NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

March 9, 2022

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

RE: Tower Share Application
123 Campville Hill Road, Harwinton, CT 06791
Latitude: 41.736786
Longitude: -73.097041
Site #: 876376_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 123 Campville Hill Road, Harwinton, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 MHz 5G antennas and six (6) RRUs, at the 144-foot level of the existing 180-foot monopole, one (1) Fiber cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within a 7' x 5' lease area within the existing fenced compound. Included are plans by Kimley Horn, dated March 2, 2022, Exhibit C. Also included is a structural analysis prepared by Crown Castle, dated September 2, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. The facility was approved by the Town of Harwinton Planning & Zoning Commission on June 26, 2000, although a copy of the decision was not available.

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 Michael R. Criss, First Selectman and Jeffrey Neumann, Building Official for the Town of Harwinton, as well as the tower owner (Crown Castle) and property owner (Harwinton Rod & Gun Club).

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the existing tower is 180-feet and the Dish Wireless LLC antennas will be located at a centerline height of 144-feet.

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

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. The combined site operations will result in a total power density of 17.50% 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 submits that the shared use of this facility satisfies these criteria.

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

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this monopole in Harwinton. 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 144-foot level of the existing 180-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

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

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

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

NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Attachments

Cc: Michael R. Criss, First Selectman
Town of Harwinton
100 Bentley Drive
Harwinton CT, 06791

Jeffrey Neumann, Building Official
Town of Harwinton
100 Bentley Drive
Harwinton CT, 06791

Harwinton Rod & Gun Club, Property Owner
PO Box 181
Harwinton CT, 06791

Crown Castle, Tower Owner

Exhibit A

Original Facility Approval

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
Web Site: www.ct.gov/csc

February 4, 2004

Kenneth C. Baldwin
Robinson & Cole
280 Trumbull Street
Hartford, CT 06103-3597

RE: **EM-VER-066-040108** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 123 Campville Hill Road, Harwinton, Connecticut.

Dear Attorney Baldwin:

At a public meeting held on February 3, 2004, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated January 8, 2004. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

Pamela B. Katz

Pamela B. Katz, P.E.
Chairman

PBK/laf

c: Honorable Marie M. Knudsen, First Selectman, Town of Harwinton
William J. Tracy, Jr., Planning Chairman, Town of Harwinton
Thomas J. Regan, Esq., Brown Rudnick Berlack Israels LLP
Stephen J. Humes, Esq., LeBoeuf, Lamb, Green & MacRae LLP
Christopher B. Fisher, Esq., Cuddy & Feder LLP

G:\em\bam-ver\harwinton\dc020304.doc

CSC
CONNECTICUT SITING COUNCIL

Exhibit B

Property Card

qPublic.net™ Town of Harwinton, CT

Summary

ParcelId	1225
Account Number	2581
Location Address	123 CAMPVILLE HILL
Map-Block-Lot	A4 /05 /0002
Use Class/Description	1-1 RES LAND
Assessing Neighborhood	0001A
Census Tract	298400000000
Acreage	49
Utilities	

Owner

HARWINTON ROD & GUN CLUB
PO BOX 181
HARWINTON, CT 06791

Current Appraised Value

		2019	2018	2017
+	Building Value	$196,600	$196,600	$205,400
+	XF Value	$0	$0	$0
+	OB Value	$0	$0	$0
+	Land Value	$594,300	$594,300	$391,460
+	Special Land Value			
+	Total Appraised Value	$790,900	$790,900	$596,860
+	Net Appraised Value	$790,900	$790,900	$596,860
+	Current Assessment	$324,650	$324,650	$220,070

Assessment History

		2018	2017	2016	2015
+	Building Value	$137,620	$143,780	$143,780	$143,780
+	OB/Misc	$0	$0	$0	$0
+	Land	$187,030	$76,290	$76,290	$76,290
+	Total Assessment	$324,650	$220,070	$220,070	$220,070

Land

Use	Class	Zoning	Area	Value
1-1 RES LAND	R	CR2	2 AC	$75,900
6-2 FOREST LD	R		47 AC	$338,400
3-1 IND LAND	I		1 BL	$180,000

Building Data

Building #	1
Style	Camp
Actual Year Built	1977
Effective Year Built	1980
Living Area	5892
Stories	1
Grade	Average
Exterior Wall	Wood on Sheath
Interior Wall	Wall Brd/Wood
Fireplaces	
Roof Cover	Asph/F Gls/Cmp
Roof Structure	Gable/Hip
Floor Type	Average
Heat Type	Forced Air-Duc
Fuel Type	Oil
AC	None
Bdrms/Ful Bth/Hlf Bth/Ttl Rm	0/1/0/2

Building Sub Areas

Code	Description	Living Area	Gross Area	Effective Area
BAS	First Floor	5892	5892	5892
FST	Utility Storage	0	2400	1200
PTO	Patio	0	210	21
	Totals	5892	8502	7113

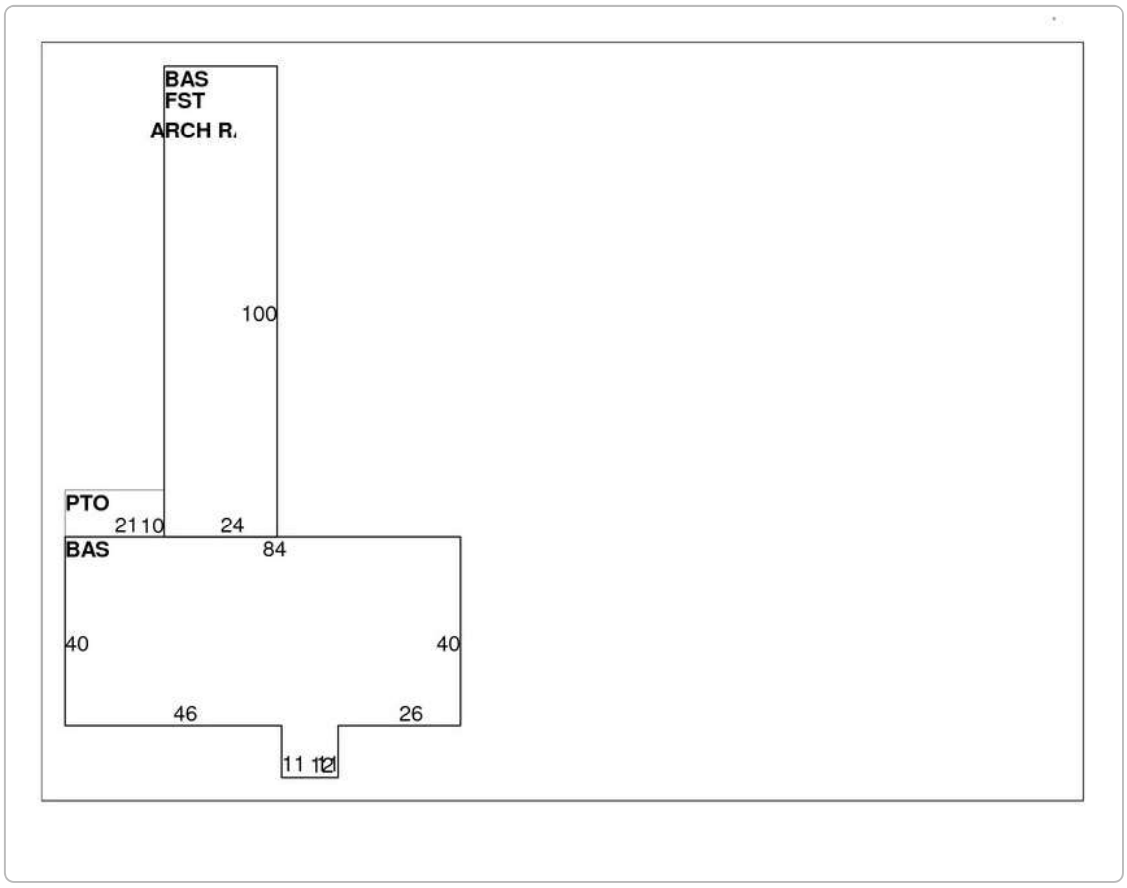
Sales History

Sales Date	Type of Document	Grantee	Vacant/Improved	Book/Page	Amount
12-30-1997	Q	HARWINTON ROD & GUN CLUB	Improved	0152/0053	$50,000
07-08-1957		SLATE ALICE	Improved	0049/0488	$0

Permit Information

Permit ID	Issue Date	Type	Description	Amount	Inspection Date	% Complete	Date Complete	Comments
19171B	12-06-2019		14X20 PAVILLION	$6,000		100		
1864E	11-05-2019		STAND BY GENERATOR	$8,500		100		
198E	01-31-2019	EL	Electric	$2,500		100		
17164B	11-09-2017		ADD 3 ANTENNAS	$20,000		100		
176CA	02-06-2017	CO	CO ISSUED	$0		100		T-MOBILE
16146B	08-02-2016		CONCRETE PATIO 30X30	$6,175		0		
1647E	03-08-2016	EL	Electric	$2,500		0		
9416	10-24-2014		MODIFICATIONS	$20,000		0		
8760	01-17-2013		FACILITY MODIFICATIO	$25,000		0		
8757	01-02-2013		ANTENNA SWAP	$10,000		0		
8704	11-21-2012		ANTENNAS	$12,000		0		
8339	01-13-2012			$92		0		REPLACING 6 ANTENNAS WITH NEWER MODELS
7560	09-28-2009	DE	Demolish	$1,500		0		
0000	09-10-2009	CO	CO ISSUED	$0		0		
7495	07-14-2009	EL	Electric	$3,000		0		
7486	07-01-2009	AD	Addition	$31,395		0		CEL TOWER
	03-17-2009	EL	Electric	$0		0		INSTALLING ANTENNAS & RADIO
7201	07-09-2008			$28,000		0		NEW VINYL SIDING
6437	06-21-2008	EL	Electric	$8,000		0		

Sketch



Photos

No data available for the following modules: Commercial Building, Out Buildings\Extra Features.

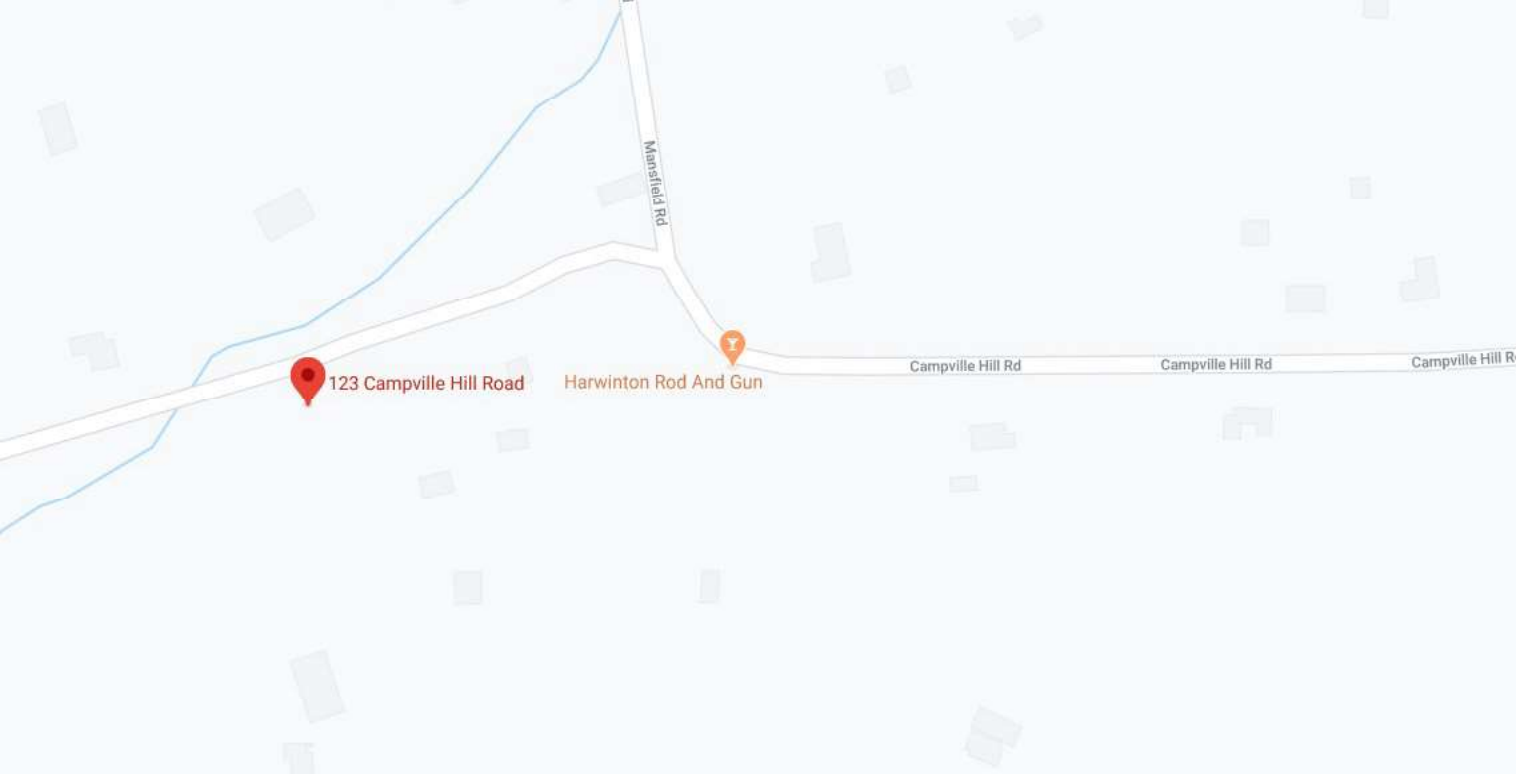

Mansfield Rd
123 Campville Hill Road
Harwinton Rod And Gun
Campville Hill Rd
Campville Hill Rd
Campville Hill R

Exhibit C

Construction Drawings

DISH Wireless L.L.C. SITE ID:

BOHVN00028A

DISH Wireless L.L.C. SITE ADDRESS:

123 CAMPVILLE HILL RD
HARWINTON, CT 06791

CONNECTICUT CODE OF COMPLIANCE

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

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

SHEET INDEX

SCOPE OF WORK

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

TOWER SCOPE OF WORK:
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALL (1) PROPOSED ANTENNA PLATFORM MOUNT
- 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:
- REMOVE ABANDONED PLATFORM AND H-FRAME
- INSTALL (1) PROPOSED METAL PLATFORM
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)
- UTILIZE EXISTING METER SOCKET
- UTILIZE EXISTING ICE BRIDGE

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:	HARWINTON ROD & GUN CLUB
ADDRESS:	PO BOX 181 HARWINTON, CT 06791
TOWER TYPE:	MONOPOLE
CROWN CASTLE SITE ID:	876376
CROWN CASTLE APP NUMBER:	553367
COUNTY:	LITCHFIELD
LATITUDE (NAD 83):	41° 44' 12.40" N 41.73677778° N
LONGITUDE (NAD 83):	73° 5' 49.40" W 73.09705556° W
ZONING JURISDICTION:	CONNECTICUT SITING COUNCIL
ZONING DISTRICT:	CR – COUNTY RESIDENTIAL
PARCEL NUMBER:	1225
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	EVERSOURCE
TELEPHONE COMPANY:	CHARTER COMMUNICATIONS

PROJECT DIRECTORY

APPLICANT:	DISH WIRELESS, LLC. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317 (877) 486-9377
SITE DESIGNER:	KIMLEY-HORN & ASSOCIATES 3875 EMBASSY PKWY, SUITE 280 AKRON, OH 44333 (216) 505-7771 COA #: PEC.0000738
SITE ACQUISITION:	VICTOR NUNEZ (917) 563-3682
CONSTRUCTION MANAGER:	CHAD WILCOX CHAD.WILCOX@DISH.COM
RF ENGINEER:	SYED ZAIDI SYED.ZAIDI@DISH.COM

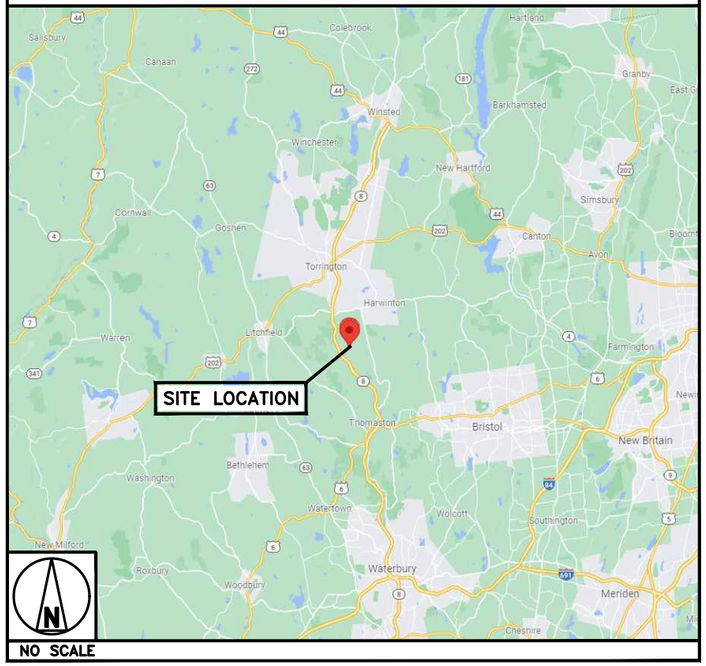
DIRECTIONS

03/02/22
Exp. 01/31/23

DIRECTIONS FROM LAGUARDIA AIRPORT:

x GET ON GRAND CENTRAL PKWY
x DRIVE FROM HUTCHINSON RIVER PKWY N, I-95 N AND CT-8 N TO LITCHELD. TAKE EXIT 41 FROM CT-8 N
x CONTINUE ON CAMPVILLE RD. DRIVE TO CAMPVILLE HILL RD IN HARWINTON

VICINITY MAP



NO SCALE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn

COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN J. BREWER
29510
LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
JRG	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/30/2021	ISSUED FOR REVIEW
0	03/02/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE-16440

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00028A
123 CAMPVILLE HILL RD
HARWINTON, CT 06791

SHEET TITLE

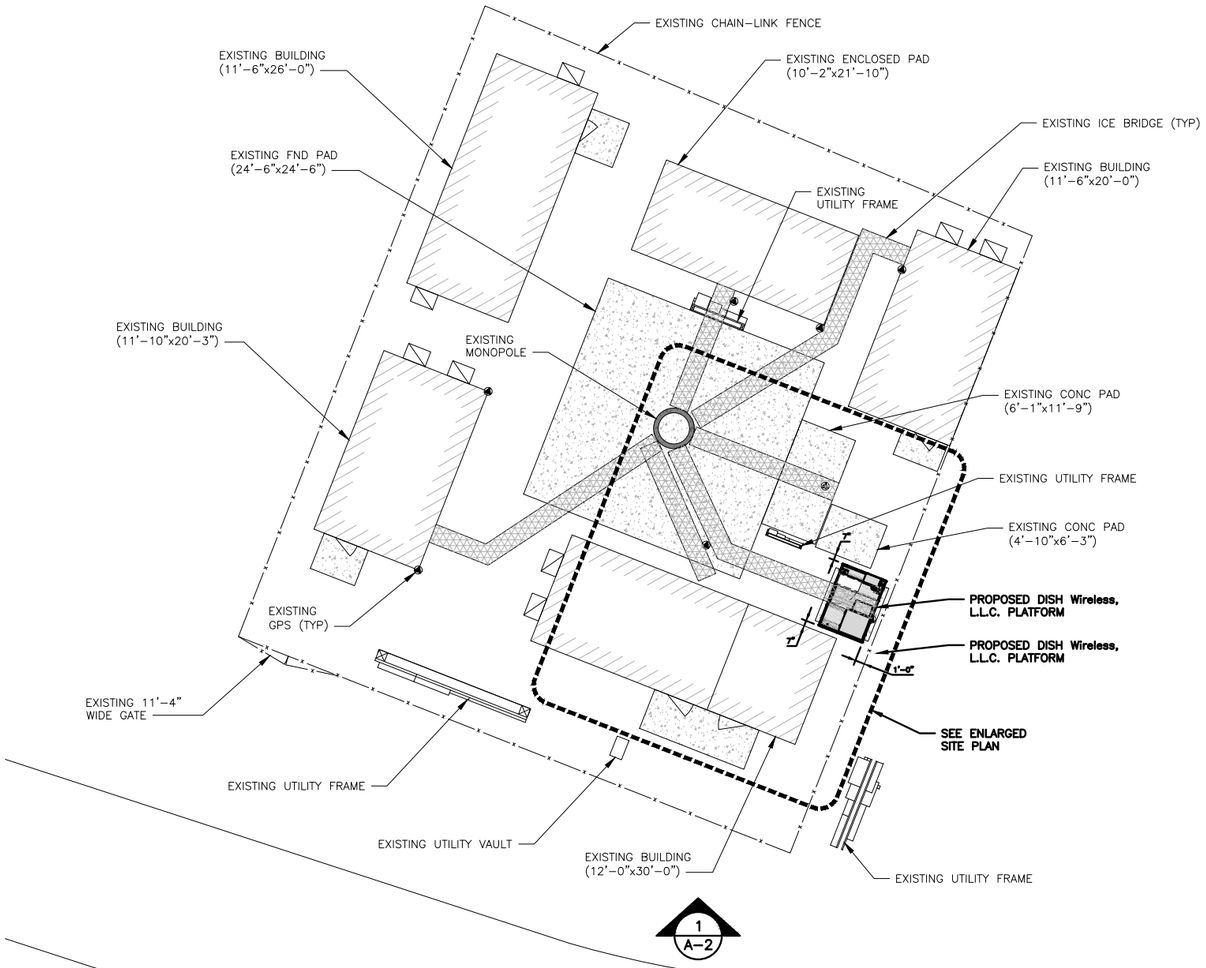
TITLE SHEET

SHEET NUMBER

T-1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNAS, MOUNTS, AND EXISTING ABANDONED CONCRETE PAD/H-FRAME TO BE REMOVED OMITTED FOR CLARITY.



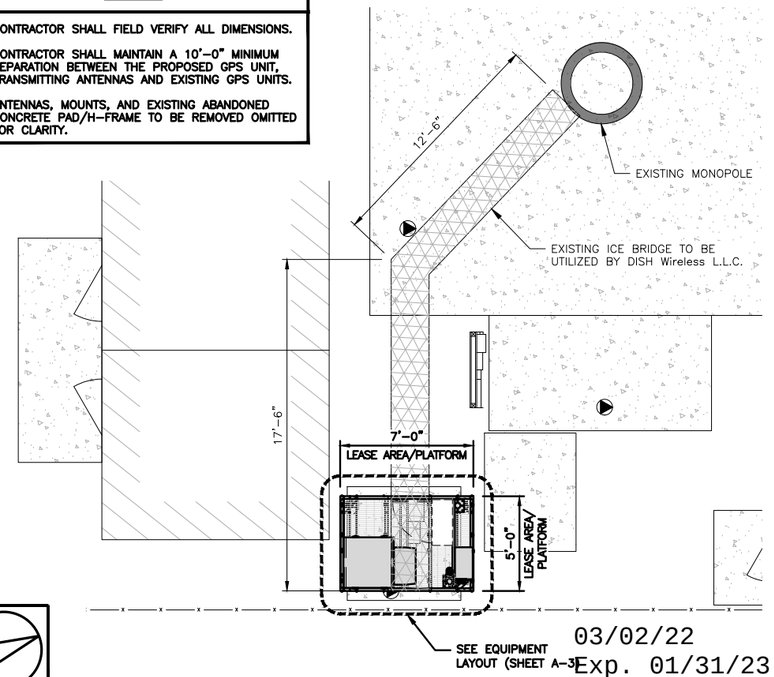
OVERALL SITE PLAN

8' 4' 0 8' 16'
1/8"=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, MOUNTS, AND EXISTING ABANDONED CONCRETE PAD/H-FRAME TO BE REMOVED OMITTED FOR CLARITY.



03/02/22
Exp. 01/31/23

ENLARGED SITE PLAN

4' 2' 0 4' 8'
1/4"=1'-0"

2

NOT USED

NO SCALE

3

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn

COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN J. BREWER
29510
LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
JRG	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/30/2021	ISSUED FOR REVIEW
0	03/02/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE-16440

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00028A
123 CAMPVILLE HILL RD
HARWINTON, CT 06791

SHEET TITLE

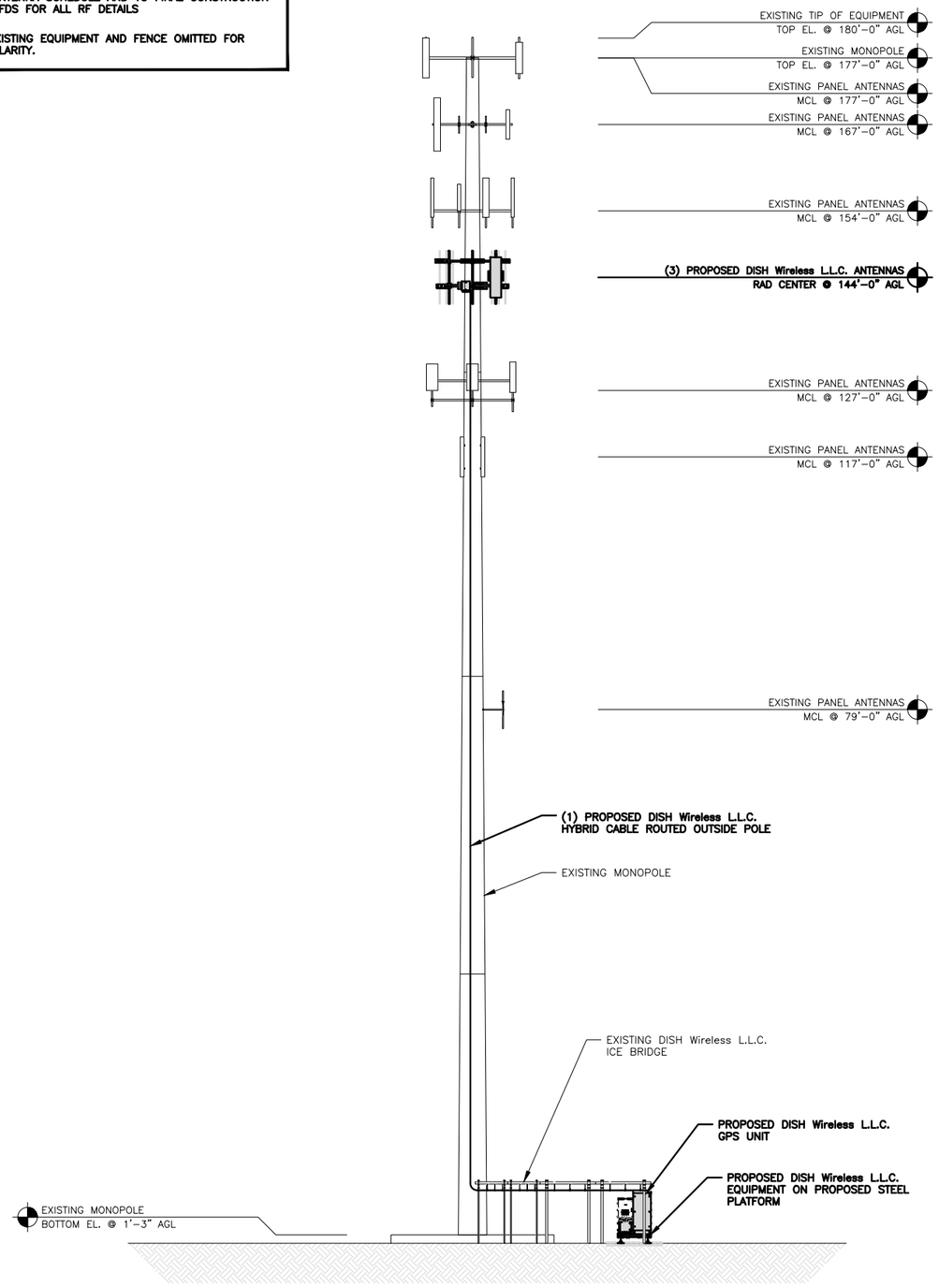
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

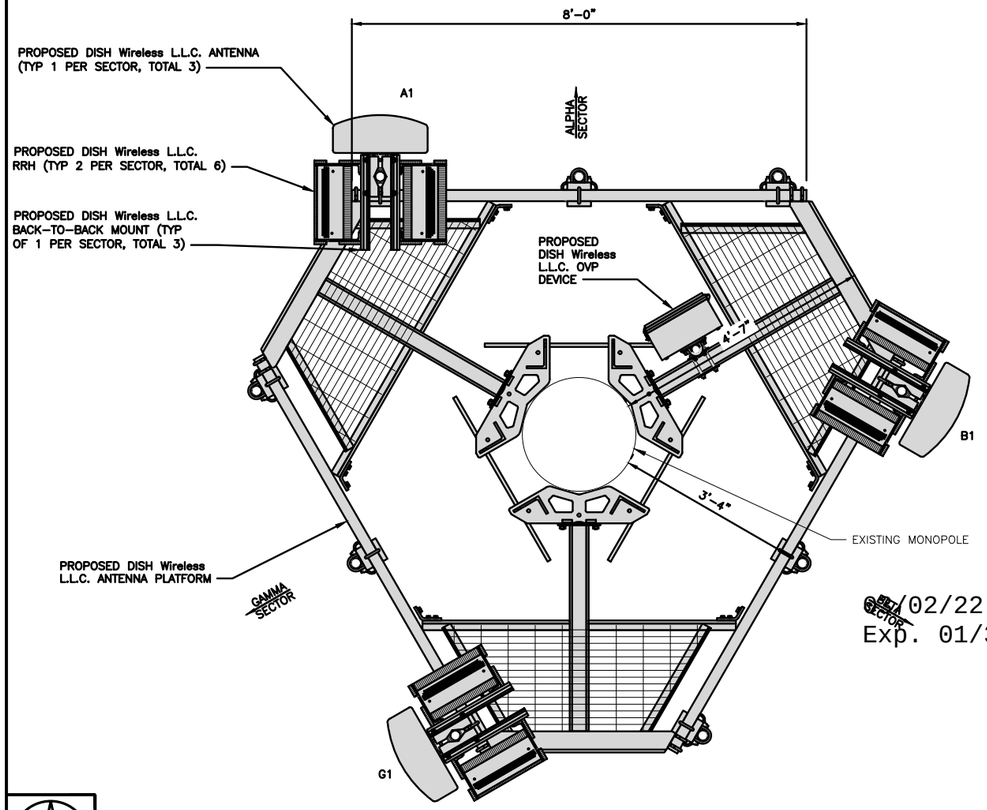
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED SOUTH ELEVATION

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

1



ANTENNA LAYOUT

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

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	0°	144'-0"	(1) HIGH-CAPACITY HYBRID CABLE (200'-0" LONG)
BETA	B1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	120°	144'-0"	
GAMMA	G1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	240°	144'-0"	

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	G1	FUJITSU – TA08025-B604	5G
	G1	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

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn

COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN J. BREWER
29510
LICENSED PROFESSIONAL ENGINEER

02/02/22
Exp. 01/31/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
JRG	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/30/2021	ISSUED FOR REVIEW
0	03/02/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE-16440

DISH Wireless L.L.C.
PROJECT INFORMATION

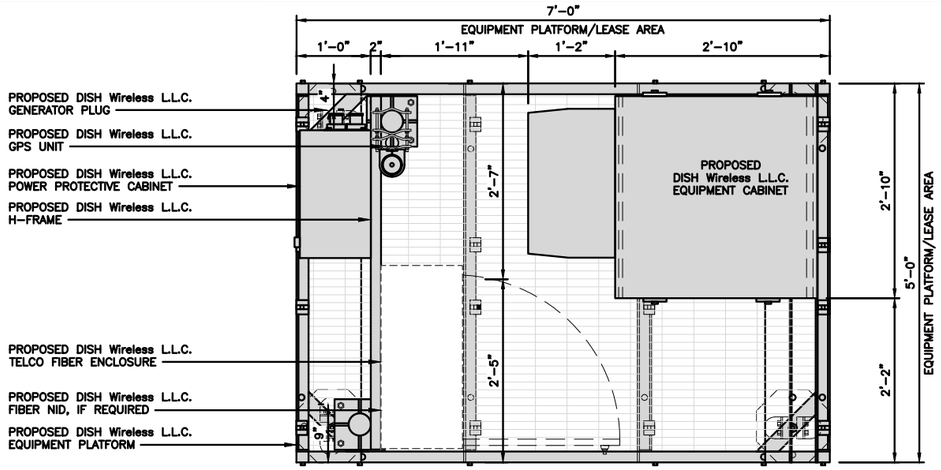
BOHVN00028A
123 CAMPVILLE HILL RD
HARWINTON, CT 06791

SHEET TITLE

ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



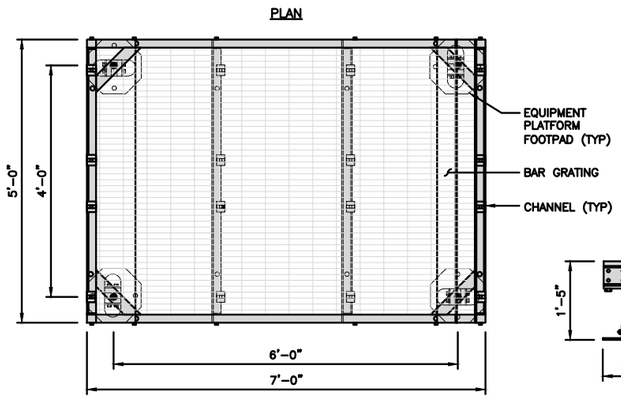
PLATFORM EQUIPMENT PLAN

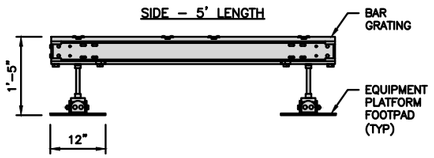
12" 9" 6" 3" 0 1' 2'
1"=1'-0"

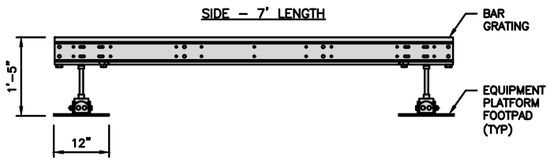
1

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

NOTE:
1. GC TO PROVIDE EXTENDED THREAD FOR PLATFORM IF REQUIRED HEIGHT EXCEEDS 17"
2. PLATFORM TO BE LEVEL WITHIN 1"

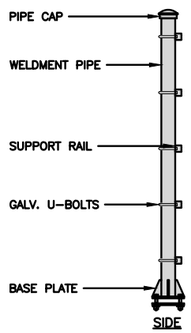




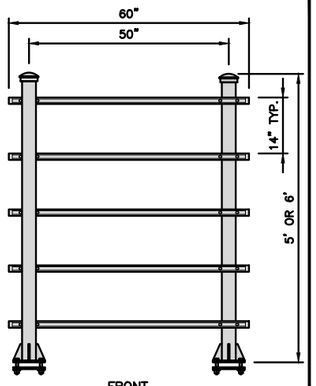


PLATFORM DETAIL | NO SCALE | 2

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



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

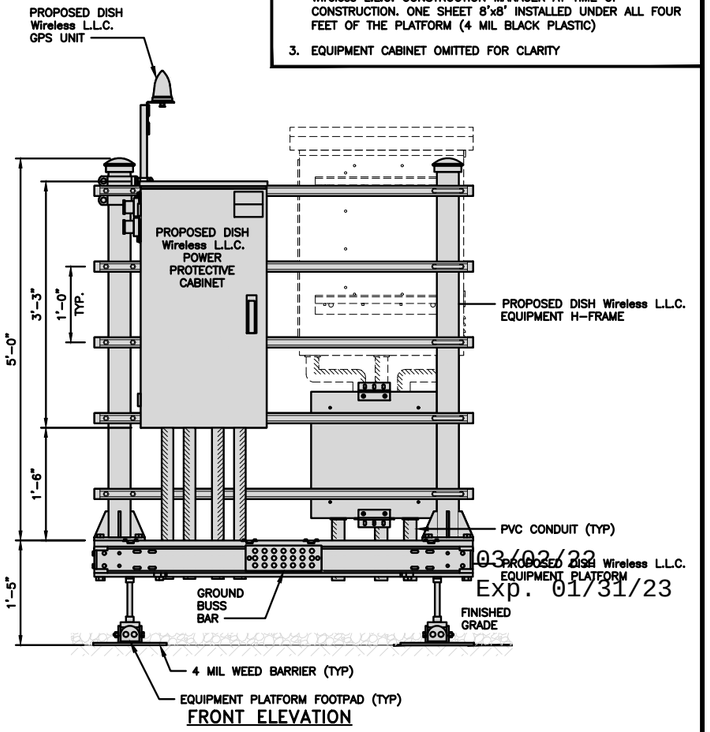


H-FRAME DETAIL | NO SCALE | 3

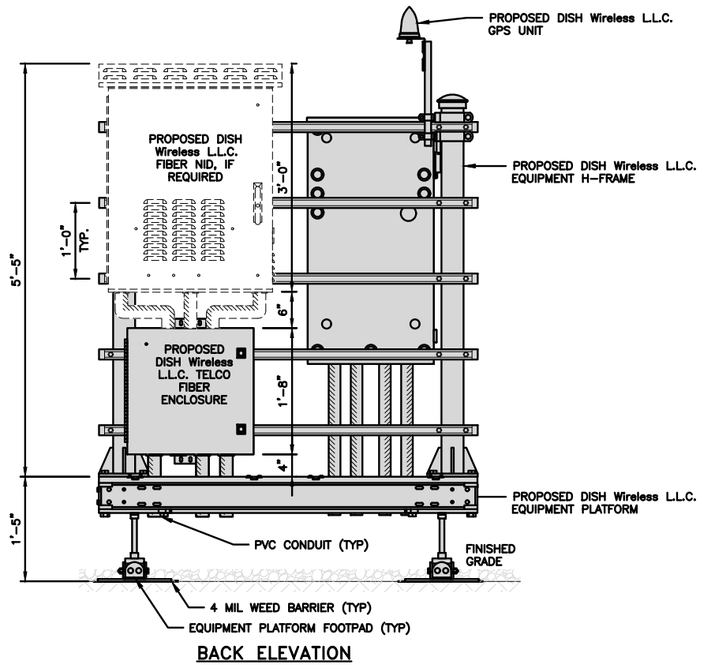
NOT USED | NO SCALE | 4

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

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn
COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN J. BREWER
29510
LICENSED PROFESSIONAL ENGINEER

03/02/22
Exp. 01/31/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
JRG	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/30/2021	ISSUED FOR REVIEW
0	03/02/2022	ISSUED FOR CONSTRUCTION

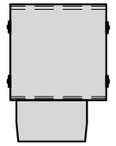
A&E PROJECT NUMBER
KHCLE-16440

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00028A
123 CAMPVILLE HILL RD
HARWINTON, CT 06791

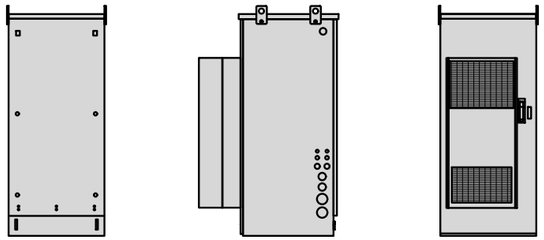
SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-3

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



PLAN

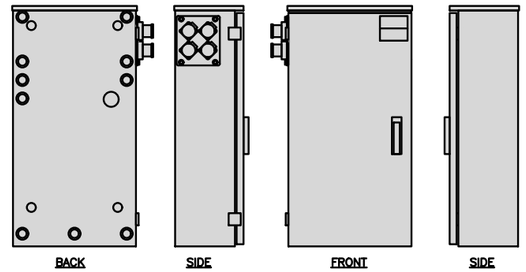


BACK SIDE FRONT

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

TOP



BACK SIDE FRONT SIDE

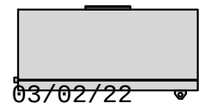
POWER PROTECTION CABINET (PPC) DETAIL — NO SCALE — 2

NOT USED — NO SCALE — 3

NOT USED — NO SCALE — 4

NOT USED — NO SCALE — 5

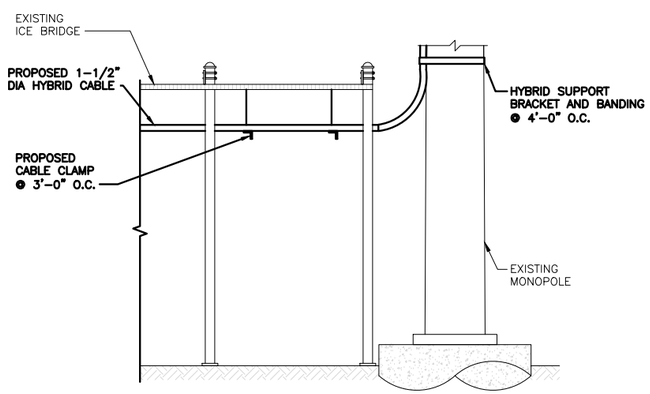
CHARLES CFIT–PF2020DSH1 FIBER TELCO ENCLOSURE	
ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4



FRONT

SIDE BACK FRONT

FIBER TELCO ENCLOSURE DETAIL — NO SCALE — 6



HYBRID CABLE RUN — NO SCALE — 9

NOT USED — NO SCALE — 7

NOT USED — NO SCALE — 8

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn

COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN J. BREWER
29510
LICENSED PROFESSIONAL ENGINEER

03/02/22
Exp. 01/31/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
JRG	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/30/2021	ISSUED FOR REVIEW
0	03/02/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE–16440

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00028A
123 CAMPVILLE HILL RD
HARWINTON, CT 06791

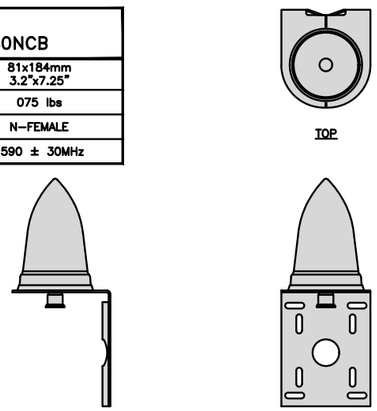
SHEET TITLE

EQUIPMENT DETAILS

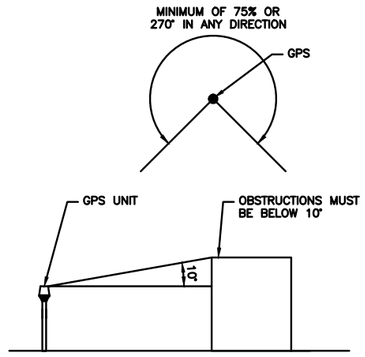
SHEET NUMBER

A-4

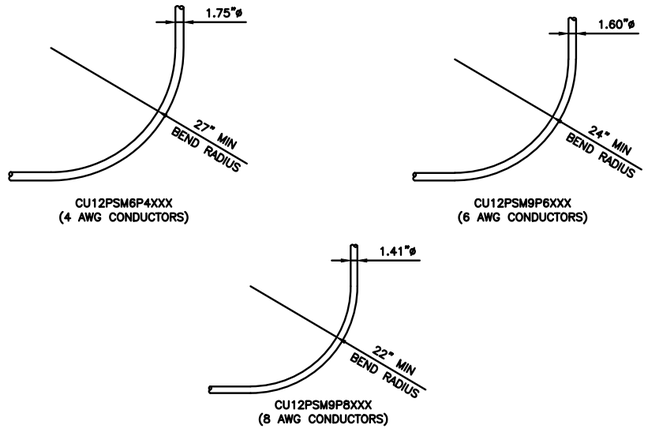
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



GPS DETAIL | NO SCALE | 1



GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 2



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

03/02/22
Exp. 01/31/23

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn

COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN J. BREWER
29510
LICENSED
PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
JRG	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/30/2021	ISSUED FOR REVIEW
0	03/02/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE-16440

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00028A
123 CAMPVILLE HILL RD
HARWINTON, CT 06791

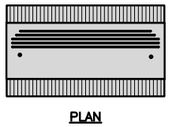
SHEET TITLE

EQUIPMENT DETAILS

SHEET NUMBER

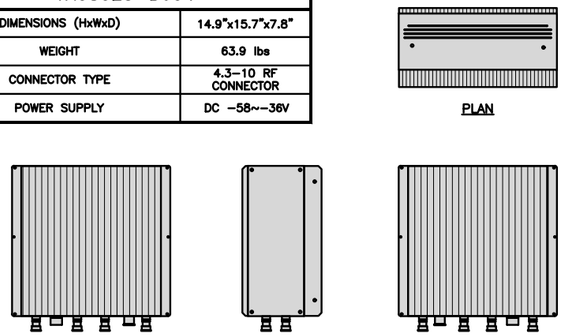
A-5

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



RRH DETAIL | NO SCALE | 1

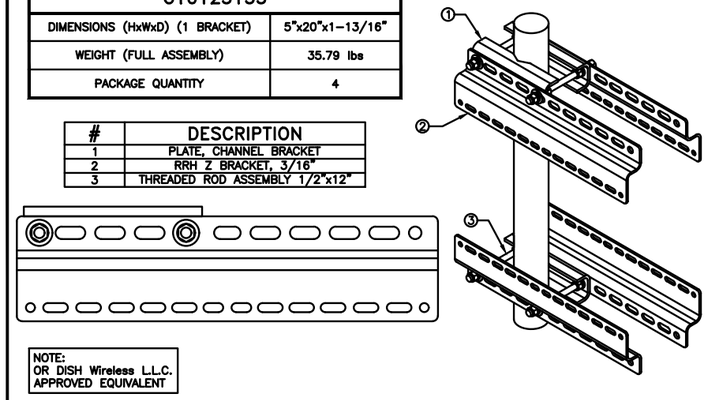
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



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

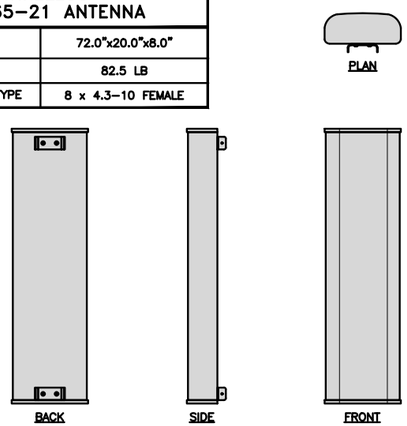
#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/16"
3	THREADED ROD ASSEMBLY 1/2"x12"



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

RRH MOUNT DETAIL | NO SCALE | 3

JMA WIRELESS MX08FRO665-21 ANTENNA	
DIMENSIONS (HxWxD)	72.0"x20.0"x8.0"
TOTAL WEIGHT	82.5 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE



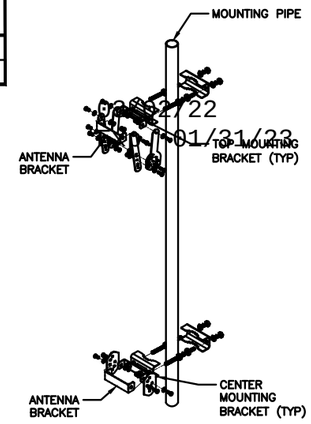
ANTENNA DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

JMA ANTENNA MOUNTING BRACKET #91900318	
TOTAL WEIGHT (WITH BRACKETS)	18 lbs (8.18 Kg)
POLE DIAMETER RANGE	2.5 TO 4.5 INCHES

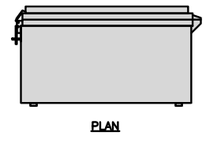
NOTE:
KIT #91900318: TOP AND BOTTOM BRACKETS FOR 4-,6-, AND 8-FOOT ANTENNAS

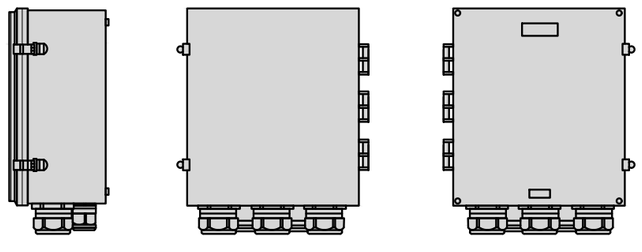
ANTENNA BRACKET NOT PART OF KIT



ANTENNA BRACKET DETAIL | NO SCALE | 6

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

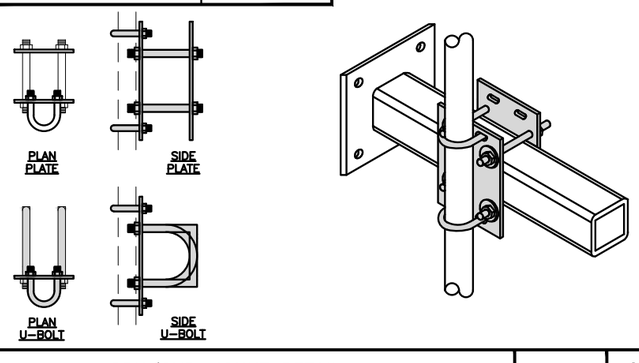




SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

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

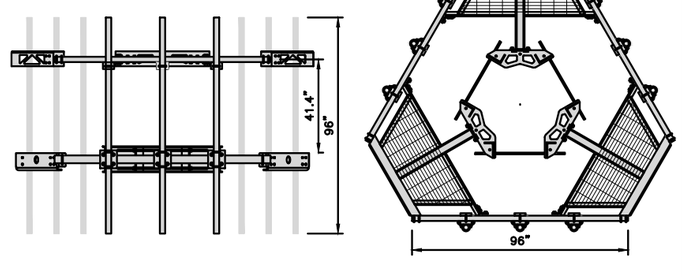
NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT



RRH/OVP MOUNT DETAIL | NO SCALE | 8

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

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



ANTENNA PLATFORM DETAIL | NO SCALE | 9

DISH Wireless L.L.C. TEMPLATE VERSION 43 - 09/17/2021

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn

COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN J. BRUNET
29510
LICENSED PROFESSIONAL ENGINEER
01/31/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
JRG	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/30/2021	ISSUED FOR REVIEW
0	03/02/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
KHCLE-16440

DISH Wireless L.L.C.
PROJECT INFORMATION

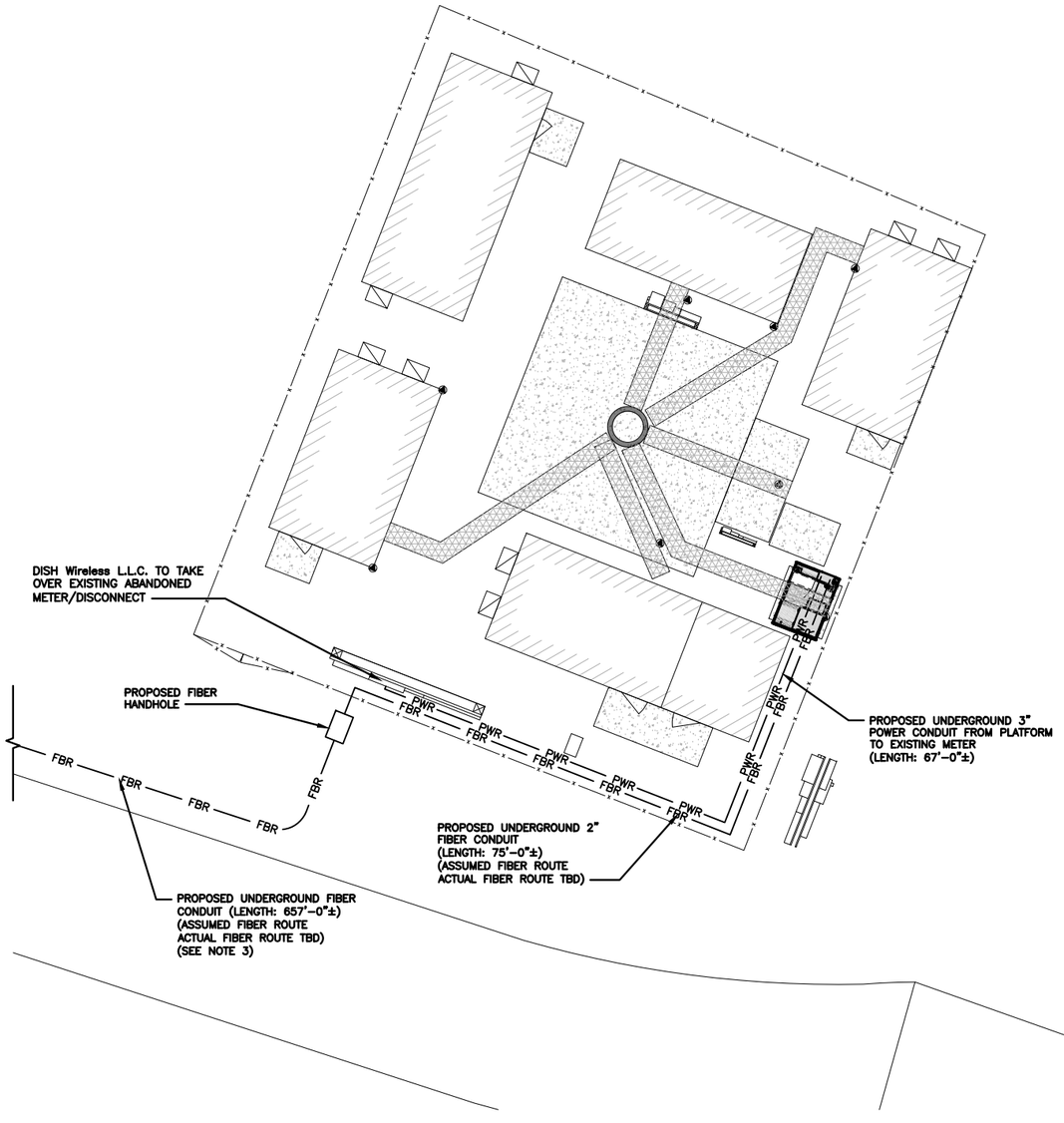
BOHVN00028A
123 CAMPVILLE HILL RD
HARWINTON, CT 06791

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.
3. THE GROUND LEASE PROVIDES BROAD/BLANKET UTILITY RIGHTS. "PWR" AND "FBR" PATH DEPICTED ON A–1 AND E–1 ARE BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO FIELD VERIFICATION, PRIOR PROJECT DOCUMENTATION AND OTHER REAL PROPERTY RIGHTS DOCUMENTS. WHEN INSTALLING THE UTILITIES PLEASE LOCATE AND FOLLOW EXISTING PATH. IF EXISTING PATH IS NOT AN OPTION, PLEASE NOTIFY TOWER OWNER AS FURTHER COORDINATION MAY BE NEEDED.



