



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

May 31, 2022

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

RE: Tower Share Application
30 Oliver Terrace, Shelton, CT 06484
Latitude: 41.293913
Longitude: -73.107147
Site #: 842873_Crown_Dish

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless LLC. Dish Wireless LLC plans to install antennas and related equipment to the tower site located at 30 Oliver Terrace, Shelton, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 MHz 5G antennas and six (6) RRUs, at the 108-foot level of the existing 140-foot monopole tower, one (1) Fiber cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within a 7' x 5' lease area within the existing compound. Included are plans by Jacobs, dated February 23, 2022, Exhibit C. Also included is a structural analysis prepared by Crown Castle, dated January 4, 2022, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. The facility was approved by the Connecticut Siting Council, Petition No. 68 on March 25, 2003. Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Mayor Mark Lauretti and Alexander Rosetti, Planning & Zoning Administrator for the City of Shelton, as well as the tower owner (Crown Castle) and property owner (Brennan Realty LLC).

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the existing tower is 140-feet and the Dish Wireless LLC antennas will be located at a center line height of 108-feet.
2. The proposed modifications will not result in an increase of the site boundary as depicted on the attached site plan.



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

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. The combined site operations will result in a total power density of 50.68% as evidenced by Exhibit F.

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

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

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

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish Wireless LLC equipment at the 108-foot level of the existing 140-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

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

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

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: Mayor Mark Laretti
Shelton City Hall
54 Hill Street
Shelton, CT 06484

Alexander Rosetti, Planning & Zoning Administrator
Shelton City Hall
54 Hill Street – Third Floor
Shelton, CT 06484

Brennan Realty LLC, Property Owner
PO Box 788
Shelton, CT 06484

Crown Castle, Tower Owner

Exhibit A

Original Facility Approval

Petition No. 608
AT&T Wireless PCS, LLC
Shelton, Connecticut
Staff Report
March 25, 2003

On February 4, 2003, Connecticut Siting Council (Council) member Gerald Heffernan and Robert Mercier of Council staff met with AT&T Wireless PCS, Inc. (AT&T) representative Christopher Fisher at 70 Platt Road in Shelton to review this petition. AT&T proposes to replace an existing 75-foot monopole with a 100-foot monopole 275 feet west of its existing location. AT&T is petitioning the Council for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need (Certificate) is required for the tower replacement and relocation.

The existing monopole is owned by the John J. Brennan Construction Company and is located adjacent to an office/garage building. The existing monopole, with a base diameter of 8 inches tapering to 4 inches at the top, has limited structural capability and supports one whip antenna extending to a height of 81 feet above ground level. The proposed 100-foot replacement tower would be located approximately 275 feet west of the existing tower, adjacent to a warehouse building in an area used for equipment storage.

The new tower would have a base diameter of 3.5 feet tapering to 1.5 feet at the top and would be designed to support three antenna platforms and the whip antenna. AT&T would place 6 panel antennas at the 95-foot level of the tower. The whip antenna would be placed at the top of the tower and would extend to a height of 107 feet above ground level. Nextel and Sprint intend on locating on the tower at the 85-foot and 75-foot levels at a future date. The existing monopole would be removed once the new tower is operational.

AT&T would install equipment cabinets on a concrete pad within a fenced compound at the base of the tower. Compound expansion would be necessary to accommodate future carriers. Utilities would be installed underground from a utility pole on Oliver Terrace, an abutting street.

The proposed site is located in an industrial and commercial area adjacent to Route 8. A residence is located approximately 200 feet north of the proposed tower site. A band of mature trees along the north property boundary would provide some screening of views from Platt Road and the adjacent residence.

The worst-case power density for the telecommunications operations at the site has been calculated to be 4.3% of the applicable standard for uncontrolled environments.

Exhibit B

Property Card



Property Information

Owner	BRENNAN REALTY LLC
Address	30 OLIVER TERR
Mailing Address	PO BOX 788 70 PLATT RD 06484
Land Use	- RESIDENTIAL
Land Class	3-2

Census Tract	1102
Neighborhood	
Zoning	IA-2
Acreage	1.18
Utilities	GAS/ELECTRIC
Lot Setting/ Desc	/

Photo



PARCEL VALUATIONS (Assessed value = 70% of Appraised Value)

	Appraised	Assessed
Buildings		
Outbuildings		
Improvements		
Extras		
Land		
Total	238000	166600
Previous		

Construction Details

Year Built	
Stories	
Building Style	
Building Use	
Building Condition	
Total Rooms	
Bedrooms	
Full Bathrooms	
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	
Roof Cover	

EXTERIOR WALLS:

Primary	
Secondary	

INTERIOR WALLS:

Primary	
Secondary	

FLOORS:

Primary	
Secondary	

HEATING/AC:

Heating Type	
Heating Fuel	
AC Type	

BUILDING AREA:

Effective Building Area	
Gross Building Area	
Total Living Area	

SALES HISTORY:

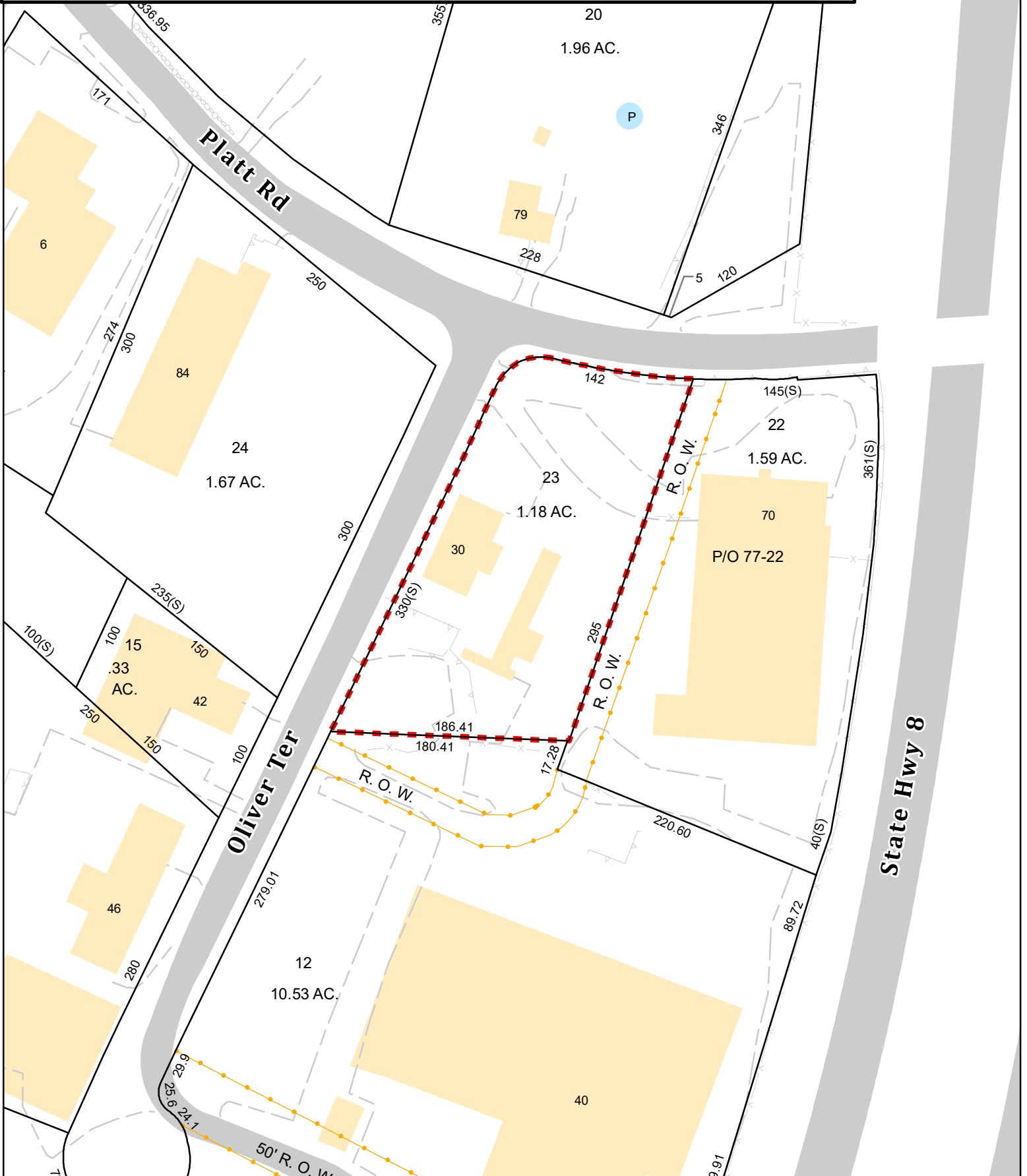
Sale Date	20040702
Sale Price	0
Book/ Page	2400/316-2



City of Shelton, Connecticut - Parcel Map

Parcels: 77.-23

Address: 30 OLIVER TERR



Approximate Scale: 1:1,200

50 0 50 100 Feet

Map Produced
April 2017

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

Exhibit C

Construction Drawings



DISH WIRELESS L.L.C. SITE ID:

NJJER01118B

DISH WIRELESS L.L.C. SITE ADDRESS:

**30 OLIVER TERRACE
SHELTON, CT 06484**

CONNECTICUT - CODE COMPLIANCE

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

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

SHEET INDEX

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

SCOPE OF WORK

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

- TOWER SCOPE OF WORK:**
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
 - INSTALL (1) PROPOSED ANTENNA PLATFORM MOUNT
 - INSTALL PROPOSED JUMPERS
 - INSTALL (6) PROPOSED RRRs (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
 - EXISTING ABANDONED EQUIPMENT TO BE REMOVED
 - EXISTING ABANDONED CONCRETE SLAB TO BE UTILIZED
 - EXISTING ABANDONED ICE BRIDGE TO BE UTILIZED
 - INSTALL (1) PROPOSED PPC CABINET
 - INSTALL (1) PROPOSED EQUIPMENT CABINET
 - INSTALL (1) PROPOSED POWER CONDUIT
 - INSTALL (1) PROPOSED TELCO CONDUIT
 - INSTALL (1) PROPOSED TELCO-FIBER BOX
 - INSTALL (1) PROPOSED GPS UNIT
 - INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)
 - DISH WIRELESS L.L.C. TO UTILIZE POSITION 'C' ON EXISTING METER BANK

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: BRENNAN REALTY, LLC
ADDRESS: 70 PLATT ROAD
SHELTON, CT 06484

TOWER TYPE: MONOPOLE

TOWER CO SITE ID: 842873

TOWER APP NUMBER: 585945

COUNTY: FAIRFIELD

LATITUDE (NAD 83): 41° 17' 38.21" N
41.293947 N

LONGITUDE (NAD 83): 73° 06' 25.83" W
73.107175 W

ZONING JURISDICTION: CITY OF SHELTON

ZONING DISTRICT: NOT REQUIRED

PARCEL NUMBER: TBD

OCCUPANCY GROUP: U

CONSTRUCTION TYPE: II-B

POWER COMPANY: UNITED ILLUMINATING CO.

TELEPHONE COMPANY: LIGHTOWER

PROJECT DIRECTORY

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

TOWER OWNER: CROWN CASTLE USA, INC.
2000 CORPORATE DRIVE
CANONSBURG, PA 15317
877.486.9377

SITE DESIGNER: JACOBS TELECOMMUNICATIONS, INC
5449 BELLS FERRY ROAD
ACWORTH, GA 30102
470.785.4050

SITE ACQUISITION: COURTNEY PRESTON
COURTNEY.PRESTON.CONTRACTOR@CROWNCASTLE.COM

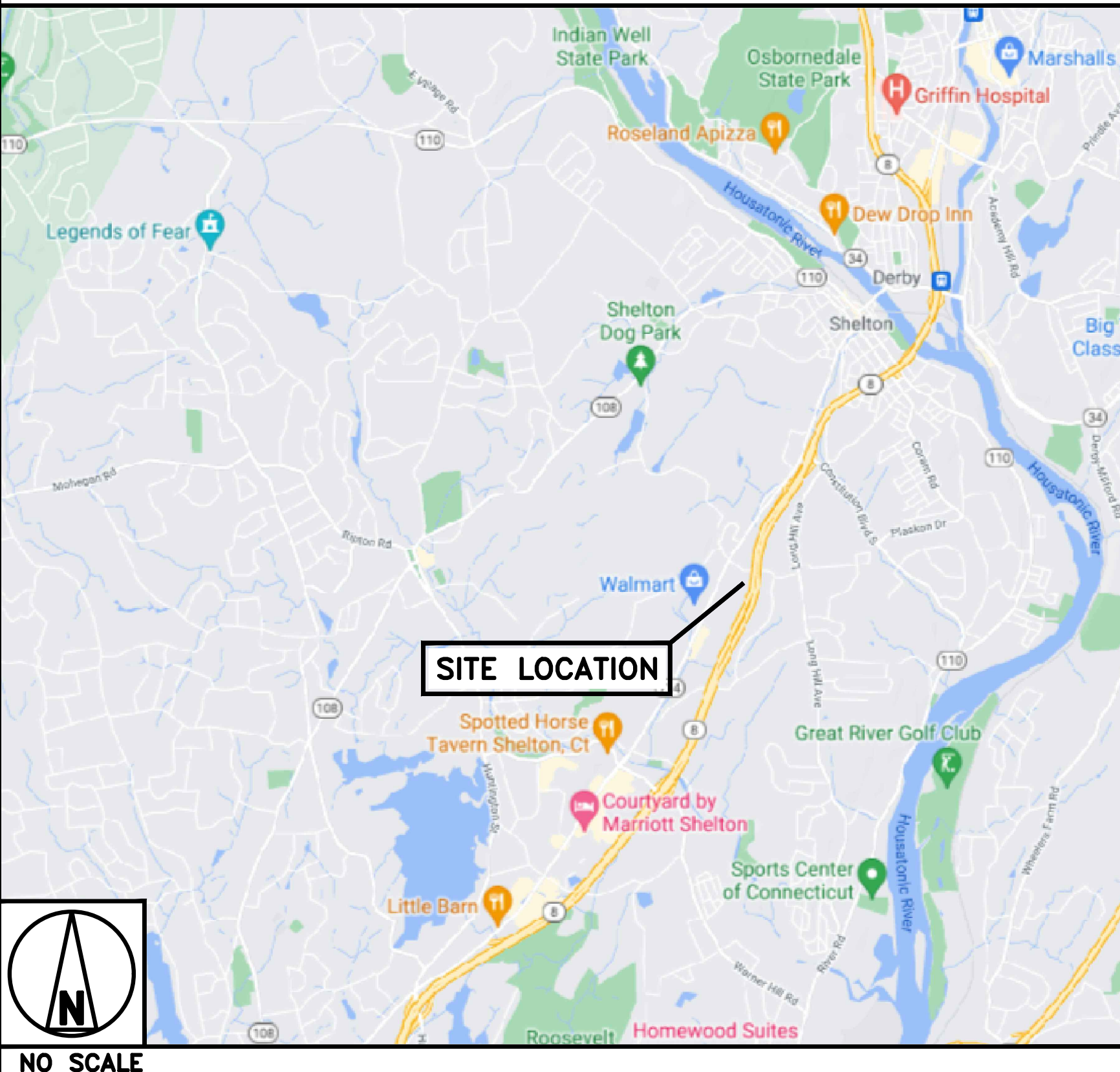
CONSTRUCTION MANAGER: MICHAEL NARDUCCI
MICHAEL.NARDUCCI@DISH.COM

RF ENGINEER: MURUGABIRAN JAYAPAL
MURUGABIRAN.JAYAPAL@DISH.COM

DIRECTIONS

DIRECTIONS FROM DISH WIRELESS L.L.C. DISTRICT OFFICE AT 3 ADP BLVD. ROSELAND, NJ 07068: SHELTON NORTH EAST 5431 I-95 NORTH TO EXIT 27A (RT-8 NORTH). FOLLOW TO EXIT 12 GO LEFT AT END OF RAMP.TAKE A RIGHT ONTO BRIDGEPORT AVE.TAKE FOR 1.4 MILES AND MK RIGHT ONTO PLATT RD THEN RIGHT ON OLIVER TERRACE. LOOK FOR DEMARC AND METER ON LEFT HAND SIDE ON STREET.SITE IS LOCATED AROUND BACK OF BUILDING UNDER MONOPOLE. ACCESS: 24/7 CONTACT: JOHN J BRENNAN CONSTRUCTION CO. 203-929-6314

VICINITY MAP

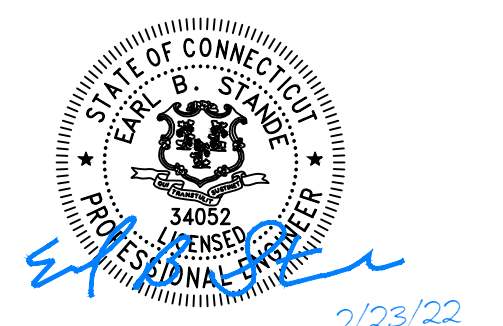


5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



Challenging today.
Reinventing tomorrow.

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



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

DRAWN BY: CHECKED BY: APPROVED BY:

BSP TJM KRK

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
1	12/21/2021	ISSUED FOR CONSTRUCTION
2	02/23/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
EUCC0309

DISH WIRELESS L.L.C.
PROJECT INFORMATION

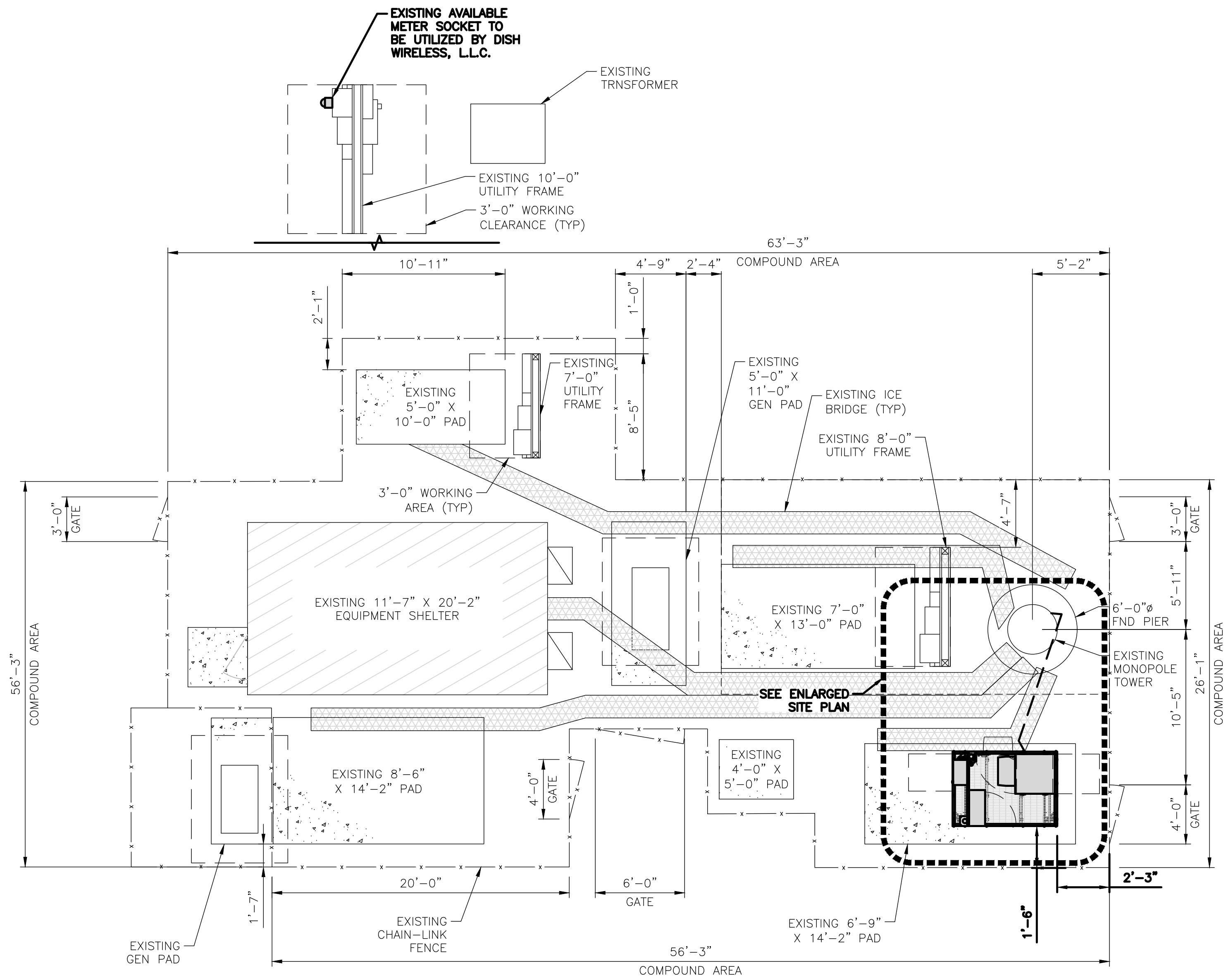
NJJER01118B
30 OLIVER TERRACE
SHELTON, CT 06484

SHEET TITLE
TITLE SHEET

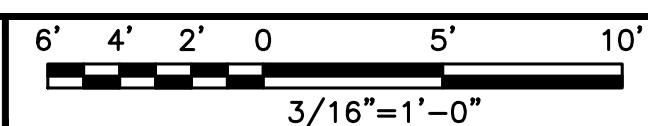
SHEET NUMBER
T-1

NOTES

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



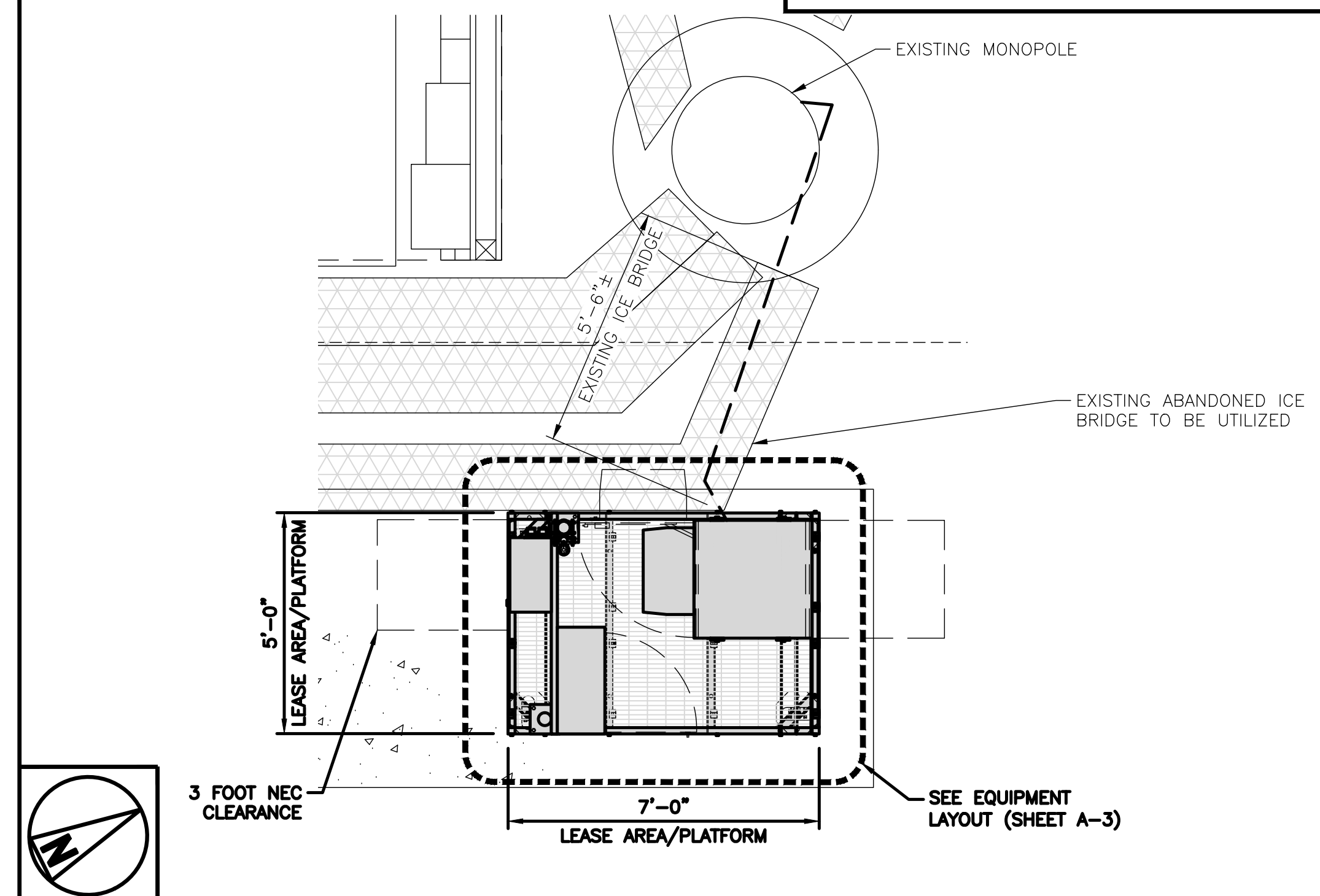
OVERALL SITE PLAN



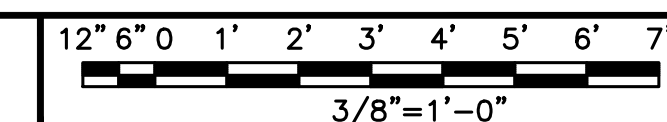
1

NOTES

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



ENLARGED SITE PLAN



2



ESA

NO SCALE

3



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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ACWORTH, GA 30102



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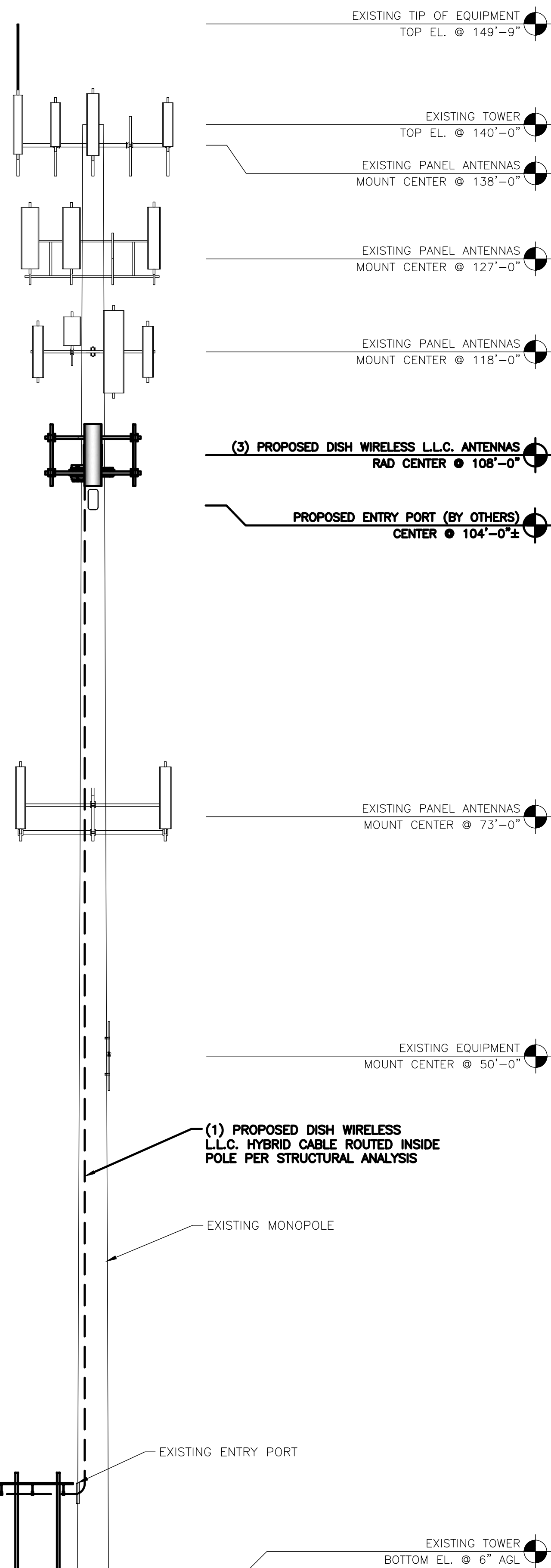
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OVERALL AND ENLARGED
SITE PLAN

SHEET NUMBER

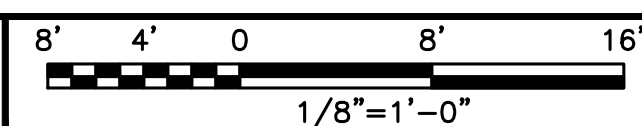
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NOTES

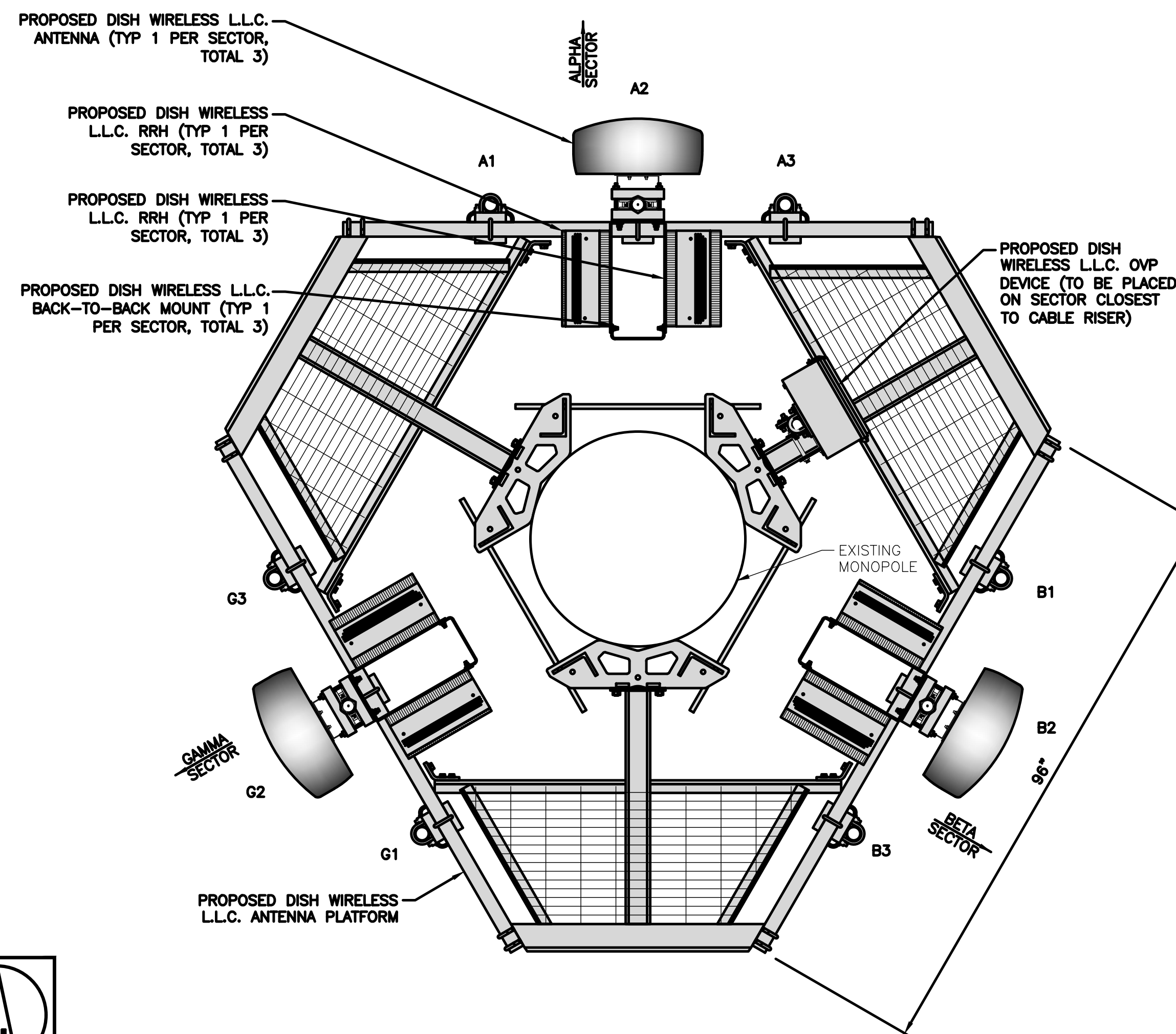
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. FOR ANTENNA SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.
4. JACOBS HAS NOT EVALUATED OR CONFIRMED THE STRUCTURAL CAPACITY OF THE TOWER OR ANTENNA/RADIO MOUNTS.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



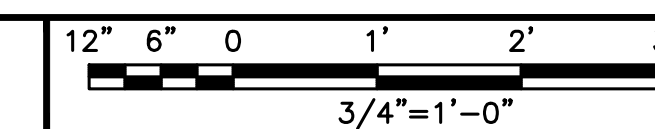
PROPOSED NORTHEAST ELEVATION



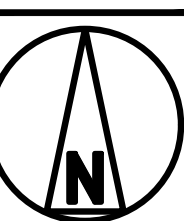
1



ANTENNA LAYOUT



2



SECTOR POS.	ANTENNA					RRH		OVP	TRANSMISSION CABLE
	EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECH	AZIMUTH	RAD CENTER	MANUFACTURER - MODEL NUMBER	TECH	MANUFACTURER MODEL	FEED LINE TYPE AND LENGTH
A1	---	---	---	---	---	---	---	---	---
A2	PROPOSED	COMMSCOPE -- FFV-65B-R2	5G	30°	108'-0"	FUJITSU - TA08025-B604 FUJITSU - TA08025-B605	5G	RAYCAP RDIDC-9181-PF-48	(1) HIGH-CAPACITY HYBRID CABLE (135' LONG)
A3	---	---	---	---	---	---	---	---	---
B1	---	---	---	---	---	---	---	---	---
B2	PROPOSED	COMMSCOPE -- FFV-65B-R2	5G	150°	108'-0"	FUJITSU - TA08025-B604 FUJITSU - TA08025-B605	5G	SHARED W/ALPHA	SHARED W/ALPHA
B3	---	---	---	---	---	---	---	---	---
G1	---	---	---	---	---	---	---	---	---
G2	PROPOSED	COMMSCOPE -- FFV-65B-R2	5G	270°	108'-0"	FUJITSU - TA08025-B604 FUJITSU - TA08025-B605	5G	SHARED W/ALPHA	SHARED W/ALPHA
G3	---	---	---	---	---	---	---	---	---

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

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

ANTENNA SCHEDULE

NO SCALE

3



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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CONSTRUCTION DOCUMENTS

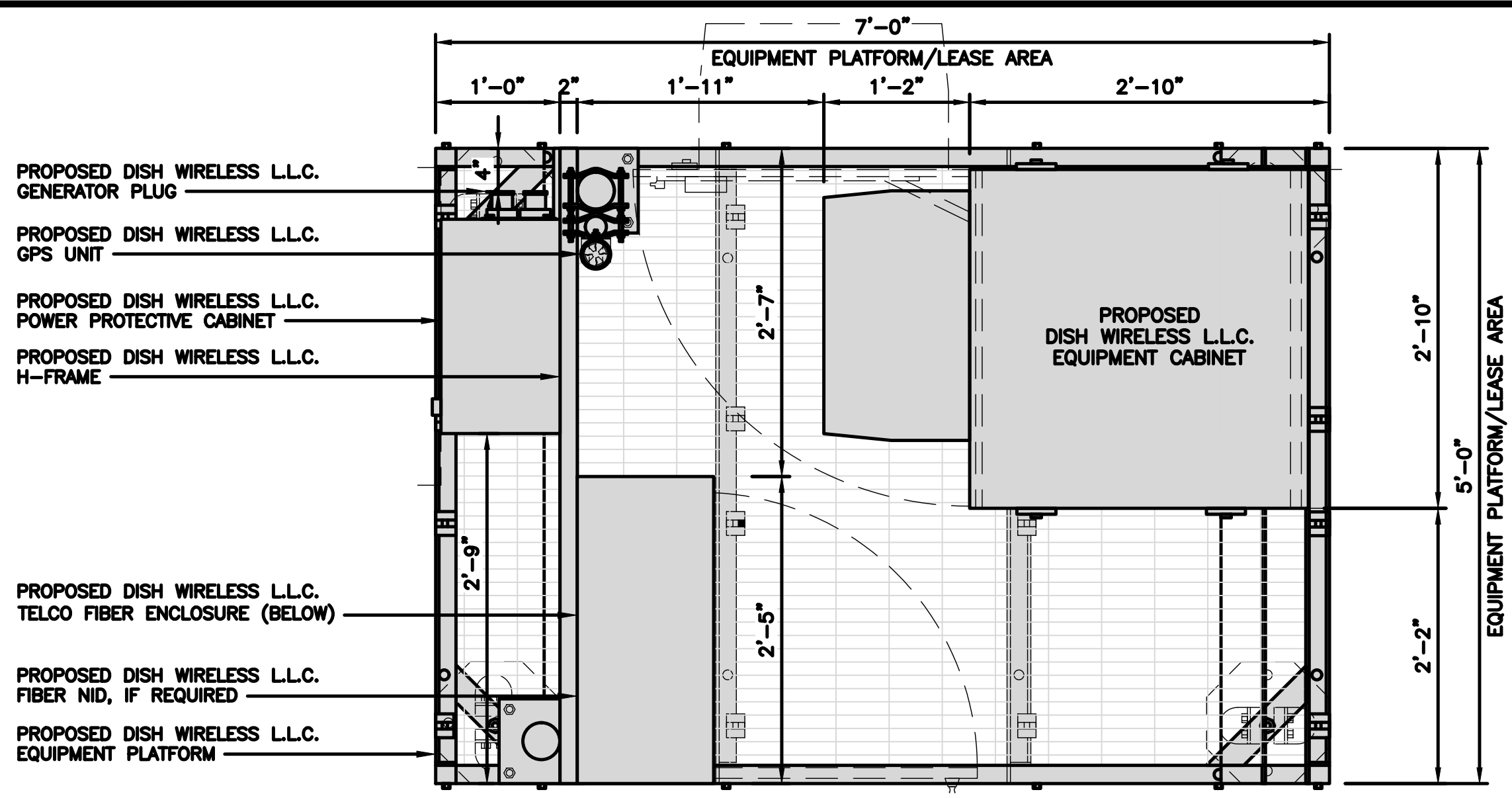
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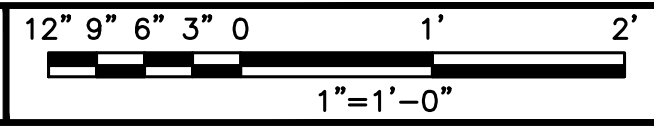
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SHEET TITLE
ELEVATION, ANTENNA
LAYOUT AND SCHEDULE

SHEET NUMBER
A-2

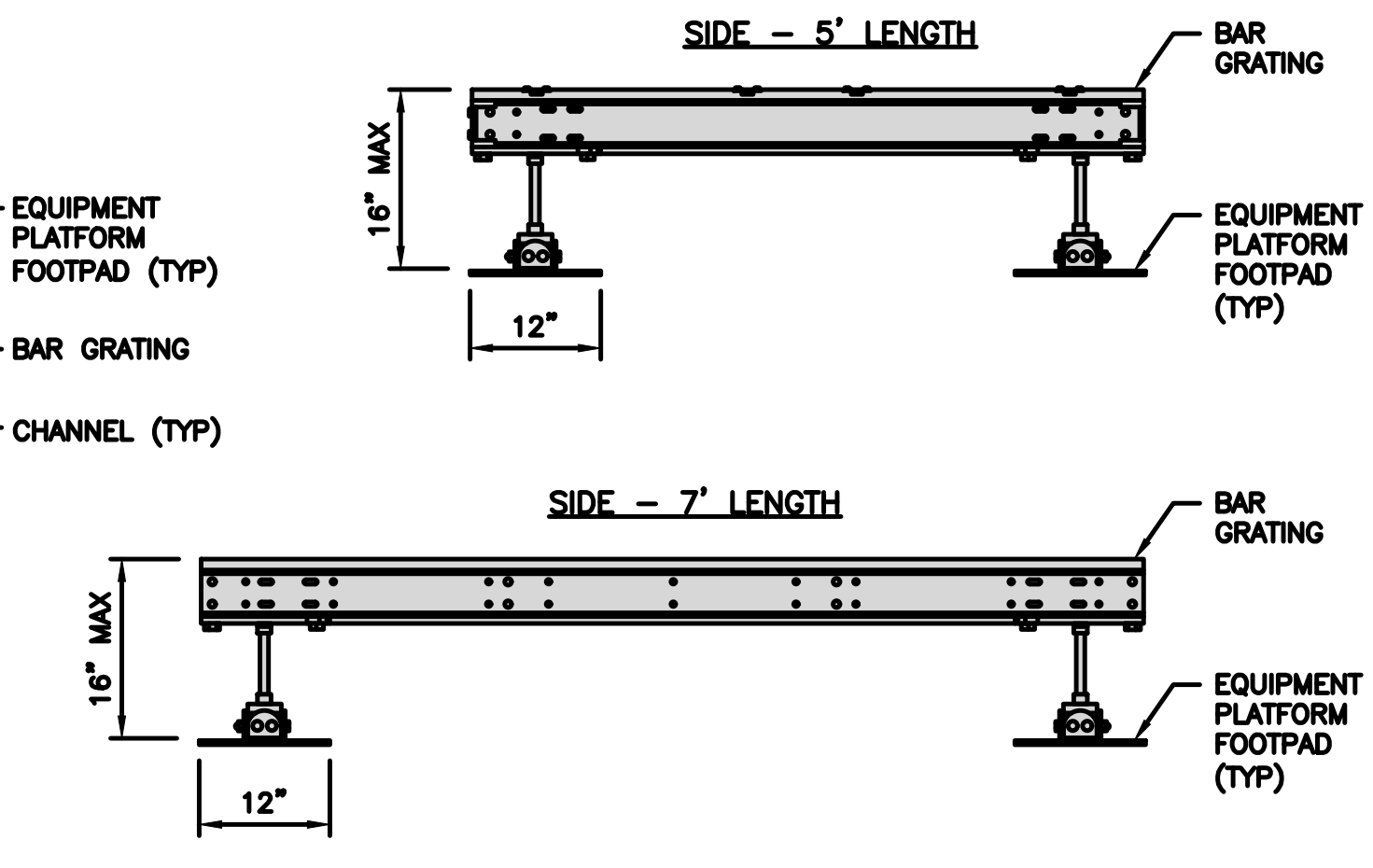
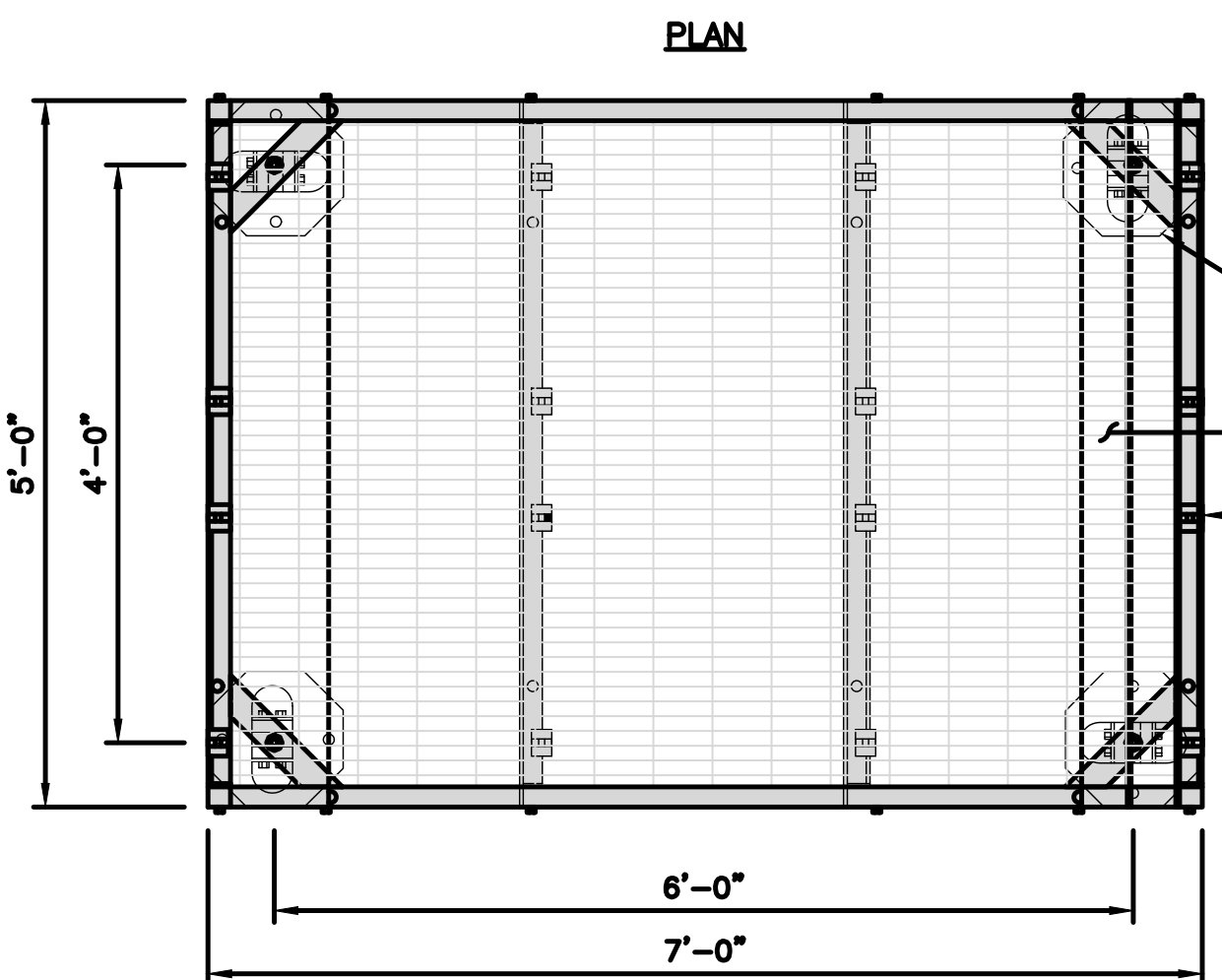


PLATFORM EQUIPMENT PLAN



1

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



NOTES

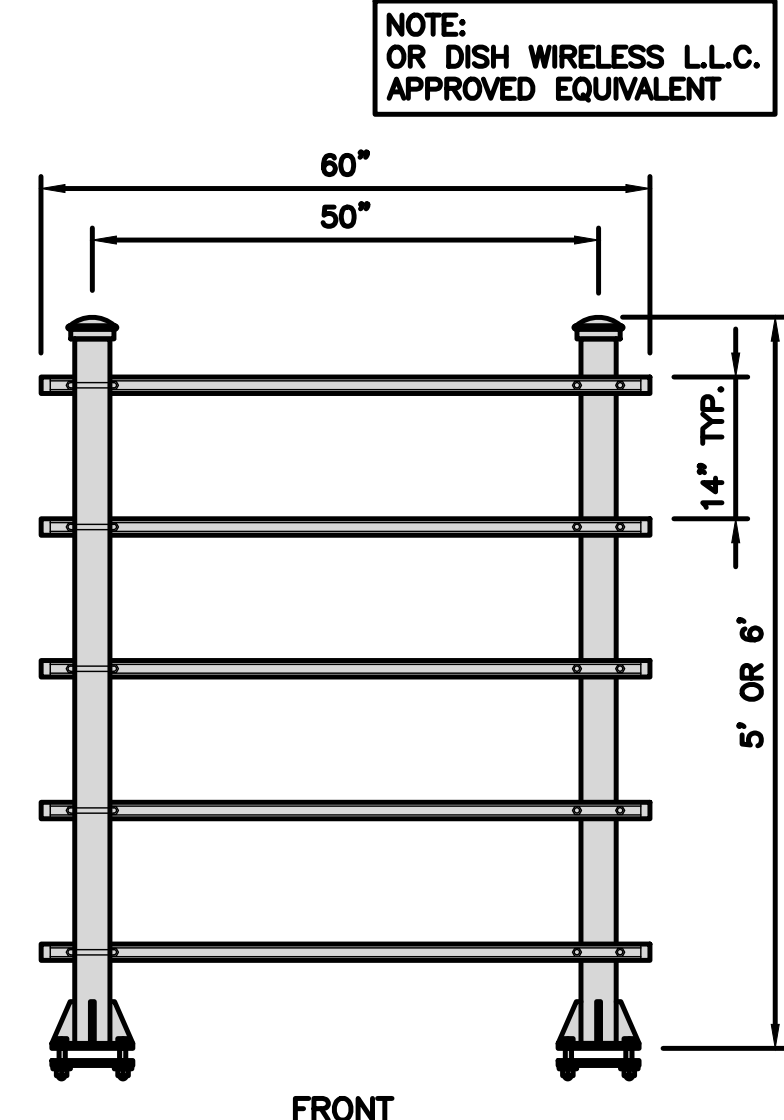
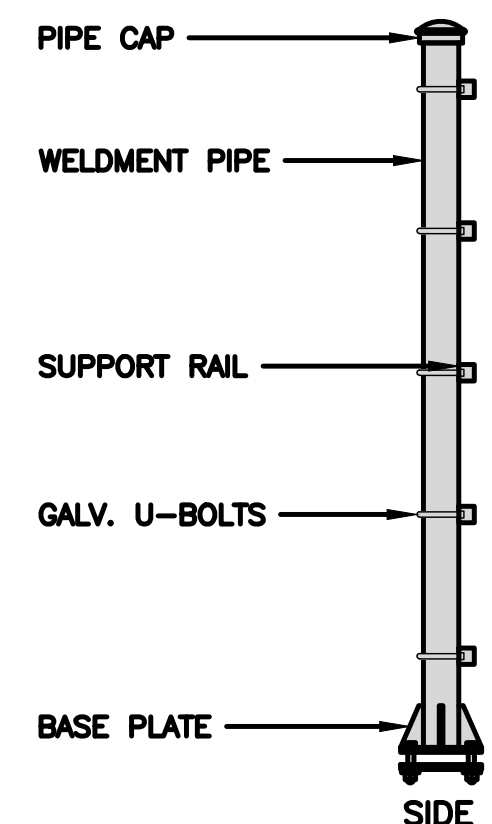
1. PLATFORM TO BE LEVELED TO NO MORE THAN +/- 1 DEGREE FROM HORIZONTAL ON BOTH PLANES.

PLATFORM DETAIL

NO SCALE

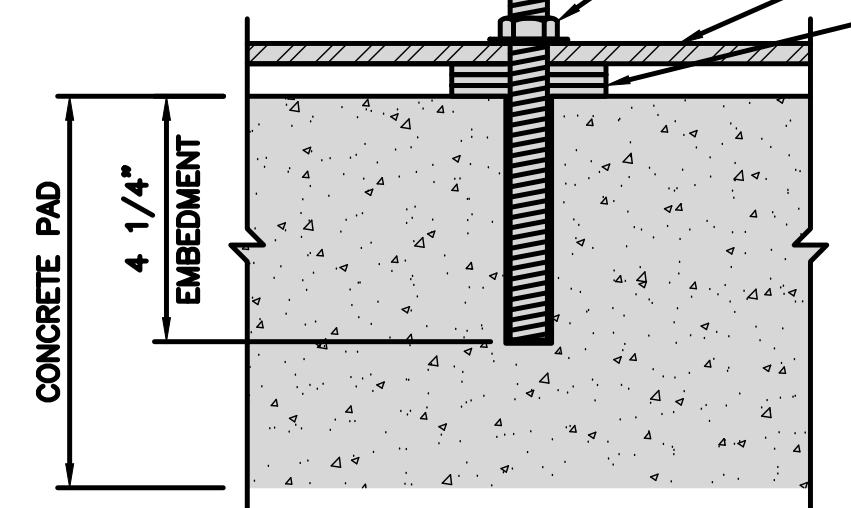
2

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



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

PROPOSED HILTI 3/4" DIAMETER HAS-E-55 THREADED ROD WITH HILTI HIT-HY 200 ADHESIVE AT 4-1/4" EMBEDMENT. TO BE INSTALLED A MINIMUM OF (4) PER PLATFORM FOOTING. IT IS ASSUMED THAT PLATFORM FOOTING LOCATIONS HAVE BEEN DESIGNED/REINFORCED BY THE MANUFACTURER TO WITHSTAND SHEAR AND UPLIFT FORCES AS CALCULATED IN THIS DESIGN. IT IS ASSUMED THAT THE CONTRACTOR WILL AVOID CONFLICTS WITH THE SLAB REINFORCING REBAR WHEN INSTALLING THE PLATFORM FOOTING ANCHORAGE.



- PROPOSED 3/4" HEX NUT AND WASHER
- PROPOSED PLATFORM FOOTING
- PROPOSED SHIM PLATES AS NECESSARY OR IF REQUIRED

H-FRAME DETAIL

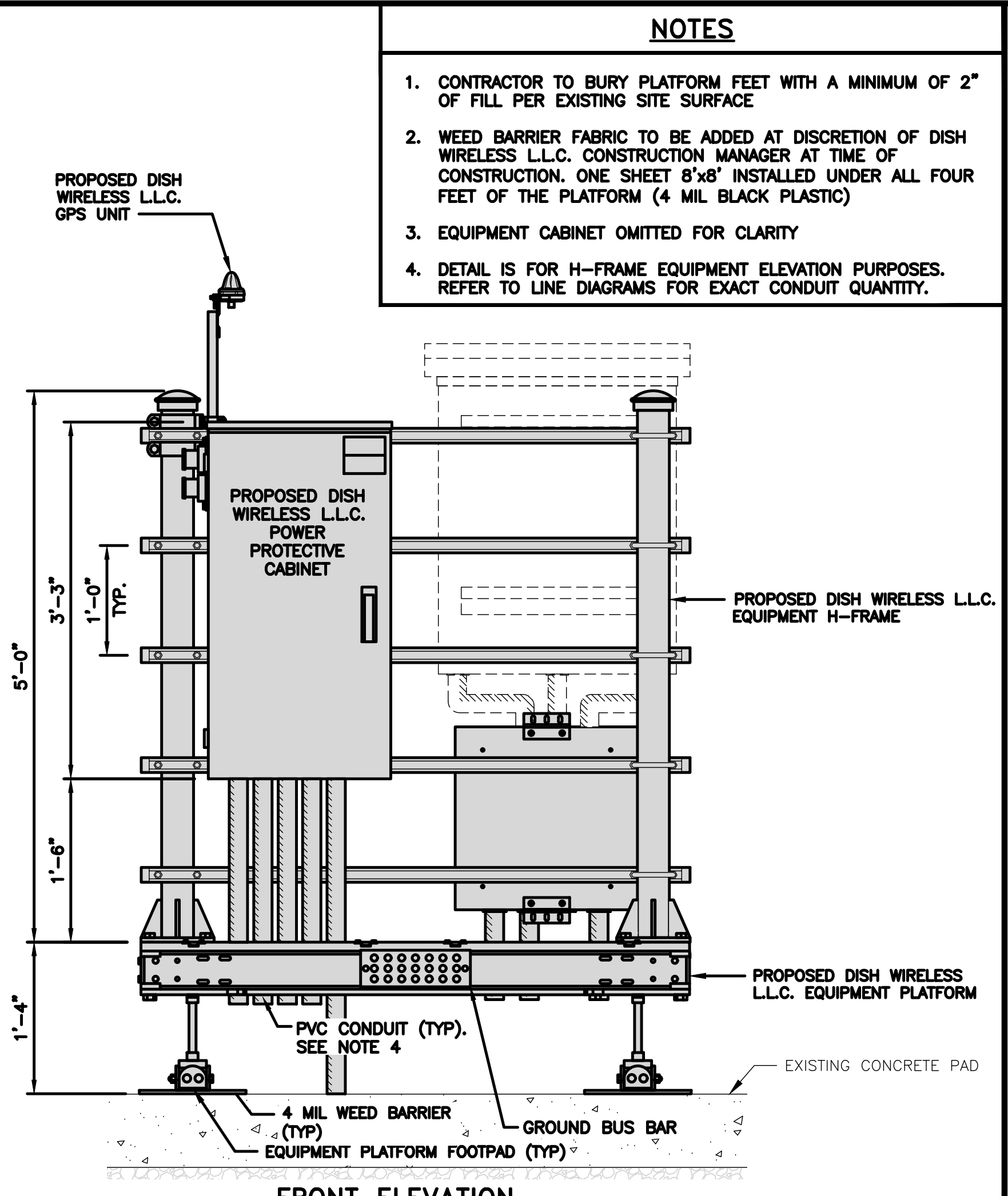
NO SCALE

3

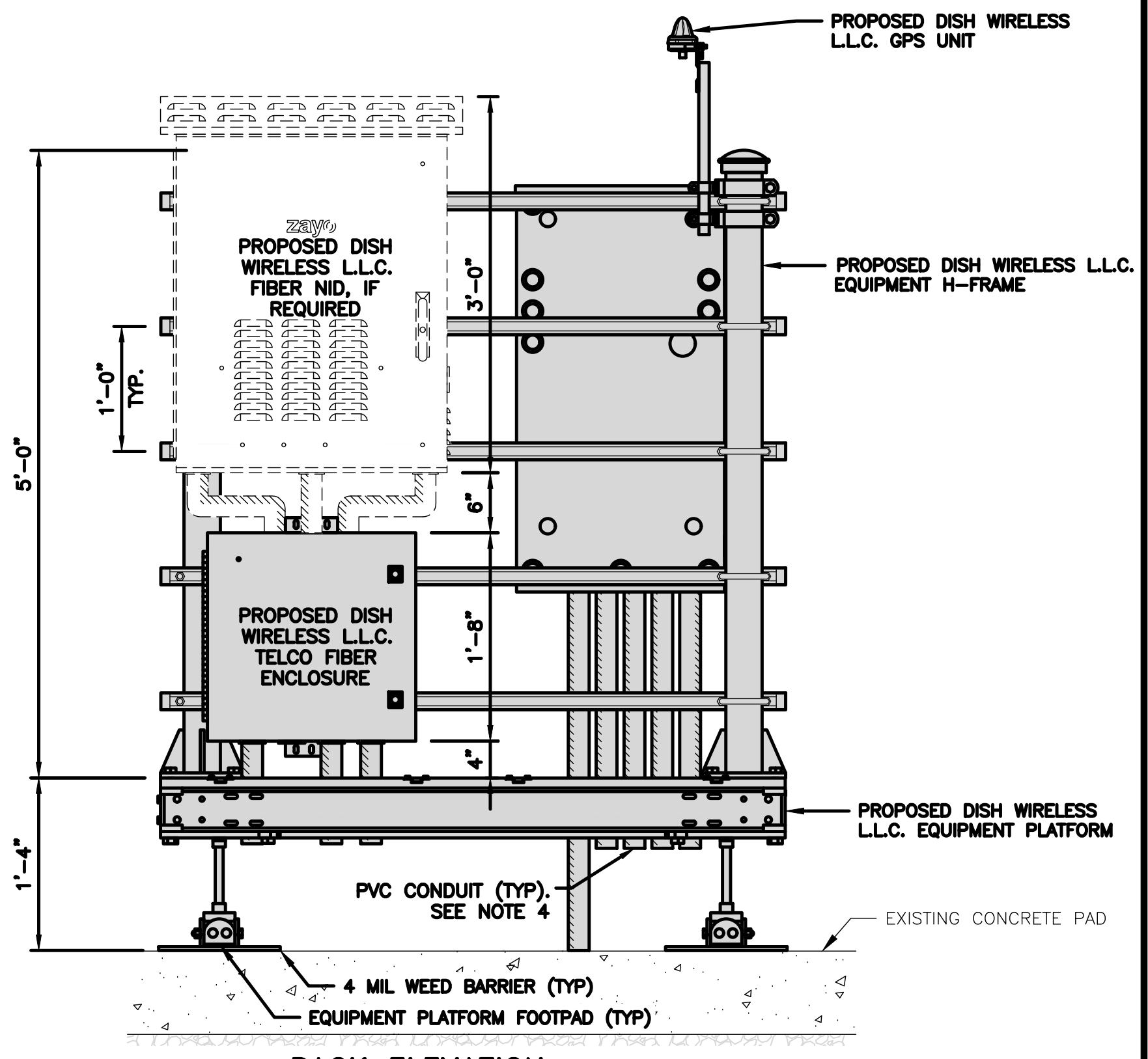
TYPICAL METAL PLATFORM TO CONCRETE SLAB ANCHORAGE

NO SCALE

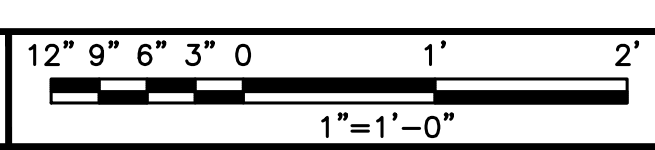
4



FRONT ELEVATION



BACK ELEVATION



5

NOTES

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

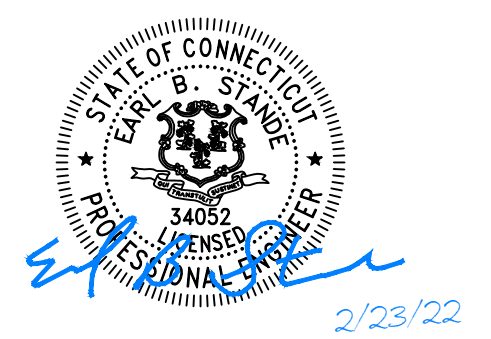


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DRAWN BY:	CHECKED BY:	APPROVED BY:
BSP	TJM	KRK

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
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2	02/23/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
EUC0309

DISH WIRELESS L.L.C.
PROJECT INFORMATION

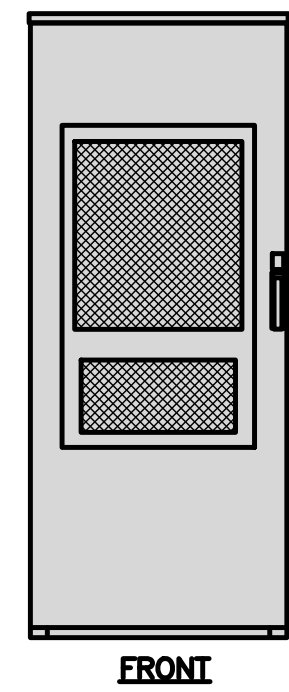
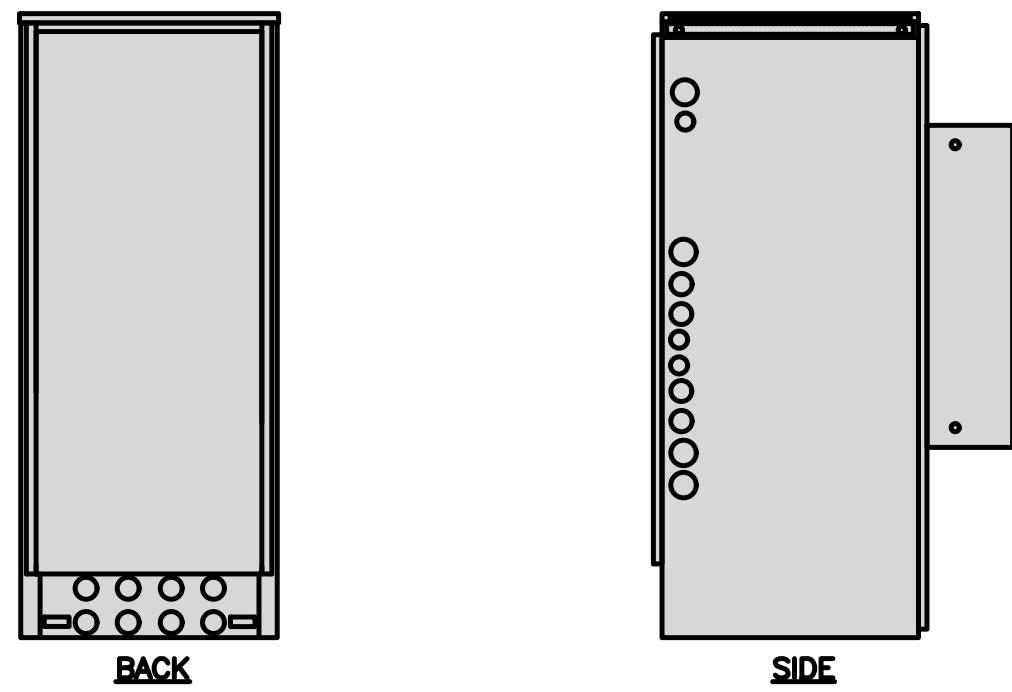
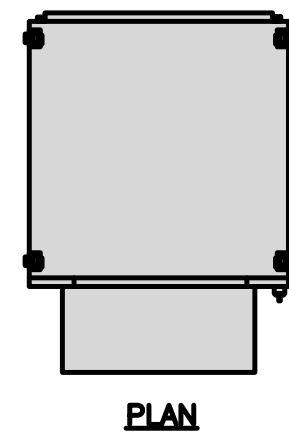
NJJER01118B
30 OLIVER TERRACE
SHELTON, CT 06484

SHEET TITLE
EQUIPMENT PLATFORM AND
H-FRAME DETAILS

SHEET NUMBER

A-3

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

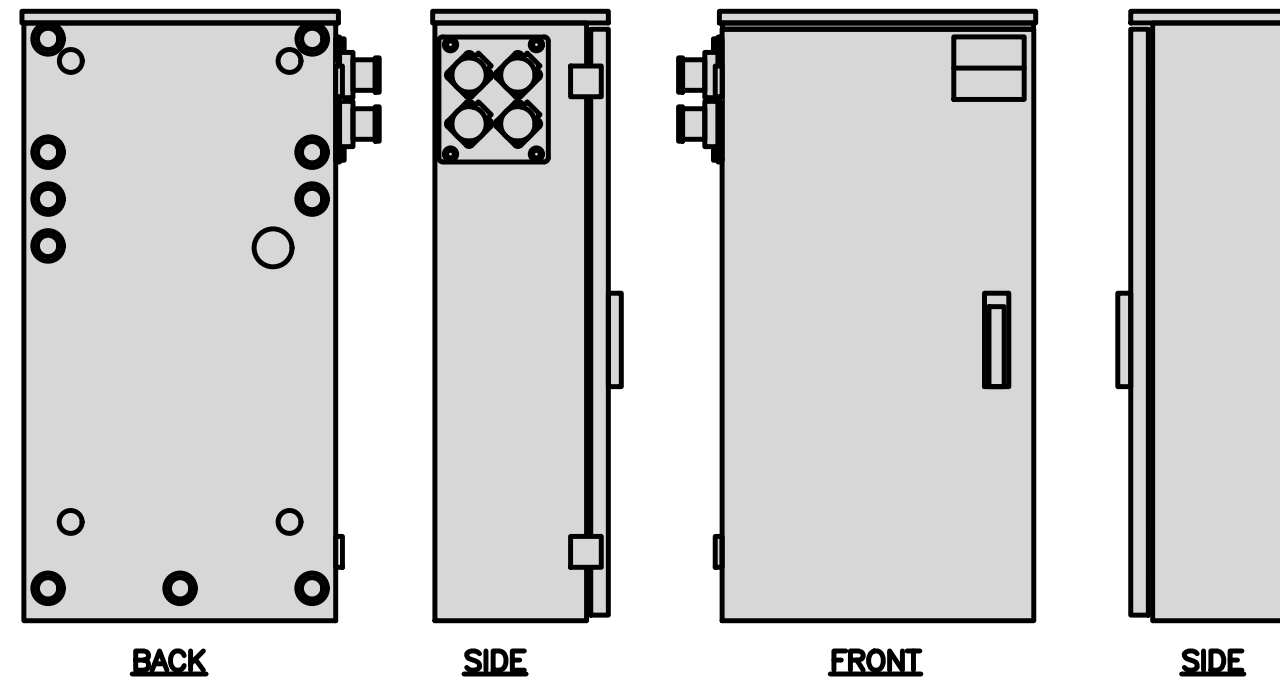
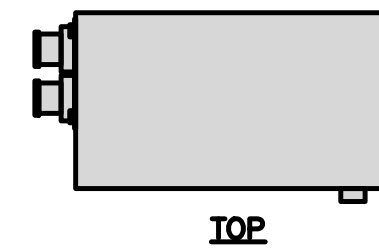


CABINET DETAIL

NO SCALE

1

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



POWER PROTECTION CABINET (PPC) DETAIL

NO SCALE

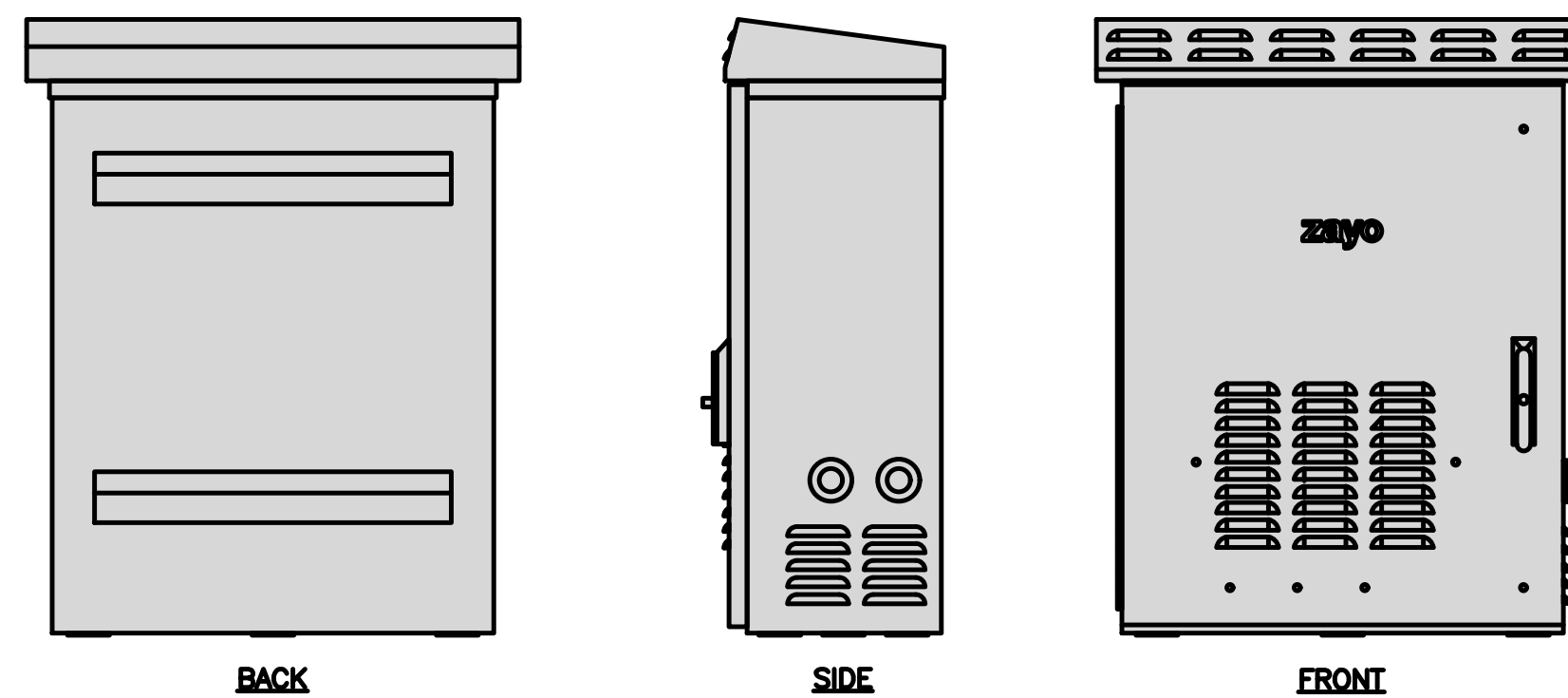
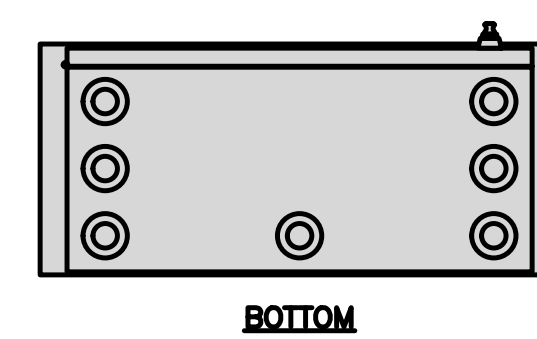
2

