



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

November 8, 2021

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

RE: Exempt Modification Application
280 Elm Street, Naugatuck CT 06770
Latitude: 41.481250
Longitude: 73.053250
Site#: 87631_Crown_Dish

Dear Ms. Bachman:

Based on the 2020 merger between T-Mobile and Sprint, and as part of the agreement, the DOJ required T-Mobile to divest some sites to Dish in order to create an additional wireless provider. This site is part of the agreement.

Dish Wireless LLC is requesting to file an exempt modification for an existing tower located at 280 Elm Street, Naugatuck CT 06770. Dish Wireless LLC proposes to install three (3) antennas at the 142-foot level of the existing 150-foot tower. The property is owned by Lanxess Corporation and the tower is owned by Crown Castle. This modification includes hardware that is 5G capable.

Dish Wireless LLC Planned Modifications:

Remove:

- (2) Antenna mounts (at 142-ft & 134-ft)
- (3) APX18
- (12) Decibel Antenna

Remove and Replace: NONE

Install New:

- (1) Commscope MC-PK8-DSH platform mount
- (3) LMA MX08FRO665-20 Antenna
- (3) TA08025-B604 RRU
- (3) TA08025-B605 RRU
- (1) Raycap
- (1) 1-5/8" Hybrid (Inside Pole)

Existing to Remain: NONE



NSS **NORTHEAST**
SITE SOLUTIONS
Turnkey Wireless Development

Ground Work: (within existing compound)

New H-Frame
Equipment Cabinet
Power/Telco Cabinet
Ice Bridge
7'x 5' Steel Platform

The facility was approved by the Naugatuck Zoning Commission on September 18, 1997. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-SOj-73, a copy of this letter is being sent to Mayor N. Warren Hess III, Elected Official and Lori Rotella, Town Planner for the Borough of Naugatuck, as well as the property owner and the tower owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, Dish Wireless LLC respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

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



NSS

NORTHEAST
SITE SOLUTIONS

Turnkey Wireless Development

Attachments cc:

N. Warren Hess III, Mayor
Borough of Naugatuck Mayor Office
229 Church Street 2nd Fl, Naugatuck CT 06770

Lori Rotella, Town Planner
Borough of Naugatuck Planning & Zoning
229 Church Street 2nd Fl, Naugatuck CT 06770

Lanxess Corporation, Property Owner
111 Ride Park West Dr, Pittsburgh PA 15275

Mail to:

Lanxess Solutions US Inc
2 Armstrong Rd, Shelton CT 06484

Crown Castle, Tower Owner

Exhibit A

Original Facility Approval

**HARRIS
BEACH &
WILCOX**

A LIMITED LIABILITY PARTNERSHIP

ATTORNEYS AT LAW

147 NORTH BROAD STREET
PO. BOX 112
MILFORD, CONNECTICUT 06460-0112
(203) 877-8000
(203) 878-9800 (Fax)

MEMORANDUM

DATE: September 18, 1997
TO: Christine Rosenthal
FROM: John W. Knuff, Esq.
RE: Naugatuck; Site No. 035
CC: Steve Paisner
Steve Kotfla
Scott Chasse
Steve Crotty

Pete Gardell and I appeared before the Naugatuck Zoning Commission to present Sprint's application for a Special Permit and Site Plan review. The commission closed the public hearing and voted 4-1 to approve the application.

I will record the Special Permit as soon as I receive it and a building application can be submitted.

COPENHAGEN
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LIVORNO
LONDON

PARIS
OSLO

WASHINGTON DC
MILFORD, CT
HARTFORD, CT

ALBANY
BUFFALO

NEW YORK
ITHACA
NEW YORK CITY

ROCHESTER
SYRACUSE

**HARRIS
BEACH &
WILCOX**

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147 NORTH BROAD STREET
PO. BOX 112
MILFORD, CONNECTICUT 06460-0112
(203) 877-8000
(800) 874-9800 (Fax)

Memorandum

To: Christine Rosenthal

cc.: Steve Paisner
Steve Kotfila
Scott Chasse
Steve Crotty

From: John W. Knuff, Esq.

Date: September 9, 1997

Re.: Naugatuck 035

Last night I appeared before the Naugatuck Planning Commission in regard to Sprint's application for a Special Permit. The commission unanimously approved the application. The practical effect of the approval is that the application can now be approved by a simple majority of the Zoning Commission; if the Planning Commission had disapproved the application, four out of a possible five votes would be required for approval from the Zoning Commission. The Zoning Commission will conduct its public hearing on September 17, 1997.

COPELHAGEN
KENTLAND

AFFILIATES
LYONS
LONDON

PAJOS
CALO

WASHINGTON, DC
MILFORD, CT
BLACKSBACK, NJ

ALBANY
BUFFALO

NEW YORK
ITHACA
NEW YORK CITY

ROCHESTER
SYRACUSE

**HARRIS
BEACH &
WILCOX**

A LIMITED LIABILITY PARTNERSHIP

ATTORNEYS AT LAW

147 NORTH BROAD STREET
P.O. BOX 112
MILFORD, CONNECTICUT 06460-0112
(203) 877-0000
(203) 878-0000 (Fax)

MEMORANDUM

DATE: August 15, 1997
TO: Christine Rosenthal
Steve Paisner
Steve Kotfila
Scott Chase
Steve Crotty
Jennifer Charland
FROM: John W. Knuff, Esq.
RE: Naugatuck; Site No. 035

On Wednesday night I attended the meeting of the Naugatuck Inland Wetland Commission during which the Commission voted unanimously to approve Sprint's application for soil erosion control.

COPENHAGEN
KOBLENZ

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LONDON

PARIS
OSLO

WASHINGTON, DC
MILFORD, CT
MADISON, NJ

ALBANY
BUFFALO

NEW YORK
ITHACA
NEW YORK CITY

ROCHESTER
SYRACUSE

MEMORANDUM

DATE: July 17, 1997
TO: Christine Rosenthal
FROM: John W. Knuff, Esq.
RE: Naugatuck Site No. 035

**HARRIS
BEACH &
WILCOX**
A LIMITED LIABILITY PARTNERSHIP
ATTORNEYS AT LAW
147 NORTH BROAD STREET
P.O. BOX 112
MILFORD, CONNECTICUT 06460-0112
(203) 877-8000
(203) 878-9800 (Fax)

Last night, Justin Moses, Tim Crotty and I appeared before the Naugatuck Architectural Review Board to present Sprint's application for architectural review. It was pointed out that the site was in harmony with neighboring uses because the site is within an industrial zone, is across the street from the main Uniroyal plant, substantial screening exists and the site is at a substantially lower ground elevation than the neighboring houses. After further discussion, the Board unanimously approved the application.

I also attended the Zoning Commission hearing after the Architectural Review Board meeting. The Zoning Commission officially accepted Sprint's application for a special permit and scheduled it to be heard at a public hearing on August 20, 1997.

COPENHAGEN
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LIVORNO
LONDON
PALERMO
CHICAGO

WASHINGTON DC
MILFORD, CT
HACKENSACK, NJ

ALBANY
BUFFALO
NEW YORK
ITHACA
NEW YORK CITY
ROCHESTER
SYRACUSE

Exhibit B

Property Card



Town of Naugatuck, CT

Property Listing Report

Map Block Lot

5.5-20W20

Building # 1

PID

128902

Account

068-7770

Property Information

| | |
|-------------------|--|
| Property Location | 0 ELM ST |
| Owner | LANXESS CORPORATION |
| Co-Owner | |
| Mailing Address | 111 RIDC PARK WEST DR PITTSBURGH PA 15275 |
| Land Use | 4400 VACANT IND |
| Land Class | I |
| Zoning Code | |
| Census Tract | |

| | |
|------------------|-----------|
| Neighborhood | J |
| Acreage | 86.56 |
| Utilities | |
| Lot Setting/Desc | |
| Book / Page | 1064/0694 |
| Additional Info | |

Photo



Sketch



Primary Construction Details

| | |
|-------------------|------------|
| Year Built | 0 |
| Building Desc. | VACANT IND |
| Building Style | UNKNOWN |
| Building Grade | |
| Stories | |
| Occupancy | |
| Exterior Walls | |
| Exterior Walls 2 | NA |
| Roof Style | |
| Roof Cover | |
| Interior Walls | |
| Interior Walls 2 | NA |
| Interior Floors 1 | |
| Interior Floors 2 | |

| | |
|------------------|----|
| Heating Fuel | |
| Heating Type | |
| AC Type | |
| Bedrooms | 0 |
| Full Bathrooms | 0 |
| Half Bathrooms | 0 |
| Extra Fixtures | 0 |
| Total Rooms | 0 |
| Bath Style | NA |
| Kitchen Style | NA |
| Fin Bsmt Area | |
| Fin Bsmt Quality | |
| Bsmt Gar | 0 |
| Fireplaces | 0 |

(*Industrial / Commercial Details)

| | |
|--------------------|--------|
| Building Use | Vacant |
| Building Condition | |
| Sprinkler % | NA |
| Heat / AC | NA |
| Frame Type | NA |
| Baths / Plumbing | NA |
| Ceiling / Wall | NA |
| Rooms / Prtns | NA |
| Wall Height | NA |
| First Floor Use | NA |
| Foundation | NA |

Report Created On

10/18/2021



Town of Naugatuck, CT

Property Listing Report

Map Block Lot

5.5-20W20

Building # 1

PID

128902

Account

068-7770

Valuation Summary (Assessed value = 70% of Appraised Value)

| Item | Appraised | Assessed | Subarea Type | Gross Area (sq ft) | Living Area (sq ft) |
|--------------|----------------|----------------|--------------|--------------------|---------------------|
| Buildings | 0 | 0 | | | |
| Extras | 0 | 0 | | | |
| Improvements | | | | | |
| Outbuildings | 142090 | 99470 | | | |
| Land | 1611800 | 1128270 | | | |
| Total | 1753890 | 1227740 | | | |

Outbuilding and Extra Features

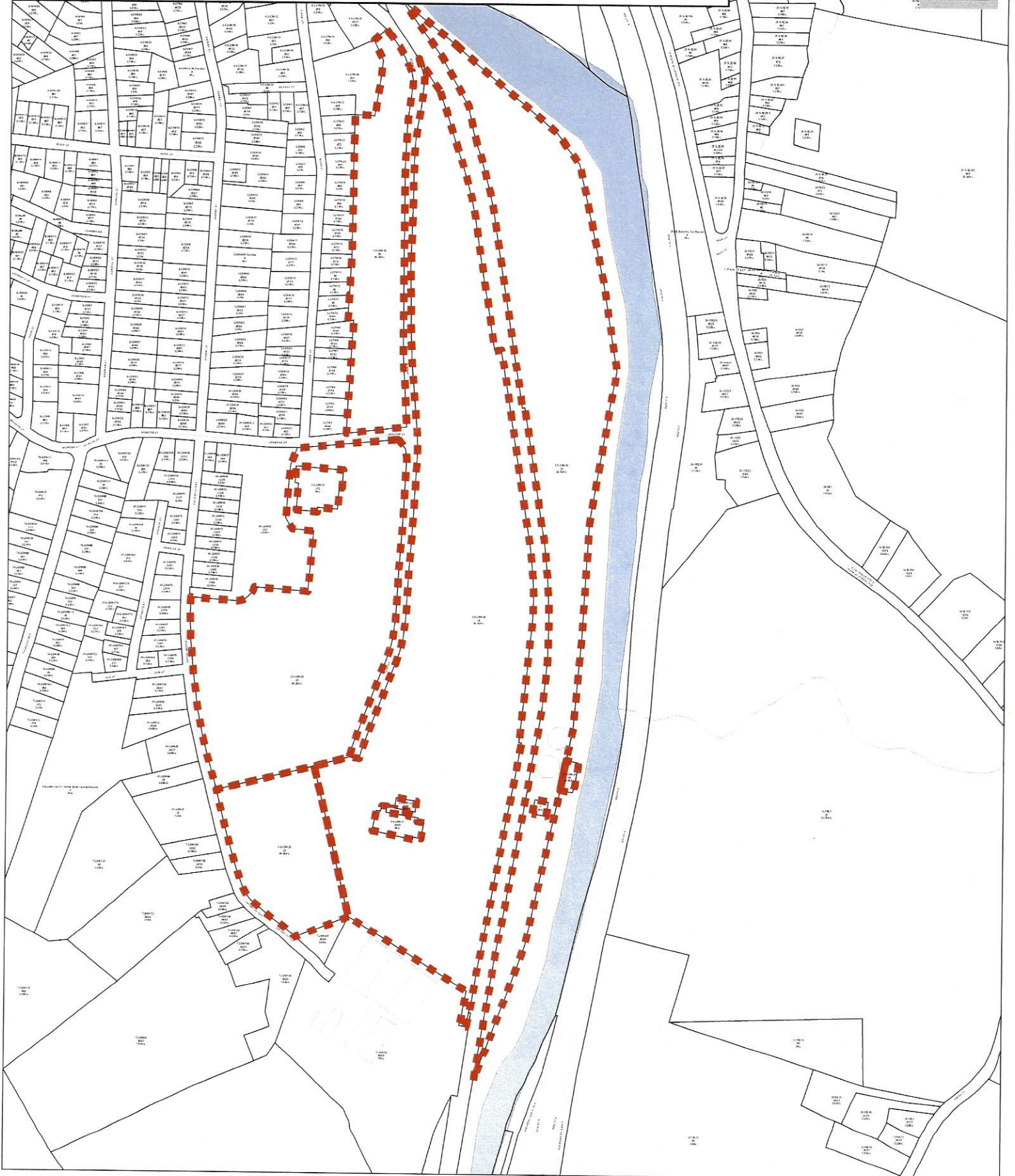
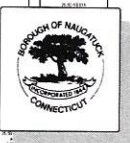
| Type | Description |
|------------|-------------|
| CELL TOWER | 150 HEIGHT |
| Patio | 60 S.F. |
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| Subarea Type | Gross Area (sq ft) | Living Area (sq ft) |
|-------------------|--------------------|---------------------|
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| | | |
| Total Area | 0 | 0 |

Sales History

| Owner of Record | Book/ Page | Sale Date | Sale Price |
|--------------------------|------------|------------|------------|
| LANXESS CORPORATION | 1064/0694 | 2021-02-03 | 0 |
| LANXESS SOLUTIONS US INC | 1017/0532 | 2018-10-02 | 0 |
| CHEMTURA CORPORATION | 0842/0475 | 2009-02-17 | 0 |
| UNIROYAL CHEMICAL CO INC | 0601/0217 | 2003-03-31 | 0 |
| UNIROYAL CHEMICAL CO INC | 0601/0216 | 2003-03-31 | 0 |
| CROMPTON MANUFACTURING | 0584/0275 | 2002-11-27 | 0 |
| UNIROYAL CHEMICAL CO INC | 0271/0213 | 1985-10-25 | 0 |

Borough of Naugatuck, Connecticut - Assessment Parcel Map
Parcel Account Number: 068-7770
Address: 0 ELM ST



0 130 260 390 520
Feet

Disclaimer: This map is for informational purposes only.
All information is subject to verification by any user.
The Borough of Naugatuck and its mapping contractors
assume no legal responsibility for the information contained herein.

Map Produced March 2019

Exhibit C

Construction Drawings

dish wireless™

DISH Wireless L.L.C. SITE ID:
BOHVN00024A

DISH Wireless L.L.C. SITE ADDRESS:
**280 ELM STREET
NAUGATUCK, CT 06770**

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

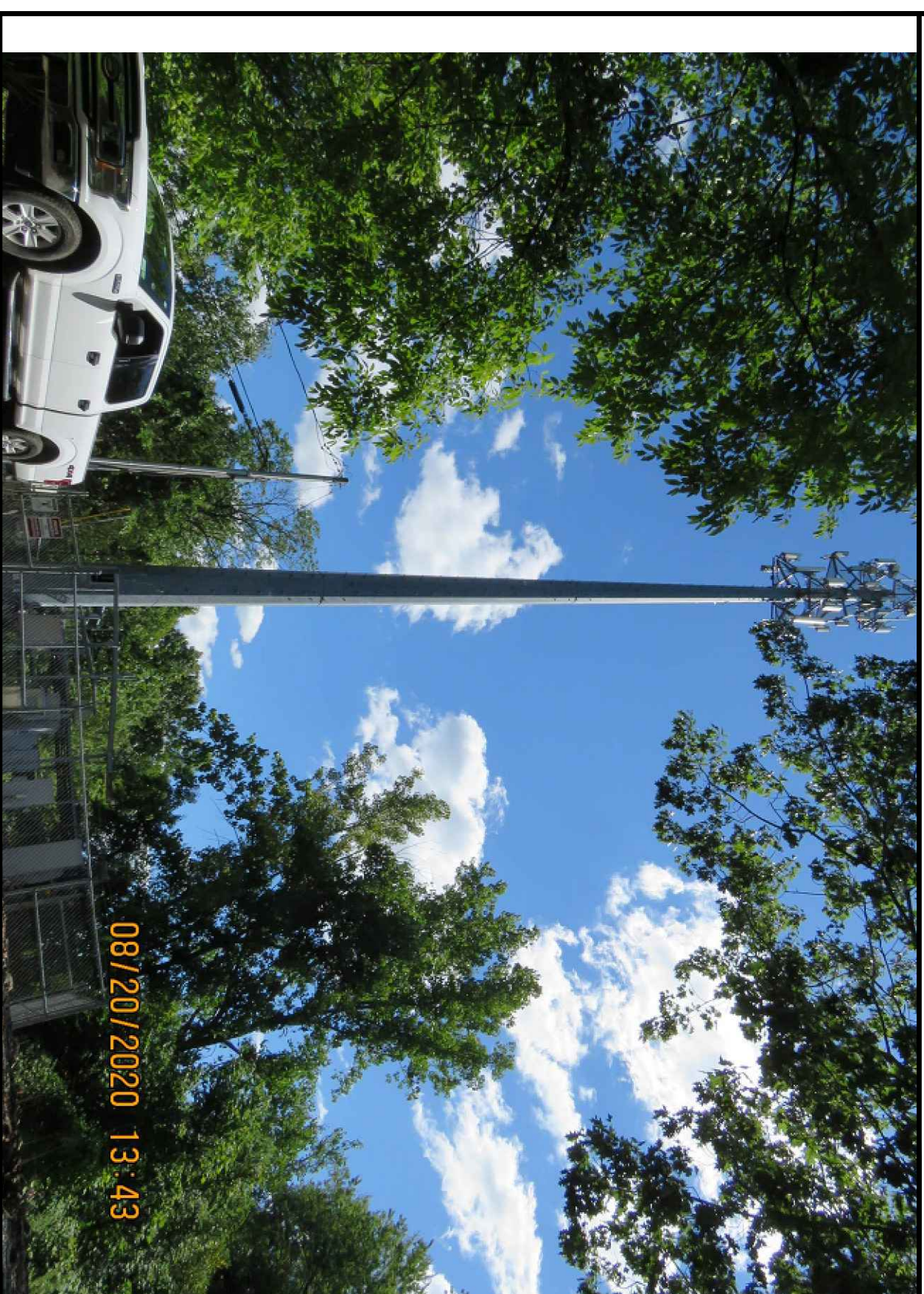
| SHEET NO. | SHEET TITLE |
|-----------|---|
| T-1 | TITLE SHEET |
| A-1 | OVERALL AND ENLARGED SITE PLAN |
| A-2 | ELEVATION, ANTENNA LAYOUT AND SCHEDULE |
| A-3 | EQUIPMENT PLATFORM AND H-FRAME DETAILS |
| A-4 | EQUIPMENT DETAILS |
| A-5 | EQUIPMENT DETAILS |
| A-6 | EQUIPMENT DETAILS |
| E-1 | ELECTRICAL/FIBER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

SCOPE OF WORK

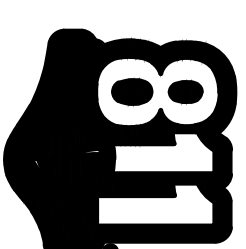
THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIPMENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

- TOWER SCOPE OF WORK:
 - INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
 - INSTALL (1) PROPOSED PLATFORM
 - INSTALL PROPOSED JUMPERS
 - INSTALL (6) PROPOSED BRLE (2 PER SECTOR)
 - INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
 - INSTALL (1) PROPOSED HYBRID CABLE
- GROUND SCOPE OF WORK:
 - INSTALL (1) PROPOSED METAL PLATFORM
 - INSTALL (1) PROPOSED ICE BRIDGE
 - INSTALL (1) PROPOSED PFC CABINET
 - INSTALL (1) PROPOSED EQUIPMENT CABINET
 - INSTALL (1) PROPOSED POWER CONDUIT
 - INSTALL (1) PROPOSED TELCO CONDUIT
 - INSTALL (1) PROPOSED TELCO-FIBER BOX
 - INSTALL (1) PROPOSED GPS UNIT
 - INSTALL (1) PROPOSED SAFETY SWITCH (IF REQUIRED)
 - INSTALL (1) PROPOSED CEMA BOX (IF REQUIRED)
 - INSTALL (1) PROPOSED CEMENT BOX (IF REQUIRED)
 - EXISTING METER SOCKET ON EXISTING H-FRAME TO BE UTILIZED

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.

SITE INFORMATION

| | |
|----------------------|--|
| PROPERTY OWNER: | CROWN CASTLE |
| ADDRESS: | 2000 CORPORATE DRIVE CANONSBERG, PA |
| TOWER TYPE: | MONOPOLE |
| TOWER CO SITE ID: | 876319 |
| TOWER APP NUMBER: | 553365 |
| COUNTY: | NEW HAVEN |
| LATITUDE (NAD 83): | 41° 28' 52.54" N |
| LONGITUDE (NAD 83): | 41.481250 N 73° 3' 11.67" W |
| ZONING JURISDICTION: | CT CING COUNSEL |
| ZONING DISTRICT: | I-WAUNT IND |
| PARCEL NUMBER: | 5-5-20W20 |
| OCCUPANCY GROUP: | U |
| CONSTRUCTION TYPE: | V-B |
| POWER COMPANT: | CONNECTICUT LIGHT AND POWER |
| TELEPHONE COMPANT: | TBD |

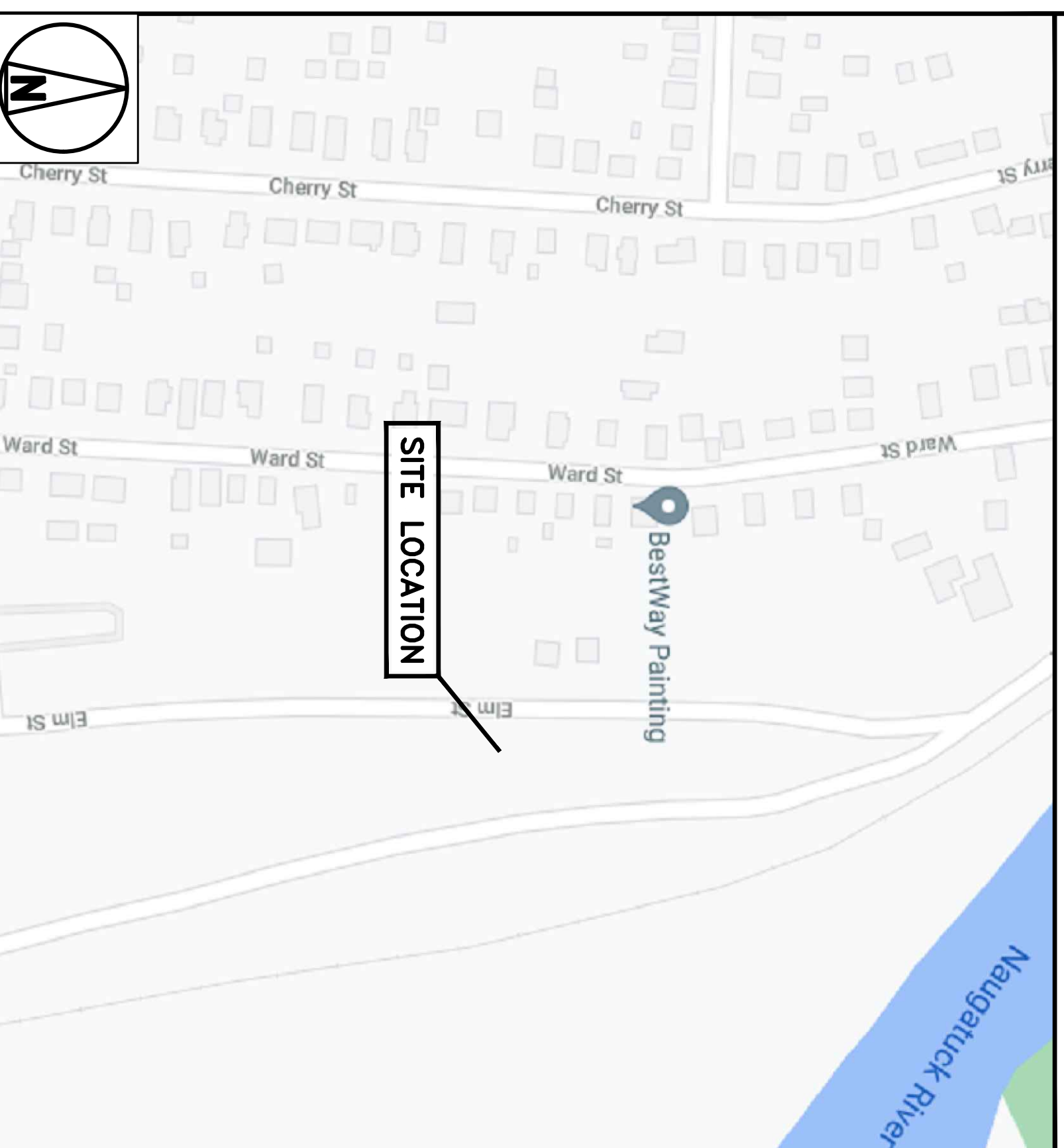
PROJECT DIRECTORY

| | |
|-----------------------|---|
| APPLICANT: | DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120 |
| TOWER OWNER: | CROWN CASTLE 2000 CORPORATE DRIVE CANONSBERG, PA 15317 (877) 486-9377 |
| SITE DESIGNER: | INFINIGY 2500 W. HIGGINS RD. STE. 500 HOFMANN ESTATES, IL 60189 (847) 648-4068 |
| SITE ACQUISITION: | NICHOLAS CURRY NICHOLAS.CURRY@CROWNCASTLE.COM |
| CONSTRUCTION MANAGER: | JAVIER SOTO JAVIER.SOTO@DISH.COM (617) 839-6514 |
| RF ENGINEER: | STEED ZAIDI STEED.ZAIDI@DISH.COM |

DIRECTIONS

DIRECTIONS FROM WATERBURY-OXFORD AIRPORT:
DEPART AND HEAD NORTHWEST ON PROKOP RD, ROAD NAME CHANGES TO JULIANO DR, TURN LEFT ONTO CHRISTIAN ST, TURN RIGHT ONTO OXFORD AIRPORT RD, TURN RIGHT ONTO CT-188 / STRONGTOWN RD, TURN LEFT ONTO OLD WATERBURY RD, ARRIVE AT 280 ELM STREET, NAUGATUCK, CT 06770

VICINITY MAP



**dish
wireless™**

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

**CROWN
CASTLE**

2000 CORPORATE DRIVE
CANONSBERG, PA 15317

INFINIGY

FROM ZERO TO INFINIGY
The solutions are endless
2500 W. HIGGINS RD. SUITE 500
HOFMANN ESTATES, IL 60189
PHONE: 847-648-4068 | FAX: 312-690-0793
WWW.INFINIGY.COM



9/21/2021

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

DRAWN BY: CHECKED BY: APPROVED BY:

RCD SS CJW

RFD5 REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

| REV | DATE | DESCRIPTION |
|-----|------------|-------------------------|
| 1 | 06/11/2021 | ISSUED FOR REVIEW |
| 0 | 06/24/2021 | ISSUED FOR CONSTRUCTION |

A&E PROJECT NUMBER

6039-Z0001C

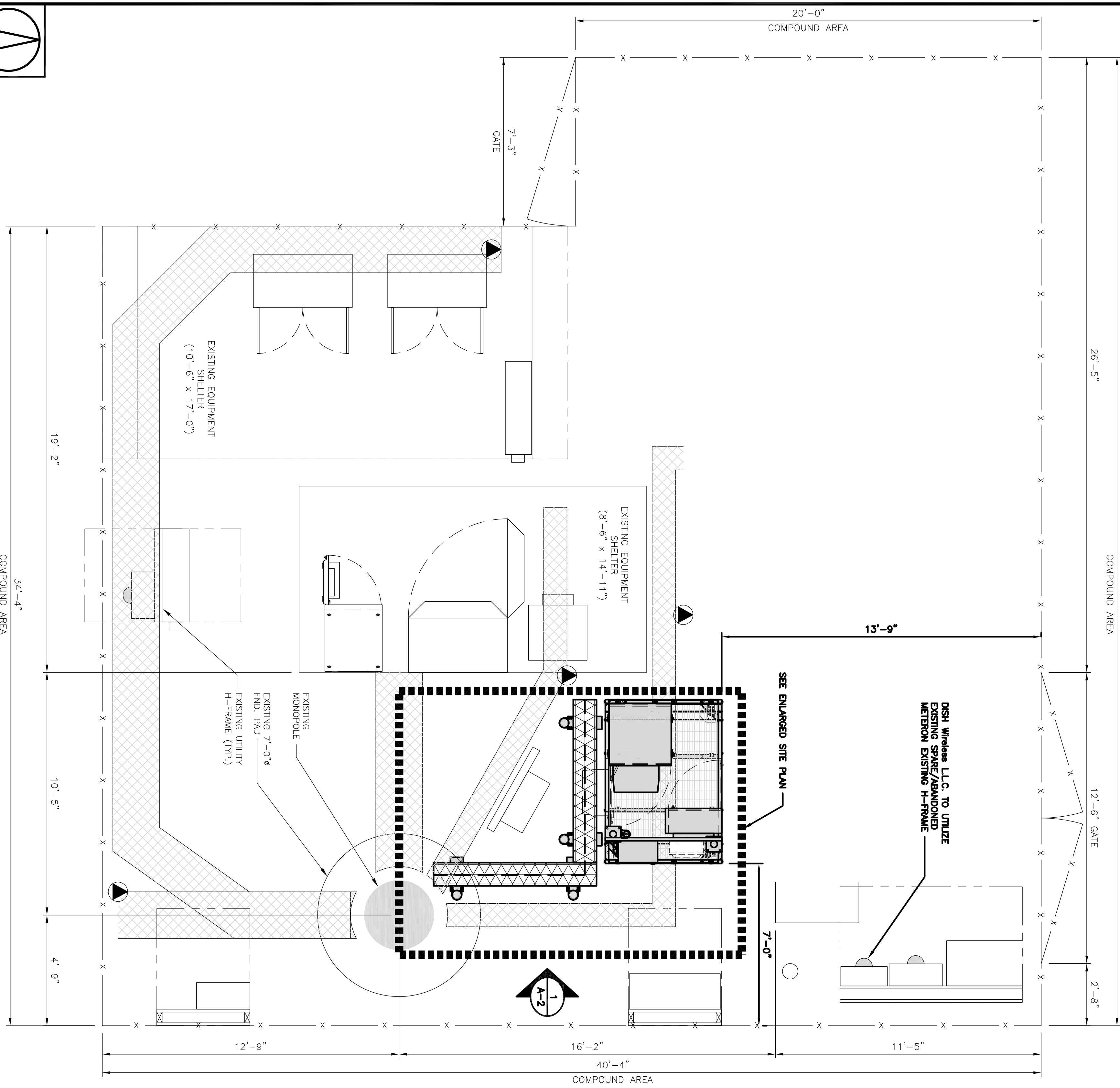
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00024A
280 ELM STREET
NAUGATUCK, CT 06770

SHEET TITLE
TITLE SHEET

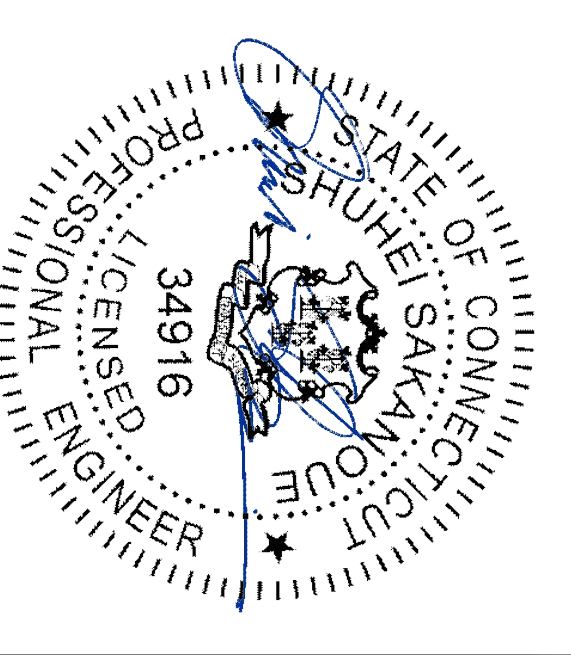
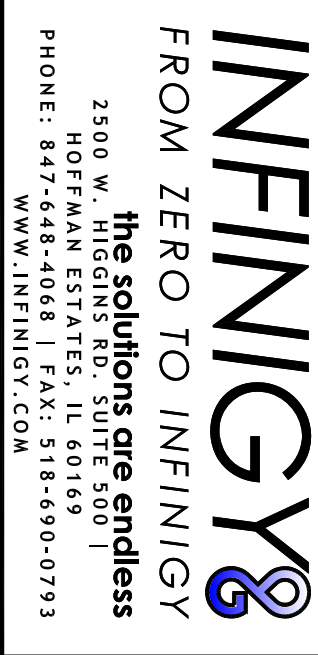
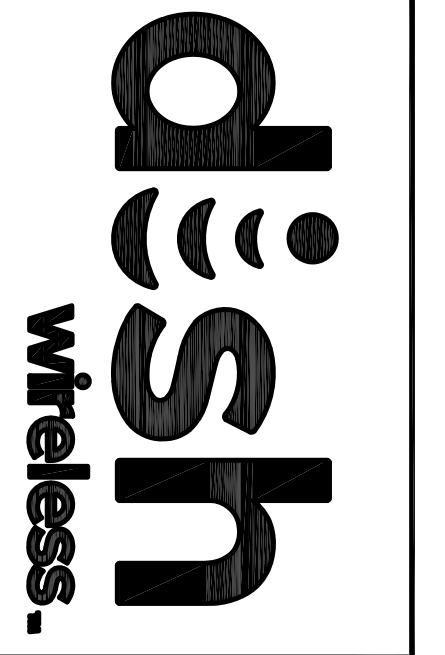
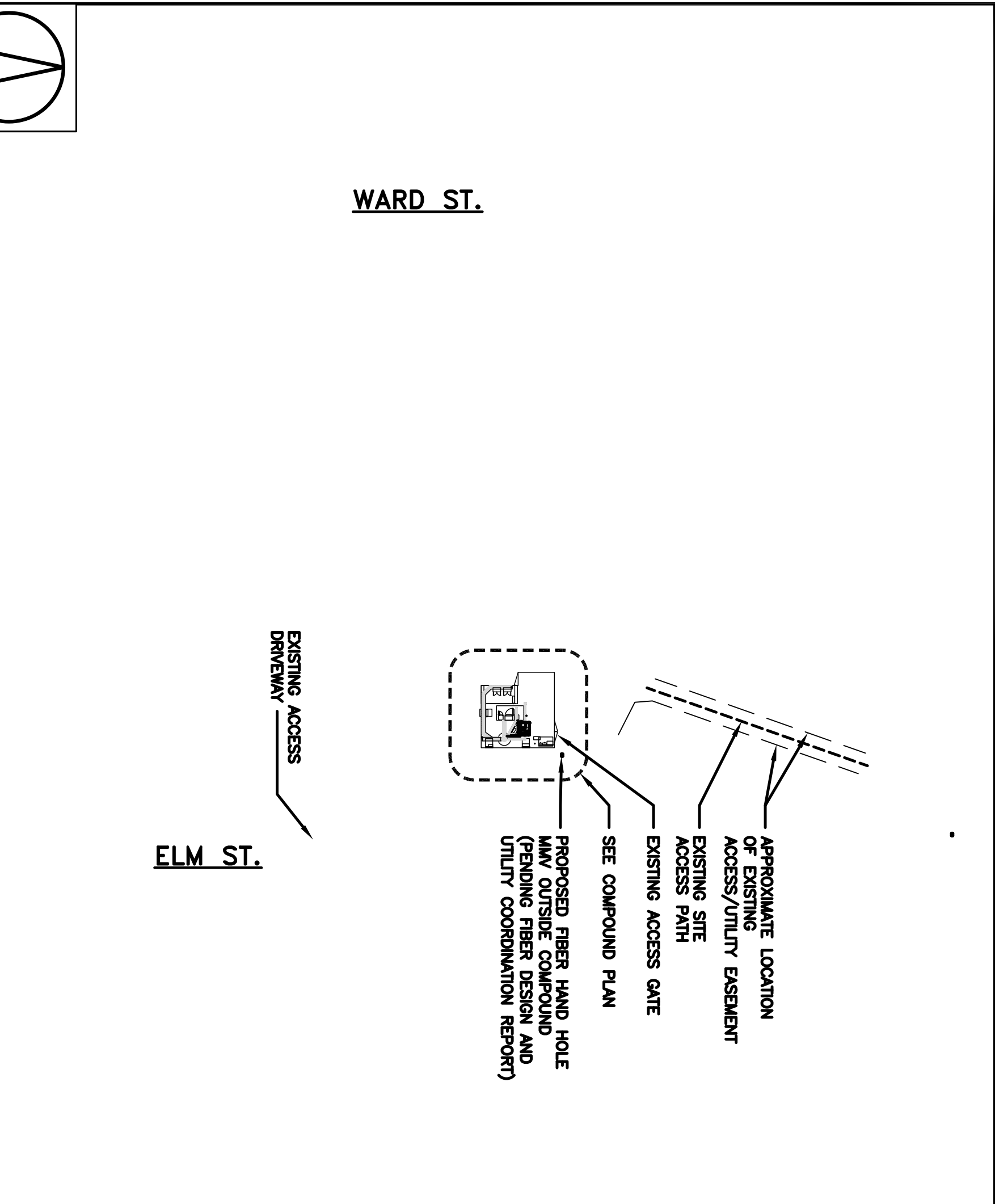
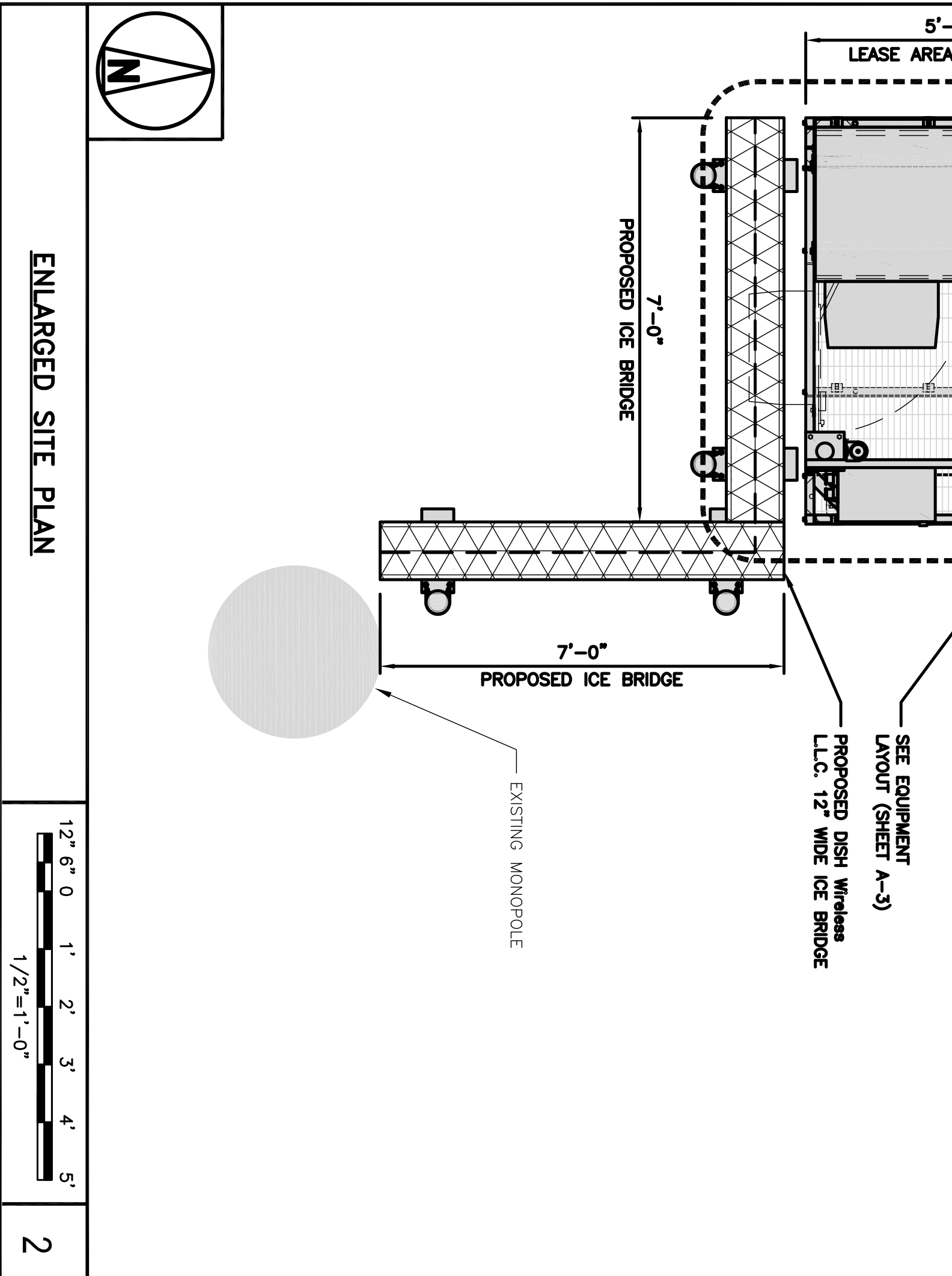
SHEET NUMBER

T-1

- 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'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
 3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



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:

| | | |
|-------------|-----|-----|
| RCD | SS | CJW |
| RFDS REV #: | N/A | |

CONSTRUCTION DOCUMENTS

SUBMITTALS

| REV | DATE | DESCRIPTION |
|-----|------------|-------------------------|
| A | 06/11/2021 | ISSUED FOR REVIEW |
| 0 | 06/24/2021 | ISSUED FOR CONSTRUCTION |

A&E PROJECT NUMBER
6039-Z0001C

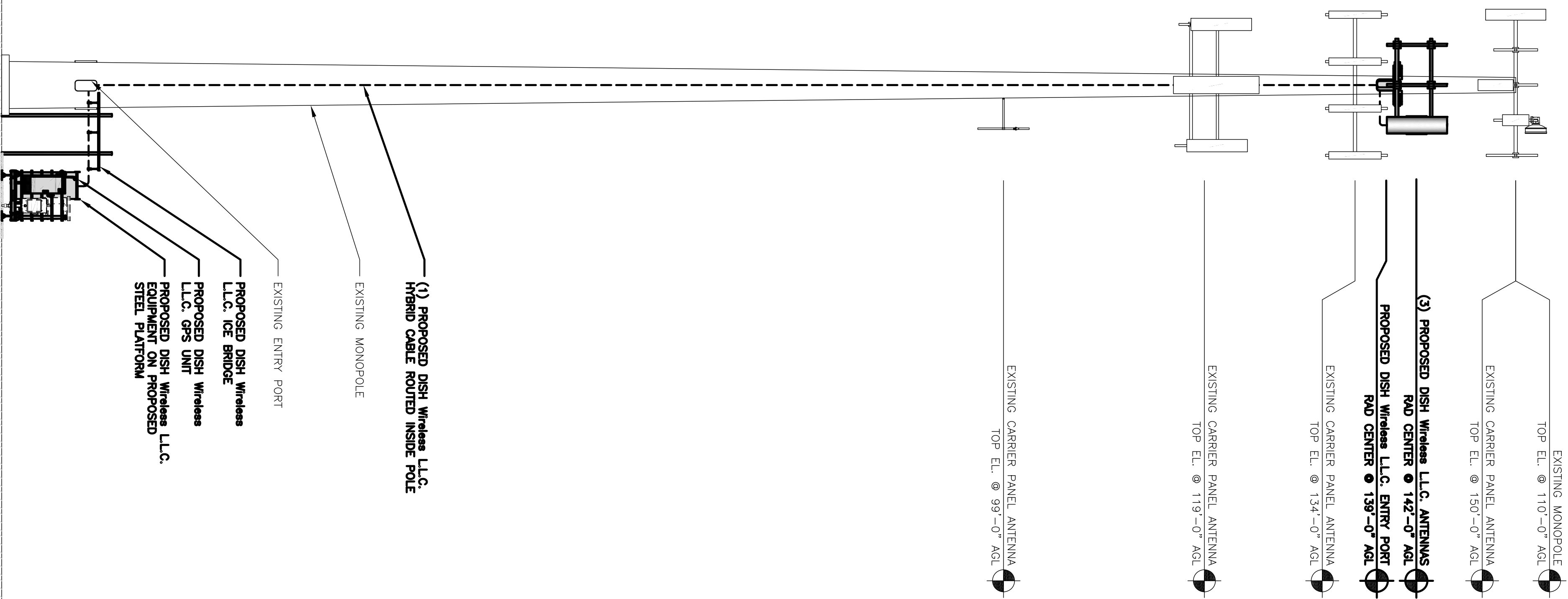
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00024A
280 ELM STREET
NAUGATUCK, CT 06770

SHEET TITLE
OVERALL AND ENLARGED SITE PLAN

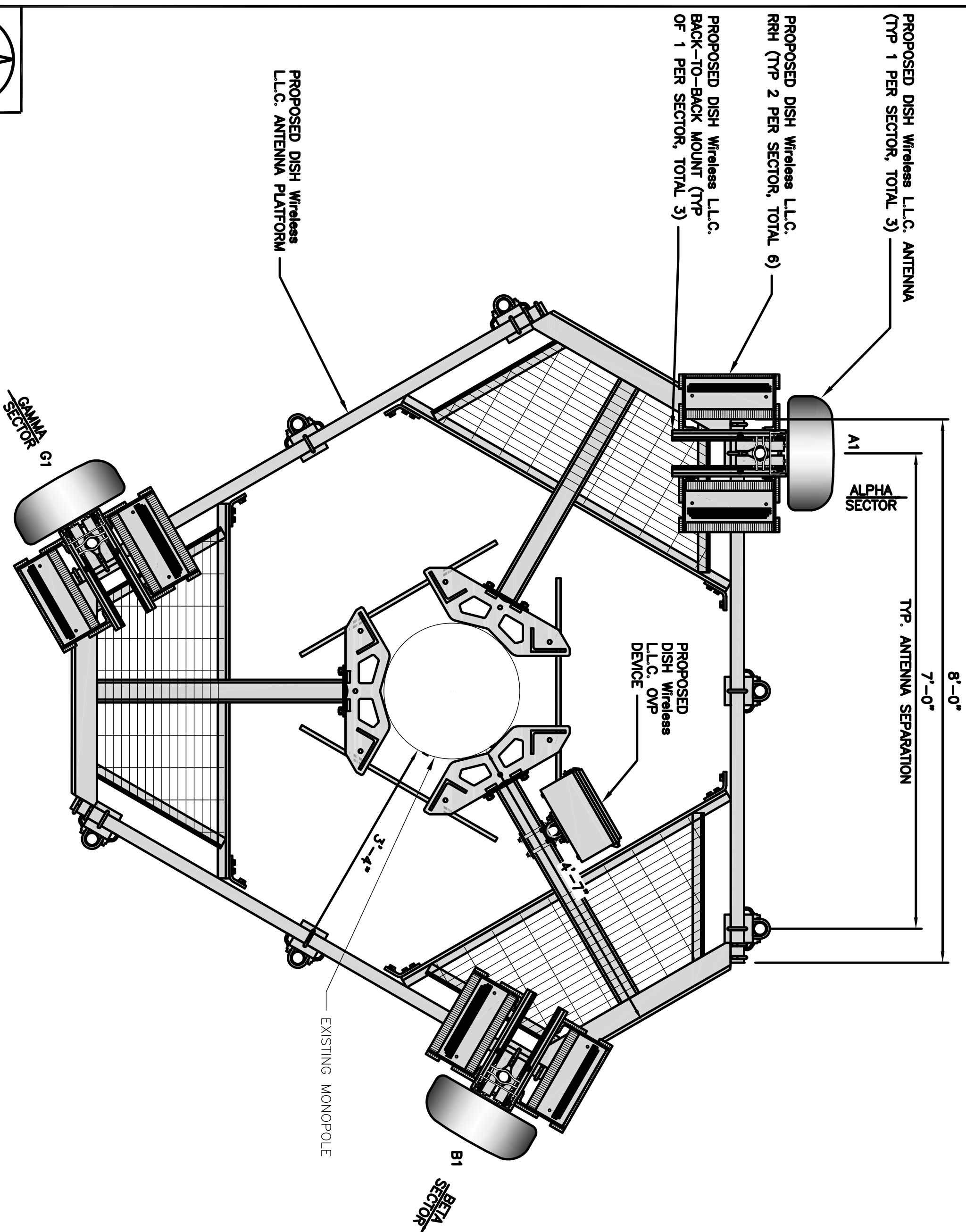
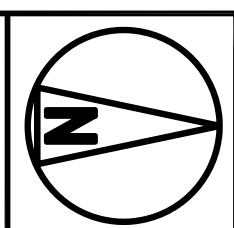
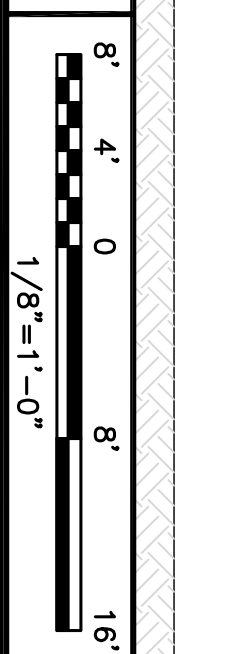
SHEET NUMBER
A-1

NOTES

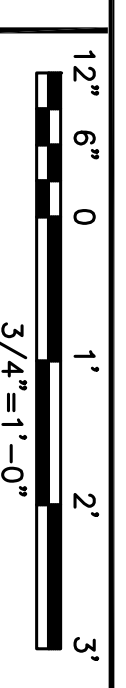
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDs FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.
4. INFINIGY HAS NOT EVALUATED THE TOWER OR MOUNT STRUCTURE AND ASSUMES NO RESPONSIBILITY FOR THEIR FINAL UTILITY LOADS. INFINIGY WILL PROVIDE UTILITY LOADS WITH RESULTS OF PASSING STRUCTURAL ANALYSES PERFORMED BY OTHERS.



