NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

September 3, 2021

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

RE: Tower Share Application
3A (a.k.a. 8040) Birdseye Road, Farmington CT 06030
Latitude: 41.715806
Longitude: -72.610389
Site# 876335_Crown_Dish

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless LLC. Dish Wireless LLC plans to install antennas and related equipment to the tower site located at 3A (a.k.a. 8040) Birdseye Road in Farmington, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 5G MHz antenna and six (6) RRUs, at the 118-foot level of the existing 139-foot monopole tower, one (1) Fiber cables will also be installed. Dish Wireless LLC equipment cabinets will be placed within 7x5 lease area. Included are plans by Infinigy, dated July 22, 2021 Exhibit C. Also included is a structural analysis prepared by Crown Castle, dated June 4, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. This facility was approved by a Federal Judge on November 4, 1997. Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to The Honorable C. J. Thomas, Chairman for the Town of Farmington, Ms. Kathleen Blonski – Town Manager, as well as the tower owner (Crown Castle) and property owner (One Hundred Twenty-One Connecticut Ave Assoc LLC)

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the tower is 139-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 118-feet.

2. The proposed modifications will not result in the increase of the site boundary as depicted on the attached site plan.

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

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4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, the combined site operations will result in a total power density of 20.50% as evidenced by Exhibit F.

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

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

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

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish Wireless LLC equipment at the 118-foot level of the existing 139-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

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

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

Sincerely,

Denise Sabo

Denise Sabo
Mobile: 203-435-3640
Fax: 413-521-0558
Office: 4 Angela's Way, Burlington CT 06013
Email: denise@northeastsitesolutions.com

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Turnkey Wireless Development

Attachments
cc: The Honorable C. J. Thomas, Chairman
Town of Farmington
1 Monteith Drive, Farmington, CT 06032

Ms. Kathleen Blonski – Town Manager
Town of Farmington
1 Monteith Drive, Farmington, CT 06032
860-675-2350

GOIS Holdings of Connecticut, LLC
125 Brookside Drive Uxbridge, MA 01569

Crown Castle - Tower Owner

Exhibit A

Original Facility Approval

Mark Roberts

From: Sandra Michaud <michauds@farmington-ct.org>
Sent: Monday, February 27, 2017 4:16 PM
To: Mark Roberts
Subject: 130 Birdseye Road

Hi Mark

I was able to go through documents for this address and it appears on November 4, 1997 a federal judge ordered the Town (within 20 days) to issue a zoning permit so that Sprint Spectrum could install a 140 foot high communications tower. I do not have an approval letter from the Plan & Zoning Commission as it appears they did not formally make a decision in support of the Court's Order but a zoning permit was issued on November 26, 1997.

The Town did appeal this Order but did later withdraw in March 1998.

Sandy

Sandra Michaud
Land Use Coordinator
Town of Farmington
Planning Division
Department of Public Works
1 Monteith Drive
Farmington, CT 06032
860.675.2325 Office
860.675.2319 Fax

Exhibit B

Property Card

Town of Farmington, CT

Property Listing Report

Map Block Lot	119 3A	Building #		Unique Identifier	01358040

Property Information

Property Location	8040 BIRDSEYE RD
Mailing Address	125 BROOKSIDE DR UXBRIDGE MA 01569
Land Use	Commercial Vacant Land
Zoning Code	R80
Neighborhood	99

Owner	GOIS HOLDINGS OF CONNECTICUT
Co-Owner	LLC
Book / Page	0928/0470
Land Class	Commercial
Census Tract	4602
Acreage	13.53

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	0	0
Outbuildings	0	0
Land	375540	262880
Total	375540	262880

Utility Information

Electric	No
Gas	No
Sewer	No
Public Water	No
Well	No

Primary Construction Details

Year Built	
Building Desc.	
Building Style	
Stories	
Exterior Walls	
Exterior Walls 2	
Interior Walls	
Interior Walls 2	
Interior Floors 1	
Interior Floors 2	

Heating Fuel	
Heating Type	
AC Type	
Bedrooms	
Full Bathrooms	
Half Bathrooms	
Extra Fixtures	
Total Rooms	
Bath Style	
Kitchen Style	
Occupancy	

Building Use	
Building Condition	
Frame Type	
Fireplaces	
Bsmt Gar	
Fin Bsmt Area	
Fin Bsmt Quality	
Building Grade	
Roof Style	
Roof Cover	

Report Created On 1/22/2020

Town of Farmington, CT

Property Listing Report | Map Block Lot: 119 3A | Building #: | Unique Identifier: 01358040

Detached Outbuildings

Type	Description	Area (sq ft)	Condition	Year Built

Attached Extra Features

Type	Description	Area (sq ft)	Condition	Year Built

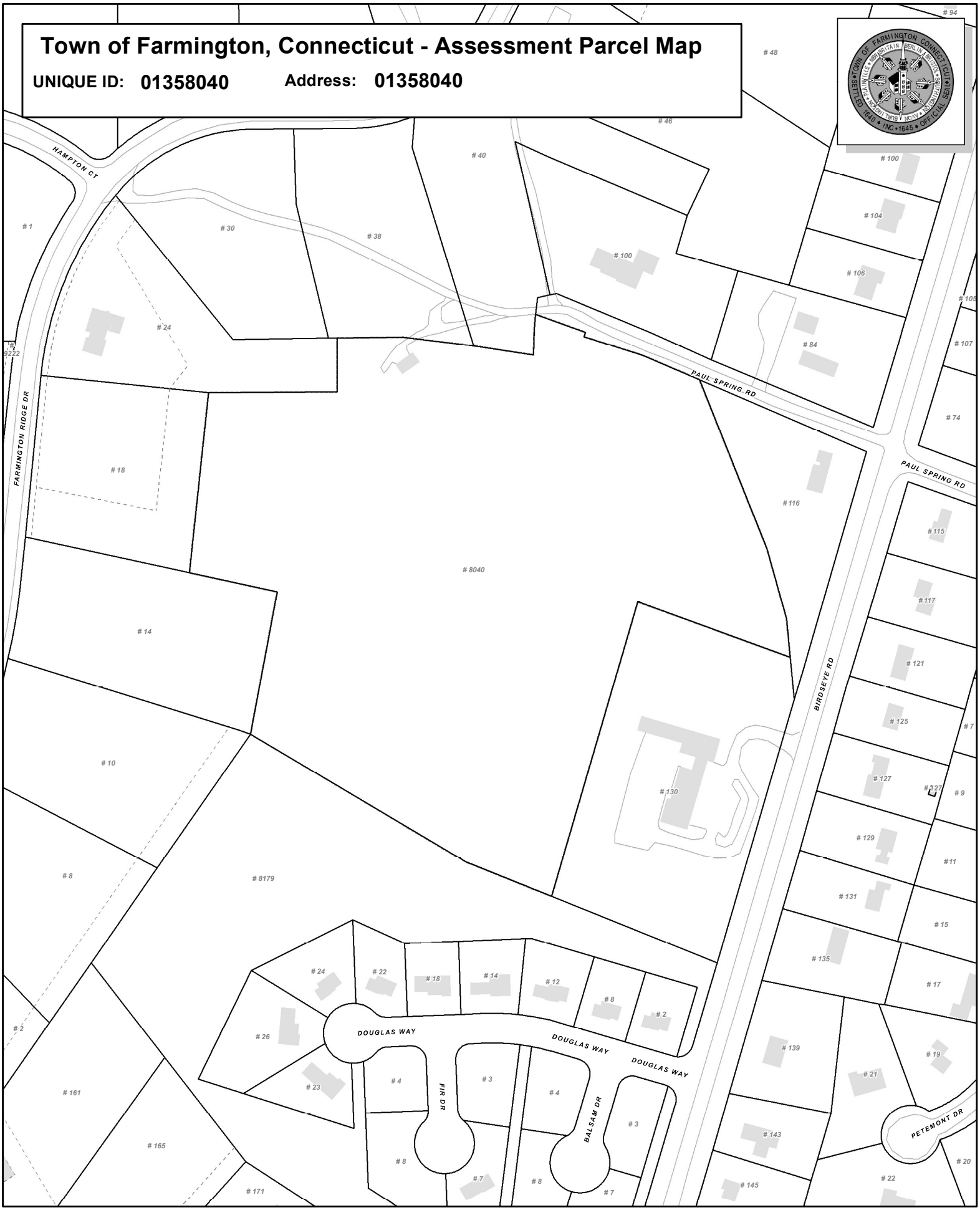
Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
GOIS HOLDINGS OF CONNECTICUT	0928_0470	4/9/2008	518000
UNISON SITE MANAGEMENT LLC	0862_0062	12/7/2005	385000
CELL TOWER LEASE	0862_0083	12/7/2005	0
FREEDON COMMUNICATIONS OF	0809_0324	6/15/2004	280000
MEGA BROADCASTING	0530_0225	12/17/1996	75000
AMERICAN RADIO SYSTEMS INC	0484_0674	1/1/1900	0
MEGA COMMUNICATIONS OC NB LL	0585_0272	1/1/1900	0

Report Created On 1/22/2020

Town of Farmington, Connecticut - Assessment Parcel Map

UNIQUE ID: 01358040 **Address:** 01358040



Map Produced Oct. 2019

Approximate Scale: 1 inch = 200 feet

Exhibit C

Construction Drawings

DISH Wireless L.L.C. SITE ID:

BOBDL00087A

DISH Wireless L.L.C. SITE ADDRESS:

3 A BIRDSEYE ROAD
FARMINGTON, CT 06030

CONNECTICUT CODE COMPLIANCE

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

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

SHEET INDEX

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

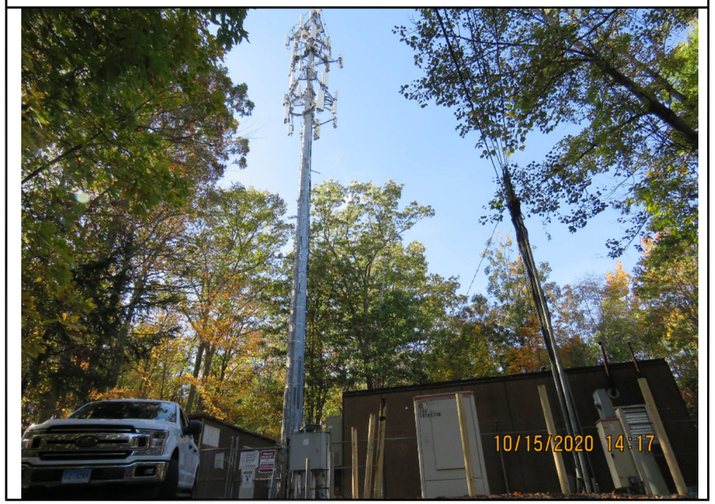
SCOPE OF WORK

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

TOWER SCOPE OF WORK:
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALL (1) PROPOSED 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
- EXISTING ICE BRIDGE TO BE RESUED
- 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)
- EXISTING METER SOCKET IS AVAILABLE 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:	GLOBAL SIGNAL ACQUISITION
ADDRESS:	PO BOX 277455 ATLANTA, GA 30384-7455
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	876335
TOWER APP NUMBER:	556606
COUNTY:	HARTFORD
LATITUDE (NAD 83):	41° 42' 56.94" N 41.715806 N
LONGITUDE (NAD 83):	-72° 48' 37.42" W -72.810389 W
ZONING JURISDICTION:	HARTFORD COUNTY
ZONING DISTRICT:	PR
PARCEL NUMBER:	TBD
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	EVERSOURCE
TELEPHONE COMPANY:	TBD

PROJECT DIRECTORY

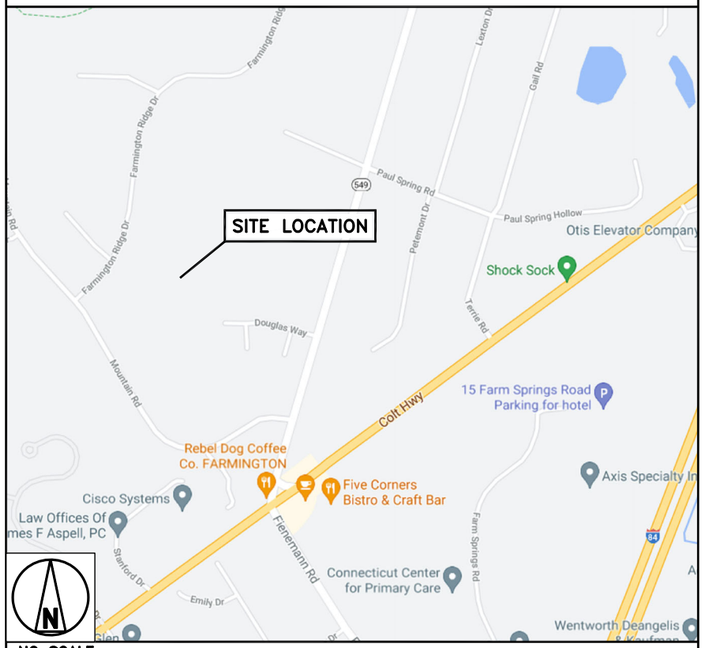
APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317 (877) 486-9377
SITE DESIGNER:	INFINIGY 2500 W. HIGGINS RD. STE. 500 HOFFMAN ESTATES, IL 60169 (847) 648-4068
SITE ACQUISITION:	JEANNE CONTTRELL (203) 927-4317
CONSTRUCTION MANAGER:	JAVIER SOTO (617) 839-6514
RF ENGINEER:	BOSSENER CHARLES BOSSENER.CHARLES@DISH.COM

DIRECTIONS

DIRECTIONS FROM TOURS OF DISTINCTION AIRPORT:

DEPART AND HEAD TOWARD MASSACO ST,TURN RIGHT ONTO MASSACO ST,TURN RIGHT ONTO US-202 W / CT-10 / HOPMEADOW ST,TURN LEFT ONTO DRAKE HILL RD,TURN RIGHT ONTO RIVERSIDE RD,BEAR RIGHT ONTO E WEATOGUE ST,TURN RIGHT ONTO CT-185 / HARTFORD RD, THEN IMMEDIATELY TURN LEFT ONTO NOD RD,BEAR RIGHT ONTO CT-10 / WATERVILLE RD,TURN LEFT ONTO CT-4 / FARMINGTON AVE,KEEP RIGHT, HEADING TOWARD SOUTH RD,TURN RIGHT ONTO SOUTH RD,TURN RIGHT ONTO BIRDSEYE RD,TURN RIGHT,ARRIVE AT 3 A BIRDSEYE ROAD,FARMINGTON, CT 06030

VICINITY MAP



NO SCALE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

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PHONE: 847-648-4068 | FAX: 518-690-0793
WWW.INFINIGY.COM

STATE OF CONNECTICUT
FUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
7/22/2021

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	06/09/2021	ISSUED FOR REVIEW
0	07/21/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

6039-Z0001C

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00087A
3 A BIRDSEYE ROAD
FARMINGTON, CT 06030

SHEET TITLE

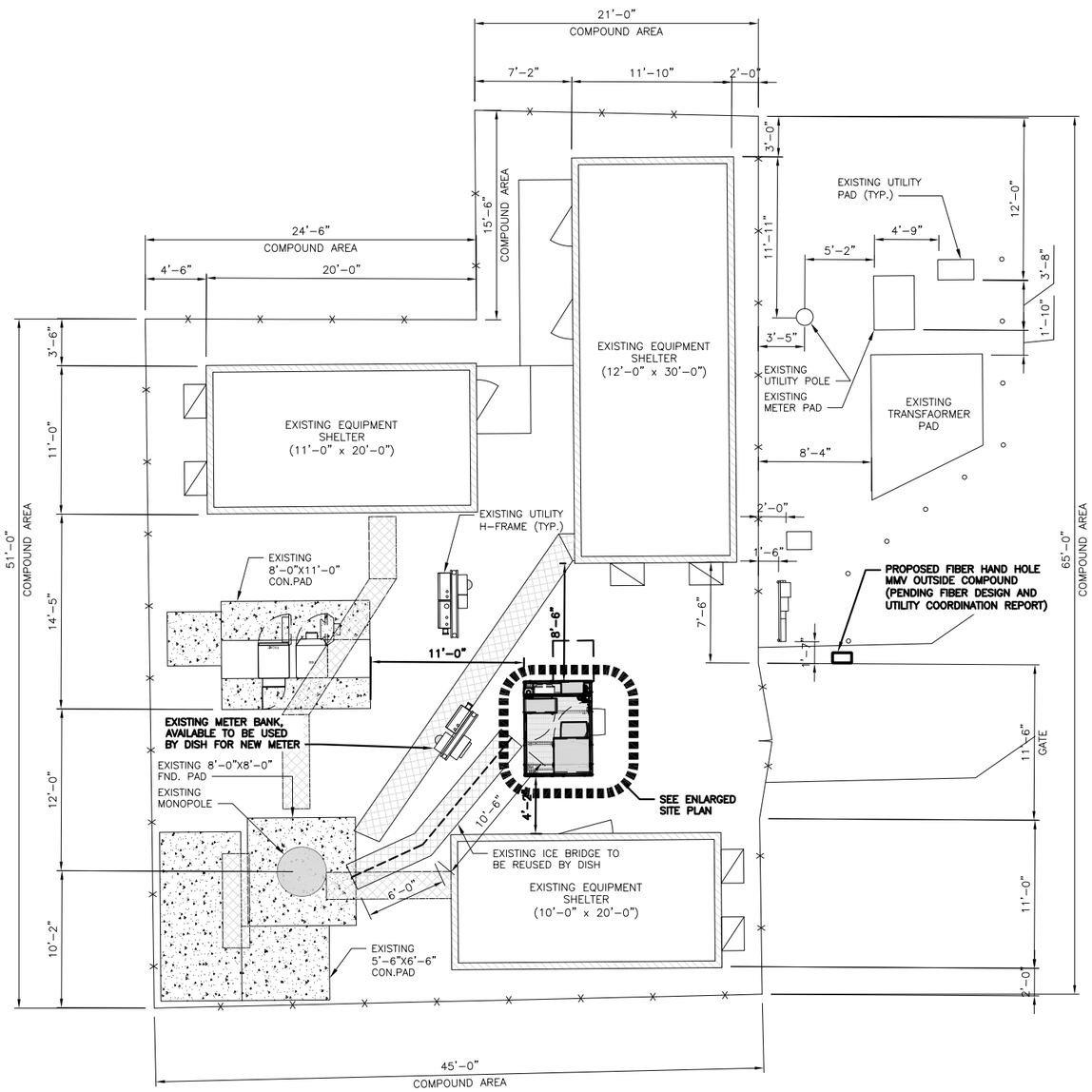
TITLE SHEET

SHEET NUMBER

T-1

NOTES

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



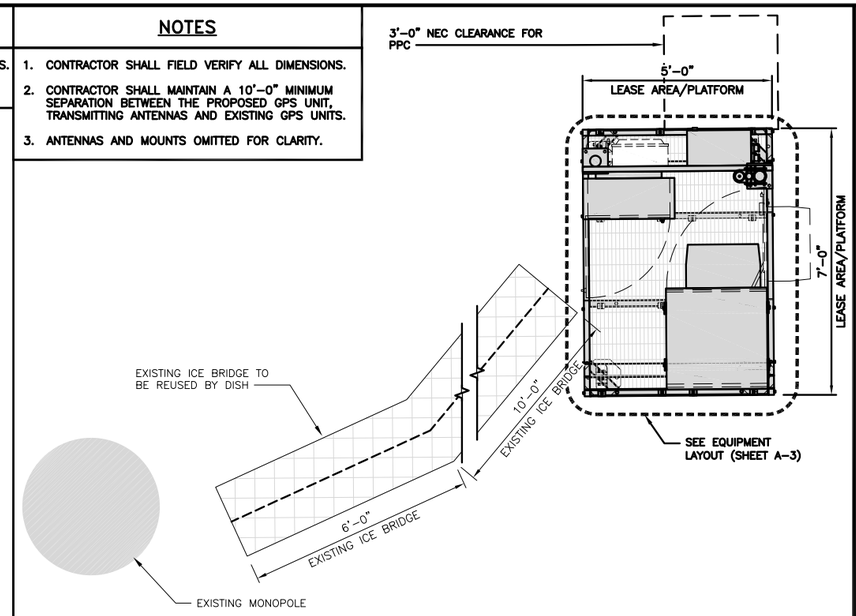
COMPOUND PLAN

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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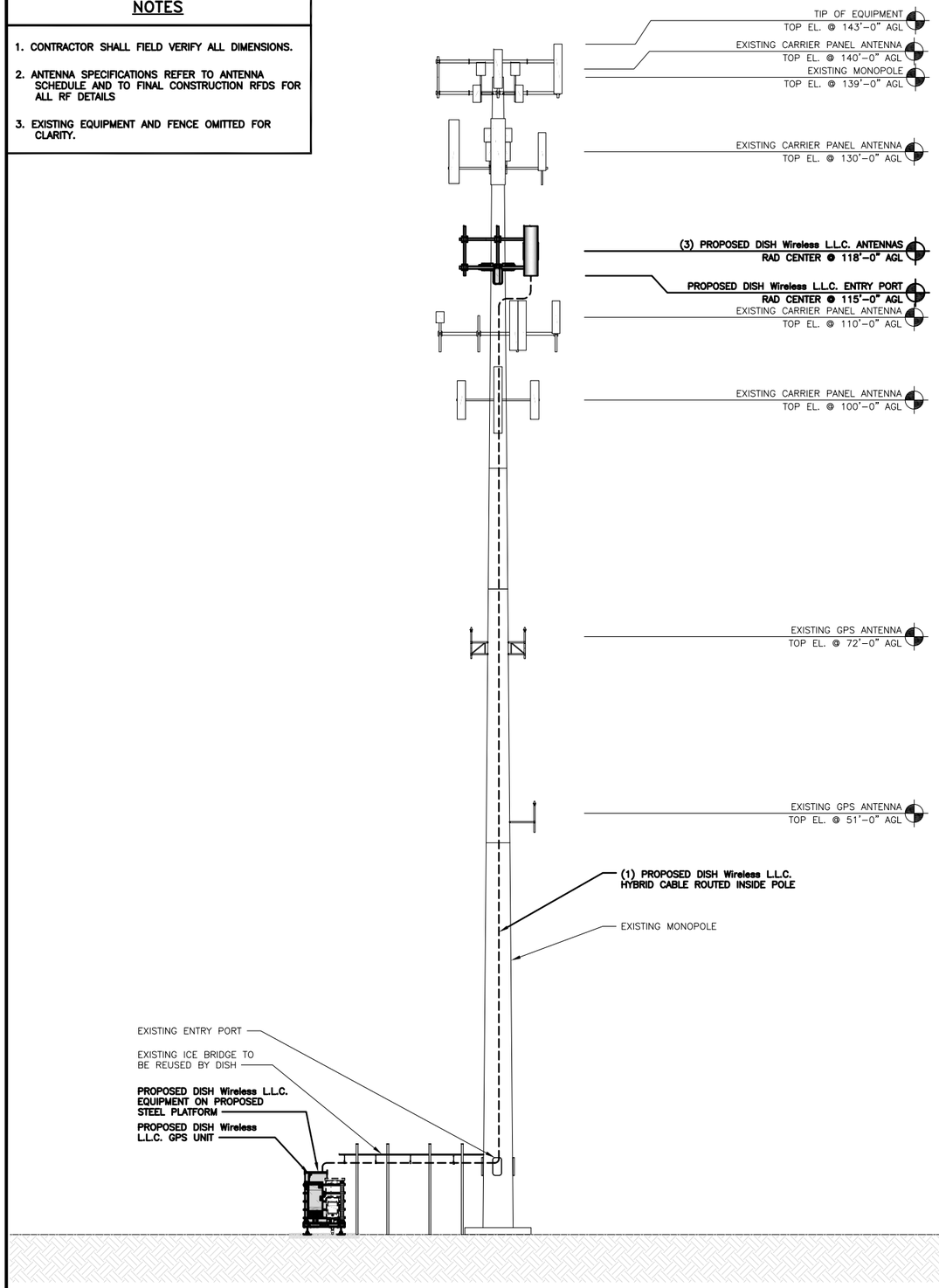
PROJECT INFORMATION
BOBDL00087A
3 A BIRDSEYE ROAD
FARMINGTON, CT 06030

SHEET TITLE
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER
A-1

NOTES

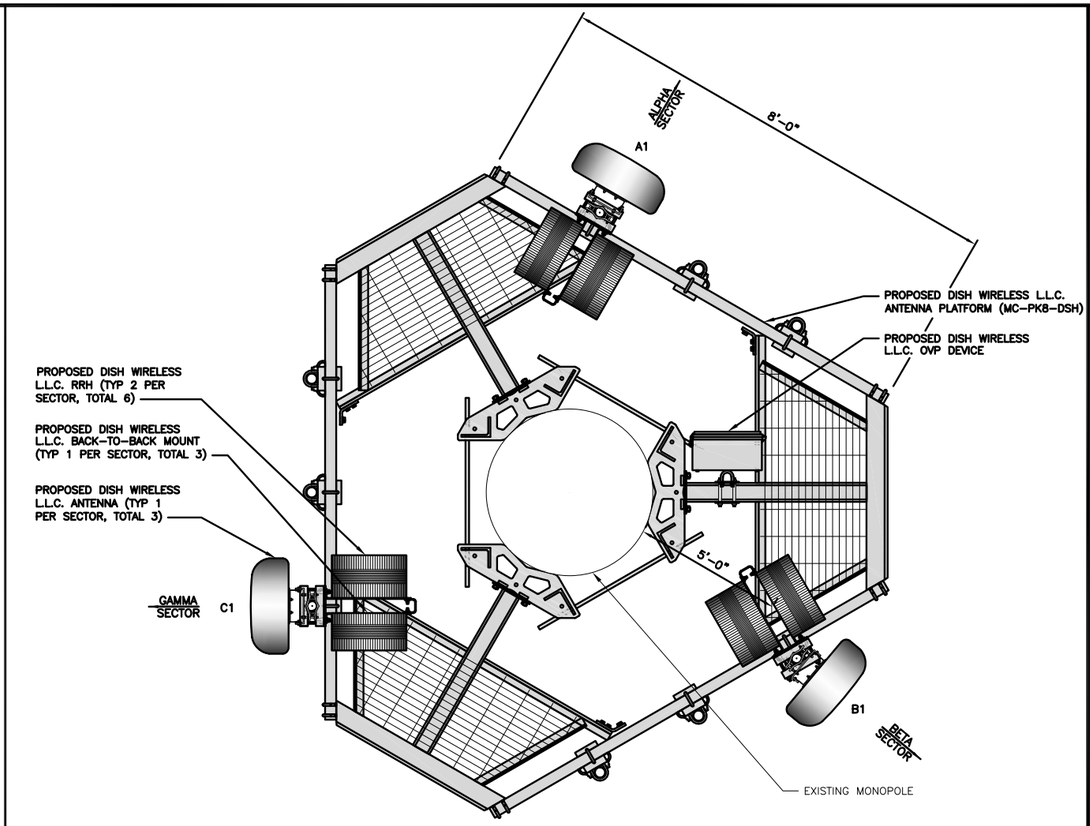
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED EAST ELEVATION

8' 4' 0 8' 16'
1/8"=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 – MX08FRO665-21	5G	72.0" x 20.0"	30°	118'-0"	(1) HIGH-CAPACITY HYBRID CABLE (150' LONG)
BETA	B1	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	72.0" x 20.0"	130°	118'-0"	
GAMMA	C1	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	72.0" x 20.0"	270°	118'-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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LITTLETON, CO 80120

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

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DISH Wireless L.L.C.
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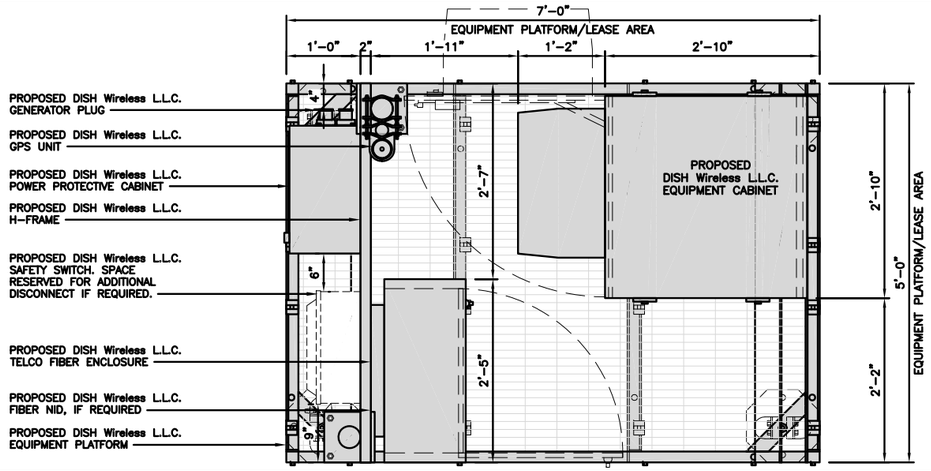
FARMINGTON, CT 06030

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2



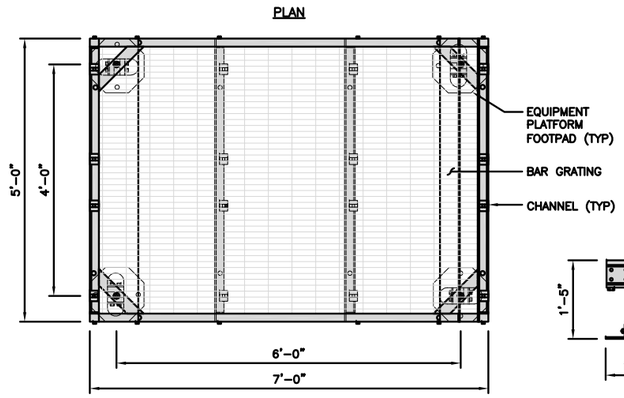
PLATFORM EQUIPMENT PLAN

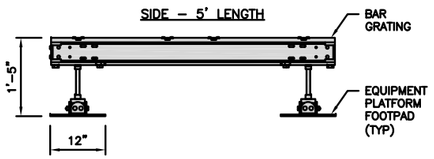
12" 9" 6" 3" 0 1' 2'
1"=1'-0"

1

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

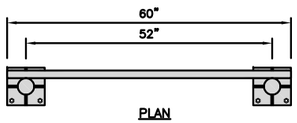
NOTE:
GC TO PROVIDE EXTENDED THREAD FOR PLATFORM IF REQUIRED HEIGHT EXCEEDS 17"

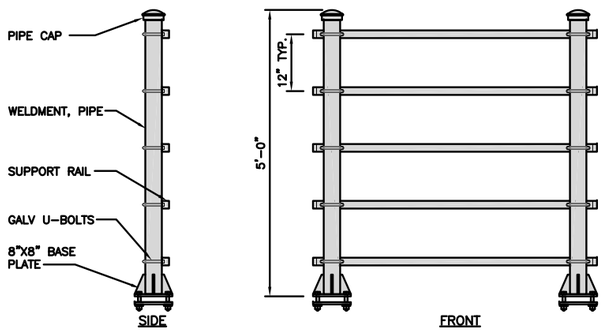




PLATFORM DETAIL | NO SCALE | 2

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



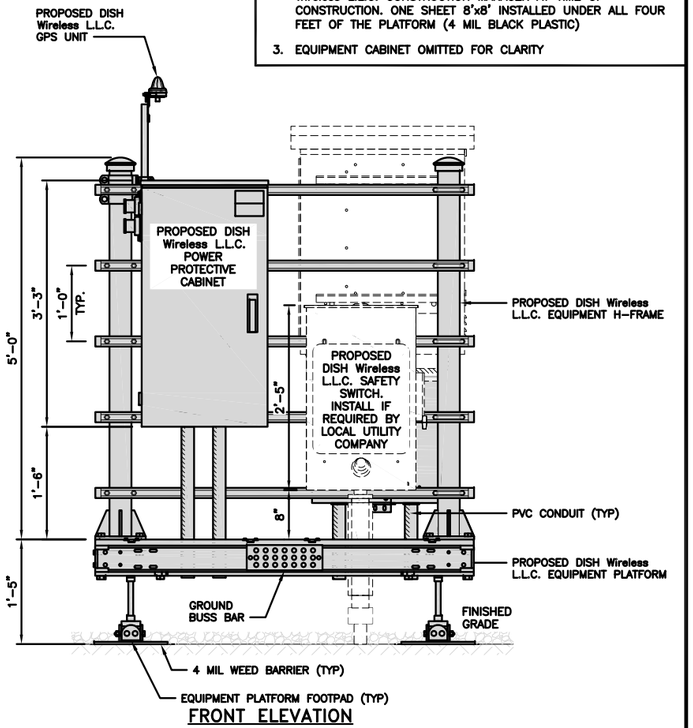


H-FRAME DETAIL | NO SCALE | 3

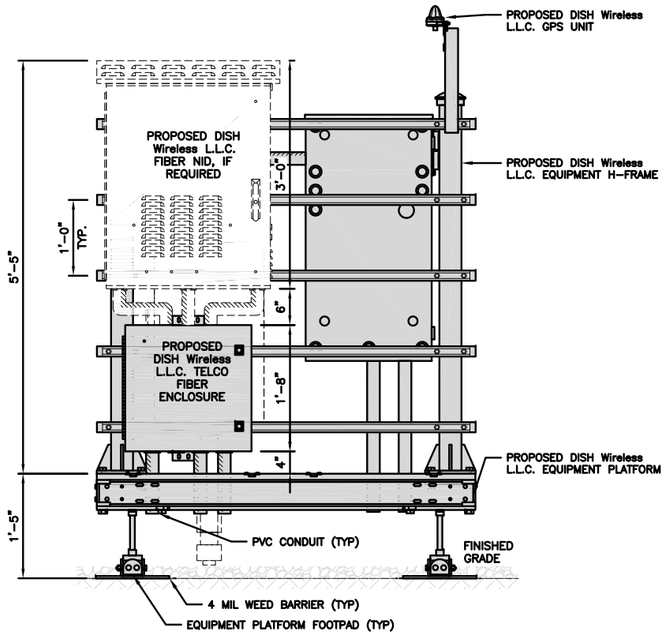
NOT USED | NO SCALE | 4

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 L.L.C. CONSTRUCTION MANAGER AT TIME OF CONSTRUCTION. ONE SHEET 8'x8' INSTALLED UNDER ALL FOUR FEET OF THE PLATFORM (4 MIL BLACK PLASTIC)
3. EQUIPMENT CABINET OMITTED FOR CLARITY



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
SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
7/22/2021

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	06/09/2021	ISSUED FOR REVIEW
0	07/21/2021	ISSUED FOR CONSTRUCTION

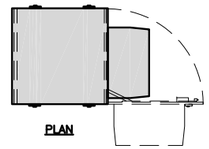
A&E PROJECT NUMBER
6039-Z0001C

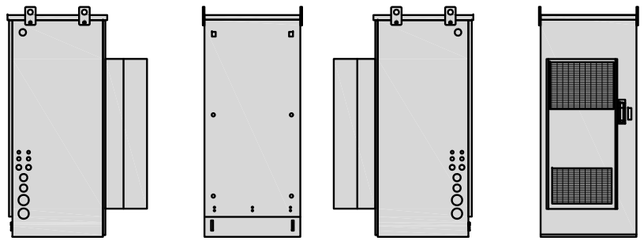
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00087A
3 A BIRDSEYE ROAD
FARMINGTON, CT 06030

SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-3

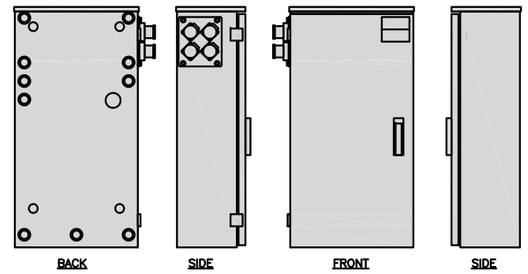
CHARLES INDUSTRY HEX CUBE–PM639155N4	
DIMENSIONS (HxWxD):	74"x32"x32"
POWER PLANT:	–48VDC ABB/600W
TOTAL WEIGHT (EMPTY)	408 LBS





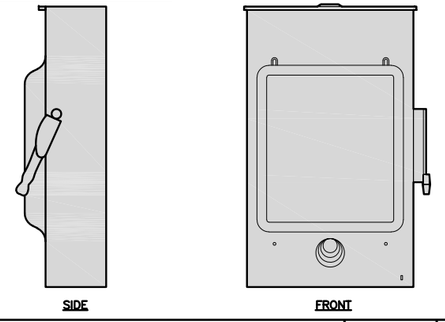
CABINET DETAIL | NO SCALE | 1

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



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

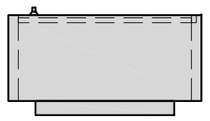
SQUARE D SAFETY SWITCHES D224NRB	
ENCLOSURE DIM (HxWxD)	29.25"x19.00"x8.50"
ENCLOSURE TYPE	NEMA 3R RAINPROOF
UL LISTED	FILE E–2875

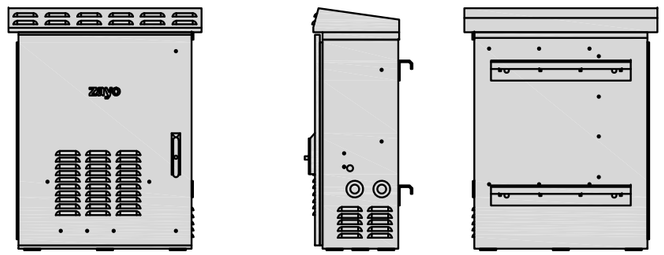


SAFETY SWITCH DETAIL | NO SCALE | 3

NOT USED | NO SCALE | 4

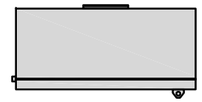
ZAYO 5RU CABINET LEFT SWING DOOR ("LIT" SITES)	
DIMENSIONS (HxWxD)	36.115"x29"x12.9"
WEIGHT	85 LBS
POWER INPUT	20A, –48VDC





NETWORK INTERFACE UNIT DETAIL | NO SCALE | 5

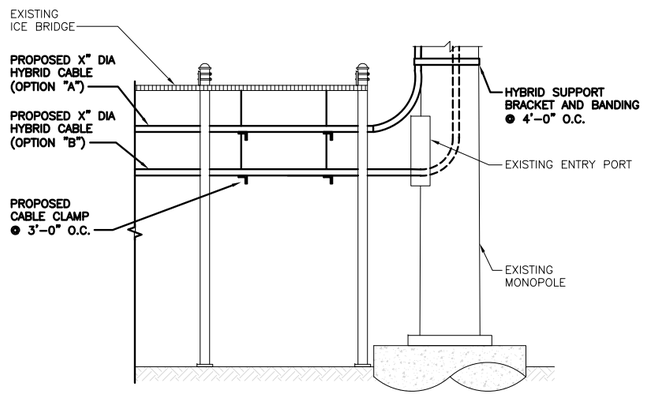
CHARLES CFIT–PF2020DSH1 FIBER TELCO ENCLOSURE	
ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4



FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

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DISH Wireless L.L.C.
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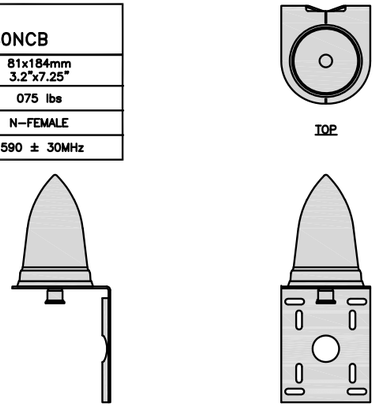
3 A BIRDSEYE ROAD
FARMINGTON, CT 06030

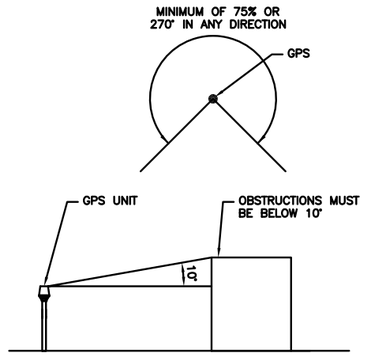
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

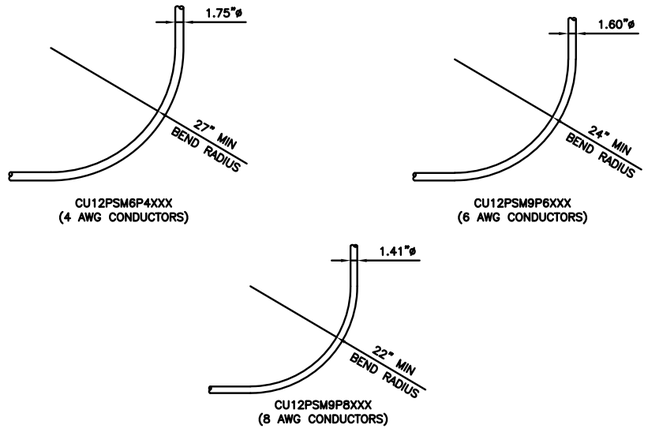
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



GPS DETAIL — NO SCALE — 1



GPS MINIMUM SKY VIEW REQUIREMENTS — NO SCALE — 2



CABLES UNLIMITED HYBRID CABLE MINIMUM BEND RADIUSES — NO SCALE — 3

NOT USED — NO SCALE — 4

NOT USED — NO SCALE — 5

NOT USED — NO SCALE — 6

NOT USED — NO SCALE — 7

NOT USED — NO SCALE — 8

NOT USED — NO SCALE — 9

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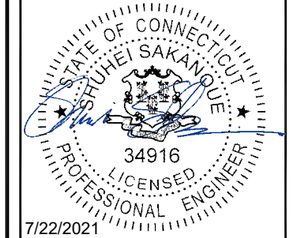

DRAWN BY:	CHECKED BY:	APPROVED BY:
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6039-Z0001C

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00087A
3 A BIRDSEYE ROAD
FARMINGTON, CT 06030

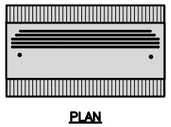
SHEET TITLE

EQUIPMENT DETAILS

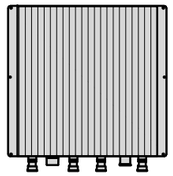
SHEET NUMBER

A-5

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



PLAN



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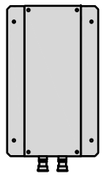
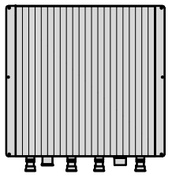


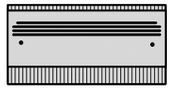
SIDE



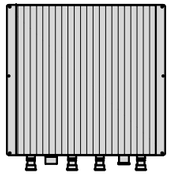
FRONT

RRH DETAIL | NO SCALE | 1

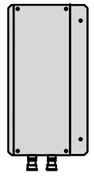
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



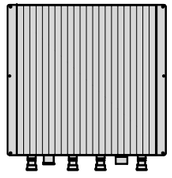
PLAN



BACK



SIDE

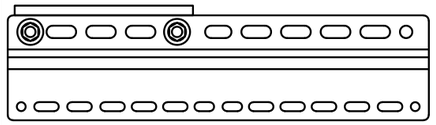


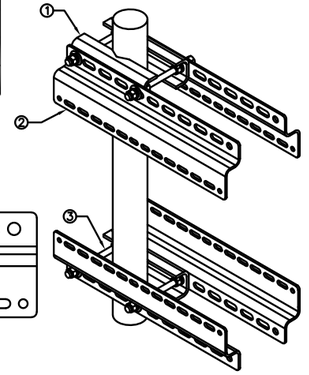
FRONT

RRH DETAIL | NO SCALE | 2

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

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



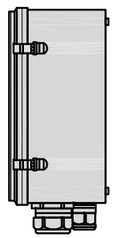


NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

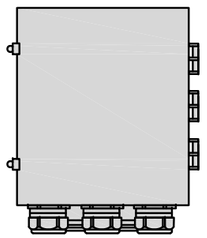
RRH MOUNT DETAIL | NO SCALE | 3

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

PLAN



SIDE



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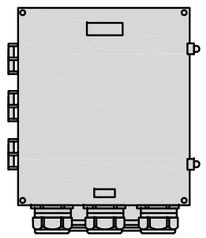
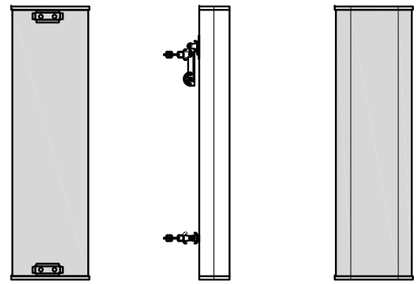


FRONT

SURGE SUPPRESSION DETAIL | NO SCALE | 4

JMA WIRELESS MX08FRO665-21 ANTENNA	
DIMENSIONS (HxWxD)	72.0"x20.0"x8.0"
TOTAL WEIGHT	54 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE

PLAN

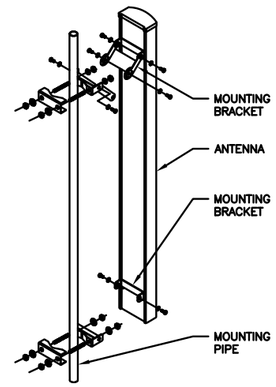


NOTES

FINAL ANTENNA SPECIFICATIONS TO BE CONFIRMED BY GC

ANTENNA DETAIL | NO SCALE | 5

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



NOTE:
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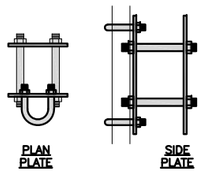
ANTENNA MOUNTING DETAIL | NO SCALE | 6

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

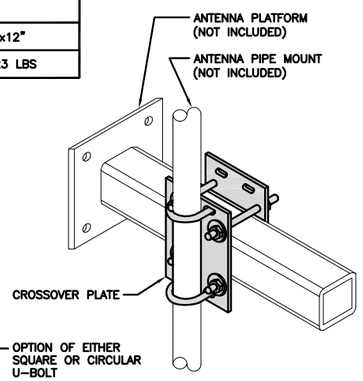


PLAN PLATE

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.	

NOTE:
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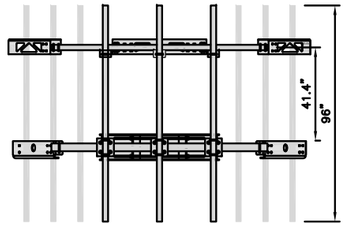

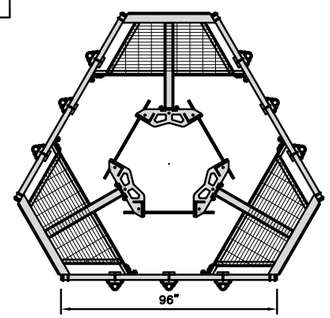

ANTENNA PLATFORM DETAIL | NO SCALE | 8

NOT USED | NO SCALE | 9

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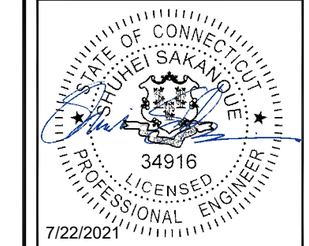

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RFDS REV #: N/A

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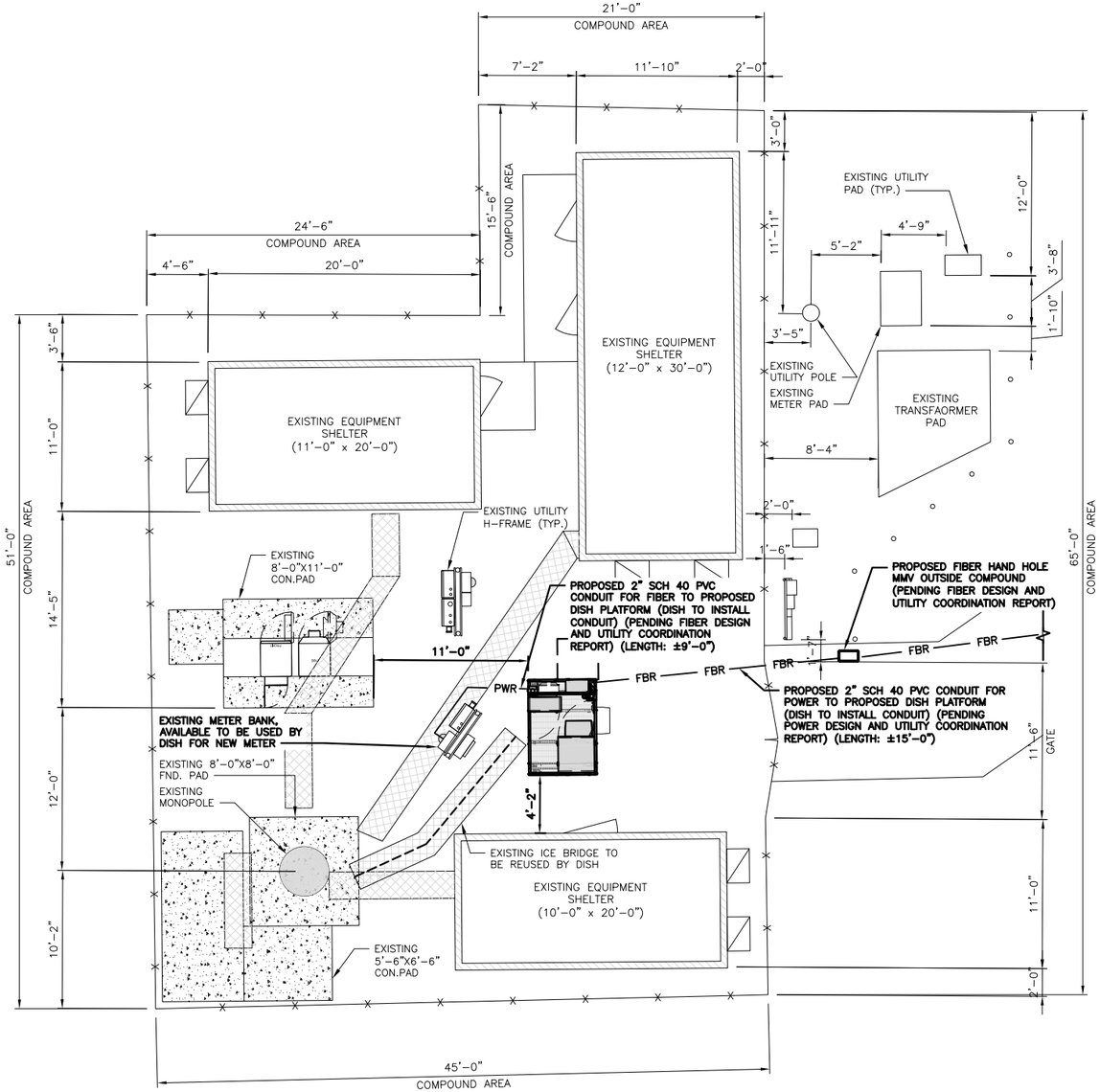
3 A BIRDSEYE ROAD
FARMINGTON, CT 06030

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.



N

UTILITY ROUTE PLAN

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

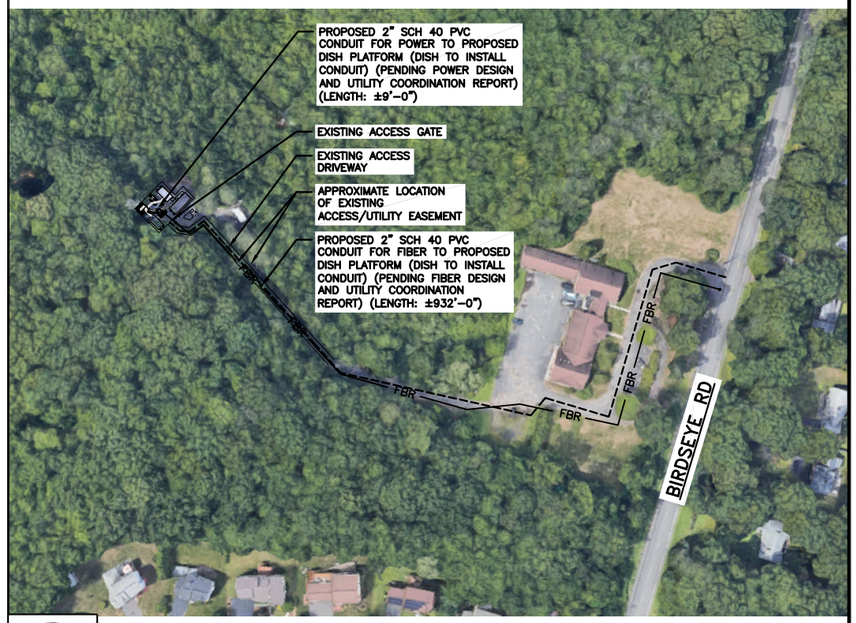
1

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

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

ELECTRICAL NOTES

2



N

OVERALL UTILITY ROUTE PLAN

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

3

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SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
7/22/2021

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

RFDS REV #: N/A

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A&E PROJECT NUMBER
6039-Z0001C

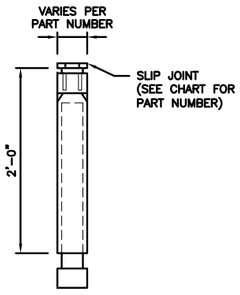
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00087A
3 A BIRDSEYE ROAD
FARMINGTON, CT 06030

SHEET TITLE
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER
E-1

CARLON EXPANSION FITTINGS

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

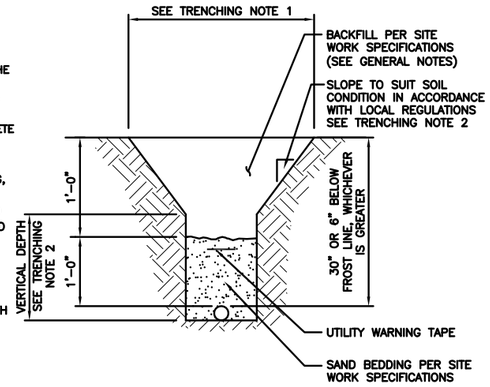


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

EXPANSION JOINT DETAIL | NO SCALE | 1

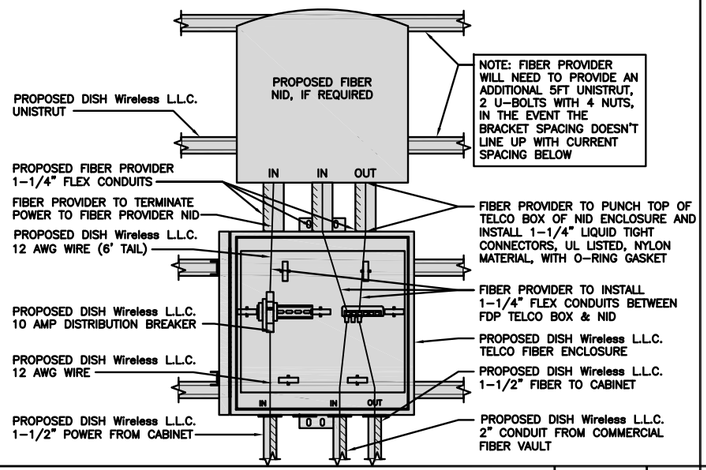
TRENCHING NOTES

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

NOT USED | NO SCALE | 3



LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL) | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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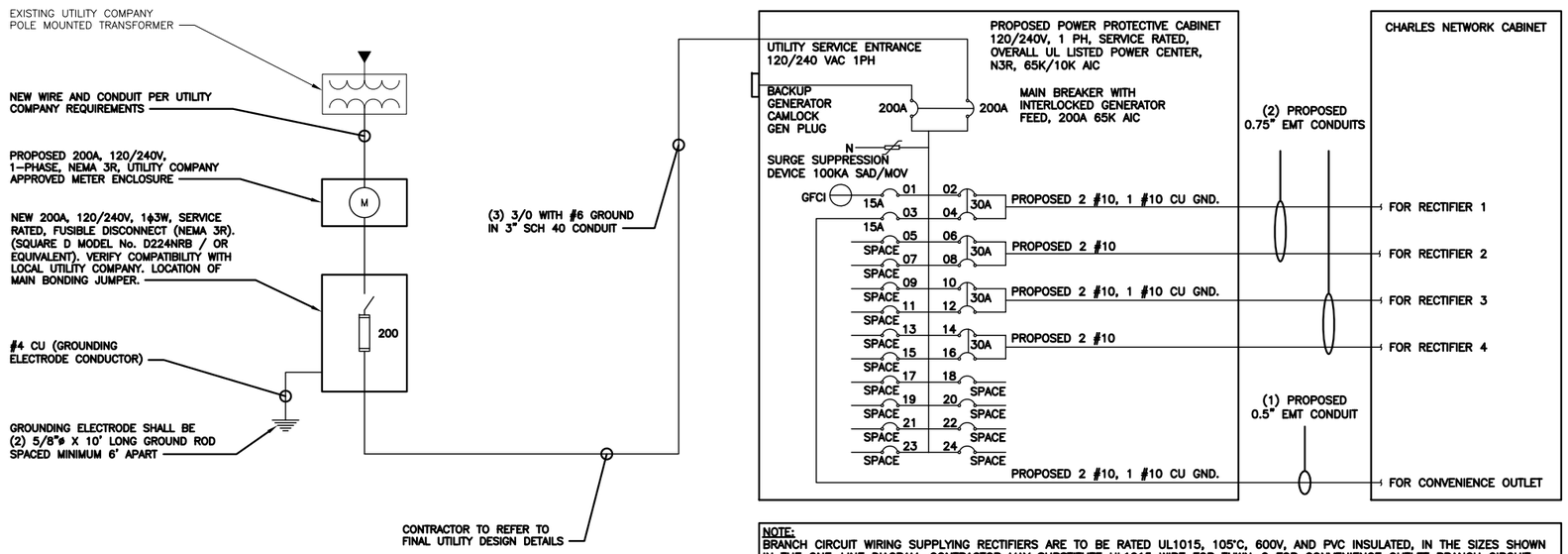
FARMINGTON, CT 06030

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2



NOTE:
BRANCH CIRCUIT WIRING SUPPLYING RECTIFIERS ARE TO BE RATED UL1015, 105°C, 600V, AND PVC INSULATED, IN THE SIZES SHOWN IN THE ONE-LINE DIAGRAM. CONTRACTOR MAY SUBSTITUTE UL1015 WIRE FOR THWN-2 FOR CONVENIENCE OUTLET BRANCH CIRCUIT.