UTILITY ROUTE PLAN

8' 4' 0 8' 16'
1/8"=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.

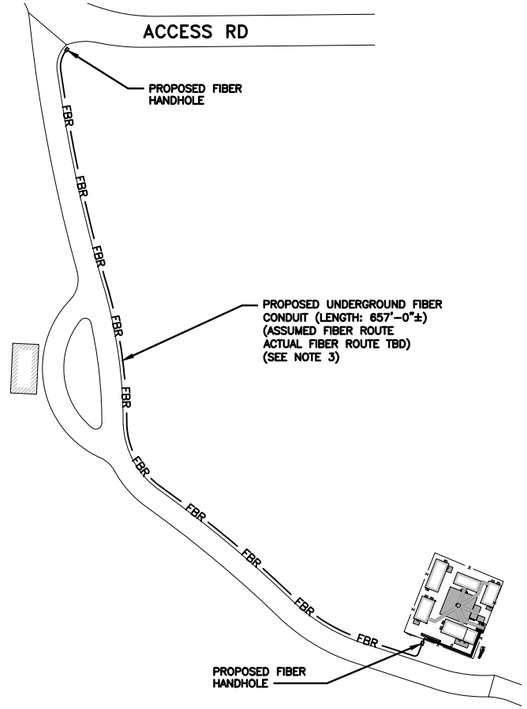
1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, 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

03/02/22
Exp. 01/31/23

ELECTRICAL NOTES

NO SCALE

2



OVERALL UTILITY ROUTE PLAN

64' 32' 0 64' 128'
1/64"=1'–0"

3

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn

COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN J. BREWER
29510
LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
JRG	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/30/2021	ISSUED FOR REVIEW
0	03/02/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE–16440

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00028A
123 CAMPVILLE HILL RD
HARWINTON, CT 06791

SHEET TITLE

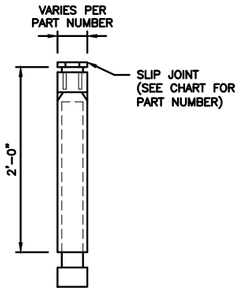
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

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"

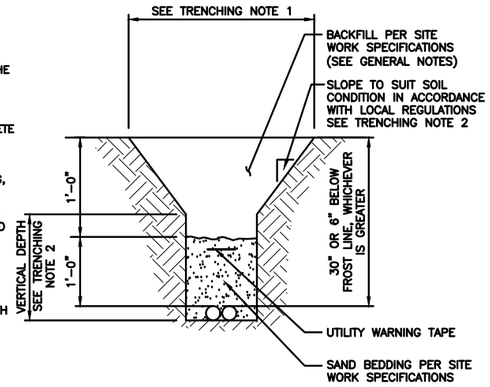


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

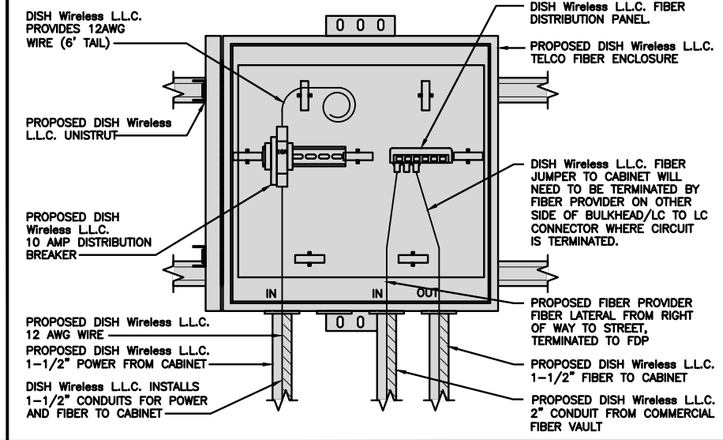
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

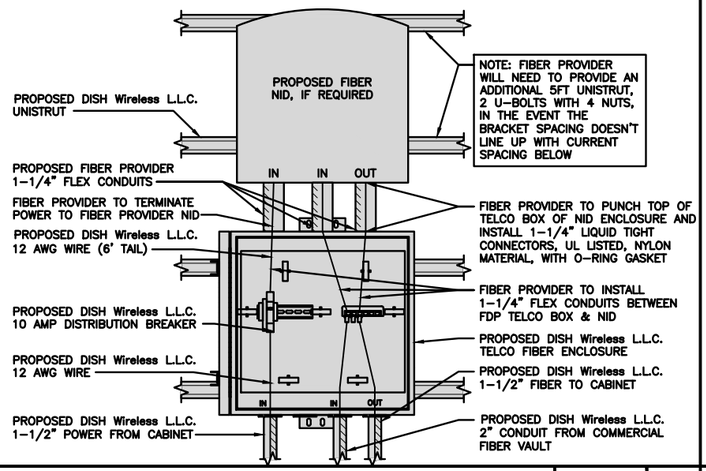
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT 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



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



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

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

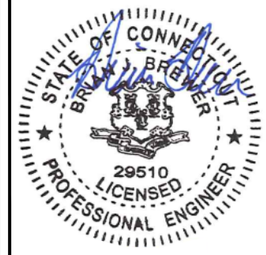
NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

03/02/22
Exp. 01/31/23

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn
COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601



DRAWN BY:	CHECKED BY:	APPROVED BY:
JRG	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

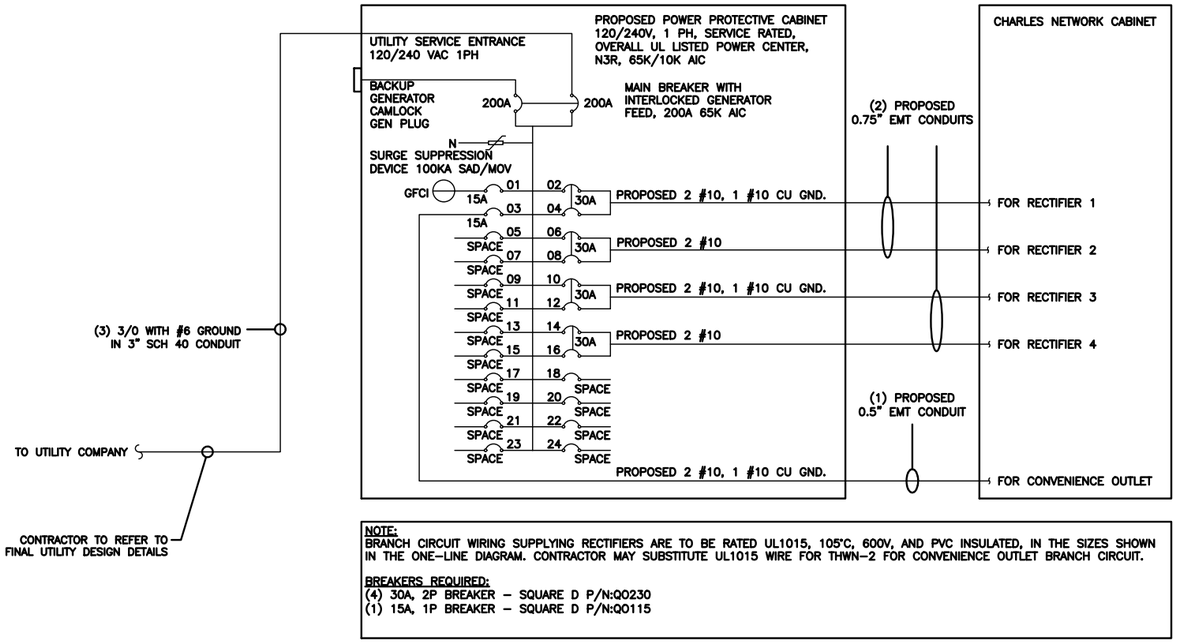
REV	DATE	DESCRIPTION
A	09/30/2021	ISSUED FOR REVIEW
0	03/02/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
KHCLE-16440

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00028A
123 CAMPVILLE HILL RD
HARWINTON, CT 06791

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

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

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

03/02/22
EXP. 01/31/23

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

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn
COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT · BRIAN J. BRUNET · 29510 · LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
JRG	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

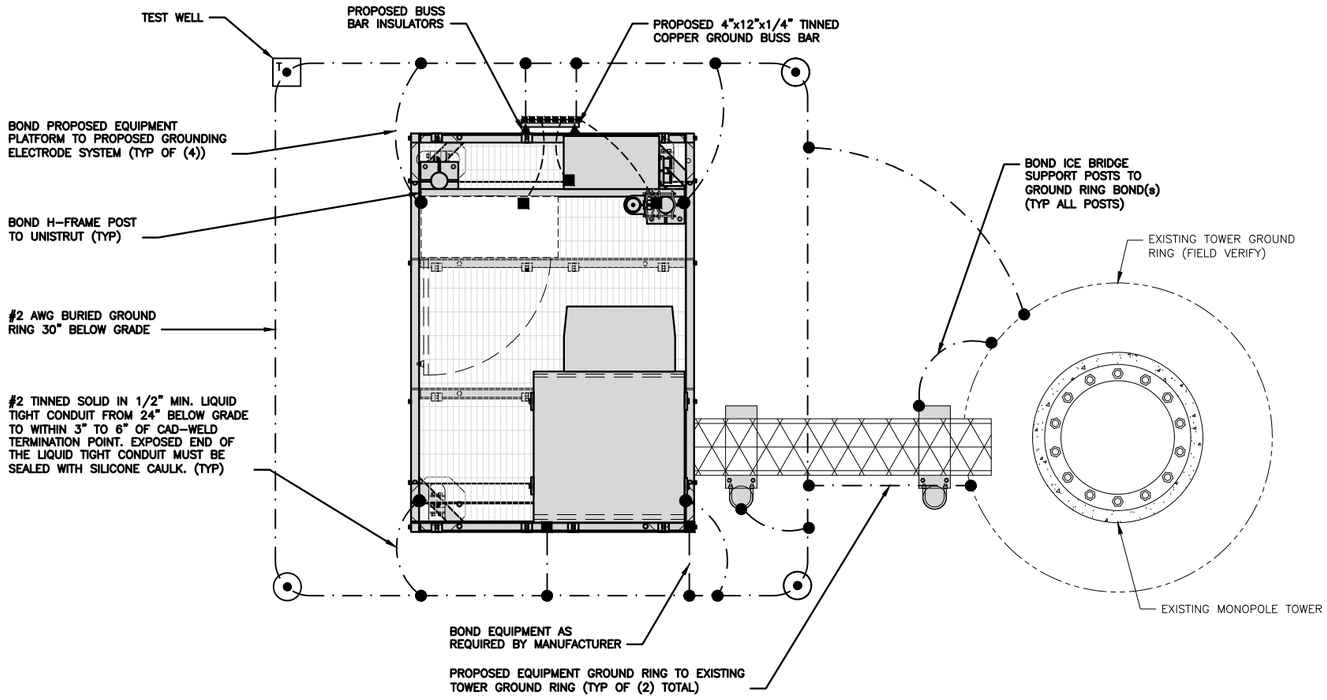
REV	DATE	DESCRIPTION
A	09/30/2021	ISSUED FOR REVIEW
0	03/02/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
KHCLE-16440

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00028A
123 CAMPVILLE HILL RD
HARWINTON, CT 06791

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

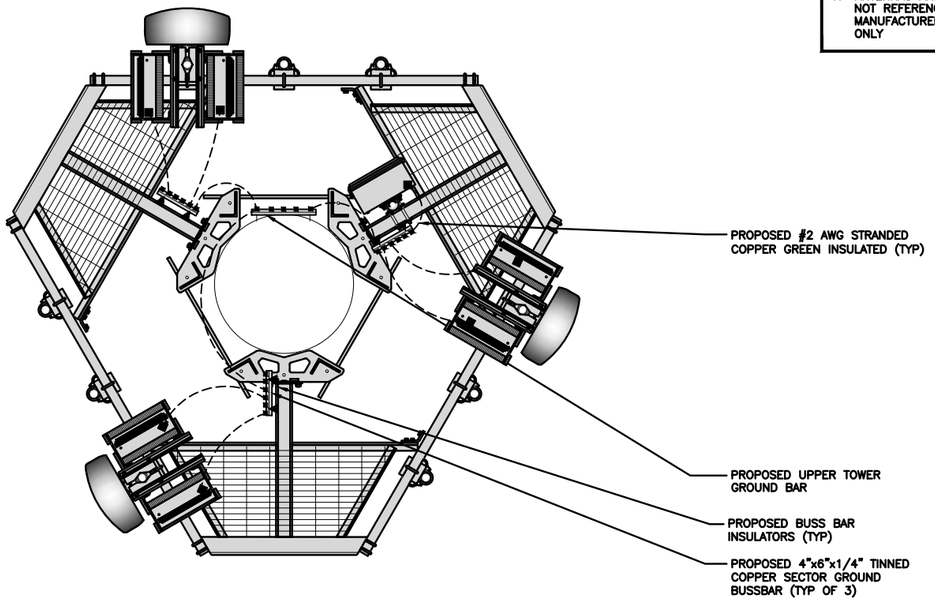
SHEET NUMBER
E-3



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

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn
COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT · BRIAN J. BREWER · 29510 · LICENSED PROFESSIONAL ENGINEER

03/02/22
EXPIRES: 12/31/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
JRG	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/30/2021	ISSUED FOR REVIEW
0	03/02/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
KHCLE-16440

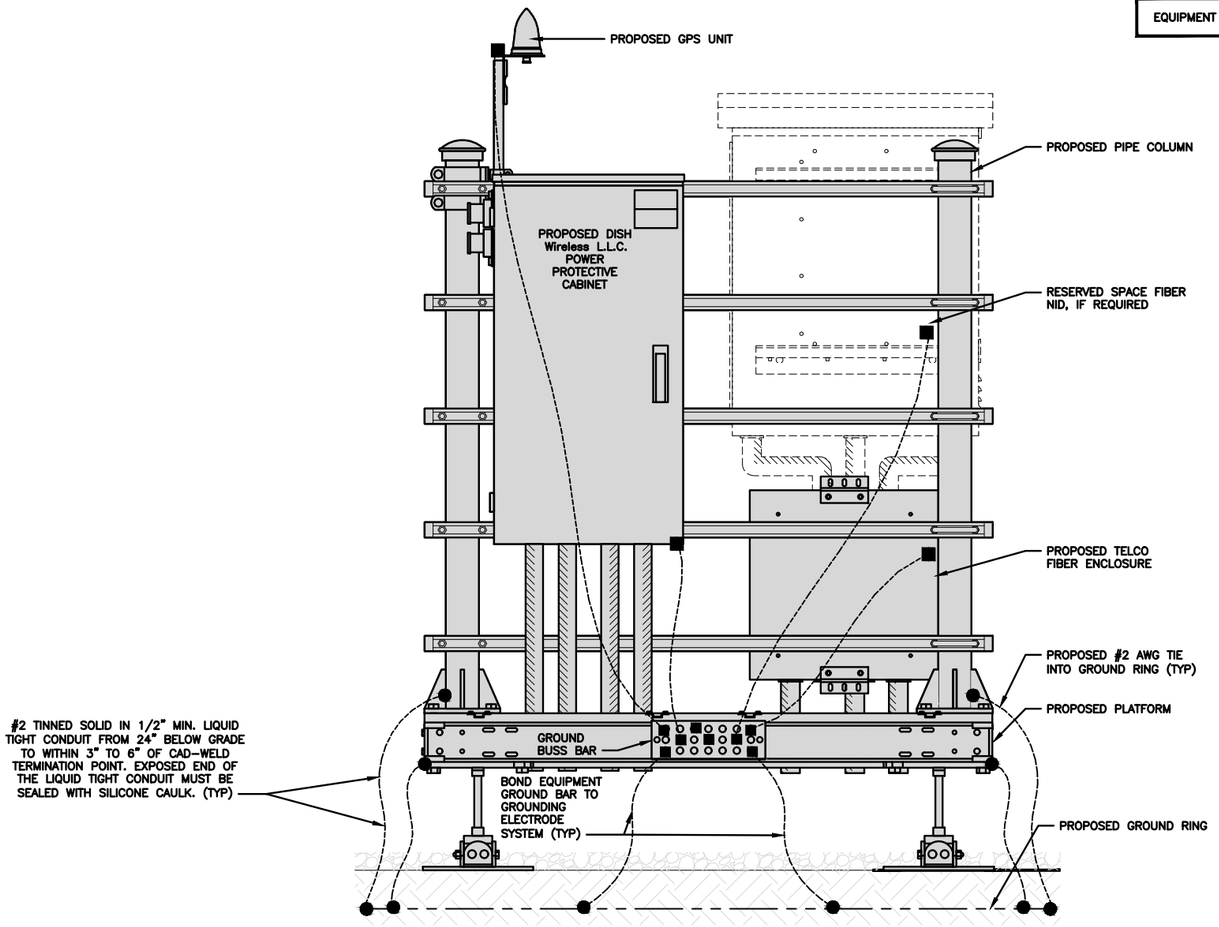
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00028A
123 CAMPVILLE HILL RD
HARWINTON, CT 06791

SHEET TITLE
GROUNDING PLANS AND NOTES

SHEET NUMBER
G-1

NOTES

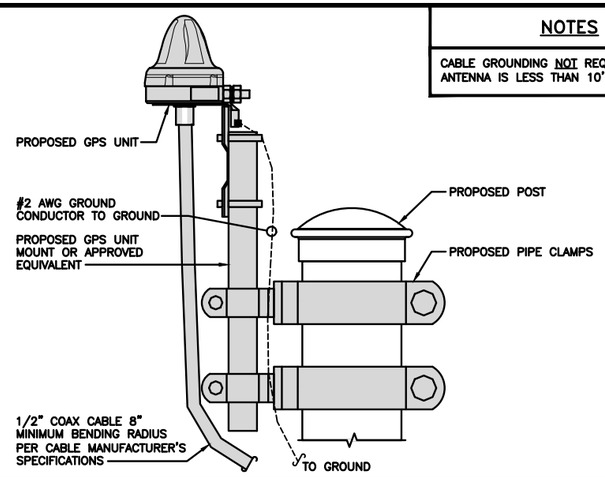
EQUIPMENT CABINET OMITTED FOR CLARITY



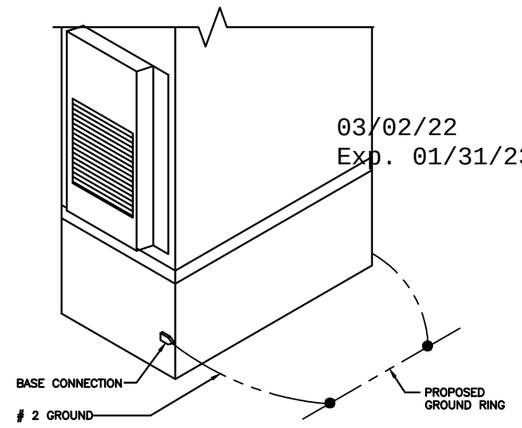
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

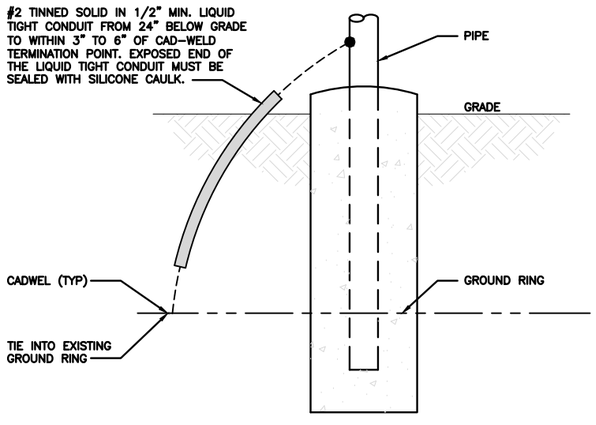
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



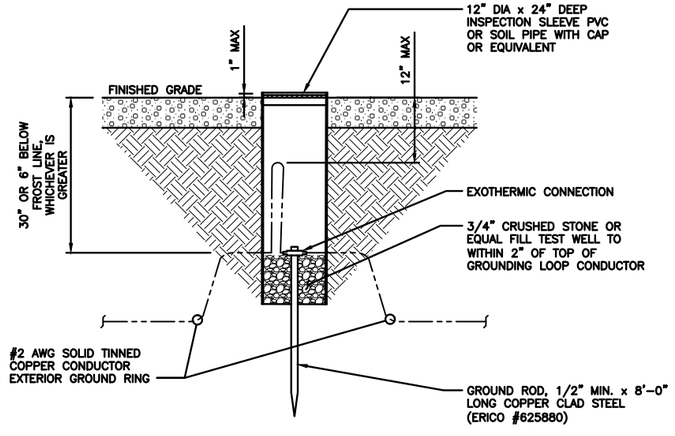
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



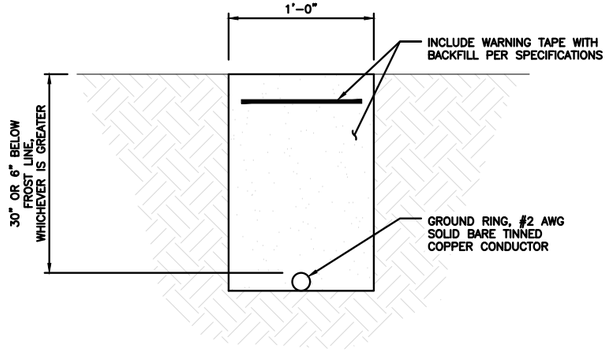
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



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



TYPICAL GROUND RING TRENCH | NO SCALE | 6

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn

COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT · BRIAN J. BREWER · 29510 · LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
JRG	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/30/2021	ISSUED FOR REVIEW
0	03/02/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE-16440

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00028A
123 CAMPVILLE HILL RD
HARWINTON, CT 06791

SHEET TITLE

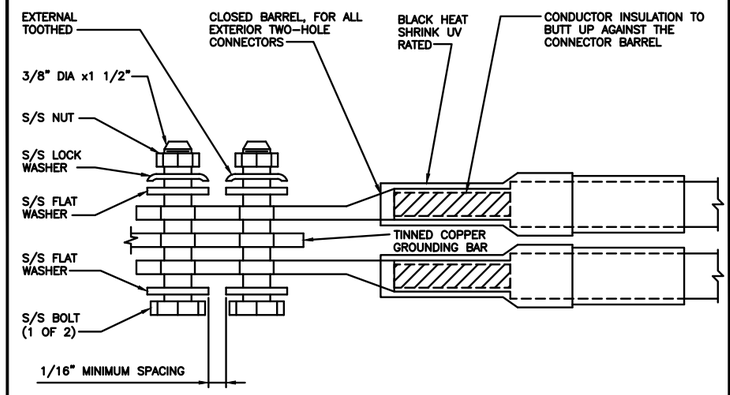
GROUNDING DETAILS

SHEET NUMBER

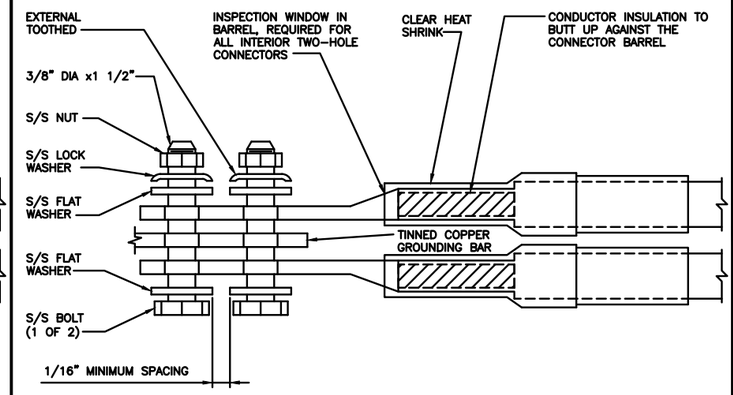
G-2

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.
8. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).

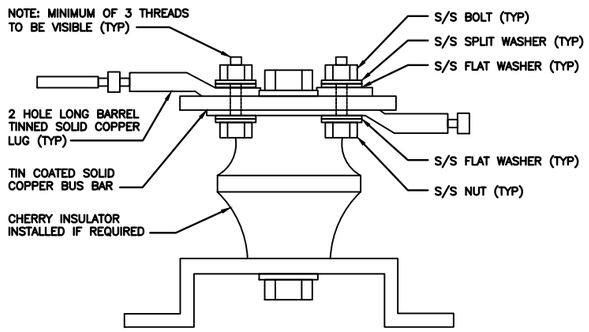
TYPICAL GROUNDING NOTES | NO SCALE | 1



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

03/02/22
Exp. 01/31/23

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn
COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN J. BREWER
29510
LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
JRG	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/30/2021	ISSUED FOR REVIEW
0	03/02/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
KHCLE-16440

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00028A
123 CAMPVILLE HILL RD
HARWINTON, CT 06791

SHEET TITLE
GROUNDING DETAILS

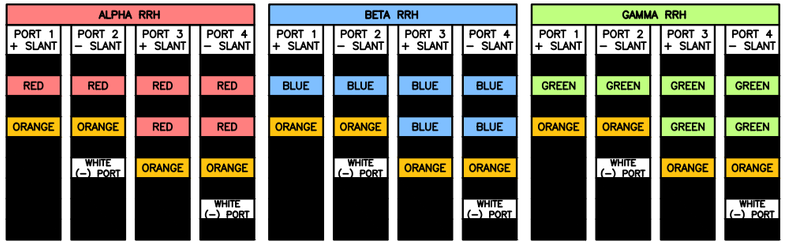
SHEET NUMBER
G-3

RF JUMPER COLOR CODING

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

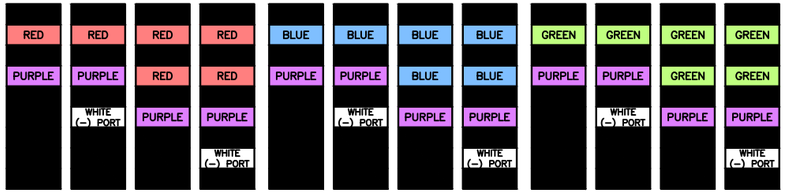
LOW-BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

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)

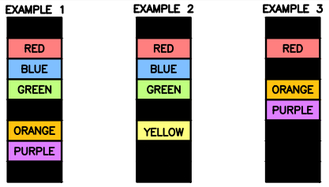


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED
ALONG WITH FREQUENCY BANDS

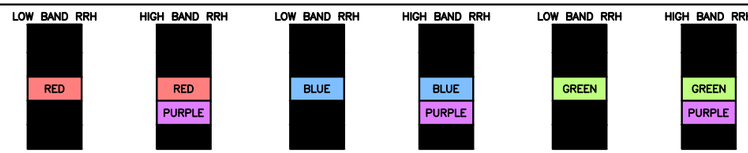
EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS
ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS

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



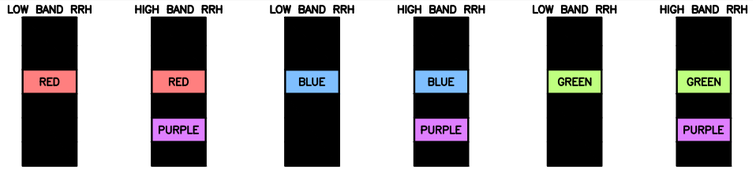
FIBER JUMPERS TO RRHs

LOW-BAND RRH FIBER CABLES HAVE SECTOR
STRIPE ONLY

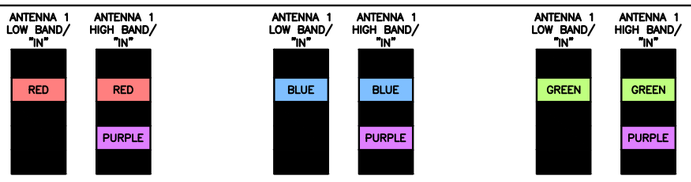


POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY



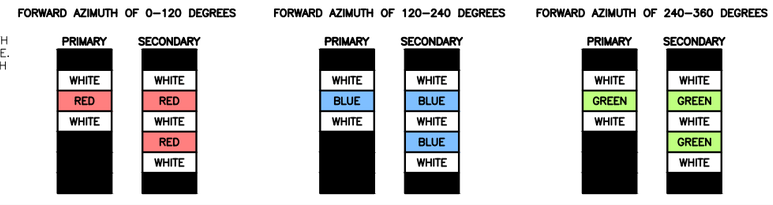
RET MOTORS AT ANTENNAS



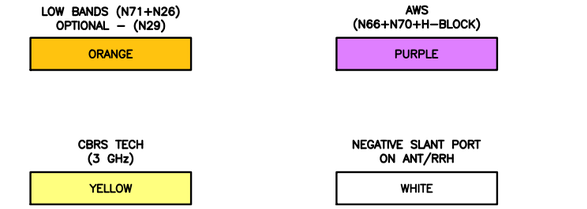
MICROWAVE RADIO LINKS

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



COLOR IDENTIFIER	NO SCALE	2

03/02/22
Exp. 01/31/23

NOT USED	NO SCALE	3

NOT USED	NO SCALE	4

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn
COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

DRAWN BY:	CHECKED BY:	APPROVED BY:
JRG	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/30/2021	ISSUED FOR REVIEW
0	03/02/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
KHCLE-16440

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00028A
123 CAMPVILLE HILL RD
HARWINTON, CT 06791

SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER
RF-1

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

03/02/22
Exp. 01/31/23

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn
COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN J. BREWER
29510
LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
JRG	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/30/2021	ISSUED FOR REVIEW
0	03/02/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE–16440

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00028A
123 CAMPVILLE HILL RD
HARWINTON, CT 06791

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.

dish wireless.
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn
COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN J. BREWER
29510
LICENSED PROFESSIONAL ENGINEER

03/02/22
EXP. 03/31/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
JRG	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/30/2021	ISSUED FOR REVIEW
0	03/02/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE–16440

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00028A
123 CAMPVILLE HILL RD
HARWINTON, CT 06791

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.

03/02/22 EXP. 01/31/23

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn

COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN J. BREWER
29510
LICENSED PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
JRG	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/30/2021	ISSUED FOR REVIEW
0	03/02/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE-16440

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00028A
123 CAMPVILLE HILL RD
HARWINTON, CT 06791

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.

03/02/22
Exp. 01/31/23

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

Kimley»Horn

COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN J. BREWER
29510
LICENSED
PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
JRG	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	09/30/2021	ISSUED FOR REVIEW
0	03/02/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE-16440

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00028A
123 CAMPVILLE HILL RD
HARWINTON, CT 06791

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

Exhibit D

Structural Analysis Report

Date: **September 02, 2021**

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***DISH Network* Co-Locate**	
	Site Number:	BOHVN00028A
	Site Name:	CT-CCI-T-876376
Crown Castle Designation:	**BU Number:**	876376
	Site Name:	Scoville Hill / Harwinton Rod
	JDE Job Number:	645191
	Work Order Number:	1966307
	Order Number:	553367 Rev. 0
Engineering Firm Designation:	**B+T Group Project Number:**	83609.011.01
Site Data:	**123 Campville Hill Rd., Harwinton, Litchfield County, CT** **Latitude *41° 44' 12.4"*, Longitude *-73° 5' 49.4"*** **177 Foot - Monopole**	

B+T Group is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower.

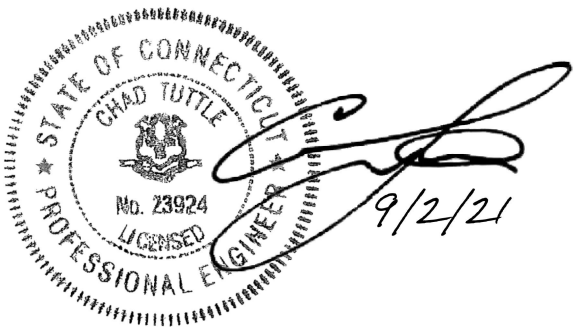
The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity - 99.9%**

This analysis utilizes an ultimate 3-second gust wind speed of 120 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: Mahsa Abdeveis

Respectfully submitted by: B+T Engineering, Inc.
COA: PEC.0001564; Expires: 02/10/2022



Chad E. Tuttle, P.E.

tnxTower Report - version 8.1.1.0

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 177 ft Monopole designed by Summit in August of 2000.

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

Modifications designed by Hutter Trankina Engineering in August of 2004 are found to be ineffective and are considered for wind area only.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	120 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
144.0	144.0	3	Fujitsu	TA08025-B604	1	1-1/2
		3	Fujitsu	TA08025-B605		
		3	JMA Wireless	MX08FRO665-21		
		1	Raycap	RDIDC-9181-PF-48		
		1	Commscope	MC-PK8-DSH Platform		

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)
177.0	179.0	3	Alcatel Lucent	1900MHZ RRH (65MHZ)	4	1-1/4
		3	Alcatel Lucent	800 External Notch Filter		
		3	Alcatel Lucent	800MHZ RRH		
		3	Alcatel Lucent	TD-RRH8x20-25		
		9	RFS Celwave	ACU-A20-N		
	177.0	3	RFS Celwave	APXVSPP18-C-A20		
		3	RFS Celwave	APXVTM14-C-120		
		1	--	Platform Mount [LP 1201-1]		
167.0	169.0	3	Commscope	LNX-6515DS-A1M	12	1-5/8
		3	RFS Celwave	APXV18-206516S-C-A20		
	168.0	3	Ericsson	KRY 112 75/1		
	167.0	1	--	T-Arm Mount [TA 602-3]		
154.0	156.0	2	Antel	LPA-80063/6CF	7	1-5/8
		4	Antel	LPA-80080/6CF		
		6	Quintel Tech	QS6656-5D		
		1	RFS Celwave	DB-C1-12C-24AB-0Z		
		3	Samsung Telecom.	MT6407-77A		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		3	Samsung Telecom.	RFV01U-D1A		
		3	Samsung Telecom.	RFV01U-D2A		
	154.0	1	--	Platform Mount [LP 303-1_HR-1]		
127.0	129.0	3	CCI Antennas	DMP65R-BU4D	6 2 2 2	1-5/8 7/8 5/8 3/8
		3	CCI Antennas	OPA65R-BU4D		
		3	Ericsson	RRUS 4449 B5/B12		
		3	Ericsson	RRUS 4478 B14_CCIV2		
		3	Ericsson	RRUS 8843 B2/B66A		
		3	Powerwave Tech.	7770.00		
		6	Powerwave Tech.	LGP21401		
		1	Raycap	DC6-48-60-18-8C-EV		
		1	Raycap	DC6-48-60-18-8F		
	127.0	1	--	Platform Mount [LP 303-1_HR-1]		
117.0	117.0	3	RFS Celwave	APXV18-206517S-C	6	1-5/8
79.0	80.0	1	Spectracom	8225	1	1/2
	79.0	1	--	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 – Documents Provided

Document	Reference	Source
Tower Manufacturing Drawings	1613568	CCI Sites
Mount Modification Drawings	9881139 / 9881140	CCI Sites
Tower Modification Drawings	1634507	CCI Sites
Legacy Modification Inspection	7041633	CCI Sites
Tower Modification Drawings	1623517	CCI Sites
Post Modification Inspection	2176310	CCI Sites
Tower Modification Drawings	2461486	CCI Sites
Post Modification Inspection	2461484	CCI Sites
Tower Modification Drawings	3384748	CCI Sites
Post Modification Inspection	3841069	CCI Sites
Foundation Drawings	1613623	CCI Sites
Geotech Report	1531965	CCI Sites
Crown CAD Package	Date: 07/08/2021	CCI Sites

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

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

3.2) Assumptions

1) The 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. B+T Group 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	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	177 - 172	Pole	TP22.875x22x0.2188	1	-3.903	--	4.0	Pass
L2	172 - 167	Pole	TP23.75x22.875x0.2188	2	-4.212	--	7.1	Pass
L3	167 - 162	Pole	TP24.625x23.75x0.2188	3	-5.934	--	11.9	Pass
L4	162 - 157	Pole	TP25.5x24.625x0.2188	4	-6.332	--	16.0	Pass
L5	157 - 152	Pole	TP26.375x25.5x0.2188	5	-10.064	--	22.4	Pass
L6	152 - 147	Pole	TP27.25x26.375x0.2188	6	-10.617	--	29.0	Pass
L7	147 - 142	Pole	TP28.124x27.25x0.2188	7	-13.988	--	36.1	Pass
L8	142 - 137	Pole	TP28.999x28.124x0.2188	8	-14.541	--	43.5	Pass
L9	137 - 133.5	Pole	TP30.268x28.999x0.2188	9	-14.941	--	48.3	Pass
L10	133.5 - 128.5	Pole	TP30.049x29.174x0.25	10	-15.867	--	47.1	Pass
L11	128.5 - 123.5	Pole	TP30.924x30.049x0.25	11	-20.054	--	53.9	Pass
L12	123.5 - 118.58	Pole	TP31.785x30.924x0.25	12	-20.836	--	60.0	Pass
L13	118.58 - 118.33	Pole + Reinf.	TP31.828x31.785x0.3875	13	-20.899	--	54.4	Pass
L14	118.33 - 113.33	Pole + Reinf.	TP32.703x31.828x0.3875	14	-22.094	--	59.8	Pass
L15	113.33 - 108.33	Pole + Reinf.	TP33.578x32.703x0.3813	15	-23.146	--	64.9	Pass
L16	108.33 - 106.42	Pole + Reinf.	TP33.913x33.578x0.3813	16	-23.826	--	66.9	Pass
L17	106.42 - 106.17	Pole	TP33.957x33.913x0.25	17	-23.920	--	74.5	Pass
L18	106.17 - 101.17	Pole	TP34.832x33.957x0.25	18	-25.560	--	80.1	Pass
L19	101.17 - 96.17	Pole	TP35.707x34.832x0.25	19	-27.966	--	85.6	Pass
L20	96.17 - 91.17	Pole	TP36.582x35.707x0.25	20	-29.647	--	91.0	Pass
L21	91.17 - 88.75	Pole	TP37.836x36.582x0.25	21	-30.467	--	93.5	Pass
L22	88.75 - 83.75	Pole	TP37.38x36.505x0.3125	22	-32.822	--	74.6	Pass
L23	83.75 - 78.75	Pole	TP38.255x37.38x0.3125	23	-35.800	--	78.3	Pass
L24	78.75 - 73.75	Pole	TP39.13x38.255x0.3125	24	-37.796	--	81.8	Pass
L25	73.75 - 68.75	Pole	TP40.005x39.13x0.3125	25	-39.822	--	85.1	Pass
L26	68.75 - 63.75	Pole	TP40.88x40.005x0.3125	26	-41.878	--	88.4	Pass
L27	63.75 - 58.75	Pole	TP41.755x40.88x0.3125	27	-45.194	--	91.6	Pass
L28	58.75 - 53.75	Pole	TP42.63x41.755x0.3125	28	-47.309	--	94.7	Pass
L29	53.75 - 48.75	Pole	TP43.505x42.63x0.3125	29	-49.453	--	97.7	Pass
L30	48.75 - 45	Pole	TP45.167x43.505x0.3125	30	-51.483	--	99.9	Pass
L31	45 - 38.25	Pole	TP44.717x43.536x0.375	31	-56.402	--	83.3	Pass
L32	38.25 - 33.25	Pole	TP45.592x44.717x0.375	32	-58.770	--	85.3	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L33	33.25 - 28.25	Pole	TP46.467x45.592x0.375	33	-61.168	--	87.2	Pass
L34	28.25 - 23.25	Pole	TP47.342x46.467x0.375	34	-63.593	--	89.1	Pass
L35	23.25 - 18.25	Pole	TP48.217x47.342x0.375	35	-67.316	--	90.9	Pass
L36	18.25 - 13.25	Pole	TP49.091x48.217x0.375	36	-69.900	--	92.6	Pass
L37	13.25 - 8.25	Pole	TP49.966x49.091x0.375	37	-72.514	--	94.3	Pass
L38	8.25 - 3.25	Pole	TP50.841x49.966x0.375	38	-75.151	--	95.8	Pass
L39	3.25 - 0	Pole	TP51.41x50.841x0.375	39	-76.876	--	96.8	Pass
							Summary	
						Pole (L30)	99.9	Pass
						Reinforcement	66.9	Pass
						Rating =	99.9	Pass

Table 5 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rod Brackets	Base	69.3	Pass
1,2	Anchor Rods	Base	69.2	Pass
1,2	Base Plate	Base	64.3	Pass
1,2	Base Foundation (Structure)	Base	54.2	Pass
1,2	Base Foundation (Soil Interaction)	Base	96.3	Pass
1,2	Concrete Breakout	Base	92.8	Pass

Structure Rating (max from all components) =	99.9%

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

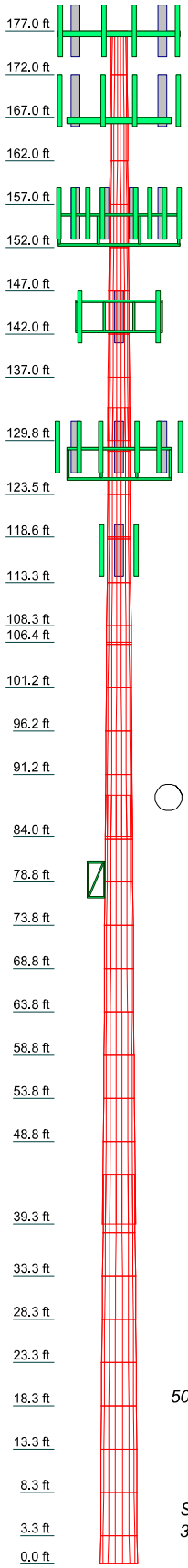
4.1) Recommendations

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

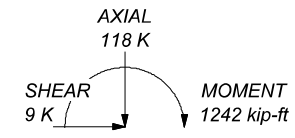
APPENDIX A

TNXTOWER OUTPUT

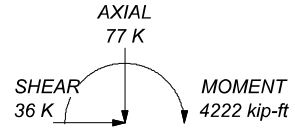
Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.000	18	0.219		22.000	22.875		0.3
2	5.000	18	0.219		22.875	23.750		0.3
3	5.000	18	0.219		23.750	24.625		0.3
4	5.000	18	0.219		24.625	25.500		0.3
5	5.000	18	0.219		25.500	26.375		0.3
6	5.000	18	0.219		26.375	27.250		0.3
7	5.000	18	0.219		27.250	28.124		0.3
8	5.000	18	0.219		28.124	28.999		0.3
9	5.000	18	0.219	3.750	28.999	30.268		0.5
10	5.000	18	0.250		30.043	30.924		0.4
11	5.000	18	0.250		30.924	31.785		0.4
12	5.000	18	0.250		31.785	32.703		0.4
13	5.000	18	0.250		32.703	33.578		0.4
14	5.000	18	0.313		33.578	34.832		0.6
15	5.000	18	0.313		34.832	35.707		0.7
16	5.000	18	0.313		35.707	36.582		0.7
17	5.000	18	0.313		36.582	37.457		0.7
18	5.000	18	0.313		37.457	38.255		0.6
19	5.000	18	0.313		38.255	39.130		0.6
20	5.000	18	0.313		39.130	40.005		0.7
21	5.000	18	0.313		40.005	40.880		0.7
22	5.000	18	0.313	4.750	40.880	41.755		0.7
23	5.000	18	0.313		41.755	42.630		0.7
24	5.000	18	0.313		42.630	43.505		0.7
25	5.000	18	0.313		43.505	45.167		1.4
26	5.000	18	0.313		45.167	45.717		1.2
27	5.000	18	0.313		45.717	45.592		0.9
28	5.000	18	0.313		45.592	46.467		0.9
29	5.000	18	0.313		46.467	47.342		0.9
30	5.000	18	0.313		47.342	48.217		1.0
31	6.750	18	0.375	5.750	48.217	49.091		1.0
32	5.000	18	0.375		49.091	49.966		1.0
33	5.000	18	0.375		49.966	50.841		1.0
34	5.000	18	0.375		50.841	51.415		0.7
35	5.000	18	0.375		51.415	52.290		1.0
36	5.000	18	0.375		52.290	53.165		1.0
37	5.000	18	0.375		53.165	54.040		1.0
38	5.000	18	0.375		54.040	54.915		1.0
39	3.250	18	0.375		54.915	55.490		0.7



ALL REACTIONS ARE FACTORED



TORQUE 0 kip-ft
50 mph WIND - 1.500 in ICE



TORQUE 1 kip-ft
REACTIONS - 120 mph WIND

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Litchfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TIA-222-H Annex S
9. TOWER RATING: 99.9%

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

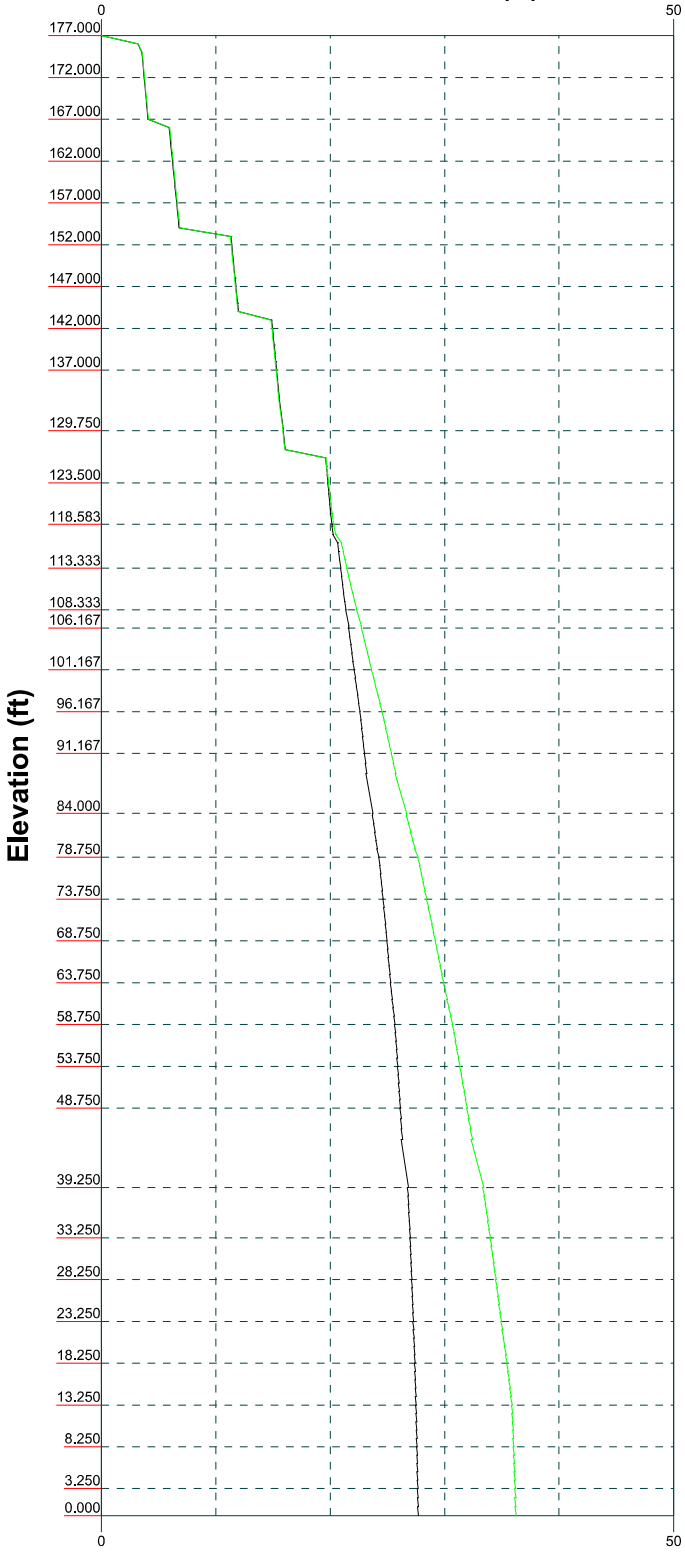
Job: 83609.011.01 - SCOVILLE HILL / HARWINTON ROD, CT (BU# 87637			
Project:			
Client: Crown Castle	Drawn by: JD Prabhu	App'd:	
Code: TIA-222-H	Date: 08/31/21	Scale: NTS	
Path:		Dwg No. E-1	

TIA-222-H - 120 mph/50 mph 1.500 in Ice Exposure B

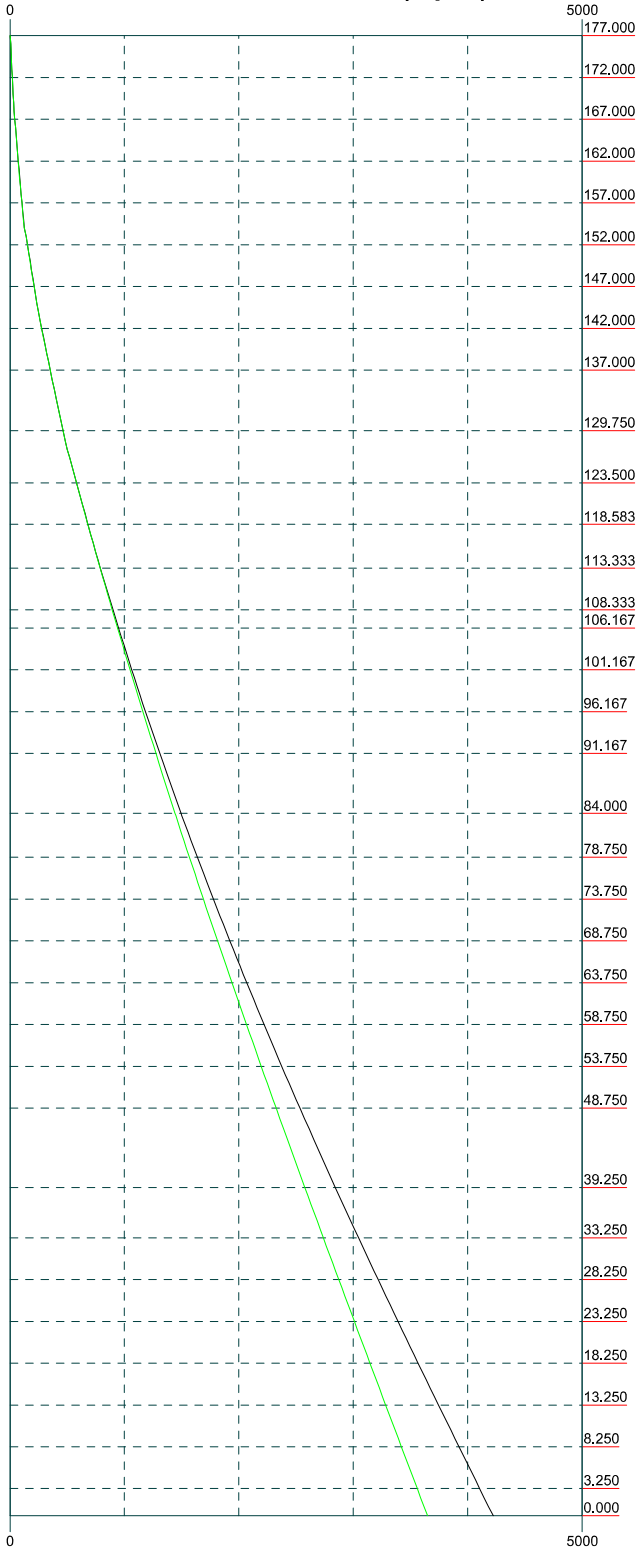
Maximum Values

Vx Vz Mx Mz

Global Mast Shear (K)



Global Mast Moment (kip-ft)