PROPOSED EAST ELEVATION



ANTENNA LAYOUT



| SECTOR | POSITION | EXISTING OR PROPOSED | MANUFACTURER - MODEL NUMBER | TECHNOLOGY | SIZE (HxW) | AZMUTH | RAD CENTER | TRANSMISSION CABLE FEED LINE TYPE AND LENGTH |
|--------|----------|----------------------|-------------------------------|------------|---------------|--------|------------|--|
| ALPHA | A1 | PROPOSED | JMA WIRELESS - MK08RFR0665-21 | 5G | 72.0" x 20.0" | 0° | 142'-0" | (1) HIGH-CAPACITY HYBRID CABLE (179' LONG) |
| | B1 | PROPOSED | JMA WIRELESS - MK08RFR0665-21 | 5G | 72.0" x 20.0" | 120° | 142'-0" | |
| GAMMA | C1 | PROPOSED | JMA WIRELESS - MK08RFR0665-21 | 5G | 72.0" x 20.0" | 240° | 142'-0" | |

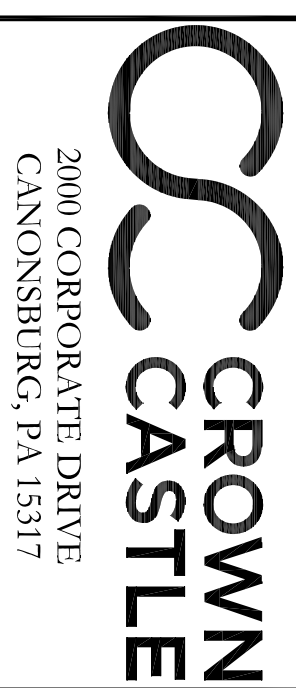
| SECTOR | POSITION | MANUFACTURER - MODEL NUMBER | TECHNOLOGY | NOTES |
|--------|----------|-----------------------------|------------|--|
| ALPHA | A1 | FUJITSU - TA08025-B804 | 5G | 1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDs FOR ALL RF DETAILS. 2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES. |
| | B1 | FUJITSU - TA08025-B804 | 5G | |
| BETA | B1 | FUJITSU - TA08025-B805 | 5G | |
| | G1 | FUJITSU - TA08025-B804 | 5G | |
| GAMMA | G1 | FUJITSU - TA08025-B805 | 5G | |

ANTENNA SCHEDULE

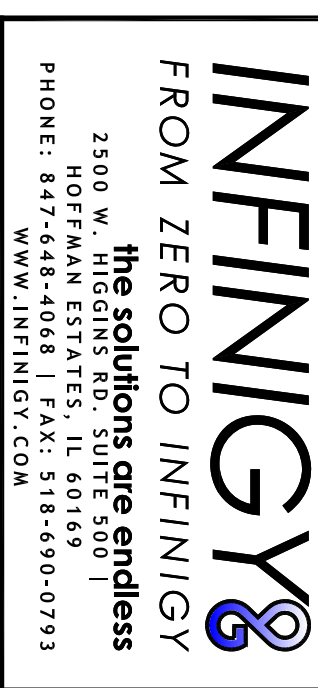
NO SCALE 3



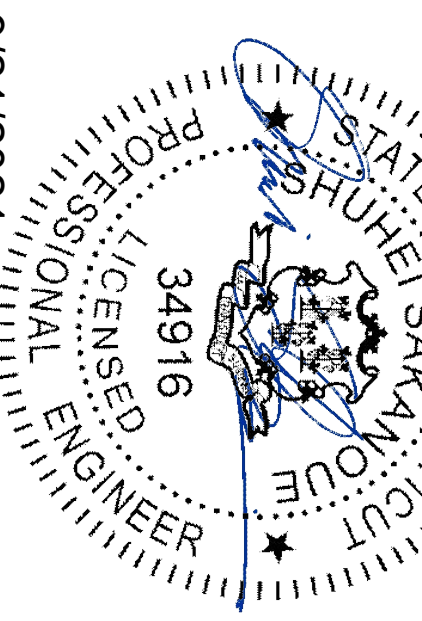
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LITTLETON, CO 80120



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CANNONSBURG, PA 15317



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9/21/2021

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DRAWN BY: CHECKED BY: APPROVED BY:

RCD SS CIW

RFDs REV #: N/A

CONSTRUCTION DOCUMENTS

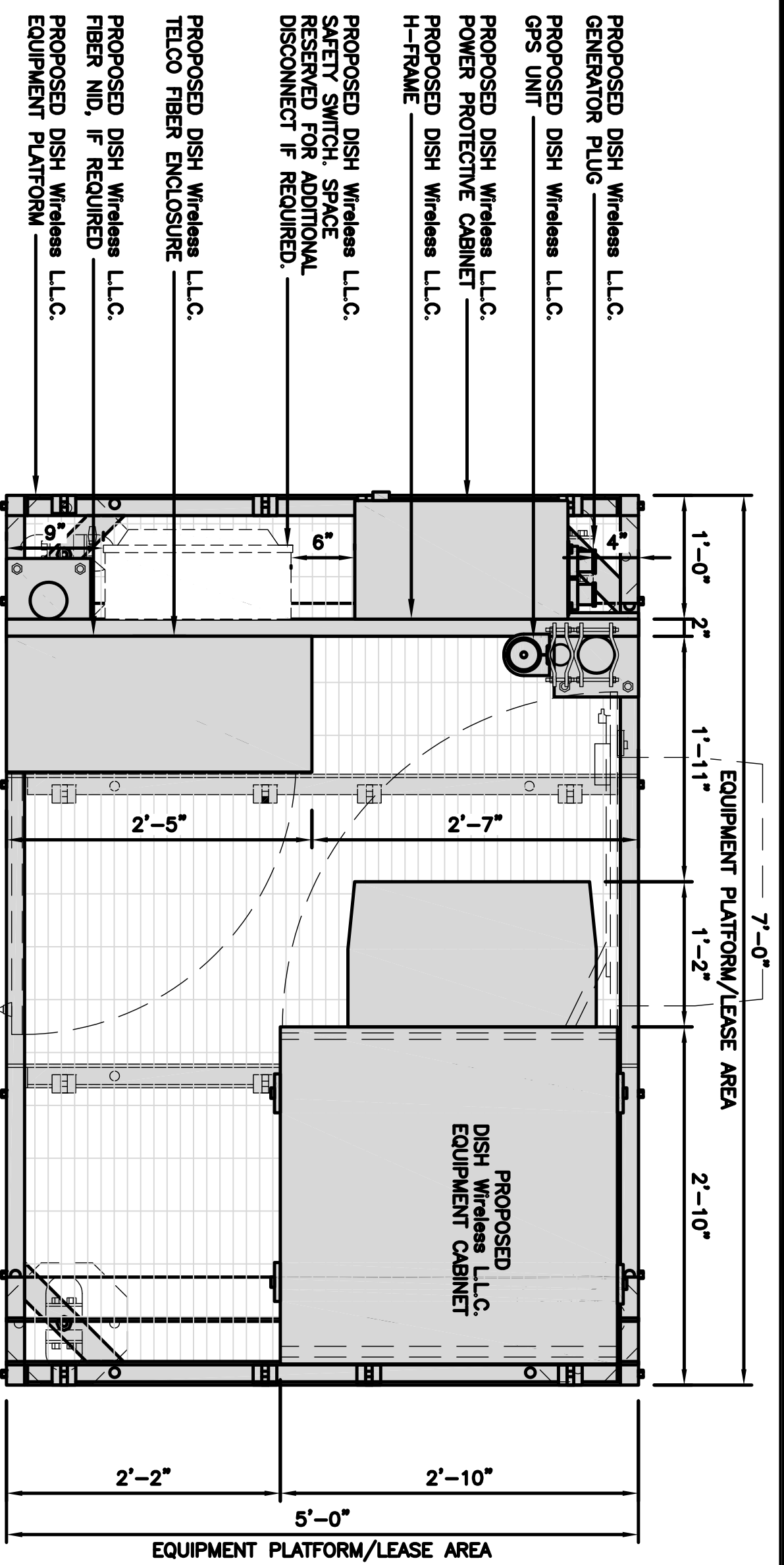
| REV | DATE | DESCRIPTION |
|-----|------------|-------------------------|
| A | 06/11/2021 | ISSUED FOR REVIEW |
| 0 | 06/24/2021 | ISSUED FOR CONSTRUCTION |

A&E PROJECT NUMBER
6039-Z0001C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00024A
280 ELM STREET
NAUGATUCK, CT 06770

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2

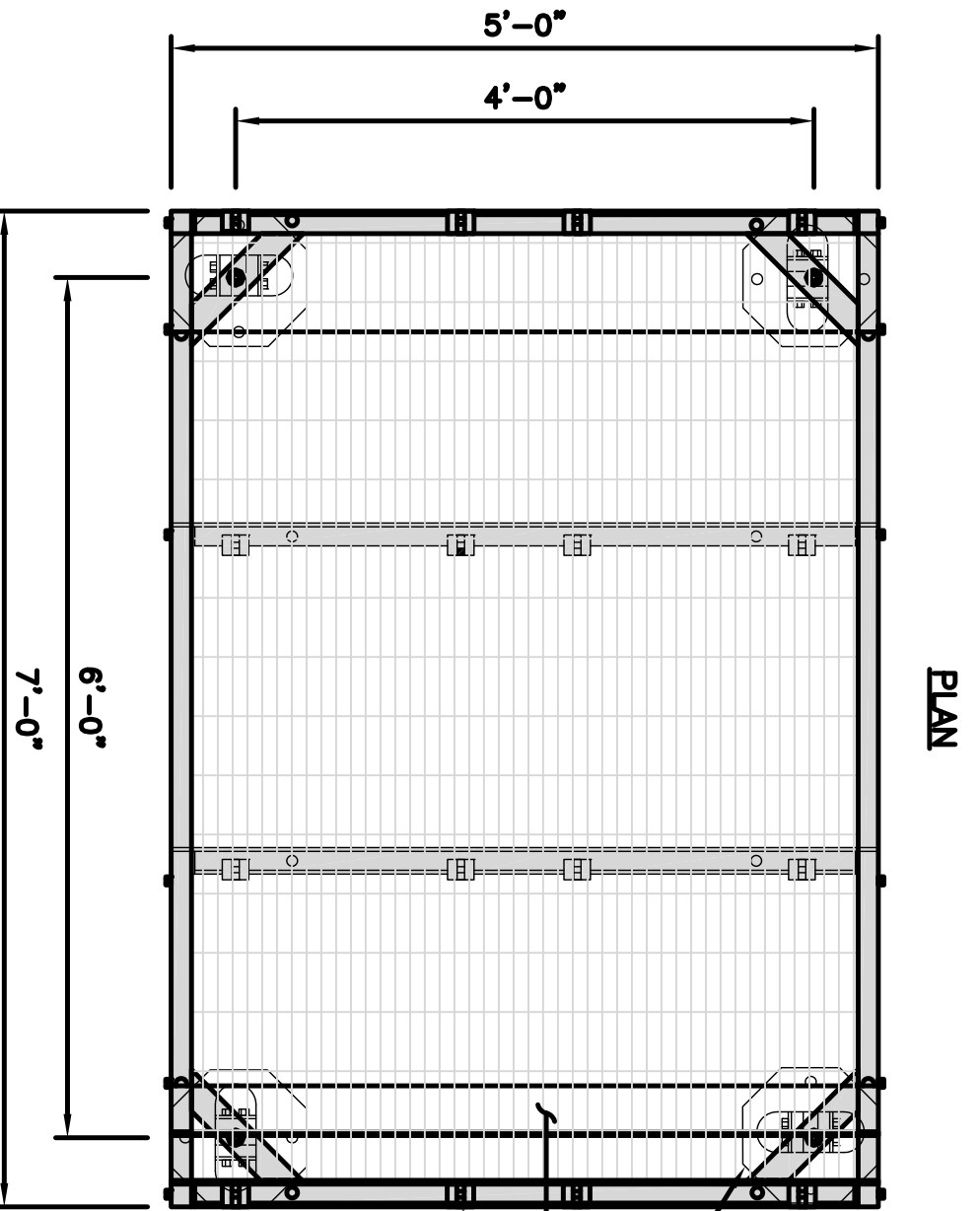


PLATFORM EQUIPMENT PLAN

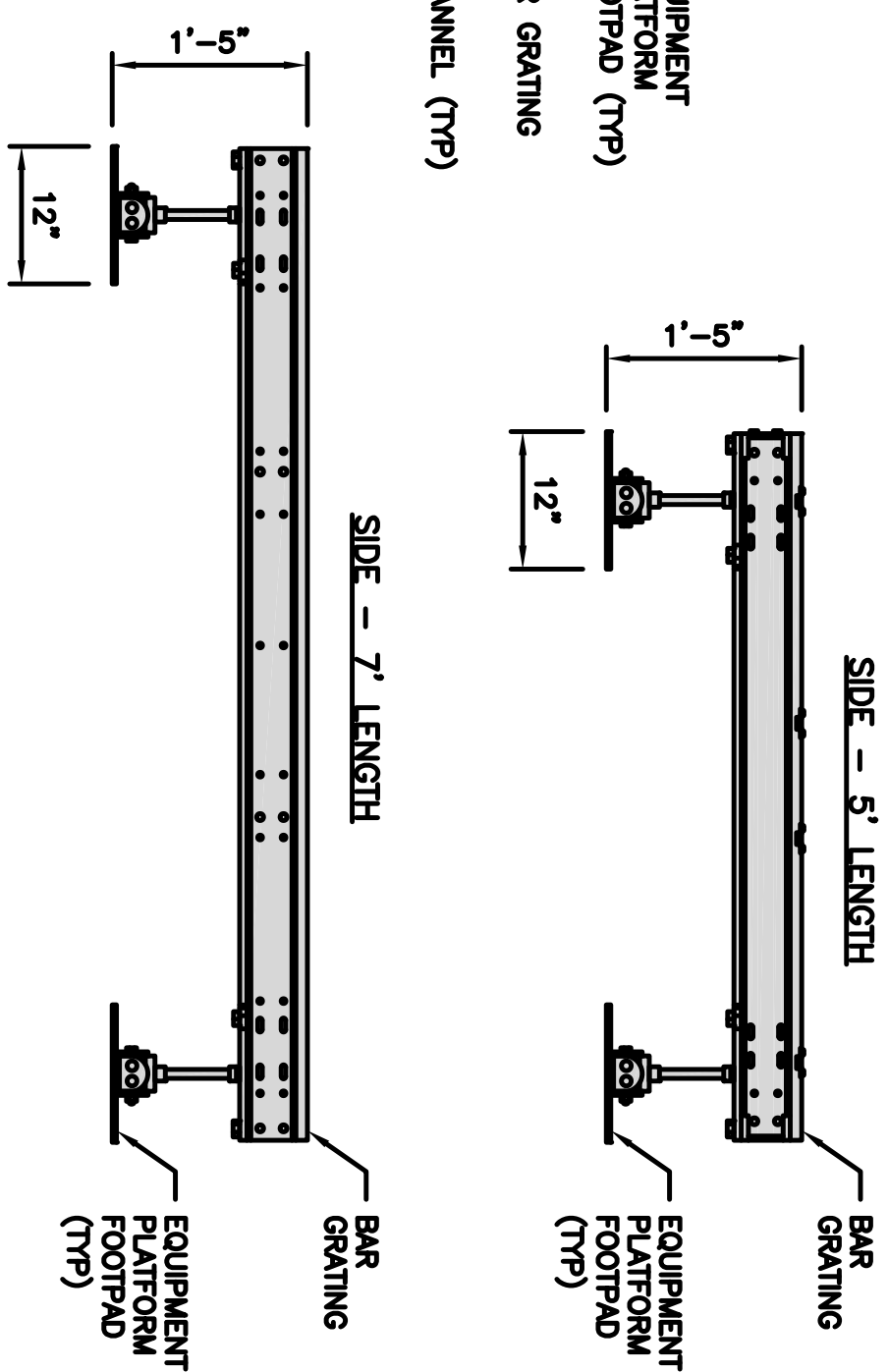


| | |
|-------------------------------------|-------------|
| COMMSCOPE MTC4045LP 5X7 PLATFORM | 16'x84'x80" |
| TOTAL WEIGHT | 423 LBS |

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



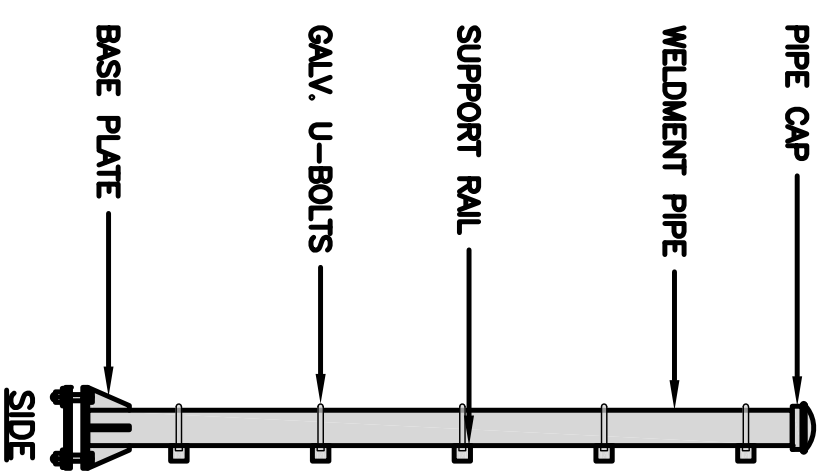
PLAN



PLATFORM DETAIL

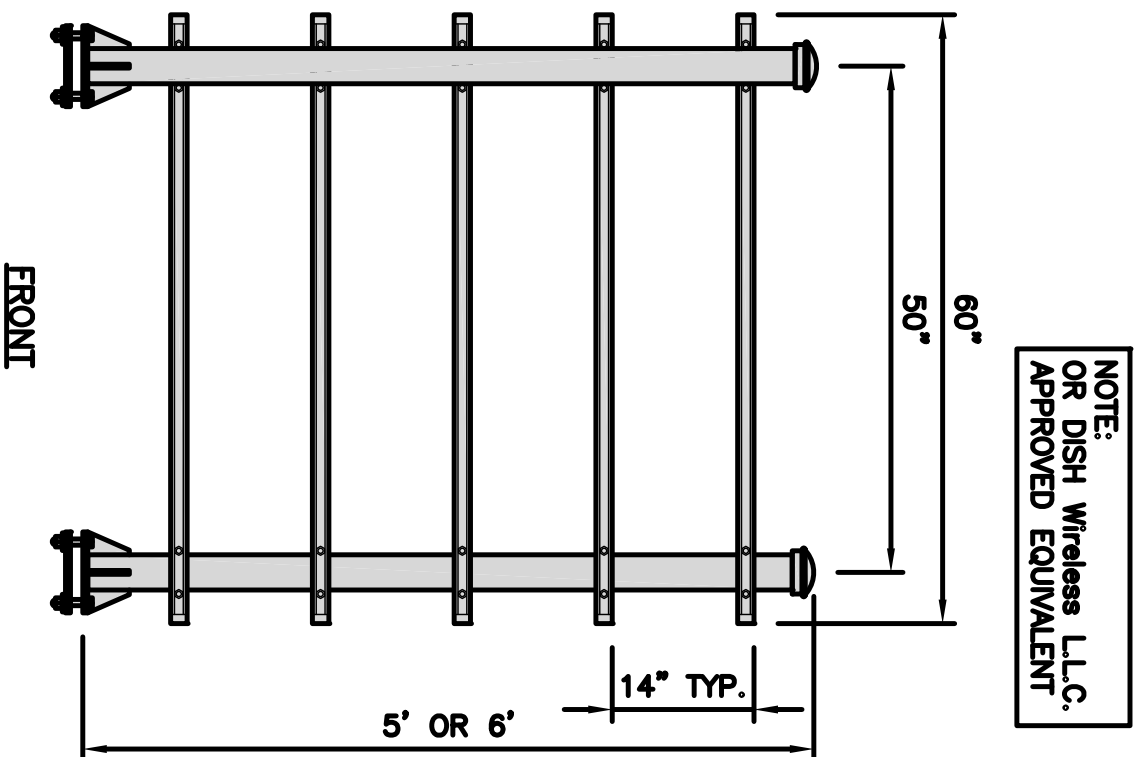
NO SCALE 2

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



H-FRAME DETAIL

NO SCALE 3

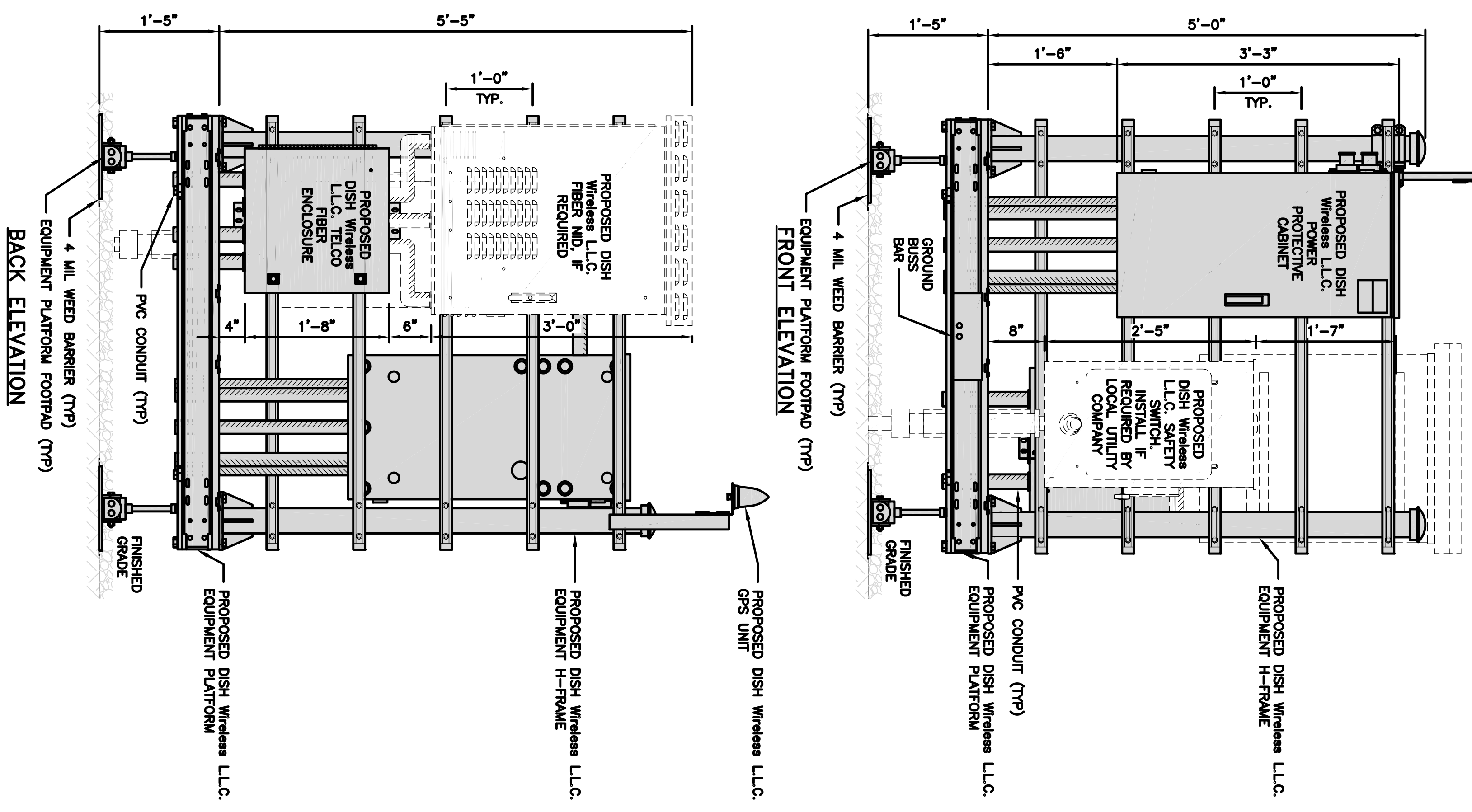


NOTE: OR DISH Wireless L.L.C. APPROVED EQUIPMENT

NOT USED

NO SCALE 4

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



H-FRAME EQUIPMENT ELEVATION



NO SCALE 5

dish wireless.
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STATE OF CONNECTICUT
SHUHEI SAKAMOTO
34916
PROFESSIONAL ENGINEER
9/21/2021

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| RFDS REV #: | N/A | |

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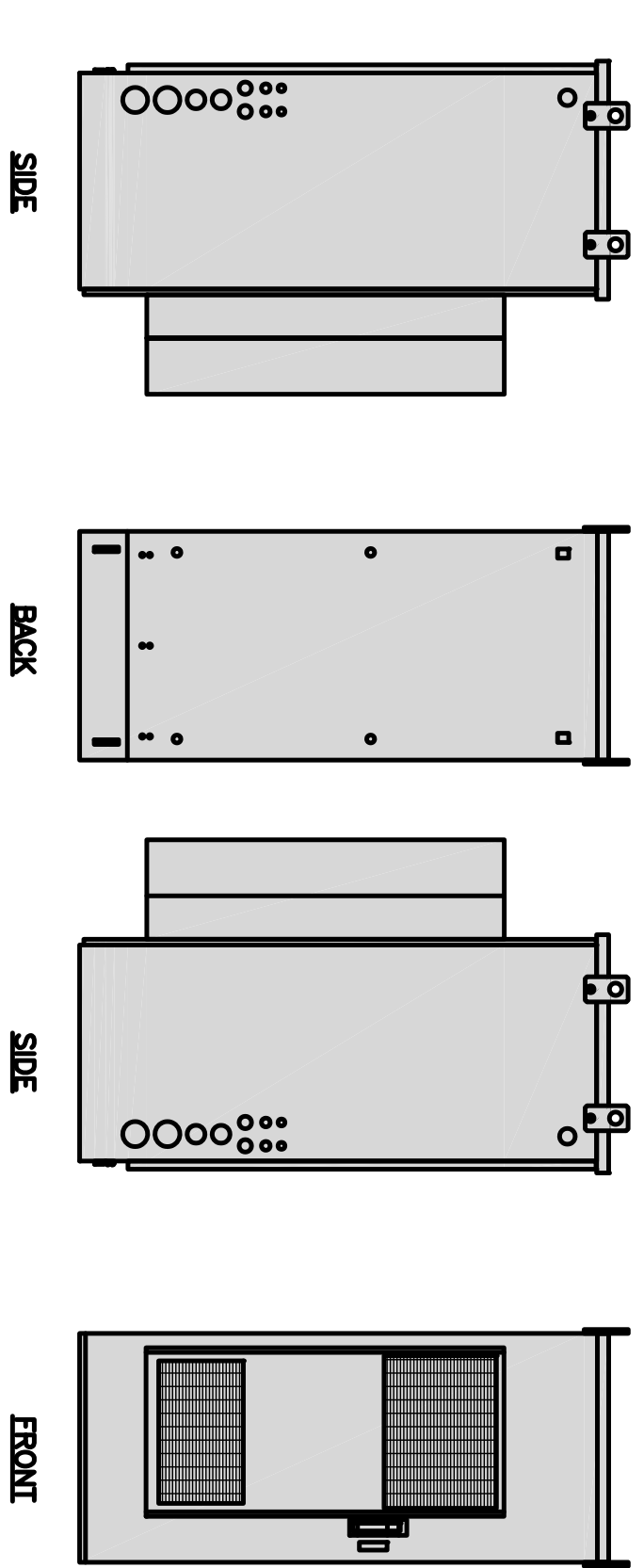
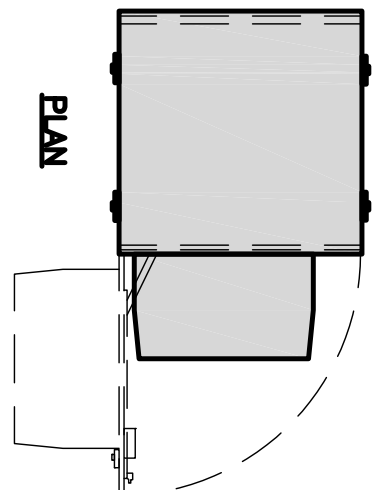
A&E PROJECT NUMBER
6039-Z0001C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00024A
280 ELM STREET
NAUGATUCK, CT 06770

SHEET TITLE
EQUIPMENT PLATFORM AND
H-FRAME DETAILS

SHEET NUMBER
A-3

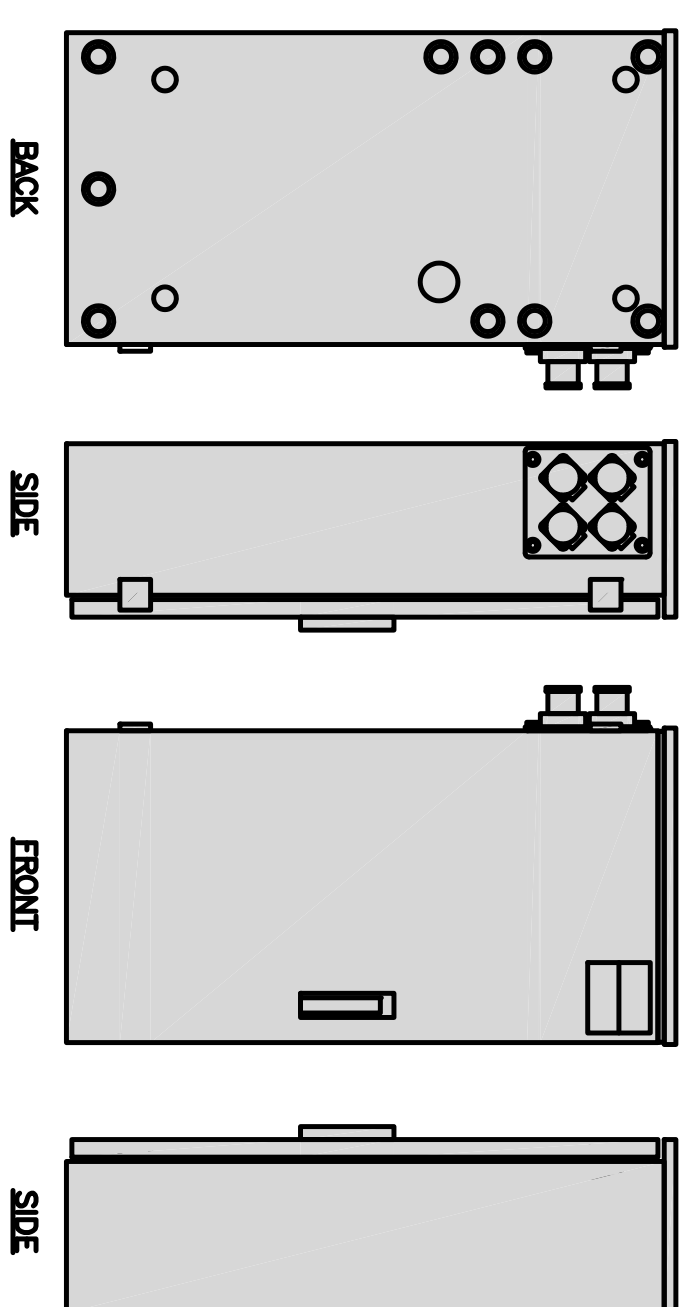
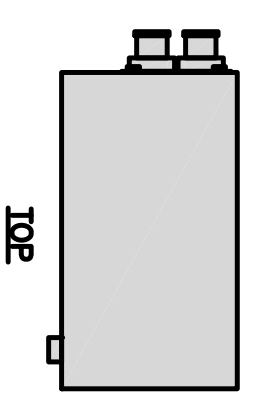
| | |
|---|----------------|
| CHARLES INDUSTRY HEX CUBE-PM639155N4 | |
| DIMENSIONS (HxWxD): | 74"x32"x32" |
| POWER PLANT: | -48VDC AB/600W |
| TOTAL WEIGHT (EMPTY): | 408 LBS |



CABINET DETAIL

NO SCALE 1

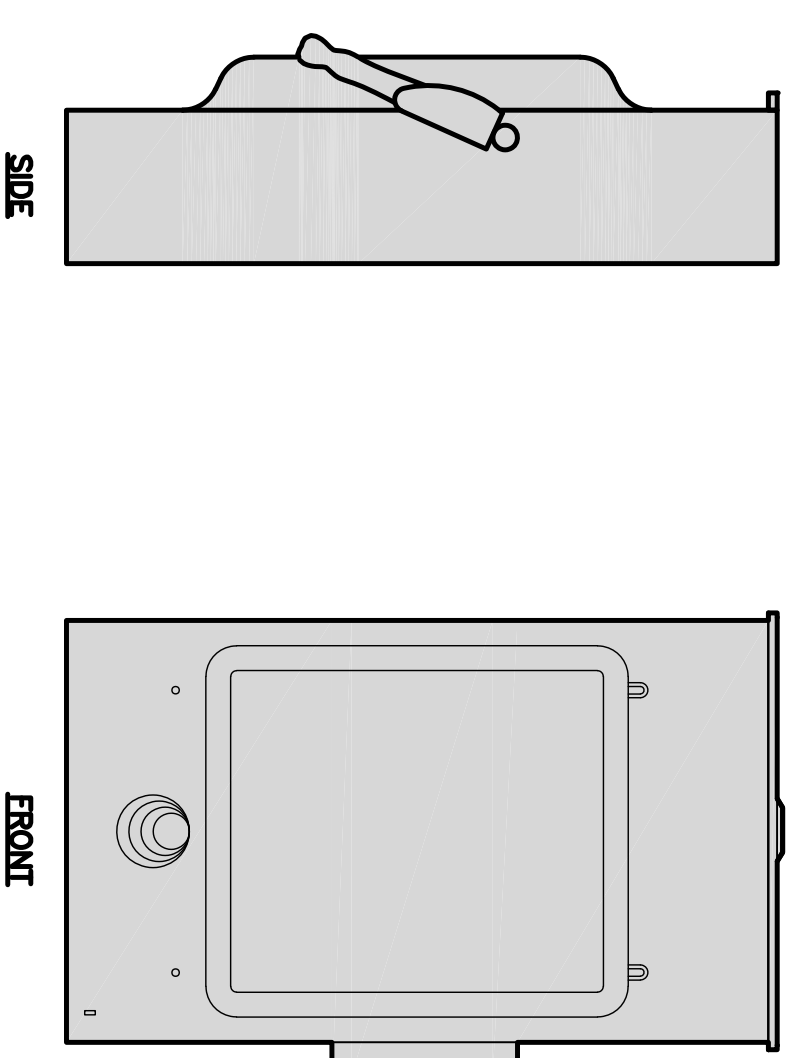
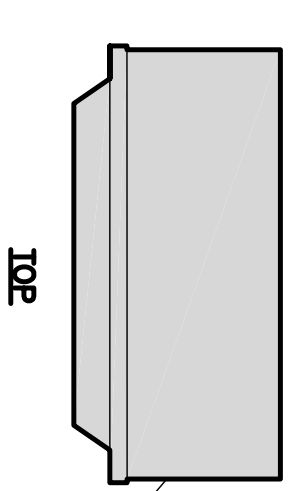
| | |
|--|----------------------|
| RAYCAP PPC RD1AC-2465-P-240-MTS | |
| ENCLOSURE DIMENSIONS (HxWxD): | 39"x22.855"x12.593 |
| WEIGHT: | 80 lbs |
| OPERATING AC VOLTAGE | 240/120 1 PHASE 3W+G |



POWER PROTECTION CABINET (PPC) DETAIL

NO SCALE 2

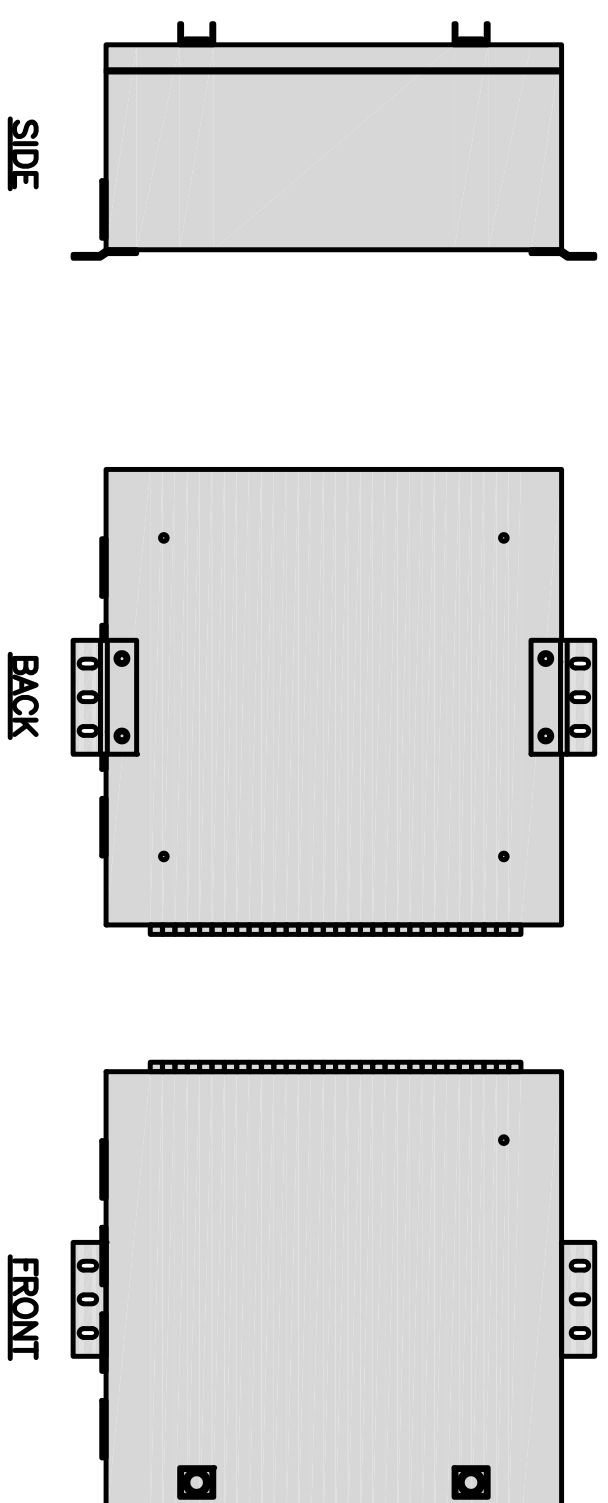
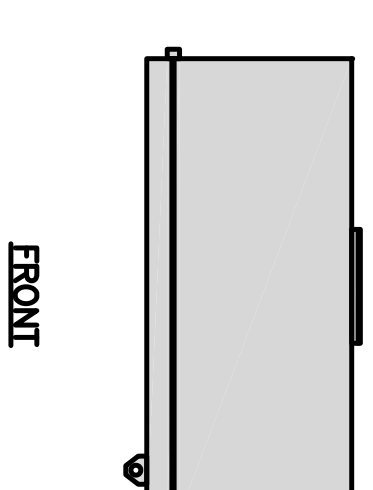
| | |
|---|---------------------|
| SQUARE D SAFETY SWITCHES D224NRB | |
| ENCLOSURE DIM (HxWxD) | 29.25"x19.00"x8.50" |
| ENCLOSURE TYPE | NEMA 3R RAINPROOF |
| UL LISTED | FILE E-2875 |



SAFETY SWITCH DETAIL

NO SCALE 3

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

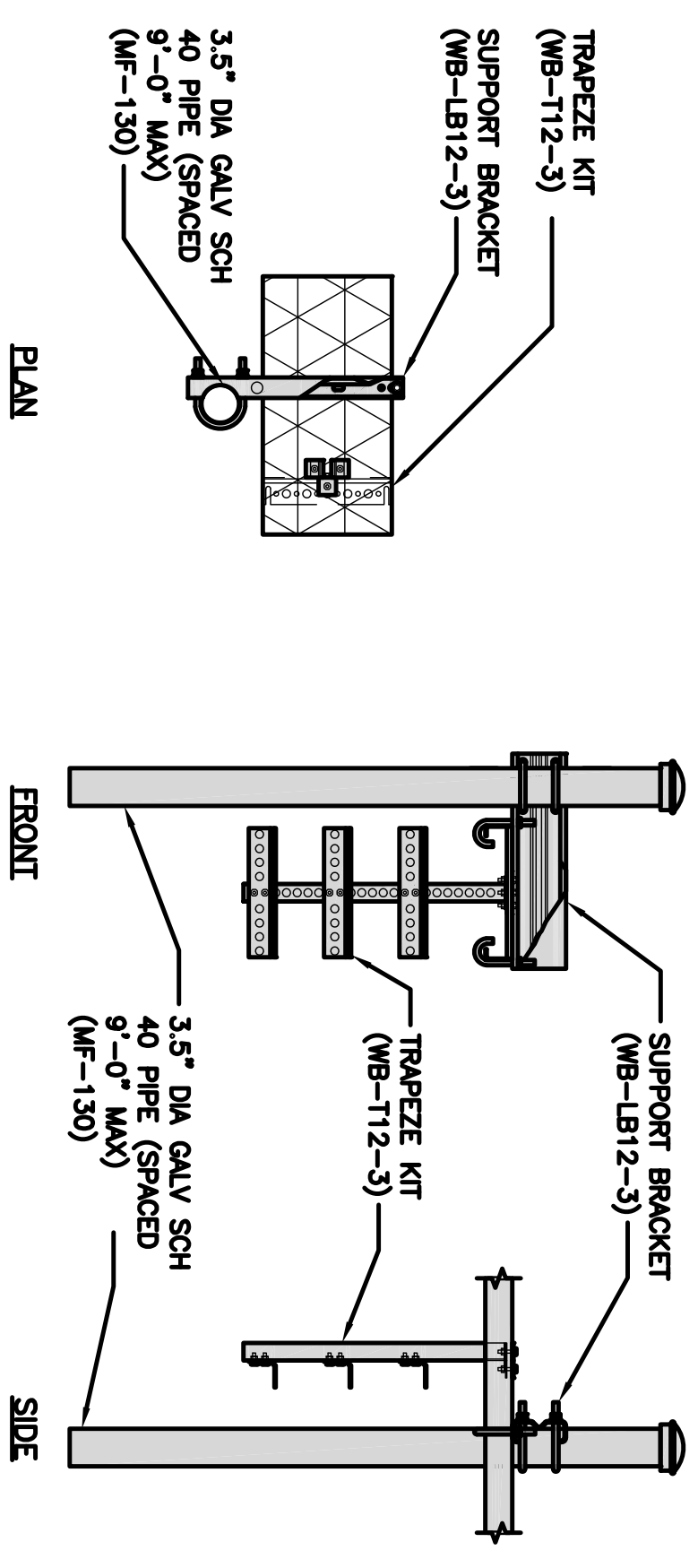


FIBER TELCO ENCLOSURE DETAIL

NO SCALE 6

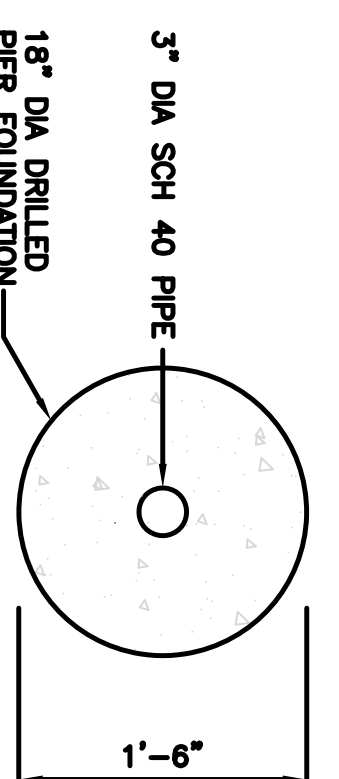
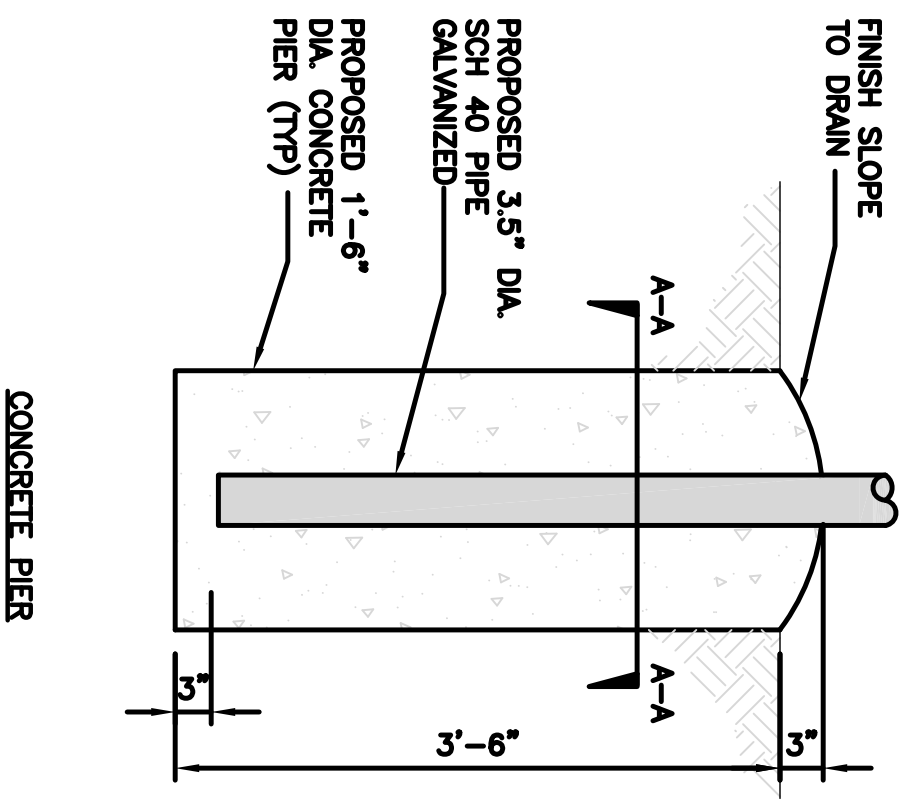
| | |
|---|-----------|
| COMMSCOPE WB-K110-B WAVEGUIDE BRIDGE KIT | |
| DIMENSIONS (HxL) | 160"x10" |
| WEIGHT/ VOLUME | 325.0 LBS |
| CABLE RUN (QTY) | 12 |

| | |
|--------------------|----------------------------------|
| INCLUDED PRODUCTS: | WB-T12-3 TRAPEZE KIT, 3 RUNGS |
| | WB-LB12-3 SUPPORT BRACKET |
| | WF-130 DIRECT BURIAL PIPE |
| | COLUMN, 13'-4" |



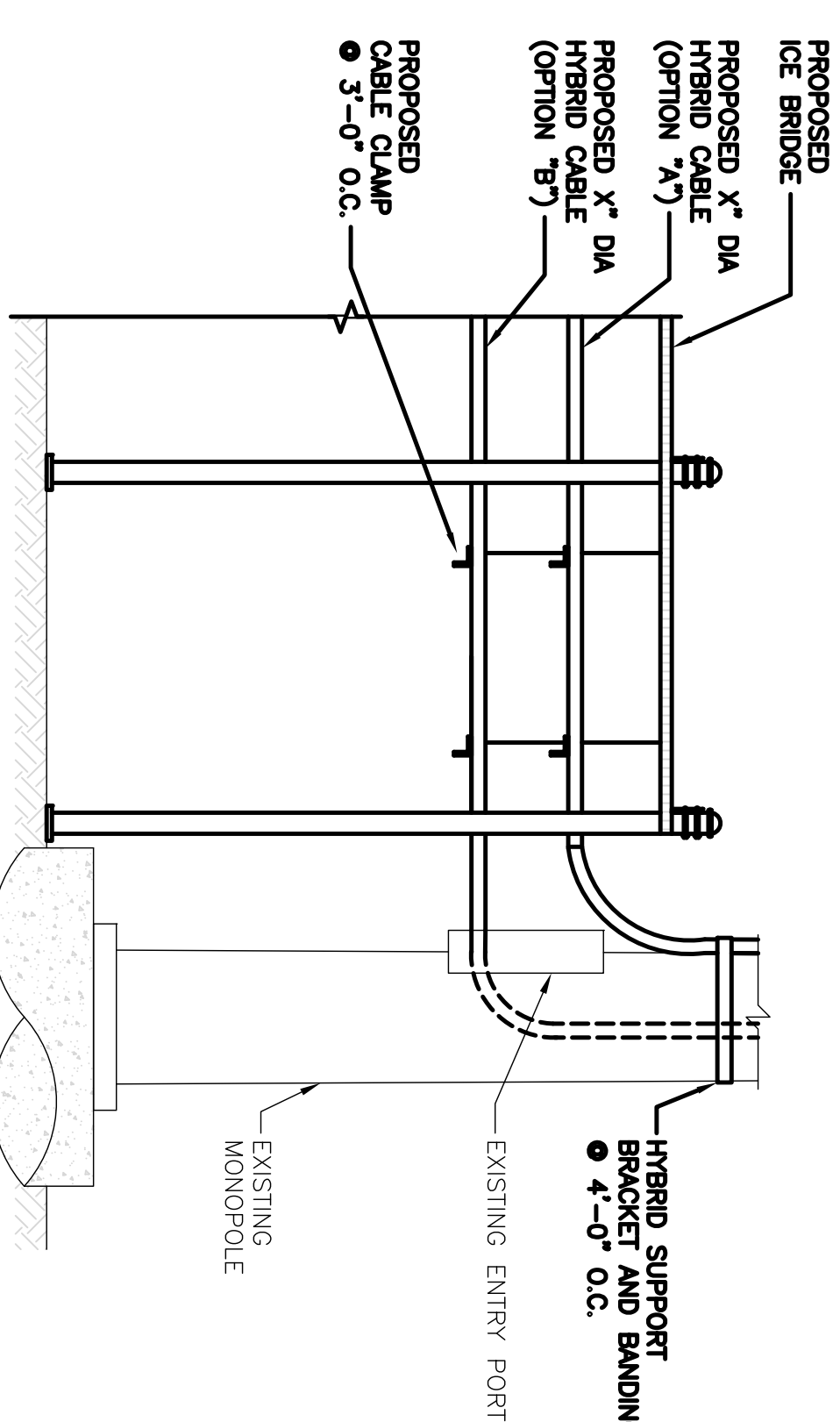
ICE BRIDGE DETAIL

NO SCALE 7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL

NO SCALE 8

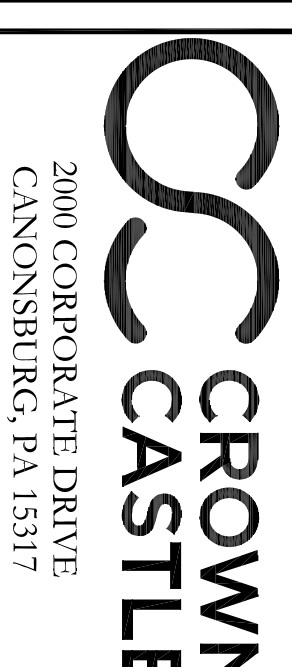


HYBRID CABLE RUN

NO SCALE 9



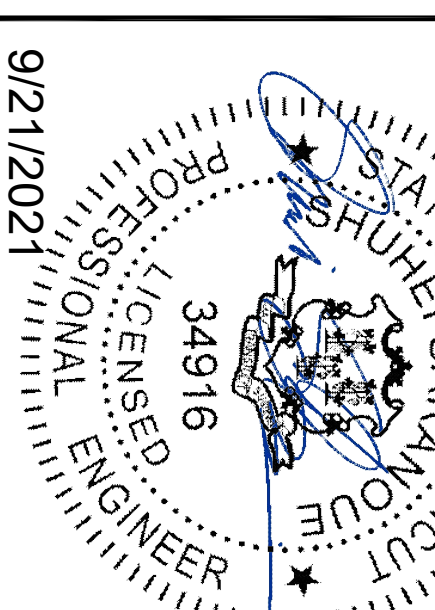
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RCD SS CIW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