BREAKERS REQUIRED:
(4) 30A, 2P BREAKER - SQUARE D P/N:QO230
(1) 15A, 1P BREAKER - SQUARE D P/N:QO115

NOTES

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

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

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

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

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

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

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

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

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

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

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

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

PPC ONE-LINE DIAGRAM

NO SCALE | 1

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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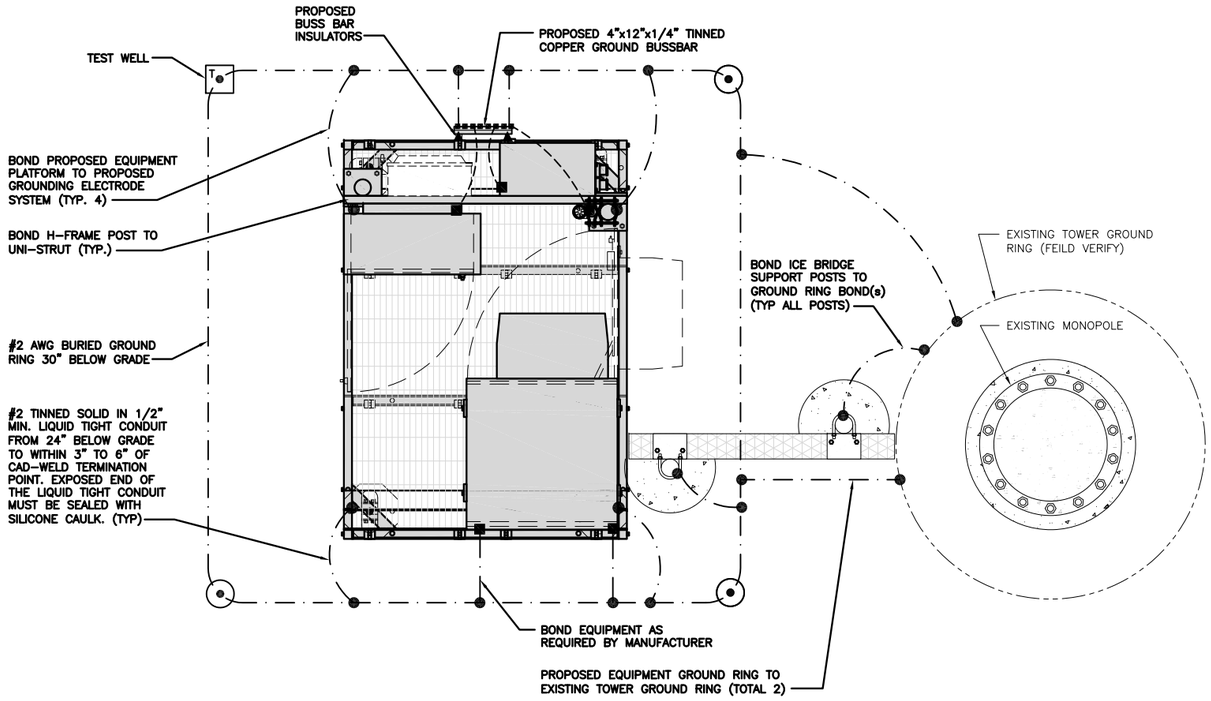
BOBDL00087A
3 A BIRDSEYE ROAD
FARMINGTON, CT 06030

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

SHEET NUMBER
E-3

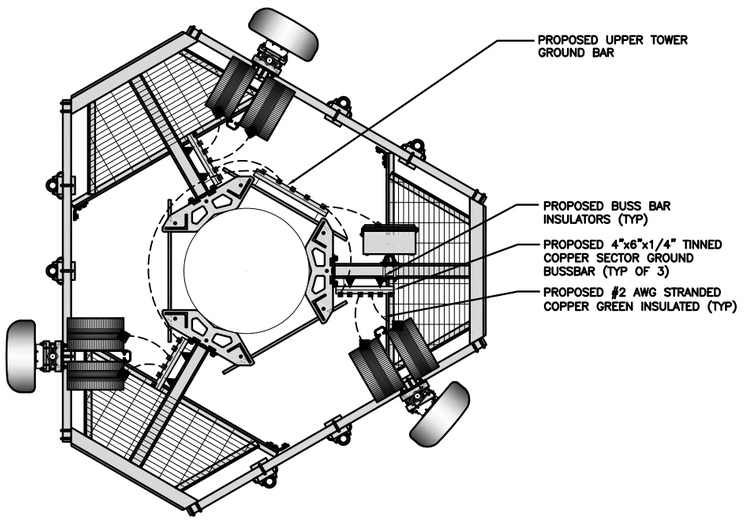


TYPICAL EQUIPMENT GROUNDING PLAN

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
#6 AWG STRANDED & INSULATED
#2 AWG SOLID COPPER TINNED
BUSS BAR INSULATOR

GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

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

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

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

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

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

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

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

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

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

(K) INTERIOR UNIT BONDS: METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.

(L) FENCE AND GATE GROUNDING: METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.

(M) EXTERIOR UNIT BONDS: METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. USING #2 TINNED SOLID COPPER WIRE

(N) ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.

(O) DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR

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

REFER TO DISH Wireless L.L.C. GROUNDING NOTES.

GROUNDING KEY NOTES

NO SCALE | 3

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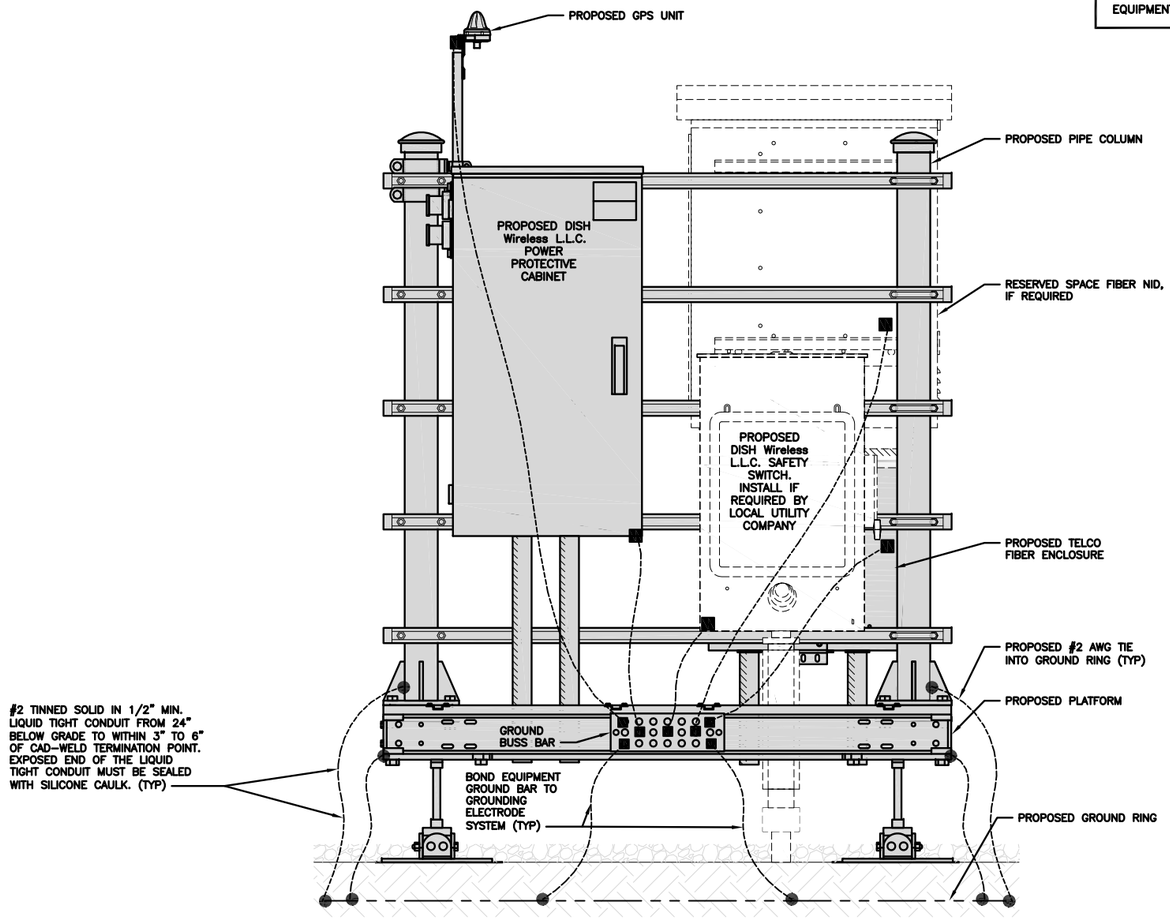
FARMINGTON, CT 06030

SHEET TITLE
GROUNDING PLANS AND NOTES

SHEET NUMBER
G-1

NOTES

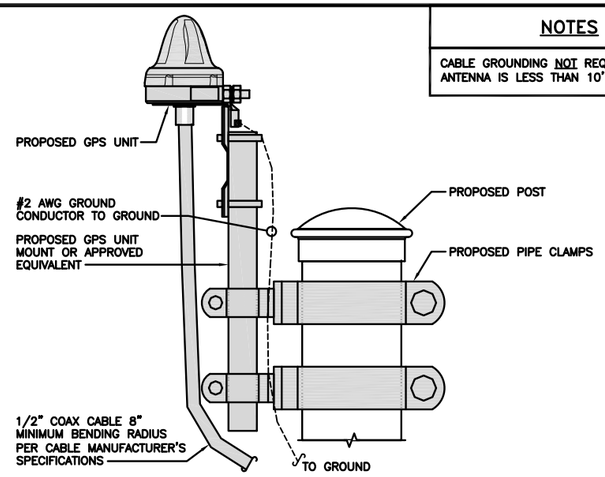
EQUIPMENT CABINET OMITTED FOR CLARITY



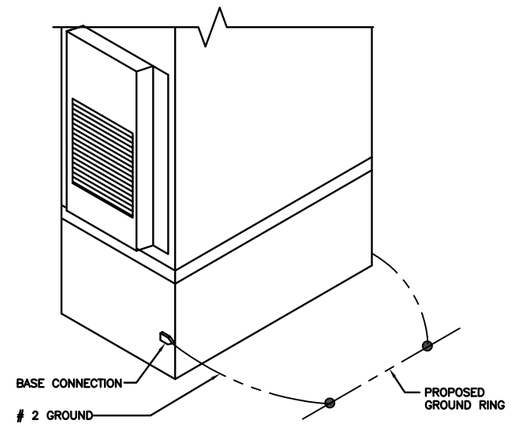
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

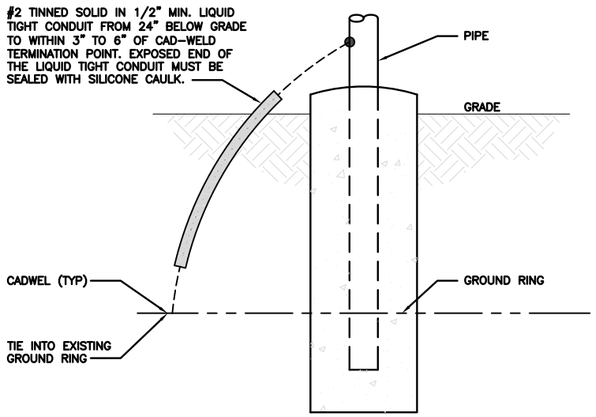
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



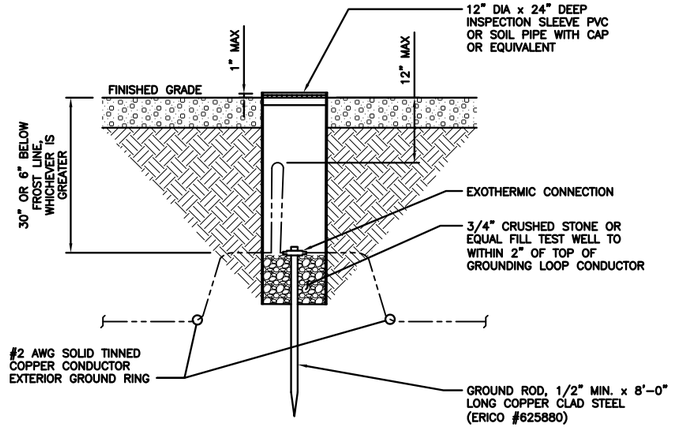
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



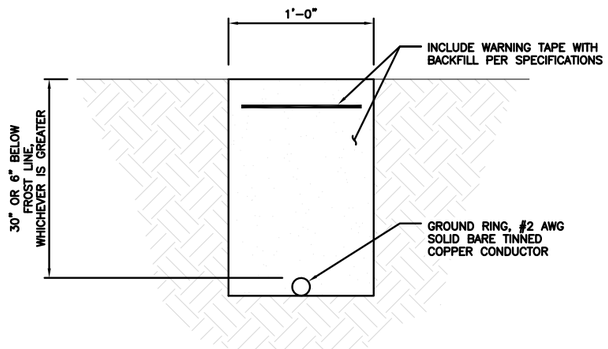
OUTDOOR CABINET GROUNDING | NO SCALE | 3



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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SHEET TITLE

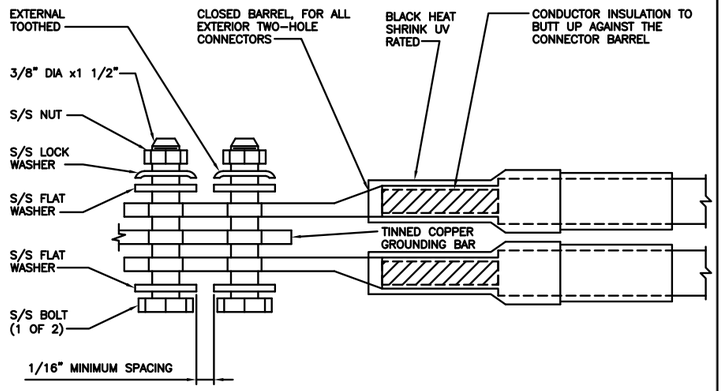
GROUNDING DETAILS

SHEET NUMBER

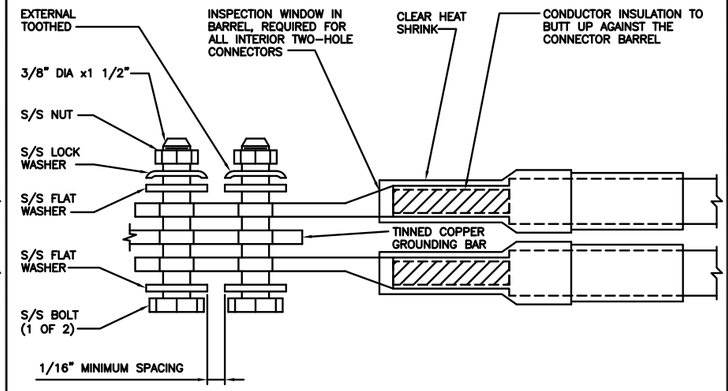
G-2

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).

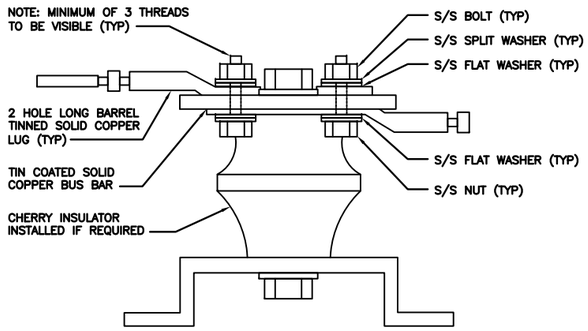
TYPICAL GROUNDING NOTES | NO SCALE | 1



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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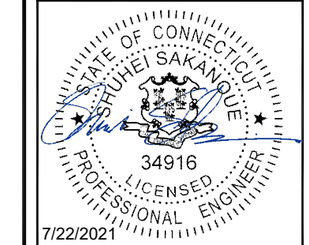

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

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REV	DATE	DESCRIPTION
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A&E PROJECT NUMBER
6039-Z0001C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00087A
3 A BIRDSEYE ROAD
FARMINGTON, CT 06030

SHEET TITLE
GROUNDING DETAILS

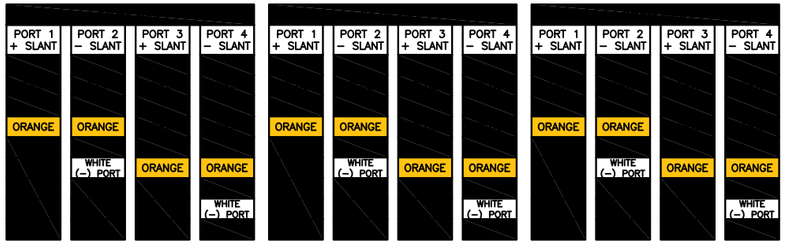
SHEET NUMBER
G-3

RF JUMPER COLOR CODING

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

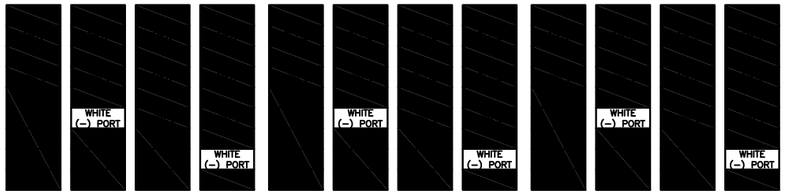
LOW-BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

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)

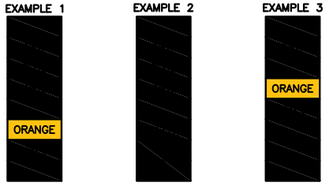


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED
ALONG WITH FREQUENCY BANDS

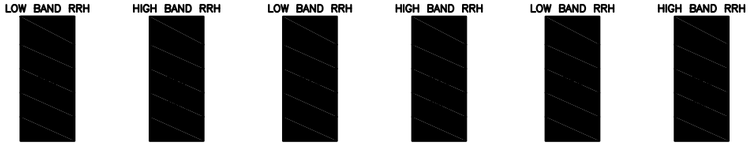
EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS
ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS

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



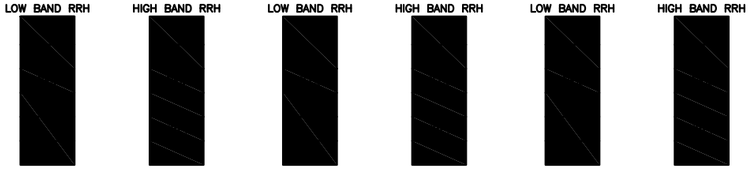
FIBER JUMPERS TO RRHs

LOW-BAND RRH FIBER CABLES HAVE SECTOR
STRIPE ONLY

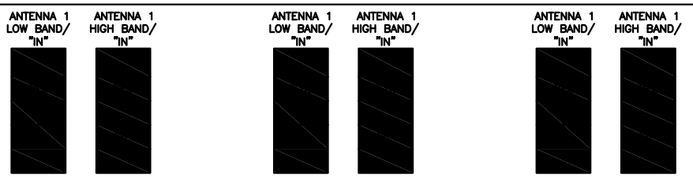


POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY



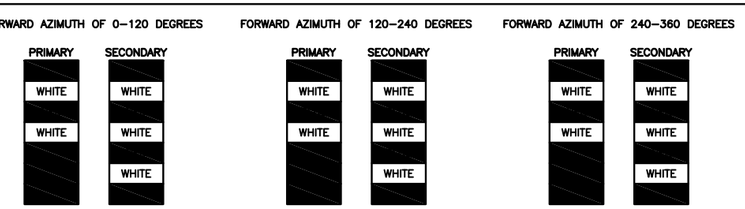
RET MOTORS AT ANTENNAS



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 CABLES 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+N26)
OPTIONAL – (N29)
ORANGE

AWS
(N66+N70+H-BLOCK)

CBRS TECH
(3 GHz)

NEGATIVE SLANT PORT
ON ANT/RRH
WHITE

ALPHA SECTOR

BETA SECTOR

GAMMA SECTOR

COLOR IDENTIFIER	NO SCALE	2

NOT USED	NO SCALE	3

NOT USED	NO SCALE	4

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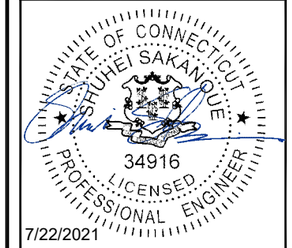

7/22/2021

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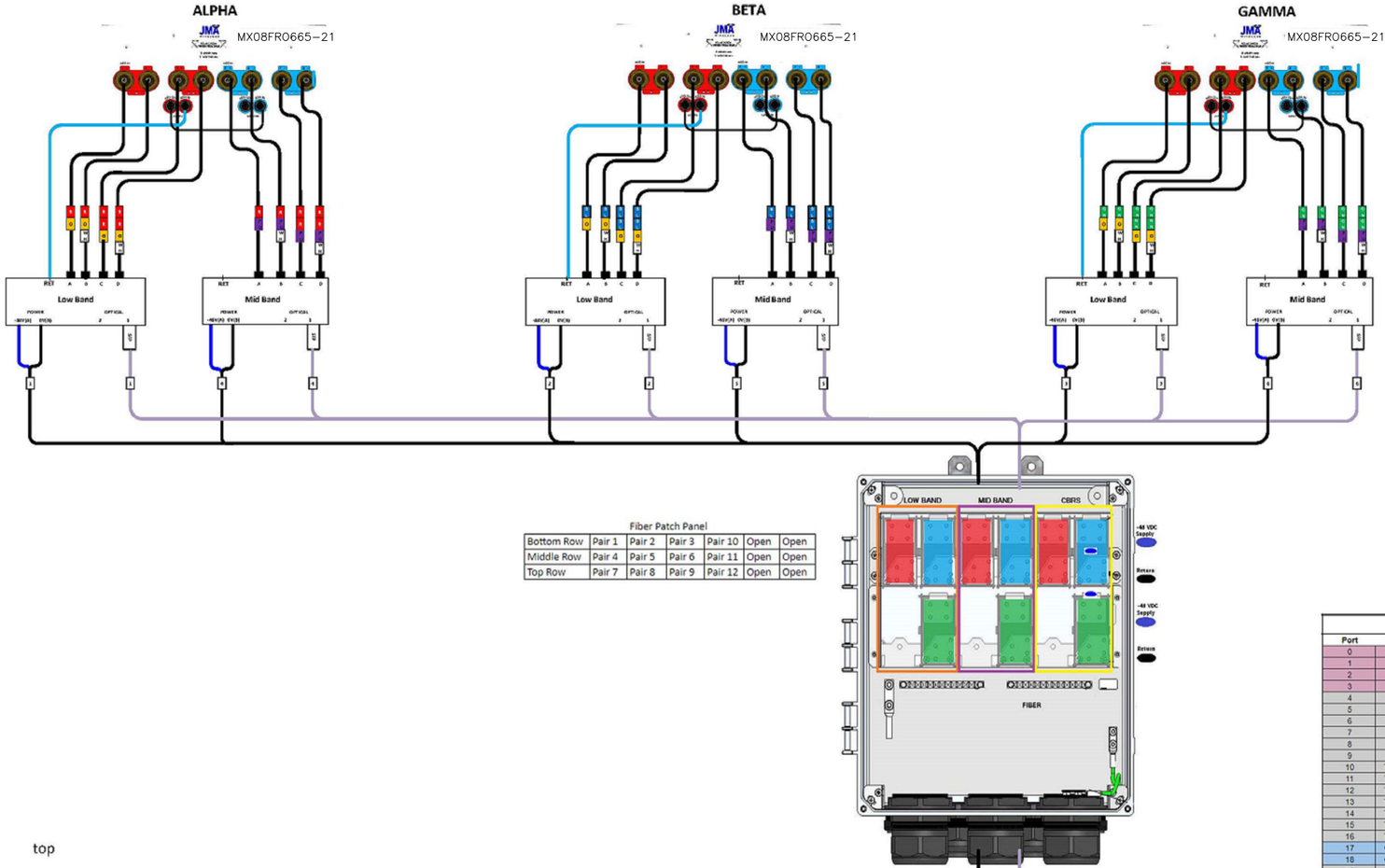
SHEET TITLE

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

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	Te0/0/0/19	SM1 - Data 1
20	Te0/0/0/20	SM1 - Data 2
21	Te0/0/0/21	SM2 - Data 1
22	Te0/0/0/22	SM2 - Data 2
23	Te0/0/0/23	Reserved Uplink (EDC, LDC)
24	Te0/0/0/24	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

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

Bottom OVP
Specific OVP model number detailed in RFDS

Quan Liu	SIZE	FSCM NO	DWG NO	REV 3
9-Jan-2021	SCALE None		SHEET	

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

PLUMBING DIAGRAM

NO SCALE

1

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FUHEI SAKAGUE
34916
LICENSED PROFESSIONAL ENGINEER
7/22/2021

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FARMINGTON, CT 06030

SHEET TITLE
RF
PLUMBING DIAGRAM

SHEET NUMBER
RF-2

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

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

LEGEND

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

ABBREVIATIONS

dish wireless.

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FARMINGTON, CT 06030

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

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

2. "LOOK UP" – DISH Wireless L.L.C. AND TOWER OWNER SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR DISH Wireless L.L.C. AND DISH Wireless L.L.C. AND TOWER OWNER POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.

3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.

4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND DISH Wireless L.L.C. AND TOWER OWNER STANDARDS, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).

5. ALL SITE WORK TO COMPLY WITH DISH Wireless L.L.C. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH Wireless L.L.C. AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."

6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH Wireless L.L.C. AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.

10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.

11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.

12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF DISH Wireless L.L.C. AND TOWER OWNER, AND/OR LOCAL UTILITIES.

14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.

15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.

16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.

17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.

18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS AND RADIOS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1.FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH Wireless L.L.C.

TOWER OWNER:TOWER OWNER

2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.

3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.

4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.

5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.

6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CARRIER POC AND TOWER OWNER.

7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.

11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.

12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF DISH Wireless L.L.C. AND TOWER OWNER

13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

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STATE OF CONNECTICUT
SHUHEI SAKAMOTO
34916
LICENSED PROFESSIONAL ENGINEER
7/22/2021

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	06/09/2021	ISSUED FOR REVIEW
0	07/21/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

6039–Z0001C

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00087A
3 A BIRDSEYE ROAD
FARMINGTON, CT 06030

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 L.L.C. AND TOWER OWNER BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

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

29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH Wireless L.L.C.".

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

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STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED PROFESSIONAL ENGINEER
7/22/2021

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	06/09/2021	ISSUED FOR REVIEW
0	07/21/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

6039-Z0001C

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00087A
3 A BIRDSEYE ROAD
FARMINGTON, CT 06030

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.

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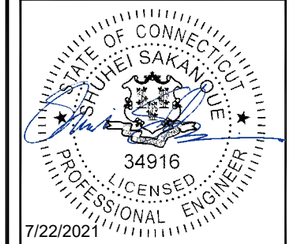

7/22/2021

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

RFDS REV #: N/A

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00087A
3 A BIRDSEYE ROAD
FARMINGTON, CT 06030

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

Exhibit D

Structural Analysis Report

Date: **June 04, 2021**

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***DISH Network* Co-Locate**	
	Site Number:	BOBDL00087A
	Site Name:	CT-CCI-T-876335
Crown Castle Designation:	**BU Number:**	876335
	Site Name:	EAST FARMINGTON
	JDE Job Number:	650077
	Work Order Number:	1966236
	Order Number:	556606 Rev. 1
Engineering Firm Designation:	**Crown Castle Project Number:**	1966236
Site Data:	**3 A Birdseye Road, Farmington, Hartford County, CT** **Latitude *41° 42' 56.94"*, Longitude *-72° 48' 37.42"*** **140 Foot - Monopole Tower**	

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

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

LC7: Proposed Equipment Configuration **Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - ''Analysis Criteria''.

Structural analysis prepared by: Randall Ashworth, EIT

Respectfully submitted by:

Digitally signed by Maham Barimani
Date: 2021.06.04 17:47:59 -04'00'

STATE OF CONNECTICUT
MAHAM BARIMANI
30501
LICENSED
PROFESSIONAL ENGINEER

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1) INTRODUCTION

This tower is a 140 ft Monopole tower designed by Summit. 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:	125 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	2 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
118.0	118.0	3	fujitsu	TA08025-B604	1	1-1/2
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-PK8-DSH		

Table 2 - 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)
139.0	140.0	3	alcatel lucent	TD-RRH8x20-25	3	1-1/4
		3	rfs celwave	APXV9ERR18-C-A20		
		3	rfs celwave	APXVTM14-C-120		
	139.0	1	tower mounts	Platform Mount [LP 1201-1_HR-3]		
137.0	140.0	3	alcatel lucent	TME-800MHz 2X50W RRH W/FILTER	-	-
	137.0	3	alcatel lucent	TME-PCS 1900MHz 4x45W-65MHz		
		1	tower mounts	Pipe Mount [PM 601-3]		
130.0	130.0	3	ericsson	RRUS 11	-	-
		3	ericsson	RRUS 32 B2		
		1	tower mounts	Pipe Mount [PM 601-3]		
128.0	130.0	2	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe	3 6 9 1	3/8 3/4 7/8 2" Conduit
		1	cci antennas	HPA-65R-BUU-H8 w/ Mount Pipe		
		3	ericsson	RRUS 32 B30		
		3	ericsson	RRUS 4426 B66		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		3	ericsson	RRUS 4478 B5		
		3	kmw communications	EPBQ-654L8H8-L2 w/ Mount Pipe		
		3	powerwave technologies	7770.00 w/ Mount Pipe		
		2	raycap	DC6-48-60-18-8C		
	128.0	6	powerwave technologies	LGP21401		
		1	raycap	DC6-48-60-18-8F		
		1	tower mounts	T-Arm Mount [TA 602-3]		
108.0	110.0	1	rfs celwave	DB-T1-6Z-8AB-0Z	8	1-5/8
		3	samsung telecommunications	20W CBRS		
		3	samsung telecommunications	RFV01U-D1A		
		3	samsung telecommunications	RFV01U-D2A		
		3	samsung telecommunications	CBRS w/ Mount Pipe		
		3	antel	BXA-70063-4CF-EDIN-X w/ Mount Pipe		
	109.0	6	andrew	SBNHH-1D65B w/ Mount Pipe		
	108.0	1	tower mounts	Platform Mount [LP 304-1_KCKR]		
100.0	100.0	3	ericsson	AIR 32 B2A/B66AA w/ Mount Pipe	11 1 1	7/8 1-3/8 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		
		1	tower mounts	T-Arm Mount [TA 602-3]		
70.0	72.0	2	lucent	KS24019-L112A	2	5/16
	70.0	2	tower mounts	Side Arm Mount [SO 701-1]		
49.0	51.0	1	lucent	KS24019-L112A	1	1/2
	49.0	1	tower mounts	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	1531892	CCISITES
4-POST-MODIFICATION INSPECTION	5400317	CCISITES
4-POST-MODIFICATION INSPECTION	4836434	CCISITES
4-POST-MODIFICATION INSPECTION	3413367	CCISITES
4-POST-MODIFICATION INSPECTION	2397526	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1440555	CCISITES
4-TOWER MANUFACTURER DRAWINGS	1615361	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	4456376	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	3672042	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	3262310	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	2397525	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)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L1	140 - 135	Pole	TP17.025x16x0.25	Pole	5.3%	Pass
L2	135 - 130	Pole	TP18.05x17.025x0.25	Pole	10.2%	Pass
L3	130 - 125	Pole	TP19.075x18.05x0.25	Pole	20.6%	Pass
L4	125 - 120	Pole	TP20.099x19.075x0.25	Pole	29.4%	Pass
L5	120 - 115	Pole	TP21.124x20.099x0.25	Pole	38.9%	Pass
L6	115 - 110	Pole	TP22.149x21.124x0.25	Pole	48.0%	Pass
L7	110 - 105	Pole	TP23.174x22.149x0.25	Pole	58.7%	Pass
L8	105 - 102	Pole	TP23.789x23.174x0.25	Pole	64.5%	Pass
L9	102 - 101.75	Pole + Reinf.	TP23.84x23.789x0.3875	Reinf. 12 Tension Rupture	57.4%	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L10	101.75 - 96.75	Pole + Reinf.	TP24.865x23.84x0.375	Reinf. 12 Tension Rupture	66.4%	Pass
L11	96.75 - 95	Pole + Reinf.	TP25.89x24.865x0.375	Reinf. 12 Tension Rupture	69.5%	Pass
L12	95 - 90.75	Pole + Reinf.	TP25.595x24.724x0.3563	Pole	60.0%	Pass
L13	90.75 - 85.75	Pole + Reinf.	TP26.62x25.595x0.3563	Pole	65.4%	Pass
L14	85.75 - 85.33	Pole + Reinf.	TP26.706x26.62x0.3563	Pole	65.8%	Pass
L15	85.33 - 85.08	Pole + Reinf.	TP26.757x26.706x0.55	Reinf. 11 Tension Rupture	59.3%	Pass
L16	85.08 - 82.5	Pole + Reinf.	TP27.287x26.757x0.5438	Reinf. 11 Tension Rupture	61.7%	Pass
L17	82.5 - 82.25	Pole + Reinf.	TP27.338x27.287x0.5375	Reinf. 11 Tension Rupture	61.9%	Pass
L18	82.25 - 82	Pole + Reinf.	TP27.389x27.338x0.5375	Reinf. 11 Tension Rupture	62.1%	Pass
L19	82 - 81.75	Pole + Reinf.	TP27.44x27.389x0.3563	Pole	69.4%	Pass
L20	81.75 - 78.83	Pole + Reinf.	TP28.038x27.44x0.3563	Pole	72.2%	Pass
L21	78.83 - 78.58	Pole + Reinf.	TP28.09x28.038x0.6125	Reinf. 11 Tension Rupture	60.7%	Pass
L22	78.58 - 77.67	Pole + Reinf.	TP28.277x28.09x0.6125	Reinf. 11 Tension Rupture	61.5%	Pass
L23	77.67 - 77.42	Pole + Reinf.	TP28.329x28.277x0.55	Reinf. 8 Tension Rupture	65.9%	Pass
L24	77.42 - 77.17	Pole + Reinf.	TP28.38x28.329x0.55	Reinf. 8 Tension Rupture	66.1%	Pass
L25	77.17 - 72.17	Pole + Reinf.	TP29.406x28.38x0.5375	Reinf. 8 Tension Rupture	69.9%	Pass
L26	72.17 - 67.17	Pole + Reinf.	TP30.431x29.406x0.525	Reinf. 8 Tension Rupture	73.3%	Pass
L27	67.17 - 66.58	Pole + Reinf.	TP30.551x30.431x0.525	Reinf. 8 Tension Rupture	73.7%	Pass
L28	66.58 - 66.33	Pole + Reinf.	TP30.602x30.551x0.625	Reinf. 8 Tension Rupture	62.2%	Pass
L29	66.33 - 66.17	Pole + Reinf.	TP30.636x30.602x0.625	Reinf. 8 Tension Rupture	62.3%	Pass
L30	66.17 - 65.92	Pole + Reinf.	TP30.687x30.636x0.5125	Reinf. 3 Tension Rupture	72.3%	Pass
L31	65.92 - 62.67	Pole + Reinf.	TP31.354x30.687x0.5125	Reinf. 3 Tension Rupture	74.3%	Pass
L32	62.67 - 62.42	Pole + Reinf.	TP31.405x31.354x0.5125	Reinf. 3 Tension Rupture	74.5%	Pass
L33	62.42 - 60	Pole + Reinf.	TP31.901x31.405x0.5063	Reinf. 3 Tension Rupture	75.9%	Pass
L34	60 - 59.75	Pole + Reinf.	TP31.952x31.901x0.5	Reinf. 3 Tension Rupture	76.0%	Pass
L35	59.75 - 58.33	Pole + Reinf.	TP32.243x31.952x0.5	Reinf. 3 Tension Rupture	76.8%	Pass
L36	58.33 - 58.08	Pole + Reinf.	TP32.294x32.243x0.5	Reinf. 3 Tension Rupture	76.9%	Pass
L37	58.08 - 53.08	Pole + Reinf.	TP33.32x32.294x0.5	Reinf. 3 Tension Rupture	79.5%	Pass
L38	53.08 - 52.83	Pole + Reinf.	TP33.371x33.32x0.5	Reinf. 3 Tension Rupture	79.6%	Pass
L39	52.83 - 52.58	Pole + Reinf.	TP33.422x33.371x0.6875	Reinf. 3 Tension Rupture	58.6%	Pass
L40	52.58 - 51.42	Pole + Reinf.	TP33.661x33.422x0.6875	Reinf. 3 Tension Rupture	59.1%	Pass
L41	51.42 - 51.17	Pole + Reinf.	TP33.713x33.661x0.5063	Reinf. 7 Tension Rupture	74.2%	Pass
L42	51.17 - 51	Pole + Reinf.	TP34.67x33.713x0.5063	Reinf. 7 Tension Rupture	74.3%	Pass
L43	51 - 45.5	Pole + Reinf.	TP34.25x33.122x0.55	Reinf. 7 Tension Rupture	76.0%	Pass
L44	45.5 - 44.25	Pole + Reinf.	TP34.506x34.25x0.55	Reinf. 7 Tension Rupture	76.4%	Pass
L45	44.25 - 44	Pole + Reinf.	TP34.557x34.506x0.625	Reinf. 7 Tension Rupture	62.6%	Pass
L46	44 - 43.08	Pole + Reinf.	TP34.745x34.557x0.625	Reinf. 7 Tension Rupture	62.9%	Pass
L47	43.08 - 42.83	Pole + Reinf.	TP34.797x34.745x0.6625	Reinf. 6 Tension Rupture	65.4%	Pass
L48	42.83 - 37.83	Pole + Reinf.	TP35.822x34.797x0.6625	Reinf. 6 Tension Rupture	67.0%	Pass
L49	37.83 - 32.83	Pole + Reinf.	TP36.847x35.822x0.65	Reinf. 6 Tension Rupture	68.3%	Pass
L50	32.83 - 29.25	Pole + Reinf.	TP37.582x36.847x0.6375	Reinf. 6 Tension Rupture	69.2%	Pass
L51	29.25 - 29	Pole + Reinf.	TP37.633x37.582x0.6375	Reinf. 5 Tension Rupture	69.3%	Pass
L52	29 - 27.75	Pole + Reinf.	TP37.89x37.633x0.6375	Reinf. 5 Tension Rupture	69.6%	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L53	27.75 - 27.5	Pole + Reinf.	TP37.941x37.89x0.6375	Reinf. 5 Tension Rupture	69.7%	Pass
L54	27.5 - 24.08	Pole + Reinf.	TP38.642x37.941x0.6375	Reinf. 5 Tension Rupture	70.5%	Pass
L55	24.08 - 23.83	Pole + Reinf.	TP38.693x38.642x0.7	Reinf. 14 Tension Rupture	68.1%	Pass
L56	23.83 - 23.5	Pole + Reinf.	TP38.761x38.693x0.7	Reinf. 14 Tension Rupture	68.2%	Pass
L57	23.5 - 23.25	Pole + Reinf.	TP38.812x38.761x0.4438	Pole	75.1%	Pass
L58	23.25 - 18.92	Pole + Reinf.	TP39.701x38.812x0.4438	Pole	76.4%	Pass
L59	18.92 - 18.67	Pole + Reinf.	TP39.752x39.701x0.525	Reinf. 5 Tension Rupture	83.1%	Pass
L60	18.67 - 18.08	Pole + Reinf.	TP39.872x39.752x0.525	Reinf. 5 Tension Rupture	83.2%	Pass
L61	18.08 - 17.83	Pole + Reinf.	TP39.923x39.872x0.6625	Reinf. 1 Compression	72.0%	Pass
L62	17.83 - 14.08	Pole + Reinf.	TP40.692x39.923x0.65	Reinf. 1 Compression	72.6%	Pass
L63	14.08 - 13.83	Pole + Reinf.	TP40.743x40.692x0.625	Reinf. 1 Compression	73.2%	Pass
L64	13.83 - 8.83	Pole + Reinf.	TP41.769x40.743x0.625	Reinf. 1 Compression	74.0%	Pass
L65	8.83 - 3.83	Pole + Reinf.	TP42.794x41.769x0.6125	Reinf. 1 Compression	74.8%	Pass
L66	3.83 - 0	Pole + Reinf.	TP43.58x42.794x0.6125	Reinf. 1 Compression	75.3%	Pass
					Summary	
				Pole	76.4%	Pass
				Reinforcement	83.2%	Pass
				Overall	83.2%	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	81.6	Pass
1	Base Plate	0	75.2	Pass
1	Base Foundation (Structure)	0	41.4	Pass
1	Base Foundation (Soil Interaction)	0	55.8	Pass

Structure Rating (max from all components) =	83.2%

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

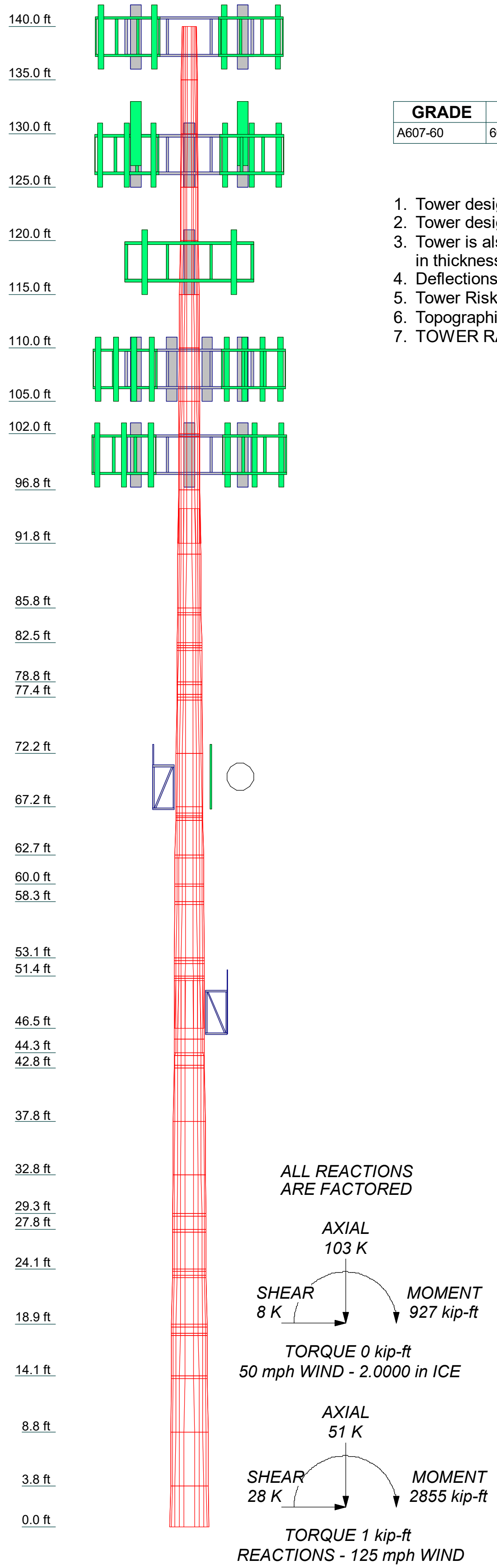
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	12	0.2500		16.0000	17.0249	A607-60	0.2
2	5.00	12	0.2500		17.0249	18.0497		0.2
3	5.00	12	0.2500		18.0497	19.0746		0.3
4	5.00	12	0.2500		19.0746	20.0995		0.3
5	5.00	12	0.2500		20.0995	21.1244		0.3
6	5.00	12	0.2500		21.1244	22.1492		0.3
7	5.00	12	0.2500		22.1492	23.1741		0.3
8	[illegible]	12	[illegible]		[illegible]	[illegible]		[illegible]
9	[illegible]	12	[illegible]		[illegible]	[illegible]		[illegible]
10	5.00	12	0.3750		[illegible]	[illegible]		0.5
11	[illegible]	12	0.3750	3.25	24.8651	25.8900		0.5
12	[illegible]	12	[illegible]		[illegible]	[illegible]		0.5
13	5.00	12	0.3569		[illegible]	[illegible]		0.6
14–24	[illegible]	12	[illegible]		[illegible]	[illegible]		[illegible]
25	5.00	12	[illegible]		[illegible]	[illegible]		0.8
26	5.00	12	0.5250		[illegible]	[illegible]		0.9
27–36	[illegible]	12	[illegible]		[illegible]	[illegible]		[illegible]
37	5.00	12	[illegible]		[illegible]	[illegible]		0.8
38–41	[illegible]	12	[illegible]		[illegible]	[illegible]		[illegible]
42	[illegible]	12	[illegible]	4.50	[illegible]	[illegible]		0.9
43–47	[illegible]	12	[illegible]		[illegible]	[illegible]	A607-65	[illegible]
48	5.00	12	[illegible]		[illegible]	[illegible]		1.2
49	5.00	12	0.6500		35.8220	36.8473		1.2
50	[illegible]	12	0.6375		[illegible]	[illegible]		0.9
51–63	[illegible]	12	[illegible]		[illegible]	[illegible]		[illegible]
64	5.00	12	0.6250		[illegible]	[illegible]		1.4
65	5.00	12	0.6125		41.7687	42.7940		1.4
66	3.83	12	0.6125		42.7940	43.5800		1.1
								23.7



MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower designed for Exposure B to the TIA-222-H Standard.
2. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
3. Tower is also designed for a 50 mph basic wind with 2.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 83.2%

CROWN CASTLE The Pathway to Possible	*Crown Castle* 2000 Corporate Drive Canonsburg, PA 15317 Phone: (724) 416-2000 FAX:	Job: **BU 876335**		
		Project:		
		Client: Crown Castle	Drawn by: Rashworth	App'd:
		Code: TIA-222-H	Date: 06/04/21	Scale: NTS
		Path: C:\NEW Directory\876335\WO 1966236 - SA\Prod\876335_Modified.eri		Dwg No. E-1

Tower Input Data

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

- Tower base elevation above sea level: 414.00 ft.
- Basic wind speed of 125 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 2.0000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- TOWER RATING: 83.2%.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		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	140.00-135.00	5.00	0.00	12	16.0000	17.0249	0.2500	1.0000	A607-60 (60 ksi)
L2	135.00-130.00	5.00	0.00	12	17.0249	18.0497	0.2500	1.0000	A607-60 (60 ksi)
L3	130.00-125.00	5.00	0.00	12	18.0497	19.0746	0.2500	1.0000	A607-60 (60 ksi)
L4	125.00-120.00	5.00	0.00	12	19.0746	20.0995	0.2500	1.0000	A607-60 (60 ksi)
L5	120.00-115.00	5.00	0.00	12	20.0995	21.1244	0.2500	1.0000	A607-60 (60 ksi)
L6	115.00-110.00	5.00	0.00	12	21.1244	22.1492	0.2500	1.0000	A607-60 (60 ksi)
L7	110.00-105.00	5.00	0.00	12	22.1492	23.1741	0.2500	1.0000	A607-60 (60 ksi)
L8	105.00-102.00	3.00	0.00	12	23.1741	23.7890	0.2500	1.0000	A607-60 (60 ksi)
L9	102.00-101.75	0.25	0.00	12	23.7890	23.8403	0.3875	1.5500	A607-60 (60 ksi)
L10	101.75-96.75	5.00	0.00	12	23.8403	24.8651	0.3750	1.5000	A607-60 (60 ksi)
L11	96.75-91.75	5.00	3.25	12	24.8651	25.8900	0.3750	1.5000	A607-60 (60 ksi)
L12	91.75-90.75	4.25	0.00	12	24.7238	25.5952	0.3563	1.4250	A607-65 (65 ksi)
L13	90.75-85.75	5.00	0.00	12	25.5952	26.6203	0.3563	1.4250	A607-65 (65 ksi)
L14	85.75-85.33	0.42	0.00	12	26.6203	26.7058	0.3563	1.4250	A607-65 (65 ksi)
L15	85.33-85.08	0.25	0.00	12	26.7058	26.7570	0.5500	2.2000	A607-65 (65 ksi)
L16	85.08-82.50	2.58	0.00	12	26.7570	27.2866	0.5437	2.1750	A607-65 (65 ksi)
L17	82.50-82.25	0.25	0.00	12	27.2866	27.3379	0.5375	2.1500	A607-65 (65 ksi)
L18	82.25-82.00	0.25	0.00	12	27.3379	27.3891	0.5375	2.1500	A607-65 (65 ksi)
L19	82.00-81.75	0.25	0.00	12	27.3891	27.4404	0.3563	1.4250	A607-65 (65 ksi)
L20	81.75-78.83	2.92	0.00	12	27.4404	28.0384	0.3563	1.4250	A607-65 (65 ksi)
L21	78.83-78.58	0.25	0.00	12	28.0384	28.0897	0.6125	2.4500	A607-65 (65 ksi)
L22	78.58-77.67	0.92	0.00	12	28.0897	28.2775	0.6125	2.4500	A607-65 (65 ksi)
L23	77.67-77.42	0.25	0.00	12	28.2775	28.3287	0.5500	2.2000	A607-65 (65 ksi)
L24	77.42-77.17	0.25	0.00	12	28.3287	28.3800	0.5500	2.2000	A607-65 (65 ksi)
L25	77.17-72.17	5.00	0.00	12	28.3800	29.4055	0.5375	2.1500	A607-65 (65 ksi)
L26	72.17-67.17	5.00	0.00	12	29.4055	30.4311	0.5250	2.1000	A607-65 (65 ksi)
L27	67.17-66.58	0.58	0.00	12	30.4311	30.5508	0.5250	2.1000	A607-65 (65 ksi)
L28	66.58-66.33	0.25	0.00	12	30.5508	30.6021	0.6250	2.5000	A607-65 (65 ksi)
L29	66.33-66.17	0.17	0.00	12	30.6021	30.6362	0.6250	2.5000	A607-65 (65 ksi)
L30	66.17-65.92	0.25	0.00	12	30.6362	30.6874	0.5125	2.0500	A607-65 (65 ksi)
L31	65.92-62.67	3.25	0.00	12	30.6874	31.3540	0.5125	2.0500	A607-65 (65 ksi)
L32	62.67-62.42	0.25	0.00	12	31.3540	31.4053	0.5125	2.0500	A607-65 (65 ksi)
L33	62.42-60.00	2.42	0.00	12	31.4053	31.9011	0.5062	2.0250	A607-65 (65 ksi)
L34	60.00-59.75	0.25	0.00	12	31.9011	31.9523	0.5000	2.0000	A607-65 (65 ksi)
L35	59.75-58.33	1.42	0.00	12	31.9523	32.2430	0.5000	2.0000	A607-65

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	58.33-58.08	0.25	0.00	12	32.2430	32.2943	0.5000	2.0000	A607-65 (65 ksi)
L37	58.08-53.08	5.00	0.00	12	32.2943	33.3198	0.5000	2.0000	A607-65 (65 ksi)
L38	53.08-52.83	0.25	0.00	12	33.3198	33.3711	0.5000	2.0000	A607-65 (65 ksi)
L39	52.83-52.58	0.25	0.00	12	33.3711	33.4223	0.6875	2.7500	A607-65 (65 ksi)
L40	52.58-51.42	1.17	0.00	12	33.4223	33.6615	0.6875	2.7500	A607-65 (65 ksi)
L41	51.42-51.17	0.25	0.00	12	33.6615	33.7128	0.5062	2.0250	A607-65 (65 ksi)
L42	51.17-46.50	4.67	4.50	12	33.7128	34.6700	0.5062	2.0250	A607-65 (65 ksi)
L43	46.50-45.50	5.50	0.00	12	33.1220	34.2498	0.5500	2.2000	A607-65 (65 ksi)
L44	45.50-44.25	1.25	0.00	12	34.2498	34.5062	0.5500	2.2000	A607-65 (65 ksi)
L45	44.25-44.00	0.25	0.00	12	34.5062	34.5574	0.6250	2.5000	A607-65 (65 ksi)
L46	44.00-43.08	0.92	0.00	12	34.5574	34.7455	0.6250	2.5000	A607-65 (65 ksi)
L47	43.08-42.83	0.25	0.00	12	34.7455	34.7967	0.6625	2.6500	A607-65 (65 ksi)
L48	42.83-37.83	5.00	0.00	12	34.7967	35.8220	0.6625	2.6500	A607-65 (65 ksi)
L49	37.83-32.83	5.00	0.00	12	35.8220	36.8473	0.6500	2.6000	A607-65 (65 ksi)
L50	32.83-29.25	3.58	0.00	12	36.8473	37.5820	0.6375	2.5500	A607-65 (65 ksi)
L51	29.25-29.00	0.25	0.00	12	37.5820	37.6333	0.6375	2.5500	A607-65 (65 ksi)
L52	29.00-27.75	1.25	0.00	12	37.6333	37.8896	0.6375	2.5500	A607-65 (65 ksi)
L53	27.75-27.50	0.25	0.00	12	37.8896	37.9409	0.6375	2.5500	A607-65 (65 ksi)
L54	27.50-24.08	3.42	0.00	12	37.9409	38.6416	0.6375	2.5500	A607-65 (65 ksi)
L55	24.08-23.83	0.25	0.00	12	38.6416	38.6928	0.7000	2.8000	A607-65 (65 ksi)
L56	23.83-23.50	0.33	0.00	12	38.6928	38.7611	0.7000	2.8000	A607-65 (65 ksi)
L57	23.50-23.25	0.25	0.00	12	38.7611	38.8124	0.4437	1.7750	A607-65 (65 ksi)
L58	23.25-18.92	4.33	0.00	12	38.8124	39.7009	0.4437	1.7750	A607-65 (65 ksi)
L59	18.92-18.67	0.25	0.00	12	39.7009	39.7522	0.5250	2.1000	A607-65 (65 ksi)
L60	18.67-18.08	0.58	0.00	12	39.7522	39.8719	0.5250	2.1000	A607-65 (65 ksi)
L61	18.08-17.83	0.25	0.00	12	39.8719	39.9232	0.6625	2.6500	A607-65 (65 ksi)
L62	17.83-14.08	3.75	0.00	12	39.9232	40.6922	0.6500	2.6000	A607-65 (65 ksi)
L63	14.08-13.83	0.25	0.00	12	40.6922	40.7434	0.6250	2.5000	A607-65 (65 ksi)
L64	13.83-8.83	5.00	0.00	12	40.7434	41.7687	0.6250	2.5000	A607-65 (65 ksi)
L65	8.83-3.83	5.00	0.00	12	41.7687	42.7940	0.6125	2.4500	A607-65 (65 ksi)
L66	3.83-0.00	3.83		12	42.7940	43.5800	0.6125	2.4500	A607-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	16.4762	12.6788	401.4426	5.6385	8.2880	48.4366	813.4316	6.2401	3.6180	14.472
	17.5373	13.5038	485.0197	6.0054	8.8189	54.9979	982.7814	6.6461	3.8927	15.571
L2	17.5373	13.5038	485.0197	6.0054	8.8189	54.9979	982.7814	6.6461	3.8927	15.571
	18.5983	14.3288	579.4592	6.3723	9.3498	61.9758	1174.1415	7.0522	4.1673	16.669
L3	18.5983	14.3288	579.4592	6.3723	9.3498	61.9758	1174.1415	7.0522	4.1673	16.669
	19.6593	15.1538	685.4249	6.7392	9.8806	69.3704	1388.8567	7.4582	4.4420	17.768
L4	19.6593	15.1538	685.4249	6.7392	9.8806	69.3704	1388.8567	7.4582	4.4420	17.768
	20.7203	15.9788	803.5804	7.1061	10.4115	77.1818	1628.2718	7.8643	4.7167	18.867
L5	20.7203	15.9788	803.5804	7.1061	10.4115	77.1818	1628.2718	7.8643	4.7167	18.867
	21.7813	16.8039	934.5894	7.4730	10.9424	85.4098	1893.7315	8.2703	4.9913	19.965
L6	21.7813	16.8039	934.5894	7.4730	10.9424	85.4098	1893.7315	8.2703	4.9913	19.965
	22.8424	17.6289	1079.1155	7.8399	11.4733	94.0545	2186.5806	8.6764	5.2660	21.064
L7	22.8424	17.6289	1079.1155	7.8399	11.4733	94.0545	2186.5806	8.6764	5.2660	21.064
	23.9034	18.4539	1237.8224	8.2068	12.0042	103.1159	2508.1637	9.0824	5.5407	22.163
L8	23.9034	18.4539	1237.8224	8.2068	12.0042	103.1159	2508.1637	9.0824	5.5407	22.163
	24.5400	18.9489	1340.1293	8.4270	12.3227	108.7528	2715.4654	9.3261	5.7055	22.822
L9	24.4915	29.1992	2041.0116	8.3777	12.3227	165.6301	4135.6429	14.3710	5.3370	13.773
	24.5446	29.2632	2054.4490	8.3961	12.3493	166.3622	4162.8706	14.4024	5.3507	13.808
L10	24.5490	28.3343	1991.3571	8.4006	12.3493	161.2532	4035.0294	13.9453	5.3842	14.358
	25.6100	29.5718	2263.8432	8.7675	12.8801	175.7623	4587.1600	14.5544	5.6589	15.09
L11	25.6100	29.5718	2263.8432	8.7675	12.8801	175.7623	4587.1600	14.5544	5.6589	15.09
	26.6710	30.8094	2560.1170	9.1344	13.4110	190.8965	5187.4911	15.1634	5.9335	15.823
L12	26.1602	27.9527	2118.5276	8.7236	12.8069	165.4202	4292.7112	13.7575	5.6712	15.919
	26.3724	28.9522	2354.0165	9.0355	13.2583	177.5504	4769.8756	14.2494	5.9048	16.575
L13	26.3724	28.9522	2354.0165	9.0355	13.2583	177.5504	4769.8756	14.2494	5.9048	16.575
	27.4337	30.1281	2652.6588	9.4025	13.7893	192.3707	5375.0059	14.8282	6.1795	17.346
L14	27.4337	30.1281	2652.6588	9.4025	13.7893	192.3707	5375.0059	14.8282	6.1795	17.346
	27.5222	30.2262	2678.6479	9.4331	13.8336	193.6335	5427.6669	14.8764	6.2024	17.41
L15	27.4538	46.3219	4044.9007	9.3638	13.8336	292.3969	8196.0654	22.7982	5.6832	10.333
	27.5069	46.4127	4068.7268	9.3821	13.8601	293.5558	8244.3436	22.8429	5.6969	10.358
L16	27.5091	45.8962	4025.3699	9.3844	13.8601	290.4276	8156.4907	22.5887	5.7136	10.508
	28.0574	46.8234	4274.2990	9.5739	14.1345	302.4026	8660.8885	23.0451	5.8556	10.769
L17	28.0596	46.2960	4228.1321	9.5762	14.1345	299.1363	8567.3420	22.7855	5.8723	10.925
	28.1126	46.3847	4252.4841	9.5945	14.1610	300.2951	8616.6857	22.8292	5.8860	10.951
L18	28.1126	46.3847	4252.4841	9.5945	14.1610	300.2951	8616.6857	22.8292	5.8860	10.951
	28.1657	46.4735	4276.9294	9.6129	14.1876	301.4561	8666.2184	22.8728	5.8998	10.976
L19	28.2296	31.0101	2892.5007	9.6778	14.1876	203.8757	5860.9906	15.2622	6.3855	17.924
	28.2827	31.0689	2908.9849	9.6961	14.2141	204.6546	5894.3920	15.2912	6.3993	17.963
L20	28.2827	31.0689	2908.9849	9.6961	14.2141	204.6546	5894.3920	15.2912	6.3993	17.963
	28.9018	31.7549	3105.9730	9.9102	14.5239	213.8524	6293.5434	15.6288	6.5595	18.413
L21	28.8115	54.0908	5193.1651	9.8185	14.5239	357.5598	10522.760 3	26.6218	5.8728	9.588
	28.8645	54.1919	5222.3356	9.8368	14.5505	358.9121	10581.867 8	26.6716	5.8865	9.611
L22	28.8645	54.1919	5222.3356	9.8368	14.5505	358.9121	10581.867 8	26.6716	5.8865	9.611
	29.0589	54.5623	5330.1497	9.9041	14.6477	363.8889	10800.328 4	26.8539	5.9369	9.693
L23	29.0810	49.1054	4818.7692	9.9264	14.6477	328.9770	9764.1328	24.1682	6.1044	11.099
	29.1341	49.1962	4845.5418	9.9448	14.6743	330.2062	9818.3814	24.2129	6.1181	11.124
L24	29.1341	49.1962	4845.5418	9.9448	14.6743	330.2062	9818.3814	24.2129	6.1181	11.124
	29.1871	49.2869	4872.4134	9.9631	14.7008	331.4378	9872.8306	24.2575	6.1318	11.149
L25	29.1915	48.1884	4768.0958	9.9676	14.7008	324.3417	9661.4548	23.7169	6.1653	11.47
	30.2532	49.9633	5314.6154	10.3348	15.2321	348.9097	10768.851 6	24.5904	6.4402	11.982
L26	30.2576	48.8225	5197.7658	10.3392	15.2321	341.2384	10532.082 7	24.0290	6.4737	12.331
	31.3194	50.5562	5771.3702	10.7064	15.7633	366.1272	11694.360 6	24.8822	6.7485	12.854
L27	31.3194	50.5562	5771.3702	10.7064	15.7633	366.1272	11694.360 6	24.8822	6.7485	12.854
	31.4434	50.7587	5840.9962	10.7493	15.8253	369.0914	11835.441 8	24.9819	6.7806	12.915
L28	31.4081	60.2258	6884.3222	10.7135	15.8253	435.0189	13949.503 1	29.6413	6.5126	10.42
	31.4612	60.3290	6919.7708	10.7318	15.8519	436.5263	14021.331 6	29.6921	6.5264	10.442
L29	31.4612	60.3290	6919.7708	10.7318	15.8519	436.5263	14021.331 6	29.6921	6.5264	10.442