NOT USED

NO SCALE

3

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

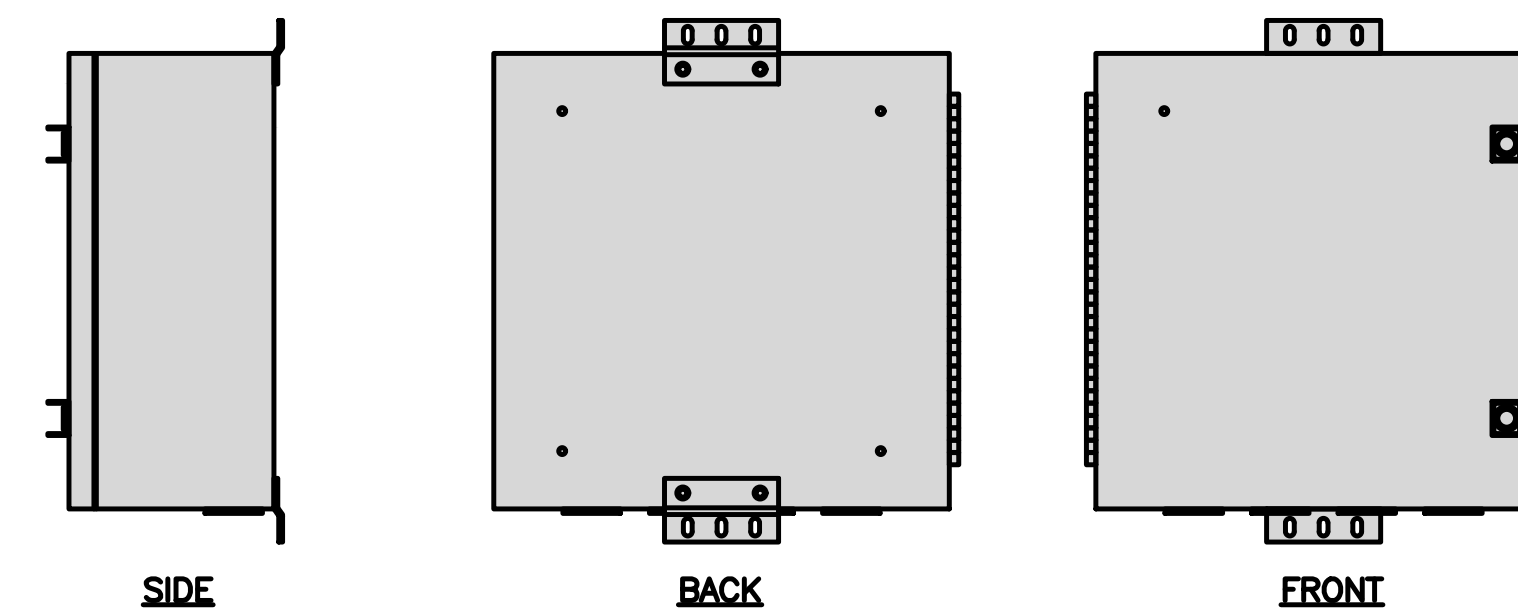
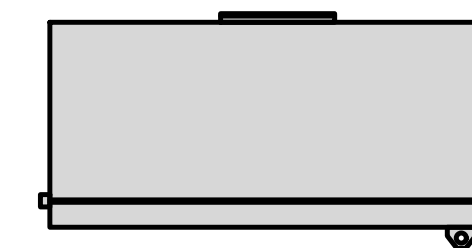


FIBER NID ENCLOSURE DETAIL

NO SCALE

5

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

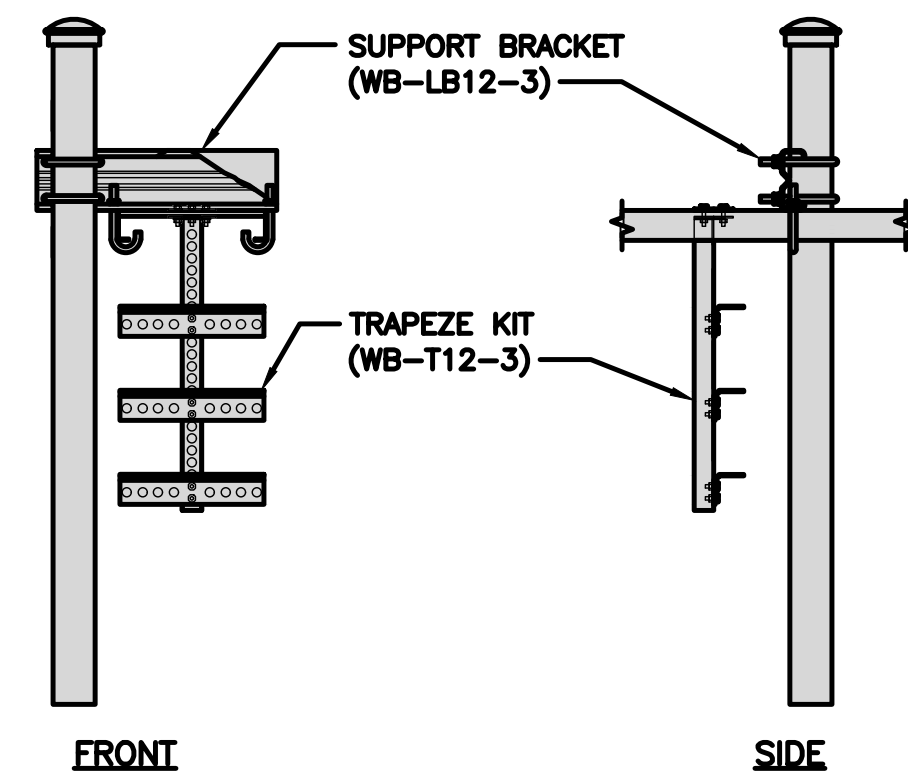
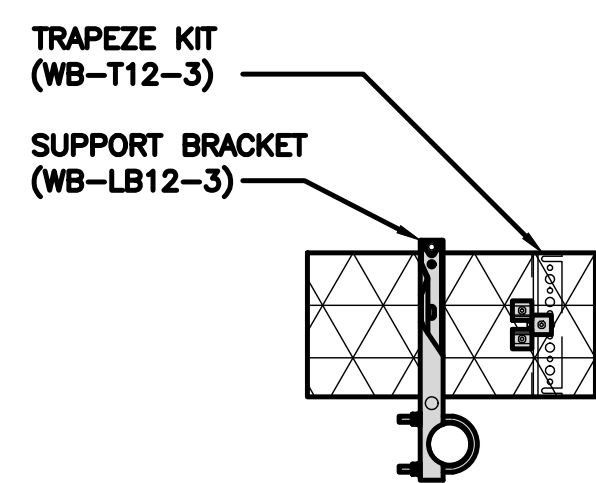


FIBER TELCO ENCLOSURE DETAIL

NO SCALE

6

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



ICE BRIDGE DETAIL

NO SCALE

7

NOT USED

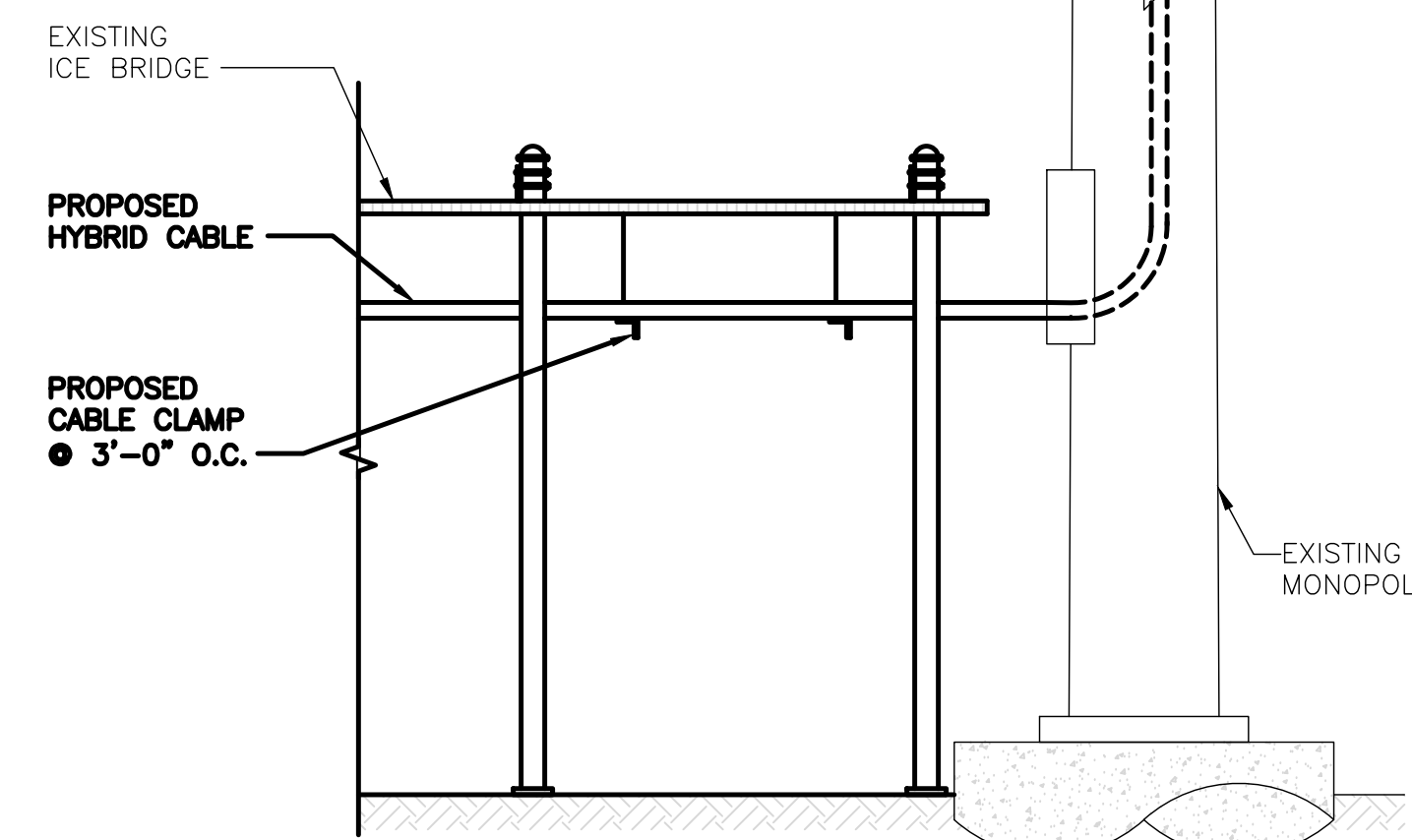
NO SCALE

8

HYBRID CABLE RUN

NO SCALE

9

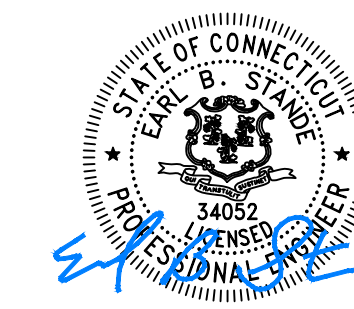


dish
wireless.

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2/23/22

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BSP TJM KRK

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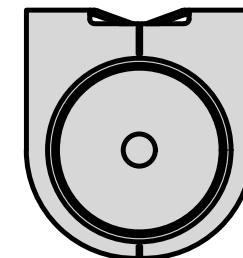
NJJer01118B
30 OLIVER TERRACE
SHELTON, CT 06484

SHEET TITLE
EQUIPMENT DETAILS

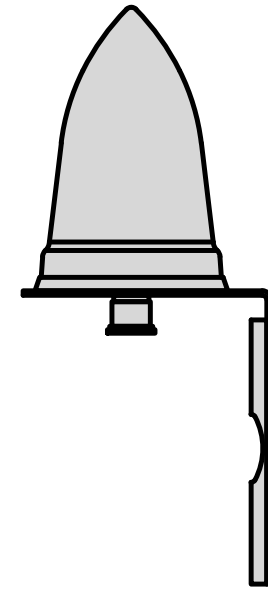
SHEET NUMBER

A-4

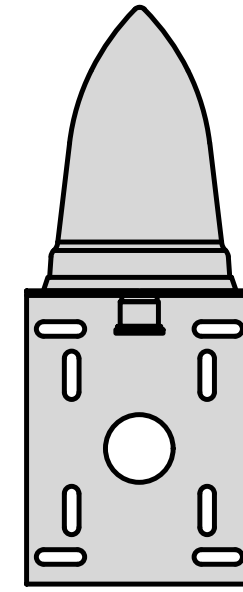
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



TOP



BACK

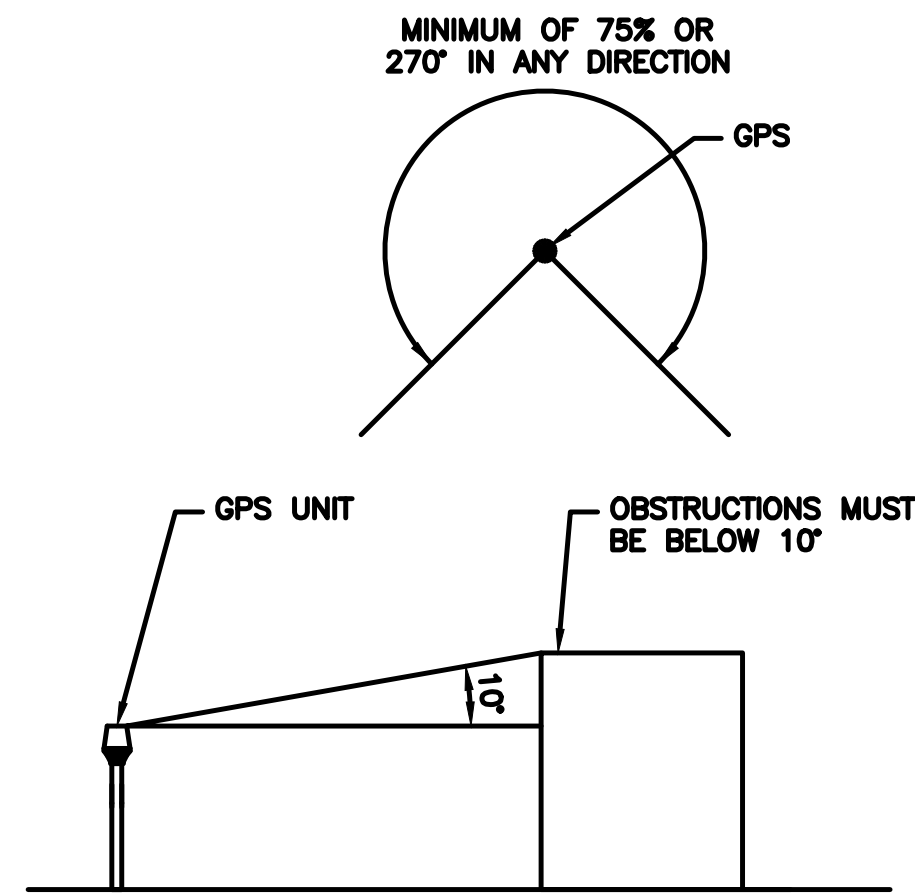


SIDE

GPS DETAIL

NO SCALE

1

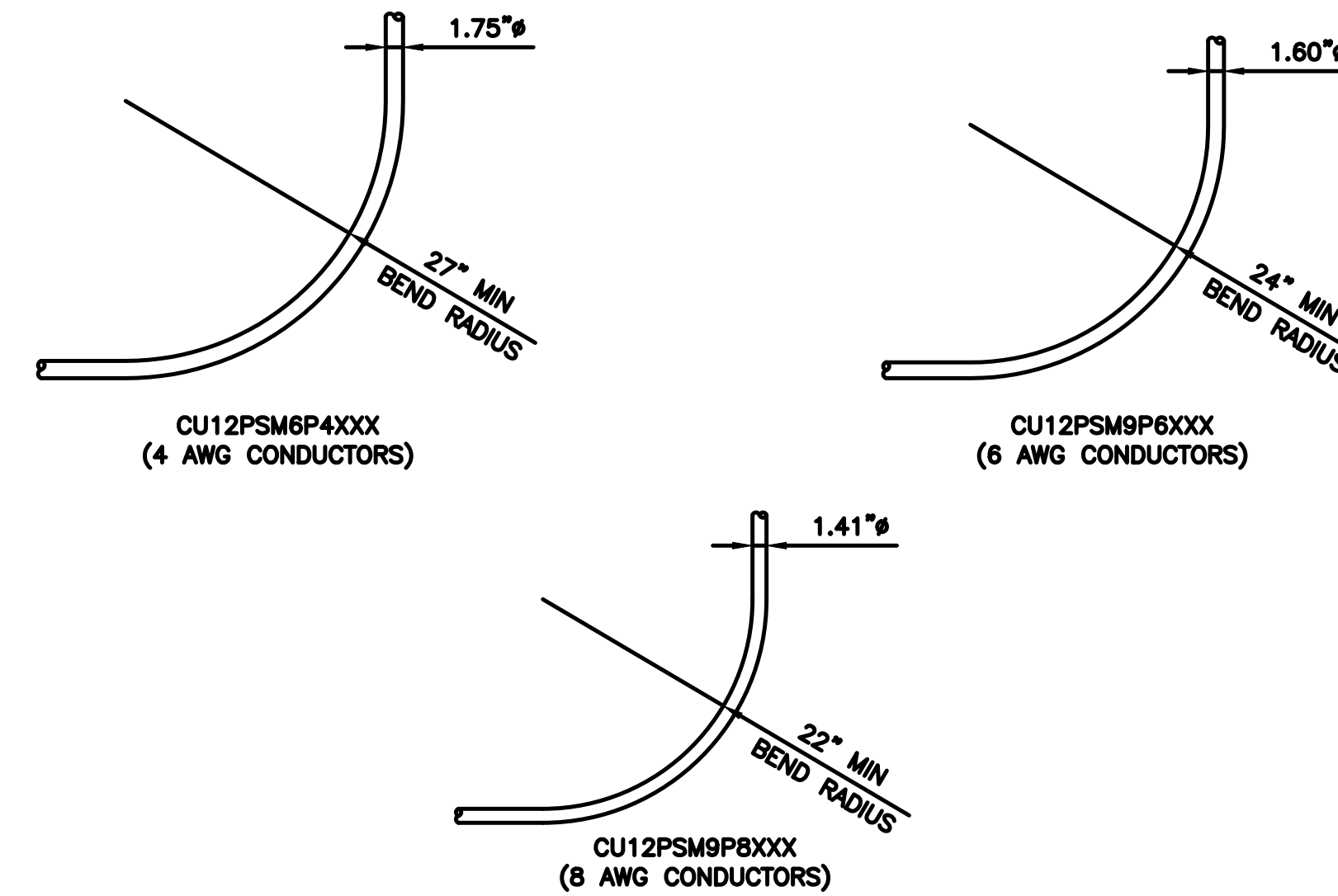


GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE

2

CABLES UNLIMITED HYBRID CABLE
MINIMUM BEND RADIUSES



NO SCALE

3

NOT USED

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9



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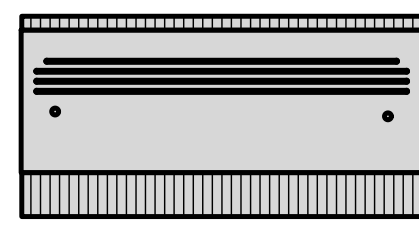
DISH WIRELESS L.L.C.
PROJECT INFORMATION

NJJER01118B
30 OLIVER TERRACE
SHELTON, CT 06484

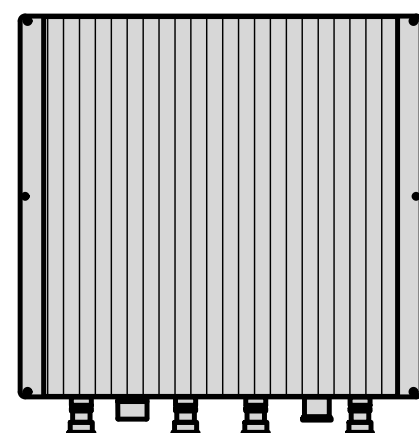
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-5

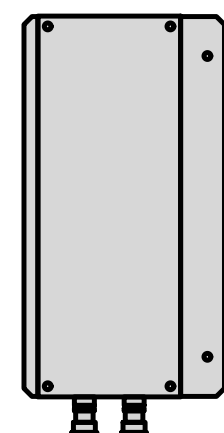
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



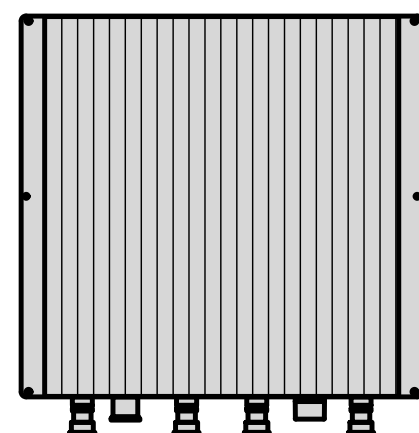
PLAN



BACK

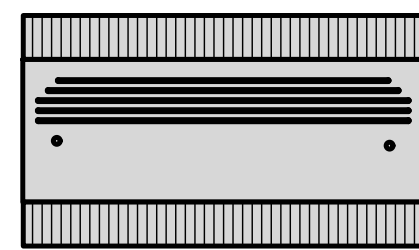


SIDE

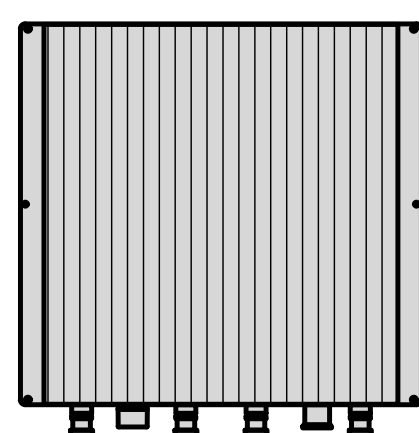


FRONT

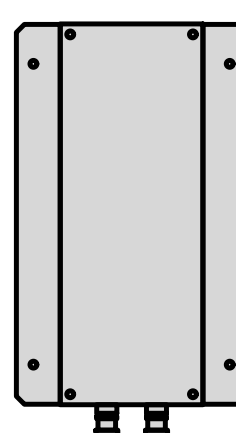
FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



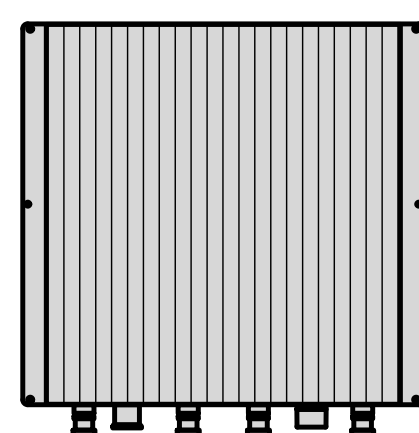
PLAN



BACK

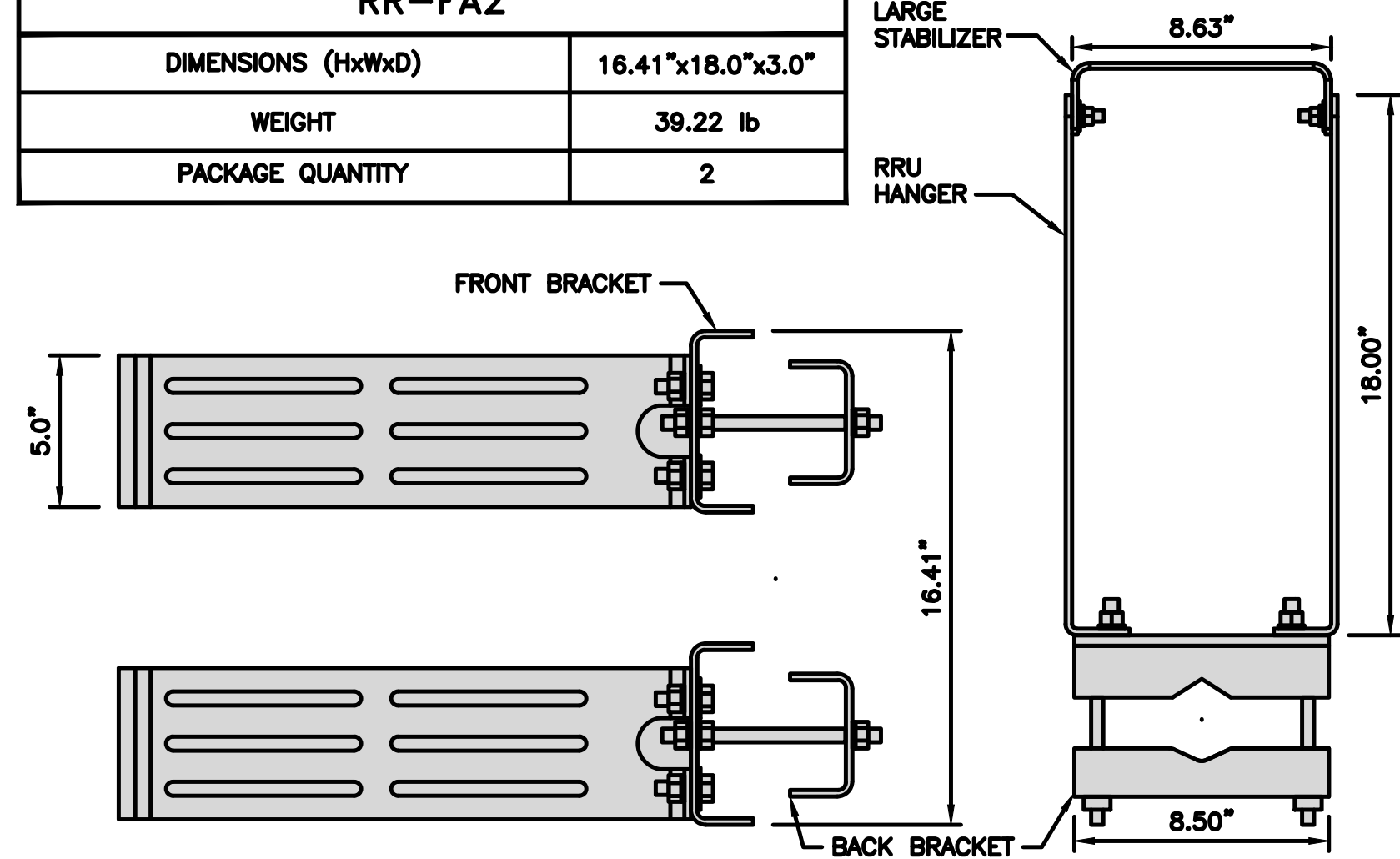


SIDE



FRONT

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



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

REMOTE RADIO HEAD DETAIL (RRH)

NO SCALE

1

REMOTE RADIO HEAD DETAIL (RRH)

NO SCALE

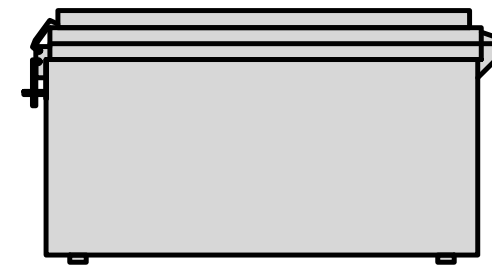
2

REMOTE RADIO MOUNT DETAIL

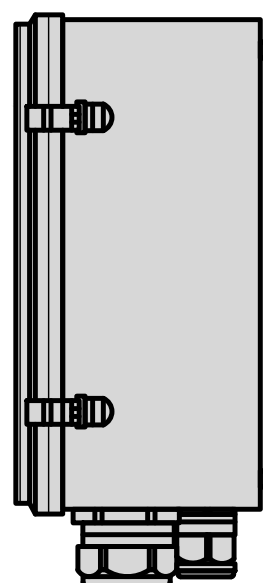
NO SCALE

3

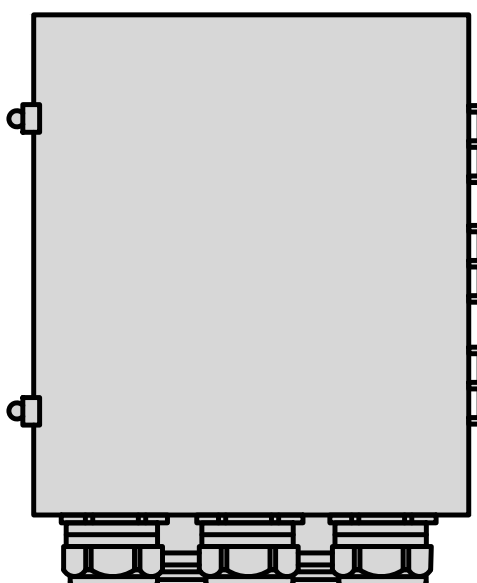
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



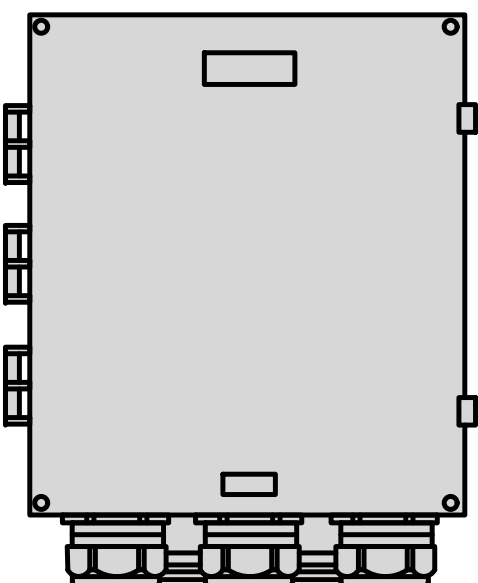
PLAN



SIDE

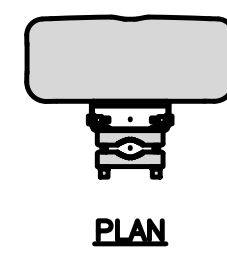


BACK

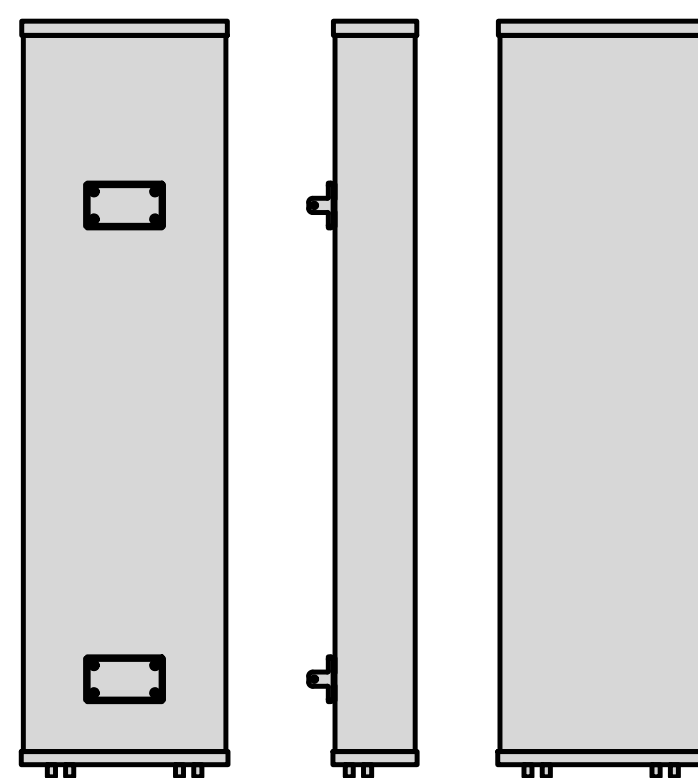


FRONT

COMMSCOPE FFV-65B-R2	
DIMENSIONS (HxWxD)(MM/IN)	1828x498x197 72"x19.6"x7.8"
RF CONNECTOR INTERFACE	4.3-10 FEMALE
WEIGHT	70.8 lbs
WEIGHT WITH BRACKETS	98.1 lbs



PLAN



BACK

SIDE

FRONT

SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

4

ANTENNA DETAIL

NO SCALE

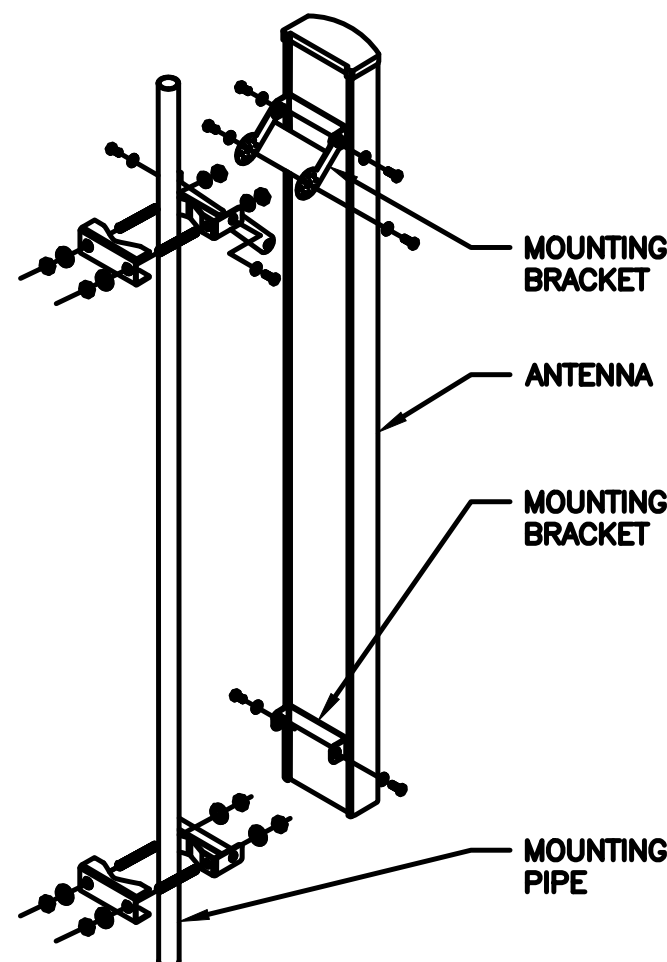
5

NOT USED

NO SCALE

6

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



MOUNTING BRACKET

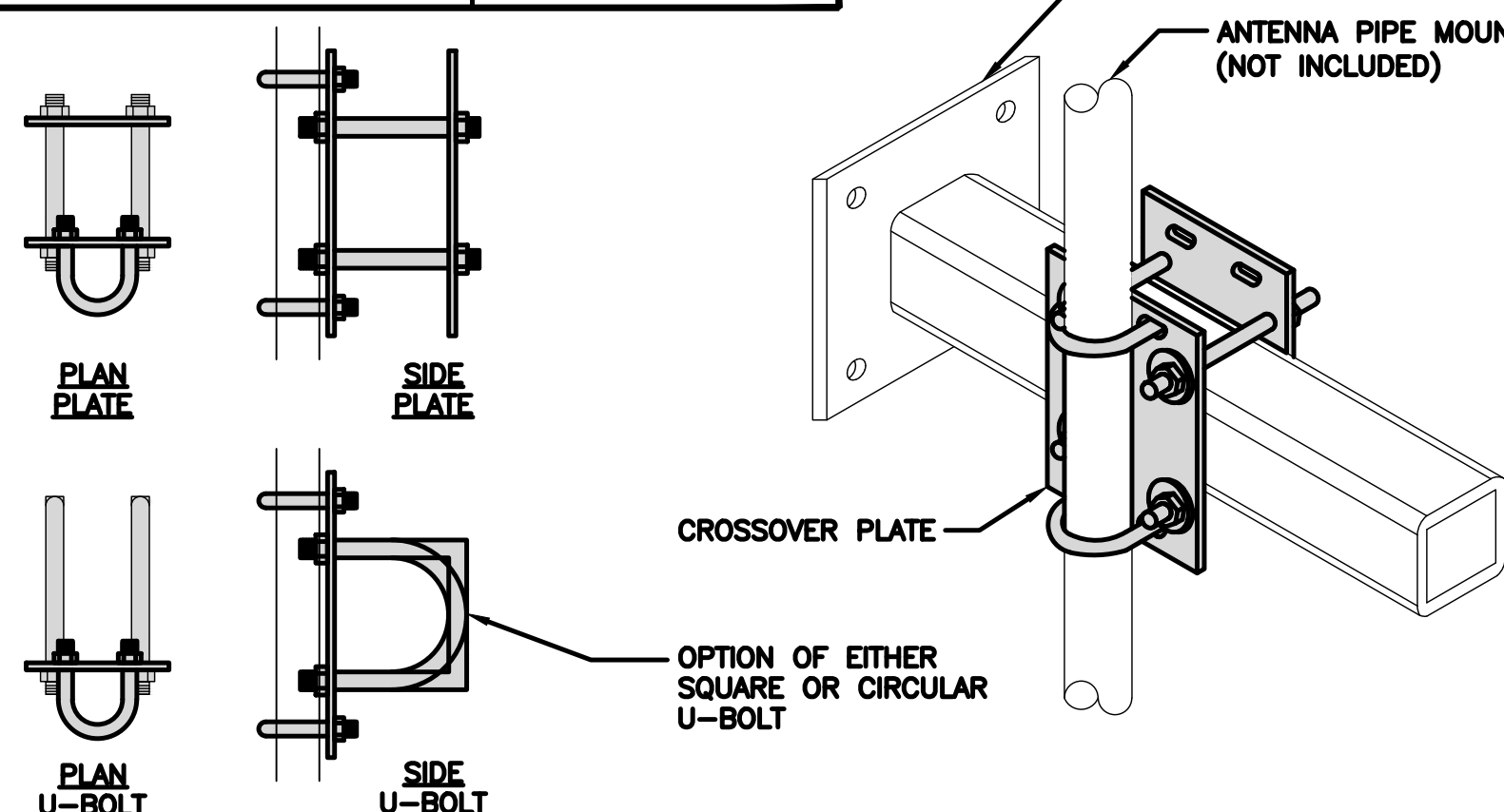
ANTENNA

MOUNTING BRACKET

MOUNTING PIPE

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

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



PLAN PLATE

SIDE PLATE

PLAN U-BOLT

SIDE U-BOLT

CROSSOVER PLATE

OPTION OF EITHER
SQUARE OR CIRCULAR
U-BOLT

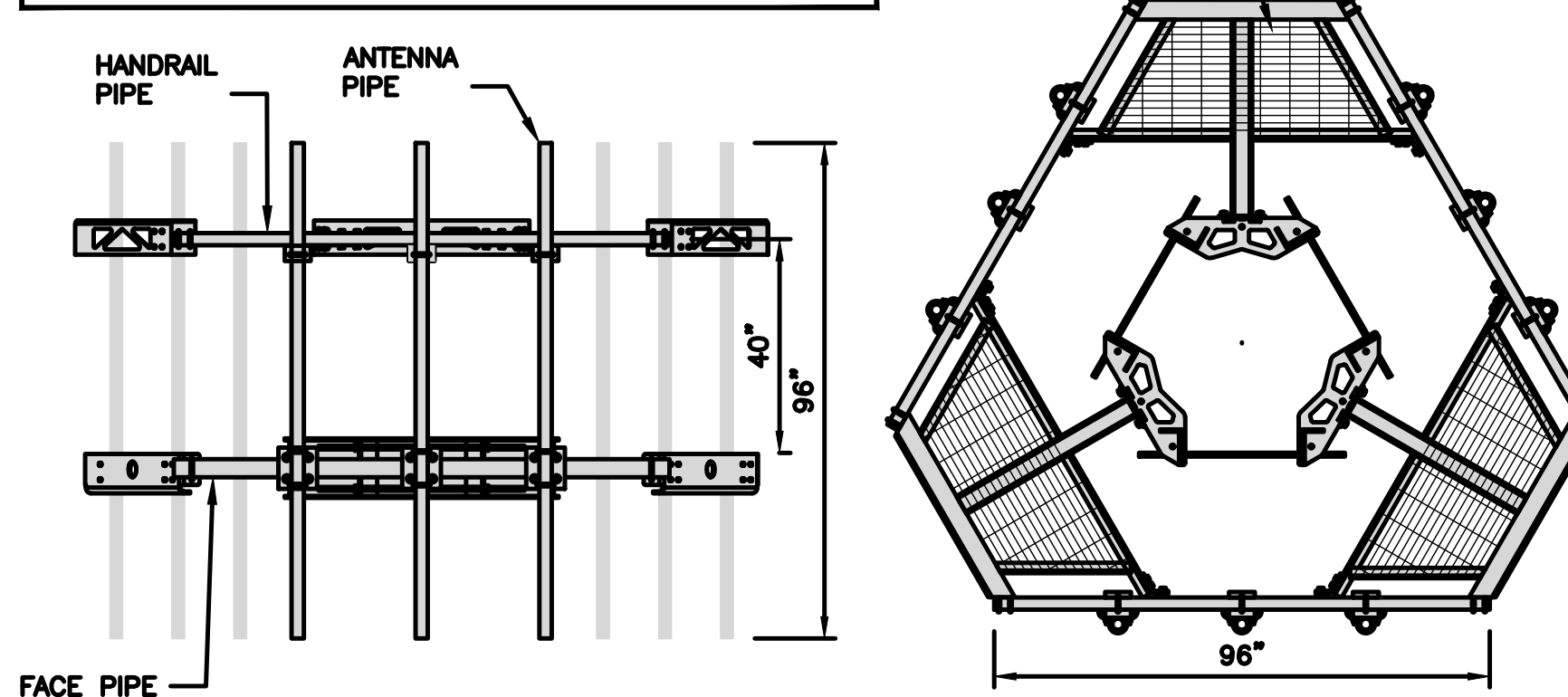
NOTE:
OR DISH WIRELESS L.L.C.
APPROVED EQUIVALENT

ANTENNA PLATFORM
(NOT INCLUDED)

ANTENNA PIPE MOUNT
(NOT INCLUDED)

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



PLATFORM

HANDRAIL PIPE

ANTENNA PIPE

FACE PIPE

96"

40"

ANTENNA MOUNTING DETAIL

NO SCALE

7

RRH/OVP MOUNT DETAIL

NO SCALE

8

ANTENNA PLATFORM DETAIL

NO SCALE

9

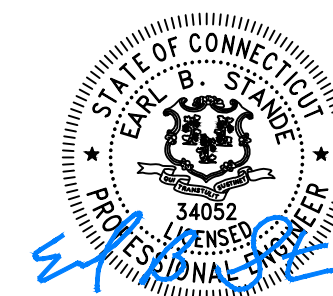


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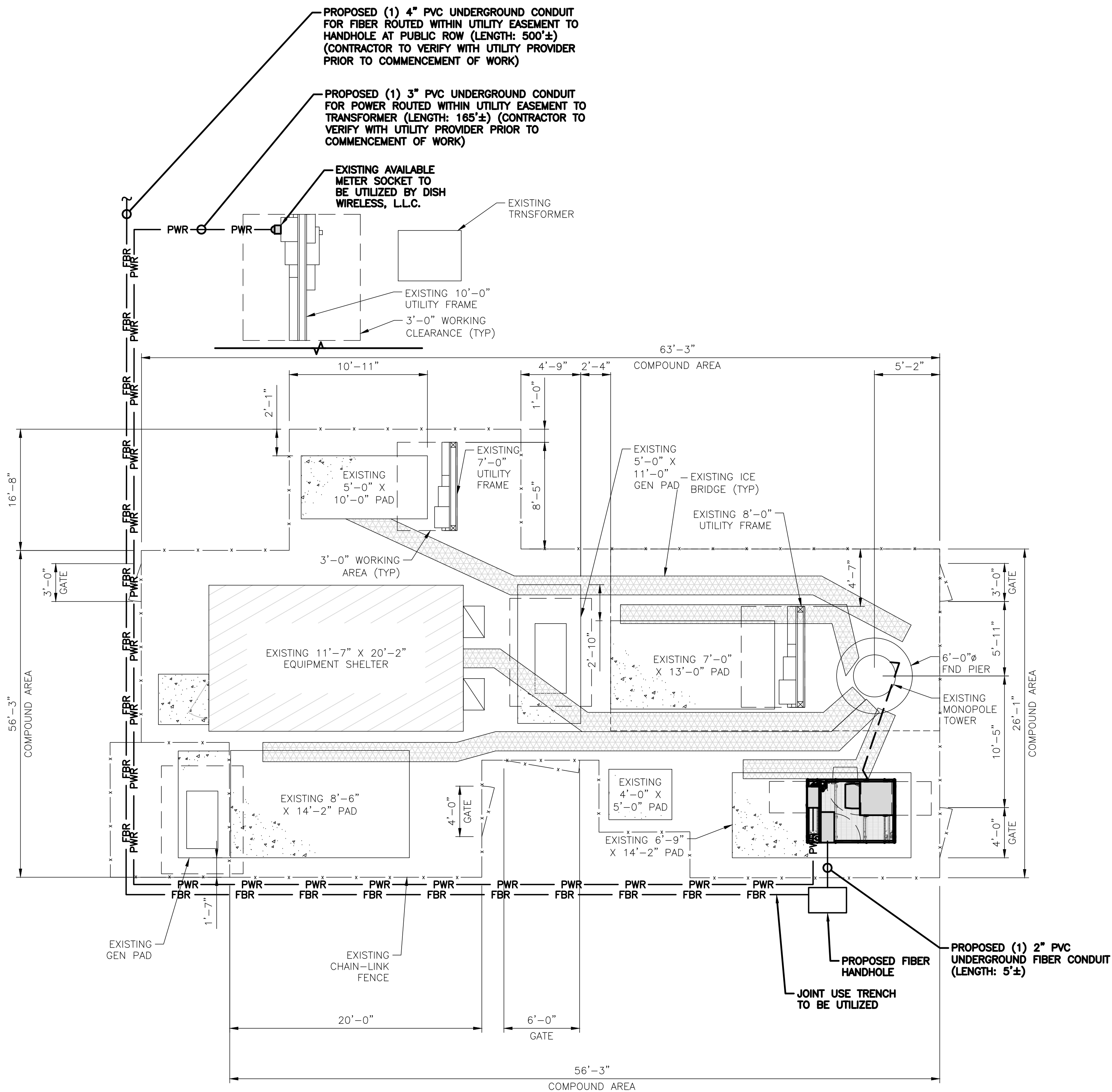
A-6

ROW NOTE

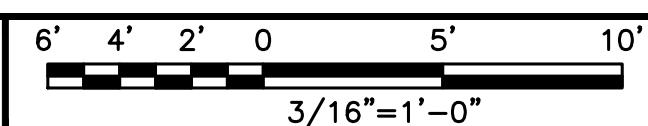
NO WORK WITHIN THIS PERMIT APPLICATION SHALL BE PERFORMED WITHIN THE PUBLIC ROW. UTILITY WORK WITHIN THE PUBLIC ROW SHALL BE THE RESPONSIBILITY OF THE UTILITY PROVIDER AND REQUIRES A SEPARATE PERMIT.

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. THE GROUND LEASE PROVIDES BROAD/BLANKET UTILITY RIGHTS. "PWR" AND "FBR" PATH DEPICTED ON A-1 AND E-1 ARE BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO FIELD VERIFICATION, PRIOR PROJECT DOCUMENTATION AND OTHER REAL PROPERTY RIGHTS DOCUMENTS. WHEN INSTALLING THE UTILITIES PLEASE LOCATE AND FOLLOW EXISTING PATH. IF EXISTING PATH IS NOT AN OPTION, PLEASE NOTIFY TOWER OWNER AS FURTHER COORDINATION MAY BE NEEDED.



UTILITY ROUTE PLAN



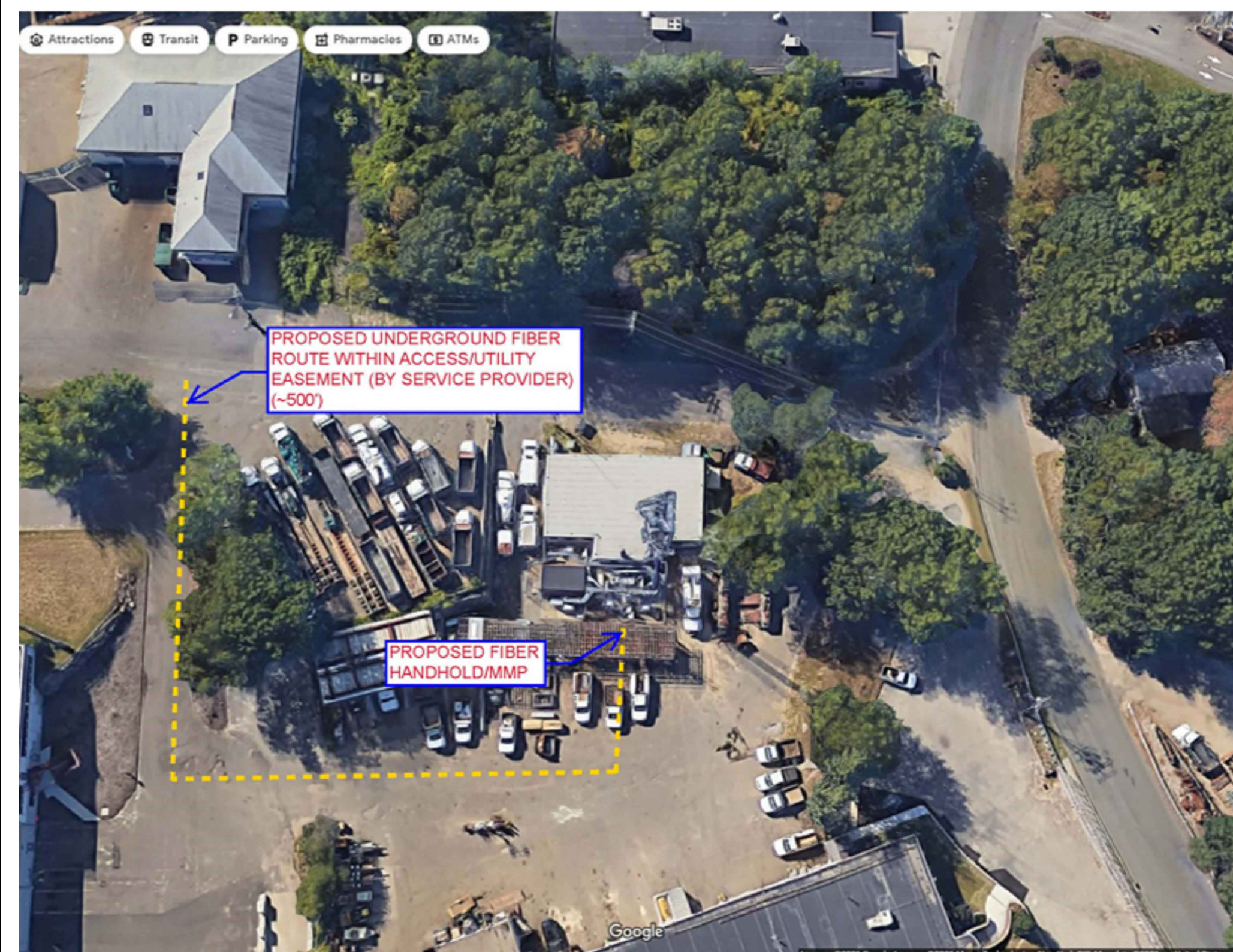
DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND -48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY -48V.

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

ELECTRICAL NOTES

NO SCALE

2



ESA

NO SCALE

3

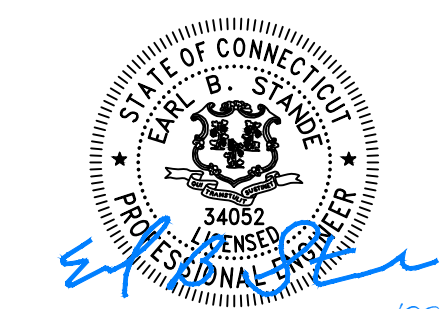


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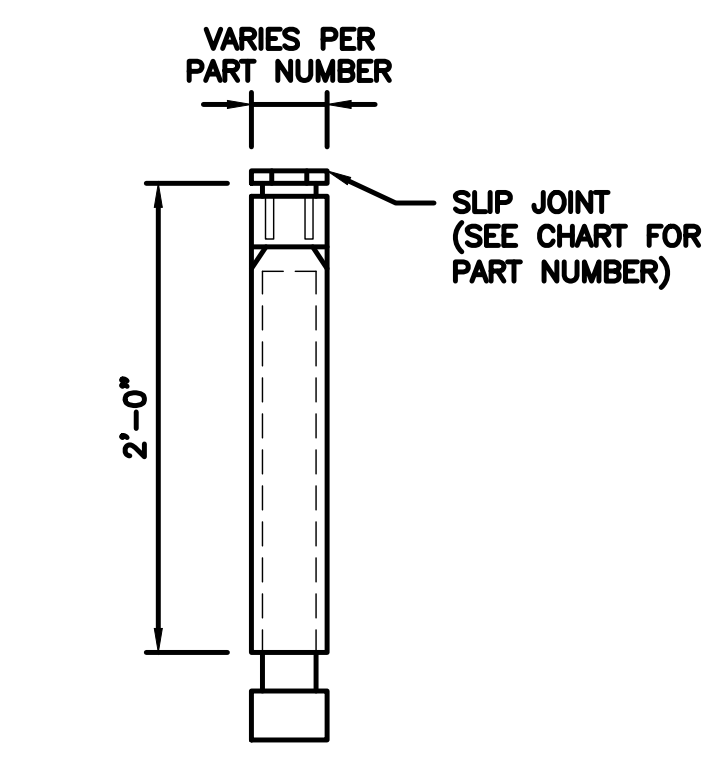
A&E PROJECT NUMBER
EUC0309

DISH WIRELESS L.L.C.
PROJECT INFORMATION
NJJER01118B
30 OLIVER TERRACE
SHELTON, CT 06484

SHEET TITLE
ELECTRICAL/FIBER ROUTE
PLAN AND NOTES

SHEET NUMBER
E-1

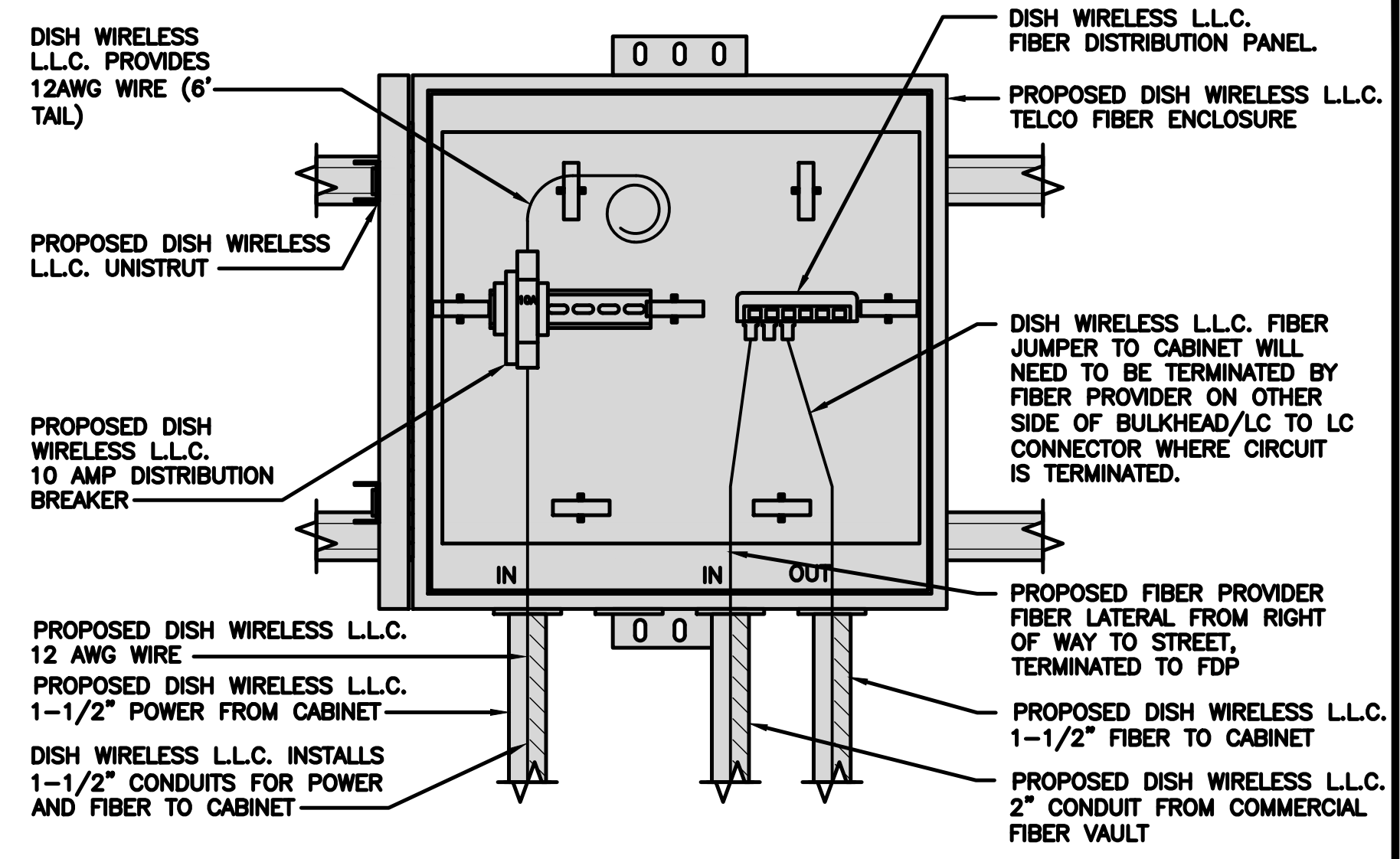
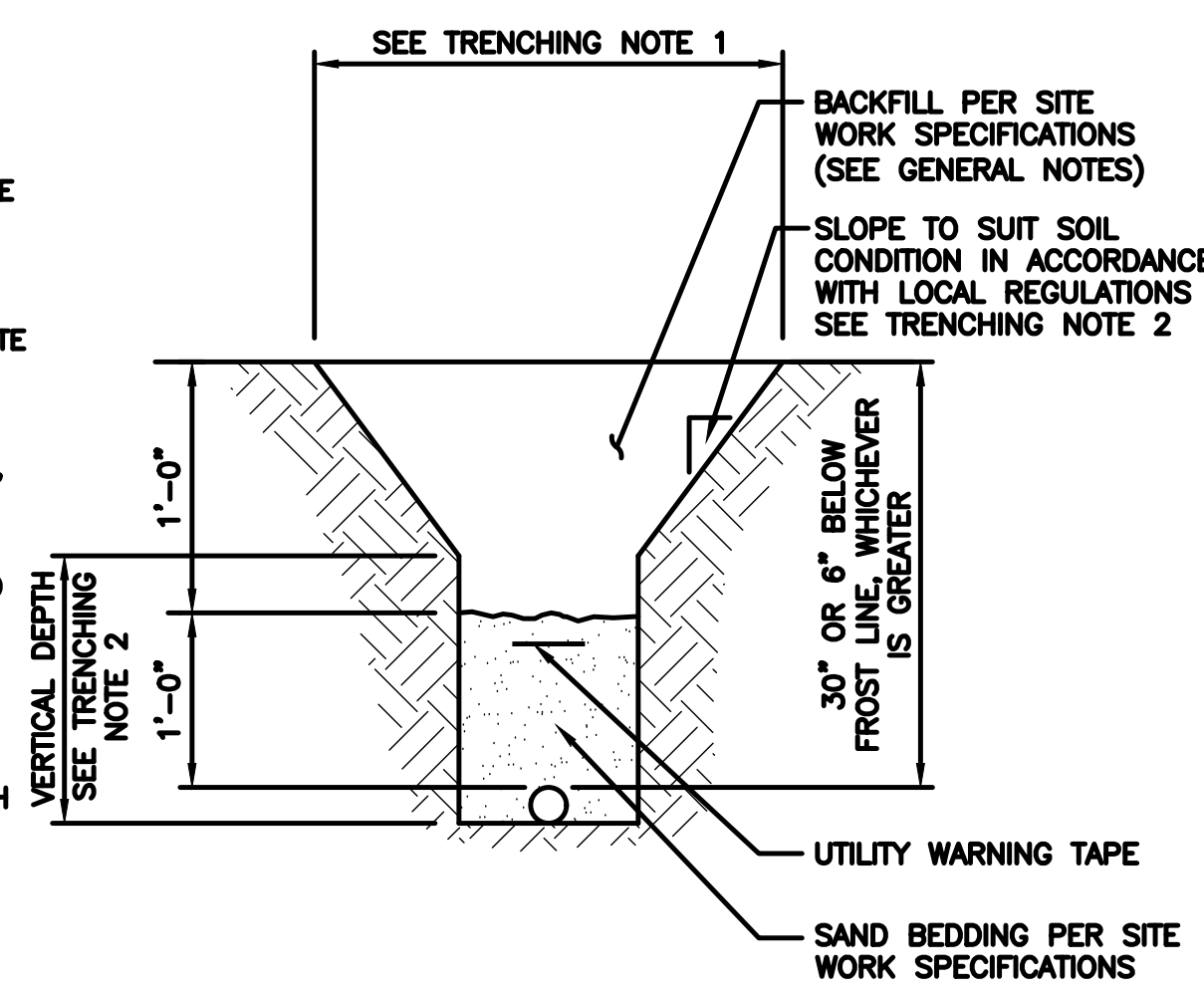
CARLON EXPANSION FITTINGS				
COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"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



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

TRENCHING NOTES

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



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EXPANSION JOINT DETAIL

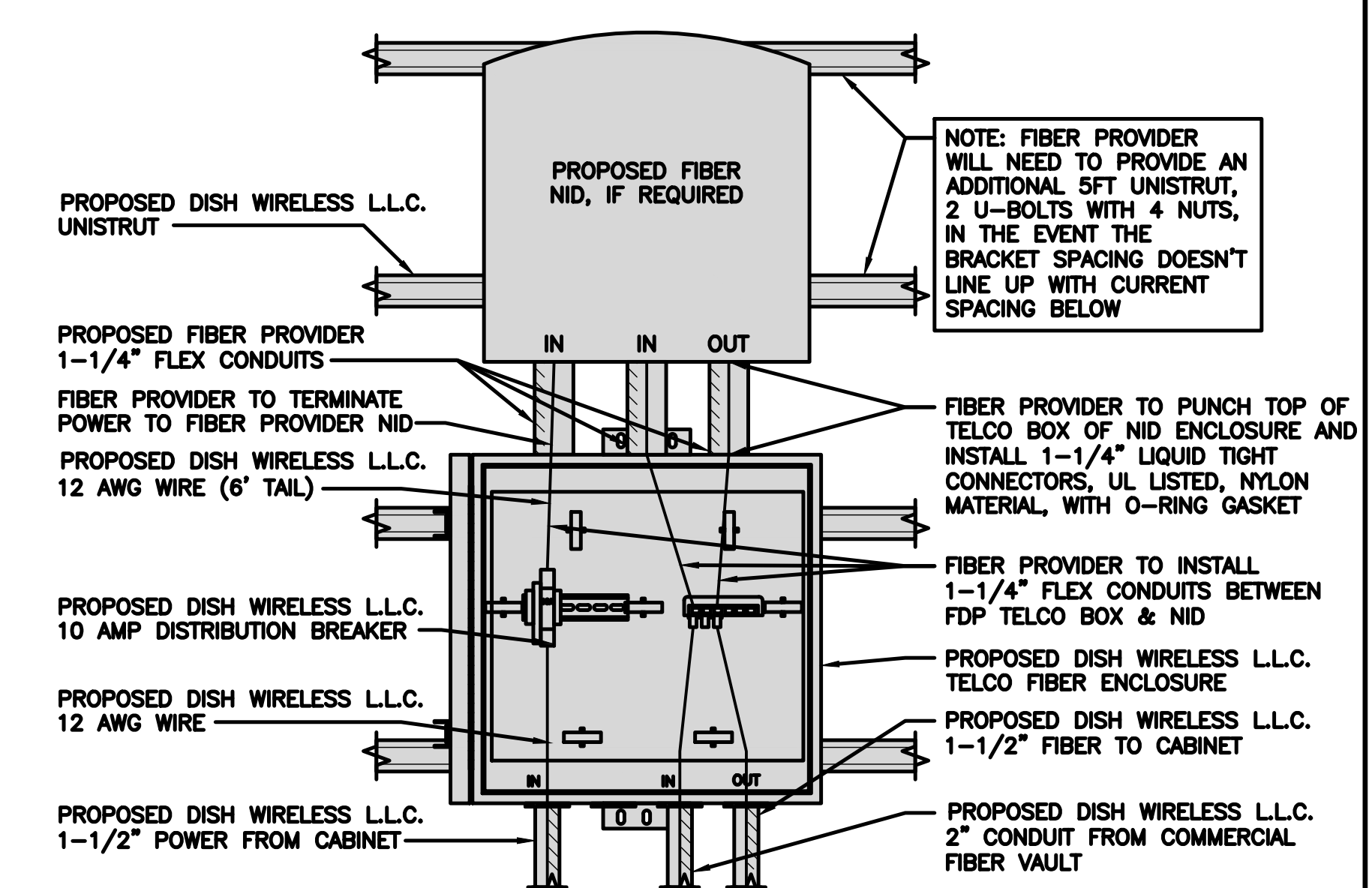
NO SCALE 1

TYPICAL UNDERGROUND TRENCH DETAIL

NO SCALE 2

DARK TELCO BOX - INTERIOR WIRING LAYOUT

NO SCALE 3



LIT TELCO BOX - INTERIOR WIRING LAYOUT (OPTIONAL)

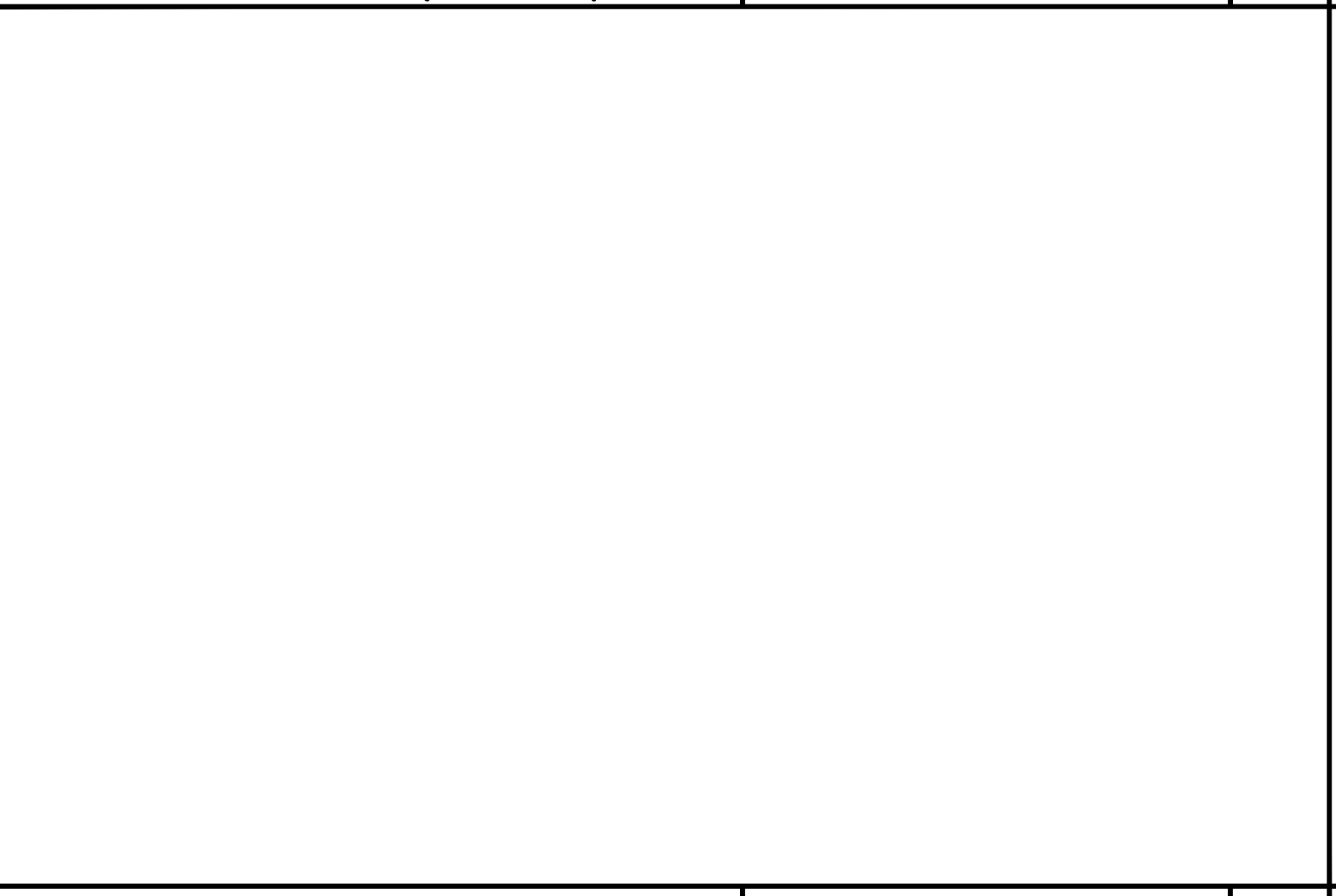
NO SCALE 4

NOT USED

NO SCALE 5

NOT USED

NO SCALE 6



NOT USED

NO SCALE 7



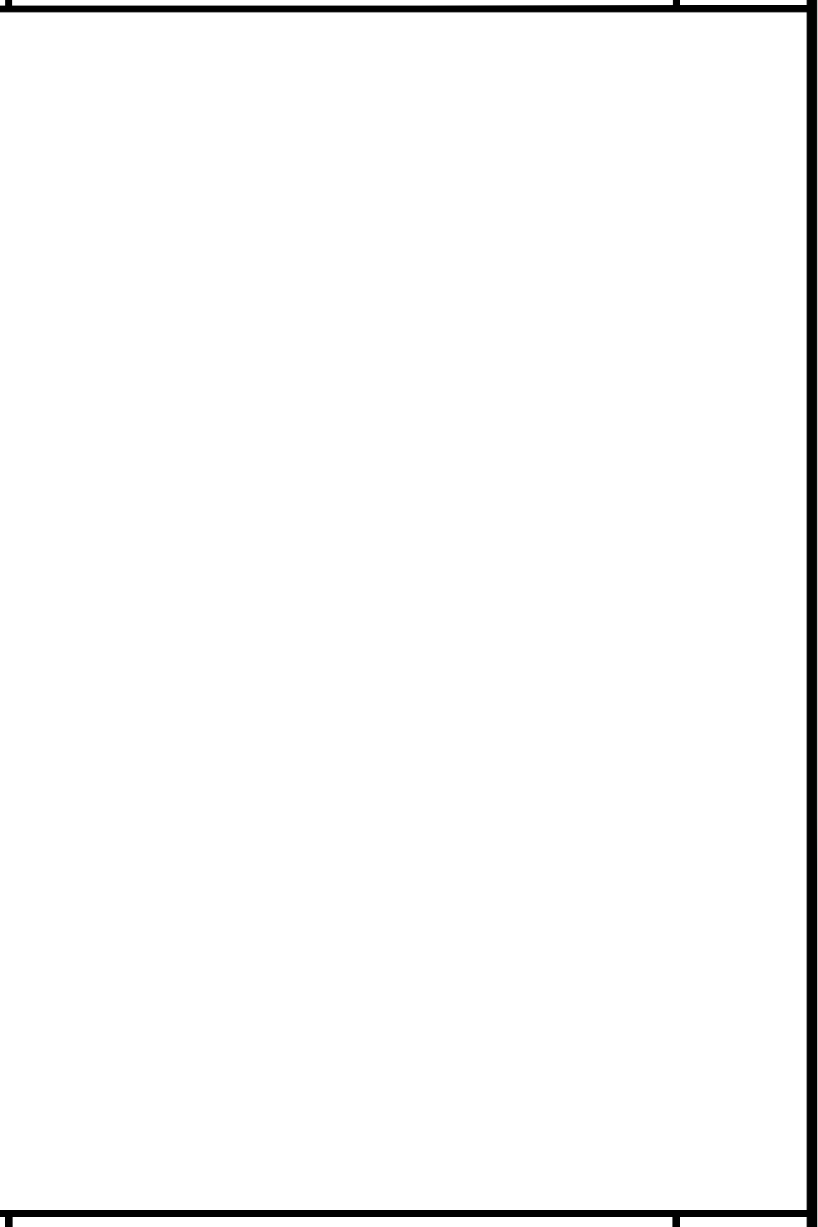
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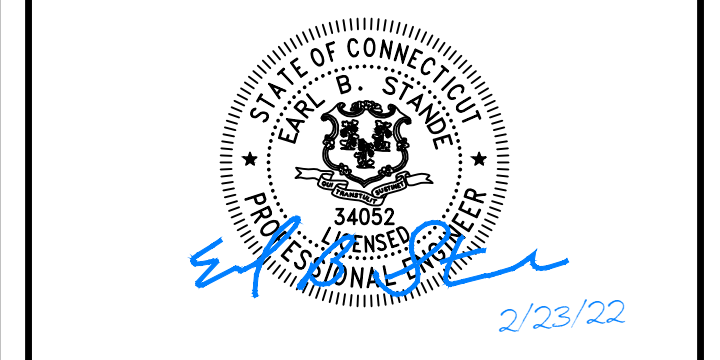
NO SCALE 8