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A&E PROJECT NUMBER
6039-Z0001C

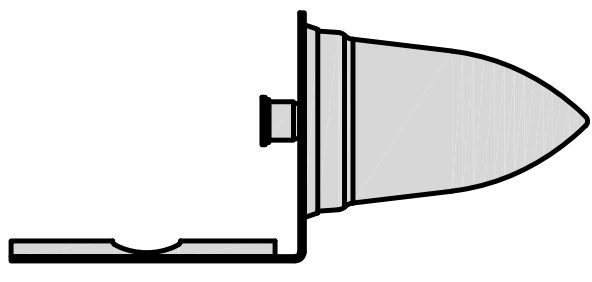
DISH Wireless LLC,
PROJECT INFORMATION
BOHVN00024A
280 ELM STREET
NAUGATUCK, CT 06770

EQUIPMENT DETAILS

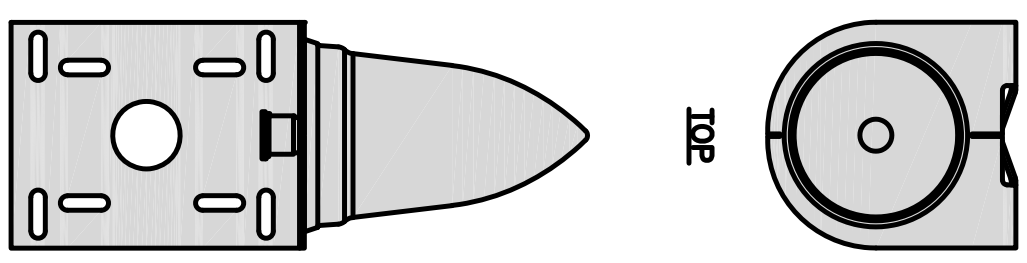
SHEET NUMBER

A-4

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

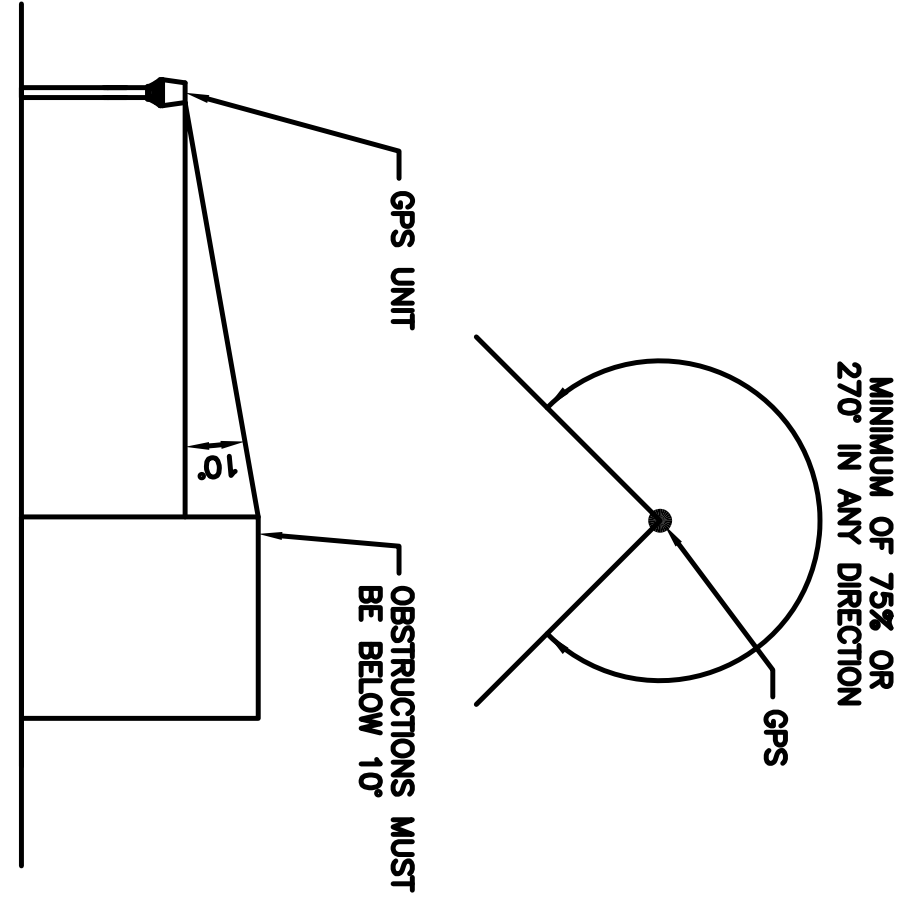


BACK



TOP

SIDE



GPS DETAIL

NO SCALE

1

GPS MINIMUM SKY VIEW REQUIREMENTS

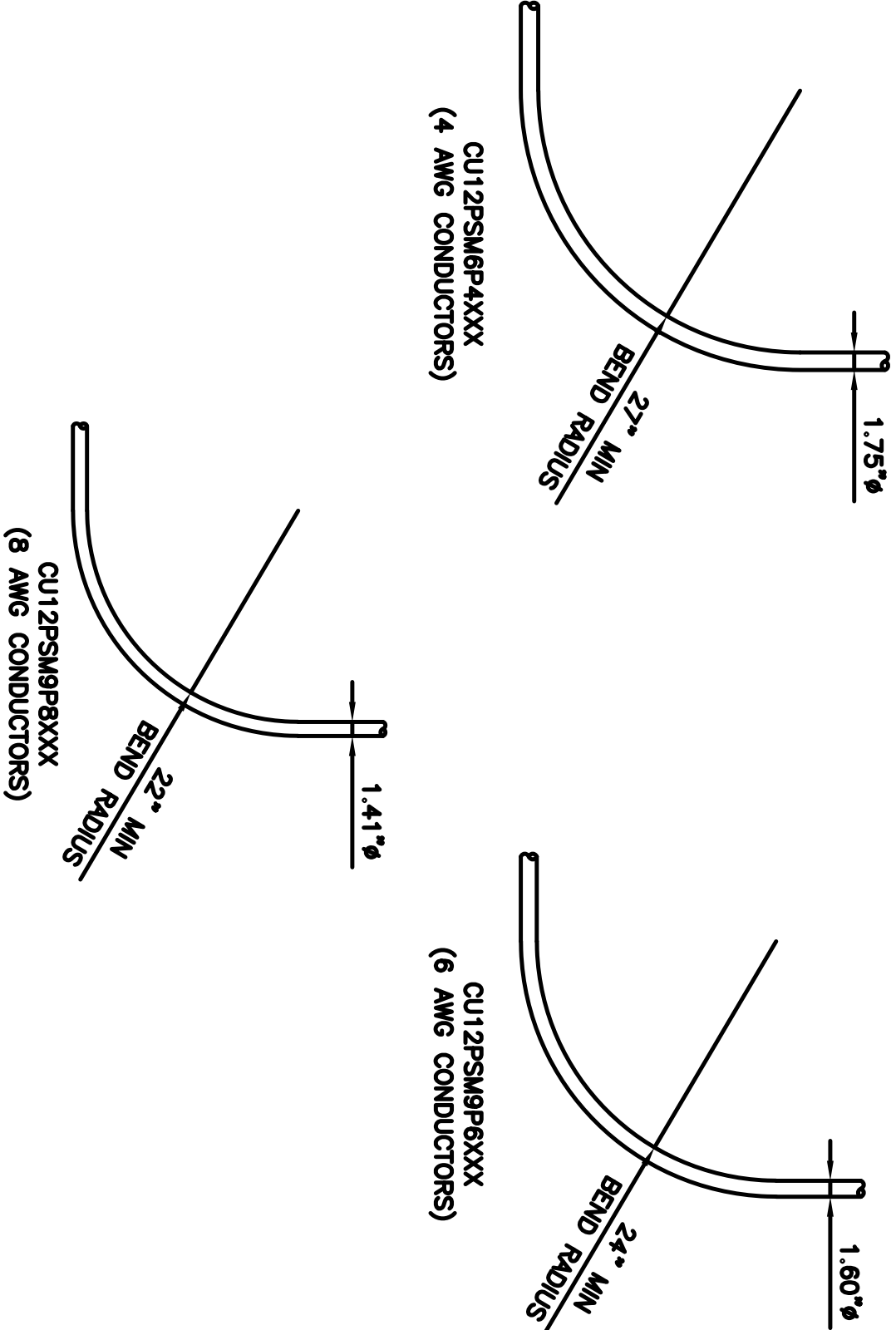
NO SCALE

2

**CABLES UNLIMITED HYBRID CABLE
MINIMUM BEND RADIIUSES**

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

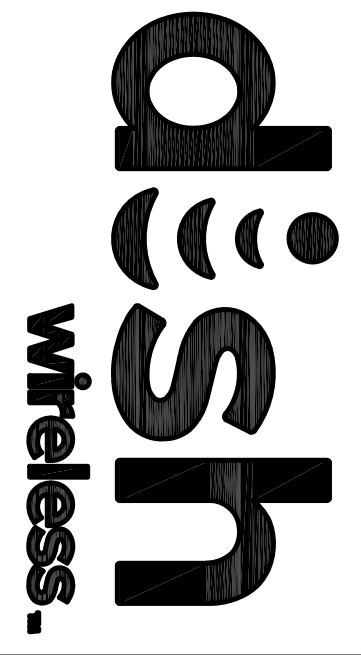
NO SCALE

8

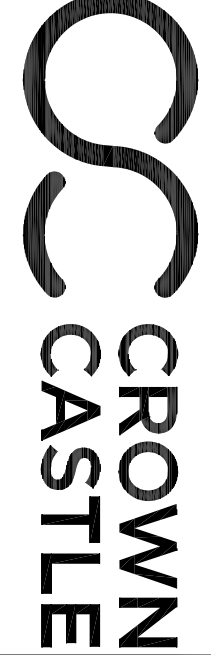
NOT USED

NO SCALE

9



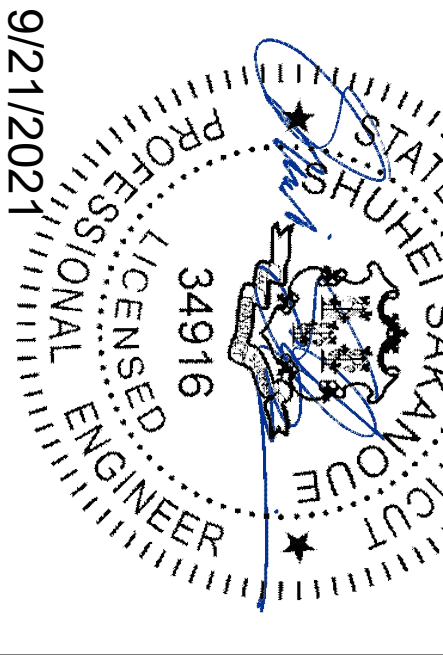
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A&E PROJECT NUMBER
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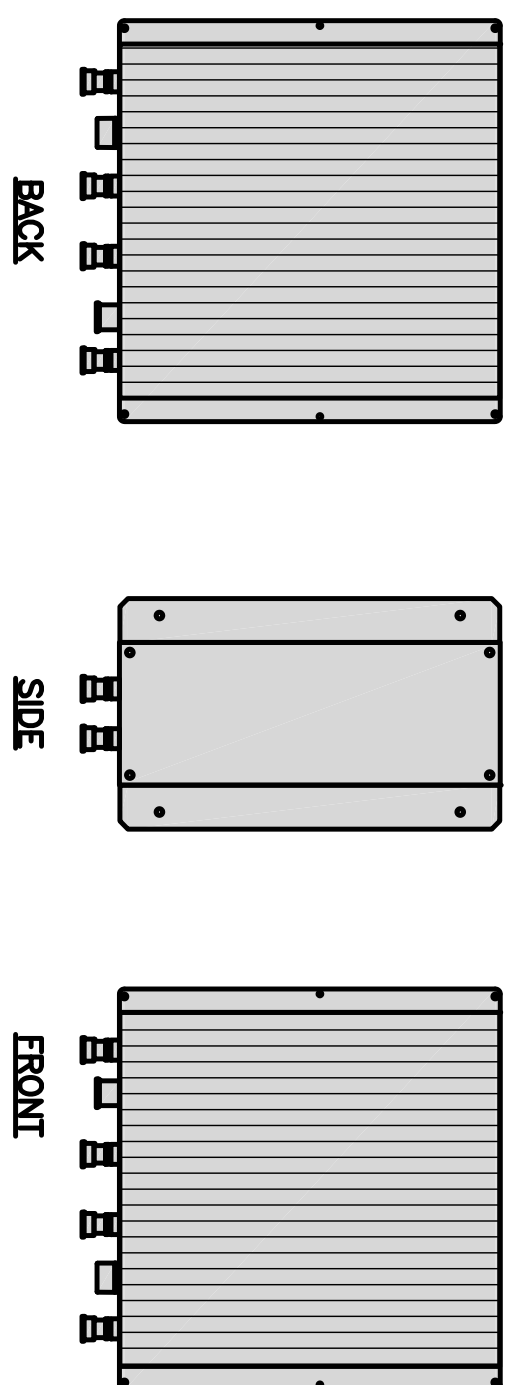
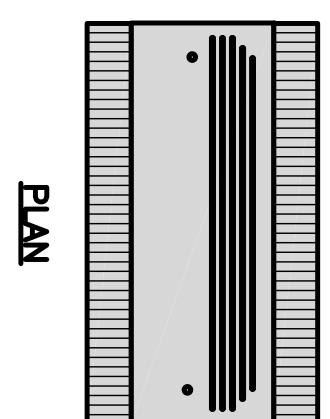
DISH Wireless LLC.
PROJECT INFORMATION
BOHVN00024A
280 ELM STREET
NAUGATUCK, CT 06770

EQUIPMENT DETAILS

SHEET NUMBER

A-5

| | |
|--|---------------------|
| FUJITSU TRIPLE BAND TA08025-B605 | |
| DIMENSIONS (HxWxD) | 14.9" x 15.7" x 9" |
| WEIGHT | 74.95 lbs |
| CONNECTOR TYPE | 4.3-10 RF CONNECTOR |
| POWER SUPPLY | DC -58V--38V |

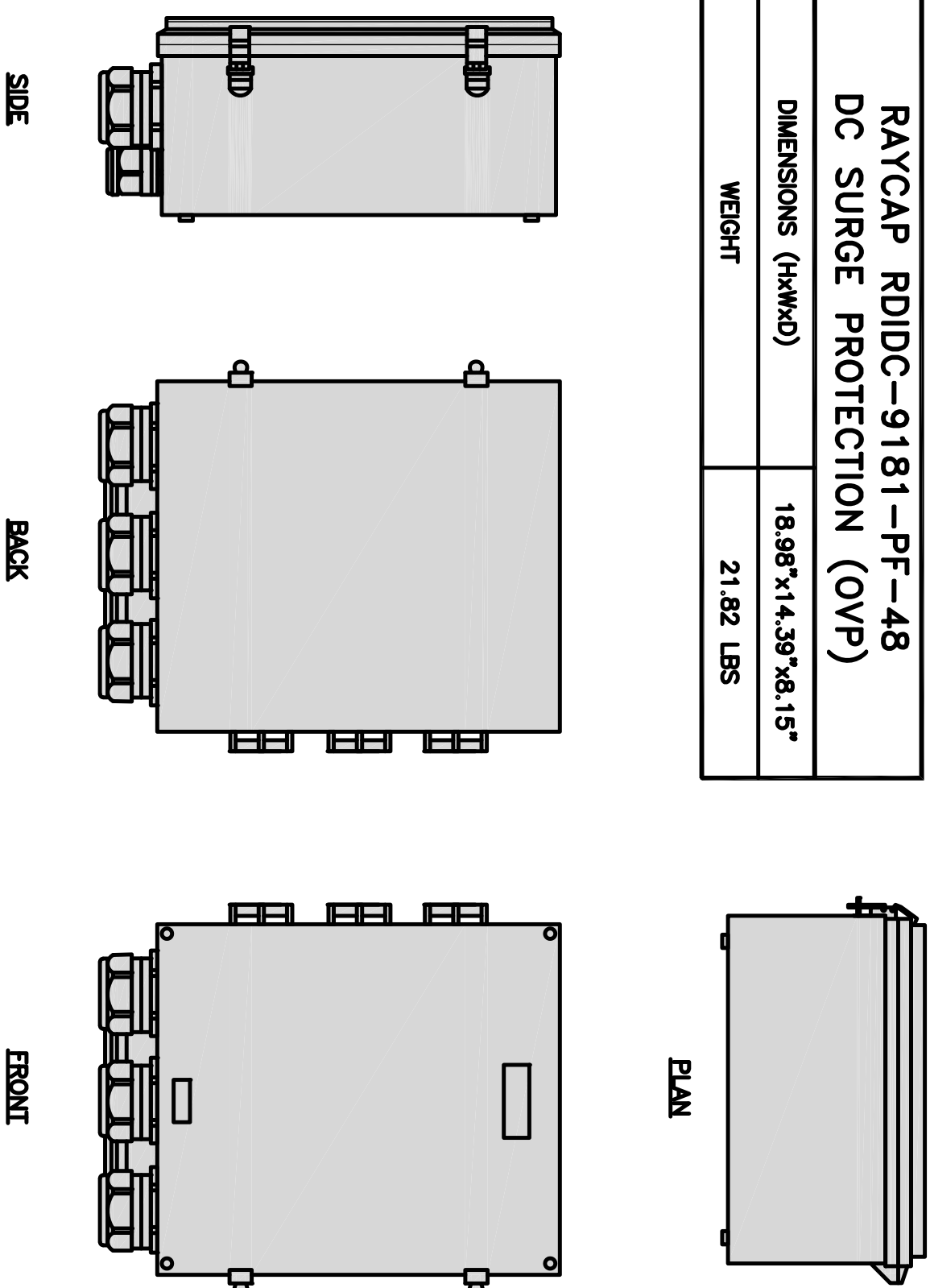


RRH DETAIL

NO SCALE 1

| | |
|---|-------------------------|
| RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP) | |
| DIMENSIONS (HxWxD) | 18.98" x 14.39" x 6.15" |
| WEIGHT | 21.82 LBS |

PLAN

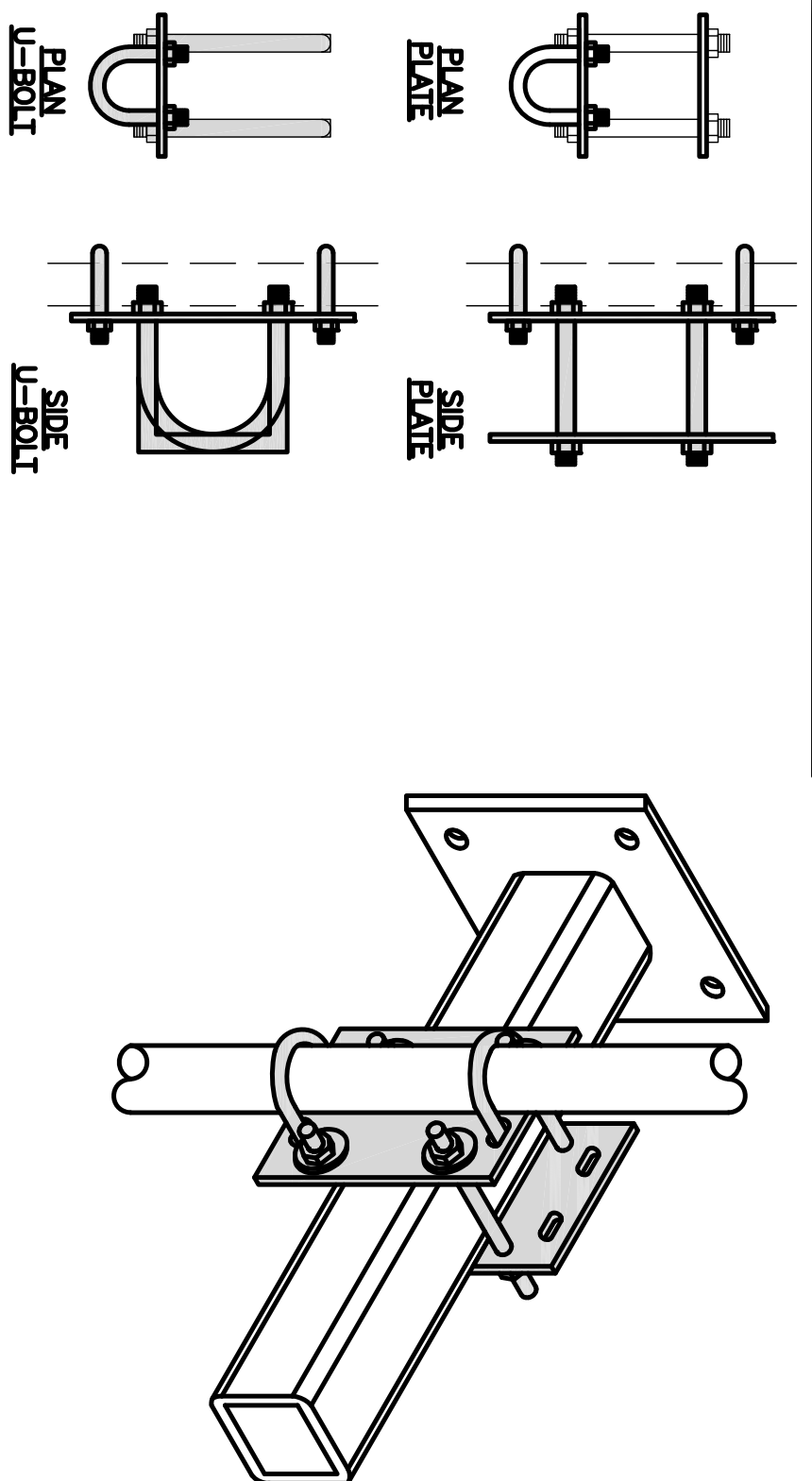


SURGE SUPPRESSION DETAIL (OVP)

NO SCALE 4

| | |
|---|-----------|
| COMMSCOPE XP-2040 CROSSOVER PLATE | |
| DIMENSIONS (HxW) | 10" x 12" |
| WEIGHT | 11 lbs |

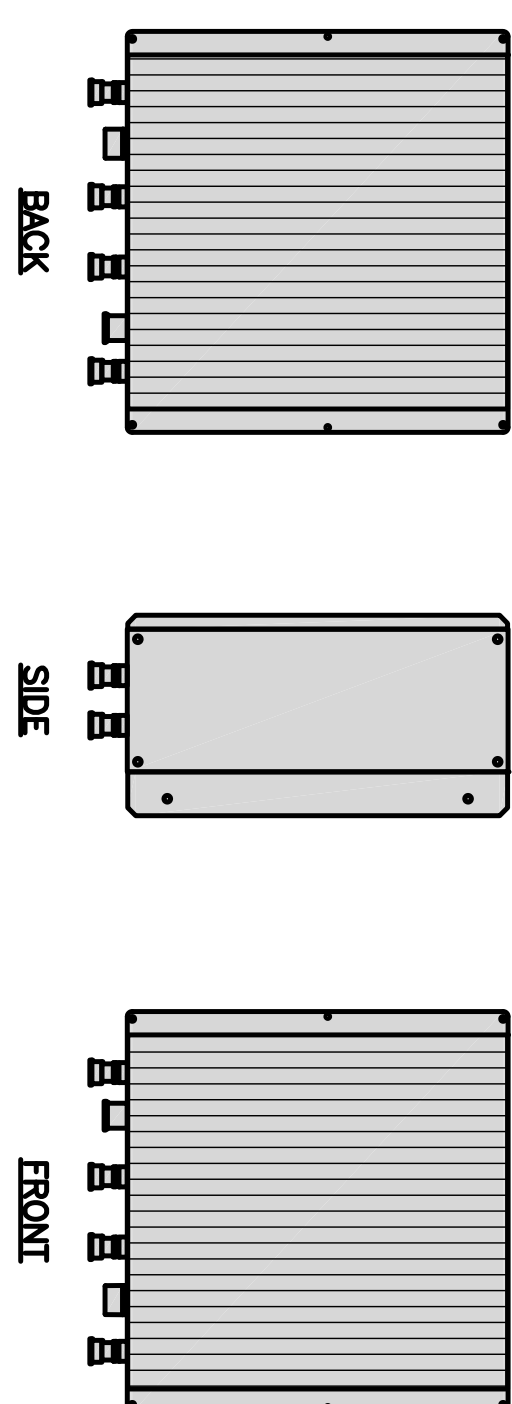
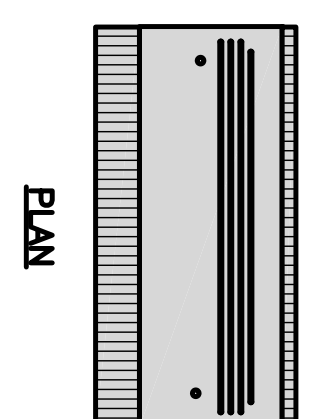
NOTE:
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APPROVED EQUIVALENT



RRH/OVP MOUNT DETAIL

NO SCALE 7

| | |
|--|----------------------|
| FUJITSU DUAL BAND TA08025-B604 | |
| DIMENSIONS (HxWxD) | 14.9" x 15.7" x 7.8" |
| WEIGHT | 63.9 lbs |
| CONNECTOR TYPE | 4.3-10 RF CONNECTOR |
| POWER SUPPLY | DC -58V--38V |



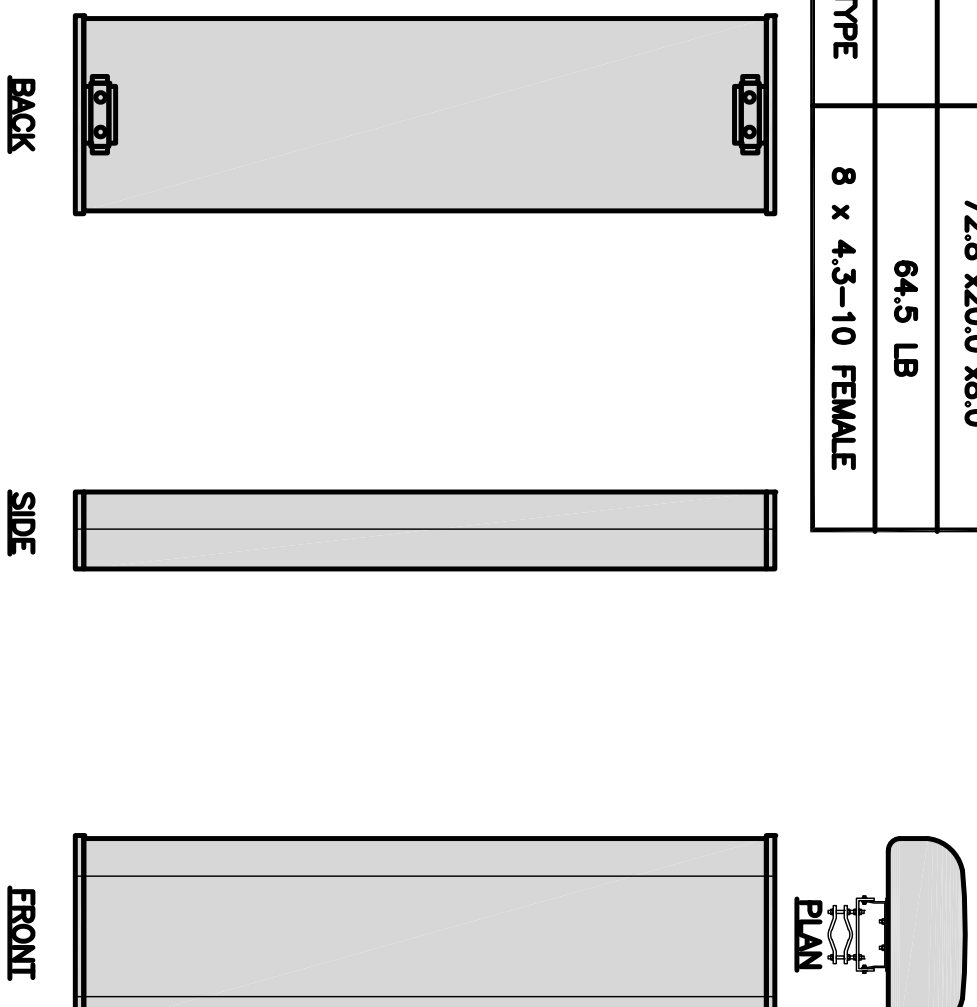
RRH DETAIL

NO SCALE 2

| | |
|--|----------------------|
| JMA WIRELESS MX08FR0665-21 ANTENNA | |
| DIMENSIONS (HxWxD) | 72.8" x 20.0" x 8.0" |
| TOTAL WEIGHT | 64.5 LB |
| RF PORTS, CONNECTOR TYPE | 8 x 4.3-10 FEMALE |

NOTES

FINAL ANTENNA SPECIFICATIONS TO BE CONFIRMED BY GC

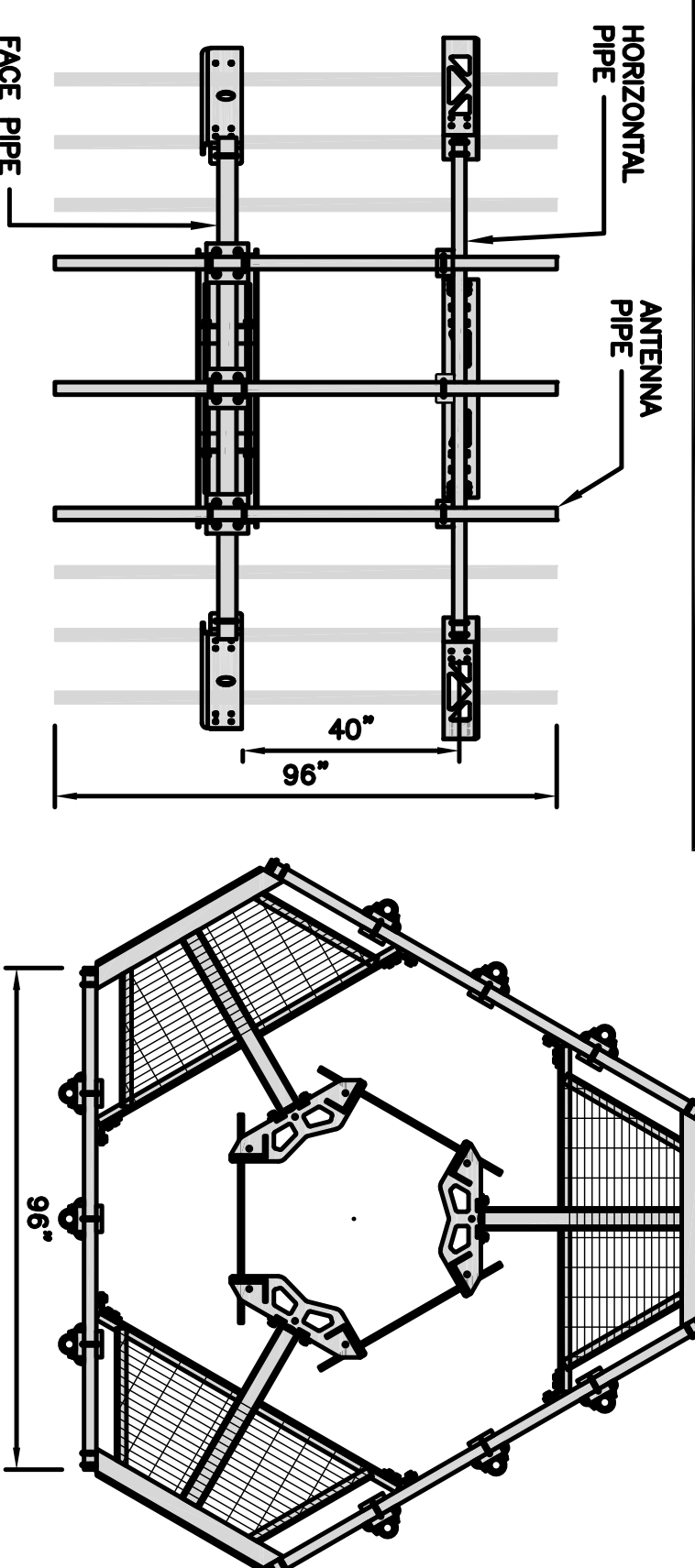


ANTENNA DETAIL

NO SCALE 5

| | |
|--------------------------------|-------------|
| 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



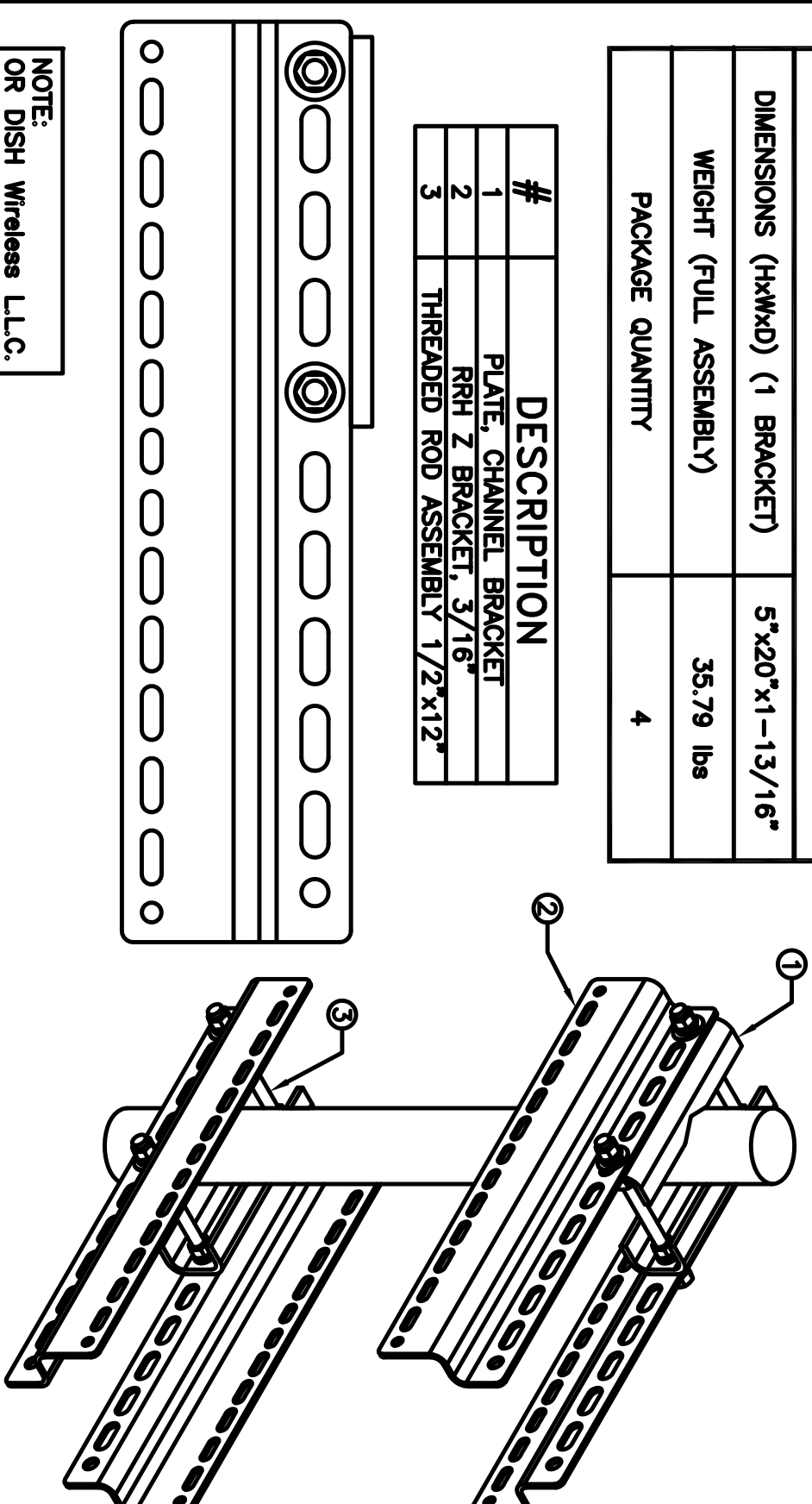
ANTENNA PLATFORM DETAIL

NO SCALE 8

| | |
|--|---------------------|
| SABRE DOUBLE Z-BRACKET C10123155 | |
| DIMENSIONS (HxWxD) (1 BRACKET) | 5" x 20" x 1-13/16" |
| WEIGHT (FULL ASSEMBLY) | 35.79 lbs |
| PACKAGE QUANTITY | 4 |

| # | DESCRIPTION |
|---|--------------------------------|
| 1 | PLATE CHANNEL BRACKET |
| 2 | RF Z BRACKET 3/16" |
| 3 | THREADED ROD ASSEMBLY 1/2"x12" |

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

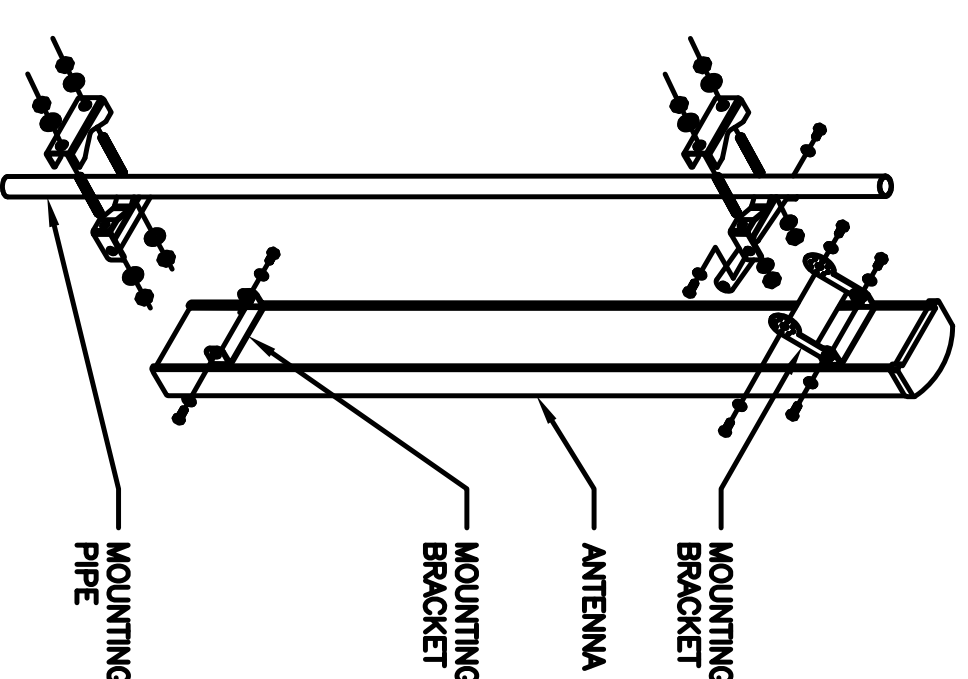


RRH MOUNT DETAIL

NO SCALE 3

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

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



ANTENNA MOUNTING DETAIL

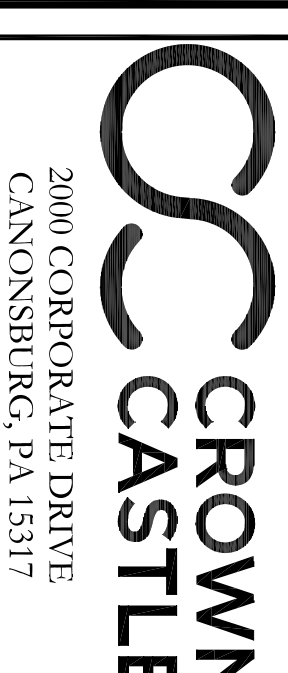
NO SCALE 6

NOT USED

NO SCALE 9



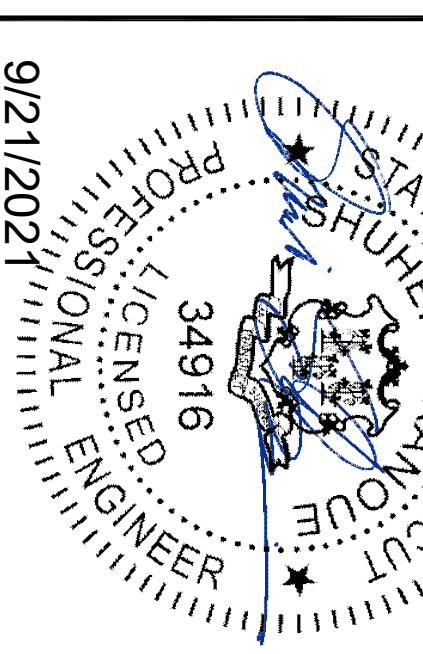
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RCD SS CJW

RTDS REV #: N/A

CONSTRUCTION DOCUMENTS

| REV | DATE | DESCRIPTION |
|-----|------------|-------------------------|
| 1 | 06/11/2021 | ISSUED FOR REVIEW |
| 0 | 06/24/2021 | ISSUED FOR CONSTRUCTION |

A&E PROJECT NUMBER
6039-Z0001C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00024A
280 ELM STREET
NAUGATUCK, CT 06770

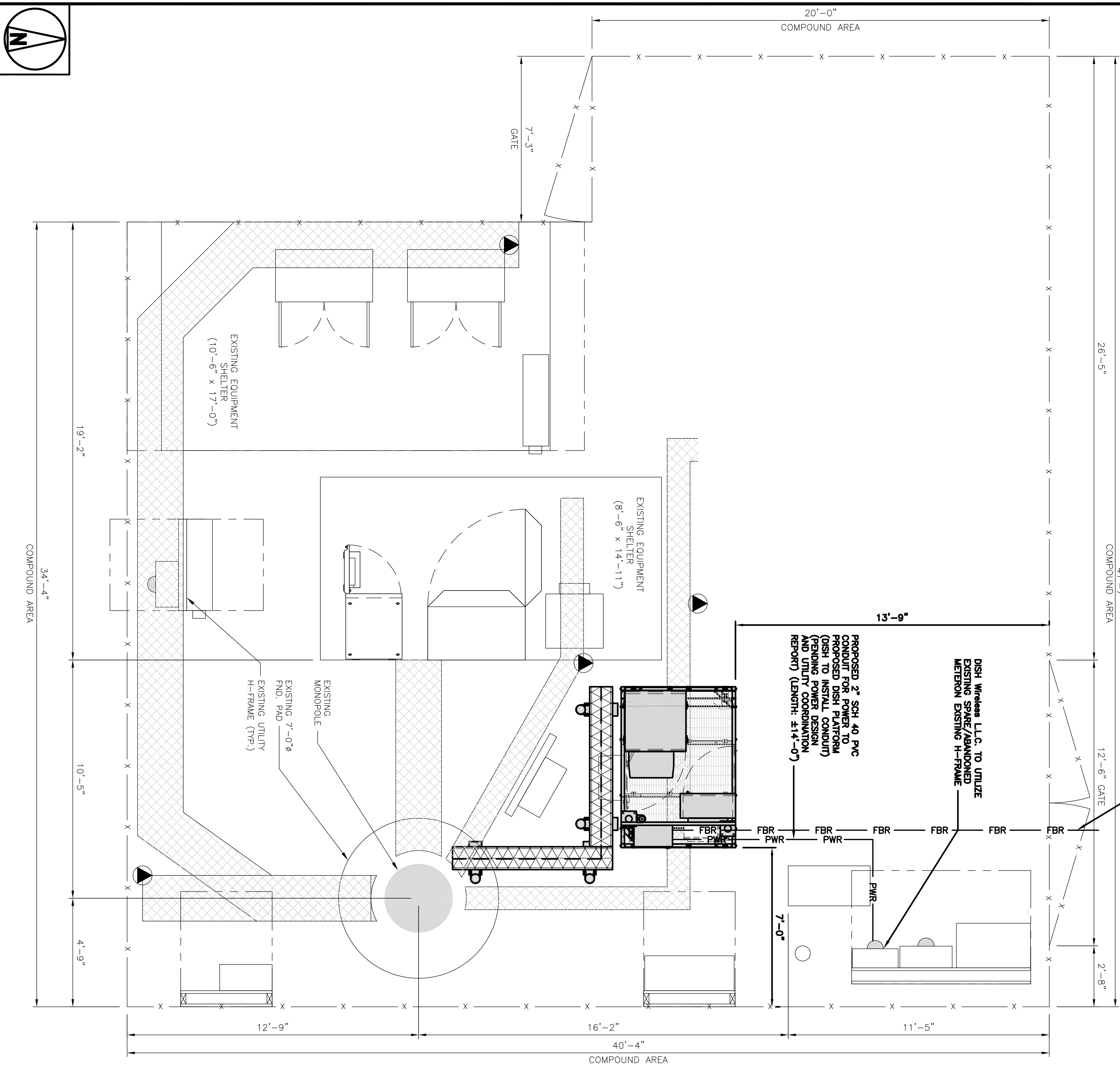
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER

A-6

PROPOSED 2" SCH 40 PVC CONDUIT FOR FIBER TO PROPOSED DISH PLATFORM (DISH TO INSTALL CONDUIT) (PENDING FIBER DESIGN AND UTILITY COORDINATION REPORT) (LENGTH: ±258'-0")

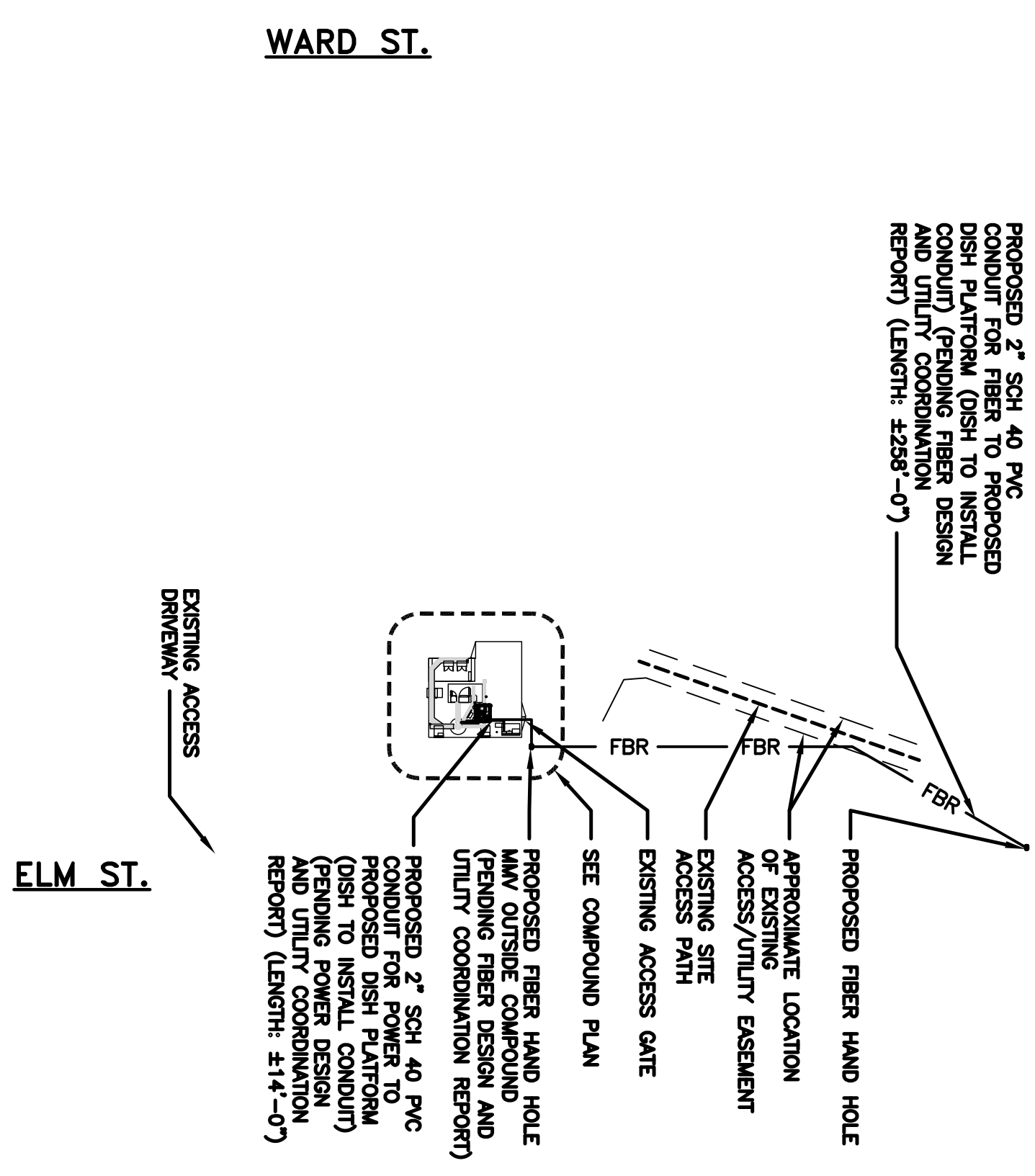
- NOTES**
- CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
 - ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



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

ELECTRICAL NOTES

PROPOSED 2" SCH 40 PVC CONDUIT FOR FIBER TO PROPOSED DISH PLATFORM (DISH TO INSTALL CONDUIT) (PENDING FIBER DESIGN AND UTILITY COORDINATION REPORT) (LENGTH: ±258'-0")



