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
10 Sylva Street, Branford, CT 06405
Latitude: 41.293944
Longitude: -72.785694
Site #: 822765_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 10 Sylva Street, Branford, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 MHz 5G antennas and six (6) RRUs, at the 81-foot level of the existing 125-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 1, 2022, Exhibit C. Also included is a structural analysis prepared by Crown Castle, dated September 22, 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 Branford Planning & Zoning Commission on November 5, 1998. Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to James Cosgrove, First Selectman and Harry Smith, Town Planner for the Town of Branford as well as the tower owner (Crown Castle) and property owner (322 East Main Street LLC).

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the existing tower is 125-feet and the Dish Wireless LLC antennas will be located at a centerline height of 81-feet.

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

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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 56.86% 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 Branford. 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 81-foot level of the existing 125-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 Branford.

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: James Cosgrove, First Selectman
Town of Branford
1019 Main St.
Branford, CT 06405

Harry Smith, Town Planner
Town of Branford
1019 Main St.
Branford, CT 06405

322 East Main Street LLC, Property Owner
375 Fairfield Ave
Stamford, CT 06902

Crown Castle, Tower Owner

Exhibit A

Original Facility Approval

CTI-025

VOL. 662 PAGE 502

6740

PLANNING AND ZONING COMMISSION
TOWN OF BRANFORD TOWN HALL DRIVE P.O. BOX 150
Branford, Connecticut 06405 488-1255

NOTICE OF DECISION

November 10, 1998

J. Brendan Sharkey, Esq. For Omnipoint Communications, Inc.
25 VanZant Street #18E
East Norwalk, Connecticut 06855

SUBJECT: Special Exception APPLICATION # 98-9.3

LOCATION: 10 Sylvia Street

OWNERS OF RECORD: TKJ SYLVIA ASSOCIATES, LLC

Dear Sir:

At a meeting of the Branford Planning & Zoning Commission held on Thursday, November 5, 1998, the Commission voted to:

X Approve your above subject application with the conditions noted below.

Very truly yours,

Shirley Rasmussen
Town Planner

NOTE: This Special Exception shall become effective only after it is filed on the Land Records in the office of the Town Clerk.

1. Omnipoint must construct tower so that it can easily be extended to provide spaces for two (2) other carriers for co-location purposes.

NOTE: Special Exception shall become null and void in the event the applicant fails to obtain a building permit within one (1) year of date of approval.
(Per Section 31.7 of the Branford Zoning Regulations)

RECEIVED FOR RECORD Nov. 19, 1998
at 3h 49m P.M. AND RECORDED BY
GEORGETTE A. LASKE
BRANFORD TOWN CLERK

Exhibit B

Property Card

10 SYLVIA ST

Location	10 SYLVIA ST	**Mblu**	G05/F05 004/ 00017/ /
Acct#	000614	**Owner**	322 EAST MAIN STREET LLC
Assessment	$498,600	**Appraisal**	$712,200
PID	1103	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$230,700	$481,500	$712,200
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$161,500	$337,100	$498,600

Owner of Record

Owner	322 EAST MAIN STREET LLC	**Sale Price**	$468,000
Co-Owner		**Certificate**	
Address	375 FAIRFIELD AVE BUILDING 1 STAMFORD, CT 06902	**Book & Page**	1132/0054
		Sale Date	05/02/2013
		Instrument	25

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
322 EAST MAIN STREET LLC	$468,000		1132/0054	25	05/02/2013
T K J SYLVIA ASSOCIATES LLC	$0		0571/0583		06/07/1994

Building Information

Building 1 : Section 1

Year Built:	1960
Living Area:	2,620
Replacement Cost:	$351,007
Building Percent Good:	60

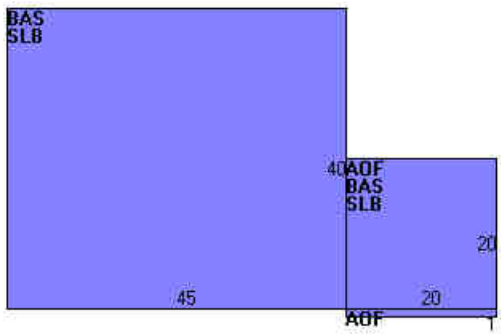
Replacement Cost
Less Depreciation: $210,600

Building Attributes	
Field	**Description**
STYLE	Health Club
MODEL	Ind/Comm
Grade	C
Stories:	1
Occupancy	1
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	Wood on Sheath
Roof Structure	Gable/Hip
Roof Cover	Asphalt
Interior Wall 1	Minim/Masonry
Interior Wall 2	Drywall
Interior Floor 1	Concr-Finished
Interior Floor 2	Ceram Clay Til
Heating Fuel	Gas
Heating Type	Hot Air-no Duc
AC Type	None
Bldg Use	COMM WHS MDL96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	3160
Heat/AC	HEAT/AC SPLIT
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & MIN WL
Rooms/Prtns	AVERAGE
Wall Height	16
% Comn Wall	0

Building Photo

(http://images.vgsi.com/photos/BranfordCTPhotos//\00\03\25/08.jpg)

Building Layout



(http://images.vgsi.com/photos/BranfordCTPhotos//Sketches/1103_1103.jp

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	2,200	2,200
AOF	Office	420	420
SLB	Slab	2,200	0
		4,820	2,620

Extra Features

Extra Features				Legend
Code	**Description**	**Size**	**Value**	**Bldg #**
GEN2	GEN 15-30KW PRMT BKP	1 UNITS	$3,000	1
A/C	AIR CONDITION	800 S.F.	$1,100	1

Land

Land Use

Use Code	3160
Description	COMM WHS MDL96
Zone	BL
Neighborhood	400
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0.95
Frontage	
Depth	
Assessed Value	$337,100
Appraised Value	$481,500

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
PAV1	PAVING-ASPHALT			18000 S.F.	$8,900	1
FN3	FENCE-6' CHAIN			200 L.F.	$1,000	1
PAV2	PAVING-CONC			72 S.F.	$200	1
SHD8	COMMUN UTLTY			36 S.F.	$1,800	1
LT9	HGH PRE-SOD PL			3 UNITS	$4,100	1

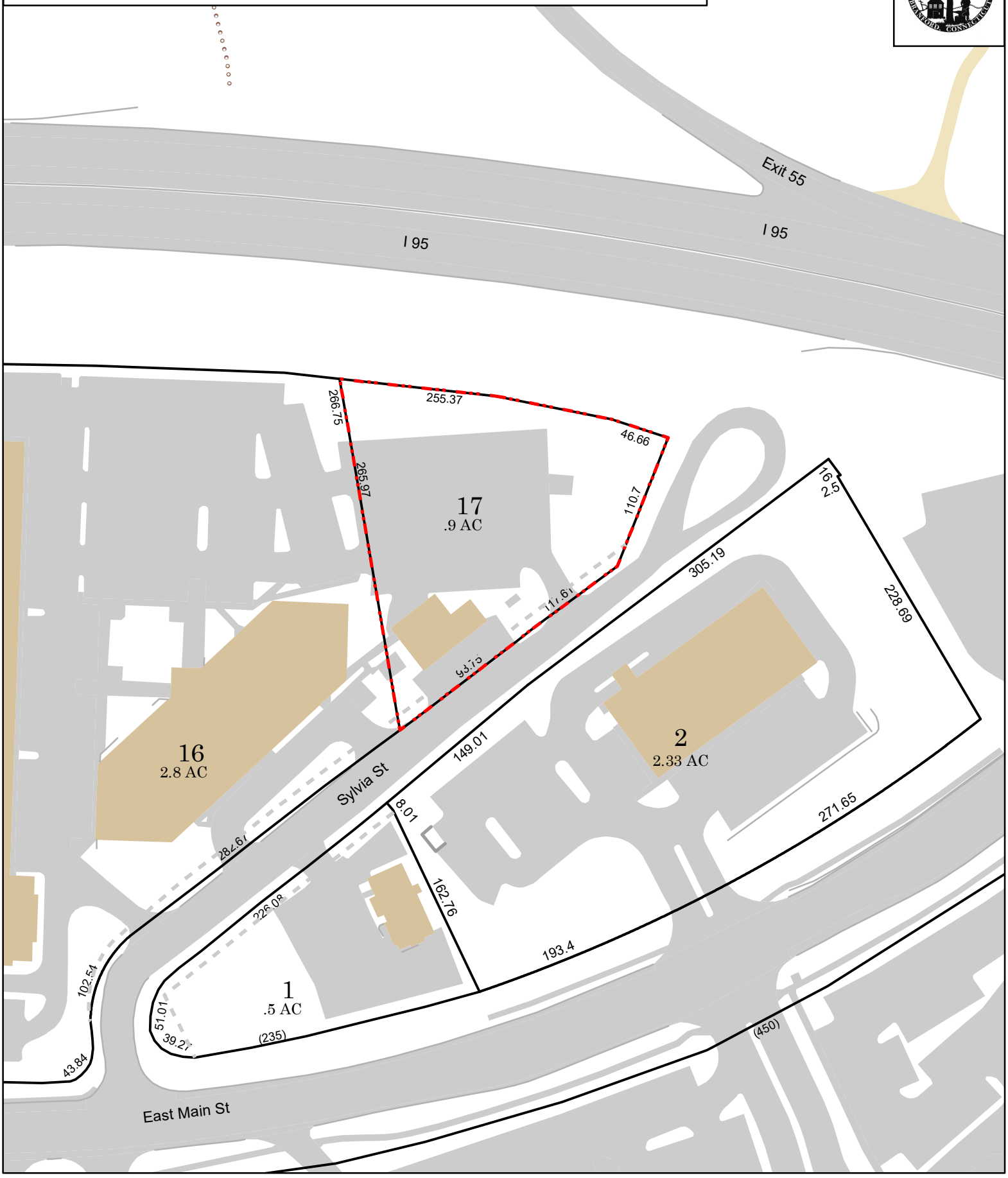
Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$230,700	$481,500	$712,200
2019	$230,700	$481,500	$712,200
2018	$108,000	$467,500	$575,500

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$161,500	$337,100	$498,600
2019	$161,500	$337,100	$498,600
2018	$75,500	$327,300	$402,800

Town of Branford, Connecticut - Assessment Parcel Map

Parcel: G05-F05-004-00017 Address: 10 SYLVIA ST



Approximate Scale: 1 inch : 100 feet

Grand List Date June 2021

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

Exhibit C

Construction Drawings

DISH Wireless L.L.C. SITE ID:

BOHVN00155A

DISH Wireless L.L.C. SITE ADDRESS:

10 SYLVIA ST.
BRANFORD, CT 06405

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:
- INSTALL (1) PROPOSED METAL PLATFORM
- INSTALL (1) PROPOSED ICE BRIDGE
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED SAFETY SWITCH (IF REQUIRED)
- INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)
- DISH Wireless L.L.C. TO UTILIZE EXISTING METER SOCKET

SITE PHOTO

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

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

GENERAL NOTES

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

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

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

SITE INFORMATION

PROPERTY OWNER:	GLOBAL SIGNAL ACQUISITIONS IV LLC
ADDRESS:	PO BOX 277455 ATLANTA, GA 30384-7455
TOWER TYPE:	MONOPOLE
CROWN CASTLE SITE ID:	822765
CROWN CASTLE APP NUMBER:	553373
COUNTY:	NEW HAVEN
LATITUDE (NAD 83):	41° 17' 38.16" N 41.293933° N
LONGITUDE (NAD 83):	72° 47' 8.54" W 72.785706° W
ZONING JURISDICTION:	CONNECTICUT SITING COUNCIL
ZONING DISTRICT:	BL
PARCEL NUMBER:	G05/F05/004/00017
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	CONNECTICUT LIGHT & POWER
TELEPHONE COMPANY:	COMCAST

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:	JAVIER SOTO JAVIER.SOTO@DISH.COM
RF ENGINEER:	SYED ZAIDI SYED.ZAIDI@DISH.COM

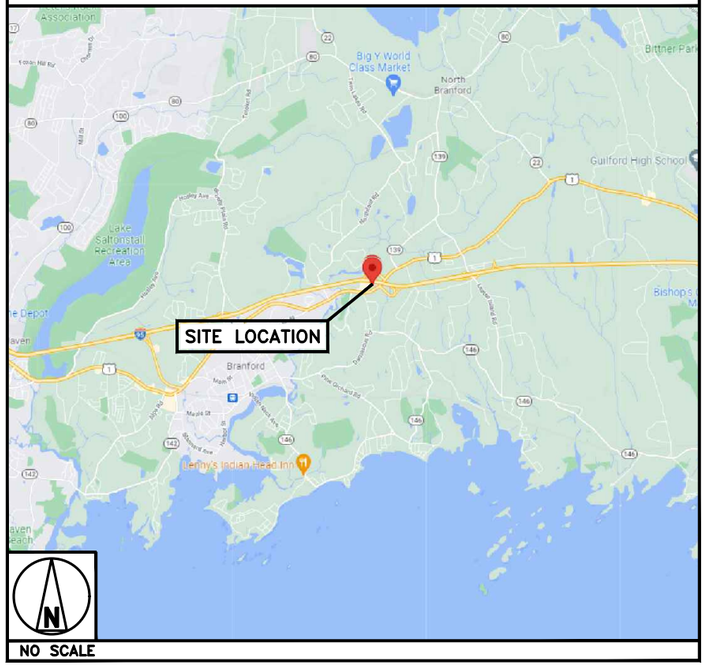
DIRECTIONS

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

DIRECTIONS FROM RHODE ISLAND T.F. GREEN INTERNATIONAL AIRPORT:

x GET ON I-95 S FROM WARWICK INDUSTRIAL DR AND MAIN AVE (3.5 MI)
x FOLLOW I-95 S TO US-1 S IN BRANFORD. TAKE EXIT 55 FROM I-99 S (84.9 MI)
x FOLLOW US-1 S AND SYLVIA ST TO YOUR DESTINATION (0.4 MI)

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 K. BREWER
29510
LICENSED
PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
STR	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	10/01/2021	ISSUED FOR REVIEW
0	03/01/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
KHCLE-16446

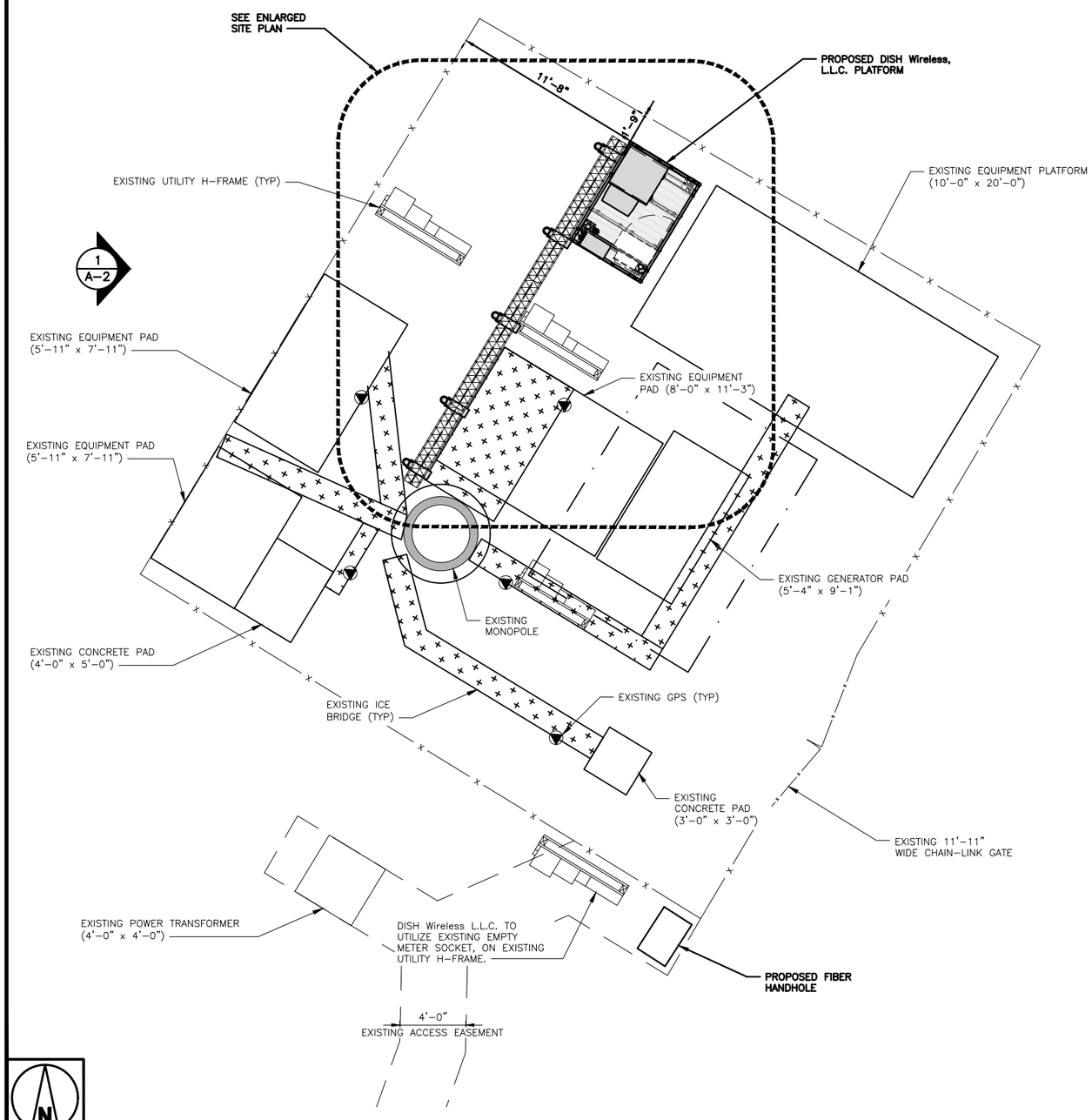
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00155A
10 SYLVIA ST.
BRANFORD, CT 06405

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

NOTES

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



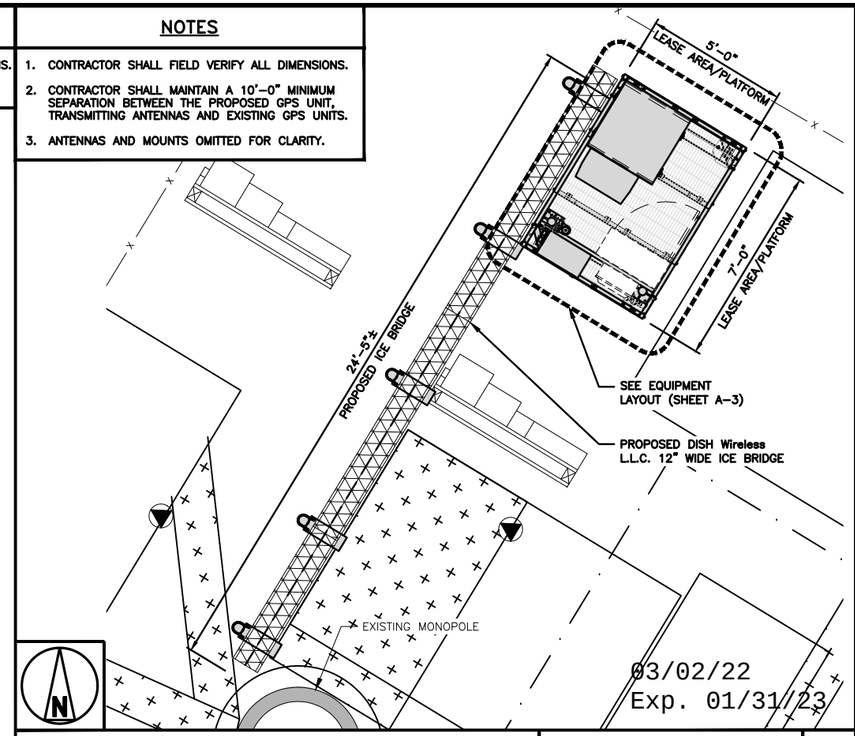
OVERALL SITE PLAN

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

1

NOTES

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



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

ENLARGED SITE PLAN

12" 6" 0 1' 2' 3' 4' 5' 6' 7'
3/8"=1'-0"

2

OVERALL UTILITY ROUTE PLAN

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:
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DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00155A
10 SYLVIA ST.
BRANFORD, CT 06405

SHEET TITLE

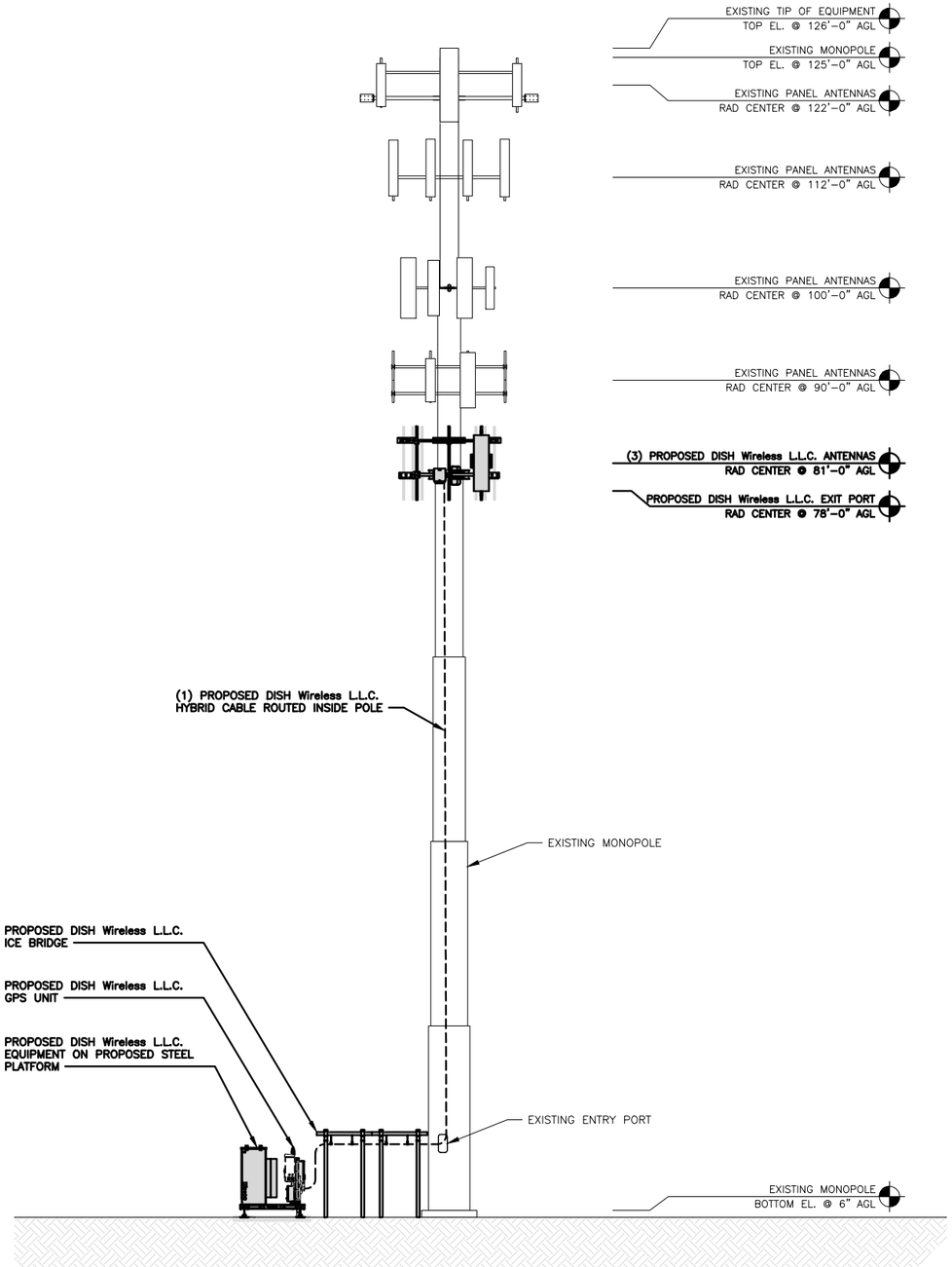
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

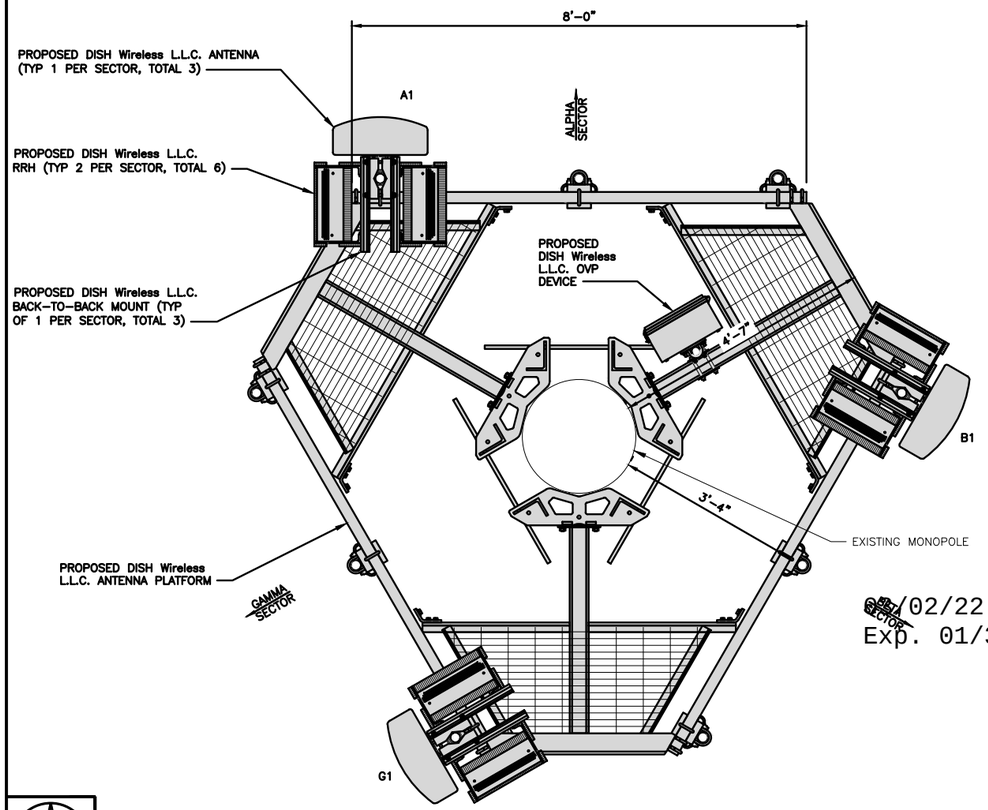
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED WEST ELEVATION

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

1



ANTENNA LAYOUT

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

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	0°	81'-0"	(1) HIGH-CAPACITY HYBRID CABLE (130'-0" LONG)
BETA	B1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	120°	81'-0"	
GAMMA	G1	PROPOSED	JMA – MX08FRO665-21	5G	72.0" x 20.0"	240°	81'-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 K. BREWER
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Exp. 01/31/23

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DISH Wireless L.L.C.
PROJECT INFORMATION

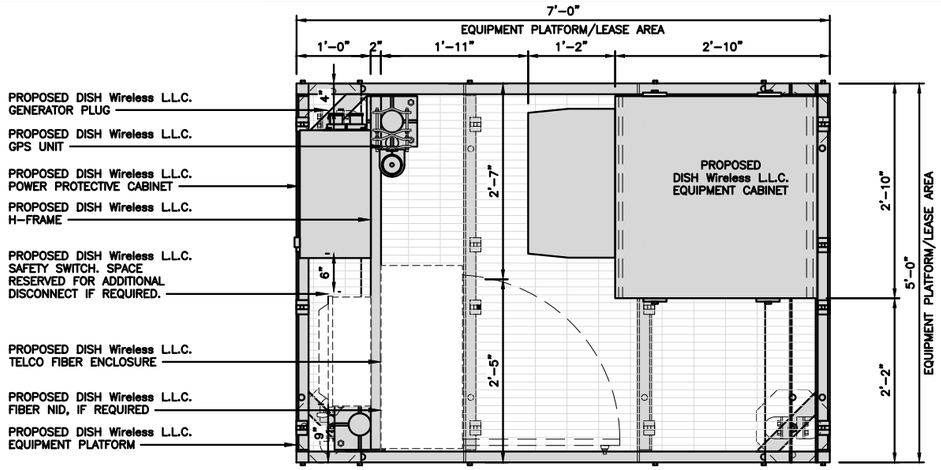
BOHVN00155A
10 SYLVIA ST.
BRANFORD, CT 06405

SHEET TITLE

ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



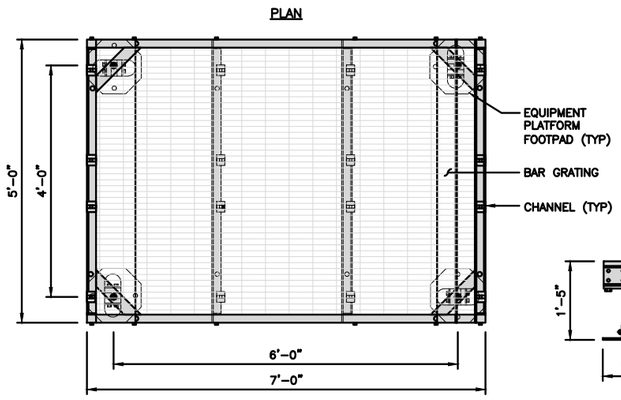
PLATFORM EQUIPMENT PLAN

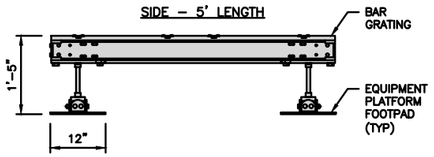
12" 9" 6" 3" 0 1' 2'
1"=1'-0"

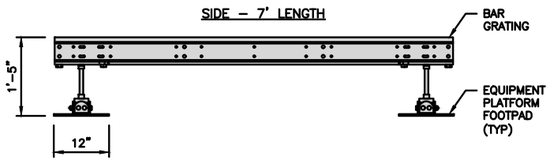
1

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"





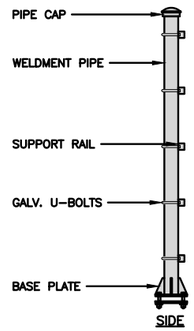


PLATFORM DETAIL

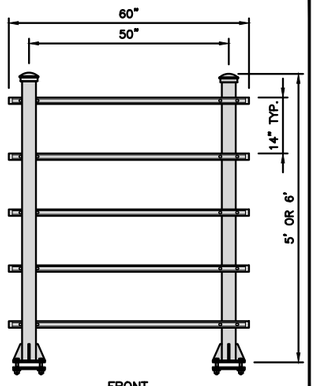
NO SCALE

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

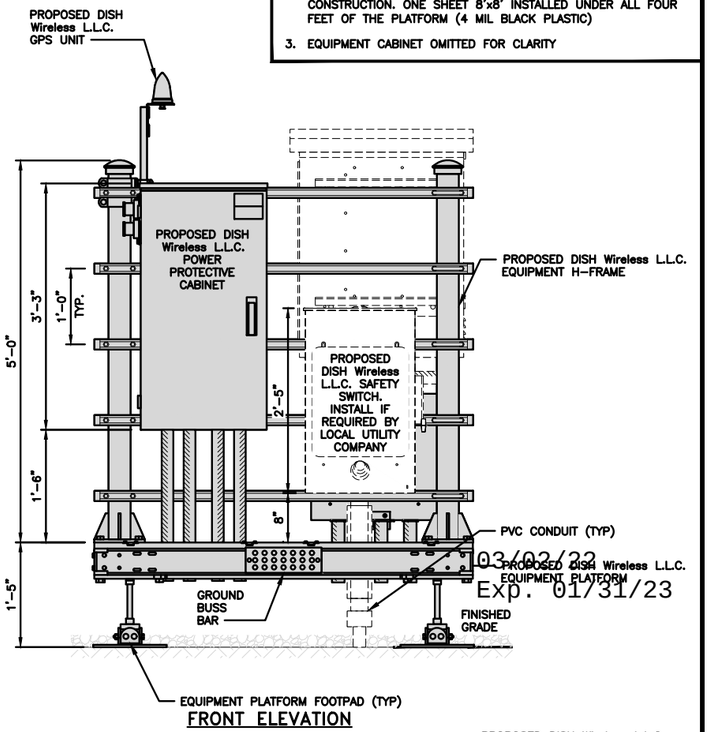
NOT USED

NO SCALE

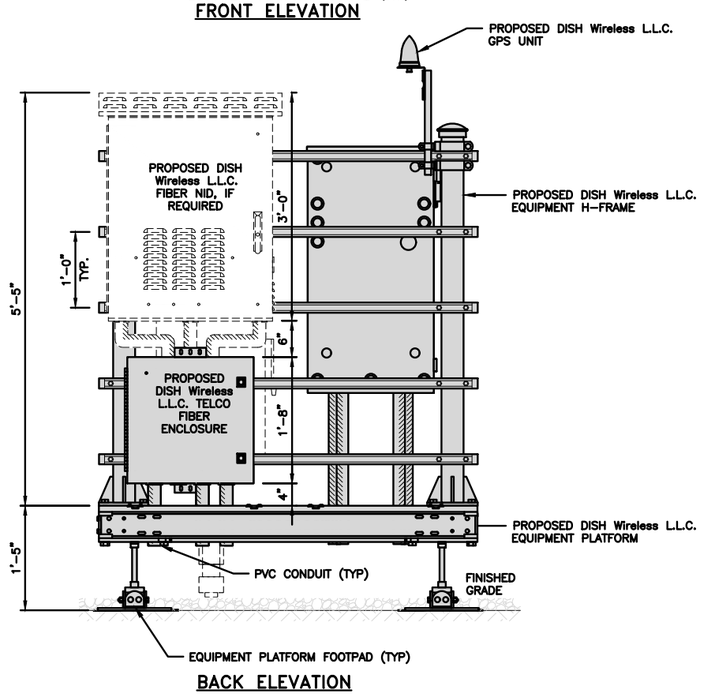
4

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

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RALEIGH, NC 27601

STATE OF CONNECTICUT
BRIAN K. BREWER
29510
LICENSED PROFESSIONAL ENGINEER
03/02/22
Exp. 01/31/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
STR	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	10/01/2021	ISSUED FOR REVIEW
0	03/01/2022	ISSUED FOR CONSTRUCTION

