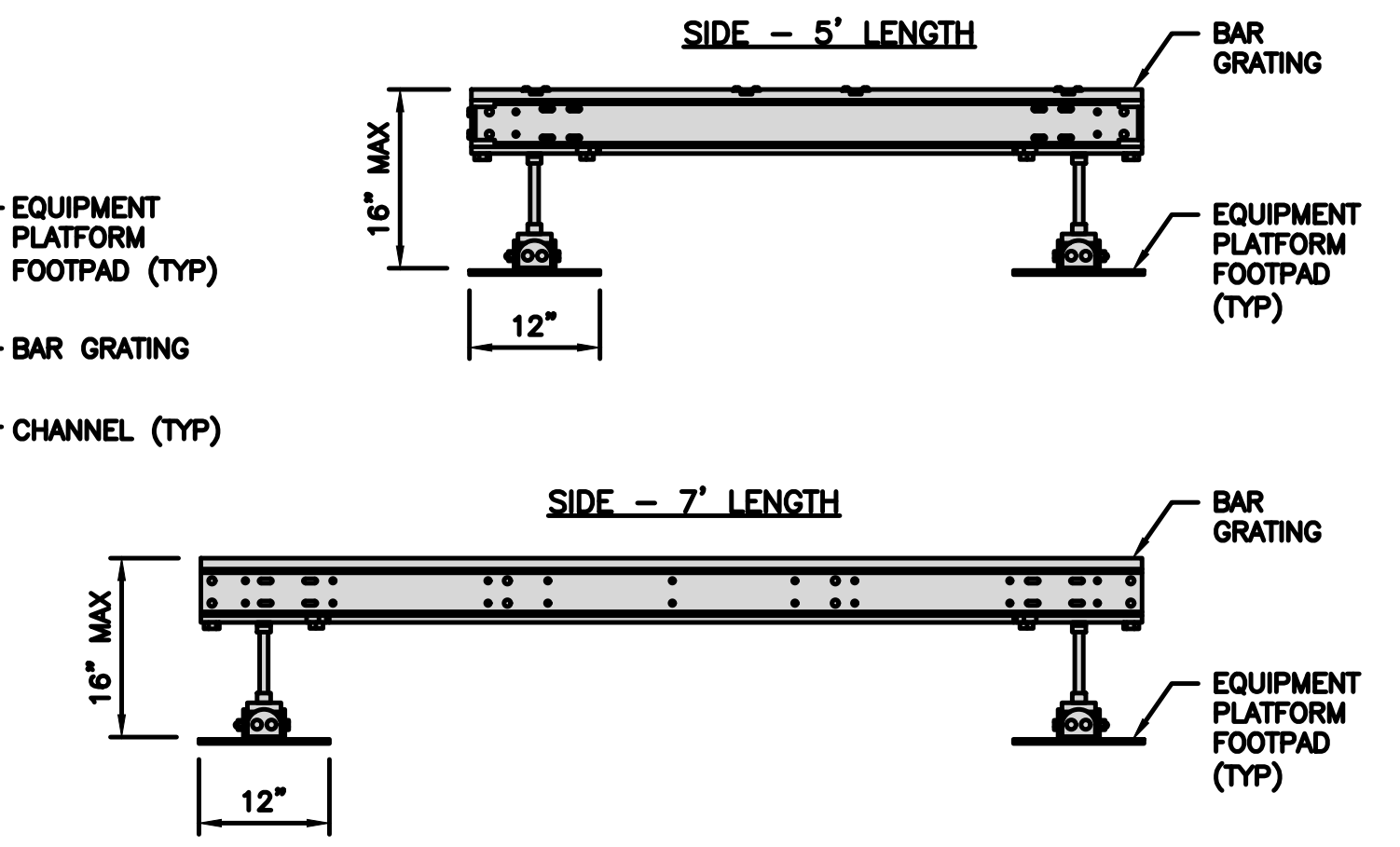
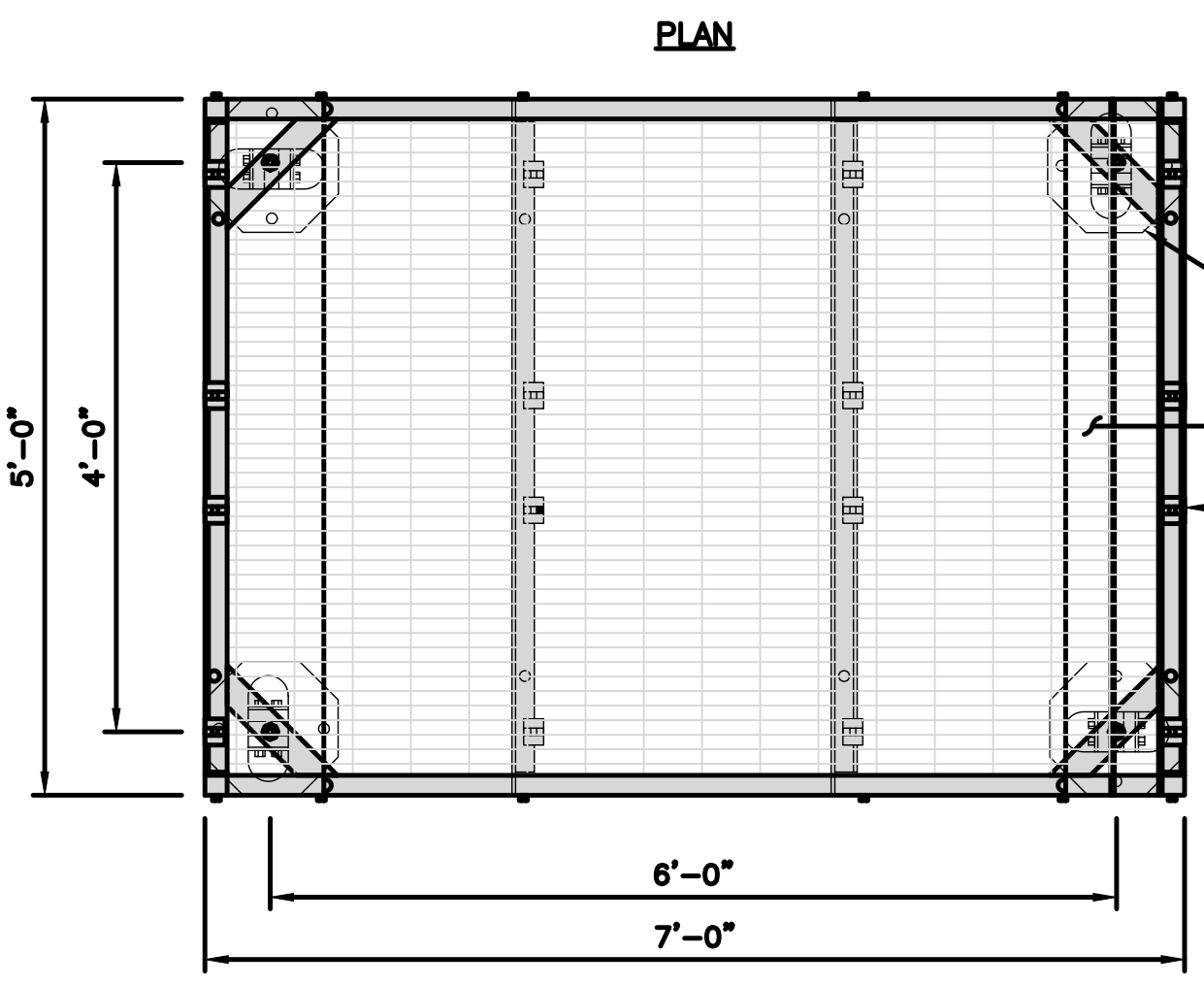


PLATFORM EQUIPMENT PLAN



1

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



NOTES

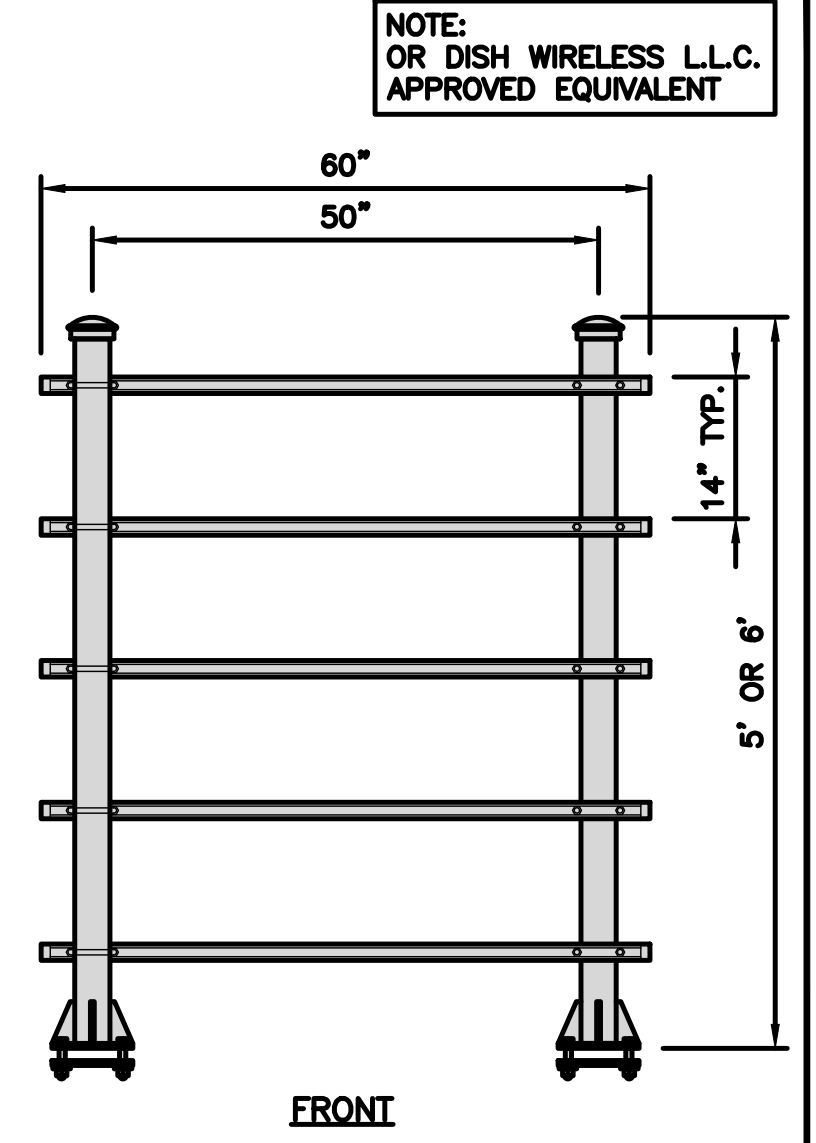
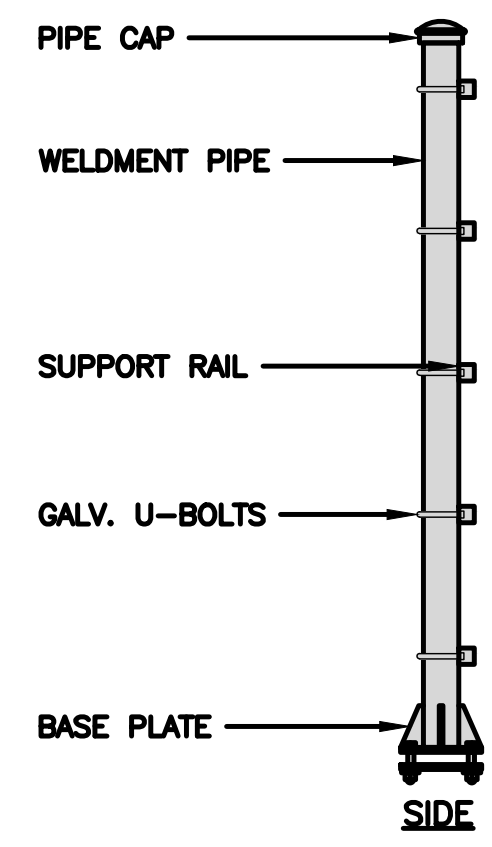
1. PLATFORM TO BE LEVELED TO NO MORE THAN +/- 1 DEGREE FROM HORIZONTAL ON BOTH PLANES.

PLATFORM DETAIL

NO SCALE

2

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



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

H-FRAME DETAIL

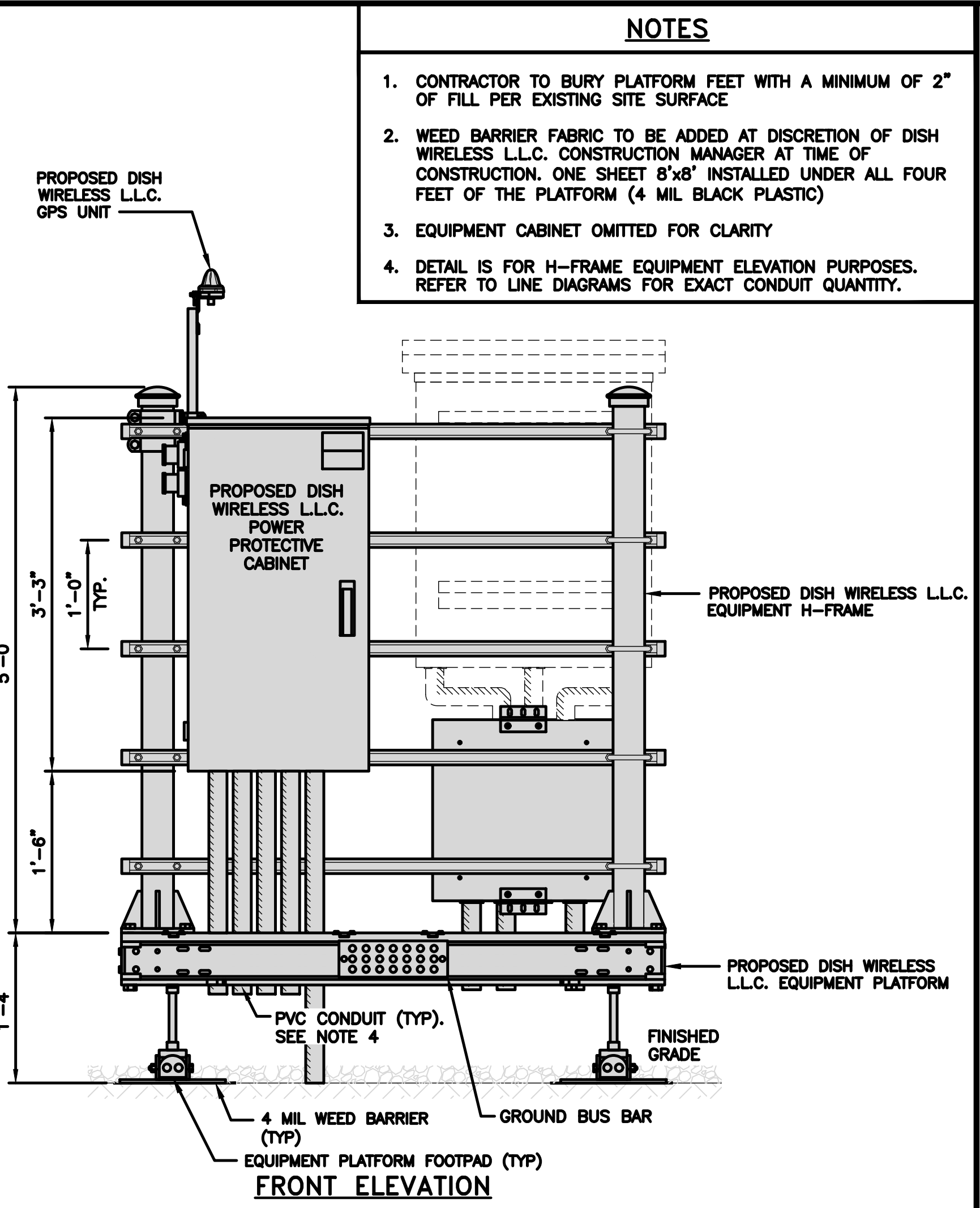
NO SCALE

3

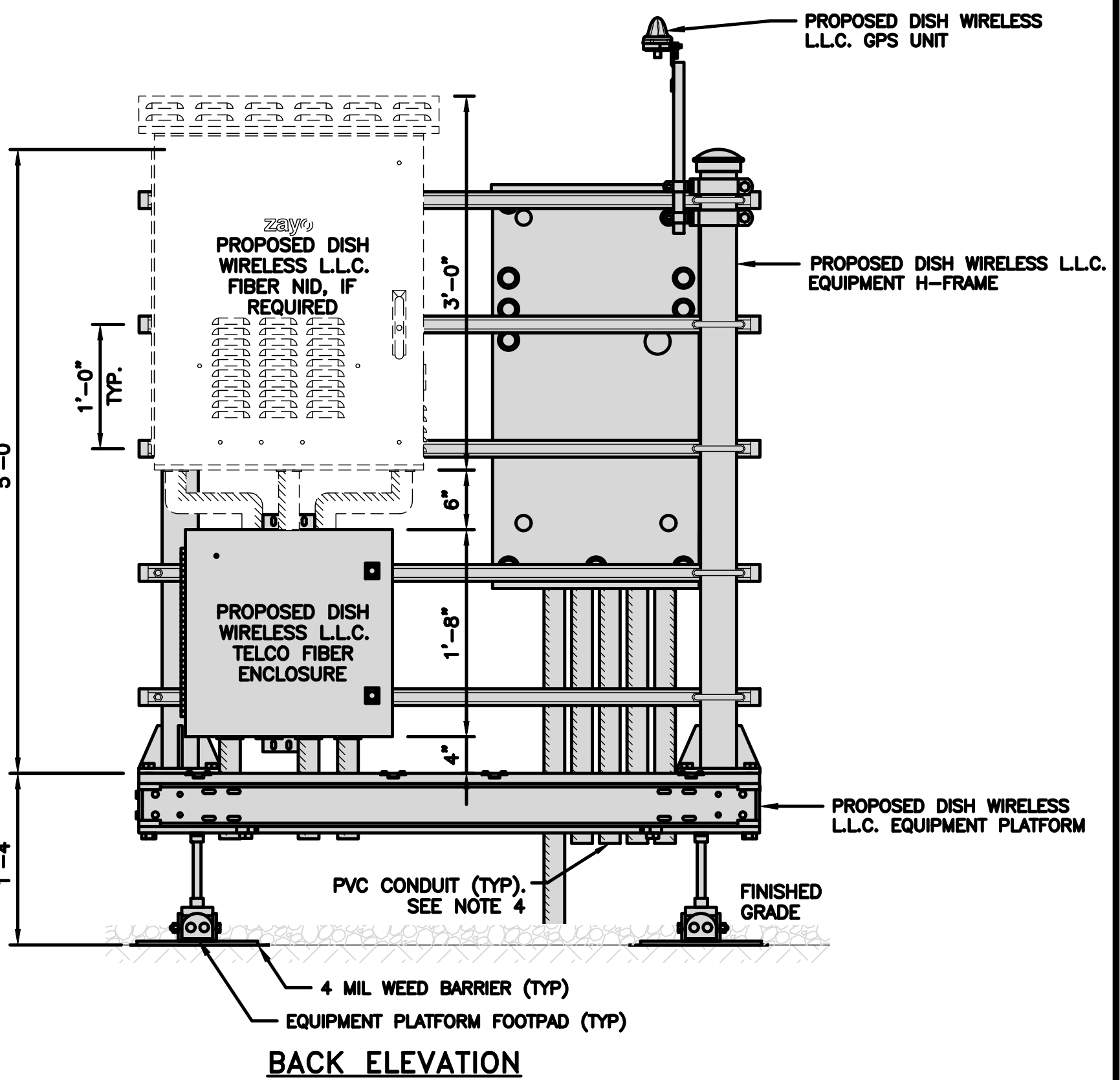
NOT USED

NO SCALE

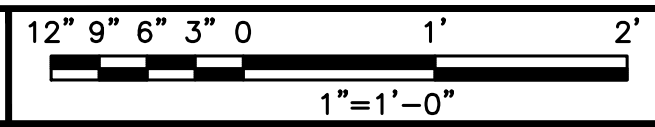
4



FRONT ELEVATION



BACK ELEVATION



5

NOTES

1. CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE
2. WEED BARRIER FABRIC TO BE ADDED AT DISCRETION OF DISH WIRELESS L.L.C. CONSTRUCTION MANAGER AT TIME OF CONSTRUCTION. ONE SHEET 8'x8' INSTALLED UNDER ALL FOUR FEET OF THE PLATFORM (4 MIL BLACK PLASTIC)
3. EQUIPMENT CABINET OMITTED FOR CLARITY
4. DETAIL IS FOR H-FRAME EQUIPMENT ELEVATION PURPOSES. REFER TO LINE DIAGRAMS FOR EXACT CONDUIT QUANTITY.

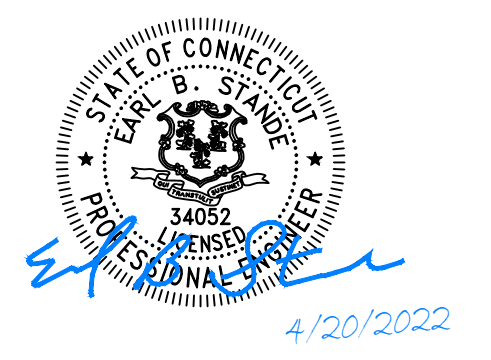


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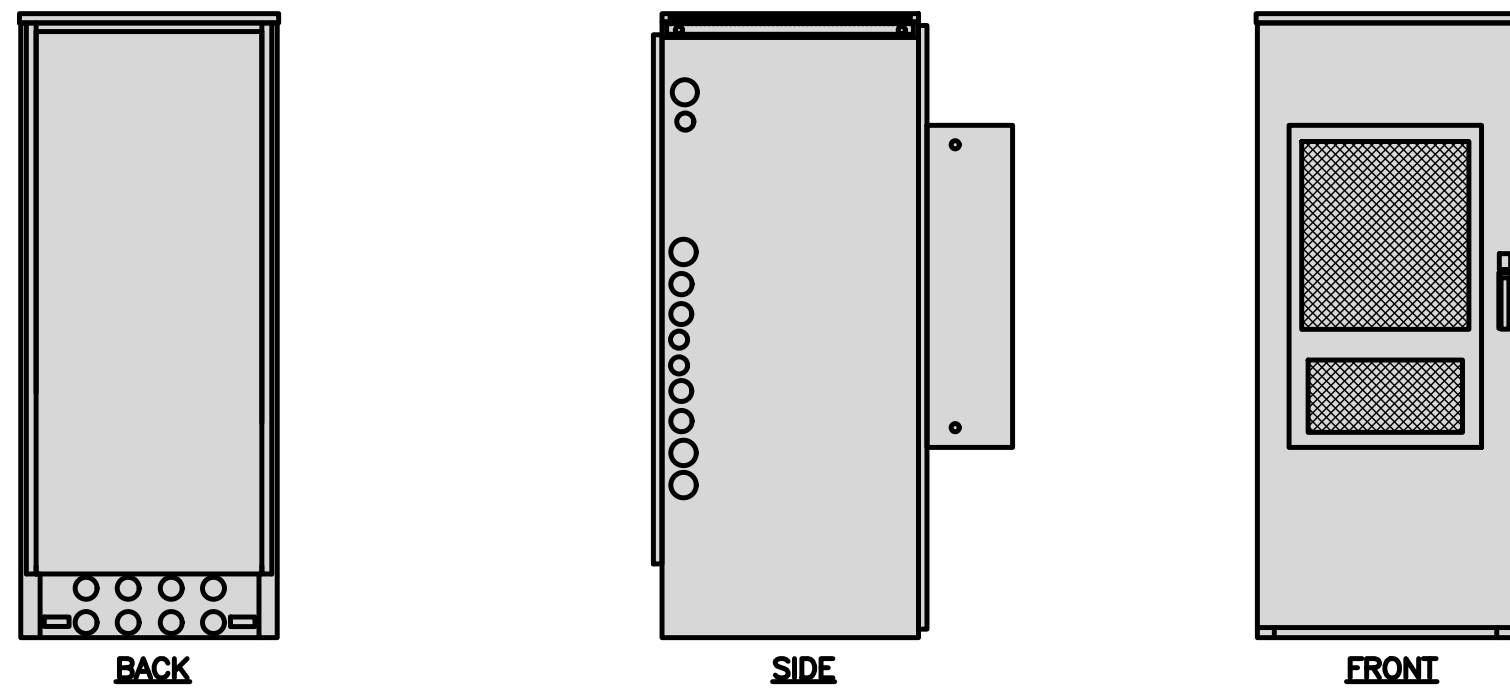
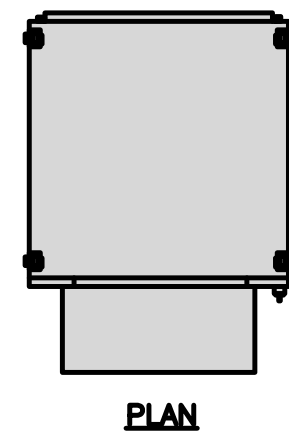
DISH WIRELESS L.L.C.
PROJECT INFORMATION
NJJER02038A
36 SUGAR HOLLOW RD
DANBURY, CT 06810

SHEET TITLE
EQUIPMENT PLATFORM AND
H-FRAME DETAILS

SHEET NUMBER

A-3

ENERSYS HEX 20000059996	
DIMENSIONS (HxWxD)	73"x30"x32"
POWER SYSTEM	-48V ALPHA/600A
HEATER	800W
TOTAL WEIGHT (EMPTY)	376 lbs

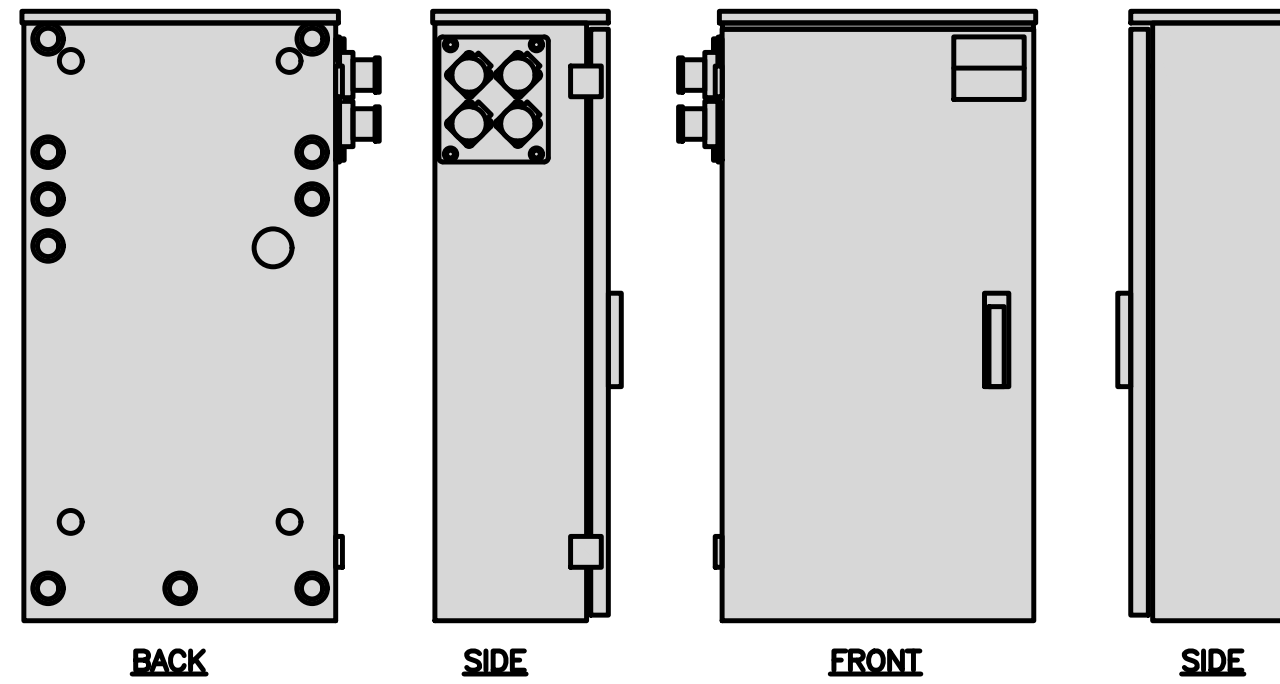
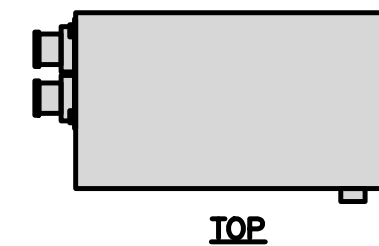


CABINET DETAIL

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



POWER PROTECTION CABINET (PPC) DETAIL

NO SCALE

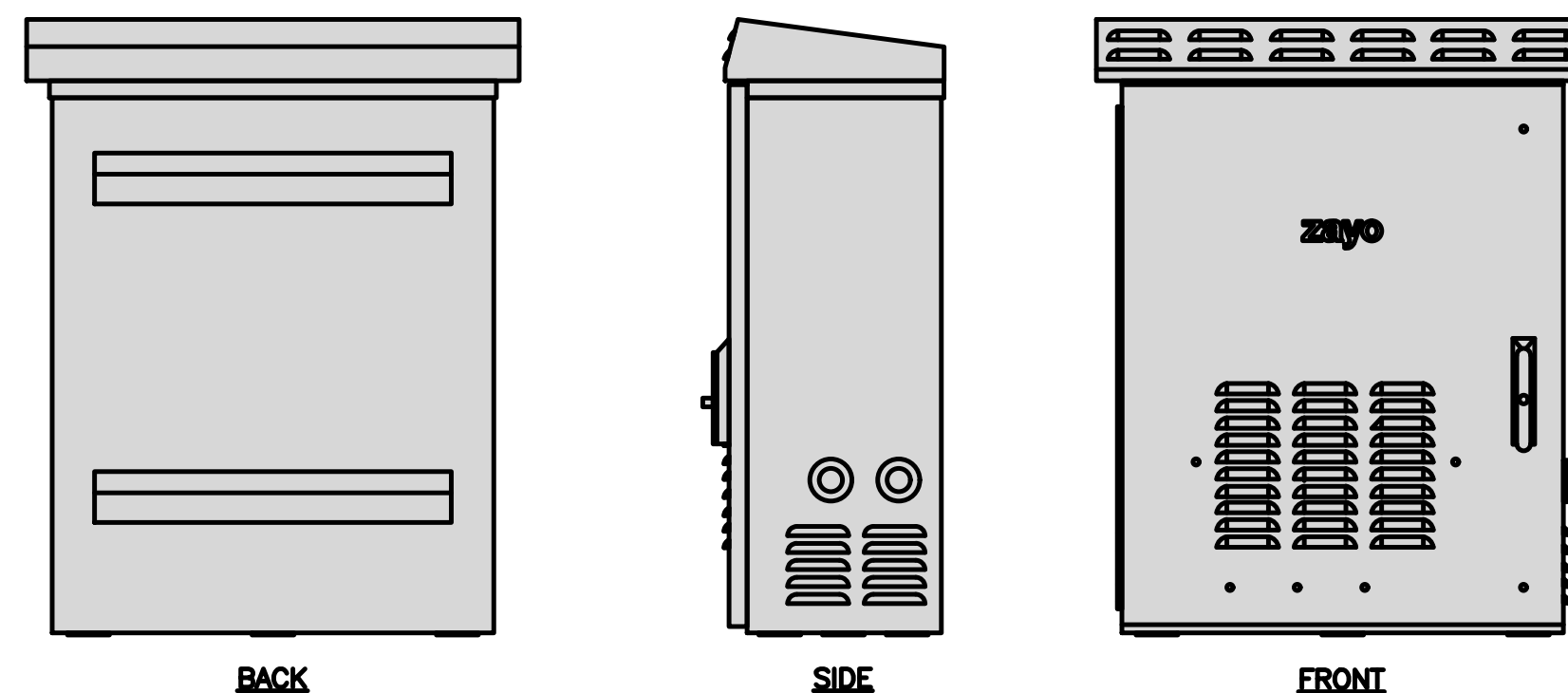
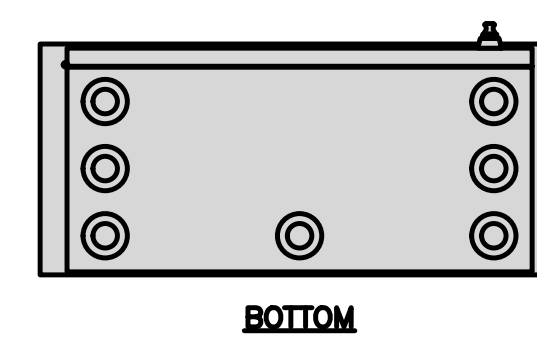
2

NOT USED

NO SCALE

3

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

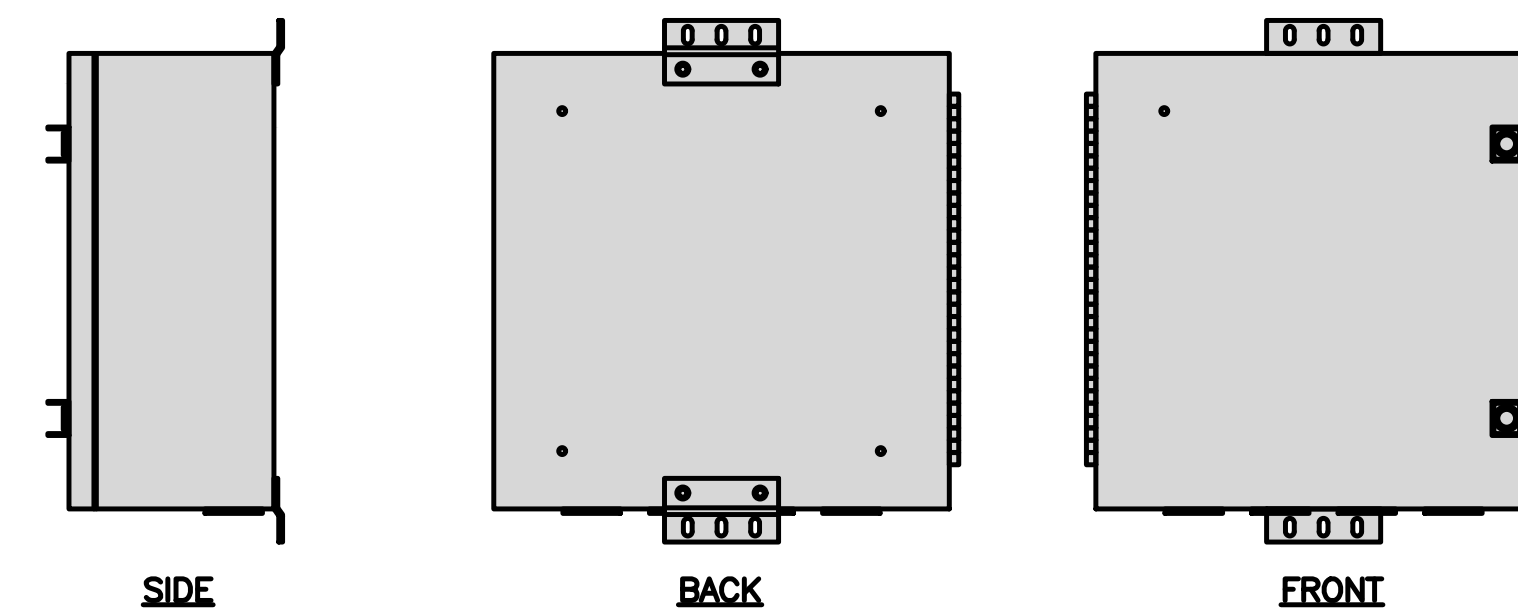
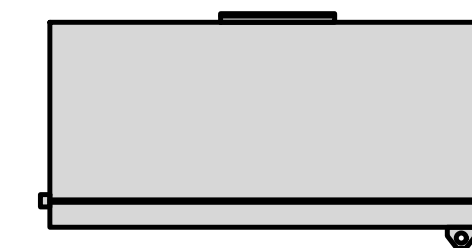


FIBER NID ENCLOSURE DETAIL

NO SCALE

5

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

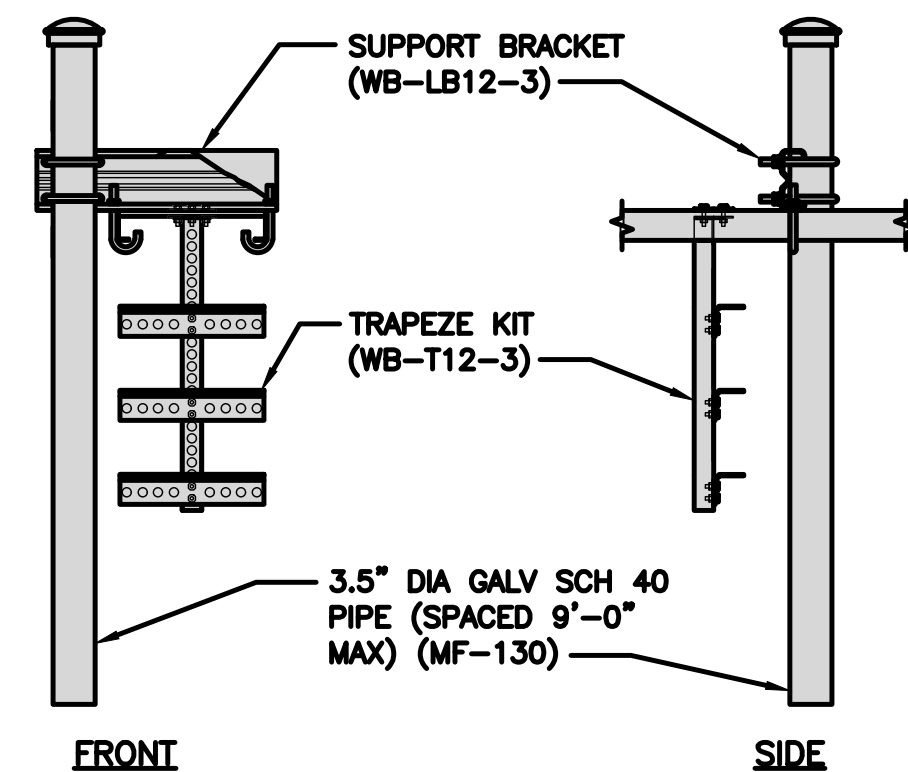
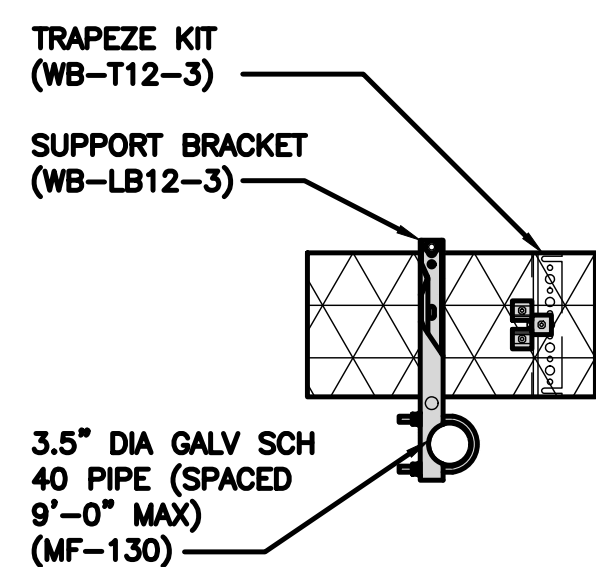


