



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

May 24, 2022

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

RE: Tower Share Application  
53 Westminster Road, Canterbury, CT 06331  
Latitude: 41.702000  
Longitude: -71.980583  
Site #: 876375\_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 53 Westminster Road, Canterbury, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 MHz 5G antennas and six (6) RRUs, at the 141-foot level of the existing 180-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 fenced compound. Included are plans by Jacobs, dated February 10, 2022, Exhibit C. Also included is a structural analysis prepared by Crown Castle, dated September 9, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. The facility was originally approved by the Town of Canterbury Planning & Zoning Commission on April 18, 2000. 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 Christopher Lippke, First Selectman, and Melissa Gill, Zoning Enforcement Officer for the Town of Canterbury as well as the tower owner (Crown Castle) and property owner (John Lemire).

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 180-feet and the Dish Wireless LLC antennas will be located at a center line height of 141-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 15.29% 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 Canterbury. 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 141-foot level of the existing 180-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 Canterbury.

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](mailto:denise@northeastsitesolutions.com)



**NSS** **NORTHEAST**  
SITE SOLUTIONS  
*Turnkey Wireless Development*

Attachments

Cc: : Christopher Lippke - First Selectman  
Town of Canterbury  
1 Municipal Drive, Canterbury, CT 06331

Melissa Gill - Zoning Enforcement Officer  
Town of Canterbury  
1 Municipal Drive, Canterbury, CT 06331

John Lemire – Property Owner  
14 Debbie Ct., Norwich, CT 06360

Crown Castle, Tower Owner

# Exhibit A

## **Original Facility Approval**

Town of Canterbury  
Notice of Action

Appeal: <input type="checkbox"/>	Site Plan: <input checked="" type="checkbox"/>	Special Exception: <input checked="" type="checkbox"/>	Special Use Permit: <input type="checkbox"/>
Subdivision: <input type="checkbox"/>	Variance: <input type="checkbox"/>	Wetlands: <input type="checkbox"/>	Zone Change: <input type="checkbox"/>
Zoning Regulation: _____		Section: _____	

Applicant: Sprint Spectrum

Name of Record Owner (if different): \_\_\_\_\_

Street Address of Property: 53 Westminster Road Map#: 46 Lot(s)#: 32

Deed Reference: Volume: 85 Page: 331

Description of Property: (Should be attached)

Description of Action: Approved Application #99-8-SE, Special Exception with stipulations, submitted by Sprint Spectrum for a Telecommunications Tower on 53 Westminster Road, Map 46 Lot 32

Date of Approval: \_\_\_\_\_  
Date Notice of Action Published: \_\_\_\_\_  
Date of Sale: \_\_\_\_\_

Conditions, if any: 1) An 8 foot fence shall be substituted for the proposed 6 foot fence; 2) proper signage shall be posted as per plans and shall include "No Trespassing" signs; 3) emergency access keys shall be given to the Town Fire Company; and 4) a \$30,000 bond shall be posted to ensure proper removal of the tower due to abandonment.

Patricia J. Grassi  
Town Clerk  
Date 4/26/00

Lee Wrigley  
Chairman  
Planning + Zoning Commission  
Commission/Board  
Date 4/18/00

Date \_\_\_\_\_  
Time 4:00 pm

This Notice of Action must be recorded with the Canterbury Town Clerk by the applicant within 90 days of the effective date.

RECEIVED FOR RECORD  
THIS 26<sup>th</sup> DAY OF April 20 00 AT 4:00 P.M

Patricia J. Grassi  
TOWN CLERK OF CANTERBURY

# Exhibit B

## Property Card

# 53 WESTMINSTER RD

**Location** 53 WESTMINSTER RD

**Mblu** 46/ 32/ 11

**Acct#** 00144000

**Owner** LEMIRE JOHN R

**Assessment** \$290,500

**Appraisal** \$467,650

**PID** 1715

**Building Count** 1

## Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2020	\$106,400	\$361,250	\$467,650

Assessment			
Valuation Year	Improvements	Land	Total
2020	\$74,600	\$215,900	\$290,500

## Owner of Record

**Owner** LEMIRE JOHN R  
**Co-Owner**  
**Address** 14 DEBBIE CT  
NORWICH, CT 06360

**Sale Price** \$0  
**Certificate**  
**Book & Page** 85/ 331  
**Sale Date** 07/27/1988

## Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
LEMIRE JOHN R	\$0		85/ 331	07/27/1988

## Building Information

### Building 1 : Section 1

**Year Built:** 1971  
**Living Area:** 544  
**Replacement Cost:** \$45,088  
**Building Percent Good:** 44  
**Replacement Cost**  
**Less Depreciation:** \$19,800

**Building Attributes**

Field	Description
Style	Manufactured Home
Model	Mobile Homes
Grade:	D
Stories	1 Story
Occupancy	1
Exterior Wall 1	Pre-Fab Wood
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	Panelling
Interior Flr 1	Carpet
Interior Flr 2	Linoleum
Heat Fuel	Oil
Heat Type:	Forced Hot Air
AC Type:	None
Total Bedrooms:	1 Bedroom
Total Bthrms:	1
Total Half Baths:	0
Extra Fixtures	
Total Rooms:	2 Rooms
Bath Style:	Average
Kitchen Style:	Average
Fireplaces	0
Xtra Openings	0
Gas Fireplaces	0
Woodstove	
SF Fin Bsmt	
Fin Bsmt Qual	
Bsmt Gar	
Blocked FPL	0

## Building Photo



(<http://images.vgsi.com/photos/CanterburyCTPhotos/A00\00\42\67.jpg>)

## Building Layout

SHP



([http://images.vgsi.com/photos/CanterburyCTPhotos/Sketches/1715\\_2072](http://images.vgsi.com/photos/CanterburyCTPhotos/Sketches/1715_2072))

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	544	544
		544	544

## Building 1 : Section 1

**Year Built:** 1971  
**Living Area:** 0  
**Replacement Cost:** \$45,088  
**Building Percent Good:** 44  
**Replacement Cost Less Depreciation:** \$19,800

### Building Attributes

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



Style	Outbuildings
Model	
Grade:	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Extra Fixtures	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Fireplaces	
Xtra Openings	
Gas Fireplaces	
Woodstove	
SF Fin Bsmt	
Fin Bsmt Qual	
Bsmt Gar	
Blocked FPL	

### Building Photo



(<http://images.vgsi.com/photos/CanterburyCTPhotos//default.jpg>)

### Building Layout

Building Layout

([http://images.vgsi.com/photos/CanterburyCTPhotos//Sketches/1715\\_3302](http://images.vgsi.com/photos/CanterburyCTPhotos//Sketches/1715_3302))

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

### Extra Features

Extra Features	Legend
No Data for Extra Features	

### Land

#### Land Use

#### Land Line Valuation

**Use Code** 1030  
**Description** Manufactured Home  
**Zone** RD  
**Neighborhood**  
**Alt Land Appr** No  
**Category**

**Size (Acres)** 35.43  
**Frontage** 0  
**Depth** 0  
**Assessed Value** \$215,900  
**Appraised Value** \$361,250

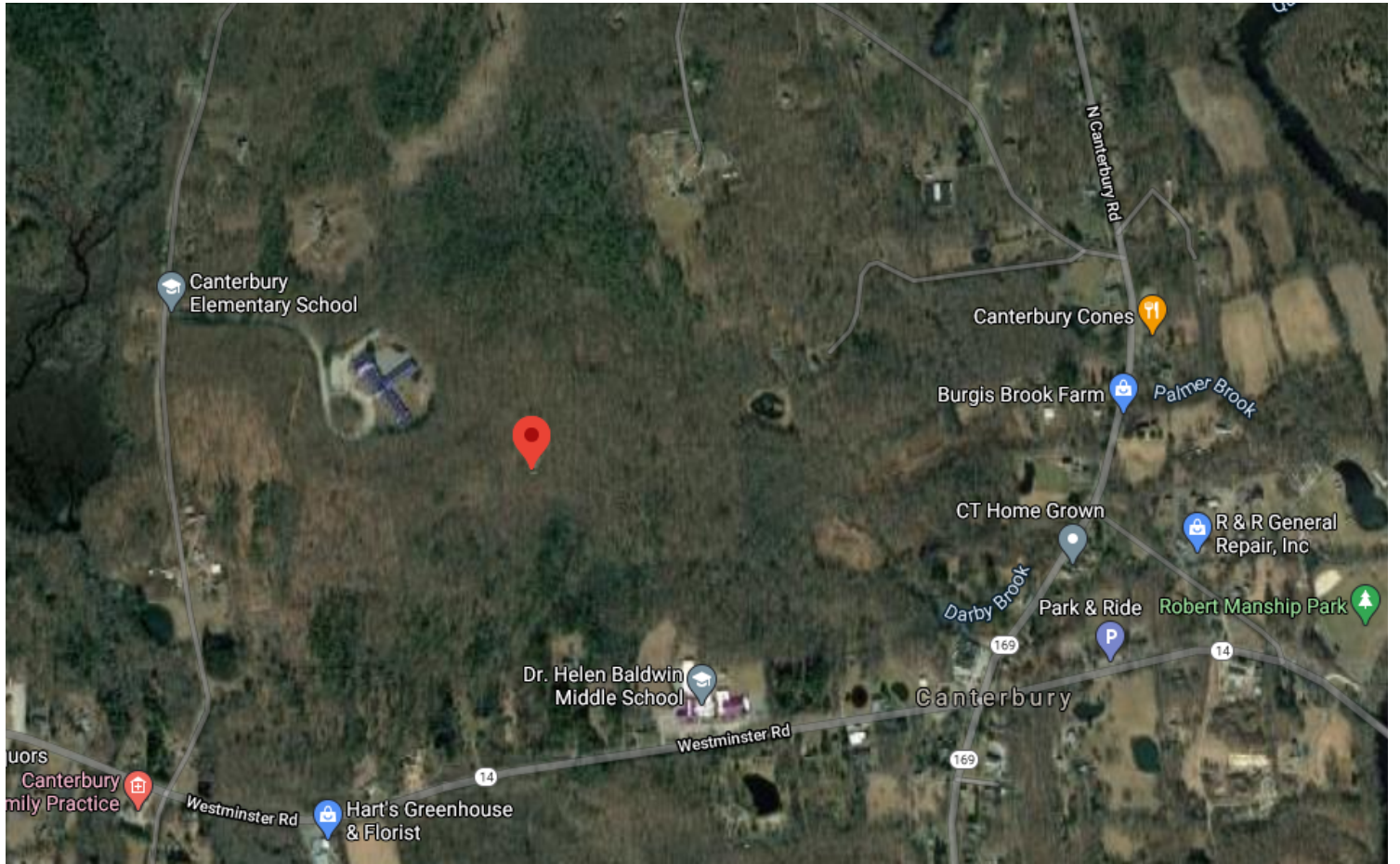
**Outbuildings**

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
SHD6	Cell Equipment Bldg			320 S.F.	\$80,000	1
SHP2	Work Shop - Good			384 S.F.	\$5,800	1
FN4	FENCE-8' CHAIN			240 L.F.	\$800	1

**Valuation History**

Appraisal			
Valuation Year	Improvements	Land	Total
2019	\$21,300	\$280,710	\$302,010
2018	\$21,300	\$280,710	\$302,010
2017	\$21,300	\$280,710	\$302,010

Assessment			
Valuation Year	Improvements	Land	Total
2019	\$15,000	\$162,900	\$177,900
2018	\$15,000	\$170,300	\$185,300
2017	\$15,000	\$170,300	\$185,300



# Exhibit C

## **Construction Drawings**



DISH WIRELESS L.L.C. SITE ID:  
**BOBOS00037A**

DISH WIRELESS L.L.C. SITE ADDRESS:  
**53 WESTMINSTER RD  
CANTERBURY, CT 06331**

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:	
<b>TOWER SCOPE OF WORK:</b>	
<ul style="list-style-type: none"> <li>• INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)</li> <li>• INSTALL (1) PROPOSED ANTENNA PLATFORM MOUNT</li> <li>• INSTALL PROPOSED JUMPERS</li> <li>• INSTALL (6) PROPOSED RRRs (2 PER SECTOR)</li> <li>• INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)</li> <li>• INSTALL (1) PROPOSED HYBRID CABLE</li> </ul>	
<b>GROUND SCOPE OF WORK:</b>	
<ul style="list-style-type: none"> <li>• INSTALL (1) PROPOSED METAL PLATFORM</li> <li>• INSTALL (1) PROPOSED ICE BRIDGE</li> <li>• INSTALL (1) PROPOSED PPC CABINET</li> <li>• INSTALL (1) PROPOSED EQUIPMENT CABINET</li> <li>• INSTALL (1) PROPOSED POWER CONDUIT</li> <li>• INSTALL (1) PROPOSED TELCO CONDUIT</li> <li>• INSTALL (1) PROPOSED GPS UNIT</li> <li>• INSTALL (1) PROPOSED FIBER NID</li> <li>• DISH WIRELESS L.L.C. TO UTILIZE POSITION 'D' ON EXISTING METER BANK</li> </ul>	

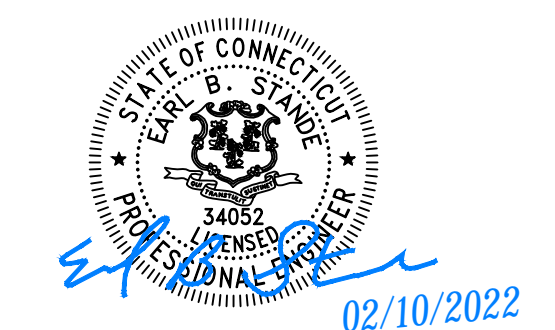
SITE INFORMATION	PROJECT DIRECTORY
PROPERTY OWNER: CROWN CASTLE USE, INC. ADDRESS: 2000 CORPORATE DRIVE CANONSBURG, PA 15317	APPLICANT: DISH WIRELESS L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER TYPE: MONOPOLE	TOWER OWNER: CROWN CASTLE USA, INC. 2000 CORPORATE DRIVE CANONSBURG, PA 15317 877.486.9377
TOWER CO SITE ID: 876375	SITE DESIGNER: JACOBS TELECOMMUNICATIONS, INC 5449 BELLS FERRY ROAD ACWORTH, GA 30102 470.785.4050
TOWER APP NUMBER: 553317	SITE ACQUISITION: COURTNEY PRESTON COURTNEY.PRESTON.CONTRACTOR@CROWNCastle.COM
COUNTY: WINDHAM	CONSTRUCTION MANAGER: JAVIER SOTO JAVIER.SOTO@DISH.COM
LATITUDE (NAD 83): 41° 42' 7.15" N 41.701986	RF ENGINEER: ARVIN SEBASTIAN ARVIN.SEBASTIAN@DISH.COM
LONGITUDE (NAD 83): 71° 58' 50.11" W -71.980586	
ZONING JURISDICTION: TOWN OF CANTERBURY	
ZONING DISTRICT: RD	
PARCEL NUMBER: CANT-144000-000000	
OCCUPANCY GROUP: U	
CONSTRUCTION TYPE: II-B	
POWER COMPANY: EVERSOURCE ENERGY	
TELEPHONE COMPANY: TBD	



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120

**JACOBS.**  
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: BSP CHECKED BY: ARM APPROVED BY: KRK

RFDS REV #: 0

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
1	12/16/2021	ISSUED FOR CONSTRUCTION
2	02/10/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
**EUC0309**

DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
**BOBOS00037A**  
53 WESTMINSTER RD  
CANTERBURY, CT 06331

SHEET TITLE  
**TITLE SHEET**

SHEET NUMBER  
**T-1**

**CONNECTICUT - CODE COMPLIANCE**

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

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

**SHEET INDEX**

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

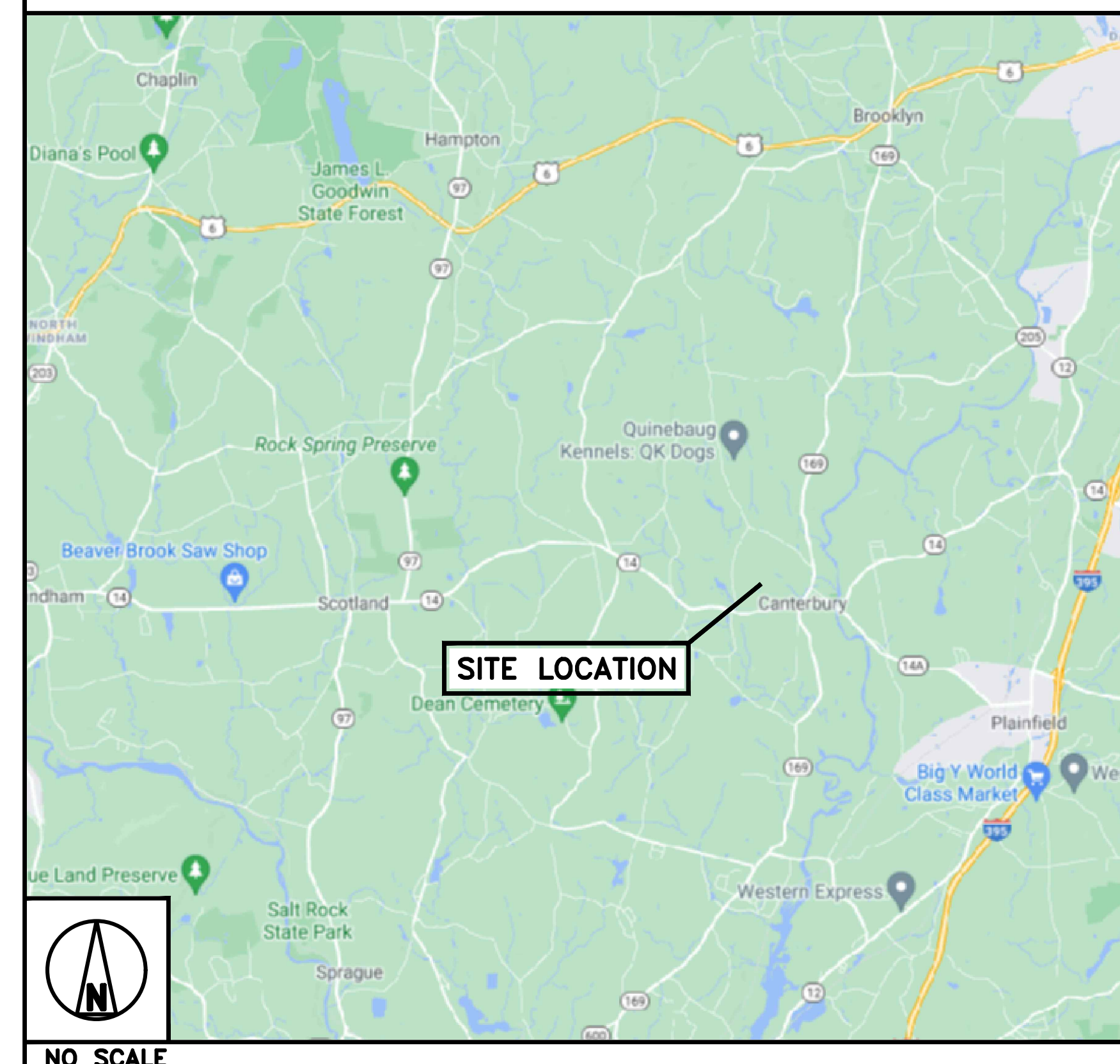
**SITE PHOTO**



**DIRECTIONS**

DIRECTIONS FROM DISH WIRELESS L.L.C. DISTRICT OFFICE:  
TAKE ROUTE 66 EAST OUT OF WILLIMANTIC TO ROUTE 14 EAST INTO CANTERBURY.  
ACCESS ROAD TO MONOPOLE IS ON LEFT #53 TO THE LEFT OF A RED AND WHITE HOUSE. 4X4 ACCESS ONLY.

**VICINITY MAP**



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

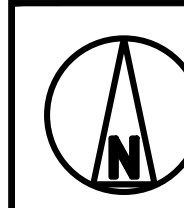


**GENERAL NOTES**

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

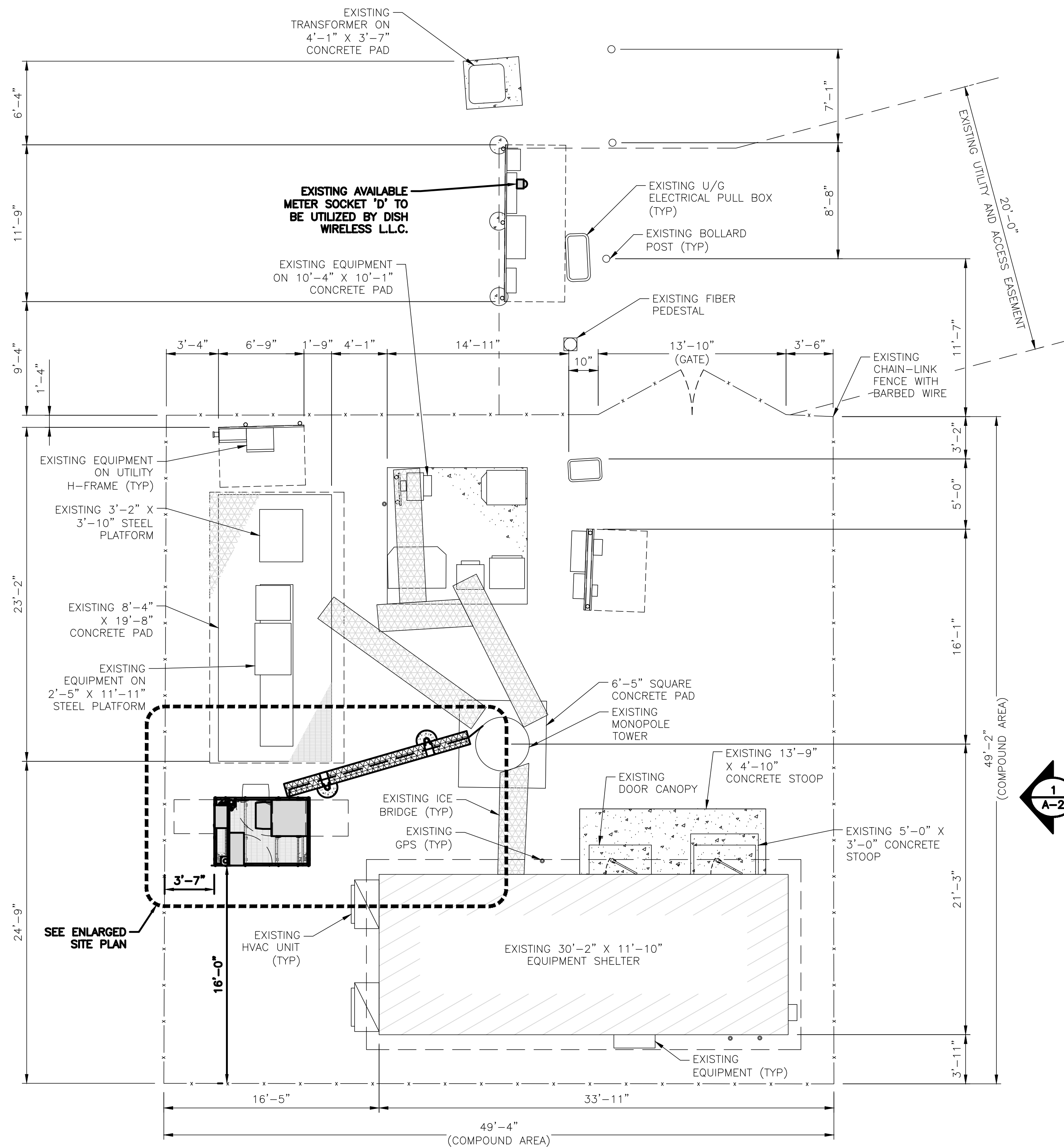
CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE, AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.



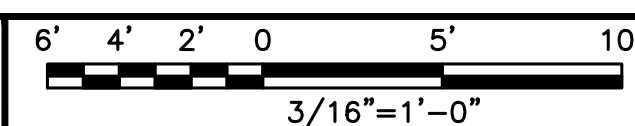
NO SCALE

**NOTES**

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



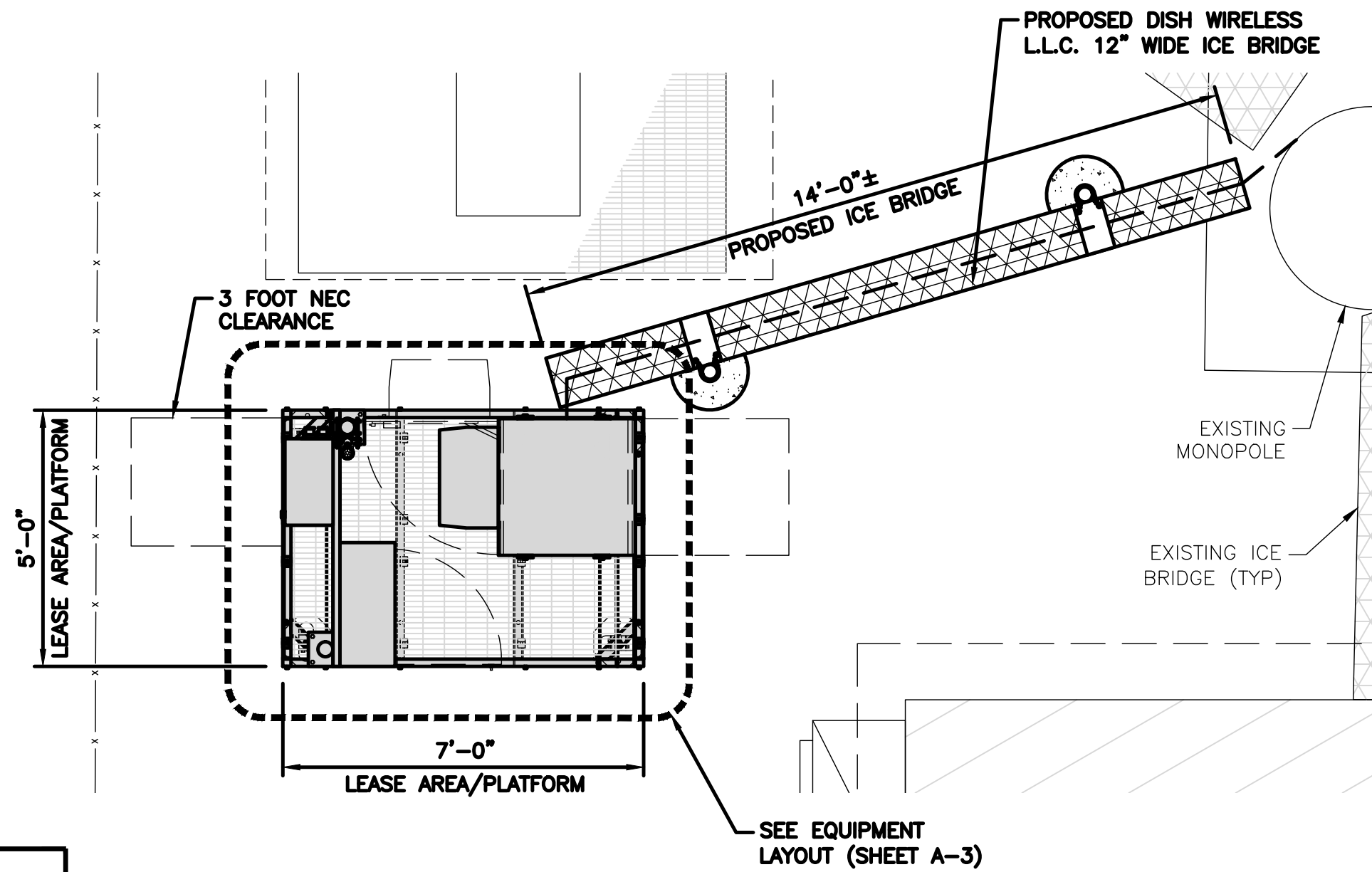
**OVERALL SITE PLAN**



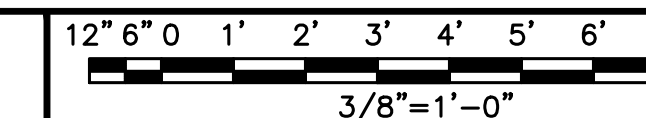
1

**NOTES**

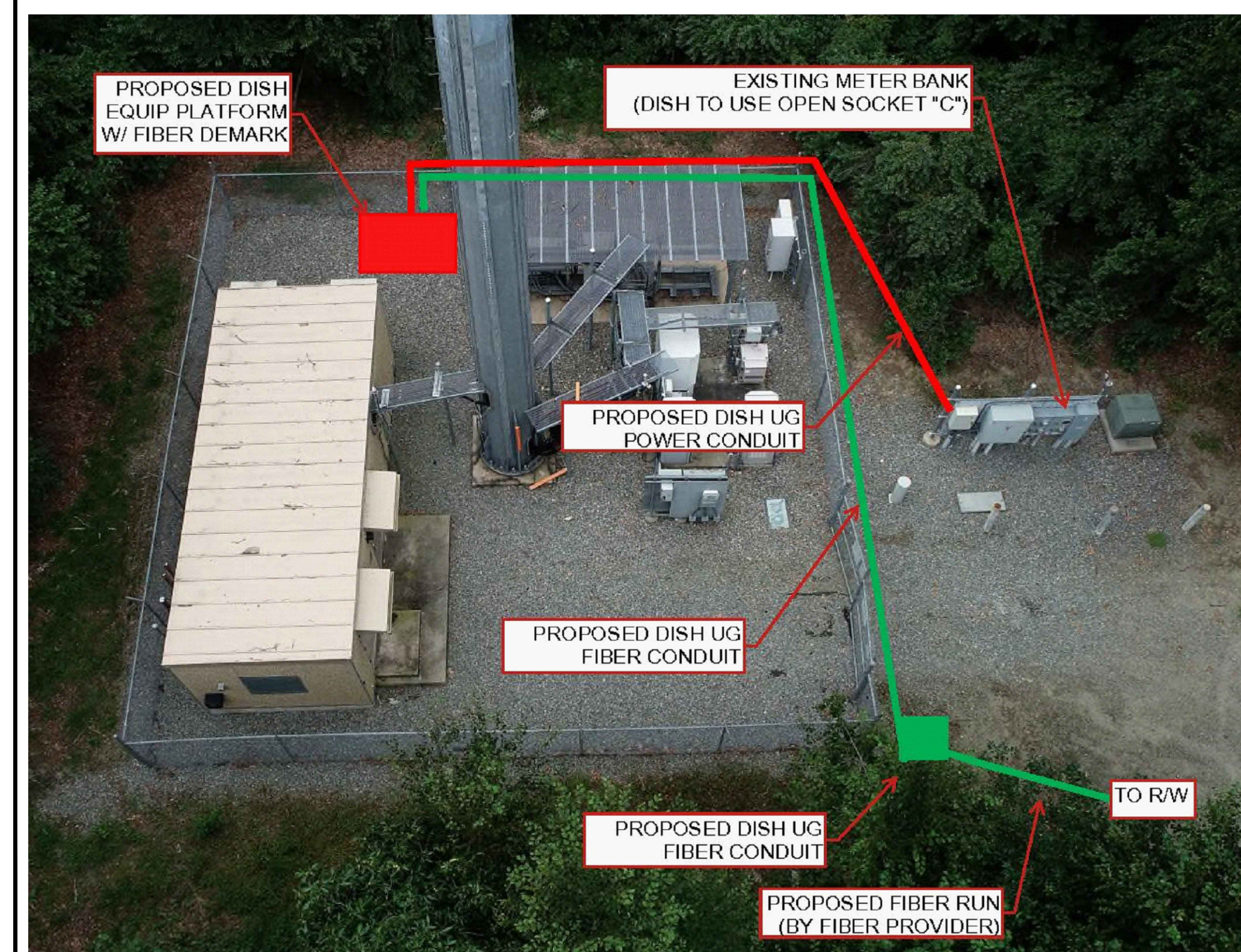
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



**ENLARGED SITE PLAN**



2



**ESA**

NO SCALE

3

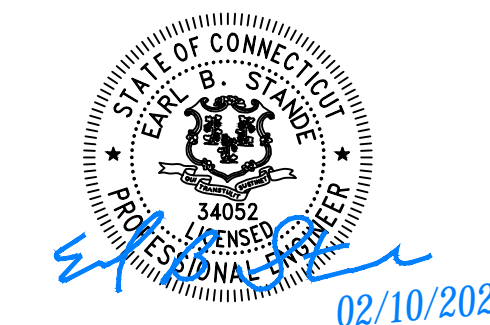


5701 SOUTH SANTA FE DRIVE  
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Jacobs Telecommunications, Inc.  
5449 BELLS FERRY ROAD  
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BSP ARM KRK

RFDS REV #: 0

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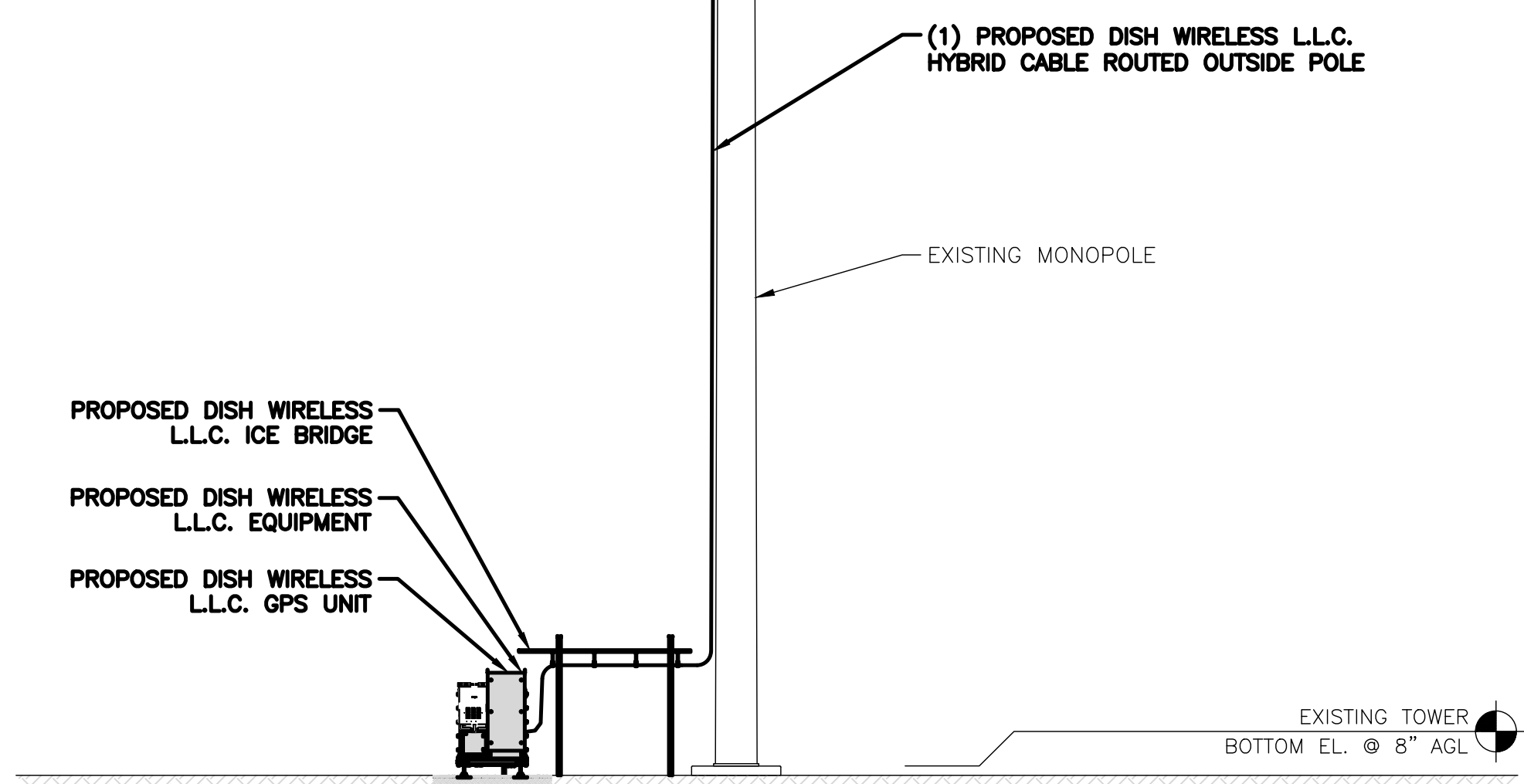
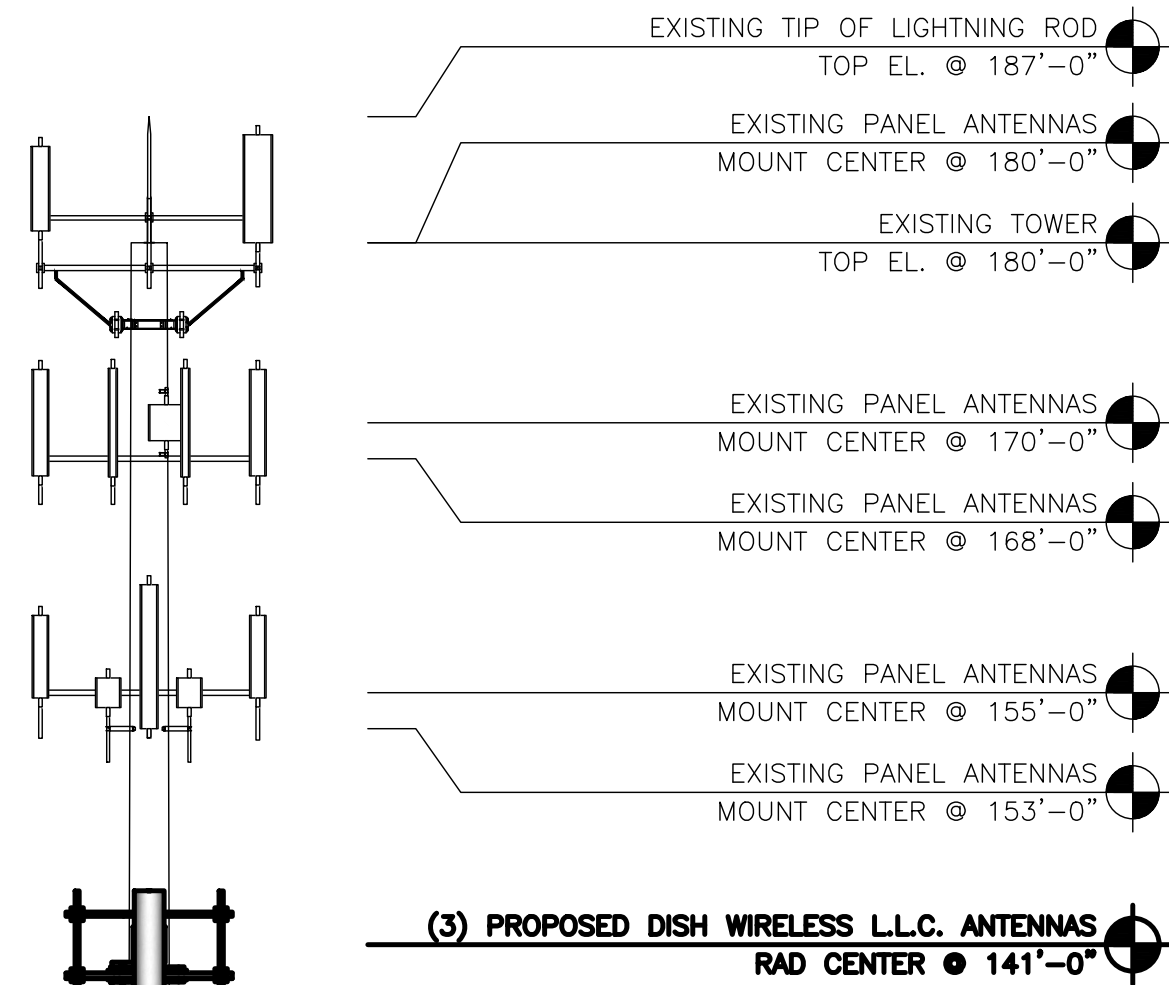
DISH WIRELESS L.L.C.  
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CANTERBURY, CT 06331

SHEET TITLE  
OVERALL AND ENLARGED  
SITE PLAN

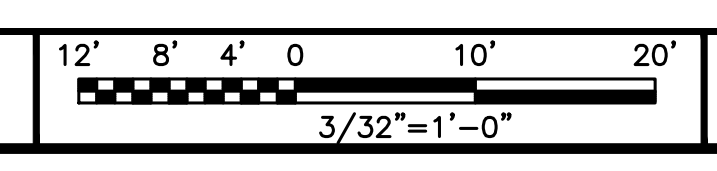
SHEET NUMBER  
**A-1**

**NOTES**

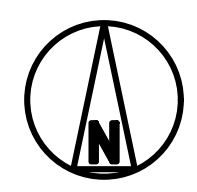
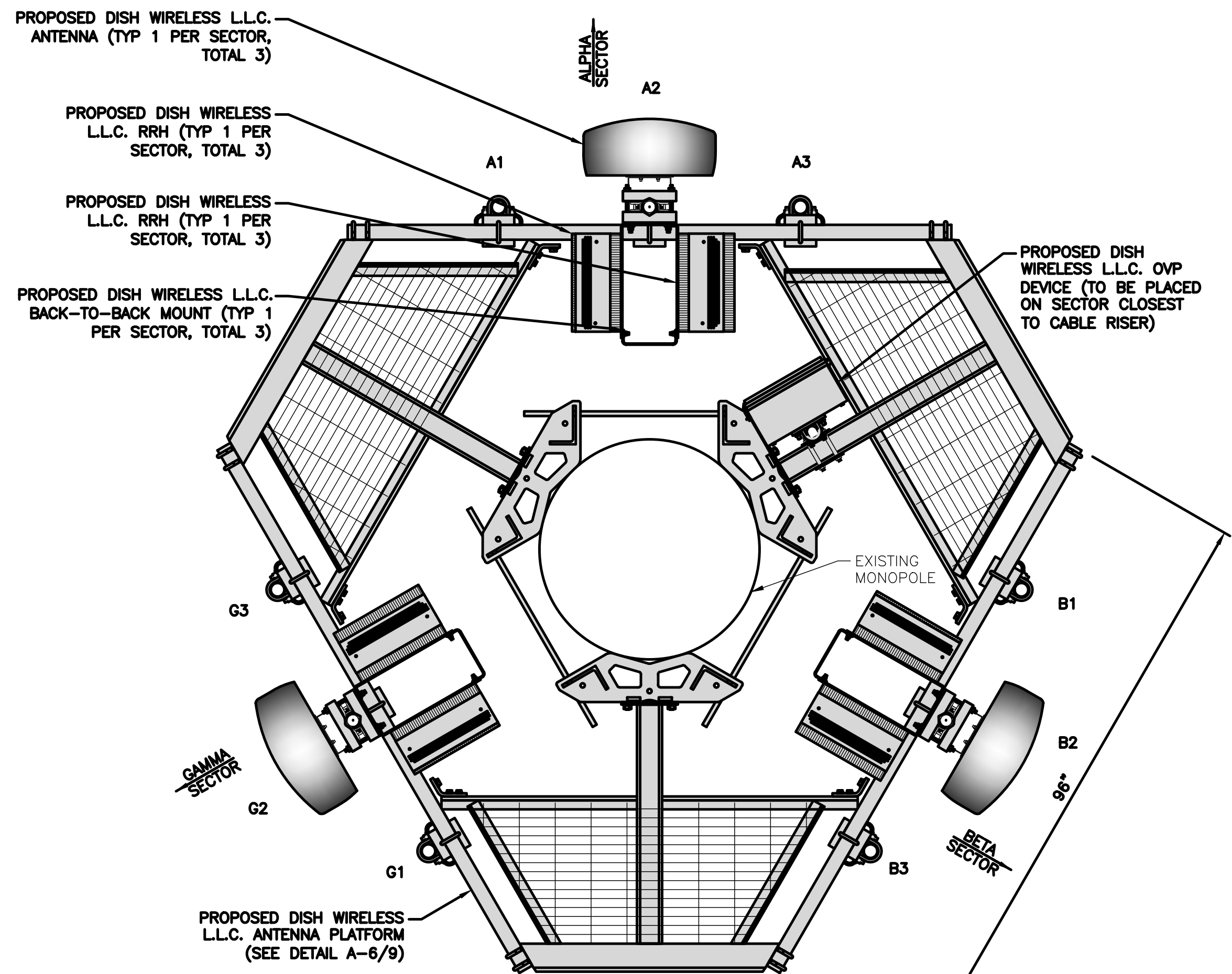
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. FOR ANTENNA SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.
4. JACOBS HAS NOT EVALUATED OR CONFIRMED THE STRUCTURAL CAPACITY OF THE TOWER OR ANTENNA/RADIO MOUNTS. 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.



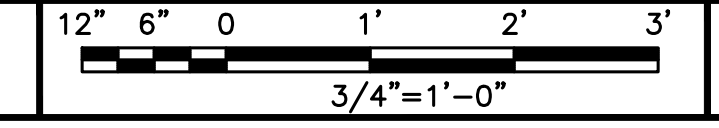
**PROPOSED EAST ELEVATION**



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	---	---	---	---	---	---	---	---	(1) HIGH-CAPACITY HYBRID CABLE (175' LONG)
A2	PROPOSED	JMA WIRELESS - MX08FR0665-21	5G	0°	141'-0"	FUJITSU - TA08025-B604 FUJITSU - TA08025-B605	5G	RAYCAP RDIDC-9181-PF-48	
A3	---	---	---	---	---	---	---	---	
B1	---	---	---	---	---	---	---	---	SHARED W/ALPHA
B2	PROPOSED	JMA WIRELESS - MX08FR0665-21	5G	120°	141'-0"	FUJITSU - TA08025-B604 FUJITSU - TA08025-B605	5G	SHARED W/ALPHA	
B3	---	---	---	---	---	---	---	---	
G1	---	---	---	---	---	---	---	---	SHARED W/ALPHA
G2	PROPOSED	JMA WIRELESS - MX08FR0665-21	5G	240°	141'-0"	FUJITSU - TA08025-B604 FUJITSU - TA08025-B605	5G	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

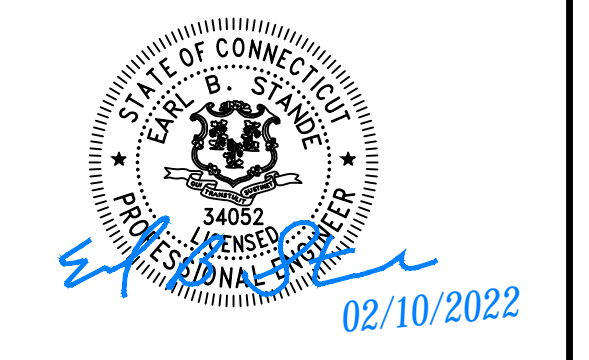


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DRAWN BY: CHECKED BY: APPROVED BY:  
BSP ARM KRK

RFDS REV #: 0

**CONSTRUCTION DOCUMENTS**

SUBMITTALS

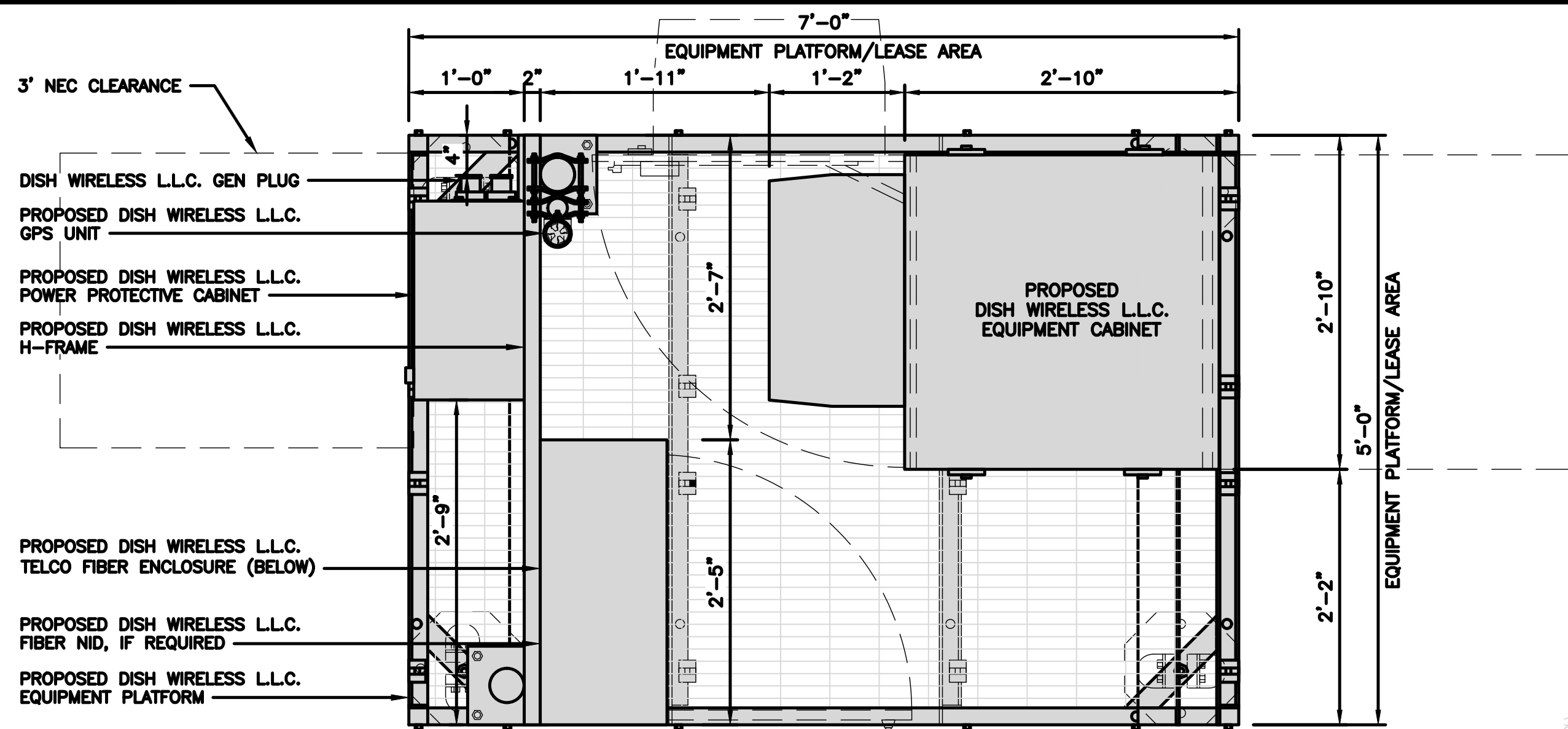
REV	DATE	DESCRIPTION
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A&E PROJECT NUMBER  
EUC0309

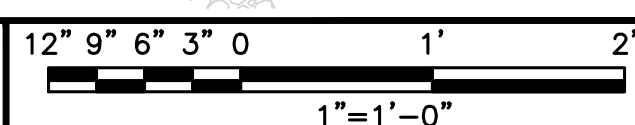
DISH WIRELESS L.L.C. PROJECT INFORMATION  
BOBOS00037A  
53 WESTMINSTER RD  
CANTERBURY, CT 06331

SHEET TITLE  
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER  
**A-2**



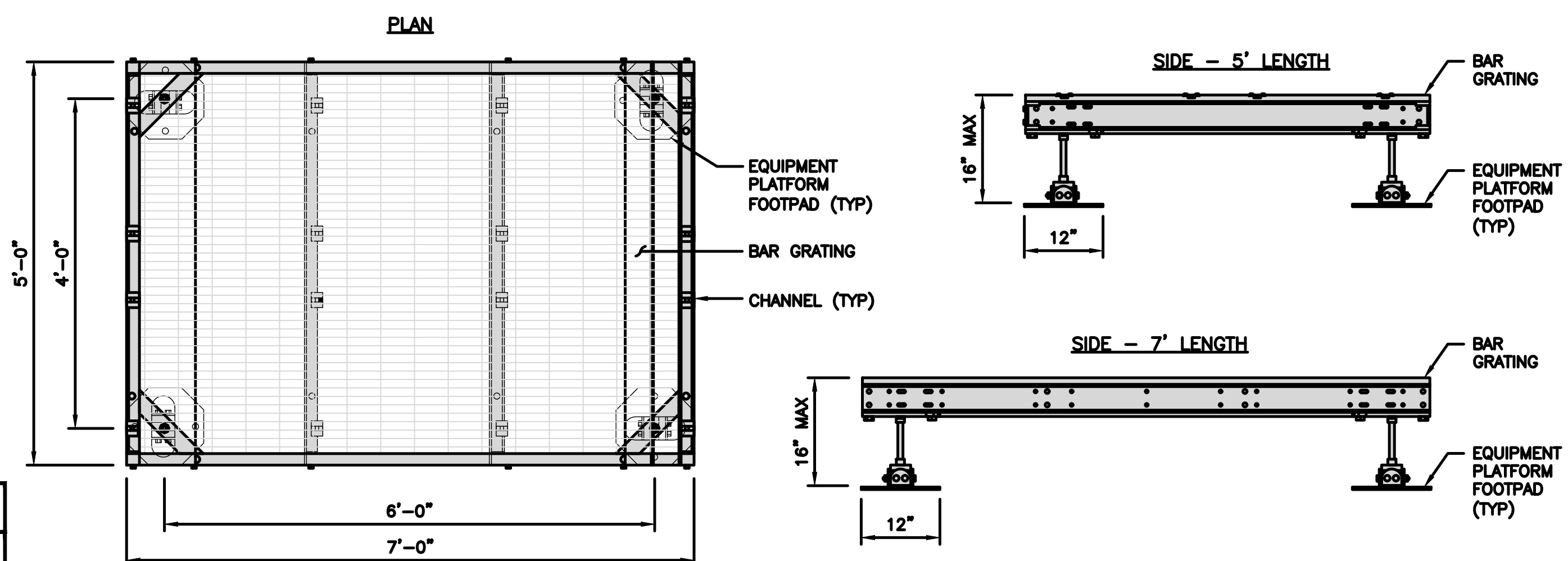
PLATFORM EQUIPMENT PLAN



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.

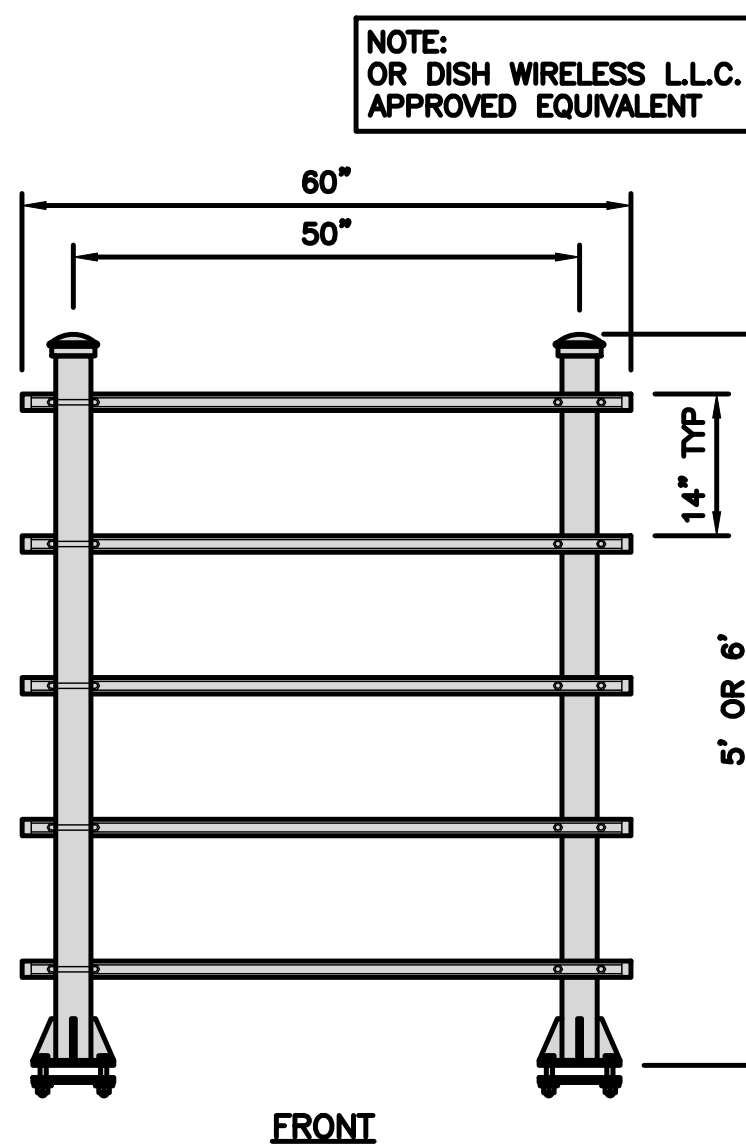
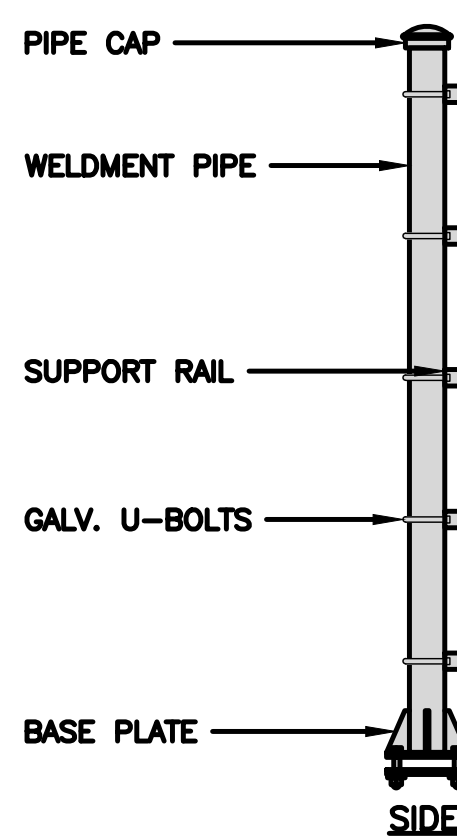
PLATFORM DETAIL

NO SCALE

2

COMMSCOPE MTC4045HFLD  
H-FRAME

UNISTRUT/SUPPORT RAILS QTY	5
WEIGHT	59.74 lbs



H-FRAME DETAIL

NO SCALE

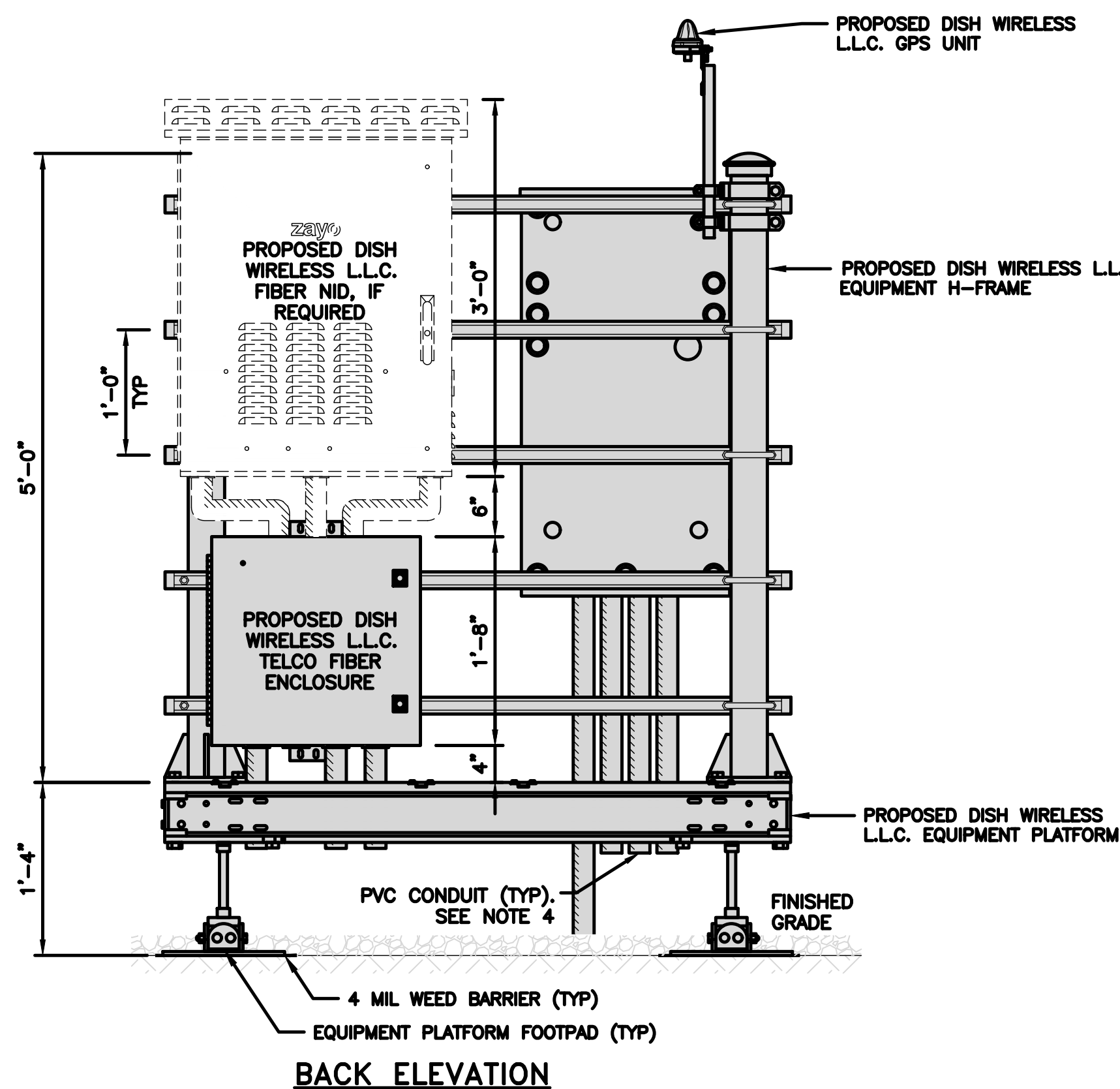
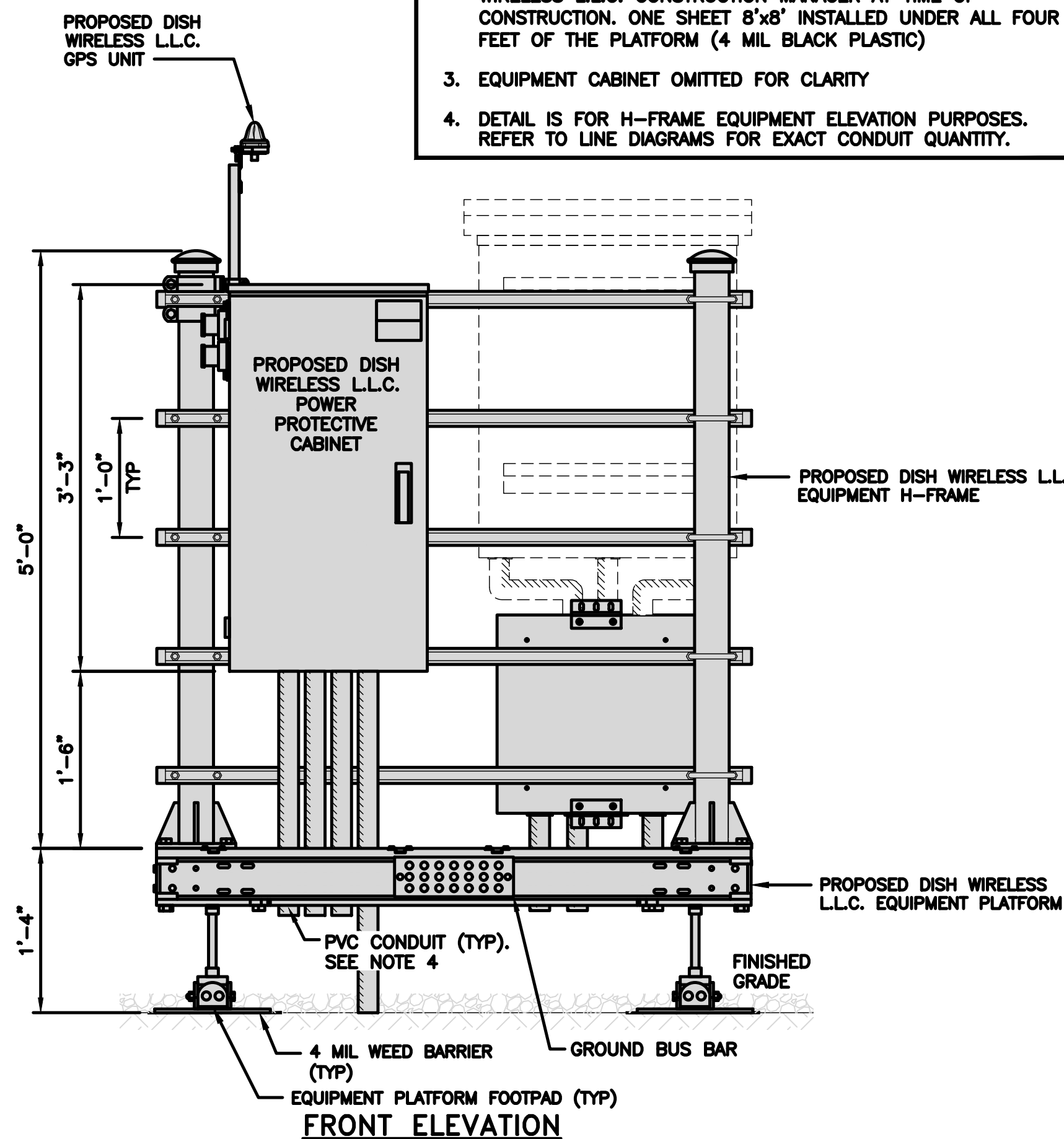
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NOT USED

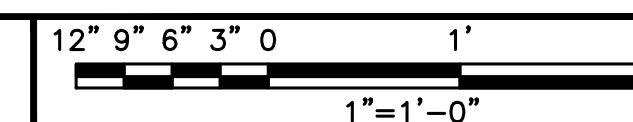
NO SCALE

4

- 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.