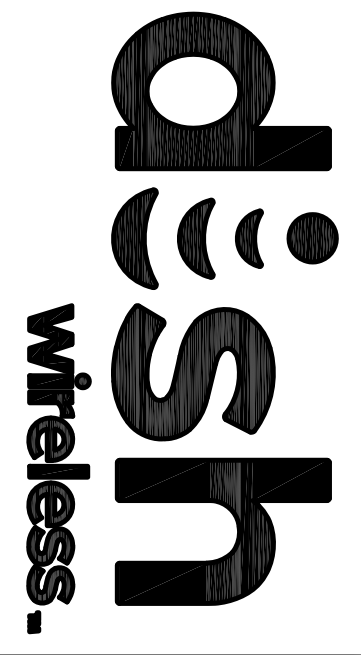
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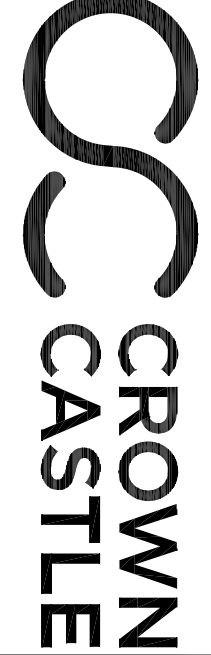
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DISH Wireless LLC.
PROJECT INFORMATION
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NAUGATUCK, CT 06770

SHEET TITLE
ELECTRICAL/FIBER ROUTE
PLAN AND NOTES
SHEET NUMBER
E-1



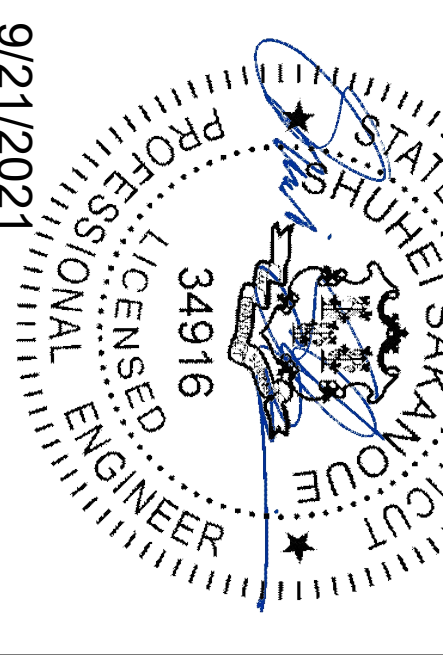
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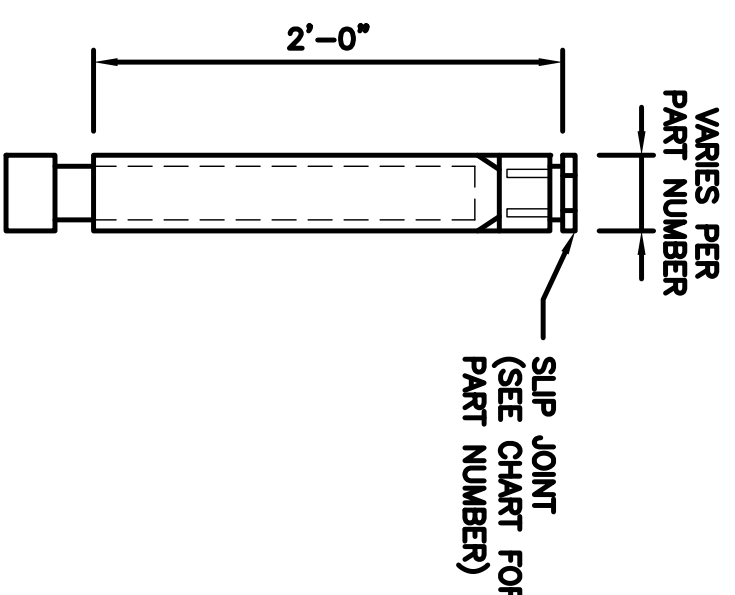
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RFDS REV #: N/A

| 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 TO MATCH LEADER LENGTH TO FITTER TERMINATION, AS PER LOCAL TILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

EXPANSION JOINT DETAIL

NO SCALE 1

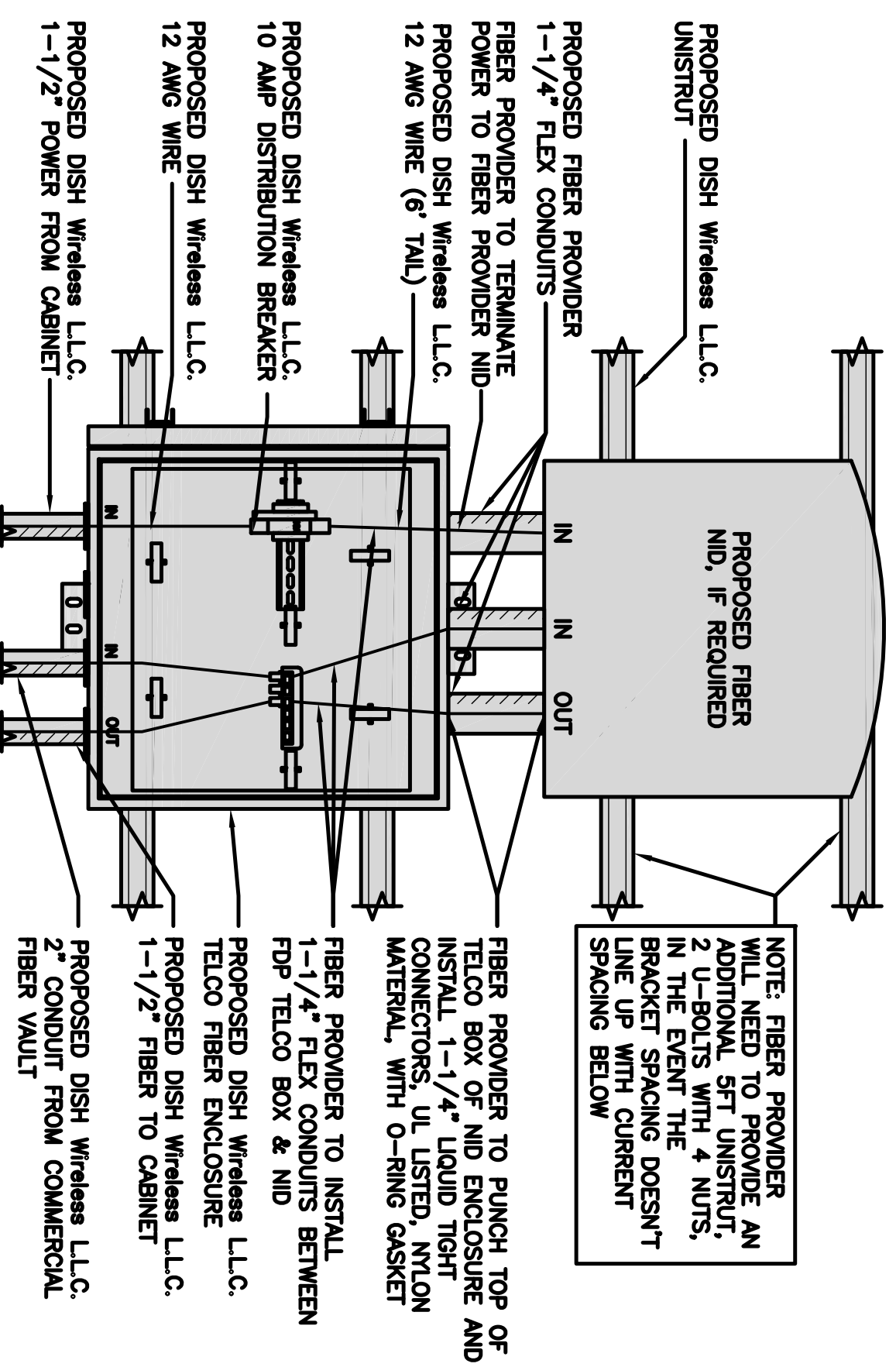
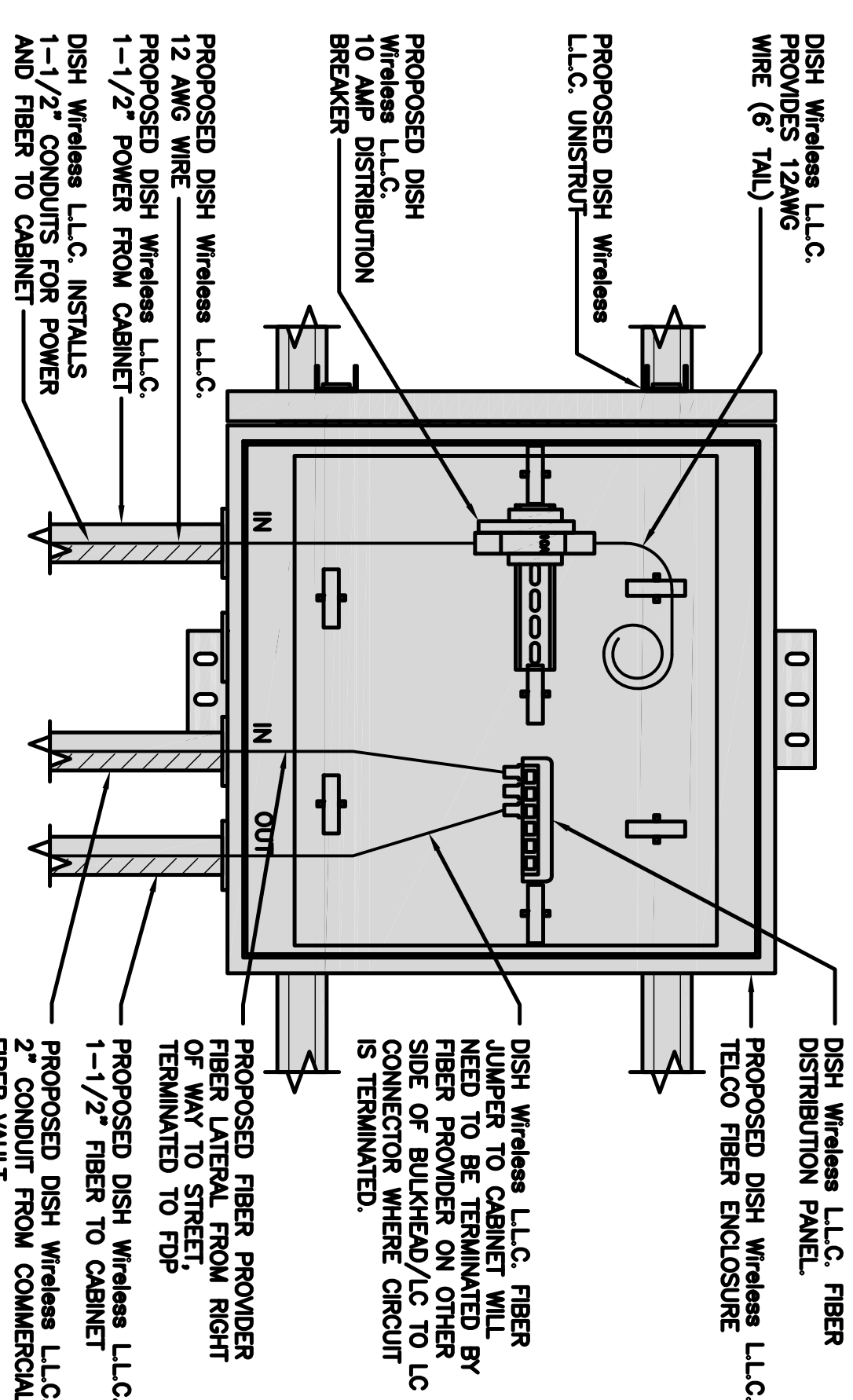
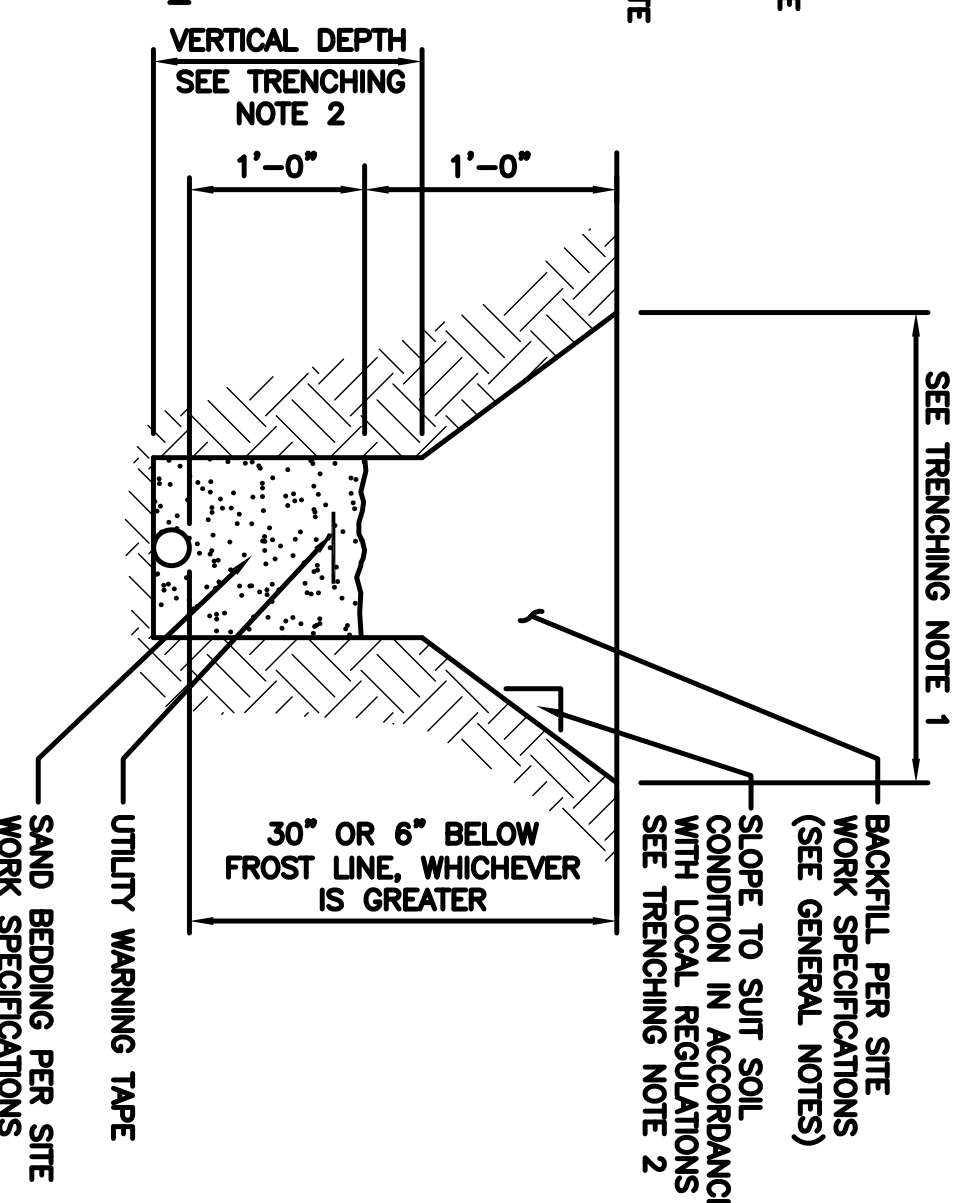
TYPICAL UNDERGROUND TRENCH DETAIL

NO SCALE 2

DARK TELCO BOX - INTERIOR WIRING LAYOUT

NO SCALE 3

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



LIT TELCO BOX - INTERIOR WIRING LAYOUT (OPTIONAL)

NO SCALE 4

NOT USED

NO SCALE 5

NOT USED

NO SCALE 6

NOT USED

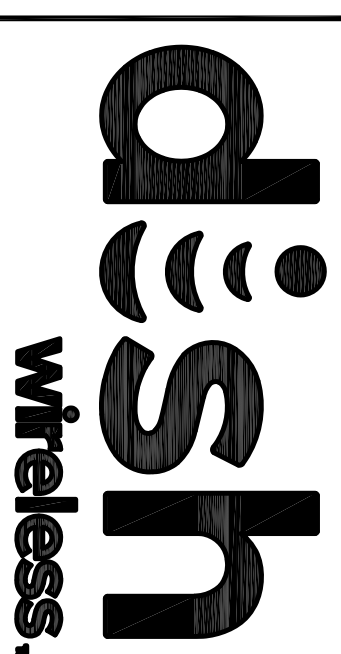
NO SCALE 7

NOT USED

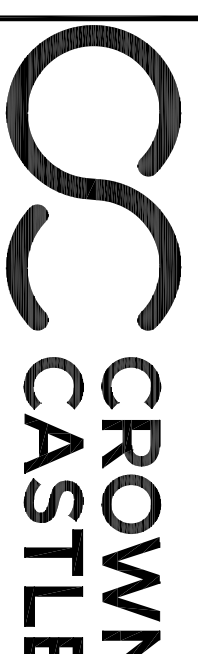
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NOT USED

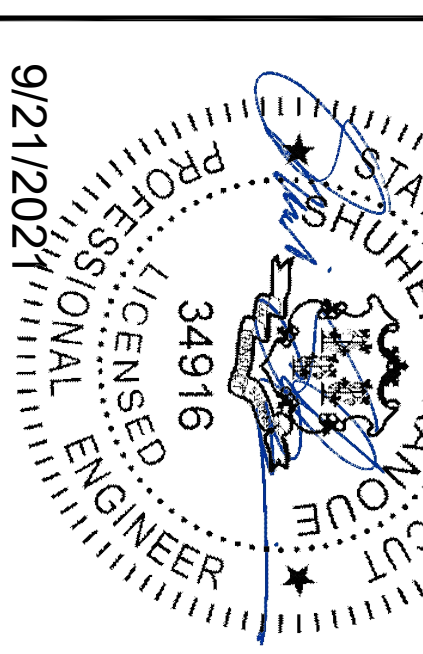
NO SCALE 9



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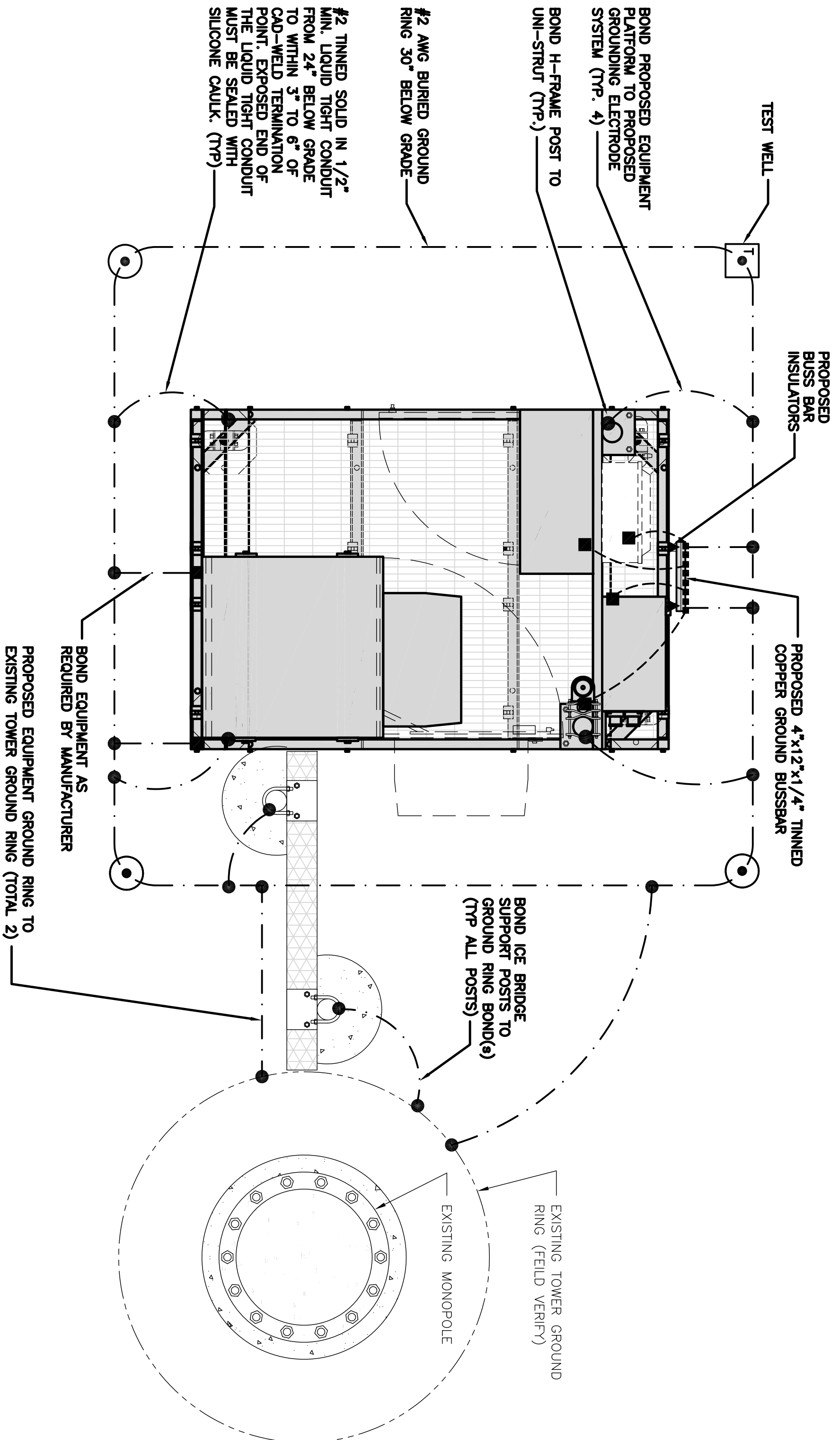
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DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00024A
280 ELM STREET
NAUGATUCK, CT 06770

SHEET TITLE
ELECTRICAL
DETAILS

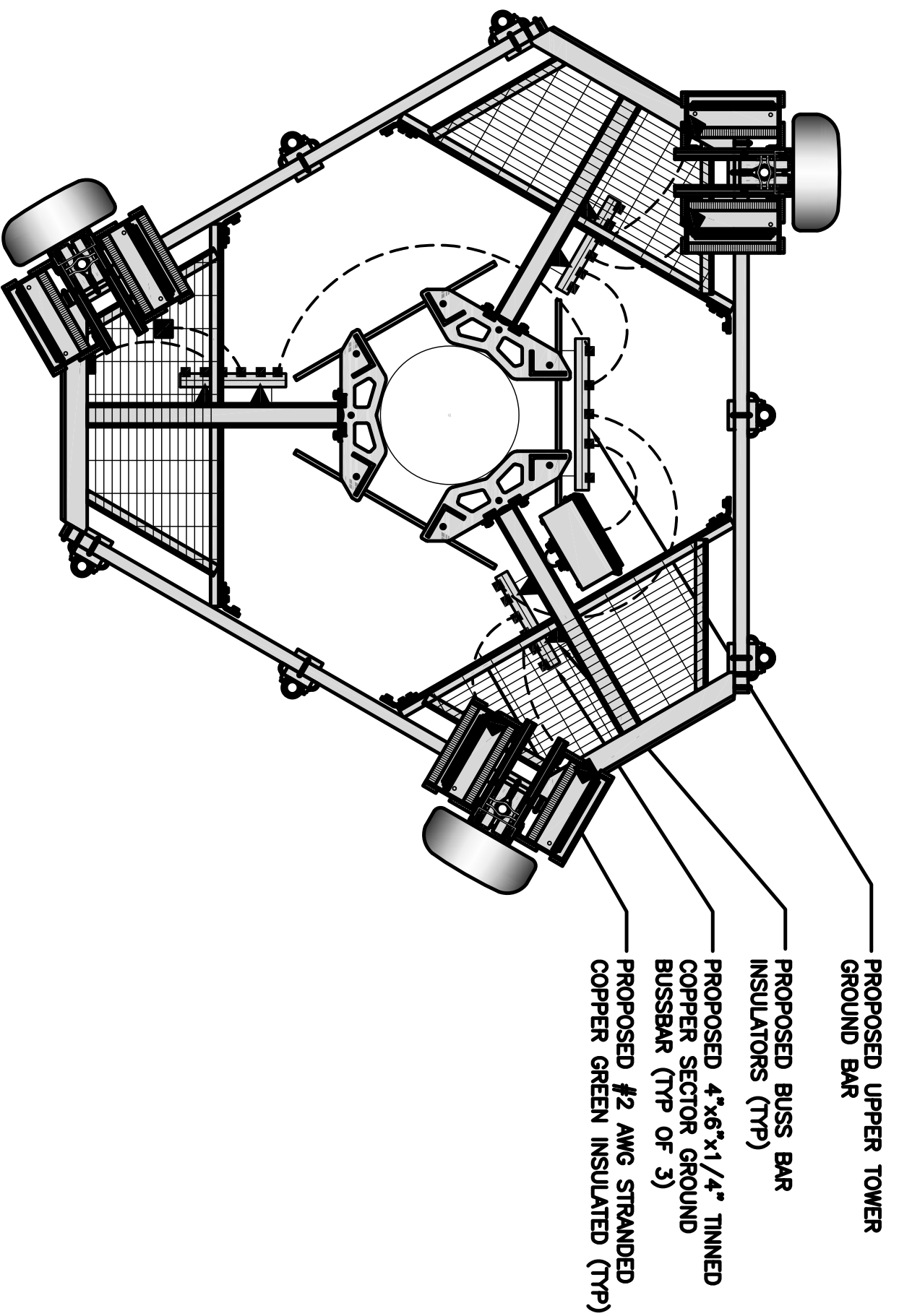
SHEET NUMBER
E-2



TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE

1

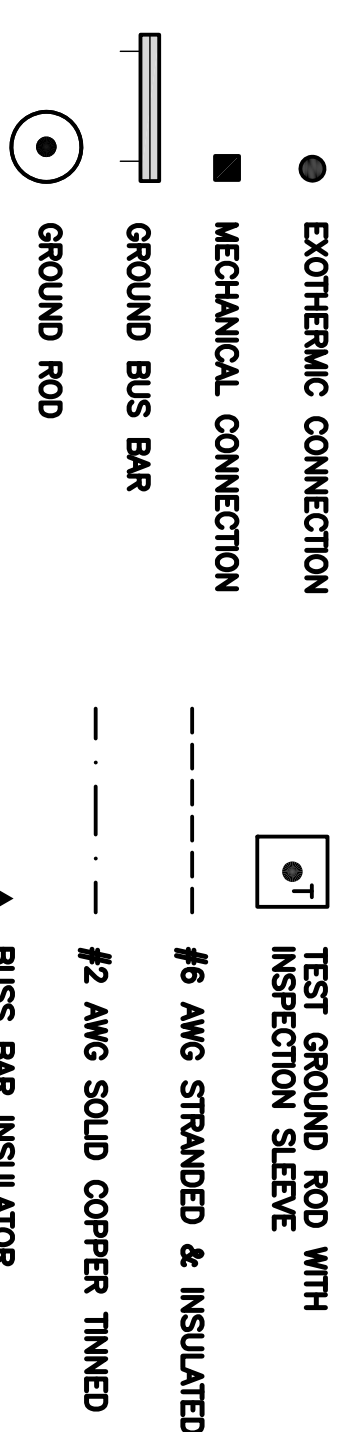


TYPICAL ANTENNA GROUNDING PLAN

NO SCALE

2

- NOTES**
1. ANTENNAS AND OVP SHOWN ARE GENERIC AND NOT REFERENCING TO A SPECIFIC MANUFACTURER. THIS LAYOUT IS FOR REFERENCE ONLY.



GROUNDING LEGEND

1. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
2. CONTRACTOR SHALL GROUND ALL EQUIPMENT AS A COMPLETE SYSTEM. GROUNDING SHALL BE IN COMPLIANCE WITH NEG 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.

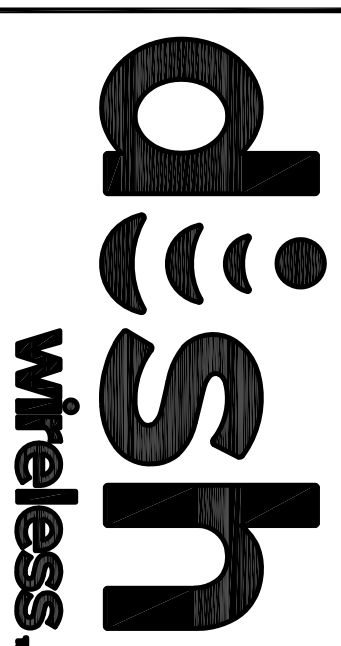
GROUNDING KEY NOTES

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

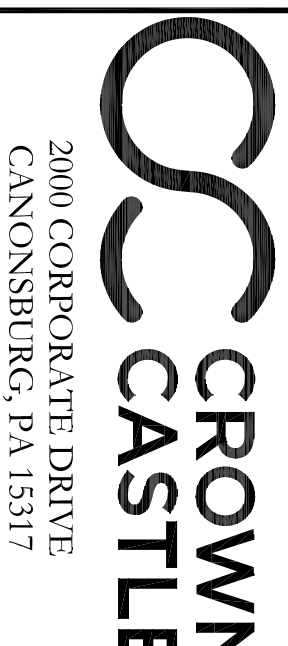
GROUNDING KEY NOTES

NO SCALE

3



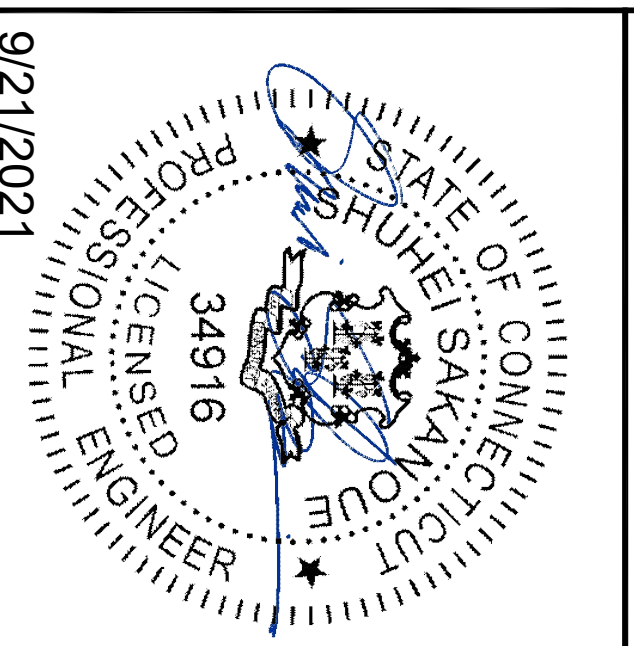
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RCD SS CIW

RFD REV #: N/A

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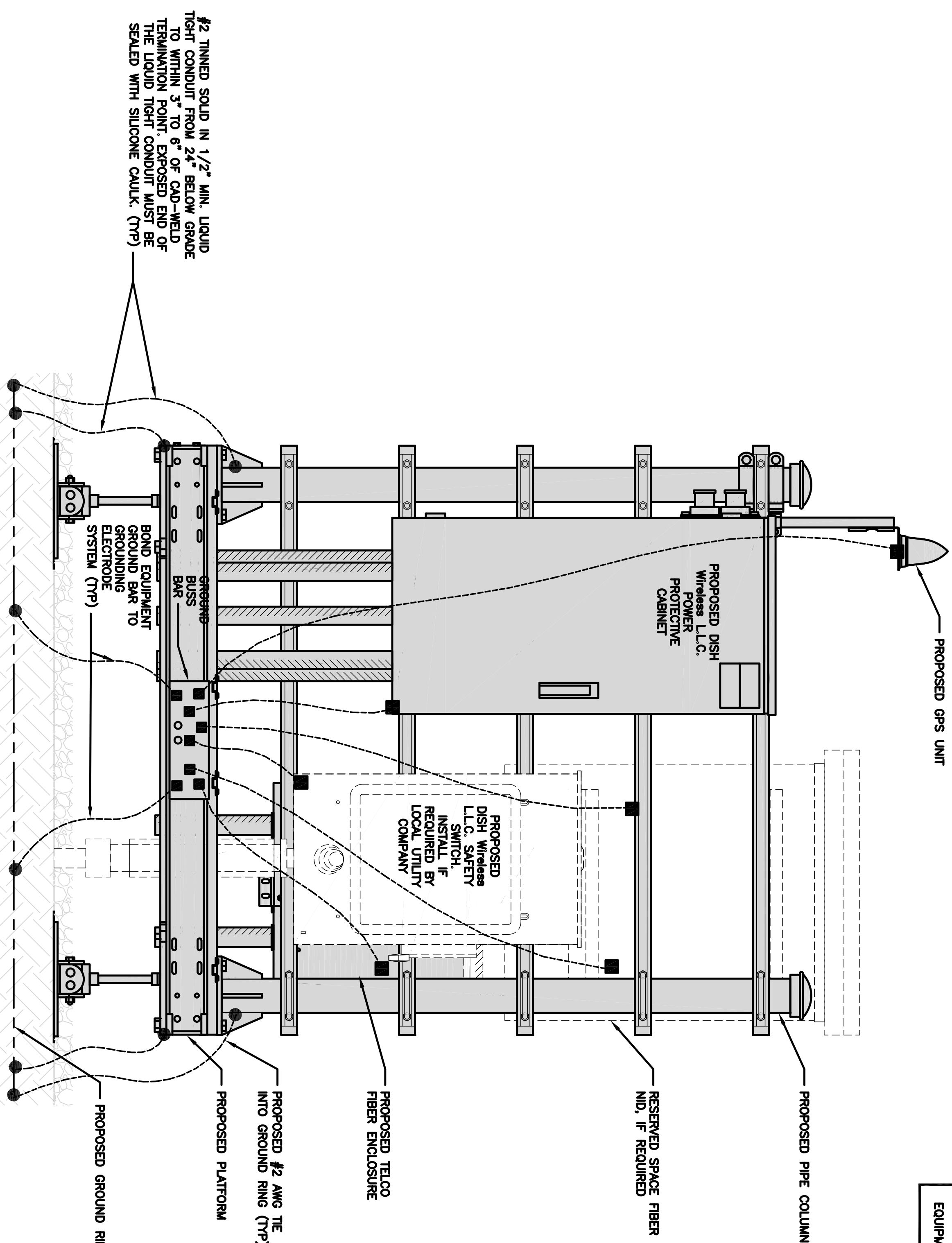
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00024A
280 ELM STREET
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SHEET TITLE
GROUNDING PLANS
AND NOTES

SHEET NUMBER

G-1

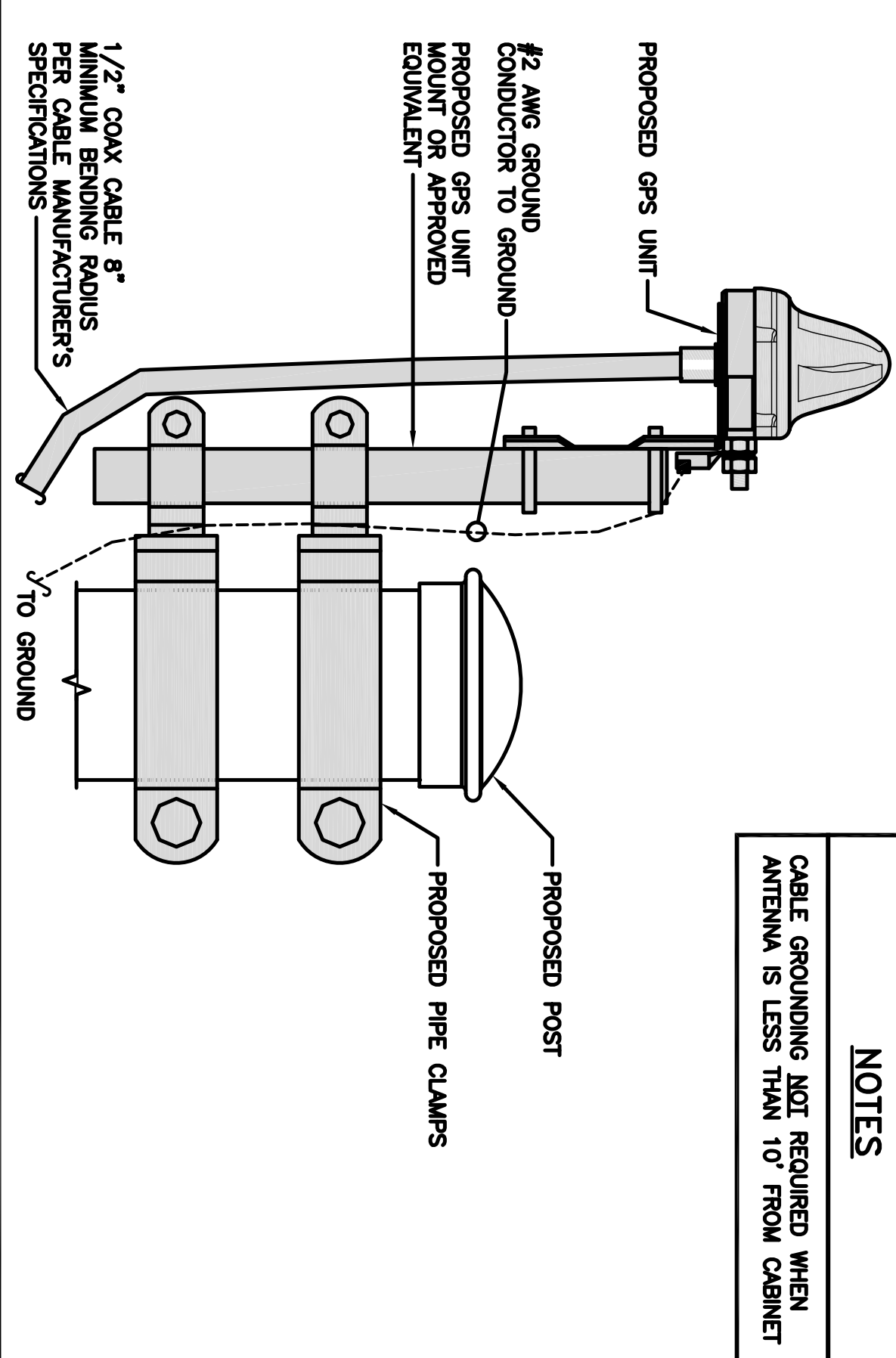
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EQUIPMENT CABINET OMITTED FOR CLARITY



H-FRAME GROUNDING DETAIL

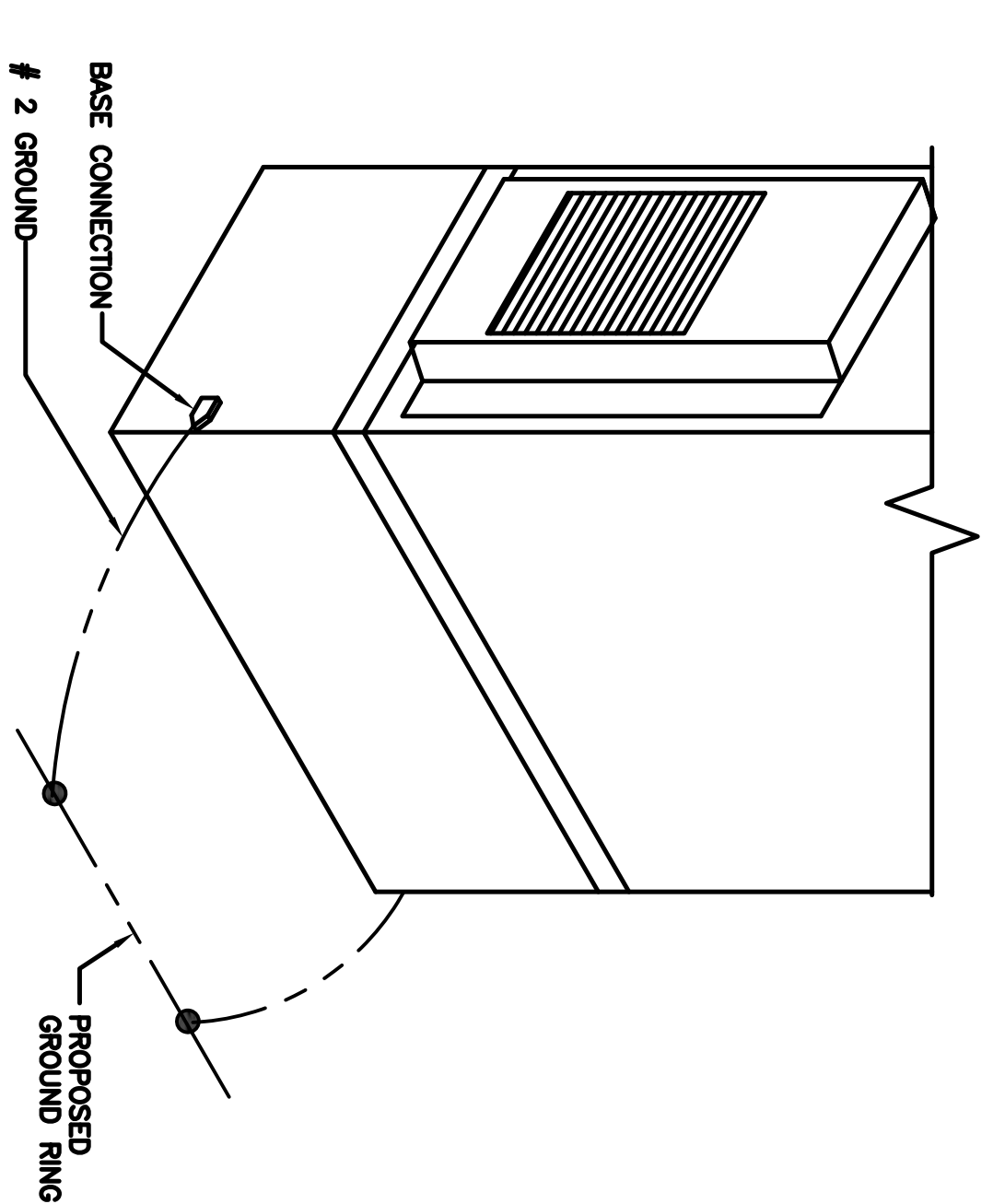
NO SCALE 1

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



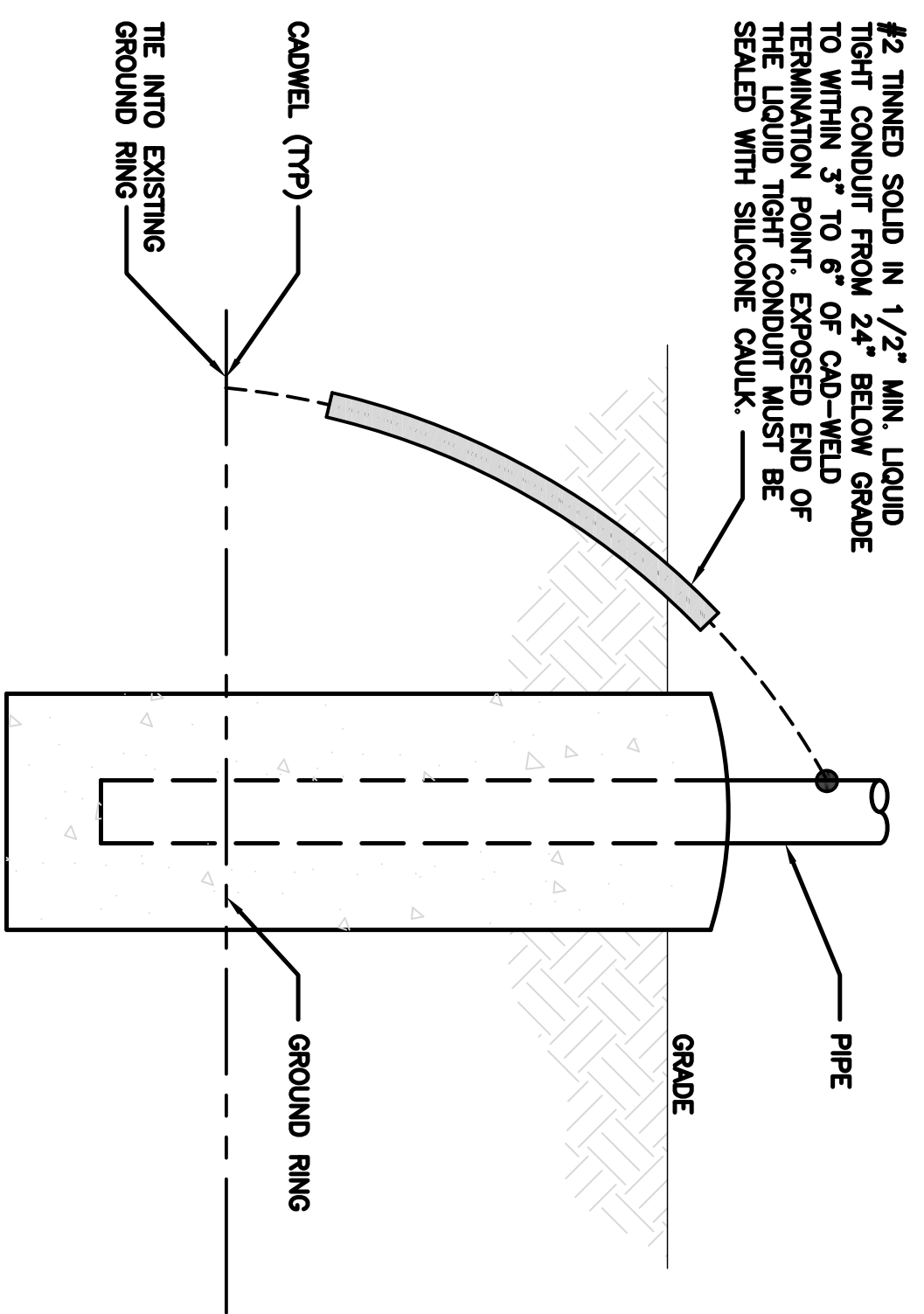
TYPICAL GPS UNIT GROUNDING

NO SCALE 2



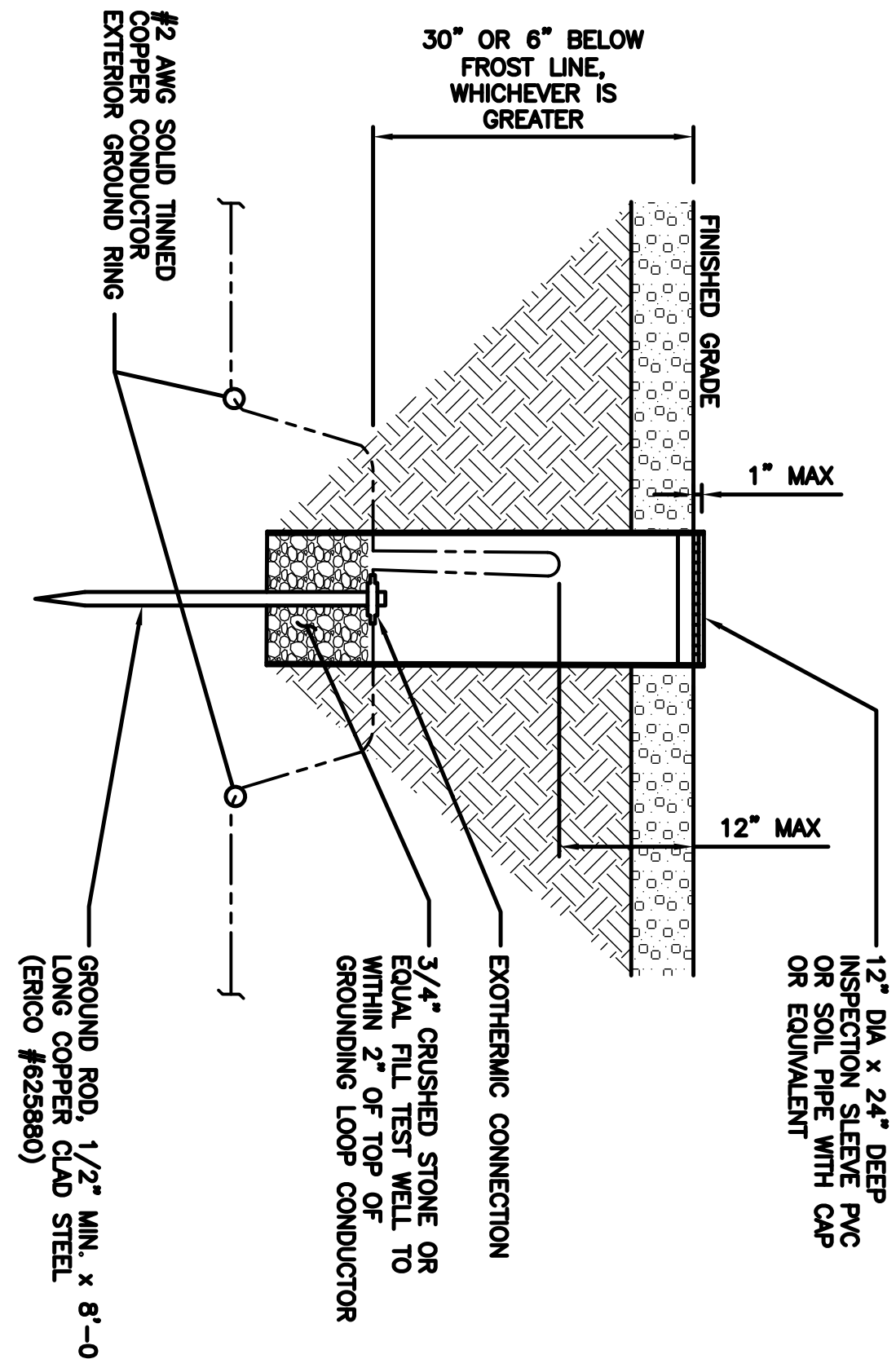
OUTDOOR CABINET GROUNDING

NO SCALE 3



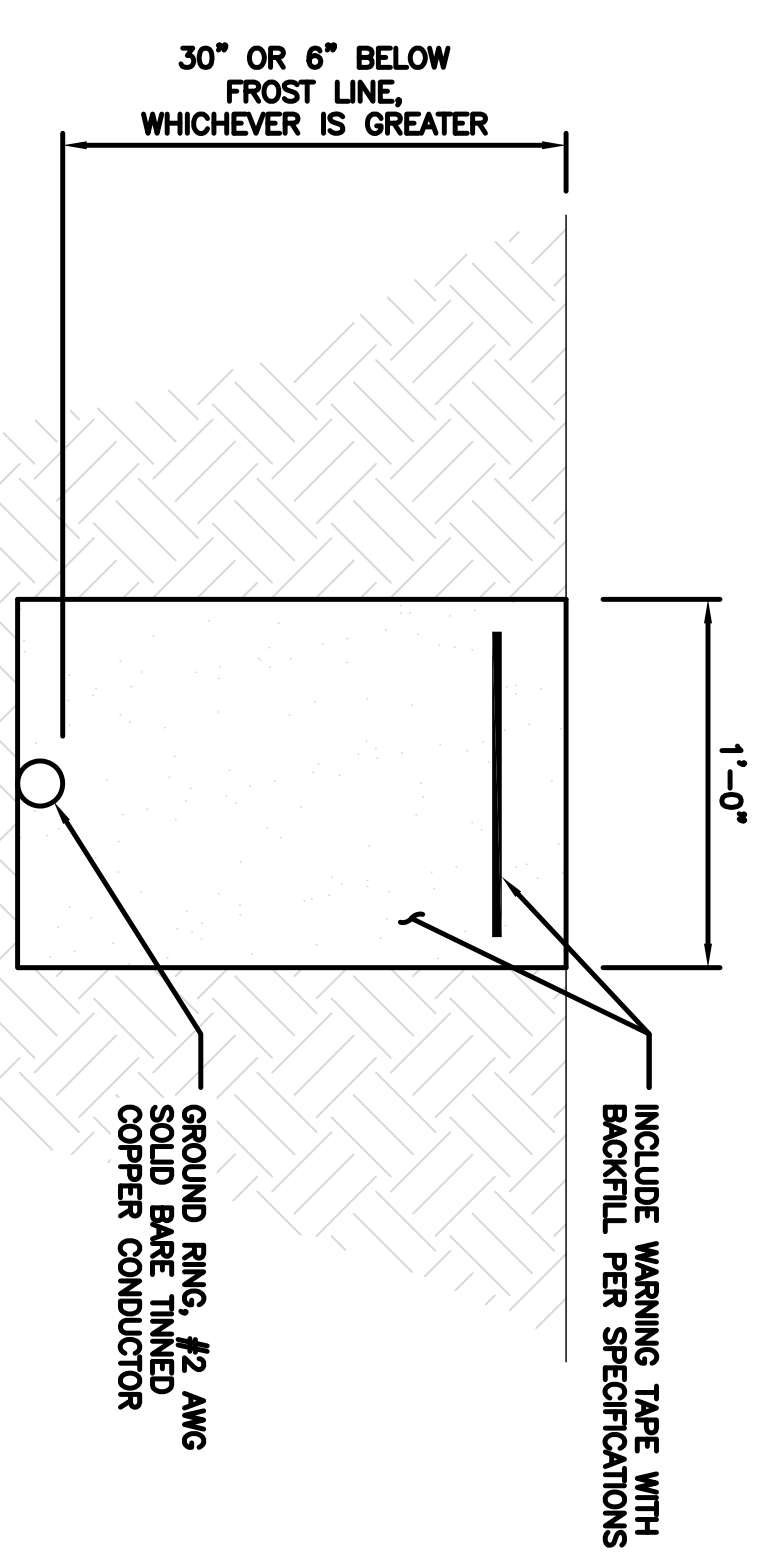
TRANSITIONING GROUND DETAIL

NO SCALE 4



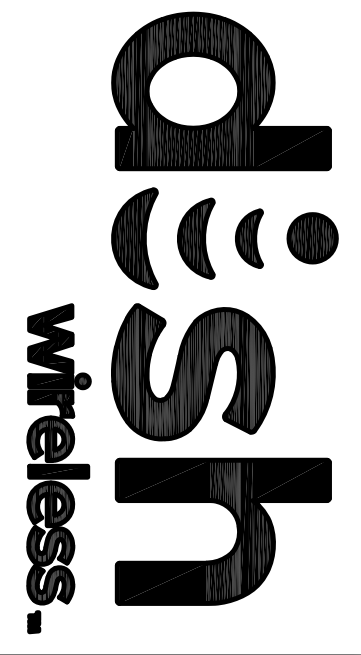
TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE

NO SCALE 5

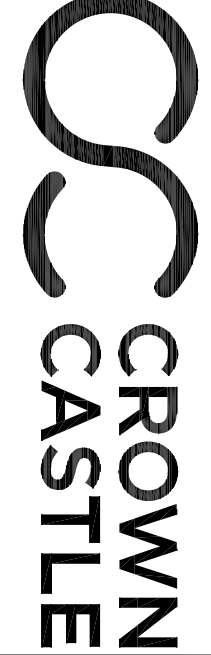


TYPICAL GROUND RING TRENCH

NO SCALE 6



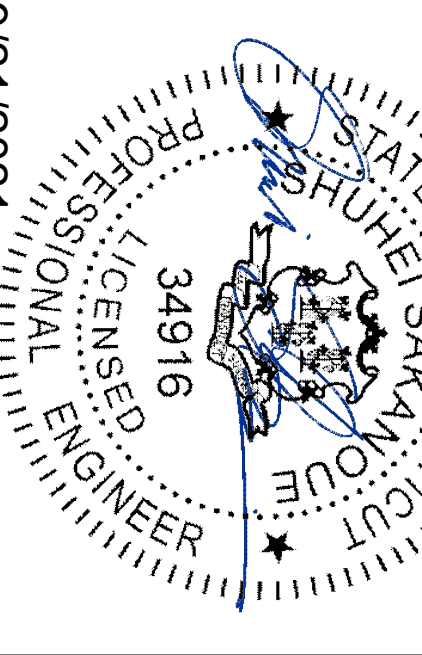
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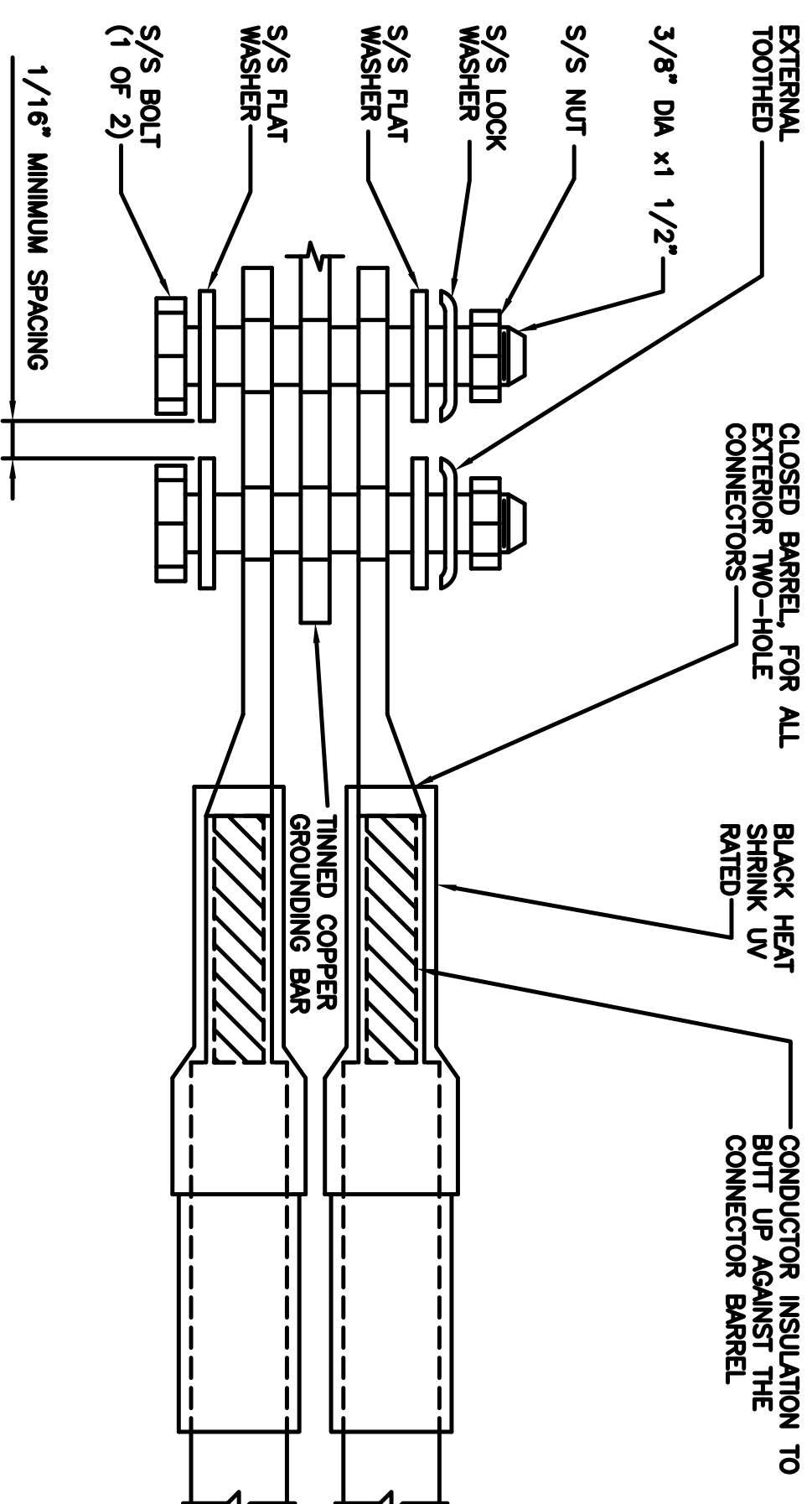
SHEET NUMBER

G-2

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

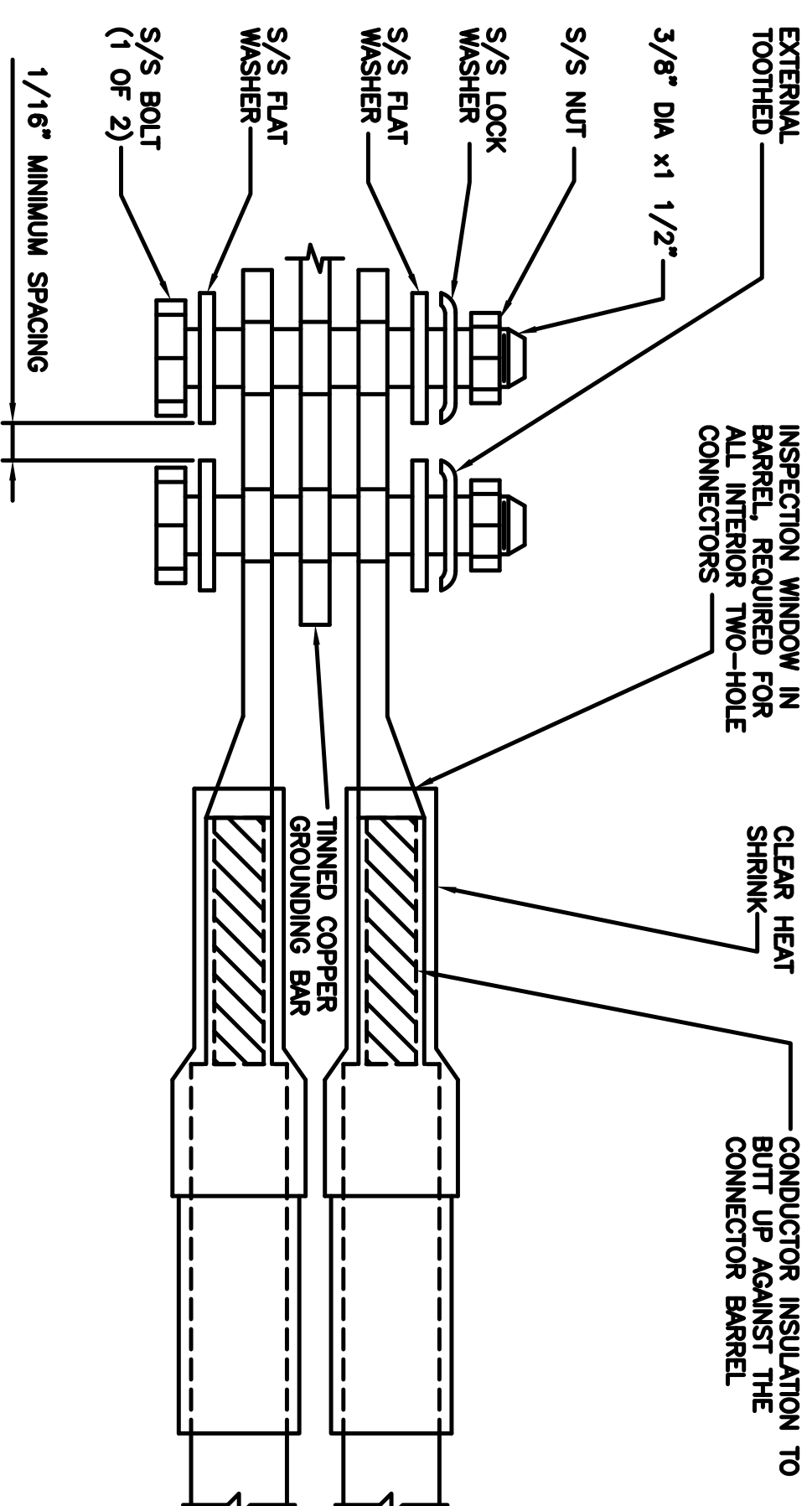
TYPICAL GROUNDING NOTES

NO SCALE 1



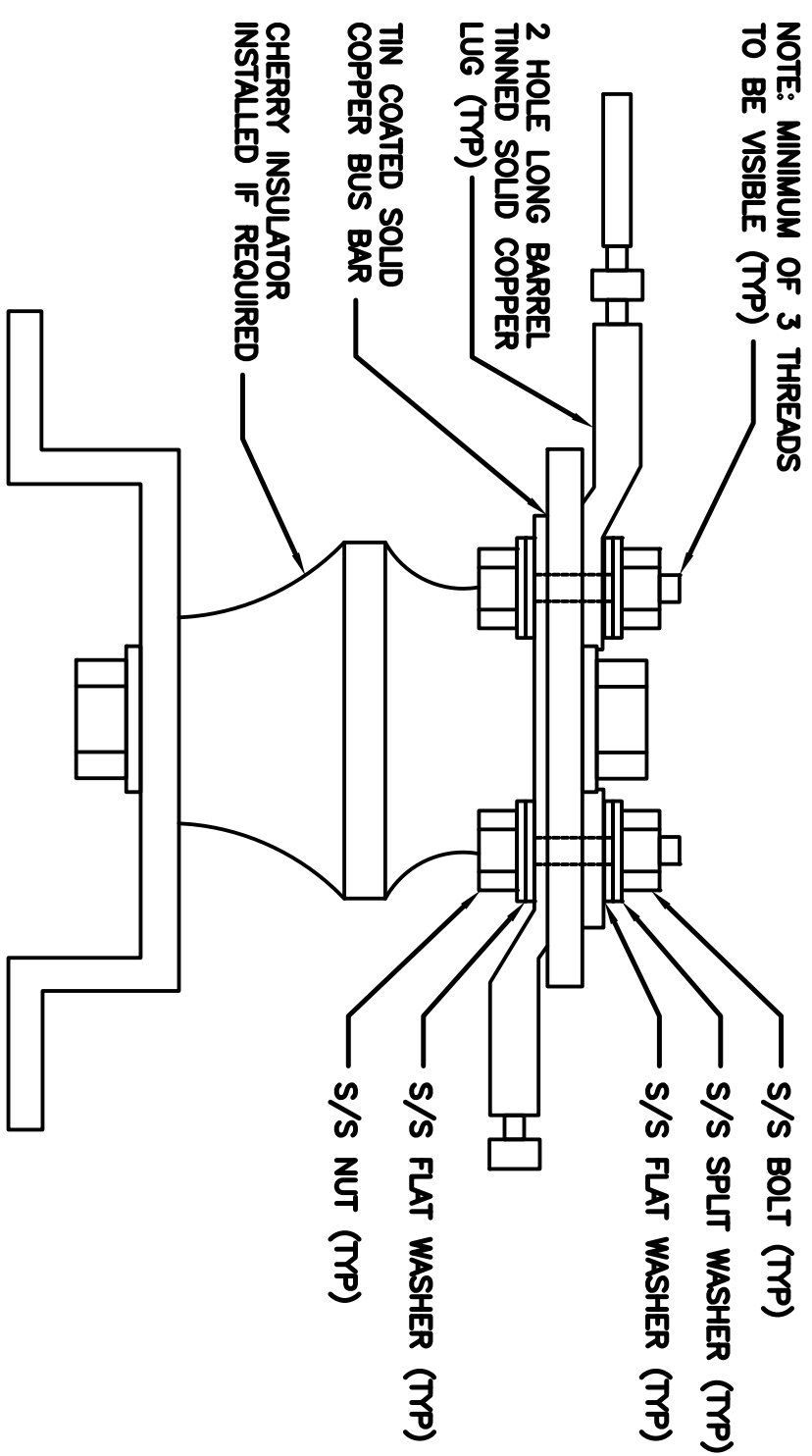
NO SCALE 2

TYPICAL EXTERIOR TWO HOLE LUG



NO SCALE 3

TYPICAL INTERIOR TWO HOLE LUG



LUG DETAIL

NO SCALE 4

NOT USED

NO SCALE 5

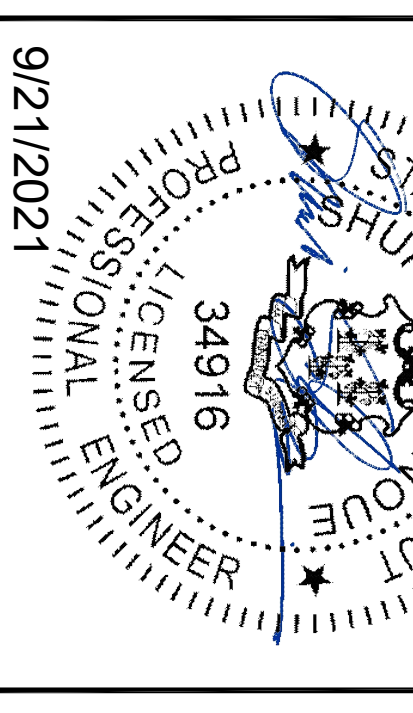
NOT USED

NO SCALE 6

CONSTRUCTION DOCUMENTS

| | | |
|-------------|-----|-----|
| DRAWN BY: | SS | CJW |
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CROWN CASTLE
 2000 CORPORATE DRIVE
 CANONSBURG, PA 15317

dish wireless
 5701 SOUTH SANTA FE DRIVE
 LITTLETON, CO 80120

CONSTRUCTION DOCUMENTS

| REV | DATE | DESCRIPTION |
|-----|------------|-------------------------|
| A | 06/11/2021 | ISSUED FOR REVIEW |
| 0 | 06/24/2021 | ISSUED FOR CONSTRUCTION |
| | | |
| | | |
| | | |

A&E PROJECT NUMBER
 6039-Z0001C

DISH Wireless L.L.C.
 PROJECT INFORMATION
 BOHVN00024A
 280 ELM STREET
 NAUGATUCK, CT 06770

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-3

NOT USED

NO SCALE 7

NOT USED

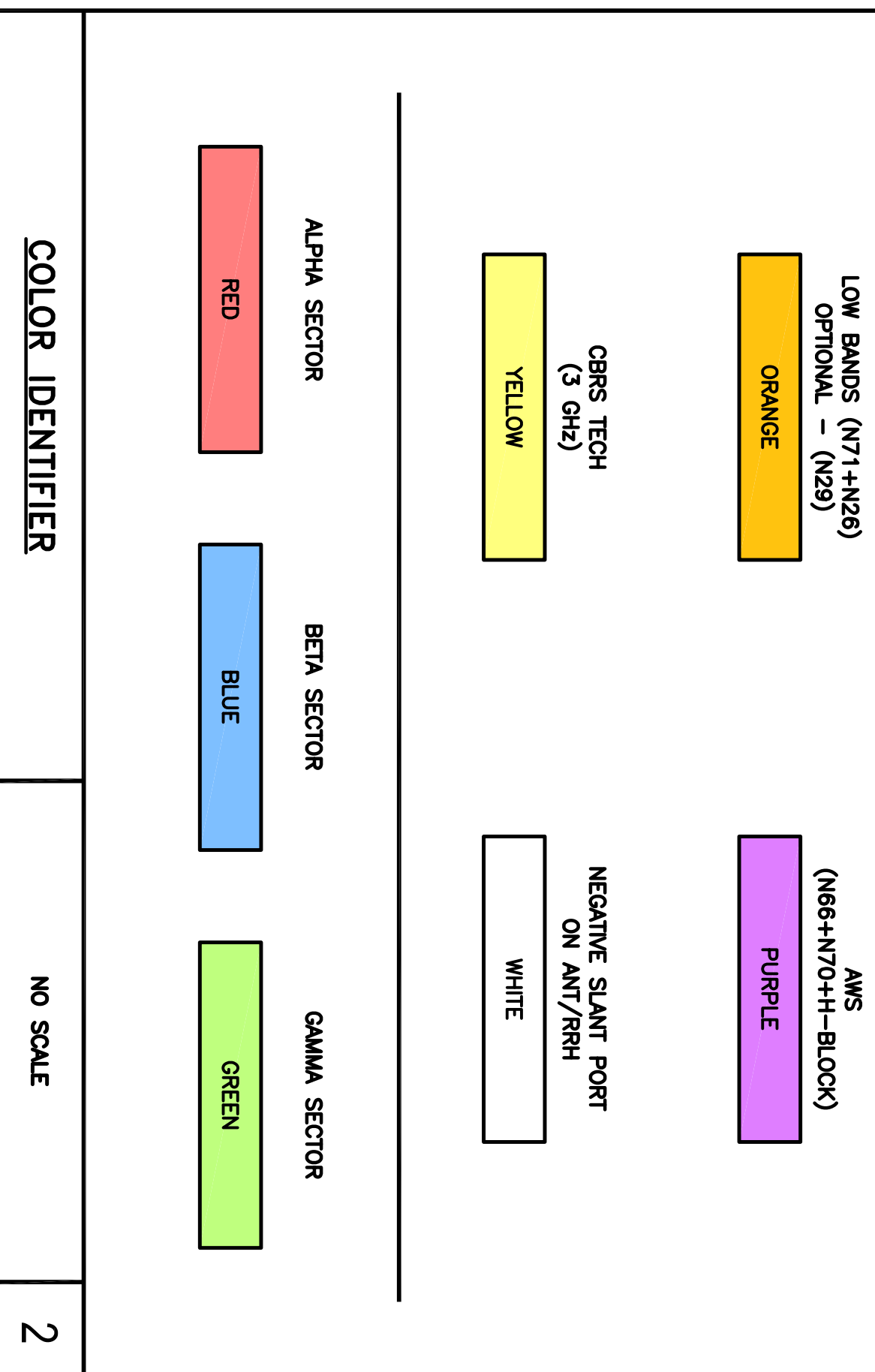
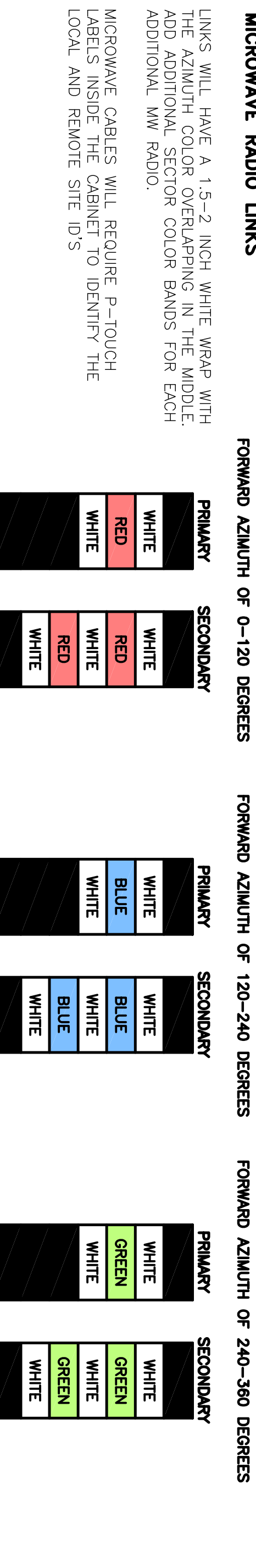
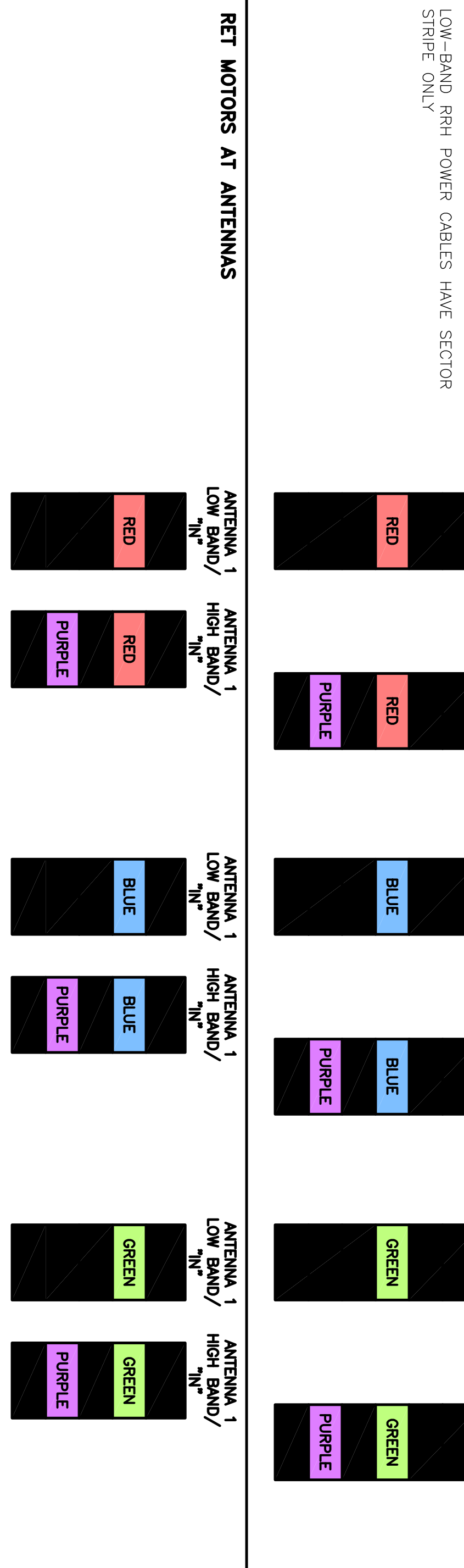
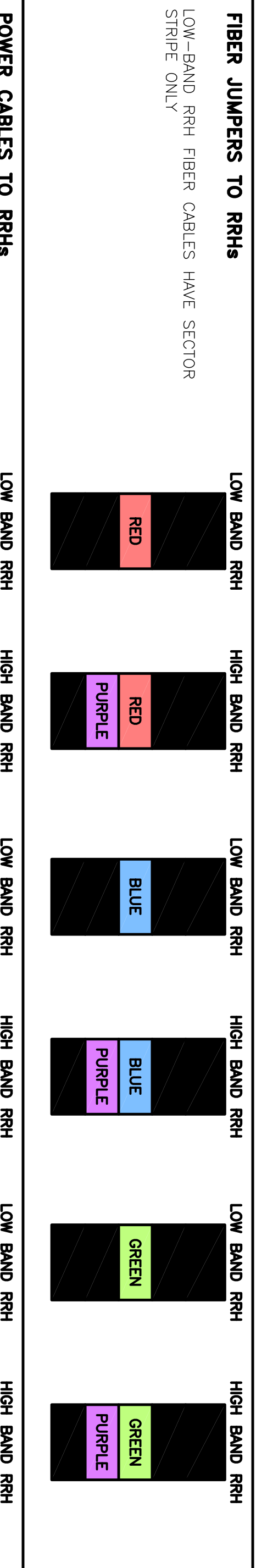
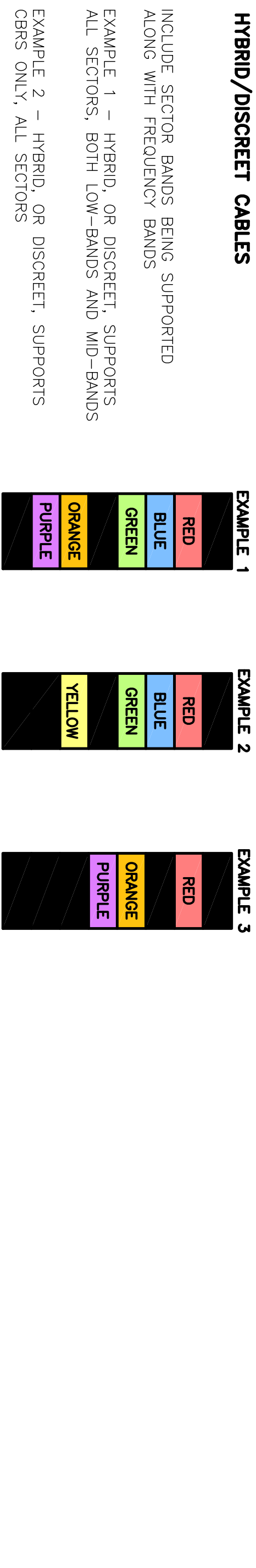
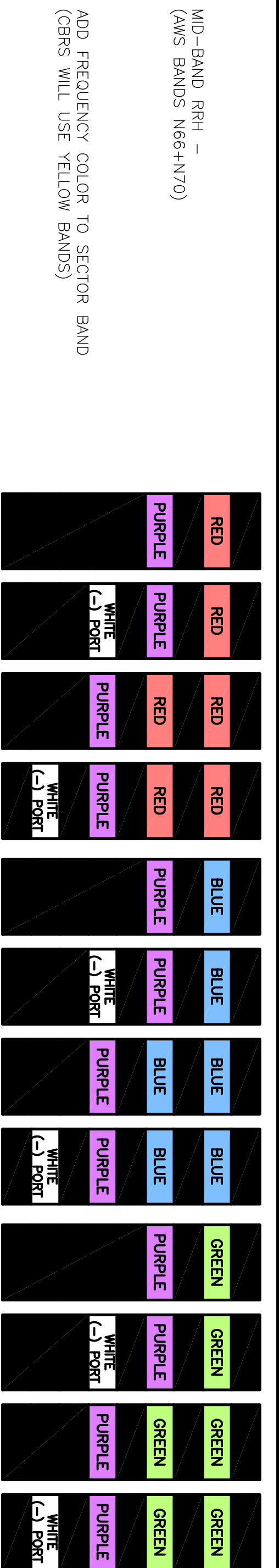
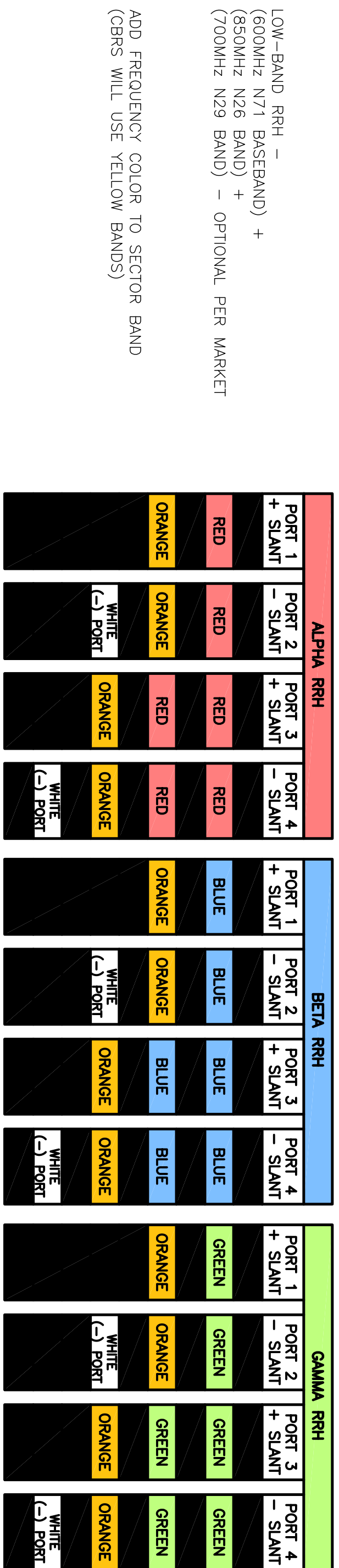
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NOT USED

NO SCALE 9

RF JUMPER COLOR CODING

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



NOT USED

NO SCALE

NO SCALE

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

2000 CORPORATE DRIVE
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STATE OF CONNECTICUT
SHUHEI SAKAMOTO
PROFESSIONAL ENGINEER
34916
9/21/2021

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RCD: _____ SS: _____ CIW: _____

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

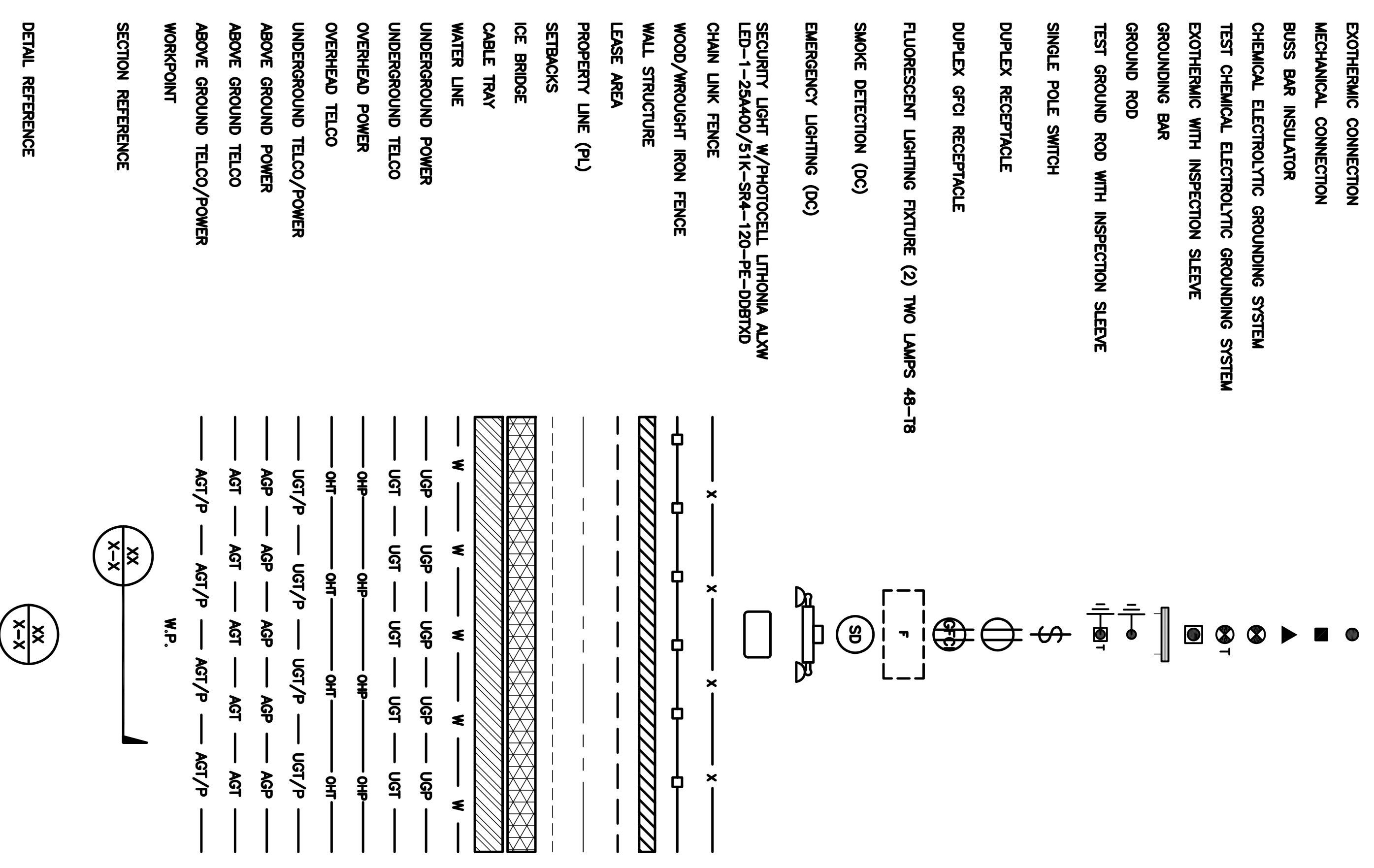
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A&E PROJECT NUMBER
6039-Z0001C

DISH Wireless LLC.
PROJECT INFORMATION
BOHVN00024A
280 ELM STREET
NAUGATUCK, CT 06770

SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER
RF-1



| | |
|--------|-----------------------------------|
| AB | ANCHOR BOLT |
| ABV | ABOVE |
| AC | ALTERNATING CURRENT |
| ADDL | ADDITIONAL |
| AFF | ABOVE FINISHED FLOOR |
| AFG | ABOVE FINISHED GRADE |
| AGL | ABOVE GROUND LEVEL |
| AGC | AMPERAGE INTERRUPTION CAPACITY |
| ALUM | ALUMINUM |
| ALT | ALTERNATE |
| ANT | ANTENNA |
| APPROX | APPROXIMATE |
| ARCH | ARCHITECTURAL |
| ATS | AUTOMATIC TRANSFER SWITCH |
| AWG | AMERICAN WIRE GAUGE |
| BATT | BATTERY |
| BLDG | BUILDING |
| BLK | BLOCK |
| BLKG | BLOCKING |
| BM | BEAM |
| BTC | BARE TINNED COPPER CONDUCTOR |
| BOF | BOTTOM OF FOOTING |
| CAB | CABINET |
| CANT | CANTILEVERED |
| CHG | CHARGING |
| CLG | CEILING |
| CLR | CLEAR |
| COL | COLUMN |
| COMM | COMMON |
| CONC | CONCRETE |
| CONSTR | CONSTRUCTION |
| DBL | DOUBLE |
| DC | DIRECT CURRENT |
| DEPT | DEPARTMENT |
| DF | DOUGLAS FIR |
| DIA | DIAMETER |
| DIG | DIAGONAL |
| DIM | DIMENSION |
| DWG | DRAWING |
| DWL | DOWEL |
| EA | EACH |
| EL | ELECTRICAL CONDUCTOR |
| EL | ELEVATION |
| ELEC | ELECTRICAL |
| EMT | ELECTRICAL METALLIC TUBING |
| ENG | ENGINEER |
| EQ | EQUAL |
| EXP | EXPANSION |
| EXT | EXTERIOR |
| EW | EACH WAY |
| FAB | FABRICATION |
| FF | FINISH FLOOR |
| FG | FINISH GRADE |
| FF | FACILITY INTERFACE FRAME |
| FIN | FINISH(ED) |
| FLR | FLOOR |
| FDN | FOUNDATION |
| FOC | FACE OF CONCRETE |
| FOM | FACE OF MASONRY |
| FOS | FACE OF STUD |
| FOR | FACE OF WALL |
| FS | FINISH SURFACE |
| FT | FOOT |
| FTG | FOOTING |
| GA | GAUGE |
| GEN | GENERATOR |
| GFCI | GROUND FAULT CIRCUIT INTERRUPTER |
| GLB | GLUE LAMINATED BEAM |
| GLV | GALVANIZED |
| GPS | GLOBAL POSITIONING SYSTEM |
| GND | GROUND |
| GSM | GLOBAL SYSTEM FOR MOBILE |
| HDG | HOT DIPPED GALVANIZED |
| HDR | HEADER |
| HDR | HANGER |
| HVAC | HEAT/VENTILATION/AIR CONDITIONING |
| HT | HEIGHT |
| IGR | INTERIOR GROUND RING |

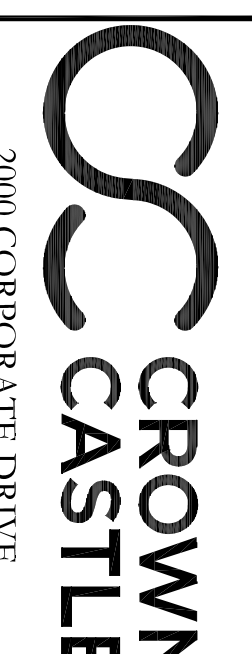
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|-------|---|
| IN | INCH |
| INT | INTERIOR |
| LB(S) | POUND(S) |
| LFE | LINEAR FEET |
| LTE | LONG TERM EVOLUTION |
| MAS | MASONRY |
| MAX | MAXIMUM |
| MB | MACHINE BOLT |
| MECH | MECHANICAL |
| MFR | MANUFACTURER |
| MGB | MASTER GROUND BAR |
| MIN | MINIMUM |
| MISC | MISCELLANEOUS |
| MTL | METAL |
| MTS | MANUAL TRANSFER SWITCH |
| MW | MICROWAVE |
| NEC | NATIONAL ELECTRIC CODE |
| NM | NEWTON METERS |
| NO. | NUMBER |
| # | NUMBER |
| NTS | NOT TO SCALE |
| OC | ON-CENTER |
| OSHA | OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION |
| OPNG | OPENING |
| P/C | PRECAST CONCRETE |
| PCS | PERSONAL COMMUNICATION SERVICES |
| PCU | PRIMARY CONTROL UNIT |
| PRC | PRIMARY RADIO CABINET |
| PP | POLARIZING PRESERVING |
| PSF | POUNDS PER SQUARE FOOT |
| PSI | POUNDS PER SQUARE INCH |
| PT | PRESSURE TREATED |
| PWR | POWER CABINET |
| QTY | QUANTITY |
| RAD | RADIUS |
| RECT | RECTIFIER |
| REF | REFERENCE |
| REINF | REINFORCEMENT |
| REQ'D | REQUIRED |
| RET | REMOTE ELECTRIC TILT |
| RF | RADIO FREQUENCY |
| RMG | RIGID METALLIC CONDUIT |
| RRH | REMOTE RADIO HEAD |
| RRU | REMOTE RADIO UNIT |
| RMY | RACEWAY |
| SCH | SCHEDULE |
| SHT | SHEET |
| SM | SMART INTEGRATED ACCESS DEVICE |
| SS | SIMILAR SPECIFICATION |
| SS | SQUARE |
| SS | STAINLESS STEEL |
| STD | STANDARD |
| STL | STEEL |
| STL | STEEL |
| TEMP | TEMPORARY |
| THK | THICKNESS |
| TMA | TOWER MOUNTED AMPLIFIER |
| TN | TOE WALL |
| TOA | TOP OF ANTENNA |
| TOC | TOP OF CURB |
| TOF | TOP OF FOUNDATION |
| TOP | TOP OF PLATE (PARAPET) |
| TOS | TOP OF STEEL |
| TOW | TOP OF WALL |
| TWSS | TRANSIENT VOLTAGE SURGE SUPPRESSION |
| TVSS | TYPICAL |
| UG | UNDERGROUND |
| UL | UNDERWRITERS LABORATORY |
| UNO | UNLESS NOTED OTHERWISE |
| UMTS | UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM |
| UPS | UNINTERRUPTIBLE POWER SYSTEM (DC POWER PLANT) |
| VIF | VERIFIED IN FIELD |
| W | WIDE |
| W/ | WITH |
| WD | WOOD |
| WP | WEATHERPROOF |
| WT | WEIGHT |

LEGEND

ABBREVIATIONS



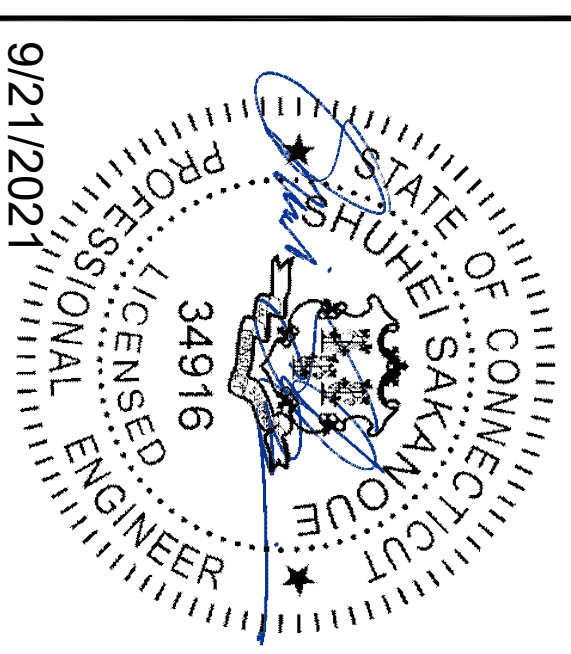
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6039-Z0001C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00024A
280 ELM STREET
NAUGATUCK, CT 06770

SHEET TITLE
LEGEND AND ABBREVIATIONS
SHEET NUMBER

SITE ACTIVITY REQUIREMENTS:

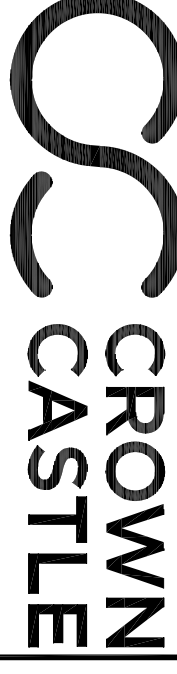
1. NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH Wireless L.L.C. AND TOWER OWNER NOC & THE DISH Wireless L.L.C. AND TOWER OWNER CONSTRUCTION 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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RCD SS CW

RDS REV #: N/A

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SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°F AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
 - #4 BARS AND SMALLER 40 ksi
 - #5 BARS AND LARGER 60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
 - CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
 - CONCRETE EXPOSED TO EARTH OR WEATHER:
 - #6 BARS AND LARGER 2"
 - #5 BARS AND SMALLER 1-1/2"
 - CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
 - SLAB AND WALLS 3/4"
 - BEAMS AND COLUMNS 1-1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

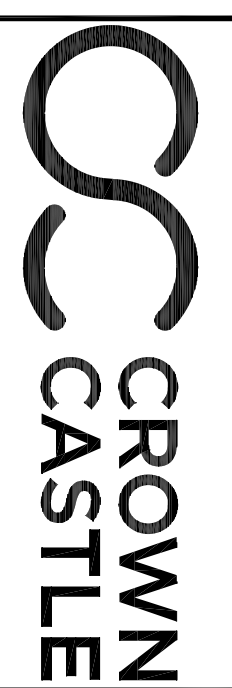
ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
- 4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
- 4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. TIE WRAPS ARE NOT ALLOWED.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE. COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

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



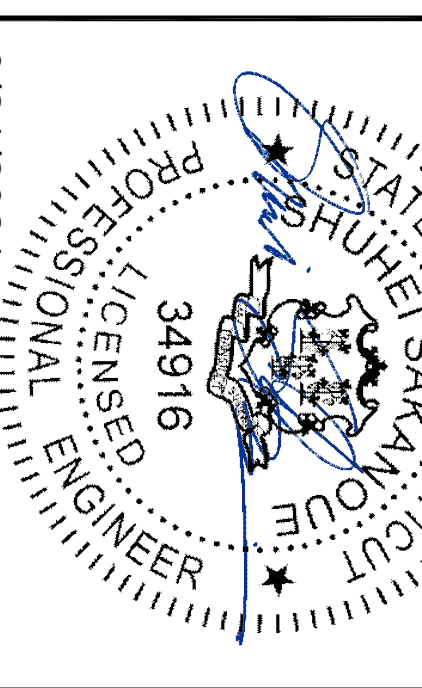
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| DRAWN BY: | CHECKED BY: | APPROVED BY: |
| RCD | SS | CJW |
| RFDS REV #: | N/A | |

CONSTRUCTION DOCUMENTS

| REV | DATE | DESCRIPTION |
|-----|------------|-------------------------|
| 1 | 06/11/2021 | ISSUED FOR REVIEW |
| 0 | 06/24/2021 | ISSUED FOR CONSTRUCTION |
| | | |
| | | |
| | | |

A&E PROJECT NUMBER
6039-Z0001C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00024A
280 ELM STREET
NAUGATUCK, CT 06770

SHEET TITLE
GENERAL NOTES

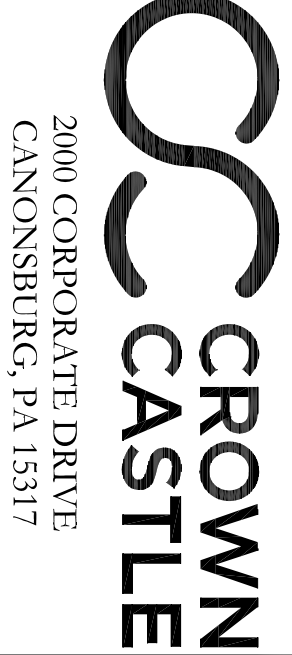
SHEET NUMBER
GN-3

GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUND 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.



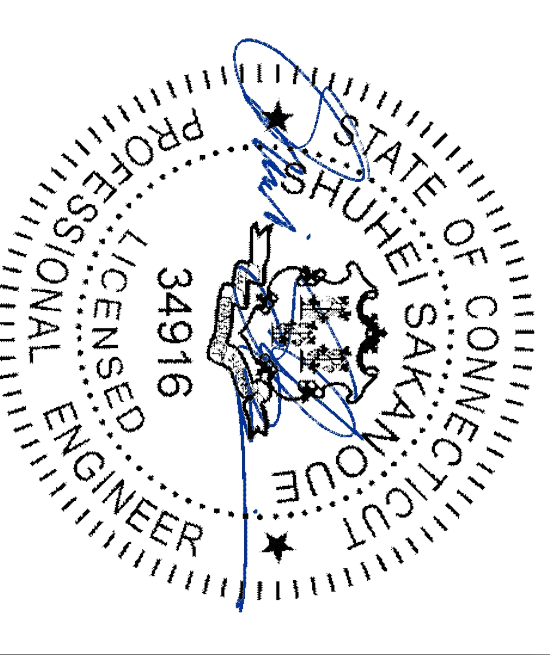
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| RCD | SS | CW |
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RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

| REV | DATE | DESCRIPTION |
|-----|------------|-------------------------|
| A | 06/11/2021 | ISSUED FOR REVIEW |
| 0 | 06/24/2021 | ISSUED FOR CONSTRUCTION |

| | |
|--------------------|-------------|
| A&E PROJECT NUMBER | 6039-Z0001C |
|--------------------|-------------|

DISH Wireless LLC.
PROJECT INFORMATION
BOHVN00024A
280 ELM STREET
NAUGATUCK, CT 06770

SHEET TITLE
GENERAL NOTES

SHEET NUMBER

GN-4

Exhibit D

Structural Analysis Report

Date: **June 12, 2021**



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

Subject: **Structural Analysis Report**

Carrier Designation: **DISH Network Co-Locate**
Site Number: BOHVN00024A
Site Name: CT-CCI-T-876319

Crown Castle Designation: **BU Number:** 876319
Site Name: NAUGATUCK 2 UNIROYAL
JDE Job Number: 645176
Work Order Number: 1966157
Order Number: 553365 Rev. 2

Engineering Firm Designation: **Crown Castle Project Number:** 1966157

Site Data: **280 Elm Street, NAUGATUCK, NEW HAVEN County, CT**
Latitude 41° 28' 52.54", Longitude -73° 3' 11.67"
150 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:

LC7: Proposed Equipment Configuration

Sufficient Capacity – 54.6%

***The structure has sufficient capacity once the loading changes, described in the Recommendations section of this report, are completed.**

This analysis utilizes an ultimate 3-second gust wind speed of 125 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: Dolly Hsu

Respectfully submitted by:

Maham Barimani, P.E.
Senior Project Engineer

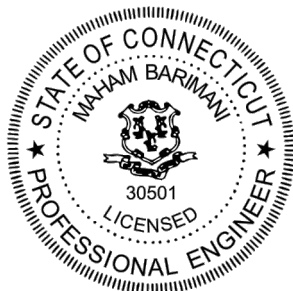


TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA

Table 1 - Proposed Equipment Configuration

Table 2 - Non-Carrier Equipment To Be Conditionally Removed

Table 3 - Other Considered Equipment

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

3.1) Analysis Method

3.2) Assumptions

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Table 6 - Tower Component Stresses vs. Capacity - LC7

4.1) Recommendations

5) APPENDIX A

tnxTower Output

6) APPENDIX B

Base Level Drawing

7) APPENDIX C

Additional Calculations

1) INTRODUCTION

This tower is a 150 ft Monopole tower designed by SUMMIT.