FIBER TELCO ENCLOSURE DETAIL

NO SCALE

6

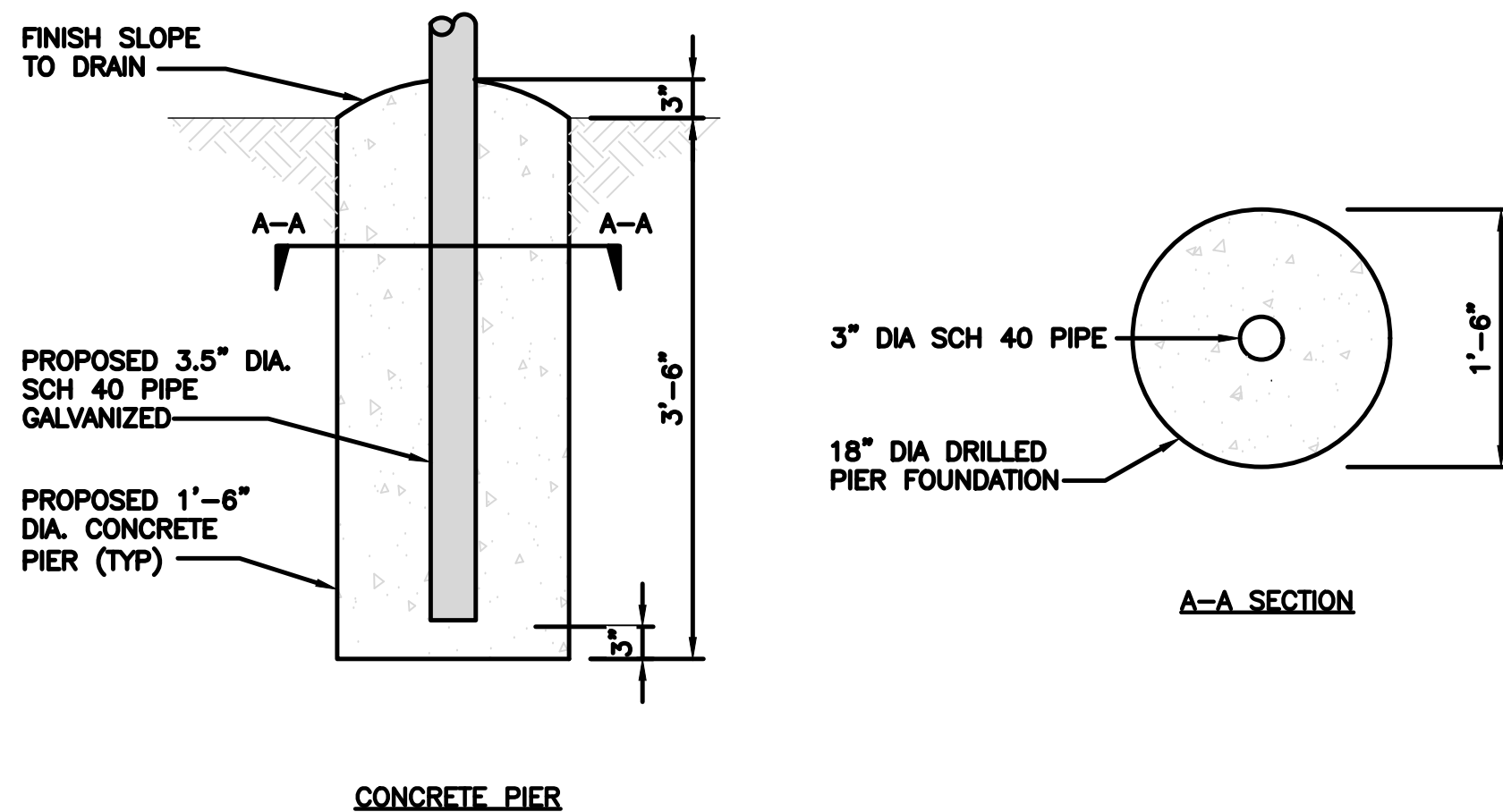
COMMSCOPE WB-K110-B WAVEGUIDE BRIDGE KIT		INCLUDED PRODUCTS: WB-T12-3 TRAPEZE KIT, 3 RUNGS WB-LB12-3 SUPPORT BRACKET MF-130 DIRECT BURIAL PIPE COLUMN, 13'-4"
DIMENSIONS (HxL)	160"x10"	
WEIGHT/ VOLUME	325.0 LBS	
CABLE RUN (QTY)	12	



ICE BRIDGE DETAIL

NO SCALE

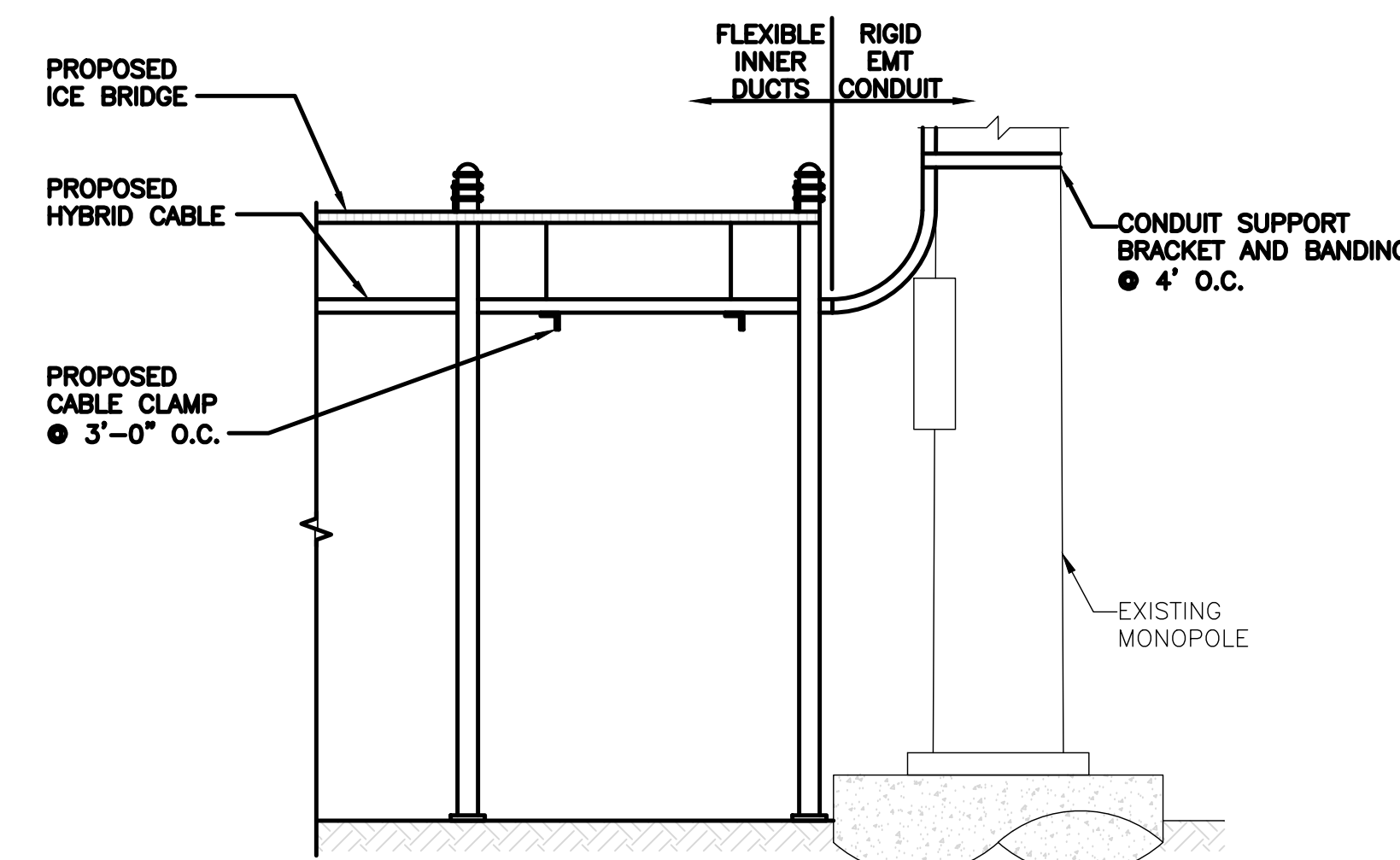
7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL

NO SCALE

8



HYBRID CABLE RUN

NO SCALE

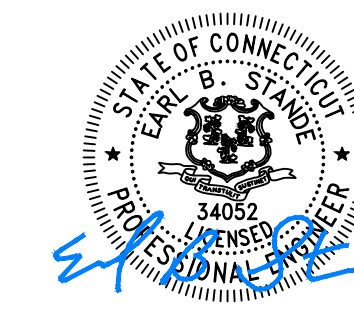
9

dish
wireless.

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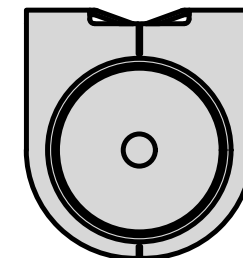
DISH WIRELESS L.L.C.
PROJECT INFORMATION
NJJER02038A
36 SUGAR HOLLOW RD
DANBURY, CT 06810

SHEET TITLE
EQUIPMENT DETAILS

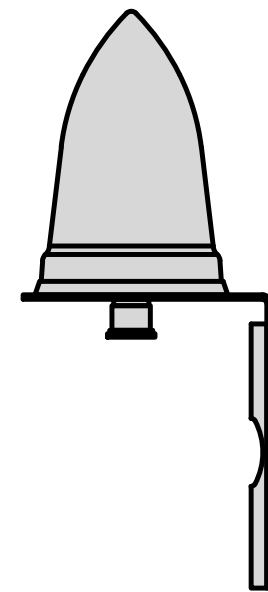
SHEET NUMBER

A-4

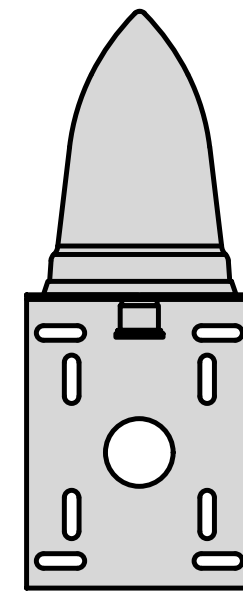
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



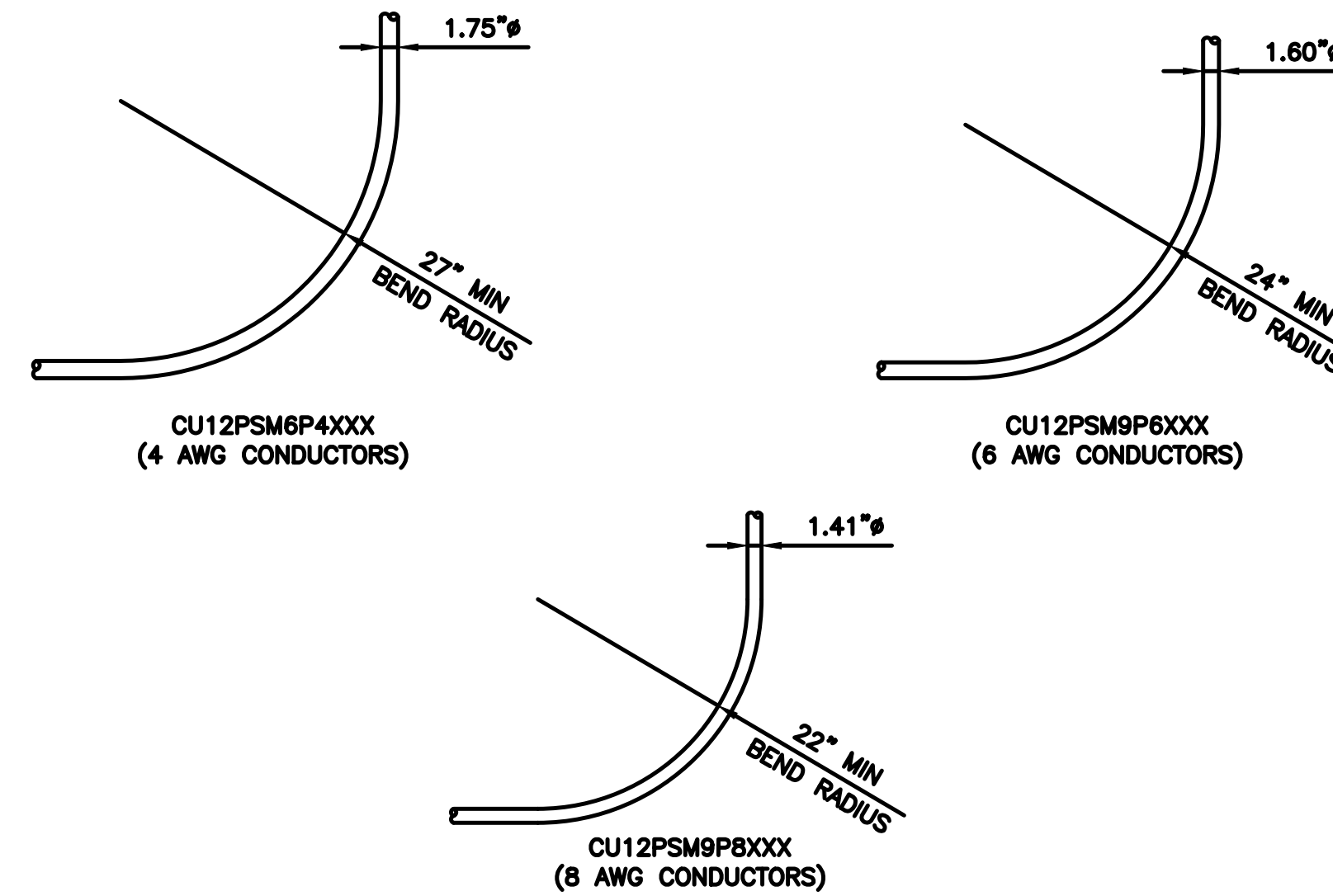
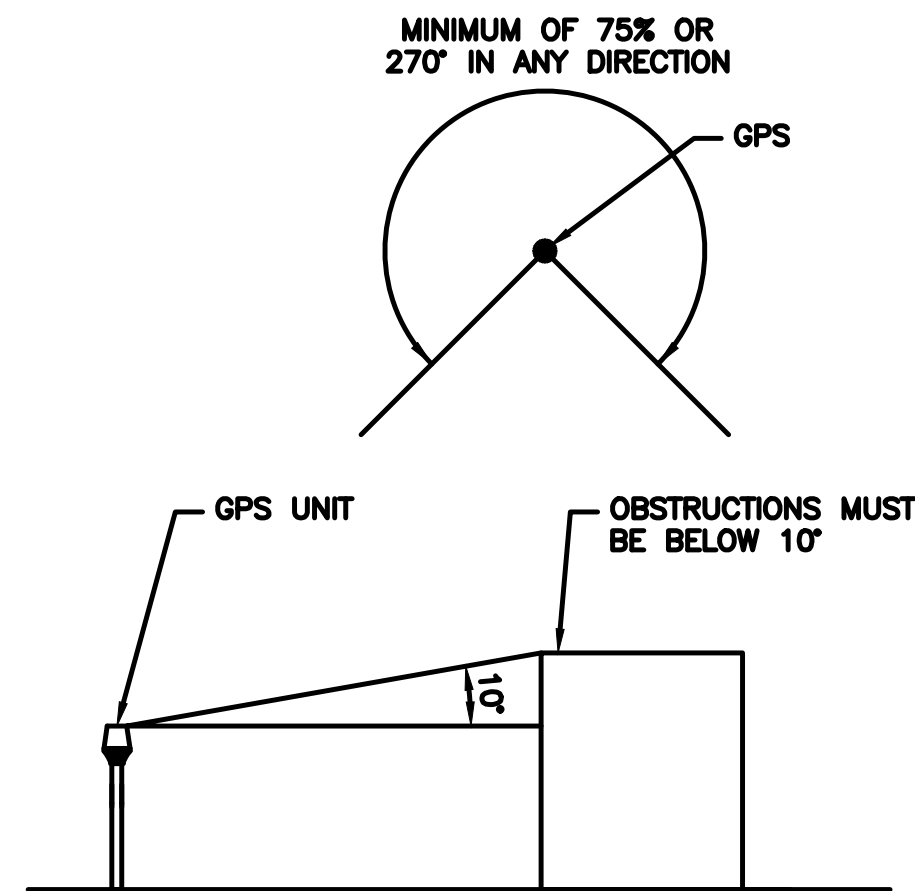
TOP



BACK



SIDE



GPS DETAIL

NO SCALE

1

GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE

2

CABLES UNLIMITED HYBRID CABLE
MINIMUM BEND RADIUSES

NO SCALE

3

NOT USED

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9

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EUCC0309

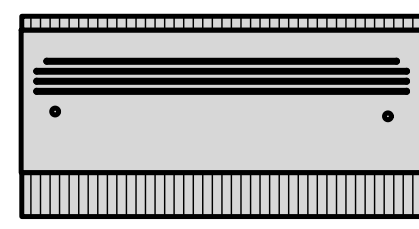
DISH WIRELESS L.L.C.
PROJECT INFORMATION

NJJER02038A
36 SUGAR HOLLOW RD
DANBURY, CT 06810

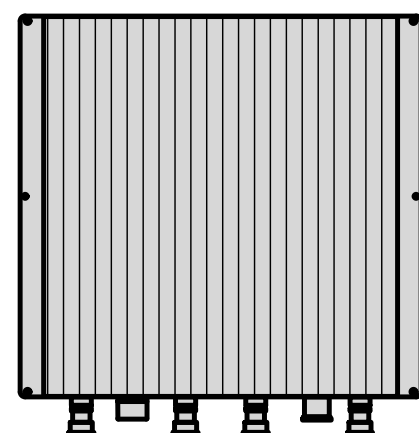
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-5

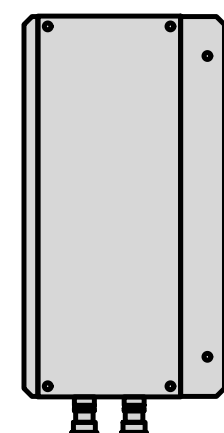
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



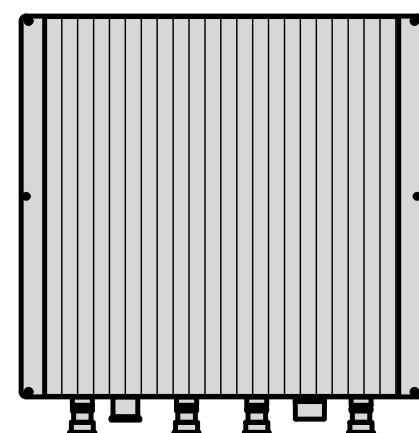
PLAN



BACK

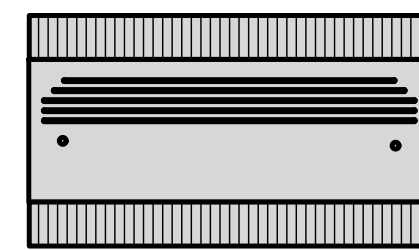


SIDE

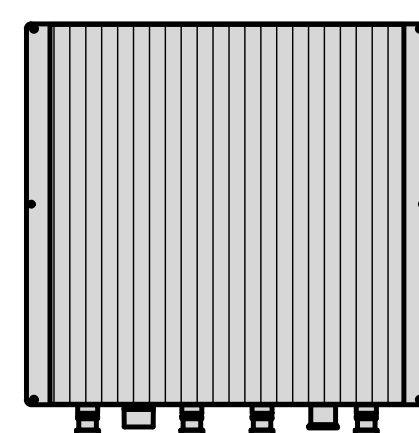


FRONT

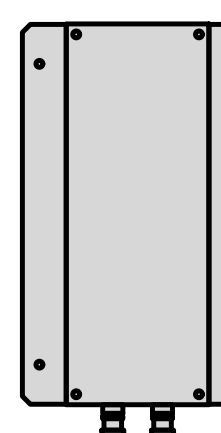
FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



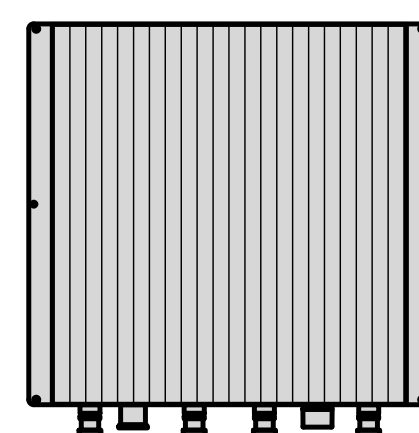
PLAN



BACK

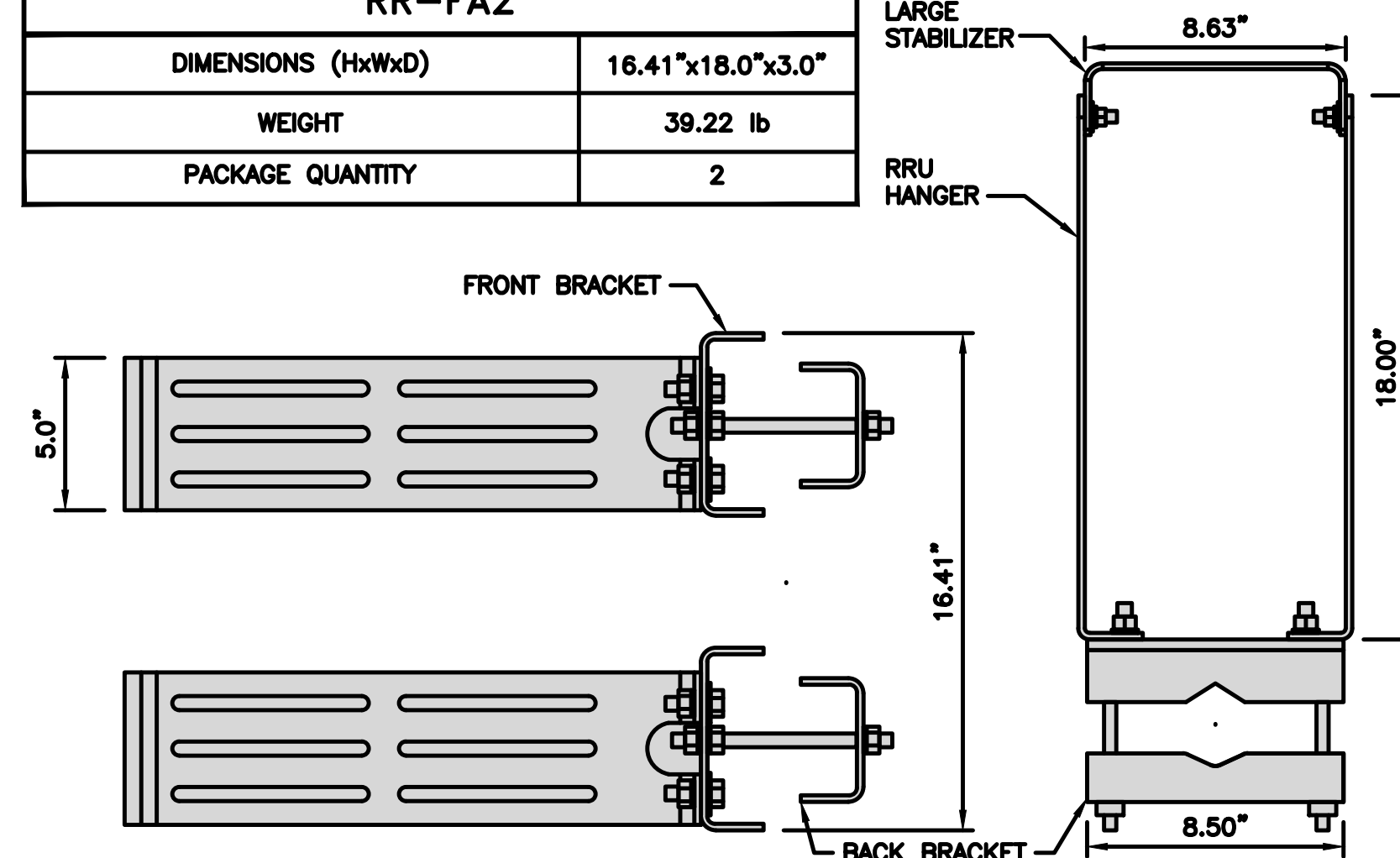


SIDE



FRONT

COMMSCOPE BACK-TO-BACK MOUNT RR-FA2	
DIMENSIONS (HxWxD)	16.41"x18.0"x3.0"
WEIGHT	39.22 lb
PACKAGE QUANTITY	2



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

REMOTE RADIO HEAD DETAIL (RRH)

NO SCALE

1

REMOTE RADIO HEAD DETAIL (RRH)

NO SCALE

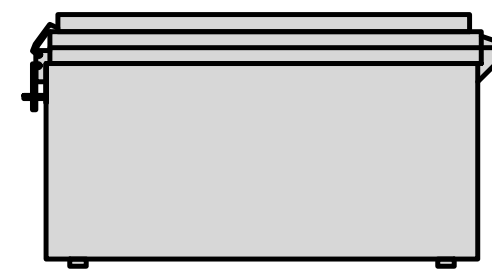
2

REMOTE RADIO MOUNT DETAIL

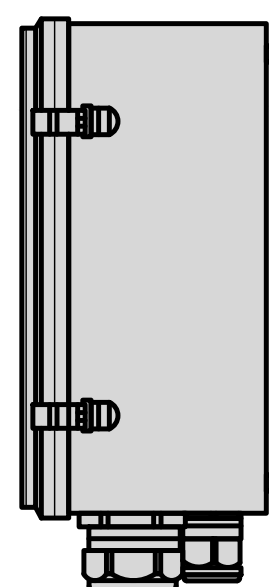
NO SCALE

3

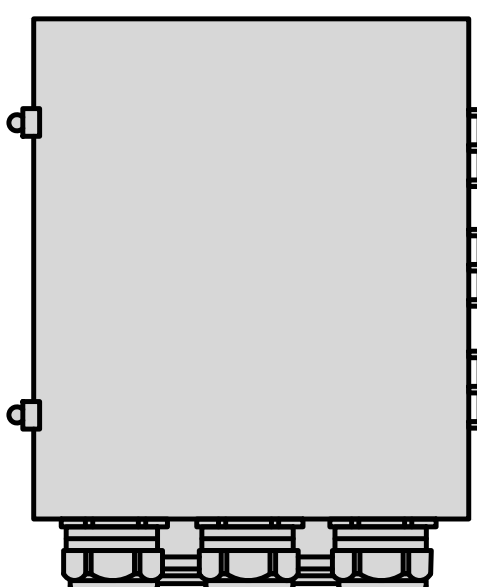
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



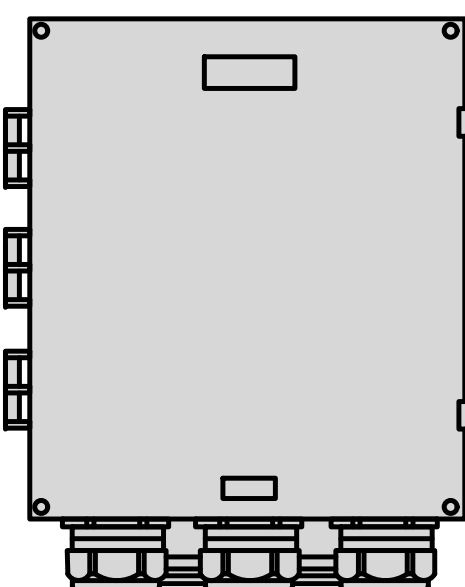
PLAN



SIDE

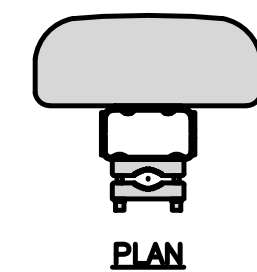


BACK

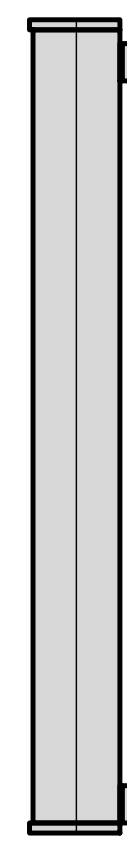


FRONT

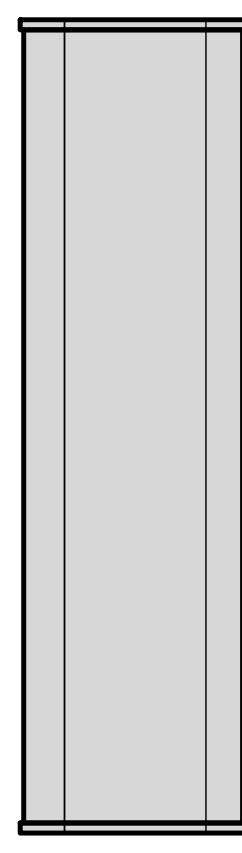
JMA MX08FRO665-21	
DIMENSIONS (HxWxD)	72"x20.0"x8.0"
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE
WEIGHT	64.5 lbs
WEIGHT WITH BRACKETS	82.5 lbs



PLAN



SIDE



FRONT

SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

4

ANTENNA DETAIL

NO SCALE

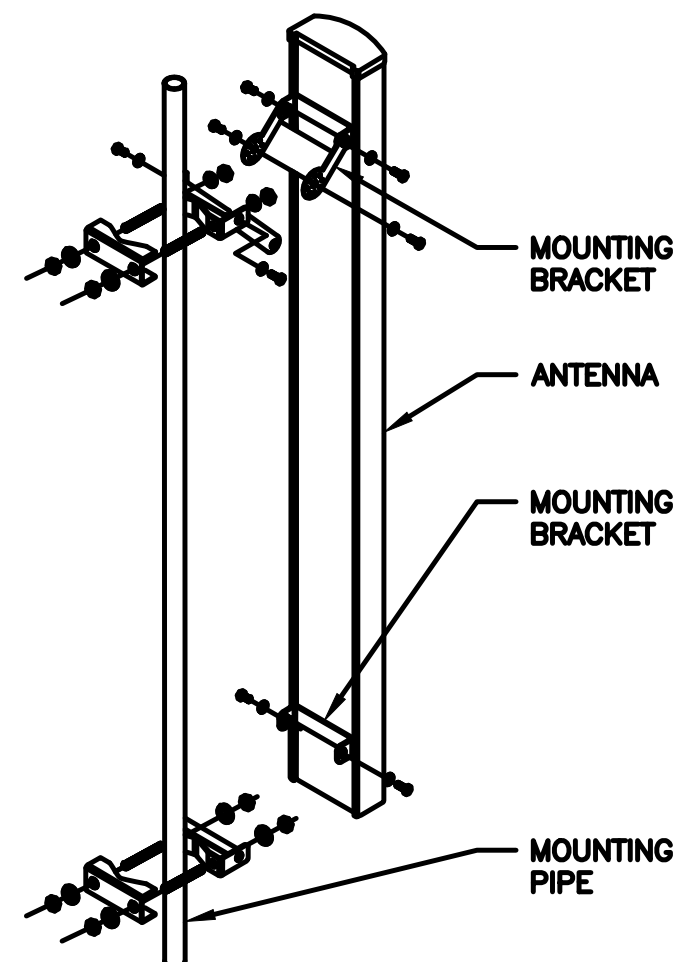
5

NOT USED

NO SCALE

6

M04 MOUNTING BRACKET HPA-33R-BUU-H4-K	
WIDTH	5"
DEPTH	2"
HEIGHT	8"
TOTAL WEIGHT	1.5 lbs
HOUSING MATERIAL	ASA/ABS/ALUMINUM
RADOME COLOR	LIGHT GRAY
CONNECTOR	1x8-PIN DAISY CHAIN



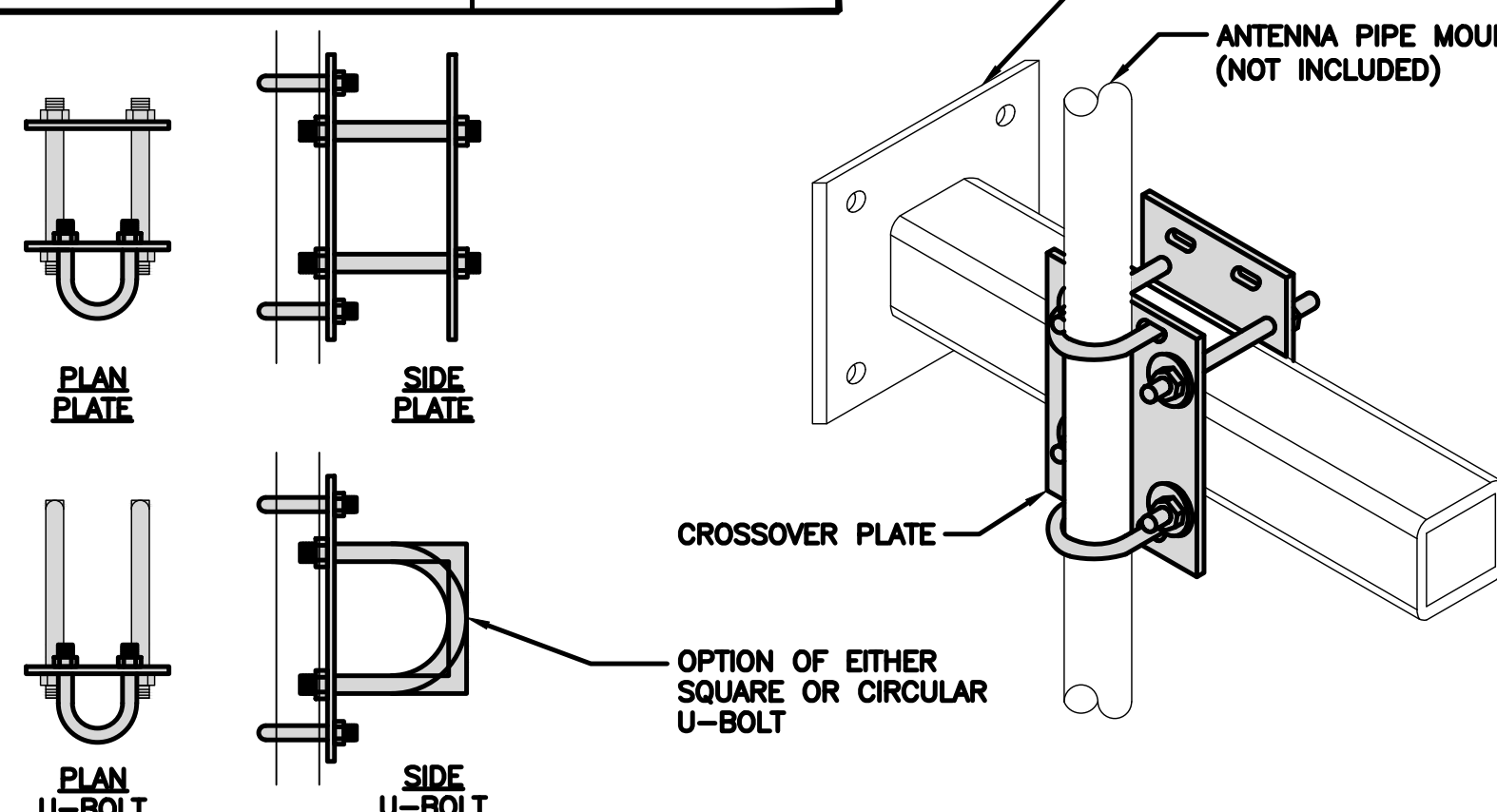
NOTE:
OR DISH WIRELESS L.L.C.
APPROVED EQUIVALENT

ANTENNA MOUNTING DETAIL

NO SCALE

7

COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11 LBS



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

PLAN
PLATE

SIDE
PLATE

PLAN
U-BOLT

SIDE
U-BOLT

CROSSOVER PLATE

OPTION OF EITHER
SQUARE OR CIRCULAR
U-BOLT

ANTENNA PLATFORM
(NOT INCLUDED)

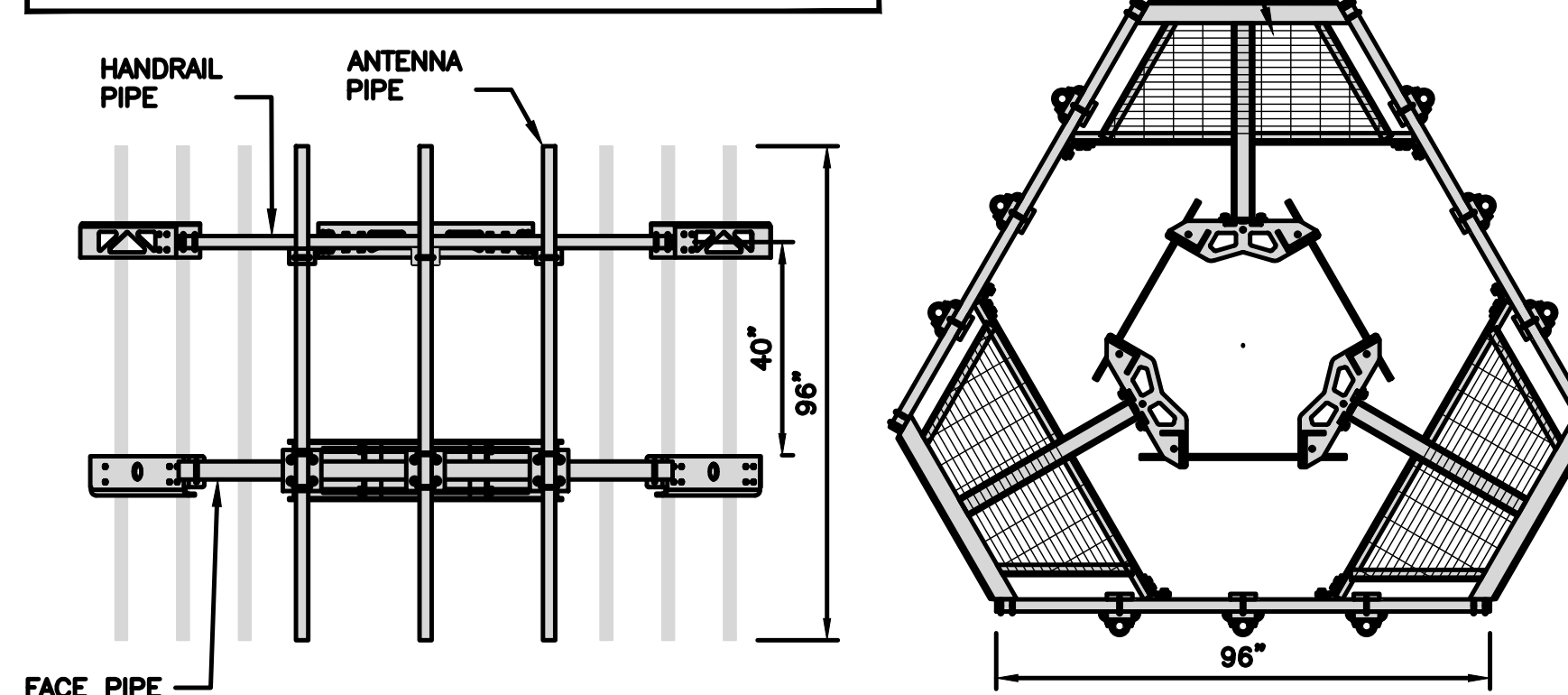
ANTENNA PIPE MOUNT
(NOT INCLUDED)

RRH/OVP MOUNT DETAIL

NO SCALE

8

COMMSCOPE MC-PK8-DSH	
FACE WIDTH	96"
WEIGHT	1373.08 lbs
NOTE: 15" TO 38" O.D.	