NOT USED



NO SCALE 9



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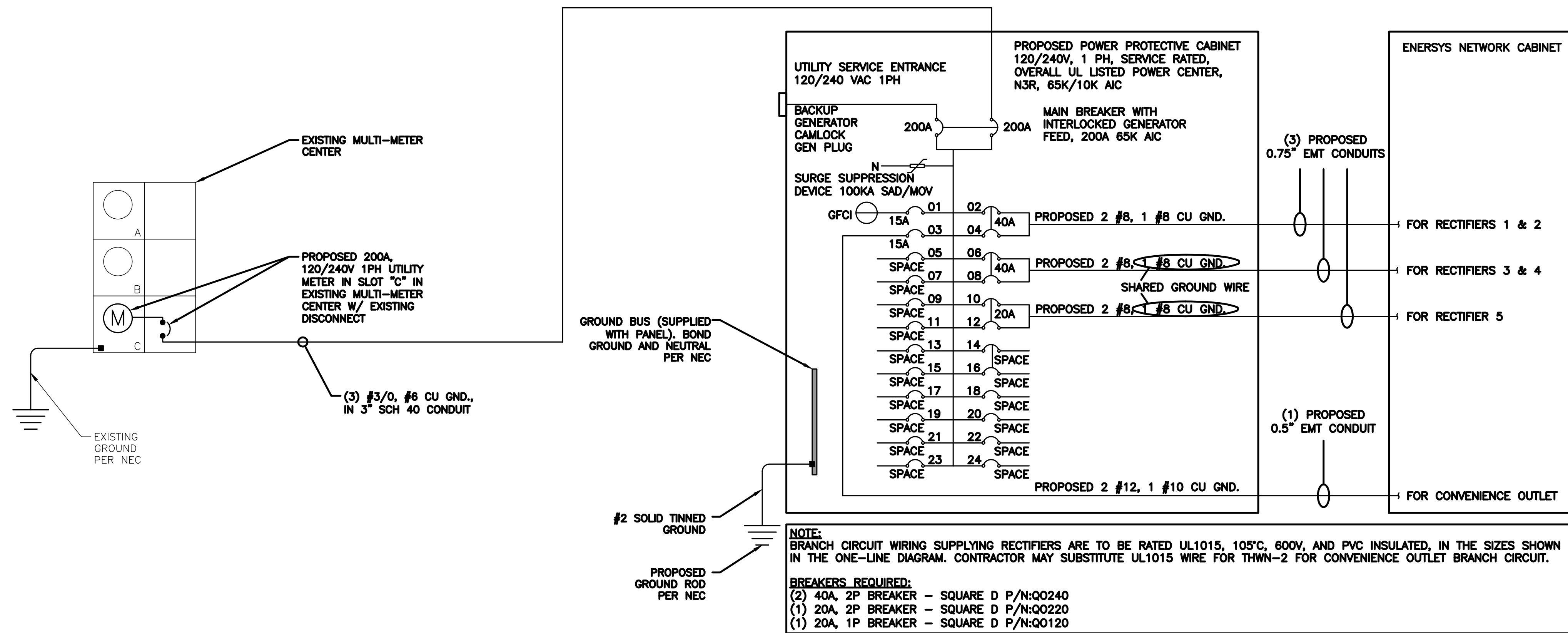
A&E PROJECT NUMBER
EUC0309

DISH WIRELESS L.L.C.
PROJECT INFORMATION

NJJER01118B
30 OLIVER TERRACE
SHELTON, CT 06484

SHEET TITLE
ELECTRICAL
DETAILS

SHEET NUMBER
E-2



NOTES

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

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

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

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

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

RECTIFIER CONDUCTORS (3 CONDUITS): USING UL1015, CU.
 #8 - 0.0552 SQ. IN X 2 = 0.1103 SQ. IN
 #8 - 0.0131 SQ. IN X 1 = 0.0131 SQ. IN <BARE GROUND
 TOTAL = 0.1234 SQ. IN

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

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

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

PPC ONE-LINE DIAGRAM

NO SCALE 1

PROPOSED PPC PANEL SCHEDULE FOR ENERSYS CABINET

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

PANEL SCHEDULE

NO SCALE 2

NOT USED

NO SCALE 3



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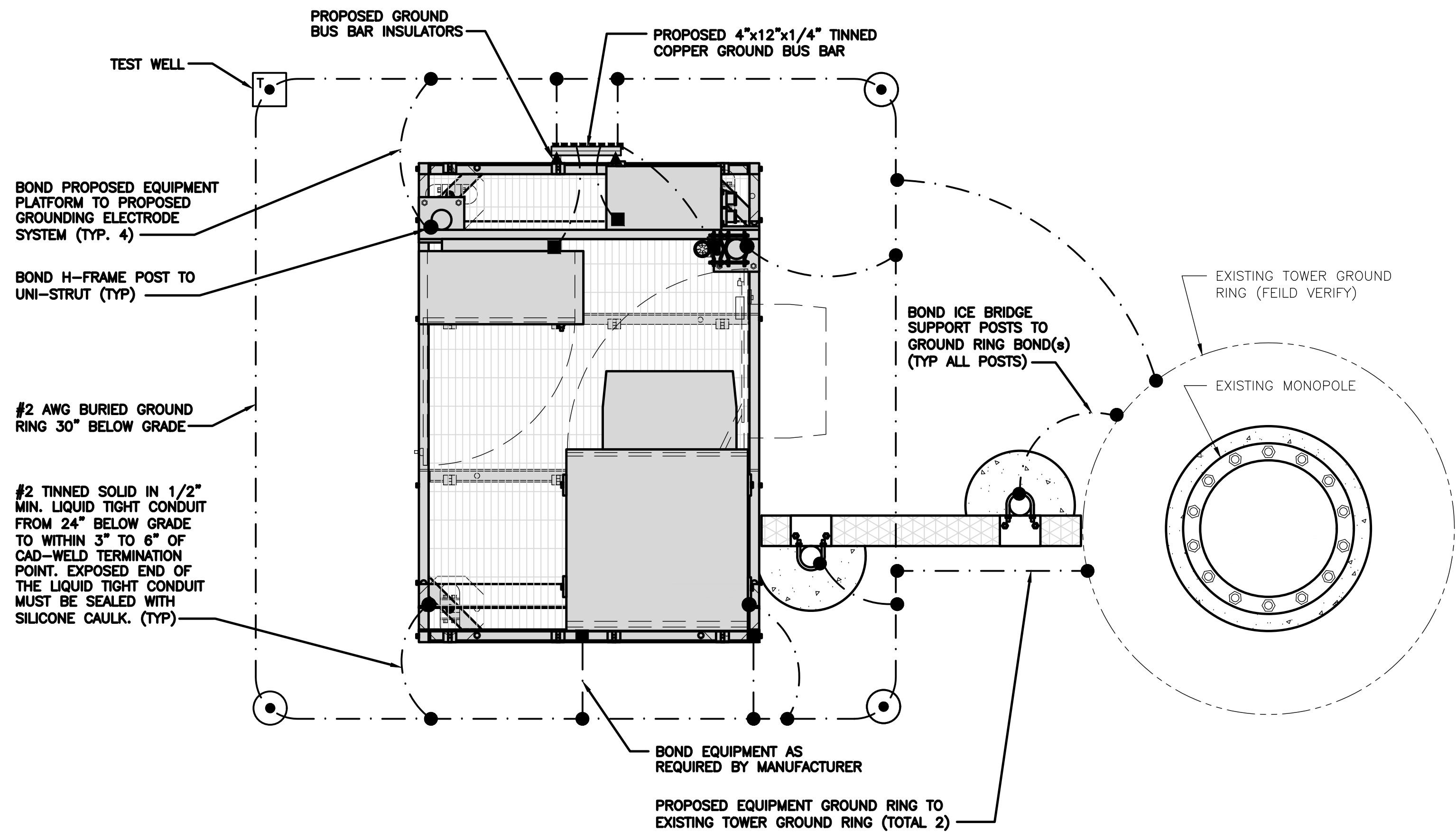
A&E PROJECT NUMBER
EUC0309

DISH WIRELESS L.L.C.
PROJECT INFORMATION

NJJER01118B
30 OLIVER TERRACE
SHELTON, CT 06484

SHEET TITLE
ELECTRICAL ONE-LINE
& PANEL SCHEDULE

SHEET NUMBER
E-3



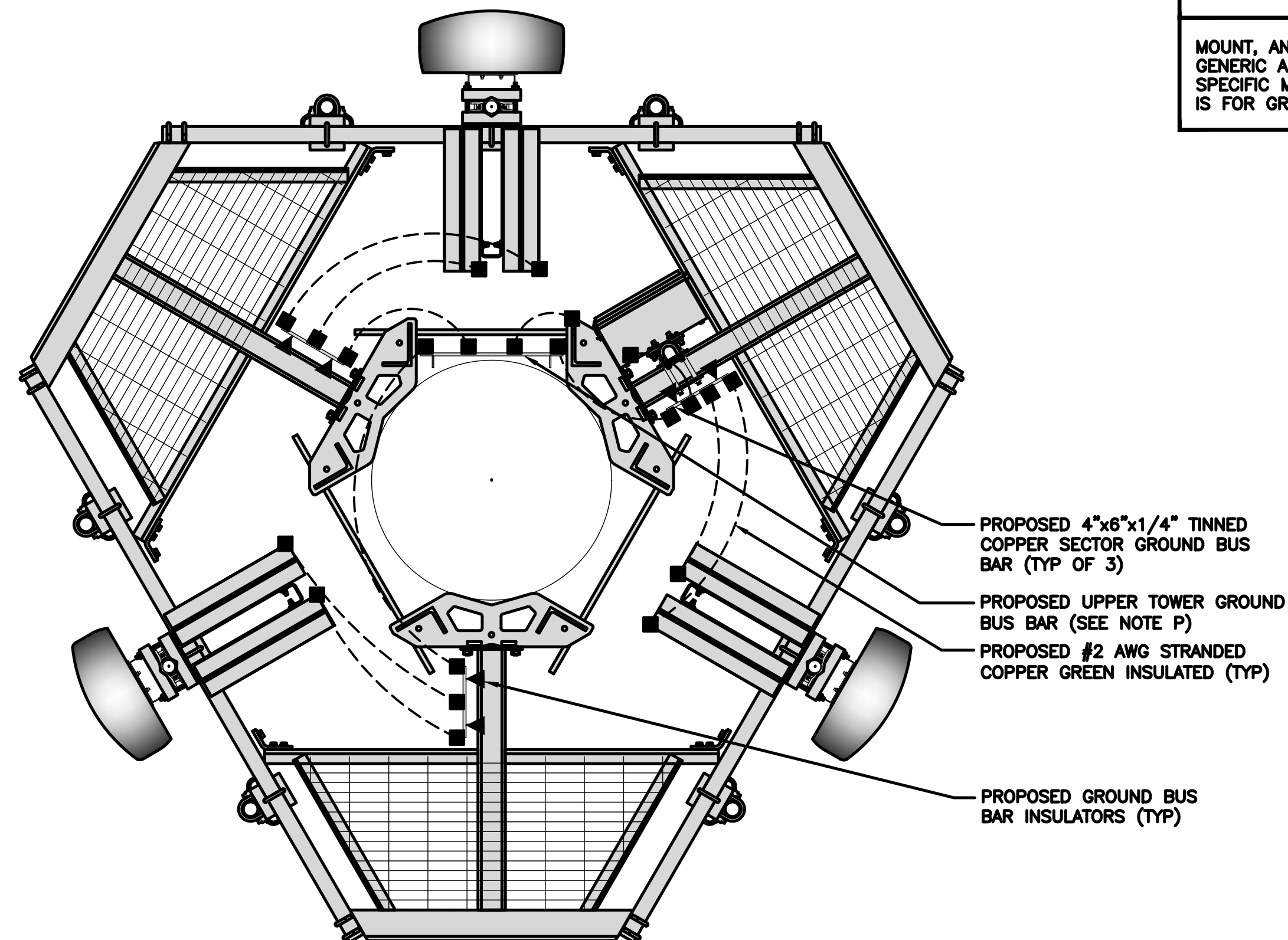
TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE

1

NOTES

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



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE

2

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

GROUNDING KEY NOTES

NO SCALE

3

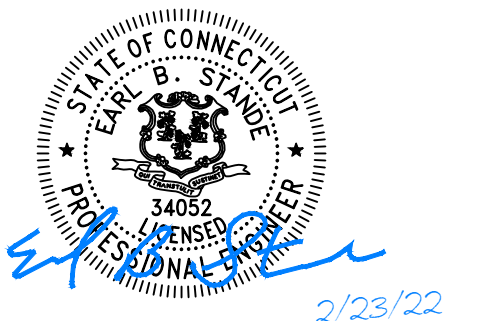
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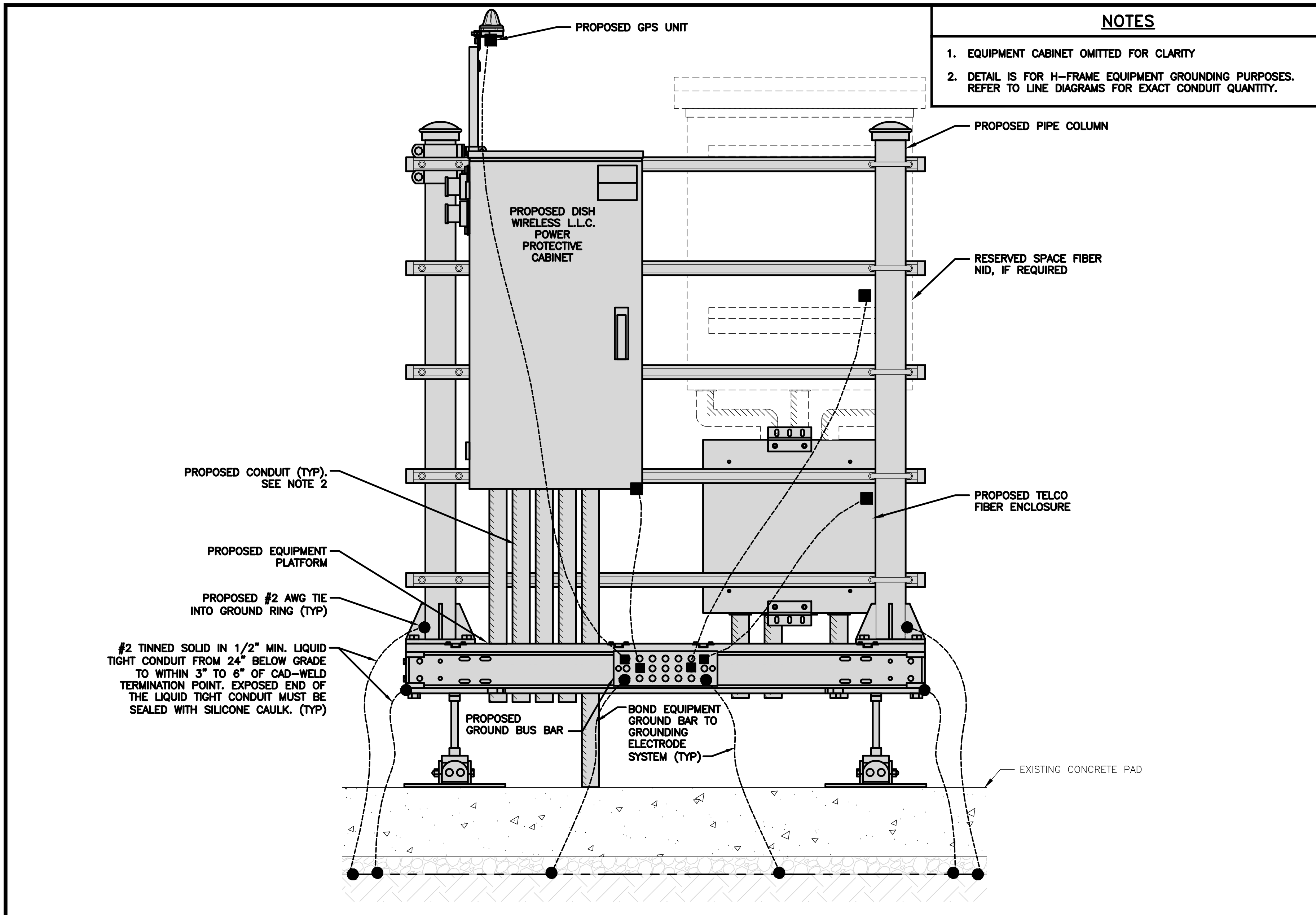
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PROJECT INFORMATION

NJJE01118B
30 OLIVER TERRACE
SHELTON, CT 06484

SHEET TITLE
GROUNDING PLANS
AND NOTES

SHEET NUMBER

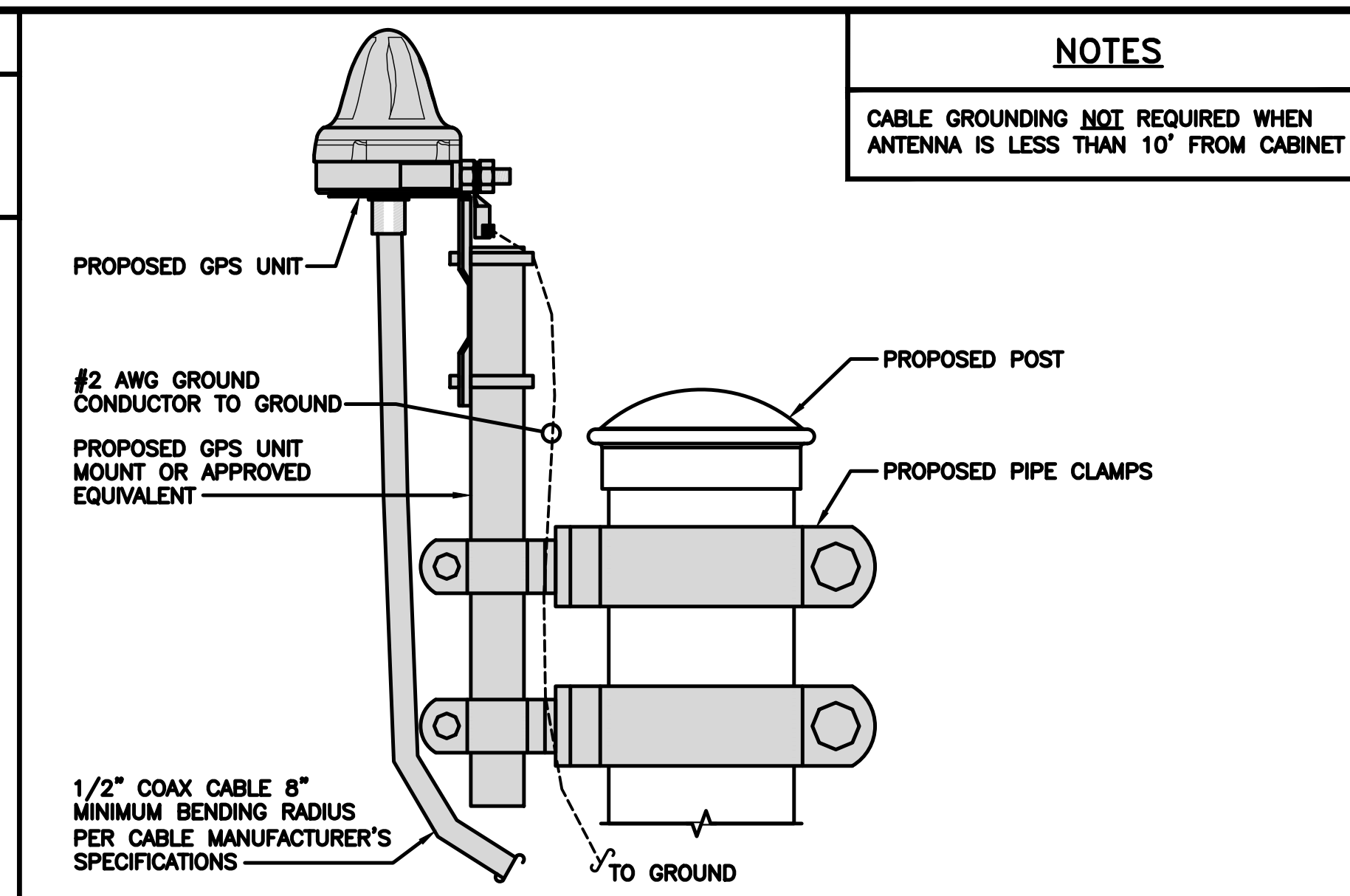
G-1



H-FRAME GROUNDING DETAIL

NO SCALE

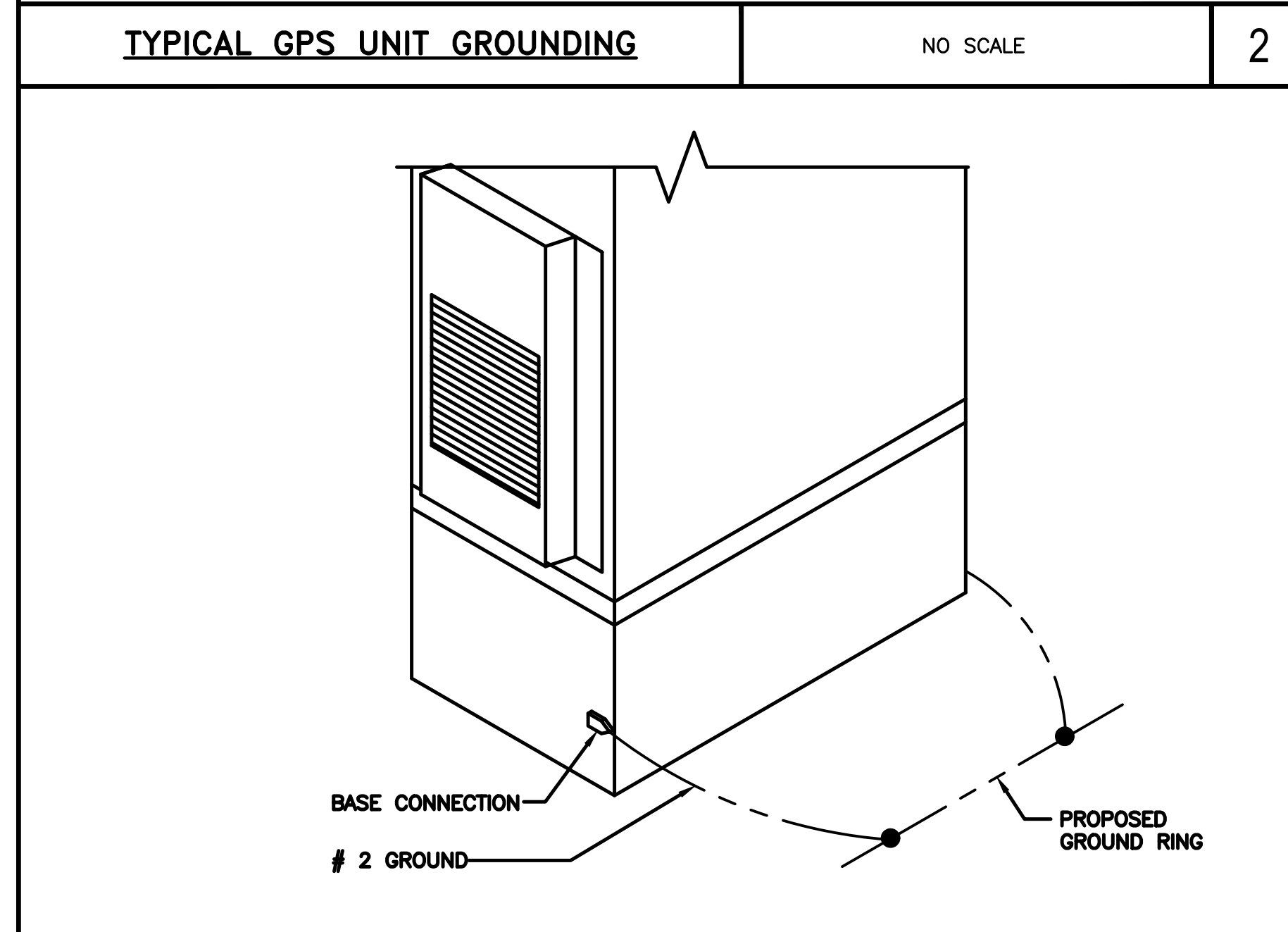
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TYPICAL GPS UNIT GROUNDING

NO SCALE

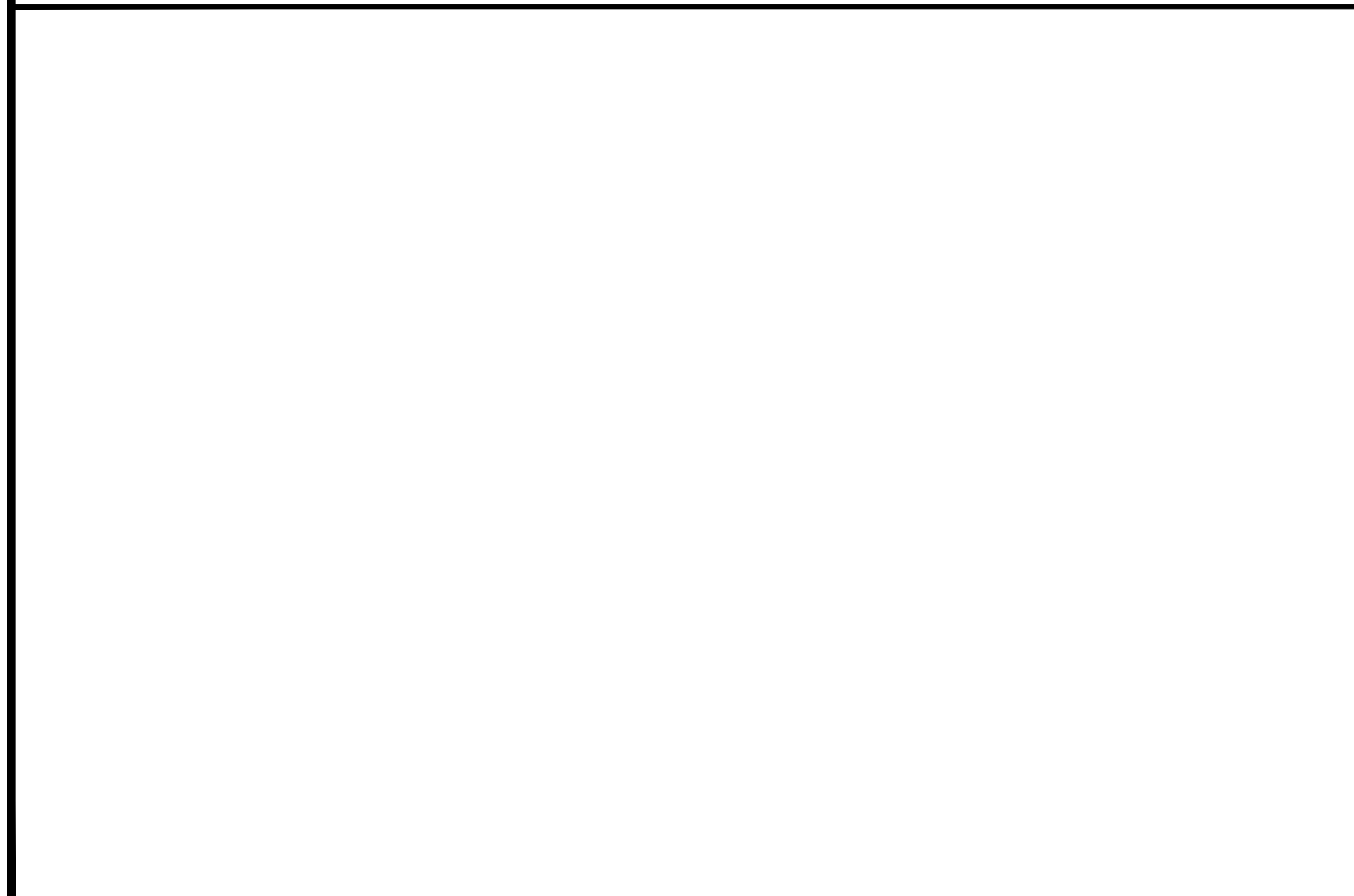
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OUTDOOR CABINET GROUNDING

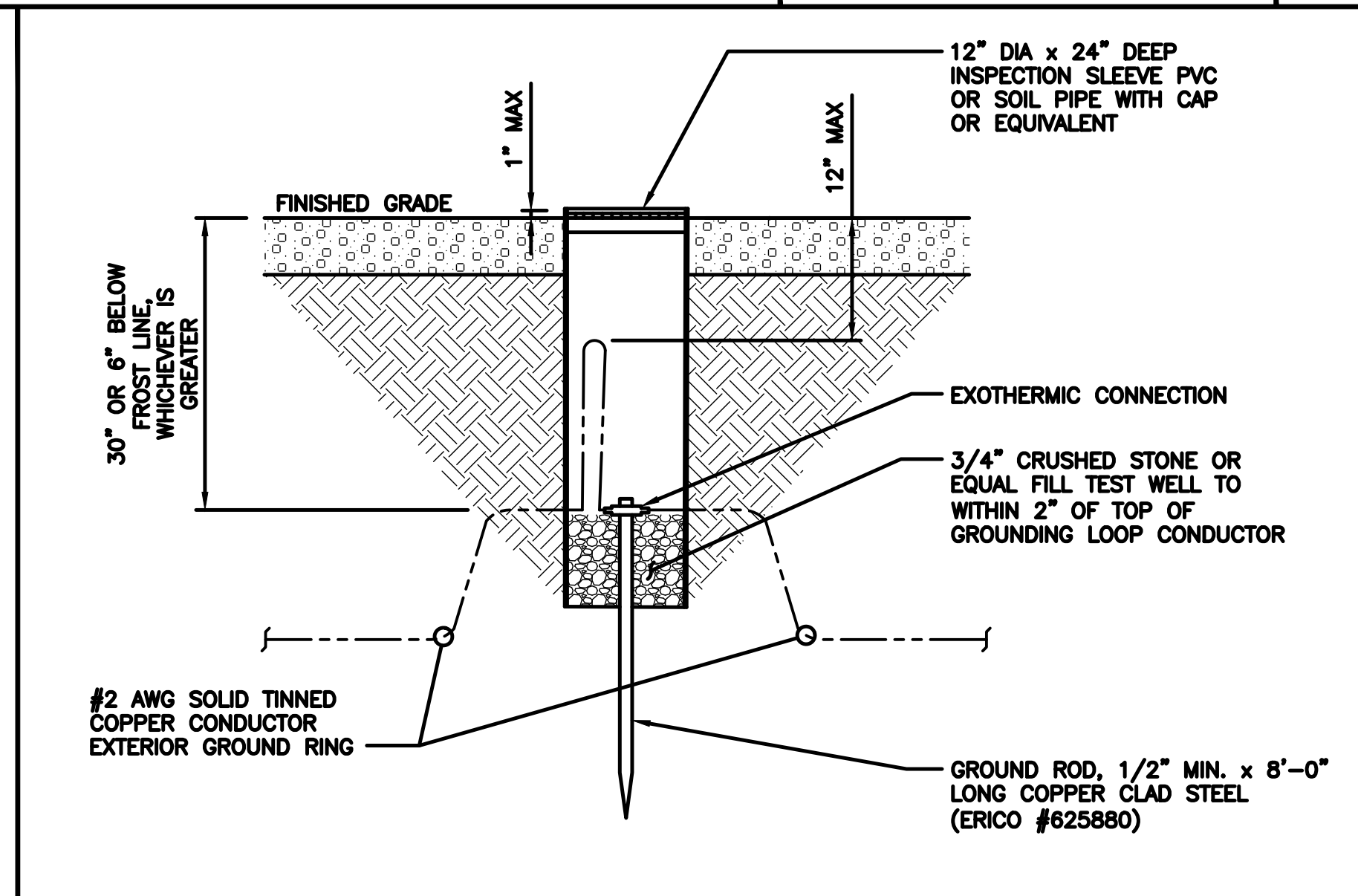
NO SCALE

3



NO SCALE

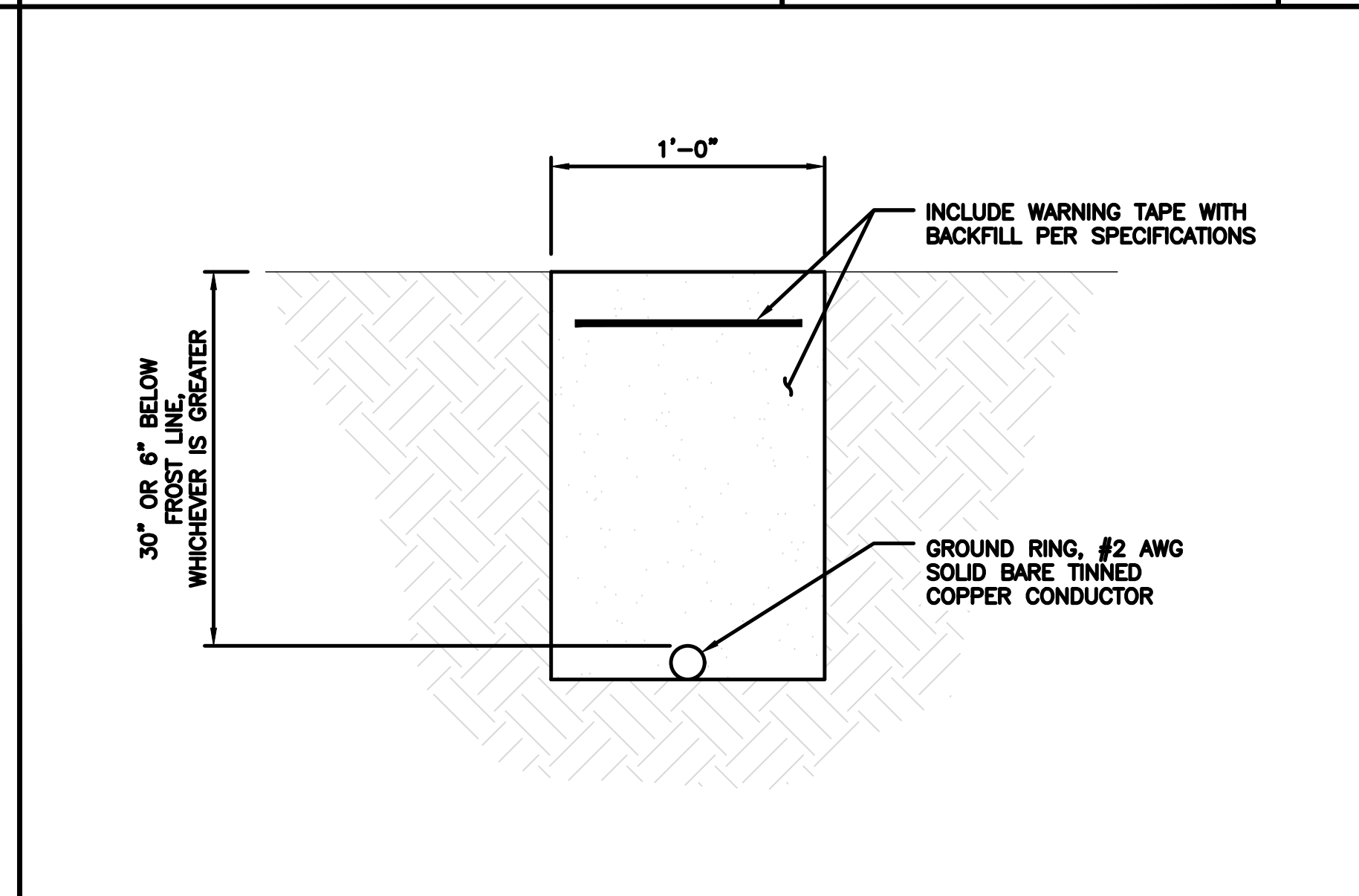
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TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE

NO SCALE

5



TYPICAL GROUND RING TRENCH

NO SCALE

6

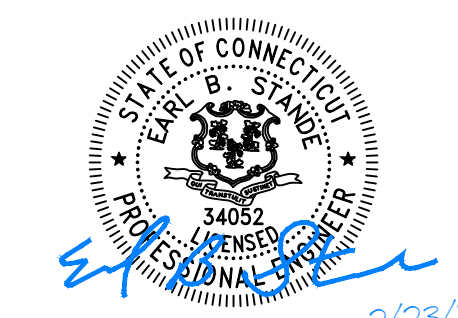
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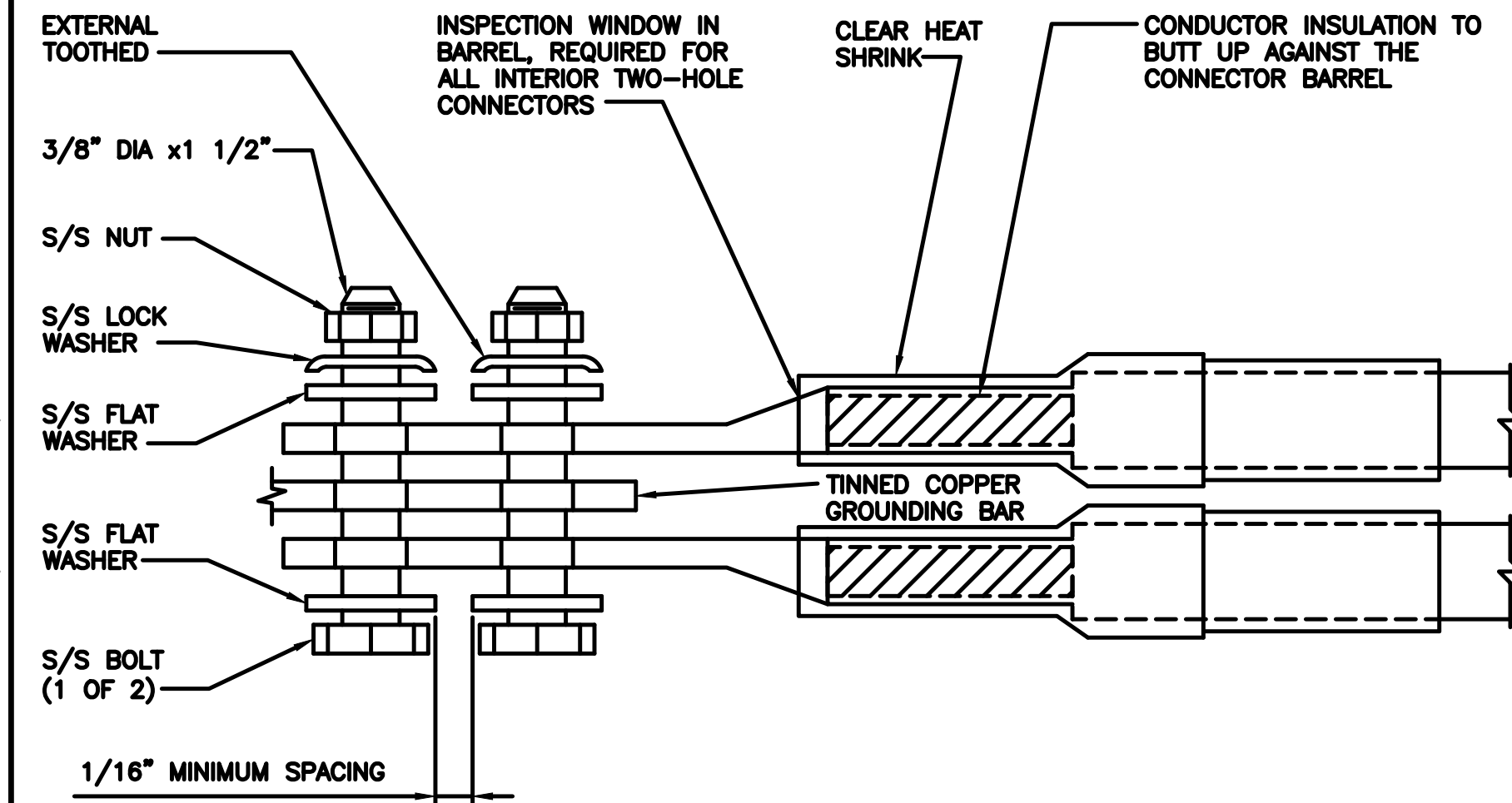
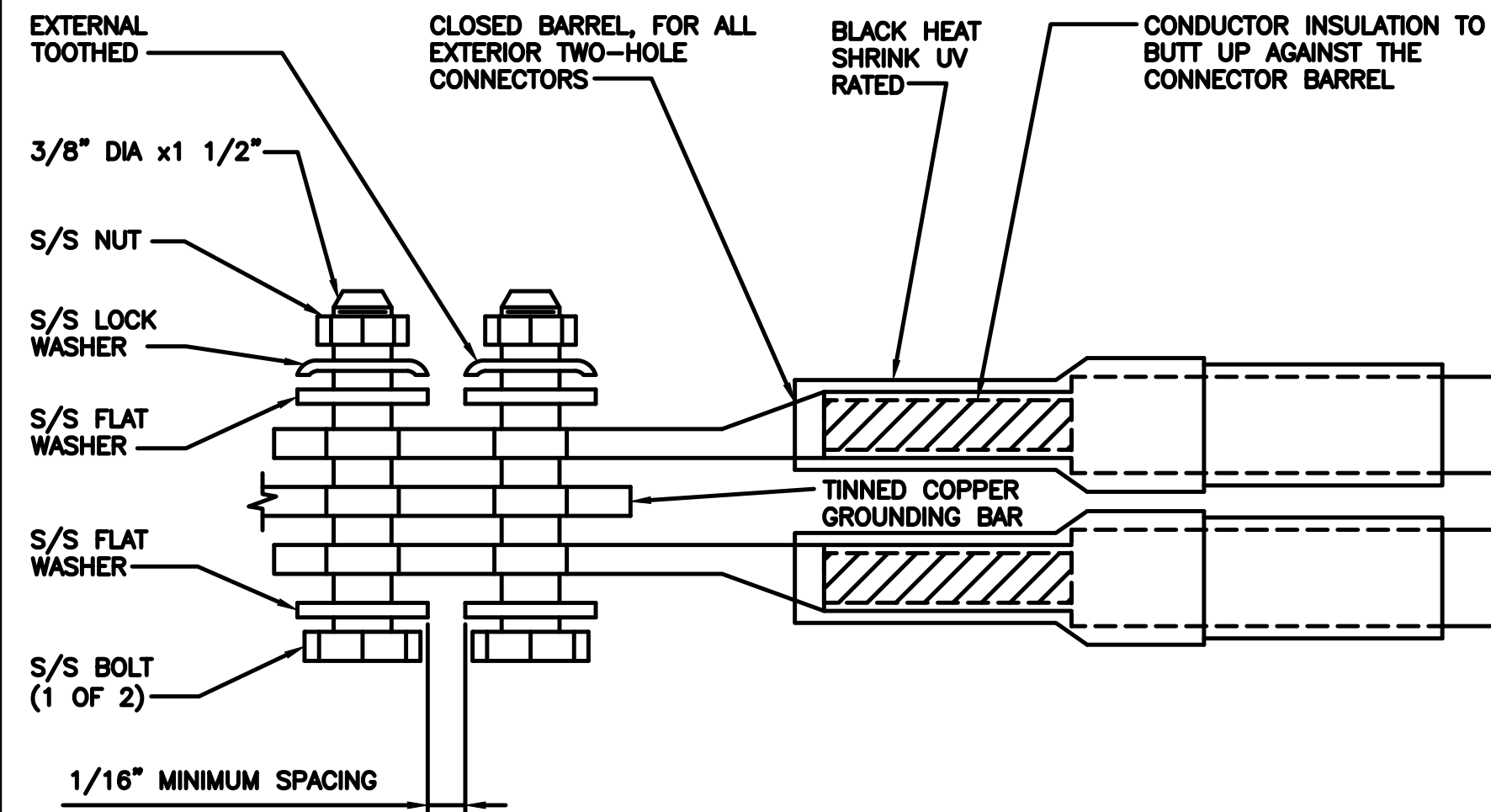
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 SHELTON, CT 06484

SHEET TITLE
 GROUNDING DETAILS

SHEET NUMBER

G-2

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



TYPICAL GROUNDING NOTES

NO SCALE

1

TYPICAL EXTERIOR TWO HOLE LUG

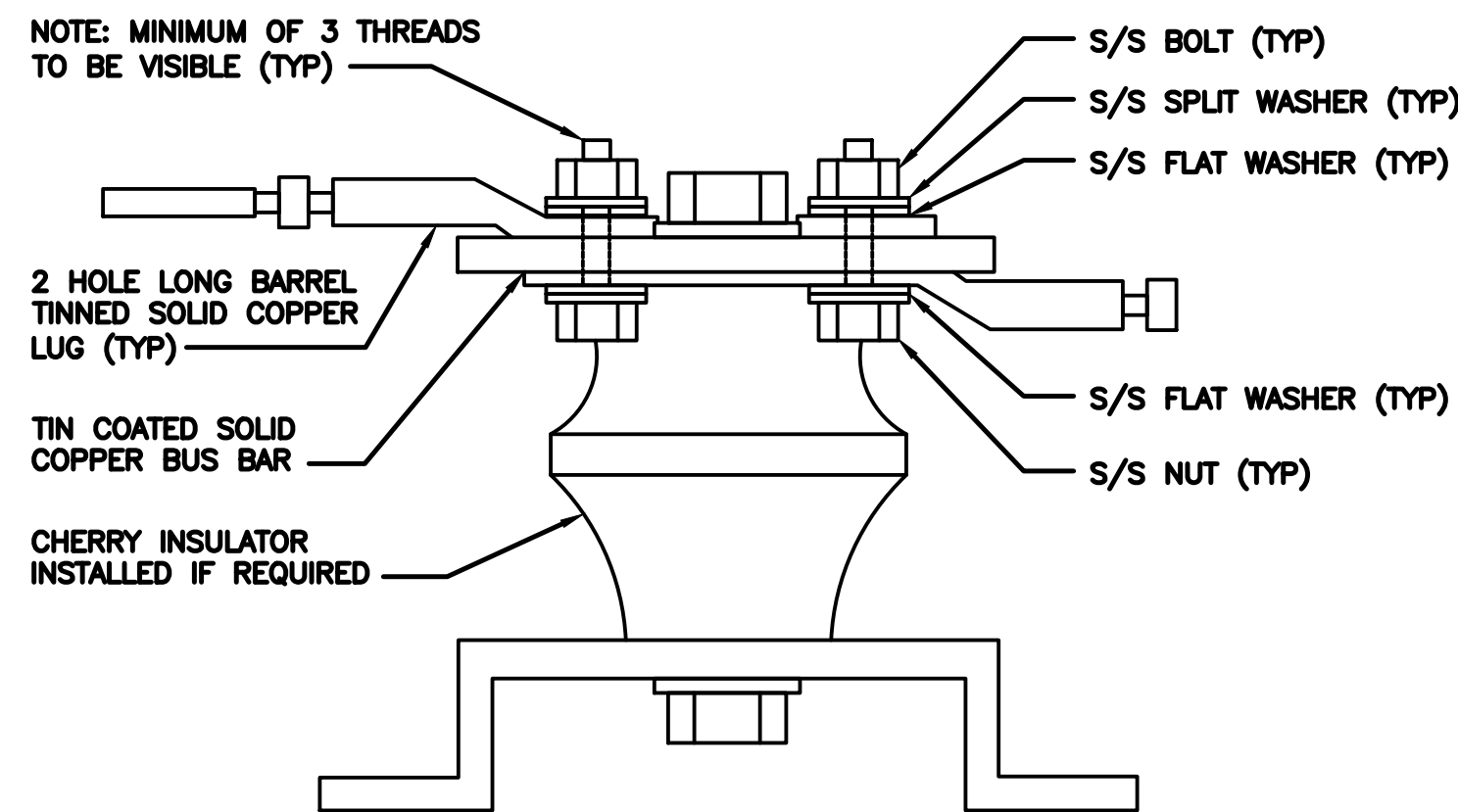
NO SCALE

2

TYPICAL INTERIOR TWO HOLE LUG

NO SCALE

3



LUG DETAIL

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9

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wireless.

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SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER

G-3

RF JUMPER COLOR CODING

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

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

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

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

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

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

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

HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED
ALONG WITH FREQUENCY BANDS

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

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

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

FIBER JUMPERS TO RRHs

LOW-BAND RRH FIBER CABLES HAVE SECTOR
STRIPE ONLY

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

POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY

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

RET MOTORS AT ANTENNAS

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

MICROWAVE RADIO LINKS

LINKS WILL HAVE A 1.5-2 INCH WHITE WRAP WITH
THE AZIMUTH COLOR OVERLAPPING IN THE MIDDLE.
ADD ADDITIONAL SECTOR COLOR BANDS FOR EACH
ADDITIONAL MW RADIO.

MICROWAVE CABLES WILL REQUIRE P-TOUCH
LABELS INSIDE THE CABINET TO IDENTIFY THE
LOCAL AND REMOTE SITE ID'S

FORWARD AZIMUTH OF 0-120 DEGREES		FORWARD AZIMUTH OF 120-240 DEGREES		FORWARD AZIMUTH OF 240-360 DEGREES	
PRIMARY	SECONDARY	PRIMARY	SECONDARY	PRIMARY	SECONDARY
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
RED	RED	BLUE	BLUE	GREEN	GREEN
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
	RED		BLUE		GREEN
	WHITE		WHITE		WHITE

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



AWS
(N66+N70+H-BLOCK)



CBRS TECH
(3 GHz)



NEGATIVE SLANT PORT
ON ANT/RRH



ALPHA SECTOR



BETA SECTOR



GAMMA SECTOR



COLOR IDENTIFIER

NO SCALE

2

NOT USED

NO SCALE

3

RF CABLE COLOR CODES

NO SCALE

1

NOT USED

NO SCALE

4

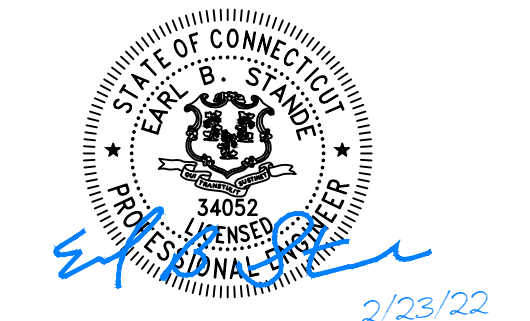


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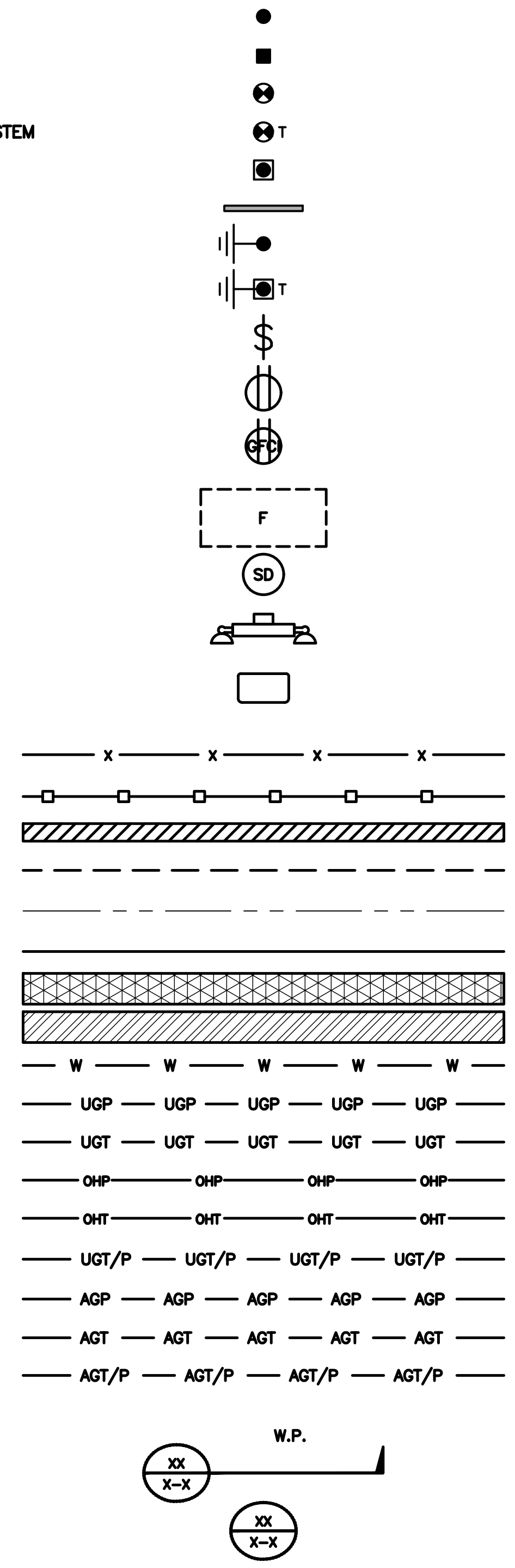
DISH WIRELESS L.L.C.
PROJECT INFORMATION

NJJer01118B
30 OLIVER TERRACE
SHELTON, CT 06484

SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER
RF-1

EXOTHERMIC CONNECTION
 MECHANICAL CONNECTION
 CHEMICAL ELECTROLYTIC GROUNDING SYSTEM
 TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM
 EXOTHERMIC WITH INSPECTION SLEEVE
 GROUNDING BAR
 GROUND ROD
 TEST GROUND ROD WITH INSPECTION SLEEVE
 SINGLE POLE SWITCH
 DUPLEX RECEPTACLE
 DUPLEX GFCI RECEPTACLE
 FLUORESCENT LIGHTING FIXTURE
 (2) TWO LAMPS 48-T8
 SMOKE DETECTION (DC)
 EMERGENCY LIGHTING (DC)
 SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW
 LED-1-25A400/51K-SR4-120-PE-DBTDX
 CHAIN LINK FENCE
 WOOD/WROUGHT IRON FENCE
 WALL STRUCTURE
 LEASE AREA
 PROPERTY LINE (PL)
 SETBACKS
 ICE BRIDGE
 CABLE TRAY
 WATER LINE
 UNDERGROUND POWER
 UNDERGROUND TELCO
 OVERHEAD POWER
 OVERHEAD TELCO
 UNDERGROUND TELCO/POWER
 ABOVE GROUND POWER
 ABOVE GROUND TELCO
 ABOVE GROUND TELCO/POWER
 WORKPOINT
 SECTION REFERENCE
 DETAIL REFERENCE



LEGEND

AB ANCHOR BOLT
 ABV ABOVE
 AC ALTERNATING CURRENT
 ADDL ADDITIONAL
 AFF ABOVE FINISHED FLOOR
 AFG ABOVE FINISHED GRADE
 AGL ABOVE GROUND LEVEL
 AIC 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
 DIAG DIAGONAL
 DIM DIMENSION
 DWG DRAWING
 DWL DOWEL
 EA EACH
 EC ELECTRICAL CONDUCTOR
 EL ELEVATION
 ELEC ELECTRICAL
 EMT ELECTRICAL METALLIC TUBING
 ENG ENGINEER
 EQ EQUAL
 EXP EXPANSION
 EXT EXTERIOR
 EW EACH WAY
 FAB FABRICATION
 FF FINISH FLOOR
 FG FINISH GRADE
 FIF FACILITY INTERFACE FRAME
 FIN FINISH(ED)
 FLR FLOOR
 FDN FOUNDATION
 FOC FACE OF CONCRETE
 FOM FACE OF MASONRY
 FOS FACE OF STUD
 FOW FACE OF WALL
 FS FINISH SURFACE
 FT FOOT
 FTG FOOTING
 GA GAUGE
 GEN GENERATOR
 GFCI GROUND FAULT CIRCUIT INTERRUPTER
 GLB GLUE LAMINATED BEAM
 GLV GALVANIZED
 GPS GLOBAL POSITIONING SYSTEM
 GND GROUND
 GSM GLOBAL SYSTEM FOR MOBILE
 HDG HOT DIPPED GALVANIZED
 HDR HEADER
 HGR HANGER
 HVAC HEAT/VENTILATION/AIR CONDITIONING
 HT HEIGHT
 IGR INTERIOR GROUND RING
 IN INCH
 INT INTERIOR
 LB(S) POUND(S)
 LF LINEAR FEET
 LTE LONG TERM EVOLUTION
 MAS MASONRY
 MAX MAXIMUM
 MCL MOUNT CENTER LINE
 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
 RMC RIGID METALLIC CONDUIT
 RRRH REMOTE RADIO HEAD
 RRU REMOTE RADIO UNIT
 RWY RACEWAY
 SCH SCHEDULE
 SHT SHEET
 SIAD SMART INTEGRATED ACCESS DEVICE
 SIM SIMILAR
 SPEC SPECIFICATION
 SQ SQUARE
 SS STAINLESS STEEL
 STD STANDARD
 STL STEEL
 TEMP TEMPORARY
 THK THICKNESS
 TMA TOWER MOUNTED AMPLIFIER
 TN TOE NAIL
 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
 TVSS TRANSIENT VOLTAGE SURGE SUPPRESSION
 TYP TYPICAL
 UG UNDERGROUND
 UL UNDERWRITERS LABORATORY
 UNO UNLESS NOTED OTHERWISE
 UMS 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

ABBREVIATIONS

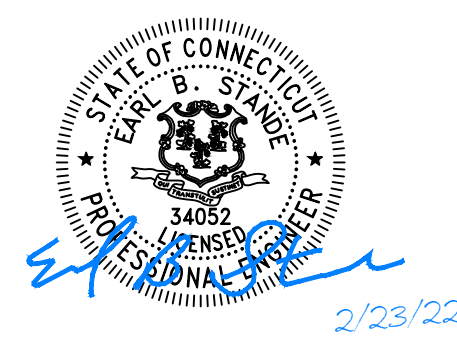


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A&E PROJECT NUMBER
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DISH WIRELESS L.L.C.
 PROJECT INFORMATION
 NJJER01118B
 30 OLIVER TERRACE
 SHELTON, CT 06484

SHEET TITLE
 LEGEND AND ABBREVIATIONS

SHEET NUMBER
GN-1

SITE ACTIVITY REQUIREMENTS:

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

GENERAL NOTES:

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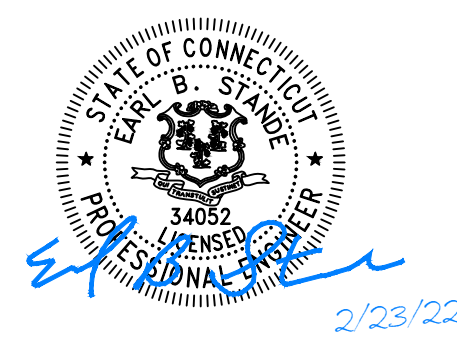


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BSP TJM KRK

RFDS REV #: 1

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A&E PROJECT NUMBER
EUC0309

DISH WIRELESS L.L.C.
PROJECT INFORMATION

NJJER01118B
30 OLIVER TERRACE
SHELTON, CT 06484

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

ELECTRICAL INSTALLATION NOTES:

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

16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD 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 CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3 (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR DISH WIRELESS L.L.C. AND TOWER OWNER BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH WIRELESS L.L.C."
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

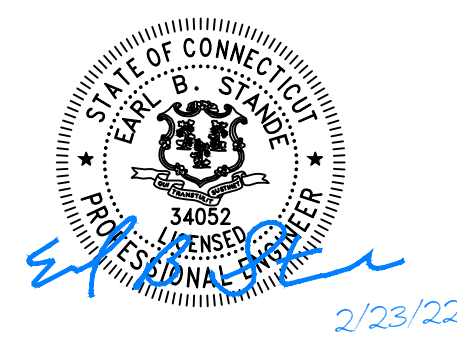


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DRAWN BY: CHECKED BY: APPROVED BY:

BSP	TJM	KRK
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RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
1	12/21/2021	ISSUED FOR CONSTRUCTION
2	02/23/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
EUCC0309

DISH WIRELESS L.L.C.
PROJECT INFORMATION

NJJER01118B
30 OLIVER TERRACE
SHELTON, CT 06484

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-3

GROUNDING NOTES:

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

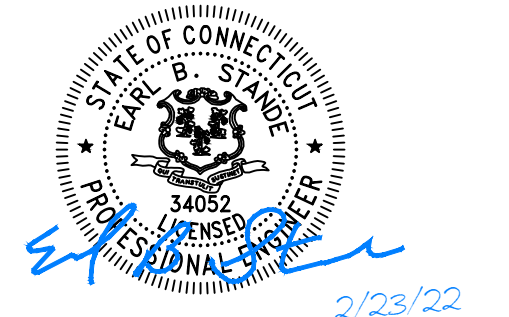


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RFDS REV #: 1

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EUCC0309

DISH WIRELESS L.L.C.
PROJECT INFORMATION

NJJER01118B
30 OLIVER TERRACE
SHELTON, CT 06484

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-4

Exhibit D

Structural Analysis Report

Date: **January 04, 2022**



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

Subject: **Structural Analysis Report**

Carrier Designation: **DISH Network Co-Locate**
Site Number: NJJER01118B

Crown Castle Designation: **BU Number:** 842873
Site Name: SHELTON NE
JDE Job Number: 685858
Work Order Number: 2062233
Order Number: 585945 Rev. 4

Engineering Firm Designation: **Crown Castle Project Number:** 2062233

Site Data: **30 Oliver Terrace, SHELTON, FAIRFIELD County, CT**
Latitude 41° 17' 38.21", Longitude -73° 6' 25.83"
140 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 – 94%

This analysis utilizes an ultimate 3-second gust wind speed of 119 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: Matthew Schmitt

Respectfully submitted by:

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

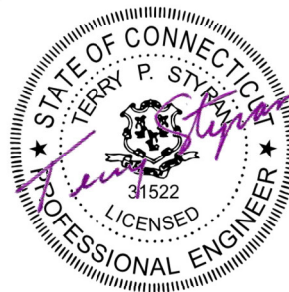


TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA

Table 1 - Proposed Equipment Configuration

Table 2 - Other Considered Equipment

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

3.1) Analysis Method

3.2) Assumptions

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Table 5 - 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 140 ft Monopole tower designed by FWT Inc. The tower has been modified multiple times to accommodate additional loading.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	119 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1 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)
108.0	108.0	3	fujitsu	TA08025-B604	1	1-1/2
		3	fujitsu	TA08025-B605		
		3	commscope	FFVV-65B-R2 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-PK8-DSH		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
138.0	145.0	1	andrew	DB636-C	8 2	1-5/8 1-1/4
		3	amphenol	BXA-80063-6BF-EDIN-4 w/ Mount Pipe		
	140.0	6	quintel technology	QS6656-5D w/ Mount Pipe		
		2	raycap	RRFDC-3315-PF-48		
		3	samsung telecommunications	MT6407-77A w/ Mount Pipe		
		3	samsung telecommunications	RFV01U-D1A		
		3	samsung telecommunications	RFV01U-D2A		
		138.0	1	Mount Reinforcement Spec		
	1		tower mounts	Platform Mount [LP 403-1]		
	1		Mount Reinforcement Spec	Site Pro 1 PRK-1245L		
127.0	129.0	3	cci antennas	DMP65R-BU6D w/ Mount Pipe	6	1-5/8
		3	cci antennas	TPA65R-BU6D_CCIV2 w/ Mount Pipe	1 6	7/8 13/16

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		3	ericsson	AIR 6419 B77G_CCIV3 w/ Mount Pipe	3	3/8
		3	ericsson	RADIO 4415 B30		
		3	ericsson	RRUS 32 B2		
		3	ericsson	RRUS 32 B66A		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 4478 B14_CCIV2		
		2	raycap	DC6-48-60-18-8F		
		1	raycap	DC9-48-60-24-8C-EV_CCIV2		
		127.0	1	tower mounts		
	125.0	3	ericsson	AIR 6449 B77D w/ Mount Pipe		
118.0	118.0	3	ericsson	AIR 32 B2A B66AA w/ Mount Pipe	18 1	1-5/8 1-3/8
		3	ericsson	AIR6449 B41 w/ Mount Pipe		
		3	ericsson	KRY 112 144/1		
		3	ericsson	KRY 112 489/2		
		3	ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		3	ericsson	RRUS 4415 B25		
		3	rfs celwave	APX16DWV-16DWVS-E-A20 w/ Mount Pipe		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		1	tower mounts	Miscellaneous [NA 507-1]		
		1	tower mounts	T-Arm Mount [TA 602-1_KCKR]		
73.0	75.0	3	alcatel lucent	1900MHZ 4X40W RRH	4	1-5/8
		3	alcatel lucent	RRH2X50-800		
		3	commscope	DT465B-2XR w/ Mount Pipe		
		3	nokia	FZHN		
		3	rfs celwave	APXVSP18-C-A20 w/ Mount Pipe		
		73.0	1	tower mounts		
50.0	50.0	1	pctel	GPS-TMG-HR-26NCM	1	1/2
		1	tower mounts	Pipe Mount [PM 601-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	4529442	CCISITES
4-POST-MODIFICATION INSPECTION	6231105	CCISITES
4-POST-MODIFICATION INSPECTION	6086125	CCISITES
4-POST-MODIFICATION INSPECTION	5994609	CCISITES

Document	Reference	Source
4-POST-MODIFICATION INSPECTION	5095590	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	4598376	CCISITES
4-TOWER MANUFACTURER DRAWINGS	4598387	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	6087139	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	5963243	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	5785413	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	5461043	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	5461041	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	4858944	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.

tnxTower was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the reinforcing elements. These calculations are presented in Appendix C.