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
	31.4964	60.3975	6943.3758	10.7440	15.8695	437.5286	14069.1617	29.7258	6.5355	10.457
L30	31.5361	49.7116	5757.8372	10.7843	15.8695	362.8233	11666.9393	24.4665	6.8370	13.34
	31.5892	49.7962	5787.2904	10.8026	15.8961	364.0699	11726.6193	24.5082	6.8507	13.367
L31	31.5892	49.7962	5787.2904	10.8026	15.8961	364.0699	11726.6193	24.5082	6.8507	13.367
	32.2793	50.8963	6179.3674	11.0413	16.2414	380.4702	12521.0736	25.0496	7.0294	13.716
L32	32.2793	50.8963	6179.3674	11.0413	16.2414	380.4702	12521.0736	25.0496	7.0294	13.716
	32.3324	50.9809	6210.2398	11.0596	16.2680	381.7468	12583.6295	25.0912	7.0431	13.743
L33	32.3346	50.3693	6138.2292	11.0619	16.2680	377.3202	12437.7165	24.7903	7.0599	13.945
	32.8478	51.1775	6438.4384	11.2393	16.5248	389.6239	13046.0218	25.1880	7.1927	14.208
L34	32.8500	50.5557	6362.7501	11.2416	16.5248	385.0436	12892.6567	24.8820	7.2095	14.419
	32.9031	50.6383	6393.9713	11.2599	16.5513	386.3121	12955.9194	24.9226	7.2232	14.446
L35	32.9031	50.6383	6393.9713	11.2599	16.5513	386.3121	12955.9194	24.9226	7.2232	14.446
	33.2040	51.1062	6572.8650	11.3640	16.7019	393.5409	13318.4066	25.1529	7.3011	14.602
L36	33.2040	51.1062	6572.8650	11.3640	16.7019	393.5409	13318.4066	25.1529	7.3011	14.602
	33.2571	51.1887	6604.7693	11.3823	16.7284	394.8232	13383.0533	25.1935	7.3149	14.63
L37	33.2571	51.1887	6604.7693	11.3823	16.7284	394.8232	13383.0533	25.1935	7.3149	14.63
	34.3188	52.8399	7264.7218	11.7495	17.2596	420.9079	14720.2959	26.0062	7.5897	15.179
L38	34.3188	52.8399	7264.7218	11.7495	17.2596	420.9079	14720.2959	26.0062	7.5897	15.179
	34.3719	52.9224	7298.8255	11.7678	17.2862	422.2340	14789.3994	26.0468	7.6034	15.207
L39	34.3057	72.3532	9865.1256	11.7007	17.2862	570.6934	19989.4191	35.6101	7.1009	10.329
	34.3588	72.4667	9911.6301	11.7191	17.3128	572.5040	20083.6498	35.6659	7.1147	10.349
L40	34.3588	72.4667	9911.6301	11.7191	17.3128	572.5040	20083.6498	35.6659	7.1147	10.349
	34.6064	72.9962	10130.4582	11.8047	17.4367	580.9864	20527.0548	35.9265	7.1788	10.442
L41	34.6704	54.0472	7583.3909	11.8696	17.4367	434.9109	15366.0060	26.6004	7.6645	15.14
	34.7234	54.1308	7618.6299	11.8879	17.4632	436.2673	15437.4097	26.6415	7.6783	15.167
L42	34.7234	54.1308	7618.6299	11.8879	17.4632	436.2673	15437.4097	26.6415	7.6783	15.167
	35.7144	55.6912	8296.6633	12.2306	17.9591	461.9765	16811.2891	27.4095	7.9348	15.674
L43	35.0517	57.6850	7811.5753	11.6608	17.1572	455.2941	15828.3695	28.3908	7.4027	13.459
	35.2640	59.6824	8651.4343	12.0645	17.7414	487.6405	17530.1513	29.3739	7.7050	14.009
L44	35.2640	59.6824	8651.4343	12.0645	17.7414	487.6405	17530.1513	29.3739	7.7050	14.009
	35.5294	60.1364	8850.3496	12.1563	17.8742	495.1468	17933.2077	29.5973	7.7737	14.134
L45	35.5029	68.1858	9990.7215	12.1295	17.8742	558.9467	20243.9103	33.5590	7.5727	12.116
	35.5560	68.2890	10036.1401	12.1478	17.9007	560.6548	20335.9409	33.6098	7.5864	12.138
L46	35.5560	68.2890	10036.1401	12.1478	17.9007	560.6548	20335.9409	33.6098	7.5864	12.138
	35.7507	68.6674	10203.9140	12.2151	17.9982	566.9423	20675.8963	33.7960	7.6368	12.219

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
L47	35.7375	72.7075	10780.5257	12.2017	17.9982	598.9796	21844.2678	35.7844	7.5363	11.376
	35.7905	72.8169	10829.2442	12.2201	18.0247	600.8000	21942.9848	35.8382	7.5500	11.396
L48	35.7905	72.8169	10829.2442	12.2201	18.0247	600.8000	21942.9848	35.8382	7.5500	11.396
	36.8520	75.0041	11834.6850	12.5871	18.5558	637.7887	23980.2804	36.9147	7.8248	11.811
L49	36.8564	73.6150	11623.7778	12.5916	18.5558	626.4226	23552.9252	36.2311	7.8583	12.09
	37.9179	75.7610	12670.2250	12.9586	19.0869	663.8175	25673.3108	37.2873	8.1331	12.512
L50	37.9223	74.3297	12439.4450	12.9631	19.0869	651.7265	25205.6881	36.5828	8.1666	12.81
	38.6829	75.8379	13212.1304	13.2261	19.4675	678.6764	26771.3581	37.3251	8.3635	13.119
L51	38.6829	75.8379	13212.1304	13.2261	19.4675	678.6764	26771.3581	37.3251	8.3635	13.119
	38.7360	75.9431	13267.2066	13.2445	19.4941	680.5771	26882.9574	37.3769	8.3772	13.141
L52	38.7360	75.9431	13267.2066	13.2445	19.4941	680.5771	26882.9574	37.3769	8.3772	13.141
	39.0013	76.4693	13544.8845	13.3363	19.6268	690.1209	27445.6082	37.6359	8.4459	13.249
L53	39.0013	76.4693	13544.8845	13.3363	19.6268	690.1209	27445.6082	37.6359	8.4459	13.249
	39.0544	76.5745	13600.8810	13.3546	19.6534	692.0377	27559.0722	37.6877	8.4597	13.27
L54	39.0544	76.5745	13600.8810	13.3546	19.6534	692.0377	27559.0722	37.6877	8.4597	13.27
	39.7798	78.0129	14381.7793	13.6055	20.0163	718.5020	29141.3840	38.3956	8.6474	13.565
L55	39.7578	85.5203	15713.9743	13.5831	20.0163	785.0574	31840.7721	42.0905	8.4799	12.114
	39.8108	85.6359	15777.7560	13.6014	20.0429	787.1995	31970.0112	42.1474	8.4937	12.134
L56	39.8108	85.6359	15777.7560	13.6014	20.0429	787.1995	31970.0112	42.1474	8.4937	12.134
	39.8815	85.7898	15862.9809	13.6259	20.0783	790.0574	32142.7001	42.2231	8.5120	12.16
L57	39.9719	54.7507	10260.4761	13.7176	20.0783	511.0241	20790.5063	26.9467	9.1987	20.73
	40.0250	54.8240	10301.7135	13.7360	20.1048	512.4002	20874.0645	26.9827	9.2125	20.76
L58	40.0250	54.8240	10301.7135	13.7360	20.1048	512.4002	20874.0645	26.9827	9.2125	20.76
	40.9449	56.0936	11034.0976	14.0541	20.5651	536.5456	22358.0733	27.6076	9.4506	21.297
L59	40.9162	66.2269	12973.5373	14.0250	20.5651	630.8530	26287.9039	32.5949	9.2328	17.586
	40.9693	66.3135	13024.5345	14.0433	20.5916	632.5161	26391.2380	32.6375	9.2466	17.613
L60	40.9693	66.3135	13024.5345	14.0433	20.5916	632.5161	26391.2380	32.6375	9.2466	17.613
	41.0933	66.5160	13144.1843	14.0862	20.6537	636.4095	26633.6810	32.7371	9.2787	17.674
L61	41.0448	83.6435	16413.4262	14.0370	20.6537	794.6982	33258.0515	41.1668	8.9102	13.449
	41.0978	83.7529	16477.8900	14.0553	20.6802	796.7949	33388.6724	41.2206	8.9239	13.47
L62	41.1022	82.1988	16182.4332	14.0598	20.6802	782.5080	32789.9970	40.4557	8.9574	13.781
	41.8983	83.8082	17151.7226	14.3351	21.0785	813.7054	34754.0401	41.2479	9.1635	14.098
L63	41.9072	80.6352	16522.9503	14.3440	21.0785	783.8755	33479.9769	39.6862	9.2305	14.769
	41.9602	80.7383	16586.4532	14.3624	21.1051	785.8981	33608.6510	39.7370	9.2442	14.791
L64	41.9602	80.7383	16586.4532	14.3624	21.1051	785.8981	33608.6510	39.7370	9.2442	14.791

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
	43.0217	82.8017	17890.9118	14.7295	21.6362	826.8973	36251.8379	40.7525	9.5190	15.23
L65	43.0261	81.1704	17549.0788	14.7339	21.6362	811.0981	35559.1915	39.9496	9.5525	15.596
	44.0876	83.1925	18893.5826	15.1010	22.1673	852.3178	38283.5206	40.9448	9.8273	16.045
L66	44.0876	83.1925	18893.5826	15.1010	22.1673	852.3178	38283.5206	40.9448	9.8273	16.045
	44.9013	84.7427	19969.5451	15.3824	22.5744	884.6087	40463.7124	41.7078	10.0379	16.388

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 140.00-135.00				1	1	1			
L2 135.00-130.00				1	1	1			
L3 130.00-125.00				1	1	1			
L4 125.00-120.00				1	1	1			
L5 120.00-115.00				1	1	1			
L6 115.00-110.00				1	1	1			
L7 110.00-105.00				1	1	1			
L8 105.00-102.00				1	1	1			
L9 102.00-101.75				1	1	0.948725			
L10 101.75-96.75				1	1	0.966722			
L11 96.75-91.75				1	1	0.96239			
L12 91.75-90.75				1	1	1.29378			
L13 90.75-85.75				1	1	1.27752			
L14 85.75-85.33				1	1	1.27623			
L15 85.33-85.08				1	1	0.95826			
L16 85.08-82.50				1	1	0.961234			
L17 82.50-82.25				1	1	0.971437			
L18 82.25-82.00				1	1	0.970692			
L19 82.00-81.75				1	1	1.2654			
L20 81.75-78.83				1	1	1.25702			
L21 78.83-78.58				1	1	1.00733			
L22 78.58-77.67				1	1	1.00395			
L23 77.67-77.42				1	1	0.995629			
L24 77.42-77.17				1	1	0.994842			
L25 77.17-72.17				1	1	1.00203			
L26 72.17-67.17				1	1	1.01069			
L27 67.17-				1	1	1.00903			

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft^2	in					in	in	in
66.58									
L28 66.58-66.33				1	1	0.931987			
L29 66.33-66.17				1	1	0.931497			
L30 66.17-65.92				1	1	0.954673			
L31 65.92-62.67				1	1	0.947218			
L32 62.67-62.42				1	1	0.946658			
L33 62.42-60.00				1	1	0.952769			
L34 60.00-59.75				1	1	0.963933			
L35 59.75-58.33				1	1	0.96083			
L36 58.33-58.08				1	1	0.960288			
L37 58.08-53.08				1	1	0.949811			
L38 53.08-52.83				1	1	0.949304			
L39 52.83-52.58				1	1	1.01114			
L40 52.58-51.42				1	1	1.0071			
L41 51.42-51.17				1	1	1.04547			
L42 51.17-46.50				1	1	1.04503			
L43 46.50-45.50				1	1	0.969769			
L44 45.50-44.25				1	1	0.967596			
L45 44.25-44.00				1	1	1.11182			
L46 44.00-43.08				1	1	1.109			
L47 43.08-42.83				1	1	0.968948			
L48 42.83-37.83				1	1	0.957199			
L49 37.83-32.83				1	1	0.963977			
L50 32.83-29.25				1	1	0.974697			
L51 29.25-29.00				1	1	0.974162			
L52 29.00-27.75				1	1	0.971506			
L53 27.75-27.50				1	1	0.97098			
L54 27.50-24.08				1	1	0.963923			
L55 24.08-23.83				1	1	0.944912			
L56 23.83-23.50				1	1	0.944178			
L57 23.50-23.25				1	1	1.30461			
L58 23.25-18.92				1	1	1.29421			
L59 18.92-18.67				1	1	0.972987			
L60 18.67-18.08				1	1	0.9722			

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
L61 18.08-17.83				1	1	1.00512			
L62 17.83-14.08				1	1	1.01553			
L63 14.08-13.83				1	1	0.984835			
L64 13.83-8.83				1	1	0.975245			
L65 8.83-3.83				1	1	0.985546			
L66 3.83-0.00				1	1	0.978717			

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
100										
LDF5-50A(7/8")	A	No	Surface Ar (CaAa)	100.00 - 0.00	11	6	0.500 0.500	1.0900		0.33
MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	A	No	Surface Ar (CaAa)	100.00 - 0.00	1	1	0.250 0.250	1.6250		1.07
HCS 6X12 6AWG(1-3/8)	B	No	Surface Ar (CaAa)	100.00 - 0.00	1	1	-0.250 -0.250	1.3800		1.70
70										
9207(5/16")	B	No	Surface Ar (CaAa)	70.00 - 0.00	2	1	-0.250 -0.250	0.3300		0.60
***										
CU12PSM9P6XXX(1-1/2)	C	No	Surface Ar (CaAa)	118.00 - 0.00	1	1	-0.500 -0.500	1.6000		2.35
***										
RF 4456376										
(Area) CCI-65FP-065125 (H)	C	No	Surface Af (CaAa)	30.50 - 0.50	1	1	0.500 0.500	6.5000	15.5000	0.00
(Area) CCI-65FP-060100 (H)	A	No	Surface Af (CaAa)	46.50 - 21.50	1	1	0.250 0.250	6.0000	14.0000	0.00
(Area) CCI-65FP-060100 (H)	C	No	Surface Af (CaAa)	46.50 - 21.50	1	1	0.250 0.250	6.0000	14.0000	0.00
(Area) CCI-65FP-060100 (H)	A	No	Surface Af (CaAa)	62.00 - 47.00	1	1	0.000 0.000	6.0000	14.0000	0.00
(Area) CCI-65FP-060100 (H)	A	No	Surface Af (CaAa)	84.50 - 64.50	1	1	0.000 0.000	6.0000	14.0000	0.00
(Area) CCI-65FP-060100 (H)	C	No	Surface Af (CaAa)	84.50 - 64.50	1	1	0.000 0.000	6.0000	14.0000	0.00
(Area) CCI-65FP-060100 (H)	A	No	Surface Af (CaAa)	95.00 - 80.00	1	1	-0.250 -0.250	6.0000	14.0000	0.00
(Area) CCI-65FP-060100 (H)	C	No	Surface Af (CaAa)	95.00 - 80.00	1	1	-0.250 -0.250	6.0000	14.0000	0.00
***										
**										
RF 3672042										
(Area) Aero MP3-05 (H)	B	No	Surface Af (CaAa)	26.50 - 16.50	1	1	0.250 0.250	5.3300	14.8400	0.00
(Area) Aero MP3-03 (H)	A	No	Surface Af (CaAa)	86.50 - 61.50	1	1	0.250 0.250	4.0600	11.2600	0.00
(Area) Aero MP3-03 (H)	C	No	Surface Af (CaAa)	86.50 - 76.50	1	1	0.250 0.250	4.0600	11.2600	0.00
(Area) Aero MP3-03 (H)	B	No	Surface Af (CaAa)	86.50 - 76.50	1	1	0.250 0.250	4.0600	11.2600	0.00
(Area) Aero MP3-03 (H)	A	No	Surface Af (CaAa)	103.17 - 93.17	1	1	0.000 0.000	4.0600	11.2600	0.00
(Area) Aero MP3-03	B	No	Surface Af	103.17 -	1	1	0.000	4.0600	11.2600	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
(H)			(CaAa)	93.17			0.000			
(Area) Aero MP3-03 (H) **	C	No	Surface Af (CaAa)	103.17 - 93.17	1	1	0.000 0.000	4.0600	11.2600	0.00
RF 3262310										
(Area) Aero MP3-05 (H)	A	No	Surface Af (CaAa)	52.25 - 40.25	1	1	0.500 0.500	5.3300	14.8400	0.00
(Area) Aero MP3-05 (H)	B	No	Surface Af (CaAa)	52.25 - 40.25	1	1	0.500 0.500	5.3300	14.8400	0.00
(Area) Aero MP3-05 (H)	C	No	Surface Af (CaAa)	52.25 - 40.25	1	1	0.500 0.500	5.3300	14.8400	0.00
(Area) Aero MP3-03 (H)	A	No	Surface Af (CaAa)	80.00 - 65.00	1	1	0.500 0.500	4.0600	11.2600	0.00
(Area) Aero MP3-03 (H)	B	No	Surface Af (CaAa)	80.00 - 65.00	1	1	0.500 0.500	4.0600	11.2600	0.00
(Area) Aero MP3-03 (H) **	C	No	Surface Af (CaAa)	80.00 - 65.00	1	1	0.500 0.500	4.0600	11.2600	0.00
RF 2397525										
(Area) Aero MP3-05 (H)	B	No	Surface Af (CaAa)	20.50 - 0.50	1	1	0.500 0.500	5.3300	14.8400	0.00
(Area) Aero MP3-05 (H)	C	No	Surface Af (CaAa)	20.50 - 0.50	1	1	0.000 0.000	5.3300	14.8400	0.00
(Area) Aero MP3-05 (H)	A	No	Surface Af (CaAa)	45.50 - 0.50	1	1	-0.250 -0.250	5.3300	14.8400	0.00
(Area) Aero MP3-05 (H)	B	No	Surface Af (CaAa)	45.50 - 0.50	1	1	-0.250 -0.250	5.3300	14.8400	0.00
(Area) Aero MP3-05 (H)	C	No	Surface Af (CaAa)	46.67 - 11.67	1	1	-0.250 -0.250	5.3300	14.8400	0.00
(Area) Aero MP3-05 (H)	A	No	Surface Af (CaAa)	69.00 - 49.00	1	1	-0.250 -0.250	5.3300	14.8400	0.00
(Area) Aero MP3-05 (H)	B	No	Surface Af (CaAa)	69.00 - 49.00	1	1	-0.250 -0.250	5.3300	14.8400	0.00
(Area) Aero MP3-05 (H) *** ***	C	No	Surface Af (CaAa)	69.00 - 49.00	1	1	-0.250 -0.250	5.3300	14.8400	0.00

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
139									
HB114-1-08U4-M5J(1 1/4")	B	No	No	Inside Pole	139.00 - 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
128									
LDF5-50A(7/8")	B	No	No	Inside Pole	128.00 - 0.00	9	No Ice	0.00	0.33
							1/2" Ice	0.00	0.33
							1" Ice	0.00	0.33
							2" Ice	0.00	0.33
WR-VG86ST-BRD(3/4)	B	No	No	Inside Pole	128.00 - 0.00	6	No Ice	0.00	0.59
							1/2" Ice	0.00	0.59
							1" Ice	0.00	0.59
							2" Ice	0.00	0.59
2" Flexible Conduit	B	No	No	Inside Pole	128.00 - 0.00	1	No Ice	0.00	0.34
							1/2" Ice	0.00	0.34
							1" Ice	0.00	0.34
							2" Ice	0.00	0.34
FB-L98B-034-XXX(3/8)	B	No	No	Inside Pole	128.00 - 0.00	3	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
							2" Ice	0.00	0.06
108									
LDF7-50A(1-5/8")	C	No	No	Inside Pole	108.00 - 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	108.00 - 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
49									
LDF4-50A(1/2")	B	No	No	Inside Pole	49.00 - 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
5/16"	B	No	No	Inside Pole	49.00 - 0.00	1	No Ice	0.00	0.20
							1/2" Ice	0.00	0.20
							1" Ice	0.00	0.20
							2" Ice	0.00	0.20
***									
AM Detuner	A	No	No	CaAa (Out Of Face)	135.00 - 0.00	1	No Ice	0.03	1.00
							1/2" Ice	0.13	1.48
							1" Ice	0.23	2.56
							2" Ice	0.43	6.57
AM Detuner	B	No	No	CaAa (Out Of Face)	135.00 - 0.00	1	No Ice	0.03	1.00
							1/2" Ice	0.13	1.48
							1" Ice	0.23	2.56
							2" Ice	0.43	6.57
AM Detuner	C	No	No	CaAa (Out Of Face)	135.00 - 0.00	1	No Ice	0.03	1.00
							1/2" Ice	0.13	1.48
							1" Ice	0.23	2.56
							2" Ice	0.43	6.57
***									
***									
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***									
***									

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	140.00-135.00	A	0.000	0.000	0.000	0.000	0
		B	0.000	0.000	0.000	0.000	0
		C	0.000	0.000	0.000	0.000	0
L2	135.00-130.00	A	0.000	0.000	0.000	0.140	0
		B	0.000	0.000	0.000	0.140	0
		C	0.000	0.000	0.000	0.140	0
L3	130.00-125.00	A	0.000	0.000	0.000	0.140	0
		B	0.000	0.000	0.000	0.140	0
		C	0.000	0.000	0.000	0.140	0
L4	125.00-120.00	A	0.000	0.000	0.000	0.140	0
		B	0.000	0.000	0.000	0.140	0
		C	0.000	0.000	0.000	0.140	0
L5	120.00-115.00	A	0.000	0.000	0.000	0.140	0
		B	0.000	0.000	0.000	0.140	0
		C	0.000	0.000	0.480	0.140	0
L6	115.00-110.00	A	0.000	0.000	0.000	0.140	0
		B	0.000	0.000	0.000	0.140	0

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
		C	0.000	0.000	0.800	0.140	0
L7	110.00-105.00	A	0.000	0.000	0.000	0.140	0
		B	0.000	0.000	0.000	0.140	0
		C	0.000	0.000	0.800	0.140	0
L8	105.00-102.00	A	0.000	0.000	0.790	0.084	0
		B	0.000	0.000	0.790	0.084	0
		C	0.000	0.000	1.270	0.084	0
L9	102.00-101.75	A	0.000	0.000	0.169	0.007	0
		B	0.000	0.000	0.169	0.007	0
		C	0.000	0.000	0.209	0.007	0
L10	101.75-96.75	A	0.000	0.000	6.037	0.140	0
		B	0.000	0.000	3.832	0.140	0
		C	0.000	0.000	4.183	0.140	0
L11	96.75-91.75	A	0.000	0.000	9.757	0.140	0
		B	0.000	0.000	3.114	0.140	0
		C	0.000	0.000	6.474	0.140	0
L12	91.75-90.75	A	0.000	0.000	1.817	0.028	0
		B	0.000	0.000	0.138	0.028	0
		C	0.000	0.000	1.160	0.028	0
L13	90.75-85.75	A	0.000	0.000	9.590	0.140	0
		B	0.000	0.000	1.198	0.140	0
		C	0.000	0.000	6.308	0.140	0
L14	85.75-85.33	A	0.000	0.000	1.040	0.012	0
		B	0.000	0.000	0.340	0.012	0
		C	0.000	0.000	0.766	0.012	0
L15	85.33-85.08	A	0.000	0.000	0.623	0.007	0
		B	0.000	0.000	0.204	0.007	0
		C	0.000	0.000	0.459	0.007	0
L16	85.08-82.50	A	0.000	0.000	8.440	0.072	0
		B	0.000	0.000	2.104	0.072	0
		C	0.000	0.000	6.744	0.072	0
L17	82.50-82.25	A	0.000	0.000	0.873	0.007	0
		B	0.000	0.000	0.204	0.007	0
		C	0.000	0.000	0.709	0.007	0
L18	82.25-82.00	A	0.000	0.000	0.873	0.007	0
		B	0.000	0.000	0.204	0.007	0
		C	0.000	0.000	0.709	0.007	0
L19	82.00-81.75	A	0.000	0.000	0.873	0.007	0
		B	0.000	0.000	0.204	0.007	0
		C	0.000	0.000	0.709	0.007	0
L20	81.75-78.83	A	0.000	0.000	9.812	0.082	0
		B	0.000	0.000	3.166	0.082	0
		C	0.000	0.000	7.897	0.082	0
L21	78.83-78.58	A	0.000	0.000	0.792	0.007	0
		B	0.000	0.000	0.373	0.007	0
		C	0.000	0.000	0.628	0.007	0
L22	78.58-77.67	A	0.000	0.000	2.904	0.026	0
		B	0.000	0.000	1.366	0.026	0
		C	0.000	0.000	2.302	0.026	0
L23	77.67-77.42	A	0.000	0.000	0.792	0.007	0
		B	0.000	0.000	0.373	0.007	0
		C	0.000	0.000	0.628	0.007	0
L24	77.42-77.17	A	0.000	0.000	0.792	0.007	0
		B	0.000	0.000	0.373	0.007	0
		C	0.000	0.000	0.628	0.007	0
L25	77.17-72.17	A	0.000	0.000	15.849	0.140	0
		B	0.000	0.000	4.525	0.140	0
		C	0.000	0.000	9.635	0.140	0
L26	72.17-67.17	A	0.000	0.000	17.477	0.140	0
		B	0.000	0.000	5.795	0.140	0
		C	0.000	0.000	10.812	0.140	0
L27	67.17-66.58	A	0.000	0.000	2.370	0.016	0
		B	0.000	0.000	1.014	0.016	0
		C	0.000	0.000	1.591	0.016	0
L28	66.58-66.33	A	0.000	0.000	1.015	0.007	0
		B	0.000	0.000	0.434	0.007	0
		C	0.000	0.000	0.681	0.007	0
L29	66.33-66.17	A	0.000	0.000	0.674	0.005	0
		B	0.000	0.000	0.288	0.005	0

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
		C	0.000	0.000	0.452	0.005	0
L30	66.17-65.92	A	0.000	0.000	1.015	0.007	0
		B	0.000	0.000	0.434	0.007	0
		C	0.000	0.000	0.681	0.007	0
L31	65.92-62.67	A	0.000	0.000	9.777	0.091	0
		B	0.000	0.000	4.063	0.091	0
		C	0.000	0.000	5.445	0.091	0
L32	62.67-62.42	A	0.000	0.000	0.595	0.007	0
		B	0.000	0.000	0.265	0.007	0
		C	0.000	0.000	0.262	0.007	0
L33	62.42-60.00	A	0.000	0.000	6.741	0.068	0
		B	0.000	0.000	2.560	0.068	0
		C	0.000	0.000	2.534	0.068	0
L34	60.00-59.75	A	0.000	0.000	0.676	0.007	0
		B	0.000	0.000	0.265	0.007	0
		C	0.000	0.000	0.262	0.007	0
L35	59.75-58.33	A	0.000	0.000	3.833	0.040	0
		B	0.000	0.000	1.501	0.040	0
		C	0.000	0.000	1.485	0.040	0
L36	58.33-58.08	A	0.000	0.000	0.676	0.007	0
		B	0.000	0.000	0.265	0.007	0
		C	0.000	0.000	0.262	0.007	0
L37	58.08-53.08	A	0.000	0.000	13.524	0.140	0
		B	0.000	0.000	5.297	0.140	0
		C	0.000	0.000	5.242	0.140	0
L38	53.08-52.83	A	0.000	0.000	0.676	0.007	0
		B	0.000	0.000	0.265	0.007	0
		C	0.000	0.000	0.262	0.007	0
L39	52.83-52.58	A	0.000	0.000	0.676	0.007	0
		B	0.000	0.000	0.265	0.007	0
		C	0.000	0.000	0.262	0.007	0
L40	52.58-51.42	A	0.000	0.000	3.894	0.033	0
		B	0.000	0.000	1.975	0.033	0
		C	0.000	0.000	1.962	0.033	0
L41	51.42-51.17	A	0.000	0.000	0.898	0.007	0
		B	0.000	0.000	0.487	0.007	0
		C	0.000	0.000	0.484	0.007	0
L42	51.17-46.50	A	0.000	0.000	14.048	0.131	0
		B	0.000	0.000	6.869	0.131	0
		C	0.000	0.000	6.966	0.131	0
L43	46.50-45.50	A	0.000	0.000	2.705	0.028	0
		B	0.000	0.000	1.059	0.028	0
		C	0.000	0.000	2.937	0.028	0
L44	45.50-44.25	A	0.000	0.000	4.491	0.035	0
		B	0.000	0.000	2.435	0.035	0
		C	0.000	0.000	3.671	0.035	0
L45	44.25-44.00	A	0.000	0.000	0.898	0.007	0
		B	0.000	0.000	0.487	0.007	0
		C	0.000	0.000	0.734	0.007	0
L46	44.00-43.08	A	0.000	0.000	3.295	0.026	0
		B	0.000	0.000	1.786	0.026	0
		C	0.000	0.000	2.693	0.026	0
L47	43.08-42.83	A	0.000	0.000	0.898	0.007	0
		B	0.000	0.000	0.487	0.007	0
		C	0.000	0.000	0.734	0.007	0
L48	42.83-37.83	A	0.000	0.000	15.819	0.140	0
		B	0.000	0.000	7.591	0.140	0
		C	0.000	0.000	12.536	0.140	0
L49	37.83-32.83	A	0.000	0.000	13.524	0.140	0
		B	0.000	0.000	5.297	0.140	0
		C	0.000	0.000	10.242	0.140	0
L50	32.83-29.25	A	0.000	0.000	9.691	0.100	0
		B	0.000	0.000	3.796	0.100	0
		C	0.000	0.000	8.693	0.100	0
L51	29.25-29.00	A	0.000	0.000	0.676	0.007	0
		B	0.000	0.000	0.265	0.007	0
		C	0.000	0.000	0.783	0.007	0
L52	29.00-27.75	A	0.000	0.000	3.381	0.035	0
		B	0.000	0.000	1.324	0.035	0

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
		C	0.000	0.000	3.915	0.035	0
L53	27.75-27.50	A	0.000	0.000	0.676	0.007	0
		B	0.000	0.000	0.265	0.007	0
		C	0.000	0.000	0.783	0.007	0
L54	27.50-24.08	A	0.000	0.000	9.242	0.096	0
		B	0.000	0.000	5.622	0.096	0
		C	0.000	0.000	10.701	0.096	0
L55	24.08-23.83	A	0.000	0.000	0.676	0.007	0
		B	0.000	0.000	0.472	0.007	0
		C	0.000	0.000	0.783	0.007	0
L56	23.83-23.50	A	0.000	0.000	0.901	0.009	0
		B	0.000	0.000	0.629	0.009	0
		C	0.000	0.000	1.043	0.009	0
L57	23.50-23.25	A	0.000	0.000	0.676	0.007	0
		B	0.000	0.000	0.472	0.007	0
		C	0.000	0.000	0.783	0.007	0
L58	23.25-18.92	A	0.000	0.000	9.137	0.121	0
		B	0.000	0.000	9.586	0.121	0
		C	0.000	0.000	12.393	0.121	0
L59	18.92-18.67	A	0.000	0.000	0.426	0.007	0
		B	0.000	0.000	0.694	0.007	0
		C	0.000	0.000	0.755	0.007	0
L60	18.67-18.08	A	0.000	0.000	0.996	0.016	0
		B	0.000	0.000	1.621	0.016	0
		C	0.000	0.000	1.764	0.016	0
L61	18.08-17.83	A	0.000	0.000	0.426	0.007	0
		B	0.000	0.000	0.694	0.007	0
		C	0.000	0.000	0.755	0.007	0
L62	17.83-14.08	A	0.000	0.000	6.393	0.105	0
		B	0.000	0.000	8.408	0.105	0
		C	0.000	0.000	11.325	0.105	0
L63	14.08-13.83	A	0.000	0.000	0.426	0.007	0
		B	0.000	0.000	0.487	0.007	0
		C	0.000	0.000	0.755	0.007	0
L64	13.83-8.83	A	0.000	0.000	8.524	0.140	0
		B	0.000	0.000	9.738	0.140	0
		C	0.000	0.000	12.582	0.140	0
L65	8.83-3.83	A	0.000	0.000	8.524	0.140	0
		B	0.000	0.000	9.738	0.140	0
		C	0.000	0.000	10.658	0.140	0
L66	3.83-0.00	A	0.000	0.000	6.090	0.107	0
		B	0.000	0.000	6.577	0.107	0
		C	0.000	0.000	7.185	0.107	0

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	140.00-135.00	A	1.961	0.000	0.000	0.000	0.000	0
		B		0.000	0.000	0.000	0.000	0
		C		0.000	0.000	0.000	0.000	0
L2	135.00-130.00	A	1.953	0.000	0.000	0.000	2.094	0
		B		0.000	0.000	0.000	2.094	0
		C		0.000	0.000	0.000	2.094	0
L3	130.00-125.00	A	1.946	0.000	0.000	0.000	2.086	0
		B		0.000	0.000	0.000	2.086	0
		C		0.000	0.000	0.000	2.086	0
L4	125.00-120.00	A	1.938	0.000	0.000	0.000	2.078	0
		B		0.000	0.000	0.000	2.078	0
		C		0.000	0.000	0.000	2.078	0
L5	120.00-115.00	A	1.930	0.000	0.000	0.000	2.070	0
		B		0.000	0.000	0.000	2.070	0
		C		0.000	0.000	1.638	2.070	0
L6	115.00-110.00	A	1.922	0.000	0.000	0.000	2.062	0
		B		0.000	0.000	0.000	2.062	0

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
		C		0.000	0.000	2.722	2.062	0
L7	110.00-105.00	A	1.913	0.000	0.000	0.000	2.053	0
		B		0.000	0.000	0.000	2.053	0
		C		0.000	0.000	2.713	2.053	0
L8	105.00-102.00	A	1.906	0.000	0.000	1.058	1.228	0
		B		0.000	0.000	1.058	1.228	0
		C		0.000	0.000	2.682	1.228	0
L9	102.00-101.75	A	1.903	0.000	0.000	0.227	0.102	0
		B		0.000	0.000	0.227	0.102	0
		C		0.000	0.000	0.362	0.102	0
L10	101.75-96.75	A	1.898	0.000	0.000	10.491	2.038	0
		B		0.000	0.000	6.213	2.038	0
		C		0.000	0.000	7.228	2.038	0
L11	96.75-91.75	A	1.888	0.000	0.000	16.519	2.028	0
		B		0.000	0.000	5.821	2.028	0
		C		0.000	0.000	10.059	2.028	0
L12	91.75-90.75	A	1.882	0.000	0.000	3.100	0.406	0
		B		0.000	0.000	0.516	0.406	0
		C		0.000	0.000	1.808	0.406	0
L13	90.75-85.75	A	1.876	0.000	0.000	16.254	2.016	0
		B		0.000	0.000	3.244	2.016	0
		C		0.000	0.000	9.698	2.016	0
L14	85.75-85.33	A	1.870	0.000	0.000	1.727	0.168	0
		B		0.000	0.000	0.590	0.168	0
		C		0.000	0.000	1.128	0.168	0
L15	85.33-85.08	A	1.869	0.000	0.000	1.035	0.100	0
		B		0.000	0.000	0.354	0.100	0
		C		0.000	0.000	0.676	0.100	0
L16	85.08-82.50	A	1.866	0.000	0.000	13.431	1.036	0
		B		0.000	0.000	3.652	1.036	0
		C		0.000	0.000	9.729	1.036	0
L17	82.50-82.25	A	1.863	0.000	0.000	1.377	0.100	0
		B		0.000	0.000	0.353	0.100	0
		C		0.000	0.000	1.019	0.100	0
L18	82.25-82.00	A	1.862	0.000	0.000	1.377	0.100	0
		B		0.000	0.000	0.353	0.100	0
		C		0.000	0.000	1.018	0.100	0
L19	82.00-81.75	A	1.862	0.000	0.000	1.376	0.100	0
		B		0.000	0.000	0.353	0.100	0
		C		0.000	0.000	1.018	0.100	0
L20	81.75-78.83	A	1.858	0.000	0.000	15.777	1.166	0
		B		0.000	0.000	5.323	1.166	0
		C		0.000	0.000	11.603	1.166	0
L21	78.83-78.58	A	1.854	0.000	0.000	1.316	0.100	0
		B		0.000	0.000	0.611	0.100	0
		C		0.000	0.000	0.959	0.100	0
L22	78.58-77.67	A	1.853	0.000	0.000	4.821	0.365	0
		B		0.000	0.000	2.237	0.365	0
		C		0.000	0.000	3.512	0.365	0
L23	77.67-77.42	A	1.852	0.000	0.000	1.315	0.100	0
		B		0.000	0.000	0.610	0.100	0
		C		0.000	0.000	0.958	0.100	0
L24	77.42-77.17	A	1.851	0.000	0.000	1.315	0.100	0
		B		0.000	0.000	0.610	0.100	0
		C		0.000	0.000	0.958	0.100	0
L25	77.17-72.17	A	1.845	0.000	0.000	26.275	1.985	0
		B		0.000	0.000	8.290	1.985	0
		C		0.000	0.000	15.242	1.985	0
L26	72.17-67.17	A	1.832	0.000	0.000	28.513	1.972	0
		B		0.000	0.000	11.097	1.972	0
		C		0.000	0.000	16.908	1.972	0
L27	67.17-66.58	A	1.824	0.000	0.000	3.789	0.229	0
		B		0.000	0.000	1.858	0.229	0
		C		0.000	0.000	2.436	0.229	0
L28	66.58-66.33	A	1.823	0.000	0.000	1.622	0.098	0
		B		0.000	0.000	0.795	0.098	0
		C		0.000	0.000	1.042	0.098	0
L29	66.33-66.17	A	1.823	0.000	0.000	1.077	0.065	0
		B		0.000	0.000	0.528	0.065	0

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
		C		0.000	0.000	0.692	0.065	0
L30	66.17-65.92	A	1.822	0.000	0.000	1.621	0.098	0
		B		0.000	0.000	0.795	0.098	0
		C		0.000	0.000	1.042	0.098	0
L31	65.92-62.67	A	1.817	0.000	0.000	16.165	1.272	0
		B		0.000	0.000	7.928	1.272	0
		C		0.000	0.000	8.643	1.272	0
L32	62.67-62.42	A	1.812	0.000	0.000	1.021	0.098	0
		B		0.000	0.000	0.537	0.098	0
		C		0.000	0.000	0.443	0.098	0
L33	62.42-60.00	A	1.808	0.000	0.000	10.833	0.942	0
		B		0.000	0.000	5.183	0.942	0
		C		0.000	0.000	4.282	0.942	0
L34	60.00-59.75	A	1.804	0.000	0.000	1.076	0.097	0
		B		0.000	0.000	0.535	0.097	0
		C		0.000	0.000	0.443	0.097	0
L35	59.75-58.33	A	1.802	0.000	0.000	6.095	0.550	0
		B		0.000	0.000	3.033	0.550	0
		C		0.000	0.000	2.507	0.550	0
L36	58.33-58.08	A	1.799	0.000	0.000	1.075	0.097	0
		B		0.000	0.000	0.535	0.097	0
		C		0.000	0.000	0.442	0.097	0
L37	58.08-53.08	A	1.791	0.000	0.000	21.465	1.931	0
		B		0.000	0.000	10.669	1.931	0
		C		0.000	0.000	8.824	1.931	0
L38	53.08-52.83	A	1.782	0.000	0.000	1.072	0.096	0
		B		0.000	0.000	0.532	0.096	0
		C		0.000	0.000	0.440	0.096	0
L39	52.83-52.58	A	1.781	0.000	0.000	1.071	0.096	0
		B		0.000	0.000	0.532	0.096	0
		C		0.000	0.000	0.440	0.096	0
L40	52.58-51.42	A	1.779	0.000	0.000	5.896	0.448	0
		B		0.000	0.000	3.381	0.448	0
		C		0.000	0.000	2.953	0.448	0
L41	51.42-51.17	A	1.777	0.000	0.000	1.341	0.096	0
		B		0.000	0.000	0.802	0.096	0
		C		0.000	0.000	0.710	0.096	0
L42	51.17-46.50	A	1.768	0.000	0.000	21.264	1.781	0
		B		0.000	0.000	11.832	1.781	0
		C		0.000	0.000	10.338	1.781	0
L43	46.50-45.50	A	1.757	0.000	0.000	4.210	0.382	0
		B		0.000	0.000	1.959	0.382	0
		C		0.000	0.000	4.190	0.382	0
L44	45.50-44.25	A	1.753	0.000	0.000	6.797	0.473	0
		B		0.000	0.000	3.988	0.473	0
		C		0.000	0.000	5.224	0.473	0
L45	44.25-44.00	A	1.750	0.000	0.000	1.359	0.095	0
		B		0.000	0.000	0.797	0.095	0
		C		0.000	0.000	1.044	0.095	0
L46	44.00-43.08	A	1.748	0.000	0.000	4.981	0.346	0
		B		0.000	0.000	2.922	0.346	0
		C		0.000	0.000	3.829	0.346	0
L47	43.08-42.83	A	1.745	0.000	0.000	1.358	0.094	0
		B		0.000	0.000	0.796	0.094	0
		C		0.000	0.000	1.043	0.094	0
L48	42.83-37.83	A	1.734	0.000	0.000	24.495	1.874	0
		B		0.000	0.000	13.282	1.874	0
		C		0.000	0.000	18.227	1.874	0
L49	37.83-32.83	A	1.712	0.000	0.000	21.616	1.852	0
		B		0.000	0.000	10.431	1.852	0
		C		0.000	0.000	15.376	1.852	0
L50	32.83-29.25	A	1.690	0.000	0.000	15.423	1.311	0
		B		0.000	0.000	7.428	1.311	0
		C		0.000	0.000	12.748	1.311	0
L51	29.25-29.00	A	1.679	0.000	0.000	1.074	0.091	0
		B		0.000	0.000	0.517	0.091	0
		C		0.000	0.000	1.119	0.091	0
L52	29.00-27.75	A	1.675	0.000	0.000	5.365	0.454	0
		B		0.000	0.000	2.580	0.454	0

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
		C		0.000	0.000	5.589	0.454	0
L53	27.75-27.50	A	1.670	0.000	0.000	1.072	0.091	0
		B		0.000	0.000	0.515	0.091	0
		C		0.000	0.000	1.117	0.091	0
L54	27.50-24.08	A	1.659	0.000	0.000	14.618	1.229	0
		B		0.000	0.000	9.457	1.229	0
		C		0.000	0.000	15.235	1.229	0
L55	24.08-23.83	A	1.646	0.000	0.000	1.067	0.089	0
		B		0.000	0.000	0.764	0.089	0
		C		0.000	0.000	1.112	0.089	0
L56	23.83-23.50	A	1.644	0.000	0.000	1.421	0.119	0
		B		0.000	0.000	1.017	0.119	0
		C		0.000	0.000	1.481	0.119	0
L57	23.50-23.25	A	1.642	0.000	0.000	1.066	0.089	0
		B		0.000	0.000	0.763	0.089	0
		C		0.000	0.000	1.111	0.089	0
L58	23.25-18.92	A	1.625	0.000	0.000	14.992	1.530	0
		B		0.000	0.000	15.090	1.530	0
		C		0.000	0.000	17.702	1.530	0
L59	18.92-18.67	A	1.607	0.000	0.000	0.728	0.087	0
		B		0.000	0.000	1.059	0.087	0
		C		0.000	0.000	1.076	0.087	0
L60	18.67-18.08	A	1.603	0.000	0.000	1.700	0.204	0
		B		0.000	0.000	2.472	0.204	0
		C		0.000	0.000	2.513	0.204	0
L61	18.08-17.83	A	1.600	0.000	0.000	0.727	0.087	0
		B		0.000	0.000	1.057	0.087	0
		C		0.000	0.000	1.075	0.087	0
L62	17.83-14.08	A	1.581	0.000	0.000	10.859	1.291	0
		B		0.000	0.000	13.379	1.291	0
		C		0.000	0.000	16.067	1.291	0
L63	14.08-13.83	A	1.560	0.000	0.000	0.721	0.085	0
		B		0.000	0.000	0.799	0.085	0
		C		0.000	0.000	1.067	0.085	0
L64	13.83-8.83	A	1.528	0.000	0.000	14.306	1.668	0
		B		0.000	0.000	15.848	1.668	0
		C		0.000	0.000	17.827	1.668	0
L65	8.83-3.83	A	1.441	0.000	0.000	14.025	1.581	0
		B		0.000	0.000	15.503	1.581	0
		C		0.000	0.000	14.982	1.581	0
L66	3.83-0.00	A	1.279	0.000	0.000	9.775	1.087	0
		B		0.000	0.000	10.242	1.087	0
		C		0.000	0.000	9.870	1.087	0

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	140.00-135.00	0.0000	0.0000	0.0000	0.0000
L2	135.00-130.00	0.0000	0.0000	0.0000	0.0000
L3	130.00-125.00	0.0000	0.0000	0.0000	0.0000
L4	125.00-120.00	0.0000	0.0000	0.0000	0.0000
L5	120.00-115.00	0.5004	0.2889	0.7793	0.4499
L6	115.00-110.00	0.8008	0.4623	1.2457	0.7192
L7	110.00-105.00	0.8026	0.4634	1.2684	0.7323
L8	105.00-102.00	0.5888	0.3399	1.0439	0.6027
L9	102.00-101.75	0.4177	0.2412	0.8129	0.4693
L10	101.75-96.75	0.3460	-1.4022	0.6390	-1.6657
L11	96.75-91.75	0.1621	-0.3122	0.4577	-1.2658
L12	91.75-90.75	0.1134	0.6023	0.4591	-0.7722
L13	90.75-85.75	0.1095	0.5798	0.4444	-0.7799
L14	85.75-85.33	0.0855	0.4517	0.3556	-0.7898
L15	85.33-85.08	0.0858	0.4529	0.3564	-0.7912
L16	85.08-82.50	-0.9771	0.9837	-0.5328	-0.1991

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L17	82.50-82.25	-1.2280	1.1123	-0.7525	-0.0551
L18	82.25-82.00	-1.2296	1.1139	-0.7536	-0.0548
L19	82.00-81.75	-1.2306	1.1150	-0.7545	-0.0545
L20	81.75-78.83	-1.1895	0.4498	-0.7143	-0.5520
L21	78.83-78.58	-1.1235	-0.5540	-0.6528	-1.2782
L22	78.58-77.67	-1.1270	-0.5555	-0.6552	-1.2819
L23	77.67-77.42	-1.1303	-0.5569	-0.6575	-1.2855
L24	77.42-77.17	-1.1318	-0.5576	-0.6585	-1.2871
L25	77.17-72.17	-1.4014	-1.8130	-0.8090	-2.3096
L26	72.17-67.17	-1.3071	-1.8849	-0.6684	-2.4785
L27	67.17-66.58	-1.1109	-1.6333	-0.5189	-2.2977
L28	66.58-66.33	-1.1135	-1.6370	-0.5203	-2.3029
L29	66.33-66.17	-1.1146	-1.6386	-0.5210	-2.3053
L30	66.17-65.92	-1.1154	-1.6398	-0.5216	-2.3072
L31	65.92-62.67	-0.5459	-2.6844	0.0403	-3.2956
L32	62.67-62.42	0.1910	-3.7445	0.6659	-4.1920
L33	62.42-60.00	-1.2867	-3.4337	-0.3552	-3.8539
L34	60.00-59.75	-1.5842	-3.0483	-0.5476	-3.5257
L35	59.75-58.33	-1.5894	-3.0582	-0.5506	-3.5387
L36	58.33-58.08	-1.5947	-3.0680	-0.5537	-3.5516
L37	58.08-53.08	-1.6111	-3.0985	-0.5633	-3.5920
L38	53.08-52.83	-1.6273	-3.1287	-0.5731	-3.6320
L39	52.83-52.58	-1.6300	-3.1338	-0.5743	-3.6375
L40	52.58-51.42	-1.3078	-2.5142	-0.4935	-3.1205
L41	51.42-51.17	-1.2142	-2.3340	-0.4686	-2.9578
L42	51.17-46.50	-1.1887	-2.6090	-0.3539	-3.2924
L43	46.50-45.50	-0.0441	-1.4607	0.4834	-2.3222
L44	45.50-44.25	-1.3320	-2.1367	-0.6968	-2.7899
L45	44.25-44.00	-1.3365	-2.1439	-0.6999	-2.7992
L46	44.00-43.08	-1.3399	-2.1492	-0.7023	-2.8061
L47	43.08-42.83	-1.3434	-2.1547	-0.7047	-2.8132
L48	42.83-37.83	-1.5308	-2.4550	-0.7817	-3.1071
L49	37.83-32.83	-1.8038	-2.8922	-0.8921	-3.5147
L50	32.83-29.25	-2.8178	-3.0823	-1.7070	-3.6634
L51	29.25-29.00	-4.4736	-3.3451	-3.0753	-3.8470
L52	29.00-27.75	-4.4858	-3.3543	-3.0864	-3.8578
L53	27.75-27.50	-4.4981	-3.3636	-3.0974	-3.8685
L54	27.50-24.08	-3.1694	-2.6740	-2.1675	-3.3416
L55	24.08-23.83	-2.6611	-2.4098	-1.8138	-3.1474
L56	23.83-23.50	-2.6644	-2.4127	-1.8165	-3.1504
L57	23.50-23.25	-2.6664	-2.4145	-1.8182	-3.1519
L58	23.25-18.92	-1.4320	-0.5097	-0.7630	-1.5865
L59	18.92-18.67	-0.2269	2.3822	0.2228	0.8777
L60	18.67-18.08	-0.2275	2.3861	0.2223	0.8806
L61	18.08-17.83	-0.2282	2.3905	0.2219	0.8838
L62	17.83-14.08	-1.3420	2.0127	-0.5893	0.5447
L63	14.08-13.83	-2.0132	1.7891	-1.0733	0.3507
L64	13.83-8.83	-3.1781	1.1819	-2.0003	-0.2077
L65	8.83-3.83	-4.1929	0.6777	-2.8239	-0.6499
L66	3.83-0.00	-3.8964	0.3458	-2.5919	-0.9382

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
L5	22	CU12PSM9P6XXX(1-1/2)	115.00 - 118.00	1.0000	1.0000
L6	22	CU12PSM9P6XXX(1-1/2)	110.00 - 115.00	1.0000	1.0000

Tower Section	*Feed Line Record No.*	*Description*	*Feed Line Segment Elev.*	*K_a No Ice*	*K_a Ice*
L7	22	CU12PSM9P6XXX(1-1/2)	105.00 - 110.00	1.0000	1.0000
L8	22	CU12PSM9P6XXX(1-1/2)	102.00 - 105.00	1.0000	1.0000
L8	47	(Area) Aero MP3-03 (H)	102.00 - 103.17	1.0000	1.0000
L8	48	(Area) Aero MP3-03 (H)	102.00 - 103.17	1.0000	1.0000
L8	49	(Area) Aero MP3-03 (H)	102.00 - 103.17	1.0000	1.0000
L9	22	CU12PSM9P6XXX(1-1/2)	101.75 - 102.00	1.0000	1.0000
L9	47	(Area) Aero MP3-03 (H)	101.75 - 102.00	1.0000	1.0000
L9	48	(Area) Aero MP3-03 (H)	101.75 - 102.00	1.0000	1.0000
L9	49	(Area) Aero MP3-03 (H)	101.75 - 102.00	1.0000	1.0000
L10	13	LDF5-50A(7/8")	96.75 - 100.00	1.0000	1.0000
L10	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	96.75 - 100.00	1.0000	1.0000
L10	15	HCS 6X12 6AWG(1-3/8)	96.75 - 100.00	1.0000	1.0000
L10	22	CU12PSM9P6XXX(1-1/2)	96.75 - 101.75	1.0000	1.0000
L10	47	(Area) Aero MP3-03 (H)	96.75 - 101.75	1.0000	1.0000
L10	48	(Area) Aero MP3-03 (H)	96.75 - 101.75	1.0000	1.0000
L10	49	(Area) Aero MP3-03 (H)	96.75 - 101.75	1.0000	1.0000
L11	13	LDF5-50A(7/8")	91.75 - 96.75	1.0000	1.0000
L11	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	91.75 - 96.75	1.0000	1.0000
L11	15	HCS 6X12 6AWG(1-3/8)	91.75 - 96.75	1.0000	1.0000
L11	22	CU12PSM9P6XXX(1-1/2)	91.75 - 96.75	1.0000	1.0000
L11	35	(Area) CCI-65FP-060100 (H)	91.75 - 95.00	1.0000	1.0000
L11	36	(Area) CCI-65FP-060100 (H)	91.75 - 95.00	1.0000	1.0000
L11	47	(Area) Aero MP3-03 (H)	93.17 - 96.75	1.0000	1.0000
L11	48	(Area) Aero MP3-03 (H)	93.17 - 96.75	1.0000	1.0000
L11	49	(Area) Aero MP3-03 (H)	93.17 - 96.75	1.0000	1.0000
L12	13	LDF5-50A(7/8")	90.75 - 91.75	1.0000	1.0000
L12	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	90.75 - 91.75	1.0000	1.0000
L12	15	HCS 6X12 6AWG(1-3/8)	90.75 - 91.75	1.0000	1.0000
L12	22	CU12PSM9P6XXX(1-1/2)	90.75 - 91.75	1.0000	1.0000
L12	35	(Area) CCI-65FP-060100 (H)	90.75 - 91.75	1.0000	1.0000
L12	36	(Area) CCI-65FP-060100 (H)	90.75 - 91.75	1.0000	1.0000
L13	13	LDF5-50A(7/8")	85.75 - 90.75	1.0000	1.0000
L13	14	MLE Hybrid 9Power/18Fiber RL 2(1	85.75 - 90.75	1.0000	1.0000

Tower Section	*Feed Line Record No.*	*Description*	*Feed Line Segment Elev.*	*K_a No Ice*	*K_a Ice*
		5/8)			
L13	15	HCS 6X12 6AWG(1-3/8)	85.75 - 90.75	1.0000	1.0000
L13	22	CU12PSM9P6XXX(1-1/2)	85.75 - 90.75	1.0000	1.0000
L13	35	(Area) CCI-65FP-060100 (H)	85.75 - 90.75	1.0000	1.0000
L13	36	(Area) CCI-65FP-060100 (H)	85.75 - 90.75	1.0000	1.0000
L13	44	(Area) Aero MP3-03 (H)	85.75 - 86.50	1.0000	1.0000
L13	45	(Area) Aero MP3-03 (H)	85.75 - 86.50	1.0000	1.0000
L13	46	(Area) Aero MP3-03 (H)	85.75 - 86.50	1.0000	1.0000
L14	13	LDF5-50A(7/8")	85.33 - 85.75	1.0000	1.0000
L14	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	85.33 - 85.75	1.0000	1.0000
L14	15	HCS 6X12 6AWG(1-3/8)	85.33 - 85.75	1.0000	1.0000
L14	22	CU12PSM9P6XXX(1-1/2)	85.33 - 85.75	1.0000	1.0000
L14	35	(Area) CCI-65FP-060100 (H)	85.33 - 85.75	1.0000	1.0000
L14	36	(Area) CCI-65FP-060100 (H)	85.33 - 85.75	1.0000	1.0000
L14	44	(Area) Aero MP3-03 (H)	85.33 - 85.75	1.0000	1.0000
L14	45	(Area) Aero MP3-03 (H)	85.33 - 85.75	1.0000	1.0000
L14	46	(Area) Aero MP3-03 (H)	85.33 - 85.75	1.0000	1.0000
L15	13	LDF5-50A(7/8")	85.08 - 85.33	1.0000	1.0000
L15	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	85.08 - 85.33	1.0000	1.0000
L15	15	HCS 6X12 6AWG(1-3/8)	85.08 - 85.33	1.0000	1.0000
L15	22	CU12PSM9P6XXX(1-1/2)	85.08 - 85.33	1.0000	1.0000
L15	35	(Area) CCI-65FP-060100 (H)	85.08 - 85.33	1.0000	1.0000
L15	36	(Area) CCI-65FP-060100 (H)	85.08 - 85.33	1.0000	1.0000
L15	44	(Area) Aero MP3-03 (H)	85.08 - 85.33	1.0000	1.0000
L15	45	(Area) Aero MP3-03 (H)	85.08 - 85.33	1.0000	1.0000
L15	46	(Area) Aero MP3-03 (H)	85.08 - 85.33	1.0000	1.0000
L16	13	LDF5-50A(7/8")	82.50 - 85.08	1.0000	1.0000
L16	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	82.50 - 85.08	1.0000	1.0000
L16	15	HCS 6X12 6AWG(1-3/8)	82.50 - 85.08	1.0000	1.0000
L16	22	CU12PSM9P6XXX(1-1/2)	82.50 - 85.08	1.0000	1.0000
L16	33	(Area) CCI-65FP-060100 (H)	82.50 - 84.50	1.0000	1.0000
L16	34	(Area) CCI-65FP-060100 (H)	82.50 - 84.50	1.0000	1.0000
L16	35	(Area) CCI-65FP-060100 (H)	82.50 - 85.08	1.0000	1.0000
L16	36	(Area) CCI-65FP-060100	82.50 -	1.0000	1.0000

Tower Section	*Feed Line Record No.*	*Description*	*Feed Line Segment Elev.*	*K_a No Ice*	*K_a Ice*
		(H)	85.08		
L16	44	(Area) Aero MP3-03 (H)	82.50 - 85.08	1.0000	1.0000
L16	45	(Area) Aero MP3-03 (H)	82.50 - 85.08	1.0000	1.0000
L16	46	(Area) Aero MP3-03 (H)	82.50 - 85.08	1.0000	1.0000
L17	13	LDF5-50A(7/8")	82.25 - 82.50	1.0000	1.0000
L17	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	82.25 - 82.50	1.0000	1.0000
L17	15	HCS 6X12 6AWG(1-3/8)	82.25 - 82.50	1.0000	1.0000
L17	22	CU12PSM9P6XXX(1-1/2)	82.25 - 82.50	1.0000	1.0000
L17	33	(Area) CCI-65FP-060100 (H)	82.25 - 82.50	1.0000	1.0000
L17	34	(Area) CCI-65FP-060100 (H)	82.25 - 82.50	1.0000	1.0000
L17	35	(Area) CCI-65FP-060100 (H)	82.25 - 82.50	1.0000	1.0000
L17	36	(Area) CCI-65FP-060100 (H)	82.25 - 82.50	1.0000	1.0000
L17	44	(Area) Aero MP3-03 (H)	82.25 - 82.50	1.0000	1.0000
L17	45	(Area) Aero MP3-03 (H)	82.25 - 82.50	1.0000	1.0000
L17	46	(Area) Aero MP3-03 (H)	82.25 - 82.50	1.0000	1.0000
L18	13	LDF5-50A(7/8")	82.00 - 82.25	1.0000	1.0000
L18	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	82.00 - 82.25	1.0000	1.0000
L18	15	HCS 6X12 6AWG(1-3/8)	82.00 - 82.25	1.0000	1.0000
L18	22	CU12PSM9P6XXX(1-1/2)	82.00 - 82.25	1.0000	1.0000
L18	33	(Area) CCI-65FP-060100 (H)	82.00 - 82.25	1.0000	1.0000
L18	34	(Area) CCI-65FP-060100 (H)	82.00 - 82.25	1.0000	1.0000
L18	35	(Area) CCI-65FP-060100 (H)	82.00 - 82.25	1.0000	1.0000
L18	36	(Area) CCI-65FP-060100 (H)	82.00 - 82.25	1.0000	1.0000
L18	44	(Area) Aero MP3-03 (H)	82.00 - 82.25	1.0000	1.0000
L18	45	(Area) Aero MP3-03 (H)	82.00 - 82.25	1.0000	1.0000
L18	46	(Area) Aero MP3-03 (H)	82.00 - 82.25	1.0000	1.0000
L19	13	LDF5-50A(7/8")	81.75 - 82.00	1.0000	1.0000
L19	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	81.75 - 82.00	1.0000	1.0000
L19	15	HCS 6X12 6AWG(1-3/8)	81.75 - 82.00	1.0000	1.0000
L19	22	CU12PSM9P6XXX(1-1/2)	81.75 - 82.00	1.0000	1.0000
L19	33	(Area) CCI-65FP-060100 (H)	81.75 - 82.00	1.0000	1.0000
L19	34	(Area) CCI-65FP-060100 (H)	81.75 - 82.00	1.0000	1.0000
L19	35	(Area) CCI-65FP-060100 (H)	81.75 - 82.00	1.0000	1.0000
L19	36	(Area) CCI-65FP-060100	81.75 -	1.0000	1.0000