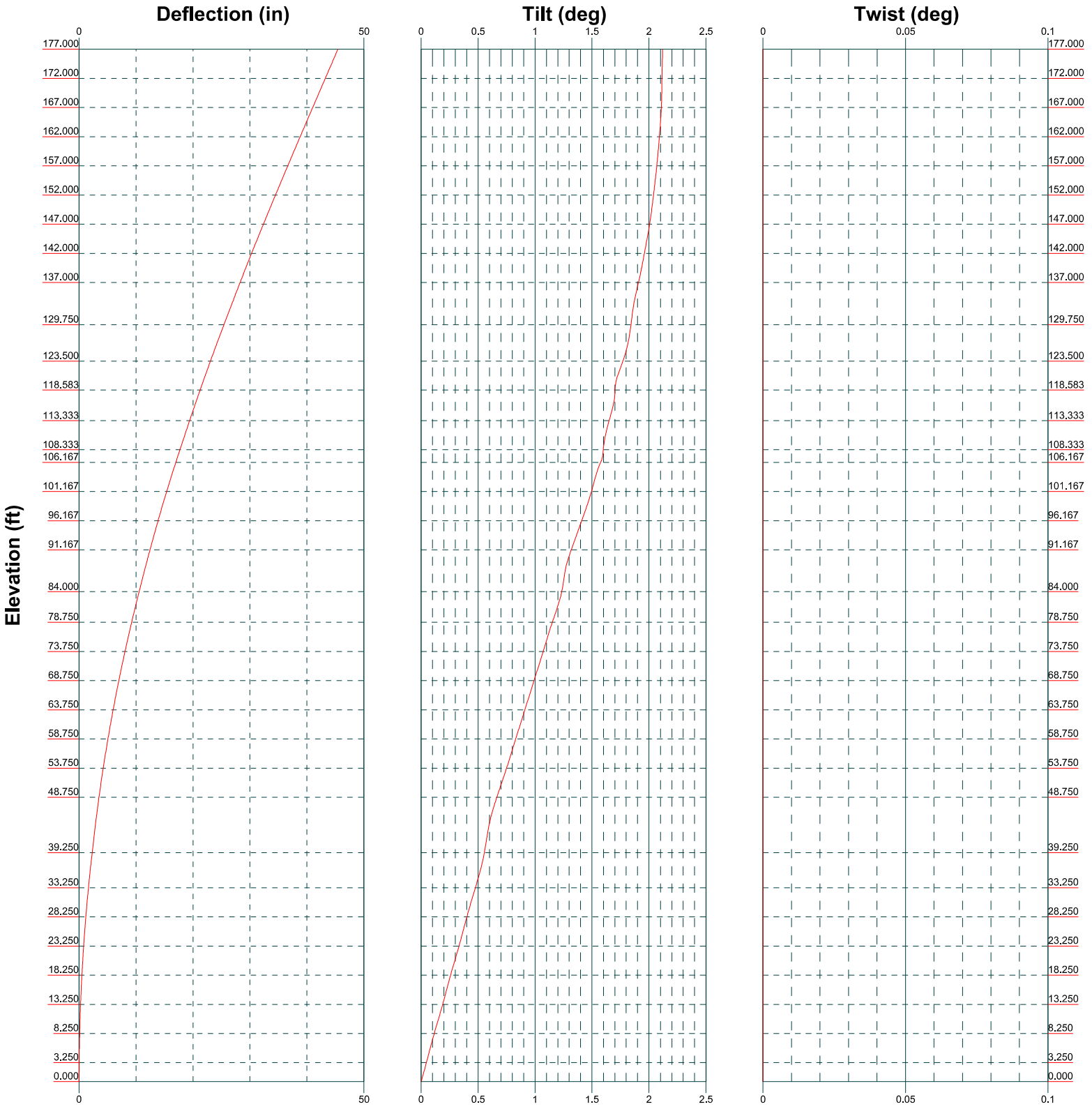


B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 83609.011.01 - SCOVILLE HILL / HARWINTON ROD, CT (BU# 87637			
Project:			
Client: Crown Castle	Drawn by: JD Prabhu	App'd:	
Code: TIA-222-H	Date: 08/31/21	Scale: NTS	
Path:		Dwg No. E-4	

TIA-222-H - Service - 60 mph

Maximum Values



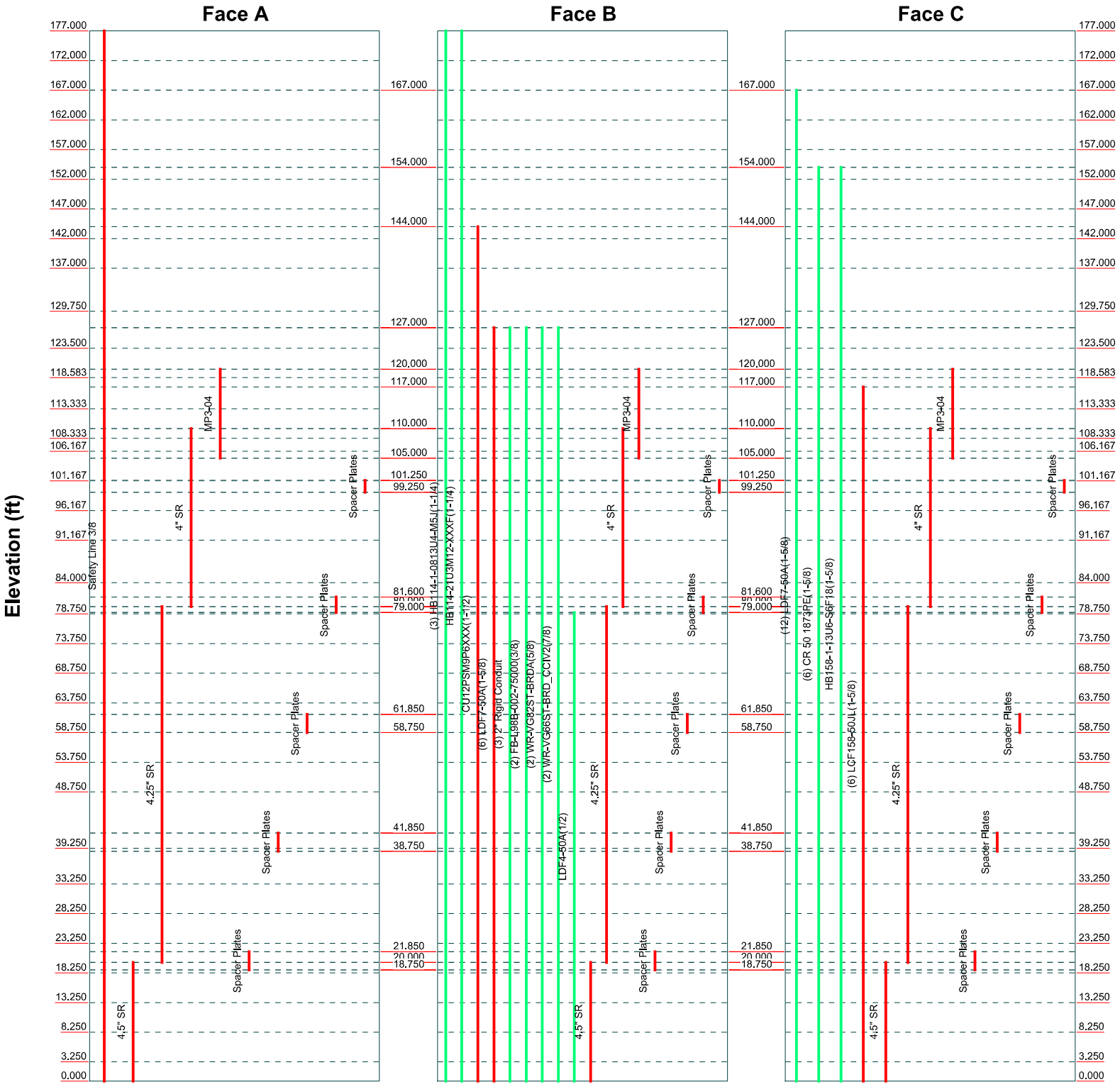
B+T GRP

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: ***83609.011.01 - SCOVILLE HILL / HARWINTON ROD, CT (BU# 87637***			
Project:			
Client: Crown Castle	Drawn by: JD Prabhu	App'd:	
Code: TIA-222-H	Date: 08/31/21	Scale: NTS	
Path:		Dwg No. E-5	

Feed Line Distribution Chart
0' - 177'

Round | Flat | App In Face | App Out Face | Truss Leg



B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 83609.011.01 - SCOVILLE HILL / HARWINTON ROD, CT (BU# 87637			
Project:			
Client: Crown Castle	Drawn by: JD Prabhu	App'd:	
Code: TIA-222-H	Date: 08/31/21	Scale: NTS	
Path:		Dwg No. E-7	

Tower Input Data

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

Tower is located in Litchfield County, Connecticut.
Tower base elevation above sea level: 735.000 ft.
Basic wind speed of 120 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.000 ft.
Nominal ice thickness of 1.500 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
TIA-222-H Annex S.
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	177.000-172.000	5.000	0.000	18	22.000	22.875	0.219	0.875	A607-65 (65 ksi)
L2	172.000-167.000	5.000	0.000	18	22.875	23.750	0.219	0.875	A607-65 (65 ksi)
L3	167.000-162.000	5.000	0.000	18	23.750	24.625	0.219	0.875	A607-65 (65 ksi)
L4	162.000-157.000	5.000	0.000	18	24.625	25.500	0.219	0.875	A607-65 (65 ksi)
L5	157.000-152.000	5.000	0.000	18	25.500	26.375	0.219	0.875	A607-65 (65 ksi)
L6	152.000-147.000	5.000	0.000	18	26.375	27.250	0.219	0.875	A607-65 (65 ksi)
L7	147.000-142.000	5.000	0.000	18	27.250	28.124	0.219	0.875	A607-65 (65 ksi)
L8	142.000-137.000	5.000	0.000	18	28.124	28.999	0.219	0.875	A607-65 (65 ksi)
L9	137.000-129.750	7.250	3.750	18	28.999	30.268	0.219	0.875	A607-65 (65 ksi)
L10	129.750-128.500	5.000	0.000	18	29.174	30.049	0.250	1.000	A607-65 (65 ksi)
L11	128.500-123.500	5.000	0.000	18	30.049	30.924	0.250	1.000	A607-65 (65 ksi)
L12	123.500-118.583	4.917	0.000	18	30.924	31.785	0.250	1.000	A607-65 (65 ksi)
L13	118.583-118.333	0.250	0.000	18	31.785	31.828	0.388	1.550	A607-65 (65 ksi)
L14	118.333-113.333	5.000	0.000	18	31.828	32.703	0.388	1.550	A607-65 (65 ksi)
L15	113.333-108.333	5.000	0.000	18	32.703	33.578	0.381	1.525	A607-65 (65 ksi)
L16	108.333-106.417	1.916	0.000	18	33.578	33.913	0.381	1.525	A607-65 (65 ksi)
L17	106.417-106.167	0.250	0.000	18	33.913	33.957	0.250	1.000	A607-65 (65 ksi)
L18	106.167-101.167	5.000	0.000	18	33.957	34.832	0.250	1.000	A607-65 (65 ksi)
L19	101.167-96.167	5.000	0.000	18	34.832	35.707	0.250	1.000	A607-65 (65 ksi)
L20	96.167-91.167	5.000	0.000	18	35.707	36.582	0.250	1.000	A607-65 (65 ksi)
L21	91.167-84.000	7.167	4.750	18	36.582	37.836	0.250	1.000	A607-65 (65 ksi)
L22	84.000-83.750	5.000	0.000	18	36.505	37.380	0.313	1.250	A607-65 (65 ksi)
L23	83.750-78.750	5.000	0.000	18	37.380	38.255	0.313	1.250	A607-65 (65 ksi)
L24	78.750-73.750	5.000	0.000	18	38.255	39.130	0.313	1.250	A607-65 (65 ksi)
L25	73.750-68.750	5.000	0.000	18	39.130	40.005	0.313	1.250	A607-65 (65 ksi)
L26	68.750-63.750	5.000	0.000	18	40.005	40.880	0.313	1.250	A607-65 (65 ksi)
L27	63.750-58.750	5.000	0.000	18	40.880	41.755	0.313	1.250	A607-65 (65 ksi)
L28	58.750-53.750	5.000	0.000	18	41.755	42.630	0.313	1.250	A607-65 (65 ksi)
L29	53.750-48.750	5.000	0.000	18	42.630	43.505	0.313	1.250	A607-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L30	48.750-39.250	9.500	5.750	18	43.505	45.167	0.313	1.250	A607-65 (65 ksi)
L31	39.250-38.250	6.750	0.000	18	43.536	44.717	0.375	1.500	A607-65 (65 ksi)
L32	38.250-33.250	5.000	0.000	18	44.717	45.592	0.375	1.500	A607-65 (65 ksi)
L33	33.250-28.250	5.000	0.000	18	45.592	46.467	0.375	1.500	A607-65 (65 ksi)
L34	28.250-23.250	5.000	0.000	18	46.467	47.342	0.375	1.500	A607-65 (65 ksi)
L35	23.250-18.250	5.000	0.000	18	47.342	48.217	0.375	1.500	A607-65 (65 ksi)
L36	18.250-13.250	5.000	0.000	18	48.217	49.091	0.375	1.500	A607-65 (65 ksi)
L37	13.250-8.250	5.000	0.000	18	49.091	49.966	0.375	1.500	A607-65 (65 ksi)
L38	8.250-3.250	5.000	0.000	18	49.966	50.841	0.375	1.500	A607-65 (65 ksi)
L39	3.250-0.000	3.250		18	50.841	51.410	0.375	1.500	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	22.306	15.123	906.444	7.732	11.176	81.106	1814.080	7.563	3.487	15.941
	23.194	15.730	1020.122	8.043	11.620	87.787	2041.586	7.867	3.641	16.645
L2	23.194	15.730	1020.122	8.043	11.620	87.787	2041.586	7.867	3.641	16.645
	24.082	16.338	1142.927	8.354	12.065	94.731	2287.359	8.171	3.795	17.348
L3	24.082	16.338	1142.927	8.354	12.065	94.731	2287.359	8.171	3.795	17.348
	24.971	16.945	1275.213	8.664	12.509	101.941	2552.105	8.474	3.949	18.052
L4	24.971	16.945	1275.213	8.664	12.509	101.941	2552.105	8.474	3.949	18.052
	25.859	17.553	1417.332	8.975	12.954	109.414	2836.530	8.778	4.103	18.756
L5	25.859	17.553	1417.332	8.975	12.954	109.414	2836.530	8.778	4.103	18.756
	26.748	18.160	1569.637	9.285	13.398	117.152	3141.338	9.082	4.257	19.46
L6	26.748	18.160	1569.637	9.285	13.398	117.152	3141.338	9.082	4.257	19.46
	27.636	18.768	1732.479	9.596	13.843	125.154	3467.237	9.386	4.411	20.164
L7	27.636	18.768	1732.479	9.596	13.843	125.154	3467.237	9.386	4.411	20.164
	28.525	19.375	1906.211	9.907	14.287	133.421	3814.930	9.689	4.565	20.868
L8	28.525	19.375	1906.211	9.907	14.287	133.421	3814.930	9.689	4.565	20.868
	29.413	19.983	2091.186	10.217	14.732	141.952	4185.123	9.993	4.719	21.572
L9	29.413	19.983	2091.186	10.217	14.732	141.952	4185.123	9.993	4.719	21.572
	30.701	20.864	2380.090	10.667	15.376	154.791	4763.311	10.434	4.942	22.593
L10	30.252	22.951	2425.903	10.268	14.821	163.685	4854.998	11.478	4.695	18.779
	30.474	23.646	2652.769	10.579	15.265	173.781	5309.028	11.825	4.849	19.395
L11	30.474	23.646	2652.769	10.579	15.265	173.781	5309.028	11.825	4.849	19.395
	31.363	24.340	2893.356	10.889	15.709	184.179	5790.518	12.172	5.003	20.011
L12	31.363	24.340	2893.356	10.889	15.709	184.179	5790.518	12.172	5.003	20.011
	32.236	25.023	3143.720	11.195	16.147	194.699	6291.578	12.514	5.154	20.616
L13	32.215	38.616	4809.304	11.146	16.147	297.853	9624.936	19.312	4.912	12.676
	32.260	38.670	4829.435	11.161	16.169	298.689	9665.224	19.339	4.920	12.696
L14	32.260	38.670	4829.435	11.161	16.169	298.689	9665.224	19.339	4.920	12.696
	33.148	39.746	5243.931	11.472	16.613	315.648	10494.762	19.877	5.074	13.094
L15	33.149	39.112	5162.346	11.474	16.613	310.737	10331.484	19.560	5.085	13.337
	34.037	40.171	5593.012	11.785	17.058	327.888	11193.384	20.089	5.239	13.741
L16	34.037	40.171	5593.012	11.785	17.058	327.888	11193.384	20.089	5.239	13.741

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
	34.378	40.577	5764.188	11.904	17.228	334.582	11535.960	20.292	5.298	13.896
L17	34.398	26.712	3824.353	11.951	17.228	221.985	7653.739	13.358	5.529	22.115
	34.442	26.747	3839.282	11.966	17.250	222.564	7683.616	13.376	5.536	22.146
L18	34.442	26.747	3839.282	11.966	17.250	222.564	7683.616	13.376	5.536	22.146
	35.331	27.441	4146.072	12.277	17.695	234.312	8297.599	13.723	5.690	22.762
L19	35.331	27.441	4146.072	12.277	17.695	234.312	8297.599	13.723	5.690	22.762
	36.219	28.135	4468.784	12.587	18.139	246.361	8943.449	14.070	5.844	23.378
L20	36.219	28.135	4468.784	12.587	18.139	246.361	8943.449	14.070	5.844	23.378
	37.108	28.829	4807.822	12.898	18.584	258.713	9621.971	14.417	5.998	23.994
L21	37.108	28.829	4807.822	12.898	18.584	258.713	9621.971	14.417	5.998	23.994
	38.381	29.824	5323.077	13.343	19.221	276.945	10653.157	14.915	6.219	24.877
L22	37.864	35.898	5940.787	12.848	18.544	320.354	11889.390	17.953	5.875	18.8
	37.908	36.766	6382.151	13.159	18.989	336.098	12772.700	18.387	6.029	19.292
L23	37.908	36.766	6382.151	13.159	18.989	336.098	12772.700	18.387	6.029	19.292
	38.797	37.634	6844.852	13.470	19.433	352.221	13698.710	18.821	6.183	19.785
L24	38.797	37.634	6844.852	13.470	19.433	352.221	13698.710	18.821	6.183	19.785
	39.685	38.502	7329.392	13.780	19.878	368.721	14668.428	19.255	6.337	20.278
L25	39.685	38.502	7329.392	13.780	19.878	368.721	14668.428	19.255	6.337	20.278
	40.574	39.370	7836.276	14.091	20.322	385.598	15682.864	19.689	6.491	20.771
L26	40.574	39.370	7836.276	14.091	20.322	385.598	15682.864	19.689	6.491	20.771
	41.462	40.238	8366.008	14.401	20.767	402.854	16743.024	20.123	6.645	21.263
L27	41.462	40.238	8366.008	14.401	20.767	402.854	16743.024	20.123	6.645	21.263
	42.351	41.105	8919.090	14.712	21.211	420.487	17849.917	20.557	6.799	21.756
L28	42.351	41.105	8919.090	14.712	21.211	420.487	17849.917	20.557	6.799	21.756
	43.239	41.973	9496.028	15.023	21.656	438.497	19004.550	20.991	6.953	22.249
L29	43.239	41.973	9496.028	15.023	21.656	438.497	19004.550	20.991	6.953	22.249
	44.127	42.841	10097.323	15.333	22.100	456.886	20207.932	21.425	7.107	22.742
L30	44.127	42.841	10097.323	15.333	22.100	456.886	20207.932	21.425	7.107	22.742
	45.816	44.490	11308.694	15.923	22.945	492.864	22632.268	22.249	7.399	23.678
L31	45.171	51.372	12090.485	15.322	22.116	546.681	24196.880	25.691	7.002	18.673
	45.349	52.778	13110.496	15.741	22.716	577.143	26238.243	26.394	7.210	19.227
L32	45.349	52.778	13110.496	15.741	22.716	577.143	26238.243	26.394	7.210	19.227
	46.237	53.819	13901.960	16.052	23.161	600.240	27822.213	26.915	7.364	19.638
L33	46.237	53.819	13901.960	16.052	23.161	600.240	27822.213	26.915	7.364	19.638
	47.126	54.861	14724.654	16.363	23.605	623.791	29468.683	27.436	7.518	20.048
L34	47.126	54.861	14724.654	16.363	23.605	623.791	29468.683	27.436	7.518	20.048
	48.014	55.902	15579.180	16.673	24.050	647.795	31178.859	27.956	7.672	20.459
L35	48.014	55.902	15579.180	16.673	24.050	647.795	31178.859	27.956	7.672	20.459
	48.903	56.943	16466.144	16.984	24.494	672.252	32953.955	28.477	7.826	20.87
L36	48.903	56.943	16466.144	16.984	24.494	672.252	32953.955	28.477	7.826	20.87
	49.791	57.985	17386.149	17.294	24.938	697.162	34795.175	28.998	7.980	21.28
L37	49.791	57.985	17386.149	17.294	24.938	697.162	34795.175	28.998	7.980	21.28
	50.679	59.026	18339.801	17.605	25.383	722.525	36703.734	29.519	8.134	21.691
L38	50.679	59.026	18339.801	17.605	25.383	722.525	36703.734	29.519	8.134	21.691
	51.568	60.068	19327.702	17.916	25.827	748.341	38680.835	30.039	8.288	22.102
L39	51.568	60.068	19327.702	17.916	25.827	748.341	38680.835	30.039	8.288	22.102
	52.145	60.744	19988.490	18.117	26.116	765.365	40003.282	30.378	8.388	22.368

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 177.000-172.000				1	1	1			
L2 172.000-167.000				1	1	1			
L3 167.000-162.000				1	1	1			

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
00									
L4				1	1	1			
162.000-157.0									
00									
L5				1	1	1			
157.000-152.0									
00									
L6				1	1	1			
152.000-147.0									
00									
L7				1	1	1			
147.000-142.0									
00									
L8				1	1	1			
142.000-137.0									
00									
L9				1	1	1			
137.000-129.7									
50									
L10				1	1	1			
129.750-128.5									
00									
L11				1	1	1			
128.500-123.5									
00									
L12				1	1	1			
123.500-118.5									
83									
L13				1	1	0.968399			
118.583-118.3									
33									
L14				1	1	0.959648			
118.333-113.3									
33									
L15				1	1	0.966772			
113.333-108.3									
33									
L16				1	1	0.963662			
108.333-106.4									
17									
L17				1	1	1			
106.417-106.1									
67									
L18				1	1	1			
106.167-101.1									
67									
L19				1	1	1			
101.167-96.16									
7									
L20				1	1	1			
96.167-91.167									
L21				1	1	1			
91.167-84.000									
L22				1	1	1			
84.000-83.750									
L23				1	1	1			
83.750-78.750									
L24				1	1	1			
78.750-73.750									

Tower Elevation ft	Gusset Area (per face) ft²	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
L25 73.750-68.750				1	1	1			
L26 68.750-63.750				1	1	1			
L27 63.750-58.750				1	1	1			
L28 58.750-53.750				1	1	1			
L29 53.750-48.750				1	1	1			
L30 48.750-39.250				1	1	1			
L31 39.250-38.250				1	1	1			
L32 38.250-33.250				1	1	1			
L33 33.250-28.250				1	1	1			
L34 28.250-23.250				1	1	1			
L35 23.250-18.250				1	1	1			
L36 18.250-13.250				1	1	1			
L37 13.250-8.250				1	1	1			
L38 8.250-3.250				1	1	1			
L39 3.250-0.000				1	1	1			

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 klf
* CU12PSM9P6XXX(1-1/2)	B	No	Surface Ar (CaAa)	144.000 - 0.000	1	1	0.250 0.300	1.600		0.002
* LDF7-50A(1-5/8)	B	No	Surface Ar (CaAa)	127.000 - 0.000	6	4	0.000 0.250	1.980		0.001
* LCF158-50JL(1-5/8)	C	No	Surface Ar (CaAa)	117.000 - 0.000	6	6	0.000 0.250	1.980		0.001
* Safety Line 3/8	A	No	Surface Ar (CaAa)	177.000 - 0.000	1	1	0.500 0.500	0.375		0.000
* ** MODS ** *										
4.5" SR	A	No	Surface Ar (CaAa)	20.000 - 0.000	1	1	0.300 0.350	4.500		0.054
4.5" SR	B	No	Surface Ar	20.000 -	1	1	0.300	4.500		0.054

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
			(CaAa)	0.000			0.350			
4.5" SR	C	No	Surface Ar	20.000 -	1	1	0.300	4.500		0.054
			(CaAa)	0.000			0.350			
4.25" SR	A	No	Surface Ar	80.000 -	1	1	0.300	4.250		0.048
			(CaAa)	20.000			0.350			
4.25" SR	B	No	Surface Ar	80.000 -	1	1	0.300	4.250		0.048
			(CaAa)	20.000			0.350			
4.25" SR	C	No	Surface Ar	80.000 -	1	1	0.300	4.250		0.048
			(CaAa)	20.000			0.350			
4" SR	A	No	Surface Ar	110.000 -	1	1	0.300	4.000		0.043
			(CaAa)	80.000			0.350			
4" SR	B	No	Surface Ar	110.000 -	1	1	0.300	4.000		0.043
			(CaAa)	80.000			0.350			
4" SR	C	No	Surface Ar	110.000 -	1	1	0.300	4.000		0.043
			(CaAa)	80.000			0.350			
*										
MP3-04	A	No	Surface Af	120.000 -	1	1	0.350	4.780	12.780	0.000
			(CaAa)	105.000			0.400			
MP3-04	B	No	Surface Af	120.000 -	1	1	0.350	4.780	12.780	0.000
			(CaAa)	105.000			0.400			
MP3-04	C	No	Surface Af	120.000 -	1	1	0.350	4.780	12.780	0.000
			(CaAa)	105.000			0.400			
*										
Spacer Plates	A	No	Surface Af	21.850 -	1	1	0.300	16.250	36.500	0.111
			(CaAa)	18.750			0.350			
Spacer Plates	B	No	Surface Af	21.850 -	1	1	0.300	16.250	36.500	0.111
			(CaAa)	18.750			0.350			
Spacer Plates	C	No	Surface Af	21.850 -	1	1	0.300	16.250	36.500	0.111
			(CaAa)	18.750			0.350			
*										
Spacer Plates	A	No	Surface Af	41.850 -	1	1	0.300	16.250	36.500	0.111
			(CaAa)	38.750			0.350			
Spacer Plates	B	No	Surface Af	41.850 -	1	1	0.300	16.250	36.500	0.111
			(CaAa)	38.750			0.350			
Spacer Plates	C	No	Surface Af	41.850 -	1	1	0.300	16.250	36.500	0.111
			(CaAa)	38.750			0.350			
*										
Spacer Plates	A	No	Surface Af	61.850 -	1	1	0.300	16.250	36.500	0.111
			(CaAa)	58.750			0.350			
Spacer Plates	B	No	Surface Af	61.850 -	1	1	0.300	16.250	36.500	0.111
			(CaAa)	58.750			0.350			
Spacer Plates	C	No	Surface Af	61.850 -	1	1	0.300	16.250	36.500	0.111
			(CaAa)	58.750			0.350			
*										
Spacer Plates	A	No	Surface Af	81.600 -	1	1	0.300	16.250	36.500	0.111
			(CaAa)	79.000			0.350			
Spacer Plates	B	No	Surface Af	81.600 -	1	1	0.300	16.250	36.500	0.111
			(CaAa)	79.000			0.350			
Spacer Plates	C	No	Surface Af	81.600 -	1	1	0.300	16.250	36.500	0.111
			(CaAa)	79.000			0.350			
*										
Spacer Plates	A	No	Surface Af	101.250 -	1	1	0.300	16.250	36.500	0.111
			(CaAa)	99.250			0.350			
Spacer Plates	B	No	Surface Af	101.250 -	1	1	0.300	16.250	36.500	0.111
			(CaAa)	99.250			0.350			
Spacer Plates	C	No	Surface Af	101.250 -	1	1	0.300	16.250	36.500	0.111
			(CaAa)	99.250			0.350			

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 klf
HB114-1-0813U4-M5J(1-1/4)	B	No	No	Inside Pole	177.000 - 0.000	3	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
HB114-21U3M12-XXXF(1-1/4)	B	No	No	Inside Pole	177.000 - 0.000	1	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
*									
LDF7-50A(1-5/8)	C	No	No	Inside Pole	167.000 - 0.000	12	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
*									
CR 50 1873PE(1-5/8)	C	No	No	Inside Pole	154.000 - 0.000	6	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
HB158-1-13U6-S6F18(1-5/8)	C	No	No	Inside Pole	154.000 - 0.000	1	No Ice	0.000	0.002
							1/2" Ice	0.000	0.002
							1" Ice	0.000	0.002
							2" Ice	0.000	0.002
2" Rigid Conduit	B	No	No	Inside Pole	127.000 - 0.000	3	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
							2" Ice	0.000	0.003
FB-L98B-002-75000 (3/8)	B	No	No	Inside Pole	127.000 - 0.000	2	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
WR-VG82ST-BRDA(5/8)	B	No	No	Inside Pole	127.000 - 0.000	2	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
WR-VG66ST-BRD_CCIV2(7/8)	B	No	No	Inside Pole	127.000 - 0.000	2	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
*									
LDF4-50A(1/2)	B	No	No	Inside Pole	79.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
*									
** MODS **									

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

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	177.000-172.000	A	0.000	0.000	0.188	0.000	0.001
		B	0.000	0.000	0.000	0.000	0.024
		C	0.000	0.000	0.000	0.000	0.000
L2	172.000-167.000	A	0.000	0.000	0.188	0.000	0.001
		B	0.000	0.000	0.000	0.000	0.024
		C	0.000	0.000	0.000	0.000	0.000
L3	167.000-162.000	A	0.000	0.000	0.188	0.000	0.001
		B	0.000	0.000	0.000	0.000	0.024
		C	0.000	0.000	0.000	0.000	0.049
L4	162.000-157.000	A	0.000	0.000	0.188	0.000	0.001
		B	0.000	0.000	0.000	0.000	0.024
		C	0.000	0.000	0.000	0.000	0.049
L5	157.000-152.000	A	0.000	0.000	0.188	0.000	0.001
		B	0.000	0.000	0.000	0.000	0.024
		C	0.000	0.000	0.000	0.000	0.063
L6	152.000-147.000	A	0.000	0.000	0.188	0.000	0.001
		B	0.000	0.000	0.000	0.000	0.024
		C	0.000	0.000	0.000	0.000	0.084
L7	147.000-142.000	A	0.000	0.000	0.188	0.000	0.001
		B	0.000	0.000	0.320	0.000	0.029
		C	0.000	0.000	0.000	0.000	0.084
L8	142.000-137.000	A	0.000	0.000	0.188	0.000	0.001
		B	0.000	0.000	0.800	0.000	0.036
		C	0.000	0.000	0.000	0.000	0.084
L9	137.000-129.750	A	0.000	0.000	0.272	0.000	0.002
		B	0.000	0.000	1.160	0.000	0.052
		C	0.000	0.000	0.000	0.000	0.121
L10	129.750-128.500	A	0.000	0.000	0.047	0.000	0.000
		B	0.000	0.000	0.200	0.000	0.009
		C	0.000	0.000	0.000	0.000	0.021
L11	128.500-123.500	A	0.000	0.000	0.188	0.000	0.001
		B	0.000	0.000	3.572	0.000	0.091
		C	0.000	0.000	0.000	0.000	0.084
L12	123.500-118.583	A	0.000	0.000	1.313	0.000	0.001
		B	0.000	0.000	5.810	0.000	0.113
		C	0.000	0.000	1.129	0.000	0.082
L13	118.583-118.333	A	0.000	0.000	0.209	0.000	0.000
		B	0.000	0.000	0.437	0.000	0.006
		C	0.000	0.000	0.199	0.000	0.004
L14	118.333-113.333	A	0.000	0.000	4.171	0.000	0.001
		B	0.000	0.000	8.743	0.000	0.115
		C	0.000	0.000	8.340	0.000	0.095
L15	113.333-108.333	A	0.000	0.000	4.838	0.000	0.072
		B	0.000	0.000	9.410	0.000	0.186
		C	0.000	0.000	10.590	0.000	0.170
L16	108.333-106.417	A	0.000	0.000	2.365	0.000	0.082
		B	0.000	0.000	4.117	0.000	0.126
		C	0.000	0.000	4.569	0.000	0.120
L17	106.417-106.167	A	0.000	0.000	0.309	0.000	0.011
		B	0.000	0.000	0.537	0.000	0.016
		C	0.000	0.000	0.596	0.000	0.016
L18	106.167-101.167	A	0.000	0.000	3.252	0.000	0.224
		B	0.000	0.000	7.825	0.000	0.338
		C	0.000	0.000	9.005	0.000	0.322
L19	101.167-96.167	A	0.000	0.000	5.303	0.000	0.427
		B	0.000	0.000	9.875	0.000	0.541
		C	0.000	0.000	11.055	0.000	0.525
L20	96.167-91.167	A	0.000	0.000	2.188	0.000	0.215
		B	0.000	0.000	6.760	0.000	0.329
		C	0.000	0.000	7.940	0.000	0.313
L21	91.167-84.000	A	0.000	0.000	3.136	0.000	0.308

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
		B	0.000	0.000	9.690	0.000	0.471
		C	0.000	0.000	11.381	0.000	0.449
L22	84.000-83.750	A	0.000	0.000	0.109	0.000	0.011
		B	0.000	0.000	0.338	0.000	0.016
		C	0.000	0.000	0.397	0.000	0.016
L23	83.750-78.750	A	0.000	0.000	6.444	0.000	0.509
		B	0.000	0.000	11.016	0.000	0.623
		C	0.000	0.000	12.196	0.000	0.607
L24	78.750-73.750	A	0.000	0.000	2.313	0.000	0.242
		B	0.000	0.000	6.885	0.000	0.357
		C	0.000	0.000	8.065	0.000	0.341
L25	73.750-68.750	A	0.000	0.000	2.313	0.000	0.242
		B	0.000	0.000	6.885	0.000	0.357
		C	0.000	0.000	8.065	0.000	0.341
L26	68.750-63.750	A	0.000	0.000	2.313	0.000	0.242
		B	0.000	0.000	6.885	0.000	0.357
		C	0.000	0.000	8.065	0.000	0.341
L27	63.750-58.750	A	0.000	0.000	7.350	0.000	0.585
		B	0.000	0.000	11.922	0.000	0.700
		C	0.000	0.000	13.102	0.000	0.683
L28	58.750-53.750	A	0.000	0.000	2.313	0.000	0.242
		B	0.000	0.000	6.885	0.000	0.357
		C	0.000	0.000	8.065	0.000	0.341
L29	53.750-48.750	A	0.000	0.000	2.313	0.000	0.242
		B	0.000	0.000	6.885	0.000	0.357
		C	0.000	0.000	8.065	0.000	0.341
L30	48.750-39.250	A	0.000	0.000	8.619	0.000	0.748
		B	0.000	0.000	17.307	0.000	0.966
		C	0.000	0.000	19.549	0.000	0.935
L31	39.250-38.250	A	0.000	0.000	1.275	0.000	0.104
		B	0.000	0.000	2.189	0.000	0.127
		C	0.000	0.000	2.426	0.000	0.123
L32	38.250-33.250	A	0.000	0.000	2.313	0.000	0.242
		B	0.000	0.000	6.885	0.000	0.357
		C	0.000	0.000	8.065	0.000	0.341
L33	33.250-28.250	A	0.000	0.000	2.313	0.000	0.242
		B	0.000	0.000	6.885	0.000	0.357
		C	0.000	0.000	8.065	0.000	0.341
L34	28.250-23.250	A	0.000	0.000	2.313	0.000	0.242
		B	0.000	0.000	6.885	0.000	0.357
		C	0.000	0.000	8.065	0.000	0.341
L35	23.250-18.250	A	0.000	0.000	7.394	0.000	0.596
		B	0.000	0.000	11.966	0.000	0.710
		C	0.000	0.000	13.146	0.000	0.694
L36	18.250-13.250	A	0.000	0.000	2.438	0.000	0.272
		B	0.000	0.000	7.010	0.000	0.386
		C	0.000	0.000	8.190	0.000	0.370
L37	13.250-8.250	A	0.000	0.000	2.438	0.000	0.272
		B	0.000	0.000	7.010	0.000	0.386
		C	0.000	0.000	8.190	0.000	0.370
L38	8.250-3.250	A	0.000	0.000	2.438	0.000	0.272
		B	0.000	0.000	7.010	0.000	0.386
		C	0.000	0.000	8.190	0.000	0.370
L39	3.250-0.000	A	0.000	0.000	1.584	0.000	0.177
		B	0.000	0.000	4.556	0.000	0.251
		C	0.000	0.000	5.324	0.000	0.240

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	177.000-172.000	A	1.506	0.000	0.000	1.694	0.000	0.018
		B		0.000	0.000	0.000	0.000	0.024
		C		0.000	0.000	0.000	0.000	0.000
L2	172.000-167.000	A	1.502	0.000	0.000	1.689	0.000	0.018
		B		0.000	0.000	0.000	0.000	0.024
		C		0.000	0.000	0.000	0.000	0.000
L3	167.000-162.000	A	1.497	0.000	0.000	1.685	0.000	0.018
		B		0.000	0.000	0.000	0.000	0.024
		C		0.000	0.000	0.000	0.000	0.049
L4	162.000-157.000	A	1.493	0.000	0.000	1.680	0.000	0.018
		B		0.000	0.000	0.000	0.000	0.024
		C		0.000	0.000	0.000	0.000	0.049
L5	157.000-152.000	A	1.488	0.000	0.000	1.675	0.000	0.018
		B		0.000	0.000	0.000	0.000	0.024
		C		0.000	0.000	0.000	0.000	0.063
L6	152.000-147.000	A	1.483	0.000	0.000	1.670	0.000	0.018
		B		0.000	0.000	0.000	0.000	0.024
		C		0.000	0.000	0.000	0.000	0.084
L7	147.000-142.000	A	1.478	0.000	0.000	1.665	0.000	0.018
		B		0.000	0.000	0.911	0.000	0.040
		C		0.000	0.000	0.000	0.000	0.084
L8	142.000-137.000	A	1.473	0.000	0.000	1.660	0.000	0.018
		B		0.000	0.000	2.273	0.000	0.063
		C		0.000	0.000	0.000	0.000	0.084
L9	137.000-129.750	A	1.466	0.000	0.000	2.398	0.000	0.026
		B		0.000	0.000	3.286	0.000	0.092
		C		0.000	0.000	0.000	0.000	0.121
L10	129.750-128.500	A	1.461	0.000	0.000	0.413	0.000	0.004
		B		0.000	0.000	0.567	0.000	0.016
		C		0.000	0.000	0.000	0.000	0.021
L11	128.500-123.500	A	1.458	0.000	0.000	1.645	0.000	0.017
		B		0.000	0.000	6.998	0.000	0.175
		C		0.000	0.000	0.000	0.000	0.084
L12	123.500-118.583	A	1.452	0.000	0.000	3.137	0.000	0.032
		B		0.000	0.000	10.392	0.000	0.234
		C		0.000	0.000	1.525	0.000	0.097
L13	118.583-118.333	A	1.449	0.000	0.000	0.351	0.000	0.003
		B		0.000	0.000	0.719	0.000	0.014
		C		0.000	0.000	0.269	0.000	0.007
L14	118.333-113.333	A	1.446	0.000	0.000	7.010	0.000	0.068
		B		0.000	0.000	14.379	0.000	0.274
		C		0.000	0.000	12.147	0.000	0.215
L15	113.333-108.333	A	1.439	0.000	0.000	8.145	0.000	0.155
		B		0.000	0.000	15.506	0.000	0.360
		C		0.000	0.000	15.742	0.000	0.331
L16	108.333-106.417	A	1.435	0.000	0.000	3.995	0.000	0.126
		B		0.000	0.000	6.813	0.000	0.204
		C		0.000	0.000	6.906	0.000	0.193
L17	106.417-106.167	A	1.433	0.000	0.000	0.521	0.000	0.016
		B		0.000	0.000	0.889	0.000	0.027
		C		0.000	0.000	0.901	0.000	0.025
L18	106.167-101.167	A	1.430	0.000	0.000	6.447	0.000	0.301
		B		0.000	0.000	13.797	0.000	0.505
		C		0.000	0.000	14.042	0.000	0.476
L19	101.167-96.167	A	1.423	0.000	0.000	8.466	0.000	0.534
		B		0.000	0.000	15.807	0.000	0.738
		C		0.000	0.000	16.059	0.000	0.709
L20	96.167-91.167	A	1.415	0.000	0.000	5.018	0.000	0.277
		B		0.000	0.000	12.349	0.000	0.480
		C		0.000	0.000	12.609	0.000	0.452

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
L21	91.167-84.000	A	1.406	0.000	0.000	7.165	0.000	0.396
		B		0.000	0.000	17.657	0.000	0.687
		C		0.000	0.000	18.043	0.000	0.646
L22	84.000-83.750	A	1.400	0.000	0.000	0.250	0.000	0.014
		B		0.000	0.000	0.616	0.000	0.024
		C		0.000	0.000	0.629	0.000	0.023
L23	83.750-78.750	A	1.395	0.000	0.000	9.657	0.000	0.630
		B		0.000	0.000	16.964	0.000	0.832
		C		0.000	0.000	17.244	0.000	0.804
L24	78.750-73.750	A	1.386	0.000	0.000	5.085	0.000	0.305
		B		0.000	0.000	12.381	0.000	0.507
		C		0.000	0.000	12.669	0.000	0.478
L25	73.750-68.750	A	1.377	0.000	0.000	5.066	0.000	0.305
		B		0.000	0.000	12.350	0.000	0.506
		C		0.000	0.000	12.648	0.000	0.477
L26	68.750-63.750	A	1.367	0.000	0.000	5.047	0.000	0.304
		B		0.000	0.000	12.318	0.000	0.505
		C		0.000	0.000	12.626	0.000	0.476
L27	63.750-58.750	A	1.356	0.000	0.000	10.553	0.000	0.714
		B		0.000	0.000	17.811	0.000	0.914
		C		0.000	0.000	18.130	0.000	0.886
L28	58.750-53.750	A	1.345	0.000	0.000	5.002	0.000	0.303
		B		0.000	0.000	12.246	0.000	0.502
		C		0.000	0.000	12.576	0.000	0.474
L29	53.750-48.750	A	1.332	0.000	0.000	4.977	0.000	0.302
		B		0.000	0.000	12.205	0.000	0.500
		C		0.000	0.000	12.548	0.000	0.472
L30	48.750-39.250	A	1.312	0.000	0.000	14.003	0.000	0.914
		B		0.000	0.000	27.688	0.000	1.288
		C		0.000	0.000	28.377	0.000	1.236
L31	39.250-38.250	A	1.296	0.000	0.000	1.876	0.000	0.126
		B		0.000	0.000	3.317	0.000	0.165
		C		0.000	0.000	3.389	0.000	0.160
L32	38.250-33.250	A	1.285	0.000	0.000	4.883	0.000	0.299
		B		0.000	0.000	12.052	0.000	0.494
		C		0.000	0.000	12.442	0.000	0.467
L33	33.250-28.250	A	1.266	0.000	0.000	4.844	0.000	0.298
		B		0.000	0.000	11.989	0.000	0.492
		C		0.000	0.000	12.398	0.000	0.465
L34	28.250-23.250	A	1.244	0.000	0.000	4.800	0.000	0.296
		B		0.000	0.000	11.917	0.000	0.489
		C		0.000	0.000	12.348	0.000	0.463
L35	23.250-18.250	A	1.217	0.000	0.000	10.268	0.000	0.709
		B		0.000	0.000	17.352	0.000	0.900
		C		0.000	0.000	17.810	0.000	0.874
L36	18.250-13.250	A	1.184	0.000	0.000	4.806	0.000	0.324
		B		0.000	0.000	11.848	0.000	0.513
		C		0.000	0.000	12.339	0.000	0.488
L37	13.250-8.250	A	1.140	0.000	0.000	4.717	0.000	0.322
		B		0.000	0.000	11.704	0.000	0.508
		C		0.000	0.000	12.239	0.000	0.483
L38	8.250-3.250	A	1.070	0.000	0.000	4.578	0.000	0.318
		B		0.000	0.000	11.479	0.000	0.499
		C		0.000	0.000	12.084	0.000	0.476
L39	3.250-0.000	A	0.943	0.000	0.000	2.811	0.000	0.202
		B		0.000	0.000	7.193	0.000	0.315
		C		0.000	0.000	7.668	0.000	0.301

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	177.000-172.000	0.000	-0.301	0.000	-1.325
L2	172.000-167.000	0.000	-0.301	0.000	-1.333
L3	167.000-162.000	0.000	-0.301	0.000	-1.340
L4	162.000-157.000	0.000	-0.301	0.000	-1.346
L5	157.000-152.000	0.000	-0.301	0.000	-1.351
L6	152.000-147.000	0.000	-0.301	0.000	-1.356
L7	147.000-142.000	0.522	-0.263	0.743	-1.252
L8	142.000-137.000	1.230	-0.212	1.721	-1.117
L9	137.000-129.750	1.232	-0.213	1.731	-1.125
L10	129.750-128.500	1.232	-0.213	1.736	-1.128
L11	128.500-123.500	4.124	-1.020	4.164	-1.614
L12	123.500-118.583	3.926	-0.992	4.268	-1.540
L13	118.583-118.333	2.476	-0.625	3.255	-1.174
L14	118.333-113.333	1.687	1.366	2.227	0.990
L15	113.333-108.333	1.389	1.905	1.850	1.551
L16	108.333-106.417	1.279	1.757	1.689	1.420
L17	106.417-106.167	1.283	1.762	1.695	1.425
L18	106.167-101.167	1.593	2.190	2.052	1.729
L19	101.167-96.167	1.385	1.908	1.889	1.597
L20	96.167-91.167	1.774	2.447	2.270	1.926
L21	91.167-84.000	1.793	2.478	2.306	1.965
L22	84.000-83.750	1.796	2.483	2.312	1.970
L23	83.750-78.750	1.332	1.843	1.861	1.592
L24	78.750-73.750	1.800	2.494	2.338	2.007
L25	73.750-68.750	1.815	2.518	2.365	2.038
L26	68.750-63.750	1.830	2.542	2.392	2.070
L27	63.750-58.750	1.321	1.838	1.881	1.634
L28	58.750-53.750	1.857	2.587	2.443	2.132
L29	53.750-48.750	1.871	2.608	2.467	2.163
L30	48.750-39.250	1.618	2.260	2.225	1.966
L31	39.250-38.250	1.451	2.027	2.049	1.811
L32	38.250-33.250	1.902	2.658	2.517	2.244
L33	33.250-28.250	1.914	2.679	2.537	2.277
L34	28.250-23.250	1.926	2.698	2.555	2.312
L35	23.250-18.250	1.418	1.987	2.014	1.839
L36	18.250-13.250	1.933	2.712	2.568	2.372
L37	13.250-8.250	2.225	3.124	2.576	2.415
L38	8.250-3.250	2.249	3.162	2.574	2.471
L39	3.250-0.000	2.270	3.193	2.544	2.552