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 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L1	140 - 135	Pole	TP14.296x13.161x0.1875	Pole	13.3%	Pass
L2	135 - 130	Pole	TP15.431x14.296x0.1875	Pole	24.8%	Pass
L3	130 - 125	Pole	TP16.566x15.431x0.1875	Pole	40.6%	Pass
L4	125 - 120	Pole	TP17.701x16.566x0.1875	Pole	55.5%	Pass
L5	120 - 115	Pole	TP18.836x17.701x0.1875	Pole	71.9%	Pass
L6	115 - 114.75	Pole + Reinf.	TP18.893x18.836x0.4625	Reinf. 9 Tension Rupture	52.9%	Pass
L7	114.75 - 109.75	Pole + Reinf.	TP20.027x18.893x0.45	Reinf. 9 Tension Rupture	65.4%	Pass
L8	109.75 - 104.75	Pole + Reinf.	TP21.162x20.027x0.425	Reinf. 9 Tension Rupture	78.4%	Pass
L9	104.75 - 101.58	Pole + Reinf.	TP21.882x21.162x0.4188	Reinf. 9 Tension Rupture	86.2%	Pass
L10	101.58 - 101.33	Pole	TP21.939x21.882x0.3125	Pole	65.5%	Pass
L11	101.33 - 96.33	Pole	TP23.074x21.939x0.3125	Pole	71.6%	Pass
L12	96.33 - 91.33	Pole	TP24.209x23.074x0.3125	Pole	76.5%	Pass
L13	91.33 - 91	Pole	TP24.284x24.209x0.3125	Pole	76.8%	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L14	91 - 90.75	Pole + Reinf.	TP24.34x24.284x0.6	Reinf. 8 Tension Rupture	66.4%	Pass
L15	90.75 - 85.75	Pole + Reinf.	TP25.475x24.34x0.5875	Reinf. 8 Tension Rupture	71.4%	Pass
L16	85.75 - 80.75	Pole + Reinf.	TP26.61x25.475x0.5625	Reinf. 8 Tension Rupture	75.9%	Pass
L17	80.75 - 75.75	Pole + Reinf.	TP27.745x26.61x0.55	Reinf. 8 Tension Rupture	79.8%	Pass
L18	75.75 - 70.75	Pole + Reinf.	TP28.88x27.745x0.5438	Reinf. 8 Tension Rupture	84.1%	Pass
L19	70.75 - 69.98	Pole + Reinf.	TP29.055x28.88x0.5313	Reinf. 3 Tension Rupture	88.5%	Pass
L20	69.98 - 69.73	Pole + Reinf.	TP29.112x29.055x0.5313	Reinf. 3 Tension Rupture	88.7%	Pass
L21	69.73 - 64.73	Pole + Reinf.	TP30.247x29.112x0.525	Reinf. 3 Tension Rupture	92.7%	Pass
L22	64.73 - 63	Pole + Reinf.	TP30.64x30.247x0.5188	Reinf. 3 Tension Rupture	94.0%	Pass
L23	63 - 62.75	Pole + Reinf.	TP30.696x30.64x0.7	Reinf. 3 Tension Rupture	72.5%	Pass
L24	62.75 - 59.08	Pole + Reinf.	TP31.53x30.696x0.6875	Reinf. 3 Tension Rupture	74.8%	Pass
L25	59.08 - 58.82	Pole + Reinf.	TP31.589x31.53x0.625	Reinf. 4 Tension Rupture	76.6%	Pass
L26	58.82 - 58.67	Pole + Reinf.	TP31.623x31.589x0.625	Reinf. 4 Tension Rupture	76.7%	Pass
L27	58.67 - 53.67	Pole + Reinf.	TP32.758x31.623x0.6125	Reinf. 4 Tension Rupture	79.5%	Pass
L28	53.67 - 53	Pole + Reinf.	TP33.913x32.758x0.6125	Reinf. 4 Tension Rupture	79.8%	Pass
L29	53 - 47.58	Pole + Reinf.	TP33.515x32.285x0.6375	Reinf. 2 Tension Rupture	84.7%	Pass
L30	47.58 - 42.58	Pole + Reinf.	TP34.65x33.515x0.625	Reinf. 2 Tension Rupture	87.2%	Pass
L31	42.58 - 39.67	Pole + Reinf.	TP35.311x34.65x0.6125	Reinf. 2 Tension Rupture	88.5%	Pass
L32	39.67 - 39.42	Pole + Reinf.	TP35.368x35.311x0.8125	Reinf. 2 Tension Rupture	68.7%	Pass
L33	39.42 - 34.42	Pole + Reinf.	TP36.503x35.368x0.7875	Reinf. 2 Tension Rupture	70.6%	Pass
L34	34.42 - 32.5	Pole + Reinf.	TP36.939x36.503x0.7875	Reinf. 2 Tension Rupture	71.3%	Pass
L35	32.5 - 32.25	Pole + Reinf.	TP36.995x36.939x0.6125	Reinf. 5 Tension Rupture	88.2%	Pass
L36	32.25 - 31.42	Pole + Reinf.	TP37.184x36.995x0.6	Reinf. 5 Tension Rupture	88.6%	Pass
L37	31.42 - 31.17	Pole + Reinf.	TP37.241x37.184x0.775	Reinf. 1 Tension Rupture	71.8%	Pass
L38	31.17 - 29	Pole + Reinf.	TP37.733x37.241x0.7625	Reinf. 1 Tension Rupture	72.5%	Pass
L39	29 - 28.65	Pole + Reinf.	TP37.813x37.733x0.675	Reinf. 1 Tension Rupture	86.3%	Pass
L40	28.65 - 28.42	Pole + Reinf.	TP37.865x37.813x0.675	Reinf. 1 Tension Rupture	86.4%	Pass
L41	28.42 - 23.5	Pole + Reinf.	TP38.982x37.865x0.6625	Reinf. 1 Tension Rupture	88.1%	Pass
L42	23.5 - 23.25	Pole + Reinf.	TP39.039x38.982x0.7875	Reinf. 1 Tension Rupture	72.1%	Pass
L43	23.25 - 23	Pole + Reinf.	TP39.095x39.039x0.7875	Reinf. 1 Tension Rupture	72.1%	Pass
L44	23 - 22.75	Pole + Reinf.	TP39.152x39.095x0.65	Reinf. 1 Tension Rupture	87.6%	Pass
L45	22.75 - 17.75	Pole + Reinf.	TP40.287x39.152x0.6375	Reinf. 1 Tension Rupture	89.2%	Pass
L46	17.75 - 12.75	Pole + Reinf.	TP41.422x40.287x0.625	Reinf. 1 Tension Rupture	90.7%	Pass
L47	12.75 - 7.75	Pole + Reinf.	TP42.558x41.422x0.6125	Reinf. 1 Tension Rupture	92.0%	Pass
L48	7.75 - 2.75	Pole + Reinf.	TP43.693x42.558x0.6	Reinf. 1 Tension Rupture	93.3%	Pass
L49	2.75 - 0	Pole + Reinf.	TP44.317x43.693x0.6	Reinf. 1 Tension Rupture	93.9%	Pass
					Summary	
				Pole	76.8%	Pass
				Reinforcement	94.0%	Pass
				Overall	94.0%	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Flange Bolts	101.58	92.4	Pass
1	Flange Plate	101.58	59.5	Pass
1	Anchor Rods	0	75.2	Pass
1	Base Plate	0	64.3	Pass
1	Base Foundation (Structure)	0	66.8	Pass
1	Base Foundation (Soil Interaction)	0	78.2	Pass

Structure Rating (max from all components) =	94%
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Notes:

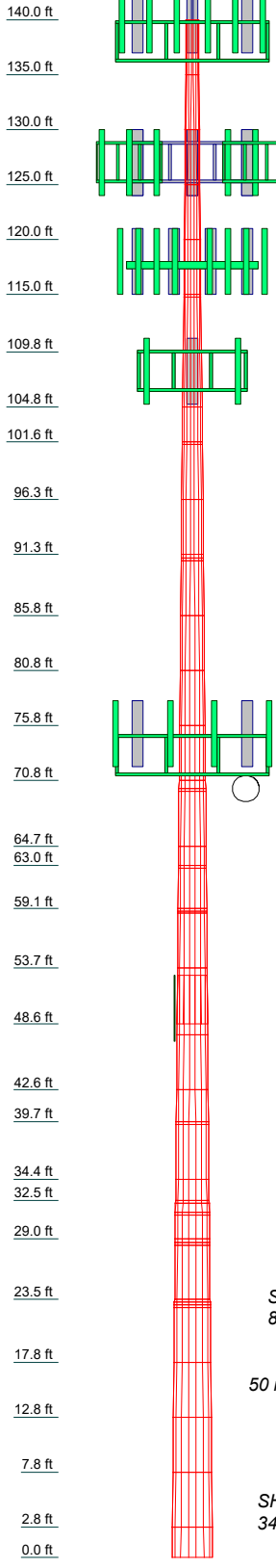
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

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

APPENDIX A
TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.000	18	0.188		13.161	14.296	0.1	0.1
2	5.000	18	0.188		15.431	16.566	0.1	0.1
3	5.000	18	0.188		17.701	19.971	0.2	0.2
4	5.000	18	0.188		20.071	23.521	0.2	0.2
5	5.000	18	0.188		23.671	27.271	0.2	0.2
6	5.000	18	0.188		27.501	31.251	0.2	0.2
7	5.000	18	0.188		31.561	35.461	0.2	0.2
8	5.000	18	0.188		35.851	40.001	0.2	0.2
9	5.000	18	0.188		40.371	44.871	0.2	0.2
10	5.000	18	0.188		45.221	50.081	0.2	0.2
11	5.000	18	0.188		50.401	55.641	0.2	0.2
12	5.000	18	0.188		55.811	61.561	0.2	0.2
13	5.000	18	0.188		61.451	67.841	0.2	0.2
14	5.000	18	0.188		67.311	74.481	0.2	0.2
15	5.000	18	0.188		73.391	81.491	0.2	0.2
16	5.000	18	0.188		79.691	88.871	0.2	0.2
17	5.000	18	0.188		86.211	96.621	0.2	0.2
18	5.000	18	0.188		92.951	104.741	0.2	0.2
19	5.000	18	0.188		99.911	113.231	0.2	0.2
20	5.000	18	0.188		107.091	122.091	0.2	0.2
21	5.000	18	0.188		114.491	131.321	0.2	0.2
22	5.000	18	0.188		122.111	140.921	0.2	0.2
23	5.000	18	0.188		130.051	150.891	0.2	0.2
24	5.000	18	0.188		138.311	161.231	0.2	0.2
25	5.000	18	0.188		146.891	171.941	0.2	0.2
26	5.000	18	0.188		155.791	183.021	0.2	0.2
27	5.000	18	0.188		165.011	194.471	0.2	0.2
28	5.000	18	0.188		174.551	206.291	0.2	0.2
29	5.000	18	0.188		184.411	218.481	0.2	0.2
30	5.000	18	0.188		194.591	231.041	0.2	0.2
31	5.000	18	0.188		205.091	243.971	0.2	0.2
32	5.000	18	0.188		215.911	257.271	0.2	0.2
33	5.000	18	0.188		227.051	270.941	0.2	0.2
34	5.000	18	0.188		238.511	284.981	0.2	0.2
35	5.000	18	0.188		250.291	299.391	0.2	0.2
36	5.000	18	0.188		262.391	314.171	0.2	0.2
37	5.000	18	0.188		274.811	329.321	0.2	0.2
38	5.000	18	0.188		287.551	344.841	0.2	0.2
39	5.000	18	0.188		300.611	360.731	0.2	0.2
40	5.000	18	0.188		314.001	377.001	0.2	0.2
41	5.000	18	0.188		327.721	393.641	0.2	0.2
42	5.000	18	0.188		341.771	410.651	0.2	0.2
43	5.000	18	0.188		356.151	428.041	0.2	0.2
44	5.000	18	0.188		370.871	445.811	0.2	0.2
45	5.000	18	0.188		385.931	463.961	0.2	0.2
46	5.000	18	0.188		401.341	482.491	0.2	0.2
47	5.000	18	0.188		417.101	501.401	0.2	0.2
48	5.000	18	0.188		433.221	520.691	0.2	0.2
49	2.750	18	0.600	4.420	449.691	540.361	0.8	0.8
50	2.750	18	0.600	4.420	466.441	560.401	0.8	0.8



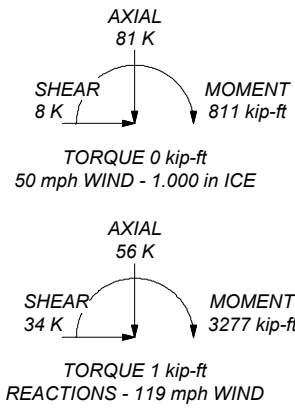
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 119 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 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 0.000 ft
8. TOWER RATING: 94%

ALL REACTIONS ARE FACTORED



CROWN CASTLE
 The Foundation for a Wireless World
 2000 Corporate Drive
 Canonsburg, PA 15317
 Phone: (724) 416-2000
 FAX:

Job: BU# 842873			
Project:			
Client: Crown Castle	Drawn by: Matthew Schmitt	App'd:	
Code: TIA-222-H	Date: 01/05/22	Scale: NTS	
Path: C:\Work Area\842873\WO 2062233 - SA\Prod\842873 R.eri		Dwg No. E-1	

Tower Input Data

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

- 1) Tower is located in Fairfield County, Connecticut.
- 2) Tower base elevation above sea level: 311.000 ft.
- 3) Basic wind speed of 119 mph.
- 4) Risk Category II.
- 5) Exposure Category B.
- 6) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- 7) Topographic Category: 1.
- 8) Crest Height: 0.000 ft.
- 9) Nominal ice thickness of 1.000 in.
- 10) Ice thickness is considered to increase with height.
- 11) Ice density of 56.000 pcf.
- 12) A wind speed of 50 mph is used in combination with ice.
- 13) Temperature drop of 50.000 °F.
- 14) Deflections calculated using a wind speed of 60 mph.
- 15) A non-linear (P-delta) analysis was used.
- 16) Pressures are calculated at each section.
- 17) Stress ratio used in pole design is 1.
- 18) Tower analysis based on target reliabilities in accordance with Annex S.
- 19) Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- 20) Maximum demand-capacity ratio is: 1.05.
- 21) 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
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Tapered Pole Section Geometry

Section	Elevation	Section Length	Splice Length	Number of Sides	Top Diameter	Bottom Diameter	Wall Thickness	Bend Radius	Pole Grade
	ft	ft	ft		in	in	in	in	

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	140.000-135.000	5.000	0.000	18	13.161	14.296	0.188	0.750	A572-65 (65 ksi)
L2	135.000-130.000	5.000	0.000	18	14.296	15.431	0.188	0.750	A572-65 (65 ksi)
L3	130.000-125.000	5.000	0.000	18	15.431	16.566	0.188	0.750	A572-65 (65 ksi)
L4	125.000-120.000	5.000	0.000	18	16.566	17.701	0.188	0.750	A572-65 (65 ksi)
L5	120.000-115.000	5.000	0.000	18	17.701	18.836	0.188	0.750	A572-65 (65 ksi)
L6	115.000-114.750	0.250	0.000	18	18.836	18.893	0.463	1.850	A572-65 (65 ksi)
L7	114.750-109.750	5.000	0.000	18	18.893	20.027	0.450	1.800	A572-65 (65 ksi)
L8	109.750-104.750	5.000	0.000	18	20.027	21.162	0.425	1.700	A572-65 (65 ksi)
L9	104.750-101.580	3.170	0.000	18	21.162	21.882	0.419	1.675	A572-65 (65 ksi)
L10	101.580-101.330	0.250	0.000	18	21.882	21.939	0.313	1.250	A572-65 (65 ksi)
L11	101.330-96.330	5.000	0.000	18	21.939	23.074	0.313	1.250	A572-65 (65 ksi)
L12	96.330-91.330	5.000	0.000	18	23.074	24.209	0.313	1.250	A572-65 (65 ksi)
L13	91.330-91.000	0.330	0.000	18	24.209	24.284	0.313	1.250	A572-65 (65 ksi)
L14	91.000-90.750	0.250	0.000	18	24.284	24.340	0.600	2.400	A572-65 (65 ksi)
L15	90.750-85.750	5.000	0.000	18	24.340	25.475	0.588	2.350	A572-65 (65 ksi)
L16	85.750-80.750	5.000	0.000	18	25.475	26.610	0.563	2.250	A572-65 (65 ksi)
L17	80.750-75.750	5.000	0.000	18	26.610	27.745	0.550	2.200	A572-65 (65 ksi)
L18	75.750-70.750	5.000	0.000	18	27.745	28.880	0.544	2.175	A572-65 (65 ksi)
L19	70.750-69.980	0.770	0.000	18	28.880	29.055	0.531	2.125	A572-65 (65 ksi)
L20	69.980-69.730	0.250	0.000	18	29.055	29.112	0.531	2.125	A572-65 (65 ksi)
L21	69.730-64.730	5.000	0.000	18	29.112	30.247	0.525	2.100	A572-65 (65 ksi)
L22	64.730-63.000	1.730	0.000	18	30.247	30.640	0.519	2.075	A572-65 (65 ksi)
L23	63.000-62.750	0.250	0.000	18	30.640	30.696	0.700	2.800	A572-65 (65 ksi)
L24	62.750-59.080	3.670	0.000	18	30.696	31.529	0.688	2.750	A572-65 (65 ksi)
L25	59.080-58.820	0.260	0.000	18	31.529	31.589	0.625	2.500	A572-65 (65 ksi)
L26	58.820-58.670	0.150	0.000	18	31.589	31.623	0.625	2.500	A572-65 (65 ksi)
L27	58.670-53.670	5.000	0.000	18	31.623	32.758	0.613	2.450	A572-65 (65 ksi)
L28	53.670-48.580	5.090	4.420	18	32.758	33.913	0.613	2.450	A572-65 (65 ksi)
L29	48.580-47.580	5.420	0.000	18	32.285	33.515	0.637	2.550	A572-65 (65 ksi)
L30	47.580-42.580	5.000	0.000	18	33.515	34.650	0.625	2.500	A572-65 (65 ksi)
L31	42.580-39.670	2.910	0.000	18	34.650	35.311	0.613	2.450	A572-65 (65 ksi)
L32	39.670-39.420	0.250	0.000	18	35.311	35.368	0.813	3.250	A572-65 (65 ksi)
L33	39.420-34.420	5.000	0.000	18	35.368	36.503	0.787	3.150	A572-65 (65 ksi)
L34	34.420-32.500	1.920	0.000	18	36.503	36.939	0.787	3.150	A572-65 (65 ksi)
L35	32.500-32.250	0.250	0.000	18	36.939	36.995	0.613	2.450	A572-65

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
L36	32.250-31.420	0.830	0.000	18	36.995	37.184	0.600	2.400	(65 ksi) A572-65
L37	31.420-31.170	0.250	0.000	18	37.184	37.241	0.775	3.100	(65 ksi) A572-65
L38	31.170-29.000	2.170	0.000	18	37.241	37.733	0.762	3.050	(65 ksi) A572-65
L39	29.000-28.650	0.350	0.000	18	37.733	37.813	0.675	2.700	(65 ksi) A572-65
L40	28.650-28.420	0.230	0.000	18	37.813	37.865	0.675	2.700	(65 ksi) A572-65
L41	28.420-23.500	4.920	0.000	18	37.865	38.982	0.662	2.650	(65 ksi) A572-65
L42	23.500-23.250	0.250	0.000	18	38.982	39.039	0.787	3.150	(65 ksi) A572-65
L43	23.250-23.000	0.250	0.000	18	39.039	39.095	0.787	3.150	(65 ksi) A572-65
L44	23.000-22.750	0.250	0.000	18	39.095	39.152	0.650	2.600	(65 ksi) A572-65
L45	22.750-17.750	5.000	0.000	18	39.152	40.287	0.637	2.550	(65 ksi) A572-65
L46	17.750-12.750	5.000	0.000	18	40.287	41.422	0.625	2.500	(65 ksi) A572-65
L47	12.750-7.750	5.000	0.000	18	41.422	42.558	0.613	2.450	(65 ksi) A572-65
L48	7.750-2.750	5.000	0.000	18	42.558	43.693	0.600	2.400	(65 ksi) A572-65
L49	2.750-0.000	2.750		18	43.693	44.317	0.600	2.400	(65 ksi) A572-65

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	13.335	7.721	164.179	4.606	6.686	24.556	328.574	3.861	1.986	10.594
	14.488	8.396	211.147	5.009	7.262	29.074	422.571	4.199	2.186	11.659
L2	14.488	8.396	211.147	5.009	7.262	29.074	422.571	4.199	2.186	11.659
	15.640	9.072	266.313	5.411	7.839	33.973	532.976	4.537	2.386	12.724
L3	15.640	9.072	266.313	5.411	7.839	33.973	532.976	4.537	2.386	12.724
	16.792	9.747	330.337	5.814	8.415	39.254	661.109	4.875	2.586	13.79
L4	16.792	9.747	330.337	5.814	8.415	39.254	661.109	4.875	2.586	13.79
	17.945	10.423	403.879	6.217	8.992	44.915	808.290	5.212	2.785	14.855
L5	17.945	10.423	403.879	6.217	8.992	44.915	808.290	5.212	2.785	14.855
	19.097	11.098	487.598	6.620	9.569	50.958	975.838	5.550	2.985	15.921
L6	19.055	26.972	1150.313	6.523	9.569	120.218	2302.140	13.488	2.501	5.408
	19.113	27.055	1161.005	6.543	9.597	120.971	2323.537	13.530	2.511	5.429
L7	19.115	26.341	1131.926	6.547	9.597	117.941	2265.342	13.173	2.533	5.629
	20.267	27.963	1354.027	6.950	10.174	133.088	2709.836	13.984	2.733	6.073
L8	20.271	26.443	1283.709	6.959	10.174	126.176	2569.107	13.224	2.777	6.534
	21.423	27.974	1519.843	7.362	10.751	141.374	3041.685	13.990	2.977	7.004
L9	21.424	27.571	1498.846	7.364	10.751	139.421	2999.665	13.788	2.988	7.135
	22.155	28.527	1660.296	7.619	11.116	149.360	3322.778	14.266	3.114	7.437
L10	22.171	21.394	1257.519	7.657	11.116	113.126	2516.693	10.699	3.301	10.564
	22.229	21.451	1267.471	7.677	11.145	113.727	2536.610	10.727	3.311	10.596
L11	22.229	21.451	1267.471	7.677	11.145	113.727	2536.610	10.727	3.311	10.596
	23.381	22.576	1477.688	8.080	11.721	126.067	2957.320	11.290	3.511	11.235
L12	23.381	22.576	1477.688	8.080	11.721	126.067	2957.320	11.290	3.511	11.235
	24.534	23.702	1709.951	8.483	12.298	139.043	3422.152	11.853	3.711	11.874
L13	24.534	23.702	1709.951	8.483	12.298	139.043	3422.152	11.853	3.711	11.874
	24.610	23.776	1726.082	8.510	12.336	139.921	3454.436	11.890	3.724	11.917
L14	24.566	45.103	3196.260	8.408	12.336	259.098	6396.725	22.556	3.218	5.363
	24.623	45.211	3219.291	8.428	12.365	260.357	6442.819	22.610	3.228	5.38
L15	24.625	44.293	3157.205	8.432	12.365	255.335	6318.563	22.151	3.250	5.532
	25.778	46.409	3631.763	8.835	12.942	280.629	7268.305	23.209	3.450	5.872
L16	25.782	44.479	3487.709	8.844	12.942	269.498	6980.008	22.244	3.494	6.211

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L17	26.934	46.505	3986.443	9.247	13.518	294.897	7978.131	23.257	3.693	6.566
	26.936	45.494	3903.470	9.251	13.518	288.759	7812.075	22.751	3.715	6.755
	28.089	47.475	4436.024	9.654	14.095	314.731	8877.885	23.742	3.915	7.119
L18	28.090	46.946	4388.639	9.657	14.095	311.369	8783.053	23.478	3.926	7.221
	29.242	48.905	4961.233	10.060	14.671	338.160	9928.994	24.457	4.126	7.588
L19	29.244	47.802	4853.599	10.064	14.671	330.824	9713.585	23.906	4.148	7.808
	29.421	48.097	4943.930	10.126	14.760	334.954	9894.365	24.053	4.179	7.866
L20	29.421	48.097	4943.930	10.126	14.760	334.954	9894.365	24.053	4.179	7.866
	29.479	48.192	4973.497	10.146	14.789	336.300	9953.539	24.101	4.189	7.885
L21	29.480	47.636	4918.211	10.148	14.789	332.562	9842.893	23.822	4.200	7.999
	30.633	49.527	5527.587	10.551	15.365	359.741	11062.447	24.768	4.399	8.38
L22	30.634	48.948	5465.229	10.554	15.365	355.683	10937.648	24.479	4.410	8.502
	31.032	49.594	5684.689	10.693	15.565	365.224	11376.859	24.802	4.480	8.635
L23	31.004	66.520	7533.261	10.629	15.565	483.989	15076.434	33.266	4.161	5.944
	31.062	66.646	7576.180	10.649	15.594	485.846	15162.328	33.329	4.171	5.958
L24	31.064	65.483	7450.197	10.653	15.594	477.767	14910.197	32.748	4.193	6.098
	31.910	67.301	8088.066	10.949	16.017	504.968	16186.774	33.657	4.339	6.312
L25	31.919	61.307	7397.578	10.971	16.017	461.858	14804.890	30.659	4.449	7.119
	31.979	61.424	7440.042	10.992	16.047	463.642	14889.873	30.718	4.460	7.135
L26	31.979	61.424	7440.042	10.992	16.047	463.642	14889.873	30.718	4.460	7.135
	32.014	61.491	7464.614	11.004	16.064	464.672	14939.050	30.752	4.466	7.145
L27	32.016	60.286	7324.175	11.009	16.064	455.930	14657.987	30.149	4.488	7.327
	33.168	62.492	8158.186	11.411	16.641	490.251	16327.106	31.252	4.687	7.653
	33.168	62.492	8158.186	11.411	16.641	490.251	16327.106	31.252	4.687	7.653
L28	34.342	64.739	9069.905	11.822	17.228	526.469	18151.744	32.375	4.891	7.985
	33.703	64.036	8102.682	11.235	16.401	494.048	16216.026	32.024	4.560	7.153
L29	33.934	66.525	9085.030	11.672	17.026	533.607	18182.014	33.269	4.777	7.493
	33.936	65.246	8917.055	11.676	17.026	523.741	17845.843	32.629	4.799	7.678
L30	35.088	67.498	9872.539	12.079	17.602	560.865	19758.069	33.755	4.998	7.998
	35.090	66.172	9685.755	12.083	17.602	550.254	19384.255	33.092	5.020	8.197
L31	35.761	67.456	10260.749	12.318	17.938	572.014	20535.000	33.735	5.137	8.386
	35.730	88.967	13377.189	12.247	17.938	745.748	26771.980	44.492	4.785	5.889
L32	35.788	89.113	13443.321	12.267	17.967	748.232	26904.332	44.565	4.795	5.901
	35.792	86.434	13057.981	12.276	17.967	726.785	26133.145	43.225	4.839	6.144
L33	36.944	89.271	14386.577	12.679	18.543	775.832	28792.084	44.644	5.038	6.398
	36.944	89.271	14386.577	12.679	18.543	775.832	28792.084	44.644	5.038	6.398
L34	37.387	90.361	14919.776	12.834	18.765	795.092	29859.183	45.189	5.115	6.496
	37.414	70.621	11773.608	12.896	18.765	627.429	23562.709	35.317	5.423	8.854
L35	37.472	70.731	11828.881	12.916	18.794	629.407	23673.326	35.372	5.433	8.871
	37.474	69.311	11599.422	12.920	18.794	617.198	23214.108	34.662	5.455	9.092
L36	37.665	69.670	11780.519	12.987	18.889	623.658	23576.539	34.842	5.488	9.147
	37.638	89.560	14999.181	12.925	18.889	794.053	30018.097	44.789	5.180	6.684
L37	37.696	89.700	15069.434	12.945	18.918	796.556	30158.698	44.859	5.190	6.697
	37.697	88.283	14841.631	12.950	18.918	784.515	29702.791	44.150	5.212	6.836
L38	38.198	89.476	15451.107	13.125	19.168	806.068	30922.545	44.746	5.299	6.95
	38.211	79.395	13775.376	13.156	19.168	718.647	27568.878	39.705	5.453	8.079
L39	38.292	79.566	13864.176	13.184	19.209	721.759	27746.595	39.790	5.467	8.099
	38.292	79.566	13864.176	13.184	19.209	721.759	27746.595	39.790	5.467	8.099
L40	38.345	79.678	13922.738	13.202	19.235	723.808	27863.796	39.846	5.476	8.113
	38.347	78.228	13678.693	13.207	19.235	711.121	27375.385	39.122	5.498	8.299
L41	39.481	80.577	14948.119	13.603	19.803	754.848	29915.908	40.296	5.695	8.596
	39.462	95.468	17595.200	13.559	19.803	888.520	35213.553	47.743	5.475	6.952
L42	39.519	95.610	17673.755	13.579	19.832	891.190	35370.766	47.814	5.485	6.965
	39.519	95.610	17673.755	13.579	19.832	891.190	35370.766	47.814	5.485	6.965
L43	39.577	95.752	17752.545	13.599	19.860	893.863	35528.449	47.885	5.495	6.978
	39.598	79.317	14811.244	13.648	19.860	745.765	29641.976	39.666	5.737	8.826
L44	39.656	79.434	14876.937	13.668	19.889	747.987	29773.449	39.724	5.747	8.841
	39.658	77.932	14605.058	13.673	19.889	734.317	29229.333	38.973	5.769	9.049
L45	40.810	80.228	15934.836	14.076	20.466	778.602	31890.639	40.122	5.969	9.362
	40.812	78.680	15637.168	14.080	20.466	764.058	31294.912	39.348	5.991	9.585
L46	41.965	80.932	17018.557	14.483	21.043	808.767	34059.508	40.474	6.190	9.905
	41.967	79.338	16693.521	14.488	21.043	793.321	33409.008	39.676	6.212	10.143
L47	43.120	81.544	18125.615	14.890	21.619	838.402	36275.079	40.780	6.412	10.469
	43.122	79.904	17771.583	14.895	21.619	822.026	35566.550	39.960	6.434	10.724
L48	44.274	82.066	19253.344	15.298	22.196	867.429	38532.022	41.041	6.634	11.057
	44.274	82.066	19253.344	15.298	22.196	867.429	38532.022	41.041	6.634	11.057
L49	44.908	83.255	20102.343	15.520	22.513	892.920	40231.137	41.635	6.744	11.24

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_r	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft ²	in							
L1 140.000-135.000				1	1	1			
L2 135.000-130.000				1	1	1			
L3 130.000-125.000				1	1	1			
L4 125.000-120.000				1	1	1			
L5 120.000-115.000				1	1	1			
L6 115.000-114.750				1	1	0.910459			
L7 114.750-109.750				1	1	0.90506			
L8 109.750-104.750				1	1	0.928842			
L9 104.750-101.580				1	1	0.925837			
L10 101.580-101.330				1	1	1			
L11 101.330-96.330				1	1	1			
L12 96.330-91.330				1	1	1			
L13 91.330-91.000				1	1	1			
L14 91.000-90.750				1	1	0.925286			
L15 90.750-85.750				1	1	0.925661			
L16 85.750-80.750				1	1	0.947954			
L17 80.750-75.750				1	1	0.952304			
L18 75.750-70.750				1	1	0.947475			
L19 70.750-69.980				1	1	0.951412			
L20 69.980-69.730				1	1	0.950691			
L21 69.730-64.730				1	1	0.9478			
L22 64.730-63.000				1	1	0.954368			
L23 63.000-62.750				1	1	0.981128			
L24 62.750-59.080				1	1	0.983857			
L25 59.080-58.820				1	1	0.999823			
L26 58.820-58.670				1	1	0.999274			
L27 58.670-53.670				1	1	1.00128			
L28 53.670-48.580				1	1	0.99897			
L29 48.580-47.580				1	1	0.940602			
L30 47.580-42.580				1	1	0.943735			
L31 42.580-39.670				1	1	0.954027			
L32 39.670-39.420				1	1	0.924799			
L33 39.420-34.420				1	1	0.935777			
L34 34.420-				1	1	0.929278			

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_r	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft ²	in							
32.500									
L35 32.500-32.250				1	1	0.944082			
L36 32.250-31.420				1	1	0.961139			
L37 31.420-31.170				1	1	0.939463			
L38 31.170-29.000				1	1	0.947279			
L39 29.000-28.650				1	1	0.990842			
L40 28.650-28.420				1	1	0.990101			
L41 28.420-23.500				1	1	0.992797			
L42 23.500-23.250				1	1	1.02556			
L43 23.250-23.000				1	1	1.02463			
L44 23.000-22.750				1	1	1.08475			
L45 22.750-17.750				1	1	1.08804			
L46 17.750-12.750				1	1	1.09249			
L47 12.750-7.750				1	1	1.0981			
L48 7.750-2.750				1	1	1.10484			
L49 2.750-0.000				1	1	1.0965			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight kif
5.75" x 1" Flat Plate	A	No	Surface Af (CaAa)	33.330 - 0.500	1	1	0.500	5.750	13.500	0.000
5.75" x 1" Flat Plate	B	No	Surface Af (CaAa)	33.330 - 0.500	1	1	0.500	5.750	13.500	0.000
5.75" x 1" Flat Plate	C	No	Surface Af (CaAa)	33.330 - 0.500	1	1	0.500	5.750	13.500	0.000
5.75" x 1" Flat Plate	A	No	Surface Af (CaAa)	50.580 - 30.580	1	1	-0.300	5.750	13.500	0.000
5.75" x 1" Flat Plate	B	No	Surface Af (CaAa)	50.580 - 30.580	1	1	-0.300	5.750	13.500	0.000
5.75" x 1" Flat Plate	C	No	Surface Af (CaAa)	50.580 - 30.580	1	1	-0.300	5.750	13.500	0.000
5.75" x 1" Flat Plate	A	No	Surface Af (CaAa)	72.000 - 57.000	1	1	-0.300	5.750	13.500	0.000
5.75" x 1" Flat Plate	B	No	Surface Af (CaAa)	72.000 - 57.000	1	1	-0.300	5.750	13.500	0.000
5.75" x 1" Flat Plate	C	No	Surface Af (CaAa)	72.000 - 57.000	1	1	-0.300	5.750	13.500	0.000
*										
MP3-04	A	No	Surface Af (CaAa)	60.500 - 0.500	1	1	0.000	4.780	12.780	0.000
MP3-04	B	No	Surface Af (CaAa)	60.500 - 0.500	1	1	0.000	4.780	12.780	0.000
MP3-04	C	No	Surface Af (CaAa)	60.500 - 0.500	1	1	0.000	4.780	12.780	0.000

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
*										
CCI-65FP-060100	A	No	Surface Af (CaAa)	41.670 - 26.670	1	1	0.000 0.000	6.000	14.000	0.000
CCI-65FP-060100	B	No	Surface Af (CaAa)	41.670 - 26.670	1	1	0.000 0.000	6.000	14.000	0.000
CCI-65FP-060100	C	No	Surface Af (CaAa)	41.670 - 26.670	1	1	0.000 0.000	6.000	14.000	0.000
*										
CCI-65FP-060100	A	No	Surface Af (CaAa)	25.500 - 0.500	1	1	0.000 0.000	6.000	14.000	0.000
CCI-65FP-060100	B	No	Surface Af (CaAa)	25.500 - 0.500	1	1	0.000 0.000	6.000	14.000	0.000
CCI-65FP-060100	C	No	Surface Af (CaAa)	25.500 - 0.500	1	1	0.000 0.000	6.000	14.000	0.000
CCI-65FP-060100	A	No	Surface Af (CaAa)	65.000 - 50.000	1	1	0.000 0.000	6.000	14.000	0.000
CCI-65FP-060100	B	No	Surface Af (CaAa)	65.000 - 50.000	1	1	0.000 0.000	6.000	14.000	0.000
CCI-65FP-060100	C	No	Surface Af (CaAa)	65.000 - 50.000	1	1	0.000 0.000	6.000	14.000	0.000
CCI-65FP-060100	A	No	Surface Af (CaAa)	93.000 - 68.000	1	1	0.000 0.000	6.000	14.000	0.000
CCI-65FP-060100	B	No	Surface Af (CaAa)	93.000 - 68.000	1	1	0.000 0.000	6.000	14.000	0.000
CCI-65FP-060100	C	No	Surface Af (CaAa)	93.000 - 68.000	1	1	0.000 0.000	6.000	14.000	0.000
CCI-65FP-045100	A	No	Surface Af (CaAa)	117.000 - 102.000	1	1	0.300 0.300	4.500	11.000	0.000
CCI-65FP-045100	B	No	Surface Af (CaAa)	117.000 - 102.000	1	1	0.300 0.300	4.500	11.000	0.000
CCI-65FP-045100	C	No	Surface Af (CaAa)	117.000 - 102.000	1	1	0.300 0.300	4.500	11.000	0.000
*										
CCI-65FP-060100	A	No	Surface Af (CaAa)	31.000 - 21.000	1	1	-0.200 -0.200	6.000	14.000	0.000
CCI-65FP-060100	C	No	Surface Af (CaAa)	31.000 - 21.000	1	1	-0.200 -0.200	6.000	14.000	0.000
HB158-21U6S12-XXXM-01(1-5/8)	C	No	Surface Ar (CaAa)	138.000 - 0.000	1	1	0.000 0.040	1.990		0.002
LDF7-50A(1-5/8)	C	No	Surface Ar (CaAa)	118.000 - 0.000	19	6	-0.490 -0.150	1.980		0.001

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 klf

LDF7-50A(1-5/8)	C	No	No	Inside Pole	138.000 - 0.000	6	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.001 0.001 0.001
HB158-21U6S12-XXXM-01(1-5/8)	C	No	No	Inside Pole	138.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.002 0.002 0.002
AVA6-50(1-1/4)	C	No	No	Inside Pole	138.000 - 0.000	2	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000
*									
PWRT-606-S(7/8)	A	No	No	Inside Pole	127.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.001 0.001 0.001
PWRT-608-	A	No	No	Inside Pole	127.000 -	6	No Ice	0.000	0.001

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight klf
S(13/16)					0.000		1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
FB-L98B-235-XXX(3/8)	A	No	No	Inside Pole	127.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
AL7-50(1-5/8)	A	No	No	Inside Pole	127.000 - 0.000	6	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
FB-L98B-034-XXX(3/8)	A	No	No	Inside Pole	127.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
FB-L98B-034-XXXXXX(3/8)	A	No	No	Inside Pole	127.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
*									
CU12PSM9P6XXX (1-1/2)	B	No	No	Inside Pole	108.000 - 0.000	1	No Ice	0.000	0.002
							1/2" Ice	0.000	0.002
							1" Ice	0.000	0.002
*									
HB158-21U6M48-30F(1-5/8)	A	No	No	Inside Pole	73.000 - 0.000	4	No Ice	0.000	0.002
							1/2" Ice	0.000	0.002
							1" Ice	0.000	0.002
*									
LDF4-50A(1/2)	A	No	No	Inside Pole	50.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	140.000-135.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.597	0.000	0.029
L2	135.000-130.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.995	0.000	0.048
L3	130.000-125.000	A	0.000	0.000	0.000	0.000	0.016
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.995	0.000	0.048
L4	125.000-120.000	A	0.000	0.000	0.000	0.000	0.039
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.995	0.000	0.048
L5	120.000-115.000	A	0.000	0.000	1.500	0.000	0.039
		B	0.000	0.000	1.500	0.000	0.000
		C	0.000	0.000	6.059	0.000	0.095
L6	115.000-114.750	A	0.000	0.000	0.188	0.000	0.002
		B	0.000	0.000	0.188	0.000	0.000
		C	0.000	0.000	0.534	0.000	0.006
L7	114.750-109.750	A	0.000	0.000	3.750	0.000	0.039
		B	0.000	0.000	3.750	0.000	0.000
		C	0.000	0.000	10.685	0.000	0.126
L8	109.750-104.750	A	0.000	0.000	3.750	0.000	0.039
		B	0.000	0.000	3.750	0.000	0.008
		C	0.000	0.000	10.685	0.000	0.126
L9	104.750-101.580	A	0.000	0.000	2.063	0.000	0.025
		B	0.000	0.000	2.063	0.000	0.007
		C	0.000	0.000	6.459	0.000	0.080
L10	101.580-101.330	A	0.000	0.000	0.000	0.000	0.002
		B	0.000	0.000	0.000	0.000	0.001

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L11	101.330-96.330	C	0.000	0.000	0.347	0.000	0.006
		A	0.000	0.000	0.000	0.000	0.039
		B	0.000	0.000	0.000	0.000	0.012
L12	96.330-91.330	C	0.000	0.000	6.935	0.000	0.126
		A	0.000	0.000	1.670	0.000	0.039
		B	0.000	0.000	1.670	0.000	0.012
L13	91.330-91.000	C	0.000	0.000	8.605	0.000	0.126
		A	0.000	0.000	0.330	0.000	0.003
		B	0.000	0.000	0.330	0.000	0.001
L14	91.000-90.750	C	0.000	0.000	0.788	0.000	0.008
		A	0.000	0.000	0.250	0.000	0.002
		B	0.000	0.000	0.250	0.000	0.001
L15	90.750-85.750	C	0.000	0.000	0.597	0.000	0.006
		A	0.000	0.000	5.000	0.000	0.039
		B	0.000	0.000	5.000	0.000	0.012
L16	85.750-80.750	C	0.000	0.000	11.935	0.000	0.126
		A	0.000	0.000	5.000	0.000	0.039
		B	0.000	0.000	5.000	0.000	0.012
L17	80.750-75.750	C	0.000	0.000	11.935	0.000	0.126
		A	0.000	0.000	5.000	0.000	0.039
		B	0.000	0.000	5.000	0.000	0.012
L18	75.750-70.750	C	0.000	0.000	11.935	0.000	0.126
		A	0.000	0.000	6.198	0.000	0.061
		B	0.000	0.000	6.198	0.000	0.012
L19	70.750-69.980	C	0.000	0.000	13.133	0.000	0.126
		A	0.000	0.000	1.508	0.000	0.013
		B	0.000	0.000	1.508	0.000	0.002
L20	69.980-69.730	C	0.000	0.000	2.576	0.000	0.019
		A	0.000	0.000	0.490	0.000	0.004
		B	0.000	0.000	0.490	0.000	0.001
L21	69.730-64.730	C	0.000	0.000	0.836	0.000	0.006
		A	0.000	0.000	6.792	0.000	0.087
		B	0.000	0.000	6.792	0.000	0.012
L22	64.730-63.000	C	0.000	0.000	13.727	0.000	0.126
		A	0.000	0.000	3.388	0.000	0.030
		B	0.000	0.000	3.388	0.000	0.004
L23	63.000-62.750	C	0.000	0.000	5.787	0.000	0.044
		A	0.000	0.000	0.490	0.000	0.004
		B	0.000	0.000	0.490	0.000	0.001
L24	62.750-59.080	C	0.000	0.000	0.836	0.000	0.006
		A	0.000	0.000	8.318	0.000	0.064
		B	0.000	0.000	8.318	0.000	0.009
L25	59.080-58.820	C	0.000	0.000	13.409	0.000	0.093
		A	0.000	0.000	0.716	0.000	0.005
		B	0.000	0.000	0.716	0.000	0.001
L26	58.820-58.670	C	0.000	0.000	1.077	0.000	0.007
		A	0.000	0.000	0.413	0.000	0.003
		B	0.000	0.000	0.413	0.000	0.000
L27	58.670-53.670	C	0.000	0.000	0.621	0.000	0.004
		A	0.000	0.000	10.584	0.000	0.087
		B	0.000	0.000	10.584	0.000	0.012
L28	53.670-48.580	C	0.000	0.000	17.519	0.000	0.126
		A	0.000	0.000	9.642	0.000	0.089
		B	0.000	0.000	9.642	0.000	0.012
L29	48.580-47.580	C	0.000	0.000	16.702	0.000	0.128
		A	0.000	0.000	1.755	0.000	0.018
		B	0.000	0.000	1.755	0.000	0.002
L30	47.580-42.580	C	0.000	0.000	3.142	0.000	0.025
		A	0.000	0.000	8.775	0.000	0.088
		B	0.000	0.000	8.775	0.000	0.012
L31	42.580-39.670	C	0.000	0.000	15.710	0.000	0.126
		A	0.000	0.000	7.107	0.000	0.051
		B	0.000	0.000	7.107	0.000	0.007
L32	39.670-39.420	C	0.000	0.000	11.143	0.000	0.073
		A	0.000	0.000	0.689	0.000	0.004
		B	0.000	0.000	0.689	0.000	0.001
L33	39.420-34.420	C	0.000	0.000	1.036	0.000	0.006
		A	0.000	0.000	13.775	0.000	0.088
		B	0.000	0.000	13.775	0.000	0.012

Tower Section	Tower Elevation	Face	A _R	A _F	C _A A _A In Face	C _A A _A Out Face	Weight
n	ft		ft ²	ft ²	ft ²	ft ²	K
L34	34.420-32.500	C	0.000	0.000	20.710	0.000	0.126
		A	0.000	0.000	6.085	0.000	0.034
		B	0.000	0.000	6.085	0.000	0.005
L35	32.500-32.250	C	0.000	0.000	8.748	0.000	0.048
		A	0.000	0.000	0.928	0.000	0.004
		B	0.000	0.000	0.928	0.000	0.001
		C	0.000	0.000	1.275	0.000	0.006
L36	32.250-31.420	A	0.000	0.000	3.082	0.000	0.015
		B	0.000	0.000	3.082	0.000	0.002
		C	0.000	0.000	4.233	0.000	0.021
L37	31.420-31.170	A	0.000	0.000	0.928	0.000	0.004
		B	0.000	0.000	0.928	0.000	0.001
		C	0.000	0.000	1.275	0.000	0.006
L38	31.170-29.000	A	0.000	0.000	8.368	0.000	0.038
		B	0.000	0.000	6.544	0.000	0.005
		C	0.000	0.000	11.378	0.000	0.055
L39	29.000-28.650	A	0.000	0.000	1.283	0.000	0.006
		B	0.000	0.000	0.964	0.000	0.001
		C	0.000	0.000	1.769	0.000	0.009
L40	28.650-28.420	A	0.000	0.000	0.843	0.000	0.004
		B	0.000	0.000	0.634	0.000	0.001
		C	0.000	0.000	1.162	0.000	0.006
L41	28.420-23.500	A	0.000	0.000	16.872	0.000	0.087
		B	0.000	0.000	12.385	0.000	0.012
		C	0.000	0.000	23.696	0.000	0.124
L42	23.500-23.250	A	0.000	0.000	0.917	0.000	0.004
		B	0.000	0.000	0.689	0.000	0.001
		C	0.000	0.000	1.264	0.000	0.006
L43	23.250-23.000	A	0.000	0.000	0.917	0.000	0.004
		B	0.000	0.000	0.689	0.000	0.001
		C	0.000	0.000	1.264	0.000	0.006
L44	23.000-22.750	A	0.000	0.000	0.917	0.000	0.004
		B	0.000	0.000	0.689	0.000	0.001
		C	0.000	0.000	1.264	0.000	0.006
L45	22.750-17.750	A	0.000	0.000	15.371	0.000	0.088
		B	0.000	0.000	13.775	0.000	0.012
		C	0.000	0.000	22.306	0.000	0.126
L46	17.750-12.750	A	0.000	0.000	13.775	0.000	0.088
		B	0.000	0.000	13.775	0.000	0.012
		C	0.000	0.000	20.710	0.000	0.126
L47	12.750-7.750	A	0.000	0.000	13.775	0.000	0.088
		B	0.000	0.000	13.775	0.000	0.012
		C	0.000	0.000	20.710	0.000	0.126
L48	7.750-2.750	A	0.000	0.000	13.775	0.000	0.088
		B	0.000	0.000	13.775	0.000	0.012
		C	0.000	0.000	20.710	0.000	0.126
L49	2.750-0.000	A	0.000	0.000	6.199	0.000	0.048
		B	0.000	0.000	6.199	0.000	0.006
		C	0.000	0.000	10.013	0.000	0.069

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation	Face or Leg	Ice Thickness	A _R	A _F	C _A A _A In Face	C _A A _A Out Face	Weight
n	ft		in	ft ²	ft ²	ft ²	ft ²	K
L1	140.000-135.000	A	0.980	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	1.185	0.000	0.040
L2	135.000-130.000	A	0.977	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	1.972	0.000	0.066
L3	130.000-125.000	A	0.973	0.000	0.000	0.000	0.000	0.016
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	1.968	0.000	0.066
L4	125.000-120.000	A	0.969	0.000	0.000	0.000	0.000	0.039
		B		0.000	0.000	0.000	0.000	0.000

Tower Section	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
L5	120.000-115.000	C		0.000	0.000	1.964	0.000	0.066
		A	0.965	0.000	0.000	1.886	0.000	0.050
		B		0.000	0.000	1.886	0.000	0.011
L6	115.000-114.750	C		0.000	0.000	9.025	0.000	0.186
		A	0.963	0.000	0.000	0.236	0.000	0.003
		B		0.000	0.000	0.236	0.000	0.001
L7	114.750-109.750	C		0.000	0.000	0.765	0.000	0.014
		A	0.961	0.000	0.000	4.711	0.000	0.067
		B		0.000	0.000	4.711	0.000	0.027
L8	109.750-104.750	C		0.000	0.000	15.292	0.000	0.275
		A	0.956	0.000	0.000	4.706	0.000	0.067
		B		0.000	0.000	4.706	0.000	0.035
L9	104.750-101.580	C		0.000	0.000	15.278	0.000	0.274
		A	0.953	0.000	0.000	2.586	0.000	0.040
		B		0.000	0.000	2.586	0.000	0.022
L10	101.580-101.330	C		0.000	0.000	9.284	0.000	0.171
		A	0.951	0.000	0.000	0.000	0.000	0.002
		B		0.000	0.000	0.000	0.000	0.001
L11	101.330-96.330	C		0.000	0.000	0.528	0.000	0.012
		A	0.949	0.000	0.000	0.000	0.000	0.039
		B		0.000	0.000	0.000	0.000	0.012
L12	96.330-91.330	C		0.000	0.000	10.554	0.000	0.246
		A	0.944	0.000	0.000	1.985	0.000	0.050
		B		0.000	0.000	1.985	0.000	0.023
L13	91.330-91.000	C		0.000	0.000	12.528	0.000	0.257
		A	0.941	0.000	0.000	0.392	0.000	0.005
		B		0.000	0.000	0.392	0.000	0.003
L14	91.000-90.750	C		0.000	0.000	1.088	0.000	0.018
		A	0.941	0.000	0.000	0.297	0.000	0.004
		B		0.000	0.000	0.297	0.000	0.002
L15	90.750-85.750	C		0.000	0.000	0.824	0.000	0.014
		A	0.938	0.000	0.000	5.938	0.000	0.071
		B		0.000	0.000	5.938	0.000	0.044
L16	85.750-80.750	C		0.000	0.000	16.468	0.000	0.277
		A	0.932	0.000	0.000	5.932	0.000	0.071
		B		0.000	0.000	5.932	0.000	0.044
L17	80.750-75.750	C		0.000	0.000	16.450	0.000	0.276
		A	0.927	0.000	0.000	5.927	0.000	0.071
		B		0.000	0.000	5.927	0.000	0.043
L18	75.750-70.750	C		0.000	0.000	16.432	0.000	0.276
		A	0.921	0.000	0.000	7.343	0.000	0.100
		B		0.000	0.000	7.343	0.000	0.051
L19	70.750-69.980	C		0.000	0.000	17.834	0.000	0.282
		A	0.917	0.000	0.000	1.787	0.000	0.023
		B		0.000	0.000	1.787	0.000	0.011
L20	69.980-69.730	C		0.000	0.000	3.401	0.000	0.047
		A	0.916	0.000	0.000	0.580	0.000	0.007
		B		0.000	0.000	0.580	0.000	0.004
L21	69.730-64.730	C		0.000	0.000	1.104	0.000	0.015
		A	0.913	0.000	0.000	8.045	0.000	0.130
		B		0.000	0.000	8.045	0.000	0.054
L22	64.730-63.000	C		0.000	0.000	18.519	0.000	0.285
		A	0.908	0.000	0.000	3.993	0.000	0.051
		B		0.000	0.000	3.993	0.000	0.025
L23	63.000-62.750	C		0.000	0.000	7.613	0.000	0.105
		A	0.907	0.000	0.000	0.577	0.000	0.007
		B		0.000	0.000	0.577	0.000	0.004
L24	62.750-59.080	C		0.000	0.000	1.100	0.000	0.015
		A	0.904	0.000	0.000	9.854	0.000	0.116
		B		0.000	0.000	9.854	0.000	0.061
L25	59.080-58.820	C		0.000	0.000	17.527	0.000	0.230
		A	0.901	0.000	0.000	0.854	0.000	0.009
		B		0.000	0.000	0.854	0.000	0.005
L26	58.820-58.670	C		0.000	0.000	1.397	0.000	0.017
		A	0.900	0.000	0.000	0.492	0.000	0.005
		B		0.000	0.000	0.492	0.000	0.003
L27	58.670-53.670	C		0.000	0.000	0.806	0.000	0.010
		A	0.896	0.000	0.000	12.629	0.000	0.156
		B		0.000	0.000	12.629	0.000	0.080

Tower Section	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
L28	53.670-48.580	C		0.000	0.000	23.066	0.000	0.309
		A	0.888	0.000	0.000	11.526	0.000	0.151
		B		0.000	0.000	11.526	0.000	0.074
L29	48.580-47.580	C		0.000	0.000	22.132	0.000	0.306
		A	0.883	0.000	0.000	2.110	0.000	0.029
		B		0.000	0.000	2.110	0.000	0.014
L30	47.580-42.580	C		0.000	0.000	4.194	0.000	0.059
		A	0.877	0.000	0.000	10.529	0.000	0.144
		B		0.000	0.000	10.529	0.000	0.068
L31	42.580-39.670	C		0.000	0.000	20.922	0.000	0.295
		A	0.869	0.000	0.000	8.455	0.000	0.095
		B		0.000	0.000	8.455	0.000	0.051
L32	39.670-39.420	C		0.000	0.000	14.493	0.000	0.182
		A	0.866	0.000	0.000	0.817	0.000	0.009
		B		0.000	0.000	0.817	0.000	0.005
L33	39.420-34.420	C		0.000	0.000	1.336	0.000	0.016
		A	0.860	0.000	0.000	16.326	0.000	0.172
		B		0.000	0.000	16.326	0.000	0.095
L34	34.420-32.500	C		0.000	0.000	26.681	0.000	0.321
		A	0.851	0.000	0.000	7.197	0.000	0.070
		B		0.000	0.000	7.197	0.000	0.041
L35	32.500-32.250	C		0.000	0.000	11.166	0.000	0.127
		A	0.848	0.000	0.000	1.097	0.000	0.010
		B		0.000	0.000	1.097	0.000	0.006
L36	32.250-31.420	C		0.000	0.000	1.613	0.000	0.017
		A	0.847	0.000	0.000	3.640	0.000	0.033
		B		0.000	0.000	3.640	0.000	0.020
L37	31.420-31.170	C		0.000	0.000	5.354	0.000	0.057
		A	0.846	0.000	0.000	1.096	0.000	0.010
		B		0.000	0.000	1.096	0.000	0.006
L38	31.170-29.000	C		0.000	0.000	1.612	0.000	0.017
		A	0.842	0.000	0.000	9.734	0.000	0.088
		B		0.000	0.000	7.729	0.000	0.044
L39	29.000-28.650	C		0.000	0.000	14.211	0.000	0.152
		A	0.839	0.000	0.000	1.489	0.000	0.014
		B		0.000	0.000	1.139	0.000	0.007
L40	28.650-28.420	C		0.000	0.000	2.211	0.000	0.024
		A	0.838	0.000	0.000	0.979	0.000	0.009
		B		0.000	0.000	0.748	0.000	0.004
L41	28.420-23.500	C		0.000	0.000	1.453	0.000	0.016
		A	0.830	0.000	0.000	19.559	0.000	0.186
		B		0.000	0.000	14.632	0.000	0.084
L42	23.500-23.250	C		0.000	0.000	29.682	0.000	0.330
		A	0.821	0.000	0.000	1.062	0.000	0.010
		B		0.000	0.000	0.812	0.000	0.005
L43	23.250-23.000	C		0.000	0.000	1.575	0.000	0.017
		A	0.820	0.000	0.000	1.062	0.000	0.010
		B		0.000	0.000	0.812	0.000	0.005
L44	23.000-22.750	C		0.000	0.000	1.575	0.000	0.017
		A	0.819	0.000	0.000	1.062	0.000	0.010
		B		0.000	0.000	0.812	0.000	0.005
L45	22.750-17.750	C		0.000	0.000	1.575	0.000	0.017
		A	0.809	0.000	0.000	17.952	0.000	0.175
		B		0.000	0.000	16.203	0.000	0.090
L46	17.750-12.750	C		0.000	0.000	28.193	0.000	0.319
		A	0.787	0.000	0.000	16.135	0.000	0.163
		B		0.000	0.000	16.135	0.000	0.087
L47	12.750-7.750	C		0.000	0.000	26.326	0.000	0.305
		A	0.756	0.000	0.000	16.043	0.000	0.160
		B		0.000	0.000	16.043	0.000	0.084
L48	7.750-2.750	C		0.000	0.000	26.165	0.000	0.298
		A	0.707	0.000	0.000	15.896	0.000	0.154
		B		0.000	0.000	15.896	0.000	0.078
L49	2.750-0.000	C		0.000	0.000	25.907	0.000	0.288
		A	0.618	0.000	0.000	7.034	0.000	0.074
		B		0.000	0.000	7.034	0.000	0.032
		C		0.000	0.000	12.430	0.000	0.142

Feed Line Center of Pressure

Section	Elevation	CP_x	CP_z	CP_x Ice	CP_z Ice
	ft	in	in	in	in
L1	140.000-135.000	-0.041	0.985	-0.043	1.035
L2	135.000-130.000	-0.063	1.502	-0.066	1.584
L3	130.000-125.000	-0.063	1.508	-0.067	1.601
L4	125.000-120.000	-0.063	1.514	-0.068	1.615
L5	120.000-115.000	1.823	2.971	1.701	2.999
L6	115.000-114.750	1.766	2.622	1.883	2.945
L7	114.750-109.750	1.786	2.654	1.909	2.990
L8	109.750-104.750	1.822	2.712	1.959	3.073
L9	104.750-101.580	1.951	2.908	2.099	3.298
L10	101.580-101.330	3.024	4.509	3.148	4.949
L11	101.330-96.330	3.500	5.223	3.173	4.992
L12	96.330-91.330	2.728	4.077	2.616	4.122
L13	91.330-91.000	1.880	2.812	1.929	3.041
L14	91.000-90.750	1.884	2.817	1.932	3.046
L15	90.750-85.750	1.911	2.859	1.954	3.083
L16	85.750-80.750	1.961	2.938	1.996	3.152
L17	80.750-75.750	2.011	3.016	2.037	3.219
L18	75.750-70.750	1.842	2.766	1.900	3.005
L19	70.750-69.980	1.419	2.132	1.533	2.426
L20	69.980-69.730	1.423	2.138	1.536	2.431
L21	69.730-64.730	1.778	2.672	1.866	2.955
L22	64.730-63.000	1.466	2.205	1.579	2.501
L23	63.000-62.750	1.474	2.216	1.585	2.512
L24	62.750-59.080	1.357	2.041	1.468	2.326
L25	59.080-58.820	1.202	1.810	1.311	2.078
L26	58.820-58.670	1.204	1.811	1.313	2.080
L27	58.670-53.670	1.466	2.207	1.548	2.455
L28	53.670-48.580	1.605	2.419	1.674	2.654
L29	48.580-47.580	1.664	2.507	1.738	2.757
L30	47.580-42.580	1.685	2.541	1.757	2.786
L31	42.580-39.670	1.399	2.110	1.496	2.371
L32	39.670-39.420	1.300	1.961	1.402	2.223
L33	39.420-34.420	1.315	1.985	1.416	2.246
L34	34.420-32.500	1.212	1.830	1.316	2.086
L35	32.500-32.250	1.086	1.640	1.192	1.889
L36	32.250-31.420	1.088	1.644	1.194	1.893
L37	31.420-31.170	1.091	1.648	1.197	1.897
L38	31.170-29.000	0.826	2.839	0.986	2.939
L39	29.000-28.650	0.843	3.094	1.009	3.163
L40	28.650-28.420	0.844	3.098	1.010	3.166
L41	28.420-23.500	0.898	3.302	1.067	3.349
L42	23.500-23.250	0.861	3.173	1.028	3.230
L43	23.250-23.000	0.862	3.177	1.029	3.233
L44	23.000-22.750	0.863	3.180	1.029	3.235
L45	22.750-17.750	1.215	2.563	1.329	2.709
L46	17.750-12.750	1.456	2.204	1.528	2.416
L47	12.750-7.750	1.484	2.247	1.554	2.452
L48	7.750-2.750	1.512	2.290	1.580	2.483
L49	2.750-0.000	1.745	2.645	1.787	2.789

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L1	40	HB158-21U6S12-XXXM-01(1-5/8)	135.00 - 138.00	1.0000	1.0000
L2	40	HB158-21U6S12-XXXM-01(1-5/8)	130.00 - 135.00	1.0000	1.0000
L3	40	HB158-21U6S12-XXXM-01(1-5/8)	125.00 - 130.00	1.0000	1.0000
L4	40	HB158-21U6S12-XXXM-01(1-5/8)	120.00 - 125.00	1.0000	1.0000
L5	28	CCI-65FP-045100	115.00 - 117.00	1.0000	1.0000
L5	29	CCI-65FP-045100	115.00 - 117.00	1.0000	1.0000
L5	30	CCI-65FP-045100	115.00 - 117.00	1.0000	1.0000
L5	40	HB158-21U6S12-XXXM-01(1-5/8)	115.00 - 120.00	1.0000	1.0000
L5	54	LDF7-50A(1-5/8)	115.00 - 118.00	1.0000	1.0000
L6	28	CCI-65FP-045100	114.75 - 115.00	1.0000	1.0000
L6	29	CCI-65FP-045100	114.75 - 115.00	1.0000	1.0000
L6	30	CCI-65FP-045100	114.75 - 115.00	1.0000	1.0000
L6	40	HB158-21U6S12-XXXM-01(1-5/8)	114.75 - 115.00	1.0000	1.0000
L6	54	LDF7-50A(1-5/8)	114.75 - 115.00	1.0000	1.0000
L7	28	CCI-65FP-045100	109.75 - 114.75	1.0000	1.0000
L7	29	CCI-65FP-045100	109.75 - 114.75	1.0000	1.0000
L7	30	CCI-65FP-045100	109.75 - 114.75	1.0000	1.0000
L7	40	HB158-21U6S12-XXXM-01(1-5/8)	109.75 - 114.75	1.0000	1.0000
L7	54	LDF7-50A(1-5/8)	109.75 - 114.75	1.0000	1.0000
L8	28	CCI-65FP-045100	104.75 - 109.75	1.0000	1.0000
L8	29	CCI-65FP-045100	104.75 - 109.75	1.0000	1.0000
L8	30	CCI-65FP-045100	104.75 - 109.75	1.0000	1.0000
L8	40	HB158-21U6S12-XXXM-01(1-5/8)	104.75 - 109.75	1.0000	1.0000
L8	54	LDF7-50A(1-5/8)	104.75 - 109.75	1.0000	1.0000
L9	28	CCI-65FP-045100	102.00 - 104.75	1.0000	1.0000
L9	29	CCI-65FP-045100	102.00 - 104.75	1.0000	1.0000
L9	30	CCI-65FP-045100	102.00 - 104.75	1.0000	1.0000
L9	40	HB158-21U6S12-XXXM-01(1-5/8)	101.58 - 104.75	1.0000	1.0000
L9	54	LDF7-50A(1-5/8)	101.58 - 104.75	1.0000	1.0000
L10	40	HB158-21U6S12-XXXM-01(1-5/8)	101.33 - 101.58	1.0000	1.0000
L10	54	LDF7-50A(1-5/8)	101.33 - 101.58	1.0000	1.0000
L11	40	HB158-21U6S12-XXXM-01(1-5/8)	96.33 - 101.33	1.0000	1.0000
L11	54	LDF7-50A(1-5/8)	96.33 - 101.33	1.0000	1.0000
L12	25	CCI-65FP-060100	91.33 - 93.00	1.0000	1.0000
L12	26	CCI-65FP-060100	91.33 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
			93.00		
L12	27	CCI-65FP-060100	91.33 -	1.0000	1.0000
			93.00		
L12	40	HB158-21U6S12-XXXM-01(1-5/8)	91.33 -	1.0000	1.0000
			96.33		
L12	54	LDF7-50A(1-5/8)	91.33 -	1.0000	1.0000
			96.33		
L13	25	CCI-65FP-060100	91.00 -	1.0000	1.0000
			91.33		
L13	26	CCI-65FP-060100	91.00 -	1.0000	1.0000
			91.33		
L13	27	CCI-65FP-060100	91.00 -	1.0000	1.0000
			91.33		
L13	40	HB158-21U6S12-XXXM-01(1-5/8)	91.00 -	1.0000	1.0000
			91.33		
L13	54	LDF7-50A(1-5/8)	91.00 -	1.0000	1.0000
			91.33		
L14	25	CCI-65FP-060100	90.75 -	1.0000	1.0000
			91.00		
L14	26	CCI-65FP-060100	90.75 -	1.0000	1.0000
			91.00		
L14	27	CCI-65FP-060100	90.75 -	1.0000	1.0000
			91.00		
L14	40	HB158-21U6S12-XXXM-01(1-5/8)	90.75 -	1.0000	1.0000
			91.00		
L14	54	LDF7-50A(1-5/8)	90.75 -	1.0000	1.0000
			91.00		
L15	25	CCI-65FP-060100	85.75 -	1.0000	1.0000
			90.75		
L15	26	CCI-65FP-060100	85.75 -	1.0000	1.0000
			90.75		
L15	27	CCI-65FP-060100	85.75 -	1.0000	1.0000
			90.75		
L15	40	HB158-21U6S12-XXXM-01(1-5/8)	85.75 -	1.0000	1.0000
			90.75		
L15	54	LDF7-50A(1-5/8)	85.75 -	1.0000	1.0000
			90.75		
L16	25	CCI-65FP-060100	80.75 -	1.0000	1.0000
			85.75		
L16	26	CCI-65FP-060100	80.75 -	1.0000	1.0000
			85.75		
L16	27	CCI-65FP-060100	80.75 -	1.0000	1.0000
			85.75		
L16	40	HB158-21U6S12-XXXM-01(1-5/8)	80.75 -	1.0000	1.0000
			85.75		
L16	54	LDF7-50A(1-5/8)	80.75 -	1.0000	1.0000
			85.75		
L17	25	CCI-65FP-060100	75.75 -	1.0000	1.0000
			80.75		
L17	26	CCI-65FP-060100	75.75 -	1.0000	1.0000
			80.75		
L17	27	CCI-65FP-060100	75.75 -	1.0000	1.0000
			80.75		
L17	40	HB158-21U6S12-XXXM-01(1-5/8)	75.75 -	1.0000	1.0000
			80.75		
L17	54	LDF7-50A(1-5/8)	75.75 -	1.0000	1.0000
			80.75		
L18	7	5.75" x 1" Flat Plate	70.75 -	1.0000	1.0000
			72.00		
L18	8	5.75" x 1" Flat Plate	70.75 -	1.0000	1.0000
			72.00		
L18	9	5.75" x 1" Flat Plate	70.75 -	1.0000	1.0000
			72.00		
L18	25	CCI-65FP-060100	70.75 -	1.0000	1.0000
			75.75		
L18	26	CCI-65FP-060100	70.75 -	1.0000	1.0000
			75.75		
L18	27	CCI-65FP-060100	70.75 -	1.0000	1.0000
			75.75		