Tower Section	*Feed Line Record No.*	*Description*	*Feed Line Segment Elev.*	*K_a No Ice*	*K_a Ice*
		(H)	82.00		
L19	44	(Area) Aero MP3-03 (H)	81.75 - 82.00	1.0000	1.0000
L19	45	(Area) Aero MP3-03 (H)	81.75 - 82.00	1.0000	1.0000
L19	46	(Area) Aero MP3-03 (H)	81.75 - 82.00	1.0000	1.0000
L20	13	LDF5-50A(7/8")	78.83 - 81.75	1.0000	1.0000
L20	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	78.83 - 81.75	1.0000	1.0000
L20	15	HCS 6X12 6AWG(1-3/8)	78.83 - 81.75	1.0000	1.0000
L20	22	CU12PSM9P6XXX(1-1/2)	78.83 - 81.75	1.0000	1.0000
L20	33	(Area) CCI-65FP-060100 (H)	78.83 - 81.75	1.0000	1.0000
L20	34	(Area) CCI-65FP-060100 (H)	78.83 - 81.75	1.0000	1.0000
L20	35	(Area) CCI-65FP-060100 (H)	80.00 - 81.75	1.0000	1.0000
L20	36	(Area) CCI-65FP-060100 (H)	80.00 - 81.75	1.0000	1.0000
L20	44	(Area) Aero MP3-03 (H)	78.83 - 81.75	1.0000	1.0000
L20	45	(Area) Aero MP3-03 (H)	78.83 - 81.75	1.0000	1.0000
L20	46	(Area) Aero MP3-03 (H)	78.83 - 81.75	1.0000	1.0000
L20	55	(Area) Aero MP3-03 (H)	78.83 - 80.00	1.0000	1.0000
L20	56	(Area) Aero MP3-03 (H)	78.83 - 80.00	1.0000	1.0000
L20	57	(Area) Aero MP3-03 (H)	78.83 - 80.00	1.0000	1.0000
L21	13	LDF5-50A(7/8")	78.58 - 78.83	1.0000	1.0000
L21	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	78.58 - 78.83	1.0000	1.0000
L21	15	HCS 6X12 6AWG(1-3/8)	78.58 - 78.83	1.0000	1.0000
L21	22	CU12PSM9P6XXX(1-1/2)	78.58 - 78.83	1.0000	1.0000
L21	33	(Area) CCI-65FP-060100 (H)	78.58 - 78.83	1.0000	1.0000
L21	34	(Area) CCI-65FP-060100 (H)	78.58 - 78.83	1.0000	1.0000
L21	44	(Area) Aero MP3-03 (H)	78.58 - 78.83	1.0000	1.0000
L21	45	(Area) Aero MP3-03 (H)	78.58 - 78.83	1.0000	1.0000
L21	46	(Area) Aero MP3-03 (H)	78.58 - 78.83	1.0000	1.0000
L21	55	(Area) Aero MP3-03 (H)	78.58 - 78.83	1.0000	1.0000
L21	56	(Area) Aero MP3-03 (H)	78.58 - 78.83	1.0000	1.0000
L21	57	(Area) Aero MP3-03 (H)	78.58 - 78.83	1.0000	1.0000
L22	13	LDF5-50A(7/8")	77.67 - 78.58	1.0000	1.0000
L22	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	77.67 - 78.58	1.0000	1.0000
L22	15	HCS 6X12 6AWG(1-3/8)	77.67 - 78.58	1.0000	1.0000
L22	22	CU12PSM9P6XXX(1-1/2)	77.67 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			78.58		
L22	33	(Area) CCI-65FP-060100 (H)	77.67 - 78.58	1.0000	1.0000
L22	34	(Area) CCI-65FP-060100 (H)	77.67 - 78.58	1.0000	1.0000
L22	44	(Area) Aero MP3-03 (H)	77.67 - 78.58	1.0000	1.0000
L22	45	(Area) Aero MP3-03 (H)	77.67 - 78.58	1.0000	1.0000
L22	46	(Area) Aero MP3-03 (H)	77.67 - 78.58	1.0000	1.0000
L22	55	(Area) Aero MP3-03 (H)	77.67 - 78.58	1.0000	1.0000
L22	56	(Area) Aero MP3-03 (H)	77.67 - 78.58	1.0000	1.0000
L22	57	(Area) Aero MP3-03 (H)	77.67 - 78.58	1.0000	1.0000
L23	13	LDF5-50A(7/8")	77.42 - 77.67	1.0000	1.0000
L23	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	77.42 - 77.67	1.0000	1.0000
L23	15	HCS 6X12 6AWG(1-3/8)	77.42 - 77.67	1.0000	1.0000
L23	22	CU12PSM9P6XXX(1-1/2)	77.42 - 77.67	1.0000	1.0000
L23	33	(Area) CCI-65FP-060100 (H)	77.42 - 77.67	1.0000	1.0000
L23	34	(Area) CCI-65FP-060100 (H)	77.42 - 77.67	1.0000	1.0000
L23	44	(Area) Aero MP3-03 (H)	77.42 - 77.67	1.0000	1.0000
L23	45	(Area) Aero MP3-03 (H)	77.42 - 77.67	1.0000	1.0000
L23	46	(Area) Aero MP3-03 (H)	77.42 - 77.67	1.0000	1.0000
L23	55	(Area) Aero MP3-03 (H)	77.42 - 77.67	1.0000	1.0000
L23	56	(Area) Aero MP3-03 (H)	77.42 - 77.67	1.0000	1.0000
L23	57	(Area) Aero MP3-03 (H)	77.42 - 77.67	1.0000	1.0000
L24	13	LDF5-50A(7/8")	77.17 - 77.42	1.0000	1.0000
L24	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	77.17 - 77.42	1.0000	1.0000
L24	15	HCS 6X12 6AWG(1-3/8)	77.17 - 77.42	1.0000	1.0000
L24	22	CU12PSM9P6XXX(1-1/2)	77.17 - 77.42	1.0000	1.0000
L24	33	(Area) CCI-65FP-060100 (H)	77.17 - 77.42	1.0000	1.0000
L24	34	(Area) CCI-65FP-060100 (H)	77.17 - 77.42	1.0000	1.0000
L24	44	(Area) Aero MP3-03 (H)	77.17 - 77.42	1.0000	1.0000
L24	45	(Area) Aero MP3-03 (H)	77.17 - 77.42	1.0000	1.0000
L24	46	(Area) Aero MP3-03 (H)	77.17 - 77.42	1.0000	1.0000
L24	55	(Area) Aero MP3-03 (H)	77.17 - 77.42	1.0000	1.0000
L24	56	(Area) Aero MP3-03 (H)	77.17 - 77.42	1.0000	1.0000
L24	57	(Area) Aero MP3-03 (H)	77.17 - 77.42	1.0000	1.0000
L25	13	LDF5-50A(7/8")	72.17 - 77.17	1.0000	1.0000

Tower Section	*Feed Line Record No.*	*Description*	*Feed Line Segment Elev.*	*K_a No Ice*	*K_a Ice*
L25	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	72.17 - 77.17	1.0000	1.0000
L25	15	HCS 6X12 6AWG(1-3/8)	72.17 - 77.17	1.0000	1.0000
L25	22	CU12PSM9P6XXX(1-1/2)	72.17 - 77.17	1.0000	1.0000
L25	33	(Area) CCI-65FP-060100 (H)	72.17 - 77.17	1.0000	1.0000
L25	34	(Area) CCI-65FP-060100 (H)	72.17 - 77.17	1.0000	1.0000
L25	44	(Area) Aero MP3-03 (H)	72.17 - 77.17	1.0000	1.0000
L25	45	(Area) Aero MP3-03 (H)	76.50 - 77.17	1.0000	1.0000
L25	46	(Area) Aero MP3-03 (H)	76.50 - 77.17	1.0000	1.0000
L25	55	(Area) Aero MP3-03 (H)	72.17 - 77.17	1.0000	1.0000
L25	56	(Area) Aero MP3-03 (H)	72.17 - 77.17	1.0000	1.0000
L25	57	(Area) Aero MP3-03 (H)	72.17 - 77.17	1.0000	1.0000
L26	13	LDF5-50A(7/8")	67.17 - 72.17	1.0000	1.0000
L26	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	67.17 - 72.17	1.0000	1.0000
L26	15	HCS 6X12 6AWG(1-3/8)	67.17 - 72.17	1.0000	1.0000
L26	17	9207(5/16")	67.17 - 70.00	1.0000	1.0000
L26	22	CU12PSM9P6XXX(1-1/2)	67.17 - 72.17	1.0000	1.0000
L26	33	(Area) CCI-65FP-060100 (H)	67.17 - 72.17	1.0000	1.0000
L26	34	(Area) CCI-65FP-060100 (H)	67.17 - 72.17	1.0000	1.0000
L26	44	(Area) Aero MP3-03 (H)	67.17 - 72.17	1.0000	1.0000
L26	55	(Area) Aero MP3-03 (H)	67.17 - 72.17	1.0000	1.0000
L26	56	(Area) Aero MP3-03 (H)	67.17 - 72.17	1.0000	1.0000
L26	57	(Area) Aero MP3-03 (H)	67.17 - 72.17	1.0000	1.0000
L26	65	(Area) Aero MP3-05 (H)	67.17 - 69.00	1.0000	1.0000
L26	66	(Area) Aero MP3-05 (H)	67.17 - 69.00	1.0000	1.0000
L26	67	(Area) Aero MP3-05 (H)	67.17 - 69.00	1.0000	1.0000
L27	13	LDF5-50A(7/8")	66.58 - 67.17	1.0000	1.0000
L27	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	66.58 - 67.17	1.0000	1.0000
L27	15	HCS 6X12 6AWG(1-3/8)	66.58 - 67.17	1.0000	1.0000
L27	17	9207(5/16")	66.58 - 67.17	1.0000	1.0000
L27	22	CU12PSM9P6XXX(1-1/2)	66.58 - 67.17	1.0000	1.0000
L27	33	(Area) CCI-65FP-060100 (H)	66.58 - 67.17	1.0000	1.0000
L27	34	(Area) CCI-65FP-060100 (H)	66.58 - 67.17	1.0000	1.0000
L27	44	(Area) Aero MP3-03 (H)	66.58 - 67.17	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L27	55	(Area) Aero MP3-03 (H)	66.58 - 67.17	1.0000	1.0000
L27	56	(Area) Aero MP3-03 (H)	66.58 - 67.17	1.0000	1.0000
L27	57	(Area) Aero MP3-03 (H)	66.58 - 67.17	1.0000	1.0000
L27	65	(Area) Aero MP3-05 (H)	66.58 - 67.17	1.0000	1.0000
L27	66	(Area) Aero MP3-05 (H)	66.58 - 67.17	1.0000	1.0000
L27	67	(Area) Aero MP3-05 (H)	66.58 - 67.17	1.0000	1.0000
L28	13	LDF5-50A(7/8")	66.33 - 66.58	1.0000	1.0000
L28	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	66.33 - 66.58	1.0000	1.0000
L28	15	HCS 6X12 6AWG(1-3/8)	66.33 - 66.58	1.0000	1.0000
L28	17	9207(5/16")	66.33 - 66.58	1.0000	1.0000
L28	22	CU12PSM9P6XXX(1-1/2)	66.33 - 66.58	1.0000	1.0000
L28	33	(Area) CCI-65FP-060100 (H)	66.33 - 66.58	1.0000	1.0000
L28	34	(Area) CCI-65FP-060100 (H)	66.33 - 66.58	1.0000	1.0000
L28	44	(Area) Aero MP3-03 (H)	66.33 - 66.58	1.0000	1.0000
L28	55	(Area) Aero MP3-03 (H)	66.33 - 66.58	1.0000	1.0000
L28	56	(Area) Aero MP3-03 (H)	66.33 - 66.58	1.0000	1.0000
L28	57	(Area) Aero MP3-03 (H)	66.33 - 66.58	1.0000	1.0000
L28	65	(Area) Aero MP3-05 (H)	66.33 - 66.58	1.0000	1.0000
L28	66	(Area) Aero MP3-05 (H)	66.33 - 66.58	1.0000	1.0000
L28	67	(Area) Aero MP3-05 (H)	66.33 - 66.58	1.0000	1.0000
L29	13	LDF5-50A(7/8")	66.17 - 66.33	1.0000	1.0000
L29	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	66.17 - 66.33	1.0000	1.0000
L29	15	HCS 6X12 6AWG(1-3/8)	66.17 - 66.33	1.0000	1.0000
L29	17	9207(5/16")	66.17 - 66.33	1.0000	1.0000
L29	22	CU12PSM9P6XXX(1-1/2)	66.17 - 66.33	1.0000	1.0000
L29	33	(Area) CCI-65FP-060100 (H)	66.17 - 66.33	1.0000	1.0000
L29	34	(Area) CCI-65FP-060100 (H)	66.17 - 66.33	1.0000	1.0000
L29	44	(Area) Aero MP3-03 (H)	66.17 - 66.33	1.0000	1.0000
L29	55	(Area) Aero MP3-03 (H)	66.17 - 66.33	1.0000	1.0000
L29	56	(Area) Aero MP3-03 (H)	66.17 - 66.33	1.0000	1.0000
L29	57	(Area) Aero MP3-03 (H)	66.17 - 66.33	1.0000	1.0000
L29	65	(Area) Aero MP3-05 (H)	66.17 - 66.33	1.0000	1.0000
L29	66	(Area) Aero MP3-05 (H)	66.17 - 66.33	1.0000	1.0000
L29	67	(Area) Aero MP3-05 (H)	66.17 -	1.0000	1.0000

Tower Section	*Feed Line Record No.*	*Description*	*Feed Line Segment Elev.*	*K_a No Ice*	*K_a Ice*
			66.33		
L30	13	LDF5-50A(7/8")	65.92 - 66.17	1.0000	1.0000
L30	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	65.92 - 66.17	1.0000	1.0000
L30	15	HCS 6X12 6AWG(1-3/8)	65.92 - 66.17	1.0000	1.0000
L30	17	9207(5/16")	65.92 - 66.17	1.0000	1.0000
L30	22	CU12PSM9P6XXX(1-1/2)	65.92 - 66.17	1.0000	1.0000
L30	33	(Area) CCI-65FP-060100 (H)	65.92 - 66.17	1.0000	1.0000
L30	34	(Area) CCI-65FP-060100 (H)	65.92 - 66.17	1.0000	1.0000
L30	44	(Area) Aero MP3-03 (H)	65.92 - 66.17	1.0000	1.0000
L30	55	(Area) Aero MP3-03 (H)	65.92 - 66.17	1.0000	1.0000
L30	56	(Area) Aero MP3-03 (H)	65.92 - 66.17	1.0000	1.0000
L30	57	(Area) Aero MP3-03 (H)	65.92 - 66.17	1.0000	1.0000
L30	65	(Area) Aero MP3-05 (H)	65.92 - 66.17	1.0000	1.0000
L30	66	(Area) Aero MP3-05 (H)	65.92 - 66.17	1.0000	1.0000
L30	67	(Area) Aero MP3-05 (H)	65.92 - 66.17	1.0000	1.0000
L31	13	LDF5-50A(7/8")	62.67 - 65.92	1.0000	1.0000
L31	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	62.67 - 65.92	1.0000	1.0000
L31	15	HCS 6X12 6AWG(1-3/8)	62.67 - 65.92	1.0000	1.0000
L31	17	9207(5/16")	62.67 - 65.92	1.0000	1.0000
L31	22	CU12PSM9P6XXX(1-1/2)	62.67 - 65.92	1.0000	1.0000
L31	33	(Area) CCI-65FP-060100 (H)	64.50 - 65.92	1.0000	1.0000
L31	34	(Area) CCI-65FP-060100 (H)	64.50 - 65.92	1.0000	1.0000
L31	44	(Area) Aero MP3-03 (H)	62.67 - 65.92	1.0000	1.0000
L31	55	(Area) Aero MP3-03 (H)	65.00 - 65.92	1.0000	1.0000
L31	56	(Area) Aero MP3-03 (H)	65.00 - 65.92	1.0000	1.0000
L31	57	(Area) Aero MP3-03 (H)	65.00 - 65.92	1.0000	1.0000
L31	65	(Area) Aero MP3-05 (H)	62.67 - 65.92	1.0000	1.0000
L31	66	(Area) Aero MP3-05 (H)	62.67 - 65.92	1.0000	1.0000
L31	67	(Area) Aero MP3-05 (H)	62.67 - 65.92	1.0000	1.0000
L32	13	LDF5-50A(7/8")	62.42 - 62.67	1.0000	1.0000
L32	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	62.42 - 62.67	1.0000	1.0000
L32	15	HCS 6X12 6AWG(1-3/8)	62.42 - 62.67	1.0000	1.0000
L32	17	9207(5/16")	62.42 - 62.67	1.0000	1.0000
L32	22	CU12PSM9P6XXX(1-1/2)	62.42 -	1.0000	1.0000

Tower Section	*Feed Line Record No.*	*Description*	*Feed Line Segment Elev.*	*K_a No Ice*	*K_a Ice*
			62.67		
L32	44	(Area) Aero MP3-03 (H)	62.42 - 62.67	1.0000	1.0000
L32	65	(Area) Aero MP3-05 (H)	62.42 - 62.67	1.0000	1.0000
L32	66	(Area) Aero MP3-05 (H)	62.42 - 62.67	1.0000	1.0000
L32	67	(Area) Aero MP3-05 (H)	62.42 - 62.67	1.0000	1.0000
L33	13	LDF5-50A(7/8")	60.00 - 62.42	1.0000	1.0000
L33	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	60.00 - 62.42	1.0000	1.0000
L33	15	HCS 6X12 6AWG(1-3/8)	60.00 - 62.42	1.0000	1.0000
L33	17	9207(5/16")	60.00 - 62.42	1.0000	1.0000
L33	22	CU12PSM9P6XXX(1-1/2)	60.00 - 62.42	1.0000	1.0000
L33	32	(Area) CCI-65FP-060100 (H)	60.00 - 62.00	1.0000	1.0000
L33	44	(Area) Aero MP3-03 (H)	61.50 - 62.42	1.0000	1.0000
L33	65	(Area) Aero MP3-05 (H)	60.00 - 62.42	1.0000	1.0000
L33	66	(Area) Aero MP3-05 (H)	60.00 - 62.42	1.0000	1.0000
L33	67	(Area) Aero MP3-05 (H)	60.00 - 62.42	1.0000	1.0000
L34	13	LDF5-50A(7/8")	59.75 - 60.00	1.0000	1.0000
L34	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	59.75 - 60.00	1.0000	1.0000
L34	15	HCS 6X12 6AWG(1-3/8)	59.75 - 60.00	1.0000	1.0000
L34	17	9207(5/16")	59.75 - 60.00	1.0000	1.0000
L34	22	CU12PSM9P6XXX(1-1/2)	59.75 - 60.00	1.0000	1.0000
L34	32	(Area) CCI-65FP-060100 (H)	59.75 - 60.00	1.0000	1.0000
L34	65	(Area) Aero MP3-05 (H)	59.75 - 60.00	1.0000	1.0000
L34	66	(Area) Aero MP3-05 (H)	59.75 - 60.00	1.0000	1.0000
L34	67	(Area) Aero MP3-05 (H)	59.75 - 60.00	1.0000	1.0000
L35	13	LDF5-50A(7/8")	58.33 - 59.75	1.0000	1.0000
L35	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	58.33 - 59.75	1.0000	1.0000
L35	15	HCS 6X12 6AWG(1-3/8)	58.33 - 59.75	1.0000	1.0000
L35	17	9207(5/16")	58.33 - 59.75	1.0000	1.0000
L35	22	CU12PSM9P6XXX(1-1/2)	58.33 - 59.75	1.0000	1.0000
L35	32	(Area) CCI-65FP-060100 (H)	58.33 - 59.75	1.0000	1.0000
L35	65	(Area) Aero MP3-05 (H)	58.33 - 59.75	1.0000	1.0000
L35	66	(Area) Aero MP3-05 (H)	58.33 - 59.75	1.0000	1.0000
L35	67	(Area) Aero MP3-05 (H)	58.33 - 59.75	1.0000	1.0000
L36	13	LDF5-50A(7/8")	58.08 -	1.0000	1.0000

Tower Section	*Feed Line Record No.*	*Description*	*Feed Line Segment Elev.*	*K_a No Ice*	*K_a Ice*
			58.33		
L36	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	58.08 - 58.33	1.0000	1.0000
L36	15	HCS 6X12 6AWG(1-3/8)	58.08 - 58.33	1.0000	1.0000
L36	17	9207(5/16")	58.08 - 58.33	1.0000	1.0000
L36	22	CU12PSM9P6XXX(1-1/2)	58.08 - 58.33	1.0000	1.0000
L36	32	(Area) CCI-65FP-060100 (H)	58.08 - 58.33	1.0000	1.0000
L36	65	(Area) Aero MP3-05 (H)	58.08 - 58.33	1.0000	1.0000
L36	66	(Area) Aero MP3-05 (H)	58.08 - 58.33	1.0000	1.0000
L36	67	(Area) Aero MP3-05 (H)	58.08 - 58.33	1.0000	1.0000
L37	13	LDF5-50A(7/8")	53.08 - 58.08	1.0000	1.0000
L37	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	53.08 - 58.08	1.0000	1.0000
L37	15	HCS 6X12 6AWG(1-3/8)	53.08 - 58.08	1.0000	1.0000
L37	17	9207(5/16")	53.08 - 58.08	1.0000	1.0000
L37	22	CU12PSM9P6XXX(1-1/2)	53.08 - 58.08	1.0000	1.0000
L37	32	(Area) CCI-65FP-060100 (H)	53.08 - 58.08	1.0000	1.0000
L37	65	(Area) Aero MP3-05 (H)	53.08 - 58.08	1.0000	1.0000
L37	66	(Area) Aero MP3-05 (H)	53.08 - 58.08	1.0000	1.0000
L37	67	(Area) Aero MP3-05 (H)	53.08 - 58.08	1.0000	1.0000
L38	13	LDF5-50A(7/8")	52.83 - 53.08	1.0000	1.0000
L38	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	52.83 - 53.08	1.0000	1.0000
L38	15	HCS 6X12 6AWG(1-3/8)	52.83 - 53.08	1.0000	1.0000
L38	17	9207(5/16")	52.83 - 53.08	1.0000	1.0000
L38	22	CU12PSM9P6XXX(1-1/2)	52.83 - 53.08	1.0000	1.0000
L38	32	(Area) CCI-65FP-060100 (H)	52.83 - 53.08	1.0000	1.0000
L38	65	(Area) Aero MP3-05 (H)	52.83 - 53.08	1.0000	1.0000
L38	66	(Area) Aero MP3-05 (H)	52.83 - 53.08	1.0000	1.0000
L38	67	(Area) Aero MP3-05 (H)	52.83 - 53.08	1.0000	1.0000
L39	13	LDF5-50A(7/8")	52.58 - 52.83	1.0000	1.0000
L39	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	52.58 - 52.83	1.0000	1.0000
L39	15	HCS 6X12 6AWG(1-3/8)	52.58 - 52.83	1.0000	1.0000
L39	17	9207(5/16")	52.58 - 52.83	1.0000	1.0000
L39	22	CU12PSM9P6XXX(1-1/2)	52.58 - 52.83	1.0000	1.0000
L39	32	(Area) CCI-65FP-060100 (H)	52.58 - 52.83	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L39	65	(Area) Aero MP3-05 (H)	52.58 - 52.83	1.0000	1.0000
L39	66	(Area) Aero MP3-05 (H)	52.58 - 52.83	1.0000	1.0000
L39	67	(Area) Aero MP3-05 (H)	52.58 - 52.83	1.0000	1.0000
L40	13	LDF5-50A(7/8")	51.42 - 52.58	1.0000	1.0000
L40	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	51.42 - 52.58	1.0000	1.0000
L40	15	HCS 6X12 6AWG(1-3/8)	51.42 - 52.58	1.0000	1.0000
L40	17	9207(5/16")	51.42 - 52.58	1.0000	1.0000
L40	22	CU12PSM9P6XXX(1-1/2)	51.42 - 52.58	1.0000	1.0000
L40	32	(Area) CCI-65FP-060100 (H)	51.42 - 52.58	1.0000	1.0000
L40	52	(Area) Aero MP3-05 (H)	51.42 - 52.25	1.0000	1.0000
L40	53	(Area) Aero MP3-05 (H)	51.42 - 52.25	1.0000	1.0000
L40	54	(Area) Aero MP3-05 (H)	51.42 - 52.25	1.0000	1.0000
L40	65	(Area) Aero MP3-05 (H)	51.42 - 52.58	1.0000	1.0000
L40	66	(Area) Aero MP3-05 (H)	51.42 - 52.58	1.0000	1.0000
L40	67	(Area) Aero MP3-05 (H)	51.42 - 52.58	1.0000	1.0000
L41	13	LDF5-50A(7/8")	51.17 - 51.42	1.0000	1.0000
L41	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	51.17 - 51.42	1.0000	1.0000
L41	15	HCS 6X12 6AWG(1-3/8)	51.17 - 51.42	1.0000	1.0000
L41	17	9207(5/16")	51.17 - 51.42	1.0000	1.0000
L41	22	CU12PSM9P6XXX(1-1/2)	51.17 - 51.42	1.0000	1.0000
L41	32	(Area) CCI-65FP-060100 (H)	51.17 - 51.42	1.0000	1.0000
L41	52	(Area) Aero MP3-05 (H)	51.17 - 51.42	1.0000	1.0000
L41	53	(Area) Aero MP3-05 (H)	51.17 - 51.42	1.0000	1.0000
L41	54	(Area) Aero MP3-05 (H)	51.17 - 51.42	1.0000	1.0000
L41	65	(Area) Aero MP3-05 (H)	51.17 - 51.42	1.0000	1.0000
L41	66	(Area) Aero MP3-05 (H)	51.17 - 51.42	1.0000	1.0000
L41	67	(Area) Aero MP3-05 (H)	51.17 - 51.42	1.0000	1.0000
L42	13	LDF5-50A(7/8")	46.50 - 51.17	1.0000	1.0000
L42	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	46.50 - 51.17	1.0000	1.0000
L42	15	HCS 6X12 6AWG(1-3/8)	46.50 - 51.17	1.0000	1.0000
L42	17	9207(5/16")	46.50 - 51.17	1.0000	1.0000
L42	22	CU12PSM9P6XXX(1-1/2)	46.50 - 51.17	1.0000	1.0000
L42	32	(Area) CCI-65FP-060100 (H)	47.00 - 51.17	1.0000	1.0000

Tower Section	*Feed Line Record No.*	*Description*	*Feed Line Segment Elev.*	*K_a No Ice*	*K_a Ice*
L42	52	(Area) Aero MP3-05 (H)	46.50 - 51.17	1.0000	1.0000
L42	53	(Area) Aero MP3-05 (H)	46.50 - 51.17	1.0000	1.0000
L42	54	(Area) Aero MP3-05 (H)	46.50 - 51.17	1.0000	1.0000
L42	64	(Area) Aero MP3-05 (H)	46.50 - 46.67	1.0000	1.0000
L42	65	(Area) Aero MP3-05 (H)	49.00 - 51.17	1.0000	1.0000
L42	66	(Area) Aero MP3-05 (H)	49.00 - 51.17	1.0000	1.0000
L42	67	(Area) Aero MP3-05 (H)	49.00 - 51.17	1.0000	1.0000
L43	13	LDF5-50A(7/8")	45.50 - 46.50	1.0000	1.0000
L43	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	45.50 - 46.50	1.0000	1.0000
L43	15	HCS 6X12 6AWG(1-3/8)	45.50 - 46.50	1.0000	1.0000
L43	17	9207(5/16")	45.50 - 46.50	1.0000	1.0000
L43	22	CU12PSM9P6XXX(1-1/2)	45.50 - 46.50	1.0000	1.0000
L43	30	(Area) CCI-65FP-060100 (H)	45.50 - 46.50	1.0000	1.0000
L43	31	(Area) CCI-65FP-060100 (H)	45.50 - 46.50	1.0000	1.0000
L43	52	(Area) Aero MP3-05 (H)	45.50 - 46.50	1.0000	1.0000
L43	53	(Area) Aero MP3-05 (H)	45.50 - 46.50	1.0000	1.0000
L43	54	(Area) Aero MP3-05 (H)	45.50 - 46.50	1.0000	1.0000
L43	64	(Area) Aero MP3-05 (H)	45.50 - 46.50	1.0000	1.0000
L44	13	LDF5-50A(7/8")	44.25 - 45.50	1.0000	1.0000
L44	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	44.25 - 45.50	1.0000	1.0000
L44	15	HCS 6X12 6AWG(1-3/8)	44.25 - 45.50	1.0000	1.0000
L44	17	9207(5/16")	44.25 - 45.50	1.0000	1.0000
L44	22	CU12PSM9P6XXX(1-1/2)	44.25 - 45.50	1.0000	1.0000
L44	30	(Area) CCI-65FP-060100 (H)	44.25 - 45.50	1.0000	1.0000
L44	31	(Area) CCI-65FP-060100 (H)	44.25 - 45.50	1.0000	1.0000
L44	52	(Area) Aero MP3-05 (H)	44.25 - 45.50	1.0000	1.0000
L44	53	(Area) Aero MP3-05 (H)	44.25 - 45.50	1.0000	1.0000
L44	54	(Area) Aero MP3-05 (H)	44.25 - 45.50	1.0000	1.0000
L44	62	(Area) Aero MP3-05 (H)	44.25 - 45.50	1.0000	1.0000
L44	63	(Area) Aero MP3-05 (H)	44.25 - 45.50	1.0000	1.0000
L44	64	(Area) Aero MP3-05 (H)	44.25 - 45.50	1.0000	1.0000
L45	13	LDF5-50A(7/8")	44.00 - 44.25	1.0000	1.0000
L45	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	44.00 - 44.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L45	15	HCS 6X12 6AWG(1-3/8)	44.00 - 44.25	1.0000	1.0000
L45	17	9207(5/16")	44.00 - 44.25	1.0000	1.0000
L45	22	CU12PSM9P6XXX(1-1/2)	44.00 - 44.25	1.0000	1.0000
L45	30	(Area) CCI-65FP-060100 (H)	44.00 - 44.25	1.0000	1.0000
L45	31	(Area) CCI-65FP-060100 (H)	44.00 - 44.25	1.0000	1.0000
L45	52	(Area) Aero MP3-05 (H)	44.00 - 44.25	1.0000	1.0000
L45	53	(Area) Aero MP3-05 (H)	44.00 - 44.25	1.0000	1.0000
L45	54	(Area) Aero MP3-05 (H)	44.00 - 44.25	1.0000	1.0000
L45	62	(Area) Aero MP3-05 (H)	44.00 - 44.25	1.0000	1.0000
L45	63	(Area) Aero MP3-05 (H)	44.00 - 44.25	1.0000	1.0000
L45	64	(Area) Aero MP3-05 (H)	44.00 - 44.25	1.0000	1.0000
L46	13	LDF5-50A(7/8")	43.08 - 44.00	1.0000	1.0000
L46	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	43.08 - 44.00	1.0000	1.0000
L46	15	HCS 6X12 6AWG(1-3/8)	43.08 - 44.00	1.0000	1.0000
L46	17	9207(5/16")	43.08 - 44.00	1.0000	1.0000
L46	22	CU12PSM9P6XXX(1-1/2)	43.08 - 44.00	1.0000	1.0000
L46	30	(Area) CCI-65FP-060100 (H)	43.08 - 44.00	1.0000	1.0000
L46	31	(Area) CCI-65FP-060100 (H)	43.08 - 44.00	1.0000	1.0000
L46	52	(Area) Aero MP3-05 (H)	43.08 - 44.00	1.0000	1.0000
L46	53	(Area) Aero MP3-05 (H)	43.08 - 44.00	1.0000	1.0000
L46	54	(Area) Aero MP3-05 (H)	43.08 - 44.00	1.0000	1.0000
L46	62	(Area) Aero MP3-05 (H)	43.08 - 44.00	1.0000	1.0000
L46	63	(Area) Aero MP3-05 (H)	43.08 - 44.00	1.0000	1.0000
L46	64	(Area) Aero MP3-05 (H)	43.08 - 44.00	1.0000	1.0000
L47	13	LDF5-50A(7/8")	42.83 - 43.08	1.0000	1.0000
L47	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	42.83 - 43.08	1.0000	1.0000
L47	15	HCS 6X12 6AWG(1-3/8)	42.83 - 43.08	1.0000	1.0000
L47	17	9207(5/16")	42.83 - 43.08	1.0000	1.0000
L47	22	CU12PSM9P6XXX(1-1/2)	42.83 - 43.08	1.0000	1.0000
L47	30	(Area) CCI-65FP-060100 (H)	42.83 - 43.08	1.0000	1.0000
L47	31	(Area) CCI-65FP-060100 (H)	42.83 - 43.08	1.0000	1.0000
L47	52	(Area) Aero MP3-05 (H)	42.83 - 43.08	1.0000	1.0000
L47	53	(Area) Aero MP3-05 (H)	42.83 - 43.08	1.0000	1.0000
L47	54	(Area) Aero MP3-05 (H)	42.83 -	1.0000	1.0000

Tower Section	*Feed Line Record No.*	*Description*	*Feed Line Segment Elev.*	*K_a No Ice*	*K_a Ice*
			43.08		
L47	62	(Area) Aero MP3-05 (H)	42.83 - 43.08	1.0000	1.0000
L47	63	(Area) Aero MP3-05 (H)	42.83 - 43.08	1.0000	1.0000
L47	64	(Area) Aero MP3-05 (H)	42.83 - 43.08	1.0000	1.0000
L48	13	LDF5-50A(7/8")	37.83 - 42.83	1.0000	1.0000
L48	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	37.83 - 42.83	1.0000	1.0000
L48	15	HCS 6X12 6AWG(1-3/8)	37.83 - 42.83	1.0000	1.0000
L48	17	9207(5/16")	37.83 - 42.83	1.0000	1.0000
L48	22	CU12PSM9P6XXX(1-1/2)	37.83 - 42.83	1.0000	1.0000
L48	30	(Area) CCI-65FP-060100 (H)	37.83 - 42.83	1.0000	1.0000
L48	31	(Area) CCI-65FP-060100 (H)	37.83 - 42.83	1.0000	1.0000
L48	52	(Area) Aero MP3-05 (H)	40.25 - 42.83	1.0000	1.0000
L48	53	(Area) Aero MP3-05 (H)	40.25 - 42.83	1.0000	1.0000
L48	54	(Area) Aero MP3-05 (H)	40.25 - 42.83	1.0000	1.0000
L48	62	(Area) Aero MP3-05 (H)	37.83 - 42.83	1.0000	1.0000
L48	63	(Area) Aero MP3-05 (H)	37.83 - 42.83	1.0000	1.0000
L48	64	(Area) Aero MP3-05 (H)	37.83 - 42.83	1.0000	1.0000
L49	13	LDF5-50A(7/8")	32.83 - 37.83	1.0000	1.0000
L49	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	32.83 - 37.83	1.0000	1.0000
L49	15	HCS 6X12 6AWG(1-3/8)	32.83 - 37.83	1.0000	1.0000
L49	17	9207(5/16")	32.83 - 37.83	1.0000	1.0000
L49	22	CU12PSM9P6XXX(1-1/2)	32.83 - 37.83	1.0000	1.0000
L49	30	(Area) CCI-65FP-060100 (H)	32.83 - 37.83	1.0000	1.0000
L49	31	(Area) CCI-65FP-060100 (H)	32.83 - 37.83	1.0000	1.0000
L49	62	(Area) Aero MP3-05 (H)	32.83 - 37.83	1.0000	1.0000
L49	63	(Area) Aero MP3-05 (H)	32.83 - 37.83	1.0000	1.0000
L49	64	(Area) Aero MP3-05 (H)	32.83 - 37.83	1.0000	1.0000
L50	13	LDF5-50A(7/8")	29.25 - 32.83	1.0000	1.0000
L50	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	29.25 - 32.83	1.0000	1.0000
L50	15	HCS 6X12 6AWG(1-3/8)	29.25 - 32.83	1.0000	1.0000
L50	17	9207(5/16")	29.25 - 32.83	1.0000	1.0000
L50	22	CU12PSM9P6XXX(1-1/2)	29.25 - 32.83	1.0000	1.0000
L50	29	(Area) CCI-65FP-065125 (H)	29.25 - 30.50	1.0000	1.0000
L50	30	(Area) CCI-65FP-060100	29.25 -	1.0000	1.0000

Tower Section	*Feed Line Record No.*	*Description*	*Feed Line Segment Elev.*	*K_a No Ice*	*K_a Ice*
		(H)	32.83		
L50	31	(Area) CCI-65FP-060100	29.25 - 32.83	1.0000	1.0000
L50	62	(H) (Area) Aero MP3-05 (H)	29.25 - 32.83	1.0000	1.0000
L50	63	(Area) Aero MP3-05 (H)	29.25 - 32.83	1.0000	1.0000
L50	64	(Area) Aero MP3-05 (H)	29.25 - 32.83	1.0000	1.0000
L51	13	LDF5-50A(7/8")	29.00 - 29.25	1.0000	1.0000
L51	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	29.00 - 29.25	1.0000	1.0000
L51	15	HCS 6X12 6AWG(1-3/8)	29.00 - 29.25	1.0000	1.0000
L51	17	9207(5/16")	29.00 - 29.25	1.0000	1.0000
L51	22	CU12PSM9P6XXX(1-1/2)	29.00 - 29.25	1.0000	1.0000
L51	29	(Area) CCI-65FP-065125 (H)	29.00 - 29.25	1.0000	1.0000
L51	30	(Area) CCI-65FP-060100 (H)	29.00 - 29.25	1.0000	1.0000
L51	31	(Area) CCI-65FP-060100 (H)	29.00 - 29.25	1.0000	1.0000
L51	62	(Area) Aero MP3-05 (H)	29.00 - 29.25	1.0000	1.0000
L51	63	(Area) Aero MP3-05 (H)	29.00 - 29.25	1.0000	1.0000
L51	64	(Area) Aero MP3-05 (H)	29.00 - 29.25	1.0000	1.0000
L52	13	LDF5-50A(7/8")	27.75 - 29.00	1.0000	1.0000
L52	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	27.75 - 29.00	1.0000	1.0000
L52	15	HCS 6X12 6AWG(1-3/8)	27.75 - 29.00	1.0000	1.0000
L52	17	9207(5/16")	27.75 - 29.00	1.0000	1.0000
L52	22	CU12PSM9P6XXX(1-1/2)	27.75 - 29.00	1.0000	1.0000
L52	29	(Area) CCI-65FP-065125 (H)	27.75 - 29.00	1.0000	1.0000
L52	30	(Area) CCI-65FP-060100 (H)	27.75 - 29.00	1.0000	1.0000
L52	31	(Area) CCI-65FP-060100 (H)	27.75 - 29.00	1.0000	1.0000
L52	62	(Area) Aero MP3-05 (H)	27.75 - 29.00	1.0000	1.0000
L52	63	(Area) Aero MP3-05 (H)	27.75 - 29.00	1.0000	1.0000
L52	64	(Area) Aero MP3-05 (H)	27.75 - 29.00	1.0000	1.0000
L53	13	LDF5-50A(7/8")	27.50 - 27.75	1.0000	1.0000
L53	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	27.50 - 27.75	1.0000	1.0000
L53	15	HCS 6X12 6AWG(1-3/8)	27.50 - 27.75	1.0000	1.0000
L53	17	9207(5/16")	27.50 - 27.75	1.0000	1.0000
L53	22	CU12PSM9P6XXX(1-1/2)	27.50 - 27.75	1.0000	1.0000
L53	29	(Area) CCI-65FP-065125 (H)	27.50 - 27.75	1.0000	1.0000
L53	30	(Area) CCI-65FP-060100	27.50 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		(H)	27.75		
L53	31	(Area) CCI-65FP-060100	27.50 - 27.75	1.0000	1.0000
		(H)			
L53	62	(Area) Aero MP3-05 (H)	27.50 - 27.75	1.0000	1.0000
L53	63	(Area) Aero MP3-05 (H)	27.50 - 27.75	1.0000	1.0000
L53	64	(Area) Aero MP3-05 (H)	27.50 - 27.75	1.0000	1.0000
L54	13	LDF5-50A(7/8")	24.08 - 27.50	1.0000	1.0000
L54	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	24.08 - 27.50	1.0000	1.0000
L54	15	HCS 6X12 6AWG(1-3/8)	24.08 - 27.50	1.0000	1.0000
L54	17	9207(5/16")	24.08 - 27.50	1.0000	1.0000
L54	22	CU12PSM9P6XXX(1-1/2)	24.08 - 27.50	1.0000	1.0000
L54	29	(Area) CCI-65FP-065125	24.08 - 27.50	1.0000	1.0000
L54	30	(Area) CCI-65FP-060100 (H)	24.08 - 27.50	1.0000	1.0000
L54	31	(Area) CCI-65FP-060100 (H)	24.08 - 27.50	1.0000	1.0000
L54	40	(Area) Aero MP3-05 (H)	24.08 - 26.50	1.0000	1.0000
L54	62	(Area) Aero MP3-05 (H)	24.08 - 27.50	1.0000	1.0000
L54	63	(Area) Aero MP3-05 (H)	24.08 - 27.50	1.0000	1.0000
L54	64	(Area) Aero MP3-05 (H)	24.08 - 27.50	1.0000	1.0000
L55	13	LDF5-50A(7/8")	23.83 - 24.08	1.0000	1.0000
L55	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	23.83 - 24.08	1.0000	1.0000
L55	15	HCS 6X12 6AWG(1-3/8)	23.83 - 24.08	1.0000	1.0000
L55	17	9207(5/16")	23.83 - 24.08	1.0000	1.0000
L55	22	CU12PSM9P6XXX(1-1/2)	23.83 - 24.08	1.0000	1.0000
L55	29	(Area) CCI-65FP-065125 (H)	23.83 - 24.08	1.0000	1.0000
L55	30	(Area) CCI-65FP-060100 (H)	23.83 - 24.08	1.0000	1.0000
L55	31	(Area) CCI-65FP-060100 (H)	23.83 - 24.08	1.0000	1.0000
L55	40	(Area) Aero MP3-05 (H)	23.83 - 24.08	1.0000	1.0000
L55	62	(Area) Aero MP3-05 (H)	23.83 - 24.08	1.0000	1.0000
L55	63	(Area) Aero MP3-05 (H)	23.83 - 24.08	1.0000	1.0000
L55	64	(Area) Aero MP3-05 (H)	23.83 - 24.08	1.0000	1.0000
L56	13	LDF5-50A(7/8")	23.50 - 23.83	1.0000	1.0000
L56	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	23.50 - 23.83	1.0000	1.0000
L56	15	HCS 6X12 6AWG(1-3/8)	23.50 - 23.83	1.0000	1.0000
L56	17	9207(5/16")	23.50 - 23.83	1.0000	1.0000
L56	22	CU12PSM9P6XXX(1-1/2)	23.50 -	1.0000	1.0000

Tower Section	*Feed Line Record No.*	*Description*	*Feed Line Segment Elev.*	*K_a No Ice*	*K_a Ice*
			23.83		
L56	29	(Area) CCI-65FP-065125 (H)	23.50 - 23.83	1.0000	1.0000
L56	30	(Area) CCI-65FP-060100 (H)	23.50 - 23.83	1.0000	1.0000
L56	31	(Area) CCI-65FP-060100 (H)	23.50 - 23.83	1.0000	1.0000
L56	40	(Area) Aero MP3-05 (H)	23.50 - 23.83	1.0000	1.0000
L56	62	(Area) Aero MP3-05 (H)	23.50 - 23.83	1.0000	1.0000
L56	63	(Area) Aero MP3-05 (H)	23.50 - 23.83	1.0000	1.0000
L56	64	(Area) Aero MP3-05 (H)	23.50 - 23.83	1.0000	1.0000
L57	13	LDF5-50A(7/8")	23.25 - 23.50	1.0000	1.0000
L57	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	23.25 - 23.50	1.0000	1.0000
L57	15	HCS 6X12 6AWG(1-3/8)	23.25 - 23.50	1.0000	1.0000
L57	17	9207(5/16")	23.25 - 23.50	1.0000	1.0000
L57	22	CU12PSM9P6XXX(1-1/2)	23.25 - 23.50	1.0000	1.0000
L57	29	(Area) CCI-65FP-065125 (H)	23.25 - 23.50	1.0000	1.0000
L57	30	(Area) CCI-65FP-060100 (H)	23.25 - 23.50	1.0000	1.0000
L57	31	(Area) CCI-65FP-060100 (H)	23.25 - 23.50	1.0000	1.0000
L57	40	(Area) Aero MP3-05 (H)	23.25 - 23.50	1.0000	1.0000
L57	62	(Area) Aero MP3-05 (H)	23.25 - 23.50	1.0000	1.0000
L57	63	(Area) Aero MP3-05 (H)	23.25 - 23.50	1.0000	1.0000
L57	64	(Area) Aero MP3-05 (H)	23.25 - 23.50	1.0000	1.0000
L58	13	LDF5-50A(7/8")	18.92 - 23.25	1.0000	1.0000
L58	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	18.92 - 23.25	1.0000	1.0000
L58	15	HCS 6X12 6AWG(1-3/8)	18.92 - 23.25	1.0000	1.0000
L58	17	9207(5/16")	18.92 - 23.25	1.0000	1.0000
L58	22	CU12PSM9P6XXX(1-1/2)	18.92 - 23.25	1.0000	1.0000
L58	29	(Area) CCI-65FP-065125 (H)	18.92 - 23.25	1.0000	1.0000
L58	30	(Area) CCI-65FP-060100 (H)	21.50 - 23.25	1.0000	1.0000
L58	31	(Area) CCI-65FP-060100 (H)	21.50 - 23.25	1.0000	1.0000
L58	40	(Area) Aero MP3-05 (H)	18.92 - 23.25	1.0000	1.0000
L58	60	(Area) Aero MP3-05 (H)	18.92 - 20.50	1.0000	1.0000
L58	61	(Area) Aero MP3-05 (H)	18.92 - 20.50	1.0000	1.0000
L58	62	(Area) Aero MP3-05 (H)	18.92 - 23.25	1.0000	1.0000
L58	63	(Area) Aero MP3-05 (H)	18.92 - 23.25	1.0000	1.0000
L58	64	(Area) Aero MP3-05 (H)	18.92 - 23.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L59	13	LDF5-50A(7/8")	18.67 - 18.92	1.0000	1.0000
L59	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	18.67 - 18.92	1.0000	1.0000
L59	15	HCS 6X12 6AWG(1-3/8)	18.67 - 18.92	1.0000	1.0000
L59	17	9207(5/16")	18.67 - 18.92	1.0000	1.0000
L59	22	CU12PSM9P6XXX(1-1/2)	18.67 - 18.92	1.0000	1.0000
L59	29	(Area) CCI-65FP-065125 (H)	18.67 - 18.92	1.0000	1.0000
L59	40	(Area) Aero MP3-05 (H)	18.67 - 18.92	1.0000	1.0000
L59	60	(Area) Aero MP3-05 (H)	18.67 - 18.92	1.0000	1.0000
L59	61	(Area) Aero MP3-05 (H)	18.67 - 18.92	1.0000	1.0000
L59	62	(Area) Aero MP3-05 (H)	18.67 - 18.92	1.0000	1.0000
L59	63	(Area) Aero MP3-05 (H)	18.67 - 18.92	1.0000	1.0000
L59	64	(Area) Aero MP3-05 (H)	18.67 - 18.92	1.0000	1.0000
L60	13	LDF5-50A(7/8")	18.08 - 18.67	1.0000	1.0000
L60	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	18.08 - 18.67	1.0000	1.0000
L60	15	HCS 6X12 6AWG(1-3/8)	18.08 - 18.67	1.0000	1.0000
L60	17	9207(5/16")	18.08 - 18.67	1.0000	1.0000
L60	22	CU12PSM9P6XXX(1-1/2)	18.08 - 18.67	1.0000	1.0000
L60	29	(Area) CCI-65FP-065125 (H)	18.08 - 18.67	1.0000	1.0000
L60	40	(Area) Aero MP3-05 (H)	18.08 - 18.67	1.0000	1.0000
L60	60	(Area) Aero MP3-05 (H)	18.08 - 18.67	1.0000	1.0000
L60	61	(Area) Aero MP3-05 (H)	18.08 - 18.67	1.0000	1.0000
L60	62	(Area) Aero MP3-05 (H)	18.08 - 18.67	1.0000	1.0000
L60	63	(Area) Aero MP3-05 (H)	18.08 - 18.67	1.0000	1.0000
L60	64	(Area) Aero MP3-05 (H)	18.08 - 18.67	1.0000	1.0000
L61	13	LDF5-50A(7/8")	17.83 - 18.08	1.0000	1.0000
L61	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	17.83 - 18.08	1.0000	1.0000
L61	15	HCS 6X12 6AWG(1-3/8)	17.83 - 18.08	1.0000	1.0000
L61	17	9207(5/16")	17.83 - 18.08	1.0000	1.0000
L61	22	CU12PSM9P6XXX(1-1/2)	17.83 - 18.08	1.0000	1.0000
L61	29	(Area) CCI-65FP-065125 (H)	17.83 - 18.08	1.0000	1.0000
L61	40	(Area) Aero MP3-05 (H)	17.83 - 18.08	1.0000	1.0000
L61	60	(Area) Aero MP3-05 (H)	17.83 - 18.08	1.0000	1.0000
L61	61	(Area) Aero MP3-05 (H)	17.83 - 18.08	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L61	62	(Area) Aero MP3-05 (H)	17.83 - 18.08	1.0000	1.0000
L61	63	(Area) Aero MP3-05 (H)	17.83 - 18.08	1.0000	1.0000
L61	64	(Area) Aero MP3-05 (H)	17.83 - 18.08	1.0000	1.0000
L62	13	LDF5-50A(7/8")	14.08 - 17.83	1.0000	1.0000
L62	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	14.08 - 17.83	1.0000	1.0000
L62	15	HCS 6X12 6AWG(1-3/8)	14.08 - 17.83	1.0000	1.0000
L62	17	9207(5/16")	14.08 - 17.83	1.0000	1.0000
L62	22	CU12PSM9P6XXX(1-1/2)	14.08 - 17.83	1.0000	1.0000
L62	29	(Area) CCI-65FP-065125 (H)	14.08 - 17.83	1.0000	1.0000
L62	40	(Area) Aero MP3-05 (H)	16.50 - 17.83	1.0000	1.0000
L62	60	(Area) Aero MP3-05 (H)	14.08 - 17.83	1.0000	1.0000
L62	61	(Area) Aero MP3-05 (H)	14.08 - 17.83	1.0000	1.0000
L62	62	(Area) Aero MP3-05 (H)	14.08 - 17.83	1.0000	1.0000
L62	63	(Area) Aero MP3-05 (H)	14.08 - 17.83	1.0000	1.0000
L62	64	(Area) Aero MP3-05 (H)	14.08 - 17.83	1.0000	1.0000
L63	13	LDF5-50A(7/8")	13.83 - 14.08	1.0000	1.0000
L63	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	13.83 - 14.08	1.0000	1.0000
L63	15	HCS 6X12 6AWG(1-3/8)	13.83 - 14.08	1.0000	1.0000
L63	17	9207(5/16")	13.83 - 14.08	1.0000	1.0000
L63	22	CU12PSM9P6XXX(1-1/2)	13.83 - 14.08	1.0000	1.0000
L63	29	(Area) CCI-65FP-065125 (H)	13.83 - 14.08	1.0000	1.0000
L63	60	(Area) Aero MP3-05 (H)	13.83 - 14.08	1.0000	1.0000
L63	61	(Area) Aero MP3-05 (H)	13.83 - 14.08	1.0000	1.0000
L63	62	(Area) Aero MP3-05 (H)	13.83 - 14.08	1.0000	1.0000
L63	63	(Area) Aero MP3-05 (H)	13.83 - 14.08	1.0000	1.0000
L63	64	(Area) Aero MP3-05 (H)	13.83 - 14.08	1.0000	1.0000
L64	13	LDF5-50A(7/8")	8.83 - 13.83	1.0000	1.0000
L64	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	8.83 - 13.83	1.0000	1.0000
L64	15	HCS 6X12 6AWG(1-3/8)	8.83 - 13.83	1.0000	1.0000
L64	17	9207(5/16")	8.83 - 13.83	1.0000	1.0000
L64	22	CU12PSM9P6XXX(1-1/2)	8.83 - 13.83	1.0000	1.0000
L64	29	(Area) CCI-65FP-065125 (H)	8.83 - 13.83	1.0000	1.0000
L64	60	(Area) Aero MP3-05 (H)	8.83 - 13.83	1.0000	1.0000
L64	61	(Area) Aero MP3-05 (H)	8.83 - 13.83	1.0000	1.0000
L64	62	(Area) Aero MP3-05 (H)	8.83 - 13.83	1.0000	1.0000
L64	63	(Area) Aero MP3-05 (H)	8.83 - 13.83	1.0000	1.0000
L64	64	(Area) Aero MP3-05 (H)	11.67 - 13.83	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L65	13	LDF5-50A(7/8")	3.83 - 8.83	1.0000	1.0000
L65	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	3.83 - 8.83	1.0000	1.0000
L65	15	HCS 6X12 6AWG(1-3/8)	3.83 - 8.83	1.0000	1.0000
L65	17	9207(5/16")	3.83 - 8.83	1.0000	1.0000
L65	22	CU12PSM9P6XXX(1-1/2)	3.83 - 8.83	1.0000	1.0000
L65	29	(Area) CCI-65FP-065125 (H)	3.83 - 8.83	1.0000	1.0000
L65	60	(Area) Aero MP3-05 (H)	3.83 - 8.83	1.0000	1.0000
L65	61	(Area) Aero MP3-05 (H)	3.83 - 8.83	1.0000	1.0000
L65	62	(Area) Aero MP3-05 (H)	3.83 - 8.83	1.0000	1.0000
L65	63	(Area) Aero MP3-05 (H)	3.83 - 8.83	1.0000	1.0000
L66	13	LDF5-50A(7/8")	0.00 - 3.83	1.0000	1.0000
L66	14	MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	0.00 - 3.83	1.0000	1.0000
L66	15	HCS 6X12 6AWG(1-3/8)	0.00 - 3.83	1.0000	1.0000
L66	17	9207(5/16")	0.00 - 3.83	1.0000	1.0000
L66	22	CU12PSM9P6XXX(1-1/2)	0.00 - 3.83	1.0000	1.0000
L66	29	(Area) CCI-65FP-065125 (H)	0.50 - 3.83	1.0000	1.0000
L66	60	(Area) Aero MP3-05 (H)	0.50 - 3.83	1.0000	1.0000
L66	61	(Area) Aero MP3-05 (H)	0.50 - 3.83	1.0000	1.0000
L66	62	(Area) Aero MP3-05 (H)	0.50 - 3.83	1.0000	1.0000
L66	63	(Area) Aero MP3-05 (H)	0.50 - 3.83	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
L8	47	(Area) Aero MP3-03 (H)	102.00 - 103.17	Auto	0.0000
L8	48	(Area) Aero MP3-03 (H)	102.00 - 103.17	Auto	0.0000
L8	49	(Area) Aero MP3-03 (H)	102.00 - 103.17	Auto	0.0000
L9	47	(Area) Aero MP3-03 (H)	101.75 - 102.00	Auto	0.0000
L9	48	(Area) Aero MP3-03 (H)	101.75 - 102.00	Auto	0.0000
L9	49	(Area) Aero MP3-03 (H)	101.75 - 102.00	Auto	0.0000
L10	47	(Area) Aero MP3-03 (H)	96.75 - 101.75	Auto	0.0000
L10	48	(Area) Aero MP3-03 (H)	96.75 - 101.75	Auto	0.0000
L10	49	(Area) Aero MP3-03 (H)	96.75 - 101.75	Auto	0.0000
L11	35	(Area) CCI-65FP-060100 (H)	91.75 - 95.00	Auto	0.0260
L11	36	(Area) CCI-65FP-060100 (H)	91.75 - 95.00	Auto	0.0260
L11	47	(Area) Aero MP3-03 (H)	93.17 - 96.75	Auto	0.0000
L11	48	(Area) Aero MP3-03 (H)	93.17 - 96.75	Auto	0.0000
L11	49	(Area) Aero MP3-03 (H)	93.17 - 96.75	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L12	35	(Area) CCI-65FP-060100 (H)	90.75 - 91.75	Auto	0.0205
L12	36	(Area) CCI-65FP-060100 (H)	90.75 - 91.75	Auto	0.0205
L13	35	(Area) CCI-65FP-060100 (H)	85.75 - 90.75	Auto	0.0028
L13	36	(Area) CCI-65FP-060100 (H)	85.75 - 90.75	Auto	0.0028
L13	44	(Area) Aero MP3-03 (H)	85.75 - 86.50	Auto	0.0000
L13	45	(Area) Aero MP3-03 (H)	85.75 - 86.50	Auto	0.0000
L13	46	(Area) Aero MP3-03 (H)	85.75 - 86.50	Auto	0.0000
L14	35	(Area) CCI-65FP-060100 (H)	85.33 - 85.75	Auto	0.0000
L14	36	(Area) CCI-65FP-060100 (H)	85.33 - 85.75	Auto	0.0000
L14	44	(Area) Aero MP3-03 (H)	85.33 - 85.75	Auto	0.0000
L14	45	(Area) Aero MP3-03 (H)	85.33 - 85.75	Auto	0.0000
L14	46	(Area) Aero MP3-03 (H)	85.33 - 85.75	Auto	0.0000
L15	35	(Area) CCI-65FP-060100 (H)	85.08 - 85.33	Auto	0.0517
L15	36	(Area) CCI-65FP-060100 (H)	85.08 - 85.33	Auto	0.0517
L15	44	(Area) Aero MP3-03 (H)	85.08 - 85.33	Auto	0.0000
L15	45	(Area) Aero MP3-03 (H)	85.08 - 85.33	Auto	0.0000
L15	46	(Area) Aero MP3-03 (H)	85.08 - 85.33	Auto	0.0000
L16	33	(Area) CCI-65FP-060100 (H)	82.50 - 84.50	Auto	0.0332
L16	34	(Area) CCI-65FP-060100 (H)	82.50 - 84.50	Auto	0.0332
L16	35	(Area) CCI-65FP-060100 (H)	82.50 - 85.08	Auto	0.0359
L16	36	(Area) CCI-65FP-060100 (H)	82.50 - 85.08	Auto	0.0359
L16	44	(Area) Aero MP3-03 (H)	82.50 - 85.08	Auto	0.0000
L16	45	(Area) Aero MP3-03 (H)	82.50 - 85.08	Auto	0.0000
L16	46	(Area) Aero MP3-03 (H)	82.50 - 85.08	Auto	0.0000
L17	33	(Area) CCI-65FP-060100 (H)	82.25 - 82.50	Auto	0.0201
L17	34	(Area) CCI-65FP-060100 (H)	82.25 - 82.50	Auto	0.0201
L17	35	(Area) CCI-65FP-060100 (H)	82.25 - 82.50	Auto	0.0201
L17	36	(Area) CCI-65FP-060100 (H)	82.25 - 82.50	Auto	0.0201
L17	44	(Area) Aero MP3-03 (H)	82.25 - 82.50	Auto	0.0000
L17	45	(Area) Aero MP3-03 (H)	82.25 - 82.50	Auto	0.0000
L17	46	(Area) Aero MP3-03 (H)	82.25 - 82.50	Auto	0.0000
L18	33	(Area) CCI-65FP-060100 (H)	82.00 - 82.25	Auto	0.0178
L18	34	(Area) CCI-65FP-060100 (H)	82.00 - 82.25	Auto	0.0178
L18	35	(Area) CCI-65FP-060100 (H)	82.00 - 82.25	Auto	0.0178