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	22	Safety Line 3/8	172.00 - 177.00	1.0000	1.0000
L2	22	Safety Line 3/8	167.00 - 172.00	1.0000	1.0000
L3	22	Safety Line 3/8	162.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			167.00		
L4	22	Safety Line 3/8	157.00 - 162.00	1.0000	1.0000
L5	22	Safety Line 3/8	152.00 - 157.00	1.0000	1.0000
L6	22	Safety Line 3/8	147.00 - 152.00	1.0000	1.0000
L7	10	CU12PSM9P6XXX(1-1/2)	142.00 - 144.00	1.0000	1.0000
L7	22	Safety Line 3/8	142.00 - 147.00	1.0000	1.0000
L8	10	CU12PSM9P6XXX(1-1/2)	137.00 - 142.00	1.0000	1.0000
L8	22	Safety Line 3/8	137.00 - 142.00	1.0000	1.0000
L9	10	CU12PSM9P6XXX(1-1/2)	129.75 - 137.00	1.0000	1.0000
L9	22	Safety Line 3/8	129.75 - 137.00	1.0000	1.0000
L10	10	CU12PSM9P6XXX(1-1/2)	128.50 - 129.75	1.0000	1.0000
L10	22	Safety Line 3/8	128.50 - 129.75	1.0000	1.0000
L11	10	CU12PSM9P6XXX(1-1/2)	123.50 - 128.50	1.0000	1.0000
L11	12	LDF7-50A(1-5/8)	123.50 - 127.00	1.0000	1.0000
L11	22	Safety Line 3/8	123.50 - 128.50	1.0000	1.0000
L12	10	CU12PSM9P6XXX(1-1/2)	118.58 - 123.50	1.0000	1.0000
L12	12	LDF7-50A(1-5/8)	118.58 - 123.50	1.0000	1.0000
L12	22	Safety Line 3/8	118.58 - 123.50	1.0000	1.0000
L12	36	MP3-04	118.58 - 120.00	1.0000	1.0000
L12	37	MP3-04	118.58 - 120.00	1.0000	1.0000
L12	38	MP3-04	118.58 - 120.00	1.0000	1.0000
L13	10	CU12PSM9P6XXX(1-1/2)	118.33 - 118.58	1.0000	1.0000
L13	12	LDF7-50A(1-5/8)	118.33 - 118.58	1.0000	1.0000
L13	22	Safety Line 3/8	118.33 - 118.58	1.0000	1.0000
L13	36	MP3-04	118.33 - 118.58	1.0000	1.0000
L13	37	MP3-04	118.33 - 118.58	1.0000	1.0000
L13	38	MP3-04	118.33 - 118.58	1.0000	1.0000
L14	10	CU12PSM9P6XXX(1-1/2)	113.33 - 118.33	1.0000	1.0000
L14	12	LDF7-50A(1-5/8)	113.33 - 118.33	1.0000	1.0000
L14	18	LCF158-50JL(1-5/8)	113.33 - 117.00	1.0000	1.0000
L14	22	Safety Line 3/8	113.33 - 118.33	1.0000	1.0000
L14	36	MP3-04	113.33 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L14	37	MP3-04	118.33 - 113.33	1.0000	1.0000
L14	38	MP3-04	118.33 - 113.33	1.0000	1.0000
L15	10	CU12PSM9P6XXX(1-1/2)	118.33 - 108.33	1.0000	1.0000
L15	12	LDF7-50A(1-5/8)	113.33 - 108.33	1.0000	1.0000
L15	18	LCF158-50JL(1-5/8)	113.33 - 108.33	1.0000	1.0000
L15	22	Safety Line 3/8	113.33 - 108.33	1.0000	1.0000
L15	32	4" SR	113.33 - 108.33	1.0000	1.0000
L15	33	4" SR	110.00 - 108.33	1.0000	1.0000
L15	34	4" SR	110.00 - 108.33	1.0000	1.0000
L15	36	MP3-04	110.00 - 108.33	1.0000	1.0000
L15	37	MP3-04	113.33 - 108.33	1.0000	1.0000
L15	38	MP3-04	113.33 - 108.33	1.0000	1.0000
L16	10	CU12PSM9P6XXX(1-1/2)	113.33 - 106.42	1.0000	1.0000
L16	12	LDF7-50A(1-5/8)	108.33 - 106.42	1.0000	1.0000
L16	18	LCF158-50JL(1-5/8)	108.33 - 106.42	1.0000	1.0000
L16	22	Safety Line 3/8	108.33 - 106.42	1.0000	1.0000
L16	32	4" SR	108.33 - 106.42	1.0000	1.0000
L16	33	4" SR	108.33 - 106.42	1.0000	1.0000
L16	34	4" SR	108.33 - 106.42	1.0000	1.0000
L16	36	MP3-04	108.33 - 106.42	1.0000	1.0000
L16	37	MP3-04	108.33 - 106.42	1.0000	1.0000
L16	38	MP3-04	108.33 - 106.42	1.0000	1.0000
L17	10	CU12PSM9P6XXX(1-1/2)	108.33 - 106.17	1.0000	1.0000
L17	12	LDF7-50A(1-5/8)	106.42 - 106.17	1.0000	1.0000
L17	18	LCF158-50JL(1-5/8)	106.42 - 106.17	1.0000	1.0000
L17	22	Safety Line 3/8	106.42 - 106.17	1.0000	1.0000
L17	32	4" SR	106.42 - 106.17	1.0000	1.0000
L17	33	4" SR	106.42 - 106.17	1.0000	1.0000
L17	34	4" SR	106.42 - 106.17	1.0000	1.0000
L17	36	MP3-04	106.42 - 106.17	1.0000	1.0000
L17	37	MP3-04	106.42 - 106.17	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L17	38	MP3-04	106.42 106.17 - 106.42	1.0000	1.0000
L18	10	CU12PSM9P6XXX(1-1/2)	101.17 - 106.17	1.0000	1.0000
L18	12	LDF7-50A(1-5/8)	101.17 - 106.17	1.0000	1.0000
L18	18	LCF158-50JL(1-5/8)	101.17 - 106.17	1.0000	1.0000
L18	22	Safety Line 3/8	101.17 - 106.17	1.0000	1.0000
L18	32	4" SR	101.17 - 106.17	1.0000	1.0000
L18	33	4" SR	101.17 - 106.17	1.0000	1.0000
L18	34	4" SR	101.17 - 106.17	1.0000	1.0000
L18	36	MP3-04	105.00 - 106.17	1.0000	1.0000
L18	37	MP3-04	105.00 - 106.17	1.0000	1.0000
L18	38	MP3-04	105.00 - 106.17	1.0000	1.0000
L18	56	Spacer Plates	101.17 - 101.25	1.0000	1.0000
L18	57	Spacer Plates	101.17 - 101.25	1.0000	1.0000
L18	58	Spacer Plates	101.17 - 101.25	1.0000	1.0000
L19	10	CU12PSM9P6XXX(1-1/2)	96.17 - 101.17	1.0000	1.0000
L19	12	LDF7-50A(1-5/8)	96.17 - 101.17	1.0000	1.0000
L19	18	LCF158-50JL(1-5/8)	96.17 - 101.17	1.0000	1.0000
L19	22	Safety Line 3/8	96.17 - 101.17	1.0000	1.0000
L19	32	4" SR	96.17 - 101.17	1.0000	1.0000
L19	33	4" SR	96.17 - 101.17	1.0000	1.0000
L19	34	4" SR	96.17 - 101.17	1.0000	1.0000
L19	56	Spacer Plates	99.25 - 101.17	1.0000	1.0000
L19	57	Spacer Plates	99.25 - 101.17	1.0000	1.0000
L19	58	Spacer Plates	99.25 - 101.17	1.0000	1.0000
L20	10	CU12PSM9P6XXX(1-1/2)	91.17 - 96.17	1.0000	1.0000
L20	12	LDF7-50A(1-5/8)	91.17 - 96.17	1.0000	1.0000
L20	18	LCF158-50JL(1-5/8)	91.17 - 96.17	1.0000	1.0000
L20	22	Safety Line 3/8	91.17 - 96.17	1.0000	1.0000
L20	32	4" SR	91.17 - 96.17	1.0000	1.0000
L20	33	4" SR	91.17 - 96.17	1.0000	1.0000
L20	34	4" SR	91.17 - 96.17	1.0000	1.0000
L21	10	CU12PSM9P6XXX(1-1/2)	84.00 - 91.17	1.0000	1.0000
L21	12	LDF7-50A(1-5/8)	84.00 - 91.17	1.0000	1.0000
L21	18	LCF158-50JL(1-5/8)	84.00 - 91.17	1.0000	1.0000
L21	22	Safety Line 3/8	84.00 - 91.17	1.0000	1.0000
L21	32	4" SR	84.00 - 91.17	1.0000	1.0000
L21	33	4" SR	84.00 - 91.17	1.0000	1.0000
L21	34	4" SR	84.00 - 91.17	1.0000	1.0000
L22	10	CU12PSM9P6XXX(1-1/2)	83.75 - 84.00	1.0000	1.0000
L22	12	LDF7-50A(1-5/8)	83.75 - 84.00	1.0000	1.0000
L22	18	LCF158-50JL(1-5/8)	83.75 - 84.00	1.0000	1.0000
L22	22	Safety Line 3/8	83.75 - 84.00	1.0000	1.0000
L22	32	4" SR	83.75 - 84.00	1.0000	1.0000
L22	33	4" SR	83.75 - 84.00	1.0000	1.0000
L22	34	4" SR	83.75 - 84.00	1.0000	1.0000
L23	10	CU12PSM9P6XXX(1-1/2)	78.75 - 83.75	1.0000	1.0000
L23	12	LDF7-50A(1-5/8)	78.75 - 83.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L23	18	LCF158-50JL(1-5/8)	78.75 - 83.75	1.0000	1.0000
L23	22	Safety Line 3/8	78.75 - 83.75	1.0000	1.0000
L23	29	4.25" SR	78.75 - 80.00	1.0000	1.0000
L23	30	4.25" SR	78.75 - 80.00	1.0000	1.0000
L23	31	4.25" SR	78.75 - 80.00	1.0000	1.0000
L23	32	4" SR	80.00 - 83.75	1.0000	1.0000
L23	33	4" SR	80.00 - 83.75	1.0000	1.0000
L23	34	4" SR	80.00 - 83.75	1.0000	1.0000
L23	52	Spacer Plates	79.00 - 81.60	1.0000	1.0000
L23	53	Spacer Plates	79.00 - 81.60	1.0000	1.0000
L23	54	Spacer Plates	79.00 - 81.60	1.0000	1.0000
L24	10	CU12PSM9P6XXX(1-1/2)	73.75 - 78.75	1.0000	1.0000
L24	12	LDF7-50A(1-5/8)	73.75 - 78.75	1.0000	1.0000
L24	18	LCF158-50JL(1-5/8)	73.75 - 78.75	1.0000	1.0000
L24	22	Safety Line 3/8	73.75 - 78.75	1.0000	1.0000
L24	29	4.25" SR	73.75 - 78.75	1.0000	1.0000
L24	30	4.25" SR	73.75 - 78.75	1.0000	1.0000
L24	31	4.25" SR	73.75 - 78.75	1.0000	1.0000
L25	10	CU12PSM9P6XXX(1-1/2)	68.75 - 73.75	1.0000	1.0000
L25	12	LDF7-50A(1-5/8)	68.75 - 73.75	1.0000	1.0000
L25	18	LCF158-50JL(1-5/8)	68.75 - 73.75	1.0000	1.0000
L25	22	Safety Line 3/8	68.75 - 73.75	1.0000	1.0000
L25	29	4.25" SR	68.75 - 73.75	1.0000	1.0000
L25	30	4.25" SR	68.75 - 73.75	1.0000	1.0000
L25	31	4.25" SR	68.75 - 73.75	1.0000	1.0000
L26	10	CU12PSM9P6XXX(1-1/2)	63.75 - 68.75	1.0000	1.0000
L26	12	LDF7-50A(1-5/8)	63.75 - 68.75	1.0000	1.0000
L26	18	LCF158-50JL(1-5/8)	63.75 - 68.75	1.0000	1.0000
L26	22	Safety Line 3/8	63.75 - 68.75	1.0000	1.0000
L26	29	4.25" SR	63.75 - 68.75	1.0000	1.0000
L26	30	4.25" SR	63.75 - 68.75	1.0000	1.0000
L26	31	4.25" SR	63.75 - 68.75	1.0000	1.0000
L27	10	CU12PSM9P6XXX(1-1/2)	58.75 - 63.75	1.0000	1.0000
L27	12	LDF7-50A(1-5/8)	58.75 - 63.75	1.0000	1.0000
L27	18	LCF158-50JL(1-5/8)	58.75 - 63.75	1.0000	1.0000
L27	22	Safety Line 3/8	58.75 - 63.75	1.0000	1.0000
L27	29	4.25" SR	58.75 - 63.75	1.0000	1.0000
L27	30	4.25" SR	58.75 - 63.75	1.0000	1.0000
L27	31	4.25" SR	58.75 - 63.75	1.0000	1.0000
L27	48	Spacer Plates	58.75 - 61.85	1.0000	1.0000
L27	49	Spacer Plates	58.75 - 61.85	1.0000	1.0000
L27	50	Spacer Plates	58.75 - 61.85	1.0000	1.0000
L28	10	CU12PSM9P6XXX(1-1/2)	53.75 - 58.75	1.0000	1.0000
L28	12	LDF7-50A(1-5/8)	53.75 - 58.75	1.0000	1.0000
L28	18	LCF158-50JL(1-5/8)	53.75 - 58.75	1.0000	1.0000
L28	22	Safety Line 3/8	53.75 - 58.75	1.0000	1.0000
L28	29	4.25" SR	53.75 - 58.75	1.0000	1.0000
L28	30	4.25" SR	53.75 - 58.75	1.0000	1.0000
L28	31	4.25" SR	53.75 - 58.75	1.0000	1.0000
L29	10	CU12PSM9P6XXX(1-1/2)	48.75 - 53.75	1.0000	1.0000
L29	12	LDF7-50A(1-5/8)	48.75 - 53.75	1.0000	1.0000
L29	18	LCF158-50JL(1-5/8)	48.75 - 53.75	1.0000	1.0000
L29	22	Safety Line 3/8	48.75 - 53.75	1.0000	1.0000
L29	29	4.25" SR	48.75 - 53.75	1.0000	1.0000
L29	30	4.25" SR	48.75 - 53.75	1.0000	1.0000
L29	31	4.25" SR	48.75 - 53.75	1.0000	1.0000
L30	10	CU12PSM9P6XXX(1-1/2)	39.25 - 48.75	1.0000	1.0000
L30	12	LDF7-50A(1-5/8)	39.25 - 48.75	1.0000	1.0000
L30	18	LCF158-50JL(1-5/8)	39.25 - 48.75	1.0000	1.0000
L30	22	Safety Line 3/8	39.25 - 48.75	1.0000	1.0000
L30	29	4.25" SR	39.25 - 48.75	1.0000	1.0000
L30	30	4.25" SR	39.25 - 48.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L30	31	4.25" SR	39.25 - 48.75	1.0000	1.0000
L30	44	Spacer Plates	39.25 - 41.85	1.0000	1.0000
L30	45	Spacer Plates	39.25 - 41.85	1.0000	1.0000
L30	46	Spacer Plates	39.25 - 41.85	1.0000	1.0000
L31	10	CU12PSM9P6XXX(1-1/2)	38.25 - 39.25	1.0000	1.0000
L31	12	LDF7-50A(1-5/8)	38.25 - 39.25	1.0000	1.0000
L31	18	LCF158-50JL(1-5/8)	38.25 - 39.25	1.0000	1.0000
L31	22	Safety Line 3/8	38.25 - 39.25	1.0000	1.0000
L31	29	4.25" SR	38.25 - 39.25	1.0000	1.0000
L31	30	4.25" SR	38.25 - 39.25	1.0000	1.0000
L31	31	4.25" SR	38.25 - 39.25	1.0000	1.0000
L31	44	Spacer Plates	38.75 - 39.25	1.0000	1.0000
L31	45	Spacer Plates	38.75 - 39.25	1.0000	1.0000
L31	46	Spacer Plates	38.75 - 39.25	1.0000	1.0000
L32	10	CU12PSM9P6XXX(1-1/2)	33.25 - 38.25	1.0000	1.0000
L32	12	LDF7-50A(1-5/8)	33.25 - 38.25	1.0000	1.0000
L32	18	LCF158-50JL(1-5/8)	33.25 - 38.25	1.0000	1.0000
L32	22	Safety Line 3/8	33.25 - 38.25	1.0000	1.0000
L32	29	4.25" SR	33.25 - 38.25	1.0000	1.0000
L32	30	4.25" SR	33.25 - 38.25	1.0000	1.0000
L32	31	4.25" SR	33.25 - 38.25	1.0000	1.0000
L33	10	CU12PSM9P6XXX(1-1/2)	28.25 - 33.25	1.0000	1.0000
L33	12	LDF7-50A(1-5/8)	28.25 - 33.25	1.0000	1.0000
L33	18	LCF158-50JL(1-5/8)	28.25 - 33.25	1.0000	1.0000
L33	22	Safety Line 3/8	28.25 - 33.25	1.0000	1.0000
L33	29	4.25" SR	28.25 - 33.25	1.0000	1.0000
L33	30	4.25" SR	28.25 - 33.25	1.0000	1.0000
L33	31	4.25" SR	28.25 - 33.25	1.0000	1.0000
L34	10	CU12PSM9P6XXX(1-1/2)	23.25 - 28.25	1.0000	1.0000
L34	12	LDF7-50A(1-5/8)	23.25 - 28.25	1.0000	1.0000
L34	18	LCF158-50JL(1-5/8)	23.25 - 28.25	1.0000	1.0000
L34	22	Safety Line 3/8	23.25 - 28.25	1.0000	1.0000
L34	29	4.25" SR	23.25 - 28.25	1.0000	1.0000
L34	30	4.25" SR	23.25 - 28.25	1.0000	1.0000
L34	31	4.25" SR	23.25 - 28.25	1.0000	1.0000
L35	10	CU12PSM9P6XXX(1-1/2)	18.25 - 23.25	1.0000	1.0000
L35	12	LDF7-50A(1-5/8)	18.25 - 23.25	1.0000	1.0000
L35	18	LCF158-50JL(1-5/8)	18.25 - 23.25	1.0000	1.0000
L35	22	Safety Line 3/8	18.25 - 23.25	1.0000	1.0000
L35	26	4.5" SR	18.25 - 20.00	1.0000	1.0000
L35	27	4.5" SR	18.25 - 20.00	1.0000	1.0000
L35	28	4.5" SR	18.25 - 20.00	1.0000	1.0000
L35	29	4.25" SR	20.00 - 23.25	1.0000	1.0000
L35	30	4.25" SR	20.00 - 23.25	1.0000	1.0000
L35	31	4.25" SR	20.00 - 23.25	1.0000	1.0000
L35	40	Spacer Plates	18.75 - 21.85	1.0000	1.0000
L35	41	Spacer Plates	18.75 - 21.85	1.0000	1.0000
L35	42	Spacer Plates	18.75 - 21.85	1.0000	1.0000
L36	10	CU12PSM9P6XXX(1-1/2)	13.25 - 18.25	1.0000	1.0000
L36	12	LDF7-50A(1-5/8)	13.25 - 18.25	1.0000	1.0000
L36	18	LCF158-50JL(1-5/8)	13.25 - 18.25	1.0000	1.0000
L36	22	Safety Line 3/8	13.25 - 18.25	1.0000	1.0000
L36	26	4.5" SR	13.25 - 18.25	1.0000	1.0000
L36	27	4.5" SR	13.25 - 18.25	1.0000	1.0000
L36	28	4.5" SR	13.25 - 18.25	1.0000	1.0000
L37	10	CU12PSM9P6XXX(1-1/2)	8.25 - 13.25	1.0000	1.0000
L37	12	LDF7-50A(1-5/8)	8.25 - 13.25	1.0000	1.0000
L37	18	LCF158-50JL(1-5/8)	8.25 - 13.25	1.0000	1.0000
L37	22	Safety Line 3/8	8.25 - 13.25	1.0000	1.0000
L37	26	4.5" SR	8.25 - 13.25	1.0000	1.0000
L37	27	4.5" SR	8.25 - 13.25	1.0000	1.0000
L37	28	4.5" SR	8.25 - 13.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L38	10	CU12PSM9P6XXX(1-1/2)	3.25 - 8.25	1.0000	1.0000
L38	12	LDF7-50A(1-5/8)	3.25 - 8.25	1.0000	1.0000
L38	18	LCF158-50JL(1-5/8)	3.25 - 8.25	1.0000	1.0000
L38	22	Safety Line 3/8	3.25 - 8.25	1.0000	1.0000
L38	26	4.5" SR	3.25 - 8.25	1.0000	1.0000
L38	27	4.5" SR	3.25 - 8.25	1.0000	1.0000
L38	28	4.5" SR	3.25 - 8.25	1.0000	1.0000
L39	10	CU12PSM9P6XXX(1-1/2)	0.00 - 3.25	1.0000	1.0000
L39	12	LDF7-50A(1-5/8)	0.00 - 3.25	1.0000	1.0000
L39	18	LCF158-50JL(1-5/8)	0.00 - 3.25	1.0000	1.0000
L39	22	Safety Line 3/8	0.00 - 3.25	1.0000	1.0000
L39	26	4.5" SR	0.00 - 3.25	1.0000	1.0000
L39	27	4.5" SR	0.00 - 3.25	1.0000	1.0000
L39	28	4.5" SR	0.00 - 3.25	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
L12	36	MP3-04	118.58 - 120.00	Auto	0.0000
L12	37	MP3-04	118.58 - 120.00	Auto	0.0000
L12	38	MP3-04	118.58 - 120.00	Auto	0.0000
L13	36	MP3-04	118.33 - 118.58	Auto	0.0000
L13	37	MP3-04	118.33 - 118.58	Auto	0.0000
L13	38	MP3-04	118.33 - 118.58	Auto	0.0000
L14	36	MP3-04	113.33 - 118.33	Auto	0.0000
L14	37	MP3-04	113.33 - 118.33	Auto	0.0000
L14	38	MP3-04	113.33 - 118.33	Auto	0.0000
L15	36	MP3-04	108.33 - 113.33	Auto	0.0000
L15	37	MP3-04	108.33 - 113.33	Auto	0.0000
L15	38	MP3-04	108.33 - 113.33	Auto	0.0000
L16	36	MP3-04	106.42 - 108.33	Auto	0.0000
L16	37	MP3-04	106.42 - 108.33	Auto	0.0000
L16	38	MP3-04	106.42 - 108.33	Auto	0.0000
L17	36	MP3-04	106.17 - 106.42	Auto	0.0000
L17	37	MP3-04	106.17 - 106.42	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L17	38	MP3-04	106.17 - 106.42	Auto	0.0000
L18	36	MP3-04	105.00 - 106.17	Auto	0.0000
L18	37	MP3-04	105.00 - 106.17	Auto	0.0000
L18	38	MP3-04	105.00 - 106.17	Auto	0.0000
L18	56	Spacer Plates	101.17 - 101.25	Auto	0.6499
L18	57	Spacer Plates	101.17 - 101.25	Auto	0.6499
L18	58	Spacer Plates	101.17 - 101.25	Auto	0.6499
L19	56	Spacer Plates	99.25 - 101.17	Auto	0.6480
L19	57	Spacer Plates	99.25 - 101.17	Auto	0.6480
L19	58	Spacer Plates	99.25 - 101.17	Auto	0.6480
L23	52	Spacer Plates	79.00 - 81.60	Auto	0.6225
L23	53	Spacer Plates	79.00 - 81.60	Auto	0.6225
L23	54	Spacer Plates	79.00 - 81.60	Auto	0.6225
L27	48	Spacer Plates	58.75 - 61.85	Auto	0.5845
L27	49	Spacer Plates	58.75 - 61.85	Auto	0.5845
L27	50	Spacer Plates	58.75 - 61.85	Auto	0.5845
L30	44	Spacer Plates	39.25 - 41.85	Auto	0.5471
L30	45	Spacer Plates	39.25 - 41.85	Auto	0.5471
L30	46	Spacer Plates	39.25 - 41.85	Auto	0.5471
L31	44	Spacer Plates	38.75 - 39.25	Auto	0.5577
L31	45	Spacer Plates	38.75 - 39.25	Auto	0.5577
L31	46	Spacer Plates	38.75 - 39.25	Auto	0.5577
L35	40	Spacer Plates	18.75 - 21.85	Auto	0.5223
L35	41	Spacer Plates	18.75 - 21.85	Auto	0.5223
L35	42	Spacer Plates	18.75 - 21.85	Auto	0.5223

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.600 5.050 5.500 6.440	4.010 4.450 4.890 5.820	0.095 0.160 0.235 0.419
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.600 5.050 5.500 6.440	4.010 4.450 4.890 5.820	0.095 0.160 0.235 0.419
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.600 5.050 5.500 6.440	4.010 4.450 4.890 5.820	0.095 0.160 0.235 0.419

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.090 4.480 4.880 5.710	2.860 3.230 3.610 4.400	0.077 0.127 0.185 0.331
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.090 4.480 4.880 5.710	2.860 3.230 3.610 4.400	0.077 0.127 0.185 0.331
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.090 4.480 4.880 5.710	2.860 3.230 3.610 4.400	0.077 0.127 0.185 0.331
(3) ACU-A20-N	A	From Leg	1.000 0.000 2.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.067 0.104 0.148 0.259	0.117 0.162 0.215 0.343	0.001 0.002 0.004 0.012
(3) ACU-A20-N	B	From Leg	1.000 0.000 2.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.067 0.104 0.148 0.259	0.117 0.162 0.215 0.343	0.001 0.002 0.004 0.012
(3) ACU-A20-N	C	From Leg	1.000 0.000 2.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.067 0.104 0.148 0.259	0.117 0.162 0.215 0.343	0.001 0.002 0.004 0.012
800 EXTERNAL NOTCH FILTER	A	From Leg	1.000 0.000 2.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.321 0.398 0.483 0.674	0.011 0.017 0.024 0.045
800 EXTERNAL NOTCH FILTER	B	From Leg	1.000 0.000 2.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.321 0.398 0.483 0.674	0.011 0.017 0.024 0.045
800 EXTERNAL NOTCH FILTER	C	From Leg	1.000 0.000 2.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.321 0.398 0.483 0.674	0.011 0.017 0.024 0.045
1900MHZ RRH (65MHZ)	A	From Leg	1.000 0.000 2.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	2.375 2.581 2.794 3.243	0.060 0.084 0.111 0.176
1900MHZ RRH (65MHZ)	B	From Leg	1.000 0.000 2.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	2.375 2.581 2.794 3.243	0.060 0.084 0.111 0.176
1900MHZ RRH (65MHZ)	C	From Leg	1.000 0.000 2.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	2.375 2.581 2.794 3.243	0.060 0.084 0.111 0.176
800MHZ RRH	A	From Leg	1.000 0.000 2.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.134 2.320 2.512 2.920	1.773 1.946 2.127 2.510	0.053 0.074 0.098 0.157
800MHZ RRH	B	From Leg	1.000 0.000 2.000	0.000	177.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.134 2.320 2.512 2.920	1.773 1.946 2.127 2.510	0.053 0.074 0.098 0.157
800MHZ RRH	C	From Leg	1.000	0.000	177.000	No Ice	2.134	1.773	0.053

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1/2" Ice	2.320	1.946	0.074
			2.000			1" Ice	2.512	2.127	0.098
						2" Ice	2.920	2.510	0.157
TD-RRH8x20-25	A	From Leg	4.000	0.000	177.000	No Ice	4.045	1.535	0.070
			0.000			1/2" Ice	4.298	1.714	0.097
			2.000			1" Ice	4.557	1.901	0.128
						2" Ice	5.098	2.295	0.201
TD-RRH8x20-25	B	From Leg	4.000	0.000	177.000	No Ice	4.045	1.535	0.070
			0.000			1/2" Ice	4.298	1.714	0.097
			2.000			1" Ice	4.557	1.901	0.128
						2" Ice	5.098	2.295	0.201
TD-RRH8x20-25	C	From Leg	4.000	0.000	177.000	No Ice	4.045	1.535	0.070
			0.000			1/2" Ice	4.298	1.714	0.097
			2.000			1" Ice	4.557	1.901	0.128
						2" Ice	5.098	2.295	0.201
5' x 2" Pipe Mount	A	From Leg	4.000	0.000	177.000	No Ice	1.188	1.188	0.018
			0.000			1/2" Ice	1.496	1.496	0.027
			1.000			1" Ice	1.807	1.807	0.040
						2" Ice	2.458	2.458	0.076
5' x 2" Pipe Mount	B	From Leg	4.000	0.000	177.000	No Ice	1.188	1.188	0.018
			0.000			1/2" Ice	1.496	1.496	0.027
			1.000			1" Ice	1.807	1.807	0.040
						2" Ice	2.458	2.458	0.076
5' x 2" Pipe Mount	C	From Leg	4.000	0.000	177.000	No Ice	1.188	1.188	0.018
			0.000			1/2" Ice	1.496	1.496	0.027
			1.000			1" Ice	1.807	1.807	0.040
						2" Ice	2.458	2.458	0.076
Platform Mount [LP 1201-1]	C	None		0.000	177.000	No Ice	18.380	18.380	2.100
						1/2" Ice	22.110	22.110	2.652
						1" Ice	25.870	25.870	3.263
						2" Ice	33.470	33.470	4.662
4' x 2" Pipe Mount	A	From Leg	1.000	0.000	176.000	No Ice	0.785	0.785	0.029
			0.000			1/2" Ice	1.028	1.028	0.035
			3.000			1" Ice	1.281	1.281	0.044
						2" Ice	1.814	1.814	0.072
4' x 2" Pipe Mount	B	From Leg	1.000	0.000	176.000	No Ice	0.785	0.785	0.029
			0.000			1/2" Ice	1.028	1.028	0.035
			3.000			1" Ice	1.281	1.281	0.044
						2" Ice	1.814	1.814	0.072
4' x 2" Pipe Mount	C	From Leg	1.000	0.000	176.000	No Ice	0.785	0.785	0.029
			0.000			1/2" Ice	1.028	1.028	0.035
			3.000			1" Ice	1.281	1.281	0.044
						2" Ice	1.814	1.814	0.072
Side Arm Mount [SO 102-3]	C	None		0.000	176.000	No Ice	3.600	3.600	0.075
						1/2" Ice	4.180	4.180	0.105
						1" Ice	4.750	4.750	0.135
						2" Ice	5.900	5.900	0.195
*									
APXV18-206516S-C-A20 w/ Mount Pipe	A	From Leg	4.000	0.000	167.000	No Ice	2.550	2.150	0.039
			0.000			1/2" Ice	2.960	2.550	0.068
			2.000			1" Ice	3.380	2.960	0.106
						2" Ice	4.260	3.830	0.207
APXV18-206516S-C-A20 w/ Mount Pipe	B	From Leg	4.000	0.000	167.000	No Ice	2.550	2.150	0.039
			0.000			1/2" Ice	2.960	2.550	0.068
			2.000			1" Ice	3.380	2.960	0.106
						2" Ice	4.260	3.830	0.207
APXV18-206516S-C-A20 w/	C	From Leg	4.000	0.000	167.000	No Ice	2.550	2.150	0.039

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Mount Pipe			0.000			1/2" Ice	2.960	2.550	0.068
			2.000			1" Ice	3.380	2.960	0.106
						2" Ice	4.260	3.830	0.207
LNX-6515DS-A1M w/ Mount Pipe	A	From Leg	4.000	0.000	167.000	No Ice	5.310	4.270	0.083
			0.000			1/2" Ice	5.800	4.750	0.165
			2.000			1" Ice	6.300	5.240	0.261
						2" Ice	7.330	6.240	0.495
LNX-6515DS-A1M w/ Mount Pipe	B	From Leg	4.000	0.000	167.000	No Ice	5.310	4.270	0.083
			0.000			1/2" Ice	5.800	4.750	0.165
			2.000			1" Ice	6.300	5.240	0.261
						2" Ice	7.330	6.240	0.495
LNX-6515DS-A1M w/ Mount Pipe	C	From Leg	4.000	0.000	167.000	No Ice	5.310	4.270	0.083
			0.000			1/2" Ice	5.800	4.750	0.165
			2.000			1" Ice	6.300	5.240	0.261
						2" Ice	7.330	6.240	0.495
KRY 112 75/1	A	From Leg	4.000	0.000	167.000	No Ice	1.104	0.442	0.030
			0.000			1/2" Ice	1.235	0.534	0.039
			1.000			1" Ice	1.374	0.635	0.049
						2" Ice	1.674	0.860	0.077
KRY 112 75/1	B	From Leg	4.000	0.000	167.000	No Ice	1.104	0.442	0.030
			0.000			1/2" Ice	1.235	0.534	0.039
			1.000			1" Ice	1.374	0.635	0.049
						2" Ice	1.674	0.860	0.077
KRY 112 75/1	C	From Leg	4.000	0.000	167.000	No Ice	1.104	0.442	0.030
			0.000			1/2" Ice	1.235	0.534	0.039
			1.000			1" Ice	1.374	0.635	0.049
						2" Ice	1.674	0.860	0.077
(2) 5' x 2" Pipe Mount	A	From Leg	4.000	0.000	167.000	No Ice	1.188	1.188	0.018
			0.000			1/2" Ice	1.496	1.496	0.027
			0.000			1" Ice	1.807	1.807	0.040
						2" Ice	2.458	2.458	0.076
(2) 5' x 2" Pipe Mount	B	From Leg	4.000	0.000	167.000	No Ice	1.188	1.188	0.018
			0.000			1/2" Ice	1.496	1.496	0.027
			0.000			1" Ice	1.807	1.807	0.040
						2" Ice	2.458	2.458	0.076
(2) 5' x 2" Pipe Mount	C	From Leg	4.000	0.000	167.000	No Ice	1.188	1.188	0.018
			0.000			1/2" Ice	1.496	1.496	0.027
			0.000			1" Ice	1.807	1.807	0.040
						2" Ice	2.458	2.458	0.076
T-Arm Mount [TA 602-3]	C	None		0.000	167.000	No Ice	13.400	13.400	0.774
						1/2" Ice	16.440	16.440	1.004
						1" Ice	19.700	19.700	1.292
						2" Ice	25.860	25.860	2.053
*									
(2) LPA-80080/6CF w/ Mount Pipe	A	From Leg	4.000	0.000	154.000	No Ice	4.564	10.259	0.046
			0.000			1/2" Ice	5.105	11.427	0.113
			2.000			1" Ice	5.612	12.312	0.187
						2" Ice	6.651	14.129	0.363
(2) LPA-80080/6CF w/ Mount Pipe	B	From Leg	4.000	0.000	154.000	No Ice	4.564	10.259	0.046
			0.000			1/2" Ice	5.105	11.427	0.113
			2.000			1" Ice	5.612	12.312	0.187
						2" Ice	6.651	14.129	0.363
(2) LPA-80063/6CF w/ Mount Pipe	C	From Leg	4.000	0.000	154.000	No Ice	9.831	10.215	0.052
			0.000			1/2" Ice	10.400	11.384	0.145
			2.000			1" Ice	10.933	12.269	0.246
						2" Ice	12.026	14.086	0.476
(2) QS6656-5D w/ Mount	A	From Leg	4.000	0.000	154.000	No Ice	4.040	4.180	0.114

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Pipe			0.000			1/2" Ice	4.420	4.570	0.183
			2.000			1" Ice	4.820	4.970	0.264
						2" Ice	5.630	5.790	0.459
(2) QS6656-5D w/ Mount Pipe	B	From Leg	4.000	0.000	154.000	No Ice	4.040	4.180	0.114
			0.000			1/2" Ice	4.420	4.570	0.183
			2.000			1" Ice	4.820	4.970	0.264
						2" Ice	5.630	5.790	0.459
(2) QS6656-5D w/ Mount Pipe	C	From Leg	4.000	0.000	154.000	No Ice	4.040	4.180	0.114
			0.000			1/2" Ice	4.420	4.570	0.183
			2.000			1" Ice	4.820	4.970	0.264
						2" Ice	5.630	5.790	0.459
MT6407-77A w/ Mount Pipe	A	From Leg	4.000	0.000	154.000	No Ice	4.907	2.682	0.096
			0.000			1/2" Ice	5.256	3.145	0.136
			2.000			1" Ice	5.615	3.624	0.180
						2" Ice	6.362	4.631	0.288
MT6407-77A w/ Mount Pipe	B	From Leg	4.000	0.000	154.000	No Ice	4.907	2.682	0.096
			0.000			1/2" Ice	5.256	3.145	0.136
			2.000			1" Ice	5.615	3.624	0.180
						2" Ice	6.362	4.631	0.288
MT6407-77A w/ Mount Pipe	C	From Leg	4.000	0.000	154.000	No Ice	4.907	2.682	0.096
			0.000			1/2" Ice	5.256	3.145	0.136
			2.000			1" Ice	5.615	3.624	0.180
						2" Ice	6.362	4.631	0.288
RFV01U-D1A	A	From Leg	4.000	0.000	154.000	No Ice	1.875	1.250	0.084
			0.000			1/2" Ice	2.045	1.393	0.103
			2.000			1" Ice	2.223	1.543	0.124
						2" Ice	2.601	1.865	0.175
RFV01U-D1A	B	From Leg	4.000	0.000	154.000	No Ice	1.875	1.250	0.084
			0.000			1/2" Ice	2.045	1.393	0.103
			2.000			1" Ice	2.223	1.543	0.124
						2" Ice	2.601	1.865	0.175
RFV01U-D1A	C	From Leg	4.000	0.000	154.000	No Ice	1.875	1.250	0.084
			0.000			1/2" Ice	2.045	1.393	0.103
			2.000			1" Ice	2.223	1.543	0.124
						2" Ice	2.601	1.865	0.175
RFV01U-D2A	A	From Leg	4.000	0.000	154.000	No Ice	1.875	1.013	0.070
			0.000			1/2" Ice	2.045	1.145	0.087
			2.000			1" Ice	2.223	1.284	0.106
						2" Ice	2.601	1.585	0.153
RFV01U-D2A	B	From Leg	4.000	0.000	154.000	No Ice	1.875	1.013	0.070
			0.000			1/2" Ice	2.045	1.145	0.087
			2.000			1" Ice	2.223	1.284	0.106
						2" Ice	2.601	1.585	0.153
RFV01U-D2A	C	From Leg	4.000	0.000	154.000	No Ice	1.875	1.013	0.070
			0.000			1/2" Ice	2.045	1.145	0.087
			2.000			1" Ice	2.223	1.284	0.106
						2" Ice	2.601	1.585	0.153
DB-C1-12C-24AB-0Z	A	From Leg	4.000	0.000	154.000	No Ice	4.056	3.098	0.032
			0.000			1/2" Ice	4.316	3.335	0.068
			2.000			1" Ice	4.582	3.580	0.109
						2" Ice	5.138	4.092	0.203
4' x 2" Pipe Mount	A	From Leg	2.000	0.000	154.000	No Ice	0.785	0.785	0.029
			0.000			1/2" Ice	1.028	1.028	0.035
			0.000			1" Ice	1.281	1.281	0.044
						2" Ice	1.814	1.814	0.072
Platform Mount [LP 303-1_HR-1]	C	None		0.000	154.000	No Ice	17.090	17.090	1.495
						1/2" Ice	21.470	21.470	1.881

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	25.720	25.720	2.346
						2" Ice	33.960	33.960	3.518
*									
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	144.000	No Ice 1/2" Ice 1" Ice 2" Ice	8.010 8.520 9.040 10.110	4.230 4.690 5.160 6.120	0.108 0.194 0.292 0.522
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	144.000	No Ice 1/2" Ice 1" Ice 2" Ice	8.010 8.520 9.040 10.110	4.230 4.690 5.160 6.120	0.108 0.194 0.292 0.522
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	144.000	No Ice 1/2" Ice 1" Ice 2" Ice	8.010 8.520 9.040 10.110	4.230 4.690 5.160 6.120	0.108 0.194 0.292 0.522
TA08025-B604	A	From Leg	4.000 0.000 0.000	0.000	144.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.981 1.112 1.250 1.548	0.064 0.081 0.100 0.148
TA08025-B604	B	From Leg	4.000 0.000 0.000	0.000	144.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.981 1.112 1.250 1.548	0.064 0.081 0.100 0.148
TA08025-B604	C	From Leg	4.000 0.000 0.000	0.000	144.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.981 1.112 1.250 1.548	0.064 0.081 0.100 0.148
TA08025-B605	A	From Leg	4.000 0.000 0.000	0.000	144.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	1.129 1.267 1.411 1.723	0.075 0.093 0.114 0.164
TA08025-B605	B	From Leg	4.000 0.000 0.000	0.000	144.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	1.129 1.267 1.411 1.723	0.075 0.093 0.114 0.164
TA08025-B605	C	From Leg	4.000 0.000 0.000	0.000	144.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	1.129 1.267 1.411 1.723	0.075 0.093 0.114 0.164
RDIDC-9181-PF-48	A	From Leg	4.000 0.000 0.000	0.000	144.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	1.168 1.311 1.461 1.784	0.022 0.040 0.060 0.110
(2) 8' x 2" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	144.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.900 2.728 3.401 4.396	1.900 2.728 3.401 4.396	0.029 0.044 0.063 0.119
(2) 8' x 2" Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	144.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.900 2.728 3.401 4.396	1.900 2.728 3.401 4.396	0.029 0.044 0.063 0.119
(2) 8' x 2" Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	144.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.900 2.728 3.401 4.396	1.900 2.728 3.401 4.396	0.029 0.044 0.063 0.119
Commscope MC-PK8-DSH	C	None		0.000	144.000	No Ice 1/2" Ice	34.240 62.950	34.240 62.950	1.749 2.099

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	91.660	91.660	2.450
						2" Ice	149.080	149.080	3.151
*									
7770.00 w/ Mount Pipe	A	From Leg	4.000	0.000	127.000	No Ice	5.746	4.254	0.055
			0.000			1/2" Ice	6.179	5.014	0.103
			2.000			1" Ice	6.607	5.711	0.157
						2" Ice	7.488	7.155	0.287
7770.00 w/ Mount Pipe	B	From Leg	4.000	0.000	127.000	No Ice	5.746	4.254	0.055
			0.000			1/2" Ice	6.179	5.014	0.103
			2.000			1" Ice	6.607	5.711	0.157
						2" Ice	7.488	7.155	0.287
7770.00 w/ Mount Pipe	C	From Leg	4.000	0.000	127.000	No Ice	5.746	4.254	0.055
			0.000			1/2" Ice	6.179	5.014	0.103
			2.000			1" Ice	6.607	5.711	0.157
						2" Ice	7.488	7.155	0.287
OPA65R-BU4D w/ Mount Pipe	A	From Leg	4.000	0.000	127.000	No Ice	8.100	4.030	0.081
			0.000			1/2" Ice	8.650	4.500	0.142
			2.000			1" Ice	9.210	4.980	0.212
						2" Ice	10.390	5.980	0.380
OPA65R-BU4D w/ Mount Pipe	B	From Leg	4.000	0.000	127.000	No Ice	8.100	4.030	0.081
			0.000			1/2" Ice	8.650	4.500	0.142
			2.000			1" Ice	9.210	4.980	0.212
						2" Ice	10.390	5.980	0.380
OPA65R-BU4D w/ Mount Pipe	C	From Leg	4.000	0.000	127.000	No Ice	8.100	4.030	0.081
			0.000			1/2" Ice	8.650	4.500	0.142
			2.000			1" Ice	9.210	4.980	0.212
						2" Ice	10.390	5.980	0.380
DMP65R-BU4D w/ Mount Pipe	A	From Leg	4.000	0.000	127.000	No Ice	7.530	3.790	0.095
			0.000			1/2" Ice	8.040	4.230	0.156
			2.000			1" Ice	8.570	4.680	0.225
						2" Ice	9.680	5.630	0.391
DMP65R-BU4D w/ Mount Pipe	B	From Leg	4.000	0.000	127.000	No Ice	7.530	3.790	0.095
			0.000			1/2" Ice	8.040	4.230	0.156
			2.000			1" Ice	8.570	4.680	0.225
						2" Ice	9.680	5.630	0.391
DMP65R-BU4D w/ Mount Pipe	C	From Leg	4.000	0.000	127.000	No Ice	7.530	3.790	0.095
			0.000			1/2" Ice	8.040	4.230	0.156
			2.000			1" Ice	8.570	4.680	0.225
						2" Ice	9.680	5.630	0.391
RRUS 4478 B14_CCIV2	A	From Leg	4.000	0.000	127.000	No Ice	0.000	1.246	0.059
			0.000			1/2" Ice	0.000	1.396	0.077
			2.000			1" Ice	0.000	1.554	0.097
						2" Ice	0.000	1.891	0.147
RRUS 4478 B14_CCIV2	B	From Leg	4.000	0.000	127.000	No Ice	0.000	1.246	0.059
			0.000			1/2" Ice	0.000	1.396	0.077
			2.000			1" Ice	0.000	1.554	0.097
						2" Ice	0.000	1.891	0.147
RRUS 4478 B14_CCIV2	C	From Leg	4.000	0.000	127.000	No Ice	0.000	1.246	0.059
			0.000			1/2" Ice	0.000	1.396	0.077
			2.000			1" Ice	0.000	1.554	0.097
						2" Ice	0.000	1.891	0.147
RRUS 4449 B5/B12	A	From Leg	4.000	0.000	127.000	No Ice	1.968	1.408	0.071
			0.000			1/2" Ice	2.144	1.564	0.090
			2.000			1" Ice	2.328	1.727	0.111
						2" Ice	2.718	2.075	0.163
RRUS 4449 B5/B12	B	From Leg	4.000	0.000	127.000	No Ice	1.968	1.408	0.071
			0.000			1/2" Ice	2.144	1.564	0.090

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			2.000			1" Ice	2.328	1.727	0.111
						2" Ice	2.718	2.075	0.163
RRUS 4449 B5/B12	C	From Leg	4.000	0.000	127.000	No Ice	1.968	1.408	0.071
			0.000			1/2" Ice	2.144	1.564	0.090
			2.000			1" Ice	2.328	1.727	0.111
						2" Ice	2.718	2.075	0.163
RRUS 8843 B2/B66A	A	From Leg	4.000	0.000	127.000	No Ice	1.639	1.353	0.072
			0.000			1/2" Ice	1.799	1.500	0.090
			2.000			1" Ice	1.966	1.655	0.110
						2" Ice	2.323	1.986	0.159
RRUS 8843 B2/B66A	B	From Leg	4.000	0.000	127.000	No Ice	1.639	1.353	0.072
			0.000			1/2" Ice	1.799	1.500	0.090
			2.000			1" Ice	1.966	1.655	0.110
						2" Ice	2.323	1.986	0.159
RRUS 8843 B2/B66A	C	From Leg	4.000	0.000	127.000	No Ice	1.639	1.353	0.072
			0.000			1/2" Ice	1.799	1.500	0.090
			2.000			1" Ice	1.966	1.655	0.110
						2" Ice	2.323	1.986	0.159
DC6-48-60-18-8F	A	From Leg	2.000	0.000	127.000	No Ice	1.212	1.212	0.033
			0.000			1/2" Ice	1.892	1.892	0.055
			2.000			1" Ice	2.105	2.105	0.080
						2" Ice	2.570	2.570	0.138
DC6-48-60-18-8C-EV	B	From Leg	2.000	0.000	127.000	No Ice	2.736	2.736	0.026
			0.000			1/2" Ice	2.962	2.962	0.052
			2.000			1" Ice	3.195	3.195	0.082
						2" Ice	3.683	3.683	0.152
(2) LGP21401	A	From Leg	4.000	0.000	127.000	No Ice	1.104	0.207	0.014
			0.000			1/2" Ice	1.239	0.274	0.021
			2.000			1" Ice	1.381	0.348	0.030
						2" Ice	1.688	0.521	0.055
(2) LGP21401	B	From Leg	4.000	0.000	127.000	No Ice	1.104	0.207	0.014
			0.000			1/2" Ice	1.239	0.274	0.021
			2.000			1" Ice	1.381	0.348	0.030
						2" Ice	1.688	0.521	0.055
(2) LGP21401	C	From Leg	4.000	0.000	127.000	No Ice	1.104	0.207	0.014
			0.000			1/2" Ice	1.239	0.274	0.021
			2.000			1" Ice	1.381	0.348	0.030
						2" Ice	1.688	0.521	0.055
(3) 4' x 2" Pipe Mount	A	From Leg	4.000	0.000	127.000	No Ice	0.785	0.785	0.029
			0.000			1/2" Ice	1.028	1.028	0.035
			-3.000			1" Ice	1.281	1.281	0.044
						2" Ice	1.814	1.814	0.072
(3) 4' x 2" Pipe Mount	B	From Leg	4.000	0.000	127.000	No Ice	0.785	0.785	0.029
			0.000			1/2" Ice	1.028	1.028	0.035
			-3.000			1" Ice	1.281	1.281	0.044
						2" Ice	1.814	1.814	0.072
(3) 4' x 2" Pipe Mount	C	From Leg	4.000	0.000	127.000	No Ice	0.785	0.785	0.029
			0.000			1/2" Ice	1.028	1.028	0.035
			-3.000			1" Ice	1.281	1.281	0.044
						2" Ice	1.814	1.814	0.072
3' x 2" Pipe Mount	A	From Leg	2.000	0.000	127.000	No Ice	0.583	0.583	0.011
			0.000			1/2" Ice	0.770	0.770	0.017
			1.000			1" Ice	0.967	0.967	0.024
						2" Ice	1.388	1.388	0.047
3' x 2" Pipe Mount	B	From Leg	2.000	0.000	127.000	No Ice	0.583	0.583	0.011
			0.000			1/2" Ice	0.770	0.770	0.017
			1.000			1" Ice	0.967	0.967	0.024

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	1.388	1.388	0.047
Platform Mount [LP 303-1_HR-1]	C	None		0.000	127.000	No Ice	17.090	17.090	1.495
						1/2" Ice	21.470	21.470	1.881
						1" Ice	25.720	25.720	2.346
						2" Ice	33.960	33.960	3.518
*									
APXV18-206517S-C w/ Mount Pipe	A	From Leg	1.000 0.000 0.000	0.000	117.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.790 4.380 4.990 6.250	3.160 3.750 4.350 5.590	0.053 0.094 0.145 0.281
APXV18-206517S-C w/ Mount Pipe	B	From Leg	1.000 0.000 0.000	0.000	117.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.790 4.380 4.990 6.250	3.160 3.750 4.350 5.590	0.053 0.094 0.145 0.281
APXV18-206517S-C w/ Mount Pipe	C	From Leg	1.000 0.000 0.000	0.000	117.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.790 4.380 4.990 6.250	3.160 3.750 4.350 5.590	0.053 0.094 0.145 0.281
*									
8225	C	From Leg	3.000 0.000 1.000	0.000	79.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.894 1.060 1.230 1.590	0.894 1.060 1.230 1.590	0.001 0.009 0.018 0.046
Side Arm Mount [SO 701-1]	C	From Leg	1.500 0.000 0.000	0.000	79.000	No Ice 1/2" Ice 1" Ice 2" Ice	0.850 1.140 1.430 2.010	1.670 2.340 3.010 4.350	0.065 0.079 0.093 0.121
*									

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

Comb. No.	Description
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	177 - 172	Pole	Max Tension	26	0.000	0.001	-0.001
			Max. Compression	26	-9.011	0.012	0.019
			Max. Mx	20	-3.937	19.623	-0.019
			Max. My	2	-3.903	-0.025	19.788
			Max. Vy	8	3.741	-19.623	0.028
			Max. Vx	2	-3.775	-0.025	19.788
			Max. Torque	10			-0.003
L2	172 - 167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-9.616	0.024	0.037
			Max. Mx	20	-4.249	39.177	-0.041
			Max. My	2	-4.212	-0.051	39.522
			Max. Vy	8	4.083	-39.176	0.059
			Max. Vx	2	-4.120	-0.051	39.522
			Max. Torque	10			-0.003
L3	167 - 162	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-14.379	0.036	0.061
			Max. Mx	8	-5.989	-70.845	0.102
			Max. My	2	-5.934	-0.089	71.445
			Max. Vy	8	6.218	-70.845	0.102
			Max. Vx	2	-6.271	-0.089	71.445
			Max. Torque	10			-0.004

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L4	162 - 157	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-15.082	0.048	0.086
			Max. Mx	8	-6.390	-102.836	0.148
			Max. My	2	-6.332	-0.130	103.706
			Max. Vy	8	6.582	-102.836	0.148
			Max. Vx	2	-6.637	-0.130	103.706
			Max. Torque	10			-0.004
L5	157 - 152	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-25.104	0.821	0.691
			Max. Mx	20	-10.144	152.051	-0.551
			Max. My	2	-10.064	-0.703	152.920
			Max. Vy	8	11.402	-151.928	0.971
			Max. Vx	2	-11.352	-0.703	152.920
			Max. Torque	8			0.651
L6	152 - 147	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-25.888	0.828	0.726
			Max. Mx	20	-10.630	209.964	-1.341
			Max. My	2	-10.547	-1.507	210.599
			Max. Vy	8	11.771	-209.843	1.782
			Max. Vx	2	-11.725	-1.507	210.599
			Max. Torque	8			0.651
L7	147 - 142	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-32.640	0.816	1.228
			Max. Mx	20	-14.000	275.371	-2.026
			Max. My	2	-13.894	-2.326	275.917
			Max. Vy	8	14.970	-275.267	2.714
			Max. Vx	2	-14.917	-2.326	275.917
			Max. Torque	8			0.856
L8	142 - 137	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-33.503	0.772	1.293
			Max. Mx	20	-14.553	351.066	-2.826
			Max. My	2	-14.443	-3.167	351.391
			Max. Vy	8	15.328	-350.997	3.554
			Max. Vx	2	-15.280	-3.167	351.391
			Max. Torque	8			0.856
L9	137 - 129.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-34.121	0.740	1.337
			Max. Mx	20	-14.952	405.109	-3.386
			Max. My	2	-14.839	-3.756	405.294
			Max. Vy	8	15.577	-405.065	4.142
			Max. Vx	2	-15.532	-3.756	405.294
			Max. Torque	8			0.856
L10	129.75 - 128.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-35.595	0.692	1.401
			Max. Mx	20	-15.878	484.046	-4.188
			Max. My	2	-15.761	-4.600	484.060
			Max. Vy	8	16.006	-484.039	4.984
			Max. Vx	2	-15.969	-4.600	484.060
			Max. Torque	8			0.855
L11	128.5 - 123.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-44.851	0.100	1.760
			Max. Mx	8	-20.061	-580.770	5.954
			Max. My	2	-19.906	-5.572	580.789
			Max. Vy	8	19.823	-580.770	5.954
			Max. Vx	2	-19.866	-5.572	580.789
			Max. Torque	10			0.887
L12	123.5 - 118.583	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-46.037	-0.093	1.905
			Max. Mx	8	-20.842	-679.070	6.822
			Max. My	2	-20.672	-6.458	679.517

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	20.163	-679.070	6.822
			Max. Vx	2	-20.303	-6.458	679.517
			Max. Torque	10			0.887
L13	118.583 - 118.333	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-46.116	-0.116	1.922
			Max. Mx	8	-20.905	-684.113	6.867
			Max. My	2	-20.732	-6.504	684.595
			Max. Vy	20	-20.178	683.663	-5.715
			Max. Vx	14	20.338	6.068	-683.323
			Max. Torque	10			0.886
L14	118.333 - 113.333	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-48.434	-0.307	1.944
			Max. Mx	8	-22.099	-787.226	7.730
			Max. My	2	-21.871	-7.402	789.458
			Max. Vy	8	20.910	-787.226	7.730
			Max. Vx	2	-21.467	-7.402	789.458
			Max. Torque	10			0.886
L15	113.333 - 108.333	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-50.456	-0.513	1.930
			Max. Mx	8	-23.423	-892.956	8.588
			Max. My	2	-23.146	-8.304	898.899
			Max. Vy	8	21.377	-892.956	8.588
			Max. Vx	2	-22.325	-8.304	898.899
			Max. Torque	10			0.886
L16	108.333 - 106.417	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-51.469	-0.592	1.922
			Max. Mx	8	-24.121	-934.132	8.917
			Max. My	2	-23.826	-8.651	942.017
			Max. Vy	8	21.609	-934.132	8.917
			Max. Vx	2	-22.707	-8.651	942.017
			Max. Torque	10			0.885
L17	106.417 - 106.167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-51.589	-0.612	1.929
			Max. Mx	8	-24.216	-939.535	8.961
			Max. My	2	-23.920	-8.697	947.695
			Max. Vy	20	-21.627	938.792	-7.716
			Max. Vx	14	22.746	7.966	-946.353
			Max. Torque	10			0.877
L18	106.167 - 101.167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-53.918	-0.815	1.904
			Max. Mx	8	-25.898	-1048.825	9.819
			Max. My	2	-25.560	-9.601	1063.528
			Max. Vy	8	22.092	-1048.825	9.819
			Max. Vx	2	-23.613	-9.601	1063.528
			Max. Torque	10			0.876
L19	101.167 - 96.167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-57.086	-1.032	1.884
			Max. Mx	8	-28.341	-1160.550	10.679
			Max. My	2	-27.966	-10.508	1183.848
			Max. Vy	8	22.605	-1160.550	10.679
			Max. Vx	2	-24.544	-10.508	1183.848
			Max. Torque	10			0.876
L20	96.167 - 91.167	Pole	Max Tension	1	0.000	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	26	-59.377	-1.251	1.860
			Max. Mx	8	-30.050	-1274.540	11.537
			Max. My	2	-29.647	-11.415	1308.501
			Max. Vy	8	23.002	-1274.540	11.537
			Max. Vx	2	-25.352	-11.415	1308.501
			Max. Torque	8			0.860
L21	91.167 - 84	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-60.491	-1.358	1.847
			Max. Mx	8	-30.882	-1330.337	11.951
			Max. My	2	-30.467	-11.853	1370.188
			Max. Vy	8	23.188	-1330.337	11.951
			Max. Vx	2	-25.734	-11.853	1370.188
			Max. Torque	8			0.859
L22	84 - 83.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-63.836	-1.594	1.830
			Max. Mx	8	-33.267	-1447.577	12.809
			Max. My	2	-32.822	-12.761	1501.156
			Max. Vy	20	-23.714	1446.247	-11.437
			Max. Vx	14	26.682	11.463	-1499.711
			Max. Torque	8			0.858
L23	83.75 - 78.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-67.692	-1.366	1.539
			Max. Mx	8	-36.267	-1567.182	13.553
			Max. My	2	-35.800	-13.480	1636.688
			Max. Vy	8	24.271	-1567.182	13.553
			Max. Vx	2	-27.676	-13.480	1636.688
			Max. Torque	8			0.858
L24	78.75 - 73.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-70.291	-1.564	1.496
			Max. Mx	8	-38.273	-1689.410	14.352
			Max. My	2	-37.796	-14.332	1776.902
			Max. Vy	8	24.635	-1689.410	14.352
			Max. Vx	2	-28.450	-14.332	1776.902
			Max. Torque	8			0.707
L25	73.75 - 68.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-72.909	-1.766	1.451
			Max. Mx	8	-40.303	-1813.388	15.146
			Max. My	2	-39.822	-15.183	1920.916
			Max. Vy	8	24.974	-1813.388	15.146
			Max. Vx	2	-29.198	-15.183	1920.916
			Max. Torque	8			0.706
L26	68.75 - 63.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-75.548	-1.970	1.406
			Max. Mx	8	-42.356	-1938.995	15.936
			Max. My	2	-41.878	-16.030	2068.594
			Max. Vy	8	25.288	-1938.995	15.936
			Max. Vx	2	-29.918	-16.030	2068.594
			Max. Torque	8			0.706
L27	63.75 - 58.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-79.643	-2.177	1.361
			Max. Mx	8	-45.664	-2066.320	16.721
			Max. My	2	-45.194	-16.876	2220.044
			Max. Vy	8	25.661	-2066.320	16.721
			Max. Vx	2	-30.709	-16.876	2220.044
			Max. Torque	8			0.705
L28	58.75 - 53.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-82.319	-2.387	1.314
			Max. Mx	8	-47.763	-2195.204	17.501
			Max. My	2	-47.309	-17.717	2375.082
			Max. Vy	8	25.916	-2195.204	17.501
			Max. Vx	2	-31.359	-17.717	2375.082

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	3			-0.721
L29	53.75 - 48.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-85.012	-2.600	1.267
			Max. Mx	8	-49.884	-2325.290	18.274
			Max. My	2	-49.453	-18.552	2533.281
			Max. Vy	8	26.144	-2325.290	18.274
			Max. Vx	2	-31.976	-18.552	2533.281
			Max. Torque	3			-0.782
L30	48.75 - 39.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-87.517	-2.762	1.231
			Max. Mx	8	-51.893	-2423.591	18.849
			Max. My	2	-51.483	-19.175	2653.929
			Max. Vy	8	26.318	-2423.591	18.849
			Max. Vx	2	-32.436	-19.175	2653.929
			Max. Torque	3			-0.816
L31	39.25 - 38.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-93.829	-3.055	1.167
			Max. Mx	8	-56.798	-2602.946	19.880
			Max. My	2	-56.402	-20.294	2876.304
			Max. Vy	8	26.826	-2602.946	19.880
			Max. Vx	2	-33.482	-20.294	2876.304
			Max. Torque	3			-0.877
L32	38.25 - 33.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-96.734	-3.271	1.119
			Max. Mx	8	-59.132	-2737.452	20.637
			Max. My	2	-58.770	-21.118	3044.900
			Max. Vy	8	27.001	-2737.452	20.637
			Max. Vx	2	-34.014	-21.118	3044.900
			Max. Torque	3			-0.935
L33	33.25 - 28.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-99.656	-3.490	1.070
			Max. Mx	8	-61.489	-2872.752	21.386
			Max. My	2	-61.168	-21.934	3216.039
			Max. Vy	8	27.146	-2872.752	21.386
			Max. Vx	2	-34.502	-21.934	3216.039
			Max. Torque	3			-0.992
L34	28.25 - 23.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-102.593	-3.709	1.022
			Max. Mx	8	-63.869	-3008.728	22.127
			Max. My	2	-63.593	-22.743	3389.563
			Max. Vy	8	27.273	-3008.728	22.127
			Max. Vx	2	-34.971	-22.743	3389.563
			Max. Torque	3			-1.049
L35	23.25 - 18.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-106.996	-3.930	0.973
			Max. Mx	8	-67.542	-3145.388	22.858
			Max. My	2	-67.316	-23.544	3565.514
			Max. Vy	8	27.419	-3145.388	22.858
			Max. Vx	2	-35.472	-23.544	3565.514
			Max. Torque	3			-1.083
L36	18.25 - 13.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-110.064	-4.149	0.925
			Max. Mx	8	-70.073	-3282.647	23.579
			Max. My	2	-69.900	-24.335	3743.813
			Max. Vy	8	27.516	-3282.647	23.579
			Max. Vx	2	-35.916	-24.335	3743.813
			Max. Torque	3			-1.143
L37	13.25 - 8.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-113.132	-4.368	0.877
			Max. Mx	8	-72.625	-3420.352	24.290
			Max. My	2	-72.514	-25.118	3923.570