2) ANALYSIS CRITERIA

| | |
|-----------------------------|-----------|
| TIA-222 Revision: | TIA-222-H |
| Risk Category: | II |
| Wind Speed: | 125 mph |
| Exposure Category: | B |
| Topographic Factor: | 1 |
| Ice Thickness: | 1.5 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) |
|---------------------|----------------------------|--------------------|----------------------|-----------------------------|----------------------|---------------------|
| 142.0 | 142.0 | 3 | fujitsu | TA08025-B604 | 1 | 1-1/2 |
| | | 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 - Non-Carrier Equipment To Be Conditionally Removed

| Mounting Level (ft) | Center Line Elevation (ft) | Number of Antennas | Antenna Manufacturer | Antenna Model | Number of Feed Lines | Feed Line Size (in) |
|---------------------|----------------------------|--------------------|----------------------|----------------------------|----------------------|---------------------|
| 142.0 | 142.0 | 3 | rfs celwave | APXV18-206517S-C | - | - |
| | | 1 | tower mounts | Pipe Mount [PM 601-3] | | |
| 134.0 | 135.0 | 12 | decibel | 844G90VTA-SX w/ Mount Pipe | 12 | 1-1/4 |
| | 134.0 | 1 | tower mounts | Platform Mount [LP 1201-1] | | |

Table 3 - 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) | |
|---------------------|----------------------------|--------------------|----------------------|----------------|-----------------------|--|-------------------------------|
| 150.0 | 153.0 | 1 | dragonwave | A-ANT-23G-1-C | 3 3 4 4 1 | 1/4 5/16 1/2 1-1/4 Conduit | |
| | 152.0 | 3 | dragonwave | A-ANT-23G-2-C | | | |
| | 150.0 | | 1 | - | | | MC-PA 12L-B |
| | | | 3 | alcatel lucent | | | 1900MHz RRH (65MHz) |
| | | | 3 | alcatel lucent | | | 800 EXTERNAL NOTCH FILTER |
| | | | 3 | alcatel lucent | | | 800MHZ RRH |
| | | | 3 | alcatel lucent | | | TD-RRH8x20-25 |
| | | | 9 | rfs celwave | | | ACU-A20-N |
| | | | 3 | rfs celwave | | | APXVSPP18-C-A20 w/ Mount Pipe |

| Mounting Level (ft) | Center Line Elevation (ft) | Number of Antennas | Antenna Manufacturer | Antenna Model | Number of Feed Lines | Feed Line Size (in) |
|---------------------|----------------------------|--------------------|----------------------------|---------------------------------------|----------------------|---------------------|
| | 148.0 | 3 | rfs celwave | APXVTM14-C-120 w/ Mount Pipe | | |
| | | 3 | argus technologies | LLPX310R w/ Mount Pipe | | |
| | | 6 | samsung telecommunications | FDD_R6_RRH | | |
| 119.0 | 120.0 | 3 | ericsson | AIR -32 B2A/B66AA w/ Mount Pipe | 10 | 1-5/8 |
| | | 3 | ericsson | ERICSSON AIR 21 B2A B4P w/ Mount Pipe | | |
| | | 3 | ericsson | KRY 112 144/1 | | |
| | | 3 | ericsson | RADIO 4449 B71/B85A | | |
| | | 3 | rfs celwave | APXVAARR24_43-U-NA20 w/ Mount Pipe | | |
| | 119.0 | 1 | - | SitePro1 [P/N: HRK-12-U] | | |
| | | 1 | - | SitePro1 [P/N: PRK-1245] | | |
| | | 1 | tower mounts | Platform Mount [LP 303-1] | | |
| 99.0 | 100.0 | 1 | lucent | KS24019-L112A | 1 | 1/2 |
| | 99.0 | 1 | crown mounts | Side Arm Mount [SO 702-1] | | |

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

| Document | Reference | Source |
|--|-----------|----------|
| 4-GEOTECHNICAL REPORTS | 1529732 | CCISITES |
| 4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS | 1447037 | CCISITES |
| 4-TOWER MANUFACTURER DRAWINGS | 1446973 | 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.

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 5 - Section Capacity (Summary)

| Section No. | Elevation (ft) | Component Type | Size | Critical Element | P (K) | SF*P_allow (K) | % Capacity | Pass / Fail |
|-------------|----------------|----------------|-------------------------|------------------|--------|----------------|------------|-------------|
| L1 | 150 - 108 | Pole | TP30.401x22x0.25 | 1 | -14.38 | 1341.96 | 38.7 | Pass |
| L2 | 108 - 69.75 | Pole | TP37.553x29.1509x0.3125 | 2 | -21.07 | 2070.52 | 54.6 | Pass |
| L3 | 69.75 - 32.5 | Pole | TP44.379x35.9778x0.375 | 3 | -30.32 | 3182.20 | 53.2 | Pass |
| L4 | 32.5 - 0 | Pole | TP50.13x42.5288x0.4375 | 4 | -43.14 | 4300.01 | 51.6 | Pass |
| | | | | | | | Summary | |
| | | | | | | Pole (L2) | 54.6 | Pass |
| | | | | | | Rating = | 54.6 | Pass |

Table 6 - Tower Component Stresses vs. Capacity - LC7

| Notes | Component | Elevation (ft) | % Capacity | Pass / Fail |
|-------|------------------------------------|----------------|------------|-------------|
| 1 | Anchor Rods | 0 | 48.6 | Pass |
| 1 | Base Plate | 0 | 49.6 | Pass |
| 1 | Base Foundation (Structure) | 0 | 46.3 | Pass |
| 1 | Base Foundation (Soil Interaction) | 0 | 25.1 | Pass |

| | |
|---|--------------|
| Structure Rating (max from all components) = | 54.6% |
|---|--------------|

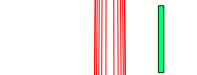
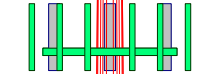
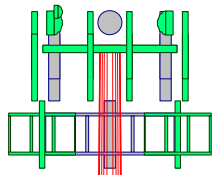
Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

Once the equipment in Table 2 is removed, 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



150.0 ft

108.0 ft

69.8 ft

32.5 ft

0.0 ft

MATERIAL STRENGTH

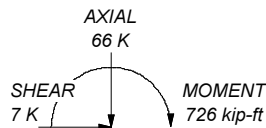
| GRADE | Fy | Fu | GRADE | Fy | Fu |
|---------|--------|--------|---------|--------|--------|
| A607-60 | 60 ksi | 75 ksi | A607-65 | 65 ksi | 80 ksi |

TOWER DESIGN NOTES

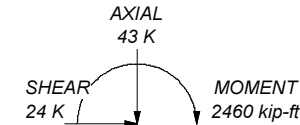
1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 54.6%

| | | | | |
|--------------------|---------|---------|---------|---------|
| Section | 1 | 2 | 3 | 4 |
| Length (ft) | 42.00 | 42.00 | 42.00 | 38.00 |
| Number of Sides | 12 | 12 | 12 | 12 |
| Thickness (in) | 0.2500 | 0.3125 | 0.3750 | 0.4375 |
| Socket Length (ft) | 3.75 | 4.75 | 5.50 | 42.5288 |
| Top Dia (in) | 22.0000 | 29.1509 | 35.9778 | 50.1300 |
| Bot Dia (in) | 30.4010 | 37.5530 | 44.3790 | |
| Grade | | A607-60 | A607-65 | A607-65 |
| Weight (K) | 3.0 | 4.8 | 6.9 | 8.4 |

ALL REACTIONS
ARE FACTORED



TORQUE 1 kip-ft
50 mph WIND - 1.5000 in ICE



TORQUE 1 kip-ft
REACTIONS - 125 mph WIND

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

| | | |
|------------------------|----------------------|---------------------|
| Job: BU# 876319 | | |
| Project: | Client: Crown Castle | Drawn by: Dolly Hsu |
| Code: TIA-222-H | Date: 06/12/21 | App'd: |
| Path: | | Scale: NTS |
| | | Dwg No. E-1 |

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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 New Haven County, Connecticut.
- Tower base elevation above sea level: 233.00 ft.
- Basic wind speed of 125 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.5000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- 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: 1.05.
- 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 |
|--|---|---|

Tapered Pole Section Geometry

| Section | Elevation ft | Section Length ft | Splice Length ft | Number of Sides | Top Diameter in | Bottom Diameter in | Wall Thickness in | Bend Radius in | Pole Grade |
|---------|-----------------|----------------------|---------------------|-----------------|--------------------|-----------------------|----------------------|-------------------|---------------------|
| L1 | 150.00-108.00 | 42.00 | 3.75 | 12 | 22.0000 | 30.4010 | 0.2500 | 1.0000 | A607-60 (60 ksi) |
| L2 | 108.00-69.75 | 42.00 | 4.75 | 12 | 29.1509 | 37.5530 | 0.3125 | 1.2500 | A607-60 (60 ksi) |
| L3 | 69.75-32.50 | 42.00 | 5.50 | 12 | 35.9778 | 44.3790 | 0.3750 | 1.5000 | A607-65 (65 ksi) |
| L4 | 32.50-0.00 | 38.00 | | 12 | 42.5288 | 50.1300 | 0.4375 | 1.7500 | A607-65 (65 ksi) |

Tapered Pole Properties

| Section | Tip Dia. in | Area in ² | I in ⁴ | r in | C in | I/C in ³ | J in ⁴ | I/Q in ² | w in | w/t |
|---------|----------------|-------------------------|----------------------|---------|---------|------------------------|----------------------|------------------------|---------|--------|
| L1 | 22.6879 | 17.5087 | 1057.2060 | 7.7865 | 11.3960 | 92.7699 | 2142.1860 | 8.6173 | 5.2260 | 20.904 |
| | 31.3852 | 24.2716 | 2816.3524 | 10.7941 | 15.7477 | 178.8419 | 5706.6935 | 11.9457 | 7.4775 | 29.91 |
| L2 | 30.8457 | 29.0187 | 3080.3908 | 10.3242 | 15.1002 | 203.9971 | 6241.7070 | 14.2821 | 6.9749 | 22.32 |
| | 38.7675 | 37.4733 | 6633.4331 | 13.3321 | 19.4525 | 341.0075 | 13441.1339 | 18.4432 | 9.2267 | 29.525 |
| L3 | 38.0983 | 42.9903 | 6955.4340 | 12.7458 | 18.6365 | 373.2160 | 14093.5951 | 21.1585 | 8.6370 | 23.032 |
| | 45.8122 | 53.1348 | 13132.5650 | 15.7534 | 22.9883 | 571.2711 | 26610.1370 | 26.1513 | 10.8886 | 29.036 |
| L4 | 45.0137 | 59.2962 | 13409.0519 | 15.0687 | 22.0299 | 608.6741 | 27170.3746 | 29.1838 | 10.2252 | 23.372 |
| | 51.7441 | 70.0043 | 22064.4151 | 17.7899 | 25.9673 | 849.6987 | 44708.4869 | 34.4540 | 12.2623 | 28.028 |

| 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 150.00-108.00 | | | | 1 | 1 | 1 | | | |
| L2 108.00-69.75 | | | | 1 | 1 | 1 | | | |
| L3 69.75-32.50 | | | | 1 | 1 | 1 | | | |
| L4 32.50-0.00 | | | | 1 | 1 | 1 | | | |

Feed Line/Linear Appurtenances - Entered As Round Or Flat

| Description | Face or Leg | Allow Shield | Exclude From Torque Calculation | Component Type | Placement ft | Total Number | Number Per Row | Clear Spacing in | Width or Diameter in | Perimeter r in | Weight plf |
|-------------|-------------|--------------|---------------------------------|----------------|-----------------|--------------|----------------|---------------------|-------------------------|----------------------|---------------|
| *** | | | | | | | | | | | |
| *** | | | | | | | | | | | |

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 | |
|-----------------|-------------|--------------|---------------------------------|--------------------|-----------------|--------------|--|---------------|--------------|
| Safety Line 3/8 | C | No | No | CaAa (Out Of Face) | 150.00 - 5.00 | 1 | No Ice 1/2" Ice | 0.04 0.14 | 0.22 0.75 |

| 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 |
|---------------------------------------|-------------|--------------|---------------------------------|--------------------|---------------|--------------|----------|---|------------|
| 5/8 rod/step | C | No | No | CaAa (Out Of Face) | 150.00 - 5.00 | 1 | 1" Ice | 0.24 | 1.28 |
| | | | | | | | 2" Ice | 0.44 | 2.34 |
| | | | | | | | No Ice | 0.02 | 0.27 |
| | | | | | | | 1/2" Ice | 0.12 | 0.70 |
| | | | | | | | 1" Ice | 0.22 | 1.74 |
| | | | | | | | 2" Ice | 0.42 | 5.65 |
| * HB114-21U3M12-XXXF(1-1/4) | C | No | No | Inside Pole | 150.00 - 0.00 | 1 | No Ice | 0.00 | 1.22 |
| | | | | | | | 1/2" Ice | 0.00 | 1.22 |
| | | | | | | | 1" Ice | 0.00 | 1.22 |
| | | | | | | | 2" Ice | 0.00 | 1.22 |
| LDF4-50A(1/2) | C | No | No | Inside Pole | 150.00 - 0.00 | 4 | No Ice | 0.00 | 0.15 |
| | | | | | | | 1/2" Ice | 0.00 | 0.15 |
| | | | | | | | 1" Ice | 0.00 | 0.15 |
| | | | | | | | 2" Ice | 0.00 | 0.15 |
| 9207(5/16) | C | No | No | Inside Pole | 150.00 - 0.00 | 3 | No Ice | 0.00 | 0.60 |
| | | | | | | | 1/2" Ice | 0.00 | 0.60 |
| | | | | | | | 1" Ice | 0.00 | 0.60 |
| | | | | | | | 2" Ice | 0.00 | 0.60 |
| 9258(1/4) | C | No | No | Inside Pole | 150.00 - 0.00 | 3 | No Ice | 0.00 | 0.04 |
| | | | | | | | 1/2" Ice | 0.00 | 0.04 |
| | | | | | | | 1" Ice | 0.00 | 0.04 |
| | | | | | | | 2" Ice | 0.00 | 0.04 |
| HB114-1-0813U4-M5J(1-1/4) | C | No | No | Inside Pole | 150.00 - 0.00 | 3 | No Ice | 0.00 | 1.20 |
| | | | | | | | 1/2" Ice | 0.00 | 1.20 |
| | | | | | | | 1" Ice | 0.00 | 1.20 |
| | | | | | | | 2" Ice | 0.00 | 1.20 |
| 2" Rigid Conduit | C | No | No | Inside Pole | 150.00 - 0.00 | 1 | No Ice | 0.00 | 2.80 |
| | | | | | | | 1/2" Ice | 0.00 | 2.80 |
| | | | | | | | 1" Ice | 0.00 | 2.80 |
| | | | | | | | 2" Ice | 0.00 | 2.80 |
| *** CU12PSM9P6XXX (1-1/2) | C | No | No | Inside Pole | 142.00 - 0.00 | 1 | No Ice | 0.00 | 2.35 |
| | | | | | | | 1/2" Ice | 0.00 | 2.35 |
| | | | | | | | 1" Ice | 0.00 | 2.35 |
| | | | | | | | 2" Ice | 0.00 | 2.35 |
| *** LDF7-50A(1-5/8) | C | No | No | Inside Pole | 119.00 - 0.00 | 6 | No Ice | 0.00 | 0.82 |
| | | | | | | | 1/2" Ice | 0.00 | 0.82 |
| | | | | | | | 1" Ice | 0.00 | 0.82 |
| | | | | | | | 2" Ice | 0.00 | 0.82 |
| HCS 6X12 4AWG(1-5/8) | C | No | No | Inside Pole | 119.00 - 0.00 | 3 | No Ice | 0.00 | 2.40 |
| | | | | | | | 1/2" Ice | 0.00 | 2.40 |
| | | | | | | | 1" Ice | 0.00 | 2.40 |
| | | | | | | | 2" Ice | 0.00 | 2.40 |
| MLE HYBRID 9POWER/18FIBER RL 2(1-5/8) | C | No | No | Inside Pole | 119.00 - 0.00 | 1 | No Ice | 0.00 | 1.07 |
| | | | | | | | 1/2" Ice | 0.00 | 1.07 |
| | | | | | | | 1" Ice | 0.00 | 1.07 |
| | | | | | | | 2" Ice | 0.00 | 1.07 |
| *** LDF4-50A(1/2) | C | No | No | Inside Pole | 99.00 - 0.00 | 1 | No Ice | 0.00 | 0.15 |
| | | | | | | | 1/2" Ice | 0.00 | 0.15 |
| | | | | | | | 1" Ice | 0.00 | 0.15 |
| | | | | | | | 2" Ice | 0.00 | 0.15 |
| *** *** | | | | | | | | | |

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 | 150.00-108.00 | A | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | 0.000 | 0.000 | 0.000 | 2.415 | 0.67 |
| L2 | 108.00-69.75 | A | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | 0.000 | 0.000 | 0.000 | 2.199 | 1.01 |
| L3 | 69.75-32.50 | A | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | 0.000 | 0.000 | 0.000 | 2.142 | 0.98 |
| L4 | 32.50-0.00 | A | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | 0.000 | 0.000 | 0.000 | 1.581 | 0.85 |

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 | 150.00-108.00 | A | 1.460 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | | 0.000 | 0.000 | 0.000 | 26.947 | 0.87 |
| L2 | 108.00-69.75 | A | 1.407 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | | 0.000 | 0.000 | 0.000 | 24.541 | 1.19 |
| L3 | 69.75-32.50 | A | 1.332 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | | 0.000 | 0.000 | 0.000 | 23.108 | 1.15 |
| L4 | 32.50-0.00 | A | 1.185 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | | 0.000 | 0.000 | 0.000 | 16.232 | 0.97 |

Feed Line Center of Pressure

| Section | Elevation ft | CP _X in | CP _Z in | CP _X Ice in | CP _Z Ice in |
|---------|-----------------|-----------------------|-----------------------|------------------------------|------------------------------|
| L1 | 150.00-108.00 | -0.3307 | 0.1909 | -2.0012 | 1.1554 |
| L2 | 108.00-69.75 | -0.3328 | 0.1922 | -2.1278 | 1.2285 |
| L3 | 69.75-32.50 | -0.3341 | 0.1929 | -2.1487 | 1.2405 |
| L4 | 32.50-0.00 | -0.2811 | 0.1623 | -1.7993 | 1.0388 |

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

Discrete Tower Loads

| Description | Face or Leg | Offset Type | Offsets: Horz Lateral Vert ft ft ft | Azimuth Adjustmen t ° | Placement ft | C _A A _A Front ft ² | C _A A _A Side ft ² | Weight K |
|------------------------|-------------------|----------------|---|--------------------------------|-----------------|---|--|----------------------|
| **** | | | | | | | | |
| LLPX310R w/ Mount Pipe | A | From Leg | 4.00 0.00 -2.00 | 0.0000 | 150.00 | No Ice 3.88 1/2" Ice 4.29 4.72 | 2.36 2.73 3.12 | 0.06 0.09 0.13 |

| Description | Face or Leg | Offset Type | Offsets: | | | Azimuth Adjustment | Placement | C _{AA} Front | C _{AA} Side | Weight | |
|------------------------------|-------------|-------------|----------|---------|-------|--------------------|-----------|-----------------------|----------------------|--------|------|
| | | | Horz | Lateral | Vert | | | | | | ft |
| | | | ft | ft | ft | ° | ft | ft ² | ft ² | K | |
| | | | | | | | 1" Ice | 5.61 | 3.94 | 0.24 | |
| LLPX310R w/ Mount Pipe | B | From Leg | 4.00 | 0.00 | -2.00 | 0.0000 | 150.00 | 2" Ice | 3.88 | 2.36 | 0.06 |
| | | | | | | | | No Ice | 4.29 | 2.73 | 0.09 |
| | | | | | | | | 1/2" Ice | 4.72 | 3.12 | 0.13 |
| | | | | | | | | 1" Ice | 5.61 | 3.94 | 0.24 |
| LLPX310R w/ Mount Pipe | C | From Leg | 4.00 | 0.00 | -2.00 | 0.0000 | 150.00 | 2" Ice | 3.88 | 2.36 | 0.06 |
| | | | | | | | | No Ice | 4.29 | 2.73 | 0.09 |
| | | | | | | | | 1/2" Ice | 4.72 | 3.12 | 0.13 |
| | | | | | | | | 1" Ice | 5.61 | 3.94 | 0.24 |
| * (2) FDD_R6_RRH | A | From Leg | 4.00 | 0.00 | -2.00 | 0.0000 | 150.00 | No Ice | 1.53 | 0.68 | 0.03 |
| | | | | | | | | 1/2" Ice | 1.69 | 0.80 | 0.04 |
| | | | | | | | | Ice | 1.85 | 0.92 | 0.06 |
| | | | | | | | | 1" Ice | 2.20 | 1.19 | 0.09 |
| (2) FDD_R6_RRH | B | From Leg | 4.00 | 0.00 | -2.00 | 0.0000 | 150.00 | 2" Ice | 1.53 | 0.68 | 0.03 |
| | | | | | | | | No Ice | 1.69 | 0.80 | 0.04 |
| | | | | | | | | 1/2" Ice | 1.85 | 0.92 | 0.06 |
| | | | | | | | | Ice | 2.20 | 1.19 | 0.09 |
| (2) FDD_R6_RRH | C | From Leg | 4.00 | 0.00 | -2.00 | 0.0000 | 150.00 | 2" Ice | 1.53 | 0.68 | 0.03 |
| | | | | | | | | No Ice | 1.69 | 0.80 | 0.04 |
| | | | | | | | | 1/2" Ice | 1.85 | 0.92 | 0.06 |
| | | | | | | | | Ice | 2.20 | 1.19 | 0.09 |
| * * *** | A | From Leg | 4.00 | 0.00 | 0.00 | 0.0000 | 150.00 | No Ice | 4.09 | 2.86 | 0.08 |
| | | | | | | | | 1/2" Ice | 4.48 | 3.23 | 0.13 |
| | | | | | | | | Ice | 4.88 | 3.61 | 0.19 |
| | | | | | | | | 1" Ice | 5.71 | 4.40 | 0.33 |
| APXVTM14-C-120 w/ Mount Pipe | B | From Leg | 4.00 | 0.00 | 0.00 | 0.0000 | 150.00 | 2" Ice | 4.09 | 2.86 | 0.08 |
| | | | | | | | | No Ice | 4.48 | 3.23 | 0.13 |
| | | | | | | | | 1/2" Ice | 4.88 | 3.61 | 0.19 |
| | | | | | | | | Ice | 5.71 | 4.40 | 0.33 |
| APXVTM14-C-120 w/ Mount Pipe | C | From Leg | 4.00 | 0.00 | 0.00 | 0.0000 | 150.00 | 2" Ice | 4.09 | 2.86 | 0.08 |
| | | | | | | | | No Ice | 4.48 | 3.23 | 0.13 |
| | | | | | | | | 1/2" Ice | 4.88 | 3.61 | 0.19 |
| | | | | | | | | Ice | 5.71 | 4.40 | 0.33 |
| APXVSP18-C-A20 w/ Mount Pipe | A | From Leg | 4.00 | 0.00 | 0.00 | 0.0000 | 150.00 | 2" Ice | 4.60 | 4.01 | 0.10 |
| | | | | | | | | No Ice | 5.05 | 4.45 | 0.16 |
| | | | | | | | | 1/2" Ice | 5.50 | 4.89 | 0.23 |
| | | | | | | | | Ice | 6.44 | 5.82 | 0.42 |
| APXVSP18-C-A20 w/ Mount Pipe | B | From Leg | 4.00 | 0.00 | 0.00 | 0.0000 | 150.00 | 2" Ice | 4.60 | 4.01 | 0.10 |
| | | | | | | | | No Ice | 5.05 | 4.45 | 0.16 |
| | | | | | | | | 1/2" Ice | 5.50 | 4.89 | 0.23 |
| | | | | | | | | Ice | 6.44 | 5.82 | 0.42 |
| APXVSP18-C-A20 w/ Mount Pipe | C | From Leg | 4.00 | 0.00 | 0.00 | 0.0000 | 150.00 | 2" Ice | 4.60 | 4.01 | 0.10 |
| | | | | | | | | No Ice | 5.05 | 4.45 | 0.16 |
| | | | | | | | | 1/2" Ice | 5.50 | 4.89 | 0.23 |
| | | | | | | | | Ice | 6.44 | 5.82 | 0.42 |
| 800 EXTERNAL NOTCH FILTER | A | From Leg | 4.00 | 0.00 | 0.00 | 0.0000 | 150.00 | 2" Ice | 0.66 | 0.32 | 0.01 |
| | | | | | | | | No Ice | 0.76 | 0.40 | 0.02 |
| | | | | | | | | 1/2" Ice | 0.87 | 0.48 | 0.02 |
| | | | | | | | | Ice | 1.11 | 0.67 | 0.04 |

| Description | Face or Leg | Offset Type | Offsets: | | | Azimuth Adjustment | Placement | C _{AA} _{Front} | C _{AA} _{Side} | Weight | |
|---------------------------|-------------|-------------|----------|---------|--------|--------------------|-----------|----------------------------------|---------------------------------|--------|----|
| | | | Horz | Lateral | Vert | | | | | | ft |
| | | | ft | ft | ft | ° | ft | ft ² | ft ² | K | |
| 800 EXTERNAL NOTCH FILTER | B | From Leg | 4.00 | 0.0000 | 150.00 | | 2" Ice | | | | |
| | | | 0.00 | | | | No Ice | 0.66 | 0.32 | 0.01 | |
| | | | 0.00 | | | | 1/2" | 0.76 | 0.40 | 0.02 | |
| | | | | | | | Ice | 0.87 | 0.48 | 0.02 | |
| 800 EXTERNAL NOTCH FILTER | C | From Leg | 4.00 | 0.0000 | 150.00 | | 1" Ice | 1.11 | 0.67 | 0.04 | |
| | | | 0.00 | | | | 2" Ice | | | | |
| | | | 0.00 | | | | No Ice | 0.66 | 0.32 | 0.01 | |
| | | | | | | | 1/2" | 0.76 | 0.40 | 0.02 | |
| 800MHZ RRH | A | From Leg | 4.00 | 0.0000 | 150.00 | | Ice | 0.87 | 0.48 | 0.02 | |
| | | | 0.00 | | | | 1" Ice | 1.11 | 0.67 | 0.04 | |
| | | | 0.00 | | | | 2" Ice | | | | |
| | | | | | | | No Ice | 2.13 | 1.77 | 0.05 | |
| 800MHZ RRH | B | From Leg | 4.00 | 0.0000 | 150.00 | | 1/2" | 2.32 | 1.95 | 0.07 | |
| | | | 0.00 | | | | Ice | 2.51 | 2.13 | 0.10 | |
| | | | 0.00 | | | | 1" Ice | 2.92 | 2.51 | 0.16 | |
| | | | | | | | 2" Ice | | | | |
| 800MHZ RRH | C | From Leg | 4.00 | 0.0000 | 150.00 | | No Ice | 2.13 | 1.77 | 0.05 | |
| | | | 0.00 | | | | 1/2" | 2.32 | 1.95 | 0.07 | |
| | | | 0.00 | | | | Ice | 2.51 | 2.13 | 0.10 | |
| | | | | | | | 1" Ice | 2.92 | 2.51 | 0.16 | |
| (3) ACU-A20-N | A | From Leg | 4.00 | 0.0000 | 150.00 | | 2" Ice | | | | |
| | | | 0.00 | | | | No Ice | 0.07 | 0.12 | 0.00 | |
| | | | 0.00 | | | | 1/2" | 0.10 | 0.16 | 0.00 | |
| | | | | | | | Ice | 0.15 | 0.21 | 0.00 | |
| (3) ACU-A20-N | B | From Leg | 4.00 | 0.0000 | 150.00 | | 1" Ice | 0.26 | 0.34 | 0.01 | |
| | | | 0.00 | | | | 2" Ice | | | | |
| | | | 0.00 | | | | No Ice | 0.07 | 0.12 | 0.00 | |
| | | | | | | | 1/2" | 0.10 | 0.16 | 0.00 | |
| (3) ACU-A20-N | C | From Leg | 4.00 | 0.0000 | 150.00 | | Ice | 0.15 | 0.21 | 0.00 | |
| | | | 0.00 | | | | 1" Ice | 0.26 | 0.34 | 0.01 | |
| | | | 0.00 | | | | 2" Ice | | | | |
| | | | | | | | No Ice | 0.07 | 0.12 | 0.00 | |
| TD-RRH8x20-25 | A | From Leg | 4.00 | 0.0000 | 150.00 | | 1/2" | 0.10 | 0.16 | 0.00 | |
| | | | 0.00 | | | | Ice | 0.15 | 0.21 | 0.00 | |
| | | | 0.00 | | | | 1" Ice | 0.26 | 0.34 | 0.01 | |
| | | | | | | | 2" Ice | | | | |
| TD-RRH8x20-25 | A | From Leg | 4.00 | 0.0000 | 150.00 | | No Ice | 4.05 | 1.53 | 0.07 | |
| | | | 0.00 | | | | 1/2" | 4.30 | 1.71 | 0.10 | |
| | | | 0.00 | | | | Ice | 4.56 | 1.90 | 0.13 | |
| | | | | | | | 1" Ice | 5.10 | 2.30 | 0.20 | |
| TD-RRH8x20-25 | A | From Leg | 4.00 | 0.0000 | 150.00 | | 2" Ice | | | | |
| | | | 0.00 | | | | No Ice | 4.05 | 1.53 | 0.07 | |
| | | | 0.00 | | | | 1/2" | 4.30 | 1.71 | 0.10 | |
| | | | | | | | Ice | 4.56 | 1.90 | 0.13 | |
| TD-RRH8x20-25 | C | From Leg | 4.00 | 0.0000 | 150.00 | | 1" Ice | 5.10 | 2.30 | 0.20 | |
| | | | 0.00 | | | | 2" Ice | | | | |
| | | | 0.00 | | | | No Ice | 4.05 | 1.53 | 0.07 | |
| | | | | | | | 1/2" | 4.30 | 1.71 | 0.10 | |
| 1900MHz RRH (65MHz) | A | From Leg | 4.00 | 0.0000 | 150.00 | | Ice | 4.56 | 1.90 | 0.13 | |
| | | | 0.00 | | | | 1" Ice | 5.10 | 2.30 | 0.20 | |
| | | | 0.00 | | | | 2" Ice | | | | |
| | | | | | | | No Ice | 2.31 | 2.38 | 0.06 | |
| 1900MHz RRH (65MHz) | B | From Leg | 4.00 | 0.0000 | 150.00 | | 1/2" | 2.52 | 2.58 | 0.08 | |
| | | | 0.00 | | | | Ice | 2.73 | 2.79 | 0.11 | |
| | | | 0.00 | | | | 1" Ice | 3.17 | 3.24 | 0.18 | |
| | | | | | | | 2" Ice | | | | |
| 1900MHz RRH (65MHz) | B | From Leg | 4.00 | 0.0000 | 150.00 | | No Ice | 2.31 | 2.38 | 0.06 | |
| | | | 0.00 | | | | 1/2" | 2.52 | 2.58 | 0.08 | |
| | | | 0.00 | | | | Ice | 2.73 | 2.79 | 0.11 | |
| | | | | | | | 1" Ice | 3.17 | 3.24 | 0.18 | |

| Description | Face or Leg | Offset Type | Offsets: | | | Azimuth Adjustment | Placement | C _{AA} Front | C _{AA} Side | Weight |
|---|-------------|-------------|----------|---------|--------|--------------------|-----------|-----------------------|----------------------|--------|
| | | | Horz | Lateral | Vert | | | | | |
| | | | ft | ft | ft | ° | ft | ft ² | ft ² | K |
| 1900MHz RRH (65MHz) | C | From Leg | 4.00 | 0.0000 | 150.00 | | 2" Ice | | | |
| | | | 0.00 | | | | No Ice | 2.31 | 2.38 | 0.06 |
| | | | 0.00 | | | | 1/2" | 2.52 | 2.58 | 0.08 |
| | | | | | | | Ice | 2.73 | 2.79 | 0.11 |
| | | | | | | | 1" Ice | 3.17 | 3.24 | 0.18 |
| | | | | | | 2" Ice | | | | |
| * (2) Pipe Mount | A | From Leg | 4.00 | 0.0000 | 150.00 | | No Ice | 1.20 | 1.20 | 0.02 |
| | | | 0.00 | | | | 1/2" | 1.50 | 1.50 | 0.03 |
| | | | 0.00 | | | | Ice | 1.81 | 1.81 | 0.04 |
| | | | | | | | 1" Ice | 2.47 | 2.47 | 0.08 |
| | | | | | | | 2" Ice | | | |
| (2) Pipe Mount | B | From Leg | 4.00 | 0.0000 | 150.00 | | No Ice | 1.20 | 1.20 | 0.02 |
| | | | 0.00 | | | | 1/2" | 1.50 | 1.50 | 0.03 |
| | | | 0.00 | | | | Ice | 1.81 | 1.81 | 0.04 |
| | | | | | | | 1" Ice | 2.47 | 2.47 | 0.08 |
| | | | | | | | 2" Ice | | | |
| (2) Pipe Mount | C | From Leg | 4.00 | 0.0000 | 150.00 | | No Ice | 1.20 | 1.20 | 0.02 |
| | | | 0.00 | | | | 1/2" | 1.50 | 1.50 | 0.03 |
| | | | 0.00 | | | | Ice | 1.81 | 1.81 | 0.04 |
| | | | | | | | 1" Ice | 2.47 | 2.47 | 0.08 |
| | | | | | | | 2" Ice | | | |
| MC-PA 12L-B | C | None | | 0.0000 | 150.00 | | No Ice | 15.60 | 15.60 | 1.23 |
| | | | | | | | 1/2" | 19.40 | 19.40 | 1.54 |
| | | | | | | | Ice | 23.20 | 23.20 | 1.85 |
| | | | | | | | 1" Ice | 30.80 | 30.80 | 2.47 |
| | | | | | | | 2" Ice | | | |
| * ** MX08FRO665-21 w/ Mount Pipe | A | From Leg | 4.00 | 0.0000 | 142.00 | | No Ice | 8.01 | 4.23 | 0.11 |
| | | | 0.00 | | | | 1/2" | 8.52 | 4.69 | 0.19 |
| | | | 0.00 | | | | Ice | 9.04 | 5.16 | 0.29 |
| | | | | | | | 1" Ice | 10.11 | 6.12 | 0.52 |
| | | | | | | | 2" Ice | | | |
| MX08FRO665-21 w/ Mount Pipe | B | From Leg | 4.00 | 0.0000 | 142.00 | | No Ice | 8.01 | 4.23 | 0.11 |
| | | | 0.00 | | | | 1/2" | 8.52 | 4.69 | 0.19 |
| | | | 0.00 | | | | Ice | 9.04 | 5.16 | 0.29 |
| | | | | | | | 1" Ice | 10.11 | 6.12 | 0.52 |
| | | | | | | | 2" Ice | | | |
| MX08FRO665-21 w/ Mount Pipe | C | From Leg | 4.00 | 0.0000 | 142.00 | | No Ice | 8.01 | 4.23 | 0.11 |
| | | | 0.00 | | | | 1/2" | 8.52 | 4.69 | 0.19 |
| | | | 0.00 | | | | Ice | 9.04 | 5.16 | 0.29 |
| | | | | | | | 1" Ice | 10.11 | 6.12 | 0.52 |
| | | | | | | | 2" Ice | | | |
| TA08025-B604 | A | From Leg | 4.00 | 0.0000 | 142.00 | | No Ice | 1.96 | 0.98 | 0.06 |
| | | | 0.00 | | | | 1/2" | 2.14 | 1.11 | 0.08 |
| | | | 0.00 | | | | Ice | 2.32 | 1.25 | 0.10 |
| | | | | | | | 1" Ice | 2.71 | 1.55 | 0.15 |
| | | | | | | | 2" Ice | | | |
| TA08025-B604 | B | From Leg | 4.00 | 0.0000 | 142.00 | | No Ice | 1.96 | 0.98 | 0.06 |
| | | | 0.00 | | | | 1/2" | 2.14 | 1.11 | 0.08 |
| | | | 0.00 | | | | Ice | 2.32 | 1.25 | 0.10 |
| | | | | | | | 1" Ice | 2.71 | 1.55 | 0.15 |
| | | | | | | | 2" Ice | | | |
| TA08025-B604 | C | From Leg | 4.00 | 0.0000 | 142.00 | | No Ice | 1.96 | 0.98 | 0.06 |
| | | | 0.00 | | | | 1/2" | 2.14 | 1.11 | 0.08 |
| | | | 0.00 | | | | Ice | 2.32 | 1.25 | 0.10 |
| | | | | | | | 1" Ice | 2.71 | 1.55 | 0.15 |
| | | | | | | | 2" Ice | | | |
| TA08025-B605 | A | From Leg | 4.00 | 0.0000 | 142.00 | | No Ice | 1.96 | 1.13 | 0.08 |
| | | | 0.00 | | | | 1/2" | 2.14 | 1.27 | 0.09 |
| | | | 0.00 | | | | Ice | 2.32 | 1.41 | 0.11 |
| | | | | | | | 1" Ice | 2.71 | 1.72 | 0.16 |
| | | | | | | | 2" Ice | | | |
| TA08025-B605 | B | From Leg | 4.00 | 0.0000 | 142.00 | | No Ice | 1.96 | 1.13 | 0.08 |

| Description | Face or Leg | Offset Type | Offsets: | | Azimuth Adjustment | Placement | C _{AA} _{Front} | C _{AA} _{Side} | Weight | |
|---------------------------------------|-------------|-------------|----------|---------|--------------------|-----------|----------------------------------|---------------------------------|--------|------|
| | | | Horz | Lateral | | | | | | Vert |
| | | | ft | ft | ° | ft | ft ² | ft ² | K | |
| | | | 0.00 | | | 1/2" | 2.14 | 1.27 | 0.09 | |
| | | | 0.00 | | | Ice | 2.32 | 1.41 | 0.11 | |
| | | | | | | 1" Ice | 2.71 | 1.72 | 0.16 | |
| | | | | | | 2" Ice | | | | |
| TA08025-B605 | C | From Leg | 4.00 | | 0.0000 | 142.00 | No Ice | 1.96 | 1.13 | 0.08 |
| | | | 0.00 | | | | 1/2" | 2.14 | 1.27 | 0.09 |
| | | | 0.00 | | | | Ice | 2.32 | 1.41 | 0.11 |
| | | | | | | | 1" Ice | 2.71 | 1.72 | 0.16 |
| | | | | | | | 2" Ice | | | |
| RDIDC-9181-PF-48 | A | From Leg | 4.00 | | 0.0000 | 142.00 | No Ice | 2.31 | 1.29 | 0.02 |
| | | | 0.00 | | | | 1/2" | 2.50 | 1.45 | 0.04 |
| | | | 0.00 | | | | Ice | 2.70 | 1.61 | 0.06 |
| | | | | | | | 1" Ice | 3.12 | 1.96 | 0.12 |
| | | | | | | | 2" Ice | | | |
| Commscope MC-PK8-DSH | C | None | | | 0.0000 | 142.00 | No Ice | 34.24 | 34.24 | 1.75 |
| | | | | | | | 1/2" | 62.95 | 62.95 | 2.10 |
| | | | | | | | Ice | 91.66 | 91.66 | 2.45 |
| | | | | | | | 1" Ice | 149.08 | 149.08 | 3.15 |
| | | | | | | | 2" Ice | | | |
| (2) 8' x 2" Mount Pipe | A | From Leg | 4.00 | | 0.0000 | 142.00 | No Ice | 1.90 | 1.90 | 0.03 |
| | | | 0.00 | | | | 1/2" | 2.73 | 2.73 | 0.04 |
| | | | 0.00 | | | | Ice | 3.40 | 3.40 | 0.06 |
| | | | | | | | 1" Ice | 4.40 | 4.40 | 0.12 |
| | | | | | | | 2" Ice | | | |
| (2) 8' x 2" Mount Pipe | B | From Leg | 4.00 | | 0.0000 | 142.00 | No Ice | 1.90 | 1.90 | 0.03 |
| | | | 0.00 | | | | 1/2" | 2.73 | 2.73 | 0.04 |
| | | | 0.00 | | | | Ice | 3.40 | 3.40 | 0.06 |
| | | | | | | | 1" Ice | 4.40 | 4.40 | 0.12 |
| | | | | | | | 2" Ice | | | |
| (2) 8' x 2" Mount Pipe | C | From Leg | 4.00 | | 0.0000 | 142.00 | No Ice | 1.90 | 1.90 | 0.03 |
| | | | 0.00 | | | | 1/2" | 2.73 | 2.73 | 0.04 |
| | | | 0.00 | | | | Ice | 3.40 | 3.40 | 0.06 |
| | | | | | | | 1" Ice | 4.40 | 4.40 | 0.12 |
| | | | | | | | 2" Ice | | | |
| *** | | | | | | | | | | |
| *** | | | | | | | | | | |
| * | | | | | | | | | | |
| * | | | | | | | | | | |
| **** | | | | | | | | | | |
| ERICSSON AIR 21 B2A B4P w/ Mount Pipe | A | From Leg | 4.00 | | 0.0000 | 119.00 | No Ice | 3.14 | 2.59 | 0.11 |
| | | | 0.00 | | | | 1/2" | 3.45 | 2.88 | 0.16 |
| | | | 1.00 | | | | Ice | 3.77 | 3.19 | 0.23 |
| | | | | | | | 1" Ice | 4.43 | 3.84 | 0.38 |
| | | | | | | | 2" Ice | | | |
| ERICSSON AIR 21 B2A B4P w/ Mount Pipe | B | From Leg | 4.00 | | 0.0000 | 119.00 | No Ice | 3.14 | 2.59 | 0.11 |
| | | | 0.00 | | | | 1/2" | 3.45 | 2.88 | 0.16 |
| | | | 1.00 | | | | Ice | 3.77 | 3.19 | 0.23 |
| | | | | | | | 1" Ice | 4.43 | 3.84 | 0.38 |
| | | | | | | | 2" Ice | | | |
| ERICSSON AIR 21 B2A B4P w/ Mount Pipe | C | From Leg | 4.00 | | 0.0000 | 119.00 | No Ice | 3.14 | 2.59 | 0.11 |
| | | | 0.00 | | | | 1/2" | 3.45 | 2.88 | 0.16 |
| | | | 1.00 | | | | Ice | 3.77 | 3.19 | 0.23 |
| | | | | | | | 1" Ice | 4.43 | 3.84 | 0.38 |
| | | | | | | | 2" Ice | | | |
| APXVAARR24_43-U-NA20 w/ Mount Pipe | A | From Leg | 4.00 | | 0.0000 | 119.00 | No Ice | 14.69 | 6.87 | 0.19 |
| | | | 0.00 | | | | 1/2" | 15.46 | 7.55 | 0.31 |
| | | | 1.00 | | | | Ice | 16.23 | 8.25 | 0.46 |
| | | | | | | | 1" Ice | 17.82 | 9.67 | 0.79 |
| | | | | | | | 2" Ice | | | |
| APXVAARR24_43-U-NA20 w/ Mount Pipe | B | From Leg | 4.00 | | 0.0000 | 119.00 | No Ice | 14.69 | 6.87 | 0.19 |
| | | | 0.00 | | | | 1/2" | 15.46 | 7.55 | 0.31 |
| | | | 1.00 | | | | Ice | 16.23 | 8.25 | 0.46 |
| | | | | | | | 1" Ice | 17.82 | 9.67 | 0.79 |
| | | | | | | | 2" Ice | | | |
| APXVAARR24_43-U-NA20 | C | From Leg | 4.00 | | 0.0000 | 119.00 | No Ice | 14.69 | 6.87 | 0.19 |

| Description | Face or Leg | Offset Type | Offsets: | | | Azimuth Adjustment | Placement | C _{AA} Front | C _{AA} Side | Weight |
|---------------------------------|-------------|-------------|----------|---------|--------|--------------------|-----------|-----------------------|----------------------|--------|
| | | | Horz | Lateral | Vert | | | | | |
| | | | ft | ft | ft | ° | ft | ft ² | ft ² | K |
| w/ Mount Pipe | | | 0.00 | | | | 1/2" | 15.46 | 7.55 | 0.31 |
| | | | 1.00 | | | | Ice | 16.23 | 8.25 | 0.46 |
| | | | | | | | 1" Ice | 17.82 | 9.67 | 0.79 |
| | | | | | | | 2" Ice | | | |
| AIR -32 B2A/B66AA w/ Mount Pipe | A | From Face | 4.00 | 0.0000 | 119.00 | | No Ice | 3.76 | 3.15 | 0.19 |
| | | | 0.00 | | | | 1/2" | 4.12 | 3.49 | 0.25 |
| | | | 1.00 | | | | Ice | 4.48 | 3.84 | 0.32 |
| | | | | | | | 1" Ice | 5.24 | 4.58 | 0.48 |
| | | | | | | | 2" Ice | | | |
| AIR -32 B2A/B66AA w/ Mount Pipe | B | From Face | 4.00 | 0.0000 | 119.00 | | No Ice | 3.76 | 3.15 | 0.19 |
| | | | 0.00 | | | | 1/2" | 4.12 | 3.49 | 0.25 |
| | | | 1.00 | | | | Ice | 4.48 | 3.84 | 0.32 |
| | | | | | | | 1" Ice | 5.24 | 4.58 | 0.48 |
| | | | | | | | 2" Ice | | | |
| AIR -32 B2A/B66AA w/ Mount Pipe | C | From Face | 4.00 | 0.0000 | 119.00 | | No Ice | 3.76 | 3.15 | 0.19 |
| | | | 0.00 | | | | 1/2" | 4.12 | 3.49 | 0.25 |
| | | | 1.00 | | | | Ice | 4.48 | 3.84 | 0.32 |
| | | | | | | | 1" Ice | 5.24 | 4.58 | 0.48 |
| | | | | | | | 2" Ice | | | |
| KRY 112 144/1 | A | From Leg | 4.00 | 0.0000 | 119.00 | | No Ice | 0.35 | 0.17 | 0.01 |
| | | | 0.00 | | | | 1/2" | 0.43 | 0.23 | 0.01 |
| | | | 1.00 | | | | Ice | 0.51 | 0.30 | 0.02 |
| | | | | | | | 1" Ice | 0.70 | 0.46 | 0.03 |
| | | | | | | | 2" Ice | | | |
| KRY 112 144/1 | B | From Leg | 4.00 | 0.0000 | 119.00 | | No Ice | 0.35 | 0.17 | 0.01 |
| | | | 0.00 | | | | 1/2" | 0.43 | 0.23 | 0.01 |
| | | | 1.00 | | | | Ice | 0.51 | 0.30 | 0.02 |
| | | | | | | | 1" Ice | 0.70 | 0.46 | 0.03 |
| | | | | | | | 2" Ice | | | |
| KRY 112 144/1 | C | From Leg | 4.00 | 0.0000 | 119.00 | | No Ice | 0.35 | 0.17 | 0.01 |
| | | | 0.00 | | | | 1/2" | 0.43 | 0.23 | 0.01 |
| | | | 1.00 | | | | Ice | 0.51 | 0.30 | 0.02 |
| | | | | | | | 1" Ice | 0.70 | 0.46 | 0.03 |
| | | | | | | | 2" Ice | | | |
| RADIO 4449 B71/B85A | A | From Leg | 4.00 | 0.0000 | 119.00 | | No Ice | 1.64 | 1.31 | 0.07 |
| | | | 0.00 | | | | 1/2" | 1.80 | 1.46 | 0.09 |
| | | | 1.00 | | | | Ice | 1.97 | 1.61 | 0.11 |
| | | | | | | | 1" Ice | 2.33 | 1.94 | 0.16 |
| | | | | | | | 2" Ice | | | |
| RADIO 4449 B71/B85A | B | From Leg | 4.00 | 0.0000 | 119.00 | | No Ice | 1.64 | 1.31 | 0.07 |
| | | | 0.00 | | | | 1/2" | 1.80 | 1.46 | 0.09 |
| | | | 1.00 | | | | Ice | 1.97 | 1.61 | 0.11 |
| | | | | | | | 1" Ice | 2.33 | 1.94 | 0.16 |
| | | | | | | | 2" Ice | | | |
| RADIO 4449 B71/B85A | C | From Leg | 4.00 | 0.0000 | 119.00 | | No Ice | 1.64 | 1.31 | 0.07 |
| | | | 0.00 | | | | 1/2" | 1.80 | 1.46 | 0.09 |
| | | | 1.00 | | | | Ice | 1.97 | 1.61 | 0.11 |
| | | | | | | | 1" Ice | 2.33 | 1.94 | 0.16 |
| | | | | | | | 2" Ice | | | |
| Platform Mount [LP 303-1] | C | None | | 0.0000 | 119.00 | | No Ice | 14.69 | 14.69 | 1.25 |
| | | | | | | | 1/2" | 18.01 | 18.01 | 1.57 |
| | | | | | | | Ice | 21.34 | 21.34 | 1.94 |
| | | | | | | | 1" Ice | 28.08 | 28.08 | 2.85 |
| | | | | | | | 2" Ice | | | |
| SitePro1 [P/N: PRK-1245] | C | None | | 0.0000 | 119.00 | | No Ice | 11.84 | 11.84 | 0.47 |
| | | | | | | | 1/2" | 16.96 | 16.96 | 0.79 |
| | | | | | | | Ice | 22.08 | 22.08 | 1.11 |
| | | | | | | | 1" Ice | 32.32 | 32.32 | 1.75 |
| | | | | | | | 2" Ice | | | |
| SitePro1 [P/N: HRK-12-U] | C | None | | 0.0000 | 119.00 | | No Ice | 5.38 | 5.38 | 0.41 |
| | | | | | | | 1/2" | 7.22 | 7.22 | 0.50 |
| | | | | | | | Ice | 8.88 | 8.88 | 0.63 |
| | | | | | | | 1" Ice | 12.20 | 12.20 | 0.88 |
| | | | | | | | 2" Ice | | | |