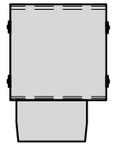
A&E PROJECT NUMBER
KHCLE-16446

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00155A
10 SYLVIA ST.
BRANFORD, CT 06405

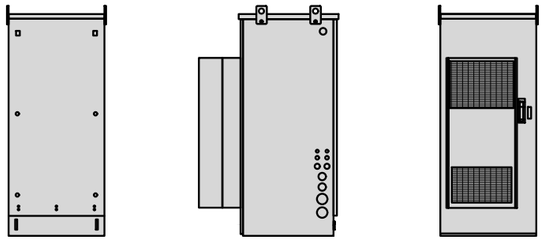
SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

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

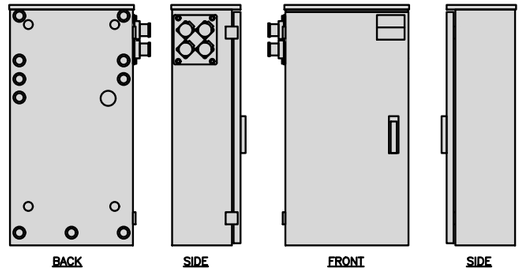


BACK SIDE FRONT

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

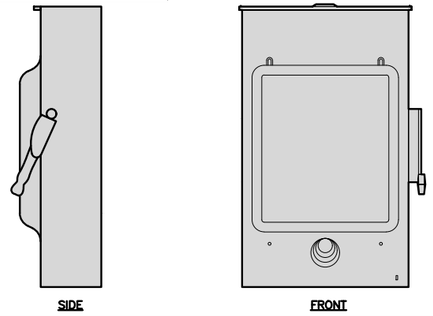


BACK SIDE FRONT SIDE

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

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

TOP



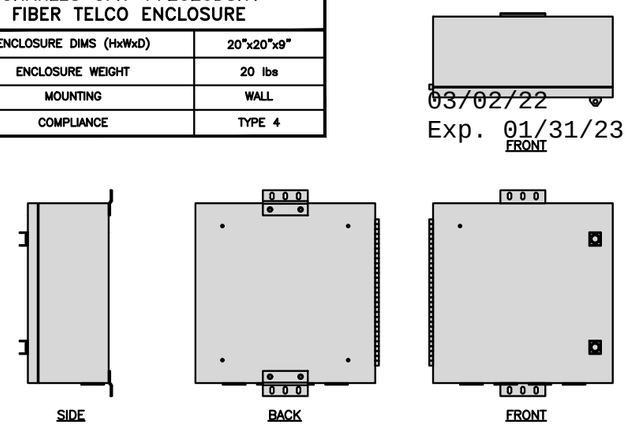
SIDE FRONT

SAFETY SWITCH DETAIL | 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



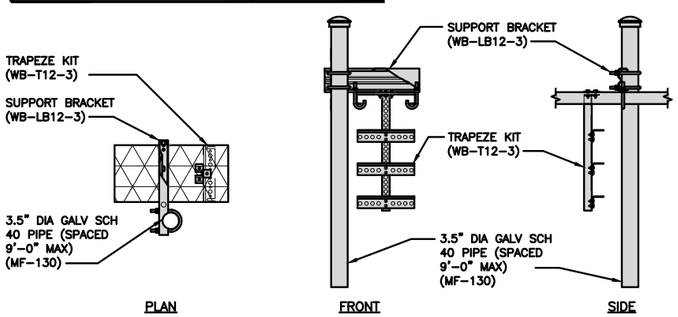
FRONT

SIDE BACK FRONT

FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

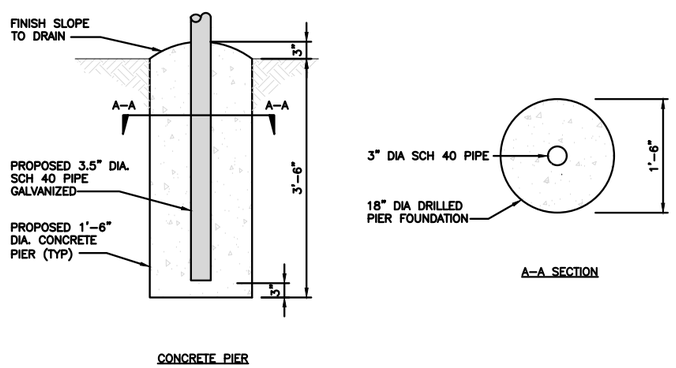
COMMSCOPE WB–K110–B WAVEGUIDE BRIDGE KIT	
DIMENSIONS (HxL)	160"x10'
WEIGHT/ VOLUME	325.0 LBS
CABLE RUN (QTY)	12

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



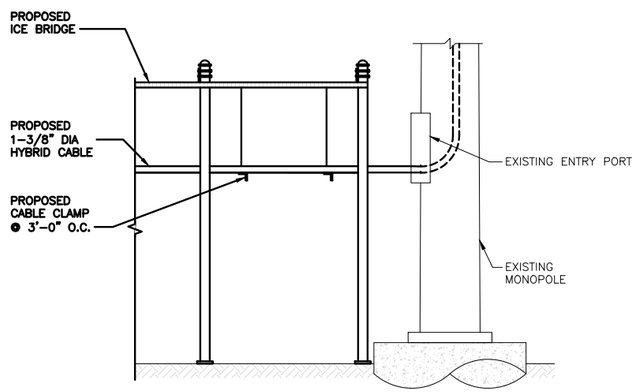
PLAN FRONT SIDE

ICE BRIDGE DETAIL | NO SCALE | 7



CONCRETE PIER A–A SECTION

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

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STATE OF CONNECTICUT BRIAN C. BREWER 29510 LICENSED PROFESSIONAL ENGINEER

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

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RFDS REV #: ---

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00155A
10 SYLVIA ST.
BRANFORD, CT 06405

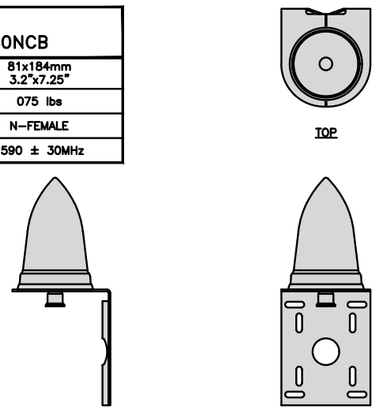
SHEET TITLE

EQUIPMENT DETAILS

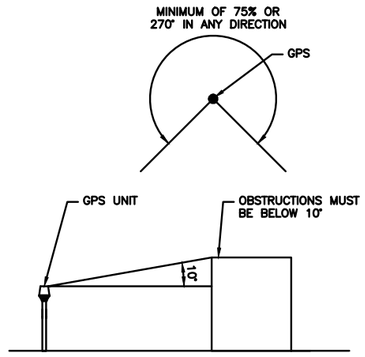
SHEET NUMBER

A-4

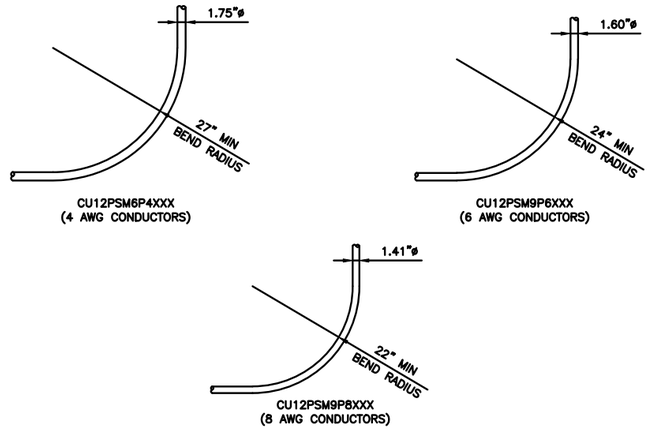
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



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

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STATE OF CONNECTICUT
BRIAN K. BREWER
29510
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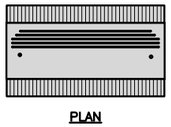
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00155A
10 SYLVIA ST.
BRANFORD, CT 06405

SHEET TITLE
EQUIPMENT DETAILS

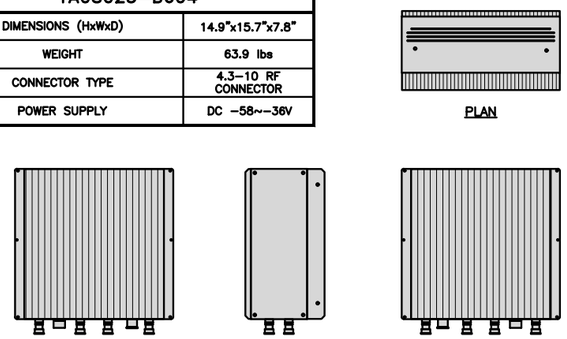
SHEET NUMBER
A-5

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

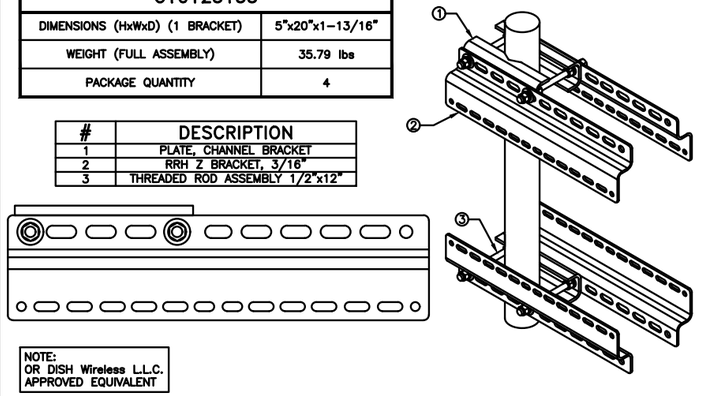
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



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

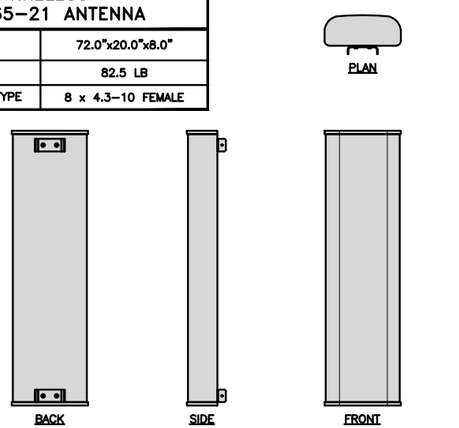
#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/16"
3	THREADED ROD ASSEMBLY 1/2"x12"



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



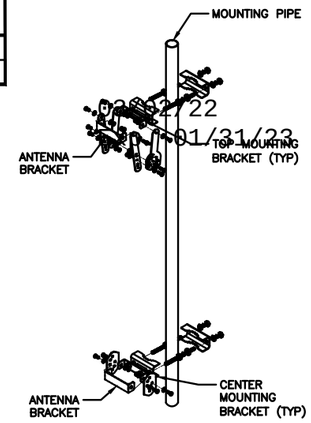
ANTENNA DETAIL | NO SCALE | 4

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

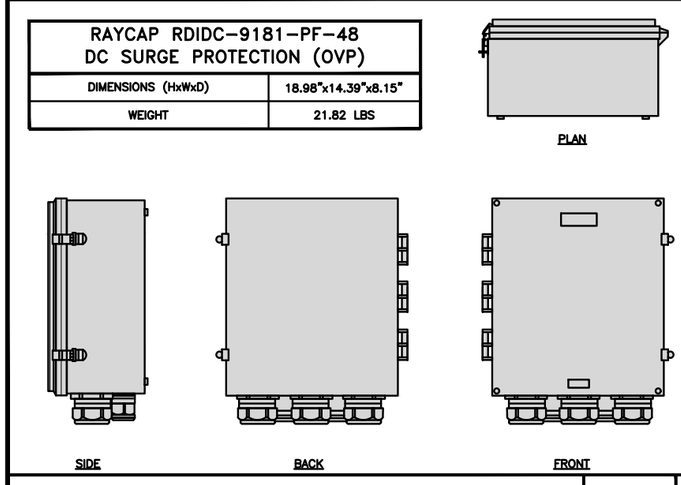
NOTE:
KIT #91900318: TOP AND BOTTOM BRACKETS FOR 4-,6-, AND 8-FOOT ANTENNAS

ANTENNA BRACKET NOT PART OF KIT



ANTENNA BRACKET DETAIL | NO SCALE | 6

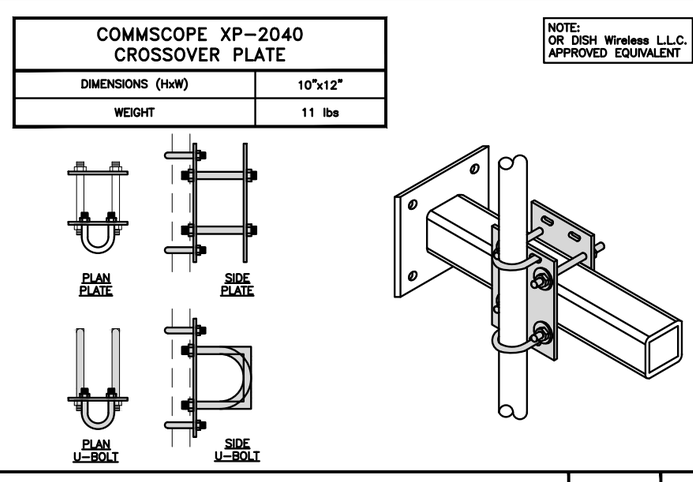
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

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

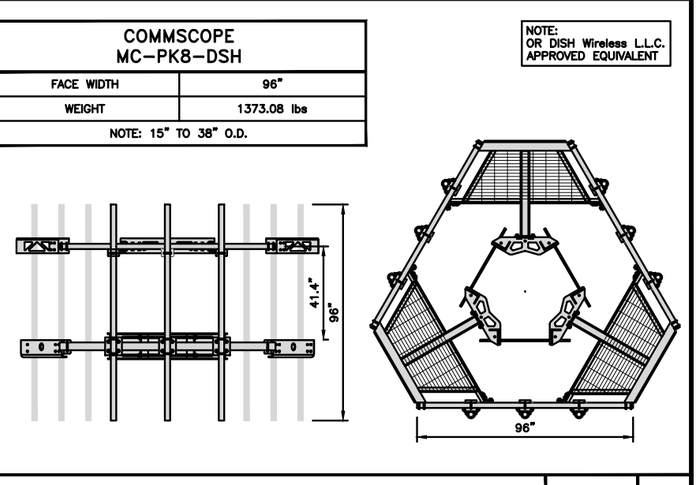
NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT



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

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01/31/22

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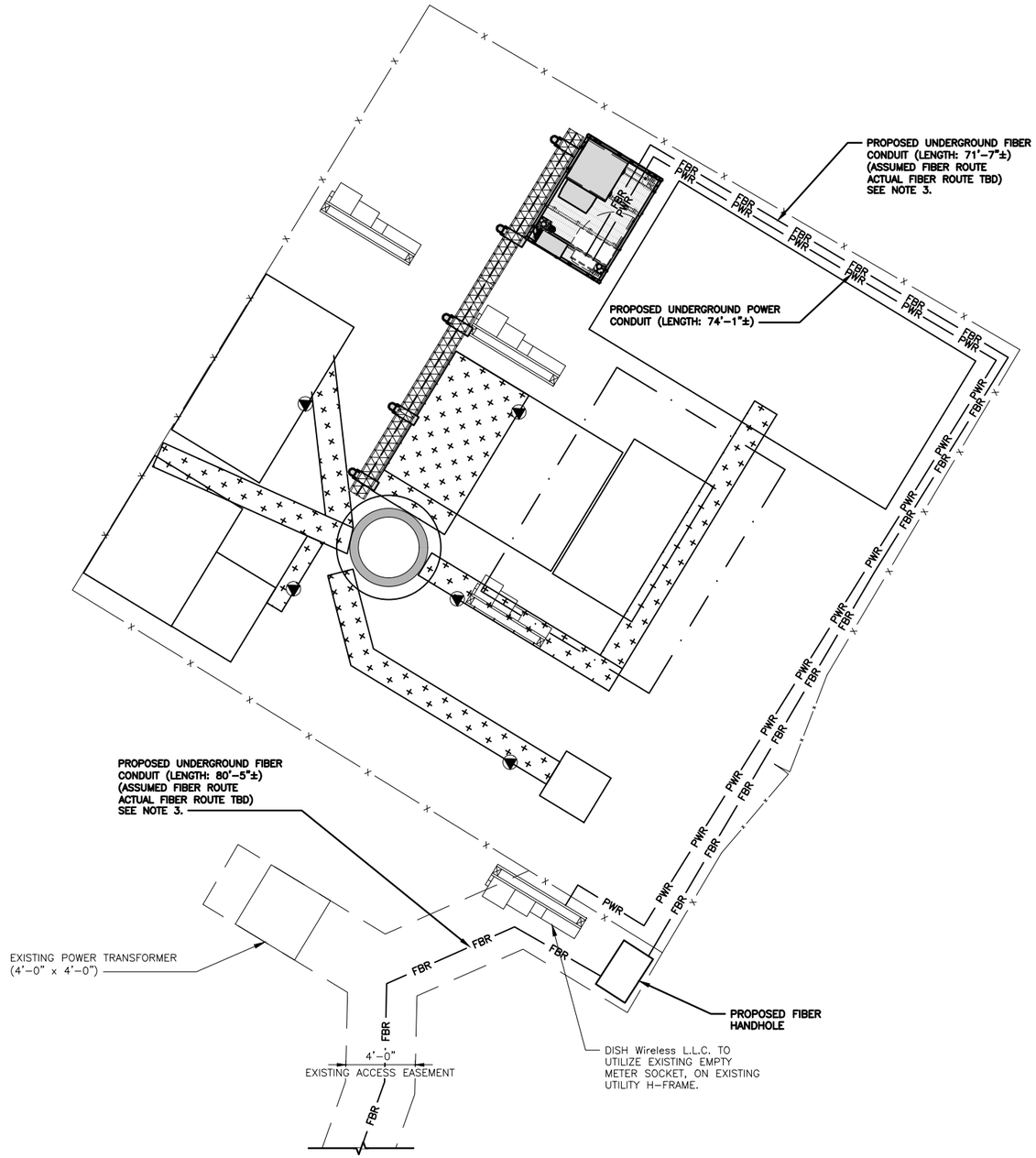
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00155A
10 SYLVIA ST.
BRANFORD, CT 06405

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



UTILITY ROUTE PLAN

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

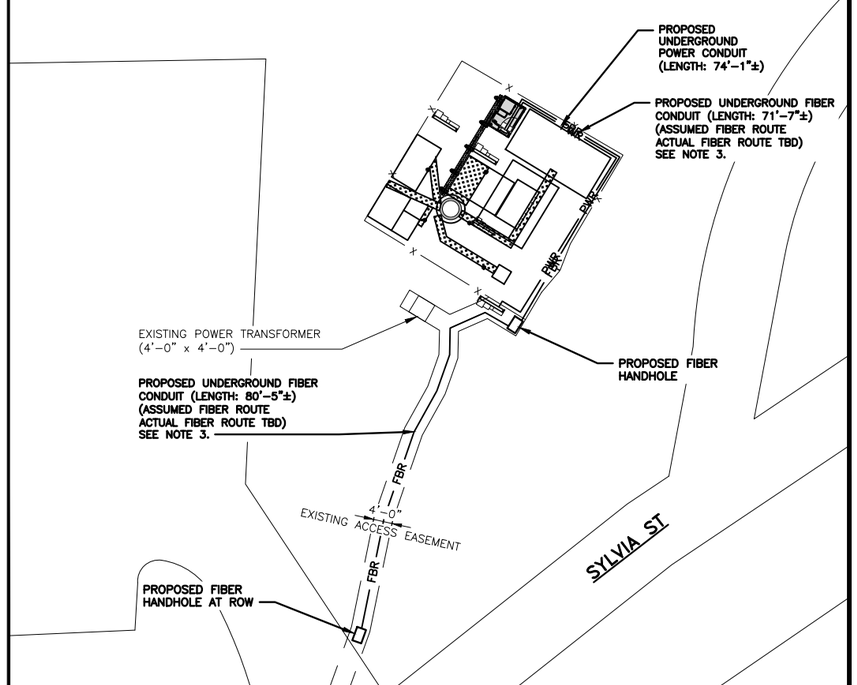
1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION,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

16' 12' 8' 4' 0 16' 32'
1/16"=1'–0"

3

dish wireless.

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10 SYLVIA ST.
BRANFORD, CT 06405

SHEET TITLE

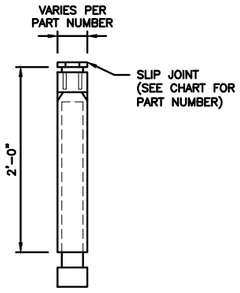
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

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"

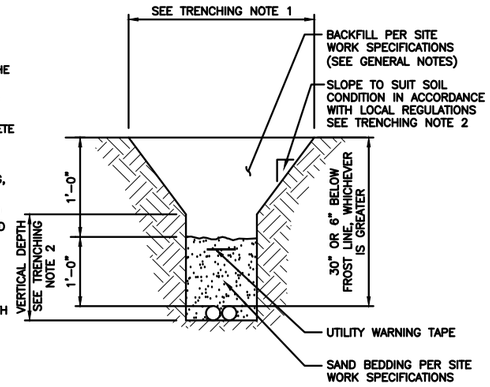


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

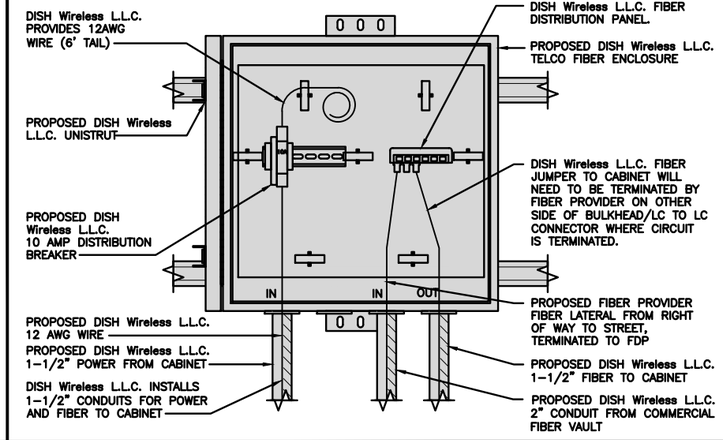
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

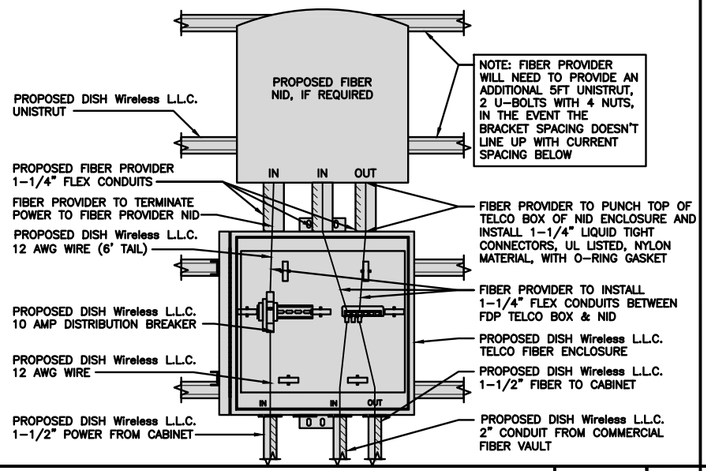
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT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

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LITTLETON, CO 80120

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COA #: PEC.0000738
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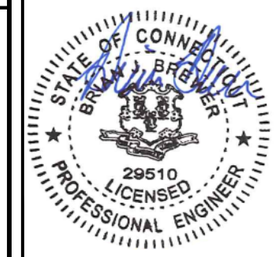

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STR	MCK	---

RFDS REV #: ---

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SUBMITTALS

REV	DATE	DESCRIPTION
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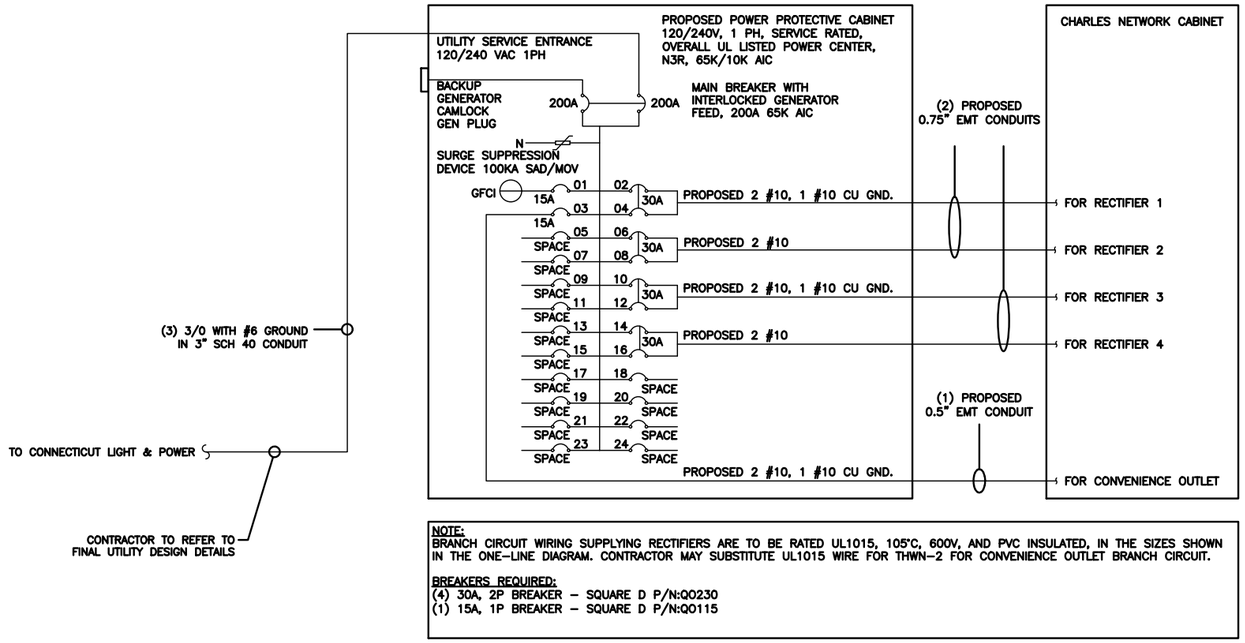
A&E PROJECT NUMBER
KHCLE-16446

DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00155A
10 SYLVIA ST.
BRANFORD, CT 06405

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.

PPC ONE-LINE DIAGRAM

NO SCALE | 1

PROPOSED CHARLES PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	30A	2880		ABB/GE INFINITY RECTIFIER 1
CHARLES GFCI OUTLET		180	15A	3	B	4			2880	
–SPACE–				5	A	6	30A	2880		ABB/GE INFINITY RECTIFIER 2
–SPACE–				7	B	8			2880	
–SPACE–				9	A	10	30A	2880		ABB/GE INFINITY RECTIFIER 3
–SPACE–				11	B	12			2880	
–SPACE–				13	A	14	30A	2880		ABB/GE INFINITY RECTIFIER 4
–SPACE–				15	B	16			2880	
–SPACE–				17	A	18				–SPACE–
–SPACE–				19	B	20				–SPACE–
–SPACE–				21	A	22				–SPACE–
–SPACE–				23	B	24				–SPACE–
VOLTAGE AMPS	180	180						11520	11520	
200A MCB, 1φ, 24 SPACE, 120/240V			L1		L2					
MB RATING: 65,000 AIC			11700		11700		VOLTAGE AMPS			
			98		98		AMPS			
			98				MAX AMPS			
			123				MAX 125%			

PANEL SCHEDULE

NO SCALE | 2

NOT USED

NO SCALE | 3

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STATE OF CONNECTICUT BRIAN K. BREWER 29510 LICENSED PROFESSIONAL ENGINEER
03/02/22
Exp. 01/31/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
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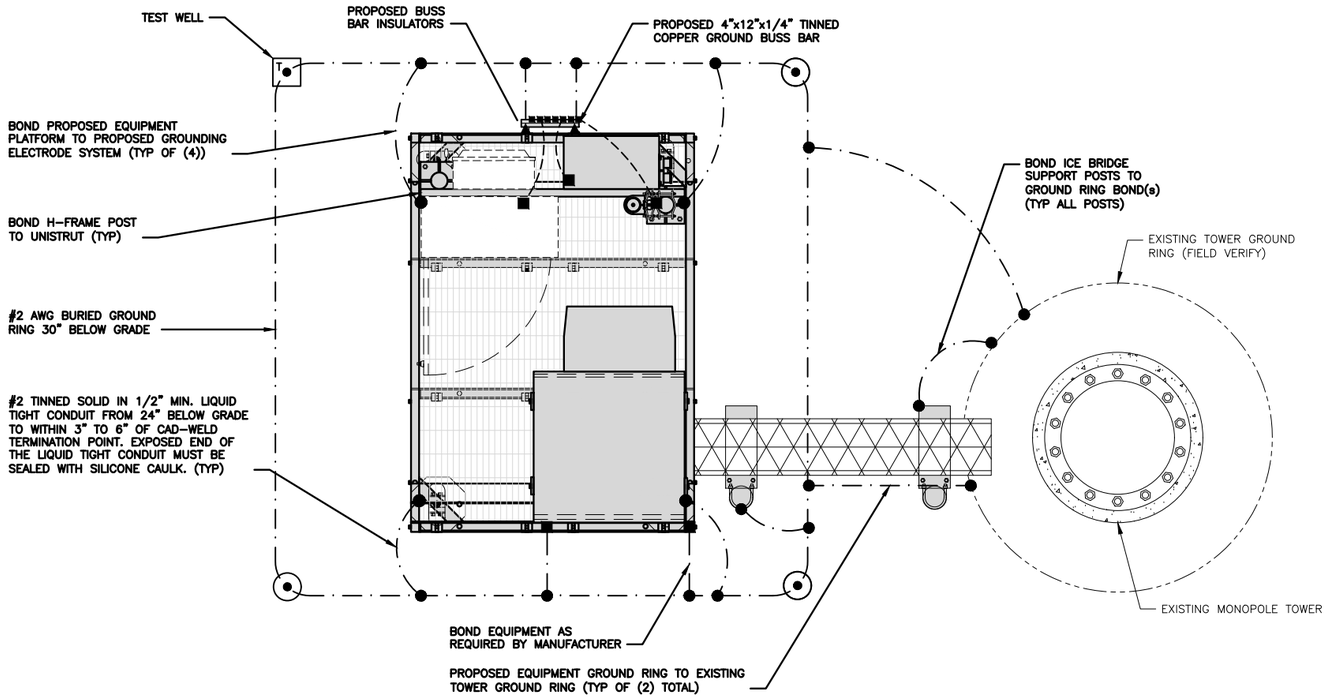
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00155A
10 SYLVIA ST.
BRANFORD, CT 06405

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

SHEET NUMBER
E-3

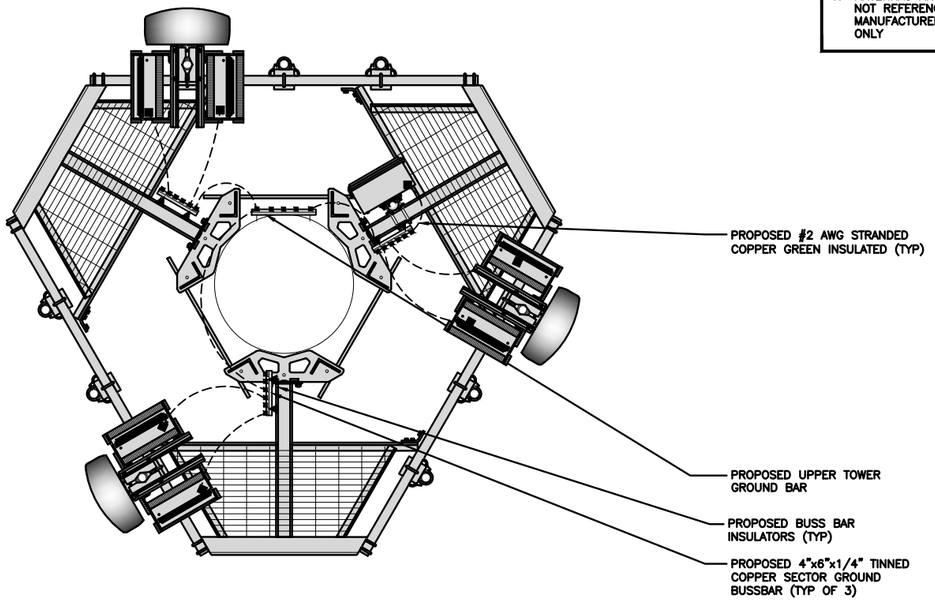


TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE | 1

NOTES

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



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE | 2

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GROUNDING KEY NOTES

NO SCALE | 3

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STATE OF CONNECTICUT BRIAN C. BREWER 29510 LICENSED PROFESSIONAL ENGINEER

03/02/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
STR	MCK	---

RFDS REV #: ---

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SUBMITTALS

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A&E PROJECT NUMBER
KHCLE-16446