Tower Section	*Attachment Record No.*	*Description*	*Attachment Segment Elev.*	*Ratio Calculation Method*	*Effective Width Ratio*
L18	36	(Area) CCI-65FP-060100 (H)	82.00 - 82.25	Auto	0.0178
L18	44	(Area) Aero MP3-03 (H)	82.00 - 82.25	Auto	0.0000
L18	45	(Area) Aero MP3-03 (H)	82.00 - 82.25	Auto	0.0000
L18	46	(Area) Aero MP3-03 (H)	82.00 - 82.25	Auto	0.0000
L19	33	(Area) CCI-65FP-060100 (H)	81.75 - 82.00	Auto	0.0000
L19	34	(Area) CCI-65FP-060100 (H)	81.75 - 82.00	Auto	0.0000
L19	35	(Area) CCI-65FP-060100 (H)	81.75 - 82.00	Auto	0.0000
L19	36	(Area) CCI-65FP-060100 (H)	81.75 - 82.00	Auto	0.0000
L19	44	(Area) Aero MP3-03 (H)	81.75 - 82.00	Auto	0.0000
L19	45	(Area) Aero MP3-03 (H)	81.75 - 82.00	Auto	0.0000
L19	46	(Area) Aero MP3-03 (H)	81.75 - 82.00	Auto	0.0000
L20	33	(Area) CCI-65FP-060100 (H)	78.83 - 81.75	Auto	0.0000
L20	34	(Area) CCI-65FP-060100 (H)	78.83 - 81.75	Auto	0.0000
L20	35	(Area) CCI-65FP-060100 (H)	80.00 - 81.75	Auto	0.0000
L20	36	(Area) CCI-65FP-060100 (H)	80.00 - 81.75	Auto	0.0000
L20	44	(Area) Aero MP3-03 (H)	78.83 - 81.75	Auto	0.0000
L20	45	(Area) Aero MP3-03 (H)	78.83 - 81.75	Auto	0.0000
L20	46	(Area) Aero MP3-03 (H)	78.83 - 81.75	Auto	0.0000
L20	55	(Area) Aero MP3-03 (H)	78.83 - 80.00	Auto	0.0000
L20	56	(Area) Aero MP3-03 (H)	78.83 - 80.00	Auto	0.0000
L20	57	(Area) Aero MP3-03 (H)	78.83 - 80.00	Auto	0.0000
L21	33	(Area) CCI-65FP-060100 (H)	78.58 - 78.83	Auto	0.0201
L21	34	(Area) CCI-65FP-060100 (H)	78.58 - 78.83	Auto	0.0201
L21	44	(Area) Aero MP3-03 (H)	78.58 - 78.83	Auto	0.0000
L21	45	(Area) Aero MP3-03 (H)	78.58 - 78.83	Auto	0.0000
L21	46	(Area) Aero MP3-03 (H)	78.58 - 78.83	Auto	0.0000
L21	55	(Area) Aero MP3-03 (H)	78.58 - 78.83	Auto	0.0000
L21	56	(Area) Aero MP3-03 (H)	78.58 - 78.83	Auto	0.0000
L21	57	(Area) Aero MP3-03 (H)	78.58 - 78.83	Auto	0.0000
L22	33	(Area) CCI-65FP-060100 (H)	77.67 - 78.58	Auto	0.0147
L22	34	(Area) CCI-65FP-060100 (H)	77.67 - 78.58	Auto	0.0147
L22	44	(Area) Aero MP3-03 (H)	77.67 - 78.58	Auto	0.0000
L22	45	(Area) Aero MP3-03 (H)	77.67 - 78.58	Auto	0.0000
L22	46	(Area) Aero MP3-03 (H)	77.67 - 78.58	Auto	0.0000

Tower Section	*Attachment Record No.*	*Description*	*Attachment Segment Elev.*	*Ratio Calculation Method*	*Effective Width Ratio*
L22	55	(Area) Aero MP3-03 (H)	77.67 - 78.58	Auto	0.0000
L22	56	(Area) Aero MP3-03 (H)	77.67 - 78.58	Auto	0.0000
L22	57	(Area) Aero MP3-03 (H)	77.67 - 78.58	Auto	0.0000
L23	33	(Area) CCI-65FP-060100 (H)	77.42 - 77.67	Auto	0.0000
L23	34	(Area) CCI-65FP-060100 (H)	77.42 - 77.67	Auto	0.0000
L23	44	(Area) Aero MP3-03 (H)	77.42 - 77.67	Auto	0.0000
L23	45	(Area) Aero MP3-03 (H)	77.42 - 77.67	Auto	0.0000
L23	46	(Area) Aero MP3-03 (H)	77.42 - 77.67	Auto	0.0000
L23	55	(Area) Aero MP3-03 (H)	77.42 - 77.67	Auto	0.0000
L23	56	(Area) Aero MP3-03 (H)	77.42 - 77.67	Auto	0.0000
L23	57	(Area) Aero MP3-03 (H)	77.42 - 77.67	Auto	0.0000
L24	33	(Area) CCI-65FP-060100 (H)	77.17 - 77.42	Auto	0.0000
L24	34	(Area) CCI-65FP-060100 (H)	77.17 - 77.42	Auto	0.0000
L24	44	(Area) Aero MP3-03 (H)	77.17 - 77.42	Auto	0.0000
L24	45	(Area) Aero MP3-03 (H)	77.17 - 77.42	Auto	0.0000
L24	46	(Area) Aero MP3-03 (H)	77.17 - 77.42	Auto	0.0000
L24	55	(Area) Aero MP3-03 (H)	77.17 - 77.42	Auto	0.0000
L24	56	(Area) Aero MP3-03 (H)	77.17 - 77.42	Auto	0.0000
L24	57	(Area) Aero MP3-03 (H)	77.17 - 77.42	Auto	0.0000
L25	33	(Area) CCI-65FP-060100 (H)	72.17 - 77.17	Auto	0.0000
L25	34	(Area) CCI-65FP-060100 (H)	72.17 - 77.17	Auto	0.0000
L25	44	(Area) Aero MP3-03 (H)	72.17 - 77.17	Auto	0.0000
L25	45	(Area) Aero MP3-03 (H)	76.50 - 77.17	Auto	0.0000
L25	46	(Area) Aero MP3-03 (H)	76.50 - 77.17	Auto	0.0000
L25	55	(Area) Aero MP3-03 (H)	72.17 - 77.17	Auto	0.0000
L25	56	(Area) Aero MP3-03 (H)	72.17 - 77.17	Auto	0.0000
L25	57	(Area) Aero MP3-03 (H)	72.17 - 77.17	Auto	0.0000
L26	33	(Area) CCI-65FP-060100 (H)	67.17 - 72.17	Auto	0.0000
L26	34	(Area) CCI-65FP-060100 (H)	67.17 - 72.17	Auto	0.0000
L26	44	(Area) Aero MP3-03 (H)	67.17 - 72.17	Auto	0.0000
L26	55	(Area) Aero MP3-03 (H)	67.17 - 72.17	Auto	0.0000
L26	56	(Area) Aero MP3-03 (H)	67.17 - 72.17	Auto	0.0000
L26	57	(Area) Aero MP3-03 (H)	67.17 - 72.17	Auto	0.0000
L26	65	(Area) Aero MP3-05 (H)	67.17 - 69.00	Auto	0.0000

Tower Section	*Attachment Record No.*	*Description*	*Attachment Segment Elev.*	*Ratio Calculation Method*	*Effective Width Ratio*
L26	66	(Area) Aero MP3-05 (H)	67.17 - 69.00	Auto	0.0000
L26	67	(Area) Aero MP3-05 (H)	67.17 - 69.00	Auto	0.0000
L27	33	(Area) CCI-65FP-060100 (H)	66.58 - 67.17	Auto	0.0000
L27	34	(Area) CCI-65FP-060100 (H)	66.58 - 67.17	Auto	0.0000
L27	44	(Area) Aero MP3-03 (H)	66.58 - 67.17	Auto	0.0000
L27	55	(Area) Aero MP3-03 (H)	66.58 - 67.17	Auto	0.0000
L27	56	(Area) Aero MP3-03 (H)	66.58 - 67.17	Auto	0.0000
L27	57	(Area) Aero MP3-03 (H)	66.58 - 67.17	Auto	0.0000
L27	65	(Area) Aero MP3-05 (H)	66.58 - 67.17	Auto	0.0000
L27	66	(Area) Aero MP3-05 (H)	66.58 - 67.17	Auto	0.0000
L27	67	(Area) Aero MP3-05 (H)	66.58 - 67.17	Auto	0.0000
L28	33	(Area) CCI-65FP-060100 (H)	66.33 - 66.58	Auto	0.0000
L28	34	(Area) CCI-65FP-060100 (H)	66.33 - 66.58	Auto	0.0000
L28	44	(Area) Aero MP3-03 (H)	66.33 - 66.58	Auto	0.0000
L28	55	(Area) Aero MP3-03 (H)	66.33 - 66.58	Auto	0.0000
L28	56	(Area) Aero MP3-03 (H)	66.33 - 66.58	Auto	0.0000
L28	57	(Area) Aero MP3-03 (H)	66.33 - 66.58	Auto	0.0000
L28	65	(Area) Aero MP3-05 (H)	66.33 - 66.58	Auto	0.0000
L28	66	(Area) Aero MP3-05 (H)	66.33 - 66.58	Auto	0.0000
L28	67	(Area) Aero MP3-05 (H)	66.33 - 66.58	Auto	0.0000
L29	33	(Area) CCI-65FP-060100 (H)	66.17 - 66.33	Auto	0.0000
L29	34	(Area) CCI-65FP-060100 (H)	66.17 - 66.33	Auto	0.0000
L29	44	(Area) Aero MP3-03 (H)	66.17 - 66.33	Auto	0.0000
L29	55	(Area) Aero MP3-03 (H)	66.17 - 66.33	Auto	0.0000
L29	56	(Area) Aero MP3-03 (H)	66.17 - 66.33	Auto	0.0000
L29	57	(Area) Aero MP3-03 (H)	66.17 - 66.33	Auto	0.0000
L29	65	(Area) Aero MP3-05 (H)	66.17 - 66.33	Auto	0.0000
L29	66	(Area) Aero MP3-05 (H)	66.17 - 66.33	Auto	0.0000
L29	67	(Area) Aero MP3-05 (H)	66.17 - 66.33	Auto	0.0000
L30	33	(Area) CCI-65FP-060100 (H)	65.92 - 66.17	Auto	0.0000
L30	34	(Area) CCI-65FP-060100 (H)	65.92 - 66.17	Auto	0.0000
L30	44	(Area) Aero MP3-03 (H)	65.92 - 66.17	Auto	0.0000
L30	55	(Area) Aero MP3-03 (H)	65.92 - 66.17	Auto	0.0000
L30	56	(Area) Aero MP3-03 (H)	65.92 - 66.17	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L30	57	(Area) Aero MP3-03 (H)	65.92 - 66.17	Auto	0.0000
L30	65	(Area) Aero MP3-05 (H)	65.92 - 66.17	Auto	0.0000
L30	66	(Area) Aero MP3-05 (H)	65.92 - 66.17	Auto	0.0000
L30	67	(Area) Aero MP3-05 (H)	65.92 - 66.17	Auto	0.0000
L31	33	(Area) CCI-65FP-060100 (H)	64.50 - 65.92	Auto	0.0000
L31	34	(Area) CCI-65FP-060100 (H)	64.50 - 65.92	Auto	0.0000
L31	44	(Area) Aero MP3-03 (H)	62.67 - 65.92	Auto	0.0000
L31	55	(Area) Aero MP3-03 (H)	65.00 - 65.92	Auto	0.0000
L31	56	(Area) Aero MP3-03 (H)	65.00 - 65.92	Auto	0.0000
L31	57	(Area) Aero MP3-03 (H)	65.00 - 65.92	Auto	0.0000
L31	65	(Area) Aero MP3-05 (H)	62.67 - 65.92	Auto	0.0000
L31	66	(Area) Aero MP3-05 (H)	62.67 - 65.92	Auto	0.0000
L31	67	(Area) Aero MP3-05 (H)	62.67 - 65.92	Auto	0.0000
L32	44	(Area) Aero MP3-03 (H)	62.42 - 62.67	Auto	0.0000
L32	65	(Area) Aero MP3-05 (H)	62.42 - 62.67	Auto	0.0000
L32	66	(Area) Aero MP3-05 (H)	62.42 - 62.67	Auto	0.0000
L32	67	(Area) Aero MP3-05 (H)	62.42 - 62.67	Auto	0.0000
L33	32	(Area) CCI-65FP-060100 (H)	60.00 - 62.00	Auto	0.0000
L33	44	(Area) Aero MP3-03 (H)	61.50 - 62.42	Auto	0.0000
L33	65	(Area) Aero MP3-05 (H)	60.00 - 62.42	Auto	0.0000
L33	66	(Area) Aero MP3-05 (H)	60.00 - 62.42	Auto	0.0000
L33	67	(Area) Aero MP3-05 (H)	60.00 - 62.42	Auto	0.0000
L34	32	(Area) CCI-65FP-060100 (H)	59.75 - 60.00	Auto	0.0000
L34	65	(Area) Aero MP3-05 (H)	59.75 - 60.00	Auto	0.0000
L34	66	(Area) Aero MP3-05 (H)	59.75 - 60.00	Auto	0.0000
L34	67	(Area) Aero MP3-05 (H)	59.75 - 60.00	Auto	0.0000
L35	32	(Area) CCI-65FP-060100 (H)	58.33 - 59.75	Auto	0.0000
L35	65	(Area) Aero MP3-05 (H)	58.33 - 59.75	Auto	0.0000
L35	66	(Area) Aero MP3-05 (H)	58.33 - 59.75	Auto	0.0000
L35	67	(Area) Aero MP3-05 (H)	58.33 - 59.75	Auto	0.0000
L36	32	(Area) CCI-65FP-060100 (H)	58.08 - 58.33	Auto	0.0000
L36	65	(Area) Aero MP3-05 (H)	58.08 - 58.33	Auto	0.0000
L36	66	(Area) Aero MP3-05 (H)	58.08 - 58.33	Auto	0.0000
L36	67	(Area) Aero MP3-05 (H)	58.08 - 58.33	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L37	32	(Area) CCI-65FP-060100 (H)	53.08 - 58.08	Auto	0.0000
L37	65	(Area) Aero MP3-05 (H)	53.08 - 58.08	Auto	0.0000
L37	66	(Area) Aero MP3-05 (H)	53.08 - 58.08	Auto	0.0000
L37	67	(Area) Aero MP3-05 (H)	53.08 - 58.08	Auto	0.0000
L38	32	(Area) CCI-65FP-060100 (H)	52.83 - 53.08	Auto	0.0000
L38	65	(Area) Aero MP3-05 (H)	52.83 - 53.08	Auto	0.0000
L38	66	(Area) Aero MP3-05 (H)	52.83 - 53.08	Auto	0.0000
L38	67	(Area) Aero MP3-05 (H)	52.83 - 53.08	Auto	0.0000
L39	32	(Area) CCI-65FP-060100 (H)	52.58 - 52.83	Auto	0.0000
L39	65	(Area) Aero MP3-05 (H)	52.58 - 52.83	Auto	0.0000
L39	66	(Area) Aero MP3-05 (H)	52.58 - 52.83	Auto	0.0000
L39	67	(Area) Aero MP3-05 (H)	52.58 - 52.83	Auto	0.0000
L40	32	(Area) CCI-65FP-060100 (H)	51.42 - 52.58	Auto	0.0000
L40	52	(Area) Aero MP3-05 (H)	51.42 - 52.25	Auto	0.0000
L40	53	(Area) Aero MP3-05 (H)	51.42 - 52.25	Auto	0.0000
L40	54	(Area) Aero MP3-05 (H)	51.42 - 52.25	Auto	0.0000
L40	65	(Area) Aero MP3-05 (H)	51.42 - 52.58	Auto	0.0000
L40	66	(Area) Aero MP3-05 (H)	51.42 - 52.58	Auto	0.0000
L40	67	(Area) Aero MP3-05 (H)	51.42 - 52.58	Auto	0.0000
L41	32	(Area) CCI-65FP-060100 (H)	51.17 - 51.42	Auto	0.0000
L41	52	(Area) Aero MP3-05 (H)	51.17 - 51.42	Auto	0.0000
L41	53	(Area) Aero MP3-05 (H)	51.17 - 51.42	Auto	0.0000
L41	54	(Area) Aero MP3-05 (H)	51.17 - 51.42	Auto	0.0000
L41	65	(Area) Aero MP3-05 (H)	51.17 - 51.42	Auto	0.0000
L41	66	(Area) Aero MP3-05 (H)	51.17 - 51.42	Auto	0.0000
L41	67	(Area) Aero MP3-05 (H)	51.17 - 51.42	Auto	0.0000
L42	32	(Area) CCI-65FP-060100 (H)	47.00 - 51.17	Auto	0.0000
L42	52	(Area) Aero MP3-05 (H)	46.50 - 51.17	Auto	0.0000
L42	53	(Area) Aero MP3-05 (H)	46.50 - 51.17	Auto	0.0000
L42	54	(Area) Aero MP3-05 (H)	46.50 - 51.17	Auto	0.0000
L42	64	(Area) Aero MP3-05 (H)	46.50 - 46.67	Auto	0.0000
L42	65	(Area) Aero MP3-05 (H)	49.00 - 51.17	Auto	0.0000
L42	66	(Area) Aero MP3-05 (H)	49.00 - 51.17	Auto	0.0000
L42	67	(Area) Aero MP3-05 (H)	49.00 - 51.17	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L43	30	(Area) CCI-65FP-060100 (H)	45.50 - 46.50	Auto	0.0000
L43	31	(Area) CCI-65FP-060100 (H)	45.50 - 46.50	Auto	0.0000
L43	52	(Area) Aero MP3-05 (H)	45.50 - 46.50	Auto	0.0000
L43	53	(Area) Aero MP3-05 (H)	45.50 - 46.50	Auto	0.0000
L43	54	(Area) Aero MP3-05 (H)	45.50 - 46.50	Auto	0.0000
L43	64	(Area) Aero MP3-05 (H)	45.50 - 46.50	Auto	0.0000
L44	30	(Area) CCI-65FP-060100 (H)	44.25 - 45.50	Auto	0.0000
L44	31	(Area) CCI-65FP-060100 (H)	44.25 - 45.50	Auto	0.0000
L44	52	(Area) Aero MP3-05 (H)	44.25 - 45.50	Auto	0.0000
L44	53	(Area) Aero MP3-05 (H)	44.25 - 45.50	Auto	0.0000
L44	54	(Area) Aero MP3-05 (H)	44.25 - 45.50	Auto	0.0000
L44	62	(Area) Aero MP3-05 (H)	44.25 - 45.50	Auto	0.0000
L44	63	(Area) Aero MP3-05 (H)	44.25 - 45.50	Auto	0.0000
L44	64	(Area) Aero MP3-05 (H)	44.25 - 45.50	Auto	0.0000
L45	30	(Area) CCI-65FP-060100 (H)	44.00 - 44.25	Auto	0.0000
L45	31	(Area) CCI-65FP-060100 (H)	44.00 - 44.25	Auto	0.0000
L45	52	(Area) Aero MP3-05 (H)	44.00 - 44.25	Auto	0.0000
L45	53	(Area) Aero MP3-05 (H)	44.00 - 44.25	Auto	0.0000
L45	54	(Area) Aero MP3-05 (H)	44.00 - 44.25	Auto	0.0000
L45	62	(Area) Aero MP3-05 (H)	44.00 - 44.25	Auto	0.0000
L45	63	(Area) Aero MP3-05 (H)	44.00 - 44.25	Auto	0.0000
L45	64	(Area) Aero MP3-05 (H)	44.00 - 44.25	Auto	0.0000
L46	30	(Area) CCI-65FP-060100 (H)	43.08 - 44.00	Auto	0.0000
L46	31	(Area) CCI-65FP-060100 (H)	43.08 - 44.00	Auto	0.0000
L46	52	(Area) Aero MP3-05 (H)	43.08 - 44.00	Auto	0.0000
L46	53	(Area) Aero MP3-05 (H)	43.08 - 44.00	Auto	0.0000
L46	54	(Area) Aero MP3-05 (H)	43.08 - 44.00	Auto	0.0000
L46	62	(Area) Aero MP3-05 (H)	43.08 - 44.00	Auto	0.0000
L46	63	(Area) Aero MP3-05 (H)	43.08 - 44.00	Auto	0.0000
L46	64	(Area) Aero MP3-05 (H)	43.08 - 44.00	Auto	0.0000
L47	30	(Area) CCI-65FP-060100 (H)	42.83 - 43.08	Auto	0.0000
L47	31	(Area) CCI-65FP-060100 (H)	42.83 - 43.08	Auto	0.0000
L47	52	(Area) Aero MP3-05 (H)	42.83 - 43.08	Auto	0.0000
L47	53	(Area) Aero MP3-05 (H)	42.83 - 43.08	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L47	54	(Area) Aero MP3-05 (H)	42.83 - 43.08	Auto	0.0000
L47	62	(Area) Aero MP3-05 (H)	42.83 - 43.08	Auto	0.0000
L47	63	(Area) Aero MP3-05 (H)	42.83 - 43.08	Auto	0.0000
L47	64	(Area) Aero MP3-05 (H)	42.83 - 43.08	Auto	0.0000
L48	30	(Area) CCI-65FP-060100 (H)	37.83 - 42.83	Auto	0.0000
L48	31	(Area) CCI-65FP-060100 (H)	37.83 - 42.83	Auto	0.0000
L48	52	(Area) Aero MP3-05 (H)	40.25 - 42.83	Auto	0.0000
L48	53	(Area) Aero MP3-05 (H)	40.25 - 42.83	Auto	0.0000
L48	54	(Area) Aero MP3-05 (H)	40.25 - 42.83	Auto	0.0000
L48	62	(Area) Aero MP3-05 (H)	37.83 - 42.83	Auto	0.0000
L48	63	(Area) Aero MP3-05 (H)	37.83 - 42.83	Auto	0.0000
L48	64	(Area) Aero MP3-05 (H)	37.83 - 42.83	Auto	0.0000
L49	30	(Area) CCI-65FP-060100 (H)	32.83 - 37.83	Auto	0.0000
L49	31	(Area) CCI-65FP-060100 (H)	32.83 - 37.83	Auto	0.0000
L49	62	(Area) Aero MP3-05 (H)	32.83 - 37.83	Auto	0.0000
L49	63	(Area) Aero MP3-05 (H)	32.83 - 37.83	Auto	0.0000
L49	64	(Area) Aero MP3-05 (H)	32.83 - 37.83	Auto	0.0000
L50	29	(Area) CCI-65FP-065125 (H)	29.25 - 30.50	Auto	0.0000
L50	30	(Area) CCI-65FP-060100 (H)	29.25 - 32.83	Auto	0.0000
L50	31	(Area) CCI-65FP-060100 (H)	29.25 - 32.83	Auto	0.0000
L50	62	(Area) Aero MP3-05 (H)	29.25 - 32.83	Auto	0.0000
L50	63	(Area) Aero MP3-05 (H)	29.25 - 32.83	Auto	0.0000
L50	64	(Area) Aero MP3-05 (H)	29.25 - 32.83	Auto	0.0000
L51	29	(Area) CCI-65FP-065125 (H)	29.00 - 29.25	Auto	0.0000
L51	30	(Area) CCI-65FP-060100 (H)	29.00 - 29.25	Auto	0.0000
L51	31	(Area) CCI-65FP-060100 (H)	29.00 - 29.25	Auto	0.0000
L51	62	(Area) Aero MP3-05 (H)	29.00 - 29.25	Auto	0.0000
L51	63	(Area) Aero MP3-05 (H)	29.00 - 29.25	Auto	0.0000
L51	64	(Area) Aero MP3-05 (H)	29.00 - 29.25	Auto	0.0000
L52	29	(Area) CCI-65FP-065125 (H)	27.75 - 29.00	Auto	0.0000
L52	30	(Area) CCI-65FP-060100 (H)	27.75 - 29.00	Auto	0.0000
L52	31	(Area) CCI-65FP-060100 (H)	27.75 - 29.00	Auto	0.0000
L52	62	(Area) Aero MP3-05 (H)	27.75 - 29.00	Auto	0.0000
L52	63	(Area) Aero MP3-05 (H)	27.75 - 29.00	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L52	64	(Area) Aero MP3-05 (H)	27.75 - 29.00	Auto	0.0000
L53	29	(Area) CCI-65FP-065125 (H)	27.50 - 27.75	Auto	0.0000
L53	30	(Area) CCI-65FP-060100 (H)	27.50 - 27.75	Auto	0.0000
L53	31	(Area) CCI-65FP-060100 (H)	27.50 - 27.75	Auto	0.0000
L53	62	(Area) Aero MP3-05 (H)	27.50 - 27.75	Auto	0.0000
L53	63	(Area) Aero MP3-05 (H)	27.50 - 27.75	Auto	0.0000
L53	64	(Area) Aero MP3-05 (H)	27.50 - 27.75	Auto	0.0000
L54	29	(Area) CCI-65FP-065125 (H)	24.08 - 27.50	Auto	0.0000
L54	30	(Area) CCI-65FP-060100 (H)	24.08 - 27.50	Auto	0.0000
L54	31	(Area) CCI-65FP-060100 (H)	24.08 - 27.50	Auto	0.0000
L54	40	(Area) Aero MP3-05 (H)	24.08 - 26.50	Auto	0.0000
L54	62	(Area) Aero MP3-05 (H)	24.08 - 27.50	Auto	0.0000
L54	63	(Area) Aero MP3-05 (H)	24.08 - 27.50	Auto	0.0000
L54	64	(Area) Aero MP3-05 (H)	24.08 - 27.50	Auto	0.0000
L55	29	(Area) CCI-65FP-065125 (H)	23.83 - 24.08	Auto	0.0000
L55	30	(Area) CCI-65FP-060100 (H)	23.83 - 24.08	Auto	0.0000
L55	31	(Area) CCI-65FP-060100 (H)	23.83 - 24.08	Auto	0.0000
L55	40	(Area) Aero MP3-05 (H)	23.83 - 24.08	Auto	0.0000
L55	62	(Area) Aero MP3-05 (H)	23.83 - 24.08	Auto	0.0000
L55	63	(Area) Aero MP3-05 (H)	23.83 - 24.08	Auto	0.0000
L55	64	(Area) Aero MP3-05 (H)	23.83 - 24.08	Auto	0.0000
L56	29	(Area) CCI-65FP-065125 (H)	23.50 - 23.83	Auto	0.0000
L56	30	(Area) CCI-65FP-060100 (H)	23.50 - 23.83	Auto	0.0000
L56	31	(Area) CCI-65FP-060100 (H)	23.50 - 23.83	Auto	0.0000
L56	40	(Area) Aero MP3-05 (H)	23.50 - 23.83	Auto	0.0000
L56	62	(Area) Aero MP3-05 (H)	23.50 - 23.83	Auto	0.0000
L56	63	(Area) Aero MP3-05 (H)	23.50 - 23.83	Auto	0.0000
L56	64	(Area) Aero MP3-05 (H)	23.50 - 23.83	Auto	0.0000
L57	29	(Area) CCI-65FP-065125 (H)	23.25 - 23.50	Auto	0.0000
L57	30	(Area) CCI-65FP-060100 (H)	23.25 - 23.50	Auto	0.0000
L57	31	(Area) CCI-65FP-060100 (H)	23.25 - 23.50	Auto	0.0000
L57	40	(Area) Aero MP3-05 (H)	23.25 - 23.50	Auto	0.0000
L57	62	(Area) Aero MP3-05 (H)	23.25 - 23.50	Auto	0.0000
L57	63	(Area) Aero MP3-05 (H)	23.25 - 23.50	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L57	64	(Area) Aero MP3-05 (H)	23.25 - 23.50	Auto	0.0000
L58	29	(Area) CCI-65FP-065125 (H)	18.92 - 23.25	Auto	0.0000
L58	30	(Area) CCI-65FP-060100 (H)	21.50 - 23.25	Auto	0.0000
L58	31	(Area) CCI-65FP-060100 (H)	21.50 - 23.25	Auto	0.0000
L58	40	(Area) Aero MP3-05 (H)	18.92 - 23.25	Auto	0.0000
L58	60	(Area) Aero MP3-05 (H)	18.92 - 20.50	Auto	0.0000
L58	61	(Area) Aero MP3-05 (H)	18.92 - 20.50	Auto	0.0000
L58	62	(Area) Aero MP3-05 (H)	18.92 - 23.25	Auto	0.0000
L58	63	(Area) Aero MP3-05 (H)	18.92 - 23.25	Auto	0.0000
L58	64	(Area) Aero MP3-05 (H)	18.92 - 23.25	Auto	0.0000
L59	29	(Area) CCI-65FP-065125 (H)	18.67 - 18.92	Auto	0.0000
L59	40	(Area) Aero MP3-05 (H)	18.67 - 18.92	Auto	0.0000
L59	60	(Area) Aero MP3-05 (H)	18.67 - 18.92	Auto	0.0000
L59	61	(Area) Aero MP3-05 (H)	18.67 - 18.92	Auto	0.0000
L59	62	(Area) Aero MP3-05 (H)	18.67 - 18.92	Auto	0.0000
L59	63	(Area) Aero MP3-05 (H)	18.67 - 18.92	Auto	0.0000
L59	64	(Area) Aero MP3-05 (H)	18.67 - 18.92	Auto	0.0000
L60	29	(Area) CCI-65FP-065125 (H)	18.08 - 18.67	Auto	0.0000
L60	40	(Area) Aero MP3-05 (H)	18.08 - 18.67	Auto	0.0000
L60	60	(Area) Aero MP3-05 (H)	18.08 - 18.67	Auto	0.0000
L60	61	(Area) Aero MP3-05 (H)	18.08 - 18.67	Auto	0.0000
L60	62	(Area) Aero MP3-05 (H)	18.08 - 18.67	Auto	0.0000
L60	63	(Area) Aero MP3-05 (H)	18.08 - 18.67	Auto	0.0000
L60	64	(Area) Aero MP3-05 (H)	18.08 - 18.67	Auto	0.0000
L61	29	(Area) CCI-65FP-065125 (H)	17.83 - 18.08	Auto	0.0000
L61	40	(Area) Aero MP3-05 (H)	17.83 - 18.08	Auto	0.0000
L61	60	(Area) Aero MP3-05 (H)	17.83 - 18.08	Auto	0.0000
L61	61	(Area) Aero MP3-05 (H)	17.83 - 18.08	Auto	0.0000
L61	62	(Area) Aero MP3-05 (H)	17.83 - 18.08	Auto	0.0000
L61	63	(Area) Aero MP3-05 (H)	17.83 - 18.08	Auto	0.0000
L61	64	(Area) Aero MP3-05 (H)	17.83 - 18.08	Auto	0.0000
L62	29	(Area) CCI-65FP-065125 (H)	14.08 - 17.83	Auto	0.0000
L62	40	(Area) Aero MP3-05 (H)	16.50 - 17.83	Auto	0.0000
L62	60	(Area) Aero MP3-05 (H)	14.08 - 17.83	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L62	61	(Area) Aero MP3-05 (H)	14.08 - 17.83	Auto	0.0000
L62	62	(Area) Aero MP3-05 (H)	14.08 - 17.83	Auto	0.0000
L62	63	(Area) Aero MP3-05 (H)	14.08 - 17.83	Auto	0.0000
L62	64	(Area) Aero MP3-05 (H)	14.08 - 17.83	Auto	0.0000
L63	29	(Area) CCI-65FP-065125 (H)	13.83 - 14.08	Auto	0.0000
L63	60	(Area) Aero MP3-05 (H)	13.83 - 14.08	Auto	0.0000
L63	61	(Area) Aero MP3-05 (H)	13.83 - 14.08	Auto	0.0000
L63	62	(Area) Aero MP3-05 (H)	13.83 - 14.08	Auto	0.0000
L63	63	(Area) Aero MP3-05 (H)	13.83 - 14.08	Auto	0.0000
L63	64	(Area) Aero MP3-05 (H)	13.83 - 14.08	Auto	0.0000
L64	29	(Area) CCI-65FP-065125 (H)	8.83 - 13.83	Auto	0.0000
L64	60	(Area) Aero MP3-05 (H)	8.83 - 13.83	Auto	0.0000
L64	61	(Area) Aero MP3-05 (H)	8.83 - 13.83	Auto	0.0000
L64	62	(Area) Aero MP3-05 (H)	8.83 - 13.83	Auto	0.0000
L64	63	(Area) Aero MP3-05 (H)	8.83 - 13.83	Auto	0.0000
L64	64	(Area) Aero MP3-05 (H)	11.67 - 13.83	Auto	0.0000
L65	29	(Area) CCI-65FP-065125 (H)	3.83 - 8.83	Auto	0.0000
L65	60	(Area) Aero MP3-05 (H)	3.83 - 8.83	Auto	0.0000
L65	61	(Area) Aero MP3-05 (H)	3.83 - 8.83	Auto	0.0000
L65	62	(Area) Aero MP3-05 (H)	3.83 - 8.83	Auto	0.0000
L65	63	(Area) Aero MP3-05 (H)	3.83 - 8.83	Auto	0.0000
L66	29	(Area) CCI-65FP-065125 (H)	0.50 - 3.83	Auto	0.0000
L66	60	(Area) Aero MP3-05 (H)	0.50 - 3.83	Auto	0.0000
L66	61	(Area) Aero MP3-05 (H)	0.50 - 3.83	Auto	0.0000
L66	62	(Area) Aero MP3-05 (H)	0.50 - 3.83	Auto	0.0000
L66	63	(Area) Aero MP3-05 (H)	0.50 - 3.83	Auto	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
*** **139**					
APXV9ERR18-C-A20	A	From Centroid-Face	4.00 0.00 1.00	0.0000	139.00
APXV9ERR18-C-A20	B	From Centroid-Face	4.00 0.00 1.00	0.0000	139.00
APXV9ERR18-C-A20	C	From Centroid-Face	4.00 0.00 1.00	0.0000	139.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft
APXVTM14-C-120	A	From Centroid-Face	4.00 0.00 1.00	0.0000	139.00
APXVTM14-C-120	B	From Centroid-Face	4.00 0.00 1.00	0.0000	139.00
APXVTM14-C-120	C	From Centroid-Face	4.00 0.00 1.00	0.0000	139.00
TD-RRH8x20-25	A	From Centroid-Face	4.00 0.00 1.00	0.0000	139.00
TD-RRH8x20-25	B	From Centroid-Face	4.00 0.00 1.00	0.0000	139.00
TD-RRH8x20-25	C	From Centroid-Face	4.00 0.00 1.00	0.0000	139.00
Platform Mount [LP 1201-1_HR-3] **137**	C	None		0.0000	139.00
800MHz 2X50W RRH W/FILTER	A	From Face	1.00 0.00 3.00	0.0000	137.00
800MHz 2X50W RRH W/FILTER	B	From Face	1.00 0.00 3.00	0.0000	137.00
800MHz 2X50W RRH W/FILTER	C	From Face	1.00 0.00 3.00	0.0000	137.00
PCS 1900MHz 4x45W-65MHz	A	From Face	1.00 0.00 0.00	0.0000	137.00
PCS 1900MHz 4x45W-65MHz	B	From Face	1.00 0.00 0.00	0.0000	137.00
PCS 1900MHz 4x45W-65MHz	C	From Face	1.00 0.00 0.00	0.0000	137.00
Pipe Mount [PM 601-3] **130**	C	None		0.0000	137.00
RRUS 11	A	From Face	1.00 0.00 0.00	0.0000	130.00
RRUS 11	B	From Face	1.00 0.00 0.00	0.0000	130.00
RRUS 11	C	From Face	1.00 0.00 0.00	0.0000	130.00
RRUS 32 B2	A	From Face	1.00 0.00 0.00	0.0000	130.00
RRUS 32 B2	B	From Face	1.00 0.00 0.00	0.0000	130.00
RRUS 32 B2	C	From Face	1.00 0.00 0.00	0.0000	130.00
Pipe Mount [PM 601-3] **128**	C	None		0.0000	130.00
7770.00 w/ Mount Pipe	A	From Face	4.00 0.00 2.00	0.0000	128.00
7770.00 w/ Mount Pipe	B	From Face	4.00 0.00	0.0000	128.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft
7770.00 w/ Mount Pipe	C	From Face	2.00 / 4.00 / 0.00	0.0000	128.00
EPBQ-654L8H8-L2 w/ Mount Pipe	A	From Face	2.00 / 4.00 / 0.00	0.0000	128.00
EPBQ-654L8H8-L2 w/ Mount Pipe	B	From Face	2.00 / 4.00 / 0.00	0.0000	128.00
EPBQ-654L8H8-L2 w/ Mount Pipe	C	From Face	2.00 / 4.00 / 0.00	0.0000	128.00
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Face	2.00 / 4.00 / 0.00	0.0000	128.00
HPA-65R-BUU-H8 w/ Mount Pipe	B	From Face	2.00 / 4.00 / 0.00	0.0000	128.00
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Face	2.00 / 4.00 / 0.00	0.0000	128.00
(2) LGP21401	A	From Face	2.00 / 4.00 / 0.00	0.0000	128.00
(2) LGP21401	B	From Face	2.00 / 4.00 / 0.00	0.0000	128.00
(2) LGP21401	C	From Face	2.00 / 4.00 / 0.00	0.0000	128.00
RRUS 4478 B5	A	From Face	2.00 / 4.00 / 0.00	0.0000	128.00
RRUS 4478 B5	B	From Face	2.00 / 4.00 / 0.00	0.0000	128.00
RRUS 4478 B5	C	From Face	2.00 / 4.00 / 0.00	0.0000	128.00
RRUS 4426 B66	A	From Face	2.00 / 4.00 / 0.00	0.0000	128.00
RRUS 4426 B66	B	From Face	2.00 / 4.00 / 0.00	0.0000	128.00
RRUS 4426 B66	C	From Face	2.00 / 4.00 / 0.00	0.0000	128.00
RRUS 32 B30	A	From Face	2.00 / 4.00 / 0.00	0.0000	128.00
RRUS 32 B30	B	From Face	2.00 / 4.00 / 0.00	0.0000	128.00
RRUS 32 B30	C	From Face	2.00 / 4.00 / 0.00	0.0000	128.00
DC6-48-60-18-8C	A	From Face	2.00 / 4.00 / 0.00	0.0000	128.00
DC6-48-60-18-8F	B	From Face	2.00 / 4.00 / 0.00	0.0000	128.00
DC6-48-60-18-8C	C	From Face	2.00 / 4.00	0.0000	128.00

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* *ft* *ft* *ft*	*Azimuth Adjustment* °	*Placement* *ft*
			0.00 2.00		
T-Arm Mount [TA 602-3]	C	None		0.0000	128.00
(2) 2.4" x 12' Stabilizer	A	From Face	2.00 0.00 0.00	0.0000	128.00
(2) 2.4" x 12' Stabilizer	B	From Face	2.00 0.00 0.00	0.0000	128.00
(2) 2.4" x 12' Stabilizer	C	From Face	2.00 0.00 0.00	0.0000	128.00
110 DB-T1-6Z-8AB-0Z	A	From Leg	1.00 0.00 0.00	0.0000	110.00
108 (2) SBNHH-1D65B w/ Mount Pipe	A	From Centroid-Face	4.00 0.00 1.00	0.0000	108.00
(2) SBNHH-1D65B w/ Mount Pipe	B	From Centroid-Face	4.00 0.00 1.00	0.0000	108.00
(2) SBNHH-1D65B w/ Mount Pipe	C	From Centroid-Face	4.00 0.00 1.00	0.0000	108.00
BXA-70063-4CF-EDIN-X w/ Mount Pipe	A	From Centroid-Face	4.00 0.00 1.00	0.0000	108.00
BXA-70063-4CF-EDIN-X w/ Mount Pipe	B	From Centroid-Face	4.00 0.00 1.00	0.0000	108.00
BXA-70063-4CF-EDIN-X w/ Mount Pipe	C	From Centroid-Face	4.00 0.00 1.00	0.0000	108.00
CBRS w/ Mount Pipe	A	From Centroid-Face	4.00 0.00 1.00	0.0000	108.00
CBRS w/ Mount Pipe	B	From Centroid-Face	4.00 0.00 1.00	0.0000	108.00
CBRS w/ Mount Pipe	C	From Centroid-Face	4.00 0.00 1.00	0.0000	108.00
(2) RFV01U-D1A	B	From Centroid-Face	4.00 0.00 1.00	0.0000	108.00
RFV01U-D1A	C	From Centroid-Face	4.00 0.00 1.00	0.0000	108.00
20W CBRS	A	From Centroid-Face	4.00 0.00 1.00	0.0000	108.00
20W CBRS	B	From Centroid-Face	4.00 0.00 1.00	0.0000	108.00
20W CBRS	C	From Centroid-Face	4.00 0.00 1.00	0.0000	108.00
(2) RFV01U-D2A	B	From Centroid-Face	4.00 0.00 1.00	0.0000	108.00
RFV01U-D2A	C	From Centroid-Face	4.00 0.00 1.00	0.0000	108.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft
Platform Mount [LP 304-1_KCKR]	C	None		0.0000	108.00
100					
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Face	4.00 0.00 0.00	0.0000	100.00
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Face	4.00 0.00 0.00	0.0000	100.00
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Face	4.00 0.00 0.00	0.0000	100.00
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Face	4.00 0.00 0.00	0.0000	100.00
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Face	4.00 0.00 0.00	0.0000	100.00
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Face	4.00 0.00 0.00	0.0000	100.00
AIR 32 B2A/B66AA w/ Mount Pipe	A	From Face	4.00 0.00 0.00	0.0000	100.00
AIR 32 B2A/B66AA w/ Mount Pipe	B	From Face	4.00 0.00 0.00	0.0000	100.00
AIR 32 B2A/B66AA w/ Mount Pipe	C	From Face	4.00 0.00 0.00	0.0000	100.00
KRY 112 144/1	A	From Face	4.00 0.00 0.00	0.0000	100.00
KRY 112 144/1	B	From Leg	4.00 0.00 0.00	0.0000	100.00
KRY 112 144/1	C	From Face	4.00 0.00 0.00	0.0000	100.00
RADIO 4449 B12/B71	A	From Face	4.00 0.00 0.00	0.0000	100.00
RADIO 4449 B12/B71	B	From Face	4.00 0.00 0.00	0.0000	100.00
RADIO 4449 B12/B71	C	From Face	4.00 0.00 0.00	0.0000	100.00
T-Arm Mount [TA 602-3]	C	None		0.0000	100.00
70					
KS24019-L112A	A	From Face	3.00 0.00 2.00	0.0000	70.00
KS24019-L112A	C	From Face	3.00 0.00 2.00	0.0000	70.00
Side Arm Mount [SO 701-1]	A	From Face	1.50 0.00 0.00	0.0000	70.00
Side Arm Mount [SO 701-1]	C	From Face	1.50 0.00 0.00	0.0000	70.00
49					
KS24019-L112A	B	From Face	3.00 0.00 2.00	0.0000	49.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft
Side Arm Mount [SO 701-1]	B	From Face	1.50 0.00 0.00	0.0000	49.00
***					
L 2-1/2x2-1/2x3/16 (36" Long)	A	From Leg	1.50 0.00 0.00	0.0000	6.00
L 2-1/2x2-1/2x3/16 (36" Long)	B	From Leg	1.50 0.00 0.00	0.0000	6.00
L 2-1/2x2-1/2x3/16 (36" Long)	C	From Leg	1.50 0.00 0.00	0.0000	6.00
L 2-1/2x2-1/2x3/16 (36" Long)	A	From Leg	1.50 0.00 0.00	0.0000	85.00
L 2-1/2x2-1/2x3/16 (36" Long)	B	From Leg	1.50 0.00 0.00	0.0000	85.00
L 2-1/2x2-1/2x3/16 (36" Long)	C	From Leg	1.50 0.00 0.00	0.0000	85.00
L 2-1/2x2-1/2x3/16 (36" Long)	A	From Leg	1.50 0.00 0.00	0.0000	135.00
L 2-1/2x2-1/2x3/16 (36" Long)	B	From Leg	1.50 0.00 0.00	0.0000	135.00
L 2-1/2x2-1/2x3/16 (36" Long)	C	From Leg	1.50 0.00 0.00	0.0000	135.00
***					
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	118.00
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	118.00
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	118.00
TA08025-B604	A	From Leg	4.00 0.00 0.00	0.0000	118.00
TA08025-B604	B	From Leg	4.00 0.00 0.00	0.0000	118.00
TA08025-B604	C	From Leg	4.00 0.00 0.00	0.0000	118.00
TA08025-B605	A	From Leg	4.00 0.00 0.00	0.0000	118.00
TA08025-B605	B	From Leg	4.00 0.00 0.00	0.0000	118.00
TA08025-B605	C	From Leg	4.00 0.00 0.00	0.0000	118.00
RDIDC-9181-PF-48	B	From Leg	4.00 0.00 0.00	0.0000	118.00
Commscope MC-PK8-DSH	C	None		0.0000	118.00
(2) 8' x 2" Mount Pipe	A	From Leg	4.00 0.00	0.0000	118.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft
(2) 8' x 2" Mount Pipe	B	From Leg	0.00 4.00 0.00	0.0000	118.00
(2) 8' x 2" Mount Pipe	C	From Leg	0.00 4.00 0.00	0.0000	118.00
***			0.00		
***					

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

Comb. No.	Description
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	140 - 135	Pole	Max Tension	20	0	0	0
			Max. Compression	26	-11	0	0
			Max. Mx	8	-4	-15	0
			Max. My	2	-4	0	15
			Max. Vy	8	4	-15	0
			Max. Vx	2	-4	0	15
			Max. Torque	2			0
L2	135 - 130	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-12	0	0
			Max. Mx	8	-5	-35	0
			Max. My	2	-5	0	35
			Max. Vy	8	4	-35	0
			Max. Vx	2	-4	0	35
			Max. Torque	2			0
L3	130 - 125	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-24	-1	0
			Max. Mx	8	-8	-81	0
			Max. My	2	-8	0	81
			Max. Vy	8	10	-81	0
			Max. Vx	2	-10	0	81
			Max. Torque	12			0
L4	125 - 120	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-24	-1	0
			Max. Mx	8	-8	-130	0
			Max. My	2	-8	0	130
			Max. Vy	8	10	-130	0
			Max. Vx	2	-10	0	130
			Max. Torque	12			0
L5	120 - 115	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-32	-1	0
			Max. Mx	8	-12	-191	0
			Max. My	2	-12	0	190
			Max. Vy	8	14	-191	0
			Max. Vx	2	-13	0	190
			Max. Torque	2			0
L6	115 - 110	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-33	-1	0
			Max. Mx	8	-12	-259	0
			Max. My	14	-12	0	-259
			Max. Vy	8	14	-259	0
			Max. Vx	2	-14	0	259
			Max. Torque	2			0
L7	110 - 105	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-43	-4	0
			Max. Mx	8	-16	-342	0
			Max. My	2	-16	-2	340
			Max. Vy	8	17	-342	0
			Max. Vx	2	-17	-2	340
			Max. Torque	2			-1
L8	105 - 102	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-44	-4	0
			Max. Mx	8	-16	-394	1
			Max. My	2	-16	-2	393
			Max. Vy	8	18	-394	1
			Max. Vx	2	-18	-2	393
			Max. Torque	2			-1

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L9	102 - 101.75	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-44	-4	0
			Max. Mx	8	-16	-398	1
			Max. My	2	-16	-2	397
			Max. Vy	20	-18	395	0
			Max. Vx	2	-18	-2	397
			Max. Torque	2			-1
L10	101.75 - 96.75	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-53	-4	0
			Max. Mx	8	-20	-495	1
			Max. My	14	-20	-1	-494
			Max. Vy	8	20	-495	1
			Max. Vx	2	-20	-2	494
			Max. Torque	2			-1
L11	96.75 - 91.75	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-54	-4	0
			Max. Mx	8	-20	-531	1
			Max. My	2	-20	-2	530
			Max. Vy	8	21	-531	1
			Max. Vx	2	-21	-2	530
			Max. Torque	2			-1
L12	91.75 - 90.75	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-56	-4	0
			Max. Mx	8	-21	-619	1
			Max. My	2	-21	-2	618
			Max. Vy	8	21	-619	1
			Max. Vx	2	-21	-2	618
			Max. Torque	2			-1
L13	90.75 - 85.75	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-57	-4	0
			Max. Mx	8	-22	-725	1
			Max. My	2	-22	-3	724
			Max. Vy	8	21	-725	1
			Max. Vx	2	-21	-3	724
			Max. Torque	2			-1
L14	85.75 - 85.333	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-58	-4	0
			Max. Mx	8	-22	-734	1
			Max. My	2	-22	-3	733
			Max. Vy	8	21	-734	1
			Max. Vx	2	-21	-3	733
			Max. Torque	2			-1
L15	85.333 - 85.083	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-58	-4	0
			Max. Mx	8	-23	-739	1
			Max. My	2	-23	-3	738
			Max. Vy	20	-21	736	-1
			Max. Vx	2	-21	-3	738
			Max. Torque	2			-1
L16	85.083 - 82.5	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-59	-3	0
			Max. Mx	8	-23	-795	1
			Max. My	2	-23	-3	794
			Max. Vy	8	22	-795	1
			Max. Vx	2	-22	-3	794
			Max. Torque	2			-1
L17	82.5 - 82.25	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-59	-3	0
			Max. Mx	8	-23	-800	1
			Max. My	2	-23	-3	799
			Max. Vy	20	-22	797	-1
			Max. Vx	2	-22	-3	799

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	2			-1
L18	82.25 - 82	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-59	-3	0
			Max. Mx	8	-23	-805	1
			Max. My	2	-23	-3	805
			Max. Vy	20	-22	802	-1
			Max. Vx	2	-22	-3	805
			Max. Torque	2			-1
L19	82 - 81.75	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-59	-3	0
			Max. Mx	8	-23	-811	1
			Max. My	2	-23	-3	810
			Max. Vy	20	-22	808	-1
			Max. Vx	2	-22	-3	810
			Max. Torque	2			-1
L20	81.75 - 78.833	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-61	-3	0
			Max. Mx	8	-24	-874	1
			Max. My	2	-24	-3	874
			Max. Vy	8	22	-874	1
			Max. Vx	2	-22	-3	874
			Max. Torque	2			-1
L21	78.833 - 78.583	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-61	-3	0
			Max. Mx	8	-24	-880	1
			Max. My	2	-24	-3	879
			Max. Vy	20	-22	877	-1
			Max. Vx	2	-22	-3	879
			Max. Torque	2			-1
L22	78.583 - 77.667	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-61	-3	0
			Max. Mx	8	-24	-900	1
			Max. My	2	-24	-3	899
			Max. Vy	8	22	-900	1
			Max. Vx	2	-22	-3	899
			Max. Torque	2			-1
L23	77.667 - 77.417	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-61	-3	0
			Max. Mx	8	-24	-905	1
			Max. My	2	-24	-3	905
			Max. Vy	20	-22	902	-1
			Max. Vx	2	-22	-3	905
			Max. Torque	2			-1
L24	77.417 - 77.167	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-61	-3	0
			Max. Mx	8	-24	-911	1
			Max. My	2	-24	-3	910
			Max. Vy	20	-22	908	-1
			Max. Vx	2	-22	-3	910
			Max. Torque	2			-1
L25	77.167 - 72.167	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-64	-3	0
			Max. Mx	8	-26	-1022	2
			Max. My	2	-26	-3	1021
			Max. Vy	8	22	-1022	2
			Max. Vx	2	-22	-3	1021
			Max. Torque	2			-1
L26	72.167 - 67.167	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-66	-2	0
			Max. Mx	8	-27	-1136	2
			Max. My	14	-27	1	-1134
			Max. Vy	8	23	-1136	2

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	2	-23	-3	1134
			Max. Torque	2			-1
L27	67.167 - 66.583	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-67	-2	0
			Max. Mx	8	-27	-1149	2
			Max. My	14	-27	1	-1147
			Max. Vy	8	23	-1149	2
			Max. Vx	2	-23	-3	1147
			Max. Torque	2			-1
L28	66.583 - 66.333	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-67	-2	0
			Max. Mx	8	-27	-1155	2
			Max. My	14	-27	1	-1153
			Max. Vy	20	-23	1152	-2
			Max. Vx	2	-23	-3	1153
			Max. Torque	2			-1
L29	66.333 - 66.167	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-67	-2	0
			Max. Mx	8	-27	-1159	2
			Max. My	14	-27	1	-1157
			Max. Vy	20	-23	1156	-2
			Max. Vx	2	-23	-3	1157
			Max. Torque	2			-1
L30	66.167 - 65.917	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-67	-2	0
			Max. Mx	8	-27	-1164	2
			Max. My	14	-27	1	-1163
			Max. Vy	20	-23	1162	-2
			Max. Vx	2	-23	-3	1163
			Max. Torque	2			-1
L31	65.917 - 62.667	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-68	-2	0
			Max. Mx	8	-28	-1240	2
			Max. My	14	-28	1	-1238
			Max. Vy	8	23	-1240	2
			Max. Vx	2	-23	-3	1237
			Max. Torque	2			-1
L32	62.667 - 62.417	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-68	-2	0
			Max. Mx	8	-28	-1246	2
			Max. My	14	-28	1	-1243
			Max. Vy	20	-23	1243	-2
			Max. Vx	2	-23	-3	1243
			Max. Torque	2			-1
L33	62.417 - 60	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-70	-2	0
			Max. Mx	8	-29	-1303	2
			Max. My	14	-29	1	-1300
			Max. Vy	8	24	-1303	2
			Max. Vx	2	-23	-4	1300
			Max. Torque	2			-1
L34	60 - 59.75	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-70	-2	0
			Max. Mx	8	-29	-1309	2
			Max. My	14	-29	1	-1306
			Max. Vy	20	-24	1306	-2
			Max. Vx	2	-23	-4	1305
			Max. Torque	2			-1
L35	59.75 - 58.333	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-70	-2	0
			Max. Mx	8	-29	-1342	2
			Max. My	14	-29	1	-1339

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	8	24	-1342	2
			Max. Vx	2	-24	-4	1339
			Max. Torque	2			-1
L36	58.333 - 58.083	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-70	-2	0
			Max. Mx	8	-29	-1348	2
			Max. My	14	-29	1	-1345
			Max. Vy	20	-24	1345	-2
			Max. Vx	2	-24	-4	1345
			Max. Torque	2			-1
L37	58.083 - 53.083	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-73	-2	0
			Max. Mx	8	-31	-1468	3
			Max. My	14	-31	1	-1463
			Max. Vy	8	24	-1468	3
			Max. Vx	2	-24	-4	1463
			Max. Torque	2			-1
L38	53.083 - 52.833	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-73	-2	1
			Max. Mx	8	-31	-1474	3
			Max. My	14	-31	1	-1469
			Max. Vy	20	-24	1471	-3
			Max. Vx	2	-24	-4	1469
			Max. Torque	2			-1
L39	52.833 - 52.583	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-73	-2	1
			Max. Mx	8	-31	-1480	3
			Max. My	14	-31	1	-1475
			Max. Vy	20	-24	1477	-3
			Max. Vx	2	-24	-4	1475
			Max. Torque	2			-1
L40	52.583 - 51.417	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-73	-2	1
			Max. Mx	8	-31	-1508	3
			Max. My	14	-31	1	-1503
			Max. Vy	8	24	-1508	3
			Max. Vx	2	-24	-4	1503
			Max. Torque	2			-1
L41	51.417 - 51.167	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-74	-2	1
			Max. Mx	8	-31	-1514	3
			Max. My	14	-31	1	-1509
			Max. Vy	20	-24	1511	-3
			Max. Vx	2	-24	-4	1509
			Max. Torque	2			-1
L42	51.167 - 46.5	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-74	-2	1
			Max. Mx	8	-31	-1518	3
			Max. My	14	-31	1	-1513
			Max. Vy	20	-24	1515	-3
			Max. Vx	2	-24	-4	1513
			Max. Torque	2			-1
L43	46.5 - 45.5	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-78	-2	1
			Max. Mx	8	-34	-1653	3
			Max. My	2	-34	-4	1647
			Max. Vy	8	25	-1653	3
			Max. Vx	2	-25	-4	1647
			Max. Torque	2			-1
L44	45.5 - 44.25	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-79	-2	1
			Max. Mx	8	-34	-1684	3

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	-34	-4	1677
			Max. Vy	8	25	-1684	3
			Max. Vx	2	-25	-4	1677
			Max. Torque	2			-1
L45	44.25 - 44	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-79	-2	1
			Max. Mx	8	-35	-1690	3
			Max. My	2	-35	-4	1684
			Max. Vy	20	-25	1687	-3
			Max. Vx	2	-25	-4	1684
			Max. Torque	2			-1
L46	44 - 43.083	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-79	-2	1
			Max. Mx	8	-35	-1713	3
			Max. My	2	-35	-4	1706
			Max. Vy	8	25	-1713	3
			Max. Vx	2	-25	-4	1706
			Max. Torque	2			-1
L47	43.083 - 42.833	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-79	-2	1
			Max. Mx	8	-35	-1719	3
			Max. My	2	-35	-5	1712
			Max. Vy	20	-25	1716	-3
			Max. Vx	2	-25	-5	1712
			Max. Torque	2			-1
L48	42.833 - 37.833	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-82	-2	1
			Max. Mx	8	-37	-1845	3
			Max. My	2	-37	-5	1837
			Max. Vy	8	25	-1845	3
			Max. Vx	2	-25	-5	1837
			Max. Torque	2			-1
L49	37.833 - 32.833	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-85	-2	1
			Max. Mx	8	-38	-1973	4
			Max. My	2	-38	-5	1963
			Max. Vy	8	26	-1973	4
			Max. Vx	2	-25	-5	1963
			Max. Torque	2			-1
L50	32.833 - 29.25	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-87	-1	1
			Max. Mx	8	-40	-2065	4
			Max. My	2	-40	-5	2055
			Max. Vy	8	26	-2065	4
			Max. Vx	2	-26	-5	2055
			Max. Torque	2			-1
L51	29.25 - 29	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-87	-1	1
			Max. Mx	8	-40	-2072	4
			Max. My	2	-40	-5	2061
			Max. Vy	20	-26	2069	-3
			Max. Vx	2	-26	-5	2061
			Max. Torque	2			-1
L52	29 - 27.75	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-88	-1	1
			Max. Mx	8	-40	-2104	4
			Max. My	2	-40	-5	2094
			Max. Vy	8	26	-2104	4
			Max. Vx	2	-26	-5	2094
			Max. Torque	2			-1
L53	27.75 - 27.5	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-88	-1	1
			Max. Mx	8	-40	-2111	4
			Max. My	2	-40	-5	2100
			Max. Vy	20	-26	2108	-3

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	2	-26	-5	2100
			Max. Torque	2			-1
L54	27.5 - 24.083	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-90	-1	1
			Max. Mx	8	-42	-2200	4
			Max. My	2	-42	-5	2188
			Max. Vy	8	26	-2200	4
			Max. Vx	2	-26	-5	2188
			Max. Torque	2			-1
L55	24.083 - 23.833	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-90	-1	1
			Max. Mx	8	-42	-2206	4
			Max. My	2	-42	-5	2195
			Max. Vy	20	-26	2204	-4
			Max. Vx	2	-26	-5	2195
			Max. Torque	2			-1
L56	23.833 - 23.5	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-90	-1	1
			Max. Mx	8	-42	-2215	4
			Max. My	2	-42	-5	2204
			Max. Vy	20	-26	2212	-4
			Max. Vx	2	-26	-5	2204
			Max. Torque	2			-1
L57	23.5 - 23.25	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-90	-1	1
			Max. Mx	8	-42	-2222	4
			Max. My	2	-42	-5	2210
			Max. Vy	20	-26	2219	-4
			Max. Vx	2	-26	-5	2210
			Max. Torque	2			-1
L58	23.25 - 18.917	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-93	-1	1
			Max. Mx	8	-43	-2336	4
			Max. My	2	-43	-5	2324
			Max. Vy	8	27	-2336	4
			Max. Vx	2	-26	-5	2324
			Max. Torque	2			-1
L59	18.917 - 18.667	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-93	-1	1
			Max. Mx	8	-43	-2343	4
			Max. My	2	-43	-5	2330
			Max. Vy	20	-27	2340	-4
			Max. Vx	2	-26	-5	2330
			Max. Torque	2			-1
L60	18.667 - 18.083	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-93	-1	1
			Max. Mx	8	-44	-2358	4
			Max. My	2	-44	-5	2345
			Max. Vy	8	27	-2358	4
			Max. Vx	2	-26	-5	2345
			Max. Torque	2			-1
L61	18.083 - 17.833	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-93	-1	1
			Max. Mx	8	-44	-2365	4
			Max. My	2	-44	-5	2352
			Max. Vy	20	-27	2362	-4
			Max. Vx	2	-26	-5	2352
			Max. Torque	2			-1
L62	17.833 - 14.083	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-96	-1	1
			Max. Mx	8	-45	-2465	4

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	-45	-6	2451
			Max. Vy	8	27	-2465	4
			Max. Vx	2	-27	-6	2451
			Max. Torque	2			-1
L63	14.083 - 13.833	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-96	-1	1
			Max. Mx	8	-45	-2472	4
			Max. My	2	-45	-6	2458
			Max. Vy	20	-27	2469	-4
			Max. Vx	2	-27	-6	2458
			Max. Torque	2			-1
L64	13.833 - 8.833	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-98	-1	1
			Max. Mx	8	-47	-2607	5
			Max. My	2	-47	-6	2592
			Max. Vy	8	27	-2607	5
			Max. Vx	2	-27	-6	2592
			Max. Torque	2			-1
L65	8.833 - 3.833	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-101	-1	1
			Max. Mx	8	-49	-2743	5
			Max. My	2	-49	-6	2727
			Max. Vy	8	28	-2743	5
			Max. Vx	2	-27	-6	2727
			Max. Torque	2			-1
L66	3.833 - 0	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-103	-1	1
			Max. Mx	8	-51	-2849	5
			Max. My	2	-51	-6	2832
			Max. Vy	8	28	-2849	5
			Max. Vx	2	-28	-6	2832
			Max. Torque	2			-1

