June 21, 2021

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

RE: **Request of DISH Wireless LLC for an Order to Approve the Shared Use of an Existing Tower**
782 Old Clinton Road, Westbrook, CT
Latitude: 41° 17' 25.7" / Longitude: -72° 28' 7.9"

Dear Ms. Bachman:

Pursuant to Connecticut General Statutes ("C.G.S.") §16-50aa, as amended, DISH Wireless LLC ("DISH") hereby requests an order from the Connecticut Siting Council ("Council") to approve the shared use by DISH of an existing telecommunication tower at 782 Old Clinton Road in Westbrook (the "Property"). The existing 160-foot monopole tower is owned by Crown Castle International Corp. ("Crown Castle"). The underlying property is owned by Richard and Catherine Wade. DISH requests that the Council find that the proposed shared use of the Crown Castle tower satisfies the criteria of C.G.S. §16-50aa and issue an order approving the proposed shared use. This modification/proposal includes hardware that is both 4G(LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times. A copy of this filing is being sent to The First Selectman of Westbrook, Noel Bishop, as well as the Planning and Zoning Coordinator, Eric Knapp. A copy of this letter will also be sent to the property owners, Richard and Catherine Wade.

Background

The existing Crown Castle facility consists of a 160-foot monopole tower within a 2500 square foot leased area. Sprint/T-Mobile currently maintains antennas at the 160, 154, and 145-foot levels, Verizon currently maintains antennas at the 116-foot level, and AT&T currently maintains antennas at the 96-foot level. Sprint/T-Mobile equipment is located both south and southwest of the tower, Verizon equipment is located west of the tower, and AT&T's equipment is located northeast of the tower.

DISH is licensed by the Federal Communications Commission ("FCC") to provide wireless services throughout the State of Connecticut. DISH and Crown Castle have agreed to the proposed shared use of the 782 Old Clinton Road tower pursuant to mutually acceptable terms and conditions. Likewise, DISH and Crown Castle have agreed to the proposed installation of equipment cabinets on the ground on the southwest side of the tower within the existing compound. Crown Castle has authorized DISH to apply for all necessary permits and approvals that may be required to share the existing tower.

DISH proposes to install three (3) antennas, six (6) RRUs, one (1) antenna platform, and one (1) hybrid cable. In addition, DISH will install a ground equipment cabinet on a 5'x7' equipment platform. Included in the Construction Drawings are DISH's project specifications for locations of all proposed site improvements. The Construction Drawings also contain specifications for DISH's proposed antennas and ground work.

C.G.S. § 16-50aa(c)(1) provides that, upon written request for approval of a proposed shared use, "if the Council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such a shared use." DISH respectfully submits that the shared use of the tower satisfies these criteria.

A. Technical Feasibility. The existing Crown Castle tower is structurally capable of supporting DISH's proposed improvements. The proposed shared use of this tower is, therefore, technically feasible. A Feasibility Structural Analysis Report ("Structural Report") prepared for this project confirms that this tower can support DISH's proposed loading. A copy of the Structural Report has been included in this application.

B. Legal Feasibility. Under C.G.S. § 16-50aa, the Council has been authorized to issue order approving the shared use of an existing tower such as the Crown Castle tower. This authority complements the Council's prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. In addition, § 16-50x(a) directs the Council to "give such consideration to the other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing tower facilities. Under the statutory authority vested in the Council, an order by the Council approving the requested shared use would permit the Applicant to obtain a building permit for the proposed installations.

C. Environmental Feasibility. The proposed shared use of the Crown Castle tower would have a minimal environmental effect for the following reasons:

1. The proposed installation will have no visual impact on the area of the tower. DISH's equipment cabinet would be installed within the existing facility compound. DISH's shared use of this tower therefore will not cause any significant change or alteration in the physical or environmental characteristics of the existing site.

2. Operation of DISH's antennas at this site would not exceed the RF emissions standard adopted by the Federal Communications Commission ("FCC"). Included in the EME report of this filing are the approximation tables that demonstrate that DISH's proposed facility will operate well within the FCC RF emissions safety standards.

3. Under ordinary operating conditions, the proposed installation would not require the use of any water or sanitary facilities and would not generate air emissions or discharges to water bodies or sanitary facilities. After construction is complete the

proposed installations would not generate any increased traffic to the Crown Castle facility other than periodic maintenance. The proposed shared use of the Crown Castle tower, would, therefore, have a minimal environmental effect, and is environmentally feasible.

D. **Economic Feasibility.** As previously mentioned, DISH has entered into an agreement with Crown Castle for the shared use of the existing facility subject to mutually agreeable terms. The proposed tower sharing is, therefore, economically feasible.

E. **Public Safety Concerns.** As discussed above, the tower is structurally capable of supporting DISH's full array of three (3) antennas, six (6) RRUs, one (1) antenna platform, one (1) hybrid cable and all related equipment. DISH is not aware of any public safety concerns relative to the proposed sharing of the existing Crown Castle tower

Conclusion

For the reasons discussed above, the proposed shared use of the existing Crown Castle tower at 782 Old Clinton Road satisfies the criteria stated in C.G.S. §16-50aa and advances the General Assembly's and the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. The Applicant, therefore, respectfully requests that the Council issue an order approving the prosed shared use.

Sincerely,

Richard Zajac
Site Acquisition Specialist
4545 East River Road, Suite 320
West Henrietta, NY 14586
(585) 445-5896
richard.zajac@crowncastle.com

CC:

Noel Bishop – First Selectman *(via email only to nbishop@westbrookct.us)*
Town of Westbrook
866 Boston Post Road
Westbrook, CT 06498
860-399-3041

Eric Knapp – Planning, Zoning, and Development Coordinator *(via email only to eknapp@westbrookct.us)*
Town of Westbrook
866 Boston Post Road
Westbrook, CT 06498
860-399-3041

Richard & Catherine Wade
782 Old Clinton Road
Westbrook, CT 06498
860-399-2582

Zajac, Richard

From: Zajac, Richard
Sent: Monday, June 21, 2021 2:01 PM
To: nbishop@westbrookct.us
Subject: Connecticut Siting Council Shared Use application notification
Attachments: CSC Shared Use Application - 782 Old Clinton Road.pdf

Good afternoon,
Please see the attached application to the Connecticut Siting Council regarding antenna work on the existing cell tower located at 782 Old Clinton Road in Westbrook.

Should you have any questions/comments/concerns regarding this application, please do not hesitate to contact me.

Thank you,
RICH ZAJAC
Site Acquisition Specialist
T: (585) 445-5896 M: (607) 346-7212
F: (724) 416-4461
CROWN CASTLE
4545 East River Road, Suite 320
West Henrietta, NY 14586

Zajac, Richard

From: Zajac, Richard
Sent: Monday, June 21, 2021 2:02 PM
To: eknapp@westbrookct.us
Subject: Connecticut Siting Council Shared Use application notification
Attachments: CSC Shared Use Application - 782 Old Clinton Road.pdf

Good afternoon,
Please see the attached application to the Connecticut Siting Council regarding antenna work on the existing cell tower located at 782 Old Clinton Road in Westbrook.

Should you have any questions/comments/concerns regarding this application, please do not hesitate to contact me.

Thank you,
RICH ZAJAC
Site Acquisition Specialist
T: (585) 445-5896 M: (607) 346-7212
F: (724) 416-4461
CROWN CASTLE
4545 East River Road, Suite 320
West Henrietta, NY 14586

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

3 Corporate Dr, Suite 101
Clifton Park, NY 12065

Phone: (201) 236-9224
Fax: (724) 416-6112
www.crowncastle.com

Crown Castle Letter of Authorization

CT - CONNECTICUT SITING COUNCIL

Re: Tower Share Application
Crown Castle telecommunications site at: 782 Old Clinton Road, WESTBROOK, CT 06498-1767

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: 876339/POND MEADOW RD. STABLE
Customer Site ID: BOBDL00089A/CT-CCI-T-876339
Site Address: 782 Old Clinton Road, WESTBROOK, CT 06498-1767

Crown Castle USA Inc.

By: _____ Date: 5/13/21

Anne Marie Zsamba
Project Manager – Site Acquisition

Exhibit A

Original Facility Approval

Petition No. 511
Sprint Sites USA
Westbrook, Connecticut
Staff Report
July 11, 2001

On May 24, 2000, Connecticut Siting Council (Council) member William H. Smith and Council Staff Paul M. Aresta met representatives for Sprint Sites USA (SSUSA) and Julie Cashin for an inspection of an existing 160-foot tall monopole tower located at 782 Old Clinton Road, in Westbrook, Connecticut. SSUSA seeks a declaratory ruling that the proposed expansion of the existing compound, modification of the existing access road, co-location of three addition telecommunications carriers, and reinforcement of the existing tower would not have a substantial adverse environmental effect, and that no Certificate of Environmental Compatibility and Public Need (Certificate) would be required.

The existing 160-foot tall monopole tower was approved by the Town of Westbrook on May 26, 1998. The Council approved the shared use of this tower by Omnipoint Communication at a centerline height of 145 feet above ground level (AGL) on June 16, 1999, and Nextel Communication at a centerline height of 130 feet AGL on September 16, 1999. SSUSA contends that the existing tower currently supports antennas for Sprint at the 160 feet AGL, Voicestream's (formerly Omnipoint) at 142.5 AGL, and Nextel at 150 feet AGL. SSUSA request that the Council amend the previous approvals to acknowledge the existing antennas at their current heights.

AT&T Wireless Services (AT&T) proposes to place up to twelve panel antennas on a platform at the 130-foot level; Verizon proposes to place up to fifteen panel antennas on a platform at the 120-foot level; and Springwich Cellular proposes to place up to twelve panel antennas on a platform at the 110-foot level of the existing tower.

The existing tower and foundation would require reinforcing to support all of the proposed equipment. SSUSA has included two proposals to reinforce the existing structure. SSUSA would either construct a structural support consisting of three approximately 125-feet tall columns with eleven cross-braces around the existing monopole structure. The proposed columns would each be constructed of eight-inch diameter pipe filled with post-tensioned concrete. Alternately, SSUSA could install a collar type reinforcement around the existing monopole tower up to 109 feet AGL. The collar would be bolted together around the existing tower. The reinforcement would involve removing the antennas below the 110-foot height on the tower; installing 20-foot deep rock anchors through the existing foundation at each corner; installing the steel sleeve; and reinstalling the existing antennas. The exterior finish on the collar reinforcement would be galvanized steel.

SSUSA proposes to expand the existing fenced compound from 34 feet by 28 feet to 50 feet by 90 feet to accommodate three 12-foot by 20-foot telecommunications equipment buildings. The existing fence would be removed and a new approximately six-foot tall chain link fence with three strands of barbed wire would be constructed around the expanded compound. All vegetation within the existing compound would be removed. Evergreen landscaping would be installed around the perimeter of the expanded site compound and approximately six eight-foot white pines would be installed approximately 35 feet southwest of the expanded site compound. A vehicle turnaround would be constructed on the west side of the expanded compound, and a portion of the existing ten-foot wide gravel access road would be re-routed, at the request of the landowner. Utilities are available within the existing site compound. Verizon would install a 40-kW emergency diesel generator.

The worst case power density for the existing and proposed telecommunications operations at the site would be approximately 79 percent of the applicable ANSI standard at the base of the tower. SSUSA contends that the proposed expansion of the compound, tower reinforcement, and addition of the three telecommunications entities would not cause a significant change to the physical or environmental characteristics of this site.

Exhibit B

Property Card

782 OLD CLINTON RD

Location	782 OLD CLINTON RD	**Mblu**	169/ / 018/ /
Acct#	E0110900	**Owner**	WADE CATHERINE A
Assessment	$494,700	**Appraisal**	$717,730
PID	1175	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$602,990	$114,740	$717,730

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$420,390	$74,310	$494,700

Owner of Record

Owner	WADE CATHERINE A	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	782 OLD CLINTON RD WESTBROOK, CT 06498	**Book & Page**	162/83
		Sale Date	02/03/1994
		Instrument	25

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
WADE CATHERINE A	$0		162/83	25	02/03/1994

Building Information

Building 1 : Section 1

Year Built:	1946
Living Area:	3,142
Replacement Cost:	$281,163
Building Percent Good:	58
Replacement Cost Less Depreciation:	$163,070

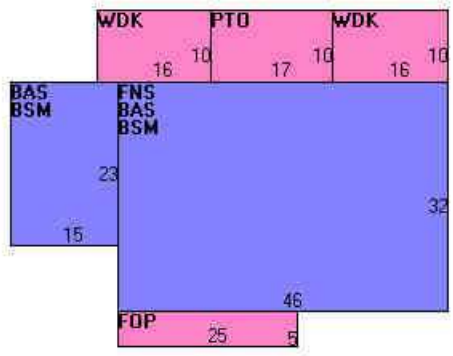
Building Attributes

Field	Description
Style	Colonial
Model	Residential
Grade:	C+
Stories	1.9
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure	Gambrel
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	7
Full Bthrms:	3
Half Baths:	0
Extra Fixtures	3
Total Rooms:	10
Bath Style:	Modern
Kitchen Style:	Average
Extra Kitchens	0
Fireplace(s)	1
Gas Fireplace(s)	0
Stacks	1
Bsmt Garage(s)	0
Callback	
Fireplaces	
Fin Bsmnt	0.00
Fin Bsmnt Qual	
Bsmt Heat	
Int Vs Ext	Same
Fndtn Cndtn	
Basement	

Building Photo

(http://images.vgsi.com/photos2/WestbrookCTPhotos//\00\00\50\97.jpg)

Building Layout



(http://images.vgsi.com/photos2/WestbrookCTPhotos//Sketches/1175_117

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	1,817	1,817
FNS	Finished 90% Story	1,472	1,325
BSM	Basement	1,817	0
FOP	Open Porch	125	0
PTO	Patio	170	0
WDK	Deck	320	0
		5,721	3,142

Extra Features

Extra Features	Legend

No Data for Extra Features

Land

Land Use

Use Code	101
Description	Res Dwelling
Zone	RR
Neighborhood	0045
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	5
Depth	
Assessed Value	$74,310
Appraised Value	$114,740

Special Land			
Land Use Code	**Land Use Description**	**Units**	**Unit Type**
712	490 Tillable C	2	AC

Outbuildings

Outbuildings							Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**	**Comment**
FGR1	Garage			868.00 S.F.	$10,850	1	
TCB	Telecomm Bldg			216.00 UNITS	$59,400	1	
TCS	Telecomm Site			700.00 UNITS	$269,500	1	
SHD1	Shed			180.00 S.F.	$1,800	1	
BRN1	1 Story Barn			360.00 S.F.	$5,400	1	
STB	Stable			310.00 S.F.	$6,980	1	
LNT	Lean To			264.00 S.F.	$660	1	
SHD1	Shed			140.00 S.F.	$1,400	1	
GAZ	Gazebo			77.00 S.F.	$770	1	
TCM	Telecomm			100.00 S.F.&HGT	$2,450	1	
TCM	Telecomm			1.00 S.F.&HGT	$10,000	1	
TCM	Telecomm			3.00 S.F.&HGT	$10,000	1	
TCM	Telecomm			1.00 S.F.&HGT	$10,000	1	
TCM	Telecomm			1.00 S.F.&HGT	$10,000	1	
TCM	Telecomm			1.00 S.F.&HGT	$10,000	1	
TCM	Telecomm			0.00 S.F.&HGT	$10,710	1	
TCM	Telecomm			0.00 S.F.&HGT	$20,000	1	

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$582,990	$114,740	$697,730
2018	$587,600	$114,740	$702,340

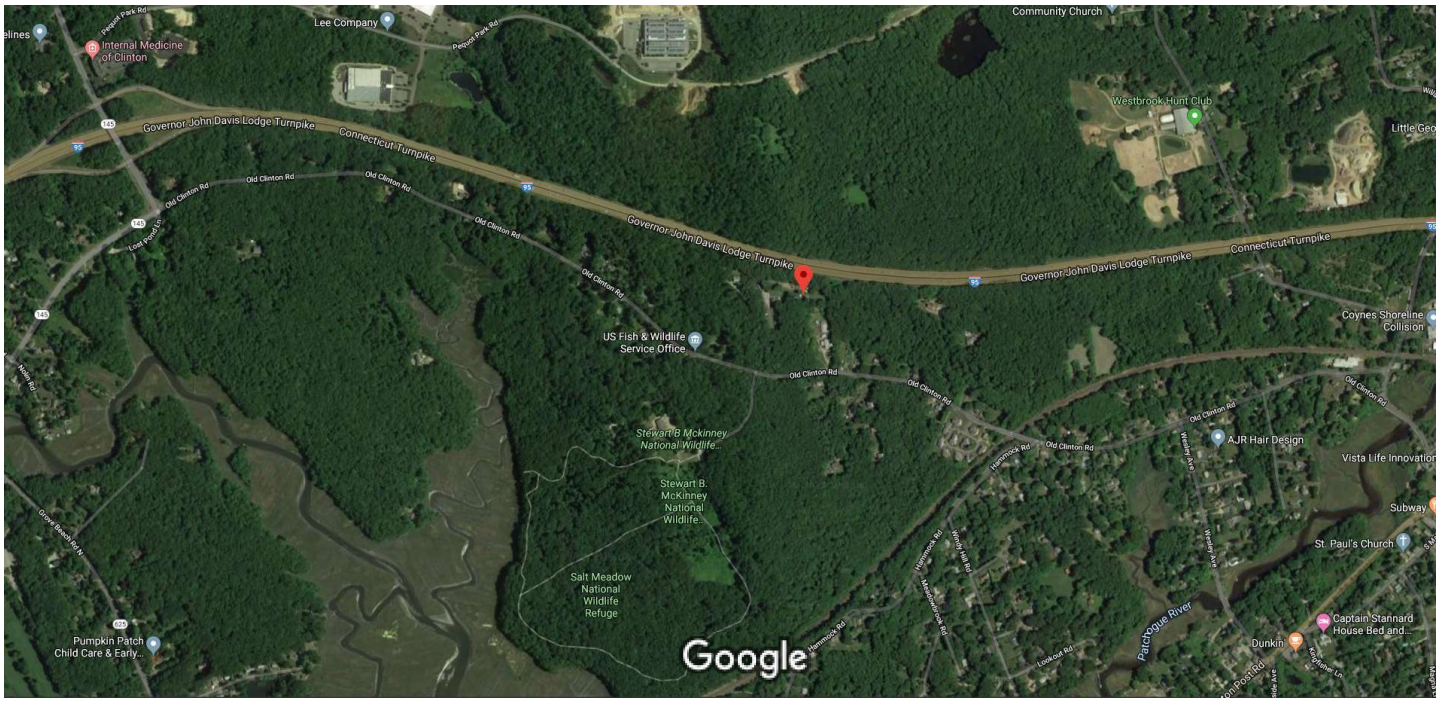
2017	$566,890	$114,740	$681,630

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$413,390	$74,310	$487,700
2018	$416,620	$74,310	$490,930
2017	$402,120	$74,310	$476,430

Google Maps

41°17'25.7"N 72°28'07.9"W

Crown Castle - tower location



Imagery ©2019 Maxar Technologies, New York GIS, U.S. Geological Survey, USDA Farm Service Agency, Map data ©2019 500 ft

41°17'25.7"N 72°28'07.9"W

41.290472, -72.468861

Directions | Save | Nearby | Send to your phone | Share

Westbrook School District, Westbrook, CT 06498

7GRJ+5F Westbrook, Connecticut

Exhibit C

Construction Drawings

DISH WIRELESS, LLC. SITE ID:

BOBDL00089A

DISH WIRELESS, LLC. SITE ADDRESS:

782 OLD CLINTON ROAD
WESTBROOK, CT 06498-1767

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

SCOPE OF WORK

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

TOWER SCOPE OF WORK:
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALL (1) PROPOSED PLATFORM
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
- INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
- INSTALL (1) PROPOSED HYBRID CABLE

GROUND SCOPE OF WORK:
- INSTALL (1) PROPOSED METAL PLATFORM
- INSTALL (1) PROPOSED ICE BRIDGE
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED SAFETY SWITCH (IF REQUIRED)
- INSTALL (1) PROPOSED CIENA BOX (IF REQUIRED)
- INSTALL (1) EXISTING METER SOCKET ON EXISTING H-FRAME TO BE UTILIZED

SITE PHOTO

UNDERGROUND SERVICE ALERT CBYD 811
UTILITY NOTIFICATION CENTER OF CONNECTICUT
(800) 922-4455
WWW.CBYD.COM

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

811

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE. NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

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

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

SITE INFORMATION

PROPERTY OWNER:	CATHERINE & RICHARD WADE (1)
ADDRESS:	TBD
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	876339
TOWER APP NUMBER:	553290
COUNTY:	MIDDLESEX
LATITUDE (NAD 83):	41° 17' 25.70" N 41.290472 N
LONGITUDE (NAD 83):	-72° 28' 7.90" W -72.468861 W
ZONING JURISDICTION:	CT – CONNECTICUT SITING COUNCIL
ZONING DISTRICT:	RR
PARCEL NUMBER:	WBRO-000011-000900-E000000
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	V-B
POWER COMPANY:	CONNECTICUT LIGHT & POWER
TELEPHONE COMPANY:	CROWN CASTLE

PROJECT DIRECTORY

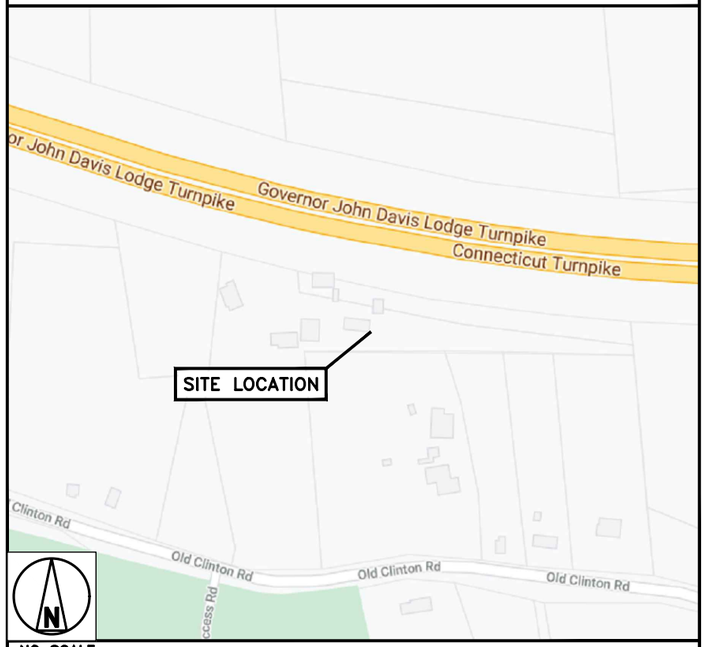
APPLICANT:	DISH WIRELESS, LLC. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317 (877) 486-9377
SITE DESIGNER:	INFINIGY 2500 W. HIGGINS RD. STE. 500 HOFFMAN ESTATES, IL 60169 (847) 648-4068
SITE ACQUISITION:	NICHOLAS CURRY nicholas.curry@crowncastle.com
CONSTRUCTION MANAGER:	JAVIER SOTO TBD
RF ENGINEER:	BOSSENER CHARLES TBD

DIRECTIONS

DIRECTIONS FROM TWEED NEW HAVEN AIRPORT AIRPORT:

DEPART AND HEAD (NORTHEAST), TURN LEFT, AVIS RENT A CAR ON THE CORNER, TURN RIGHT, TURN RIGHT TOWARDS BURR ST, BUDGET CAR RENTAL ON THE CORNER, TURN RIGHT ONTO BURR ST, KEEP STRAIGHT TO GET ONTO DODGE AVE, TURN LEFT ONTO THOMPSON AVE, KEEP STRAIGHT TO GET ONTO CT-100 / HIGH ST, TAKE THE SLIP ROAD ON THE RIGHT FOR I-95 NORTH AND HEAD TOWARDS NEW LONDON, ARRIVE AT 782 OLD CLINTON ROAD WESTBROOK, CT 06498-1767

VICINITY MAP



NO SCALE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

INFINIGY
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the solutions are endless
2500 W. HIGGINS RD. SUITE 500 |
HOFFMAN ESTATES, IL 60169
PHONE: 847-648-4068 | FAX: 518-690-0793
WWW.INFINIGY.COM

STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
5/19/21

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	04/16/2021	ISSUED FOR REVIEW
0	05/18/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

2039-Z5555C

DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00089A
782 OLD CLINTON ROAD
WESTBROOK, CT 06498-1767

SHEET TITLE

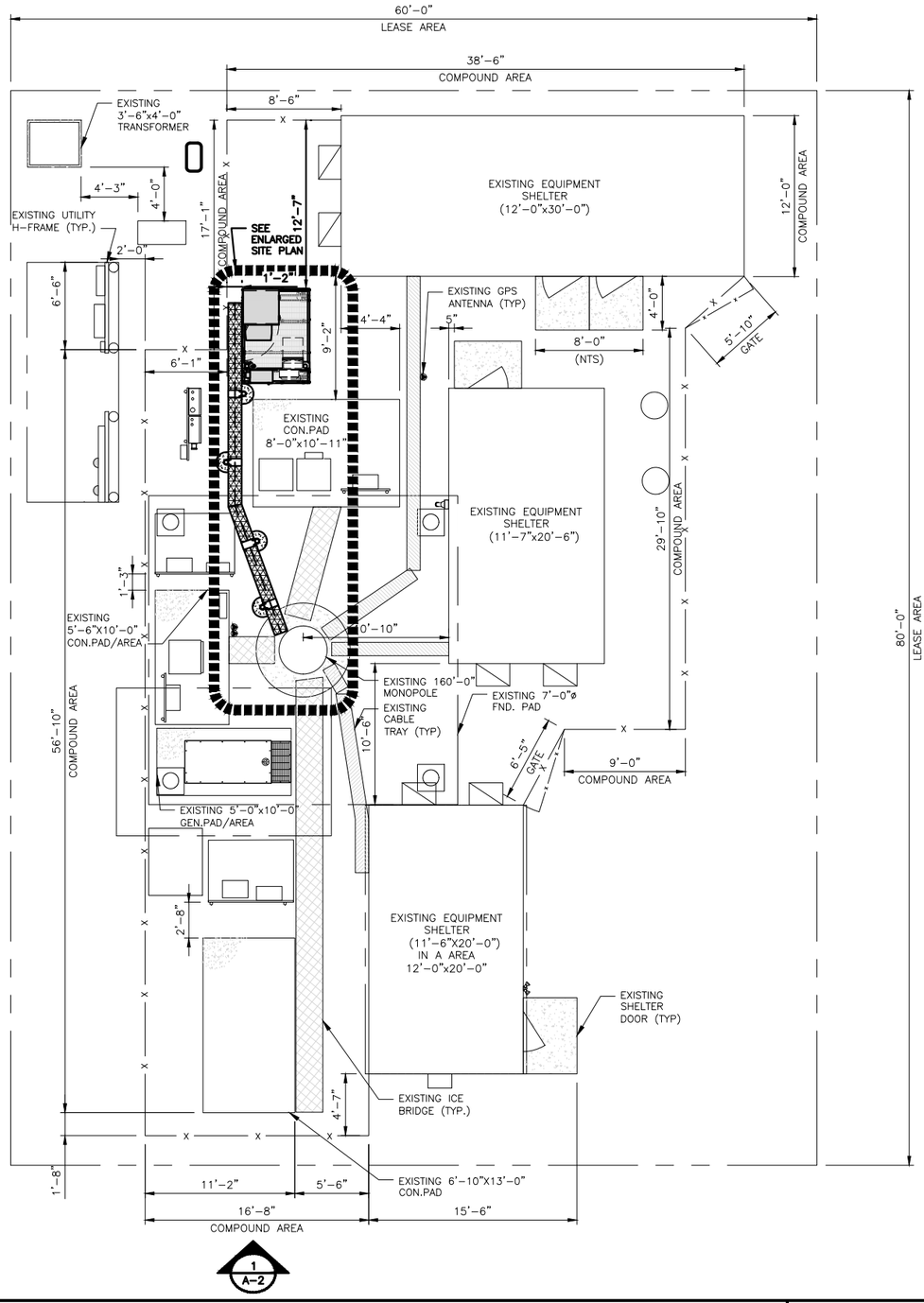
TITLE SHEET

SHEET NUMBER

T-1

NOTES

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



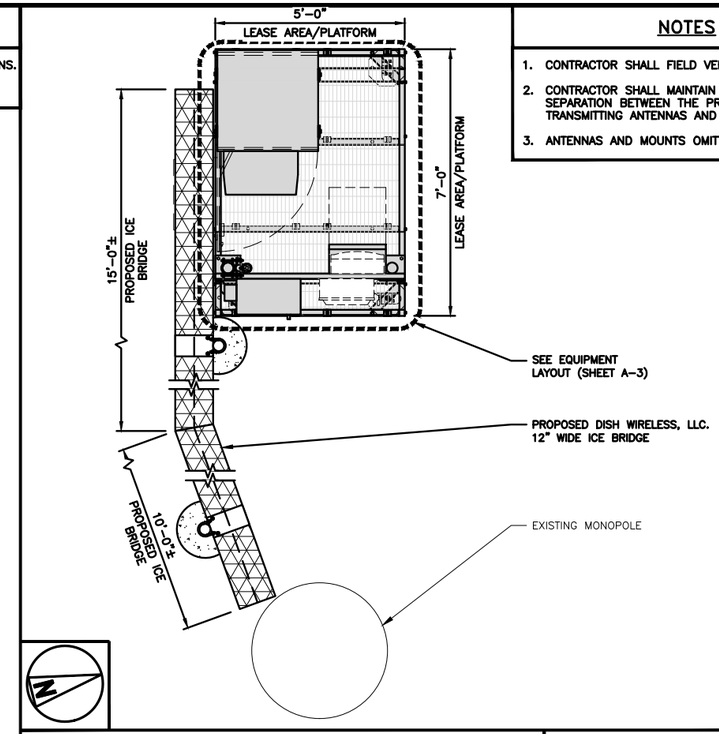
COMPOUND PLAN

6' 4' 2' 0 5' 10'
3/16"=1'-0"

1

NOTES

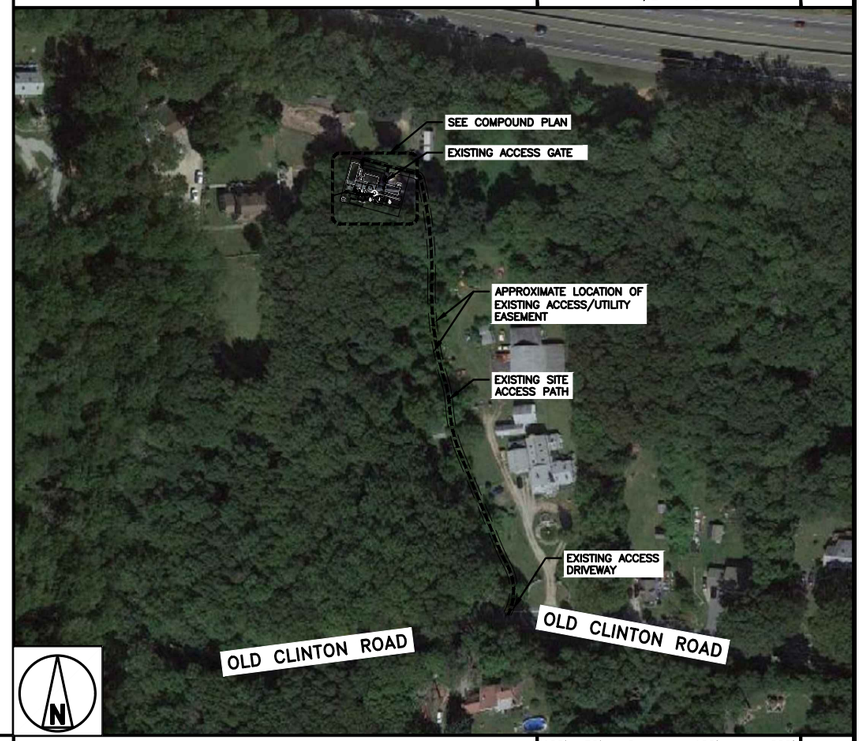
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



ENLARGED SITE PLAN

12" 6" 0 1' 2' 3' 4' 5'
1/2"=1'-0"

2



SITE PLAN

100' 50' 0 100' 200'
1"=100'

3

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STATE OF CONNECTICUT
SHUHEI SAKAMOTO
34916
LICENSED PROFESSIONAL ENGINEER
5/19/21

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	04/16/2021	ISSUED FOR REVIEW
0	05/18/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

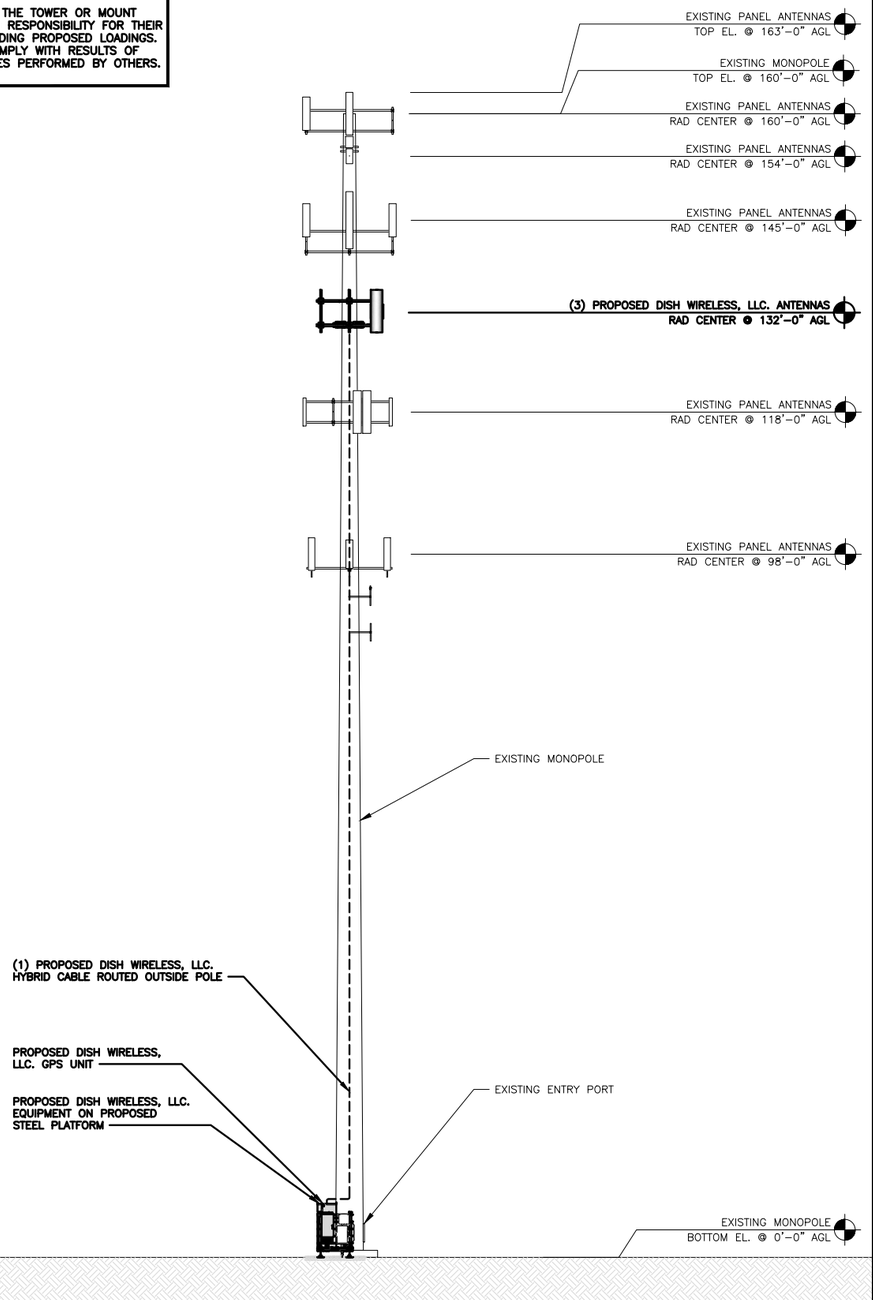
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00089A
782 OLD CLINTON ROAD
WESTBROOK, CT 06498-1767

SHEET TITLE
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER
A-1

NOTES

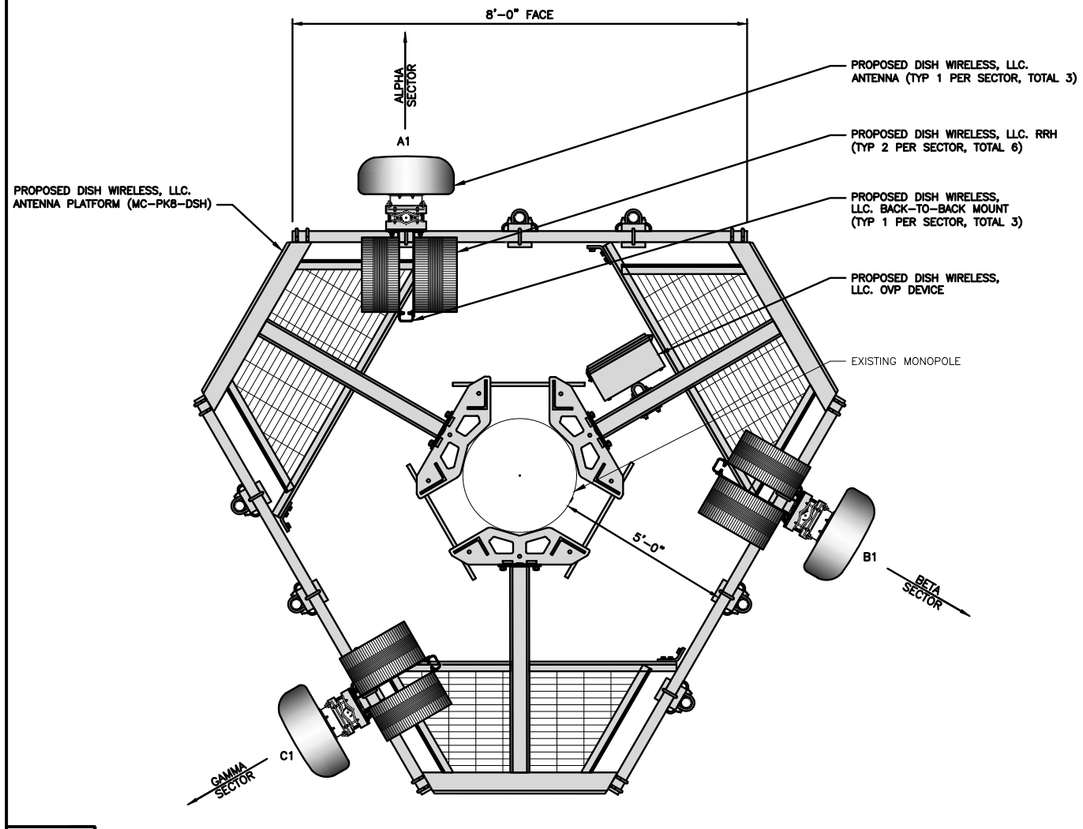
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.
4. INFINIGY HAS NOT EVALUATED THE TOWER OR MOUNT STRUCTURE AND ASSUMES NO RESPONSIBILITY FOR THEIR STRUCTURAL INTEGRITY REGARDING PROPOSED LOADINGS. FINAL INSTALLATION SHALL COMPLY WITH RESULTS OF PASSING STRUCTURAL ANALYSES PERFORMED BY OTHERS.



PROPOSED SOUTH ELEVATION

12' 8' 4' 0 10' 20'
3/32"=1'-0"

1



ANTENNA LAYOUT

12" 6" 0 1' 2' 3'
3/4"=1'-0"

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA WIRELESS – MX08FRO665-20	5G	72.0" x 20.0"	0°	132'-0"	(1) HIGH-CAPACITY HYBRID CABLE (190' LONG)
BETA	B1	PROPOSED	JMA WIRELESS – MX08FRO665-20	5G	72.0" x 20.0"	120°	132'-0"	
GAMMA	C1	PROPOSED	JMA WIRELESS – MX08FRO665-20	5G	72.0" x 20.0"	240°	132'-0"	

NOTES

1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.
2. ANTENNA OR 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.

SECTOR	POSITION	RRH	
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY
ALPHA	A1	FUJITSU – TA08025-B604	5G
	A1	FUJITSU – TA08025-B605	5G
BETA	B1	FUJITSU – TA08025-B604	5G
	B1	FUJITSU – TA08025-B605	5G
GAMMA	C1	FUJITSU – TA08025-B604	5G
	C1	FUJITSU – TA08025-B605	5G

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.