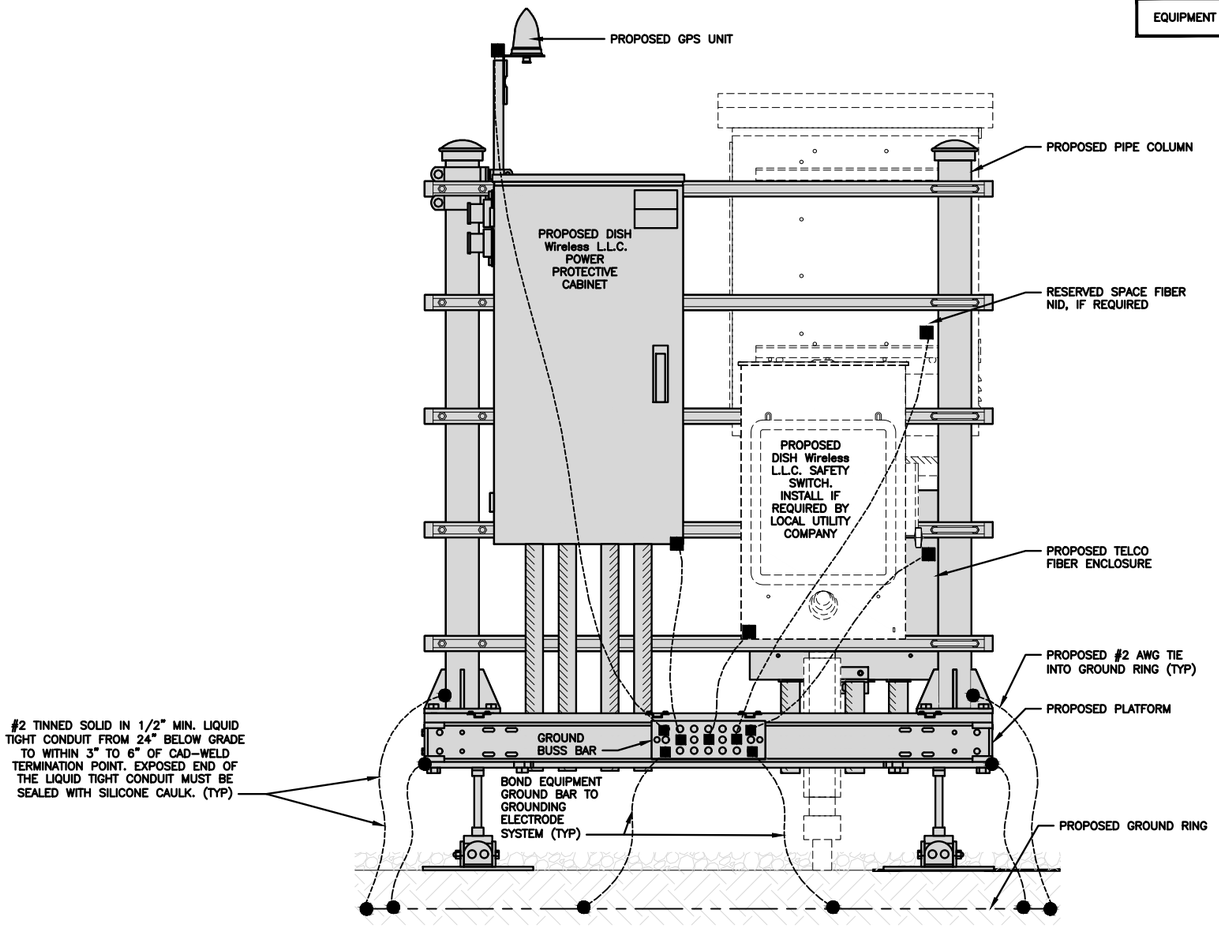
DISH Wireless L.L.C.
PROJECT INFORMATION
BOHVN00155A
10 SYLVIA ST.
BRANFORD, CT 06405

SHEET TITLE
GROUNDING PLANS AND NOTES

SHEET NUMBER
G-1

NOTES

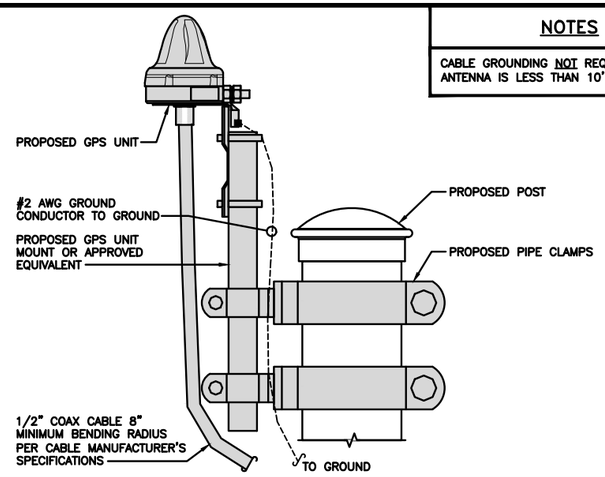
EQUIPMENT CABINET OMITTED FOR CLARITY



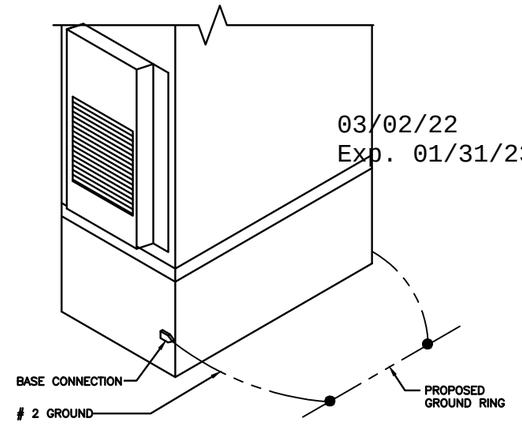
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

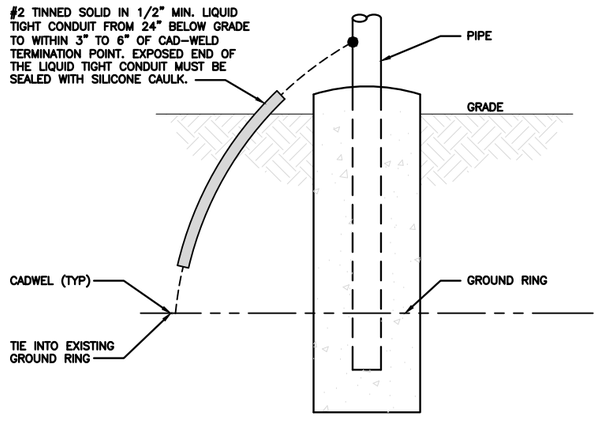
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



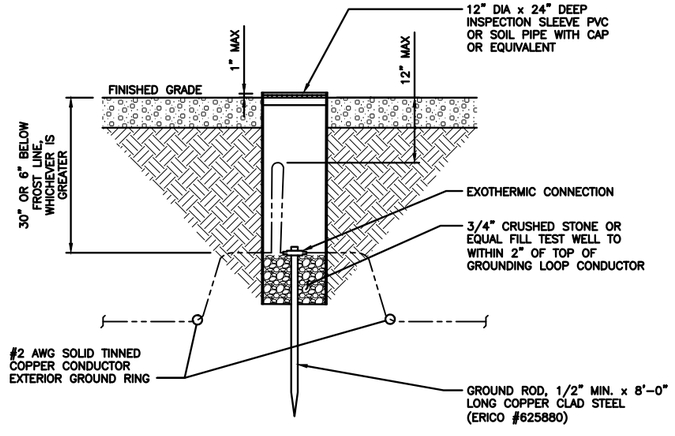
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



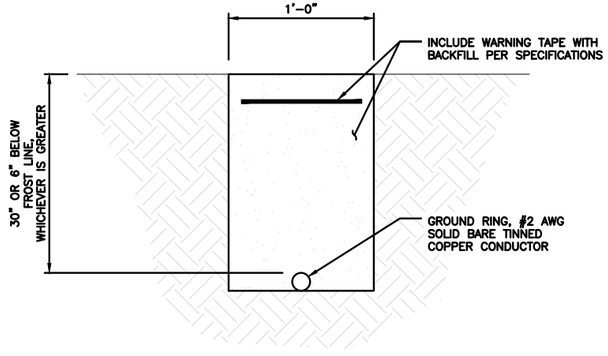
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



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



TYPICAL GROUND RING TRENCH | NO SCALE | 6

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

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SHEET TITLE

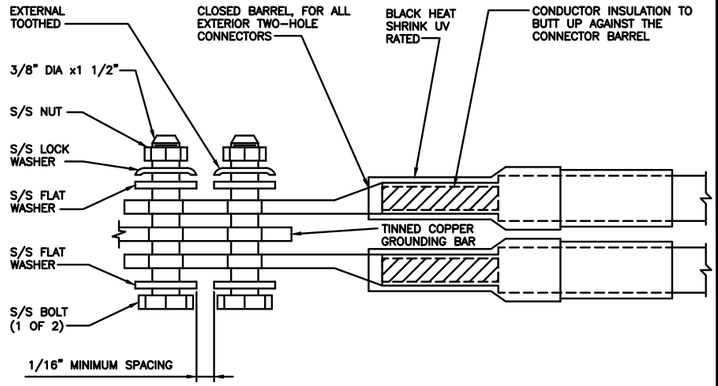
GROUNDING DETAILS

SHEET NUMBER

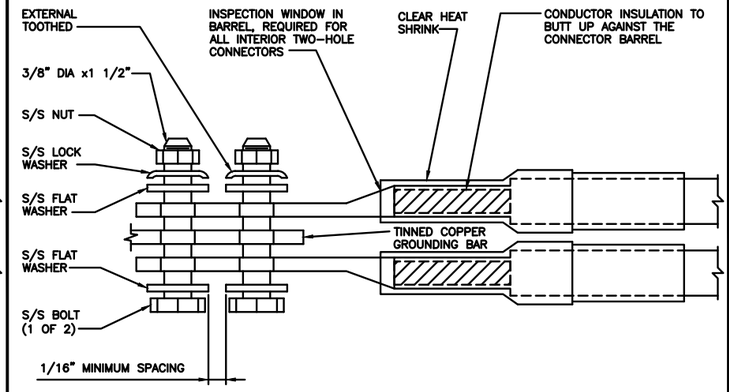
G-2

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

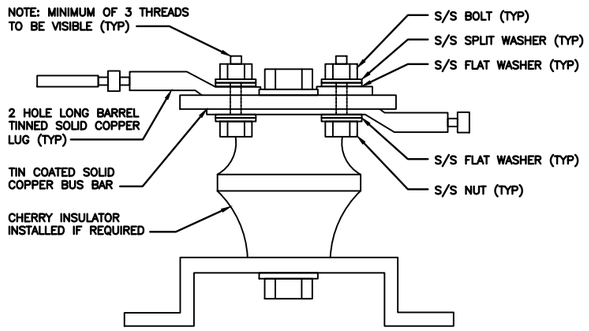
TYPICAL GROUNDING NOTES | NO SCALE | 1



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
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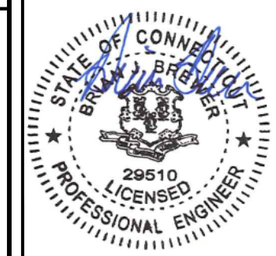

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BRANFORD, CT 06405

SHEET TITLE
GROUNDING DETAILS

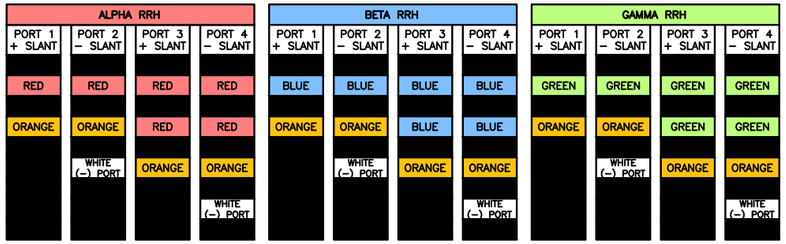
SHEET NUMBER
G-3

RF JUMPER COLOR CODING

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

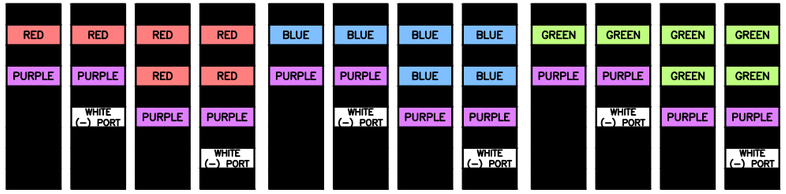
LOW-BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

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)

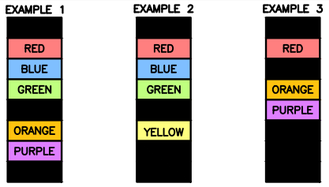


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED
ALONG WITH FREQUENCY BANDS

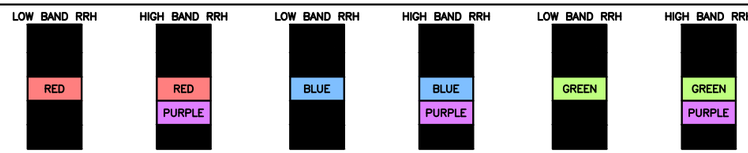
EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS
ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS

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



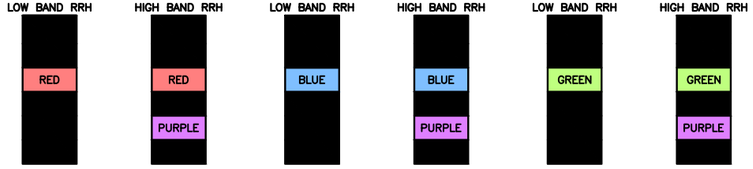
FIBER JUMPERS TO RRHs

LOW-BAND RRH FIBER CABLES HAVE SECTOR
STRIPE ONLY

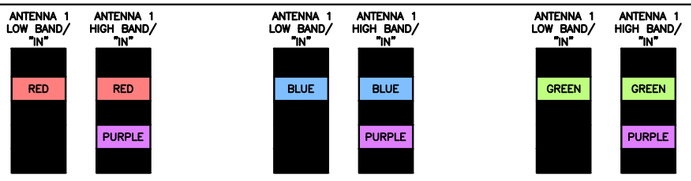


POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY



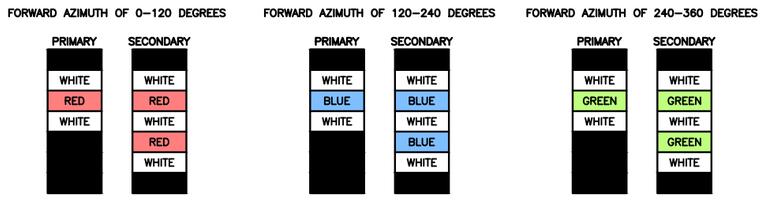
RET MOTORS AT ANTENNAS



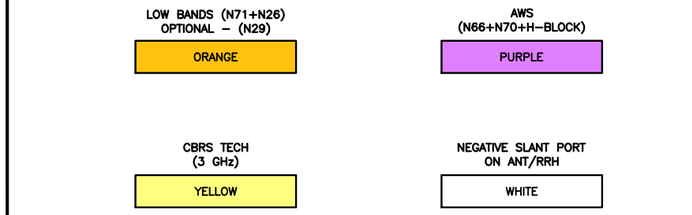
MICROWAVE RADIO LINKS

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

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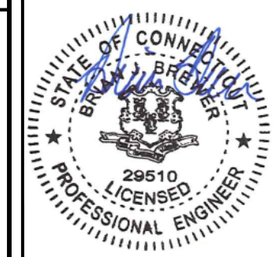
COA #: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601



DRAWN BY:	CHECKED BY:	APPROVED BY:
STR	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	10/01/2021	ISSUED FOR REVIEW
0	03/01/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE-16446

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00155A
10 SYLVIA ST.
BRANFORD, CT 06405

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 C. BREWER
29510
LICENSED
PROFESSIONAL ENGINEER

DRAWN BY:	CHECKED BY:	APPROVED BY:
STR	MCK	---

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CONSTRUCTION DOCUMENTS

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A&E PROJECT NUMBER

KHCLE–16446

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00155A
10 SYLVIA ST.
BRANFORD, CT 06405

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
BRENDAN C. BREWER
29510
LICENSED PROFESSIONAL ENGINEER

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
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RFDS REV #: ---

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00155A
10 SYLVIA ST.
BRANFORD, CT 06405

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.

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 C. BREWER
29510
LICENSED
PROFESSIONAL ENGINEER

03/02/22
EXPIRATION DATE: 01/31/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
STR	MCK	---

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	10/01/2021	ISSUED FOR REVIEW
0	03/01/2022	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

KHCLE-16446

DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00155A
10 SYLVIA ST.
BRANFORD, CT 06405

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

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421 FAYETTEVILLE ST, SUITE 600
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DISH Wireless L.L.C.
PROJECT INFORMATION

BOHVN00155A
10 SYLVIA ST.
BRANFORD, CT 06405

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

Exhibit D

Structural Analysis Report

Date: **September 22, 2021**

Crown Castle
2000 Corporate Dr.
Canonsburg, PA
(724) 416-2000

Subject:	**Structural Analysis Report**	
Carrier Designation:	***DISH Network* Co-Locate**	
	Site Number:	BOHVN00155A
	Site Name:	CT-CCI-T-822765
Crown Castle Designation:	**BU Number:**	822765
	Site Name:	Branford/ I-95/ X55/ Dtn1
	JDE Job Number:	645122
	Work Order Number:	1962851
	Order Number:	553373 Rev. 1
Engineering Firm Designation:	**Crown Castle Project Number:**	1962851
Site Data:	**10 Sylvia St., Branford, New Haven County, CT**	
	Latitude *41° 17' 38.16"*, Longitude *-72° 47' 8.54"*	
	125 Foot - Monopole Tower	

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

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

LC7: Proposed Equipment Configuration **Sufficient Capacity-**85.7%

This analysis utilizes an ultimate 3-second gust wind speed of 122 mph as required by the 2015 International Building Code. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Alexander Greguric, E.I.T.

Respectfully submitted by:

Maribel Dentinger

Maribel Dentinger, P.E.
Senior Project Engineer

Maribel Dentinger

Digitally signed by Maribel Dentinger
Date: 2021.09.23 13:18:28 -04'00'

STATE OF CONNECTICUT
MARIBEL DENTINGER
23524
LICENSED
PROFESSIONAL ENGINEER

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 125 ft Monopole tower designed by PIROD MANUFACTURES INC. The tower has been modified in the past to accommodate additional loading.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	122 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)
81.0	81.0	3	fujitsu	TA08025-B604	1	1-3/8
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-PK8-DSH		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
122.0	122.0	3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	10	1-5/8
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe		
		3	ericsson	KRY 112 144/1		
		3	ericsson	RADIO 4449 B71/B85A		
		3	rfs celwave	APXVAALL24_43-U-NA20 w/ Mount Pipe		
		1	tower mounts	Platform Mount [LP 405-1_HR-1]		
112.0	113.0	3	andrew	HBXX-6517DS-A2M w/ Mount Pipe	2	1-5/8
		6	jma wireless	MX06FRO660-03 w/ Mount Pipe		
		2	raycap	RXXDC-3315-PF-48		
		3	samsung telecom	MT6407-77A w/ Mount Pipe		
		3	samsung telecom	RFV01U-D1A		
		3	samsung telecom	RFV01U-D2A		
	112.0	1	tower mounts	Platform Mount [LP 303-1]		
		3	tower mounts	Side Arm Mount [SO 102-1]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
100.0	100.0	3	andrew	SBNHH-1D65A w/ Mount Pipe	2 6 12	3/8 3/4 1-1/4
		1	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe		
		3	ericsson	RRUS 32		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 8843 B2/B66A		
		4	kathrein	80010964 w/ Mount Pipe		
		2	kathrein	80010965 w/ Mount Pipe		
		2	powerwave technologies	7770.00 w/ Mount Pipe		
		6	powerwave technologies	LGP21401		
		3	raycap	DC6-48-60-18-8F		
		1	tower mounts	T-Arm Mount [TA 602-3]		
90.0	90.0	3	alcatel lucent	PCS 1900MHZ 4X45W-65MHZ	3 4	1/2 1-1/4
		6	alcatel lucent	RRH2X50-800		
		3	commscope	NNVV-65B-R4 w/ Mount Pipe		
		3	nokia	FZHN		
		3	rfs celwave	APXVTM14-ALU-I20 w/ Mount Pipe		
		1	tower mounts	Platform Mount [LP 303-1_KCKR-HR-1]		
	88.0	2		Dragonwave A-ANT-18G-2-C		
		3	dragonwave	AIRPAIR ODU		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	3552247	CCISITES
4-POST-MODIFICATION INSPECTION	6215120	CCISITES
4-POST-MODIFICATION INSPECTION	5937826	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	3910040	CCISITES
4-TOWER MANUFACTURER DRAWINGS	3552248	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	5952282	CCISITES

3.1) Analysis Method

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

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

3.2) Assumptions

1) Tower and structures were maintained in accordance with the TIA-222 Standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
125 - 120	Pole	TP24x24x0.375	Pole	1.5%	Pass
120 - 115	Pole	TP24x24x0.375	Pole	4.1%	Pass
115 - 110	Pole	TP24x24x0.375	Pole	9.2%	Pass
110 - 105	Pole	TP24x24x0.375	Pole	15.6%	Pass
105 - 100	Pole	TP24x24x0.375	Pole	22.3%	Pass
100 - 95	Pole	TP30x30x0.375	Pole	21.4%	Pass
95 - 90	Pole	TP30x30x0.375	Pole	27.9%	Pass
90 - 85	Pole	TP30x30x0.375	Pole	36.3%	Pass
85 - 80	Pole	TP30x30x0.375	Pole	45.1%	Pass
80 - 75.7	Pole	TP36x36x0.375	Pole	38.2%	Pass
75.7 - 75.45	Pole + Reinf.	TP36x36x0.5625	Reinf. 4 Compression	30.3%	Pass
75.45 - 70.45	Pole + Reinf.	TP36x36x0.5625	Reinf. 4 Compression	35.9%	Pass
70.45 - 65.45	Pole + Reinf.	TP36x36x0.5625	Reinf. 4 Compression	41.7%	Pass
65.45 - 60.45	Pole + Reinf.	TP36x36x0.5625	Reinf. 4 Compression	47.7%	Pass
60.45 - 60	Pole + Reinf.	TP36x36x0.5625	Reinf. 4 Compression	48.2%	Pass
60 - 59.75	Pole + Reinf.	TP42x42x0.525	Pole	33.0%	Pass
59.75 - 54.75	Pole + Reinf.	TP42x42x0.525	Pole	37.1%	Pass
54.75 - 49.75	Pole + Reinf.	TP42x42x0.525	Pole	41.3%	Pass
49.75 - 44.75	Pole + Reinf.	TP42x42x0.525	Pole	45.6%	Pass
44.75 - 40	Pole + Reinf.	TP42x42x0.525	Pole	49.8%	Pass
40 - 39.75	Pole + Reinf.	TP48x48x0.5563	Pole	36.9%	Pass
39.75 - 34.75	Pole + Reinf.	TP48x48x0.5563	Pole	40.2%	Pass
34.75 - 29.75	Pole + Reinf.	TP48x48x0.5563	Pole	43.6%	Pass
29.75 - 24.75	Pole + Reinf.	TP48x48x0.5563	Pole	47.0%	Pass
24.75 - 20	Pole + Reinf.	TP48x48x0.5563	Pole	50.3%	Pass
20 - 19.75	Pole + Reinf.	TP54x54x0.5875	Pole	38.5%	Pass
19.75 - 14.75	Pole + Reinf.	TP54x54x0.5875	Pole	41.2%	Pass
14.75 - 9.75	Pole + Reinf.	TP54x54x0.5875	Pole	44.0%	Pass
9.75 - 4.75	Pole + Reinf.	TP54x54x0.5875	Pole	46.8%	Pass
4.75 - 4.38	Pole + Reinf.	TP54x54x0.5875	Pole	47.0%	Pass
4.38 - 4.13	Pole + Reinf.	TP54x54x0.4875	Pole	58.9%	Pass
4.13 - 0	Pole + Reinf.	TP54x54x0.4875	Pole	61.8%	Pass
				Summary	
			Pole	61.8%	Pass
			Reinforcement	48.2%	Pass
			Overall	61.8%	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Flange Connection	100	22.3	Pass
1	Flange Connection	80	48.8	Pass
1	Flange Connection	60	63.3	Pass
1	Flange Connection	40	75.8	Pass
1	Flange Connection	20	59.1	Pass
1	Anchor Rods	0	45.0	Pass
1	Base Plate	0	85.7	Pass
1	Base Foundation (Structure)	0	71.3	Pass
1	Base Foundation (Soil Interaction)	0	54.9	Pass

Structure Rating (max from all components) =	85.7%

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

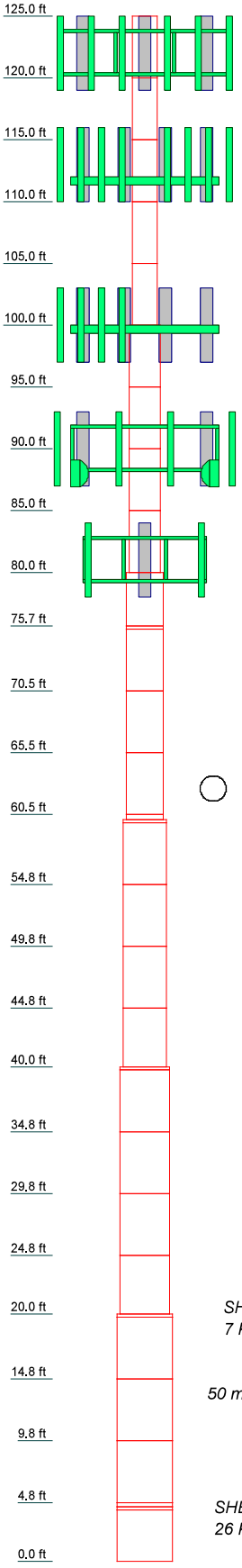
4.1) Recommendations

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

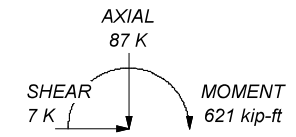
APPENDIX A

TNXTOWER OUTPUT

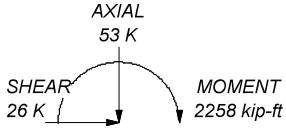
Section	Size	Length (ft)	Grade	Weight (K)
1	P24x0.375	5.000	A53-B-42	0.5
2	P24x0.375	5.000		0.5
3	P24x0.375	5.000		0.5
4	P24x0.375	5.000		0.5
5	P24x0.375	5.000		0.5
6	P30x0.375	5.000		0.6
7	P30x0.375	5.000		0.6
8	P30x0.375	5.000		0.6
9	P30x0.375	5.000		0.6
10	P30x0.375	4.300		0.6
11		0.250		0.1
12		5.000		1.0
13	P36x0.562	5.000		1.0
14	P36x0.562	5.000		1.0
15		0.250		0.1
16		0.250		0.1
17	P42x0.525	5.000		1.1
18	P42x0.525	5.000		1.1
19	P42x0.525	5.000		1.1
20	P42x0.525	4.750		1.1
21		0.250		0.1
22	P48x0.556	5.000		1.4
23	P48x0.556	5.000		1.4
24	P48x0.556	5.000		1.4
25	P48x0.556	4.750		1.3
26		0.250		0.1
27	P54x0.587	5.000		1.6
28	P54x0.587	5.000		1.6
29	P54x0.587	5.000		1.6
30		0.250		0.1
32	P54x0.587	4.130		1.2
				25.0



ALL REACTIONS ARE FACTORED



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



TORQUE 2 kip-ft
REACTIONS - 122 mph WIND

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-42	42 ksi	63 ksi			

TOWER DESIGN NOTES

1. Tower designed for Exposure B to the TIA-222-H Standard.
2. Tower designed for a 122 mph basic wind in accordance with the TIA-222-H Standard.
3. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.000 ft
7. TIA-222-H Annex S
8. TOWER RATING: 61.8%

CROWN CASTLE
The Pathway to Possible
Crown Castle
2000 Corporate Dr.
Canonsburg, PA
Phone: (724) 416-2000
FAX:

Job: **BU# 822765**			
Project:			
Client: Crown Castle	Drawn by: AGreguric	App'd:	
Code: TIA-222-H	Date: 09/22/21	Scale: NTS	
Path: C:\Users\agreguric\OneDrive - Crown Castle USA Inc\Desktop\Work Area\822765\WO 1962851 - SA\Prod\822765_rent.eri		Dwg No. E-1	

Tower Input Data

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

- Tower base elevation above sea level: 56.000 ft.
- Basic wind speed of 122 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.
- TOWER RATING: 61.8%.
- 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

Pole Section Geometry

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	125.000-120.000	5.000	P24x0.375	A53-B-42 (42 ksi)	
L2	120.000-115.000	5.000	P24x0.375	A53-B-42 (42 ksi)	
L3	115.000-110.000	5.000	P24x0.375	A53-B-42 (42 ksi)	
L4	110.000-105.000	5.000	P24x0.375	A53-B-42 (42 ksi)	
L5	105.000-100.000	5.000	P24x0.375	A53-B-42 (42 ksi)	
L6	100.000-95.000	5.000	P30x0.375	A53-B-42 (42 ksi)	
L7	95.000-90.000	5.000	P30x0.375	A53-B-42 (42 ksi)	
L8	90.000-85.000	5.000	P30x0.375	A53-B-42 (42 ksi)	
L9	85.000-80.000	5.000	P30x0.375	A53-B-42 (42 ksi)	
L10	80.000-75.700	4.300	P36x0.375	A53-B-42 (42 ksi)	
L11	75.700-75.450	0.250	P36x0.5625	A53-B-42 (42 ksi)	
L12	75.450-70.450	5.000	P36x0.5625	A53-B-42 (42 ksi)	
L13	70.450-65.450	5.000	P36x0.5625	A53-B-42 (42 ksi)	
L14	65.450-60.450	5.000	P36x0.5625	A53-B-42 (42 ksi)	
L15	60.450-60.000	0.450	P36x0.5625	A53-B-42 (42 ksi)	
L16	60.000-59.750	0.250	P42x0.525	A53-B-42 (42 ksi)	
L17	59.750-54.750	5.000	P42x0.525	A53-B-42 (42 ksi)	
L18	54.750-49.750	5.000	P42x0.525	A53-B-42 (42 ksi)	
L19	49.750-44.750	5.000	P42x0.525	A53-B-42 (42 ksi)	
L20	44.750-40.000	4.750	P42x0.525	A53-B-42 (42 ksi)	
L21	40.000-39.750	0.250	P48x0.55625	A53-B-42 (42 ksi)	
L22	39.750-34.750	5.000	P48x0.55625	A53-B-42 (42 ksi)	
L23	34.750-29.750	5.000	P48x0.55625	A53-B-42 (42 ksi)	
L24	29.750-24.750	5.000	P48x0.55625	A53-B-42 (42 ksi)	
L25	24.750-20.000	4.750	P48x0.55625	A53-B-42 (42 ksi)	
L26	20.000-19.750	0.250	P54x0.5875	A53-B-42 (42 ksi)	
L27	19.750-14.750	5.000	P54x0.5875	A53-B-42 (42 ksi)	
L28	14.750-9.750	5.000	P54x0.5875	A53-B-42 (42 ksi)	
L29	9.750-4.750	5.000	P54x0.5875	A53-B-42 (42 ksi)	
L30	4.750-4.380	0.370	P54x0.5875	A53-B-42 (42 ksi)	
L31	4.380-4.130	0.250	P54x0.4875	A53-B-42 (42 ksi)	
L32	4.130-0.000	4.130	P54x0.4875	A53-B-42 (42 ksi)	

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 125.000-120.000				1	1	1			
L2 120.000-115.000				1	1	1			
L3 115.000-110.000				1	1	1			
L4 110.000-105.000				1	1	1			
L5 105.000-100.000				1	1	1			
L6 100.000-95.000				1	1	1			
L7 95.000-90.000				1	1	1			
L8 90.000-85.000				1	1	1			
L9 85.000-80.000				1	1	1			
L10 80.000-75.700				1	1	1			
L11 75.700-75.450				1	1	0.957627			
L12 75.450-70.450				1	1	0.957627			
L13 70.450-65.450				1	1	0.957627			
L14 65.450-60.450				1	1	0.957627			
L15 60.450-60.000				1	1	0.957627			
L16 60.000-59.750				1	1	0.980003			
L17 59.750-54.750				1	1	0.980003			
L18 54.750-49.750				1	1	0.980003			
L19 49.750-44.750				1	1	0.980003			
L20 44.750-40.000				1	1	0.980003			
L21 40.000-39.750				1	1	0.970732			
L22 39.750-34.750				1	1	0.970732			
L23 34.750-29.750				1	1	0.970732			
L24 29.750-24.750				1	1	0.970732			
L25 24.750-20.000				1	1	0.970732			
L26 20.000-19.750				1	1	0.96417			
L27 19.750-14.750				1	1	0.96417			
L28 14.750-9.750				1	1	0.96417			
L29 9.750-4.750				1	1	0.96417			
L30 4.750-4.380				1	1	0.96417			
L31 4.380-4.130				1	1	1.06826			
L32 4.130-0.000				1	1	1.06826			