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	30	103	-8	0
	Max. H_x	20	51	28	0
	Max. H_z	2	51	0	28
	Max. M_x	2	2832	0	28
	Max. M_z	8	2849	-28	0
	Max. Torsion	14	1	0	-28
	Min. Vert	13	38	-14	-24
	Min. H_x	9	38	-28	0
	Min. H_z	14	51	0	-28
	Min. M_x	14	-2832	0	-28
	Min. M_z	20	-2846	28	0
	Min. Torsion	2	-1	0	28

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	42	0	0	0	-1	0
1.2 Dead+1.0 Wind 0 deg -	51	0	-28	-2832	-6	1

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	38	0	-28	-2789	-6	1
1.2 Dead+1.0 Wind 30 deg - No Ice	51	14	-24	-2469	-1425	1
0.9 Dead+1.0 Wind 30 deg - No Ice	38	14	-24	-2432	-1403	1
1.2 Dead+1.0 Wind 60 deg - No Ice	51	24	-14	-1432	-2470	0
0.9 Dead+1.0 Wind 60 deg - No Ice	38	24	-14	-1411	-2432	0
1.2 Dead+1.0 Wind 90 deg - No Ice	51	28	0	-5	-2849	0
0.9 Dead+1.0 Wind 90 deg - No Ice	38	28	0	-5	-2806	0
1.2 Dead+1.0 Wind 120 deg - No Ice	51	24	14	1419	-2457	-1
0.9 Dead+1.0 Wind 120 deg - No Ice	38	24	14	1398	-2420	-1
1.2 Dead+1.0 Wind 150 deg - No Ice	51	14	24	2450	-1409	-1
0.9 Dead+1.0 Wind 150 deg - No Ice	38	14	24	2413	-1387	-1
1.2 Dead+1.0 Wind 180 deg - No Ice	51	0	28	2832	3	-1
0.9 Dead+1.0 Wind 180 deg - No Ice	38	0	28	2789	4	-1
1.2 Dead+1.0 Wind 210 deg - No Ice	51	-14	24	2469	1423	-1
0.9 Dead+1.0 Wind 210 deg - No Ice	38	-14	24	2431	1401	-1
1.2 Dead+1.0 Wind 240 deg - No Ice	51	-24	14	1432	2467	0
0.9 Dead+1.0 Wind 240 deg - No Ice	38	-24	14	1410	2430	0
1.2 Dead+1.0 Wind 270 deg - No Ice	51	-28	0	4	2846	0
0.9 Dead+1.0 Wind 270 deg - No Ice	38	-28	0	4	2804	0
1.2 Dead+1.0 Wind 300 deg - No Ice	51	-24	-14	-1420	2454	1
0.9 Dead+1.0 Wind 300 deg - No Ice	38	-24	-14	-1398	2418	1
1.2 Dead+1.0 Wind 330 deg - No Ice	51	-14	-24	-2450	1406	1
0.9 Dead+1.0 Wind 330 deg - No Ice	38	-14	-24	-2413	1385	1
1.2 Dead+1.0 Ice+1.0 Temp	103	0	0	-1	-1	0
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	103	0	-8	-926	-2	0
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	103	4	-7	-803	-464	0
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	103	7	-4	-464	-802	0
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	103	8	0	-2	-925	0
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	103	7	4	461	-801	0
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	103	4	7	800	-462	0
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	103	0	8	924	0	0
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	103	-4	7	801	462	0
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	103	-7	4	463	799	0
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	103	-8	0	0	923	0
1.2 Dead+1.0 Wind 300	103	-7	-4	-463	798	0

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	103	-4	-7	-802	460	0
Dead+Wind 0 deg - Service	42	0	-6	-610	-2	0
Dead+Wind 30 deg - Service	42	3	-5	-532	-308	0
Dead+Wind 60 deg - Service	42	5	-3	-309	-533	0
Dead+Wind 90 deg - Service	42	6	0	-1	-615	0
Dead+Wind 120 deg - Service	42	5	3	306	-530	0
Dead+Wind 150 deg - Service	42	3	5	527	-304	0
Dead+Wind 180 deg - Service	42	0	6	610	0	0
Dead+Wind 210 deg - Service	42	-3	5	532	306	0
Dead+Wind 240 deg - Service	42	-5	3	308	531	0
Dead+Wind 270 deg - Service	42	-6	0	1	612	0
Dead+Wind 300 deg - Service	42	-5	-3	-306	528	0
Dead+Wind 330 deg - Service	42	-3	-5	-528	302	0

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	-42	0	0	42	0	0.000%
2	0	-51	-28	0	51	28	0.000%
3	0	-38	-28	0	38	28	0.000%
4	14	-51	-24	-14	51	24	0.000%
5	14	-38	-24	-14	38	24	0.000%
6	24	-51	-14	-24	51	14	0.000%
7	24	-38	-14	-24	38	14	0.000%
8	28	-51	0	-28	51	0	0.000%
9	28	-38	0	-28	38	0	0.000%
10	24	-51	14	-24	51	-14	0.000%
11	24	-38	14	-24	38	-14	0.000%
12	14	-51	24	-14	51	-24	0.000%
13	14	-38	24	-14	38	-24	0.000%
14	0	-51	28	0	51	-28	0.000%
15	0	-38	28	0	38	-28	0.000%
16	-14	-51	24	14	51	-24	0.000%
17	-14	-38	24	14	38	-24	0.000%
18	-24	-51	14	24	51	-14	0.000%
19	-24	-38	14	24	38	-14	0.000%
20	-28	-51	0	28	51	0	0.000%
21	-28	-38	0	28	38	0	0.000%
22	-24	-51	-14	24	51	14	0.000%
23	-24	-38	-14	24	38	14	0.000%
24	-14	-51	-24	14	51	24	0.000%
25	-14	-38	-24	14	38	24	0.000%
26	0	-103	0	0	103	0	0.000%
27	0	-103	-8	0	103	8	0.000%
28	4	-103	-7	-4	103	7	0.000%
29	7	-103	-4	-7	103	4	0.000%
30	8	-103	0	-8	103	0	0.000%
31	7	-103	4	-7	103	-4	0.000%
32	4	-103	7	-4	103	-7	0.000%
33	0	-103	8	0	103	-8	0.000%
34	-4	-103	7	4	103	-7	0.000%
35	-7	-103	4	7	103	-4	0.000%
36	-8	-103	0	8	103	0	0.000%
37	-7	-103	-4	7	103	4	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	-103	-7	4	103	7	0.000%
39	0	-42	-6	0	42	6	0.000%
40	3	-42	-5	-3	42	5	0.000%
41	5	-42	-3	-5	42	3	0.000%
42	6	-42	0	-6	42	0	0.000%
43	5	-42	3	-5	42	-3	0.000%
44	3	-42	5	-3	42	-5	0.000%
45	0	-42	6	0	42	-6	0.000%
46	-3	-42	5	3	42	-5	0.000%
47	-5	-42	3	5	42	-3	0.000%
48	-6	-42	0	6	42	0	0.000%
49	-5	-42	-3	5	42	3	0.000%
50	-3	-42	-5	3	42	5	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000555
2	Yes	6	0.00000001	0.00021064
3	Yes	6	0.00000001	0.00007057
4	Yes	7	0.00000001	0.00036775
5	Yes	7	0.00000001	0.00008907
6	Yes	7	0.00000001	0.00035986
7	Yes	7	0.00000001	0.00008694
8	Yes	6	0.00000001	0.00008690
9	Yes	5	0.00000001	0.00047031
10	Yes	7	0.00000001	0.00035352
11	Yes	7	0.00000001	0.00008554
12	Yes	7	0.00000001	0.00036399
13	Yes	7	0.00000001	0.00008845
14	Yes	6	0.00000001	0.00017013
15	Yes	6	0.00000001	0.00005617
16	Yes	7	0.00000001	0.00035542
17	Yes	7	0.00000001	0.00008591
18	Yes	7	0.00000001	0.00036354
19	Yes	7	0.00000001	0.00008805
20	Yes	5	0.00000001	0.00094765
21	Yes	5	0.00000001	0.00034740
22	Yes	7	0.00000001	0.00036148
23	Yes	7	0.00000001	0.00008781
24	Yes	7	0.00000001	0.00034940
25	Yes	7	0.00000001	0.00008465
26	Yes	5	0.00000001	0.00007696
27	Yes	8	0.00000001	0.00033772
28	Yes	8	0.00000001	0.00045593
29	Yes	8	0.00000001	0.00045357
30	Yes	8	0.00000001	0.00033893
31	Yes	8	0.00000001	0.00045040
32	Yes	8	0.00000001	0.00045348
33	Yes	8	0.00000001	0.00033685
34	Yes	8	0.00000001	0.00044588
35	Yes	8	0.00000001	0.00044767
36	Yes	8	0.00000001	0.00033713
37	Yes	8	0.00000001	0.00044793
38	Yes	8	0.00000001	0.00044540
39	Yes	5	0.00000001	0.00020115
40	Yes	5	0.00000001	0.00087261
41	Yes	5	0.00000001	0.00082306
42	Yes	5	0.00000001	0.00017235
43	Yes	5	0.00000001	0.00079852
44	Yes	5	0.00000001	0.00086457
45	Yes	5	0.00000001	0.00019807
46	Yes	5	0.00000001	0.00079316
47	Yes	5	0.00000001	0.00084010

48	Yes	5	0.00000001	0.00017021
49	Yes	5	0.00000001	0.00084084
50	Yes	5	0.00000001	0.00077262

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	140 - 135	21.997	41	1.4728	0.0025
L2	135 - 130	20.456	41	1.4687	0.0025
L3	130 - 125	18.925	41	1.4544	0.0025
L4	125 - 120	17.415	41	1.4277	0.0024
L5	120 - 115	15.941	41	1.3844	0.0022
L6	115 - 110	14.520	41	1.3286	0.0020
L7	110 - 105	13.164	41	1.2603	0.0018
L8	105 - 102	11.885	41	1.1809	0.0016
L9	102 - 101.75	11.159	41	1.1280	0.0014
L10	101.75 - 96.75	11.100	41	1.1251	0.0014
L11	96.75 - 91.75	9.955	41	1.0606	0.0012
L12	95 - 90.75	9.571	41	1.0367	0.0011
L13	90.75 - 85.75	8.663	41	0.9965	0.0010
L14	85.75 - 85.333	7.663	41	0.9140	0.0008
L15	85.333 - 85.083	7.583	41	0.9070	0.0008
L16	85.083 - 82.5	7.536	41	0.9043	0.0008
L17	82.5 - 82.25	7.054	41	0.8750	0.0008
L18	82.25 - 82	7.009	41	0.8721	0.0008
L19	82 - 81.75	6.963	41	0.8692	0.0008
L20	81.75 - 78.833	6.918	41	0.8649	0.0008
L21	78.833 - 78.583	6.405	41	0.8148	0.0007
L22	78.583 - 77.667	6.362	41	0.8122	0.0007
L23	77.667 - 77.417	6.207	41	0.8028	0.0007
L24	77.417 - 77.167	6.165	41	0.8000	0.0006
L25	77.167 - 72.167	6.123	41	0.7971	0.0006
L26	72.167 - 67.167	5.319	41	0.7383	0.0006
L27	67.167 - 66.583	4.578	41	0.6780	0.0005
L28	66.583 - 66.333	4.495	41	0.6710	0.0005
L29	66.333 - 66.167	4.460	41	0.6685	0.0005
L30	66.167 - 65.917	4.437	41	0.6668	0.0005
L31	65.917 - 62.667	4.402	41	0.6637	0.0005
L32	62.667 - 62.417	3.964	41	0.6237	0.0004
L33	62.417 - 60	3.931	41	0.6206	0.0004
L34	60 - 59.75	3.625	41	0.5906	0.0004
L35	59.75 - 58.333	3.594	41	0.5875	0.0004
L36	58.333 - 58.083	3.422	41	0.5700	0.0004
L37	58.083 - 53.083	3.392	41	0.5669	0.0004
L38	53.083 - 52.833	2.831	41	0.5047	0.0003
L39	52.833 - 52.583	2.805	41	0.5016	0.0003
L40	52.583 - 51.417	2.779	41	0.4994	0.0003
L41	51.417 - 51.167	2.658	41	0.4888	0.0003
L42	51.167 - 46.5	2.633	41	0.4858	0.0003
L43	51 - 45.5	2.616	41	0.4838	0.0003
L44	45.5 - 44.25	2.078	41	0.4451	0.0003
L45	44.25 - 44	1.963	41	0.4307	0.0003
L46	44 - 43.083	1.941	41	0.4281	0.0003
L47	43.083 - 42.833	1.859	41	0.4187	0.0003
L48	42.833 - 37.833	1.838	41	0.4163	0.0003
L49	37.833 - 32.833	1.427	41	0.3681	0.0002
L50	32.833 - 29.25	1.067	41	0.3199	0.0002
L51	29.25 - 29	0.840	41	0.2853	0.0002
L52	29 - 27.75	0.825	41	0.2829	0.0002
L53	27.75 - 27.5	0.752	41	0.2711	0.0002
L54	27.5 - 24.083	0.738	41	0.2687	0.0002
L55	24.083 - 23.833	0.557	41	0.2364	0.0001
L56	23.833 - 23.5	0.545	41	0.2343	0.0001
L57	23.5 - 23.25	0.529	41	0.2314	0.0001
L58	23.25 - 18.917	0.517	41	0.2281	0.0001
L59	18.917 - 18.667	0.336	41	0.1713	0.0001

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L60	18.667 - 18.083	0.327	41	0.1686	0.0001
L61	18.083 - 17.833	0.307	41	0.1621	0.0001
L62	17.833 - 14.083	0.298	41	0.1599	0.0001
L63	14.083 - 13.833	0.186	41	0.1266	0.0001
L64	13.833 - 8.833	0.179	41	0.1243	0.0001
L65	8.833 - 3.833	0.073	41	0.0790	0.0000
L66	3.833 - 0	0.014	41	0.0339	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
139.00	APXV9ERR18-C-A20	41	21.689	1.4724	0.0025	30757
137.00	800MHz 2X50W RRH W/FILTER	41	21.072	1.4711	0.0025	30757
135.00	L 2-1/2x2-1/2x3/16 (36" Long)	41	20.456	1.4687	0.0025	30757
130.00	RRUS 11	41	18.925	1.4544	0.0025	14623
128.00	7770.00 w/ Mount Pipe	41	18.318	1.4455	0.0025	11200
118.00	MX08FRO665-21 w/ Mount Pipe	41	15.366	1.3636	0.0021	5238
110.00	DB-T1-6Z-8AB-0Z	41	13.164	1.2603	0.0018	3888
108.00	(2) SBNHH-1D65B w/ Mount Pipe	41	12.642	1.2311	0.0017	3654
100.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	41	10.692	1.1039	0.0013	4163
85.00	L 2-1/2x2-1/2x3/16 (36" Long)	41	7.520	0.9034	0.0008	4051
70.00	KS24019-L112A	41	4.990	0.7126	0.0005	4790
49.00	KS24019-L112A	41	2.415	0.4675	0.0003	7493
6.00	L 2-1/2x2-1/2x3/16 (36" Long)	41	0.033	0.0534	0.0000	6069

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	140 - 135	101.867	8	6.8349	0.0117
L2	135 - 130	94.745	4	6.8156	0.0117
L3	130 - 125	87.668	4	6.7486	0.0117
L4	125 - 120	80.686	4	6.6240	0.0112
L5	120 - 115	73.875	4	6.4232	0.0104
L6	115 - 110	67.302	4	6.1640	0.0095
L7	110 - 105	61.029	4	5.8466	0.0086
L8	105 - 102	55.111	4	5.4801	0.0073
L9	102 - 101.75	51.752	4	5.2366	0.0064
L10	101.75 - 96.75	51.479	4	5.2229	0.0064
L11	96.75 - 91.75	46.175	4	4.9252	0.0054
L12	95 - 90.75	44.394	6	4.8147	0.0052
L13	90.75 - 85.75	40.187	6	4.6282	0.0047
L14	85.75 - 85.333	35.550	6	4.2457	0.0039
L15	85.333 - 85.083	35.181	6	4.2133	0.0039
L16	85.083 - 82.5	34.961	6	4.2004	0.0039
L17	82.5 - 82.25	32.730	6	4.0644	0.0036
L18	82.25 - 82	32.517	6	4.0510	0.0036
L19	82 - 81.75	32.306	6	4.0377	0.0036
L20	81.75 - 78.833	32.096	6	4.0179	0.0035
L21	78.833 - 78.583	29.716	6	3.7849	0.0032
L22	78.583 - 77.667	29.518	6	3.7730	0.0031
L23	77.667 - 77.417	28.800	6	3.7294	0.0031
L24	77.417 - 77.167	28.605	6	3.7161	0.0031
L25	77.167 - 72.167	28.411	6	3.7028	0.0030
L26	72.167 - 67.167	24.682	6	3.4295	0.0026
L27	67.167 - 66.583	21.241	6	3.1491	0.0023

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L28	66.583 - 66.333	20.858	6	3.1165	0.0023
L29	66.333 - 66.167	20.696	6	3.1047	0.0023
L30	66.167 - 65.917	20.588	6	3.0968	0.0023
L31	65.917 - 62.667	20.426	6	3.0825	0.0022
L32	62.667 - 62.417	18.393	6	2.8963	0.0020
L33	62.417 - 60	18.242	6	2.8821	0.0020
L34	60 - 59.75	16.819	6	2.7426	0.0019
L35	59.75 - 58.333	16.676	6	2.7280	0.0019
L36	58.333 - 58.083	15.879	6	2.6467	0.0018
L37	58.083 - 53.083	15.741	6	2.6322	0.0018
L38	53.083 - 52.833	13.138	6	2.3432	0.0016
L39	52.833 - 52.583	13.015	6	2.3289	0.0015
L40	52.583 - 51.417	12.894	6	2.3183	0.0015
L41	51.417 - 51.167	12.334	6	2.2693	0.0015
L42	51.167 - 46.5	12.216	6	2.2552	0.0015
L43	51 - 45.5	12.137	6	2.2458	0.0015
L44	45.5 - 44.25	9.641	6	2.0663	0.0013
L45	44.25 - 44	9.109	6	1.9992	0.0013
L46	44 - 43.083	9.005	6	1.9873	0.0013
L47	43.083 - 42.833	8.627	6	1.9437	0.0012
L48	42.833 - 37.833	8.526	6	1.9325	0.0012
L49	37.833 - 32.833	6.620	6	1.7085	0.0010
L50	32.833 - 29.25	4.949	6	1.4847	0.0009
L51	29.25 - 29	3.896	6	1.3240	0.0008
L52	29 - 27.75	3.827	6	1.3129	0.0008
L53	27.75 - 27.5	3.490	6	1.2581	0.0007
L54	27.5 - 24.083	3.424	6	1.2470	0.0007
L55	24.083 - 23.833	2.586	6	1.0971	0.0006
L56	23.833 - 23.5	2.529	6	1.0871	0.0006
L57	23.5 - 23.25	2.453	6	1.0739	0.0006
L58	23.25 - 18.917	2.398	6	1.0586	0.0006
L59	18.917 - 18.667	1.557	6	0.7948	0.0004
L60	18.667 - 18.083	1.516	6	0.7820	0.0004
L61	18.083 - 17.833	1.422	6	0.7522	0.0004
L62	17.833 - 14.083	1.383	6	0.7420	0.0004
L63	14.083 - 13.833	0.861	6	0.5872	0.0003
L64	13.833 - 8.833	0.830	6	0.5766	0.0003
L65	8.833 - 3.833	0.337	6	0.3666	0.0002
L66	3.833 - 0	0.063	6	0.1573	0.0001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
139.00	APXV9ERR18-C-A20	4	100.441	6.8329	0.0117	6730
137.00	800MHz 2X50W RRH W/FILTER	4	97.591	6.8271	0.0117	6730
135.00	L 2-1/2x2-1/2x3/16 (36" Long)	4	94.745	6.8156	0.0117	6730
130.00	RRUS 11	4	87.668	6.7486	0.0117	3206
128.00	7770.00 w/ Mount Pipe	4	84.860	6.7070	0.0116	2464
118.00	MX08FRO665-21 w/ Mount Pipe	4	71.214	6.3267	0.0101	1153
110.00	DB-T1-6Z-8AB-0Z	4	61.029	5.8466	0.0086	855
108.00	(2) SBNHH-1D65B w/ Mount Pipe	4	58.616	5.7117	0.0081	805
100.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	4	49.587	5.1255	0.0060	916
85.00	L 2-1/2x2-1/2x3/16 (36" Long)	6	34.888	4.1965	0.0039	883
70.00	KS24019-L112A	6	23.155	3.3098	0.0025	1038
49.00	KS24019-L112A	6	11.206	2.1700	0.0014	1617
6.00	L 2-1/2x2-1/2x3/16 (36" Long)	6	0.153	0.2477	0.0001	1309

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
L1	140 - 135 (1)	TP17.0249x16x0.25	5.00	0.00	0.0	13.5038	-4	729	0.006
L2	135 - 130 (2)	TP18.0497x17.0249x0.25	5.00	0.00	0.0	14.3288	-5	774	0.006
L3	130 - 125 (3)	TP19.0746x18.0497x0.25	5.00	0.00	0.0	15.1538	-8	818	0.010
L4	125 - 120 (4)	TP20.0995x19.0746x0.25	5.00	0.00	0.0	15.9788	-8	863	0.010
L5	120 - 115 (5)	TP21.1244x20.0995x0.25	5.00	0.00	0.0	16.8039	-12	907	0.013
L6	115 - 110 (6)	TP22.1492x21.1244x0.25	5.00	0.00	0.0	17.6289	-12	952	0.013
L7	110 - 105 (7)	TP23.1741x22.1492x0.25	5.00	0.00	0.0	18.4539	-16	997	0.016
L8	105 - 102 (8)	TP23.789x23.1741x0.25	3.00	0.00	0.0	18.9489	-16	1023	0.016
L9	102 - 101.75 (9)	TP23.8403x23.789x0.3875	0.25	0.00	0.0	29.2632	-16	1580	0.010
L10	101.75 - 96.75 (10)	TP24.8651x23.8403x0.375	5.00	0.00	0.0	29.5718	-20	1597	0.012
L11	96.75 - 91.75 (11)	TP25.89x24.8651x0.375	5.00	0.00	0.0	30.0050	-20	1620	0.012
L12	91.75 - 90.75 (12)	TP25.5952x24.7238x0.3563	4.25	0.00	0.0	28.9522	-21	1694	0.013
L13	90.75 - 85.75 (13)	TP26.6203x25.5952x0.3563	5.00	0.00	0.0	30.1281	-22	1763	0.013
L14	85.75 - 85.333 (14)	TP26.7058x26.6203x0.3563	0.42	0.00	0.0	30.2262	-22	1768	0.013
L15	85.333 - 85.083 (15)	TP26.757x26.7058x0.55	0.25	0.00	0.0	46.4127	-23	2715	0.008
L16	85.083 - 82.5 (16)	TP27.2866x26.757x0.5438	2.58	0.00	0.0	46.8234	-23	2739	0.008
L17	82.5 - 82.25 (17)	TP27.3379x27.2866x0.5375	0.25	0.00	0.0	46.3847	-23	2714	0.009
L18	82.25 - 82 (18)	TP27.3891x27.3379x0.5375	0.25	0.00	0.0	46.4735	-23	2719	0.009
L19	82 - 81.75 (19)	TP27.4404x27.3891x0.3563	0.25	0.00	0.0	31.0689	-23	1818	0.013
L20	81.75 - 78.833 (20)	TP28.0384x27.4404x0.3563	2.92	0.00	0.0	31.7549	-24	1858	0.013
L21	78.833 - 78.583 (21)	TP28.0897x28.0384x0.6125	0.25	0.00	0.0	54.1919	-24	3170	0.008
L22	78.583 - 77.667 (22)	TP28.2775x28.0897x0.6125	0.92	0.00	0.0	54.5623	-24	3192	0.008
L23	77.667 - 77.417 (23)	TP28.3287x28.2775x0.55	0.25	0.00	0.0	49.1962	-24	2878	0.008
L24	77.417 - 77.167 (24)	TP28.38x28.3287x0.55	0.25	0.00	0.0	49.2869	-24	2883	0.008
L25	77.167 - 72.167 (25)	TP29.4055x28.38x0.5375	5.00	0.00	0.0	49.9633	-26	2923	0.009
L26	72.167 - 67.167 (26)	TP30.4311x29.4055x0.525	5.00	0.00	0.0	50.5562	-27	2958	0.009
L27	67.167 - 66.583 (27)	TP30.5508x30.4311x0.525	0.58	0.00	0.0	50.7587	-27	2969	0.009
L28	66.583 - 66.333 (28)	TP30.6021x30.5508x0.625	0.25	0.00	0.0	60.3290	-27	3529	0.008
L29	66.333 - 66.167 (29)	TP30.6362x30.6021x0.625	0.17	0.00	0.0	60.3975	-27	3533	0.008
L30	66.167 - 65.917 (30)	TP30.6874x30.6362x0.5125	0.25	0.00	0.0	49.7962	-27	2913	0.009
L31	65.917 - 62.667 (31)	TP31.354x30.6874x0.5125	3.25	0.00	0.0	50.8963	-28	2977	0.009

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L32	62.667 - 62.417 (32)	TP31.4053x31.354x0.5125	0.25	0.00	0.0	50.9809	-28	2982	0.009
L33	62.417 - 60 (33)	TP31.9011x31.4053x0.5063	2.42	0.00	0.0	51.1775	-29	2994	0.010
L34	60 - 59.75 (34)	TP31.9523x31.9011x0.5	0.25	0.00	0.0	50.6383	-29	2962	0.010
L35	59.75 - 58.333 (35)	TP32.243x31.9523x0.5	1.42	0.00	0.0	51.1062	-29	2990	0.010
L36	58.333 - 58.083 (36)	TP32.2943x32.243x0.5	0.25	0.00	0.0	51.1887	-29	2995	0.010
L37	58.083 - 53.083 (37)	TP33.3198x32.2943x0.5	5.00	0.00	0.0	52.8399	-31	3091	0.010
L38	53.083 - 52.833 (38)	TP33.3711x33.3198x0.5	0.25	0.00	0.0	52.9224	-31	3096	0.010
L39	52.833 - 52.583 (39)	TP33.4223x33.3711x0.6875	0.25	0.00	0.0	72.4667	-31	4239	0.007
L40	52.583 - 51.417 (40)	TP33.6615x33.4223x0.6875	1.17	0.00	0.0	72.9962	-31	4270	0.007
L41	51.417 - 51.167 (41)	TP33.7128x33.6615x0.5063	0.25	0.00	0.0	54.1308	-31	3167	0.010
L42	51.167 - 46.5 (42)	TP34.67x33.7128x0.5063	4.67	0.00	0.0	54.1866	-31	3170	0.010
L43	46.5 - 45.5 (43)	TP34.2498x33.122x0.55	5.50	0.00	0.0	59.6824	-34	3491	0.010
L44	45.5 - 44.25 (44)	TP34.5062x34.2498x0.55	1.25	0.00	0.0	60.1364	-34	3518	0.010
L45	44.25 - 44 (45)	TP34.5574x34.5062x0.625	0.25	0.00	0.0	68.2890	-35	3995	0.009
L46	44 - 43.083 (46)	TP34.7455x34.5574x0.625	0.92	0.00	0.0	68.6674	-35	4017	0.009
L47	43.083 - 42.833 (47)	TP34.7967x34.7455x0.6625	0.25	0.00	0.0	72.8168	-35	4260	0.008
L48	42.833 - 37.833 (48)	TP35.822x34.7967x0.6625	5.00	0.00	0.0	75.0041	-37	4388	0.008
L49	37.833 - 32.833 (49)	TP36.8473x35.822x0.65	5.00	0.00	0.0	75.7610	-38	4432	0.009
L50	32.833 - 29.25 (50)	TP37.582x36.8473x0.6375	3.58	0.00	0.0	75.8379	-40	4437	0.009
L51	29.25 - 29 (51)	TP37.6333x37.582x0.6375	0.25	0.00	0.0	75.9431	-40	4443	0.009
L52	29 - 27.75 (52)	TP37.8896x37.6333x0.6375	1.25	0.00	0.0	76.4693	-40	4473	0.009
L53	27.75 - 27.5 (53)	TP37.9409x37.8896x0.6375	0.25	0.00	0.0	76.5745	-40	4480	0.009
L54	27.5 - 24.083 (54)	TP38.6416x37.9409x0.6375	3.42	0.00	0.0	78.0129	-42	4564	0.009
L55	24.083 - 23.833 (55)	TP38.6928x38.6416x0.7	0.25	0.00	0.0	85.6359	-42	5010	0.008
L56	23.833 - 23.5 (56)	TP38.7611x38.6928x0.7	0.33	0.00	0.0	85.7898	-42	5019	0.008
L57	23.5 - 23.25 (57)	TP38.8124x38.7611x0.4438	0.25	0.00	0.0	54.8240	-42	3207	0.013
L58	23.25 - 18.917 (58)	TP39.7009x38.8124x0.4438	4.33	0.00	0.0	56.0936	-43	3281	0.013
L59	18.917 - 18.667 (59)	TP39.7522x39.7009x0.525	0.25	0.00	0.0	66.3135	-43	3879	0.011
L60	18.667 - 18.083 (60)	TP39.8719x39.7522x0.525	0.58	0.00	0.0	66.5160	-44	3891	0.011
L61	18.083 - 17.833 (61)	TP39.9232x39.8719x0.6625	0.25	0.00	0.0	83.7529	-44	4900	0.009
L62	17.833 - 14.083 (62)	TP40.6922x39.9232x0.65	3.75	0.00	0.0	83.8082	-45	4903	0.009
L63	14.083 - 13.833 (63)	TP40.7434x40.6922x0.625	0.25	0.00	0.0	80.7383	-45	4723	0.010
L64	13.833 - 8.833 (64)	TP41.7687x40.7434x0.625	5.00	0.00	0.0	82.8017	-47	4844	0.010
L65	8.833 - 3.833 (65)	TP42.794x41.7687x0.6125	5.00	0.00	0.0	83.1925	-49	4867	0.010
L66	3.833 - 0 (66)	TP43.58x42.794x0.6125	3.83	0.00	0.0	84.742	-51	4957	0.010

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
						7			

Pole Bending Design Data

Section No.	Elevation	Size	M_{ux}	ϕM_{nx}	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy}	ϕM_{ny}	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	ft		kip-ft	kip-ft		kip-ft	kip-ft	
L1	140 - 135 (1)	TP17.0249x16x0.25	15	312	0.049	0	312	0.000
L2	135 - 130 (2)	TP18.0497x17.0249x0.25	36	351	0.101	0	351	0.000
L3	130 - 125 (3)	TP19.0746x18.0497x0.25	81	393	0.205	0	393	0.000
L4	125 - 120 (4)	TP20.0995x19.0746x0.25	130	438	0.298	0	438	0.000
L5	120 - 115 (5)	TP21.1244x20.0995x0.25	191	484	0.395	0	484	0.000
L6	115 - 110 (6)	TP22.1492x21.1244x0.25	259	529	0.491	0	529	0.000
L7	110 - 105 (7)	TP23.1741x22.1492x0.25	342	572	0.598	0	572	0.000
L8	105 - 102 (8)	TP23.789x23.1741x0.25	394	598	0.660	0	598	0.000
L9	102 - 101.75 (9)	TP23.8403x23.789x0.3875	399	943	0.423	0	943	0.000
L10	101.75 - 96.75 (10)	TP24.8651x23.8403x0.375	496	997	0.497	0	997	0.000
L11	96.75 - 91.75 (11)	TP25.89x24.8651x0.375	532	1026	0.518	0	1026	0.000
L12	91.75 - 90.75 (12)	TP25.5952x24.7238x0.35 63	620	1091	0.569	0	1091	0.000
L13	90.75 - 85.75 (13)	TP26.6203x25.5952x0.35 63	726	1182	0.614	0	1182	0.000
L14	85.75 - 85.333 (14)	TP26.7058x26.6203x0.35 63	735	1189	0.618	0	1189	0.000
L15	85.333 - 85.083 (15)	TP26.757x26.7058x0.55	740	1803	0.411	0	1803	0.000
L16	85.083 - 82.5 (16)	TP27.2866x26.757x0.5438	796	1858	0.429	0	1858	0.000
L17	82.5 - 82.25 (17)	TP27.3379x27.2866x0.5375	801	1845	0.434	0	1845	0.000
L18	82.25 - 82 (18)	TP27.3891x27.3379x0.5375	807	1852	0.436	0	1852	0.000
L19	82 - 81.75 (19)	TP27.4404x27.3891x0.35 63	812	1257	0.646	0	1257	0.000
L20	81.75 - 78.833 (20)	TP28.0384x27.4404x0.35 63	876	1314	0.667	0	1314	0.000
L21	78.833 - 78.583 (21)	TP28.0897x28.0384x0.6125	881	2205	0.400	0	2205	0.000
L22	78.583 - 77.667 (22)	TP28.2775x28.0897x0.6125	902	2235	0.403	0	2235	0.000
L23	77.667 - 77.417 (23)	TP28.3287x28.2775x0.55	907	2028	0.447	0	2028	0.000
L24	77.417 - 77.167 (24)	TP28.38x28.3287x0.55	913	2036	0.448	0	2036	0.000
L25	77.167 - 72.167 (25)	TP29.4055x28.38x0.5375	1024	2143	0.478	0	2143	0.000
L26	72.167 - 67.167 (26)	TP30.4311x29.4055x0.525	1138	2249	0.506	0	2249	0.000
L27	67.167 - 66.583 (27)	TP30.5508x30.4311x0.525	1151	2267	0.508	0	2267	0.000
L28	66.583 - 66.333 (28)	TP30.6021x30.5508x0.625	1157	2681	0.431	0	2681	0.000
L29	66.333 - 66.167 (29)	TP30.6362x30.6021x0.625	1161	2688	0.432	0	2688	0.000
L30	66.167 - 65.917 (30)	TP30.6874x30.6362x0.5125	1167	2236	0.522	0	2236	0.000
L31	65.917 - 62.667 (31)	TP31.354x30.6874x0.5125	1242	2337	0.532	0	2337	0.000
L32	62.667 - 62.417 (32)	TP31.4053x31.354x0.5125	1248	2345	0.532	0	2345	0.000
L33	62.417 - 60 (33)	TP31.9011x31.4053x0.5063	1305	2393	0.545	0	2393	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 $\frac{M_{uy}}{\phi M_{ny}}$
L34	60 - 59.75 (34)	TP31.9523x31.9011x0.5	1311	2373	0.552	0	2373	0.000
L35	59.75 - 58.333 (35)	TP32.243x31.9523x0.5	1344	2417	0.556	0	2417	0.000
L36	58.333 - 58.083 (36)	TP32.2943x32.243x0.5	1350	2425	0.557	0	2425	0.000
L37	58.083 - 53.083 (37)	TP33.3198x32.2943x0.5	1470	2585	0.568	0	2585	0.000
L38	53.083 - 52.833 (38)	TP33.3711x33.3198x0.5	1476	2594	0.569	0	2594	0.000
L39	52.833 - 52.583 (39)	TP33.4223x33.3711x0.6875	1482	3517	0.421	0	3517	0.000
L40	52.583 - 51.417 (40)	TP33.6615x33.4223x0.6875	1510	3569	0.423	0	3569	0.000
L41	51.417 - 51.167 (41)	TP33.7128x33.6615x0.5063	1516	2680	0.566	0	2680	0.000
L42	51.167 - 46.5 (42)	TP34.67x33.7128x0.5063	1520	2685	0.566	0	2685	0.000
L43	46.5 - 45.5 (43)	TP34.2498x33.122x0.55	1655	2995	0.553	0	2995	0.000
L44	45.5 - 44.25 (44)	TP34.5062x34.2498x0.55	1686	3041	0.554	0	3041	0.000
L45	44.25 - 44 (45)	TP34.5574x34.5062x0.625	1692	3444	0.491	0	3444	0.000
L46	44 - 43.083 (46)	TP34.7455x34.5574x0.625	1715	3482	0.493	0	3482	0.000
L47	43.083 - 42.833 (47)	TP34.7967x34.7455x0.6625	1721	3690	0.466	0	3690	0.000
L48	42.833 - 37.833 (48)	TP35.822x34.7967x0.6625	1847	3918	0.472	0	3918	0.000
L49	37.833 - 32.833 (49)	TP36.8473x35.822x0.65	1975	4078	0.484	0	4078	0.000
L50	32.833 - 29.25 (50)	TP37.582x36.8473x0.6375	2067	4169	0.496	0	4169	0.000
L51	29.25 - 29 (51)	TP37.6333x37.582x0.6375	2074	4180	0.496	0	4180	0.000
L52	29 - 27.75 (52)	TP37.8896x37.6333x0.6375	2106	4239	0.497	0	4239	0.000
L53	27.75 - 27.5 (53)	TP37.9409x37.8896x0.6375	2113	4251	0.497	0	4251	0.000
L54	27.5 - 24.083 (54)	TP38.6416x37.9409x0.6375	2203	4413	0.499	0	4413	0.000
L55	24.083 - 23.833 (55)	TP38.6928x38.6416x0.7	2209	4835	0.457	0	4835	0.000
L56	23.833 - 23.5 (56)	TP38.7611x38.6928x0.7	2218	4853	0.457	0	4853	0.000
L57	23.5 - 23.25 (57)	TP38.8124x38.7611x0.4438	2225	3098	0.718	0	3098	0.000
L58	23.25 - 18.917 (58)	TP39.7009x38.8124x0.4438	2340	3220	0.726	0	3220	0.000
L59	18.917 - 18.667 (59)	TP39.7522x39.7009x0.525	2346	3885	0.604	0	3885	0.000
L60	18.667 - 18.083 (60)	TP39.8719x39.7522x0.525	2362	3909	0.604	0	3909	0.000
L61	18.083 - 17.833 (61)	TP39.9232x39.8719x0.6625	2368	4894	0.484	0	4894	0.000
L62	17.833 - 14.083 (62)	TP40.6922x39.9232x0.65	2469	4998	0.494	0	4998	0.000
L63	14.083 - 13.833 (63)	TP40.7434x40.6922x0.625	2476	4827	0.513	0	4827	0.000
L64	13.833 - 8.833 (64)	TP41.7687x40.7434x0.625	2612	5079	0.514	0	5079	0.000
L65	8.833 - 3.833 (65)	TP42.794x41.7687x0.6125	2749	5235	0.525	0	5235	0.000
L66	3.833 - 0 (66)	TP43.58x42.794x0.6125	2855	5434	0.525	0	5434	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	140 - 135 (1)	TP17.0249x16x0.25	4	219	0.017	0	323	0.000
L2	135 - 130 (2)	TP18.0497x17.0249x0.25	4	232	0.018	0	363	0.000
L3	130 - 125 (3)	TP19.0746x18.0497x0.25	10	245	0.040	0	407	0.000
L4	125 - 120 (4)	TP20.0995x19.0746x0.25	10	259	0.039	0	452	0.000
L5	120 - 115 (5)	TP21.1244x20.0995x0.25	14	272	0.050	0	500	0.000
L6	115 - 110 (6)	TP22.1492x21.1244x0.25	14	286	0.049	0	550	0.000
L7	110 - 105 (7)	TP23.1741x22.1492x0.25	17	299	0.058	0	603	0.001
L8	105 - 102 (8)	TP23.789x23.1741x0.25	18	307	0.057	0	636	0.001
L9	102 - 101.75 (9)	TP23.8403x23.789x0.3875	18	474	0.037	0	978	0.000
L10	101.75 - 96.75 (10)	TP24.8651x23.8403x0.375	20	479	0.043	0	1032	0.000
L11	96.75 - 91.75 (11)	TP25.89x24.8651x0.375	21	486	0.043	1	1062	0.001
L12	91.75 - 90.75 (12)	TP25.5952x24.7238x0.3563	21	508	0.041	1	1128	0.001
L13	90.75 - 85.75 (13)	TP26.6203x25.5952x0.3563	21	529	0.040	1	1222	0.001
L14	85.75 - 85.333 (14)	TP26.7058x26.6203x0.3563	21	530	0.040	1	1230	0.001
L15	85.333 - 85.083 (15)	TP26.757x26.7058x0.55	21	815	0.026	1	1878	0.000
L16	85.083 - 82.5 (16)	TP27.2866x26.757x0.5438	22	822	0.026	1	1933	0.000
L17	82.5 - 82.25 (17)	TP27.3379x27.2866x0.5375	22	814	0.027	1	1919	0.000
L18	82.25 - 82 (18)	TP27.3891x27.3379x0.5375	22	816	0.027	1	1926	0.000
L19	82 - 81.75 (19)	TP27.4404x27.3891x0.3563	22	545	0.040	1	1299	0.001
L20	81.75 - 78.833 (20)	TP28.0384x27.4404x0.3563	22	557	0.039	1	1357	0.001
L21	78.833 - 78.583 (21)	TP28.0897x28.0384x0.6125	22	951	0.023	1	2299	0.000
L22	78.583 - 77.667 (22)	TP28.2775x28.0897x0.6125	22	958	0.023	1	2330	0.000
L23	77.667 - 77.417 (23)	TP28.3287x28.2775x0.55	22	863	0.026	1	2110	0.000
L24	77.417 - 77.167 (24)	TP28.38x28.3287x0.55	22	865	0.026	1	2117	0.000
L25	77.167 - 72.167 (25)	TP29.4055x28.38x0.5375	23	877	0.026	1	2227	0.000
L26	72.167 - 67.167 (26)	TP30.4311x29.4055x0.525	23	887	0.026	1	2334	0.000
L27	67.167 - 66.583 (27)	TP30.5508x30.4311x0.525	23	891	0.026	1	2353	0.000
L28	66.583 - 66.333 (28)	TP30.6021x30.5508x0.625	23	1059	0.022	1	2792	0.000
L29	66.333 - 66.167 (29)	TP30.6362x30.6021x0.625	23	1060	0.022	1	2798	0.000
L30	66.167 - 65.917 (30)	TP30.6874x30.6362x0.5125	23	874	0.026	1	2320	0.000
L31	65.917 - 62.667 (31)	TP31.354x30.6874x0.5125	23	893	0.026	1	2423	0.000
L32	62.667 - 62.417 (32)	TP31.4053x31.354x0.5125	23	895	0.026	1	2431	0.000
L33	62.417 - 60 (33)	TP31.9011x31.4053x0.5063	24	898	0.026	1	2480	0.000
L34	60 - 59.75 (34)	TP31.9523x31.9011x0.5	24	889	0.027	1	2459	0.000
L35	59.75 - 58.333 (35)	TP32.243x31.9523x0.5	24	897	0.026	1	2504	0.000
L36	58.333 - 58.083 (36)	TP32.2943x32.243x0.5	24	898	0.026	1	2512	0.000
L37	58.083 - 53.083 (37)	TP33.3198x32.2943x0.5	24	927	0.026	1	2677	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 $\frac{T_u}{\phi T_n}$
L38	53.083 - 52.833 (38)	TP33.3711x33.3198x0.5	24	929	0.026	1	2686	0.000
L39	52.833 - 52.583 (39)	TP33.4223x33.3711x0.6875	24	1272	0.019	1	3662	0.000
L40	52.583 - 51.417 (40)	TP33.6615x33.4223x0.6875	24	1281	0.019	1	3716	0.000
L41	51.417 - 51.167 (41)	TP33.7128x33.6615x0.5063	24	950	0.026	1	2775	0.000
L42	51.167 - 46.5 (42)	TP34.67x33.7128x0.5063	24	951	0.025	1	2781	0.000
L43	46.5 - 45.5 (43)	TP34.2498x33.122x0.55	25	1047	0.024	1	3105	0.000
L44	45.5 - 44.25 (44)	TP34.5062x34.2498x0.55	25	1055	0.024	1	3152	0.000
L45	44.25 - 44 (45)	TP34.5574x34.5062x0.625	25	1198	0.021	1	3577	0.000
L46	44 - 43.083 (46)	TP34.7455x34.5574x0.625	25	1205	0.021	1	3617	0.000
L47	43.083 - 42.833 (47)	TP34.7967x34.7455x0.6625	25	1278	0.020	1	3837	0.000
L48	42.833 - 37.833 (48)	TP35.822x34.7967x0.6625	25	1316	0.019	1	4071	0.000
L49	37.833 - 32.833 (49)	TP36.8473x35.822x0.65	26	1330	0.019	1	4233	0.000
L50	32.833 - 29.25 (50)	TP37.582x36.8473x0.6375	26	1331	0.019	1	4325	0.000
L51	29.25 - 29 (51)	TP37.6333x37.582x0.6375	26	1333	0.019	1	4337	0.000
L52	29 - 27.75 (52)	TP37.8896x37.6333x0.6375	26	1342	0.019	0	4398	0.000
L53	27.75 - 27.5 (53)	TP37.9409x37.8896x0.6375	26	1344	0.019	0	4410	0.000
L54	27.5 - 24.083 (54)	TP38.6416x37.9409x0.6375	26	1369	0.019	0	4577	0.000
L55	24.083 - 23.833 (55)	TP38.6928x38.6416x0.7	26	1503	0.018	0	5023	0.000
L56	23.833 - 23.5 (56)	TP38.7611x38.6928x0.7	26	1506	0.018	0	5041	0.000
L57	23.5 - 23.25 (57)	TP38.8124x38.7611x0.4438	26	962	0.027	0	3247	0.000
L58	23.25 - 18.917 (58)	TP39.7009x38.8124x0.4438	27	984	0.027	0	3399	0.000
L59	18.917 - 18.667 (59)	TP39.7522x39.7009x0.525	27	1164	0.023	0	4016	0.000
L60	18.667 - 18.083 (60)	TP39.8719x39.7522x0.525	27	1167	0.023	0	4040	0.000
L61	18.083 - 17.833 (61)	TP39.9232x39.8719x0.6625	27	1470	0.018	0	5076	0.000
L62	17.833 - 14.083 (62)	TP40.6922x39.9232x0.65	27	1471	0.018	0	5181	0.000
L63	14.083 - 13.833 (63)	TP40.7434x40.6922x0.625	27	1417	0.019	0	5000	0.000
L64	13.833 - 8.833 (64)	TP41.7687x40.7434x0.625	27	1453	0.019	0	5259	0.000
L65	8.833 - 3.833 (65)	TP42.794x41.7687x0.6125	28	1460	0.019	0	5417	0.000
L66	3.833 - 0 (66)	TP43.58x42.794x0.6125	28	1487	0.019	0	5621	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

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	140 - 135 (1)	0.006	0.049	0.000	0.017	0.000	0.055	1.050	4.8.2
L2	135 - 130 (2)	0.006	0.101	0.000	0.018	0.000	0.107	1.050	4.8.2
L3	130 - 125 (3)	0.010	0.205	0.000	0.040	0.000	0.217	1.050	4.8.2
L4	125 - 120 (4)	0.010	0.298	0.000	0.039	0.000	0.309	1.050	4.8.2
L5	120 - 115 (5)	0.013	0.395	0.000	0.050	0.000	0.410	1.050	4.8.2
L6	115 - 110 (6)	0.013	0.491	0.000	0.049	0.000	0.506	1.050	4.8.2
L7	110 - 105 (7)	0.016	0.598	0.000	0.058	0.001	0.618	1.050	4.8.2
L8	105 - 102 (8)	0.016	0.660	0.000	0.057	0.001	0.679	1.050	4.8.2
L9	102 - 101.75 (9)	0.010	0.423	0.000	0.037	0.000	0.434	1.050	4.8.2
L10	101.75 - 96.75 (10)	0.012	0.497	0.000	0.043	0.000	0.512	1.050	4.8.2
L11	96.75 - 91.75 (11)	0.012	0.518	0.000	0.043	0.001	0.532	1.050	4.8.2
L12	91.75 - 90.75 (12)	0.013	0.569	0.000	0.041	0.001	0.583	1.050	4.8.2
L13	90.75 - 85.75 (13)	0.013	0.614	0.000	0.040	0.001	0.629	1.050	4.8.2
L14	85.75 - 85.333 (14)	0.013	0.618	0.000	0.040	0.001	0.632	1.050	4.8.2
L15	85.333 - 85.083 (15)	0.008	0.411	0.000	0.026	0.000	0.420	1.050	4.8.2
L16	85.083 - 82.5 (16)	0.008	0.429	0.000	0.026	0.000	0.438	1.050	4.8.2
L17	82.5 - 82.25 (17)	0.009	0.434	0.000	0.027	0.000	0.444	1.050	4.8.2
L18	82.25 - 82 (18)	0.009	0.436	0.000	0.027	0.000	0.445	1.050	4.8.2
L19	82 - 81.75 (19)	0.013	0.646	0.000	0.040	0.001	0.661	1.050	4.8.2
L20	81.75 - 78.833 (20)	0.013	0.667	0.000	0.039	0.001	0.681	1.050	4.8.2
L21	78.833 - 78.583 (21)	0.008	0.400	0.000	0.023	0.000	0.408	1.050	4.8.2
L22	78.583 - 77.667 (22)	0.008	0.403	0.000	0.023	0.000	0.411	1.050	4.8.2
L23	77.667 - 77.417 (23)	0.008	0.447	0.000	0.026	0.000	0.456	1.050	4.8.2
L24	77.417 - 77.167 (24)	0.008	0.448	0.000	0.026	0.000	0.457	1.050	4.8.2
L25	77.167 - 72.167 (25)	0.009	0.478	0.000	0.026	0.000	0.487	1.050	4.8.2
L26	72.167 - 67.167 (26)	0.009	0.506	0.000	0.026	0.000	0.516	1.050	4.8.2
L27	67.167 - 66.583 (27)	0.009	0.508	0.000	0.026	0.000	0.518	1.050	4.8.2
L28	66.583 - 66.333 (28)	0.008	0.431	0.000	0.022	0.000	0.440	1.050	4.8.2
L29	66.333 - 66.167 (29)	0.008	0.432	0.000	0.022	0.000	0.440	1.050	4.8.2
L30	66.167 - 65.917 (30)	0.009	0.522	0.000	0.026	0.000	0.532	1.050	4.8.2
L31	65.917 - 62.667 (31)	0.009	0.532	0.000	0.026	0.000	0.542	1.050	4.8.2
L32	62.667 - 62.417 (32)	0.009	0.532	0.000	0.026	0.000	0.542	1.050	4.8.2
L33	62.417 - 60 (33)	0.010	0.545	0.000	0.026	0.000	0.556	1.050	4.8.2
L34	60 - 59.75 (34)	0.010	0.552	0.000	0.027	0.000	0.563	1.050	4.8.2
L35	59.75 - 58.333 (35)	0.010	0.556	0.000	0.026	0.000	0.567	1.050	4.8.2
L36	58.333 - 58.083 (36)	0.010	0.557	0.000	0.026	0.000	0.567	1.050	4.8.2
L37	58.083 - 53.083 (37)	0.010	0.568	0.000	0.026	0.000	0.579	1.050	4.8.2
L38	53.083 - 52.833 (38)	0.010	0.569	0.000	0.026	0.000	0.580	1.050	4.8.2
L39	52.833 -	0.007	0.421	0.000	0.019	0.000	0.429	1.050	4.8.2

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
	52.583 (39)								
L40	52.583 - 51.417 (40)	0.007	0.423	0.000	0.019	0.000	0.431	1.050	4.8.2
L41	51.417 - 51.167 (41)	0.010	0.566	0.000	0.026	0.000	0.576	1.050	4.8.2
L42	51.167 - 46.5 (42)	0.010	0.566	0.000	0.025	0.000	0.577	1.050	4.8.2
L43	46.5 - 45.5 (43)	0.010	0.553	0.000	0.024	0.000	0.563	1.050	4.8.2
L44	45.5 - 44.25 (44)	0.010	0.554	0.000	0.024	0.000	0.565	1.050	4.8.2
L45	44.25 - 44 (45)	0.009	0.491	0.000	0.021	0.000	0.500	1.050	4.8.2
L46	44 - 43.083 (46)	0.009	0.493	0.000	0.021	0.000	0.502	1.050	4.8.2
L47	43.083 - 42.833 (47)	0.008	0.466	0.000	0.020	0.000	0.475	1.050	4.8.2
L48	42.833 - 37.833 (48)	0.008	0.472	0.000	0.019	0.000	0.480	1.050	4.8.2
L49	37.833 - 32.833 (49)	0.009	0.484	0.000	0.019	0.000	0.493	1.050	4.8.2
L50	32.833 - 29.25 (50)	0.009	0.496	0.000	0.019	0.000	0.505	1.050	4.8.2
L51	29.25 - 29 (51)	0.009	0.496	0.000	0.019	0.000	0.505	1.050	4.8.2
L52	29 - 27.75 (52)	0.009	0.497	0.000	0.019	0.000	0.506	1.050	4.8.2
L53	27.75 - 27.5 (53)	0.009	0.497	0.000	0.019	0.000	0.506	1.050	4.8.2
L54	27.5 - 24.083 (54)	0.009	0.499	0.000	0.019	0.000	0.509	1.050	4.8.2
L55	24.083 - 23.833 (55)	0.008	0.457	0.000	0.018	0.000	0.465	1.050	4.8.2
L56	23.833 - 23.5 (56)	0.008	0.457	0.000	0.018	0.000	0.466	1.050	4.8.2
L57	23.5 - 23.25 (57)	0.013	0.718	0.000	0.027	0.000	0.732	1.050	4.8.2
L58	23.25 - 18.917 (58)	0.013	0.726	0.000	0.027	0.000	0.740	1.050	4.8.2
L59	18.917 - 18.667 (59)	0.011	0.604	0.000	0.023	0.000	0.616	1.050	4.8.2
L60	18.667 - 18.083 (60)	0.011	0.604	0.000	0.023	0.000	0.616	1.050	4.8.2
L61	18.083 - 17.833 (61)	0.009	0.484	0.000	0.018	0.000	0.493	1.050	4.8.2
L62	17.833 - 14.083 (62)	0.009	0.494	0.000	0.018	0.000	0.504	1.050	4.8.2
L63	14.083 - 13.833 (63)	0.010	0.513	0.000	0.019	0.000	0.523	1.050	4.8.2
L64	13.833 - 8.833 (64)	0.010	0.514	0.000	0.019	0.000	0.524	1.050	4.8.2
L65	8.833 - 3.833 (65)	0.010	0.525	0.000	0.019	0.000	0.536	1.050	4.8.2
L66	3.833 - 0 (66)	0.010	0.525	0.000	0.019	0.000	0.536	1.050	4.8.2