H-FRAME EQUIPMENT ELEVATION



5

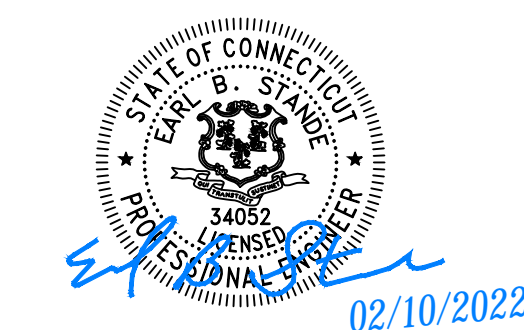


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RFDS REV #: 0

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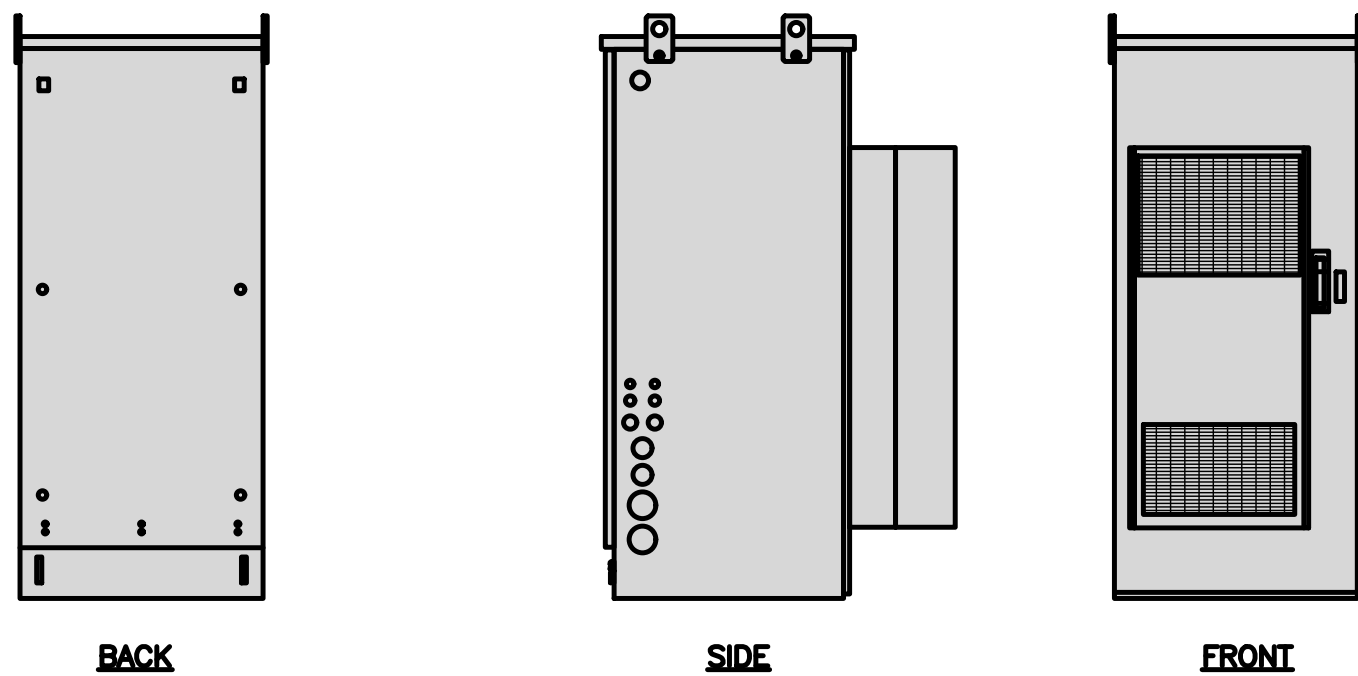
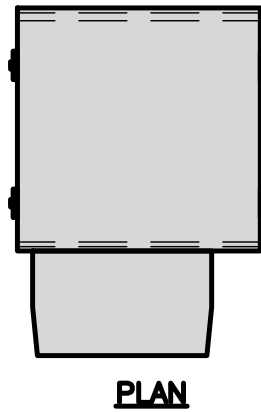
SHEET TITLE  
EQUIPMENT PLATFORM AND  
H-FRAME DETAILS

SHEET NUMBER

A-3



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

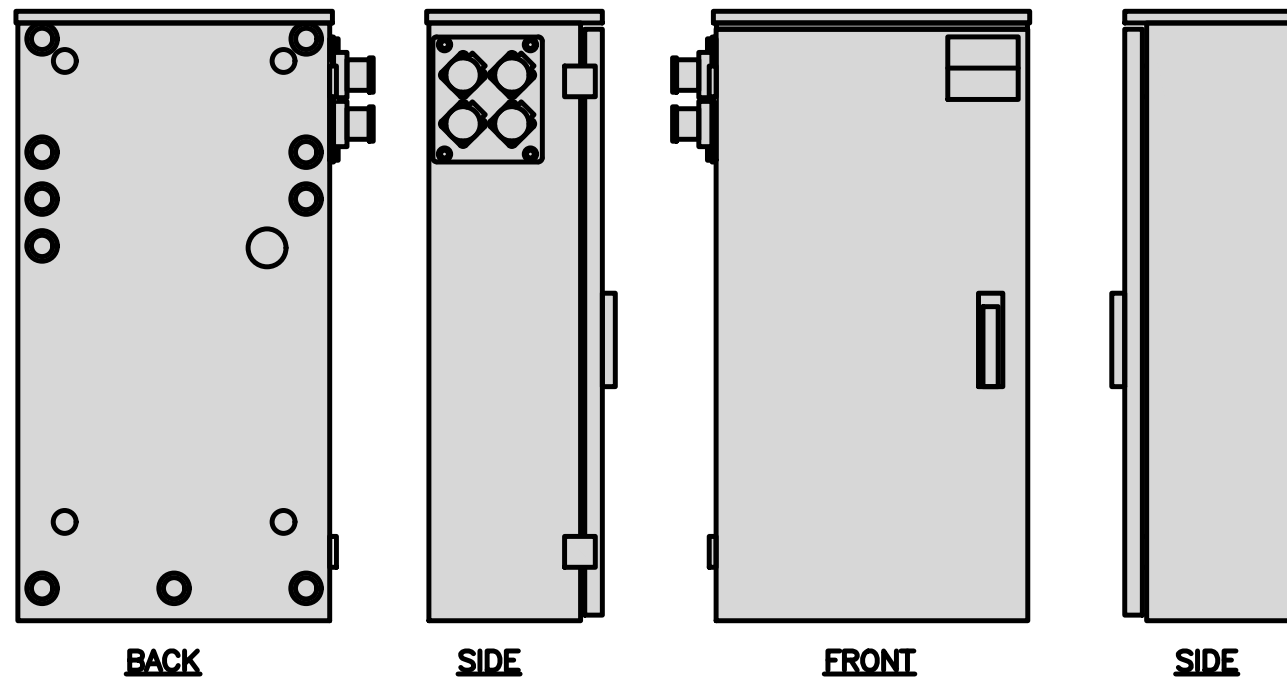
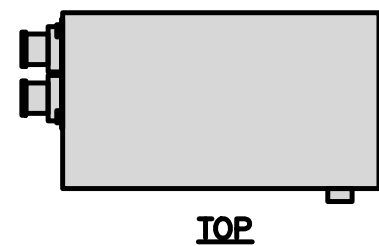


**CABINET DETAIL**

NO SCALE

1

<b>RAYCAP PPC RDIAC-2465-P-240-MTS</b>	
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

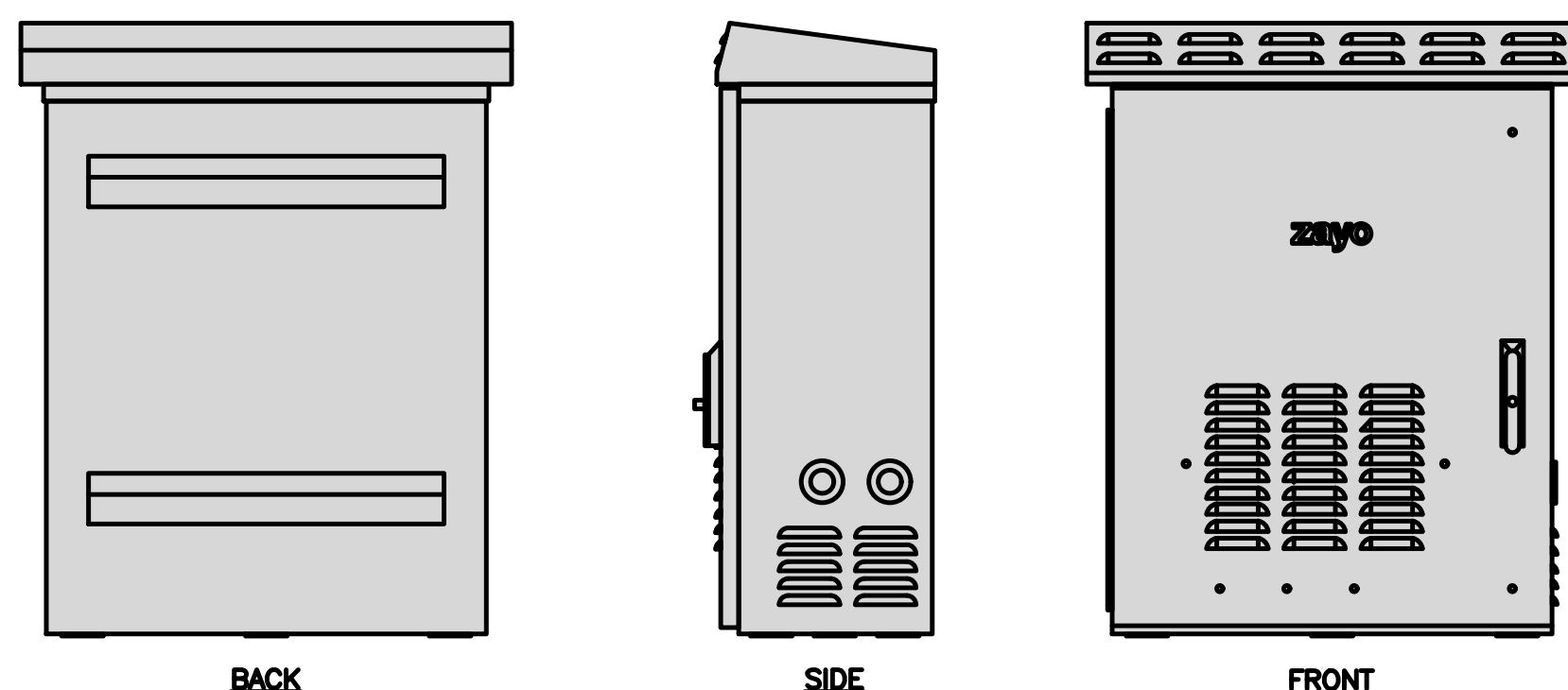
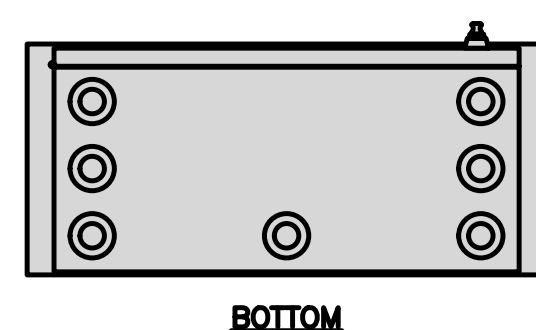
2

**NOT USED**

NO SCALE

3

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



**FIBER NID ENCLOSURE DETAIL**

NO SCALE

5

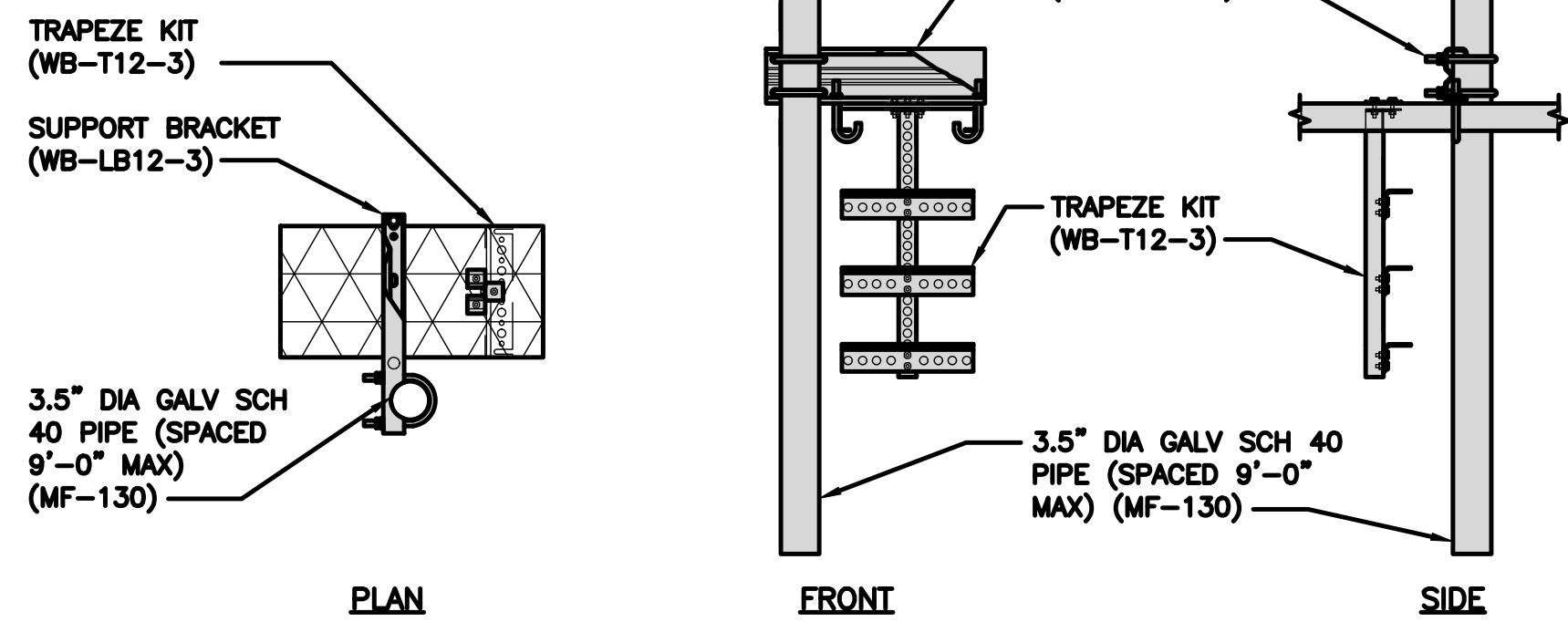
**NOT USED**

NO SCALE

6

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

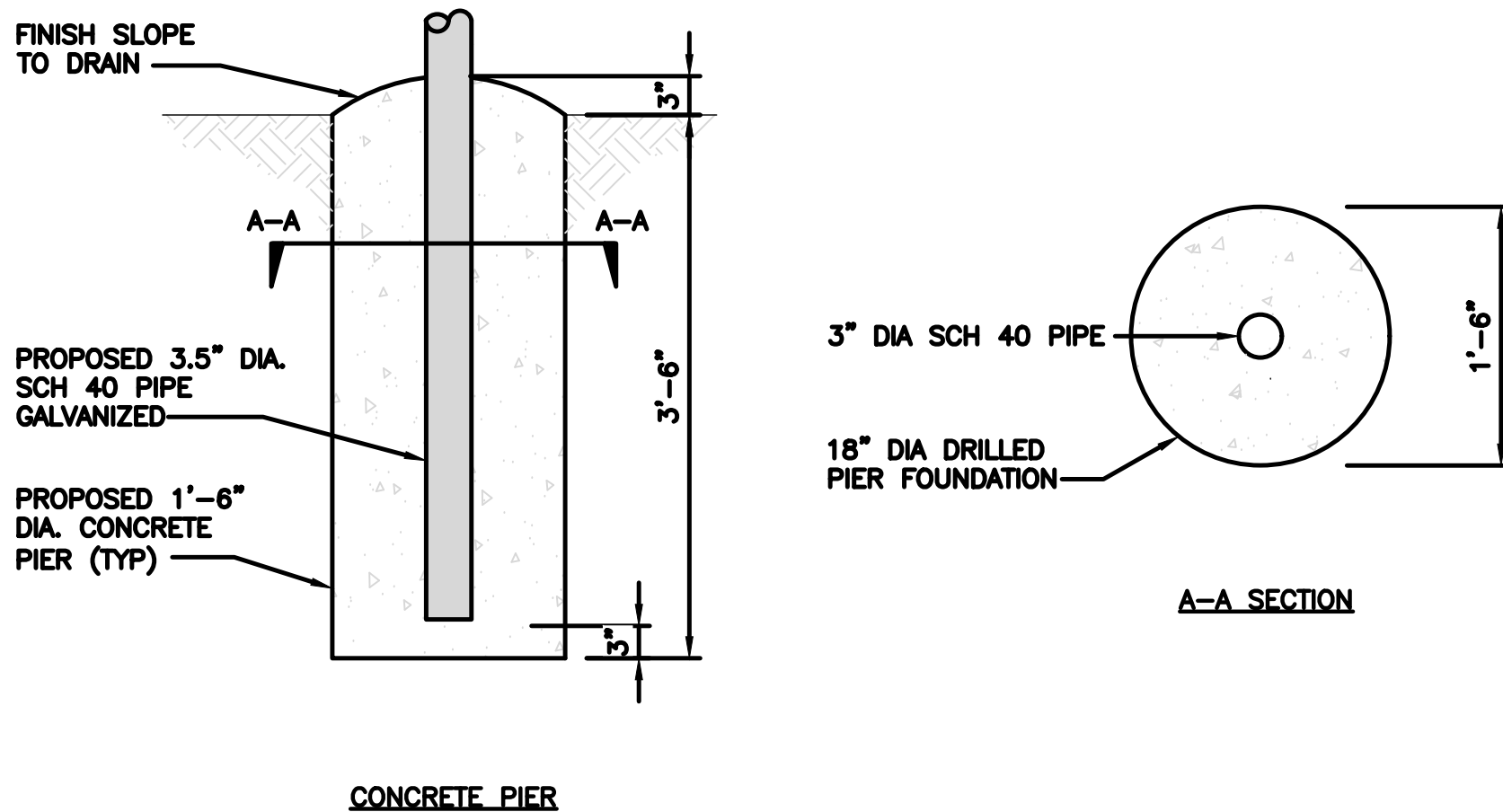
INCLUDED PRODUCTS:	WB-T12-3 TRAPEZE KIT, 3 RUNGS
	WB-LB12-3 SUPPORT BRACKET
	MF-130 DIRECT BURIAL PIPE COLUMN, 13'-4"



**ICE BRIDGE DETAIL**

NO SCALE

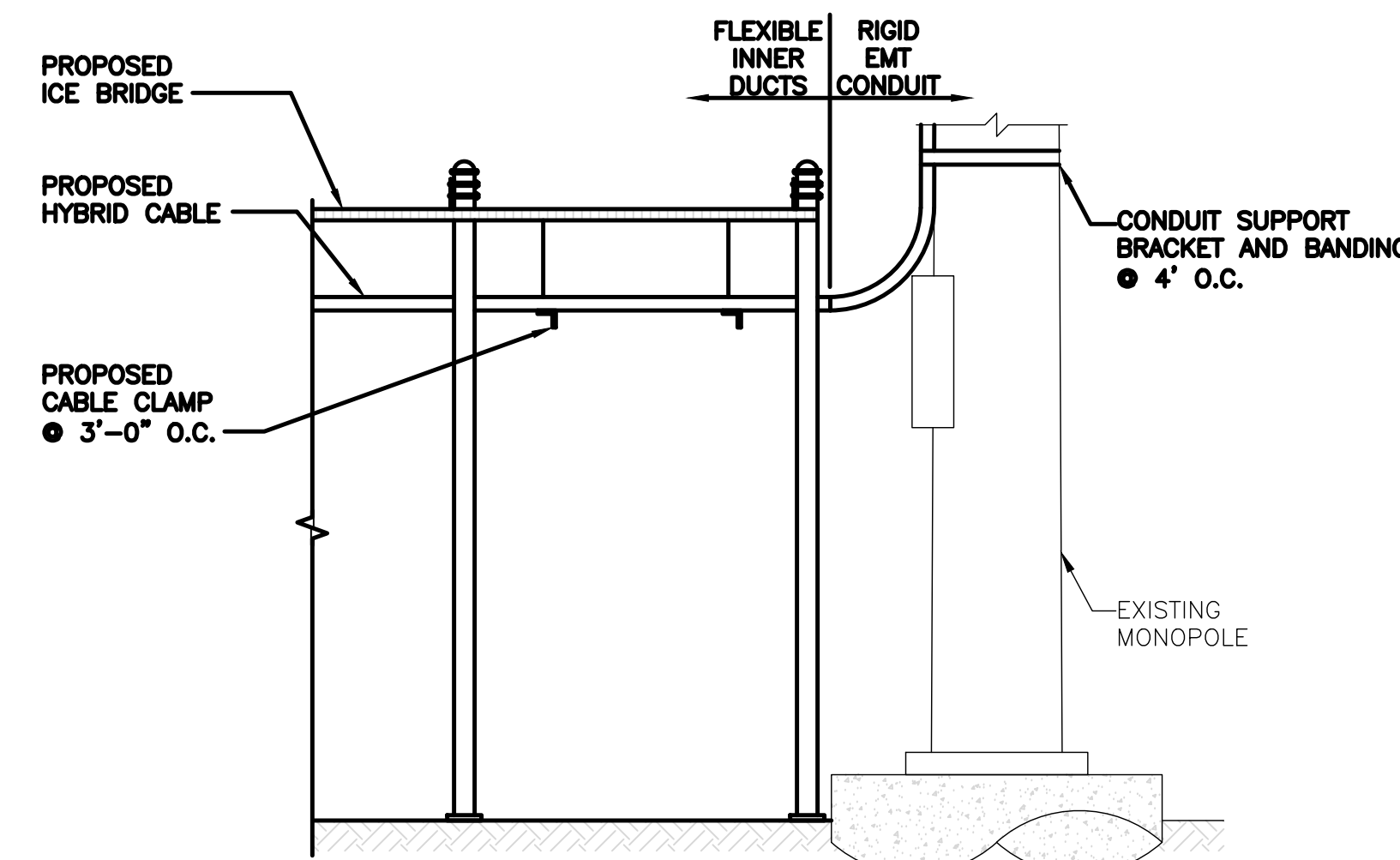
7



**TYPICAL ICE BRIDGE CONCRETE PIER DETAIL**

NO SCALE

8



**HYBRID CABLE RUN**

NO SCALE

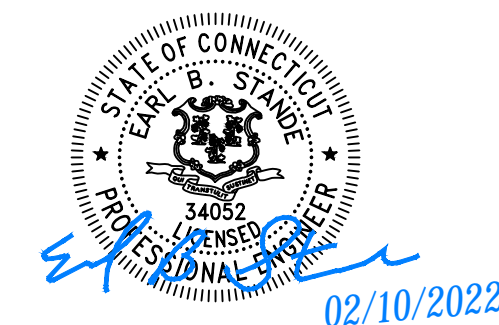
9



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CHECKED BY: ARM  
APPROVED BY: KRK

RFDS REV #: 0

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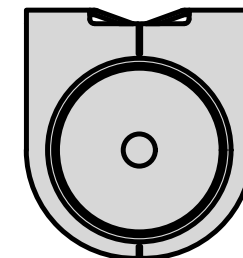
A&E PROJECT NUMBER  
EUC0309

DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
BOBOS00037A  
53 WESTMINSTER RD  
CANTERBURY, CT 06331

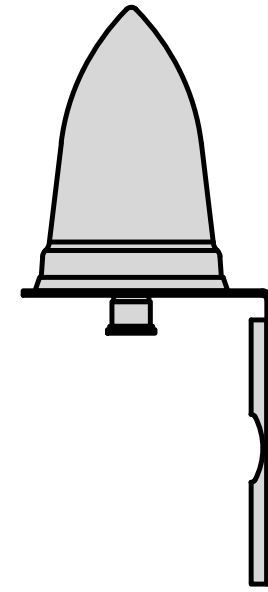
SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER  
**A-4**

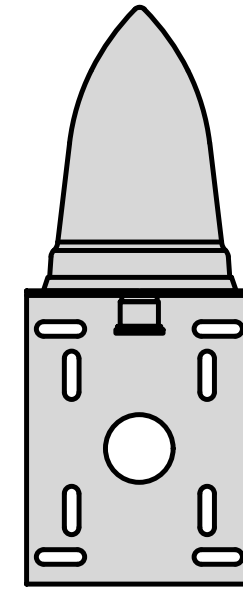
<b>PCTEL GPSGL-TMG-SPI-40NCB</b>	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



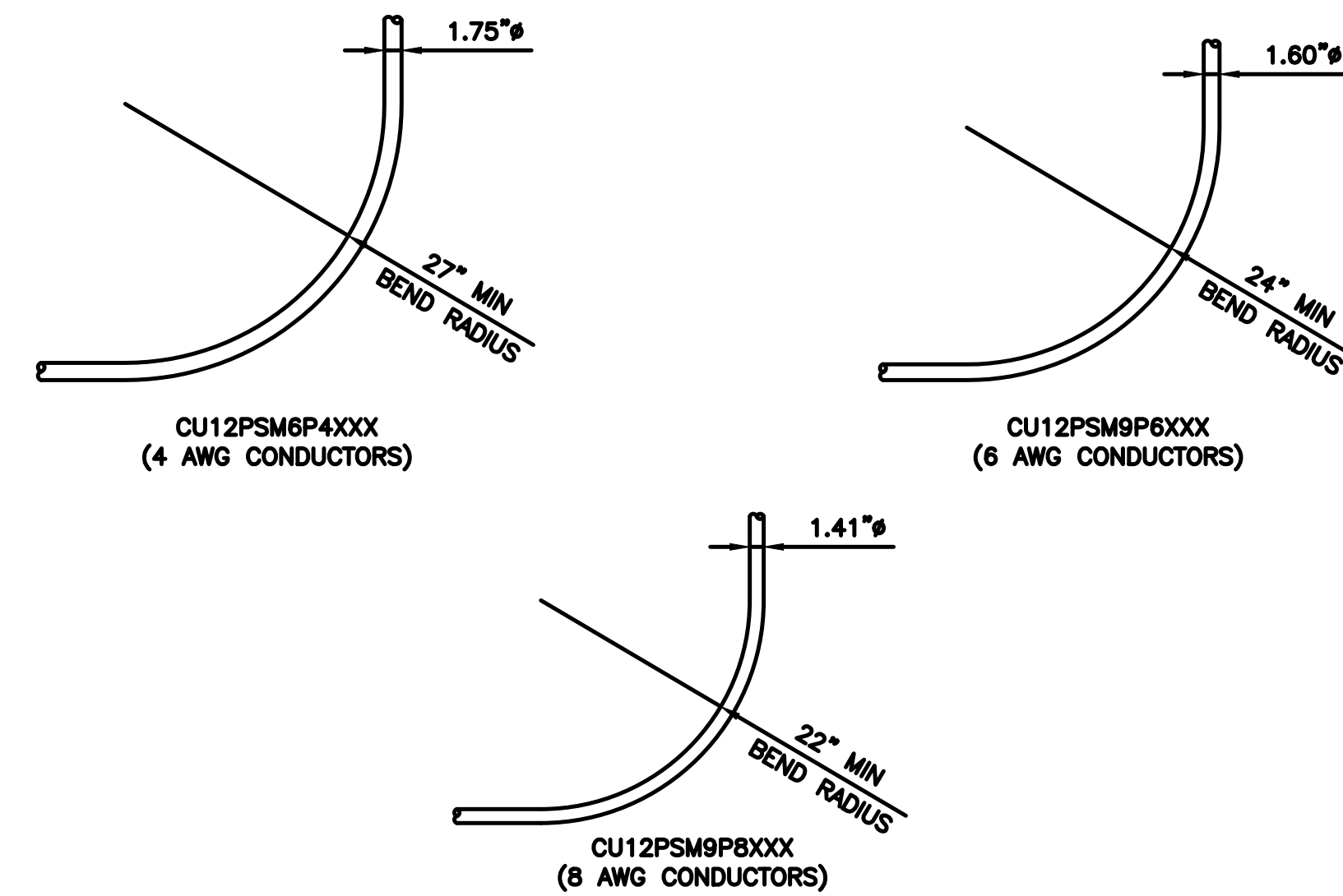
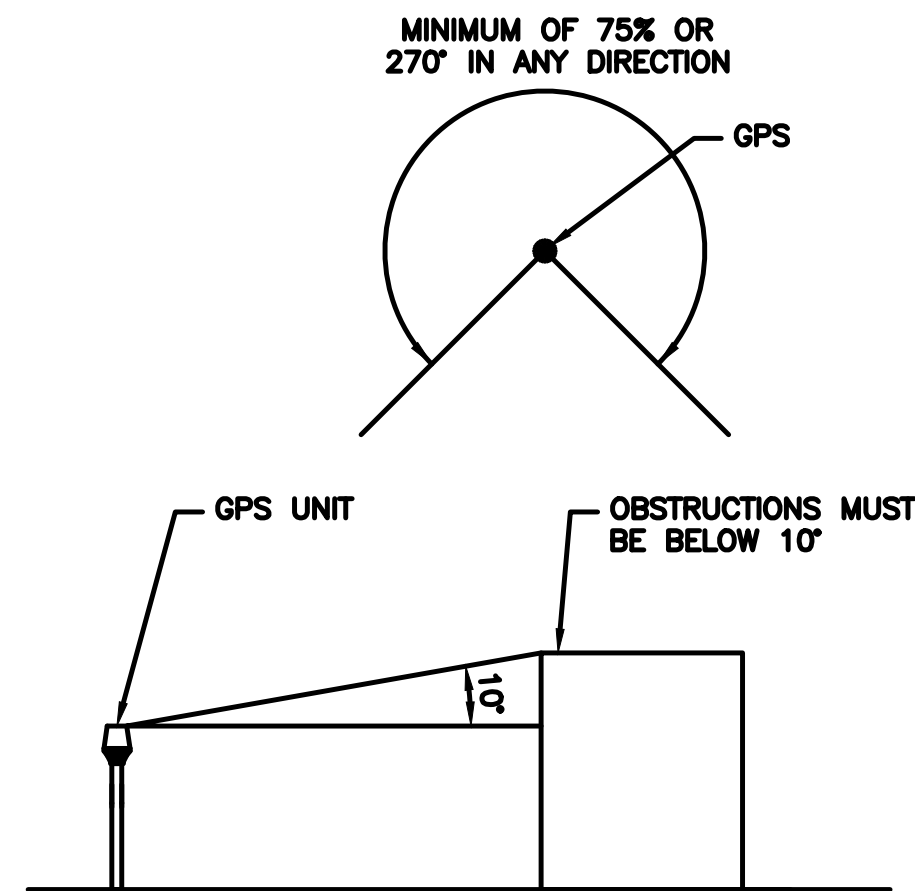
TOP



BACK



SIDE



GPS DETAIL

NO SCALE

1

GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE

2

CABLES UNLIMITED HYBRID CABLE  
MINIMUM BEND RADIUSES

NO SCALE

3

NOT USED

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9

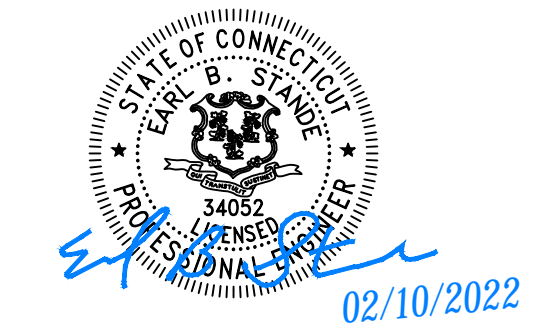
**dish**  
wireless.

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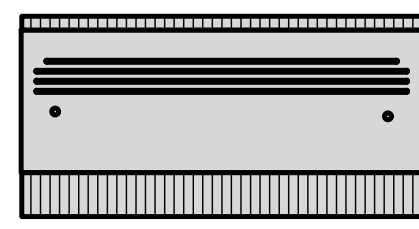
DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
  
BOBOS00037A  
53 WESTMINSTER RD  
CANTERBURY, CT 06331

SHEET TITLE  
EQUIPMENT DETAILS

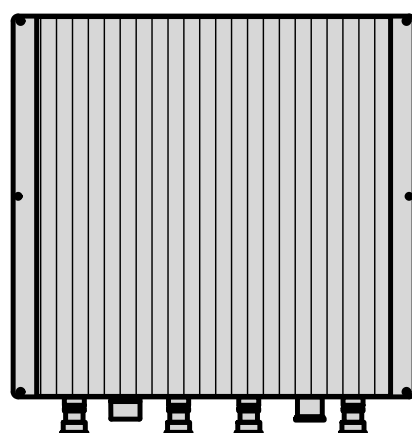
SHEET NUMBER

**A-5**

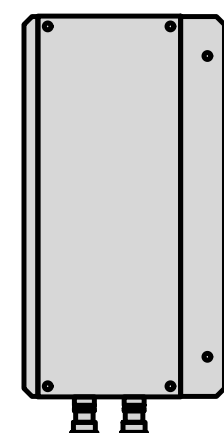
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



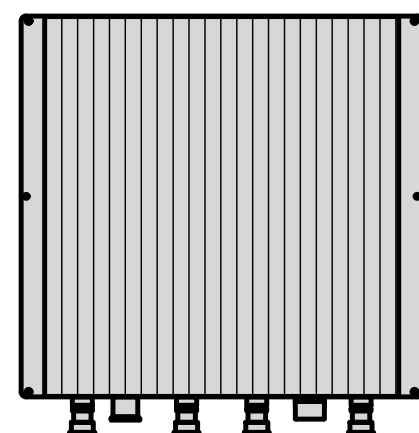
PLAN



BACK

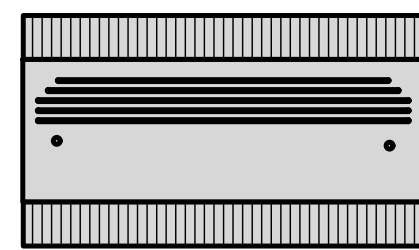


SIDE

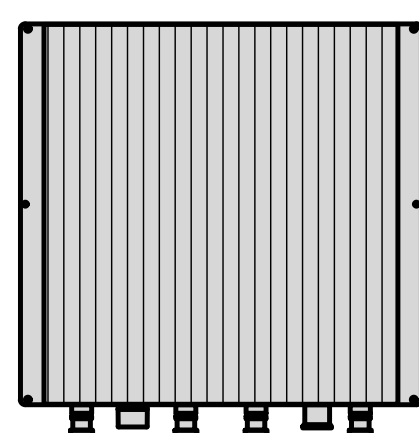


FRONT

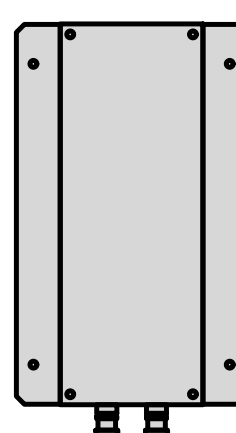
FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



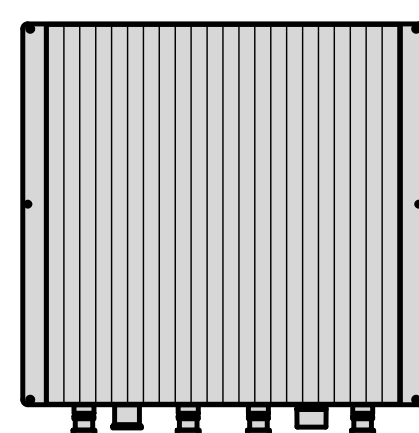
PLAN



BACK

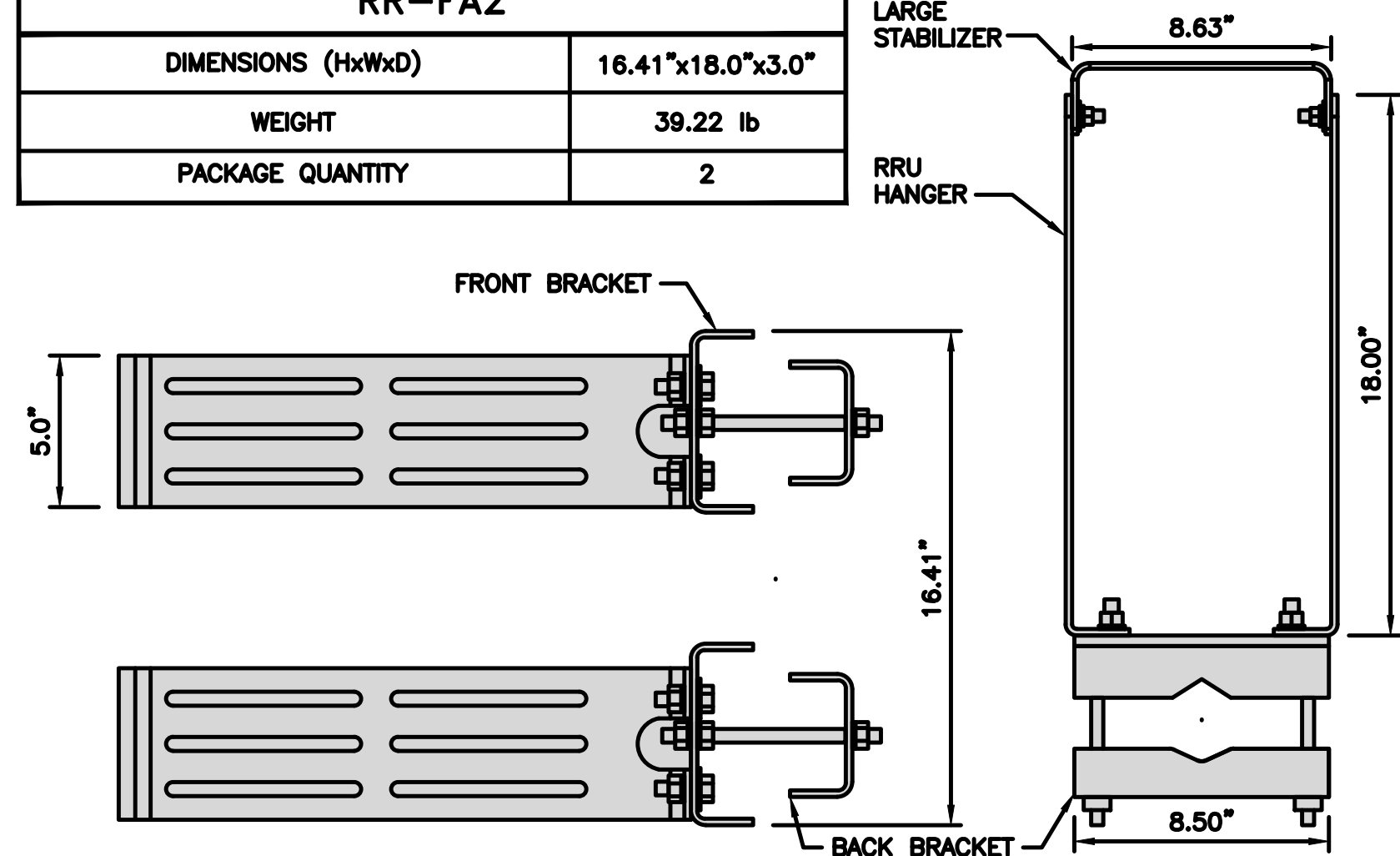


SIDE



FRONT

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



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

REMOTE RADIO HEAD DETAIL (RRH)

NO SCALE

1

REMOTE RADIO HEAD DETAIL (RRH)

NO SCALE

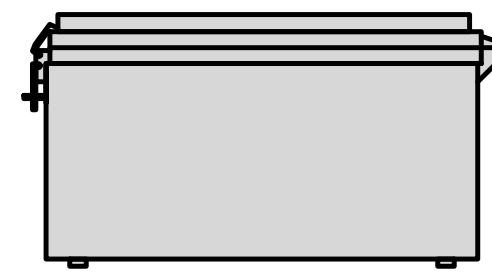
2

REMOTE RADIO MOUNT DETAIL

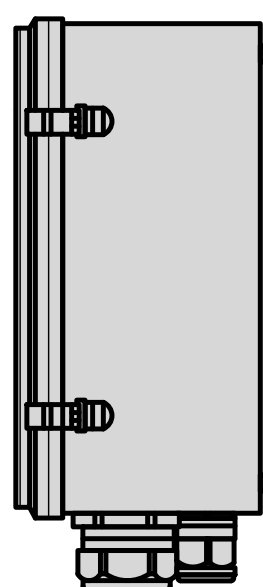
NO SCALE

3

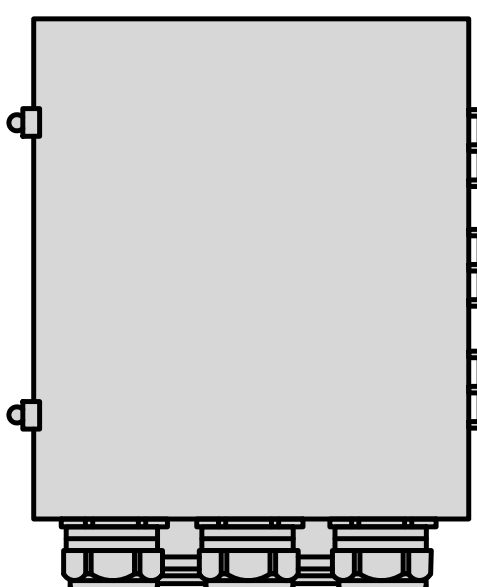
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



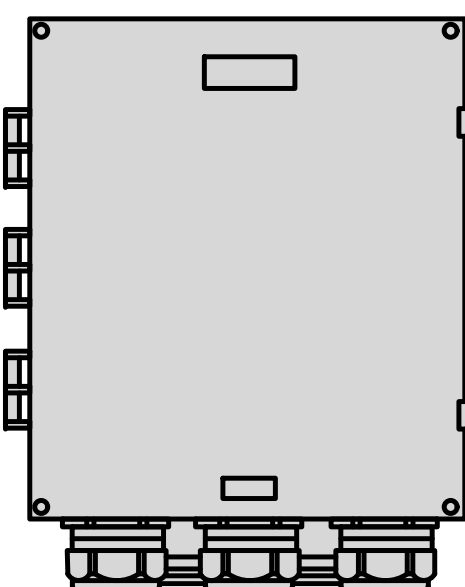
PLAN



SIDE

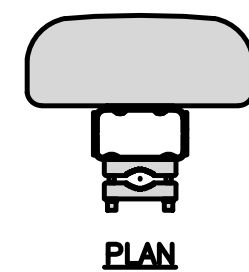


BACK

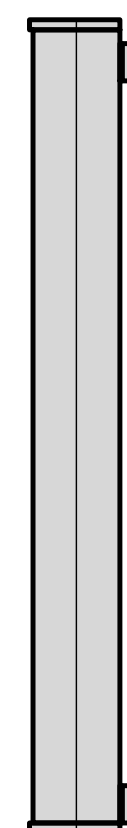


FRONT

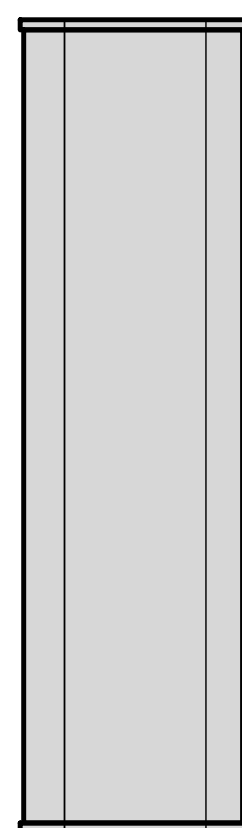
JMA MX08FRO665-21	
DIMENSIONS (HxWxD)	72"x20.0"x8.0"
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE
WEIGHT	64.5 lbs
WEIGHT WITH BRACKETS	82.5 lbs



PLAN



SIDE



FRONT

SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

4

ANTENNA DETAIL

NO SCALE

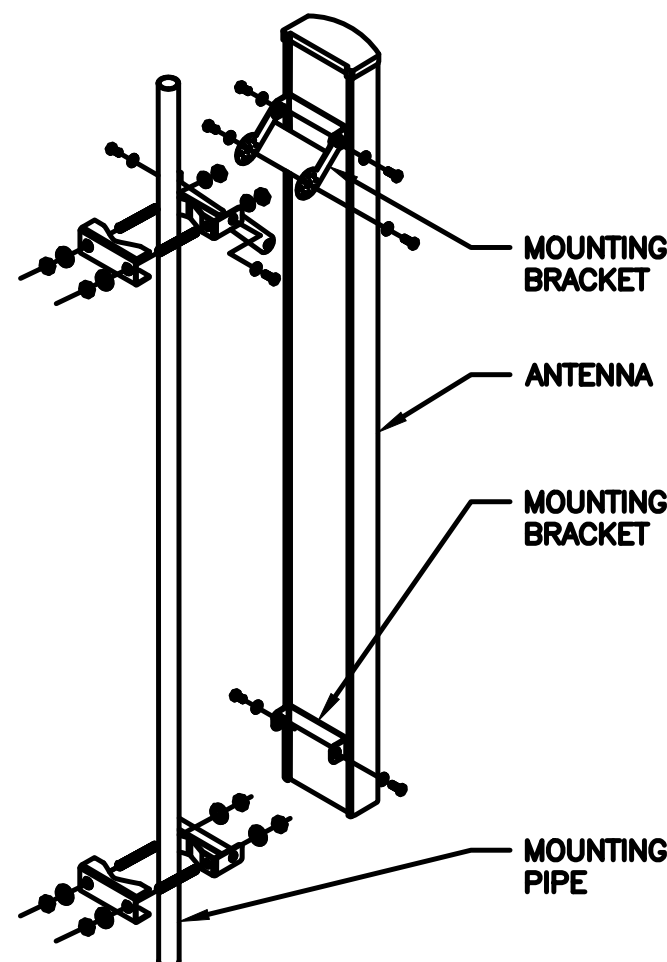
5

NOT USED

NO SCALE

6

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



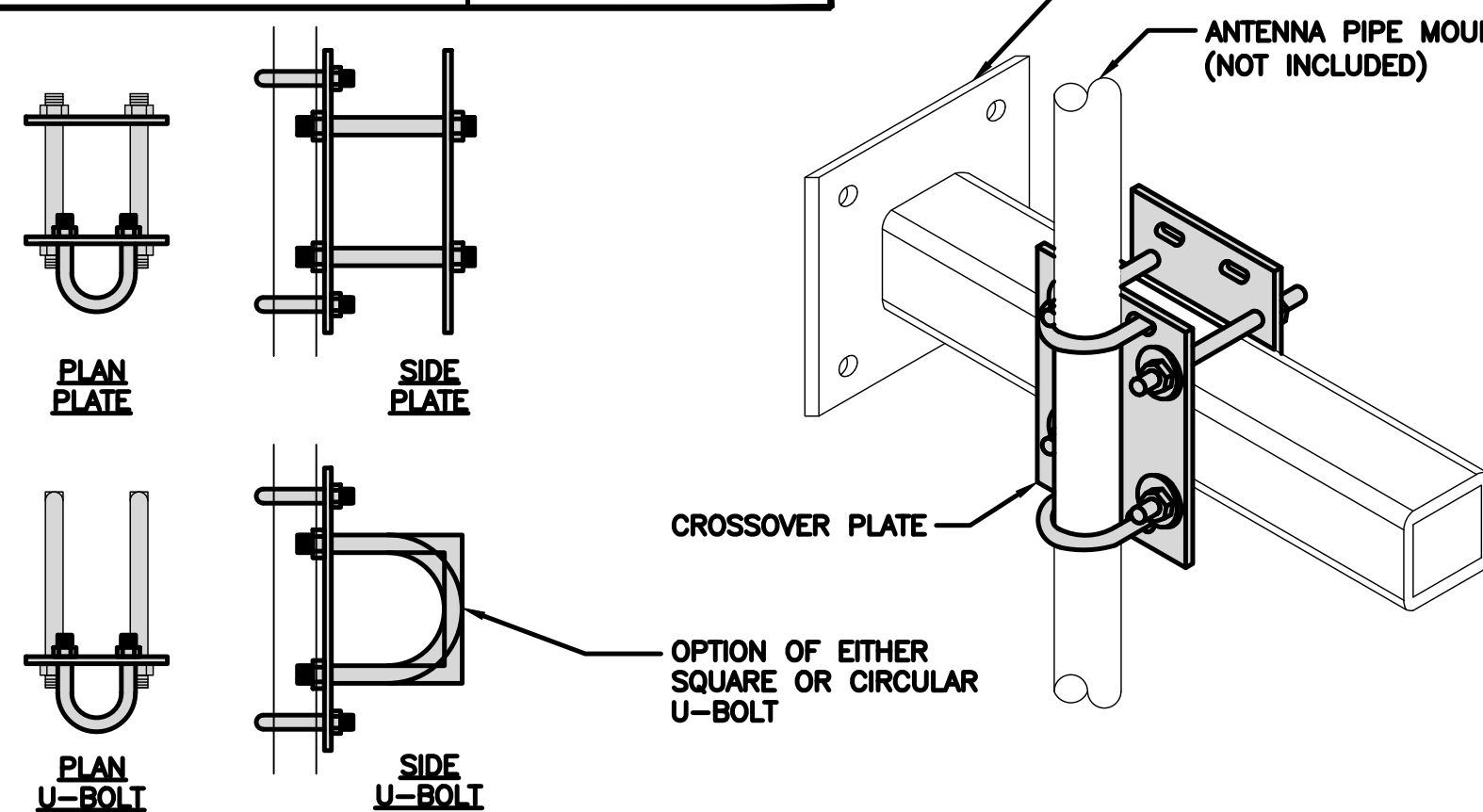
NOTE:  
OR DISH WIRELESS L.L.C.  
APPROVED EQUIVALENT

ANTENNA MOUNTING DETAIL

NO SCALE

7

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



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

PLAN  
PLATE

SIDE  
PLATE

PLAN  
U-BOLT

SIDE  
U-BOLT

CROSSOVER PLATE

OPTION OF EITHER  
SQUARE OR CIRCULAR  
U-BOLT

ANTENNA PLATFORM  
(NOT INCLUDED)

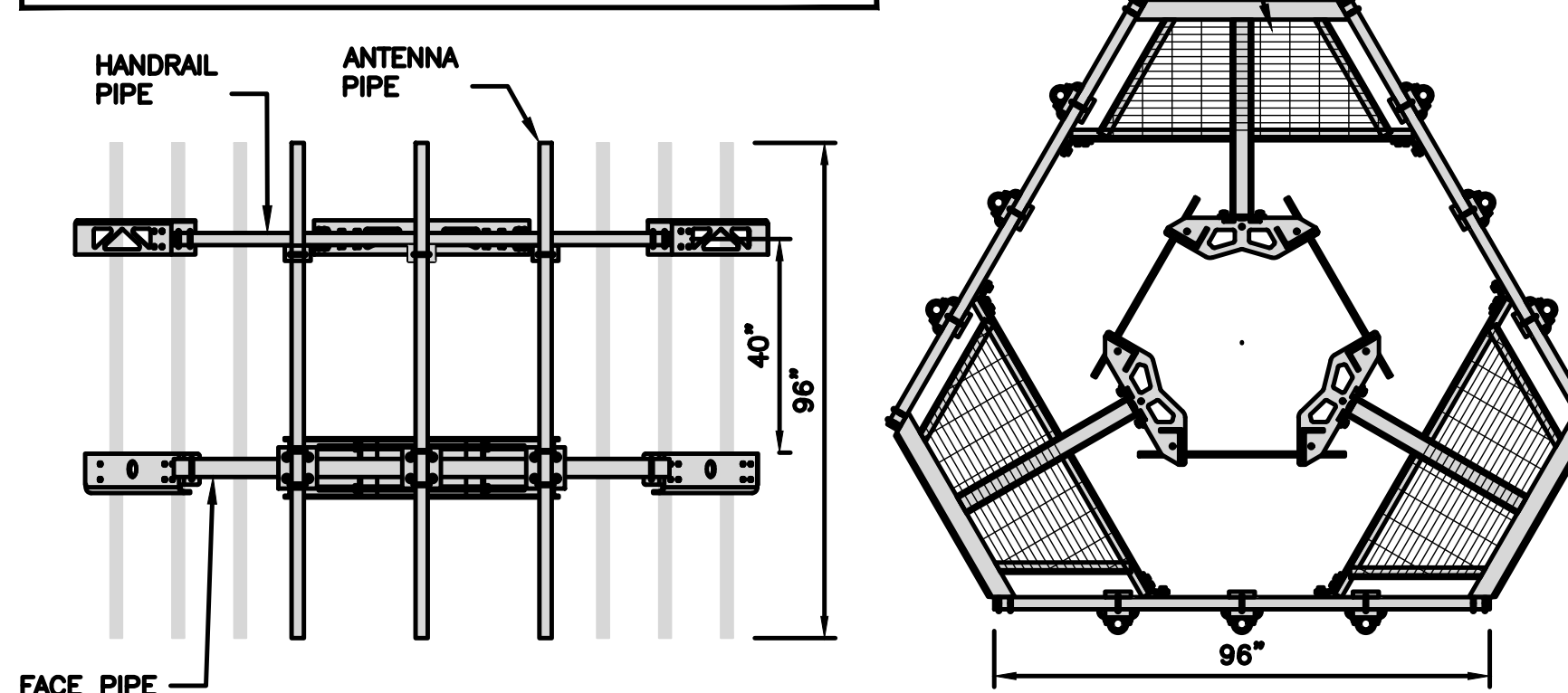
ANTENNA PIPE MOUNT  
(NOT INCLUDED)

RRH/OVP MOUNT DETAIL

NO SCALE

8

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



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

ANTENNA PLATFORM DETAIL

NO SCALE

9

**dish**  
wireless.

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RFDS REV #: 0

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PROJECT INFORMATION

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53 WESTMINSTER RD  
CANTERBURY, CT 06331

SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER

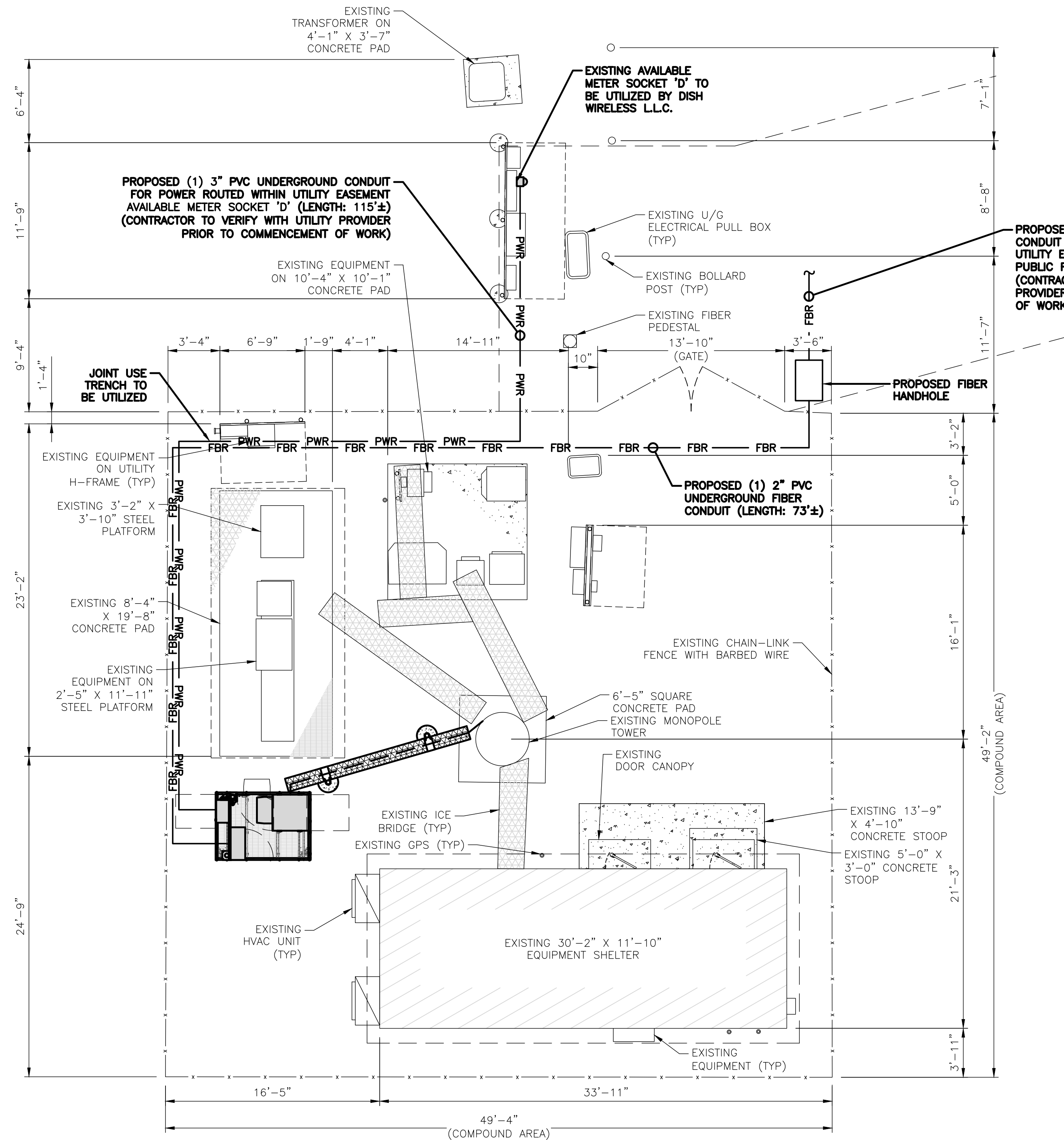
**A-6**

**ROW NOTE**

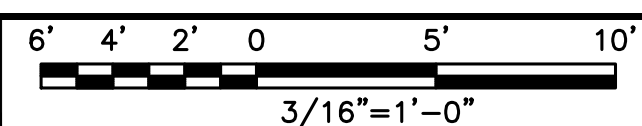
NO WORK WITHIN THIS PERMIT APPLICATION SHALL BE PERFORMED WITHIN THE PUBLIC ROW. UTILITY WORK WITHIN THE PUBLIC ROW SHALL BE THE RESPONSIBILITY OF THE UTILITY PROVIDER AND REQUIRES A SEPARATE PERMIT.

**NOTES**

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



**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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BSP ARM KRK

RFDS REV #: 0

**CONSTRUCTION DOCUMENTS**

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A&E PROJECT NUMBER  
EUC0309

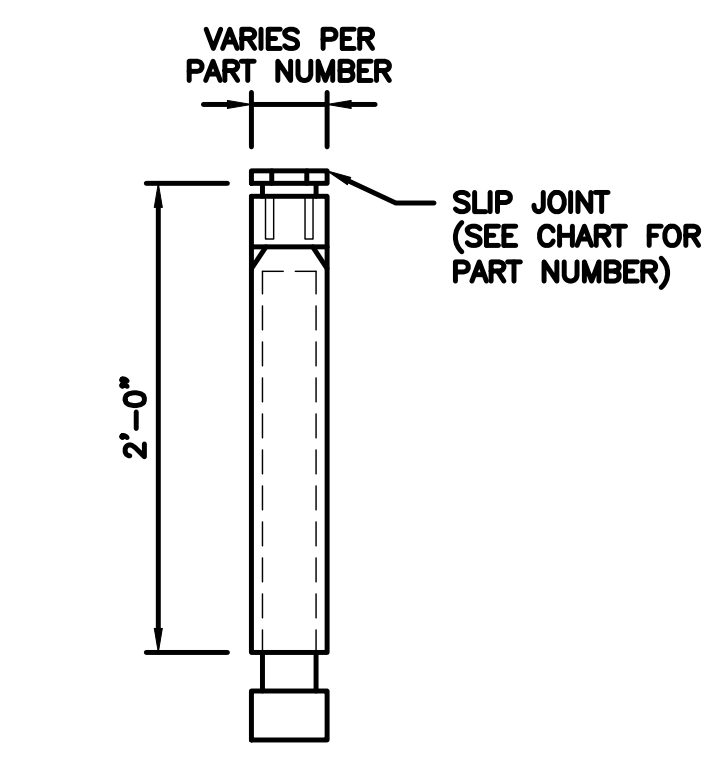
DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
  
BOBOS00037A  
53 WESTMINSTER RD  
CANTERBURY, CT 06331

SHEET TITLE  
ELECTRICAL/FIBER ROUTE  
PLAN AND NOTES

SHEET NUMBER

**E-1**

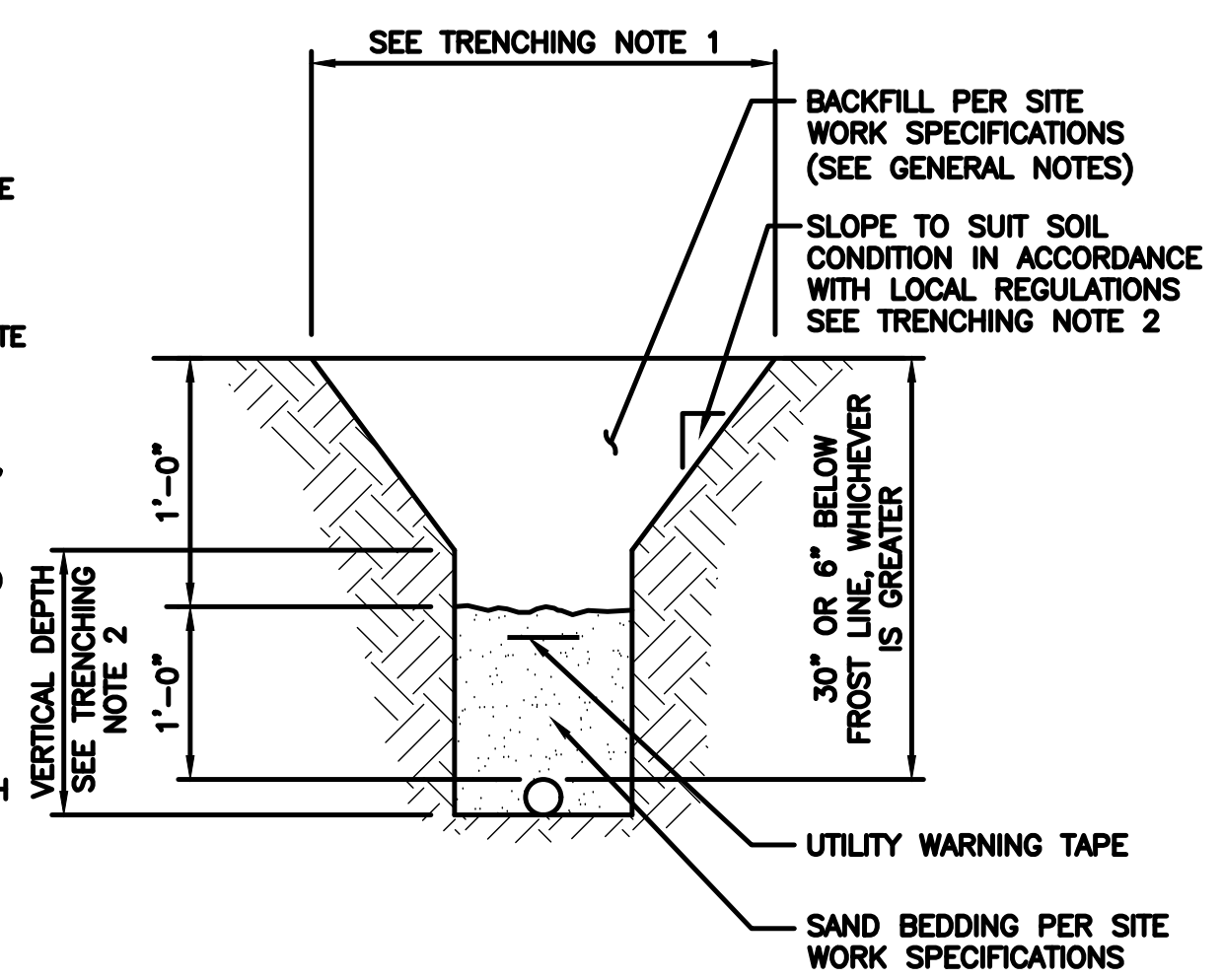
CARLON EXPANSION FITTINGS				
COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"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



EXPANSION JOINT DETAIL

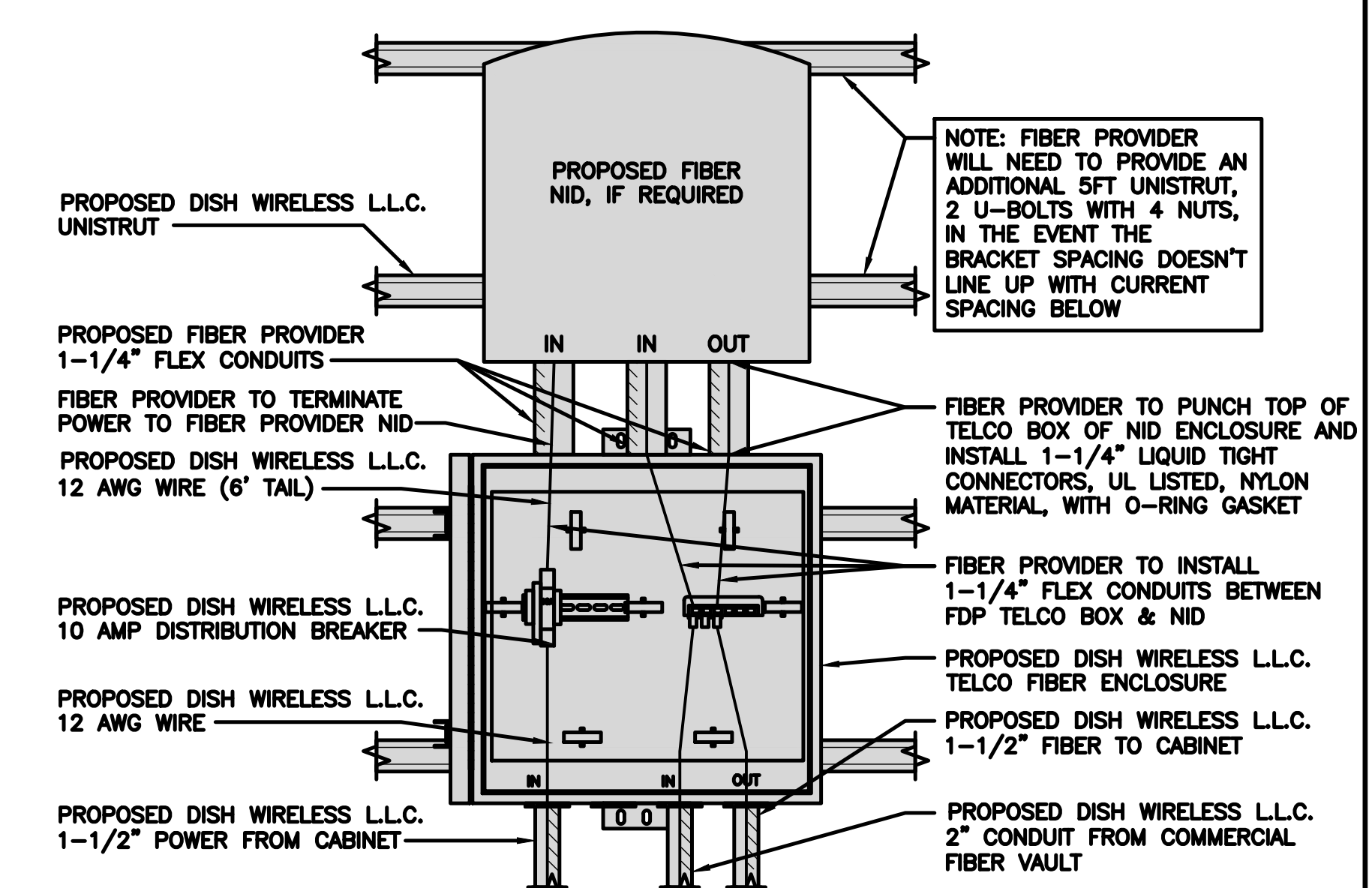
NO SCALE 1

TYPICAL UNDERGROUND TRENCH DETAIL

NO SCALE 2

NOT USED

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

NOT USED

NO SCALE 8

NOT USED

NO SCALE 9



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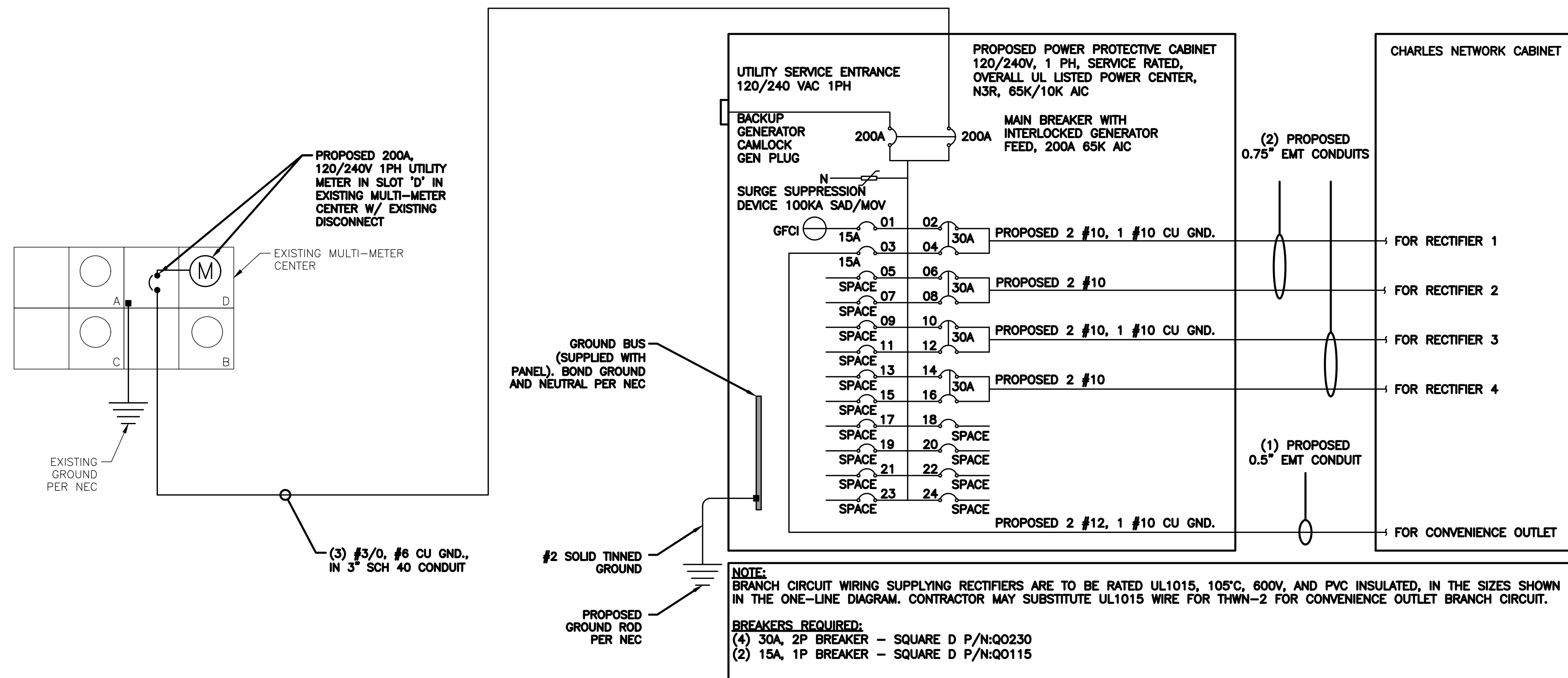
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SHEET TITLE  
ELECTRICAL  
DETAILS

SHEET NUMBER

**E-2**



PPC ONE-LINE DIAGRAM

NO SCALE

1

PROPOSED PPC PANEL SCHEDULE FOR CHARLES 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	30A	2880	2880	ABB/GE INFINITY RECTIFIER 1
CHARLES GFCI OUTLET			15A	3	B	4	30A	2880	2880	ABB/GE INFINITY RECTIFIER 1
-SPACE-				5	A	6	30A	2880	2880	ABB/GE INFINITY RECTIFIER 2
-SPACE-				7	B	8	30A	2880	2880	ABB/GE INFINITY RECTIFIER 2
-SPACE-				9	A	10	30A	2880	2880	ABB/GE INFINITY RECTIFIER 3
-SPACE-				11	B	12	30A	2880	2880	ABB/GE INFINITY RECTIFIER 3
-SPACE-				13	A	14	30A	2880	2880	ABB/GE INFINITY RECTIFIER 4
-SPACE-				15	B	16	30A	2880	2880	ABB/GE INFINITY RECTIFIER 4
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
<b>VOLTAGE AMPS</b>	180	180						11520	11520	
200A MCB, 1φ, 24 SPACE, 120/240V				L1	L2					
MB RATING: 65,000 AIC				11700	11700					VOLTAGE AMPS
				98	98					AMPS
										MAX AMPS
										MAX 125%

PANEL SCHEDULE

NO SCALE

2

NOT USED

NO SCALE

3

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.