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
*										
HB114-1-0813U4-M5J(1-1/4)	C	No	Surface Ar (CaAa)	90.000 - 0.000	4	2	0.250 0.310	1.540		0.001
LDF4-50A(1/2)	C	No	Surface Ar (CaAa)	90.000 - 0.000	3	2	0.320 0.340	0.630		0.000
*										
CU12PSM9P8XXX(1-3/8)	B	No	Surface Ar (CaAa)	81.000 - 0.000	1	1	0.000 0.050	1.411		0.002
*										
CCI 8.5" x 1.25" Plate	A	No	Surface Af (CaAa)	28.500 - 0.000	1	1	0.000 0.000	8.500	19.500	0.000
CCI 8.5" x 1.25" Plate	B	No	Surface Af (CaAa)	28.500 - 0.000	1	1	0.000 0.000	8.500	19.500	0.000
CCI 8.5" x 1.25" Plate	C	No	Surface Af (CaAa)	28.500 - 0.000	1	1	0.000 0.000	8.500	19.500	0.000
*										
CCI 6.5" x 1.25" Plate	A	No	Surface Af (CaAa)	46.500 - 20.500	1	1	0.000 0.000	6.500	15.500	0.000
CCI 6.5" x 1.25" Plate	B	No	Surface Af (CaAa)	46.500 - 20.500	1	1	0.000 0.000	6.500	15.500	0.000
CCI 6.5" x 1.25" Plate	C	No	Surface Af (CaAa)	46.500 - 20.500	1	1	0.000 0.000	6.500	15.500	0.000
*										
CCI 6" x 1" Plate	A	No	Surface Af (CaAa)	65.500 - 40.500	1	1	0.000 0.000	6.000	14.000	0.000
CCI 6" x 1" Plate	B	No	Surface Af (CaAa)	65.500 - 40.500	1	1	0.000 0.000	6.000	14.000	0.000
CCI 6" x 1" Plate	C	No	Surface Af (CaAa)	65.500 - 40.500	1	1	0.000 0.000	6.000	14.000	0.000
*										
CCI 6" x 1" Plate	A	No	Surface Af (CaAa)	75.500 - 60.500	1	1	0.000 0.000	6.000	14.000	0.000
CCI 6" x 1" Plate	B	No	Surface Af (CaAa)	75.500 - 60.500	1	1	0.000 0.000	6.000	14.000	0.000
CCI 6" x 1" Plate	C	No	Surface Af (CaAa)	75.500 - 60.500	1	1	0.000 0.000	6.000	14.000	0.000
*										
Climbing Rungs	C	No	Surface Ar (CaAa)	125.000 - 0.000	1	1	0.000 0.100	0.000		0.001
Safety Line 3/8	C	No	Surface Ar (CaAa)	125.000 - 0.000	1	1	0.010 0.030	0.375		0.000
*										
Bridge Stiffener (78"x4.5"x1.0")-80'	A	No	Surface Af (CaAa)	86.479 - 77.479	1	1	0.000 0.000	4.500	11.000	0.000
Bridge Stiffener (78"x4.5"x1.0")-80'	B	No	Surface Af (CaAa)	86.479 - 77.479	1	1	0.000 0.000	4.500	11.000	0.000
Bridge Stiffener (78"x4.5"x1.0")-80'	C	No	Surface Af (CaAa)	86.479 - 77.479	1	1	0.000 0.000	4.500	11.000	0.000
*										
*										
*										
*										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
LDF7-50A(1-5/8)	B	No	No	Inside Pole	122.000 - 0.000	10	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
							2" Ice	0.000	0.001
*									
HB158-1-08U8-S8J18(1-5/8)	B	No	No	Inside Pole	112.000 - 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
*									
LDF6-50A(1-1/4)	A	No	No	Inside Pole	100.000 - 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
100266(3/8)	A	No	No	Inside Pole	100.000 - 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
WR-VG86ST-BRD(3/4)	A	No	No	Inside Pole	100.000 - 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
FB-L98B-034-XXX(3/8)	A	No	No	Inside Pole	100.000 - 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
2" Rigid Conduit	A	No	No	Inside Pole	100.000 - 0.000	1	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
*									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	125.000-120.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.016
		C	0.000	0.000	0.188	0.000	0.004
L2	120.000-115.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.041
		C	0.000	0.000	0.188	0.000	0.004
L3	115.000-110.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.046
		C	0.000	0.000	0.188	0.000	0.004
L4	110.000-105.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.054
		C	0.000	0.000	0.188	0.000	0.004
L5	105.000-100.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.054
		C	0.000	0.000	0.188	0.000	0.004
L6	100.000-95.000	A	0.000	0.000	0.000	0.000	0.068
		B	0.000	0.000	0.000	0.000	0.054
		C	0.000	0.000	0.188	0.000	0.004
L7	95.000-90.000	A	0.000	0.000	0.000	0.000	0.068
		B	0.000	0.000	0.000	0.000	0.054
		C	0.000	0.000	0.188	0.000	0.004
L8	90.000-85.000	A	0.000	0.000	1.080	0.000	0.068
		B	0.000	0.000	1.080	0.000	0.054
		C	0.000	0.000	3.438	0.000	0.030
L9	85.000-80.000	A	0.000	0.000	3.652	0.000	0.068
		B	0.000	0.000	3.793	0.000	0.056
		C	0.000	0.000	6.009	0.000	0.030
L10	80.000-75.700	A	0.000	0.000	1.841	0.000	0.059

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	2.448	0.000	0.054
		C	0.000	0.000	3.869	0.000	0.026
L11	75.700-75.450	A	0.000	0.000	0.050	0.000	0.003
		B	0.000	0.000	0.085	0.000	0.003
		C	0.000	0.000	0.168	0.000	0.002
L12	75.450-70.450	A	0.000	0.000	5.000	0.000	0.068
		B	0.000	0.000	5.705	0.000	0.062
		C	0.000	0.000	7.357	0.000	0.030
L13	70.450-65.450	A	0.000	0.000	5.050	0.000	0.068
		B	0.000	0.000	5.755	0.000	0.062
		C	0.000	0.000	7.407	0.000	0.030
L14	65.450-60.450	A	0.000	0.000	9.950	0.000	0.068
		B	0.000	0.000	10.656	0.000	0.062
		C	0.000	0.000	12.307	0.000	0.030
L15	60.450-60.000	A	0.000	0.000	0.450	0.000	0.006
		B	0.000	0.000	0.513	0.000	0.006
		C	0.000	0.000	0.662	0.000	0.003
L16	60.000-59.750	A	0.000	0.000	0.250	0.000	0.003
		B	0.000	0.000	0.285	0.000	0.003
		C	0.000	0.000	0.368	0.000	0.002
L17	59.750-54.750	A	0.000	0.000	5.000	0.000	0.068
		B	0.000	0.000	5.705	0.000	0.062
		C	0.000	0.000	7.357	0.000	0.030
L18	54.750-49.750	A	0.000	0.000	5.000	0.000	0.068
		B	0.000	0.000	5.705	0.000	0.062
		C	0.000	0.000	7.357	0.000	0.030
L19	49.750-44.750	A	0.000	0.000	6.896	0.000	0.068
		B	0.000	0.000	7.601	0.000	0.062
		C	0.000	0.000	9.253	0.000	0.030
L20	44.750-40.000	A	0.000	0.000	9.396	0.000	0.065
		B	0.000	0.000	10.066	0.000	0.059
		C	0.000	0.000	11.635	0.000	0.029
L21	40.000-39.750	A	0.000	0.000	0.271	0.000	0.003
		B	0.000	0.000	0.306	0.000	0.003
		C	0.000	0.000	0.389	0.000	0.002
L22	39.750-34.750	A	0.000	0.000	5.417	0.000	0.068
		B	0.000	0.000	6.122	0.000	0.062
		C	0.000	0.000	7.774	0.000	0.030
L23	34.750-29.750	A	0.000	0.000	5.417	0.000	0.068
		B	0.000	0.000	6.122	0.000	0.062
		C	0.000	0.000	7.774	0.000	0.030
L24	29.750-24.750	A	0.000	0.000	10.729	0.000	0.068
		B	0.000	0.000	11.435	0.000	0.062
		C	0.000	0.000	13.087	0.000	0.030
L25	24.750-20.000	A	0.000	0.000	11.333	0.000	0.065
		B	0.000	0.000	12.004	0.000	0.059
		C	0.000	0.000	13.573	0.000	0.029
L26	20.000-19.750	A	0.000	0.000	0.354	0.000	0.003
		B	0.000	0.000	0.389	0.000	0.003
		C	0.000	0.000	0.472	0.000	0.002
L27	19.750-14.750	A	0.000	0.000	7.083	0.000	0.068
		B	0.000	0.000	7.789	0.000	0.062
		C	0.000	0.000	9.441	0.000	0.030
L28	14.750-9.750	A	0.000	0.000	7.083	0.000	0.068
		B	0.000	0.000	7.789	0.000	0.062
		C	0.000	0.000	9.441	0.000	0.030
L29	9.750-4.750	A	0.000	0.000	7.083	0.000	0.068
		B	0.000	0.000	7.789	0.000	0.062
		C	0.000	0.000	9.441	0.000	0.030
L30	4.750-4.380	A	0.000	0.000	0.524	0.000	0.005
		B	0.000	0.000	0.576	0.000	0.005
		C	0.000	0.000	0.699	0.000	0.002
L31	4.380-4.130	A	0.000	0.000	0.354	0.000	0.003
		B	0.000	0.000	0.389	0.000	0.003
		C	0.000	0.000	0.472	0.000	0.002
L32	4.130-0.000	A	0.000	0.000	5.851	0.000	0.056
		B	0.000	0.000	6.434	0.000	0.051
		C	0.000	0.000	7.798	0.000	0.025

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	125.000-120.000	A	1.454	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.016
		C		0.000	0.000	3.095	0.000	0.033
L2	120.000-115.000	A	1.448	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.041
		C		0.000	0.000	3.083	0.000	0.033
L3	115.000-110.000	A	1.441	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.046
		C		0.000	0.000	3.070	0.000	0.032
L4	110.000-105.000	A	1.435	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.054
		C		0.000	0.000	3.057	0.000	0.032
L5	105.000-100.000	A	1.428	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.054
		C		0.000	0.000	3.044	0.000	0.032
L6	100.000-95.000	A	1.421	0.000	0.000	0.000	0.000	0.068
		B		0.000	0.000	0.000	0.000	0.054
		C		0.000	0.000	3.029	0.000	0.032
L7	95.000-90.000	A	1.413	0.000	0.000	0.000	0.000	0.068
		B		0.000	0.000	0.000	0.000	0.054
		C		0.000	0.000	3.014	0.000	0.031
L8	90.000-85.000	A	1.406	0.000	0.000	1.299	0.000	0.081
		B		0.000	0.000	1.299	0.000	0.067
		C		0.000	0.000	10.524	0.000	0.139
L9	85.000-80.000	A	1.397	0.000	0.000	4.386	0.000	0.113
		B		0.000	0.000	4.806	0.000	0.105
		C		0.000	0.000	13.574	0.000	0.170
L10	80.000-75.700	A	1.389	0.000	0.000	2.209	0.000	0.081
		B		0.000	0.000	4.011	0.000	0.096
		C		0.000	0.000	10.080	0.000	0.129
L11	75.700-75.450	A	1.385	0.000	0.000	0.061	0.000	0.004
		B		0.000	0.000	0.166	0.000	0.005
		C		0.000	0.000	0.518	0.000	0.007
L12	75.450-70.450	A	1.380	0.000	0.000	6.099	0.000	0.120
		B		0.000	0.000	8.184	0.000	0.137
		C		0.000	0.000	15.210	0.000	0.175
L13	70.450-65.450	A	1.370	0.000	0.000	6.158	0.000	0.120
		B		0.000	0.000	8.234	0.000	0.137
		C		0.000	0.000	15.225	0.000	0.174
L14	65.450-60.450	A	1.360	0.000	0.000	12.388	0.000	0.169
		B		0.000	0.000	14.453	0.000	0.186
		C		0.000	0.000	21.408	0.000	0.222
L15	60.450-60.000	A	1.354	0.000	0.000	0.572	0.000	0.011
		B		0.000	0.000	0.757	0.000	0.012
		C		0.000	0.000	1.381	0.000	0.015
L16	60.000-59.750	A	1.353	0.000	0.000	0.318	0.000	0.006
		B		0.000	0.000	0.421	0.000	0.007
		C		0.000	0.000	0.767	0.000	0.009
L17	59.750-54.750	A	1.347	0.000	0.000	6.347	0.000	0.118
		B		0.000	0.000	8.400	0.000	0.135
		C		0.000	0.000	15.310	0.000	0.170
L18	54.750-49.750	A	1.335	0.000	0.000	6.335	0.000	0.118
		B		0.000	0.000	8.375	0.000	0.134
		C		0.000	0.000	15.242	0.000	0.169
L19	49.750-44.750	A	1.322	0.000	0.000	8.680	0.000	0.136
		B		0.000	0.000	10.707	0.000	0.152
		C		0.000	0.000	17.527	0.000	0.185
L20	44.750-40.000	A	1.307	0.000	0.000	11.749	0.000	0.155
		B		0.000	0.000	13.661	0.000	0.170
		C		0.000	0.000	20.093	0.000	0.201
L21	40.000-39.750	A	1.299	0.000	0.000	0.336	0.000	0.006
		B		0.000	0.000	0.436	0.000	0.007
		C		0.000	0.000	0.773	0.000	0.008
L22	39.750-34.750	A	1.291	0.000	0.000	6.707	0.000	0.119
		B		0.000	0.000	8.703	0.000	0.135

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight K
		C		0.000	0.000	15.415	0.000	0.166
L23	34.750-29.750	A	1.272	0.000	0.000	6.689	0.000	0.118
		B		0.000	0.000	8.666	0.000	0.133
		C		0.000	0.000	15.313	0.000	0.164
L24	29.750-24.750	A	1.251	0.000	0.000	12.918	0.000	0.162
		B		0.000	0.000	14.874	0.000	0.176
		C		0.000	0.000	21.447	0.000	0.205
L25	24.750-20.000	A	1.226	0.000	0.000	13.541	0.000	0.160
		B		0.000	0.000	15.376	0.000	0.173
		C		0.000	0.000	21.539	0.000	0.199
L26	20.000-19.750	A	1.212	0.000	0.000	0.415	0.000	0.006
		B		0.000	0.000	0.511	0.000	0.007
		C		0.000	0.000	0.832	0.000	0.008
L27	19.750-14.750	A	1.195	0.000	0.000	8.278	0.000	0.124
		B		0.000	0.000	10.179	0.000	0.137
		C		0.000	0.000	16.555	0.000	0.162
L28	14.750-9.750	A	1.155	0.000	0.000	8.238	0.000	0.122
		B		0.000	0.000	10.098	0.000	0.134
		C		0.000	0.000	16.334	0.000	0.156
L29	9.750-4.750	A	1.096	0.000	0.000	8.179	0.000	0.119
		B		0.000	0.000	9.980	0.000	0.129
		C		0.000	0.000	16.010	0.000	0.148
L30	4.750-4.380	A	1.046	0.000	0.000	0.602	0.000	0.009
		B		0.000	0.000	0.731	0.000	0.009
		C		0.000	0.000	1.165	0.000	0.010
L31	4.380-4.130	A	1.039	0.000	0.000	0.406	0.000	0.006
		B		0.000	0.000	0.493	0.000	0.006
		C		0.000	0.000	0.785	0.000	0.007
L32	4.130-0.000	A	0.966	0.000	0.000	6.649	0.000	0.092
		B		0.000	0.000	8.030	0.000	0.099
		C		0.000	0.000	12.637	0.000	0.108

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	125.000-120.000	-0.015	0.369	-0.161	2.256
L2	120.000-115.000	-0.015	0.369	-0.160	2.250
L3	115.000-110.000	-0.015	0.369	-0.160	2.243
L4	110.000-105.000	-0.015	0.369	-0.159	2.236
L5	105.000-100.000	-0.015	0.369	-0.159	2.229
L6	100.000-95.000	-0.016	0.370	-0.167	2.345
L7	95.000-90.000	-0.016	0.370	-0.166	2.336
L8	90.000-85.000	-1.564	2.416	-1.810	3.678
L9	85.000-80.000	-0.884	1.462	-1.276	2.795
L10	80.000-75.700	-0.677	1.705	-0.891	3.047
L11	75.700-75.450	-0.831	2.093	-0.983	3.359
L12	75.450-70.450	-0.463	1.165	-0.714	2.440
L13	70.450-65.450	-0.460	1.158	-0.710	2.424
L14	65.450-60.450	-0.242	0.610	-0.520	1.772
L15	60.450-60.000	-0.463	1.165	-0.700	2.384
L16	60.000-59.750	-0.505	1.275	-0.766	2.619
L17	59.750-54.750	-0.505	1.275	-0.765	2.614
L18	54.750-49.750	-0.505	1.275	-0.764	2.604
L19	49.750-44.750	-0.421	1.064	-0.677	2.307
L20	44.750-40.000	-0.266	0.671	-0.571	1.940
L21	40.000-39.750	-0.521	1.320	-0.800	2.726
L22	39.750-34.750	-0.521	1.320	-0.799	2.718
L23	34.750-29.750	-0.521	1.320	-0.796	2.701
L24	29.750-24.750	-0.273	0.692	-0.600	2.031
L25	24.750-20.000	-0.257	0.650	-0.566	1.908
L26	20.000-19.750	-0.482	1.223	-0.776	2.616
L27	19.750-14.750	-0.482	1.223	-0.773	2.599
L28	14.750-9.750	-0.482	1.223	-0.766	2.559

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L29	9.750-4.750	-0.482	1.223	-0.755	2.499
L30	4.750-4.380	-0.482	1.223	-0.746	2.448
L31	4.380-4.130	-0.482	1.223	-0.745	2.441
L32	4.130-0.000	-0.482	1.223	-0.731	2.364

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	33	Climbing Rungs	120.00 - 125.00	1.0000	1.0000
L1	34	Safety Line 3/8	120.00 - 125.00	1.0000	1.0000
L2	33	Climbing Rungs	115.00 - 120.00	1.0000	1.0000
L2	34	Safety Line 3/8	115.00 - 120.00	1.0000	1.0000
L3	33	Climbing Rungs	110.00 - 115.00	1.0000	1.0000
L3	34	Safety Line 3/8	110.00 - 115.00	1.0000	1.0000
L4	33	Climbing Rungs	105.00 - 110.00	1.0000	1.0000
L4	34	Safety Line 3/8	105.00 - 110.00	1.0000	1.0000
L5	33	Climbing Rungs	100.00 - 105.00	1.0000	1.0000
L5	34	Safety Line 3/8	100.00 - 105.00	1.0000	1.0000
L6	33	Climbing Rungs	95.00 - 100.00	1.0000	1.0000
L6	34	Safety Line 3/8	95.00 - 100.00	1.0000	1.0000
L7	33	Climbing Rungs	90.00 - 95.00	1.0000	1.0000
L7	34	Safety Line 3/8	90.00 - 95.00	1.0000	1.0000
L8	11	HB114-1-0813U4-M5J(1-1/4)	85.00 - 90.00	1.0000	1.0000
L8	12	LDF4-50A(1/2)	85.00 - 90.00	1.0000	1.0000
L8	33	Climbing Rungs	85.00 - 90.00	1.0000	1.0000
L8	34	Safety Line 3/8	85.00 - 90.00	1.0000	1.0000
L8	36	Bridge Stiffener (78"x4.5"x1.0")-80'	85.00 - 86.48	1.0000	1.0000
L8	37	Bridge Stiffener (78"x4.5"x1.0")-80'	85.00 - 86.48	1.0000	1.0000
L8	38	Bridge Stiffener (78"x4.5"x1.0")-80'	85.00 - 86.48	1.0000	1.0000
L9	11	HB114-1-0813U4-M5J(1-1/4)	80.00 - 85.00	1.0000	1.0000
L9	12	LDF4-50A(1/2)	80.00 - 85.00	1.0000	1.0000
L9	14	CU12PSM9P8XXX(1-3/8)	80.00 - 81.00	1.0000	1.0000
L9	33	Climbing Rungs	80.00 - 85.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L9	34	Safety Line 3/8	80.00 - 85.00	1.0000	1.0000
L9	36	Bridge Stiffener (78"x4.5"x1.0")-80'	80.00 - 85.00	1.0000	1.0000
L9	37	Bridge Stiffener (78"x4.5"x1.0")-80'	80.00 - 85.00	1.0000	1.0000
L9	38	Bridge Stiffener (78"x4.5"x1.0")-80'	80.00 - 85.00	1.0000	1.0000
L10	11	HB114-1-0813U4-M5J(1-1/4)	75.70 - 80.00	1.0000	1.0000
L10	12	LDF4-50A(1/2)	75.70 - 80.00	1.0000	1.0000
L10	14	CU12PSM9P8XXX(1-3/8)	75.70 - 80.00	1.0000	1.0000
L10	33	Climbing Rungs	75.70 - 80.00	1.0000	1.0000
L10	34	Safety Line 3/8	75.70 - 80.00	1.0000	1.0000
L10	36	Bridge Stiffener (78"x4.5"x1.0")-80'	77.48 - 80.00	1.0000	1.0000
L10	37	Bridge Stiffener (78"x4.5"x1.0")-80'	77.48 - 80.00	1.0000	1.0000
L10	38	Bridge Stiffener (78"x4.5"x1.0")-80'	77.48 - 80.00	1.0000	1.0000
L11	11	HB114-1-0813U4-M5J(1-1/4)	75.45 - 75.70	1.0000	1.0000
L11	12	LDF4-50A(1/2)	75.45 - 75.70	1.0000	1.0000
L11	14	CU12PSM9P8XXX(1-3/8)	75.45 - 75.70	1.0000	1.0000
L11	28	CCI 6" x 1" Plate	75.45 - 75.50	1.0000	1.0000
L11	29	CCI 6" x 1" Plate	75.45 - 75.50	1.0000	1.0000
L11	30	CCI 6" x 1" Plate	75.45 - 75.50	1.0000	1.0000
L11	33	Climbing Rungs	75.45 - 75.70	1.0000	1.0000
L11	34	Safety Line 3/8	75.45 - 75.70	1.0000	1.0000
L12	11	HB114-1-0813U4-M5J(1-1/4)	70.45 - 75.45	1.0000	1.0000
L12	12	LDF4-50A(1/2)	70.45 - 75.45	1.0000	1.0000
L12	14	CU12PSM9P8XXX(1-3/8)	70.45 - 75.45	1.0000	1.0000
L12	28	CCI 6" x 1" Plate	70.45 - 75.45	1.0000	1.0000
L12	29	CCI 6" x 1" Plate	70.45 - 75.45	1.0000	1.0000
L12	30	CCI 6" x 1" Plate	70.45 - 75.45	1.0000	1.0000
L12	33	Climbing Rungs	70.45 - 75.45	1.0000	1.0000
L12	34	Safety Line 3/8	70.45 - 75.45	1.0000	1.0000
L13	11	HB114-1-0813U4-M5J(1-1/4)	65.45 - 70.45	1.0000	1.0000
L13	12	LDF4-50A(1/2)	65.45 - 70.45	1.0000	1.0000
L13	14	CU12PSM9P8XXX(1-3/8)	65.45 - 70.45	1.0000	1.0000
L13	24	CCI 6" x 1" Plate	65.45 - 65.50	1.0000	1.0000
L13	25	CCI 6" x 1" Plate	65.45 - 65.50	1.0000	1.0000
L13	26	CCI 6" x 1" Plate	65.45 - 65.50	1.0000	1.0000
L13	28	CCI 6" x 1" Plate	65.45 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			70.45		
L13	29	CCI 6" x 1" Plate	65.45 - 70.45	1.0000	1.0000
L13	30	CCI 6" x 1" Plate	65.45 - 70.45	1.0000	1.0000
L13	33	Climbing Rungs	65.45 - 70.45	1.0000	1.0000
L13	34	Safety Line 3/8	65.45 - 70.45	1.0000	1.0000
L14	11	HB114-1-0813U4-M5J(1-1/4)	60.45 - 65.45	1.0000	1.0000
L14	12	LDF4-50A(1/2)	60.45 - 65.45	1.0000	1.0000
L14	14	CU12PSM9P8XXX(1-3/8)	60.45 - 65.45	1.0000	1.0000
L14	24	CCI 6" x 1" Plate	60.45 - 65.45	1.0000	1.0000
L14	25	CCI 6" x 1" Plate	60.45 - 65.45	1.0000	1.0000
L14	26	CCI 6" x 1" Plate	60.45 - 65.45	1.0000	1.0000
L14	28	CCI 6" x 1" Plate	60.50 - 65.45	1.0000	1.0000
L14	29	CCI 6" x 1" Plate	60.50 - 65.45	1.0000	1.0000
L14	30	CCI 6" x 1" Plate	60.50 - 65.45	1.0000	1.0000
L14	33	Climbing Rungs	60.45 - 65.45	1.0000	1.0000
L14	34	Safety Line 3/8	60.45 - 65.45	1.0000	1.0000
L15	11	HB114-1-0813U4-M5J(1-1/4)	60.00 - 60.45	1.0000	1.0000
L15	12	LDF4-50A(1/2)	60.00 - 60.45	1.0000	1.0000
L15	14	CU12PSM9P8XXX(1-3/8)	60.00 - 60.45	1.0000	1.0000
L15	24	CCI 6" x 1" Plate	60.00 - 60.45	1.0000	1.0000
L15	25	CCI 6" x 1" Plate	60.00 - 60.45	1.0000	1.0000
L15	26	CCI 6" x 1" Plate	60.00 - 60.45	1.0000	1.0000
L15	33	Climbing Rungs	60.00 - 60.45	1.0000	1.0000
L15	34	Safety Line 3/8	60.00 - 60.45	1.0000	1.0000
L16	11	HB114-1-0813U4-M5J(1-1/4)	59.75 - 60.00	1.0000	1.0000
L16	12	LDF4-50A(1/2)	59.75 - 60.00	1.0000	1.0000
L16	14	CU12PSM9P8XXX(1-3/8)	59.75 - 60.00	1.0000	1.0000
L16	24	CCI 6" x 1" Plate	59.75 - 60.00	1.0000	1.0000
L16	25	CCI 6" x 1" Plate	59.75 - 60.00	1.0000	1.0000
L16	26	CCI 6" x 1" Plate	59.75 - 60.00	1.0000	1.0000
L16	33	Climbing Rungs	59.75 - 60.00	1.0000	1.0000
L16	34	Safety Line 3/8	59.75 - 60.00	1.0000	1.0000
L17	11	HB114-1-0813U4-M5J(1-1/4)	54.75 - 59.75	1.0000	1.0000
L17	12	LDF4-50A(1/2)	54.75 - 59.75	1.0000	1.0000
L17	14	CU12PSM9P8XXX(1-3/8)	54.75 - 59.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L17	24	CCI 6" x 1" Plate	54.75 - 59.75	1.0000	1.0000
L17	25	CCI 6" x 1" Plate	54.75 - 59.75	1.0000	1.0000
L17	26	CCI 6" x 1" Plate	54.75 - 59.75	1.0000	1.0000
L17	33	Climbing Rungs	54.75 - 59.75	1.0000	1.0000
L17	34	Safety Line 3/8	54.75 - 59.75	1.0000	1.0000
L18	11	HB114-1-0813U4-M5J(1-1/4)	49.75 - 54.75	1.0000	1.0000
L18	12	LDF4-50A(1/2)	49.75 - 54.75	1.0000	1.0000
L18	14	CU12PSM9P8XXX(1-3/8)	49.75 - 54.75	1.0000	1.0000
L18	24	CCI 6" x 1" Plate	49.75 - 54.75	1.0000	1.0000
L18	25	CCI 6" x 1" Plate	49.75 - 54.75	1.0000	1.0000
L18	26	CCI 6" x 1" Plate	49.75 - 54.75	1.0000	1.0000
L18	33	Climbing Rungs	49.75 - 54.75	1.0000	1.0000
L18	34	Safety Line 3/8	49.75 - 54.75	1.0000	1.0000
L19	11	HB114-1-0813U4-M5J(1-1/4)	44.75 - 49.75	1.0000	1.0000
L19	12	LDF4-50A(1/2)	44.75 - 49.75	1.0000	1.0000
L19	14	CU12PSM9P8XXX(1-3/8)	44.75 - 49.75	1.0000	1.0000
L19	20	CCI 6.5" x 1.25" Plate	44.75 - 46.50	1.0000	1.0000
L19	21	CCI 6.5" x 1.25" Plate	44.75 - 46.50	1.0000	1.0000
L19	22	CCI 6.5" x 1.25" Plate	44.75 - 46.50	1.0000	1.0000
L19	24	CCI 6" x 1" Plate	44.75 - 49.75	1.0000	1.0000
L19	25	CCI 6" x 1" Plate	44.75 - 49.75	1.0000	1.0000
L19	26	CCI 6" x 1" Plate	44.75 - 49.75	1.0000	1.0000
L19	33	Climbing Rungs	44.75 - 49.75	1.0000	1.0000
L19	34	Safety Line 3/8	44.75 - 49.75	1.0000	1.0000
L20	11	HB114-1-0813U4-M5J(1-1/4)	40.00 - 44.75	1.0000	1.0000
L20	12	LDF4-50A(1/2)	40.00 - 44.75	1.0000	1.0000
L20	14	CU12PSM9P8XXX(1-3/8)	40.00 - 44.75	1.0000	1.0000
L20	20	CCI 6.5" x 1.25" Plate	40.00 - 44.75	1.0000	1.0000
L20	21	CCI 6.5" x 1.25" Plate	40.00 - 44.75	1.0000	1.0000
L20	22	CCI 6.5" x 1.25" Plate	40.00 - 44.75	1.0000	1.0000
L20	24	CCI 6" x 1" Plate	40.50 - 44.75	1.0000	1.0000
L20	25	CCI 6" x 1" Plate	40.50 - 44.75	1.0000	1.0000
L20	26	CCI 6" x 1" Plate	40.50 - 44.75	1.0000	1.0000
L20	33	Climbing Rungs	40.00 - 44.75	1.0000	1.0000
L20	34	Safety Line 3/8	40.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			44.75		
L21	11	HB114-1-0813U4-M5J(1-1/4)	39.75 - 40.00	1.0000	1.0000
L21	12	LDF4-50A(1/2)	39.75 - 40.00	1.0000	1.0000
L21	14	CU12PSM9P8XXX(1-3/8)	39.75 - 40.00	1.0000	1.0000
L21	20	CCI 6.5" x 1.25" Plate	39.75 - 40.00	1.0000	1.0000
L21	21	CCI 6.5" x 1.25" Plate	39.75 - 40.00	1.0000	1.0000
L21	22	CCI 6.5" x 1.25" Plate	39.75 - 40.00	1.0000	1.0000
L21	33	Climbing Rungs	39.75 - 40.00	1.0000	1.0000
L21	34	Safety Line 3/8	39.75 - 40.00	1.0000	1.0000
L22	11	HB114-1-0813U4-M5J(1-1/4)	34.75 - 39.75	1.0000	1.0000
L22	12	LDF4-50A(1/2)	34.75 - 39.75	1.0000	1.0000
L22	14	CU12PSM9P8XXX(1-3/8)	34.75 - 39.75	1.0000	1.0000
L22	20	CCI 6.5" x 1.25" Plate	34.75 - 39.75	1.0000	1.0000
L22	21	CCI 6.5" x 1.25" Plate	34.75 - 39.75	1.0000	1.0000
L22	22	CCI 6.5" x 1.25" Plate	34.75 - 39.75	1.0000	1.0000
L22	33	Climbing Rungs	34.75 - 39.75	1.0000	1.0000
L22	34	Safety Line 3/8	34.75 - 39.75	1.0000	1.0000
L23	11	HB114-1-0813U4-M5J(1-1/4)	29.75 - 34.75	1.0000	1.0000
L23	12	LDF4-50A(1/2)	29.75 - 34.75	1.0000	1.0000
L23	14	CU12PSM9P8XXX(1-3/8)	29.75 - 34.75	1.0000	1.0000
L23	20	CCI 6.5" x 1.25" Plate	29.75 - 34.75	1.0000	1.0000
L23	21	CCI 6.5" x 1.25" Plate	29.75 - 34.75	1.0000	1.0000
L23	22	CCI 6.5" x 1.25" Plate	29.75 - 34.75	1.0000	1.0000
L23	33	Climbing Rungs	29.75 - 34.75	1.0000	1.0000
L23	34	Safety Line 3/8	29.75 - 34.75	1.0000	1.0000
L24	11	HB114-1-0813U4-M5J(1-1/4)	24.75 - 29.75	1.0000	1.0000
L24	12	LDF4-50A(1/2)	24.75 - 29.75	1.0000	1.0000
L24	14	CU12PSM9P8XXX(1-3/8)	24.75 - 29.75	1.0000	1.0000
L24	16	CCI 8.5" x 1.25" Plate	24.75 - 28.50	1.0000	1.0000
L24	17	CCI 8.5" x 1.25" Plate	24.75 - 28.50	1.0000	1.0000
L24	18	CCI 8.5" x 1.25" Plate	24.75 - 28.50	1.0000	1.0000
L24	20	CCI 6.5" x 1.25" Plate	24.75 - 29.75	1.0000	1.0000
L24	21	CCI 6.5" x 1.25" Plate	24.75 - 29.75	1.0000	1.0000
L24	22	CCI 6.5" x 1.25" Plate	24.75 - 29.75	1.0000	1.0000
L24	33	Climbing Rungs	24.75 - 29.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L24	34	Safety Line 3/8	24.75 - 29.75	1.0000	1.0000
L25	11	HB114-1-0813U4-M5J(1-1/4)	20.00 - 24.75	1.0000	1.0000
L25	12	LDF4-50A(1/2)	20.00 - 24.75	1.0000	1.0000
L25	14	CU12PSM9P8XXX(1-3/8)	20.00 - 24.75	1.0000	1.0000
L25	16	CCI 8.5" x 1.25" Plate	20.00 - 24.75	1.0000	1.0000
L25	17	CCI 8.5" x 1.25" Plate	20.00 - 24.75	1.0000	1.0000
L25	18	CCI 8.5" x 1.25" Plate	20.00 - 24.75	1.0000	1.0000
L25	20	CCI 6.5" x 1.25" Plate	20.50 - 24.75	1.0000	1.0000
L25	21	CCI 6.5" x 1.25" Plate	20.50 - 24.75	1.0000	1.0000
L25	22	CCI 6.5" x 1.25" Plate	20.50 - 24.75	1.0000	1.0000
L25	33	Climbing Rungs	20.00 - 24.75	1.0000	1.0000
L25	34	Safety Line 3/8	20.00 - 24.75	1.0000	1.0000
L26	11	HB114-1-0813U4-M5J(1-1/4)	19.75 - 20.00	1.0000	1.0000
L26	12	LDF4-50A(1/2)	19.75 - 20.00	1.0000	1.0000
L26	14	CU12PSM9P8XXX(1-3/8)	19.75 - 20.00	1.0000	1.0000
L26	16	CCI 8.5" x 1.25" Plate	19.75 - 20.00	1.0000	1.0000
L26	17	CCI 8.5" x 1.25" Plate	19.75 - 20.00	1.0000	1.0000
L26	18	CCI 8.5" x 1.25" Plate	19.75 - 20.00	1.0000	1.0000
L26	33	Climbing Rungs	19.75 - 20.00	1.0000	1.0000
L26	34	Safety Line 3/8	19.75 - 20.00	1.0000	1.0000
L27	11	HB114-1-0813U4-M5J(1-1/4)	14.75 - 19.75	1.0000	1.0000
L27	12	LDF4-50A(1/2)	14.75 - 19.75	1.0000	1.0000
L27	14	CU12PSM9P8XXX(1-3/8)	14.75 - 19.75	1.0000	1.0000
L27	16	CCI 8.5" x 1.25" Plate	14.75 - 19.75	1.0000	1.0000
L27	17	CCI 8.5" x 1.25" Plate	14.75 - 19.75	1.0000	1.0000
L27	18	CCI 8.5" x 1.25" Plate	14.75 - 19.75	1.0000	1.0000
L27	33	Climbing Rungs	14.75 - 19.75	1.0000	1.0000
L27	34	Safety Line 3/8	14.75 - 19.75	1.0000	1.0000
L28	11	HB114-1-0813U4-M5J(1-1/4)	9.75 - 14.75	1.0000	1.0000
L28	12	LDF4-50A(1/2)	9.75 - 14.75	1.0000	1.0000
L28	14	CU12PSM9P8XXX(1-3/8)	9.75 - 14.75	1.0000	1.0000
L28	16	CCI 8.5" x 1.25" Plate	9.75 - 14.75	1.0000	1.0000
L28	17	CCI 8.5" x 1.25" Plate	9.75 - 14.75	1.0000	1.0000
L28	18	CCI 8.5" x 1.25" Plate	9.75 - 14.75	1.0000	1.0000
L28	33	Climbing Rungs	9.75 - 14.75	1.0000	1.0000
L28	34	Safety Line 3/8	9.75 - 14.75	1.0000	1.0000
L29	11	HB114-1-0813U4-M5J(1-1/4)	4.75 - 9.75	1.0000	1.0000
L29	12	LDF4-50A(1/2)	4.75 - 9.75	1.0000	1.0000
L29	14	CU12PSM9P8XXX(1-3/8)	4.75 - 9.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L29	16	CCI 8.5" x 1.25" Plate	4.75 - 9.75	1.0000	1.0000
L29	17	CCI 8.5" x 1.25" Plate	4.75 - 9.75	1.0000	1.0000
L29	18	CCI 8.5" x 1.25" Plate	4.75 - 9.75	1.0000	1.0000
L29	33	Climbing Rungs	4.75 - 9.75	1.0000	1.0000
L29	34	Safety Line 3/8	4.75 - 9.75	1.0000	1.0000
L30	11	HB114-1-0813U4-M5J(1-1/4)	4.38 - 4.75	1.0000	1.0000
L30	12	LDF4-50A(1/2)	4.38 - 4.75	1.0000	1.0000
L30	14	CU12PSM9P8XXX(1-3/8)	4.38 - 4.75	1.0000	1.0000
L30	16	CCI 8.5" x 1.25" Plate	4.38 - 4.75	1.0000	1.0000
L30	17	CCI 8.5" x 1.25" Plate	4.38 - 4.75	1.0000	1.0000
L30	18	CCI 8.5" x 1.25" Plate	4.38 - 4.75	1.0000	1.0000
L30	33	Climbing Rungs	4.38 - 4.75	1.0000	1.0000
L30	34	Safety Line 3/8	4.38 - 4.75	1.0000	1.0000
L31	11	HB114-1-0813U4-M5J(1-1/4)	4.13 - 4.38	1.0000	1.0000
L31	12	LDF4-50A(1/2)	4.13 - 4.38	1.0000	1.0000
L31	14	CU12PSM9P8XXX(1-3/8)	4.13 - 4.38	1.0000	1.0000
L31	16	CCI 8.5" x 1.25" Plate	4.13 - 4.38	1.0000	1.0000
L31	17	CCI 8.5" x 1.25" Plate	4.13 - 4.38	1.0000	1.0000
L31	18	CCI 8.5" x 1.25" Plate	4.13 - 4.38	1.0000	1.0000
L31	33	Climbing Rungs	4.13 - 4.38	1.0000	1.0000
L31	34	Safety Line 3/8	4.13 - 4.38	1.0000	1.0000
L32	11	HB114-1-0813U4-M5J(1-1/4)	0.00 - 4.13	1.0000	1.0000
L32	12	LDF4-50A(1/2)	0.00 - 4.13	1.0000	1.0000
L32	14	CU12PSM9P8XXX(1-3/8)	0.00 - 4.13	1.0000	1.0000
L32	16	CCI 8.5" x 1.25" Plate	0.00 - 4.13	1.0000	1.0000
L32	17	CCI 8.5" x 1.25" Plate	0.00 - 4.13	1.0000	1.0000
L32	18	CCI 8.5" x 1.25" Plate	0.00 - 4.13	1.0000	1.0000
L32	33	Climbing Rungs	0.00 - 4.13	1.0000	1.0000
L32	34	Safety Line 3/8	0.00 - 4.13	1.0000	1.0000