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

ANTENNA PLATFORM DETAIL

NO SCALE

9

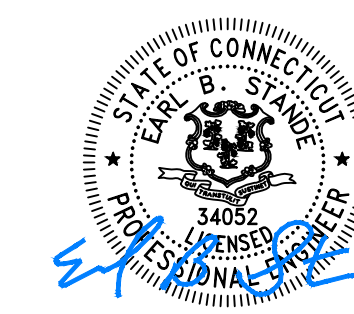


5701 SOUTH SANTA FE DRIVE
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MWD SEL KRK

RFDS REV #: 1

CONSTRUCTION
DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
1	03/29/2022	ISSUED FOR CONSTRUCTION
2	04/20/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
EUCC0309

DISH WIRELESS L.L.C.
PROJECT INFORMATION

NJJer02038A
36 SUGAR HOLLOW RD
DANBURY, CT 06810

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER

A-6

ROW NOTE

NO WORK WITHIN THIS PERMIT APPLICATION SHALL BE PERFORMED WITHIN THE PUBLIC ROW. UTILITY WORK WITHIN THE PUBLIC ROW SHALL BE THE RESPONSIBILITY OF THE UTILITY PROVIDER AND REQUIRES A SEPARATE PERMIT.

NOTES

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

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

1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
2. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL STATE AND LOCAL CODES, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC STANDARDS.
3. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.
4. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH THE MECHANICAL EQUIPMENT CONTRACTOR AND COMPLY AS REQUIRED.
5. CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETE SYSTEM.
6. CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED BY THE NEC ARTICLE 314. PROVIDE 1 PULL BOX EVERY 150' TO 200' MAX.
7. CONTRACTOR SHALL PROVIDE ALL STRAIN RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
8. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM.
9. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC 250. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, AND EQUIPMENT CABINETS.
10. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
11. PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.
13. ALL TRENCHES IN COMPOUND TO BE HAND DUG.



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ELECTRICAL NOTES

NO SCALE

2

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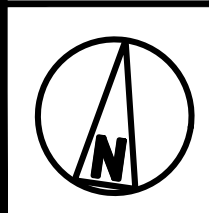
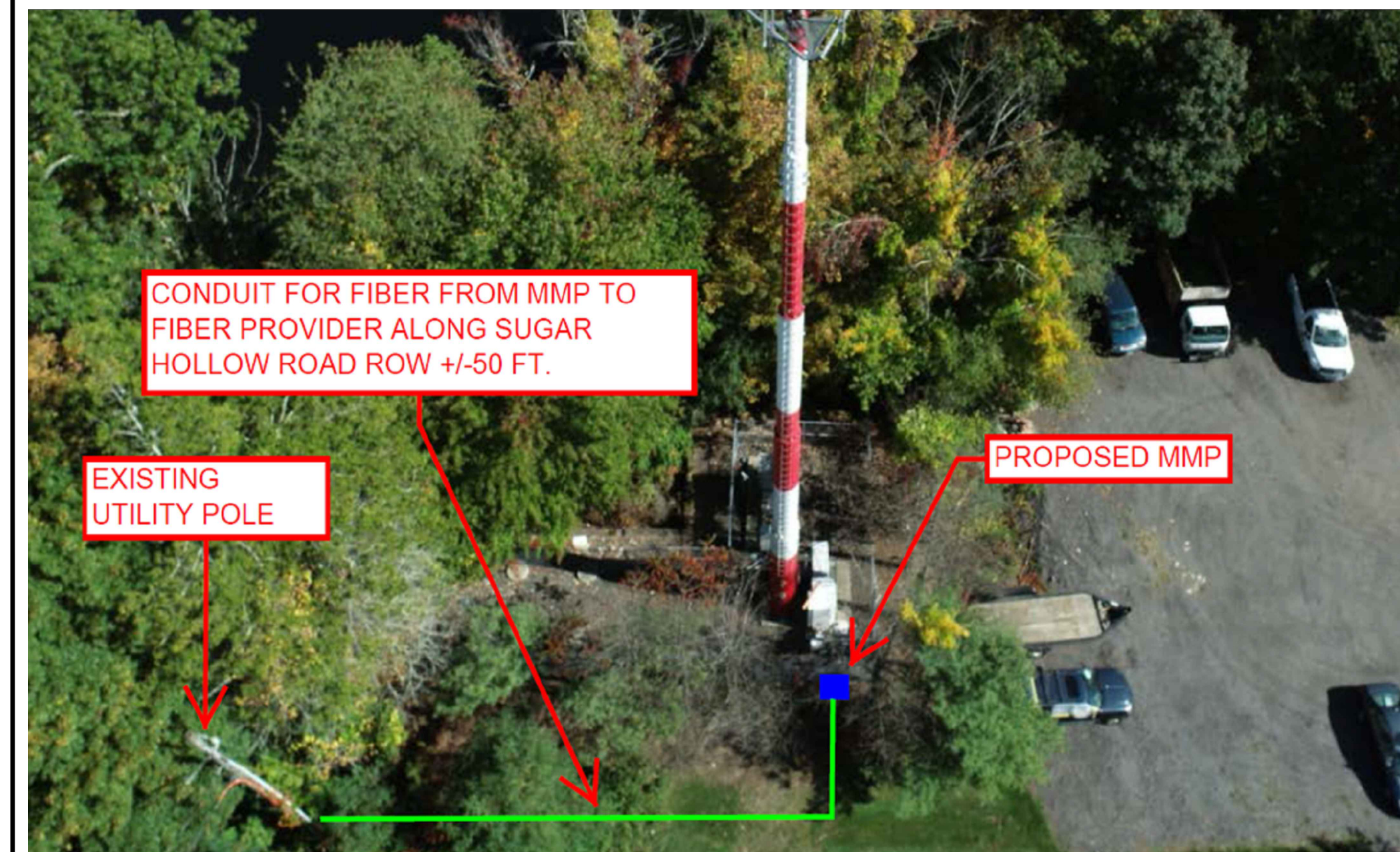
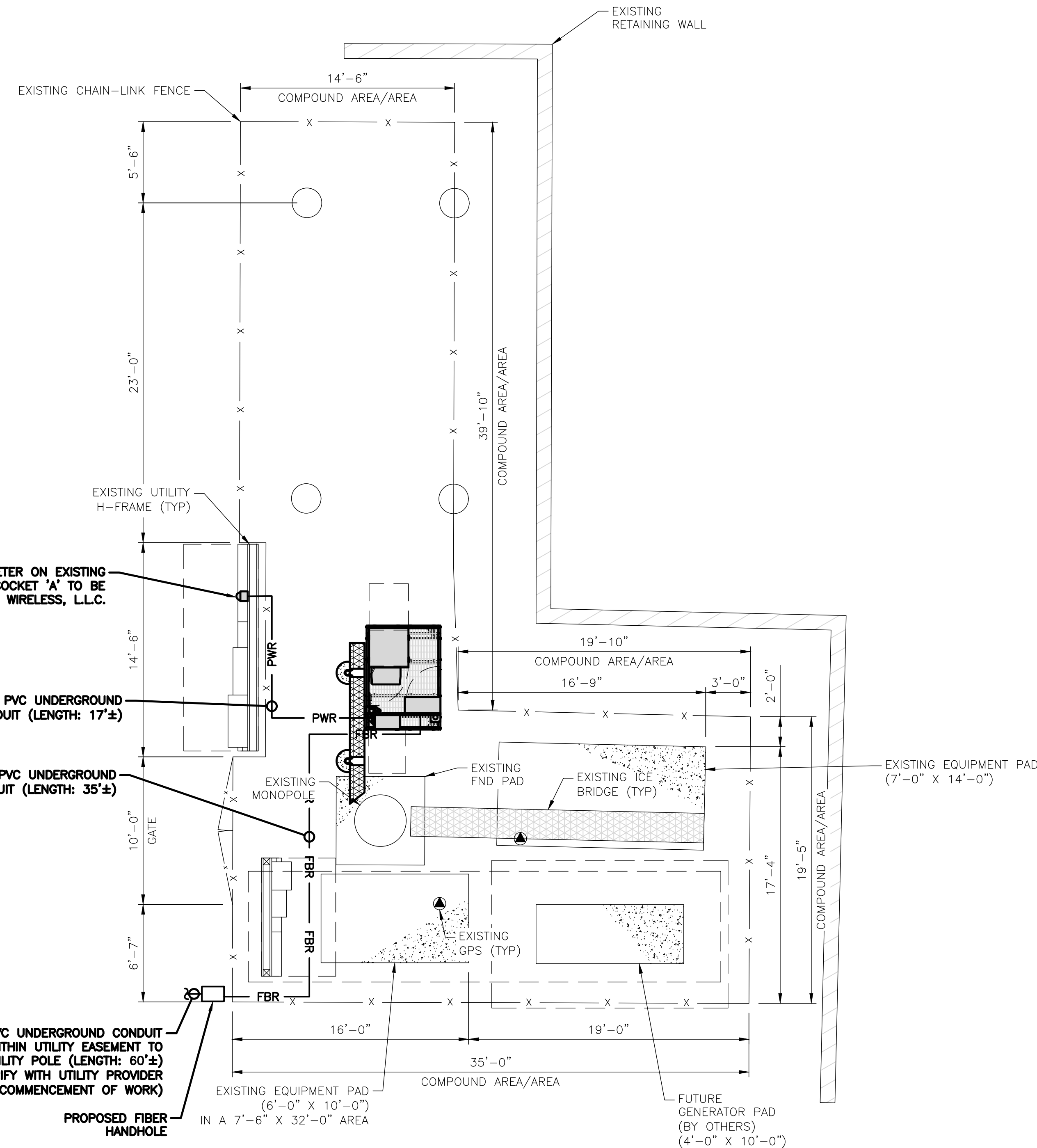
DISH WIRELESS L.L.C.
PROJECT INFORMATION

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36 SUGAR HOLLOW RD
DANBURY, CT 06810

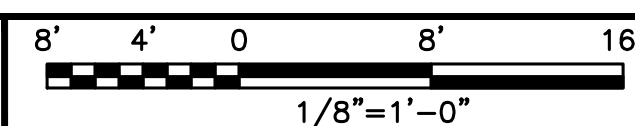
SHEET TITLE
ELECTRICAL/FIBER ROUTE
PLAN AND NOTES

SHEET NUMBER

E-1



UTILITY ROUTE PLAN



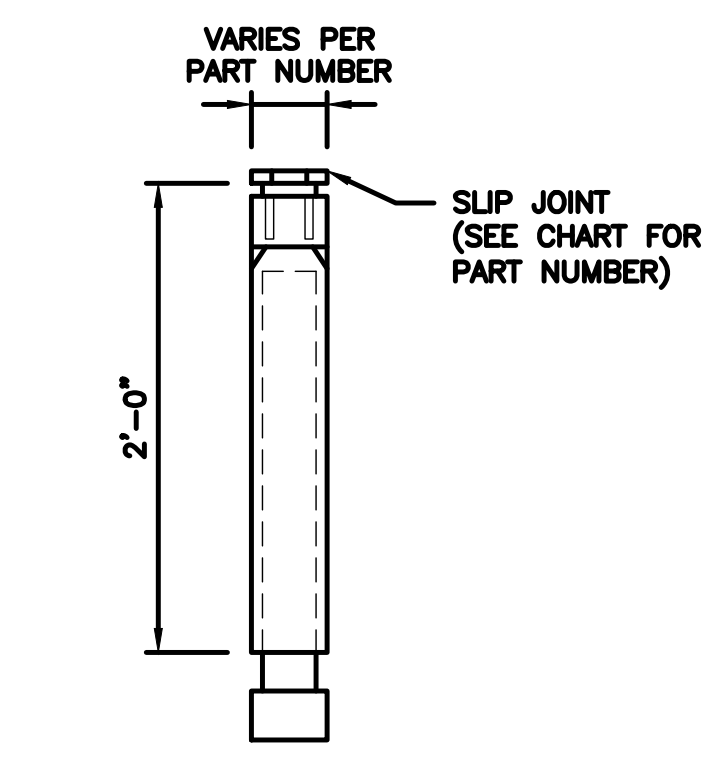
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ESA

NO SCALE

3

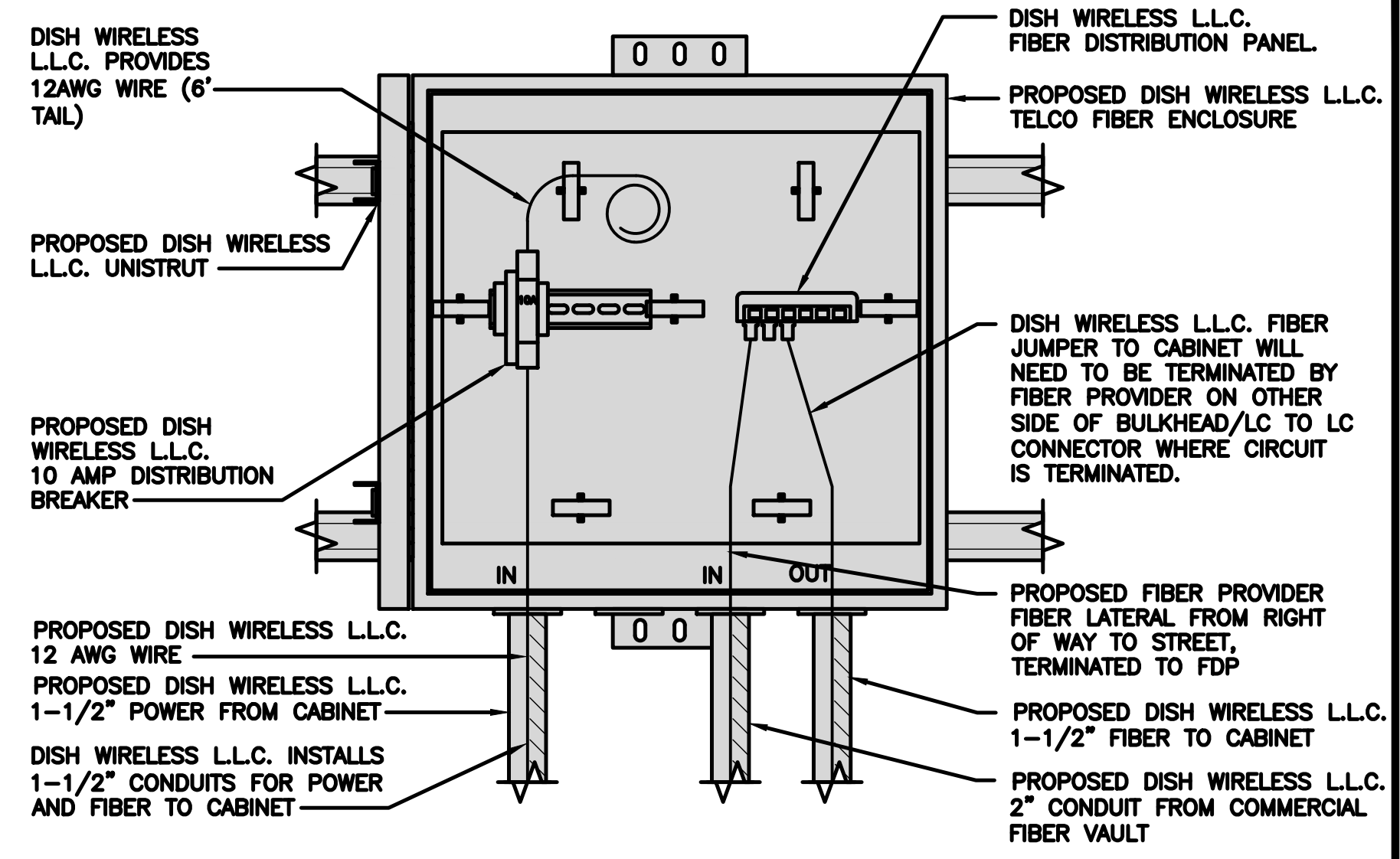
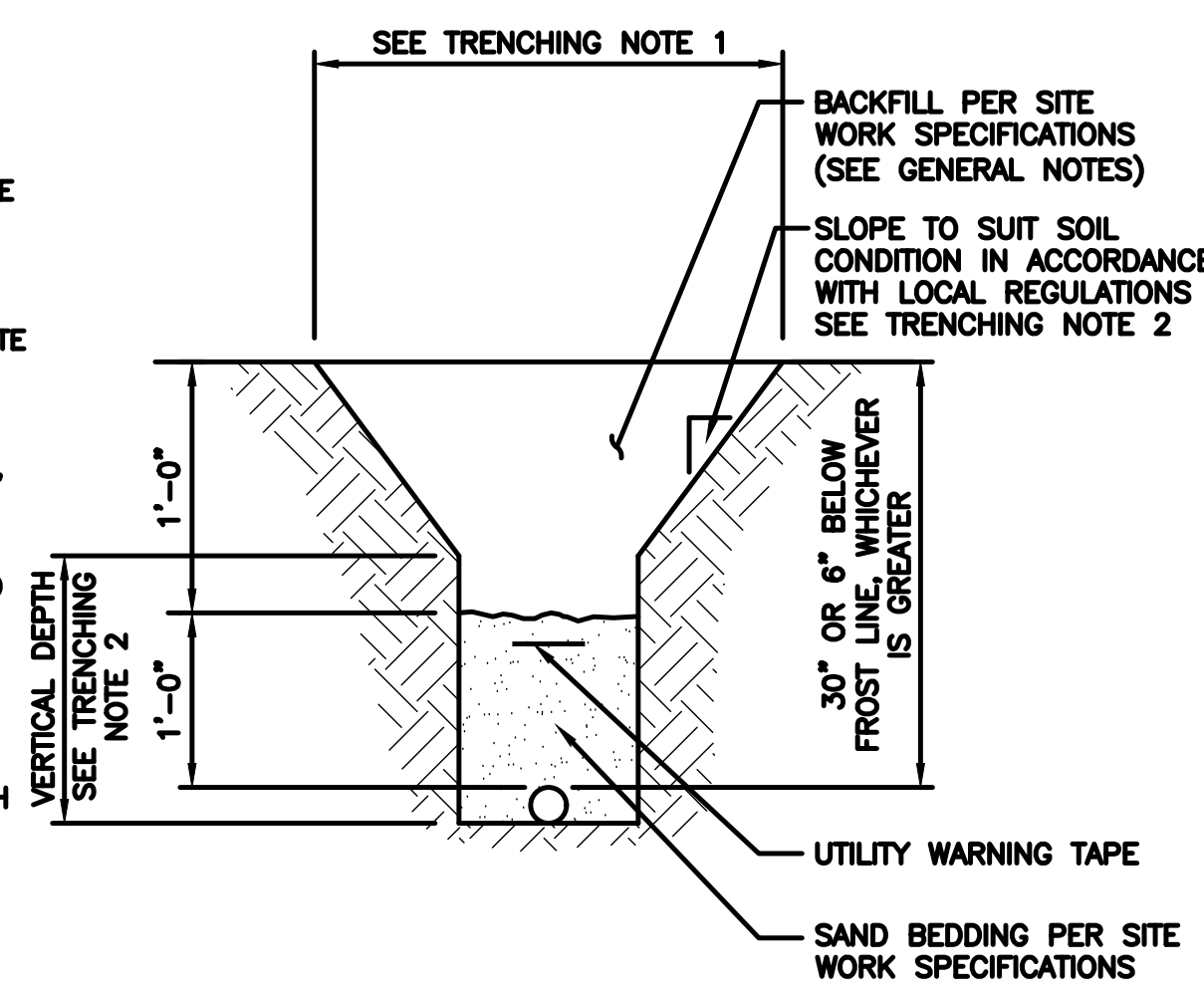
CARLON EXPANSION FITTINGS				
COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"
E945M	E945MX	3 1/2"	5	8"
E945N	E945NX	4"	5	8"
E945P	E945PX	5"	1	8"
E945R	E945RX	6"	1	8"



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

TRENCHING NOTES

- CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
- TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT OSHA TRENCHING AND EXCAVATION SAFETY STANDARDS.
- ALL CONDUITS SHALL BE INSTALLED IN COMPLIANCE WITH THE CURRENT NATIONAL ELECTRIC CODE (NEC) OR AS REQUIRED BY THE LOCAL JURISDICTION, WHICHEVER IS THE MOST STRINGENT.



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EXPANSION JOINT DETAIL

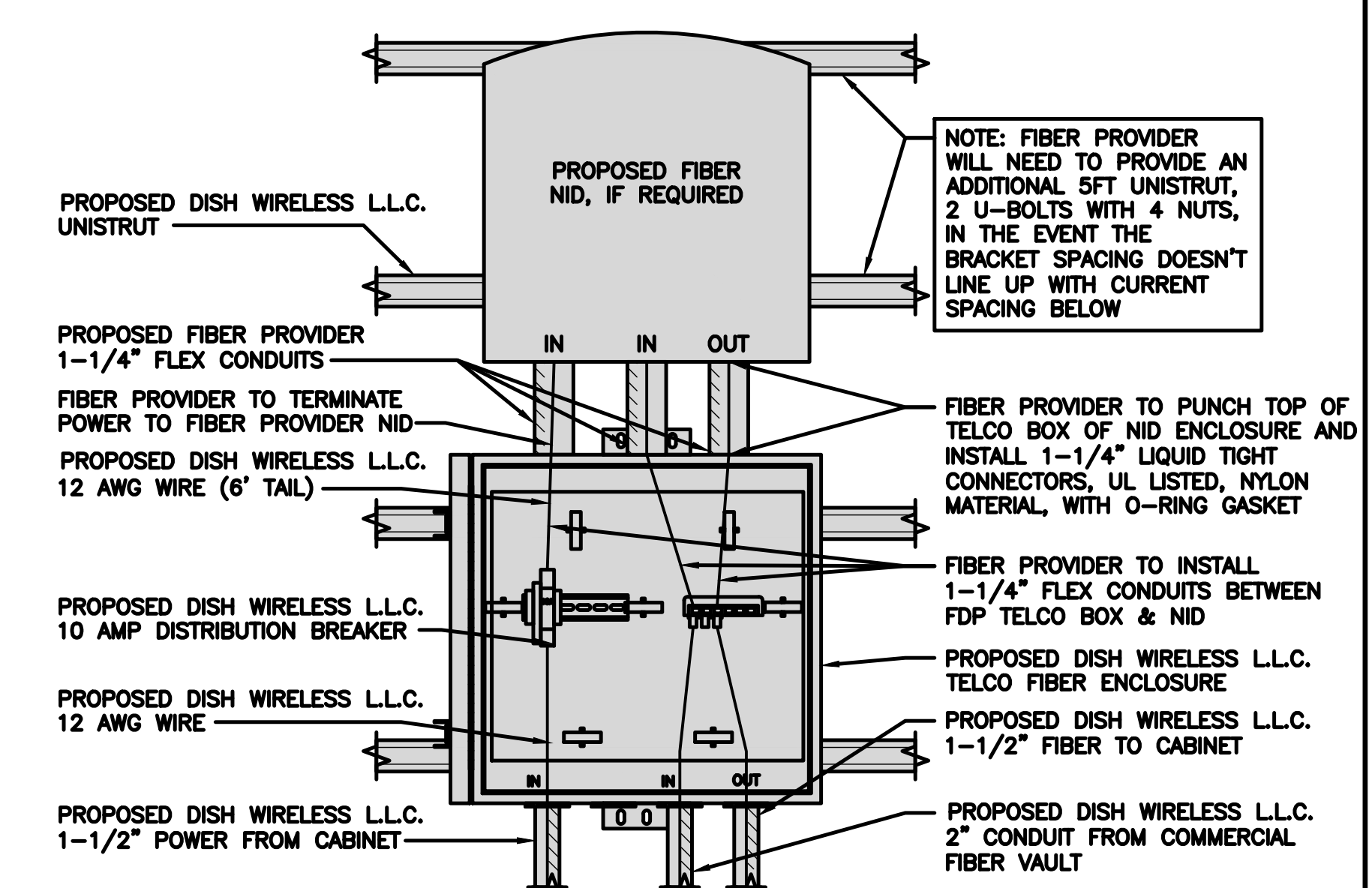
NO SCALE 1

TYPICAL UNDERGROUND TRENCH DETAIL

NO SCALE 2

DARK TELCO BOX - INTERIOR WIRING LAYOUT

NO SCALE 3



LIT TELCO BOX - INTERIOR WIRING LAYOUT (OPTIONAL)

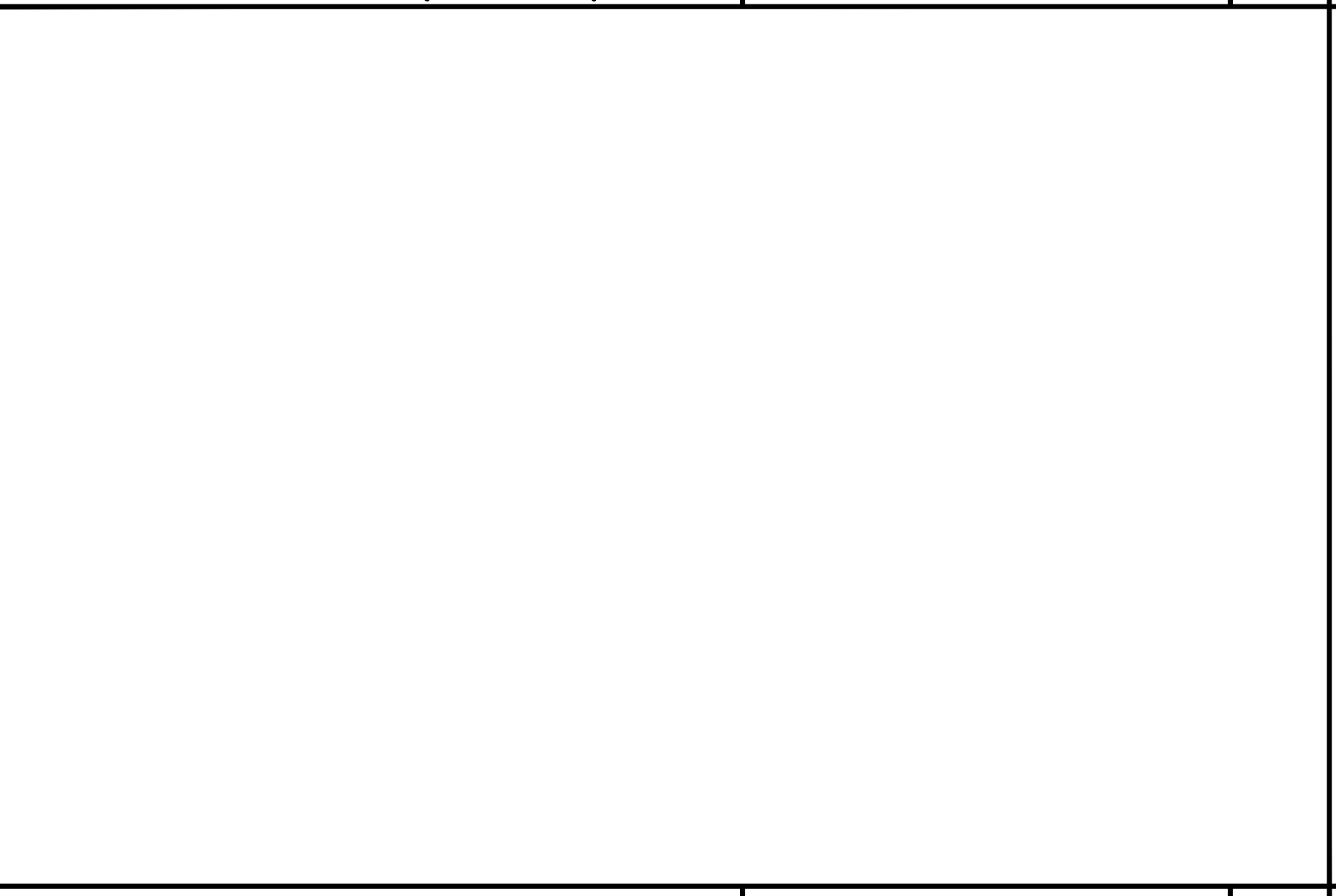
NO SCALE 4

NOT USED

NO SCALE 5

NOT USED

NO SCALE 6



NOT USED

NO SCALE 7



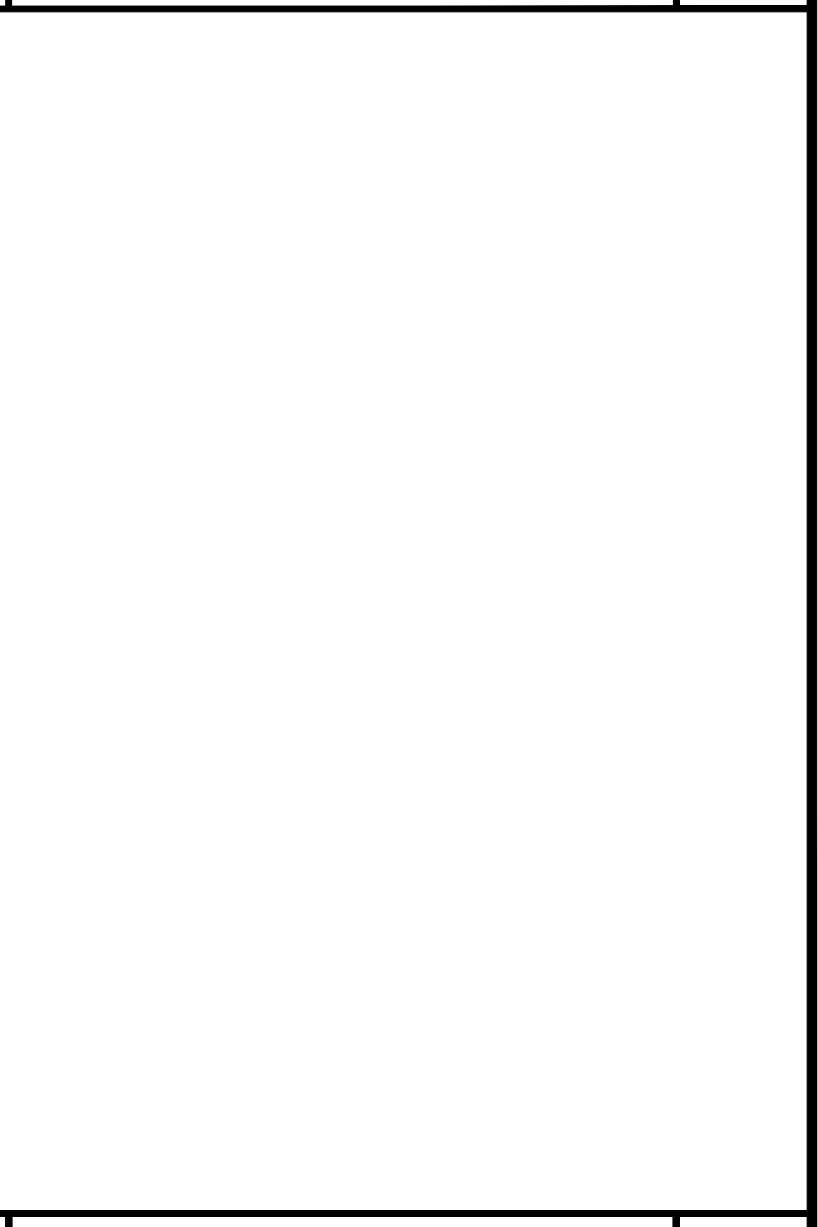
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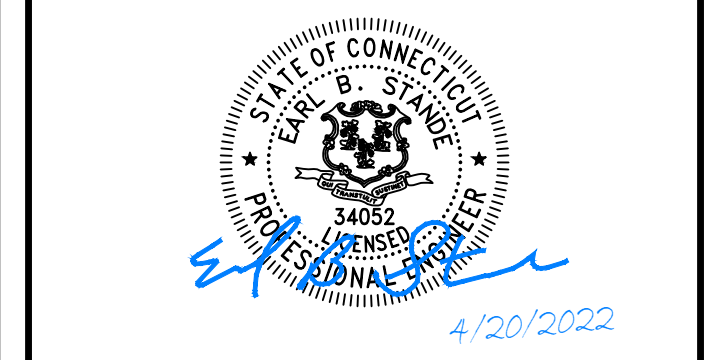
NO SCALE 8



NOT USED



NO SCALE 9



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RFDS REV #: 1

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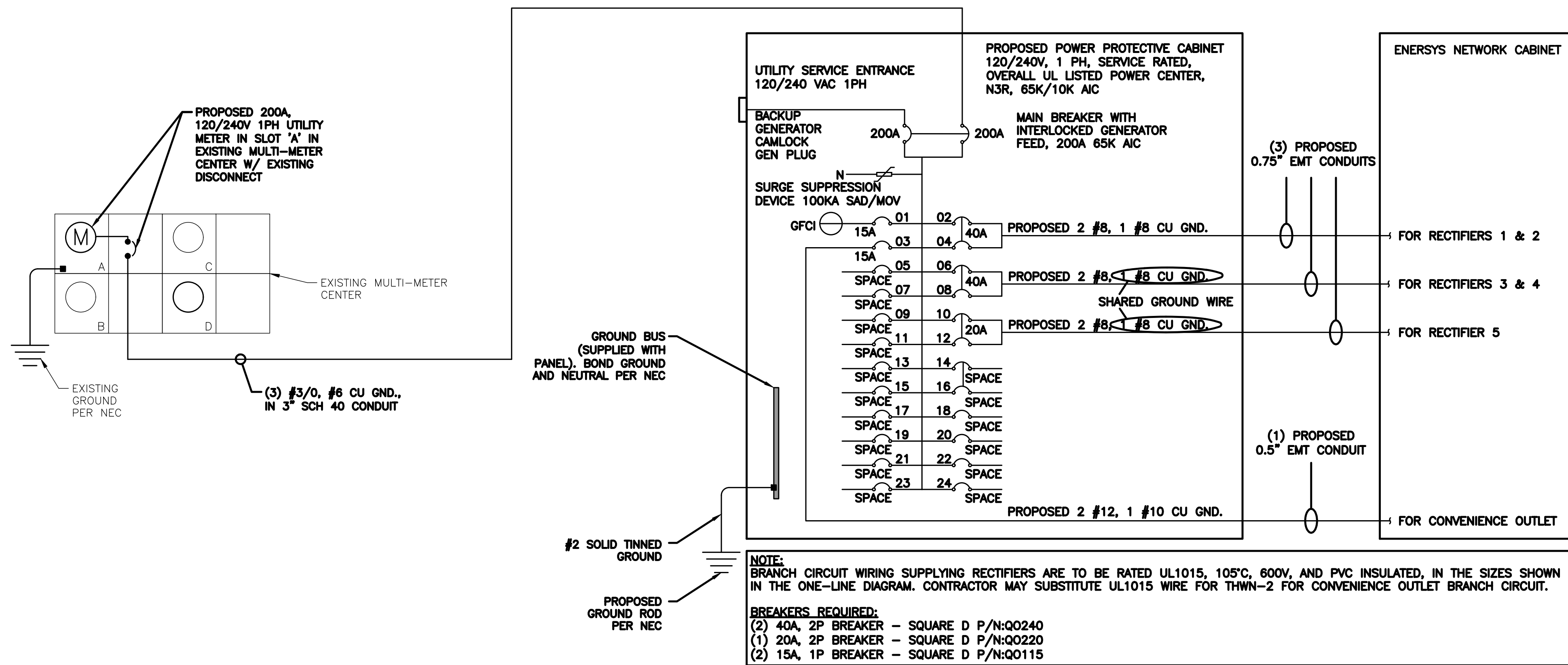
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DANBURY, CT 06810

SHEET TITLE
ELECTRICAL
DETAILS

SHEET NUMBER
E-2



NOTES

ELECTRICAL CONTRACTOR TO CALCULATE MAXIMUM AVAILABLE FAULT CURRENT AND LABEL PANEL IN ACCORDANCE WITH NEC AS REQUIRED BY JURISDICTION.

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

CONDUIT SIZING: AT 40% FILL PER NEC CHAPTER 9, TABLE 4, ARTICLE 358.