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

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

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

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

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

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

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

RECTIFIER CONDUCTORS (2 CONDUITS): USING UL1015, CU.

- #10 - 0.0266 SQ. IN X 4 = 0.1064 SQ. IN
- #10 - 0.0082 SQ. IN X 1 = 0.0082 SQ. IN <BARE GROUND
- TOTAL = 0.1146 SQ. IN

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

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

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

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

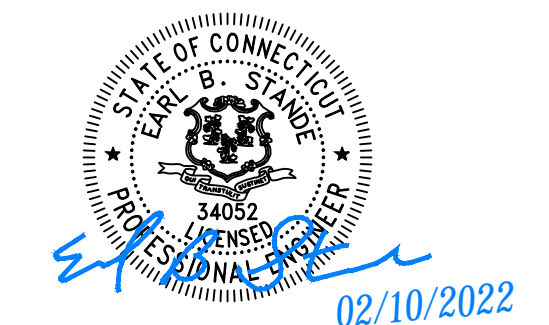


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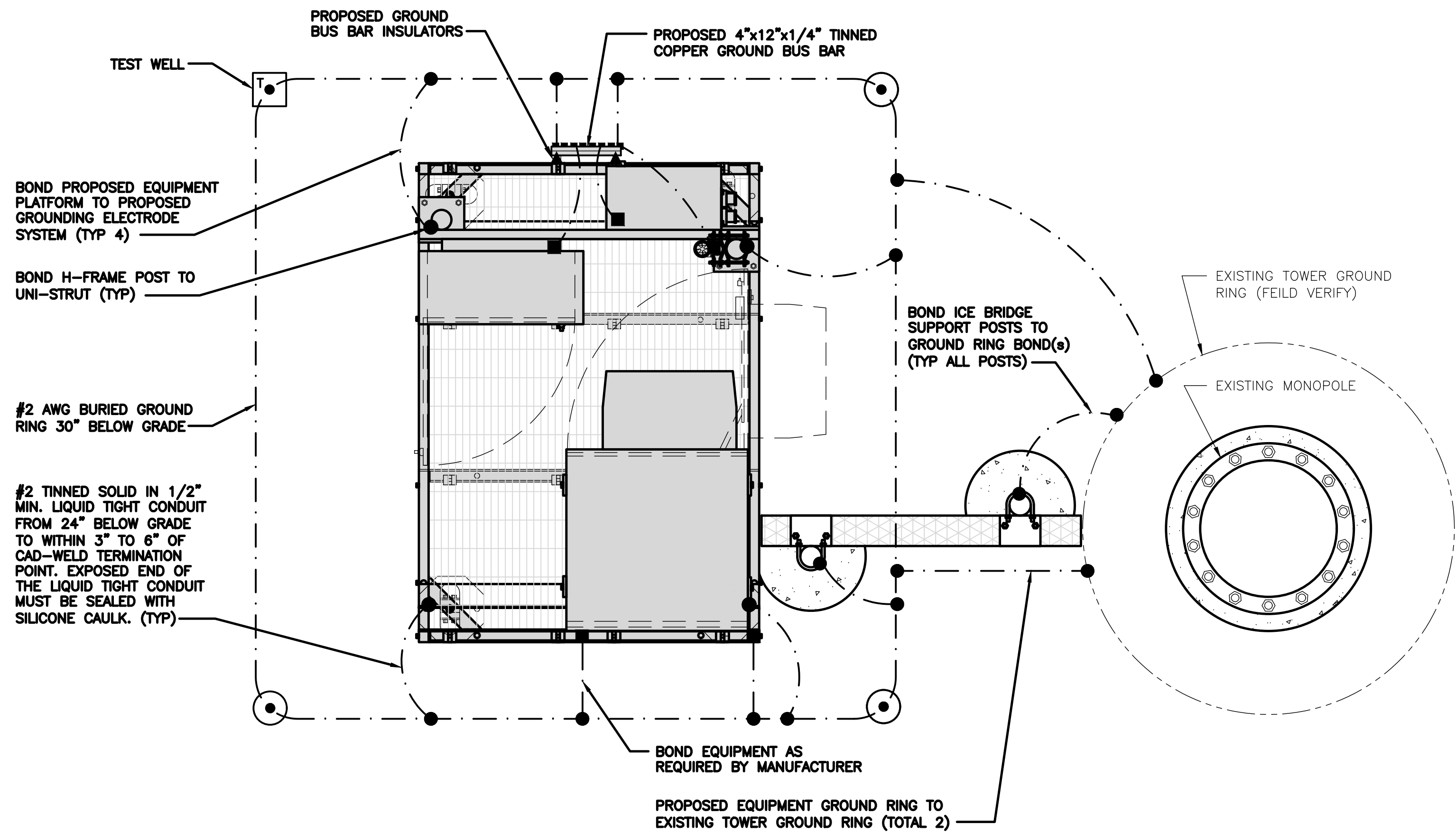
A&E PROJECT NUMBER  
EUCC0309

DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
BOBOS00037A  
53 WESTMINSTER RD  
CANTERBURY, CT 06331

SHEET TITLE  
ELECTRICAL ONE-LINE  
& PANEL SCHEDULE

SHEET NUMBER

E-3



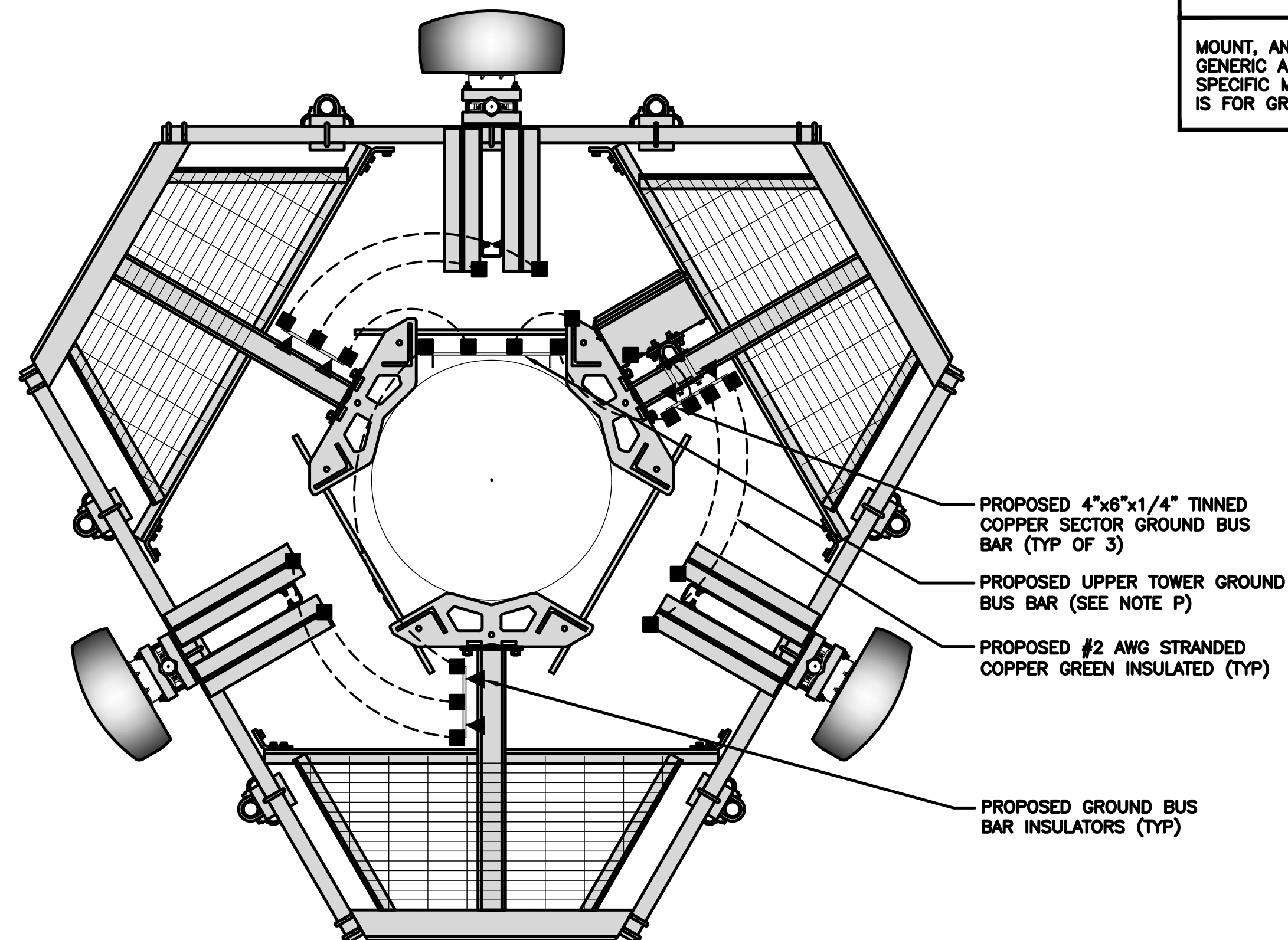
TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE

1

NOTES

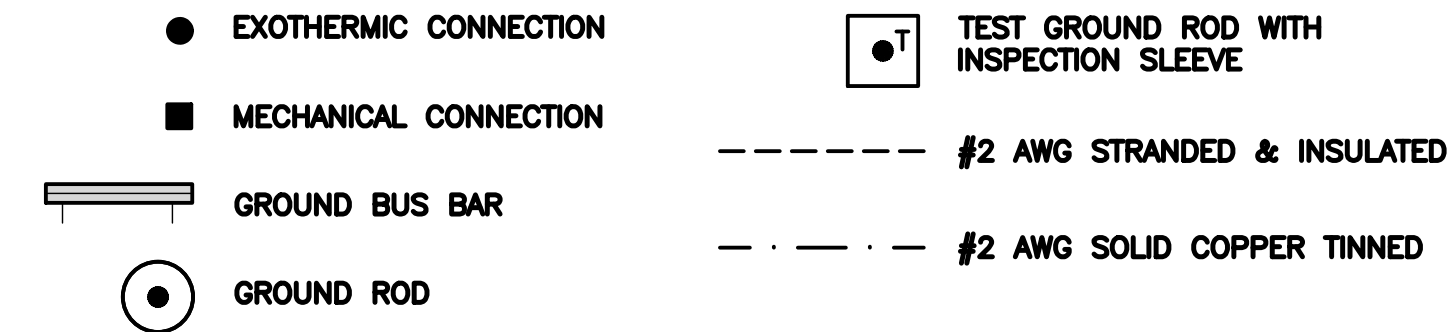
MOUNT, ANTENNAS AND OVP SHOWN ARE GENERIC AND NOT REFERENCING TO A SPECIFIC MANUFACTURER. THIS LAYOUT IS FOR GROUNDING REFERENCE ONLY.



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE

2



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

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

GROUNDING KEY NOTES

NO SCALE

3

dish wireless.

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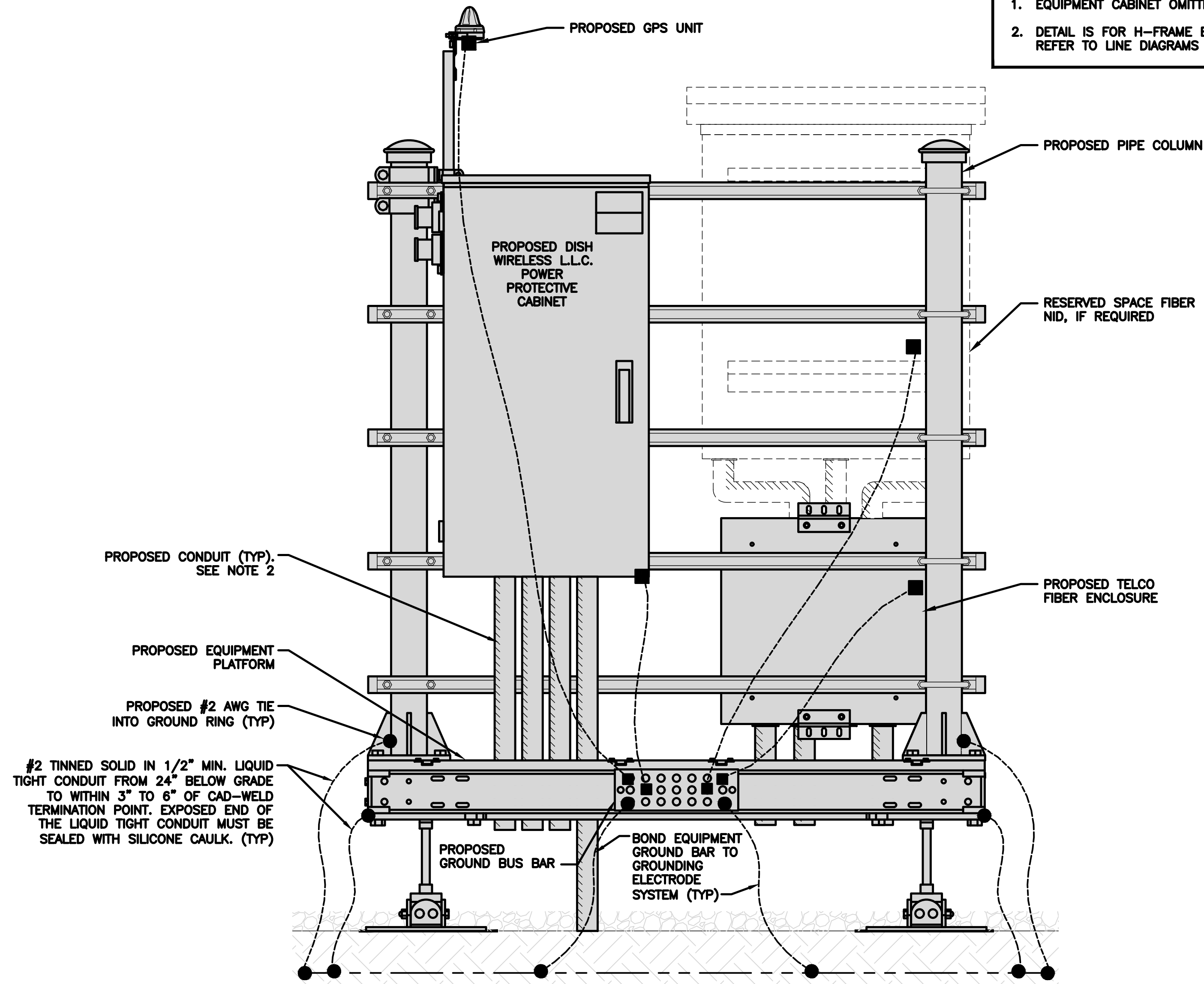
SHEET TITLE  
GROUNDING PLANS  
AND NOTES

SHEET NUMBER

G-1

**NOTES**

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



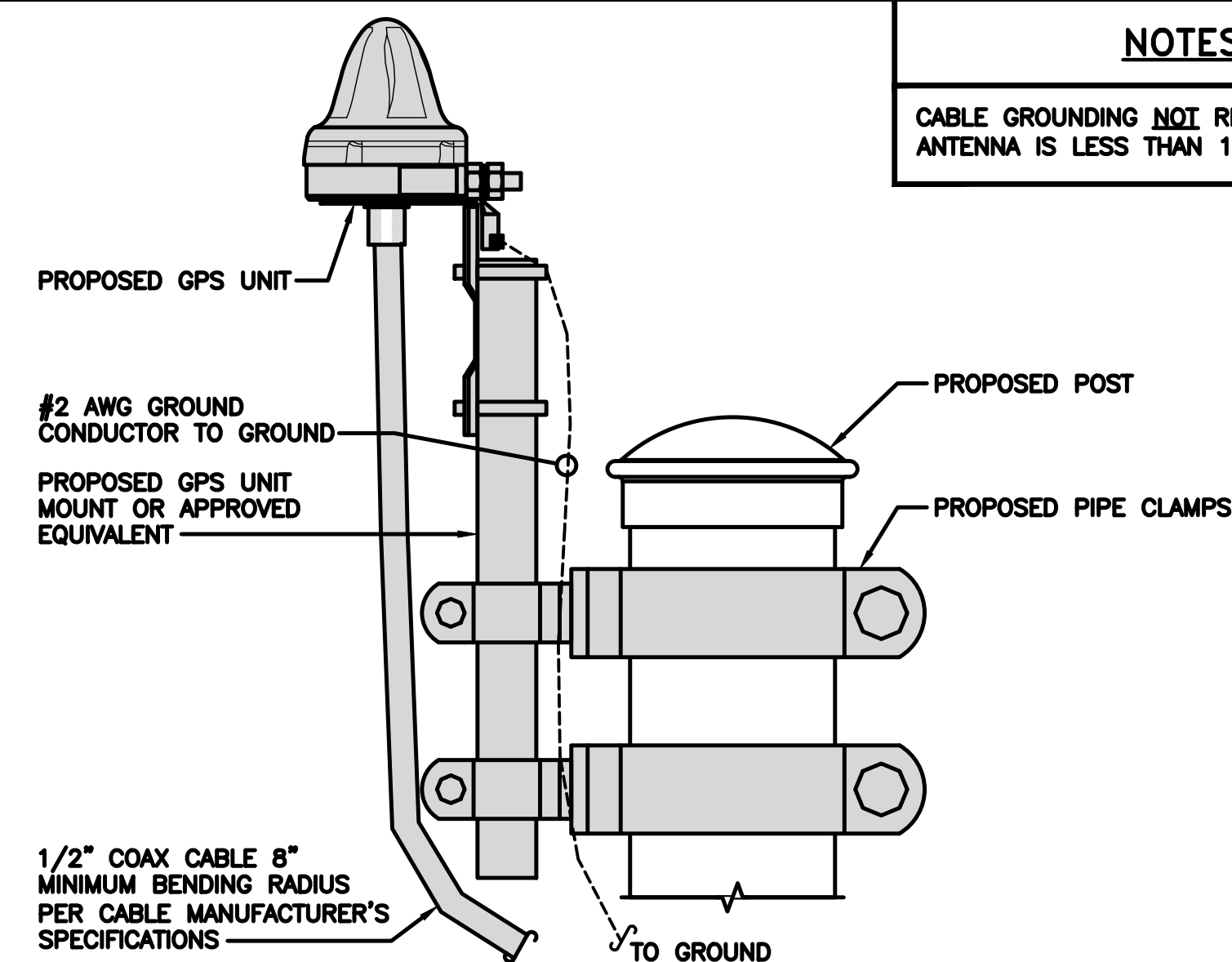
**H-FRAME GROUNDING DETAIL**

NO SCALE

1

**NOTES**

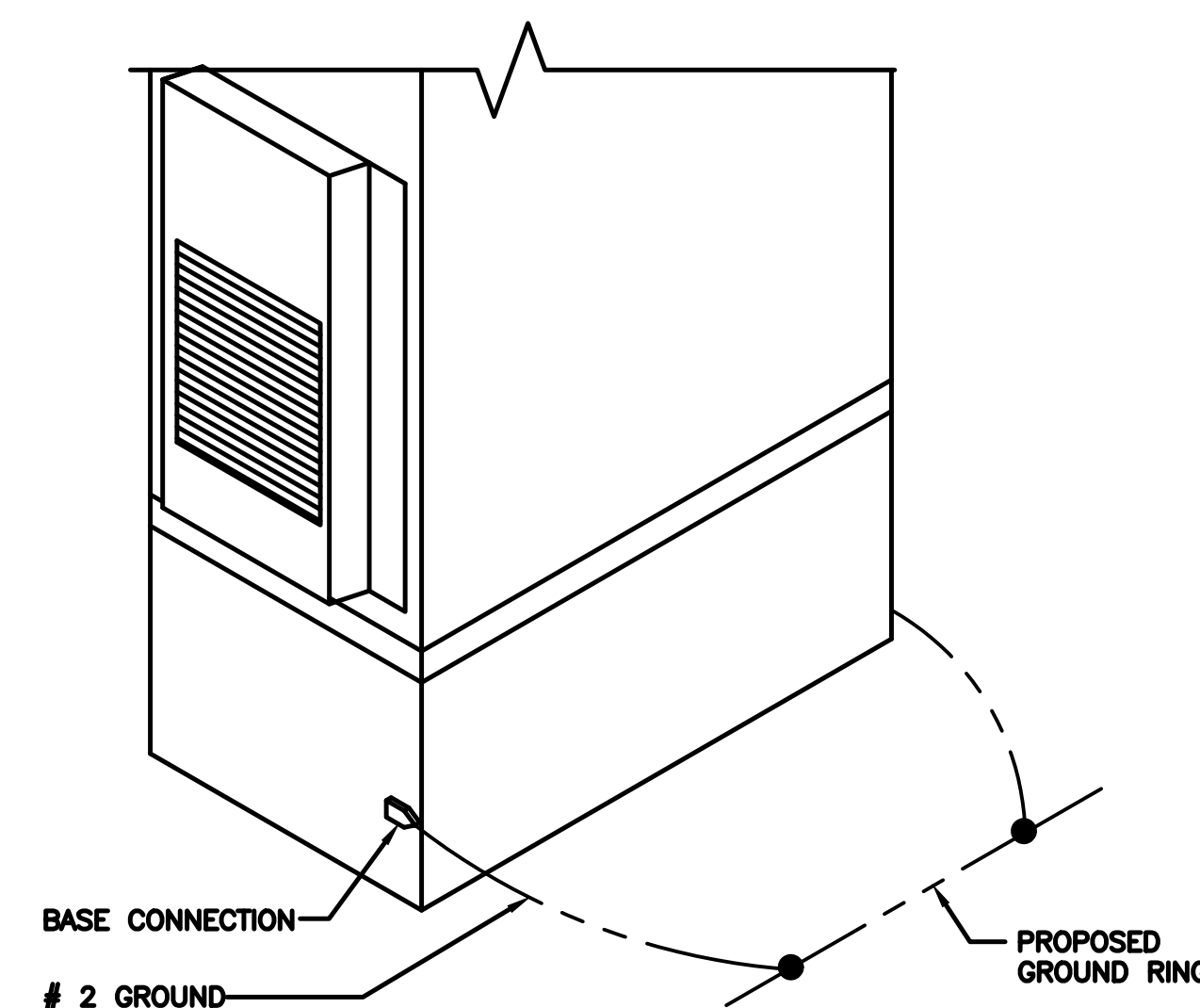
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



**TYPICAL GPS UNIT GROUNDING**

NO SCALE

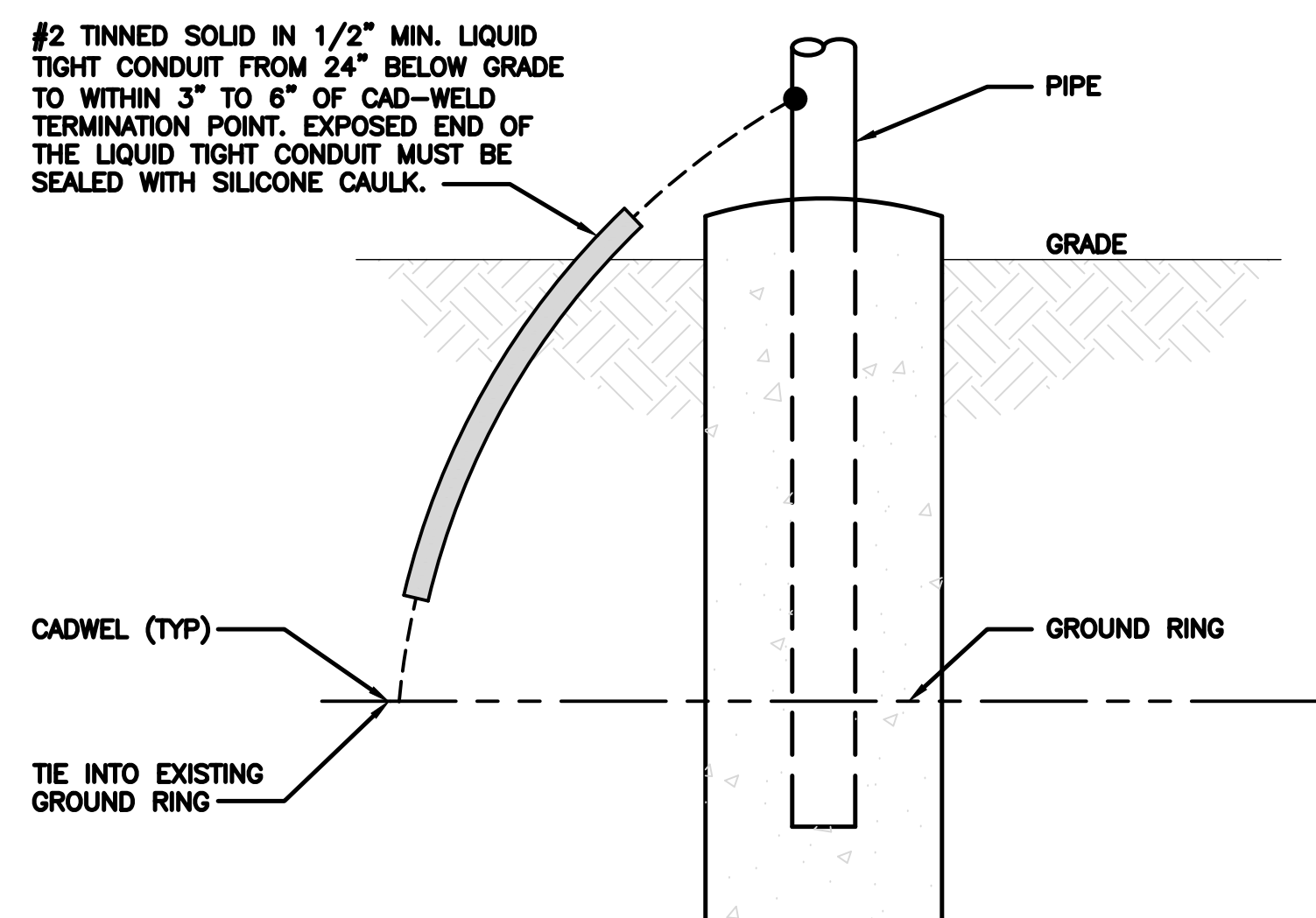
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**OUTDOOR CABINET GROUNDING**

NO SCALE

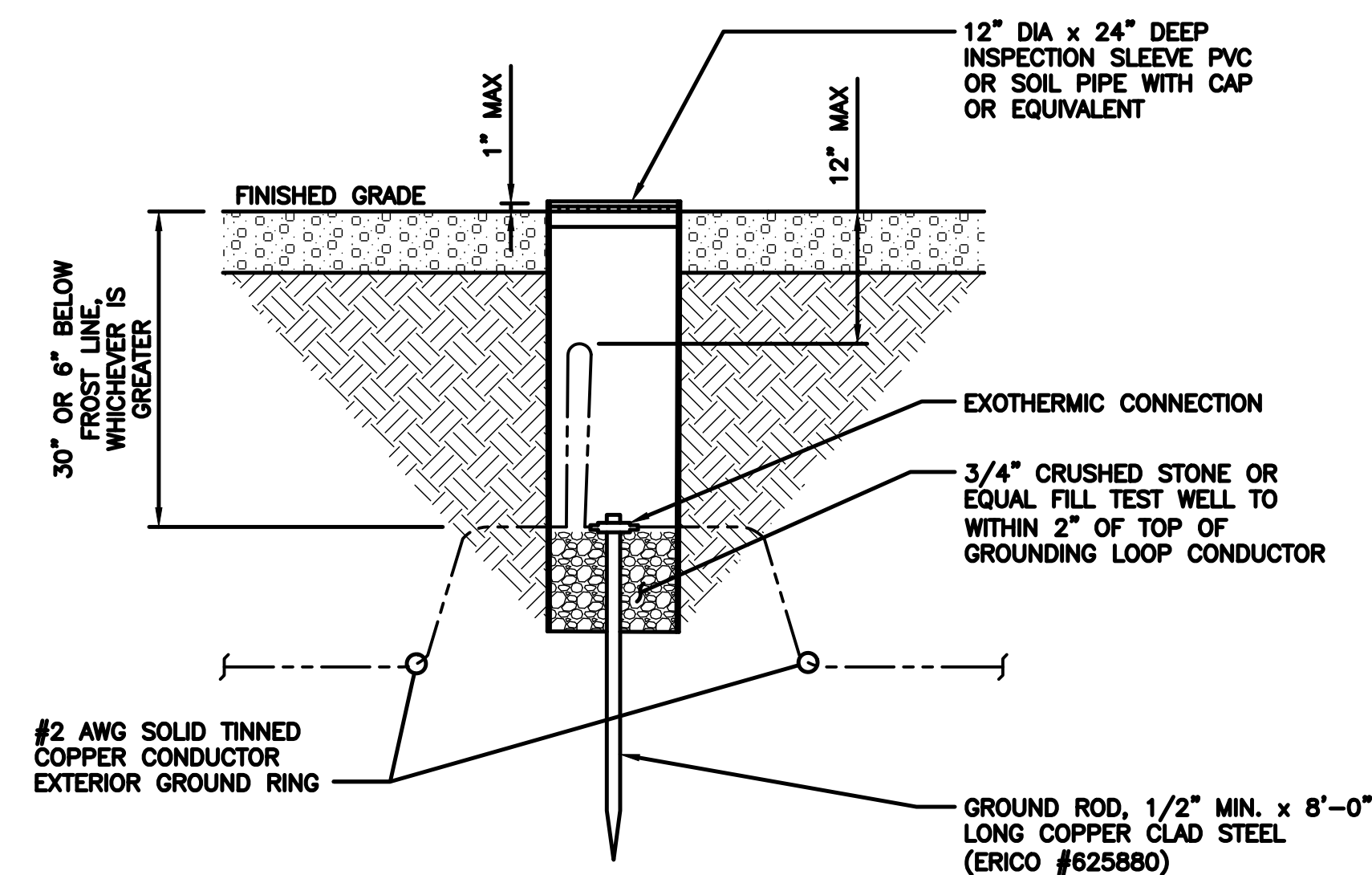
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**TRANSITIONING GROUND DETAIL**

NO SCALE

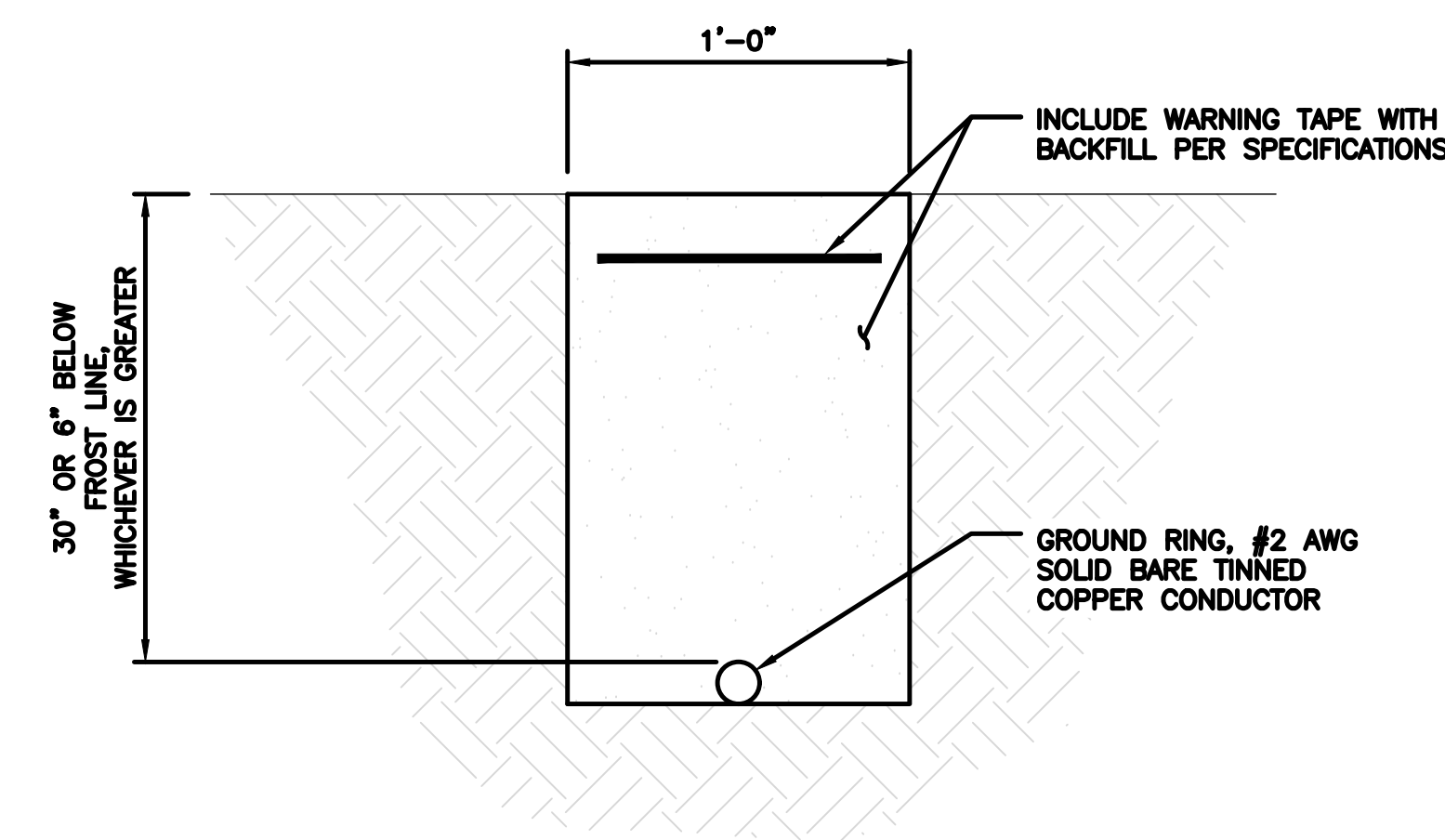
4



**TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE**

NO SCALE

5



**TYPICAL GROUND RING TRENCH**

NO SCALE

6

**dish**  
wireless.

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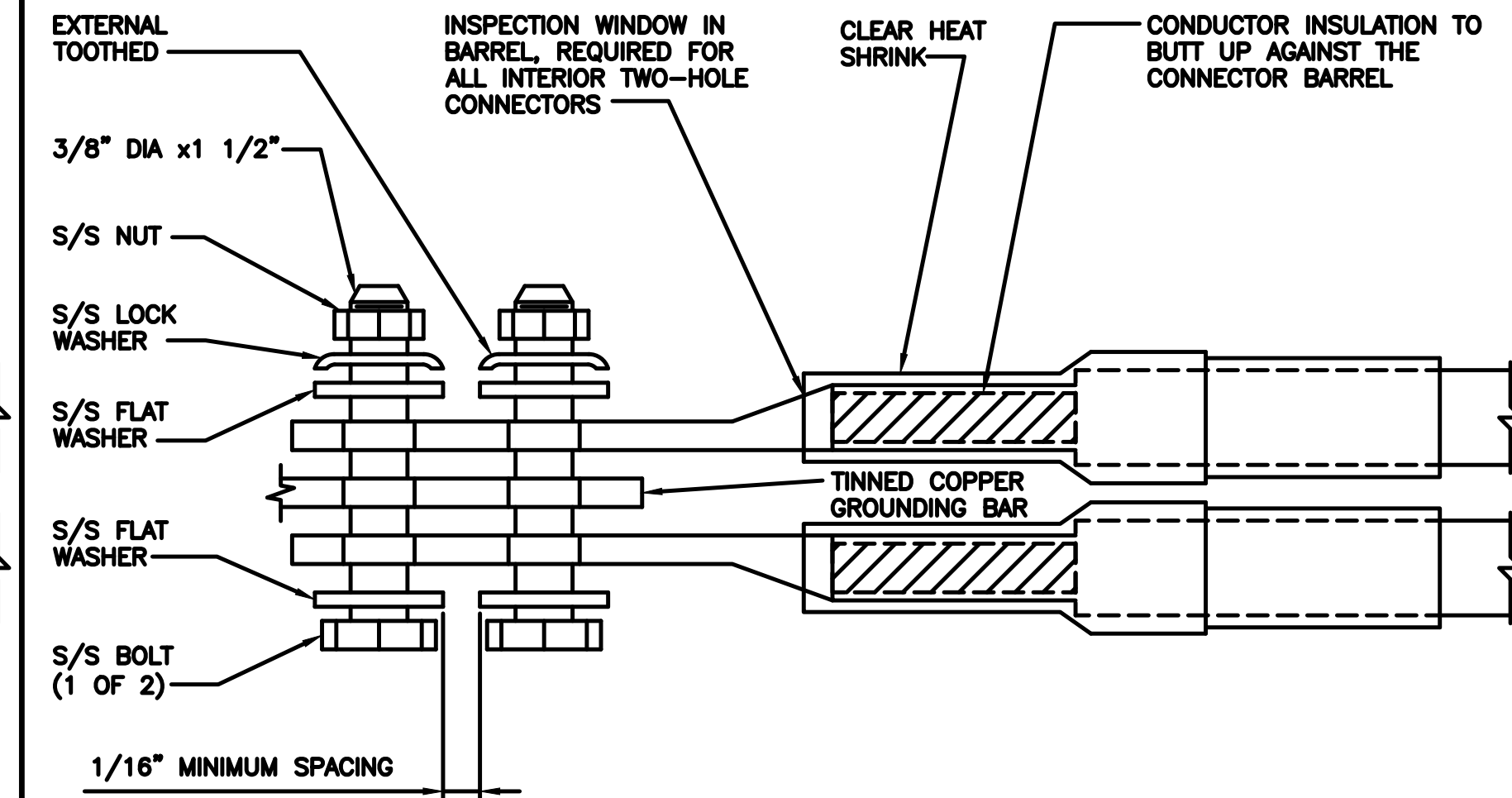
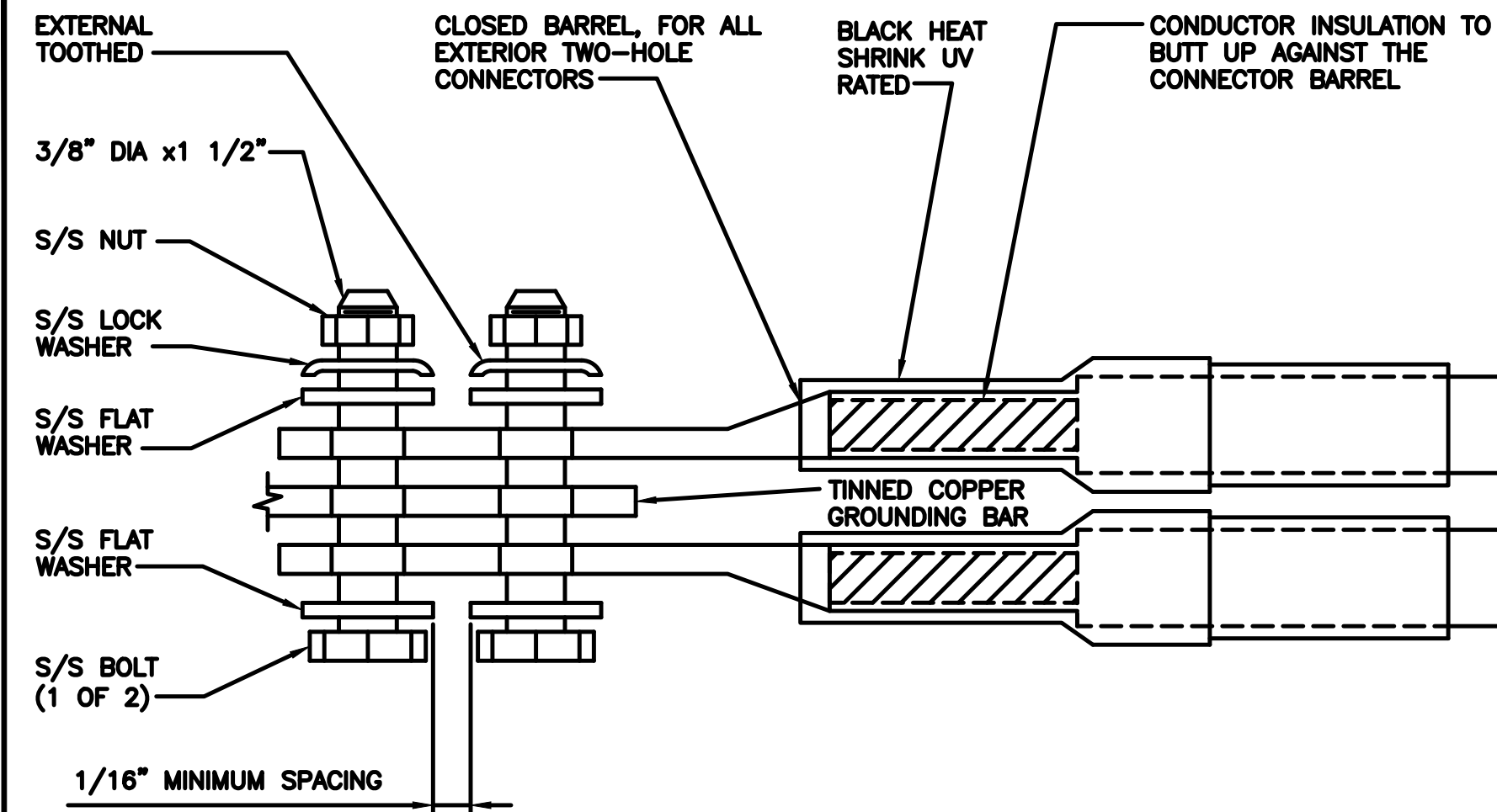
SHEET TITLE  
GROUNDING DETAILS

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

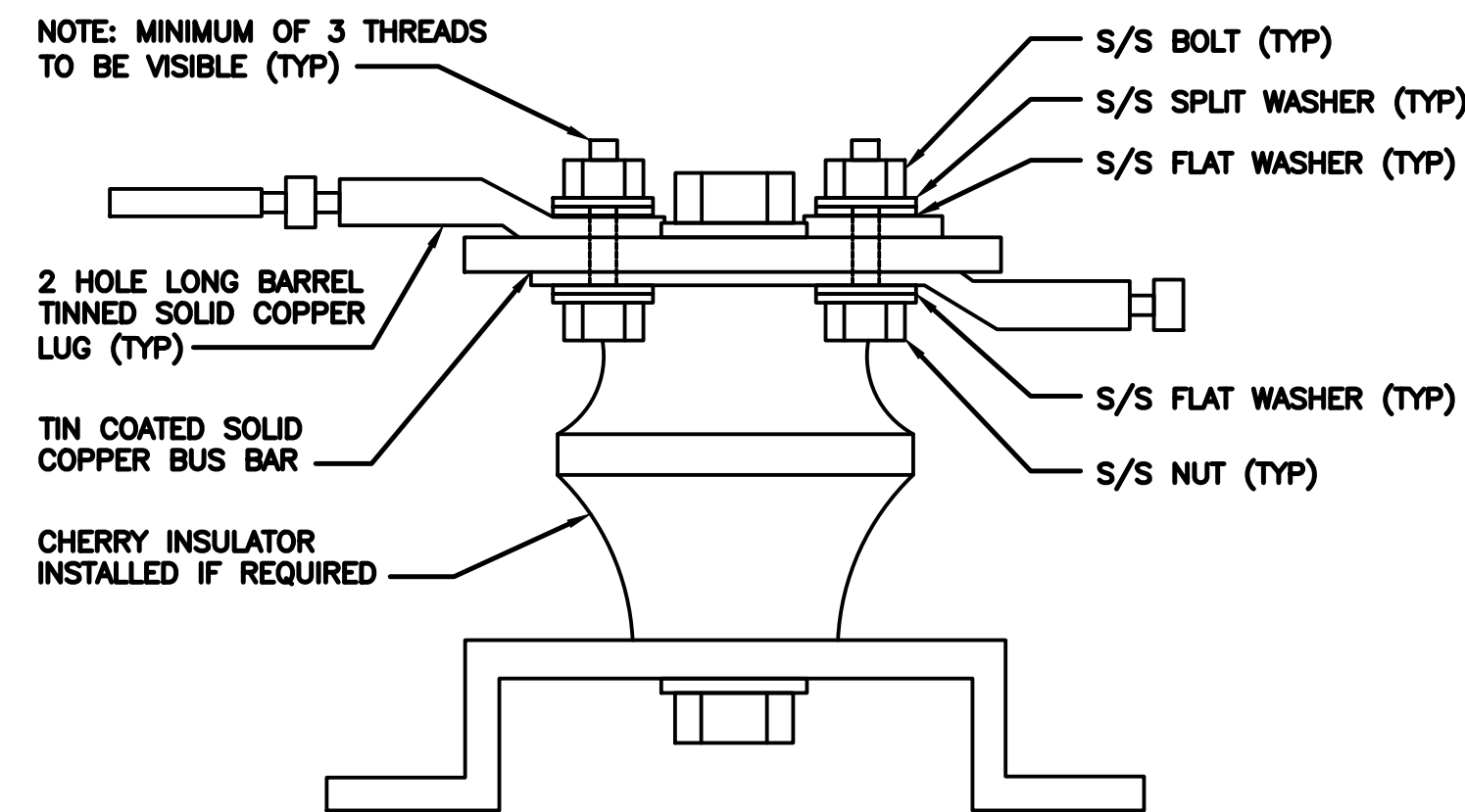
NO SCALE

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

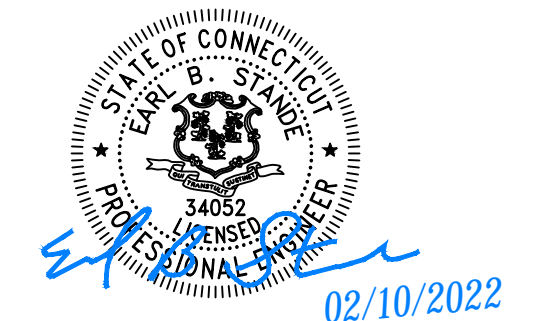
**dish**  
wireless.

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BSP ARM KRK

RFDS REV #: 0

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A&E PROJECT NUMBER  
EUCC0309

DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
  
BOBOS00037A  
53 WESTMINSTER RD  
CANTERBURY, CT 06331

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

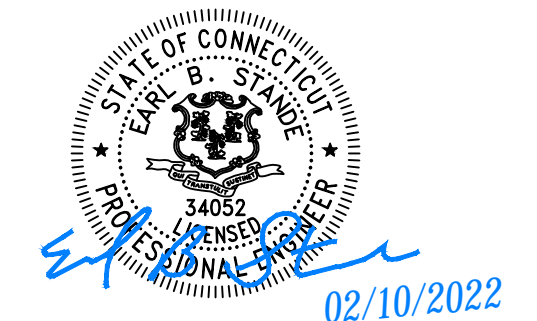


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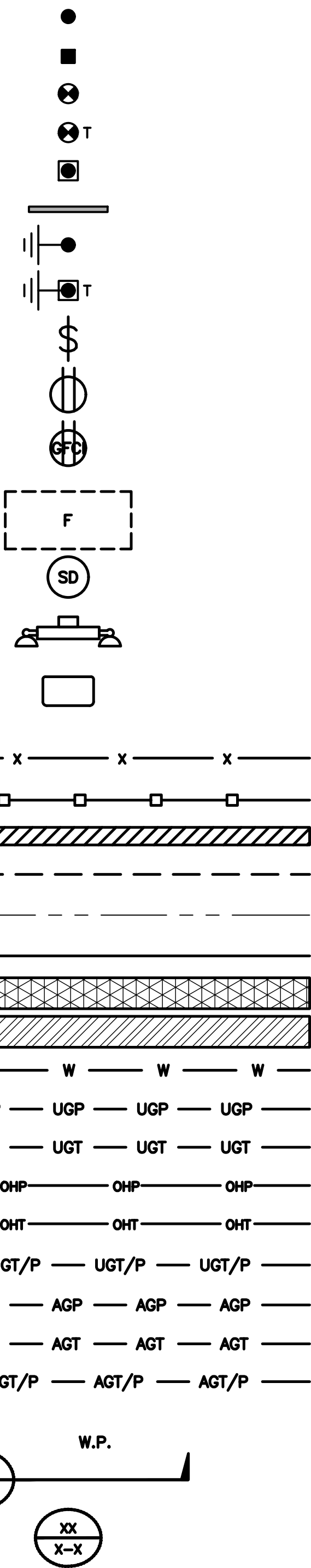
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53 WESTMINSTER RD  
CANTERBURY, CT 06331

SHEET TITLE  
RF  
CABLE COLOR CODES

SHEET NUMBER

RF-1

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



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

LEGEND



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DISH WIRELESS L.L.C.  
 PROJECT INFORMATION  
 BOBOS00037A  
 53 WESTMINSTER RD  
 CANTERBURY, CT 06331

SHEET TITLE  
 LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

**SITE ACTIVITY REQUIREMENTS:**

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

**GENERAL NOTES:**

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

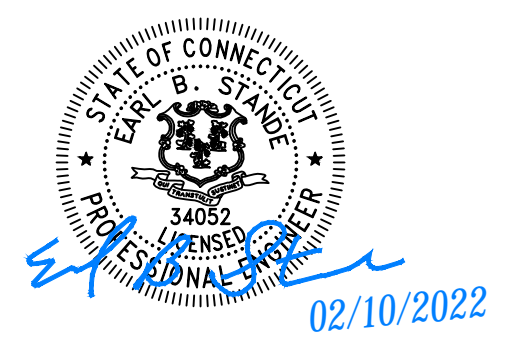


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A&E PROJECT NUMBER  
EUC0309

DISH WIRELESS L.L.C.  
PROJECT INFORMATION  
  
BOBOS00037A  
53 WESTMINSTER RD  
CANTERBURY, CT 06331

SHEET TITLE  
GENERAL NOTES

SHEET NUMBER  
**GN-2**

**CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:**

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

**ELECTRICAL INSTALLATION NOTES:**

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

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



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2	02/10/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
EUCC0309

DISH WIRELESS L.L.C.  
PROJECT INFORMATION

BOBOS00037A  
53 WESTMINSTER RD  
CANTERBURY, CT 06331

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.

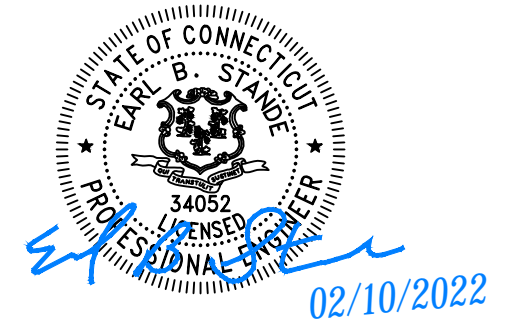


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53 WESTMINSTER RD  
CANTERBURY, CT 06331

SHEET TITLE  
GENERAL NOTES

SHEET NUMBER  
**GN-4**

# Exhibit D

## **Structural Analysis Report**

Date: **September 09, 2021**



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

**Subject:** **Structural Analysis Report**

**Carrier Designation:** **DISH Network Co-Locate**  
**Site Number:** BOBOS00037A  
**Site Name:** CT-CCI-T-876375

**Crown Castle Designation:** **BU Number:** 876375  
**Site Name:** CANTERBURY / LEMIRE  
**JDE Job Number:** 645190  
**Work Order Number:** 1963096  
**Order Number:** 553317 Rev. 0

**Engineering Firm Designation:** **Crown Castle Project Number:** 1963096

**Site Data:** **53 Westminster Rd., CANTERBURY, WINDHAM County, CT**  
**Latitude 41° 42' 7.15", Longitude -71° 58' 50.11"**  
**180.5 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 - 90.6%**

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".

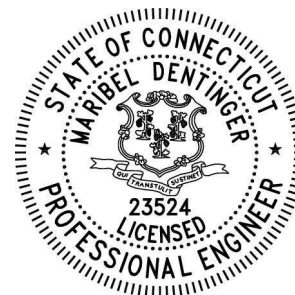
Structural analysis prepared by: Jared Koski, EI

Respectfully submitted by:

*Maribel Dentinger*  
Maribel Dentinger, P.E.  
Senior Project Engineer

Maribel  
Dentinger

Digitally signed by  
Maribel Dentinger  
Date: 2021.09.09  
20:00:48 -04'00'





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## 1) INTRODUCTION

This tower is a 180.5 ft Monopole tower mapped by FDH Engineering, Inc.

The tower has been modified multiple times to accommodate additional loading.

## 2) ANALYSIS CRITERIA

<b>TIA-222 Revision:</b>	TIA-222-H
<b>Risk Category:</b>	II
<b>Wind Speed:</b>	123 mph
<b>Exposure Category:</b>	B
<b>Topographic Factor:</b>	1
<b>Ice Thickness:</b>	1 in
<b>Wind Speed with Ice:</b>	50 mph
<b>Service Wind Speed:</b>	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)
141.0	141.0	3	jma wireless	MX08FRO665-21 w/ Mount Pipe	1	1-1/2
		3	fujitsu	TA08025-B604		
		3	fujitsu	TA08025-B605		
		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)
180.0	183.0	3	ericsson	AIR6449 B41_T-MOBILE	3	1-5/8
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	ericsson	Radio 4480_TMOV2		
		3	rfs celwave	APXVAALL24_43-U-NA20_TMO		
	180.0	1	tower mounts	Platform Mount [LP 602-1]		
170.0	170.0	1	rfs celwave	TMA-DB-T1-6Z-8AB-0Z	-	-
		1	tower mounts	Side Arm Mount [SO 102-3]		
168.0	170.0	3	antel	BXA-171063-12CF-EDIN-X w/ Mount Pipe	1	1-5/8
		6	commscope	NHH-65B-R2B w/ Mount Pipe		
		1	raycap	RVZDC-6627-PF-48_CCIV2		
		3	samsung telecommunications	MT6407-77A w/ Mount Pipe		
		3	samsung telecommunications	RF4439D-25A		
	3	samsung telecommunications	RF4440D-13A			
168.0	1	tower mounts	Platform Mount [LP 303-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
160.0	161.0	3	kmw communications	AM-X-CD-17-65-00T-RET w/ Mount Pipe	12	1-1/4
		6	powerwave technologies	7770.00 w/ Mount Pipe		
		6	powerwave technologies	LGP21401		
		6	powerwave technologies	LGP21901		
	160.0	1	tower mounts	Platform Mount [LP 303-1]		
158.0	160.0	3	ericsson	RRUS 11 B12	1	3/8
	158.0	1	raycap	DC6-48-60-18-8F	2	7/16
		1	tower mounts	Side Arm Mount [SO 104-3]	1	Conduit
78.0	79.0	1	spectracom	8225	1	1/2
	78.0	1	tower mounts	Side Arm Mount [SO 701-1]		

### 3) ANALYSIS PROCEDURE

**Table 3 - Documents Provided**

Document	Reference	Source
4-GEOTECHNICAL REPORTS	1615348	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1615408	CCISITES
4-TOWER MANUFACTURER DRAWINGS	2428368	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	2435769	CCISITES
4-POST-MODIFICATION INSPECTION	2464622	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	3364133	CCISITES
4-POST-MODIFICATION INSPECTION	3841077	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	7738171	CCISITES
4-POST-MODIFICATION INSPECTION	8246170	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 pole and in the reinforcing elements. These calculations are included 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	180.5 - 175.5	Pole	TP18.569x17.62x0.25	Pole	9.2%	Pass
L2	175.5 - 170.5	Pole	TP19.518x18.569x0.25	Pole	15.9%	Pass
L3	170.5 - 165.5	Pole	TP20.467x19.518x0.25	Pole	25.3%	Pass
L4	165.5 - 160.5	Pole	TP21.416x20.467x0.25	Pole	34.3%	Pass
L5	160.5 - 155.5	Pole	TP22.365x21.416x0.25	Pole	44.8%	Pass
L6	155.5 - 150.5	Pole	TP23.313x22.365x0.25	Pole	53.6%	Pass
L7	150.5 - 145.5	Pole	TP24.262x23.313x0.25	Pole	61.3%	Pass
L8	145.5 - 140.5	Pole	TP25.211x24.262x0.25	Pole	68.9%	Pass
L9	140.5 - 134.5	Pole	TP26.35x25.211x0.25	Pole	73.4%	Pass
L10	134.5 - 132.794	Pole	TP26.174x25.225x0.3125	Pole	66.0%	Pass
L11	132.794 - 127.794	Pole	TP27.123x26.174x0.3125	Pole	70.8%	Pass
L12	127.794 - 122.794	Pole	TP28.072x27.123x0.3125	Pole	74.9%	Pass
L13	122.794 - 120.583	Pole	TP28.491x28.072x0.3125	Pole	76.6%	Pass
L14	120.583 - 120.333	Pole	TP28.539x28.491x0.3125	Pole	76.7%	Pass
L15	120.333 - 115.333	Pole	TP29.488x28.539x0.3125	Pole	80.0%	Pass
L16	115.333 - 112.5	Pole	TP30.025x29.488x0.3125	Pole	81.7%	Pass
L17	112.5 - 112.25	Pole + Reinf.	TP30.073x30.025x0.6375	Reinf. 9 Tension Rupture	65.0%	Pass
L18	112.25 - 107.817	Pole + Reinf.	TP30.914x30.073x0.675	Reinf. 9 Tension Rupture	63.6%	Pass
L19	107.817 - 107.567	Pole + Reinf.	TP30.961x30.914x0.675	Reinf. 9 Tension Rupture	63.7%	Pass
L20	107.567 - 102.567	Pole + Reinf.	TP31.91x30.961x0.6625	Reinf. 9 Tension Rupture	66.5%	Pass
L21	102.567 - 97.567	Pole + Reinf.	TP32.859x31.91x0.65	Reinf. 9 Tension Rupture	69.2%	Pass
L22	97.567 - 89	Pole + Reinf.	TP34.485x32.859x0.6375	Reinf. 9 Tension Rupture	71.3%	Pass
L23	89 - 88.311	Pole + Reinf.	TP33.991x33.042x0.7	Reinf. 9 Tension Rupture	68.9%	Pass
L24	88.311 - 87.5	Pole + Reinf.	TP34.145x33.991x0.7	Reinf. 9 Tension Rupture	69.2%	Pass
L25	87.5 - 87.25	Pole	TP34.192x34.145x0.375	Pole	80.0%	Pass
L26	87.25 - 82.25	Pole	TP35.141x34.192x0.375	Pole	81.1%	Pass
L27	82.25 - 80.833	Pole	TP35.41x35.141x0.375	Pole	81.3%	Pass
L28	80.833 - 80.583	Pole	TP35.457x35.41x0.375	Pole	81.4%	Pass
L29	80.583 - 75.583	Pole	TP36.406x35.457x0.375	Pole	82.5%	Pass
L30	75.583 - 70.583	Pole	TP37.355x36.406x0.375	Pole	83.7%	Pass
L31	70.583 - 65.583	Pole	TP38.304x37.355x0.375	Pole	84.9%	Pass
L32	65.583 - 60.583	Pole	TP39.253x38.304x0.375	Pole	85.9%	Pass
L33	60.583 - 55.583	Pole	TP40.202x39.253x0.375	Pole	86.8%	Pass
L34	55.583 - 53.567	Pole	TP40.584x40.202x0.375	Pole	87.2%	Pass
L35	53.567 - 53.317	Pole	TP40.632x40.584x0.375	Pole	87.2%	Pass
L36	53.317 - 43.8	Pole	TP42.438x40.632x0.375	Pole	87.9%	Pass
L37	43.8 - 42.8	Pole + Reinf.	TP41.878x40.681x0.7	Reinf. 8 Tension Rupture	72.9%	Pass
L38	42.8 - 38.417	Pole + Reinf.	TP42.71x41.878x0.6875	Reinf. 8 Tension Rupture	73.6%	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L39	38.417 - 38.067	Pole + Reinf.	TP42.776x42.71x0.6875	Reinf. 8 Tension Rupture	73.7%	Pass
L40	38.067 - 37.833	Pole + Reinf.	TP42.82x42.776x0.6875	Reinf. 8 Tension Rupture	73.7%	Pass
L41	37.833 - 32.833	Pole + Reinf.	TP43.769x42.82x0.675	Reinf. 8 Tension Rupture	74.5%	Pass
L42	32.833 - 27.833	Pole + Reinf.	TP44.718x43.769x0.675	Reinf. 8 Tension Rupture	75.2%	Pass
L43	27.833 - 23.5	Pole + Reinf.	TP45.54x44.718x0.6625	Reinf. 8 Tension Rupture	75.8%	Pass
L44	23.5 - 23.25	Pole + Reinf.	TP45.588x45.54x0.6625	Reinf. 7 Tension Rupture	75.9%	Pass
L45	23.25 - 18.25	Pole + Reinf.	TP46.537x45.588x0.6625	Reinf. 7 Tension Rupture	76.5%	Pass
L46	18.25 - 13.25	Pole + Reinf.	TP47.486x46.537x0.65	Reinf. 7 Tension Rupture	77.0%	Pass
L47	13.25 - 8.25	Pole + Reinf.	TP48.434x47.486x0.65	Reinf. 7 Tension Rupture	77.6%	Pass
L48	8.25 - 7.917	Pole + Reinf.	TP48.498x48.434x0.65	Reinf. 7 Tension Rupture	77.6%	Pass
L49	7.917 - 7.667	Pole + Reinf.	TP48.545x48.498x0.7	Reinf. 1 Tension Rupture	73.3%	Pass
L50	7.667 - 5.5	Pole + Reinf.	TP48.956x48.545x0.7	Reinf. 1 Tension Rupture	73.5%	Pass
L51	5.5 - 5.25	Pole + Reinf.	TP49.004x48.956x0.4125	Pole	90.4%	Pass
L52	5.25 - 3	Pole + Reinf.	TP49.431x49.004x0.425	Pole	90.6%	Pass
L53	3 - 2.75	Pole + Reinf.	TP49.478x49.431x0.625	Reinf. 11 Compression	74.5%	Pass
L54	2.75 - 0	Pole + Reinf.	TP50x49.478x0.625	Reinf. 11 Compression	74.6%	Pass
					Summary	
				Pole	90.6%	Pass
				Reinforcement	83.4%	Pass
				Overall	90.6%	Pass

**Table 5 - Tower Component Stresses vs. Capacity - LC7**

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	77.4	Pass
1	Base Plate	0	73.7	Pass
1	Base Foundation (Structure)	0	84.1	Pass
1	Base Foundation (Soil Interaction)	0	81.5	Pass

<b>Structure Rating (max from all components) =</b>	<b>90.6%</b>
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Notes:

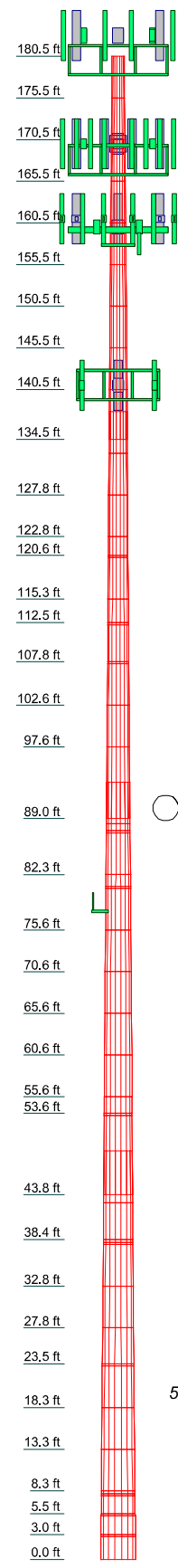
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

#### 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	18	18	0.250	3.294	180.5	175.5	0.2	0.2
2	18	18	0.250	3.294	170.5	165.5	0.3	0.3
3	18	18	0.250	3.294	160.5	155.5	0.3	0.3
4	18	18	0.250	3.294	150.5	145.5	0.3	0.3
5	18	18	0.250	3.294	140.5	134.5	0.3	0.3
6	18	18	0.250	3.294	127.8	122.8	0.3	0.3
7	18	18	0.250	3.294	120.6	115.3	0.3	0.3
8	18	18	0.250	3.294	112.5	107.8	0.3	0.3
9	18	18	0.250	3.294	102.6	97.6	0.3	0.3
10	18	18	0.250	3.294	89.0	82.3	0.3	0.3
11	18	18	0.250	3.294	75.6	70.6	0.3	0.3
12	18	18	0.250	3.294	65.6	60.6	0.3	0.3
13	18	18	0.250	3.294	55.6	53.6	0.3	0.3
14	18	18	0.250	3.294	43.8	38.4	0.3	0.3
15	18	18	0.250	3.294	32.8	27.8	0.3	0.3
16	18	18	0.250	3.294	23.5	18.3	0.3	0.3
17	18	18	0.250	3.294	13.3	8.3	0.3	0.3
18	18	18	0.250	3.294	5.5	3.0	0.3	0.3
19	18	18	0.250	3.294	0.0	0.0	0.3	0.3
20	18	18	0.250	3.294	0.0	0.0	0.3	0.3
21	18	18	0.250	3.294	0.0	0.0	0.3	0.3
22	18	18	0.250	3.294	0.0	0.0	0.3	0.3
23	18	18	0.250	3.294	0.0	0.0	0.3	0.3
24	18	18	0.250	3.294	0.0	0.0	0.3	0.3
25	18	18	0.250	3.294	0.0	0.0	0.3	0.3
26	18	18	0.250	3.294	0.0	0.0	0.3	0.3
27	18	18	0.250	3.294	0.0	0.0	0.3	0.3
28	18	18	0.250	3.294	0.0	0.0	0.3	0.3
29	18	18	0.250	3.294	0.0	0.0	0.3	0.3
30	18	18	0.250	3.294	0.0	0.0	0.3	0.3
31	18	18	0.250	3.294	0.0	0.0	0.3	0.3
32	18	18	0.250	3.294	0.0	0.0	0.3	0.3
33	18	18	0.250	3.294	0.0	0.0	0.3	0.3
34	18	18	0.250	3.294	0.0	0.0	0.3	0.3
35	18	18	0.250	3.294	0.0	0.0	0.3	0.3
36	18	18	0.250	3.294	0.0	0.0	0.3	0.3
37	18	18	0.250	3.294	0.0	0.0	0.3	0.3
38	18	18	0.250	3.294	0.0	0.0	0.3	0.3
39	18	18	0.250	3.294	0.0	0.0	0.3	0.3
40	18	18	0.250	3.294	0.0	0.0	0.3	0.3
41	18	18	0.250	3.294	0.0	0.0	0.3	0.3
42	18	18	0.250	3.294	0.0	0.0	0.3	0.3
43	18	18	0.250	3.294	0.0	0.0	0.3	0.3
44	18	18	0.250	3.294	0.0	0.0	0.3	0.3
45	18	18	0.250	3.294	0.0	0.0	0.3	0.3
46	18	18	0.250	3.294	0.0	0.0	0.3	0.3
47	18	18	0.250	3.294	0.0	0.0	0.3	0.3
48	18	18	0.250	3.294	0.0	0.0	0.3	0.3
49	18	18	0.250	3.294	0.0	0.0	0.3	0.3
50	18	18	0.250	3.294	0.0	0.0	0.3	0.3