*

| Description | Face or Leg | Offset Type | Offsets: Horz Lateral Vert ft ft ft | Azimuth Adjustment ° | Placement ft | | C _A A _A Front ft ² | C _A A _A Side ft ² | Weight K |
|---------------------------|-------------|-------------|--|-------------------------|-----------------|----------|--|---|-------------|
| *** | | | | | | | | | |
| KS24019-L112A | B | From Leg | 4.00 | 0.0000 | 99.00 | No Ice | 0.10 | 0.10 | 0.01 |
| | | | 0.00 | | | 1/2" Ice | 0.18 | 0.18 | 0.01 |
| | | | 1.00 | | | Ice | 0.26 | 0.26 | 0.01 |
| | | | | | | 1" Ice | 0.42 | 0.42 | 0.01 |
| Side Arm Mount [SO 702-1] | B | None | | 0.0000 | 99.00 | 2" Ice | | | |
| | | | No Ice | | | 1.00 | 1.43 | 0.03 | |
| | | | 1/2" Ice | | | 1.25 | 2.05 | 0.04 | |
| | | | Ice | | | 1.50 | 2.67 | 0.05 | |
| | 1" Ice | 2.00 | 3.91 | 0.07 | | | | | |
| | 2" Ice | | | | | | | | |
| *** | | | | | | | | | |

Dishes

| Description | Face or Leg | Dish Type | Offset Type | Offsets: Horz Lateral Vert ft ft ft | Azimuth Adjustment ° | 3 dB Beam Width ° | Elevation ft | Outside Diameter ft | Aperture Area ft ² | Weight K | |
|---------------|-------------|--------------------------|-------------|--|-------------------------|----------------------|-----------------|------------------------|----------------------------------|-------------|------|
| **** | | | | | | | | | | | |
| A-ANT-23G-2-C | A | Paraboloid w/Shroud (HP) | From Leg | 4.00 | 0.0000 | | 150.00 | 2.17 | No Ice | 3.72 | 0.03 |
| | | | | 0.00 | | | | | 1/2" Ice | 4.01 | 0.05 |
| | | | | 2.00 | | | | | 1" Ice | 4.30 | 0.07 |
| | | | | | | | | | 2" Ice | 4.88 | 0.11 |
| A-ANT-23G-2-C | B | Paraboloid w/Shroud (HP) | From Leg | 4.00 | 0.0000 | | 150.00 | 2.17 | No Ice | 3.72 | 0.03 |
| | | | | 0.00 | | | | | 1/2" Ice | 4.01 | 0.05 |
| | | | | 2.00 | | | | | 1" Ice | 4.30 | 0.07 |
| | | | | | | | | | 2" Ice | 4.88 | 0.11 |
| A-ANT-23G-2-C | C | Paraboloid w/Shroud (HP) | From Leg | 4.00 | 0.0000 | | 150.00 | 2.17 | No Ice | 3.72 | 0.03 |
| | | | | 0.00 | | | | | 1/2" Ice | 4.01 | 0.05 |
| | | | | 2.00 | | | | | 1" Ice | 4.30 | 0.07 |
| | | | | | | | | | 2" Ice | 4.88 | 0.11 |
| A-ANT-23G-1-C | C | Paraboloid w/Shroud (HP) | From Leg | 4.00 | 0.0000 | | 150.00 | 1.13 | No Ice | 0.99 | 0.03 |
| | | | | 0.00 | | | | | 1/2" Ice | 1.15 | 0.04 |
| | | | | 3.00 | | | | | 1" Ice | 1.30 | 0.05 |
| | | | | | | | | | 2" Ice | 1.60 | 0.06 |
| **** | | | | | | | | | | | |

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 |

| Comb. No. | Description |
|-----------|--|
| 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 |
| 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 | 150 - 108 | Pole | Max Tension | 1 | 0.00 | 0.00 | 0.00 |
| | | | Max. Compression | 26 | -29.23 | 1.31 | 1.61 |
| | | | Max. Mx | 20 | -14.41 | 330.42 | -0.43 |
| | | | Max. My | 2 | -14.38 | -2.39 | 336.60 |
| | | | Max. Vy | 8 | 13.73 | -329.79 | 4.40 |
| | | | Max. Vx | 14 | 13.91 | 3.01 | -336.09 |
| | | | Max. Torque | 8 | | | 0.87 |
| | | | Max Tension | 1 | 0.00 | 0.00 | 0.00 |
| L2 | 108 - 69.75 | Pole | Max. Compression | 26 | -38.46 | 1.56 | 1.49 |
| | | | Max. Mx | 20 | -21.09 | 906.83 | -1.49 |
| | | | Max. My | 14 | -21.07 | 5.46 | -919.66 |
| | | | Max. Vy | 8 | 17.21 | -906.60 | 8.06 |
| | | | Max. Vx | 14 | 17.39 | 5.46 | -919.66 |
| | | | Max. Torque | 8 | | | 0.82 |
| | | | Max Tension | 1 | 0.00 | 0.00 | 0.00 |
| | | | Max. Compression | 26 | -50.41 | 1.83 | 1.34 |
| L3 | 69.75 - 32.5 | Pole | Max. Mx | 8 | -30.33 | -1595.59 | 11.56 |
| | | | Max. My | 14 | -30.32 | 7.82 | -1615.19 |
| | | | Max. Vy | 8 | 20.46 | -1595.59 | 11.56 |
| | | | Max. Vx | 14 | 20.63 | 7.82 | -1615.19 |
| | | | Max. Torque | 8 | | | 0.76 |
| | | | Max Tension | 1 | 0.00 | 0.00 | 0.00 |
| | | | Max. Compression | 26 | -66.05 | 2.09 | 1.19 |
| | | | Max. Mx | 8 | -43.14 | -2431.36 | 15.08 |
| L4 | 32.5 - 0 | Pole | Max. Compression | 26 | -66.05 | 2.09 | 1.19 |
| | | | Max. Mx | 8 | -43.14 | -2431.36 | 15.08 |
| | | | Max. My | 14 | -30.32 | 7.82 | -1615.19 |

| Section No. | Elevation ft | Component Type | Condition | Gov. Load Comb. | Axial K | Major Axis Moment kip-ft | Minor Axis Moment kip-ft |
|-------------|--------------|----------------|-------------|-----------------|---------|--------------------------|--------------------------|
| | | | Max. My | 14 | -43.14 | 10.20 | -2457.56 |
| | | | Max. Vy | 8 | 23.49 | -2431.36 | 15.08 |
| | | | Max. Vx | 14 | 23.66 | 10.20 | -2457.56 |
| | | | Max. Torque | 32 | | | -0.79 |

Maximum Reactions

| Location | Condition | Gov. Load Comb. | Vertical K | Horizontal, X K | Horizontal, Z K |
|----------|---------------------|-----------------|------------|-----------------|-----------------|
| Pole | Max. Vert | 27 | 66.05 | -0.01 | 6.59 |
| | Max. H _x | 20 | 43.15 | 23.46 | -0.03 |
| | Max. H _z | 2 | 43.15 | -0.07 | 23.62 |
| | Max. M _x | 2 | 2455.72 | -0.07 | 23.62 |
| | Max. M _z | 8 | 2431.36 | -23.47 | 0.09 |
| | Max. Torsion | 38 | 0.79 | 3.28 | 5.70 |
| | Min. Vert | 11 | 32.36 | -20.29 | -11.75 |
| | Min. H _x | 8 | 43.15 | -23.47 | 0.09 |
| | Min. H _z | 14 | 43.15 | 0.06 | -23.64 |
| | Min. M _x | 14 | -2457.56 | 0.06 | -23.64 |
| | Min. M _z | 20 | -2430.91 | 23.46 | -0.03 |
| | Min. Torsion | 32 | -0.79 | -3.27 | -5.70 |

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 | 35.96 | 0.00 | 0.00 | -0.48 | 0.50 | -0.00 |
| 1.2 Dead+1.0 Wind 0 deg - No Ice | 43.15 | 0.07 | -23.62 | -2455.72 | -10.59 | -0.72 |
| 0.9 Dead+1.0 Wind 0 deg - No Ice | 32.36 | 0.07 | -23.62 | -2427.27 | -10.60 | -0.71 |
| 1.2 Dead+1.0 Wind 30 deg - No Ice | 43.15 | 11.82 | -20.48 | -2131.14 | -1227.85 | -0.64 |
| 0.9 Dead+1.0 Wind 30 deg - No Ice | 32.36 | 11.82 | -20.48 | -2106.41 | -1213.86 | -0.63 |
| 1.2 Dead+1.0 Wind 60 deg - No Ice | 43.15 | 20.36 | -11.87 | -1237.45 | -2110.01 | -0.75 |
| 0.9 Dead+1.0 Wind 60 deg - No Ice | 32.36 | 20.36 | -11.87 | -1223.01 | -2085.88 | -0.73 |
| 1.2 Dead+1.0 Wind 90 deg - No Ice | 43.15 | 23.47 | -0.09 | -15.08 | -2431.36 | -0.65 |
| 0.9 Dead+1.0 Wind 90 deg - No Ice | 32.36 | 23.47 | -0.09 | -14.71 | -2403.56 | -0.64 |
| 1.2 Dead+1.0 Wind 120 deg - No Ice | 43.15 | 20.29 | 11.75 | 1217.24 | -2099.62 | -0.03 |
| 0.9 Dead+1.0 Wind 120 deg - No Ice | 32.36 | 20.29 | 11.75 | 1203.39 | -2075.64 | -0.02 |
| 1.2 Dead+1.0 Wind 150 deg - No Ice | 43.15 | 11.66 | 20.46 | 2126.52 | -1202.73 | 0.66 |
| 0.9 Dead+1.0 Wind 150 deg - No Ice | 32.36 | 11.66 | 20.46 | 2102.17 | -1189.08 | 0.66 |
| 1.2 Dead+1.0 Wind 180 deg - No Ice | 43.15 | -0.06 | 23.64 | 2457.56 | 10.20 | 0.75 |
| 0.9 Dead+1.0 Wind 180 deg - No Ice | 32.36 | -0.06 | 23.64 | 2429.40 | 9.89 | 0.74 |
| 1.2 Dead+1.0 Wind 210 deg - No Ice | 43.15 | -11.75 | 20.51 | 2133.50 | 1219.39 | 0.64 |
| 0.9 Dead+1.0 Wind 210 deg - No Ice | 32.36 | -11.75 | 20.51 | 2109.05 | 1205.19 | 0.63 |

| 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 | 43.15 | -20.33 | 11.85 | 1233.60 | 2106.78 | 0.75 |
| 0.9 Dead+1.0 Wind 240 deg - No Ice | 32.36 | -20.33 | 11.85 | 1219.52 | 2082.38 | 0.73 |
| 1.2 Dead+1.0 Wind 270 deg - No Ice | 43.15 | -23.46 | 0.03 | 3.58 | 2430.91 | 0.65 |
| 0.9 Dead+1.0 Wind 270 deg - No Ice | 32.36 | -23.46 | 0.03 | 3.69 | 2402.79 | 0.64 |
| 1.2 Dead+1.0 Wind 300 deg - No Ice | 43.15 | -20.30 | -11.77 | -1221.49 | 2102.75 | -0.00 |
| 0.9 Dead+1.0 Wind 300 deg - No Ice | 32.36 | -20.30 | -11.77 | -1207.26 | 2078.40 | -0.01 |
| 1.2 Dead+1.0 Wind 330 deg - No Ice | 43.15 | -11.72 | -20.43 | -2122.15 | 1213.75 | -0.66 |
| 0.9 Dead+1.0 Wind 330 deg - No Ice | 32.36 | -11.72 | -20.43 | -2097.54 | 1199.63 | -0.66 |
| 1.2 Dead+1.0 Ice+1.0 Temp | 66.05 | -0.00 | -0.00 | -1.19 | 2.09 | 0.00 |
| 1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp | 66.05 | 0.01 | -6.59 | -726.21 | -0.11 | -0.73 |
| 1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp | 66.05 | 3.30 | -5.71 | -629.93 | -360.79 | -0.49 |
| 1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp | 66.05 | 5.69 | -3.30 | -365.58 | -622.99 | -0.19 |
| 1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp | 66.05 | 6.56 | -0.02 | -4.22 | -718.71 | 0.16 |
| 1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp | 66.05 | 5.67 | 3.28 | 359.16 | -620.98 | 0.54 |
| 1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp | 66.05 | 3.27 | 5.70 | 626.77 | -355.68 | 0.79 |
| 1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp | 66.05 | -0.01 | 6.59 | 724.27 | 4.13 | 0.74 |
| 1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp | 66.05 | -3.28 | 5.71 | 628.06 | 363.15 | 0.49 |
| 1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp | 66.05 | -5.68 | 3.30 | 362.44 | 626.43 | 0.19 |
| 1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp | 66.05 | -6.56 | 0.00 | -0.49 | 722.71 | -0.16 |
| 1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp | 66.05 | -5.68 | -3.28 | -362.40 | 625.75 | -0.55 |
| 1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp | 66.05 | -3.28 | -5.70 | -628.14 | 362.18 | -0.79 |
| Dead+Wind 0 deg - Service | 35.96 | 0.02 | -5.13 | -529.62 | -1.88 | -0.16 |
| Dead+Wind 30 deg - Service | 35.96 | 2.56 | -4.45 | -459.67 | -264.22 | -0.14 |
| Dead+Wind 60 deg - Service | 35.96 | 4.42 | -2.58 | -267.06 | -454.34 | -0.16 |
| Dead+Wind 90 deg - Service | 35.96 | 5.09 | -0.02 | -3.63 | -523.59 | -0.14 |
| Dead+Wind 120 deg - Service | 35.96 | 4.40 | 2.55 | 261.94 | -452.09 | -0.00 |
| Dead+Wind 150 deg - Service | 35.96 | 2.53 | 4.44 | 457.90 | -258.81 | 0.14 |
| Dead+Wind 180 deg - Service | 35.96 | -0.01 | 5.13 | 529.26 | 2.59 | 0.16 |
| Dead+Wind 210 deg - Service | 35.96 | -2.55 | 4.45 | 459.41 | 263.19 | 0.14 |
| Dead+Wind 240 deg - Service | 35.96 | -4.41 | 2.57 | 265.47 | 454.43 | 0.16 |
| Dead+Wind 270 deg - Service | 35.96 | -5.09 | 0.01 | 0.39 | 524.28 | 0.14 |
| Dead+Wind 300 deg - Service | 35.96 | -4.41 | -2.55 | -263.62 | 453.56 | -0.00 |
| Dead+Wind 330 deg - Service | 35.96 | -2.54 | -4.43 | -457.73 | 261.97 | -0.14 |

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 | -35.96 | 0.00 | 0.00 | 35.96 | 0.00 | 0.000% |
| 2 | 0.07 | -43.15 | -23.62 | -0.07 | 43.15 | 23.62 | 0.000% |
| 3 | 0.07 | -32.36 | -23.62 | -0.07 | 32.36 | 23.62 | 0.000% |
| 4 | 11.82 | -43.15 | -20.48 | -11.82 | 43.15 | 20.48 | 0.000% |
| 5 | 11.82 | -32.36 | -20.48 | -11.82 | 32.36 | 20.48 | 0.000% |
| 6 | 20.36 | -43.15 | -11.87 | -20.36 | 43.15 | 11.87 | 0.000% |
| 7 | 20.36 | -32.36 | -11.87 | -20.36 | 32.36 | 11.87 | 0.000% |
| 8 | 23.47 | -43.15 | -0.09 | -23.47 | 43.15 | 0.09 | 0.000% |
| 9 | 23.47 | -32.36 | -0.09 | -23.47 | 32.36 | 0.09 | 0.000% |
| 10 | 20.29 | -43.15 | 11.75 | -20.29 | 43.15 | -11.75 | 0.000% |
| 11 | 20.29 | -32.36 | 11.75 | -20.29 | 32.36 | -11.75 | 0.000% |
| 12 | 11.66 | -43.15 | 20.46 | -11.66 | 43.15 | -20.46 | 0.000% |
| 13 | 11.66 | -32.36 | 20.46 | -11.66 | 32.36 | -20.46 | 0.000% |
| 14 | -0.06 | -43.15 | 23.64 | 0.06 | 43.15 | -23.64 | 0.000% |
| 15 | -0.06 | -32.36 | 23.64 | 0.06 | 32.36 | -23.64 | 0.000% |
| 16 | -11.75 | -43.15 | 20.51 | 11.75 | 43.15 | -20.51 | 0.000% |
| 17 | -11.75 | -32.36 | 20.51 | 11.75 | 32.36 | -20.51 | 0.000% |
| 18 | -20.33 | -43.15 | 11.85 | 20.33 | 43.15 | -11.85 | 0.000% |
| 19 | -20.33 | -32.36 | 11.85 | 20.33 | 32.36 | -11.85 | 0.000% |
| 20 | -23.46 | -43.15 | 0.03 | 23.46 | 43.15 | -0.03 | 0.000% |
| 21 | -23.46 | -32.36 | 0.03 | 23.46 | 32.36 | -0.03 | 0.000% |
| 22 | -20.30 | -43.15 | -11.77 | 20.30 | 43.15 | 11.77 | 0.000% |
| 23 | -20.30 | -32.36 | -11.77 | 20.30 | 32.36 | 11.77 | 0.000% |
| 24 | -11.72 | -43.15 | -20.43 | 11.72 | 43.15 | 20.43 | 0.000% |
| 25 | -11.72 | -32.36 | -20.43 | 11.72 | 32.36 | 20.43 | 0.000% |
| 26 | 0.00 | -66.05 | 0.00 | 0.00 | 66.05 | 0.00 | 0.000% |
| 27 | 0.01 | -66.05 | -6.59 | -0.01 | 66.05 | 6.59 | 0.000% |
| 28 | 3.30 | -66.05 | -5.71 | -3.30 | 66.05 | 5.71 | 0.000% |
| 29 | 5.69 | -66.05 | -3.30 | -5.69 | 66.05 | 3.30 | 0.000% |
| 30 | 6.56 | -66.05 | -0.02 | -6.56 | 66.05 | 0.02 | 0.000% |
| 31 | 5.67 | -66.05 | 3.28 | -5.67 | 66.05 | -3.28 | 0.000% |
| 32 | 3.27 | -66.05 | 5.70 | -3.27 | 66.05 | -5.70 | 0.000% |
| 33 | -0.01 | -66.05 | 6.59 | 0.01 | 66.05 | -6.59 | 0.000% |
| 34 | -3.28 | -66.05 | 5.71 | 3.28 | 66.05 | -5.71 | 0.000% |
| 35 | -5.68 | -66.05 | 3.30 | 5.68 | 66.05 | -3.30 | 0.000% |
| 36 | -6.56 | -66.05 | 0.00 | 6.56 | 66.05 | -0.00 | 0.000% |
| 37 | -5.68 | -66.05 | -3.28 | 5.68 | 66.05 | 3.28 | 0.000% |
| 38 | -3.28 | -66.05 | -5.70 | 3.28 | 66.05 | 5.70 | 0.000% |
| 39 | 0.02 | -35.96 | -5.13 | -0.02 | 35.96 | 5.13 | 0.000% |
| 40 | 2.56 | -35.96 | -4.45 | -2.56 | 35.96 | 4.45 | 0.000% |
| 41 | 4.42 | -35.96 | -2.58 | -4.42 | 35.96 | 2.58 | 0.000% |
| 42 | 5.09 | -35.96 | -0.02 | -5.09 | 35.96 | 0.02 | 0.000% |
| 43 | 4.40 | -35.96 | 2.55 | -4.40 | 35.96 | -2.55 | 0.000% |
| 44 | 2.53 | -35.96 | 4.44 | -2.53 | 35.96 | -4.44 | 0.000% |
| 45 | -0.01 | -35.96 | 5.13 | 0.01 | 35.96 | -5.13 | 0.000% |
| 46 | -2.55 | -35.96 | 4.45 | 2.55 | 35.96 | -4.45 | 0.000% |
| 47 | -4.41 | -35.96 | 2.57 | 4.41 | 35.96 | -2.57 | 0.000% |
| 48 | -5.09 | -35.96 | 0.01 | 5.09 | 35.96 | -0.01 | 0.000% |
| 49 | -4.41 | -35.96 | -2.55 | 4.41 | 35.96 | 2.55 | 0.000% |
| 50 | -2.54 | -35.96 | -4.43 | 2.54 | 35.96 | 4.43 | 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 | 4 | 0.00000001 | 0.00051663 |
| 3 | Yes | 4 | 0.00000001 | 0.00023772 |
| 4 | Yes | 5 | 0.00000001 | 0.00088944 |
| 5 | Yes | 5 | 0.00000001 | 0.00041915 |
| 6 | Yes | 5 | 0.00000001 | 0.00091327 |
| 7 | Yes | 5 | 0.00000001 | 0.00043156 |
| 8 | Yes | 4 | 0.00000001 | 0.00099057 |
| 9 | Yes | 4 | 0.00000001 | 0.00060635 |
| 10 | Yes | 5 | 0.00000001 | 0.00086223 |

| | | | | |
|----|-----|---|------------|------------|
| 11 | Yes | 5 | 0.00000001 | 0.00040816 |
| 12 | Yes | 5 | 0.00000001 | 0.00086257 |
| 13 | Yes | 5 | 0.00000001 | 0.00040763 |
| 14 | Yes | 4 | 0.00000001 | 0.00078857 |
| 15 | Yes | 4 | 0.00000001 | 0.00045675 |
| 16 | Yes | 5 | 0.00000001 | 0.00090925 |
| 17 | Yes | 5 | 0.00000001 | 0.00042930 |
| 18 | Yes | 5 | 0.00000001 | 0.00087187 |
| 19 | Yes | 5 | 0.00000001 | 0.00041141 |
| 20 | Yes | 4 | 0.00000001 | 0.00071805 |
| 21 | Yes | 4 | 0.00000001 | 0.00040895 |
| 22 | Yes | 5 | 0.00000001 | 0.00088022 |
| 23 | Yes | 5 | 0.00000001 | 0.00041611 |
| 24 | Yes | 5 | 0.00000001 | 0.00089468 |
| 25 | Yes | 5 | 0.00000001 | 0.00042282 |
| 26 | Yes | 4 | 0.00000001 | 0.00002269 |
| 27 | Yes | 5 | 0.00000001 | 0.00040249 |
| 28 | Yes | 5 | 0.00000001 | 0.00048444 |
| 29 | Yes | 5 | 0.00000001 | 0.00048608 |
| 30 | Yes | 5 | 0.00000001 | 0.00039475 |
| 31 | Yes | 5 | 0.00000001 | 0.00047677 |
| 32 | Yes | 5 | 0.00000001 | 0.00047429 |
| 33 | Yes | 5 | 0.00000001 | 0.00039897 |
| 34 | Yes | 5 | 0.00000001 | 0.00048823 |
| 35 | Yes | 5 | 0.00000001 | 0.00048242 |
| 36 | Yes | 5 | 0.00000001 | 0.00039876 |
| 37 | Yes | 5 | 0.00000001 | 0.00048434 |
| 38 | Yes | 5 | 0.00000001 | 0.00049171 |
| 39 | Yes | 4 | 0.00000001 | 0.00004746 |
| 40 | Yes | 4 | 0.00000001 | 0.00018824 |
| 41 | Yes | 4 | 0.00000001 | 0.00020897 |
| 42 | Yes | 4 | 0.00000001 | 0.00005375 |
| 43 | Yes | 4 | 0.00000001 | 0.00018369 |
| 44 | Yes | 4 | 0.00000001 | 0.00018123 |
| 45 | Yes | 4 | 0.00000001 | 0.00004952 |
| 46 | Yes | 4 | 0.00000001 | 0.00020521 |
| 47 | Yes | 4 | 0.00000001 | 0.00018281 |
| 48 | Yes | 4 | 0.00000001 | 0.00005204 |
| 49 | Yes | 4 | 0.00000001 | 0.00019476 |
| 50 | Yes | 4 | 0.00000001 | 0.00020189 |

Maximum Tower Deflections - Service Wind

| Section No. | Elevation ft | Horz. Deflection in | Gov. Load Comb. | Tilt ° | Twist ° |
|-------------|-----------------|------------------------|-----------------|-----------|------------|
| L1 | 150 - 108 | 17.019 | 40 | 0.9917 | 0.0022 |
| L2 | 111.75 - 69.75 | 9.523 | 40 | 0.8294 | 0.0008 |
| L3 | 74.5 - 32.5 | 4.111 | 40 | 0.5326 | 0.0003 |
| L4 | 38 - 0 | 1.053 | 40 | 0.2516 | 0.0001 |

Critical Deflections and Radius of Curvature - Service Wind

| Elevation ft | Appurtenance | Gov. Load Comb. | Deflection in | Tilt ° | Twist ° | Radius of Curvature ft |
|-----------------|---------------------------------------|-----------------|------------------|-----------|------------|---------------------------|
| 153.00 | A-ANT-23G-1-C | 40 | 17.019 | 0.9917 | 0.0022 | 56940 |
| 152.00 | A-ANT-23G-2-C | 40 | 17.019 | 0.9917 | 0.0022 | 56940 |
| 150.00 | LLPX310R w/ Mount Pipe | 40 | 17.019 | 0.9917 | 0.0022 | 56940 |
| 142.00 | MX08FRO665-21 w/ Mount Pipe | 40 | 15.372 | 0.9653 | 0.0019 | 35587 |
| 119.00 | ERICSSON AIR 21 B2A B4P w/ Mount Pipe | 40 | 10.835 | 0.8708 | 0.0010 | 9183 |
| 99.00 | KS24019-L112A | 40 | 7.417 | 0.7385 | 0.0006 | 7409 |

Maximum Tower Deflections - Design Wind

| Section No. | Elevation ft | Horz. Deflection in | Gov. Load Comb. | Tilt ° | Twist ° |
|-------------|-----------------|---------------------------|-----------------------|-----------|------------|
| L1 | 150 - 108 | 78.996 | 4 | 4.6041 | 0.0103 |
| L2 | 111.75 - 69.75 | 44.223 | 4 | 3.8552 | 0.0039 |
| L3 | 74.5 - 32.5 | 19.090 | 4 | 2.4749 | 0.0016 |
| L4 | 38 - 0 | 4.888 | 4 | 1.1682 | 0.0006 |

Critical Deflections and Radius of Curvature - Design Wind

| Elevation ft | Appurtenance | Gov. Load Comb. | Deflection in | Tilt ° | Twist ° | Radius of Curvature ft |
|-----------------|--|-----------------------|------------------|-----------|------------|------------------------------|
| 153.00 | A-ANT-23G-1-C | 4 | 78.996 | 4.6041 | 0.0103 | 12459 |
| 152.00 | A-ANT-23G-2-C | 4 | 78.996 | 4.6041 | 0.0103 | 12459 |
| 150.00 | LLPX310R w/ Mount Pipe | 4 | 78.996 | 4.6041 | 0.0103 | 12459 |
| 142.00 | MX08FRO665-21 w/ Mount Pipe | 4 | 71.360 | 4.4838 | 0.0088 | 7787 |
| 119.00 | ERICSSON AIR 21 B2A B4P w/ Mount Pipe | 4 | 50.309 | 4.0476 | 0.0048 | 2006 |
| 99.00 | KS24019-L112A | 4 | 34.447 | 3.4329 | 0.0028 | 1610 |

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 $\frac{P_u}{\phi P_n}$ |
|-------------|---------------------|-----------------------------|---------|-------------|------|----------------------|------------|-----------------|---------------------------------|
| L1 | 150 - 108 (1) | TP30.401x22x0.25 | 42.00 | 0.00 | 0.0 | 23.667 7 | -14.38 | 1278.06 | 0.011 |
| L2 | 108 - 69.75 (2) | TP37.553x29.1509x0.312 5 | 42.00 | 0.00 | 0.0 | 36.517 1 | -21.07 | 1971.92 | 0.011 |
| L3 | 69.75 - 32.5 (3) | TP44.379x35.9778x0.375 | 42.00 | 0.00 | 0.0 | 51.806 4 | -30.32 | 3030.67 | 0.010 |
| L4 | 32.5 - 0 (4) | TP50.13x42.5288x0.4375 | 38.00 | 0.00 | 0.0 | 70.004 3 | -43.14 | 4095.25 | 0.011 |

Pole Bending Design Data

| Section No. | Elevation ft | Size | M_{ux} kip-ft | ϕM_{rx} kip-ft | Ratio $\frac{M_{ux}}{\phi M_{rx}}$ | M_{uy} kip-ft | ϕM_{ry} kip-ft | Ratio $\frac{M_{uy}}{\phi M_{ry}}$ |
|-------------|---------------------|-----------------------------|--------------------|-------------------------|---------------------------------------|--------------------|-------------------------|---------------------------------------|
| L1 | 150 - 108 (1) | TP30.401x22x0.25 | 337.43 | 857.03 | 0.394 | 0.00 | 857.03 | 0.000 |
| L2 | 108 - 69.75 (2) | TP37.553x29.1509x0.312 5 | 921.23 | 1641.28 | 0.561 | 0.00 | 1641.28 | 0.000 |
| L3 | 69.75 - 32.5 (3) | TP44.379x35.9778x0.375 | 1616.97 | 2949.93 | 0.548 | 0.00 | 2949.93 | 0.000 |
| L4 | 32.5 - 0 (4) | TP50.13x42.5288x0.4375 | 2459.55 | 4631.98 | 0.531 | 0.00 | 4631.98 | 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 | 150 - 108 (1) | TP30.401x22x0.25 | 13.92 | 383.42 | 0.036 | 0.50 | 991.59 | 0.001 |
| L2 | 108 - 69.75 (2) | TP37.553x29.1509x0.312 5 | 17.40 | 591.58 | 0.029 | 0.54 | 1888.43 | 0.000 |
| L3 | 69.75 - 32.5 (3) | TP44.379x35.9778x0.375 | 20.64 | 909.20 | 0.023 | 0.59 | 3431.28 | 0.000 |
| L4 | 32.5 - 0 (4) | TP50.13x42.5288x0.4375 | 23.67 | 1228.58 | 0.019 | 0.64 | 5370.23 | 0.000 |

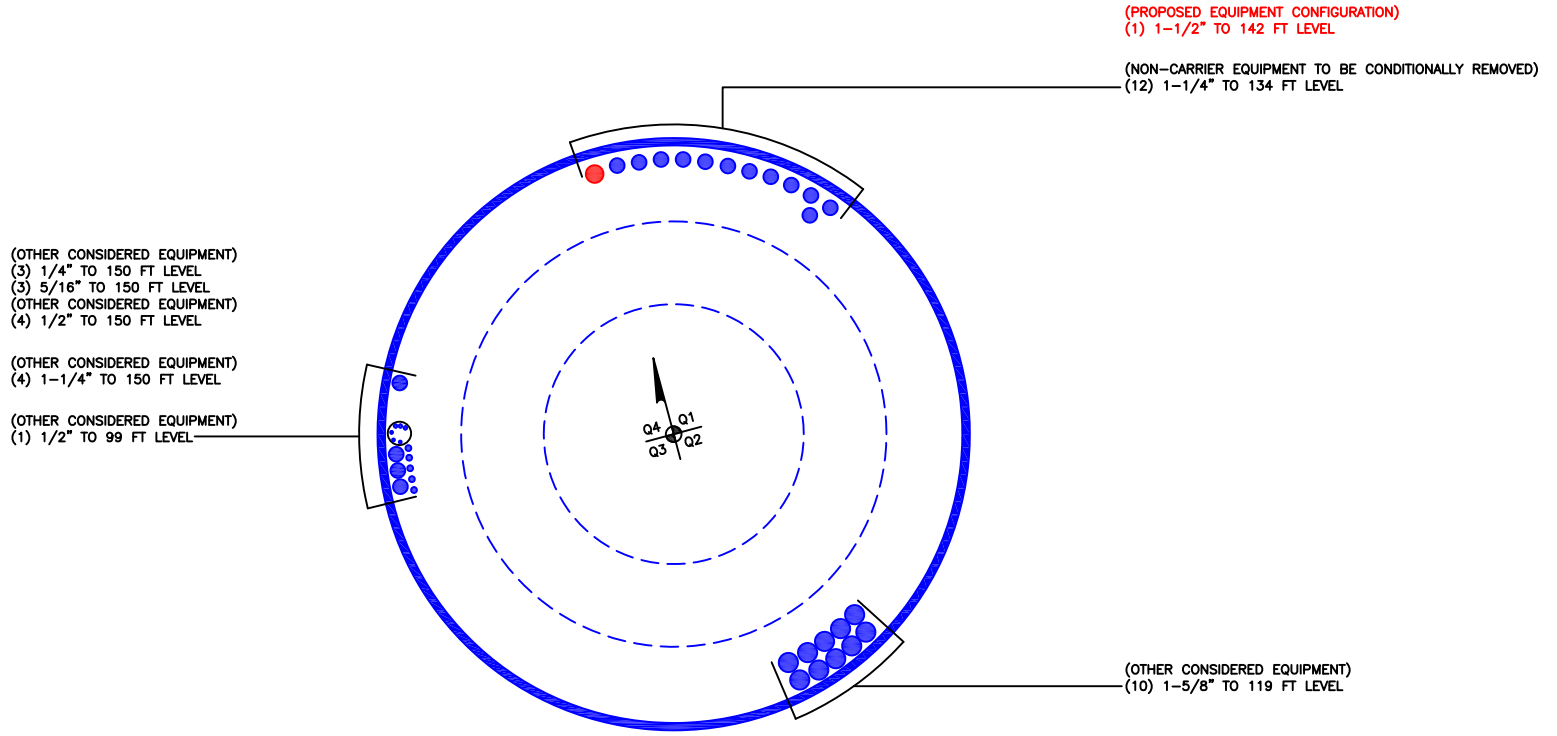
Pole Interaction Design Data

| Section No. | Elevation ft | Ratio P_u ϕP_n | Ratio M_{ux} ϕM_{nx} | Ratio M_{uy} ϕM_{ny} | Ratio V_u ϕV_n | Ratio T_u ϕT_n | Comb. Stress Ratio | Allow. Stress Ratio | Criteria |
|-------------|---------------------|------------------------------|------------------------------------|------------------------------------|------------------------------|------------------------------|--------------------------|---------------------------|----------|
| L1 | 150 - 108 (1) | 0.011 | 0.394 | 0.000 | 0.036 | 0.001 | 0.406 | 1.050 | 4.8.2 |
| L2 | 108 - 69.75 (2) | 0.011 | 0.561 | 0.000 | 0.029 | 0.000 | 0.573 | 1.050 | 4.8.2 |
| L3 | 69.75 - 32.5 (3) | 0.010 | 0.548 | 0.000 | 0.023 | 0.000 | 0.559 | 1.050 | 4.8.2 |
| L4 | 32.5 - 0 (4) | 0.011 | 0.531 | 0.000 | 0.019 | 0.000 | 0.542 | 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 | 150 - 108 | Pole | TP30.401x22x0.25 | 1 | -14.38 | 1341.96 | 38.7 | Pass |
| L2 | 108 - 69.75 | Pole | TP37.553x29.1509x0.3125 | 2 | -21.07 | 2070.52 | 54.6 | Pass |
| L3 | 69.75 - 32.5 | Pole | TP44.379x35.9778x0.375 | 3 | -30.32 | 3182.20 | 53.2 | Pass |
| L4 | 32.5 - 0 | Pole | TP50.13x42.5288x0.4375 | 4 | -43.14 | 4300.01 | 51.6 | Pass |
| Summary | | | | | | | | |
| Pole (L2) | | | | | | | 54.6 | Pass |
| RATING = | | | | | | | 54.6 | Pass |

APPENDIX B
BASE LEVEL DRAWING



APPENDIX C
ADDITIONAL CALCULATIONS

Monopole Base Plate Connection

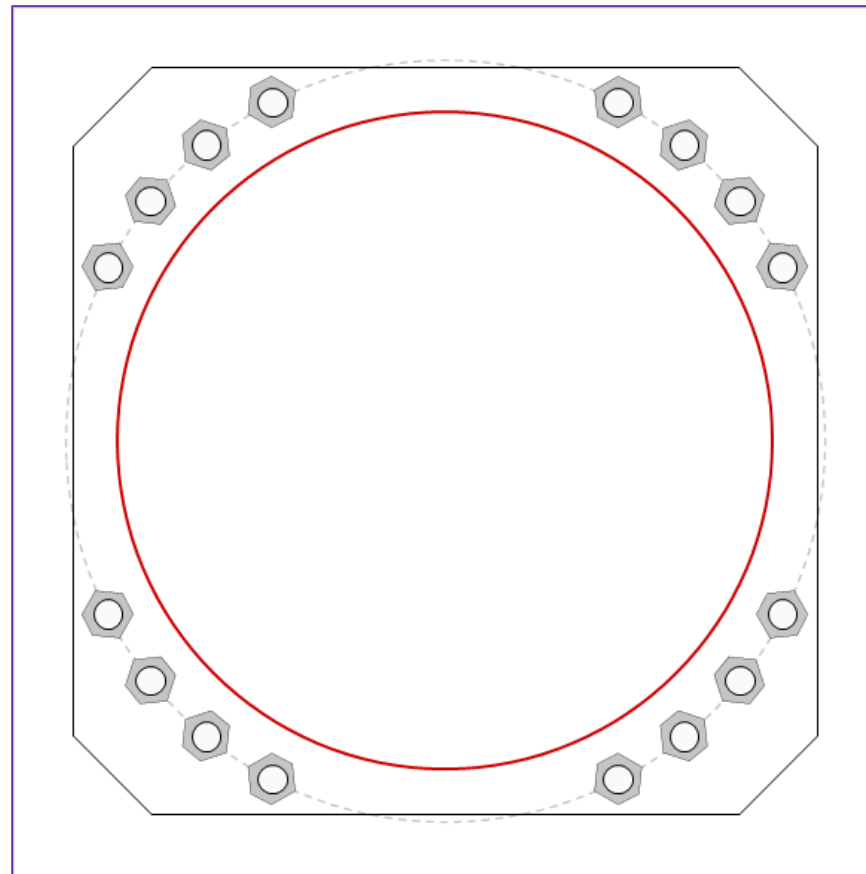


| Site Info | |
|-----------|--------------------|
| BU # | 876319 |
| Site Name | AUGATUCK 2 UNIROYA |
| Order # | 553365 Rev. 2 |

| Analysis Considerations | |
|-------------------------|-----|
| TIA-222 Revision | H |
| Grout Considered: | No |
| l_{ar} (in) | 1.5 |

| Applied Loads | |
|--------------------|---------|
| Moment (kip-ft) | 2459.55 |
| Axial Force (kips) | 43.14 |
| Shear Force (kips) | 23.67 |

*TIA-222-H Section 15.5 Applied



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

| Anchor Rod Data |
|--|
| (16) 2-1/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 58" BC <i>Anchor Spacing: 6 in</i> |
| Base Plate Data |
| 57" W x 3" Plate (A572-50; $F_y=50$ ksi, $F_u=65$ ksi); Clip: 6 in |
| Stiffener Data |
| N/A |
| Pole Data |
| 50.13" x 0.4375" 12-sided pole (A607-65; $F_y=65$ ksi, $F_u=80$ ksi) |

| Anchor Rod Summary | | | <i>(units of kips, kip-in)</i> |
|-------------------------|-------------------------|----------------------|--------------------------------|
| $P_{u,t} = 124.44$ | $\phi P_{n,t} = 243.75$ | Stress Rating | |
| $V_u = 1.48$ | $\phi V_n = 149.1$ | 48.6% | |
| $M_u = n/a$ | $\phi M_n = n/a$ | Pass | |
| Base Plate Summary | | | |
| Max Stress (ksi): | 23.42 | (Flexural) | |
| Allowable Stress (ksi): | 45 | | |
| Stress Rating: | 49.6% | Pass | |

Drilled Pier Foundation

| | |
|-------------------|----------------------|
| BU # : | 876319 |
| Site Name: | NAUGATUCK 2 UNIROYAL |
| Order Number: | 553365 Rev. 2 |
| TIA-222 Revision: | H |
| Tower Type: | Monopole |



| Applied Loads | | |
|--------------------|---------|--------|
| | Comp. | Uplift |
| Moment (kip-ft) | 2459.55 | |
| Axial Force (kips) | 43.15 | |
| Shear Force (kips) | 23.65 | |

| Material Properties | | |
|--------------------------|----|-----|
| Concrete Strength, f'c: | 3 | ksi |
| Rebar Strength, Fy: | 60 | ksi |
| Tie Yield Strength, Fyt: | 40 | ksi |

| Pier Design Data | | |
|---|-----|----|
| Depth | 26 | ft |
| Ext. Above Grade | 0.5 | ft |
| Pier Section 1 | | |
| <i>From 0.5' above grade to 26' below grade</i> | | |
| Pier Diameter | 7 | ft |
| Rebar Quantity | 32 | |
| Rebar Size | 11 | |
| Clear Cover to Ties | 4 | in |
| Tie Size | 5 | |
| Tie Spacing | 18 | in |

[Rebar & Pier Options](#)
[Embedded Pole Inputs](#)
[Belled Pier Inputs](#)

| Analysis Results | | |
|------------------------------------|-------------|--------|
| Soil Lateral Check | | |
| | Compression | Uplift |
| D _{v=0} (ft from TOC) | 6.65 | - |
| Soil Safety Factor | 5.04 | - |
| Max Moment (kip-ft) | 2627.64 | - |
| Rating* | 25.1% | - |
| Soil Vertical Check | | |
| | Compression | Uplift |
| Skin Friction (kips) | 643.53 | - |
| End Bearing (kips) | 209.21 | - |
| Weight of Concrete (kips) | 174.90 | - |
| Total Capacity (kips) | 852.73 | - |
| Axial (kips) | 218.05 | - |
| Rating* | 24.4% | - |
| Reinforced Concrete Flexure | | |
| | Compression | Uplift |
| Critical Depth (ft from TOC) | 6.55 | - |
| Critical Moment (kip-ft) | 2627.58 | - |
| Critical Moment Capacity | 7499.89 | - |
| Rating* | 33.4% | - |
| Reinforced Concrete Shear | | |
| | Compression | Uplift |
| Critical Depth (ft from TOC) | 19.33 | - |
| Critical Shear (kip) | 291.68 | - |
| Critical Shear Capacity | 600.36 | - |
| Rating* | 46.3% | - |

| | |
|--------------------------------------|--------------|
| Structural Foundation Rating* | 46.3% |
| Soil Interaction Rating* | 25.1% |

*Rating per TIA-222-H Section 15.5

| Check Limitation | |
|---------------------------------------|-------------------------------------|
| Apply TIA-222-H Section 15.5: | <input checked="" type="checkbox"/> |
| N/A | <input type="checkbox"/> |
| Additional Longitudinal Rebar | |
| Input Effective Depths (else Actual): | <input type="checkbox"/> |
| Shear Design Options | |
| Check Shear along Depth of Pier: | <input checked="" type="checkbox"/> |
| Utilize Shear-Friction Methodology: | <input type="checkbox"/> |
| Override Critical Depth: | <input type="checkbox"/> |

[Go to Soil Calculations](#)

| Soil Profile | | | | |
|-------------------|----|-------------|---|--|
| Groundwater Depth | 23 | # of Layers | 5 | |

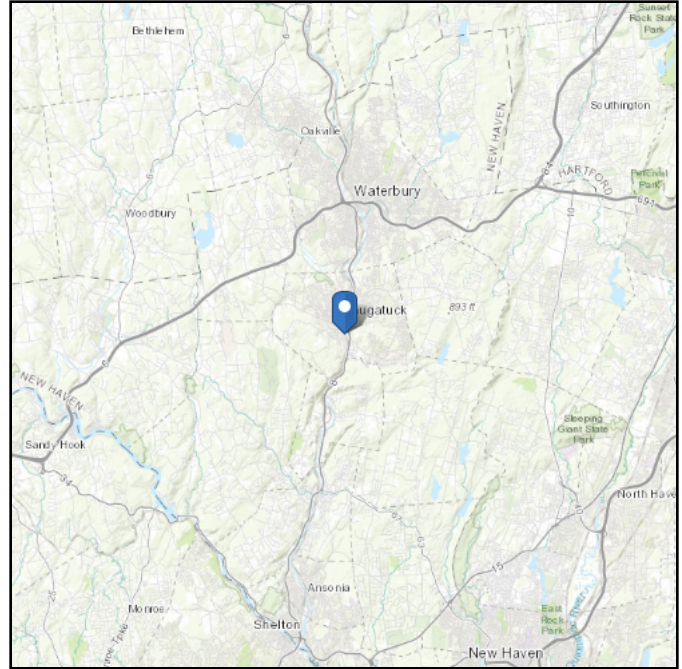
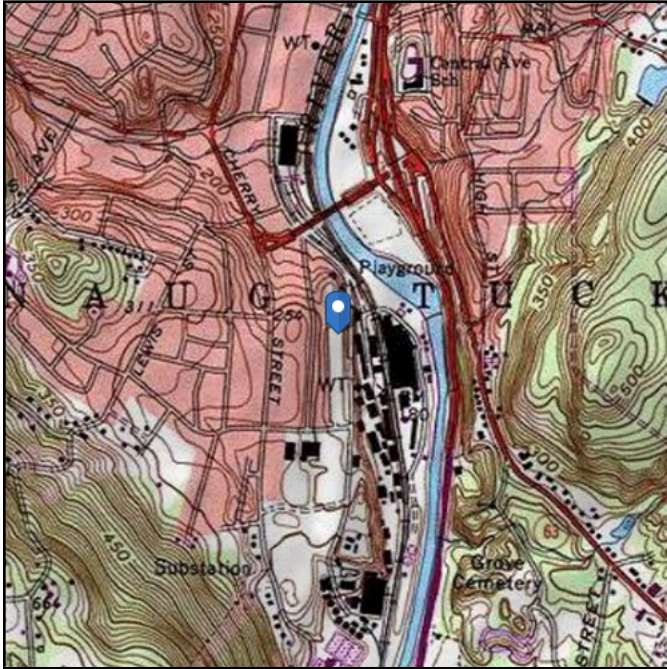
| Layer | Top (ft) | Bottom (ft) | Thickness (ft) | γ _{soil} (pcf) | γ _{concrete} (pcf) | Cohesion (ksf) | Angle of Friction (degrees) | Calculated Ultimate Skin Friction Comp (ksf) | Calculated Ultimate Skin Friction Uplift (ksf) | Ultimate Skin Friction Comp Override (ksf) | Ultimate Skin Friction Uplift Override (ksf) | Ult. Net Bearing Capacity (ksf) | SPT Blow Count | Soil Type |
|-------|----------|-------------|----------------|-------------------------|-----------------------------|----------------|-----------------------------|--|--|--|--|---------------------------------|----------------|--------------|
| 1 | 0 | 3.5 | 3.5 | 125 | 150 | 0 | 0 | 0.000 | 0.000 | | | | | Cohesionless |
| 2 | 3.5 | 8 | 4.5 | 125 | 150 | 0 | 34 | 0.845 | 0.845 | | | | 48 | Cohesionless |
| 3 | 8 | 15 | 7 | 125 | 150 | 0 | 34 | 1.498 | 1.498 | | | | 22 | Cohesionless |
| 4 | 15 | 23 | 8 | 125 | 150 | 0 | 34 | 2.165 | 2.165 | | | | 16 | Cohesionless |
| 5 | 23 | 26 | 3 | 62 | 87.6 | 0 | 34 | 2.469 | 2.469 | | | 4 | 57 | Cohesionless |

ASCE 7 Hazards Report

Address:
No Address at This
Location

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

Elevation: 232.9 ft (NAVD 88)
Latitude: 41.481261
Longitude: -73.053242

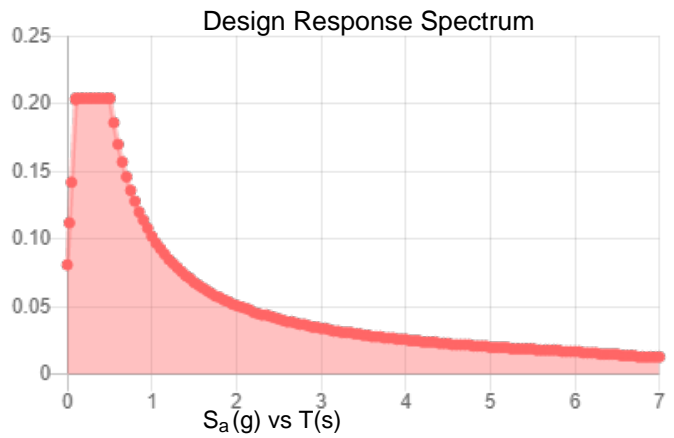
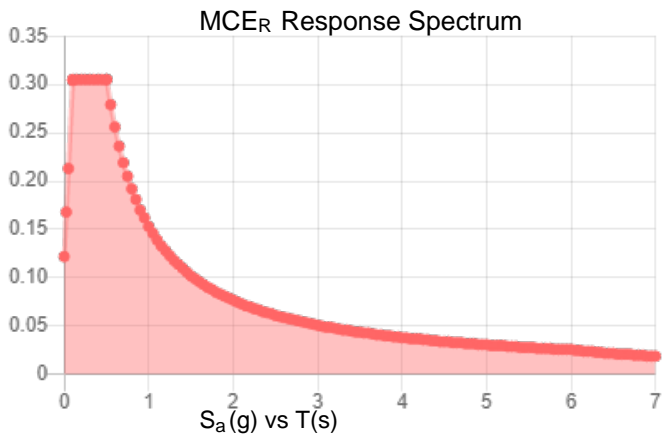


Site Soil Class: D - Stiff Soil

Results:

| | | | |
|------------|-------|--------------------|-------|
| S_s : | 0.191 | S_{DS} : | 0.204 |
| S_1 : | 0.064 | S_{D1} : | 0.102 |
| F_a : | 1.6 | T_L : | 6 |
| F_v : | 2.4 | PGA : | 0.1 |
| S_{MS} : | 0.305 | PGA _M : | 0.159 |
| S_{M1} : | 0.153 | F _{PGA} : | 1.6 |
| | | I_e : | 1 |

Seismic Design Category B



Data Accessed:

Wed Jun 02 2021

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

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: Wed Jun 02 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 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.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

Exhibit E

Mount Analysis

Date: **August 2, 2021**

Darcy Tarr
Crown Castle
3530 Tornigdon Way, Suite 300
Charlotte, NC 28277
(704) 405-6589



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

Subject: **Mount Replacement Analysis Report**

Carrier Designation: **DISH Network Equipment Change Out**
Carrier Site Number: BOHVN00024A
Carrier Site Name: CT-CCI-T-876319

Crown Castle Designation: **Crown Castle BU Number:** 876319
Crown Castle Site Name: NAUGATUCK 2 UNIROYAL
Crown Castle JDE Job Number: 645176
Crown Castle Order Number: 553365 Rev. 2

Engineering Firm Designation: **Trylon Report Designation:** 189335

Site Data: **280 Elm Street, Naugatuck, New Haven County, CT, 06770**
Latitude 41°28'52.54" Longitude -73°3'11.67"

Structure Information: **Tower Height & Type:** **150.0 ft Monopole**
Mount Elevation: **142.0 ft**
Mount Type: **8.0 ft Platform**

Dear Darcy Tarr,

Trylon is pleased to submit this "**Mount Replacement 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 125 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: Jordan Everson, E.I.T.