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	27.598	-3420.352	24.290
			Max. Vx	2	-36.057	-25.118	3923.570
			Max. Torque	3			-1.143
L38	8.25 - 3.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-116.186	-4.581	0.830
			Max. Mx	8	-75.199	-3558.431	24.989
			Max. My	2	-75.151	-25.890	4103.980
			Max. Vy	8	27.667	-3558.431	24.989
			Max. Vx	2	-36.179	-25.890	4103.980
			Max. Torque	3			-1.143
L39	3.25 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-118.136	-4.712	0.803
			Max. Mx	8	-76.883	-3648.351	25.437
			Max. My	2	-76.876	-26.385	4221.551
			Max. Vy	8	27.707	-3648.351	25.437
			Max. Vx	2	-36.251	-26.385	4221.551
			Max. Torque	3			-1.143

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	118.136	-0.021	8.911
	Max. H_x	20	76.896	27.669	-0.135
	Max. H_z	3	57.672	-0.135	36.208
	Max. M_x	2	4221.551	-0.135	36.208
	Max. M_z	8	3648.351	-27.669	0.135
	Max. Torsion	15	1.071	0.135	-36.208
	Min. Vert	5	57.672	-13.594	23.270
	Min. H_x	9	57.672	-27.669	0.135
	Min. H_z	14	76.896	0.135	-36.208
	Min. M_x	14	-4219.990	0.135	-36.208
	Min. M_z	20	-3644.867	27.669	-0.135
	Min. Torsion	3	-1.143	-0.135	36.208

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	64.080	0.000	0.000	-0.555	-1.335	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	76.896	0.135	-36.208	-4221.551	-26.385	1.138
0.9 Dead+1.0 Wind 0 deg - No Ice	57.672	0.135	-36.208	-4113.453	-25.178	1.143
1.2 Dead+1.0 Wind 30 deg - No Ice	76.896	13.594	-23.270	-3098.685	-1819.074	-0.294
0.9 Dead+1.0 Wind 30 deg - No Ice	57.672	13.594	-23.270	-3014.131	-1769.047	-0.285
1.2 Dead+1.0 Wind 60 deg - No Ice	76.896	23.519	-13.576	-1808.422	-3133.132	-0.577
0.9 Dead+1.0 Wind 60 deg - No	57.672	23.519	-13.576	-1759.009	-3047.446	-0.563

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
Ice						
1.2 Dead+1.0 Wind 90 deg - No Ice	76.896	27.669	-0.135	-25.437	-3648.351	-0.702
0.9 Dead+1.0 Wind 90 deg - No Ice	57.672	27.669	-0.135	-24.475	-3549.140	-0.688
1.2 Dead+1.0 Wind 120 deg - No Ice	76.896	25.044	14.300	1836.939	-3234.512	-0.586
0.9 Dead+1.0 Wind 120 deg - No Ice	57.672	25.044	14.300	1787.967	-3147.352	-0.576
1.2 Dead+1.0 Wind 150 deg - No Ice	76.896	14.608	25.297	3252.635	-1880.340	-0.356
0.9 Dead+1.0 Wind 150 deg - No Ice	57.672	14.608	25.297	3165.920	-1829.682	-0.354
1.2 Dead+1.0 Wind 180 deg - No Ice	76.896	-0.135	36.208	4219.990	22.935	-1.064
0.9 Dead+1.0 Wind 180 deg - No Ice	57.672	-0.135	36.208	4112.336	22.650	-1.071
1.2 Dead+1.0 Wind 210 deg - No Ice	76.896	-13.594	23.270	3097.141	1815.571	0.353
0.9 Dead+1.0 Wind 210 deg - No Ice	57.672	-13.594	23.270	3013.023	1766.483	0.341
1.2 Dead+1.0 Wind 240 deg - No Ice	76.896	-23.519	13.576	1806.896	3129.635	0.569
0.9 Dead+1.0 Wind 240 deg - No Ice	57.672	-23.519	13.576	1757.913	3044.886	0.556
1.2 Dead+1.0 Wind 270 deg - No Ice	76.896	-27.669	0.135	23.915	3644.867	0.635
0.9 Dead+1.0 Wind 270 deg - No Ice	57.672	-27.669	0.135	23.382	3546.592	0.624
1.2 Dead+1.0 Wind 300 deg - No Ice	76.896	-25.044	-14.300	-1838.477	3231.046	0.526
0.9 Dead+1.0 Wind 300 deg - No Ice	57.672	-25.044	-14.300	-1789.070	3144.812	0.518
1.2 Dead+1.0 Wind 330 deg - No Ice	76.896	-14.608	-25.297	-3254.189	1876.869	0.364
0.9 Dead+1.0 Wind 330 deg - No Ice	57.672	-14.608	-25.297	-3167.035	1827.139	0.361
1.2 Dead+1.0 Ice+1.0 Temp	118.136	0.000	-0.000	-0.803	-4.712	-0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	118.136	0.021	-8.911	-1242.299	-9.765	0.221
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	118.136	3.997	-6.877	-1011.220	-594.016	-0.149
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	118.136	6.901	-3.983	-586.921	-1020.454	-0.201
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	118.136	7.957	-0.021	-5.608	-1174.819	-0.199
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	118.136	6.938	3.980	580.985	-1022.737	-0.139
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	118.136	4.015	6.952	1016.272	-592.582	-0.057
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	118.136	-0.021	8.911	1240.453	-0.390	-0.218
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	118.136	-3.997	6.877	1009.378	583.854	0.153
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	118.136	-6.901	3.983	585.082	1010.295	0.200
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	118.136	-7.957	0.021	3.767	1164.665	0.194
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	118.136	-6.938	-3.980	-582.830	1012.583	0.135
1.2 Dead+1.0 Wind 330	118.136	-4.015	-6.952	-1018.120	582.425	0.057

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
deg+1.0 Ice+1.0 Temp						
Dead+Wind 0 deg - Service	64.080	0.032	-8.527	-980.920	-7.151	0.266
Dead+Wind 30 deg - Service	64.080	3.202	-5.480	-719.194	-422.952	-0.077
Dead+Wind 60 deg - Service	64.080	5.539	-3.197	-419.938	-727.786	-0.141
Dead+Wind 90 deg - Service	64.080	6.516	-0.032	-6.353	-847.355	-0.167
Dead+Wind 120 deg - Service	64.080	5.898	3.368	425.744	-751.483	-0.139
Dead+Wind 150 deg - Service	64.080	3.440	5.958	754.252	-437.334	-0.090
Dead+Wind 180 deg - Service	64.080	-0.032	8.527	979.640	4.275	-0.262
Dead+Wind 210 deg - Service	64.080	-3.202	5.480	717.915	420.073	0.080
Dead+Wind 240 deg - Service	64.080	-5.539	3.197	418.660	724.908	0.140
Dead+Wind 270 deg - Service	64.080	-6.516	0.032	5.074	844.477	0.163
Dead+Wind 300 deg - Service	64.080	-5.898	-3.368	-427.023	748.606	0.136
Dead+Wind 330 deg - Service	64.080	-3.440	-5.958	-755.532	434.456	0.090

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-64.080	0.000	0.000	64.080	0.000	0.000%
2	0.135	-76.896	-36.208	-0.135	76.896	36.208	0.000%
3	0.135	-57.672	-36.208	-0.135	57.672	36.208	0.000%
4	13.594	-76.896	-23.270	-13.594	76.896	23.270	0.000%
5	13.594	-57.672	-23.270	-13.594	57.672	23.270	0.000%
6	23.519	-76.896	-13.576	-23.519	76.896	13.576	0.000%
7	23.519	-57.672	-13.576	-23.519	57.672	13.576	0.000%
8	27.669	-76.896	-0.135	-27.669	76.896	0.135	0.000%
9	27.669	-57.672	-0.135	-27.669	57.672	0.135	0.000%
10	25.044	-76.896	14.300	-25.044	76.896	-14.300	0.000%
11	25.044	-57.672	14.300	-25.044	57.672	-14.300	0.000%
12	14.608	-76.896	25.297	-14.608	76.896	-25.297	0.000%
13	14.608	-57.672	25.297	-14.608	57.672	-25.297	0.000%
14	-0.135	-76.896	36.208	0.135	76.896	-36.208	0.000%
15	-0.135	-57.672	36.208	0.135	57.672	-36.208	0.000%
16	-13.594	-76.896	23.270	13.594	76.896	-23.270	0.000%
17	-13.594	-57.672	23.270	13.594	57.672	-23.270	0.000%
18	-23.519	-76.896	13.576	23.519	76.896	-13.576	0.000%
19	-23.519	-57.672	13.576	23.519	57.672	-13.576	0.000%
20	-27.669	-76.896	0.135	27.669	76.896	-0.135	0.000%
21	-27.669	-57.672	0.135	27.669	57.672	-0.135	0.000%
22	-25.044	-76.896	-14.300	25.044	76.896	14.300	0.000%
23	-25.044	-57.672	-14.300	25.044	57.672	14.300	0.000%
24	-14.608	-76.896	-25.297	14.608	76.896	25.297	0.000%
25	-14.608	-57.672	-25.297	14.608	57.672	25.297	0.000%
26	0.000	-118.136	0.000	-0.000	118.136	0.000	0.000%
27	0.021	-118.136	-8.911	-0.021	118.136	8.911	0.000%
28	3.997	-118.136	-6.877	-3.997	118.136	6.877	0.000%
29	6.901	-118.136	-3.983	-6.901	118.136	3.983	0.000%
30	7.956	-118.136	-0.021	-7.957	118.136	0.021	0.000%
31	6.938	-118.136	3.980	-6.938	118.136	-3.980	0.000%
32	4.015	-118.136	6.952	-4.015	118.136	-6.952	0.000%
33	-0.021	-118.136	8.911	0.021	118.136	-8.911	0.000%
34	-3.997	-118.136	6.877	3.997	118.136	-6.877	0.000%
35	-6.901	-118.136	3.983	6.901	118.136	-3.983	0.000%
36	-7.956	-118.136	0.021	7.957	118.136	-0.021	0.000%
37	-6.938	-118.136	-3.980	6.938	118.136	3.980	0.000%
38	-4.015	-118.136	-6.952	4.015	118.136	6.952	0.000%
39	0.032	-64.080	-8.527	-0.032	64.080	8.527	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
40	3.202	-64.080	-5.480	-3.202	64.080	5.480	0.000%
41	5.539	-64.080	-3.197	-5.539	64.080	3.197	0.000%
42	6.516	-64.080	-0.032	-6.516	64.080	0.032	0.000%
43	5.898	-64.080	3.368	-5.898	64.080	-3.368	0.000%
44	3.440	-64.080	5.958	-3.440	64.080	-5.958	0.000%
45	-0.032	-64.080	8.527	0.032	64.080	-8.527	0.000%
46	-3.202	-64.080	5.480	3.202	64.080	-5.480	0.000%
47	-5.539	-64.080	3.197	5.539	64.080	-3.197	0.000%
48	-6.516	-64.080	0.032	6.516	64.080	-0.032	0.000%
49	-5.898	-64.080	-3.368	5.898	64.080	3.368	0.000%
50	-3.440	-64.080	-5.958	3.440	64.080	5.958	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	7	0.00000001	0.00015871
3	Yes	6	0.00000001	0.00047851
4	Yes	8	0.00000001	0.00052770
5	Yes	8	0.00000001	0.00009455
6	Yes	8	0.00000001	0.00053459
7	Yes	8	0.00000001	0.00009582
8	Yes	7	0.00000001	0.00016287
9	Yes	6	0.00000001	0.00049934
10	Yes	8	0.00000001	0.00053283
11	Yes	8	0.00000001	0.00009500
12	Yes	8	0.00000001	0.00054840
13	Yes	8	0.00000001	0.00009761
14	Yes	6	0.00000001	0.00048842
15	Yes	6	0.00000001	0.00015101
16	Yes	8	0.00000001	0.00052935
17	Yes	8	0.00000001	0.00009502
18	Yes	8	0.00000001	0.00052698
19	Yes	8	0.00000001	0.00009431
20	Yes	6	0.00000001	0.00038425
21	Yes	6	0.00000001	0.00011801
22	Yes	8	0.00000001	0.00054092
23	Yes	8	0.00000001	0.00009672
24	Yes	8	0.00000001	0.00054260
25	Yes	8	0.00000001	0.00009638
26	Yes	4	0.00000001	0.00063431
27	Yes	8	0.00000001	0.00064195
28	Yes	9	0.00000001	0.00036384
29	Yes	9	0.00000001	0.00036712
30	Yes	8	0.00000001	0.00062369
31	Yes	9	0.00000001	0.00035596
32	Yes	9	0.00000001	0.00036156
33	Yes	8	0.00000001	0.00063764
34	Yes	9	0.00000001	0.00035888
35	Yes	9	0.00000001	0.00035679
36	Yes	8	0.00000001	0.00061897
37	Yes	9	0.00000001	0.00035972
38	Yes	9	0.00000001	0.00035811
39	Yes	5	0.00000001	0.00054921
40	Yes	6	0.00000001	0.00051628

41	Yes	6	0.00000001	0.00053341
42	Yes	5	0.00000001	0.00053267
43	Yes	6	0.00000001	0.00051835
44	Yes	6	0.00000001	0.00055184
45	Yes	5	0.00000001	0.00046402
46	Yes	6	0.00000001	0.00051754
47	Yes	6	0.00000001	0.00050916
48	Yes	5	0.00000001	0.00044572
49	Yes	6	0.00000001	0.00054111
50	Yes	6	0.00000001	0.00053504

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	177 - 172	45.436	39	2.118	0.002
L2	172 - 167	43.220	39	2.115	0.002
L3	167 - 162	41.010	39	2.106	0.002
L4	162 - 157	38.813	39	2.090	0.002
L5	157 - 152	36.635	39	2.069	0.002
L6	152 - 147	34.482	39	2.042	0.002
L7	147 - 142	32.363	39	2.006	0.002
L8	142 - 137	30.286	39	1.962	0.002
L9	137 - 129.75	28.258	39	1.910	0.001
L10	133.5 - 128.5	26.873	39	1.870	0.001
L11	128.5 - 123.5	24.931	39	1.833	0.001
L12	123.5 - 118.583	23.045	39	1.770	0.001
L13	118.583 - 118.333	21.257	39	1.702	0.001
L14	118.333 - 113.333	21.168	39	1.700	0.001
L15	113.333 - 108.333	19.414	39	1.651	0.001
L16	108.333 - 106.417	17.711	39	1.600	0.001
L17	106.417 - 106.167	17.073	39	1.580	0.001
L18	106.167 - 101.167	16.991	39	1.576	0.001
L19	101.167 - 96.167	15.384	39	1.493	0.001
L20	96.167 - 91.167	13.866	39	1.407	0.001
L21	91.167 - 84	12.439	39	1.318	0.001
L22	88.75 - 83.75	11.782	39	1.275	0.000
L23	83.75 - 78.75	10.469	39	1.231	0.000
L24	78.75 - 73.75	9.220	39	1.153	0.000
L25	73.75 - 68.75	8.054	39	1.074	0.000
L26	68.75 - 63.75	6.971	39	0.994	0.000
L27	63.75 - 58.75	5.973	39	0.913	0.000
L28	58.75 - 53.75	5.059	39	0.831	0.000
L29	53.75 - 48.75	4.232	39	0.749	0.000
L30	48.75 - 39.25	3.491	39	0.667	0.000
L31	45 - 38.25	2.991	39	0.605	0.000
L32	38.25 - 33.25	2.174	39	0.546	0.000
L33	33.25 - 28.25	1.640	39	0.474	0.000
L34	28.25 - 23.25	1.182	39	0.402	0.000
L35	23.25 - 18.25	0.799	39	0.330	0.000
L36	18.25 - 13.25	0.491	39	0.258	0.000
L37	13.25 - 8.25	0.258	39	0.187	0.000
L38	8.25 - 3.25	0.100	39	0.116	0.000
L39	3.25 - 0	0.015	39	0.045	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
177.000	APXVSPP18-C-A20 w/ Mount Pipe	39	45.436	2.118	0.002	45622
176.000	4' x 2" Pipe Mount	39	44.993	2.118	0.002	45622
167.000	APXV18-206516S-C-A20 w/ Mount Pipe	39	41.010	2.106	0.002	24146
154.000	(2) LPA-80080/6CF w/ Mount Pipe	39	35.340	2.054	0.002	10053
144.000	MX08FRO665-21 w/ Mount Pipe	39	31.111	1.980	0.002	6496
127.000	7770.00 w/ Mount Pipe	39	24.359	1.817	0.001	4976
117.000	APXV18-206517S-C w/ Mount Pipe	39	20.696	1.687	0.001	5382
79.000	8225	39	9.281	1.158	0.000	3669

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	177 - 172	195.684	2	9.148	0.008
L2	172 - 167	186.150	2	9.133	0.008
L3	167 - 162	176.645	2	9.094	0.008
L4	162 - 157	167.193	2	9.029	0.008
L5	157 - 152	157.823	2	8.936	0.008
L6	152 - 147	148.561	2	8.818	0.008
L7	147 - 142	139.442	2	8.661	0.007
L8	142 - 137	130.501	2	8.473	0.007
L9	137 - 129.75	121.774	2	8.250	0.006
L10	133.5 - 128.5	115.810	2	8.075	0.005
L11	128.5 - 123.5	107.451	2	7.915	0.005
L12	123.5 - 118.583	99.328	2	7.642	0.005
L13	118.583 - 118.333	91.629	2	7.350	0.004
L14	118.333 - 113.333	91.245	2	7.340	0.004
L15	113.333 - 108.333	83.686	2	7.132	0.004
L16	108.333 - 106.417	76.352	2	6.909	0.003
L17	106.417 - 106.167	73.603	2	6.822	0.003
L18	106.167 - 101.167	73.247	2	6.805	0.003
L19	101.167 - 96.167	66.324	2	6.446	0.003
L20	96.167 - 91.167	59.779	2	6.075	0.003
L21	91.167 - 84	53.627	2	5.693	0.002
L22	88.75 - 83.75	50.798	2	5.505	0.002
L23	83.75 - 78.75	45.135	2	5.317	0.002
L24	78.75 - 73.75	39.750	2	4.980	0.002
L25	73.75 - 68.75	34.721	2	4.637	0.002
L26	68.75 - 63.75	30.051	2	4.290	0.002
L27	63.75 - 58.75	25.745	2	3.940	0.001
L28	58.75 - 53.75	21.807	2	3.587	0.001
L29	53.75 - 48.75	18.239	2	3.232	0.001
L30	48.75 - 39.25	15.043	2	2.875	0.001
L31	45 - 38.25	12.890	2	2.608	0.001
L32	38.25 - 33.25	9.366	2	2.354	0.001
L33	33.25 - 28.25	7.065	2	2.042	0.001
L34	28.25 - 23.25	5.091	2	1.730	0.001
L35	23.25 - 18.25	3.441	2	1.420	0.001
L36	18.25 - 13.25	2.116	2	1.112	0.000
L37	13.25 - 8.25	1.113	2	0.804	0.000
L38	8.25 - 3.25	0.430	2	0.499	0.000

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L39	3.25 - 0	0.067	2	0.196	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
177.000	APXVSPP18-C-A20 w/ Mount Pipe	2	195.684	9.148	0.008	11024
176.000	4' x 2" Pipe Mount	2	193.776	9.146	0.008	11024
167.000	APXV18-206516S-C-A20 w/ Mount Pipe	2	176.645	9.094	0.008	5830
154.000	(2) LPA-80080/6CF w/ Mount Pipe	2	152.251	8.869	0.008	2432
144.000	MX08FRO665-21 w/ Mount Pipe	2	134.054	8.551	0.007	1566
127.000	7770.00 w/ Mount Pipe	2	104.986	7.848	0.005	1193
117.000	APXV18-206517S-C w/ Mount Pipe	2	89.209	7.287	0.004	1286
79.000	8225	2	40.011	4.998	0.002	861

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	177 - 172 (1)	TP22.875x22x0.219	5.000	0.000	0.0	15.731	-3.903	920.232	0.004
L2	172 - 167 (2)	TP23.75x22.875x0.219	5.000	0.000	0.0	16.338	-4.212	955.769	0.004
L3	167 - 162 (3)	TP24.625x23.75x0.219	5.000	0.000	0.0	16.945	-5.934	991.306	0.006
L4	162 - 157 (4)	TP25.5x24.625x0.219	5.000	0.000	0.0	17.553	-6.332	1026.840	0.006
L5	157 - 152 (5)	TP26.375x25.5x0.219	5.000	0.000	0.0	18.160	-10.064	1062.380	0.009
L6	152 - 147 (6)	TP27.25x26.375x0.219	5.000	0.000	0.0	18.768	-10.617	1097.920	0.010
L7	147 - 142 (7)	TP28.124x27.25x0.219	5.000	0.000	0.0	19.375	-13.988	1133.450	0.012
L8	142 - 137 (8)	TP28.999x28.124x0.219	5.000	0.000	0.0	19.983	-14.541	1168.990	0.012
L9	137 - 129.75 (9)	TP30.268x28.999x0.219	7.250	0.000	0.0	20.408	-14.941	1193.870	0.013
L10	129.75 - 128.5 (10)	TP30.049x29.174x0.25	5.000	0.000	0.0	23.646	-15.867	1383.270	0.011
L11	128.5 - 123.5 (11)	TP30.924x30.049x0.25	5.000	0.000	0.0	24.340	-20.054	1423.890	0.014
L12	123.5 - 118.583 (12)	TP31.785x30.924x0.25	4.917	0.000	0.0	25.023	-20.836	1463.830	0.014
L13	118.583 - 118.333 (13)	TP31.828x31.785x0.388	0.250	0.000	0.0	38.670	-20.899	2262.180	0.009
L14	118.333 - 113.333 (14)	TP32.703x31.828x0.388	5.000	0.000	0.0	39.746	-22.094	2325.130	0.010
L15	113.333 - 108.333 (15)	TP33.578x32.703x0.381	5.000	0.000	0.0	40.171	-23.146	2350.010	0.010
L16	108.333 - 106.417 (16)	TP33.913x33.578x0.381	1.916	0.000	0.0	40.577	-23.826	2373.740	0.010
L17	106.417 - 106.167 (17)	TP33.957x33.913x0.25	0.250	0.000	0.0	26.747	-23.920	1564.680	0.015

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L18	106.167 - 101.167 (18)	TP34.832x33.957x0.25	5.000	0.000	0.0	27.441	-25.560	1605.290	0.016
L19	101.167 - 96.167 (19)	TP35.707x34.832x0.25	5.000	0.000	0.0	28.135	-27.966	1645.900	0.017
L20	96.167 - 91.167 (20)	TP36.582x35.707x0.25	5.000	0.000	0.0	28.829	-29.647	1686.520	0.018
L21	91.167 - 84 (21)	TP37.836x36.582x0.25	7.167	0.000	0.0	29.165	-30.467	1706.150	0.018
L22	84 - 83.75 (22)	TP37.38x36.505x0.313	5.000	0.000	0.0	36.766	-32.822	2150.820	0.015
L23	83.75 - 78.75 (23)	TP38.255x37.38x0.313	5.000	0.000	0.0	37.634	-35.800	2201.590	0.016
L24	78.75 - 73.75 (24)	TP39.13x38.255x0.313	5.000	0.000	0.0	38.502	-37.796	2252.360	0.017
L25	73.75 - 68.75 (25)	TP40.005x39.13x0.313	5.000	0.000	0.0	39.370	-39.822	2303.130	0.017
L26	68.75 - 63.75 (26)	TP40.88x40.005x0.313	5.000	0.000	0.0	40.238	-41.878	2353.900	0.018
L27	63.75 - 58.75 (27)	TP41.755x40.88x0.313	5.000	0.000	0.0	41.105	-45.194	2404.670	0.019
L28	58.75 - 53.75 (28)	TP42.63x41.755x0.313	5.000	0.000	0.0	41.973	-47.309	2455.440	0.019
L29	53.75 - 48.75 (29)	TP43.505x42.63x0.313	5.000	0.000	0.0	42.841	-49.453	2506.210	0.020
L30	48.75 - 39.25 (30)	TP45.167x43.505x0.313	9.500	0.000	0.0	43.492	-51.483	2544.280	0.020
L31	39.25 - 38.25 (31)	TP44.717x43.536x0.375	6.750	0.000	0.0	52.778	-56.402	3087.510	0.018
L32	38.25 - 33.25 (32)	TP45.592x44.717x0.375	5.000	0.000	0.0	53.819	-58.770	3148.430	0.019
L33	33.25 - 28.25 (33)	TP46.467x45.592x0.375	5.000	0.000	0.0	54.861	-61.168	3209.350	0.019
L34	28.25 - 23.25 (34)	TP47.342x46.467x0.375	5.000	0.000	0.0	55.902	-63.593	3270.270	0.019
L35	23.25 - 18.25 (35)	TP48.217x47.342x0.375	5.000	0.000	0.0	56.943	-67.316	3331.190	0.020
L36	18.25 - 13.25 (36)	TP49.091x48.217x0.375	5.000	0.000	0.0	57.985	-69.900	3392.110	0.021
L37	13.25 - 8.25 (37)	TP49.966x49.091x0.375	5.000	0.000	0.0	59.026	-72.514	3453.030	0.021
L38	8.25 - 3.25 (38)	TP50.841x49.966x0.375	5.000	0.000	0.0	60.068	-75.151	3513.950	0.021
L39	3.25 - 0 (39)	TP51.41x50.841x0.375	3.250	0.000	0.0	60.744	-76.876	3553.550	0.022

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	177 - 172 (1)	TP22.875x22x0.219	19.788	531.913	0.037	0.000	531.913	0.000
L2	172 - 167 (2)	TP23.75x22.875x0.219	39.522	568.109	0.070	0.000	568.109	0.000
L3	167 - 162 (3)	TP24.625x23.75x0.219	71.445	605.013	0.118	0.000	605.013	0.000
L4	162 - 157 (4)	TP25.5x24.625x0.219	103.706	642.573	0.161	0.000	642.573	0.000
L5	157 - 152 (5)	TP26.375x25.5x0.219	152.922	680.742	0.225	0.000	680.742	0.000
L6	152 - 147 (6)	TP27.25x26.375x0.219	210.805	719.470	0.293	0.000	719.470	0.000
L7	147 - 142 (7)	TP28.124x27.25x0.219	276.734	758.707	0.365	0.000	758.707	0.000
L8	142 - 137 (8)	TP28.999x28.124x0.219	352.874	798.404	0.442	0.000	798.404	0.000
L9	137 - 129.75	TP30.268x28.999x0.219	407.229	826.440	0.493	0.000	826.440	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 $\frac{M_{uy}}{\phi M_{ny}}$
	(9)							
L10	129.75 - 128.5 (10)	TP30.049x29.174x0.25	486.611	1010.808	0.481	0.000	1010.808	0.000
L11	128.5 - 123.5 (11)	TP30.924x30.049x0.25	583.783	1061.283	0.550	0.000	1061.283	0.000
L12	123.5 - 118.583 (12)	TP31.785x30.924x0.25	682.482	1111.500	0.614	0.000	1111.500	0.000
L13	118.583 - 118.333 (13)	TP31.828x31.785x0.388	687.548	1849.258	0.372	0.000	1849.258	0.000
L14	118.333 - 113.333 (14)	TP32.703x31.828x0.388	791.053	1954.258	0.405	0.000	1954.258	0.000
L15	113.333 - 108.333 (15)	TP33.578x32.703x0.381	898.942	2030.033	0.443	0.000	2030.033	0.000
L16	108.333 - 106.417 (16)	TP33.913x33.578x0.381	942.058	2071.483	0.455	0.000	2071.483	0.000
L17	106.417 - 106.167 (17)	TP33.957x33.913x0.25	947.733	1240.542	0.764	0.000	1240.542	0.000
L18	106.167 - 101.167 (18)	TP34.832x33.957x0.25	1063.575	1293.292	0.822	0.000	1293.292	0.000
L19	101.167 - 96.167 (19)	TP35.707x34.832x0.25	1183.892	1346.417	0.879	0.000	1346.417	0.000
L20	96.167 - 91.167 (20)	TP36.582x35.707x0.25	1308.550	1399.867	0.935	0.000	1399.867	0.000
L21	91.167 - 84 (21)	TP37.836x36.582x0.25	1370.242	1425.800	0.961	0.000	1425.800	0.000
L22	84 - 83.75 (22)	TP37.38x36.505x0.313	1501.208	1957.967	0.767	0.000	1957.967	0.000
L23	83.75 - 78.75 (23)	TP38.255x37.38x0.313	1636.742	2036.583	0.804	0.000	2036.583	0.000
L24	78.75 - 73.75 (24)	TP39.13x38.255x0.313	1776.958	2115.958	0.840	0.000	2115.958	0.000
L25	73.75 - 68.75 (25)	TP40.005x39.13x0.313	1920.975	2196.050	0.875	0.000	2196.050	0.000
L26	68.75 - 63.75 (26)	TP40.88x40.005x0.313	2068.658	2276.808	0.909	0.000	2276.808	0.000
L27	63.75 - 58.75 (27)	TP41.755x40.88x0.313	2220.108	2358.192	0.941	0.000	2358.192	0.000
L28	58.75 - 53.75 (28)	TP42.63x41.755x0.313	2375.150	2440.133	0.973	0.000	2440.133	0.000
L29	53.75 - 48.75 (29)	TP43.505x42.63x0.313	2533.350	2522.600	1.004	0.000	2522.600	0.000
L30	48.75 - 39.25 (30)	TP45.167x43.505x0.313	2654.000	2584.767	1.027	0.000	2584.767	0.000
L31	39.25 - 38.25 (31)	TP44.717x43.536x0.375	2876.375	3365.508	0.855	0.000	3365.508	0.000
L32	38.25 - 33.25 (32)	TP45.592x44.717x0.375	3044.975	3478.458	0.875	0.000	3478.458	0.000
L33	33.25 - 28.25 (33)	TP46.467x45.592x0.375	3216.117	3592.342	0.895	0.000	3592.342	0.000
L34	28.25 - 23.25 (34)	TP47.342x46.467x0.375	3389.642	3707.108	0.914	0.000	3707.108	0.000
L35	23.25 - 18.25 (35)	TP48.217x47.342x0.375	3565.592	3822.717	0.933	0.000	3822.717	0.000
L36	18.25 - 13.25 (36)	TP49.091x48.217x0.375	3743.892	3939.117	0.950	0.000	3939.117	0.000
L37	13.25 - 8.25 (37)	TP49.966x49.091x0.375	3923.650	4056.250	0.967	0.000	4056.250	0.000
L38	8.25 - 3.25 (38)	TP50.841x49.966x0.375	4104.058	4174.083	0.983	0.000	4174.083	0.000
L39	3.25 - 0 (39)	TP51.41x50.841x0.375	4221.633	4251.017	0.993	0.000	4251.017	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	177 - 172 (1)	TP22.875x22x0.219	3.775	276.070	0.014	0.002	547.753	0.000
L2	172 - 167 (2)	TP23.75x22.875x0.219	4.120	286.731	0.014	0.002	590.876	0.000
L3	167 - 162 (3)	TP24.625x23.75x0.219	6.271	297.392	0.021	0.004	635.632	0.000
L4	162 - 157 (4)	TP25.5x24.625x0.219	6.637	308.053	0.022	0.004	682.022	0.000
L5	157 - 152 (5)	TP26.375x25.5x0.219	11.354	318.714	0.036	0.036	730.046	0.000
L6	152 - 147 (6)	TP27.25x26.375x0.219	11.863	329.375	0.036	0.539	779.702	0.001
L7	147 - 142 (7)	TP28.124x27.25x0.219	15.052	340.036	0.044	0.717	830.994	0.001
L8	142 - 137 (8)	TP28.999x28.124x0.219	15.410	350.697	0.044	0.717	883.917	0.001
L9	137 - 129.75 (9)	TP30.268x28.999x0.219	15.658	358.160	0.044	0.716	921.942	0.001
L10	129.75 - 128.5 (10)	TP30.049x29.174x0.25	16.087	414.982	0.039	0.716	1082.967	0.001
L11	128.5 - 123.5 (11)	TP30.924x30.049x0.25	19.904	427.166	0.047	0.585	1147.492	0.001
L12	123.5 - 118.583 (12)	TP31.785x30.924x0.25	20.243	439.148	0.046	0.584	1212.767	0.000
L13	118.583 - 118.333 (13)	TP31.828x31.785x0.388	20.274	678.655	0.030	0.584	1868.625	0.000
L14	118.333 - 113.333 (14)	TP32.703x31.828x0.388	20.990	697.540	0.030	0.584	1974.075	0.000
L15	113.333 - 108.333 (15)	TP33.578x32.703x0.381	22.326	705.003	0.032	0.386	2049.600	0.000
L16	108.333 - 106.417 (16)	TP33.913x33.578x0.381	22.708	712.123	0.032	0.401	2091.208	0.000
L17	106.417 - 106.167 (17)	TP33.957x33.913x0.25	22.739	469.403	0.048	0.403	1385.633	0.000
L18	106.167 - 101.167 (18)	TP34.832x33.957x0.25	23.614	481.587	0.049	0.456	1458.500	0.000
L19	101.167 - 96.167 (19)	TP35.707x34.832x0.25	24.545	493.771	0.050	0.498	1533.233	0.000
L20	96.167 - 91.167 (20)	TP36.582x35.707x0.25	25.352	505.955	0.050	0.560	1609.833	0.000
L21	91.167 - 84 (21)	TP37.836x36.582x0.25	25.735	511.845	0.050	0.590	1647.525	0.000
L22	84 - 83.75 (22)	TP37.38x36.505x0.313	26.673	645.245	0.041	0.653	2094.575	0.000
L23	83.75 - 78.75 (23)	TP38.255x37.38x0.313	27.676	657.430	0.042	0.684	2194.625	0.000
L24	78.75 - 73.75 (24)	TP39.13x38.255x0.313	28.451	675.707	0.042	0.493	2297.008	0.000
L25	73.75 - 68.75 (25)	TP40.005x39.13x0.313	29.199	690.938	0.042	0.556	2401.733	0.000
L26	68.75 - 63.75 (26)	TP40.88x40.005x0.313	29.919	706.169	0.042	0.618	2508.783	0.000
L27	63.75 - 58.75 (27)	TP41.755x40.88x0.313	30.709	721.400	0.043	0.655	2618.175	0.000
L28	58.75 - 53.75 (28)	TP42.63x41.755x0.313	31.360	736.631	0.043	0.717	2729.892	0.000
L29	53.75 - 48.75 (29)	TP43.505x42.63x0.313	31.976	751.862	0.043	0.778	2843.950	0.000
L30	48.75 - 39.25 (30)	TP45.167x43.505x0.313	32.436	763.285	0.042	0.812	2931.025	0.000
L31	39.25 - 38.25 (31)	TP44.717x43.536x0.375	33.483	926.253	0.036	0.873	3596.867	0.000
L32	38.25 - 33.25 (32)	TP45.592x44.717x0.375	34.014	944.529	0.036	0.931	3740.208	0.000
L33	33.25 - 28.25	TP46.467x45.592x0.375	34.502	962.805	0.036	0.987	3886.350	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 $\frac{T_u}{\phi T_n}$
L34	28.25 - 23.25 (33)	TP47.342x46.467x0.375	34.971	981.081	0.036	1.044	4035.292	0.000
L35	23.25 - 18.25 (34)	TP48.217x47.342x0.375	35.473	999.357	0.035	1.079	4187.033	0.000
L36	18.25 - 13.25 (35)	TP49.091x48.217x0.375	35.916	1017.630	0.035	1.138	4341.575	0.000
L37	13.25 - 8.25 (36)	TP49.966x49.091x0.375	36.057	1035.910	0.035	1.138	4498.917	0.000
L38	8.25 - 3.25 (37)	TP50.841x49.966x0.375	36.179	1054.190	0.034	1.138	4659.058	0.000
L39	3.25 - 0 (38)	TP51.41x50.841x0.375	36.252	1066.060	0.034	1.138	4764.658	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	177 - 172 (1)	0.004	0.037	0.000	0.014	0.000	0.042 ✔	1.050	4.8.2 ✔
L2	172 - 167 (2)	0.004	0.070	0.000	0.014	0.000	0.074 ✔	1.050	4.8.2 ✔
L3	167 - 162 (3)	0.006	0.118	0.000	0.021	0.000	0.125 ✔	1.050	4.8.2 ✔
L4	162 - 157 (4)	0.006	0.161	0.000	0.022	0.000	0.168 ✔	1.050	4.8.2 ✔
L5	157 - 152 (5)	0.009	0.225	0.000	0.036	0.000	0.235 ✔	1.050	4.8.2 ✔
L6	152 - 147 (6)	0.010	0.293	0.000	0.036	0.001	0.304 ✔	1.050	4.8.2 ✔
L7	147 - 142 (7)	0.012	0.365	0.000	0.044	0.001	0.379 ✔	1.050	4.8.2 ✔
L8	142 - 137 (8)	0.012	0.442	0.000	0.044	0.001	0.456 ✔	1.050	4.8.2 ✔
L9	137 - 129.75 (9)	0.013	0.493	0.000	0.044	0.001	0.507 ✔	1.050	4.8.2 ✔
L10	129.75 - 128.5 (10)	0.011	0.481	0.000	0.039	0.001	0.494 ✔	1.050	4.8.2 ✔
L11	128.5 - 123.5 (11)	0.014	0.550	0.000	0.047	0.001	0.566 ✔	1.050	4.8.2 ✔
L12	123.5 - 118.583 (12)	0.014	0.614	0.000	0.046	0.000	0.630 ✔	1.050	4.8.2 ✔
L13	118.583 - 118.333 (13)	0.009	0.372	0.000	0.030	0.000	0.382 ✔	1.050	4.8.2 ✔
L14	118.333 - 113.333 (14)	0.010	0.405	0.000	0.030	0.000	0.415 ✔	1.050	4.8.2 ✔
L15	113.333 - 108.333 (15)	0.010	0.443	0.000	0.032	0.000	0.454 ✔	1.050	4.8.2 ✔
L16	108.333 - 106.417 (16)	0.010	0.455	0.000	0.032	0.000	0.466 ✔	1.050	4.8.2 ✔

Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L17	106.417 - 106.167 (17)	0.015	0.764	0.000	0.048	0.000	0.782 ✔	1.050	4.8.2 ✔
L18	106.167 - 101.167 (18)	0.016	0.822	0.000	0.049	0.000	0.841 ✔	1.050	4.8.2 ✔
L19	101.167 - 96.167 (19)	0.017	0.879	0.000	0.050	0.000	0.899 ✔	1.050	4.8.2 ✔
L20	96.167 - 91.167 (20)	0.018	0.935	0.000	0.050	0.000	0.955 ✔	1.050	4.8.2 ✔
L21	91.167 - 84 (21)	0.018	0.961	0.000	0.050	0.000	0.981 ✔	1.050	4.8.2 ✔
L22	84 - 83.75 (22)	0.015	0.767	0.000	0.041	0.000	0.784 ✔	1.050	4.8.2 ✔
L23	83.75 - 78.75 (23)	0.016	0.804	0.000	0.042	0.000	0.822 ✔	1.050	4.8.2 ✔
L24	78.75 - 73.75 (24)	0.017	0.840	0.000	0.042	0.000	0.858 ✔	1.050	4.8.2 ✔
L25	73.75 - 68.75 (25)	0.017	0.875	0.000	0.042	0.000	0.894 ✔	1.050	4.8.2 ✔
L26	68.75 - 63.75 (26)	0.018	0.909	0.000	0.042	0.000	0.928 ✔	1.050	4.8.2 ✔
L27	63.75 - 58.75 (27)	0.019	0.941	0.000	0.043	0.000	0.962 ✔	1.050	4.8.2 ✔
L28	58.75 - 53.75 (28)	0.019	0.973	0.000	0.043	0.000	0.994 ✔	1.050	4.8.2 ✔
L29	53.75 - 48.75 (29)	0.020	1.004	0.000	0.043	0.000	1.026 ✔	1.050	4.8.2 ✔
L30	48.75 - 39.25 (30)	0.020	1.027	0.000	0.042	0.000	1.049 ✔	1.050	4.8.2 ✔
L31	39.25 - 38.25 (31)	0.018	0.855	0.000	0.036	0.000	0.874 ✔	1.050	4.8.2 ✔
L32	38.25 - 33.25 (32)	0.019	0.875	0.000	0.036	0.000	0.895 ✔	1.050	4.8.2 ✔
L33	33.25 - 28.25 (33)	0.019	0.895	0.000	0.036	0.000	0.916 ✔	1.050	4.8.2 ✔
L34	28.25 - 23.25 (34)	0.019	0.914	0.000	0.036	0.000	0.935 ✔	1.050	4.8.2 ✔
L35	23.25 - 18.25 (35)	0.020	0.933	0.000	0.035	0.000	0.954 ✔	1.050	4.8.2 ✔
L36	18.25 - 13.25 (36)	0.021	0.950	0.000	0.035	0.000	0.972 ✔	1.050	4.8.2 ✔
L37	13.25 - 8.25 (37)	0.021	0.967	0.000	0.035	0.000	0.990 ✔	1.050	4.8.2 ✔
L38	8.25 - 3.25 (38)	0.021	0.983	0.000	0.034	0.000	1.006 ✔	1.050	4.8.2 ✔
L39	3.25 - 0 (39)	0.022	0.993	0.000	0.034	0.000	1.016 ✔	1.050	4.8.2 ✔

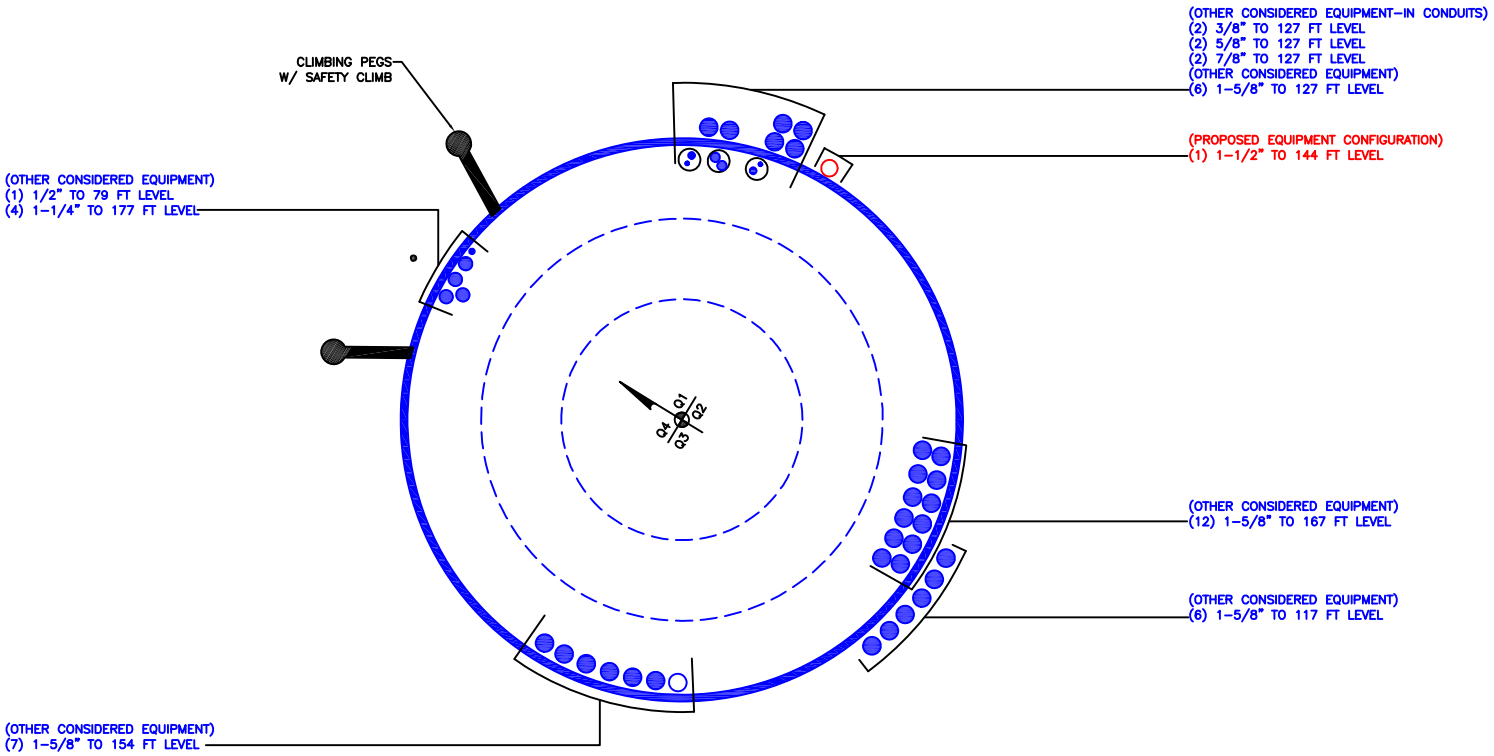
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	177 - 172	Pole	TP22.875x22x0.219	1	-3.903	966.244	**	**
L2	172 - 167	Pole	TP23.75x22.875x0.219	2	-4.212	1003.557	**	**
L3	167 - 162	Pole	TP24.625x23.75x0.219	3	-5.934	1040.871	**	**
L4	162 - 157	Pole	TP25.5x24.625x0.219	4	-6.332	1078.182	**	**
L5	157 - 152	Pole	TP26.375x25.5x0.219	5	-10.064	1115.499	**	**
L6	152 - 147	Pole	TP27.25x26.375x0.219	6	-10.617	1152.816	**	**
L7	147 - 142	Pole	TP28.124x27.25x0.219	7	-13.988	1190.122	**	**
L8	142 - 137	Pole	TP28.999x28.124x0.219	8	-14.541	1227.439	**	**
L9	137 - 129.75	Pole	TP30.268x28.999x0.219	9	-14.941	1253.563	**	**
L10	129.75 - 128.5	Pole	TP30.049x29.174x0.25	10	-15.867	1452.433	**	**
L11	128.5 - 123.5	Pole	TP30.924x30.049x0.25	11	-20.054	1495.084	**	**
L12	123.5 - 118.583	Pole	TP31.785x30.924x0.25	12	-20.836	1537.021	**	**
L13	118.583 - 118.333	Pole	TP31.828x31.785x0.388	13	-20.899	2375.289	**	**
L14	118.333 - 113.333	Pole	TP32.703x31.828x0.388	14	-22.094	2441.386	**	**
L15	113.333 - 108.333	Pole	TP33.578x32.703x0.381	15	-23.146	2467.510	**	**
L16	108.333 - 106.417	Pole	TP33.913x33.578x0.381	16	-23.826	2492.427	**	**
L17	106.417 - 106.167	Pole	TP33.957x33.913x0.25	17	-23.920	1642.914	**	**
L18	106.167 - 101.167	Pole	TP34.832x33.957x0.25	18	-25.560	1685.554	**	**
L19	101.167 - 96.167	Pole	TP35.707x34.832x0.25	19	-27.966	1728.195	**	**
L20	96.167 - 91.167	Pole	TP36.582x35.707x0.25	20	-29.647	1770.846	**	**
L21	91.167 - 84	Pole	TP37.836x36.582x0.25	21	-30.467	1791.457	**	**
L22	84 - 83.75	Pole	TP37.38x36.505x0.313	22	-32.822	2258.361	**	**
L23	83.75 - 78.75	Pole	TP38.255x37.38x0.313	23	-35.800	2311.669	**	**
L24	78.75 - 73.75	Pole	TP39.13x38.255x0.313	24	-37.796	2364.978	**	**
L25	73.75 - 68.75	Pole	TP40.005x39.13x0.313	25	-39.822	2418.286	**	**
L26	68.75 - 63.75	Pole	TP40.88x40.005x0.313	26	-41.878	2471.595	**	**
L27	63.75 - 58.75	Pole	TP41.755x40.88x0.313	27	-45.194	2524.903	**	**
L28	58.75 - 53.75	Pole	TP42.63x41.755x0.313	28	-47.309	2578.212	**	**
L29	53.75 - 48.75	Pole	TP43.505x42.63x0.313	29	-49.453	2631.520	**	**
L30	48.75 - 39.25	Pole	TP45.167x43.505x0.313	30	-51.483	2671.494	**	**
L31	39.25 - 38.25	Pole	TP44.717x43.536x0.375	31	-56.402	3241.885	**	**
L32	38.25 - 33.25	Pole	TP45.592x44.717x0.375	32	-58.770	3305.851	**	**
L33	33.25 - 28.25	Pole	TP46.467x45.592x0.375	33	-61.168	3369.817	**	**
L34	28.25 - 23.25	Pole	TP47.342x46.467x0.375	34	-63.593	3433.783	**	**
L35	23.25 - 18.25	Pole	TP48.217x47.342x0.375	35	-67.316	3497.749	**	**
L36	18.25 - 13.25	Pole	TP49.091x48.217x0.375	36	-69.900	3561.715	**	**
L37	13.25 - 8.25	Pole	TP49.966x49.091x0.375	37	-72.514	3625.681	**	**
L38	8.25 - 3.25	Pole	TP50.841x49.966x0.375	38	-75.151	3689.647	**	**
L39	3.25 - 0	Pole	TP51.41x50.841x0.375	39	-76.876	3731.227	**	**
							Summary	
						Pole (L30)	**	**
						RATING =	**	**

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

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876376

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 876376

Work Order: 1966307

CROWN CASTLE

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	177	47.25	3.75	18	22	30.268	0.21875	Auto	A607-65
2	133.5	49.5	4.75	18	29.17	37.836	0.25	Auto	A607-65
3	88.75	49.5	5.75	18	36.50	45.167	0.3125	Auto	A607-65
4	45	45	0	18	43.54	51.41	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	13	14	15	16	17	18
1	106.417	118.583	channel	MP3-04 (1.1875in)	3	E4						E4						E4					
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in2)	Bolt Hole Size (in)	Reinforcement Material
1	4.78	1.61	4.13	0.61	PC 8.8 - M20 (100)	17	PC 8.8 - M20 (100)	17.000	18.000	3.593	1.1875	A572-65

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	177 - 172	5		18	22.000	22.875	0.21875	A607-65	1.000
2	172 - 167	5		18	22.875	23.750	0.21875	A607-65	1.000
3	167 - 162	5		18	23.750	24.625	0.21875	A607-65	1.000
4	162 - 157	5		18	24.625	25.500	0.21875	A607-65	1.000
5	157 - 152	5		18	25.500	26.375	0.21875	A607-65	1.000
6	152 - 147	5		18	26.375	27.250	0.21875	A607-65	1.000
7	147 - 142	5		18	27.250	28.124	0.21875	A607-65	1.000
8	142 - 137	5		18	28.124	28.999	0.21875	A607-65	1.000
9	137 - 133.5	7.25	3.75	18	28.999	30.268	0.21875	A607-65	1.000
10	133.5 - 128.5	5		18	29.174	30.049	0.25	A607-65	1.000
11	128.5 - 123.5	5		18	30.049	30.924	0.25	A607-65	1.000
12	123.5 - 118.583	4.917		18	30.924	31.785	0.25	A607-65	1.000
13	118.583 - 118.333	0.25		18	31.785	31.828	0.3875	A607-65	0.968
14	118.333 - 113.333	5		18	31.828	32.703	0.3875	A607-65	0.960
15	113.333 - 108.333	5		18	32.703	33.578	0.38125	A607-65	0.967
16	108.333 - 106.417	1.916		18	33.578	33.913	0.38125	A607-65	0.964
17	106.417 - 106.167	0.25		18	33.913	33.957	0.25	A607-65	1.000
18	106.167 - 101.167	5		18	33.957	34.832	0.25	A607-65	1.000
19	101.167 - 96.167	5		18	34.832	35.707	0.25	A607-65	1.000
20	96.167 - 91.167	5		18	35.707	36.582	0.25	A607-65	1.000
21	91.167 - 88.75	7.167	4.75	18	36.582	37.836	0.25	A607-65	1.000
22	88.75 - 83.75	5		18	36.505	37.380	0.3125	A607-65	1.000
23	83.75 - 78.75	5		18	37.380	38.255	0.3125	A607-65	1.000
24	78.75 - 73.75	5		18	38.255	39.130	0.3125	A607-65	1.000
25	73.75 - 68.75	5		18	39.130	40.005	0.3125	A607-65	1.000
26	68.75 - 63.75	5		18	40.005	40.880	0.3125	A607-65	1.000
27	63.75 - 58.75	5		18	40.880	41.755	0.3125	A607-65	1.000
28	58.75 - 53.75	5		18	41.755	42.630	0.3125	A607-65	1.000
29	53.75 - 48.75	5		18	42.630	43.505	0.3125	A607-65	1.000
30	48.75 - 45	9.5	5.75	18	43.505	45.167	0.3125	A607-65	1.000
31	45 - 38.25	6.75		18	43.536	44.717	0.375	A607-65	1.000
32	38.25 - 33.25	5		18	44.717	45.592	0.375	A607-65	1.000
33	33.25 - 28.25	5		18	45.592	46.467	0.375	A607-65	1.000
34	28.25 - 23.25	5		18	46.467	47.342	0.375	A607-65	1.000
35	23.25 - 18.25	5		18	47.342	48.217	0.375	A607-65	1.000
36	18.25 - 13.25	5		18	48.217	49.091	0.375	A607-65	1.000
37	13.25 - 8.25	5		18	49.091	49.966	0.375	A607-65	1.000
38	8.25 - 3.25	5		18	49.966	50.841	0.375	A607-65	1.000
39	3.25 - 0	3.25		18	50.841	51.410	0.375	A607-65	1.000