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L18	40	HB158-21U6S12-XXXM-01(1-5/8)	70.75 - 75.75	1.0000	1.0000
L18	54	LDF7-50A(1-5/8)	70.75 - 75.75	1.0000	1.0000
L19	7	5.75" x 1" Flat Plate	69.98 - 70.75	1.0000	1.0000
L19	8	5.75" x 1" Flat Plate	69.98 - 70.75	1.0000	1.0000
L19	9	5.75" x 1" Flat Plate	69.98 - 70.75	1.0000	1.0000
L19	25	CCI-65FP-060100	69.98 - 70.75	1.0000	1.0000
L19	26	CCI-65FP-060100	69.98 - 70.75	1.0000	1.0000
L19	27	CCI-65FP-060100	69.98 - 70.75	1.0000	1.0000
L19	40	HB158-21U6S12-XXXM-01(1-5/8)	69.98 - 70.75	1.0000	1.0000
L19	54	LDF7-50A(1-5/8)	69.98 - 70.75	1.0000	1.0000
L20	7	5.75" x 1" Flat Plate	69.73 - 69.98	1.0000	1.0000
L20	8	5.75" x 1" Flat Plate	69.73 - 69.98	1.0000	1.0000
L20	9	5.75" x 1" Flat Plate	69.73 - 69.98	1.0000	1.0000
L20	25	CCI-65FP-060100	69.73 - 69.98	1.0000	1.0000
L20	26	CCI-65FP-060100	69.73 - 69.98	1.0000	1.0000
L20	27	CCI-65FP-060100	69.73 - 69.98	1.0000	1.0000
L20	40	HB158-21U6S12-XXXM-01(1-5/8)	69.73 - 69.98	1.0000	1.0000
L20	54	LDF7-50A(1-5/8)	69.73 - 69.98	1.0000	1.0000
L21	7	5.75" x 1" Flat Plate	64.73 - 69.73	1.0000	1.0000
L21	8	5.75" x 1" Flat Plate	64.73 - 69.73	1.0000	1.0000
L21	9	5.75" x 1" Flat Plate	64.73 - 69.73	1.0000	1.0000
L21	22	CCI-65FP-060100	64.73 - 65.00	1.0000	1.0000
L21	23	CCI-65FP-060100	64.73 - 65.00	1.0000	1.0000
L21	24	CCI-65FP-060100	64.73 - 65.00	1.0000	1.0000
L21	25	CCI-65FP-060100	68.00 - 69.73	1.0000	1.0000
L21	26	CCI-65FP-060100	68.00 - 69.73	1.0000	1.0000
L21	27	CCI-65FP-060100	68.00 - 69.73	1.0000	1.0000
L21	40	HB158-21U6S12-XXXM-01(1-5/8)	64.73 - 69.73	1.0000	1.0000
L21	54	LDF7-50A(1-5/8)	64.73 - 69.73	1.0000	1.0000
L22	7	5.75" x 1" Flat Plate	63.00 - 64.73	1.0000	1.0000
L22	8	5.75" x 1" Flat Plate	63.00 - 64.73	1.0000	1.0000
L22	9	5.75" x 1" Flat Plate	63.00 - 64.73	1.0000	1.0000
L22	22	CCI-65FP-060100	63.00 - 64.73	1.0000	1.0000
L22	23	CCI-65FP-060100	63.00 - 64.73	1.0000	1.0000
L22	24	CCI-65FP-060100	63.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L22	40	HB158-21U6S12-XXXM-01(1-5/8)	64.73 63.00 - 64.73	1.0000	1.0000
L22	54	LDF7-50A(1-5/8)	63.00 - 64.73	1.0000	1.0000
L23	7	5.75" x 1" Flat Plate	62.75 - 63.00	1.0000	1.0000
L23	8	5.75" x 1" Flat Plate	62.75 - 63.00	1.0000	1.0000
L23	9	5.75" x 1" Flat Plate	62.75 - 63.00	1.0000	1.0000
L23	22	CCI-65FP-060100	62.75 - 63.00	1.0000	1.0000
L23	23	CCI-65FP-060100	62.75 - 63.00	1.0000	1.0000
L23	24	CCI-65FP-060100	62.75 - 63.00	1.0000	1.0000
L23	40	HB158-21U6S12-XXXM-01(1-5/8)	62.75 - 63.00	1.0000	1.0000
L23	54	LDF7-50A(1-5/8)	62.75 - 63.00	1.0000	1.0000
L24	7	5.75" x 1" Flat Plate	59.08 - 62.75	1.0000	1.0000
L24	8	5.75" x 1" Flat Plate	59.08 - 62.75	1.0000	1.0000
L24	9	5.75" x 1" Flat Plate	59.08 - 62.75	1.0000	1.0000
L24	11	MP3-04	59.08 - 60.50	1.0000	1.0000
L24	12	MP3-04	59.08 - 60.50	1.0000	1.0000
L24	13	MP3-04	59.08 - 60.50	1.0000	1.0000
L24	22	CCI-65FP-060100	59.08 - 62.75	1.0000	1.0000
L24	23	CCI-65FP-060100	59.08 - 62.75	1.0000	1.0000
L24	24	CCI-65FP-060100	59.08 - 62.75	1.0000	1.0000
L24	40	HB158-21U6S12-XXXM-01(1-5/8)	59.08 - 62.75	1.0000	1.0000
L24	54	LDF7-50A(1-5/8)	59.08 - 62.75	1.0000	1.0000
L25	7	5.75" x 1" Flat Plate	58.82 - 59.08	1.0000	1.0000
L25	8	5.75" x 1" Flat Plate	58.82 - 59.08	1.0000	1.0000
L25	9	5.75" x 1" Flat Plate	58.82 - 59.08	1.0000	1.0000
L25	11	MP3-04	58.82 - 59.08	1.0000	1.0000
L25	12	MP3-04	58.82 - 59.08	1.0000	1.0000
L25	13	MP3-04	58.82 - 59.08	1.0000	1.0000
L25	22	CCI-65FP-060100	58.82 - 59.08	1.0000	1.0000
L25	23	CCI-65FP-060100	58.82 - 59.08	1.0000	1.0000
L25	24	CCI-65FP-060100	58.82 - 59.08	1.0000	1.0000
L25	40	HB158-21U6S12-XXXM-01(1-5/8)	58.82 - 59.08	1.0000	1.0000
L25	54	LDF7-50A(1-5/8)	58.82 - 59.08	1.0000	1.0000
L26	7	5.75" x 1" Flat Plate	58.67 - 58.82	1.0000	1.0000
L26	8	5.75" x 1" Flat Plate	58.67 - 58.82	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L26	9	5.75" x 1" Flat Plate	58.67 - 58.82	1.0000	1.0000
L26	11	MP3-04	58.67 - 58.82	1.0000	1.0000
L26	12	MP3-04	58.67 - 58.82	1.0000	1.0000
L26	13	MP3-04	58.67 - 58.82	1.0000	1.0000
L26	22	CCI-65FP-060100	58.67 - 58.82	1.0000	1.0000
L26	23	CCI-65FP-060100	58.67 - 58.82	1.0000	1.0000
L26	24	CCI-65FP-060100	58.67 - 58.82	1.0000	1.0000
L26	40	HB158-21U6S12-XXXM-01(1-5/8)	58.67 - 58.82	1.0000	1.0000
L26	54	LDF7-50A(1-5/8)	58.67 - 58.82	1.0000	1.0000
L27	7	5.75" x 1" Flat Plate	57.00 - 58.67	1.0000	1.0000
L27	8	5.75" x 1" Flat Plate	57.00 - 58.67	1.0000	1.0000
L27	9	5.75" x 1" Flat Plate	57.00 - 58.67	1.0000	1.0000
L27	11	MP3-04	53.67 - 58.67	1.0000	1.0000
L27	12	MP3-04	53.67 - 58.67	1.0000	1.0000
L27	13	MP3-04	53.67 - 58.67	1.0000	1.0000
L27	22	CCI-65FP-060100	53.67 - 58.67	1.0000	1.0000
L27	23	CCI-65FP-060100	53.67 - 58.67	1.0000	1.0000
L27	24	CCI-65FP-060100	53.67 - 58.67	1.0000	1.0000
L27	40	HB158-21U6S12-XXXM-01(1-5/8)	53.67 - 58.67	1.0000	1.0000
L27	54	LDF7-50A(1-5/8)	53.67 - 58.67	1.0000	1.0000
L28	4	5.75" x 1" Flat Plate	48.58 - 50.58	1.0000	1.0000
L28	5	5.75" x 1" Flat Plate	48.58 - 50.58	1.0000	1.0000
L28	6	5.75" x 1" Flat Plate	48.58 - 50.58	1.0000	1.0000
L28	11	MP3-04	48.58 - 53.67	1.0000	1.0000
L28	12	MP3-04	48.58 - 53.67	1.0000	1.0000
L28	13	MP3-04	48.58 - 53.67	1.0000	1.0000
L28	22	CCI-65FP-060100	50.00 - 53.67	1.0000	1.0000
L28	23	CCI-65FP-060100	50.00 - 53.67	1.0000	1.0000
L28	24	CCI-65FP-060100	50.00 - 53.67	1.0000	1.0000
L28	40	HB158-21U6S12-XXXM-01(1-5/8)	48.58 - 53.67	1.0000	1.0000
L28	54	LDF7-50A(1-5/8)	48.58 - 53.67	1.0000	1.0000
L29	4	5.75" x 1" Flat Plate	47.58 - 48.58	1.0000	1.0000
L29	5	5.75" x 1" Flat Plate	47.58 - 48.58	1.0000	1.0000
L29	6	5.75" x 1" Flat Plate	47.58 - 48.58	1.0000	1.0000
L29	11	MP3-04	47.58 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L29	12	MP3-04	48.58 47.58 -	1.0000	1.0000
L29	13	MP3-04	48.58 47.58 -	1.0000	1.0000
L29	40	HB158-21U6S12-XXXM-01(1-5/8)	48.58 47.58 -	1.0000	1.0000
L29	54	LDF7-50A(1-5/8)	48.58 47.58 -	1.0000	1.0000
L30	4	5.75" x 1" Flat Plate	48.58 42.58 -	1.0000	1.0000
L30	5	5.75" x 1" Flat Plate	47.58 42.58 -	1.0000	1.0000
L30	6	5.75" x 1" Flat Plate	47.58 42.58 -	1.0000	1.0000
L30	11	MP3-04	47.58 42.58 -	1.0000	1.0000
L30	12	MP3-04	47.58 42.58 -	1.0000	1.0000
L30	13	MP3-04	47.58 42.58 -	1.0000	1.0000
L30	40	HB158-21U6S12-XXXM-01(1-5/8)	47.58 42.58 -	1.0000	1.0000
L30	54	LDF7-50A(1-5/8)	47.58 42.58 -	1.0000	1.0000
L31	4	5.75" x 1" Flat Plate	47.58 39.67 -	1.0000	1.0000
L31	5	5.75" x 1" Flat Plate	42.58 39.67 -	1.0000	1.0000
L31	6	5.75" x 1" Flat Plate	42.58 39.67 -	1.0000	1.0000
L31	11	MP3-04	42.58 39.67 -	1.0000	1.0000
L31	12	MP3-04	42.58 39.67 -	1.0000	1.0000
L31	13	MP3-04	42.58 39.67 -	1.0000	1.0000
L31	15	CCI-65FP-060100	42.58 39.67 -	1.0000	1.0000
L31	16	CCI-65FP-060100	41.67 39.67 -	1.0000	1.0000
L31	17	CCI-65FP-060100	41.67 39.67 -	1.0000	1.0000
L31	40	HB158-21U6S12-XXXM-01(1-5/8)	41.67 39.67 -	1.0000	1.0000
L31	54	LDF7-50A(1-5/8)	42.58 39.67 -	1.0000	1.0000
L32	4	5.75" x 1" Flat Plate	42.58 39.42 -	1.0000	1.0000
L32	5	5.75" x 1" Flat Plate	39.67 39.42 -	1.0000	1.0000
L32	6	5.75" x 1" Flat Plate	39.67 39.42 -	1.0000	1.0000
L32	11	MP3-04	39.67 39.42 -	1.0000	1.0000
L32	12	MP3-04	39.67 39.42 -	1.0000	1.0000
L32	13	MP3-04	39.67 39.42 -	1.0000	1.0000
L32	15	CCI-65FP-060100	39.67 39.42 -	1.0000	1.0000
L32	16	CCI-65FP-060100	39.67 39.42 -	1.0000	1.0000
L32	17	CCI-65FP-060100	39.67 39.42 -	1.0000	1.0000
L32	40	HB158-21U6S12-XXXM-01(1-5/8)	39.67 39.42 -	1.0000	1.0000
L32	54	LDF7-50A(1-5/8)	39.67 39.42 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L33	4	5.75" x 1" Flat Plate	34.42 - 39.42	1.0000	1.0000
L33	5	5.75" x 1" Flat Plate	34.42 - 39.42	1.0000	1.0000
L33	6	5.75" x 1" Flat Plate	34.42 - 39.42	1.0000	1.0000
L33	11	MP3-04	34.42 - 39.42	1.0000	1.0000
L33	12	MP3-04	34.42 - 39.42	1.0000	1.0000
L33	13	MP3-04	34.42 - 39.42	1.0000	1.0000
L33	15	CCI-65FP-060100	34.42 - 39.42	1.0000	1.0000
L33	16	CCI-65FP-060100	34.42 - 39.42	1.0000	1.0000
L33	17	CCI-65FP-060100	34.42 - 39.42	1.0000	1.0000
L33	40	HB158-21U6S12-XXXM-01(1-5/8)	34.42 - 39.42	1.0000	1.0000
L33	54	LDF7-50A(1-5/8)	34.42 - 39.42	1.0000	1.0000
L34	1	5.75" x 1" Flat Plate	32.50 - 33.33	1.0000	1.0000
L34	2	5.75" x 1" Flat Plate	32.50 - 33.33	1.0000	1.0000
L34	3	5.75" x 1" Flat Plate	32.50 - 33.33	1.0000	1.0000
L34	4	5.75" x 1" Flat Plate	32.50 - 34.42	1.0000	1.0000
L34	5	5.75" x 1" Flat Plate	32.50 - 34.42	1.0000	1.0000
L34	6	5.75" x 1" Flat Plate	32.50 - 34.42	1.0000	1.0000
L34	11	MP3-04	32.50 - 34.42	1.0000	1.0000
L34	12	MP3-04	32.50 - 34.42	1.0000	1.0000
L34	13	MP3-04	32.50 - 34.42	1.0000	1.0000
L34	15	CCI-65FP-060100	32.50 - 34.42	1.0000	1.0000
L34	16	CCI-65FP-060100	32.50 - 34.42	1.0000	1.0000
L34	17	CCI-65FP-060100	32.50 - 34.42	1.0000	1.0000
L34	40	HB158-21U6S12-XXXM-01(1-5/8)	32.50 - 34.42	1.0000	1.0000
L34	54	LDF7-50A(1-5/8)	32.50 - 34.42	1.0000	1.0000
L35	1	5.75" x 1" Flat Plate	32.25 - 32.50	1.0000	1.0000
L35	2	5.75" x 1" Flat Plate	32.25 - 32.50	1.0000	1.0000
L35	3	5.75" x 1" Flat Plate	32.25 - 32.50	1.0000	1.0000
L35	4	5.75" x 1" Flat Plate	32.25 - 32.50	1.0000	1.0000
L35	5	5.75" x 1" Flat Plate	32.25 - 32.50	1.0000	1.0000
L35	6	5.75" x 1" Flat Plate	32.25 - 32.50	1.0000	1.0000
L35	11	MP3-04	32.25 - 32.50	1.0000	1.0000
L35	12	MP3-04	32.25 - 32.50	1.0000	1.0000
L35	13	MP3-04	32.25 - 32.50	1.0000	1.0000
L35	15	CCI-65FP-060100	32.25 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L35	16	CCI-65FP-060100	32.50 32.25 -	1.0000	1.0000
L35	17	CCI-65FP-060100	32.50 32.25 -	1.0000	1.0000
L35	40	HB158-21U6S12-XXXM-01(1-5/8)	32.50 32.25 -	1.0000	1.0000
L35	54	LDF7-50A(1-5/8)	32.50 32.25 -	1.0000	1.0000
L36	1	5.75" x 1" Flat Plate	31.42 - 32.25	1.0000	1.0000
L36	2	5.75" x 1" Flat Plate	31.42 - 32.25	1.0000	1.0000
L36	3	5.75" x 1" Flat Plate	31.42 - 32.25	1.0000	1.0000
L36	4	5.75" x 1" Flat Plate	31.42 - 32.25	1.0000	1.0000
L36	5	5.75" x 1" Flat Plate	31.42 - 32.25	1.0000	1.0000
L36	6	5.75" x 1" Flat Plate	31.42 - 32.25	1.0000	1.0000
L36	11	MP3-04	31.42 - 32.25	1.0000	1.0000
L36	12	MP3-04	31.42 - 32.25	1.0000	1.0000
L36	13	MP3-04	31.42 - 32.25	1.0000	1.0000
L36	15	CCI-65FP-060100	31.42 - 32.25	1.0000	1.0000
L36	16	CCI-65FP-060100	31.42 - 32.25	1.0000	1.0000
L36	17	CCI-65FP-060100	31.42 - 32.25	1.0000	1.0000
L36	40	HB158-21U6S12-XXXM-01(1-5/8)	31.42 - 32.25	1.0000	1.0000
L36	54	LDF7-50A(1-5/8)	31.42 - 32.25	1.0000	1.0000
L37	1	5.75" x 1" Flat Plate	31.17 - 31.42	1.0000	1.0000
L37	2	5.75" x 1" Flat Plate	31.17 - 31.42	1.0000	1.0000
L37	3	5.75" x 1" Flat Plate	31.17 - 31.42	1.0000	1.0000
L37	4	5.75" x 1" Flat Plate	31.17 - 31.42	1.0000	1.0000
L37	5	5.75" x 1" Flat Plate	31.17 - 31.42	1.0000	1.0000
L37	6	5.75" x 1" Flat Plate	31.17 - 31.42	1.0000	1.0000
L37	11	MP3-04	31.17 - 31.42	1.0000	1.0000
L37	12	MP3-04	31.17 - 31.42	1.0000	1.0000
L37	13	MP3-04	31.17 - 31.42	1.0000	1.0000
L37	15	CCI-65FP-060100	31.17 - 31.42	1.0000	1.0000
L37	16	CCI-65FP-060100	31.17 - 31.42	1.0000	1.0000
L37	17	CCI-65FP-060100	31.17 - 31.42	1.0000	1.0000
L37	40	HB158-21U6S12-XXXM-01(1-5/8)	31.17 - 31.42	1.0000	1.0000
L37	54	LDF7-50A(1-5/8)	31.17 - 31.42	1.0000	1.0000
L38	1	5.75" x 1" Flat Plate	29.00 - 31.17	1.0000	1.0000
L38	2	5.75" x 1" Flat Plate	29.00 - 31.17	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L38	3	5.75" x 1" Flat Plate	29.00 - 31.17	1.0000	1.0000
L38	4	5.75" x 1" Flat Plate	30.58 - 31.17	1.0000	1.0000
L38	5	5.75" x 1" Flat Plate	30.58 - 31.17	1.0000	1.0000
L38	6	5.75" x 1" Flat Plate	30.58 - 31.17	1.0000	1.0000
L38	11	MP3-04	29.00 - 31.17	1.0000	1.0000
L38	12	MP3-04	29.00 - 31.17	1.0000	1.0000
L38	13	MP3-04	29.00 - 31.17	1.0000	1.0000
L38	15	CCI-65FP-060100	29.00 - 31.17	1.0000	1.0000
L38	16	CCI-65FP-060100	29.00 - 31.17	1.0000	1.0000
L38	17	CCI-65FP-060100	29.00 - 31.17	1.0000	1.0000
L38	32	CCI-65FP-060100	29.00 - 31.00	1.0000	1.0000
L38	33	CCI-65FP-060100	29.00 - 31.00	1.0000	1.0000
L38	40	HB158-21U6S12-XXXM-01(1-5/8)	29.00 - 31.17	1.0000	1.0000
L38	54	LDF7-50A(1-5/8)	29.00 - 31.17	1.0000	1.0000
L39	1	5.75" x 1" Flat Plate	28.65 - 29.00	1.0000	1.0000
L39	2	5.75" x 1" Flat Plate	28.65 - 29.00	1.0000	1.0000
L39	3	5.75" x 1" Flat Plate	28.65 - 29.00	1.0000	1.0000
L39	11	MP3-04	28.65 - 29.00	1.0000	1.0000
L39	12	MP3-04	28.65 - 29.00	1.0000	1.0000
L39	13	MP3-04	28.65 - 29.00	1.0000	1.0000
L39	15	CCI-65FP-060100	28.65 - 29.00	1.0000	1.0000
L39	16	CCI-65FP-060100	28.65 - 29.00	1.0000	1.0000
L39	17	CCI-65FP-060100	28.65 - 29.00	1.0000	1.0000
L39	32	CCI-65FP-060100	28.65 - 29.00	1.0000	1.0000
L39	33	CCI-65FP-060100	28.65 - 29.00	1.0000	1.0000
L39	40	HB158-21U6S12-XXXM-01(1-5/8)	28.65 - 29.00	1.0000	1.0000
L39	54	LDF7-50A(1-5/8)	28.65 - 29.00	1.0000	1.0000
L40	1	5.75" x 1" Flat Plate	28.42 - 28.65	1.0000	1.0000
L40	2	5.75" x 1" Flat Plate	28.42 - 28.65	1.0000	1.0000
L40	3	5.75" x 1" Flat Plate	28.42 - 28.65	1.0000	1.0000
L40	11	MP3-04	28.42 - 28.65	1.0000	1.0000
L40	12	MP3-04	28.42 - 28.65	1.0000	1.0000
L40	13	MP3-04	28.42 - 28.65	1.0000	1.0000
L40	15	CCI-65FP-060100	28.42 - 28.65	1.0000	1.0000
L40	16	CCI-65FP-060100	28.42 - 28.65	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
			28.65		
L40	17	CCI-65FP-060100	28.42 - 28.65	1.0000	1.0000
L40	32	CCI-65FP-060100	28.42 - 28.65	1.0000	1.0000
L40	33	CCI-65FP-060100	28.42 - 28.65	1.0000	1.0000
L40	40	HB158-21U6S12-XXXM-01(1-5/8)	28.42 - 28.65	1.0000	1.0000
L40	54	LDF7-50A(1-5/8)	28.42 - 28.65	1.0000	1.0000
L41	1	5.75" x 1" Flat Plate	23.50 - 28.42	1.0000	1.0000
L41	2	5.75" x 1" Flat Plate	23.50 - 28.42	1.0000	1.0000
L41	3	5.75" x 1" Flat Plate	23.50 - 28.42	1.0000	1.0000
L41	11	MP3-04	23.50 - 28.42	1.0000	1.0000
L41	12	MP3-04	23.50 - 28.42	1.0000	1.0000
L41	13	MP3-04	23.50 - 28.42	1.0000	1.0000
L41	15	CCI-65FP-060100	26.67 - 28.42	1.0000	1.0000
L41	16	CCI-65FP-060100	26.67 - 28.42	1.0000	1.0000
L41	17	CCI-65FP-060100	26.67 - 28.42	1.0000	1.0000
L41	19	CCI-65FP-060100	23.50 - 25.50	1.0000	1.0000
L41	20	CCI-65FP-060100	23.50 - 25.50	1.0000	1.0000
L41	21	CCI-65FP-060100	23.50 - 25.50	1.0000	1.0000
L41	32	CCI-65FP-060100	23.50 - 28.42	1.0000	1.0000
L41	33	CCI-65FP-060100	23.50 - 28.42	1.0000	1.0000
L41	40	HB158-21U6S12-XXXM-01(1-5/8)	23.50 - 28.42	1.0000	1.0000
L41	54	LDF7-50A(1-5/8)	23.50 - 28.42	1.0000	1.0000
L42	1	5.75" x 1" Flat Plate	23.25 - 23.50	1.0000	1.0000
L42	2	5.75" x 1" Flat Plate	23.25 - 23.50	1.0000	1.0000
L42	3	5.75" x 1" Flat Plate	23.25 - 23.50	1.0000	1.0000
L42	11	MP3-04	23.25 - 23.50	1.0000	1.0000
L42	12	MP3-04	23.25 - 23.50	1.0000	1.0000
L42	13	MP3-04	23.25 - 23.50	1.0000	1.0000
L42	19	CCI-65FP-060100	23.25 - 23.50	1.0000	1.0000
L42	20	CCI-65FP-060100	23.25 - 23.50	1.0000	1.0000
L42	21	CCI-65FP-060100	23.25 - 23.50	1.0000	1.0000
L42	32	CCI-65FP-060100	23.25 - 23.50	1.0000	1.0000
L42	33	CCI-65FP-060100	23.25 - 23.50	1.0000	1.0000
L42	40	HB158-21U6S12-XXXM-01(1-5/8)	23.25 - 23.50	1.0000	1.0000
L42	54	LDF7-50A(1-5/8)	23.25 - 23.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L43	1	5.75" x 1" Flat Plate	23.00 - 23.25	1.0000	1.0000
L43	2	5.75" x 1" Flat Plate	23.00 - 23.25	1.0000	1.0000
L43	3	5.75" x 1" Flat Plate	23.00 - 23.25	1.0000	1.0000
L43	11	MP3-04	23.00 - 23.25	1.0000	1.0000
L43	12	MP3-04	23.00 - 23.25	1.0000	1.0000
L43	13	MP3-04	23.00 - 23.25	1.0000	1.0000
L43	19	CCI-65FP-060100	23.00 - 23.25	1.0000	1.0000
L43	20	CCI-65FP-060100	23.00 - 23.25	1.0000	1.0000
L43	21	CCI-65FP-060100	23.00 - 23.25	1.0000	1.0000
L43	32	CCI-65FP-060100	23.00 - 23.25	1.0000	1.0000
L43	33	CCI-65FP-060100	23.00 - 23.25	1.0000	1.0000
L43	40	HB158-21U6S12-XXXM-01(1-5/8)	23.00 - 23.25	1.0000	1.0000
L43	54	LDF7-50A(1-5/8)	23.00 - 23.25	1.0000	1.0000
L44	1	5.75" x 1" Flat Plate	22.75 - 23.00	1.0000	1.0000
L44	2	5.75" x 1" Flat Plate	22.75 - 23.00	1.0000	1.0000
L44	3	5.75" x 1" Flat Plate	22.75 - 23.00	1.0000	1.0000
L44	11	MP3-04	22.75 - 23.00	1.0000	1.0000
L44	12	MP3-04	22.75 - 23.00	1.0000	1.0000
L44	13	MP3-04	22.75 - 23.00	1.0000	1.0000
L44	19	CCI-65FP-060100	22.75 - 23.00	1.0000	1.0000
L44	20	CCI-65FP-060100	22.75 - 23.00	1.0000	1.0000
L44	21	CCI-65FP-060100	22.75 - 23.00	1.0000	1.0000
L44	32	CCI-65FP-060100	22.75 - 23.00	1.0000	1.0000
L44	33	CCI-65FP-060100	22.75 - 23.00	1.0000	1.0000
L44	40	HB158-21U6S12-XXXM-01(1-5/8)	22.75 - 23.00	1.0000	1.0000
L44	54	LDF7-50A(1-5/8)	22.75 - 23.00	1.0000	1.0000
L45	1	5.75" x 1" Flat Plate	17.75 - 22.75	1.0000	1.0000
L45	2	5.75" x 1" Flat Plate	17.75 - 22.75	1.0000	1.0000
L45	3	5.75" x 1" Flat Plate	17.75 - 22.75	1.0000	1.0000
L45	11	MP3-04	17.75 - 22.75	1.0000	1.0000
L45	12	MP3-04	17.75 - 22.75	1.0000	1.0000
L45	13	MP3-04	17.75 - 22.75	1.0000	1.0000
L45	19	CCI-65FP-060100	17.75 - 22.75	1.0000	1.0000
L45	20	CCI-65FP-060100	17.75 - 22.75	1.0000	1.0000
L45	21	CCI-65FP-060100	17.75 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L45	32	CCI-65FP-060100	22.75 21.00 -	1.0000	1.0000
L45	33	CCI-65FP-060100	22.75 21.00 -	1.0000	1.0000
L45	40	HB158-21U6S12-XXXM-01(1-5/8)	22.75 17.75 -	1.0000	1.0000
L45	54	LDF7-50A(1-5/8)	22.75 17.75 -	1.0000	1.0000
L46	1	5.75" x 1" Flat Plate	22.75 17.75 -	1.0000	1.0000
L46	2	5.75" x 1" Flat Plate	17.75 12.75 -	1.0000	1.0000
L46	3	5.75" x 1" Flat Plate	17.75 12.75 -	1.0000	1.0000
L46	11	MP3-04	17.75 12.75 -	1.0000	1.0000
L46	12	MP3-04	17.75 12.75 -	1.0000	1.0000
L46	13	MP3-04	17.75 12.75 -	1.0000	1.0000
L46	19	CCI-65FP-060100	17.75 12.75 -	1.0000	1.0000
L46	20	CCI-65FP-060100	17.75 12.75 -	1.0000	1.0000
L46	21	CCI-65FP-060100	17.75 12.75 -	1.0000	1.0000
L46	40	HB158-21U6S12-XXXM-01(1-5/8)	17.75 12.75 -	1.0000	1.0000
L46	54	LDF7-50A(1-5/8)	17.75 12.75 -	1.0000	1.0000
L47	1	5.75" x 1" Flat Plate	12.75 - 7.75	1.0000	1.0000
L47	2	5.75" x 1" Flat Plate	12.75 - 7.75	1.0000	1.0000
L47	3	5.75" x 1" Flat Plate	12.75 - 7.75	1.0000	1.0000
L47	11	MP3-04	12.75 - 7.75	1.0000	1.0000
L47	12	MP3-04	12.75 - 7.75	1.0000	1.0000
L47	13	MP3-04	12.75 - 7.75	1.0000	1.0000
L47	19	CCI-65FP-060100	12.75 - 7.75	1.0000	1.0000
L47	20	CCI-65FP-060100	12.75 - 7.75	1.0000	1.0000
L47	21	CCI-65FP-060100	12.75 - 7.75	1.0000	1.0000
L47	40	HB158-21U6S12-XXXM-01(1-5/8)	12.75 - 7.75	1.0000	1.0000
L47	54	LDF7-50A(1-5/8)	12.75 - 7.75	1.0000	1.0000
L48	1	5.75" x 1" Flat Plate	7.75 - 2.75	1.0000	1.0000
L48	2	5.75" x 1" Flat Plate	7.75 - 2.75	1.0000	1.0000
L48	3	5.75" x 1" Flat Plate	7.75 - 2.75	1.0000	1.0000
L48	11	MP3-04	7.75 - 2.75	1.0000	1.0000
L48	12	MP3-04	7.75 - 2.75	1.0000	1.0000
L48	13	MP3-04	7.75 - 2.75	1.0000	1.0000
L48	19	CCI-65FP-060100	7.75 - 2.75	1.0000	1.0000
L48	20	CCI-65FP-060100	7.75 - 2.75	1.0000	1.0000
L48	21	CCI-65FP-060100	7.75 - 2.75	1.0000	1.0000
L48	40	HB158-21U6S12-XXXM-01(1-5/8)	7.75 - 2.75	1.0000	1.0000
L48	54	LDF7-50A(1-5/8)	7.75 - 2.75	1.0000	1.0000
L49	1	5.75" x 1" Flat Plate	2.75 - 0.50	1.0000	1.0000
L49	2	5.75" x 1" Flat Plate	2.75 - 0.50	1.0000	1.0000
L49	3	5.75" x 1" Flat Plate	2.75 - 0.50	1.0000	1.0000
L49	11	MP3-04	2.75 - 0.50	1.0000	1.0000
L49	12	MP3-04	2.75 - 0.50	1.0000	1.0000
L49	13	MP3-04	2.75 - 0.50	1.0000	1.0000
L49	19	CCI-65FP-060100	2.75 - 0.50	1.0000	1.0000
L49	20	CCI-65FP-060100	2.75 - 0.50	1.0000	1.0000
L49	21	CCI-65FP-060100	2.75 - 0.50	1.0000	1.0000
L49	40	HB158-21U6S12-XXXM-01(1-5/8)	0.00 - 2.75	1.0000	1.0000
L49	54	LDF7-50A(1-5/8)	0.00 - 2.75	1.0000	1.0000

Effective Width of Flat Linear Attachments / Feed Lines

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L5	28	CCI-65FP-045100	115.00 - 117.00	Auto	0.3455
L5	29	CCI-65FP-045100	115.00 - 117.00	Auto	0.3455
L5	30	CCI-65FP-045100	115.00 - 117.00	Auto	0.3455
L6	28	CCI-65FP-045100	114.75 - 115.00	Auto	0.4431
L6	29	CCI-65FP-045100	114.75 - 115.00	Auto	0.4431
L6	30	CCI-65FP-045100	114.75 - 115.00	Auto	0.4431
L7	28	CCI-65FP-045100	109.75 - 114.75	Auto	0.4149
L7	29	CCI-65FP-045100	109.75 - 114.75	Auto	0.4149
L7	30	CCI-65FP-045100	109.75 - 114.75	Auto	0.4149
L8	28	CCI-65FP-045100	104.75 - 109.75	Auto	0.3607
L8	29	CCI-65FP-045100	104.75 - 109.75	Auto	0.3607
L8	30	CCI-65FP-045100	104.75 - 109.75	Auto	0.3607
L9	28	CCI-65FP-045100	102.00 - 104.75	Auto	0.3239
L9	29	CCI-65FP-045100	102.00 - 104.75	Auto	0.3239
L9	30	CCI-65FP-045100	102.00 - 104.75	Auto	0.3239
L12	25	CCI-65FP-060100	91.33 - 93.00	Auto	0.3871
L12	26	CCI-65FP-060100	91.33 - 93.00	Auto	0.3871
L12	27	CCI-65FP-060100	91.33 - 93.00	Auto	0.3871
L13	25	CCI-65FP-060100	91.00 - 91.33	Auto	0.3804
L13	26	CCI-65FP-060100	91.00 - 91.33	Auto	0.3804
L13	27	CCI-65FP-060100	91.00 - 91.33	Auto	0.3804
L14	25	CCI-65FP-060100	90.75 - 91.00	Auto	0.4628
L14	26	CCI-65FP-060100	90.75 - 91.00	Auto	0.4628
L14	27	CCI-65FP-060100	90.75 - 91.00	Auto	0.4628
L15	25	CCI-65FP-060100	85.75 - 90.75	Auto	0.4417
L15	26	CCI-65FP-060100	85.75 - 90.75	Auto	0.4417
L15	27	CCI-65FP-060100	85.75 - 90.75	Auto	0.4417
L16	25	CCI-65FP-060100	80.75 - 85.75	Auto	0.4011
L16	26	CCI-65FP-060100	80.75 - 85.75	Auto	0.4011
L16	27	CCI-65FP-060100	80.75 - 85.75	Auto	0.4011

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L17	25	CCI-65FP-060100	85.75 75.75 - 80.75	Auto	0.3641
L17	26	CCI-65FP-060100	75.75 - 80.75	Auto	0.3641
L17	27	CCI-65FP-060100	75.75 - 80.75	Auto	0.3641
L18	7	5.75" x 1" Flat Plate	70.75 - 72.00	Auto	0.2868
L18	8	5.75" x 1" Flat Plate	70.75 - 72.00	Auto	0.2868
L18	9	5.75" x 1" Flat Plate	70.75 - 72.00	Auto	0.2868
L18	25	CCI-65FP-060100	70.75 - 75.75	Auto	0.3290
L18	26	CCI-65FP-060100	70.75 - 75.75	Auto	0.3290
L18	27	CCI-65FP-060100	70.75 - 75.75	Auto	0.3290
L19	7	5.75" x 1" Flat Plate	69.98 - 70.75	Auto	0.2759
L19	8	5.75" x 1" Flat Plate	69.98 - 70.75	Auto	0.2759
L19	9	5.75" x 1" Flat Plate	69.98 - 70.75	Auto	0.2759
L19	25	CCI-65FP-060100	69.98 - 70.75	Auto	0.3061
L19	26	CCI-65FP-060100	69.98 - 70.75	Auto	0.3061
L19	27	CCI-65FP-060100	69.98 - 70.75	Auto	0.3061
L20	7	5.75" x 1" Flat Plate	69.73 - 69.98	Auto	0.2724
L20	8	5.75" x 1" Flat Plate	69.73 - 69.98	Auto	0.2724
L20	9	5.75" x 1" Flat Plate	69.73 - 69.98	Auto	0.2724
L20	25	CCI-65FP-060100	69.73 - 69.98	Auto	0.3027
L20	26	CCI-65FP-060100	69.73 - 69.98	Auto	0.3027
L20	27	CCI-65FP-060100	69.73 - 69.98	Auto	0.3027
L21	7	5.75" x 1" Flat Plate	64.73 - 69.73	Auto	0.2522
L21	8	5.75" x 1" Flat Plate	64.73 - 69.73	Auto	0.2522
L21	9	5.75" x 1" Flat Plate	64.73 - 69.73	Auto	0.2522
L21	22	CCI-65FP-060100	64.73 - 65.00	Auto	0.2677
L21	23	CCI-65FP-060100	64.73 - 65.00	Auto	0.2677
L21	24	CCI-65FP-060100	64.73 - 65.00	Auto	0.2677
L21	25	CCI-65FP-060100	68.00 - 69.73	Auto	0.2943
L21	26	CCI-65FP-060100	68.00 - 69.73	Auto	0.2943
L21	27	CCI-65FP-060100	68.00 - 69.73	Auto	0.2943
L22	7	5.75" x 1" Flat Plate	63.00 - 64.73	Auto	0.2270
L22	8	5.75" x 1" Flat Plate	63.00 - 64.73	Auto	0.2270
L22	9	5.75" x 1" Flat Plate	63.00 - 64.73	Auto	0.2270
L22	22	CCI-65FP-060100	63.00 -	Auto	0.2592

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L22	23	CCI-65FP-060100	64.73 63.00 - 64.73	Auto	0.2592
L22	24	CCI-65FP-060100	63.00 - 64.73	Auto	0.2592
L23	7	5.75" x 1" Flat Plate	62.75 - 63.00	Auto	0.2756
L23	8	5.75" x 1" Flat Plate	62.75 - 63.00	Auto	0.2756
L23	9	5.75" x 1" Flat Plate	62.75 - 63.00	Auto	0.2756
L23	22	CCI-65FP-060100	62.75 - 63.00	Auto	0.3057
L23	23	CCI-65FP-060100	62.75 - 63.00	Auto	0.3057
L23	24	CCI-65FP-060100	62.75 - 63.00	Auto	0.3057
L24	7	5.75" x 1" Flat Plate	59.08 - 62.75	Auto	0.2581
L24	8	5.75" x 1" Flat Plate	59.08 - 62.75	Auto	0.2581
L24	9	5.75" x 1" Flat Plate	59.08 - 62.75	Auto	0.2581
L24	11	MP3-04	59.08 - 60.50	Auto	0.0982
L24	12	MP3-04	59.08 - 60.50	Auto	0.0982
L24	13	MP3-04	59.08 - 60.50	Auto	0.0982
L24	22	CCI-65FP-060100	59.08 - 62.75	Auto	0.2890
L24	23	CCI-65FP-060100	59.08 - 62.75	Auto	0.2890
L24	24	CCI-65FP-060100	59.08 - 62.75	Auto	0.2890
L25	7	5.75" x 1" Flat Plate	58.82 - 59.08	Auto	0.2253
L25	8	5.75" x 1" Flat Plate	58.82 - 59.08	Auto	0.2253
L25	9	5.75" x 1" Flat Plate	58.82 - 59.08	Auto	0.2253
L25	11	MP3-04	58.82 - 59.08	Auto	0.0681
L25	12	MP3-04	58.82 - 59.08	Auto	0.0681
L25	13	MP3-04	58.82 - 59.08	Auto	0.0681
L25	22	CCI-65FP-060100	58.82 - 59.08	Auto	0.2576
L25	23	CCI-65FP-060100	58.82 - 59.08	Auto	0.2576
L25	24	CCI-65FP-060100	58.82 - 59.08	Auto	0.2576
L26	7	5.75" x 1" Flat Plate	58.67 - 58.82	Auto	0.2239
L26	8	5.75" x 1" Flat Plate	58.67 - 58.82	Auto	0.2239
L26	9	5.75" x 1" Flat Plate	58.67 - 58.82	Auto	0.2239
L26	11	MP3-04	58.67 - 58.82	Auto	0.0664
L26	12	MP3-04	58.67 - 58.82	Auto	0.0664
L26	13	MP3-04	58.67 - 58.82	Auto	0.0664
L26	22	CCI-65FP-060100	58.67 - 58.82	Auto	0.2562
L26	23	CCI-65FP-060100	58.67 -	Auto	0.2562

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L26	24	CCI-65FP-060100	58.82 58.67 - 58.82	Auto	0.2562
L27	7	5.75" x 1" Flat Plate	57.00 - 58.67	Auto	0.2138
L27	8	5.75" x 1" Flat Plate	57.00 - 58.67	Auto	0.2138
L27	9	5.75" x 1" Flat Plate	57.00 - 58.67	Auto	0.2138
L27	11	MP3-04	53.67 - 58.67	Auto	0.0403
L27	12	MP3-04	53.67 - 58.67	Auto	0.0403
L27	13	MP3-04	53.67 - 58.67	Auto	0.0403
L27	22	CCI-65FP-060100	53.67 - 58.67	Auto	0.2354
L27	23	CCI-65FP-060100	53.67 - 58.67	Auto	0.2354
L27	24	CCI-65FP-060100	53.67 - 58.67	Auto	0.2354
L28	4	5.75" x 1" Flat Plate	48.58 - 50.58	Auto	0.1564
L28	5	5.75" x 1" Flat Plate	48.58 - 50.58	Auto	0.1564
L28	6	5.75" x 1" Flat Plate	48.58 - 50.58	Auto	0.1564
L28	11	MP3-04	48.58 - 53.67	Auto	0.0044
L28	12	MP3-04	48.58 - 53.67	Auto	0.0044
L28	13	MP3-04	48.58 - 53.67	Auto	0.0044
L28	22	CCI-65FP-060100	50.00 - 53.67	Auto	0.2066
L28	23	CCI-65FP-060100	50.00 - 53.67	Auto	0.2066
L28	24	CCI-65FP-060100	50.00 - 53.67	Auto	0.2066
L29	4	5.75" x 1" Flat Plate	47.58 - 48.58	Auto	0.1728
L29	5	5.75" x 1" Flat Plate	47.58 - 48.58	Auto	0.1728
L29	6	5.75" x 1" Flat Plate	47.58 - 48.58	Auto	0.1728
L29	11	MP3-04	47.58 - 48.58	Auto	0.0049
L29	12	MP3-04	47.58 - 48.58	Auto	0.0049
L29	13	MP3-04	47.58 - 48.58	Auto	0.0049
L30	4	5.75" x 1" Flat Plate	42.58 - 47.58	Auto	0.1481
L30	5	5.75" x 1" Flat Plate	42.58 - 47.58	Auto	0.1481
L30	6	5.75" x 1" Flat Plate	42.58 - 47.58	Auto	0.1481
L30	11	MP3-04	42.58 - 47.58	Auto	0.0000
L30	12	MP3-04	42.58 - 47.58	Auto	0.0000
L30	13	MP3-04	42.58 - 47.58	Auto	0.0000
L31	4	5.75" x 1" Flat Plate	39.67 - 42.58	Auto	0.1168
L31	5	5.75" x 1" Flat Plate	39.67 - 42.58	Auto	0.1168
L31	6	5.75" x 1" Flat Plate	39.67 -	Auto	0.1168

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L31	11	MP3-04	42.58 39.67 - 42.58	Auto	0.0000
L31	12	MP3-04	39.67 - 42.58	Auto	0.0000
L31	13	MP3-04	39.67 - 42.58	Auto	0.0000
L31	15	CCI-65FP-060100	39.67 - 41.67	Auto	0.1505
L31	16	CCI-65FP-060100	39.67 - 41.67	Auto	0.1505
L31	17	CCI-65FP-060100	39.67 - 41.67	Auto	0.1505
L32	4	5.75" x 1" Flat Plate	39.42 - 39.67	Auto	0.1670
L32	5	5.75" x 1" Flat Plate	39.42 - 39.67	Auto	0.1670
L32	6	5.75" x 1" Flat Plate	39.42 - 39.67	Auto	0.1670
L32	11	MP3-04	39.42 - 39.67	Auto	0.0000
L32	12	MP3-04	39.42 - 39.67	Auto	0.0000
L32	13	MP3-04	39.42 - 39.67	Auto	0.0000
L32	15	CCI-65FP-060100	39.42 - 39.67	Auto	0.2017
L32	16	CCI-65FP-060100	39.42 - 39.67	Auto	0.2017
L32	17	CCI-65FP-060100	39.42 - 39.67	Auto	0.2017
L33	4	5.75" x 1" Flat Plate	34.42 - 39.42	Auto	0.1411
L33	5	5.75" x 1" Flat Plate	34.42 - 39.42	Auto	0.1411
L33	6	5.75" x 1" Flat Plate	34.42 - 39.42	Auto	0.1411
L33	11	MP3-04	34.42 - 39.42	Auto	0.0000
L33	12	MP3-04	34.42 - 39.42	Auto	0.0000
L33	13	MP3-04	34.42 - 39.42	Auto	0.0000
L33	15	CCI-65FP-060100	34.42 - 39.42	Auto	0.1769
L33	16	CCI-65FP-060100	34.42 - 39.42	Auto	0.1769
L33	17	CCI-65FP-060100	34.42 - 39.42	Auto	0.1769
L34	1	5.75" x 1" Flat Plate	32.50 - 33.33	Auto	0.1133
L34	2	5.75" x 1" Flat Plate	32.50 - 33.33	Auto	0.1133
L34	3	5.75" x 1" Flat Plate	32.50 - 33.33	Auto	0.1133
L34	4	5.75" x 1" Flat Plate	32.50 - 34.42	Auto	0.1171
L34	5	5.75" x 1" Flat Plate	32.50 - 34.42	Auto	0.1171
L34	6	5.75" x 1" Flat Plate	32.50 - 34.42	Auto	0.1171
L34	11	MP3-04	32.50 - 34.42	Auto	0.0000
L34	12	MP3-04	32.50 - 34.42	Auto	0.0000
L34	13	MP3-04	32.50 - 34.42	Auto	0.0000
L34	15	CCI-65FP-060100	32.50 -	Auto	0.1539

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L34	16	CCI-65FP-060100	34.42 32.50 - 34.42	Auto	0.1539
L34	17	CCI-65FP-060100	32.50 - 34.42	Auto	0.1539
L35	1	5.75" x 1" Flat Plate	32.25 - 32.50	Auto	0.0560
L35	2	5.75" x 1" Flat Plate	32.25 - 32.50	Auto	0.0560
L35	3	5.75" x 1" Flat Plate	32.25 - 32.50	Auto	0.0560
L35	4	5.75" x 1" Flat Plate	32.25 - 32.50	Auto	0.0560
L35	5	5.75" x 1" Flat Plate	32.25 - 32.50	Auto	0.0560
L35	6	5.75" x 1" Flat Plate	32.25 - 32.50	Auto	0.0560
L35	11	MP3-04	32.25 - 32.50	Auto	0.0000
L35	12	MP3-04	32.25 - 32.50	Auto	0.0000
L35	13	MP3-04	32.25 - 32.50	Auto	0.0000
L35	15	CCI-65FP-060100	32.25 - 32.50	Auto	0.0953
L35	16	CCI-65FP-060100	32.25 - 32.50	Auto	0.0953
L35	17	CCI-65FP-060100	32.25 - 32.50	Auto	0.0953
L36	1	5.75" x 1" Flat Plate	31.42 - 32.25	Auto	0.0484
L36	2	5.75" x 1" Flat Plate	31.42 - 32.25	Auto	0.0484
L36	3	5.75" x 1" Flat Plate	31.42 - 32.25	Auto	0.0484
L36	4	5.75" x 1" Flat Plate	31.42 - 32.25	Auto	0.0484
L36	5	5.75" x 1" Flat Plate	31.42 - 32.25	Auto	0.0484
L36	6	5.75" x 1" Flat Plate	31.42 - 32.25	Auto	0.0484
L36	11	MP3-04	31.42 - 32.25	Auto	0.0000
L36	12	MP3-04	31.42 - 32.25	Auto	0.0000
L36	13	MP3-04	31.42 - 32.25	Auto	0.0000
L36	15	CCI-65FP-060100	31.42 - 32.25	Auto	0.0880
L36	16	CCI-65FP-060100	31.42 - 32.25	Auto	0.0880
L36	17	CCI-65FP-060100	31.42 - 32.25	Auto	0.0880
L37	1	5.75" x 1" Flat Plate	31.17 - 31.42	Auto	0.0982
L37	2	5.75" x 1" Flat Plate	31.17 - 31.42	Auto	0.0982
L37	3	5.75" x 1" Flat Plate	31.17 - 31.42	Auto	0.0982
L37	4	5.75" x 1" Flat Plate	31.17 - 31.42	Auto	0.0982
L37	5	5.75" x 1" Flat Plate	31.17 - 31.42	Auto	0.0982
L37	6	5.75" x 1" Flat Plate	31.17 - 31.42	Auto	0.0982
L37	11	MP3-04	31.17 - 31.42	Auto	0.0000
L37	12	MP3-04	31.17 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L37	13	MP3-04	31.42 31.17 - 31.42	Auto	0.0000
L37	15	CCI-65FP-060100	31.17 - 31.42	Auto	0.1358
L37	16	CCI-65FP-060100	31.17 - 31.42	Auto	0.1358
L37	17	CCI-65FP-060100	31.17 - 31.42	Auto	0.1358
L38	1	5.75" x 1" Flat Plate	29.00 - 31.17	Auto	0.0860
L38	2	5.75" x 1" Flat Plate	29.00 - 31.17	Auto	0.0860
L38	3	5.75" x 1" Flat Plate	29.00 - 31.17	Auto	0.0860
L38	4	5.75" x 1" Flat Plate	30.58 - 31.17	Auto	0.0915
L38	5	5.75" x 1" Flat Plate	30.58 - 31.17	Auto	0.0915
L38	6	5.75" x 1" Flat Plate	30.58 - 31.17	Auto	0.0915
L38	11	MP3-04	29.00 - 31.17	Auto	0.0000
L38	12	MP3-04	29.00 - 31.17	Auto	0.0000
L38	13	MP3-04	29.00 - 31.17	Auto	0.0000
L38	15	CCI-65FP-060100	29.00 - 31.17	Auto	0.1240
L38	16	CCI-65FP-060100	29.00 - 31.17	Auto	0.1240
L38	17	CCI-65FP-060100	29.00 - 31.17	Auto	0.1240
L38	32	CCI-65FP-060100	29.00 - 31.00	Auto	0.1235
L38	33	CCI-65FP-060100	29.00 - 31.00	Auto	0.1235
L39	1	5.75" x 1" Flat Plate	28.65 - 29.00	Auto	0.0504
L39	2	5.75" x 1" Flat Plate	28.65 - 29.00	Auto	0.0504
L39	3	5.75" x 1" Flat Plate	28.65 - 29.00	Auto	0.0504
L39	11	MP3-04	28.65 - 29.00	Auto	0.0000
L39	12	MP3-04	28.65 - 29.00	Auto	0.0000
L39	13	MP3-04	28.65 - 29.00	Auto	0.0000
L39	15	CCI-65FP-060100	28.65 - 29.00	Auto	0.0900
L39	16	CCI-65FP-060100	28.65 - 29.00	Auto	0.0900
L39	17	CCI-65FP-060100	28.65 - 29.00	Auto	0.0900
L39	32	CCI-65FP-060100	28.65 - 29.00	Auto	0.0900
L39	33	CCI-65FP-060100	28.65 - 29.00	Auto	0.0900
L40	1	5.75" x 1" Flat Plate	28.42 - 28.65	Auto	0.0484
L40	2	5.75" x 1" Flat Plate	28.42 - 28.65	Auto	0.0484
L40	3	5.75" x 1" Flat Plate	28.42 - 28.65	Auto	0.0484
L40	11	MP3-04	28.42 - 28.65	Auto	0.0000
L40	12	MP3-04	28.42 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L40	13	MP3-04	28.65 28.42 - 28.65	Auto	0.0000
L40	15	CCI-65FP-060100	28.42 - 28.65	Auto	0.0881
L40	16	CCI-65FP-060100	28.42 - 28.65	Auto	0.0881
L40	17	CCI-65FP-060100	28.42 - 28.65	Auto	0.0881
L40	32	CCI-65FP-060100	28.42 - 28.65	Auto	0.0881
L40	33	CCI-65FP-060100	28.42 - 28.65	Auto	0.0881
L41	1	5.75" x 1" Flat Plate	23.50 - 28.42	Auto	0.0267
L41	2	5.75" x 1" Flat Plate	23.50 - 28.42	Auto	0.0267
L41	3	5.75" x 1" Flat Plate	23.50 - 28.42	Auto	0.0267
L41	11	MP3-04	23.50 - 28.42	Auto	0.0000
L41	12	MP3-04	23.50 - 28.42	Auto	0.0000
L41	13	MP3-04	23.50 - 28.42	Auto	0.0000
L41	15	CCI-65FP-060100	26.67 - 28.42	Auto	0.0778
L41	16	CCI-65FP-060100	26.67 - 28.42	Auto	0.0778
L41	17	CCI-65FP-060100	26.67 - 28.42	Auto	0.0778
L41	19	CCI-65FP-060100	23.50 - 25.50	Auto	0.0575
L41	20	CCI-65FP-060100	23.50 - 25.50	Auto	0.0575
L41	21	CCI-65FP-060100	23.50 - 25.50	Auto	0.0575
L41	32	CCI-65FP-060100	23.50 - 28.42	Auto	0.0672
L41	33	CCI-65FP-060100	23.50 - 28.42	Auto	0.0672
L42	1	5.75" x 1" Flat Plate	23.25 - 23.50	Auto	0.0470
L42	2	5.75" x 1" Flat Plate	23.25 - 23.50	Auto	0.0470
L42	3	5.75" x 1" Flat Plate	23.25 - 23.50	Auto	0.0470
L42	11	MP3-04	23.25 - 23.50	Auto	0.0000
L42	12	MP3-04	23.25 - 23.50	Auto	0.0000
L42	13	MP3-04	23.25 - 23.50	Auto	0.0000
L42	19	CCI-65FP-060100	23.25 - 23.50	Auto	0.0867
L42	20	CCI-65FP-060100	23.25 - 23.50	Auto	0.0867
L42	21	CCI-65FP-060100	23.25 - 23.50	Auto	0.0867
L42	32	CCI-65FP-060100	23.25 - 23.50	Auto	0.0867
L42	33	CCI-65FP-060100	23.25 - 23.50	Auto	0.0867
L43	1	5.75" x 1" Flat Plate	23.00 - 23.25	Auto	0.0453
L43	2	5.75" x 1" Flat Plate	23.00 - 23.25	Auto	0.0453
L43	3	5.75" x 1" Flat Plate	23.00 -	Auto	0.0453

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L43	11	MP3-04	23.25 23.00 - 23.25	Auto	0.0000
L43	12	MP3-04	23.00 - 23.25	Auto	0.0000
L43	13	MP3-04	23.00 - 23.25	Auto	0.0000
L43	19	CCI-65FP-060100	23.00 - 23.25	Auto	0.0850
L43	20	CCI-65FP-060100	23.00 - 23.25	Auto	0.0850
L43	21	CCI-65FP-060100	23.00 - 23.25	Auto	0.0850
L43	32	CCI-65FP-060100	23.00 - 23.25	Auto	0.0850
L43	33	CCI-65FP-060100	23.00 - 23.25	Auto	0.0850
L44	1	5.75" x 1" Flat Plate	22.75 - 23.00	Auto	0.0014
L44	2	5.75" x 1" Flat Plate	22.75 - 23.00	Auto	0.0014
L44	3	5.75" x 1" Flat Plate	22.75 - 23.00	Auto	0.0014
L44	11	MP3-04	22.75 - 23.00	Auto	0.0000
L44	12	MP3-04	22.75 - 23.00	Auto	0.0000
L44	13	MP3-04	22.75 - 23.00	Auto	0.0000
L44	19	CCI-65FP-060100	22.75 - 23.00	Auto	0.0430
L44	20	CCI-65FP-060100	22.75 - 23.00	Auto	0.0430
L44	21	CCI-65FP-060100	22.75 - 23.00	Auto	0.0430
L44	32	CCI-65FP-060100	22.75 - 23.00	Auto	0.0430
L44	33	CCI-65FP-060100	22.75 - 23.00	Auto	0.0430
L45	1	5.75" x 1" Flat Plate	17.75 - 22.75	Auto	0.0000
L45	2	5.75" x 1" Flat Plate	17.75 - 22.75	Auto	0.0000
L45	3	5.75" x 1" Flat Plate	17.75 - 22.75	Auto	0.0000
L45	11	MP3-04	17.75 - 22.75	Auto	0.0000
L45	12	MP3-04	17.75 - 22.75	Auto	0.0000
L45	13	MP3-04	17.75 - 22.75	Auto	0.0000
L45	19	CCI-65FP-060100	17.75 - 22.75	Auto	0.0219
L45	20	CCI-65FP-060100	17.75 - 22.75	Auto	0.0219
L45	21	CCI-65FP-060100	17.75 - 22.75	Auto	0.0219
L45	32	CCI-65FP-060100	21.00 - 22.75	Auto	0.0327
L45	33	CCI-65FP-060100	21.00 - 22.75	Auto	0.0327
L46	1	5.75" x 1" Flat Plate	12.75 - 17.75	Auto	0.0000
L46	2	5.75" x 1" Flat Plate	12.75 - 17.75	Auto	0.0000
L46	3	5.75" x 1" Flat Plate	12.75 - 17.75	Auto	0.0000
L46	11	MP3-04	12.75 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L46	12	MP3-04	17.75 12.75 - 17.75	Auto	0.0000
L46	13	MP3-04	12.75 - 17.75	Auto	0.0000
L46	19	CCI-65FP-060100	12.75 - 17.75	Auto	0.0000
L46	20	CCI-65FP-060100	12.75 - 17.75	Auto	0.0000
L46	21	CCI-65FP-060100	12.75 - 17.75	Auto	0.0000
L47	1	5.75" x 1" Flat Plate	7.75 - 12.75	Auto	0.0000
L47	2	5.75" x 1" Flat Plate	7.75 - 12.75	Auto	0.0000
L47	3	5.75" x 1" Flat Plate	7.75 - 12.75	Auto	0.0000
L47	11	MP3-04	7.75 - 12.75	Auto	0.0000
L47	12	MP3-04	7.75 - 12.75	Auto	0.0000
L47	13	MP3-04	7.75 - 12.75	Auto	0.0000
L47	19	CCI-65FP-060100	7.75 - 12.75	Auto	0.0000
L47	20	CCI-65FP-060100	7.75 - 12.75	Auto	0.0000
L47	21	CCI-65FP-060100	7.75 - 12.75	Auto	0.0000
L48	1	5.75" x 1" Flat Plate	2.75 - 7.75	Auto	0.0000
L48	2	5.75" x 1" Flat Plate	2.75 - 7.75	Auto	0.0000
L48	3	5.75" x 1" Flat Plate	2.75 - 7.75	Auto	0.0000
L48	11	MP3-04	2.75 - 7.75	Auto	0.0000
L48	12	MP3-04	2.75 - 7.75	Auto	0.0000
L48	13	MP3-04	2.75 - 7.75	Auto	0.0000
L48	19	CCI-65FP-060100	2.75 - 7.75	Auto	0.0000
L48	20	CCI-65FP-060100	2.75 - 7.75	Auto	0.0000
L48	21	CCI-65FP-060100	2.75 - 7.75	Auto	0.0000
L49	1	5.75" x 1" Flat Plate	0.50 - 2.75	Auto	0.0000
L49	2	5.75" x 1" Flat Plate	0.50 - 2.75	Auto	0.0000
L49	3	5.75" x 1" Flat Plate	0.50 - 2.75	Auto	0.0000
L49	11	MP3-04	0.50 - 2.75	Auto	0.0000
L49	12	MP3-04	0.50 - 2.75	Auto	0.0000
L49	13	MP3-04	0.50 - 2.75	Auto	0.0000
L49	19	CCI-65FP-060100	0.50 - 2.75	Auto	0.0000
L49	20	CCI-65FP-060100	0.50 - 2.75	Auto	0.0000
L49	21	CCI-65FP-060100	0.50 - 2.75	Auto	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		CA _{AA} Front ft ²	CA _{AA} Side ft ²	Weight K
DB636-C	A	From Leg	4.000	0.000	138.000	No Ice	2.375	2.375	0.030
			0.000			1/2"	3.354	3.354	0.048
			7.000			Ice	4.350	4.350	0.072
BXA-80063-6BF-EDIN-4 w/ Mount Pipe	A	From Leg	4.000	0.000	138.000	1" Ice	7.500	5.630	0.044
			0.000			1/2"	8.033	6.719	0.103
			2.000			Ice	8.535	7.561	0.170
BXA-80063-6BF-EDIN-4 w/ Mount Pipe	B	From Leg	4.000	0.000	138.000	1" Ice	7.500	5.630	0.044
			0.000			1/2"	8.033	6.719	0.103
			2.000			Ice	8.535	7.561	0.170
BXA-80063-6BF-EDIN-4	C	From Leg	4.000	0.000	138.000	No Ice	7.500	5.630	0.044

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
w/ Mount Pipe			0.000 2.000			1/2" Ice 8.033 8.535	6.719 7.561	0.103 0.170
(2) RRFDC-3315-PF-48	C	From Leg	4.000 0.000 2.000	0.000	138.000	1" Ice No Ice 1/2" Ice 3.364 3.597 3.838	2.192 2.395 2.606	0.032 0.061 0.093
(2) QS6656-5D w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	138.000	1" Ice No Ice 1/2" Ice 4.040 4.420 4.820	4.180 4.570 4.970	0.114 0.183 0.264
(2) QS6656-5D w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	138.000	1" Ice No Ice 1/2" Ice 4.040 4.420 4.820	4.180 4.570 4.970	0.114 0.183 0.264
(2) QS6656-5D w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	138.000	1" Ice No Ice 1/2" Ice 4.040 4.420 4.820	4.180 4.570 4.970	0.114 0.183 0.264
MT6407-77A w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	138.000	1" Ice No Ice 1/2" Ice 4.907 5.256 5.615	2.682 3.145 3.624	0.096 0.136 0.180
MT6407-77A w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	138.000	1" Ice No Ice 1/2" Ice 4.907 5.256 5.615	2.682 3.145 3.624	0.096 0.136 0.180
MT6407-77A w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	138.000	1" Ice No Ice 1/2" Ice 4.907 5.256 5.615	2.682 3.145 3.624	0.096 0.136 0.180
RFV01U-D1A	A	From Leg	4.000 0.000 2.000	0.000	138.000	1" Ice No Ice 1/2" Ice 1.875 2.045 2.223	1.250 1.393 1.543	0.084 0.103 0.124
RFV01U-D1A	B	From Leg	4.000 0.000 2.000	0.000	138.000	1" Ice No Ice 1/2" Ice 1.875 2.045 2.223	1.250 1.393 1.543	0.084 0.103 0.124
RFV01U-D1A	C	From Leg	4.000 0.000 2.000	0.000	138.000	1" Ice No Ice 1/2" Ice 1.875 2.045 2.223	1.250 1.393 1.543	0.084 0.103 0.124
RFV01U-D2A	A	From Leg	4.000 0.000 2.000	0.000	138.000	1" Ice No Ice 1/2" Ice 1.875 2.045 2.223	1.013 1.145 1.284	0.070 0.087 0.106
RFV01U-D2A	B	From Leg	4.000 0.000 2.000	0.000	138.000	1" Ice No Ice 1/2" Ice 1.875 2.045 2.223	1.013 1.145 1.284	0.070 0.087 0.106
RFV01U-D2A	C	From Leg	4.000 0.000 2.000	0.000	138.000	1" Ice No Ice 1/2" Ice 1.875 2.045 2.223	1.013 1.145 1.284	0.070 0.087 0.106
Platform Mount [LP 403-1]	C	None		0.000	138.000	1" Ice No Ice 1/2" Ice 18.940 23.310 27.740	18.940 23.310 27.740	1.500 1.902 2.374
(2) Side Arm Mount [SO 102-3]	C	None		0.000	138.000	1" Ice No Ice 1/2" Ice 3.600 4.180 4.750	3.600 4.180 4.750	0.075 0.105 0.135
Mount Reinforcement Spec	C	None		0.000	138.000	1" Ice No Ice 1/2" 37.310	28.630 28.630 37.310	0.280 0.670

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
						Ice 1" Ice	45.800	45.800	0.940
* TPA65R-BU6D_CCIV2 w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	127.000	No Ice 1/2" Ice 1" Ice	11.960 12.700 13.460	5.970 6.630 7.300	0.094 0.181 0.278
TPA65R-BU6D_CCIV2 w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	127.000	No Ice 1/2" Ice 1" Ice	11.960 12.700 13.460	5.970 6.630 7.300	0.094 0.181 0.278
TPA65R-BU6D_CCIV2 w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	127.000	No Ice 1/2" Ice 1" Ice	11.960 12.700 13.460	5.970 6.630 7.300	0.094 0.181 0.278
AIR 6419 B77G_CCIV3 w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	127.000	No Ice 1/2" Ice 1" Ice	4.380 4.708 5.045	2.760 3.191 3.639	0.057 0.096 0.140
AIR 6419 B77G_CCIV3 w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	127.000	No Ice 1/2" Ice 1" Ice	4.380 4.708 5.045	2.760 3.191 3.639	0.057 0.096 0.140
AIR 6419 B77G_CCIV3 w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	127.000	No Ice 1/2" Ice 1" Ice	4.380 4.708 5.045	2.760 3.191 3.639	0.057 0.096 0.140
AIR 6449 B77D w/ Mount Pipe	A	From Leg	4.000 0.000 -2.000	0.000	127.000	No Ice 1/2" Ice 1" Ice	3.580 3.920 4.270	2.310 2.600 2.910	0.095 0.130 0.173
AIR 6449 B77D w/ Mount Pipe	B	From Leg	4.000 0.000 -2.000	0.000	127.000	No Ice 1/2" Ice 1" Ice	3.580 3.920 4.270	2.310 2.600 2.910	0.095 0.130 0.173
AIR 6449 B77D w/ Mount Pipe	C	From Leg	4.000 0.000 -2.000	0.000	127.000	No Ice 1/2" Ice 1" Ice	3.580 3.920 4.270	2.310 2.600 2.910	0.095 0.130 0.173
DC6-48-60-18-8F	A	From Leg	4.000 0.000 2.000	0.000	127.000	No Ice 1/2" Ice 1" Ice	1.212 1.892 2.105	1.212 1.892 2.105	0.020 0.042 0.067
DC6-48-60-18-8F	B	From Leg	4.000 0.000 2.000	0.000	127.000	No Ice 1/2" Ice 1" Ice	1.212 1.892 2.105	1.212 1.892 2.105	0.020 0.042 0.067
DC9-48-60-24-8C- EV_CCIV2	C	From Leg	4.000 0.000 2.000	0.000	127.000	No Ice 1/2" Ice 1" Ice	2.736 2.962 3.195	2.736 2.962 3.195	0.016 0.042 0.071
DMP65R-BU6D w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	127.000	No Ice 1/2" Ice 1" Ice	11.960 12.700 13.460	5.970 6.630 7.300	0.115 0.201 0.298
DMP65R-BU6D w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	127.000	No Ice 1/2" Ice 1" Ice	11.960 12.700 13.460	5.970 6.630 7.300	0.115 0.201 0.298
DMP65R-BU6D w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	127.000	No Ice 1/2" Ice 1" Ice	11.960 12.700 13.460	5.970 6.630 7.300	0.115 0.201 0.298
RADIO 4415 B30	A	From Leg	4.000 0.000	0.000	127.000	No Ice 1/2"	1.643 1.803	0.639 0.750	0.043 0.055

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			2.000			Ice	1.971	0.867	0.069
RADIO 4415 B30	B	From Leg	4.000	0.000	127.000	1" Ice	1.643	0.639	0.043
			0.000			No Ice	1.803	0.750	0.055
			2.000			1/2"	1.803	0.750	0.055
						Ice	1.971	0.867	0.069
RADIO 4415 B30	C	From Leg	4.000	0.000	127.000	1" Ice	1.643	0.639	0.043
			0.000			No Ice	1.803	0.750	0.055
			2.000			1/2"	1.803	0.750	0.055
						Ice	1.971	0.867	0.069
RRUS 32 B2	A	From Leg	4.000	0.000	127.000	1" Ice	2.731	1.668	0.053
			0.000			No Ice	2.953	1.855	0.074
			2.000			1/2"	2.953	1.855	0.074
						Ice	3.182	2.049	0.098
RRUS 32 B2	B	From Leg	4.000	0.000	127.000	1" Ice	2.731	1.668	0.053
			0.000			No Ice	2.953	1.855	0.074
			2.000			1/2"	2.953	1.855	0.074
						Ice	3.182	2.049	0.098
RRUS 32 B2	C	From Leg	4.000	0.000	127.000	1" Ice	2.731	1.668	0.053
			0.000			No Ice	2.953	1.855	0.074
			2.000			1/2"	2.953	1.855	0.074
						Ice	3.182	2.049	0.098
RRUS 32 B66A	A	From Leg	4.000	0.000	127.000	1" Ice	2.864	1.782	0.055
			0.000			No Ice	3.090	1.973	0.077
			2.000			1/2"	3.090	1.973	0.077
						Ice	3.323	2.171	0.103
RRUS 32 B66A	B	From Leg	4.000	0.000	127.000	1" Ice	2.864	1.782	0.055
			0.000			No Ice	3.090	1.973	0.077
			2.000			1/2"	3.090	1.973	0.077
						Ice	3.323	2.171	0.103
RRUS 32 B66A	C	From Leg	4.000	0.000	127.000	1" Ice	2.864	1.782	0.055
			0.000			No Ice	3.090	1.973	0.077
			2.000			1/2"	3.090	1.973	0.077
						Ice	3.323	2.171	0.103
RRUS 4449 B5/B12	A	From Leg	4.000	0.000	127.000	1" Ice	1.968	1.408	0.071
			0.000			No Ice	2.144	1.564	0.090
			2.000			1/2"	2.144	1.564	0.090
						Ice	2.328	1.727	0.111
RRUS 4449 B5/B12	B	From Leg	4.000	0.000	127.000	1" Ice	1.968	1.408	0.071
			0.000			No Ice	2.144	1.564	0.090
			2.000			1/2"	2.144	1.564	0.090
						Ice	2.328	1.727	0.111
RRUS 4449 B5/B12	C	From Leg	4.000	0.000	127.000	1" Ice	1.968	1.408	0.071
			0.000			No Ice	2.144	1.564	0.090
			2.000			1/2"	2.144	1.564	0.090
						Ice	2.328	1.727	0.111
RRUS 4478 B14_CCIV2	A	From Leg	4.000	0.000	127.000	1" Ice	2.021	1.246	0.059
			0.000			No Ice	2.200	1.396	0.077
			2.000			1/2"	2.200	1.396	0.077
						Ice	2.386	1.554	0.097
RRUS 4478 B14_CCIV2	B	From Leg	4.000	0.000	127.000	1" Ice	2.021	1.246	0.059
			0.000			No Ice	2.200	1.396	0.077
			2.000			1/2"	2.200	1.396	0.077
						Ice	2.386	1.554	0.097
RRUS 4478 B14_CCIV2	C	From Leg	4.000	0.000	127.000	1" Ice	2.021	1.246	0.059
			0.000			No Ice	2.200	1.396	0.077
			2.000			1/2"	2.200	1.396	0.077
						Ice	2.386	1.554	0.097
Sector Mount [SM 503-3]	C	None		0.000	127.000	1" Ice	30.430	30.430	1.690
						No Ice	43.020	43.020	2.296
						1/2"	43.020	43.020	2.296
						Ice	55.430	55.430	3.097
Pipe Mount [PM 601-3]	C	None		0.000	127.000	1" Ice	3.170	3.170	0.195
						No Ice	3.790	3.790	0.232
						1/2"	3.790	3.790	0.232
						Ice	4.420	4.420	0.279

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
(2) Side Arm Mount [SO 102-3]	C	None		0.000	127.000	1" Ice No Ice 1/2" Ice 1" Ice	3.600 3.600 4.180 4.180 4.750 4.750	0.075 0.105 0.135
* AIR 32 B2A B66AA w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	118.000	No Ice 1/2" Ice 1" Ice	3.760 4.120 4.480 3.150 3.490 3.840	0.194 0.252 0.320
AIR 32 B2A B66AA w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	118.000	No Ice 1/2" Ice 1" Ice	3.760 4.120 4.480 3.150 3.490 3.840	0.194 0.252 0.320
AIR 32 B2A B66AA w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	118.000	No Ice 1/2" Ice 1" Ice	3.760 4.120 4.480 3.150 3.490 3.840	0.194 0.252 0.320
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	118.000	No Ice 1/2" Ice 1" Ice	14.690 15.460 16.230 6.870 7.550 8.250	0.186 0.315 0.458
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	118.000	No Ice 1/2" Ice 1" Ice	14.690 15.460 16.230 6.870 7.550 8.250	0.186 0.315 0.458
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	118.000	No Ice 1/2" Ice 1" Ice	14.690 15.460 16.230 6.870 7.550 8.250	0.186 0.315 0.458
AIR6449 B41 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	118.000	No Ice 1/2" Ice 1" Ice	5.180 5.590 6.010 2.720 3.050 3.390	0.118 0.164 0.216
AIR6449 B41 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	118.000	No Ice 1/2" Ice 1" Ice	5.180 5.590 6.010 2.720 3.050 3.390	0.118 0.164 0.216
AIR6449 B41 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	118.000	No Ice 1/2" Ice 1" Ice	5.180 5.590 6.010 2.720 3.050 3.390	0.118 0.164 0.216
APX16DWV-16DWVS-E- A20 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	118.000	No Ice 1/2" Ice 1" Ice	6.290 6.860 7.450 2.760 3.270 3.790	0.061 0.105 0.157
APX16DWV-16DWVS-E- A20 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	118.000	No Ice 1/2" Ice 1" Ice	6.290 6.860 7.450 2.760 3.270 3.790	0.061 0.105 0.157
APX16DWV-16DWVS-E- A20 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	118.000	No Ice 1/2" Ice 1" Ice	6.290 6.860 7.450 2.760 3.270 3.790	0.061 0.105 0.157
RADIO 4449 B71 B85A_T- MOBILE	A	From Leg	4.000 0.000 0.000	0.000	118.000	No Ice 1/2" Ice 1" Ice	1.970 2.147 2.331 1.587 1.749 1.918	0.073 0.093 0.116
RADIO 4449 B71 B85A_T- MOBILE	B	From Leg	4.000 0.000 0.000	0.000	118.000	No Ice 1/2" Ice 1" Ice	1.970 2.147 2.331 1.587 1.749 1.918	0.073 0.093 0.116
RADIO 4449 B71 B85A_T- MOBILE	C	From Leg	4.000 0.000 0.000	0.000	118.000	No Ice 1/2" Ice 1" Ice	1.970 2.147 2.331 1.587 1.749 1.918	0.073 0.093 0.116

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	
RRUS 4415 B25	A	From Leg	4.000	0.000	0.000	0.000	118.000	1" Ice	1.644	0.679	0.044
			0.000	0.000	0.000			No Ice	1.804	0.791	0.056
			0.000	0.000	0.000			1/2" Ice	1.972	0.913	0.071
RRUS 4415 B25	B	From Leg	4.000	0.000	0.000	0.000	118.000	1" Ice	1.644	0.679	0.044
			0.000	0.000	0.000			No Ice	1.804	0.791	0.056
			0.000	0.000	0.000			1/2" Ice	1.972	0.913	0.071
RRUS 4415 B25	C	From Leg	4.000	0.000	0.000	0.000	118.000	1" Ice	1.644	0.679	0.044
			0.000	0.000	0.000			No Ice	1.804	0.791	0.056
			0.000	0.000	0.000			1/2" Ice	1.972	0.913	0.071
KRY 112 489/2	A	From Leg	4.000	0.000	0.000	0.000	118.000	1" Ice	0.559	0.365	0.015
			0.000	0.000	0.000			No Ice	0.658	0.448	0.020
			0.000	0.000	0.000			1/2" Ice	0.764	0.542	0.027
KRY 112 489/2	B	From Leg	4.000	0.000	0.000	0.000	118.000	1" Ice	0.559	0.365	0.015
			0.000	0.000	0.000			No Ice	0.658	0.448	0.020
			0.000	0.000	0.000			1/2" Ice	0.764	0.542	0.027
KRY 112 489/2	C	From Leg	4.000	0.000	0.000	0.000	118.000	1" Ice	0.559	0.365	0.015
			0.000	0.000	0.000			No Ice	0.658	0.448	0.020
			0.000	0.000	0.000			1/2" Ice	0.764	0.542	0.027
KRY 112 144/1	A	From Leg	4.000	0.000	0.000	0.000	118.000	1" Ice	0.350	0.175	0.011
			0.000	0.000	0.000			No Ice	0.426	0.234	0.014
			0.000	0.000	0.000			1/2" Ice	0.509	0.301	0.019
KRY 112 144/1	B	From Leg	4.000	0.000	0.000	0.000	118.000	1" Ice	0.350	0.175	0.011
			0.000	0.000	0.000			No Ice	0.426	0.234	0.014
			0.000	0.000	0.000			1/2" Ice	0.509	0.301	0.019
KRY 112 144/1	C	From Leg	4.000	0.000	0.000	0.000	118.000	1" Ice	0.350	0.175	0.011
			0.000	0.000	0.000			No Ice	0.426	0.234	0.014
			0.000	0.000	0.000			1/2" Ice	0.509	0.301	0.019
T-Arm Mount [TA 602-1_KCKR]	C	None				0.000	118.000	1" Ice	12.970	6.540	0.350
								No Ice	15.650	8.280	0.475
								1/2" Ice	18.500	10.230	0.635
(2) Side Arm Mount [SO 102-3]	C	None				0.000	118.000	1" Ice	3.600	3.600	0.075
								No Ice	4.180	4.180	0.105
								1/2" Ice	4.750	4.750	0.135
Miscellaneous [NA 507-1]	C	None				0.000	118.000	1" Ice	4.560	4.560	0.245
								No Ice	6.390	6.390	0.311
								1/2" Ice	8.180	8.180	0.402
10' horizontal x 2" Pipe Mount	A	From Leg	2.000	0.000	0.000	0.000	118.000	1" Ice	1.900	0.010	0.027
			0.000	0.000	0.000			No Ice	2.920	0.040	0.042
			0.000	0.000	0.000			1/2" Ice	3.970	0.090	0.063
10' horizontal x 2" Pipe Mount	B	From Leg	2.000	0.000	0.000	0.000	118.000	1" Ice	1.900	0.010	0.027
			0.000	0.000	0.000			No Ice	2.920	0.040	0.042
			0.000	0.000	0.000			1/2" Ice	3.970	0.090	0.063
10' horizontal x 2" Pipe Mount	C	From Leg	2.000	0.000	0.000	0.000	118.000	1" Ice	1.900	0.010	0.027
			0.000	0.000	0.000			No Ice	2.920	0.040	0.042
			0.000	0.000	0.000			1/2" Ice	3.970	0.090	0.063
* FFVV-65B-R2 w/ Mount Pipe	A	From Leg	4.000	0.000	0.000	0.000	108.000	1" Ice	7.550	4.230	0.110
			0.000	0.000	0.000			No Ice	8.040	4.670	0.195
			0.000	0.000	0.000			1/2" Ice	8.530	5.120	0.291

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
FFVV-65B-R2 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	108.000	1" Ice			
						No Ice	7.550	4.230	0.110
						1/2"	8.040	4.670	0.195
FFVV-65B-R2 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	108.000	Ice	8.530	5.120	0.291
						1" Ice			
						No Ice	7.550	4.230	0.110
TA08025-B604	A	From Leg	4.000 0.000 0.000	0.000	108.000	1/2"	8.040	4.670	0.195
						Ice	8.530	5.120	0.291
						1" Ice			
TA08025-B604	B	From Leg	4.000 0.000 0.000	0.000	108.000	No Ice	1.964	0.981	0.064
						1/2"	2.138	1.112	0.081
						Ice	2.320	1.250	0.100
TA08025-B604	C	From Leg	4.000 0.000 0.000	0.000	108.000	1" Ice			
						No Ice	1.964	0.981	0.064
						1/2"	2.138	1.112	0.081
TA08025-B605	A	From Leg	4.000 0.000 0.000	0.000	108.000	Ice	2.320	1.250	0.100
						1" Ice			
						No Ice	1.964	0.981	0.064
TA08025-B605	B	From Leg	4.000 0.000 0.000	0.000	108.000	1/2"	2.138	1.112	0.081
						Ice	2.320	1.250	0.100
						1" Ice			
TA08025-B605	C	From Leg	4.000 0.000 0.000	0.000	108.000	No Ice	1.964	0.981	0.064
						1/2"	2.138	1.112	0.081
						Ice	2.320	1.250	0.100
RDIDC-9181-PF-48	A	From Leg	4.000 0.000 0.000	0.000	108.000	1" Ice			
						No Ice	2.312	1.293	0.022
						1/2"	2.502	1.448	0.041
Commscope MC-PK8-DSH	C	None		0.000	108.000	Ice	2.700	1.610	0.063
						1" Ice			
						No Ice	34.240	34.240	1.749
(2) 8' x 2" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	108.000	1/2"	62.950	62.950	2.099
						Ice	91.660	91.660	2.450
						1" Ice			
(2) 8' x 2" Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	108.000	No Ice	1.900	1.900	0.029
						1/2"	2.728	2.728	0.044
						Ice	3.401	3.401	0.063
(2) 8' x 2" Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	108.000	1" Ice			
						No Ice	1.900	1.900	0.029
						1/2"	2.728	2.728	0.044
DT465B-2XR w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	73.000	Ice	3.401	3.401	0.063
						1" Ice			
						No Ice	5.500	4.380	0.091
DT465B-2XR w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	73.000	1/2"	5.970	4.840	0.164
						Ice	6.450	5.300	0.248
						1" Ice			
DT465B-2XR w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	73.000	No Ice	5.500	4.380	0.091
						1/2"	5.970	4.840	0.164
						Ice	6.450	5.300	0.248