Effective Width of Flat Linear Attachments / Feed Lines

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L8	36	Bridge Stiffener (78"x4.5"x1.0")-80'	85.00 - 86.48	Auto	1.0000
L8	37	Bridge Stiffener (78"x4.5"x1.0")-80'	85.00 - 86.48	Auto	1.0000
L8	38	Bridge Stiffener (78"x4.5"x1.0")-80'	85.00 - 86.48	Auto	1.0000
L9	36	Bridge Stiffener (78"x4.5"x1.0")-80'	80.00 - 85.00	Auto	1.0000
L9	37	Bridge Stiffener (78"x4.5"x1.0")-80'	80.00 - 85.00	Auto	1.0000
L9	38	Bridge Stiffener (78"x4.5"x1.0")-80'	80.00 - 85.00	Auto	1.0000
L10	36	Bridge Stiffener (78"x4.5"x1.0")-80'	77.48 - 80.00	Auto	1.0000
L10	37	Bridge Stiffener (78"x4.5"x1.0")-80'	77.48 - 80.00	Auto	1.0000
L10	38	Bridge Stiffener (78"x4.5"x1.0")-80'	77.48 - 80.00	Auto	1.0000
L11	28	CCI 6" x 1" Plate	75.45 - 75.50	Auto	1.0000
L11	29	CCI 6" x 1" Plate	75.45 - 75.50	Auto	1.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L11	30	CCI 6" x 1" Plate	75.45 - 75.50	Auto	1.0000
L12	28	CCI 6" x 1" Plate	70.45 - 75.45	Auto	1.0000
L12	29	CCI 6" x 1" Plate	70.45 - 75.45	Auto	1.0000
L12	30	CCI 6" x 1" Plate	70.45 - 75.45	Auto	1.0000
L13	24	CCI 6" x 1" Plate	65.45 - 65.50	Auto	1.0000
L13	25	CCI 6" x 1" Plate	65.45 - 65.50	Auto	1.0000
L13	26	CCI 6" x 1" Plate	65.45 - 65.50	Auto	1.0000
L13	28	CCI 6" x 1" Plate	65.45 - 70.45	Auto	1.0000
L13	29	CCI 6" x 1" Plate	65.45 - 70.45	Auto	1.0000
L13	30	CCI 6" x 1" Plate	65.45 - 70.45	Auto	1.0000
L14	24	CCI 6" x 1" Plate	60.45 - 65.45	Auto	1.0000
L14	25	CCI 6" x 1" Plate	60.45 - 65.45	Auto	1.0000
L14	26	CCI 6" x 1" Plate	60.45 - 65.45	Auto	1.0000
L14	28	CCI 6" x 1" Plate	60.50 - 65.45	Auto	1.0000
L14	29	CCI 6" x 1" Plate	60.50 - 65.45	Auto	1.0000
L14	30	CCI 6" x 1" Plate	60.50 - 65.45	Auto	1.0000
L15	24	CCI 6" x 1" Plate	60.00 - 60.45	Auto	1.0000
L15	25	CCI 6" x 1" Plate	60.00 - 60.45	Auto	1.0000
L15	26	CCI 6" x 1" Plate	60.00 - 60.45	Auto	1.0000
L16	24	CCI 6" x 1" Plate	59.75 - 60.00	Auto	1.0000
L16	25	CCI 6" x 1" Plate	59.75 - 60.00	Auto	1.0000
L16	26	CCI 6" x 1" Plate	59.75 - 60.00	Auto	1.0000
L17	24	CCI 6" x 1" Plate	54.75 - 59.75	Auto	1.0000
L17	25	CCI 6" x 1" Plate	54.75 - 59.75	Auto	1.0000
L17	26	CCI 6" x 1" Plate	54.75 - 59.75	Auto	1.0000
L18	24	CCI 6" x 1" Plate	49.75 - 54.75	Auto	1.0000
L18	25	CCI 6" x 1" Plate	49.75 - 54.75	Auto	1.0000
L18	26	CCI 6" x 1" Plate	49.75 - 54.75	Auto	1.0000
L19	20	CCI 6.5" x 1.25" Plate	44.75 - 46.50	Auto	1.0000
L19	21	CCI 6.5" x 1.25" Plate	44.75 - 46.50	Auto	1.0000
L19	22	CCI 6.5" x 1.25" Plate	44.75 - 46.50	Auto	1.0000
L19	24	CCI 6" x 1" Plate	44.75 - 49.75	Auto	1.0000
L19	25	CCI 6" x 1" Plate	44.75 - 49.75	Auto	1.0000
L19	26	CCI 6" x 1" Plate	44.75 - 49.75	Auto	1.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L20	20	CCI 6.5" x 1.25" Plate	40.00 - 44.75	Auto	1.0000
L20	21	CCI 6.5" x 1.25" Plate	40.00 - 44.75	Auto	1.0000
L20	22	CCI 6.5" x 1.25" Plate	40.00 - 44.75	Auto	1.0000
L20	24	CCI 6" x 1" Plate	40.50 - 44.75	Auto	1.0000
L20	25	CCI 6" x 1" Plate	40.50 - 44.75	Auto	1.0000
L20	26	CCI 6" x 1" Plate	40.50 - 44.75	Auto	1.0000
L21	20	CCI 6.5" x 1.25" Plate	39.75 - 40.00	Auto	1.0000
L21	21	CCI 6.5" x 1.25" Plate	39.75 - 40.00	Auto	1.0000
L21	22	CCI 6.5" x 1.25" Plate	39.75 - 40.00	Auto	1.0000
L22	20	CCI 6.5" x 1.25" Plate	34.75 - 39.75	Auto	1.0000
L22	21	CCI 6.5" x 1.25" Plate	34.75 - 39.75	Auto	1.0000
L22	22	CCI 6.5" x 1.25" Plate	34.75 - 39.75	Auto	1.0000
L23	20	CCI 6.5" x 1.25" Plate	29.75 - 34.75	Auto	1.0000
L23	21	CCI 6.5" x 1.25" Plate	29.75 - 34.75	Auto	1.0000
L23	22	CCI 6.5" x 1.25" Plate	29.75 - 34.75	Auto	1.0000
L24	16	CCI 8.5" x 1.25" Plate	24.75 - 28.50	Auto	1.0000
L24	17	CCI 8.5" x 1.25" Plate	24.75 - 28.50	Auto	1.0000
L24	18	CCI 8.5" x 1.25" Plate	24.75 - 28.50	Auto	1.0000
L24	20	CCI 6.5" x 1.25" Plate	24.75 - 29.75	Auto	1.0000
L24	21	CCI 6.5" x 1.25" Plate	24.75 - 29.75	Auto	1.0000
L24	22	CCI 6.5" x 1.25" Plate	24.75 - 29.75	Auto	1.0000
L25	16	CCI 8.5" x 1.25" Plate	20.00 - 24.75	Auto	1.0000
L25	17	CCI 8.5" x 1.25" Plate	20.00 - 24.75	Auto	1.0000
L25	18	CCI 8.5" x 1.25" Plate	20.00 - 24.75	Auto	1.0000
L25	20	CCI 6.5" x 1.25" Plate	20.50 - 24.75	Auto	1.0000
L25	21	CCI 6.5" x 1.25" Plate	20.50 - 24.75	Auto	1.0000
L25	22	CCI 6.5" x 1.25" Plate	20.50 - 24.75	Auto	1.0000
L26	16	CCI 8.5" x 1.25" Plate	19.75 - 20.00	Auto	1.0000
L26	17	CCI 8.5" x 1.25" Plate	19.75 - 20.00	Auto	1.0000
L26	18	CCI 8.5" x 1.25" Plate	19.75 - 20.00	Auto	1.0000
L27	16	CCI 8.5" x 1.25" Plate	14.75 - 19.75	Auto	1.0000
L27	17	CCI 8.5" x 1.25" Plate	14.75 - 19.75	Auto	1.0000
L27	18	CCI 8.5" x 1.25" Plate	14.75 - 19.75	Auto	1.0000
L28	16	CCI 8.5" x 1.25" Plate	9.75 - 14.75	Auto	1.0000
L28	17	CCI 8.5" x 1.25" Plate	9.75 - 14.75	Auto	1.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L28	18	CCI 8.5" x 1.25" Plate	9.75 - 14.75	Auto	1.0000
L29	16	CCI 8.5" x 1.25" Plate	4.75 - 9.75	Auto	1.0000
L29	17	CCI 8.5" x 1.25" Plate	4.75 - 9.75	Auto	1.0000
L29	18	CCI 8.5" x 1.25" Plate	4.75 - 9.75	Auto	1.0000
L30	16	CCI 8.5" x 1.25" Plate	4.38 - 4.75	Auto	1.0000
L30	17	CCI 8.5" x 1.25" Plate	4.38 - 4.75	Auto	1.0000
L30	18	CCI 8.5" x 1.25" Plate	4.38 - 4.75	Auto	1.0000
L31	16	CCI 8.5" x 1.25" Plate	4.13 - 4.38	Auto	1.0000
L31	17	CCI 8.5" x 1.25" Plate	4.13 - 4.38	Auto	1.0000
L31	18	CCI 8.5" x 1.25" Plate	4.13 - 4.38	Auto	1.0000
L32	16	CCI 8.5" x 1.25" Plate	0.00 - 4.13	Auto	1.0000
L32	17	CCI 8.5" x 1.25" Plate	0.00 - 4.13	Auto	1.0000
L32	18	CCI 8.5" x 1.25" Plate	0.00 - 4.13	Auto	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	122.000
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	122.000
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	122.000
APXVAALL24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	122.000
APXVAALL24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	122.000
APXVAALL24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	122.000
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	122.000
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	122.000
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	122.000
RADIO 4449 B71/B85A	A	From Leg	4.000 0.000 0.000	0.000	122.000
RADIO 4449 B71/B85A	B	From Leg	4.000 0.000 0.000	0.000	122.000
RADIO 4449 B71/B85A	C	From Leg	4.000 0.000 0.000	0.000	122.000
KRY 112 144/1	A	From Leg	4.000 0.000	0.000	122.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
KRY 112 144/1	B	From Leg	0.000 4.000 0.000	0.000	122.000
KRY 112 144/1	C	From Leg	0.000 4.000 0.000	0.000	122.000
L 2 1/2x2 1/2x1/4x15.62"	A	From Leg	0.000 4.000 0.000	0.000	122.000
L 2 1/2x2 1/2x1/4x15.62"	B	From Leg	0.000 4.000 0.000	0.000	122.000
L 2 1/2x2 1/2x1/4x15.62"	C	From Leg	0.000 4.000 0.000	0.000	122.000
Platform Mount [LP 405-1_HR-1] *	C	None	0.000	0.000	122.000
MT6407-77A w/ Mount Pipe	A	From Leg	4.000 0.000	0.000	112.000
MT6407-77A w/ Mount Pipe	B	From Leg	1.000 4.000 0.000	0.000	112.000
MT6407-77A w/ Mount Pipe	C	From Leg	1.000 4.000 0.000	0.000	112.000
(2) MX06FRO660-03 w/ Mount Pipe	A	From Leg	1.000 4.000 0.000	0.000	112.000
(2) MX06FRO660-03 w/ Mount Pipe	B	From Leg	1.000 4.000 0.000	0.000	112.000
(2) MX06FRO660-03 w/ Mount Pipe	C	From Leg	1.000 4.000 0.000	0.000	112.000
HBXX-6517DS-A2M w/ Mount Pipe	A	From Leg	1.000 4.000 0.000	0.000	112.000
HBXX-6517DS-A2M w/ Mount Pipe	B	From Leg	1.000 4.000 0.000	0.000	112.000
HBXX-6517DS-A2M w/ Mount Pipe	C	From Leg	1.000 4.000 0.000	0.000	112.000
RXXDC-3315-PF-48	A	From Leg	1.000 4.000 0.000	0.000	112.000
RXXDC-3315-PF-48	B	From Leg	1.000 4.000 0.000	0.000	112.000
RFV01U-D1A	A	From Leg	1.000 4.000 0.000	0.000	112.000
RFV01U-D1A	B	From Leg	1.000 4.000 0.000	0.000	112.000
RFV01U-D1A	C	From Leg	1.000 4.000 0.000	0.000	112.000
RFV01U-D2A	A	From Leg	1.000 4.000 0.000	0.000	112.000
RFV01U-D2A	B	From Leg	1.000 4.000 0.000	0.000	112.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
RFV01U-D2A	C	From Leg	1.000 4.000 0.000	0.000	112.000
Mount Reinforcement Specifications	C	None	1.000	0.000	112.000
Side Arm Mount [SO 102-1]	A	From Leg	4.000 0.000 0.000	0.000	112.000
Side Arm Mount [SO 102-1]	B	From Leg	4.000 0.000 0.000	0.000	112.000
Side Arm Mount [SO 102-1]	C	From Leg	4.000 0.000 0.000	0.000	112.000
Platform Mount [LP 303-1]	C	None		0.000	112.000
7770.00 w/ Mount Pipe *	A	From Leg	4.000 0.000 0.000	0.000	100.000
7770.00 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	100.000
(2) 80010965 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	100.000
(2) 80010964 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	100.000
(2) 80010964 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	100.000
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	100.000
(2) SBNHH-1D65A w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	100.000
SBNHH-1D65A w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	100.000
(2) DC6-48-60-18-8F	A	From Leg	4.000 0.000 0.000	0.000	100.000
DC6-48-60-18-8F	B	From Leg	4.000 0.000 0.000	0.000	100.000
(2) LGP21401	A	From Leg	4.000 0.000 0.000	0.000	100.000
(2) LGP21401	B	From Leg	4.000 0.000 0.000	0.000	100.000
(2) LGP21401	C	From Leg	4.000 0.000 0.000	0.000	100.000
RRUS 8843 B2/B66A	A	From Leg	4.000 0.000 0.000	0.000	100.000
RRUS 8843 B2/B66A	B	From Leg	4.000 0.000 0.000	0.000	100.000
RRUS 8843 B2/B66A	C	From Leg	4.000 0.000 0.000	0.000	100.000
RRUS 4449 B5/B12	A	From Leg	4.000	0.000	100.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
			0.000 0.000		
RRUS 4449 B5/B12	B	From Leg	4.000 0.000 0.000	0.000	100.000
RRUS 4449 B5/B12	C	From Leg	4.000 0.000 0.000	0.000	100.000
RRUS 32	A	From Leg	4.000 0.000 0.000	0.000	100.000
RRUS 32	B	From Leg	4.000 0.000 0.000	0.000	100.000
RRUS 32	C	From Leg	4.000 0.000 0.000	0.000	100.000
T-Arm Mount [TA 602-3]	C	None		0.000	100.000
*					
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	90.000
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	90.000
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	90.000
NNVV-65B-R4 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	90.000
NNVV-65B-R4 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	90.000
NNVV-65B-R4 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	90.000
PCS 1900MHZ 4X45W-65MHZ	A	From Leg	4.000 0.000 0.000	0.000	90.000
(2) PCS 1900MHZ 4X45W-65MHZ	B	From Leg	4.000 0.000 0.000	0.000	90.000
(2) RRH2X50-800	A	From Leg	4.000 0.000 0.000	0.000	90.000
(2) RRH2X50-800	B	From Leg	4.000 0.000 0.000	0.000	90.000
(2) RRH2X50-800	C	From Leg	4.000 0.000 0.000	0.000	90.000
FZHN	A	From Leg	4.000 0.000 0.000	0.000	90.000
FZHN	B	From Leg	4.000 0.000 0.000	0.000	90.000
FZHN	C	From Leg	4.000 0.000 0.000	0.000	90.000
(2) AIRPAIR ODU	B	From Leg	4.000 0.000 -2.000	0.000	90.000
AIRPAIR ODU	C	From Leg	4.000	0.000	90.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
			0.000 -2.000		
(2) 8' x 2.375" Mount Pipe	A	From Leg	4.000 0.000	0.000	90.000
			0.000		
(2) 8' x 2.375" Mount Pipe	B	From Leg	4.000 0.000	0.000	90.000
			0.000		
(2) 8' x 2.375" Mount Pipe	C	From Leg	4.000 0.000	0.000	90.000
			0.000		
Platform Mount [LP 303-1_KCKR-HR-1] *	C	None		0.000	90.000
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.000 0.000	0.000	81.000
			0.000		
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.000 0.000	0.000	81.000
			0.000		
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.000 0.000	0.000	81.000
			0.000		
TA08025-B604	A	From Leg	4.000 0.000	0.000	81.000
			0.000		
TA08025-B604	B	From Leg	4.000 0.000	0.000	81.000
			0.000		
TA08025-B604	C	From Leg	4.000 0.000	0.000	81.000
			0.000		
TA08025-B605	A	From Leg	4.000 0.000	0.000	81.000
			0.000		
TA08025-B605	B	From Leg	4.000 0.000	0.000	81.000
			0.000		
TA08025-B605	C	From Leg	4.000 0.000	0.000	81.000
			0.000		
RDIDC-9181-PF-48	A	From Leg	4.000 0.000	0.000	81.000
			0.000		
(2) 8' x 2" Mount Pipe	A	From Leg	4.000 0.000	0.000	81.000
			0.000		
(2) 8' x 2" Mount Pipe	B	From Leg	4.000 0.000	0.000	81.000
			0.000		
(2) 8' x 2" Mount Pipe	C	From Leg	4.000 0.000	0.000	81.000
			0.000		
Commscope MC-PK8-DSH *	C	None		0.000	81.000

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft
Dragonwave A-ANT-18G-2-C	B	Paraboloid w/Shroud (HP)	From Leg	4.000 0.000 -2.000	90.000		90.000	2.175
Dragonwave A-ANT-18G-2-C	C	Paraboloid w/Shroud (HP)	From Leg	4.000 0.000 -2.000	30.000		90.000	2.175
*								

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	125 - 120	Pole	Max Tension	8	0.000	0.000	-0.000
			Max. Compression	26	-9.914	-0.003	-0.033
			Max. Mx	8	-4.789	-6.694	-0.003
			Max. My	14	-4.786	-0.001	-6.707
			Max. Vy	8	3.283	-6.694	-0.003
			Max. Vx	14	3.287	-0.001	-6.707
			Max. Torque	20			-0.000
L2	120 - 115	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-10.789	-0.010	-0.064
			Max. Mx	8	-5.403	-23.746	-0.005
			Max. My	14	-5.400	-0.002	-23.786
			Max. Vy	8	3.538	-23.746	-0.005
			Max. Vx	14	3.543	-0.002	-23.786
			Max. Torque	24			0.000
L3	115 - 110	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-20.916	-0.506	0.188
			Max. Mx	8	-9.764	-53.689	0.011
			Max. My	2	-9.761	-0.066	53.698
			Max. Vy	8	8.275	-53.689	0.011
			Max. Vx	14	8.299	-0.146	-53.641
			Max. Torque	12			0.308
L4	110 - 105	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-21.805	-0.520	0.160
			Max. Mx	8	-10.401	-95.664	-0.058
			Max. My	2	-10.398	-0.001	95.764
			Max. Vy	8	8.516	-95.664	-0.058
			Max. Vx	14	8.541	-0.219	-95.746
			Max. Torque	12			0.308
L5	105 - 100	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-22.692	-0.533	0.133
			Max. Mx	8	-11.043	-138.818	-0.127
			Max. My	14	-11.035	-0.292	-139.032
			Max. Vy	8	8.747	-138.818	-0.127
			Max. Vx	14	8.773	-0.292	-139.032
			Max. Torque	12			0.308
L6	100 - 95	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-31.331	-1.014	2.127
			Max. Mx	8	-14.921	-199.817	0.353
			Max. My	2	-14.911	-0.035	201.549
			Max. Vy	8	12.326	-199.817	0.353
			Max. Vx	14	12.556	-0.409	-200.550
			Max. Torque	20			-1.648
L7	95 - 90	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-32.494	-1.032	2.092
			Max. Mx	8	-15.794	-262.133	0.342
			Max. My	2	-15.784	-0.031	264.967
			Max. Vy	8	12.604	-262.133	0.342
			Max. Vx	14	12.835	-0.425	-264.025
			Max. Torque	20			-1.648
L8	90 - 85	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-42.337	-2.566	1.122
			Max. Mx	8	-20.718	-341.850	0.265
			Max. My	2	-20.710	-0.803	344.570
			Max. Vy	8	16.071	-341.850	0.265
			Max. Vx	2	-16.235	-0.803	344.570
			Max. Torque	22			-1.767
L9	85 - 80	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-49.501	-2.574	1.418
			Max. Mx	8	-24.810	-425.194	0.727
			Max. My	14	-24.784	-0.757	-428.916
			Max. Vy	8	18.720	-425.194	0.727
			Max. Vx	14	19.161	-0.757	-428.916
			Max. Torque	24			-1.733
L10	80 - 75.7	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-50.845	-2.613	1.263

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	8	-25.735	-506.221	1.008
			Max. My	14	-25.710	-0.568	-511.871
			Max. Vy	8	18.972	-506.221	1.008
			Max. Vx	14	19.413	-0.568	-511.871
			Max. Torque	24			-1.733
L11	75.7 - 75.45	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-50.939	-2.615	1.254
			Max. Mx	8	-25.810	-510.966	1.025
			Max. My	14	-25.785	-0.557	-516.727
			Max. Vy	8	18.987	-510.966	1.025
			Max. Vx	14	19.424	-0.557	-516.727
			Max. Torque	24			-1.733
L12	75.45 - 70.45	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-52.943	-2.660	1.074
			Max. Mx	8	-27.245	-606.651	1.351
			Max. My	14	-27.212	-0.336	-615.430
			Max. Vy	8	19.289	-606.651	1.351
			Max. Vx	14	20.040	-0.336	-615.430
			Max. Torque	24			-1.733
L13	70.45 - 65.45	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-54.944	-2.705	0.896
			Max. Mx	8	-28.686	-703.804	1.678
			Max. My	14	-28.649	-0.115	-717.137
			Max. Vy	8	19.575	-703.804	1.678
			Max. Vx	14	20.630	-0.115	-717.137
			Max. Torque	24			-1.733
L14	65.45 - 60.45	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-57.089	-2.750	0.719
			Max. Mx	8	-30.128	-803.123	2.004
			Max. My	14	-30.093	0.107	-821.823
			Max. Vy	8	20.157	-803.123	2.004
			Max. Vx	14	21.233	0.107	-821.823
			Max. Torque	24			-1.733
L15	60.45 - 60	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-57.268	-2.754	0.704
			Max. Mx	8	-30.261	-812.198	2.033
			Max. My	14	-30.226	0.127	-831.391
			Max. Vy	8	20.178	-812.198	2.033
			Max. Vx	14	21.279	0.127	-831.391
			Max. Torque	24			-1.733
L16	60 - 59.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-57.377	-2.756	0.693
			Max. Mx	8	-30.342	-817.245	2.049
			Max. My	14	-30.306	0.138	-836.715
			Max. Vy	8	20.196	-817.245	2.049
			Max. Vx	14	21.294	0.138	-836.715
			Max. Torque	24			-1.733
L17	59.75 - 54.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-59.558	-2.808	0.491
			Max. Mx	8	-31.924	-919.006	2.367
			Max. My	14	-31.891	0.357	-944.031
			Max. Vy	8	20.512	-919.006	2.367
			Max. Vx	14	21.614	0.357	-944.031
			Max. Torque	24			-1.733
L18	54.75 - 49.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-61.733	-2.858	0.290
			Max. Mx	8	-33.513	-1022.302	2.684
			Max. My	14	-33.483	0.577	-1052.881
			Max. Vy	8	20.810	-1022.302	2.684
			Max. Vx	14	21.912	0.577	-1052.881
			Max. Torque	24			-1.732
L19	49.75 - 44.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-63.956	-2.908	0.092

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	8	-35.108	-1127.033	3.001
			Max. My	14	-35.075	0.798	-1163.980
			Max. Vy	8	21.087	-1127.033	3.001
			Max. Vx	14	22.516	0.798	-1163.980
			Max. Torque	24			-1.732
L20	44.75 - 40	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-66.142	-2.956	-0.095
			Max. Mx	8	-36.622	-1228.483	3.301
			Max. My	14	-36.593	1.007	-1272.295
			Max. Vy	8	21.636	-1228.483	3.301
			Max. Vx	14	23.081	1.007	-1272.295
			Max. Torque	24			-1.732
L21	40 - 39.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-66.266	-2.958	-0.106
			Max. Mx	8	-36.720	-1233.893	3.316
			Max. My	14	-36.691	1.018	-1278.068
			Max. Vy	8	21.648	-1233.893	3.316
			Max. Vx	14	23.089	1.018	-1278.068
			Max. Torque	24			-1.732
L22	39.75 - 34.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-68.751	-3.014	-0.326
			Max. Mx	8	-38.579	-1342.894	3.624
			Max. My	14	-38.554	1.236	-1394.341
			Max. Vy	8	21.955	-1342.894	3.624
			Max. Vx	14	23.399	1.236	-1394.341
			Max. Torque	24			-1.732
L23	34.75 - 29.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-71.224	-3.069	-0.544
			Max. Mx	8	-40.445	-1453.369	3.931
			Max. My	14	-40.422	1.455	-1512.081
			Max. Vy	8	22.238	-1453.369	3.931
			Max. Vx	14	23.681	1.455	-1512.081
			Max. Torque	24			-1.732
L24	29.75 - 24.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-73.818	-3.123	-0.757
			Max. Mx	8	-42.311	-1566.035	4.238
			Max. My	14	-42.292	1.673	-1632.049
			Max. Vy	8	22.833	-1566.035	4.238
			Max. Vx	14	24.292	1.673	-1632.049
			Max. Torque	24			-1.732
L25	24.75 - 20	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-76.293	-3.173	-0.956
			Max. Mx	8	-44.088	-1675.804	4.528
			Max. My	14	-44.073	1.880	-1748.832
			Max. Vy	8	23.394	-1675.804	4.528
			Max. Vx	14	24.869	1.880	-1748.832
			Max. Torque	24			-1.732
L26	20 - 19.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-76.433	-3.176	-0.968
			Max. Mx	8	-44.200	-1681.654	4.543
			Max. My	14	-44.185	1.891	-1755.053
			Max. Vy	8	23.404	-1681.654	4.543
			Max. Vx	14	24.877	1.891	-1755.053
			Max. Torque	24			-1.732
L27	19.75 - 14.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-79.232	-3.234	-1.197
			Max. Mx	8	-46.358	-1799.456	4.840
			Max. My	14	-46.346	2.107	-1880.281
			Max. Vy	8	23.718	-1799.456	4.840
			Max. Vx	14	25.191	2.107	-1880.281
			Max. Torque	24			-1.732
L28	14.75 - 9.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-82.006	-3.290	-1.418
			Max. Mx	8	-48.521	-1918.795	5.136
			Max. My	14	-48.513	2.322	-2007.033

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	8	24.021	-1918.795	5.136
			Max. Vx	14	25.492	2.322	-2007.033
			Max. Torque	24			-1.732
L29	9.75 - 4.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-84.744	-3.344	-1.629
			Max. Mx	8	-50.687	-2039.621	5.431
			Max. My	14	-50.682	2.538	-2135.259
			Max. Vy	8	24.314	-2039.621	5.431
			Max. Vx	14	25.782	2.538	-2135.259
			Max. Torque	24			-1.732
L30	4.75 - 4.38	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-84.944	-3.348	-1.644
			Max. Mx	8	-50.850	-2048.620	5.453
			Max. My	14	-50.846	2.554	-2144.805
			Max. Vy	8	24.331	-2048.620	5.453
			Max. Vx	14	25.798	2.554	-2144.805
			Max. Torque	24			-1.732
L31	4.38 - 4.13	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-85.071	-3.350	-1.654
			Max. Mx	8	-50.951	-2054.704	5.468
			Max. My	14	-50.947	2.564	-2151.259
			Max. Vy	8	24.344	-2054.704	5.468
			Max. Vx	14	25.811	2.564	-2151.259
			Max. Torque	24			-1.732
L32	4.13 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-87.142	-3.390	-1.811
			Max. Mx	8	-52.619	-2155.707	5.711
			Max. My	14	-52.619	2.742	-2258.360
			Max. Vy	8	24.571	-2155.707	5.711
			Max. Vx	14	26.035	2.742	-2258.360
			Max. Torque	24			-1.732