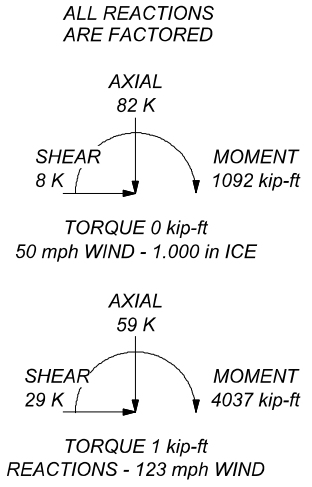


### MATERIAL STRENGTH

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

### TOWER DESIGN NOTES

1. Tower is located in Windham County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 123 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: 90.6%



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

Job: <b>BU# 876375</b>	Project:	
Client: Crown Castle	Drawn by: JKoski	App'd:
Code: TIA-222-H	Date: 09/09/21	Scale: NTS
Path:	Dwg No. E-1	

## Tower Input Data

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

- Tower is located in Windham County, Connecticut.
- Tower base elevation above sea level: 339.000 ft.
- Basic wind speed of 123 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.000 ft.
- Nominal ice thickness of 1.000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56.000 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50.000 °F.
- Deflections calculated using a wind speed of 60 mph.
- TOWER RATING: 90.6%.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used:  $K_{es}(F_w) = 0.95$ ,  $K_{es}(t_i) = 0.85$ .
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

## Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification ✓ Use Code Stress Ratios ✓ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile  Include Bolts In Member Capacity  Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension ✓ Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt.  Autocalc Torque Arm Areas  Add IBC .6D+W Combination ✓ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs	Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption  <div style="background-color: #e0e0e0; text-align: center; 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 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	180.500-175.500	5.000	0.000	18	17.620	18.569	0.250	1.000	A572-65 (65 ksi)
L2	175.500-170.500	5.000	0.000	18	18.569	19.518	0.250	1.000	A572-65 (65 ksi)
L3	170.500-165.500	5.000	0.000	18	19.518	20.467	0.250	1.000	A572-65 (65 ksi)
L4	165.500-160.500	5.000	0.000	18	20.467	21.416	0.250	1.000	A572-65 (65 ksi)
L5	160.500-155.500	5.000	0.000	18	21.416	22.365	0.250	1.000	A572-65 (65 ksi)
L6	155.500-150.500	5.000	0.000	18	22.365	23.313	0.250	1.000	A572-65 (65 ksi)
L7	150.500-145.500	5.000	0.000	18	23.313	24.262	0.250	1.000	A572-65 (65 ksi)
L8	145.500-140.500	5.000	0.000	18	24.262	25.211	0.250	1.000	A572-65 (65 ksi)
L9	140.500-134.500	6.000	3.294	18	25.211	26.350	0.250	1.000	A572-65 (65 ksi)
L10	134.500-132.794	5.000	0.000	18	25.225	26.174	0.313	1.250	A572-65 (65 ksi)
L11	132.794-127.794	5.000	0.000	18	26.174	27.123	0.313	1.250	A572-65 (65 ksi)
L12	127.794-122.794	5.000	0.000	18	27.123	28.072	0.313	1.250	A572-65 (65 ksi)
L13	122.794-120.583	2.211	0.000	18	28.072	28.491	0.313	1.250	A572-65 (65 ksi)
L14	120.583-120.333	0.250	0.000	18	28.491	28.539	0.313	1.250	A572-65 (65 ksi)
L15	120.333-115.333	5.000	0.000	18	28.539	29.488	0.313	1.250	A572-65 (65 ksi)
L16	115.333-112.500	2.833	0.000	18	29.488	30.025	0.313	1.250	A572-65 (65 ksi)
L17	112.500-112.250	0.250	0.000	18	30.025	30.073	0.637	2.550	A572-65 (65 ksi)
L18	112.250-107.817	4.433	0.000	18	30.073	30.914	0.675	2.700	A572-65 (65 ksi)
L19	107.817-107.567	0.250	0.000	18	30.914	30.961	0.675	2.700	A572-65 (65 ksi)
L20	107.567-102.567	5.000	0.000	18	30.961	31.910	0.662	2.650	A572-65 (65 ksi)
L21	102.567-97.567	5.000	0.000	18	31.910	32.859	0.650	2.600	A572-65 (65 ksi)
L22	97.567-89.000	8.567	4.311	18	32.859	34.485	0.637	2.550	A572-65 (65 ksi)
L23	89.000-88.311	5.000	0.000	18	33.042	33.991	0.700	2.800	A572-65 (65 ksi)
L24	88.311-87.500	0.811	0.000	18	33.991	34.145	0.700	2.800	A572-65 (65 ksi)
L25	87.500-87.250	0.250	0.000	18	34.145	34.192	0.375	1.500	A572-65 (65 ksi)
L26	87.250-82.250	5.000	0.000	18	34.192	35.141	0.375	1.500	A572-65 (65 ksi)
L27	82.250-80.833	1.417	0.000	18	35.141	35.410	0.375	1.500	A572-65 (65 ksi)
L28	80.833-80.583	0.250	0.000	18	35.410	35.457	0.375	1.500	A572-65 (65 ksi)
L29	80.583-75.583	5.000	0.000	18	35.457	36.406	0.375	1.500	A572-65 (65 ksi)
L30	75.583-70.583	5.000	0.000	18	36.406	37.355	0.375	1.500	A572-65 (65 ksi)
L31	70.583-65.583	5.000	0.000	18	37.355	38.304	0.375	1.500	A572-65 (65 ksi)
L32	65.583-60.583	5.000	0.000	18	38.304	39.253	0.375	1.500	A572-65 (65 ksi)
L33	60.583-55.583	5.000	0.000	18	39.253	40.202	0.375	1.500	A572-65 (65 ksi)

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
L34	55.583-53.567	2.016	0.000	18	40.202	40.584	0.375	1.500	A572-65 (65 ksi)
L35	53.567-53.317	0.250	0.000	18	40.584	40.632	0.375	1.500	A572-65 (65 ksi)
L36	53.317-43.800	9.517	5.305	18	40.632	42.438	0.375	1.500	A572-65 (65 ksi)
L37	43.800-42.800	6.305	0.000	18	40.681	41.878	0.700	2.800	A572-65 (65 ksi)
L38	42.800-38.417	4.383	0.000	18	41.878	42.710	0.688	2.750	A572-65 (65 ksi)
L39	38.417-38.067	0.350	0.000	18	42.710	42.776	0.688	2.750	A572-65 (65 ksi)
L40	38.067-37.833	0.234	0.000	18	42.776	42.820	0.688	2.750	A572-65 (65 ksi)
L41	37.833-32.833	5.000	0.000	18	42.820	43.769	0.675	2.700	A572-65 (65 ksi)
L42	32.833-27.833	5.000	0.000	18	43.769	44.718	0.675	2.700	A572-65 (65 ksi)
L43	27.833-23.500	4.333	0.000	18	44.718	45.540	0.662	2.650	A572-65 (65 ksi)
L44	23.500-23.250	0.250	0.000	18	45.540	45.588	0.662	2.650	A572-65 (65 ksi)
L45	23.250-18.250	5.000	0.000	18	45.588	46.537	0.662	2.650	A572-65 (65 ksi)
L46	18.250-13.250	5.000	0.000	18	46.537	47.486	0.650	2.600	A572-65 (65 ksi)
L47	13.250-8.250	5.000	0.000	18	47.486	48.434	0.650	2.600	A572-65 (65 ksi)
L48	8.250-7.917	0.333	0.000	18	48.434	48.498	0.650	2.600	A572-65 (65 ksi)
L49	7.917-7.667	0.250	0.000	18	48.498	48.545	0.700	2.800	A572-65 (65 ksi)
L50	7.667-5.500	2.167	0.000	18	48.545	48.956	0.700	2.800	A572-65 (65 ksi)
L51	5.500-5.250	0.250	0.000	18	48.956	49.004	0.412	1.650	A572-65 (65 ksi)
L52	5.250-3.000	2.250	0.000	18	49.004	49.431	0.425	1.700	A572-65 (65 ksi)
L53	3.000-2.750	0.250	0.000	18	49.431	49.478	0.625	2.500	A572-65 (65 ksi)
L54	2.750-0.000	2.750		18	49.478	50.000	0.625	2.500	A572-65 (65 ksi)

### Tapered Pole Properties

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	I/Q in <sup>2</sup>	w in	w/t
L1	17.853	13.783	525.392	6.166	8.951	58.697	1051.476	6.893	2.661	10.644
	18.817	14.536	616.288	6.503	9.433	65.333	1233.386	7.269	2.828	11.313
L2	18.817	14.536	616.288	6.503	9.433	65.333	1233.386	7.269	2.828	11.313
	19.780	15.289	717.105	6.840	9.915	72.325	1435.153	7.646	2.995	11.981
L3	19.780	15.289	717.105	6.840	9.915	72.325	1435.153	7.646	2.995	11.981
	20.744	16.042	828.357	7.177	10.397	79.672	1657.805	8.023	3.162	12.649
L4	20.744	16.042	828.357	7.177	10.397	79.672	1657.805	8.023	3.162	12.649
	21.707	16.795	950.560	7.514	10.879	87.374	1902.370	8.399	3.329	13.317
L5	21.707	16.795	950.560	7.514	10.879	87.374	1902.370	8.399	3.329	13.317
	22.671	17.548	1084.225	7.851	11.361	95.432	2169.878	8.776	3.496	13.985
L6	22.671	17.548	1084.225	7.851	11.361	95.432	2169.878	8.776	3.496	13.985
	23.635	18.301	1229.869	8.188	11.843	103.846	2461.356	9.152	3.663	14.653
L7	23.635	18.301	1229.869	8.188	11.843	103.846	2461.356	9.152	3.663	14.653
	24.598	19.054	1388.004	8.524	12.325	112.614	2777.834	9.529	3.830	15.321
L8	24.598	19.054	1388.004	8.524	12.325	112.614	2777.834	9.529	3.830	15.321
	25.562	19.807	1559.144	8.861	12.807	121.738	3120.339	9.905	3.997	15.989
L9	25.562	19.807	1559.144	8.861	12.807	121.738	3120.339	9.905	3.997	15.989
	26.718	20.710	1782.403	9.265	13.386	133.156	3567.151	10.357	4.198	16.79
L10	26.201	24.710	1937.487	8.844	12.814	151.198	3877.523	12.357	3.890	12.447

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	I/Q in <sup>2</sup>	w in	w/t
L11	26.529	25.651	2167.421	9.181	13.296	163.010	4337.695	12.828	4.057	12.981
	26.529	25.651	2167.421	9.181	13.296	163.010	4337.695	12.828	4.057	12.981
	27.493	26.592	2414.864	9.518	13.778	175.266	4832.905	13.299	4.224	13.515
L12	27.493	26.592	2414.864	9.518	13.778	175.266	4832.905	13.299	4.224	13.515
	28.456	27.534	2680.456	9.854	14.260	187.966	5364.440	13.769	4.391	14.05
L13	28.456	27.534	2680.456	9.854	14.260	187.966	5364.440	13.769	4.391	14.05
	28.882	27.950	2803.856	10.003	14.474	193.723	5611.401	13.978	4.464	14.286
L14	28.882	27.950	2803.856	10.003	14.474	193.723	5611.401	13.978	4.464	14.286
	28.931	27.997	2818.043	10.020	14.498	194.380	5639.793	14.001	4.473	14.313
L15	28.931	27.997	2818.043	10.020	14.498	194.380	5639.793	14.001	4.473	14.313
	29.894	28.938	3111.914	10.357	14.980	207.743	6227.923	14.472	4.640	14.847
L16	29.894	28.938	3111.914	10.357	14.980	207.743	6227.923	14.472	4.640	14.847
	30.440	29.471	3287.146	10.548	15.253	215.511	6578.618	14.738	4.734	15.15
L17	30.390	59.464	6488.131	10.433	15.253	425.374	12984.800	29.738	4.162	6.529
	30.438	59.560	6519.606	10.449	15.277	426.763	13047.792	29.786	4.171	6.542
L18	30.432	62.983	6876.763	10.436	15.277	450.142	13762.574	31.497	4.105	6.081
	31.287	64.785	7484.214	10.735	15.704	476.572	14978.277	32.399	4.253	6.301
L19	31.287	64.785	7484.214	10.735	15.704	476.572	14978.277	32.399	4.253	6.301
	31.335	64.887	7519.498	10.752	15.728	478.085	15048.891	32.450	4.261	6.313
L20	31.337	63.712	7389.390	10.756	15.728	469.813	14788.503	31.862	4.283	6.465
	32.300	65.707	8105.625	11.093	16.210	500.026	16221.915	32.860	4.450	6.717
L21	32.302	64.493	7962.236	11.097	16.210	491.181	15934.949	32.253	4.472	6.88
	33.266	66.451	8709.547	11.434	16.692	521.766	17430.555	33.232	4.639	7.137
L22	33.268	65.198	8552.005	11.439	16.692	512.328	17115.263	32.605	4.661	7.312
	34.919	68.488	9912.983	12.016	17.518	565.862	19839.009	34.250	4.947	7.761
L23	34.274	71.857	9495.925	11.481	16.785	565.730	19004.344	35.935	4.583	6.548
	34.407	73.965	10356.505	11.818	17.267	599.776	20726.636	36.990	4.750	6.786
L24	34.407	73.965	10356.505	11.818	17.267	599.776	20726.636	36.990	4.750	6.786
	34.563	74.307	10500.811	11.873	17.345	605.391	21015.439	37.161	4.777	6.825
L25	34.614	40.194	5791.030	11.988	17.345	333.864	11589.679	20.101	5.349	14.265
	34.662	40.251	5815.472	12.005	17.370	334.808	11638.597	20.129	5.358	14.287
L26	34.662	40.251	5815.472	12.005	17.370	334.808	11638.597	20.129	5.358	14.287
	35.625	41.380	6318.876	12.342	17.852	353.966	12646.067	20.694	5.525	14.733
L27	35.625	41.380	6318.876	12.342	17.852	353.966	12646.067	20.694	5.525	14.733
	35.898	41.700	6466.644	12.437	17.988	359.493	12941.797	20.854	5.572	14.859
L28	35.898	41.700	6466.644	12.437	17.988	359.493	12941.797	20.854	5.572	14.859
	35.946	41.757	6492.951	12.454	18.012	360.472	12994.446	20.882	5.580	14.881
L29	35.946	41.757	6492.951	12.454	18.012	360.472	12994.446	20.882	5.580	14.881
	36.910	42.886	7034.187	12.791	18.494	380.342	14077.629	21.447	5.748	15.327
L30	36.910	42.886	7034.187	12.791	18.494	380.342	14077.629	21.447	5.748	15.327
	37.874	44.016	7604.693	13.128	18.976	400.744	15219.393	22.012	5.915	15.772
L31	37.874	44.016	7604.693	13.128	18.976	400.744	15219.393	22.012	5.915	15.772
	38.837	45.145	8205.242	13.465	19.458	421.680	16421.281	22.577	6.082	16.217
L32	38.837	45.145	8205.242	13.465	19.458	421.680	16421.281	22.577	6.082	16.217
	39.801	46.274	8836.604	13.802	19.940	443.149	17684.836	23.142	6.249	16.663
L33	39.801	46.274	8836.604	13.802	19.940	443.149	17684.836	23.142	6.249	16.663
	40.764	47.404	9499.550	14.139	20.423	465.150	19011.600	23.706	6.416	17.108
L34	40.764	47.404	9499.550	14.139	20.423	465.150	19011.600	23.706	6.416	17.108
	41.153	47.859	9775.959	14.274	20.617	474.172	19564.782	23.934	6.483	17.288
L35	41.153	47.859	9775.959	14.274	20.617	474.172	19564.782	23.934	6.483	17.288
	41.201	47.916	9810.605	14.291	20.641	475.297	19634.119	23.962	6.491	17.31
L36	41.201	47.916	9810.605	14.291	20.641	475.297	19634.119	23.962	6.491	17.31
	43.035	50.065	11191.193	14.932	21.559	519.108	22397.111	25.038	6.809	18.158
L37	42.223	88.830	17939.512	14.193	20.666	868.066	35902.630	44.424	5.928	8.468
	42.416	91.489	19598.818	14.618	21.274	921.262	39223.425	45.753	6.138	8.769
L38	42.418	89.882	19266.374	14.623	21.274	905.635	38558.099	44.950	6.160	8.961
	43.262	91.697	20457.265	14.918	21.696	942.886	40941.448	45.857	6.307	9.174
L39	43.262	91.697	20457.265	14.918	21.696	942.886	40941.448	45.857	6.307	9.174
	43.330	91.842	20554.423	14.941	21.730	945.893	41135.893	45.930	6.319	9.191
L40	43.330	91.842	20554.423	14.941	21.730	945.893	41135.893	45.930	6.319	9.191
	43.375	91.939	20619.552	14.957	21.753	947.906	41266.235	45.978	6.326	9.202
L41	43.377	90.294	20262.675	14.962	21.753	931.500	40552.012	45.156	6.348	9.405
	44.340	92.327	21662.303	15.298	22.235	974.254	43353.110	46.172	6.515	9.652
L42	44.340	92.327	21662.303	15.298	22.235	974.254	43353.110	46.172	6.515	9.652
	45.304	94.360	23124.944	15.635	22.717	1017.968	46280.316	47.189	6.682	9.9
L43	45.306	92.639	22716.034	15.640	22.717	999.967	45461.959	46.328	6.704	10.12
	46.141	94.368	24011.887	15.932	23.134	1037.926	48055.370	47.193	6.849	10.338
L44	46.141	94.368	24011.887	15.932	23.134	1037.926	48055.370	47.193	6.849	10.338
	46.189	94.468	24088.121	15.948	23.159	1040.137	48207.938	47.243	6.857	10.351
L45	46.189	94.468	24088.121	15.948	23.159	1040.137	48207.938	47.243	6.857	10.351

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	I/Q in <sup>2</sup>	w in	w/t
L46	47.152	96.463	25646.873	16.285	23.641	1084.865	51327.492	48.241	7.024	10.603
	47.154	94.669	25183.545	16.290	23.641	1065.266	50400.226	47.343	7.046	10.841
	48.118	96.626	26778.338	16.627	24.123	1110.091	53591.912	48.322	7.213	11.098
L47	48.118	96.626	26778.338	16.627	24.123	1110.091	53591.912	48.322	7.213	11.098
	49.081	98.584	28439.078	16.963	24.605	1155.841	56915.578	49.301	7.380	11.355
L48	49.081	98.584	28439.078	16.963	24.605	1155.841	56915.578	49.301	7.380	11.355
	49.145	98.714	28552.059	16.986	24.637	1158.921	57141.687	49.367	7.392	11.372
L49	49.138	106.197	30652.077	16.968	24.637	1244.160	61344.486	53.108	7.304	10.434
	49.186	106.302	30743.442	16.985	24.661	1246.649	61527.336	53.161	7.312	10.446
L50	49.186	106.302	30743.442	16.985	24.661	1246.649	61527.336	53.161	7.312	10.446
	49.603	107.216	31543.012	17.131	24.870	1268.327	63127.529	53.618	7.384	10.549
L51	49.648	63.557	18922.056	17.233	24.870	760.845	37869.011	31.785	7.890	19.128
	49.696	63.619	18977.590	17.250	24.894	762.340	37980.151	31.816	7.899	19.148
L52	49.694	65.530	19537.582	17.245	24.894	784.835	39100.873	32.771	7.877	18.533
	50.128	66.106	20057.307	17.397	25.111	798.753	40141.007	33.059	7.952	18.71
L53	50.097	96.818	29136.378	17.326	25.111	1160.313	58311.094	48.418	7.600	12.16
	50.145	96.912	29221.430	17.343	25.135	1162.584	58481.309	48.465	7.608	12.173
L54	50.145	96.912	29221.430	17.343	25.135	1162.584	58481.309	48.465	7.608	12.173
	50.675	97.948	30167.944	17.528	25.400	1187.714	60375.584	48.983	7.700	12.32

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A <sub>r</sub>	Adjust. Factor A <sub>r</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft <sup>2</sup>	in					in	in	in
L1 180.500-175.500				1	1	1			
L2 175.500-170.500				1	1	1			
L3 170.500-165.500				1	1	1			
L4 165.500-160.500				1	1	1			
L5 160.500-155.500				1	1	1			
L6 155.500-150.500				1	1	1			
L7 150.500-145.500				1	1	1			
L8 145.500-140.500				1	1	1			
L9 140.500-134.500				1	1	1			
L10 134.500-132.794				1	1	1			
L11 132.794-127.794				1	1	1			
L12 127.794-122.794				1	1	1			
L13 122.794-120.583				1	1	1			
L14 120.583-120.333				1	1	1			
L15 120.333-115.333				1	1	1			
L16 115.333-112.500				1	1	1			
L17 112.500-112.250				1	1	0.944922			
L18 112.250-107.817				1	1	0.937617			
L19 107.817-107.567				1	1	0.936874			
L20 107.567-102.567				1	1	0.939506			
L21 102.567-97.567				1	1	0.943155			
L22 97.567-89.000				1	1	0.949755			

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 <sup>2</sup>	in							
L23 89.000-88.311				1	1	0.951827			
L24 88.311-87.500				1	1	0.949912			
L25 87.500-87.250				1	1	1			
L26 87.250-82.250				1	1	1			
L27 82.250-80.833				1	1	1			
L28 80.833-80.583				1	1	1			
L29 80.583-75.583				1	1	1			
L30 75.583-70.583				1	1	1			
L31 70.583-65.583				1	1	1			
L32 65.583-60.583				1	1	1			
L33 60.583-55.583				1	1	1			
L34 55.583-53.567				1	1	1			
L35 53.567-53.317				1	1	1			
L36 53.317-43.800				1	1	1			
L37 43.800-42.800				1	1	0.991654			
L38 42.800-38.417				1	1	1.00019			
L39 38.417-38.067				1	1	0.999477			
L40 38.067-37.833				1	1	0.998999			
L41 37.833-32.833				1	1	1.00703			
L42 32.833-27.833				1	1	0.997306			
L43 27.833-23.500				1	1	1.00759			
L44 23.500-23.250				1	1	1.00713			
L45 23.250-18.250				1	1	0.998003			
L46 18.250-13.250				1	1	1.008			
L47 13.250-8.250				1	1	0.999444			
L48 8.250-7.917				1	1	0.998886			
L49 7.917-7.667				1	1	0.98227			
L50 7.667-5.500				1	1	0.978464			
L51 5.500-5.250				1	1	1.08909			
L52 5.250-3.000				1	1	1.0558			
L53 3.000-2.750				1	1	0.978745			
L54 2.750-0.000				1	1	0.974742			

**Feed Line/Linear Appurtenances - Entered As Round Or Flat**

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
***										
MP3-05	A	No	Surface Af (CaAa)	40.500 - 0.583	1	1	0.100 0.150	5.330	14.840	0.000
MP3-05	B	No	Surface Af (CaAa)	40.500 - 5.500	1	1	0.100 0.150	5.330	14.840	0.000
MP3-05	C	No	Surface Af (CaAa)	40.500 - 0.583	1	1	0.100 0.150	5.330	14.840	0.000
*										
MP3-05	A	No	Surface Af (CaAa)	56.000 - 36.000	1	1	-0.150 -0.100	5.330	14.840	0.000
MP3-05	B	No	Surface Af (CaAa)	56.000 - 36.000	1	1	-0.150 -0.100	5.330	14.840	0.000
MP3-05	C	No	Surface Af (CaAa)	56.000 - 36.000	1	1	-0.150 -0.100	5.330	14.840	0.000
*										
MP3-04	A	No	Surface Af (CaAa)	82.250 - 52.250	1	1	0.100 0.150	4.780	12.780	0.000
MP3-04	B	No	Surface Af (CaAa)	82.250 - 52.250	1	1	0.100 0.150	4.780	12.780	0.000
MP3-04	C	No	Surface Af (CaAa)	82.250 - 52.250	1	1	0.100 0.150	4.780	12.780	0.000
*										
MP3-04	A	No	Surface Af (CaAa)	109.250 - 79.250	1	1	-0.150 -0.100	4.780	12.780	0.000
MP3-04	B	No	Surface Af (CaAa)	109.250 - 79.250	1	1	-0.150 -0.100	4.780	12.780	0.000
MP3-04	C	No	Surface Af (CaAa)	109.250 - 79.250	1	1	-0.150 -0.100	4.780	12.780	0.000
*										
MP3-03	A	No	Surface Af (CaAa)	121.750 - 106.750	1	1	0.100 0.150	4.060	11.260	0.000
MP3-03	B	No	Surface Af (CaAa)	121.750 - 106.750	1	1	0.100 0.150	4.060	11.260	0.000
MP3-03	C	No	Surface Af (CaAa)	121.750 - 106.750	1	1	0.100 0.150	4.060	11.260	0.000
*										
CCI 6.5" x 1.25" Plate	A	No	Surface Af (CaAa)	52.083 - 2.000	1	1	0.450 0.500	6.500	15.500	0.000
CCI 6.5" x 1.25" Plate	B	No	Surface Af (CaAa)	52.083 - 2.000	1	1	0.450 0.500	6.500	15.500	0.000
CCI 6.5" x 1.25" Plate	C	No	Surface Af (CaAa)	52.083 - 2.000	1	1	0.450 0.500	6.500	15.500	0.000
*										
CCI 6" x 1" Plate	A	No	Surface Af (CaAa)	115.000 - 85.000	1	1	0.350 0.400	6.000	14.000	0.000
CCI 6" x 1" Plate	B	No	Surface Af (CaAa)	115.000 - 85.000	1	1	0.350 0.400	6.000	14.000	0.000
CCI 6" x 1" Plate	C	No	Surface Af (CaAa)	115.000 - 85.000	1	1	0.350 0.400	6.000	14.000	0.000
*										

**Feed Line/Linear Appurtenances - Entered As Area**

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	CaAA	Weight
							ft <sup>2</sup> /ft	plf
HB158-21U6S24-xxM_TMO(1-5/8)	A	No	No	Inside Pole	180.000 - 0.000	3	No Ice 1/2" Ice 1" Ice	2.500 2.500 2.500
***								
HB158-U12S24-	B	No	No	Inside Pole	0.000 - 0.000	1	No Ice	0.198 3.200

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C <sub>AA</sub> ft <sup>2</sup> /ft	Weight plf
XXX-LI(1-5/8)							1/2" Ice	0.298	4.712
							1" Ice	0.398	6.836
***									
LDF6-50A(1-1/4)	B	No	No	Inside Pole	160.000 - 0.000	12	No Ice	0.000	0.600
							1/2" Ice	0.000	0.600
							1" Ice	0.000	0.600
***									
FB-L98B-002-75000(3/8)	B	No	No	Inside Pole	158.000 - 0.000	1	No Ice	0.000	0.059
							1/2" Ice	0.000	0.059
							1" Ice	0.000	0.059
WR-VG122ST-BRDA(7/16)	B	No	No	Inside Pole	158.000 - 0.000	2	No Ice	0.000	0.141
							1/2" Ice	0.000	0.141
							1" Ice	0.000	0.141
2" Rigid Conduit	B	No	No	Inside Pole	158.000 - 0.000	1	No Ice	0.000	2.800
							1/2" Ice	0.000	2.800
							1" Ice	0.000	2.800
***									
LDF4-50A(1/2)	A	No	No	Inside Pole	78.000 - 0.000	1	No Ice	0.000	0.150
							1/2" Ice	0.000	0.150
							1" Ice	0.000	0.150
***									
CU12PSM9P6XXX (1-1/2)	A	No	No	Inside Pole	141.000 - 0.000	1	No Ice	0.000	2.350
							1/2" Ice	0.000	2.350
							1" Ice	0.000	2.350
*									

**Feed Line/Linear Appurtenances Section Areas**

Tower Section	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
L1	180.500-175.500	A	0.000	0.000	0.000	0.000	0.034
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000
L2	175.500-170.500	A	0.000	0.000	0.000	0.000	0.037
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000
L3	170.500-165.500	A	0.000	0.000	0.000	0.000	0.037
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000
L4	165.500-160.500	A	0.000	0.000	0.000	0.000	0.037
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000
L5	160.500-155.500	A	0.000	0.000	0.000	0.000	0.037
		B	0.000	0.000	0.000	0.000	0.040
		C	0.000	0.000	0.000	0.000	0.000
L6	155.500-150.500	A	0.000	0.000	0.000	0.000	0.037
		B	0.000	0.000	0.000	0.000	0.052
		C	0.000	0.000	0.000	0.000	0.000
L7	150.500-145.500	A	0.000	0.000	0.000	0.000	0.037
		B	0.000	0.000	0.000	0.000	0.052
		C	0.000	0.000	0.000	0.000	0.000
L8	145.500-140.500	A	0.000	0.000	0.000	0.000	0.039
		B	0.000	0.000	0.000	0.000	0.052
		C	0.000	0.000	0.000	0.000	0.000
L9	140.500-134.500	A	0.000	0.000	0.000	0.000	0.059
		B	0.000	0.000	0.000	0.000	0.062
		C	0.000	0.000	0.000	0.000	0.000
L10	134.500-132.794	A	0.000	0.000	0.000	0.000	0.017
		B	0.000	0.000	0.000	0.000	0.018
		C	0.000	0.000	0.000	0.000	0.000
L11	132.794-127.794	A	0.000	0.000	0.000	0.000	0.049
		B	0.000	0.000	0.000	0.000	0.052
		C	0.000	0.000	0.000	0.000	0.000
L12	127.794-122.794	A	0.000	0.000	0.000	0.000	0.049

Tower Sectio n	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>	Weight K
		B	0.000	0.000	0.000	0.000	0.052
		C	0.000	0.000	0.000	0.000	0.000
L13	122.794-120.583	A	0.000	0.000	0.790	0.000	0.022
		B	0.000	0.000	0.790	0.000	0.023
		C	0.000	0.000	0.790	0.000	0.000
L14	120.583-120.333	A	0.000	0.000	0.169	0.000	0.002
		B	0.000	0.000	0.169	0.000	0.003
		C	0.000	0.000	0.169	0.000	0.000
L15	120.333-115.333	A	0.000	0.000	3.383	0.000	0.049
		B	0.000	0.000	3.383	0.000	0.052
		C	0.000	0.000	3.383	0.000	0.000
L16	115.333-112.500	A	0.000	0.000	4.417	0.000	0.028
		B	0.000	0.000	4.417	0.000	0.029
		C	0.000	0.000	4.417	0.000	0.000
L17	112.500-112.250	A	0.000	0.000	0.419	0.000	0.002
		B	0.000	0.000	0.419	0.000	0.003
		C	0.000	0.000	0.419	0.000	0.000
L18	112.250-107.817	A	0.000	0.000	8.574	0.000	0.044
		B	0.000	0.000	8.574	0.000	0.046
		C	0.000	0.000	8.574	0.000	0.000
L19	107.817-107.567	A	0.000	0.000	0.618	0.000	0.002
		B	0.000	0.000	0.618	0.000	0.003
		C	0.000	0.000	0.618	0.000	0.000
L20	107.567-102.567	A	0.000	0.000	9.536	0.000	0.049
		B	0.000	0.000	9.536	0.000	0.052
		C	0.000	0.000	9.536	0.000	0.000
L21	102.567-97.567	A	0.000	0.000	8.983	0.000	0.049
		B	0.000	0.000	8.983	0.000	0.052
		C	0.000	0.000	8.983	0.000	0.000
L22	97.567-89.000	A	0.000	0.000	15.392	0.000	0.084
		B	0.000	0.000	15.392	0.000	0.089
		C	0.000	0.000	15.392	0.000	0.000
L23	89.000-88.311	A	0.000	0.000	1.238	0.000	0.007
		B	0.000	0.000	1.238	0.000	0.007
		C	0.000	0.000	1.238	0.000	0.000
L24	88.311-87.500	A	0.000	0.000	1.457	0.000	0.008
		B	0.000	0.000	1.457	0.000	0.008
		C	0.000	0.000	1.457	0.000	0.000
L25	87.500-87.250	A	0.000	0.000	0.449	0.000	0.002
		B	0.000	0.000	0.449	0.000	0.003
		C	0.000	0.000	0.449	0.000	0.000
L26	87.250-82.250	A	0.000	0.000	6.233	0.000	0.049
		B	0.000	0.000	6.233	0.000	0.052
		C	0.000	0.000	6.233	0.000	0.000
L27	82.250-80.833	A	0.000	0.000	2.258	0.000	0.014
		B	0.000	0.000	2.258	0.000	0.015
		C	0.000	0.000	2.258	0.000	0.000
L28	80.833-80.583	A	0.000	0.000	0.398	0.000	0.002
		B	0.000	0.000	0.398	0.000	0.003
		C	0.000	0.000	0.398	0.000	0.000
L29	80.583-75.583	A	0.000	0.000	5.045	0.000	0.050
		B	0.000	0.000	5.045	0.000	0.052
		C	0.000	0.000	5.045	0.000	0.000
L30	75.583-70.583	A	0.000	0.000	3.983	0.000	0.050
		B	0.000	0.000	3.983	0.000	0.052
		C	0.000	0.000	3.983	0.000	0.000
L31	70.583-65.583	A	0.000	0.000	3.983	0.000	0.050
		B	0.000	0.000	3.983	0.000	0.052
		C	0.000	0.000	3.983	0.000	0.000
L32	65.583-60.583	A	0.000	0.000	3.983	0.000	0.050
		B	0.000	0.000	3.983	0.000	0.052
		C	0.000	0.000	3.983	0.000	0.000
L33	60.583-55.583	A	0.000	0.000	4.354	0.000	0.050
		B	0.000	0.000	4.354	0.000	0.052
		C	0.000	0.000	4.354	0.000	0.000
L34	55.583-53.567	A	0.000	0.000	3.397	0.000	0.020
		B	0.000	0.000	3.397	0.000	0.021
		C	0.000	0.000	3.397	0.000	0.000
L35	53.567-53.317	A	0.000	0.000	0.421	0.000	0.003



Tower Sectio n	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>	Weight K
		B	0.000	0.000	0.421	0.000	0.003
		C	0.000	0.000	0.421	0.000	0.000
L36	53.317-43.800	A	0.000	0.000	18.278	0.000	0.095
		B	0.000	0.000	18.278	0.000	0.098
		C	0.000	0.000	18.278	0.000	0.000
L37	43.800-42.800	A	0.000	0.000	1.972	0.000	0.010
		B	0.000	0.000	1.972	0.000	0.010
		C	0.000	0.000	1.972	0.000	0.000
L38	42.800-38.417	A	0.000	0.000	10.492	0.000	0.044
		B	0.000	0.000	10.492	0.000	0.045
		C	0.000	0.000	10.492	0.000	0.000
L39	38.417-38.067	A	0.000	0.000	1.001	0.000	0.004
		B	0.000	0.000	1.001	0.000	0.004
		C	0.000	0.000	1.001	0.000	0.000
L40	38.067-37.833	A	0.000	0.000	0.669	0.000	0.002
		B	0.000	0.000	0.669	0.000	0.002
		C	0.000	0.000	0.669	0.000	0.000
L41	37.833-32.833	A	0.000	0.000	11.487	0.000	0.050
		B	0.000	0.000	11.487	0.000	0.052
		C	0.000	0.000	11.487	0.000	0.000
L42	32.833-27.833	A	0.000	0.000	9.858	0.000	0.050
		B	0.000	0.000	9.858	0.000	0.052
		C	0.000	0.000	9.858	0.000	0.000
L43	27.833-23.500	A	0.000	0.000	8.543	0.000	0.043
		B	0.000	0.000	8.543	0.000	0.045
		C	0.000	0.000	8.543	0.000	0.000
L44	23.500-23.250	A	0.000	0.000	0.493	0.000	0.003
		B	0.000	0.000	0.493	0.000	0.003
		C	0.000	0.000	0.493	0.000	0.000
L45	23.250-18.250	A	0.000	0.000	9.858	0.000	0.050
		B	0.000	0.000	9.858	0.000	0.052
		C	0.000	0.000	9.858	0.000	0.000
L46	18.250-13.250	A	0.000	0.000	9.858	0.000	0.050
		B	0.000	0.000	9.858	0.000	0.052
		C	0.000	0.000	9.858	0.000	0.000
L47	13.250-8.250	A	0.000	0.000	9.858	0.000	0.050
		B	0.000	0.000	9.858	0.000	0.052
		C	0.000	0.000	9.858	0.000	0.000
L48	8.250-7.917	A	0.000	0.000	0.657	0.000	0.003
		B	0.000	0.000	0.657	0.000	0.003
		C	0.000	0.000	0.657	0.000	0.000
L49	7.917-7.667	A	0.000	0.000	0.493	0.000	0.003
		B	0.000	0.000	0.493	0.000	0.003
		C	0.000	0.000	0.493	0.000	0.000
L50	7.667-5.500	A	0.000	0.000	4.273	0.000	0.022
		B	0.000	0.000	4.273	0.000	0.022
		C	0.000	0.000	4.273	0.000	0.000
L51	5.500-5.250	A	0.000	0.000	0.493	0.000	0.003
		B	0.000	0.000	0.271	0.000	0.003
		C	0.000	0.000	0.493	0.000	0.000
L52	5.250-3.000	A	0.000	0.000	4.436	0.000	0.022
		B	0.000	0.000	2.438	0.000	0.023
		C	0.000	0.000	4.436	0.000	0.000
L53	3.000-2.750	A	0.000	0.000	0.493	0.000	0.003
		B	0.000	0.000	0.271	0.000	0.003
		C	0.000	0.000	0.493	0.000	0.000
L54	2.750-0.000	A	0.000	0.000	2.738	0.000	0.028
		B	0.000	0.000	0.813	0.000	0.028
		C	0.000	0.000	2.738	0.000	0.000

### Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Sectio n	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>	Weight K
L1	180.500-175.500	A	1.006	0.000	0.000	0.000	0.000	0.034

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>	Weight K
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000
L2	175.500-170.500	A	1.003	0.000	0.000	0.000	0.000	0.037
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000
L3	170.500-165.500	A	1.000	0.000	0.000	0.000	0.000	0.037
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000
L4	165.500-160.500	A	0.997	0.000	0.000	0.000	0.000	0.037
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000
L5	160.500-155.500	A	0.994	0.000	0.000	0.000	0.000	0.037
		B		0.000	0.000	0.000	0.000	0.040
		C		0.000	0.000	0.000	0.000	0.000
L6	155.500-150.500	A	0.991	0.000	0.000	0.000	0.000	0.037
		B		0.000	0.000	0.000	0.000	0.052
		C		0.000	0.000	0.000	0.000	0.000
L7	150.500-145.500	A	0.988	0.000	0.000	0.000	0.000	0.037
		B		0.000	0.000	0.000	0.000	0.052
		C		0.000	0.000	0.000	0.000	0.000
L8	145.500-140.500	A	0.984	0.000	0.000	0.000	0.000	0.039
		B		0.000	0.000	0.000	0.000	0.052
		C		0.000	0.000	0.000	0.000	0.000
L9	140.500-134.500	A	0.980	0.000	0.000	0.000	0.000	0.059
		B		0.000	0.000	0.000	0.000	0.062
		C		0.000	0.000	0.000	0.000	0.000
L10	134.500-132.794	A	0.978	0.000	0.000	0.000	0.000	0.017
		B		0.000	0.000	0.000	0.000	0.018
		C		0.000	0.000	0.000	0.000	0.000
L11	132.794-127.794	A	0.975	0.000	0.000	0.000	0.000	0.049
		B		0.000	0.000	0.000	0.000	0.052
		C		0.000	0.000	0.000	0.000	0.000
L12	127.794-122.794	A	0.971	0.000	0.000	0.000	0.000	0.049
		B		0.000	0.000	0.000	0.000	0.052
		C		0.000	0.000	0.000	0.000	0.000
L13	122.794-120.583	A	0.968	0.000	0.000	1.016	0.000	0.028
		B		0.000	0.000	1.016	0.000	0.029
		C		0.000	0.000	1.016	0.000	0.007
L14	120.583-120.333	A	0.968	0.000	0.000	0.218	0.000	0.004
		B		0.000	0.000	0.218	0.000	0.004
		C		0.000	0.000	0.218	0.000	0.001
L15	120.333-115.333	A	0.965	0.000	0.000	4.349	0.000	0.077
		B		0.000	0.000	4.349	0.000	0.080
		C		0.000	0.000	4.349	0.000	0.028
L16	115.333-112.500	A	0.962	0.000	0.000	5.443	0.000	0.060
		B		0.000	0.000	5.443	0.000	0.062
		C		0.000	0.000	5.443	0.000	0.032
L17	112.500-112.250	A	0.961	0.000	0.000	0.515	0.000	0.006
		B		0.000	0.000	0.515	0.000	0.006
		C		0.000	0.000	0.515	0.000	0.003
L18	112.250-107.817	A	0.959	0.000	0.000	10.549	0.000	0.106
		B		0.000	0.000	10.549	0.000	0.108
		C		0.000	0.000	10.549	0.000	0.063
L19	107.817-107.567	A	0.957	0.000	0.000	0.762	0.000	0.007
		B		0.000	0.000	0.762	0.000	0.007
		C		0.000	0.000	0.762	0.000	0.005
L20	107.567-102.567	A	0.954	0.000	0.000	11.601	0.000	0.117
		B		0.000	0.000	11.601	0.000	0.119
		C		0.000	0.000	11.601	0.000	0.068
L21	102.567-97.567	A	0.950	0.000	0.000	10.883	0.000	0.112
		B		0.000	0.000	10.883	0.000	0.114
		C		0.000	0.000	10.883	0.000	0.063
L22	97.567-89.000	A	0.943	0.000	0.000	18.624	0.000	0.191
		B		0.000	0.000	18.624	0.000	0.195
		C		0.000	0.000	18.624	0.000	0.107
L23	89.000-88.311	A	0.938	0.000	0.000	1.498	0.000	0.015
		B		0.000	0.000	1.498	0.000	0.016
		C		0.000	0.000	1.498	0.000	0.009
L24	88.311-87.500	A	0.937	0.000	0.000	1.761	0.000	0.018

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> In Face ft <sup>2</sup>	C <sub>A</sub> A <sub>A</sub> Out Face ft <sup>2</sup>	Weight K
		B		0.000	0.000	1.761	0.000	0.018
		C		0.000	0.000	1.761	0.000	0.010
L25	87.500-87.250	A	0.937	0.000	0.000	0.543	0.000	0.006
		B		0.000	0.000	0.543	0.000	0.006
		C		0.000	0.000	0.543	0.000	0.003
L26	87.250-82.250	A	0.934	0.000	0.000	7.588	0.000	0.093
		B		0.000	0.000	7.588	0.000	0.096
		C		0.000	0.000	7.588	0.000	0.044
L27	82.250-80.833	A	0.930	0.000	0.000	2.785	0.000	0.031
		B		0.000	0.000	2.785	0.000	0.031
		C		0.000	0.000	2.785	0.000	0.017
L28	80.833-80.583	A	0.930	0.000	0.000	0.491	0.000	0.005
		B		0.000	0.000	0.491	0.000	0.006
		C		0.000	0.000	0.491	0.000	0.003
L29	80.583-75.583	A	0.926	0.000	0.000	6.219	0.000	0.087
		B		0.000	0.000	6.219	0.000	0.089
		C		0.000	0.000	6.219	0.000	0.037
L30	75.583-70.583	A	0.920	0.000	0.000	4.904	0.000	0.079
		B		0.000	0.000	4.904	0.000	0.081
		C		0.000	0.000	4.904	0.000	0.029
L31	70.583-65.583	A	0.914	0.000	0.000	4.897	0.000	0.079
		B		0.000	0.000	4.897	0.000	0.081
		C		0.000	0.000	4.897	0.000	0.029
L32	65.583-60.583	A	0.907	0.000	0.000	4.890	0.000	0.079
		B		0.000	0.000	4.890	0.000	0.080
		C		0.000	0.000	4.890	0.000	0.029
L33	60.583-55.583	A	0.899	0.000	0.000	5.328	0.000	0.081
		B		0.000	0.000	5.328	0.000	0.083
		C		0.000	0.000	5.328	0.000	0.031
L34	55.583-53.567	A	0.894	0.000	0.000	4.118	0.000	0.044
		B		0.000	0.000	4.118	0.000	0.045
		C		0.000	0.000	4.118	0.000	0.024
L35	53.567-53.317	A	0.892	0.000	0.000	0.510	0.000	0.005
		B		0.000	0.000	0.510	0.000	0.006
		C		0.000	0.000	0.510	0.000	0.003
L36	53.317-43.800	A	0.883	0.000	0.000	21.611	0.000	0.214
		B		0.000	0.000	21.611	0.000	0.217
		C		0.000	0.000	21.611	0.000	0.119
L37	43.800-42.800	A	0.873	0.000	0.000	2.325	0.000	0.023
		B		0.000	0.000	2.325	0.000	0.023
		C		0.000	0.000	2.325	0.000	0.013
L38	42.800-38.417	A	0.868	0.000	0.000	12.375	0.000	0.111
		B		0.000	0.000	12.375	0.000	0.113
		C		0.000	0.000	12.375	0.000	0.067
L39	38.417-38.067	A	0.863	0.000	0.000	1.182	0.000	0.010
		B		0.000	0.000	1.182	0.000	0.010
		C		0.000	0.000	1.182	0.000	0.006
L40	38.067-37.833	A	0.862	0.000	0.000	0.790	0.000	0.007
		B		0.000	0.000	0.790	0.000	0.007
		C		0.000	0.000	0.790	0.000	0.004
L41	37.833-32.833	A	0.856	0.000	0.000	13.512	0.000	0.122
		B		0.000	0.000	13.512	0.000	0.124
		C		0.000	0.000	13.512	0.000	0.072
L42	32.833-27.833	A	0.843	0.000	0.000	11.544	0.000	0.110
		B		0.000	0.000	11.544	0.000	0.112
		C		0.000	0.000	11.544	0.000	0.060
L43	27.833-23.500	A	0.829	0.000	0.000	9.980	0.000	0.094
		B		0.000	0.000	9.980	0.000	0.096
		C		0.000	0.000	9.980	0.000	0.051
L44	23.500-23.250	A	0.821	0.000	0.000	0.575	0.000	0.005
		B		0.000	0.000	0.575	0.000	0.006
		C		0.000	0.000	0.575	0.000	0.003
L45	23.250-18.250	A	0.811	0.000	0.000	11.481	0.000	0.108
		B		0.000	0.000	11.481	0.000	0.109
		C		0.000	0.000	11.481	0.000	0.058
L46	18.250-13.250	A	0.789	0.000	0.000	11.437	0.000	0.106
		B		0.000	0.000	11.437	0.000	0.107
		C		0.000	0.000	11.437	0.000	0.056
L47	13.250-8.250	A	0.760	0.000	0.000	11.378	0.000	0.103

Tower Section	Tower Elevation	Face or Leg	Ice Thickness	A <sub>R</sub>	A <sub>F</sub>	C <sub>A</sub> A <sub>A</sub> In Face	C <sub>A</sub> A <sub>A</sub> Out Face	Weight
n	ft		in	ft <sup>2</sup>	ft <sup>2</sup>	ft <sup>2</sup>	ft <sup>2</sup>	K
		B		0.000	0.000	11.378	0.000	0.105
		C		0.000	0.000	11.378	0.000	0.053
L48	8.250-7.917	A	0.738	0.000	0.000	0.755	0.000	0.007
		B		0.000	0.000	0.755	0.000	0.007
		C		0.000	0.000	0.755	0.000	0.003
L49	7.917-7.667	A	0.736	0.000	0.000	0.566	0.000	0.005
		B		0.000	0.000	0.566	0.000	0.005
		C		0.000	0.000	0.566	0.000	0.003
L50	7.667-5.500	A	0.723	0.000	0.000	4.900	0.000	0.044
		B		0.000	0.000	4.900	0.000	0.044
		C		0.000	0.000	4.900	0.000	0.022
L51	5.500-5.250	A	0.709	0.000	0.000	0.564	0.000	0.005
		B		0.000	0.000	0.306	0.000	0.004
		C		0.000	0.000	0.564	0.000	0.002
L52	5.250-3.000	A	0.690	0.000	0.000	5.058	0.000	0.044
		B		0.000	0.000	2.748	0.000	0.034
		C		0.000	0.000	5.058	0.000	0.021
L53	3.000-2.750	A	0.666	0.000	0.000	0.560	0.000	0.005
		B		0.000	0.000	0.304	0.000	0.004
		C		0.000	0.000	0.560	0.000	0.002
L54	2.750-0.000	A	0.618	0.000	0.000	3.098	0.000	0.040
		B		0.000	0.000	0.905	0.000	0.032
		C		0.000	0.000	3.098	0.000	0.012

**Feed Line Center of Pressure**

Section	Elevation	CP <sub>x</sub>	CP <sub>z</sub>	CP <sub>x</sub>	CP <sub>z</sub>
	ft	in	in	Ice in	Ice in
L1	180.500-175.500	0.000	0.000	0.000	0.000
L2	175.500-170.500	0.000	0.000	0.000	0.000
L3	170.500-165.500	0.000	0.000	0.000	0.000
L4	165.500-160.500	0.000	0.000	0.000	0.000
L5	160.500-155.500	0.000	0.000	0.000	0.000
L6	155.500-150.500	0.000	0.000	0.000	0.000
L7	150.500-145.500	0.000	0.000	0.000	0.000
L8	145.500-140.500	0.000	0.000	0.000	0.000
L9	140.500-134.500	0.000	0.000	0.000	0.000
L10	134.500-132.794	0.000	0.000	0.000	0.000
L11	132.794-127.794	0.000	0.000	0.000	0.000
L12	127.794-122.794	0.000	0.000	0.000	0.000
L13	122.794-120.583	0.000	0.000	0.000	0.000
L14	120.583-120.333	0.000	0.000	0.000	0.000
L15	120.333-115.333	0.000	0.000	0.000	0.000
L16	115.333-112.500	0.000	0.000	0.000	0.000
L17	112.500-112.250	0.000	0.000	0.000	0.000
L18	112.250-107.817	0.000	0.000	0.000	0.000
L19	107.817-107.567	0.000	0.000	0.000	0.000
L20	107.567-102.567	0.000	0.000	0.000	0.000
L21	102.567-97.567	0.000	0.000	0.000	0.000
L22	97.567-89.000	0.000	0.000	0.000	0.000
L23	89.000-88.311	0.000	0.000	0.000	0.000
L24	88.311-87.500	0.000	0.000	0.000	0.000
L25	87.500-87.250	0.000	0.000	0.000	0.000
L26	87.250-82.250	0.000	0.000	0.000	0.000
L27	82.250-80.833	0.000	0.000	0.000	0.000
L28	80.833-80.583	0.000	0.000	0.000	0.000
L29	80.583-75.583	0.000	0.000	0.000	0.000
L30	75.583-70.583	0.000	0.000	0.000	0.000
L31	70.583-65.583	0.000	0.000	0.000	0.000
L32	65.583-60.583	0.000	0.000	0.000	0.000
L33	60.583-55.583	0.000	0.000	0.000	0.000
L34	55.583-53.567	0.000	0.000	0.000	0.000
L35	53.567-53.317	0.000	0.000	0.000	0.000
L36	53.317-43.800	0.000	0.000	0.000	0.000
L37	43.800-42.800	0.000	0.000	0.000	0.000

Section	Elevation	CP <sub>x</sub>	CP <sub>z</sub>	CP <sub>x</sub>	CP <sub>z</sub>
	ft	in	in	Ice in	Ice in
L38	42.800-38.417	0.000	0.000	0.000	0.000
L39	38.417-38.067	0.000	0.000	0.000	0.000
L40	38.067-37.833	0.000	0.000	0.000	0.000
L41	37.833-32.833	0.000	0.000	0.000	0.000
L42	32.833-27.833	0.000	0.000	0.000	0.000
L43	27.833-23.500	0.000	0.000	0.000	0.000
L44	23.500-23.250	0.000	0.000	0.000	0.000
L45	23.250-18.250	0.000	0.000	0.000	0.000
L46	18.250-13.250	0.000	0.000	0.000	0.000
L47	13.250-8.250	0.000	0.000	0.000	0.000
L48	8.250-7.917	0.000	0.000	0.000	0.000
L49	7.917-7.667	0.000	0.000	0.000	0.000
L50	7.667-5.500	0.000	0.000	0.000	0.000
L51	5.500-5.250	-2.897	0.077	-2.493	0.066
L52	5.250-3.000	-2.906	0.077	-2.496	0.066
L53	3.000-2.750	-2.914	0.077	-2.497	0.066
L54	2.750-0.000	-3.480	0.092	-2.739	0.072

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 <sub>a</sub> No Ice	K <sub>a</sub> Ice
L13	36	MP3-03	120.58 - 121.75	1.0000	1.0000
L13	37	MP3-03	120.58 - 121.75	1.0000	1.0000
L13	38	MP3-03	120.58 - 121.75	1.0000	1.0000
L14	36	MP3-03	120.33 - 120.58	1.0000	1.0000
L14	37	MP3-03	120.33 - 120.58	1.0000	1.0000
L14	38	MP3-03	120.33 - 120.58	1.0000	1.0000
L15	36	MP3-03	115.33 - 120.33	1.0000	1.0000
L15	37	MP3-03	115.33 - 120.33	1.0000	1.0000
L15	38	MP3-03	115.33 - 120.33	1.0000	1.0000
L16	36	MP3-03	112.50 - 115.33	1.0000	1.0000
L16	37	MP3-03	112.50 - 115.33	1.0000	1.0000
L16	38	MP3-03	112.50 - 115.33	1.0000	1.0000
L16	44	CCI 6" x 1" Plate	112.50 - 115.00	1.0000	1.0000
L16	45	CCI 6" x 1" Plate	112.50 - 115.00	1.0000	1.0000
L16	46	CCI 6" x 1" Plate	112.50 - 115.00	1.0000	1.0000
L17	36	MP3-03	112.25 - 112.50	1.0000	1.0000
L17	37	MP3-03	112.25 - 112.50	1.0000	1.0000
L17	38	MP3-03	112.25 - 112.50	1.0000	1.0000
L17	44	CCI 6" x 1" Plate	112.25 - 112.50	1.0000	1.0000
L17	45	CCI 6" x 1" Plate	112.25 - 112.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L17	46	CCI 6" x 1" Plate	112.25 - 112.50	1.0000	1.0000
L18	32	MP3-04	107.82 - 109.25	1.0000	1.0000
L18	33	MP3-04	107.82 - 109.25	1.0000	1.0000
L18	34	MP3-04	107.82 - 109.25	1.0000	1.0000
L18	36	MP3-03	107.82 - 112.25	1.0000	1.0000
L18	37	MP3-03	107.82 - 112.25	1.0000	1.0000
L18	38	MP3-03	107.82 - 112.25	1.0000	1.0000
L18	44	CCI 6" x 1" Plate	107.82 - 112.25	1.0000	1.0000
L18	45	CCI 6" x 1" Plate	107.82 - 112.25	1.0000	1.0000
L18	46	CCI 6" x 1" Plate	107.82 - 112.25	1.0000	1.0000
L19	32	MP3-04	107.57 - 107.82	1.0000	1.0000
L19	33	MP3-04	107.57 - 107.82	1.0000	1.0000
L19	34	MP3-04	107.57 - 107.82	1.0000	1.0000
L19	36	MP3-03	107.57 - 107.82	1.0000	1.0000
L19	37	MP3-03	107.57 - 107.82	1.0000	1.0000
L19	38	MP3-03	107.57 - 107.82	1.0000	1.0000
L19	44	CCI 6" x 1" Plate	107.57 - 107.82	1.0000	1.0000
L19	45	CCI 6" x 1" Plate	107.57 - 107.82	1.0000	1.0000
L19	46	CCI 6" x 1" Plate	107.57 - 107.82	1.0000	1.0000
L20	32	MP3-04	102.57 - 107.57	1.0000	1.0000
L20	33	MP3-04	102.57 - 107.57	1.0000	1.0000
L20	34	MP3-04	102.57 - 107.57	1.0000	1.0000
L20	36	MP3-03	106.75 - 107.57	1.0000	1.0000
L20	37	MP3-03	106.75 - 107.57	1.0000	1.0000
L20	38	MP3-03	106.75 - 107.57	1.0000	1.0000
L20	44	CCI 6" x 1" Plate	102.57 - 107.57	1.0000	1.0000
L20	45	CCI 6" x 1" Plate	102.57 - 107.57	1.0000	1.0000
L20	46	CCI 6" x 1" Plate	102.57 - 107.57	1.0000	1.0000
L21	32	MP3-04	97.57 - 102.57	1.0000	1.0000
L21	33	MP3-04	97.57 - 102.57	1.0000	1.0000
L21	34	MP3-04	97.57 - 102.57	1.0000	1.0000
L21	44	CCI 6" x 1" Plate	97.57 - 102.57	1.0000	1.0000
L21	45	CCI 6" x 1" Plate	97.57 - 102.57	1.0000	1.0000
L21	46	CCI 6" x 1" Plate	97.57 - 102.57	1.0000	1.0000
L22	32	MP3-04	89.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
			97.57		
L22	33	MP3-04	89.00 - 97.57	1.0000	1.0000
L22	34	MP3-04	89.00 - 97.57	1.0000	1.0000
L22	44	CCI 6" x 1" Plate	89.00 - 97.57	1.0000	1.0000
L22	45	CCI 6" x 1" Plate	89.00 - 97.57	1.0000	1.0000
L22	46	CCI 6" x 1" Plate	89.00 - 97.57	1.0000	1.0000
L23	32	MP3-04	88.31 - 89.00	1.0000	1.0000
L23	33	MP3-04	88.31 - 89.00	1.0000	1.0000
L23	34	MP3-04	88.31 - 89.00	1.0000	1.0000
L23	44	CCI 6" x 1" Plate	88.31 - 89.00	1.0000	1.0000
L23	45	CCI 6" x 1" Plate	88.31 - 89.00	1.0000	1.0000
L23	46	CCI 6" x 1" Plate	88.31 - 89.00	1.0000	1.0000
L24	32	MP3-04	87.50 - 88.31	1.0000	1.0000
L24	33	MP3-04	87.50 - 88.31	1.0000	1.0000
L24	34	MP3-04	87.50 - 88.31	1.0000	1.0000
L24	44	CCI 6" x 1" Plate	87.50 - 88.31	1.0000	1.0000
L24	45	CCI 6" x 1" Plate	87.50 - 88.31	1.0000	1.0000
L24	46	CCI 6" x 1" Plate	87.50 - 88.31	1.0000	1.0000
L25	32	MP3-04	87.25 - 87.50	1.0000	1.0000
L25	33	MP3-04	87.25 - 87.50	1.0000	1.0000
L25	34	MP3-04	87.25 - 87.50	1.0000	1.0000
L25	44	CCI 6" x 1" Plate	87.25 - 87.50	1.0000	1.0000
L25	45	CCI 6" x 1" Plate	87.25 - 87.50	1.0000	1.0000
L25	46	CCI 6" x 1" Plate	87.25 - 87.50	1.0000	1.0000
L26	32	MP3-04	82.25 - 87.25	1.0000	1.0000
L26	33	MP3-04	82.25 - 87.25	1.0000	1.0000
L26	34	MP3-04	82.25 - 87.25	1.0000	1.0000
L26	44	CCI 6" x 1" Plate	85.00 - 87.25	1.0000	1.0000
L26	45	CCI 6" x 1" Plate	85.00 - 87.25	1.0000	1.0000
L26	46	CCI 6" x 1" Plate	85.00 - 87.25	1.0000	1.0000
L27	28	MP3-04	80.83 - 82.25	1.0000	1.0000
L27	29	MP3-04	80.83 - 82.25	1.0000	1.0000
L27	30	MP3-04	80.83 - 82.25	1.0000	1.0000
L27	32	MP3-04	80.83 - 82.25	1.0000	1.0000
L27	33	MP3-04	80.83 - 82.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L27	34	MP3-04	80.83 - 82.25	1.0000	1.0000
L28	28	MP3-04	80.58 - 80.83	1.0000	1.0000
L28	29	MP3-04	80.58 - 80.83	1.0000	1.0000
L28	30	MP3-04	80.58 - 80.83	1.0000	1.0000
L28	32	MP3-04	80.58 - 80.83	1.0000	1.0000
L28	33	MP3-04	80.58 - 80.83	1.0000	1.0000
L28	34	MP3-04	80.58 - 80.83	1.0000	1.0000
L29	28	MP3-04	75.58 - 80.58	1.0000	1.0000
L29	29	MP3-04	75.58 - 80.58	1.0000	1.0000
L29	30	MP3-04	75.58 - 80.58	1.0000	1.0000
L29	32	MP3-04	79.25 - 80.58	1.0000	1.0000
L29	33	MP3-04	79.25 - 80.58	1.0000	1.0000
L29	34	MP3-04	79.25 - 80.58	1.0000	1.0000
L30	28	MP3-04	70.58 - 75.58	1.0000	1.0000
L30	29	MP3-04	70.58 - 75.58	1.0000	1.0000
L30	30	MP3-04	70.58 - 75.58	1.0000	1.0000
L31	28	MP3-04	65.58 - 70.58	1.0000	1.0000
L31	29	MP3-04	65.58 - 70.58	1.0000	1.0000
L31	30	MP3-04	65.58 - 70.58	1.0000	1.0000
L32	28	MP3-04	60.58 - 65.58	1.0000	1.0000
L32	29	MP3-04	60.58 - 65.58	1.0000	1.0000
L32	30	MP3-04	60.58 - 65.58	1.0000	1.0000
L33	24	MP3-05	55.58 - 56.00	1.0000	1.0000
L33	25	MP3-05	55.58 - 56.00	1.0000	1.0000
L33	26	MP3-05	55.58 - 56.00	1.0000	1.0000
L33	28	MP3-04	55.58 - 60.58	1.0000	1.0000
L33	29	MP3-04	55.58 - 60.58	1.0000	1.0000
L33	30	MP3-04	55.58 - 60.58	1.0000	1.0000
L34	24	MP3-05	53.57 - 55.58	1.0000	1.0000
L34	25	MP3-05	53.57 - 55.58	1.0000	1.0000
L34	26	MP3-05	53.57 - 55.58	1.0000	1.0000
L34	28	MP3-04	53.57 - 55.58	1.0000	1.0000
L34	29	MP3-04	53.57 - 55.58	1.0000	1.0000
L34	30	MP3-04	53.57 - 55.58	1.0000	1.0000
L35	24	MP3-05	53.32 -	1.0000	1.0000



Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L35	25	MP3-05	53.57 53.32 -	1.0000	1.0000
L35	26	MP3-05	53.57 53.32 -	1.0000	1.0000
L35	28	MP3-04	53.57 53.32 -	1.0000	1.0000
L35	29	MP3-04	53.57 53.32 -	1.0000	1.0000
L35	30	MP3-04	53.57 53.32 -	1.0000	1.0000
L36	24	MP3-05	43.80 - 53.32	1.0000	1.0000
L36	25	MP3-05	43.80 - 53.32	1.0000	1.0000
L36	26	MP3-05	43.80 - 53.32	1.0000	1.0000
L36	28	MP3-04	52.25 - 53.32	1.0000	1.0000
L36	29	MP3-04	52.25 - 53.32	1.0000	1.0000
L36	30	MP3-04	52.25 - 53.32	1.0000	1.0000
L36	40	CCI 6.5" x 1.25" Plate	43.80 - 52.08	1.0000	1.0000
L36	41	CCI 6.5" x 1.25" Plate	43.80 - 52.08	1.0000	1.0000
L36	42	CCI 6.5" x 1.25" Plate	43.80 - 52.08	1.0000	1.0000
L37	24	MP3-05	42.80 - 43.80	1.0000	1.0000
L37	25	MP3-05	42.80 - 43.80	1.0000	1.0000
L37	26	MP3-05	42.80 - 43.80	1.0000	1.0000
L37	40	CCI 6.5" x 1.25" Plate	42.80 - 43.80	1.0000	1.0000
L37	41	CCI 6.5" x 1.25" Plate	42.80 - 43.80	1.0000	1.0000
L37	42	CCI 6.5" x 1.25" Plate	42.80 - 43.80	1.0000	1.0000
L38	20	MP3-05	38.42 - 40.50	1.0000	1.0000
L38	21	MP3-05	38.42 - 40.50	1.0000	1.0000
L38	22	MP3-05	38.42 - 40.50	1.0000	1.0000
L38	24	MP3-05	38.42 - 42.80	1.0000	1.0000
L38	25	MP3-05	38.42 - 42.80	1.0000	1.0000
L38	26	MP3-05	38.42 - 42.80	1.0000	1.0000
L38	40	CCI 6.5" x 1.25" Plate	38.42 - 42.80	1.0000	1.0000
L38	41	CCI 6.5" x 1.25" Plate	38.42 - 42.80	1.0000	1.0000
L38	42	CCI 6.5" x 1.25" Plate	38.42 - 42.80	1.0000	1.0000
L39	20	MP3-05	38.07 - 38.42	1.0000	1.0000
L39	21	MP3-05	38.07 - 38.42	1.0000	1.0000
L39	22	MP3-05	38.07 - 38.42	1.0000	1.0000
L39	24	MP3-05	38.07 - 38.42	1.0000	1.0000
L39	25	MP3-05	38.07 - 38.42	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L39	26	MP3-05	38.07 - 38.42	1.0000	1.0000
L39	40	CCI 6.5" x 1.25" Plate	38.07 - 38.42	1.0000	1.0000
L39	41	CCI 6.5" x 1.25" Plate	38.07 - 38.42	1.0000	1.0000
L39	42	CCI 6.5" x 1.25" Plate	38.07 - 38.42	1.0000	1.0000
L40	20	MP3-05	37.83 - 38.07	1.0000	1.0000
L40	21	MP3-05	37.83 - 38.07	1.0000	1.0000
L40	22	MP3-05	37.83 - 38.07	1.0000	1.0000
L40	24	MP3-05	37.83 - 38.07	1.0000	1.0000
L40	25	MP3-05	37.83 - 38.07	1.0000	1.0000
L40	26	MP3-05	37.83 - 38.07	1.0000	1.0000
L40	40	CCI 6.5" x 1.25" Plate	37.83 - 38.07	1.0000	1.0000
L40	41	CCI 6.5" x 1.25" Plate	37.83 - 38.07	1.0000	1.0000
L40	42	CCI 6.5" x 1.25" Plate	37.83 - 38.07	1.0000	1.0000
L41	20	MP3-05	32.83 - 37.83	1.0000	1.0000
L41	21	MP3-05	32.83 - 37.83	1.0000	1.0000
L41	22	MP3-05	32.83 - 37.83	1.0000	1.0000
L41	24	MP3-05	36.00 - 37.83	1.0000	1.0000
L41	25	MP3-05	36.00 - 37.83	1.0000	1.0000
L41	26	MP3-05	36.00 - 37.83	1.0000	1.0000
L41	40	CCI 6.5" x 1.25" Plate	32.83 - 37.83	1.0000	1.0000
L41	41	CCI 6.5" x 1.25" Plate	32.83 - 37.83	1.0000	1.0000
L41	42	CCI 6.5" x 1.25" Plate	32.83 - 37.83	1.0000	1.0000
L42	20	MP3-05	27.83 - 32.83	1.0000	1.0000
L42	21	MP3-05	27.83 - 32.83	1.0000	1.0000
L42	22	MP3-05	27.83 - 32.83	1.0000	1.0000
L42	40	CCI 6.5" x 1.25" Plate	27.83 - 32.83	1.0000	1.0000
L42	41	CCI 6.5" x 1.25" Plate	27.83 - 32.83	1.0000	1.0000
L42	42	CCI 6.5" x 1.25" Plate	27.83 - 32.83	1.0000	1.0000
L43	20	MP3-05	23.50 - 27.83	1.0000	1.0000
L43	21	MP3-05	23.50 - 27.83	1.0000	1.0000
L43	22	MP3-05	23.50 - 27.83	1.0000	1.0000
L43	40	CCI 6.5" x 1.25" Plate	23.50 - 27.83	1.0000	1.0000
L43	41	CCI 6.5" x 1.25" Plate	23.50 - 27.83	1.0000	1.0000
L43	42	CCI 6.5" x 1.25" Plate	23.50 - 27.83	1.0000	1.0000
L44	20	MP3-05	23.25 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L44	21	MP3-05	23.50 23.25 - 23.50	1.0000	1.0000
L44	22	MP3-05	23.25 - 23.50	1.0000	1.0000
L44	40	CCI 6.5" x 1.25" Plate	23.25 - 23.50	1.0000	1.0000
L44	41	CCI 6.5" x 1.25" Plate	23.25 - 23.50	1.0000	1.0000
L44	42	CCI 6.5" x 1.25" Plate	23.25 - 23.50	1.0000	1.0000
L45	20	MP3-05	18.25 - 23.25	1.0000	1.0000
L45	21	MP3-05	18.25 - 23.25	1.0000	1.0000
L45	22	MP3-05	18.25 - 23.25	1.0000	1.0000
L45	40	CCI 6.5" x 1.25" Plate	18.25 - 23.25	1.0000	1.0000
L45	41	CCI 6.5" x 1.25" Plate	18.25 - 23.25	1.0000	1.0000
L45	42	CCI 6.5" x 1.25" Plate	18.25 - 23.25	1.0000	1.0000
L46	20	MP3-05	13.25 - 18.25	1.0000	1.0000
L46	21	MP3-05	13.25 - 18.25	1.0000	1.0000
L46	22	MP3-05	13.25 - 18.25	1.0000	1.0000
L46	40	CCI 6.5" x 1.25" Plate	13.25 - 18.25	1.0000	1.0000
L46	41	CCI 6.5" x 1.25" Plate	13.25 - 18.25	1.0000	1.0000
L46	42	CCI 6.5" x 1.25" Plate	13.25 - 18.25	1.0000	1.0000
L47	20	MP3-05	8.25 - 13.25	1.0000	1.0000
L47	21	MP3-05	8.25 - 13.25	1.0000	1.0000
L47	22	MP3-05	8.25 - 13.25	1.0000	1.0000
L47	40	CCI 6.5" x 1.25" Plate	8.25 - 13.25	1.0000	1.0000
L47	41	CCI 6.5" x 1.25" Plate	8.25 - 13.25	1.0000	1.0000
L47	42	CCI 6.5" x 1.25" Plate	8.25 - 13.25	1.0000	1.0000
L48	20	MP3-05	7.92 - 8.25	1.0000	1.0000
L48	21	MP3-05	7.92 - 8.25	1.0000	1.0000
L48	22	MP3-05	7.92 - 8.25	1.0000	1.0000
L48	40	CCI 6.5" x 1.25" Plate	7.92 - 8.25	1.0000	1.0000
L48	41	CCI 6.5" x 1.25" Plate	7.92 - 8.25	1.0000	1.0000
L48	42	CCI 6.5" x 1.25" Plate	7.92 - 8.25	1.0000	1.0000
L49	20	MP3-05	7.67 - 7.92	1.0000	1.0000
L49	21	MP3-05	7.67 - 7.92	1.0000	1.0000
L49	22	MP3-05	7.67 - 7.92	1.0000	1.0000
L49	40	CCI 6.5" x 1.25" Plate	7.67 - 7.92	1.0000	1.0000
L49	41	CCI 6.5" x 1.25" Plate	7.67 - 7.92	1.0000	1.0000
L49	42	CCI 6.5" x 1.25" Plate	7.67 - 7.92	1.0000	1.0000
L50	20	MP3-05	5.50 - 7.67	1.0000	1.0000
L50	21	MP3-05	5.50 - 7.67	1.0000	1.0000
L50	22	MP3-05	5.50 - 7.67	1.0000	1.0000
L50	40	CCI 6.5" x 1.25" Plate	5.50 - 7.67	1.0000	1.0000
L50	41	CCI 6.5" x 1.25" Plate	5.50 - 7.67	1.0000	1.0000
L50	42	CCI 6.5" x 1.25" Plate	5.50 - 7.67	1.0000	1.0000
L51	20	MP3-05	5.25 - 5.50	1.0000	1.0000
L51	22	MP3-05	5.25 - 5.50	1.0000	1.0000
L51	40	CCI 6.5" x 1.25" Plate	5.25 - 5.50	1.0000	1.0000
L51	41	CCI 6.5" x 1.25" Plate	5.25 - 5.50	1.0000	1.0000
L51	42	CCI 6.5" x 1.25" Plate	5.25 - 5.50	1.0000	1.0000
L52	20	MP3-05	3.00 - 5.25	1.0000	1.0000
L52	22	MP3-05	3.00 - 5.25	1.0000	1.0000
L52	40	CCI 6.5" x 1.25" Plate	3.00 - 5.25	1.0000	1.0000
L52	41	CCI 6.5" x 1.25" Plate	3.00 - 5.25	1.0000	1.0000
L52	42	CCI 6.5" x 1.25" Plate	3.00 - 5.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L53	20	MP3-05	2.75 - 3.00	1.0000	1.0000
L53	22	MP3-05	2.75 - 3.00	1.0000	1.0000
L53	40	CCI 6.5" x 1.25" Plate	2.75 - 3.00	1.0000	1.0000
L53	41	CCI 6.5" x 1.25" Plate	2.75 - 3.00	1.0000	1.0000
L53	42	CCI 6.5" x 1.25" Plate	2.75 - 3.00	1.0000	1.0000
L54	20	MP3-05	0.58 - 2.75	1.0000	1.0000
L54	22	MP3-05	0.58 - 2.75	1.0000	1.0000
L54	40	CCI 6.5" x 1.25" Plate	2.00 - 2.75	1.0000	1.0000
L54	41	CCI 6.5" x 1.25" Plate	2.00 - 2.75	1.0000	1.0000
L54	42	CCI 6.5" x 1.25" Plate	2.00 - 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
L13	36	MP3-03	120.58 - 121.75	Auto	0.0000
L13	37	MP3-03	120.58 - 121.75	Auto	0.0000
L13	38	MP3-03	120.58 - 121.75	Auto	0.0000
L14	36	MP3-03	120.33 - 120.58	Auto	0.0000
L14	37	MP3-03	120.33 - 120.58	Auto	0.0000
L14	38	MP3-03	120.33 - 120.58	Auto	0.0000
L15	36	MP3-03	115.33 - 120.33	Auto	0.0000
L15	37	MP3-03	115.33 - 120.33	Auto	0.0000
L15	38	MP3-03	115.33 - 120.33	Auto	0.0000
L16	36	MP3-03	112.50 - 115.33	Auto	0.0000
L16	37	MP3-03	112.50 - 115.33	Auto	0.0000
L16	38	MP3-03	112.50 - 115.33	Auto	0.0000
L16	44	CCI 6" x 1" Plate	112.50 - 115.00	Auto	0.2179
L16	45	CCI 6" x 1" Plate	112.50 - 115.00	Auto	0.2179
L16	46	CCI 6" x 1" Plate	112.50 - 115.00	Auto	0.2179
L17	36	MP3-03	112.25 - 112.50	Auto	0.0000
L17	37	MP3-03	112.25 - 112.50	Auto	0.0000
L17	38	MP3-03	112.25 - 112.50	Auto	0.0000
L17	44	CCI 6" x 1" Plate	112.25 - 112.50	Auto	0.3056
L17	45	CCI 6" x 1" Plate	112.25 - 112.50	Auto	0.3056
L17	46	CCI 6" x 1" Plate	112.25 - 112.50	Auto	0.3056
L18	32	MP3-04	107.82 - 109.25	Auto	0.1153
L18	33	MP3-04	107.82 - 109.25	Auto	0.1153
L18	34	MP3-04	107.82 - 109.25	Auto	0.1153
L18	36	MP3-03	107.82 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L18	37	MP3-03	112.25 107.82 - 112.25	Auto	0.0000
L18	38	MP3-03	107.82 - 112.25	Auto	0.0000
L18	44	CCI 6" x 1" Plate	107.82 - 112.25	Auto	0.3035
L18	45	CCI 6" x 1" Plate	107.82 - 112.25	Auto	0.3035
L18	46	CCI 6" x 1" Plate	107.82 - 112.25	Auto	0.3035
L19	32	MP3-04	107.57 - 107.82	Auto	0.1094
L19	33	MP3-04	107.57 - 107.82	Auto	0.1094
L19	34	MP3-04	107.57 - 107.82	Auto	0.1094
L19	36	MP3-03	107.57 - 107.82	Auto	0.0000
L19	37	MP3-03	107.57 - 107.82	Auto	0.0000
L19	38	MP3-03	107.57 - 107.82	Auto	0.0000
L19	44	CCI 6" x 1" Plate	107.57 - 107.82	Auto	0.2905
L19	45	CCI 6" x 1" Plate	107.57 - 107.82	Auto	0.2905
L19	46	CCI 6" x 1" Plate	107.57 - 107.82	Auto	0.2905
L20	32	MP3-04	102.57 - 107.57	Auto	0.0865
L20	33	MP3-04	102.57 - 107.57	Auto	0.0865
L20	34	MP3-04	102.57 - 107.57	Auto	0.0865
L20	36	MP3-03	106.75 - 107.57	Auto	0.0000
L20	37	MP3-03	106.75 - 107.57	Auto	0.0000
L20	38	MP3-03	106.75 - 107.57	Auto	0.0000
L20	44	CCI 6" x 1" Plate	102.57 - 107.57	Auto	0.2722
L20	45	CCI 6" x 1" Plate	102.57 - 107.57	Auto	0.2722
L20	46	CCI 6" x 1" Plate	102.57 - 107.57	Auto	0.2722
L21	32	MP3-04	97.57 - 102.57	Auto	0.0469
L21	33	MP3-04	97.57 - 102.57	Auto	0.0469
L21	34	MP3-04	97.57 - 102.57	Auto	0.0469
L21	44	CCI 6" x 1" Plate	97.57 - 102.57	Auto	0.2407
L21	45	CCI 6" x 1" Plate	97.57 - 102.57	Auto	0.2407
L21	46	CCI 6" x 1" Plate	97.57 - 102.57	Auto	0.2407
L22	32	MP3-04	89.00 - 97.57	Auto	0.0052
L22	33	MP3-04	89.00 - 97.57	Auto	0.0052
L22	34	MP3-04	89.00 - 97.57	Auto	0.0052
L22	44	CCI 6" x 1" Plate	89.00 - 97.57	Auto	0.1993
L22	45	CCI 6" x 1" Plate	89.00 -	Auto	0.1993

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L22	46	CCI 6" x 1" Plate	97.57 89.00 - 97.57	Auto	0.1993
L23	32	MP3-04	88.31 - 89.00	Auto	0.0086
L23	33	MP3-04	88.31 - 89.00	Auto	0.0086
L23	34	MP3-04	88.31 - 89.00	Auto	0.0086
L23	44	CCI 6" x 1" Plate	88.31 - 89.00	Auto	0.2102
L23	45	CCI 6" x 1" Plate	88.31 - 89.00	Auto	0.2102
L23	46	CCI 6" x 1" Plate	88.31 - 89.00	Auto	0.2102
L24	32	MP3-04	87.50 - 88.31	Auto	0.0034
L24	33	MP3-04	87.50 - 88.31	Auto	0.0034
L24	34	MP3-04	87.50 - 88.31	Auto	0.0034
L24	44	CCI 6" x 1" Plate	87.50 - 88.31	Auto	0.2060
L24	45	CCI 6" x 1" Plate	87.50 - 88.31	Auto	0.2060
L24	46	CCI 6" x 1" Plate	87.50 - 88.31	Auto	0.2060
L25	32	MP3-04	87.25 - 87.50	Auto	0.0000
L25	33	MP3-04	87.25 - 87.50	Auto	0.0000
L25	34	MP3-04	87.25 - 87.50	Auto	0.0000
L25	44	CCI 6" x 1" Plate	87.25 - 87.50	Auto	0.1077
L25	45	CCI 6" x 1" Plate	87.25 - 87.50	Auto	0.1077
L25	46	CCI 6" x 1" Plate	87.25 - 87.50	Auto	0.1077
L26	32	MP3-04	82.25 - 87.25	Auto	0.0000
L26	33	MP3-04	82.25 - 87.25	Auto	0.0000
L26	34	MP3-04	82.25 - 87.25	Auto	0.0000
L26	44	CCI 6" x 1" Plate	85.00 - 87.25	Auto	0.1008
L26	45	CCI 6" x 1" Plate	85.00 - 87.25	Auto	0.1008
L26	46	CCI 6" x 1" Plate	85.00 - 87.25	Auto	0.1008
L27	28	MP3-04	80.83 - 82.25	Auto	0.0000
L27	29	MP3-04	80.83 - 82.25	Auto	0.0000
L27	30	MP3-04	80.83 - 82.25	Auto	0.0000
L27	32	MP3-04	80.83 - 82.25	Auto	0.0000
L27	33	MP3-04	80.83 - 82.25	Auto	0.0000
L27	34	MP3-04	80.83 - 82.25	Auto	0.0000
L28	28	MP3-04	80.58 - 80.83	Auto	0.0000
L28	29	MP3-04	80.58 - 80.83	Auto	0.0000
L28	30	MP3-04	80.58 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L28	32	MP3-04	80.83 80.58 - 80.83	Auto	0.0000
L28	33	MP3-04	80.58 - 80.83	Auto	0.0000
L28	34	MP3-04	80.58 - 80.83	Auto	0.0000
L29	28	MP3-04	75.58 - 80.58	Auto	0.0000
L29	29	MP3-04	75.58 - 80.58	Auto	0.0000
L29	30	MP3-04	75.58 - 80.58	Auto	0.0000
L29	32	MP3-04	79.25 - 80.58	Auto	0.0000
L29	33	MP3-04	79.25 - 80.58	Auto	0.0000
L29	34	MP3-04	79.25 - 80.58	Auto	0.0000
L30	28	MP3-04	70.58 - 75.58	Auto	0.0000
L30	29	MP3-04	70.58 - 75.58	Auto	0.0000
L30	30	MP3-04	70.58 - 75.58	Auto	0.0000
L31	28	MP3-04	65.58 - 70.58	Auto	0.0000
L31	29	MP3-04	65.58 - 70.58	Auto	0.0000
L31	30	MP3-04	65.58 - 70.58	Auto	0.0000
L32	28	MP3-04	60.58 - 65.58	Auto	0.0000
L32	29	MP3-04	60.58 - 65.58	Auto	0.0000
L32	30	MP3-04	60.58 - 65.58	Auto	0.0000
L33	24	MP3-05	55.58 - 56.00	Auto	0.0000
L33	25	MP3-05	55.58 - 56.00	Auto	0.0000
L33	26	MP3-05	55.58 - 56.00	Auto	0.0000
L33	28	MP3-04	55.58 - 60.58	Auto	0.0000
L33	29	MP3-04	55.58 - 60.58	Auto	0.0000
L33	30	MP3-04	55.58 - 60.58	Auto	0.0000
L34	24	MP3-05	53.57 - 55.58	Auto	0.0000
L34	25	MP3-05	53.57 - 55.58	Auto	0.0000
L34	26	MP3-05	53.57 - 55.58	Auto	0.0000
L34	28	MP3-04	53.57 - 55.58	Auto	0.0000
L34	29	MP3-04	53.57 - 55.58	Auto	0.0000
L34	30	MP3-04	53.57 - 55.58	Auto	0.0000
L35	24	MP3-05	53.32 - 53.57	Auto	0.0000
L35	25	MP3-05	53.32 - 53.57	Auto	0.0000
L35	26	MP3-05	53.32 - 53.57	Auto	0.0000
L35	28	MP3-04	53.32 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L35	29	MP3-04	53.57 53.32 - 53.57	Auto	0.0000
L35	30	MP3-04	53.32 - 53.57	Auto	0.0000
L36	24	MP3-05	43.80 - 53.32	Auto	0.0000
L36	25	MP3-05	43.80 - 53.32	Auto	0.0000
L36	26	MP3-05	43.80 - 53.32	Auto	0.0000
L36	28	MP3-04	52.25 - 53.32	Auto	0.0000
L36	29	MP3-04	52.25 - 53.32	Auto	0.0000
L36	30	MP3-04	52.25 - 53.32	Auto	0.0000
L36	40	CCI 6.5" x 1.25" Plate	43.80 - 52.08	Auto	0.0000
L36	41	CCI 6.5" x 1.25" Plate	43.80 - 52.08	Auto	0.0000
L36	42	CCI 6.5" x 1.25" Plate	43.80 - 52.08	Auto	0.0000
L37	24	MP3-05	42.80 - 43.80	Auto	0.0000
L37	25	MP3-05	42.80 - 43.80	Auto	0.0000
L37	26	MP3-05	42.80 - 43.80	Auto	0.0000
L37	40	CCI 6.5" x 1.25" Plate	42.80 - 43.80	Auto	0.0582
L37	41	CCI 6.5" x 1.25" Plate	42.80 - 43.80	Auto	0.0582
L37	42	CCI 6.5" x 1.25" Plate	42.80 - 43.80	Auto	0.0582
L38	20	MP3-05	38.42 - 40.50	Auto	0.0000
L38	21	MP3-05	38.42 - 40.50	Auto	0.0000
L38	22	MP3-05	38.42 - 40.50	Auto	0.0000
L38	24	MP3-05	38.42 - 42.80	Auto	0.0000
L38	25	MP3-05	38.42 - 42.80	Auto	0.0000
L38	26	MP3-05	38.42 - 42.80	Auto	0.0000
L38	40	CCI 6.5" x 1.25" Plate	38.42 - 42.80	Auto	0.0410
L38	41	CCI 6.5" x 1.25" Plate	38.42 - 42.80	Auto	0.0410
L38	42	CCI 6.5" x 1.25" Plate	38.42 - 42.80	Auto	0.0410
L39	20	MP3-05	38.07 - 38.42	Auto	0.0000
L39	21	MP3-05	38.07 - 38.42	Auto	0.0000
L39	22	MP3-05	38.07 - 38.42	Auto	0.0000
L39	24	MP3-05	38.07 - 38.42	Auto	0.0000
L39	25	MP3-05	38.07 - 38.42	Auto	0.0000
L39	26	MP3-05	38.07 - 38.42	Auto	0.0000
L39	40	CCI 6.5" x 1.25" Plate	38.07 - 38.42	Auto	0.0288
L39	41	CCI 6.5" x 1.25" Plate	38.07 -	Auto	0.0288



Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L39	42	CCI 6.5" x 1.25" Plate	38.42 38.07 - 38.42	Auto	0.0288
L40	20	MP3-05	37.83 - 38.07	Auto	0.0000
L40	21	MP3-05	37.83 - 38.07	Auto	0.0000
L40	22	MP3-05	37.83 - 38.07	Auto	0.0000
L40	24	MP3-05	37.83 - 38.07	Auto	0.0000
L40	25	MP3-05	37.83 - 38.07	Auto	0.0000
L40	26	MP3-05	37.83 - 38.07	Auto	0.0000
L40	40	CCI 6.5" x 1.25" Plate	37.83 - 38.07	Auto	0.0273
L40	41	CCI 6.5" x 1.25" Plate	37.83 - 38.07	Auto	0.0273
L40	42	CCI 6.5" x 1.25" Plate	37.83 - 38.07	Auto	0.0273
L41	20	MP3-05	32.83 - 37.83	Auto	0.0000
L41	21	MP3-05	32.83 - 37.83	Auto	0.0000
L41	22	MP3-05	32.83 - 37.83	Auto	0.0000
L41	24	MP3-05	36.00 - 37.83	Auto	0.0000
L41	25	MP3-05	36.00 - 37.83	Auto	0.0000
L41	26	MP3-05	36.00 - 37.83	Auto	0.0000
L41	40	CCI 6.5" x 1.25" Plate	32.83 - 37.83	Auto	0.0106
L41	41	CCI 6.5" x 1.25" Plate	32.83 - 37.83	Auto	0.0106
L41	42	CCI 6.5" x 1.25" Plate	32.83 - 37.83	Auto	0.0106
L42	20	MP3-05	27.83 - 32.83	Auto	0.0000
L42	21	MP3-05	27.83 - 32.83	Auto	0.0000
L42	22	MP3-05	27.83 - 32.83	Auto	0.0000
L42	40	CCI 6.5" x 1.25" Plate	27.83 - 32.83	Auto	0.0000
L42	41	CCI 6.5" x 1.25" Plate	27.83 - 32.83	Auto	0.0000
L42	42	CCI 6.5" x 1.25" Plate	27.83 - 32.83	Auto	0.0000
L43	20	MP3-05	23.50 - 27.83	Auto	0.0000
L43	21	MP3-05	23.50 - 27.83	Auto	0.0000
L43	22	MP3-05	23.50 - 27.83	Auto	0.0000
L43	40	CCI 6.5" x 1.25" Plate	23.50 - 27.83	Auto	0.0000
L43	41	CCI 6.5" x 1.25" Plate	23.50 - 27.83	Auto	0.0000
L43	42	CCI 6.5" x 1.25" Plate	23.50 - 27.83	Auto	0.0000
L44	20	MP3-05	23.25 - 23.50	Auto	0.0000
L44	21	MP3-05	23.25 - 23.50	Auto	0.0000
L44	22	MP3-05	23.25 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L44	40	CCI 6.5" x 1.25" Plate	23.50 23.25 - 23.50	Auto	0.0000
L44	41	CCI 6.5" x 1.25" Plate	23.25 - 23.50	Auto	0.0000
L44	42	CCI 6.5" x 1.25" Plate	23.25 - 23.50	Auto	0.0000
L45	20	MP3-05	18.25 - 23.25	Auto	0.0000
L45	21	MP3-05	18.25 - 23.25	Auto	0.0000
L45	22	MP3-05	18.25 - 23.25	Auto	0.0000
L45	40	CCI 6.5" x 1.25" Plate	18.25 - 23.25	Auto	0.0000
L45	41	CCI 6.5" x 1.25" Plate	18.25 - 23.25	Auto	0.0000
L45	42	CCI 6.5" x 1.25" Plate	18.25 - 23.25	Auto	0.0000
L46	20	MP3-05	13.25 - 18.25	Auto	0.0000
L46	21	MP3-05	13.25 - 18.25	Auto	0.0000
L46	22	MP3-05	13.25 - 18.25	Auto	0.0000
L46	40	CCI 6.5" x 1.25" Plate	13.25 - 18.25	Auto	0.0000
L46	41	CCI 6.5" x 1.25" Plate	13.25 - 18.25	Auto	0.0000
L46	42	CCI 6.5" x 1.25" Plate	13.25 - 18.25	Auto	0.0000
L47	20	MP3-05	8.25 - 13.25	Auto	0.0000
L47	21	MP3-05	8.25 - 13.25	Auto	0.0000
L47	22	MP3-05	8.25 - 13.25	Auto	0.0000
L47	40	CCI 6.5" x 1.25" Plate	8.25 - 13.25	Auto	0.0000
L47	41	CCI 6.5" x 1.25" Plate	8.25 - 13.25	Auto	0.0000
L47	42	CCI 6.5" x 1.25" Plate	8.25 - 13.25	Auto	0.0000
L48	20	MP3-05	7.92 - 8.25	Auto	0.0000
L48	21	MP3-05	7.92 - 8.25	Auto	0.0000
L48	22	MP3-05	7.92 - 8.25	Auto	0.0000
L48	40	CCI 6.5" x 1.25" Plate	7.92 - 8.25	Auto	0.0000
L48	41	CCI 6.5" x 1.25" Plate	7.92 - 8.25	Auto	0.0000
L48	42	CCI 6.5" x 1.25" Plate	7.92 - 8.25	Auto	0.0000
L49	20	MP3-05	7.67 - 7.92	Auto	0.0000
L49	21	MP3-05	7.67 - 7.92	Auto	0.0000
L49	22	MP3-05	7.67 - 7.92	Auto	0.0000
L49	40	CCI 6.5" x 1.25" Plate	7.67 - 7.92	Auto	0.0000
L49	41	CCI 6.5" x 1.25" Plate	7.67 - 7.92	Auto	0.0000
L49	42	CCI 6.5" x 1.25" Plate	7.67 - 7.92	Auto	0.0000
L50	20	MP3-05	5.50 - 7.67	Auto	0.0000
L50	21	MP3-05	5.50 - 7.67	Auto	0.0000
L50	22	MP3-05	5.50 - 7.67	Auto	0.0000
L50	40	CCI 6.5" x 1.25" Plate	5.50 - 7.67	Auto	0.0000
L50	41	CCI 6.5" x 1.25" Plate	5.50 - 7.67	Auto	0.0000
L50	42	CCI 6.5" x 1.25" Plate	5.50 - 7.67	Auto	0.0000
L51	20	MP3-05	5.25 - 5.50	Auto	0.0000
L51	22	MP3-05	5.25 - 5.50	Auto	0.0000
L51	40	CCI 6.5" x 1.25" Plate	5.25 - 5.50	Auto	0.0000
L51	41	CCI 6.5" x 1.25" Plate	5.25 - 5.50	Auto	0.0000
L51	42	CCI 6.5" x 1.25" Plate	5.25 - 5.50	Auto	0.0000
L52	20	MP3-05	3.00 - 5.25	Auto	0.0000
L52	22	MP3-05	3.00 - 5.25	Auto	0.0000
L52	40	CCI 6.5" x 1.25" Plate	3.00 - 5.25	Auto	0.0000
L52	41	CCI 6.5" x 1.25" Plate	3.00 - 5.25	Auto	0.0000
L52	42	CCI 6.5" x 1.25" Plate	3.00 - 5.25	Auto	0.0000
L53	20	MP3-05	2.75 - 3.00	Auto	0.0000
L53	22	MP3-05	2.75 - 3.00	Auto	0.0000
L53	40	CCI 6.5" x 1.25" Plate	2.75 - 3.00	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L53	41	CCI 6.5" x 1.25" Plate	2.75 - 3.00	Auto	0.0000
L53	42	CCI 6.5" x 1.25" Plate	2.75 - 3.00	Auto	0.0000
L54	20	MP3-05	0.58 - 2.75	Auto	0.0000
L54	22	MP3-05	0.58 - 2.75	Auto	0.0000
L54	40	CCI 6.5" x 1.25" Plate	2.00 - 2.75	Auto	0.0000
L54	41	CCI 6.5" x 1.25" Plate	2.00 - 2.75	Auto	0.0000
L54	42	CCI 6.5" x 1.25" Plate	2.00 - 2.75	Auto	0.0000

### Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft	Azimuth Adjustment °	Placement ft
APXVAALL24_43-U-NA20_TMO	A	From Leg	4.000 0.000 3.000	0.000	180.000
APXVAALL24_43-U-NA20_TMO	B	From Leg	4.000 0.000 3.000	0.000	180.000
APXVAALL24_43-U-NA20_TMO	C	From Leg	4.000 0.000 3.000	0.000	180.000
AIR6449 B41_T-MOBILE	A	From Leg	4.000 0.000 3.000	0.000	180.000
AIR6449 B41_T-MOBILE	B	From Leg	4.000 0.000 3.000	0.000	180.000
AIR6449 B41_T-MOBILE	C	From Leg	4.000 0.000 3.000	0.000	180.000
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.000 0.000 3.000	0.000	180.000
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.000 0.000 3.000	0.000	180.000
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.000 0.000 3.000	0.000	180.000
Radio 4480_TMOV2	A	From Leg	4.000 0.000 3.000	0.000	180.000
Radio 4480_TMOV2	B	From Leg	4.000 0.000 3.000	0.000	180.000
Radio 4480_TMOV2	C	From Leg	4.000 0.000 3.000	0.000	180.000
Platform Mount [LP 602-1]	C	None		0.000	180.000
Side Arm Mount [SO 102-3]	C	None		0.000	178.000
Miscellaneous [NA 507-1]	C	None		0.000	178.000
Transition Ladder	C	From Leg	2.000 0.000 -3.000	0.000	180.000
(3) 10' x 2" Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	180.000
(3) 10' x 2" Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	180.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
(3) 10' x 2" Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	180.000
(2) 6' x 2" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	180.000
(2) 6' x 2" Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	180.000
(2) 6' x 2" Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	180.000
(2) L2.5x2.5x3/16x4.333'	A	From Leg	2.000 0.000 -3.000	0.000	180.000
(2) L2.5x2.5x3/16x4.333'	B	From Leg	2.000 0.000 -3.000	0.000	180.000
(2) L2.5x2.5x3/16x4.333'	C	From Leg	2.000 0.000 -3.000	0.000	180.000
* TMA-DB-T1-6Z-8AB-0Z	A	From Leg	1.000 0.000 0.000	0.000	170.000
Side Arm Mount [SO 102-3] *	C	None		0.000	170.000
BXA-171063-12CF-EDIN-X w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	168.000
BXA-171063-12CF-EDIN-X w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	168.000
BXA-171063-12CF-EDIN-X w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	168.000
(2) NHH-65B-R2B w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	168.000
(2) NHH-65B-R2B w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	168.000
(2) NHH-65B-R2B w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	168.000
MT6407-77A w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	168.000
MT6407-77A w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	168.000
MT6407-77A w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	168.000
RVZDC-6627-PF-48_CCIV2	A	From Leg	4.000 0.000 2.000	0.000	168.000
RF4439D-25A	A	From Leg	4.000 0.000 2.000	0.000	168.000
RF4439D-25A	B	From Leg	4.000 0.000 2.000	0.000	168.000
RF4439D-25A	C	From Leg	4.000 0.000	0.000	168.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
RF4440D-13A	A	From Leg	2.000 4.000 0.000	0.000	168.000
RF4440D-13A	B	From Leg	2.000 4.000 0.000	0.000	168.000
RF4440D-13A	C	From Leg	2.000 4.000 0.000	0.000	168.000
Platform Mount [LP 303-1]	C	None	2.000	0.000	168.000
Mount Reinforcement Specifications	C	None		0.000	168.000
Dual Antenna Mounting Bracket	A	From Leg	4.000 0.000 0.000	0.000	168.000
Dual Antenna Mounting Bracket	B	From Leg	4.000 0.000 0.000	0.000	168.000
Dual Antenna Mounting Bracket	C	From Leg	4.000 0.000 0.000	0.000	168.000
*					
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	160.000
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	160.000
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	160.000
AM-X-CD-17-65-00T-RET w/ Mount Pipe	A	From Leg	4.000 0.000 1.000	0.000	160.000
AM-X-CD-17-65-00T-RET w/ Mount Pipe	B	From Leg	4.000 0.000 1.000	0.000	160.000
AM-X-CD-17-65-00T-RET w/ Mount Pipe	C	From Leg	4.000 0.000 1.000	0.000	160.000
(2) LGP21401	A	From Leg	4.000 0.000 1.000	0.000	160.000
(2) LGP21401	B	From Leg	4.000 0.000 1.000	0.000	160.000
(2) LGP21401	C	From Leg	4.000 0.000 1.000	0.000	160.000
(2) LGP21901	A	From Leg	4.000 0.000 1.000	0.000	160.000
(2) LGP21901	B	From Leg	4.000 0.000 1.000	0.000	160.000
(2) LGP21901	C	From Leg	4.000 0.000 1.000	0.000	160.000
Platform Mount [LP 303-1]	C	None		0.000	160.000
*					
RRUS 11 B12	A	From Leg	2.000 0.000 2.000	0.000	158.000
RRUS 11 B12	B	From Leg	2.000 0.000	0.000	158.000

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement
			Horz Lateral ft	Vert ft		
RRUS 11 B12	C	From Leg	2.000	2.000	0.000	158.000
			0.000	2.000		
DC6-48-60-18-8F	B	From Leg	2.000	2.000	0.000	158.000
			0.000	0.000		
Side Arm Mount [SO 104-3]	C	None			0.000	158.000
6' x 2" Mount Pipe	A	From Leg	2.000	0.000	0.000	158.000
			0.000	1.000		
6' x 2" Mount Pipe	B	From Leg	2.000	2.000	0.000	158.000
			0.000	1.000		
6' x 2" Mount Pipe	C	From Leg	2.000	2.000	0.000	158.000
			0.000	1.000		
***						
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.000	0.000	0.000	141.000
			0.000	0.000		
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.000	0.000	0.000	141.000
			0.000	0.000		
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	141.000
			0.000	0.000		
TA08025-B604	A	From Leg	4.000	0.000	0.000	141.000
			0.000	0.000		
TA08025-B604	B	From Leg	4.000	0.000	0.000	141.000
			0.000	0.000		
TA08025-B604	C	From Leg	4.000	0.000	0.000	141.000
			0.000	0.000		
TA08025-B605	A	From Leg	4.000	0.000	0.000	141.000
			0.000	0.000		
TA08025-B605	B	From Leg	4.000	0.000	0.000	141.000
			0.000	0.000		
TA08025-B605	C	From Leg	4.000	0.000	0.000	141.000
			0.000	0.000		
RDIDC-9181-PF-48	A	From Leg	4.000	0.000	0.000	141.000
			0.000	0.000		
Commscope MC-PK8-DSH	C	None			0.000	141.000
(2) 8' x 2" Mount Pipe	A	From Leg	4.000	0.000	0.000	141.000
			0.000	0.000		
(2) 8' x 2" Mount Pipe	B	From Leg	4.000	0.000	0.000	141.000
			0.000	0.000		
(2) 8' x 2" Mount Pipe	C	From Leg	4.000	0.000	0.000	141.000
			0.000	0.000		
***						
8225	C	From Leg	2.000	0.000	0.000	78.000
			0.000	1.000		
Side Arm Mount [SO 701-1]	C	From Leg	1.000	1.000	0.000	78.000
			0.000	0.000		

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
*					

## Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
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	180.5 - 175.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-8.999	0.846	-0.481
			Max. Mx	20	-4.089	36.754	-0.196
			Max. My	14	-4.080	0.351	-36.586
			Max. Vy	20	-6.892	36.754	-0.196
			Max. Vx	14	6.898	0.351	-36.586
			Max. Torque	13			-0.681
L2	175.5 - 170.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-9.472	0.856	-0.477
			Max. Mx	20	-4.399	71.981	-0.193
			Max. My	14	-4.389	0.358	-71.842
			Max. Vy	20	-7.202	71.981	-0.193
			Max. Vx	2	-7.208	0.359	71.330
			Max. Torque	13			-0.681
L3	170.5 - 165.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-17.035	0.869	0.322
			Max. Mx	20	-7.691	125.607	-0.022
			Max. My	2	-7.650	0.370	125.851
			Max. Vy	20	-12.382	125.607	-0.022
			Max. Vx	2	-12.521	0.370	125.851
			Max. Torque	13			-0.681
L4	165.5 - 160.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-17.550	0.883	0.329
			Max. Mx	20	-8.069	188.266	-0.017
			Max. My	2	-8.029	0.380	189.210
			Max. Vy	20	-12.690	188.266	-0.017
			Max. Vx	2	-12.830	0.380	189.210
			Max. Torque	5			0.651
L5	160.5 - 155.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-23.562	0.720	0.235
			Max. Mx	20	-10.998	268.555	-0.036
			Max. My	14	-10.955	0.344	-270.268
			Max. Vy	20	-16.356	268.555	-0.036
			Max. Vx	2	-16.500	0.349	270.238
			Max. Torque	5			0.651
L6	155.5 - 150.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-24.181	0.734	0.243
			Max. Mx	20	-11.523	351.045	-0.031
			Max. My	14	-11.481	0.354	-353.477
			Max. Vy	20	-16.655	351.045	-0.031
			Max. Vx	2	-16.799	0.360	353.449
			Max. Torque	5			0.536
L7	150.5 - 145.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-24.820	0.747	0.251
			Max. Mx	20	-12.080	435.014	-0.026
			Max. My	14	-12.039	0.362	-438.167
			Max. Vy	20	-16.950	435.014	-0.026
			Max. Vx	2	-17.095	0.370	438.140
			Max. Torque	5			0.535
L8	145.5 - 140.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-30.397	0.759	0.596
			Max. Mx	20	-15.449	522.039	0.081
			Max. My	2	-15.400	0.378	526.038
			Max. Vy	20	-20.435	522.039	0.081
			Max. Vx	2	-20.616	0.378	526.038
			Max. Torque	5			0.637
L9	140.5 - 134.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26			



Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L10	134.5 - 132.794	Pole	Max. Compression	26	-30.772	0.762	0.598
			Max. Mx	20	-15.794	577.495	0.084
			Max. My	2	-15.747	0.384	581.983
			Max. Vy	20	-20.583	577.495	0.084
			Max. Vx	2	-20.764	0.384	581.983
			Max. Torque	5			0.637
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-31.952	0.762	0.598
L11	132.794 - 127.794	Pole	Max. Mx	20	-16.756	681.306	0.089
			Max. My	2	-16.710	0.393	686.703
			Max. Vy	20	-20.954	681.306	0.089
			Max. Vx	2	-21.136	0.393	686.703
			Max. Torque	5			0.636
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-32.772	0.763	0.599
			L12	127.794 - 122.794	Pole	Max. Mx	20
Max. My	2	-17.495				0.402	792.970
Max. Vy	20	-21.226				786.665	0.093
Max. Vx	2	-21.408				0.402	792.970
Max. Torque	5						0.635
Max Tension	1	0.000				0.000	0.000
Max. Compression	26	-33.617				0.763	0.599
L13	122.794 - 120.583	Pole				Max. Mx	20
			Max. My	2	-18.297	0.410	900.625
			Max. Vy	20	-21.503	893.413	0.097
			Max. Vx	2	-21.684	0.410	900.625
			Max. Torque	5			0.635
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-34.018	0.763	0.599
			L14	120.583 - 120.333	Pole	Max. Mx	20
Max. My	2	-18.659				0.413	948.668
Max. Vy	20	-21.625				941.054	0.098
Max. Vx	2	-21.806				0.413	948.668
Max. Torque	5						0.634
Max Tension	1	0.000				0.000	0.000
Max. Compression	26	-34.066				0.764	0.599
L15	120.333 - 115.333	Pole				Max. Mx	20
			Max. My	2	-18.716	0.414	954.117
			Max. Vy	20	-21.627	946.458	0.098
			Max. Vx	2	-21.809	0.414	954.117
			Max. Torque	5			0.633
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-35.031	0.763	0.599
			L16	115.333 - 112.5	Pole	Max. Mx	20
Max. My	2	-19.545				0.421	1063.799
Max. Vy	20	-21.906				1055.235	0.101
Max. Vx	2	-22.087				0.421	1063.799
Max. Torque	5						0.633
Max Tension	1	0.000				0.000	0.000
Max. Compression	26	-35.638				0.762	0.598
L17	112.5 - 112.25	Pole				Max. Mx	20
			Max. My	2	-20.026	0.424	1126.537
			Max. Vy	20	-22.064	1117.460	0.103
			Max. Vx	2	-22.244	0.424	1126.537
			Max. Torque	5			0.632
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-35.719	0.765	0.600
						Max. Mx	20
Max. My	2	-20.116				0.425	1132.094
Max. Vy	20	-22.064				1122.973	0.103
Max. Vx	2	-22.245				0.425	1132.094

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L18	112.25 - 107.817	Pole	Max. Torque	5			0.632
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-37.264	0.763	0.599
			Max. Mx	20	-21.376	1221.575	0.105
			Max. My	2	-21.342	0.431	1231.498
			Max. Vy	20	-22.436	1221.575	0.105
			Max. Vx	2	-22.617	0.431	1231.498
L19	107.817 - 107.567	Pole	Max. Torque	5			0.632
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-37.355	0.765	0.600
			Max. Mx	20	-21.455	1227.184	0.106
			Max. My	2	-21.420	0.432	1237.153
			Max. Vy	20	-22.452	1227.184	0.106
			Max. Vx	2	-22.633	0.432	1237.153
L20	107.567 - 102.567	Pole	Max. Torque	5			0.631
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-39.111	0.763	0.599
			Max. Mx	20	-22.860	1340.441	0.108
			Max. My	2	-22.827	0.438	1351.316
			Max. Vy	20	-22.866	1340.441	0.108
			Max. Vx	2	-23.048	0.438	1351.316
L21	102.567 - 97.567	Pole	Max. Torque	5			0.631
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-40.876	0.763	0.599
			Max. Mx	20	-24.296	1455.733	0.111
			Max. My	2	-24.264	0.445	1467.516
			Max. Vy	20	-23.271	1455.733	0.111
			Max. Vx	2	-23.453	0.445	1467.516
L22	97.567 - 89	Pole	Max. Torque	5			0.631
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-42.399	0.763	0.599
			Max. Mx	20	-25.538	1555.451	0.113
			Max. My	2	-25.507	0.450	1568.008
			Max. Vy	20	-23.611	1555.451	0.113
			Max. Vx	2	-23.793	0.450	1568.008
L23	89 - 88.311	Pole	Max. Torque	5			0.630
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-45.631	0.763	0.599
			Max. Mx	20	-28.223	1674.887	0.116
			Max. My	2	-28.192	0.457	1688.358
			Max. Vy	20	-24.162	1674.887	0.116
			Max. Vx	2	-24.345	0.457	1688.358
L24	88.311 - 87.5	Pole	Max. Torque	5			0.630
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-45.946	0.763	0.599
			Max. Mx	20	-28.484	1694.502	0.117
			Max. My	2	-28.454	0.458	1708.121
			Max. Vy	20	-24.228	1694.502	0.117
			Max. Vx	2	-24.411	0.458	1708.121
L25	87.5 - 87.25	Pole	Max. Torque	5			0.630
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-46.013	0.764	0.599
			Max. Mx	20	-28.542	1700.558	0.117
			Max. My	2	-28.511	0.459	1714.224
			Max. Vy	20	-24.240	1700.558	0.117
			Max. Vx	2	-24.423	0.459	1714.224
L26	87.25 - 82.25	Pole	Max. Torque	5			0.630
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-47.305	0.763	0.599
			Max. Mx	20	-29.624	1822.336	0.119
			Max. My	2	-29.596	0.465	1836.916
			Max. Vy	20	-24.502	1822.336	0.119
			Max. Vx	2	-24.685	0.465	1836.916

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L27	82.25 - 80.833	Pole	Max. Torque	5			0.630
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-47.688	0.762	0.599
			Max. Mx	20	-29.932	1857.075	0.120
			Max. My	2	-29.904	0.467	1871.914
			Max. Vy	20	-24.581	1857.075	0.120
			Max. Vx	2	-24.763	0.467	1871.914
L28	80.833 - 80.583	Pole	Max. Torque	5			0.629
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-47.756	0.764	0.599
			Max. Mx	20	-30.008	1863.214	0.120
			Max. My	2	-29.981	0.467	1878.099
			Max. Vy	20	-24.572	1863.214	0.120
			Max. Vx	2	-24.754	0.467	1878.099
L29	80.583 - 75.583	Pole	Max. Torque	5			0.629
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-49.185	1.040	0.439
			Max. Mx	20	-31.199	1987.014	0.061
			Max. My	2	-31.173	0.659	2002.571
			Max. Vy	20	-24.900	1987.014	0.061
			Max. Vx	2	-25.096	0.659	2002.571
L30	75.583 - 70.583	Pole	Max. Torque	5			0.753
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-50.496	1.040	0.439
			Max. Mx	20	-32.354	2111.990	0.126
			Max. My	2	-32.331	0.726	2128.521
			Max. Vy	20	-25.135	2111.990	0.126
			Max. Vx	2	-25.329	0.726	2128.521
L31	70.583 - 65.583	Pole	Max. Torque	5			0.753
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-51.834	1.040	0.439
			Max. Mx	20	-33.534	2238.118	0.190
			Max. My	2	-33.513	0.793	2255.619
			Max. Vy	20	-25.362	2238.118	0.190
			Max. Vx	2	-25.555	0.793	2255.619
L32	65.583 - 60.583	Pole	Max. Torque	5			0.752
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-53.197	1.039	0.439
			Max. Mx	20	-34.739	2365.358	0.253
			Max. My	2	-34.720	0.859	2383.822
			Max. Vy	20	-25.580	2365.358	0.253
			Max. Vx	2	-25.773	0.859	2383.822
L33	60.583 - 55.583	Pole	Max. Torque	5			0.752
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-54.594	1.039	0.439
			Max. Mx	20	-35.967	2493.666	0.317
			Max. My	2	-35.951	0.924	2513.087
			Max. Vy	20	-25.790	2493.666	0.317
			Max. Vx	2	-25.981	0.924	2513.087
L34	55.583 - 53.567	Pole	Max. Torque	5			0.751
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-55.199	1.039	0.439
			Max. Mx	20	-36.469	2545.693	0.343
			Max. My	2	-36.454	0.950	2565.498
			Max. Vy	20	-25.872	2545.693	0.343
			Max. Vx	2	-26.062	0.950	2565.498
L35	53.567 - 53.317	Pole	Max. Torque	5			0.751
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-55.274	1.040	0.439
			Max. Mx	20	-36.545	2552.156	0.346

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L36	53.317 - 43.8	Pole	Max. My	2	-36.530	0.953	2572.009
			Max. Vy	20	-25.866	2552.156	0.346
			Max. Vx	2	-26.056	0.953	2572.009
			Max. Torque	5			0.751
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-56.562	1.039	0.439
L37	43.8 - 42.8	Pole	Max. Mx	20	-37.594	2661.403	0.399
			Max. My	2	-37.581	1.008	2682.053
			Max. Vy	20	-26.042	2661.403	0.399
			Max. Vx	2	-26.231	1.008	2682.053
			Max. Torque	5			0.750
			Max Tension	1	0.000	0.000	0.000
L38	42.8 - 38.417	Pole	Max. Compression	26	-60.862	1.040	0.439
			Max. Mx	20	-41.195	2827.019	0.480
			Max. My	2	-41.183	1.090	2848.860
			Max. Vy	20	-26.513	2827.019	0.480
			Max. Vx	2	-26.702	1.090	2848.860
			Max. Torque	5			0.750
L39	38.417 - 38.067	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-62.999	1.039	0.439
			Max. Mx	20	-43.000	2943.705	0.535
			Max. My	2	-42.990	1.147	2966.372
			Max. Vy	20	-26.763	2943.705	0.535
			Max. Vx	2	-26.951	1.147	2966.372
L40	38.067 - 37.833	Pole	Max. Torque	5			0.750
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-63.174	1.040	0.439
			Max. Mx	20	-43.153	2953.070	0.540
			Max. My	2	-43.142	1.151	2975.803
			Max. Vy	20	-26.772	2953.070	0.540
L41	37.833 - 32.833	Pole	Max. Vx	2	-26.960	1.151	2975.803
			Max. Torque	5			0.750
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-63.291	1.041	0.439
			Max. Mx	20	-43.251	2959.334	0.543
			Max. My	2	-43.241	1.154	2982.111
L42	32.833 - 27.833	Pole	Max. Vy	20	-26.785	2959.334	0.543
			Max. Vx	2	-26.973	1.154	2982.111
			Max. Torque	5			0.750
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-65.741	1.039	0.439
			Max. Mx	20	-45.330	3093.883	0.606
L43	27.833 - 23.5	Pole	Max. My	2	-45.321	1.219	3117.598
			Max. Vy	20	-27.057	3093.883	0.606
			Max. Vx	2	-27.244	1.219	3117.598
			Max. Torque	5			0.750
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-68.179	1.039	0.439
L44	23.5 - 23.25	Pole	Max. Mx	20	-47.440	3229.699	0.669
			Max. My	2	-47.432	1.283	3254.347
			Max. Vy	20	-27.302	3229.699	0.669
			Max. Vx	2	-27.488	1.283	3254.347
			Max. Torque	5			0.750
			Max Tension	1	0.000	0.000	0.000
L44	23.5 - 23.25	Pole	Max. Compression	26	-70.309	1.039	0.439
			Max. Mx	20	-49.289	3348.371	0.724
			Max. My	2	-49.282	1.338	3373.824
			Max. Vy	20	-27.509	3348.371	0.724
			Max. Vx	2	-27.695	1.338	3373.824
			Max. Torque	5			0.750
L44	23.5 - 23.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-70.432	1.040	0.439

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L45	23.25 - 18.25	Pole	Max. Mx	20	-49.404	3355.245	0.727
			Max. My	2	-49.398	1.341	3380.745
			Max. Vy	20	-27.508	3355.245	0.727
			Max. Vx	2	-27.694	1.341	3380.745
			Max. Torque	5			0.750
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-72.907	1.039	0.439
			Max. Mx	20	-51.553	3493.346	0.790
			Max. My	2	-51.548	1.404	3519.769
			Max. Vy	20	-27.755	3493.346	0.790
L46	18.25 - 13.25	Pole	Max. Vx	2	-27.939	1.404	3519.769
			Max. Torque	5			0.750
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-75.397	1.039	0.439
			Max. Mx	20	-53.734	3632.607	0.852
			Max. My	2	-53.730	1.467	3659.948
			Max. Vy	20	-27.985	3632.607	0.852
			Max. Vx	2	-28.168	1.467	3659.948
			Max. Torque	5			0.749
			Max Tension	1	0.000	0.000	0.000
L47	13.25 - 8.25	Pole	Max. Compression	26	-77.900	1.039	0.438
			Max. Mx	20	-55.938	3773.008	0.915
			Max. My	2	-55.936	1.530	3801.261
			Max. Vy	20	-28.212	3773.008	0.915
			Max. Vx	2	-28.394	1.530	3801.261
			Max. Torque	5			0.749
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-78.067	1.039	0.439
			Max. Mx	20	-56.093	3782.399	0.919
			Max. My	2	-56.090	1.534	3810.713
L48	8.25 - 7.917	Pole	Max. Vy	20	-28.215	3782.399	0.919
			Max. Vx	2	-28.397	1.534	3810.713
			Max. Torque	5			0.749
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-78.199	1.040	0.439
			Max. Mx	20	-56.210	3789.452	0.922
			Max. My	2	-56.208	1.537	3817.812
			Max. Vy	20	-28.225	3789.452	0.922
			Max. Vx	2	-28.407	1.537	3817.812
			Max. Torque	5			0.749
L49	7.917 - 7.667	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-79.337	1.039	0.438
			Max. Mx	20	-57.217	3850.718	0.949
			Max. My	2	-57.215	1.564	3879.470
			Max. Vy	20	-28.342	3850.718	0.949
			Max. Vx	2	-28.524	1.564	3879.470
			Max. Torque	5			0.749
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-79.431	1.042	0.438
			Max. Mx	20	-57.306	3857.799	0.952
L50	7.667 - 5.5	Pole	Max. My	2	-57.305	1.567	3886.597
			Max. Vy	20	-28.337	3857.799	0.952
			Max. Vx	2	-28.518	1.567	3886.597
			Max. Torque	5			0.749
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-80.274	1.064	0.431
			Max. Mx	20	-58.050	3921.605	0.980
			Max. My	2	-58.049	1.595	3950.810
			Max. Vy	20	-28.419	3921.605	0.980
			Max. Vx	2	-28.599	1.595	3950.810
L51	5.5 - 5.25	Pole	Max. Torque	5			0.749
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-80.393	1.066	0.430
			Max. Mx	20	-58.170	3928.703	0.983
			Max. My	2	-58.170	1.598	3957.953
			Max. Vy	20	-28.403	3928.703	0.983
			Max. Vx	2			
			Max. Torque	5			
			Max Tension	1			
			Max. Compression	26			
L52	5.25 - 3	Pole	Max. Mx	20			
			Max. My	2			
			Max. Vy	20			
			Max. Vx	2			
			Max. Torque	5			
			Max Tension	1			
			Max. Compression	26			
			Max. Mx	20			
			Max. My	2			
			Max. Vy	20			
L53	3 - 2.75	Pole	Max. Vx	20			
			Max. Torque	5			
			Max Tension	1			
			Max. Compression	26			
			Max. Mx	20			
			Max. My	2			
			Max. Vy	20			
			Max. Vx	20			
			Max. Torque	5			
			Max Tension	1			

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L54	2.75 - 0	Pole	Max. Vx	2	-28.583	1.598	3957.953
			Max. Torque	5			0.749
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-81.660	1.085	0.425
			Max. Mx	20	-59.345	4006.959	1.017
			Max. My	2	-59.345	1.632	4036.703
			Max. Vy	20	-28.542	4006.959	1.017
			Max. Vx	2	-28.722	1.632	4036.703
			Max. Torque	5			0.749

### Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	81.660	0.004	7.557
	Max. H <sub>x</sub>	21	44.518	28.515	0.012
	Max. H <sub>z</sub>	2	59.358	0.012	28.695
	Max. M <sub>x</sub>	2	4036.703	0.012	28.695
	Max. M <sub>z</sub>	8	4005.685	-28.515	-0.012
	Max. Torsion	5	0.749	-14.247	24.844
	Min. Vert	23	44.518	24.701	14.358
	Min. H <sub>x</sub>	9	44.518	-28.515	-0.012
	Min. H <sub>z</sub>	14	59.358	-0.012	-28.695
	Min. M <sub>x</sub>	14	-4036.654	-0.012	-28.695
	Min. M <sub>z</sub>	20	-4006.959	28.515	0.012
	Min. Torsion	17	-0.746	14.247	-24.844

### Tower Mast Reaction Summary

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
Dead Only	49.465	0.000	0.000	-0.014	0.475	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	59.358	-0.012	-28.695	-4036.703	1.632	-0.678
0.9 Dead+1.0 Wind 0 deg - No Ice	44.518	-0.012	-28.695	-3950.604	1.447	-0.691
1.2 Dead+1.0 Wind 30 deg - No Ice	59.358	14.247	-24.844	-3495.453	-2001.559	-0.737
0.9 Dead+1.0 Wind 30 deg - No Ice	44.518	14.247	-24.844	-3420.886	-1959.037	-0.749
1.2 Dead+1.0 Wind 60 deg - No Ice	59.358	24.689	-14.337	-2017.592	-3468.381	-0.598
0.9 Dead+1.0 Wind 60 deg - No Ice	44.518	24.689	-14.337	-1974.539	-3394.583	-0.606
1.2 Dead+1.0 Wind 90 deg - No Ice	59.358	28.515	0.012	0.995	-4005.685	-0.296
0.9 Dead+1.0 Wind 90 deg - No Ice	44.518	28.515	0.012	0.988	-3920.429	-0.298
1.2 Dead+1.0 Wind 120 deg - No Ice	59.358	24.701	14.358	2019.303	-3469.371	0.085
0.9 Dead+1.0 Wind 120 deg - No Ice	44.518	24.701	14.358	1976.242	-3395.566	0.089
1.2 Dead+1.0 Wind 150 deg - No Ice	59.358	14.268	24.857	3496.413	-2003.287	0.442
0.9 Dead+1.0 Wind 150 deg - No Ice	44.518	14.268	24.857	3421.850	-1960.752	0.451
1.2 Dead+1.0 Wind 180 deg - No Ice	59.358	0.012	28.695	4036.654	-0.380	0.678
0.9 Dead+1.0 Wind 180 deg	44.518	0.012	28.695	3950.571	-0.544	0.691

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
- No Ice						
1.2 Dead+1.0 Wind 210 deg	59.358	-14.247	24.844	3495.420	2002.804	0.734
- No Ice						
0.9 Dead+1.0 Wind 210 deg	44.518	-14.247	24.844	3420.865	1959.936	0.746
- No Ice						
1.2 Dead+1.0 Wind 240 deg	59.358	-24.689	14.337	2017.573	3469.638	0.594
- No Ice						
0.9 Dead+1.0 Wind 240 deg	44.518	-24.689	14.337	1974.527	3395.490	0.602
- No Ice						
1.2 Dead+1.0 Wind 270 deg	59.358	-28.515	-0.012	-1.017	4006.959	0.296
- No Ice						
0.9 Dead+1.0 Wind 270 deg	44.518	-28.515	-0.012	-1.003	3921.349	0.298
- No Ice						
1.2 Dead+1.0 Wind 300 deg	59.358	-24.701	-14.358	-2019.341	3470.651	-0.081
- No Ice						
0.9 Dead+1.0 Wind 300 deg	44.518	-24.701	-14.358	-1976.268	3396.490	-0.086
- No Ice						
1.2 Dead+1.0 Wind 330 deg	59.358	-14.268	-24.857	-3496.464	2004.556	-0.438
- No Ice						
0.9 Dead+1.0 Wind 330 deg	44.518	-14.268	-24.857	-3421.886	1961.667	-0.448
- No Ice						
1.2 Dead+1.0 Ice+1.0 Temp	81.660	-0.000	-0.000	-0.425	1.085	-0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	81.660	-0.004	-7.557	-1091.697	1.578	-0.181
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	81.660	3.758	-6.542	-945.349	-541.128	-0.161
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	81.660	6.513	-3.775	-545.835	-938.503	-0.098
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	81.660	7.523	0.004	-0.202	-1084.069	-0.008
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	81.660	6.517	3.782	545.347	-938.820	0.084
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	81.660	3.765	6.546	944.630	-541.677	0.153
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	81.660	0.004	7.557	1090.662	0.944	0.181
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	81.660	-3.758	6.542	944.314	543.651	0.161
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	81.660	-6.513	3.775	544.800	941.027	0.098
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	81.660	-7.523	-0.004	-0.835	1086.593	0.008
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	81.660	-6.517	-3.782	-546.384	941.343	-0.083
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	81.660	-3.765	-6.546	-945.667	544.199	-0.153
Dead+Wind 0 deg - Service	49.465	-0.003	-6.432	-895.641	0.761	-0.155
Dead+Wind 30 deg - Service	49.465	3.194	-5.569	-775.543	-443.684	-0.168
Dead+Wind 60 deg - Service	49.465	5.534	-3.214	-447.639	-769.100	-0.136
Dead+Wind 90 deg - Service	49.465	6.392	0.003	0.204	-888.290	-0.068
Dead+Wind 120 deg - Service	49.465	5.537	3.219	447.986	-769.323	0.019
Dead+Wind 150 deg - Service	49.465	3.198	5.572	775.725	-444.072	0.101
Dead+Wind 180 deg - Service	49.465	0.003	6.432	895.598	0.313	0.155
Dead+Wind 210 deg - Service	49.465	-3.194	5.569	775.501	444.757	0.168
Dead+Wind 240 deg - Service	49.465	-5.534	3.214	447.598	770.173	0.136
Dead+Wind 270 deg - Service	49.465	-6.392	-0.003	-0.245	889.364	0.068
Dead+Wind 300 deg - Service	49.465	-5.537	-3.219	-448.028	770.398	-0.019
Dead+Wind 330 deg - Service	49.465	-3.198	-5.572	-775.767	445.145	-0.101

## 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	-49.465	0.000	0.000	49.465	0.000	0.000%
2	-0.012	-59.358	-28.695	0.012	59.358	28.695	0.000%
3	-0.012	-44.518	-28.695	0.012	44.518	28.695	0.000%
4	14.247	-59.358	-24.844	-14.247	59.358	24.844	0.000%
5	14.247	-44.518	-24.844	-14.247	44.518	24.844	0.000%
6	24.689	-59.358	-14.337	-24.689	59.358	14.337	0.000%
7	24.689	-44.518	-14.337	-24.689	44.518	14.337	0.000%
8	28.515	-59.358	0.012	-28.515	59.358	-0.012	0.000%
9	28.515	-44.518	0.012	-28.515	44.518	-0.012	0.000%
10	24.701	-59.358	14.358	-24.701	59.358	-14.358	0.000%
11	24.701	-44.518	14.358	-24.701	44.518	-14.358	0.000%
12	14.268	-59.358	24.857	-14.268	59.358	-24.857	0.000%
13	14.268	-44.518	24.857	-14.268	44.518	-24.857	0.000%
14	0.012	-59.358	28.695	-0.012	59.358	-28.695	0.000%
15	0.012	-44.518	28.695	-0.012	44.518	-28.695	0.000%
16	-14.247	-59.358	24.844	14.247	59.358	-24.844	0.000%
17	-14.247	-44.518	24.844	14.247	44.518	-24.844	0.000%
18	-24.689	-59.358	14.337	24.689	59.358	-14.337	0.000%
19	-24.689	-44.518	14.337	24.689	44.518	-14.337	0.000%
20	-28.515	-59.358	-0.012	28.515	59.358	0.012	0.000%
21	-28.515	-44.518	-0.012	28.515	44.518	0.012	0.000%
22	-24.701	-59.358	-14.358	24.701	59.358	14.358	0.000%
23	-24.701	-44.518	-14.358	24.701	44.518	14.358	0.000%
24	-14.268	-59.358	-24.857	14.268	59.358	24.857	0.000%
25	-14.268	-44.518	-24.857	14.268	44.518	24.857	0.000%
26	0.000	-81.660	0.000	0.000	81.660	0.000	0.000%
27	-0.004	-81.660	-7.557	0.004	81.660	7.557	0.000%
28	3.758	-81.660	-6.542	-3.758	81.660	6.542	0.000%
29	6.513	-81.660	-3.775	-6.513	81.660	3.775	0.000%
30	7.523	-81.660	0.004	-7.523	81.660	-0.004	0.000%
31	6.517	-81.660	3.782	-6.517	81.660	-3.782	0.000%
32	3.765	-81.660	6.546	-3.765	81.660	-6.546	0.000%
33	0.004	-81.660	7.557	-0.004	81.660	-7.557	0.000%
34	-3.758	-81.660	6.542	3.758	81.660	-6.542	0.000%
35	-6.513	-81.660	3.775	6.513	81.660	-3.775	0.000%
36	-7.523	-81.660	-0.004	7.523	81.660	0.004	0.000%
37	-6.517	-81.660	-3.782	6.517	81.660	3.782	0.000%
38	-3.765	-81.660	-6.546	3.765	81.660	6.546	0.000%
39	-0.003	-49.465	-6.432	0.003	49.465	6.432	0.000%
40	3.194	-49.465	-5.569	-3.194	49.465	5.569	0.000%
41	5.534	-49.465	-3.214	-5.534	49.465	3.214	0.000%
42	6.392	-49.465	0.003	-6.392	49.465	-0.003	0.000%
43	5.537	-49.465	3.219	-5.537	49.465	-3.219	0.000%
44	3.198	-49.465	5.572	-3.198	49.465	-5.572	0.000%
45	0.003	-49.465	6.432	-0.003	49.465	-6.432	0.000%
46	-3.194	-49.465	5.569	3.194	49.465	-5.569	0.000%
47	-5.534	-49.465	3.214	5.534	49.465	-3.214	0.000%
48	-6.392	-49.465	-0.003	6.392	49.465	0.003	0.000%
49	-5.537	-49.465	-3.219	5.537	49.465	3.219	0.000%
50	-3.198	-49.465	-5.572	3.198	49.465	5.572	0.000%

## Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	6	0.00000001	0.00032022
3	Yes	6	0.00000001	0.00010387
4	Yes	8	0.00000001	0.00022688
5	Yes	7	0.00000001	0.00053926
6	Yes	8	0.00000001	0.00023043
7	Yes	7	0.00000001	0.00054904
8	Yes	6	0.00000001	0.00020408



9	Yes	5	0.00000001	0.00088795
10	Yes	8	0.00000001	0.00022884
11	Yes	7	0.00000001	0.00054476
12	Yes	8	0.00000001	0.00022792
13	Yes	7	0.00000001	0.00054196
14	Yes	6	0.00000001	0.00030095
15	Yes	6	0.00000001	0.00009724
16	Yes	8	0.00000001	0.00023064
17	Yes	7	0.00000001	0.00054938
18	Yes	8	0.00000001	0.00022700
19	Yes	7	0.00000001	0.00053997
20	Yes	6	0.00000001	0.00021935
21	Yes	5	0.00000001	0.00097081
22	Yes	8	0.00000001	0.00022870
23	Yes	7	0.00000001	0.00054443
24	Yes	8	0.00000001	0.00022973
25	Yes	7	0.00000001	0.00054687
26	Yes	4	0.00000001	0.00018450
27	Yes	8	0.00000001	0.00019403
28	Yes	8	0.00000001	0.00032183
29	Yes	8	0.00000001	0.00032323
30	Yes	8	0.00000001	0.00019227
31	Yes	8	0.00000001	0.00032210
32	Yes	8	0.00000001	0.00032125
33	Yes	8	0.00000001	0.00019357
34	Yes	8	0.00000001	0.00032490
35	Yes	8	0.00000001	0.00032252
36	Yes	8	0.00000001	0.00019311
37	Yes	8	0.00000001	0.00032395
38	Yes	8	0.00000001	0.00032579
39	Yes	5	0.00000001	0.00036801
40	Yes	6	0.00000001	0.00037611
41	Yes	6	0.00000001	0.00038884
42	Yes	5	0.00000001	0.00040983
43	Yes	6	0.00000001	0.00038230
44	Yes	6	0.00000001	0.00037979
45	Yes	5	0.00000001	0.00036672
46	Yes	6	0.00000001	0.00039299
47	Yes	6	0.00000001	0.00037744
48	Yes	5	0.00000001	0.00034124
49	Yes	6	0.00000001	0.00038413
50	Yes	6	0.00000001	0.00038944

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	180.5 - 175.5	42.676	39	2.376	0.003
L2	175.5 - 170.5	40.193	39	2.365	0.003
L3	170.5 - 165.5	37.729	39	2.340	0.002
L4	165.5 - 160.5	35.298	39	2.301	0.002
L5	160.5 - 155.5	32.917	39	2.245	0.002
L6	155.5 - 150.5	30.602	39	2.174	0.002
L7	150.5 - 145.5	28.369	39	2.089	0.001
L8	145.5 - 140.5	26.231	39	1.994	0.001
L9	140.5 - 134.5	24.197	39	1.891	0.001
L10	137.794 - 132.794	23.142	39	1.832	0.001
L11	132.794 - 127.794	21.254	39	1.764	0.001
L12	127.794 - 122.794	19.460	39	1.662	0.001
L13	122.794 - 120.583	17.774	39	1.557	0.001
L14	120.583 - 120.333	17.064	39	1.510	0.001
L15	120.333 - 115.333	16.985	39	1.505	0.001