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
APXVSP18-C-A20 w/ Mount Pipe	A	From Leg	4.000	0.000	73.000	1" Ice			
			0.000			No Ice	4.600	4.010	0.095
			2.000			1/2"	5.050	4.450	0.160
APXVSP18-C-A20 w/ Mount Pipe	B	From Leg	4.000	0.000	73.000	Ice	5.500	4.890	0.235
			0.000			1" Ice			
			2.000			No Ice	4.600	4.010	0.095
APXVSP18-C-A20 w/ Mount Pipe	C	From Leg	4.000	0.000	73.000	1/2"	5.050	4.450	0.160
			0.000			Ice	5.500	4.890	0.235
			2.000			1" Ice			
1900MHZ 4X40W RRH	A	From Leg	4.000	0.000	73.000	No Ice	2.322	2.236	0.060
			0.000			1/2"	2.527	2.439	0.083
			2.000			Ice	2.739	2.648	0.109
1900MHZ 4X40W RRH	B	From Leg	4.000	0.000	73.000	1" Ice			
			0.000			No Ice	2.322	2.236	0.060
			2.000			1/2"	2.527	2.439	0.083
1900MHZ 4X40W RRH	C	From Leg	4.000	0.000	73.000	Ice	2.739	2.648	0.109
			0.000			1" Ice			
			2.000			No Ice	2.322	2.236	0.060
RRH2X50-800	A	From Leg	1.000	0.000	73.000	1/2"	1.864	1.428	0.070
			0.000			Ice	2.035	1.580	0.090
			2.000			1" Ice			
RRH2X50-800	B	From Leg	1.000	0.000	73.000	No Ice	1.701	1.282	0.053
			0.000			1/2"	1.864	1.428	0.070
			2.000			Ice	2.035	1.580	0.090
RRH2X50-800	C	From Leg	1.000	0.000	73.000	1" Ice			
			0.000			No Ice	1.701	1.282	0.053
			2.000			1/2"	1.864	1.428	0.070
FZHN	A	From Leg	4.000	0.000	73.000	Ice	2.035	1.580	0.090
			0.000			1" Ice			
			2.000			No Ice	2.020	0.607	0.044
FZHN	B	From Leg	4.000	0.000	73.000	1/2"	2.197	0.715	0.058
			0.000			Ice	2.381	0.829	0.075
			2.000			1" Ice			
FZHN	C	From Leg	4.000	0.000	73.000	No Ice	2.020	0.607	0.044
			0.000			1/2"	2.197	0.715	0.058
			2.000			Ice	2.381	0.829	0.075
Platform Mount [LP 1201- 1_HR-1]	C	None		0.000	73.000	1" Ice			
						No Ice	26.390	26.390	2.356
						1/2"	31.400	31.400	3.061
6' x 2" Mount Pipe	A	From Leg	4.000	0.000	73.000	Ice	36.200	36.200	3.864
			0.000			1" Ice			
			0.000			No Ice	1.425	1.425	0.022
6' x 2" Mount Pipe	B	From Leg	4.000	0.000	73.000	1/2"	1.925	1.925	0.033
			0.000			Ice	2.294	2.294	0.048
			0.000			1" Ice			
6' x 2" Mount Pipe	C	From Leg	4.000	0.000	73.000	No Ice	1.425	1.425	0.022
			0.000			1/2"	1.925	1.925	0.033
			0.000			Ice	2.294	2.294	0.048
6' x 2" Mount Pipe	C	From Leg	4.000	0.000	73.000	1" Ice			
			0.000			No Ice	1.425	1.425	0.022
			0.000			1/2"	1.925	1.925	0.033
						Ice	2.294	2.294	0.048
						1" Ice			

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz Lateral	Vert						ft
6' x 2" Mount Pipe	A	From Leg	1.000	0.000	0.000	73.000	No Ice	1.425	1.425	0.022
			0.000	0.000			1/2"	1.925	1.925	0.033
			0.000	0.000			Ice	2.294	2.294	0.048
6' x 2" Mount Pipe	B	From Leg	1.000	0.000	0.000	73.000	No Ice	1.425	1.425	0.022
			0.000	0.000			1/2"	1.925	1.925	0.033
			0.000	0.000			Ice	2.294	2.294	0.048
6' x 2" Mount Pipe	C	From Leg	1.000	0.000	0.000	73.000	No Ice	1.425	1.425	0.022
			0.000	0.000			1/2"	1.925	1.925	0.033
			0.000	0.000			Ice	2.294	2.294	0.048
4.5' x 2" horizontal mount pipe	A	From Leg	4.000	0.000	0.000	73.000	No Ice	0.860	0.010	0.012
			0.000	0.000			1/2"	1.180	0.040	0.019
			0.000	0.000			Ice	1.460	0.090	0.029
4.5' x 2" horizontal mount pipe	B	From Leg	4.000	0.000	0.000	73.000	No Ice	0.860	0.010	0.012
			0.000	0.000			1/2"	1.180	0.040	0.019
			0.000	0.000			Ice	1.460	0.090	0.029
4.5' x 2" horizontal mount pipe	C	From Leg	4.000	0.000	0.000	73.000	No Ice	0.860	0.010	0.012
			0.000	0.000			1/2"	1.180	0.040	0.019
			0.000	0.000			Ice	1.460	0.090	0.029
*										
GPS-TMG-HR-26NCM	C	From Leg	1.000	0.000	0.000	50.000	No Ice	0.133	0.133	0.001
			0.000	0.000			1/2"	0.183	0.183	0.002
			0.000	0.000			Ice	0.239	0.239	0.005
Pipe Mount [PM 601-1]	C	From Leg	0.500	0.000	0.000	50.000	No Ice	1.320	1.320	0.065
			0.000	0.000			1/2"	1.580	1.580	0.077
			0.000	0.000			Ice	1.840	1.840	0.093
*										

Load Combinations

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

Comb. No.	Description
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	140 - 135	Pole	Max Tension	9	0.000	0.000	0.000
			Max. Compression	26	-8.112	0.784	-0.116
			Max. Mx	20	-3.685	23.540	-0.226
			Max. My	14	-3.733	0.418	-22.946
			Max. Vy	20	-5.731	23.540	-0.226
			Max. Vx	14	5.659	0.418	-22.946
			Max. Torque	14			-0.716
L2	135 - 130	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-8.461	0.799	-0.152
			Max. Mx	20	-3.912	52.713	-0.446
			Max. My	14	-3.963	0.637	-51.721
			Max. Vy	20	-5.942	52.713	-0.446
			Max. Vx	14	5.851	0.637	-51.721
			Max. Torque	14			-0.716
L3	130 - 125	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-17.493	0.830	-0.203
			Max. Mx	20	-8.289	98.954	-0.647
			Max. My	14	-8.381	0.817	-97.434
			Max. Vy	20	-11.510	98.954	-0.647
			Max. Vx	14	11.376	0.817	-97.434
			Max. Torque	14			-0.895
L4	125 - 120	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-17.930	0.849	-0.255
			Max. Mx	20	-8.667	156.911	-0.882
			Max. My	14	-8.759	1.046	-154.705
			Max. Vy	20	-11.685	156.911	-0.882
			Max. Vx	14	11.541	1.046	-154.705
			Max. Torque	14			-0.894
L5	120 - 115	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-24.671	0.866	-0.445
			Max. Mx	20	-12.192	227.598	-1.175

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L6	115 - 114.75	Pole	Max. My	14	-12.337	1.274	-224.103
			Max. Vy	20	-15.854	227.598	-1.175
			Max. Vx	14	15.456	1.274	-224.103
			Max. Torque	14			-0.894
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-24.722	0.867	-0.459
			Max. Mx	20	-12.243	231.561	-1.192
			Max. My	14	-12.389	1.286	-227.972
			Max. Vy	20	-15.870	231.561	-1.192
			Max. Vx	14	15.468	1.286	-227.972
L7	114.75 - 109.75	Pole	Max. Torque	14			-0.892
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-25.747	0.883	-0.748
			Max. Mx	20	-12.953	312.315	-1.532
			Max. My	14	-13.108	1.518	-306.634
			Max. Vy	20	-16.444	312.315	-1.532
			Max. Vx	14	15.962	1.518	-306.634
			Max. Torque	14			-0.891
			Max Tension	1	0.000	0.000	0.000
			L8	109.75 - 104.75	Pole	Max. Compression	26
Max. Mx	20	-16.663				404.711	-1.774
Max. My	14	-16.840				1.752	-396.450
Max. Vy	20	-19.716				404.711	-1.774
Max. Vx	14	19.164				1.752	-396.450
Max. Torque	14						-0.862
Max Tension	1	0.000				0.000	0.000
Max. Compression	26	-32.344				0.909	-0.932
Max. Mx	20	-17.177				467.718	-2.000
Max. My	14	-17.357				1.900	-457.708
L9	104.75 - 101.58	Pole	Max. Vy	20	-20.061	467.718	-2.000
			Max. Vx	14	19.459	1.900	-457.708
			Max. Torque	14			-0.833
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-32.389	0.909	-0.948
			Max. Mx	20	-17.225	472.733	-2.017
			Max. My	14	-17.405	1.912	-462.579
			Max. Vy	20	-20.077	472.733	-2.017
			Max. Vx	14	19.470	1.912	-462.579
			Max. Torque	14			-0.812
L10	101.58 - 101.33	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-33.309	0.923	-1.269
			Max. Mx	20	-18.002	574.310	-2.364
			Max. My	14	-18.202	2.139	-560.562
			Max. Vy	20	-20.578	574.310	-2.364
			Max. Vx	14	19.692	2.139	-560.562
			Max. Torque	14			-0.809
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-34.289	0.935	-1.598
			Max. Mx	20	-18.832	678.328	-2.720
L11	101.33 - 96.33	Pole	Max. My	14	-19.046	2.363	-659.566
			Max. Vy	20	-21.068	678.328	-2.720
			Max. Vx	14	19.890	2.363	-659.566
			Max. Torque	14			-0.808
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-34.359	0.935	-1.620
			Max. Mx	20	-18.902	685.280	-2.744
			Max. My	14	-19.116	2.377	-666.135
			Max. Vy	20	-21.089	685.280	-2.744
			Max. Vx	14	19.891	2.377	-666.135
L12	96.33 - 91.33	Pole	Max. Torque	14			-0.807
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-34.431	0.936	-1.637
			Max. Mx	20	-18.962	690.554	-2.763
			Max. My	14	-19.046	2.363	-659.566
			Max. Vy	20	-21.068	678.328	-2.720
			Max. Vx	14	19.890	2.363	-659.566
			Max. Torque	14			-0.808
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-34.289	0.923	-1.269
L13	91.33 - 91	Pole	Max. Mx	20	-18.002	574.310	-2.364
			Max. My	14	-18.202	2.139	-560.562
			Max. Vy	20	-20.578	574.310	-2.364
			Max. Vx	14	19.692	2.139	-560.562
			Max. Torque	14			-0.809
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-33.309	0.923	-1.269
			Max. Mx	20	-18.002	574.310	-2.364
			Max. My	14	-18.202	2.139	-560.562
			Max. Vy	20	-20.578	574.310	-2.364
L14	91 - 90.75	Pole	Max. Vx	14	19.692	2.139	-560.562
			Max. Torque	14			-0.809
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-34.431	0.936	-1.637
			Max. Mx	20	-18.962	690.554	-2.763
			Max. My	14	-19.046	2.363	-659.566
			Max. Vy	20	-21.068	678.328	-2.720
			Max. Vx	14	19.890	2.363	-659.566
			Max. Torque	14			-0.808
			Max Tension	1	0.000	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L15	90.75 - 85.75	Pole	Max. My	14	-19.176	2.388	-671.115
			Max. Vy	20	-21.116	690.554	-2.763
			Max. Vx	14	19.903	2.388	-671.115
			Max. Torque	14			-0.807
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-35.865	0.946	-1.975
L16	85.75 - 80.75	Pole	Max. Mx	20	-20.084	797.645	-3.128
			Max. My	14	-20.317	2.610	-771.495
			Max. Vy	20	-21.737	797.645	-3.128
			Max. Vx	14	20.208	2.610	-771.495
			Max. Torque	14			-0.807
			Max Tension	1	0.000	0.000	0.000
L17	80.75 - 75.75	Pole	Max. Compression	26	-37.328	0.955	-2.322
			Max. Mx	20	-21.249	907.788	-3.497
			Max. My	14	-21.495	2.830	-873.338
			Max. Vy	20	-22.346	907.788	-3.497
			Max. Vx	14	20.495	2.830	-873.338
			Max. Torque	14			-0.806
L18	75.75 - 70.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-38.818	0.963	-2.678
			Max. Mx	20	-22.447	1020.955	-3.870
			Max. My	14	-22.702	3.048	-976.592
			Max. Vy	20	-22.949	1020.955	-3.870
			Max. Vx	14	20.772	3.048	-976.592
L19	70.75 - 69.98	Pole	Max. Torque	14			-0.806
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-47.349	0.971	-3.044
			Max. Mx	20	-27.817	1144.931	-4.250
			Max. My	14	-28.089	3.267	-1088.988
			Max. Vy	20	-26.026	1144.931	-4.250
L20	69.98 - 69.73	Pole	Max. Vx	14	23.504	3.267	-1088.988
			Max. Torque	14			-0.805
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-47.606	0.972	-3.102
			Max. Mx	20	-28.022	1164.992	-4.309
			Max. My	14	-28.294	3.301	-1107.114
L21	69.73 - 64.73	Pole	Max. Vy	20	-26.110	1164.992	-4.309
			Max. Vx	14	23.542	3.301	-1107.114
			Max. Torque	14			-0.805
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-47.690	0.973	-3.121
			Max. Mx	20	-28.096	1171.520	-4.328
L22	64.73 - 63	Pole	Max. My	14	-28.366	3.312	-1113.007
			Max. Vy	20	-26.131	1171.520	-4.328
			Max. Vx	14	23.548	3.312	-1113.007
			Max. Torque	14			-0.805
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-49.317	0.981	-3.499
L23	63 - 62.75	Pole	Max. Mx	20	-29.410	1303.524	-4.715
			Max. My	14	-29.678	3.530	-1231.525
			Max. Vy	20	-26.695	1303.524	-4.715
			Max. Vx	14	23.817	3.530	-1231.525
			Max. Torque	21			0.811
			Max Tension	1	0.000	0.000	0.000
L23	63 - 62.75	Pole	Max. Compression	26	-49.906	0.983	-3.631
			Max. Mx	20	-29.865	1349.843	-4.850
			Max. My	14	-30.133	3.605	-1272.833
			Max. Vy	20	-26.901	1349.843	-4.850
			Max. Vx	14	23.916	3.605	-1272.833
			Max. Torque	21			0.827
L23	63 - 62.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-50.010	0.984	-3.651

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L24	62.75 - 59.08	Pole	Max. Mx	20	-29.973	1356.564	-4.869
			Max. My	14	-30.237	3.616	-1278.815
			Max. Vy	20	-26.905	1356.564	-4.869
			Max. Vx	14	23.906	3.616	-1278.815
			Max. Torque	21			0.829
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-51.560	0.989	-3.934
			Max. Mx	20	-31.201	1456.128	-5.156
			Max. My	14	-31.466	3.775	-1367.063
			Max. Vy	20	-27.375	1456.128	-5.156
L25	59.08 - 58.82	Pole	Max. Vx	14	24.138	3.775	-1367.063
			Max. Torque	21			0.860
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-51.669	0.989	-3.955
			Max. Mx	20	-31.297	1463.245	-5.177
			Max. My	14	-31.559	3.786	-1373.346
			Max. Vy	20	-27.394	1463.245	-5.177
			Max. Vx	14	24.141	3.786	-1373.346
			Max. Torque	21			0.862
			Max Tension	1	0.000	0.000	0.000
L26	58.82 - 58.67	Pole	Max. Compression	26	-51.731	0.989	-3.967
			Max. Mx	20	-31.347	1467.355	-5.189
			Max. My	14	-31.609	3.793	-1376.972
			Max. Vy	20	-27.412	1467.355	-5.189
			Max. Vx	14	24.148	3.793	-1376.972
			Max. Torque	21			0.863
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-53.759	0.996	-4.360
			Max. Mx	20	-32.963	1605.916	-5.583
			Max. My	14	-33.221	4.007	-1498.497
L27	58.67 - 53.67	Pole	Max. Vy	20	-28.034	1605.916	-5.583
			Max. Vx	14	24.412	4.007	-1498.497
			Max. Torque	21			0.913
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-54.031	0.996	-4.414
			Max. Mx	20	-33.189	1624.714	-5.636
			Max. My	14	-33.445	4.036	-1514.878
			Max. Vy	20	-28.107	1624.714	-5.636
			Max. Vx	14	24.439	4.036	-1514.878
			Max. Torque	21			0.920
L28	53.67 - 48.58	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-57.628	1.181	-4.953
			Max. Mx	20	-36.119	1779.354	-6.141
			Max. My	14	-36.376	4.396	-1648.726
			Max. Vy	20	-28.913	1779.354	-6.141
			Max. Vx	14	24.862	4.396	-1648.726
			Max. Torque	21			1.018
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-59.648	1.185	-5.351
			Max. Mx	20	-37.785	1925.179	-6.541
L29	48.58 - 47.58	Pole	Max. My	14	-38.026	4.608	-1773.703
			Max. Vy	20	-29.455	1925.179	-6.541
			Max. Vx	16	25.233	958.477	-1655.188
			Max. Torque	21			1.070
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-60.872	1.185	-5.573
			Max. Mx	20	-38.764	2011.294	-6.775
			Max. My	14	-38.996	4.731	-1846.955
			Max. Vy	20	-29.777	2011.294	-6.775
			Max. Vx	16	25.505	1001.160	-1729.061
L30	47.58 - 42.58	Pole	Max. Torque	21			1.095
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-60.872	1.185	-5.573
			Max. Mx	20	-38.764	2011.294	-6.775
			Max. My	14	-38.996	4.731	-1846.955
			Max. Vy	20	-29.777	2011.294	-6.775
L31	42.58 - 39.67	Pole	Max. Vx	16	25.505	1001.160	-1729.061
			Max. Torque	21			1.095
			Max. Compression	26	-60.872	1.185	-5.573
			Max. Mx	20	-38.764	2011.294	-6.775
			Max. My	14	-38.996	4.731	-1846.955
			Max. Vy	20	-29.777	2011.294	-6.775

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L32	39.67 - 39.42	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-60.998	1.185	-5.592
			Max. Mx	20	-38.884	2018.735	-6.795
			Max. My	14	-39.112	4.742	-1853.266
			Max. Vy	20	-29.783	2018.735	-6.795
			Max. Vx	16	25.510	1004.848	-1735.444
L33	39.42 - 34.42	Pole	Max. Torque	21			1.097
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-63.504	1.185	-5.980
			Max. Mx	20	-40.918	2169.065	-7.201
			Max. My	14	-41.133	4.952	-1980.130
			Max. Vy	20	-30.371	2169.065	-7.201
L34	34.42 - 32.5	Pole	Max. Vx	16	26.007	1079.341	-1864.379
			Max. Torque	21			1.136
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-64.490	1.185	-6.131
			Max. Mx	20	-41.702	2227.558	-7.357
			Max. My	14	-41.913	5.032	-2029.176
L35	32.5 - 32.25	Pole	Max. Vy	20	-30.604	2227.558	-7.357
			Max. Vx	16	26.205	1108.320	-1914.540
			Max. Torque	21			1.149
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-64.603	1.185	-6.151
			Max. Mx	20	-41.808	2235.205	-7.377
L36	32.25 - 31.42	Pole	Max. My	14	-42.013	5.042	-2035.575
			Max. Vy	20	-30.606	2235.205	-7.377
			Max. Vx	16	26.206	1112.109	-1921.097
			Max. Torque	21			1.151
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-64.980	1.185	-6.216
L37	31.42 - 31.17	Pole	Max. Mx	20	-42.091	2260.639	-7.445
			Max. My	14	-42.295	5.077	-2056.836
			Max. Vy	20	-30.703	2260.639	-7.445
			Max. Vx	16	26.289	1124.709	-1942.907
			Max. Torque	21			1.156
			Max Tension	1	0.000	0.000	0.000
L38	31.17 - 29	Pole	Max. Compression	26	-65.112	1.185	-6.236
			Max. Mx	20	-42.205	2268.314	-7.466
			Max. My	14	-42.405	5.087	-2063.245
			Max. Vy	20	-30.719	2268.314	-7.466
			Max. Vx	16	26.302	1128.511	-1949.488
			Max. Torque	21			1.158
L39	29 - 28.65	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-66.422	1.200	-6.455
			Max. Mx	20	-43.249	2346.067	-7.672
			Max. My	14	-43.440	5.192	-2128.008
			Max. Vy	20	-30.999	2346.067	-7.672
			Max. Vx	16	26.539	1167.025	-2016.156
L40	28.65 - 28.42	Pole	Max. Torque	21			1.186
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-66.536	1.201	-6.475
			Max. Mx	20	-43.343	2353.198	-7.690
			Max. My	14	-43.532	5.202	-2133.933
			Max. Vy	20	-31.022	2353.198	-7.690
L41	28.42 - 23.5	Pole	Max. Vx	16	26.558	1170.558	-2022.270
			Max. Torque	21			1.189
			Max Tension	1	0.000	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L42	23.5 - 23.25	Pole	Max. Compression	26	-68.962	1.231	-6.910
			Max. Mx	20	-45.295	2507.076	-8.094
			Max. My	14	-45.463	5.405	-2261.168
			Max. Vy	20	-31.559	2507.076	-8.094
			Max. Vx	16	27.014	1246.766	-2154.192
			Max. Torque	21			1.252
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-69.106	1.233	-6.932
			Max. Mx	20	-45.427	2514.963	-8.115
			Max. My	14	-45.591	5.415	-2267.659
L43	23.25 - 23	Pole	Max. Vy	20	-31.569	2514.963	-8.115
			Max. Vx	16	27.021	1250.672	-2160.953
			Max. Torque	21			1.255
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-69.249	1.234	-6.955
			Max. Mx	20	-45.545	2522.858	-8.135
			Max. My	14	-45.708	5.425	-2274.152
			Max. Vy	20	-31.597	2522.858	-8.135
			Max. Vx	16	27.045	1254.581	-2167.720
			Max. Torque	21			1.258
L44	23 - 22.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-69.381	1.236	-6.977
			Max. Mx	20	-45.652	2530.759	-8.156
			Max. My	14	-45.814	5.436	-2280.649
			Max. Vy	20	-31.625	2530.759	-8.156
			Max. Vx	16	27.068	1258.494	-2174.494
			Max. Torque	21			1.262
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-71.969	1.246	-7.402
			Max. Mx	20	-47.793	2690.177	-8.570
L45	22.75 - 17.75	Pole	Max. My	14	-47.928	5.640	-2411.036
			Max. Vy	20	-32.169	2690.177	-8.570
			Max. Vx	16	27.530	1337.425	-2311.138
			Max. Torque	21			1.313
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-74.551	1.246	-7.818
			Max. Mx	20	-49.972	2852.237	-8.985
			Max. My	14	-50.075	5.842	-2542.264
			Max. Vy	20	-32.697	2852.237	-8.985
			Max. Vx	16	27.977	1417.648	-2450.025
L46	17.75 - 12.75	Pole	Max. Torque	21			1.357
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-77.141	1.246	-8.239
			Max. Mx	20	-52.178	3016.932	-9.402
			Max. My	14	-52.245	6.042	-2674.280
			Max. Vy	20	-33.224	3016.932	-9.402
			Max. Vx	16	28.424	1499.158	-2591.149
			Max. Torque	21			1.403
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-79.724	1.246	-8.658
L47	12.75 - 7.75	Pole	Max. Mx	20	-54.411	3184.252	-9.821
			Max. My	14	-54.439	6.240	-2807.047
			Max. Vy	20	-33.749	3184.252	-9.821
			Max. Vx	16	28.868	1581.952	-2734.502
			Max. Torque	21			1.450
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-81.109	1.246	-8.883
			Max. Mx	20	-55.649	3277.389	-10.052
			Max. My	14	-55.655	6.348	-2880.380
			Max. Vy	20	-34.041	3277.389	-10.052
L48	7.75 - 2.75	Pole	Max. Vx	16	29.116	1628.031	-2814.291
			Max. Torque	21			1.479
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-81.109	1.246	-8.883
			Max. Mx	20	-55.649	3277.389	-10.052
			Max. My	14	-55.655	6.348	-2880.380
L49	2.75 - 0	Pole	Max. Vy	20	-34.041	3277.389	-10.052
			Max. Vx	16	29.116	1628.031	-2814.291
			Max. Torque	21			1.479
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-81.109	1.246	-8.883
			Max. Mx	20	-55.649	3277.389	-10.052

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	36	81.109	7.747	-0.007
	Max. H _x	21	41.751	34.010	-0.039
	Max. H _z	4	55.668	-16.825	29.089
	Max. M _x	2	2872.077	-0.039	26.661
	Max. M _z	8	3276.470	-34.010	0.039
	Max. Torsion	21	1.479	34.010	-0.039
	Min. Vert	25	41.751	12.489	21.658
	Min. H _x	9	41.751	-34.010	0.039
	Min. H _z	16	55.668	16.825	-29.089
	Min. M _x	14	-2880.380	0.039	-26.661
	Min. M _z	20	-3277.389	34.010	-0.039
	Min. Torsion	9	-1.466	-34.010	0.039

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	46.390	0.000	0.000	3.325	0.359	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	55.668	0.039	-26.661	-2872.077	-5.459	-0.859
0.9 Dead+1.0 Wind 0 deg - No Ice	41.751	0.039	-26.661	-2828.927	-5.469	-0.850
1.2 Dead+1.0 Wind 30 deg - No Ice	55.668	16.825	-29.089	-2805.984	-1627.127	0.625
0.9 Dead+1.0 Wind 30 deg - No Ice	41.751	16.825	-29.089	-2765.812	-1603.329	0.633
1.2 Dead+1.0 Wind 60 deg - No Ice	55.668	27.900	-16.123	-1611.394	-2794.867	0.849
0.9 Dead+1.0 Wind 60 deg - No Ice	41.751	27.900	-16.123	-1588.620	-2753.713	0.855
1.2 Dead+1.0 Wind 90 deg - No Ice	55.668	34.010	-0.039	-1.752	-3276.470	1.465
0.9 Dead+1.0 Wind 90 deg - No Ice	41.751	34.010	-0.039	-2.719	-3228.564	1.466
1.2 Dead+1.0 Wind 120 deg - No Ice	55.668	21.671	12.481	1364.613	-2364.836	0.408
0.9 Dead+1.0 Wind 120 deg - No Ice	41.751	21.671	12.481	1342.398	-2328.175	0.403
1.2 Dead+1.0 Wind 150 deg - No Ice	55.668	12.489	21.658	2366.445	-1361.749	0.785
0.9 Dead+1.0 Wind 150 deg - No Ice	41.751	12.489	21.658	2328.649	-1340.697	0.777
1.2 Dead+1.0 Wind 180 deg - No Ice	55.668	-0.039	26.661	2880.380	6.348	0.871
0.9 Dead+1.0 Wind 180 deg - No Ice	41.751	-0.039	26.661	2835.071	6.116	0.862
1.2 Dead+1.0 Wind 210 deg - No Ice	55.668	-16.825	29.089	2814.291	1628.031	-0.610
0.9 Dead+1.0 Wind 210 deg - No Ice	41.751	-16.825	29.089	2771.959	1603.988	-0.619
1.2 Dead+1.0 Wind 240 deg - No Ice	55.668	-27.900	16.123	1619.704	2795.779	-0.848
0.9 Dead+1.0 Wind 240 deg - No Ice	41.751	-27.900	16.123	1594.769	2754.378	-0.854
1.2 Dead+1.0 Wind 270 deg - No Ice	55.668	-34.010	0.039	10.051	3277.389	-1.479
0.9 Dead+1.0 Wind 270 deg - No Ice	41.751	-34.010	0.039	8.861	3229.234	-1.479
1.2 Dead+1.0 Wind 300 deg - No Ice	55.668	-21.671	-12.481	-1356.300	2365.761	-0.420
0.9 Dead+1.0 Wind 300 deg - No Ice	41.751	-21.671	-12.481	-1336.247	2328.848	-0.415

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
- No Ice						
1.2 Dead+1.0 Wind 330 deg	55.668	-12.489	-21.658	-2358.147	1362.657	-0.785
- No Ice						
0.9 Dead+1.0 Wind 330 deg	41.751	-12.489	-21.658	-2322.508	1341.359	-0.778
- No Ice						
1.2 Dead+1.0 Ice+1.0 Temp	81.109	-0.000	0.000	8.883	1.246	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	81.109	0.007	-6.766	-742.251	0.110	-0.191
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	81.109	3.811	-6.592	-683.993	-399.859	0.114
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	81.109	6.419	-3.709	-390.417	-690.029	0.147
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	81.109	7.747	-0.007	7.873	-808.777	0.305
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	81.109	5.791	3.338	379.084	-641.430	0.047
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	81.109	3.339	5.789	651.138	-369.125	0.148
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	81.109	-0.007	6.766	760.309	2.426	0.192
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	81.109	-3.811	6.592	702.053	402.395	-0.113
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	81.109	-6.419	3.709	408.478	692.566	-0.147
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	81.109	-7.747	0.007	10.189	811.316	-0.306
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	81.109	-5.791	-3.338	-361.022	643.971	-0.047
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	81.109	-3.339	-5.789	-633.079	371.664	-0.148
Dead+Wind 0 deg - Service	46.390	0.009	-6.389	-680.172	-1.020	-0.204
Dead+Wind 30 deg - Service	46.390	4.031	-6.970	-664.757	-386.626	0.152
Dead+Wind 60 deg - Service	46.390	6.685	-3.863	-380.691	-664.275	0.205
Dead+Wind 90 deg - Service	46.390	8.149	-0.009	2.045	-778.840	0.352
Dead+Wind 120 deg - Service	46.390	5.194	2.991	326.750	-561.713	0.094
Dead+Wind 150 deg - Service	46.390	2.993	5.190	564.825	-323.337	0.183
Dead+Wind 180 deg - Service	46.390	-0.009	6.389	687.060	1.779	0.204
Dead+Wind 210 deg - Service	46.390	-4.031	6.970	671.645	387.385	-0.151
Dead+Wind 240 deg - Service	46.390	-6.685	3.863	387.580	665.035	-0.205
Dead+Wind 270 deg - Service	46.390	-8.149	0.009	4.843	779.600	-0.352
Dead+Wind 300 deg - Service	46.390	-5.194	-2.991	-319.861	562.473	-0.095
Dead+Wind 330 deg - Service	46.390	-2.993	-5.190	-557.937	324.097	-0.183

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	0.000	-46.390	0.000	0.000	46.390	-0.000	0.000%
2	0.039	-55.668	-26.661	-0.039	55.668	26.661	0.000%
3	0.039	-41.751	-26.661	-0.039	41.751	26.661	0.000%
4	16.825	-55.668	-29.089	-16.825	55.668	29.089	0.000%
5	16.825	-41.751	-29.089	-16.825	41.751	29.089	0.000%
6	27.900	-55.668	-16.123	-27.900	55.668	16.123	0.000%
7	27.900	-41.751	-16.123	-27.900	41.751	16.123	0.000%
8	34.010	-55.668	-0.039	-34.010	55.668	0.039	0.000%
9	34.010	-41.751	-0.039	-34.010	41.751	0.039	0.000%
10	21.671	-55.668	12.481	-21.671	55.668	-12.481	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
11	21.671	-41.751	12.481	-21.671	41.751	-12.481	0.000%
12	12.489	-55.668	21.658	-12.489	55.668	-21.658	0.000%
13	12.489	-41.751	21.658	-12.489	41.751	-21.658	0.000%
14	-0.039	-55.668	26.661	0.039	55.668	-26.661	0.000%
15	-0.039	-41.751	26.661	0.039	41.751	-26.661	0.000%
16	-16.825	-55.668	29.089	16.825	55.668	-29.089	0.000%
17	-16.825	-41.751	29.089	16.825	41.751	-29.089	0.000%
18	-27.900	-55.668	16.123	27.900	55.668	-16.123	0.000%
19	-27.900	-41.751	16.123	27.900	41.751	-16.123	0.000%
20	-34.010	-55.668	0.039	34.010	55.668	-0.039	0.000%
21	-34.010	-41.751	0.039	34.010	41.751	-0.039	0.000%
22	-21.671	-55.668	-12.481	21.671	55.668	12.481	0.000%
23	-21.671	-41.751	-12.481	21.671	41.751	12.481	0.000%
24	-12.489	-55.668	-21.658	12.489	55.668	21.658	0.000%
25	-12.489	-41.751	-21.658	12.489	41.751	21.658	0.000%
26	0.000	-81.109	0.000	0.000	81.109	-0.000	0.000%
27	0.007	-81.109	-6.766	-0.007	81.109	6.766	0.000%
28	3.811	-81.109	-6.592	-3.811	81.109	6.592	0.000%
29	6.419	-81.109	-3.709	-6.419	81.109	3.709	0.000%
30	7.747	-81.109	-0.007	-7.747	81.109	0.007	0.000%
31	5.791	-81.109	3.338	-5.791	81.109	-3.338	0.000%
32	3.339	-81.109	5.789	-3.339	81.109	-5.789	0.000%
33	-0.007	-81.109	6.766	0.007	81.109	-6.766	0.000%
34	-3.811	-81.109	6.592	3.811	81.109	-6.592	0.000%
35	-6.419	-81.109	3.709	6.419	81.109	-3.709	0.000%
36	-7.747	-81.109	0.007	7.747	81.109	-0.007	0.000%
37	-5.791	-81.109	-3.338	5.791	81.109	3.338	0.000%
38	-3.339	-81.109	-5.789	3.339	81.109	5.789	0.000%
39	0.009	-46.390	-6.389	-0.009	46.390	6.389	0.000%
40	4.031	-46.390	-6.970	-4.031	46.390	6.970	0.000%
41	6.685	-46.390	-3.863	-6.685	46.390	3.863	0.000%
42	8.149	-46.390	-0.009	-8.149	46.390	0.009	0.000%
43	5.194	-46.390	2.991	-5.194	46.390	-2.991	0.000%
44	2.993	-46.390	5.190	-2.993	46.390	-5.190	0.000%
45	-0.009	-46.390	6.389	0.009	46.390	-6.389	0.000%
46	-4.031	-46.390	6.970	4.031	46.390	-6.970	0.000%
47	-6.685	-46.390	3.863	6.685	46.390	-3.863	0.000%
48	-8.149	-46.390	0.009	8.149	46.390	-0.009	0.000%
49	-5.194	-46.390	-2.991	5.194	46.390	2.991	0.000%
50	-2.993	-46.390	-5.190	2.993	46.390	5.190	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000636
2	Yes	6	0.00000001	0.00009339
3	Yes	5	0.00000001	0.00056315
4	Yes	7	0.00000001	0.00026267
5	Yes	7	0.00000001	0.00005964
6	Yes	7	0.00000001	0.00026080
7	Yes	7	0.00000001	0.00005919
8	Yes	6	0.00000001	0.00010316
9	Yes	5	0.00000001	0.00061554
10	Yes	7	0.00000001	0.00022286
11	Yes	7	0.00000001	0.00005333
12	Yes	7	0.00000001	0.00021689
13	Yes	6	0.00000001	0.00099153
14	Yes	6	0.00000001	0.00012958
15	Yes	5	0.00000001	0.00080023
16	Yes	7	0.00000001	0.00026352
17	Yes	7	0.00000001	0.00005975
18	Yes	7	0.00000001	0.00026600
19	Yes	7	0.00000001	0.00006043
20	Yes	6	0.00000001	0.00013963

21	Yes	5	0.00000001	0.00084770
22	Yes	7	0.00000001	0.00021809
23	Yes	6	0.00000001	0.00099805
24	Yes	7	0.00000001	0.00022398
25	Yes	7	0.00000001	0.00005374
26	Yes	5	0.00000001	0.00014747
27	Yes	7	0.00000001	0.00026742
28	Yes	7	0.00000001	0.00032710
29	Yes	7	0.00000001	0.00032758
30	Yes	7	0.00000001	0.00028011
31	Yes	7	0.00000001	0.00031350
32	Yes	7	0.00000001	0.00031304
33	Yes	7	0.00000001	0.00027298
34	Yes	7	0.00000001	0.00033619
35	Yes	7	0.00000001	0.00033693
36	Yes	7	0.00000001	0.00028247
37	Yes	7	0.00000001	0.00030961
38	Yes	7	0.00000001	0.00030968
39	Yes	5	0.00000001	0.00015308
40	Yes	5	0.00000001	0.00088634
41	Yes	5	0.00000001	0.00086706
42	Yes	5	0.00000001	0.00016778
43	Yes	5	0.00000001	0.00068678
44	Yes	5	0.00000001	0.00064600
45	Yes	5	0.00000001	0.00015777
46	Yes	5	0.00000001	0.00090016
47	Yes	5	0.00000001	0.00092010
48	Yes	5	0.00000001	0.00017216
49	Yes	5	0.00000001	0.00064917
50	Yes	5	0.00000001	0.00069164

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	140 - 135	27.512	48	2.067	0.007
L2	135 - 130	25.352	48	2.051	0.006
L3	130 - 125	23.231	48	1.996	0.005
L4	125 - 120	21.180	48	1.915	0.004
L5	120 - 115	19.235	48	1.796	0.003
L6	115 - 114.75	17.427	48	1.652	0.002
L7	114.75 - 109.75	17.340	48	1.649	0.002
L8	109.75 - 104.75	15.652	48	1.575	0.002
L9	104.75 - 101.58	14.047	48	1.489	0.001
L10	101.58 - 101.33	13.078	48	1.430	0.001
L11	101.33 - 96.33	13.003	48	1.424	0.001
L12	96.33 - 91.33	11.579	48	1.295	0.001
L13	91.33 - 91	10.293	48	1.162	0.001
L14	91 - 90.75	10.213	48	1.153	0.001
L15	90.75 - 85.75	10.153	48	1.150	0.001
L16	85.75 - 80.75	8.987	48	1.076	0.001
L17	80.75 - 75.75	7.901	48	0.999	0.001
L18	75.75 - 70.75	6.896	48	0.921	0.001
L19	70.75 - 69.98	5.973	48	0.843	0.001
L20	69.98 - 69.73	5.838	48	0.830	0.001
L21	69.73 - 64.73	5.795	48	0.826	0.001
L22	64.73 - 63	4.971	48	0.747	0.001
L23	63 - 62.75	4.706	48	0.719	0.000
L24	62.75 - 59.08	4.668	48	0.716	0.000
L25	59.08 - 58.82	4.135	48	0.671	0.000
L26	58.82 - 58.67	4.098	48	0.668	0.000
L27	58.67 - 53.67	4.077	48	0.666	0.000
L28	53.67 - 48.58	3.415	48	0.599	0.000
L29	53 - 47.58	3.332	48	0.590	0.000
L30	47.58 - 42.58	2.683	48	0.548	0.000
L31	42.58 - 39.67	2.144	48	0.481	0.000
L32	39.67 - 39.42	1.863	48	0.442	0.000

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L33	39.42 - 34.42	1.840	48	0.440	0.000
L34	34.42 - 32.5	1.407	48	0.388	0.000
L35	32.5 - 32.25	1.255	48	0.369	0.000
L36	32.25 - 31.42	1.235	48	0.366	0.000
L37	31.42 - 31.17	1.173	48	0.355	0.000
L38	31.17 - 29	1.154	48	0.352	0.000
L39	29 - 28.65	0.999	48	0.330	0.000
L40	28.65 - 28.42	0.975	48	0.326	0.000
L41	28.42 - 23.5	0.959	48	0.324	0.000
L42	23.5 - 23.25	0.655	48	0.267	0.000
L43	23.25 - 23	0.641	48	0.265	0.000
L44	23 - 22.75	0.627	48	0.262	0.000
L45	22.75 - 17.75	0.614	48	0.259	0.000
L46	17.75 - 12.75	0.372	48	0.202	0.000
L47	12.75 - 7.75	0.191	48	0.144	0.000
L48	7.75 - 2.75	0.070	48	0.087	0.000
L49	2.75 - 0	0.009	48	0.031	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
138.000	DB636-C	48	26.646	2.064	0.007	7775
127.000	TPA65R-BU6D_CCIV2 w/ Mount Pipe	48	21.990	1.950	0.004	3295
118.000	AIR 32 B2A B66AA w/ Mount Pipe	48	18.494	1.730	0.002	2135
108.000	FFVV-65B-R2 w/ Mount Pipe	48	15.080	1.545	0.002	3416
73.000	DT465B-2XR w/ Mount Pipe	48	6.378	0.878	0.001	3662
50.000	GPS-TMG-HR-26NCM	48	2.966	0.565	0.000	6118

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	140 - 135	115.637	20	8.692	0.030
L2	135 - 130	106.586	20	8.628	0.026
L3	130 - 125	97.692	20	8.403	0.021
L4	125 - 120	89.088	20	8.061	0.016
L5	120 - 115	80.920	20	7.566	0.012
L6	115 - 114.75	73.323	20	6.961	0.008
L7	114.75 - 109.75	72.960	20	6.947	0.008
L8	109.75 - 104.75	65.861	20	6.636	0.007
L9	104.75 - 101.58	59.113	20	6.274	0.006
L10	101.58 - 101.33	55.037	20	6.025	0.005
L11	101.33 - 96.33	54.723	20	5.999	0.005
L12	96.33 - 91.33	48.733	20	5.456	0.004
L13	91.33 - 91	43.319	20	4.897	0.004
L14	91 - 90.75	42.982	20	4.859	0.004
L15	90.75 - 85.75	42.729	20	4.844	0.004
L16	85.75 - 80.75	37.824	20	4.532	0.003
L17	80.75 - 75.75	33.253	20	4.207	0.003
L18	75.75 - 70.75	29.023	20	3.878	0.003
L19	70.75 - 69.98	25.137	20	3.549	0.002
L20	69.98 - 69.73	24.569	20	3.498	0.002
L21	69.73 - 64.73	24.386	20	3.481	0.002
L22	64.73 - 63	20.920	20	3.144	0.002
L23	63 - 62.75	19.802	20	3.029	0.002
L24	62.75 - 59.08	19.644	20	3.016	0.002

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L25	59.08 - 58.82	17.399	20	2.827	0.002
L26	58.82 - 58.67	17.246	20	2.813	0.002
L27	58.67 - 53.67	17.157	20	2.804	0.002
L28	53.67 - 48.58	14.370	20	2.522	0.002
L29	53 - 47.58	14.019	20	2.484	0.002
L30	47.58 - 42.58	11.288	20	2.305	0.001
L31	42.58 - 39.67	9.022	20	2.024	0.001
L32	39.67 - 39.42	7.839	20	1.861	0.001
L33	39.42 - 34.42	7.741	20	1.850	0.001
L34	34.42 - 32.5	5.918	20	1.633	0.001
L35	32.5 - 32.25	5.278	20	1.552	0.001
L36	32.25 - 31.42	5.197	20	1.539	0.001
L37	31.42 - 31.17	4.933	20	1.494	0.001
L38	31.17 - 29	4.855	20	1.483	0.001
L39	29 - 28.65	4.203	20	1.389	0.001
L40	28.65 - 28.42	4.102	20	1.373	0.001
L41	28.42 - 23.5	4.036	20	1.362	0.001
L42	23.5 - 23.25	2.756	20	1.124	0.001
L43	23.25 - 23	2.697	20	1.114	0.001
L44	23 - 22.75	2.639	20	1.104	0.001
L45	22.75 - 17.75	2.582	20	1.092	0.001
L46	17.75 - 12.75	1.566	20	0.848	0.001
L47	12.75 - 7.75	0.805	20	0.607	0.000
L48	7.75 - 2.75	0.296	20	0.367	0.000
L49	2.75 - 0	0.037	20	0.128	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
138.000	DB636-C	20	112.008	8.678	0.030	1988
127.000	TPA65R-BU6D_CCIIV2 w/ Mount Pipe	20	92.485	8.209	0.019	821
118.000	AIR 32 B2A B66AA w/ Mount Pipe	20	77.807	7.288	0.011	525
108.000	FFVV-65B-R2 w/ Mount Pipe	20	63.457	6.510	0.007	831
73.000	DT465B-2XR w/ Mount Pipe	20	26.843	3.697	0.003	875
50.000	GPS-TMG-HR-26NCM	20	12.479	2.377	0.002	1456

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
L1	140 - 135 (1)	TP14.296x13.161x0.188	5.000	0.000	0.0	8.396	-3.684	491.183	0.008
L2	135 - 130 (2)	TP15.431x14.296x0.188	5.000	0.000	0.0	9.072	-3.914	530.697	0.007
L3	130 - 125 (3)	TP16.566x15.431x0.188	5.000	0.000	0.0	9.747	-8.296	570.210	0.015
L4	125 - 120 (4)	TP17.701x16.566x0.188	5.000	0.000	0.0	10.423	-8.675	609.723	0.014
L5	120 - 115 (5)	TP18.836x17.701x0.188	5.000	0.000	0.0	11.098	-12.192	649.236	0.019
L6	115 - 114.75 (6)	TP18.893x18.836x0.463	0.250	0.000	0.0	27.055	-12.243	1582.710	0.008
L7	114.75 - 109.75 (7)	TP20.027x18.893x0.45	5.000	0.000	0.0	27.962	-12.953	1635.810	0.008
L8	109.75 - 104.75 (8)	TP21.162x20.027x0.425	5.000	0.000	0.0	27.974	-16.663	1636.470	0.010

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
L9	104.75 - 101.58 (9)	TP21.882x21.162x0.419	3.170	0.000	0.0	28.527	-17.177	1668.830	0.010
L10	101.58 - 101.33 (10)	TP21.939x21.882x0.313	0.250	0.000	0.0	21.451	-17.225	1254.860	0.014
L11	101.33 - 96.33 (11)	TP23.074x21.939x0.313	5.000	0.000	0.0	22.576	-18.002	1320.710	0.014
L12	96.33 - 91.33 (12)	TP24.209x23.074x0.313	5.000	0.000	0.0	23.702	-18.832	1386.570	0.014
L13	91.33 - 91 (13)	TP24.284x24.209x0.313	0.330	0.000	0.0	23.776	-18.902	1390.920	0.014
L14	91 - 90.75 (14)	TP24.34x24.284x0.6	0.250	0.000	0.0	45.211	-18.962	2644.860	0.007
L15	90.75 - 85.75 (15)	TP25.475x24.34x0.588	5.000	0.000	0.0	46.409	-20.084	2714.930	0.007
L16	85.75 - 80.75 (16)	TP26.61x25.475x0.563	5.000	0.000	0.0	46.505	-21.249	2720.560	0.008
L17	80.75 - 75.75 (17)	TP27.745x26.61x0.55	5.000	0.000	0.0	47.475	-22.447	2777.290	0.008
L18	75.75 - 70.75 (18)	TP28.88x27.745x0.544	5.000	0.000	0.0	48.905	-27.817	2860.950	0.010
L19	70.75 - 69.98 (19)	TP29.055x28.88x0.531	0.770	0.000	0.0	48.097	-28.022	2813.660	0.010
L20	69.98 - 69.73 (20)	TP29.112x29.055x0.531	0.250	0.000	0.0	48.192	-28.096	2819.260	0.010
L21	69.73 - 64.73 (21)	TP30.247x29.112x0.525	5.000	0.000	0.0	49.527	-29.410	2897.340	0.010
L22	64.73 - 63 (22)	TP30.64x30.247x0.519	1.730	0.000	0.0	49.595	-29.865	2901.280	0.010
L23	63 - 62.75 (23)	TP30.696x30.64x0.7	0.250	0.000	0.0	66.646	-29.973	3898.790	0.008
L24	62.75 - 59.08 (24)	TP31.53x30.696x0.688	3.670	0.000	0.0	67.301	-31.201	3937.110	0.008
L25	59.08 - 58.82 (25)	TP31.589x31.53x0.625	0.260	0.000	0.0	61.424	-31.297	3593.300	0.009
L26	58.82 - 58.67 (26)	TP31.623x31.589x0.625	0.150	0.000	0.0	61.491	-31.347	3597.250	0.009
L27	58.67 - 53.67 (27)	TP32.758x31.623x0.613	5.000	0.000	0.0	62.492	-32.963	3655.810	0.009
L28	53.67 - 48.58 (28)	TP33.913x32.758x0.613	5.090	0.000	0.0	62.788	-33.189	3673.100	0.009
L29	48.58 - 47.58 (29)	TP33.515x32.285x0.638	5.420	0.000	0.0	66.525	-36.119	3891.740	0.009
L30	47.58 - 42.58 (30)	TP34.65x33.515x0.625	5.000	0.000	0.0	67.498	-37.785	3948.610	0.010
L31	42.58 - 39.67 (31)	TP35.311x34.65x0.613	2.910	0.000	0.0	67.456	-38.764	3946.190	0.010
L32	39.67 - 39.42 (32)	TP35.368x35.311x0.813	0.250	0.000	0.0	89.113	-38.884	5213.140	0.007
L33	39.42 - 34.42 (33)	TP36.503x35.368x0.788	5.000	0.000	0.0	89.271	-40.918	5222.370	0.008
L34	34.42 - 32.5 (34)	TP36.939x36.503x0.788	1.920	0.000	0.0	90.361	-41.702	5286.110	0.008
L35	32.5 - 32.25 (35)	TP36.995x36.939x0.613	0.250	0.000	0.0	70.731	-41.807	4137.770	0.010
L36	32.25 - 31.42 (36)	TP37.184x36.995x0.6	0.830	0.000	0.0	69.670	-42.091	4075.710	0.010
L37	31.42 - 31.17 (37)	TP37.241x37.184x0.775	0.250	0.000	0.0	89.700	-42.205	5247.450	0.008
L38	31.17 - 29 (38)	TP37.733x37.241x0.763	2.170	0.000	0.0	89.476	-43.102	5234.330	0.008
L39	29 - 28.65 (39)	TP37.813x37.733x0.675	0.350	0.000	0.0	79.566	-43.249	4654.590	0.009
L40	28.65 - 28.42 (40)	TP37.865x37.813x0.675	0.230	0.000	0.0	79.678	-43.343	4661.140	0.009
L41	28.42 - 23.5 (41)	TP38.982x37.865x0.663	4.920	0.000	0.0	80.577	-45.295	4713.760	0.010
L42	23.5 - 23.25 (42)	TP39.039x38.982x0.788	0.250	0.000	0.0	95.610	-45.427	5593.170	0.008
L43	23.25 - 23	TP39.095x39.039x0.788	0.250	0.000	0.0	95.752	-45.545	5601.470	0.008

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
L44	(43) 23 - 22.75	TP39.152x39.095x0.65	0.250	0.000	0.0	79.434	-45.652	4646.880	0.010
L45	(44) 22.75 - 17.75	TP40.287x39.152x0.638	5.000	0.000	0.0	80.228	-47.793	4693.360	0.010
L46	(45) 17.75 - 12.75	TP41.422x40.287x0.625	5.000	0.000	0.0	80.932	-49.972	4734.520	0.011
L47	(46) 12.75 - 7.75	TP42.558x41.422x0.613	5.000	0.000	0.0	81.544	-52.178	4770.340	0.011
L48	(47) 7.75 - 2.75	TP43.693x42.558x0.6	5.000	0.000	0.0	82.066	-54.411	4800.840	0.011
L49	(48) 2.75 - 0 (49)	TP44.317x43.693x0.6	2.750	0.000	0.0	82.660	-55.063	4835.620	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{nx} kip-ft	Ratio M _{ux} / φM _{nx}	M _{uy} kip-ft	φM _{ny} kip-ft	Ratio M _{uy} / φM _{ny}
L1	140 - 135 (1)	TP14.296x13.161x0.188	23.615	180.005	0.131	0.000	180.005	0.000
L2	135 - 130 (2)	TP15.431x14.296x0.188	52.852	210.337	0.251	0.000	210.337	0.000
L3	130 - 125 (3)	TP16.566x15.431x0.188	99.078	243.029	0.408	0.000	243.029	0.000
L4	125 - 120 (4)	TP17.701x16.566x0.188	156.961	278.082	0.564	0.000	278.082	0.000
L5	120 - 115 (5)	TP18.836x17.701x0.188	227.601	312.017	0.729	0.000	312.017	0.000
L6	115 - 114.75 (6)	TP18.893x18.836x0.463	231.564	748.960	0.309	0.000	748.960	0.000
L7	114.75 - 109.75 (7)	TP20.027x18.893x0.45	312.319	823.978	0.379	0.000	823.978	0.000
L8	109.75 - 104.75 (8)	TP21.162x20.027x0.425	404.715	875.283	0.462	0.000	875.283	0.000
L9	104.75 - 101.58 (9)	TP21.882x21.162x0.419	467.722	924.725	0.506	0.000	924.725	0.000
L10	101.58 - 101.33 (10)	TP21.939x21.882x0.313	472.737	704.111	0.671	0.000	704.111	0.000
L11	101.33 - 96.33 (11)	TP23.074x21.939x0.313	574.315	780.512	0.736	0.000	780.512	0.000
L12	96.33 - 91.33 (12)	TP24.209x23.074x0.313	678.333	860.850	0.788	0.000	860.850	0.000
L13	91.33 - 91 (13)	TP24.284x24.209x0.313	685.285	866.292	0.791	0.000	866.292	0.000
L14	91 - 90.75 (14)	TP24.34x24.284x0.6	690.560	1611.933	0.428	0.000	1611.933	0.000
L15	90.75 - 85.75 (15)	TP25.475x24.34x0.588	797.651	1737.442	0.459	0.000	1737.442	0.000
L16	85.75 - 80.75 (16)	TP26.61x25.475x0.563	907.792	1825.783	0.497	0.000	1825.783	0.000
L17	80.75 - 75.75 (17)	TP27.745x26.61x0.55	1020.967	1948.575	0.524	0.000	1948.575	0.000
L18	75.75 - 70.75 (18)	TP28.88x27.745x0.544	1144.942	2093.633	0.547	0.000	2093.633	0.000
L19	70.75 - 69.98 (19)	TP29.055x28.88x0.531	1165.000	2073.783	0.562	0.000	2073.783	0.000
L20	69.98 - 69.73 (20)	TP29.112x29.055x0.531	1171.525	2082.117	0.563	0.000	2082.117	0.000
L21	69.73 - 64.73 (21)	TP30.247x29.112x0.525	1303.533	2227.250	0.585	0.000	2227.250	0.000
L22	64.73 - 63 (22)	TP30.64x30.247x0.519	1349.850	2261.192	0.597	0.000	2261.192	0.000
L23	63 - 62.75 (23)	TP30.696x30.64x0.7	1356.575	3008.000	0.451	0.000	3008.000	0.000
L24	62.75 - 59.08 (24)	TP31.53x30.696x0.688	1456.133	3126.383	0.466	0.000	3126.383	0.000
L25	59.08 - 58.82 (25)	TP31.589x31.53x0.625	1463.258	2870.525	0.510	0.000	2870.525	0.000
L26	58.82 - 58.67 (26)	TP31.623x31.589x0.625	1467.367	2876.900	0.510	0.000	2876.900	0.000

Section No.	Elevation ft	Size	M_{ux}	ϕM_{nx}	Ratio	M_{uy} kip-ft	ϕM_{ny}	Ratio
			kip-ft	kip-ft	$\frac{M_{ux}}{\phi M_{nx}}$		kip-ft	$\frac{M_{uy}}{\phi M_{ny}}$
L27	58.67 - 53.67 (27)	TP32.758x31.623x0.613	1605.925	3035.267	0.529	0.000	3035.267	0.000
L28	53.67 - 48.58 (28)	TP33.913x32.758x0.613	1624.725	3064.325	0.530	0.000	3064.325	0.000
L29	48.58 - 47.58 (29)	TP33.515x32.285x0.638	1779.367	3303.692	0.539	0.000	3303.692	0.000
L30	47.58 - 42.58 (30)	TP34.65x33.515x0.625	1925.192	3472.458	0.554	0.000	3472.458	0.000
L31	42.58 - 39.67 (31)	TP35.311x34.65x0.613	2011.308	3541.483	0.568	0.000	3541.483	0.000
L32	39.67 - 39.42 (32)	TP35.368x35.311x0.813	2018.750	4632.492	0.436	0.000	4632.492	0.000
L33	39.42 - 34.42 (33)	TP36.503x35.368x0.788	2169.075	4803.367	0.452	0.000	4803.367	0.000
L34	34.42 - 32.5 (34)	TP36.939x36.503x0.788	2227.567	4922.608	0.453	0.000	4922.608	0.000
L35	32.5 - 32.25 (35)	TP36.995x36.939x0.613	2235.217	3896.817	0.574	0.000	3896.817	0.000
L36	32.25 - 31.42 (36)	TP37.184x36.995x0.6	2260.650	3861.217	0.585	0.000	3861.217	0.000
L37	31.42 - 31.17 (37)	TP37.241x37.184x0.775	2268.325	4931.675	0.460	0.000	4931.675	0.000
L38	31.17 - 29 (38)	TP37.733x37.241x0.763	2335.242	4990.567	0.468	0.000	4990.567	0.000
L39	29 - 28.65 (39)	TP37.813x37.733x0.675	2346.083	4468.592	0.525	0.000	4468.592	0.000
L40	28.65 - 28.42 (40)	TP37.865x37.813x0.675	2353.208	4481.275	0.525	0.000	4481.275	0.000
L41	28.42 - 23.5 (41)	TP38.982x37.865x0.663	2507.092	4673.458	0.536	0.000	4673.458	0.000
L42	23.5 - 23.25 (42)	TP39.039x38.982x0.788	2514.975	5517.575	0.456	0.000	5517.575	0.000
L43	23.25 - 23 (43)	TP39.095x39.039x0.788	2522.875	5534.133	0.456	0.000	5534.133	0.000
L44	23 - 22.75 (44)	TP39.152x39.095x0.65	2530.775	4630.975	0.546	0.000	4630.975	0.000
L45	22.75 - 17.75 (45)	TP40.287x39.152x0.638	2690.192	4820.525	0.558	0.000	4820.525	0.000
L46	17.75 - 12.75 (46)	TP41.422x40.287x0.625	2852.250	5007.283	0.570	0.000	5007.283	0.000
L47	12.75 - 7.75 (47)	TP42.558x41.422x0.613	3016.950	5190.758	0.581	0.000	5190.758	0.000
L48	7.75 - 2.75 (48)	TP43.693x42.558x0.6	3184.267	5370.467	0.593	0.000	5370.467	0.000
L49	2.75 - 0 (49)	TP44.317x43.693x0.6	3230.742	5449.092	0.593	0.000	5449.092	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual	ϕV_n	Ratio	Actual	ϕT_n	Ratio
			V_u K	K	$\frac{V_u}{\phi V_n}$	T_u kip-ft	kip-ft	$\frac{T_u}{\phi T_n}$
L1	140 - 135 (1)	TP14.296x13.161x0.188	5.752	147.355	0.039	0.385	182.064	0.002
L2	135 - 130 (2)	TP15.431x14.296x0.188	5.945	159.209	0.037	0.385	212.535	0.002
L3	130 - 125 (3)	TP16.566x15.431x0.188	11.499	171.063	0.067	0.386	245.362	0.002
L4	125 - 120 (4)	TP17.701x16.566x0.188	11.665	182.917	0.064	0.385	280.545	0.001
L5	120 - 115 (5)	TP18.836x17.701x0.188	15.854	194.771	0.081	0.135	318.085	0.000
L6	115 - 114.75 (6)	TP18.893x18.836x0.463	15.870	474.812	0.033	0.138	766.351	0.000
L7	114.75 - 109.75 (7)	TP20.027x18.893x0.45	16.444	490.742	0.034	0.205	841.375	0.000
L8	109.75 - 104.75 (8)	TP21.162x20.027x0.425	19.716	490.940	0.040	0.097	891.583	0.000
L9	104.75 - 101.58 (9)	TP21.882x21.162x0.419	20.061	500.650	0.040	0.146	941.042	0.000
L10	101.58 -	TP21.939x21.882x0.313	20.077	376.457	0.053	0.156	712.978	0.000

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 $\frac{T_u}{\phi T_n}$
L11	101.33 (10)							
L11	101.33 - 96.33 (11)	TP23.074x21.939x0.313	20.578	396.214	0.052	0.345	789.780	0.000
L12	96.33 - 91.33 (12)	TP24.209x23.074x0.313	21.068	415.972	0.051	0.462	870.508	0.001
L13	91.33 - 91 (13)	TP24.284x24.209x0.313	21.089	417.276	0.051	0.466	875.975	0.001
L14	91 - 90.75 (14)	TP24.34x24.284x0.6	21.116	793.457	0.027	0.470	1649.650	0.000
L15	90.75 - 85.75 (15)	TP25.475x24.34x0.588	21.738	814.480	0.027	0.540	1775.208	0.000
L16	85.75 - 80.75 (16)	TP26.61x25.475x0.563	22.346	816.168	0.027	0.611	1861.800	0.000
L17	80.75 - 75.75 (17)	TP27.745x26.61x0.55	22.949	833.187	0.028	0.683	1984.350	0.000
L18	75.75 - 70.75 (18)	TP28.88x27.745x0.544	26.026	858.286	0.030	0.746	2129.908	0.000
L19	70.75 - 69.98 (19)	TP29.055x28.88x0.531	26.110	844.098	0.031	0.753	2108.542	0.000
L20	69.98 - 69.73 (20)	TP29.112x29.055x0.531	26.131	845.777	0.031	0.755	2116.942	0.000
L21	69.73 - 64.73 (21)	TP30.247x29.112x0.525	26.695	869.202	0.031	0.811	2262.442	0.000
L22	64.73 - 63 (22)	TP30.64x30.247x0.519	26.901	870.383	0.031	0.826	2295.925	0.000
L23	63 - 62.75 (23)	TP30.696x30.64x0.7	26.905	1169.640	0.023	0.828	3072.558	0.000
L24	62.75 - 59.08 (24)	TP31.53x30.696x0.688	27.375	1181.130	0.023	0.860	3190.225	0.000
L25	59.08 - 58.82 (25)	TP31.589x31.53x0.625	27.394	1077.990	0.025	0.862	2923.108	0.000
L26	58.82 - 58.67 (26)	TP31.623x31.589x0.625	27.412	1079.170	0.025	0.863	2929.542	0.000
L27	58.67 - 53.67 (27)	TP32.758x31.623x0.613	28.034	1096.740	0.026	0.913	3087.442	0.000
L28	53.67 - 48.58 (28)	TP33.913x32.758x0.613	28.107	1101.930	0.026	0.920	3116.725	0.000
L29	48.58 - 47.58 (29)	TP33.515x32.285x0.638	28.913	1167.520	0.025	1.018	3361.592	0.000
L30	47.58 - 42.58 (30)	TP34.65x33.515x0.625	29.455	1184.580	0.025	1.070	3529.775	0.000
L31	42.58 - 39.67 (31)	TP35.311x34.65x0.613	29.777	1183.860	0.025	1.094	3597.400	0.000
L32	39.67 - 39.42 (32)	TP35.368x35.311x0.813	29.783	1563.940	0.019	1.096	4732.750	0.000
L33	39.42 - 34.42 (33)	TP36.503x35.368x0.788	30.371	1566.710	0.019	1.135	4900.300	0.000
L34	34.42 - 32.5 (34)	TP36.939x36.503x0.788	30.604	1585.830	0.019	1.149	5020.642	0.000
L35	32.5 - 32.25 (35)	TP36.995x36.939x0.613	30.606	1241.330	0.025	1.150	3955.175	0.000
L36	32.25 - 31.42 (36)	TP37.184x36.995x0.6	30.703	1222.710	0.025	1.156	3917.367	0.000
L37	31.42 - 31.17 (37)	TP37.241x37.184x0.775	30.719	1574.230	0.020	1.157	5027.283	0.000
L38	31.17 - 29 (38)	TP37.733x37.241x0.763	30.973	1570.300	0.020	1.181	5084.175	0.000
L39	29 - 28.65 (39)	TP37.813x37.733x0.675	30.999	1396.380	0.022	1.185	4541.492	0.000
L40	28.65 - 28.42 (40)	TP37.865x37.813x0.675	31.022	1398.340	0.022	1.188	4554.267	0.000
L41	28.42 - 23.5 (41)	TP38.982x37.865x0.663	31.559	1414.130	0.022	1.252	4745.558	0.000
L42	23.5 - 23.25 (42)	TP39.039x38.982x0.788	31.569	1677.950	0.019	1.255	5620.875	0.000
L43	23.25 - 23 (43)	TP39.095x39.039x0.788	31.597	1680.440	0.019	1.258	5637.567	0.000
L44	23 - 22.75 (44)	TP39.152x39.095x0.65	31.625	1394.060	0.023	1.261	4700.542	0.000

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 $\frac{T_u}{\phi T_n}$
L45	22.75 - 17.75 (45)	TP40.287x39.152x0.638	32.169	1408.010	0.023	1.312	4889.067	0.000
L46	17.75 - 12.75 (46)	TP41.422x40.287x0.625	32.697	1420.350	0.023	1.357	5074.692	0.000
L47	12.75 - 7.75 (47)	TP42.558x41.422x0.613	33.224	1431.100	0.023	1.402	5256.925	0.000
L48	7.75 - 2.75 (48)	TP43.693x42.558x0.6	33.749	1440.250	0.023	1.449	5435.283	0.000
L49	2.75 - 0 (49)	TP44.317x43.693x0.6	34.041	1461.120	0.023	1.479	5514.317	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	140 - 135 (1)	0.008	0.131	0.000	0.039	0.002	0.140	1.050	4.8.2
L2	135 - 130 (2)	0.007	0.251	0.000	0.037	0.002	0.260	1.050	4.8.2
L3	130 - 125 (3)	0.015	0.408	0.000	0.067	0.002	0.427	1.050	4.8.2
L4	125 - 120 (4)	0.014	0.564	0.000	0.064	0.001	0.583	1.050	4.8.2
L5	120 - 115 (5)	0.019	0.729	0.000	0.081	0.000	0.755	1.050	4.8.2
L6	115 - 114.75 (6)	0.008	0.309	0.000	0.033	0.000	0.318	1.050	4.8.2
L7	114.75 - 109.75 (7)	0.008	0.379	0.000	0.034	0.000	0.388	1.050	4.8.2
L8	109.75 - 104.75 (8)	0.010	0.462	0.000	0.040	0.000	0.474	1.050	4.8.2
L9	104.75 - 101.58 (9)	0.010	0.506	0.000	0.040	0.000	0.518	1.050	4.8.2
L10	101.58 - 101.33 (10)	0.014	0.671	0.000	0.053	0.000	0.688	1.050	4.8.2
L11	101.33 - 96.33 (11)	0.014	0.736	0.000	0.052	0.000	0.752	1.050	4.8.2
L12	96.33 - 91.33 (12)	0.014	0.788	0.000	0.051	0.001	0.804	1.050	4.8.2
L13	91.33 - 91 (13)	0.014	0.791	0.000	0.051	0.001	0.807	1.050	4.8.2
L14	91 - 90.75 (14)	0.007	0.428	0.000	0.027	0.000	0.436	1.050	4.8.2
L15	90.75 - 85.75 (15)	0.007	0.459	0.000	0.027	0.000	0.467	1.050	4.8.2
L16	85.75 - 80.75 (16)	0.008	0.497	0.000	0.027	0.000	0.506	1.050	4.8.2
L17	80.75 - 75.75 (17)	0.008	0.524	0.000	0.028	0.000	0.533	1.050	4.8.2
L18	75.75 - 70.75 (18)	0.010	0.547	0.000	0.030	0.000	0.558	1.050	4.8.2
L19	70.75 - 69.98 (19)	0.010	0.562	0.000	0.031	0.000	0.573	1.050	4.8.2
L20	69.98 - 69.73 (20)	0.010	0.563	0.000	0.031	0.000	0.574	1.050	4.8.2
L21	69.73 - 64.73 (21)	0.010	0.585	0.000	0.031	0.000	0.596	1.050	4.8.2
L22	64.73 - 63 (22)	0.010	0.597	0.000	0.031	0.000	0.608	1.050	4.8.2
L23	63 - 62.75 (23)	0.008	0.451	0.000	0.023	0.000	0.459	1.050	4.8.2
L24	62.75 - 59.08 (24)	0.008	0.466	0.000	0.023	0.000	0.474	1.050	4.8.2
L25	59.08 - 58.82 (25)	0.009	0.510	0.000	0.025	0.000	0.519	1.050	4.8.2
L26	58.82 - 58.67 (26)	0.009	0.510	0.000	0.025	0.000	0.519	1.050	4.8.2
L27	58.67 - 53.67	0.009	0.529	0.000	0.026	0.000	0.539	1.050	4.8.2

Section No.	Elevation ft	Ratio	Ratio	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		P_u ϕP_n	M_{ux} ϕM_{nx}	M_{uy} ϕM_{ny}	V_u ϕV_n	T_u ϕT_n			
L28	53.67 - 48.58 (27)	0.009	0.530	0.000	0.026	0.000	0.540	1.050	4.8.2
L29	48.58 - 47.58 (28)	0.009	0.539	0.000	0.025	0.000	0.549	1.050	4.8.2
L30	47.58 - 42.58 (29)	0.010	0.554	0.000	0.025	0.000	0.565	1.050	4.8.2
L31	42.58 - 39.67 (30)	0.010	0.568	0.000	0.025	0.000	0.578	1.050	4.8.2
L32	39.67 - 39.42 (31)	0.007	0.436	0.000	0.019	0.000	0.444	1.050	4.8.2
L33	39.42 - 34.42 (32)	0.008	0.452	0.000	0.019	0.000	0.460	1.050	4.8.2
L34	34.42 - 32.5 (33)	0.008	0.453	0.000	0.019	0.000	0.461	1.050	4.8.2
L35	32.5 - 32.25 (34)	0.010	0.574	0.000	0.025	0.000	0.584	1.050	4.8.2
L36	32.25 - 31.42 (35)	0.010	0.585	0.000	0.025	0.000	0.596	1.050	4.8.2
L37	31.42 - 31.17 (36)	0.008	0.460	0.000	0.020	0.000	0.468	1.050	4.8.2
L38	31.17 - 29 (37)	0.008	0.468	0.000	0.020	0.000	0.477	1.050	4.8.2
L39	29 - 28.65 (38)	0.009	0.525	0.000	0.022	0.000	0.535	1.050	4.8.2
L40	28.65 - 28.42 (39)	0.009	0.525	0.000	0.022	0.000	0.535	1.050	4.8.2
L41	28.42 - 23.5 (40)	0.010	0.536	0.000	0.022	0.000	0.547	1.050	4.8.2
L42	23.5 - 23.25 (41)	0.008	0.456	0.000	0.019	0.000	0.464	1.050	4.8.2
L43	23.25 - 23 (42)	0.008	0.456	0.000	0.019	0.000	0.464	1.050	4.8.2
L44	23 - 22.75 (43)	0.010	0.546	0.000	0.023	0.000	0.557	1.050	4.8.2
L45	22.75 - 17.75 (44)	0.010	0.558	0.000	0.023	0.000	0.569	1.050	4.8.2
L46	17.75 - 12.75 (45)	0.011	0.570	0.000	0.023	0.000	0.581	1.050	4.8.2
L47	12.75 - 7.75 (46)	0.011	0.581	0.000	0.023	0.000	0.593	1.050	4.8.2
L48	7.75 - 2.75 (47)	0.011	0.593	0.000	0.023	0.000	0.605	1.050	4.8.2
L49	2.75 - 0 (49)	0.011	0.593	0.000	0.023	0.000	0.605	1.050	4.8.2