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	177 - 172	3.90	19.79	3.78
2	172 - 167	4.21	39.52	4.12
3	167 - 162	5.93	71.44	6.27
4	162 - 157	6.33	103.71	6.64
5	157 - 152	10.06	152.92	11.35
6	152 - 147	10.62	210.81	11.86
7	147 - 142	13.99	276.73	15.05
8	142 - 137	14.54	352.87	15.41
9	137 - 133.5	14.94	407.23	15.66
10	133.5 - 128.5	15.87	486.61	16.09
11	128.5 - 123.5	20.05	583.78	19.90
12	123.5 - 118.583	20.84	682.48	20.24
13	118.583 - 118.333	20.90	687.55	20.27
14	118.333 - 113.333	22.09	791.05	20.99
15	113.333 - 108.333	23.15	898.94	22.33
16	108.333 - 106.417	23.83	942.06	22.71
17	106.417 - 106.167	23.92	947.73	22.74
18	106.167 - 101.167	25.56	1063.57	23.61
19	101.167 - 96.167	27.97	1183.89	24.54
20	96.167 - 91.167	29.65	1308.55	25.35
21	91.167 - 88.75	30.47	1370.24	25.73
22	88.75 - 83.75	32.82	1501.21	26.67
23	83.75 - 78.75	35.80	1636.74	27.68
24	78.75 - 73.75	37.80	1776.96	28.45
25	73.75 - 68.75	39.82	1920.98	29.20
26	68.75 - 63.75	41.88	2068.66	29.92
27	63.75 - 58.75	45.19	2220.11	30.71
28	58.75 - 53.75	47.31	2375.15	31.36
29	53.75 - 48.75	49.45	2533.35	31.98
30	48.75 - 45	51.48	2654.00	32.44
31	45 - 38.25	56.40	2876.38	33.48
32	38.25 - 33.25	58.77	3044.97	34.01
33	33.25 - 28.25	61.17	3216.11	34.50
34	28.25 - 23.25	63.59	3389.64	34.97
35	23.25 - 18.25	67.32	3565.59	35.47
36	18.25 - 13.25	69.90	3743.89	35.92
37	13.25 - 8.25	72.51	3923.65	36.06
38	8.25 - 3.25	75.15	4104.06	36.18
39	3.25 - 0	76.88	4221.63	36.25

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
177 - 172	Pole	TP22.875x22x0.2188	Pole	4.0%	Pass
172 - 167	Pole	TP23.75x22.875x0.2188	Pole	7.1%	Pass
167 - 162	Pole	TP24.625x23.75x0.2188	Pole	11.9%	Pass
162 - 157	Pole	TP25.5x24.625x0.2188	Pole	16.0%	Pass
157 - 152	Pole	TP26.375x25.5x0.2188	Pole	22.4%	Pass
152 - 147	Pole	TP27.25x26.375x0.2188	Pole	29.0%	Pass
147 - 142	Pole	TP28.124x27.25x0.2188	Pole	36.1%	Pass
142 - 137	Pole	TP28.999x28.124x0.2188	Pole	43.5%	Pass
137 - 133.5	Pole	TP30.268x28.999x0.2188	Pole	48.3%	Pass
133.5 - 128.5	Pole	TP30.049x29.174x0.25	Pole	47.1%	Pass
128.5 - 123.5	Pole	TP30.924x30.049x0.25	Pole	53.9%	Pass
123.5 - 118.58	Pole	TP31.785x30.924x0.25	Pole	60.0%	Pass
118.58 - 118.33	Pole + Reinf.	TP31.828x31.785x0.3875	Reinf. 1 Tension Rupture	54.4%	Pass
118.33 - 113.33	Pole + Reinf.	TP32.703x31.828x0.3875	Reinf. 1 Tension Rupture	59.8%	Pass
113.33 - 108.33	Pole + Reinf.	TP33.578x32.703x0.3813	Reinf. 1 Tension Rupture	64.9%	Pass
108.33 - 106.42	Pole + Reinf.	TP33.913x33.578x0.3813	Reinf. 1 Tension Rupture	66.9%	Pass
106.42 - 106.17	Pole	TP33.957x33.913x0.25	Pole	74.5%	Pass
106.17 - 101.17	Pole	TP34.832x33.957x0.25	Pole	80.1%	Pass
101.17 - 96.17	Pole	TP35.707x34.832x0.25	Pole	85.6%	Pass
96.17 - 91.17	Pole	TP36.582x35.707x0.25	Pole	91.0%	Pass
91.17 - 88.75	Pole	TP37.836x36.582x0.25	Pole	93.5%	Pass
88.75 - 83.75	Pole	TP37.38x36.505x0.3125	Pole	74.6%	Pass
83.75 - 78.75	Pole	TP38.255x37.38x0.3125	Pole	78.3%	Pass
78.75 - 73.75	Pole	TP39.13x38.255x0.3125	Pole	81.8%	Pass
73.75 - 68.75	Pole	TP40.005x39.13x0.3125	Pole	85.1%	Pass
68.75 - 63.75	Pole	TP40.88x40.005x0.3125	Pole	88.4%	Pass
63.75 - 58.75	Pole	TP41.755x40.88x0.3125	Pole	91.6%	Pass
58.75 - 53.75	Pole	TP42.63x41.755x0.3125	Pole	94.7%	Pass
53.75 - 48.75	Pole	TP43.505x42.63x0.3125	Pole	97.7%	Pass
48.75 - 45	Pole	TP45.167x43.505x0.3125	Pole	99.9%	Pass
45 - 38.25	Pole	TP44.717x43.536x0.375	Pole	83.3%	Pass
38.25 - 33.25	Pole	TP45.592x44.717x0.375	Pole	85.3%	Pass
33.25 - 28.25	Pole	TP46.467x45.592x0.375	Pole	87.2%	Pass
28.25 - 23.25	Pole	TP47.342x46.467x0.375	Pole	89.1%	Pass
23.25 - 18.25	Pole	TP48.217x47.342x0.375	Pole	90.9%	Pass
18.25 - 13.25	Pole	TP49.091x48.217x0.375	Pole	92.6%	Pass
13.25 - 8.25	Pole	TP49.966x49.091x0.375	Pole	94.3%	Pass
8.25 - 3.25	Pole	TP50.841x49.966x0.375	Pole	95.8%	Pass
3.25 - 0	Pole	TP51.41x50.841x0.375	Pole	96.8%	Pass
				Summary	
			Pole	99.9%	Pass
			Reinforcement	66.9%	Pass
			Overall	99.9%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity*	
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1
177 - 172	1020	n/a	1020	15.73	n/a	15.73	4.0%	
172 - 167	1143	n/a	1143	16.34	n/a	16.34	7.1%	
167 - 162	1275	n/a	1275	16.94	n/a	16.94	11.9%	
162 - 157	1417	n/a	1417	17.55	n/a	17.55	16.0%	
157 - 152	1569	n/a	1569	18.16	n/a	18.16	22.4%	
152 - 147	1732	n/a	1732	18.77	n/a	18.77	29.0%	
147 - 142	1906	n/a	1906	19.37	n/a	19.37	36.1%	
142 - 137	2090	n/a	2090	19.98	n/a	19.98	43.5%	
137 - 133.5	2227	n/a	2227	20.41	n/a	20.41	48.3%	
133.5 - 128.5	2652	n/a	2652	23.64	n/a	23.64	47.1%	
128.5 - 123.5	2892	n/a	2892	24.34	n/a	24.34	53.9%	
123.5 - 118.58	3143	n/a	3143	25.02	n/a	25.02	60.0%	
118.58 - 118.33	3156	1698	4854	25.06	12.39	37.45	38.6%	54.4%
118.33 - 113.33	3425	1789	5214	25.75	12.39	38.14	42.9%	59.8%
113.33 - 108.33	3710	1882	5592	26.44	12.39	38.83	47.0%	64.9%
108.33 - 106.42	3823	1918	5741	26.71	12.39	39.10	48.6%	66.9%
106.42 - 106.17	3838	n/a	3838	26.75	n/a	26.75	74.5%	
106.17 - 101.17	4145	n/a	4145	27.44	n/a	27.44	80.1%	
101.17 - 96.17	4467	n/a	4467	28.13	n/a	28.13	85.6%	
96.17 - 91.17	4806	n/a	4806	28.83	n/a	28.83	91.0%	
91.17 - 88.75	4976	n/a	4976	29.16	n/a	29.16	93.5%	
88.75 - 83.75	6380	n/a	6380	36.76	n/a	36.76	74.6%	
83.75 - 78.75	6842	n/a	6842	37.63	n/a	37.63	78.3%	
78.75 - 73.75	7327	n/a	7327	38.50	n/a	38.50	81.8%	
73.75 - 68.75	7833	n/a	7833	39.37	n/a	39.37	85.1%	
68.75 - 63.75	8363	n/a	8363	40.24	n/a	40.24	88.4%	
63.75 - 58.75	8916	n/a	8916	41.10	n/a	41.10	91.6%	
58.75 - 53.75	9493	n/a	9493	41.97	n/a	41.97	94.7%	
53.75 - 48.75	10094	n/a	10094	42.84	n/a	42.84	97.7%	
48.75 - 45	10561	n/a	10561	43.49	n/a	43.49	99.9%	
45 - 38.25	13106	n/a	13106	52.78	n/a	52.78	83.3%	
38.25 - 33.25	13897	n/a	13897	53.82	n/a	53.82	85.3%	
33.25 - 28.25	14719	n/a	14719	54.86	n/a	54.86	87.2%	
28.25 - 23.25	15574	n/a	15574	55.90	n/a	55.90	89.1%	
23.25 - 18.25	16460	n/a	16460	56.94	n/a	56.94	90.9%	
18.25 - 13.25	17380	n/a	17380	57.98	n/a	57.98	92.6%	
13.25 - 8.25	18333	n/a	18333	59.02	n/a	59.02	94.3%	
8.25 - 3.25	19321	n/a	19321	60.07	n/a	60.07	95.8%	
3.25 - 0	19981	n/a	19981	60.74	n/a	60.74	96.8%	

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

PROJECT	**83609.011.01 - SCOVILLE HILL /HARWINTON ROD, CT**
SUBJECT	**Anchor Rod Bracket Analysis**
DATE	**08/31/21**
v4.6.1	

TIA-222 Rev. H
Apply TIA-222-H Section 15.5? Yes

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

Analysis Criteria		
Design/Analysis	Analysis	
Load Type	Current Load	
Current load	167.89	kips
AR Capacity	361.1	kips

Tower Type	Monopole	

Manufacturers Tower Prop.		
Pole Thickness	0.375	in
Pole Grade	A572-65	
Fy	65	ksi
Fu	80	ksi
Base Plate Gr.	Custom	
Fy	55	55 ksi
Fu	70	70 ksi

Post-Installed Adhesive AR Mod.		
ARB Type	Welded	
Size	1 3/4 - 150	in
Grade	'22-150 (William	
Fy	127.7	ksi
Fu	150	ksi

Anchor Rod Bracket Analysis Checks		
Tube Bearing	43.3%	-
Tube Compression	65.0%	-
Gusset Shear	33.8%	-
Gusset Flexure	N/A	-
Welds: Gusset to Tower and BP	52.1%	-
Welds: Gusset to Tube	69.3%	-
Welds: Geometry	N/A	
Tower Punching	30.6%	-
Tube Punching	43.4%	-
Utilization	**69.3%**	

Bracket Properties

Gusset		
Thickness	1.25	in
Width at Tube	6	in
Height at Pole	30	in
Height at Tube	10.5	in
Grade	A572-65	
Fy	65	ksi
Fu	80	ksi

Pipe/Tube		
Size	3 XXS Pipe	
Total Length	10.5	in
Length above Gusset	0	in
Length below Gusset	0	in
Grade	Custom	
Fy	50	50 ksi
Fu	65	65 ksi

Weld - Gusset to Pipe/Tube		
FEXX	70	ksi
Weld Type	PJP - Double Bevel	
Fillet Size	3/8	in
Bevel Depth	3/8	in

Weld - Gusset to Tower		
FEXX	70	ksi
Weld Type	Double Fillet	
Fillet Size	3/8	in

Weld - Gusset to Base Plate		
FEXX	70	ksi
Weld Type	PJP - Double Bevel	
Fillet Size	1/2	in
Bevel Depth	1/2	in
Gap	0	in
Notch (horiz)	0.75	in
Notch (vert)	0.75	in
Pipe/Tube Welded to Base/Footpad?	Yes	
Fillet Size	1/2	in

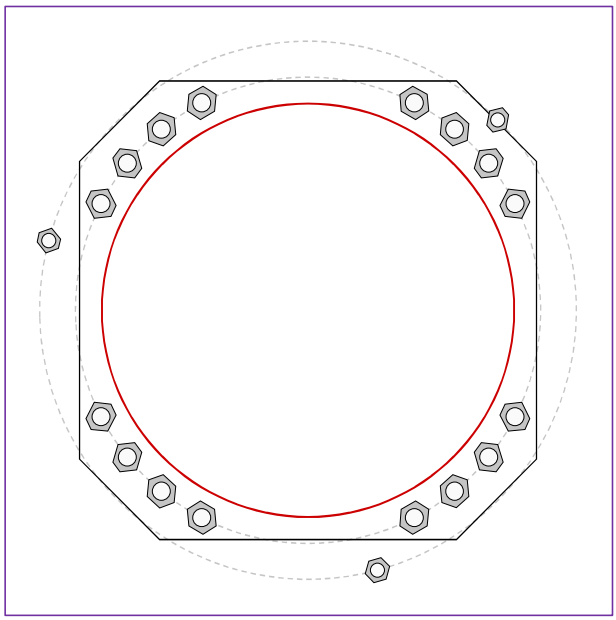
Monopole Base Plate Connection

Site Info	
BU #	876376
Site Name	LE HILL /HARWINTON I
Order #	553367, Rev# 0

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

Applied Loads	
Moment (kip-ft)	4221.63
Axial Force (kips)	76.88
Shear Force (kips)	36.25

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (16) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 58" BC
Anchor Spacing: 6 in
GROUP 2: (3) 1-3/4" ø bolts (A722 N; Fy=127.7 ksi, Fu=125 ksi) on 66.91" BC

Base Plate Data

57" W x 2.75" Plate (A572-55; Fy=55 ksi, Fu=70 ksi); Clip: 10 in

Stiffener Data

N/A

Pole Data

51.41" x 0.375" 18-sided pole (A607-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

GROUP 1:		
Pu_t = 177.09	ϕPn_t = 243.75	**Stress Rating**
Vu = 2.27	ϕVn = 149.1	**69.2%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 2:		
Pu_t = 167.89	ϕPn_t = 243.75	**Stress Rating**
Vu = 0	ϕVn = 121.88	**65.6%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	33.41	(Flexural)
Allowable Stress (ksi):	49.5	
Stress Rating:	**64.3%**	**Pass**

CCIplate

Elevation (ft)	0	*(Base)*

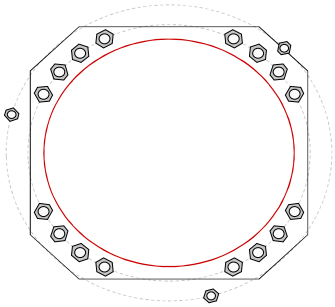
note: Bending interaction not considered when Grout Considered = "Yes"

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	27.186683	2.25	A615-75	58	0.5	0	N-Included		No
2	1	39.062228	2.25	A615-75	58	0.5	0	N-Included		No
3	1	50.937772	2.25	A615-75	58	0.5	0	N-Included		No
4	1	62.813317	2.25	A615-75	58	0.5	0	N-Included		No
5	1	117.18668	2.25	A615-75	58	0.5	0	N-Included		No
6	1	129.06223	2.25	A615-75	58	0.5	0	N-Included		No
7	1	140.93777	2.25	A615-75	58	0.5	0	N-Included		No
8	1	152.81332	2.25	A615-75	58	0.5	0	N-Included		No
9	1	207.18668	2.25	A615-75	58	0.5	0	N-Included		No
10	1	219.06223	2.25	A615-75	58	0.5	0	N-Included		No
11	1	230.93777	2.25	A615-75	58	0.5	0	N-Included		No
12	1	242.81332	2.25	A615-75	58	0.5	0	N-Included		No
13	1	297.18668	2.25	A615-75	58	0.5	0	N-Included		No
14	1	309.06223	2.25	A615-75	58	0.5	0	N-Included		No
15	1	320.93777	2.25	A615-75	58	0.5	0	N-Included		No
16	1	332.81332	2.25	A615-75	58	0.5	0	N-Included		No
17	2	45	1.75	A722	66.91	0.5	0	N-Included	2.6	No
18	2	165	1.75	A722	66.91	0.5	0	N-Included	2.6	No
19	2	285	1.75	A722	66.91	0.5	0	N-Included	2.6	No

Plot Graphic



Company:	B+T Grp	Page:	1
Address:	1717 S. Boulder,Suite 300	Specifier:	Pavithra
Phone I Fax:	| 918-587-4630	E-Mail:	
Design:	Drafts_83609_876376_Scoville_CB	Date:	9/1/2021
Fastening point:			

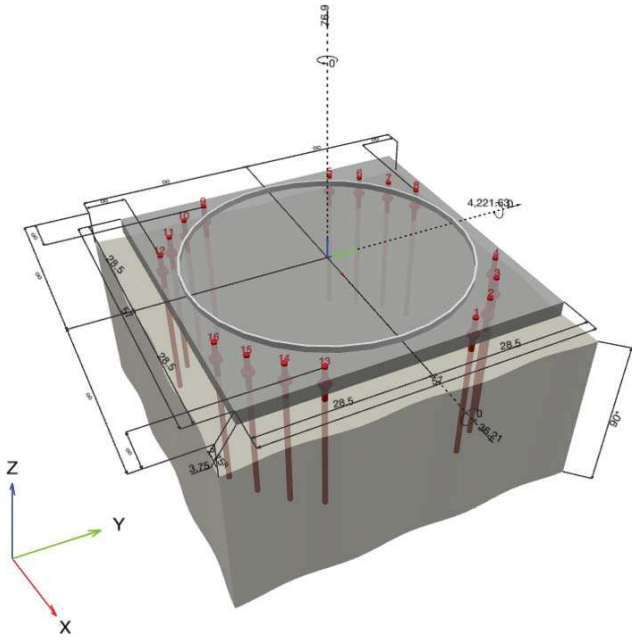
Specifier's comments:

1 Input data

Anchor type and diameter:	**Heavy Hex Head** 2.25in dia AR
Item number:	not available
Effective embedment depth:	h_{ef} = 80in
Material:	ASTM F 1554
Evaluation Service Report:	Hilti Technical Data
Issued I Valid:	- | -
Proof:	Design Method ACI 318-08 / CIP
Stand-off installation:	without clamping (anchor); restraint level (anchor plate): 1.00; e_b = 3.750 in.; t = 2.750 in.
Anchor plate[R]:	l_x x l_y x t = 57.000 in. x 57.000 in. x 2.750 in.; (Recommended plate thickness: not calculated)
Profile:	Steel pipe, ; (L x W x T) = 51.410 in. x 51.410 in. x 0.375 in.
Base material:	cracked concrete, 3000, f_c' = 3,000 psi; h = 90.000 in.
Reinforcement:	tension: condition B, shear: condition B; edge reinforcement: none or < No. 4 bar
Seismic loads (cat. C, D, E, or F)	no

[R] - The anchor calculation is based on a rigid anchor plate assumption.

Geometry [in.] & Loading [kip, ft.kip]

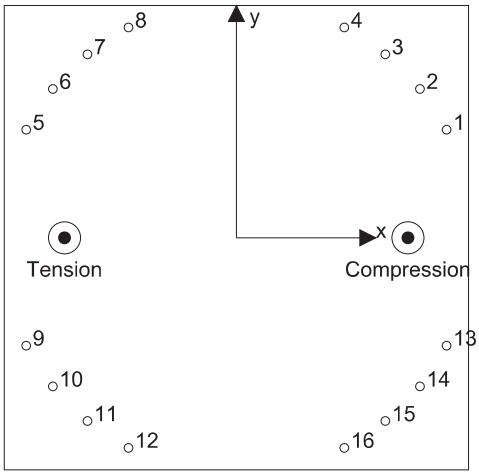


Company:	B+T Grp	Page:	2
Address:	1717 S. Boulder,Suite 300	Specifier:	Pavithra
Phone I Fax:	| 918-587-4630	E-Mail:	
Design:	Drafts_83609_876376_Scoville_CB	Date:	9/1/2021
Fastening point:			

1.1 Design results

Case	Description	Forces [kip] / Moments [ft.kip]	Seismic	Max. Util. Anchor [%]
1	Combination 1	N = -76.900; V_x = 36.210; V_y = 0.000; M_x = 0.00000; M_y = 4,221.63000; M_z = 0.00000;		

2 Load case/Resulting anchor forces



Anchor reactions [kip]
Tension force: (+Tension, -Compression)

Anchor	Tension force	Shear force	Shear force x	Shear force y
1	-199.055	2.263	2.263	0.000
2	-174.360	2.263	2.263	0.000
3	-142.361	2.263	2.263	0.000
4	-104.566	2.263	2.263	0.000
5	189.442	2.263	2.263	0.000
6	164.747	2.263	2.263	0.000
7	132.749	2.263	2.263	0.000
8	94.953	2.263	2.263	0.000
9	189.442	2.263	2.263	0.000
10	164.747	2.263	2.263	0.000
11	132.749	2.263	2.263	0.000
12	94.953	2.263	2.263	0.000
13	-199.055	2.263	2.263	0.000
14	-174.360	2.263	2.263	0.000
15	-142.361	2.263	2.263	0.000
16	-104.566	2.263	2.263	0.000

max. concrete compressive strain: - [‰]
max. concrete compressive stress: - [psi]
resulting tension force in (x/y)=(-21.106/-0.000): 1,163.782 [kip]
resulting compression force in (x/y)=(21.035/0.000): 1,240.682 [kip]

Anchor forces are calculated based on the assumption of a rigid anchor plate.

3 Tension load

	Load N_{ua} [kip]	Capacity ϕ N_n [kip]	Utilization $\beta_N = N_{ua}/\phi$ N_n	Rev H Rating
Steel Strength*	-199.055	304.6875	65.33%	62.22%
Concrete Breakout Failure**	1,163.782	1194.055	97.46%	92.82%

Company:	B+T Grp	Page:	3
Address:	1717 S. Boulder,Suite 300	Specifier:	Pavithra
Phone I Fax:	| 918-587-4630	E-Mail:	
Design:	Drafts_83609_876376_Scoville_CB	Date:	9/1/2021
Fastening point:			

3.1 Steel Strength

$N_{sa} = A_{se,N} f_{uta}$ ACI 318-08 Eq. (D-3)
$\phi N_{sa} \geq N_{ua}$ ACI 318-08 Eq. (D-1)

Variables

$A_{se,N}$ [in.^{2}]	f_{uta} [psi]
3.25	125000

Calculations

N_{sa} [kip]
406.25

Results

N_{sa} [kip]	ϕ_{steel}	ϕN_{sa} [kip]	N_{ua} [kip]
406.25	0.750	304.6875	-199.055

The steel proof was done for the highest absolute force per anchor - in this case compression loading. Please be aware that buckling should be verified separately

Company:	B+T Grp	Page:	4
Address:	1717 S. Boulder,Suite 300	Specifier:	Pavithra
Phone I Fax:	| 918-587-4630	E-Mail:	
Design:	Drafts_83609_876376_Scoville_CB	Date:	9/1/2021
Fastening point:			

3.3 Concrete Breakout Failure

$N_{cbg} = \left(\frac{A_{Nc}}{A_{Nc0}}\right) \Psi_{ec,N} \Psi_{ed,N} \Psi_{c,N} \Psi_{cp,N} N_b$ ACI 318-08 Eq. (D-5)

$\phi N_{cbg} \geq N_{ua}$ ACI 318-08 Eq. (D-1)

A_{Nc} see ACI 318-08, Part D.5.2.1, Fig. RD.5.2.1(b)

$A_{Nc0} = 9 h_{ef}^2$ ACI 318-08 Eq. (D-6)

$\Psi_{ec,N} = \left(\frac{1}{1 + \frac{2 e'_N}{3 h_{ef}}}\right) \leq 1.0$ ACI 318-08 Eq. (D-9)

$\Psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5 h_{ef}}\right) \leq 1.0$ ACI 318-08 Eq. (D-11)

$\Psi_{cp,N} = MAX\left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}}\right) \leq 1.0$ ACI 318-08 Eq. (D-13)

$N_b = 16 \lambda \sqrt{f'_c} h_{ef}^{5/3}$ ACI 318-08 Eq. (D-8)

Variables

h_{ef} [in.]	$e_{c1,N}$ [in.]	$e_{c2,N}$ [in.]	$c_{a,min}$ [in.]	$\Psi_{c,N}$
80	1.146	0.000	∞	1.000

c_{ac} [in.]	k_c	λ	f'_c [psi]
-	16	1	3,000

Calculations

A_{Nc} [in.^{2}]	A_{Nc0} [in.^{2}]	$\Psi_{ec1,N}$	$\Psi_{ec2,N}$	$\Psi_{ed,N}$	$\Psi_{cp,N}$	N_b [kip]
88804	57600	0.85	1.000	1.000	1.000	1301.659

Results

N_{cbg} [kip]	$\phi_{concrete}$	ϕN_{cbg} [kip]	N_{ua} [kip]
1705.793	0.700	1194.055	1,163.782

***Please refer excel tool for calculation

Pier and Pad Foundation

BU # :	876376
Site Name:	SCOVILLE HILL /H
App. Number:	553367, Rev. 0

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp}:	76.9	kips
Base Shear, Vu_comp:	36.21	kips
Moment, M_u:	4221.63	ft-kips
Tower Height, **H**:	177	ft
BP Dist. Above Fdn, bp_{dist}:	3.75	in
Bolt Circle / Bearing Plate Width, **BC**:	58	in

Foundation Analysis Checks	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	204.45	36.21	**16.9%**	**Pass**
Bearing Pressure (ksf)	30.00	13.23	**44.1%**	**Pass**
*Overturning (kip*ft)*	4545.28	4377.79	**96.3%**	**Pass**
*Pad Flexure (kip*ft)*	4945.31	2815.44	**54.2%**	**Pass**
Pad Shear - 1-way (kips)	1046.09	304.43	**27.7%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.000	**0.0%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	4775.51	0.00	**0.0%**	**Pass**

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

Structural Rating*:	**54.2%**
Soil Rating*:	**96.3%**

Pad Properties		
Depth, **D**:	3.5	ft
Pad Width, W_1:	24.5	ft
Pad Thickness, **T**:	4	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	9	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	26	
Pad Clear Cover, cc_{pad}:	3	in

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

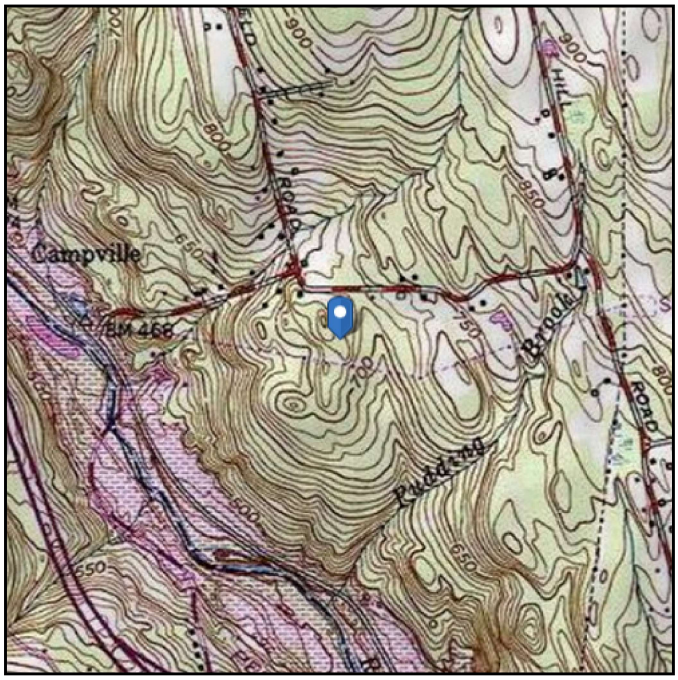
Soil Properties		
Total Soil Unit Weight, γ:	125	pcf
Ultimate Gross Bearing, Qult:	40.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	30	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:	0.7	
Neglected Depth, **N**:	3.33	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, **gw**:	N/A	ft

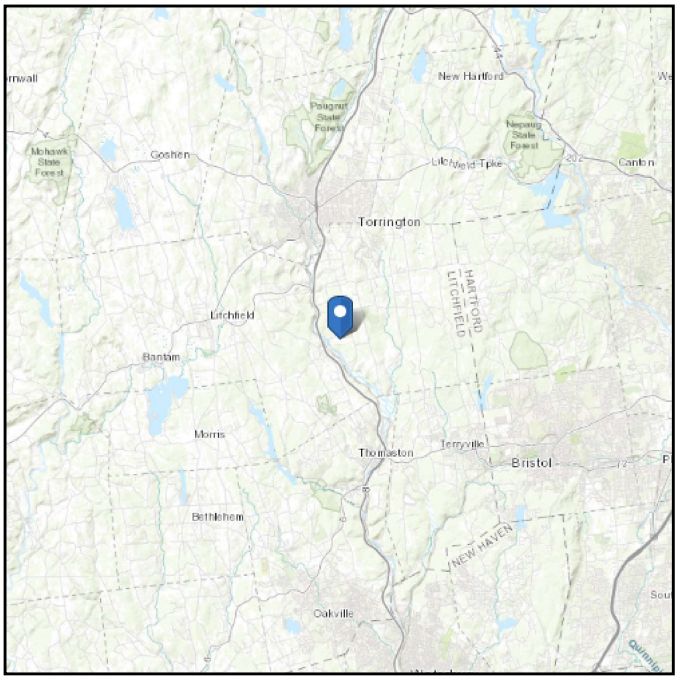
<--Toggle between Gross and Net

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	734.96 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.736778
Soil Class:	D - Stiff Soil	**Longitude:**	-73.097056





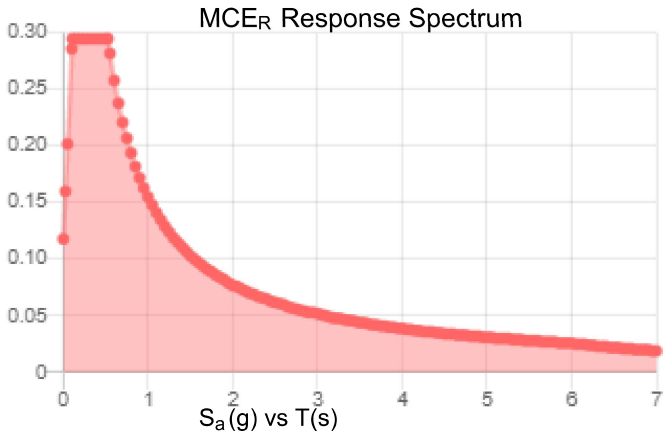
Seismic

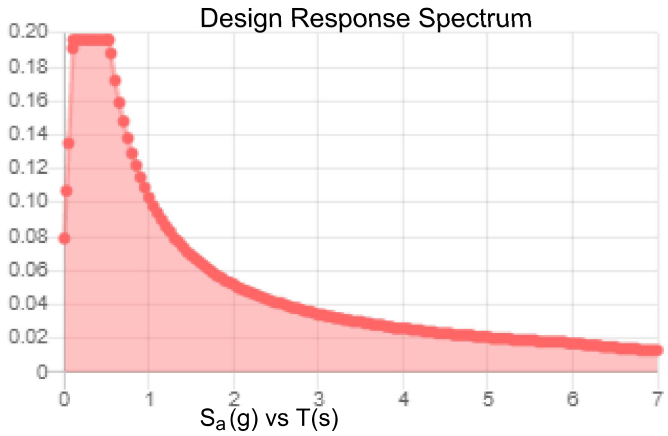
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.184	S_{DS} :	0.196
S_1 :	0.065	S_{D1} :	0.103
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.093
S_{MS} :	0.295	PGA_M :	0.15
S_{M1} :	0.155	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Thu Jul 29 2021

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

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Thu Jul 29 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: **September 15, 2021**

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Michael McWilliams
Crown Castle
8000 Avalon Blvd, Suite 700
Alpharetta, GA 30009
770-375-4936

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

Subject:	**Mount Analysis Report**	
Carrier Designation:	**Dish Network 5G**	
	Carrier Site Number:	BOHVN00028A
	Carrier Site Name:	CT-CCI-T-876376
Crown Castle Designation:	**Crown Castle BU Number:**	876376
	Crown Castle Site Name:	SCOVILLE HILL / HARWINTON ROD
	Crown Castle JDE Job Number:	645191
	Crown Castle Order Number:	553367 Rev.1
Engineering Firm Designation:	**Infinigy Engineering, PLLC Report Designation:** 1039-Z0001-B	
Site Data:	**123 Campville Hill Rd., Harwinton, Litchfield County, CT, 06791**	
	Latitude 41°44'12.40" Longitude -73°5'49.40"	
Structure Information:	**Tower Height & Type:**	**177.0 ft Monopole**
	Mount Elevation:	**144.0 ft**
	Mount Type:	**8.0 ft Platform**

Dear Michael McWilliams,

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

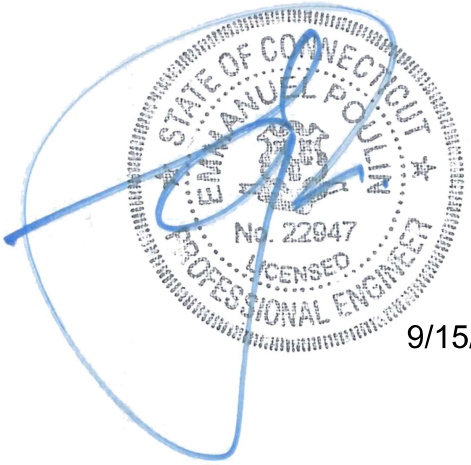
The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

Platform **Sufficient**
***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 115 mph as required by the 2015 International Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Iker Moreno, EIT

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



9/15/21

TABLE OF CONTENTS

1) INTRODUCTION

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

2) ANALYSIS CRITERIA

Building Code:	2015 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	115 mph
Exposure Category:	B
Topographic Factor at Base:	1.0
Topographic Factor at Mount:	1.0
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.184
Seismic S_1:	0.065
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
144.0	144.0	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	553367 Rev.1	CCI Sites
Mount Manufacturer Drawings	Commscope	MC-PK8-DSH	Infinigy

3.1) Analysis Method

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

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

This analysis was performed in accordance with Crown Castle’s ENG-SOW-10208 *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. Infinigy Engineering, PLLC 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)	MP9	144.0	13.5	Pass
	Horizontal(s)	HR1		11.3	Pass
	Standoff(s)	S1		31.6	Pass
	Bracing(s)	CA5		31.9	Pass
	Corner Plate(s)	P1		17.8	Pass
	Mount Connection(s)	--		25.2	Pass

Structure Rating (max from all components) =	31.9%

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

4.1) Recommendations

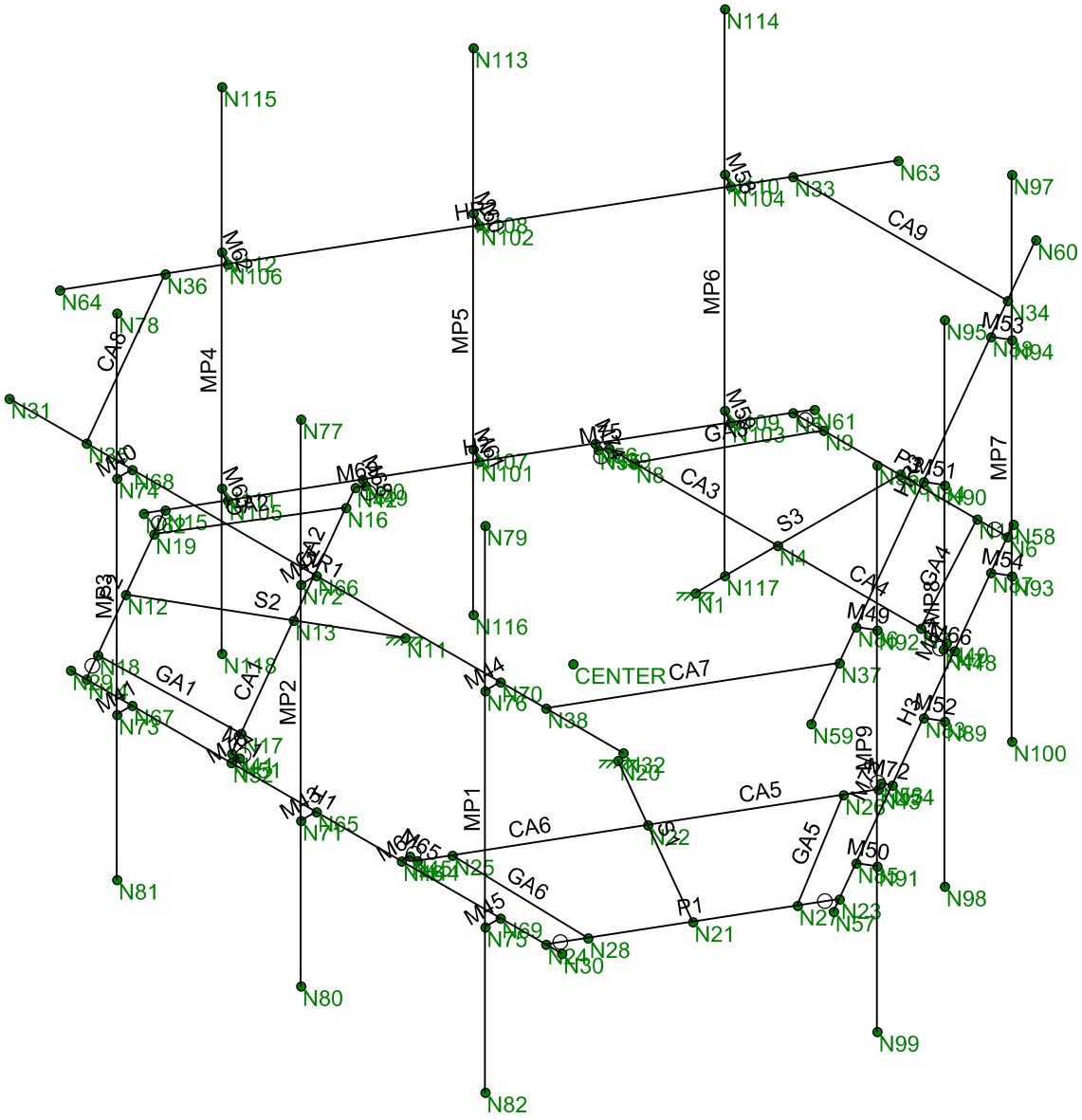
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the proposed mount listed below must be installed.

1. Commscope MC-PK8-DSH

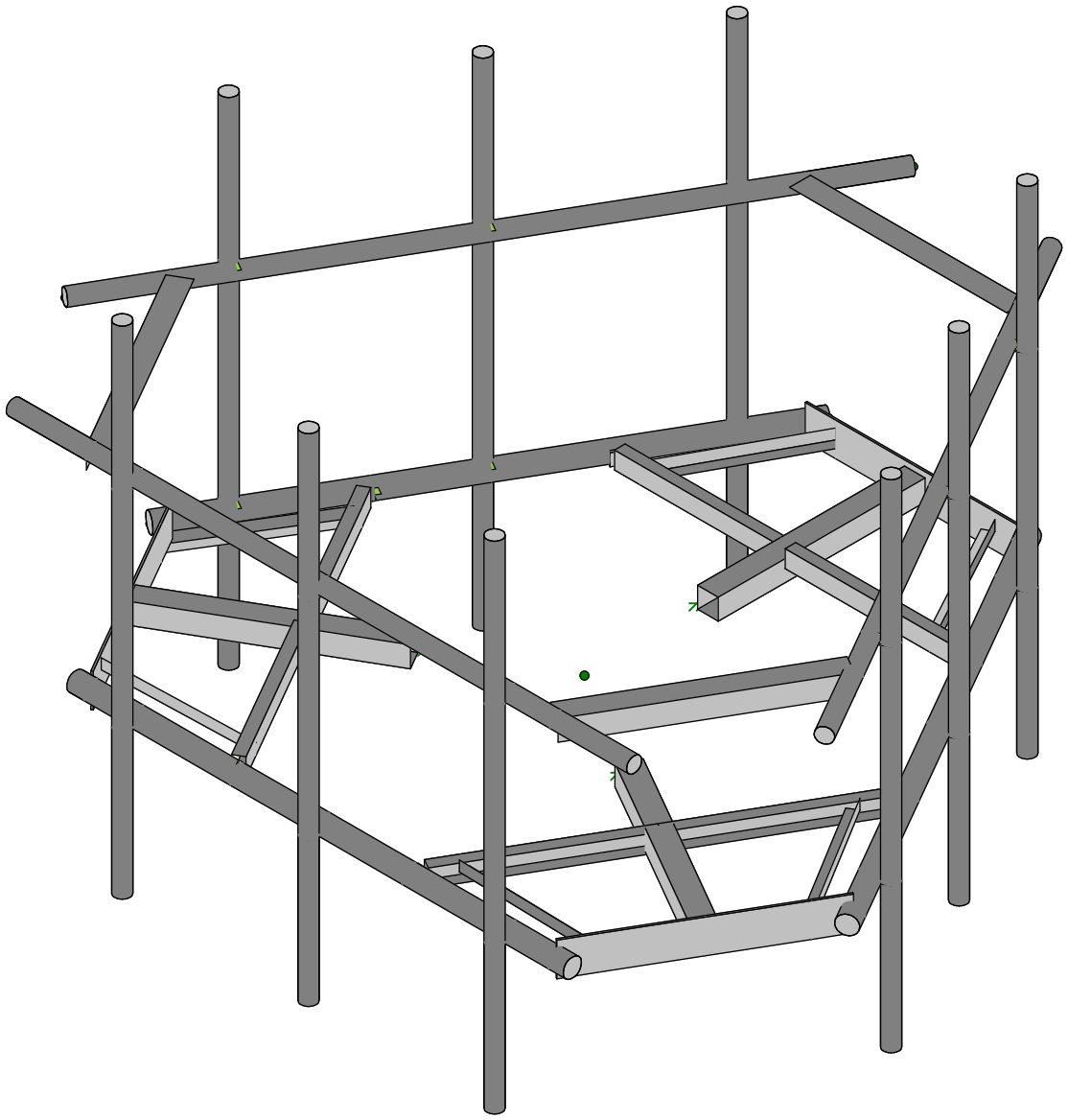
No structural modifications are required at this time, provided that the above-listed changes are implemented.

APPENDIX A

WIRE FRAME AND RENDERED MODELS



Infinigy Engineering	876376	Wireframe
IM		Sept 15, 2021 at 10:31 AM
1039-Z0001-B		876376_loaded.r3d



Infinigy Engineering	876376	Rendering
IM		Sept 15, 2021 at 10:31 AM
1039-Z0001-B		876376_loaded.r3d

APPENDIX B

SOFTWARE INPUT CALCULATIONS

Program Inputs

PROJECT INFORMATION	
Client:	Crown Castle
Carrier:	DISH Network
Engineer:	Iker Moreno

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	B	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	734.96	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Platform	
Num Sectors:	3	
Centerline AGL:	144.00	ft
Tower Height AGL:	177.00	ft

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

FACTORS		
Directionality Fact. (K_d):	0.950	
Ground Ele. Factor (K_e):	0.974	*Rev H Only
Rooftop Speed-Up (K_s):	1.000	*Rev H Only
Topographic Factor (K_{zt}):	1.000	
Gust Effect Factor (G_h):	1.000	

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

WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	115	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	1.5	in
Flat Pressure:	68.697	psf
Round Pressure:	41.218	psf
Ice Wind Pressure:	7.792	psf

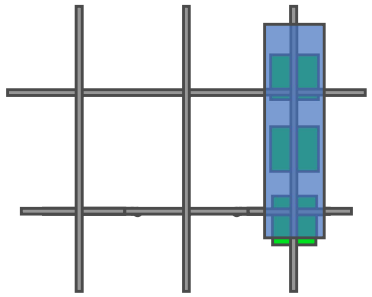
SEISMIC DATA		
Short-Period Accel. (S_s):	0.184	g
1-Second Accel. (S_1):	0.065	g
Short-Period Design (S_{DS}):	0.196	
1-Second Design (S_{D1}):	0.104	
Short-Period Coeff. (F_a):	1.600	
1-Second Coeff. (F_v):	2.400	
Amplification Factor (A_s):	3.000	
Response Mod. Coeff. (R):	2.000	

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

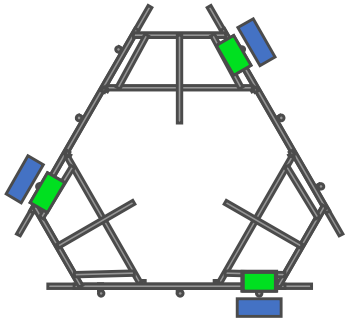
Infinigy Load Calculator V2.1.7

Program Inputs

ELEVATION VIEW



PLAN VIEW



INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Infinigy Load Calculator V2.1.7

APPURTENANCE INFORMATION

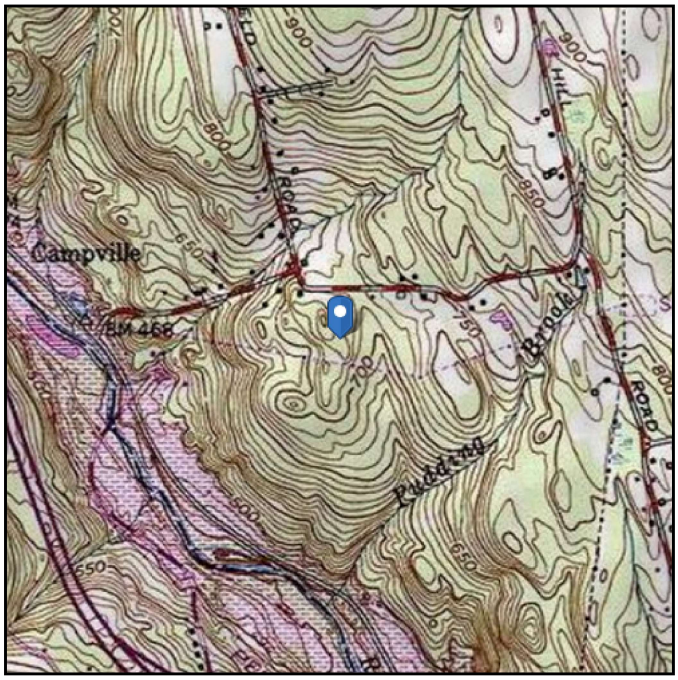
Appurtenance Name	Elevation	Qty.	K_a	q_z (psf)	EPA_N (ft^2)	EPA_T (ft^2)	Wind F_z (lbs)	Wind F_x (lbs)	Weight (lbs)	Seismic F (lbs)	Member (α sector)
JMA WIRELESS MX08FRO665-21	144.0	3	0.90	34.35	8.01	3.21	247.62	99.23	82.50	24.29	MP1
FUJITSU TA08025-B604	144.0	3	0.90	34.35	1.96	0.98	60.70	30.33	63.90	18.81	MP1
FUJITSU TA08025-B605	144.0	3	0.90	34.35	1.96	1.13	60.70	34.92	75.00	22.08	MP1
RAYCAP RDIDC-9181-PF48	144.0	1	0.90	34.35	2.01	1.17	62.19	36.11	21.85	6.43	MP1

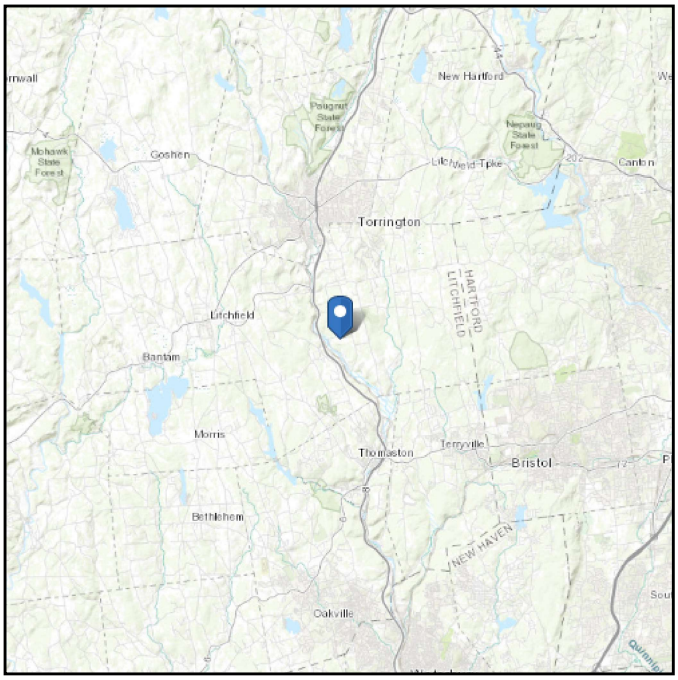
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 734.96 ft (NAVD 88)
Latitude: 41.736778
Longitude: -73.097056





Wind

Results:

Wind Speed:	115 Vmph per State of Connecticut allowing ASCE 7-16 wind speed values.
10-year MRI	76 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	97 Vmph

Data Accessed: Wed Sep 15 2021

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.

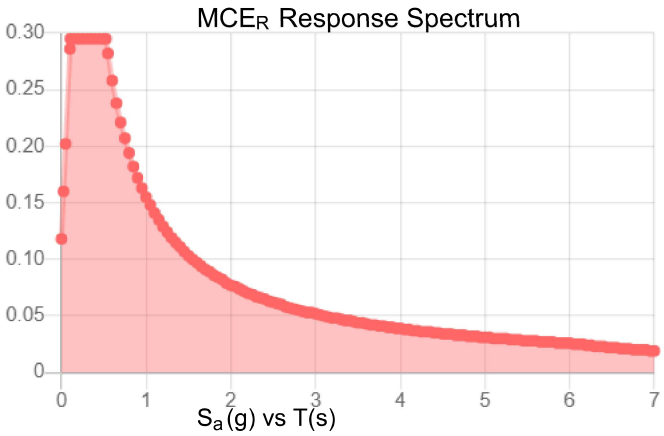
Seismic

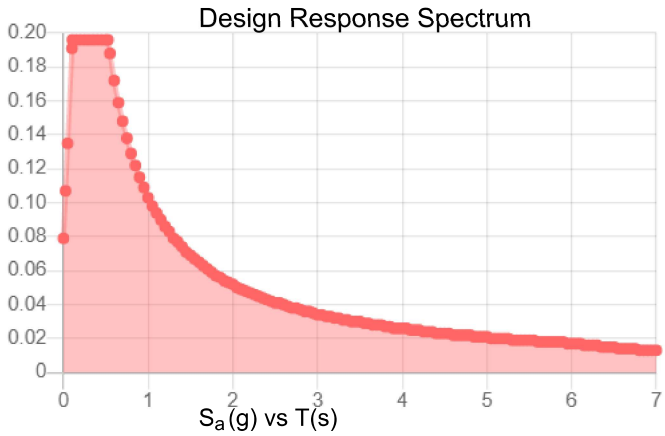
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.184	S_{DS} :	0.196
S_1 :	0.065	S_{D1} :	0.103
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.093
S_{MS} :	0.295	PGA_M :	0.15
S_{M1} :	0.155	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Wed Sep 15 2021

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

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Wed Sep 15 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.