0.5" CONDUIT - 0.122 SQ. IN AREA
0.75" CONDUIT - 0.213 SQ. IN AREA
2.0" CONDUIT - 1.316 SQ. IN AREA
3.0" CONDUIT - 2.907 SQ. IN AREA

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

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

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

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

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

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

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

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

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

PPC ONE-LINE DIAGRAM

NO SCALE

1

PROPOSED PPC PANEL SCHEDULE FOR ENERSYS CABINET

LOAD SERVED	VOLT AMPS (WATTS)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS)		LOAD SERVED
	L1	L2						L1	L2	
PPC GFCI OUTLET	180	180	15A	1	A	2	40A	3840	3840	ENERSYS ALPHA CORDEX RECTIFIERS 1 & 2
ENERSYS GFCI OUTLET			15A	3	B	4	40A	3840	3840	ENERSYS ALPHA CORDEX RECTIFIER 3 & 4
-SPACE-				5	A	6	40A	3840	3840	ENERSYS ALPHA CORDEX RECTIFIER 3 & 4
-SPACE-				7	B	8	40A	3840	3840	ENERSYS ALPHA CORDEX RECTIFIER 3 & 4
-SPACE-				9	A	10	20A	1920	1920	ENERSYS ALPHA CORDEX RECTIFIER 5
-SPACE-				11	B	12	20A	1920	1920	ENERSYS ALPHA CORDEX RECTIFIER 5
-SPACE-				13	A	14				-SPACE-
-SPACE-				15	B	16				-SPACE-
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
VOLTAGE AMPS	180	180						9600	9600	
200A MCB, 1φ, 24 SPACE, 120/240V				L1	L2			9775	9775	VOLTAGE AMPS
MB RATING: 65,000 AIC				82	82			82	82	AMPS
				82	82			82	82	MAX AMPS
				102	102			102	102	MAX 125%

PANEL SCHEDULE

NO SCALE

2

NOT USED

NO SCALE

3



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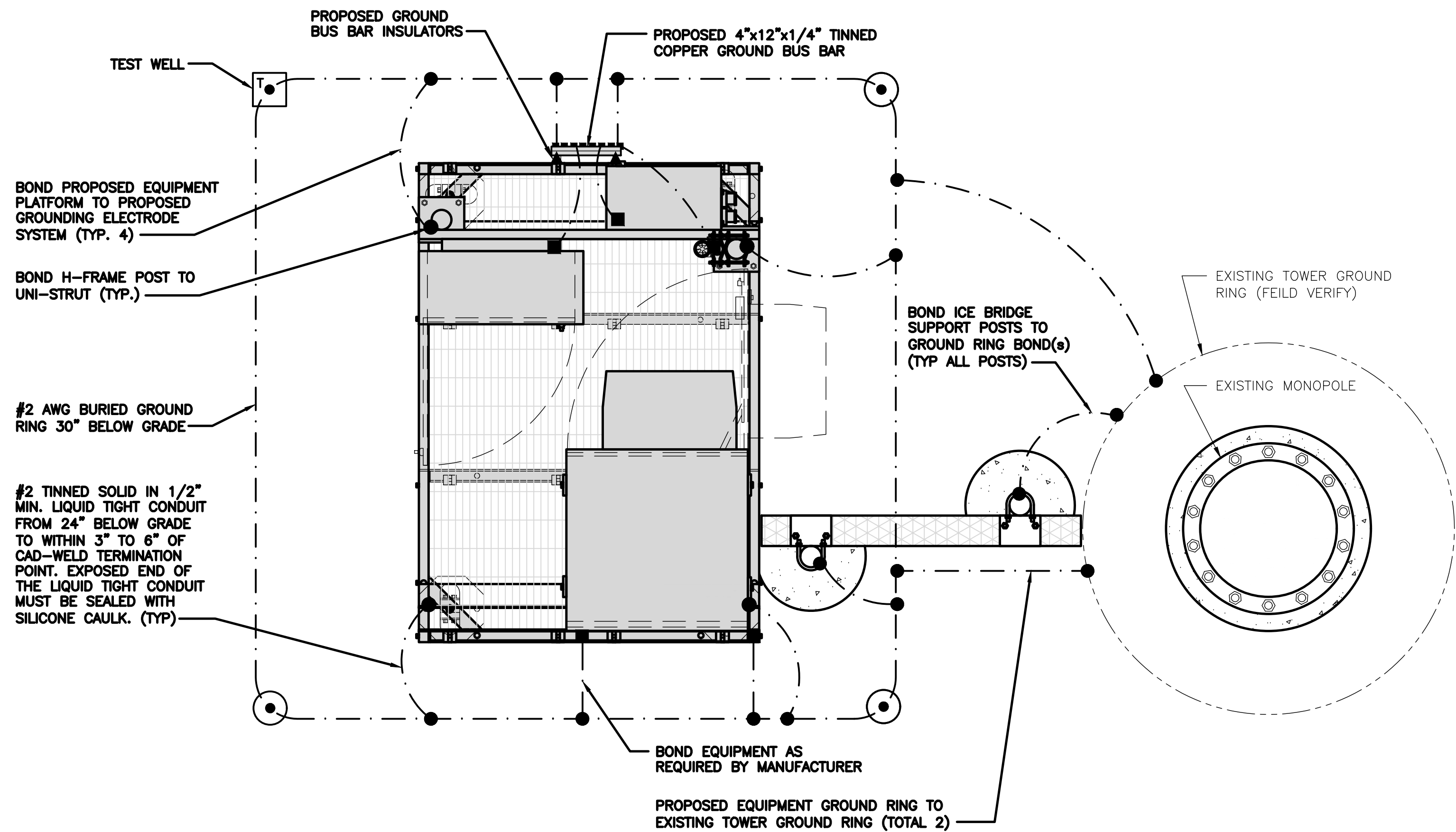
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36 SUGAR HOLLOW RD
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SHEET TITLE
ELECTRICAL ONE-LINE
& PANEL SCHEDULE

SHEET NUMBER
E-3



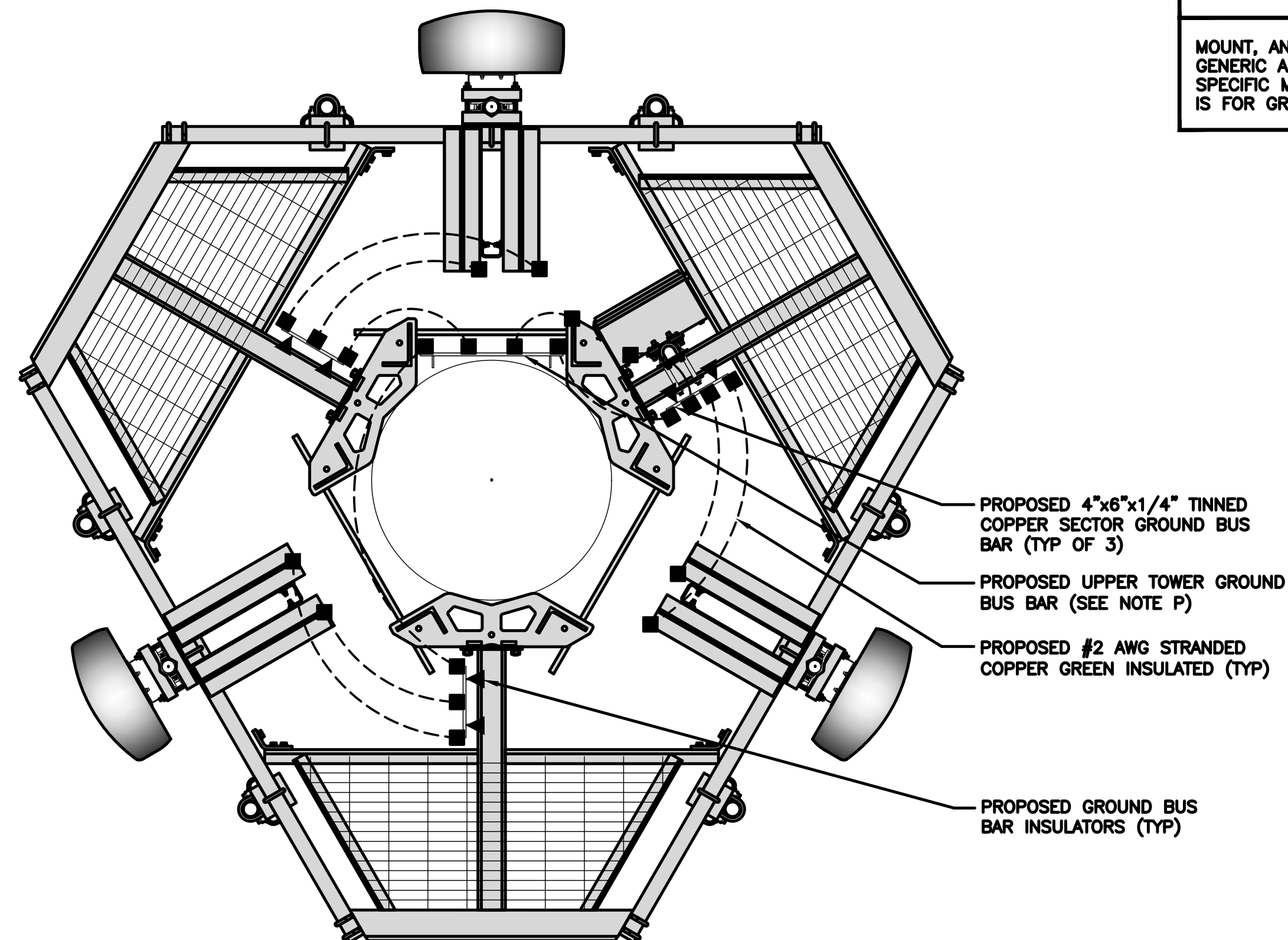
TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE

1

NOTES

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



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE

2

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

GROUNDING KEY NOTES

NO SCALE

3

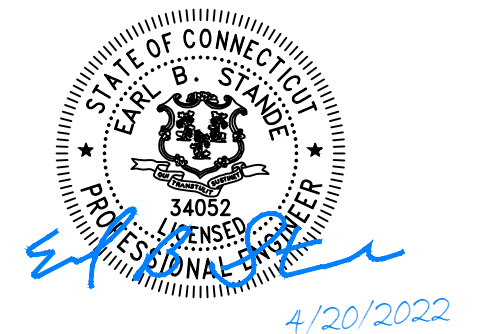
dish wireless.

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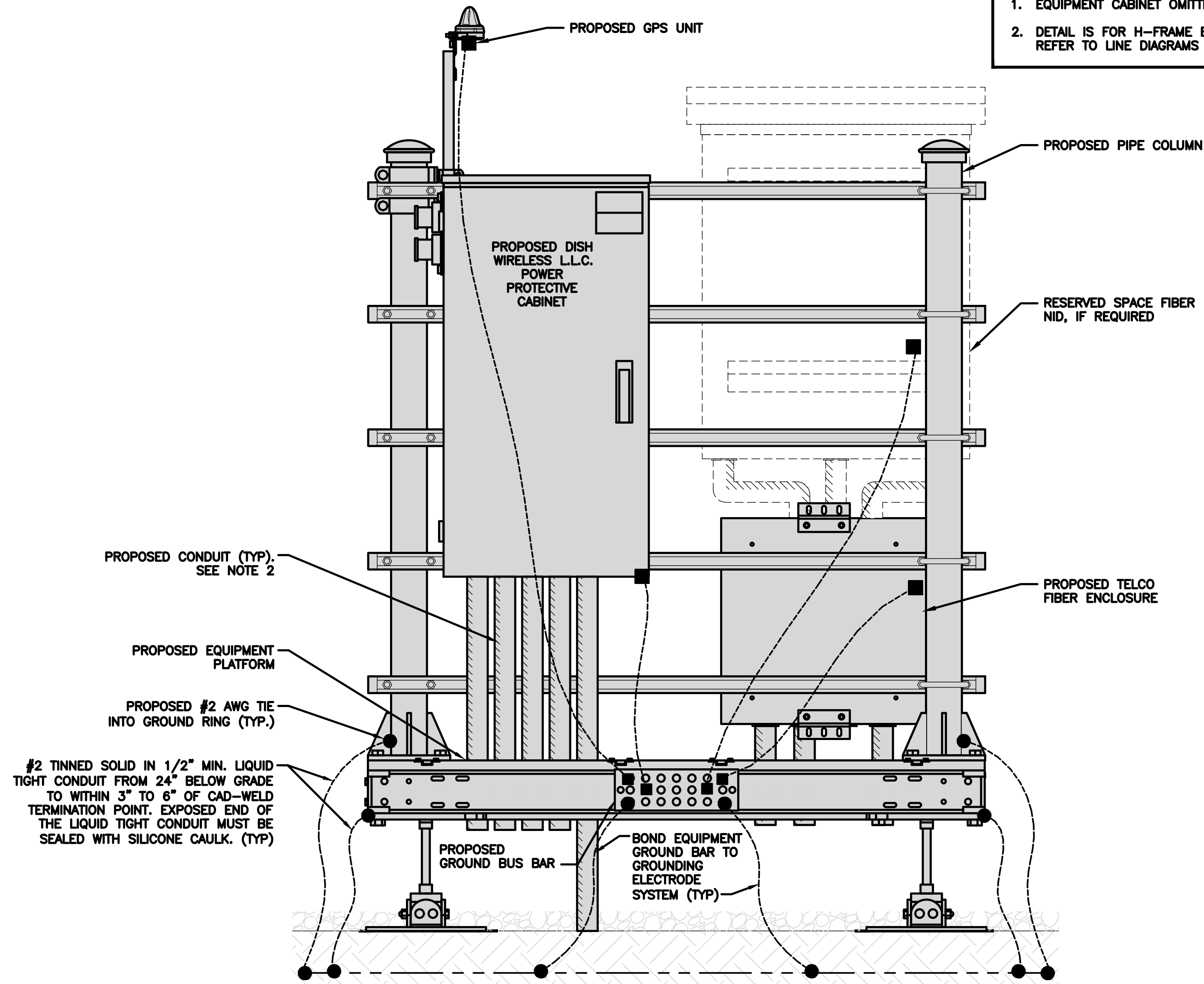
SHEET TITLE
GROUNDING PLANS
AND NOTES

SHEET NUMBER

G-1

NOTES

- EQUIPMENT CABINET OMITTED FOR CLARITY
- DETAIL IS FOR H-FRAME EQUIPMENT GROUNDING PURPOSES. REFER TO LINE DIAGRAMS FOR EXACT CONDUIT QUANTITY.



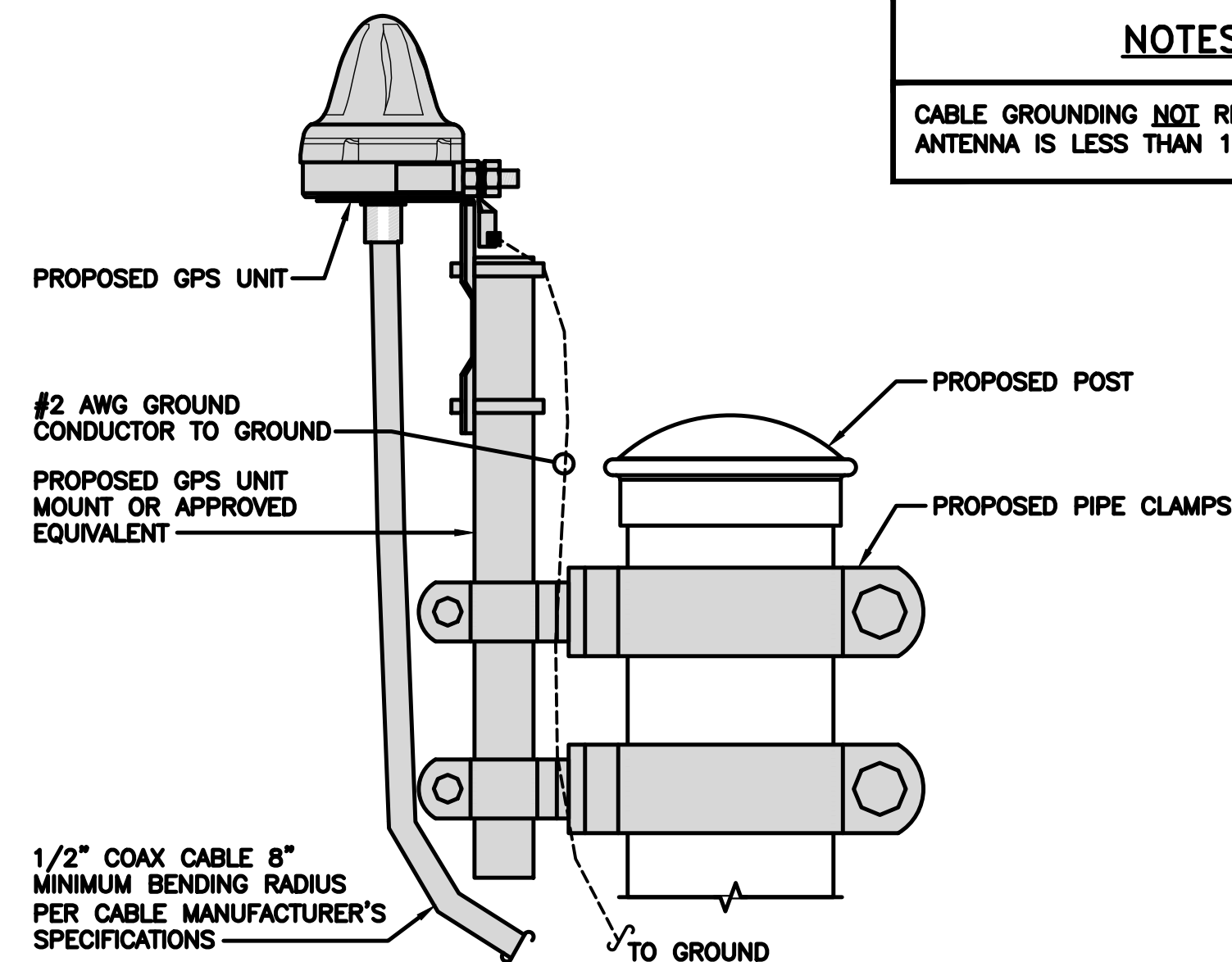
H-FRAME GROUNDING DETAIL

NO SCALE

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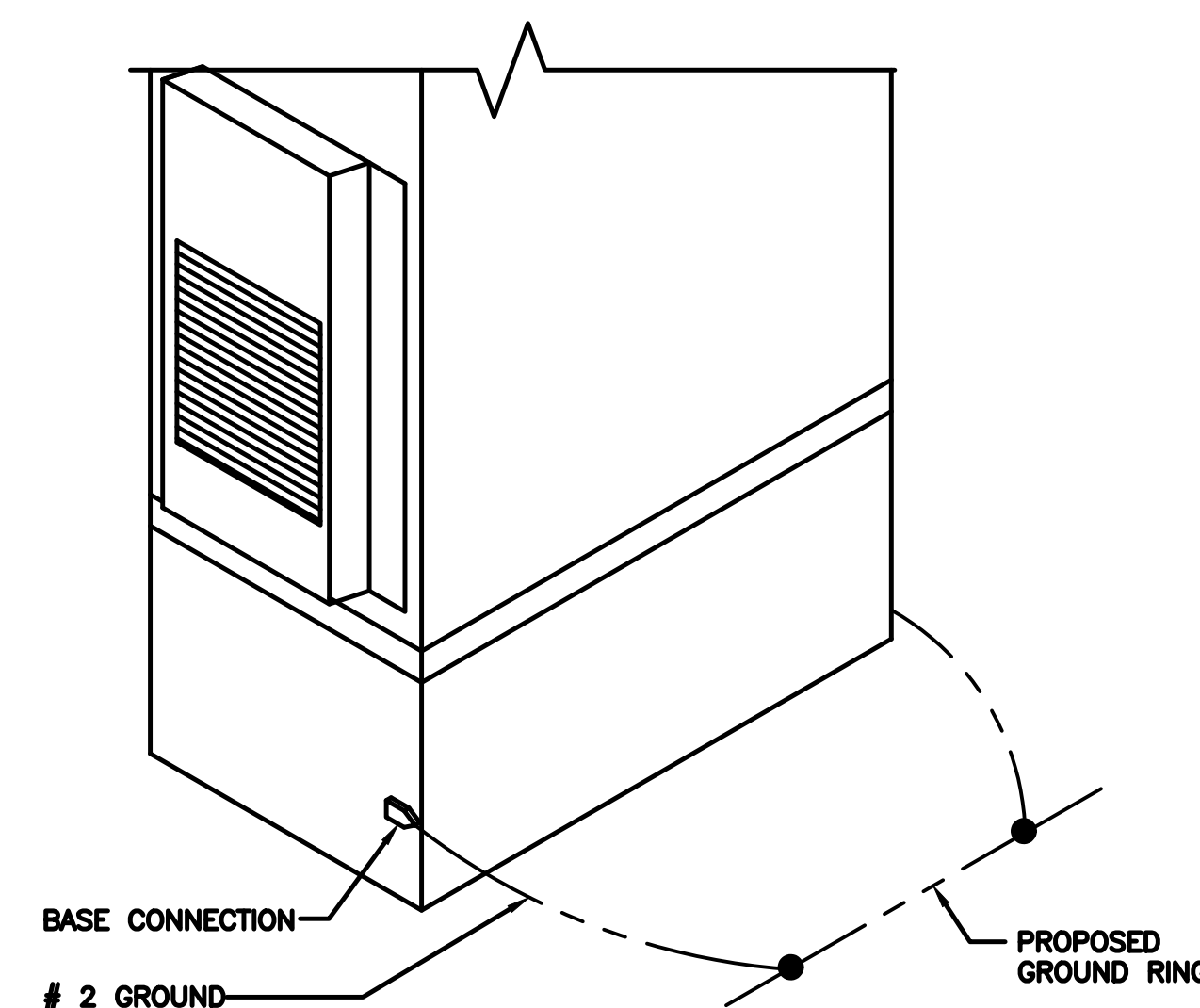
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



TYPICAL GPS UNIT GROUNDING

NO SCALE

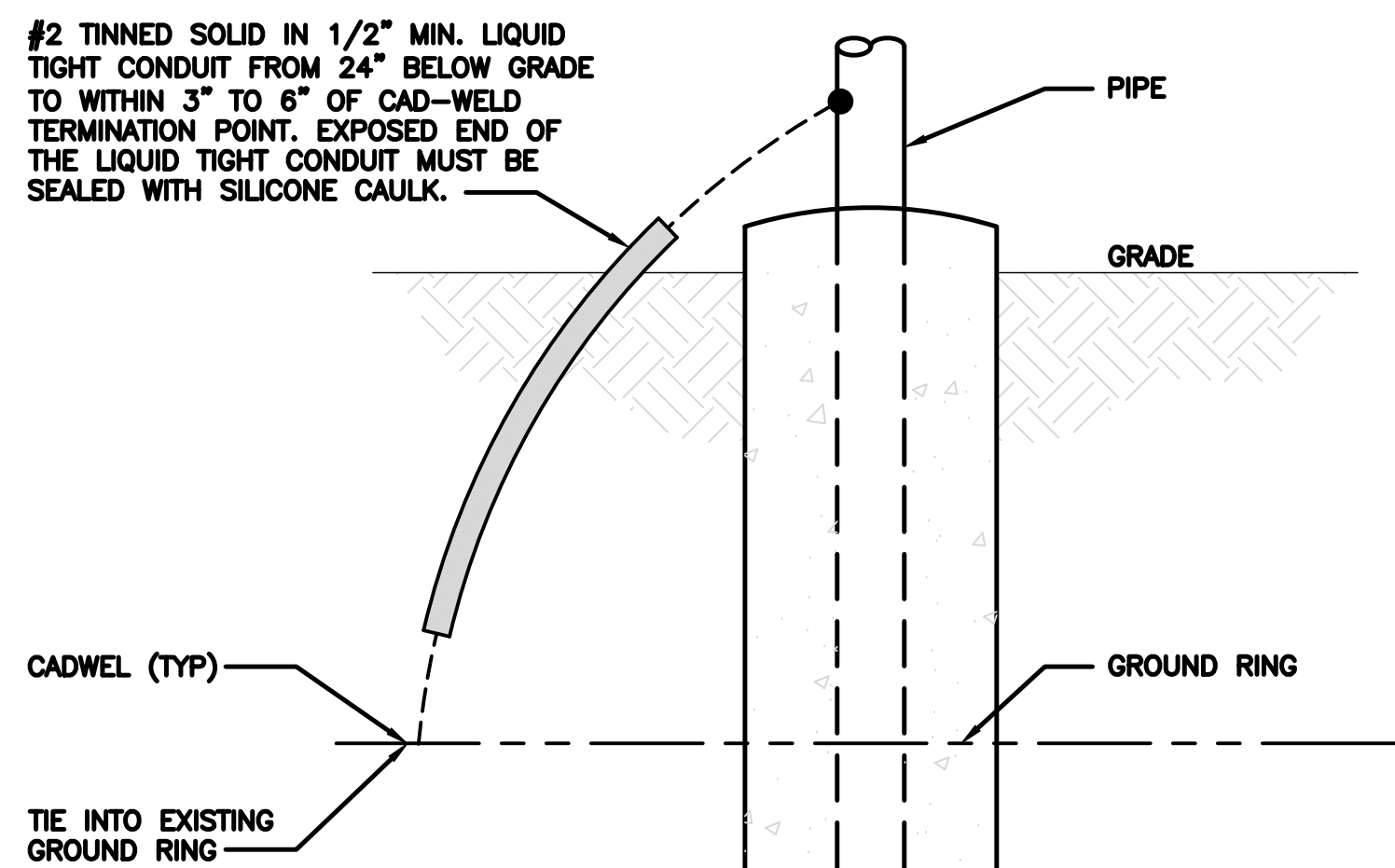
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OUTDOOR CABINET GROUNDING

NO SCALE

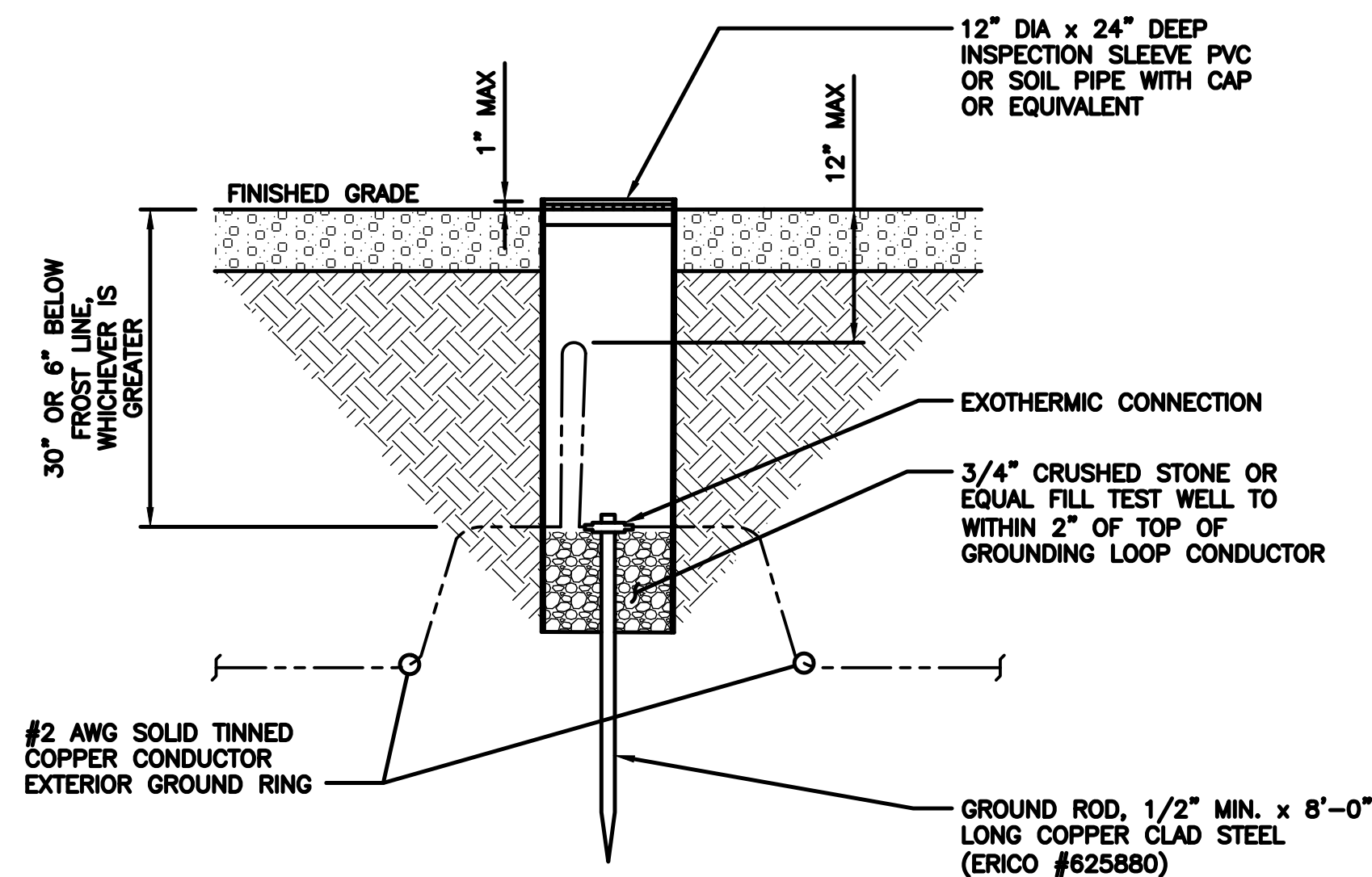
3



TRANSITIONING GROUND DETAIL

NO SCALE

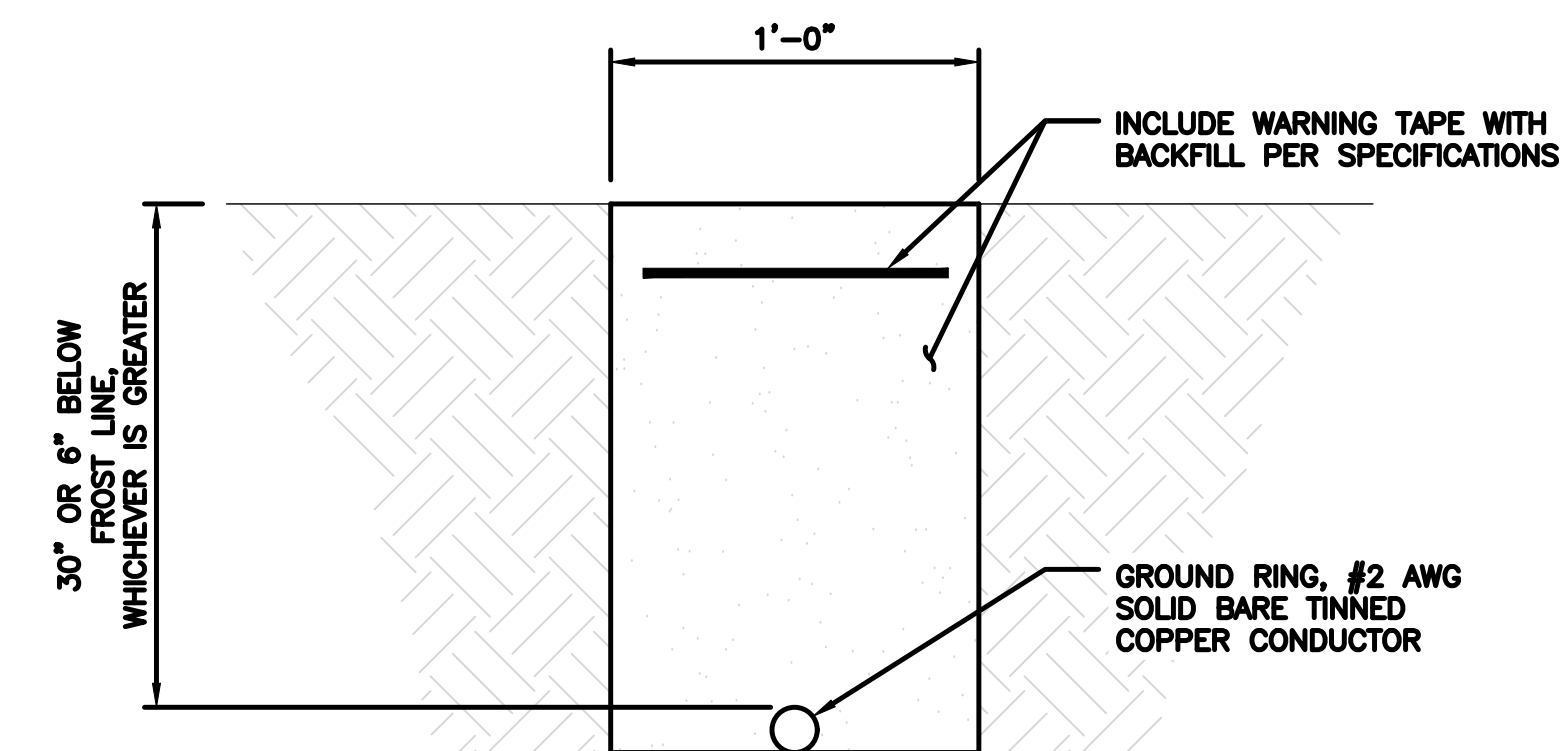
4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE

NO SCALE

5



TYPICAL GROUND RING TRENCH

NO SCALE

6

dish
wireless.

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ACWORTH, GA 30102



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DRAWN BY: CHECKED BY: APPROVED BY:

MWD SEL KRK

RFDS REV #:

1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
1	03/29/2022	ISSUED FOR CONSTRUCTION
2	04/20/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

EUCC0309

DISH WIRELESS L.L.C.
PROJECT INFORMATION

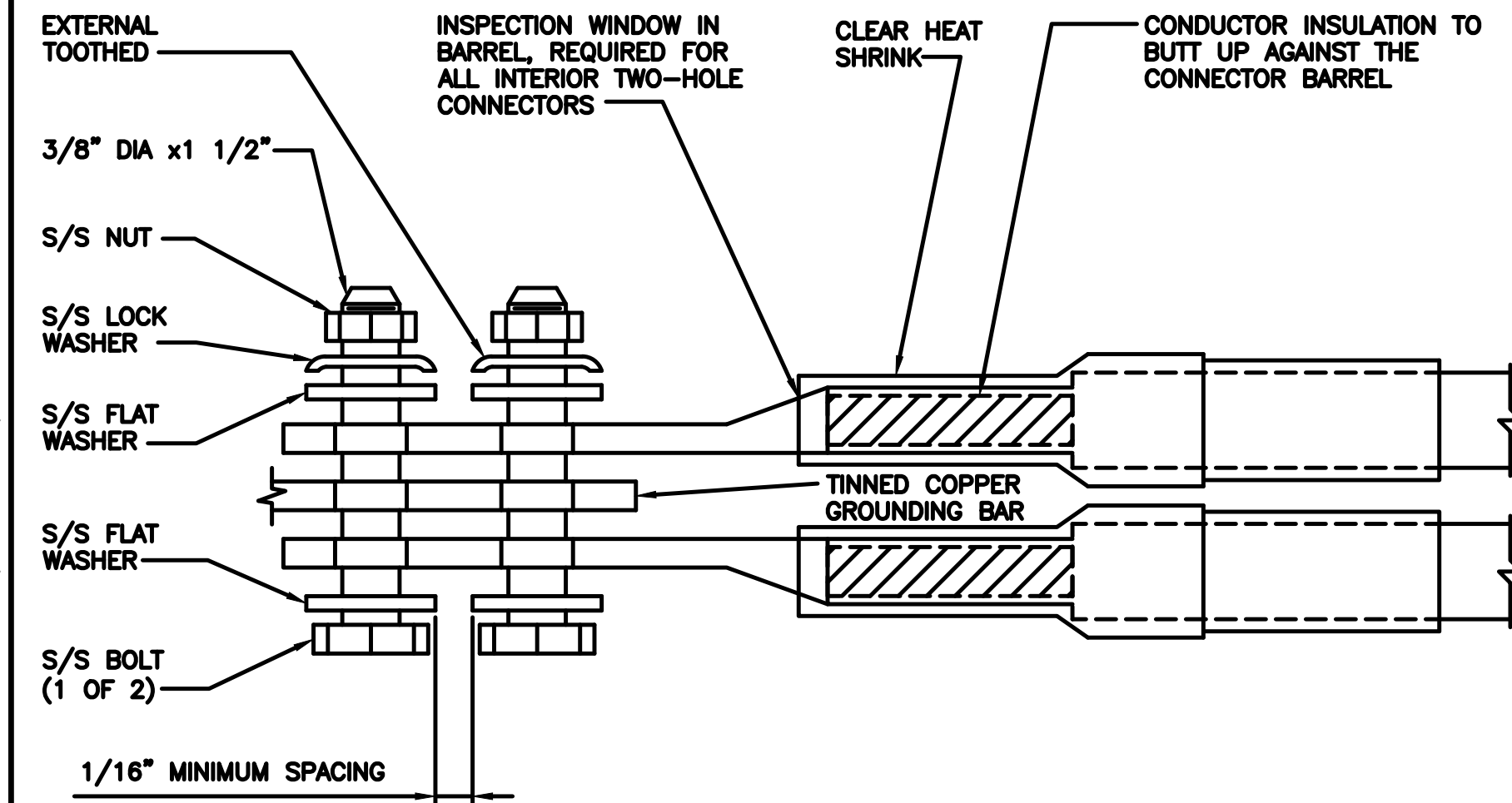
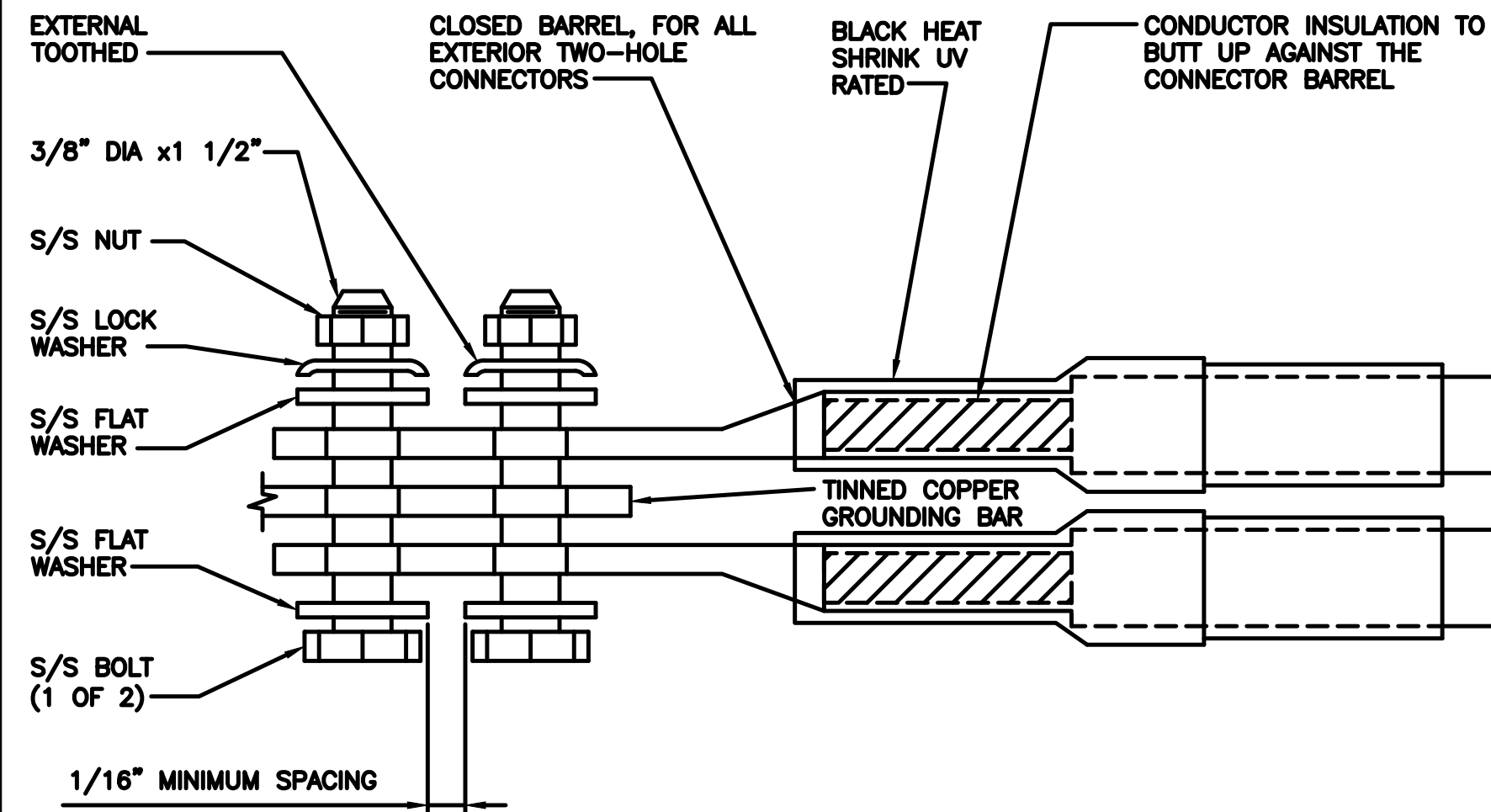
NJJer02038A
36 SUGAR HOLLOW RD
DANBURY, CT 06810

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER

G-2

- 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.
- 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.
- FOR GROUND BOND TO STEEL ONLY: COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
- DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUNDING BUS.
- NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE.
- ALL GROUNDING PARTS AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED.
- ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).