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	87.142	-0.000	0.000
	Max. H_x	20	52.624	24.521	-0.042
	Max. H_z	3	39.468	-0.028	24.759
	Max. M_x	2	2173.819	-0.028	24.759
	Max. M_z	8	2155.707	-24.561	0.073
	Max. Torsion	12	1.527	-12.284	-21.394
	Min. Vert	19	39.468	21.249	-12.373
	Min. H_x	8	52.624	-24.561	0.073
	Min. H_z	15	39.468	0.047	-26.025
	Min. M_x	14	-2258.360	0.047	-26.025
	Min. M_z	20	-2149.590	24.521	-0.042
	Min. Torsion	24	-1.732	12.229	21.425

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	43.853	0.000	0.000	0.554	-0.998	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	52.624	0.028	-24.759	-2173.819	-3.515	1.280
0.9 Dead+1.0 Wind 0 deg - No Ice	39.468	0.028	-24.759	-2161.178	-3.185	1.273
1.2 Dead+1.0 Wind 30 deg -	52.624	12.344	-21.415	-1880.406	-1083.997	0.877

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
No Ice						
0.9 Dead+1.0 Wind 30 deg - No Ice	39.468	12.344	-21.415	-1869.492	-1077.306	0.872
1.2 Dead+1.0 Wind 60 deg - No Ice	52.624	22.431	-13.055	-1131.845	-1944.368	0.064
0.9 Dead+1.0 Wind 60 deg - No Ice	39.468	22.431	-13.055	-1125.419	-1932.739	0.064
1.2 Dead+1.0 Wind 90 deg - No Ice	52.624	24.561	-0.073	-5.711	-2155.707	-0.627
0.9 Dead+1.0 Wind 90 deg - No Ice	39.468	24.561	-0.073	-5.846	-2142.702	-0.623
1.2 Dead+1.0 Wind 120 deg - No Ice	52.624	21.359	12.404	1089.909	-1873.963	-1.425
0.9 Dead+1.0 Wind 120 deg - No Ice	39.468	21.359	12.404	1083.327	-1862.624	-1.418
1.2 Dead+1.0 Wind 150 deg - No Ice	52.624	12.284	21.394	1880.003	-1078.929	-1.527
0.9 Dead+1.0 Wind 150 deg - No Ice	39.468	12.284	21.394	1868.763	-1072.263	-1.519
1.2 Dead+1.0 Wind 180 deg - No Ice	52.624	-0.047	26.025	2258.360	2.742	-1.147
0.9 Dead+1.0 Wind 180 deg - No Ice	39.468	-0.047	26.025	2245.042	3.042	-1.139
1.2 Dead+1.0 Wind 210 deg - No Ice	52.624	-12.296	21.396	1880.024	1077.219	-0.548
0.9 Dead+1.0 Wind 210 deg - No Ice	39.468	-12.296	21.396	1868.786	1071.191	-0.544
1.2 Dead+1.0 Wind 240 deg - No Ice	52.624	-21.249	12.373	1087.089	1862.048	0.166
0.9 Dead+1.0 Wind 240 deg - No Ice	39.468	-21.249	12.373	1080.523	1851.397	0.167
1.2 Dead+1.0 Wind 270 deg - No Ice	52.624	-24.521	0.042	4.188	2149.590	0.845
0.9 Dead+1.0 Wind 270 deg - No Ice	39.468	-24.521	0.042	4.003	2137.244	0.841
1.2 Dead+1.0 Wind 300 deg - No Ice	52.624	-22.416	-12.993	-1126.525	1940.638	1.365
0.9 Dead+1.0 Wind 300 deg - No Ice	39.468	-22.416	-12.993	-1120.125	1929.654	1.358
1.2 Dead+1.0 Wind 330 deg - No Ice	52.624	-12.229	-21.425	-1881.527	1071.494	1.732
0.9 Dead+1.0 Wind 330 deg - No Ice	39.468	-12.229	-21.425	-1870.606	1065.493	1.724
1.2 Dead+1.0 Ice+1.0 Temp	87.142	0.000	-0.000	1.811	-3.390	-0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	87.142	0.004	-7.008	-617.450	-3.842	0.291
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	87.142	3.500	-6.063	-533.961	-312.594	0.169
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	87.142	6.062	-3.515	-308.434	-538.138	-0.035
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	87.142	6.978	-0.013	0.683	-619.651	-0.201
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	87.142	6.044	3.501	311.217	-537.202	-0.369
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	87.142	3.491	6.060	537.415	-311.851	-0.375
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	87.142	-0.008	7.017	621.143	-2.916	-0.264
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	87.142	-3.490	6.059	537.254	304.581	-0.101
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	87.142	-6.037	3.501	311.126	529.360	0.082
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	87.142	-6.969	0.007	2.370	611.777	0.245
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	87.142	-6.053	-3.502	-307.278	530.303	0.356
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	87.142	-3.480	-6.067	-534.362	303.701	0.416
Dead+Wind 0 deg - Service	43.853	0.006	-5.645	-493.394	-1.546	0.298

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 30 deg - Service	43.853	2.814	-4.882	-426.743	-246.987	0.199
Dead+Wind 60 deg - Service	43.853	5.114	-2.976	-256.706	-442.433	0.008
Dead+Wind 90 deg - Service	43.853	5.600	-0.017	-0.893	-490.435	-0.154
Dead+Wind 120 deg - Service	43.853	4.870	2.828	247.983	-426.435	-0.337
Dead+Wind 150 deg - Service	43.853	2.801	4.877	427.459	-245.836	-0.359
Dead+Wind 180 deg - Service	43.853	-0.011	5.933	513.413	-0.126	-0.267
Dead+Wind 210 deg - Service	43.853	-2.803	4.878	427.464	243.952	-0.124
Dead+Wind 240 deg - Service	43.853	-4.844	2.821	247.343	422.233	0.045
Dead+Wind 270 deg - Service	43.853	-5.590	0.009	1.354	487.550	0.204
Dead+Wind 300 deg - Service	43.853	-5.110	-2.962	-255.498	440.090	0.323
Dead+Wind 330 deg - Service	43.853	-2.788	-4.885	-426.998	242.652	0.405

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-43.853	0.000	0.000	43.853	0.000	0.000%
2	0.028	-52.624	-24.759	-0.028	52.624	24.759	0.000%
3	0.028	-39.468	-24.759	-0.028	39.468	24.759	0.000%
4	12.344	-52.624	-21.415	-12.344	52.624	21.415	0.000%
5	12.344	-39.468	-21.415	-12.344	39.468	21.415	0.000%
6	22.431	-52.624	-13.055	-22.431	52.624	13.055	0.000%
7	22.431	-39.468	-13.055	-22.431	39.468	13.055	0.000%
8	24.561	-52.624	-0.073	-24.561	52.624	0.073	0.000%
9	24.561	-39.468	-0.073	-24.561	39.468	0.073	0.000%
10	21.359	-52.624	12.404	-21.359	52.624	-12.404	0.000%
11	21.359	-39.468	12.404	-21.359	39.468	-12.404	0.000%
12	12.284	-52.624	21.394	-12.284	52.624	-21.394	0.000%
13	12.284	-39.468	21.394	-12.284	39.468	-21.394	0.000%
14	-0.047	-52.624	26.025	0.047	52.624	-26.025	0.000%
15	-0.047	-39.468	26.025	0.047	39.468	-26.025	0.000%
16	-12.296	-52.624	21.396	12.296	52.624	-21.396	0.000%
17	-12.296	-39.468	21.396	12.296	39.468	-21.396	0.000%
18	-21.249	-52.624	12.373	21.249	52.624	-12.373	0.000%
19	-21.249	-39.468	12.373	21.249	39.468	-12.373	0.000%
20	-24.521	-52.624	0.042	24.521	52.624	-0.042	0.000%
21	-24.521	-39.468	0.042	24.521	39.468	-0.042	0.000%
22	-22.416	-52.624	-12.993	22.416	52.624	12.993	0.000%
23	-22.416	-39.468	-12.993	22.416	39.468	12.993	0.000%
24	-12.229	-52.624	-21.425	12.229	52.624	21.425	0.000%
25	-12.229	-39.468	-21.425	12.229	39.468	21.425	0.000%
26	0.000	-87.142	0.000	-0.000	87.142	0.000	0.000%
27	0.004	-87.142	-7.008	-0.004	87.142	7.008	0.000%
28	3.500	-87.142	-6.063	-3.500	87.142	6.063	0.000%
29	6.062	-87.142	-3.515	-6.062	87.142	3.515	0.000%
30	6.978	-87.142	-0.013	-6.978	87.142	0.013	0.000%
31	6.044	-87.142	3.501	-6.044	87.142	-3.501	0.000%
32	3.491	-87.142	6.060	-3.491	87.142	-6.060	0.000%
33	-0.008	-87.142	7.017	0.008	87.142	-7.017	0.000%
34	-3.490	-87.142	6.059	3.490	87.142	-6.059	0.000%
35	-6.037	-87.142	3.501	6.037	87.142	-3.501	0.000%
36	-6.969	-87.142	0.007	6.969	87.142	-0.007	0.000%
37	-6.053	-87.142	-3.502	6.053	87.142	3.502	0.000%
38	-3.480	-87.142	-6.067	3.480	87.142	6.067	0.000%
39	0.006	-43.853	-5.645	-0.006	43.853	5.645	0.000%
40	2.814	-43.853	-4.882	-2.814	43.853	4.882	0.000%
41	5.114	-43.853	-2.976	-5.114	43.853	2.976	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
42	5.600	-43.853	-0.017	-5.600	43.853	0.017	0.000%
43	4.870	-43.853	2.828	-4.870	43.853	-2.828	0.000%
44	2.801	-43.853	4.877	-2.801	43.853	-4.877	0.000%
45	-0.011	-43.853	5.933	0.011	43.853	-5.933	0.000%
46	-2.803	-43.853	4.878	2.803	43.853	-4.878	0.000%
47	-4.844	-43.853	2.821	4.844	43.853	-2.821	0.000%
48	-5.590	-43.853	0.009	5.590	43.853	-0.009	0.000%
49	-5.110	-43.853	-2.962	5.110	43.853	2.962	0.000%
50	-2.788	-43.853	-4.885	2.788	43.853	4.885	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	5	0.00000001	0.00003686
3	Yes	4	0.00000001	0.00075334
4	Yes	5	0.00000001	0.00022822
5	Yes	5	0.00000001	0.00011305
6	Yes	5	0.00000001	0.00023000
7	Yes	5	0.00000001	0.00011308
8	Yes	4	0.00000001	0.00080264
9	Yes	4	0.00000001	0.00047871
10	Yes	5	0.00000001	0.00020354
11	Yes	5	0.00000001	0.00010023
12	Yes	5	0.00000001	0.00023634
13	Yes	5	0.00000001	0.00011736
14	Yes	5	0.00000001	0.00003344
15	Yes	4	0.00000001	0.00066932
16	Yes	5	0.00000001	0.00020955
17	Yes	5	0.00000001	0.00010352
18	Yes	5	0.00000001	0.00021263
19	Yes	5	0.00000001	0.00010517
20	Yes	4	0.00000001	0.00086916
21	Yes	4	0.00000001	0.00053206
22	Yes	5	0.00000001	0.00024608
23	Yes	5	0.00000001	0.00012162
24	Yes	5	0.00000001	0.00019823
25	Yes	5	0.00000001	0.00009766
26	Yes	4	0.00000001	0.00005494
27	Yes	5	0.00000001	0.00057650
28	Yes	5	0.00000001	0.00059523
29	Yes	5	0.00000001	0.00059577
30	Yes	5	0.00000001	0.00057835
31	Yes	5	0.00000001	0.00059376
32	Yes	5	0.00000001	0.00059305
33	Yes	5	0.00000001	0.00057385
34	Yes	5	0.00000001	0.00058501
35	Yes	5	0.00000001	0.00058186
36	Yes	5	0.00000001	0.00056532
37	Yes	5	0.00000001	0.00058396
38	Yes	5	0.00000001	0.00058738
39	Yes	4	0.00000001	0.00012339
40	Yes	4	0.00000001	0.00018467
41	Yes	4	0.00000001	0.00018184
42	Yes	4	0.00000001	0.00011492
43	Yes	4	0.00000001	0.00017146
44	Yes	4	0.00000001	0.00019636
45	Yes	4	0.00000001	0.00012386
46	Yes	4	0.00000001	0.00016886
47	Yes	4	0.00000001	0.00017021
48	Yes	4	0.00000001	0.00011588
49	Yes	4	0.00000001	0.00019966
50	Yes	4	0.00000001	0.00017053

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	125 - 120	6.887	45	0.473	0.002
L2	120 - 115	6.392	45	0.473	0.002
L3	115 - 110	5.898	45	0.470	0.002
L4	110 - 105	5.408	45	0.465	0.001
L5	105 - 100	4.928	45	0.452	0.001
L6	100 - 95	4.465	45	0.433	0.001
L7	95 - 90	4.019	45	0.418	0.001
L8	90 - 85	3.591	45	0.399	0.001
L9	85 - 80	3.186	45	0.373	0.001
L10	80 - 75.7	2.811	45	0.341	0.001
L11	75.7 - 75.45	2.513	45	0.321	0.001
L12	75.45 - 70.45	2.496	45	0.321	0.001
L13	70.45 - 65.45	2.170	45	0.302	0.001
L14	65.45 - 60.45	1.864	45	0.280	0.001
L15	60.45 - 60	1.584	45	0.255	0.000
L16	60 - 59.75	1.560	45	0.253	0.000
L17	59.75 - 54.75	1.547	45	0.252	0.000
L18	54.75 - 49.75	1.293	45	0.232	0.000
L19	49.75 - 44.75	1.061	45	0.210	0.000
L20	44.75 - 40	0.854	45	0.186	0.000
L21	40 - 39.75	0.681	45	0.161	0.000
L22	39.75 - 34.75	0.673	45	0.160	0.000
L23	34.75 - 29.75	0.515	45	0.141	0.000
L24	29.75 - 24.75	0.377	45	0.121	0.000
L25	24.75 - 20	0.262	45	0.099	0.000
L26	20 - 19.75	0.174	45	0.077	0.000
L27	19.75 - 14.75	0.170	45	0.076	0.000
L28	14.75 - 9.75	0.099	45	0.060	0.000
L29	9.75 - 4.75	0.045	45	0.042	0.000
L30	4.75 - 4.38	0.012	45	0.023	0.000
L31	4.38 - 4.13	0.010	45	0.021	0.000
L32	4.13 - 0	0.009	45	0.020	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
122.000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	45	6.590	0.473	0.002	234711
112.000	MT6407-77A w/ Mount Pipe	45	5.604	0.467	0.001	43283
100.000	7770.00 w/ Mount Pipe	45	4.465	0.433	0.001	16742
90.000	APXVTM14-ALU-I20 w/ Mount Pipe	45	3.591	0.399	0.001	12674
88.000	Dragonwave A-ANT-18G-2-C	45	3.425	0.390	0.001	11179
81.000	MX08FRO665-21 w/ Mount Pipe	45	2.884	0.347	0.001	9886

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	125 - 120	30.366	14	2.087	0.006
L2	120 - 115	28.181	14	2.086	0.006

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L3	115 - 110	26.001	14	2.075	0.006
L4	110 - 105	23.840	14	2.049	0.006
L5	105 - 100	21.721	14	1.994	0.006
L6	100 - 95	19.675	14	1.908	0.006
L7	95 - 90	17.708	14	1.845	0.005
L8	90 - 85	15.819	14	1.759	0.005
L9	85 - 80	14.034	14	1.646	0.004
L10	80 - 75.7	12.382	14	1.503	0.003
L11	75.7 - 75.45	11.066	14	1.417	0.003
L12	75.45 - 70.45	10.992	14	1.413	0.003
L13	70.45 - 65.45	9.554	14	1.331	0.002
L14	65.45 - 60.45	8.209	14	1.235	0.002
L15	60.45 - 60	6.973	14	1.124	0.002
L16	60 - 59.75	6.868	14	1.113	0.002
L17	59.75 - 54.75	6.810	14	1.109	0.002
L18	54.75 - 49.75	5.693	14	1.023	0.002
L19	49.75 - 44.75	4.672	14	0.926	0.001
L20	44.75 - 40	3.757	14	0.819	0.001
L21	40 - 39.75	2.997	14	0.707	0.001
L22	39.75 - 34.75	2.960	14	0.703	0.001
L23	34.75 - 29.75	2.266	14	0.622	0.001
L24	29.75 - 24.75	1.661	14	0.533	0.001
L25	24.75 - 20	1.152	14	0.437	0.001
L26	20 - 19.75	0.765	14	0.339	0.000
L27	19.75 - 14.75	0.747	14	0.336	0.000
L28	14.75 - 9.75	0.434	14	0.262	0.000
L29	9.75 - 4.75	0.200	14	0.184	0.000
L30	4.75 - 4.38	0.051	14	0.100	0.000
L31	4.38 - 4.13	0.043	14	0.094	0.000
L32	4.13 - 0	0.038	14	0.088	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
122.000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	14	29.054	2.087	0.006	53206
112.000	MT6407-77A w/ Mount Pipe	14	24.701	2.062	0.006	9849
100.000	7770.00 w/ Mount Pipe	14	19.675	1.908	0.006	3811
90.000	APXVTM14-ALU-I20 w/ Mount Pipe	14	15.819	1.759	0.005	2889
88.000	Dragonwave A-ANT-18G-2-C	14	15.090	1.718	0.004	2547
81.000	MX08FRO665-21 w/ Mount Pipe	14	12.701	1.530	0.003	2250

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	125 - 124	P24x0.375	5.000	0.000	0.0	27.833	-0.169	1052.070	0.000 [1]
	124 - 123					27.833	-0.339	1052.070	0.000 [1]
	123 - 122					27.833	-0.350	1052.070	0.000
	122 - 121					27.833	-9.736	1052.070	0.009
	121 - 120					27.833	-4.786	1052.070	0.005
L2	120 - 119	P24x0.375	5.000	0.000	0.0	27.833	-4.909	1052.070	0.005

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	119 - 118					27.833	-5.032	1052.070	0.005
	118 - 117					27.833	-5.155	1052.070	0.005
	117 - 116					27.833	-5.277	1052.070	0.005
	116 - 115					27.833	-5.400	1052.070	0.005
L3	115 - 114	P24x0.375	5.000	0.000	0.0	27.833	-5.524	1052.070	0.005
	114 - 113					27.833	-5.648	1052.070	0.005
	113 - 112					27.833	-5.773	1052.070	0.005
	112 - 111					27.833	-9.633	1052.070	0.009
	111 - 110					27.833	-9.758	1052.070	0.009
L4	110 - 109	P24x0.375	5.000	0.000	0.0	27.833	-9.889	1052.070	0.009
	109 - 108					27.833	-10.016	1052.070	0.010
	108 - 107					27.833	-10.143	1052.070	0.010
	107 - 106					27.833	-10.270	1052.070	0.010
	106 - 105					27.833	-10.398	1052.070	0.010
L5	105 - 104	P24x0.375	5.000	0.000	0.0	27.833	-10.526	1052.070	0.010
	104 - 103					27.833	-10.654	1052.070	0.010
	103 - 102					27.833	-10.783	1052.070	0.010
	102 - 101					27.833	-10.912	1052.070	0.010
	101 - 100					27.833	-11.040	1052.070	0.010
L6	100 - 99	P30x0.375	5.000	0.000	0.0	34.901	-14.216	1311.060	0.011
	99 - 98					34.901	-14.390	1311.060	0.011
	98 - 97					34.901	-14.563	1311.060	0.011
	97 - 96					34.901	-14.737	1311.060	0.011
	96 - 95					34.901	-14.911	1311.060	0.011
L7	95 - 94	P30x0.375	5.000	0.000	0.0	34.901	-15.085	1311.060	0.012
	94 - 93					34.901	-15.259	1311.060	0.012
	93 - 92					34.901	-15.434	1311.060	0.012
	92 - 91					34.901	-15.609	1311.060	0.012
	91 - 90					34.901	-15.784	1311.060	0.012
L8	90 - 89	P30x0.375	5.000	0.000	0.0	34.901	-19.917	1311.060	0.015
	89 - 88					34.901	-20.100	1311.060	0.015
	88 - 87					34.901	-20.342	1311.060	0.016
	87 - 86					34.901	-20.526	1311.060	0.016
	86 - 85					34.901	-20.710	1311.060	0.016
L9	85 - 84	P30x0.375	5.000	0.000	0.0	34.901	-20.895	1311.060	0.016
	84 - 83					34.901	-21.081	1311.060	0.016
	83 - 82					34.901	-21.267	1311.060	0.016
	82 - 81					34.901	-21.438	1311.060	0.016
	81 - 80					34.901	-24.784	1311.060	0.019
L10	80 - 78.925	P36x0.375	4.300	0.000	0.0	41.970	-25.016	1490.100	0.017
	78.925 - 77.85					41.970	-25.247	1490.100	0.017
	77.85 - 76.775					41.970	-25.478	1490.100	0.017
	76.775 - 75.7					41.970	-25.710	1490.100	0.017
L11	75.7 - 75.45 (11)	P36x0.5625	0.250	0.000	0.0	62.623	-25.785	2367.160	0.011
L12	75.45 - 74.45	P36x0.5625	5.000	0.000	0.0	62.623	-26.068	2367.160	0.011
	74.45 - 73.45					62.623	-26.354	2367.160	0.011
	73.45 - 72.45					62.623	-26.640	2367.160	0.011
	72.45 - 71.45					62.623	-26.926	2367.160	0.011
	71.45 - 70.45					62.623	-27.212	2367.160	0.011
L13	70.45 - 69.45	P36x0.5625	5.000	0.000	0.0	62.623	-27.499	2367.160	0.012
	69.45 - 68.45					62.623	-27.786	2367.160	0.012
	68.45 - 67.45					62.623	-28.073	2367.160	0.012
	67.45 - 66.45					62.623	-28.361	2367.160	0.012
	66.45 - 65.45					62.623	-28.649	2367.160	0.012
L14	65.45 - 64.45	P36x0.5625	5.000	0.000	0.0	62.623	-28.937	2367.160	0.012
	64.45 - 63.45					62.623	-29.226	2367.160	0.012
	63.45 - 62.45					62.623	-29.514	2367.160	0.012
	62.45 - 61.45					62.623	-29.803	2367.160	0.013
	61.45 - 60.45					62.623	-30.093	2367.160	0.013
L15	60.45 - 60 (15)	P36x0.5625	0.450	0.000	0.0	62.623	-30.226	2367.160	0.013
L16	60 - 59.75 (16)	P42x0.525	0.250	0.000	0.0	68.406	-30.306	2569.670	0.012
L17	59.75 - 58.75	P42x0.525	5.000	0.000	0.0	68.406	-30.621	2569.670	0.012
	58.75 - 57.75					68.406	-30.938	2569.670	0.012
	57.75 - 56.75					68.406	-31.255	2569.670	0.012

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	56.75 - 55.75					68.406	-31.573	2569.670	0.012
	55.75 - 54.75					68.406	-31.891	2569.670	0.012
L18	54.75 - 53.75	P42x0.525	5.000	0.000	0.0	68.406	-32.209	2569.670	0.013
	53.75 - 52.75					68.406	-32.527	2569.670	0.013
	52.75 - 51.75					68.406	-32.845	2569.670	0.013
	51.75 - 50.75					68.406	-33.164	2569.670	0.013
	50.75 - 49.75					68.406	-33.483	2569.670	0.013
L19	49.75 - 48.75	P42x0.525	5.000	0.000	0.0	68.406	-33.801	2569.670	0.013
	48.75 - 47.75					68.406	-34.119	2569.670	0.013
	47.75 - 46.75					68.406	-34.437	2569.670	0.013
	46.75 - 45.75					68.406	-34.756	2569.670	0.014
	45.75 - 44.75					68.406	-35.075	2569.670	0.014
L20	44.75 - 43.5625	P42x0.525	4.750	0.000	0.0	68.406	-35.453	2569.670	0.014
	43.5625 - 42.375					68.406	-35.833	2569.670	0.014
	42.375 - 41.1875					68.406	-36.213	2569.670	0.014
	41.1875 - 40					68.406	-36.593	2569.670	0.014
L21	40 - 39.75 (21)	P48x0.55625	0.250	0.000	0.0	82.909	-36.691	3039.700	0.012
L22	39.75 - 38.75	P48x0.55625	5.000	0.000	0.0	82.909	-37.062	3039.700	0.012
	38.75 - 37.75					82.909	-37.434	3039.700	0.012
	37.75 - 36.75					82.909	-37.807	3039.700	0.012
	36.75 - 35.75					82.909	-38.180	3039.700	0.013
	35.75 - 34.75					82.909	-38.554	3039.700	0.013
L23	34.75 - 33.75	P48x0.55625	5.000	0.000	0.0	82.909	-38.927	3039.700	0.013
	33.75 - 32.75					82.909	-39.301	3039.700	0.013
	32.75 - 31.75					82.909	-39.674	3039.700	0.013
	31.75 - 30.75					82.909	-40.048	3039.700	0.013
	30.75 - 29.75					82.909	-40.422	3039.700	0.013
L24	29.75 - 28.75	P48x0.55625	5.000	0.000	0.0	82.909	-40.796	3039.700	0.013
	28.75 - 27.75					82.909	-41.169	3039.700	0.014
	27.75 - 26.75					82.909	-41.544	3039.700	0.014
	26.75 - 25.75					82.909	-41.918	3039.700	0.014
	25.75 - 24.75					82.909	-42.292	3039.700	0.014
L25	24.75 - 23.5625	P48x0.55625	4.750	0.000	0.0	82.909	-42.736	3039.700	0.014
	23.5625 - 22.375					82.909	-43.181	3039.700	0.014
	22.375 - 21.1875					82.909	-43.627	3039.700	0.014
	21.1875 - 20					82.909	-44.072	3039.700	0.014
L26	20 - 19.75 (26)	P54x0.5875	0.250	0.000	0.0	98.583	-44.185	3545.230	0.012
L27	19.75 - 18.75	P54x0.5875	5.000	0.000	0.0	98.583	-44.615	3545.230	0.013
	18.75 - 17.75					98.583	-45.048	3545.230	0.013
	17.75 - 16.75					98.583	-45.481	3545.230	0.013
	16.75 - 15.75					98.583	-45.913	3545.230	0.013
	15.75 - 14.75					98.583	-46.346	3545.230	0.013
L28	14.75 - 13.75	P54x0.5875	5.000	0.000	0.0	98.583	-46.779	3545.230	0.013
	13.75 - 12.75					98.583	-47.212	3545.230	0.013
	12.75 - 11.75					98.583	-47.646	3545.230	0.013
	11.75 - 10.75					98.583	-48.079	3545.230	0.014
	10.75 - 9.75					98.583	-48.513	3545.230	0.014
L29	9.75 - 8.75	P54x0.5875	5.000	0.000	0.0	98.583	-48.946	3545.230	0.014
	8.75 - 7.75					98.583	-49.380	3545.230	0.014
	7.75 - 6.75					98.583	-49.814	3545.230	0.014
	6.75 - 5.75					98.583	-50.248	3545.230	0.014
	5.75 - 4.75					98.583	-50.682	3545.230	0.014
L30	4.75 - 4.38 (30)	P54x0.5875	0.370	0.000	0.0	98.583	-50.846	3545.230	0.014
L31	4.38 - 4.13 (31)	P54x0.4875	0.250	0.000	0.0	81.956	-50.947	2797.170	0.018
L32	4.13 - 3.0975	P54x0.4875	4.130	0.000	0.0	81.956	-51.362	2797.170	0.018
	3.0975 - 2.065					81.956	-51.781	2797.170	0.019
	2.065 - 1.0325					81.956	-52.200	2797.170	0.019

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
	1.0325 - 0					81.956	-52.619	2797.170	0.019

[1] P_u / ϕP_n controls

Pole Bending Design Data

Section No.	Elevation	Size	M_{ux}	ϕM_{nx}	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy}	ϕM_{ny}	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	ft		kip-ft	kip-ft		kip-ft	kip-ft	
L1	125 - 124	P24x0.375	0.017	623.717	0.000	0.000	623.717	0.000
	124 - 123		0.053	623.717	0.000	0.000	623.717	0.000
	123 - 122		0.236	623.717	0.000	0.000	623.717	0.000
	122 - 121		1.000	623.717	0.002	0.000	623.717	0.000
	121 - 120		6.707	623.717	0.011	0.000	623.717	0.000
L2	120 - 119	P24x0.375	10.021	623.717	0.016	0.000	623.717	0.000
	119 - 118		13.385	623.717	0.021	0.000	623.717	0.000
	118 - 117		16.801	623.717	0.027	0.000	623.717	0.000
	117 - 116		20.268	623.717	0.032	0.000	623.717	0.000
	116 - 115		23.786	623.717	0.038	0.000	623.717	0.000
L3	115 - 114	P24x0.375	27.355	623.717	0.044	0.000	623.717	0.000
	114 - 113		30.974	623.717	0.050	0.000	623.717	0.000
	113 - 112		34.643	623.717	0.056	0.000	623.717	0.000
	112 - 111		45.480	623.717	0.073	0.000	623.717	0.000
	111 - 110		53.728	623.717	0.086	0.000	623.717	0.000
L4	110 - 109	P24x0.375	62.025	623.717	0.099	0.000	623.717	0.000
	109 - 108		70.390	623.717	0.113	0.000	623.717	0.000
	108 - 107		78.804	623.717	0.126	0.000	623.717	0.000
	107 - 106		87.270	623.717	0.140	0.000	623.717	0.000
	106 - 105		95.787	623.717	0.154	0.000	623.717	0.000
L5	105 - 104	P24x0.375	104.353	623.717	0.167	0.000	623.717	0.000
	104 - 103		112.965	623.717	0.181	0.000	623.717	0.000
	103 - 102		121.623	623.717	0.195	0.000	623.717	0.000
	102 - 101		130.327	623.717	0.209	0.000	623.717	0.000
	101 - 100		139.077	623.717	0.223	0.000	623.717	0.000
L6	100 - 99	P30x0.375	151.832	947.858	0.160	0.000	947.858	0.000
	99 - 98		164.174	947.858	0.173	0.000	947.858	0.000
	98 - 97		176.575	947.858	0.186	0.000	947.858	0.000
	97 - 96		189.033	947.858	0.199	0.000	947.858	0.000
	96 - 95		201.549	947.858	0.213	0.000	947.858	0.000
L7	95 - 94	P30x0.375	214.122	947.858	0.226	0.000	947.858	0.000
	94 - 93		226.750	947.858	0.239	0.000	947.858	0.000
	93 - 92		239.434	947.858	0.253	0.000	947.858	0.000
	92 - 91		252.173	947.858	0.266	0.000	947.858	0.000
	91 - 90		264.967	947.858	0.280	0.000	947.858	0.000
L8	90 - 89	P30x0.375	280.503	947.858	0.296	0.000	947.858	0.000
	89 - 88		296.305	947.858	0.313	0.000	947.858	0.000
	88 - 87		312.229	947.858	0.329	0.000	947.858	0.000
	87 - 86		328.375	947.858	0.346	0.000	947.858	0.000
	86 - 85		344.571	947.858	0.364	0.000	947.858	0.000
L9	85 - 84	P30x0.375	360.816	947.858	0.381	0.000	947.858	0.000
	84 - 83		377.109	947.858	0.398	0.000	947.858	0.000
	83 - 82		393.450	947.858	0.415	0.000	947.858	0.000
	82 - 81		409.940	947.858	0.432	0.000	947.858	0.000
	81 - 80		428.917	947.858	0.453	0.000	947.858	0.000
L10	80 - 78.925	P36x0.375	449.553	1338.808	0.336	0.000	1338.808	0.000
	78.925 - 77.85		470.257	1338.808	0.351	0.000	1338.808	0.000
	77.85 - 76.775		491.031	1338.808	0.367	0.000	1338.808	0.000
	76.775 - 75.7		511.871	1338.808	0.382	0.000	1338.808	0.000
L11	75.7 - 75.45 (11)	P36x0.5625	516.727	2105.042	0.245	0.000	2105.042	0.000
L12	75.45 - 74.45	P36x0.5625	536.222	2105.042	0.255	0.000	2105.042	0.000
	74.45 - 73.45		555.841	2105.042	0.264	0.000	2105.042	0.000