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L16	115.333 - 112.5	15.466	39	1.398	0.001
L17	112.5 - 112.25	14.655	39	1.337	0.001
L18	112.25 - 107.817	14.585	39	1.334	0.001
L19	107.817 - 107.567	13.368	39	1.288	0.001
L20	107.567 - 102.567	13.300	39	1.285	0.001
L21	102.567 - 97.567	11.982	39	1.233	0.000
L22	97.567 - 89	10.719	39	1.179	0.000
L23	93.311 - 88.311	9.688	39	1.134	0.000
L24	88.311 - 87.5	8.515	39	1.104	0.000
L25	87.5 - 87.25	8.328	39	1.096	0.000
L26	87.25 - 82.25	8.271	39	1.091	0.000
L27	82.25 - 80.833	7.177	39	0.999	0.000
L28	80.833 - 80.583	6.884	39	0.973	0.000
L29	80.583 - 75.583	6.834	39	0.969	0.000
L30	75.583 - 70.583	5.866	39	0.879	0.000
L31	70.583 - 65.583	4.993	39	0.790	0.000
L32	65.583 - 60.583	4.212	39	0.702	0.000
L33	60.583 - 55.583	3.521	39	0.617	0.000
L34	55.583 - 53.567	2.920	39	0.533	0.000
L35	53.567 - 53.317	2.702	39	0.499	0.000
L36	53.317 - 43.8	2.676	39	0.495	0.000
L37	49.105 - 42.8	2.270	39	0.426	0.000
L38	42.8 - 38.417	1.731	39	0.386	0.000
L39	38.417 - 38.067	1.396	39	0.345	0.000
L40	38.067 - 37.833	1.371	39	0.342	0.000
L41	37.833 - 32.833	1.354	39	0.340	0.000
L42	32.833 - 27.833	1.022	39	0.294	0.000
L43	27.833 - 23.5	0.737	39	0.249	0.000
L44	23.5 - 23.25	0.529	39	0.211	0.000
L45	23.25 - 18.25	0.518	39	0.208	0.000
L46	18.25 - 13.25	0.322	39	0.165	0.000
L47	13.25 - 8.25	0.173	39	0.121	0.000
L48	8.25 - 7.917	0.068	39	0.078	0.000
L49	7.917 - 7.667	0.063	39	0.076	0.000
L50	7.667 - 5.5	0.059	39	0.074	0.000
L51	5.5 - 5.25	0.030	39	0.057	0.000
L52	5.25 - 3	0.027	39	0.054	0.000
L53	3 - 2.75	0.008	39	0.026	0.000
L54	2.75 - 0	0.007	39	0.023	0.000

### Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
180.000	APXVAALL24_43-U-NA20_TMO	39	42.427	2.376	0.003	14823
178.000	Side Arm Mount [SO 102-3]	39	41.433	2.372	0.003	14823
170.000	TMA-DB-T1-6Z-8AB-0Z	39	37.484	2.337	0.002	8450
168.000	BXA-171063-12CF-EDIN-X w/ Mount Pipe	39	36.508	2.323	0.002	7181
160.000	(2) 7770.00 w/ Mount Pipe	39	32.682	2.239	0.002	4415
158.000	RRUS 11 B12	39	31.750	2.212	0.002	4039
141.000	MX08FRO665-21 w/ Mount Pipe	39	24.395	1.902	0.001	2853
78.000	8225	39	6.322	0.922	0.000	3179

## Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	180.5 - 175.5	192.151	2	10.725	0.012
L2	175.5 - 170.5	181.004	2	10.678	0.011
L3	170.5 - 165.5	169.940	2	10.564	0.011
L4	165.5 - 160.5	159.023	2	10.389	0.009
L5	160.5 - 155.5	148.327	2	10.138	0.008
L6	155.5 - 150.5	137.925	2	9.818	0.007
L7	150.5 - 145.5	127.888	2	9.435	0.006
L8	145.5 - 140.5	118.271	2	9.005	0.006
L9	140.5 - 134.5	109.118	2	8.540	0.005
L10	137.794 - 132.794	104.370	2	8.275	0.005
L11	132.794 - 127.794	95.868	2	7.967	0.004
L12	127.794 - 122.794	87.789	2	7.508	0.004
L13	122.794 - 120.583	80.193	2	7.035	0.003
L14	120.583 - 120.333	76.992	2	6.823	0.003
L15	120.333 - 115.333	76.637	2	6.799	0.003
L16	115.333 - 112.5	69.785	2	6.315	0.003
L17	112.5 - 112.25	66.127	2	6.039	0.002
L18	112.25 - 107.817	65.812	2	6.027	0.002
L19	107.817 - 107.567	60.323	2	5.819	0.002
L20	107.567 - 102.567	60.019	2	5.807	0.002
L21	102.567 - 97.567	54.072	2	5.569	0.002
L22	97.567 - 89	48.374	2	5.329	0.002
L23	93.311 - 88.311	43.723	2	5.122	0.002
L24	88.311 - 87.5	38.429	2	4.988	0.002
L25	87.5 - 87.25	37.586	2	4.950	0.002
L26	87.25 - 82.25	37.328	2	4.929	0.002
L27	82.25 - 80.833	32.390	2	4.513	0.002
L28	80.833 - 80.583	31.069	2	4.397	0.002
L29	80.583 - 75.583	30.839	2	4.377	0.002
L30	75.583 - 70.583	26.474	2	3.969	0.001
L31	70.583 - 65.583	22.532	2	3.567	0.001
L32	65.583 - 60.583	19.006	2	3.172	0.001
L33	60.583 - 55.583	15.889	2	2.785	0.001
L34	55.583 - 53.567	13.173	2	2.405	0.001
L35	53.567 - 53.317	12.190	2	2.254	0.001
L36	53.317 - 43.8	12.072	2	2.235	0.001
L37	49.105 - 42.8	10.239	2	1.924	0.001
L38	42.8 - 38.417	7.810	2	1.741	0.000
L39	38.417 - 38.067	6.296	2	1.559	0.000
L40	38.067 - 37.833	6.183	2	1.544	0.000
L41	37.833 - 32.833	6.107	2	1.535	0.000
L42	32.833 - 27.833	4.609	2	1.327	0.000
L43	27.833 - 23.5	3.326	2	1.125	0.000
L44	23.5 - 23.25	2.384	2	0.950	0.000
L45	23.25 - 18.25	2.335	2	0.940	0.000
L46	18.25 - 13.25	1.454	2	0.743	0.000
L47	13.25 - 8.25	0.779	2	0.546	0.000
L48	8.25 - 7.917	0.309	2	0.354	0.000
L49	7.917 - 7.667	0.284	2	0.341	0.000
L50	7.667 - 5.5	0.267	2	0.332	0.000
L51	5.5 - 5.25	0.133	2	0.256	0.000
L52	5.25 - 3	0.120	2	0.242	0.000
L53	3 - 2.75	0.036	2	0.115	0.000
L54	2.75 - 0	0.030	2	0.105	0.000

### Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
180.000	APXVAALL24_43-U-NA20_TMO	2	191.035	10.722	0.012	3675
178.000	Side Arm Mount [SO 102-3]	2	186.572	10.707	0.012	3675
170.000	TMA-DB-T1-6Z-8AB-0Z	2	168.841	10.549	0.011	2037
168.000	BXA-171063-12CF-EDIN-X w/ Mount Pipe	2	164.459	10.485	0.010	1721
160.000	(2) 7770.00 w/ Mount Pipe	2	147.273	10.109	0.008	1042
158.000	RRUS 11 B12	2	143.085	9.986	0.008	950
141.000	MX08FRO665-21 w/ Mount Pipe	2	110.011	8.590	0.005	660
78.000	8225	2	28.531	4.165	0.002	710

### Compression Checks

### Pole Design Data

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio P <sub>u</sub> / φP <sub>n</sub>
L1	180.5 - 175.5 (1)	TP18.569x17.62x0.25	5.000	0.000	0.0	14.536	-4.086	850.359	0.005
L2	175.5 - 170.5 (2)	TP19.518x18.569x0.25	5.000	0.000	0.0	15.289	-4.396	894.408	0.005
L3	170.5 - 165.5 (3)	TP20.467x19.518x0.25	5.000	0.000	0.0	16.042	-7.660	938.456	0.008
L4	165.5 - 160.5 (4)	TP21.416x20.467x0.25	5.000	0.000	0.0	16.795	-8.029	982.504	0.008
L5	160.5 - 155.5 (5)	TP22.365x21.416x0.25	5.000	0.000	0.0	17.548	-10.955	1026.550	0.011
L6	155.5 - 150.5 (6)	TP23.313x22.365x0.25	5.000	0.000	0.0	18.301	-11.480	1070.600	0.011
L7	150.5 - 145.5 (7)	TP24.262x23.313x0.25	5.000	0.000	0.0	19.054	-12.039	1114.650	0.011
L8	145.5 - 140.5 (8)	TP25.211x24.262x0.25	5.000	0.000	0.0	19.807	-15.400	1158.700	0.013
L9	140.5 - 134.5 (9)	TP26.35x25.211x0.25	6.000	0.000	0.0	20.214	-15.747	1182.540	0.013
L10	134.5 - 132.794 (10)	TP26.174x25.225x0.313	5.000	0.000	0.0	25.651	-16.710	1500.590	0.011
L11	132.794 - 127.794 (11)	TP27.123x26.174x0.313	5.000	0.000	0.0	26.592	-17.495	1555.650	0.011
L12	127.794 - 122.794 (12)	TP28.072x27.123x0.313	5.000	0.000	0.0	27.534	-18.297	1610.710	0.011
L13	122.794 - 120.583 (13)	TP28.491x28.072x0.313	2.211	0.000	0.0	27.950	-18.659	1635.060	0.011
L14	120.583 - 120.333 (14)	TP28.539x28.491x0.313	0.250	0.000	0.0	27.997	-18.716	1637.810	0.011
L15	120.333 - 115.333 (15)	TP29.488x28.539x0.313	5.000	0.000	0.0	28.938	-19.545	1692.870	0.012
L16	115.333 - 112.5 (16)	TP30.025x29.488x0.313	2.833	0.000	0.0	29.471	-20.026	1724.070	0.012
L17	112.5 - 112.25 (17)	TP30.073x30.025x0.638	0.250	0.000	0.0	59.560	-20.116	3484.240	0.006
L18	112.25 - 107.817 (18)	TP30.914x30.073x0.675	4.433	0.000	0.0	64.785	-21.342	3789.940	0.006
L19	107.817 - 107.567 (19)	TP30.961x30.914x0.675	0.250	0.000	0.0	64.887	-21.420	3795.890	0.006
L20	107.567 - 102.567 (20)	TP31.91x30.961x0.663	5.000	0.000	0.0	65.707	-22.827	3843.860	0.006
L21	102.567 - 97.567 (21)	TP32.859x31.91x0.65	5.000	0.000	0.0	66.451	-24.264	3887.370	0.006
L22	97.567 - 89	TP34.485x32.859x0.638	8.567	0.000	0.0	66.832	-25.507	3909.700	0.007

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	KI/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio P <sub>u</sub> / φP <sub>n</sub>
L23	(22) 89 - 88.311	TP33.991x33.042x0.7	5.000	0.000	0.0	73.965	-28.192	4326.980	0.007
L24	(23) 88.311 - 87.5	TP34.145x33.991x0.7	0.811	0.000	0.0	74.307	-28.454	4346.980	0.007
L25	(24) 87.5 - 87.25	TP34.192x34.145x0.375	0.250	0.000	0.0	40.251	-28.512	2354.670	0.012
L26	(25) 87.25 - 82.25	TP35.141x34.192x0.375	5.000	0.000	0.0	41.380	-29.596	2420.740	0.012
L27	(26) 82.25 -	TP35.41x35.141x0.375	1.417	0.000	0.0	41.700	-29.904	2439.470	0.012
L28	(27) 80.833 -	TP35.457x35.41x0.375	0.250	0.000	0.0	41.757	-29.981	2442.770	0.012
L29	(28) 80.583 -	TP36.406x35.457x0.375	5.000	0.000	0.0	42.886	-31.173	2508.840	0.012
L30	(29) 75.583 -	TP37.355x36.406x0.375	5.000	0.000	0.0	44.016	-32.331	2574.910	0.013
L31	(30) 70.583 -	TP38.304x37.355x0.375	5.000	0.000	0.0	45.145	-33.513	2640.990	0.013
L32	(31) 65.583 -	TP39.253x38.304x0.375	5.000	0.000	0.0	46.275	-34.720	2707.060	0.013
L33	(32) 60.583 -	TP40.202x39.253x0.375	5.000	0.000	0.0	47.404	-35.951	2773.130	0.013
L34	(33) 55.583 -	TP40.584x40.202x0.375	2.016	0.000	0.0	47.859	-36.454	2799.770	0.013
L35	(34) 53.567 -	TP40.632x40.584x0.375	0.250	0.000	0.0	47.916	-36.530	2803.070	0.013
L36	(35) 53.317 - 43.8	TP42.438x40.632x0.375	9.517	0.000	0.0	48.867	-37.581	2858.730	0.013
L37	(36) 43.8 - 42.8	TP41.878x40.681x0.7	6.305	0.000	0.0	91.489	-41.183	5352.090	0.008
L38	(37) 42.8 - 38.417	TP42.71x41.878x0.688	4.383	0.000	0.0	91.243	-42.773	5337.750	0.008
L39	(38) 38.417 -	TP42.776x42.71x0.688	0.350	0.000	0.0	91.842	-43.142	5372.770	0.008
L40	(39) 38.067 -	TP42.82x42.776x0.688	0.234	0.000	0.0	91.939	-43.241	5378.440	0.008
L41	(40) 37.833 -	TP43.769x42.82x0.675	5.000	0.000	0.0	91.107	-44.282	5329.790	0.008
L42	(41) 32.833 -	TP44.718x43.769x0.675	5.000	0.000	0.0	92.327	-45.540	5401.140	0.008
L43	(42) 27.833 - 23.5	TP45.54x44.718x0.663	4.333	0.000	0.0	92.639	-47.452	5419.380	0.009
L44	(43) 23.5 - 23.25	TP45.588x45.54x0.663	0.250	0.000	0.0	94.368	-49.295	5520.530	0.009
L45	(44) 23.25 - 18.25	TP46.537x45.588x0.663	5.000	0.000	0.0	94.468	-49.410	5526.370	0.009
L46	(45) 18.25 - 13.25	TP47.486x46.537x0.65	5.000	0.000	0.0	94.669	-51.567	5538.120	0.009
L47	(46) 13.25 - 8.25	TP48.434x47.486x0.65	5.000	0.000	0.0	96.626	-53.749	5652.640	0.010
L48	(47) 8.25 - 7.917	TP48.498x48.434x0.65	0.333	0.000	0.0	98.584	-55.948	5767.160	0.010
L49	(48) 7.917 - 7.667	TP48.545x48.498x0.7	0.250	0.000	0.0	106.19	-56.096	6212.500	0.009
L50	(49) 7.667 - 5.5	TP48.956x48.545x0.7	2.167	0.000	0.0	106.30	-56.220	6218.670	0.009
L51	(50) 5.5 - 5.25	TP49.004x48.956x0.413	0.250	0.000	0.0	63.619	-57.305	3721.730	0.015
L52	(51) 5.25 - 3	TP49.431x49.004x0.425	2.250	0.000	0.0	66.106	-58.048	3867.210	0.015
L53	(52) 3 - 2.75	TP49.478x49.431x0.625	0.250	0.000	0.0	96.818	-58.067	5663.870	0.010
L54	(53) 2.75 - 0	TP50x49.478x0.625	2.750	0.000	0.0	96.912	-58.185	5669.370	0.010

### Pole Bending Design Data

Section No.	Elevation ft	Size	$M_{ux}$	$\phi M_{nx}$	Ratio	$M_{uy}$	$\phi M_{ny}$	Ratio
			kip-ft	kip-ft	$\frac{M_{ux}}{\phi M_{nx}}$			$\frac{M_{uy}}{\phi M_{ny}}$
L1	180.5 - 175.5 (1)	TP18.569x17.62x0.25	36.828	404.493	0.091	0.000	404.493	0.000
L2	175.5 - 170.5 (2)	TP19.518x18.569x0.25	72.062	447.781	0.161	0.000	447.781	0.000
L3	170.5 - 165.5 (3)	TP20.467x19.518x0.25	125.906	493.269	0.255	0.000	493.269	0.000
L4	165.5 - 160.5 (4)	TP21.416x20.467x0.25	189.211	540.957	0.350	0.000	540.957	0.000
L5	160.5 - 155.5 (5)	TP22.365x21.416x0.25	270.267	590.845	0.457	0.000	590.845	0.000
L6	155.5 - 150.5 (6)	TP23.313x22.365x0.25	353.478	642.934	0.550	0.000	642.934	0.000
L7	150.5 - 145.5 (7)	TP24.262x23.313x0.25	438.168	695.496	0.630	0.000	695.496	0.000
L8	145.5 - 140.5 (8)	TP25.211x24.262x0.25	526.038	744.672	0.706	0.000	744.672	0.000
L9	140.5 - 134.5 (9)	TP26.35x25.211x0.25	581.983	771.739	0.754	0.000	771.739	0.000
L10	134.5 - 132.794 (10)	TP26.174x25.225x0.313	686.702	1009.233	0.680	0.000	1009.233	0.000
L11	132.794 - 127.794 (11)	TP27.123x26.174x0.313	792.970	1085.117	0.731	0.000	1085.117	0.000
L12	127.794 - 122.794 (12)	TP28.072x27.123x0.313	900.625	1163.742	0.774	0.000	1163.742	0.000
L13	122.794 - 120.583 (13)	TP28.491x28.072x0.313	948.667	1199.392	0.791	0.000	1199.392	0.000
L14	120.583 - 120.333 (14)	TP28.539x28.491x0.313	954.117	1203.450	0.793	0.000	1203.450	0.000
L15	120.333 - 115.333 (15)	TP29.488x28.539x0.313	1063.800	1286.183	0.827	0.000	1286.183	0.000
L16	115.333 - 112.5 (16)	TP30.025x29.488x0.313	1126.533	1334.283	0.844	0.000	1334.283	0.000
L17	112.5 - 112.25 (17)	TP30.073x30.025x0.638	1132.092	2642.192	0.428	0.000	2642.192	0.000
L18	112.25 - 107.817 (18)	TP30.914x30.073x0.675	1231.500	2950.575	0.417	0.000	2950.575	0.000
L19	107.817 - 107.567 (19)	TP30.961x30.914x0.675	1237.150	2959.942	0.418	0.000	2959.942	0.000
L20	107.567 - 102.567 (20)	TP31.91x30.961x0.663	1351.317	3095.783	0.437	0.000	3095.783	0.000
L21	102.567 - 97.567 (21)	TP32.859x31.91x0.65	1467.517	3230.383	0.454	0.000	3230.383	0.000
L22	97.567 - 89 (22)	TP34.485x32.859x0.638	1568.008	3334.550	0.470	0.000	3334.550	0.000
L23	89 - 88.311 (23)	TP33.991x33.042x0.7	1688.358	3713.358	0.455	0.000	3713.358	0.000
L24	88.311 - 87.5 (24)	TP34.145x33.991x0.7	1708.125	3748.133	0.456	0.000	3748.133	0.000
L25	87.5 - 87.25 (25)	TP34.192x34.145x0.375	1714.225	2072.875	0.827	0.000	2072.875	0.000
L26	87.25 - 82.25 (26)	TP35.141x34.192x0.375	1836.917	2191.492	0.838	0.000	2191.492	0.000
L27	82.25 - 80.833 (27)	TP35.41x35.141x0.375	1871.917	2225.708	0.841	0.000	2225.708	0.000
L28	80.833 - 80.583 (28)	TP35.457x35.41x0.375	1878.100	2231.775	0.842	0.000	2231.775	0.000
L29	80.583 - 75.583 (29)	TP36.406x35.457x0.375	2002.567	2348.758	0.853	0.000	2348.758	0.000
L30	75.583 - 70.583 (30)	TP37.355x36.406x0.375	2128.525	2459.008	0.866	0.000	2459.008	0.000
L31	70.583 - 65.583 (31)	TP38.304x37.355x0.375	2255.617	2570.908	0.877	0.000	2570.908	0.000
L32	65.583 - 60.583 (32)	TP39.253x38.304x0.375	2383.825	2684.392	0.888	0.000	2684.392	0.000
L33	60.583 - 55.583 (33)	TP40.202x39.253x0.375	2513.083	2799.392	0.898	0.000	2799.392	0.000

Section No.	Elevation ft	Size	$M_{ux}$	$\phi M_{nx}$	Ratio	$M_{uy}$ kip-ft	$\phi M_{ny}$	Ratio
			kip-ft	kip-ft	$\frac{M_{ux}}{\phi M_{nx}}$		kip-ft	$\frac{M_{uy}}{\phi M_{ny}}$
L34	55.583 - 53.567 (34)	TP40.584x40.202x0.375	2565.500	2846.175	0.901	0.000	2846.175	0.000
L35	53.567 - 53.317 (35)	TP40.632x40.584x0.375	2572.008	2852.000	0.902	0.000	2852.000	0.000
L36	53.317 - 43.8 (36)	TP42.438x40.632x0.375	2682.050	2950.550	0.909	0.000	2950.550	0.000
L37	43.8 - 42.8 (37)	TP41.878x40.681x0.7	2848.858	5703.758	0.499	0.000	5703.758	0.000
L38	42.8 - 38.417 (38)	TP42.71x41.878x0.688	2936.842	5779.550	0.508	0.000	5779.550	0.000
L39	38.417 - 38.067 (39)	TP42.776x42.71x0.688	2975.800	5856.258	0.508	0.000	5856.258	0.000
L40	38.067 - 37.833 (40)	TP42.82x42.776x0.688	2982.108	5868.725	0.508	0.000	5868.725	0.000
L41	37.833 - 32.833 (41)	TP43.769x42.82x0.675	3036.100	5872.317	0.517	0.000	5872.317	0.000
L42	32.833 - 27.833 (42)	TP44.718x43.769x0.675	3117.550	6031.850	0.517	0.000	6031.850	0.000
L43	27.833 - 23.5 (43)	TP45.54x44.718x0.663	3254.350	6191.050	0.526	0.000	6191.050	0.000
L44	23.5 - 23.25 (44)	TP45.588x45.54x0.663	3373.825	6426.058	0.525	0.000	6426.058	0.000
L45	23.25 - 18.25 (45)	TP46.537x45.588x0.663	3380.742	6439.750	0.525	0.000	6439.750	0.000
L46	18.25 - 13.25 (46)	TP47.486x46.537x0.65	3519.767	6595.325	0.534	0.000	6595.325	0.000
L47	13.25 - 8.25 (47)	TP48.434x47.486x0.65	3659.950	6872.850	0.533	0.000	6872.850	0.000
L48	8.25 - 7.917 (48)	TP48.498x48.434x0.65	3801.258	7156.100	0.531	0.000	7156.100	0.000
L49	7.917 - 7.667 (49)	TP48.545x48.498x0.7	3810.717	7702.908	0.495	0.000	7702.908	0.000
L50	7.667 - 5.5 (50)	TP48.956x48.545x0.7	3817.808	7718.317	0.495	0.000	7718.317	0.000
L51	5.5 - 5.25 (51)	TP49.004x48.956x0.413	3886.600	4450.758	0.873	0.000	4450.758	0.000
L52	5.25 - 3 (52)	TP49.431x49.004x0.425	3950.808	4694.217	0.842	0.000	4694.217	0.000
L53	3 - 2.75 (53)	TP49.478x49.431x0.625	3950.808	7183.791	0.550	0.000	7183.791	0.000
L54	2.75 - 0 (54)	TP50x49.478x0.625	3957.950	7197.850	0.550	0.000	7197.850	0.000

### Pole Shear Design Data

Section No.	Elevation ft	Size	Actual	$\phi V_n$	Ratio	Actual	$\phi T_n$	Ratio
			$V_u$ K	K	$\frac{V_u}{\phi V_n}$	$T_u$ kip-ft	kip-ft	$\frac{T_u}{\phi T_n}$
L1	180.5 - 175.5 (1)	TP18.569x17.62x0.25	6.894	255.108	0.027	0.002	409.264	0.000
L2	175.5 - 170.5 (2)	TP19.518x18.569x0.25	7.203	268.322	0.027	0.002	452.762	0.000
L3	170.5 - 165.5 (3)	TP20.467x19.518x0.25	12.487	281.537	0.044	0.357	498.455	0.001
L4	165.5 - 160.5 (4)	TP21.416x20.467x0.25	12.830	294.751	0.044	0.575	546.346	0.001
L5	160.5 - 155.5 (5)	TP22.365x21.416x0.25	16.499	307.966	0.054	0.477	596.432	0.001
L6	155.5 - 150.5 (6)	TP23.313x22.365x0.25	16.799	321.180	0.052	0.476	648.715	0.001
L7	150.5 - 145.5 (7)	TP24.262x23.313x0.25	17.094	334.395	0.051	0.475	703.193	0.001
L8	145.5 - 140.5 (8)	TP25.211x24.262x0.25	20.616	347.609	0.059	0.475	759.869	0.001
L9	140.5 - 134.5 (9)	TP26.35x25.211x0.25	20.765	354.761	0.059	0.474	791.457	0.001
L10	134.5 - 132.794 (10)	TP26.174x25.225x0.313	21.136	450.177	0.047	0.474	1019.558	0.000
L11	132.794 -	TP27.123x26.174x0.313	21.408	466.695	0.046	0.473	1095.750	0.000

Section No.	Elevation ft	Size	Actual $V_u$ K	$\phi V_n$ K	Ratio $\frac{V_u}{\phi V_n}$	Actual $T_u$ kip-ft	$\phi T_n$ kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L12	127.794 (11)							
	127.794 - 122.794 (12)	TP28.072x27.123x0.313	21.684	483.213	0.045	0.472	1174.692	0.000
L13	122.794 - 120.583 (13)	TP28.491x28.072x0.313	21.806	490.518	0.044	0.472	1210.475	0.000
L14	120.583 - 120.333 (14)	TP28.539x28.491x0.313	21.809	491.343	0.044	0.472	1214.550	0.000
L15	120.333 - 115.333 (15)	TP29.488x28.539x0.313	22.087	507.861	0.043	0.471	1297.583	0.000
L16	115.333 - 112.5 (16)	TP30.025x29.488x0.313	22.244	517.220	0.043	0.471	1345.850	0.000
L17	112.5 - 112.25 (17)	TP30.073x30.025x0.638	22.245	1045.270	0.021	0.470	2694.483	0.000
L18	112.25 - 107.817 (18)	TP30.914x30.073x0.675	22.617	1136.980	0.020	0.470	3010.925	0.000
L19	107.817 - 107.567 (19)	TP30.961x30.914x0.675	22.633	1138.770	0.020	0.470	3020.383	0.000
L20	107.567 - 102.567 (20)	TP31.91x30.961x0.663	23.047	1153.160	0.020	0.470	3155.642	0.000
L21	102.567 - 97.567 (21)	TP32.859x31.91x0.65	23.453	1166.210	0.020	0.469	3289.550	0.000
L22	97.567 - 89 (22)	TP34.485x32.859x0.638	23.793	1172.910	0.020	0.469	3392.692	0.000
L23	89 - 88.311 (23)	TP33.991x33.042x0.7	24.345	1298.090	0.019	0.469	3784.508	0.000
L24	88.311 - 87.5 (24)	TP34.145x33.991x0.7	24.411	1304.090	0.019	0.469	3819.583	0.000
L25	87.5 - 87.25 (25)	TP34.192x34.145x0.375	24.423	706.402	0.035	0.469	2092.033	0.000
L26	87.25 - 82.25 (26)	TP35.141x34.192x0.375	24.685	726.223	0.034	0.468	2211.083	0.000
L27	82.25 - 80.833 (27)	TP35.41x35.141x0.375	24.763	731.840	0.034	0.468	2245.417	0.000
L28	80.833 - 80.583 (28)	TP35.457x35.41x0.375	24.754	732.832	0.034	0.468	2251.508	0.000
L29	80.583 - 75.583 (29)	TP36.406x35.457x0.375	25.096	752.653	0.033	0.682	2374.950	0.000
L30	75.583 - 70.583 (30)	TP37.355x36.406x0.375	25.329	772.474	0.033	0.681	2501.683	0.000
L31	70.583 - 65.583 (31)	TP38.304x37.355x0.375	25.555	792.296	0.032	0.681	2631.717	0.000
L32	65.583 - 60.583 (32)	TP39.253x38.304x0.375	25.773	812.117	0.032	0.680	2765.042	0.000
L33	60.583 - 55.583 (33)	TP40.202x39.253x0.375	25.981	831.938	0.031	0.680	2901.667	0.000
L34	55.583 - 53.567 (34)	TP40.584x40.202x0.375	26.062	839.930	0.031	0.680	2957.683	0.000
L35	53.567 - 53.317 (35)	TP40.632x40.584x0.375	26.056	840.921	0.031	0.679	2964.667	0.000
L36	53.317 - 43.8 (36)	TP42.438x40.632x0.375	26.231	857.619	0.031	0.679	3083.567	0.000
L37	43.8 - 42.8 (37)	TP41.878x40.681x0.7	26.702	1605.630	0.017	0.679	5790.117	0.000
L38	42.8 - 38.417 (38)	TP42.71x41.878x0.688	26.951	1601.320	0.017	0.679	5863.833	0.000
L39	38.417 - 38.067 (39)	TP42.776x42.71x0.688	26.960	1611.830	0.017	0.679	5941.033	0.000
L40	38.067 - 37.833 (40)	TP42.82x42.776x0.688	26.973	1613.530	0.017	0.679	5953.583	0.000
L41	37.833 - 32.833 (41)	TP43.769x42.82x0.675	27.140	1598.940	0.017	0.679	5954.617	0.000
L42	32.833 - 27.833 (42)	TP44.718x43.769x0.675	27.293	1627.480	0.017	0.679	6115.125	0.000
L43	27.833 - 23.5 (43)	TP45.54x44.718x0.663	27.541	1633.400	0.017	0.679	6272.658	0.000
L44	23.5 - 23.25 (44)	TP45.588x45.54x0.663	27.694	1657.910	0.017	0.679	6508.991	0.000
L45	23.25 - 18.25 (45)	TP46.537x45.588x0.663	27.752	1664.910	0.017	0.678	6522.767	0.000



Section No.	Elevation ft	Size	Actual $V_u$ K	$\phi V_n$ K	Ratio $V_u$ $\phi V_n$	Actual $T_u$ kip-ft	$\phi T_n$ kip-ft	Ratio $T_u$ $\phi T_n$
L46	18.25 - 13.25 (46)	TP47.486x46.537x0.65	27.985	1668.310	0.017	0.678	6676.517	0.000
L47	13.25 - 8.25 (47)	TP48.434x47.486x0.65	28.213	1702.660	0.017	0.678	6955.491	0.000
L48	8.25 - 7.917 (48)	TP48.498x48.434x0.65	28.397	1732.440	0.016	0.678	7240.175	0.000
L49	7.917 - 7.667 (49)	TP48.545x48.498x0.7	28.407	1865.600	0.015	0.678	7801.425	0.000
L50	7.667 - 5.5 (50)	TP48.956x48.545x0.7	28.472	1873.620	0.015	0.678	7816.917	0.000
L51	5.5 - 5.25 (51)	TP49.004x48.956x0.413	28.519	1116.520	0.026	0.678	4751.200	0.000
L52	5.25 - 3 (52)	TP49.431x49.004x0.425	28.599	1160.160	0.025	0.678	4979.042	0.000
L53	3 - 2.75 (53)	TP49.478x49.431x0.625	28.583	1700.810	0.017	0.678	7262.475	0.000
L54	2.75 - 0 (54)	TP50x49.478x0.625	28.663	1709.900	0.017	0.678	7276.608	0.000

### Pole Interaction Design Data

Section No.	Elevation ft	Ratio $P_u$ $\phi P_n$	Ratio $M_{ux}$ $\phi M_{nx}$	Ratio $M_{uy}$ $\phi M_{ny}$	Ratio $V_u$ $\phi V_n$	Ratio $T_u$ $\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	180.5 - 175.5 (1)	0.005	0.091	0.000	0.027	0.000	0.097	1.050	4.8.2
L2	175.5 - 170.5 (2)	0.005	0.161	0.000	0.027	0.000	0.167	1.050	4.8.2
L3	170.5 - 165.5 (3)	0.008	0.255	0.000	0.044	0.001	0.265	1.050	4.8.2
L4	165.5 - 160.5 (4)	0.008	0.350	0.000	0.044	0.001	0.360	1.050	4.8.2
L5	160.5 - 155.5 (5)	0.011	0.457	0.000	0.054	0.001	0.471	1.050	4.8.2
L6	155.5 - 150.5 (6)	0.011	0.550	0.000	0.052	0.001	0.563	1.050	4.8.2
L7	150.5 - 145.5 (7)	0.011	0.630	0.000	0.051	0.001	0.643	1.050	4.8.2
L8	145.5 - 140.5 (8)	0.013	0.706	0.000	0.059	0.001	0.723	1.050	4.8.2
L9	140.5 - 134.5 (9)	0.013	0.754	0.000	0.059	0.001	0.771	1.050	4.8.2
L10	134.5 - 132.794 (10)	0.011	0.680	0.000	0.047	0.000	0.694	1.050	4.8.2
L11	132.794 - 127.794 (11)	0.011	0.731	0.000	0.046	0.000	0.744	1.050	4.8.2
L12	127.794 - 122.794 (12)	0.011	0.774	0.000	0.045	0.000	0.787	1.050	4.8.2
L13	122.794 - 120.583 (13)	0.011	0.791	0.000	0.044	0.000	0.804	1.050	4.8.2
L14	120.583 - 120.333 (14)	0.011	0.793	0.000	0.044	0.000	0.806	1.050	4.8.2
L15	120.333 - 115.333 (15)	0.012	0.827	0.000	0.043	0.000	0.841	1.050	4.8.2
L16	115.333 - 112.5 (16)	0.012	0.844	0.000	0.043	0.000	0.858	1.050	4.8.2
L17	112.5 - 112.25 (17)	0.006	0.428	0.000	0.021	0.000	0.435	1.050	4.8.2
L18	112.25 - 107.817 (18)	0.006	0.417	0.000	0.020	0.000	0.423	1.050	4.8.2
L19	107.817 - 107.567 (19)	0.006	0.418	0.000	0.020	0.000	0.424	1.050	4.8.2
L20	107.567 - 102.567 (20)	0.006	0.437	0.000	0.020	0.000	0.443	1.050	4.8.2
L21	102.567 - 97.567 (21)	0.006	0.454	0.000	0.020	0.000	0.461	1.050	4.8.2
L22	97.567 - 89 (22)	0.007	0.470	0.000	0.020	0.000	0.477	1.050	4.8.2
L23	89 - 88.311	0.007	0.455	0.000	0.019	0.000	0.462	1.050	4.8.2

Section No.	Elevation ft	Ratio	Ratio	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		$P_u$ $\phi P_n$	$M_{ux}$ $\phi M_{nx}$	$M_{uy}$ $\phi M_{ny}$	$V_u$ $\phi V_n$	$T_u$ $\phi T_n$			
L24	88.311 - 87.5 (23)	0.007	0.456	0.000	0.019	0.000	0.463	1.050	4.8.2
L25	87.5 - 87.25 (24)	0.012	0.827	0.000	0.035	0.000	0.840	1.050	4.8.2
L26	87.25 - 82.25 (25)	0.012	0.838	0.000	0.034	0.000	0.852	1.050	4.8.2
L27	82.25 - (26)	0.012	0.841	0.000	0.034	0.000	0.854	1.050	4.8.2
L28	80.833 (27) 80.833 -	0.012	0.842	0.000	0.034	0.000	0.855	1.050	4.8.2
L29	80.583 (28) 80.583 -	0.012	0.853	0.000	0.033	0.000	0.866	1.050	4.8.2
L30	75.583 (29) 75.583 -	0.013	0.866	0.000	0.033	0.000	0.879	1.050	4.8.2
L31	70.583 (30) 70.583 -	0.013	0.877	0.000	0.032	0.000	0.891	1.050	4.8.2
L32	65.583 (31) 65.583 -	0.013	0.888	0.000	0.032	0.000	0.902	1.050	4.8.2
L33	60.583 (32) 60.583 -	0.013	0.898	0.000	0.031	0.000	0.912	1.050	4.8.2
L34	55.583 (33) 55.583 -	0.013	0.901	0.000	0.031	0.000	0.915	1.050	4.8.2
L35	53.567 (34) 53.567 -	0.013	0.902	0.000	0.031	0.000	0.916	1.050	4.8.2
L36	53.317 (35) 53.317 - 43.8	0.013	0.909	0.000	0.031	0.000	0.923	1.050	4.8.2
L37	43.8 - 42.8 (36)	0.008	0.499	0.000	0.017	0.000	0.507	1.050	4.8.2
L38	42.8 - 38.417 (37)	0.008	0.508	0.000	0.017	0.000	0.516	1.050	4.8.2
L39	38.417 - (38)	0.008	0.508	0.000	0.017	0.000	0.516	1.050	4.8.2
L40	38.067 (39) 38.067 -	0.008	0.508	0.000	0.017	0.000	0.516	1.050	4.8.2
L41	37.833 (40) 37.833 -	0.008	0.517	0.000	0.017	0.000	0.526	1.050	4.8.2
L42	32.833 (41) 32.833 -	0.008	0.517	0.000	0.017	0.000	0.526	1.050	4.8.2
L43	27.833 (42) 27.833 - 23.5	0.009	0.526	0.000	0.017	0.000	0.535	1.050	4.8.2
L44	23.5 - 23.25 (43)	0.009	0.525	0.000	0.017	0.000	0.534	1.050	4.8.2
L45	23.25 - 18.25 (44)	0.009	0.525	0.000	0.017	0.000	0.534	1.050	4.8.2
L46	18.25 - 13.25 (45)	0.009	0.534	0.000	0.017	0.000	0.543	1.050	4.8.2
L47	13.25 - 8.25 (46)	0.010	0.533	0.000	0.017	0.000	0.542	1.050	4.8.2
L48	8.25 - 7.917 (47)	0.010	0.531	0.000	0.016	0.000	0.541	1.050	4.8.2
L49	7.917 - 7.667 (48)	0.009	0.495	0.000	0.015	0.000	0.504	1.050	4.8.2
L50	7.667 - 5.5 (49)	0.009	0.495	0.000	0.015	0.000	0.504	1.050	4.8.2
L51	5.5 - 5.25 (50) 5.5 - 5.25 (51)	0.015	0.873	0.000	0.026	0.000	0.889	1.050	4.8.2
L52	5.25 - 3 (52)	0.015	0.842	0.000	0.025	0.000	0.857	1.050	4.8.2
L53	3 - 2.75 (53)	0.010	0.550	0.000	0.017	0.000	0.561	1.050	4.8.2
L54	2.75 - 0 (54)	0.010	0.550	0.000	0.017	0.000	0.560	1.050	4.8.2

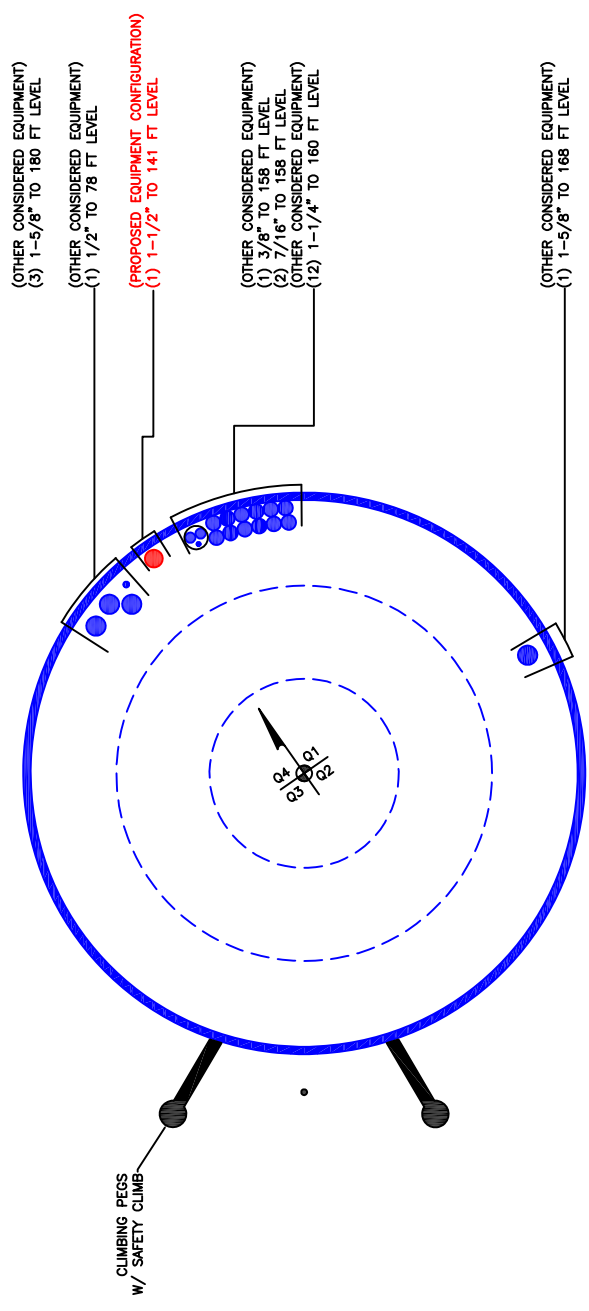
### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail
L1	180.5 - 175.5	Pole	TP18.569x17.62x0.25	1	-4.086	892.877	9.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail	
L2	175.5 - 170.5	Pole	TP19.518x18.569x0.25	2	-4.396	939.128	15.9	Pass	
L3	170.5 - 165.5	Pole	TP20.467x19.518x0.25	3	-7.660	985.379	25.3	Pass	
L4	165.5 - 160.5	Pole	TP21.416x20.467x0.25	4	-8.029	1031.629	34.3	Pass	
L5	160.5 - 155.5	Pole	TP22.365x21.416x0.25	5	-10.955	1077.877	44.9	Pass	
L6	155.5 - 150.5	Pole	TP23.313x22.365x0.25	6	-11.480	1124.130	53.7	Pass	
L7	150.5 - 145.5	Pole	TP24.262x23.313x0.25	7	-12.039	1170.382	61.3	Pass	
L8	145.5 - 140.5	Pole	TP25.211x24.262x0.25	8	-15.400	1216.635	68.9	Pass	
L9	140.5 - 134.5	Pole	TP26.35x25.211x0.25	9	-15.747	1241.667	73.4	Pass	
L10	134.5 - 132.794	Pole	TP26.174x25.225x0.313	10	-16.710	1575.619	66.1	Pass	
L11	132.794 - 127.794	Pole	TP27.123x26.174x0.313	11	-17.495	1633.432	70.9	Pass	
L12	127.794 - 122.794	Pole	TP28.072x27.123x0.313	12	-18.297	1691.245	75.0	Pass	
L13	122.794 - 120.583	Pole	TP28.491x28.072x0.313	13	-18.659	1716.813	76.6	Pass	
L14	120.583 - 120.333	Pole	TP28.539x28.491x0.313	14	-18.716	1719.700	76.8	Pass	
L15	120.333 - 115.333	Pole	TP29.488x28.539x0.313	15	-19.545	1777.513	80.1	Pass	
L16	115.333 - 112.5	Pole	TP30.025x29.488x0.313	16	-20.026	1810.273	81.7	Pass	
L17	112.5 - 112.25	Pole	TP30.073x30.025x0.638	17	-20.116	3658.452	41.4	Pass	
L18	112.25 - 107.817	Pole	TP30.914x30.073x0.675	18	-21.342	3979.437	40.3	Pass	
L19	107.817 - 107.567	Pole	TP30.961x30.914x0.675	19	-21.420	3985.684	40.4	Pass	
L20	107.567 - 102.567	Pole	TP31.91x30.961x0.663	20	-22.827	4036.053	42.2	Pass	
L21	102.567 - 97.567	Pole	TP32.859x31.91x0.65	21	-24.264	4081.738	43.9	Pass	
L22	97.567 - 89	Pole	TP34.485x32.859x0.638	22	-25.507	4105.185	45.4	Pass	
L23	89 - 88.311	Pole	TP33.991x33.042x0.7	23	-28.192	4543.329	44.0	Pass	
L24	88.311 - 87.5	Pole	TP34.145x33.991x0.7	24	-28.454	4564.329	44.1	Pass	
L25	87.5 - 87.25	Pole	TP34.192x34.145x0.375	25	-28.512	2472.403	80.0	Pass	
L26	87.25 - 82.25	Pole	TP35.141x34.192x0.375	26	-29.596	2541.777	81.1	Pass	
L27	82.25 - 80.833	Pole	TP35.41x35.141x0.375	27	-29.904	2561.443	81.4	Pass	
L28	80.833 - 80.583	Pole	TP35.457x35.41x0.375	28	-29.981	2564.908	81.4	Pass	
L29	80.583 - 75.583	Pole	TP36.406x35.457x0.375	29	-31.173	2634.282	82.5	Pass	
L30	75.583 - 70.583	Pole	TP37.355x36.406x0.375	30	-32.331	2703.655	83.7	Pass	
L31	70.583 - 65.583	Pole	TP38.304x37.355x0.375	31	-33.513	2773.039	84.9	Pass	
L32	65.583 - 60.583	Pole	TP39.253x38.304x0.375	32	-34.720	2842.413	85.9	Pass	
L33	60.583 - 55.583	Pole	TP40.202x39.253x0.375	33	-35.951	2911.786	86.8	Pass	
L34	55.583 - 53.567	Pole	TP40.584x40.202x0.375	34	-36.454	2939.758	87.2	Pass	
L35	53.567 - 53.317	Pole	TP40.632x40.584x0.375	35	-36.530	2943.223	87.2	Pass	
L36	53.317 - 43.8	Pole	TP42.438x40.632x0.375	36	-37.581	3001.666	87.9	Pass	
L37	43.8 - 42.8	Pole	TP41.878x40.681x0.7	37	-41.183	5619.694	48.3	Pass	
L38	42.8 - 38.417	Pole	TP42.71x41.878x0.688	38	-42.773	5604.637	49.2	Pass	
L39	38.417 - 38.067	Pole	TP42.776x42.71x0.688	39	-43.142	5641.408	49.2	Pass	
L40	38.067 - 37.833	Pole	TP42.82x42.776x0.688	40	-43.241	5647.362	49.2	Pass	
L41	37.833 - 32.833	Pole	TP43.769x42.82x0.675	41	-44.282	5596.279	50.1	Pass	
L42	32.833 - 27.833	Pole	TP44.718x43.769x0.675	42	-45.540	5671.197	50.1	Pass	
L43	27.833 - 23.5	Pole	TP45.54x44.718x0.663	43	-47.452	5690.349	50.9	Pass	
L44	23.5 - 23.25	Pole	TP45.588x45.54x0.663	44	-49.295	5796.556	50.9	Pass	
L45	23.25 - 18.25	Pole	TP46.537x45.588x0.663	45	-49.410	5802.688	50.9	Pass	
L46	18.25 - 13.25	Pole	TP47.486x46.537x0.65	46	-51.567	5815.026	51.7	Pass	
L47	13.25 - 8.25	Pole	TP48.434x47.486x0.65	47	-53.749	5935.272	51.6	Pass	
L48	8.25 - 7.917	Pole	TP48.498x48.434x0.65	48	-55.948	6055.518	51.5	Pass	
L49	7.917 - 7.667	Pole	TP48.545x48.498x0.7	49	-56.096	6523.125	48.0	Pass	
L50	7.667 - 5.5	Pole	TP48.956x48.545x0.7	50	-56.220	6529.603	48.0	Pass	
L51	5.5 - 5.25	Pole	TP49.004x48.956x0.413	51	-57.305	3907.816	84.7	Pass	
L52	5.25 - 3	Pole	TP49.431x49.004x0.425	52	-58.048	4060.570	81.6	Pass	
L53	3 - 2.75	Pole	TP49.478x49.431x0.625	53	-58.067	5947.063	53.4	Pass	
L54	2.75 - 0	Pole	TP50x49.478x0.625	54	-58.185	5952.838	53.4	Pass	
							Summary		
							Pole (L36)	87.9	Pass
							<b>RATING =</b>	<b>87.9</b>	<b>Pass</b>

**\*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**

Site BU: 876375  
Work Order: 1963096

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**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	180.5	46	3.294	18	17.62	26.35	0.25	Auto	A572-65
2	137.794	48.794	4.311	18	25.22	34.485	0.3125	Auto	A572-65
3	93.311	49.511	5.305	18	33.04	42.438	0.375	Auto	A572-65
4	49.105	49.105	0	18	40.68	50	0.375	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
3	38.083	channel	MP3-05 (1.1875in)	2																		
7.917	38.083	channel	MP3-05 (1.1875in)	1																		
38.417	53.583	channel	MP3-05 (1.1875in)	3																		
53.667	80.833	channel	MP3-04 (1.1875in)	3																		
80.833	107.833	channel	MP3-04 (1.1875in)	3																		
107.917	120.583	channel	MP3-03 (1.1875in)	3																		
5.5	23.5	plate	CCI-AFP-065125	3																		
23.5	48.583	plate	CCI-AFP-065125	3																		
87.5	112.5	plate	CCI-AFP-060100	3																		
0	3	plate	TS1 5"x1.25"	4																		
0	7.917	plate	TS2 4.5625"x1.25"	2																		

**Reinforcement Details**

	B (in)	H (in)	Gross Area (in <sup>2</sup> )	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in <sup>2</sup> )	Bolt Hole Size (in)	Reinforcement Material
1	5.33	2.09	5.65	0.79	PC 8.8 - M20 (100)	29	PC 8.8 - M20 (100)	29.000	18.000	5.025	1.1875	A572-65
2	5.33	2.09	5.65	0.79	PC 8.8 - M20 (100)	29	PC 8.8 - M20 (100)	29.000	18.000	5.025	1.1875	A572-65
3	5.33	2.09	5.65	0.79	PC 8.8 - M20 (100)	29	PC 8.8 - M20 (100)	29.000	18.000	5.025	1.1875	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	3.593	1.1875	A572-65
5	4.78	1.61	4.13	0.61	PC 8.8 - M20 (100)	17	PC 8.8 - M20 (100)	17.000	18.000	3.593	1.1875	A572-65
6	4.06	1.57	2.92	0.59	PC 8.8 - M20 (100)	14	PC 8.8 - M20 (100)	14.000	18.000	2.545	1.1875	A572-65
7	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	42	PC 8.8 - M20 (100)	42.000	19.000	6.563	1.1875	A572-65
8	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	42	PC 8.8 - M20 (100)	42.000	19.000	6.563	1.1875	A572-65
9	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
10	1.25	5	6.25	2.5	Welded	n/a	Welded	n/a	0.750	6.250	0.0000	A572-65
11	1.25	4.5625	5.70313	2.28125	Welded	n/a	Welded	n/a	0.750	5.703	0.0000	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)
TS1 5"x1.25"	Top	-	-	-	-	70	None	-	-	-	-	44.25	0.375	-
	Bottom	-	-	-	-	70	CJP Groove	10	0.625	45	0.625	-	-	-
TS2 4.5625"x1.25"	Top	-	-	-	-	70	None	-	-	-	-	107.25	0.375	-
	Bottom	-	-	-	-	70	CJP Groove	9.125	0.625	45	0.625	-	-	-

# 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	180.5 - 175.5	5		18	17.620	18.569	0.25	A572-65	1.000
2	175.5 - 170.5	5		18	18.569	19.518	0.25	A572-65	1.000
3	170.5 - 165.5	5		18	19.518	20.467	0.25	A572-65	1.000
4	165.5 - 160.5	5		18	20.467	21.416	0.25	A572-65	1.000
5	160.5 - 155.5	5		18	21.416	22.365	0.25	A572-65	1.000
6	155.5 - 150.5	5		18	22.365	23.313	0.25	A572-65	1.000
7	150.5 - 145.5	5		18	23.313	24.262	0.25	A572-65	1.000
8	145.5 - 140.5	5		18	24.262	25.211	0.25	A572-65	1.000
9	140.5 - 137.794	6	3.294	18	25.211	26.350	0.25	A572-65	1.000
10	137.794 - 132.794	5		18	25.225	26.174	0.3125	A572-65	1.000
11	132.794 - 127.794	5		18	26.174	27.123	0.3125	A572-65	1.000
12	127.794 - 122.794	5		18	27.123	28.072	0.3125	A572-65	1.000
13	122.794 - 120.583	2.211		18	28.072	28.491	0.3125	A572-65	1.000
14	120.583 - 120.333	0.25		18	28.491	28.539	0.3125	A572-65	1.000
15	120.333 - 115.333	5		18	28.539	29.488	0.3125	A572-65	1.000
16	115.333 - 112.5	2.833		18	29.488	30.025	0.3125	A572-65	1.000
17	112.5 - 112.25	0.25		18	30.025	30.073	0.6375	A572-65	0.945
18	112.25 - 107.817	4.433		18	30.073	30.914	0.675	A572-65	0.938
19	107.817 - 107.567	0.25		18	30.914	30.961	0.675	A572-65	0.937
20	107.567 - 102.567	5		18	30.961	31.910	0.6625	A572-65	0.940
21	102.567 - 97.567	5		18	31.910	32.859	0.65	A572-65	0.943
22	97.567 - 93.311	8.567	4.311	18	32.859	34.485	0.6375	A572-65	0.950
23	93.311 - 88.311	5		18	33.042	33.991	0.7	A572-65	0.952
24	88.311 - 87.5	0.811		18	33.991	34.145	0.7	A572-65	0.950
25	87.5 - 87.25	0.25		18	34.145	34.192	0.375	A572-65	1.000
26	87.25 - 82.25	5		18	34.192	35.141	0.375	A572-65	1.000
27	82.25 - 80.833	1.417		18	35.141	35.410	0.375	A572-65	1.000
28	80.833 - 80.583	0.25		18	35.410	35.457	0.375	A572-65	1.000
29	80.583 - 75.583	5		18	35.457	36.406	0.375	A572-65	1.000
30	75.583 - 70.583	5		18	36.406	37.355	0.375	A572-65	1.000
31	70.583 - 65.583	5		18	37.355	38.304	0.375	A572-65	1.000
32	65.583 - 60.583	5		18	38.304	39.253	0.375	A572-65	1.000
33	60.583 - 55.583	5		18	39.253	40.202	0.375	A572-65	1.000
34	55.583 - 53.567	2.016		18	40.202	40.584	0.375	A572-65	1.000
35	53.567 - 53.317	0.25		18	40.584	40.632	0.375	A572-65	1.000
36	53.317 - 49.105	9.517	5.305	18	40.632	42.438	0.375	A572-65	1.000
37	49.105 - 42.8	6.305		18	40.681	41.878	0.7	A572-65	0.992
38	42.8 - 38.417	4.383		18	41.878	42.710	0.6875	A572-65	1.000
39	38.417 - 38.067	0.35		18	42.710	42.776	0.6875	A572-65	0.999
40	38.067 - 37.833	0.234		18	42.776	42.820	0.6875	A572-65	0.999
41	37.833 - 32.833	5		18	42.820	43.769	0.675	A572-65	1.007
42	32.833 - 27.833	5		18	43.769	44.718	0.675	A572-65	0.997
43	27.833 - 23.5	4.333		18	44.718	45.540	0.6625	A572-65	1.008
44	23.5 - 23.25	0.25		18	45.540	45.588	0.6625	A572-65	1.007
45	23.25 - 18.25	5		18	45.588	46.537	0.6625	A572-65	0.998
46	18.25 - 13.25	5		18	46.537	47.486	0.65	A572-65	1.008
47	13.25 - 8.25	5		18	47.486	48.434	0.65	A572-65	0.999
48	8.25 - 7.917	0.333		18	48.434	48.498	0.65	A572-65	0.999
49	7.917 - 7.667	0.25		18	48.498	48.545	0.7	A572-65	0.982
50	7.667 - 5.5	2.167		18	48.545	48.956	0.7	A572-65	0.978
51	5.5 - 5.25	0.25		18	48.956	49.004	0.4125	A572-65	1.089
52	5.25 - 3	2.25		18	49.004	49.431	0.425	A572-65	1.056
53	3 - 2.75	0.25		18	49.431	49.478	0.625	A572-65	0.979
54	2.75 - 0	2.75		18	49.478	50.000	0.625	A572-65	0.975



## TNX Section Forces

Increment (ft):		TNX Output			
	5	Section Height (ft)	P <sub>u</sub> (K)	M <sub>ux</sub> (kip-ft)	V <sub>u</sub> (K)
1	180.5 - 175.5	4.09	36.83	6.89	
2	175.5 - 170.5	4.40	72.06	7.20	
3	170.5 - 165.5	7.66	125.91	12.49	
4	165.5 - 160.5	8.03	189.21	12.83	
5	160.5 - 155.5	10.95	270.27	16.50	
6	155.5 - 150.5	11.48	353.48	16.80	
7	150.5 - 145.5	12.04	438.17	17.09	
8	145.5 - 140.5	15.40	526.04	20.62	
9	140.5 - 137.794	15.75	581.98	20.76	
10	137.794 - 132.794	16.71	686.70	21.14	
11	132.794 - 127.794	17.50	792.97	21.41	
12	127.794 - 122.794	18.30	900.63	21.68	
13	122.794 - 120.583	18.66	948.67	21.81	
14	120.583 - 120.333	18.72	954.12	21.81	
15	120.333 - 115.333	19.54	1063.80	22.09	
16	115.333 - 112.5	20.03	1126.54	22.24	
17	112.5 - 112.25	20.12	1132.09	22.24	
18	112.25 - 107.817	21.34	1231.50	22.62	
19	107.817 - 107.567	21.42	1237.15	22.63	
20	107.567 - 102.567	22.83	1351.32	23.05	
21	102.567 - 97.567	24.26	1467.52	23.45	
22	97.567 - 93.311	25.51	1568.01	23.79	
23	93.311 - 88.311	28.19	1688.36	24.35	
24	88.311 - 87.5	28.45	1708.12	24.41	
25	87.5 - 87.25	28.51	1714.22	24.42	
26	87.25 - 82.25	29.60	1836.92	24.68	
27	82.25 - 80.833	29.90	1871.91	24.76	
28	80.833 - 80.583	29.98	1878.10	24.75	
29	80.583 - 75.583	31.17	2002.57	25.10	
30	75.583 - 70.583	32.33	2128.52	25.33	
31	70.583 - 65.583	33.51	2255.62	25.56	
32	65.583 - 60.583	34.72	2383.82	25.77	
33	60.583 - 55.583	35.95	2513.09	25.98	
34	55.583 - 53.567	36.45	2565.50	26.06	
35	53.567 - 53.317	36.53	2572.01	26.06	
36	53.317 - 49.105	37.58	2682.05	26.23	
37	49.105 - 42.8	41.18	2848.86	26.70	
38	42.8 - 38.417	42.99	2966.37	26.95	
39	38.417 - 38.067	43.14	2975.80	26.96	
40	38.067 - 37.833	43.24	2982.11	26.97	
41	37.833 - 32.833	45.32	3117.60	27.24	
42	32.833 - 27.833	47.43	3254.35	27.49	
43	27.833 - 23.5	49.28	3373.82	27.69	
44	23.5 - 23.25	49.40	3380.74	27.69	
45	23.25 - 18.25	51.55	3519.77	27.94	
46	18.25 - 13.25	53.73	3659.95	28.17	
47	13.25 - 8.25	55.94	3801.26	28.39	
48	8.25 - 7.917	56.09	3810.71	28.40	
49	7.917 - 7.667	56.21	3817.81	28.41	
50	7.667 - 5.5	57.21	3879.47	28.52	
51	5.5 - 5.25	57.30	3886.60	28.52	
52	5.25 - 3	58.05	3950.81	28.60	
53	3 - 2.75	58.17	3957.95	28.58	
54	2.75 - 0	59.34	4036.70	28.72	

# Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
180.5 - 175.5	Pole	TP18.569x17.62x0.25	Pole	9.2%	Pass
175.5 - 170.5	Pole	TP19.518x18.569x0.25	Pole	15.9%	Pass
170.5 - 165.5	Pole	TP20.467x19.518x0.25	Pole	25.3%	Pass
165.5 - 160.5	Pole	TP21.416x20.467x0.25	Pole	34.3%	Pass
160.5 - 155.5	Pole	TP22.365x21.416x0.25	Pole	44.8%	Pass
155.5 - 150.5	Pole	TP23.313x22.365x0.25	Pole	53.6%	Pass
150.5 - 145.5	Pole	TP24.262x23.313x0.25	Pole	61.3%	Pass
145.5 - 140.5	Pole	TP25.211x24.262x0.25	Pole	68.9%	Pass
140.5 - 137.79	Pole	TP26.35x25.211x0.25	Pole	73.4%	Pass
137.79 - 132.79	Pole	TP26.174x25.225x0.3125	Pole	66.0%	Pass
132.79 - 127.79	Pole	TP27.123x26.174x0.3125	Pole	70.8%	Pass
127.79 - 122.79	Pole	TP28.072x27.123x0.3125	Pole	74.9%	Pass
122.79 - 120.58	Pole	TP28.491x28.072x0.3125	Pole	76.6%	Pass
120.58 - 120.33	Pole	TP28.539x28.491x0.3125	Pole	76.7%	Pass
120.33 - 115.33	Pole	TP29.488x28.539x0.3125	Pole	80.0%	Pass
115.33 - 112.5	Pole	TP30.025x29.488x0.3125	Pole	81.7%	Pass
112.5 - 112.25	Pole + Reinf.	TP30.073x30.025x0.6375	Reinf. 9 Tension Rupture	65.0%	Pass
112.25 - 107.82	Pole + Reinf.	TP30.914x30.073x0.675	Reinf. 9 Tension Rupture	63.6%	Pass
107.82 - 107.57	Pole + Reinf.	TP30.961x30.914x0.675	Reinf. 9 Tension Rupture	63.7%	Pass
107.57 - 102.57	Pole + Reinf.	TP31.91x30.961x0.6625	Reinf. 9 Tension Rupture	66.5%	Pass
102.57 - 97.57	Pole + Reinf.	TP32.859x31.91x0.65	Reinf. 9 Tension Rupture	69.2%	Pass
97.57 - 93.31	Pole + Reinf.	TP34.485x32.859x0.6375	Reinf. 9 Tension Rupture	71.3%	Pass
93.31 - 88.31	Pole + Reinf.	TP33.991x33.042x0.7	Reinf. 9 Tension Rupture	68.9%	Pass
88.31 - 87.5	Pole + Reinf.	TP34.145x33.991x0.7	Reinf. 9 Tension Rupture	69.2%	Pass
87.5 - 87.25	Pole	TP34.192x34.145x0.375	Pole	80.0%	Pass
87.25 - 82.25	Pole	TP35.141x34.192x0.375	Pole	81.1%	Pass
82.25 - 80.83	Pole	TP35.41x35.141x0.375	Pole	81.3%	Pass
80.83 - 80.58	Pole	TP35.457x35.41x0.375	Pole	81.4%	Pass
80.58 - 75.58	Pole	TP36.406x35.457x0.375	Pole	82.5%	Pass
75.58 - 70.58	Pole	TP37.355x36.406x0.375	Pole	83.7%	Pass
70.58 - 65.58	Pole	TP38.304x37.355x0.375	Pole	84.9%	Pass
65.58 - 60.58	Pole	TP39.253x38.304x0.375	Pole	85.9%	Pass
60.58 - 55.58	Pole	TP40.202x39.253x0.375	Pole	86.8%	Pass
55.58 - 53.57	Pole	TP40.584x40.202x0.375	Pole	87.2%	Pass
53.57 - 53.32	Pole	TP40.632x40.584x0.375	Pole	87.2%	Pass
53.32 - 49.11	Pole	TP42.438x40.632x0.375	Pole	87.9%	Pass
49.11 - 42.8	Pole + Reinf.	TP41.878x40.681x0.7	Reinf. 8 Tension Rupture	72.9%	Pass
42.8 - 38.42	Pole + Reinf.	TP42.71x41.878x0.6875	Reinf. 8 Tension Rupture	73.6%	Pass
38.42 - 38.07	Pole + Reinf.	TP42.776x42.71x0.6875	Reinf. 8 Tension Rupture	73.7%	Pass
38.07 - 37.83	Pole + Reinf.	TP42.82x42.776x0.6875	Reinf. 8 Tension Rupture	73.7%	Pass
37.83 - 32.83	Pole + Reinf.	TP43.769x42.82x0.675	Reinf. 8 Tension Rupture	74.5%	Pass
32.83 - 27.83	Pole + Reinf.	TP44.718x43.769x0.675	Reinf. 8 Tension Rupture	75.2%	Pass
27.83 - 23.5	Pole + Reinf.	TP45.54x44.718x0.6625	Reinf. 8 Tension Rupture	75.8%	Pass
23.5 - 23.25	Pole + Reinf.	TP45.588x45.54x0.6625	Reinf. 7 Tension Rupture	75.9%	Pass
23.25 - 18.25	Pole + Reinf.	TP46.537x45.588x0.6625	Reinf. 7 Tension Rupture	76.5%	Pass
18.25 - 13.25	Pole + Reinf.	TP47.486x46.537x0.65	Reinf. 7 Tension Rupture	77.0%	Pass
13.25 - 8.25	Pole + Reinf.	TP48.434x47.486x0.65	Reinf. 7 Tension Rupture	77.6%	Pass
8.25 - 7.92	Pole + Reinf.	TP48.498x48.434x0.65	Reinf. 7 Tension Rupture	77.6%	Pass
7.92 - 7.67	Pole + Reinf.	TP48.545x48.498x0.7	Reinf. 1 Tension Rupture	73.3%	Pass
7.67 - 5.5	Pole + Reinf.	TP48.956x48.545x0.7	Reinf. 1 Tension Rupture	73.5%	Pass
5.5 - 5.25	Pole + Reinf.	TP49.004x48.956x0.4125	Pole	90.4%	Pass
5.25 - 3	Pole + Reinf.	TP49.431x49.004x0.425	Pole	90.6%	Pass
3 - 2.75	Pole + Reinf.	TP49.478x49.431x0.625	Reinf. 11 Compression	74.5%	Pass
2.75 - 0	Pole + Reinf.	TP50x49.478x0.625	Reinf. 11 Compression	74.6%	Pass
				Summary	
			Pole	90.6%	Pass
			Reinforcement	83.4%	Pass
			Overall	90.6%	Pass