TYPICAL GROUNDING NOTES

NO SCALE

1

TYPICAL EXTERIOR TWO HOLE LUG

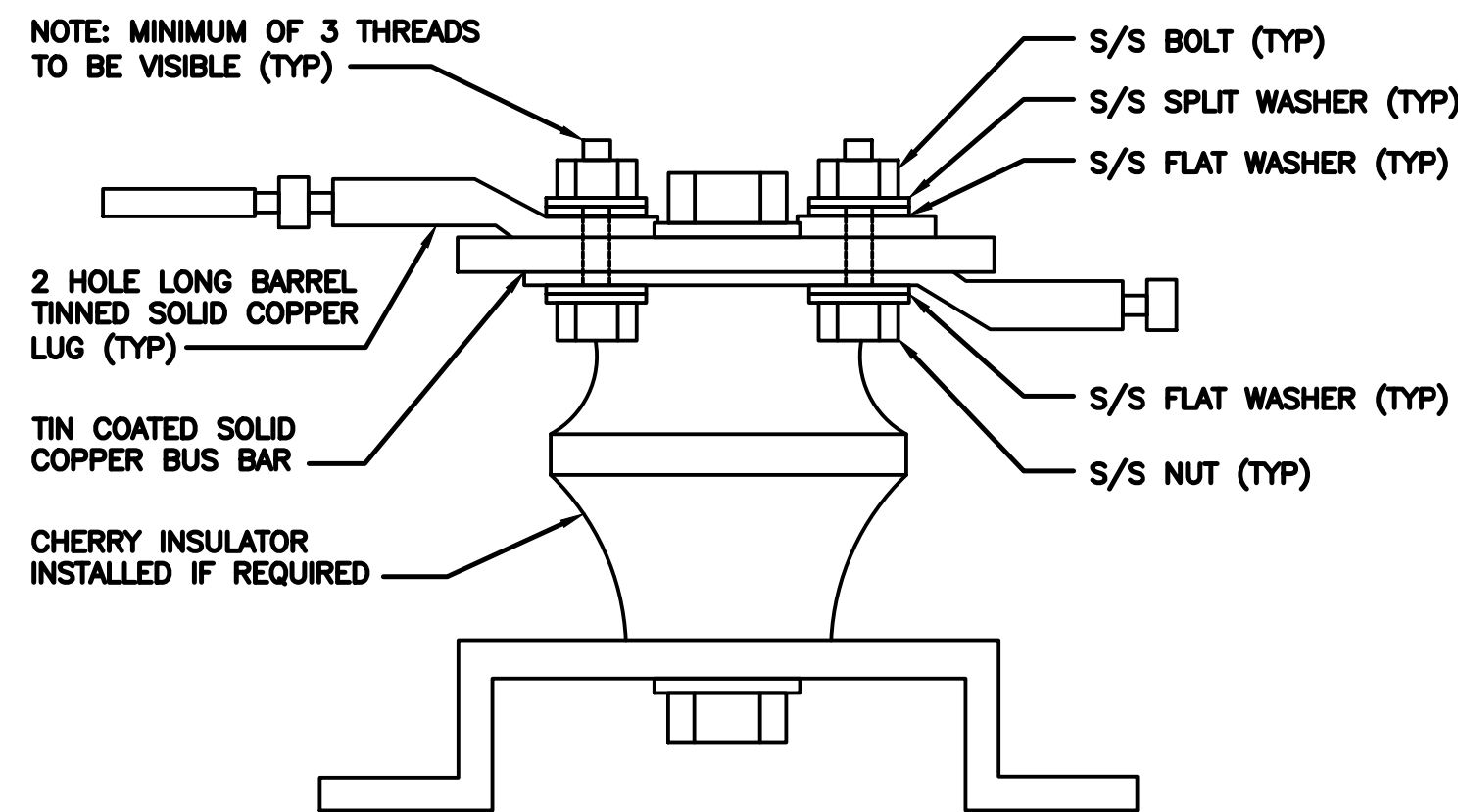
NO SCALE

2

TYPICAL INTERIOR TWO HOLE LUG

NO SCALE

3



LUG DETAIL

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9

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DISH WIRELESS L.L.C.
PROJECT INFORMATION

NJJER02038A
36 SUGAR HOLLOW RD
DANBURY, CT 06810

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER

G-3

RF JUMPER COLOR CODING

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

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

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

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

MID-BAND RRH - (AWS BANDS N66+N70)

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

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

HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS

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

EXAMPLE 2 - HYBRID, OR DISCREET, SUPPORTS CBRS ONLY, ALL SECTORS

EXAMPLE 1	EXAMPLE 2	EXAMPLE 3
RED	RED	RED
BLUE	BLUE	
GREEN	GREEN	ORANGE
ORANGE	YELLOW	PURPLE
PURPLE		

FIBER JUMPERS TO RRHs

LOW-BAND RRH FIBER CABLES HAVE SECTOR STRIPE ONLY

LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH
RED	RED	BLUE	BLUE	GREEN	GREEN
	PURPLE		PURPLE		PURPLE

POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY

LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH
RED	RED	BLUE	BLUE	GREEN	GREEN
	PURPLE		PURPLE		PURPLE

RET MOTORS AT ANTENNAS

ANTENNA 1 LOW BAND/ "IN"	ANTENNA 1 HIGH BAND/ "IN"	ANTENNA 1 LOW BAND/ "IN"	ANTENNA 1 HIGH BAND/ "IN"	ANTENNA 1 LOW BAND/ "IN"	ANTENNA 1 HIGH BAND/ "IN"
RED	RED	BLUE	BLUE	GREEN	GREEN
	PURPLE		PURPLE		PURPLE

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 240-360 DEGREES	
PRIMARY	SECONDARY	PRIMARY	SECONDARY	PRIMARY	SECONDARY
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
RED	RED	BLUE	BLUE	GREEN	GREEN
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
	RED		BLUE		GREEN
	WHITE		WHITE		WHITE

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

RF CABLE COLOR CODES

NO SCALE

1

NOT USED

NO SCALE

4

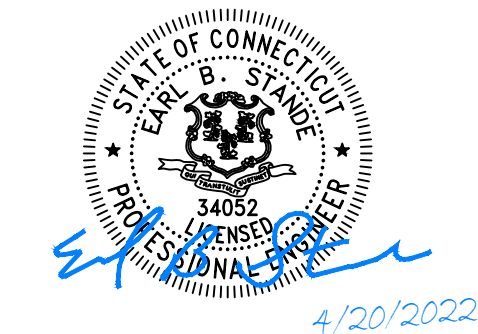


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DISH WIRELESS L.L.C.
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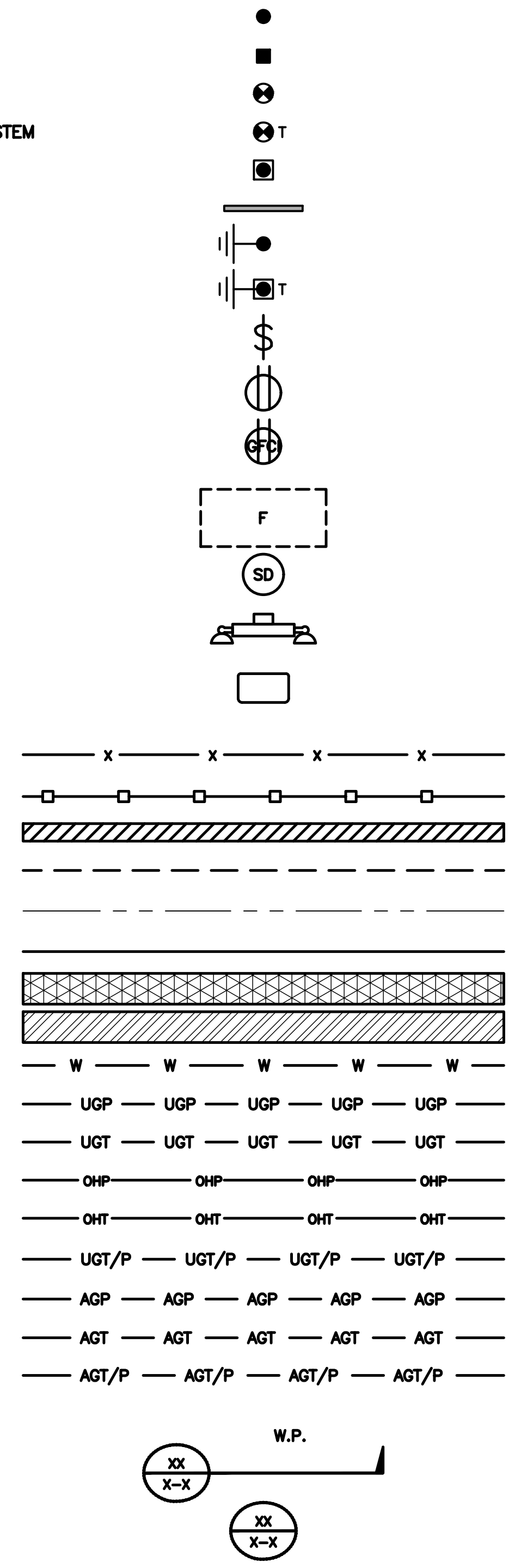
NJJer02038A
36 SUGAR HOLLOW RD
DANBURY, CT 06810

SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER

RF-1

EXOTHERMIC CONNECTION
 MECHANICAL CONNECTION
 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-DBBTXD
 CHAIN LINK FENCE
 WOOD/WROUGHT IRON FENCE
 WALL STRUCTURE
 LEASE AREA
 PROPERTY LINE (PL)
 SETBACKS
 ICE BRIDGE
 CABLE TRAY
 WATER LINE
 UNDERGROUND POWER
 UNDERGROUND TELCO
 OVERHEAD POWER
 OVERHEAD TELCO
 UNDERGROUND TELCO/POWER
 ABOVE GROUND POWER
 ABOVE GROUND TELCO
 ABOVE GROUND TELCO/POWER
 WORKPOINT
 SECTION REFERENCE
 DETAIL REFERENCE



LEGEND

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

ABBREVIATIONS



5701 SOUTH SANTA FE DRIVE
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RFDS REV #: 1

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A&E PROJECT NUMBER
EUC0309

DISH WIRELESS L.L.C.
PROJECT INFORMATION
NJJER02038A
36 SUGAR HOLLOW RD
DANBURY, CT 06810

SHEET TITLE
LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

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

SIGN PLACEMENT:

- RF SIGNAGE PLACEMENT SHALL FOLLOW THE RECOMMENDATIONS OF AN EXISTING EME REPORT, CREATED BY A THIRD PARTY PREVIOUSLY AUTHORIZED BY DISH Wireless L.L.C.
- INFORMATION SIGN (GREEN) SHALL BE LOCATED ON EXISTING DISH Wireless L.L.C. EQUIPMENT.
 - A) IF THE INFORMATION SIGN IS A STICKER, IT SHALL BE PLACED ON EXISTING DISH Wireless L.L.C. EQUIPMENT CABINET.
 - B) IF THE INFORMATION 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:

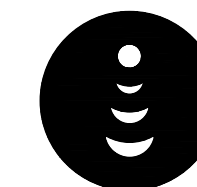
1. FOR DISH Wireless L.L.C. LOGO, SEE DISH Wireless L.L.C. DESIGN SPECIFICATIONS (PROVIDED BY DISH Wireless L.L.C.)
2. SITE ID SHALL BE APPLIED TO SIGNS USING "LASER ENGRAVING" OR ANY OTHER WEATHER RESISTANT METHOD (DISH Wireless L.L.C. APPROVAL REQUIRED)
3. TEXT FOR SIGNAGE SHALL INDICATE CORRECT SITE 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: NJJER02038A



THIS SIGN IS FOR REFERENCE PURPOSES ONLY

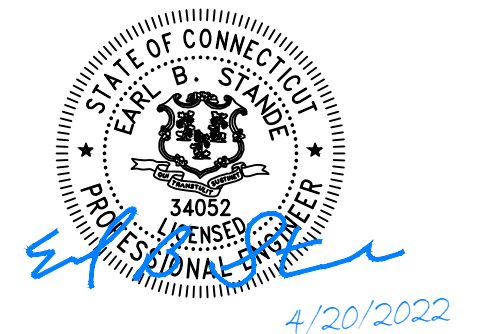
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DISH WIRELESS L.L.C.
PROJECT INFORMATION

NJJER02038A
36 SUGAR HOLLOW RD
DANBURY, CT 06810

SHEET TITLE
RF SIGNAGE

SHEET NUMBER
GN-2

NOTICE



Transmitting Antenna(s)

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

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

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

Site ID: NJJER02038A



THIS SIGN IS FOR REFERENCE PURPOSES ONLY

CAUTION



Transmitting Antenna(s)

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

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Site ID: NJJER02038A



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WARNING



Transmitting Antenna(s)

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Site ID: NJJER02038A



THIS SIGN IS FOR REFERENCE PURPOSES ONLY

SITE ACTIVITY REQUIREMENTS:

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

GENERAL NOTES:

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

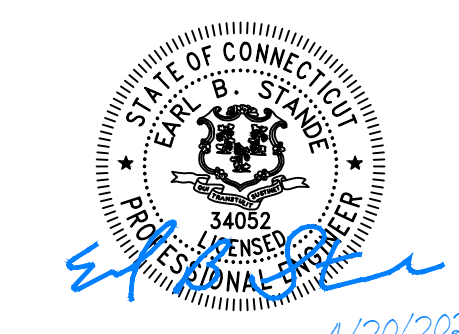


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DRAWN BY: CHECKED BY: APPROVED BY:

MWD SEL KRK

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
1	03/29/2022	ISSUED FOR CONSTRUCTION
2	04/20/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
EUC0309

DISH WIRELESS L.L.C.
PROJECT INFORMATION
NJJER02038A
36 SUGAR HOLLOW RD
DANBURY, CT 06810

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-3

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
- CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
- ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
- 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.
- 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.
- 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).
- PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
- TIE WRAPS ARE NOT ALLOWED.
- 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.
- 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.
- POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
- 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.
- 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).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
- ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

- ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
- WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECIMATE WIREWAY).
- SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH WIRELESS L.L.C."
- ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

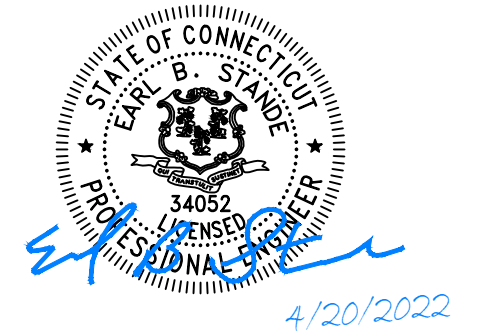


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DRAWN BY: CHECKED BY: APPROVED BY:

MWD SEL KRK

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
1	03/29/2022	ISSUED FOR CONSTRUCTION
2	04/20/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
EUCC0309

DISH WIRELESS L.L.C.
PROJECT INFORMATION

NJJER02038A
36 SUGAR HOLLOW RD
DANBURY, CT 06810

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-4

GROUNDING NOTES:

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

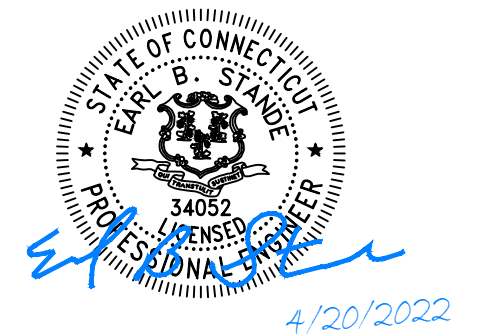


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Jacobs Telecommunications, Inc.
5449 BELLS FERRY ROAD
ACWORTH, GA 30102



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: MWD CHECKED BY: SEL APPROVED BY: KRK

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
1	03/29/2022	ISSUED FOR CONSTRUCTION
2	04/20/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
EUCC0309

DISH WIRELESS L.L.C.
PROJECT INFORMATION

NJJER02038A
36 SUGAR HOLLOW RD
DANBURY, CT 06810

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-5

Exhibit D

Structural Analysis Report

Date: **December 22, 2021**



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

Subject: **Structural Analysis Report**

Carrier Designation: **DISH Network Co-Locate**
Site Number: NJJER02038A

Crown Castle Designation: **BU Number:** 823631
Site Name: Danbury/Rt 7
JDE Job Number: 678161
Work Order Number: 2057437
Order Number: 578964 Rev. 3

Engineering Firm Designation: **Crown Castle Project Number:** 2057437

Site Data: **36 Sugar Hollow Road, Danbury, Fairfield County, CT**
Latitude 41° 20' 59.36", Longitude -73° 28' 8.92"
105 Foot - Monopole Tower

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

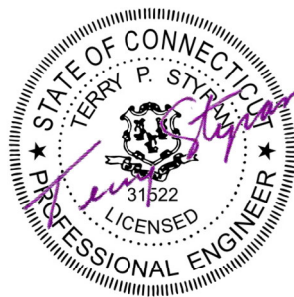
The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC5: Proposed Equipment Configuration **Sufficient Capacity - 37.3%**

This analysis utilizes an ultimate 3-second gust wind speed of 115 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Emma McCarty

Respectfully submitted by:



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

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Additional Calculations

1) INTRODUCTION

This tower is a 105 ft Monopole tower designed by Pirod Manufactures Inc..

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	115 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	2 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
74.0	74.0	3	fujitsu	TA08025-B604	1	1-3/8
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-PK8-DSH		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
105.0	105.0	2	ericsson	AIR 32 B2A/B66AA w/ Mount Pipe	4 2 1	1-1/4 1-3/8 1-5/8
		2	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe		
		2	ericsson	KRY 112 144/1		
		1	tower mounts	Platform Mount [LP 302-1]		
	103.0	2	ericsson	RADIO 4449 B12/B71		
		2	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		3	kathrein	800 10504 w/ Mount Pipe		
95.0	95.0	1	maxrad	GPS-TMG-26NMS w/ Mount Pipe	1 6	1/2 1-5/8
		1	tower mounts	Platform Mount [LP 304-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	3528936	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	3845210	CCISITES
4-TOWER MANUFACTURER DRAWINGS	3528938	CCISITES

3.1) Analysis Method

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

3.2) Assumptions

- 1) Tower and structures were maintained in accordance with the TIA-222 Standard.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 3) Base and flange plate design methodology of the manufacturer has been reviewed and found to be an acceptable means of designing to resist the full capacity of the bolts and shaft.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	105 - 92.5	Pole	P18x3/8	1	-6.37	824.12	9.4	Pass
L2	92.5 - 80	Pole	P18x3/8	2	-7.61	824.12	21.7	Pass
L3	80 - 60	Pole	P24x3/8	3	-13.40	1104.67	31.3	Pass
L4	60 - 40	Pole	P30x3/8	4	-16.62	1376.61	35.5	Pass
L5	40 - 20	Pole	P36x3/8	5	-20.41	1564.60	36.9	Pass
L6	20 - 0	Pole	P42x3/8	6	-24.79	1752.31	37.3	Pass
							Summary	
						Pole (L6)	37.3	Pass
						Rating =	37.3	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Flange Bolts	80	19.1	Pass
2	Flange Plate	80	21.7	Pass
1	Flange Bolts	60	29.4	Pass
2	Flange Plate	60	31.3	Pass
1	Flange Bolts	40	34.8	Pass
2	Flange Plate	40	35.5	Pass
1	Flange Bolts	20	37.1	Pass
3	Flange Plate	20	37.1	Pass
1	Anchor Rods	0	36.4	Pass
4	Base Plate	0	37.3	Pass
1	Base Foundation (Structure)	0	33.3	Pass
1	Base Foundation (Soil Interaction)	0	33.9	Pass

Structure Rating (max from all components) =	37.3%
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Notes:

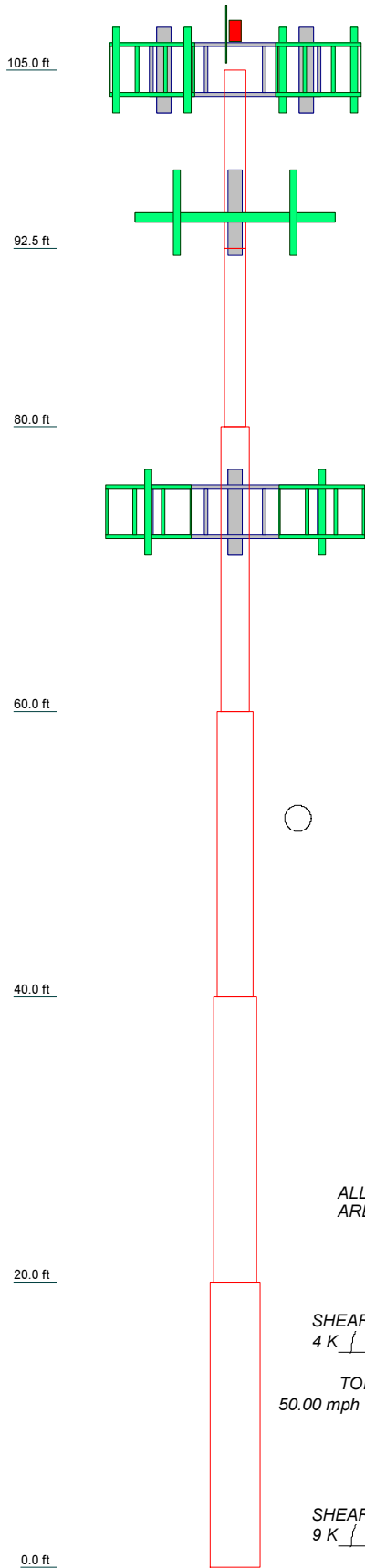
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
- 2) Flange plates are assumed to have the same capacity as their respective shaft.
- 3) Flange plates are assumed to have the same capacity as their respective splice bolts.
- 4) Base plates are assumed to have the same capacity as their respective shaft.

4.1) Recommendations

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

APPENDIX A
TNXTOWER OUTPUT

Section	1						
Size	P18x3/8						
Length (ft)	12.5000						
Grade	A53-B-42						
Weight (K)	0.9						
Section	2						
Size	P18x3/8						
Length (ft)	12.5000						
Grade	A53-B-42						
Weight (K)	0.9						
Section	3						
Size	P24x3/8						
Length (ft)	20.0000						
Grade	A53-B-42						
Weight (K)	1.9						
Section	4						
Size	P30x3/8						
Length (ft)	20.0000						
Grade	A53-B-42						
Weight (K)	2.4						
Section	5						
Size	P36x3/8						
Length (ft)	20.0000						
Grade	A53-B-42						
Weight (K)	2.9						
Section	6						
Size	P42x3/8						
Length (ft)	20.0000						
Grade	A53-B-42						
Weight (K)	3.3						
Section							
Size							
Length (ft)							
Grade							
Weight (K)	12.2						



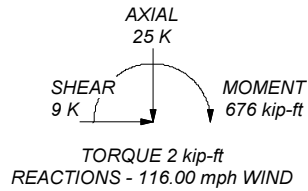
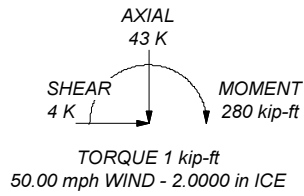
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-42	42 ksi	63 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 115.00 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50.00 mph basic wind with 2.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60.00 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.0000 ft
8. TOWER RATING: 37.3%

ALL REACTIONS
ARE FACTORED



Crown Castle
 **CROWN CASTLE**
 2000 Corporate Drive
 Canonsburg, PA 15317
 The Pathway to Possible Phone: (724) 416-2000
 FAX:

Job:	BU 823631		
Project:			
Client:	Crown Castle	Drawn by:	EMcCarty
Code:	TIA-222-H	Date:	12/22/21
Path:	C:\WORK AREA\823631\IWO 2057437 - SAIProd\823631.ed	Scale:	NTS
		Dwg No.	E-1

Tower Input Data

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

- Tower is located in Fairfield County, Connecticut.
- Tower base elevation above sea level: 496.0000 ft.
- Basic wind speed of 115.00 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.0000 ft.
- Nominal ice thickness of 2.0000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56.00 pcf.
- A wind speed of 50.00 mph is used in combination with ice.
- Temperature drop of 50.00 °F.
- Deflections calculated using a wind speed of 60.00 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.05.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification Use Code Stress Ratios ✓ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension ✓ Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination ✓ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs	Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <div style="text-align: center; background-color: #e0e0e0; padding: 2px;">Poles</div> ✓ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known
--	---	---

Pole Section Geometry

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	105.0000-92.5000	12.5000	P18x3/8	A53-B-42 (42 ksi)	
L2	92.5000-80.0000	12.5000	P18x3/8	A53-B-42 (42 ksi)	
L3	80.0000-60.0000	20.0000	P24x3/8	A53-B-42 (42 ksi)	
L4	60.0000-40.0000	20.0000	P30x3/8	A53-B-42 (42 ksi)	
L5	40.0000-20.0000	20.0000	P36x3/8	A53-B-42 (42 ksi)	
L6	20.0000-0.0000	20.0000	P42x3/8	A53-B-42 (42 ksi)	

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontal in	Double Angle Stitch Bolt Spacing Redundants in
L1 105.0000-92.5000				1	1	1			
L2 92.5000-80.0000				1	1	1			
L3 80.0000-60.0000				1	1	1			
L4 60.0000-40.0000				1	1	1			
L5 40.0000-20.0000				1	1	1			
L6 20.0000-0.0000				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
*** *** CU12PSM9P8XXX(1-3/8) ***	A	No	Surface Ar (CaAa)	74.0000 - 0.0000	1	1	0.460 0.500	1.4110		1.66

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C _A A _A ft ² /ft	Weight plf	
*** LDF6-50A(1-1/4)	C	No	No	Inside Pole	105.0000 - 0.0000	4	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	0.60 0.60 0.60 0.60
HCS 6X12 6AWG(1-3/8)	C	No	No	Inside Pole	105.0000 - 0.0000	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.0000 0.0000 0.0000 0.0000	1.70 1.70 1.70 1.70
MLE HYBRID 9POWER/18FIBE	C	No	No	Inside Pole	105.0000 - 0.0000	1	No Ice 1/2" Ice	0.0000 0.0000	1.07 1.07

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight plf
R RL 2(1-5/8)							1" Ice	0.0000	1.07
							2" Ice	0.0000	1.07

LDF4-50A(1/2)	B	No	No	Inside Pole	95.0000 - 0.0000	1	No Ice	0.0000	0.15
							1/2" Ice	0.0000	0.15
							1" Ice	0.0000	0.15
							2" Ice	0.0000	0.15
LDF7-50A(1-5/8)	B	No	No	Inside Pole	95.0000 - 0.0000	6	No Ice	0.0000	0.82
							1/2" Ice	0.0000	0.82
							1" Ice	0.0000	0.82
							2" Ice	0.0000	0.82

Feed Line/Linear Appurtenances Section Areas

Tower Section n	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	105.0000-92.5000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.09
L2	92.5000-80.0000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.09
L3	80.0000-60.0000	A	0.000	0.000	1.975	0.000	0.02
		B	0.000	0.000	0.000	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.14
L4	60.0000-40.0000	A	0.000	0.000	2.822	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.14
L5	40.0000-20.0000	A	0.000	0.000	2.822	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.14
L6	20.0000-0.0000	A	0.000	0.000	2.822	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.14

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section n	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	105.0000-92.5000	A	1.897	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.09
L2	92.5000-80.0000	A	1.871	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.06
		C		0.000	0.000	0.000	0.000	0.09
L3	80.0000-60.0000	A	1.833	0.000	0.000	7.107	0.000	0.12
		B		0.000	0.000	0.000	0.000	0.10
		C		0.000	0.000	0.000	0.000	0.14
L4	60.0000-40.0000	A	1.772	0.000	0.000	9.911	0.000	0.17
		B		0.000	0.000	0.000	0.000	0.10
		C		0.000	0.000	0.000	0.000	0.14
L5	40.0000-20.0000	A	1.684	0.000	0.000	9.557	0.000	0.16
		B		0.000	0.000	0.000	0.000	0.10
		C		0.000	0.000	0.000	0.000	0.14
L6	20.0000-0.0000	A	1.509	0.000	0.000	8.857	0.000	0.14
		B		0.000	0.000	0.000	0.000	0.10

Tower Section	Tower Elevation ft	Face or Leg C	Ice Thickness in	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
		C		0.000	0.000	0.000	0.000	0.14

Feed Line Center of Pressure

Section	Elevation ft	CP_x in	CP_z in	CP_x Ice in	CP_z Ice in
L1	105.0000-92.5000	0.0000	0.0000	0.0000	0.0000
L2	92.5000-80.0000	0.0000	0.0000	0.0000	0.0000
L3	80.0000-60.0000	-0.0405	-0.9654	-0.0606	-1.4450
L4	60.0000-40.0000	-0.0565	-1.3492	-0.0846	-2.0197
L5	40.0000-20.0000	-0.0569	-1.3585	-0.0848	-2.0230
L6	20.0000-0.0000	-0.0572	-1.3654	-0.0814	-1.9422

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L3	12	CU12PSM9P8XXX(1-3/8)	60.00 - 74.00	1.0000	1.0000
L4	12	CU12PSM9P8XXX(1-3/8)	40.00 - 60.00	1.0000	1.0000
L5	12	CU12PSM9P8XXX(1-3/8)	20.00 - 40.00	1.0000	1.0000
L6	12	CU12PSM9P8XXX(1-3/8)	0.00 - 20.00	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
***** 5' Lightning Rod	C	From Leg	0.0000 0.00 2.50	0.0000	105.0000
(2) Side Light	A	From Leg	4.0000 0.00 2.00	0.0000	105.0000
105 AIR 32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.0000	105.0000
AIR 32 B2A/B66AA w/ Mount Pipe	C	From Leg	4.0000 0.00	0.0000	105.0000

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement
			Horz	Lateral		
			ft	ft	°	ft
			0.00			
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.0000		0.0000	105.0000
			0.00			
			0.00			
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.0000		0.0000	105.0000
			0.00			
			0.00			
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.0000		0.0000	105.0000
			0.00			
			-2.00			
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.0000		0.0000	105.0000
			0.00			
			-2.00			
KRY 112 144/1	A	From Leg	4.0000		0.0000	105.0000
			0.00			
			0.00			
KRY 112 144/1	C	From Leg	4.0000		0.0000	105.0000
			0.00			
			0.00			
RADIO 4449 B12/B71	A	From Leg	4.0000		0.0000	105.0000
			0.00			
			-2.00			
RADIO 4449 B12/B71	C	From Leg	4.0000		0.0000	105.0000
			0.00			
			-2.00			
Platform Mount [LP 302-1] ***	C	None			0.0000	105.0000
800 10504 w/ Mount Pipe	A	From Leg	4.0000		0.0000	95.0000
			0.00			
			0.00			
800 10504 w/ Mount Pipe	B	From Leg	4.0000		0.0000	95.0000
			0.00			
			0.00			
800 10504 w/ Mount Pipe	C	From Leg	4.0000		0.0000	95.0000
			0.00			
			0.00			
GPS-TMG-26NMS w/ Mount Pipe	A	From Leg	4.0000		0.0000	95.0000
			0.00			
			0.00			
6' x 2" Mount Pipe	A	From Leg	4.0000		0.0000	95.0000
			0.00			
			0.00			
6' x 2" Mount Pipe	B	From Leg	4.0000		0.0000	95.0000
			0.00			
			0.00			
6' x 2" Mount Pipe	C	From Leg	4.0000		0.0000	95.0000
			0.00			
			0.00			
Platform Mount [LP 304-1] ****	C	None			0.0000	95.0000
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.0000		0.0000	74.0000
			0.00			
			0.00			
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.0000		0.0000	74.0000
			0.00			
			0.00			
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.0000		0.0000	74.0000
			0.00			
			0.00			
TA08025-B604	A	From Leg	4.0000		0.0000	74.0000
			0.00			
			0.00			
TA08025-B604	B	From Leg	4.0000		0.0000	74.0000
			0.00			
			0.00			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
TA08025-B604	C	From Leg	4.0000 0.00 0.00	0.0000	74.0000
TA08025-B605	A	From Leg	4.0000 0.00 0.00	0.0000	74.0000
TA08025-B605	B	From Leg	4.0000 0.00 0.00	0.0000	74.0000
TA08025-B605	C	From Leg	4.0000 0.00 0.00	0.0000	74.0000
RDIDC-9181-PF-48	B	From Leg	4.0000 0.00 0.00	0.0000	74.0000
(2) 8' x 2" Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.0000	74.0000
(2) 8' x 2" Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.0000	74.0000
(2) 8' x 2" Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.0000	74.0000
Commscope MC-PK8-DSH ***** ***	C	None		0.0000	74.0000

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp

Comb. No.	Description
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	105 - 92.5	Pole	Max Tension	26	0.00	-0.00	-0.00
			Max. Compression	26	-14.71	8.00	4.88
			Max. Mx	20	-6.38	32.45	0.38
			Max. My	2	-6.37	1.43	32.98
			Max. Vy	20	-3.42	32.45	0.38
			Max. Vx	2	-3.57	1.43	32.98
			Max. Torque	4			2.16
L2	92.5 - 80	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-16.51	8.23	5.02
			Max. Mx	20	-7.62	77.50	-1.22
			Max. My	2	-7.61	-0.14	79.89
			Max. Vy	20	-3.78	77.50	-1.22
			Max. Vx	2	-3.93	-0.14	79.89
			Max. Torque	4			2.16
L3	80 - 60	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.06	8.15	4.98
			Max. Mx	20	-13.41	190.01	-3.69
			Max. My	2	-13.41	-2.62	195.27
			Max. Vy	20	-6.61	190.01	-3.69
			Max. Vx	2	-6.75	-2.62	195.27
			Max. Torque	4			2.16
L4	60 - 40	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-31.75	8.54	5.21
			Max. Mx	20	-16.62	329.98	-6.02
			Max. My	2	-16.62	-4.92	337.96
			Max. Vy	20	-7.37	329.98	-6.02
			Max. Vx	2	-7.51	-4.92	337.96
			Max. Torque	4			2.03
L5	40 - 20	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.18	8.86	5.40
			Max. Mx	20	-20.42	485.23	-8.32
			Max. My	2	-20.41	-7.19	495.89
			Max. Vy	20	-8.14	485.23	-8.32
			Max. Vx	2	-8.27	-7.19	495.89
			Max. Torque	4			2.02
L6	20 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.22	9.09	5.54
			Max. Mx	20	-24.79	656.93	-10.59

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	2	-24.79	-9.43	670.23
			Max. Vy	20	-9.02	656.93	-10.59
			Max. Vx	2	-9.15	-9.43	670.23
			Max. Torque	4			2.02

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	43.22	0.00	0.00
	Max. H _x	20	24.79	9.01	-0.11
	Max. H _z	3	18.59	-0.11	9.15
	Max. M _x	2	670.23	-0.11	9.15
	Max. M _z	8	650.76	-9.01	0.11
	Max. Torsion	4	2.02	-4.61	7.98
	Min. Vert	25	18.59	4.41	7.86
	Min. H _x	8	24.79	-9.01	0.11
	Min. H _z	15	18.59	0.11	-9.15
	Min. M _x	14	-666.37	0.11	-9.15
	Min. M _z	20	-656.93	9.01	-0.11
	Min. Torsion	16	-2.02	4.61	-7.98