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Member Primary Data

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

Member Primary Data (Continued)

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

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E...	Density[lb/f...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	490	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	490	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	490	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	490	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	490	50	1.4	65	1.3
8	A913 Gr.65	29000	11154	.3	.65	490	65	1.1	80	1.1
9	A500 GR.C	29000	11154	.3	.65	490	46	1.6	60	1.2
10	A529 Gr. 50	29000	11154	.3	.65	490	50	1.1	65	1.1
11	A1011-33Ksi	29000	11154	.3	.65	490	33	1.5	58	1.2
12	A1011 36 Ksi	29000	11154	.3	.65	490	36	1.5	58	1.2
13	A1018 50 Ksi	29000	11154	.3	.65	490	50	1.5	65	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Corner Plates	PL6.5x0.375	Beam	RECT	A36 Gr.36	Typical	2.438	.029	8.582	.11
2	6"x0.37" Plate	Plate 6x.37	Beam	RECT	A36 Gr.36	Typical	2.22	.025	6.66	.097
3	Grating Angle	L2x2x4	Beam	Single Angle	A36 Gr.36	Typical	.944	.346	.346	.021
4	Horizontal	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
5	Mount Pipe	PIPE_2.5	Column	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
6	Channel	C3.38x2.06x0.25	Beam	Channel	A36 Gr.36	Typical	1.75	.715	3.026	.034
7	Standoff	HSS4X4X4	Beam	Tube	A500 Gr.B Re...	Typical	3.37	7.8	7.8	12.8
8	Handrail Connector	L4X4X4	Beam	Single Angle	A36 Gr.36	Typical	1.93	3	3	.044
9	Handrail	PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89

Joint Coordinates and Temperatures

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
1	N1	-0.	0	-74.1865	0	
2	CENTER	0	0	-50.1865	0	
3	N3	-0.	0	-114.1865	0	
4	N4	-0.	0	-90.1865	0	
5	N5	-21.	0	-114.1865	0	
6	N6	21.	0	-114.1865	0	
7	N7	28.	0	-90.1865	0	
8	N8	-28.	0	-90.1865	0	
9	N9	-15.	0	-114.1865	0	
10	N10	15.	0	-114.1865	0	
11	N11	-20.78461	0	-38.1865	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
12	N12	-55.425626	0	-18.1865	0	
13	N13	-34.641016	0	-30.1865	0	
14	N14	-44.925626	0	0.000033	0	
15	N15	-65.925626	0	-36.373033	0	
16	N16	-48.641016	0	-54.435211	0	
17	N17	-20.641016	0	-5.937789	0	
18	N18	-47.925626	0	-5.196119	0	
19	N19	-62.925626	0	-31.176881	0	
20	N20	20.78461	0	-38.1865	0	
21	N21	55.425626	0	-18.1865	0	
22	N22	34.641016	0	-30.1865	0	
23	N23	65.925626	0	-36.373033	0	
24	N24	44.925626	0	0.000033	0	
25	N25	20.641016	0	-5.937789	0	
26	N26	48.641016	0	-54.435211	0	
27	N27	62.925626	0	-31.176881	0	
28	N28	47.925626	0	-5.196119	0	
29	N29	-48.	0	0.000033	0	
30	N30	48.	0	0.000033	0	
31	N31	-60.	40	0.000033	0	
32	N32	60.	40	0.000033	0	
33	N33	-21.	40	-114.1865	0	
34	N34	21.	40	-114.1865	0	
35	N35	-44.925626	40	0.000033	0	
36	N36	-65.925626	40	-36.373033	0	
37	N37	65.925626	40	-36.373033	0	
38	N38	44.925626	40	0.000033	0	
39	N39	-33.	0	-90.1865	0	
40	N40	33.	0	-90.1865	0	
41	N41	-18.141016	0	-1.607662	0	
42	N42	-51.141016	0	-58.765338	0	
43	N43	51.141016	0	-58.765338	0	
44	N44	18.141016	0	-1.607662	0	
45	N45	16.641016	0	-1.607662	0	
46	N46	16.641016	0	0.000033	0	
47	N47	33.75	0	-88.887462	0	
48	N48	35.142305	0	-89.691309	0	
49	N49	-50.391016	0	-60.064377	0	
50	N50	-51.783321	0	-60.868224	0	
51	N51	-16.641016	0	-1.607662	0	
52	N52	-16.641016	0	0.000033	0	
53	N53	50.391016	0	-60.064377	0	
54	N54	51.783321	0	-60.868224	0	
55	N55	-33.75	0	-88.887462	0	
56	N56	-35.142305	0	-89.691309	0	
57	N57	67.462813	0	-33.710548	0	
58	N58	19.462813	0	-116.848986	0	
59	N59	73.462813	40	-23.318243	0	
60	N60	13.462813	40	-127.241291	0	
61	N61	-19.462813	0	-116.848986	0	
62	N62	-67.462813	0	-33.710547	0	
63	N63	-13.462813	40	-127.241291	0	
64	N64	-73.462813	40	-23.318242	0	
65	N65	0.	0	0.000033	0	
66	N66	0.	40	0.000033	0	
67	N67	-36.	0	0.000033	0	
68	N68	-36.	40	0.000033	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
69	N69	36.	0	0.000033	0	
70	N70	36.	40	0.000033	0	
71	N71	0.	0	3.000033	0	
72	N72	0.	40	3.000033	0	
73	N73	-36.	0	3.000033	0	
74	N74	-36.	40	3.000033	0	
75	N75	36.	0	3.000033	0	
76	N76	36.	40	3.000033	0	
77	N77	0.	68	3.000033	0	
78	N78	-36.	68	3.000033	0	
79	N79	36.	68	3.000033	0	
80	N80	0.	-28	3.000033	0	
81	N81	-36.	-28	3.000033	0	
82	N82	36.	-28	3.000033	0	
83	N83	43.462813	0	-75.279767	0	
84	N84	43.462813	40	-75.279767	0	
85	N85	61.462813	0	-44.102852	0	
86	N86	61.462813	40	-44.102852	0	
87	N87	25.462813	0	-106.456681	0	
88	N88	25.462813	40	-106.456681	0	
89	N89	46.060889	0	-76.779767	0	
90	N90	46.060889	40	-76.779767	0	
91	N91	64.060889	0	-45.602852	0	
92	N92	64.060889	40	-45.602852	0	
93	N93	28.060889	0	-107.956681	0	
94	N94	28.060889	40	-107.956681	0	
95	N95	46.060889	68	-76.779767	0	
96	N96	64.060889	68	-45.602852	0	
97	N97	28.060889	68	-107.956681	0	
98	N98	46.060889	-28	-76.779767	0	
99	N99	64.060889	-28	-45.602852	0	
100	N100	28.060889	-28	-107.956681	0	
101	N101	-43.462813	0	-75.279766	0	
102	N102	-43.462813	40	-75.279766	0	
103	N103	-25.462813	0	-106.456681	0	
104	N104	-25.462813	40	-106.456681	0	
105	N105	-61.462813	0	-44.102852	0	
106	N106	-61.462813	40	-44.102852	0	
107	N107	-46.060889	0	-76.779766	0	
108	N108	-46.060889	40	-76.779766	0	
109	N109	-28.060889	0	-107.956681	0	
110	N110	-28.060889	40	-107.956681	0	
111	N111	-64.060889	0	-45.602852	0	
112	N112	-64.060889	40	-45.602852	0	
113	N113	-46.060889	68	-76.779766	0	
114	N114	-28.060889	68	-107.956681	0	
115	N115	-64.060889	68	-45.602852	0	
116	N116	-46.060889	-28	-76.779766	0	
117	N117	-28.060889	-28	-107.956681	0	
118	N118	-64.060889	-28	-45.602852	0	

Hot Rolled Steel Design Parameters

	Label	Shape	Length...	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torque[i...	Kyy	Kzz	Cb	Funct...
1	S3	Standoff	40			Lbyy						Lateral
2	GA4	Grating A...	27.295			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length...	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torque[i...	Kyy	Kzz	Cb	Funct...
3	GA3	Grating A...	27.295			Lbyy						Lateral
4	P3	Corner Pl...	42			Lbyy						Lateral
5	S2	Standoff	40			Lbyy						Lateral
6	GA2	Grating A...	27.295			Lbyy						Lateral
7	GA1	Grating A...	27.295			Lbyy						Lateral
8	P2	Corner Pl...	42			Lbyy						Lateral
9	S1	Standoff	40			Lbyy						Lateral
10	GA6	Grating A...	27.295			Lbyy						Lateral
11	GA5	Grating A...	27.295			Lbyy						Lateral
12	P1	Corner Pl...	42			Lbyy						Lateral
13	H1	Horizontal	96			Lbyy						Lateral
14	HR1	Handrail	120			Lbyy						Lateral
15	CA8	Handrail ...	42			Lbyy						Lateral
16	CA9	Handrail ...	42			Lbyy						Lateral
17	CA7	Handrail ...	42			Lbyy						Lateral
18	CA3	Channel	33			Lbyy						Lateral
19	CA4	Channel	33			Lbyy						Lateral
20	CA1	Channel	33			Lbyy						Lateral
21	CA2	Channel	33			Lbyy						Lateral
22	CA5	Channel	33			Lbyy						Lateral
23	CA6	Channel	33			Lbyy						Lateral
24	M75	PL 2.375x...	1.5			Lbyy						Lateral
25	H3	Horizontal	96			Lbyy						Lateral
26	HR3	Handrail	120			Lbyy						Lateral
27	H2	Horizontal	96			Lbyy						Lateral
28	HR2	Handrail	120			Lbyy						Lateral
29	MP3	Mount Pipe	96			Lbyy						Lateral
30	MP2	Mount Pipe	96			Lbyy						Lateral
31	MP1	Mount Pipe	96			Lbyy						Lateral
32	MP9	Mount Pipe	96			Lbyy						Lateral
33	MP8	Mount Pipe	96			Lbyy						Lateral
34	MP7	Mount Pipe	96			Lbyy						Lateral
35	MP6	Mount Pipe	96			Lbyy						Lateral
36	MP5	Mount Pipe	96			Lbyy						Lateral
37	MP4	Mount Pipe	96			Lbyy						Lateral

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Member)	Surface(Plate/Wall)
1	Self Weight	DL		-1			13		3	
2	Wind Load AZ...	WLZ					26			
3	Wind Load AZ...	None					26			
4	Wind Load AZ...	None					26			
5	Wind Load AZ...	WLX					26			
6	Wind Load AZ...	None					26			
7	Wind Load AZ...	None					26			
8	Wind Load AZ...	None					26			
9	Wind Load AZ...	None					26			
10	Wind Load AZ...	None					26			
11	Wind Load AZ...	None					26			
12	Wind Load AZ...	None					26			
13	Wind Load AZ...	None					26			
14	Distr. Wind Lo...	WLZ						66		
15	Distr. Wind Lo...	WLX						66		
16	Ice Weight	OL1					13	66	3	
17	Ice Wind Load...	OL2					26			

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Member)	Surface(Plate/Wall)
18	Ice Wind Load...	None					26			
19	Ice Wind Load...	None					26			
20	Ice Wind Load...	OL3					26			
21	Ice Wind Load...	None					26			
22	Ice Wind Load...	None					26			
23	Ice Wind Load...	None					26			
24	Ice Wind Load...	None					26			
25	Ice Wind Load...	None					26			
26	Ice Wind Load...	None					26			
27	Ice Wind Load...	None					26			
28	Ice Wind Load...	None					26			
29	Distr. Ice Wind...	OL2						66		
30	Distr. Ice Wind...	OL3						66		
31	Seismic Load Z	ELZ			-.294		13			
32	Seismic Load X	ELX	-.294				13			
33	Service Live L...	LL				1				
34	Maintenance L...	LL				1				
35	Maintenance L...	LL				1				
36	Maintenance L...	LL				1				
37	Maintenance L...	LL				1				
38	Maintenance L...	LL				1				
39	Maintenance L...	LL				1				
40	Maintenance L...	LL				1				
41	Maintenance L...	LL				1				
42	Maintenance L...	LL				1				
43	BLC 1 Transie...	None						9		
44	BLC 16 Transi...	None						9		

Joint Loads and Enforced Displacements (BLC 33 : Service Live Loads)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2...
1	N30	L	Y	-250

Joint Loads and Enforced Displacements (BLC 34 : Maintenance Load 1)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2...
1	N67	L	Y	-500

Joint Loads and Enforced Displacements (BLC 35 : Maintenance Load 2)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2...
1	N65	L	Y	-500

Joint Loads and Enforced Displacements (BLC 36 : Maintenance Load 3)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2...
1	N69	L	Y	-500

Joint Loads and Enforced Displacements (BLC 37 : Maintenance Load 4)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2...
1	N85	L	Y	-500

Joint Loads and Enforced Displacements (BLC 38 : Maintenance Load 5)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2...
1	N83	L	Y	-500

Joint Loads and Enforced Displacements (BLC 39 : Maintenance Load 6)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2...
1	N87	L	Y	-500

Joint Loads and Enforced Displacements (BLC 40 : Maintenance Load 7)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2...
1	N103	L	Y	-500

Joint Loads and Enforced Displacements (BLC 41 : Maintenance Load 8)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2...
1	N101	L	Y	-500

Joint Loads and Enforced Displacements (BLC 42 : Maintenance Load 9)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2...
1	N105	L	Y	-500

Member Point Loads (BLC 1 : Self Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Y	-41.25	6
2	MP1	Y	-41.25	78
3	MP1	Y	-63.9	%25
4	MP1	Y	-75	%50
5	MP1	Y	-21.85	%75
6	MP4	Y	-41.25	6
7	MP4	Y	-41.25	78
8	MP4	Y	-63.9	%33
9	MP4	Y	-75	%67
10	MP7	Y	-41.25	6
11	MP7	Y	-41.25	78
12	MP7	Y	-63.9	%33
13	MP7	Y	-75	%67

Member Point Loads (BLC 2 : Wind Load AZI 0)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	6
2	MP1	Z	-123.81	6
3	MP1	X	0	78
4	MP1	Z	-123.81	78
5	MP1	X	0	%25
6	MP1	Z	-60.7	%25
7	MP1	X	0	%50
8	MP1	Z	-60.7	%50
9	MP1	X	0	%75
10	MP1	Z	-62.19	%75
11	MP4	X	0	6
12	MP4	Z	-68.16	6
13	MP4	X	0	78
14	MP4	Z	-68.16	78
15	MP4	X	0	%33
16	MP4	Z	-37.92	%33
17	MP4	X	0	%67
18	MP4	Z	-41.36	%67
19	MP7	X	0	6
20	MP7	Z	-68.16	6
21	MP7	X	0	78

Member Point Loads (BLC 2 : Wind Load AZI 0) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
22	MP7	Z	-68.16	78
23	MP7	X	0	%33
24	MP7	Z	-37.92	%33
25	MP7	X	0	%67
26	MP7	Z	-41.36	%67

Member Point Loads (BLC 3 : Wind Load AZI 30)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-52.63	6
2	MP1	Z	-91.16	6
3	MP1	X	-52.63	78
4	MP1	Z	-91.16	78
5	MP1	X	-26.55	%25
6	MP1	Z	-45.99	%25
7	MP1	X	-27.13	%50
8	MP1	Z	-46.98	%50
9	MP1	X	-27.84	%75
10	MP1	Z	-48.22	%75
11	MP4	X	-52.63	6
12	MP4	Z	-91.16	6
13	MP4	X	-52.63	78
14	MP4	Z	-91.16	78
15	MP4	X	-26.55	%33
16	MP4	Z	-45.99	%33
17	MP4	X	-27.13	%67
18	MP4	Z	-46.98	%67
19	MP7	X	-24.81	6
20	MP7	Z	-42.97	6
21	MP7	X	-24.81	78
22	MP7	Z	-42.97	78
23	MP7	X	-15.17	%33
24	MP7	Z	-26.27	%33
25	MP7	X	-17.46	%67
26	MP7	Z	-30.24	%67

Member Point Loads (BLC 4 : Wind Load AZI 60)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-59.03	6
2	MP1	Z	-34.08	6
3	MP1	X	-59.03	78
4	MP1	Z	-34.08	78
5	MP1	X	-32.84	%25
6	MP1	Z	-18.96	%25
7	MP1	X	-35.82	%50
8	MP1	Z	-20.68	%50
9	MP1	X	-36.92	%75
10	MP1	Z	-21.32	%75
11	MP4	X	-107.22	6
12	MP4	Z	-61.9	6
13	MP4	X	-107.22	78
14	MP4	Z	-61.9	78
15	MP4	X	-52.57	%33
16	MP4	Z	-30.35	%33
17	MP4	X	-52.57	%67
18	MP4	Z	-30.35	%67
19	MP7	X	-59.03	6

Member Point Loads (BLC 4 : Wind Load AZI 60) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
20	MP7	Z	-34.08	6
21	MP7	X	-59.03	78
22	MP7	Z	-34.08	78
23	MP7	X	-32.84	%33
24	MP7	Z	-18.96	%33
25	MP7	X	-35.82	%67
26	MP7	Z	-20.68	%67

Member Point Loads (BLC 5 : Wind Load AZI 90)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-49.62	6
2	MP1	Z	0	6
3	MP1	X	-49.62	78
4	MP1	Z	0	78
5	MP1	X	-30.33	%25
6	MP1	Z	0	%25
7	MP1	X	-34.92	%50
8	MP1	Z	0	%50
9	MP1	X	-36.11	%75
10	MP1	Z	0	%75
11	MP4	X	-105.26	6
12	MP4	Z	0	6
13	MP4	X	-105.26	78
14	MP4	Z	0	78
15	MP4	X	-53.11	%33
16	MP4	Z	0	%33
17	MP4	X	-54.25	%67
18	MP4	Z	0	%67
19	MP7	X	-105.26	6
20	MP7	Z	0	6
21	MP7	X	-105.26	78
22	MP7	Z	0	78
23	MP7	X	-53.11	%33
24	MP7	Z	0	%33
25	MP7	X	-54.25	%67
26	MP7	Z	0	%67

Member Point Loads (BLC 6 : Wind Load AZI 120)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-59.03	6
2	MP1	Z	34.08	6
3	MP1	X	-59.03	78
4	MP1	Z	34.08	78
5	MP1	X	-32.84	%25
6	MP1	Z	18.96	%25
7	MP1	X	-35.82	%50
8	MP1	Z	20.68	%50
9	MP1	X	-36.92	%75
10	MP1	Z	21.32	%75
11	MP4	X	-59.03	6
12	MP4	Z	34.08	6
13	MP4	X	-59.03	78
14	MP4	Z	34.08	78
15	MP4	X	-32.84	%33
16	MP4	Z	18.96	%33
17	MP4	X	-35.82	%67

Member Point Loads (BLC 6 : Wind Load AZI 120) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
18	MP4	Z	20.68	%67
19	MP7	X	-107.22	6
20	MP7	Z	61.9	6
21	MP7	X	-107.22	78
22	MP7	Z	61.9	78
23	MP7	X	-52.57	%33
24	MP7	Z	30.35	%33
25	MP7	X	-52.57	%67
26	MP7	Z	30.35	%67

Member Point Loads (BLC 7 : Wind Load AZI 150)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-52.63	6
2	MP1	Z	91.16	6
3	MP1	X	-52.63	78
4	MP1	Z	91.16	78
5	MP1	X	-26.55	%25
6	MP1	Z	45.99	%25
7	MP1	X	-27.13	%50
8	MP1	Z	46.98	%50
9	MP1	X	-27.84	%75
10	MP1	Z	48.22	%75
11	MP4	X	-24.81	6
12	MP4	Z	42.97	6
13	MP4	X	-24.81	78
14	MP4	Z	42.97	78
15	MP4	X	-15.17	%33
16	MP4	Z	26.27	%33
17	MP4	X	-17.46	%67
18	MP4	Z	30.24	%67
19	MP7	X	-52.63	6
20	MP7	Z	91.16	6
21	MP7	X	-52.63	78
22	MP7	Z	91.16	78
23	MP7	X	-26.55	%33
24	MP7	Z	45.99	%33
25	MP7	X	-27.13	%67
26	MP7	Z	46.98	%67

Member Point Loads (BLC 8 : Wind Load AZI 180)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	6
2	MP1	Z	123.81	6
3	MP1	X	0	78
4	MP1	Z	123.81	78
5	MP1	X	0	%25
6	MP1	Z	60.7	%25
7	MP1	X	0	%50
8	MP1	Z	60.7	%50
9	MP1	X	0	%75
10	MP1	Z	62.19	%75
11	MP4	X	0	6
12	MP4	Z	68.16	6
13	MP4	X	0	78
14	MP4	Z	68.16	78
15	MP4	X	0	%33

Member Point Loads (BLC 8 : Wind Load AZI 180) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
16	MP4	Z	37.92	%33
17	MP4	X	0	%67
18	MP4	Z	41.36	%67
19	MP7	X	0	6
20	MP7	Z	68.16	6
21	MP7	X	0	78
22	MP7	Z	68.16	78
23	MP7	X	0	%33
24	MP7	Z	37.92	%33
25	MP7	X	0	%67
26	MP7	Z	41.36	%67

Member Point Loads (BLC 9 : Wind Load AZI 210)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	52.63	6
2	MP1	Z	91.16	6
3	MP1	X	52.63	78
4	MP1	Z	91.16	78
5	MP1	X	26.55	%25
6	MP1	Z	45.99	%25
7	MP1	X	27.13	%50
8	MP1	Z	46.98	%50
9	MP1	X	27.84	%75
10	MP1	Z	48.22	%75
11	MP4	X	52.63	6
12	MP4	Z	91.16	6
13	MP4	X	52.63	78
14	MP4	Z	91.16	78
15	MP4	X	26.55	%33
16	MP4	Z	45.99	%33
17	MP4	X	27.13	%67
18	MP4	Z	46.98	%67
19	MP7	X	24.81	6
20	MP7	Z	42.97	6
21	MP7	X	24.81	78
22	MP7	Z	42.97	78
23	MP7	X	15.17	%33
24	MP7	Z	26.27	%33
25	MP7	X	17.46	%67
26	MP7	Z	30.24	%67

Member Point Loads (BLC 10 : Wind Load AZI 240)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	59.03	6
2	MP1	Z	34.08	6
3	MP1	X	59.03	78
4	MP1	Z	34.08	78
5	MP1	X	32.84	%25
6	MP1	Z	18.96	%25
7	MP1	X	35.82	%50
8	MP1	Z	20.68	%50
9	MP1	X	36.92	%75
10	MP1	Z	21.32	%75
11	MP4	X	107.22	6
12	MP4	Z	61.9	6
13	MP4	X	107.22	78

Member Point Loads (BLC 10 : Wind Load AZI 240) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	61.9	78
15	MP4	X	52.57	%33
16	MP4	Z	30.35	%33
17	MP4	X	52.57	%67
18	MP4	Z	30.35	%67
19	MP7	X	59.03	6
20	MP7	Z	34.08	6
21	MP7	X	59.03	78
22	MP7	Z	34.08	78
23	MP7	X	32.84	%33
24	MP7	Z	18.96	%33
25	MP7	X	35.82	%67
26	MP7	Z	20.68	%67

Member Point Loads (BLC 11 : Wind Load AZI 270)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	49.62	6
2	MP1	Z	0	6
3	MP1	X	49.62	78
4	MP1	Z	0	78
5	MP1	X	30.33	%25
6	MP1	Z	0	%25
7	MP1	X	34.92	%50
8	MP1	Z	0	%50
9	MP1	X	36.11	%75
10	MP1	Z	0	%75
11	MP4	X	105.26	6
12	MP4	Z	0	6
13	MP4	X	105.26	78
14	MP4	Z	0	78
15	MP4	X	53.11	%33
16	MP4	Z	0	%33
17	MP4	X	54.25	%67
18	MP4	Z	0	%67
19	MP7	X	105.26	6
20	MP7	Z	0	6
21	MP7	X	105.26	78
22	MP7	Z	0	78
23	MP7	X	53.11	%33
24	MP7	Z	0	%33
25	MP7	X	54.25	%67
26	MP7	Z	0	%67

Member Point Loads (BLC 12 : Wind Load AZI 300)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	59.03	6
2	MP1	Z	-34.08	6
3	MP1	X	59.03	78
4	MP1	Z	-34.08	78
5	MP1	X	32.84	%25
6	MP1	Z	-18.96	%25
7	MP1	X	35.82	%50
8	MP1	Z	-20.68	%50
9	MP1	X	36.92	%75
10	MP1	Z	-21.32	%75
11	MP4	X	59.03	6

Member Point Loads (BLC 12 : Wind Load AZI 300) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
12	MP4	Z	-34.08	6
13	MP4	X	59.03	78
14	MP4	Z	-34.08	78
15	MP4	X	32.84	%33
16	MP4	Z	-18.96	%33
17	MP4	X	35.82	%67
18	MP4	Z	-20.68	%67
19	MP7	X	107.22	6
20	MP7	Z	-61.9	6
21	MP7	X	107.22	78
22	MP7	Z	-61.9	78
23	MP7	X	52.57	%33
24	MP7	Z	-30.35	%33
25	MP7	X	52.57	%67
26	MP7	Z	-30.35	%67

Member Point Loads (BLC 13 : Wind Load AZI 330)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	52.63	6
2	MP1	Z	-91.16	6
3	MP1	X	52.63	78
4	MP1	Z	-91.16	78
5	MP1	X	26.55	%25
6	MP1	Z	-45.99	%25
7	MP1	X	27.13	%50
8	MP1	Z	-46.98	%50
9	MP1	X	27.84	%75
10	MP1	Z	-48.22	%75
11	MP4	X	24.81	6
12	MP4	Z	-42.97	6
13	MP4	X	24.81	78
14	MP4	Z	-42.97	78
15	MP4	X	15.17	%33
16	MP4	Z	-26.27	%33
17	MP4	X	17.46	%67
18	MP4	Z	-30.24	%67
19	MP7	X	52.63	6
20	MP7	Z	-91.16	6
21	MP7	X	52.63	78
22	MP7	Z	-91.16	78
23	MP7	X	26.55	%33
24	MP7	Z	-45.99	%33
25	MP7	X	27.13	%67
26	MP7	Z	-46.98	%67

Member Point Loads (BLC 16 : Ice Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Y	-142.83	6
2	MP1	Y	-142.83	78
3	MP1	Y	-70.241	%25
4	MP1	Y	-74.824	%50
5	MP1	Y	-73.745	%75
6	MP4	Y	-142.83	6
7	MP4	Y	-142.83	78
8	MP4	Y	-70.241	%33
9	MP4	Y	-74.824	%67

Member Point Loads (BLC 16 : Ice Weight) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
10	MP7	Y	-142.83	6
11	MP7	Y	-142.83	78
12	MP7	Y	-70.241	%33
13	MP7	Y	-74.824	%67

Member Point Loads (BLC 17 : Ice Wind Load AZI 0)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	6
2	MP1	Z	-18.55	6
3	MP1	X	0	78
4	MP1	Z	-18.55	78
5	MP1	X	0	%25
6	MP1	Z	-7.19	%25
7	MP1	X	0	%50
8	MP1	Z	-7.19	%50
9	MP1	X	0	%75
10	MP1	Z	-7.36	%75
11	MP4	X	0	6
12	MP4	Z	-14.07	6
13	MP4	X	0	78
14	MP4	Z	-14.07	78
15	MP4	X	0	%33
16	MP4	Z	-5.8	%33
17	MP4	X	0	%67
18	MP4	Z	-6.01	%67
19	MP7	X	0	6
20	MP7	Z	-14.07	6
21	MP7	X	0	78
22	MP7	Z	-14.07	78
23	MP7	X	0	%33
24	MP7	Z	-5.8	%33
25	MP7	X	0	%67
26	MP7	Z	-6.01	%67

Member Point Loads (BLC 18 : Ice Wind Load AZI 30)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-8.53	6
2	MP1	Z	-14.77	6
3	MP1	X	-8.53	78
4	MP1	Z	-14.77	78
5	MP1	X	-3.36	%25
6	MP1	Z	-5.83	%25
7	MP1	X	-3.4	%50
8	MP1	Z	-5.89	%50
9	MP1	X	-3.5	%75
10	MP1	Z	-6.07	%75
11	MP4	X	-8.53	6
12	MP4	Z	-14.77	6
13	MP4	X	-8.53	78
14	MP4	Z	-14.77	78
15	MP4	X	-3.36	%33
16	MP4	Z	-5.83	%33
17	MP4	X	-3.4	%67
18	MP4	Z	-5.89	%67
19	MP7	X	-6.29	6
20	MP7	Z	-10.9	6

Member Point Loads (BLC 18 : Ice Wind Load AZI 30) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
21	MP7	X	-6.29	78
22	MP7	Z	-10.9	78
23	MP7	X	-2.67	%33
24	MP7	Z	-4.62	%33
25	MP7	X	-2.81	%67
26	MP7	Z	-4.86	%67

Member Point Loads (BLC 19 : Ice Wind Load AZI 60)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-12.19	6
2	MP1	Z	-7.04	6
3	MP1	X	-12.19	78
4	MP1	Z	-7.04	78
5	MP1	X	-5.02	%25
6	MP1	Z	-2.9	%25
7	MP1	X	-5.2	%50
8	MP1	Z	-3	%50
9	MP1	X	-5.46	%75
10	MP1	Z	-3.15	%75
11	MP4	X	-16.06	6
12	MP4	Z	-9.27	6
13	MP4	X	-16.06	78
14	MP4	Z	-9.27	78
15	MP4	X	-6.23	%33
16	MP4	Z	-3.6	%33
17	MP4	X	-6.23	%67
18	MP4	Z	-3.6	%67
19	MP7	X	-12.19	6
20	MP7	Z	-7.04	6
21	MP7	X	-12.19	78
22	MP7	Z	-7.04	78
23	MP7	X	-5.02	%33
24	MP7	Z	-2.9	%33
25	MP7	X	-5.2	%67
26	MP7	Z	-3	%67

Member Point Loads (BLC 20 : Ice Wind Load AZI 90)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-12.58	6
2	MP1	Z	0	6
3	MP1	X	-12.58	78
4	MP1	Z	0	78
5	MP1	X	-5.33	%25
6	MP1	Z	0	%25
7	MP1	X	-5.61	%50
8	MP1	Z	0	%50
9	MP1	X	-5.95	%75
10	MP1	Z	0	%75
11	MP4	X	-17.06	6
12	MP4	Z	0	6
13	MP4	X	-17.06	78
14	MP4	Z	0	78
15	MP4	X	-6.73	%33
16	MP4	Z	0	%33
17	MP4	X	-6.8	%67
18	MP4	Z	0	%67

Member Point Loads (BLC 20 : Ice Wind Load AZI 90) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
19	MP7	X	-17.06	6
20	MP7	Z	0	6
21	MP7	X	-17.06	78
22	MP7	Z	0	78
23	MP7	X	-6.73	%33
24	MP7	Z	0	%33
25	MP7	X	-6.8	%67
26	MP7	Z	0	%67

Member Point Loads (BLC 21 : Ice Wind Load AZI 120)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-12.19	6
2	MP1	Z	7.04	6
3	MP1	X	-12.19	78
4	MP1	Z	7.04	78
5	MP1	X	-5.02	%25
6	MP1	Z	2.9	%25
7	MP1	X	-5.2	%50
8	MP1	Z	3	%50
9	MP1	X	-5.46	%75
10	MP1	Z	3.15	%75
11	MP4	X	-12.19	6
12	MP4	Z	7.04	6
13	MP4	X	-12.19	78
14	MP4	Z	7.04	78
15	MP4	X	-5.02	%33
16	MP4	Z	2.9	%33
17	MP4	X	-5.2	%67
18	MP4	Z	3	%67
19	MP7	X	-16.06	6
20	MP7	Z	9.27	6
21	MP7	X	-16.06	78
22	MP7	Z	9.27	78
23	MP7	X	-6.23	%33
24	MP7	Z	3.6	%33
25	MP7	X	-6.23	%67
26	MP7	Z	3.6	%67

Member Point Loads (BLC 22 : Ice Wind Load AZI 150)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-8.53	6
2	MP1	Z	14.77	6
3	MP1	X	-8.53	78
4	MP1	Z	14.77	78
5	MP1	X	-3.36	%25
6	MP1	Z	5.83	%25
7	MP1	X	-3.4	%50
8	MP1	Z	5.89	%50
9	MP1	X	-3.5	%75
10	MP1	Z	6.07	%75
11	MP4	X	-6.29	6
12	MP4	Z	10.9	6
13	MP4	X	-6.29	78
14	MP4	Z	10.9	78
15	MP4	X	-2.67	%33
16	MP4	Z	4.62	%33

Member Point Loads (BLC 22 : Ice Wind Load AZI 150) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
17	MP4	X	-2.81	%67
18	MP4	Z	4.86	%67
19	MP7	X	-8.53	6
20	MP7	Z	14.77	6
21	MP7	X	-8.53	78
22	MP7	Z	14.77	78
23	MP7	X	-3.36	%33
24	MP7	Z	5.83	%33
25	MP7	X	-3.4	%67
26	MP7	Z	5.89	%67

Member Point Loads (BLC 23 : Ice Wind Load AZI 180)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	6
2	MP1	Z	18.55	6
3	MP1	X	0	78
4	MP1	Z	18.55	78
5	MP1	X	0	%25
6	MP1	Z	7.19	%25
7	MP1	X	0	%50
8	MP1	Z	7.19	%50
9	MP1	X	0	%75
10	MP1	Z	7.36	%75
11	MP4	X	0	6
12	MP4	Z	14.07	6
13	MP4	X	0	78
14	MP4	Z	14.07	78
15	MP4	X	0	%33
16	MP4	Z	5.8	%33
17	MP4	X	0	%67
18	MP4	Z	6.01	%67
19	MP7	X	0	6
20	MP7	Z	14.07	6
21	MP7	X	0	78
22	MP7	Z	14.07	78
23	MP7	X	0	%33
24	MP7	Z	5.8	%33
25	MP7	X	0	%67
26	MP7	Z	6.01	%67

Member Point Loads (BLC 24 : Ice Wind Load AZI 210)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	8.53	6
2	MP1	Z	14.77	6
3	MP1	X	8.53	78
4	MP1	Z	14.77	78
5	MP1	X	3.36	%25
6	MP1	Z	5.83	%25
7	MP1	X	3.4	%50
8	MP1	Z	5.89	%50
9	MP1	X	3.5	%75
10	MP1	Z	6.07	%75
11	MP4	X	8.53	6
12	MP4	Z	14.77	6
13	MP4	X	8.53	78
14	MP4	Z	14.77	78

Member Point Loads (BLC 24 : Ice Wind Load AZI 210) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
15	MP4	X	3.36	%33
16	MP4	Z	5.83	%33
17	MP4	X	3.4	%67
18	MP4	Z	5.89	%67
19	MP7	X	6.29	6
20	MP7	Z	10.9	6
21	MP7	X	6.29	78
22	MP7	Z	10.9	78
23	MP7	X	2.67	%33
24	MP7	Z	4.62	%33
25	MP7	X	2.81	%67
26	MP7	Z	4.86	%67

Member Point Loads (BLC 25 : Ice Wind Load AZI 240)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	12.19	6
2	MP1	Z	7.04	6
3	MP1	X	12.19	78
4	MP1	Z	7.04	78
5	MP1	X	5.02	%25
6	MP1	Z	2.9	%25
7	MP1	X	5.2	%50
8	MP1	Z	3	%50
9	MP1	X	5.46	%75
10	MP1	Z	3.15	%75
11	MP4	X	16.06	6
12	MP4	Z	9.27	6
13	MP4	X	16.06	78
14	MP4	Z	9.27	78
15	MP4	X	6.23	%33
16	MP4	Z	3.6	%33
17	MP4	X	6.23	%67
18	MP4	Z	3.6	%67
19	MP7	X	12.19	6
20	MP7	Z	7.04	6
21	MP7	X	12.19	78
22	MP7	Z	7.04	78
23	MP7	X	5.02	%33
24	MP7	Z	2.9	%33
25	MP7	X	5.2	%67
26	MP7	Z	3	%67

Member Point Loads (BLC 26 : Ice Wind Load AZI 270)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	12.58	6
2	MP1	Z	0	6
3	MP1	X	12.58	78
4	MP1	Z	0	78
5	MP1	X	5.33	%25
6	MP1	Z	0	%25
7	MP1	X	5.61	%50
8	MP1	Z	0	%50
9	MP1	X	5.95	%75
10	MP1	Z	0	%75
11	MP4	X	17.06	6
12	MP4	Z	0	6

Member Point Loads (BLC 26 : Ice Wind Load AZI 270) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
13	MP4	X	17.06	78
14	MP4	Z	0	78
15	MP4	X	6.73	%33
16	MP4	Z	0	%33
17	MP4	X	6.8	%67
18	MP4	Z	0	%67
19	MP7	X	17.06	6
20	MP7	Z	0	6
21	MP7	X	17.06	78
22	MP7	Z	0	78
23	MP7	X	6.73	%33
24	MP7	Z	0	%33
25	MP7	X	6.8	%67
26	MP7	Z	0	%67

Member Point Loads (BLC 27 : Ice Wind Load AZI 300)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	12.19	6
2	MP1	Z	-7.04	6
3	MP1	X	12.19	78
4	MP1	Z	-7.04	78
5	MP1	X	5.02	%25
6	MP1	Z	-2.9	%25
7	MP1	X	5.2	%50
8	MP1	Z	-3	%50
9	MP1	X	5.46	%75
10	MP1	Z	-3.15	%75
11	MP4	X	12.19	6
12	MP4	Z	-7.04	6
13	MP4	X	12.19	78
14	MP4	Z	-7.04	78
15	MP4	X	5.02	%33
16	MP4	Z	-2.9	%33
17	MP4	X	5.2	%67
18	MP4	Z	-3	%67
19	MP7	X	16.06	6
20	MP7	Z	-9.27	6
21	MP7	X	16.06	78
22	MP7	Z	-9.27	78
23	MP7	X	6.23	%33
24	MP7	Z	-3.6	%33
25	MP7	X	6.23	%67
26	MP7	Z	-3.6	%67

Member Point Loads (BLC 28 : Ice Wind Load AZI 330)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	8.53	6
2	MP1	Z	-14.77	6
3	MP1	X	8.53	78
4	MP1	Z	-14.77	78
5	MP1	X	3.36	%25
6	MP1	Z	-5.83	%25
7	MP1	X	3.4	%50
8	MP1	Z	-5.89	%50
9	MP1	X	3.5	%75
10	MP1	Z	-6.07	%75

Member Point Loads (BLC 28 : Ice Wind Load AZI 330) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
11	MP4	X	6.29	6
12	MP4	Z	-10.9	6
13	MP4	X	6.29	78
14	MP4	Z	-10.9	78
15	MP4	X	2.67	%33
16	MP4	Z	-4.62	%33
17	MP4	X	2.81	%67
18	MP4	Z	-4.86	%67
19	MP7	X	8.53	6
20	MP7	Z	-14.77	6
21	MP7	X	8.53	78
22	MP7	Z	-14.77	78
23	MP7	X	3.36	%33
24	MP7	Z	-5.83	%33
25	MP7	X	3.4	%67
26	MP7	Z	-5.89	%67

Member Point Loads (BLC 31 : Seismic Load Z)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	-12.144	6
2	MP1	Z	-12.144	78
3	MP1	Z	-18.812	%25
4	MP1	Z	-22.08	%50
5	MP1	Z	-6.433	%75
6	MP4	Z	-12.144	6
7	MP4	Z	-12.144	78
8	MP4	Z	-18.812	%33
9	MP4	Z	-22.08	%67
10	MP7	Z	-12.144	6
11	MP7	Z	-12.144	78
12	MP7	Z	-18.812	%33
13	MP7	Z	-22.08	%67

Member Point Loads (BLC 32 : Seismic Load X)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-12.144	6
2	MP1	X	-12.144	78
3	MP1	X	-18.812	%25
4	MP1	X	-22.08	%50
5	MP1	X	-6.433	%75
6	MP4	X	-12.144	6
7	MP4	X	-12.144	78
8	MP4	X	-18.812	%33
9	MP4	X	-22.08	%67
10	MP7	X	-12.144	6
11	MP7	X	-12.144	78
12	MP7	X	-18.812	%33
13	MP7	X	-22.08	%67

Member Distributed Loads (BLC 14 : Distr. Wind Load Z)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	S3	SZ	-68.697	-68.697	0	%100
2	GA4	SZ	-68.697	-68.697	0	%100
3	GA3	SZ	-68.697	-68.697	0	%100

Member Distributed Loads (BLC 14 : Distr. Wind Load Z) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
4	P3	SZ	-68.697	-68.697	0	%100
5	S2	SZ	-68.697	-68.697	0	%100
6	GA2	SZ	-68.697	-68.697	0	%100
7	GA1	SZ	-68.697	-68.697	0	%100
8	P2	SZ	-68.697	-68.697	0	%100
9	S1	SZ	-68.697	-68.697	0	%100
10	GA6	SZ	-68.697	-68.697	0	%100
11	GA5	SZ	-68.697	-68.697	0	%100
12	P1	SZ	-68.697	-68.697	0	%100
13	H1	SZ	-41.218	-41.218	0	%100
14	HR1	SZ	-41.218	-41.218	0	%100
15	CA8	SZ	-68.697	-68.697	0	%100
16	CA9	SZ	-68.697	-68.697	0	%100
17	CA7	SZ	-68.697	-68.697	0	%100
18	CA3	SZ	-68.697	-68.697	0	%100
19	CA4	SZ	-68.697	-68.697	0	%100
20	CA1	SZ	-68.697	-68.697	0	%100
21	CA2	SZ	-68.697	-68.697	0	%100
22	CA5	SZ	-68.697	-68.697	0	%100
23	CA6	SZ	-68.697	-68.697	0	%100
24	M64	SZ	0	0	0	%100
25	M65	SZ	0	0	0	%100
26	M66	SZ	0	0	0	%100
27	M67	SZ	0	0	0	%100
28	M68	SZ	0	0	0	%100
29	M69	SZ	0	0	0	%100
30	M70	SZ	0	0	0	%100
31	M71	SZ	0	0	0	%100
32	M72	SZ	0	0	0	%100
33	M73	SZ	0	0	0	%100
34	M74	SZ	0	0	0	%100
35	M75	SZ	-68.697	-68.697	0	%100
36	H3	SZ	-41.218	-41.218	0	%100
37	HR3	SZ	-41.218	-41.218	0	%100
38	H2	SZ	-41.218	-41.218	0	%100
39	HR2	SZ	-41.218	-41.218	0	%100
40	M40	SZ	0	0	0	%100
41	M41	SZ	0	0	0	%100
42	M42	SZ	0	0	0	%100
43	M43	SZ	0	0	0	%100
44	M44	SZ	0	0	0	%100
45	M45	SZ	0	0	0	%100
46	MP3	SZ	-41.218	-41.218	0	%100
47	MP2	SZ	-41.218	-41.218	0	%100
48	MP1	SZ	-41.218	-41.218	0	%100
49	M49	SZ	0	0	0	%100
50	M50	SZ	0	0	0	%100
51	M51	SZ	0	0	0	%100
52	M52	SZ	0	0	0	%100
53	M53	SZ	0	0	0	%100
54	M54	SZ	0	0	0	%100
55	MP9	SZ	-41.218	-41.218	0	%100
56	MP8	SZ	-41.218	-41.218	0	%100
57	MP7	SZ	-41.218	-41.218	0	%100
58	M58	SZ	0	0	0	%100
59	M59	SZ	0	0	0	%100
60	M60	SZ	0	0	0	%100

Member Distributed Loads (BLC 14 : Distr. Wind Load Z) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
61	M61	SZ	0	0	0	%100
62	M62	SZ	0	0	0	%100
63	M63	SZ	0	0	0	%100
64	MP6	SZ	-41.218	-41.218	0	%100
65	MP5	SZ	-41.218	-41.218	0	%100
66	MP4	SZ	-41.218	-41.218	0	%100

Member Distributed Loads (BLC 15 : Distr. Wind Load X)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	S3	SX	-68.697	-68.697	0	%100
2	GA4	SX	-68.697	-68.697	0	%100
3	GA3	SX	-68.697	-68.697	0	%100
4	P3	SX	-68.697	-68.697	0	%100
5	S2	SX	-68.697	-68.697	0	%100
6	GA2	SX	-68.697	-68.697	0	%100
7	GA1	SX	-68.697	-68.697	0	%100
8	P2	SX	-68.697	-68.697	0	%100
9	S1	SX	-68.697	-68.697	0	%100
10	GA6	SX	-68.697	-68.697	0	%100
11	GA5	SX	-68.697	-68.697	0	%100
12	P1	SX	-68.697	-68.697	0	%100
13	H1	SX	-41.218	-41.218	0	%100
14	HR1	SX	-41.218	-41.218	0	%100
15	CA8	SX	-68.697	-68.697	0	%100
16	CA9	SX	-68.697	-68.697	0	%100
17	CA7	SX	-68.697	-68.697	0	%100
18	CA3	SX	-68.697	-68.697	0	%100
19	CA4	SX	-68.697	-68.697	0	%100
20	CA1	SX	-68.697	-68.697	0	%100
21	CA2	SX	-68.697	-68.697	0	%100
22	CA5	SX	-68.697	-68.697	0	%100
23	CA6	SX	-68.697	-68.697	0	%100
24	M64	SX	0	0	0	%100
25	M65	SX	0	0	0	%100
26	M66	SX	0	0	0	%100
27	M67	SX	0	0	0	%100
28	M68	SX	0	0	0	%100
29	M69	SX	0	0	0	%100
30	M70	SX	0	0	0	%100
31	M71	SX	0	0	0	%100
32	M72	SX	0	0	0	%100
33	M73	SX	0	0	0	%100
34	M74	SX	0	0	0	%100
35	M75	SX	-68.697	-68.697	0	%100
36	H3	SX	-41.218	-41.218	0	%100
37	HR3	SX	-41.218	-41.218	0	%100
38	H2	SX	-41.218	-41.218	0	%100
39	HR2	SX	-41.218	-41.218	0	%100
40	M40	SX	0	0	0	%100
41	M41	SX	0	0	0	%100
42	M42	SX	0	0	0	%100
43	M43	SX	0	0	0	%100
44	M44	SX	0	0	0	%100
45	M45	SX	0	0	0	%100
46	MP3	SX	-41.218	-41.218	0	%100
47	MP2	SX	-41.218	-41.218	0	%100

Member Distributed Loads (BLC 15 : Distr. Wind Load X) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
48	MP1	SX	-41.218	-41.218	0	%100
49	M49	SX	0	0	0	%100
50	M50	SX	0	0	0	%100
51	M51	SX	0	0	0	%100
52	M52	SX	0	0	0	%100
53	M53	SX	0	0	0	%100
54	M54	SX	0	0	0	%100
55	MP9	SX	-41.218	-41.218	0	%100
56	MP8	SX	-41.218	-41.218	0	%100
57	MP7	SX	-41.218	-41.218	0	%100
58	M58	SX	0	0	0	%100
59	M59	SX	0	0	0	%100
60	M60	SX	0	0	0	%100
61	M61	SX	0	0	0	%100
62	M62	SX	0	0	0	%100
63	M63	SX	0	0	0	%100
64	MP6	SX	-41.218	-41.218	0	%100
65	MP5	SX	-41.218	-41.218	0	%100
66	MP4	SX	-41.218	-41.218	0	%100

Member Distributed Loads (BLC 16 : Ice Weight)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	S3	Y	-15.703	-15.703	0	%100
2	GA4	Y	-9.697	-9.697	0	%100
3	GA3	Y	-9.697	-9.697	0	%100
4	P3	Y	-17.517	-17.517	0	%100
5	S2	Y	-15.703	-15.703	0	%100
6	GA2	Y	-9.697	-9.697	0	%100
7	GA1	Y	-9.697	-9.697	0	%100
8	P2	Y	-17.517	-17.517	0	%100
9	S1	Y	-15.703	-15.703	0	%100
10	GA6	Y	-9.697	-9.697	0	%100
11	GA5	Y	-9.697	-9.697	0	%100
12	P1	Y	-17.517	-17.517	0	%100
13	H1	Y	-11.123	-11.123	0	%100
14	HR1	Y	-9.796	-9.796	0	%100
15	CA8	Y	-15.703	-15.703	0	%100
16	CA9	Y	-15.703	-15.703	0	%100
17	CA7	Y	-15.703	-15.703	0	%100
18	CA3	Y	-12.096	-12.096	0	%100
19	CA4	Y	-12.096	-12.096	0	%100
20	CA1	Y	-12.096	-12.096	0	%100
21	CA2	Y	-12.096	-12.096	0	%100
22	CA5	Y	-12.096	-12.096	0	%100
23	CA6	Y	-12.096	-12.096	0	%100
24	M64	Y	-3.691	-3.691	0	%100
25	M65	Y	-3.691	-3.691	0	%100
26	M66	Y	-3.691	-3.691	0	%100
27	M67	Y	-3.691	-3.691	0	%100
28	M68	Y	-3.691	-3.691	0	%100
29	M69	Y	-3.691	-3.691	0	%100
30	M70	Y	-3.691	-3.691	0	%100
31	M71	Y	-3.691	-3.691	0	%100
32	M72	Y	-3.691	-3.691	0	%100
33	M73	Y	-3.691	-3.691	0	%100
34	M74	Y	-3.691	-3.691	0	%100

Member Distributed Loads (BLC 16 : Ice Weight) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
35	M75	Y	-8.845	-8.845	0	%100
36	H3	Y	-11.123	-11.123	0	%100
37	HR3	Y	-9.796	-9.796	0	%100
38	H2	Y	-11.123	-11.123	0	%100
39	HR2	Y	-9.796	-9.796	0	%100
40	M40	Y	-3.691	-3.691	0	%100
41	M41	Y	-3.691	-3.691	0	%100
42	M42	Y	-3.691	-3.691	0	%100
43	M43	Y	-3.691	-3.691	0	%100
44	M44	Y	-3.691	-3.691	0	%100
45	M45	Y	-3.691	-3.691	0	%100
46	MP3	Y	-9.796	-9.796	0	%100
47	MP2	Y	-9.796	-9.796	0	%100
48	MP1	Y	-9.796	-9.796	0	%100
49	M49	Y	-3.691	-3.691	0	%100
50	M50	Y	-3.691	-3.691	0	%100
51	M51	Y	-3.691	-3.691	0	%100
52	M52	Y	-3.691	-3.691	0	%100
53	M53	Y	-3.691	-3.691	0	%100
54	M54	Y	-3.691	-3.691	0	%100
55	MP9	Y	-9.796	-9.796	0	%100
56	MP8	Y	-9.796	-9.796	0	%100
57	MP7	Y	-9.796	-9.796	0	%100
58	M58	Y	-3.691	-3.691	0	%100
59	M59	Y	-3.691	-3.691	0	%100
60	M60	Y	-3.691	-3.691	0	%100
61	M61	Y	-3.691	-3.691	0	%100
62	M62	Y	-3.691	-3.691	0	%100
63	M63	Y	-3.691	-3.691	0	%100
64	MP6	Y	-9.796	-9.796	0	%100
65	MP5	Y	-9.796	-9.796	0	%100
66	MP4	Y	-9.796	-9.796	0	%100

Member Distributed Loads (BLC 29 : Distr. Ice Wind Load Z)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	S3	SZ	-12.58	-12.58	0	%100
2	GA4	SZ	-17.368	-17.368	0	%100
3	GA3	SZ	-17.368	-17.368	0	%100
4	P3	SZ	-11.952	-11.952	0	%100
5	S2	SZ	-12.58	-12.58	0	%100
6	GA2	SZ	-17.368	-17.368	0	%100
7	GA1	SZ	-17.368	-17.368	0	%100
8	P2	SZ	-11.952	-11.952	0	%100
9	S1	SZ	-12.58	-12.58	0	%100
10	GA6	SZ	-17.368	-17.368	0	%100
11	GA5	SZ	-17.368	-17.368	0	%100
12	P1	SZ	-11.952	-11.952	0	%100
13	H1	SZ	-15.531	-15.531	0	%100
14	HR1	SZ	-17.213	-17.213	0	%100
15	CA8	SZ	-12.58	-12.58	0	%100
16	CA9	SZ	-12.58	-12.58	0	%100
17	CA7	SZ	-12.58	-12.58	0	%100
18	CA3	SZ	-14.635	-14.635	0	%100
19	CA4	SZ	-14.635	-14.635	0	%100
20	CA1	SZ	-14.635	-14.635	0	%100
21	CA2	SZ	-14.635	-14.635	0	%100

Member Distributed Loads (BLC 29 : Distr. Ice Wind Load Z) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
22	CA5	SZ	-14.635	-14.635	0	%100
23	CA6	SZ	-14.635	-14.635	0	%100
24	M64	SZ	0	0	0	%100
25	M65	SZ	0	0	0	%100
26	M66	SZ	0	0	0	%100
27	M67	SZ	0	0	0	%100
28	M68	SZ	0	0	0	%100
29	M69	SZ	0	0	0	%100
30	M70	SZ	0	0	0	%100
31	M71	SZ	0	0	0	%100
32	M72	SZ	0	0	0	%100
33	M73	SZ	0	0	0	%100
34	M74	SZ	0	0	0	%100
35	M75	SZ	-18.952	-18.952	0	%100
36	H3	SZ	-15.531	-15.531	0	%100
37	HR3	SZ	-17.213	-17.213	0	%100
38	H2	SZ	-15.531	-15.531	0	%100
39	HR2	SZ	-17.213	-17.213	0	%100
40	M40	SZ	0	0	0	%100
41	M41	SZ	0	0	0	%100
42	M42	SZ	0	0	0	%100
43	M43	SZ	0	0	0	%100
44	M44	SZ	0	0	0	%100
45	M45	SZ	0	0	0	%100
46	MP3	SZ	-17.213	-17.213	0	%100
47	MP2	SZ	-17.213	-17.213	0	%100
48	MP1	SZ	-17.213	-17.213	0	%100
49	M49	SZ	0	0	0	%100
50	M50	SZ	0	0	0	%100
51	M51	SZ	0	0	0	%100
52	M52	SZ	0	0	0	%100
53	M53	SZ	0	0	0	%100
54	M54	SZ	0	0	0	%100
55	MP9	SZ	-17.213	-17.213	0	%100
56	MP8	SZ	-17.213	-17.213	0	%100
57	MP7	SZ	-17.213	-17.213	0	%100
58	M58	SZ	0	0	0	%100
59	M59	SZ	0	0	0	%100
60	M60	SZ	0	0	0	%100
61	M61	SZ	0	0	0	%100
62	M62	SZ	0	0	0	%100
63	M63	SZ	0	0	0	%100
64	MP6	SZ	-17.213	-17.213	0	%100
65	MP5	SZ	-17.213	-17.213	0	%100
66	MP4	SZ	-17.213	-17.213	0	%100

Member Distributed Loads (BLC 30 : Distr. Ice Wind Load X)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	S3	SX	-12.58	-12.58	0	%100
2	GA4	SX	-17.368	-17.368	0	%100
3	GA3	SX	-17.368	-17.368	0	%100
4	P3	SX	-11.952	-11.952	0	%100
5	S2	SX	-12.58	-12.58	0	%100
6	GA2	SX	-17.368	-17.368	0	%100
7	GA1	SX	-17.368	-17.368	0	%100
8	P2	SX	-11.952	-11.952	0	%100