# Additional Calculations

Section Elevation (ft)	Moment of Inertia (in <sup>4</sup> )			Area (in <sup>2</sup> )			% Capacity*											
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11
180.5 - 175.5	616	n/a	616	14.54	n/a	14.54	9.2%											
175.5 - 170.5	717	n/a	717	15.29	n/a	15.29	15.0%											
170.5 - 165.5	828	n/a	828	16.04	n/a	16.04	25.3%											
165.5 - 160.5	950	n/a	950	16.79	n/a	16.79	34.3%											
160.5 - 155.5	1084	n/a	1084	17.55	n/a	17.55	44.8%											
155.5 - 150.5	1229	n/a	1229	18.30	n/a	18.30	53.6%											
150.5 - 145.5	1388	n/a	1388	19.05	n/a	19.05	61.3%											
145.5 - 140.5	1559	n/a	1559	19.81	n/a	19.81	68.9%											
140.5 - 137.79	1657	n/a	1657	20.21	n/a	20.21	73.4%											
137.79 - 132.79	2167	n/a	2167	25.65	n/a	25.65	66.0%											
132.79 - 127.79	2414	n/a	2414	26.59	n/a	26.59	70.8%											
127.79 - 122.79	2680	n/a	2680	27.53	n/a	27.53	74.9%											
122.79 - 120.58	2803	n/a	2803	27.95	n/a	27.95	76.6%											
120.58 - 120.33	2817	n/a	2817	28.00	n/a	28.00	76.7%											
120.33 - 115.33	3111	n/a	3111	28.94	n/a	28.94	80.0%											
115.33 - 112.5	3286	n/a	3286	29.47	n/a	29.47	81.7%											
112.5 - 112.25	3302	3272	6574	29.52	26.76	56.28	40.5%					62.5%				65.0%		
112.25 - 107.82	3590	3925	7515	30.35	30.39	60.74	39.9%					60.7%				63.6%		
107.82 - 107.57	3607	3937	7543	30.40	30.39	60.79	40.0%					60.9%				63.7%		
107.57 - 102.57	3952	4171	8123	31.34	30.39	61.73	42.1%					63.6%				66.5%		
102.57 - 97.57	4319	4413	8731	32.28	30.39	62.67	44.2%					66.1%				69.2%		
97.57 - 93.31	4648	4623	9272	33.08	30.39	63.47	45.9%					68.1%				71.3%		
93.31 - 88.31	5710	4709	10420	40.01	30.39	70.40	43.1%					65.8%				68.9%		
88.31 - 87.5	5789	4750	10540	40.19	30.39	70.58	43.3%					66.1%				69.2%		
87.5 - 87.25	5813	n/a	5813	40.25	n/a	40.25	80.0%											
87.25 - 82.25	6317	n/a	6317	41.38	n/a	41.38	81.1%											
82.25 - 80.83	6464	n/a	6464	41.70	n/a	41.70	81.3%											
80.83 - 80.58	6491	n/a	6491	41.76	n/a	41.76	81.4%											
80.58 - 75.58	7032	n/a	7032	42.88	n/a	42.88	82.5%											
75.58 - 70.58	7602	n/a	7602	44.01	n/a	44.01	83.7%											
70.58 - 65.58	8202	n/a	8202	45.14	n/a	45.14	84.9%											
65.58 - 60.58	8834	n/a	8834	46.27	n/a	46.27	85.9%											
60.58 - 55.58	9496	n/a	9496	47.40	n/a	47.40	86.8%											
55.58 - 53.57	9773	n/a	9773	47.86	n/a	47.86	87.2%											
53.57 - 53.32	9807	n/a	9807	47.91	n/a	47.91	87.2%											
53.32 - 49.11	10403	n/a	10403	48.87	n/a	48.87	87.9%											
49.11 - 42.8	10764	8689	19454	49.40	41.33	90.72	51.9%			72.7%					72.9%			
42.8 - 38.42	11424	9025	20449	50.39	41.33	91.71	52.7%			73.4%					73.6%			
38.42 - 38.07	11478	9052	20530	50.47	41.33	91.79	52.8%	73.4%	69.6%						73.7%			
38.07 - 37.83	11514	9070	20584	50.52	41.33	91.84	52.8%	73.5%	69.7%						73.7%			
37.83 - 32.83	12303	9461	21764	51.65	41.33	92.97	53.8%	74.2%	70.4%						74.5%			
32.83 - 27.83	13127	9860	22988	52.78	41.33	94.10	54.6%	74.9%	71.1%						75.2%			
27.83 - 23.5	13871	10213	24084	53.76	41.33	95.08	55.4%	75.4%	71.6%						75.8%			
23.5 - 23.25	13915	10234	24149	53.81	41.33	95.14	55.4%	75.4%	71.6%					75.9%				
23.25 - 18.25	14809	10649	25458	54.94	41.33	96.27	56.3%	76.0%	72.2%					76.5%				
18.25 - 13.25	15740	11073	26813	56.07	41.33	97.40	57.1%	76.5%	72.7%					77.0%				
13.25 - 8.25	16710	11505	28215	57.20	41.33	98.53	57.8%	77.0%	73.2%					77.6%				
8.25 - 7.92	16776	11534	28310	57.28	41.33	98.60	57.9%	77.0%	73.3%					77.6%				
7.92 - 7.67	16966	14172	31138	57.33	47.08	104.41	54.4%	73.3%						72.8%				60.4%
7.67 - 5.5	17402	14404	31806	57.82	47.08	104.90	54.7%	73.5%						73.1%				60.6%
5.5 - 5.25	17357	1694	19052	57.88	11.41	69.28	90.4%											83.3%
5.25 - 3	17968	2273	20241	58.39	11.41	69.79	90.6%											83.4%
3 - 2.75	17836	11654	29491	58.44	36.41	94.85	59.7%										68.6%	74.5%
2.75 - 0	18410	11877	30287	59.06	36.41	95.47	60.1%										68.8%	74.6%

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

# Monopole Base Plate Connection

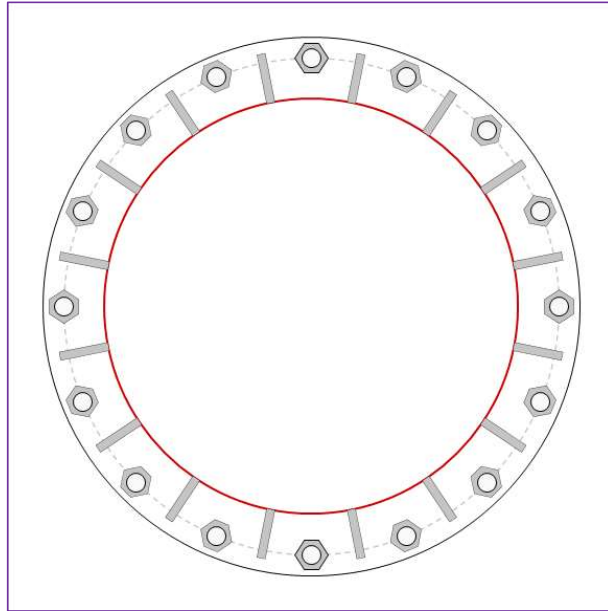


Site Info	
BU #	876375
Site Name	CANTERBURY / LEMIRE
Order #	553317 Rev 0

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

Applied Loads	
Moment (kip-ft)	4036.70
Axial Force (kips)	59.34
Shear Force (kips)	28.72

\*TIA-222-H Section 15.5 Applied



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

**Anchor Rod Data**  
 (16) 2-1/4"  $\phi$  bolts (A615-75 N;  $F_y=75$  ksi,  $F_u=100$  ksi) on 60" BC

**Base Plate Data**  
 65" OD x 2" Plate (A572-50;  $F_y=50$  ksi,  $F_u=65$  ksi)

**Stiffener Data**  
 (16) 18"H x 6"W x 1"T, Notch: 0.75"  
 plate:  $F_y= 50$  ksi ; weld:  $F_y= 70$  ksi  
 horiz. weld: 0.5" groove, 45° dbl bevel, 0.5" fillet  
 vert. weld: 0.375" fillet

**Pole Data**  
 50" x 0.625" 18-sided pole (A572-65;  $F_y=65$  ksi,  $F_u=80$  ksi)

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

$Pu\_t = 198.01$	$\phi Pn\_t = 243.75$	<b>Stress Rating</b>
$Vu = 1.8$	$\phi Vn = 149.1$	<b>77.4%</b>
$Mu = n/a$	$\phi Mn = n/a$	<b>Pass</b>

**Base Plate Summary**

Max Stress (ksi):	34.84	(Roark's Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	<b>73.7%</b>	<b>Pass</b>

**Stiffener Summary**

Horizontal Weld:	<b>49.7%</b>	<b>Pass</b>
Vertical Weld:	<b>42.9%</b>	<b>Pass</b>
Plate Flexure+Shear:	<b>12.2%</b>	<b>Pass</b>
Plate Tension+Shear:	<b>50.0%</b>	<b>Pass</b>
Plate Compression:	<b>51.1%</b>	<b>Pass</b>

**Pole Summary**

Punching Shear:	<b>7.0%</b>	<b>Pass</b>
-----------------	-------------	-------------

# Pier and Pad Foundation



BU #: 876375  
 Site Name: CANTERBURY / LE  
 App. Number: 553317 Rev 0

TIA-222 Revision: H  
 Tower Type: Monopole

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

Superstructure Analysis Reactions		
Compression, $P_{comp}$ :	59.36	kips
Base Shear, $V_{u\_comp}$ :	28.7	kips
Moment, $M_u$ :	4036.7	ft-kips
Tower Height, $H$ :	180.5	ft
BP Dist. Above Fdn, $bp_{dist}$ :	3.875	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	187.98	28.70	14.5%	Pass
<i>Bearing Pressure (ksf)</i>	45.42	3.75	8.2%	Pass
<i>Overturning (kip*ft)</i>	5174.15	4218.17	81.5%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	4666.69	4122.80	84.1%	Pass
<i>Pier Compression (kip)</i>	26891.28	82.18	0.3%	Pass
<i>Pad Flexure (kip*ft)</i>	4554.58	2255.24	47.2%	Pass
<i>Pad Shear - 1-way (kips)</i>	878.58	323.07	35.0%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.190	0.000	0.0%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	4800.18	2473.68	49.1%	Pass

Pier Properties		
Pier Shape:	Square	
Pier Diameter, $dpier$ :	6.5	ft
Ext. Above Grade, $E$ :	1	ft
Pier Rebar Size, $Sc$ :	8	
Pier Rebar Quantity, $mc$ :	39	
Pier Tie/Spiral Size, $St$ :	4	
Pier Tie/Spiral Quantity, $mt$ :	4	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, $cc_{pier}$ :	3	in

\*Rating per TIA-222-H Section 15.5

Structural Rating*:	84.1%
Soil Rating*:	81.5%

Pad Properties		
Depth, $D$ :	5	ft
Pad Width, $W_1$ :	24.5	ft
Pad Thickness, $T$ :	3	ft
Pad Rebar Size (Top dir.2), $Sp_{top2}$ :	8	
Pad Rebar Quantity (Top dir. 2), $mp_{top2}$ :	28	
Pad Rebar Size (Bottom dir. 2), $Sp_2$ :	8	
Pad Rebar Quantity (Bottom dir. 2), $mp_2$ :	42	
Pad Clear Cover, $cc_{pad}$ :	3	in

Material Properties		
Rebar Grade, $F_y$ :	60	ksi
Concrete Compressive Strength, $F'_c$ :	4	ksi
Dry Concrete Density, $\delta_c$ :	150	pcf

Soil Properties		
Total Soil Unit Weight, $\gamma$ :	113	pcf
Ultimate Net Bearing, $Q_{net}$ :	60,000	ksf
Cohesion, $C_u$ :	0.000	ksf
Friction Angle, $\phi$ :	31	degrees
SPT Blow Count, $N_{blows}$ :		
Base Friction, $\mu$ :	0.45	
Neglected Depth, $N$ :	3.25	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, $gw$ :	N/A	ft

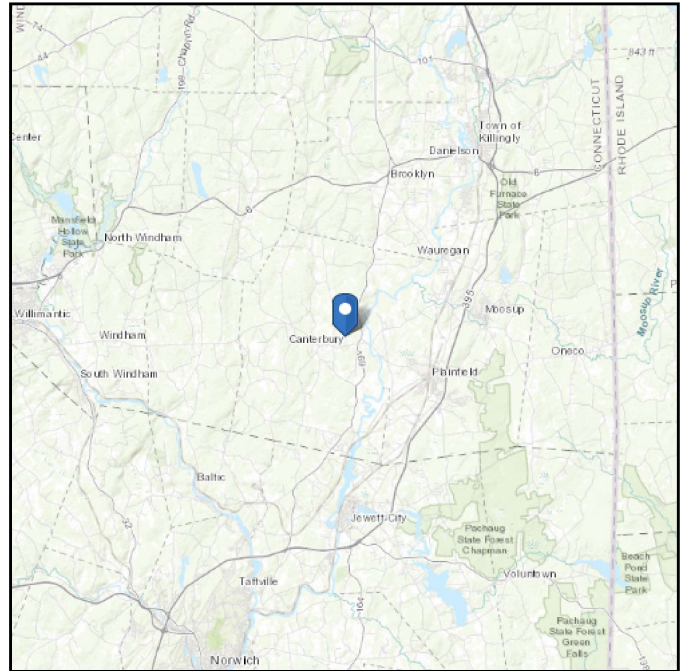
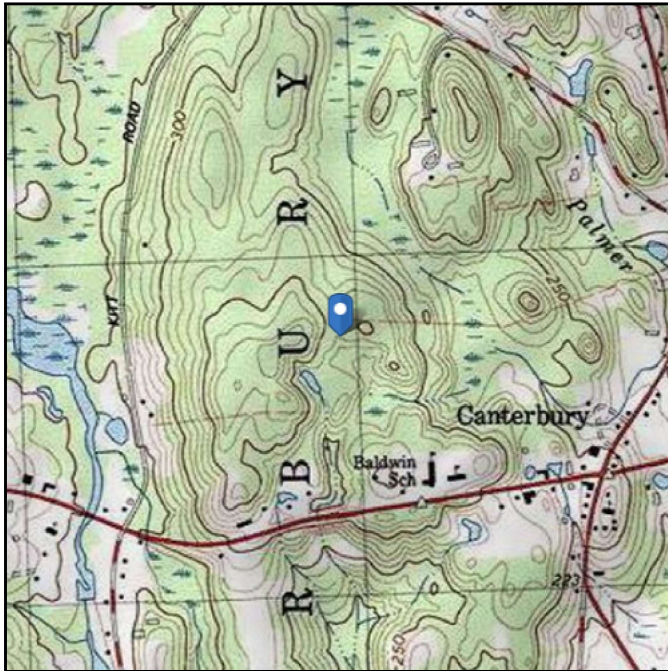
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# ASCE 7 Hazards Report

**Address:**  
No Address at This  
Location

**Standard:** ASCE/SEI 7-16  
**Risk Category:** II  
**Soil Class:** C - Very Dense  
Soil and Soft Rock

**Elevation:** 338.74 ft (NAVD 88)  
**Latitude:** 41.701986  
**Longitude:** -71.980586



## Wind

### Results:

Wind Speed:	123 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	95 Vmph
100-year MRI	100 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: Wed Sep 08 2021

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

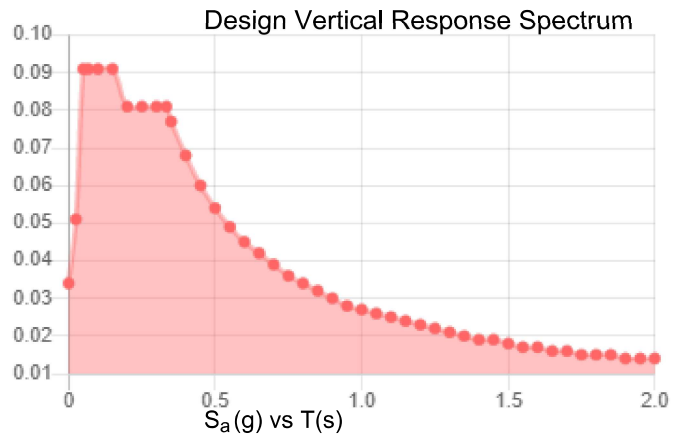
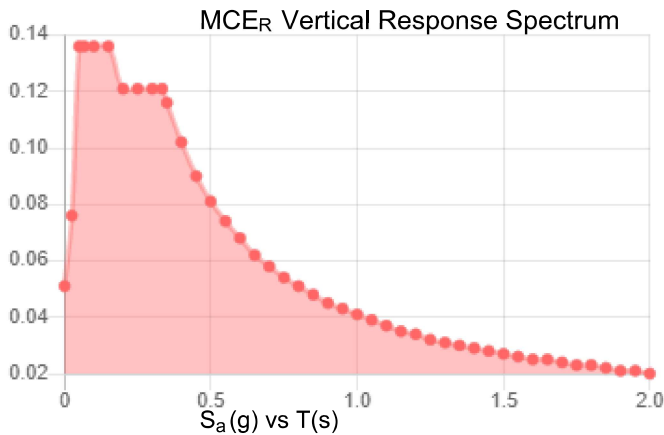
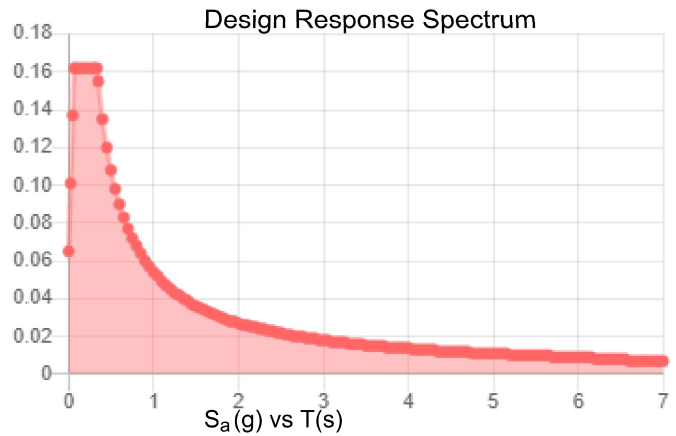
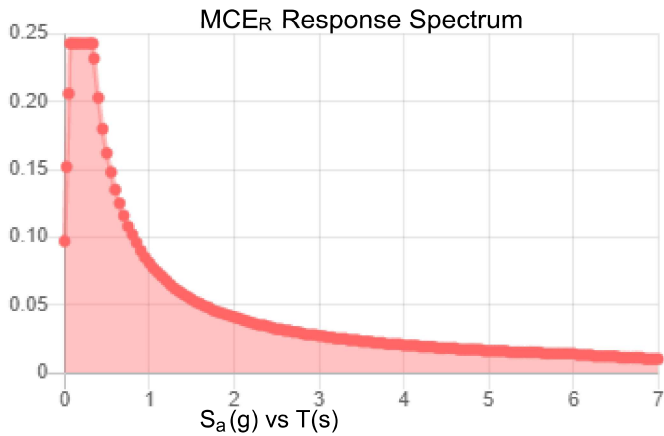
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

**Site Soil Class:** C - Very Dense Soil and Soft Rock

**Results:**

$S_s$ :	0.187	$S_{D1}$ :	0.054
$S_1$ :	0.054	$T_L$ :	6
$F_a$ :	1.3	PGA :	0.101
$F_v$ :	1.5	PGA <sub>M</sub> :	0.132
$S_{MS}$ :	0.243	$F_{PGA}$ :	1.299
$S_{M1}$ :	0.081	$I_e$ :	1
$S_{DS}$ :	0.162	$C_v$ :	0.7

**Seismic Design Category** A



**Data Accessed:**

Wed Sep 08 2021

**Date Source:**

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

## Ice

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**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:** Wed Sep 08 2021

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

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

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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: April 5, 2022



B+T Group  
1717 S. Boulder, Suite 300  
Tulsa, OK 74119  
(918) 587-4630  
towersupport@btgrp.com

**Subject:** Mount Analysis Report

**Carrier Designation:** DISH Network Co-Locate  
**Carrier Site Number:** BOBOS00037A  
**Carrier Site Name:** CT-CCI-T-876375

**Crown Castle Designation:** BU Number: 876375  
Site Name: Canterbury / Lemire  
JDE Job Number: 645190  
Order Number: 553317, Rev.2

**Engineering Firm Designation:** B+T Group Report Designation: 147461.007.01

**Site Data:** 53 Westminster Rd., Canterbury, CT, Windham County, 06331  
Latitude 41° 42' 7.15" Longitude -71° 58' 50.11"

**Structure Information:** Tower Height & Type: 180.5 ft. Monopole  
Mount Elevation: 141 ft.  
Mount Type: 8 ft. Platform Mount

B+T Group 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’s stress level. Based on our analysis we have determined the stress level to be:

**Platform Mount**

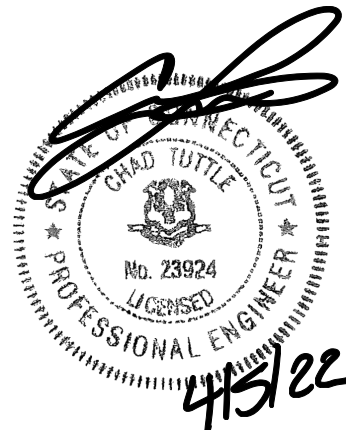
**Sufficient**

\*Results are valid upon the completion of changes listed in Recommendations section of the report

This analysis utilizes an ultimate 3-second gust wind speed of 123 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount structural analysis prepared by: Matthew Williams

Respectfully submitted by: B&T Engineering, Inc.  
COA: PEC.0001564 Expires: 02/01/2023



Chad E. Tuttle, P.E.

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## 1) INTRODUCTION

This is a proposed 3 - Sector 8' Platform Mount, designed by Commscope (Part #MC-PK8-DSH).

## 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
Topographic Factor at Mount:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Seismic $S_s$ :	0.187
Seismic $S_1$ :	0.054
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	Manufacturer	Model/Type	Mount / Modification Details
141	141	3	JMA WIRELESS	MX08FRO665-21	8' Platform Mount
		3	FUJITSU	TA08025-B604	
		3	FUJITSU	TA08025-B605	
		1	Raycap	RDIDC-9181-PF-48	

**Table 2 - Documents Provided**

Document	Remarks	Reference	Source
CCI Order	Proposed Loading	Date: 04/27/2021	Crown Castle
CD's by Jacobs		Date: 02/10/2022	
Mount Manufacturer Drawing	Commscope (Part #MC-PK8-DSH)	Date: 03/17/2021	Commscope

## 3) ANALYSIS PROCEDURE

### 3.1) Analysis Method

RISA-3D (Version 19.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

A tool internally developed by B+T Group, 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.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision E). In addition, this analysis is in accordance with OTHER SOW.

Manufacturers drawing were used to create the model.

### 3.2) Assumptions

1. The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design, TIA Standards, and/or manufacturer's specifications.
2. The configuration of antennas, mounts, and other appurtenances are as specified in Table-1.
3. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected members unless otherwise specified in this report.
4. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.

The following assumptions have been included in the analysis of the mount

Component	Section	Length	Note
Proposed Raycap Pipe	2" Std. Pipe	3'-0"	On Support Tube

5. Serviceability with respect to antenna twist, tilt, roll or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
6. Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
7. 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.
8. The following material grades were assumed (Unless Noted Otherwise):
  - (a) Connection Bolts : ASTM A325
  - (b) Steel Pipe : ASTM A53 (GR. 35)
  - (c) HSS (Round) : ASTM 500 (GR. B-42)
  - (d) HSS (Rectangular) : ASTM 500 (GR. B-46)
  - (e) Channel : ASTM A36 (GR. 36)
  - (f) Steel Solid Rod : ASTM A36 (GR. 36)
  - (g) Steel Plate : ASTM A36 (GR. 36)
  - (h) Steel Angle : ASTM A36 (GR. 36)
  - (i) UNISTRUT : ASTM A570 (GR. 33)

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group 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 Mount)**

Notes	Component	Centerline (ft.)	Critical Member	% Capacity	Pass / Fail
1	Main Horizontals	141	80	6.7	Pass
	Support Rails		22	9.8	Pass
	Support Tubes		31	48.4	Pass
	Support Channels		3	33.6	Pass
	Support Angles		10	20.8	Pass
	End Support Angles		11	26.8	Pass
	Mount Pipes		83	12.1	Pass
	Connection Plates		37	20.0	Pass
	Connection Angles		68	17.5	Pass
	Raycap Pipe		92	7.3	Pass
2	Mount to Tower Connection		--	24.4	Pass

<b>Structure Rating (max from all components) =</b>	<b>48.4%</b>
---	--------------

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 calculations supporting the % capacity reported.

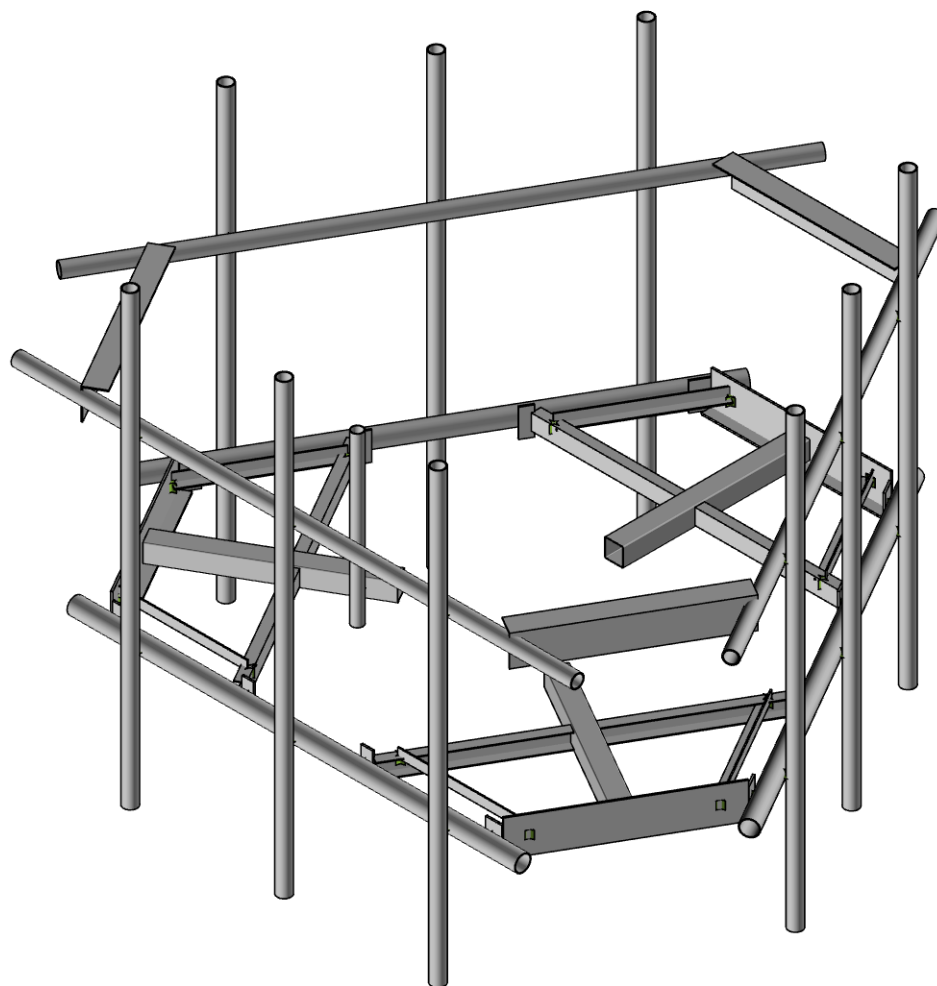
#### 4.1) Recommendations

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

1. Mount, Commscope (Part# MC-PK8-DSH)

No structural modifications are required at this time.

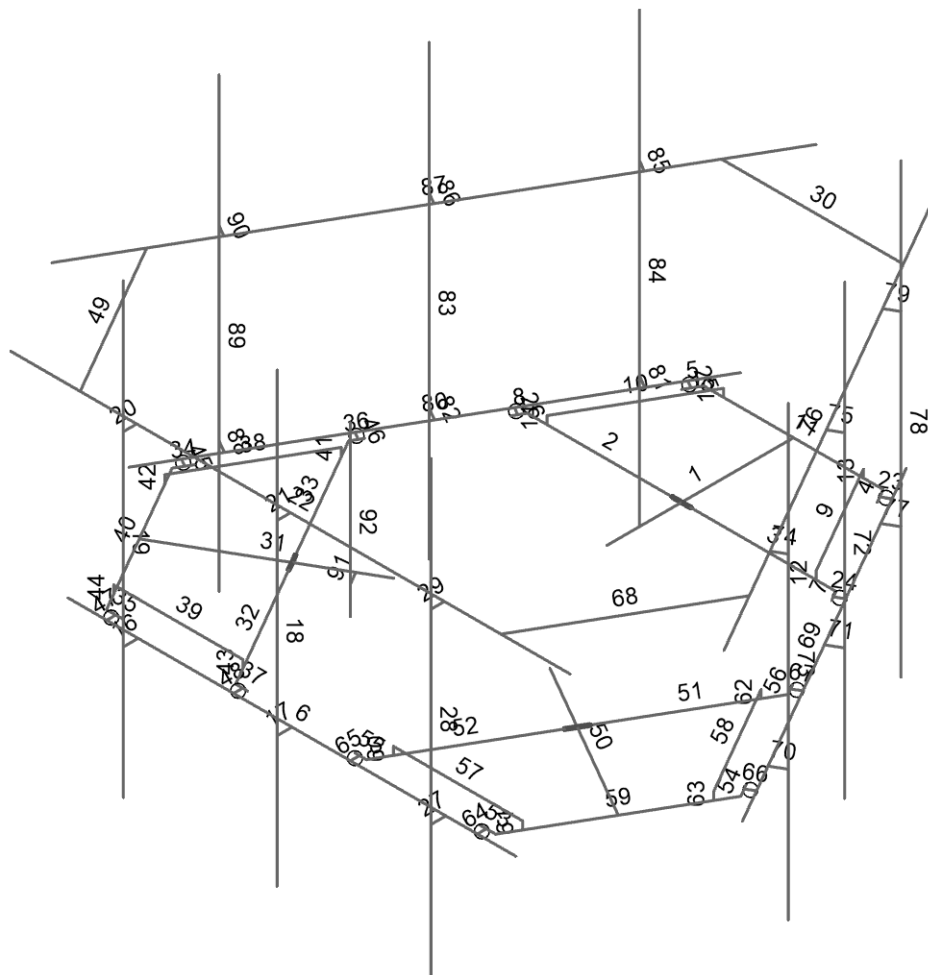
**APPENDIX A**  
**WIRE FRAME AND RENDERED MODELS**



Envelope Only Solution

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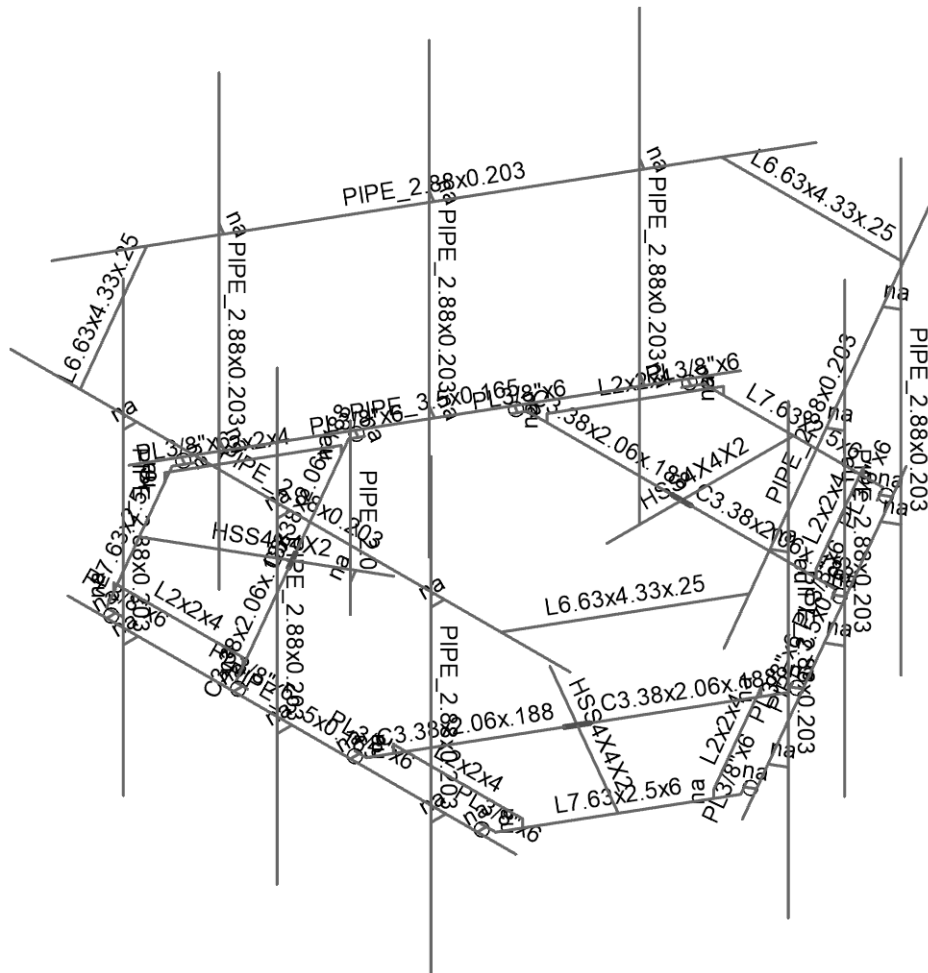
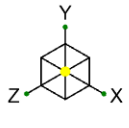
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AK2

Apr 04, 2022

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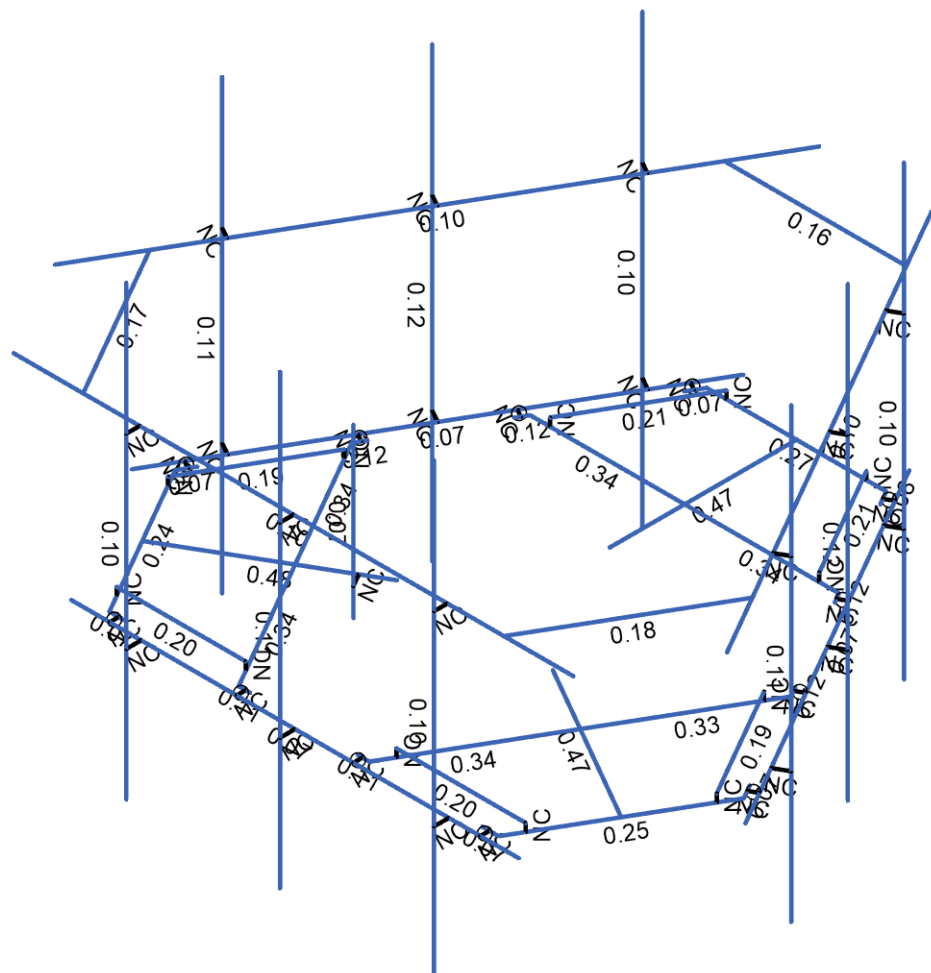
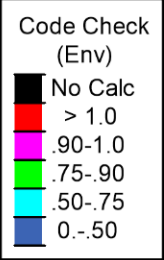


Envelope Only Solution

B+T Group  
AK  
147461.007.01

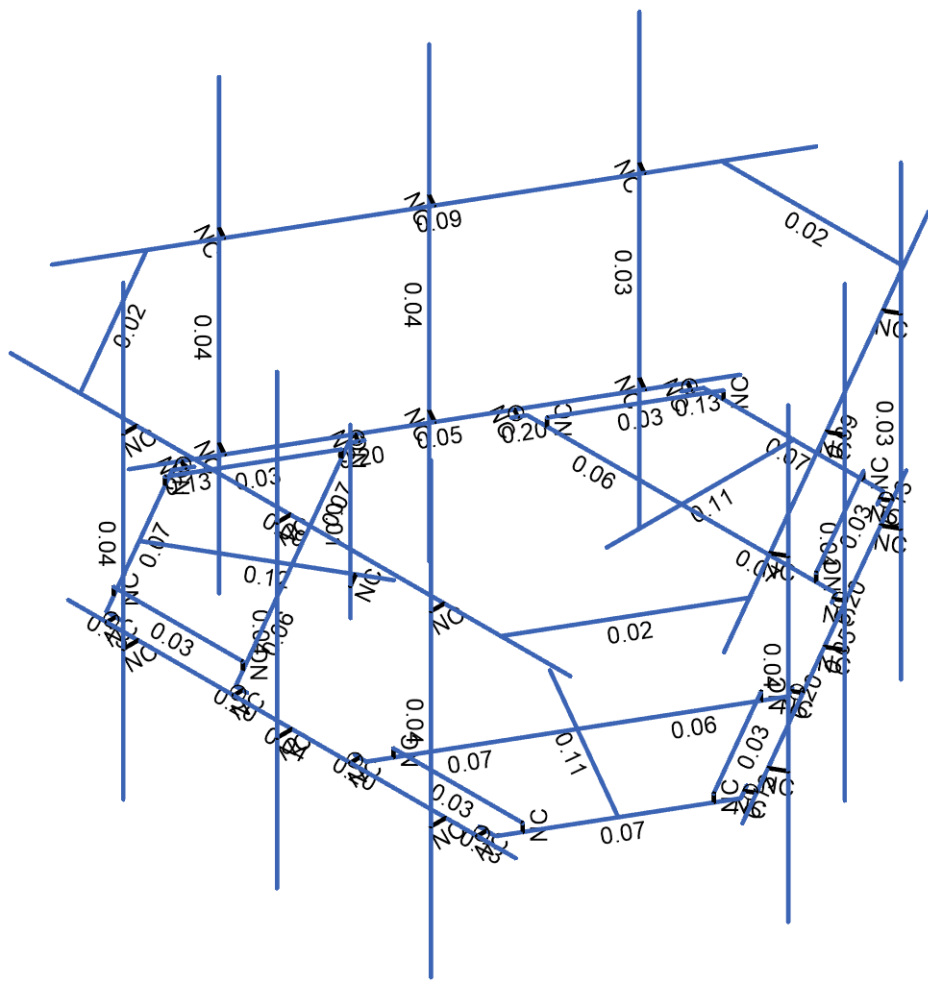
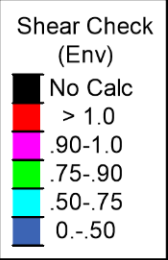
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Apr 04, 2022  
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Member Code Checks Displayed (Enveloped)  
Envelope Only Solution

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Member Shear Checks Displayed (Enveloped)  
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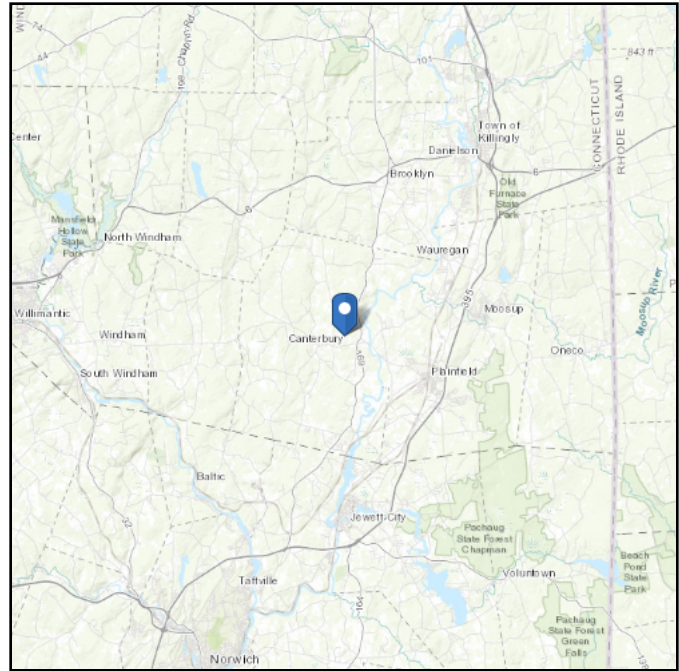
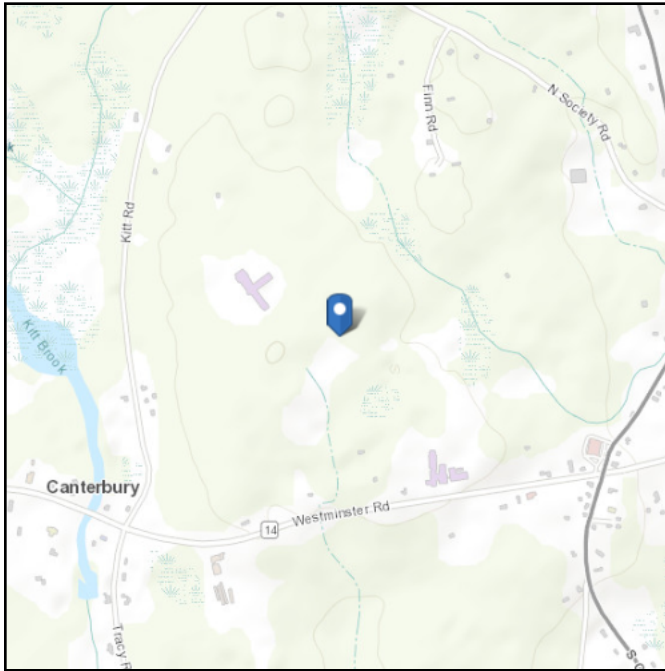
**APPENDIX B**  
**SOFTWARE INPUT CALCULATIONS**

# 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:** 338.74 ft (NAVD 88)  
**Latitude:** 41.701986  
**Longitude:** -71.980586



## Wind

### Results:

Wind Speed	123 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	95 Vmph
100-year MRI	100 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 Mar 29 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).

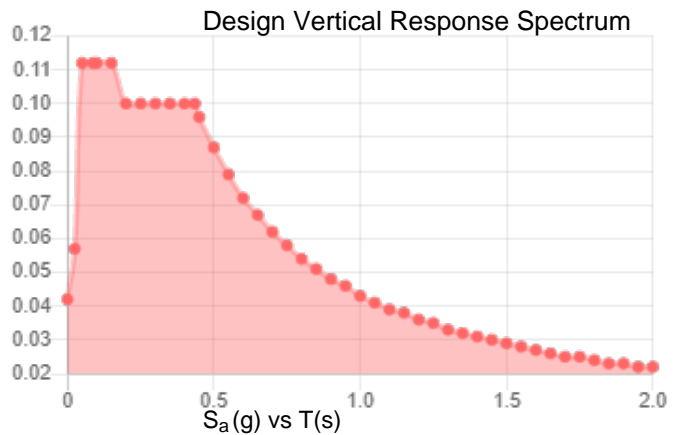
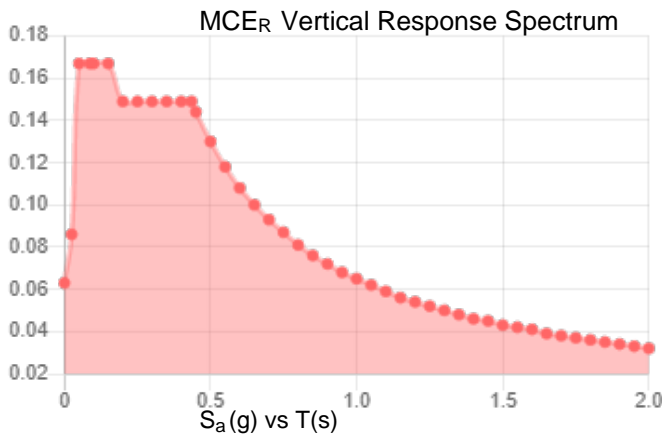
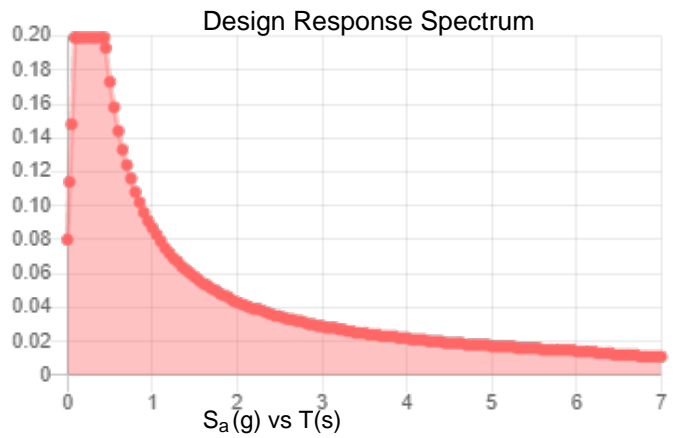
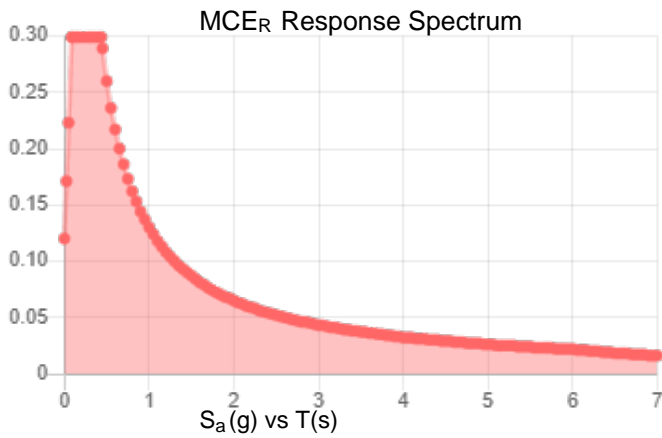
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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

**Results:**

$S_s$ :	0.187	$S_{D1}$ :	0.087
$S_1$ :	0.054	$T_L$ :	6
$F_a$ :	1.6	PGA :	0.101
$F_v$ :	2.4	PGA <sub>M</sub> :	0.162
$S_{MS}$ :	0.299	$F_{PGA}$ :	1.597
$S_{M1}$ :	0.13	$I_e$ :	1
$S_{DS}$ :	0.199	$C_v$ :	0.7

**Seismic Design Category** B



**Data Accessed:** Tue Mar 29 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 Mar 29 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.

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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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PROJECT	<b>147461.001.01 - CANTERBUR</b>	<b>KSC</b>
SUBJECT	<b>Platform Mount Analysis</b>	
DATE	<b>04/04/22</b>	PAGE OF



**B+T GRP**  
 1717 S. Boulder, Suite 300  
 Tulsa, OK 74119  
 (918) 587-4630

Tower Type	:	Monopole	
Ground Elevation	$z_s$ :	339	ft [ASCE7 Hazard Tool]
Tower Height	:	180.50	ft
Mount Elevation	:	141.00	ft
Antenna Elevation	:	141.00	ft
Crest Height	:	0	ft
Risk Category	:	II	[Table 2-1 ]
Exposure Category	:	B	[Sec. 2.6.5.1.2]
Topography Category	:	1.00	[Sec. 2.6.6.2]
Wind Velocity	$V$ :	123	mph [ASCE7 Hazard Tool]
Ice wind Velocity	$V_i$ :	50	mph [ASCE7 Hazard Tool]
Service Velocity	$V_s$ :	30	mph [ASCE7 Hazard Tool]
Base Ice thickness	$t_i$ :	1.00	in [ASCE7 Hazard Tool]
Seismic Design Cat.	:	B	[ASCE7 Hazard Tool]
	$S_S$ :	0.19	
	$S_1$ :	0.05	
	$S_{DS}$ :	0.20	
	$S_{D1}$ :	0.09	
Gust Factor	$G_h$ :	1.00	[Sec. 16.6]
Pressure Coefficient	$K_z$ :	1.09	[Sec. 2.6.5.2]
Topography Factor	$K_{zt}$ :	1.00	[Sec. 2.6.6]
Elevation Factor	$K_e$ :	0.99	[Sec. 2.6.8]
Directionality Factor	$K_d$ :	0.95	[Sec. 16.6]
Shielding Factor	$K_a$ :	0.90	[Sec. 16.6]
Design Ice Thickness	$t_{iz}$ :	1.16	in [Sec. 2.6.10]
Importance Factor	$I_e$ :	1	[Table 2-3 ]
Response Coefficient	$C_s$ :	0.100	[Sec. 2.7.7.1]
Amplification	$A_s$ :	2.124654	[Sec. 16.7]
	$q_z$ :	39.62	psf

PROJECT	<b>147461.001.01 - CANTERBUR</b>	<b>KSC</b>
SUBJECT	<b>Platform Mount Analysis</b>	
DATE	<b>04/04/22</b>	PAGE OF



Manufacturer	Model	Qty	Aspect Ratio	$C_a$	$EPA_N$ (ft <sup>2</sup> )	$EPA_T$ (ft <sup>2</sup> )	$EPA_{N-Ice}$ (ft <sup>2</sup> )	$EPA_{T-Ice}$ (ft <sup>2</sup> )	$F_{A \text{ No Ice (N)}}$	$F_{A \text{ No Ice (T)}}$	$F_{A \text{ Ice (N)}}$	$F_{A \text{ Ice (T)}}$
				flat/round								
JMA WIRELESS	MX08FRO665-21	0.5	3.60	1.25	4.01	1.61	4.53	2.06	0.16	0.06	0.03	0.01
JMA WIRELESS	MX08FRO665-21	0.5	3.60	1.25	4.01	1.61	4.53	2.06	0.16	0.06	0.03	0.01
FUJITSU	TA08025-B604	1	2.00	1.20	0.86	1.64	1.28	2.17	0.04	0.07	0.01	0.01
FUJITSU	TA08025-B605	1	1.74	1.20	0.99	1.64	1.43	2.17	0.04	0.07	0.01	0.01
JMA WIRELESS	MX08FRO665-21	0.5	3.60	1.25	4.01	1.61	4.53	2.06	0.16	0.06	0.03	0.01
JMA WIRELESS	MX08FRO665-21	0.5	3.60	1.25	4.01	1.61	4.53	2.06	0.16	0.06	0.03	0.01
FUJITSU	TA08025-B604	1	2.00	1.20	0.86	1.64	1.28	2.17	0.04	0.07	0.01	0.01
FUJITSU	TA08025-B605	1	1.74	1.20	0.99	1.64	1.43	2.17	0.04	0.07	0.01	0.01
JMA WIRELESS	MX08FRO665-21	0.5	3.60	1.25	4.01	1.61	4.53	2.06	0.16	0.06	0.03	0.01
JMA WIRELESS	MX08FRO665-21	0.5	3.60	1.25	4.01	1.61	4.53	2.06	0.16	0.06	0.03	0.01
FUJITSU	TA08025-B604	1	2.00	1.20	0.86	1.64	1.28	2.17	0.04	0.07	0.01	0.01
FUJITSU	TA08025-B605	1	1.74	1.20	0.99	1.64	1.43	2.17	0.04	0.07	0.01	0.01
RAYCAP	RDIDC-9181-PF-48	1	1.14	1.20	1.68	0.97	2.21	1.41	0.07	0.04	0.01	0.01

**APPENDIX C**  
**SOFTWARE ANALYSIS OUTPUT**



**Node Coordinates**

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	0	0	-1.608791	
2	2	0	0	-4.942125	
3	3	0	0	-2.942125	
4	4	2.758333	0	-2.942125	
5	5	-2.758333	0	-2.942125	
6	6	-1.603633	0	-4.942125	
7	7	1.603633	0	-4.942125	
8	8	1.749466	0	-4.689534	
9	9	-1.749466	0	-4.689534	
10	10	1.686966	0	-4.797787	
11	11	1.826811	0	-4.878526	
12	12	-1.686966	0	-4.797787	
13	13	-1.826811	0	-4.878526	
14	14	-3.999998	0	4.021328	
15	15	3.999998	0	4.021328	
16	16	2.8625	0	-2.761703	
17	17	2.820833	0	-2.833872	
18	18	2.960677	0	-2.914612	
19	19	-2.8625	0	-2.761703	
20	20	-2.820833	0	-2.833872	
21	21	-2.960677	0	-2.914612	
22	22	-1.25	0.140833	-4.942125	
23	23	-2.404701	0.140833	-2.942125	
24	24	2.404701	0.140833	-2.942125	
25	25	1.25	0.140833	-4.942125	
26	26	-1.25	0	-4.942125	
27	27	-2.404701	0	-2.942125	
28	28	2.404701	0	-2.942125	
29	29	1.25	0	-4.942125	
30	30	-2.749998	0	4.021328	
31	31	0.000002	0	4.021328	
32	32	-2.749998	0	4.286953	
33	33	0.000002	0	4.286953	
34	34	-2.749998	-2.333332	4.286953	
35	35	0.000002	-2.333332	4.286953	
36	36	-2.749998	5.66667	4.286953	
37	37	0.000002	5.66667	4.286953	
38	38	-2.749998	3.333337	4.286953	
39	39	0.000002	3.333337	4.286953	
40	40	-2.749998	3.333337	4.047369	
41	41	0.000002	3.333337	4.047369	
42	42	-5	3.333337	4.047369	
43	43	5	3.333337	4.047369	
44	44	2.749998	0	4.021328	
45	45	2.749998	0	4.286953	
46	46	2.749998	-2.333332	4.286953	
47	47	2.749998	5.66667	4.286953	
48	48	2.749998	3.333337	4.286953	
49	49	2.749998	3.333337	4.047369	
50	50	0	0	0	
51	51	1.625024	3.333337	-5.280114	
52	52	-1.625024	3.333337	-5.280114	
53	53	-1.393254	0	0.804396	
54	54	-4.280005	0	2.471062	
55	55	-2.547955	0	1.471062	
56	56	-3.927121	0	-0.917724	
57	57	-1.168788	0	3.859849	
58	58	-3.478189	0	3.859849	



**Node Coordinates (Continued)**

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
59	59	-5.081822	0	1.082276	
60	60	-4.935988	0	0.829685	
61	61	-3.186522	0	3.859849	
62	62	-4.998488	0	0.937938	
63	63	-5.138333	0	0.857199	
64	64	-3.311522	0	3.859849	
65	65	-3.311522	0	4.021328	
66	66	-3.822955	0	-1.098146	
67	67	-3.864622	0	-1.025977	
68	68	-4.004466	0	-1.106716	
69	69	-0.960455	0	3.859849	
70	70	-1.043789	0	3.859849	
71	71	-1.043789	0	4.021328	
72	72	-3.655005	0.140833	3.553594	
73	73	-1.345604	0.140833	3.553594	
74	74	-3.750305	0.140833	-0.611469	
75	75	-4.905005	0.140833	1.388531	
76	76	-3.655005	0	3.553594	
77	77	-1.345604	0	3.553594	
78	78	-3.750305	0	-0.611469	
79	79	-4.905005	0	1.388531	
80	80	-5.385225	3.333337	1.232745	
81	81	-3.760201	3.333337	4.047369	
82	82	1.393254	0	0.804396	
83	83	4.280005	0	2.471062	
84	84	2.547955	0	1.471062	
85	85	1.168788	0	3.859849	
86	86	3.927121	0	-0.917724	
87	87	5.081822	0	1.082276	
88	88	3.478189	0	3.859849	
89	89	3.186522	0	3.859849	
90	90	4.935988	0	0.829685	
91	91	3.311522	0	3.859849	
92	92	3.311522	0	4.021328	
93	93	4.998488	0	0.937938	
94	94	5.138333	0	0.857199	
95	95	0.960455	0	3.859849	
96	96	1.043789	0	3.859849	
97	97	1.043789	0	4.021328	
98	98	3.822955	0	-1.098146	
99	99	3.864622	0	-1.025977	
100	100	4.004466	0	-1.106716	
101	101	4.905005	0.140833	1.388531	
102	102	3.750305	0.140833	-0.611469	
103	103	1.345604	0.140833	3.553594	
104	104	3.655005	0.140833	3.553594	
105	105	4.905005	0	1.388531	
106	106	3.750305	0	-0.611469	
107	107	1.345604	0	3.553594	
108	108	3.655005	0	3.553594	
109	109	3.760201	3.333337	4.047369	
110	110	5.385225	3.333337	1.232745	
111	111	5.482571	0	1.453436	
112	112	1.482573	0	-5.474764	
113	113	4.857571	0	0.370904	
114	114	3.482571	0	-2.010665	
115	115	5.087609	0	0.238092	
116	116	3.712609	0	-2.143478	



**Node Coordinates (Continued)**

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
117	117	5.087609	-2.333332	0.238092	
118	118	3.712609	-2.333332	-2.143478	
119	119	5.087609	5.66667	0.238092	
120	120	3.712609	5.66667	-2.143478	
121	121	5.087609	3.333337	0.238092	
122	122	3.712609	3.333337	-2.143478	
123	123	4.880124	3.333337	0.357884	
124	124	3.505124	3.333337	-2.023686	
125	125	6.005125	3.333337	2.306442	
126	126	1.005125	3.333337	-6.353812	
127	127	2.107573	0	-4.392232	
128	128	2.337611	0	-4.525044	
129	129	2.337611	-2.333332	-4.525044	
130	130	2.337611	5.66667	-4.525044	
131	131	2.337611	3.333337	-4.525044	
132	132	2.130126	3.333337	-4.405253	
133	133	-1.482573	0	-5.474764	
134	134	-5.482571	0	1.453436	
135	135	-2.107573	0	-4.392232	
136	136	-3.482573	0	-2.010662	
137	137	-2.337611	0	-4.525044	
138	138	-3.712611	0	-2.143475	
139	139	-2.337611	-2.333332	-4.525044	
140	140	-3.712611	-2.333332	-2.143475	
141	141	-2.337611	5.66667	-4.525044	
142	142	-3.712611	5.66667	-2.143475	
143	143	-2.337611	3.333337	-4.525044	
144	144	-3.712611	3.333337	-2.143475	
145	145	-2.130126	3.333337	-4.405253	
146	146	-3.505126	3.333337	-2.023683	
147	147	-1.005125	3.333337	-6.353812	
148	148	-6.005125	3.333337	2.306442	
149	149	-4.857571	0	0.370904	
150	150	-5.087609	0	0.238092	
151	151	-5.087609	-2.333332	0.238092	
152	152	-5.087609	5.66667	0.238092	
153	153	-5.087609	3.333337	0.238092	
154	154	-4.880124	3.333337	0.357884	
155	155	-1.826267	0	1.054396	
156	156	-1.69335	0	1.284614	
157	157	-1.69335	2.5	1.284614	
158	158	-1.69335	-0.5	1.284614	

**Node Boundary Conditions**

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	2						
3	3						
4	4						
5	5						
6	16						
7	17						
8	19						
9	20						
10	22						
11	25						
12	26						
13	29						



**Node Boundary Conditions (Continued)**

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
14	53	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
15	54						
16	55						
17	56						
18	57						
19	66						
20	67						
21	69						
22	70						
23	72						
24	75						
25	76						
26	79						
27	82	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
28	83						
29	84						
30	85						
31	86						
32	95						
33	96						
34	98						
35	99						
36	101						
37	104						
38	105						
39	108						

**Hot Rolled Steel Properties**

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e <sup>6</sup> F <sup>-1</sup> ]	Density [k/ft <sup>3</sup> ]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3
8	A500 Gr.C	29000	11154	0.3	0.65	0.49	46	1.4	62	1.3

**Hot Rolled Steel Section Sets**

	Label	Shape	Type	Design List	Material	Design Rule	Area [in <sup>2</sup> ]	Iyy [in <sup>4</sup> ]	Izz [in <sup>4</sup> ]	J [in <sup>4</sup> ]
1	MF-H1	PIPE_3.5x0.165	Beam	Pipe	A500 Gr.C	Typical	1.729	2.409	2.409	4.819
2	MF-H2	PIPE_2.88x0.203	Beam	Pipe	A500 Gr.C	Typical	1.707	1.538	1.538	3.076
3	SF-H1	HSS4X4X2	Beam	Tube	A500 Gr.B Rect	Typical	1.77	4.4	4.4	6.91
4	SF-H2	C3.38x2.06x.188	Beam	Channel	A36 Gr.36	Typical	1.339	0.562	2.4	0.015
5	SF-H3	L2x2x4	Beam	Single Angle	A36 Gr.36	Typical	0.944	0.346	0.346	0.021
6	SF-H4	L7.63x2.5x6	Beam	Single Angle	A36 Gr.36	Typical	3.658	1.307	22.092	0.163
7	MF-P1	PIPE_2.88x0.203	Column	Pipe	A500 Gr.C	Typical	1.707	1.538	1.538	3.076
8	MF-CP1	PL3/8"x6	Beam	RECT	A36 Gr.36	Typical	2.25	0.026	6.75	0.101
9	MF-H3	L6.63x4.33x.25	Beam	Single Angle	A36 Gr.36	Typical	2.678	4.383	12.502	0.054
10	Raycap Pipe	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25

**Member Primary Data**

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	1	2		SF-H1	Beam	Tube	A500 Gr.B Rect	Typical
2	2	5	3	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
3	3	3	4	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
4	4	7	8		MF-CP1	Beam	RECT	A36 Gr.36	Typical

**Member Primary Data (Continued)**

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
5	5	6	9		MF-CP1	Beam	RECT	A36 Gr.36	Typical
6	6	14	15		MF-H1	Beam	Pipe	A500 Gr.C	Typical
7	7	16	4		MF-CP1	Beam	RECT	A36 Gr.36	Typical
8	8	5	19		MF-CP1	Beam	RECT	A36 Gr.36	Typical
9	9	25	24		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
10	10	23	22		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
11	11	6	7		SF-H4	Beam	Single Angle	A36 Gr.36	Typical
12	12	28	24		RIGID	None	None	RIGID	Typical
13	13	29	25		RIGID	None	None	RIGID	Typical
14	14	27	23		RIGID	None	None	RIGID	Typical
15	15	26	22		RIGID	None	None	RIGID	Typical
16	16	32	30		RIGID	None	None	RIGID	Typical
17	17	33	31		RIGID	None	None	RIGID	Typical
18	18	37	35		MF-P1	Column	Pipe	A500 Gr.C	Typical
19	19	36	34		MF-P1	Column	Pipe	A500 Gr.C	Typical
20	20	38	40		RIGID	None	None	RIGID	Typical
21	21	39	41		RIGID	None	None	RIGID	Typical
22	22	42	43		MF-H2	Beam	Pipe	A500 Gr.C	Typical
23	23	11	10		RIGID	None	None	RIGID	Typical
24	24	18	17		RIGID	None	None	RIGID	Typical
25	25	13	12		RIGID	None	None	RIGID	Typical
26	26	21	20		RIGID	None	None	RIGID	Typical
27	27	45	44		RIGID	None	None	RIGID	Typical
28	28	47	46		MF-P1	Column	Pipe	A500 Gr.C	Typical
29	29	48	49		RIGID	None	None	RIGID	Typical
30	30	51	52	180	MF-H3	Beam	Single Angle	A36 Gr.36	Typical
31	31	53	54		SF-H1	Beam	Tube	A500 Gr.B Rect	Typical
32	32	57	55	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
33	33	55	56	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
34	34	59	60		MF-CP1	Beam	RECT	A36 Gr.36	Typical
35	35	58	61		MF-CP1	Beam	RECT	A36 Gr.36	Typical
36	36	66	56		MF-CP1	Beam	RECT	A36 Gr.36	Typical
37	37	57	69		MF-CP1	Beam	RECT	A36 Gr.36	Typical
38	38	75	74		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
39	39	73	72		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
40	40	58	59		SF-H4	Beam	Single Angle	A36 Gr.36	Typical
41	41	78	74		RIGID	None	None	RIGID	Typical
42	42	79	75		RIGID	None	None	RIGID	Typical
43	43	77	73		RIGID	None	None	RIGID	Typical
44	44	76	72		RIGID	None	None	RIGID	Typical
45	45	63	62		RIGID	None	None	RIGID	Typical
46	46	68	67		RIGID	None	None	RIGID	Typical
47	47	65	64		RIGID	None	None	RIGID	Typical
48	48	71	70		RIGID	None	None	RIGID	Typical
49	49	80	81	180	MF-H3	Beam	Single Angle	A36 Gr.36	Typical
50	50	82	83		SF-H1	Beam	Tube	A500 Gr.B Rect	Typical
51	51	86	84	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
52	52	84	85	180	SF-H2	Beam	Channel	A36 Gr.36	Typical
53	53	88	89		MF-CP1	Beam	RECT	A36 Gr.36	Typical
54	54	87	90		MF-CP1	Beam	RECT	A36 Gr.36	Typical
55	55	95	85		MF-CP1	Beam	RECT	A36 Gr.36	Typical
56	56	86	98		MF-CP1	Beam	RECT	A36 Gr.36	Typical
57	57	104	103		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
58	58	102	101		SF-H3	Beam	Single Angle	A36 Gr.36	Typical
59	59	87	88		SF-H4	Beam	Single Angle	A36 Gr.36	Typical
60	60	107	103		RIGID	None	None	RIGID	Typical
61	61	108	104		RIGID	None	None	RIGID	Typical
62	62	106	102		RIGID	None	None	RIGID	Typical





**Member Primary Data (Continued)**

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
63	63	105	101		RIGID	None	None	RIGID	Typical
64	64	92	91		RIGID	None	None	RIGID	Typical
65	65	97	96		RIGID	None	None	RIGID	Typical
66	66	94	93		RIGID	None	None	RIGID	Typical
67	67	100	99		RIGID	None	None	RIGID	Typical
68	68	109	110	180	MF-H3	Beam	Single Angle	A36 Gr.36	Typical
69	69	111	112		MF-H1	Beam	Pipe	A500 Gr.C	Typical
70	70	115	113		RIGID	None	None	RIGID	Typical
71	71	116	114		RIGID	None	None	RIGID	Typical
72	72	120	118		MF-P1	Column	Pipe	A500 Gr.C	Typical
73	73	119	117		MF-P1	Column	Pipe	A500 Gr.C	Typical
74	74	121	123		RIGID	None	None	RIGID	Typical
75	75	122	124		RIGID	None	None	RIGID	Typical
76	76	125	126		MF-H2	Beam	Pipe	A500 Gr.C	Typical
77	77	128	127		RIGID	None	None	RIGID	Typical
78	78	130	129		MF-P1	Column	Pipe	A500 Gr.C	Typical
79	79	131	132		RIGID	None	None	RIGID	Typical
80	80	133	134		MF-H1	Beam	Pipe	A500 Gr.C	Typical
81	81	137	135		RIGID	None	None	RIGID	Typical
82	82	138	136		RIGID	None	None	RIGID	Typical
83	83	142	140		MF-P1	Column	Pipe	A500 Gr.C	Typical
84	84	141	139		MF-P1	Column	Pipe	A500 Gr.C	Typical
85	85	143	145		RIGID	None	None	RIGID	Typical
86	86	144	146		RIGID	None	None	RIGID	Typical
87	87	147	148		MF-H2	Beam	Pipe	A500 Gr.C	Typical
88	88	150	149		RIGID	None	None	RIGID	Typical
89	89	152	151		MF-P1	Column	Pipe	A500 Gr.C	Typical
90	90	153	154		RIGID	None	None	RIGID	Typical
91	91	155	156		RIGID	None	None	RIGID	Typical
92	92	157	158		Raycap Pipe	Column	Pipe	A53 Gr.B	Typical

**Member Advanced Data**

	Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
1	1				Yes		None
2	2			2	Yes		None
3	3		2		Yes		None
4	4				Yes		None
5	5				Yes		None
6	6				Yes		None
7	7				Yes		None
8	8				Yes		None
9	9				Yes		None
10	10				Yes		None
11	11				Yes		None
12	12				Yes	** NA **	None
13	13				Yes	** NA **	None
14	14				Yes	** NA **	None
15	15				Yes	** NA **	None
16	16				Yes	** NA **	None
17	17				Yes	** NA **	None
18	18				Yes	** NA **	None
19	19				Yes	** NA **	None
20	20				Yes	** NA **	None
21	21				Yes	** NA **	None
22	22				Yes		None
23	23	O O O O O X			Yes	** NA **	None
24	24	O O O O O X			Yes	** NA **	None
25	25	O O O O O X			Yes	** NA **	None



**Member Advanced Data (Continued)**

	Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
26	26	O0000X			Yes	** NA **	None
27	27				Yes	** NA **	None
28	28				Yes	** NA **	None
29	29				Yes	** NA **	None
30	30				Yes		None
31	31				Yes		None
32	32			2	Yes		None
33	33		2		Yes		None
34	34				Yes		None
35	35				Yes		None
36	36				Yes		None
37	37				Yes		None
38	38				Yes		None
39	39				Yes		None
40	40				Yes		None
41	41				Yes	** NA **	None
42	42				Yes	** NA **	None
43	43				Yes	** NA **	None
44	44				Yes	** NA **	None
45	45	O0000X			Yes	** NA **	None
46	46	O0000X			Yes	** NA **	None
47	47	O0000X			Yes	** NA **	None
48	48	O0000X			Yes	** NA **	None
49	49				Yes		None
50	50				Yes		None
51	51			2	Yes		None
52	52		2		Yes		None
53	53				Yes		None
54	54				Yes		None
55	55				Yes		None
56	56				Yes		None
57	57				Yes		None
58	58				Yes		None
59	59				Yes		None
60	60				Yes	** NA **	None
61	61				Yes	** NA **	None
62	62				Yes	** NA **	None
63	63				Yes	** NA **	None
64	64	O0000X			Yes	** NA **	None
65	65	O0000X			Yes	** NA **	None
66	66	O0000X			Yes	** NA **	None
67	67	O0000X			Yes	** NA **	None
68	68				Yes		None
69	69				Yes		None
70	70				Yes	** NA **	None
71	71				Yes	** NA **	None
72	72				Yes	** NA **	None
73	73				Yes	** NA **	None
74	74				Yes	** NA **	None
75	75				Yes	** NA **	None
76	76				Yes		None
77	77				Yes	** NA **	None
78	78				Yes	** NA **	None
79	79				Yes	** NA **	None
80	80				Yes		None
81	81				Yes	** NA **	None
82	82				Yes	** NA **	None
83	83				Yes	** NA **	None