Section No.	Elevation	Size	M_{ux}	ϕM_{nx}	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy}	ϕM_{ny}	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	ft		kip-ft	kip-ft		kip-ft	kip-ft	
	73.45 - 72.45		575.582	2105.042	0.273	0.000	2105.042	0.000
	72.45 - 71.45		595.445	2105.042	0.283	0.000	2105.042	0.000
	71.45 - 70.45		615.430	2105.042	0.292	0.000	2105.042	0.000
L13	70.45 - 69.45	P36x0.5625	635.536	2105.042	0.302	0.000	2105.042	0.000
	69.45 - 68.45		655.759	2105.042	0.312	0.000	2105.042	0.000
	68.45 - 67.45		676.102	2105.042	0.321	0.000	2105.042	0.000
	67.45 - 66.45		696.561	2105.042	0.331	0.000	2105.042	0.000
	66.45 - 65.45		717.138	2105.042	0.341	0.000	2105.042	0.000
L14	65.45 - 64.45	P36x0.5625	737.833	2105.042	0.351	0.000	2105.042	0.000
	64.45 - 63.45		758.650	2105.042	0.360	0.000	2105.042	0.000
	63.45 - 62.45		779.587	2105.042	0.370	0.000	2105.042	0.000
	62.45 - 61.45		800.646	2105.042	0.380	0.000	2105.042	0.000
	61.45 - 60.45		821.823	2105.042	0.390	0.000	2105.042	0.000
L15	60.45 - 60	P36x0.5625	831.391	2105.042	0.395	0.000	2105.042	0.000
	(15)							
L16	60 - 59.75	P42x0.525	836.717	2600.925	0.322	0.000	2600.925	0.000
	(16)							
L17	59.75 - 58.75	P42x0.525	858.050	2600.925	0.330	0.000	2600.925	0.000
	58.75 - 57.75		879.450	2600.925	0.338	0.000	2600.925	0.000
	57.75 - 56.75		900.917	2600.925	0.346	0.000	2600.925	0.000
	56.75 - 55.75		922.442	2600.925	0.355	0.000	2600.925	0.000
	55.75 - 54.75		944.033	2600.925	0.363	0.000	2600.925	0.000
L18	54.75 - 53.75	P42x0.525	965.683	2600.925	0.371	0.000	2600.925	0.000
	53.75 - 52.75		987.392	2600.925	0.380	0.000	2600.925	0.000
	52.75 - 51.75		1009.167	2600.925	0.388	0.000	2600.925	0.000
	51.75 - 50.75		1030.992	2600.925	0.396	0.000	2600.925	0.000
	50.75 - 49.75		1052.883	2600.925	0.405	0.000	2600.925	0.000
L19	49.75 - 48.75	P42x0.525	1074.858	2600.925	0.413	0.000	2600.925	0.000
	48.75 - 47.75		1096.958	2600.925	0.422	0.000	2600.925	0.000
	47.75 - 46.75		1119.183	2600.925	0.430	0.000	2600.925	0.000
	46.75 - 45.75		1141.517	2600.925	0.439	0.000	2600.925	0.000
	45.75 - 44.75		1163.983	2600.925	0.448	0.000	2600.925	0.000
L20	44.75 - 43.5625	P42x0.525	1190.808	2600.925	0.458	0.000	2600.925	0.000
	43.5625 - 42.375		1217.800	2600.925	0.468	0.000	2600.925	0.000
	42.375 - 41.1875		1244.967	2600.925	0.479	0.000	2600.925	0.000
	41.1875 - 40		1272.292	2600.925	0.489	0.000	2600.925	0.000
L21	40 - 39.75	P48x0.55625	1278.067	3569.342	0.358	0.000	3569.342	0.000
	(21)							
L22	39.75 - 38.75	P48x0.55625	1301.200	3569.342	0.365	0.000	3569.342	0.000
	38.75 - 37.75		1324.392	3569.342	0.371	0.000	3569.342	0.000
	37.75 - 36.75		1347.650	3569.342	0.378	0.000	3569.342	0.000
	36.75 - 35.75		1370.967	3569.342	0.384	0.000	3569.342	0.000
	35.75 - 34.75		1394.342	3569.342	0.391	0.000	3569.342	0.000
L23	34.75 - 33.75	P48x0.55625	1417.775	3569.342	0.397	0.000	3569.342	0.000
	33.75 - 32.75		1441.267	3569.342	0.404	0.000	3569.342	0.000
	32.75 - 31.75		1464.817	3569.342	0.410	0.000	3569.342	0.000
	31.75 - 30.75		1488.425	3569.342	0.417	0.000	3569.342	0.000
	30.75 - 29.75		1512.083	3569.342	0.424	0.000	3569.342	0.000
L24	29.75 - 28.75	P48x0.55625	1535.833	3569.342	0.430	0.000	3569.342	0.000
	28.75 - 27.75		1559.700	3569.342	0.437	0.000	3569.342	0.000
	27.75 - 26.75		1583.700	3569.342	0.444	0.000	3569.342	0.000
	26.75 - 25.75		1607.817	3569.342	0.450	0.000	3569.342	0.000
	25.75 - 24.75		1632.050	3569.342	0.457	0.000	3569.342	0.000
L25	24.75 - 23.5625	P48x0.55625	1660.992	3569.342	0.465	0.000	3569.342	0.000
	23.5625 - 22.375		1690.100	3569.342	0.474	0.000	3569.342	0.000
	22.375 - 21.1875		1719.383	3569.342	0.482	0.000	3569.342	0.000
	21.1875 - 20		1748.833	3569.342	0.490	0.000	3569.342	0.000
L26	20 - 19.75	P54x0.5875	1755.050	4739.867	0.370	0.000	4739.867	0.000
	(26)							
L27	19.75 - 18.75	P54x0.5875	1779.975	4739.867	0.376	0.000	4739.867	0.000
	18.75 - 17.75		1804.958	4739.867	0.381	0.000	4739.867	0.000
	17.75 - 16.75		1830.008	4739.867	0.386	0.000	4739.867	0.000
	16.75 - 15.75		1855.117	4739.867	0.391	0.000	4739.867	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 $\frac{M_{uy}}{\phi M_{ny}}$
	15.75 - 14.75		1880.283	4739.867	0.397	0.000	4739.867	0.000
L28	14.75 - 13.75	P54x0.5875	1905.508	4739.867	0.402	0.000	4739.867	0.000
	13.75 - 12.75		1930.800	4739.867	0.407	0.000	4739.867	0.000
	12.75 - 11.75		1956.150	4739.867	0.413	0.000	4739.867	0.000
	11.75 - 10.75		1981.567	4739.867	0.418	0.000	4739.867	0.000
	10.75 - 9.75		2007.033	4739.867	0.423	0.000	4739.867	0.000
L29	9.75 - 8.75	P54x0.5875	2032.567	4739.867	0.429	0.000	4739.867	0.000
	8.75 - 7.75		2058.150	4739.867	0.434	0.000	4739.867	0.000
	7.75 - 6.75		2083.800	4739.867	0.440	0.000	4739.867	0.000
	6.75 - 5.75		2109.500	4739.867	0.445	0.000	4739.867	0.000
	5.75 - 4.75		2135.258	4739.867	0.450	0.000	4739.867	0.000
L30	4.75 - 4.38 (30)	P54x0.5875	2144.808	4739.867	0.453	0.000	4739.867	0.000
L31	4.38 - 4.13 (31)	P54x0.4875	2151.258	3864.467	0.557	0.000	3864.467	0.000
L32	4.13 - 3.0975	P54x0.4875	2177.950	3864.467	0.564	0.000	3864.467	0.000
	3.0975 - 2.065		2204.700	3864.467	0.571	0.000	3864.467	0.000
	2.065 - 1.0325		2231.500	3864.467	0.577	0.000	3864.467	0.000
	1.0325 - 0		2258.358	3864.467	0.584	0.000	3864.467	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	125 - 124	P24x0.375	0.020	315.621	0.000	0.000	655.568	0.000
	124 - 123		0.039	315.621	0.000	0.000	655.568	0.000
	123 - 122		0.155	315.621	0.000	0.000	655.568	0.000
	122 - 121		0.895	315.621	0.003	0.000	655.568	0.000
	121 - 120		3.287	315.621	0.010	0.000	655.568	0.000
L2	120 - 119	P24x0.375	3.338	315.621	0.011	0.000	655.568	0.000
	119 - 118		3.389	315.621	0.011	0.000	655.568	0.000
	118 - 117		3.441	315.621	0.011	0.000	655.568	0.000
	117 - 116		3.492	315.621	0.011	0.000	655.568	0.000
	116 - 115		3.543	315.621	0.011	0.000	655.568	0.000
L3	115 - 114	P24x0.375	3.593	315.621	0.011	0.000	655.568	0.000
	114 - 113		3.644	315.621	0.012	0.000	655.568	0.000
	113 - 112		3.694	315.621	0.012	0.000	655.568	0.000
	112 - 111		8.224	315.621	0.026	0.000	655.568	0.000
	111 - 110		8.274	315.621	0.026	0.000	655.568	0.000
L4	110 - 109	P24x0.375	8.341	315.621	0.026	0.266	655.568	0.000
	109 - 108		8.390	315.621	0.027	0.266	655.568	0.000
	108 - 107		8.438	315.621	0.027	0.266	655.568	0.000
	107 - 106		8.495	315.621	0.027	0.308	655.568	0.000
	106 - 105		8.542	315.621	0.027	0.308	655.568	0.000
L5	105 - 104	P24x0.375	8.589	315.621	0.027	0.308	655.568	0.000
	104 - 103		8.636	315.621	0.027	0.308	655.568	0.000
	103 - 102		8.682	315.621	0.028	0.308	655.568	0.000
	102 - 101		8.728	315.621	0.028	0.308	655.568	0.000
	101 - 100		8.774	315.621	0.028	0.308	655.568	0.000
L6	100 - 99	P30x0.375	12.316	395.779	0.031	0.266	994.725	0.000
	99 - 98		12.374	395.779	0.031	0.192	994.725	0.000
	98 - 97		12.432	395.779	0.031	0.192	994.725	0.000
	97 - 96		12.490	395.779	0.032	0.192	994.725	0.000
	96 - 95		12.547	395.779	0.032	0.192	994.725	0.000
L7	95 - 94	P30x0.375	12.604	395.779	0.032	0.192	994.725	0.000
	94 - 93		12.660	395.779	0.032	0.192	994.725	0.000
	93 - 92		12.715	395.779	0.032	0.192	994.725	0.000
	92 - 91		12.770	395.779	0.032	0.192	994.725	0.000
	91 - 90		12.825	395.779	0.032	0.192	994.725	0.000
L8	90 - 89	P30x0.375	15.790	395.779	0.040	0.863	994.725	0.001
	89 - 88		15.842	395.779	0.040	0.863	994.725	0.001
	88 - 87		16.134	395.779	0.041	1.281	994.725	0.001

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 $\frac{T_u}{\phi T_n}$
	87 - 86		16.185	395.779	0.041	1.281	994.725	0.001
	86 - 85		16.235	395.779	0.041	1.281	994.725	0.001
L9	85 - 84	P30x0.375	16.284	395.779	0.041	1.281	994.725	0.001
	84 - 83		16.332	395.779	0.041	1.281	994.725	0.001
	83 - 82		16.379	395.779	0.041	1.281	994.725	0.001
	82 - 81		16.619	395.779	0.042	1.147	994.725	0.001
	81 - 80		19.161	395.779	0.048	1.147	994.725	0.001
L10	80 - 78.925	P36x0.375	19.223	454.187	0.042	1.147	1094.275	0.001
	78.925 - 77.85		19.287	454.187	0.042	1.147	1094.275	0.001
	77.85 - 76.775		19.350	454.187	0.043	1.147	1094.275	0.001
	76.775 - 75.7		19.413	454.187	0.043	1.147	1094.275	0.001
L11	75.7 - 75.45 (11)	P36x0.5625	19.424	710.147	0.027	1.147	2212.542	0.001
L12	75.45 - 74.45	P36x0.5625	19.550	710.147	0.028	1.147	2212.542	0.001
	74.45 - 73.45		19.673	710.147	0.028	1.147	2212.542	0.001
	73.45 - 72.45		19.796	710.147	0.028	1.147	2212.542	0.001
	72.45 - 71.45		19.918	710.147	0.028	1.147	2212.542	0.001
	71.45 - 70.45		20.040	710.147	0.028	1.147	2212.542	0.001
L13	70.45 - 69.45	P36x0.5625	20.159	710.147	0.028	1.147	2212.542	0.001
	69.45 - 68.45		20.278	710.147	0.029	1.147	2212.542	0.001
	68.45 - 67.45		20.395	710.147	0.029	1.147	2212.542	0.001
	67.45 - 66.45		20.513	710.147	0.029	1.147	2212.542	0.001
	66.45 - 65.45		20.630	710.147	0.029	1.147	2212.542	0.001
L14	65.45 - 64.45	P36x0.5625	20.752	710.147	0.029	1.147	2212.542	0.001
	64.45 - 63.45		20.873	710.147	0.029	1.147	2212.542	0.001
	63.45 - 62.45		20.994	710.147	0.030	1.147	2212.542	0.001
	62.45 - 61.45		21.114	710.147	0.030	1.147	2212.542	0.001
	61.45 - 60.45		21.233	710.147	0.030	1.147	2212.542	0.001
L15	60.45 - 60 (15)	P36x0.5625	21.279	710.147	0.030	1.147	2212.542	0.001
L16	60 - 59.75 (16)	P42x0.525	21.294	775.727	0.027	1.147	2800.233	0.000
L17	59.75 - 58.75	P42x0.525	21.361	775.727	0.028	1.147	2800.233	0.000
	58.75 - 57.75		21.425	775.727	0.028	1.147	2800.233	0.000
	57.75 - 56.75		21.488	775.727	0.028	1.147	2800.233	0.000
	56.75 - 55.75		21.552	775.727	0.028	1.147	2800.233	0.000
	55.75 - 54.75		21.614	775.727	0.028	1.147	2800.233	0.000
L18	54.75 - 53.75	P42x0.525	21.674	775.727	0.028	1.147	2800.233	0.000
	53.75 - 52.75		21.735	775.727	0.028	1.147	2800.233	0.000
	52.75 - 51.75		21.794	775.727	0.028	1.147	2800.233	0.000
	51.75 - 50.75		21.853	775.727	0.028	1.147	2800.233	0.000
	50.75 - 49.75		21.912	775.727	0.028	1.147	2800.233	0.000
L19	49.75 - 48.75	P42x0.525	22.034	775.727	0.028	1.147	2800.233	0.000
	48.75 - 47.75		22.155	775.727	0.029	1.147	2800.233	0.000
	47.75 - 46.75		22.276	775.727	0.029	1.147	2800.233	0.000
	46.75 - 45.75		22.396	775.727	0.029	1.147	2800.233	0.000
	45.75 - 44.75		22.516	775.727	0.029	1.147	2800.233	0.000
L20	44.75 - 43.5625	P42x0.525	22.659	775.727	0.029	1.147	2800.233	0.000
	43.5625 - 42.375		22.801	775.727	0.029	1.147	2800.233	0.000
	42.375 - 41.1875		22.941	775.727	0.030	1.147	2800.233	0.000
	41.1875 - 40		23.081	775.727	0.030	1.147	2800.233	0.000
L21	40 - 39.75 (21)	P48x0.55625	23.089	940.182	0.025	1.147	3775.583	0.000
L22	39.75 - 38.75	P48x0.55625	23.155	940.182	0.025	1.147	3775.583	0.000
	38.75 - 37.75		23.217	940.182	0.025	1.147	3775.583	0.000
	37.75 - 36.75		23.278	940.182	0.025	1.147	3775.583	0.000
	36.75 - 35.75		23.339	940.182	0.025	1.147	3775.583	0.000
	35.75 - 34.75		23.399	940.182	0.025	1.147	3775.583	0.000
L23	34.75 - 33.75	P48x0.55625	23.456	940.182	0.025	1.147	3775.583	0.000
	33.75 - 32.75		23.513	940.182	0.025	1.147	3775.583	0.000
	32.75 - 31.75		23.570	940.182	0.025	1.147	3775.583	0.000
	31.75 - 30.75		23.626	940.182	0.025	1.147	3775.583	0.000
	30.75 - 29.75		23.681	940.182	0.025	1.147	3775.583	0.000
L24	29.75 - 28.75	P48x0.55625	23.804	940.182	0.025	1.147	3775.583	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 $\frac{T_u}{\phi T_n}$
	28.75 - 27.75		23.927	940.182	0.025	1.147	3775.583	0.000
	27.75 - 26.75		24.049	940.182	0.026	1.147	3775.583	0.000
	26.75 - 25.75		24.171	940.182	0.026	1.147	3775.583	0.000
	25.75 - 24.75		24.292	940.182	0.026	1.147	3775.583	0.000
L25	24.75 - 23.5625	P48x0.55625	24.438	940.182	0.026	1.147	3775.583	0.000
	23.5625 - 22.375		24.583	940.182	0.026	1.147	3775.583	0.000
	22.375 - 21.1875		24.726	940.182	0.026	1.147	3775.583	0.000
	21.1875 - 20		24.869	940.182	0.026	1.147	3775.583	0.000
L26	20 - 19.75 (26)	P54x0.5875	24.877	1117.930	0.022	1.147	4954.017	0.000
L27	19.75 - 18.75	P54x0.5875	24.944	1117.930	0.022	1.147	4954.017	0.000
	18.75 - 17.75		25.006	1117.930	0.022	1.147	4954.017	0.000
	17.75 - 16.75		25.068	1117.930	0.022	1.147	4954.017	0.000
	16.75 - 15.75		25.130	1117.930	0.022	1.147	4954.017	0.000
	15.75 - 14.75		25.191	1117.930	0.023	1.147	4954.017	0.000
L28	14.75 - 13.75	P54x0.5875	25.252	1117.930	0.023	1.147	4954.017	0.000
	13.75 - 12.75		25.313	1117.930	0.023	1.147	4954.017	0.000
	12.75 - 11.75		25.373	1117.930	0.023	1.147	4954.017	0.000
	11.75 - 10.75		25.433	1117.930	0.023	1.147	4954.017	0.000
	10.75 - 9.75		25.492	1117.930	0.023	1.147	4954.017	0.000
L29	9.75 - 8.75	P54x0.5875	25.551	1117.930	0.023	1.147	4954.017	0.000
	8.75 - 7.75		25.609	1117.930	0.023	1.147	4954.017	0.000
	7.75 - 6.75		25.667	1117.930	0.023	1.147	4954.017	0.000
	6.75 - 5.75		25.725	1117.930	0.023	1.147	4954.017	0.000
	5.75 - 4.75		25.782	1117.930	0.023	1.147	4954.017	0.000
L30	4.75 - 4.38 (30)	P54x0.5875	25.798	1117.930	0.023	1.147	4954.017	0.000
L31	4.38 - 4.13 (31)	P54x0.4875	25.811	903.520	0.029	1.147	3267.817	0.000
L32	4.13 - 3.0975	P54x0.4875	25.873	903.520	0.029	1.147	3267.817	0.000
	3.0975 - 2.065		25.928	903.520	0.029	1.147	3267.817	0.000
	2.065 - 1.0325		25.982	903.520	0.029	1.147	3267.817	0.000
	1.0325 - 0		26.035	903.520	0.029	1.147	3267.817	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	125 - 124	0.000	0.000	0.000	0.000	0.000	0.000 [1] ✔	1.050	4.8.2 ✔
	124 - 123	0.000	0.000	0.000	0.000	0.000	0.000 [1] ✔	1.050	4.8.2 ✔
	123 - 122	0.000	0.000	0.000	0.000	0.000	0.001 ✔	1.050	4.8.2 ✔
	122 - 121	0.009	0.002	0.000	0.003	0.000	0.011 ✔	1.050	4.8.2 ✔
	121 - 120	0.005	0.011	0.000	0.010	0.000	0.015 ✔	1.050	4.8.2 ✔
L2	120 - 119	0.005	0.016	0.000	0.011	0.000	0.021 ✔	1.050	4.8.2 ✔
	119 - 118	0.005	0.021	0.000	0.011	0.000	0.026 ✔	1.050	4.8.2 ✔
	118 - 117	0.005	0.027	0.000	0.011	0.000	0.032 ✔	1.050	4.8.2 ✔

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	117 - 116	0.005	0.032	0.000	0.011	0.000	0.038 ✔	1.050	4.8.2 ✔
	116 - 115	0.005	0.038	0.000	0.011	0.000	0.043 ✔	1.050	4.8.2 ✔
L3	115 - 114	0.005	0.044	0.000	0.011	0.000	0.049 ✔	1.050	4.8.2 ✔
	114 - 113	0.005	0.050	0.000	0.012	0.000	0.055 ✔	1.050	4.8.2 ✔
	113 - 112	0.005	0.056	0.000	0.012	0.000	0.061 ✔	1.050	4.8.2 ✔
	112 - 111	0.009	0.073	0.000	0.026	0.000	0.083 ✔	1.050	4.8.2 ✔
	111 - 110	0.009	0.086	0.000	0.026	0.000	0.096 ✔	1.050	4.8.2 ✔
L4	110 - 109	0.009	0.099	0.000	0.026	0.000	0.110 ✔	1.050	4.8.2 ✔
	109 - 108	0.010	0.113	0.000	0.027	0.000	0.123 ✔	1.050	4.8.2 ✔
	108 - 107	0.010	0.126	0.000	0.027	0.000	0.137 ✔	1.050	4.8.2 ✔
	107 - 106	0.010	0.140	0.000	0.027	0.000	0.150 ✔	1.050	4.8.2 ✔
	106 - 105	0.010	0.154	0.000	0.027	0.000	0.164 ✔	1.050	4.8.2 ✔
L5	105 - 104	0.010	0.167	0.000	0.027	0.000	0.178 ✔	1.050	4.8.2 ✔
	104 - 103	0.010	0.181	0.000	0.027	0.000	0.192 ✔	1.050	4.8.2 ✔
	103 - 102	0.010	0.195	0.000	0.028	0.000	0.206 ✔	1.050	4.8.2 ✔
	102 - 101	0.010	0.209	0.000	0.028	0.000	0.220 ✔	1.050	4.8.2 ✔
	101 - 100	0.010	0.223	0.000	0.028	0.000	0.234 ✔	1.050	4.8.2 ✔
L6	100 - 99	0.011	0.160	0.000	0.031	0.000	0.172 ✔	1.050	4.8.2 ✔
	99 - 98	0.011	0.173	0.000	0.031	0.000	0.185 ✔	1.050	4.8.2 ✔
	98 - 97	0.011	0.186	0.000	0.031	0.000	0.198 ✔	1.050	4.8.2 ✔
	97 - 96	0.011	0.199	0.000	0.032	0.000	0.212 ✔	1.050	4.8.2 ✔
	96 - 95	0.011	0.213	0.000	0.032	0.000	0.225 ✔	1.050	4.8.2 ✔
L7	95 - 94	0.012	0.226	0.000	0.032	0.000	0.238 ✔	1.050	4.8.2 ✔
	94 - 93	0.012	0.239	0.000	0.032	0.000	0.252 ✔	1.050	4.8.2 ✔
	93 - 92	0.012	0.253	0.000	0.032	0.000	0.265 ✔	1.050	4.8.2 ✔
	92 - 91	0.012	0.266	0.000	0.032	0.000	0.279 ✔	1.050	4.8.2 ✔
	91 - 90	0.012	0.280	0.000	0.032	0.000	0.293 ✔	1.050	4.8.2 ✔
L8	90 - 89	0.015	0.296	0.000	0.040	0.001	0.313 ✔	1.050	4.8.2 ✔
	89 - 88	0.015	0.313	0.000	0.040	0.001	0.330 ✔	1.050	4.8.2 ✔
	88 - 87	0.016	0.329	0.000	0.041	0.001	0.347 ✔	1.050	4.8.2 ✔

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	87 - 86	0.016	0.346	0.000	0.041	0.001	0.364 ✔	1.050	4.8.2 ✔
	86 - 85	0.016	0.364	0.000	0.041	0.001	0.381 ✔	1.050	4.8.2 ✔
L9	85 - 84	0.016	0.381	0.000	0.041	0.001	0.398 ✔	1.050	4.8.2 ✔
	84 - 83	0.016	0.398	0.000	0.041	0.001	0.416 ✔	1.050	4.8.2 ✔
	83 - 82	0.016	0.415	0.000	0.041	0.001	0.433 ✔	1.050	4.8.2 ✔
	82 - 81	0.016	0.432	0.000	0.042	0.001	0.451 ✔	1.050	4.8.2 ✔
	81 - 80	0.019	0.453	0.000	0.048	0.001	0.474 ✔	1.050	4.8.2 ✔
L10	80 - 78.925	0.017	0.336	0.000	0.042	0.001	0.354 ✔	1.050	4.8.2 ✔
	78.925 - 77.85	0.017	0.351	0.000	0.042	0.001	0.370 ✔	1.050	4.8.2 ✔
	77.85 - 76.775	0.017	0.367	0.000	0.043	0.001	0.386 ✔	1.050	4.8.2 ✔
	76.775 - 75.7	0.017	0.382	0.000	0.043	0.001	0.402 ✔	1.050	4.8.2 ✔
L11	75.7 - 75.45 (11)	0.011	0.245	0.000	0.027	0.001	0.257 ✔	1.050	4.8.2 ✔
L12	75.45 - 74.45	0.011	0.255	0.000	0.028	0.001	0.267 ✔	1.050	4.8.2 ✔
	74.45 - 73.45	0.011	0.264	0.000	0.028	0.001	0.276 ✔	1.050	4.8.2 ✔
	73.45 - 72.45	0.011	0.273	0.000	0.028	0.001	0.285 ✔	1.050	4.8.2 ✔
	72.45 - 71.45	0.011	0.283	0.000	0.028	0.001	0.295 ✔	1.050	4.8.2 ✔
	71.45 - 70.45	0.011	0.292	0.000	0.028	0.001	0.305 ✔	1.050	4.8.2 ✔
L13	70.45 - 69.45	0.012	0.302	0.000	0.028	0.001	0.314 ✔	1.050	4.8.2 ✔
	69.45 - 68.45	0.012	0.312	0.000	0.029	0.001	0.324 ✔	1.050	4.8.2 ✔
	68.45 - 67.45	0.012	0.321	0.000	0.029	0.001	0.334 ✔	1.050	4.8.2 ✔
	67.45 - 66.45	0.012	0.331	0.000	0.029	0.001	0.344 ✔	1.050	4.8.2 ✔
	66.45 - 65.45	0.012	0.341	0.000	0.029	0.001	0.354 ✔	1.050	4.8.2 ✔
L14	65.45 - 64.45	0.012	0.351	0.000	0.029	0.001	0.364 ✔	1.050	4.8.2 ✔
	64.45 - 63.45	0.012	0.360	0.000	0.029	0.001	0.374 ✔	1.050	4.8.2 ✔
	63.45 - 62.45	0.012	0.370	0.000	0.030	0.001	0.384 ✔	1.050	4.8.2 ✔
	62.45 - 61.45	0.013	0.380	0.000	0.030	0.001	0.394 ✔	1.050	4.8.2 ✔
	61.45 - 60.45	0.013	0.390	0.000	0.030	0.001	0.404 ✔	1.050	4.8.2 ✔
L15	60.45 - 60 (15)	0.013	0.395	0.000	0.030	0.001	0.409 ✔	1.050	4.8.2 ✔
L16	60 - 59.75 (16)	0.012	0.322	0.000	0.027	0.000	0.334 ✔	1.050	4.8.2 ✔
L17	59.75 - 58.75	0.012	0.330	0.000	0.028	0.000	0.343 ✔	1.050	4.8.2 ✔

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	58.75 - 57.75	0.012	0.338	0.000	0.028	0.000	0.351 ✔	1.050	4.8.2 ✔
	57.75 - 56.75	0.012	0.346	0.000	0.028	0.000	0.359 ✔	1.050	4.8.2 ✔
	56.75 - 55.75	0.012	0.355	0.000	0.028	0.000	0.368 ✔	1.050	4.8.2 ✔
	55.75 - 54.75	0.012	0.363	0.000	0.028	0.000	0.376 ✔	1.050	4.8.2 ✔
L18	54.75 - 53.75	0.013	0.371	0.000	0.028	0.000	0.385 ✔	1.050	4.8.2 ✔
	53.75 - 52.75	0.013	0.380	0.000	0.028	0.000	0.393 ✔	1.050	4.8.2 ✔
	52.75 - 51.75	0.013	0.388	0.000	0.028	0.000	0.402 ✔	1.050	4.8.2 ✔
	51.75 - 50.75	0.013	0.396	0.000	0.028	0.000	0.410 ✔	1.050	4.8.2 ✔
	50.75 - 49.75	0.013	0.405	0.000	0.028	0.000	0.419 ✔	1.050	4.8.2 ✔
L19	49.75 - 48.75	0.013	0.413	0.000	0.028	0.000	0.427 ✔	1.050	4.8.2 ✔
	48.75 - 47.75	0.013	0.422	0.000	0.029	0.000	0.436 ✔	1.050	4.8.2 ✔
	47.75 - 46.75	0.013	0.430	0.000	0.029	0.000	0.445 ✔	1.050	4.8.2 ✔
	46.75 - 45.75	0.014	0.439	0.000	0.029	0.000	0.453 ✔	1.050	4.8.2 ✔
	45.75 - 44.75	0.014	0.448	0.000	0.029	0.000	0.462 ✔	1.050	4.8.2 ✔
L20	44.75 - 43.5625	0.014	0.458	0.000	0.029	0.000	0.473 ✔	1.050	4.8.2 ✔
	43.5625 - 42.375	0.014	0.468	0.000	0.029	0.000	0.483 ✔	1.050	4.8.2 ✔
	42.375 - 41.1875	0.014	0.479	0.000	0.030	0.000	0.494 ✔	1.050	4.8.2 ✔
	41.1875 - 40	0.014	0.489	0.000	0.030	0.000	0.504 ✔	1.050	4.8.2 ✔
L21	40 - 39.75 (21)	0.012	0.358	0.000	0.025	0.000	0.371 ✔	1.050	4.8.2 ✔
L22	39.75 - 38.75	0.012	0.365	0.000	0.025	0.000	0.377 ✔	1.050	4.8.2 ✔
	38.75 - 37.75	0.012	0.371	0.000	0.025	0.000	0.384 ✔	1.050	4.8.2 ✔
	37.75 - 36.75	0.012	0.378	0.000	0.025	0.000	0.391 ✔	1.050	4.8.2 ✔
	36.75 - 35.75	0.013	0.384	0.000	0.025	0.000	0.397 ✔	1.050	4.8.2 ✔
	35.75 - 34.75	0.013	0.391	0.000	0.025	0.000	0.404 ✔	1.050	4.8.2 ✔
L23	34.75 - 33.75	0.013	0.397	0.000	0.025	0.000	0.411 ✔	1.050	4.8.2 ✔
	33.75 - 32.75	0.013	0.404	0.000	0.025	0.000	0.417 ✔	1.050	4.8.2 ✔
	32.75 - 31.75	0.013	0.410	0.000	0.025	0.000	0.424 ✔	1.050	4.8.2 ✔
	31.75 - 30.75	0.013	0.417	0.000	0.025	0.000	0.431 ✔	1.050	4.8.2 ✔
	30.75 - 29.75	0.013	0.424	0.000	0.025	0.000	0.438 ✔	1.050	4.8.2 ✔
L24	29.75 - 28.75	0.013	0.430	0.000	0.025	0.000	0.444 ✔	1.050	4.8.2 ✔

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	28.75 - 27.75	0.014	0.437	0.000	0.025	0.000	0.451 ✔	1.050	4.8.2 ✔
	27.75 - 26.75	0.014	0.444	0.000	0.026	0.000	0.458 ✔	1.050	4.8.2 ✔
	26.75 - 25.75	0.014	0.450	0.000	0.026	0.000	0.465 ✔	1.050	4.8.2 ✔
	25.75 - 24.75	0.014	0.457	0.000	0.026	0.000	0.472 ✔	1.050	4.8.2 ✔
L25	24.75 - 23.5625	0.014	0.465	0.000	0.026	0.000	0.480 ✔	1.050	4.8.2 ✔
	23.5625 - 22.375	0.014	0.474	0.000	0.026	0.000	0.488 ✔	1.050	4.8.2 ✔
	22.375 - 21.1875	0.014	0.482	0.000	0.026	0.000	0.497 ✔	1.050	4.8.2 ✔
	21.1875 - 20	0.014	0.490	0.000	0.026	0.000	0.505 ✔	1.050	4.8.2 ✔
L26	20 - 19.75 (26)	0.012	0.370	0.000	0.022	0.000	0.383 ✔	1.050	4.8.2 ✔
L27	19.75 - 18.75	0.013	0.376	0.000	0.022	0.000	0.389 ✔	1.050	4.8.2 ✔
	18.75 - 17.75	0.013	0.381	0.000	0.022	0.000	0.394 ✔	1.050	4.8.2 ✔
	17.75 - 16.75	0.013	0.386	0.000	0.022	0.000	0.399 ✔	1.050	4.8.2 ✔
	16.75 - 15.75	0.013	0.391	0.000	0.022	0.000	0.405 ✔	1.050	4.8.2 ✔
	15.75 - 14.75	0.013	0.397	0.000	0.023	0.000	0.410 ✔	1.050	4.8.2 ✔
L28	14.75 - 13.75	0.013	0.402	0.000	0.023	0.000	0.416 ✔	1.050	4.8.2 ✔
	13.75 - 12.75	0.013	0.407	0.000	0.023	0.000	0.421 ✔	1.050	4.8.2 ✔
	12.75 - 11.75	0.013	0.413	0.000	0.023	0.000	0.427 ✔	1.050	4.8.2 ✔
	11.75 - 10.75	0.014	0.418	0.000	0.023	0.000	0.432 ✔	1.050	4.8.2 ✔
	10.75 - 9.75	0.014	0.423	0.000	0.023	0.000	0.438 ✔	1.050	4.8.2 ✔
L29	9.75 - 8.75	0.014	0.429	0.000	0.023	0.000	0.443 ✔	1.050	4.8.2 ✔
	8.75 - 7.75	0.014	0.434	0.000	0.023	0.000	0.449 ✔	1.050	4.8.2 ✔
	7.75 - 6.75	0.014	0.440	0.000	0.023	0.000	0.454 ✔	1.050	4.8.2 ✔
	6.75 - 5.75	0.014	0.445	0.000	0.023	0.000	0.460 ✔	1.050	4.8.2 ✔
	5.75 - 4.75	0.014	0.450	0.000	0.023	0.000	0.465 ✔	1.050	4.8.2 ✔
L30	4.75 - 4.38 (30)	0.014	0.453	0.000	0.023	0.000	0.467 ✔	1.050	4.8.2 ✔
L31	4.38 - 4.13 (31)	0.018	0.557	0.000	0.029	0.000	0.576 ✔	1.050	4.8.2 ✔
L32	4.13 - 3.0975	0.018	0.564	0.000	0.029	0.000	0.583 ✔	1.050	4.8.2 ✔
	3.0975 - 2.065	0.019	0.571	0.000	0.029	0.000	0.590 ✔	1.050	4.8.2 ✔
	2.065 - 1.0325	0.019	0.577	0.000	0.029	0.000	0.597 ✔	1.050	4.8.2 ✔
	1.0325 - 0	0.019	0.584	0.000	0.029	0.000	0.604 ✔	1.050	4.8.2 ✔