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	20.66	0.00	0.00	-1.58	2.53	-0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	24.79	0.11	-9.15	-670.23	-9.43	-1.72
0.9 Dead+1.0 Wind 0 deg - No Ice	18.59	0.11	-9.15	-665.08	-10.13	-1.70
1.2 Dead+1.0 Wind 30 deg - No Ice	24.79	4.61	-7.98	-586.95	-334.68	-2.02
0.9 Dead+1.0 Wind 30 deg - No Ice	18.59	4.61	-7.98	-582.37	-333.13	-2.00
1.2 Dead+1.0 Wind 60 deg - No Ice	24.79	7.86	-4.67	-346.92	-569.42	-1.78
0.9 Dead+1.0 Wind 60 deg - No Ice	18.59	7.86	-4.67	-344.00	-566.25	-1.76
1.2 Dead+1.0 Wind 90 deg - No Ice	24.79	9.01	-0.11	-14.45	-650.76	-1.07
0.9 Dead+1.0 Wind 90 deg - No Ice	18.59	9.01	-0.11	-13.84	-647.04	-1.05
1.2 Dead+1.0 Wind 120 deg - No Ice	24.79	7.75	4.47	321.38	-556.90	-0.07
0.9 Dead+1.0 Wind 120 deg - No Ice	18.59	7.75	4.47	319.65	-553.84	-0.07
1.2 Dead+1.0 Wind 150 deg - No Ice	24.79	4.41	7.86	570.58	-312.99	0.95
0.9 Dead+1.0 Wind 150 deg - No Ice	18.59	4.41	7.86	567.11	-311.63	0.93
1.2 Dead+1.0 Wind 180 deg - No Ice	24.79	-0.11	9.15	666.37	15.61	1.71
0.9 Dead+1.0 Wind 180 deg - No Ice	18.59	-0.11	9.15	662.23	14.70	1.69
1.2 Dead+1.0 Wind 210 deg - No Ice	24.79	-4.61	7.98	583.09	340.85	2.02
0.9 Dead+1.0 Wind 210 deg - No Ice	18.59	-4.61	7.98	579.52	337.69	2.00

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
1.2 Dead+1.0 Wind 240 deg - No Ice	24.79	-7.86	4.67	343.07	575.59	1.79
0.9 Dead+1.0 Wind 240 deg - No Ice	18.59	-7.86	4.67	341.15	570.82	1.77
1.2 Dead+1.0 Wind 270 deg - No Ice	24.79	-9.01	0.11	10.59	656.93	1.08
0.9 Dead+1.0 Wind 270 deg - No Ice	18.59	-9.01	0.11	10.99	651.61	1.06
1.2 Dead+1.0 Wind 300 deg - No Ice	24.79	-7.75	-4.47	-325.24	563.08	0.07
0.9 Dead+1.0 Wind 300 deg - No Ice	18.59	-7.75	-4.47	-322.51	558.41	0.07
1.2 Dead+1.0 Wind 330 deg - No Ice	24.79	-4.41	-7.86	-574.44	319.17	-0.96
0.9 Dead+1.0 Wind 330 deg - No Ice	18.59	-4.41	-7.86	-569.97	316.19	-0.94
1.2 Dead+1.0 Ice+1.0 Temp	43.22	-0.00	-0.00	-5.54	9.09	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	43.22	0.02	-3.74	-279.56	6.59	-0.52
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	43.22	1.88	-3.25	-244.12	-128.61	-0.63
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	43.22	3.23	-1.89	-144.76	-226.90	-0.57
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	43.22	3.72	-0.02	-8.10	-261.94	-0.36
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	43.22	3.21	1.85	129.25	-224.36	-0.06
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	43.22	1.84	3.23	230.47	-124.21	0.26
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	43.22	-0.02	3.74	268.44	11.66	0.51
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	43.22	-1.88	3.25	233.00	146.86	0.63
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	43.22	-3.23	1.89	133.64	245.15	0.57
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	43.22	-3.72	0.02	-3.02	280.20	0.36
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	43.22	-3.21	-1.85	-140.36	242.61	0.06
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	43.22	-1.84	-3.23	-241.58	142.47	-0.27
Dead+Wind 0 deg - Service	20.66	0.03	-2.30	-169.22	-0.59	-0.43
Dead+Wind 30 deg - Service	20.66	1.16	-2.01	-148.33	-82.17	-0.51
Dead+Wind 60 deg - Service	20.66	1.98	-1.18	-88.13	-141.05	-0.45
Dead+Wind 90 deg - Service	20.66	2.27	-0.03	-4.73	-161.46	-0.27
Dead+Wind 120 deg - Service	20.66	1.95	1.13	79.51	-137.92	-0.02
Dead+Wind 150 deg - Service	20.66	1.11	1.98	142.01	-76.74	0.24
Dead+Wind 180 deg - Service	20.66	-0.03	2.30	166.04	5.69	0.43
Dead+Wind 210 deg - Service	20.66	-1.16	2.01	145.15	87.27	0.51
Dead+Wind 240 deg - Service	20.66	-1.98	1.18	84.94	146.15	0.45
Dead+Wind 270 deg - Service	20.66	-2.27	0.03	1.54	166.56	0.27
Dead+Wind 300 deg - Service	20.66	-1.95	-1.13	-82.69	143.02	0.02
Dead+Wind 330 deg - Service	20.66	-1.11	-1.98	-145.20	81.84	-0.24

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-20.66	0.00	0.00	20.66	0.00	0.000%
2	0.11	-24.79	-9.15	-0.11	24.79	9.15	0.000%
3	0.11	-18.59	-9.15	-0.11	18.59	9.15	0.000%
4	4.61	-24.79	-7.98	-4.61	24.79	7.98	0.000%
5	4.61	-18.59	-7.98	-4.61	18.59	7.98	0.000%
6	7.86	-24.79	-4.67	-7.86	24.79	4.67	0.000%
7	7.86	-18.59	-4.67	-7.86	18.59	4.67	0.000%
8	9.01	-24.79	-0.11	-9.01	24.79	0.11	0.000%
9	9.01	-18.59	-0.11	-9.01	18.59	0.11	0.000%
10	7.75	-24.79	4.47	-7.75	24.79	-4.47	0.000%
11	7.75	-18.59	4.47	-7.75	18.59	-4.47	0.000%
12	4.41	-24.79	7.86	-4.41	24.79	-7.86	0.000%
13	4.41	-18.59	7.86	-4.41	18.59	-7.86	0.000%
14	-0.11	-24.79	9.15	0.11	24.79	-9.15	0.000%
15	-0.11	-18.59	9.15	0.11	18.59	-9.15	0.000%
16	-4.61	-24.79	7.98	4.61	24.79	-7.98	0.000%
17	-4.61	-18.59	7.98	4.61	18.59	-7.98	0.000%
18	-7.86	-24.79	4.67	7.86	24.79	-4.67	0.000%
19	-7.86	-18.59	4.67	7.86	18.59	-4.67	0.000%
20	-9.01	-24.79	0.11	9.01	24.79	-0.11	0.000%
21	-9.01	-18.59	0.11	9.01	18.59	-0.11	0.000%
22	-7.75	-24.79	-4.47	7.75	24.79	4.47	0.000%
23	-7.75	-18.59	-4.47	7.75	18.59	4.47	0.000%
24	-4.41	-24.79	-7.86	4.41	24.79	7.86	0.000%
25	-4.41	-18.59	-7.86	4.41	18.59	7.86	0.000%
26	0.00	-43.22	0.00	0.00	43.22	0.00	0.000%
27	0.02	-43.22	-3.74	-0.02	43.22	3.74	0.000%
28	1.88	-43.22	-3.25	-1.88	43.22	3.25	0.000%
29	3.23	-43.22	-1.89	-3.23	43.22	1.89	0.000%
30	3.72	-43.22	-0.02	-3.72	43.22	0.02	0.000%
31	3.21	-43.22	1.85	-3.21	43.22	-1.85	0.000%
32	1.84	-43.22	3.23	-1.84	43.22	-3.23	0.000%
33	-0.02	-43.22	3.74	0.02	43.22	-3.74	0.000%
34	-1.88	-43.22	3.25	1.88	43.22	-3.25	0.000%
35	-3.23	-43.22	1.89	3.23	43.22	-1.89	0.000%
36	-3.72	-43.22	0.02	3.72	43.22	-0.02	0.000%
37	-3.21	-43.22	-1.85	3.21	43.22	1.85	0.000%
38	-1.84	-43.22	-3.23	1.84	43.22	3.23	0.000%
39	0.03	-20.66	-2.30	-0.03	20.66	2.30	0.000%
40	1.16	-20.66	-2.01	-1.16	20.66	2.01	0.000%
41	1.98	-20.66	-1.18	-1.98	20.66	1.18	0.000%
42	2.27	-20.66	-0.03	-2.27	20.66	0.03	0.000%
43	1.95	-20.66	1.13	-1.95	20.66	-1.13	0.000%
44	1.11	-20.66	1.98	-1.11	20.66	-1.98	0.000%
45	-0.03	-20.66	2.30	0.03	20.66	-2.30	0.000%
46	-1.16	-20.66	2.01	1.16	20.66	-2.01	0.000%
47	-1.98	-20.66	1.18	1.98	20.66	-1.18	0.000%
48	-2.27	-20.66	0.03	2.27	20.66	-0.03	0.000%
49	-1.95	-20.66	-1.13	1.95	20.66	1.13	0.000%
50	-1.11	-20.66	-1.98	1.11	20.66	1.98	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00004856
3	Yes	4	0.00000001	0.00087504
4	Yes	5	0.00000001	0.00005779
5	Yes	5	0.00000001	0.00003034
6	Yes	5	0.00000001	0.00008824
7	Yes	5	0.00000001	0.00004632
8	Yes	4	0.00000001	0.00085617
9	Yes	4	0.00000001	0.00060212
10	Yes	5	0.00000001	0.00004384

11	Yes	4	0.00000001	0.00079290
12	Yes	5	0.00000001	0.00003891
13	Yes	4	0.00000001	0.00070336
14	Yes	5	0.00000001	0.00005268
15	Yes	4	0.00000001	0.00095233
16	Yes	5	0.00000001	0.00009792
17	Yes	5	0.00000001	0.00005125
18	Yes	5	0.00000001	0.00005673
19	Yes	5	0.00000001	0.00002963
20	Yes	4	0.00000001	0.00075964
21	Yes	4	0.00000001	0.00053072
22	Yes	5	0.00000001	0.00005013
23	Yes	4	0.00000001	0.00088875
24	Yes	5	0.00000001	0.00006761
25	Yes	5	0.00000001	0.00003496
26	Yes	4	0.00000001	0.00026587
27	Yes	5	0.00000001	0.00022672
28	Yes	5	0.00000001	0.00022554
29	Yes	5	0.00000001	0.00021743
30	Yes	5	0.00000001	0.00019182
31	Yes	5	0.00000001	0.00019306
32	Yes	5	0.00000001	0.00019710
33	Yes	5	0.00000001	0.00020442
34	Yes	5	0.00000001	0.00023167
35	Yes	5	0.00000001	0.00023497
36	Yes	5	0.00000001	0.00022896
37	Yes	5	0.00000001	0.00024378
38	Yes	5	0.00000001	0.00024452
39	Yes	4	0.00000001	0.00007823
40	Yes	4	0.00000001	0.00008341
41	Yes	4	0.00000001	0.00008824
42	Yes	4	0.00000001	0.00004835
43	Yes	4	0.00000001	0.00002781
44	Yes	4	0.00000001	0.00003989
45	Yes	4	0.00000001	0.00007617
46	Yes	4	0.00000001	0.00010195
47	Yes	4	0.00000001	0.00007573
48	Yes	4	0.00000001	0.00005086
49	Yes	4	0.00000001	0.00003539
50	Yes	4	0.00000001	0.00006056

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	105 - 92.5	5.239	39	0.4567	0.0098
L2	92.5 - 80	4.065	39	0.4350	0.0068
L3	80 - 60	3.002	39	0.3684	0.0038
L4	60 - 40	1.637	39	0.2687	0.0019
L5	40 - 20	0.703	40	0.1686	0.0009
L6	20 - 0	0.173	40	0.0788	0.0004

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
105.0000	5' Lightning Rod	39	5.239	0.4567	0.0098	33912
95.0000	800 10504 w/ Mount Pipe	39	4.294	0.4428	0.0074	17102
74.0000	MX08FRO665-21 w/ Mount Pipe	39	2.547	0.3362	0.0029	11223

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	105 - 92.5	20.703	4	1.7661	0.0390
L2	92.5 - 80	16.131	4	1.7043	0.0272
L3	80 - 60	11.945	4	1.4588	0.0152
L4	60 - 40	6.527	4	1.0698	0.0075
L5	40 - 20	2.804	4	0.6723	0.0036
L6	20 - 0	0.691	4	0.3141	0.0014

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
105.0000	5' Lightning Rod	4	20.703	1.7661	0.0390	10726
95.0000	800 10504 w/ Mount Pipe	4	17.025	1.7307	0.0297	5395
74.0000	MX08FRO665-21 w/ Mount Pipe	4	10.144	1.3350	0.0116	2903

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
L1	105 - 92.5 (1)	P18x3/8	12.500	0.0000	0.0	20.764	-6.37	784.88	0.008
L2	92.5 - 80 (2)	P18x3/8	12.500	0.0000	0.0	20.764	-7.61	784.88	0.010
L3	80 - 60 (3)	P24x3/8	20.000	0.0000	0.0	27.832	-13.40	1052.07	0.013
L4	60 - 40 (4)	P30x3/8	20.000	0.0000	0.0	34.901	-16.62	1311.06	0.013
L5	40 - 20 (5)	P36x3/8	20.000	0.0000	0.0	41.969	-20.41	1490.10	0.014
L6	20 - 0 (6)	P42x3/8	20.000	0.0000	0.0	49.038	-24.79	1668.87	0.015

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{rx} kip-ft	Ratio M _{ux} / φM _{rx}	M _{uy} kip-ft	φM _{ry} kip-ft	Ratio M _{uy} / φM _{ry}
L1	105 - 92.5 (1)	P18x3/8	33.01	367.00	0.090	0.00	367.00	0.000
L2	92.5 - 80 (2)	P18x3/8	80.01	367.00	0.218	0.00	367.00	0.000
L3	80 - 60 (3)	P24x3/8	196.78	623.72	0.316	0.00	623.72	0.000
L4	60 - 40 (4)	P30x3/8	340.79	947.86	0.360	0.00	947.86	0.000
L5	40 - 20 (5)	P36x3/8	500.04	1338.81	0.373	0.00	1338.81	0.000
L6	20 - 0 (6)	P42x3/8	675.66	1796.56	0.376	0.00	1796.56	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	105 - 92.5 (1)	P18x3/8	3.57	235.46	0.015	1.81	364.87	0.005
L2	92.5 - 80 (2)	P18x3/8	4.01	235.46	0.017	2.16	364.87	0.006
L3	80 - 60 (3)	P24x3/8	6.82	315.62	0.022	2.03	655.57	0.003
L4	60 - 40 (4)	P30x3/8	7.58	395.78	0.019	2.02	994.73	0.002
L5	40 - 20 (5)	P36x3/8	8.34	475.94	0.018	2.02	1186.90	0.002
L6	20 - 0 (6)	P42x3/8	9.22	513.08	0.018	2.02	1443.45	0.001

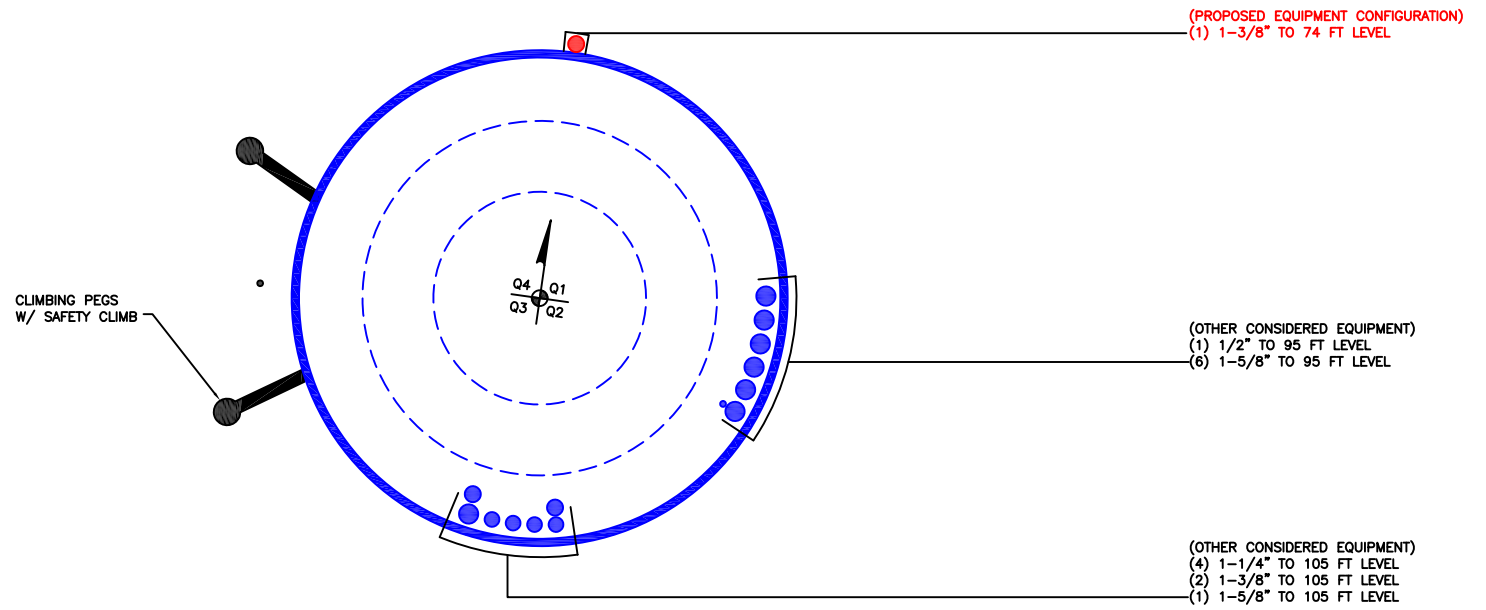
Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	105 - 92.5 (1)	0.008	0.090	0.000	0.015	0.005	0.098	1.050	4.8.2
L2	92.5 - 80 (2)	0.010	0.218	0.000	0.017	0.006	0.228	1.050	4.8.2
L3	80 - 60 (3)	0.013	0.316	0.000	0.022	0.003	0.329	1.050	4.8.2
L4	60 - 40 (4)	0.013	0.360	0.000	0.019	0.002	0.373	1.050	4.8.2
L5	40 - 20 (5)	0.014	0.373	0.000	0.018	0.002	0.388	1.050	4.8.2
L6	20 - 0 (6)	0.015	0.376	0.000	0.018	0.001	0.391	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	105 - 92.5	Pole	P18x3/8	1	-6.37	824.12	9.4	Pass
L2	92.5 - 80	Pole	P18x3/8	2	-7.61	824.12	21.7	Pass
L3	80 - 60	Pole	P24x3/8	3	-13.40	1104.67	31.3	Pass
L4	60 - 40	Pole	P30x3/8	4	-16.62	1376.61	35.5	Pass
L5	40 - 20	Pole	P36x3/8	5	-20.41	1564.60	36.9	Pass
L6	20 - 0	Pole	P42x3/8	6	-24.79	1752.31	37.3	Pass
Summary								
Pole (L6)							37.3	Pass
RATING =							37.3	Pass

APPENDIX B
BASE LEVEL DRAWING



APPENDIX C
ADDITIONAL CALCULATIONS

Monopole Flange Plate Connection

Elevation = 80 ft.

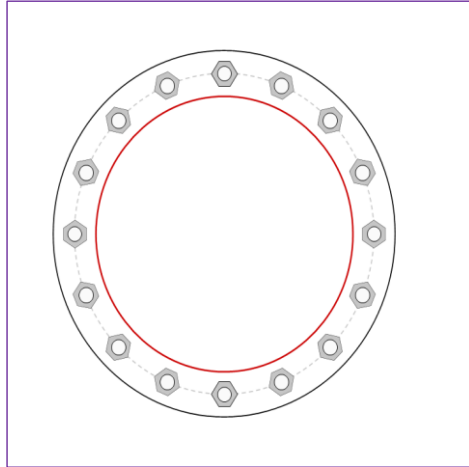


BU #	823631
Site Name	Danbury/Rt 7
Order #	578964 Rev. 3
TIA-222 Revision	H

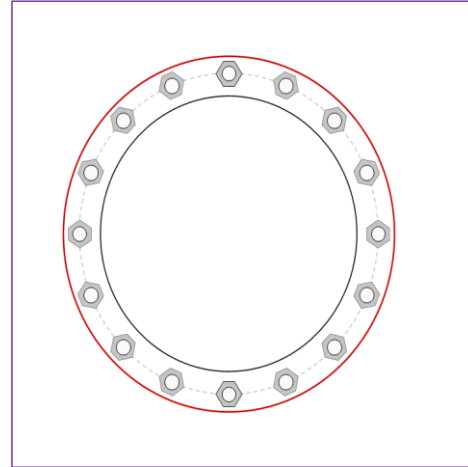
Applied Loads	
Moment (kip-ft)	80.01
Axial Force (kips)	7.61
Shear Force (kips)	4.01

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(16) 1" ϕ bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 21" BC

Top Plate Data

24" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

18" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Plate Data

18" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

24" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	10.94
Allowable (kips)	54.54
Stress Rating:	19.1% Pass

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Rohn OK
Tension Side Stress Rating:	Rohn OK

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Rohn OK
Tension Side Stress Rating:	Rohn OK

Monopole Flange Plate Connection

Elevation = 60 ft.

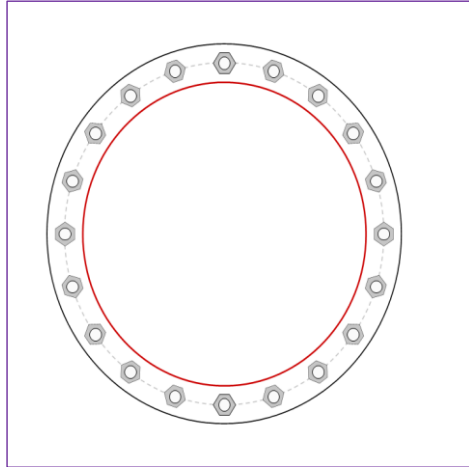


BU #	823631
Site Name	Danbury/Rt 7
Order #	578964 Rev. 3
TIA-222 Revision	H

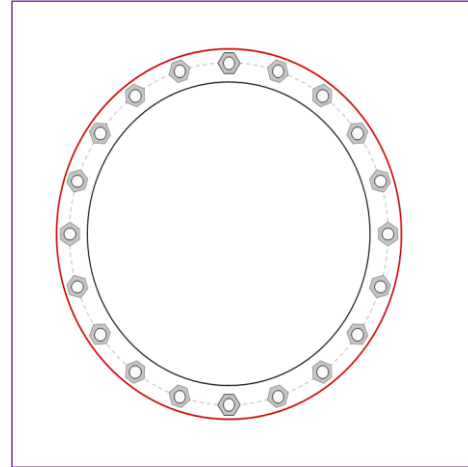
Applied Loads	
Moment (kip-ft)	196.78
Axial Force (kips)	13.40
Shear Force (kips)	6.82

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(20) 1" ϕ bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 27" BC

Top Plate Data

30" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

24" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Plate Data

24" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

30" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	16.81
Allowable (kips)	54.54
Stress Rating:	29.4% Pass

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Rohn OK
Tension Side Stress Rating:	Rohn OK

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Rohn OK
Tension Side Stress Rating:	Rohn OK

Monopole Flange Plate Connection

Elevation = 40 ft.

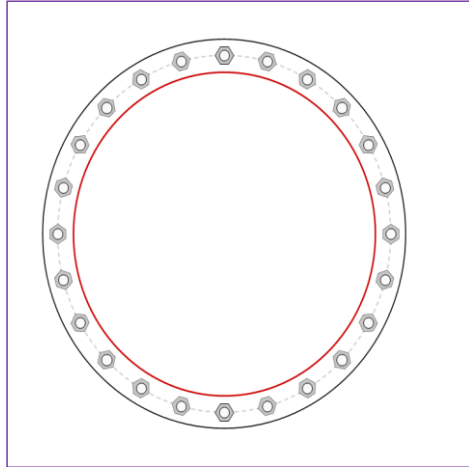


BU #	823631
Site Name	Danbury/Rt 7
Order #	578964 Rev. 3
TIA-222 Revision	H

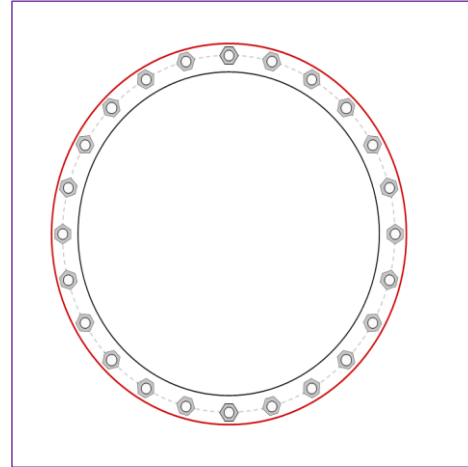
Applied Loads	
Moment (kip-ft)	340.79
Axial Force (kips)	16.62
Shear Force (kips)	7.58

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(24) 1" ϕ bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 33" BC

Top Plate Data

36" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

30" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Plate Data

30" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

36" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	19.95
Allowable (kips)	54.54
Stress Rating:	34.8% Pass

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Rohn OK
Tension Side Stress Rating:	Rohn OK

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Rohn OK
Tension Side Stress Rating:	Rohn OK

Monopole Flange Plate Connection

Elevation = 20 ft.

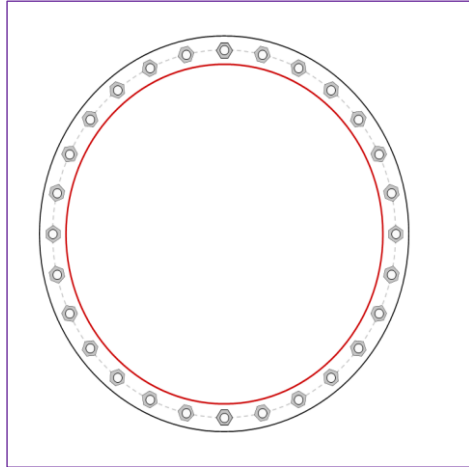


BU #	823631
Site Name	Danbury/Rt 7
Order #	578964 Rev. 3
TIA-222 Revision	H

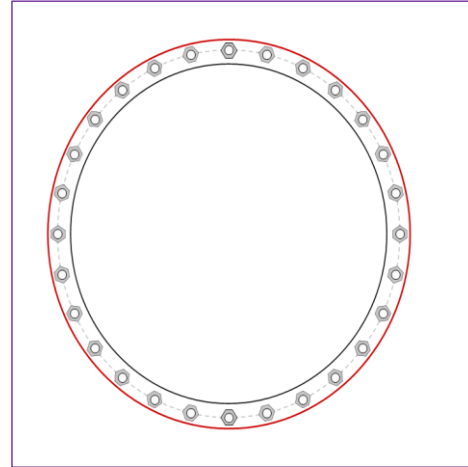
Applied Loads	
Moment (kip-ft)	500.04
Axial Force (kips)	20.41
Shear Force (kips)	8.34

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(28) 1" ϕ bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 39" BC

Top Plate Data

42" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

36" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Plate Data

36" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

42" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	21.24
Allowable (kips)	54.54
Stress Rating:	37.1% Pass

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Rohn OK
Tension Side Stress Rating:	Rohn OK

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Rohn OK
Tension Side Stress Rating:	Rohn OK

Monopole Base Plate Connection

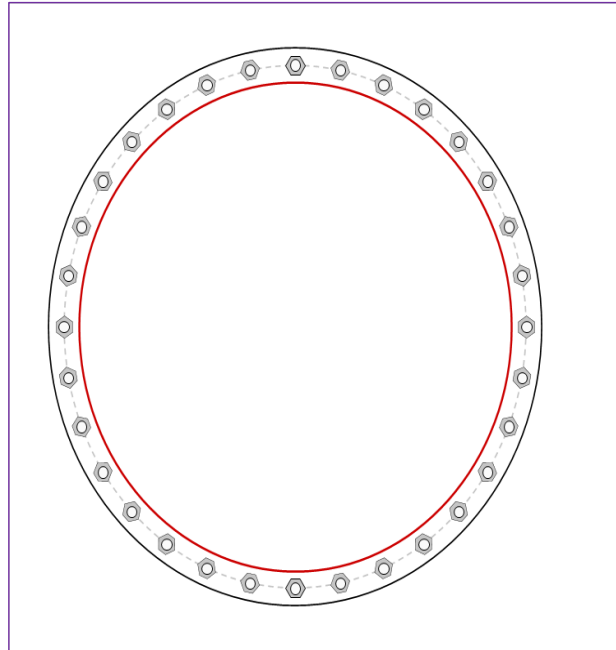


Site Info	
BU #	823631
Site Name	Danbury/Rt 7
Order #	578964 Rev. 3

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
I_{ar} (in)	1.625

Applied Loads	
Moment (kip-ft)	675.66
Axial Force (kips)	24.79
Shear Force (kips)	9.22

*TIA-222-H Section 15.5 Applied



Connection Properties	Analysis Results
-----------------------	------------------

Anchor Rod Data

(32) 1" ϕ bolts (A687 N; $F_y=105$ ksi, $F_u=125$ ksi) on 45" BC

Base Plate Data

48" OD x 1.25" Plate (A36; $F_y=36$ ksi, $F_u=58$ ksi)

Stiffener Data

N/A

Pole Data

42" x 0.375" round pole (A53-B-42; $F_y=42$ ksi, $F_u=63$ ksi)

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

$Pu_t = 21.74$	$\phi Pn_t = 56.81$	Stress Rating
$Vu = 0.29$	$\phi Vn = 36.82$	36.4%
$Mu = 0.3$	$\phi Mn = 15.75$	Pass

Base Plate Summary

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	Rohn OK

Pier and Pad Foundation



BU #: 823631
 Site Name: Danbury/Rt 7
 App. Number: 578964 Rev. 3

TIA-222 Revision: H
 Tower Type: Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp} :	24.79	kips
Base Shear, V_{u_comp} :	9.22	kips
Moment, M_u :	675.66	ft-kips
Tower Height, H :	105	ft
BP Dist. Above Fdn, bp_{dist} :	2.625	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	219.80	9.22	4.0%	Pass
<i>Bearing Pressure (ksf)</i>	12.00	2.42	19.2%	Pass
<i>Overtuning (kip*ft)</i>	2244.94	760.66	33.9%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	2090.77	730.98	33.3%	Pass
<i>Pier Compression (kip)</i>	9372.94	46.00	0.5%	Pass
<i>Pad Flexure (kip*ft)</i>	933.88	222.04	22.6%	Pass
<i>Pad Shear - 1-way (kips)</i>	471.38	44.77	9.0%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.164	0.014	8.2%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	1691.11	438.59	24.7%	Pass

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, $dpier$:	5	ft
Ext. Above Grade, E :	0.5	ft
Pier Rebar Size, Sc :	9	
Pier Rebar Quantity, mc :	19	
Pier Tie/Spiral Size, St :	4	
Pier Tie/Spiral Quantity, mt :	10	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

*Rating per TIA-222-H Section 15.5

Structural Rating*:	33.3%
Soil Rating*:	33.9%

Pad Properties		
Depth, D :	8.5	ft
Pad Width, W_1 :	15	ft
Pad Thickness, T :	3	ft
Pad Rebar Size (Bottom dir. 2), Sp_2 :	6	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	15	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	3	ksi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	125	pcf
Ultimate Gross Bearing, Q_{ult} :	16.000	ksf
Cohesion, C_u :	0.000	ksf
Friction Angle, ϕ :	36	degrees
SPT Blow Count, N_{blows} :	9	
Base Friction, μ :		
Neglected Depth, N :	2.50	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw :	N/A	ft

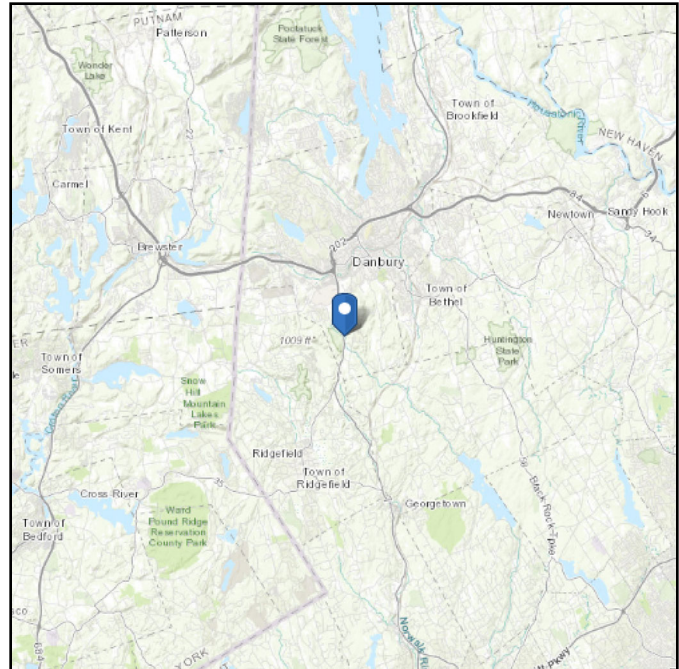
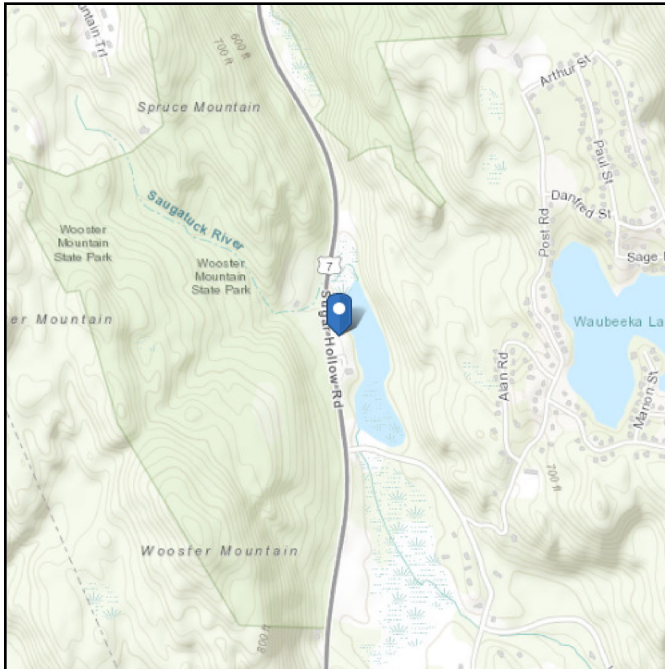
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ASCE 7 Hazards Report

Address:
No Address at This
Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see
Section 11.4.3)

Elevation: 518.99 ft (NAVD 88)
Latitude: 41.349822
Longitude: -73.469144



Wind

Results:

Wind Speed	115 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	96 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Tue Dec 28 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

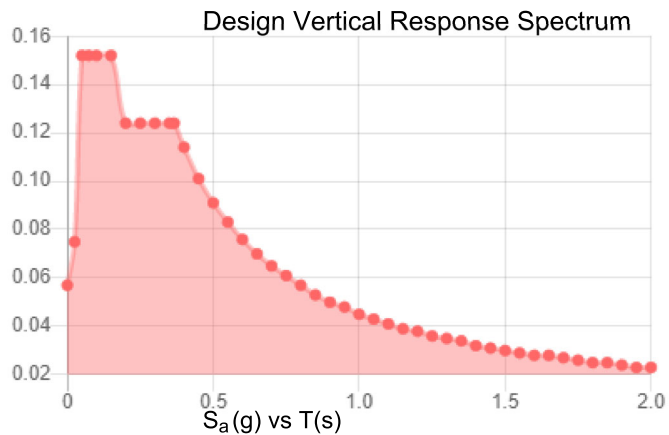
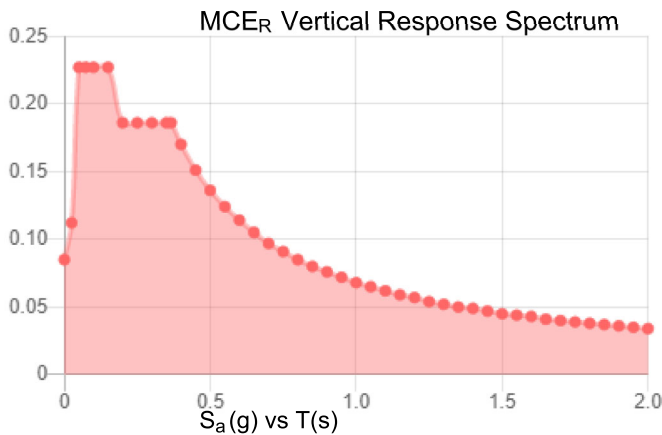
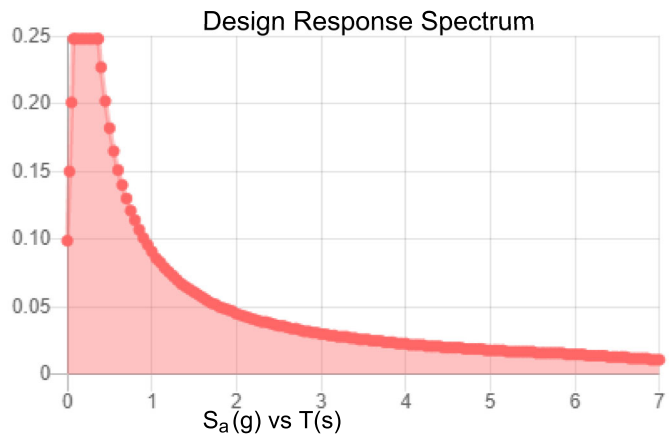
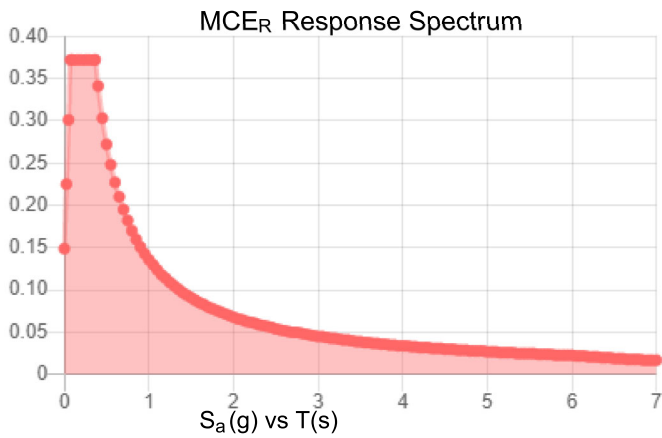
Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

Site Soil Class: D - Default (see Section 11.4.3)

Results:

S_s :	0.232	S_{D1} :	0.091
S_1 :	0.057	T_L :	6
F_a :	1.6	PGA :	0.135
F_v :	2.4	PGA _M :	0.207
S_{MS} :	0.372	F_{PGA} :	1.53
S_{M1} :	0.136	I_e :	1
S_{DS} :	0.248	C_v :	0.765

Seismic Design Category B



Data Accessed: Tue Dec 28 2021

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 1.00 in.