ANTENNA SCHEDULE

NO SCALE

3

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RFDS REV #: N/A

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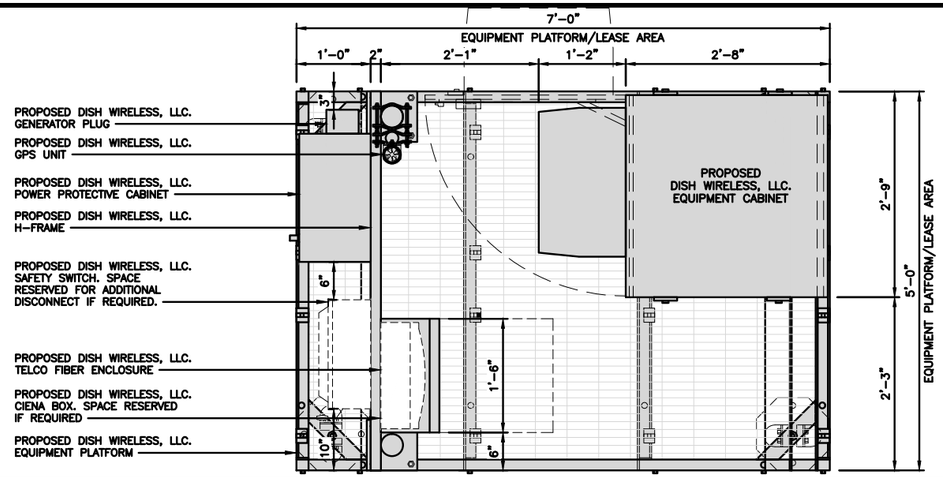
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00089A
782 OLD CLINTON ROAD
WESTBROOK, CT 06498-1767

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2

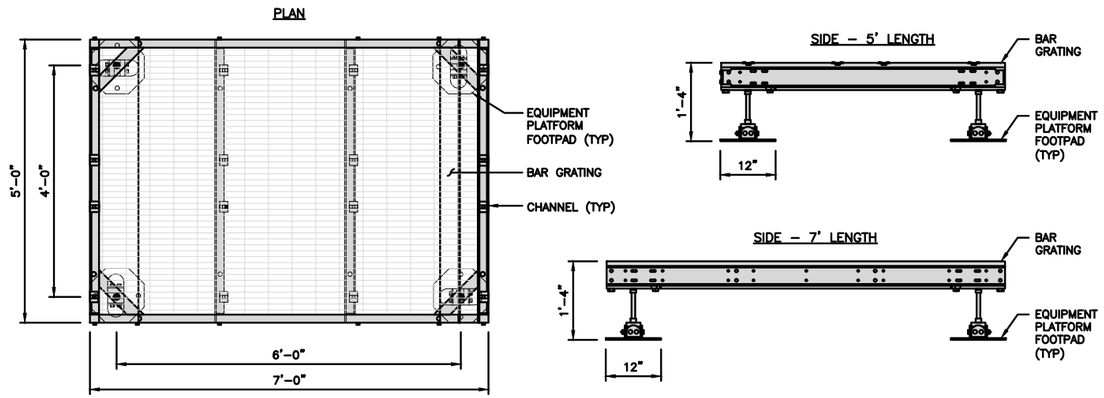


PLATFORM EQUIPMENT PLAN

12" 9" 6" 3" 0 1' 2"
1"=1'-0"

1

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

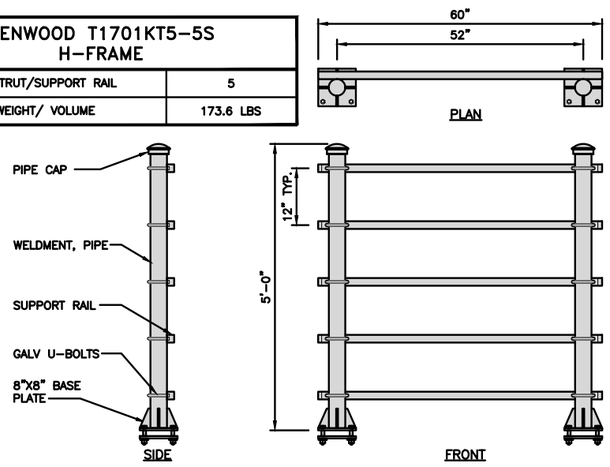


PLATFORM DETAIL

NO SCALE

2

KENWOOD T1701KT5-5S H-FRAME	
UNISTRUT/SUPPORT RAIL	5
WEIGHT/ VOLUME	173.6 LBS



H-FRAME DETAIL

NO SCALE

3

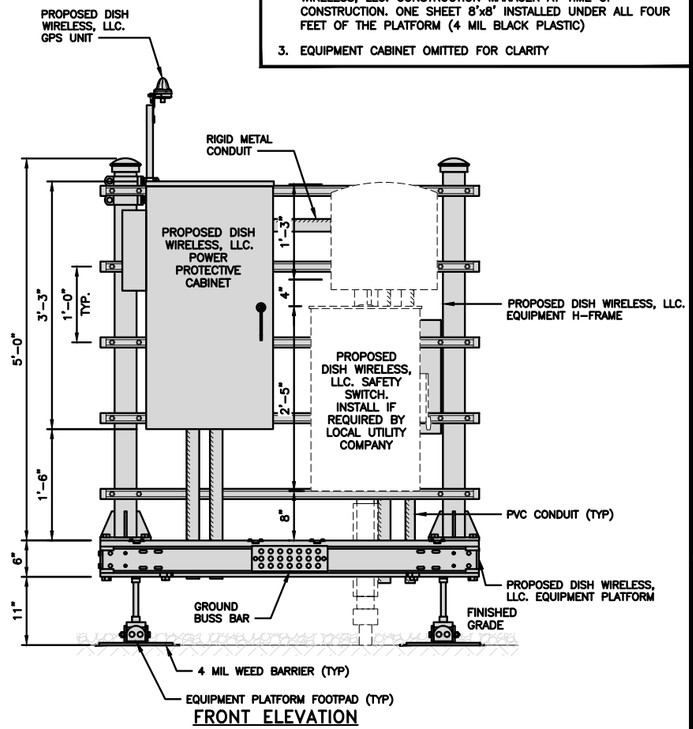
NOT USED

NO SCALE

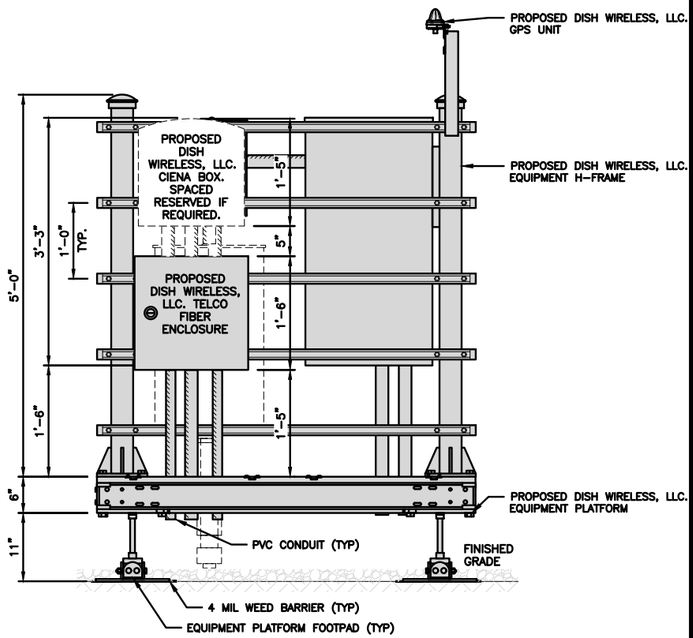
4

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, LLC. 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



FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION

12" 9" 6" 3" 0 1' 2"
1"=1'-0"

5

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STATE OF CONNECTICUT
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5/19/21

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

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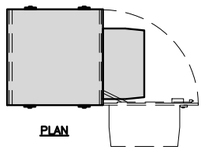
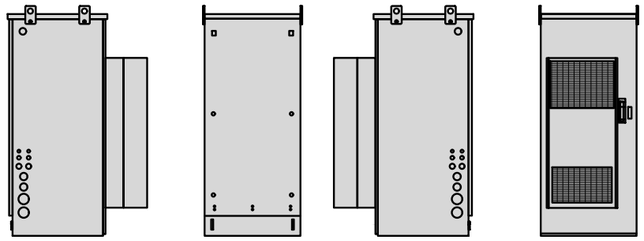
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00089A
782 OLD CLINTON ROAD
WESTBROOK, CT 06498-1767

SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-3

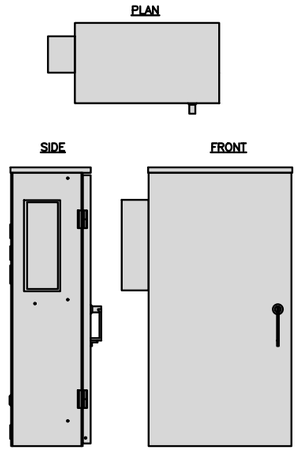
CHARLES INDUSTRY HEX CUBE–PM369155N4	
DIMENSIONS (HxWxD):	74"x32"x32"
POWER PLANT:	–48VDC ABB
TOTAL WEIGHT (EMPTY)	394 LBS





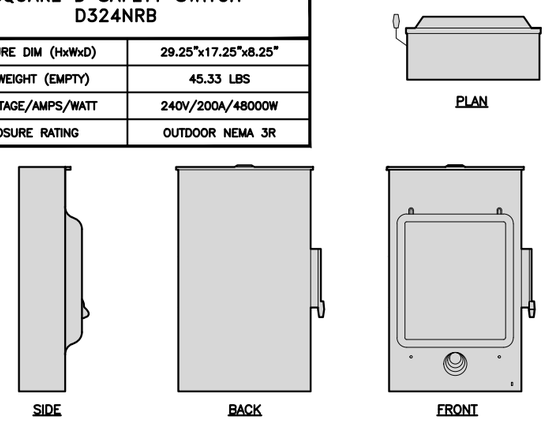
CABINET DETAIL | NO SCALE | 1

RAYCAP RDIAC–6512–P–240–MTS POWER & TELCO PROTECTION CABINET	
DIMENSIONS (HxWxD)	40"x20"x10"
WEIGHT/ VOLUME	124 LBS
MANUAL TRANSFER SWITCH	200A
LOAD CENTER	30 POSITION
MAIN BREAKER	200A, 65kA AIC
GENERATOR RECEPTACLE	CAMLOCK
NEMA RATING	3R POWDER COATED ALUMINUM
SURGE PROTECTION DEVICE	UL 1449 4TH EDITION LISTED



POWER PROTECTION CABINET (PPC) DETAIL | NO SCALE | 2

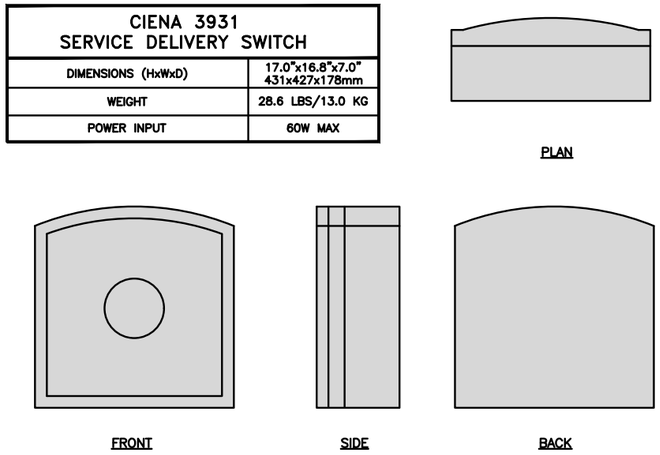
SQUARE D SAFETY SWITCH D324NRB	
ENCLOSURE DIM (HxWxD)	29.25"x17.25"x8.25"
TOTAL WEIGHT (EMPTY)	45.33 LBS
MAX VOLTAGE/AMPS/WATT	240V/200A/48000W
ENCLOSURE RATING	OUTDOOR NEMA 3R



SAFETY SWITCH | NO SCALE | 3

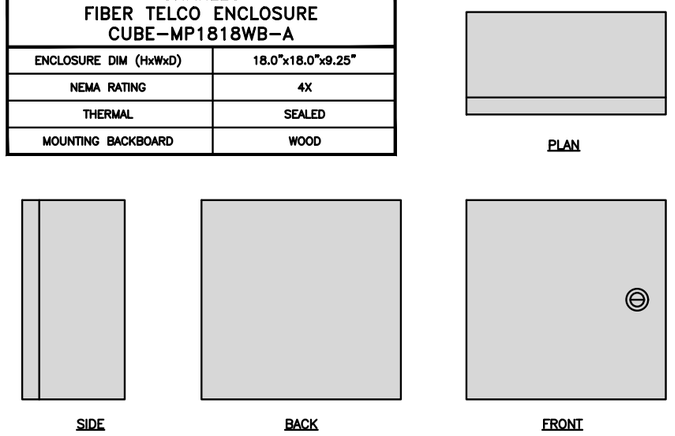
NOT USED | NO SCALE | 4

CIENA 3931 SERVICE DELIVERY SWITCH	
DIMENSIONS (HxWxD)	17.0"x16.8"x7.0" 431x427x178mm
WEIGHT	28.6 LBS/13.0 KG
POWER INPUT	60W MAX



CIENA DETAIL | NO SCALE | 5

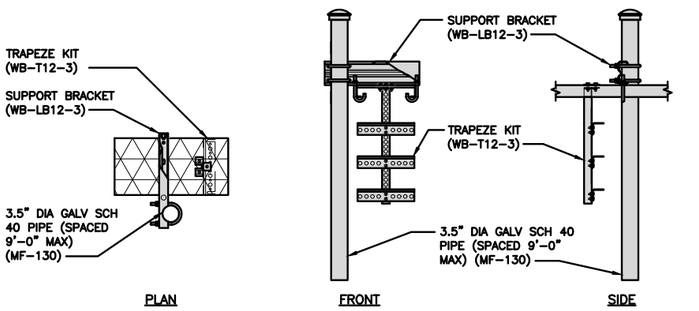
CHARLES FIBER TELCO ENCLOSURE CUBE–MP1818WB–A	
ENCLOSURE DIM (HxWxD)	18.0"x18.0"x9.25"
NEMA RATING	4X
THERMAL	SEALED
MOUNTING BACKBOARD	WOOD



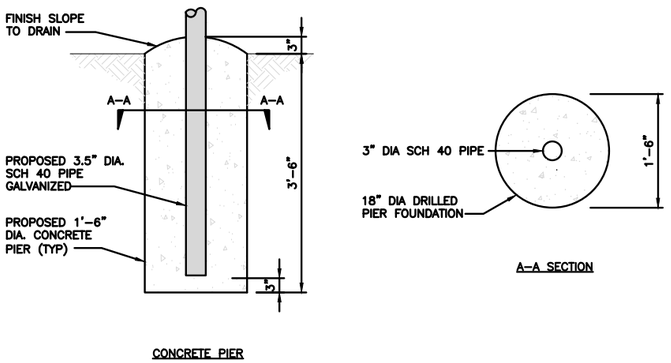
FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

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

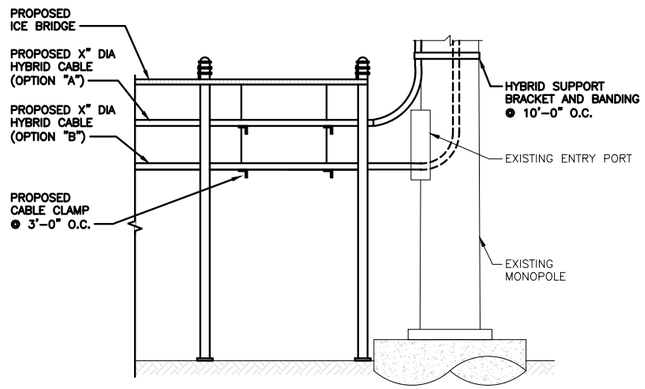
INCLUDED PRODUCTS:	WB–T12–3 TRAPEZE KIT, 3 RUNGS
	WB–LB12–3 SUPPORT BRACKET
	MF–130 DIRECT BURIAL PIPE COLUMN, 13'–4"



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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STATE OF CONNECTICUT
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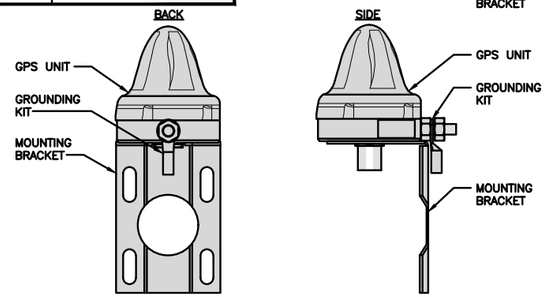
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00089A
782 OLD CLINTON ROAD
WESTBROOK, CT 06498–1767

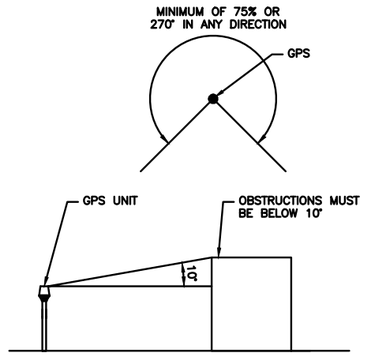
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

ROSENBERGER GPSGLONASS-36-N-S	
DIMENSION (DIA x H)	69mm x 98.5mm
WEIGHT (WITH ACCESSORIES)	515.74g
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1559 MHz ~ 1610.5MHz



GPS ANTENNA DETAIL | NO SCALE | 1



GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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PROJECT INFORMATION
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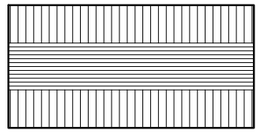
782 OLD CLINTON ROAD
WESTBROOK, CT 06498-1767

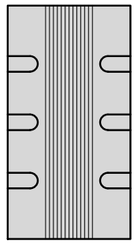
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-5

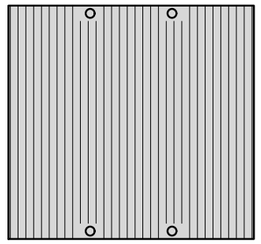
FUJITSU TA08025-B604 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x200/14.9"x15.7"x7.8"
WEIGHT(KG,LB)/ VOLUME	29kg,63.9lb/ 30L
POWER SUPPLY	DC-58~-36V



PLAN



SIDE



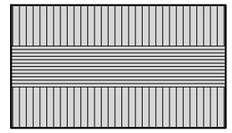
FRONT

NOTES

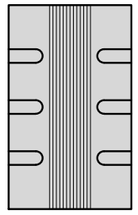
FINAL RRH SPECIFICATIONS TO BE CONFIRMED BY GC

REMOTE RADIO HEAD DETAIL | NO SCALE | 1

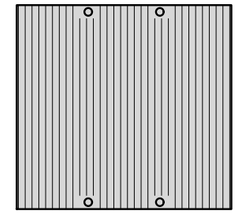
FUJITSU TA08025-B605 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x230/14.9"x15.7"x9.0"
WEIGHT(KG,LB)/ VOLUME	34kg,74.9lb/ 35L
POWER SUPPLY	DC-58~-36V



PLAN



SIDE



FRONT

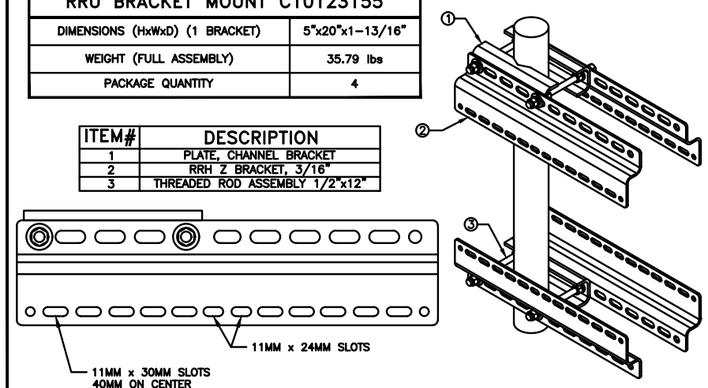
NOTES

FINAL RRH SPECIFICATIONS TO BE CONFIRMED BY GC

REMOTE RADIO HEAD DETAIL | NO SCALE | 2

SABRE INDUSTRIES RRU BRACKET MOUNT C10123155	
DIMENSIONS (HxWxD) (1 BRACKET)	5"x20"x1-13/16"
WEIGHT (FULL ASSEMBLY)	35.79 lbs
PACKAGE QUANTITY	4

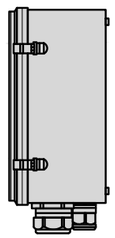
ITEM#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/16"
3	THREADED ROD ASSEMBLY 1/2"x12"



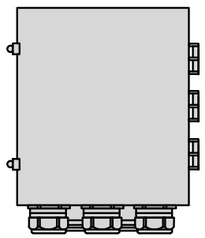
REMOTE RADIO MOUNT DETAIL | NO SCALE | 3

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

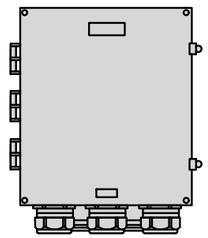
PLAN



SIDE



BACK

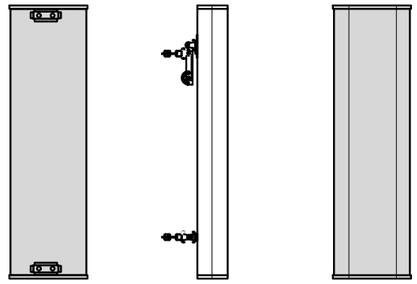


FRONT

SURGE SUPPRESSION DETAIL | NO SCALE | 4

JMA WIRELESS MX08FRO665-20 ANTENNA	
DIMENSIONS (HxWxD)	72.0"x20.0"x8.0"
TOTAL WEIGHT	54 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE

PLAN

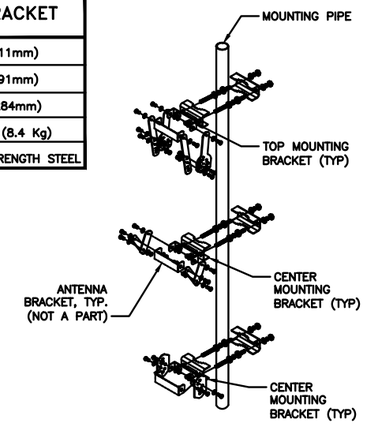


NOTES

FINAL ANTENNA SPECIFICATIONS TO BE CONFIRMED BY GC

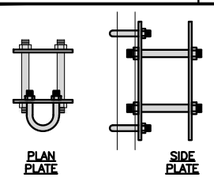
ANTENNA DETAIL | NO SCALE | 5

JMA 91900318 MOUNTING BRACKET	
WIDTH	8.3" (211mm)
DEPTH	7.5" (191mm)
HEIGHT	11.2" (284mm)
TOTAL WEIGHT (WITH BRACKETS)	18.5 LBS (8.4 Kg)
HOUSING MATERIAL	GALV. HIGH STRENGTH STEEL



ANTENNA MOUNTING DETAIL | NO SCALE | 6

COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11.023 LBS

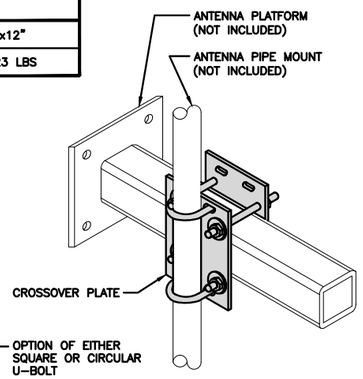


PLAN PLATE

SIDE PLATE

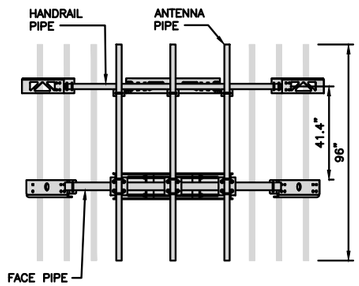
PLAN U-BOLT

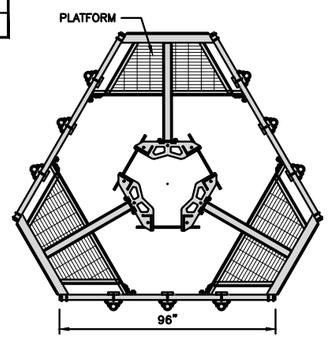
SIDE U-BOLT



RRH/OVP MOUNT DETAIL | NO SCALE | 7

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





ANTENNA PLATFORM DETAIL | NO SCALE | 8

NOT USED | NO SCALE | 9

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SHUHEI SAKANO
34916
LICENSED PROFESSIONAL ENGINEER
5/19/21

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

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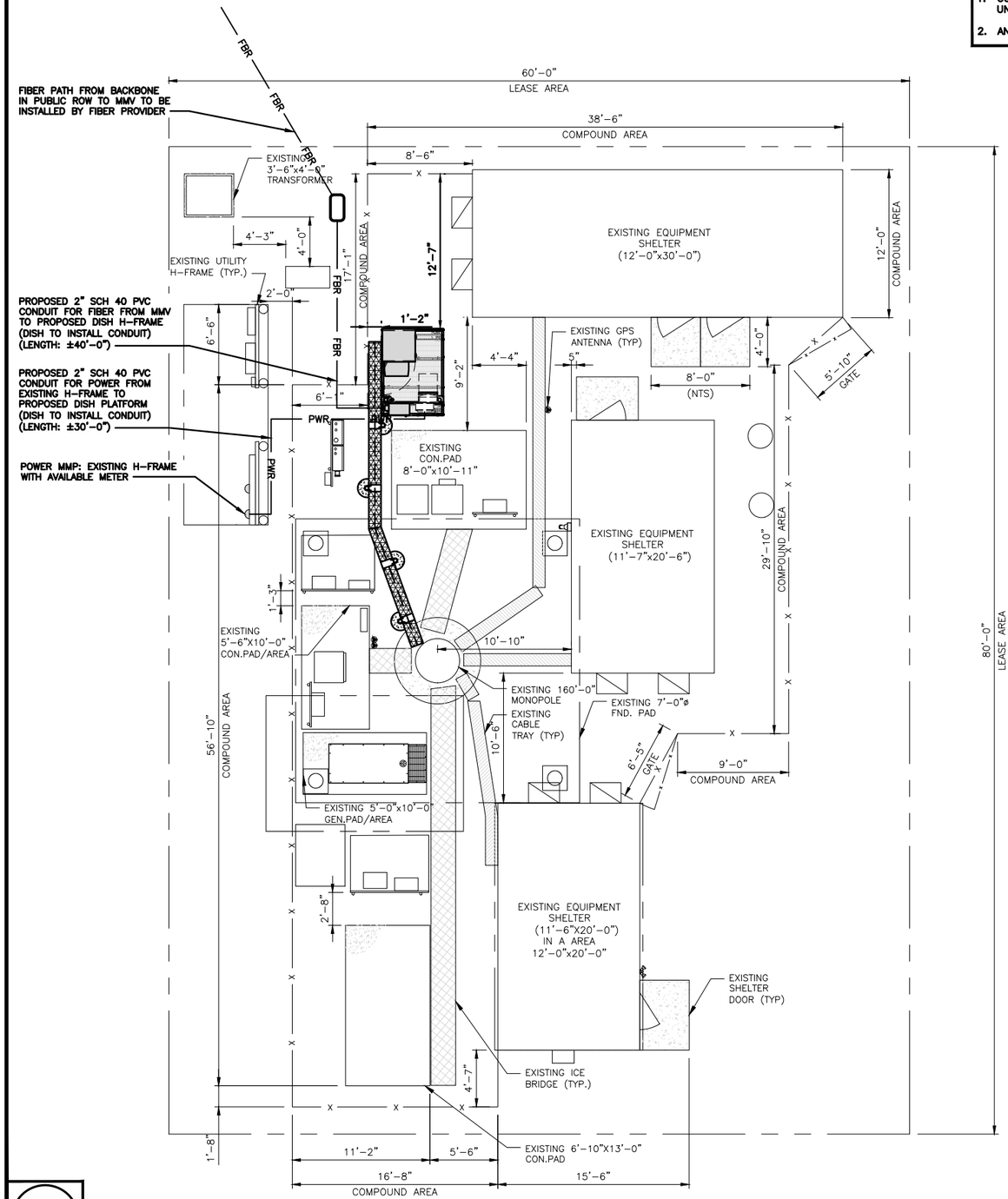
A&E PROJECT NUMBER
2039-Z5555C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00089A
782 OLD CLINTON ROAD
WESTBROOK, CT 06498-1767

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-6



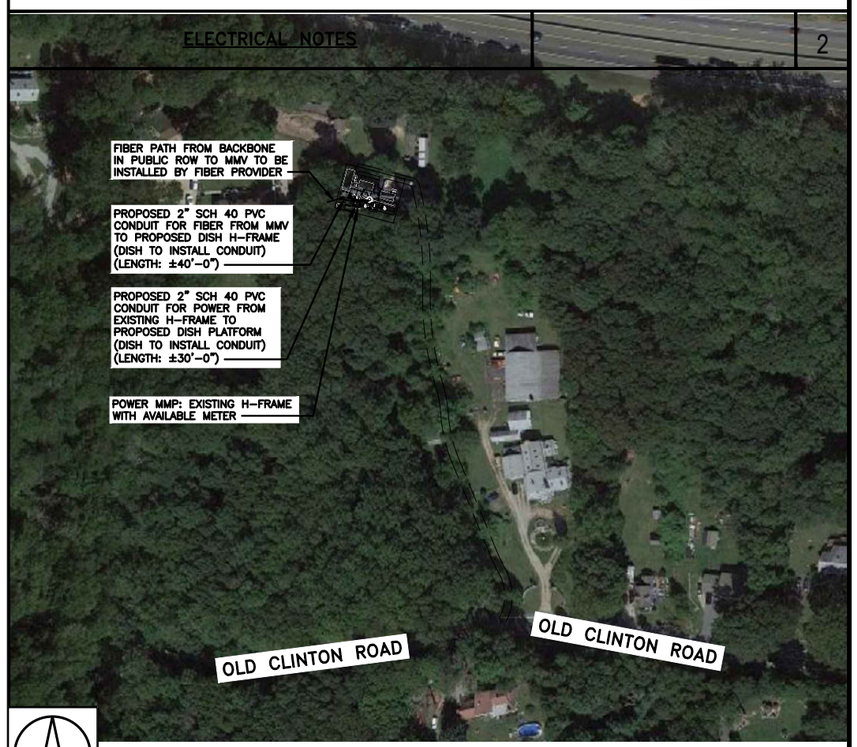
NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.

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.

ELECTRICAL NOTES

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.
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. FIBER ROUTE IS PRELIMINARY, FINAL FIBER ROUTE TO BE DETERMINED ONCE UCR (UTILITY COORDINATION REPORT) HAS BEEN FINALIZED.



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SHUHEI SAKANOUE
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LICENSED PROFESSIONAL ENGINEER
5/19/21

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

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2039-Z5555C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00089A
782 OLD CLINTON ROAD
WESTBROOK, CT 06498-1767

SHEET TITLE
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

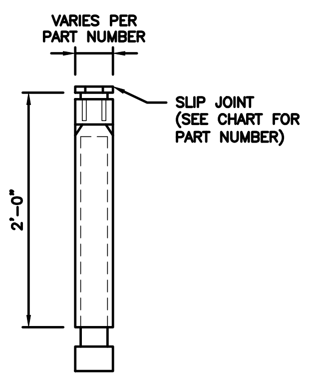
SHEET NUMBER
E-1

UTILITY ROUTE PLAN
6' 4' 2' 0 5' 10'
3/16"=1'-0"
1

OVERALL UTILITY ROUTE PLAN
100' 50' 0 100' 200'
1"=100'
3

CARLON EXPANSION FITTINGS

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

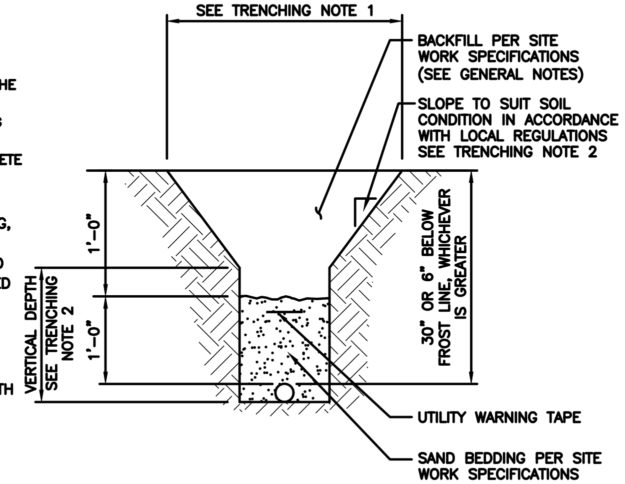


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

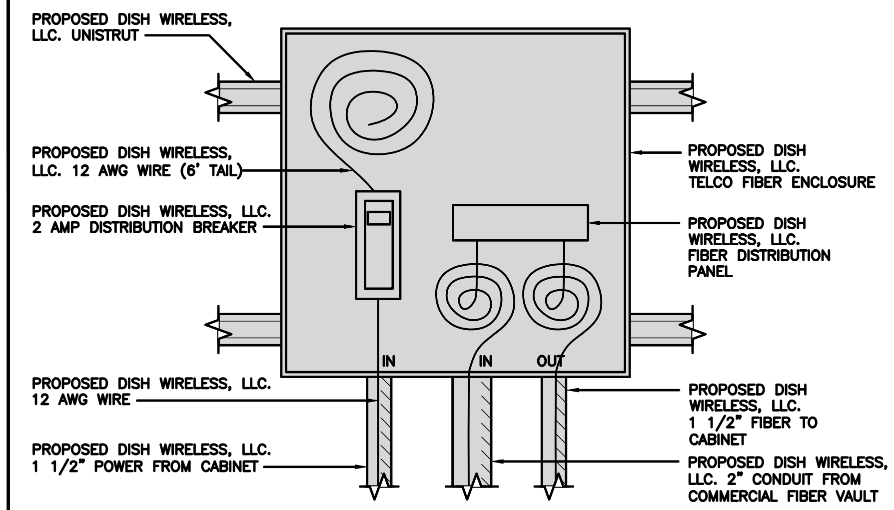
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

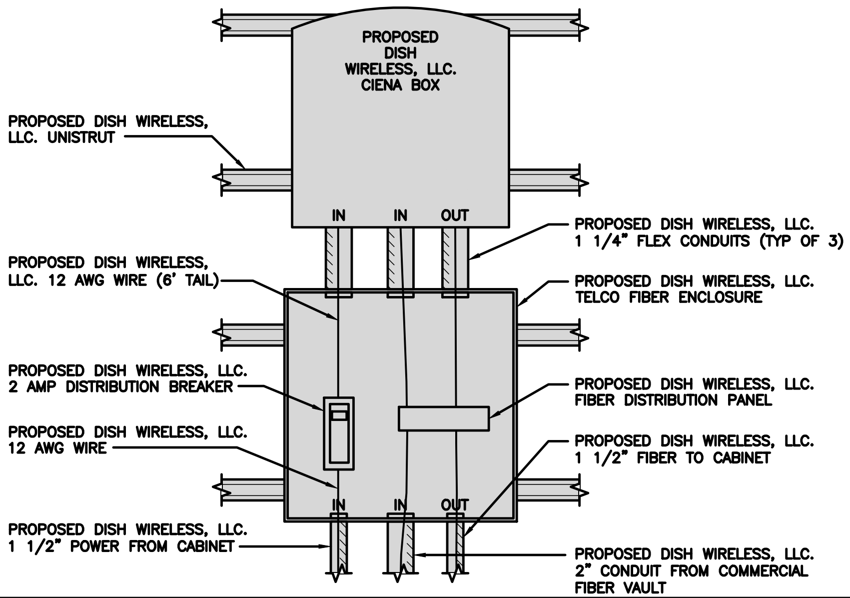
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT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



TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2



DARK TELCO BOX – INTERIOR WIRING LAYOUT | NO SCALE | 3



LIT TELCO BOX – INTERIOR WIRING LAYOUT | 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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LICENSED PROFESSIONAL ENGINEER
5/19/21

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

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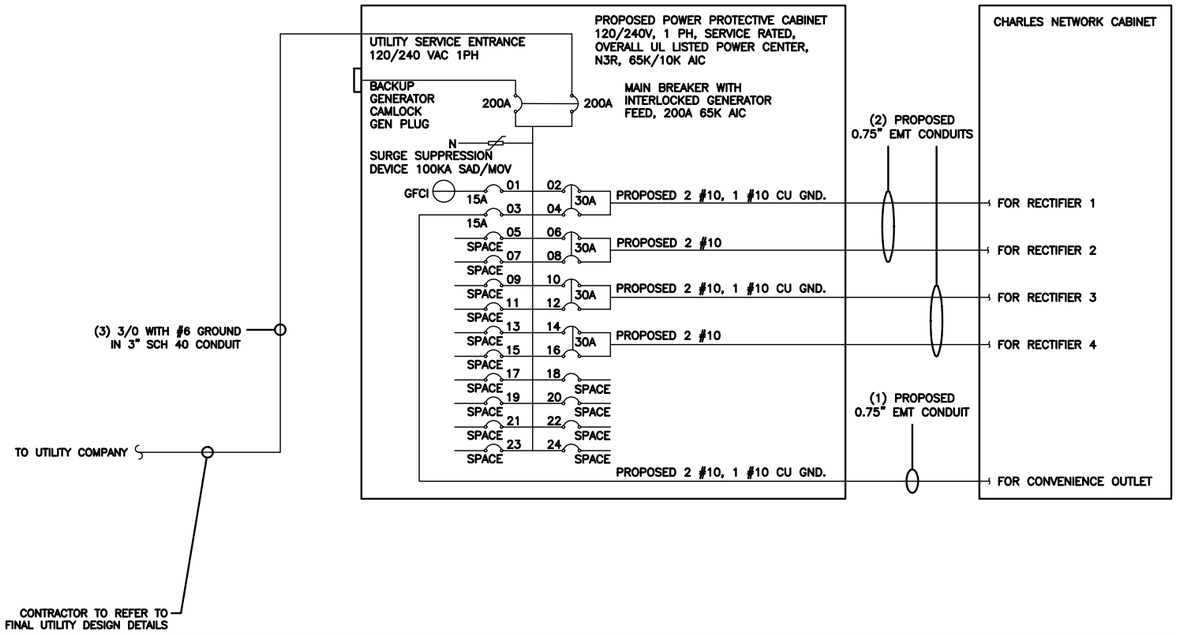
2039-Z5555C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00089A
782 OLD CLINTON ROAD
WESTBROOK, CT 06498-1767

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2



PPC ONE-LINE DIAGRAM

NO SCALE | 1

NOTES

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

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

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

#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.
0.75" 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

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

RECTIFIER CONDUCTORS (2 CONDUITS): USING THWN-2, CU.

#10 - 0.0211 SQ. IN X 4 = 0.0844 SQ. IN
#10 - 0.0211 SQ. IN X 1 = 0.0211 SQ. IN <GROUND
TOTAL = 0.1055 SQ. IN

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

PROPOSED CHARLES PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	30A	2880		ABB/GE INFINITY RECTIFIER 1
CHARLES GFCI OUTLET		180	15A	3	B	4			2880	
-SPACE-				5	A	6	30A	2880		ABB/GE INFINITY RECTIFIER 2
-SPACE-				7	B	8			2880	
-SPACE-				9	A	10	30A	2880		ABB/GE INFINITY RECTIFIER 3
-SPACE-				11	B	12			2880	
-SPACE-				13	A	14	30A	2880		ABB/GE INFINITY RECTIFIER 4
-SPACE-				15	B	16			2880	
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
VOLTAGE AMPS	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			
			98				MAX AMPS			
			123				MAX 125%			

PANEL SCHEDULE | NO SCALE | 2

NOT USED | NO SCALE | 3

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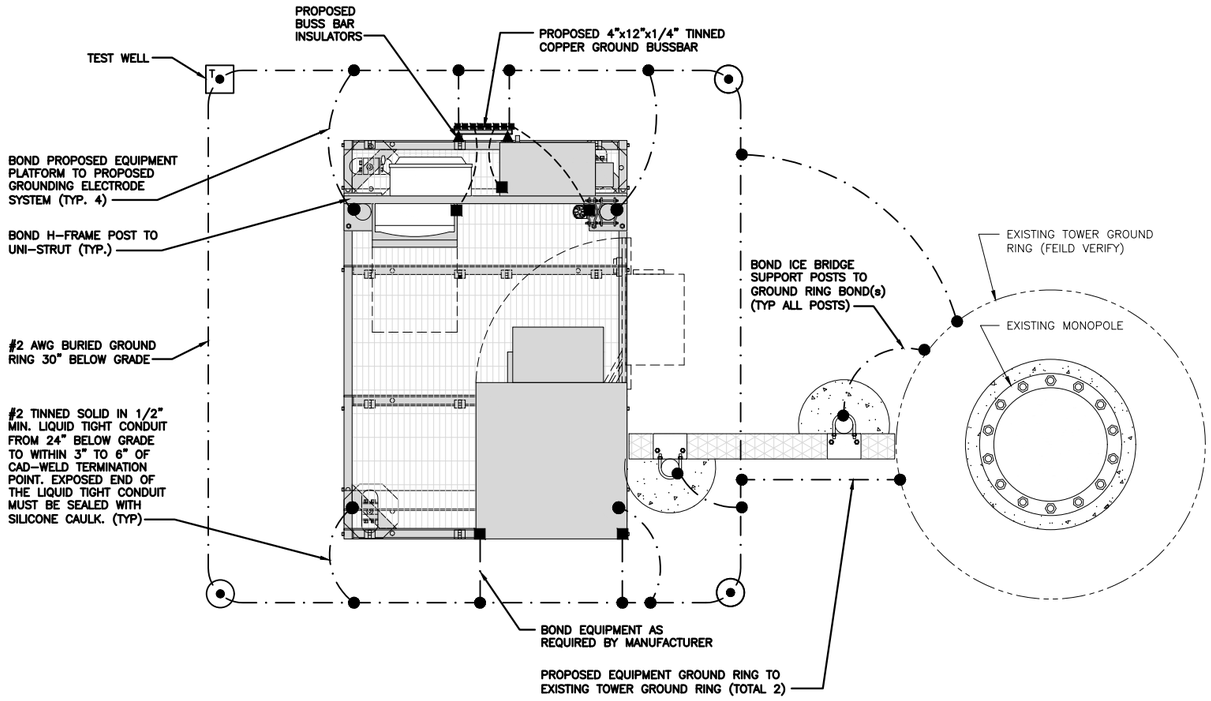
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00089A
782 OLD CLINTON ROAD
WESTBROOK, CT 06498-1767

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

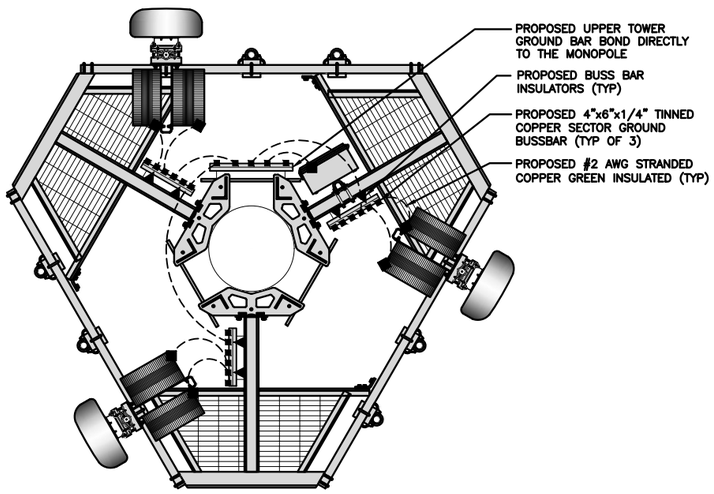
SHEET NUMBER
E-3



TYPICAL EQUIPMENT GROUNDING PLAN | NO SCALE | 1

NOTES

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



TYPICAL ANTENNA GROUNDING PLAN | NO SCALE | 2

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

(A) EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.

(B) TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.

(C) INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.

(D) BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.

(E) GROUND ROD: UL LISTED COPPER CLAD STEEL. MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.

(F) CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.

(G) HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.

(H) EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE.

(J) TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.

(K) FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.

(L) 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.

(M) 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.

(N) 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

(P) 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.

(Q) 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

(R) TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT COLLAR.

REFER TO DISH WIRELESS, LLC. GROUNDING NOTES.

GROUNDING KEY NOTES | NO SCALE | 3

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SUHEI SAKANO
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LICENSED PROFESSIONAL ENGINEER
5/19/21

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
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0	05/18/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

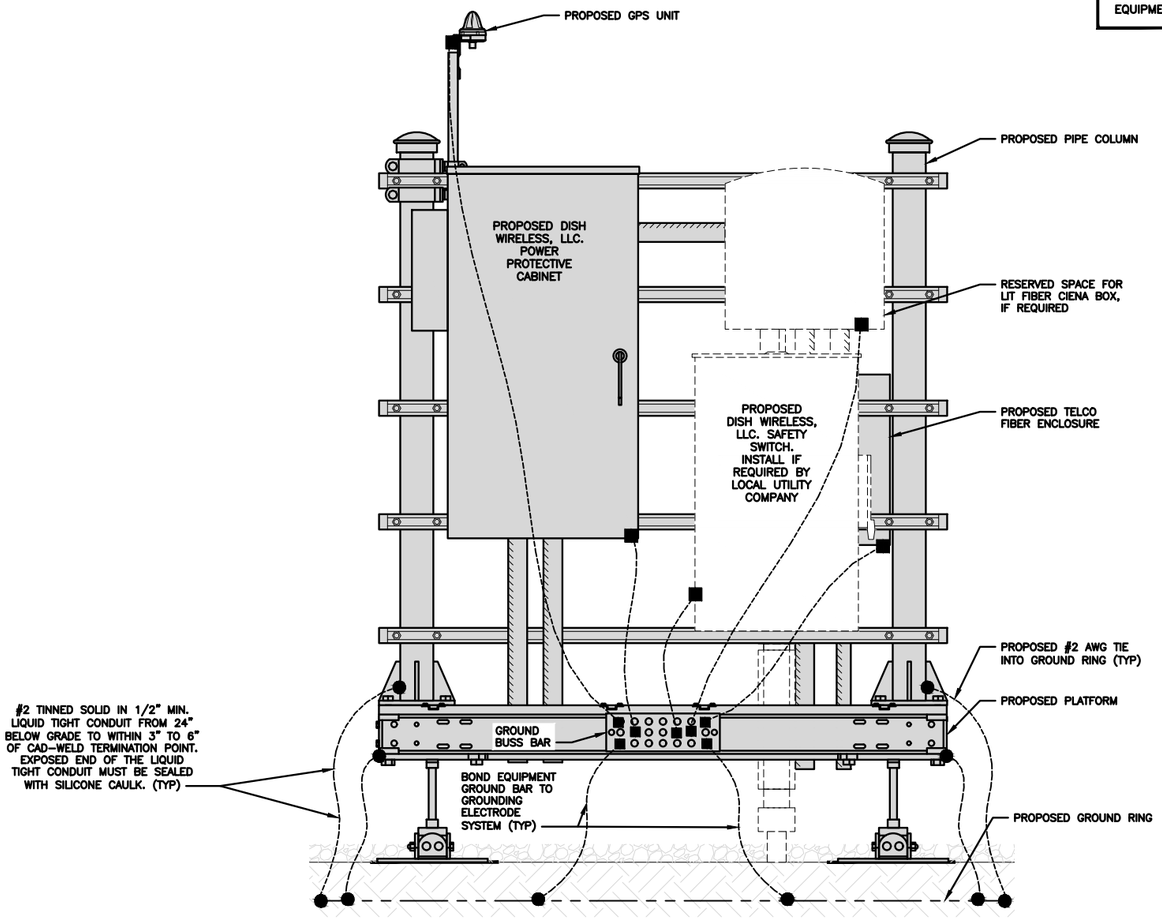
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00089A
782 OLD CLINTON ROAD
WESTBROOK, CT 06498-1767

SHEET TITLE
GROUNDING PLANS AND NOTES

SHEET NUMBER
G-1

NOTES

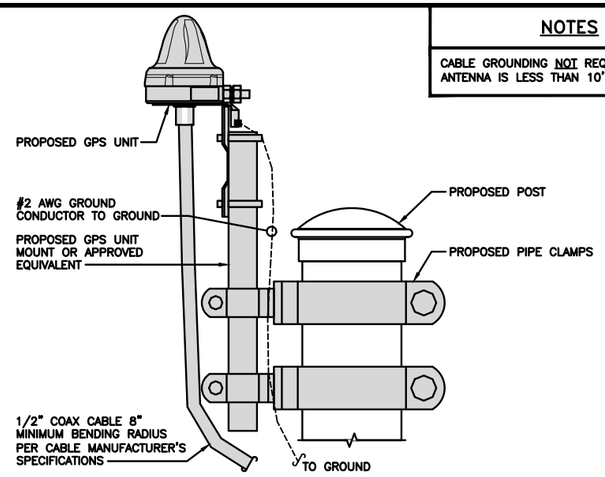
EQUIPMENT CABINET OMITTED FOR CLARITY



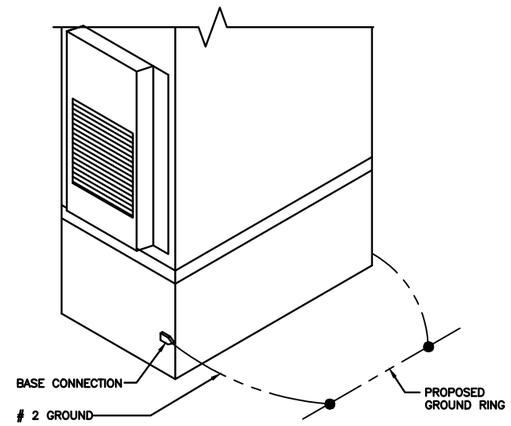
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

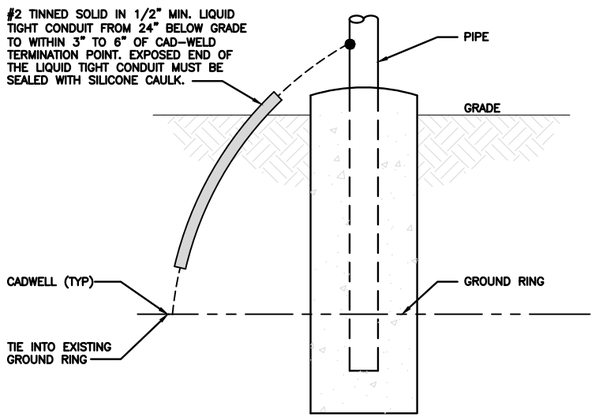
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



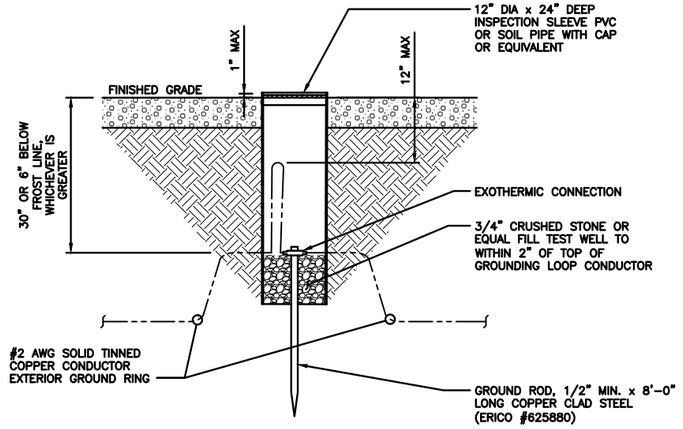
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



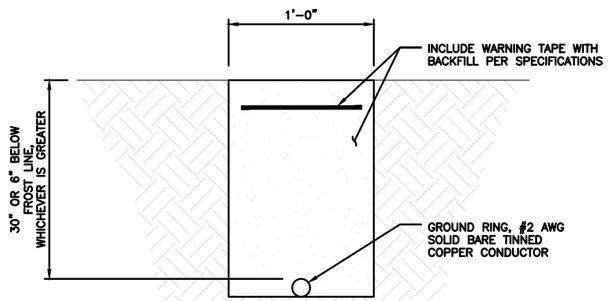
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE | NO SCALE | 5



TYPICAL GROUND RING TRENCH | NO SCALE | 6

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RFDS REV #: N/A

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PROJECT INFORMATION
BOBDL00089A
782 OLD CLINTON ROAD
WESTBROOK, CT 06498-1767

SHEET TITLE

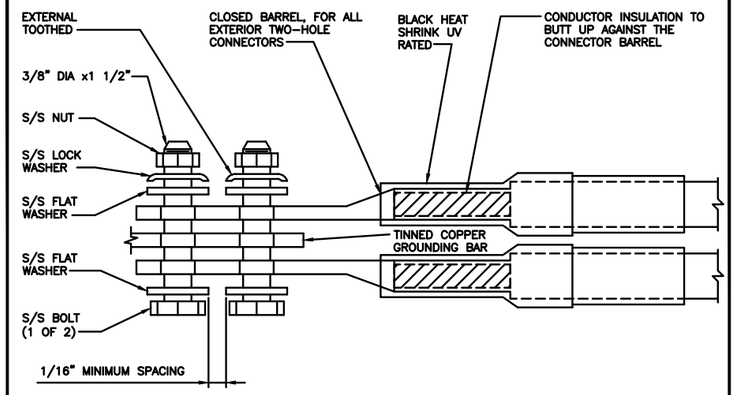
GROUNDING DETAILS

SHEET NUMBER

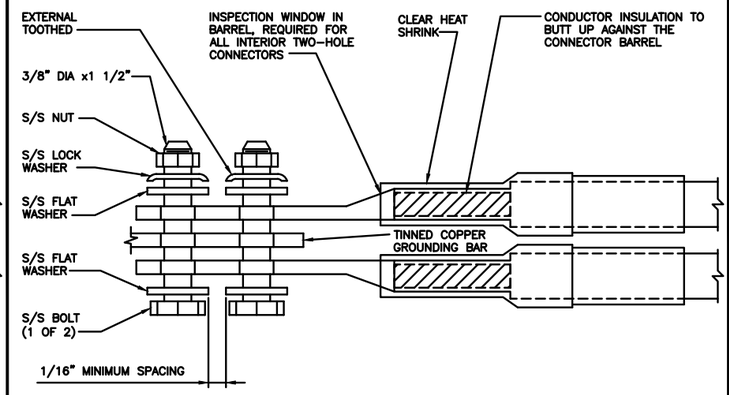
G-2

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

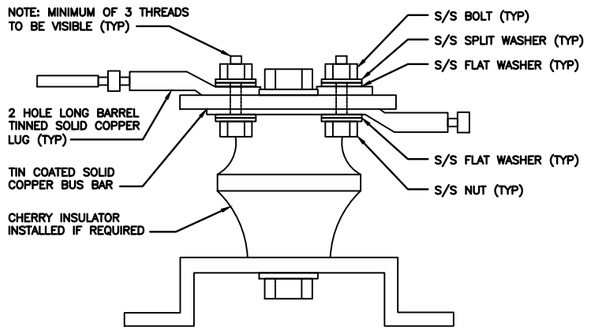
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00089A
782 OLD CLINTON ROAD
WESTBROOK, CT 06498-1767