Member Distributed Loads (BLC 30 : Distr. Ice Wind Load X) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
9	S1	SX	-12.58	-12.58	0	%100
10	GA6	SX	-17.368	-17.368	0	%100
11	GA5	SX	-17.368	-17.368	0	%100
12	P1	SX	-11.952	-11.952	0	%100
13	H1	SX	-15.531	-15.531	0	%100
14	HR1	SX	-17.213	-17.213	0	%100
15	CA8	SX	-12.58	-12.58	0	%100
16	CA9	SX	-12.58	-12.58	0	%100
17	CA7	SX	-12.58	-12.58	0	%100
18	CA3	SX	-14.635	-14.635	0	%100
19	CA4	SX	-14.635	-14.635	0	%100
20	CA1	SX	-14.635	-14.635	0	%100
21	CA2	SX	-14.635	-14.635	0	%100
22	CA5	SX	-14.635	-14.635	0	%100
23	CA6	SX	-14.635	-14.635	0	%100
24	M64	SX	0	0	0	%100
25	M65	SX	0	0	0	%100
26	M66	SX	0	0	0	%100
27	M67	SX	0	0	0	%100
28	M68	SX	0	0	0	%100
29	M69	SX	0	0	0	%100
30	M70	SX	0	0	0	%100
31	M71	SX	0	0	0	%100
32	M72	SX	0	0	0	%100
33	M73	SX	0	0	0	%100
34	M74	SX	0	0	0	%100
35	M75	SX	-18.952	-18.952	0	%100
36	H3	SX	-15.531	-15.531	0	%100
37	HR3	SX	-17.213	-17.213	0	%100
38	H2	SX	-15.531	-15.531	0	%100
39	HR2	SX	-17.213	-17.213	0	%100
40	M40	SX	0	0	0	%100
41	M41	SX	0	0	0	%100
42	M42	SX	0	0	0	%100
43	M43	SX	0	0	0	%100
44	M44	SX	0	0	0	%100
45	M45	SX	0	0	0	%100
46	MP3	SX	-17.213	-17.213	0	%100
47	MP2	SX	-17.213	-17.213	0	%100
48	MP1	SX	-17.213	-17.213	0	%100
49	M49	SX	0	0	0	%100
50	M50	SX	0	0	0	%100
51	M51	SX	0	0	0	%100
52	M52	SX	0	0	0	%100
53	M53	SX	0	0	0	%100
54	M54	SX	0	0	0	%100
55	MP9	SX	-17.213	-17.213	0	%100
56	MP8	SX	-17.213	-17.213	0	%100
57	MP7	SX	-17.213	-17.213	0	%100
58	M58	SX	0	0	0	%100
59	M59	SX	0	0	0	%100
60	M60	SX	0	0	0	%100
61	M61	SX	0	0	0	%100
62	M62	SX	0	0	0	%100
63	M63	SX	0	0	0	%100
64	MP6	SX	-17.213	-17.213	0	%100
65	MP5	SX	-17.213	-17.213	0	%100

Member Distributed Loads (BLC 30 : Distr. Ice Wind Load X) (Continued)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
66	MP4	SX	-17.213	-17.213	0	%100

Member Distributed Loads (BLC 43 : BLC 1 Transient Area Loads)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	S2	Y	-3.185	-3.185	16.404	40
2	GA2	Y	-1.605	-1.605	3.828	27.295
3	GA1	Y	-1.605	-1.605	3.828	27.295
4	S3	Y	-3.185	-3.185	16.404	40
5	GA4	Y	-1.605	-1.605	3.828	27.295
6	GA3	Y	-1.605	-1.605	3.828	27.295
7	S1	Y	-3.185	-3.185	16.404	40
8	GA6	Y	-1.605	-1.605	3.828	27.295
9	GA5	Y	-1.605	-1.605	3.828	27.295

Member Distributed Loads (BLC 44 : BLC 16 Transient Area Loads)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	S2	Y	-29.487	-29.487	16.404	40
2	GA2	Y	-14.86	-14.86	3.828	27.295
3	GA1	Y	-14.86	-14.86	3.828	27.295
4	S3	Y	-29.487	-29.487	16.404	40
5	GA4	Y	-14.86	-14.86	3.828	27.295
6	GA3	Y	-14.86	-14.86	3.828	27.295
7	S1	Y	-29.487	-29.487	16.404	40
8	GA6	Y	-14.86	-14.86	3.828	27.295
9	GA5	Y	-14.86	-14.86	3.828	27.295

Load Combinations

	Description	S...	PDel...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4DL	Yes	Y		1	1.4																		
2	1.2DL + 1WL AZI 0	Yes	Y		1	1.2	2	1	14	1	15													
3	1.2DL + 1WL AZI 30	Yes	Y		1	1.2	3	1	14	.866	15	.5												
4	1.2DL + 1WL AZI 60	Yes	Y		1	1.2	4	1	14	.5	15	.866												
5	1.2DL + 1WL AZI 90	Yes	Y		1	1.2	5	1	14		15	1												
6	1.2DL + 1WL AZI 120	Yes	Y		1	1.2	6	1	14	-.5	15	.866												
7	1.2DL + 1WL AZI 150	Yes	Y		1	1.2	7	1	14	-.8...	15	.5												
8	1.2DL + 1WL AZI 180	Yes	Y		1	1.2	8	1	14	-1	15													
9	1.2DL + 1WL AZI 210	Yes	Y		1	1.2	9	1	14	-.8...	15	-.5												
10	1.2DL + 1WL AZI 240	Yes	Y		1	1.2	10	1	14	-.5	15	-.8...												
11	1.2DL + 1WL AZI 270	Yes	Y		1	1.2	11	1	14		15	-1												
12	1.2DL + 1WL AZI 300	Yes	Y		1	1.2	12	1	14	.5	15	-.8...												
13	1.2DL + 1WL AZI 330	Yes	Y		1	1.2	13	1	14	.866	15	-.5												
14	0.9DL + 1WL AZI 0	Yes	Y		1	.9	2	1	14	1	15													
15	0.9DL + 1WL AZI 30	Yes	Y		1	.9	3	1	14	.866	15	.5												
16	0.9DL + 1WL AZI 60	Yes	Y		1	.9	4	1	14	.5	15	.866												
17	0.9DL + 1WL AZI 90	Yes	Y		1	.9	5	1	14		15	1												
18	0.9DL + 1WL AZI 120	Yes	Y		1	.9	6	1	14	-.5	15	.866												
19	0.9DL + 1WL AZI 150	Yes	Y		1	.9	7	1	14	-.8...	15	.5												
20	0.9DL + 1WL AZI 180	Yes	Y		1	.9	8	1	14	-1	15													
21	0.9DL + 1WL AZI 210	Yes	Y		1	.9	9	1	14	-.8...	15	-.5												
22	0.9DL + 1WL AZI 240	Yes	Y		1	.9	10	1	14	-.5	15	-.8...												
23	0.9DL + 1WL AZI 270	Yes	Y		1	.9	11	1	14		15	-1												
24	0.9DL + 1WL AZI 300	Yes	Y		1	.9	12	1	14	.5	15	-.8...												
25	0.9DL + 1WL AZI 330	Yes	Y		1	.9	13	1	14	.866	15	-.5												
26	1.2D + 1.0Di	Yes	Y		1	1.2	16	1																

Load Combinations (Continued)

	Description	S...	PDel...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
27	1.2D + 1.0Di +1.0Wi AZI 0	Yes	Y		1	1.2	16	1	17	1	29	1	30											
28	1.2D + 1.0Di +1.0Wi AZI 30	Yes	Y		1	1.2	16	1	18	1	29	.866	30	.5										
29	1.2D + 1.0Di +1.0Wi AZI 60	Yes	Y		1	1.2	16	1	19	1	29	.5	30	.866										
30	1.2D + 1.0Di +1.0Wi AZI 90	Yes	Y		1	1.2	16	1	20	1	29		30	1										
31	1.2D + 1.0Di +1.0Wi AZI 120	Yes	Y		1	1.2	16	1	21	1	29	-.5	30	.866										
32	1.2D + 1.0Di +1.0Wi AZI 150	Yes	Y		1	1.2	16	1	22	1	29	-.8...	30	.5										
33	1.2D + 1.0Di +1.0Wi AZI 180	Yes	Y		1	1.2	16	1	23	1	29	-1	30											
34	1.2D + 1.0Di +1.0Wi AZI 210	Yes	Y		1	1.2	16	1	24	1	29	-.8...	30	-.5										
35	1.2D + 1.0Di +1.0Wi AZI 240	Yes	Y		1	1.2	16	1	25	1	29	-.5	30	-.8...										
36	1.2D + 1.0Di +1.0Wi AZI 270	Yes	Y		1	1.2	16	1	26	1	29		30	-1										
37	1.2D + 1.0Di +1.0Wi AZI 300	Yes	Y		1	1.2	16	1	27	1	29	.5	30	-.8...										
38	1.2D + 1.0Di +1.0Wi AZI 330	Yes	Y		1	1.2	16	1	28	1	29	.866	30	-.5										
39	(1.2 + 0.2Sds)DL + 1.0E AZ..	Yes	Y		1	1.2...	31	1	32															
40	(1.2 + 0.2Sds)DL + 1.0E AZ..	Yes	Y		1	1.2...	31	.866	32	.5														
41	(1.2 + 0.2Sds)DL + 1.0E AZ..	Yes	Y		1	1.2...	31	.5	32	.866														
42	(1.2 + 0.2Sds)DL + 1.0E AZ..	Yes	Y		1	1.2...	31		32	1														
43	(1.2 + 0.2Sds)DL + 1.0E AZ..	Yes	Y		1	1.2...	31	-.5	32	.866														
44	(1.2 + 0.2Sds)DL + 1.0E AZ..	Yes	Y		1	1.2...	31	-.8...	32	.5														
45	(1.2 + 0.2Sds)DL + 1.0E AZ..	Yes	Y		1	1.2...	31	-1	32															
46	(1.2 + 0.2Sds)DL + 1.0E AZ..	Yes	Y		1	1.2...	31	-.8...	32	-.5														
47	(1.2 + 0.2Sds)DL + 1.0E AZ..	Yes	Y		1	1.2...	31	-.5	32	-.8...														
48	(1.2 + 0.2Sds)DL + 1.0E AZ..	Yes	Y		1	1.2...	31		32	-1														
49	(1.2 + 0.2Sds)DL + 1.0E AZ..	Yes	Y		1	1.2...	31	.5	32	-.8...														
50	(1.2 + 0.2Sds)DL + 1.0E AZ..	Yes	Y		1	1.2...	31	.866	32	-.5														
51	(0.9 - 0.2Sds)DL + 1.0E AZI..	Yes	Y		1	.861	31	1	32															
52	(0.9 - 0.2Sds)DL + 1.0E AZI..	Yes	Y		1	.861	31	.866	32	.5														
53	(0.9 - 0.2Sds)DL + 1.0E AZI..	Yes	Y		1	.861	31	.5	32	.866														
54	(0.9 - 0.2Sds)DL + 1.0E AZI..	Yes	Y		1	.861	31		32	1														
55	(0.9 - 0.2Sds)DL + 1.0E AZI..	Yes	Y		1	.861	31	-.5	32	.866														
56	(0.9 - 0.2Sds)DL + 1.0E AZI..	Yes	Y		1	.861	31	-.8...	32	.5														
57	(0.9 - 0.2Sds)DL + 1.0E AZI..	Yes	Y		1	.861	31	-1	32															
58	(0.9 - 0.2Sds)DL + 1.0E AZI..	Yes	Y		1	.861	31	-.8...	32	-.5														
59	(0.9 - 0.2Sds)DL + 1.0E AZI..	Yes	Y		1	.861	31	-.5	32	-.8...														
60	(0.9 - 0.2Sds)DL + 1.0E AZI..	Yes	Y		1	.861	31		32	-1														
61	(0.9 - 0.2Sds)DL + 1.0E AZI..	Yes	Y		1	.861	31	.5	32	-.8...														
62	(0.9 - 0.2Sds)DL + 1.0E AZI..	Yes	Y		1	.861	31	.866	32	-.5														
63	1.0DL + 1.5LL + 1.0SWL (6...	Yes	Y		1	1	2	.272	14	.272	15		33	1.5										
64	1.0DL + 1.5LL + 1.0SWL (6...	Yes	Y		1	1	3	.272	14	.236	15	.136	33	1.5										
65	1.0DL + 1.5LL + 1.0SWL (6...	Yes	Y		1	1	4	.272	14	.136	15	.236	33	1.5										
66	1.0DL + 1.5LL + 1.0SWL (6...	Yes	Y		1	1	5	.272	14		15	.272	33	1.5										
67	1.0DL + 1.5LL + 1.0SWL (6...	Yes	Y		1	1	6	.272	14	-.1...	15	.236	33	1.5										
68	1.0DL + 1.5LL + 1.0SWL (6...	Yes	Y		1	1	7	.272	14	-.2...	15	.136	33	1.5										
69	1.0DL + 1.5LL + 1.0SWL (6...	Yes	Y		1	1	8	.272	14	-.2...	15		33	1.5										
70	1.0DL + 1.5LL + 1.0SWL (6...	Yes	Y		1	1	9	.272	14	-.2...	15	-.1...	33	1.5										
71	1.0DL + 1.5LL + 1.0SWL (6...	Yes	Y		1	1	10	.272	14	-.1...	15	-.2...	33	1.5										
72	1.0DL + 1.5LL + 1.0SWL (6...	Yes	Y		1	1	11	.272	14		15	-.2...	33	1.5										
73	1.0DL + 1.5LL + 1.0SWL (6...	Yes	Y		1	1	12	.272	14	.136	15	-.2...	33	1.5										
74	1.0DL + 1.5LL + 1.0SWL (6...	Yes	Y		1	1	13	.272	14	.236	15	-.1...	33	1.5										
75	1.2DL + 1.5LL	Yes	Y		1	1.2	33	1.5																
76	1.2DL + 1.5LM-MP1 + 1SW..	Yes	Y		1	1.2	34	1.5	2	.068	14	.068	15											
77	1.2DL + 1.5LM-MP1 + 1SW..	Yes	Y		1	1.2	34	1.5	3	.068	14	.059	15	.034										
78	1.2DL + 1.5LM-MP1 + 1SW..	Yes	Y		1	1.2	34	1.5	4	.068	14	.034	15	.059										
79	1.2DL + 1.5LM-MP1 + 1SW..	Yes	Y		1	1.2	34	1.5	5	.068	14		15	.068										
80	1.2DL + 1.5LM-MP1 + 1SW..	Yes	Y		1	1.2	34	1.5	6	.068	14	-.0...	15	.059										
81	1.2DL + 1.5LM-MP1 + 1SW..	Yes	Y		1	1.2	34	1.5	7	.068	14	-.0...	15	.034										
82	1.2DL + 1.5LM-MP1 + 1SW..	Yes	Y		1	1.2	34	1.5	8	.068	14	-.0...	15											
83	1.2DL + 1.5LM-MP1 + 1SW..	Yes	Y		1	1.2	34	1.5	9	.068	14	-.0...	15	-.0...										

Load Combinations (Continued)

	Description	S...	PDel...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
84	1.2DL + 1.5LM-MP1 + 1SW..	Yes	Y		1	1.2	34	1.5	10	.068	14	-.0...	15	-.0...										
85	1.2DL + 1.5LM-MP1 + 1SW..	Yes	Y		1	1.2	34	1.5	11	.068	14		15	-.0...										
86	1.2DL + 1.5LM-MP1 + 1SW..	Yes	Y		1	1.2	34	1.5	12	.068	14	.034	15	-.0...										
87	1.2DL + 1.5LM-MP1 + 1SW..	Yes	Y		1	1.2	34	1.5	13	.068	14	.059	15	-.0...										
88	1.2DL + 1.5LM-MP2 + 1SW..	Yes	Y		1	1.2	35	1.5	2	.068	14	.068	15											
89	1.2DL + 1.5LM-MP2 + 1SW..	Yes	Y		1	1.2	35	1.5	3	.068	14	.059	15	.034										
90	1.2DL + 1.5LM-MP2 + 1SW..	Yes	Y		1	1.2	35	1.5	4	.068	14	.034	15	.059										
91	1.2DL + 1.5LM-MP2 + 1SW..	Yes	Y		1	1.2	35	1.5	5	.068	14		15	.068										
92	1.2DL + 1.5LM-MP2 + 1SW..	Yes	Y		1	1.2	35	1.5	6	.068	14	-.0...	15	.059										
93	1.2DL + 1.5LM-MP2 + 1SW..	Yes	Y		1	1.2	35	1.5	7	.068	14	-.0...	15	.034										
94	1.2DL + 1.5LM-MP2 + 1SW..	Yes	Y		1	1.2	35	1.5	8	.068	14	-.0...	15											
95	1.2DL + 1.5LM-MP2 + 1SW..	Yes	Y		1	1.2	35	1.5	9	.068	14	-.0...	15	-.0...										
96	1.2DL + 1.5LM-MP2 + 1SW..	Yes	Y		1	1.2	35	1.5	10	.068	14	-.0...	15	-.0...										
97	1.2DL + 1.5LM-MP2 + 1SW..	Yes	Y		1	1.2	35	1.5	11	.068	14		15	-.0...										
98	1.2DL + 1.5LM-MP2 + 1SW..	Yes	Y		1	1.2	35	1.5	12	.068	14	.034	15	-.0...										
99	1.2DL + 1.5LM-MP2 + 1SW..	Yes	Y		1	1.2	35	1.5	13	.068	14	.059	15	-.0...										
100	1.2DL + 1.5LM-MP3 + 1SW..	Yes	Y		1	1.2	36	1.5	2	.068	14	.068	15											
101	1.2DL + 1.5LM-MP3 + 1SW..	Yes	Y		1	1.2	36	1.5	3	.068	14	.059	15	.034										
102	1.2DL + 1.5LM-MP3 + 1SW..	Yes	Y		1	1.2	36	1.5	4	.068	14	.034	15	.059										
103	1.2DL + 1.5LM-MP3 + 1SW..	Yes	Y		1	1.2	36	1.5	5	.068	14		15	.068										
104	1.2DL + 1.5LM-MP3 + 1SW..	Yes	Y		1	1.2	36	1.5	6	.068	14	-.0...	15	.059										
105	1.2DL + 1.5LM-MP3 + 1SW..	Yes	Y		1	1.2	36	1.5	7	.068	14	-.0...	15	.034										
106	1.2DL + 1.5LM-MP3 + 1SW..	Yes	Y		1	1.2	36	1.5	8	.068	14	-.0...	15											
107	1.2DL + 1.5LM-MP3 + 1SW..	Yes	Y		1	1.2	36	1.5	9	.068	14	-.0...	15	-.0...										
108	1.2DL + 1.5LM-MP3 + 1SW..	Yes	Y		1	1.2	36	1.5	10	.068	14	-.0...	15	-.0...										
109	1.2DL + 1.5LM-MP3 + 1SW..	Yes	Y		1	1.2	36	1.5	11	.068	14		15	-.0...										
110	1.2DL + 1.5LM-MP3 + 1SW..	Yes	Y		1	1.2	36	1.5	12	.068	14	.034	15	-.0...										
111	1.2DL + 1.5LM-MP3 + 1SW..	Yes	Y		1	1.2	36	1.5	13	.068	14	.059	15	-.0...										
112	1.2DL + 1.5LM-MP4 + 1SW..	Yes	Y		1	1.2	37	1.5	2	.068	14	.068	15											
113	1.2DL + 1.5LM-MP4 + 1SW..	Yes	Y		1	1.2	37	1.5	3	.068	14	.059	15	.034										
114	1.2DL + 1.5LM-MP4 + 1SW..	Yes	Y		1	1.2	37	1.5	4	.068	14	.034	15	.059										
115	1.2DL + 1.5LM-MP4 + 1SW..	Yes	Y		1	1.2	37	1.5	5	.068	14		15	.068										
116	1.2DL + 1.5LM-MP4 + 1SW..	Yes	Y		1	1.2	37	1.5	6	.068	14	-.0...	15	.059										
117	1.2DL + 1.5LM-MP4 + 1SW..	Yes	Y		1	1.2	37	1.5	7	.068	14	-.0...	15	.034										
118	1.2DL + 1.5LM-MP4 + 1SW..	Yes	Y		1	1.2	37	1.5	8	.068	14	-.0...	15											
119	1.2DL + 1.5LM-MP4 + 1SW..	Yes	Y		1	1.2	37	1.5	9	.068	14	-.0...	15	-.0...										
120	1.2DL + 1.5LM-MP4 + 1SW..	Yes	Y		1	1.2	37	1.5	10	.068	14	-.0...	15	-.0...										
121	1.2DL + 1.5LM-MP4 + 1SW..	Yes	Y		1	1.2	37	1.5	11	.068	14		15	-.0...										
122	1.2DL + 1.5LM-MP4 + 1SW..	Yes	Y		1	1.2	37	1.5	12	.068	14	.034	15	-.0...										
123	1.2DL + 1.5LM-MP4 + 1SW..	Yes	Y		1	1.2	37	1.5	13	.068	14	.059	15	-.0...										
124	1.2DL + 1.5LM-MP5 + 1SW..	Yes	Y		1	1.2	38	1.5	2	.068	14	.068	15											
125	1.2DL + 1.5LM-MP5 + 1SW..	Yes	Y		1	1.2	38	1.5	3	.068	14	.059	15	.034										
126	1.2DL + 1.5LM-MP5 + 1SW..	Yes	Y		1	1.2	38	1.5	4	.068	14	.034	15	.059										
127	1.2DL + 1.5LM-MP5 + 1SW..	Yes	Y		1	1.2	38	1.5	5	.068	14		15	.068										
128	1.2DL + 1.5LM-MP5 + 1SW..	Yes	Y		1	1.2	38	1.5	6	.068	14	-.0...	15	.059										
129	1.2DL + 1.5LM-MP5 + 1SW..	Yes	Y		1	1.2	38	1.5	7	.068	14	-.0...	15	.034										
130	1.2DL + 1.5LM-MP5 + 1SW..	Yes	Y		1	1.2	38	1.5	8	.068	14	-.0...	15											
131	1.2DL + 1.5LM-MP5 + 1SW..	Yes	Y		1	1.2	38	1.5	9	.068	14	-.0...	15	-.0...										
132	1.2DL + 1.5LM-MP5 + 1SW..	Yes	Y		1	1.2	38	1.5	10	.068	14	-.0...	15	-.0...										
133	1.2DL + 1.5LM-MP5 + 1SW..	Yes	Y		1	1.2	38	1.5	11	.068	14		15	-.0...										
134	1.2DL + 1.5LM-MP5 + 1SW..	Yes	Y		1	1.2	38	1.5	12	.068	14	.034	15	-.0...										
135	1.2DL + 1.5LM-MP5 + 1SW..	Yes	Y		1	1.2	38	1.5	13	.068	14	.059	15	-.0...										
136	1.2DL + 1.5LM-MP6 + 1SW..	Yes	Y		1	1.2	39	1.5	2	.068	14	.068	15											
137	1.2DL + 1.5LM-MP6 + 1SW..	Yes	Y		1	1.2	39	1.5	3	.068	14	.059	15	.034										
138	1.2DL + 1.5LM-MP6 + 1SW..	Yes	Y		1	1.2	39	1.5	4	.068	14	.034	15	.059										
139	1.2DL + 1.5LM-MP6 + 1SW..	Yes	Y		1	1.2	39	1.5	5	.068	14		15	.068										
140	1.2DL + 1.5LM-MP6 + 1SW..	Yes	Y		1	1.2	39	1.5	6	.068	14	-.0...	15	.059										

Load Combinations (Continued)

	Description	S...	PDel...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
141	1.2DL + 1.5LM-MP6 + 1SW..	Yes	Y		1	1.2	39	1.5	7	.068	14	-.0...	15	.034										
142	1.2DL + 1.5LM-MP6 + 1SW..	Yes	Y		1	1.2	39	1.5	8	.068	14	-.0...	15											
143	1.2DL + 1.5LM-MP6 + 1SW..	Yes	Y		1	1.2	39	1.5	9	.068	14	-.0...	15	-.0...										
144	1.2DL + 1.5LM-MP6 + 1SW..	Yes	Y		1	1.2	39	1.5	10	.068	14	-.0...	15	-.0...										
145	1.2DL + 1.5LM-MP6 + 1SW..	Yes	Y		1	1.2	39	1.5	11	.068	14		15	-.0...										
146	1.2DL + 1.5LM-MP6 + 1SW..	Yes	Y		1	1.2	39	1.5	12	.068	14	.034	15	-.0...										
147	1.2DL + 1.5LM-MP6 + 1SW..	Yes	Y		1	1.2	39	1.5	13	.068	14	.059	15	-.0...										
148	1.2DL + 1.5LM-MP7 + 1SW..	Yes	Y		1	1.2	40	1.5	2	.068	14	.068	15											
149	1.2DL + 1.5LM-MP7 + 1SW..	Yes	Y		1	1.2	40	1.5	3	.068	14	.059	15	.034										
150	1.2DL + 1.5LM-MP7 + 1SW..	Yes	Y		1	1.2	40	1.5	4	.068	14	.034	15	.059										
151	1.2DL + 1.5LM-MP7 + 1SW..	Yes	Y		1	1.2	40	1.5	5	.068	14		15	.068										
152	1.2DL + 1.5LM-MP7 + 1SW..	Yes	Y		1	1.2	40	1.5	6	.068	14	-.0...	15	.059										
153	1.2DL + 1.5LM-MP7 + 1SW..	Yes	Y		1	1.2	40	1.5	7	.068	14	-.0...	15	.034										
154	1.2DL + 1.5LM-MP7 + 1SW..	Yes	Y		1	1.2	40	1.5	8	.068	14	-.0...	15											
155	1.2DL + 1.5LM-MP7 + 1SW..	Yes	Y		1	1.2	40	1.5	9	.068	14	-.0...	15	-.0...										
156	1.2DL + 1.5LM-MP7 + 1SW..	Yes	Y		1	1.2	40	1.5	10	.068	14	-.0...	15	-.0...										
157	1.2DL + 1.5LM-MP7 + 1SW..	Yes	Y		1	1.2	40	1.5	11	.068	14		15	-.0...										
158	1.2DL + 1.5LM-MP7 + 1SW..	Yes	Y		1	1.2	40	1.5	12	.068	14	.034	15	-.0...										
159	1.2DL + 1.5LM-MP7 + 1SW..	Yes	Y		1	1.2	40	1.5	13	.068	14	.059	15	-.0...										
160	1.2DL + 1.5LM-MP8 + 1SW..	Yes	Y		1	1.2	41	1.5	2	.068	14	.068	15											
161	1.2DL + 1.5LM-MP8 + 1SW..	Yes	Y		1	1.2	41	1.5	3	.068	14	.059	15	.034										
162	1.2DL + 1.5LM-MP8 + 1SW..	Yes	Y		1	1.2	41	1.5	4	.068	14	.034	15	.059										
163	1.2DL + 1.5LM-MP8 + 1SW..	Yes	Y		1	1.2	41	1.5	5	.068	14		15	.068										
164	1.2DL + 1.5LM-MP8 + 1SW..	Yes	Y		1	1.2	41	1.5	6	.068	14	-.0...	15	.059										
165	1.2DL + 1.5LM-MP8 + 1SW..	Yes	Y		1	1.2	41	1.5	7	.068	14	-.0...	15	.034										
166	1.2DL + 1.5LM-MP8 + 1SW..	Yes	Y		1	1.2	41	1.5	8	.068	14	-.0...	15											
167	1.2DL + 1.5LM-MP8 + 1SW..	Yes	Y		1	1.2	41	1.5	9	.068	14	-.0...	15	-.0...										
168	1.2DL + 1.5LM-MP8 + 1SW..	Yes	Y		1	1.2	41	1.5	10	.068	14	-.0...	15	-.0...										
169	1.2DL + 1.5LM-MP8 + 1SW..	Yes	Y		1	1.2	41	1.5	11	.068	14		15	-.0...										
170	1.2DL + 1.5LM-MP8 + 1SW..	Yes	Y		1	1.2	41	1.5	12	.068	14	.034	15	-.0...										
171	1.2DL + 1.5LM-MP8 + 1SW..	Yes	Y		1	1.2	41	1.5	13	.068	14	.059	15	-.0...										
172	1.2DL + 1.5LM-MP9 + 1SW..	Yes	Y		1	1.2	42	1.5	2	.068	14	.068	15											
173	1.2DL + 1.5LM-MP9 + 1SW..	Yes	Y		1	1.2	42	1.5	3	.068	14	.059	15	.034										
174	1.2DL + 1.5LM-MP9 + 1SW..	Yes	Y		1	1.2	42	1.5	4	.068	14	.034	15	.059										
175	1.2DL + 1.5LM-MP9 + 1SW..	Yes	Y		1	1.2	42	1.5	5	.068	14		15	.068										
176	1.2DL + 1.5LM-MP9 + 1SW..	Yes	Y		1	1.2	42	1.5	6	.068	14	-.0...	15	.059										
177	1.2DL + 1.5LM-MP9 + 1SW..	Yes	Y		1	1.2	42	1.5	7	.068	14	-.0...	15	.034										
178	1.2DL + 1.5LM-MP9 + 1SW..	Yes	Y		1	1.2	42	1.5	8	.068	14	-.0...	15											
179	1.2DL + 1.5LM-MP9 + 1SW..	Yes	Y		1	1.2	42	1.5	9	.068	14	-.0...	15	-.0...										
180	1.2DL + 1.5LM-MP9 + 1SW..	Yes	Y		1	1.2	42	1.5	10	.068	14	-.0...	15	-.0...										
181	1.2DL + 1.5LM-MP9 + 1SW..	Yes	Y		1	1.2	42	1.5	11	.068	14		15	-.0...										
182	1.2DL + 1.5LM-MP9 + 1SW..	Yes	Y		1	1.2	42	1.5	12	.068	14	.034	15	-.0...										

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-...	LC	MZ [lb-ft]	LC
1	N20	...	750.025	6	2235.801	35	1284.811	25	41.094	15	1743.6..	19	4032.199	35
2		...	-743.198	24	70.058	16	-1290.666	7	-2879.322	34	-1765....	13	-144.221	16
3	N11	...	883.109	4	2160.038	31	1215.006	3	152.648	25	1700.9..	15	121.041	24
4		...	-879.512	22	56.022	24	-1205.662	21	-2242.986	81	-1716....	9	-4252.448	31
5	N1	...	1295.155	17	2126.215	27	509.202	14	4662.39	27	1528.3..	23	864.066	146
6		...	-1305.545	11	28.613	20	-514.31	8	-237.688	20	-1543....	5	-570.827	152
7	Totals:	...	2679.473	17	6089.312	27	2834.083	2						
8		...	-2679.473	11	1612.613	57	-2834.081	20						

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

	Member	Shape	Code ...	Loc[in]	LC	Shear ..	Loc[in]	Dir	LC	phi*Pnc ..	phi*Pnt [..	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	CA5	C3.38x2.06...	.319	0	35	.047	28.1...	y	30	47760.0...	56700	2202.821	5751.945	1...	H1-1b
2	CA1	C3.38x2.06...	.316	0	31	.046	28.1...	y	38	47760.0...	56700	2202.821	5751.945	1...	H1-1b
3	S1	HSS4X4X4	.316	0	37	.104	0	y	107	133178....	139518	16180.5	16180.5	2...	H1-1b
4	CA3	C3.38x2.06...	.305	0	27	.045	28.1...	y	33	47760.0...	56700	2202.821	5751.945	1...	H1-1b
5	S2	HSS4X4X4	.304	0	33	.101	0	y	175	133178....	139518	16180.5	16180.5	2...	H1-1b
6	S3	HSS4X4X4	.299	0	29	.102	0	y	147	133178....	139518	16180.5	16180.5	2...	H1-1b
7	CA6	C3.38x2.06...	.284	33	29	.043	33	y	35	47760.0...	56700	2202.821	5751.945	1...	H1-1b
8	CA2	C3.38x2.06...	.276	33	37	.040	33	y	31	47760.0...	56700	2202.821	5751.945	1...	H1-1b
9	CA4	C3.38x2.06...	.273	33	33	.040	33	y	38	47760.0...	56700	2202.821	5751.945	1...	H1-1b
10	GA6	L2x2x4	.184	0	3	.018	0	z	38	23539.0...	30585.6	690.934	1576.849	2...	H2-1
11	GA2	L2x2x4	.182	0	11	.019	0	z	35	23539.0...	30585.6	690.934	1576.849	2...	H2-1
12	P1	PL6.5x0.375	.178	21	35	.093	36.3...	y	111	3658.14	78975	616.993	8134.54	1...	H1-1b
13	M75	PL 2.375x0.5	.178	1.5	12	.259	0	y	28	38256.8...	38475	400.783	1903.711	2...	H1-1b
14	P3	PL6.5x0.375	.171	21	2	.091	36.3...	y	140	3658.14	78975	616.993	7827.571	1...	H1-1b
15	GA4	L2x2x4	.170	0	7	.018	0	z	31	23539.0...	30585.6	690.934	1576.849	2...	H2-1
16	P2	PL6.5x0.375	.167	21	6	.092	36.3...	y	179	3658.14	78975	616.993	7822.449	1...	H1-1b
17	CA7	L4X4X4	.163	0	13	.022	42	y	13	46987.2...	62532	3137.597	6897.039	2...	H2-1
18	CA8	L4X4X4	.157	0	9	.021	42	y	9	46987.2...	62532	3137.597	6897.039	2...	H2-1
19	GA5	L2x2x4	.154	0	10	.029	27.2...	y	36	23539.0...	30585.6	690.934	1576.849	2...	H2-1
20	CA9	L4X4X4	.149	0	5	.021	42	y	5	46987.2...	62532	3137.597	6897.039	2...	H2-1
21	GA3	L2x2x4	.147	0	2	.027	27.2...	y	28	23539.0...	30585.6	690.934	1576.849	2...	H2-1
22	GA1	L2x2x4	.141	0	6	.028	27.2...	y	32	23539.0...	30585.6	690.934	1576.849	2...	H2-1
23	MP9	PIPE_2.5	.135	28	2	.045	68		13	30038.4...	50715	3596.25	3596.25	2...	H1-1b
24	MP8	PIPE_2.5	.134	68	9	.061	68		9	30038.4...	50715	3596.25	3596.25	4...	H1-1b
25	MP5	PIPE_2.5	.132	68	13	.060	68		13	30038.4...	50715	3596.25	3596.25	4...	H1-1b
26	MP2	PIPE_2.5	.131	68	5	.059	68		5	30038.4...	50715	3596.25	3596.25	4...	H1-1b
27	MP3	PIPE_2.5	.130	28	10	.046	68		9	30038.4...	50715	3596.25	3596.25	4...	H1-1b
28	MP6	PIPE_2.5	.127	28	6	.042	68		5	30038.4...	50715	3596.25	3596.25	3...	H1-1b
29	HR1	PIPE_2.5	.113	96.25	2	.139	103....		2	22373.4...	50715	3596.25	3596.25	2...	H1-1b
30	H3	PIPE_3.0	.112	31	8	.053	48		8	46290.5...	65205	5748.75	5748.75	1...	H1-1b
31	HR3	PIPE_2.5	.111	23.75	13	.129	103....		6	22373.4...	50715	3596.25	3596.25	2...	H1-1b
32	MP4	PIPE_2.5	.110	68	7	.038	28		4	30038.4...	50715	3596.25	3596.25	2...	H1-1b
33	MP1	PIPE_2.5	.109	68	11	.045	68		8	30038.4...	50715	3596.25	3596.25	3...	H1-1b
34	MP7	PIPE_2.5	.109	68	3	.037	28		12	30038.4...	50715	3596.25	3596.25	3...	H1-1b
35	HR2	PIPE_2.5	.107	96.25	9	.130	103....		10	22373.4...	50715	3596.25	3596.25	2...	H1-1b
36	H1	PIPE_3.0	.107	31	4	.051	48		4	46290.5...	65205	5748.75	5748.75	1...	H1-1b
37	H2	PIPE_3.0	.106	31	12	.051	48		13	46290.5...	65205	5748.75	5748.75	1...	H1-1b

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General				
2	RIGID		29	71.1	0
3	Total General		29	71.1	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	C3.38x2.06x0.25	6	198	98.255
7	A36 Gr.36	L2x2x4	6	163.8	43.838
8	A36 Gr.36	PL6.5x0.375	3	126	87.09
9	A36 Gr.36	L4X4X4	3	126	68.957
10	A36 Gr.36	PL 2.375x0.5	1	1.5	.505
11	A500 Gr.B Rect	HSS4X4X4	3	120	123.333
12	A53 Gr.B	PIPE_2.5	12	1224	558.804
13	A53 Gr.B	PIPE_3.0	3	288	169.05
14	Total HR Steel		37	2247.3	1149.833

APPENDIX D

ADDITIONAL CALCUATIONS

INFINIGY

FROM ZERO TO INFINIGY

the solutions are endless

Bolt Calculation Tool, V1.5.1

PROJECT DATA	
Site Name:	COVILLE HILL / HARWINTON RO
Site Number:	876376
Connection Description:	Mount to Tower

MAXIMUM BOLT LOADS		
Bolt Tension:	5127.40	lbs
Bolt Shear:	938.96	lbs

WORST CASE BOLT LOADS[1]		
Bolt Tension:	5127.40	lbs
Bolt Shear:	758.04	lbs

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

[1] *Worst case bolt loads correspond to Load combination #37 on member S1 in RISA-3D, which causes the maximum demand on the bolts.*

Member Information
I nodes of S3, S2, S1

BOLT CHECK		
Tensile Strength	20340.15	
Shear Strength	13805.83	
Max Tensile Usage	25.2%	
Max Shear Usage	6.8%	
Interaction Check (Worst Case)	0.07	***≤1.05***
Result	Pass	

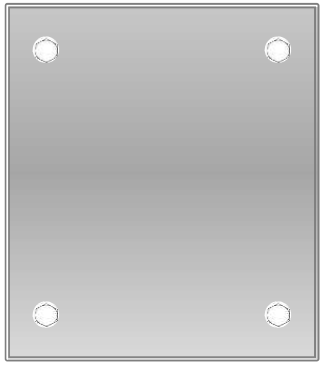


Exhibit F

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: BOHVN00028A

876376
123 Campville Hill Road
Harwinton, Connecticut 06791

November 18, 2021

EBI Project Number: 6221007188

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**17.50%**

November 18, 2021

Dish Wireless

Emissions Analysis for Site: BOHVN00028A - 876376

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **123 Campville Hill Road** in **Harwinton, 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 123 Campville Hill Road in Harwinton, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

3) 4 n66 channels (AWS Band - 2190 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

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

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

estimate as gain reductions for these particular antennas are typically much higher in this direction.

6) The antennas used in this modeling are the JMA MX08FRO665-20 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector A, the JMA MX08FRO665-20 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector B, the JMA MX08FRO665-20 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

7) The antenna mounting height centerline of the proposed antennas is 144 feet above ground level (AGL).

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

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

Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA MX08FRO665-20	Make / Model:	JMA MX08FRO665-20	Make / Model:	JMA MX08FRO665-20
Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz
Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd
Height (AGL):	144 feet	Height (AGL):	144 feet	Height (AGL):	144 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts
ERP (W):	5,236.31	ERP (W):	5,236.31	ERP (W):	5,236.31
Antenna A1 MPE %:	**1.24%**	Antenna B1 MPE %:	**1.24%**	Antenna C1 MPE %:	**1.24%**

Site Composite MPE %	
Carrier	**MPE %**
Dish Wireless (Max at Sector A):	1.24%
Metro PCS	0.55%
Sprint	1.82%
T-Mobile	0.89%
Verizon	7.77%
Nextel	0.44%
AT&T	4.79%
Site Total MPE % :	17.50%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	1.24%
Dish Wireless Sector B Total:	1.24%
Dish Wireless Sector C Total:	1.24%
Site Total MPE % :	17.50%

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	144.0	1.69	600 MHz n71	400	0.42%
Dish Wireless 1900 MHz n70	4	542.70	144.0	4.10	1900 MHz n70	1000	0.41%
Dish Wireless 2190 MHz n66	4	542.70	144.0	4.10	2190 MHz n66	1000	0.41%
						Total:	**1.24%**

• 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:	1.24%
Sector B:	1.24%
Sector C:	1.24%
Dish Wireless Maximum MPE % (Sector A):	1.24%
Site Total:	17.50%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **17.50%** 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:
123 CAMPVILLE HILL RD., HARWINTON, CT 06791

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:	**876376/SCOVILLE HILL / HARWINTON ROD**
Customer Site ID:	**BOHVN00028A/CT-CCI-T-876376**
Site Address:	**123 Campville Hill Rd., HARWINTON, CT 06791**

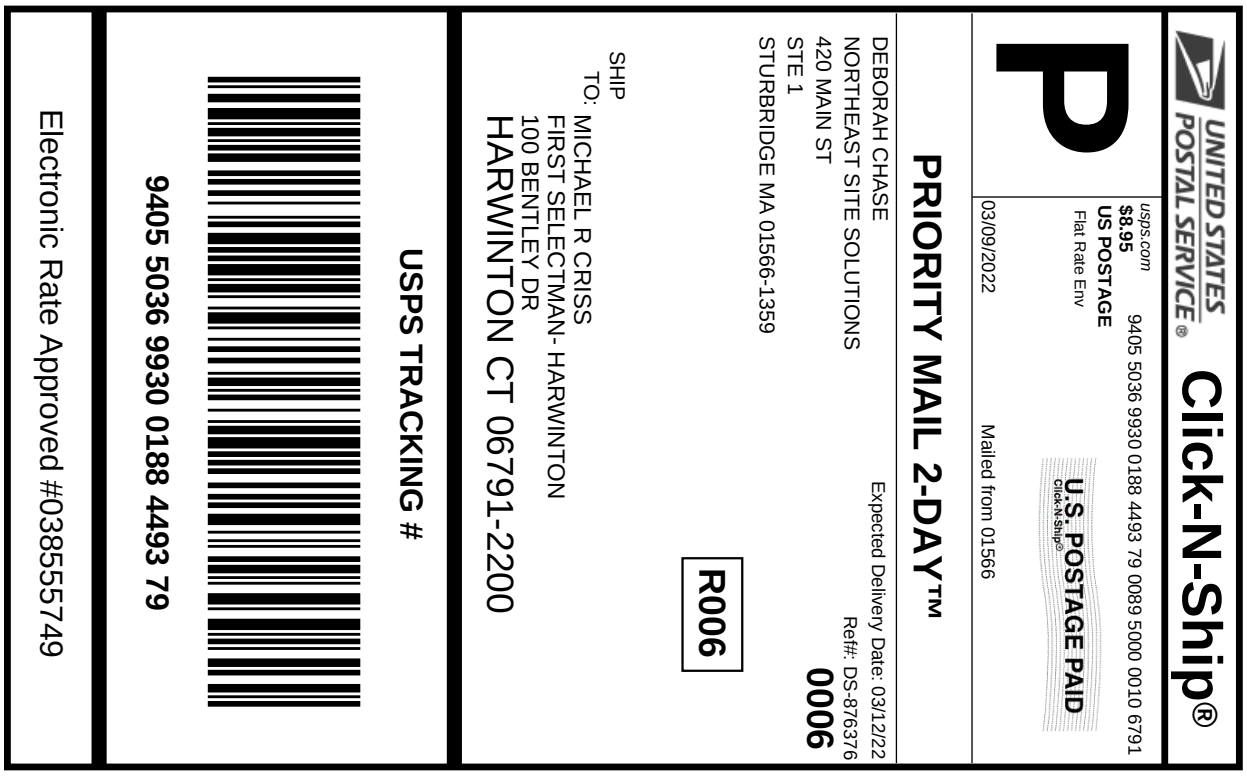
Crown Castle

By: _____ Date: 3/7/22

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 0188 4493 79

Trans. #:	558452799
Print Date:	03/09/2022
Ship Date:	03/09/2022
Expected Delivery Date:	03/12/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

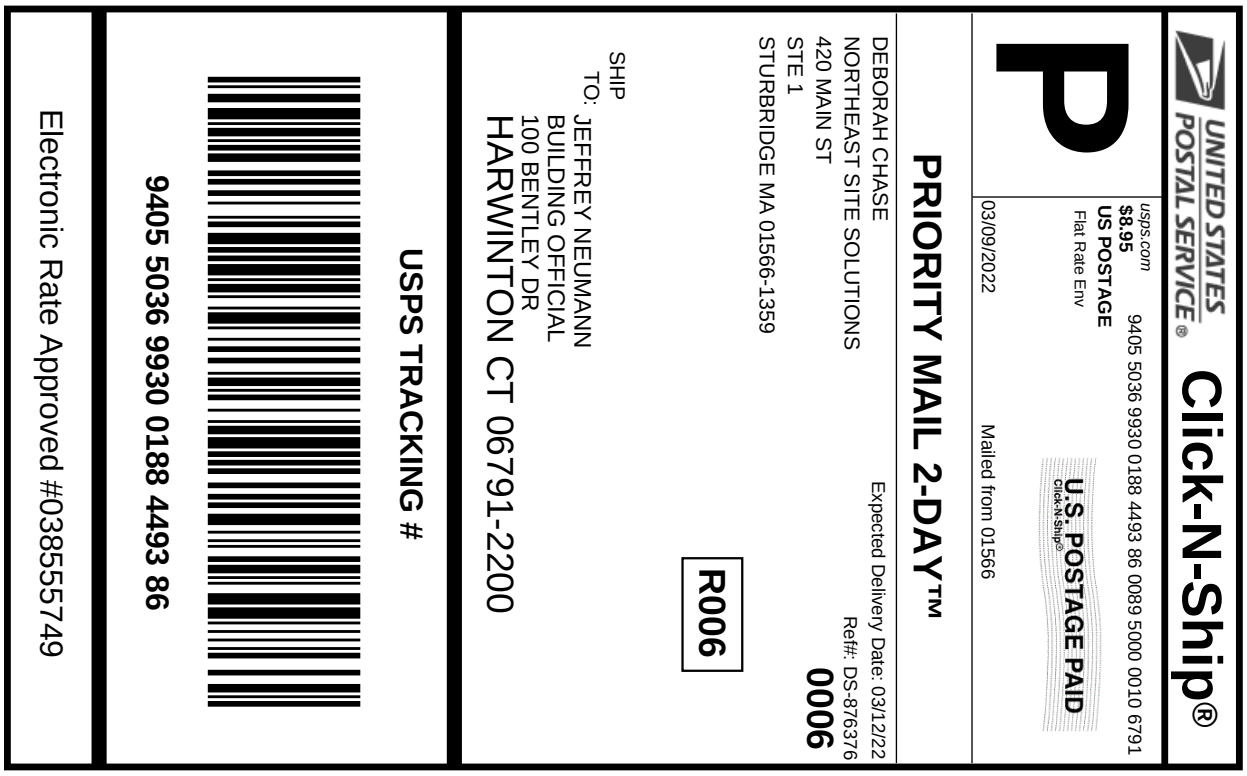
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DS-876376

To: MICHAEL R CRISS
FIRST SELECTMAN- HARWINTON
100 BENTLEY DR
HARWINTON CT 06791-2200

* 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



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 0188 4493 86

Trans. #:	558452799
Print Date:	03/09/2022
Ship Date:	03/09/2022
Expected Delivery Date:	03/12/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

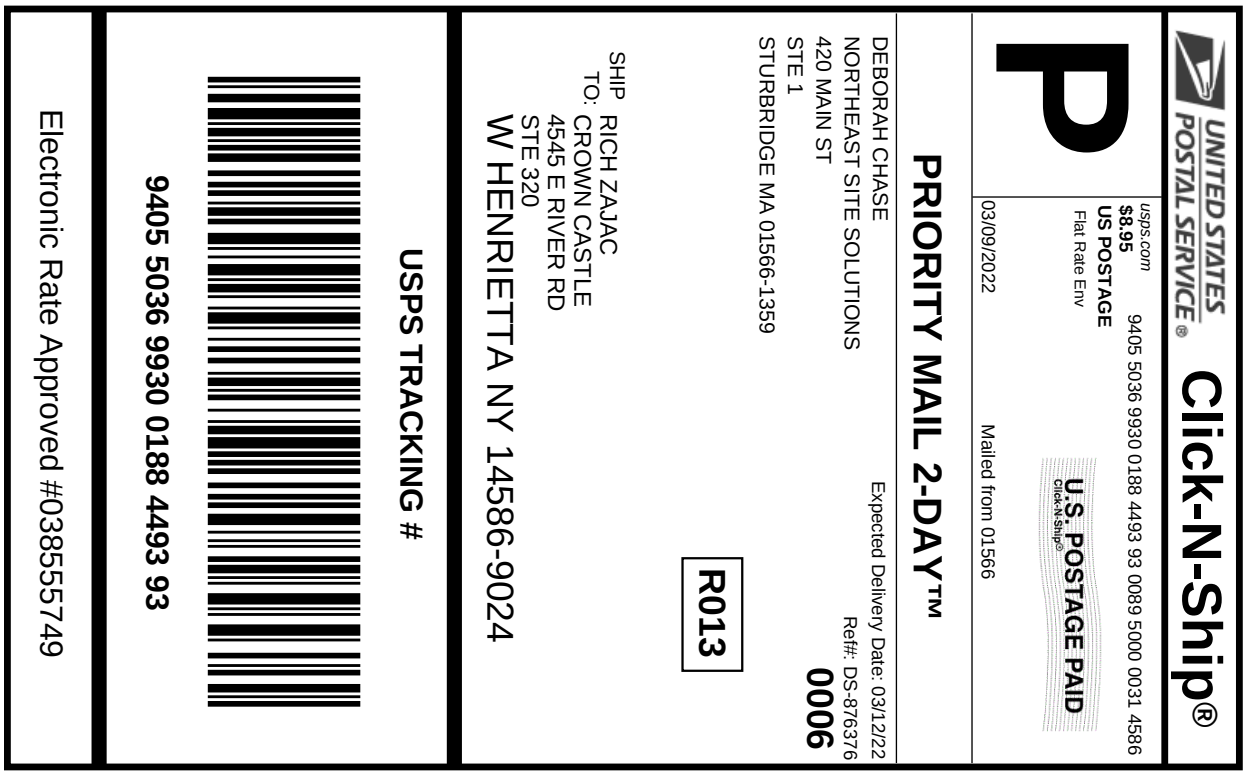
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DS-876376

To: JEFFREY NEUMANN
BUILDING OFFICIAL
100 BENTLEY DR
HARWINTON CT 06791-2200

* 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



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 0188 4493 93

Trans. #:	558452799
Print Date:	03/09/2022
Ship Date:	03/09/2022
Expected Delivery Date:	03/12/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

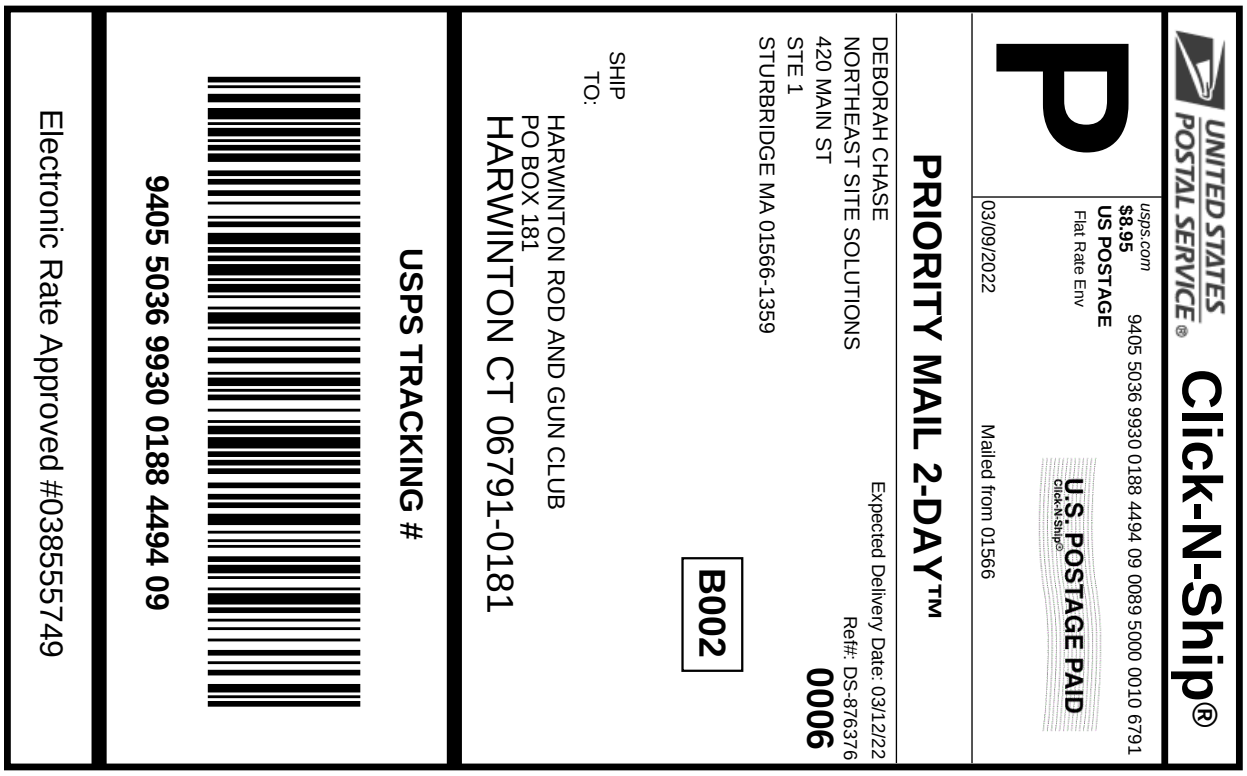
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DS-876376

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



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 0188 4494 09

Trans. #:	558452799
Print Date:	03/09/2022
Ship Date:	03/09/2022
Expected Delivery Date:	03/12/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

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

Ref#: DS-876376

To: HARWINTON ROD AND GUN CLUB
PO BOX 181
HARWINTON CT 06791-0181

* 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

876326 Crown Dish

UNITED STATES POSTAL SERVICE.

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

03/11/2022 08:41 AM

Product	Qty	Unit Price	Price
Prepaid Mail West Henrietta, NY 14586 Weight: 0 lb 2.00 oz Acceptance Date: Fri 03/11/2022 Tracking #: 9405 5036 9930 0188 4493 93	1		$0.00
Prepaid Mail Harwinton, CT 06791 Weight: 0 lb 8.40 oz Acceptance Date: Fri 03/11/2022 Tracking #: 9405 5036 9930 0188 4493 86	1		$0.00
Prepaid Mail Harwinton, CT 06791 Weight: 1 lb 0.80 oz Acceptance Date: Fri 03/11/2022 Tracking #: 9405 5036 9930 0188 4494 09	1		$0.00
Prepaid Mail Harwinton, CT 06791 Weight: 0 lb 8.40 oz Acceptance Date: Fri 03/11/2022 Tracking #: 9405 5036 9930 0188 4493 79	1		$0.00
Grand Total:			$0.00

****
USPS is experiencing unprecedented volume