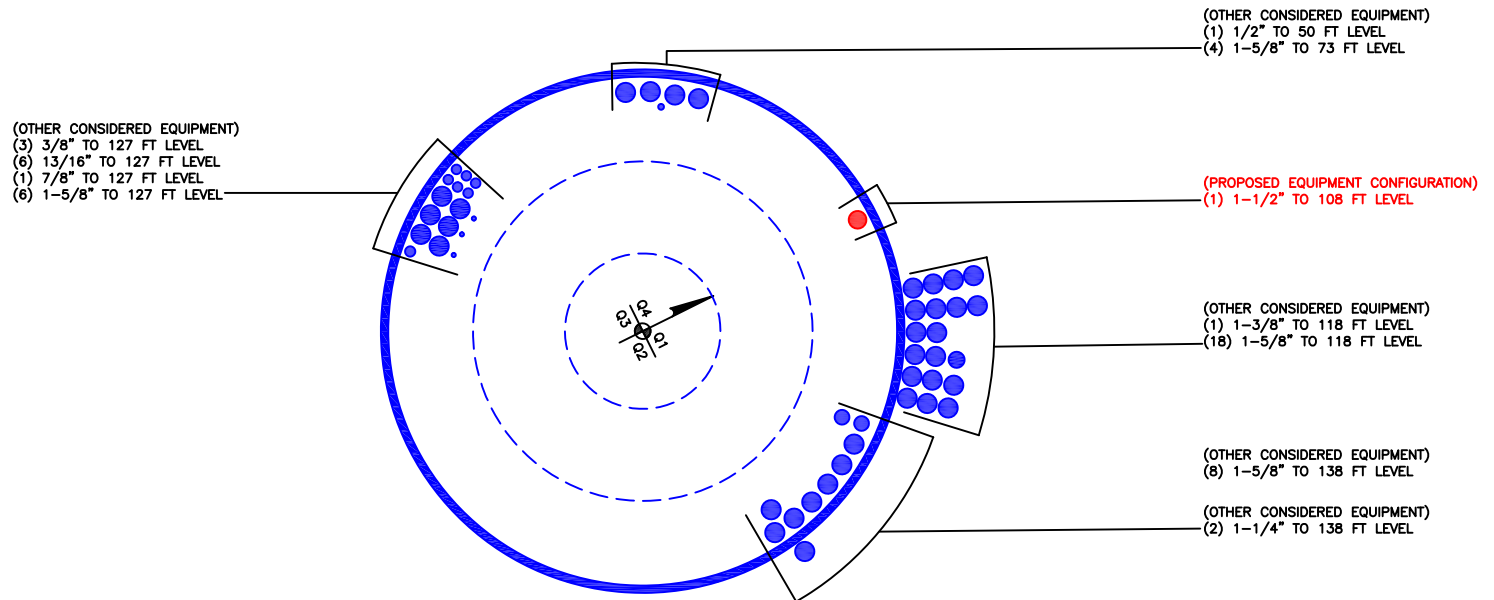
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	140 - 135	Pole	TP14.296x13.161x0.188	1	-3.684	515.742	13.4	Pass
L2	135 - 130	Pole	TP15.431x14.296x0.188	2	-3.914	557.232	24.8	Pass
L3	130 - 125	Pole	TP16.566x15.431x0.188	3	-8.296	598.720	40.7	Pass
L4	125 - 120	Pole	TP17.701x16.566x0.188	4	-8.675	640.209	55.5	Pass
L5	120 - 115	Pole	TP18.836x17.701x0.188	5	-12.192	681.698	71.9	Pass
L6	115 - 114.75	Pole	TP18.893x18.836x0.463	6	-12.243	1661.845	30.3	Pass
L7	114.75 - 109.75	Pole	TP20.027x18.893x0.45	7	-12.953	1717.600	37.0	Pass
L8	109.75 - 104.75	Pole	TP21.162x20.027x0.425	8	-16.663	1718.293	45.2	Pass
L9	104.75 - 101.58	Pole	TP21.882x21.162x0.419	9	-17.177	1752.271	49.3	Pass
L10	101.58 - 101.33	Pole	TP21.939x21.882x0.313	10	-17.225	1317.603	65.5	Pass
L11	101.33 - 96.33	Pole	TP23.074x21.939x0.313	11	-18.002	1386.745	71.6	Pass
L12	96.33 - 91.33	Pole	TP24.209x23.074x0.313	12	-18.832	1455.898	76.6	Pass
L13	91.33 - 91	Pole	TP24.284x24.209x0.313	13	-18.902	1460.466	76.9	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail	
L14	91 - 90.75	Pole	TP24.34x24.284x0.6	14	-18.962	2777.103	41.6	Pass	
L15	90.75 - 85.75	Pole	TP25.475x24.34x0.588	15	-20.084	2850.676	44.5	Pass	
L16	85.75 - 80.75	Pole	TP26.61x25.475x0.563	16	-21.249	2856.588	48.2	Pass	
L17	80.75 - 75.75	Pole	TP27.745x26.61x0.55	17	-22.447	2916.154	50.7	Pass	
L18	75.75 - 70.75	Pole	TP28.88x27.745x0.544	18	-27.817	3003.997	53.1	Pass	
L19	70.75 - 69.98	Pole	TP29.055x28.88x0.531	19	-28.022	2954.343	54.5	Pass	
L20	69.98 - 69.73	Pole	TP29.112x29.055x0.531	20	-28.096	2960.223	54.6	Pass	
L21	69.73 - 64.73	Pole	TP30.247x29.112x0.525	21	-29.410	3042.207	56.8	Pass	
L22	64.73 - 63	Pole	TP30.64x30.247x0.519	22	-29.865	3046.344	57.9	Pass	
L23	63 - 62.75	Pole	TP30.696x30.64x0.7	23	-29.973	4093.729	43.7	Pass	
L24	62.75 - 59.08	Pole	TP31.53x30.696x0.688	24	-31.201	4133.965	45.2	Pass	
L25	59.08 - 58.82	Pole	TP31.589x31.53x0.625	25	-31.297	3772.965	49.4	Pass	
L26	58.82 - 58.67	Pole	TP31.623x31.589x0.625	26	-31.347	3777.112	49.5	Pass	
L27	58.67 - 53.67	Pole	TP32.758x31.623x0.613	27	-32.963	3838.600	51.3	Pass	
L28	53.67 - 48.58	Pole	TP33.913x32.758x0.613	28	-33.189	3856.755	51.4	Pass	
L29	48.58 - 47.58	Pole	TP33.515x32.285x0.638	29	-36.119	4086.327	52.2	Pass	
L30	47.58 - 42.58	Pole	TP34.65x33.515x0.625	30	-37.785	4146.040	53.8	Pass	
L31	42.58 - 39.67	Pole	TP35.311x34.65x0.613	31	-38.764	4143.499	55.1	Pass	
L32	39.67 - 39.42	Pole	TP35.368x35.311x0.813	32	-38.884	5473.797	42.2	Pass	
L33	39.42 - 34.42	Pole	TP36.503x35.368x0.788	33	-40.918	5483.488	43.8	Pass	
L34	34.42 - 32.5	Pole	TP36.939x36.503x0.788	34	-41.702	5550.415	43.9	Pass	
L35	32.5 - 32.25	Pole	TP36.995x36.939x0.613	35	-41.807	4344.658	55.7	Pass	
L36	32.25 - 31.42	Pole	TP37.184x36.995x0.6	36	-42.091	4279.495	56.8	Pass	
L37	31.42 - 31.17	Pole	TP37.241x37.184x0.775	37	-42.205	5509.822	44.6	Pass	
L38	31.17 - 29	Pole	TP37.733x37.241x0.763	38	-43.102	5496.046	45.4	Pass	
L39	29 - 28.65	Pole	TP37.813x37.733x0.675	39	-43.249	4887.319	50.9	Pass	
L40	28.65 - 28.42	Pole	TP37.865x37.813x0.675	40	-43.343	4894.197	50.9	Pass	
L41	28.42 - 23.5	Pole	TP38.982x37.865x0.663	41	-45.295	4949.448	52.1	Pass	
L42	23.5 - 23.25	Pole	TP39.039x38.982x0.788	42	-45.427	5872.828	44.2	Pass	
L43	23.25 - 23	Pole	TP39.095x39.039x0.788	43	-45.545	5881.543	44.2	Pass	
L44	23 - 22.75	Pole	TP39.152x39.095x0.65	44	-45.652	4879.224	53.0	Pass	
L45	22.75 - 17.75	Pole	TP40.287x39.152x0.638	45	-47.793	4928.028	54.2	Pass	
L46	17.75 - 12.75	Pole	TP41.422x40.287x0.625	46	-49.972	4971.246	55.3	Pass	
L47	12.75 - 7.75	Pole	TP42.558x41.422x0.613	47	-52.178	5008.857	56.4	Pass	
L48	7.75 - 2.75	Pole	TP43.693x42.558x0.6	48	-54.411	5040.882	57.6	Pass	
L49	2.75 - 0	Pole	TP44.317x43.693x0.6	49	-55.063	5077.401	57.6	Pass	
							Summary		
							Pole (L13)	76.9	Pass
							RATING =	76.9	Pass

***NOTE: Above stress ratios for reinforced sections are approximate. More exact calculations are presented in Appendix C.**

APPENDIX B
BASE LEVEL DRAWING



APPENDIX C
ADDITIONAL CALCULATIONS

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	140	38.42	0	18	13.161	21.882	0.1875	Auto	A572-65
2	101.58	53	4.42	18	21.88	33.913	0.3125	Auto	A572-65
3	53	53	0	18	32.28	44.317	0.3125	Auto	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1	0	31.42	plate	PL 5.75" x 1"	3	x						x						x						
2	32.5	48.67	plate	PL 5.75" x 1"	3						x							x					x	
3	58.92	70.08	plate	PL 5.75" x 1" (Lu = 16")	3						x							x					x	
4	0	59.08	channel	MP3-04 (1.25in)	3				x							x							x	
5	28.67	39.67	plate	CCI-SFP-060100	3				x														x	
6	0	23.5	plate	CCI-AFP-060100	3		x																x	
7	52	63	plate	CCI-SFP-060100	3				x															x
8	70	91	plate	CCI-SFP-060100	3				x															x
9	101.58	115	plate	CCI-AFP-045100	3				x															x
10	23	29	plate	CCI-SFP-060100	2						x													x
11																								

Reinforcement Details

	B (in)	H (in)	Gross Area (in ²)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in ²)	Bolt Hole Size (in)	Reinforcement Material
1	5.75	1	5.75	0.5	PC 8.8 - M20 (100)	23	PC 8.8 - M20 (100)	23.000	14.000	4.438	1.2500	A572-65
2	5.75	1	5.75	0.5	PC 8.8 - M20 (100)	23	PC 8.8 - M20 (100)	23.000	14.000	4.438	1.2500	A572-65
3	5.75	1	5.75	0.5	PC 8.8 - M20 (100)	23	PC 8.8 - M20 (100)	23.000	16.000	4.438	1.2500	A572-65
4	4.78	1.61	4.13	0.61	PC 8.8 - M20 (100)	17	PC 8.8 - M20 (100)	17.000	18.000	3.566	1.2500	A572-65
5	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
6	6	1	6	0.5	PC 8.8 - M20 (100)	30	PC 8.8 - M20 (100)	30.000	16.000	4.750	1.1875	A572-65
7	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
8	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
9	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	20.000	3.250	1.1875	A572-65
10	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65

Connection Details for Custom Reinforcements

Reinforcement	End	# Bolts	N or X	Bolt Spacing (in)	Edge Dist (in)	Weld Grade (ksi)	Transverse (Horiz.) Weld Type	Horiz. Weld Length (in)	Horiz. Groove Depth (in)	Horiz. Groove Angle (deg)	Horiz. Fillet Size (in)	Vertical Weld Length (in)	Vertical Fillet Size (in)	Rev H Connection Capacity (kip)
PL 5.75" x 1"	Top	8	N	3	2	70	None	-	-	-	-	-	-	-
	Bottom	8	N	3	2	70	None	-	-	-	-	-	-	-
PL 5.75" x 1" (Lu = 16")	Top	8	N	3	2	-	-	-	-	-	-	-	-	-
	Bottom	8	N	3	2	-	-	-	-	-	-	-	-	-

TNX Geometry Input

Increment (ft): [Export to TNX](#)

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	140 - 135	5		18	13.161	14.296	0.1875	A572-65	1.000
2	135 - 130	5		18	14.296	15.431	0.1875	A572-65	1.000
3	130 - 125	5		18	15.431	16.566	0.1875	A572-65	1.000
4	125 - 120	5		18	16.566	17.701	0.1875	A572-65	1.000
5	120 - 115	5		18	17.701	18.836	0.1875	A572-65	1.000
6	115 - 114.75	0.25		18	18.836	18.893	0.4625	A572-65	0.910
7	114.75 - 109.75	5		18	18.893	20.027	0.45	A572-65	0.905
8	109.75 - 104.75	5		18	20.027	21.162	0.425	A572-65	0.929
9	104.75 - 101.58	3.17	0	18	21.162	21.882	0.41875	A572-65	0.926
10	101.58 - 101.33	0.25		18	21.882	21.939	0.3125	A572-65	1.000
11	101.33 - 96.33	5		18	21.939	23.074	0.3125	A572-65	1.000
12	96.33 - 91.33	5		18	23.074	24.209	0.3125	A572-65	1.000
13	91.33 - 91	0.33		18	24.209	24.284	0.3125	A572-65	1.000
14	91 - 90.75	0.25		18	24.284	24.340	0.6	A572-65	0.925
15	90.75 - 85.75	5		18	24.340	25.475	0.5875	A572-65	0.926
16	85.75 - 80.75	5		18	25.475	26.610	0.5625	A572-65	0.948
17	80.75 - 75.75	5		18	26.610	27.745	0.55	A572-65	0.952
18	75.75 - 70.75	5		18	27.745	28.880	0.54375	A572-65	0.947
19	70.75 - 69.98	0.77		18	28.880	29.055	0.53125	A572-65	0.951
20	69.98 - 69.73	0.25		18	29.055	29.112	0.53125	A572-65	0.951
21	69.73 - 64.73	5		18	29.112	30.247	0.525	A572-65	0.948
22	64.73 - 63	1.73		18	30.247	30.640	0.51875	A572-65	0.954
23	63 - 62.75	0.25		18	30.640	30.696	0.7	A572-65	0.981
24	62.75 - 59.08	3.67		18	30.696	31.530	0.6875	A572-65	0.984
25	59.08 - 58.82	0.26		18	31.530	31.589	0.625	A572-65	1.000
26	58.82 - 58.67	0.15		18	31.589	31.623	0.625	A572-65	0.999
27	58.67 - 53.67	5		18	31.623	32.758	0.6125	A572-65	1.001
28	53.67 - 53	5.09	4.42	18	32.758	33.913	0.6125	A572-65	0.999
29	53 - 47.58	5.42		18	32.285	33.515	0.6375	A572-65	0.941
30	47.58 - 42.58	5		18	33.515	34.650	0.625	A572-65	0.944
31	42.58 - 39.67	2.91		18	34.650	35.311	0.6125	A572-65	0.954
32	39.67 - 39.42	0.25		18	35.311	35.368	0.8125	A572-65	0.925
33	39.42 - 34.42	5		18	35.368	36.503	0.7875	A572-65	0.936
34	34.42 - 32.5	1.92		18	36.503	36.939	0.7875	A572-65	0.929
35	32.5 - 32.25	0.25		18	36.939	36.995	0.6125	A572-65	0.944
36	32.25 - 31.42	0.83		18	36.995	37.184	0.6	A572-65	0.961
37	31.42 - 31.17	0.25		18	37.184	37.241	0.775	A572-65	0.939
38	31.17 - 29	2.17		18	37.241	37.733	0.7625	A572-65	0.947
39	29 - 28.65	0.35		18	37.733	37.813	0.675	A572-65	0.991
40	28.65 - 28.42	0.23		18	37.813	37.865	0.675	A572-65	0.990
41	28.42 - 23.5	4.92		18	37.865	38.982	0.6625	A572-65	0.993
42	23.5 - 23.25	0.25		18	38.982	39.039	0.7875	A572-65	1.026
43	23.25 - 23	0.25		18	39.039	39.095	0.7875	A572-65	1.025
44	23 - 22.75	0.25		18	39.095	39.152	0.65	A572-65	1.085
45	22.75 - 17.75	5		18	39.152	40.287	0.6375	A572-65	1.088
46	17.75 - 12.75	5		18	40.287	41.422	0.625	A572-65	1.092
47	12.75 - 7.75	5		18	41.422	42.558	0.6125	A572-65	1.098
48	7.75 - 2.75	5		18	42.558	43.693	0.6	A572-65	1.105
49	2.75 - 0	2.75		18	43.693	44.317	0.6	A572-65	1.096

TNX Section Forces

Increment (ft):		TNX Output			
	5	Section Height (ft)	P _u (K)	M _{ux} (kip-ft)	V _u (K)
1	140 - 135		3.68	23.61	5.75
2	135 - 130		3.91	52.85	5.95
3	130 - 125		8.30	99.08	11.50
4	125 - 120		8.67	156.96	11.67
5	120 - 115		12.19	227.60	15.85
6	115 - 114.75		12.24	231.56	15.87
7	114.75 - 109.75		12.95	312.32	16.44
8	109.75 - 104.75		16.66	404.71	19.72
9	104.75 - 101.58		17.18	467.72	20.06
10	101.58 - 101.33		17.23	472.74	20.08
11	101.33 - 96.33		18.00	574.31	20.58
12	96.33 - 91.33		18.83	678.33	21.07
13	91.33 - 91		18.90	685.29	21.09
14	91 - 90.75		18.96	690.56	21.12
15	90.75 - 85.75		20.08	797.65	21.74
16	85.75 - 80.75		21.25	907.79	22.35
17	80.75 - 75.75		22.45	1020.96	22.95
18	75.75 - 70.75		27.82	1144.94	26.03
19	70.75 - 69.98		28.02	1165.00	26.11
20	69.98 - 69.73		28.10	1171.53	26.13
21	69.73 - 64.73		29.41	1303.53	26.69
22	64.73 - 63		29.86	1349.85	26.90
23	63 - 62.75		29.97	1356.57	26.91
24	62.75 - 59.08		31.20	1456.14	27.38
25	59.08 - 58.82		31.30	1463.25	27.39
26	58.82 - 58.67		31.35	1467.36	27.41
27	58.67 - 53.67		32.96	1605.93	28.03
28	53.67 - 53		33.19	1624.72	28.11
29	53 - 47.58		36.12	1779.36	28.91
30	47.58 - 42.58		37.78	1925.19	29.46
31	42.58 - 39.67		38.76	2011.31	29.78
32	39.67 - 39.42		38.88	2018.75	29.78
33	39.42 - 34.42		40.92	2169.08	30.37
34	34.42 - 32.5		41.70	2227.57	30.60
35	32.5 - 32.25		41.81	2235.22	30.61
36	32.25 - 31.42		42.09	2260.65	30.70
37	31.42 - 31.17		42.20	2268.33	30.72
38	31.17 - 29		43.10	2335.24	30.97
39	29 - 28.65		43.25	2346.08	31.00
40	28.65 - 28.42		43.34	2353.21	31.02
41	28.42 - 23.5		45.29	2507.09	31.56
42	23.5 - 23.25		45.43	2514.98	31.57
43	23.25 - 23		45.55	2522.87	31.60
44	23 - 22.75		45.65	2530.77	31.62
45	22.75 - 17.75		47.79	2690.19	32.17
46	17.75 - 12.75		49.97	2852.25	32.70
47	12.75 - 7.75		52.18	3016.95	33.22
48	7.75 - 2.75		54.41	3184.27	33.75
49	2.75 - 0		55.65	3277.40	34.04

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
140 - 135	Pole	TP14.296x13.161x0.1875	Pole	13.3%	Pass
135 - 130	Pole	TP15.431x14.296x0.1875	Pole	24.8%	Pass
130 - 125	Pole	TP16.566x15.431x0.1875	Pole	40.6%	Pass
125 - 120	Pole	TP17.701x16.566x0.1875	Pole	55.5%	Pass
120 - 115	Pole	TP18.836x17.701x0.1875	Pole	71.9%	Pass
115 - 114.75	Pole + Reinf.	TP18.893x18.836x0.4625	Reinf. 9 Tension Rupture	52.9%	Pass
114.75 - 109.75	Pole + Reinf.	TP20.027x18.893x0.45	Reinf. 9 Tension Rupture	65.4%	Pass
109.75 - 104.75	Pole + Reinf.	TP21.162x20.027x0.425	Reinf. 9 Tension Rupture	78.4%	Pass
104.75 - 101.58	Pole + Reinf.	TP21.882x21.162x0.4188	Reinf. 9 Tension Rupture	86.2%	Pass
101.58 - 101.33	Pole	TP21.939x21.882x0.3125	Pole	65.5%	Pass
101.33 - 96.33	Pole	TP23.074x21.939x0.3125	Pole	71.6%	Pass
96.33 - 91.33	Pole	TP24.209x23.074x0.3125	Pole	76.5%	Pass
91.33 - 91	Pole	TP24.284x24.209x0.3125	Pole	76.8%	Pass
91 - 90.75	Pole + Reinf.	TP24.34x24.284x0.6	Reinf. 8 Tension Rupture	66.4%	Pass
90.75 - 85.75	Pole + Reinf.	TP25.475x24.34x0.5875	Reinf. 8 Tension Rupture	71.4%	Pass
85.75 - 80.75	Pole + Reinf.	TP26.61x25.475x0.5625	Reinf. 8 Tension Rupture	75.9%	Pass
80.75 - 75.75	Pole + Reinf.	TP27.745x26.61x0.55	Reinf. 8 Tension Rupture	79.8%	Pass
75.75 - 70.75	Pole + Reinf.	TP28.88x27.745x0.5438	Reinf. 8 Tension Rupture	84.1%	Pass
70.75 - 69.98	Pole + Reinf.	TP29.055x28.88x0.5313	Reinf. 3 Tension Rupture	88.5%	Pass
69.98 - 69.73	Pole + Reinf.	TP29.112x29.055x0.5313	Reinf. 3 Tension Rupture	88.7%	Pass
69.73 - 64.73	Pole + Reinf.	TP30.247x29.112x0.525	Reinf. 3 Tension Rupture	92.7%	Pass
64.73 - 63	Pole + Reinf.	TP30.64x30.247x0.5188	Reinf. 3 Tension Rupture	94.0%	Pass
63 - 62.75	Pole + Reinf.	TP30.696x30.64x0.7	Reinf. 3 Tension Rupture	72.5%	Pass
62.75 - 59.08	Pole + Reinf.	TP31.53x30.696x0.6875	Reinf. 3 Tension Rupture	74.8%	Pass
59.08 - 58.82	Pole + Reinf.	TP31.589x31.53x0.625	Reinf. 4 Tension Rupture	76.6%	Pass
58.82 - 58.67	Pole + Reinf.	TP31.623x31.589x0.625	Reinf. 4 Tension Rupture	76.7%	Pass
58.67 - 53.67	Pole + Reinf.	TP32.758x31.623x0.6125	Reinf. 4 Tension Rupture	79.5%	Pass
53.67 - 53	Pole + Reinf.	TP33.913x32.758x0.6125	Reinf. 4 Tension Rupture	79.8%	Pass
53 - 47.58	Pole + Reinf.	TP33.515x32.285x0.6375	Reinf. 2 Tension Rupture	84.7%	Pass
47.58 - 42.58	Pole + Reinf.	TP34.65x33.515x0.625	Reinf. 2 Tension Rupture	87.2%	Pass
42.58 - 39.67	Pole + Reinf.	TP35.311x34.65x0.6125	Reinf. 2 Tension Rupture	88.5%	Pass
39.67 - 39.42	Pole + Reinf.	TP35.368x35.311x0.8125	Reinf. 2 Tension Rupture	68.7%	Pass
39.42 - 34.42	Pole + Reinf.	TP36.503x35.368x0.7875	Reinf. 2 Tension Rupture	70.6%	Pass
34.42 - 32.5	Pole + Reinf.	TP36.939x36.503x0.7875	Reinf. 2 Tension Rupture	71.3%	Pass
32.5 - 32.25	Pole + Reinf.	TP36.995x36.939x0.6125	Reinf. 5 Tension Rupture	88.2%	Pass
32.25 - 31.42	Pole + Reinf.	TP37.184x36.995x0.6	Reinf. 5 Tension Rupture	88.6%	Pass
31.42 - 31.17	Pole + Reinf.	TP37.241x37.184x0.775	Reinf. 1 Tension Rupture	71.8%	Pass
31.17 - 29	Pole + Reinf.	TP37.733x37.241x0.7625	Reinf. 1 Tension Rupture	72.5%	Pass
29 - 28.65	Pole + Reinf.	TP37.813x37.733x0.675	Reinf. 1 Tension Rupture	86.3%	Pass
28.65 - 28.42	Pole + Reinf.	TP37.865x37.813x0.675	Reinf. 1 Tension Rupture	86.4%	Pass
28.42 - 23.5	Pole + Reinf.	TP38.982x37.865x0.6625	Reinf. 1 Tension Rupture	88.1%	Pass
23.5 - 23.25	Pole + Reinf.	TP39.039x38.982x0.7875	Reinf. 1 Tension Rupture	72.1%	Pass
23.25 - 23	Pole + Reinf.	TP39.095x39.039x0.7875	Reinf. 1 Tension Rupture	72.1%	Pass
23 - 22.75	Pole + Reinf.	TP39.152x39.095x0.65	Reinf. 1 Tension Rupture	87.6%	Pass
22.75 - 17.75	Pole + Reinf.	TP40.287x39.152x0.6375	Reinf. 1 Tension Rupture	89.2%	Pass
17.75 - 12.75	Pole + Reinf.	TP41.422x40.287x0.625	Reinf. 1 Tension Rupture	90.7%	Pass
12.75 - 7.75	Pole + Reinf.	TP42.558x41.422x0.6125	Reinf. 1 Tension Rupture	92.0%	Pass
7.75 - 2.75	Pole + Reinf.	TP43.693x42.558x0.6	Reinf. 1 Tension Rupture	93.3%	Pass
2.75 - 0	Pole + Reinf.	TP44.317x43.693x0.6	Reinf. 1 Tension Rupture	93.9%	Pass
				Summary	
			Pole	76.8%	Pass
			Reinforcement	94.0%	Pass
			Overall	94.0%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in ⁴)			Area (in ²)			% Capacity*										
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10
140 - 135	211	n/a	211	8.40	n/a	8.40	13.3%										
135 - 130	266	n/a	266	9.07	n/a	9.07	24.8%										
130 - 125	330	n/a	330	9.75	n/a	9.75	40.6%										
125 - 120	404	n/a	404	10.42	n/a	10.42	55.5%										
120 - 115	487	n/a	487	11.10	n/a	11.10	71.9%										
115 - 114.75	492	680	1172	11.13	13.50	24.63	30.1%									52.9%	
114.75 - 109.75	587	758	1345	11.81	13.50	25.31	37.8%									65.4%	
109.75 - 104.75	694	841	1534	12.48	13.50	25.98	46.1%									78.4%	
104.75 - 101.58	767	896	1663	12.91	13.50	26.41	51.3%									86.2%	
101.58 - 101.33	1267	n/a	1267	21.45	n/a	21.45	65.5%										
101.33 - 96.33	1477	n/a	1477	22.58	n/a	22.58	71.6%										
96.33 - 91.33	1709	n/a	1709	23.70	n/a	23.70	76.5%										
91.33 - 91	1726	n/a	1726	23.78	n/a	23.78	76.8%										
91 - 90.75	1738	1473	3210	23.83	18.00	41.83	41.1%								66.4%		
90.75 - 85.75	1996	1605	3601	24.96	18.00	42.96	44.3%								71.4%		
85.75 - 80.75	2278	1743	4021	26.08	18.00	44.08	47.1%								75.9%		
80.75 - 75.75	2586	1887	4473	27.21	18.00	45.21	49.6%								79.8%		
75.75 - 70.75	2921	2037	4957	28.33	18.00	46.33	52.4%								84.1%		
70.75 - 69.98	2975	1972	4947	28.51	17.25	45.76	53.8%			88.5%							
69.98 - 69.73	2992	1980	4972	28.56	17.25	45.81	53.9%			88.7%							
69.73 - 64.73	3360	2130	5490	29.69	17.25	46.94	56.5%			92.7%							
64.73 - 63	3494	2183	5677	30.08	17.25	47.33	57.5%			94.0%							
63 - 62.75	3520	4069	7589	30.14	35.25	65.39	45.1%			72.5%				66.8%			
62.75 - 59.08	3817	4283	8100	30.96	35.25	66.21	46.8%			74.8%				68.9%			
59.08 - 58.82	3836	3575	7411	31.02	30.39	61.41	51.1%			76.6%				74.8%			
58.82 - 58.67	3848	3583	7431	31.05	30.39	61.44	51.1%			76.7%				74.9%			
58.67 - 53.67	4282	3833	8115	32.18	30.39	62.57	53.5%			79.5%				77.7%			
53.67 - 53	4342	3867	8209	32.33	30.39	62.72	53.9%			79.8%				78.1%			
53 - 47.58	4585	4469	9054	32.93	29.64	62.57	53.2%		84.7%	79.5%							
47.58 - 42.58	5072	4764	9836	34.06	29.64	63.70	55.3%		87.2%	81.8%							
42.58 - 39.67	5370	4941	10311	34.71	29.64	64.35	56.4%		88.5%	83.0%							
39.67 - 39.42	5396	7960	13356	34.77	47.64	82.41	43.8%		68.7%	64.4%	67.0%						
39.42 - 34.42	5938	8460	14398	35.89	47.64	83.53	45.5%		70.6%	66.2%	68.9%						
34.42 - 32.5	6155	8656	14811	36.33	47.64	83.97	46.2%		71.3%	66.9%	69.5%						
32.5 - 32.25	6183	5544	11728	36.38	30.39	66.77	58.6%			84.9%	88.2%						
32.25 - 31.42	6279	5599	11878	36.57	30.39	66.96	58.9%			85.2%	88.6%						
31.42 - 31.17	6308	8793	15102	36.63	47.64	84.27	46.6%	71.8%		67.3%	70.0%						
31.17 - 29	6564	9019	15584	37.12	47.64	84.76	47.3%	72.5%		68.0%	70.7%						
29 - 28.65	6667	7167	13834	37.19	41.64	78.83	58.0%	86.3%		85.1%							71.3%
28.65 - 28.42	6695	7186	13881	37.25	41.64	78.89	58.1%	86.4%		85.1%							71.3%
28.42 - 23.5	7308	7603	14911	38.35	41.64	79.99	59.8%	88.1%		86.7%							72.9%
23.5 - 23.25	7299	10570	17870	38.41	59.64	98.05	49.0%	72.1%		67.6%		65.8%					67.1%
23.25 - 23	7331	10600	17931	38.47	59.64	98.11	49.0%	72.1%		67.6%		65.9%					67.1%
23 - 22.75	7349	7433	14783	38.52	47.64	86.16	58.7%	87.6%		78.1%		69.0%					
22.75 - 17.75	8012	7855	15867	39.65	47.64	87.29	60.4%	89.2%		79.6%		70.4%					
17.75 - 12.75	8714	8288	17002	40.77	47.64	88.41	62.0%	90.7%		81.0%		71.7%					
12.75 - 7.75	9456	8733	18189	41.90	47.64	89.54	63.6%	92.0%		82.2%		73.0%					
7.75 - 2.75	10238	9190	19428	43.03	47.64	90.67	65.2%	93.3%		83.4%		74.2%					
2.75 - 0	10687	9446	20132	43.65	47.64	91.29	66.1%	93.9%		84.0%		74.8%					

Note: Section capacity checked using 5 degree increments.
Rating per TIA-222-H Section 15.5.

Monopole Flange Plate Connection

Elevation = 101.58 ft.



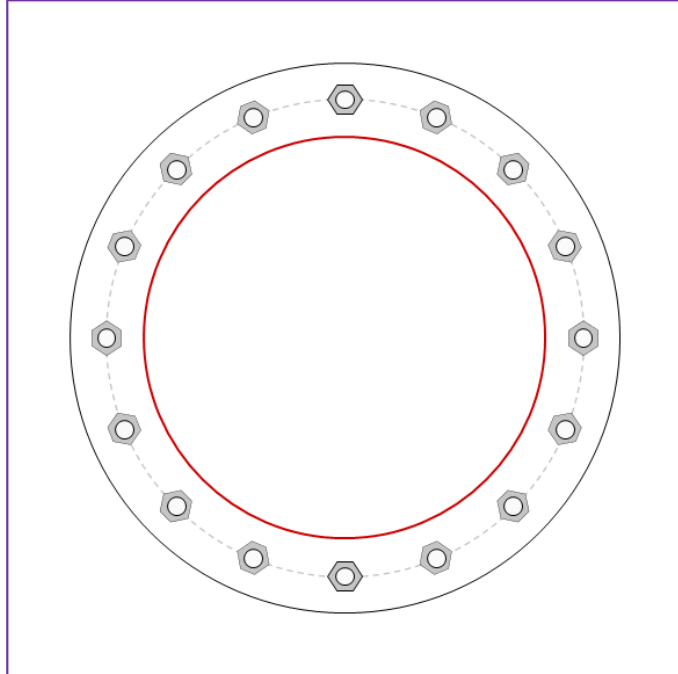
BU #	842873
Site Name	SHELTON NE
Order #	585945 Rev 4

Applied Loads	
Moment (kip-ft)	467.72
Axial Force (kips)	17.18
Shear Force (kips)	20.06

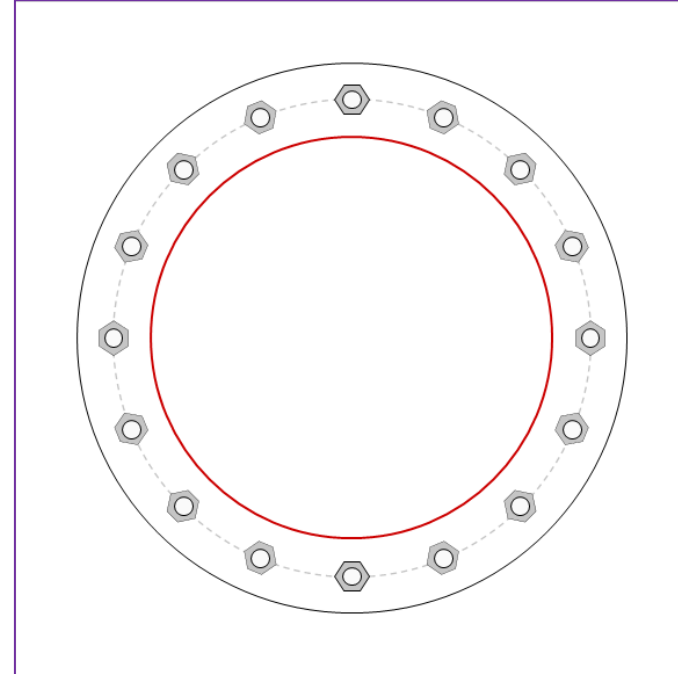
TIA-222 Revision	H
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*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(16) 1" ϕ bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 26" BC

Top Plate Data

30" OD x 1.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Top Stiffener Data

N/A

Top Pole Data

21.882" x 0.1875" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Bottom Plate Data

30" OD x 1.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

21.882" x 0.3125" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	52.86
Allowable (kips)	54.51
Stress Rating:	92.4% Pass

Top Plate Capacity

Max Stress (ksi):	28.12	(Flexural)
Allowable Stress (ksi):	45.00	
Stress Rating:	59.5%	Pass
Tension Side Stress Rating:	52.7%	Pass

Bottom Plate Capacity

Max Stress (ksi):	28.12	(Flexural)
Allowable Stress (ksi):	45.00	
Stress Rating:	59.5%	Pass
Tension Side Stress Rating:	52.7%	Pass

Monopole Base Plate Connection

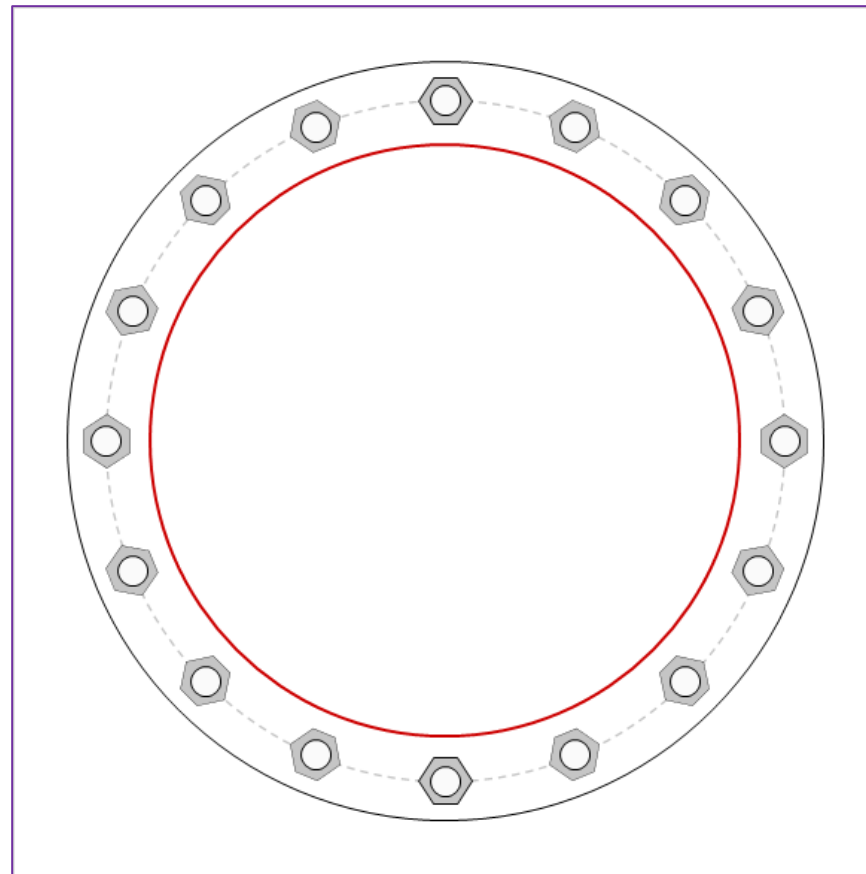


Site Info	
BU #	842873
Site Name	SHELTON NE
Order #	585945 Rev 4

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	See Custom Sheet
l_{ar} (in)	See Custom Sheet

Applied Loads	
Moment (kip-ft)	3277.40
Axial Force (kips)	55.65
Shear Force (kips)	34.04

*TIA-222-H Section 15.5 Applied



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

Anchor Rod Data
GROUP 1: (8) 2-1/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 51" BC
GROUP 2: (4) 2-1/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 51" BC
GROUP 3: (4) 2-1/4" ϕ bolts (F1554-105 N; $F_y=105$ ksi, $F_u=125$ ksi) on 51" BC
Base Plate Data
57" OD x 2.25" Plate (A633 Grade E; $F_y=60$ ksi, $F_u=70$ ksi)
Stiffener Data
N/A
Pole Data
44.317" x 0.3125" 18-sided pole (A572-65; $F_y=65$ ksi, $F_u=80$ ksi)

Anchor Rod Summary	<i>(units of kips, kip-in)</i>	
GROUP 1:		
$P_{u,t} = 185.68$	$\phi P_{n,t} = 243.75$	Stress Rating
$V_u = 4.26$	$\phi V_n = 149.1$	72.5%
$M_u = n/a$	$\phi M_n = n/a$	Pass
GROUP 2:		
$P_{u,t} = 192.45$	$\phi P_{n,t} = 243.75$	Stress Rating
$V_u = 0$	$\phi V_n = 149.1$	75.2%
$M_u = n/a$	$\phi M_n = n/a$	Pass
GROUP 3:		
$P_{u,t} = 192.45$	$\phi P_{n,t} = 304.69$	Stress Rating
$V_u = 0$	$\phi V_n = 186.38$	60.2%
$M_u = n/a$	$\phi M_n = n/a$	Pass
Base Plate Summary		
Max Stress (ksi):	36.48	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	64.3%	Pass

CCiplate

Elevation (ft) (Base)

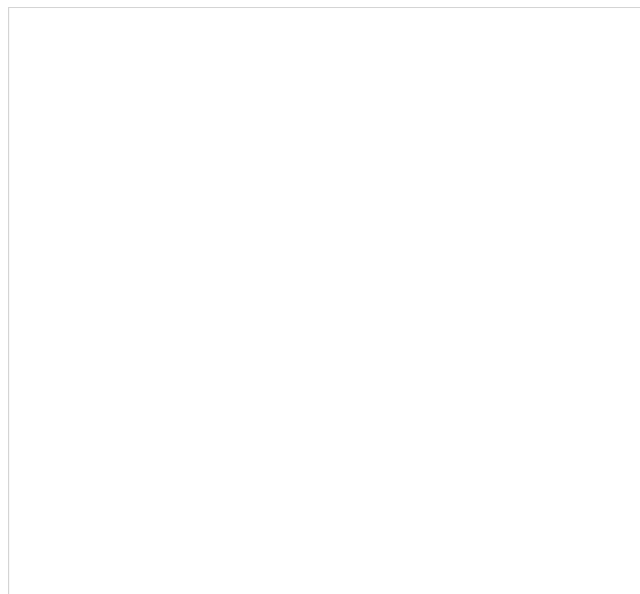
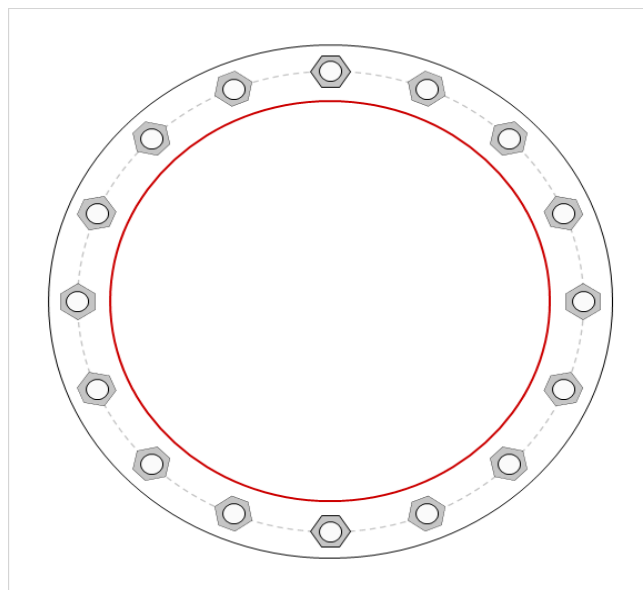
note: Bending interaction not considered when Grout Considered = "Yes"

Bolt Group	Resist Axial	Resist Shear	Induce Plate Bending	Grout Considered	Apply at BARB Elevation	BARB CL Elevation (ft)
1	Yes	Yes	Yes	No	No	
2	No	No	Yes	No	No	
3	No	No	Yes	No	No	

Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η :	I_{ar} (in):	Thread Type	Area Override, in ²	Tension Only
1	1	0	2.25	A615-75	51	0.5	0	N-Included		No
2	1	45	2.25	A615-75	51	0.5	0	N-Included		No
3	1	90	2.25	A615-75	51	0.5	0	N-Included		No
4	1	135	2.25	A615-75	51	0.5	0	N-Included		No
5	1	180	2.25	A615-75	51	0.5	0	N-Included		No
6	1	225	2.25	A615-75	51	0.5	0	N-Included		No
7	1	270	2.25	A615-75	51	0.5	0	N-Included		No
8	1	315	2.25	A615-75	51	0.5	0	N-Included		No
9	2	67.5	2.25	A615-75	51	0.5	0	N-Included		No
10	2	157.5	2.25	A615-75	51	0.5	0	N-Included		No
11	2	247.5	2.25	A615-75	51	0.5	0	N-Included		No
12	2	337.5	2.25	A615-75	51	0.5	0	N-Included		No
13	3	112.5	2.25	F1554-105	51	0.5	0	N-Included		No
14	3	202.5	2.25	F1554-105	51	0.5	0	N-Included		No
15	3	292.5	2.25	F1554-105	51	0.5	0	N-Included		No
16	3	382.5	2.25	F1554-105	51	0.5	0	N-Included		No

Plot Graphic



Drilled Pier Foundation

BU # :	842873
Site Name:	SHELTON NE
Order Number:	585945 Rev 4
TIA-222 Revision:	H
Tower Type:	Monopole



Applied Loads		
	Comp.	Uplift
Moment (kip-ft)	3277.4	
Axial Force (kips)	55.67	
Shear Force (kips)	34.01	

Material Properties		
Concrete Strength, f'c:	4	ksi
Rebar Strength, Fy:	60	ksi
Tie Yield Strength, Fyt:	40	ksi

Pier Design Data		
Depth	14	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
<i>From 0.5' above grade to 14' below grade</i>		
Pier Diameter	6	ft
Rebar Quantity	26	
Rebar Size	11	
Clear Cover to Ties	3	in
Tie Size	5	
Tie Spacing		in

Rebar 2, Fy Override (ksi)	Rebar 3, Fy Override (ksi)

Rebar & Pier Options
Embedded Pole Inputs
Belled Pier Inputs

Analysis Results

Soil Lateral Check	Compression	Uplift
D _{v=0} (ft from TOC)	3.78	-
Soil Safety Factor	1.62	-
Max Moment (kip-ft)	3402.50	-
Rating*	78.2%	-

Soil Vertical Check	Compression	Uplift
Skin Friction (kips)	318.06	-
End Bearing (kips)	254.47	-
Weight of Concrete (kips)	73.80	-
Total Capacity (kips)	572.53	-
Axial (kips)	129.47	-
Rating*	21.5%	-

Reinforced Concrete Flexure	Compression	Uplift
Critical Depth (ft from TOC)	3.81	-
Critical Moment (kip-ft)	3402.45	-
Critical Moment Capacity	5371.63	-
Rating*	60.3%	-

Reinforced Concrete Shear	Compression	Uplift
Critical Depth (ft from TOC)	10.91	-
Critical Shear (kip)	420.87	-
Critical Shear Capacity	600.02	-
Rating*	66.8%	-

Shear-Friction Methodology is Applied

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 checked="" type="checkbox"/>
Shear Design Options	
Check Shear along Depth of Pier:	<input checked="" type="checkbox"/>
Utilize Shear-Friction Methodology:	<input checked="" type="checkbox"/>
Override Critical Depth:	<input type="checkbox"/>

[Go to Soil Calculations](#)

Structural Foundation Rating*	66.8%
Soil Interaction Rating*	78.2%

*Rating per TIA-222-H Section 15.5

Soil Profile			
Groundwater Depth	n/a	# of Layers	2

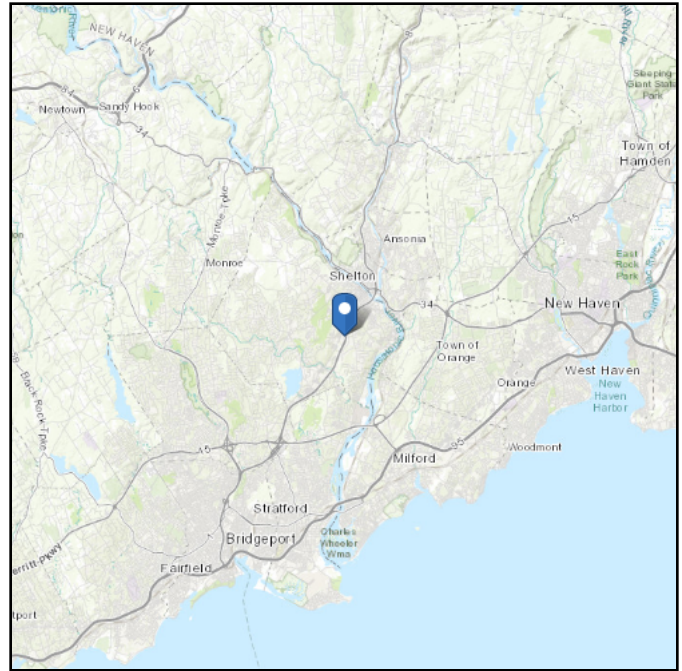
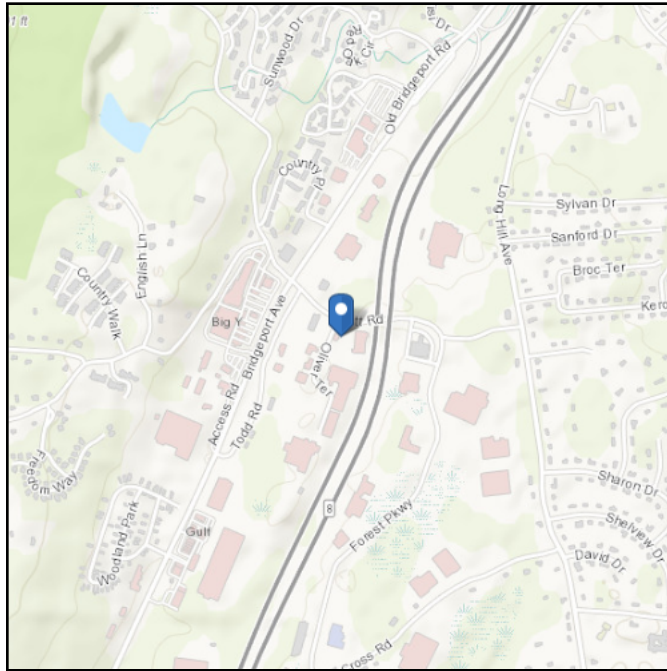
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ _{soil} (pcf)	γ _{concrete} (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	3	3	165	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	3	14	11	165	150	4	0	2.045	2.045			12		Cohesive

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 311.07 ft (NAVD 88)
Latitude: 41.293947
Longitude: -73.107175



Wind

Results:

Wind Speed	119 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	98 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Tue Jan 04 2022

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

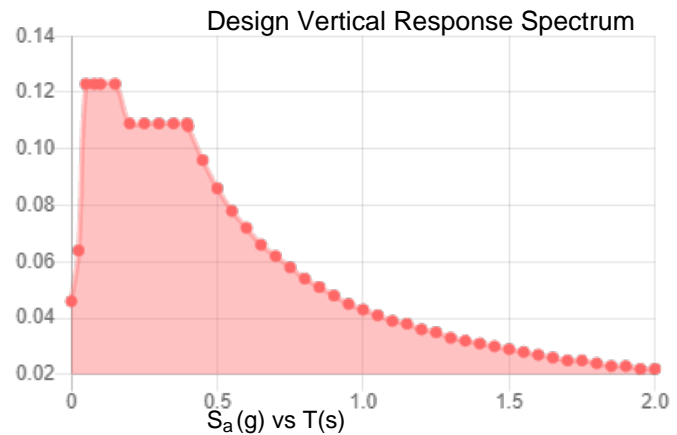
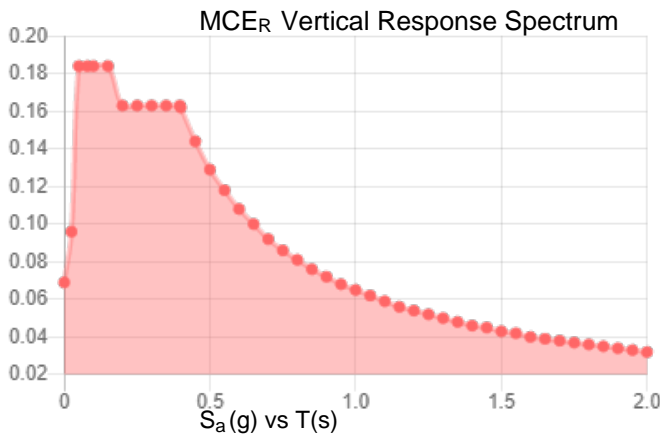
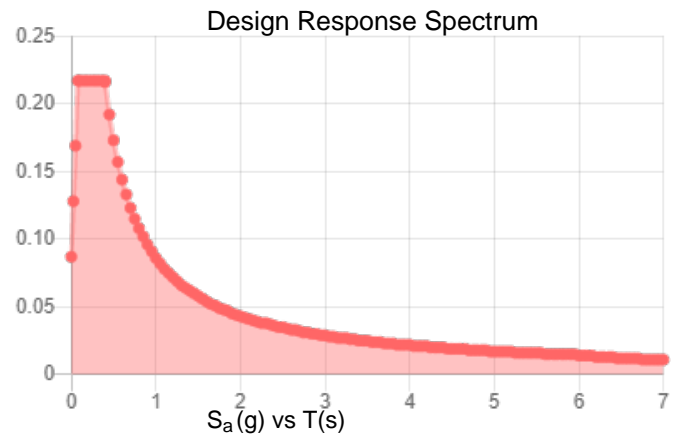
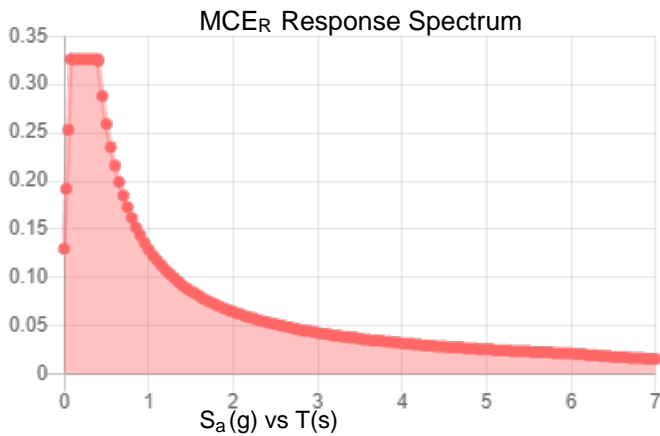
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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

Results:

S_s :	0.204	S_{D1} :	0.086
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.115
F_v :	2.4	PGA _M :	0.18
S_{MS} :	0.326	F_{PGA} :	1.571
S_{M1} :	0.129	I_e :	1
S_{DS} :	0.217	C_v :	0.707

Seismic Design Category B



Data Accessed: Tue Jan 04 2022

Date Source:

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

Ice

Results:

Ice Thickness: 1.00 in.
Concurrent Temperature: 15 F
Gust Speed 50 mph

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

Date Accessed: Tue Jan 04 2022

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

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

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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Exhibit E

Mount Analysis

Date: **March 14, 2022**

INFINIGY

Infinigy
1033 Watervliet Shaker Road
Albany, NY 12205
(518) 690-0790
structural@infinigy.com

Subject: **Mount Analysis Report**

Carrier Designation: **Dish Network 5G**
Carrier Site Number: NJJER01118B
Carrier Site Name: --

Crown Castle Designation: **Crown Castle BU Number:** 842873
Crown Castle Site Name: SHELTON NE
Crown Castle JDE Job Number: 685858
Crown Castle Order Number: 585945 Rev. 4

Engineering Firm Designation: **Infinigy Report Designation:** 1039-Z0001-B

Site Data: **30 Oliver Terrace, Shelton, Fairfield County, CT, 06484**
Latitude 41°17'38.21" Longitude -73°6'25.83"

Structure Information: **Tower Height & Type:** **140.0 ft Monopole**
Mount Elevation: **108.0 ft**
Mount Type: **8.0 ft Platform**

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

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

Platform

Sufficient

***See Section 4.1 of this report for the loading and structural modifications required in order for the mount to support the loading listed in Table 1.**

This analysis utilizes an ultimate 3-second gust wind speed of 123 mph as required by the 2015 International Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Abram Tadrous

Respectfully Submitted by:
Emmanuel Poulin, P.E.
(518) 690-0790
structural@infinigy.com
CT PE License No. 22947



3/14/22

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

Mount Modification Design Drawings (MDD) / Supplemental Drawings

1) INTRODUCTION

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

2) ANALYSIS CRITERIA

Building Code: 2015 IBC
TIA-222 Revision: TIA-222-H
Risk Category: II
Ultimate Wind Speed: 123 mph
Exposure Category: B
Topographic Factor at Base: 1.0
Topographic Factor at Mount: 1.0
Ice Thickness: 0.75 in
Wind Speed with Ice: 50 mph
Seismic S_s: 0.198
Seismic S₁: 0.064
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
108.0	108.0	3	COMMSCOPE	FFVV-65B-R2	8.0 ft Platform
		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	585945 Rev.4	CCI Sites
Mount Manufacturer Drawings	Commscope	Part No: MC-PK8-DSH	Infinigy

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.

Infinigy Mount Analysis Tool V2.1.7, a tool internally developed by Infinigy, was used to calculate wind loading on all appurtenances, dishes and mount members for various loading cases. Selected output from the analysis is included in Appendix B “Software Input Calculations”.

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

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. Infinigy 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)	MP8	108.0	17.7	Pass
	Horizontal(s)	H3		13.0	Pass
	Handrial(s)	HR1		16.6	Pass
	Grating Angle(s)	GA2		21.1	Pass
	Channel(s)	CA3		26.2	Pass
	Standoff(s)	S1		26.2	Pass
	Mount Connection(s)	--		31.7	Pass

Structure Rating (max from all components) =	31.7%
---	--------------

Notes:

- 1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
- 2) See additional documentation in "Appendix D – Additional Calculations" for detailed mount connection calculations.

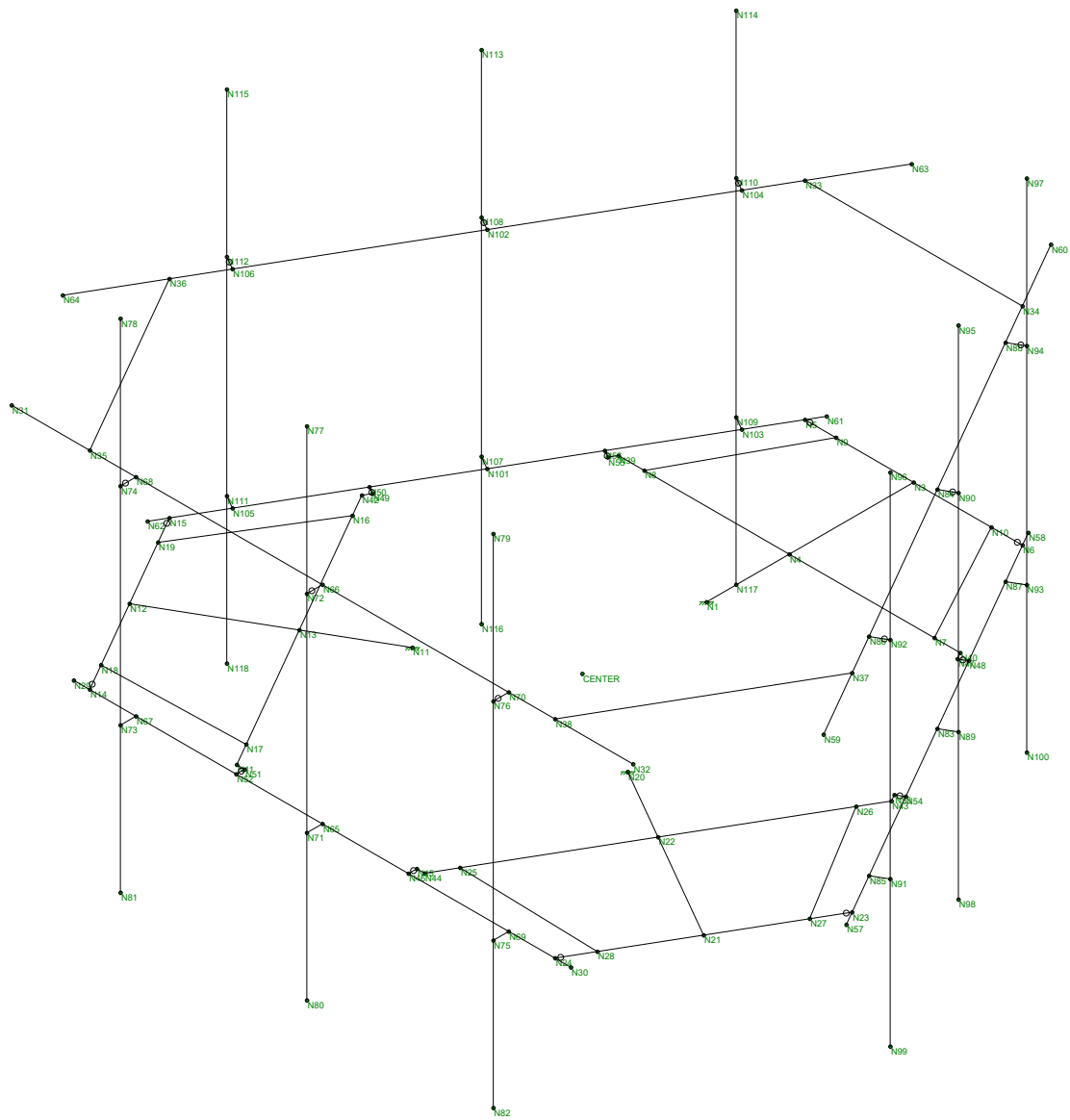
4.1) Recommendations

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. Installation (1) Commscope, MC-PK8-DSH.

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

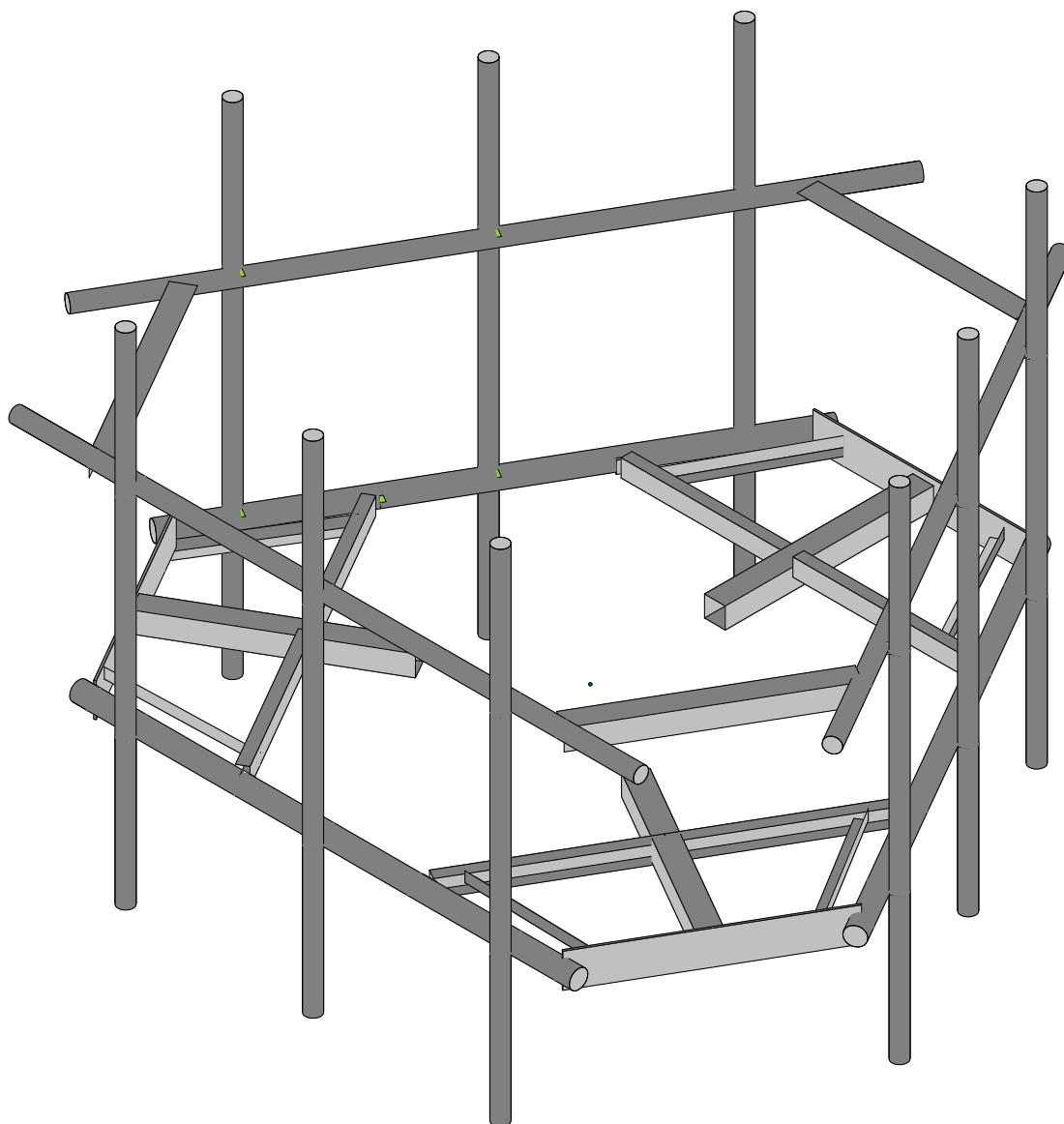
APPENDIX A
WIRE FRAME AND RENDERED MODELS



Infinigy Engineering, PLLC
AT
1039-Z0001-B

842873

Wire Frame
Mar 14, 2022 at 1:39 PM
842873_loaded.r3d



Infinigy Engineering, PLLC

AT

1039-Z0001-B

842873

Rendered

Mar 14, 2022 at 1:39 PM

842873_loaded.r3d

APPENDIX B
SOFTWARE INPUT CALCULATIONS

Program Inputs

PROJECT INFORMATION	
Client:	Crown Castle
Carrier:	Dish Network
Engineer:	Abram Tadrous

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	B	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	311.07	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Platform	
Num Sectors:	3	
Centerline AGL:	108.00	ft
Tower Height AGL:	140.00	ft

TOPOGRAPHIC DATA		
Topo Feature:	N/A	
Slope Distance:	N/A	ft
Crest Distance:	N/A	ft
Crest Height:	N/A	ft

FACTORS		
Directionality Fact. (K_d):	0.950	
Ground Ele. Factor (K_e):	0.989	*Rev H Only
Rooftop Speed-Up (K_s):	1.000	*Rev H Only
Topographic Factor (K_{zt}):	1.000	
Gust Effect Factor (G_h):	1.000	

CODE STANDARDS		
Building Code:	2015 IBC	
TIA Standard:	TIA-222-H	
ASCE Standard:	ASCE 7-10	

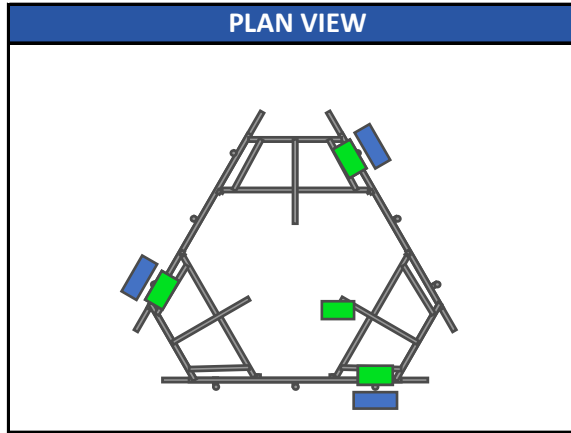
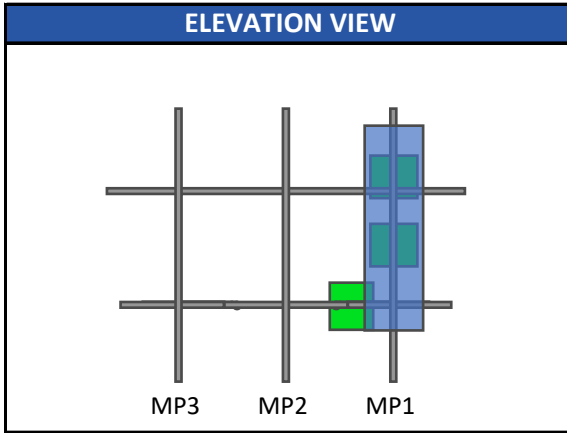
WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	123	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	0.75	in
Flat Pressure:	73.506	psf
Round Pressure:	44.103	psf
Ice Wind Pressure:	7.288	psf

SEISMIC DATA		
Short-Period Accel. (S_s):	0.198	g
1-Second Accel. (S_1):	0.064	g
Short-Period Design (S_{DS}):	0.211	
1-Second Design (S_{D1}):	0.102	
Short-Period Coeff. (F_a):	1.600	
1-Second Coeff. (F_v):	2.400	
Amplification Factor (A_s):	3.000	
Response Mod. Coeff. (R):	2.000	



Infinigy Load Calculator V2.1.7

Program Inputs



Infinigy Load Calculator V2.1.7

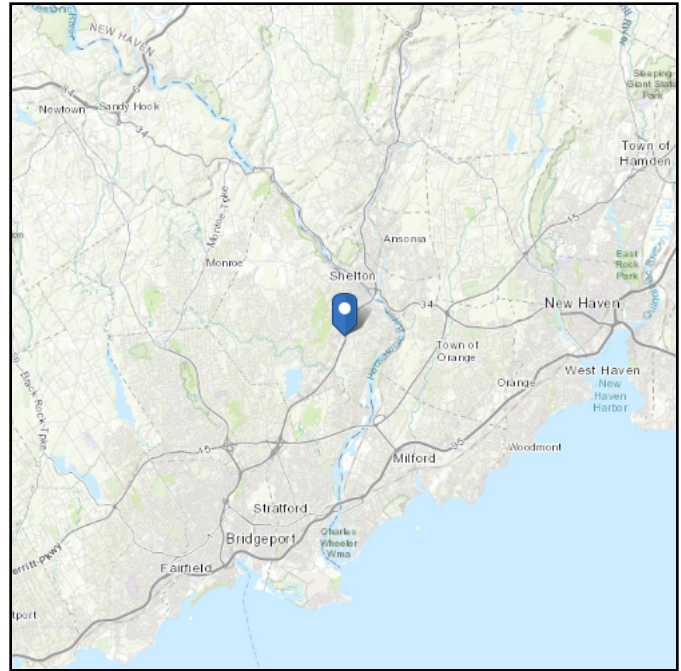
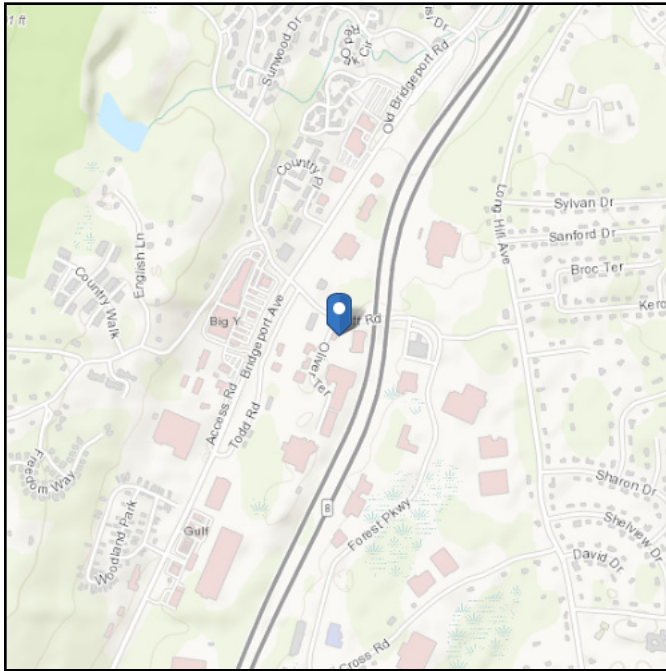
APPURTENANCE INFORMATION											
Appurtenance Name	Elevation	Qty.	K_a	q_z (psf)	EPA_N (ft ²)	EPA_T (ft ²)	Wind F_z (lbs)	Wind F_x (lbs)	Weight (lbs)	Seismic F (lbs)	Member (α sector)
COMMSCOPE FFVV-65B-R2	108.0	3	0.90	36.75	7.62	3.01	252.05	99.56	70.80	22.43	MP1
FUJITSU TA08025-B604	108.0	3	0.90	36.75	1.96	0.98	64.95	32.45	63.90	20.24	MP1
FUJITSU TA08025-B605	108.0	3	0.90	36.75	1.96	1.13	64.95	37.36	75.00	23.76	MP1
RAYCAP RDIDC-9181-PF-48	108.0	1	0.90	36.75	2.01	1.17	66.55	38.64	21.85	6.92	S1

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 311.07 ft (NAVD 88)
Latitude: 41.293947
Longitude: -73.107175



Wind

Results:

Wind Speed	123 Vmph
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	93 Vmph
100-year MRI	99 Vmph

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, and Section 26.5.2, incorporating errata of March 12, 2014