SHEET TITLE
GROUNDING DETAILS

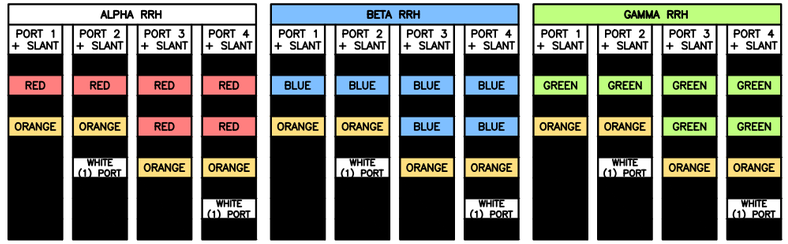
SHEET NUMBER
G-3

RF JUMPER COLOR CODING

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

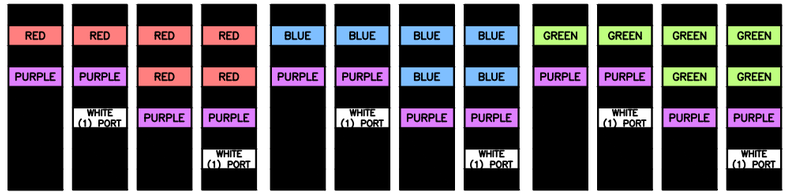
LOW-BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

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



MID-BAND RRH –
(AWS BANDS N66+N70)

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

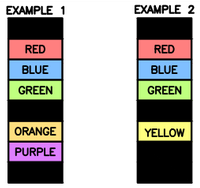


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED AM LONG WITH FREQUENCY BANDS

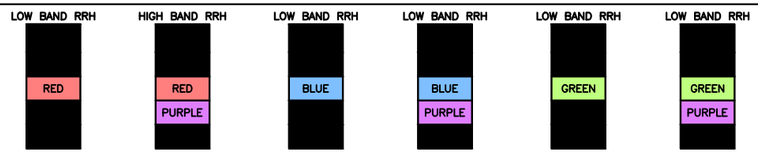
EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS

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



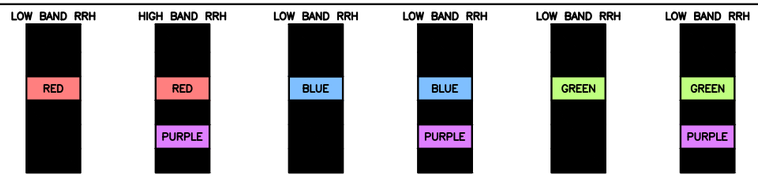
HYBRID/DISCREET CABLES

LOW-BAND RRH FIBER CABLES HAVE SECTOR STRIPE ONLY

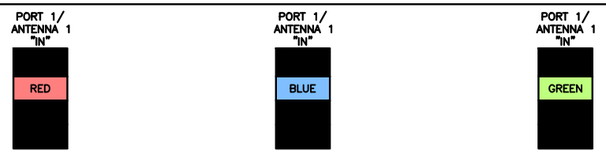


POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY



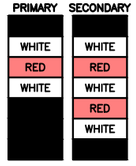
RET MOTORS AT ANTENNAS



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



RF CABLE COLOR CODES | NO SCALE | 1

LOW BANDS (N71–N28)
OPTIONAL – (N29)
ORANGE

AWS
(N65+N70+H-BLOCK)
PURPLE

CBRS TECH
(3 GHz)
YELLOW

NEGATIVE SLANT PORT
ON ANTRRH
WHITE

ALPHA SECTOR
RED

BETA SECTOR
BLUE

GAMMA SECTOR
GREEN

COLOR IDENTIFIER | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

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5/19/21

DRAWN BY:	CHECKED BY:	APPROVED BY:
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RFDS REV #: N/A

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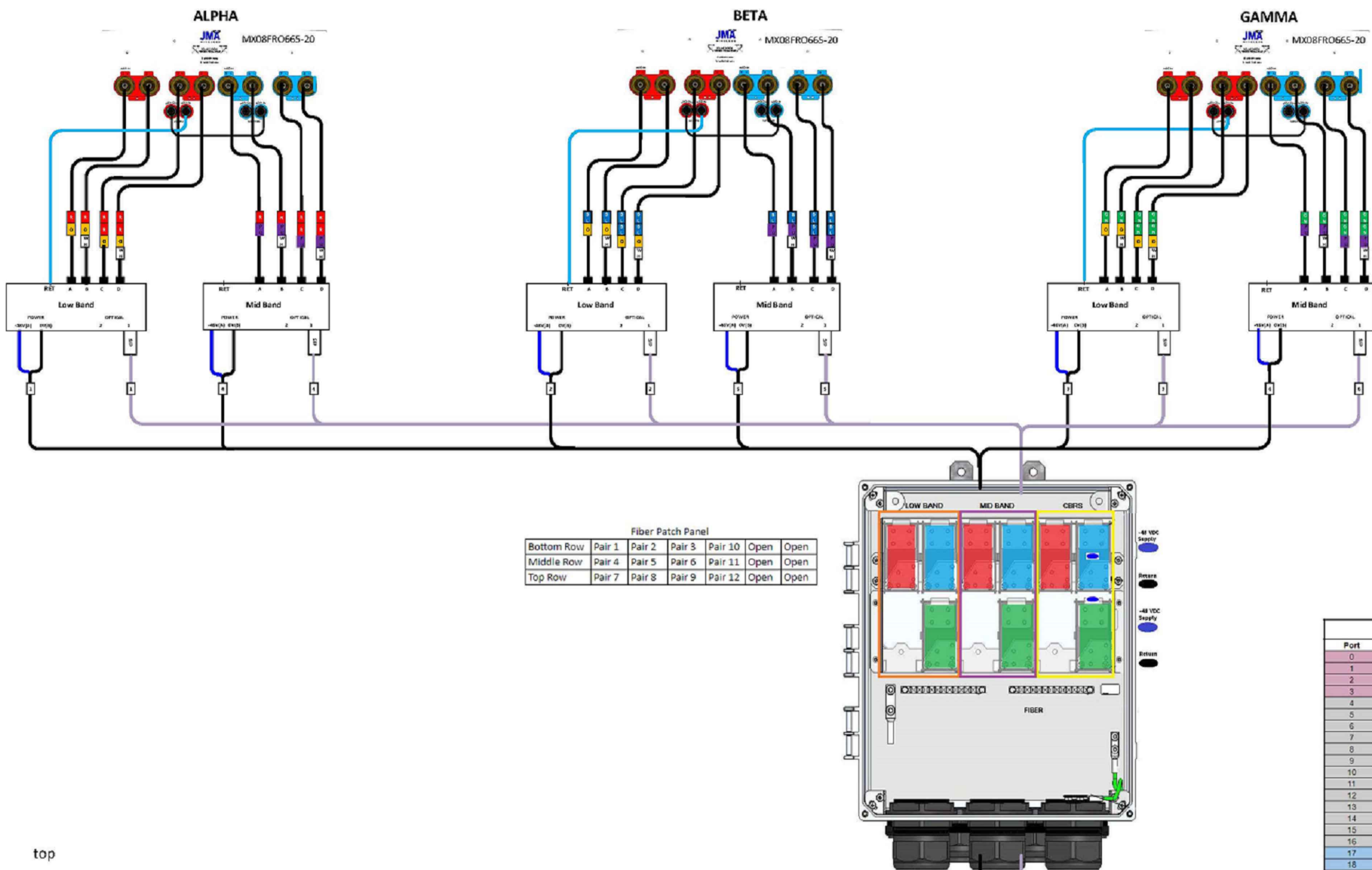
2039-Z5555C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00089A
782 OLD CLINTON ROAD
WESTBROOK, CT 06498-1767

SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER
RF-1



Fiber Patch Panel

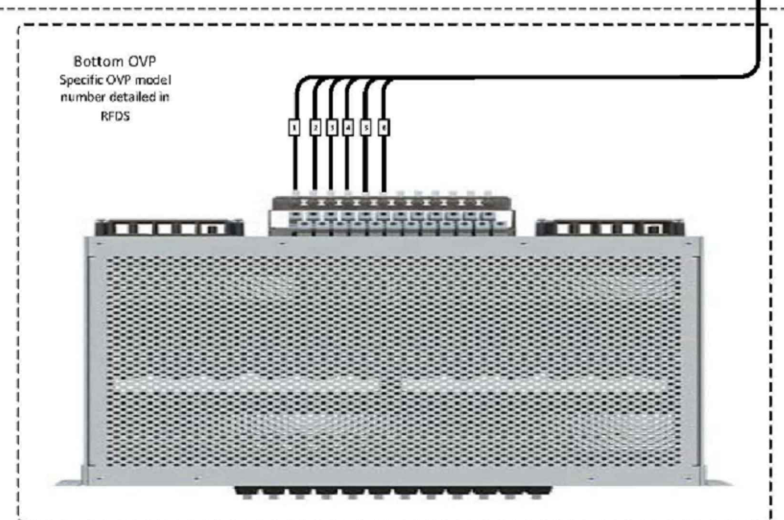
Bottom Row	Pair 1	Pair 2	Pair 3	Pair 10	Open	Open
Middle Row	Pair 4	Pair 5	Pair 6	Pair 11	Open	Open
Top Row	Pair 7	Pair 8	Pair 9	Pair 12	Open	Open

top

bottom

Bottom OVP Layout

Circuit 1	Alpha Low Band
Circuit 2	Beta Low Band
Circuit 3	Gamma Low Band
Circuit 4	Alpha Mid Band
Circuit 5	Beta Mid Band
Circuit 6	Gamma Mid Band
Circuit 7	Alpha CBRS
Circuit 8	Beta CBRS
Circuit 9	Gamma CBRS
Circuit 10	Open
Circuit 11	Open
Circuit 12	Open

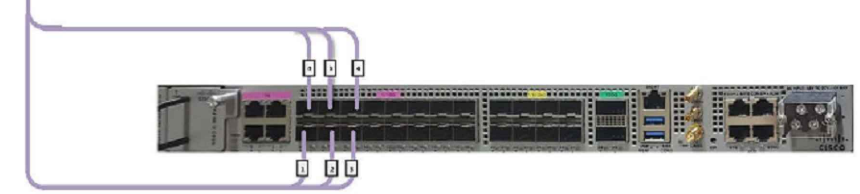


5G plumbing diagram JMA MX08FRO665-20
2-2-2(LB+MB)

Quantity
5-Jan-2021
None
REV 3

CSR NCS540

Port	Interface	Description
0	Gi0/0/0/0	SiteBoss
1	Gi0/0/0/1	CBRS - Alpha
2	Gi0/0/0/2	CBRS - Beta
3	Gi0/0/0/3	CBRS - Gamma
4	Te0/0/0/4	Fujitsu Low-Band RU - Alpha
5	Te0/0/0/5	Fujitsu Mid-Band RU - Alpha
6	Te0/0/0/6	Fujitsu Low-Band RU - Beta
7	Te0/0/0/7	Fujitsu Mid-Band RU - Beta
8	Te0/0/0/8	Fujitsu Low-Band RU - Gamma
9	Te0/0/0/9	Fujitsu Mid-Band RU - Gamma
10	Te0/0/0/10	Fixed Wifi
11	Te0/0/0/11	Fixed Wifi
12	Te0/0/0/12	Fixed Wifi
13	Te0/0/0/13	Fixed Wifi
14	Te0/0/0/14	CBRS1
15	Te0/0/0/15	CBRS2
16	Te0/0/0/16	CBRS3
17	Gi0/0/0/17	SM1 - BMC
18	Gi0/0/0/18	SM2 - BMC
19	Te0/0/019	SM1 - Data 1
20	Te0/0/020	SM1 - Data 2
21	Te0/0/021	SM2 - Data 1
22	Te0/0/022	SM2 - Data 2
23	Te0/0/023	Reserved Uplink (EDC, LDC)
24	Te0/0/024	Blank/Future
25	Te0/0/0/25	Blank/Future
26	Te0/0/0/26	Fiber NIU
27	Te0/0/0/27	Fiber NIU
28	Te0/0/0/28	Blank/Future
29	Te0/0/0/29	Blank/Future



PLUMBING DIAGRAM

NO SCALE 1

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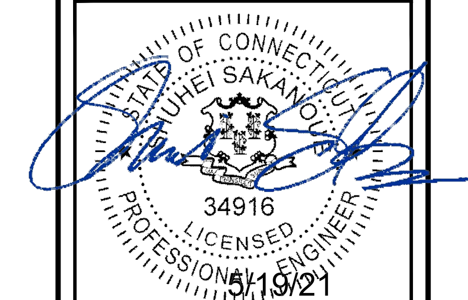

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BOBDL00089A
782 OLD CLINTON ROAD
WESTBROOK, CT 06498-1767

SHEET TITLE
RF
PLUMBING DIAGRAM

SHEET NUMBER
RF-2

LEGEND

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–DDBTXD

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

ABBREVIATIONS

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
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
RRH	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
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
UPS	UNITERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
VIF	VERIFIED IN FIELD
W	WIDE
W/	WITH
WD	WOOD
WP	WEATHERPROOF
WT	WEIGHT

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STATE OF CONNECTICUT
KUHEI SAKANO
34916
LICENSED PROFESSIONAL ENGINEER
5/19/21

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	04/16/2021	ISSUED FOR REVIEW
0	05/18/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

2039–Z5555C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00089A
782 OLD CLINTON ROAD
WESTBROOK, CT 06498–1767

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, LLC. AND TOWER OWNER NOC & THE DISH WIRELESS, LLC. AND TOWER OWNER CONSTRUCTION MANAGER.

2. "LOOK UP" – DISH WIRELESS, LLC. 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, LLC. AND DISH WIRELESS, LLC. 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, LLC. 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, LLC. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH WIRELESS, LLC. 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, LLC. 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, LLC. 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, LLC.

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, LLC. 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.

dish wireless.

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LICENSED PROFESSIONAL ENGINEER
5/10/21

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	04/16/2021	ISSUED FOR REVIEW
0	05/18/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

2039–Z5555C

DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00089A
782 OLD CLINTON ROAD
WESTBROOK, CT 06498–1767

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.

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

3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.

4. CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.

5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

- CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
- CONCRETE EXPOSED TO EARTH OR WEATHER:
- #6 BARS AND LARGER 2"
- #5 BARS AND SMALLER 1-1/2"
- CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
- SLAB AND WALLS 3/4"
- BEAMS AND COLUMNS 1-1/2"

7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.

2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.

3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.

4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.

4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.

4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.

5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.

6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).

7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.

8. TIE WRAPS ARE NOT ALLOWED.

9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.

12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.

13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).

14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.

18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.

20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.

21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).

22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).

23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.

24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3 (OR BETTER) FOR EXTERIOR LOCATIONS.

25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.

26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.

27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR DISH WIRELESS, LLC. AND TOWER OWNER BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.

29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH WIRELESS, LLC.".

30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

dish wireless.
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5/19/21

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	04/16/2021	ISSUED FOR REVIEW
0	05/18/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

2039-Z5555C

DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00089A
782 OLD CLINTON ROAD
WESTBROOK, CT 06498-1767

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.

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

CROWN CASTLE

2000 CORPORATE DRIVE
CANONSBURG, PA 15317

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STATE OF CONNECTICUT
SHUHEI SAKAMOTO
34916
LICENSED
PROFESSIONAL ENGINEER
5/19/21

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

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SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

Exhibit D

Structural Analysis Report

Date: **April 26, 2021**

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***DISH Network* Co-Locate**	
	Site Number:	BOBDL00089A
	Site Name:	CT-CCI-T-876339
Crown Castle Designation:	**BU Number:**	876339
	Site Name:	POND MEADOW RD. STABLE
	JDE Job Number:	645180
	Work Order Number:	1945889
	Order Number:	553290 Rev. 0
Engineering Firm Designation:	**Crown Castle Project Number:**	1945889
Site Data:	**782 Old Clinton Road, WESTBROOK, Middlesex County, CT** **Latitude *41° 17' 25.7"*, Longitude *-72° 28' 7.9"*** **160 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:

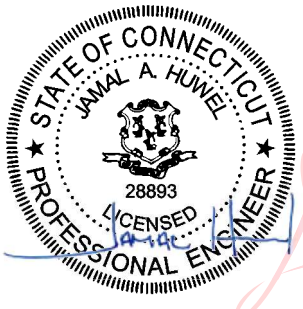
LC7: Proposed Equipment Configuration **Sufficient Capacity**

This analysis has been performed in accordance with the 2018 Connecticut Building Code based upon an ultimate 3-second gust wind speed of 135 mph. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Ryan T. Conway

Respectfully submitted by:

Jamal A. Huwel, P.E.
Director Engineering



Digitally signed by
Jamal A Huwel
Date: 2021.04.26
14:20:24 -04'00'

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 160 ft Monopole tower designed by Valmont. The tower has been modified multiple times to accommodate additional loading.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	135 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
132.0	132.0	3	fujitsu	TA08025-B604	1	1-1/2
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-20 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-PK8-DSH		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
159.0	160.0	3	alcatel lucent	TD-RRH8X20-25	4	1-1/4
		1	rfs celwave	APXV9ERR18-C-A20 w/ Mount Pipe		
		2	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe		
	159.0	1	tower mounts	Platform Mount [LP 602-1]		
155.0	155.0	1	tower mounts	Side Arm Mount [SO 102-3]	-	-
	154.0	3	alcatel lucent	800MHZ 2X50W RRH W/FILTER		
		3	alcatel lucent	PCS 1900MHZ 4X45W-65MHZ		
142.0	145.0	3	ericsson	AIR 32 B2A B66AA w/ Mount Pipe	10	1-5/8
		3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe		
		3	ericsson	KRY 112 144/1		
		3	ericsson	RADIO 4449 B12/B71		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
	142.0	1	tower mounts	Platform Mount [LP 602-1_KCKR]		
116.0	117.0	4	antel	LPA-80063-4CF-EDIN-5 w/ Mount Pipe	8	1-5/8
		1	antel	LPA-80080-4CF-EDIN-0 w/ Mount Pipe		
		1	antel	LPA-80080/4CF w/ Mount Pipe		
		3	commscope	CBC78T-DS-43-2X		
		6	commscope	JAHH-65B-R3B w/ Mount Pipe		
		2	rfs celwave	DB-T1-6Z-8AB-0Z		
		3	samsung telecommunications	MT6407-77A w/ Mount Pipe		
		3	samsung telecommunications	RFV01U-D1A		
		6	samsung telecommunications	RFV01U-D2A		
	116.0	1	tower mounts	Platform Mount [LP 303-1_HR-1]		
96.0	103.0	1	gps	GPS_A	12 2 1 1 2	1-5/8 3/4 1/2 3/8 conduit
	98.0	3	ericsson	RRUS 11		
		3	ericsson	RRUS 12 B2		
		3	kmw communications	AM-X-CD-14-65-00T-RET w/ Mount Pipe		
		6	powerwave technologies	7770.00 w/ Mount Pipe		
		6	powerwave technologies	TT19-08BP111-001		
		1	raycap	DC6-48-60-18-8F		
	96.0	1	tower mounts	T-Arm Mount [TA 602-3]		
92.0	93.0	1	lucent	KS24019-L112A	1	1/2
	92.0	1	tower mounts	Side Arm Mount [SO 701-1]		
87.0	87.0	2	tower mounts	Side Arm Mount [SO 701-1]	-	-

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	1532966	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1533020	CCISITES
4-TOWER MANUFACTURER DRAWINGS	1531985	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	2884023	CCISITES
4-POST-MODIFICATION INSPECTION	2923975	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	3366474	CCISITES
4-POST-MODIFICATION INSPECTION	3633208	CCISITES

Document	Reference	Source
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	3678375	CCISITES
4-POST-MODIFICATION INSPECTION	3682462	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	3682464	CCISITES
4-POST-MODIFICATION INSPECTION	4023333	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.9.0), 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)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
160 - 156	Pole	TP23.11x22.35x0.2188	Pole	2.9%	Pass
156 - 152	Pole	TP23.871x23.11x0.2188	Pole	6.3%	Pass
152 - 148	Pole	TP24.631x23.871x0.2188	Pole	9.8%	Pass
148 - 144	Pole	TP25.391x24.631x0.2188	Pole	13.3%	Pass
144 - 140	Pole	TP26.151x25.391x0.2188	Pole	19.7%	Pass
140 - 136	Pole	TP26.912x26.151x0.2188	Pole	25.9%	Pass
136 - 132	Pole	TP27.672x26.912x0.2188	Pole	31.8%	Pass
132 - 128	Pole	TP28.432x27.672x0.2188	Pole	39.7%	Pass
128 - 124	Pole	TP29.192x28.432x0.2188	Pole	47.1%	Pass
124 - 122	Pole	TP30.46x29.192x0.2188	Pole	50.6%	Pass
122 - 116.33	Pole	TP30.212x29.135x0.2813	Pole	42.5%	Pass
116.33 - 112.33	Pole	TP30.972x30.212x0.2813	Pole	49.2%	Pass
112.33 - 108.33	Pole	TP31.732x30.972x0.2813	Pole	55.0%	Pass
108.33 - 104.33	Pole	TP32.492x31.732x0.2813	Pole	60.6%	Pass
104.33 - 100.33	Pole	TP33.252x32.492x0.2813	Pole	66.0%	Pass
100.33 - 96.33	Pole	TP34.012x33.252x0.2813	Pole	71.4%	Pass
96.33 - 94	Pole	TP34.455x34.012x0.2813	Pole	75.3%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
94 - 93.75	Pole	TP34.502x34.455x0.2813	Pole	75.7%	Pass
93.75 - 89.75	Pole	TP35.262x34.502x0.2813	Pole	81.7%	Pass
89.75 - 88	Pole	TP36.64x35.262x0.2813	Pole	84.3%	Pass
88 - 81.5	Pole	TP36.273x35.032x0.375	Pole	63.8%	Pass
81.5 - 77.5	Pole	TP37.036x36.273x0.375	Pole	67.3%	Pass
77.5 - 73.5	Pole	TP37.799x37.036x0.375	Pole	70.6%	Pass
73.5 - 72.25	Pole	TP38.038x37.799x0.375	Pole	71.7%	Pass
72.25 - 72	Pole + Reinf.	TP38.085x38.038x0.4875	Reinf. 5 Tension Rupture	67.4%	Pass
72 - 68	Pole + Reinf.	TP38.849x38.085x0.4813	Reinf. 5 Tension Rupture	70.2%	Pass
68 - 64	Pole + Reinf.	TP39.612x38.849x0.475	Reinf. 5 Tension Rupture	72.8%	Pass
64 - 60	Pole + Reinf.	TP40.375x39.612x0.475	Reinf. 5 Tension Rupture	75.2%	Pass
60 - 56	Pole + Reinf.	TP41.138x40.375x0.475	Reinf. 5 Tension Rupture	77.5%	Pass
56 - 53.75	Pole + Reinf.	TP41.568x41.138x0.475	Reinf. 5 Tension Rupture	78.8%	Pass
53.75 - 53.5	Pole + Reinf.	TP41.615x41.568x0.6375	Reinf. 4 Tension Rupture	73.6%	Pass
53.5 - 49.5	Pole + Reinf.	TP42.379x41.615x0.6375	Reinf. 4 Tension Rupture	75.9%	Pass
49.5 - 47	Pole + Reinf.	TP44.08x42.379x0.625	Reinf. 4 Tension Rupture	77.2%	Pass
47 - 39.58	Pole + Reinf.	TP43.509x42.106x0.7	Reinf. 7 Compression	79.2%	Pass
39.58 - 35.58	Pole + Reinf.	TP44.266x43.509x0.7	Reinf. 7 Compression	81.1%	Pass
35.58 - 31.48	Pole + Reinf.	TP45.042x44.266x0.7375	Reinf. 7 Compression	77.7%	Pass
31.48 - 31.25	Pole + Reinf.	TP45.086x45.042x0.7375	Reinf. 7 Compression	77.8%	Pass
31.25 - 28.75	Pole + Reinf.	TP45.559x45.086x0.7375	Reinf. 7 Compression	78.9%	Pass
28.75 - 28.5	Pole + Reinf.	TP45.607x45.559x0.6375	Reinf. 3 Tension Rupture	80.2%	Pass
28.5 - 24.5	Pole + Reinf.	TP46.364x45.607x0.625	Reinf. 3 Tension Rupture	81.7%	Pass
24.5 - 20.5	Pole + Reinf.	TP47.121x46.364x0.625	Reinf. 3 Tension Rupture	83.1%	Pass
20.5 - 16.5	Pole + Reinf.	TP47.877x47.121x0.625	Reinf. 3 Tension Rupture	84.5%	Pass
16.5 - 12.5	Pole + Reinf.	TP48.634x47.877x0.625	Reinf. 3 Tension Rupture	85.8%	Pass
12.5 - 11	Pole + Reinf.	TP48.918x48.634x0.6125	Reinf. 3 Tension Rupture	86.2%	Pass
11 - 10.75	Pole + Reinf.	TP48.966x48.918x0.7125	Reinf. 3 Tension Rupture	76.5%	Pass
10.75 - 6.75	Pole + Reinf.	TP49.723x48.966x0.7125	Reinf. 3 Tension Rupture	77.6%	Pass
6.75 - 6.25	Pole + Reinf.	TP49.817x49.723x0.7125	Reinf. 3 Tension Rupture	77.8%	Pass
6.25 - 6	Pole + Reinf.	TP49.865x49.817x0.6625	Reinf. 6 Tension Rupture	83.7%	Pass
6 - 5	Pole + Reinf.	TP50.054x49.865x0.6625	Reinf. 6 Tension Rupture	84.0%	Pass
5 - 4.75	Pole + Reinf.	TP50.101x50.054x0.5625	Reinf. 3 Tension Rupture	89.6%	Pass
4.75 - 0.75	Pole + Reinf.	TP50.858x50.101x0.5625	Reinf. 3 Tension Rupture	90.7%	Pass
0.75 - 0	Pole + Reinf.	TP51x50.858x0.5625	Reinf. 3 Tension Rupture	90.9%	Pass
				Summary	
			Pole	84.3%	Pass
			Reinforcement	90.9%	Pass
			Overall	90.9%	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	50.2	Pass
1	Base Plate	0	49.4	Pass
1	Base Foundation (Structure)	0	53.3	Pass
1	Base Foundation (Soil Interaction)	0	80.5	Pass

Structure Rating (max from all components) =	90.9%

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

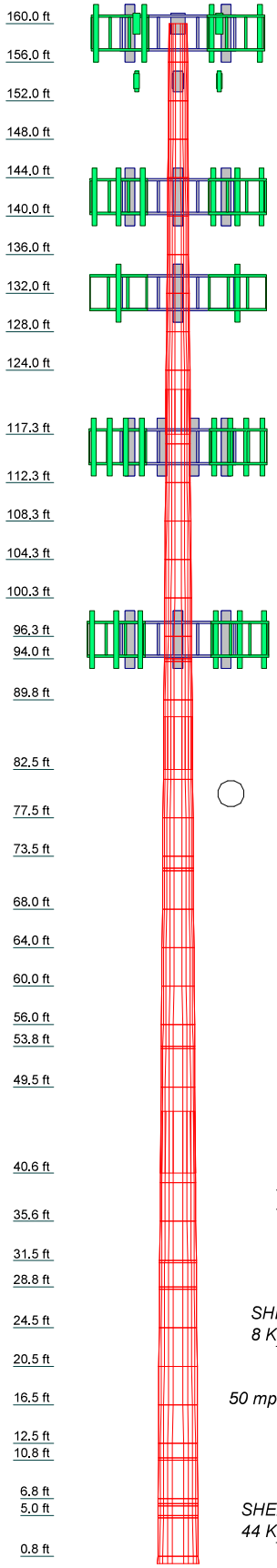
4.1) Recommendations

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

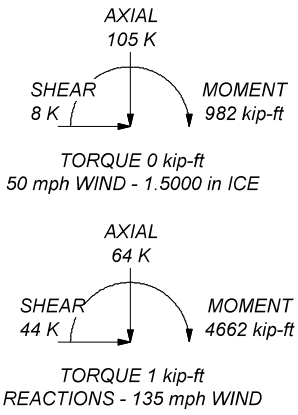
APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	4.00	12	0.2188		2.3500	3.1103		0.2
2	4.00	12	0.2188		3.1102	3.8703		0.2
3	4.00	12	0.2188		3.8703	4.6303		0.2
4	4.00	12	0.2188		4.6303	5.3904		0.2
5	4.00	12	0.2188		5.3904	6.1504		0.2
6	4.00	12	0.2188		6.1504	6.9104		0.3
7	4.00	12	0.2188		6.9104	7.6705		0.3
8	4.00	12	0.2188		7.6705	8.4305		0.3
9	4.00	12	0.2188		8.4305	9.1905		0.3
10	5.6667	12	0.2188	4.67	9.1905	10.4600		0.5
11	5.6667	12	0.2813		10.4600	12.0200		0.5
12	4.00	12	0.2813		12.0200	12.7300		0.4
13	4.00	12	0.2813		12.7300	13.4400		0.4
14	4.00	12	0.2813		13.4400	14.1500		0.4
15	4.00	12	0.2813		14.1500	14.8600		0.4
16	4.00	12	0.2813		14.8600	15.5700		0.4
17	1.2333	12	0.2813		15.5700	15.7800		0.2
18	1.2333	12	0.2813		15.7800	15.9900		0.2
19	4.00	12	0.2813		15.9900	16.7000		0.4
20	6.5625	12	0.2813	5.50	16.7000	17.8200		0.8
21	6.5625	12	0.3125		17.8200	18.0000		0.9
22	4.00	12	0.3750		18.0000	18.6800		0.6
23	4.00	12	0.3750		18.6800	19.3600		0.6
24	1.2500	12	0.3750		19.3600	19.5700		0.2
25	1.2500	12	0.3750		19.5700	19.7800		0.2
26	4.00	12	0.3750		19.7800	20.4600		0.8
27	4.00	12	0.4750		20.4600	21.1400		0.8
28	4.00	12	0.4750		21.1400	21.8200		0.8
29	4.00	12	0.4750		21.8200	22.5000		0.8
30	1.2500	12	0.4750		22.5000	22.7100		0.3
31	1.2500	12	0.4750		22.7100	22.9200		0.3
32	4.00	12	0.4750		22.9200	23.6000		1.1
33	7.4792	12	0.6250	6.42	23.6000	24.4200		2.5
34	0.0000	12	0.6250		24.4200	24.4200		2.3
35	4.00	12	0.6250		24.4200	25.0900		1.3
36	2.1042	12	0.6250		25.0900	25.3000		1.4
37	0.5208	12	0.6250		25.3000	25.3500		0.3
38	0.5208	12	0.6250		25.3500	25.4000		0.3
39	0.2500	12	0.6250		25.4000	25.4200		0.1
40	4.00	12	0.6250		25.4200	26.0900		1.2
41	4.00	12	0.6250		26.0900	26.7600		1.2
42	4.00	12	0.6250		26.7600	27.4300		1.3
43	4.00	12	0.6250		27.4300	28.1000		1.3
44	0.2500	12	0.6250		28.1000	28.1200		0.1
45	0.2500	12	0.6250		28.1200	28.1400		0.1
46	4.00	12	0.6250		28.1400	28.8100		1.2
47	0.2500	12	0.6250		28.8100	28.8300		0.1
48	0.2500	12	0.6250		28.8300	28.8500		0.1
49	4.00	12	0.6250		28.8500	29.5200		1.2
50	0.2500	12	0.6250		29.5200	29.5400		0.1
51	4.00	12	0.6250		29.5400	30.2100		1.3
52	0.7500	12	0.6250		30.2100	30.2700		0.2
	31.9						A572-65	



ALL REACTIONS ARE FACTORED



TORQUE 0 kip-ft
50 mph WIND - 1.5000 in ICE

TORQUE 1 kip-ft
REACTIONS - 135 mph WIND

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 135 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 90.9%

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

Job: **BU# 876339**			
Project:			
Client: Crown Castle	Drawn by: rconway		App'd:
Code: TIA-222-H	Date: 04/26/21		Scale: NTS
Path: C:\Users\rconway\Desktop\Production WO\876339\WO 1945889 - SA\Prod\876339_RPA Reinforced.dri			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 Middlesex County, Connecticut.
- Tower base elevation above sea level: 95.00 ft.
- Basic wind speed of 135 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.5000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56.00 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- TOWER RATING: 90.9%.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.05.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	160.00-156.00	4.00	0.00	12	22.3500	23.1103	0.2188	0.8750	A572-65 (65 ksi)
L2	156.00-152.00	4.00	0.00	12	23.1103	23.8705	0.2188	0.8750	A572-65 (65 ksi)
L3	152.00-148.00	4.00	0.00	12	23.8705	24.6308	0.2188	0.8750	A572-65 (65 ksi)
L4	148.00-144.00	4.00	0.00	12	24.6308	25.3910	0.2188	0.8750	A572-65 (65 ksi)
L5	144.00-140.00	4.00	0.00	12	25.3910	26.1513	0.2188	0.8750	A572-65 (65 ksi)
L6	140.00-136.00	4.00	0.00	12	26.1513	26.9115	0.2188	0.8750	A572-65 (65 ksi)
L7	136.00-132.00	4.00	0.00	12	26.9115	27.6718	0.2188	0.8750	A572-65 (65 ksi)
L8	132.00-128.00	4.00	0.00	12	27.6718	28.4320	0.2188	0.8750	A572-65 (65 ksi)
L9	128.00-124.00	4.00	0.00	12	28.4320	29.1923	0.2188	0.8750	A572-65 (65 ksi)
L10	124.00-117.33	6.67	4.67	12	29.1923	30.4600	0.2188	0.8750	A572-65 (65 ksi)
L11	117.33-116.33	5.67	0.00	12	29.1349	30.2122	0.2813	1.1250	A572-65 (65 ksi)
L12	116.33-112.33	4.00	0.00	12	30.2122	30.9722	0.2813	1.1250	A572-65 (65 ksi)
L13	112.33-108.33	4.00	0.00	12	30.9722	31.7322	0.2813	1.1250	A572-65 (65 ksi)
L14	108.33-104.33	4.00	0.00	12	31.7322	32.4922	0.2813	1.1250	A572-65 (65 ksi)
L15	104.33-100.33	4.00	0.00	12	32.4922	33.2523	0.2813	1.1250	A572-65 (65 ksi)
L16	100.33-96.33	4.00	0.00	12	33.2523	34.0123	0.2813	1.1250	A572-65 (65 ksi)
L17	96.33-94.00	2.33	0.00	12	34.0123	34.4550	0.2813	1.1250	A572-65 (65 ksi)
L18	94.00-93.75	0.25	0.00	12	34.4550	34.5025	0.2813	1.1250	A572-65 (65 ksi)
L19	93.75-89.75	4.00	0.00	12	34.5025	35.2625	0.2813	1.1250	A572-65 (65 ksi)
L20	89.75-82.50	7.25	5.50	12	35.2625	36.6400	0.2813	1.1250	A572-65 (65 ksi)
L21	82.50-81.50	6.50	0.00	12	35.0325	36.2727	0.3750	1.5000	A572-65 (65 ksi)
L22	81.50-77.50	4.00	0.00	12	36.2727	37.0360	0.3750	1.5000	A572-65 (65 ksi)
L23	77.50-73.50	4.00	0.00	12	37.0360	37.7992	0.3750	1.5000	A572-65 (65 ksi)
L24	73.50-72.25	1.25	0.00	12	37.7992	38.0377	0.3750	1.5000	A572-65 (65 ksi)
L25	72.25-72.00	0.25	0.00	12	38.0377	38.0854	0.4875	1.9500	A572-65 (65 ksi)
L26	72.00-68.00	4.00	0.00	12	38.0854	38.8486	0.4813	1.9250	A572-65 (65 ksi)
L27	68.00-64.00	4.00	0.00	12	38.8486	39.6119	0.4750	1.9000	A572-65 (65 ksi)
L28	64.00-60.00	4.00	0.00	12	39.6119	40.3751	0.4750	1.9000	A572-65 (65 ksi)
L29	60.00-56.00	4.00	0.00	12	40.3751	41.1383	0.4750	1.9000	A572-65 (65 ksi)
L30	56.00-53.75	2.25	0.00	12	41.1383	41.5676	0.4750	1.9000	A572-65 (65 ksi)
L31	53.75-53.50	0.25	0.00	12	41.5676	41.6153	0.6375	2.5500	A572-65 (65 ksi)
L32	53.50-49.50	4.00	0.00	12	41.6153	42.3786	0.6375	2.5500	A572-65 (65 ksi)
L33	49.50-40.58	8.92	6.42	12	42.3786	44.0800	0.6250	2.5000	A572-65 (65 ksi)
L34	40.58-39.58	7.42	0.00	12	42.1056	43.5092	0.7000	2.8000	A572-65 (65 ksi)
L35	39.58-35.58	4.00	0.00	12	43.5092	44.2662	0.7000	2.8000	A572-65

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
									(65 ksi)
L36	35.58-31.48	4.10	0.00	12	44.2662	45.0421	0.7375	2.9500	A572-65 (65 ksi)
L37	31.48-31.25	0.23	0.00	12	45.0421	45.0862	0.7375	2.9500	A572-65 (65 ksi)
L38	31.25-28.75	2.50	0.00	12	45.0862	45.5593	0.7375	2.9500	A572-65 (65 ksi)
L39	28.75-28.50	0.25	0.00	12	45.5593	45.6066	0.6375	2.5500	A572-65 (65 ksi)
L40	28.50-24.50	4.00	0.00	12	45.6066	46.3636	0.6250	2.5000	A572-65 (65 ksi)
L41	24.50-20.50	4.00	0.00	12	46.3636	47.1205	0.6250	2.5000	A572-65 (65 ksi)
L42	20.50-16.50	4.00	0.00	12	47.1205	47.8775	0.6250	2.5000	A572-65 (65 ksi)
L43	16.50-12.50	4.00	0.00	12	47.8775	48.6345	0.6250	2.5000	A572-65 (65 ksi)
L44	12.50-11.00	1.50	0.00	12	48.6345	48.9183	0.6125	2.4500	A572-65 (65 ksi)
L45	11.00-10.75	0.25	0.00	12	48.9183	48.9656	0.7125	2.8500	A572-65 (65 ksi)
L46	10.75-6.75	4.00	0.00	12	48.9656	49.7226	0.7125	2.8500	A572-65 (65 ksi)
L47	6.75-6.25	0.50	0.00	12	49.7226	49.8172	0.7125	2.8500	A572-65 (65 ksi)
L48	6.25-6.00	0.25	0.00	12	49.8172	49.8645	0.6625	2.6500	A572-65 (65 ksi)
L49	6.00-5.00	1.00	0.00	12	49.8645	50.0538	0.6625	2.6500	A572-65 (65 ksi)
L50	5.00-4.75	0.25	0.00	12	50.0538	50.1011	0.5625	2.2500	A572-65 (65 ksi)
L51	4.75-0.75	4.00	0.00	12	50.1011	50.8581	0.5625	2.2500	A572-65 (65 ksi)
L52	0.75-0.00	0.75		12	50.8581	51.0000	0.5625	2.2500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	23.0613	15.5887	974.5581	7.9230	11.5773	84.1784	1974.7188	7.6723	5.4036	24.702
	23.8483	16.1242	1078.4818	8.1952	11.9711	90.0904	2185.2965	7.9358	5.6073	25.633
L2	23.8483	16.1242	1078.4818	8.1952	11.9711	90.0904	2185.2965	7.9358	5.6073	25.633
	24.6354	16.6597	1189.5427	8.4673	12.3649	96.2030	2410.3361	8.1994	5.8110	26.565
L3	24.6354	16.6597	1189.5427	8.4673	12.3649	96.2030	2410.3361	8.1994	5.8110	26.565
	25.4225	17.1952	1307.9780	8.7395	12.7587	102.5163	2650.3181	8.4630	6.0148	27.496
L4	25.4225	17.1952	1307.9780	8.7395	12.7587	102.5163	2650.3181	8.4630	6.0148	27.496
	26.2095	17.7307	1434.0246	9.0117	13.1525	109.0302	2905.7227	8.7265	6.2185	28.428
L5	26.2095	17.7307	1434.0246	9.0117	13.1525	109.0302	2905.7227	8.7265	6.2185	28.428
	26.9966	18.2662	1567.9198	9.2838	13.5464	115.7448	3177.0306	8.9901	6.4223	29.359
L6	26.9966	18.2662	1567.9198	9.2838	13.5464	115.7448	3177.0306	8.9901	6.4223	29.359
	27.7837	18.8017	1709.9002	9.5560	13.9402	122.6600	3464.7214	9.2536	6.6260	30.29
L7	27.7837	18.8017	1709.9002	9.5560	13.9402	122.6600	3464.7214	9.2536	6.6260	30.29
	28.5708	19.3372	1860.2031	9.8282	14.3340	129.7758	3769.2758	9.5172	6.8298	31.222
L8	28.5708	19.3372	1860.2031	9.8282	14.3340	129.7758	3769.2758	9.5172	6.8298	31.222
	29.3578	19.8727	2019.0654	10.1004	14.7278	137.0922	4091.1739	9.7808	7.0335	32.153
L9	29.3578	19.8727	2019.0654	10.1004	14.7278	137.0922	4091.1739	9.7808	7.0335	32.153
	30.1449	20.4082	2186.7243	10.3725	15.1216	144.6093	4430.8962	10.0443	7.2373	33.085
L10	30.1449	20.4082	2186.7243	10.3725	15.1216	144.6093	4430.8962	10.0443	7.2373	33.085
	31.4573	21.3012	2486.5036	10.8264	15.7783	157.5903	5038.3305	10.4838	7.5770	34.638
L11	30.9821	26.1306	2776.7505	10.3296	15.0919	183.9897	5626.4493	12.8607	7.0544	25.082
	31.1788	27.1062	3099.5357	10.7153	15.6499	198.0543	6280.4996	13.3409	7.3431	26.109
L12	31.1788	27.1062	3099.5357	10.7153	15.6499	198.0543	6280.4996	13.3409	7.3431	26.109
	31.9656	27.7945	3341.6929	10.9874	16.0436	208.2880	6771.1758	13.6796	7.5468	26.833
L13	31.9656	27.7945	3341.6929	10.9874	16.0436	208.2880	6771.1758	13.6796	7.5468	26.833

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
	32.7524	28.4828	3596.1453	11.2595	16.4373	218.7796	7286.7654	14.0184	7.7505	27.557
L14	32.7524	28.4828	3596.1453	11.2595	16.4373	218.7796	7286.7654	14.0184	7.7505	27.557
	33.5392	29.1711	3863.1970	11.5315	16.8310	229.5289	7827.8845	14.3571	7.9542	28.282
L15	33.5392	29.1711	3863.1970	11.5315	16.8310	229.5289	7827.8845	14.3571	7.9542	28.282
	34.3261	29.8594	4143.1532	11.8036	17.2247	240.5360	8395.1516	14.6959	8.1579	29.006
L16	34.3261	29.8594	4143.1532	11.8036	17.2247	240.5360	8395.1516	14.6959	8.1579	29.006
	35.1129	30.5477	4436.3179	12.0757	17.6184	251.8009	8989.1828	15.0346	8.3615	29.73
L17	35.1129	30.5477	4436.3179	12.0757	17.6184	251.8009	8989.1828	15.0346	8.3615	29.73
	35.5712	30.9486	4613.2947	12.2342	17.8477	258.4815	9347.7858	15.2319	8.4802	30.152
L18	35.5712	30.9486	4613.2947	12.2342	17.8477	258.4815	9347.7858	15.2319	8.4802	30.152
	35.6204	30.9916	4632.5587	12.2512	17.8723	259.2036	9386.8199	15.2531	8.4929	30.197
L19	35.6204	30.9916	4632.5587	12.2512	17.8723	259.2036	9386.8199	15.2531	8.4929	30.197
	36.4072	31.6799	4948.1135	12.5233	18.2660	270.8925	10026.2195	15.5919	8.6966	30.921
L20	36.4072	31.6799	4948.1135	12.5233	18.2660	270.8925	10026.2195	15.5919	8.6966	30.921
	37.8333	32.9274	5555.9865	13.0164	18.9795	292.7359	11257.9350	16.2059	9.0658	32.234
L21	37.2225	41.8489	6415.9991	12.4074	18.1468	353.5604	13000.5537	20.5968	8.3837	22.357
	37.4200	43.3465	7129.7488	12.8514	18.7893	379.4584	14446.8041	21.3338	8.7161	23.243
L22	37.4200	43.3465	7129.7488	12.8514	18.7893	379.4584	14446.8041	21.3338	8.7161	23.243
	38.2102	44.2681	7594.2472	13.1246	19.1846	395.8506	15388.0038	21.7874	8.9206	23.788
L23	38.2102	44.2681	7594.2472	13.1246	19.1846	395.8506	15388.0038	21.7874	8.9206	23.788
	39.0003	45.1897	8078.4949	13.3979	19.5800	412.5895	16369.2209	22.2410	9.1252	24.334
L24	39.0003	45.1897	8078.4949	13.3979	19.5800	412.5895	16369.2209	22.2410	9.1252	24.334
	39.2472	45.4777	8233.9371	13.4832	19.7035	417.8915	16684.1889	22.3827	9.1891	24.504
L25	39.2076	58.9444	10608.4836	13.4430	19.7035	538.4052	21495.6639	29.0107	8.8876	18.231
	39.2569	59.0193	10648.9645	13.4600	19.7282	539.7828	21577.6892	29.0475	8.9004	18.257
L26	39.2591	58.2723	10517.6827	13.4623	19.7282	533.1283	21311.6767	28.6799	8.9171	18.529
	40.0493	59.4551	11171.1821	13.7355	20.1236	555.1286	22635.8436	29.2620	9.1217	18.954
L27	40.0515	58.6925	11031.4911	13.7378	20.1236	548.1870	22352.7917	28.8866	9.1384	19.239
	40.8417	59.8598	11702.9002	14.0110	20.5189	570.3461	23713.2486	29.4612	9.3430	19.669
L28	40.8417	59.8598	11702.9002	14.0110	20.5189	570.3461	23713.2486	29.4612	9.3430	19.669
	41.6318	61.0272	12401.0128	14.2842	20.9143	592.9442	25127.8140	30.0357	9.5475	20.1
L29	41.6318	61.0272	12401.0128	14.2842	20.9143	592.9442	25127.8140	30.0357	9.5475	20.1
	42.4220	62.1946	13126.3515	14.5575	21.3097	615.9815	26597.5469	30.6103	9.7521	20.531
L30	42.4220	62.1946	13126.3515	14.5575	21.3097	615.9815	26597.5469	30.6103	9.7521	20.531
	42.8664	62.8512	13546.5134	14.7112	21.5320	629.1329	27448.9087	30.9334	9.8671	20.773
L31	42.8091	84.0193	17966.0113	14.6530	21.5320	834.3851	36404.0098	41.3518	9.4316	14.795
	42.8585	84.1173	18028.9000	14.6701	21.5567	836.3461	36531.4393	41.4000	9.4444	14.815
L32	42.8585	84.1173	18028.9000	14.6701	21.5567	836.3461	36531.4393	41.4000	9.4444	14.815
	43.6486	85.6840	19055.1677	14.9433	21.9521	868.0339	38610.9359	42.1711	9.6490	15.136
L33	43.6530	84.0291	18698.3254	14.9478	21.9521	851.7784	37887.8766	41.3565	9.6825	15.492
	45.4145	87.4532	21078.5679	15.5569	22.8334	923.1446	42710.8933	43.0418	10.1384	16.222