Concurrent Temperature: 15 F

Gust Speed 50 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Tue Dec 28 2021

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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Exhibit E

Mount Analysis

Date: **March 10, 2022**



Trylon
1825 W. Walnut Hill Lane,
Suite 302
Irving, TX 75038
214-930-1730

Subject: **Mount Analysis Report**

Carrier Designation: **Dish Network Equipment Change-Out**
Carrier Site Number: NJJER02038A
Carrier Site Name: -

Crown Castle Designation: **BU Number:** 823631
Site Name: Danbury/Rt 7
JDE Job Number: 678161
Order Number: 578964 Rev. 4

Engineering Firm Designation: **Trylon Report Designation:** 204655

Site Data: **36 Sugar Hollow Road, Danbury, Fairfield County, CT, 06810**
Latitude 41°20'59.00" Longitude -73°28'6.00"

Structure Information: **Tower Height & Type:** **105.0 ft Monopole**
Mount Elevation: **74.0 ft**
Mount Width & Type: **8.0 ft Platform**

Trylon is pleased to submit this “**Mount Analysis Report**” to determine the structural integrity of Dish Network’s antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

Platform **Sufficient***
***Sufficient upon completion of the changes listed in the ‘Recommendations’ section of this report.**

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

Mount analysis prepared by: Dan Deaconu

Respectfully Submitted by:
Cliff Abernathy, P.E.

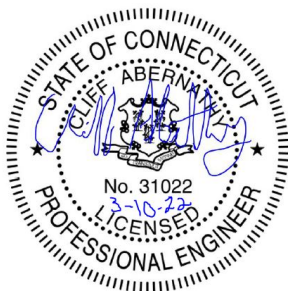


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1) INTRODUCTION

This is an existing 3 sector 8.0 ft Platform, designed by Commscope.

2) ANALYSIS CRITERIA

Building Code:	2015 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	120 mph
Exposure Category:	B
Topographic Factor at Base:	1.00
Topographic Factor at Mount:	1.00
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.217
Seismic S₁:	0.067
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
74.0	74.0	3	Jma Wireless	MX08FRO665-21	8.0 ft Platform [Commscope, MC- PK8-DSH]
		3	Fujitsu	TA08025-B604	
		3	Fujitsu	TA08025-B605	
		1	Raycap	RDIDC-9181-PF-48	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	DISH Network Application	578964, Rev. 4	CCI Sites
Structural Analysis Report	Crown Castle	10123623	CCI Sites
Mount Manufacturer Drawings	Commscope	MC-PK8-DSH	Trylon

3.1) Analysis Method

RISA-3D (Version 17.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

A tool internally developed, using Microsoft Excel, by Trylon was used to calculate wind loading on all appurtenances, dishes, and mount members for various load cases. Selected output from the analysis is included in Appendix B.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision B).

3.2) Assumptions

- 1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
- 2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
- 3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
- 4) The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
- 5) Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
- 6) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM A500 (GR B-46)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325

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

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Platform, All Sectors)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1, 2, 3	Mount Pipe(s)	MP4	74.0	10.0	Pass
	Horizontal(s)	H2		10.0	Pass
	Standoff(s)	M7		50.5	Pass
	Bracing(s)	M6		41.1	Pass
	Handrail(s)	M51		7.0	Pass
	Plate(s)	M15		17.0	Pass
	Mount Connection(s)	-		20.8	Pass

Structure Rating (max from all components) =	50.5%
---	--------------

Notes:

- 1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
- 2) See additional documentation in "Appendix D – Additional Calculations" for detailed mount connection calculations.
- 3) Rating per TIA-222-H, Section 15.5

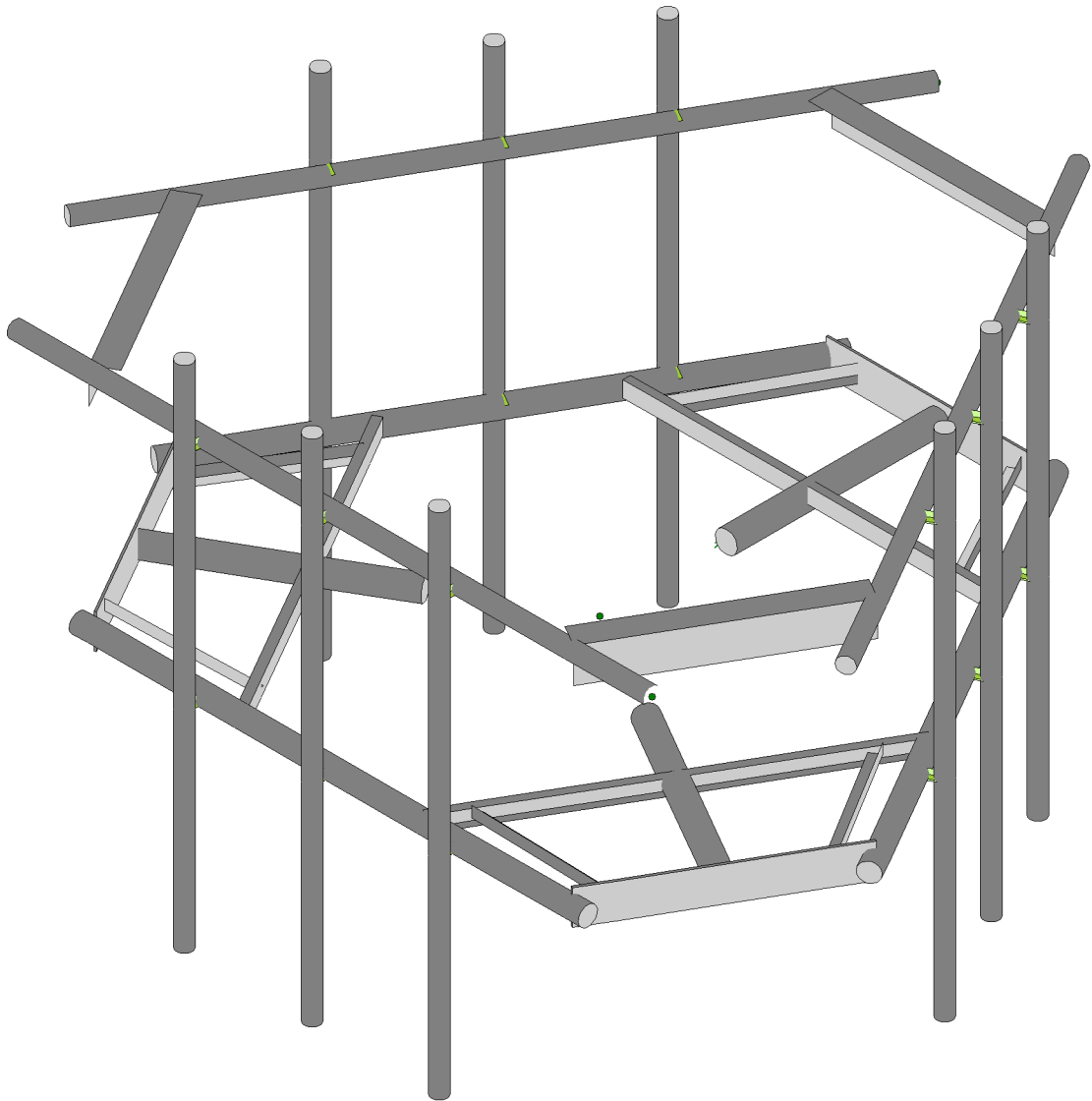
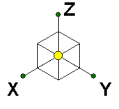
4.1) Recommendations

The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the proposed mount listed below must be installed.

1. Commscope, MC-PK8-DSH.

No structural modifications are required at this time, provided that the above-listed changes are implemented.

APPENDIX A
WIRE FRAME AND RENDERED MODELS

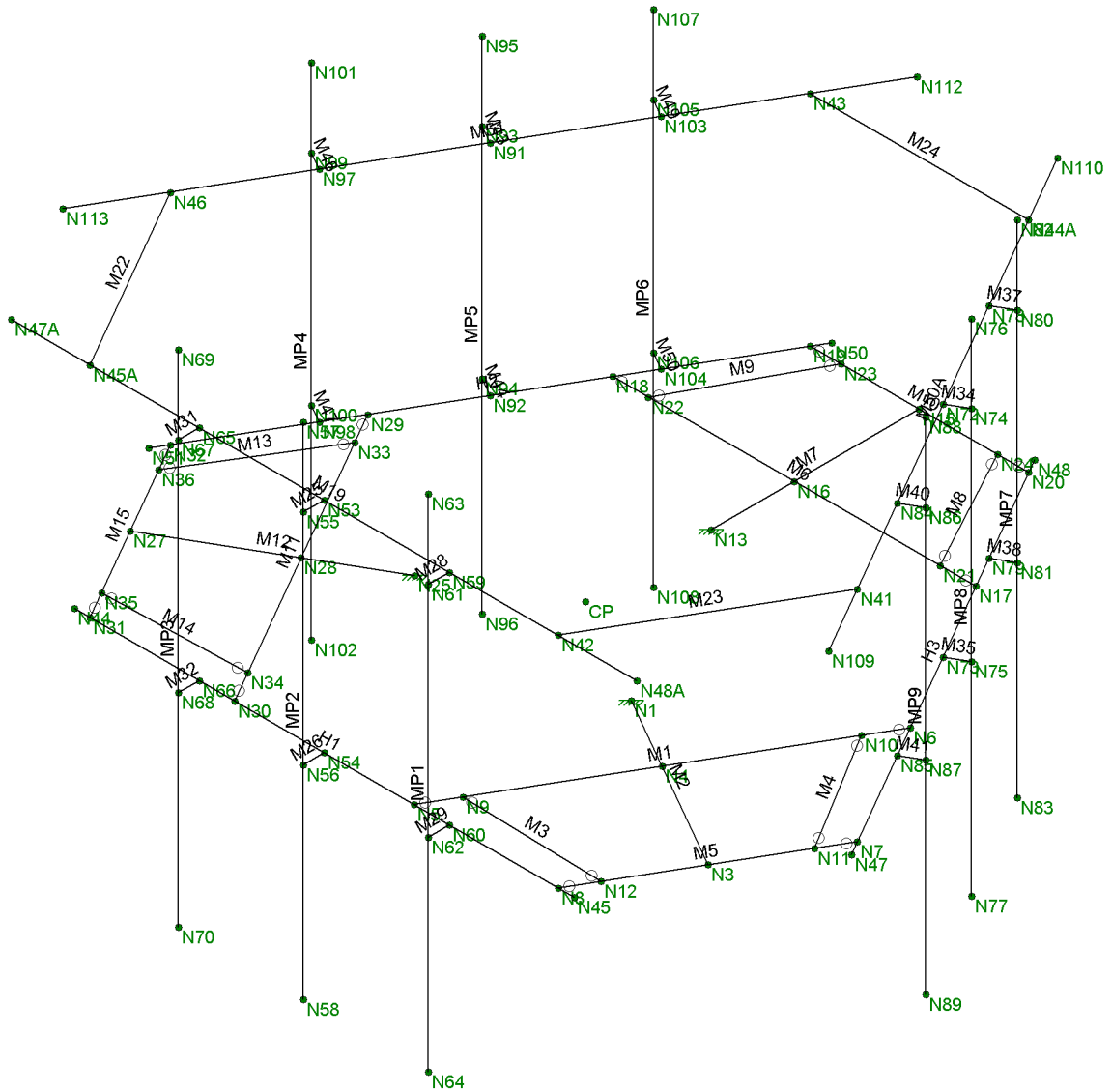
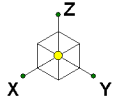


Envelope Only Solution

Trylon
DD
204655

823631

SK - 1
Mar 10, 2022 at 11:57 AM
823631.r3d



Envelope Only Solution

Trylon
DD
204655

823631

SK - 2
Mar 10, 2022 at 11:57 AM
823631.r3d

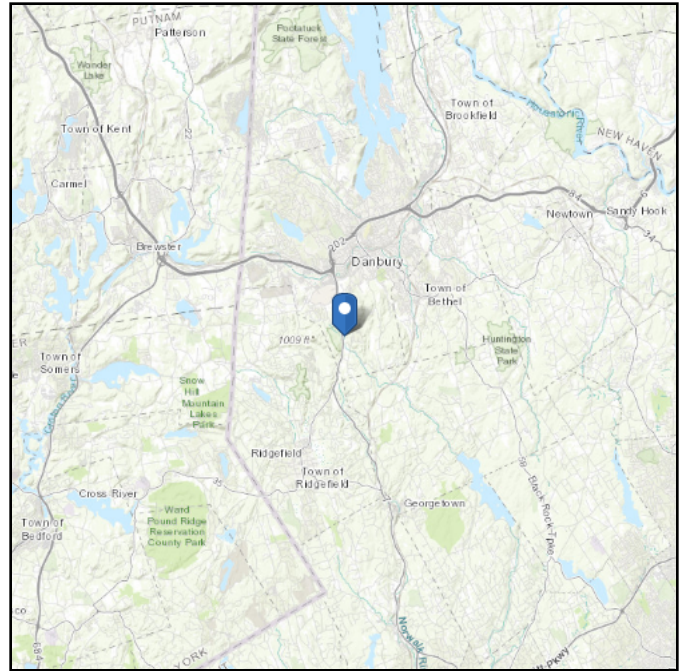
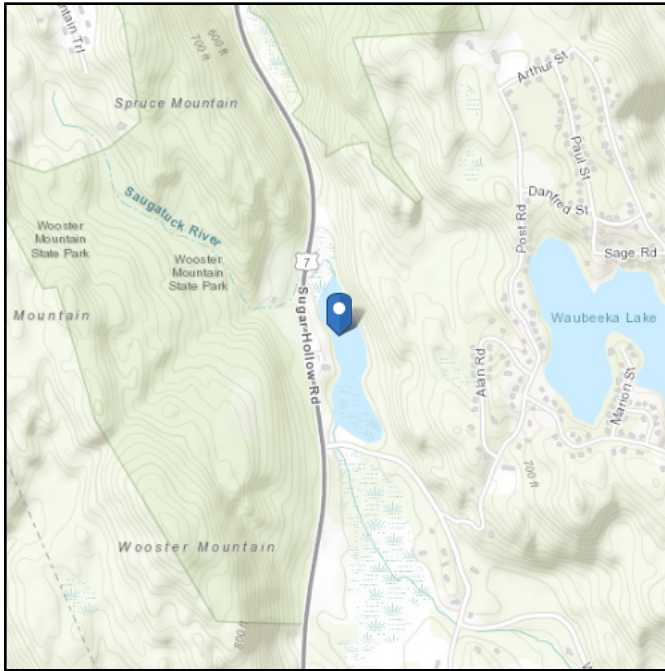
APPENDIX B
SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This
Location

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

Elevation: 496.16 ft (NAVD 88)
Latitude: 41.349722
Longitude: -73.468333



Ice

Results:

Ice Thickness: 0.75 in.
Concurrent Temperature: 15 F
Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8

Date Accessed: Thu Mar 10 2022

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

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

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Trylon

1825 W. Walnut Hill Lane Suite 120
Irving, TX 75038

TIA LOAD CALCULATOR 2.2

PROJECT DATA	
Job Code:	204655
Carrier Site ID:	NJJER02038A
Carrier Site Name:	-

CODES AND STANDARDS	
Building Code:	2015 IBC
Local Building Code:	2018 CSBC
Design Standard:	TIA-222-H

STRUCTURE DETAILS		
Mount Type:	Platform	--
Mount Elevation:	74.0	ft.
Number of Sectors:	3	--
Structure Type:	Monopole	--
Structure Height:	105.0	ft.

ANALYSIS CRITERIA		
Structure Risk Category:	II	--
Exposure Category:	B	--
Site Class:	D - Stiff Soil	--
Ground Elevation:	496.16	ft.

TOPOGRAPHIC DATA		
Topographic Category:	1.00	--
Topographic Feature:	N/A	--
Crest Point Elevation:	0.00	ft.
Base Point Elevation:	0.00	ft.
Crest to Mid-Height (L/2):	0.00	ft.
Distance from Crest (x):	0.00	ft.
Base Topo Factor (K_{zt}):	1.00	--
Mount Topo Factor (K_{zt}):	1.00	--

WIND PARAMETERS		
Design Wind Speed:	120	mph
Wind Escalation Factor (K_s):	1.00	--
Velocity Coefficient (K_z):	0.91	--
Directionality Factor (K_d):	0.95	--
Gust Effect Factor (G_h):	1.00	--
Shielding Factor (K_a):	0.90	--
Velocity Pressure (q_z):	31.19	psf
Ground Elevation Factor (K_e):	0.98	--

ICE PARAMETERS		
Design Ice Wind Speed:	50	mph
Design Ice Thickness (t_i):	1.50	in
Importance Factor (I_i):	1.00	--
Ice Velocity Pressure (q_{zi}):	6.47	psf
Mount Ice Thickness (t_{iz}):	1.63	in

WIND STRUCTURE CALCULATIONS		
Flat Member Pressure:	56.14	psf
Round Member Pressure:	33.69	psf
Ice Wind Pressure:	6.99	psf

SEISMIC PARAMETERS		
Importance Factor (I_e):	1.00	--
Short Period Accel. (S_s):	0.217	g
1 Second Accel. (S_1):	0.067	g
Short Period Des. (S_{DS}):	0.23	g
1 Second Des. (S_{D1}):	0.11	g
Short Period Coeff. (F_a):	1.60	--
1 Second Coeff. (F_v):	2.40	--
Response Coefficient (C_s):	0.12	--
Amplification Factor (A_S):	1.20	--

LOAD COMBINATIONS [LRFD]

#	Description
1	1.4DL
2	1.2DL + 1WL 0 AZI
3	1.2DL + 1WL 30 AZI
4	1.2DL + 1WL 45 AZI
5	1.2DL + 1WL 60 AZI
6	1.2DL + 1WL 90 AZI
7	1.2DL + 1WL 120 AZI
8	1.2DL + 1WL 135 AZI
9	1.2DL + 1WL 150 AZI
10	1.2DL + 1WL 180 AZI
11	1.2DL + 1WL 210 AZI
12	1.2DL + 1WL 225 AZI
13	1.2DL + 1WL 240 AZI
14	1.2DL + 1WL 270 AZI
15	1.2DL + 1WL 300 AZI
16	1.2DL + 1WL 315 AZI
17	1.2DL + 1WL 330 AZI
18	0.9DL + 1WL 0 AZI
19	0.9DL + 1WL 30 AZI
20	0.9DL + 1WL 45 AZI
21	0.9DL + 1WL 60 AZI
22	0.9DL + 1WL 90 AZI
23	0.9DL + 1WL 120 AZI
24	0.9DL + 1WL 135 AZI
25	0.9DL + 1WL 150 AZI
26	0.9DL + 1WL 180 AZI
27	0.9DL + 1WL 210 AZI
28	0.9DL + 1WL 225 AZI
29	0.9DL + 1WL 240 AZI
30	0.9DL + 1WL 270 AZI
31	0.9DL + 1WL 300 AZI
32	0.9DL + 1WL 315 AZI
33	0.9DL + 1WL 330 AZI
34	1.2DL + 1DLi + 1WLi 0 AZI
35	1.2DL + 1DLi + 1WLi 30 AZI
36	1.2DL + 1DLi + 1WLi 45 AZI
37	1.2DL + 1DLi + 1WLi 60 AZI
38	1.2DL + 1DLi + 1WLi 90 AZI
39	1.2DL + 1DLi + 1WLi 120 AZI
40	1.2DL + 1DLi + 1WLi 135 AZI
41	1.2DL + 1DLi + 1WLi 150 AZI

#	Description
42	1.2DL + 1DLi + 1WLi 180 AZI
43	1.2DL + 1DLi + 1WLi 210 AZI
44	1.2DL + 1DLi + 1WLi 225 AZI
45	1.2DL + 1DLi + 1WLi 240 AZI
46	1.2DL + 1DLi + 1WLi 270 AZI
47	1.2DL + 1DLi + 1WLi 300 AZI
48	1.2DL + 1DLi + 1WLi 315 AZI
49	1.2DL + 1DLi + 1WLi 330 AZI
50	(1.2+0.2Sds) + 1.0E 0 AZI
51	(1.2+0.2Sds) + 1.0E 30 AZI
52	(1.2+0.2Sds) + 1.0E 45 AZI
53	(1.2+0.2Sds) + 1.0E 60 AZI
54	(1.2+0.2Sds) + 1.0E 90 AZI
55	(1.2+0.2Sds) + 1.0E 120 AZI
56	(1.2+0.2Sds) + 1.0E 135 AZI
57	(1.2+0.2Sds) + 1.0E 150 AZI
58	(1.2+0.2Sds) + 1.0E 180 AZI
59	(1.2+0.2Sds) + 1.0E 210 AZI
60	(1.2+0.2Sds) + 1.0E 225 AZI
61	(1.2+0.2Sds) + 1.0E 240 AZI
62	(1.2+0.2Sds) + 1.0E 270 AZI
63	(1.2+0.2Sds) + 1.0E 300 AZI
64	(1.2+0.2Sds) + 1.0E 315 AZI
65	(1.2+0.2Sds) + 1.0E 330 AZI
66	(0.9-0.2Sds) + 1.0E 0 AZI
67	(0.9-0.2Sds) + 1.0E 30 AZI
68	(0.9-0.2Sds) + 1.0E 45 AZI
69	(0.9-0.2Sds) + 1.0E 60 AZI
70	(0.9-0.2Sds) + 1.0E 90 AZI
71	(0.9-0.2Sds) + 1.0E 120 AZI
72	(0.9-0.2Sds) + 1.0E 135 AZI
73	(0.9-0.2Sds) + 1.0E 150 AZI
74	(0.9-0.2Sds) + 1.0E 180 AZI
75	(0.9-0.2Sds) + 1.0E 210 AZI
76	(0.9-0.2Sds) + 1.0E 225 AZI
77	(0.9-0.2Sds) + 1.0E 240 AZI
78	(0.9-0.2Sds) + 1.0E 270 AZI
79	(0.9-0.2Sds) + 1.0E 300 AZI
80	(0.9-0.2Sds) + 1.0E 315 AZI
81	(0.9-0.2Sds) + 1.0E 330 AZI
82-88	1.2D + 1.5 Lv1

#	Description
89	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP1
90	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP1
91	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP1
92	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP1
93	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP1
94	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP1
95	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP1
96	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP1
97	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP1
98	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP1
99	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP1
100	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP1
101	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP1
102	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP1
103	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP1
104	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP1
105	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP2
106	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP2
107	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP2
108	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP2
109	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP2
110	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP2
111	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP2
112	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP2
113	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP2
114	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP2
115	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP2
116	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP2
117	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP2
118	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP2
119	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP2
120	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP2

#	Description
121	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP3
122	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP3
123	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP3
124	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP3
125	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP3
126	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP3
127	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP3
128	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP3
129	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP3
130	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP3
131	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP3
132	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP3
133	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP3
134	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP3
135	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP3
136	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP3
137	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP4
138	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP4
139	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP4
140	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP4
141	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP4
142	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP4
143	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP4
144	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP4
145	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP4
146	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP4
147	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP4
148	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP4
149	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP4
150	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP4
151	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP4
152	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP4

*This page shows an example of maintenance loads for (4) pipes, the number of mount pipe LCs may vary per site

EQUIPMENT LOADING [CONT.]

<i>Appurtenance Name</i>	<i>Qty.</i>	<i>Elevation [ft]</i>	<i>--</i>	<i>EPA_N (ft²)</i>	<i>EPA_T (ft²)</i>	<i>Weight (lbs)</i>
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			

EQUIPMENT LATERAL WIND FORCE CALCULATIONS

<i>Appurtenance Name</i>	<i>Qty.</i>	<i>--</i>	<i>0° 180°</i>	<i>30° 210°</i>	<i>60° 240°</i>	<i>90° 270°</i>	<i>120° 300°</i>	<i>150° 330°</i>
MX08FRO665-21	3	No Ice	224.85	123.79	191.17	90.11	191.17	123.79
--	--	w/ Ice	46.89	28.62	40.80	22.53	40.80	28.62
TA08025-B604	3	No Ice	55.12	34.44	48.22	27.54	48.22	34.44
--	--	w/ Ice	11.50	7.58	10.19	6.28	10.19	7.58
TA08025-B605	3	No Ice	55.12	37.56	49.27	31.71	49.27	37.56
--	--	w/ Ice	11.50	8.18	10.39	7.07	10.39	8.18
RDIDC-9181-PF-48	1	No Ice	56.48	38.71	50.56	32.79	50.56	38.71
--	--	w/ Ice	11.76	8.43	10.65	7.32	10.65	8.43
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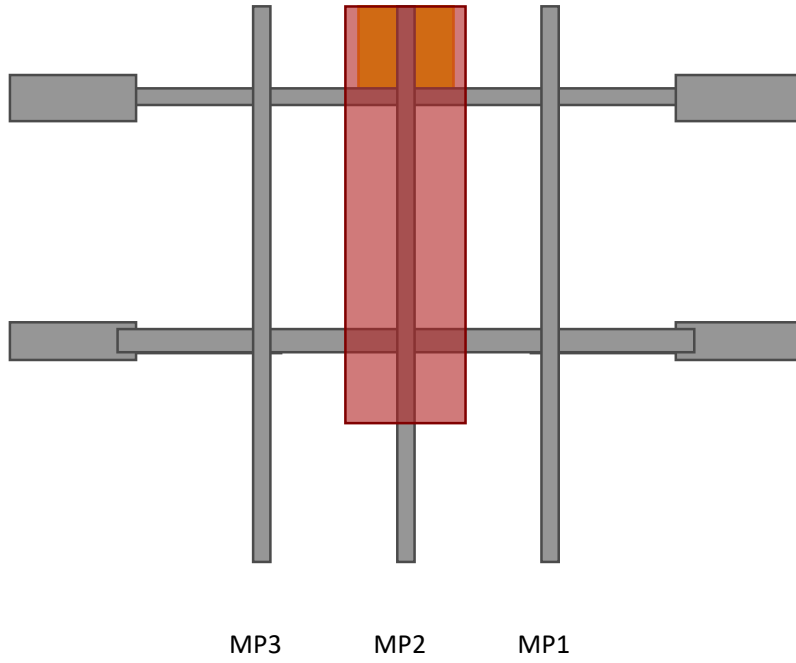
EQUIPMENT LATERAL WIND FORCE CALCULATIONS [CONT.]

<i>Appurtenance Name</i>	<i>Qty.</i>	--	0° 180°	30° 210°	60° 240°	90° 270°	120° 300°	150° 330°
		No Ice						
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EQUIPMENT SEISMIC FORCE CALCULATIONS

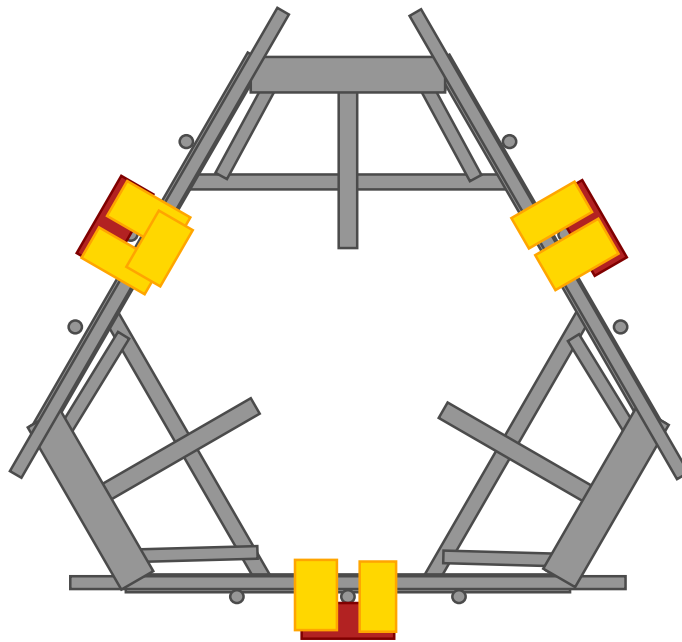
<i>Appurtenance Name</i>	<i>Qty.</i>	<i>Elevation [ft]</i>	<i>Weight [lbs]</i>	<i>F_p [lbs]</i>
MX08FRO665-21	3	74	82.5	11.46
TA08025-B604	3	74	63.9	8.87
TA08025-B605	3	74	75	10.42
RDIDC-9181-PF-48	1	74	21.85	3.03

ELEVATION VIEW



*Elevation View Shows Alpha Sector Only

PLAN VIEW



Equipment Name	Total Quantity	Antenna Centerline	Mount Pipe Positions	Equipment Azimuths
MX08FRO665-21	3	74	MP2/MP5/MP8	0/120/240
TA08025-B604	3	74	MP2/MP5/MP8	90/210/330
TA08025-B605	3	74	MP2/MP5/MP8	90/210/330
RDIDC-9181-PF-48	1	74	MP5	120

APPENDIX C
SOFTWARE ANALYSIS OUTPUT

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APPENDIX D
ADDITIONAL CALCULATIONS

BOLT TOOL 1.5.2

Project Data	
Job Code:	204655
Carrier Site ID:	NJJER02038A
Carrier Site Name:	-

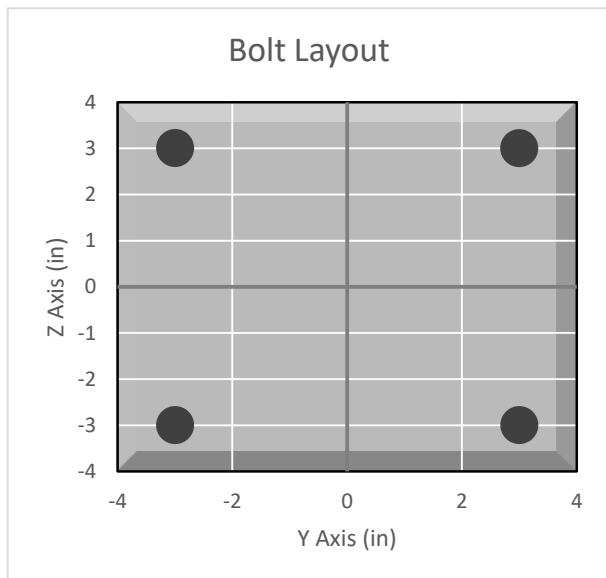
Code	
Design Standard:	TIA-222-H
Slip Check:	No
Pretension Standard:	AISC

Bolt Properties		
Connection Type:	Bolt	
Diameter:	0.625	in
Grade:	A325	--
Yield Strength (Fy):	92	ksi
Ultimate Strength (Fu):	120	ksi
Number of Bolts:	4	--
Threads Included:	Yes	--
Double Shear:	No	--
Connection Pipe Size:	-	in

Connection Description
Standoff to Monopole

Bolt Check*		
Tensile Capacity (ϕT_n):	20340.1	lbs
Shear Capacity (ϕV_n):	13805.8	lbs
Tension Force (T_u):	4450.7	lbs
Shear Force (V_u):	522.1	lbs
Tension Usage:	20.8%	--
Shear Usage:	3.6%	--
Interaction:	20.8%	Pass
Controlling Member:	M12	--
Controlling LC:	42	--

*Rating per TIA-222-H Section 15.5



APPENDIX E
SUPPLEMENTAL DRAWINGS

4

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NOTES:

1.0 GENERAL

- 1.1 ALL METRIC DIMENSIONS ARE IN BRACKETS
- 1.2 FOR PATENTS, SEE WWW.CS-PAT.COM

2.0 DESIGN NOTES

- 2.1 TIGHTEN ALL BOLTS SECURING FLAT PLATES BY THE TURN-OF-NUT METHOD.
- TIGHTEN ALL U-BOLTS USING TURN-OF-NUT METHOD WITH ATTENTION TO LEAVE EQUAL DISTANCE AND EQUAL FORCE ON EACH LEG OF THE U-BOLT.

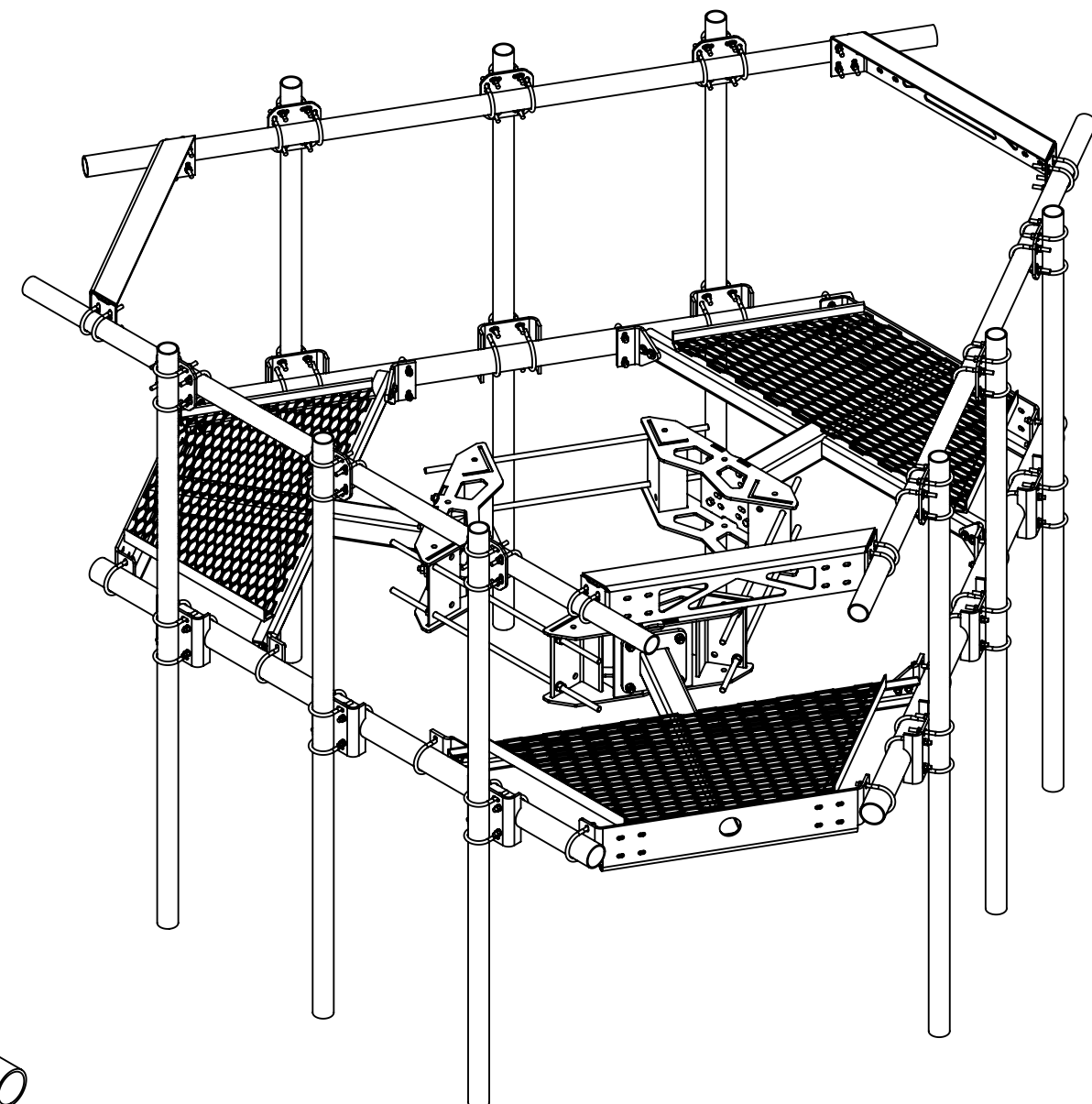
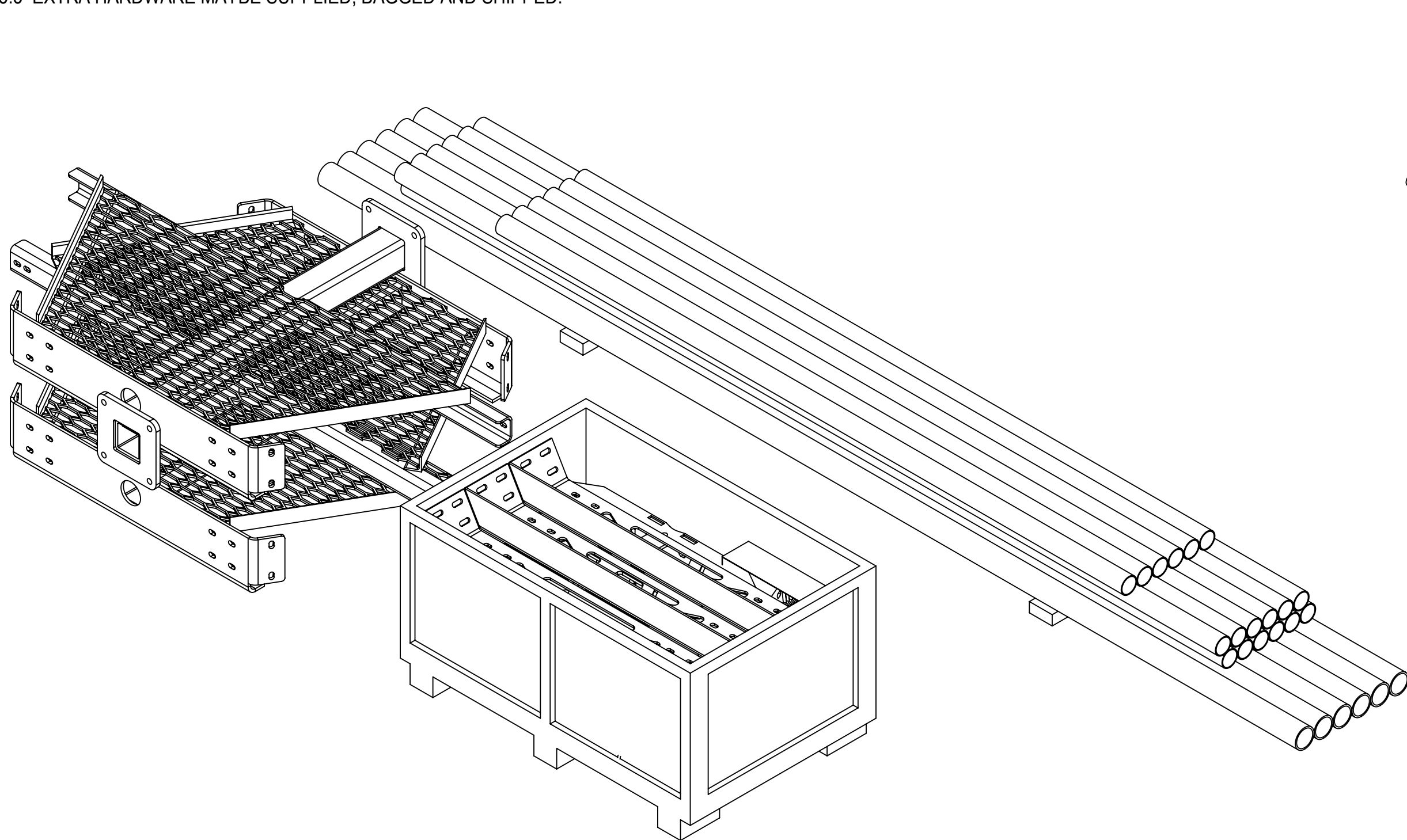
3.0 MANUFACTURING/SPECIAL REQUIREMENTS

4.0 TEST

5.0 PACKAGING

- 5.1 PACKAGING SHALL MEET COMMScope REQUIREMENTS PER DOCUMENT IS-PL-3005.
- 5.2 PRINTED DOCUMENT TO BE PLACED INSIDE POLYBAG AND THEN IN SHIPPING CONTAINER.
- 5.3 EXTRA HARDWARE MAYBE SUPPLIED, BAGGED AND SHIPPED.