**Member Advanced Data (Continued)**

	Label	I Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
84	84				Yes	** NA **	None
85	85				Yes	** NA **	None
86	86				Yes	** NA **	None
87	87				Yes		None
88	88				Yes	** NA **	None
89	89				Yes	** NA **	None
90	90				Yes	** NA **	None
91	91				Yes	** NA **	None
92	92				Yes	** NA **	None

**Hot Rolled Steel Design Parameters**

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
1	1	SF-H1	3.333	Lbyy	Lateral
2	2	SF-H2	2.758	Lbyy	Lateral
3	3	SF-H2	2.758	Lbyy	Lateral
4	4	MF-CP1	0.292	Lbyy	Lateral
5	5	MF-CP1	0.292	Lbyy	Lateral
6	6	MF-H1	8	Lbyy	Lateral
7	7	MF-CP1	0.208	Lbyy	Lateral
8	8	MF-CP1	0.208	Lbyy	Lateral
9	9	SF-H3	2.309	Lbyy	Lateral
10	10	SF-H3	2.309	Lbyy	Lateral
11	11	SF-H4	3.207	Lbyy	Lateral
12	18	MF-P1	8	Lbyy	Lateral
13	19	MF-P1	8	Lbyy	Lateral
14	22	MF-H2	10	Lbyy	Lateral
15	28	MF-P1	8	Lbyy	Lateral
16	30	MF-H3	3.25	Lbyy	Lateral
17	31	SF-H1	3.333	Lbyy	Lateral
18	32	SF-H2	2.758	Lbyy	Lateral
19	33	SF-H2	2.758	Lbyy	Lateral
20	34	MF-CP1	0.292	Lbyy	Lateral
21	35	MF-CP1	0.292	Lbyy	Lateral
22	36	MF-CP1	0.208	Lbyy	Lateral
23	37	MF-CP1	0.208	Lbyy	Lateral
24	38	SF-H3	2.309	Lbyy	Lateral
25	39	SF-H3	2.309	Lbyy	Lateral
26	40	SF-H4	3.207	Lbyy	Lateral
27	49	MF-H3	3.25	Lbyy	Lateral
28	50	SF-H1	3.333	Lbyy	Lateral
29	51	SF-H2	2.758	Lbyy	Lateral
30	52	SF-H2	2.758	Lbyy	Lateral
31	53	MF-CP1	0.292	Lbyy	Lateral
32	54	MF-CP1	0.292	Lbyy	Lateral
33	55	MF-CP1	0.208	Lbyy	Lateral
34	56	MF-CP1	0.208	Lbyy	Lateral
35	57	SF-H3	2.309	Lbyy	Lateral
36	58	SF-H3	2.309	Lbyy	Lateral
37	59	SF-H4	3.207	Lbyy	Lateral
38	68	MF-H3	3.25	Lbyy	Lateral
39	69	MF-H1	8	Lbyy	Lateral
40	72	MF-P1	8	Lbyy	Lateral
41	73	MF-P1	8	Lbyy	Lateral
42	76	MF-H2	10	Lbyy	Lateral
43	78	MF-P1	8	Lbyy	Lateral
44	80	MF-H1	8	Lbyy	Lateral
45	83	MF-P1	8	Lbyy	Lateral
46	84	MF-P1	8	Lbyy	Lateral

**Hot Rolled Steel Design Parameters (Continued)**

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
47	87	MF-H2	10	Lbyy	Lateral
48	89	MF-P1	8	Lbyy	Lateral
49	92	Raycap Pipe	3	Lbyy	Lateral

**Member Point Loads (BLC 1 : Dead)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Y	-0.041	%15
2	18	Y	-0.041	%85
3	18	Y	-0.064	%50
4	18	Y	-0.075	%50
5	18	Y	0	0
6	83	Y	-0.041	%15
7	83	Y	-0.041	%85
8	83	Y	-0.064	%50
9	83	Y	-0.075	%50
10	83	Y	0	0
11	72	Y	-0.041	%15
12	72	Y	-0.041	%85
13	72	Y	-0.064	%50
14	72	Y	-0.075	%50
15	72	Y	0	0
16	92	Y	-0.022	%30
17	92	Y	0	0
18	92	Y	0	0
19	92	Y	0	0
20	92	Y	0	0

**Member Point Loads (BLC 2 : 0 Wind - No Ice)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Z	-0.159	%15
2	18	Z	-0.159	%85
3	18	Z	-0.037	%50
4	18	Z	-0.042	%50
5	18	Z	0	0
6	83	Z	-0.159	%15
7	83	Z	-0.159	%85
8	83	Z	-0.037	%50
9	83	Z	-0.042	%50
10	83	Z	0	0
11	72	Z	-0.159	%15
12	72	Z	-0.159	%85
13	72	Z	-0.037	%50
14	72	Z	-0.042	%50
15	72	Z	0	0
16	92	Z	-0.072	%30
17	92	Z	0	0
18	92	Z	0	0
19	92	Z	0	0
20	92	Z	0	0

**Member Point Loads (BLC 3 : 90 Wind - No Ice)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	X	-0.064	%15
2	18	X	-0.064	%85
3	18	X	-0.07	%50
4	18	X	-0.07	%50
5	18	X	0	0

**Member Point Loads (BLC 3 : 90 Wind - No Ice) (Continued)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
6	83	X	-0.064	%15
7	83	X	-0.064	%85
8	83	X	-0.07	%50
9	83	X	-0.07	%50
10	83	X	0	0
11	72	X	-0.064	%15
12	72	X	-0.064	%85
13	72	X	-0.07	%50
14	72	X	-0.07	%50
15	72	X	0	0
16	92	X	-0.042	%30
17	92	X	0	0
18	92	X	0	0
19	92	X	0	0
20	92	X	0	0

**Member Point Loads (BLC 4 : 0 Wind - Ice)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Z	-0.03	%15
2	18	Z	-0.03	%85
3	18	Z	-0.006	%50
4	18	Z	-0.007	%50
5	18	Z	0	0
6	83	Z	-0.03	%15
7	83	Z	-0.03	%85
8	83	Z	-0.006	%50
9	83	Z	-0.007	%50
10	83	Z	0	0
11	72	Z	-0.03	%15
12	72	Z	-0.03	%85
13	72	Z	-0.006	%50
14	72	Z	-0.007	%50
15	72	Z	0	0
16	92	Z	-0.012	%30
17	92	Z	0	0
18	92	Z	0	0
19	92	Z	0	0
20	92	Z	0	0

**Member Point Loads (BLC 5 : 90 Wind - Ice)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	X	-0.014	%15
2	18	X	-0.014	%85
3	18	X	-0.012	%50
4	18	X	-0.012	%50
5	18	X	0	0
6	83	X	-0.014	%15
7	83	X	-0.014	%85
8	83	X	-0.012	%50
9	83	X	-0.012	%50
10	83	X	0	0
11	72	X	-0.014	%15
12	72	X	-0.014	%85
13	72	X	-0.012	%50
14	72	X	-0.012	%50
15	72	X	0	0
16	92	X	-0.007	%30

**Member Point Loads (BLC 5 : 90 Wind - Ice) (Continued)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
17	92	X	0	0
18	92	X	0	0
19	92	X	0	0
20	92	X	0	0

**Member Point Loads (BLC 6 : 0 Wind - Service)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Z	-0.009	%15
2	18	Z	-0.009	%85
3	18	Z	-0.002	%50
4	18	Z	-0.003	%50
5	18	Z	0	0
6	83	Z	-0.009	%15
7	83	Z	-0.009	%85
8	83	Z	-0.002	%50
9	83	Z	-0.003	%50
10	83	Z	0	0
11	72	Z	-0.009	%15
12	72	Z	-0.009	%85
13	72	Z	-0.002	%50
14	72	Z	-0.003	%50
15	72	Z	0	0
16	92	Z	-0.004	%30
17	92	Z	0	0
18	92	Z	0	0
19	92	Z	0	0
20	92	Z	0	0

**Member Point Loads (BLC 7 : 90 Wind - Service)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	X	-0.004	%15
2	18	X	-0.004	%85
3	18	X	-0.004	%50
4	18	X	-0.004	%50
5	18	X	0	0
6	83	X	-0.004	%15
7	83	X	-0.004	%85
8	83	X	-0.004	%50
9	83	X	-0.004	%50
10	83	X	0	0
11	72	X	-0.004	%15
12	72	X	-0.004	%85
13	72	X	-0.004	%50
14	72	X	-0.004	%50
15	72	X	0	0
16	92	X	-0.003	%30
17	92	X	0	0
18	92	X	0	0
19	92	X	0	0
20	92	X	0	0

**Member Point Loads (BLC 8 : Ice)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Y	-0.118	%15
2	18	Y	-0.118	%85
3	18	Y	-0.034	%50
4	18	Y	-0.035	%50

**Member Point Loads (BLC 8 : Ice) (Continued)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
5	18	Y	0	0
6	83	Y	-0.118	%15
7	83	Y	-0.118	%85
8	83	Y	-0.034	%50
9	83	Y	-0.035	%50
10	83	Y	0	0
11	72	Y	-0.118	%15
12	72	Y	-0.118	%85
13	72	Y	-0.034	%50
14	72	Y	-0.035	%50
15	72	Y	0	0
16	92	Y	-0.035	%30
17	92	Y	0	0
18	92	Y	0	0
19	92	Y	0	0
20	92	Y	0	0

**Member Point Loads (BLC 9 : 0 Seismic)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	Z	-0.017	%15
2	18	Z	-0.017	%85
3	18	Z	-0.014	%50
4	18	Z	-0.016	%50
5	18	Z	0	0
6	83	Z	-0.017	%15
7	83	Z	-0.017	%85
8	83	Z	-0.014	%50
9	83	Z	-0.016	%50
10	83	Z	0	0
11	72	Z	-0.017	%15
12	72	Z	-0.017	%85
13	72	Z	-0.014	%50
14	72	Z	-0.016	%50
15	72	Z	0	0
16	92	Z	-0.005	%30
17	92	Z	0	0
18	92	Z	0	0
19	92	Z	0	0
20	92	Z	0	0

**Member Point Loads (BLC 10 : 90 Seismic)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	18	X	-0.017	%15
2	18	X	-0.017	%85
3	18	X	-0.014	%50
4	18	X	-0.016	%50
5	18	X	0	0
6	83	X	-0.017	%15
7	83	X	-0.017	%85
8	83	X	-0.014	%50
9	83	X	-0.016	%50
10	83	X	0	0
11	72	X	-0.017	%15
12	72	X	-0.017	%85
13	72	X	-0.014	%50
14	72	X	-0.016	%50
15	72	X	0	0

**Member Point Loads (BLC 10 : 90 Seismic) (Continued)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
16	92	X	-0.005	%30
17	92	X	0	0
18	92	X	0	0
19	92	X	0	0
20	92	X	0	0

**Member Point Loads (BLC 15 : Maint LL 1)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	22	Y	-0.25	%5

**Member Point Loads (BLC 16 : Maint LL 2)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Y	-0.25	%5

**Member Point Loads (BLC 17 : Maint LL 3)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	22	Y	-0.25	%95

**Member Point Loads (BLC 18 : Maint LL 4)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Y	-0.25	%95

**Member Point Loads (BLC 19 : Maint LL 5)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	87	Y	-0.25	%5

**Member Point Loads (BLC 20 : Maint LL 6)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	80	Y	-0.25	%5

**Member Point Loads (BLC 21 : Maint LL 7)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	87	Y	-0.25	%95

**Member Point Loads (BLC 22 : Maint LL 8)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	80	Y	-0.25	%95

**Member Point Loads (BLC 23 : Maint LL 9)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	76	Y	-0.25	%5

**Member Point Loads (BLC 24 : Maint LL 10)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	69	Y	-0.25	%5

**Member Point Loads (BLC 25 : Maint LL 11)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	76	Y	-0.25	%95





**Member Point Loads (BLC 26 : Maint LL 12)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	69	Y	-0.25	%95

**Member Point Loads (BLC 27 : Maint LL 13)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	31	Y	-0.25	%95

**Member Point Loads (BLC 28 : Maint LL 14)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	1	Y	-0.25	%95

**Member Point Loads (BLC 29 : Maint LL 15)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	50	Y	-0.25	%95

**Member Distributed Loads (BLC 2 : 0 Wind - No Ice)**

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.017	-0.017	0	%100
2	2	Z	-0.015	-0.015	0	%100
3	3	Z	-0.015	-0.015	0	%100
4	4	Z	-0.021	-0.021	0	%100
5	5	Z	-0.021	-0.021	0	%100
6	6	Z	-0.013	-0.013	0	%100
7	7	Z	-0.021	-0.021	0	%100
8	8	Z	-0.021	-0.021	0	%100
9	9	Z	-0.01	-0.01	0	%100
10	10	Z	-0.01	-0.01	0	%100
11	11	Z	-0.029	-0.029	0	%100
12	18	Z	-0.01	-0.01	0	%100
13	19	Z	-0.01	-0.01	0	%100
14	22	Z	-0.01	-0.01	0	%100
15	28	Z	-0.01	-0.01	0	%100
16	30	Z	-0.026	-0.026	0	%100
17	31	Z	-0.017	-0.017	0	%100
18	32	Z	-0.015	-0.015	0	%100
19	33	Z	-0.015	-0.015	0	%100
20	34	Z	-0.021	-0.021	0	%100
21	35	Z	-0.021	-0.021	0	%100
22	36	Z	-0.021	-0.021	0	%100
23	37	Z	-0.021	-0.021	0	%100
24	38	Z	-0.01	-0.01	0	%100
25	39	Z	-0.01	-0.01	0	%100
26	40	Z	-0.029	-0.029	0	%100
27	49	Z	-0.026	-0.026	0	%100
28	50	Z	-0.017	-0.017	0	%100
29	51	Z	-0.015	-0.015	0	%100
30	52	Z	-0.015	-0.015	0	%100
31	53	Z	-0.021	-0.021	0	%100
32	54	Z	-0.021	-0.021	0	%100
33	55	Z	-0.021	-0.021	0	%100
34	56	Z	-0.021	-0.021	0	%100
35	57	Z	-0.01	-0.01	0	%100
36	58	Z	-0.01	-0.01	0	%100
37	59	Z	-0.029	-0.029	0	%100
38	68	Z	-0.026	-0.026	0	%100
39	69	Z	-0.013	-0.013	0	%100
40	72	Z	-0.01	-0.01	0	%100



**Member Distributed Loads (BLC 2 : 0 Wind - No Ice) (Continued)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
41	73	Z	-0.01	-0.01	0	%100
42	76	Z	-0.01	-0.01	0	%100
43	78	Z	-0.01	-0.01	0	%100
44	80	Z	-0.013	-0.013	0	%100
45	83	Z	-0.01	-0.01	0	%100
46	84	Z	-0.01	-0.01	0	%100
47	87	Z	-0.01	-0.01	0	%100
48	89	Z	-0.01	-0.01	0	%100
49	92	Z	-0.007	-0.007	0	%100

**Member Distributed Loads (BLC 3 : 90 Wind - No Ice)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.017	-0.017	0	%100
2	2	X	-0.015	-0.015	0	%100
3	3	X	-0.015	-0.015	0	%100
4	4	X	-0.021	-0.021	0	%100
5	5	X	-0.021	-0.021	0	%100
6	6	X	-0.013	-0.013	0	%100
7	7	X	-0.021	-0.021	0	%100
8	8	X	-0.021	-0.021	0	%100
9	9	X	-0.01	-0.01	0	%100
10	10	X	-0.01	-0.01	0	%100
11	11	X	-0.029	-0.029	0	%100
12	18	X	-0.01	-0.01	0	%100
13	19	X	-0.01	-0.01	0	%100
14	22	X	-0.01	-0.01	0	%100
15	28	X	-0.01	-0.01	0	%100
16	30	X	-0.026	-0.026	0	%100
17	31	X	-0.017	-0.017	0	%100
18	32	X	-0.015	-0.015	0	%100
19	33	X	-0.015	-0.015	0	%100
20	34	X	-0.021	-0.021	0	%100
21	35	X	-0.021	-0.021	0	%100
22	36	X	-0.021	-0.021	0	%100
23	37	X	-0.021	-0.021	0	%100
24	38	X	-0.01	-0.01	0	%100
25	39	X	-0.01	-0.01	0	%100
26	40	X	-0.029	-0.029	0	%100
27	49	X	-0.026	-0.026	0	%100
28	50	X	-0.017	-0.017	0	%100
29	51	X	-0.015	-0.015	0	%100
30	52	X	-0.015	-0.015	0	%100
31	53	X	-0.021	-0.021	0	%100
32	54	X	-0.021	-0.021	0	%100
33	55	X	-0.021	-0.021	0	%100
34	56	X	-0.021	-0.021	0	%100
35	57	X	-0.01	-0.01	0	%100
36	58	X	-0.01	-0.01	0	%100
37	59	X	-0.029	-0.029	0	%100
38	68	X	-0.026	-0.026	0	%100
39	69	X	-0.013	-0.013	0	%100
40	72	X	-0.01	-0.01	0	%100
41	73	X	-0.01	-0.01	0	%100
42	76	X	-0.01	-0.01	0	%100
43	78	X	-0.01	-0.01	0	%100
44	80	X	-0.013	-0.013	0	%100
45	83	X	-0.01	-0.01	0	%100
46	84	X	-0.01	-0.01	0	%100



Company : B+T Group  
 Designer : AK  
 Job Number : 147461.007.01  
 Model Name : 876375 - CANTERBURY LEMIRE

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**Member Distributed Loads (BLC 3 : 90 Wind - No Ice) (Continued)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
47	87	X	-0.01	-0.01	0	%100
48	89	X	-0.01	-0.01	0	%100
49	92	X	-0.007	-0.007	0	%100

**Member Distributed Loads (BLC 4 : 0 Wind - Ice)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.005	-0.005	0	%100
2	2	Z	-0.004	-0.004	0	%100
3	3	Z	-0.004	-0.004	0	%100
4	4	Z	-0.008	-0.008	0	%100
5	5	Z	-0.008	-0.008	0	%100
6	6	Z	-0.002	-0.002	0	%100
7	7	Z	-0.009	-0.009	0	%100
8	8	Z	-0.009	-0.009	0	%100
9	9	Z	-0.004	-0.004	0	%100
10	10	Z	-0.004	-0.004	0	%100
11	11	Z	-0.007	-0.007	0	%100
12	18	Z	-0.002	-0.002	0	%100
13	19	Z	-0.002	-0.002	0	%100
14	22	Z	-0.002	-0.002	0	%100
15	28	Z	-0.002	-0.002	0	%100
16	30	Z	-0.006	-0.006	0	%100
17	31	Z	-0.005	-0.005	0	%100
18	32	Z	-0.004	-0.004	0	%100
19	33	Z	-0.004	-0.004	0	%100
20	34	Z	-0.008	-0.008	0	%100
21	35	Z	-0.008	-0.008	0	%100
22	36	Z	-0.009	-0.009	0	%100
23	37	Z	-0.009	-0.009	0	%100
24	38	Z	-0.004	-0.004	0	%100
25	39	Z	-0.004	-0.004	0	%100
26	40	Z	-0.007	-0.007	0	%100
27	49	Z	-0.006	-0.006	0	%100
28	50	Z	-0.005	-0.005	0	%100
29	51	Z	-0.004	-0.004	0	%100
30	52	Z	-0.004	-0.004	0	%100
31	53	Z	-0.008	-0.008	0	%100
32	54	Z	-0.008	-0.008	0	%100
33	55	Z	-0.009	-0.009	0	%100
34	56	Z	-0.009	-0.009	0	%100
35	57	Z	-0.004	-0.004	0	%100
36	58	Z	-0.004	-0.004	0	%100
37	59	Z	-0.007	-0.007	0	%100
38	68	Z	-0.006	-0.006	0	%100
39	69	Z	-0.002	-0.002	0	%100
40	72	Z	-0.002	-0.002	0	%100
41	73	Z	-0.002	-0.002	0	%100
42	76	Z	-0.002	-0.002	0	%100
43	78	Z	-0.002	-0.002	0	%100
44	80	Z	-0.002	-0.002	0	%100
45	83	Z	-0.002	-0.002	0	%100
46	84	Z	-0.002	-0.002	0	%100
47	87	Z	-0.002	-0.002	0	%100
48	89	Z	-0.002	-0.002	0	%100
49	92	Z	-0.002	-0.002	0	%100



Company : B+T Group  
 Designer : AK  
 Job Number : 147461.007.01  
 Model Name : 876375 - CANTERBURY LEMIRE

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**Member Distributed Loads (BLC 5 : 90 Wind - Ice)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.005	-0.005	0	%100
2	2	X	-0.004	-0.004	0	%100
3	3	X	-0.004	-0.004	0	%100
4	4	X	-0.008	-0.008	0	%100
5	5	X	-0.008	-0.008	0	%100
6	6	X	-0.002	-0.002	0	%100
7	7	X	-0.009	-0.009	0	%100
8	8	X	-0.009	-0.009	0	%100
9	9	X	-0.004	-0.004	0	%100
10	10	X	-0.004	-0.004	0	%100
11	11	X	-0.007	-0.007	0	%100
12	18	X	-0.002	-0.002	0	%100
13	19	X	-0.002	-0.002	0	%100
14	22	X	-0.002	-0.002	0	%100
15	28	X	-0.002	-0.002	0	%100
16	30	X	-0.006	-0.006	0	%100
17	31	X	-0.005	-0.005	0	%100
18	32	X	-0.004	-0.004	0	%100
19	33	X	-0.004	-0.004	0	%100
20	34	X	-0.008	-0.008	0	%100
21	35	X	-0.008	-0.008	0	%100
22	36	X	-0.009	-0.009	0	%100
23	37	X	-0.009	-0.009	0	%100
24	38	X	-0.004	-0.004	0	%100
25	39	X	-0.004	-0.004	0	%100
26	40	X	-0.007	-0.007	0	%100
27	49	X	-0.006	-0.006	0	%100
28	50	X	-0.005	-0.005	0	%100
29	51	X	-0.004	-0.004	0	%100
30	52	X	-0.004	-0.004	0	%100
31	53	X	-0.008	-0.008	0	%100
32	54	X	-0.008	-0.008	0	%100
33	55	X	-0.009	-0.009	0	%100
34	56	X	-0.009	-0.009	0	%100
35	57	X	-0.004	-0.004	0	%100
36	58	X	-0.004	-0.004	0	%100
37	59	X	-0.007	-0.007	0	%100
38	68	X	-0.006	-0.006	0	%100
39	69	X	-0.002	-0.002	0	%100
40	72	X	-0.002	-0.002	0	%100
41	73	X	-0.002	-0.002	0	%100
42	76	X	-0.002	-0.002	0	%100
43	78	X	-0.002	-0.002	0	%100
44	80	X	-0.002	-0.002	0	%100
45	83	X	-0.002	-0.002	0	%100
46	84	X	-0.002	-0.002	0	%100
47	87	X	-0.002	-0.002	0	%100
48	89	X	-0.002	-0.002	0	%100
49	92	X	-0.002	-0.002	0	%100

**Member Distributed Loads (BLC 6 : 0 Wind - Service)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.001	-0.001	0	%100
2	2	Z	-0.0009	-0.0009	0	%100
3	3	Z	-0.0009	-0.0009	0	%100
4	4	Z	-0.001	-0.001	0	%100
5	5	Z	-0.001	-0.001	0	%100
6	6	Z	-0.0004	-0.0004	0	%100



**Member Distributed Loads (BLC 6 : 0 Wind - Service) (Continued)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
7	7	Z	-0.001	-0.001	0	%100
8	8	Z	-0.001	-0.001	0	%100
9	9	Z	-0.0006	-0.0006	0	%100
10	10	Z	-0.0006	-0.0006	0	%100
11	11	Z	-0.002	-0.002	0	%100
12	18	Z	-0.0003	-0.0003	0	%100
13	19	Z	-0.0003	-0.0003	0	%100
14	22	Z	-0.0003	-0.0003	0	%100
15	28	Z	-0.0003	-0.0003	0	%100
16	30	Z	-0.002	-0.002	0	%100
17	31	Z	-0.001	-0.001	0	%100
18	32	Z	-0.0009	-0.0009	0	%100
19	33	Z	-0.0009	-0.0009	0	%100
20	34	Z	-0.001	-0.001	0	%100
21	35	Z	-0.001	-0.001	0	%100
22	36	Z	-0.001	-0.001	0	%100
23	37	Z	-0.001	-0.001	0	%100
24	38	Z	-0.0006	-0.0006	0	%100
25	39	Z	-0.0006	-0.0006	0	%100
26	40	Z	-0.002	-0.002	0	%100
27	49	Z	-0.002	-0.002	0	%100
28	50	Z	-0.001	-0.001	0	%100
29	51	Z	-0.0009	-0.0009	0	%100
30	52	Z	-0.0009	-0.0009	0	%100
31	53	Z	-0.001	-0.001	0	%100
32	54	Z	-0.001	-0.001	0	%100
33	55	Z	-0.001	-0.001	0	%100
34	56	Z	-0.001	-0.001	0	%100
35	57	Z	-0.0006	-0.0006	0	%100
36	58	Z	-0.0006	-0.0006	0	%100
37	59	Z	-0.002	-0.002	0	%100
38	68	Z	-0.002	-0.002	0	%100
39	69	Z	-0.0004	-0.0004	0	%100
40	72	Z	-0.0003	-0.0003	0	%100
41	73	Z	-0.0003	-0.0003	0	%100
42	76	Z	-0.0003	-0.0003	0	%100
43	78	Z	-0.0003	-0.0003	0	%100
44	80	Z	-0.0004	-0.0004	0	%100
45	83	Z	-0.0003	-0.0003	0	%100
46	84	Z	-0.0003	-0.0003	0	%100
47	87	Z	-0.0003	-0.0003	0	%100
48	89	Z	-0.0003	-0.0003	0	%100
49	92	Z	-0.0003	-0.0003	0	%100

**Member Distributed Loads (BLC 7 : 90 Wind - Service)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.001	-0.001	0	%100
2	2	X	-0.0009	-0.0009	0	%100
3	3	X	-0.0009	-0.0009	0	%100
4	4	X	-0.001	-0.001	0	%100
5	5	X	-0.001	-0.001	0	%100
6	6	X	-0.0004	-0.0004	0	%100
7	7	X	-0.001	-0.001	0	%100
8	8	X	-0.001	-0.001	0	%100
9	9	X	-0.0006	-0.0006	0	%100
10	10	X	-0.0006	-0.0006	0	%100
11	11	X	-0.002	-0.002	0	%100
12	18	X	-0.0003	-0.0003	0	%100



**Member Distributed Loads (BLC 7 : 90 Wind - Service) (Continued)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
13	19	X	-0.0003	-0.0003	0	%100
14	22	X	-0.0003	-0.0003	0	%100
15	28	X	-0.0003	-0.0003	0	%100
16	30	X	-0.002	-0.002	0	%100
17	31	X	-0.001	-0.001	0	%100
18	32	X	-0.0009	-0.0009	0	%100
19	33	X	-0.0009	-0.0009	0	%100
20	34	X	-0.001	-0.001	0	%100
21	35	X	-0.001	-0.001	0	%100
22	36	X	-0.001	-0.001	0	%100
23	37	X	-0.001	-0.001	0	%100
24	38	X	-0.0006	-0.0006	0	%100
25	39	X	-0.0006	-0.0006	0	%100
26	40	X	-0.002	-0.002	0	%100
27	49	X	-0.002	-0.002	0	%100
28	50	X	-0.001	-0.001	0	%100
29	51	X	-0.0009	-0.0009	0	%100
30	52	X	-0.0009	-0.0009	0	%100
31	53	X	-0.001	-0.001	0	%100
32	54	X	-0.001	-0.001	0	%100
33	55	X	-0.001	-0.001	0	%100
34	56	X	-0.001	-0.001	0	%100
35	57	X	-0.0006	-0.0006	0	%100
36	58	X	-0.0006	-0.0006	0	%100
37	59	X	-0.002	-0.002	0	%100
38	68	X	-0.002	-0.002	0	%100
39	69	X	-0.0004	-0.0004	0	%100
40	72	X	-0.0003	-0.0003	0	%100
41	73	X	-0.0003	-0.0003	0	%100
42	76	X	-0.0003	-0.0003	0	%100
43	78	X	-0.0003	-0.0003	0	%100
44	80	X	-0.0004	-0.0004	0	%100
45	83	X	-0.0003	-0.0003	0	%100
46	84	X	-0.0003	-0.0003	0	%100
47	87	X	-0.0003	-0.0003	0	%100
48	89	X	-0.0003	-0.0003	0	%100
49	92	X	-0.0003	-0.0003	0	%100

**Member Distributed Loads (BLC 8 : Ice)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.01	-0.01	0	%100
2	2	Y	-0.007	-0.007	0	%100
3	3	Y	-0.007	-0.007	0	%100
4	4	Y	-0.01	-0.01	0	%100
5	5	Y	-0.01	-0.01	0	%100
6	6	Y	-0.007	-0.007	0	%100
7	7	Y	-0.01	-0.01	0	%100
8	8	Y	-0.01	-0.01	0	%100
9	9	Y	-0.006	-0.006	0	%100
10	10	Y	-0.006	-0.006	0	%100
11	11	Y	-0.013	-0.013	0	%100
12	18	Y	-0.006	-0.006	0	%100
13	19	Y	-0.006	-0.006	0	%100
14	22	Y	-0.006	-0.006	0	%100
15	28	Y	-0.006	-0.006	0	%100
16	30	Y	-0.013	-0.013	0	%100
17	31	Y	-0.01	-0.01	0	%100
18	32	Y	-0.007	-0.007	0	%100



**Member Distributed Loads (BLC 8 : Ice) (Continued)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
19	33	Y	-0.007	-0.007	0	%100
20	34	Y	-0.01	-0.01	0	%100
21	35	Y	-0.01	-0.01	0	%100
22	36	Y	-0.01	-0.01	0	%100
23	37	Y	-0.01	-0.01	0	%100
24	38	Y	-0.006	-0.006	0	%100
25	39	Y	-0.006	-0.006	0	%100
26	40	Y	-0.013	-0.013	0	%100
27	49	Y	-0.013	-0.013	0	%100
28	50	Y	-0.01	-0.01	0	%100
29	51	Y	-0.007	-0.007	0	%100
30	52	Y	-0.007	-0.007	0	%100
31	53	Y	-0.01	-0.01	0	%100
32	54	Y	-0.01	-0.01	0	%100
33	55	Y	-0.01	-0.01	0	%100
34	56	Y	-0.01	-0.01	0	%100
35	57	Y	-0.006	-0.006	0	%100
36	58	Y	-0.006	-0.006	0	%100
37	59	Y	-0.013	-0.013	0	%100
38	68	Y	-0.013	-0.013	0	%100
39	69	Y	-0.007	-0.007	0	%100
40	72	Y	-0.006	-0.006	0	%100
41	73	Y	-0.006	-0.006	0	%100
42	76	Y	-0.006	-0.006	0	%100
43	78	Y	-0.006	-0.006	0	%100
44	80	Y	-0.007	-0.007	0	%100
45	83	Y	-0.006	-0.006	0	%100
46	84	Y	-0.006	-0.006	0	%100
47	87	Y	-0.006	-0.006	0	%100
48	89	Y	-0.006	-0.006	0	%100
49	92	Y	-0.005	-0.005	0	%100

**Member Distributed Loads (BLC 9 : 0 Seismic)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.001	-0.001	0	%100
2	2	Z	-0.0009	-0.0009	0	%100
3	3	Z	-0.0009	-0.0009	0	%100
4	4	Z	-0.002	-0.002	0	%100
5	5	Z	-0.002	-0.002	0	%100
6	6	Z	-0.002	-0.002	0	%100
7	7	Z	-0.002	-0.002	0	%100
8	8	Z	-0.002	-0.002	0	%100
9	9	Z	-0.0007	-0.0007	0	%100
10	10	Z	-0.0007	-0.0007	0	%100
11	11	Z	-0.003	-0.003	0	%100
12	18	Z	-0.001	-0.001	0	%100
13	19	Z	-0.001	-0.001	0	%100
14	22	Z	-0.001	-0.001	0	%100
15	28	Z	-0.001	-0.001	0	%100
16	30	Z	-0.002	-0.002	0	%100
17	31	Z	-0.001	-0.001	0	%100
18	32	Z	-0.0009	-0.0009	0	%100
19	33	Z	-0.0009	-0.0009	0	%100
20	34	Z	-0.002	-0.002	0	%100
21	35	Z	-0.002	-0.002	0	%100
22	36	Z	-0.002	-0.002	0	%100
23	37	Z	-0.002	-0.002	0	%100
24	38	Z	-0.0007	-0.0007	0	%100



Company : B+T Group  
 Designer : AK  
 Job Number : 147461.007.01  
 Model Name : 876375 - CANTERBURY LEMIRE

4/4/2022  
 4:46:57 PM  
 Checked By : \_\_\_\_\_

**Member Distributed Loads (BLC 9 : 0 Seismic) (Continued)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
25	39	Z	-0.0007	-0.0007	0	%100
26	40	Z	-0.003	-0.003	0	%100
27	49	Z	-0.002	-0.002	0	%100
28	50	Z	-0.001	-0.001	0	%100
29	51	Z	-0.0009	-0.0009	0	%100
30	52	Z	-0.0009	-0.0009	0	%100
31	53	Z	-0.002	-0.002	0	%100
32	54	Z	-0.002	-0.002	0	%100
33	55	Z	-0.002	-0.002	0	%100
34	56	Z	-0.002	-0.002	0	%100
35	57	Z	-0.0007	-0.0007	0	%100
36	58	Z	-0.0007	-0.0007	0	%100
37	59	Z	-0.003	-0.003	0	%100
38	68	Z	-0.002	-0.002	0	%100
39	69	Z	-0.002	-0.002	0	%100
40	72	Z	-0.001	-0.001	0	%100
41	73	Z	-0.001	-0.001	0	%100
42	76	Z	-0.001	-0.001	0	%100
43	78	Z	-0.001	-0.001	0	%100
44	80	Z	-0.002	-0.002	0	%100
45	83	Z	-0.001	-0.001	0	%100
46	84	Z	-0.001	-0.001	0	%100
47	87	Z	-0.001	-0.001	0	%100
48	89	Z	-0.001	-0.001	0	%100
49	92	Z	-0.0008	-0.0008	0	%100

**Member Distributed Loads (BLC 10 : 90 Seismic)**

Member	Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.001	-0.001	0	%100
2	2	X	-0.0009	-0.0009	0	%100
3	3	X	-0.0009	-0.0009	0	%100
4	4	X	-0.002	-0.002	0	%100
5	5	X	-0.002	-0.002	0	%100
6	6	X	-0.002	-0.002	0	%100
7	7	X	-0.002	-0.002	0	%100
8	8	X	-0.002	-0.002	0	%100
9	9	X	-0.0007	-0.0007	0	%100
10	10	X	-0.0007	-0.0007	0	%100
11	11	X	-0.003	-0.003	0	%100
12	18	X	-0.001	-0.001	0	%100
13	19	X	-0.001	-0.001	0	%100
14	22	X	-0.001	-0.001	0	%100
15	28	X	-0.001	-0.001	0	%100
16	30	X	-0.002	-0.002	0	%100
17	31	X	-0.001	-0.001	0	%100
18	32	X	-0.0009	-0.0009	0	%100
19	33	X	-0.0009	-0.0009	0	%100
20	34	X	-0.002	-0.002	0	%100
21	35	X	-0.002	-0.002	0	%100
22	36	X	-0.002	-0.002	0	%100
23	37	X	-0.002	-0.002	0	%100
24	38	X	-0.0007	-0.0007	0	%100
25	39	X	-0.0007	-0.0007	0	%100
26	40	X	-0.003	-0.003	0	%100
27	49	X	-0.002	-0.002	0	%100
28	50	X	-0.001	-0.001	0	%100
29	51	X	-0.0009	-0.0009	0	%100
30	52	X	-0.0009	-0.0009	0	%100



**Member Distributed Loads (BLC 10 : 90 Seismic) (Continued)**

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
31	53	X	-0.002	-0.002	0 %100
32	54	X	-0.002	-0.002	0 %100
33	55	X	-0.002	-0.002	0 %100
34	56	X	-0.002	-0.002	0 %100
35	57	X	-0.0007	-0.0007	0 %100
36	58	X	-0.0007	-0.0007	0 %100
37	59	X	-0.003	-0.003	0 %100
38	68	X	-0.002	-0.002	0 %100
39	69	X	-0.002	-0.002	0 %100
40	72	X	-0.001	-0.001	0 %100
41	73	X	-0.001	-0.001	0 %100
42	76	X	-0.001	-0.001	0 %100
43	78	X	-0.001	-0.001	0 %100
44	80	X	-0.002	-0.002	0 %100
45	83	X	-0.001	-0.001	0 %100
46	84	X	-0.001	-0.001	0 %100
47	87	X	-0.001	-0.001	0 %100
48	89	X	-0.001	-0.001	0 %100
49	92	X	-0.0008	-0.0008	0 %100

**Member Distributed Loads (BLC 39 : BLC 1 Transient Area Loads)**

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	9	Y	-0.015	-0.015	0 2.078
2	10	Y	-0.014	-0.02	0.231 1.27
3	10	Y	-0.02	-0.026	1.27 2.309
4	38	Y	-0.014	-0.02	0 2.078
5	39	Y	0.0006164	-0.016	0 1.155
6	39	Y	-0.016	-0.035	1.155 2.309
7	57	Y	-0.035	-0.016	0 1.155
8	57	Y	-0.016	0.0006163	1.155 2.309
9	58	Y	-0.018	-0.016	0.231 2.309

**Member Distributed Loads (BLC 40 : BLC 8 Transient Area Loads)**

Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	9	Y	-0.009	-0.009	0 2.078
2	10	Y	-0.009	-0.012	0.231 1.27
3	10	Y	-0.012	-0.016	1.27 2.309
4	38	Y	-0.008	-0.012	0 2.078
5	39	Y	0.0003698	-0.009	0 1.155
6	39	Y	-0.009	-0.021	1.155 2.309
7	57	Y	-0.021	-0.009	0 1.155
8	57	Y	-0.009	0.0003698	1.155 2.309
9	58	Y	-0.011	-0.009	0.231 2.309

**Member Area Loads (BLC 1 : Dead)**

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	23	22	25	24	Y	Two Way	-0.01
2	73	72	75	74	Y	Two Way	-0.01
3	102	101	104	103	Y	Two Way	-0.01

**Member Area Loads (BLC 8 : Ice)**

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	23	22	25	24	Y	Two Way	-0.006
2	73	72	75	74	Y	Two Way	-0.006
3	102	101	104	103	Y	Two Way	-0.006

**Node Loads and Enforced Displacements (BLC 11 : Live Load a)**

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s <sup>2</sup> /ft, k*s <sup>2</sup> *ft)]
1	30	L	Y	-0.5
2	113	L	Y	-0.5
3	135	L	Y	-0.5

**Node Loads and Enforced Displacements (BLC 12 : Live Load b)**

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s <sup>2</sup> /ft, k*s <sup>2</sup> *ft)]
1	31	L	Y	-0.5
2	114	L	Y	-0.5
3	136	L	Y	-0.5

**Node Loads and Enforced Displacements (BLC 13 : Live Load c)**

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s <sup>2</sup> /ft, k*s <sup>2</sup> *ft)]
1	44	L	Y	-0.5
2	127	L	Y	-0.5
3	149	L	Y	-0.5

**Basic Load Cases**

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
1	Dead	DL	-1		20		3
2	0 Wind - No Ice	WLZ			20	49	
3	90 Wind - No Ice	WLX			20	49	
4	0 Wind - Ice	WLZ			20	49	
5	90 Wind - Ice	WLX			20	49	
6	0 Wind - Service	WLZ			20	49	
7	90 Wind - Service	WLX			20	49	
8	Ice	OL1			20	49	3
9	0 Seismic	ELZ			20	49	
10	90 Seismic	ELX			20	49	
11	Live Load a	LL		3			
12	Live Load b	LL		3			
13	Live Load c	LL		3			
14	Live Load d	LL					
15	Maint LL 1	LL			1		
16	Maint LL 2	LL			1		
17	Maint LL 3	LL			1		
18	Maint LL 4	LL			1		
19	Maint LL 5	LL			1		
20	Maint LL 6	LL			1		
21	Maint LL 7	LL			1		
22	Maint LL 8	LL			1		
23	Maint LL 9	LL			1		
24	Maint LL 10	LL			1		
25	Maint LL 11	LL			1		
26	Maint LL 12	LL			1		
27	Maint LL 13	LL			1		
28	Maint LL 14	LL			1		
29	Maint LL 15	LL			1		
30	Maint LL 16	LL					
31	Maint LL 17	LL					
32	Maint LL 18	LL					
33	Maint LL 19	LL					
34	Maint LL 20	LL					
35	Maint LL 21	LL					
36	Maint LL 22	LL					
37	Maint LL 23	LL					
38	Maint LL 24	LL					
39	BLC 1 Transient Area Loads	None				9	



**Basic Load Cases (Continued)**

BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
40 BLC 8 Transient Area Loads	None				9	

**Load Combinations**

Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1 1.4 Dead	Yes	Y	1	1.4						
2 1.2 D + 1.0 - 0 W	Yes	Y	1	1.2	2	1				
3 1.2 D + 1.0 - 30 W	Yes	Y	1	1.2	2	0.866	3	0.5		
4 1.2 D + 1.0 - 60 W	Yes	Y	1	1.2	3	0.866	2	0.5		
5 1.2 D + 1.0 - 90 W	Yes	Y	1	1.2	3	1				
6 1.2 D + 1.0 - 120 W	Yes	Y	1	1.2	3	0.866	2	-0.5		
7 1.2 D + 1.0 - 150 W	Yes	Y	1	1.2	2	-0.866	3	0.5		
8 1.2 D + 1.0 - 180 W	Yes	Y	1	1.2	2	-1				
9 1.2 D + 1.0 - 210 W	Yes	Y	1	1.2	2	-0.866	3	-0.5		
10 1.2 D + 1.0 - 240 W	Yes	Y	1	1.2	3	-0.866	2	-0.5		
11 1.2 D + 1.0 - 270 W	Yes	Y	1	1.2	3	-1				
12 1.2 D + 1.0 - 300 W	Yes	Y	1	1.2	3	-0.866	2	0.5		
13 1.2 D + 1.0 - 330 W	Yes	Y	1	1.2	2	0.866	3	-0.5		
14 1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
15 1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
16 1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
17 1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
18 1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1
19 1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
20 1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
21 1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
22 1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
23 1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
24 1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
25 1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
26 1.2 D + 1.0 E - 0	Yes	Y	1	1.2	9	1				
27 1.2 D + 1.0 E - 30	Yes	Y	1	1.2	9	0.866	10	0.5		
28 1.2 D + 1.0 E - 60	Yes	Y	1	1.2	10	0.866	9	0.5		
29 1.2 D + 1.0 E - 90	Yes	Y	1	1.2	10	1				
30 1.2 D + 1.0 E - 120	Yes	Y	1	1.2	10	0.866	9	-0.5		
31 1.2 D + 1.0 E - 150	Yes	Y	1	1.2	9	-0.866	10	0.5		
32 1.2 D + 1.0 E - 180	Yes	Y	1	1.2	9	-1				
33 1.2 D + 1.0 E - 210	Yes	Y	1	1.2	9	-0.866	10	-0.5		
34 1.2 D + 1.0 E - 240	Yes	Y	1	1.2	10	-0.866	9	-0.5		
35 1.2 D + 1.0 E - 270	Yes	Y	1	1.2	10	-1				
36 1.2 D + 1.0 E - 300	Yes	Y	1	1.2	10	-0.866	9	0.5		
37 1.2 D + 1.0 E - 330	Yes	Y	1	1.2	9	0.866	10	-0.5		
38 1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
39 1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
40 1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
41 1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5
42 1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
43 1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
44 1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
45 1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
46 1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
47 1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
48 1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
49 1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
50 1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
51 1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
52 1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
53 1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
54 1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5

**Load Combinations (Continued)**

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
55	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
56	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
57	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
58	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
59	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
60	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
61	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
62	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			13	1.5
63	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	13	1.5
64	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	13	1.5
65	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			13	1.5
66	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	13	1.5
67	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	13	1.5
68	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			13	1.5
69	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	13	1.5
70	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	13	1.5
71	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			13	1.5
72	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	13	1.5
73	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	13	1.5
74	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			14	1.5
75	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	14	1.5
76	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	14	1.5
77	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			14	1.5
78	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	14	1.5
79	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	14	1.5
80	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			14	1.5
81	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	14	1.5
82	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	14	1.5
83	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			14	1.5
84	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	14	1.5
85	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	14	1.5
86	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					15	1.5
87	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					16	1.5
88	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					17	1.5
89	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					18	1.5
90	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					19	1.5
91	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					20	1.5
92	1.2 D + 1.5 LL Maint (7)	Yes	Y	1	1.2					21	1.5
93	1.2 D + 1.5 LL Maint (8)	Yes	Y	1	1.2					22	1.5
94	1.2 D + 1.5 LL Maint (9)	Yes	Y	1	1.2					23	1.5
95	1.2 D + 1.5 LL Maint (10)	Yes	Y	1	1.2					24	1.5
96	1.2 D + 1.5 LL Maint (11)	Yes	Y	1	1.2					25	1.5
97	1.2 D + 1.5 LL Maint (12)	Yes	Y	1	1.2					26	1.5
98	1.2 D + 1.5 LL Maint (13)	Yes	Y	1	1.2					27	1.5
99	1.2 D + 1.5 LL Maint (14)	Yes	Y	1	1.2					28	1.5
100	1.2 D + 1.5 LL Maint (15)	Yes	Y	1	1.2					29	1.5
101	1.2 D + 1.5 LL Maint (16)	Yes	Y	1	1.2					30	1.5
102	1.2 D + 1.5 LL Maint (17)	Yes	Y	1	1.2					31	1.5
103	1.2 D + 1.5 LL Maint (18)	Yes	Y	1	1.2					32	1.5
104	1.2 D + 1.5 LL Maint (19)	Yes	Y	1	1.2					33	1.5
105	1.2 D + 1.5 LL Maint (20)	Yes	Y	1	1.2					34	1.5
106	1.2 D + 1.5 LL Maint (21)	Yes	Y	1	1.2					35	1.5
107	1.2 D + 1.5 LL Maint (22)	Yes	Y	1	1.2					36	1.5
108	1.2 D + 1.5 LL Maint (23)	Yes	Y	1	1.2					37	1.5
109	1.2 D + 1.5 LL Maint (24)	Yes	Y	1	1.2					38	1.5



**Envelope Node Reactions**

Node Label	X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC		
1	1	max	1.197	5	1.743	14	1.029	2	3.48	2	1.174	11	0.25	11
2		min	-1.198	11	0.075	8	-1.154	8	-0.378	8	-1.173	5	-0.263	5
3	53	max	1.052	5	1.823	18	1.414	2	0.232	13	1.321	3	0.211	12
4		min	-1.159	11	0.187	12	-1.353	8	-1.82	7	-1.321	9	-2.98	18
5	82	max	1.099	5	1.73	22	1.323	2	0.155	3	1.288	7	2.93	22
6		min	-0.991	11	0.141	4	-1.261	8	-1.771	69	-1.288	13	-0.163	4
7	Totals:	max	3.348	5	4.924	25	3.767	2						
8		min	-3.348	11	2.474	7	-3.767	8						

**Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks**

Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	DirL	Cphi*	Pnc [k]	phi*	Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	1	HSS4X4X2	0.468	0	13	0.106	0	y	39	70.173	73.278	8.24	8.24	2.021	H1-1b
2	2	C3.38x2.06x.188	0.336	2.592	15	0.059	0.351	y	64	35.676	43.394	1.694	4.483	1.631	H1-1b
3	3	C3.38x2.06x.188	0.336	0	25	0.068	2.241	y	45	35.676	43.394	1.694	4.483	1.629	H1-1b
4	4	PL3/8"x6	0.075	0	13	0.135	0	y	62	68.997	72.9	0.57	9.113	2.129	H1-1b
5	5	PL3/8"x6	0.075	0	3	0.133	0	y	38	68.997	72.9	0.57	9.113	2.149	H1-1b
6	6	PIPE 3.5x0.165	0.067	4	52	0.043	3		4	45.872	71.57	6.336	6.336	1.732	H1-1b
7	7	PL3/8"x6	0.117	0.208	3	0.199	0.208	y	61	70.882	72.9	0.57	9.113	2.968	H1-1b
8	8	PL3/8"x6	0.117	0	13	0.198	0	y	51	70.882	72.9	0.57	9.113	2.971	H1-1b
9	9	L2x2x4	0.205	0	8	0.033	2.309	y	48	23.349	30.586	0.691	1.577	1.5	H2-1
10	10	L2x2x4	0.208	2.309	8	0.033	0	y	64	23.349	30.586	0.691	1.577	1.5	H2-1
11	11	L7.63x2.5x6	0.268	1.604	8	0.073	2.873	y	49	75.414	118.523	1.798	13.447	1.179	H2-1
12	18	PIPE 2.88x0.203	0.111	5.667	5	0.039	5.667		5	35.519	70.68	5.029	5.029	3	H1-1b
13	19	PIPE 2.88x0.203	0.103	2.333	10	0.038	5.667		9	35.519	70.68	5.029	5.029	3	H1-1b
14	22	PIPE 2.88x0.203	0.098	7.813	7	0.095	8.75		13	24.131	70.68	5.029	5.029	2.258	H1-1b
15	28	PIPE 2.88x0.203	0.104	2.333	6	0.038	5.667		7	35.519	70.68	5.029	5.029	3	H1-1b
16	30	L6.63x4.33x.25	0.157	0	10	0.019	0	y	11	51.794	86.751	2.311	6.976	1.5	H2-1
17	31	HSS4X4X2	0.484	0	7	0.122	0	z	9	70.173	73.278	8.24	8.24	2.075	H1-1b
18	32	C3.38x2.06x.188	0.335	2.592	19	0.06	0.351	y	69	35.676	43.394	1.694	4.483	1.628	H1-1b
19	33	C3.38x2.06x.188	0.335	0	17	0.068	2.241	y	49	35.676	43.394	1.694	4.483	1.631	H1-1b
20	34	PL3/8"x6	0.068	0	5	0.134	0	y	66	68.997	72.9	0.57	9.113	2.068	H1-1b
21	35	PL3/8"x6	0.073	0	7	0.132	0	y	42	68.997	72.9	0.57	9.113	2.083	H1-1b
22	36	PL3/8"x6	0.119	0.208	7	0.198	0.208	y	53	70.882	72.9	0.57	9.113	2.996	H1-1b
23	37	PL3/8"x6	0.108	0	5	0.2	0	y	55	70.882	72.9	0.57	9.113	2.987	H1-1b
24	38	L2x2x4	0.19	0	12	0.033	2.309	y	39	23.349	30.586	0.691	1.577	1.5	H2-1
25	39	L2x2x4	0.198	2.309	13	0.033	0	y	68	23.349	30.586	0.691	1.577	1.5	H2-1
26	40	L7.63x2.5x6	0.244	1.604	12	0.073	3.207	z	43	75.414	118.523	1.798	13.318	1.154	H2-1
27	49	L6.63x4.33x.25	0.174	0	2	0.021	3.25	y	9	51.794	86.751	2.311	6.976	1.5	H2-1
28	50	HSS4X4X2	0.469	0	9	0.106	0	y	68	70.173	73.278	8.24	8.24	2.028	H1-1b
29	51	C3.38x2.06x.188	0.333	2.592	23	0.059	0.351	y	73	35.676	43.394	1.694	4.483	1.631	H1-1b
30	52	C3.38x2.06x.188	0.336	0	21	0.068	2.241	y	42	35.676	43.394	1.694	4.483	1.628	H1-1b
31	53	PL3/8"x6	0.074	0	9	0.132	0	y	70	68.997	72.9	0.57	9.113	2.089	H1-1b
32	54	PL3/8"x6	0.068	0	11	0.134	0	y	46	68.997	72.9	0.57	9.113	2.074	H1-1b
33	55	PL3/8"x6	0.108	0.208	11	0.2	0.208	y	57	70.882	72.9	0.57	9.113	2.981	H1-1b
34	56	PL3/8"x6	0.119	0	9	0.198	0	y	59	70.882	72.9	0.57	9.113	2.99	H1-1b
35	57	L2x2x4	0.199	0	3	0.032	2.309	y	44	23.349	30.586	0.691	1.577	1.5	H2-1
36	58	L2x2x4	0.19	2.309	4	0.033	0	y	73	23.349	30.586	0.691	1.577	1.5	H2-1
37	59	L7.63x2.5x6	0.245	1.604	4	0.073	0	z	70	75.414	118.523	1.798	13.333	1.157	H2-1
38	68	L6.63x4.33x.25	0.175	3.25	2	0.021	3.25	y	13	51.794	86.751	2.311	6.976	1.5	H2-1
39	69	PIPE 3.5x0.165	0.067	4	52	0.048	3		9	45.872	71.57	6.336	6.336	1.737	H1-1b
40	72	PIPE 2.88x0.203	0.12	5.667	9	0.042	5.667		3	35.519	70.68	5.029	5.029	2.77	H1-1b
41	73	PIPE 2.88x0.203	0.114	2.333	2	0.036	5.667		13	35.519	70.68	5.029	5.029	3	H1-1b
42	76	PIPE 2.88x0.203	0.097	2.188	13	0.091	1.25		7	24.131	70.68	5.029	5.029	2.082	H1-1b
43	78	PIPE 2.88x0.203	0.102	2.333	10	0.032	5.667		12	35.519	70.68	5.029	5.029	3	H1-1b
44	80	PIPE 3.5x0.165	0.067	4	56	0.048	5		7	45.872	71.57	6.336	6.336	1.735	H1-1b
45	83	PIPE 2.88x0.203	0.121	5.667	7	0.042	5.667		7	35.519	70.68	5.029	5.029	2.777	H1-1b
46	84	PIPE 2.88x0.203	0.102	2.333	6	0.032	5.667		4	35.519	70.68	5.029	5.029	3	H1-1b
47	87	PIPE 2.88x0.203	0.097	7.813	3	0.09	8.75		9	24.131	70.68	5.029	5.029	2.082	H1-1b



Company : B+T Group  
 Designer : AK  
 Job Number : 147461.007.01  
 Model Name : 876375 - CANTERBURY LEMIRE

4/4/2022  
 4:46:57 PM  
 Checked By : \_\_\_\_\_

**Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)**

Member	Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
48	89	PIPE_2.88x0.203	0.113	2.333	2	0.036	5.667	3	35.519	70.68	5.029	5.029	3	H1-1b		
49	92	PIPE_2.0	0.073	2.5	8	0.009	2.5	8	28.843	32.13	1.872	1.872	1.471	H1-1b		

**APPENDIX D**  
**ADDITIONAL CALCULATIONS**

PROJECT	<b>147461.001.01 - CANTERBURY / LEMI KSC</b>		
SUBJECT	<b>Platform Mount Analysis</b>		
DATE	<b>04/05/22</b>	PAGE	1 OF 1

[REF: AISC 360-05]

### Reactions at Bolted Connection

Tension	:	1.029	k
Vertical Shear	:	1.743	k
Horizontal Shear	:	1.197	k
Torsion	:	0.25	k.ft
Moment from Horizontal Forces	:	1.174	k.ft
Moment from Vertical Forces	:	3.48	k.ft

### Bolt Parameters

Bolt Grade	:	A325	
Bolt Diameter	:	0.625	in
Nominal Bolt Area	:	0.307	in <sup>2</sup>
Bolt spacing, Horizontal	:	6	in
Bolt spacing, Vertical	:	6	in
Bolt edge distance, plate height	:	1.5	in
Bolt edge distance, plate width	:	1.5	in
Total Number of Bolts	:	4	bolts

### Summary of Forces

Shear Resultant Force	:	2.11	k
Force from Horz. Moment	:	2.13	k
Force from Vert. Moment	:	6.30	k
Shear Load / Bolt	:	0.53	k
Tension Load / Bolt	:	0.26	k
Resultant from Moments / Bolt	:	3.33	k

### Bolt Checks

Nominal Tensile Stress, $F_{nt}$	:	90.00	ksi	[AISC Table J3.2]
Available Tensile Stress, $\Phi R_{nt}$	:	20.72	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	<b>17.29%</b>		<b>OKAY</b>
Nominal Shear Stress, $F_{nv}$	:	48.00	ksi	[AISC Table J3.2]
Available Shear Stress, $\Phi R_{nv}$	:	11.05	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	<b>7.11%</b>		<b>OKAY</b>
Unity Check, Combined	:	<b>24.40%</b>		<b>OKAY</b>
Available Bearing Strength, $\Phi R_n$	:	34.66	k/bolt	
Unity Check, Bolt Bearing	:	<b>1.52%</b>		<b>OKAY</b>



# 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: 876375

BOBOS00037A

53 Westminster Road  
Canterbury, Connecticut 06331

**May 19, 2022**

**EBI Project Number: 6222003233**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>15.29%</b>

May 19, 2022

Attn: Dish Wireless

Emissions Analysis for Site: 876375 - BOBOS00037A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **53 Westminster Road in Canterbury, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

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

Additional details can be found in FCC OET 65.

## **CALCULATIONS**

Calculations were done for the proposed Dish Wireless Wireless antenna facility located at 53 Westminster Road in Canterbury, 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) 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.
- 4) 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.

- 5) The antennas used in this modeling are the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz channel(s) in Sector A, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz channel(s) in Sector B, the JMA MX08FRO665-21 for the 600 MHz / 1900 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.
- 6) The antenna mounting height centerline of the proposed antennas is 141 feet above ground level (AGL).
- 7) 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.
- 8) All calculations were done with respect to uncontrolled / general population threshold limits.

## Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21
Frequency Bands:	600 MHz / 1900 MHz	Frequency Bands:	600 MHz / 1900 MHz	Frequency Bands:	600 MHz / 1900 MHz
Gain:	11.35 dBd / 15.75 dBd	Gain:	11.35 dBd / 15.75 dBd	Gain:	11.35 dBd / 15.75 dBd
Height (AGL):	141 feet	Height (AGL):	141 feet	Height (AGL):	141 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	280.00 Watts	Total TX Power (W):	280.00 Watts	Total TX Power (W):	280.00 Watts
ERP (W):	1,424.17	ERP (W):	1,424.17	ERP (W):	1,424.17
Antenna AI MPE %:	<b>0.41%</b>	Antenna BI MPE %:	<b>0.41%</b>	Antenna CI MPE %:	<b>0.41%</b>

Site Composite MPE %	
Carrier	MPE %
Dish Wireless (Max at Sector A):	0.41%
T-Mobile	6.88%
Verizon	6.52%
AT&T	1.48%
<b>Site Total MPE % :</b>	<b>15.29%</b>

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	0.41%
Dish Wireless Sector B Total:	0.41%
Dish Wireless Sector C Total:	0.41%
Site Total MPE % :	15.29%

Dish Wireless Maximum MPE Power Values (Sector A)							
Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
Dish Wireless 600 MHz n71	4	110.82	141.0	0.87	600 MHz n71	400	0.22%
Dish Wireless 1900 MHz n70	4	245.22	141.0	1.93	1900 MHz n70	1000	0.19%
						<b>Total:</b>	<b>0.41%</b>

• 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:	0.41%
Sector B:	0.41%
Sector C:	0.41%
Dish Wireless Maximum MPE % (Sector A):	0.41%
Site Total:	15.29%
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **15.29%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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



# Exhibit G

## **Letter of Authorization**



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

Phone: (585) 445-5896  
Fax: (724) 416-4461  
www.crowncastle.com

## **Crown Castle Letter of Authorization**

### **CT - CONNECTICUT SITING COUNCIL**

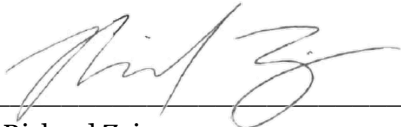
Melanie A. Bachman  
Executive Director  
Connecticut Siting Council  
10 Franklin Square  
New Britain, CT 06051

**Re: Tower Share Application**  
**Crown Castle telecommunications site at:**  
**53 WESTMINSTER RD., CANTERBURY, CT 06331**

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


**Crown Site ID/Name: 876375/CANTERBURY / LEMIRE**  
**Customer Site ID: BOBOS00037A/CT-CCI-T-876375**  
**Site Address: 53 Westminster Rd., Canterbury, CT 06331**

Crown Castle

By:  \_\_\_\_\_ Date: 5/24/2022  
Richard Zajac  
Site Acquisition Specialist

# Exhibit H

## Recipient Mailings



**UNITED STATES  
POSTAL SERVICE®**

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**P**

USPS.com  
**US POSTAGE**  
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Click-N-Ship®

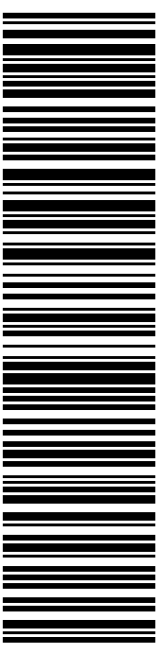
05/25/2022 Mailed from 01566

**PRIORITY MAIL 2-DAY™**

Expected Delivery Date: 05/28/22  
 Ref#: DS-876375  
**0006**

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

**USPS TRACKING #**



**9405 5036 9930 0258 4255 55**

Electronic Rate Approved #038555749



Cut on dotted line.

## Instructions

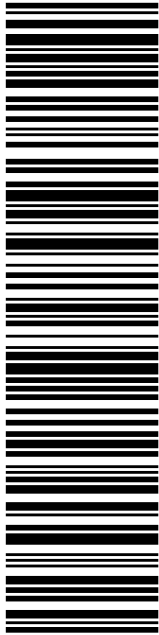
- Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.
- Place your label so it does not wrap around the edge of the package.
- Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT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

## Click-N-Ship® Label Record

<b>USPS TRACKING # :</b>	
<b>9405 5036 9930 0258 4255 55</b>	
Trans. #:	564320025
Print Date:	05/25/2022
Ship Date:	05/25/2022
Expected Delivery Date:	05/28/2022
Priority Mail® Postage:	<b>\$8.95</b>
Total:	<b>\$8.95</b>
<b>From:</b>	DEBORAH CHASE NORTHEAST SITE SOLUTIONS 420 MAIN ST STE 1 STURBRIDGE MA 01566-1359
<b>To:</b>	RICH ZAJAC CROWN CASTLE 4545 E RIVER RD STE 320 W HENRIETTA NY 14586-9024
	Ref#: DS-876375
* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.	



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



**USPS TRACKING #**

**9405 5036 9930 0258 4255 62**

Electronic Rate Approved #038555749

**SHIP TO:** CHRISTOPHER LIPPKE  
FIRST SELECTMAN  
1 MUNICIPAL DR  
CANTERBURY CT 06331-1453

**P**

05/25/2022 Mailed from 01566

**USPS TRACKING #**

**USPS POSTAGE PAID**


usps.com 9405 5036 9930 0258 4255 62 0089 5000 0010 6331  
**US POSTAGE**  
 Flat Rate Env

**PRIORITY MAIL 2-DAY™**

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

Expected Delivery Date: 05/28/22  
Ref#: DS-876375  
**0006**

**R004**



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### Click-N-Ship® Label Record

**USPS TRACKING # :**  
**9405 5036 9930 0258 4255 62**

Trans. #: 564320025	Priority Mail® Postage: <b>\$8.95</b>
Print Date: 05/25/2022	Total: <b>\$8.95</b>
Ship Date: 05/25/2022	
Expected Delivery Date: 05/28/2022	

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


Ref#: DS-876375

**To:** CHRISTOPHER LIPPKE  
FIRST SELECTMAN  
1 MUNICIPAL DR  
CANTERBURY CT 06331-1453

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



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 Click-N-Ship®

05/25/2022 Mailed from 01566

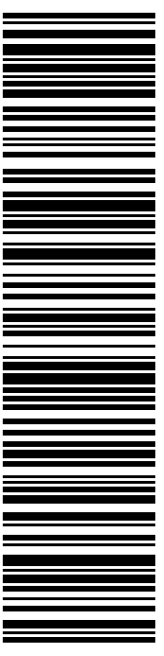
**PRIORITY MAIL 2-DAY™**

Expected Delivery Date: 05/28/22  
 Ref#: DS-876375  
**0006**

**R004**

SHIP TO: MELISSA GILL  
 ZONING ENFORCEMENT OFFICER  
 1 MUNICIPAL DR  
 CANTERBURY CT 06331-1453

**USPS TRACKING #**



**9405 5036 9930 0258 4255 79**

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### Click-N-Ship® Label Record

**USPS TRACKING # :**  
**9405 5036 9930 0258 4255 79**

Trans. #: 564320025	Priority Mail® Postage: <b>\$8.95</b>
Print Date: 05/25/2022	Total: <b>\$8.95</b>
Ship Date: 05/25/2022	
Expected Delivery Date: 05/28/2022	

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


Ref#: DS-876375

**To:** MELISSA GILL  
 ZONING ENFORCEMENT OFFICER  
 1 MUNICIPAL DR  
 CANTERBURY CT 06331-1453

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USPS.com 9405 5036 9930 0258 4255 86 0089 5000 0010 6360  
**US POSTAGE**  
 Flat Rate Env  
**U.S. POSTAGE PAID**  
Click-N-Ship®

05/25/2022 Mailed from 01566

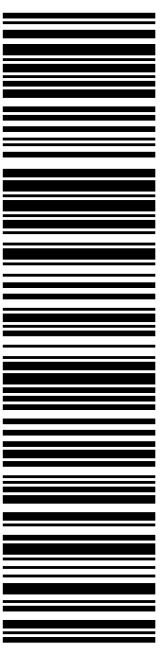
**PRIORITY MAIL 2-DAY™**

Expected Delivery Date: 05/28/22  
 Ref#: DS-876375  
**0006**

**R004**

SHIP TO:  
 JOHN LEMIRE  
 14 DEBBIE CT  
 NORWICH CT 06360-1652

**USPS TRACKING #**



**9405 5036 9930 0258 4255 86**

Electronic Rate Approved #038555749



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## Click-N-Ship® Label Record

<b>USPS TRACKING # :</b>	
<b>9405 5036 9930 0258 4255 86</b>	
Trans. #:	564320025
Print Date:	05/25/2022
Ship Date:	05/25/2022
Expected Delivery Date:	05/28/2022
Priority Mail® Postage:	<b>\$8.95</b>
Total:	<b>\$8.95</b>
<b>From:</b>	DEBORAH CHASE NORTHEAST SITE SOLUTIONS 420 MAIN ST STE 1 STURBRIDGE MA 01566-1359
<b>To:</b>	JOHN LEMIRE 14 DEBBIE CT NORWICH CT 06360-1652
	Ref#: DS-876375
* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.	



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876315  
Crown DSL



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

05/27/2022 03:33 PM

Product	Qty	Unit Price	Price
Prepaid Mail West Henrietta, NY 14586 Weight: 0 lb 2.00 oz Acceptance Date: Fri 05/27/2022 Tracking #: 9405 5036 9930 0258 4255 55	1		\$0.00
Prepaid Mail Canterbury, CT 06331 Weight: 0 lb 8.70 oz Acceptance Date: Fri 05/27/2022 Tracking #: 9405 5036 9930 0258 4255 62	1		\$0.00
Prepaid Mail Norwich, CT 06360 Weight: 0 lb 8.60 oz Acceptance Date: Fri 05/27/2022 Tracking #: 9405 5036 9930 0258 4255 86	1		\$0.00
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Grand Total:			\$0.00

\*\*\*\*\*  
Every household in the U.S. is now  
eligible to receive a third set  
of 8 free test kits.  
Go to [www.covidtests.gov](http://www.covidtests.gov)  
\*\*\*\*\*

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Track your Packages  
Sign up for FREE @  
<https://informedelivery.usps.com>

All sales final on stamps and postage.  
Refunds for guaranteed services only.  
Thank you for your business.

Tell us about your experience.  
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or scan this code with your mobile device,