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L34	44.6012	93.3282	20422.8695	14.8232	21.8107	936.3695	41382.2706	45.9333	9.4083	13.44
	44.7971	96.4919	22571.0254	15.3257	22.5378	1001.4757	45735.0167	47.4904	9.7845	13.978
L35	44.7971	96.4919	22571.0254	15.3257	22.5378	1001.4757	45735.0167	47.4904	9.7845	13.978
	45.5808	98.1982	23789.6541	15.5967	22.9299	1037.4959	48204.2888	48.3301	9.9873	14.268
L36	45.5676	103.3697	24999.4330	15.5833	22.9299	1090.2558	50655.6290	50.8754	9.8868	13.406
	46.3708	105.2123	26360.2421	15.8610	23.3318	1129.7993	53412.9971	51.7823	10.0948	13.688
L37	46.3708	105.2123	26360.2421	15.8610	23.3318	1129.7993	53412.9971	51.7823	10.0948	13.688
	46.4165	105.3170	26439.0253	15.8768	23.3546	1132.0677	53572.6333	51.8338	10.1066	13.704
L38	46.4165	105.3170	26439.0253	15.8768	23.3546	1132.0677	53572.6333	51.8338	10.1066	13.704
	46.9063	106.4405	27294.2305	16.0462	23.5997	1156.5498	55305.5108	52.3868	10.2334	13.876
L39	46.9415	92.2132	23751.5847	16.0820	23.5997	1006.4358	48127.1500	45.3845	10.5014	16.473
	46.9905	92.3103	23826.7083	16.0989	23.6242	1008.5717	48279.3707	45.4323	10.5141	16.493
L40	46.9949	90.5254	23379.0030	16.1034	23.6242	989.6206	47372.1984	44.5539	10.5476	16.876
	47.7786	92.0488	24579.2753	16.3744	24.0163	1023.4405	49804.2755	45.3036	10.7504	17.201
L41	47.7786	92.0488	24579.2753	16.3744	24.0163	1023.4405	49804.2755	45.3036	10.7504	17.201
	48.5623	93.5722	25819.9413	16.6454	24.4084	1057.8288	52318.2012	46.0534	10.9533	17.525
L42	48.5623	93.5722	25819.9413	16.6454	24.4084	1057.8288	52318.2012	46.0534	10.9533	17.525
	49.3460	95.0956	27101.6696	16.9164	24.8005	1092.7854	54915.3302	46.8032	11.1562	17.85
L43	49.3460	95.0956	27101.6696	16.9164	24.8005	1092.7854	54915.3302	46.8032	11.1562	17.85
	50.1296	96.6190	28425.1286	17.1874	25.1927	1128.3103	57597.0170	47.5530	11.3590	18.174
L44	50.1340	94.7113	27878.3904	17.1919	25.1927	1106.6080	56489.1772	46.6140	11.3925	18.6
	50.4279	95.2712	28375.6967	17.2935	25.3397	1119.8121	57496.8546	46.8896	11.4686	18.724
L45	50.3926	110.5962	32803.8908	17.2577	25.3397	1294.5654	66469.5764	54.4321	11.2006	15.72
	50.4416	110.7048	32900.5706	17.2746	25.3642	1297.1262	66665.4757	54.4855	11.2133	15.738
L46	50.4416	110.7048	32900.5706	17.2746	25.3642	1297.1262	66665.4757	54.4855	11.2133	15.738
	51.2253	112.4414	34473.3707	17.5456	25.7563	1338.4436	69852.3951	55.3403	11.4162	16.023
L47	51.2253	112.4414	34473.3707	17.5456	25.7563	1338.4436	69852.3951	55.3403	11.4162	16.023
	51.3233	112.6585	34673.4258	17.5795	25.8053	1343.6538	70257.7610	55.4471	11.4415	16.058
L48	51.3409	104.8593	32338.7872	17.5974	25.8053	1253.1826	65527.1504	51.6086	11.5755	17.472
	51.3899	104.9603	32432.2525	17.6143	25.8298	1255.6122	65716.5365	51.6582	11.5882	17.492
L49	51.3899	104.9603	32432.2525	17.6143	25.8298	1255.6122	65716.5365	51.6582	11.5882	17.492
	51.5858	105.3640	32807.9207	17.6821	25.9279	1265.3539	66477.7420	51.8569	11.6389	17.568
L50	51.6211	89.6411	28025.3190	17.7179	25.9279	1080.8959	56786.8944	44.1186	11.9069	21.168
	51.6700	89.7268	28105.7680	17.7348	25.9524	1082.9751	56949.9058	44.1608	11.9196	21.19
L51	51.6700	89.7268	28105.7680	17.7348	25.9524	1082.9751	56949.9058	44.1608	11.9196	21.19

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
	52.4537	91.0978	29413.9602	18.0058	26.3445	1116.5133	59600.6578	44.8356	12.1225	21.551
L52	52.4537	91.0978	29413.9602	18.0058	26.3445	1116.5133	59600.6578	44.8356	12.1225	21.551
	52.6007	91.3549	29663.6785	18.0566	26.4180	1122.8586	60106.6548	44.9621	12.1605	21.619

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	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
L1 160.00-156.00				1	1	1			
L2 156.00-152.00				1	1	1			
L3 152.00-148.00				1	1	1			
L4 148.00-144.00				1	1	1			
L5 144.00-140.00				1	1	1			
L6 140.00-136.00				1	1	1			
L7 136.00-132.00				1	1	1			
L8 132.00-128.00				1	1	1			
L9 128.00-124.00				1	1	1			
L10 124.00-117.33				1	1	1			
L11 117.33-116.33				1	1	1			
L12 116.33-112.33				1	1	1			
L13 112.33-108.33				1	1	1			
L14 108.33-104.33				1	1	1			
L15 104.33-100.33				1	1	1			
L16 100.33-96.33				1	1	1			
L17 96.33-94.00				1	1	1			
L18 94.00-93.75				1	1	1			
L19 93.75-89.75				1	1	1			
L20 89.75-82.50				1	1	1			
L21 82.50-81.50				1	1	1			
L22 81.50-77.50				1	1	1			
L23 77.50-73.50				1	1	1			
L24 73.50-72.25				1	1	1			
L25 72.25-72.00				1	1	0.975147			
L26 72.00-68.00				1	1	0.983501			
L27 68.00-64.00				1	1	0.992247			
L28 64.00-60.00				1	1	0.988368			
L29 60.00-				1	1	0.984635			

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	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
56.00									
L30 56.00-53.75				1	1	0.982596			
L31 53.75-53.50				1	1	0.96925			
L32 53.50-49.50				1	1	0.962283			
L33 49.50-40.58				1	1	0.976929			
L34 40.58-39.58				1	1	0.973266			
L35 39.58-35.58				1	1	0.967215			
L36 35.58-31.48				1	1	0.971125			
L37 31.48-31.25				1	1	0.970749			
L38 31.25-28.75				1	1	0.966764			
L39 28.75-28.50				1	1	0.969016			
L40 28.50-24.50				1	1	0.983353			
L41 24.50-20.50				1	1	0.97874			
L42 20.50-16.50				1	1	0.974275			
L43 16.50-12.50				1	1	0.96995			
L44 12.50-11.00				1	1	0.98787			
L45 11.00-10.75				1	1	1.01358			
L46 10.75-6.75				1	1	1.00741			
L47 6.75-6.25				1	1	1.00665			
L48 6.25-6.00				1	1	1.07366			
L49 6.00-5.00				1	1	1.07208			
L50 5.00-4.75				1	1	1.05876			
L51 4.75-0.75				1	1	1.05453			
L52 0.75-0.00				1	1	1.05376			

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
6.25 x 1.25	B	No	Surface Af (CaAa)	7.00 - 0.00	1	1	0.292 0.292	6.2500	15.0000	0.00
6.875 x 1.25	C	No	Surface Af (CaAa)	29.25 - 3.00	1	1	-0.458 -0.458	6.8750	16.2500	0.00
6.875 x 1.25	A	No	Surface Af (CaAa)	29.25 - 0.00	1	1	-0.458 -0.458	6.8750	16.2500	0.00
6.875 x 1.25	B	No	Surface Af (CaAa)	29.25 - 0.00	1	1	-0.458 -0.458	6.8750	16.2500	0.00
5.25 x 1.25	A	No	Surface Af (CaAa)	56.00 - 29.33	1	1	-0.458 -0.458	5.2500	13.0000	0.00
5.25 x 1.25	C	No	Surface Af (CaAa)	56.00 - 29.33	1	1	-0.458 -0.458	5.2500	13.0000	0.00
5.25 x 1.25	B	No	Surface Af (CaAa)	56.00 - 29.33	1	1	-0.458 -0.458	5.2500	13.0000	0.00
*										

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
4 x 1	A	No	Surface Af (CaAa)	74.00 - 44.00	1	1	-0.208 -0.208	4.0000	10.0000	0.00
4 x 1	C	No	Surface Af (CaAa)	74.00 - 44.00	1	1	-0.208 -0.208	4.0000	10.0000	0.00
4 x 1 *	B	No	Surface Af (CaAa)	74.00 - 44.00	1	1	-0.208 -0.208	4.0000	10.0000	0.00
6 x 1	A	No	Surface Af (CaAa)	13.00 - 3.00	1	1	-0.208 -0.208	6.0000	14.0000	0.00
6 x 1	C	No	Surface Af (CaAa)	13.00 - 3.00	1	1	0.042 0.042	6.0000	14.0000	0.00
6 x 1	B	No	Surface Af (CaAa)	13.00 - 3.00	1	1	0.042 0.042	6.0000	14.0000	0.00
4.5 x 1	A	No	Surface Af (CaAa)	42.25 - 27.25	1	1	0.042 0.042	4.5000	11.0000	0.00
4.5 x 1	C	No	Surface Af (CaAa)	42.25 - 27.25	1	1	0.042 0.042	4.5000	11.0000	0.00
4.5 x 1	B	No	Surface Af (CaAa)	42.25 - 27.25	1	1	0.042 0.042	4.5000	11.0000	0.00
4.5 x 1	C	No	Surface Af (CaAa)	96.50 - 86.50	1	1	0.292 0.292	4.5000	11.0000	0.00
4.5 x 1	C	No	Surface Af (CaAa)	96.50 - 86.50	1	1	-0.458 -0.458	4.5000	11.0000	0.00
4.5 x 1 *	B	No	Surface Af (CaAa)	96.50 - 86.50	1	1	-0.208 -0.208	4.5000	11.0000	0.00
HSS4.5x4.5x4	A	No	Surface Af (CaAa)	108.00 - 88.00	1	1	-0.208 -0.208	4.5000	18.0000	13.91
HSS4.5x4.5x4	A	No	Surface Af (CaAa)	108.00 - 88.00	1	1	-0.458 -0.458	4.5000	18.0000	13.91
HSS4.5x4.5x4	C	No	Surface Af (CaAa)	108.00 - 88.00	1	1	0.042 0.042	4.5000	18.0000	13.91
HSS4.5x4.5x4	C	No	Surface Af (CaAa)	108.00 - 88.00	1	1	-0.208 -0.208	4.5000	18.0000	13.91
HSS4.5x4.5x4	B	No	Surface Af (CaAa)	108.00 - 88.00	1	1	0.292 0.292	4.5000	18.0000	13.91
HSS4.5x4.5x4	B	No	Surface Af (CaAa)	108.00 - 88.00	1	1	0.042 0.042	4.5000	18.0000	13.91
HSS4.5x4.5x4	B	No	Surface Af (CaAa)	108.00 - 88.00	1	1	-0.458 -0.458	4.5000	18.0000	13.91
HSS4.5x4.5x4 *	A	No	Surface Af (CaAa)	108.00 - 88.00	1	1	0.292 0.292	4.5000	18.0000	13.91
HSS4.5x4.5x4	C	No	Surface Af (CaAa)	80.00 - 74.00	1	1	-0.458 -0.458	4.5000	18.0000	13.91
HSS4.5x4.5x4	A	No	Surface Af (CaAa)	80.00 - 74.00	1	1	0.292 0.292	4.5000	18.0000	13.91
LDF7-50A(1-5/8)	B	No	Surface Ar (CaAa)	96.00 - 0.00	12	6	-0.500 -0.252	1.9800		0.82
2" (Nominal) Conduit ***	B	No	Surface Ar (CaAa)	96.00 - 0.00	1	1	-0.429 -0.429	2.3750		0.72
LDF4-50A(1/2) ***	A	No	Surface Ar (CaAa)	92.00 - 0.00	1	1	0.391 0.391	0.6300		0.15
CU12PSM9P6XXX(1-1/2)	B	No	Surface Ar (CaAa)	132.00 - 0.00	1	1	-0.300 -0.300	1.6000		2.35

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C_AA_A ft^2/ft	Weight plf
***								

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
HB114-1-08U4-M5J(1-1/4)	C	No	No	Inside Pole	159.00 - 0.00	3	No Ice	0.00	1.08
							1/2" Ice	0.00	1.08
							1" Ice	0.00	1.08
							2" Ice	0.00	1.08
HB114-21U3M12-XXXF(1-1/4)	C	No	No	Inside Pole	159.00 - 0.00	1	No Ice	0.00	1.22
							1/2" Ice	0.00	1.22
							1" Ice	0.00	1.22
							2" Ice	0.00	1.22
***									
LDF7-50A(1-5/8)	C	No	No	Inside Pole	142.00 - 0.00	6	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	C	No	No	Inside Pole	142.00 - 0.00	1	No Ice	0.00	1.07
							1/2" Ice	0.00	1.07
							1" Ice	0.00	1.07
							2" Ice	0.00	1.07
HCS 6X12 4AWG(1-5/8)	C	No	No	Inside Pole	142.00 - 0.00	3	No Ice	0.00	2.40
							1/2" Ice	0.00	2.40
							1" Ice	0.00	2.40
							2" Ice	0.00	2.40
***									
LDF7-50A(1-5/8)	C	No	No	Inside Pole	116.00 - 0.00	6	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82
HB158-1-08U8-S8J18(1-5/8)	C	No	No	Inside Pole	116.00 - 0.00	2	No Ice	0.00	1.30
							1/2" Ice	0.00	1.30
							1" Ice	0.00	1.30
							2" Ice	0.00	1.30
***									
LDF4-50A(1/2)	C	No	No	Inside Pole	96.00 - 0.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
							2" Ice	0.00	0.15
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	96.00 - 0.00	2	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
							2" Ice	0.00	0.58
2" (Nominal) Conduit	C	No	No	Inside Pole	96.00 - 0.00	1	No Ice	0.00	0.72
							1/2" Ice	0.00	0.72
							1" Ice	0.00	0.72
							2" Ice	0.00	0.72
FB-L98B-034-XXX(3/8)	C	No	No	Inside Pole	96.00 - 0.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	160.00-156.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.01
L2	156.00-152.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L3	152.00-148.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L4	148.00-144.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L5	144.00-140.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L6	140.00-136.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.07
L7	136.00-132.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.07
L8	132.00-128.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.640	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.07
L9	128.00-124.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.640	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.07
L10	124.00-117.33	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	1.067	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.12
L11	117.33-116.33	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.160	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L12	116.33-112.33	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.640	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.10
L13	112.33-108.33	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.640	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.10
L14	108.33-104.33	A	0.000	0.000	8.258	0.000	0.15
		B	0.000	0.000	8.898	0.000	0.16
		C	0.000	0.000	5.505	0.000	0.20
L15	104.33-100.33	A	0.000	0.000	9.000	0.000	0.17
		B	0.000	0.000	9.640	0.000	0.18
		C	0.000	0.000	6.000	0.000	0.21
L16	100.33-96.33	A	0.000	0.000	9.000	0.000	0.17
		B	0.000	0.000	9.768	0.000	0.18
		C	0.000	0.000	6.255	0.000	0.21
L17	96.33-94.00	A	0.000	0.000	5.242	0.000	0.10
		B	0.000	0.000	10.214	0.000	0.12
		C	0.000	0.000	6.990	0.000	0.13
L18	94.00-93.75	A	0.000	0.000	0.563	0.000	0.01
		B	0.000	0.000	1.146	0.000	0.01
		C	0.000	0.000	0.750	0.000	0.01
L19	93.75-89.75	A	0.000	0.000	9.142	0.000	0.17
		B	0.000	0.000	18.342	0.000	0.22
		C	0.000	0.000	12.000	0.000	0.22
L20	89.75-82.50	A	0.000	0.000	4.394	0.000	0.07
		B	0.000	0.000	17.870	0.000	0.17
		C	0.000	0.000	7.500	0.000	0.25
L21	82.50-81.50	A	0.000	0.000	0.063	0.000	0.00
		B	0.000	0.000	1.585	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.03
L22	81.50-77.50	A	0.000	0.000	1.699	0.000	0.04
		B	0.000	0.000	6.342	0.000	0.05
		C	0.000	0.000	1.447	0.000	0.14
L23	77.50-73.50	A	0.000	0.000	2.612	0.000	0.05
		B	0.000	0.000	6.675	0.000	0.05
		C	0.000	0.000	2.360	0.000	0.16
L24	73.50-72.25	A	0.000	0.000	0.912	0.000	0.00
		B	0.000	0.000	2.815	0.000	0.02
		C	0.000	0.000	0.833	0.000	0.03
L25	72.25-72.00	A	0.000	0.000	0.182	0.000	0.00
		B	0.000	0.000	0.563	0.000	0.00
		C	0.000	0.000	0.167	0.000	0.01
L26	72.00-68.00	A	0.000	0.000	2.919	0.000	0.00
		B	0.000	0.000	9.009	0.000	0.05
		C	0.000	0.000	2.667	0.000	0.11

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L27	68.00-64.00	A	0.000	0.000	2.919	0.000	0.00
		B	0.000	0.000	9.009	0.000	0.05
		C	0.000	0.000	2.667	0.000	0.11
L28	64.00-60.00	A	0.000	0.000	2.919	0.000	0.00
		B	0.000	0.000	9.009	0.000	0.05
		C	0.000	0.000	2.667	0.000	0.11
L29	60.00-56.00	A	0.000	0.000	2.919	0.000	0.00
		B	0.000	0.000	9.009	0.000	0.05
		C	0.000	0.000	2.667	0.000	0.11
L30	56.00-53.75	A	0.000	0.000	3.611	0.000	0.00
		B	0.000	0.000	7.036	0.000	0.03
		C	0.000	0.000	3.469	0.000	0.06
L31	53.75-53.50	A	0.000	0.000	0.401	0.000	0.00
		B	0.000	0.000	0.782	0.000	0.00
		C	0.000	0.000	0.385	0.000	0.01
L32	53.50-49.50	A	0.000	0.000	6.419	0.000	0.00
		B	0.000	0.000	12.509	0.000	0.05
		C	0.000	0.000	6.167	0.000	0.11
L33	49.50-40.58	A	0.000	0.000	13.281	0.000	0.00
		B	0.000	0.000	26.857	0.000	0.12
		C	0.000	0.000	12.719	0.000	0.24
L34	40.58-39.58	A	0.000	0.000	1.688	0.000	0.00
		B	0.000	0.000	3.211	0.000	0.01
		C	0.000	0.000	1.625	0.000	0.03
L35	39.58-35.58	A	0.000	0.000	6.752	0.000	0.00
		B	0.000	0.000	12.842	0.000	0.05
		C	0.000	0.000	6.500	0.000	0.11
L36	35.58-31.48	A	0.000	0.000	6.921	0.000	0.00
		B	0.000	0.000	13.163	0.000	0.05
		C	0.000	0.000	6.662	0.000	0.11
L37	31.48-31.25	A	0.000	0.000	0.393	0.000	0.00
		B	0.000	0.000	0.748	0.000	0.00
		C	0.000	0.000	0.379	0.000	0.01
L38	31.25-28.75	A	0.000	0.000	4.285	0.000	0.00
		B	0.000	0.000	8.092	0.000	0.03
		C	0.000	0.000	4.128	0.000	0.07
L39	28.75-28.50	A	0.000	0.000	0.490	0.000	0.00
		B	0.000	0.000	0.870	0.000	0.00
		C	0.000	0.000	0.474	0.000	0.01
L40	28.50-24.50	A	0.000	0.000	5.773	0.000	0.00
		B	0.000	0.000	11.863	0.000	0.05
		C	0.000	0.000	5.521	0.000	0.11
L41	24.50-20.50	A	0.000	0.000	4.835	0.000	0.00
		B	0.000	0.000	10.925	0.000	0.05
		C	0.000	0.000	4.583	0.000	0.11
L42	20.50-16.50	A	0.000	0.000	4.835	0.000	0.00
		B	0.000	0.000	10.925	0.000	0.05
		C	0.000	0.000	4.583	0.000	0.11
L43	16.50-12.50	A	0.000	0.000	5.291	0.000	0.00
		B	0.000	0.000	11.381	0.000	0.05
		C	0.000	0.000	5.039	0.000	0.11
L44	12.50-11.00	A	0.000	0.000	3.181	0.000	0.00
		B	0.000	0.000	5.465	0.000	0.02
		C	0.000	0.000	3.087	0.000	0.04
L45	11.00-10.75	A	0.000	0.000	0.530	0.000	0.00
		B	0.000	0.000	0.911	0.000	0.00
		C	0.000	0.000	0.514	0.000	0.01
L46	10.75-6.75	A	0.000	0.000	8.484	0.000	0.00
		B	0.000	0.000	14.783	0.000	0.05
		C	0.000	0.000	8.232	0.000	0.11
L47	6.75-6.25	A	0.000	0.000	1.060	0.000	0.00
		B	0.000	0.000	2.240	0.000	0.01
		C	0.000	0.000	1.029	0.000	0.01
L48	6.25-6.00	A	0.000	0.000	0.530	0.000	0.00
		B	0.000	0.000	1.120	0.000	0.00
		C	0.000	0.000	0.514	0.000	0.01
L49	6.00-5.00	A	0.000	0.000	2.121	0.000	0.00
		B	0.000	0.000	4.480	0.000	0.01
		C	0.000	0.000	2.058	0.000	0.03

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L50	5.00-4.75	A	0.000	0.000	0.530	0.000	0.00
		B	0.000	0.000	1.120	0.000	0.00
		C	0.000	0.000	0.514	0.000	0.01
L51	4.75-0.75	A	0.000	0.000	6.432	0.000	0.00
		B	0.000	0.000	15.867	0.000	0.05
		C	0.000	0.000	3.601	0.000	0.11
L52	0.75-0.00	A	0.000	0.000	0.907	0.000	0.00
		B	0.000	0.000	2.676	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.02

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	160.00-156.00	A	1.491	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.01
L2	156.00-152.00	A	1.487	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.02
L3	152.00-148.00	A	1.483	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.02
L4	148.00-144.00	A	1.479	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.02
L5	144.00-140.00	A	1.475	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.04
L6	140.00-136.00	A	1.471	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.07
L7	136.00-132.00	A	1.467	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.07
L8	132.00-128.00	A	1.462	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.810	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.07
L9	128.00-124.00	A	1.458	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.806	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.07
L10	124.00-117.33	A	1.451	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	3.003	0.000	0.05
		C		0.000	0.000	0.000	0.000	0.12
L11	117.33-116.33	A	1.447	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.450	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.02
L12	116.33-112.33	A	1.444	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.795	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.10
L13	112.33-108.33	A	1.439	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.791	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.10
L14	108.33-104.33	A	1.433	0.000	0.000	11.414	0.000	0.30
		B		0.000	0.000	13.200	0.000	0.33
		C		0.000	0.000	7.609	0.000	0.30
L15	104.33-100.33	A	1.428	0.000	0.000	12.427	0.000	0.32
		B		0.000	0.000	14.209	0.000	0.35
		C		0.000	0.000	8.284	0.000	0.32
L16	100.33-96.33	A	1.422	0.000	0.000	12.413	0.000	0.32
		B		0.000	0.000	14.346	0.000	0.35
		C		0.000	0.000	8.585	0.000	0.32
L17	96.33-94.00	A	1.417	0.000	0.000	7.224	0.000	0.19
		B		0.000	0.000	15.100	0.000	0.31
		C		0.000	0.000	9.060	0.000	0.23

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L18	94.00-93.75	A	1.416	0.000	0.000	0.775	0.000	0.02
		B		0.000	0.000	1.703	0.000	0.03
		C		0.000	0.000	0.972	0.000	0.02
L19	93.75-89.75	A	1.412	0.000	0.000	13.167	0.000	0.33
		B		0.000	0.000	27.232	0.000	0.55
		C		0.000	0.000	15.542	0.000	0.39
L20	89.75-82.50	A	1.403	0.000	0.000	7.903	0.000	0.17
		B		0.000	0.000	28.628	0.000	0.51
		C		0.000	0.000	9.518	0.000	0.35
L21	82.50-81.50	A	1.396	0.000	0.000	0.344	0.000	0.00
		B		0.000	0.000	2.795	0.000	0.05
		C		0.000	0.000	0.000	0.000	0.03
L22	81.50-77.50	A	1.392	0.000	0.000	3.219	0.000	0.08
		B		0.000	0.000	11.150	0.000	0.19
		C		0.000	0.000	1.854	0.000	0.18
L23	77.50-73.50	A	1.385	0.000	0.000	4.424	0.000	0.11
		B		0.000	0.000	11.603	0.000	0.19
		C		0.000	0.000	3.064	0.000	0.21
L24	73.50-72.25	A	1.380	0.000	0.000	1.602	0.000	0.01
		B		0.000	0.000	4.653	0.000	0.07
		C		0.000	0.000	1.178	0.000	0.04
L25	72.25-72.00	A	1.379	0.000	0.000	0.320	0.000	0.00
		B		0.000	0.000	0.930	0.000	0.01
		C		0.000	0.000	0.236	0.000	0.01
L26	72.00-68.00	A	1.375	0.000	0.000	5.118	0.000	0.05
		B		0.000	0.000	14.870	0.000	0.22
		C		0.000	0.000	3.766	0.000	0.14
L27	68.00-64.00	A	1.366	0.000	0.000	5.105	0.000	0.05
		B		0.000	0.000	14.843	0.000	0.22
		C		0.000	0.000	3.760	0.000	0.14
L28	64.00-60.00	A	1.358	0.000	0.000	5.091	0.000	0.05
		B		0.000	0.000	14.814	0.000	0.21
		C		0.000	0.000	3.753	0.000	0.14
L29	60.00-56.00	A	1.349	0.000	0.000	5.077	0.000	0.05
		B		0.000	0.000	14.783	0.000	0.21
		C		0.000	0.000	3.746	0.000	0.14
L30	56.00-53.75	A	1.342	0.000	0.000	5.422	0.000	0.05
		B		0.000	0.000	10.874	0.000	0.14
		C		0.000	0.000	4.676	0.000	0.10
L31	53.75-53.50	A	1.338	0.000	0.000	0.602	0.000	0.01
		B		0.000	0.000	1.207	0.000	0.02
		C		0.000	0.000	0.519	0.000	0.01
L32	53.50-49.50	A	1.333	0.000	0.000	9.618	0.000	0.08
		B		0.000	0.000	19.295	0.000	0.25
		C		0.000	0.000	8.299	0.000	0.18
L33	49.50-40.58	A	1.315	0.000	0.000	19.857	0.000	0.17
		B		0.000	0.000	41.359	0.000	0.54
		C		0.000	0.000	16.950	0.000	0.38
L34	40.58-39.58	A	1.300	0.000	0.000	2.477	0.000	0.02
		B		0.000	0.000	4.888	0.000	0.06
		C		0.000	0.000	2.151	0.000	0.04
L35	39.58-35.58	A	1.292	0.000	0.000	9.852	0.000	0.08
		B		0.000	0.000	19.455	0.000	0.24
		C		0.000	0.000	8.567	0.000	0.18
L36	35.58-31.48	A	1.277	0.000	0.000	10.062	0.000	0.08
		B		0.000	0.000	19.878	0.000	0.25
		C		0.000	0.000	8.757	0.000	0.18
L37	31.48-31.25	A	1.269	0.000	0.000	0.571	0.000	0.00
		B		0.000	0.000	1.128	0.000	0.01
		C		0.000	0.000	0.497	0.000	0.01
L38	31.25-28.75	A	1.263	0.000	0.000	6.160	0.000	0.05
		B		0.000	0.000	12.129	0.000	0.15
		C		0.000	0.000	5.371	0.000	0.11
L39	28.75-28.50	A	1.257	0.000	0.000	0.678	0.000	0.01
		B		0.000	0.000	1.275	0.000	0.02
		C		0.000	0.000	0.600	0.000	0.01
L40	28.50-24.50	A	1.247	0.000	0.000	8.080	0.000	0.06
		B		0.000	0.000	17.604	0.000	0.22
		C		0.000	0.000	6.831	0.000	0.16

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight K
L41	24.50-20.50	A	1.227	0.000	0.000	6.799	0.000	0.05
		B		0.000	0.000	16.285	0.000	0.21
		C		0.000	0.000	5.565	0.000	0.15
L42	20.50-16.50	A	1.203	0.000	0.000	6.761	0.000	0.05
		B		0.000	0.000	16.204	0.000	0.21
		C		0.000	0.000	5.546	0.000	0.15
L43	16.50-12.50	A	1.174	0.000	0.000	7.233	0.000	0.05
		B		0.000	0.000	16.625	0.000	0.21
		C		0.000	0.000	6.042	0.000	0.15
L44	12.50-11.00	A	1.150	0.000	0.000	4.056	0.000	0.03
		B		0.000	0.000	7.561	0.000	0.09
		C		0.000	0.000	3.616	0.000	0.07
L45	11.00-10.75	A	1.141	0.000	0.000	0.675	0.000	0.00
		B		0.000	0.000	1.258	0.000	0.01
		C		0.000	0.000	0.602	0.000	0.01
L46	10.75-6.75	A	1.116	0.000	0.000	10.747	0.000	0.08
		B		0.000	0.000	20.274	0.000	0.23
		C		0.000	0.000	9.602	0.000	0.18
L47	6.75-6.25	A	1.084	0.000	0.000	1.335	0.000	0.01
		B		0.000	0.000	2.966	0.000	0.03
		C		0.000	0.000	1.195	0.000	0.02
L48	6.25-6.00	A	1.077	0.000	0.000	0.667	0.000	0.00
		B		0.000	0.000	1.481	0.000	0.02
		C		0.000	0.000	0.597	0.000	0.01
L49	6.00-5.00	A	1.066	0.000	0.000	2.661	0.000	0.02
		B		0.000	0.000	5.913	0.000	0.06
		C		0.000	0.000	2.385	0.000	0.04
L50	5.00-4.75	A	1.053	0.000	0.000	0.664	0.000	0.00
		B		0.000	0.000	1.475	0.000	0.02
		C		0.000	0.000	0.595	0.000	0.01
L51	4.75-0.75	A	0.994	0.000	0.000	8.209	0.000	0.05
		B		0.000	0.000	21.055	0.000	0.22
		C		0.000	0.000	4.136	0.000	0.13
L52	0.75-0.00	A	0.815	0.000	0.000	1.151	0.000	0.01
		B		0.000	0.000	3.485	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.02

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	160.00-156.00	0.0000	0.0000	0.0000	0.0000
L2	156.00-152.00	0.0000	0.0000	0.0000	0.0000
L3	152.00-148.00	0.0000	0.0000	0.0000	0.0000
L4	148.00-144.00	0.0000	0.0000	0.0000	0.0000
L5	144.00-140.00	0.0000	0.0000	0.0000	0.0000
L6	140.00-136.00	0.0000	0.0000	0.0000	0.0000
L7	136.00-132.00	0.0000	0.0000	0.0000	0.0000
L8	132.00-128.00	0.3933	-0.8834	0.7493	-1.6830
L9	128.00-124.00	0.3934	-0.8836	0.7511	-1.6870
L10	124.00-117.33	0.3935	-0.8839	0.7532	-1.6918
L11	117.33-116.33	0.3938	-0.8846	0.7549	-1.6955
L12	116.33-112.33	0.3939	-0.8847	0.7543	-1.6942
L13	112.33-108.33	0.3939	-0.8848	0.7555	-1.6969
L14	108.33-104.33	0.4245	1.4409	0.5846	1.2364
L15	104.33-100.33	0.4342	1.5334	0.5884	1.3450
L16	100.33-96.33	0.4668	1.5002	0.6207	1.3176
L17	96.33-94.00	1.2854	-1.2678	1.4097	-1.7599
L18	94.00-93.75	1.3406	-1.5318	1.4656	-2.0648
L19	93.75-89.75	1.3370	-1.5844	1.4201	-2.2421
L20	89.75-82.50	1.6729	-4.4305	1.6329	-5.3095
L21	82.50-81.50	1.6856	-6.8350	1.6624	-7.6473
L22	81.50-77.50	3.3239	-7.6347	2.9609	-8.2059
L23	77.50-73.50	3.7179	-7.6101	3.3023	-8.1462

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L24	73.50-72.25	1.2006	-4.8692	1.2476	-5.7333
L25	72.25-72.00	1.2032	-4.8799	1.2506	-5.7468
L26	72.00-68.00	1.2090	-4.9034	1.2577	-5.7786
L27	68.00-64.00	1.2197	-4.9471	1.2709	-5.8376
L28	64.00-60.00	1.2302	-4.9901	1.2840	-5.8953
L29	60.00-56.00	1.2405	-5.0324	1.2968	-5.9516
L30	56.00-53.75	0.9089	-3.6871	0.9961	-4.5703
L31	53.75-53.50	0.9123	-3.7010	1.0000	-4.5874
L32	53.50-49.50	0.9173	-3.7215	1.0059	-4.6133
L33	49.50-40.58	0.9665	-3.9214	1.0600	-4.8566
L34	40.58-39.58	0.9116	-3.6988	1.0094	-4.6247
L35	39.58-35.58	0.9173	-3.7219	1.0151	-4.6440
L36	35.58-31.48	0.9264	-3.7592	1.0256	-4.6879
L37	31.48-31.25	0.9312	-3.7788	1.0311	-4.7104
L38	31.25-28.75	0.9271	-3.7622	1.0307	-4.7072
L39	28.75-28.50	0.8681	-3.5229	0.9840	-4.4922
L40	28.50-24.50	1.0141	-4.1153	1.1380	-5.1921
L41	24.50-20.50	1.1037	-4.4794	1.2314	-5.6107
L42	20.50-16.50	1.1126	-4.5156	1.2406	-5.6436
L43	16.50-12.50	1.0020	-4.0953	1.1493	-5.2708
L44	12.50-11.00	0.3667	-1.6681	0.5911	-3.0281
L45	11.00-10.75	0.3674	-1.6715	0.5916	-3.0284
L46	10.75-6.75	0.4733	-1.5983	0.6802	-2.9513
L47	6.75-6.25	1.9343	-0.4782	1.9257	-1.9004
L48	6.25-6.00	1.9358	-0.4783	1.9269	-1.8969
L49	6.00-5.00	1.9387	-0.4786	1.9292	-1.8909
L50	5.00-4.75	1.9412	-0.4788	1.9311	-1.8834
L51	4.75-0.75	0.5751	-1.5285	0.7093	-2.9461
L52	0.75-0.00	-0.9550	-2.7033	-0.5846	-3.9455

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L8	55	CU12PSM9P6XXX(1-1/2)	128.00 - 132.00	1.0000	1.0000
L9	55	CU12PSM9P6XXX(1-1/2)	124.00 - 128.00	1.0000	1.0000
L10	55	CU12PSM9P6XXX(1-1/2)	117.33 - 124.00	1.0000	1.0000
L11	55	CU12PSM9P6XXX(1-1/2)	116.33 - 117.33	1.0000	1.0000
L12	55	CU12PSM9P6XXX(1-1/2)	112.33 - 116.33	1.0000	1.0000
L13	55	CU12PSM9P6XXX(1-1/2)	108.33 - 112.33	1.0000	1.0000
L14	23	HSS4.5x4.5x4	104.33 - 108.00	1.0000	1.0000
L14	24	HSS4.5x4.5x4	104.33 - 108.00	1.0000	1.0000
L14	25	HSS4.5x4.5x4	104.33 - 108.00	1.0000	1.0000
L14	26	HSS4.5x4.5x4	104.33 - 108.00	1.0000	1.0000
L14	27	HSS4.5x4.5x4	104.33 - 108.00	1.0000	1.0000
L14	28	HSS4.5x4.5x4	104.33 - 108.00	1.0000	1.0000
L14	29	HSS4.5x4.5x4	104.33 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L14	30	HSS4.5x4.5x4	108.00 104.33 -	1.0000	1.0000
L14	55	CU12PSM9P6XXX(1-1/2)	108.00 104.33 -	1.0000	1.0000
L15	23	HSS4.5x4.5x4	108.33 100.33 -	1.0000	1.0000
L15	24	HSS4.5x4.5x4	104.33 100.33 -	1.0000	1.0000
L15	25	HSS4.5x4.5x4	104.33 100.33 -	1.0000	1.0000
L15	26	HSS4.5x4.5x4	104.33 100.33 -	1.0000	1.0000
L15	27	HSS4.5x4.5x4	104.33 100.33 -	1.0000	1.0000
L15	28	HSS4.5x4.5x4	104.33 100.33 -	1.0000	1.0000
L15	29	HSS4.5x4.5x4	104.33 100.33 -	1.0000	1.0000
L15	30	HSS4.5x4.5x4	104.33 100.33 -	1.0000	1.0000
L15	55	CU12PSM9P6XXX(1-1/2)	104.33 100.33 -	1.0000	1.0000
L16	19	4.5 x 1	104.33 96.33 -	1.0000	1.0000
L16	20	4.5 x 1	96.50 96.33 -	1.0000	1.0000
L16	21	4.5 x 1	96.50 96.33 -	1.0000	1.0000
L16	23	HSS4.5x4.5x4	96.50 96.33 -	1.0000	1.0000
L16	24	HSS4.5x4.5x4	100.33 96.33 -	1.0000	1.0000
L16	25	HSS4.5x4.5x4	100.33 96.33 -	1.0000	1.0000
L16	26	HSS4.5x4.5x4	100.33 96.33 -	1.0000	1.0000
L16	27	HSS4.5x4.5x4	100.33 96.33 -	1.0000	1.0000
L16	28	HSS4.5x4.5x4	100.33 96.33 -	1.0000	1.0000
L16	29	HSS4.5x4.5x4	100.33 96.33 -	1.0000	1.0000
L16	30	HSS4.5x4.5x4	100.33 96.33 -	1.0000	1.0000
L16	55	CU12PSM9P6XXX(1-1/2)	100.33 96.33 -	1.0000	1.0000
L17	19	4.5 x 1	100.33 94.00 -	1.0000	1.0000
L17	20	4.5 x 1	96.33 94.00 -	1.0000	1.0000
L17	21	4.5 x 1	96.33 94.00 -	1.0000	1.0000
L17	23	HSS4.5x4.5x4	96.33 94.00 -	1.0000	1.0000
L17	24	HSS4.5x4.5x4	96.33 94.00 -	1.0000	1.0000
L17	25	HSS4.5x4.5x4	96.33 94.00 -	1.0000	1.0000
L17	26	HSS4.5x4.5x4	96.33 94.00 -	1.0000	1.0000
L17	27	HSS4.5x4.5x4	96.33 94.00 -	1.0000	1.0000
L17	28	HSS4.5x4.5x4	96.33 94.00 -	1.0000	1.0000
L17	29	HSS4.5x4.5x4	96.33 94.00 -	1.0000	1.0000
L17	30	HSS4.5x4.5x4	96.33 94.00 -	1.0000	1.0000
			96.33		

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L17	49	LDF7-50A(1-5/8)	94.00 - 96.00	1.0000	1.0000
L17	50	2" (Nominal) Conduit	94.00 - 96.00	1.0000	1.0000
L17	55	CU12PSM9P6XXX(1-1/2)	94.00 - 96.33	1.0000	1.0000
L18	19	4.5 x 1	93.75 - 94.00	1.0000	1.0000
L18	20	4.5 x 1	93.75 - 94.00	1.0000	1.0000
L18	21	4.5 x 1	93.75 - 94.00	1.0000	1.0000
L18	23	HSS4.5x4.5x4	93.75 - 94.00	1.0000	1.0000
L18	24	HSS4.5x4.5x4	93.75 - 94.00	1.0000	1.0000
L18	25	HSS4.5x4.5x4	93.75 - 94.00	1.0000	1.0000
L18	26	HSS4.5x4.5x4	93.75 - 94.00	1.0000	1.0000
L18	27	HSS4.5x4.5x4	93.75 - 94.00	1.0000	1.0000
L18	28	HSS4.5x4.5x4	93.75 - 94.00	1.0000	1.0000
L18	29	HSS4.5x4.5x4	93.75 - 94.00	1.0000	1.0000
L18	30	HSS4.5x4.5x4	93.75 - 94.00	1.0000	1.0000
L18	49	LDF7-50A(1-5/8)	93.75 - 94.00	1.0000	1.0000
L18	50	2" (Nominal) Conduit	93.75 - 94.00	1.0000	1.0000
L18	55	CU12PSM9P6XXX(1-1/2)	93.75 - 94.00	1.0000	1.0000
L19	19	4.5 x 1	89.75 - 93.75	1.0000	1.0000
L19	20	4.5 x 1	89.75 - 93.75	1.0000	1.0000
L19	21	4.5 x 1	89.75 - 93.75	1.0000	1.0000
L19	23	HSS4.5x4.5x4	89.75 - 93.75	1.0000	1.0000
L19	24	HSS4.5x4.5x4	89.75 - 93.75	1.0000	1.0000
L19	25	HSS4.5x4.5x4	89.75 - 93.75	1.0000	1.0000
L19	26	HSS4.5x4.5x4	89.75 - 93.75	1.0000	1.0000
L19	27	HSS4.5x4.5x4	89.75 - 93.75	1.0000	1.0000
L19	28	HSS4.5x4.5x4	89.75 - 93.75	1.0000	1.0000
L19	29	HSS4.5x4.5x4	89.75 - 93.75	1.0000	1.0000
L19	30	HSS4.5x4.5x4	89.75 - 93.75	1.0000	1.0000
L19	49	LDF7-50A(1-5/8)	89.75 - 93.75	1.0000	1.0000
L19	50	2" (Nominal) Conduit	89.75 - 93.75	1.0000	1.0000
L19	53	LDF4-50A(1/2)	89.75 - 92.00	1.0000	1.0000
L19	55	CU12PSM9P6XXX(1-1/2)	89.75 - 93.75	1.0000	1.0000
L20	19	4.5 x 1	86.50 - 89.75	1.0000	1.0000
L20	20	4.5 x 1	86.50 - 89.75	1.0000	1.0000
L20	21	4.5 x 1	86.50 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L20	23	HSS4.5x4.5x4	89.75 88.00 -	1.0000	1.0000
L20	24	HSS4.5x4.5x4	89.75 88.00 -	1.0000	1.0000
L20	25	HSS4.5x4.5x4	89.75 88.00 -	1.0000	1.0000
L20	26	HSS4.5x4.5x4	89.75 88.00 -	1.0000	1.0000
L20	27	HSS4.5x4.5x4	89.75 88.00 -	1.0000	1.0000
L20	28	HSS4.5x4.5x4	89.75 88.00 -	1.0000	1.0000
L20	29	HSS4.5x4.5x4	89.75 88.00 -	1.0000	1.0000
L20	30	HSS4.5x4.5x4	89.75 88.00 -	1.0000	1.0000
L20	49	LDF7-50A(1-5/8)	89.75 82.50 -	1.0000	1.0000
L20	50	2" (Nominal) Conduit	89.75 82.50 -	1.0000	1.0000
L20	53	LDF4-50A(1/2)	89.75 82.50 -	1.0000	1.0000
L20	55	CU12PSM9P6XXX(1-1/2)	89.75 82.50 -	1.0000	1.0000
L21	49	LDF7-50A(1-5/8)	89.75 81.50 -	1.0000	1.0000
L21	50	2" (Nominal) Conduit	82.50 81.50 -	1.0000	1.0000
L21	53	LDF4-50A(1/2)	82.50 81.50 -	1.0000	1.0000
L21	55	CU12PSM9P6XXX(1-1/2)	82.50 81.50 -	1.0000	1.0000
L22	32	HSS4.5x4.5x4	82.50 77.50 -	1.0000	1.0000
L22	33	HSS4.5x4.5x4	80.00 77.50 -	1.0000	1.0000
L22	49	LDF7-50A(1-5/8)	80.00 77.50 -	1.0000	1.0000
L22	50	2" (Nominal) Conduit	81.50 77.50 -	1.0000	1.0000
L22	53	LDF4-50A(1/2)	81.50 77.50 -	1.0000	1.0000
L22	55	CU12PSM9P6XXX(1-1/2)	81.50 77.50 -	1.0000	1.0000
L23	9	4 x 1	81.50 73.50 -	1.0000	1.0000
L23	10	4 x 1	74.00 73.50 -	1.0000	1.0000
L23	11	4 x 1	74.00 73.50 -	1.0000	1.0000
L23	32	HSS4.5x4.5x4	74.00 74.00 -	1.0000	1.0000
L23	33	HSS4.5x4.5x4	77.50 74.00 -	1.0000	1.0000
L23	49	LDF7-50A(1-5/8)	77.50 73.50 -	1.0000	1.0000
L23	50	2" (Nominal) Conduit	77.50 73.50 -	1.0000	1.0000
L23	53	LDF4-50A(1/2)	77.50 73.50 -	1.0000	1.0000
L23	55	CU12PSM9P6XXX(1-1/2)	77.50 73.50 -	1.0000	1.0000
L24	9	4 x 1	77.50 72.25 -	1.0000	1.0000
L24	10	4 x 1	73.50 72.25 -	1.0000	1.0000
L24	11	4 x 1	73.50 72.25 -	1.0000	1.0000
			73.50		