REVISIONS				
REV.	ECN	DESCRIPTION	BY	DATE
A	10272PC	INITIAL RELEASE	HDAI	03/08/2021
B	14762	SHEET 1: UPDATED NOTE 2.1 & ADDED NOTE 5.1 TO 5.2 SHEET2: REPOSITION ANTENNA PIPES; CHANGED HAND RAIL DISTANCE FROM PLATFORM: 42" WAS 40" IN ZONE B3; DIM Ø 12 WAS Ø 15 IN ZONE D3; UPDATED ITEM 4: GB-0522A WAS GB-0520A	JL1183	09/10/2021
c	40139639CMO	ADDED WEIGHT AND MASS INFORMATION	LL1090	12/07/2021



PATENT PENDING

COMMScope, INC. OF NORTH CAROLINA									
TOLERANCES					SAP MATERIAL MASTER				
1 PLACE .X ± .25		3 PLACE .XXX ± 0.06			MC-PK8-DSH				
2 PLACE .XX ± 0.12		ANGLES ± 2°							
FINISH GALV A123					MATERIAL SEE SEPARATE BILLS OF MATERIAL				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES INTERPRET PER ANSI Y 14.5M-1994	CE	MRC	02/17/20	LOW PROFILE PLATFORM FACE					
	RW	LL1090	12/07/2021						
	AD	VCORTEZ1	12/09/2021						
	RE	VCORTEZ1	12/09/2021						
	ECN 40139639CMO								
SCALE 1:32		DOCUMENT NO. MC-PK8-DSH							
SIZE	Auth Group	INSL	MODEL			DRAWING			SHEET
C			VERSION	STATUS	REVISION	VERSION	STATUS	REVISION	1 OF 3
			03	RE	B	02	RE	C	

DENSITY		lbs/in³
MASS	1801.56	lbs
VOLUME	6362.00	in³
SURFACE AREA	55884.77	in²
HEIGHT	96"	
LENGTH	46"	
WIDTH	29'	

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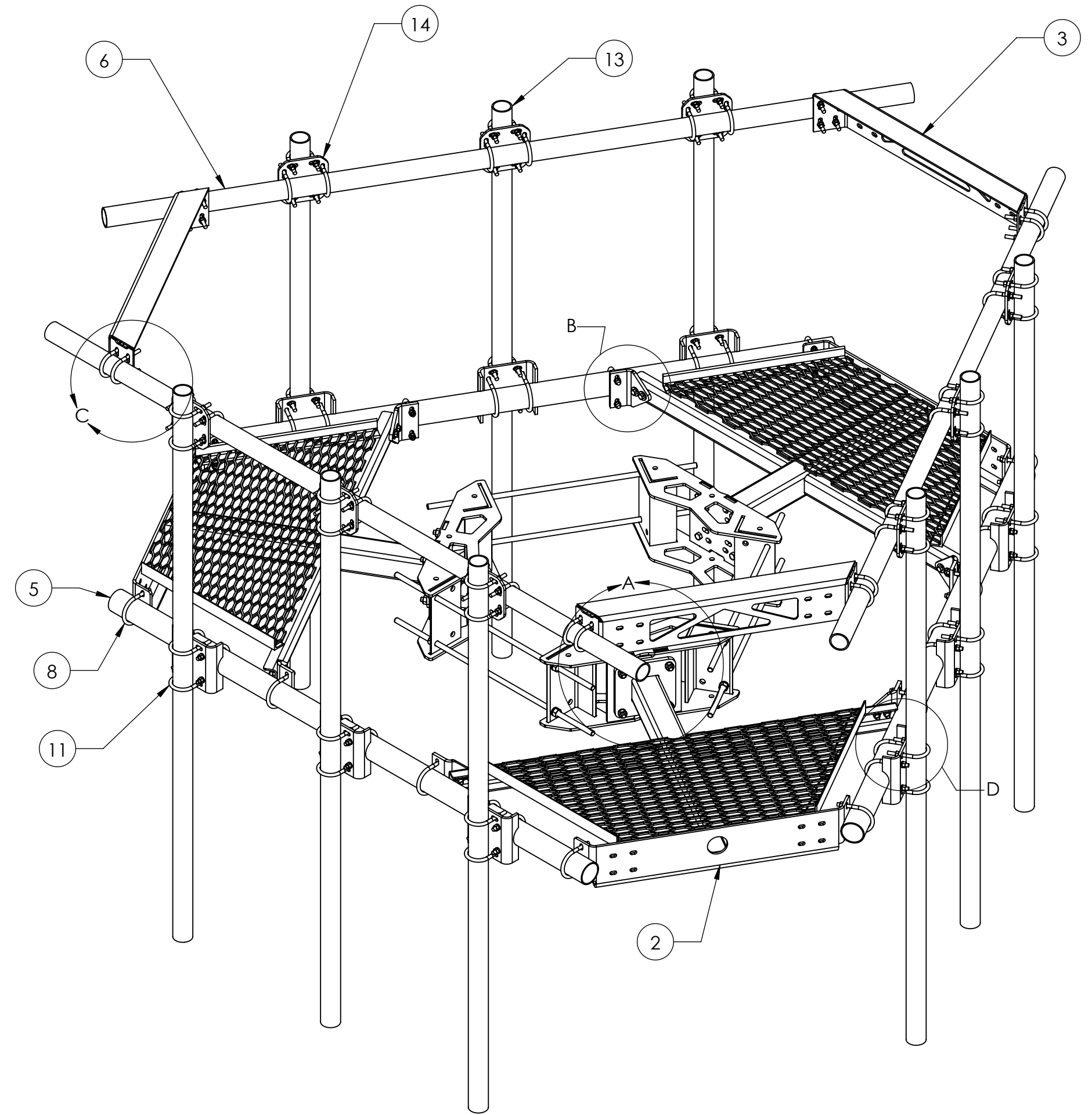
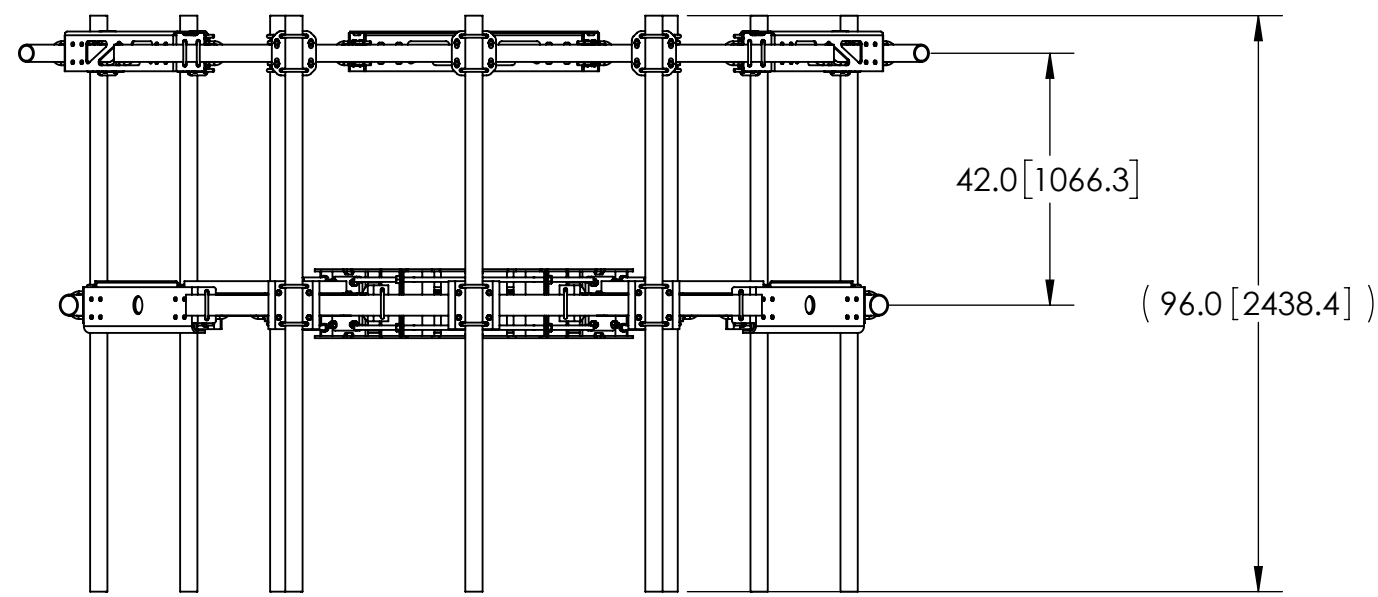
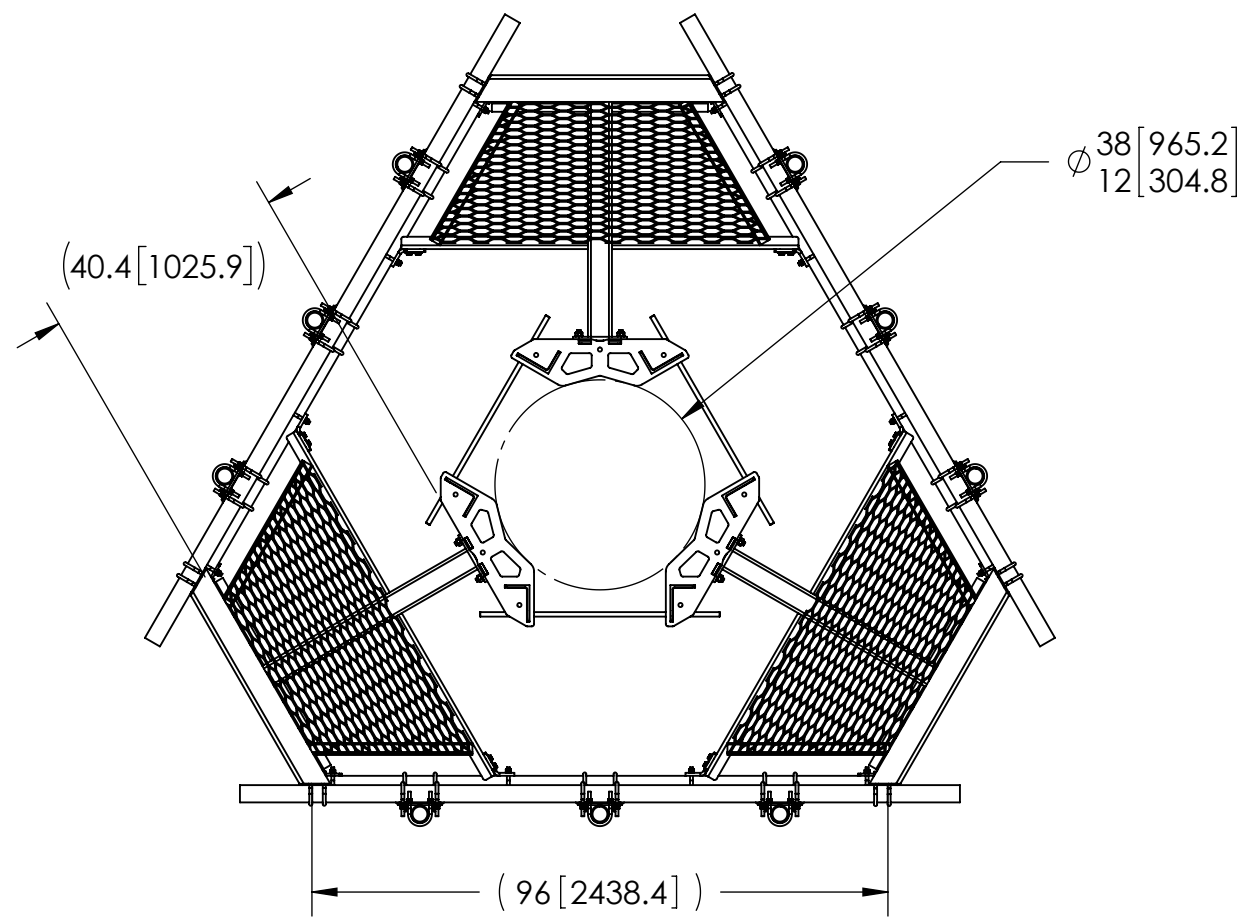
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NOTES:



BOM IS FOR REFERENCE ONLY, PART NUMBER SUBSTITUTIONS MAY BE MADE

ITEM	PART NO.	DESCRIPTION	QTY.
1	MC-RM1550-3	12" - 50" OD RINGMOUNT	1
2	MTC300602	SECTOR WELDMENT FOR SNUB NOSE PLATFORM	3
3	MT195801	Corner Weldment Snub Nose Handrail	3
4	GB-0522A	5/8" X 2-1/4" GALV BOLT KIT (A325)	12
5	MT54796	3.50" OD X 96" GALV PIPE	3
6	MT546120	2.875" O.D. X 120" PIPE	3
7	GWF-04	1/2" GALV FLAT WASHER	12
8	GUB-4355	1/2" X 3-5/8" X 5" GALV U-BOLT	12
9	MTC300618	MOUNTING PLATE FOR MT-196	6
10	GB-04205	1/2" X 2" GALV BOLT KIT	12
11	MT-219M-H	3.5" OD X 2-7/8" OD CLAMP BRACKET ASSY	9
12	GUB-4352	1/2" X 3" X 5-1/4" GALV U-BOLT	12
13	MT54696	Ø 2.875" O.D. X 96" PIPE	9
14	XP-2525	CROSSOVER PLATE KIT, 2-7/8 OD X 2-7/8 OD	9

COMMScope, INC. OF NORTH CAROLINA

TITLE
LOW PROFILE PLATFORM FACE

SIZE C SCALE 1:32 DOCUMENT NO. MC-PK8-DSH

DRAWING			SHEET
VERSION	STATUS	REVISION	
02	RE	C	

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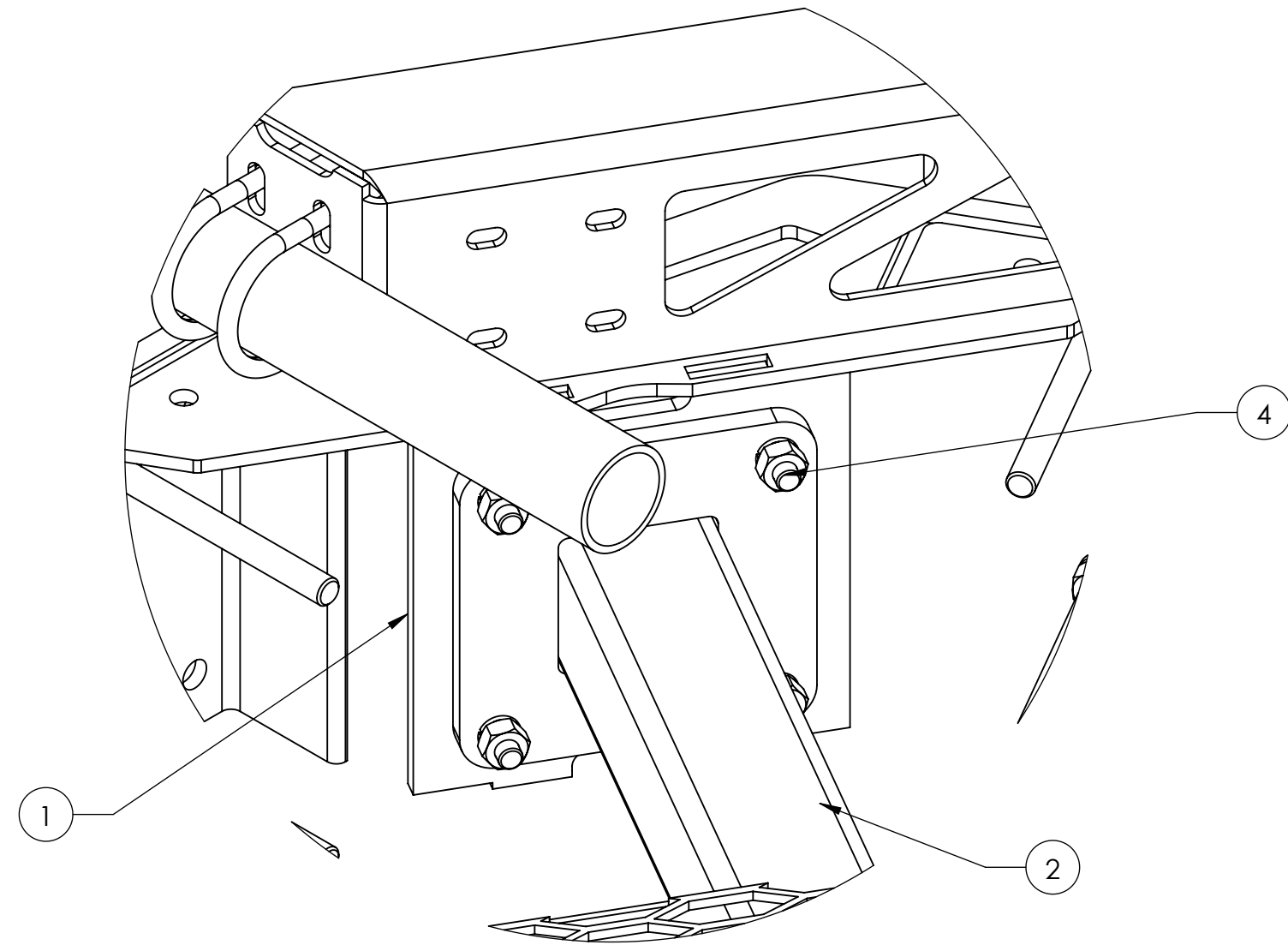
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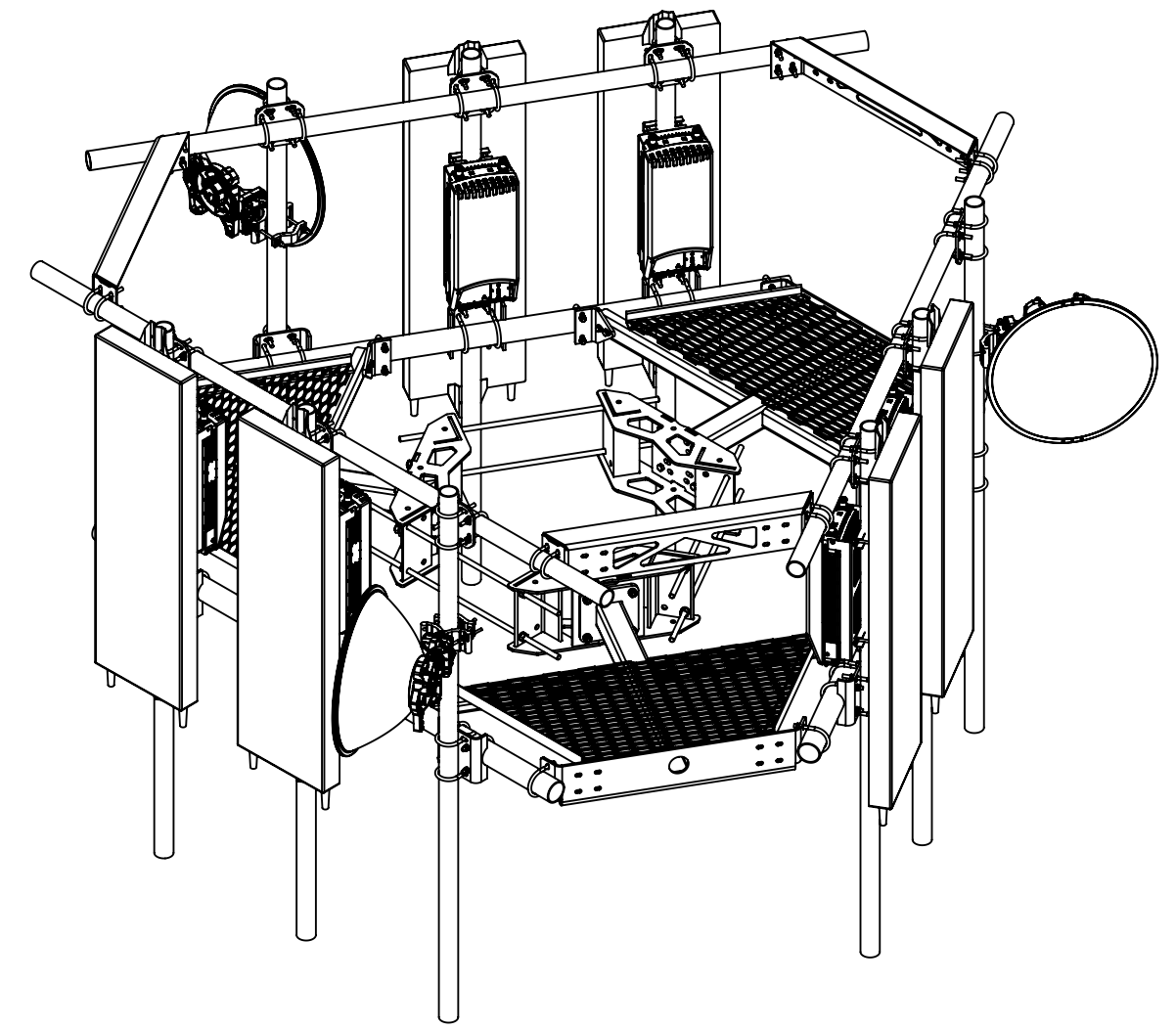
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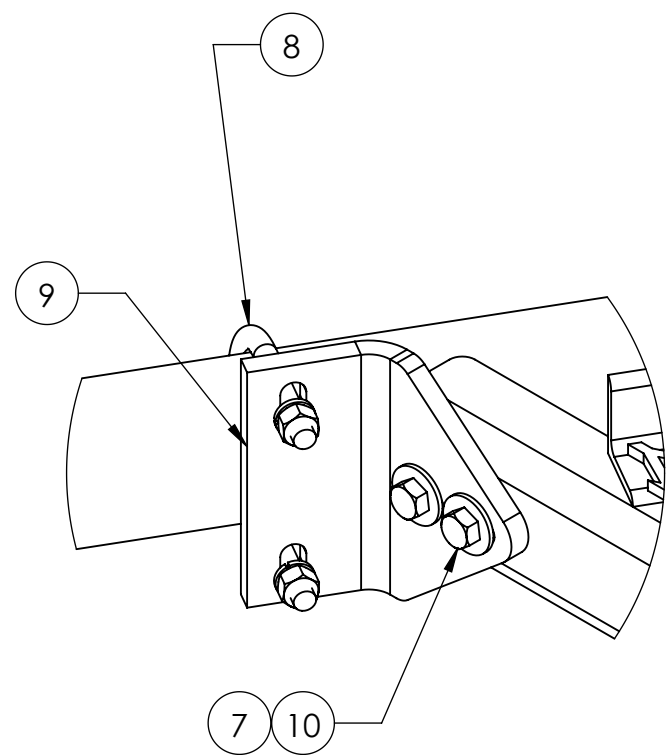
NOTES:



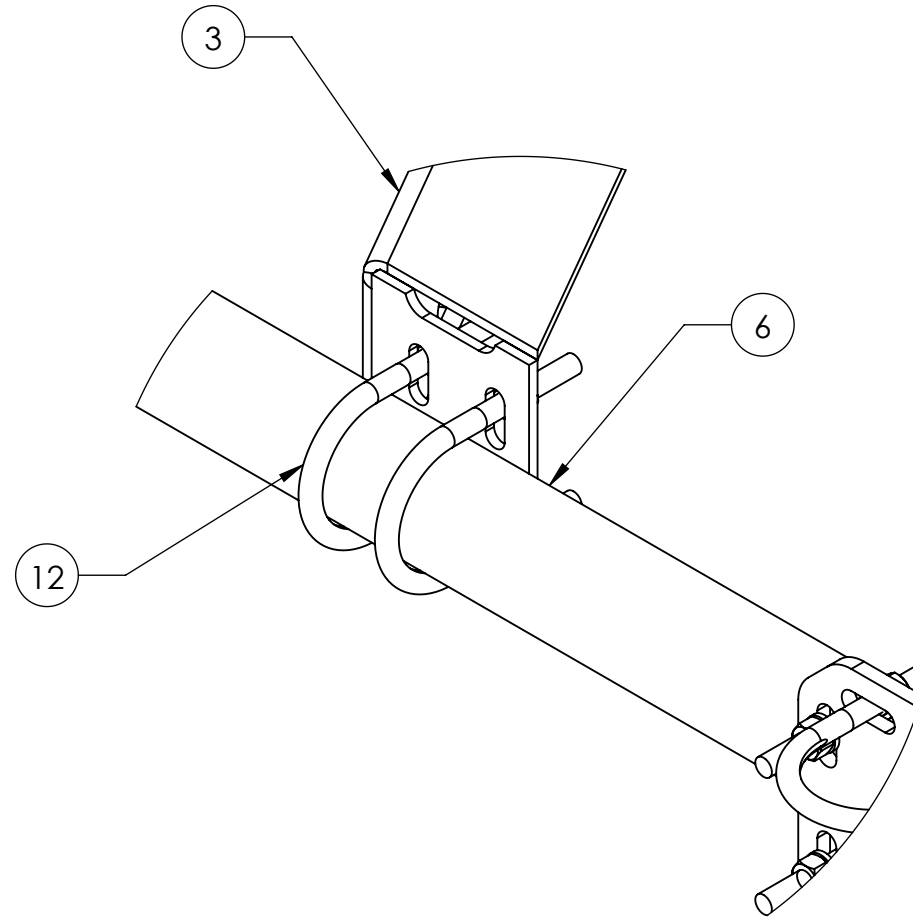
DETAIL A
SCALE 1 : 4



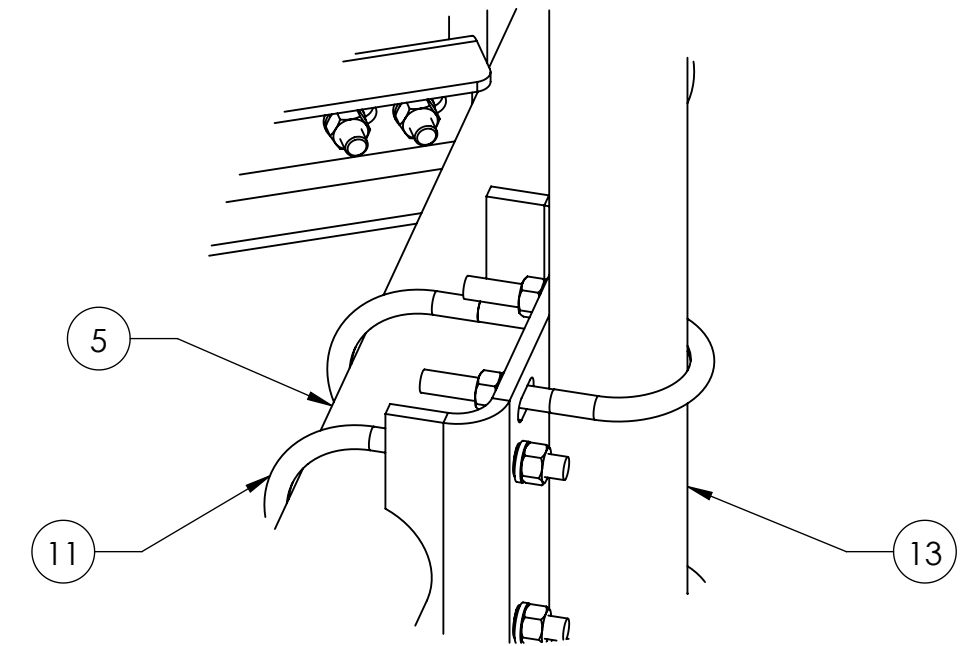
WITH ANTENNAS



DETAIL B
SCALE 1 : 4



DETAIL C
SCALE 1 : 4



DETAIL D
SCALE 1 : 4

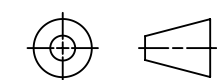
COMMSCOPE, INC. OF NORTH CAROLINA

TITLE
LOW PROFILE PLATFORM FACE

SIZE C	SCALE 1:24	DOCUMENT NO. MC-PK8-DSH
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DRAWING			SHEET 3 OF 3
VERSION 02	STATUS RE	REVISION C	

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Exhibit F

Power Density/RF Emissions Report

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

Dish Wireless Existing Facility

Site ID: 823631

NJJER02038A

36 Sugar Hollow Road

Danbury, Connecticut 06810

May 27, 2022

EBI Project Number: 6222003437

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	10.69%

May 27, 2022

Attn: Dish Wireless

Emissions Analysis for Site: 823631 - NJJER02038A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **36 Sugar Hollow Road in Danbury, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless Wireless antenna facility located at 36 Sugar Hollow Road in Danbury, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

- 1) 4 n71 channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 4 n70 channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 3) 4 n66 channels (AWS Band - 2190 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 5) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative

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

- 6) The antennas used in this modeling are the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector A, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector B, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 7) The antenna mounting height centerline of the proposed antennas is 74 feet above ground level (AGL).
- 8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 9) All calculations were done with respect to uncontrolled / general population threshold limits.

Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21
Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz
Gain:	11.35 dBd / 15.75 dBd / 16.75 dBd	Gain:	11.35 dBd / 15.75 dBd / 16.75 dBd	Gain:	11.35 dBd / 15.75 dBd / 16.75 dBd
Height (AGL):	74 feet	Height (AGL):	74 feet	Height (AGL):	74 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	440.00 Watts	Total TX Power (W):	440.00 Watts	Total TX Power (W):	440.00 Watts
ERP (W):	2,524.75	ERP (W):	2,524.75	ERP (W):	2,524.75
Antenna AI MPE %:	2.48%	Antenna BI MPE %:	2.48%	Antenna CI MPE %:	2.48%

Site Composite MPE %	
Carrier	MPE %
Dish Wireless (Max at Sector A):	2.48%
T-Mobile	6.7%
Metro PCS	0.6%
Nextel	0.91%
Site Total MPE % :	10.69%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	2.48%
Dish Wireless Sector B Total:	2.48%
Dish Wireless Sector C Total:	2.48%
Site Total MPE % :	10.69%

Dish Wireless Maximum MPE Power Values (Sector A)							
Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
Dish Wireless 600 MHz n71	4	110.82	74.0	3.45	600 MHz n71	400	0.86%
Dish Wireless 1900 MHz n70	4	245.22	74.0	7.63	1900 MHz n70	1000	0.76%
Dish Wireless 2190 MHz n66	4	275.14	74.0	8.56	2190 MHz n66	1000	0.86%
						Total:	2.48%

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

Summary

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

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

Dish Wireless Sector	Power Density Value (%)
Sector A:	2.48%
Sector B:	2.48%
Sector C:	2.48%
Dish Wireless Maximum MPE % (Sector A):	2.48%
Site Total:	10.69%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **10.69%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Exhibit G

Letter of Authorization



1200 MacArthur Blvd, Suite 200
Mahwah, NJ 07430

Phone: (862) 226-6914
www.crowncastle.com

Crown Castle Letter of Authorization

CT - CONNECTICUT SITING COUNCIL

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

Re: Tower Share Application
Crown Castle telecommunications site at:
36 SUGAR HOLLOW ROAD, DANBURY, CT 06810

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

Crown Site ID/Name: 823631/Danbury/Rt 7
Customer Site ID: NJJER02038A/
Site Address: 36 Sugar Hollow Road, Danbury, CT 06810

Crown Castle



By:  _____ Date: 04/22/2022
Robin Cannizzaro
Real Estate Specialist

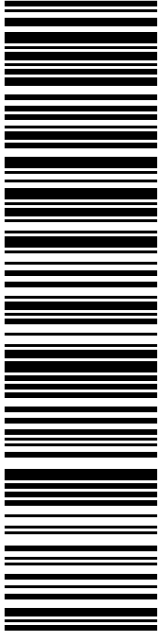
Exhibit H

Recipient Mailings



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

USPS TRACKING #



9405 5036 9930 0263 9141 74

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

Expected Delivery Date: 06/04/22
Ref#: DS-823631
0006


R013

P

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Trans. #: 564789217	Priority Mail® Postage: \$8.95
Print Date: 06/02/2022	Total: \$8.95
Ship Date: 06/02/2022	
Expected Delivery Date: 06/04/2022	

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


Ref#: DS-823631

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

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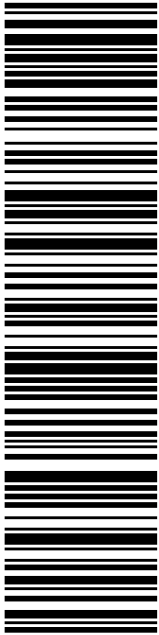


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DEAN ESPOSITO
MAYOR - DANBURY
155 DEER HILL AVE
DANBURY CT 06810-7726

USPS TRACKING #



9405 5036 9930 0263 9141 98

P

06/02/2022

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C005


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Trans. #:	564789217
Print Date:	06/02/2022
Ship Date:	06/02/2022
Expected Delivery Date:	06/04/2022
Priority Mail® Postage:	\$8.95
Total:	\$8.95
From:	DEBORAH CHASE NORTHEAST SITE SOLUTIONS 420 MAIN ST STE 1 STURBRIDGE MA 01566-1359
To:	DEAN ESPOSITO MAYOR - DANBURY 155 DEER HILL AVE DANBURY CT 06810-7726
Ref#:	DS-823631
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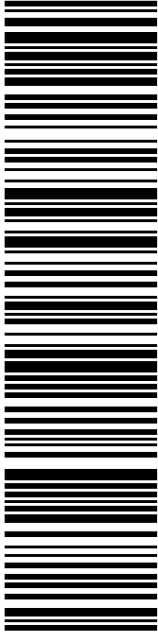
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SHARON CALITRO
DIRECTOR OF PLANNING & ZONING
155 DEER HILL AVE
DANBURY CT 06810-7726

USPS TRACKING #



9405 5036 9930 0263 9142 11

P

06/02/2022

Expected Delivery Date: 06/04/22
Ref#: DS-823631
0006

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0263 9142 11

Trans. #: 564789217	Priority Mail® Postage: \$8.95
Print Date: 06/02/2022	Total: \$8.95
Ship Date: 06/02/2022	
Expected Delivery Date: 06/04/2022	

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


Ref#: DS-823631

To: SHARON CALITRO
DIRECTOR OF PLANNING & ZONING
155 DEER HILL AVE
DANBURY CT 06810-7726

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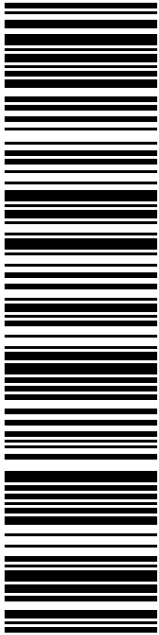


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DANBURY LODGE NO. 120 OF THE BPOE OF
3 SUGAR HOLLOW RD
DANBURY CT 06810-7401

USPS TRACKING #



9405 5036 9930 0263 9142 35



Electronic Rate Approved #038555749

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USPS TRACKING #
9405 5036 9930 0263 9142 35 0089 5000 0020 6810
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NORTHEAST SITE SOLUTIONS
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C020



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- Mail your package on the "Ship Date" you selected when creating this label.

Click-N-Ship® Label Record

USPS TRACKING # :	
9405 5036 9930 0263 9142 35	
Trans. #:	564789217
Print Date:	06/02/2022
Ship Date:	06/02/2022
Expected Delivery Date:	06/04/2022
Priority Mail® Postage:	\$8.95
Total:	\$8.95
From:	DEBORAH CHASE NORTHEAST SITE SOLUTIONS 420 MAIN ST STE 1 STURBRIDGE MA 01566-1359
To:	DANBURY LODGE NO. 120 OF THE BPOE OF ELKS INC 3 SUGAR HOLLOW RD DANBURY CT 06810-7401
	Ref#: DS-823631
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823631

Crown DSL



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

06/07/2022 08:49 AM

Product	Qty	Unit Price	Price
Prepaid Mail West Henrietta, NY 14586 Weight: 0 lb 2.00 oz Acceptance Date: Tue 06/07/2022 Tracking #: 9405 5036 9930 0263 9141 74	1		\$0.00
Prepaid Mail Danbury, CT 06810 Weight: 0 lb 9.30 oz Acceptance Date: Tue 06/07/2022 Tracking #: 9405 5036 9930 0263 9141 98	1		\$0.00
Prepaid Mail Danbury, CT 06810 Weight: 0 lb 9.30 oz Acceptance Date: Tue 06/07/2022 Tracking #: 9405 5036 9930 0263 9142 35	1		\$0.00
Prepaid Mail Danbury, CT 06810 Weight: 0 lb 9.30 oz Acceptance Date: Tue 06/07/2022 Tracking #: 9405 5036 9930 0263 9142 11	1		\$0.00
Grand Total:			\$0.00

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