Date Accessed: Mon Mar 14 2022

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

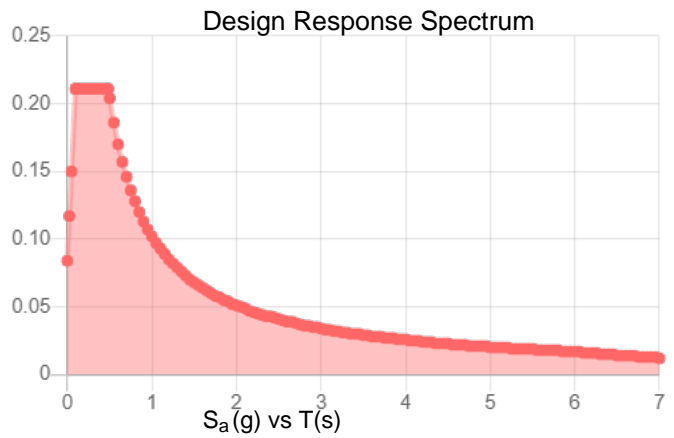
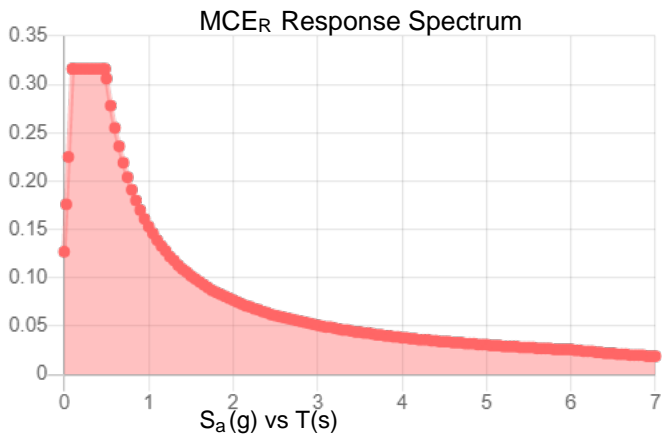
Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.198	S_{DS} :	0.211
S_1 :	0.064	S_{D1} :	0.102
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.105
S_{MS} :	0.316	PGA_M :	0.167
S_{M1} :	0.153	F_{PGA} :	1.589
		I_e :	1

Seismic Design Category B



Data Accessed: Mon Mar 14 2022

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: Mon Mar 14 2022

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

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

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APPENDIX C
SOFTWARE ANALYSIS OUTPUT



Company : Infinigy Engineering, PLLC
 Designer : AT
 Job Number : 1039-Z0001-B
 Model Name : 842873

Mar 14, 2022
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 Checked By: _____

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	S3	N1	N3			Standoff	Beam	Tube	A500 Gr.B...	Typical
2	GA4	N7	N10		270	Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
3	GA3	N8	N9			Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
4	P3	N5	N6			Corner Plates	Beam	RECT	A36 Gr.36	Typical
5	S2	N11	N12			Standoff	Beam	Tube	A500 Gr.B...	Typical
6	GA2	N16	N19		270	Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
7	GA1	N17	N18			Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
8	P2	N14	N15			Corner Plates	Beam	RECT	A36 Gr.36	Typical
9	S1	N20	N21			Standoff	Beam	Tube	A500 Gr.B...	Typical
10	GA6	N25	N28		270	Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
11	GA5	N26	N27			Grating Angle	Beam	Single Angle	A36 Gr.36	Typical
12	P1	N23	N24			Corner Plates	Beam	RECT	A36 Gr.36	Typical
13	H1	N29	N30			Horizontal	Beam	Pipe	A53 Gr.B	Typical
14	HR1	N31	N32			Handrail	Beam	Pipe	A53 Gr.B	Typical
15	CA8	N36	N35		180	Handrail Conn...	Beam	Single Angle	A36 Gr.36	Typical
16	CA9	N34	N33		180	Handrail Conn...	Beam	Single Angle	A36 Gr.36	Typical
17	CA7	N38	N37		180	Handrail Conn...	Beam	Single Angle	A36 Gr.36	Typical
18	CA3	N4	N39			Channel	Beam	Channel	A36 Gr.36	Typical
19	CA4	N40	N4			Channel	Beam	Channel	A36 Gr.36	Typical
20	CA1	N13	N41			Channel	Beam	Channel	A36 Gr.36	Typical
21	CA2	N42	N13			Channel	Beam	Channel	A36 Gr.36	Typical
22	CA5	N22	N43			Channel	Beam	Channel	A36 Gr.36	Typical
23	CA6	N44	N22			Channel	Beam	Channel	A36 Gr.36	Typical
24	M64	N46	N45			RIGID	None	None	RIGID	Typical
25	M65	N44	N45			RIGID	None	None	RIGID	Typical
26	M66	N48	N47			RIGID	None	None	RIGID	Typical
27	M67	N40	N47			RIGID	None	None	RIGID	Typical
28	M68	N50	N49			RIGID	None	None	RIGID	Typical
29	M69	N42	N49			RIGID	None	None	RIGID	Typical
30	M70	N52	N51			RIGID	None	None	RIGID	Typical
31	M71	N41	N51			RIGID	None	None	RIGID	Typical
32	M72	N54	N53			RIGID	None	None	RIGID	Typical
33	M73	N43	N53			RIGID	None	None	RIGID	Typical
34	M74	N56	N55			RIGID	None	None	RIGID	Typical
35	M75	N39	N55			PL 2.375x0.5	None	None	A36 Gr.36	Typical
36	H3	N57	N58			Horizontal	Beam	Pipe	A53 Gr.B	Typical
37	HR3	N59	N60			Handrail	Beam	Pipe	A53 Gr.B	Typical
38	H2	N61	N62			Horizontal	Beam	Pipe	A53 Gr.B	Typical
39	HR2	N63	N64			Handrail	Beam	Pipe	A53 Gr.B	Typical
40	M40	N68	N74			RIGID	None	None	RIGID	Typical
41	M41	N67	N73			RIGID	None	None	RIGID	Typical
42	M42	N66	N72			RIGID	None	None	RIGID	Typical
43	M43	N65	N71			RIGID	None	None	RIGID	Typical
44	M44	N70	N76			RIGID	None	None	RIGID	Typical
45	M45	N69	N75			RIGID	None	None	RIGID	Typical
46	MP3	N78	N81			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
47	MP2	N77	N80			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
48	MP1	N79	N82			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
49	M49	N86	N92			RIGID	None	None	RIGID	Typical
50	M50	N85	N91			RIGID	None	None	RIGID	Typical
51	M51	N84	N90			RIGID	None	None	RIGID	Typical
52	M52	N83	N89			RIGID	None	None	RIGID	Typical
53	M53	N88	N94			RIGID	None	None	RIGID	Typical
54	M54	N87	N93			RIGID	None	None	RIGID	Typical
55	MP9	N96	N99			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
56	MP8	N95	N98			Mount Pipe	Column	Pipe	A53 Gr.B	Typical



Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
57	MP7	N97	N100			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
58	M58	N104	N110			RIGID	None	None	RIGID	Typical
59	M59	N103	N109			RIGID	None	None	RIGID	Typical
60	M60	N102	N108			RIGID	None	None	RIGID	Typical
61	M61	N101	N107			RIGID	None	None	RIGID	Typical
62	M62	N106	N112			RIGID	None	None	RIGID	Typical
63	M63	N105	N111			RIGID	None	None	RIGID	Typical
64	MP6	N114	N117			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
65	MP5	N113	N116			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
66	MP4	N115	N118			Mount Pipe	Column	Pipe	A53 Gr.B	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General				
2	RIGID		29	71.1	0
3	Total General		29	71.1	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	C3.38x2.06x0.25	6	198	98.255
7	A36 Gr.36	L2x2x4	6	163.8	43.838
8	A36 Gr.36	PL6.5x0.375	3	126	87.09
9	A36 Gr.36	L4X4X4	3	126	68.957
10	A36 Gr.36	PL 2.375x0.5	1	1.5	.505
11	A500 Gr.B Rect	HSS4X4X4	3	120	123.333
12	A53 Gr.B	PIPE 2.5	12	1224	558.804
13	A53 Gr.B	PIPE 3.0	3	288	169.05
14	Total HR Steel		37	2247.3	1149.833

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...)	Surface(P...
1	Self Weight	DL		-1			13	3	
2	Wind Load AZI 0	WLZ					26		
3	Wind Load AZI 30	None					26		
4	Wind Load AZI 60	None					26		
5	Wind Load AZI 90	WLX					26		
6	Wind Load AZI 120	None					26		
7	Wind Load AZI 150	None					26		
8	Wind Load AZI 180	None					26		
9	Wind Load AZI 210	None					26		
10	Wind Load AZI 240	None					26		
11	Wind Load AZI 270	None					26		
12	Wind Load AZI 300	None					26		
13	Wind Load AZI 330	None					26		
14	Distr. Wind Load Z	WLZ						66	
15	Distr. Wind Load X	WLX						66	
16	Ice Weight	OL1					13	66	3
17	Ice Wind Load AZI 0	OL2					26		
18	Ice Wind Load AZI 30	None					26		
19	Ice Wind Load AZI 60	None					26		
20	Ice Wind Load AZI 90	OL3					26		
21	Ice Wind Load AZI 120	None					26		
22	Ice Wind Load AZI 150	None					26		
23	Ice Wind Load AZI 180	None					26		
24	Ice Wind Load AZI 210	None					26		



Company : Infinigy Engineering, PLLC
 Designer : AT
 Job Number : 1039-Z0001-B
 Model Name : 842873

Mar 14, 2022
 1:38 PM
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Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
25	Ice Wind Load AZI 240	None					26		
26	Ice Wind Load AZI 270	None					26		
27	Ice Wind Load AZI 300	None					26		
28	Ice Wind Load AZI 330	None					26		
29	Distr. Ice Wind Load Z	OL2						66	
30	Distr. Ice Wind Load X	OL3						66	
31	Seismic Load Z	ELZ			-0.317		13		
32	Seismic Load X	ELX	-0.317				13		
33	Service Live Loads	LL				1			
34	Maintenance Load 1	LL				1			
35	Maintenance Load 2	LL				1			
36	Maintenance Load 3	LL				1			
37	Maintenance Load 4	LL				1			
38	Maintenance Load 5	LL				1			
39	Maintenance Load 6	LL				1			
40	Maintenance Load 7	LL				1			
41	Maintenance Load 8	LL				1			
42	Maintenance Load 9	LL				1			
43	BLC 1 Transient Area..	None						9	
44	BLC 16 Transient Are..	None						9	

Load Combinations

	Description	Sol.	PD	SR	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..
1	1.4DL	Yes	Y		1	1.4								
2	1.2DL + 1...	Yes	Y		1	1.2	2	1	14	1	15			
3	1.2DL + 1...	Yes	Y		1	1.2	3	1	14	.866	15	.5		
4	1.2DL + 1...	Yes	Y		1	1.2	4	1	14	.5	15	.866		
5	1.2DL + 1...	Yes	Y		1	1.2	5	1	14		15	1		
6	1.2DL + 1...	Yes	Y		1	1.2	6	1	14	-.5	15	.866		
7	1.2DL + 1...	Yes	Y		1	1.2	7	1	14	-.866	15	.5		
8	1.2DL + 1...	Yes	Y		1	1.2	8	1	14	-1	15			
9	1.2DL + 1...	Yes	Y		1	1.2	9	1	14	-.866	15	-.5		
10	1.2DL + 1...	Yes	Y		1	1.2	10	1	14	-.5	15	-.866		
11	1.2DL + 1...	Yes	Y		1	1.2	11	1	14		15	-1		
12	1.2DL + 1...	Yes	Y		1	1.2	12	1	14	.5	15	-.866		
13	1.2DL + 1...	Yes	Y		1	1.2	13	1	14	.866	15	-.5		
14	0.9DL + 1...	Yes	Y		1	.9	2	1	14	1	15			
15	0.9DL + 1...	Yes	Y		1	.9	3	1	14	.866	15	.5		
16	0.9DL + 1...	Yes	Y		1	.9	4	1	14	.5	15	.866		
17	0.9DL + 1...	Yes	Y		1	.9	5	1	14		15	1		
18	0.9DL + 1...	Yes	Y		1	.9	6	1	14	-.5	15	.866		
19	0.9DL + 1...	Yes	Y		1	.9	7	1	14	-.866	15	.5		
20	0.9DL + 1...	Yes	Y		1	.9	8	1	14	-1	15			
21	0.9DL + 1...	Yes	Y		1	.9	9	1	14	-.866	15	-.5		
22	0.9DL + 1...	Yes	Y		1	.9	10	1	14	-.5	15	-.866		
23	0.9DL + 1...	Yes	Y		1	.9	11	1	14		15	-1		
24	0.9DL + 1...	Yes	Y		1	.9	12	1	14	.5	15	-.866		
25	0.9DL + 1...	Yes	Y		1	.9	13	1	14	.866	15	-.5		
26	1.2D + 1.0...	Yes	Y		1	1.2	16	1						
27	1.2D + 1.0...	Yes	Y		1	1.2	16	1	17	1	29	1	30	
28	1.2D + 1.0...	Yes	Y		1	1.2	16	1	18	1	29	.866	30	.5
29	1.2D + 1.0...	Yes	Y		1	1.2	16	1	19	1	29	.5	30	.866
30	1.2D + 1.0...	Yes	Y		1	1.2	16	1	20	1	29		30	1
31	1.2D + 1.0...	Yes	Y		1	1.2	16	1	21	1	29	-.5	30	.866
32	1.2D + 1.0...	Yes	Y		1	1.2	16	1	22	1	29	-.866	30	.5



Company : Infinigy Engineering, PLLC
 Designer : AT
 Job Number : 1039-Z0001-B
 Model Name : 842873

Mar 14, 2022
 1:38 PM
 Checked By: _____

Load Combinations (Continued)

	Description	Sol.	PD	SR	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.
33	1.2D + 1.0...	Yes	Y		1	1.2	16	1	23	1	29	-1	30	
34	1.2D + 1.0...	Yes	Y		1	1.2	16	1	24	1	29	-.866	30	-.5
35	1.2D + 1.0...	Yes	Y		1	1.2	16	1	25	1	29	-.5	30	-.866
36	1.2D + 1.0...	Yes	Y		1	1.2	16	1	26	1	29		30	-1
37	1.2D + 1.0...	Yes	Y		1	1.2	16	1	27	1	29	.5	30	-.866
38	1.2D + 1.0...	Yes	Y		1	1.2	16	1	28	1	29	.866	30	-.5
39	(1.2 + 0.2...	Yes	Y		1	1.242	31	1	32					
40	(1.2 + 0.2...	Yes	Y		1	1.242	31	.866	32	.5				
41	(1.2 + 0.2...	Yes	Y		1	1.242	31	.5	32	.866				
42	(1.2 + 0.2...	Yes	Y		1	1.242	31		32	1				
43	(1.2 + 0.2...	Yes	Y		1	1.242	31	-.5	32	.866				
44	(1.2 + 0.2...	Yes	Y		1	1.242	31	-.866	32	.5				
45	(1.2 + 0.2...	Yes	Y		1	1.242	31	-1	32					
46	(1.2 + 0.2...	Yes	Y		1	1.242	31	-.866	32	-.5				
47	(1.2 + 0.2...	Yes	Y		1	1.242	31	-.5	32	-.866				
48	(1.2 + 0.2...	Yes	Y		1	1.242	31		32	-1				
49	(1.2 + 0.2...	Yes	Y		1	1.242	31	.5	32	-.866				
50	(1.2 + 0.2...	Yes	Y		1	1.242	31	.866	32	-.5				
51	(0.9 - 0.2S...	Yes	Y		1	.858	31	1	32					
52	(0.9 - 0.2S...	Yes	Y		1	.858	31	.866	32	.5				
53	(0.9 - 0.2S...	Yes	Y		1	.858	31	.5	32	.866				
54	(0.9 - 0.2S...	Yes	Y		1	.858	31		32	1				
55	(0.9 - 0.2S...	Yes	Y		1	.858	31	-.5	32	.866				
56	(0.9 - 0.2S...	Yes	Y		1	.858	31	-.866	32	.5				
57	(0.9 - 0.2S...	Yes	Y		1	.858	31	-1	32					
58	(0.9 - 0.2S...	Yes	Y		1	.858	31	-.866	32	-.5				
59	(0.9 - 0.2S...	Yes	Y		1	.858	31	-.5	32	-.866				
60	(0.9 - 0.2S...	Yes	Y		1	.858	31		32	-1				
61	(0.9 - 0.2S...	Yes	Y		1	.858	31	.5	32	-.866				
62	(0.9 - 0.2S...	Yes	Y		1	.858	31	.866	32	-.5				
63	1.0DL + 1...	Yes	Y		1	1	2	.238	14	.238	15		33	1.5
64	1.0DL + 1...	Yes	Y		1	1	3	.238	14	.206	15	.119	33	1.5
65	1.0DL + 1...	Yes	Y		1	1	4	.238	14	.119	15	.206	33	1.5
66	1.0DL + 1...	Yes	Y		1	1	5	.238	14		15	.238	33	1.5
67	1.0DL + 1...	Yes	Y		1	1	6	.238	14	-.119	15	.206	33	1.5
68	1.0DL + 1...	Yes	Y		1	1	7	.238	14	-.206	15	.119	33	1.5
69	1.0DL + 1...	Yes	Y		1	1	8	.238	14	-.238	15		33	1.5
70	1.0DL + 1...	Yes	Y		1	1	9	.238	14	-.206	15	-.119	33	1.5
71	1.0DL + 1...	Yes	Y		1	1	10	.238	14	-.119	15	-.206	33	1.5
72	1.0DL + 1...	Yes	Y		1	1	11	.238	14		15	-.238	33	1.5
73	1.0DL + 1...	Yes	Y		1	1	12	.238	14	.119	15	-.206	33	1.5
74	1.0DL + 1...	Yes	Y		1	1	13	.238	14	.206	15	-.119	33	1.5
75	1.2DL + 1...	Yes	Y		1	1.2	33	1.5						
76	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	2	.059	14	.059	15	
77	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	3	.059	14	.052	15	.03
78	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	4	.059	14	.03	15	.052
79	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	5	.059	14		15	.059
80	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	6	.059	14	-.03	15	.052
81	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	7	.059	14	-.052	15	.03
82	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	8	.059	14	-.059	15	
83	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	9	.059	14	-.052	15	-.03
84	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	10	.059	14	-.03	15	-.052
85	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	11	.059	14		15	-.059
86	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	12	.059	14	.03	15	-.052
87	1.2DL + 1...	Yes	Y		1	1.2	34	1.5	13	.059	14	.052	15	-.03
88	1.2DL + 1...	Yes	Y		1	1.2	35	1.5	2	.059	14	.059	15	
89	1.2DL + 1...	Yes	Y		1	1.2	35	1.5	3	.059	14	.052	15	.03



Company : Infinigy Engineering, PLLC
 Designer : AT
 Job Number : 1039-Z0001-B
 Model Name : 842873

Mar 14, 2022
 1:38 PM
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Load Combinations (Continued)

	Description	Sol.	PD	SR	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.
90	1.2DL + 1...	Yes	Y		1	1.2	35	1.5	4	.059	14	.03	15	.052
91	1.2DL + 1...	Yes	Y		1	1.2	35	1.5	5	.059	14		15	.059
92	1.2DL + 1...	Yes	Y		1	1.2	35	1.5	6	.059	14	-.03	15	.052
93	1.2DL + 1...	Yes	Y		1	1.2	35	1.5	7	.059	14	-.052	15	.03
94	1.2DL + 1...	Yes	Y		1	1.2	35	1.5	8	.059	14	-.059	15	
95	1.2DL + 1...	Yes	Y		1	1.2	35	1.5	9	.059	14	-.052	15	-.03
96	1.2DL + 1...	Yes	Y		1	1.2	35	1.5	10	.059	14	-.03	15	-.052
97	1.2DL + 1...	Yes	Y		1	1.2	35	1.5	11	.059	14		15	-.059
98	1.2DL + 1...	Yes	Y		1	1.2	35	1.5	12	.059	14	.03	15	-.052
99	1.2DL + 1...	Yes	Y		1	1.2	35	1.5	13	.059	14	.052	15	-.03
100	1.2DL + 1...	Yes	Y		1	1.2	36	1.5	2	.059	14	.059	15	
101	1.2DL + 1...	Yes	Y		1	1.2	36	1.5	3	.059	14	.052	15	.03
102	1.2DL + 1...	Yes	Y		1	1.2	36	1.5	4	.059	14	.03	15	.052
103	1.2DL + 1...	Yes	Y		1	1.2	36	1.5	5	.059	14		15	.059
104	1.2DL + 1...	Yes	Y		1	1.2	36	1.5	6	.059	14	-.03	15	.052
105	1.2DL + 1...	Yes	Y		1	1.2	36	1.5	7	.059	14	-.052	15	.03
106	1.2DL + 1...	Yes	Y		1	1.2	36	1.5	8	.059	14	-.059	15	
107	1.2DL + 1...	Yes	Y		1	1.2	36	1.5	9	.059	14	-.052	15	-.03
108	1.2DL + 1...	Yes	Y		1	1.2	36	1.5	10	.059	14	-.03	15	-.052
109	1.2DL + 1...	Yes	Y		1	1.2	36	1.5	11	.059	14		15	-.059
110	1.2DL + 1...	Yes	Y		1	1.2	36	1.5	12	.059	14	.03	15	-.052
111	1.2DL + 1...	Yes	Y		1	1.2	36	1.5	13	.059	14	.052	15	-.03
112	1.2DL + 1...	Yes	Y		1	1.2	37	1.5	2	.059	14	.059	15	
113	1.2DL + 1...	Yes	Y		1	1.2	37	1.5	3	.059	14	.052	15	.03
114	1.2DL + 1...	Yes	Y		1	1.2	37	1.5	4	.059	14	.03	15	.052
115	1.2DL + 1...	Yes	Y		1	1.2	37	1.5	5	.059	14		15	.059
116	1.2DL + 1...	Yes	Y		1	1.2	37	1.5	6	.059	14	-.03	15	.052
117	1.2DL + 1...	Yes	Y		1	1.2	37	1.5	7	.059	14	-.052	15	.03
118	1.2DL + 1...	Yes	Y		1	1.2	37	1.5	8	.059	14	-.059	15	
119	1.2DL + 1...	Yes	Y		1	1.2	37	1.5	9	.059	14	-.052	15	-.03
120	1.2DL + 1...	Yes	Y		1	1.2	37	1.5	10	.059	14	-.03	15	-.052
121	1.2DL + 1...	Yes	Y		1	1.2	37	1.5	11	.059	14		15	-.059
122	1.2DL + 1...	Yes	Y		1	1.2	37	1.5	12	.059	14	.03	15	-.052
123	1.2DL + 1...	Yes	Y		1	1.2	37	1.5	13	.059	14	.052	15	-.03
124	1.2DL + 1...	Yes	Y		1	1.2	38	1.5	2	.059	14	.059	15	
125	1.2DL + 1...	Yes	Y		1	1.2	38	1.5	3	.059	14	.052	15	.03
126	1.2DL + 1...	Yes	Y		1	1.2	38	1.5	4	.059	14	.03	15	.052
127	1.2DL + 1...	Yes	Y		1	1.2	38	1.5	5	.059	14		15	.059
128	1.2DL + 1...	Yes	Y		1	1.2	38	1.5	6	.059	14	-.03	15	.052
129	1.2DL + 1...	Yes	Y		1	1.2	38	1.5	7	.059	14	-.052	15	.03
130	1.2DL + 1...	Yes	Y		1	1.2	38	1.5	8	.059	14	-.059	15	
131	1.2DL + 1...	Yes	Y		1	1.2	38	1.5	9	.059	14	-.052	15	-.03
132	1.2DL + 1...	Yes	Y		1	1.2	38	1.5	10	.059	14	-.03	15	-.052
133	1.2DL + 1...	Yes	Y		1	1.2	38	1.5	11	.059	14		15	-.059
134	1.2DL + 1...	Yes	Y		1	1.2	38	1.5	12	.059	14	.03	15	-.052
135	1.2DL + 1...	Yes	Y		1	1.2	38	1.5	13	.059	14	.052	15	-.03
136	1.2DL + 1...	Yes	Y		1	1.2	39	1.5	2	.059	14	.059	15	
137	1.2DL + 1...	Yes	Y		1	1.2	39	1.5	3	.059	14	.052	15	.03
138	1.2DL + 1...	Yes	Y		1	1.2	39	1.5	4	.059	14	.03	15	.052
139	1.2DL + 1...	Yes	Y		1	1.2	39	1.5	5	.059	14		15	.059
140	1.2DL + 1...	Yes	Y		1	1.2	39	1.5	6	.059	14	-.03	15	.052
141	1.2DL + 1...	Yes	Y		1	1.2	39	1.5	7	.059	14	-.052	15	.03
142	1.2DL + 1...	Yes	Y		1	1.2	39	1.5	8	.059	14	-.059	15	
143	1.2DL + 1...	Yes	Y		1	1.2	39	1.5	9	.059	14	-.052	15	-.03
144	1.2DL + 1...	Yes	Y		1	1.2	39	1.5	10	.059	14	-.03	15	-.052
145	1.2DL + 1...	Yes	Y		1	1.2	39	1.5	11	.059	14		15	-.059
146	1.2DL + 1...	Yes	Y		1	1.2	39	1.5	12	.059	14	.03	15	-.052



Company : Infinigy Engineering, PLLC
 Designer : AT
 Job Number : 1039-Z0001-B
 Model Name : 842873

Mar 14, 2022
 1:38 PM
 Checked By: _____

Load Combinations (Continued)

Description	Sol.	PD	SR	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.
147	1.2DL + 1...	Yes	Y	1	1.2	39	1.5	13	.059	14	.052	15	-.03
148	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	2	.059	14	.059	15	
149	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	3	.059	14	.052	15	.03
150	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	4	.059	14	.03	15	.052
151	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	5	.059	14		15	.059
152	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	6	.059	14	-.03	15	.052
153	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	7	.059	14	-.052	15	.03
154	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	8	.059	14	-.059	15	
155	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	9	.059	14	-.052	15	-.03
156	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	10	.059	14	-.03	15	-.052
157	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	11	.059	14		15	-.059
158	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	12	.059	14	.03	15	-.052
159	1.2DL + 1...	Yes	Y	1	1.2	40	1.5	13	.059	14	.052	15	-.03
160	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	2	.059	14	.059	15	
161	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	3	.059	14	.052	15	.03
162	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	4	.059	14	.03	15	.052
163	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	5	.059	14		15	.059
164	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	6	.059	14	-.03	15	.052
165	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	7	.059	14	-.052	15	.03
166	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	8	.059	14	-.059	15	
167	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	9	.059	14	-.052	15	-.03
168	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	10	.059	14	-.03	15	-.052
169	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	11	.059	14		15	-.059
170	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	12	.059	14	.03	15	-.052
171	1.2DL + 1...	Yes	Y	1	1.2	41	1.5	13	.059	14	.052	15	-.03
172	1.2DL + 1...	Yes	Y	1	1.2	42	1.5	2	.059	14	.059	15	
173	1.2DL + 1...	Yes	Y	1	1.2	42	1.5	3	.059	14	.052	15	.03
174	1.2DL + 1...	Yes	Y	1	1.2	42	1.5	4	.059	14	.03	15	.052
175	1.2DL + 1...	Yes	Y	1	1.2	42	1.5	5	.059	14		15	.059
176	1.2DL + 1...	Yes	Y	1	1.2	42	1.5	6	.059	14	-.03	15	.052
177	1.2DL + 1...	Yes	Y	1	1.2	42	1.5	7	.059	14	-.052	15	.03
178	1.2DL + 1...	Yes	Y	1	1.2	42	1.5	8	.059	14	-.059	15	
179	1.2DL + 1...	Yes	Y	1	1.2	42	1.5	9	.059	14	-.052	15	-.03
180	1.2DL + 1...	Yes	Y	1	1.2	42	1.5	10	.059	14	-.03	15	-.052
181	1.2DL + 1...	Yes	Y	1	1.2	42	1.5	11	.059	14		15	-.059
182	1.2DL + 1...	Yes	Y	1	1.2	42	1.5	12	.059	14	.03	15	-.052

Envelope Joint Reactions

Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC	
1	N20	max	826.509	6	1520.872	120	1284.505	14	375.91	17	1739.632	19	3503.323	120
2		min	-821.523	24	-122.557	16	-1284.78	8	-2796.687	109	-1742.95	13	-824.482	16
3	N11	max	886.413	4	1495.118	176	1186.65	3	653.865	23	1646.267	15	727.746	24
4		min	-887.178	22	-142.271	24	-1182.379	21	-2447.193	79	-1649.353	9	-3638.556	176
5	N1	max	1276.224	17	1493.829	136	634.768	2	3700.916	2	1496.774	23	1189.609	139
6		min	-1280.201	11	-163.066	20	-641.2	8	-974.674	20	-1499.91	5	-807.361	157
7	Totals:	max	2837.712	17	3824.978	28	3003.194	2						
8		min	-2837.715	11	1576.904	58	-3003.192	20						

Envelope AISC 15th(360-16): LRFD Steel Code Checks

Member	Shape	Code Check	Loc.....	Shea.....	Loc.....	phi*Pn...	phi*Pn...	phi*M...	phi*M...	Eqn				
1	CA3	C3.38x2....	.262	0	2	.033	28....	y	47760...	56700	2202....	5751....	...	H1-1b
2	S1	HSS4X4....	.262	0	9	.125	0	y	13317...	139518	16180.5	16180.5	...	H1-1b
3	CA5	C3.38x2....	.261	0	10	.033	28....	y	47760...	56700	2202....	5751....	...	H1-1b
4	CA4	C3.38x2....	.259	33	2	.037	33	y	47760...	56700	2202....	5751....	...	H1-1b



Company : Infinigy Engineering, PLLC
 Designer : AT
 Job Number : 1039-Z0001-B
 Model Name : 842873

Mar 14, 2022
 1:38 PM
 Checked By: _____

Envelope AISC 15th(360-16): LRFD Steel Code Checks (Continued)

Member	Shape	Code Check	Loc.....	Shea...	Loc.....	phi*Pn...	phi*Pn...	phi*M...	phi*M...	Eqn
5	CA2	C3.38x2....	.257	33 6 .037 33 y ...	47760...	56700	2202....	5751....	...	H1-1b
6	S2	HSS4X4....	.252	0 7 .125 0 y ...	13317...	139518	16180.5	16180.5	...	H1-1b
7	S3	HSS4X4....	.252	0 13 .125 0 y ...	13317...	139518	16180.5	16180.5	...	H1-1b
8	CA1	C3.38x2....	.250	0 6 .033 28.... y 98	47760...	56700	2202....	5751....	...	H1-1b
9	CA6	C3.38x2....	.245	33 10 .037 33 y ...	47760...	56700	2202....	5751....	...	H1-1b
10	P3	PL6.5x0....	.226	21 2 .169 36.... y 6	3658.14	78975	616.993	7748....	...	H1-1b
11	P2	PL6.5x0....	.224	21 6 .172 36.... y 10	3658.14	78975	616.993	7773....	...	H1-1b
12	P1	PL6.5x0....	.218	21 10 .175 36.... y 2	3658.14	78975	616.993	7751....	...	H1-1b
13	GA2	L2x2x4	.211	0 12 .019 0 y 12	23539...	30585.6	690.934	1576....	...	H2-1
14	M75	PL 2.375...	.209	1.5 13 .199 0 y ...	38256...	38475	400.783	1903....	...	H1-1b
15	GA4	L2x2x4	.202	0 8 .018 0 y 8	23539...	30585.6	690.934	1576....	...	H2-1
16	CA8	L4X4X4	.198	42 5 .023 42 z 9	46987...	62532	3137....	6714....	...	H2-1
17	GA5	L2x2x4	.195	0 10 .022 27.... y ...	23539...	30585.6	690.934	1576....	...	H2-1
18	CA7	L4X4X4	.193	42 9 .025 42 y 74	46987...	62532	3137....	6714....	...	H2-1
19	CA9	L4X4X4	.190	42 13 .021 42 z 6	46987...	62532	3137....	6714....	...	H2-1
20	GA6	L2x2x4	.189	0 4 .018 0 y 4	23539...	30585.6	690.934	1576....	...	H2-1
21	GA3	L2x2x4	.187	0 2 .022 27.... y ...	23539...	30585.6	690.934	1576....	...	H2-1
22	GA1	L2x2x4	.177	0 6 .022 27.... y ...	23539...	30585.6	690.934	1576....	...	H2-1
23	MP8	PIPE_2.5	.177	68 9 .025 68 9	30038...	50715	3596.25	3596.25	...	H1-1b
24	MP5	PIPE_2.5	.177	68 13 .025 68 13	30038...	50715	3596.25	3596.25	...	H1-1b
25	MP4	PIPE_2.5	.173	68 7 .019 68 7	30038...	50715	3596.25	3596.25	...	H1-1b
26	MP7	PIPE_2.5	.173	68 3 .019 68 3	30038...	50715	3596.25	3596.25	...	H1-1b
27	MP2	PIPE_2.5	.173	68 5 .025 68 5	30038...	50715	3596.25	3596.25	...	H1-1b
28	MP1	PIPE_2.5	.169	68 11 .018 68 11	30038...	50715	3596.25	3596.25	...	H1-1b
29	HR1	PIPE_2.5	.166	96.25 68 .096 96.25 71	22373...	50715	3596.25	3596.25	...	H1-1b
30	HR2	PIPE_2.5	.159	95 3 .057 103... 6	22373...	50715	3596.25	3596.25	...	H1-1b
31	HR3	PIPE_2.5	.153	25 8 .057 103... 2	22373...	50715	3596.25	3596.25	...	H1-1b
32	MP6	PIPE_2.5	.151	68 13 .018 68 7	30038...	50715	3596.25	3596.25	...	H1-1b
33	MP9	PIPE_2.5	.151	68 9 .019 68 3	30038...	50715	3596.25	3596.25	...	H1-1b
34	MP3	PIPE_2.5	.147	68 5 .018 68 11	30038...	50715	3596.25	3596.25	...	H1-1b
35	H3	PIPE_3.0	.130	31 2 .081 48 8	46290...	65205	5748.75	5748.75	...	H1-1b
36	H2	PIPE_3.0	.124	31 6 .080 48 12	46290...	65205	5748.75	5748.75	...	H1-1b
37	H1	PIPE_3.0	.121	31 10 .079 48 4	46290...	65205	5748.75	5748.75	...	H1-1b

APPENDIX D
ADDITIONAL CALCUATIONS

INFINIGY⁸

Bolt Calculation Tool, V1.6

PROJECT DATA	
Site Name:	SHELTON NE
Site Number:	842873
Connection Description:	Mount to Tower Connection

MAXIMUM BOLT LOADS		
Bolt Tension:	6453.68	lbs
Bolt Shear:	1552.27	lbs

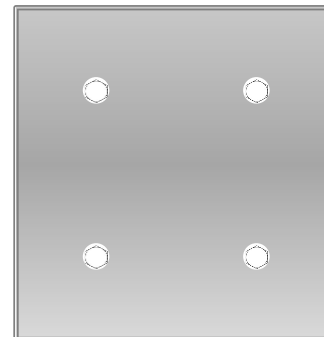
WORST CASE BOLT LOADS ¹		
Bolt Tension:	6453.68	lbs
Bolt Shear:	418.70	lbs

BOLT PROPERTIES		
Bolt Type:	Bolt	-
Bolt Diameter:	0.625	in
Bolt Grade:	A325	-
# of Bolts:	4	-
Threads Excluded?	No	-

¹ Worst case bolt loads correspond to Load combination #9 on member S1 in RISA-3D, which causes the maximum demand on the bolts.

Member Information
I nodes of S3, S2, S1

BOLT CHECK		
Tensile Strength	20340.15	
Shear Strength	13805.83	
Max Tensile Usage	31.7%	
Max Shear Usage	11.2%	
Interaction Check (Worst Case)	0.10	≤1.05
Result	Pass	



APPENDIX E

MOUNT MODIFICATION DESIGN DRAWINGS (MDD) / SUPPLEMENTAL DRAWINGS

4

3

2

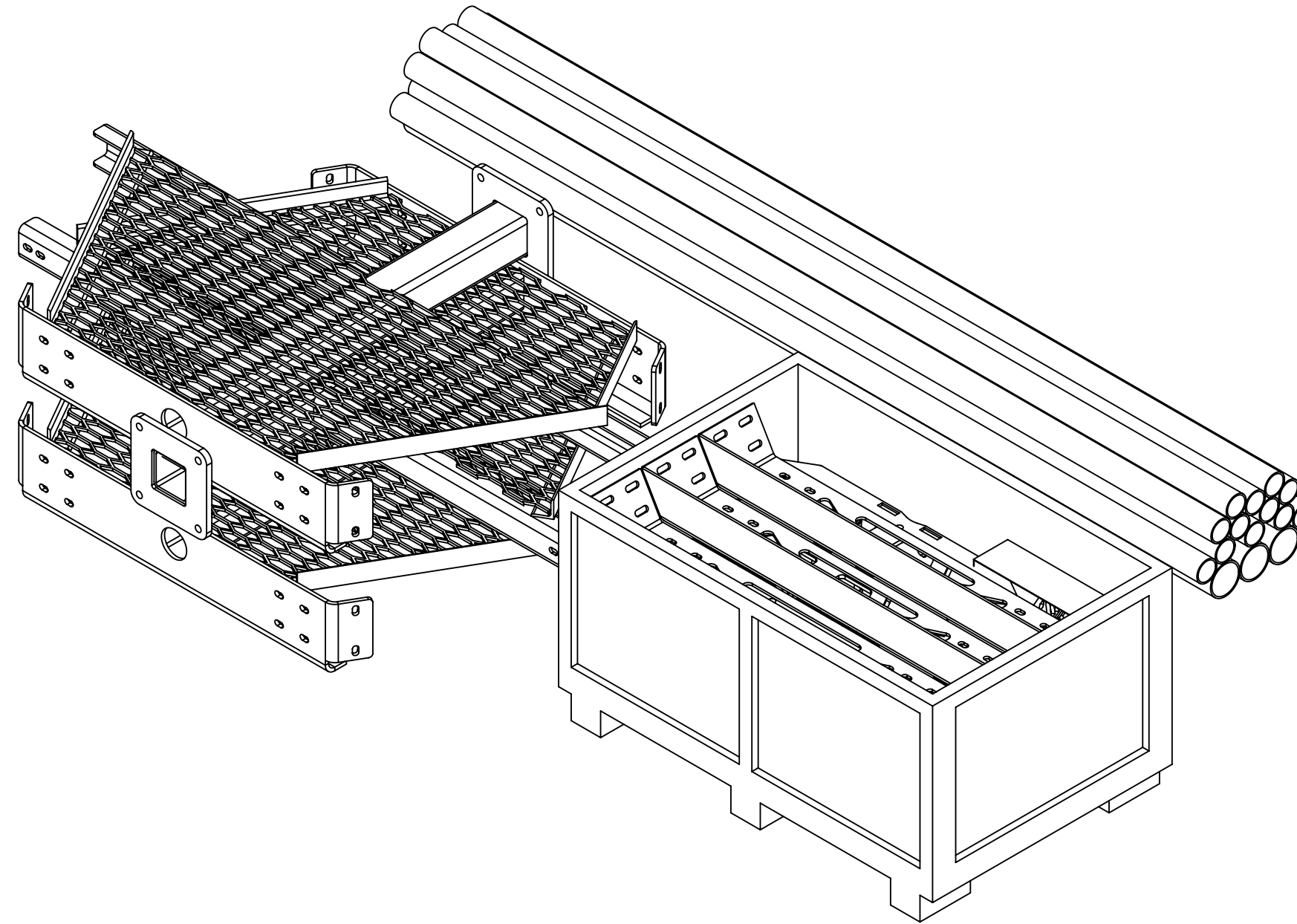
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NOTES:

- 1.0 GENERAL
 - 1.1 ALL METRIC DIMENSIONS ARE IN BRACKETS
 - 1.2 FOR PATENTS, SEE WWW.CS-PAT.COM
- 2.0 DESIGN NOTES
- 3.0 MANUFACTURING/SPECIAL REQUIREMENTS
- 4.0 TEST
- 5.0 PACKAGING

REVISIONS				
REV.	ECN	DESCRIPTION	BY	DATE
A	10272PC	INITIAL RELEASE	HDAI	03/08/2021

FOR BOM ENTRY ONLY



PATENT PENDING

COMMSCOPE, INC. OF NORTH CAROLINA

TOLERANCES		SAP MATERIAL MASTER
1 PLACE .X ± .25	3 PLACE .XXX ± 0.06	MC-PK8-DSH
2 PLACE .XX ± 0.12	ANGLES ± 2°	
FINISH GALV A123		MATERIAL A500, A1011/A1018

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES INTERPRET PER ANSI Y 14.5M-1994	CE	MRC	02/17/20	TITLE LOW PROFILE PLATFORM FACE
	RW	ROGHANSON	03/11/2021	
	AD	BCROSS	03/11/2021	
	RE	FA1024	02/27/2020	
ECN 10272PC				SCALE 1:32
DOCUMENT NO. MC-PK8-DSH				
SIZE	Auth Group	INSL	MODEL	DRAWING
C			VERSION	STATUS
			00	AD
			REVISION	VERSION
			A	00
			STATUS	REVISION
			AD	A
SHEET				1 OF 3

ITEM	PART NO.	DESCRIPTION	QTY.	WEIGHT	NOTE NO.
1	MTC3006SB	STEEL BUNDLE FOR SNUB NOSE PLATFORM	1	462.92 LBS	
2	MCPK8CHWK	HARDWARE KIT FOR MC-PK8-C	1	523.54 LBS	
3	MT54796	3.50" OD X 96" GALV PIPE	3	48.54 LBS	
4	MT651096154	2.375"OD X 96" SCHD 40 PIPE	12	23.05 LBS	3

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D

D

C

C

B

B

A

A

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3

2

1

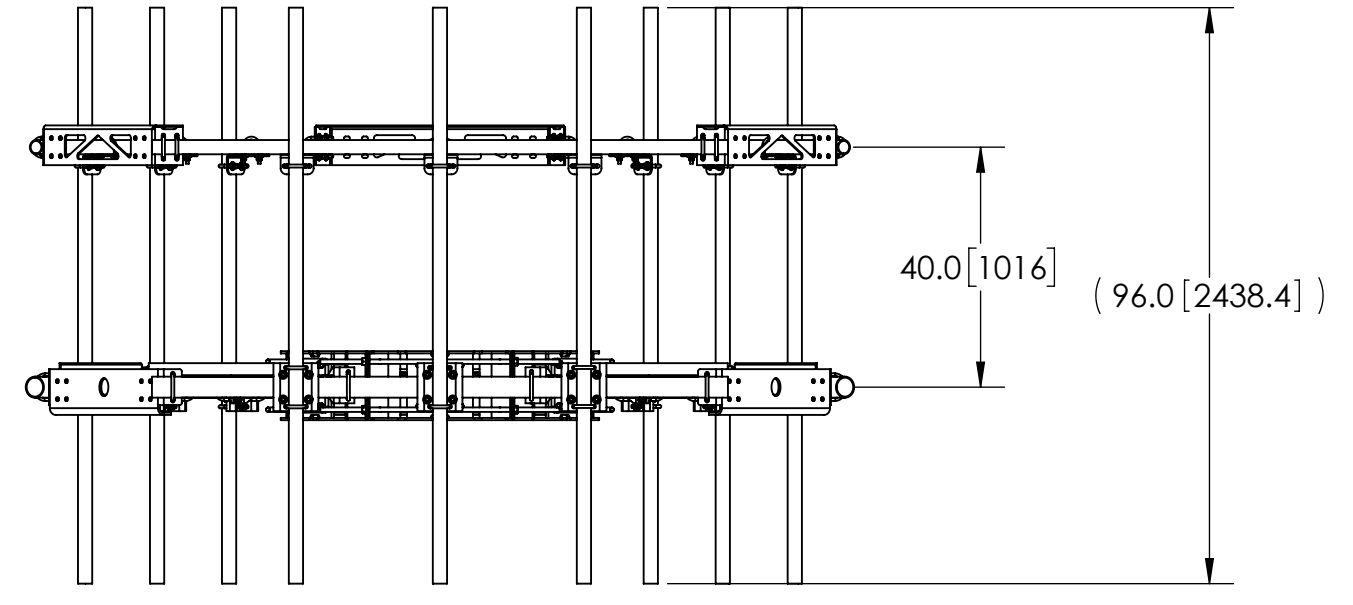
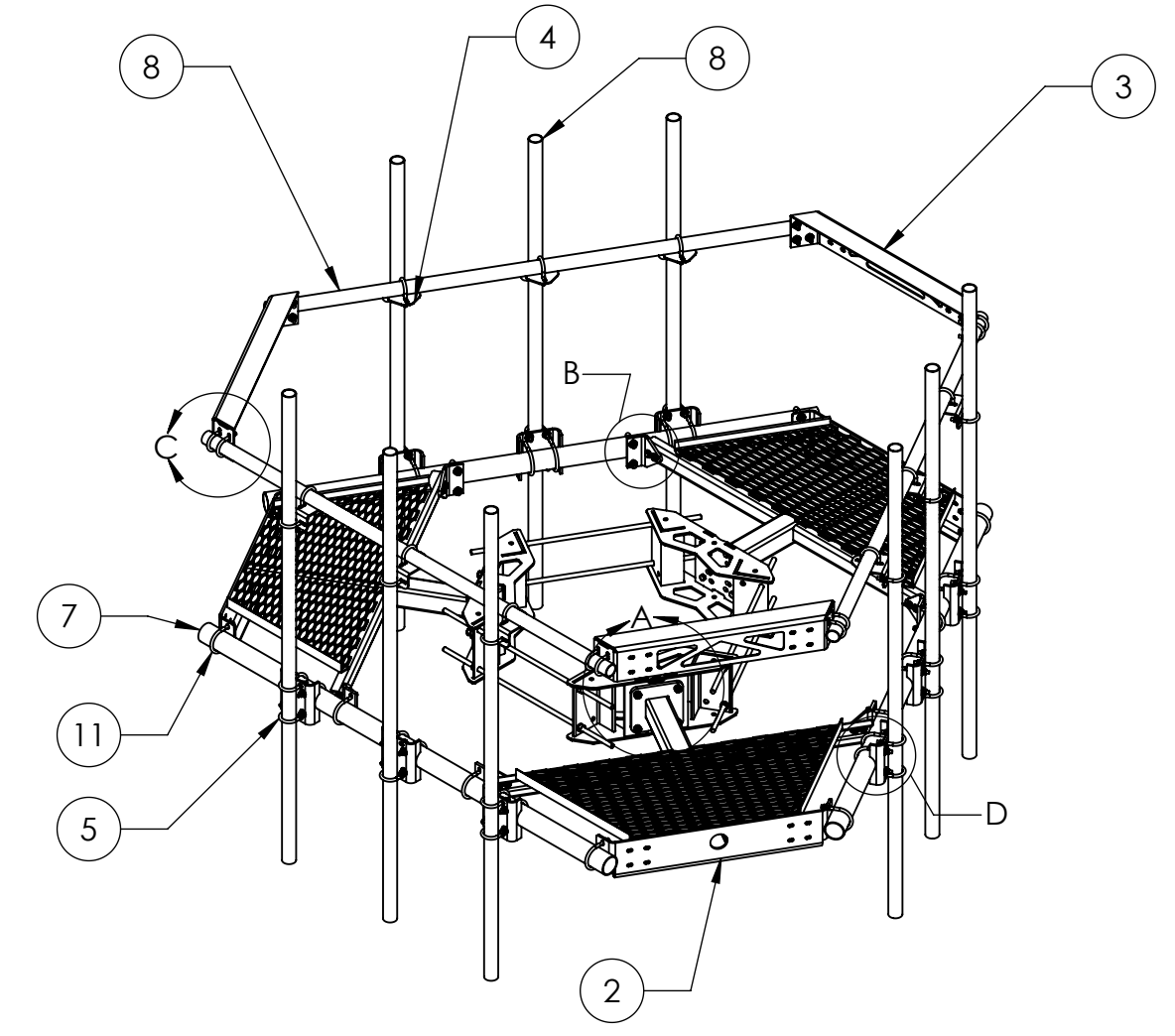
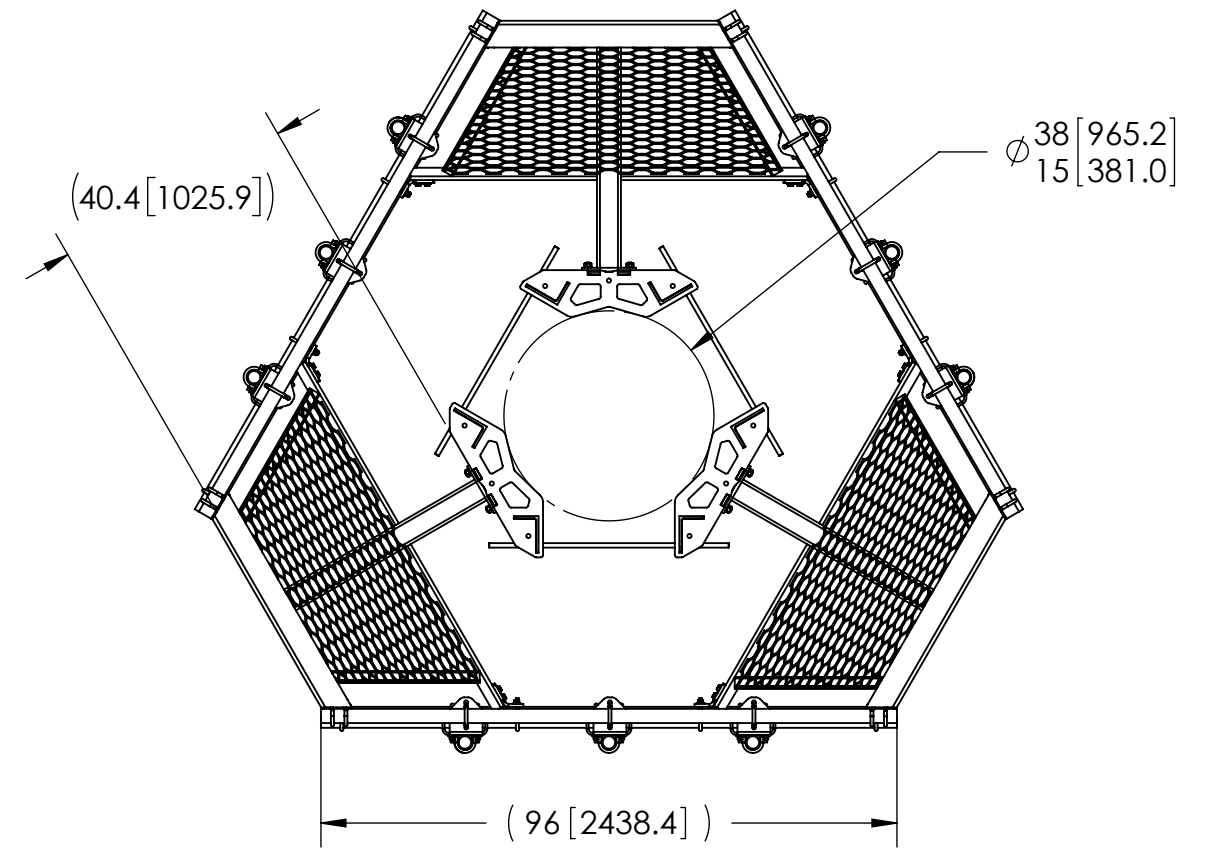
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1

NOTES:



ITEM	PART NO.	DESCRIPTION	QTY.
1	MC-RM1550-3	12" - 50" OD RINGMOUNT	1
2	MTC300602	SECTOR WELDMENT FOR SNUB NOSE PLATFORM	3
3	MT195801	Corner Weldment Snub Nose Handrail	3
4	XAU01	ANGLE, CROSSOVER, 1.9-3.5" X 1.9-3.5" OD	9
5	GUB-4240	1/2" X 2-1/2" X 4" GALV U-BOLT	48
6	GB-0520A	5/8" X 2" GALV BOLT KIT (A325)	12
7	MT54796	3.50" OD X 96" GALV PIPE	3
8	MT651096154	2.375"OD X 96" SCHD 40 PIPE	12
9	MT21701	PIPE MOUNT PLATE	9
10	GWF-04	1/2" GALV FLAT WASHER	12
11	GUB-4355	1/2" X 3-5/8" X 5" GALV U-BOLT	12
12	GUB-4356	1/2" X 3-5/8" X 6" GALV U-BOLT	18
13	MTC300618	MOUNTING PLATE FOR MT-196	6
14	GB-04205	1/2" X 2" GALV BOLT KIT	12

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TITLE LOW PROFILE PLATFORM FACE			
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DRAWING			SHEET
VERSION 00	STATUS AD	REVISION A	

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4

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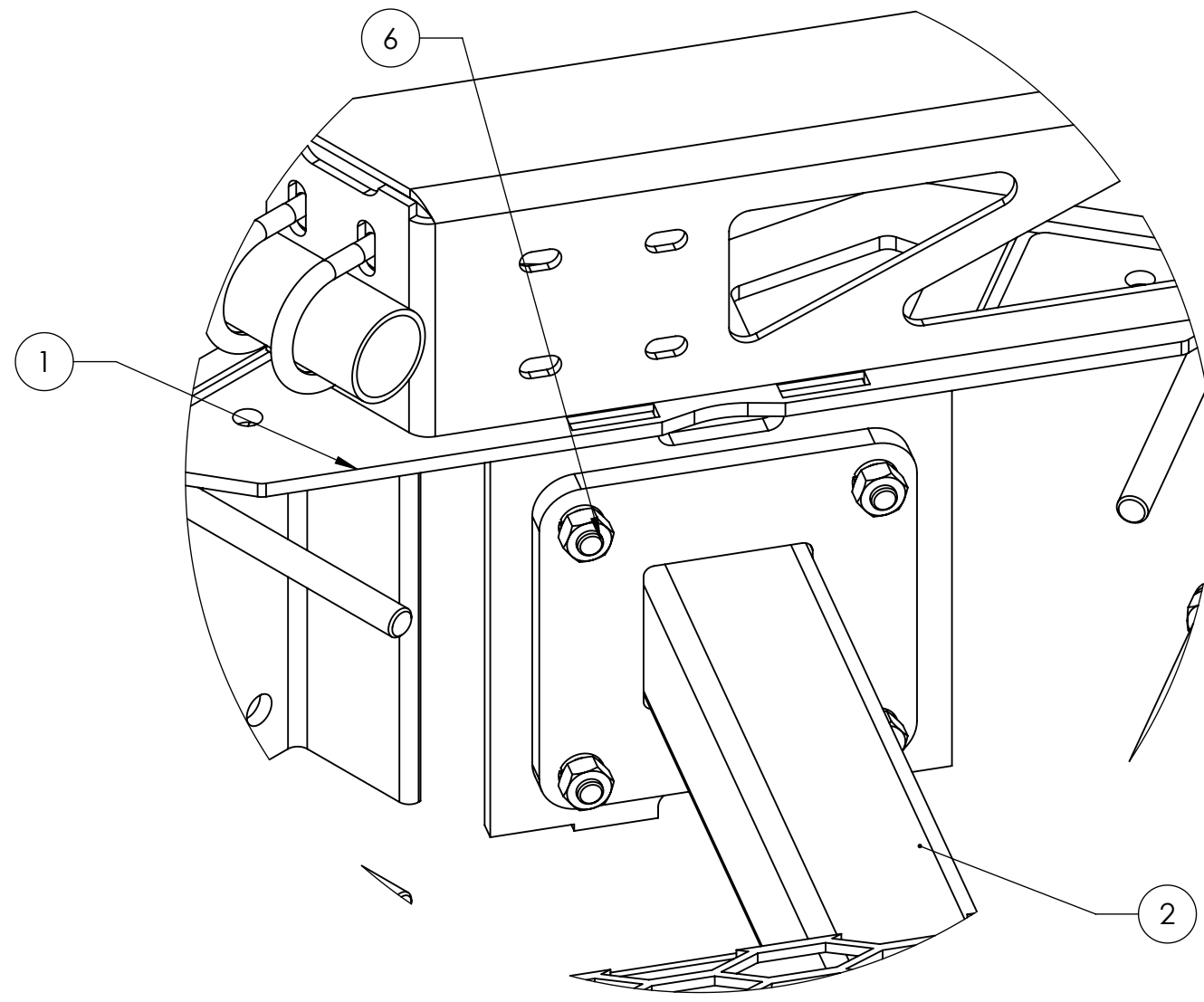
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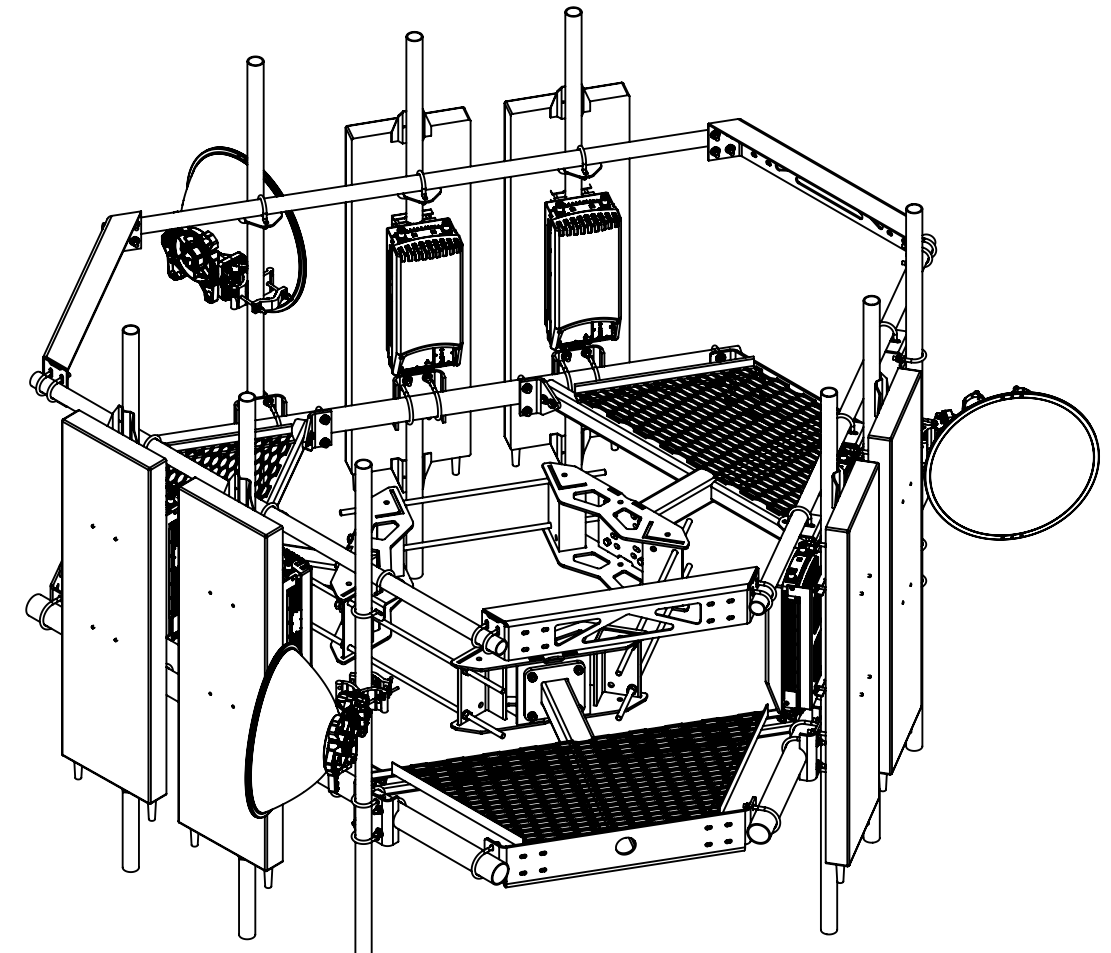
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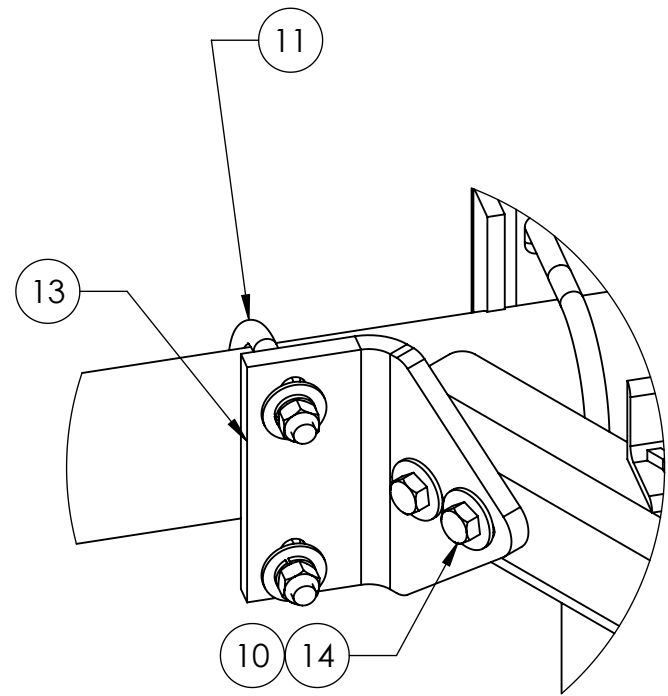
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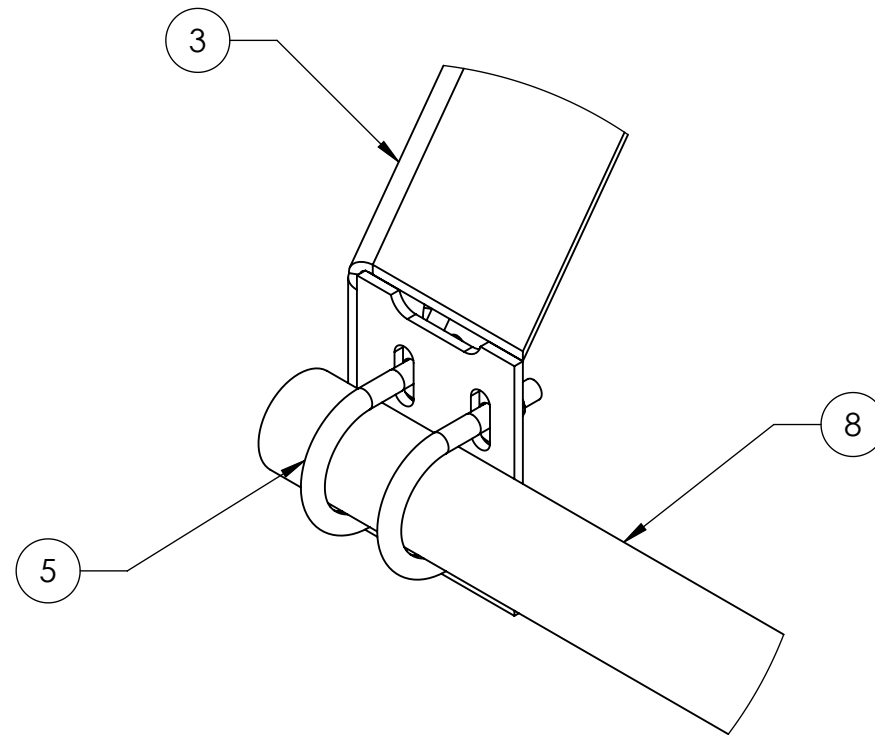
DETAIL A
SCALE 1 : 4



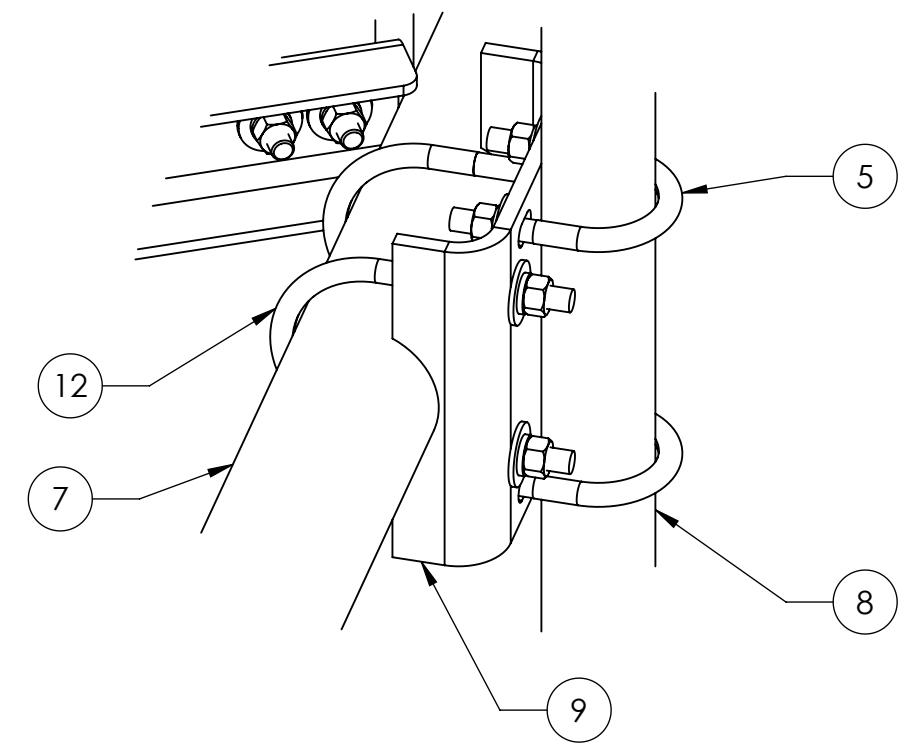
WITH ANTENNAS



DETAIL B
SCALE 1 : 4



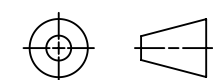
DETAIL C
SCALE 1 : 4



DETAIL D
SCALE 1 : 4

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TITLE LOW PROFILE PLATFORM FACE				
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		DRAWING		SHEET
		VERSION	STATUS	REVISION
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				3 OF 3

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D

D

C

C

B

B

A

A

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: 842873

NJJER01118B
30 Oliver Terrace
Shelton, Connecticut 06484

May 30, 2022

EBI Project Number: 6222003443

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	50.68%

May 30, 2022

Attn: Dish Wireless

Emissions Analysis for Site: 842873 - NJJER01118B

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **30 Oliver Terrace in Shelton, 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 antenna facility located at 30 Oliver Terrace in Shelton, 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 FFVV-65B-R2 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector A, the JMA FFVV-65B-R2 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector B, the JMA FFVV-65B-R2 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 108 feet above ground level (AGL).
- 8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 9) All calculations were done with respect to uncontrolled / general population threshold limits.

Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA FFVV-65B-R2	Make / Model:	JMA FFVV-65B-R2	Make / Model:	JMA FFVV-65B-R2
Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz
Gain:	11.1 dBd / 15.52 dBd / 16.04 dBd	Gain:	11.1 dBd / 15.52 dBd / 16.04 dBd	Gain:	11.1 dBd / 15.52 dBd / 16.04 dBd
Height (AGL):	108 feet	Height (AGL):	108 feet	Height (AGL):	108 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	440.00 Watts	Total TX Power (W):	440.00 Watts	Total TX Power (W):	440.00 Watts
ERP (W):	2,400.15	ERP (W):	2,400.15	ERP (W):	2,400.15
Antenna A1 MPE %:	1.05%	Antenna B1 MPE %:	1.05%	Antenna C1 MPE %:	1.05%

Site Composite MPE %	
Carrier	MPE %
Dish Wireless (Max at Sector A):	1.05%
AT&T	6.27%
Metro PCS	0.44%
T-Mobile	15.35%
J. Brennan Constrcn	2.2%
Clearwire	0.39%
Sprint	12.14%
Verizon	12.84%
Site Total MPE % :	50.68%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	1.05%
Dish Wireless Sector B Total:	1.05%
Dish Wireless Sector C Total:	1.05%
Site Total MPE % :	50.68%

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	107.68	108.0	1.49	600 MHz n71	400	0.37%
Dish Wireless 1900 MHz n70	4	238.81	108.0	3.30	1900 MHz n70	1000	0.33%
Dish Wireless 2190 MHz n66	4	253.55	108.0	3.50	2190 MHz n66	1000	0.35%
						Total:	1.05%

• 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:	1.05%
Sector B:	1.05%
Sector C:	1.05%
Dish Wireless Maximum MPE % (Sector A):	1.05%
Site Total:	50.68%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **50.68%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Exhibit G

Letter of Authorization



1200 MacArthur Blvd, Suite 200
Mahwah, NJ 07430

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

Crown Castle Letter of Authorization

CT - CONNECTICUT SITING COUNCIL


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

Re: Tower Share Application
Crown Castle telecommunications site at:
30 OLIVER TERRACE, SHELTON, CT 06484

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

Crown Site ID/Name: 842873/SHELTON NE
Customer Site ID: NJJER01118B/
Site Address: 30 Oliver Terrace, SHELTON, CT 06484


Crown Castle

By:  Date: 04/11/2022

Robin Cannizzaro
Real Estate Specialist

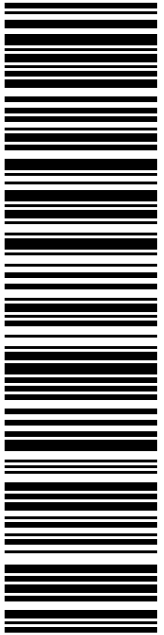
Exhibit H

Recipient Mailings



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

USPS TRACKING #



9405 5036 9930 0262 4725 69

P

06/01/2022

Expected Delivery Date: 06/03/22
Ref#: DS-842873
0006


R013

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

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Trans. #: 564666837	Priority Mail® Postage: \$8.95
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Ship Date: 06/01/2022	
Expected Delivery Date: 06/03/2022	

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STURBRIDGE MA 01566-1359


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

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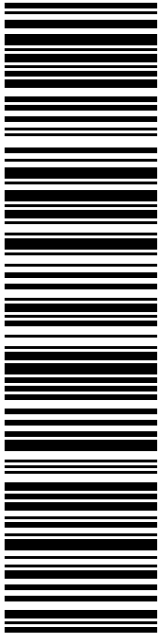


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MARK LAURETTI
MAYOR- CITY OF SHELTON
54 HILL ST
SHELTON CT 06484-3207

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P

06/01/2022

Expected Delivery Date: 06/03/22
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C017

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STURBRIDGE MA 01566-1359

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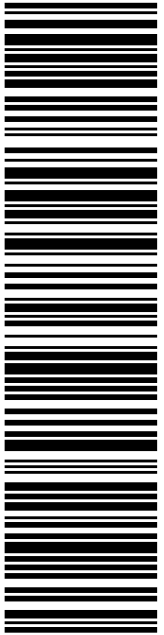
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Ship Date: 06/01/2022	
Expected Delivery Date: 06/03/2022	
From: DEBORAH CHASE NORTHEAST SITE SOLUTIONS 420 MAIN ST STE 1 STURBRIDGE MA 01566-1359	
Ref#: DS-842873	
To: MARK LAURETTI MAYOR- CITY OF SHELTON 54 HILL ST SHELTON CT 06484-3207	
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ALEXANDER ROSETTI
PLANNING & ZONING ADMINISTRATOR
54 HILL ST
SHELTON CT 06484-3207


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NORTHEAST SITE SOLUTIONS
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Instructions

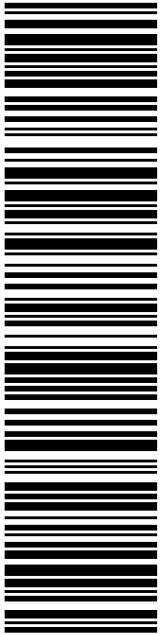
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Total:	\$8.95
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To:	ALEXANDER ROSETTI PLANNING & ZONING ADMINISTRATOR 54 HILL ST SHELTON CT 06484-3207
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BRENNAN REALTY LLC
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SHELTON CT 06484-5339

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Expected Delivery Date:	06/03/2022
Priority Mail® Postage:	\$8.95
Total:	\$8.95
From:	DEBORAH CHASE NORTHEAST SITE SOLUTIONS 420 MAIN ST STE 1 STURBRIDGE MA 01566-1359
To:	BRENNAN REALTY LLC 70 PLATT RD SHELTON CT 06484-5339
Ref#:	DS-842873
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842873 Crown DLN



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

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Product	Qty	Unit Price	Price
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Prepaid Mail	1		\$0.00
West Henrietta, NY 14586			
Weight: 0 lb 2.00 oz			
Acceptance Date:			
Wed 06/01/2022			
Tracking #:			
9405 5036 9930 0262 4725 69			

Prepaid Mail	1		\$0.00
Shelton, CT 06484			
Weight: 0 lb 8.80 oz			
Acceptance Date:			
Wed 06/01/2022			
Tracking #:			
9405 5036 9930 0262 4725 83			

Prepaid Mail	1		\$0.00
Shelton, CT 06484			
Weight: 0 lb 8.80 oz			
Acceptance Date:			
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Shelton, CT 06484			
Weight: 0 lb 8.80 oz			
Acceptance Date:			
Wed 06/01/2022			
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