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L24	49	LDF7-50A(1-5/8)	72.25 - 73.50	1.0000	1.0000
L24	50	2" (Nominal) Conduit	72.25 - 73.50	1.0000	1.0000
L24	53	LDF4-50A(1/2)	72.25 - 73.50	1.0000	1.0000
L24	55	CU12PSM9P6XXX(1-1/2)	72.25 - 73.50	1.0000	1.0000
L25	9	4 x 1	72.00 - 72.25	1.0000	1.0000
L25	10	4 x 1	72.00 - 72.25	1.0000	1.0000
L25	11	4 x 1	72.00 - 72.25	1.0000	1.0000
L25	49	LDF7-50A(1-5/8)	72.00 - 72.25	1.0000	1.0000
L25	50	2" (Nominal) Conduit	72.00 - 72.25	1.0000	1.0000
L25	53	LDF4-50A(1/2)	72.00 - 72.25	1.0000	1.0000
L25	55	CU12PSM9P6XXX(1-1/2)	72.00 - 72.25	1.0000	1.0000
L26	9	4 x 1	68.00 - 72.00	1.0000	1.0000
L26	10	4 x 1	68.00 - 72.00	1.0000	1.0000
L26	11	4 x 1	68.00 - 72.00	1.0000	1.0000
L26	49	LDF7-50A(1-5/8)	68.00 - 72.00	1.0000	1.0000
L26	50	2" (Nominal) Conduit	68.00 - 72.00	1.0000	1.0000
L26	53	LDF4-50A(1/2)	68.00 - 72.00	1.0000	1.0000
L26	55	CU12PSM9P6XXX(1-1/2)	68.00 - 72.00	1.0000	1.0000
L27	9	4 x 1	64.00 - 68.00	1.0000	1.0000
L27	10	4 x 1	64.00 - 68.00	1.0000	1.0000
L27	11	4 x 1	64.00 - 68.00	1.0000	1.0000
L27	49	LDF7-50A(1-5/8)	64.00 - 68.00	1.0000	1.0000
L27	50	2" (Nominal) Conduit	64.00 - 68.00	1.0000	1.0000
L27	53	LDF4-50A(1/2)	64.00 - 68.00	1.0000	1.0000
L27	55	CU12PSM9P6XXX(1-1/2)	64.00 - 68.00	1.0000	1.0000
L28	9	4 x 1	60.00 - 64.00	1.0000	1.0000
L28	10	4 x 1	60.00 - 64.00	1.0000	1.0000
L28	11	4 x 1	60.00 - 64.00	1.0000	1.0000
L28	49	LDF7-50A(1-5/8)	60.00 - 64.00	1.0000	1.0000
L28	50	2" (Nominal) Conduit	60.00 - 64.00	1.0000	1.0000
L28	53	LDF4-50A(1/2)	60.00 - 64.00	1.0000	1.0000
L28	55	CU12PSM9P6XXX(1-1/2)	60.00 - 64.00	1.0000	1.0000
L29	9	4 x 1	56.00 - 60.00	1.0000	1.0000
L29	10	4 x 1	56.00 - 60.00	1.0000	1.0000
L29	11	4 x 1	56.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L29	49	LDF7-50A(1-5/8)	60.00 56.00 - 60.00	1.0000	1.0000
L29	50	2" (Nominal) Conduit	56.00 - 60.00	1.0000	1.0000
L29	53	LDF4-50A(1/2)	56.00 - 60.00	1.0000	1.0000
L29	55	CU12PSM9P6XXX(1-1/2)	56.00 - 60.00	1.0000	1.0000
L30	5	5.25 x 1.25	53.75 - 56.00	1.0000	1.0000
L30	6	5.25 x 1.25	53.75 - 56.00	1.0000	1.0000
L30	7	5.25 x 1.25	53.75 - 56.00	1.0000	1.0000
L30	9	4 x 1	53.75 - 56.00	1.0000	1.0000
L30	10	4 x 1	53.75 - 56.00	1.0000	1.0000
L30	11	4 x 1	53.75 - 56.00	1.0000	1.0000
L30	49	LDF7-50A(1-5/8)	53.75 - 56.00	1.0000	1.0000
L30	50	2" (Nominal) Conduit	53.75 - 56.00	1.0000	1.0000
L30	53	LDF4-50A(1/2)	53.75 - 56.00	1.0000	1.0000
L30	55	CU12PSM9P6XXX(1-1/2)	53.75 - 56.00	1.0000	1.0000
L31	5	5.25 x 1.25	53.50 - 53.75	1.0000	1.0000
L31	6	5.25 x 1.25	53.50 - 53.75	1.0000	1.0000
L31	7	5.25 x 1.25	53.50 - 53.75	1.0000	1.0000
L31	9	4 x 1	53.50 - 53.75	1.0000	1.0000
L31	10	4 x 1	53.50 - 53.75	1.0000	1.0000
L31	11	4 x 1	53.50 - 53.75	1.0000	1.0000
L31	49	LDF7-50A(1-5/8)	53.50 - 53.75	1.0000	1.0000
L31	50	2" (Nominal) Conduit	53.50 - 53.75	1.0000	1.0000
L31	53	LDF4-50A(1/2)	53.50 - 53.75	1.0000	1.0000
L31	55	CU12PSM9P6XXX(1-1/2)	53.50 - 53.75	1.0000	1.0000
L32	5	5.25 x 1.25	49.50 - 53.50	1.0000	1.0000
L32	6	5.25 x 1.25	49.50 - 53.50	1.0000	1.0000
L32	7	5.25 x 1.25	49.50 - 53.50	1.0000	1.0000
L32	9	4 x 1	49.50 - 53.50	1.0000	1.0000
L32	10	4 x 1	49.50 - 53.50	1.0000	1.0000
L32	11	4 x 1	49.50 - 53.50	1.0000	1.0000
L32	49	LDF7-50A(1-5/8)	49.50 - 53.50	1.0000	1.0000
L32	50	2" (Nominal) Conduit	49.50 - 53.50	1.0000	1.0000
L32	53	LDF4-50A(1/2)	49.50 - 53.50	1.0000	1.0000
L32	55	CU12PSM9P6XXX(1-1/2)	49.50 - 53.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L33	5	5.25 x 1.25	40.58 - 49.50	1.0000	1.0000
L33	6	5.25 x 1.25	40.58 - 49.50	1.0000	1.0000
L33	7	5.25 x 1.25	40.58 - 49.50	1.0000	1.0000
L33	9	4 x 1	44.00 - 49.50	1.0000	1.0000
L33	10	4 x 1	44.00 - 49.50	1.0000	1.0000
L33	11	4 x 1	44.00 - 49.50	1.0000	1.0000
L33	16	4.5 x 1	40.58 - 42.25	1.0000	1.0000
L33	17	4.5 x 1	40.58 - 42.25	1.0000	1.0000
L33	18	4.5 x 1	40.58 - 42.25	1.0000	1.0000
L33	49	LDF7-50A(1-5/8)	40.58 - 49.50	1.0000	1.0000
L33	50	2" (Nominal) Conduit	40.58 - 49.50	1.0000	1.0000
L33	53	LDF4-50A(1/2)	40.58 - 49.50	1.0000	1.0000
L33	55	CU12PSM9P6XXX(1-1/2)	40.58 - 49.50	1.0000	1.0000
L34	5	5.25 x 1.25	39.58 - 40.58	1.0000	1.0000
L34	6	5.25 x 1.25	39.58 - 40.58	1.0000	1.0000
L34	7	5.25 x 1.25	39.58 - 40.58	1.0000	1.0000
L34	16	4.5 x 1	39.58 - 40.58	1.0000	1.0000
L34	17	4.5 x 1	39.58 - 40.58	1.0000	1.0000
L34	18	4.5 x 1	39.58 - 40.58	1.0000	1.0000
L34	49	LDF7-50A(1-5/8)	39.58 - 40.58	1.0000	1.0000
L34	50	2" (Nominal) Conduit	39.58 - 40.58	1.0000	1.0000
L34	53	LDF4-50A(1/2)	39.58 - 40.58	1.0000	1.0000
L34	55	CU12PSM9P6XXX(1-1/2)	39.58 - 40.58	1.0000	1.0000
L35	5	5.25 x 1.25	35.58 - 39.58	1.0000	1.0000
L35	6	5.25 x 1.25	35.58 - 39.58	1.0000	1.0000
L35	7	5.25 x 1.25	35.58 - 39.58	1.0000	1.0000
L35	16	4.5 x 1	35.58 - 39.58	1.0000	1.0000
L35	17	4.5 x 1	35.58 - 39.58	1.0000	1.0000
L35	18	4.5 x 1	35.58 - 39.58	1.0000	1.0000
L35	49	LDF7-50A(1-5/8)	35.58 - 39.58	1.0000	1.0000
L35	50	2" (Nominal) Conduit	35.58 - 39.58	1.0000	1.0000
L35	53	LDF4-50A(1/2)	35.58 - 39.58	1.0000	1.0000
L35	55	CU12PSM9P6XXX(1-1/2)	35.58 - 39.58	1.0000	1.0000
L36	5	5.25 x 1.25	31.48 - 35.58	1.0000	1.0000
L36	6	5.25 x 1.25	31.48 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L36	7	5.25 x 1.25	35.58 31.48 -	1.0000	1.0000
L36	16	4.5 x 1	35.58 31.48 -	1.0000	1.0000
L36	17	4.5 x 1	35.58 31.48 -	1.0000	1.0000
L36	18	4.5 x 1	35.58 31.48 -	1.0000	1.0000
L36	49	LDF7-50A(1-5/8)	35.58 31.48 -	1.0000	1.0000
L36	50	2" (Nominal) Conduit	35.58 31.48 -	1.0000	1.0000
L36	53	LDF4-50A(1/2)	35.58 31.48 -	1.0000	1.0000
L36	55	CU12PSM9P6XXX(1-1/2)	35.58 31.48 -	1.0000	1.0000
L37	5	5.25 x 1.25	35.58 31.25 -	1.0000	1.0000
L37	6	5.25 x 1.25	31.48 31.25 -	1.0000	1.0000
L37	7	5.25 x 1.25	31.48 31.25 -	1.0000	1.0000
L37	16	4.5 x 1	31.48 31.25 -	1.0000	1.0000
L37	17	4.5 x 1	31.48 31.25 -	1.0000	1.0000
L37	18	4.5 x 1	31.48 31.25 -	1.0000	1.0000
L37	49	LDF7-50A(1-5/8)	31.48 31.25 -	1.0000	1.0000
L37	50	2" (Nominal) Conduit	31.48 31.25 -	1.0000	1.0000
L37	53	LDF4-50A(1/2)	31.48 31.25 -	1.0000	1.0000
L37	55	CU12PSM9P6XXX(1-1/2)	31.48 31.25 -	1.0000	1.0000
L38	2	6.875 x 1.25	31.48 28.75 -	1.0000	1.0000
L38	3	6.875 x 1.25	29.25 28.75 -	1.0000	1.0000
L38	4	6.875 x 1.25	29.25 28.75 -	1.0000	1.0000
L38	5	5.25 x 1.25	29.25 29.33 -	1.0000	1.0000
L38	6	5.25 x 1.25	31.25 29.33 -	1.0000	1.0000
L38	7	5.25 x 1.25	31.25 29.33 -	1.0000	1.0000
L38	16	4.5 x 1	31.25 28.75 -	1.0000	1.0000
L38	17	4.5 x 1	31.25 28.75 -	1.0000	1.0000
L38	18	4.5 x 1	31.25 28.75 -	1.0000	1.0000
L38	49	LDF7-50A(1-5/8)	31.25 28.75 -	1.0000	1.0000
L38	50	2" (Nominal) Conduit	31.25 28.75 -	1.0000	1.0000
L38	53	LDF4-50A(1/2)	31.25 28.75 -	1.0000	1.0000
L38	55	CU12PSM9P6XXX(1-1/2)	31.25 28.75 -	1.0000	1.0000
L39	2	6.875 x 1.25	31.25 28.50 -	1.0000	1.0000
L39	3	6.875 x 1.25	28.75 28.50 -	1.0000	1.0000
L39	4	6.875 x 1.25	28.75 28.50 -	1.0000	1.0000
			28.75		

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L39	16	4.5 x 1	28.50 - 28.75	1.0000	1.0000
L39	17	4.5 x 1	28.50 - 28.75	1.0000	1.0000
L39	18	4.5 x 1	28.50 - 28.75	1.0000	1.0000
L39	49	LDF7-50A(1-5/8)	28.50 - 28.75	1.0000	1.0000
L39	50	2" (Nominal) Conduit	28.50 - 28.75	1.0000	1.0000
L39	53	LDF4-50A(1/2)	28.50 - 28.75	1.0000	1.0000
L39	55	CU12PSM9P6XXX(1-1/2)	28.50 - 28.75	1.0000	1.0000
L40	2	6.875 x 1.25	24.50 - 28.50	1.0000	1.0000
L40	3	6.875 x 1.25	24.50 - 28.50	1.0000	1.0000
L40	4	6.875 x 1.25	24.50 - 28.50	1.0000	1.0000
L40	16	4.5 x 1	27.25 - 28.50	1.0000	1.0000
L40	17	4.5 x 1	27.25 - 28.50	1.0000	1.0000
L40	18	4.5 x 1	27.25 - 28.50	1.0000	1.0000
L40	49	LDF7-50A(1-5/8)	24.50 - 28.50	1.0000	1.0000
L40	50	2" (Nominal) Conduit	24.50 - 28.50	1.0000	1.0000
L40	53	LDF4-50A(1/2)	24.50 - 28.50	1.0000	1.0000
L40	55	CU12PSM9P6XXX(1-1/2)	24.50 - 28.50	1.0000	1.0000
L41	2	6.875 x 1.25	20.50 - 24.50	1.0000	1.0000
L41	3	6.875 x 1.25	20.50 - 24.50	1.0000	1.0000
L41	4	6.875 x 1.25	20.50 - 24.50	1.0000	1.0000
L41	49	LDF7-50A(1-5/8)	20.50 - 24.50	1.0000	1.0000
L41	50	2" (Nominal) Conduit	20.50 - 24.50	1.0000	1.0000
L41	53	LDF4-50A(1/2)	20.50 - 24.50	1.0000	1.0000
L41	55	CU12PSM9P6XXX(1-1/2)	20.50 - 24.50	1.0000	1.0000
L42	2	6.875 x 1.25	16.50 - 20.50	1.0000	1.0000
L42	3	6.875 x 1.25	16.50 - 20.50	1.0000	1.0000
L42	4	6.875 x 1.25	16.50 - 20.50	1.0000	1.0000
L42	49	LDF7-50A(1-5/8)	16.50 - 20.50	1.0000	1.0000
L42	50	2" (Nominal) Conduit	16.50 - 20.50	1.0000	1.0000
L42	53	LDF4-50A(1/2)	16.50 - 20.50	1.0000	1.0000
L42	55	CU12PSM9P6XXX(1-1/2)	16.50 - 20.50	1.0000	1.0000
L43	2	6.875 x 1.25	12.50 - 16.50	1.0000	1.0000
L43	3	6.875 x 1.25	12.50 - 16.50	1.0000	1.0000
L43	4	6.875 x 1.25	12.50 - 16.50	1.0000	1.0000
L43	13	6 x 1	12.50 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L43	14	6 x 1	13.00 - 12.50	1.0000	1.0000
L43	15	6 x 1	13.00 - 12.50	1.0000	1.0000
L43	49	LDF7-50A(1-5/8)	13.00 - 12.50	1.0000	1.0000
L43	50	2" (Nominal) Conduit	16.50 - 12.50	1.0000	1.0000
L43	53	LDF4-50A(1/2)	16.50 - 12.50	1.0000	1.0000
L43	55	CU12PSM9P6XXX(1-1/2)	16.50 - 12.50	1.0000	1.0000
L44	2	6.875 x 1.25	12.50 - 11.00	1.0000	1.0000
L44	3	6.875 x 1.25	12.50 - 11.00	1.0000	1.0000
L44	4	6.875 x 1.25	12.50 - 11.00	1.0000	1.0000
L44	13	6 x 1	12.50 - 11.00	1.0000	1.0000
L44	14	6 x 1	12.50 - 11.00	1.0000	1.0000
L44	15	6 x 1	12.50 - 11.00	1.0000	1.0000
L44	49	LDF7-50A(1-5/8)	12.50 - 11.00	1.0000	1.0000
L44	50	2" (Nominal) Conduit	12.50 - 11.00	1.0000	1.0000
L44	53	LDF4-50A(1/2)	12.50 - 11.00	1.0000	1.0000
L44	55	CU12PSM9P6XXX(1-1/2)	12.50 - 11.00	1.0000	1.0000
L45	2	6.875 x 1.25	11.00 - 10.75	1.0000	1.0000
L45	3	6.875 x 1.25	11.00 - 10.75	1.0000	1.0000
L45	4	6.875 x 1.25	11.00 - 10.75	1.0000	1.0000
L45	13	6 x 1	11.00 - 10.75	1.0000	1.0000
L45	14	6 x 1	11.00 - 10.75	1.0000	1.0000
L45	15	6 x 1	11.00 - 10.75	1.0000	1.0000
L45	49	LDF7-50A(1-5/8)	11.00 - 10.75	1.0000	1.0000
L45	50	2" (Nominal) Conduit	11.00 - 10.75	1.0000	1.0000
L45	53	LDF4-50A(1/2)	11.00 - 10.75	1.0000	1.0000
L45	55	CU12PSM9P6XXX(1-1/2)	11.00 - 10.75	1.0000	1.0000
L46	1	6.25 x 1.25	7.00 - 6.75	1.0000	1.0000
L46	2	6.875 x 1.25	10.75 - 6.75	1.0000	1.0000
L46	3	6.875 x 1.25	10.75 - 6.75	1.0000	1.0000
L46	4	6.875 x 1.25	10.75 - 6.75	1.0000	1.0000
L46	13	6 x 1	10.75 - 6.75	1.0000	1.0000
L46	14	6 x 1	10.75 - 6.75	1.0000	1.0000
L46	15	6 x 1	10.75 - 6.75	1.0000	1.0000
L46	49	LDF7-50A(1-5/8)	10.75 - 6.75	1.0000	1.0000
L46	50	2" (Nominal) Conduit	10.75 - 6.75	1.0000	1.0000
L46	53	LDF4-50A(1/2)	10.75 - 6.75	1.0000	1.0000
L46	55	CU12PSM9P6XXX(1-1/2)	10.75 - 6.75	1.0000	1.0000
L47	1	6.25 x 1.25	6.25 - 6.75	1.0000	1.0000
L47	2	6.875 x 1.25	6.25 - 6.75	1.0000	1.0000
L47	3	6.875 x 1.25	6.25 - 6.75	1.0000	1.0000
L47	4	6.875 x 1.25	6.25 - 6.75	1.0000	1.0000
L47	13	6 x 1	6.25 - 6.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L47	14	6 x 1	6.25 - 6.75	1.0000	1.0000
L47	15	6 x 1	6.25 - 6.75	1.0000	1.0000
L47	49	LDF7-50A(1-5/8)	6.25 - 6.75	1.0000	1.0000
L47	50	2" (Nominal) Conduit	6.25 - 6.75	1.0000	1.0000
L47	53	LDF4-50A(1/2)	6.25 - 6.75	1.0000	1.0000
L47	55	CU12PSM9P6XXX(1-1/2)	6.25 - 6.75	1.0000	1.0000
L48	1	6.25 x 1.25	6.00 - 6.25	1.0000	1.0000
L48	2	6.875 x 1.25	6.00 - 6.25	1.0000	1.0000
L48	3	6.875 x 1.25	6.00 - 6.25	1.0000	1.0000
L48	4	6.875 x 1.25	6.00 - 6.25	1.0000	1.0000
L48	13	6 x 1	6.00 - 6.25	1.0000	1.0000
L48	14	6 x 1	6.00 - 6.25	1.0000	1.0000
L48	15	6 x 1	6.00 - 6.25	1.0000	1.0000
L48	49	LDF7-50A(1-5/8)	6.00 - 6.25	1.0000	1.0000
L48	50	2" (Nominal) Conduit	6.00 - 6.25	1.0000	1.0000
L48	53	LDF4-50A(1/2)	6.00 - 6.25	1.0000	1.0000
L48	55	CU12PSM9P6XXX(1-1/2)	6.00 - 6.25	1.0000	1.0000
L49	1	6.25 x 1.25	5.00 - 6.00	1.0000	1.0000
L49	2	6.875 x 1.25	5.00 - 6.00	1.0000	1.0000
L49	3	6.875 x 1.25	5.00 - 6.00	1.0000	1.0000
L49	4	6.875 x 1.25	5.00 - 6.00	1.0000	1.0000
L49	13	6 x 1	5.00 - 6.00	1.0000	1.0000
L49	14	6 x 1	5.00 - 6.00	1.0000	1.0000
L49	15	6 x 1	5.00 - 6.00	1.0000	1.0000
L49	49	LDF7-50A(1-5/8)	5.00 - 6.00	1.0000	1.0000
L49	50	2" (Nominal) Conduit	5.00 - 6.00	1.0000	1.0000
L49	53	LDF4-50A(1/2)	5.00 - 6.00	1.0000	1.0000
L49	55	CU12PSM9P6XXX(1-1/2)	5.00 - 6.00	1.0000	1.0000
L50	1	6.25 x 1.25	4.75 - 5.00	1.0000	1.0000
L50	2	6.875 x 1.25	4.75 - 5.00	1.0000	1.0000
L50	3	6.875 x 1.25	4.75 - 5.00	1.0000	1.0000
L50	4	6.875 x 1.25	4.75 - 5.00	1.0000	1.0000
L50	13	6 x 1	4.75 - 5.00	1.0000	1.0000
L50	14	6 x 1	4.75 - 5.00	1.0000	1.0000
L50	15	6 x 1	4.75 - 5.00	1.0000	1.0000
L50	49	LDF7-50A(1-5/8)	4.75 - 5.00	1.0000	1.0000
L50	50	2" (Nominal) Conduit	4.75 - 5.00	1.0000	1.0000
L50	53	LDF4-50A(1/2)	4.75 - 5.00	1.0000	1.0000
L50	55	CU12PSM9P6XXX(1-1/2)	4.75 - 5.00	1.0000	1.0000
L51	1	6.25 x 1.25	0.75 - 4.75	1.0000	1.0000
L51	2	6.875 x 1.25	3.00 - 4.75	1.0000	1.0000
L51	3	6.875 x 1.25	0.75 - 4.75	1.0000	1.0000
L51	4	6.875 x 1.25	0.75 - 4.75	1.0000	1.0000
L51	13	6 x 1	3.00 - 4.75	1.0000	1.0000
L51	14	6 x 1	3.00 - 4.75	1.0000	1.0000
L51	15	6 x 1	3.00 - 4.75	1.0000	1.0000
L51	49	LDF7-50A(1-5/8)	0.75 - 4.75	1.0000	1.0000
L51	50	2" (Nominal) Conduit	0.75 - 4.75	1.0000	1.0000
L51	53	LDF4-50A(1/2)	0.75 - 4.75	1.0000	1.0000
L51	55	CU12PSM9P6XXX(1-1/2)	0.75 - 4.75	1.0000	1.0000
L52	1	6.25 x 1.25	0.00 - 0.75	1.0000	1.0000
L52	3	6.875 x 1.25	0.00 - 0.75	1.0000	1.0000
L52	4	6.875 x 1.25	0.00 - 0.75	1.0000	1.0000
L52	49	LDF7-50A(1-5/8)	0.00 - 0.75	1.0000	1.0000
L52	50	2" (Nominal) Conduit	0.00 - 0.75	1.0000	1.0000
L52	53	LDF4-50A(1/2)	0.00 - 0.75	1.0000	1.0000
L52	55	CU12PSM9P6XXX(1-1/2)	0.00 - 0.75	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
L14	23	HSS4.5x4.5x4	104.33 - 108.00	Auto	0.0000
L14	24	HSS4.5x4.5x4	104.33 - 108.00	Auto	0.0000
L14	25	HSS4.5x4.5x4	104.33 - 108.00	Auto	0.0000
L14	26	HSS4.5x4.5x4	104.33 - 108.00	Auto	0.0000
L14	27	HSS4.5x4.5x4	104.33 - 108.00	Auto	0.0000
L14	28	HSS4.5x4.5x4	104.33 - 108.00	Auto	0.0000
L14	29	HSS4.5x4.5x4	104.33 - 108.00	Auto	0.0000
L14	30	HSS4.5x4.5x4	104.33 - 108.00	Auto	0.0000
L15	23	HSS4.5x4.5x4	100.33 - 104.33	Auto	0.0000
L15	24	HSS4.5x4.5x4	100.33 - 104.33	Auto	0.0000
L15	25	HSS4.5x4.5x4	100.33 - 104.33	Auto	0.0000
L15	26	HSS4.5x4.5x4	100.33 - 104.33	Auto	0.0000
L15	27	HSS4.5x4.5x4	100.33 - 104.33	Auto	0.0000
L15	28	HSS4.5x4.5x4	100.33 - 104.33	Auto	0.0000
L15	29	HSS4.5x4.5x4	100.33 - 104.33	Auto	0.0000
L15	30	HSS4.5x4.5x4	100.33 - 104.33	Auto	0.0000
L16	19	4.5 x 1	96.33 - 96.50	Auto	0.0000
L16	20	4.5 x 1	96.33 - 96.50	Auto	0.0000
L16	21	4.5 x 1	96.33 - 96.50	Auto	0.0000
L16	23	HSS4.5x4.5x4	96.33 - 100.33	Auto	0.0000
L16	24	HSS4.5x4.5x4	96.33 - 100.33	Auto	0.0000
L16	25	HSS4.5x4.5x4	96.33 - 100.33	Auto	0.0000
L16	26	HSS4.5x4.5x4	96.33 - 100.33	Auto	0.0000
L16	27	HSS4.5x4.5x4	96.33 - 100.33	Auto	0.0000
L16	28	HSS4.5x4.5x4	96.33 - 100.33	Auto	0.0000
L16	29	HSS4.5x4.5x4	96.33 - 100.33	Auto	0.0000
L16	30	HSS4.5x4.5x4	96.33 - 100.33	Auto	0.0000
L17	19	4.5 x 1	94.00 - 96.33	Auto	0.0000
L17	20	4.5 x 1	94.00 - 96.33	Auto	0.0000
L17	21	4.5 x 1	94.00 - 96.33	Auto	0.0000
L17	23	HSS4.5x4.5x4	94.00 - 96.33	Auto	0.0000
L17	24	HSS4.5x4.5x4	94.00 - 96.33	Auto	0.0000
L17	25	HSS4.5x4.5x4	94.00 - 96.33	Auto	0.0000
L17	26	HSS4.5x4.5x4	94.00 - 96.33	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L17	27	HSS4.5x4.5x4	94.00 - 96.33	Auto	0.0000
L17	28	HSS4.5x4.5x4	94.00 - 96.33	Auto	0.0000
L17	29	HSS4.5x4.5x4	94.00 - 96.33	Auto	0.0000
L17	30	HSS4.5x4.5x4	94.00 - 96.33	Auto	0.0000
L18	19	4.5 x 1	93.75 - 94.00	Auto	0.0000
L18	20	4.5 x 1	93.75 - 94.00	Auto	0.0000
L18	21	4.5 x 1	93.75 - 94.00	Auto	0.0000
L18	23	HSS4.5x4.5x4	93.75 - 94.00	Auto	0.0000
L18	24	HSS4.5x4.5x4	93.75 - 94.00	Auto	0.0000
L18	25	HSS4.5x4.5x4	93.75 - 94.00	Auto	0.0000
L18	26	HSS4.5x4.5x4	93.75 - 94.00	Auto	0.0000
L18	27	HSS4.5x4.5x4	93.75 - 94.00	Auto	0.0000
L18	28	HSS4.5x4.5x4	93.75 - 94.00	Auto	0.0000
L18	29	HSS4.5x4.5x4	93.75 - 94.00	Auto	0.0000
L18	30	HSS4.5x4.5x4	93.75 - 94.00	Auto	0.0000
L19	19	4.5 x 1	89.75 - 93.75	Auto	0.0000
L19	20	4.5 x 1	89.75 - 93.75	Auto	0.0000
L19	21	4.5 x 1	89.75 - 93.75	Auto	0.0000
L19	23	HSS4.5x4.5x4	89.75 - 93.75	Auto	0.0000
L19	24	HSS4.5x4.5x4	89.75 - 93.75	Auto	0.0000
L19	25	HSS4.5x4.5x4	89.75 - 93.75	Auto	0.0000
L19	26	HSS4.5x4.5x4	89.75 - 93.75	Auto	0.0000
L19	27	HSS4.5x4.5x4	89.75 - 93.75	Auto	0.0000
L19	28	HSS4.5x4.5x4	89.75 - 93.75	Auto	0.0000
L19	29	HSS4.5x4.5x4	89.75 - 93.75	Auto	0.0000
L19	30	HSS4.5x4.5x4	89.75 - 93.75	Auto	0.0000
L20	19	4.5 x 1	86.50 - 89.75	Auto	0.0000
L20	20	4.5 x 1	86.50 - 89.75	Auto	0.0000
L20	21	4.5 x 1	86.50 - 89.75	Auto	0.0000
L20	23	HSS4.5x4.5x4	88.00 - 89.75	Auto	0.0000
L20	24	HSS4.5x4.5x4	88.00 - 89.75	Auto	0.0000
L20	25	HSS4.5x4.5x4	88.00 - 89.75	Auto	0.0000
L20	26	HSS4.5x4.5x4	88.00 - 89.75	Auto	0.0000
L20	27	HSS4.5x4.5x4	88.00 - 89.75	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L20	28	HSS4.5x4.5x4	88.00 - 89.75	Auto	0.0000
L20	29	HSS4.5x4.5x4	88.00 - 89.75	Auto	0.0000
L20	30	HSS4.5x4.5x4	88.00 - 89.75	Auto	0.0000
L22	32	HSS4.5x4.5x4	77.50 - 80.00	Auto	0.0000
L22	33	HSS4.5x4.5x4	77.50 - 80.00	Auto	0.0000
L23	9	4 x 1	73.50 - 74.00	Auto	0.0000
L23	10	4 x 1	73.50 - 74.00	Auto	0.0000
L23	11	4 x 1	73.50 - 74.00	Auto	0.0000
L23	32	HSS4.5x4.5x4	74.00 - 77.50	Auto	0.0000
L23	33	HSS4.5x4.5x4	74.00 - 77.50	Auto	0.0000
L24	9	4 x 1	72.25 - 73.50	Auto	0.0000
L24	10	4 x 1	72.25 - 73.50	Auto	0.0000
L24	11	4 x 1	72.25 - 73.50	Auto	0.0000
L25	9	4 x 1	72.00 - 72.25	Auto	0.0000
L25	10	4 x 1	72.00 - 72.25	Auto	0.0000
L25	11	4 x 1	72.00 - 72.25	Auto	0.0000
L26	9	4 x 1	68.00 - 72.00	Auto	0.0000
L26	10	4 x 1	68.00 - 72.00	Auto	0.0000
L26	11	4 x 1	68.00 - 72.00	Auto	0.0000
L27	9	4 x 1	64.00 - 68.00	Auto	0.0000
L27	10	4 x 1	64.00 - 68.00	Auto	0.0000
L27	11	4 x 1	64.00 - 68.00	Auto	0.0000
L28	9	4 x 1	60.00 - 64.00	Auto	0.0000
L28	10	4 x 1	60.00 - 64.00	Auto	0.0000
L28	11	4 x 1	60.00 - 64.00	Auto	0.0000
L29	9	4 x 1	56.00 - 60.00	Auto	0.0000
L29	10	4 x 1	56.00 - 60.00	Auto	0.0000
L29	11	4 x 1	56.00 - 60.00	Auto	0.0000
L30	5	5.25 x 1.25	53.75 - 56.00	Auto	0.0000
L30	6	5.25 x 1.25	53.75 - 56.00	Auto	0.0000
L30	7	5.25 x 1.25	53.75 - 56.00	Auto	0.0000
L30	9	4 x 1	53.75 - 56.00	Auto	0.0000
L30	10	4 x 1	53.75 - 56.00	Auto	0.0000
L30	11	4 x 1	53.75 - 56.00	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L31	5	5.25 x 1.25	53.50 - 53.75	Auto	0.0000
L31	6	5.25 x 1.25	53.50 - 53.75	Auto	0.0000
L31	7	5.25 x 1.25	53.50 - 53.75	Auto	0.0000
L31	9	4 x 1	53.50 - 53.75	Auto	0.0000
L31	10	4 x 1	53.50 - 53.75	Auto	0.0000
L31	11	4 x 1	53.50 - 53.75	Auto	0.0000
L32	5	5.25 x 1.25	49.50 - 53.50	Auto	0.0000
L32	6	5.25 x 1.25	49.50 - 53.50	Auto	0.0000
L32	7	5.25 x 1.25	49.50 - 53.50	Auto	0.0000
L32	9	4 x 1	49.50 - 53.50	Auto	0.0000
L32	10	4 x 1	49.50 - 53.50	Auto	0.0000
L32	11	4 x 1	49.50 - 53.50	Auto	0.0000
L33	5	5.25 x 1.25	40.58 - 49.50	Auto	0.0000
L33	6	5.25 x 1.25	40.58 - 49.50	Auto	0.0000
L33	7	5.25 x 1.25	40.58 - 49.50	Auto	0.0000
L33	9	4 x 1	44.00 - 49.50	Auto	0.0000
L33	10	4 x 1	44.00 - 49.50	Auto	0.0000
L33	11	4 x 1	44.00 - 49.50	Auto	0.0000
L33	16	4.5 x 1	40.58 - 42.25	Auto	0.0000
L33	17	4.5 x 1	40.58 - 42.25	Auto	0.0000
L33	18	4.5 x 1	40.58 - 42.25	Auto	0.0000
L34	5	5.25 x 1.25	39.58 - 40.58	Auto	0.0000
L34	6	5.25 x 1.25	39.58 - 40.58	Auto	0.0000
L34	7	5.25 x 1.25	39.58 - 40.58	Auto	0.0000
L34	16	4.5 x 1	39.58 - 40.58	Auto	0.0000
L34	17	4.5 x 1	39.58 - 40.58	Auto	0.0000
L34	18	4.5 x 1	39.58 - 40.58	Auto	0.0000
L35	5	5.25 x 1.25	35.58 - 39.58	Auto	0.0000
L35	6	5.25 x 1.25	35.58 - 39.58	Auto	0.0000
L35	7	5.25 x 1.25	35.58 - 39.58	Auto	0.0000
L35	16	4.5 x 1	35.58 - 39.58	Auto	0.0000
L35	17	4.5 x 1	35.58 - 39.58	Auto	0.0000
L35	18	4.5 x 1	35.58 - 39.58	Auto	0.0000
L36	5	5.25 x 1.25	31.48 - 35.58	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L36	6	5.25 x 1.25	31.48 - 35.58	Auto	0.0000
L36	7	5.25 x 1.25	31.48 - 35.58	Auto	0.0000
L36	16	4.5 x 1	31.48 - 35.58	Auto	0.0000
L36	17	4.5 x 1	31.48 - 35.58	Auto	0.0000
L36	18	4.5 x 1	31.48 - 35.58	Auto	0.0000
L37	5	5.25 x 1.25	31.25 - 31.48	Auto	0.0000
L37	6	5.25 x 1.25	31.25 - 31.48	Auto	0.0000
L37	7	5.25 x 1.25	31.25 - 31.48	Auto	0.0000
L37	16	4.5 x 1	31.25 - 31.48	Auto	0.0000
L37	17	4.5 x 1	31.25 - 31.48	Auto	0.0000
L37	18	4.5 x 1	31.25 - 31.48	Auto	0.0000
L38	2	6.875 x 1.25	28.75 - 29.25	Auto	0.0000
L38	3	6.875 x 1.25	28.75 - 29.25	Auto	0.0000
L38	4	6.875 x 1.25	28.75 - 29.25	Auto	0.0000
L38	5	5.25 x 1.25	29.33 - 31.25	Auto	0.0000
L38	6	5.25 x 1.25	29.33 - 31.25	Auto	0.0000
L38	7	5.25 x 1.25	29.33 - 31.25	Auto	0.0000
L38	16	4.5 x 1	28.75 - 31.25	Auto	0.0000
L38	17	4.5 x 1	28.75 - 31.25	Auto	0.0000
L38	18	4.5 x 1	28.75 - 31.25	Auto	0.0000
L39	2	6.875 x 1.25	28.50 - 28.75	Auto	0.0000
L39	3	6.875 x 1.25	28.50 - 28.75	Auto	0.0000
L39	4	6.875 x 1.25	28.50 - 28.75	Auto	0.0000
L39	16	4.5 x 1	28.50 - 28.75	Auto	0.0000
L39	17	4.5 x 1	28.50 - 28.75	Auto	0.0000
L39	18	4.5 x 1	28.50 - 28.75	Auto	0.0000
L40	2	6.875 x 1.25	24.50 - 28.50	Auto	0.0000
L40	3	6.875 x 1.25	24.50 - 28.50	Auto	0.0000
L40	4	6.875 x 1.25	24.50 - 28.50	Auto	0.0000
L40	16	4.5 x 1	27.25 - 28.50	Auto	0.0000
L40	17	4.5 x 1	27.25 - 28.50	Auto	0.0000
L40	18	4.5 x 1	27.25 - 28.50	Auto	0.0000
L41	2	6.875 x 1.25	20.50 - 24.50	Auto	0.0000
L41	3	6.875 x 1.25	20.50 - 24.50	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L41	4	6.875 x 1.25	20.50 - 24.50	Auto	0.0000
L42	2	6.875 x 1.25	16.50 - 20.50	Auto	0.0000
L42	3	6.875 x 1.25	16.50 - 20.50	Auto	0.0000
L42	4	6.875 x 1.25	16.50 - 20.50	Auto	0.0000
L43	2	6.875 x 1.25	12.50 - 16.50	Auto	0.0000
L43	3	6.875 x 1.25	12.50 - 16.50	Auto	0.0000
L43	4	6.875 x 1.25	12.50 - 16.50	Auto	0.0000
L43	13	6 x 1	12.50 - 13.00	Auto	0.0000
L43	14	6 x 1	12.50 - 13.00	Auto	0.0000
L43	15	6 x 1	12.50 - 13.00	Auto	0.0000
L44	2	6.875 x 1.25	11.00 - 12.50	Auto	0.0000
L44	3	6.875 x 1.25	11.00 - 12.50	Auto	0.0000
L44	4	6.875 x 1.25	11.00 - 12.50	Auto	0.0000
L44	13	6 x 1	11.00 - 12.50	Auto	0.0000
L44	14	6 x 1	11.00 - 12.50	Auto	0.0000
L44	15	6 x 1	11.00 - 12.50	Auto	0.0000
L45	2	6.875 x 1.25	10.75 - 11.00	Auto	0.0000
L45	3	6.875 x 1.25	10.75 - 11.00	Auto	0.0000
L45	4	6.875 x 1.25	10.75 - 11.00	Auto	0.0000
L45	13	6 x 1	10.75 - 11.00	Auto	0.0000
L45	14	6 x 1	10.75 - 11.00	Auto	0.0000
L45	15	6 x 1	10.75 - 11.00	Auto	0.0000
L46	1	6.25 x 1.25	6.75 - 7.00	Auto	0.0000
L46	2	6.875 x 1.25	6.75 - 10.75	Auto	0.0000
L46	3	6.875 x 1.25	6.75 - 10.75	Auto	0.0000
L46	4	6.875 x 1.25	6.75 - 10.75	Auto	0.0000
L46	13	6 x 1	6.75 - 10.75	Auto	0.0000
L46	14	6 x 1	6.75 - 10.75	Auto	0.0000
L46	15	6 x 1	6.75 - 10.75	Auto	0.0000
L47	1	6.25 x 1.25	6.25 - 6.75	Auto	0.0000
L47	2	6.875 x 1.25	6.25 - 6.75	Auto	0.0000
L47	3	6.875 x 1.25	6.25 - 6.75	Auto	0.0000
L47	4	6.875 x 1.25	6.25 - 6.75	Auto	0.0000
L47	13	6 x 1	6.25 - 6.75	Auto	0.0000
L47	14	6 x 1	6.25 - 6.75	Auto	0.0000
L47	15	6 x 1	6.25 - 6.75	Auto	0.0000
L48	1	6.25 x 1.25	6.00 - 6.25	Auto	0.0000
L48	2	6.875 x 1.25	6.00 - 6.25	Auto	0.0000
L48	3	6.875 x 1.25	6.00 - 6.25	Auto	0.0000
L48	4	6.875 x 1.25	6.00 - 6.25	Auto	0.0000
L48	13	6 x 1	6.00 - 6.25	Auto	0.0000
L48	14	6 x 1	6.00 - 6.25	Auto	0.0000
L48	15	6 x 1	6.00 - 6.25	Auto	0.0000
L49	1	6.25 x 1.25	5.00 - 6.00	Auto	0.0000
L49	2	6.875 x 1.25	5.00 - 6.00	Auto	0.0000
L49	3	6.875 x 1.25	5.00 - 6.00	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L49	4	6.875 x 1.25	5.00 - 6.00	Auto	0.0000
L49	13	6 x 1	5.00 - 6.00	Auto	0.0000
L49	14	6 x 1	5.00 - 6.00	Auto	0.0000
L49	15	6 x 1	5.00 - 6.00	Auto	0.0000
L50	1	6.25 x 1.25	4.75 - 5.00	Auto	0.0000
L50	2	6.875 x 1.25	4.75 - 5.00	Auto	0.0000
L50	3	6.875 x 1.25	4.75 - 5.00	Auto	0.0000
L50	4	6.875 x 1.25	4.75 - 5.00	Auto	0.0000
L50	13	6 x 1	4.75 - 5.00	Auto	0.0000
L50	14	6 x 1	4.75 - 5.00	Auto	0.0000
L50	15	6 x 1	4.75 - 5.00	Auto	0.0000
L51	1	6.25 x 1.25	0.75 - 4.75	Auto	0.0000
L51	2	6.875 x 1.25	3.00 - 4.75	Auto	0.0000
L51	3	6.875 x 1.25	0.75 - 4.75	Auto	0.0000
L51	4	6.875 x 1.25	0.75 - 4.75	Auto	0.0000
L51	13	6 x 1	3.00 - 4.75	Auto	0.0000
L51	14	6 x 1	3.00 - 4.75	Auto	0.0000
L51	15	6 x 1	3.00 - 4.75	Auto	0.0000
L52	1	6.25 x 1.25	0.00 - 0.75	Auto	0.0000
L52	3	6.875 x 1.25	0.00 - 0.75	Auto	0.0000
L52	4	6.875 x 1.25	0.00 - 0.75	Auto	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
APXV9ERR18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	0.10 0.16 0.23 0.42
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	0.08 0.13 0.19 0.33

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
TD-RRH8X20-25	A	From Leg	4.00 0.00 1.00	0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.05 4.30 4.56 5.10	1.53 1.71 1.90 2.30	0.07 0.10 0.13 0.20
TD-RRH8X20-25	B	From Leg	4.00 0.00 1.00	0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.05 4.30 4.56 5.10	1.53 1.71 1.90 2.30	0.07 0.10 0.13 0.20
TD-RRH8X20-25	C	From Leg	4.00 0.00 1.00	0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.05 4.30 4.56 5.10	1.53 1.71 1.90 2.30	0.07 0.10 0.13 0.20
Platform Mount [LP 602-1]	C	None		0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	31.07 34.82 38.48 45.60	31.07 34.82 38.48 45.60	1.34 1.97 2.67 4.31
(2) 2.375" OD x 6' Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.03 0.04 0.05 0.09
(2) 2.375" OD x 6' Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.03 0.04 0.05 0.09
(2) 2.375" OD x 6' Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	159.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.03 0.04 0.05 0.09
***									
800MHZ 2X50W RRH W/FILTER	A	From Leg	4.00 0.00 -1.00	0.00	155.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.06 2.24 2.43 2.83	1.93 2.11 2.29 2.68	0.06 0.09 0.11 0.17
800MHZ 2X50W RRH W/FILTER	B	From Leg	4.00 0.00 -1.00	0.00	155.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.06 2.24 2.43 2.83	1.93 2.11 2.29 2.68	0.06 0.09 0.11 0.17
800MHZ 2X50W RRH W/FILTER	C	From Leg	4.00 0.00 -1.00	0.00	155.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.06 2.24 2.43 2.83	1.93 2.11 2.29 2.68	0.06 0.09 0.11 0.17
PCS 1900MHZ 4X45W-65MHZ	A	From Leg	4.00 0.00 -1.00	0.00	155.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17
PCS 1900MHZ 4X45W-65MHZ	B	From Leg	4.00 0.00 -1.00	0.00	155.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17
PCS 1900MHZ 4X45W-65MHZ	C	From Leg	4.00 0.00 -1.00	0.00	155.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice			
Side Arm Mount [SO 102-3]	C	None		0.00	155.00	No Ice	3.60	3.60	0.07
						1/2" Ice	4.18	4.18	0.11
						1" Ice	4.75	4.75	0.14
						2" Ice	5.90	5.90	0.20
***									
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice	3.14	2.59	0.11
						1/2" Ice	3.45	2.88	0.16
						1" Ice	3.77	3.19	0.23
						2" Ice	4.43	3.84	0.38
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice	3.14	2.59	0.11
						1/2" Ice	3.45	2.88	0.16
						1" Ice	3.77	3.19	0.23
						2" Ice	4.43	3.84	0.38
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice	3.14	2.59	0.11
						1/2" Ice	3.45	2.88	0.16
						1" Ice	3.77	3.19	0.23
						2" Ice	4.43	3.84	0.38
AIR 32 B2A B66AA w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice	3.76	3.15	0.19
						1/2" Ice	4.12	3.49	0.25
						1" Ice	4.48	3.84	0.32
						2" Ice	5.24	4.58	0.48
AIR 32 B2A B66AA w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice	3.76	3.15	0.19
						1/2" Ice	4.12	3.49	0.25
						1" Ice	4.48	3.84	0.32
						2" Ice	5.24	4.58	0.48
AIR 32 B2A B66AA w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice	3.76	3.15	0.19
						1/2" Ice	4.12	3.49	0.25
						1" Ice	4.48	3.84	0.32
						2" Ice	5.24	4.58	0.48
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice	14.69	6.87	0.19
						1/2" Ice	15.46	7.55	0.31
						1" Ice	16.23	8.25	0.46
						2" Ice	17.82	9.67	0.79
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice	14.69	6.87	0.19
						1/2" Ice	15.46	7.55	0.31
						1" Ice	16.23	8.25	0.46
						2" Ice	17.82	9.67	0.79
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice	14.69	6.87	0.19
						1/2" Ice	15.46	7.55	0.31
						1" Ice	16.23	8.25	0.46
						2" Ice	17.82	9.67	0.79
KRY 112 144/1	A	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice	0.35	0.17	0.01
						1/2" Ice	0.43	0.23	0.01
						1" Ice	0.51	0.30	0.02
						2" Ice	0.70	0.46	0.03
KRY 112 144/1	B	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice	0.35	0.17	0.01
						1/2" Ice	0.43	0.23	0.01
						1" Ice	0.51	0.30	0.02
						2" Ice	0.70	0.46	0.03
KRY 112 144/1	C	From Leg	4.00 0.00 3.00	0.00	142.00	No Ice	0.35	0.17	0.01
						1/2" Ice	0.43	0.23	0.01
						Ice	0.51	0.30	0.02