Respectfully Submitted by:
Cliff Abernathy, P.E.

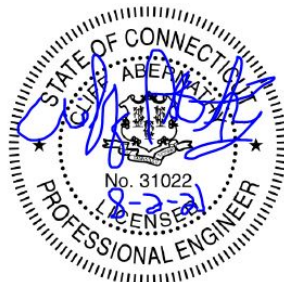


TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA

Table 1 - Proposed Equipment Configuration

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

3.1) Analysis Method

3.2) Assumptions

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity

4.1) Recommendations

5) APPENDIX A

Wire Frame and Rendered Models

6) APPENDIX B

Software Input Calculations

7) APPENDIX C

Software Analysis Output

8) APPENDIX D

Additional Calculations

9) APPENDIX E

Supplemental Drawings

1) INTRODUCTION

This is a proposed 3 sector 8.0 ft Platform, designed by Commscope.

2) ANALYSIS CRITERIA

| | |
|---|-----------------------|
| Building Code: | 2015 IBC / 2018 CTSCB |
| TIA-222 Revision: | TIA-222-H |
| Risk Category: | II |
| Ultimate Wind Speed: | 125 mph |
| Exposure Category: | B |
| Topographic Factor at Base: | 1.0 |
| Topographic Factor at Mount: | 1.0 |
| Ice Thickness: | 1.5 in |
| Wind Speed with Ice: | 50 mph |
| Seismic S_s: | 0.190 |
| Seismic S_1: | 0.062 |
| 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 |
|-----------------------|-------------------------|--------------------|----------------------|------------------|---|
| 142.0 | 142.0 | 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 | 553365 Rev. 2 | CCI Sites |
| Mount Manufacturer Drawings | Commscope | MC-PK8-DSH | TSA |

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 Tylon 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 | Mount Pipe(s) | MP3 | 142.0 | 28.0 | Pass |
| | Horizontal(s) | H1 | | 11.3 | Pass |
| | Standoff(s) | M2 | | 47.8 | Pass |
| | Bracing(s) | M11 | | 38.8 | Pass |
| | Mount Connection(s) | -- | | 19.5 | Pass |

| | |
|---|--------------|
| Structure Rating (max from all components) = | 47.8% |
|---|--------------|

Notes:

- 1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
- 2) Rating per TIA-222-H, Section 15.5

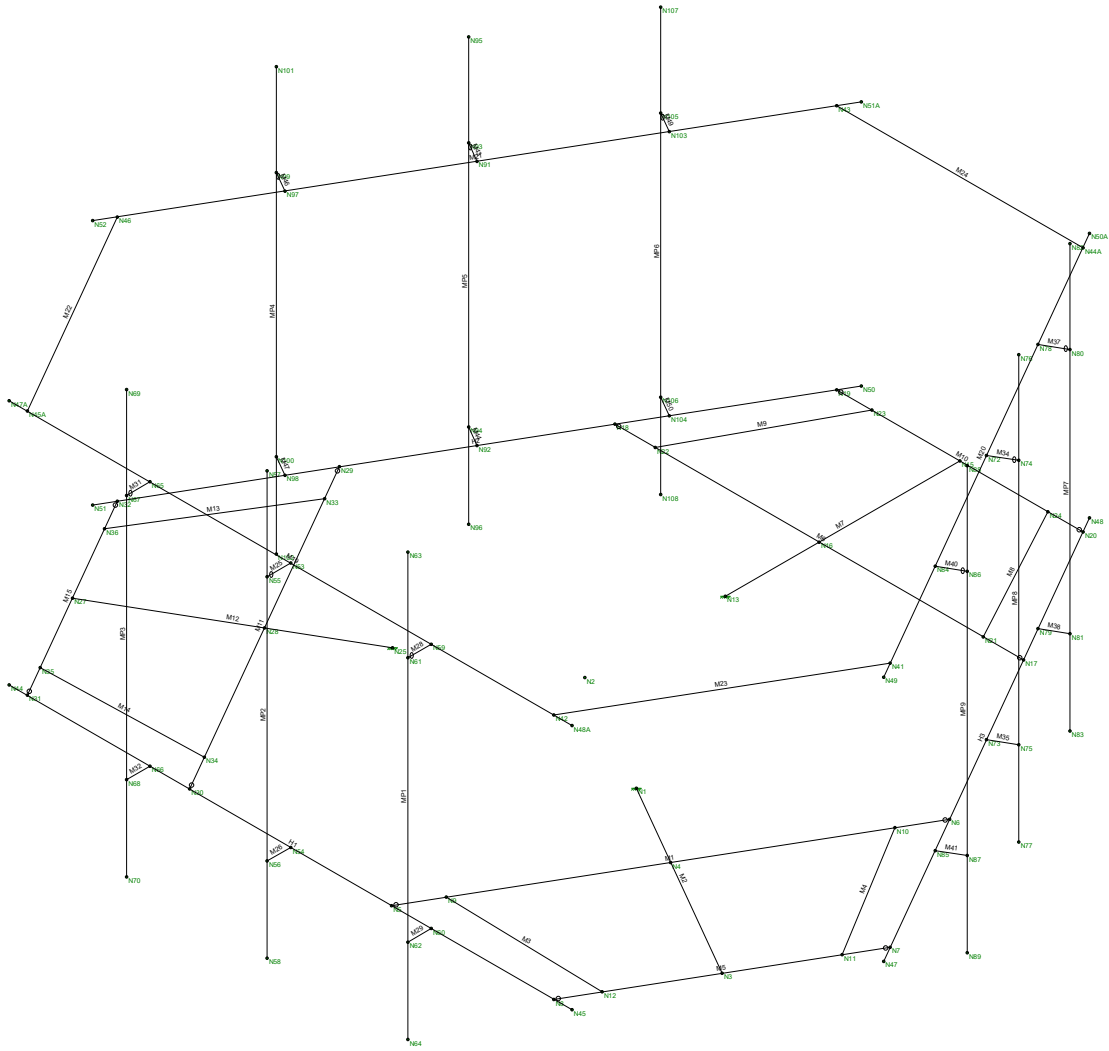
4.1) Recommendations

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.

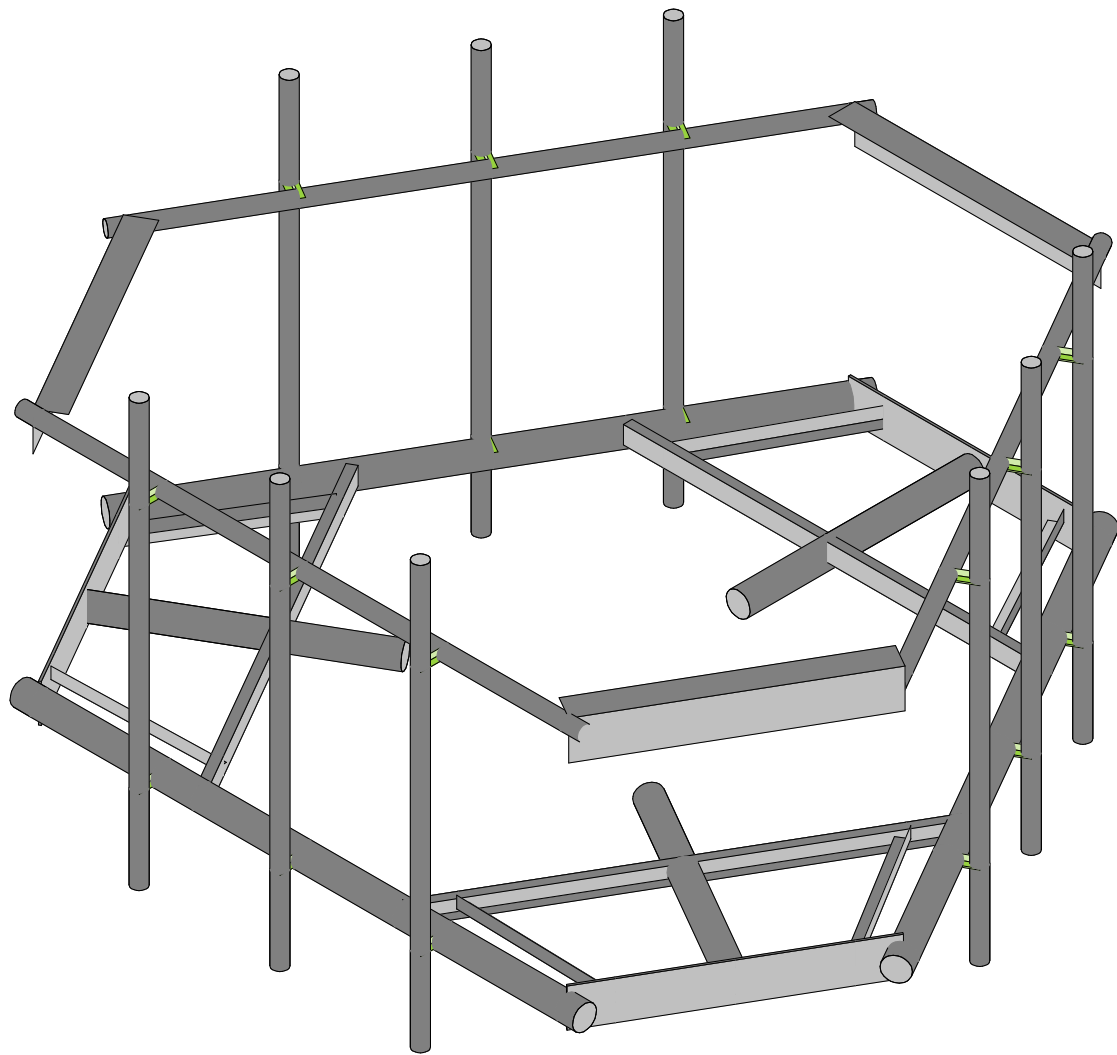
APPENDIX A
WIRE FRAME AND RENDERED MODELS



| |
|--------|
| Trylon |
| JE |
| |

876319

| |
|---------------------------|
| Wireframe |
| July 31, 2021 at 10:52 AM |
| 876319_loaded.r3d |



Trylon

JE

876319

Render

July 31, 2021 at 10:52 AM

876319_loaded.r3d

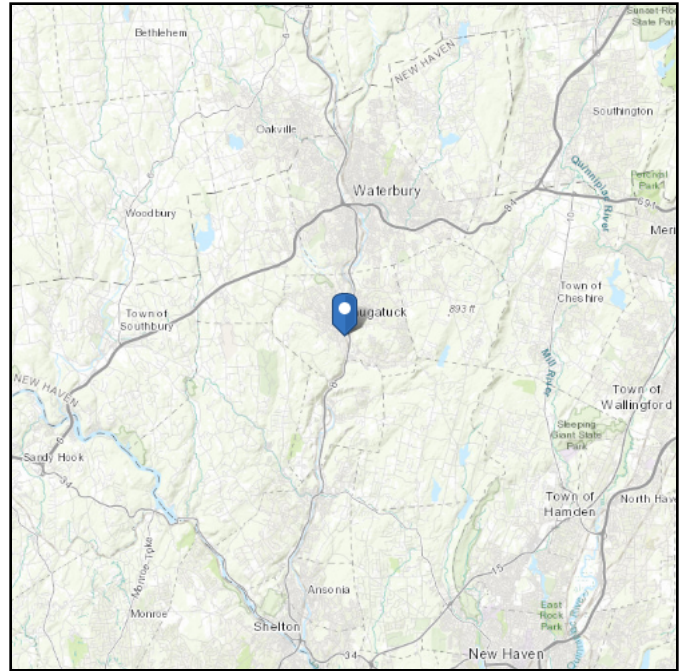
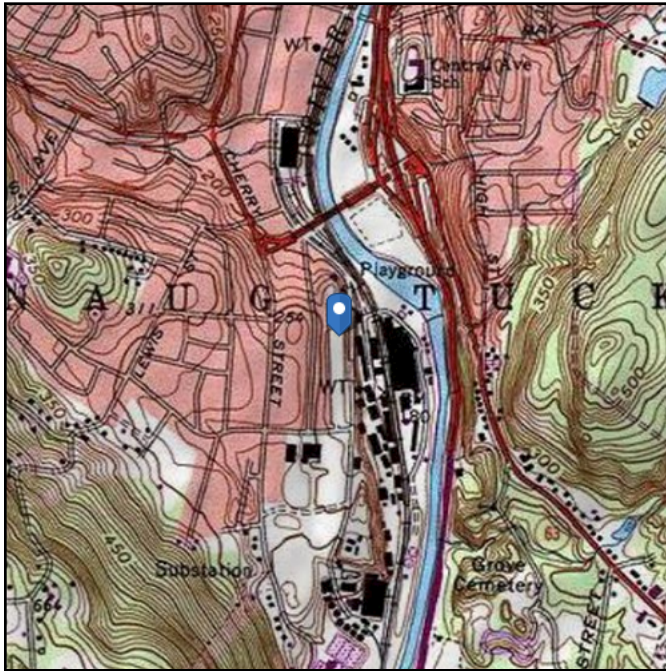
APPENDIX B
SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This
Location

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

Elevation: 232.9 ft (NAVD 88)
Latitude: 41.481261
Longitude: -73.053242



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: Mon Aug 02 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 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.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.



Trylon

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

TIA LOAD CALCULATOR 2.0

| PROJECT DATA | | |
|--------------------|--------|--|
| Job Code: | 189335 | |
| Carrier Site ID: | 876319 | |
| Carrier Site Name: | 876319 | |

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

| STRUCTURE DETAILS | | |
|--------------------|----------|-----|
| Mount Type: | Platform | -- |
| Mount Elevation: | 119.0 | ft. |
| Number of Sectors: | 3 | -- |
| Structure Type: | Monopole | -- |
| Structure Height: | 160.0 | ft. |

| ANALYSIS CRITERIA | | |
|--------------------------|----------------|-----|
| Structure Risk Category: | II | -- |
| Exposure Category: | B | -- |
| Site Class: | D - Stiff Soil | -- |
| Ground Elevation: | 232 | 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: | 125 | mph |
| Wind Escalation Factor (K_s): | 1.00 | -- |
| Velocity Coefficient (K_z): | 1.04 | -- |
| Directionality Factor (K_d): | 0.95 | -- |
| Gust Effect Factor (G _h): | 1.00 | -- |
| Shielding Factor (K_a): | 0.90 | -- |
| Velocity Pressure (q_z): | 39.14 | psf |

| 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}): | 39.14 | psf |
| Mount Ice Thickness (t_{iz}): | 1.71 | in |

| WIND STRUCTURE CALCULATIONS | | |
|-----------------------------|-------|-----|
| Flat Member Pressure: | 70.45 | psf |
| Round Member Pressure: | 42.27 | psf |
| Ice Wind Pressure: | 7.40 | psf |

| SEISMIC PARAMETERS | | |
|---------------------------------|------|----|
| Importance Factor (I_e): | 1.00 | -- |
| Short Period Accel. (S_s): | 0.19 | g |
| 1 Second Accel. (S_1): | 0.06 | g |
| Short Period Des. (S_{DS}): | 0.20 | g |
| 1 Second Des. (S_{D1}): | 0.10 | g |
| Short Period Coeff. (F_a): | 1.60 | -- |
| 1 Second Coeff. (F_v): | 2.40 | -- |
| Response Coefficient (C_s): | 0.10 | -- |
| 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

| <i>Appurtenance Name/Location</i> | <i>Qty.</i> | <i>Elevation [ft]</i> | <i>--</i> | <i>EPA_N (ft²)</i> | <i>EPA_T (ft²)</i> | <i>Weight (lbs)</i> |
|-----------------------------------|-------------|-----------------------|-----------|---|---|---------------------|
| MX08FRO665-21 | 3 | 119 | No Ice | 8.01 | 3.21 | 82.50 |
| MP2/MP5/MP8, 0/120/240 | -- | -- | w/ Ice | 9.63 | 4.63 | 279.49 |
| TA08025-B604 | 3 | 119 | No Ice | 1.96 | 0.98 | 63.90 |
| MP2/MP5/MP8, 0/120/240 | -- | -- | w/ Ice | 2.38 | 1.31 | 68.58 |
| TA08025-B605 | 3 | 119 | No Ice | 1.96 | 1.13 | 75.00 |
| MP2/MP5/MP8, 0/120/240 | -- | -- | w/ Ice | 2.38 | 1.47 | 73.07 |
| RDIDC-9181-PF-48 | 1 | 119 | No Ice | 2.01 | 1.17 | 21.85 |
| MP2, 0 | -- | -- | w/ Ice | 2.44 | 1.52 | 72.01 |
| | | | No Ice | | | |
| -- | -- | -- | w/ Ice | | | |
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| -- | -- | -- | w/ Ice | | | |

EQUIPMENT WIND CALCULATIONS

| Appurtenance Name | Qty. | Elevation [ft] | K_{zt} | K_z | K_d | t_d | q_z [psf] | q_{zi} [psf] |
|-------------------|------|----------------|----------|-------|-------|-------|----------------|-------------------|
| MX08FRO665-21 | 3 | 119 | 1.00 | 1.04 | 0.95 | 1.71 | 39.14 | 6.26 |
| TA08025-B604 | 3 | 119 | 1.00 | 1.04 | 0.95 | 1.71 | 39.14 | 6.26 |
| TA08025-B605 | 3 | 119 | 1.00 | 1.04 | 0.95 | 1.71 | 39.14 | 6.26 |
| RDIDC-9181-PF-48 | 1 | 119 | 1.00 | 1.04 | 0.95 | 1.71 | 39.14 | 6.26 |
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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 | 282.13 | 155.33 | 239.87 | 113.06 | 239.87 | 155.33 |
| MP2/MP5/MP8, 0/120/240 | -- | w/ Ice | 54.29 | 33.15 | 47.24 | 26.11 | 47.24 | 33.15 |
| TA08025-B604 | 3 | No Ice | 69.16 | 43.21 | 60.51 | 34.56 | 60.51 | 43.21 |
| MP2/MP5/MP8, 0/120/240 | -- | w/ Ice | 13.42 | 8.87 | 11.90 | 7.36 | 11.90 | 8.87 |
| TA08025-B605 | 3 | No Ice | 69.16 | 47.13 | 61.82 | 39.78 | 61.82 | 47.13 |
| MP2/MP5/MP8, 0/120/240 | -- | w/ Ice | 13.42 | 9.56 | 12.13 | 8.27 | 12.13 | 9.56 |
| RDIDC-9181-PF-48 | 1 | No Ice | 70.86 | 48.58 | 63.43 | 41.15 | 63.43 | 48.58 |
| MP2, 0 | -- | w/ Ice | 13.72 | 9.86 | 12.44 | 8.57 | 12.44 | 9.86 |
| | | No Ice | | | | | | |
| -- | -- | w/ Ice | | | | | | |
| | | No Ice | | | | | | |
| -- | -- | w/ Ice | | | | | | |
| | | No Ice | | | | | | |
| -- | -- | w/ Ice | | | | | | |
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| | | No Ice | | | | | | |
| -- | -- | w/ Ice | | | | | | |
| | | No Ice | | | | | | |
| -- | -- | w/ Ice | | | | | | |
| | | No Ice | | | | | | |
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| -- | -- | w/ Ice | | | | | | |
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| -- | -- | w/ Ice | | | | | | |
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| -- | -- | w/ Ice | | | | | | |
| | | No Ice | | | | | | |
| -- | -- | w/ Ice | | | | | | |
| | | No Ice | | | | | | |
| -- | -- | w/ Ice | | | | | | |
| | | No Ice | | | | | | |

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 | 119 | 82.5 | 10.03 |
| TA08025-B604 | 3 | 119 | 63.9 | 7.77 |
| TA08025-B605 | 3 | 119 | 75 | 9.12 |
| RDIDC-9181-PF-48 | 1 | 119 | 21.85 | 2.66 |
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APPENDIX C
SOFTWARE ANALYSIS OUTPUT

APPENDIX D
ADDITIONAL CALCUATIONS

BOLT TOOL 1.5.2

| Project Data | |
|--------------------|----------------------|
| Job Code: | 189335 |
| Carrier Site ID: | 876313 |
| Carrier Site Name: | JOHNSON AVE. BURNT H |

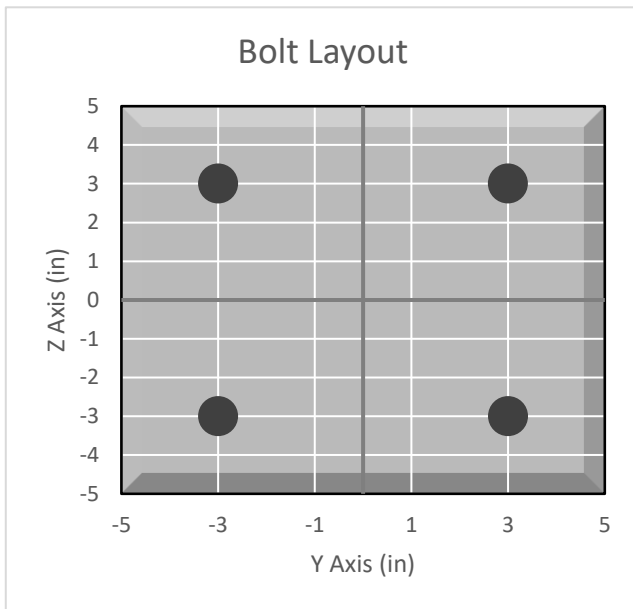
| Code | |
|----------------------|-----------|
| Design Standard: | TIA-222-H |
| Slip Check: | No |
| Pretension Standard: | - |

| 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 Collar |

| Bolt Check* | | |
|----------------------------------|---------|------|
| Tensile Capacity (ϕT_n): | 20340.1 | lbs |
| Shear Capacity (ϕV_n): | 13805.8 | lbs |
| Tension Force (T_u): | 4173.0 | lbs |
| Shear Force (V_u): | 614.0 | lbs |
| Tension Usage: | 19.5% | -- |
| Shear Usage: | 4.2% | -- |
| Interaction: | 19.5% | Pass |
| Controlling Member: | M12 | -- |
| Controlling LC: | 42 | -- |

*Rating per TIA-222-H Section 15.5



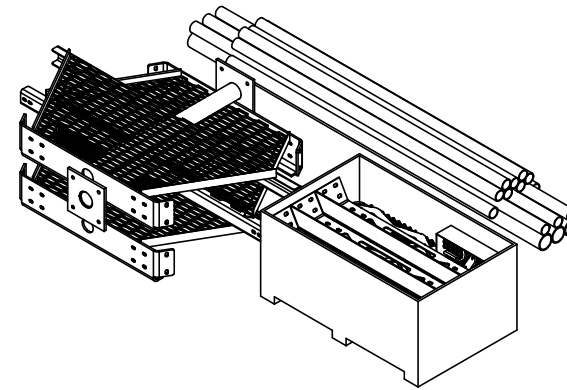
APPENDIX E
SUPPLEMENTAL DRAWINGS

| ITEM | PART NO. | DESCRIPTION | QTY. | WEIGHT | NOTE NO. |
|------|-----------|-------------------------------------|------|------------|----------|
| 1 | MTC3006SB | STEEL BUNDLE FOR SNUB NOSE PLATFORM | 1 | 402.64 LBS | |
| 2 | MCPK8CSB | PIPE STEEL BUNDLE FOR MC-PK8-C | 1 | 464.27 LBS | |
| 3 | MCPK8CHWK | HARDWARE KIT FOR MC-PK8-C | 1 | 543.22 LBS | |




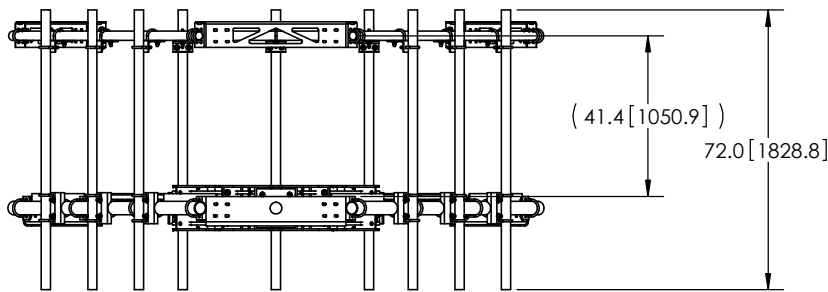
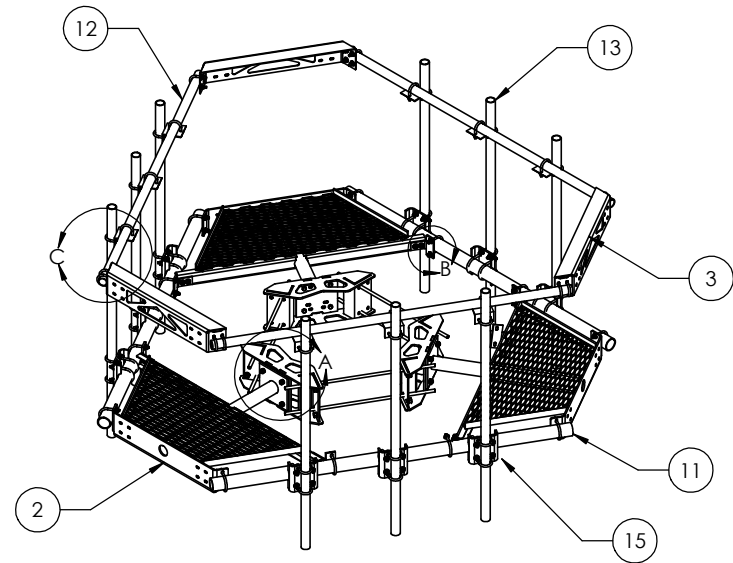
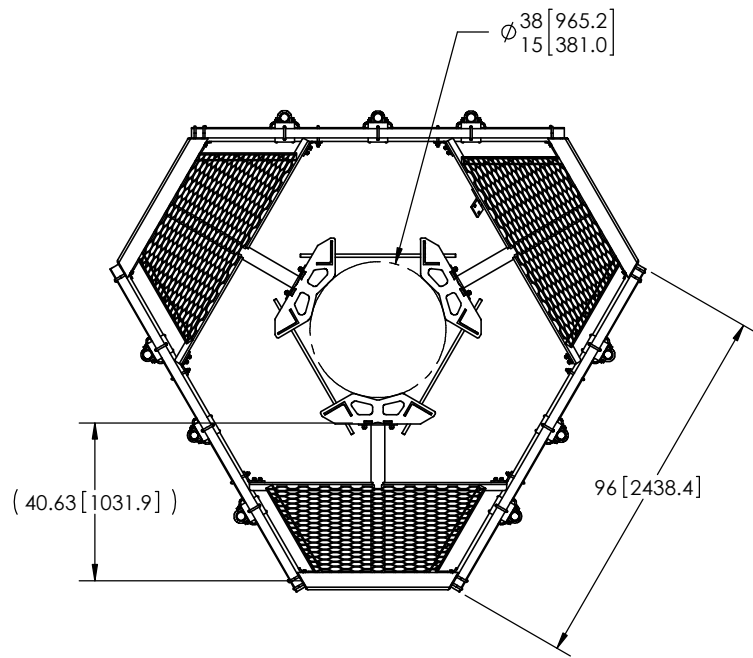
| REVISIONS | | | | |
|-----------|------------|---------------------------------------|-----|----------|
| REV. | ECN | DESCRIPTION | BY | DATE |
| A | | INITIAL RELEASE | DRR | 12/27/11 |
| B | 8000005979 | CHANGE NOSE CORNER BRKT, ADD GUB-4240 | MSM | 11/25/14 |
| C | 8000007579 | NEW RINGMOUNT WELDMENT DESIGN | RJC | 04/07/15 |

FOR BOM ENTRY ONLY




NOTES:
1. CUSTOMER ASSEMBLY SHEETS 2-3.

| | | | | | |
|--|--|--|----------------------------------|---------------------------------------|--|
| <small>These drawings and specifications are the proprietary property of ANDREW CORPORATION and may be used only for the specific purpose authorized in writing by Andrew Corporation.</small> | | | <small>DRAWN BY:</small> MSM | <small>SHEET:</small> 1 of 3 | <small>PART NUMBER:</small> MC-PK8-C |
| <small>ALL DIMENSIONS ARE IN INCHES U.O.S. TOLERANCES UNLESS OTHERWISE SPECIFIED:</small> | | | <small>CHECKED BY:</small> TP | <small>SCALE:</small> NTS | <small>DESCRIPTION:</small> LOW PROFILE PLATFORM KIT 8' FACE |
| <small>.X = ± .12 ANGLES ±2° .XX = ± .06 FRACTIONS ±1/32 .XXX = ± .03</small> | | | <small>DATE:</small> 10/18/11 | <small>MATERIAL:</small> A36, A500 | <small>DRAWING TYPE:</small> ASSEMBLY DRAWING |
| <small>REMOVE BURRS AND BREAK EDGES .005</small> | | | <small>REVISION:</small> C | <small>FINISH:</small> GALV A123 |  WESTCHESTER, IL. 60154 U.S.A. |
| <small>DO NOT SCALE THIS PRINT</small> | | | | <small>WEIGHT:</small> 1410.14 LBS | |

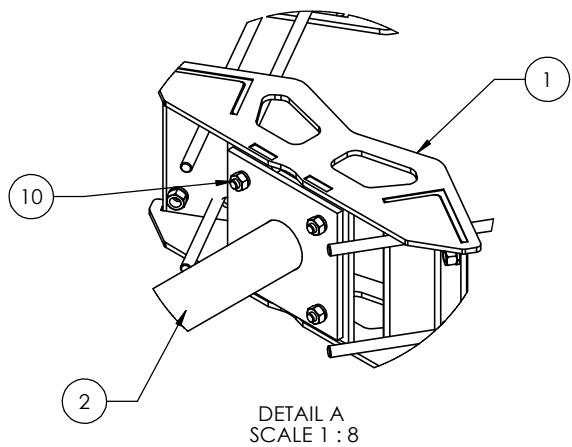


| ITEM | PART NO. | DESCRIPTION | QTY. | WEIGHT |
|------|-------------|--|------|------------|
| 1 | MC-RM1550-3 | 12" - 50" OD RINGMOUNT | 1 | 230.42 LBS |
| 2 | MTC300601 | Low Profile Co-Location Platform Snub Nose | 3 | 134.21 LBS |
| 3 | MT195801 | Corner Weldment Snub Nose Handrail | 3 | 27.10 LBS |
| 4 | XA2020.01 | CROSS OVER ANGLE | 9 | 2.65 LBS |
| 5 | GUB-4356 | 1/2" X 3-5/8" X 6" GALV U-BOLT | 18 | 0.82 LBS |
| 6 | GUB-4355 | 1/2" X 3-5/8" X 5" GALV U-BOLT | 12 | 0.71 LBS |
| 7 | GUB-4240 | 1/2" X 2-1/2" X 4" GALV U-BOLT | 48 | 0.56 LBS |
| 8 | GB-04145 | 1/2" X 1-1/2" GALV BOLT KIT | 12 | 0.13 LBS |
| 9 | GWF-04 | 1/2" GALV FLAT WASHER | 24 | 0.03 LBS |
| 10 | GB-0520A | 5/8" X 2" GALV BOLT KIT (A325) | 12 | 0.27 LBS |
| 11 | MT54796 | 3.50" OD X 96" GALV PIPE | 3 | 60.28 LBS |
| 12 | MT-651-96 | Ø2.375" OD X 96" PIPE | 3 | 29.07 LBS |
| 13 | MT-651 | 2.375" OD x 72" PIPE | 9 | 21.80 LBS |
| 14 | MT19617 | MT196 Pipe Mount Plate | 6 | 2.49 LBS |
| 15 | MT21701 | PIPE MOUNT PLATE | 9 | 7.93 LBS |

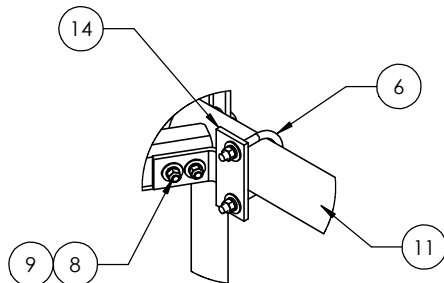
| | | | |
|---|--|--|---|
| <small>These drawings and specifications are the proprietary property of ANDREW CORPORATION and may be used only for the specific purpose authorized in writing by Andrew Corporation.</small> | | | |
| <small>ALL DIMENSIONS ARE IN INCHES U.O.S. TOLERANCES UNLESS OTHERWISE SPECIFIED:</small> .X = ± .12 ANGLES ±2° .XX = ± .06 FRACTIONS ±1/32 .XXX = ± .03 REMOVE BURRS AND BREAK EDGES .005 DO NOT SCALE THIS PRINT | <small>DRAWN BY:</small> MSM <small>CHECKED BY:</small> TP <small>DATE:</small> 10/18/11 <small>REVISION:</small> C | <small>SHEET:</small> 2 of 3 <small>SCALE:</small> NTS <small>MATERIAL:</small> A36, A53 <small>FINISH:</small> GALV A123 <small>WEIGHT:</small> 1361.27 LBS | <small>PART NUMBER:</small> MC-PK8-C <small>DESCRIPTION:</small> 25" OD Snub Nose MT-196 <small>DRAWING TYPE:</small> ASSEMBLY DRAWING  |
| | | | WESTCHESTER, IL. 60154 U.S.A. |

- NOTES:
1. ALL METRIC DIMENSIONS ARE IN BRACKETS.
 2. WILL FIT MONOPOLES 15"-38" OD.

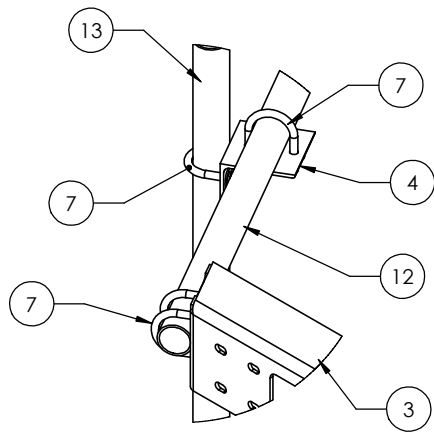
8 7 6 5 4 3 2 1



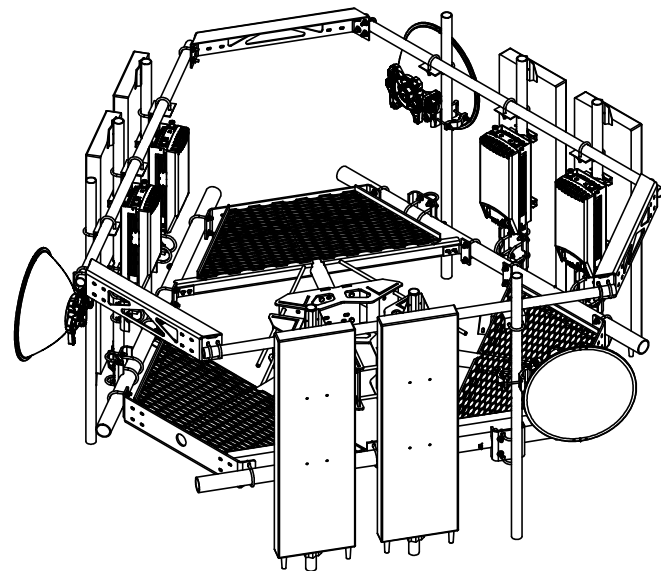
DETAIL A
SCALE 1 : 8



DETAIL B
SCALE 1 : 8




DETAIL C
SCALE 1 : 8



WITH ANTENNAS

NOTES:
1. ALL METRIC DIMENSIONS ARE IN BRACKETS.

| | | | | |
|--|--|-------------------------------|------------------------------------|---|
| <small>These drawings and specifications are the proprietary property of ANDREW CORPORATION and may be used only for the specific purpose authorized in writing by Andrew Corporation.</small> | | <small>DRAWN BY:</small> MSM | <small>SHEET:</small> 3 of 3 | <small>PART NUMBER:</small> MC-PK8-C |
| <small>ALL DIMENSIONS ARE IN INCHES U.O.S. TOLERANCES UNLESS OTHERWISE SPECIFIED:</small> .X = ± .12 ANGLES ±2° .XX = ± .06 FRACTIONS ±1/32 .XXX = ± .03 | | <small>CHECKED BY:</small> TP | <small>SCALE:</small> NTS | <small>DESCRIPTION:</small> 25" OD Snub Nose MT-196 |
| <small>REMOVE BURRS AND BREAK EDGES .005</small> DO NOT SCALE THIS PRINT | | <small>DATE:</small> 10/18/11 | <small>MATERIAL:</small> A36, A53 | <small>DRAWING TYPE:</small> ASSEMBLY DRAWING |
| | | <small>REVISION:</small> C | <small>FINISH:</small> GALV A123 |  WESTCHESTER, IL. 60154 U.S.A. |
| | | | <small>WEIGHT:</small> 1361.27 LBS | |

8 7 6 5 4 3 2 1

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: BOHVN00024A

876319

280 Elm Street

Naugatuck, Connecticut 06770

August 31, 2021

EBI Project Number: 6221004806

| Site Compliance Summary | |
|---|------------------|
| Compliance Status: | COMPLIANT |
| Site total MPE% of FCC general population allowable limit: | 10.86% |

August 31, 2021

Dish Wireless

Emissions Analysis for Site: BOHVN00024A - 876319

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **280 Elm Street in Naugatuck, 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 280 Elm Street in Naugatuck, 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 MX08FRO665-20 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector A, the JMA MX08FRO665-20 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector B, the JMA MX08FRO665-20 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 142 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 #: | I | Antenna #: | I | Antenna #: | I |
| Make / Model: | JMA MX08FRO665-20 | Make / Model: | JMA MX08FRO665-20 | Make / Model: | JMA MX08FRO665-20 |
| 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: | 17.45 dBd / 22.65 dBd / 22.65 dBd | Gain: | 17.45 dBd / 22.65 dBd / 22.65 dBd | Gain: | 17.45 dBd / 22.65 dBd / 22.65 dBd |
| Height (AGL): | 142 feet | Height (AGL): | 142 feet | Height (AGL): | 142 feet |
| Channel Count: | 12 | Channel Count: | 12 | Channel Count: | 12 |
| Total TX Power (W): | 440 Watts | Total TX Power (W): | 440 Watts | Total TX Power (W): | 440 Watts |
| ERP (W): | 5,236.31 | ERP (W): | 5,236.31 | ERP (W): | 5,236.31 |
| Antenna AI MPE %: | 1.28% | Antenna BI MPE %: | 1.28% | Antenna CI MPE %: | 1.28% |

| Site Composite MPE % | |
|----------------------------------|---------------|
| Carrier | MPE % |
| Dish Wireless (Max at Sector A): | 1.28% |
| Nextel | 0.37% |
| Verizon | 1.08% |
| Clearwire | 0.09% |
| Sprint | 2.56% |
| T-Mobile | 5.48% |
| Site Total MPE % : | 10.86% |

| Dish Wireless MPE % Per Sector | |
|--------------------------------|---------------|
| Dish Wireless Sector A Total: | 1.28% |
| Dish Wireless Sector B Total: | 1.28% |
| Dish Wireless Sector C Total: | 1.28% |
| | |
| Site Total MPE % : | 10.86% |

| 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 | 223.68 | 142.0 | 1.74 | 600 MHz n71 | 400 | 0.43% |
| Dish Wireless 1900 MHz n70 | 4 | 542.70 | 142.0 | 4.22 | 1900 MHz n70 | 1000 | 0.42% |
| Dish Wireless 2190 MHz n66 | 4 | 542.70 | 142.0 | 4.22 | 2190 MHz n66 | 1000 | 0.42% |
| | | | | | | Total: | 1.28% |

• 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: | 1.28% |
| Sector B: | 1.28% |
| Sector C: | 1.28% |
| Dish Wireless Maximum MPE % (Sector A): | 1.28% |
| | |
| Site Total: | 10.86% |
| | |
| Site Compliance Status: | COMPLIANT |

The anticipated composite MPE value for this site assuming all carriers present is **10.86%** 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



4545 E River Rd, Suite 320
West Henrietta, NY 14586

Phone: (585) 445-5896
Fax: (724) 416-4461
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:
280 ELM STREET, NAUGATUCK, CT 06770**

GLOBAL SIGNAL ACQUISITIONS II LLC (“Crown Castle”) hereby authorizes DISH Wireless LLC, including their Agent, to act as our Agent in the processing of all zoning applications, building permits and approvals through the CT - CONNECTICUT SITING COUNCIL for the existing wireless communications site described below:


**Crown Site ID/Name: 876319/NAUGATUCK 2 UNIROYAL
Customer Site ID: BOHVN00024A/CT-CCI-T-876319
Site Address: 280 Elm Street, NAUGATUCK, CT 06770**

Crown Castle

By:  _____ Date: 9/7/2021
Richard Zajac
Site Acquisition Specialist

Exhibit H

Recipient Mailings



**UNITED STATES
POSTAL SERVICE®**

Click-N-Ship®

P

usps.com 9405 5036 9930 0079 3647 81 0087 0000 0031 4586
US POSTAGE
 Flat Rate Env
U.S. POSTAGE PAID
Click-N-Ship®

12/01/2021 Mailed from 01566

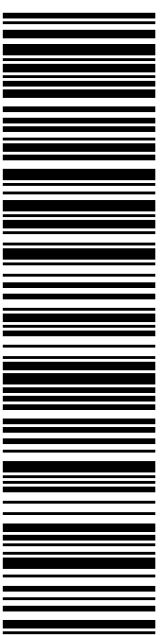
PRIORITY MAIL 2-DAY™

Expected Delivery Date: 12/06/21
 Re#: DS-876319
0006

R013

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

USPS TRACKING #



9405 5036 9930 0079 3647 81

Electronic Rate Approved #038555749



Cut on dotted line.

Instructions

1. Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.
2. Place your label so it does not wrap around the edge of the package.
3. Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.
4. To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.
5. Mail your package on the "Ship Date" you selected when creating this label.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0079 3647 81

| | |
|------------------------------------|---------------------------------------|
| Trans. #: 549716905 | Priority Mail® Postage: \$8.70 |
| Print Date: 12/01/2021 | Total: \$8.70 |
| Ship Date: 12/01/2021 | |
| Expected Delivery Date: 12/06/2021 | |

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

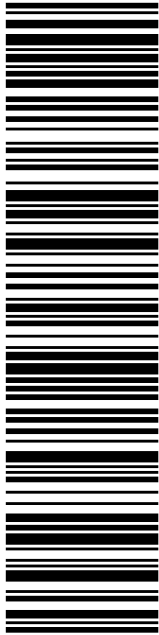
Re#: DS-876319

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

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



Thank you for shipping with the United States Postal Service!
 Check the status of your shipment on the USPS Tracking® page at usps.com



USPS TRACKING #

9405 5036 9930 0079 3647 98

Electronic Rate Approved #038555749

SHIP

TO: N. WARREN HESS, III
MAYOR-BOROUGH OF NAUGATUCK
229 CHURCH ST
NAUGATUCK CT 06770-4145

Expected Delivery Date: 12/06/21

Re#: DS-876319

0006

C004

P

12/01/2021

PRIORITY MAIL 2-DAY™

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

usps.com
US POSTAGE
Flat Rate Env
12/01/2021

U.S. POSTAGE PAID
click-n-ship®

Mailed from 01566

UNITED STATES POSTAL SERVICE®

Click-N-Ship®



Cut on dotted line.

Instructions

1. Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.
2. Place your label so it does not wrap around the edge of the package.
3. Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.
4. To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.
5. Mail your package on the "Ship Date" you selected when creating this label.

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0079 3647 98

| | |
|------------------------------------|---------------------------------------|
| Trans. #: 549716905 | Priority Mail® Postage: \$8.70 |
| Print Date: 12/01/2021 | Total: \$8.70 |
| Ship Date: 12/01/2021 | |
| Expected Delivery Date: 12/06/2021 | |

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

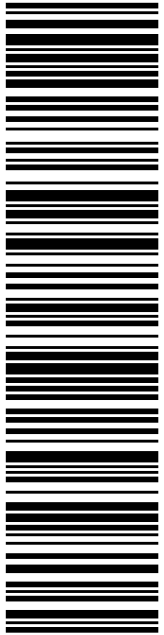
Re#: DS-876319

To: N. WARREN HESS, III
MAYOR-BOROUGH OF NAUGATUCK
229 CHURCH ST
NAUGATUCK CT 06770-4145

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



USPS TRACKING #

9405 5036 9930 0079 3648 04

Electronic Rate Approved #038555749

SHIP TO: LORI ROTELLA
TOWN PLANNER- NAUGATUCK ZONING
229 CHURCH ST
NAUGATUCK CT 06770-4145

SHIP

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

Expected Delivery Date: 12/06/21
Re#: DS-876319
0006

C004

P

12/01/2021

Mailed from 01566

USPS TRACKING #

9405 5036 9930 0079 3648 04 0087 0000 0010 6770

US POSTAGE
Flat Rate Env
U.S. POSTAGE PAID
Click-N-Ship®

UNITED STATES POSTAL SERVICE®

Click-N-Ship®

PRIORITY MAIL 2-DAY™



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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0079 3648 04

| | |
|------------------------------------|---------------------------------------|
| Trans. #: 549716905 | Priority Mail® Postage: \$8.70 |
| Print Date: 12/01/2021 | Total: \$8.70 |
| Ship Date: 12/01/2021 | |
| Expected Delivery Date: 12/06/2021 | |

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

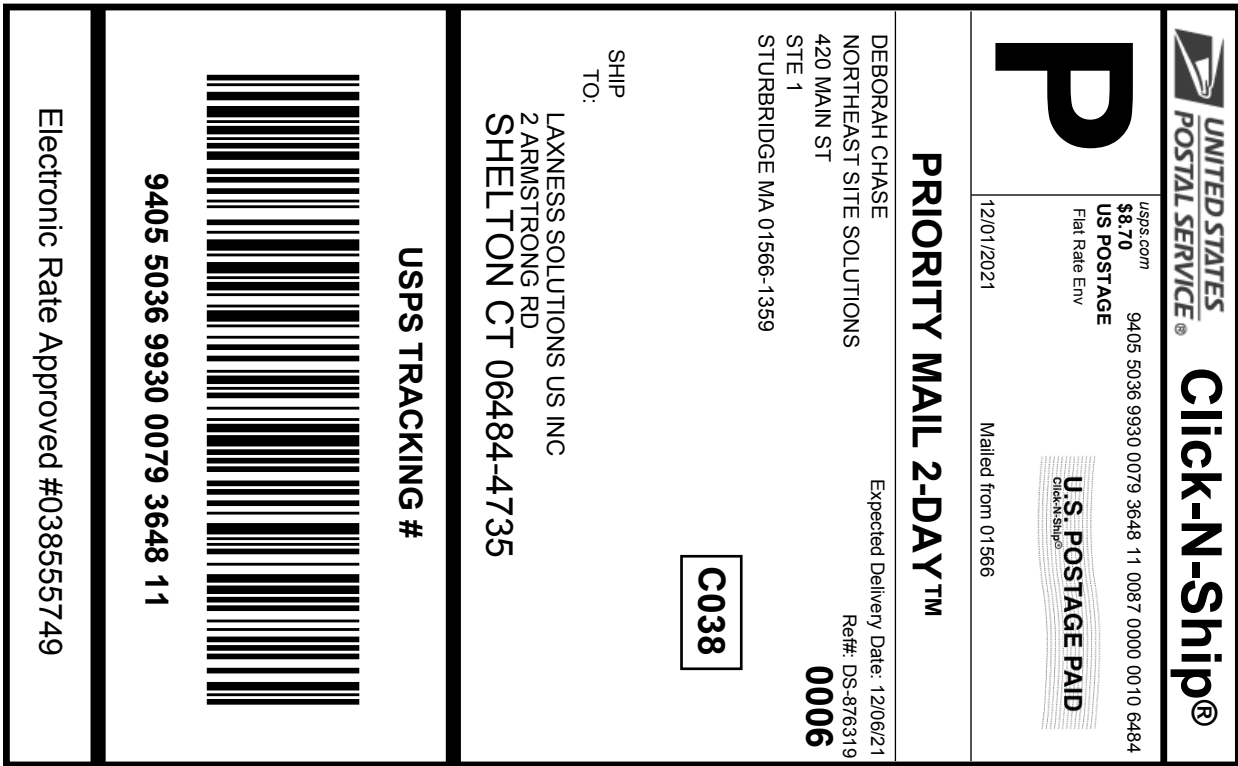
Re#: DS-876319

To: LORI ROTELLA
TOWN PLANNER- NAUGATUCK ZONING DEPARTMENT
229 CHURCH ST
NAUGATUCK CT 06770-4145

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



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

Click-N-Ship® Label Record

| | |
|------------------------------------|---|
| USPS TRACKING # : | |
| 9405 5036 9930 0079 3648 11 | |
| Trans. #: | 549716905 |
| Print Date: | 12/01/2021 |
| Ship Date: | 12/01/2021 |
| Expected | |
| Delivery Date: | 12/06/2021 |
| Priority Mail® Postage: | \$8.70 |
| Total: | \$8.70 |
| From: | DEBORAH CHASE NORTHEAST SITE SOLUTIONS 420 MAIN ST STE 1 STURBRIDGE MA 01566-1359 |
| To: | LAXNESS SOLUTIONS US INC 2 ARMSTRONG RD SHELTON CT 06484-4735 |
| Ref#: | DS-876319 |

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876319



UNIONVILLE
24 MILL ST
UNIONVILLE, CT 06085-9998
(800)275-8777

12/02/2021

01:06 PM

| Product | Qty | Unit Price | Price |
|--|-----|------------|--------|
| Prepaid Mail West Henrietta, NY 14586 Weight: 0 lb 2.00 oz Acceptance Date: Thu 12/02/2021 Tracking #: 9405 5036 9930 0079 3647 81 | 1 | | \$0.00 |
| Prepaid Mail Naugatuck, CT 06770 Weight: 0 lb 10.50 oz Acceptance Date: Thu 12/02/2021 Tracking #: 9405 5036 9930 0079 3647 98 | 1 | | \$0.00 |
| Prepaid Mail Naugatuck, CT 06770 Weight: 0 lb 10.50 oz Acceptance Date: Thu 12/02/2021 Tracking #: 9405 5036 9930 0079 3648 04 | 1 | | \$0.00 |
| Prepaid Mail Shelton, CT 06484 Weight: 0 lb 10.50 oz Acceptance Date: Thu 12/02/2021 Tracking #: 9405 5036 9930 0079 3648 11 | 1 | | \$0.00 |
| Grand Total: | | | \$0.00 |