Section Capacity Table

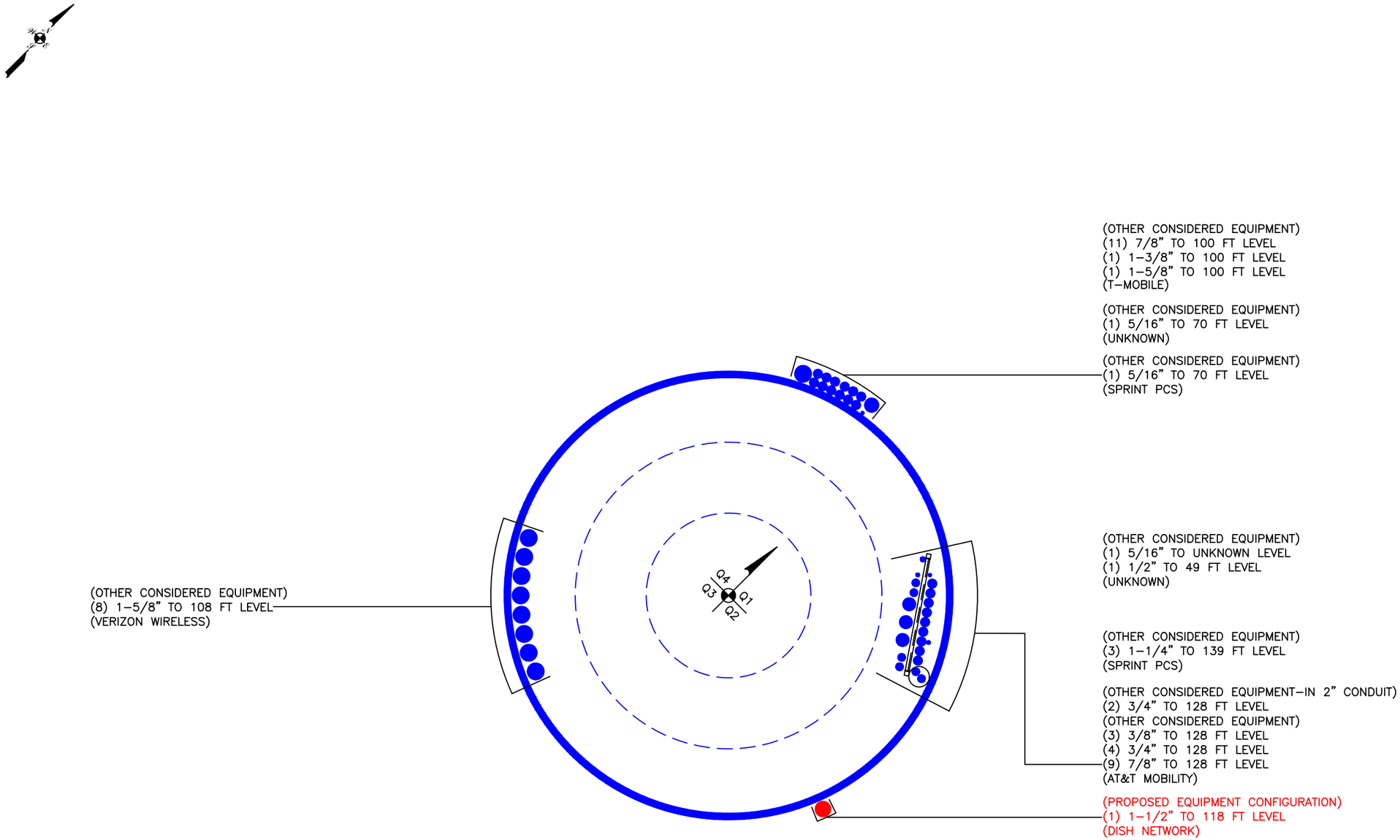
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	140 - 135	Pole	TP17.0249x16x0.25	1	-4	766	5.3	Pass
L2	135 - 130	Pole	TP18.0497x17.0249x0.25	2	-5	812	10.2	Pass
L3	130 - 125	Pole	TP19.0746x18.0497x0.25	3	-8	859	20.6	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L4	125 - 120	Pole	TP20.0995x19.0746x0.25	4	-8	906	29.5	Pass
L5	120 - 115	Pole	TP21.1244x20.0995x0.25	5	-12	953	39.0	Pass
L6	115 - 110	Pole	TP22.1492x21.1244x0.25	6	-12	1000	48.2	Pass
L7	110 - 105	Pole	TP23.1741x22.1492x0.25	7	-16	1046	58.8	Pass
L8	105 - 102	Pole	TP23.789x23.1741x0.25	8	-16	1074	64.7	Pass
L9	102 - 101.75	Pole	TP23.8403x23.789x0.3875	9	-16	1659	41.4	Pass
L10	101.75 - 96.75	Pole	TP24.8651x23.8403x0.375	10	-20	1677	48.7	Pass
L11	96.75 - 91.75	Pole	TP25.89x24.8651x0.375	11	-20	1701	50.7	Pass
L12	91.75 - 90.75	Pole	TP25.5952x24.7238x0.3563	12	-21	1778	55.5	Pass
L13	90.75 - 85.75	Pole	TP26.6203x25.5952x0.3563	13	-22	1851	59.9	Pass
L14	85.75 - 85.333	Pole	TP26.7058x26.6203x0.3563	14	-22	1857	60.2	Pass
L15	85.333 - 85.083	Pole	TP26.757x26.7058x0.55	15	-23	2851	40.0	Pass
L16	85.083 - 82.5	Pole	TP27.2866x26.757x0.5438	16	-23	2876	41.7	Pass
L17	82.5 - 82.25	Pole	TP27.3379x27.2866x0.5375	17	-23	2849	42.3	Pass
L18	82.25 - 82	Pole	TP27.3891x27.3379x0.5375	18	-23	2855	42.4	Pass
L19	82 - 81.75	Pole	TP27.4404x27.3891x0.3563	19	-23	1908	62.9	Pass
L20	81.75 - 78.833	Pole	TP28.0384x27.4404x0.3563	20	-24	1951	64.9	Pass
L21	78.833 - 78.583	Pole	TP28.0897x28.0384x0.6125	21	-24	3329	38.9	Pass
L22	78.583 - 77.667	Pole	TP28.2775x28.0897x0.6125	22	-24	3351	39.2	Pass
L23	77.667 - 77.417	Pole	TP28.3287x28.2775x0.55	23	-24	3022	43.5	Pass
L24	77.417 - 77.167	Pole	TP28.38x28.3287x0.55	24	-24	3027	43.6	Pass
L25	77.167 - 72.167	Pole	TP29.4055x28.38x0.5375	25	-26	3069	46.4	Pass
L26	72.167 - 67.167	Pole	TP30.4311x29.4055x0.525	26	-27	3105	49.1	Pass
L27	67.167 - 66.583	Pole	TP30.5508x30.4311x0.525	27	-27	3118	49.3	Pass
L28	66.583 - 66.333	Pole	TP30.6021x30.5508x0.625	28	-27	3706	41.9	Pass
L29	66.333 - 66.167	Pole	TP30.6362x30.6021x0.625	29	-27	3710	41.9	Pass
L30	66.167 - 65.917	Pole	TP30.6874x30.6362x0.5125	30	-27	3059	50.6	Pass
L31	65.917 - 62.667	Pole	TP31.354x30.6874x0.5125	31	-28	3126	51.6	Pass
L32	62.667 - 62.417	Pole	TP31.4053x31.354x0.5125	32	-28	3131	51.7	Pass
L33	62.417 - 60	Pole	TP31.9011x31.4053x0.5063	33	-29	3144	52.9	Pass
L34	60 - 59.75	Pole	TP31.9523x31.9011x0.5	34	-29	3110	53.6	Pass
L35	59.75 - 58.333	Pole	TP32.243x31.9523x0.5	35	-29	3139	54.0	Pass
L36	58.333 - 58.083	Pole	TP32.2943x32.243x0.5	36	-29	3144	54.0	Pass
L37	58.083 - 53.083	Pole	TP33.3198x32.2943x0.5	37	-31	3246	55.1	Pass
L38	53.083 - 52.833	Pole	TP33.3711x33.3198x0.5	38	-31	3251	55.2	Pass
L39	52.833 - 52.583	Pole	TP33.4223x33.3711x0.6875	39	-31	4451	40.9	Pass
L40	52.583 - 51.417	Pole	TP33.6615x33.4223x0.6875	40	-31	4484	41.0	Pass
L41	51.417 - 51.167	Pole	TP33.7128x33.6615x0.5063	41	-31	3325	54.9	Pass
L42	51.167 - 46.5	Pole	TP34.67x33.7128x0.5063	42	-31	3328	54.9	Pass
L43	46.5 - 45.5	Pole	TP34.2498x33.122x0.55	43	-34	3666	53.6	Pass
L44	45.5 - 44.25	Pole	TP34.5062x34.2498x0.55	44	-34	3694	53.8	Pass
L45	44.25 - 44	Pole	TP34.5574x34.5062x0.625	45	-35	4195	47.7	Pass
L46	44 - 43.083	Pole	TP34.7455x34.5574x0.625	46	-35	4218	47.8	Pass
L47	43.083 - 42.833	Pole	TP34.7967x34.7455x0.6625	47	-35	4473	45.2	Pass
L48	42.833 - 37.833	Pole	TP35.822x34.7967x0.6625	48	-37	4607	45.7	Pass
L49	37.833 - 32.833	Pole	TP36.8473x35.822x0.65	49	-38	4654	47.0	Pass
L50	32.833 - 29.25	Pole	TP37.582x36.8473x0.6375	50	-40	4658	48.1	Pass
L51	29.25 - 29	Pole	TP37.6333x37.582x0.6375	51	-40	4665	48.1	Pass
L52	29 - 27.75	Pole	TP37.8896x37.6333x0.6375	52	-40	4697	48.2	Pass
L53	27.75 - 27.5	Pole	TP37.9409x37.8896x0.6375	53	-40	4704	48.2	Pass
L54	27.5 - 24.083	Pole	TP38.6416x37.9409x0.6375	54	-42	4792	48.4	Pass
L55	24.083 - 23.833	Pole	TP38.6928x38.6416x0.7	55	-42	5260	44.3	Pass
L56	23.833 - 23.5	Pole	TP38.7611x38.6928x0.7	56	-42	5270	44.3	Pass
L57	23.5 - 23.25	Pole	TP38.8124x38.7611x0.4438	57	-42	3368	69.7	Pass
L58	23.25 - 18.917	Pole	TP39.7009x38.8124x0.4438	58	-43	3446	70.5	Pass
L59	18.917 - 18.667	Pole	TP39.7522x39.7009x0.525	59	-43	4073	58.6	Pass
L60	18.667 - 18.083	Pole	TP39.8719x39.7522x0.525	60	-44	4086	58.7	Pass
L61	18.083 - 17.833	Pole	TP39.9232x39.8719x0.6625	61	-44	5145	47.0	Pass
L62	17.833 - 14.083	Pole	TP40.6922x39.9232x0.65	62	-45	5148	48.0	Pass
L63	14.083 - 13.833	Pole	TP40.7434x40.6922x0.625	63	-45	4959	49.8	Pass
L64	13.833 - 8.833	Pole	TP41.7687x40.7434x0.625	64	-47	5086	49.9	Pass
L65	8.833 - 3.833	Pole	TP42.794x41.7687x0.6125	65	-49	5110	51.0	Pass
L66	3.833 - 0	Pole	TP43.58x42.794x0.6125	66	-51	5205	51.1	Pass
							Summary	
						Pole (L58)	70.5	Pass
						RATING =	**70.5**	**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)
(11) 7/8" TO 100 FT LEVEL
(1) 1-3/8" TO 100 FT LEVEL
(1) 1-5/8" TO 100 FT LEVEL
(T-MOBILE)
(OTHER CONSIDERED EQUIPMENT)
(1) 5/16" TO 70 FT LEVEL
(UNKNOWN)
(OTHER CONSIDERED EQUIPMENT)
(1) 5/16" TO 70 FT LEVEL
(SPRINT PCS)
(OTHER CONSIDERED EQUIPMENT)
(1) 5/16" TO UNKNOWN LEVEL
(1) 1/2" TO 49 FT LEVEL
(UNKNOWN)
(OTHER CONSIDERED EQUIPMENT)
(8) 1-5/8" TO 108 FT LEVEL
(VERIZON WIRELESS)
Q4
Q1
Q3
Q2
(OTHER CONSIDERED EQUIPMENT)
(3) 1-1/4" TO 139 FT LEVEL
(SPRINT PCS)
(OTHER CONSIDERED EQUIPMENT-IN 2" CONDUIT)
(2) 3/4" TO 128 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(3) 3/8" TO 128 FT LEVEL
(4) 3/4" TO 128 FT LEVEL
(9) 7/8" TO 128 FT LEVEL
(AT&T MOBILITY)
(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1-1/2" TO 118 FT LEVEL
(DISH NETWORK)

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 876335

Work Order: 1966236

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	140	48.25	3.25	12	16	25.89	0.25	Auto	A607-60
2	95	17.833	0	12	24.72	28.38	0.3125	Auto	A607-65
3	77.167	30.667	4.5	12	28.38	34.67	0.3125	Auto	A607-65
4	51	51	0	12	33.12	43.58	0.375	Auto	A607-65

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	27.75	channel	5 (1.1875in) - Bottom	2					■				■			
2	27.75	43.083	channel	MP3-05 (1.1875in)	2					■				■			
3	51.417	66.583	channel	MP3-05 (1.1875in)	3	■				■				■			
4	0	18.083	channel	5 (1.1875in) - Bottom	2		■										■
5	14.083	29.25	channel	MP3-05 (1.1875in)	1	■											
6	29.25	44.25	channel	MP3-05 (1.1875in)	1	■											
7	43.083	52.833	channel	MP3-05 (1.1875in)	3		■				■				■		
8	66.167	78.833	channel	MP3-03 (1.1875in)	3		■				■				■		
9	18.917	24.083	channel	MP3-05 (1.1875in)	1			■									
10	62.667	58.333	channel	MP3-03 (1.1875in)	1							■					
11	77.667	85.333	channel	MP3-03 (1.1875in)	2			■								■	
12	94.333	102	channel	MP3-03 (1.1875in)	3				■				■				■
13	0	27.75	plate	CCI-SFP-065125	1										■		
14	23.5	44.25	plate	CCI-SFP-060100	2							■				■	
15	49	60	plate	CCI-SFP-060100	1								■				
16	66.583	82.5	plate	CCI-SFP-060100	2								■				■
17	82	93	plate	CCI-SFP-060100	2	■								■			
18																	

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	5.33	2.09	5.65	0.79	Welded	n/a	PC 8.8 - M20 (100)	29.000	18.000	5.025	1.1875	A572-65
2	5.33	2.09	5.65	0.79	PC 8.8 - M20 (100)	29	PC 8.8 - M20 (100)	29.000	18.000	5.025	1.1875	A572-65
3	5.33	2.09	5.65	0.79	PC 8.8 - M20 (100)	29	PC 8.8 - M20 (100)	29.000	18.000	5.025	1.1875	A572-65
4	5.33	2.09	5.65	0.79	Welded	n/a	PC 8.8 - M20 (100)	29.000	18.000	5.025	1.1875	A572-65
5	5.33	2.09	5.65	0.79	PC 8.8 - M20 (100)	29	PC 8.8 - M20 (100)	29.000	18.000	5.025	1.1875	A572-65
6	5.33	2.09	5.65	0.79	PC 8.8 - M20 (100)	29	PC 8.8 - M20 (100)	29.000	18.000	5.025	1.1875	A572-65
7	5.33	2.09	5.65	0.79	PC 8.8 - M20 (100)	29	PC 8.8 - M20 (100)	29.000	18.000	5.025	1.1875	A572-65
8	4.06	1.57	2.92	0.59	PC 8.8 - M20 (100)	14	PC 8.8 - M20 (100)	14.000	18.000	2.545	1.1875	A572-65
9	5.33	2.09	5.65	0.79	PC 8.8 - M20 (100)	29	PC 8.8 - M20 (100)	29.000	18.000	5.025	1.1875	A572-65
10	4.06	1.57	2.92	0.59	PC 8.8 - M20 (100)	14	PC 8.8 - M20 (100)	14.000	18.000	2.545	1.1875	A572-65
11	4.06	1.57	2.92	0.59	PC 8.8 - M20 (100)	14	PC 8.8 - M20 (100)	14.000	18.000	2.545	1.1875	A572-65
12	4.06	1.57	2.92	0.59	PC 8.8 - M20 (100)	14	PC 8.8 - M20 (100)	14.000	18.000	2.545	1.1875	A572-65
13	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	33	PC 8.8 - M20 (100)	33.000	19.000	6.563	1.1875	A572-65
14	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
15	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
16	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
17	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65

Connection Details for Custom Reinforcements

Reinforcement	End	# Bolts	N or X	Bolt Spacing (in)	Edge Dist (in)	Weld Grade (ksi)	Transverse (Horiz.) Weld Type	Horiz. Weld Length (in)	Horiz. Groove Depth (in)	Horiz. Groove Angle (deg)	Horiz. Fillet Size (in)	Vertical Weld Length (in)	Vertical Fillet Size (in)	Rev H Connection Capacity (kip)
MP3-05 (1.1875in) -	Top	10	N	3	2	-	-	-	-	-	-	-	-	-
Bottom Welded	Bottom	-	-	-	-	80	None	-	-	-	-	20	0.375	-

TNX Geometry Input

Increment (ft): 5 Export to TNX

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	140 - 135	5		12	16.000	17.025	0.25	A607-60	1.000
2	135 - 130	5		12	17.025	18.050	0.25	A607-60	1.000
3	130 - 125	5		12	18.050	19.075	0.25	A607-60	1.000
4	125 - 120	5		12	19.075	20.099	0.25	A607-60	1.000
5	120 - 115	5		12	20.099	21.124	0.25	A607-60	1.000
6	115 - 110	5		12	21.124	22.149	0.25	A607-60	1.000
7	110 - 105	5		12	22.149	23.174	0.25	A607-60	1.000
8	105 - 102	3		12	23.174	23.789	0.25	A607-60	1.000
9	102 - 101.75	0.25		12	23.789	23.840	0.3875	A607-60	0.949
10	101.75 - 96.75	5		12	23.840	24.865	0.375	A607-60	0.967
11	96.75 - 95	5	3.25	12	24.865	25.890	0.375	A607-60	0.962
12	95 - 90.75	4.25		12	24.724	25.595	0.35625	A607-65	1.294
13	90.75 - 85.75	5		12	25.595	26.620	0.35625	A607-65	1.278
14	85.75 - 85.333	0.417		12	26.620	26.706	0.35625	A607-65	1.276
15	85.333 - 85.083	0.25		12	26.706	26.757	0.55	A607-65	0.958
16	85.083 - 82.5	2.583		12	26.757	27.287	0.54375	A607-65	0.961
17	82.5 - 82.25	0.25		12	27.287	27.338	0.5375	A607-65	0.971
18	82.25 - 82	0.25		12	27.338	27.389	0.5375	A607-65	0.971
19	82 - 81.75	0.25		12	27.389	27.440	0.35625	A607-65	1.265
20	81.75 - 78.833	2.917		12	27.440	28.038	0.35625	A607-65	1.257
21	78.833 - 78.583	0.25		12	28.038	28.090	0.6125	A607-65	1.007
22	78.583 - 77.667	0.916		12	28.090	28.277	0.6125	A607-65	1.004
23	77.667 - 77.417	0.25		12	28.277	28.329	0.55	A607-65	0.996
24	77.417 - 77.167	0.25	0	12	28.329	28.380	0.55	A607-65	0.995
25	77.167 - 72.167	5		12	28.380	29.406	0.5375	A607-65	1.002
26	72.167 - 67.167	5		12	29.406	30.431	0.525	A607-65	1.011
27	67.167 - 66.583	0.584		12	30.431	30.551	0.525	A607-65	1.009
28	66.583 - 66.333	0.25		12	30.551	30.602	0.625	A607-65	0.932
29	66.333 - 66.167	0.166		12	30.602	30.636	0.625	A607-65	0.931
30	66.167 - 65.917	0.25		12	30.636	30.687	0.5125	A607-65	0.955
31	65.917 - 62.667	3.25		12	30.687	31.354	0.5125	A607-65	0.947
32	62.667 - 62.417	0.25		12	31.354	31.405	0.5125	A607-65	0.947
33	62.417 - 60	2.417		12	31.405	31.901	0.50625	A607-65	0.953
34	60 - 59.75	0.25		12	31.901	31.952	0.5	A607-65	0.964
35	59.75 - 58.333	1.417		12	31.952	32.243	0.5	A607-65	0.961
36	58.333 - 58.083	0.25		12	32.243	32.294	0.5	A607-65	0.960
37	58.083 - 53.083	5		12	32.294	33.320	0.5	A607-65	0.950
38	53.083 - 52.833	0.25		12	33.320	33.371	0.5	A607-65	0.949
39	52.833 - 52.583	0.25		12	33.371	33.422	0.6875	A607-65	1.011
40	52.583 - 51.417	1.166		12	33.422	33.661	0.6875	A607-65	1.007
41	51.417 - 51.167	0.25		12	33.661	33.713	0.50625	A607-65	1.045
42	51.167 - 51	4.667	4.5	12	33.713	34.670	0.50625	A607-65	1.045
43	51 - 45.5	5.5		12	33.122	34.250	0.55	A607-65	0.970
44	45.5 - 44.25	1.25		12	34.250	34.506	0.55	A607-65	0.968
45	44.25 - 44	0.25		12	34.506	34.557	0.625	A607-65	1.112
46	44 - 43.083	0.917		12	34.557	34.745	0.625	A607-65	1.109
47	43.083 - 42.833	0.25		12	34.745	34.797	0.6625	A607-65	0.969
48	42.833 - 37.833	5		12	34.797	35.822	0.6625	A607-65	0.957
49	37.833 - 32.833	5		12	35.822	36.847	0.65	A607-65	0.964
50	32.833 - 29.25	3.583		12	36.847	37.582	0.6375	A607-65	0.975
51	29.25 - 29	0.25		12	37.582	37.633	0.6375	A607-65	0.974
52	29 - 27.75	1.25		12	37.633	37.890	0.6375	A607-65	0.972
53	27.75 - 27.5	0.25		12	37.890	37.941	0.6375	A607-65	0.971
54	27.5 - 24.083	3.417		12	37.941	38.642	0.6375	A607-65	0.964
55	24.083 - 23.833	0.25		12	38.642	38.693	0.7	A607-65	0.945
56	23.833 - 23.5	0.333		12	38.693	38.761	0.7	A607-65	0.944
57	23.5 - 23.25	0.25		12	38.761	38.812	0.44375	A607-65	1.305
58	23.25 - 18.917	4.333		12	38.812	39.701	0.44375	A607-65	1.294
59	18.917 - 18.667	0.25		12	39.701	39.752	0.525	A607-65	0.973
60	18.667 - 18.083	0.584		12	39.752	39.872	0.525	A607-65	0.972
61	18.083 - 17.833	0.25		12	39.872	39.923	0.6625	A607-65	1.005
62	17.833 - 14.083	3.75		12	39.923	40.692	0.65	A607-65	1.016
63	14.083 - 13.833	0.25		12	40.692	40.743	0.625	A607-65	0.985
64	13.833 - 8.833	5		12	40.743	41.769	0.625	A607-65	0.975
65	8.833 - 3.833	5		12	41.769	42.794	0.6125	A607-65	0.986
66	3.833 - 0	3.833		12	42.794	43.580	0.6125	A607-65	0.979

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	140 - 135	4.39	15.28	3.82
2	135 - 130	4.70	35.50	4.22
3	130 - 125	8.02	80.73	9.76
4	125 - 120	8.41	130.42	10.12
5	120 - 115	11.75	191.07	13.51
6	115 - 110	12.23	259.47	13.86
7	110 - 105	15.82	342.06	17.36
8	105 - 102	16.19	394.40	17.56
9	102 - 101.75	16.24	398.79	17.57
10	101.75 - 96.75	19.82	495.66	20.46
11	96.75 - 95	20.10	531.55	20.59
12	95 - 90.75	21.31	620.11	21.04
13	90.75 - 85.75	22.37	726.08	21.38
14	85.75 - 85.333	22.47	734.99	21.40
15	85.333 - 85.083	22.53	740.34	21.42
16	85.083 - 82.5	23.14	796.02	21.67
17	82.5 - 82.25	23.21	801.44	21.68
18	82.25 - 82	23.27	806.86	21.70
19	82 - 81.75	23.32	812.29	21.72
20	81.75 - 78.833	23.95	875.91	21.94
21	78.833 - 78.583	24.03	881.40	21.94
22	78.583 - 77.667	24.28	901.53	22.03
23	77.667 - 77.417	24.34	907.04	22.05
24	77.417 - 77.167	24.41	912.55	22.07
25	77.167 - 72.167	25.65	1023.97	22.52
26	72.167 - 67.167	27.10	1137.68	23.05
27	67.167 - 66.583	27.26	1151.15	23.10
28	66.583 - 66.333	27.33	1156.92	23.12
29	66.333 - 66.167	27.38	1160.76	23.13
30	66.167 - 65.917	27.44	1166.54	23.15
31	65.917 - 62.667	28.24	1242.16	23.40
32	62.667 - 62.417	28.32	1248.00	23.41
33	62.417 - 60	28.92	1304.78	23.59
34	60 - 59.75	28.99	1310.68	23.60
35	59.75 - 58.333	29.34	1344.18	23.72
36	58.333 - 58.083	29.42	1350.11	23.72
37	58.083 - 53.083	30.70	1469.55	24.08
38	53.083 - 52.833	30.78	1475.57	24.09
39	52.833 - 52.583	30.87	1481.59	24.11
40	52.583 - 51.417	31.27	1509.75	24.21
41	51.417 - 51.167	31.35	1515.81	24.23
42	51.167 - 51	31.39	1519.85	24.24
43	51 - 45.5	34.06	1655.03	24.82
44	45.5 - 44.25	34.42	1686.09	24.90
45	44.25 - 44	34.53	1692.31	24.91
46	44 - 43.083	34.86	1715.17	24.98
47	43.083 - 42.833	34.95	1721.42	24.99
48	42.833 - 37.833	36.65	1847.23	25.35
49	37.833 - 32.833	38.40	1974.77	25.69
50	32.833 - 29.25	39.66	2067.18	25.92
51	29.25 - 29	39.76	2073.66	25.92
52	29 - 27.75	40.20	2106.25	26.15
53	27.75 - 27.5	40.30	2112.79	26.15
54	27.5 - 24.083	41.52	2202.52	26.40
55	24.083 - 23.833	41.62	2209.12	26.40
56	23.833 - 23.5	41.75	2217.91	26.43
57	23.5 - 23.25	41.84	2224.52	26.44
58	23.25 - 18.917	43.37	2339.53	26.68
59	18.917 - 18.667	43.47	2346.20	26.67
60	18.667 - 18.083	43.65	2361.78	26.71
61	18.083 - 17.833	43.76	2368.46	26.72
62	17.833 - 14.083	45.24	2469.10	26.98
63	14.083 - 13.833	45.35	2475.84	26.98
64	13.833 - 8.833	47.25	2611.50	27.31
65	8.833 - 3.833	49.22	2748.82	27.66
66	3.833 - 0	50.72	2855.22	27.91

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
140 - 135	Pole	TP17.025x16x0.25	Pole	5.3%	Pass
135 - 130	Pole	TP18.05x17.025x0.25	Pole	10.2%	Pass
130 - 125	Pole	TP19.075x18.05x0.25	Pole	20.6%	Pass
125 - 120	Pole	TP20.099x19.075x0.25	Pole	29.4%	Pass
120 - 115	Pole	TP21.124x20.099x0.25	Pole	38.9%	Pass
115 - 110	Pole	TP22.149x21.124x0.25	Pole	48.0%	Pass
110 - 105	Pole	TP23.174x22.149x0.25	Pole	58.7%	Pass
105 - 102	Pole	TP23.789x23.174x0.25	Pole	64.5%	Pass
102 - 101.75	Pole + Reinf.	TP23.84x23.789x0.3875	Reinf. 12 Tension Rupture	57.4%	Pass
101.75 - 96.75	Pole + Reinf.	TP24.865x23.84x0.375	Reinf. 12 Tension Rupture	66.4%	Pass
96.75 - 95	Pole + Reinf.	TP25.89x24.865x0.375	Reinf. 12 Tension Rupture	69.5%	Pass
95 - 90.75	Pole + Reinf.	TP25.595x24.724x0.3563	Pole	60.0%	Pass
90.75 - 85.75	Pole + Reinf.	TP26.62x25.595x0.3563	Pole	65.4%	Pass
85.75 - 85.33	Pole + Reinf.	TP26.706x26.62x0.3563	Pole	65.8%	Pass
85.33 - 85.08	Pole + Reinf.	TP26.757x26.706x0.55	Reinf. 11 Tension Rupture	59.3%	Pass
85.08 - 82.5	Pole + Reinf.	TP27.287x26.757x0.5438	Reinf. 11 Tension Rupture	61.7%	Pass
82.5 - 82.25	Pole + Reinf.	TP27.338x27.287x0.5375	Reinf. 11 Tension Rupture	61.9%	Pass
82.25 - 82	Pole + Reinf.	TP27.389x27.338x0.5375	Reinf. 11 Tension Rupture	62.1%	Pass
82 - 81.75	Pole + Reinf.	TP27.44x27.389x0.3563	Pole	69.4%	Pass
81.75 - 78.83	Pole + Reinf.	TP28.038x27.44x0.3563	Pole	72.2%	Pass
78.83 - 78.58	Pole + Reinf.	TP28.09x28.038x0.6125	Reinf. 11 Tension Rupture	60.7%	Pass
78.58 - 77.67	Pole + Reinf.	TP28.277x28.09x0.6125	Reinf. 11 Tension Rupture	61.5%	Pass
77.67 - 77.42	Pole + Reinf.	TP28.329x28.277x0.55	Reinf. 8 Tension Rupture	65.9%	Pass
77.42 - 77.17	Pole + Reinf.	TP28.38x28.329x0.55	Reinf. 8 Tension Rupture	66.1%	Pass
77.17 - 72.17	Pole + Reinf.	TP29.406x28.38x0.5375	Reinf. 8 Tension Rupture	69.9%	Pass
72.17 - 67.17	Pole + Reinf.	TP30.431x29.406x0.525	Reinf. 8 Tension Rupture	73.3%	Pass
67.17 - 66.58	Pole + Reinf.	TP30.551x30.431x0.525	Reinf. 8 Tension Rupture	73.7%	Pass
66.58 - 66.33	Pole + Reinf.	TP30.602x30.551x0.625	Reinf. 8 Tension Rupture	62.2%	Pass
66.33 - 66.17	Pole + Reinf.	TP30.636x30.602x0.625	Reinf. 8 Tension Rupture	62.3%	Pass
66.17 - 65.92	Pole + Reinf.	TP30.687x30.636x0.5125	Reinf. 3 Tension Rupture	72.3%	Pass
65.92 - 62.67	Pole + Reinf.	TP31.354x30.687x0.5125	Reinf. 3 Tension Rupture	74.3%	Pass
62.67 - 62.42	Pole + Reinf.	TP31.405x31.354x0.5125	Reinf. 3 Tension Rupture	74.5%	Pass
62.42 - 60	Pole + Reinf.	TP31.901x31.405x0.5063	Reinf. 3 Tension Rupture	75.9%	Pass
60 - 59.75	Pole + Reinf.	TP31.952x31.901x0.5	Reinf. 3 Tension Rupture	76.0%	Pass
59.75 - 58.33	Pole + Reinf.	TP32.243x31.952x0.5	Reinf. 3 Tension Rupture	76.8%	Pass
58.33 - 58.08	Pole + Reinf.	TP32.294x32.243x0.5	Reinf. 3 Tension Rupture	76.9%	Pass
58.08 - 53.08	Pole + Reinf.	TP33.32x32.294x0.5	Reinf. 3 Tension Rupture	79.5%	Pass
53.08 - 52.83	Pole + Reinf.	TP33.371x33.32x0.5	Reinf. 3 Tension Rupture	79.6%	Pass
52.83 - 52.58	Pole + Reinf.	TP33.422x33.371x0.6875	Reinf. 3 Tension Rupture	58.6%	Pass
52.58 - 51.42	Pole + Reinf.	TP33.661x33.422x0.6875	Reinf. 3 Tension Rupture	59.1%	Pass
51.42 - 51.17	Pole + Reinf.	TP33.713x33.661x0.5063	Reinf. 7 Tension Rupture	74.2%	Pass
51.17 - 51	Pole + Reinf.	TP34.67x33.713x0.5063	Reinf. 7 Tension Rupture	74.3%	Pass
51 - 45.5	Pole + Reinf.	TP34.25x33.122x0.55	Reinf. 7 Tension Rupture	76.0%	Pass
45.5 - 44.25	Pole + Reinf.	TP34.506x34.25x0.55	Reinf. 7 Tension Rupture	76.4%	Pass
44.25 - 44	Pole + Reinf.	TP34.557x34.506x0.625	Reinf. 7 Tension Rupture	62.6%	Pass
44 - 43.08	Pole + Reinf.	TP34.745x34.557x0.625	Reinf. 7 Tension Rupture	62.9%	Pass
43.08 - 42.83	Pole + Reinf.	TP34.797x34.745x0.6625	Reinf. 6 Tension Rupture	65.4%	Pass
42.83 - 37.83	Pole + Reinf.	TP35.822x34.797x0.6625	Reinf. 6 Tension Rupture	67.0%	Pass
37.83 - 32.83	Pole + Reinf.	TP36.847x35.822x0.65	Reinf. 6 Tension Rupture	68.3%	Pass
32.83 - 29.25	Pole + Reinf.	TP37.582x36.847x0.6375	Reinf. 6 Tension Rupture	69.2%	Pass
29.25 - 29	Pole + Reinf.	TP37.633x37.582x0.6375	Reinf. 5 Tension Rupture	69.3%	Pass
29 - 27.75	Pole + Reinf.	TP37.89x37.633x0.6375	Reinf. 5 Tension Rupture	69.6%	Pass
27.75 - 27.5	Pole + Reinf.	TP37.941x37.89x0.6375	Reinf. 5 Tension Rupture	69.7%	Pass
27.5 - 24.08	Pole + Reinf.	TP38.642x37.941x0.6375	Reinf. 5 Tension Rupture	70.5%	Pass
24.08 - 23.83	Pole + Reinf.	TP38.693x38.642x0.7	Reinf. 14 Tension Rupture	68.1%	Pass
23.83 - 23.5	Pole + Reinf.	TP38.761x38.693x0.7	Reinf. 14 Tension Rupture	68.2%	Pass
23.5 - 23.25	Pole + Reinf.	TP38.812x38.761x0.4438	Pole	75.1%	Pass
23.25 - 18.92	Pole + Reinf.	TP39.701x38.812x0.4438	Pole	76.4%	Pass
18.92 - 18.67	Pole + Reinf.	TP39.752x39.701x0.525	Reinf. 5 Tension Rupture	83.1%	Pass
18.67 - 18.08	Pole + Reinf.	TP39.872x39.752x0.525	Reinf. 5 Tension Rupture	83.2%	Pass
18.08 - 17.83	Pole + Reinf.	TP39.923x39.872x0.6625	Reinf. 1 Compression	72.0%	Pass
17.83 - 14.08	Pole + Reinf.	TP40.692x39.923x0.65	Reinf. 1 Compression	72.6%	Pass
14.08 - 13.83	Pole + Reinf.	TP40.743x40.692x0.625	Reinf. 1 Compression	73.2%	Pass
13.83 - 8.83	Pole + Reinf.	TP41.769x40.743x0.625	Reinf. 1 Compression	74.0%	Pass
8.83 - 3.83	Pole + Reinf.	TP42.794x41.769x0.6125	Reinf. 1 Compression	74.8%	Pass
3.83 - 0	Pole + Reinf.	TP43.58x42.794x0.6125	Reinf. 1 Compression	75.3%	Pass
				Summary	
			Pole	76.4%	Pass
			Reinforcement	83.2%	Pass
			Overall	83.2%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity*																
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	R17
140 - 135	486	n/a	486	13.48	n/a	13.48	5.3%																	
135 - 130	580	n/a	580	14.31	n/a	14.31	10.2%																	
130 - 125	686	n/a	686	15.13	n/a	15.13	20.6%																	
125 - 120	805	n/a	805	15.96	n/a	15.96	29.4%																	
120 - 115	936	n/a	936	16.78	n/a	16.78	38.9%																	
115 - 110	1081	n/a	1081	17.60	n/a	17.60	48.0%																	
110 - 105	1240	n/a	1240	18.43	n/a	18.43	58.7%																	
105 - 102	1342	n/a	1342	18.92	n/a	18.92	64.5%																	
102 - 101.75	1351	688	2039	18.96	8.76	27.72	41.6%												57.4%					
101.75 - 96.75	1535	746	2280	19.79	8.76	28.55	48.9%												66.4%					
96.75 - 95	1603	766	2369	20.08	8.76	28.84	51.4%												69.5%					
95 - 90.75	2193	282	2475	25.40	12.00	37.40	60.0%																	56.1%
90.75 - 85.75	2464	309	2772	26.43	12.00	38.43	65.4%																	61.5%
85.75 - 85.33	2487	311	2798	26.52	12.00	38.52	65.8%																	62.0%
85.33 - 85.08	2435	1681	4115	26.57	17.84	44.41	43.4%											59.3%						55.7%
85.08 - 82.5	2582	1746	4328	27.10	17.84	44.94	45.5%											61.7%						58.0%
82.5 - 82.25	2597	1752	4349	27.16	17.84	45.00	45.6%											61.9%						58.3%
82.25 - 82	2612	1758	4370	27.21	17.84	45.05	45.8%											62.1%						58.5%
82 - 81.75	2695	331	3027	27.26	12.00	39.26	69.4%																65.5%	
81.75 - 78.83	2873	348	3221	27.86	12.00	39.86	72.2%																68.1%	
78.83 - 78.58	2799	2490	5289	27.91	26.60	54.51	42.4%								59.7%			60.7%					53.8%	
78.58 - 77.67	2856	2522	5377	28.10	26.60	54.70	43.0%								60.4%			61.5%					54.5%	
77.67 - 77.42	2882	2008	4890	28.15	20.76	48.91	48.1%								65.9%								57.3%	
77.42 - 77.17	2897	2015	4913	28.20	20.76	48.96	48.3%								66.1%								57.5%	
77.17 - 72.17	3224	2159	5383	29.23	20.76	49.99	51.8%								69.9%								61.1%	
72.17 - 67.17	3575	2307	5882	30.26	20.76	51.02	55.0%								73.3%								64.4%	
67.17 - 66.58	3617	2325	5942	30.38	20.76	51.14	55.4%								73.7%								64.8%	
66.58 - 66.33	3574	3314	6888	30.44	25.71	56.15	42.9%			60.5%					62.2%									
66.33 - 66.17	3586	3321	6907	30.47	25.71	56.18	43.0%			60.6%					62.3%									
66.17 - 65.92	3604	2217	5821	30.52	16.95	47.47	51.4%			72.3%														
65.92 - 62.67	3847	2309	6156	31.19	16.95	48.14	53.3%			74.3%														
62.67 - 62.42	3866	2316	6182	31.24	16.95	48.19	53.4%			74.5%														
62.42 - 60	4054	2386	6440	31.74	16.95	48.69	54.8%			75.9%														
60 - 59.75	4074	2393	6467	31.79	16.95	48.74	54.9%			76.0%														
59.75 - 58.33	4187	2435	6622	32.08	16.95	49.03	55.7%			76.8%														
58.33 - 58.08	4207	2442	6649	32.14	16.95	49.09	55.9%			76.9%														
58.08 - 53.08	4625	2591	7216	33.17	16.95	50.12	58.5%			79.5%														
53.08 - 52.83	4647	2599	7246	33.22	16.95	50.17	58.6%			79.6%														
52.83 - 52.58	4669	5243	9912	33.27	39.90	73.17	44.2%			58.6%				55.0%								49.7%		
52.58 - 51.42	4771	5314	10085	33.51	39.90	73.41	44.7%			59.1%				55.5%								50.1%		
51.42 - 51.17	4805	2841	7647	33.56	22.95	56.51	61.7%							74.2%								63.4%		
51.17 - 51	4820	2847	7667	33.60	22.95	56.55	61.8%							74.3%								63.5%		
51 - 45.5	5999	2731	8730	40.85	16.95	57.80	52.9%							76.0%										
45.5 - 44.25	6136	2770	8906	41.15	16.95	58.10	53.3%							76.4%										
44.25 - 44	6219	3952	10171	41.22	34.60	75.82	50.8%						51.7%	62.6%							60.2%			
44 - 43.08	6322	3993	10315	41.44	34.60	76.04	51.2%						52.0%	62.9%							60.5%			
43.08 - 42.83	6343	4625	10968	41.50	28.95	70.45	49.0%		65.4%				65.4%								62.9%			
42.83 - 37.83	6925	4891	11816	42.74	28.95	71.69	50.7%		67.0%				67.0%								64.5%			
37.83 - 32.83	7541	5165	12706	43.98	28.95	72.93	52.3%		68.3%				68.3%								66.1%			
32.83 - 29.25	8005	5366	13370	44.86	28.95	73.81	53.4%		69.2%				69.2%								67.1%			
29.25 - 29	8038	5380	13417	44.92	28.95	73.87	53.5%		69.3%			69.3%									67.1%			
29 - 27.75	8204	5451	13655	45.23	28.95	74.18	53.9%		69.6%			69.6%									67.5%			
27.75 - 27.5	8238	5465	13703	45.30	28.95	74.25	54.0%	67.2%				69.7%									67.5%			
27.5 - 24.08	8706	5662	14368	46.14	28.95	75.09	55.0%	67.9%				70.5%									68.4%			
24.08 - 23.83	8683	6993	15676	46.20	34.60	80.80	46.5%	61.3%				63.6%				63.9%					68.1%			
23.83 - 23.5	8729	7017	15746	46.28	34.60	80.88	46.6%	61.4%				63.7%				64.0%					68.2%			
23.5 - 23.25	8783	1585	10368	46.35	25.08	71.42	75.1%	73.8%								71.5%				61.9%				
23.25 - 18.92	9405	1655	11060	47.42	25.08	72.49	76.4%	74.6%								72.3%				62.8%				
18.92 - 18.67	9423	3630	13053	47.48	16.95	64.43	61.5%	80.1%				83.1%												
18.67 - 18.08	9509	3651	13161	47.62	16.95	64.57	61.7%	80.2%				83.2%												
18.08 - 17.83	9980	6808	16788	47.69	36.38	84.06	56.7%	72.0%			59.1%	59.4%								60.3%				
17.83 - 14.08	10563	7072	17635	48.61	36.38	84.99	57.7%	72.6%			59.8%	60.1%								61.1%				
14.08 - 13.83	10423	6479	16902	48.68	30.73	79.40	59.4%	73.2%			70.5%									60.7%				
13.83 - 8.83	11228	6805	18033	49.91	30.73	80.64	60.7%	74.0%			71.4%									61.7%				
8.83 - 3.83	12073	7139	19212	51.15	30.73	81.87	62.0%	74.8%			72.2%									62.6%				
3.83 - 0	12749	7401	20150	52.10	30.73	82.82	63.0%	75.3%			72.7%									63.2%				

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

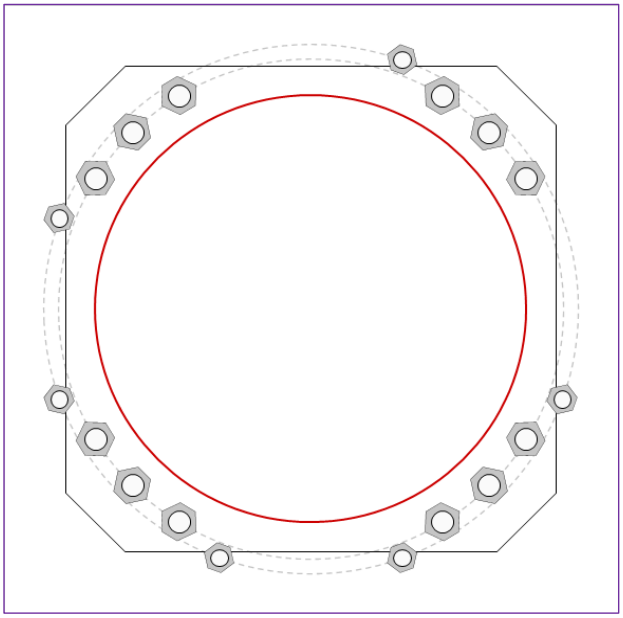
Monopole Base Plate Connection

Site Info	
BU #	876335
Site Name	EAST FARMINGTON
Order #	556606 Rev 1

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

Applied Loads	
Moment (kip-ft)	2855.22
Axial Force (kips)	50.72
Shear Force (kips)	27.91

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (12) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 51" BC

Anchor Spacing: 6 in

GROUP 2: (6) 1-3/4" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 54.08" BC

pos. (deg): 70, 160, 200, 250, 290, 340

Base Plate Data

49.5" W x 3" Plate (A572-50; Fy=50 ksi, Fu=65 ksi); Clip: 6 in

Stiffener Data

N/A

Pole Data

43.58" x 0.375" 12-sided pole (A607-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

GROUP 1:		
Pu_c = 221.85	ϕPn_c = 268.39	**Stress Rating**
Vu = 2.33	ϕVn = 120.77	**81.6%**
Mu = 3.78	ϕMn = 128.14	**Pass**
GROUP 2:		
Pu_t = 119.77	ϕPn_t = 178.13	**Stress Rating**
Vu = 0	ϕVn = 112.75	**64.0%**
Mu = 0	ϕMn = 84.41	**Pass**

Base Plate Summary

Max Stress (ksi):	35.53	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**75.2%**	**Pass**

CCIplate

Elevation (ft)	0	*(Base)*

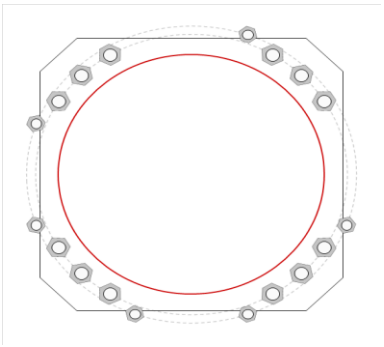
note: Bending interaction not considered when Grout Considered = "Yes"

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	

Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η:	l_{ar} (in):	Thread Type	Area Override, in^2	Tension Only
1	1	31.4873459	2.25	A615-75	51	0.5	2.5	N-Included		No
2	1	45	2.25	A615-75	51	0.5	2.5	N-Included		No
3	1	58.5126541	2.25	A615-75	51	0.5	2.5	N-Included		No
4	1	121.487346	2.25	A615-75	51	0.5	2.5	N-Included		No
5	1	135	2.25	A615-75	51	0.5	2.5	N-Included		No
6	1	148.512654	2.25	A615-75	51	0.5	2.5	N-Included		No
7	1	211.487346	2.25	A615-75	51	0.5	2.5	N-Included		No
8	1	225	2.25	A615-75	51	0.5	2.5	N-Included		No
9	1	238.512654	2.25	A615-75	51	0.5	2.5	N-Included		No
10	1	301.487346	2.25	A615-75	51	0.5	2.5	N-Included		No
11	1	315	2.25	A615-75	51	0.5	2.5	N-Included		No
12	1	328.512654	2.25	A615-75	51	0.5	2.5	N-Included		No
13	2	70	1.75	A193 Gr. B7	54.08	0.5	4.75	N-Included		Yes
14	2	160	1.75	A193 Gr. B7	54.08	0.5	4.75	N-Included		Yes
15	2	200	1.75	A193 Gr. B7	54.08	0.5	4.75	N-Included		Yes
16	2	250	1.75	A193 Gr. B7	54.08	0.5	4.75	N-Included		Yes
17	2	290	1.75	A193 Gr. B7	54.08	0.5	4.75	N-Included		Yes
18	2	340	1.75	A193 Gr. B7	54.08	0.5	4.75	N-Included		Yes

Plot Graphic



Pier and Pad Foundation

BU # :	876335
Site Name:	EAST FARMINGTC
Order Number:	556606 Rev 1

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp}:	50.72	kips
Base Shear, Vu_comp:	27.91	kips
Moment, M_u:	2855.22	ft-kips
Tower Height, **H**:	140	ft
BP Dist. Above Fdn, bp_{dist}:	4.5	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, **dpier**:	8	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	11	
Pier Rebar Quantity, **mc**:	24	
Pier Tie/Spiral Size, **St**:	5	
Pier Tie/Spiral Quantity, **mt**:	12	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	9	ft
Pad Width, W_1:	20	ft
Pad Thickness, **T**:	4	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	9	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	27	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	3	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	130	pcf
Ultimate Net Bearing, Qnet:	30.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	38	degrees
SPT Blow Count, N_{blows}:	100	
Base Friction, μ:	0.35	
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)	383.41	27.91	**6.9%**	**Pass**
Bearing Pressure (ksf)	23.38	3.35	**14.3%**	**Pass**
*Overturning (kip*ft)*	5608.33	3130.83	**55.8%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	6925.29	3008.73	**41.4%**	**Pass**
Pier Compression (kip)	30551.04	114.08	**0.4%**	**Pass**
*Pad Flexure (kip*ft)*	5101.11	915.34	**17.1%**	**Pass**
Pad Shear - 1-way (kips)	853.95	137.02	**15.3%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.017	**9.8%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	10202.23	1805.24	**16.9%**	**Pass**

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

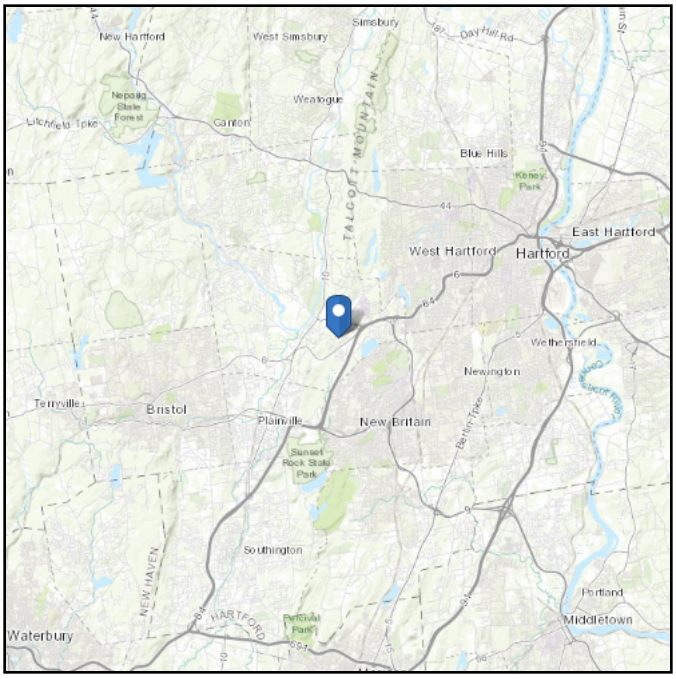
Structural Rating*:	**41.4%**
Soil Rating*:	**55.8%**

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 413.61 ft (NAVD 88)
Latitude: 41.715817
Longitude: -72.810394



Wind

Results:

Wind Speed:	121 Vmph 125 Vmph Required by Jurisdiction
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	92 Vmph
100-year MRI	99 Vmph

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

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

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

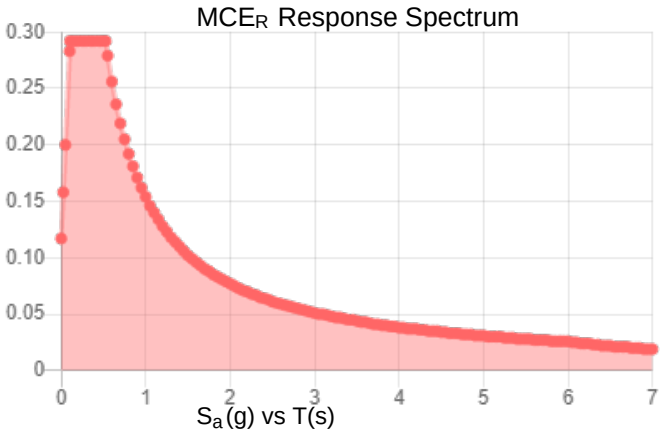
Seismic

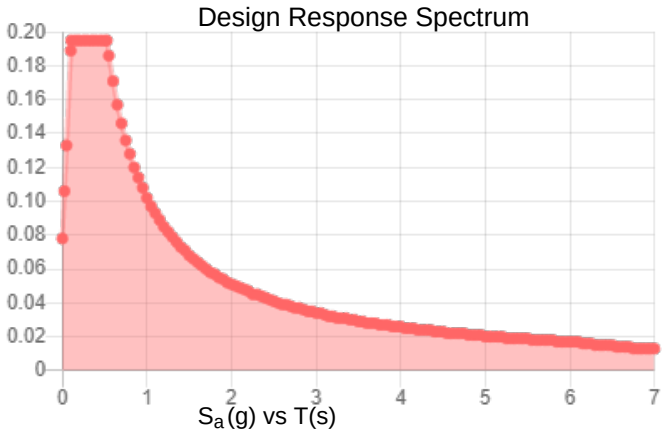
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.182	S_{DS} :	0.195
S_1 :	0.064	S_{D1} :	0.102
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.092
S_{MS} :	0.292	PGA_M :	0.148
S_{M1} :	0.154	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Fri Jun 04 2021

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Fri Jun 04 2021

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

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

Exhibit E

Mount Analysis

Date: **August 3, 2021**

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

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

Subject:	**Mount Replacement Analysis Report**	
Carrier Designation:	**Dish Network Equipment Change Out**	
	Carrier Site Number:	BOBDL00087A
	Carrier Site Name:	CT-CCI-T-876335
Crown Castle Designation:	**Crown Castle BU Number:**	876335
	Crown Castle Site Name:	East Farmington
	Crown Castle JDE Job Number:	650077
	Crown Castle Order Number:	556606 Rev. 1
Engineering Firm Designation:	**Trylon Report Designation:**	189053
Site Data:	**3 A Birdseye Road, Farmington, Hartford County, CT, 06030**	
	Latitude 41°42'56.94" Longitude -72°48'37.42"	
Structure Information:	**Tower Height & Type:**	**139.0 ft Monopole**
	Mount Elevation:	**118.0 ft**
	Mount Type:	**8.0 ft Platform**

Dear Darcy Tarr,

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

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

Platform **Sufficient**

***Sufficient upon completion of the changes listed in the 'Recommendations' section of this report.**

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Bryan P. Mawhinney

Respectfully Submitted by:
Jinshan Wang, P.E.

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Supplemental Drawings

1) INTRODUCTION

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

2) ANALYSIS CRITERIA

Building Code:	2015 IBC **/** 2018 CTSBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	125 mph
Exposure Category:	B
Topographic Factor at Base:	1.0
Topographic Factor at Mount:	1.0
Ice Thickness:	2.0 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.183
Seismic S_1:	0.064
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
118.0	118.0	3	JMA WIRELESS	MX08FRO665-21	8.0 ft Platform [Commscope MC-PK8-DSH]
		3	FUJITSU	TA08025-B604	
		3	FUJITSU	TA08025-B605	
		1	RAYCAP	RDIDC-9181-PF-48	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	Dish Network Application	556606 Rev. 1	CCI Sites
Tower Structural Analysis Reports	Crown Castle	9810969	CCI Sites
Mount Manufacturer Drawings	Commscope	MC-PK8-DSH	TSA

3.1) Analysis Method

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

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

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

3.2) Assumptions

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

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

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

4) ANALYSIS RESULTS

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

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1, 2	Mount Pipe(s)	MP2	118.0	27.5	Pass
	Horizontal(s)	H1		11.3	Pass
	Standoff(s)	M12		59.5	Pass
	Handrail(s)	M19		10.7	Pass
	Mount Connection(s)	--		30.6	Pass

Structure Rating (max from all components) =	59.5%

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

4.1) Recommendations

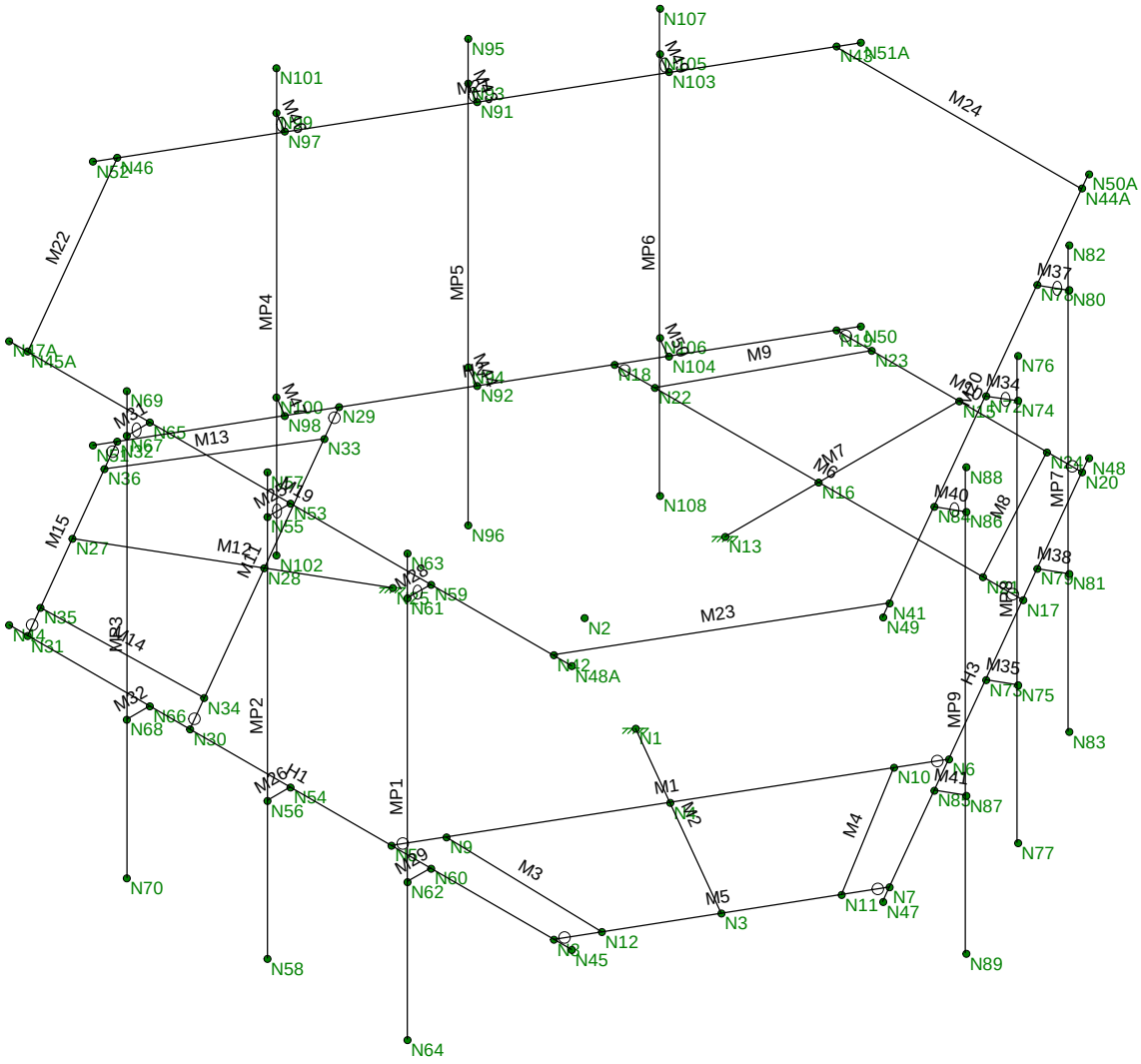
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the proposed mount listed below must be installed.

1. Commscope MC-PK8-DSH.

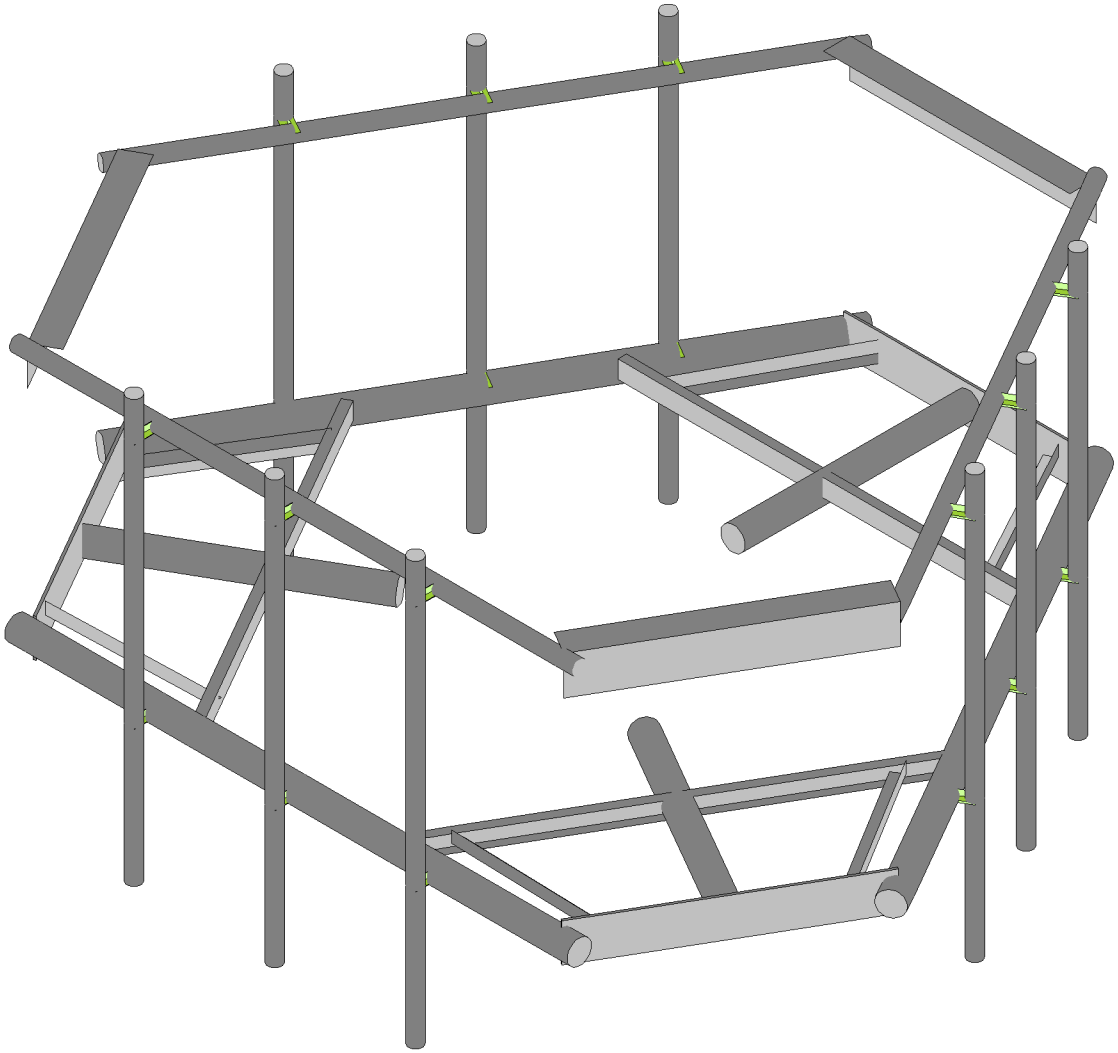
No structural modifications are required at this time, provided that the above-listed changes are implemented.

APPENDIX A

WIRE FRAME AND RENDERED MODELS



	MC-PK8-C	SK - 2
		Aug 2, 2021 at 11:17 AM
		MC-PK8-C_loaded.r3d



	MC-PK8-C	SK - 1
		Aug 2, 2021 at 11:16 AM
		MC-PK8-C_loaded.r3d

APPENDIX B

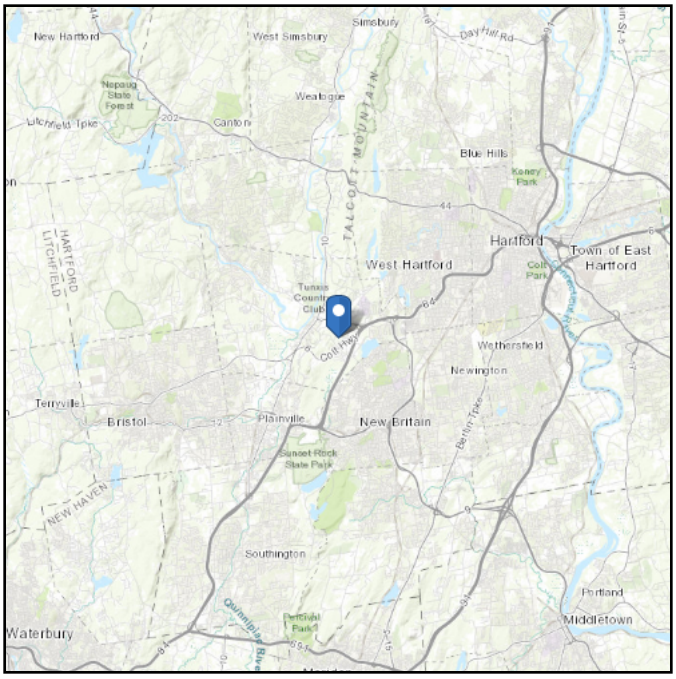
SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 413.61 ft (NAVD 88)
Latitude: 41.715817
Longitude: -72.810394



Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph

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

Date Accessed: Tue Aug 03 2021

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

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

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

TIA LOAD CALCULATOR 2.0

PROJECT DATA	
Job Code:	189053
Carrier Site ID:	BOBDL00087A
Carrier Site Name:	CT-CCI-T-876335

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

STRUCTURE DETAILS		
Mount Type:	Platform	--
Mount Elevation:	118.0	ft.
Number of Sectors:	3	--
Structure Type:	Monopole	--
Structure Height:	139.0	ft.