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
							1" Ice	0.70	0.46	0.03
							2" Ice			
RADIO 4449 B12/B71	A	From Leg	4.00	0.00	0.00	142.00	No Ice	1.65	1.16	0.07
			0.00				1/2"	1.81	1.30	0.09
			3.00				Ice	1.98	1.45	0.11
							1" Ice	2.34	1.76	0.16
							2" Ice			
RADIO 4449 B12/B71	B	From Leg	4.00	0.00	0.00	142.00	No Ice	1.65	1.16	0.07
			0.00				1/2"	1.81	1.30	0.09
			3.00				Ice	1.98	1.45	0.11
							1" Ice	2.34	1.76	0.16
							2" Ice			
RADIO 4449 B12/B71	C	From Leg	4.00	0.00	0.00	142.00	No Ice	1.65	1.16	0.07
			0.00				1/2"	1.81	1.30	0.09
			3.00				Ice	1.98	1.45	0.11
							1" Ice	2.34	1.76	0.16
							2" Ice			
Platform Mount [LP 602-1_KCKR]	C	None			0.00	142.00	No Ice	42.30	42.30	1.62
							1/2"	49.04	49.04	2.38
							Ice	55.87	55.87	3.27
							1" Ice	69.85	69.85	5.40
							2" Ice			
***										
MX08FRO665-20 w/ Mount Pipe	A	From Leg	4.00	0.00	0.00	132.00	No Ice	8.01	4.23	0.10
			0.00				1/2"	8.52	4.69	0.18
			0.00				Ice	9.04	5.16	0.28
							1" Ice	10.11	6.12	0.51
							2" Ice			
MX08FRO665-20 w/ Mount Pipe	B	From Leg	4.00	0.00	0.00	132.00	No Ice	8.01	4.23	0.10
			0.00				1/2"	8.52	4.69	0.18
			0.00				Ice	9.04	5.16	0.28
							1" Ice	10.11	6.12	0.51
							2" Ice			
MX08FRO665-20 w/ Mount Pipe	C	From Leg	4.00	0.00	0.00	132.00	No Ice	8.01	4.23	0.10
			0.00				1/2"	8.52	4.69	0.18
			0.00				Ice	9.04	5.16	0.28
							1" Ice	10.11	6.12	0.51
							2" Ice			
TA08025-B604	A	From Leg	4.00	0.00	0.00	132.00	No Ice	1.96	0.98	0.06
			0.00				1/2"	2.14	1.11	0.08
			0.00				Ice	2.32	1.25	0.10
							1" Ice	2.71	1.55	0.15
							2" Ice			
TA08025-B604	B	From Leg	4.00	0.00	0.00	132.00	No Ice	1.96	0.98	0.06
			0.00				1/2"	2.14	1.11	0.08
			0.00				Ice	2.32	1.25	0.10
							1" Ice	2.71	1.55	0.15
							2" Ice			
TA08025-B604	C	From Leg	4.00	0.00	0.00	132.00	No Ice	1.96	0.98	0.06
			0.00				1/2"	2.14	1.11	0.08
			0.00				Ice	2.32	1.25	0.10
							1" Ice	2.71	1.55	0.15
							2" Ice			
TA08025-B605	A	From Leg	4.00	0.00	0.00	132.00	No Ice	1.96	1.13	0.08
			0.00				1/2"	2.14	1.27	0.09
			0.00				Ice	2.32	1.41	0.11
							1" Ice	2.71	1.72	0.16
							2" Ice			
TA08025-B605	B	From Leg	4.00	0.00	0.00	132.00	No Ice	1.96	1.13	0.08
			0.00				1/2"	2.14	1.27	0.09
			0.00				Ice	2.32	1.41	0.11
							1" Ice	2.71	1.72	0.16
							2" Ice			
TA08025-B605	C	From Leg	4.00	0.00	0.00	132.00	No Ice	1.96	1.13	0.08
			0.00				1/2"	2.14	1.27	0.09

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* ft ft ft	*Azimuth Adjustment* °	*Placement* ft		C_AA_A *Front* ft^2	C_AA_A *Side* ft^2	*Weight* K
			0.00			Ice	2.32	1.41	0.11
						1" Ice	2.71	1.72	0.16
						2" Ice			
RDIDC-9181-PF-48	A	From Leg	4.00	0.00	132.00	No Ice	2.31	1.29	0.02
			0.00			1/2"	2.50	1.45	0.04
			0.00			Ice	2.70	1.61	0.06
						1" Ice	3.12	1.96	0.12
						2" Ice			
Commscope MC-PK8-DSH	C	None		0.00	132.00	No Ice	34.24	34.24	1.75
						1/2"	62.95	62.95	2.10
						Ice	91.66	91.66	2.45
						1" Ice	149.08	149.08	3.15
						2" Ice			
(2) 8' x 2" Mount Pipe	A	From Leg	4.00	0.00	132.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
(2) 8' x 2" Mount Pipe	B	From Leg	4.00	0.00	132.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
(2) 8' x 2" Mount Pipe	C	From Leg	4.00	0.00	132.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
***									
LPA-80080/4CF w/ Mount Pipe	A	From Leg	4.00	0.00	116.00	No Ice	2.86	6.57	0.03
			0.00			1/2"	3.22	7.19	0.08
			1.00			Ice	3.59	7.84	0.13
						1" Ice	4.34	9.17	0.25
						2" Ice			
(2) JAHH-65B-R3B w/ Mount Pipe	A	From Leg	4.00	0.00	116.00	No Ice	5.50	4.38	0.10
			0.00			1/2"	5.97	4.84	0.17
			1.00			Ice	6.45	5.30	0.25
						1" Ice	7.44	6.26	0.46
						2" Ice			
(2) JAHH-65B-R3B w/ Mount Pipe	B	From Leg	4.00	0.00	116.00	No Ice	5.50	4.38	0.10
			0.00			1/2"	5.97	4.84	0.17
			1.00			Ice	6.45	5.30	0.25
						1" Ice	7.44	6.26	0.46
						2" Ice			
(2) JAHH-65B-R3B w/ Mount Pipe	C	From Leg	4.00	0.00	116.00	No Ice	5.50	4.38	0.10
			0.00			1/2"	5.97	4.84	0.17
			1.00			Ice	6.45	5.30	0.25
						1" Ice	7.44	6.26	0.46
						2" Ice			
MT6407-77A w/ Mount Pipe	A	From Leg	4.00	0.00	116.00	No Ice	4.91	2.68	0.10
			0.00			1/2"	5.26	3.14	0.14
			1.00			Ice	5.61	3.62	0.18
						1" Ice	6.36	4.63	0.29
						2" Ice			
MT6407-77A w/ Mount Pipe	B	From Leg	4.00	0.00	116.00	No Ice	4.91	2.68	0.10
			0.00			1/2"	5.26	3.14	0.14
			1.00			Ice	5.61	3.62	0.18
						1" Ice	6.36	4.63	0.29
						2" Ice			
MT6407-77A w/ Mount Pipe	C	From Leg	4.00	0.00	116.00	No Ice	4.91	2.68	0.10
			0.00			1/2"	5.26	3.14	0.14
			1.00			Ice	5.61	3.62	0.18
						1" Ice	6.36	4.63	0.29
						2" Ice			
LPA-80080-4CF-EDIN-0 w/	A	From Leg	4.00	0.00	116.00	No Ice	2.86	6.57	0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Mount Pipe			0.00			1/2"	3.22	7.19	0.08
			1.00			Ice	3.59	7.84	0.13
						1" Ice	4.34	9.17	0.25
						2" Ice			
(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	B	From Leg	4.00	0.00	116.00	No Ice	6.38	6.56	0.04
			0.00			1/2"	6.78	7.19	0.10
			1.00			Ice	7.19	7.84	0.18
						1" Ice	8.03	9.17	0.34
						2" Ice			
(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	C	From Leg	4.00	0.00	116.00	No Ice	6.38	6.56	0.04
			0.00			1/2"	6.78	7.19	0.10
			1.00			Ice	7.19	7.84	0.18
						1" Ice	8.03	9.17	0.34
						2" Ice			
(2) DB-T1-6Z-8AB-0Z	B	From Leg	4.00	0.00	116.00	No Ice	4.80	2.00	0.04
			0.00			1/2"	5.07	2.19	0.08
			1.00			Ice	5.35	2.39	0.12
						1" Ice	5.93	2.81	0.21
						2" Ice			
CBC78T-DS-43-2X	A	From Leg	4.00	0.00	116.00	No Ice	0.37	0.51	0.02
			0.00			1/2"	0.45	0.60	0.03
			1.00			Ice	0.53	0.70	0.04
						1" Ice	0.72	0.93	0.06
						2" Ice			
CBC78T-DS-43-2X	B	From Leg	4.00	0.00	116.00	No Ice	0.37	0.51	0.02
			0.00			1/2"	0.45	0.60	0.03
			1.00			Ice	0.53	0.70	0.04
						1" Ice	0.72	0.93	0.06
						2" Ice			
CBC78T-DS-43-2X	C	From Leg	4.00	0.00	116.00	No Ice	0.37	0.51	0.02
			0.00			1/2"	0.45	0.60	0.03
			1.00			Ice	0.53	0.70	0.04
						1" Ice	0.72	0.93	0.06
						2" Ice			
RFV01U-D1A	A	From Leg	4.00	0.00	116.00	No Ice	1.88	1.25	0.08
			0.00			1/2"	2.05	1.39	0.10
			1.00			Ice	2.22	1.54	0.12
						1" Ice	2.60	1.86	0.18
						2" Ice			
RFV01U-D1A	B	From Leg	4.00	0.00	116.00	No Ice	1.88	1.25	0.08
			0.00			1/2"	2.05	1.39	0.10
			1.00			Ice	2.22	1.54	0.12
						1" Ice	2.60	1.86	0.18
						2" Ice			
RFV01U-D1A	C	From Leg	4.00	0.00	116.00	No Ice	1.88	1.25	0.08
			0.00			1/2"	2.05	1.39	0.10
			1.00			Ice	2.22	1.54	0.12
						1" Ice	2.60	1.86	0.18
						2" Ice			
(2) RFV01U-D2A	A	From Leg	4.00	0.00	116.00	No Ice	1.88	1.01	0.07
			0.00			1/2"	2.05	1.14	0.09
			1.00			Ice	2.22	1.28	0.11
						1" Ice	2.60	1.59	0.15
						2" Ice			
(2) RFV01U-D2A	B	From Leg	4.00	0.00	116.00	No Ice	1.88	1.01	0.07
			0.00			1/2"	2.05	1.14	0.09
			1.00			Ice	2.22	1.28	0.11
						1" Ice	2.60	1.59	0.15
						2" Ice			
(2) RFV01U-D2A	C	From Leg	4.00	0.00	116.00	No Ice	1.88	1.01	0.07
			0.00			1/2"	2.05	1.14	0.09
			1.00			Ice	2.22	1.28	0.11
						1" Ice	2.60	1.59	0.15
						2" Ice			
Platform Mount [LP 303-	C	None		0.00	116.00	No Ice	17.09	17.09	1.50

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
1_HR-1]						1/2" Ice	21.47	21.47	1.88
						1" Ice	25.72	25.72	2.35
						2" Ice	33.96	33.96	3.52
2.375" OD x 6' Mount Pipe	A	From Leg	4.00 0.00 1.00	0.00	116.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.03 0.04 0.05 0.09
2.375" OD x 6' Mount Pipe	B	From Leg	4.00 0.00 1.00	0.00	116.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.03 0.04 0.05 0.09
2.375" OD x 6' Mount Pipe	C	From Leg	4.00 0.00 1.00	0.00	116.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.03 0.04 0.05 0.09
***									
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	0.06 0.10 0.16 0.29
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	0.06 0.10 0.16 0.29
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	0.06 0.10 0.16 0.29
AM-X-CD-14-65-00T-RET w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.99 3.30 3.62 4.28	2.14 2.43 2.73 3.36	0.05 0.10 0.14 0.27
AM-X-CD-14-65-00T-RET w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.99 3.30 3.62 4.28	2.14 2.43 2.73 3.36	0.05 0.10 0.14 0.27
AM-X-CD-14-65-00T-RET w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.99 3.30 3.62 4.28	2.14 2.43 2.73 3.36	0.05 0.10 0.14 0.27
GPS_A	C	From Leg	4.00 0.00 7.00	0.00	96.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.26 0.32 0.39 0.56	0.26 0.32 0.39 0.56	0.00 0.00 0.01 0.02
(2) TT19-08BP111-001	A	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.55 0.64 0.74 0.97	0.44 0.53 0.63 0.84	0.02 0.02 0.03 0.05
(2) TT19-08BP111-001	B	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.55 0.64 0.74 0.97	0.44 0.53 0.63 0.84	0.02 0.02 0.03 0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) TT19-08BP111-001	C	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.55 0.64 0.74 0.97	0.44 0.53 0.63 0.84	0.02 0.02 0.03 0.05
DC6-48-60-18-8F	A	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.21 1.89 2.11 2.57	1.21 1.89 2.11 2.57	0.02 0.04 0.07 0.13
RRUS 11	A	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.78 2.99 3.21 3.66	1.19 1.33 1.49 1.83	0.05 0.07 0.09 0.15
RRUS 11	B	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.78 2.99 3.21 3.66	1.19 1.33 1.49 1.83	0.05 0.07 0.09 0.15
RRUS 11	C	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.78 2.99 3.21 3.66	1.19 1.33 1.49 1.83	0.05 0.07 0.09 0.15
RRUS 12 B2	A	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.14 3.36 3.59 4.07	1.28 1.43 1.60 1.95	0.05 0.07 0.10 0.16
RRUS 12 B2	B	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.14 3.36 3.59 4.07	1.28 1.43 1.60 1.95	0.05 0.07 0.10 0.16
RRUS 12 B2	C	From Leg	4.00 0.00 2.00	0.00	96.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.14 3.36 3.59 4.07	1.28 1.43 1.60 1.95	0.05 0.07 0.10 0.16
T-Arm Mount [TA 602-3]	C	None		0.00	96.00	No Ice 1/2" Ice 1" Ice 2" Ice	13.40 16.44 19.70 25.86	13.40 16.44 19.70 25.86	0.77 1.00 1.29 2.05
***									
KS24019-L112A	C	From Leg	4.00 0.00 1.00	0.00	92.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.10 0.18 0.26 0.42	0.10 0.18 0.26 0.42	0.01 0.01 0.01 0.01
Side Arm Mount [SO 701-1]	C	None		0.00	92.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.85 1.14 1.43 2.01	1.67 2.34 3.01 4.35	0.07 0.08 0.09 0.12
***									
Side Arm Mount [SO 701-1]	A	None		0.00	87.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.85 1.14 1.43 2.01	1.67 2.34 3.01 4.35	0.07 0.08 0.09 0.12
Side Arm Mount [SO 701-1]	B	None		0.00	87.00	No Ice 1/2" Ice	0.85 1.14 1.43	1.67 2.34 3.01	0.07 0.08 0.09

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice 2" Ice	2.01	4.35	0.12

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	160 - 156	Pole	Max Tension	8	0.00	0.00	-0.00
			Max. Compression	26	-7.05	-0.01	0.00
			Max. Mx	8	-2.52	-13.80	-0.00
			Max. My	14	-2.53	-0.00	-13.78
			Max. Vy	8	4.24	-13.80	-0.00
			Max. Vx	2	-4.24	0.00	13.78
			Max. Torque	12			-0.00
L2	156 - 152	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-8.62	-0.01	0.00
			Max. Mx	8	-3.20	-33.40	-0.00
			Max. My	14	-3.22	-0.01	-33.35
			Max. Vy	8	5.44	-33.40	-0.00
			Max. Vx	14	5.43	-0.01	-33.35
			Max. Torque	12			-0.00
L3	152 - 148	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-9.11	-0.02	0.00
			Max. Mx	8	-3.46	-56.01	-0.01
			Max. My	14	-3.47	-0.01	-55.93
			Max. Vy	8	5.87	-56.01	-0.01
			Max. Vx	14	5.86	-0.01	-55.93
			Max. Torque	12			-0.00
L4	148 - 144	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-9.62	-0.03	0.01
			Max. Mx	8	-3.73	-80.37	-0.01
			Max. My	14	-3.74	-0.02	-80.26
			Max. Vy	8	6.31	-80.37	-0.01
			Max. Vx	14	6.31	-0.02	-80.26
			Max. Torque	12			-0.00
L5	144 - 140	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-19.51	-0.04	0.01
			Max. Mx	8	-7.54	-123.03	-0.01
			Max. My	14	-7.56	-0.03	-122.87
			Max. Vy	8	11.59	-123.03	-0.01
			Max. Vx	2	-11.57	0.00	122.87
			Max. Torque	12			-0.00
L6	140 - 136	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-20.11	-0.05	0.01
			Max. Mx	8	-7.89	-170.30	-0.02
			Max. My	14	-7.92	-0.04	-170.08
			Max. Vy	8	12.05	-170.30	-0.02
			Max. Vx	14	12.03	-0.04	-170.08
			Max. Torque	12			-0.00
L7	136 - 132	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-20.71	-0.07	0.01
			Max. Mx	8	-8.27	-219.41	-0.02
			Max. My	14	-8.30	-0.05	-219.12
			Max. Vy	8	12.52	-219.41	-0.02
			Max. Vx	14	12.50	-0.05	-219.12
			Max. Torque	12			-0.00
L8	132 - 128	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.24	-0.12	0.51
			Max. Mx	8	-11.51	-284.75	0.07
			Max. My	2	-11.55	0.00	284.63
			Max. Vy	8	16.57	-284.75	0.07
			Max. Vx	2	-16.58	0.00	284.63
			Max. Torque	8			0.28
L9	128 - 124	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.91	-0.18	0.54
			Max. Mx	8	-11.94	-351.93	0.07
			Max. My	2	-11.98	-0.01	351.86
			Max. Vy	8	17.03	-351.93	0.07
			Max. Vx	14	17.04	-0.11	-351.60
			Max. Torque	8			0.28
L10	124 - 117.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-28.25	-0.21	0.55
			Max. Mx	8	-12.15	-386.22	0.07

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	2	-12.19	-0.01	386.18
			Max. Vy	8	17.27	-386.22	0.07
			Max. Vx	14	17.28	-0.13	-385.90
			Max. Torque	8			0.28
L11	117.33 - 116.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.02	-0.29	0.58
			Max. Mx	8	-13.29	-486.22	0.07
			Max. My	2	-13.33	-0.02	486.23
			Max. Vy	8	18.00	-486.22	0.07
			Max. Vx	2	-18.02	-0.02	486.23
			Max. Torque	8			0.28
L12	116.33 - 112.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-40.41	-1.90	-1.00
			Max. Mx	8	-17.60	-582.99	-0.71
			Max. My	14	-17.68	-1.01	-580.89
			Max. Vy	8	23.74	-582.99	-0.71
			Max. Vx	2	-23.37	0.03	580.44
			Max. Torque	3			-0.69
L13	112.33 - 108.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41.26	-1.97	-0.97
			Max. Mx	8	-18.23	-678.87	-1.09
			Max. My	14	-18.31	-1.42	-675.25
			Max. Vy	8	24.21	-678.87	-1.09
			Max. Vx	2	-23.84	0.39	674.81
			Max. Torque	3			-0.69
L14	108.33 - 104.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.00	-2.01	-0.84
			Max. Mx	8	-19.34	-777.51	-1.40
			Max. My	14	-19.42	-1.81	-772.33
			Max. Vy	8	25.14	-777.51	-1.40
			Max. Vx	2	-24.76	0.77	772.03
			Max. Torque	3			-0.70
L15	104.33 - 100.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-44.83	-2.05	-0.69
			Max. Mx	8	-20.51	-879.91	-1.70
			Max. My	14	-20.59	-2.20	-873.15
			Max. Vy	8	26.09	-879.91	-1.70
			Max. Vx	2	-25.71	1.16	872.99
			Max. Torque	3			-0.72
L16	100.33 - 96.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.68	-2.09	-0.55
			Max. Mx	8	-21.71	-986.09	-2.01
			Max. My	14	-21.79	-2.59	-977.74
			Max. Vy	8	27.03	-986.09	-2.01
			Max. Vx	2	-26.65	1.54	977.72
			Max. Torque	3			-0.74
L17	96.33 - 94	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.78	-2.19	0.04
			Max. Mx	8	-24.33	-1059.25	-2.06
			Max. My	2	-24.42	1.73	1050.06
			Max. Vy	8	30.38	-1059.25	-2.06
			Max. Vx	2	-29.92	1.73	1050.06
			Max. Torque	3			-0.74
L18	94 - 93.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.92	-2.22	0.06
			Max. Mx	8	-24.43	-1066.86	-2.07
			Max. My	2	-24.52	1.75	1057.56
			Max. Vy	8	30.47	-1066.86	-2.07
			Max. Vx	2	-30.00	1.75	1057.56
			Max. Torque	3			-0.72
L19	93.75 - 89.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-55.20	-2.47	0.26

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	8	-25.80	-1190.89	-2.36
			Max. My	2	-25.90	2.09	1179.53
			Max. Vy	8	31.58	-1190.89	-2.36
			Max. Vx	2	-30.98	2.09	1179.53
			Max. Torque	3			-0.75
L20	89.75 - 82.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-55.82	-2.60	0.34
			Max. Mx	8	-26.19	-1246.45	-2.50
			Max. My	2	-26.30	2.22	1233.90
			Max. Vy	8	31.93	-1246.45	-2.50
			Max. Vx	14	31.18	-3.53	-1233.27
			Max. Torque	3			-0.75
L21	82.5 - 81.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-59.64	-3.10	0.64
			Max. Mx	8	-28.75	-1459.47	-3.03
			Max. My	2	-28.89	2.71	1440.24
			Max. Vy	8	33.44	-1459.47	-3.03
			Max. Vx	2	-32.19	2.71	1440.24
			Max. Torque	3			-0.75
L22	81.5 - 77.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-61.11	-3.41	0.82
			Max. Mx	8	-29.83	-1594.75	-3.38
			Max. My	2	-29.98	2.98	1569.88
			Max. Vy	8	34.18	-1594.75	-3.38
			Max. Vx	2	-32.64	2.98	1569.88
			Max. Torque	3			-0.75
L23	77.5 - 73.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-62.66	-3.74	1.00
			Max. Mx	8	-30.97	-1733.03	-3.72
			Max. My	2	-31.13	3.25	1701.30
			Max. Vy	8	34.94	-1733.03	-3.72
			Max. Vx	2	-33.08	3.25	1701.30
			Max. Torque	3			-0.75
L24	73.5 - 72.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.12	-3.84	1.06
			Max. Mx	8	-31.30	-1776.81	-3.83
			Max. My	2	-31.45	3.34	1742.74
			Max. Vy	8	35.10	-1776.81	-3.83
			Max. Vx	2	-33.22	3.34	1742.74
			Max. Torque	3			-0.75
L25	72.25 - 72	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.22	-3.87	1.08
			Max. Mx	8	-31.39	-1785.59	-3.85
			Max. My	2	-31.55	3.36	1751.05
			Max. Vy	8	35.16	-1785.59	-3.85
			Max. Vx	2	-33.27	3.36	1751.05
			Max. Torque	3			-0.75
L26	72 - 68	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-64.88	-4.15	1.26
			Max. Mx	8	-32.61	-1927.23	-4.18
			Max. My	2	-32.76	3.65	1884.94
			Max. Vy	8	35.68	-1927.23	-4.18
			Max. Vx	2	-33.71	3.65	1884.94
			Max. Torque	3			-0.75
L27	68 - 64	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.55	-4.44	1.45
			Max. Mx	8	-33.86	-2071.04	-4.50
			Max. My	2	-34.01	3.94	2020.67
			Max. Vy	8	36.21	-2071.04	-4.50
			Max. Vx	2	-34.16	3.94	2020.67
			Max. Torque	3			-0.75
L28	64 - 60	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-68.24	-4.72	1.64
			Max. Mx	8	-35.13	-2216.96	-4.83
			Max. My	2	-35.27	4.22	2158.21
			Max. Vy	8	36.74	-2216.96	-4.83
			Max. Vx	2	-34.61	4.22	2158.21
			Max. Torque	3			-0.75
L29	60 - 56	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	26	-69.95	-5.00	1.83
			Max. Mx	8	-36.42	-2364.95	-5.15
			Max. My	2	-36.56	4.50	2297.53
			Max. Vy	8	37.25	-2364.95	-5.15
			Max. Vx	2	-35.05	4.50	2297.53
			Max. Torque	3			-0.75
L30	56 - 53.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-70.98	-5.16	1.93
			Max. Mx	8	-37.16	-2449.11	-5.33
			Max. My	2	-37.28	4.66	2376.66
			Max. Vy	8	37.55	-2449.11	-5.33
			Max. Vx	2	-35.30	4.66	2376.66
			Max. Torque	3			-0.75
L31	53.75 - 53.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-71.12	-5.20	1.95
			Max. Mx	8	-37.27	-2458.51	-5.35
			Max. My	2	-37.40	4.68	2385.49
			Max. Vy	8	37.61	-2458.51	-5.35
			Max. Vx	2	-35.34	4.68	2385.49
			Max. Torque	3			-0.75
L32	53.5 - 49.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.28	-5.47	2.14
			Max. Mx	8	-38.87	-2610.01	-5.67
			Max. My	2	-38.99	4.96	2527.69
			Max. Vy	8	38.15	-2610.01	-5.67
			Max. Vx	2	-35.79	4.96	2527.69
			Max. Torque	3			-0.75
L33	49.5 - 40.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-74.63	-5.65	2.26
			Max. Mx	8	-39.89	-2705.85	-5.87
			Max. My	2	-40.01	5.13	2617.51
			Max. Vy	8	38.50	-2705.85	-5.87
			Max. Vx	14	36.07	-8.53	-2615.73
			Max. Torque	3			-0.75
L34	40.583 - 39.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-81.61	-6.19	2.62
			Max. Mx	8	-45.33	-2995.91	-6.46
			Max. My	2	-45.44	5.64	2888.73
			Max. Vy	8	39.68	-2995.91	-6.46
			Max. Vx	2	-37.05	5.64	2888.73
			Max. Torque	3			-0.75
L35	39.583 - 35.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-83.98	-6.48	2.81
			Max. Mx	8	-47.15	-3155.73	-6.78
			Max. My	2	-47.26	5.91	3037.75
			Max. Vy	8	40.22	-3155.73	-6.78
			Max. Vx	2	-37.47	5.91	3037.75
			Max. Torque	3			-0.75
L36	35.583 - 31.483	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-86.51	-6.78	3.01
			Max. Mx	8	-49.13	-3321.75	-7.11
			Max. My	2	-49.23	6.19	3192.22
			Max. Vy	8	40.75	-3321.75	-7.11
			Max. Vx	2	-37.89	6.19	3192.22
			Max. Torque	3			-0.75
L37	31.483 - 31.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-86.66	-6.82	3.03
			Max. Mx	8	-49.25	-3331.26	-7.13
			Max. My	2	-49.35	6.21	3201.06
			Max. Vy	8	40.81	-3331.26	-7.13
			Max. Vx	2	-37.94	6.21	3201.06
			Max. Torque	3			-0.75
L38	31.25 - 28.75	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	26	-88.22	-6.99	3.15
			Max. Mx	8	-50.46	-3433.62	-7.32
			Max. My	2	-50.56	6.38	3296.14
			Max. Vy	8	41.10	-3433.62	-7.32
			Max. Vx	14	38.16	-10.77	-3293.82
			Max. Torque	3			-0.75
L39	28.75 - 28.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-88.36	-7.02	3.16
			Max. Mx	8	-50.58	-3443.91	-7.34
			Max. My	2	-50.68	6.39	3305.69
			Max. Vy	8	41.15	-3443.91	-7.34
			Max. Vx	2	-38.20	6.39	3305.69
			Max. Torque	3			-0.75
L40	28.5 - 24.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-90.60	-7.30	3.36
			Max. Mx	8	-52.34	-3609.34	-7.66
			Max. My	2	-52.43	6.66	3459.15
			Max. Vy	8	41.58	-3609.34	-7.66
			Max. Vx	14	38.56	-11.29	-3456.69
			Max. Torque	3			-0.75
L41	24.5 - 20.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-92.82	-7.60	3.55
			Max. Mx	8	-54.13	-3776.57	-7.97
			Max. My	2	-54.21	6.93	3614.10
			Max. Vy	8	42.02	-3776.57	-7.97
			Max. Vx	14	38.93	-11.78	-3611.51
			Max. Torque	3			-0.75
L42	20.5 - 16.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-95.05	-7.90	3.75
			Max. Mx	8	-55.94	-3945.56	-8.28
			Max. My	2	-56.00	7.19	3770.52
			Max. Vy	20	-42.46	3940.68	11.18
			Max. Vx	14	39.30	-12.27	-3767.81
			Max. Torque	3			-0.75
L43	16.5 - 12.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-97.30	-8.20	3.94
			Max. Mx	8	-57.77	-4116.29	-8.59
			Max. My	2	-57.82	7.45	3928.43
			Max. Vy	20	-42.90	4111.19	11.63
			Max. Vx	14	39.67	-12.76	-3925.59
			Max. Torque	3			-0.75
L44	12.5 - 11	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-98.18	-8.31	4.01
			Max. Mx	8	-58.45	-4180.77	-8.70
			Max. My	2	-58.50	7.55	3988.02
			Max. Vy	20	-43.08	4175.58	11.79
			Max. Vx	14	39.81	-12.95	-3985.13
			Max. Torque	3			-0.75
L45	11 - 10.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-98.34	-8.33	4.02
			Max. Mx	8	-58.61	-4191.55	-8.72
			Max. My	2	-58.65	7.56	3997.98
			Max. Vy	8	43.10	-4191.55	-8.72
			Max. Vx	2	-39.83	7.56	3997.98
			Max. Torque	3			-0.75
L46	10.75 - 6.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-100.97	-8.61	4.18
			Max. Mx	8	-60.73	-4364.91	-9.03
			Max. My	2	-60.76	7.82	4158.04
			Max. Vy	20	-43.57	4359.48	12.26
			Max. Vx	14	40.21	-13.47	-4155.01
			Max. Torque	3			-0.75
L47	6.75 - 6.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-101.31	-8.66	4.21
			Max. Mx	8	-61.01	-4386.72	-9.06
			Max. My	2	-61.03	7.85	4178.16
			Max. Vy	8	43.62	-4386.72	-9.06
			Max. Vx	14	40.25	-13.53	-4175.11
			Max. Torque	3			-0.75

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L48	6.25 - 6	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-101.47	-8.68	4.22
			Max. Mx	8	-61.15	-4397.63	-9.08
			Max. My	2	-61.17	7.87	4188.23
			Max. Vy	8	43.66	-4397.63	-9.08
			Max. Vx	2	-40.28	7.87	4188.23
			Max. Torque	3			-0.75
L49	6 - 5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-102.13	-8.77	4.26
			Max. Mx	8	-61.67	-4441.36	-9.16
			Max. My	2	-61.69	7.93	4228.56
			Max. Vy	20	-43.78	4435.83	12.46
			Max. Vx	14	40.38	-13.68	-4225.47
			Max. Torque	3			-0.75
L50	5 - 4.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-102.28	-8.79	4.27
			Max. Mx	8	-61.80	-4452.31	-9.18
			Max. My	2	-61.82	7.95	4238.66
			Max. Vy	8	43.80	-4452.31	-9.18
			Max. Vx	2	-40.40	7.95	4238.66
			Max. Torque	3			-0.75
L51	4.75 - 0.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-104.53	-9.10	4.48
			Max. Mx	8	-63.67	-4628.39	-9.48
			Max. My	2	-63.68	8.20	4400.96
			Max. Vy	20	-44.23	4622.61	12.93
			Max. Vx	14	40.76	-14.21	-4397.73
			Max. Torque	3			-0.75
L52	0.75 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-104.93	-9.15	4.52
			Max. Mx	8	-64.03	-4661.59	-9.53
			Max. My	2	-64.04	8.25	4431.55
			Max. Vy	20	-44.29	4655.77	13.01
			Max. Vx	14	40.82	-14.30	-4428.29
			Max. Torque	3			-0.75

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	104.93	0.00	-0.00
	Max. H_x	20	64.05	44.28	0.09
	Max. H_z	3	48.04	0.09	40.80
	Max. M_x	2	4431.55	0.09	40.80
	Max. M_z	8	4661.59	-44.27	-0.09
	Max. Torsion	15	0.74	-0.09	-40.80
	Min. Vert	9	48.04	-44.28	-0.09
	Min. H_x	9	48.04	-44.28	-0.09
	Min. H_z	14	64.05	-0.09	-40.80
	Min. M_x	14	-4428.29	-0.09	-40.80
	Min. M_z	20	-4655.77	44.28	0.09
	Min. Torsion	3	-0.75	0.09	40.80

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	53.37	0.00	-0.00	-1.40	-2.43	0.00
1.2 Dead+1.0 Wind 0 deg -	64.05	-0.09	-40.80	-4431.55	8.25	0.74

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
No Ice						
0.9 Dead+1.0 Wind 0 deg - No Ice	48.04	-0.09	-40.80	-4382.72	8.91	0.75
1.2 Dead+1.0 Wind 30 deg - No Ice	64.05	19.89	-34.26	-3725.49	-2166.56	0.49
0.9 Dead+1.0 Wind 30 deg - No Ice	48.04	19.89	-34.26	-3684.04	-2141.96	0.50
1.2 Dead+1.0 Wind 60 deg - No Ice	64.05	35.39	-20.21	-2194.19	-3846.60	0.33
0.9 Dead+1.0 Wind 60 deg - No Ice	48.04	35.39	-20.21	-2169.71	-3803.71	0.33
1.2 Dead+1.0 Wind 90 deg - No Ice	64.05	44.27	0.09	9.53	-4661.59	-0.72
0.9 Dead+1.0 Wind 90 deg - No Ice	48.04	44.28	0.09	9.86	-4610.83	-0.72
1.2 Dead+1.0 Wind 120 deg - No Ice	64.05	37.12	21.32	2266.80	-3955.83	-0.64
0.9 Dead+1.0 Wind 120 deg - No Ice	48.04	37.12	21.32	2242.67	-3912.24	-0.63
1.2 Dead+1.0 Wind 150 deg - No Ice	64.05	20.46	35.06	3807.84	-2229.13	-0.61
0.9 Dead+1.0 Wind 150 deg - No Ice	48.04	20.46	35.06	3766.50	-2203.94	-0.61
1.2 Dead+1.0 Wind 180 deg - No Ice	64.05	0.09	40.80	4428.29	-14.30	-0.73
0.9 Dead+1.0 Wind 180 deg - No Ice	48.04	0.09	40.80	4380.14	-13.40	-0.74
1.2 Dead+1.0 Wind 210 deg - No Ice	64.05	-19.89	34.26	3722.02	2160.51	-0.50
0.9 Dead+1.0 Wind 210 deg - No Ice	48.04	-19.89	34.26	3681.46	2137.47	-0.51
1.2 Dead+1.0 Wind 240 deg - No Ice	64.05	-35.39	20.21	2190.71	3840.55	-0.35
0.9 Dead+1.0 Wind 240 deg - No Ice	48.04	-35.39	20.21	2167.13	3799.22	-0.35
1.2 Dead+1.0 Wind 270 deg - No Ice	64.05	-44.28	-0.09	-13.01	4655.77	0.71
0.9 Dead+1.0 Wind 270 deg - No Ice	48.04	-44.28	-0.09	-12.44	4606.34	0.71
1.2 Dead+1.0 Wind 300 deg - No Ice	64.05	-37.12	-21.32	-2270.28	3949.78	0.65
0.9 Dead+1.0 Wind 300 deg - No Ice	48.04	-37.12	-21.32	-2245.25	3907.75	0.65
1.2 Dead+1.0 Wind 330 deg - No Ice	64.05	-20.46	-35.06	-3811.32	2223.07	0.63
0.9 Dead+1.0 Wind 330 deg - No Ice	48.04	-20.46	-35.06	-3769.08	2199.45	0.63
1.2 Dead+1.0 Ice+1.0 Temp	104.93	-0.00	0.00	-4.52	-9.15	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	104.93	-0.01	-8.12	-950.86	-7.80	0.12
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	104.93	3.97	-6.85	-803.91	-472.97	0.06
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	104.93	7.03	-4.03	-473.91	-829.22	0.02
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	104.93	8.40	0.01	-2.92	-982.37	-0.21
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	104.93	7.14	4.11	472.78	-839.95	-0.17
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	104.93	4.08	7.00	811.64	-484.84	-0.12
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	104.93	0.01	8.12	941.52	-11.29	-0.12
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	104.93	-3.97	6.85	794.57	453.87	-0.06
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	104.93	-7.03	4.03	464.57	810.12	-0.02
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	104.93	-8.40	-0.01	-6.41	963.28	0.21
1.2 Dead+1.0 Wind 300	104.93	-7.14	-4.11	-482.12	820.85	0.17

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	104.93	-4.08	-7.00	-820.98	465.74	0.12
Dead+Wind 0 deg - Service	53.37	-0.02	-7.59	-820.78	-0.43	0.14
Dead+Wind 30 deg - Service	53.37	3.70	-6.37	-690.07	-402.61	0.09
Dead+Wind 60 deg - Service	53.37	6.58	-3.76	-406.92	-713.35	0.06
Dead+Wind 90 deg - Service	53.37	8.24	0.02	0.64	-864.29	-0.14
Dead+Wind 120 deg - Service	53.37	6.91	3.97	418.14	-733.62	-0.13
Dead+Wind 150 deg - Service	53.37	3.81	6.52	703.10	-414.21	-0.12
Dead+Wind 180 deg - Service	53.37	0.02	7.59	817.89	-4.60	-0.14
Dead+Wind 210 deg - Service	53.37	-3.70	6.37	687.18	397.58	-0.09
Dead+Wind 240 deg - Service	53.37	-6.58	3.76	404.03	708.32	-0.06
Dead+Wind 270 deg - Service	53.37	-8.24	-0.02	-3.53	859.27	0.14
Dead+Wind 300 deg - Service	53.37	-6.91	-3.97	-421.03	728.59	0.13
Dead+Wind 330 deg - Service	53.37	-3.81	-6.52	-705.98	409.18	0.12

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-53.37	0.00	-0.00	53.37	0.00	0.000%
2	-0.09	-64.05	-40.80	0.09	64.05	40.80	0.004%
3	-0.09	-48.04	-40.80	0.09	48.04	40.80	0.003%
4	19.89	-64.05	-34.26	-19.89	64.05	34.26	0.000%
5	19.89	-48.04	-34.26	-19.89	48.04	34.26	0.000%
6	35.39	-64.05	-20.21	-35.39	64.05	20.21	0.000%
7	35.39	-48.04	-20.21	-35.39	48.04	20.21	0.000%
8	44.28	-64.05	0.09	-44.27	64.05	-0.09	0.004%
9	44.28	-48.04	0.09	-44.28	48.04	-0.09	0.003%
10	37.12	-64.05	21.32	-37.12	64.05	-21.32	0.000%
11	37.12	-48.04	21.32	-37.12	48.04	-21.32	0.000%
12	20.46	-64.05	35.06	-20.46	64.05	-35.06	0.000%
13	20.46	-48.04	35.06	-20.46	48.04	-35.06	0.000%
14	0.09	-64.05	40.80	-0.09	64.05	-40.80	0.002%
15	0.09	-48.04	40.80	-0.09	48.04	-40.80	0.003%
16	-19.89	-64.05	34.26	19.89	64.05	-34.26	0.000%
17	-19.89	-48.04	34.26	19.89	48.04	-34.26	0.000%
18	-35.39	-64.05	20.21	35.39	64.05	-20.21	0.000%
19	-35.39	-48.04	20.21	35.39	48.04	-20.21	0.000%
20	-44.28	-64.05	-0.09	44.28	64.05	0.09	0.002%
21	-44.28	-48.04	-0.09	44.28	48.04	0.09	0.003%
22	-37.12	-64.05	-21.32	37.12	64.05	21.32	0.000%
23	-37.12	-48.04	-21.32	37.12	48.04	21.32	0.000%
24	-20.46	-64.05	-35.06	20.46	64.05	35.06	0.000%
25	-20.46	-48.04	-35.06	20.46	48.04	35.06	0.000%
26	0.00	-104.93	0.00	0.00	104.93	-0.00	0.001%
27	-0.01	-104.93	-8.12	0.01	104.93	8.12	0.000%
28	3.97	-104.93	-6.85	-3.97	104.93	6.85	0.000%
29	7.03	-104.93	-4.03	-7.03	104.93	4.03	0.000%
30	8.40	-104.93	0.01	-8.40	104.93	-0.01	0.000%
31	7.14	-104.93	4.11	-7.14	104.93	-4.11	0.000%
32	4.08	-104.93	7.00	-4.08	104.93	-7.00	0.000%
33	0.01	-104.93	8.12	-0.01	104.93	-8.12	0.000%
34	-3.97	-104.93	6.85	3.97	104.93	-6.85	0.000%
35	-7.03	-104.93	4.03	7.03	104.93	-4.03	0.000%
36	-8.40	-104.93	-0.01	8.40	104.93	0.01	0.000%
37	-7.14	-104.93	-4.11	7.14	104.93	4.11	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
38	-4.08	-104.93	-7.00	4.08	104.93	7.00	0.000%
39	-0.02	-53.37	-7.59	0.02	53.37	7.59	0.002%
40	3.70	-53.37	-6.37	-3.70	53.37	6.37	0.002%
41	6.59	-53.37	-3.76	-6.58	53.37	3.76	0.002%
42	8.24	-53.37	0.02	-8.24	53.37	-0.02	0.002%
43	6.91	-53.37	3.97	-6.91	53.37	-3.97	0.002%
44	3.81	-53.37	6.52	-3.81	53.37	-6.52	0.002%
45	0.02	-53.37	7.59	-0.02	53.37	-7.59	0.002%
46	-3.70	-53.37	6.37	3.70	53.37	-6.37	0.002%
47	-6.59	-53.37	3.76	6.58	53.37	-3.76	0.002%
48	-8.24	-53.37	-0.02	8.24	53.37	0.02	0.002%
49	-6.91	-53.37	-3.97	6.91	53.37	3.97	0.002%
50	-3.81	-53.37	-6.52	3.81	53.37	6.52	0.002%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	17	0.00005359	0.00014966
3	Yes	17	0.00003569	0.00009845
4	Yes	23	0.00000001	0.00010876
5	Yes	23	0.00000001	0.00007701
6	Yes	23	0.00000001	0.00011231
7	Yes	23	0.00000001	0.00007915
8	Yes	17	0.00005337	0.00013965
9	Yes	17	0.00003554	0.00008778
10	Yes	23	0.00000001	0.00011594
11	Yes	23	0.00000001	0.00008134
12	Yes	23	0.00000001	0.00011427
13	Yes	23	0.00000001	0.00008064
14	Yes	18	0.00002701	0.00010590
15	Yes	17	0.00003569	0.00014415
16	Yes	23	0.00000001	0.00010706
17	Yes	23	0.00000001	0.00007584
18	Yes	23	0.00000001	0.00011272
19	Yes	23	0.00000001	0.00007956
20	Yes	18	0.00002690	0.00009649
21	Yes	17	0.00003554	0.00012713
22	Yes	23	0.00000001	0.00011739
23	Yes	23	0.00000001	0.00008242
24	Yes	23	0.00000001	0.00011255
25	Yes	23	0.00000001	0.00007941
26	Yes	10	0.00000001	0.00014135
27	Yes	21	0.00000001	0.00010794
28	Yes	21	0.00000001	0.00011456
29	Yes	21	0.00000001	0.00011685
30	Yes	21	0.00000001	0.00011066
31	Yes	21	0.00000001	0.00011762
32	Yes	21	0.00000001	0.00011625
33	Yes	21	0.00000001	0.00010735
34	Yes	21	0.00000001	0.00011231
35	Yes	21	0.00000001	0.00011426
36	Yes	21	0.00000001	0.00010854
37	Yes	21	0.00000001	0.00011612
38	Yes	21	0.00000001	0.00011516
39	Yes	16	0.00000001	0.00004855
40	Yes	16	0.00000001	0.00012814
41	Yes	16	0.00000001	0.00013037
42	Yes	16	0.00008654	0.00004968
43	Yes	16	0.00000001	0.00013384
44	Yes	16	0.00000001	0.00013488
45	Yes	16	0.00000001	0.00004865
46	Yes	16	0.00000001	0.00012199
47	Yes	16	0.00000001	0.00013104

48	Yes	16	0.00008654	0.00004960
49	Yes	16	0.00000001	0.00013921
50	Yes	16	0.00000001	0.00012844

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	160 - 156	21.287	42	1.18	0.00
L2	156 - 152	20.301	42	1.18	0.00
L3	152 - 148	19.317	42	1.17	0.00
L4	148 - 144	18.338	42	1.16	0.00
L5	144 - 140	17.366	42	1.15	0.00
L6	140 - 136	16.405	42	1.14	0.00
L7	136 - 132	15.457	42	1.12	0.00
L8	132 - 128	14.527	42	1.10	0.00
L9	128 - 124	13.617	42	1.07	0.00
L10	124 - 117.33	12.733	42	1.04	0.00
L11	122 - 116.33	12.301	42	1.02	0.00
L12	116.33 - 112.33	11.101	42	0.99	0.00
L13	112.33 - 108.33	10.283	42	0.96	0.00
L14	108.33 - 104.33	9.495	42	0.92	0.00
L15	104.33 - 100.33	8.740	42	0.88	0.00
L16	100.33 - 96.33	8.021	42	0.84	0.00
L17	96.33 - 94	7.339	42	0.79	0.00
L18	94 - 93.75	6.960	42	0.76	0.00
L19	93.75 - 89.75	6.920	42	0.76	0.00
L20	89.75 - 82.5	6.304	42	0.71	0.00
L21	88 - 81.5	6.047	42	0.69	0.00
L22	81.5 - 77.5	5.136	42	0.65	0.00
L23	77.5 - 73.5	4.614	42	0.60	0.00
L24	73.5 - 72.25	4.128	42	0.56	0.00
L25	72.25 - 72	3.984	42	0.54	0.00
L26	72 - 68	3.956	42	0.54	0.00
L27	68 - 64	3.518	42	0.50	0.00
L28	64 - 60	3.110	42	0.47	0.00
L29	60 - 56	2.734	42	0.43	0.00
L30	56 - 53.75	2.389	42	0.39	0.00
L31	53.75 - 53.5	2.209	42	0.37	0.00
L32	53.5 - 49.5	2.189	42	0.37	0.00
L33	49.5 - 40.583	1.892	42	0.34	0.00
L34	47 - 39.583	1.718	42	0.32	0.00
L35	39.583 - 35.583	1.238	42	0.29	0.00
L36	35.583 - 31.483	1.005	42	0.26	0.00
L37	31.483 - 31.25	0.790	42	0.24	0.00
L38	31.25 - 28.75	0.778	42	0.24	0.00
L39	28.75 - 28.5	0.659	42	0.22	0.00
L40	28.5 - 24.5	0.648	42	0.22	0.00
L41	24.5 - 20.5	0.479	42	0.19	0.00
L42	20.5 - 16.5	0.336	42	0.16	0.00
L43	16.5 - 12.5	0.219	42	0.12	0.00
L44	12.5 - 11	0.127	42	0.09	0.00
L45	11 - 10.75	0.100	42	0.08	0.00
L46	10.75 - 6.75	0.096	42	0.08	0.00
L47	6.75 - 6.25	0.039	42	0.05	0.00
L48	6.25 - 6	0.034	42	0.05	0.00
L49	6 - 5	0.031	42	0.05	0.00
L50	5 - 4.75	0.022	42	0.04	0.00
L51	4.75 - 0.75	0.020	42	0.04	0.00
L52	0.75 - 0	0.000	42	0.01	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
159.00	APXV9ERR18-C-A20 w/ Mount Pipe	42	21.041	1.18	0.00	66154
155.00	800MHZ 2X50W RRH W/FILTER	42	20.055	1.18	0.00	66154
142.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	42	16.884	1.15	0.00	16300
132.00	MX08FRO665-20 w/ Mount Pipe	42	14.527	1.10	0.00	9178
116.00	LPA-80080/4CF w/ Mount Pipe	42	11.033	0.99	0.00	7836
96.00	(2) 7770.00 w/ Mount Pipe	42	7.284	0.79	0.00	4884
92.00	KS24019-L112A	42	6.645	0.74	0.00	4736
87.00	Side Arm Mount [SO 701-1]	42	5.903	0.68	0.00	6999

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	160 - 156	114.911	8	6.37	0.00
L2	156 - 152	109.588	8	6.36	0.00
L3	152 - 148	104.278	8	6.34	0.00
L4	148 - 144	98.995	8	6.30	0.00
L5	144 - 140	93.751	8	6.24	0.00
L6	140 - 136	88.562	8	6.17	0.00
L7	136 - 132	83.447	8	6.07	0.00
L8	132 - 128	78.425	8	5.94	0.00
L9	128 - 124	73.517	8	5.79	0.00
L10	124 - 117.33	68.742	8	5.62	0.00
L11	122 - 116.33	66.410	8	5.53	0.00
L12	116.33 - 112.33	59.935	8	5.38	0.00
L13	112.33 - 108.33	55.515	8	5.19	0.00
L14	108.33 - 104.33	51.262	8	4.98	0.00
L15	104.33 - 100.33	47.187	8	4.76	0.00
L16	100.33 - 96.33	43.303	8	4.52	0.00
L17	96.33 - 94	39.622	8	4.27	0.00
L18	94 - 93.75	37.574	8	4.12	0.00
L19	93.75 - 89.75	37.359	8	4.11	0.00
L20	89.75 - 82.5	34.031	8	3.84	0.00
L21	88 - 81.5	32.647	8	3.72	0.00
L22	81.5 - 77.5	27.727	8	3.49	0.00
L23	77.5 - 73.5	24.906	8	3.25	0.00
L24	73.5 - 72.25	22.284	8	3.01	0.00
L25	72.25 - 72	21.506	8	2.93	0.00
L26	72 - 68	21.353	8	2.92	0.00
L27	68 - 64	18.987	8	2.73	0.00
L28	64 - 60	16.787	8	2.53	0.00
L29	60 - 56	14.755	8	2.32	0.00
L30	56 - 53.75	12.893	8	2.12	0.00
L31	53.75 - 53.5	11.922	8	2.00	0.00
L32	53.5 - 49.5	11.817	8	2.00	0.00
L33	49.5 - 40.583	10.211	8	1.84	0.00
L34	47 - 39.583	9.274	8	1.74	0.00
L35	39.583 - 35.583	6.683	8	1.58	0.00
L36	35.583 - 31.483	5.424	8	1.43	0.00
L37	31.483 - 31.25	4.262	8	1.28	0.00
L38	31.25 - 28.75	4.200	8	1.27	0.00
L39	28.75 - 28.5	3.558	8	1.18	0.00
L40	28.5 - 24.5	3.496	8	1.17	0.00
L41	24.5 - 20.5	2.585	8	1.00	0.00
L42	20.5 - 16.5	1.813	8	0.84	0.00
L43	16.5 - 12.5	1.181	8	0.67	0.00
L44	12.5 - 11	0.688	8	0.51	0.00
L45	11 - 10.75	0.538	8	0.44	0.00
L46	10.75 - 6.75	0.515	8	0.43	0.00
L47	6.75 - 6.25	0.212	8	0.29	0.00
L48	6.25 - 6	0.182	8	0.27	0.00
L49	6 - 5	0.168	8	0.26	0.00

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L50	5 - 4.75	0.117	8	0.22	0.00
L51	4.75 - 0.75	0.106	8	0.21	0.00
L52	0.75 - 0	0.003	8	0.03	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
159.00	APXV9ERR18-C-A20 w/ Mount Pipe	8	113.580	6.37	0.00	12510
155.00	800MHZ 2X50W RRH W/FILTER	8	108.259	6.36	0.00	12510
142.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	8	91.149	6.21	0.00	3078
132.00	MX08FRO665-20 w/ Mount Pipe	8	78.425	5.94	0.00	1729
116.00	LPA-80080/4CF w/ Mount Pipe	8	59.565	5.36	0.00	1473
96.00	(2) 7770.00 w/ Mount Pipe	8	39.327	4.25	0.00	912
92.00	KS24019-L112A	8	35.875	3.99	0.00	883
87.00	Side Arm Mount [SO 701-1]	8	31.868	3.67	0.00	1304

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	160 - 156 (1)	TP23.1103x22.35x0.2188	4.00	0.00	0.0	16.1242	-2.52	943.27	0.003
L2	156 - 152 (2)	TP23.8705x23.1103x0.2188	4.00	0.00	0.0	16.6597	-3.20	974.59	0.003
L3	152 - 148 (3)	TP24.6308x23.8705x0.2188	4.00	0.00	0.0	17.1952	-3.46	1005.92	0.003
L4	148 - 144 (4)	TP25.391x24.6308x0.2188	4.00	0.00	0.0	17.7307	-3.73	1037.25	0.004
L5	144 - 140 (5)	TP26.1513x25.391x0.2188	4.00	0.00	0.0	18.2662	-7.54	1068.57	0.007
L6	140 - 136 (6)	TP26.9115x26.1513x0.2188	4.00	0.00	0.0	18.8017	-7.89	1099.90	0.007
L7	136 - 132 (7)	TP27.6718x26.9115x0.2188	4.00	0.00	0.0	19.3372	-8.27	1131.23	0.007
L8	132 - 128 (8)	TP28.432x27.6718x0.2188	4.00	0.00	0.0	19.8727	-11.51	1162.55	0.010
L9	128 - 124 (9)	TP29.1923x28.432x0.2188	4.00	0.00	0.0	20.4082	-11.94	1193.88	0.010
L10	124 - 117.33 (10)	TP30.46x29.1923x0.2188	6.67	0.00	0.0	20.6760	-12.15	1209.54	0.010
L11	117.33 - 116.33 (11)	TP30.2122x29.1349x0.2813	5.67	0.00	0.0	27.1062	-13.33	1585.71	0.008
L12	116.33 - 112.33 (12)	TP30.9722x30.2122x0.2813	4.00	0.00	0.0	27.7945	-17.60	1625.98	0.011
L13	112.33 - 108.33 (13)	TP31.7322x30.9722x0.2813	4.00	0.00	0.0	28.4828	-18.23	1666.24	0.011
L14	108.33 - 104.33 (14)	TP32.4922x31.7322x0.2813	4.00	0.00	0.0	29.1711	-19.34	1706.51	0.011
L15	104.33 - 100.33 (15)	TP33.2523x32.4922x0.2813	4.00	0.00	0.0	29.8594	-20.51	1746.77	0.012
L16	100.33 -	TP34.0123x33.2523x0.28	4.00	0.00	0.0	30.547	-21.71	1787.04	0.012

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	96.33 (16)	13				7			
L17	96.33 - 94 (17)	TP34.455x34.0123x0.2813	2.33	0.00	0.0	30.9486	-24.33	1810.49	0.013
L18	94 - 93.75 (18)	TP34.5025x34.455x0.2813	0.25	0.00	0.0	30.9916	-24.43	1813.01	0.013
L19	93.75 - 89.75 (19)	TP35.2625x34.5025x0.2813	4.00	0.00	0.0	31.6799	-25.80	1853.27	0.014
L20	89.75 - 82.5 (20)	TP36.64x35.2625x0.2813	7.25	0.00	0.0	31.9810	-26.19	1870.89	0.014
L21	82.5 - 81.5 (21)	TP36.2727x35.0325x0.375	6.50	0.00	0.0	43.3465	-28.75	2535.77	0.011
L22	81.5 - 77.5 (22)	TP37.036x36.2727x0.375	4.00	0.00	0.0	44.2681	-29.83	2589.68	0.012
L23	77.5 - 73.5 (23)	TP37.7992x37.036x0.375	4.00	0.00	0.0	45.1897	-30.97	2643.60	0.012
L24	73.5 - 72.25 (24)	TP38.0377x37.7992x0.375	1.25	0.00	0.0	45.4777	-31.30	2660.45	0.012
L25	72.25 - 72 (25)	TP38.0854x38.0377x0.4875	0.25	0.00	0.0	59.0193	-31.39	3452.63	0.009
L26	72 - 68 (26)	TP38.8486x38.0854x0.4813	4.00	0.00	0.0	59.4551	-32.61	3478.12	0.009
L27	68 - 64 (27)	TP39.6119x38.8486x0.475	4.00	0.00	0.0	59.8598	-33.86	3501.80	0.010
L28	64 - 60 (28)	TP40.3751x39.6119x0.475	4.00	0.00	0.0	61.0272	-35.13	3570.09	0.010
L29	60 - 56 (29)	TP41.1383x40.3751x0.475	4.00	0.00	0.0	62.1946	-36.42	3638.38	0.010
L30	56 - 53.75 (30)	TP41.5676x41.1383x0.475	2.25	0.00	0.0	62.8512	-37.16	3676.79	0.010
L31	53.75 - 53.5 (31)	TP41.6153x41.5676x0.6375	0.25	0.00	0.0	84.1173	-37.27	4920.86	0.008
L32	53.5 - 49.5 (32)	TP42.3786x41.6153x0.6375	4.00	0.00	0.0	85.6840	-38.87	5012.51	0.008
L33	49.5 - 40.583 (33)	TP44.08x42.3786x0.625	8.92	0.00	0.0	84.9891	-39.89	4971.86	0.008
L34	40.583 - 39.583 (34)	TP43.5092x42.1056x0.7	7.42	0.00	0.0	96.4919	-45.33	5644.78	0.008
L35	39.583 - 35.583 (35)	TP44.2662x43.5092x0.7	4.00	0.00	0.0	98.1982	-47.15	5744.59	0.008
L36	35.583 - 31.483 (36)	TP45.0421x44.2662x0.7375	4.10	0.00	0.0	105.2120	-49.13	6154.92	0.008
L37	31.483 - 31.25 (37)	TP45.0862x45.0421x0.7375	0.23	0.00	0.0	105.3170	-49.25	6161.04	0.008
L38	31.25 - 28.75 (38)	TP45.5593x45.0862x0.7375	2.50	0.00	0.0	106.4400	-50.46	6226.77	0.008
L39	28.75 - 28.5 (39)	TP45.6066x45.5593x0.6375	0.25	0.00	0.0	92.3103	-50.59	5400.15	0.009
L40	28.5 - 24.5 (40)	TP46.3636x45.6066x0.625	4.00	0.00	0.0	92.0488	-52.34	5384.86	0.010
L41	24.5 - 20.5 (41)	TP47.1205x46.3636x0.625	4.00	0.00	0.0	93.5722	-54.13	5473.98	0.010
L42	20.5 - 16.5 (42)	TP47.8775x47.1205x0.625	4.00	0.00	0.0	95.0956	-55.94	5563.10	0.010
L43	16.5 - 12.5 (43)	TP48.6345x47.8775x0.625	4.00	0.00	0.0	96.6190	-57.77	5652.21	0.010
L44	12.5 - 11 (44)	TP48.9183x48.6345x0.6125	1.50	0.00	0.0	95.2712	-58.45	5573.36	0.010
L45	11 - 10.75 (45)	TP48.9656x48.9183x0.7125	0.25	0.00	0.0	110.7050	-58.61	6476.23	0.009
L46	10.75 - 6.75 (46)	TP49.7226x48.9656x0.7125	4.00	0.00	0.0	112.4410	-60.73	6577.82	0.009
L47	6.75 - 6.25 (47)	TP49.8172x49.7226x0.7125	0.50	0.00	0.0	112.6590	-61.01	6590.52	0.009
L48	6.25 - 6 (48)	TP49.8645x49.8172x0.6625	0.25	0.00	0.0	104.9600	-61.15	6140.18	0.010
L49	6 - 5 (49)	TP50.0538x49.8645x0.6625	1.00	0.00	0.0	105.3640	-61.67	6163.79	0.010
L50	5 - 4.75 (50)	TP50.1011x50.0538x0.5625	0.25	0.00	0.0	89.7268	-61.80	5249.02	0.012

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L51	4.75 - 0.75 (51)	TP50.8581x50.1011x0.5625	4.00	0.00	0.0	91.0978	-63.67	5329.22	0.012
L52	0.75 - 0 (52)	TP51x50.8581x0.5625	0.75	0.00	0.0	91.3549	-64.03	5344.26	0.012

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	160 - 156 (1)	TP23.1103x22.35x0.2188	13.80	508.76	0.027	0.00	508.76	0.000
L2	156 - 152 (2)	TP23.8705x23.1103x0.2188	33.40	535.95	0.062	0.00	535.95	0.000
L3	152 - 148 (3)	TP24.6308x23.8705x0.2188	56.01	563.31	0.099	0.00	563.31	0.000
L4	148 - 144 (4)	TP25.391x24.6308x0.2188	80.37	590.80	0.136	0.00	590.80	0.000
L5	144 - 140 (5)	TP26.1513x25.391x0.2188	123.03	618.36	0.199	0.00	618.36	0.000
L6	140 - 136 (6)	TP26.9115x26.1513x0.2188	170.30	645.96	0.264	0.00	645.96	0.000
L7	136 - 132 (7)	TP27.6718x26.9115x0.2188	219.41	673.55	0.326	0.00	673.55	0.000
L8	132 - 128 (8)	TP28.432x27.6718x0.2188	284.75	701.08	0.406	0.00	701.08	0.000
L9	128 - 124 (9)	TP29.1923x28.432x0.2188	351.94	728.50	0.483	0.00	728.50	0.000
L10	124 - 117.33 (10)	TP30.46x29.1923x0.2188	386.22	742.16	0.520	0.00	742.16	0.000
L11	117.33 - 116.33 (11)	TP30.2122x29.1349x0.2813	486.23	1110.75	0.438	0.00	1110.75	0.000
L12	116.33 - 112.33 (12)	TP30.9722x30.2122x0.2813	582.99	1155.81	0.504	0.00	1155.81	0.000
L13	112.33 - 108.33 (13)	TP31.7322x30.9722x0.2813	678.87	1201.07	0.565	0.00	1201.07	0.000
L14	108.33 - 104.33 (14)	TP32.4922x31.7322x0.2813	777.52	1246.48	0.624	0.00	1246.48	0.000
L15	104.33 - 100.33 (15)	TP33.2523x32.4922x0.2813	879.92	1292.01	0.681	0.00	1292.01	0.000
L16	100.33 - 96.33 (16)	TP34.0123x33.2523x0.2813	986.09	1337.60	0.737	0.00	1337.60	0.000
L17	96.33 - 94 (17)	TP34.455x34.0123x0.2813	1059.25	1364.17	0.776	0.00	1364.17	0.000
L18	94 - 93.75 (18)	TP34.5025x34.455x0.2813	1066.86	1367.02	0.780	0.00	1367.02	0.000
L19	93.75 - 89.75 (19)	TP35.2625x34.5025x0.2813	1190.89	1412.62	0.843	0.00	1412.62	0.000
L20	89.75 - 82.5 (20)	TP36.64x35.2625x0.2813	1246.46	1432.55	0.870	0.00	1432.55	0.000
L21	82.5 - 81.5 (21)	TP36.2727x35.0325x0.375	1459.47	2217.08	0.658	0.00	2217.08	0.000
L22	81.5 - 77.5 (22)	TP37.036x36.2727x0.375	1594.76	2295.20	0.695	0.00	2295.20	0.000
L23	77.5 - 73.5 (23)	TP37.7992x37.036x0.375	1733.03	2373.84	0.730	0.00	2373.84	0.000
L24	73.5 - 72.25 (24)	TP38.0377x37.7992x0.375	1776.81	2398.52	0.741	0.00	2398.52	0.000
L25	72.25 - 72 (25)	TP38.0854x38.0377x0.4875	1785.59	3315.62	0.539	0.00	3315.62	0.000
L26	72 - 68 (26)	TP38.8486x38.0854x0.4813	1927.23	3409.88	0.565	0.00	3409.88	0.000
L27	68 - 64 (27)	TP39.6119x38.8486x0.475	2071.04	3499.11	0.592	0.00	3499.11	0.000
L28	64 - 60 (28)	TP40.3751x39.6119x0.475	2216.97	3616.87	0.613	0.00	3616.87	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L29	60 - 56 (29)	TP41.1383x40.3751x0.475	2364.96	3735.69	0.633	0.00	3735.69	0.000
L30	56 - 53.75 (30)	TP41.5676x41.1383x0.475	2449.12	3802.98	0.644	0.00	3802.98	0.000
L31	53.75 - 53.5 (31)	TP41.6153x41.5676x0.6375	2458.52	5137.26	0.479	0.00	5137.26	0.000
L32	53.5 - 49.5 (32)	TP42.3786x41.6153x0.6375	2610.02	5331.90	0.490	0.00	5331.90	0.000
L33	49.5 - 40.583 (33)	TP44.08x42.3786x0.625	2705.85	5353.18	0.505	0.00	5353.18	0.000
L34	40.583 - 39.583 (34)	TP43.5092x42.1056x0.7	2995.92	6151.57	0.487	0.00	6151.57	0.000
L35	39.583 - 35.583 (35)	TP44.2662x43.5092x0.7	3155.73	6372.82	0.495	0.00	6372.82	0.000
L36	35.583 - 31.483 (36)	TP45.0421x44.2662x0.7375	3321.76	6939.79	0.479	0.00	6939.79	0.000
L37	31.483 - 31.25 (37)	TP45.0862x45.0421x0.7375	3331.27	6953.72	0.479	0.00	6953.72	0.000
L38	31.25 - 28.75 (38)	TP45.5593x45.0862x0.7375	3433.63	7104.11	0.483	0.00	7104.11	0.000
L39	28.75 - 28.5 (39)	TP45.6066x45.5593x0.6375	3443.92	6195.15	0.556	0.00	6195.15	0.000
L40	28.5 - 24.5 (40)	TP46.3636x45.6066x0.625	3609.35	6286.48	0.574	0.00	6286.48	0.000
L41	24.5 - 20.5 (41)	TP47.1205x46.3636x0.625	3776.58	6497.72	0.581	0.00	6497.72	0.000
L42	20.5 - 16.5 (42)	TP47.8775x47.1205x0.625	3945.57	6712.43	0.588	0.00	6712.43	0.000
L43	16.5 - 12.5 (43)	TP48.6345x47.8775x0.625	4116.30	6930.65	0.594	0.00	6930.65	0.000
L44	12.5 - 11 (44)	TP48.9183x48.6345x0.6125	4180.78	6878.45	0.608	0.00	6878.45	0.000
L45	11 - 10.75 (45)	TP48.9656x48.9183x0.7125	4191.56	7967.60	0.526	0.00	7967.60	0.000
L46	10.75 - 6.75 (46)	TP49.7226x48.9656x0.7125	4364.93	8221.39	0.531	0.00	8221.39	0.000
L47	6.75 - 6.25 (47)	TP49.8172x49.7226x0.7125	4386.73	8253.39	0.532	0.00	8253.39	0.000
L48	6.25 - 6 (48)	TP49.8645x49.8172x0.6625	4397.64	7712.60	0.570	0.00	7712.60	0.000
L49	6 - 5 (49)	TP50.0538x49.8645x0.6625	4441.37	7772.43	0.571	0.00	7772.43	0.000
L50	5 - 4.75 (50)	TP50.1011x50.0538x0.5625	4452.32	6509.38	0.684	0.00	6509.38	0.000
L51	4.75 - 0.75 (51)	TP50.8581x50.1011x0.5625	4628.40	6678.03	0.693	0.00	6678.03	0.000
L52	0.75 - 0 (52)	TP51x50.8581x0.5625	4661.60	6709.77	0.695	0.00	6709.77	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	160 - 156 (1)	TP23.1103x22.35x0.2188	4.24	282.98	0.015	0.00	569.81	0.000
L2	156 - 152 (2)	TP23.8705x23.1103x0.2188	5.44	292.38	0.019	0.00	608.29	0.000
L3	152 - 148 (3)	TP24.6308x23.8705x0.2188	5.87	301.78	0.019	0.00	648.02	0.000
L4	148 - 144 (4)	TP25.391x24.6308x0.2188	6.31	311.17	0.020	0.00	689.01	0.000
L5	144 - 140 (5)	TP26.1513x25.391x0.2188	11.59	320.57	0.036	0.00	731.26	0.000
L6	140 - 136 (6)	TP26.9115x26.1513x0.2188	12.05	329.97	0.037	0.00	774.76	0.000
L7	136 - 132 (7)	TP27.6718x26.9115x0.21	12.52	339.37	0.037	0.00	819.52	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
		88						
L8	132 - 128 (8)	TP28.432x27.6718x0.2188	16.57	348.77	0.048	0.28	865.54	0.000
L9	128 - 124 (9)	TP29.1923x28.432x0.2188	17.03	358.16	0.048	0.28	912.82	0.000
L10	124 - 117.33 (10)	TP30.46x29.1923x0.2188	17.27	362.86	0.048	0.28	936.92	0.000
L11	117.33 - 116.33 (11)	TP30.2122x29.1349x0.2813	18.02	472.69	0.038	0.00	1252.47	0.000
L12	116.33 - 112.33 (12)	TP30.9722x30.2122x0.2813	23.74	487.79	0.049	0.11	1316.88	0.000
L13	112.33 - 108.33 (13)	TP31.7322x30.9722x0.2813	24.21	499.87	0.048	0.11	1382.91	0.000
L14	108.33 - 104.33 (14)	TP32.4922x31.7322x0.2813	25.14	511.95	0.049	0.16	1450.55	0.000
L15	104.33 - 100.33 (15)	TP33.2523x32.4922x0.2813	26.09	524.03	0.050	0.23	1519.81	0.000
L16	100.33 - 96.33 (16)	TP34.0123x33.2523x0.2813	27.03	536.11	0.050	0.29	1590.68	0.000
L17	96.33 - 94 (17)	TP34.455x34.0123x0.2813	30.38	543.15	0.056	0.06	1632.72	0.000
L18	94 - 93.75 (18)	TP34.5025x34.455x0.2813	30.47	543.90	0.056	0.04	1637.26	0.000
L19	93.75 - 89.75 (19)	TP35.2625x34.5025x0.2813	31.58	555.98	0.057	0.03	1710.78	0.000
L20	89.75 - 82.5 (20)	TP36.64x35.2625x0.2813	31.93	561.27	0.057	0.09	1743.47	0.000
L21	82.5 - 81.5 (21)	TP36.2727x35.0325x0.375	33.44	760.73	0.044	0.27	2402.14	0.000
L22	81.5 - 77.5 (22)	TP37.036x36.2727x0.375	34.19	776.90	0.044	0.50	2505.37	0.000
L23	77.5 - 73.5 (23)	TP37.7992x37.036x0.375	34.94	793.08	0.044	0.72	2610.78	0.000
L24	73.5 - 72.25 (24)	TP38.0377x37.7992x0.375	35.10	798.13	0.044	0.72	2644.16	0.000
L25	72.25 - 72 (25)	TP38.0854x38.0377x0.4875	35.16	1035.79	0.034	0.72	3425.58	0.000
L26	72 - 68 (26)	TP38.8486x38.0854x0.4813	35.68	1043.44	0.034	0.72	3521.50	0.000
L27	68 - 64 (27)	TP39.6119x38.8486x0.475	36.21	1050.54	0.034	0.72	3616.58	0.000
L28	64 - 60 (28)	TP40.3751x39.6119x0.475	36.74	1071.03	0.034	0.72	3759.02	0.000
L29	60 - 56 (29)	TP41.1383x40.3751x0.475	37.25	1091.51	0.034	0.72	3904.20	0.000
L30	56 - 53.75 (30)	TP41.5676x41.1383x0.475	37.55	1103.04	0.034	0.72	3987.07	0.000
L31	53.75 - 53.5 (31)	TP41.6153x41.5676x0.6375	37.61	1476.26	0.025	0.72	5321.22	0.000
L32	53.5 - 49.5 (32)	TP42.3786x41.6153x0.6375	38.15	1503.75	0.025	0.72	5521.28	0.000
L33	49.5 - 40.583 (33)	TP44.08x42.3786x0.625	38.50	1491.56	0.026	0.72	5540.73	0.000
L34	40.583 - 39.583 (34)	TP43.5092x42.1056x0.7	39.68	1693.43	0.023	0.72	6376.83	0.000
L35	39.583 - 35.583 (35)	TP44.2662x43.5092x0.7	40.22	1723.38	0.023	0.72	6604.34	0.000
L36	35.583 - 31.483 (36)	TP45.0421x44.2662x0.7375	40.75	1846.48	0.022	0.72	7196.02	0.000
L37	31.483 - 31.25 (37)	TP45.0862x45.0421x0.7375	40.81	1848.31	0.022	0.72	7210.34	0.000
L38	31.25 - 28.75 (38)	TP45.5593x45.0862x0.7375	41.10	1868.03	0.022	0.72	7365.00	0.000
L39	28.75 - 28.5 (39)	TP45.6066x45.5593x0.6375	41.15	1620.05	0.025	0.72	6408.27	0.000
L40	28.5 - 24.5 (40)	TP46.3636x45.6066x0.625	41.58	1615.46	0.026	0.72	6499.47	0.000
L41	24.5 - 20.5 (41)	TP47.1205x46.3636x0.625	42.02	1642.19	0.026	0.72	6716.37	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L42	20.5 - 16.5 (42)	TP47.8775x47.1205x0.625	42.46	1668.93	0.025	0.72	6936.85	0.000
L43	16.5 - 12.5 (43)	TP48.6345x47.8775x0.625	42.90	1695.66	0.025	0.72	7160.88	0.000
L44	12.5 - 11 (44)	TP48.9183x48.6345x0.6125	43.08	1672.01	0.026	0.72	7104.57	0.000
L45	11 - 10.75 (45)	TP48.9656x48.9183x0.7125	43.10	1942.87	0.022	0.72	8246.48	0.000
L46	10.75 - 6.75 (46)	TP49.7226x48.9656x0.7125	43.57	1973.35	0.022	0.72	8507.25	0.000
L47	6.75 - 6.25 (47)	TP49.8172x49.7226x0.7125	43.62	1977.16	0.022	0.72	8540.17	0.000
L48	6.25 - 6 (48)	TP49.8645x49.8172x0.6625	43.66	1842.05	0.024	0.72	7972.32	0.000
L49	6 - 5 (49)	TP50.0538x49.8645x0.6625	43.78	1849.14	0.024	0.72	8033.77	0.000
L50	5 - 4.75 (50)	TP50.1011x50.0538x0.5625	43.80	1574.71	0.028	0.72	6861.87	0.000
L51	4.75 - 0.75 (51)	TP50.8581x50.1011x0.5625	44.22	1598.77	0.028	0.72	7073.18	0.000
L52	0.75 - 0 (52)	TP51x50.8581x0.5625	44.29	1603.28	0.028	0.72	7113.16	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	160 - 156 (1)	0.003	0.027	0.000	0.015	0.000	0.030	1.050	4.8.2
L2	156 - 152 (2)	0.003	0.062	0.000	0.019	0.000	0.066	1.050	4.8.2
L3	152 - 148 (3)	0.003	0.099	0.000	0.019	0.000	0.103	1.050	4.8.2
L4	148 - 144 (4)	0.004	0.136	0.000	0.020	0.000	0.140	1.050	4.8.2
L5	144 - 140 (5)	0.007	0.199	0.000	0.036	0.000	0.207	1.050	4.8.2
L6	140 - 136 (6)	0.007	0.264	0.000	0.037	0.000	0.272	1.050	4.8.2
L7	136 - 132 (7)	0.007	0.326	0.000	0.037	0.000	0.334	1.050	4.8.2
L8	132 - 128 (8)	0.010	0.406	0.000	0.048	0.000	0.418	1.050	4.8.2
L9	128 - 124 (9)	0.010	0.483	0.000	0.048	0.000	0.495	1.050	4.8.2
L10	124 - 117.33 (10)	0.010	0.520	0.000	0.048	0.000	0.533	1.050	4.8.2
L11	117.33 - 116.33 (11)	0.008	0.438	0.000	0.038	0.000	0.448	1.050	4.8.2
L12	116.33 - 112.33 (12)	0.011	0.504	0.000	0.049	0.000	0.518	1.050	4.8.2
L13	112.33 - 108.33 (13)	0.011	0.565	0.000	0.048	0.000	0.579	1.050	4.8.2
L14	108.33 - 104.33 (14)	0.011	0.624	0.000	0.049	0.000	0.638	1.050	4.8.2
L15	104.33 - 100.33 (15)	0.012	0.681	0.000	0.050	0.000	0.695	1.050	4.8.2
L16	100.33 - 96.33 (16)	0.012	0.737	0.000	0.050	0.000	0.752	1.050	4.8.2
L17	96.33 - 94 (17)	0.013	0.776	0.000	0.056	0.000	0.793	1.050	4.8.2
L18	94 - 93.75 (18)	0.013	0.780	0.000	0.056	0.000	0.797	1.050	4.8.2
L19	93.75 - 89.75 (19)	0.014	0.843	0.000	0.057	0.000	0.860	1.050	4.8.2
L20	89.75 - 82.5 (20)	0.014	0.870	0.000	0.057	0.000	0.887	1.050	4.8.2
L21	82.5 - 81.5 (21)	0.011	0.658	0.000	0.044	0.000	0.672	1.050	4.8.2
L22	81.5 - 77.5 (22)	0.012	0.695	0.000	0.044	0.000	0.708	1.050	4.8.2
L23	77.5 - 73.5	0.012	0.730	0.000	0.044	0.000	0.744	1.050	4.8.2

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	(23)								
L24	73.5 - 72.25 (24)	0.012	0.741	0.000	0.044	0.000	0.755	1.050	4.8.2
L25	72.25 - 72 (25)	0.009	0.539	0.000	0.034	0.000	0.549	1.050	4.8.2
L26	72 - 68 (26)	0.009	0.565	0.000	0.034	0.000	0.576	1.050	4.8.2
L27	68 - 64 (27)	0.010	0.592	0.000	0.034	0.000	0.603	1.050	4.8.2
L28	64 - 60 (28)	0.010	0.613	0.000	0.034	0.000	0.624	1.050	4.8.2
L29	60 - 56 (29)	0.010	0.633	0.000	0.034	0.000	0.644	1.050	4.8.2
L30	56 - 53.75 (30)	0.010	0.644	0.000	0.034	0.000	0.655	1.050	4.8.2
L31	53.75 - 53.5 (31)	0.008	0.479	0.000	0.025	0.000	0.487	1.050	4.8.2
L32	53.5 - 49.5 (32)	0.008	0.490	0.000	0.025	0.000	0.498	1.050	4.8.2
L33	49.5 - 40.583 (33)	0.008	0.505	0.000	0.026	0.000	0.514	1.050	4.8.2
L34	40.583 - 39.583 (34)	0.008	0.487	0.000	0.023	0.000	0.496	1.050	4.8.2
L35	39.583 - 35.583 (35)	0.008	0.495	0.000	0.023	0.000	0.504	1.050	4.8.2
L36	35.583 - 31.483 (36)	0.008	0.479	0.000	0.022	0.000	0.487	1.050	4.8.2
L37	31.483 - 31.25 (37)	0.008	0.479	0.000	0.022	0.000	0.488	1.050	4.8.2
L38	31.25 - 28.75 (38)	0.008	0.483	0.000	0.022	0.000	0.492	1.050	4.8.2
L39	28.75 - 28.5 (39)	0.009	0.556	0.000	0.025	0.000	0.566	1.050	4.8.2
L40	28.5 - 24.5 (40)	0.010	0.574	0.000	0.026	0.000	0.585	1.050	4.8.2
L41	24.5 - 20.5 (41)	0.010	0.581	0.000	0.026	0.000	0.592	1.050	4.8.2
L42	20.5 - 16.5 (42)	0.010	0.588	0.000	0.025	0.000	0.599	1.050	4.8.2
L43	16.5 - 12.5 (43)	0.010	0.594	0.000	0.025	0.000	0.605	1.050	4.8.2
L44	12.5 - 11 (44)	0.010	0.608	0.000	0.026	0.000	0.619	1.050	4.8.2
L45	11 - 10.75 (45)	0.009	0.526	0.000	0.022	0.000	0.536	1.050	4.8.2
L46	10.75 - 6.75 (46)	0.009	0.531	0.000	0.022	0.000	0.541	1.050	4.8.2
L47	6.75 - 6.25 (47)	0.009	0.532	0.000	0.022	0.000	0.541	1.050	4.8.2
L48	6.25 - 6 (48)	0.010	0.570	0.000	0.024	0.000	0.581	1.050	4.8.2
L49	6 - 5 (49)	0.010	0.571	0.000	0.024	0.000	0.582	1.050	4.8.2
L50	5 - 4.75 (50)	0.012	0.684	0.000	0.028	0.000	0.697	1.050	4.8.2
L51	4.75 - 0.75 (51)	0.012	0.693	0.000	0.028	0.000	0.706	1.050	4.8.2
L52	0.75 - 0 (52)	0.012	0.695	0.000	0.028	0.000	0.707	1.050	4.8.2

Section Capacity Table

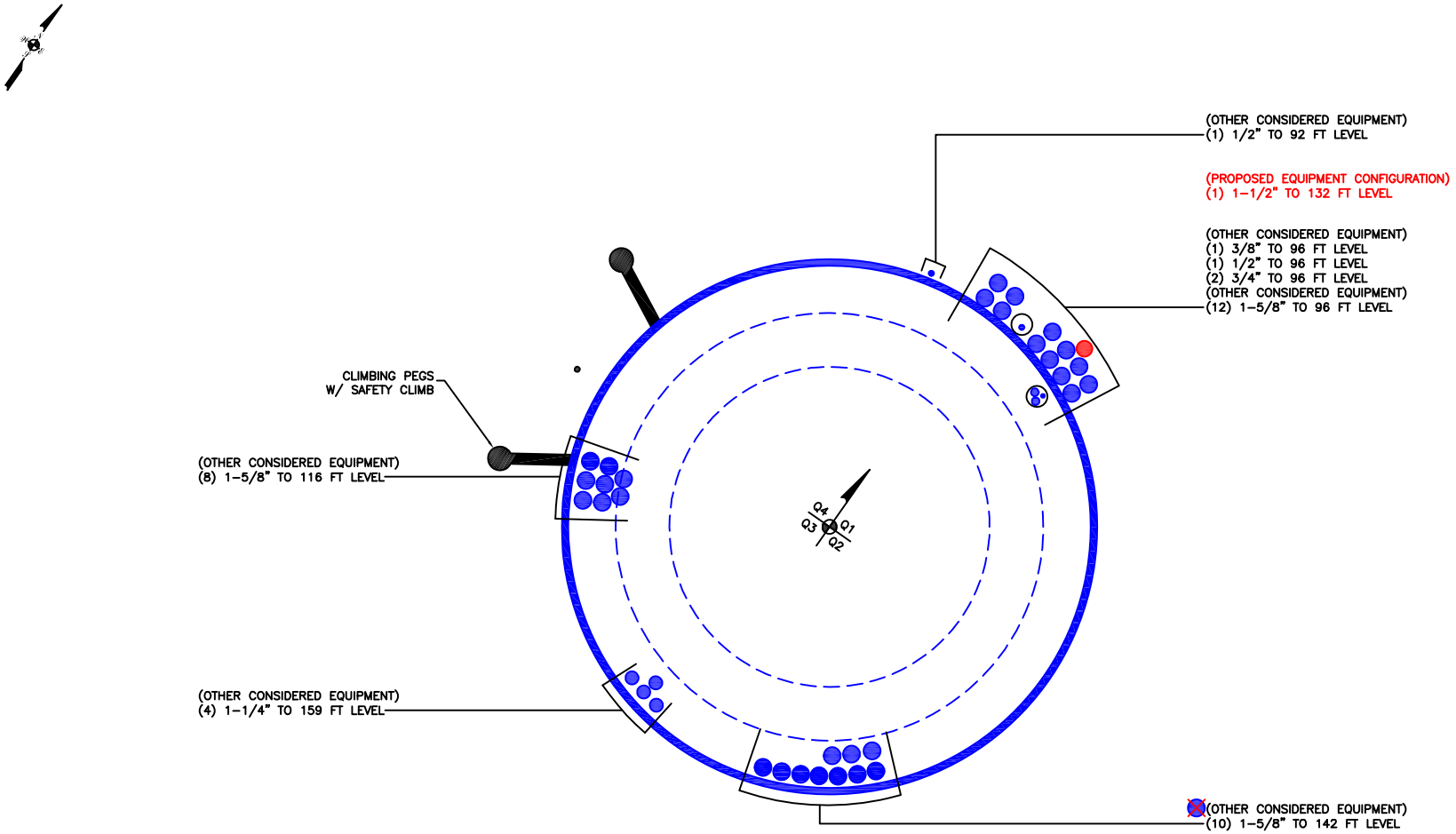
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	160 - 156	Pole	TP23.1103x22.35x0.2188	1	-2.52	990.43	2.9	Pass
L2	156 - 152	Pole	TP23.8705x23.1103x0.2188	2	-3.20	1023.32	6.3	Pass
L3	152 - 148	Pole	TP24.6308x23.8705x0.2188	3	-3.46	1056.22	9.8	Pass
L4	148 - 144	Pole	TP25.391x24.6308x0.2188	4	-3.73	1089.11	13.3	Pass
L5	144 - 140	Pole	TP26.1513x25.391x0.2188	5	-7.54	1122.00	19.7	Pass
L6	140 - 136	Pole	TP26.9115x26.1513x0.2188	6	-7.89	1154.89	25.9	Pass
L7	136 - 132	Pole	TP27.6718x26.9115x0.2188	7	-8.27	1187.79	31.9	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L8	132 - 128	Pole	TP28.432x27.6718x0.2188	8	-11.51	1220.68	39.8	Pass
L9	128 - 124	Pole	TP29.1923x28.432x0.2188	9	-11.94	1253.57	47.2	Pass
L10	124 - 117.33	Pole	TP30.46x29.1923x0.2188	10	-12.15	1270.02	50.7	Pass
L11	117.33 - 116.33	Pole	TP30.2122x29.1349x0.2813	11	-13.33	1665.00	42.6	Pass
L12	116.33 - 112.33	Pole	TP30.9722x30.2122x0.2813	12	-17.60	1707.28	49.3	Pass
L13	112.33 - 108.33	Pole	TP31.7322x30.9722x0.2813	13	-18.23	1749.55	55.1	Pass
L14	108.33 - 104.33	Pole	TP32.4922x31.7322x0.2813	14	-19.34	1791.84	60.7	Pass
L15	104.33 - 100.33	Pole	TP33.2523x32.4922x0.2813	15	-20.51	1834.11	66.2	Pass
L16	100.33 - 96.33	Pole	TP34.0123x33.2523x0.2813	16	-21.71	1876.39	71.6	Pass
L17	96.33 - 94	Pole	TP34.455x34.0123x0.2813	17	-24.33	1901.01	75.5	Pass
L18	94 - 93.75	Pole	TP34.5025x34.455x0.2813	18	-24.43	1903.66	75.9	Pass
L19	93.75 - 89.75	Pole	TP35.2625x34.5025x0.2813	19	-25.80	1945.93	81.9	Pass
L20	89.75 - 82.5	Pole	TP36.64x35.2625x0.2813	20	-26.19	1964.43	84.5	Pass
L21	82.5 - 81.5	Pole	TP36.2727x35.0325x0.375	21	-28.75	2662.56	64.0	Pass
L22	81.5 - 77.5	Pole	TP37.036x36.2727x0.375	22	-29.83	2719.16	67.5	Pass
L23	77.5 - 73.5	Pole	TP37.7992x37.036x0.375	23	-30.97	2775.78	70.8	Pass
L24	73.5 - 72.25	Pole	TP38.0377x37.7992x0.375	24	-31.30	2793.47	71.9	Pass
L25	72.25 - 72	Pole	TP38.0854x38.0377x0.4875	25	-31.39	3625.26	52.3	Pass
L26	72 - 68	Pole	TP38.8486x38.0854x0.4813	26	-32.61	3652.03	54.8	Pass
L27	68 - 64	Pole	TP39.6119x38.8486x0.475	27	-33.86	3676.89	57.4	Pass
L28	64 - 60	Pole	TP40.3751x39.6119x0.475	28	-35.13	3748.59	59.4	Pass
L29	60 - 56	Pole	TP41.1383x40.3751x0.475	29	-36.42	3820.30	61.4	Pass
L30	56 - 53.75	Pole	TP41.5676x41.1383x0.475	30	-37.16	3860.63	62.4	Pass
L31	53.75 - 53.5	Pole	TP41.6153x41.5676x0.6375	31	-37.27	5166.90	46.4	Pass
L32	53.5 - 49.5	Pole	TP42.3786x41.6153x0.6375	32	-38.87	5263.14	47.4	Pass
L33	49.5 - 40.583	Pole	TP44.08x42.3786x0.625	33	-39.89	5220.45	49.0	Pass
L34	40.583 - 39.583	Pole	TP43.5092x42.1056x0.7	34	-45.33	5927.02	47.2	Pass
L35	39.583 - 35.583	Pole	TP44.2662x43.5092x0.7	35	-47.15	6031.82	48.0	Pass
L36	35.583 - 31.483	Pole	TP45.0421x44.2662x0.7375	36	-49.13	6462.67	46.4	Pass
L37	31.483 - 31.25	Pole	TP45.0862x45.0421x0.7375	37	-49.25	6469.09	46.4	Pass
L38	31.25 - 28.75	Pole	TP45.5593x45.0862x0.7375	38	-50.46	6538.11	46.8	Pass
L39	28.75 - 28.5	Pole	TP45.6066x45.5593x0.6375	39	-50.59	5670.16	53.9	Pass
L40	28.5 - 24.5	Pole	TP46.3636x45.6066x0.625	40	-52.34	5654.10	55.7	Pass
L41	24.5 - 20.5	Pole	TP47.1205x46.3636x0.625	41	-54.13	5747.68	56.4	Pass
L42	20.5 - 16.5	Pole	TP47.8775x47.1205x0.625	42	-55.94	5841.25	57.0	Pass
L43	16.5 - 12.5	Pole	TP48.6345x47.8775x0.625	43	-57.77	5934.82	57.6	Pass
L44	12.5 - 11	Pole	TP48.9183x48.6345x0.6125	44	-58.45	5852.03	58.9	Pass
L45	11 - 10.75	Pole	TP48.9656x48.9183x0.7125	45	-58.61	6800.04	51.0	Pass
L46	10.75 - 6.75	Pole	TP49.7226x48.9656x0.7125	46	-60.73	6906.71	51.5	Pass
L47	6.75 - 6.25	Pole	TP49.8172x49.7226x0.7125	47	-61.01	6920.05	51.5	Pass
L48	6.25 - 6	Pole	TP49.8645x49.8172x0.6625	48	-61.15	6447.19	55.3	Pass
L49	6 - 5	Pole	TP50.0538x49.8645x0.6625	49	-61.67	6471.98	55.4	Pass
L50	5 - 4.75	Pole	TP50.1011x50.0538x0.5625	50	-61.80	5511.47	66.3	Pass
L51	4.75 - 0.75	Pole	TP50.8581x50.1011x0.5625	51	-63.67	5595.68	67.2	Pass
L52	0.75 - 0	Pole	TP51x50.8581x0.5625	52	-64.03	5611.47	67.4	Pass
							Summary	
						Pole (L20)	84.5	Pass
						RATING =	**84.5**	**Pass**

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

APPENDIX B

BASE LEVEL DRAWING


(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 92 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1-1/2" TO 132 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 3/8" TO 96 FT LEVEL
(1) 1/2" TO 96 FT LEVEL
(2) 3/4" TO 96 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(12) 1-5/8" TO 96 FT LEVEL
CLIMBING PEGS
W/ SAFETY CLIMB
(OTHER CONSIDERED EQUIPMENT)
(8) 1-5/8" TO 116 FT LEVEL
Q4
Q1
Q3
Q2
(OTHER CONSIDERED EQUIPMENT)
(4) 1-1/4" TO 159 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(10) 1-5/8" TO 142 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 876339

Work Order: 1945889

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	160	42.67	4.67	12	22.35	30.46	0.21875	Auto	A572-65
2	122	39.5	5.5	12	29.13	36.64	0.28125	Auto	A572-65
3	88	47.417	6.417	12	35.03	44.08	0.375	Auto	A572-65
4	47	47	0	12	42.11	51	0.4375	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
1	0	6.25	plate	FP 6.25" x 1.25"	1								■				
2	6.25	31.5	plate	FP 6.875" x 1.25" (B)	1							■					
3	0	31.5	plate	FP 6.875" x 1.25"	2			■								■	
4	31.5	53.75	plate	FP 5.25" x 1.25"	3			■				■				■	
5	45.75	72.25	plate	FP 4" x 1"	3		■				■				■		
6	5	11	plate	MS-600 (1.1875")	3		■			■				■			
7	28.75	40.75	plate	MS-450 (1.1875")	3	■				■				■			
8	88	94	plate	MS-450 (1.1875")	3				■			■			■		
9																	
10																	

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in2)	Bolt Hole Size (in)	Reinforcement Material
1	6.25	1.25	7.8125	0.625	Welded	n/a	PC 8.8 - M20 (100)	27.000	19.000	6.250	1.1875	A572-65
2	6.875	1.25	8.59375	0.625	PC 8.8 - M20 (100)	39	PC 8.8 - M20 (100)	27.000	18.000	7.031	1.1875	A572-65
3	6.875	1.25	8.59375	0.625	Welded	n/a	PC 8.8 - M20 (100)	27.000	18.000	7.031	1.1875	A572-65
4	5.25	1.25	6.5625	0.625	PC 8.8 - M20 (100)	27	PC 8.8 - M20 (100)	27.000	22.000	5.000	1.1875	A572-65
5	4	1	4	0.5	PC 8.8 - M20 (100)	21	PC 8.8 - M20 (100)	21.000	20.000	2.750	1.1875	A514-GR100
6	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.375	4.750	1.1875	A572-65
7	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	20.625	3.250	1.1875	A572-65
8	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	20.625	3.250	1.1875	A572-65

Connection Details for Custom Reinforcements

Reinforcement	End	# Bolts	N or X	Bolt Spacing (in)	Edge Dist (in)	Weld Grade (ksi)	Transverse (Horiz.) Weld Type	Horiz. Weld Length (in)	Horiz. Groove Depth (in)	Horiz. Groove Angle (deg)	Horiz. Fillet Size (in)	Vertical Weld Length (in)	Vertical Fillet Size (in)	Rev H Connection Capacity (kip)
FP 6.25" x 1.25"	Top	9	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	-	-	-	-	80	CJP Groove	6.25	1.25	45	0.3125	-	-	-
FP 6.875" x 1.25"	Top	9	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	-	-	-	-	80	CJP Groove	6.875	1.25	45	0.3125	-	-	-
FP 6.875" x 1.25" (B)	Top	9	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	13	N	3	3	-	-	-	-	-	-	-	-	-
FP 5.25" x 1.25"	Top	9	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	9	N	3	3	-	-	-	-	-	-	-	-	-
FP 4" x 1"	Top	7	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	7	N	3	3	-	-	-	-	-	-	-	-	-