ANALYSIS CRITERIA		
Structure Risk Category:	II	--
Exposure Category:	B	--
Site Class:	D - Default	--
Ground Elevation:	413	ft.

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

WIND PARAMETERS		
Design Wind Speed:	125	mph
Wind Escalation Factor (K_s):	1.00	--
Velocity Coefficient (K_z):	1.04	--
Directionality Factor (K_d):	0.95	--
Gust Effect Factor (Gh):	1.00	--
Shielding Factor (K_a):	0.90	--
Velocity Pressure (q_z):	38.79	psf

ICE PARAMETERS		
Design Ice Wind Speed:	50	mph
Design Ice Thickness (t_i):	2.00	in
Importance Factor (I_i):	1.00	--
Ice Velocity Pressure (q_{zi}):	38.79	psf
Mount Ice Thickness (t_{iz}):	2.27	in

WIND STRUCTURE CALCULATIONS		
Flat Member Pressure:	69.82	psf
Round Member Pressure:	41.89	psf
Ice Wind Pressure:	7.35	psf

SEISMIC PARAMETERS		
Importance Factor (I_e):	1.00	--
Short Period Accel .(S_s):	0.18	g
1 Second Accel (S_1):	0.06	g
Short Period Des. (S_{DS}):	0.20	g
1 Second Des. (S_{D1}):	0.10	g
Short Period Coeff. (F_a):	1.60	--
1 Second Coeff. (F_v):	2.40	--
Response Coefficient (Cs):	0.10	--
Amplification Factor (A_S):	1.20	--

LOAD COMBINATIONS [LRFD]

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

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

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

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

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

EQUIPMENT LOADING

Appurtenance Name/Location	Qty.	Elevation [ft]	--	EPA $_N$ (ft2)	EPA $_T$ (ft2)	Weight (lbs)
MX08FRO665-21	3	118	No Ice	12.49	5.87	82.50
MP2/MP5/MP8, 0/120/240	--	--	w/ Ice	14.11	7.35	390.35
TA08025-B604	3	118	No Ice	1.96	0.98	63.90
MP2/MP5/MP8, 0/120/240	--	--	w/ Ice	2.54	1.43	99.13
TA08025-B605	3	118	No Ice	1.96	1.13	75.00
MP2/MP5/MP8, 0/120/240	--	--	w/ Ice	2.54	1.60	105.31
RDIDC-9181-PF-48	1	118	No Ice	2.01	1.17	21.85
MP2, 0	--	--	w/ Ice	2.59	1.65	103.87
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
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			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			

EQUIPMENT WIND CALCULATIONS

Appurtenance Name	Qty.	Elevation [ft]	K_{zt}	K_z	K_d	t_d	q_z [psf]	q_{zi} [psf]
MX08FRO665-21	3	118	1.00	1.04	0.95	2.27	38.79	6.21
TA08025-B604	3	118	1.00	1.04	0.95	2.27	38.79	6.21
TA08025-B605	3	118	1.00	1.04	0.95	2.27	38.79	6.21
RDIDC-9181-PF-48	1	118	1.00	1.04	0.95	2.27	38.79	6.21

EQUIPMENT LATERAL WIND FORCE CALCULATIONS

Appurtenance Name	Qty.	--	0° 180°	30° 210°	60° 240°	90° 270°	120° 300°	150° 330°
MX08FRO665-21	3	No Ice	435.97	262.59	378.17	204.80	378.17	262.59
MP2/MP5/MP8, 0/120/240	--	w/ Ice	78.83	50.51	69.39	41.07	69.39	50.51
TA08025-B604	3	No Ice	68.54	42.82	59.97	34.25	59.97	42.82
MP2/MP5/MP8, 0/120/240	--	w/ Ice	14.17	9.54	12.63	7.99	12.63	9.54
TA08025-B605	3	No Ice	68.54	46.71	61.26	39.43	61.26	46.71
MP2/MP5/MP8, 0/120/240	--	w/ Ice	14.17	10.24	12.86	8.93	12.86	10.24
RDIDC-9181-PF-48	1	No Ice	70.23	48.14	62.87	40.78	62.87	48.14
MP2, 0	--	w/ Ice	14.49	10.56	13.18	9.24	13.18	10.56
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
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		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						

EQUIPMENT SEISMIC FORCE CALCULATIONS

Appurtenance Name	*Qty.*	*Elevation [ft]*	*Weight [lbs]*	F_p [lbs]
MX08FRO665-21	3	118	82.5	9.66
TA08025-B604	3	118	63.9	7.48
TA08025-B605	3	118	75	8.78
RDIDC-9181-PF-48	1	118	21.85	2.56

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 15th(360-16): LRFD
Cold Formed Steel Code	AISI S100-12: LRFD
Wood Code	AWC NDS-15: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-14
Masonry Code	ACI 530-13: Strength
Aluminum Code	AA ADM1-10: LRFD - Building
Stainless Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E..Density[k/ft...	Yield[psi]	Ry	Fu[psi]	Rt
1	A992	29000	11154	.3	.65	.49	50000	1.1	65000	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36000	1.5	58000	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50000	1.1	65000	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42000	1.4	58000	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46000	1.4	58000	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35000	1.6	60000	1.2
7	A1085	29000	11154	.3	.65	.49	50000	1.4	65000	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Plates	6.5"x0.37" Plate	Beam	RECT	A53 Gr.B	Typical	2.405	.027	8.468	.106
2	Grating Bracing	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical	.722	.271	.271	.009
3	Standoffs	PIPE_3.5	Beam	Pipe	A53 Gr.B	Typical	2.5	4.52	4.52	9.04
4	Standoff Bracing	C3X5	Beam	Channel	A36 Gr.36	Typical	1.47	.241	1.85	.043
5	Handrails	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
6	Handrail Corners	L6 5/8x4 7/16x...	Beam	Single Angle	A36 Gr.36	Typical	2.039	3.593	9.575	.023
7	Horizontals	PIPE_3.5	Beam	Pipe	A53 Gr.B	Typical	2.5	4.52	4.52	9.04
8	Mount Pipes	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N25	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N13	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Self Weight	DL		-1			13		3	
2	Structure Wind Z	WLZ						51		
3	Structure Wind X	WLX						51		
4	Wind Load 0 AZI	WLZ					26			
5	Wind Load 30 AZI	None					26			
6	Wind Load 45 AZI	None					26			
7	Wind Load 60 AZI	None					26			
8	Wind Load 90 AZI	WLX					26			
9	Wind Load 120 AZI	None					26			
10	Wind Load 135 AZI	None					26			
11	Wind Load 150 AZI	None					26			
12	Ice Weight	OL1					13	51	3	
13	Ice Structure Wind Z	OL2						51		
14	Ice Structure Wind X	OL3						51		
15	Ice Wind Load 0 AZI	OL2					26			
16	Ice Wind Load 30 AZI	None					26			
17	Ice Wind Load 45 AZI	None					26			
18	Ice Wind Load 60 AZI	None					26			
19	Ice Wind Load 90 AZI	OL3					26			
20	Ice Wind Load 120 AZI	None					26			
21	Ice Wind Load 135 AZI	None					26			
22	Ice Wind Load 150 AZI	None					26			
23	Seismic Load Z	ELZ			-.117		13			
24	Seismic Load X	ELX	-.117				13			
25	Live Load 1 (Lv)	None					1			
26	Live Load 2 (Lv)	None					1			
27	Live Load 3 (Lv)	None					1			
28	Live Load 4 (Lv)	None					1			
29	Live Load 5 (Lv)	None					1			
30	Live Load 6 (Lv)	None					1			
31	Live Load 7 (Lv)	None					1			
32	Live Load 8 (Lv)	None					1			
33	Live Load 9 (Lv)	None					1			
34	Maintenance Load 1 (...	None					1			
35	Maintenance Load 2 (...	None					1			
36	Maintenance Load 3 (...	None					1			
37	Maintenance Load 4 (...	None					1			
38	Maintenance Load 5 (...	None					1			
39	Maintenance Load 6 (...	None					1			
40	Maintenance Load 7 (...	None					1			
41	Maintenance Load 8 (...	None					1			
42	Maintenance Load 9 (...	None					1			
43	BLC 1 Transient Area...	None						9		
44	BLC 12 Transient Are...	None						9		

Load Combinations

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
1	1.4DL	Yes	Y		DL	1.4																				
2	1.2DL + 1WL 0 AZI	Yes	Y		DL	1.2	2	1	3		4	1														
3	1.2DL + 1WL 30 AZI	Yes	Y		DL	1.2	2	.866	3	.5	5	1														
4	1.2DL + 1WL 45 AZI	Yes	Y		DL	1.2	2	.707	3	.707	6	1														
5	1.2DL + 1WL 60 AZI	Yes	Y		DL	1.2	2	.5	3	.866	7	1														
6	1.2DL + 1WL 90 AZI	Yes	Y		DL	1.2	2		3	1	8	1														
7	1.2DL + 1WL 120 AZI	Yes	Y		DL	1.2	2	-.5	3	.866	9	1														
8	1.2DL + 1WL 135 AZI	Yes	Y		DL	1.2	2	-.707	3	.707	10	1														
9	1.2DL + 1WL 150 AZI	Yes	Y		DL	1.2	2	-.866	3	.5	11	1														
10	1.2DL + 1WL 180 AZI	Yes	Y		DL	1.2	2	-1	3		4	-1														
11	1.2DL + 1WL 210 AZI	Yes	Y		DL	1.2	2	-.866	3	-.5	5	-1														
12	1.2DL + 1WL 225 AZI	Yes	Y		DL	1.2	2	-.707	3	-.707	6	-1														
13	1.2DL + 1WL 240 AZI	Yes	Y		DL	1.2	2	-.5	3	-.866	7	-1														
14	1.2DL + 1WL 270 AZI	Yes	Y		DL	1.2	2		3	-1	8	-1														
15	1.2DL + 1WL 300 AZI	Yes	Y		DL	1.2	2	.5	3	-.866	9	-1														
16	1.2DL + 1WL 315 AZI	Yes	Y		DL	1.2	2	.707	3	-.707	10	-1														
17	1.2DL + 1WL 330 AZI	Yes	Y		DL	1.2	2	.866	3	-.5	11	-1														
18	0.9DL + 1WL 0 AZI	Yes	Y		DL	.9	2	1	3		4	1														
19	0.9DL + 1WL 30 AZI	Yes	Y		DL	.9	2	.866	3	.5	5	1														
20	0.9DL + 1WL 45 AZI	Yes	Y		DL	.9	2	.707	3	.707	6	1														
21	0.9DL + 1WL 60 AZI	Yes	Y		DL	.9	2	.5	3	.866	7	1														
22	0.9DL + 1WL 90 AZI	Yes	Y		DL	.9	2		3	1	8	1														
23	0.9DL + 1WL 120 AZI	Yes	Y		DL	.9	2	-.5	3	.866	9	1														
24	0.9DL + 1WL 135 AZI	Yes	Y		DL	.9	2	-.707	3	.707	10	1														
25	0.9DL + 1WL 150 AZI	Yes	Y		DL	.9	2	-.866	3	.5	11	1														
26	0.9DL + 1WL 180 AZI	Yes	Y		DL	.9	2	-1	3		4	-1														
27	0.9DL + 1WL 210 AZI	Yes	Y		DL	.9	2	-.866	3	-.5	5	-1														
28	0.9DL + 1WL 225 AZI	Yes	Y		DL	.9	2	-.707	3	-.707	6	-1														
29	0.9DL + 1WL 240 AZI	Yes	Y		DL	.9	2	-.5	3	-.866	7	-1														
30	0.9DL + 1WL 270 AZI	Yes	Y		DL	.9	2		3	-1	8	-1														
31	0.9DL + 1WL 300 AZI	Yes	Y		DL	.9	2	.5	3	-.866	9	-1														
32	0.9DL + 1WL 315 AZI	Yes	Y		DL	.9	2	.707	3	-.707	10	-1														
33	0.9DL + 1WL 330 AZI	Yes	Y		DL	.9	2	.866	3	-.5	11	-1														
34	1.2DL + 1DLi + 1W Li ...	Yes	Y		DL	1.2	OL1	1	13	1	14		15	1												
35	1.2DL + 1DLi + 1W Li ...	Yes	Y		DL	1.2	OL1	1	13	.866	14	.5	16	1												
36	1.2DL + 1DLi + 1W Li ...	Yes	Y		DL	1.2	OL1	1	13	.707	14	.707	17	1												
37	1.2DL + 1DLi + 1W Li ...	Yes	Y		DL	1.2	OL1	1	13	.5	14	.866	18	1												
38	1.2DL + 1DLi + 1W Li ...	Yes	Y		DL	1.2	OL1	1	13		14	1	19	1												
39	1.2DL + 1DLi + 1W Li ...	Yes	Y		DL	1.2	OL1	1	13	-.5	14	.866	20	1												
40	1.2DL + 1DLi + 1W Li ...	Yes	Y		DL	1.2	OL1	1	13	-.707	14	.707	21	1												
41	1.2DL + 1DLi + 1W Li ...	Yes	Y		DL	1.2	OL1	1	13	-.866	14	.5	22	1												
42	1.2DL + 1DLi + 1W Li ...	Yes	Y		DL	1.2	OL1	1	13	-1	14		15	-1												
43	1.2DL + 1DLi + 1W Li ...	Yes	Y		DL	1.2	OL1	1	13	-.866	14	-.5	16	-1												
44	1.2DL + 1DLi + 1W Li ...	Yes	Y		DL	1.2	OL1	1	13	-.707	14	-.707	17	-1												
45	1.2DL + 1DLi + 1W Li ...	Yes	Y		DL	1.2	OL1	1	13	-.5	14	-.866	18	-1												
46	1.2DL + 1DLi + 1W Li ...	Yes	Y		DL	1.2	OL1	1	13		14	-1	19	-1												
47	1.2DL + 1DLi + 1W Li ...	Yes	Y		DL	1.2	OL1	1	13	.5	14	-.866	20	-1												
48	1.2DL + 1DLi + 1W Li ...	Yes	Y		DL	1.2	OL1	1	13	.707	14	-.707	21	-1												
49	1.2DL + 1DLi + 1W Li ...	Yes	Y		DL	1.2	OL1	1	13	.866	14	-.5	22	-1												
50	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	1	24																	
51	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	.866	24	.5																

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
52	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	.707	24	.707														
53	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	.5	24	.866														
54	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23		24	1														
55	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	-.5	24	.866														
56	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	-.707	24	.707														
57	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	-.866	24	.5														
58	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	-1	24															
59	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	-.866	24	-.5														
60	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	-.707	24	-.707														
61	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	-.5	24	-.866														
62	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23		24	-1														
63	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	.5	24	-.866														
64	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	.707	24	-.707														
65	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	.866	24	-.5														
66	(0.9-0.2Sds)DL + 1E 0..	Yes	Y		DL	.861	23	1	24															
67	(0.9-0.2Sds)DL + 1E 3..	Yes	Y		DL	.861	23	.866	24	.5														
68	(0.9-0.2Sds)DL + 1E 4..	Yes	Y		DL	.861	23	.707	24	.707														
69	(0.9-0.2Sds)DL + 1E 6..	Yes	Y		DL	.861	23	.5	24	.866														
70	(0.9-0.2Sds)DL + 1E 9..	Yes	Y		DL	.861	23		24	1														
71	(0.9-0.2Sds)DL + 1E 1..	Yes	Y		DL	.861	23	-.5	24	.866														
72	(0.9-0.2Sds)DL + 1E 1..	Yes	Y		DL	.861	23	-.707	24	.707														
73	(0.9-0.2Sds)DL + 1E 1..	Yes	Y		DL	.861	23	-.866	24	.5														
74	(0.9-0.2Sds)DL + 1E 1..	Yes	Y		DL	.861	23	-1	24															
75	(0.9-0.2Sds)DL + 1E 2..	Yes	Y		DL	.861	23	-.866	24	-.5														
76	(0.9-0.2Sds)DL + 1E 2..	Yes	Y		DL	.861	23	-.707	24	-.707														
77	(0.9-0.2Sds)DL + 1E 2..	Yes	Y		DL	.861	23	-.5	24	-.866														
78	(0.9-0.2Sds)DL + 1E 2..	Yes	Y		DL	.861	23		24	-1														
79	(0.9-0.2Sds)DL + 1E 3..	Yes	Y		DL	.861	23	.5	24	-.866														
80	(0.9-0.2Sds)DL + 1E 3..	Yes	Y		DL	.861	23	.707	24	-.707														
81	(0.9-0.2Sds)DL + 1E 3..	Yes	Y		DL	.861	23	.866	24	-.5														
82	1.2DL + 1Lv1	Yes	Y		DL	1.2	25	1.5																
83	1.2DL + 1Lv2	Yes	Y		DL	1.2	26	1.5																
84	1.2DL + 1Lv3	Yes	Y		DL	1.2	27	1.5																
85	1.2DL + 1Lv4	Yes	Y		DL	1.2	28	1.5																
86	1.2DL + 1Lv5	Yes	Y		DL	1.2	29	1.5																
87	1.2DL + 1Lv6	Yes	Y		DL	1.2	30	1.5																
88	1.2DL + 1Lv7	Yes	Y		DL	1.2	31	1.5																
89	1.2DL + 1Lv8	Yes	Y		DL	1.2	32	1.5																
90	1.2DL + 1Lv9	Yes	Y		DL	1.2	33	1.5																
91	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	.058	3		4	.058										
92	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	.05	3	.029	5	.058										
93	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	.041	3	.041	6	.058										
94	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	.029	3	.05	7	.058										
95	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2		3	.058	8	.058										
96	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	-.029	3	.05	9	.058										
97	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	-.041	3	.041	10	.058										
98	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	-.05	3	.029	11	.058										
99	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	-.058	3		4	-.058										
100	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	-.05	3	-.029	5	-.058										
101	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	-.041	3	-.041	6	-.058										
102	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	-.029	3	-.05	7	-.058										
103	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2		3	-.058	8	-.058										

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
104	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	.029	3	-.05	9	-.058										
105	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	.041	3	-.041	10	-.058										
106	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	.05	3	-.029	11	-.058										
107	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	.058	3		4	.058										
108	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	.05	3	.029	5	.058										
109	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	.041	3	.041	6	.058										
110	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	.029	3	.05	7	.058										
111	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2		3	.058	8	.058										
112	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	-.029	3	.05	9	.058										
113	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	-.041	3	.041	10	.058										
114	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	-.05	3	.029	11	.058										
115	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	-.058	3		4	-.058										
116	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	-.05	3	-.029	5	-.058										
117	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	-.041	3	-.041	6	-.058										
118	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	-.029	3	-.05	7	-.058										
119	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2		3	-.058	8	-.058										
120	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	.029	3	-.05	9	-.058										
121	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	.041	3	-.041	10	-.058										
122	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	.05	3	-.029	11	-.058										
123	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	.058	3		4	.058										
124	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	.05	3	.029	5	.058										
125	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	.041	3	.041	6	.058										
126	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	.029	3	.05	7	.058										
127	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2		3	.058	8	.058										
128	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	-.029	3	.05	9	.058										
129	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	-.041	3	.041	10	.058										
130	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	-.05	3	.029	11	.058										
131	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	-.058	3		4	-.058										
132	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	-.05	3	-.029	5	-.058										
133	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	-.041	3	-.041	6	-.058										
134	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	-.029	3	-.05	7	-.058										
135	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2		3	-.058	8	-.058										
136	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	.029	3	-.05	9	-.058										
137	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	.041	3	-.041	10	-.058										
138	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	.05	3	-.029	11	-.058										
139	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	.058	3		4	.058										
140	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	.05	3	.029	5	.058										
141	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	.041	3	.041	6	.058										
142	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	.029	3	.05	7	.058										
143	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2		3	.058	8	.058										
144	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	-.029	3	.05	9	.058										
145	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	-.041	3	.041	10	.058										
146	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	-.05	3	.029	11	.058										
147	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	-.058	3		4	-.058										
148	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	-.05	3	-.029	5	-.058										
149	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	-.041	3	-.041	6	-.058										
150	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	-.029	3	-.05	7	-.058										
151	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2		3	-.058	8	-.058										
152	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	.029	3	-.05	9	-.058										
153	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	.041	3	-.041	10	-.058										
154	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	.05	3	-.029	11	-.058										
155	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	.058	3		4	.058										

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
156	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	.05	3	.029	5	.058										
157	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	.041	3	.041	6	.058										
158	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	.029	3	.05	7	.058										
159	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2		3	.058	8	.058										
160	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	-.029	3	.05	9	.058										
161	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	-.041	3	.041	10	.058										
162	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	-.05	3	.029	11	.058										
163	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	-.058	3		4	-.058										
164	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	-.05	3	-.029	5	-.058										
165	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	-.041	3	-.041	6	-.058										
166	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	-.029	3	-.05	7	-.058										
167	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2		3	-.058	8	-.058										
168	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	.029	3	-.05	9	-.058										
169	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	.041	3	-.041	10	-.058										
170	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	.05	3	-.029	11	-.058										
171	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	.058	3		4	.058										
172	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	.05	3	.029	5	.058										
173	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	.041	3	.041	6	.058										
174	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	.029	3	.05	7	.058										
175	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2		3	.058	8	.058										
176	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	-.029	3	.05	9	.058										
177	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	-.041	3	.041	10	.058										
178	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	-.05	3	.029	11	.058										
179	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	-.058	3		4	-.058										
180	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	-.05	3	-.029	5	-.058										
181	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	-.041	3	-.041	6	-.058										
182	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	-.029	3	-.05	7	-.058										
183	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2		3	-.058	8	-.058										
184	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	.029	3	-.05	9	-.058										
185	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	.041	3	-.041	10	-.058										
186	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	.05	3	-.029	11	-.058										
187	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	.058	3		4	.058										
188	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	.05	3	.029	5	.058										
189	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	.041	3	.041	6	.058										
190	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	.029	3	.05	7	.058										
191	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2		3	.058	8	.058										
192	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	-.029	3	.05	9	.058										
193	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	-.041	3	.041	10	.058										
194	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	-.05	3	.029	11	.058										
195	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	-.058	3		4	-.058										
196	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	-.05	3	-.029	5	-.058										
197	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	-.041	3	-.041	6	-.058										
198	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	-.029	3	-.05	7	-.058										
199	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2		3	-.058	8	-.058										
200	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	.029	3	-.05	9	-.058										
201	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	.041	3	-.041	10	-.058										
202	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	.05	3	-.029	11	-.058										
203	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	.058	3		4	.058										
204	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	.05	3	.029	5	.058										
205	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	.041	3	.041	6	.058										
206	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	.029	3	.05	7	.058										
207	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2		3	.058	8	.058										

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
208	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	-.029	3	.05	9	.058										
209	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	-.041	3	.041	10	.058										
210	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	-.05	3	.029	11	.058										
211	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	-.058	3		4	-.058										
212	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	-.05	3	-.029	5	-.058										
213	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	-.041	3	-.041	6	-.058										
214	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	-.029	3	-.05	7	-.058										
215	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2		3	-.058	8	-.058										
216	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	.029	3	-.05	9	-.058										
217	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	.041	3	-.041	10	-.058										
218	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	.05	3	-.029	11	-.058										
219	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	.058	3		4	.058										
220	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	.05	3	.029	5	.058										
221	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	.041	3	.041	6	.058										
222	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	.029	3	.05	7	.058										
223	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2		3	.058	8	.058										
224	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	-.029	3	.05	9	.058										
225	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	-.041	3	.041	10	.058										
226	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	-.05	3	.029	11	.058										
227	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	-.058	3		4	-.058										
228	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	-.05	3	-.029	5	-.058										
229	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	-.041	3	-.041	6	-.058										
230	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	-.029	3	-.05	7	-.058										
231	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2		3	-.058	8	-.058										
232	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	.029	3	-.05	9	-.058										
233	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	.041	3	-.041	10	-.058										
234	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	.05	3	-.029	11	-.058										

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N25	max	944.232	20	2446.592	39	1561.233	3	145.843	33	1762.104	3	-42.271	31
2		min	-950.147	12	142.914	31	-1557.44	27	-2622.782	41	-1761.501	27	-4248.323	38
3	N1	max	950.148	8	2446.581	45	1561.234	17	145.841	19	1761.502	25	4248.301	46
4		min	-944.233	32	142.916	21	-1557.441	25	-2622.772	43	-1762.104	17	42.273	21
5	N13	max	1588.399	22	2352.734	34	374.192	18	4770.094	34	1501.274	14	682.25	167
6		min	-1588.399	30	109.657	26	-381.845	10	-30.91	26	-1501.274	6	-682.254	223
7	Totals:	max	2898.846	22	6947.15	42	3075.131	18						
8		min	-2898.846	30	1424.465	66	-3075.133	10						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	M12	PIPE_3.5	.625	40	39	.155	40		11	75262.68	78750	7953.75	7953.75	2....	H1-1b
2	M2	PIPE_3.5	.625	40	45	.155	40		9	75262.68	78750	7953.75	7953.75	2....	H1-1b
3	M7	PIPE_3.5	.600	40	34	.150	40		2...	75262.68	78750	7953.75	7953.75	2....	H1-1b
4	M11	C3X5	.512	34.856	38	.179	63.177	y	34	11202.9...	47628	981.263	4104	1....	H1-1b
5	M1	C3X5	.512	34.856	46	.179	6.536	y	34	11202.9...	47628	981.263	4104	1....	H1-1b
6	M6	C3X5	.488	34.856	34	.170	63.177	y	45	37027.8...	47628	981.263	4020.228	1	H1-1b
7	MP2	PIPE_2.0	.289	48	15	.046	48		4	20866.7...	32130	1871.625	1871.625	1....	H1-1b
8	MP1	PIPE_2.0	.282	48	15	.038	48		10	20866.7...	32130	1871.625	1871.625	2....	H1-1b

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

	Member	Shape	Code Check	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn y...	phi*Mn z...	Cb	Eqn
9	MP3	PIPE_2.0	.282	48	5	.038	48		10	20866.7...	32130	1871.625	1871.625	2....	H1-1b
10	MP4	PIPE_2.0	.275	48	10	.027	48		5	20866.7...	32130	1871.625	1871.625	1....	H1-1b
11	MP9	PIPE_2.0	.275	48	10	.027	48		15	20866.7...	32130	1871.625	1871.625	1....	H1-1b
12	MP5	PIPE_2.0	.275	48	10	.044	48		10	20866.7...	32130	1871.625	1871.625	1....	H1-1b
13	MP8	PIPE_2.0	.275	48	10	.044	48		10	20866.7...	32130	1871.625	1871.625	1....	H1-1b
14	MP6	PIPE_2.0	.248	48	15	.035	48		4	20866.7...	32130	1871.625	1871.625	2....	H1-1b
15	MP7	PIPE_2.0	.248	48	5	.035	48		16	20866.7...	32130	1871.625	1871.625	2....	H1-1b
16	M15	6.5"x0.37" P...	.216	21	8	.113	21	y	42	3513.807	75757.5	583.963	6424.071	1....	H1-1b
17	M5	6.5"x0.37" P...	.216	21	12	.113	21	y	42	3513.807	75757.5	583.963	6424.074	1....	H1-1b
18	M10	6.5"x0.37" P...	.214	21	2	.109	21	y	47	3513.807	75757.5	583.963	6189.859	1....	H1-1b
19	M4	L2x2x3	.147	0	13	.038	0	y	41	18051.7...	23392.8	557.717	1239.29	2....	H2-1
20	M13	L2x2x3	.147	0	7	.038	0	z	43	18051.7...	23392.8	557.717	1239.29	2....	H2-1
21	M8	L2x2x3	.133	0	2	.037	0	z	38	18051.7...	23392.8	557.717	1239.29	2....	H2-1
22	M9	L2x2x3	.133	0	2	.037	0	y	46	18051.7...	23392.8	557.717	1239.29	2....	H2-1
23	M14	L2x2x3	.131	0	8	.038	0	y	35	18051.7...	23392.8	557.717	1239.29	2....	H2-1
24	M3	L2x2x3	.131	0	12	.038	0	z	49	18051.7...	23392.8	557.717	1239.29	2....	H2-1
25	H1	PIPE_3.5	.119	48	106	.074	24		10	60666.0...	78750	7953.75	7953.75	1....	H1-1b
26	H2	PIPE_3.5	.115	48	196	.068	72		4	60666.0...	78750	7953.75	7953.75	1....	H1-1b
27	H3	PIPE_3.5	.115	48	146	.068	24		16	60666.0...	78750	7953.75	7953.75	1....	H1-1b
28	M19	PIPE_2.0	.112	72	10	.104	24		2	14916.0...	32130	1871.625	1871.625	1....	H1-1b
29	M20	PIPE_2.0	.110	24	16	.097	72		8	14916.0...	32130	1871.625	1871.625	1....	H1-1b
30	M21	PIPE_2.0	.110	72	4	.097	24		12	14916.0...	32130	1871.625	1871.625	1....	H1-1b
31	M22	L6 5/8x4 7/...	.094	0	21	.028	0	y	3	15453.0...	66065.6...	1040.591	3031.076	2....	H2-1
32	M23	L6 5/8x4 7/...	.094	42	31	.028	42	y	17	15453.0...	66065.6...	1040.591	3031.076	2....	H2-1
33	M24	L6 5/8x4 7/...	.093	21	18	.026	0	y	14	15453.0...	66065.6...	1040.591	3031.076	1....	H2-1

APPENDIX D

ADDITIONAL CALCUATIONS

Trylon

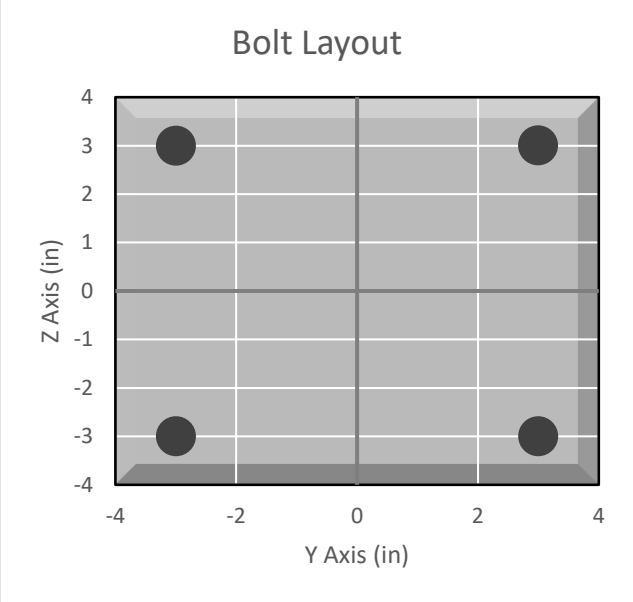
Analysis date: 8/3/2021

BOLT TOOL 1.5.2

Project Data	
Job Code:	189053
Carrier Site ID:	BOBDL00087A
Carrier Site Name:	CT-CCI-T-876335

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

Bolt Properties		
Connection Type:	Bolt	
Diameter:	0.75	in
Grade:	A529	--
Yield Strength (Fy):	50	ksi
Ultimate Strength (Fu):	65	ksi
Number of Bolts:	4	--
Threads Included:	Yes	--
Double Shear:	No	--
Connection Pipe Size:	-	in



Connection Description
Mount Standoff to Collar

Bolt Check*		
Tensile Capacity (ϕT_n):	16304.9	lbs
Shear Capacity (ϕV_n):	10768.5	lbs
Tension Force (T_u):	5242.2	lbs
Shear Force (V_u):	745.1	lbs
Tension Usage:	30.6%	--
Shear Usage:	6.6%	--
Interaction:	30.6%	Pass
Controlling Member:	M12	--
Controlling LC:	42	--

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

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

APPENDIX E

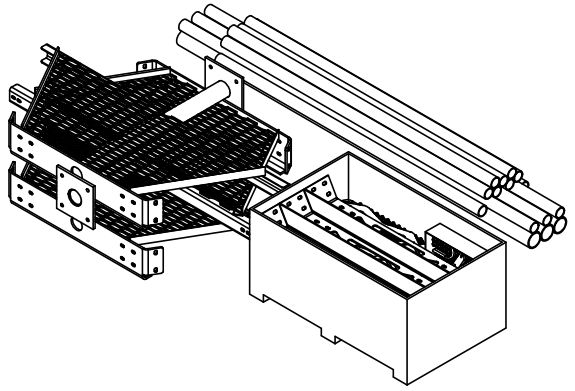
SUPPLEMENTAL DRAWINGS

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

C

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

FOR BOM ENTRY ONLY



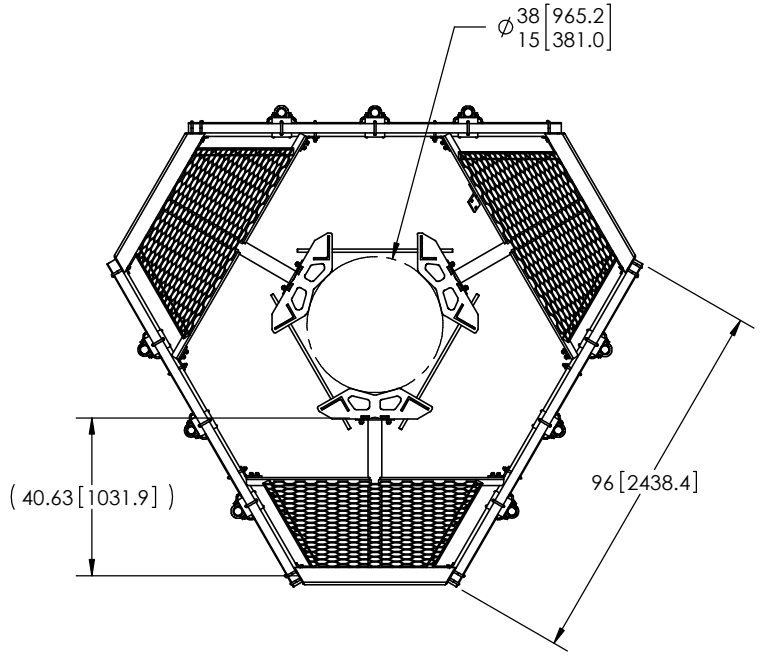
NOTES:
1. CUSTOMER ASSEMBLY SHEETS 2–3.

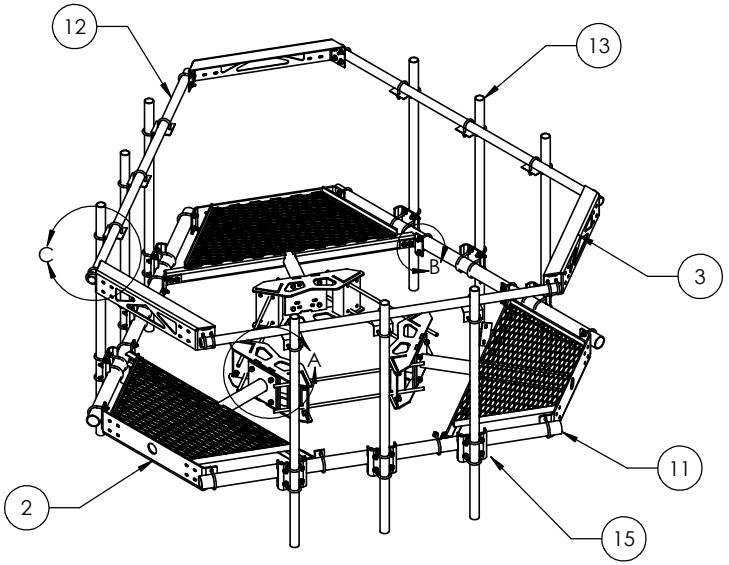
ALL DIMENSIONS ARE IN INCHES U.O.S.
TOLERANCES UNLESS OTHERWISE SPECIFIED:
.X = ± .12 ANGLES ±2°
.XX = ± .06 FRACTIONS ±1/32
.XXX= ± .03

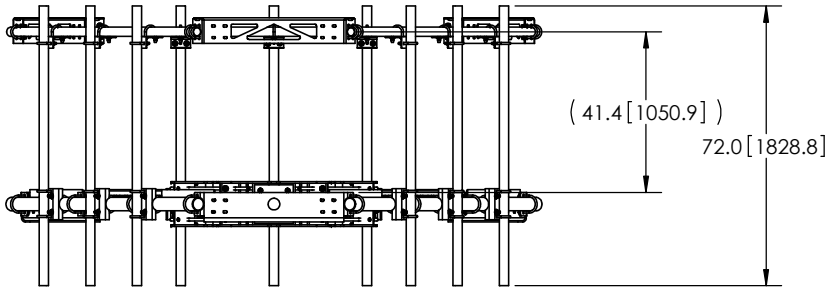
REMOVE BURRS AND BREAK EDGES .005

DO NOT SCALE THIS PRINT

DRAWN BY: MSM	SHEET: 1 of 3	PART NUMBER: MC-PK8-C	
CHECKED BY: TP	SCALE: NTS	DESCRIPTION: LOW PROFILE PLATFORM KIT 8' FACE	
DATE: 10/18/11	MATERIAL: A36, A500	DRAWING TYPE: ASSEMBLY DRAWING	
REVISION: C	FINISH: GALV A123	WEIGHT: 1410.14 LBS	ANDREW® WESTCHESTER, IL. 60154 U.S.A.





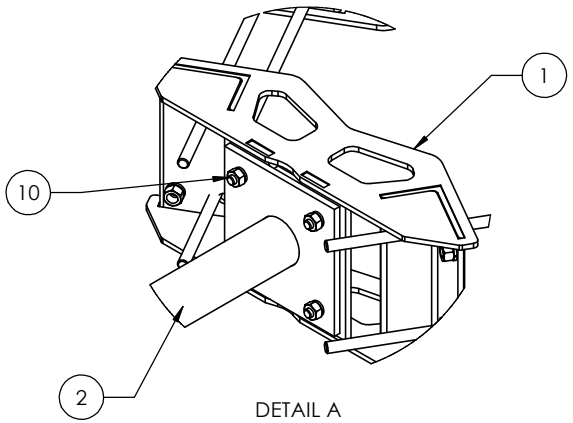


ITEM	PART NO.	DESCRIPTION	QTY.	WEIGHT
C 1	MC-RM1550-3	12" - 50" OD RINGMOUNT	1	230.42 LBS
2	MTC300601	Low Profile Co-Location Platform Snub Nose	3	134.21 LBS
3	MT195801	Corner Weldment Snub Nose Handrail	3	27.10 LBS
4	XA2020.01	CROSS OVER ANGLE	9	2.65 LBS
5	GUB-4356	1/2" X 3-5/8" X 6" GALV U-BOLT	18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

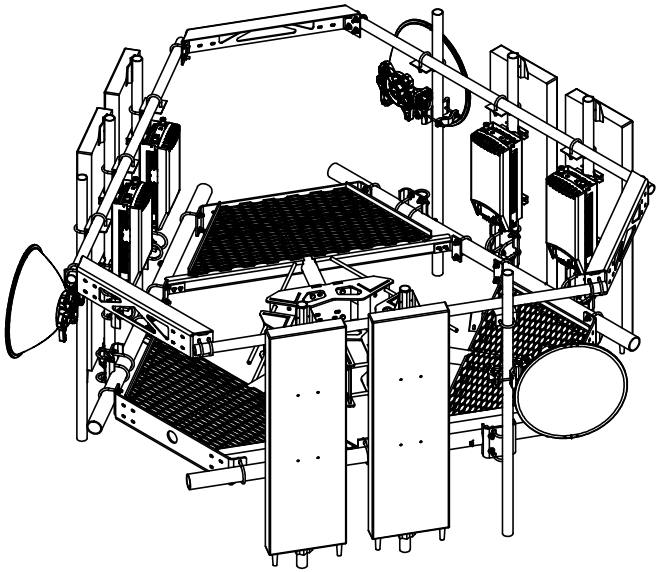
NOTES:
1. ALL METRIC DIMENSIONS ARE IN BRACKETS.
2. WILL FIT MONOPOLES 15"–38" OD.

ALL DIMENSIONS ARE IN INCHES U.O.S.
TOLERANCES UNLESS OTHERWISE SPECIFIED:
.X = ± .12 ANGLES ±2°
.XX = ± .06 FRACTIONS ±1/32
.XXX= ± .03
REMOVE BURRS AND BREAK EDGES .005
DO NOT SCALE THIS PRINT

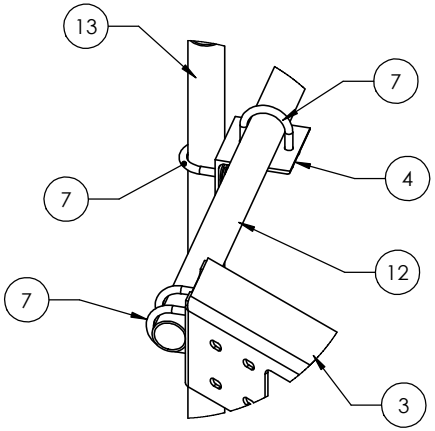
DRAWN BY: MSM	SHEET: 2 of 3	PART NUMBER: MC-PK8-C	
CHECKED BY: TP	SCALE: NTS	DESCRIPTION: 25" OD Snub Nose MT-196	
DATE: 10/18/11	MATERIAL: A36, A53	DRAWING TYPE: ASSEMBLY DRAWING	
REVISION: C	FINISH: GALV A123	ANDREW® WESTCHESTER, IL. 60154 U.S.A.	
	WEIGHT: 1361.27 LBS		



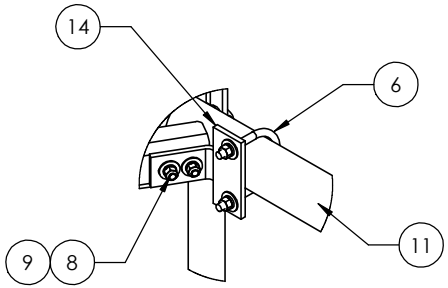
DETAIL A
SCALE 1 : 8



WITH ANTENNAS



DETAIL C
SCALE 1 : 8



DETAIL B
SCALE 1 : 8

NOTES:
1. ALL METRIC DIMENSIONS ARE IN BRACKETS.

ALL DIMENSIONS ARE IN INCHES U.O.S.
TOLERANCES UNLESS OTHERWISE SPECIFIED:
.X = ± .12 ANGLES ±2°
.XX = ± .06 FRACTIONS ±1/32
.XXX= ± .03
REMOVE BURRS AND BREAK EDGES .005

DO NOT SCALE THIS PRINT

DRAWN BY: MSM	SHEET: 3 of 3	PART NUMBER: MC-PK8-C	
CHECKED BY: TP	SCALE: NTS	DESCRIPTION: 25" OD Snub Nose MT-196	
DATE: 10/18/11	MATERIAL: A36, A53	DRAWING TYPE: ASSEMBLY DRAWING	
REVISION: C	FINISH: GALV A123	ANDREW® WESTCHESTER, IL. 60154 U.S.A.	
	WEIGHT: 1361.27 LBS		

Exhibit F

Power Density/RF Emissions Report

EBI Consulting

environmental | engineering | due diligence

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

Dish Wireless Existing Facility

Site ID: BOBDL00087A

876335
3 A Birdseye Road
Farmington, Connecticut 06030

August 30, 2021

EBI Project Number: 6221004803

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**20.50%**

August 30, 2021

Dish Wireless

Emissions Analysis for Site: BOBDL00087A - 876335

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **3 A Birdseye Road** in **Farmington, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless Wireless antenna facility located at 3 A Birdseye Road in Farmington, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 4 n71 channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 4 n70 channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

3) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

4) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

5) The antennas used in this modeling are the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz channel(s) in Sector A, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz channel(s) in Sector B, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

6) The antenna mounting height centerline of the proposed antennas is 118 feet above ground level (AGL).

7) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

8) All calculations were done with respect to uncontrolled / general population threshold limits.

Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21
Frequency Bands:	600 MHz / 1900 MHz	Frequency Bands:	600 MHz / 1900 MHz	Frequency Bands:	600 MHz / 1900 MHz
Gain:	17.45 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd
Height (AGL):	118 feet	Height (AGL):	118 feet	Height (AGL):	118 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	280 Watts	Total TX Power (W):	280 Watts	Total TX Power (W):	280 Watts
ERP (W):	3,065.51	ERP (W):	3,065.51	ERP (W):	3,065.51
Antenna A1 MPE %:	**1.26%**	Antenna B1 MPE %:	**1.26%**	Antenna C1 MPE %:	**1.26%**

Site Composite MPE %	
Carrier	**MPE %**
Dish Wireless (Max at Sector A):	1.26%
Sprint	0.72%
Metro PCS	1.72%
Verizon	8.05%
T-Mobile	6.4%
AT&T	2.35%
Site Total MPE % :	20.50%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	1.26%
Dish Wireless Sector B Total:	1.26%
Dish Wireless Sector C Total:	1.26%
Site Total MPE % :	20.50%

Dish Wireless Maximum MPE Power Values (Sector A)

Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
Dish Wireless 600 MHz n71	4	223.68	118.0	2.56	600 MHz n71	400	0.64%
Dish Wireless 1900 MHz n70	4	542.70	118.0	6.22	1900 MHz n70	1000	0.62%
						Total:	**1.26%**

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

Summary

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

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

Dish Wireless Sector	Power Density Value (%)
Sector A:	1.26%
Sector B:	1.26%
Sector C:	1.26%
Dish Wireless Maximum MPE % (Sector A):	1.26%
Site Total:	20.50%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **20.50%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Exhibit G

Letter of Authorization

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

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

Crown Castle Letter of Authorization

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

Re: Tower Share Application
Crown Castle telecommunications site at: 3 A BIRDSEYE ROAD, FARMINGTON, CT 06030

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: 876335/EAST FARMINGTON
Customer Site ID: BOBDL00087A/CT-CCI-T-876335
Site Address: 3 A Birdseye Road, Farmington, CT 06030

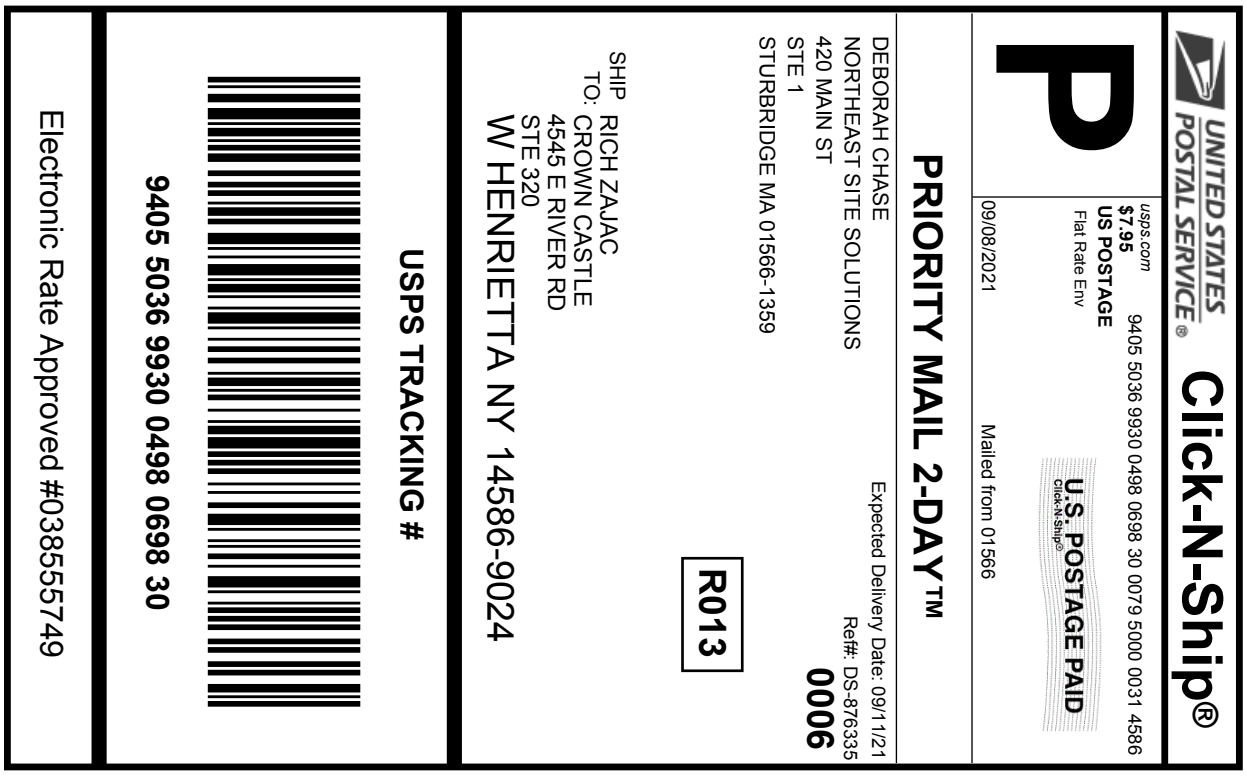
Crown Castle

By: _____ Date: 8/18/2021

Richard Zajac
Site Acquisition Specialist

Exhibit H

Recipient Mailings



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0498 0698 30

Trans. #:	543108524
Print Date:	09/08/2021
Ship Date:	09/08/2021
Expected Delivery Date:	09/11/2021

Priority Mail® Postage:	**$7.95**
Total:	**$7.95**

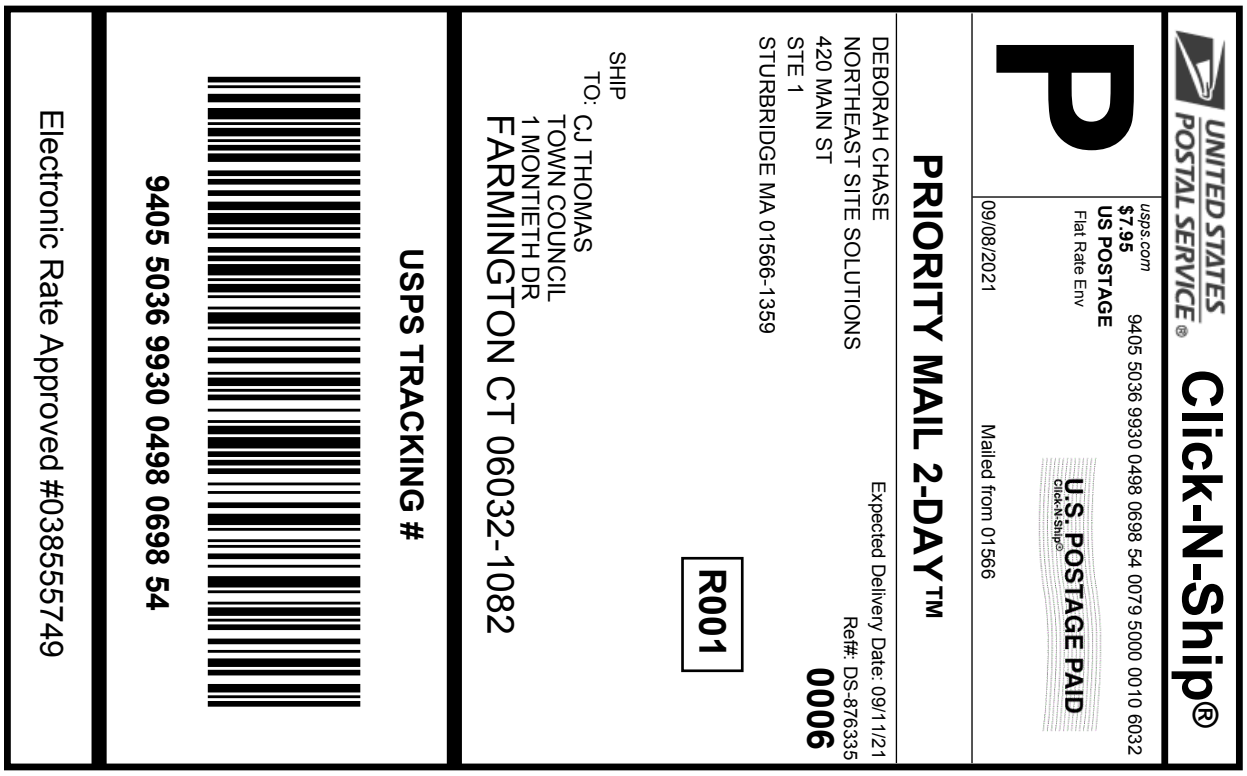
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DS-876335

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

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

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



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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0498 0698 54

Trans. #:	543108524
Print Date:	09/08/2021
Ship Date:	09/08/2021
Expected Delivery Date:	09/11/2021

Priority Mail® Postage:	**$7.95**
Total:	**$7.95**

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

Ref#: DS-876335

To: CJ THOMAS
TOWN COUNCIL
1 MONTIETH DR
FARMINGTON CT 06032-1082

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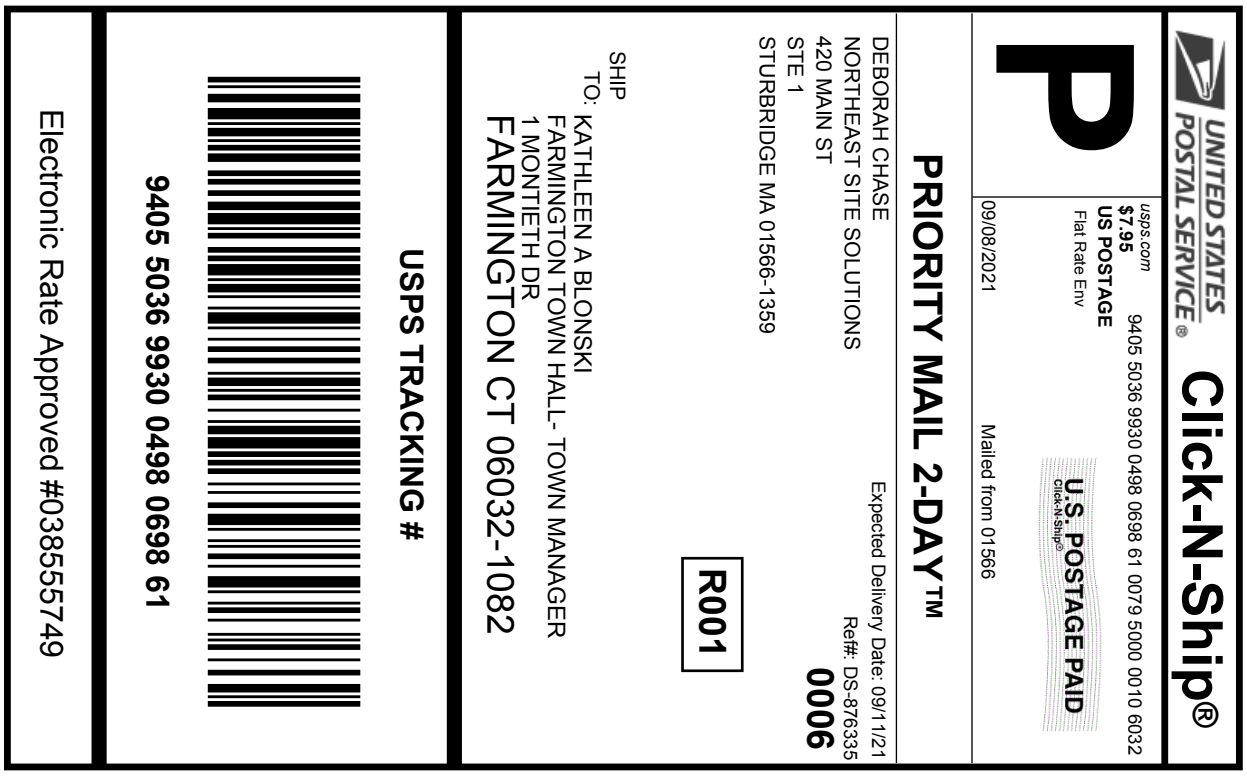

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0498 0698 61

Trans. #:	543108524
Print Date:	09/08/2021
Ship Date:	09/08/2021
Expected Delivery Date:	09/11/2021

Priority Mail® Postage:	**$7.95**
Total:	**$7.95**

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

Ref#: DS-876335

To: KATHLEEN A BLONSKI
FARMINGTON TOWN HALL- TOWN MANAGER
1 MONTIETH DR
FARMINGTON CT 06032-1082

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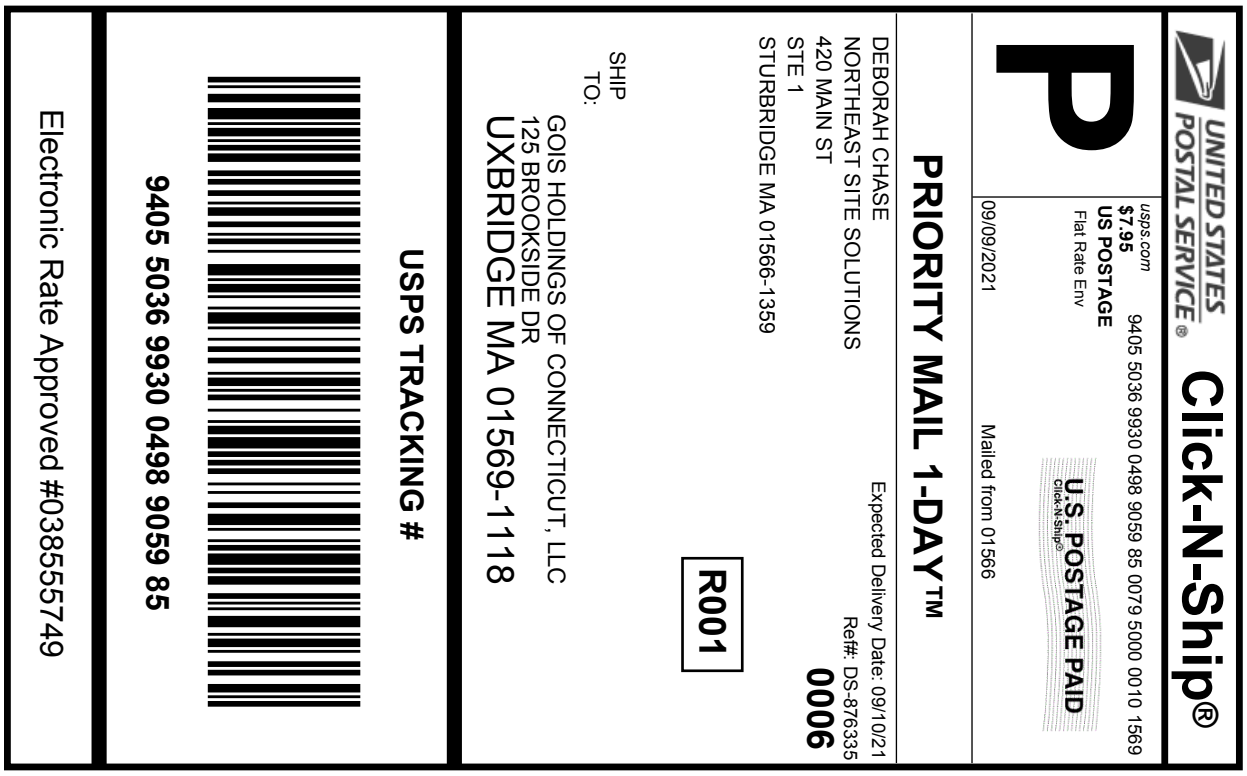

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0498 9059 85

Trans. #:	543175363
Print Date:	09/09/2021
Ship Date:	09/09/2021
Expected Delivery Date:	09/10/2021

Priority Mail® Postage:	**$7.95**
Total:	**$7.95**

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

Ref#: DS-876335

To: GOIS HOLDINGS OF CONNECTICUT, LLC
125 BROOKSIDE DR
UXBRIDGE MA 01569-1118

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876335

UNITED STATES POSTAL SERVICE.

FISKDALE
458 MAIN ST
FISKDALE, MA 01518-9998
(800)275-8777

09/09/2021 02:14 PM

Product	Qty	Unit Price	Price
Prepaid Mail Uxbridge, MA 01569 Weight: 1 lb 14.50 oz Acceptance Date: Thu 09/09/2021 Tracking #: 9405 5036 9930 0498 9059 85	1		$0.00
Prepaid Mail Farmington, CT 06032 Weight: 1 lb 14.90 oz Acceptance Date: Thu 09/09/2021 Tracking #: 9405 5036 9930 0498 0698 61	1		$0.00
Prepaid Mail West Henrietta, NY 14586 Weight: 1 lb 14.70 oz Acceptance Date: Thu 09/09/2021 Tracking #: 9405 5036 9930 0498 0698 30	1		$0.00
Prepaid Mail Farmington, CT 06032 Weight: 1 lb 14.80 oz Acceptance Date: Thu 09/09/2021 Tracking #: 9405 5036 9930 0498 0698 54	1		$0.00
Grand Total:			$0.00