TNX Geometry Input

Increment (ft): 4 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	160 - 156	4		12	22.350	23.110	0.21875	A572-65	1.000
2	156 - 152	4		12	23.110	23.871	0.21875	A572-65	1.000
3	152 - 148	4		12	23.871	24.631	0.21875	A572-65	1.000
4	148 - 144	4		12	24.631	25.391	0.21875	A572-65	1.000
5	144 - 140	4		12	25.391	26.151	0.21875	A572-65	1.000
6	140 - 136	4		12	26.151	26.912	0.21875	A572-65	1.000
7	136 - 132	4		12	26.912	27.672	0.21875	A572-65	1.000
8	132 - 128	4		12	27.672	28.432	0.21875	A572-65	1.000
9	128 - 124	4		12	28.432	29.192	0.21875	A572-65	1.000
10	124 - 122	6.67	4.67	12	29.192	30.460	0.21875	A572-65	1.000
11	122 - 116.33	5.67		12	29.135	30.212	0.28125	A572-65	1.000
12	116.33 - 112.33	4		12	30.212	30.972	0.28125	A572-65	1.000
13	112.33 - 108.33	4		12	30.972	31.732	0.28125	A572-65	1.000
14	108.33 - 104.33	4		12	31.732	32.492	0.28125	A572-65	1.000
15	104.33 - 100.33	4		12	32.492	33.252	0.28125	A572-65	1.000
16	100.33 - 96.33	4		12	33.252	34.012	0.28125	A572-65	1.000
17	96.33 - 94	2.33		12	34.012	34.455	0.28125	A572-65	1.000
18	94 - 93.75	0.25		12	34.455	34.502	0.28125	A572-65	1.000
19	93.75 - 89.75	4		12	34.502	35.262	0.28125	A572-65	1.000
20	89.75 - 88	7.25	5.5	12	35.262	36.640	0.28125	A572-65	1.000
21	88 - 81.5	6.5		12	35.032	36.273	0.375	A572-65	1.000
22	81.5 - 77.5	4		12	36.273	37.036	0.375	A572-65	1.000
23	77.5 - 73.5	4		12	37.036	37.799	0.375	A572-65	1.000
24	73.5 - 72.25	1.25		12	37.799	38.038	0.375	A572-65	1.000
25	72.25 - 72	0.25		12	38.038	38.085	0.4875	A572-65	0.975
26	72 - 68	4		12	38.085	38.849	0.48125	A572-65	0.984
27	68 - 64	4		12	38.849	39.612	0.475	A572-65	0.992
28	64 - 60	4		12	39.612	40.375	0.475	A572-65	0.988
29	60 - 56	4		12	40.375	41.138	0.475	A572-65	0.985
30	56 - 53.75	2.25		12	41.138	41.568	0.475	A572-65	0.983
31	53.75 - 53.5	0.25		12	41.568	41.615	0.6375	A572-65	0.969
32	53.5 - 49.5	4		12	41.615	42.379	0.6375	A572-65	0.962
33	49.5 - 47	8.917	6.417	12	42.379	44.080	0.625	A572-65	0.977
34	47 - 39.583	7.417		12	42.106	43.509	0.7	A572-65	0.973
35	39.583 - 35.583	4		12	43.509	44.266	0.7	A572-65	0.967
36	35.583 - 31.483	4.1		12	44.266	45.042	0.7375	A572-65	0.971
37	31.483 - 31.25	0.233		12	45.042	45.086	0.7375	A572-65	0.971
38	31.25 - 28.75	2.5		12	45.086	45.559	0.7375	A572-65	0.967
39	28.75 - 28.5	0.25		12	45.559	45.607	0.6375	A572-65	0.969
40	28.5 - 24.5	4		12	45.607	46.364	0.625	A572-65	0.983
41	24.5 - 20.5	4		12	46.364	47.121	0.625	A572-65	0.979
42	20.5 - 16.5	4		12	47.121	47.877	0.625	A572-65	0.974
43	16.5 - 12.5	4		12	47.877	48.634	0.625	A572-65	0.970
44	12.5 - 11	1.5		12	48.634	48.918	0.6125	A572-65	0.988
45	11 - 10.75	0.25		12	48.918	48.966	0.7125	A572-65	1.014
46	10.75 - 6.75	4		12	48.966	49.723	0.7125	A572-65	1.007
47	6.75 - 6.25	0.5		12	49.723	49.817	0.7125	A572-65	1.007
48	6.25 - 6	0.25		12	49.817	49.865	0.6625	A572-65	1.074
49	6 - 5	1		12	49.865	50.054	0.6625	A572-65	1.072
50	5 - 4.75	0.25		12	50.054	50.101	0.5625	A572-65	1.059
51	4.75 - 0.75	4		12	50.101	50.858	0.5625	A572-65	1.055
52	0.75 - 0	0.75		12	50.858	51.000	0.5625	A572-65	1.054

TNX Section Forces

Increment (ft):	4	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	160 - 156	2.52	13.80	4.24
2	156 - 152	3.20	33.40	5.44
3	152 - 148	3.46	56.01	5.87
4	148 - 144	3.73	80.37	6.31
5	144 - 140	7.54	123.03	11.59
6	140 - 136	7.89	170.30	12.05
7	136 - 132	8.27	219.41	12.52
8	132 - 128	11.51	284.75	16.57
9	128 - 124	11.94	351.93	17.03
10	124 - 122	12.15	386.22	17.27
11	122 - 116.33	13.33	486.23	18.02
12	116.33 - 112.33	17.60	582.99	23.74
13	112.33 - 108.33	18.23	678.87	24.21
14	108.33 - 104.33	19.34	777.52	25.14
15	104.33 - 100.33	20.51	879.92	26.09
16	100.33 - 96.33	21.71	986.09	27.03
17	96.33 - 94	24.33	1059.25	30.38
18	94 - 93.75	24.43	1066.86	30.47
19	93.75 - 89.75	25.80	1190.89	31.58
20	89.75 - 88	26.19	1246.46	31.93
21	88 - 81.5	28.75	1459.48	33.44
22	81.5 - 77.5	29.83	1594.76	34.19
23	77.5 - 73.5	30.97	1733.03	34.94
24	73.5 - 72.25	31.30	1776.81	35.10
25	72.25 - 72	31.39	1785.59	35.16
26	72 - 68	32.61	1927.23	35.68
27	68 - 64	33.86	2071.04	36.21
28	64 - 60	35.13	2216.97	36.74
29	60 - 56	36.42	2364.96	37.25
30	56 - 53.75	37.16	2449.12	37.55
31	53.75 - 53.5	37.27	2458.51	37.61
32	53.5 - 49.5	38.87	2610.02	38.15
33	49.5 - 47	39.89	2705.85	38.50
34	47 - 39.583	45.33	2995.91	39.68
35	39.583 - 35.583	47.15	3155.74	40.22
36	35.583 - 31.483	49.13	3321.76	40.75
37	31.483 - 31.25	49.25	3331.26	40.81
38	31.25 - 28.75	50.46	3433.63	41.10
39	28.75 - 28.5	50.58	3443.91	41.15
40	28.5 - 24.5	52.34	3609.35	41.58
41	24.5 - 20.5	54.13	3776.58	42.02
42	20.5 - 16.5	55.94	3945.57	42.46
43	16.5 - 12.5	57.77	4116.30	42.90
44	12.5 - 11	58.45	4180.78	43.08
45	11 - 10.75	58.61	4191.56	43.10
46	10.75 - 6.75	60.73	4364.92	43.57
47	6.75 - 6.25	61.01	4386.73	43.62
48	6.25 - 6	61.15	4397.64	43.66
49	6 - 5	61.67	4441.37	43.78
50	5 - 4.75	61.80	4452.32	43.80
51	4.75 - 0.75	63.67	4628.40	44.22
52	0.75 - 0	64.03	4661.60	44.29

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
160 - 156	Pole	TP23.11x22.35x0.2188	Pole	2.9%	Pass
156 - 152	Pole	TP23.871x23.11x0.2188	Pole	6.3%	Pass
152 - 148	Pole	TP24.631x23.871x0.2188	Pole	9.8%	Pass
148 - 144	Pole	TP25.391x24.631x0.2188	Pole	13.3%	Pass
144 - 140	Pole	TP26.151x25.391x0.2188	Pole	19.7%	Pass
140 - 136	Pole	TP26.912x26.151x0.2188	Pole	25.9%	Pass
136 - 132	Pole	TP27.672x26.912x0.2188	Pole	31.8%	Pass
132 - 128	Pole	TP28.432x27.672x0.2188	Pole	39.7%	Pass
128 - 124	Pole	TP29.192x28.432x0.2188	Pole	47.1%	Pass
124 - 122	Pole	TP30.46x29.192x0.2188	Pole	50.6%	Pass
122 - 116.33	Pole	TP30.212x29.135x0.2813	Pole	42.5%	Pass
116.33 - 112.33	Pole	TP30.972x30.212x0.2813	Pole	49.2%	Pass
112.33 - 108.33	Pole	TP31.732x30.972x0.2813	Pole	55.0%	Pass
108.33 - 104.33	Pole	TP32.492x31.732x0.2813	Pole	60.6%	Pass
104.33 - 100.33	Pole	TP33.252x32.492x0.2813	Pole	66.0%	Pass
100.33 - 96.33	Pole	TP34.012x33.252x0.2813	Pole	71.4%	Pass
96.33 - 94	Pole	TP34.455x34.012x0.2813	Pole	75.3%	Pass
94 - 93.75	Pole	TP34.502x34.455x0.2813	Pole	75.7%	Pass
93.75 - 89.75	Pole	TP35.262x34.502x0.2813	Pole	81.7%	Pass
89.75 - 88	Pole	TP36.64x35.262x0.2813	Pole	84.3%	Pass
88 - 81.5	Pole	TP36.273x35.032x0.375	Pole	63.8%	Pass
81.5 - 77.5	Pole	TP37.036x36.273x0.375	Pole	67.3%	Pass
77.5 - 73.5	Pole	TP37.799x37.036x0.375	Pole	70.6%	Pass
73.5 - 72.25	Pole	TP38.038x37.799x0.375	Pole	71.7%	Pass
72.25 - 72	Pole + Reinf.	TP38.085x38.038x0.4875	Reinf. 5 Tension Rupture	67.4%	Pass
72 - 68	Pole + Reinf.	TP38.849x38.085x0.4813	Reinf. 5 Tension Rupture	70.2%	Pass
68 - 64	Pole + Reinf.	TP39.612x38.849x0.475	Reinf. 5 Tension Rupture	72.8%	Pass
64 - 60	Pole + Reinf.	TP40.375x39.612x0.475	Reinf. 5 Tension Rupture	75.2%	Pass
60 - 56	Pole + Reinf.	TP41.138x40.375x0.475	Reinf. 5 Tension Rupture	77.5%	Pass
56 - 53.75	Pole + Reinf.	TP41.568x41.138x0.475	Reinf. 5 Tension Rupture	78.8%	Pass
53.75 - 53.5	Pole + Reinf.	TP41.615x41.568x0.6375	Reinf. 4 Tension Rupture	73.6%	Pass
53.5 - 49.5	Pole + Reinf.	TP42.379x41.615x0.6375	Reinf. 4 Tension Rupture	75.9%	Pass
49.5 - 47	Pole + Reinf.	TP44.08x42.379x0.625	Reinf. 4 Tension Rupture	77.2%	Pass
47 - 39.58	Pole + Reinf.	TP43.509x42.106x0.7	Reinf. 7 Compression	79.2%	Pass
39.58 - 35.58	Pole + Reinf.	TP44.266x43.509x0.7	Reinf. 7 Compression	81.1%	Pass
35.58 - 31.48	Pole + Reinf.	TP45.042x44.266x0.7375	Reinf. 7 Compression	77.7%	Pass
31.48 - 31.25	Pole + Reinf.	TP45.086x45.042x0.7375	Reinf. 7 Compression	77.8%	Pass
31.25 - 28.75	Pole + Reinf.	TP45.559x45.086x0.7375	Reinf. 7 Compression	78.9%	Pass
28.75 - 28.5	Pole + Reinf.	TP45.607x45.559x0.6375	Reinf. 3 Tension Rupture	80.2%	Pass
28.5 - 24.5	Pole + Reinf.	TP46.364x45.607x0.625	Reinf. 3 Tension Rupture	81.7%	Pass
24.5 - 20.5	Pole + Reinf.	TP47.121x46.364x0.625	Reinf. 3 Tension Rupture	83.1%	Pass
20.5 - 16.5	Pole + Reinf.	TP47.877x47.121x0.625	Reinf. 3 Tension Rupture	84.5%	Pass
16.5 - 12.5	Pole + Reinf.	TP48.634x47.877x0.625	Reinf. 3 Tension Rupture	85.8%	Pass
12.5 - 11	Pole + Reinf.	TP48.918x48.634x0.6125	Reinf. 3 Tension Rupture	86.2%	Pass
11 - 10.75	Pole + Reinf.	TP48.966x48.918x0.7125	Reinf. 3 Tension Rupture	76.5%	Pass
10.75 - 6.75	Pole + Reinf.	TP49.723x48.966x0.7125	Reinf. 3 Tension Rupture	77.6%	Pass
6.75 - 6.25	Pole + Reinf.	TP49.817x49.723x0.7125	Reinf. 3 Tension Rupture	77.8%	Pass
6.25 - 6	Pole + Reinf.	TP49.865x49.817x0.6625	Reinf. 6 Tension Rupture	83.7%	Pass
6 - 5	Pole + Reinf.	TP50.054x49.865x0.6625	Reinf. 6 Tension Rupture	84.0%	Pass
5 - 4.75	Pole + Reinf.	TP50.101x50.054x0.5625	Reinf. 3 Tension Rupture	89.6%	Pass
4.75 - 0.75	Pole + Reinf.	TP50.858x50.101x0.5625	Reinf. 3 Tension Rupture	90.7%	Pass
0.75 - 0	Pole + Reinf.	TP51x50.858x0.5625	Reinf. 3 Tension Rupture	90.9%	Pass
				Summary	
			Pole	84.3%	Pass
			Reinforcement	90.9%	Pass
			Overall	90.9%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity*								
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8
160 - 156	1080	n/a	1080	16.10	n/a	16.10	2.9%								
156 - 152	1191	n/a	1191	16.64	n/a	16.64	6.3%								
152 - 148	1310	n/a	1310	17.17	n/a	17.17	9.8%								
148 - 144	1436	n/a	1436	17.71	n/a	17.71	13.3%								
144 - 140	1570	n/a	1570	18.24	n/a	18.24	19.7%								
140 - 136	1712	n/a	1712	18.77	n/a	18.77	25.9%								
136 - 132	1863	n/a	1863	19.31	n/a	19.31	31.8%								
132 - 128	2022	n/a	2022	19.84	n/a	19.84	39.7%								
128 - 124	2190	n/a	2190	20.38	n/a	20.38	47.1%								
124 - 122	2277	n/a	2277	20.65	n/a	20.65	50.6%								
122 - 116.33	3104	n/a	3104	27.07	n/a	27.07	42.5%								
116.33 - 112.33	3346	n/a	3346	27.75	n/a	27.75	49.2%								
112.33 - 108.33	3601	n/a	3601	28.44	n/a	28.44	55.0%								
108.33 - 104.33	3868	n/a	3868	29.13	n/a	29.13	60.6%								
104.33 - 100.33	4149	n/a	4149	29.82	n/a	29.82	66.0%								
100.33 - 96.33	4442	n/a	4442	30.50	n/a	30.50	71.4%								
96.33 - 94	4619	n/a	4619	30.90	n/a	30.90	75.3%								
94 - 93.75	4639	n/a	4639	30.95	n/a	30.95	75.7%								
93.75 - 89.75	4955	n/a	4955	31.63	n/a	31.63	81.7%								
89.75 - 88	5097	n/a	5097	31.94	n/a	31.94	84.3%								
88 - 81.5	7139	n/a	7139	43.28	n/a	43.28	63.8%								
81.5 - 77.5	7605	n/a	7605	44.20	n/a	44.20	67.3%								
77.5 - 73.5	8089	n/a	8089	45.13	n/a	45.13	70.6%								
73.5 - 72.25	8245	n/a	8245	45.41	n/a	45.41	71.7%								
72.25 - 72	8276	2300	10576	45.47	12.00	57.47	54.3%					67.4%			
72 - 68	8789	2390	11180	46.39	12.00	58.39	57.0%					70.2%			
68 - 64	9323	2482	11805	47.31	12.00	59.31	59.6%					72.8%			
64 - 60	9877	2576	12454	48.23	12.00	60.23	62.1%					75.2%			
60 - 56	10454	2672	13126	49.15	12.00	61.15	64.5%					77.5%			
56 - 53.75	10787	2727	13514	49.67	12.00	61.67	65.9%					78.8%			
53.75 - 53.5	10825	7278	18103	49.73	31.69	81.41	49.5%				73.6%	59.1%			
53.5 - 49.5	11437	7539	18976	50.65	31.69	82.33	51.4%				75.9%	61.0%			
49.5 - 47	11831	7705	19536	51.22	31.69	82.91	52.6%				77.2%	62.1%			
47 - 39.58	14387	8309	22697	60.59	33.19	93.78	48.2%				74.7%			79.2%	
39.58 - 35.58	15159	8592	23751	61.66	33.19	94.84	49.7%				76.5%			81.1%	
35.58 - 31.48	15979	10548	26527	62.75	39.28	102.03	47.9%		76.6%	76.6%				77.7%	
31.48 - 31.25	16026	10568	26594	62.81	39.28	102.09	48.0%		68.4%	68.4%				77.8%	
31.25 - 28.75	16541	10784	27325	63.47	39.28	102.76	48.9%		69.4%	69.4%				78.9%	
28.75 - 28.5	16593	7128	23721	63.54	25.78	89.32	56.5%		80.2%	80.2%					
28.5 - 24.5	17441	7358	24800	64.61	25.78	90.39	58.0%		81.7%	81.7%					
24.5 - 20.5	18318	7593	25911	65.67	25.78	91.45	59.4%		83.1%	83.1%					
20.5 - 16.5	19224	7830	27054	66.74	25.78	92.52	60.8%		84.5%	84.5%					
16.5 - 12.5	20159	8072	28231	67.80	25.78	93.58	62.2%		85.8%	85.8%					
12.5 - 11	20517	8163	28680	68.20	25.78	93.98	62.7%		86.2%	86.2%					
11 - 10.75	20606	12549	33156	68.27	43.78	112.05	56.9%		73.8%	76.5%			74.7%		
10.75 - 6.75	21585	12929	34514	69.33	43.78	113.11	58.2%		74.9%	77.6%			75.8%		
6.75 - 6.25	21709	12977	34686	69.46	43.78	113.25	58.3%		75.1%	77.8%			76.0%		
6.25 - 6	21749	10663	32412	69.53	43.00	112.53	62.5%	74.1%		79.5%			83.7%		
6 - 5	21999	10742	32741	69.80	43.00	112.80	62.8%	74.4%		79.8%			84.0%		
5 - 4.75	22144	6160	28304	69.86	25.00	94.86	75.2%	89.2%		89.6%					
4.75 - 0.75	23170	6343	29513	70.93	25.00	95.93	76.6%	90.3%		90.7%					
0.75 - 0	23366	6378	29744	71.13	25.00	96.13	76.9%	90.5%		90.9%					

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

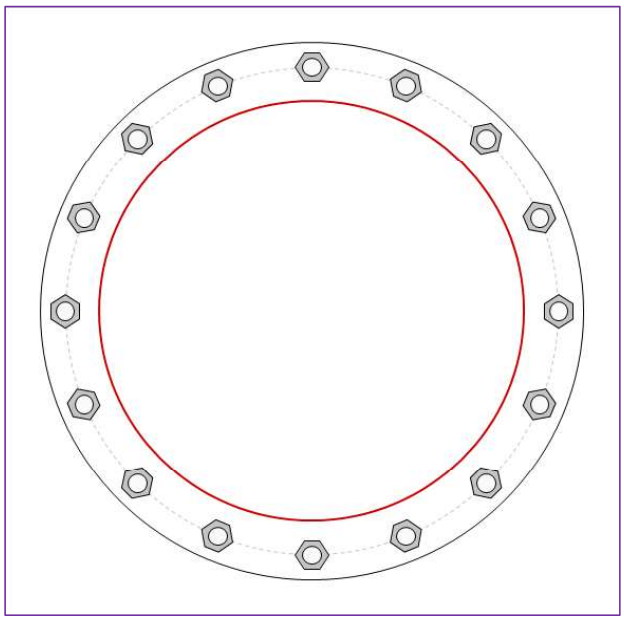
Monopole Base Plate Connection

Site Info	
BU #	876339
Site Name	ond Meadow Rd. Stabl
Order #	553290 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0

Applied Loads	
Moment (kip-ft)	2746.35
Axial Force (kips)	64.03
Shear Force (kips)	44.29

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(16) 2-1/4" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 59.3" BC

Base Plate Data

65.3" OD x 2.75" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

N/A

Pole Data

51" x 0.4375" 12-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

Pu_t = 134.85	ϕPn_t = 304.69	**Stress Rating**
Vu = 2.77	ϕVn = 186.38	**42.2%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	19.12	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**33.7%**	**Pass**

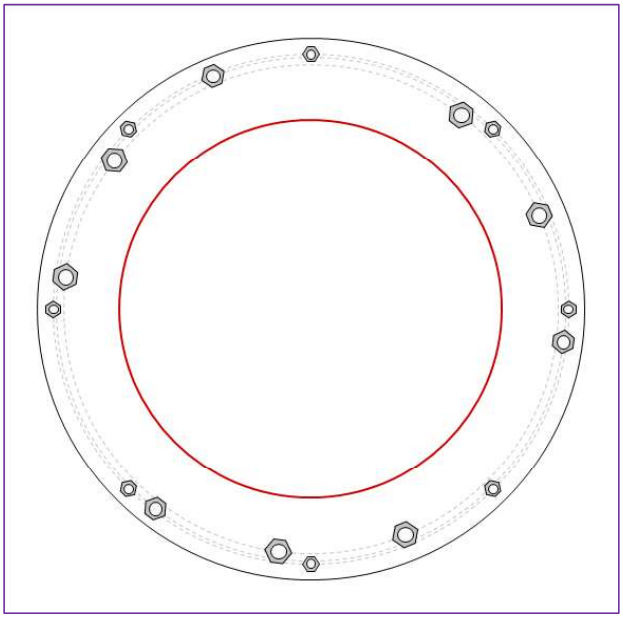
Monopole Base Plate Connection

Site Info	
BU #	876339
Site Name	ond Meadow Rd. Stabl
Order #	553290 Rev. 0

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

Applied Loads	
Moment (kip-ft)	1915.25
Axial Force (kips)	0.00
Shear Force (kips)	0.00

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (8) 1-1/4" ø bolts (Williams R7S N; Fy=120 ksi, Fu=125 ksi) on 68.5" BC
GROUP 2: (6) 2" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 65.8" BC
GROUP 3: (3) 1-3/4" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 67.8" BC

Base Plate Data

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

Stiffener Data

N/A

Pole Data

51" x 0.4375" 12-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

GROUP 1:		
Pu_t = 47.84	ϕPn_t = 90.84	**Stress Rating**
Vu = 0	ϕVn = 57.52	**50.2%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 2:		
Pu_t = 118.44	ϕPn_t = 234.38	**Stress Rating**
Vu = 0	ϕVn = 147.26	**48.1%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 3:		
Pu_t = 92.75	ϕPn_t = 178.13	**Stress Rating**
Vu = 0	ϕVn = 112.75	**49.6%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	23.34	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**49.4%**	**Pass**

CCIplate

Elevation (ft)	0	*(Base)*

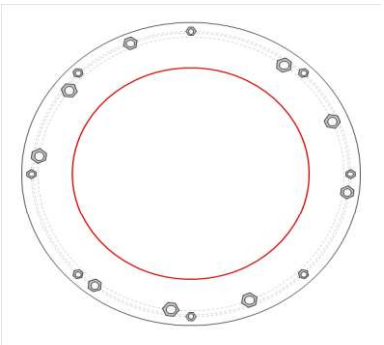
note: Bending interaction not considered when Grout Considered = "Yes"

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

Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, n:	l_{ar} (in):	Thread Type	Area Override, in^2	Tension Only
1	1	0	1.25	Williams R7S	68.5		0	N-Included		No
2	1	45	1.25	Williams R7S	68.5		0	N-Included		No
3	1	90	1.25	Williams R7S	68.5		0	N-Included		No
4	1	135	1.25	Williams R7S	68.5		0	N-Included		No
5	1	180	1.25	Williams R7S	68.5		0	N-Included		No
6	1	225	1.25	Williams R7S	68.5		0	N-Included		No
7	1	270	1.25	Williams R7S	68.5		0	N-Included		No
8	1	315	1.25	Williams R7S	68.5		0	N-Included		No
9	2	22.5	2	A193 Gr. B7	65.8		0	N-Included		No
10	2	52.5	2	A193 Gr. B7	65.8		0	N-Included		No
11	2	142.5	2	A193 Gr. B7	65.8		0	N-Included		No
12	2	172.5	2	A193 Gr. B7	65.8		0	N-Included		No
13	2	262.5	2	A193 Gr. B7	65.8		0	N-Included		No
14	2	292.5	2	A193 Gr. B7	65.8		0	N-Included		No
15	3	112.5	1.75	A193 Gr. B7	67.8		0	N-Included		No
16	3	232.5	1.75	A193 Gr. B7	67.8		0	N-Included		No
17	3	352.5	1.75	A193 Gr. B7	67.8		0	N-Included		No

Plot Graphic



Pier and Pad Foundation

BU # :	876339
Site Name:	Pond Meadow Rd.
App. Number:	553290

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions

Compression, P_{comp}:	64.05	kips
Base Shear, Vu_comp:	44.27	kips
Moment, M_u:	4661.6	ft-kips
Tower Height, **H**:	160	ft
BP Dist. Above Fdn, bp_{dist}:	6	in

Pier Properties

Pier Shape:	Circular	
Pier Diameter, **dpier**:	7	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	11	
Pier Rebar Quantity, **mc**:	36	
Pier Tie/Spiral Size, **St**:	5	
Pier Tie/Spiral Quantity, **mt**:	5	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties

Depth, **D**:	7.7	ft
Pad Width, W_1:	23	ft
Pad Thickness, **T**:	3.7	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	11	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	24	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties

Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	4	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties

Total Soil Unit Weight, γ:	120	pcf
Ultimate Gross Bearing, Qult:	30.000	ksf
Cohesion, **Cu**:		ksf
Friction Angle, φ:	33	degrees
SPT Blow Count, N_{blows}:	20	
Base Friction, μ:	0.45	
Neglected Depth, **N**:	3.30	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

Foundation Analysis Checks

	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	342.24	44.27	**12.3%**	**Pass**
Bearing Pressure (ksf)	22.50	4.58	**20.4%**	**Pass**
*Overturning (kip*ft)*	6544.93	5046.75	**77.1%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	8684.27	4860.82	**53.3%**	**Pass**
Pier Compression (kip)	24494.62	95.22	**0.4%**	**Pass**
*Pad Flexure (kip*ft)*	6417.08	2444.72	**36.3%**	**Pass**
Pad Shear - 1-way (kips)	1028.63	393.69	**36.5%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.190	0.000	**0.0%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	9950.88	2916.49	**27.9%**	**Pass**

**Rating per TIA-222-H Section 15.5*

Soil Rating*:	**77.1%**
Structural Rating*:	**53.3%**

Pier and Pad Foundation

BU # :	876339
Site Name:	Pond Meadow Rd.
App. Number:	553290

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions

Compression, P_{comp}:	64.05	kips
Base Shear, Vu_comp:	44.27	kips
Moment, M_u:	4661.6	ft-kips
Tower Height, **H**:	160	ft
BP Dist. Above Fdn, bp_{dist}:	6	in

Pier Properties

Pier Shape:	Circular	
Pier Diameter, **dpier**:	7	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	11	
Pier Rebar Quantity, **mc**:	36	
Pier Tie/Spiral Size, **St**:	5	
Pier Tie/Spiral Quantity, **mt**:	5	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties

Depth, **D**:	7.7	ft
Pad Width, W_1:	23	ft
Pad Thickness, **T**:	3.7	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	11	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	24	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties

Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	4	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties

Total Soil Unit Weight, γ:	120	pcf
Ultimate Gross Bearing, Qult:	30.000	ksf
Cohesion, **Cu**:		ksf
Friction Angle, φ:	33	degrees
SPT Blow Count, N_{blows}:	20	
Base Friction, μ:	0.45	
Neglected Depth, **N**:	3.30	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

Foundation Analysis Checks

	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	342.24	44.27	**12.3%**	**Pass**
Bearing Pressure (ksf)	22.50	6.84	**30.4%**	**Pass**
*Overturning (kip*ft)*	6266.53	5046.75	**80.5%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	8684.27	4860.82	**53.3%**	**Pass**
Pier Compression (kip)	24494.62	95.22	**0.4%**	**Pass**
*Pad Flexure (kip*ft)*	6417.08	2444.72	**36.3%**	**Pass**
Pad Shear - 1-way (kips)	1028.63	393.69	**36.5%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.190	0.000	**0.0%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	9950.88	2916.49	**27.9%**	**Pass**

**Rating per TIA-222-H Section 15.5*

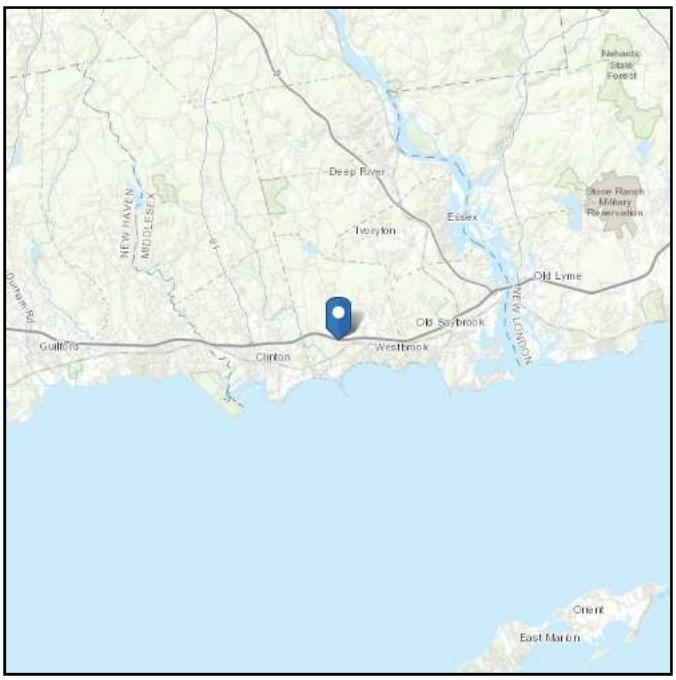
Soil Rating*:	**80.5%**
Structural Rating*:	**53.3%**

Version 4.0.1

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	94.72 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.290472
Soil Class:	D - Stiff Soil	**Longitude:**	-72.468861



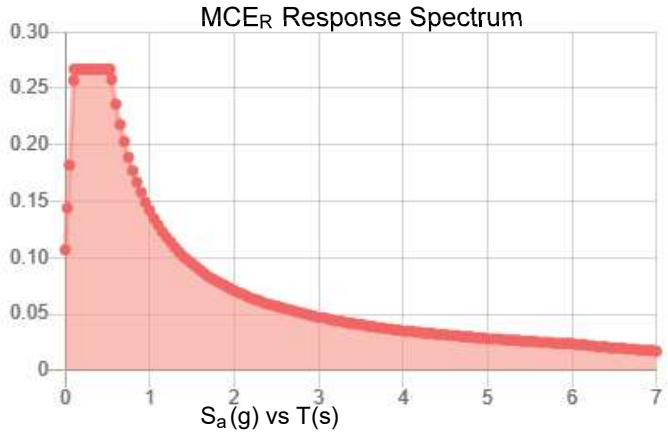
Seismic

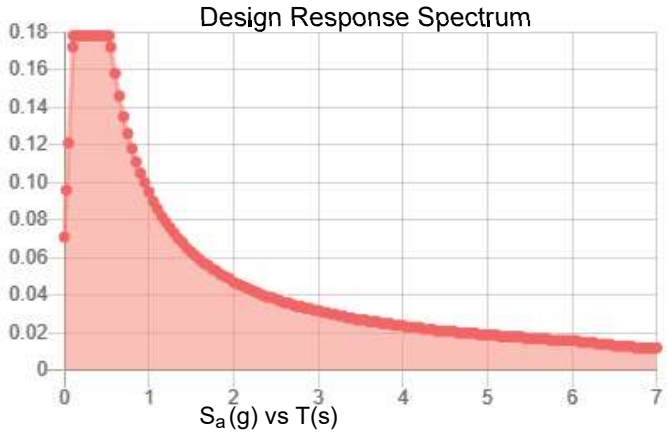
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.167	S_{DS} :	0.178
S_1 :	0.059	S_{D1} :	0.095
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.084
S_{MS} :	0.267	PGA_M :	0.134
S_{M1} :	0.142	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Fri Sep 11 2020

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

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Fri Sep 11 2020

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

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

Exhibit E

Power Density/RF Emissions Report

RF EMISSIONS COMPLIANCE REPORT

Crown Castle on behalf of Dish Wireless

Crown Castle Site Name: POND MEADOW RD. STABLE
Crown Castle Site BU: 876339
Dish Wireless Site Name: CT-CCI-T-876339
Dish Wireless Site ID: BOBDL00089A
Application ID: 876339
782 Old Clinton Road
Westbrook, CT
6/1/2021

Report Status:

Dish Wireless is Compliant

Michael Fischer, P.E.
Registered Professional Engineer (Electrical)
Connecticut License Number 33928
Expires January 31, 2022

Signed 01 June 2021

Prepared By:

Site Safe, LLC

8618 Westwood Center Drive
Suite 315

Vienna, VA 22182

Voice: 703-276-1100
Fax: 703-276-1169

Engineering Statement in Re:
Electromagnetic Energy Analysis
Crown Castle
Westbrook, CT

My signature on the cover of this document indicates:

That I am registered as a Professional Engineer in the jurisdiction indicated; and

That I have extensive professional experience in the wireless communications engineering industry; and

That I am an employee of Site Safe, LLC in Vienna, Virginia; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission ("the FCC" and "the FCC Rules") both in general and specifically as they apply to the FCC's Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields; and

That the technical information serving as the basis for this report was supplied by Crown Castle on behalf of Dish Wireless (see attached Site Summary and Carrier documents) and that Dish Wireless' installation involves communications equipment, antennas and associated technical equipment at a location referred to as "POND MEADOW RD. STABLE" ("the site"); and

That Dish Wireless proposes to operate at the site with transmit antennas listed in the carrier summary and with a maximum effective radiated power as specified by Dish Wireless and shown on the worksheet and that worst-case 100% duty cycle has been assumed; and

That this analysis has been performed with the assumption that the ground immediately surrounding the tower is primarily flat or falling; and

That at this time, the FCC requires that certain licensees address specific levels of radio frequency energy to which workers or members of the public might possibly be exposed (at §1.1307(b) of the FCC Rules); and

That such consideration of possible exposure of humans to radio frequency energy must utilize the standards set by the FCC, which is the federal agency having jurisdiction over communications facilities; and

That the FCC rules define two tiers of permissible exposure guidelines: 1) "uncontrolled environments," which defines situations in which persons may not be aware of (the "general public"), or may not be able to control their exposure to a transmission facility; and 2) "controlled environments," which defines situations in which persons are aware of their potential for exposure (industry personnel); and

That this statement specifically addresses the uncontrolled environment (which is more conservative than the controlled environment) and the limit set forth in the FCC rules for licensees of Dish Wireless' operating frequencies as shown on the attached antenna worksheet; and

That when applying the uncontrolled environment standards, the predicted Maximum Power Density at two meters above ground level from the proposed T-Mobile operation is no more than 2.088% of the maximum permissible exposure limits in any accessible area on the ground; and

That it is understood per FCC Guidelines and OET 65 Appendix A, that regardless of the existent radio frequency environment, only those licensees whose contributions exceed 5% of the exposure limit pertinent to their operation(s) bear any responsibility for bringing any non-compliant area(s) into compliance; and

That when applying the uncontrolled environment standards, the cumulative predicted energy density from the proposed operation is no more than 9.831% of the maximum in any accessible area up to two meters above the ground per OET 65; and

That the calculations provided in this report are based on data provided by the client and antenna pattern data supplied by the antenna manufacturer, in accordance with FCC guidelines listed in OET 65. Horizontal and vertical antenna patterns are combined for modeling purposes to accurately reflect the energy two meters above ground level where on-axis energy refers to maximum energy two meters above the ground along the azimuth of the antenna and where area energy refers to the maximum energy anywhere two meters above the ground regardless of the antenna azimuth, accounting for cumulative energy from multiple antennas for the carrier(s) and frequency range(s) indicated; and

That the Occupational Safety and Health Administration has policies in place which address worker safety in and around communications sites, thus individual companies will be responsible for their employees' training regarding radio frequency safety; and

In summary, it is stated here that the proposed operation at the site will not result in exposure of the public to excessive levels of radio frequency energy as defined in the FCC Rules and Regulations, specifically 47 CFR 1.1307(b), and that Dish Wireless' proposed operation is completely compliant.

Finally, it is stated that access to the tower should be restricted to communication industry professionals and approved contractor personnel trained in radio frequency safety and that this instant analysis addresses exposure levels at two meters above ground level and does not address exposure levels on the tower or in the immediate proximity of the antennas.

Crown Castle
POND MEADOW RD. STABLE
Site Summary

Carrier	Area Maximum Percentage MPE
AT&T Mobility, LLC	0.574 %
AT&T Mobility, LLC	0.347 %
AT&T Mobility, LLC	0.183 %
AT&T Mobility, LLC (Not in service)	0.000 %
Dish Wireless (Proposed)	0.850 %
Dish Wireless (Proposed)	0.769 %
Dish Wireless (Proposed)	0.469 %
Sprint (T-Mobile)	0.237 %
Sprint (T-Mobile)	0.156 %
Sprint (T-Mobile)	0.156 %
Sprint (T-Mobile)	0.155 %
T-Mobile	0.209 %
T-Mobile	0.202 %
T-Mobile	0.209 %
Verizon Wireless	2.917 %
Verizon Wireless	0.619 %
Verizon Wireless	0.656 %
Verizon Wireless	0.513 %
Verizon Wireless	0.610 %
Composite Site MPE:	9.831 %

AT&T Mobility, LLC
POND MEADOW RD. STABLE
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	5.73829	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.57383	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
KMW	AM-X-CD-14-65-00T	98	23	3267	4.324153	0.432415	4.390957	0.439096
KMW	AM-X-CD-14-65-00T	98	143	3267	4.324153	0.432415	4.390957	0.439096
KMW	AM-X-CD-14-65-00T	98	263	3267	4.324153	0.432415	4.390957	0.439096

AT&T Mobility, LLC
POND MEADOW RD. STABLE
Carrier Summary

Frequency:	737	MHz
Maximum Permissible Exposure (MPE):	491.33	µW/cm^2
Maximum power density at ground level:	1.70427	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.34687	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
KMW	AM-X-CD-14-65-00T	98	23	877	1.657184	0.337283	1.70228	0.346461
KMW	AM-X-CD-14-65-00T	98	143	877	1.657184	0.337283	1.70228	0.346461
KMW	AM-X-CD-14-65-00T	98	263	877	1.657184	0.337283	1.70228	0.346461

AT&T Mobility, LLC
POND MEADOW RD. STABLE
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	µW/cm^2
Maximum power density at ground level:	1.03612	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.18284	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Powerwave	7770	98	23	547	0.572778	0.101078	0.889256	0.156927
Powerwave	7770	98	143	547	0.572778	0.101078	0.889256	0.156927
Powerwave	7770	98	263	547	0.572778	0.101078	0.889256	0.156927

AT&T Mobility, LLC (Not in service)
POND MEADOW RD. STABLE
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	µW/cm^2
Maximum power density at ground level:	0	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Powerwave	7770	98	23	0	0	0	0	0
Powerwave	7770	98	143	0	0	0	0	0
Powerwave	7770	98	263	0	0	0	0	0

Dish Wireless (Proposed)
POND MEADOW RD. STABLE
Carrier Summary

Frequency:	2100	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	8.49514	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.84951	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
JMA Wireless	MX08FRO665-20	132	0	11861	4.058246	0.405825	8.414213	0.841421
JMA Wireless	MX08FRO665-20	132	120	11861	4.058246	0.405825	8.414213	0.841421
JMA Wireless	MX08FRO665-20	132	240	11861	4.058246	0.405825	8.414213	0.841421

Dish Wireless (Proposed)
POND MEADOW RD. STABLE
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	7.69068	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.76907	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
JMA Wireless	MX08FRO665-20	132	0	9866	3.621337	0.362134	7.568192	0.756819
JMA Wireless	MX08FRO665-20	132	120	9866	3.621337	0.362134	7.568192	0.756819
JMA Wireless	MX08FRO665-20	132	240	9866	3.621337	0.362134	7.568192	0.756819

Dish Wireless (Proposed)
POND MEADOW RD. STABLE
Carrier Summary

Frequency:	600	MHz
Maximum Permissible Exposure (MPE):	400	µW/cm^2
Maximum power density at ground level:	1.87571	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.46893	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
JMA Wireless	MX08FRO665-20	132	0	3838	1.700017	0.425004	1.801811	0.450453
JMA Wireless	MX08FRO665-20	132	120	3838	1.700017	0.425004	1.801811	0.450453
JMA Wireless	MX08FRO665-20	132	240	3838	1.700017	0.425004	1.801811	0.450453

Sprint (T-Mobile)
POND MEADOW RD. STABLE
Carrier Summary

Frequency:	2500	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	2.36889	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.23689	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
RFS	APXVTM14-C-I20	160	70	6168	0.87707	0.087707	1.640639	0.164064
RFS	APXVTM14-C-I20	160	180	6168	0.87707	0.087707	1.640639	0.164064
RFS	APXVTM14-C-I20	160	310	6168	0.87707	0.087707	1.640639	0.164064

Sprint (T-Mobile)
POND MEADOW RD. STABLE
Carrier Summary

Frequency:	1990	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	1.55657	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.15566	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
RFS	APXV9ERR18-C-A20	160	70	2756	0.443097	0.04431	0.845262	0.084526
RFS	APXVSPP18-C-A20	160	180	3804	0.743329	0.074333	1.321141	0.132114
RFS	APXVSPP18-C-A20	160	310	3804	0.743329	0.074333	1.321141	0.132114

Sprint (T-Mobile)
POND MEADOW RD. STABLE
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	1.55657	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.15566	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
RFS	APXV9ERR18-C-A20	160	70	2756	0.443097	0.04431	0.845262	0.084526
RFS	APXVSPP18-C-A20	160	180	3804	0.743329	0.074333	1.321141	0.132114
RFS	APXVSPP18-C-A20	160	310	3804	0.743329	0.074333	1.321141	0.132114

Sprint (T-Mobile)
POND MEADOW RD. STABLE
Carrier Summary

Frequency:	862	MHz
Maximum Permissible Exposure (MPE):	574.67	µW/cm^2
Maximum power density at ground level:	0.892	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.15522	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
RFS	APXV9ERR18-C-A20	160	70	1535	0.429363	0.074715	0.609387	0.106042
RFS	APXVSPP18-C-A20	160	180	2168	0.600725	0.104534	0.615868	0.10717
RFS	APXVSPP18-C-A20	160	310	2168	0.600725	0.104534	0.615868	0.10717

T-Mobile
POND MEADOW RD. STABLE
Carrier Summary

Frequency:	2100	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	2.0897	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.20897	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Ericsson	AIR 21 B4A B2P	145	70	4123	0.941495	0.09415	1.085925	0.108593
Ericsson	AIR 21 B4A B2P	145	200	4123	0.941495	0.09415	1.085925	0.108593
Ericsson	AIR 21 B4A B2P	145	280	4123	0.941495	0.09415	1.085925	0.108593

T-Mobile
POND MEADOW RD. STABLE
Carrier Summary

Frequency:	700	MHz
Maximum Permissible Exposure (MPE):	466.67	µW/cm^2
Maximum power density at ground level:	0.94058	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.20155	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
ANDREW	LNX-6515DS-VTM	145	70	1715	0.47339	0.101441	0.483948	0.103703
ANDREW	LNX-6515DS-VTM	145	200	1715	0.47339	0.101441	0.483948	0.103703
ANDREW	LNX-6515DS-VTM	145	280	1715	0.47339	0.101441	0.483948	0.103703

T-Mobile
POND MEADOW RD. STABLE
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	2.0897	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.20897	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Ericsson	AIR 21 B2A B4P	145	70	4123	0.941495	0.09415	1.085925	0.108593
Ericsson	AIR 21 B2A B4P	145	200	4123	0.941495	0.09415	1.085925	0.108593
Ericsson	AIR 21 B2A B4P	145	280	4123	0.941495	0.09415	1.085925	0.108593

Verizon Wireless
POND MEADOW RD. STABLE
Carrier Summary

Frequency:	3700	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	29.17304	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	2.9173	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Samsung	MT6407-77A	117	30	43155	9.96675	0.996675	24.656141	2.465614
Samsung	MT6407-77A	117	160	43155	9.96675	0.996675	24.656141	2.465614
Samsung	MT6407-77A	117	270	43155	9.96675	0.996675	24.656141	2.465614

Verizon Wireless
POND MEADOW RD. STABLE
Carrier Summary

Frequency:	2100	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	6.19253	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.61925	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Commscope	JAHH-65B-R3B	117	30	6069	3.343932	0.334393	5.873605	0.587361
Commscope	JAHH-65B-R3B	117	160	6069	3.343932	0.334393	5.873605	0.587361
Commscope	JAHH-65B-R3B	117	270	6069	3.343932	0.334393	5.873605	0.587361

Verizon Wireless
POND MEADOW RD. STABLE
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	6.5583	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.65583	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Commscope	JAHH-65B-R3B	117	30	5890	3.738741	0.373874	6.094671	0.609467
Commscope	JAHH-65B-R3B	117	160	5890	3.738741	0.373874	6.094671	0.609467
Commscope	JAHH-65B-R3B	117	270	5890	3.738741	0.373874	6.094671	0.609467

Verizon Wireless
POND MEADOW RD. STABLE
Carrier Summary

Frequency:	751	MHz
Maximum Permissible Exposure (MPE):	500.67	µW/cm^2
Maximum power density at ground level:	2.57047	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.51341	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Commscope	JAHH-65B-R3B	117	30	2661	1.396037	0.278836	1.996145	0.398697
Commscope	JAHH-65B-R3B	117	160	2661	1.396037	0.278836	1.996145	0.398697
Commscope	JAHH-65B-R3B	117	270	2661	1.396037	0.278836	1.996145	0.398697

Verizon Wireless
POND MEADOW RD. STABLE
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	µW/cm^2
Maximum power density at ground level:	3.45729	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.61011	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Antel	LPA-80080-4CF	117	30	711	0.546256	0.096398	0.564257	0.099575
Commscope	JAHH-65B-R3B	117	30	3120	1.39545	0.246256	2.26458	0.399632
Antel	LPA-80080-4CF	117	30	711	0.546256	0.096398	0.564257	0.099575
Antel	LPA-80063-4CF	117	160	798	1.405803	0.248083	1.415023	0.24971
Commscope	JAHH-65B-R3B	117	160	3120	1.39545	0.246256	2.26458	0.399632
Antel	LPA-80063-4CF	117	160	798	1.405803	0.248083	1.415023	0.24971
Antel	LPA-80063-4CF	117	270	798	1.405803	0.248083	1.415023	0.24971
Commscope	JAHH-65B-R3B	117	270	3120	1.39545	0.246256	2.26458	0.399632
Antel	LPA-80063-4CF	117	270	798	1.405803	0.248083	1.415023	0.24971