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria

[1] P_u / ϕP_n controls

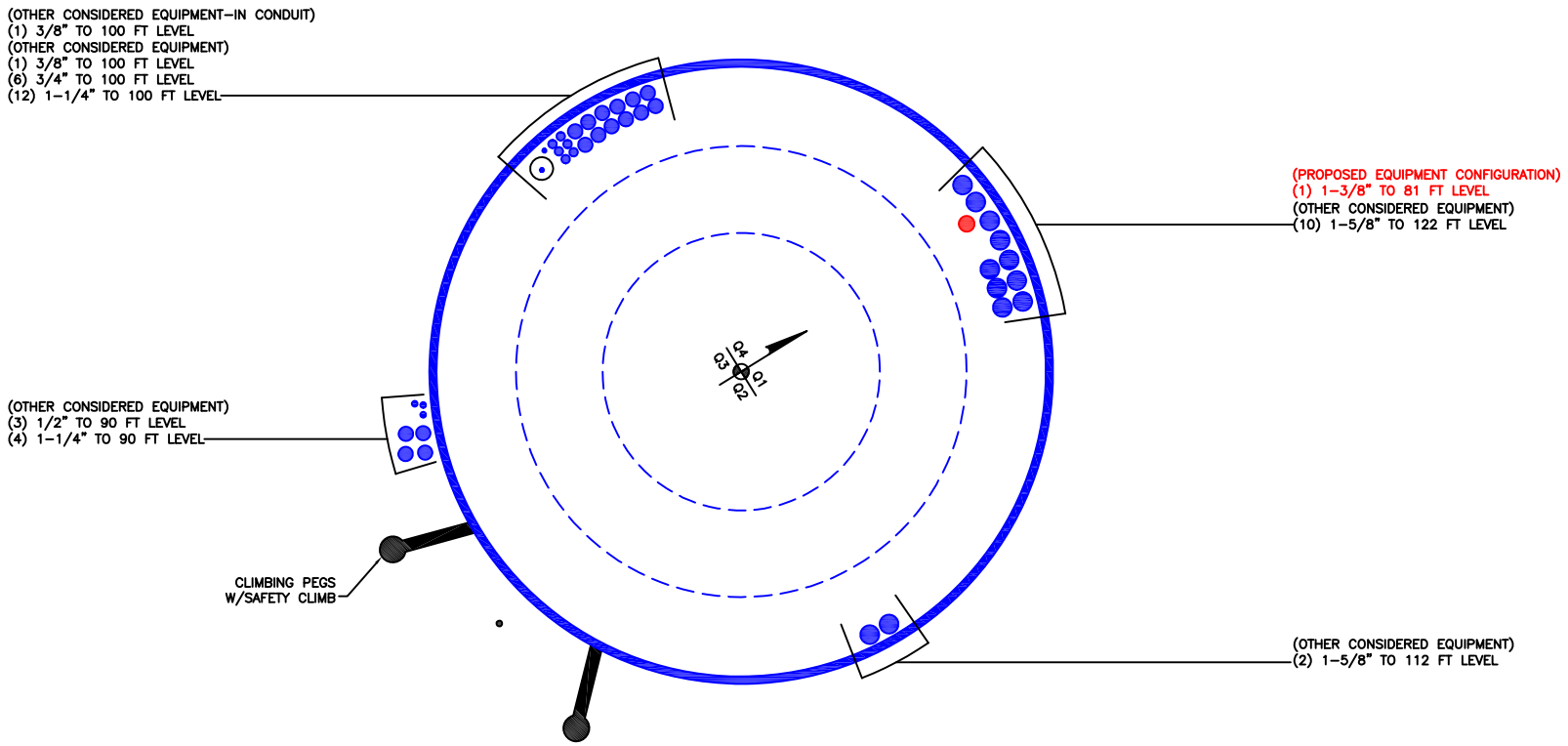
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	125 - 120	Pole	P24x0.375	1	-4.786	1104.673	1.5	Pass
L2	120 - 115	Pole	P24x0.375	2	-5.400	1104.673	4.1	Pass
L3	115 - 110	Pole	P24x0.375	3	-9.758	1104.673	9.2	Pass
L4	110 - 105	Pole	P24x0.375	4	-10.398	1104.673	15.6	Pass
L5	105 - 100	Pole	P24x0.375	5	-11.040	1104.673	22.3	Pass
L6	100 - 95	Pole	P30x0.375	6	-14.911	1376.613	21.4	Pass
L7	95 - 90	Pole	P30x0.375	7	-15.784	1376.613	27.9	Pass
L8	90 - 85	Pole	P30x0.375	8	-20.710	1376.613	36.3	Pass
L9	85 - 80	Pole	P30x0.375	9	-24.784	1376.613	45.1	Pass
L10	80 - 75.7	Pole	P36x0.375	10	-25.710	1564.605	38.2	Pass
L11	75.7 - 75.45	Pole	P36x0.5625	11	-25.785	2485.518	24.5	Pass
L12	75.45 - 70.45	Pole	P36x0.5625	12	-27.212	2485.518	29.0	Pass
L13	70.45 - 65.45	Pole	P36x0.5625	13	-28.649	2485.518	33.7	Pass
L14	65.45 - 60.45	Pole	P36x0.5625	14	-30.093	2485.518	38.5	Pass
L15	60.45 - 60	Pole	P36x0.5625	15	-30.226	2485.518	38.9	Pass
L16	60 - 59.75	Pole	P42x0.525	16	-30.306	2698.153	31.8	Pass
L17	59.75 - 54.75	Pole	P42x0.525	17	-31.891	2698.153	35.8	Pass
L18	54.75 - 49.75	Pole	P42x0.525	18	-33.483	2698.153	39.9	Pass
L19	49.75 - 44.75	Pole	P42x0.525	19	-35.075	2698.153	44.0	Pass
L20	44.75 - 40	Pole	P42x0.525	20	-36.593	2698.153	48.0	Pass
L21	40 - 39.75	Pole	P48x0.55625	21	-36.691	3191.685	35.3	Pass
L22	39.75 - 34.75	Pole	P48x0.55625	22	-38.554	3191.685	38.5	Pass
L23	34.75 - 29.75	Pole	P48x0.55625	23	-40.422	3191.685	41.7	Pass
L24	29.75 - 24.75	Pole	P48x0.55625	24	-42.292	3191.685	44.9	Pass
L25	24.75 - 20	Pole	P48x0.55625	25	-44.072	3191.685	48.1	Pass
L26	20 - 19.75	Pole	P54x0.5875	26	-44.185	3722.491	36.5	Pass
L27	19.75 - 14.75	Pole	P54x0.5875	27	-46.346	3722.491	39.1	Pass
L28	14.75 - 9.75	Pole	P54x0.5875	28	-48.513	3722.491	41.7	Pass
L29	9.75 - 4.75	Pole	P54x0.5875	29	-50.682	3722.491	44.3	Pass
L30	4.75 - 4.38	Pole	P54x0.5875	30	-50.846	3722.491	44.5	Pass
L31	4.38 - 4.13	Pole	P54x0.4875	31	-50.947	2937.028	54.8	Pass
L32	4.13 - 0	Pole	P54x0.4875	32	-52.619	2937.028	57.5	Pass
							Summary	
						Pole (L32)	57.5	Pass
						RATING =	**57.5**	**Pass**

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

APPENDIX B

BASE LEVEL DRAWING


(OTHER CONSIDERED EQUIPMENT-IN CONDUIT)
(1) 3/8" TO 100 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 3/8" TO 100 FT LEVEL
(6) 3/4" TO 100 FT LEVEL
(12) 1-1/4" TO 100 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1-3/8" TO 81 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(10) 1-5/8" TO 122 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(3) 1/2" TO 90 FT LEVEL
(4) 1-1/4" TO 90 FT LEVEL
CLIMBING PEGS
W/SAFETY CLIMB
(OTHER CONSIDERED EQUIPMENT)
(2) 1-5/8" TO 112 FT LEVEL
Q1
Q2
Q3
Q4

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 822765

Work Order: 1962851

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	125	25		0	24	24	0.375		A53-B-42
2	100	20		0	30.00	30	0.375		A53-B-42
3	80	20		0	36.00	36	0.375		A53-B-42
4	60	20		0	42.00	42	0.375		A53-B-42
5	40	20		0	48.00	48	0.375		A53-B-42
6	20	20		0	54.00	54	0.375		A53-B-42

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	4.38	20	plate	CCI-CFP-085125	3	0					120						240						
2	20	40	plate	CCI-SFP-065125	3	0					120						240						
3	40	60	plate	CCI-SFP-060100	3	0					120						240						
4	60	75.7	plate	CCI-CFP-060100 24in Lu	3	0					120						240						
5	0	4.38	plate	TS 6.5x1.25	3							139				221							349
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	8.5	1.25	10.625	0.625	PC 8.8 - M20 (100)	45	PC 8.8 - M20 (100)	45.000	24.000	9.063	1.1875	A572-65
2	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	33	PC 8.8 - M20 (100)	33.000	19.000	6.563	1.1875	A572-65
3	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
4	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	24.000	4.750	1.1875	A572-65
5	1.25	6.5	8.125	3.25	Welded	n/a	Welded	n/a	0.000	8.125	0.0000	A572-65

Connection Details for Custom Reinforcements

Reinforcement	End	# Bolts	N or X	Bolt Spacing (in)	Edge Dist (in)	Weld Grade (ksi)	Transverse (Horiz.) Weld Type	Horiz. Weld Length (in)	Horiz. Groove Depth (in)	Horiz. Groove Angle (deg)	Horiz. Fillet Size (in)	Vertical Weld Length (in)	Vertical Fillet Size (in)	Rev H Connection Capacity (kip)
TS 6.5x1.25	Top	-	-	-	-	80	None	-	-	-	-	48	0.375	-
	Bottom	-	-	-	-	80	CJP Groove	6	0.5	45	0.5	12	0.375	-
CCI-CFP-060100 24in Lu	Top	8	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	8	N	3	3	-	-	-	-	-	-	-	-	-
CCI-CFP-085125	Top	15	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	15	N	3	3	-	-	-	-	-	-	-	-	-

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	125 - 120	5		0	24.000	24.000	0.375	A53-B-42	1.000
2	120 - 115	5		0	24.000	24.000	0.375	A53-B-42	1.000
3	115 - 110	5		0	24.000	24.000	0.375	A53-B-42	1.000
4	110 - 105	5		0	24.000	24.000	0.375	A53-B-42	1.000
5	105 - 100	5	0	0	24.000	24.000	0.375	A53-B-42	1.000
6	100 - 95	5		0	30.000	30.000	0.375	A53-B-42	1.000
7	95 - 90	5		0	30.000	30.000	0.375	A53-B-42	1.000
8	90 - 85	5		0	30.000	30.000	0.375	A53-B-42	1.000
9	85 - 80	5	0	0	30.000	30.000	0.375	A53-B-42	1.000
10	80 - 75.7	4.3		0	36.000	36.000	0.375	A53-B-42	1.000
11	75.7 - 75.45	0.25		0	36.000	36.000	0.5625	A53-B-42	0.958
12	75.45 - 70.45	5		0	36.000	36.000	0.5625	A53-B-42	0.958
13	70.45 - 65.45	5		0	36.000	36.000	0.5625	A53-B-42	0.958
14	65.45 - 60.45	5		0	36.000	36.000	0.5625	A53-B-42	0.958
15	60.45 - 60	0.45	0	0	36.000	36.000	0.5625	A53-B-42	0.958
16	60 - 59.75	0.25		0	42.000	42.000	0.525	A53-B-42	0.980
17	59.75 - 54.75	5		0	42.000	42.000	0.525	A53-B-42	0.980
18	54.75 - 49.75	5		0	42.000	42.000	0.525	A53-B-42	0.980
19	49.75 - 44.75	5		0	42.000	42.000	0.525	A53-B-42	0.980
20	44.75 - 40	4.75	0	0	42.000	42.000	0.525	A53-B-42	0.980
21	40 - 39.75	0.25		0	48.000	48.000	0.55625	A53-B-42	0.971
22	39.75 - 34.75	5		0	48.000	48.000	0.55625	A53-B-42	0.971
23	34.75 - 29.75	5		0	48.000	48.000	0.55625	A53-B-42	0.971
24	29.75 - 24.75	5		0	48.000	48.000	0.55625	A53-B-42	0.971
25	24.75 - 20	4.75	0	0	48.000	48.000	0.55625	A53-B-42	0.971
26	20 - 19.75	0.25		0	54.000	54.000	0.5875	A53-B-42	0.964
27	19.75 - 14.75	5		0	54.000	54.000	0.5875	A53-B-42	0.964
28	14.75 - 9.75	5		0	54.000	54.000	0.5875	A53-B-42	0.964
29	9.75 - 4.75	5		0	54.000	54.000	0.5875	A53-B-42	0.964
30	4.75 - 4.38	0.37		0	54.000	54.000	0.5875	A53-B-42	0.964
31	4.38 - 4.13	0.25		0	54.000	54.000	0.4875	A53-B-42	1.068
32	4.13 - 0	4.13		0	54.000	54.000	0.4875	A53-B-42	1.068

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	125 - 120	4.79	6.71	3.29
2	120 - 115	5.40	23.79	3.54
3	115 - 110	9.76	53.73	8.27
4	110 - 105	10.40	95.79	8.54
5	105 - 100	11.04	139.08	8.77
6	100 - 95	14.91	201.55	12.55
7	95 - 90	15.78	264.97	12.83
8	90 - 85	20.71	344.57	16.23
9	85 - 80	24.78	428.92	19.16
10	80 - 75.7	25.71	511.87	19.41
11	75.7 - 75.45	25.78	516.73	19.42
12	75.45 - 70.45	27.21	615.43	20.04
13	70.45 - 65.45	28.65	717.14	20.63
14	65.45 - 60.45	30.09	821.82	21.23
15	60.45 - 60	30.23	831.39	21.28
16	60 - 59.75	30.31	836.71	21.29
17	59.75 - 54.75	31.89	944.03	21.61
18	54.75 - 49.75	33.48	1052.88	21.91
19	49.75 - 44.75	35.07	1163.98	22.52
20	44.75 - 40	36.59	1272.30	23.08
21	40 - 39.75	36.69	1278.07	23.09
22	39.75 - 34.75	38.55	1394.34	23.40
23	34.75 - 29.75	40.42	1512.08	23.68
24	29.75 - 24.75	42.29	1632.05	24.29
25	24.75 - 20	44.07	1748.83	24.87
26	20 - 19.75	44.19	1755.05	24.88
27	19.75 - 14.75	46.35	1880.28	25.19
28	14.75 - 9.75	48.51	2007.03	25.49
29	9.75 - 4.75	50.68	2135.26	25.78
30	4.75 - 4.38	50.85	2144.81	25.80
31	4.38 - 4.13	50.95	2151.26	25.81
32	4.13 - 0	52.62	2258.36	26.04

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
125 - 120	Pole	TP24x24x0.375	Pole	1.5%	Pass
120 - 115	Pole	TP24x24x0.375	Pole	4.1%	Pass
115 - 110	Pole	TP24x24x0.375	Pole	9.2%	Pass
110 - 105	Pole	TP24x24x0.375	Pole	15.6%	Pass
105 - 100	Pole	TP24x24x0.375	Pole	22.3%	Pass
100 - 95	Pole	TP30x30x0.375	Pole	21.4%	Pass
95 - 90	Pole	TP30x30x0.375	Pole	27.9%	Pass
90 - 85	Pole	TP30x30x0.375	Pole	36.3%	Pass
85 - 80	Pole	TP30x30x0.375	Pole	45.1%	Pass
80 - 75.7	Pole	TP36x36x0.375	Pole	38.2%	Pass
75.7 - 75.45	Pole + Reinf.	TP36x36x0.5625	Reinf. 4 Compression	30.3%	Pass
75.45 - 70.45	Pole + Reinf.	TP36x36x0.5625	Reinf. 4 Compression	35.9%	Pass
70.45 - 65.45	Pole + Reinf.	TP36x36x0.5625	Reinf. 4 Compression	41.7%	Pass
65.45 - 60.45	Pole + Reinf.	TP36x36x0.5625	Reinf. 4 Compression	47.7%	Pass
60.45 - 60	Pole + Reinf.	TP36x36x0.5625	Reinf. 4 Compression	48.2%	Pass
60 - 59.75	Pole + Reinf.	TP42x42x0.525	Pole	33.0%	Pass
59.75 - 54.75	Pole + Reinf.	TP42x42x0.525	Pole	37.1%	Pass
54.75 - 49.75	Pole + Reinf.	TP42x42x0.525	Pole	41.3%	Pass
49.75 - 44.75	Pole + Reinf.	TP42x42x0.525	Pole	45.6%	Pass
44.75 - 40	Pole + Reinf.	TP42x42x0.525	Pole	49.8%	Pass
40 - 39.75	Pole + Reinf.	TP48x48x0.5563	Pole	36.9%	Pass
39.75 - 34.75	Pole + Reinf.	TP48x48x0.5563	Pole	40.2%	Pass
34.75 - 29.75	Pole + Reinf.	TP48x48x0.5563	Pole	43.6%	Pass
29.75 - 24.75	Pole + Reinf.	TP48x48x0.5563	Pole	47.0%	Pass
24.75 - 20	Pole + Reinf.	TP48x48x0.5563	Pole	50.3%	Pass
20 - 19.75	Pole + Reinf.	TP54x54x0.5875	Pole	38.5%	Pass
19.75 - 14.75	Pole + Reinf.	TP54x54x0.5875	Pole	41.2%	Pass
14.75 - 9.75	Pole + Reinf.	TP54x54x0.5875	Pole	44.0%	Pass
9.75 - 4.75	Pole + Reinf.	TP54x54x0.5875	Pole	46.8%	Pass
4.75 - 4.38	Pole + Reinf.	TP54x54x0.5875	Pole	47.0%	Pass
4.38 - 4.13	Pole + Reinf.	TP54x54x0.4875	Pole	58.9%	Pass
4.13 - 0	Pole + Reinf.	TP54x54x0.4875	Pole	61.8%	Pass
				Summary	
			Pole	61.8%	Pass
			Reinforcement	48.2%	Pass
			Overall	61.8%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity*					
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5
125 - 120	1942	n/a	1942	27.83	n/a	27.83	1.5%					
120 - 115	1942	n/a	1942	27.83	n/a	27.83	4.1%					
115 - 110	1942	n/a	1942	27.83	n/a	27.83	9.2%					
110 - 105	1942	n/a	1942	27.83	n/a	27.83	15.6%					
105 - 100	1942	n/a	1942	27.83	n/a	27.83	22.3%					
100 - 95	3829	n/a	3829	34.90	n/a	34.90	21.4%					
95 - 90	3829	n/a	3829	34.90	n/a	34.90	27.9%					
90 - 85	3829	n/a	3829	34.90	n/a	34.90	36.3%					
85 - 80	3829	n/a	3829	34.90	n/a	34.90	45.1%					
80 - 75.7	6659	n/a	6659	41.97	n/a	41.97	38.2%					
75.7 - 75.45	6659	3108	9767	41.97	18.00	59.97	26.2%				30.3%	
75.45 - 70.45	6659	3108	9767	41.97	18.00	59.97	31.1%				35.9%	
70.45 - 65.45	6659	3108	9767	41.97	18.00	59.97	36.1%				41.7%	
65.45 - 60.45	6659	3108	9767	41.97	18.00	59.97	41.2%				47.7%	
60.45 - 60	6659	3108	9767	41.97	18.00	59.97	41.7%				48.2%	
60 - 59.75	10622	4188	14810	49.04	18.00	67.04	33.0%			30.4%		
59.75 - 54.75	10622	4188	14810	49.04	18.00	67.04	37.1%			34.2%		
54.75 - 49.75	10622	4188	14810	49.04	18.00	67.04	41.3%			38.1%		
49.75 - 44.75	10622	4188	14810	49.04	18.00	67.04	45.6%			42.0%		
44.75 - 40	10622	4188	14810	49.04	18.00	67.04	49.8%			45.9%		
40 - 39.75	15908	7435	23343	56.11	24.38	80.48	36.9%		33.0%			
39.75 - 34.75	15908	7435	23343	56.11	24.38	80.48	40.2%		35.9%			
34.75 - 29.75	15908	7435	23343	56.11	24.38	80.48	43.6%		38.9%			
29.75 - 24.75	15908	7435	23343	56.11	24.38	80.48	47.0%		42.0%			
24.75 - 20	15908	7435	23343	56.11	24.38	80.48	50.3%		44.9%			
20 - 19.75	22710	12261	34970	63.18	31.88	95.05	38.5%	36.7%				
19.75 - 14.75	22710	12261	34970	63.18	31.88	95.05	41.2%	39.3%				
14.75 - 9.75	22710	12261	34970	63.18	31.88	95.05	44.0%	41.9%				
9.75 - 4.75	22710	12261	34970	63.18	31.88	95.05	46.8%	44.6%				
4.75 - 4.38	22710	12261	34970	63.18	31.88	95.05	47.0%	44.8%				
4.38 - 4.13	22761	6480	29241	63.18	24.38	87.55	58.9%					40.6%
4.13 - 0	22761	6480	29241	63.18	24.38	87.55	61.8%					47.7%

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

Monopole Flange Plate Connection

Elevation = 100 ft.

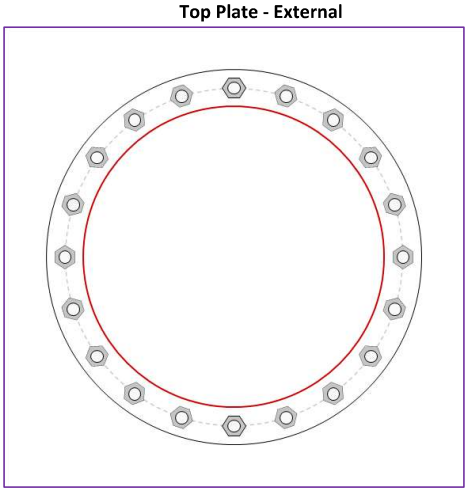
BU #	822765
Site Name	Branford (I-95/X55)
Order #	553373 rev. 1

TIA-222 Revision	H

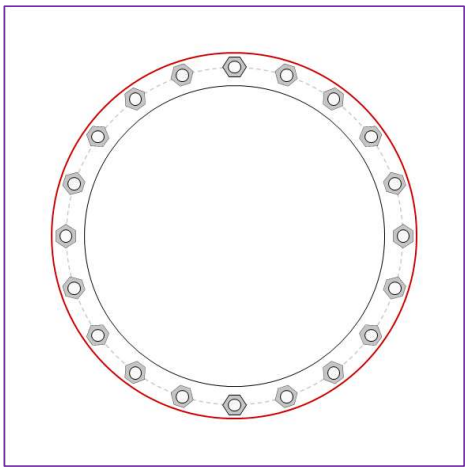
Applied Loads	
Moment (kip-ft)	139.08
Axial Force (kips)	11.04
Shear Force (kips)	8.77

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(20) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 27" BC

Top Plate Data

30" OD x 1" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

24" ID x 1" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

24" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Pole Data

30" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	11.80	
Allowable (kips)	54.54	
Stress Rating:	**20.6%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**Pirod OK**
Tension Side Stress Rating:	**Pirod OK**

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**Pirod OK**
Tension Side Stress Rating:	**Pirod OK**

Monopole Flange Plate Connection

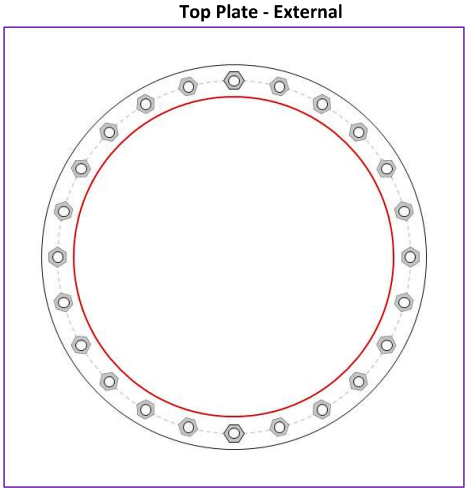
Elevation = 80 ft.

BU #	822765
Site Name	Branford (I-95/X55)
Order #	553373 rev. 1
TIA-222 Revision	H

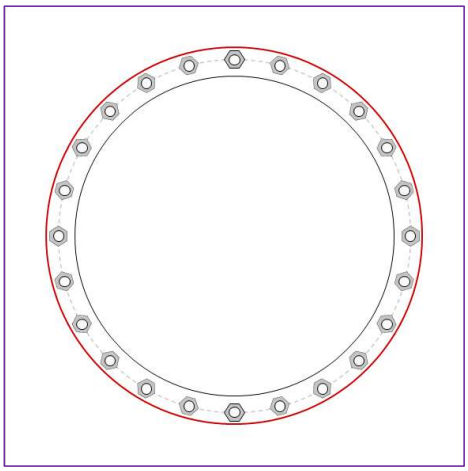
Applied Loads to Flange Connections		Applied Loads to Bridge Stiffeners	
Moment (kip-ft)	197.94	Moment (kip-ft)	230.97
Axial Force (kips)	24.78	Axial Force (kips)	0.00
Shear Force (kips)	19.16	Shear Force (kips)	0.00

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(24) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 33" BC

Top Plate Data

36" OD x 1" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

30" ID x 1" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

30" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Pole Data

36" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bridge Stiffener Group 1 Data

(3) Bolted, 4.5''x1'', A572-65, Lu=16", Neglect Flange in MOI: No

Analysis Results

Bolt Capacity

Max Load (kips)	10.96	
Allowable (kips)	54.53	
Stress Rating:	**19.1%**	Pass

Top Plate Capacity

Max Stress (ksi):	12.57	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**36.9%**	Pass
Tension Side Stress Rating:	**11.8%**	Pass

Bottom Plate Capacity

Max Stress (ksi):	12.70	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**37.3%**	Pass
Tension Side Stress Rating:	**N/A**	

Bridge Stiffener Group 1 Analysis Capacity

Max Compression (kip):	99.88	
Max Tension (kip):	99.88	
Comp. Capacity (kip):	196.59	
Tens. Capacity (kip):	195.00	(Rupture)
Comp. Stress Rating:	**48.4%**	Pass
Tens. Stress Rating:	**48.8%**	Pass

Monopole Flange Plate Connection

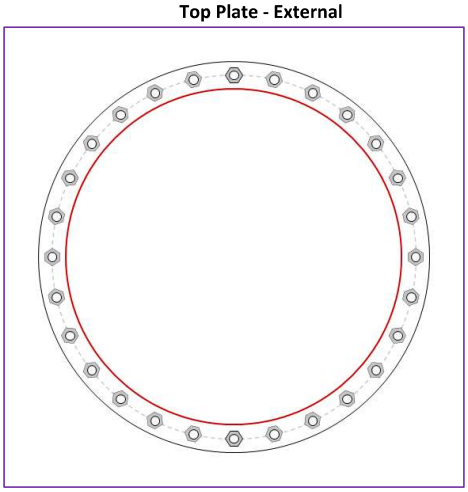
Elevation = 60 ft.

BU #	822765
Site Name	Branford (I-95/X55)
Order #	553373 rev. 1
TIA-222 Revision	H

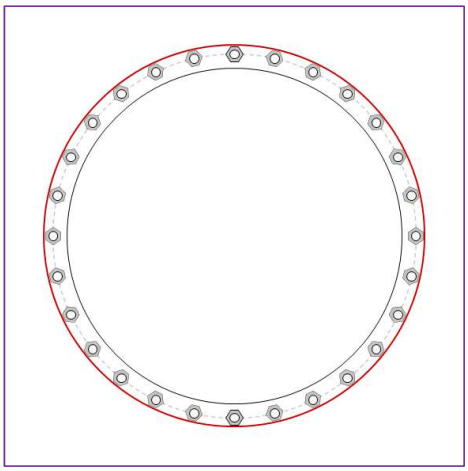
Applied Loads to Flange Connections		Applied Loads to Bridge Stiffeners	
Moment (kip-ft)	363.12	Moment (kip-ft)	468.27
Axial Force (kips)	30.23	Axial Force (kips)	0.00
Shear Force (kips)	21.28	Shear Force (kips)	0.00

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(28) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 39" BC

Top Plate Data

42" OD x 1" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

36" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

36" x 0.5625" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Pole Data

42" x 0.525" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bridge Stiffener Group 1 Data

(3) Bolted, 6''x1'', A572-65, Lu=16", Neglect Flange in MOI: No

Analysis Results

Bolt Capacity

Max Load (kips)	14.88	
Allowable (kips)	54.53	
Stress Rating:	**26.0%**	Pass

Top Plate Capacity

Max Stress (ksi):	15.93	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**46.8%**	Pass
Tension Side Stress Rating:	**15.5%**	Pass

Bottom Plate Capacity

Max Stress (ksi):	9.26	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**27.2%**	Pass
Tension Side Stress Rating:	**N/A**	

Bridge Stiffener Group 1 Analysis Capacity

Max Compression (kip):	174.24	
Max Tension (kip):	174.24	
Comp. Capacity (kip):	262.12	
Tens. Capacity (kip):	285.00	(Rupture)
Comp. Stress Rating:	**63.3%**	Pass
Tens. Stress Rating:	**58.2%**	Pass

Monopole Flange Plate Connection

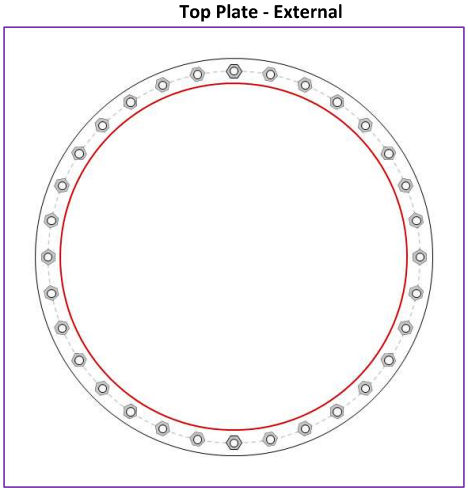
Elevation = 40 ft.

BU #	822765
Site Name	Branford (I-95/X55)
Order #	553373 rev. 1
TIA-222 Revision	H

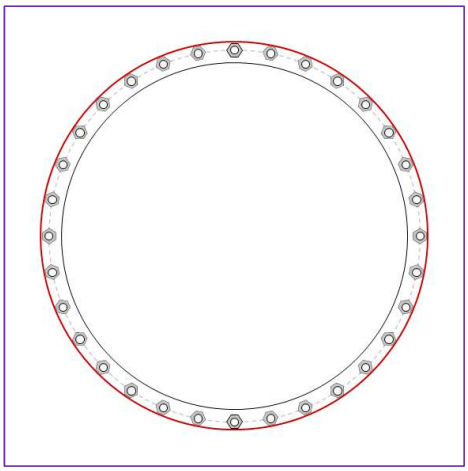
Applied Loads to Flange Connections		Applied Loads to Bridge Stiffeners	
Moment (kip-ft)	580.35	Moment (kip-ft)	691.94
Axial Force (kips)	36.59	Axial Force (kips)	0.00
Shear Force (kips)	23.08	Shear Force (kips)	0.00

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(32) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 45" BC

Top Plate Data

48" OD x 1" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

42" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

42" x 0.525" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Pole Data

48" x 0.55625" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bridge Stiffener Group 1 Data

(3) Bolted, 6.5''x1'', A572-65, Lu=16", Neglect Flange in MOI: No

Analysis Results

Bolt Capacity

Max Load (kips)	18.20	
Allowable (kips)	54.53	
Stress Rating:	**31.8%**	Pass

Top Plate Capacity

Max Stress (ksi):	19.22	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**56.5%**	Pass
Tension Side Stress Rating:	**18.5%**	Pass

Bottom Plate Capacity

Max Stress (ksi):	10.75	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**31.6%**	Pass
Tension Side Stress Rating:	**N/A**	

Bridge Stiffener Group 1 Analysis Capacity

Max Compression (kip):	225.94	
Max Tension (kip):	225.94	
Comp. Capacity (kip):	283.96	
Tens. Capacity (kip):	315.00	(Rupture)
Comp. Stress Rating:	**75.8%**	Pass
Tens. Stress Rating:	**68.3%**	Pass

Monopole Flange Plate Connection

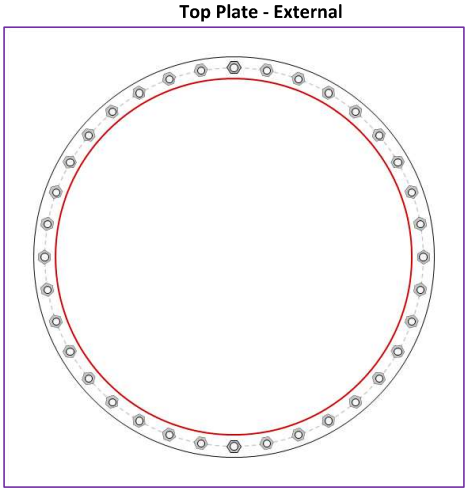
Elevation = 20 ft.

BU #	822765
Site Name	Branford (I-95/X55)
Order #	553373 rev. 1
TIA-222 Revision	H

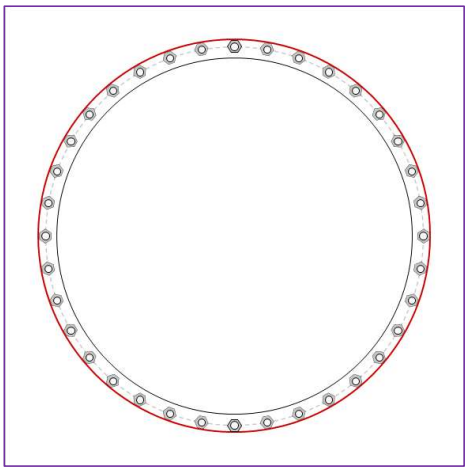
Applied Loads to Flange Connections		Applied Loads to Bridge Stiffeners	
Moment (kip-ft)	644.20	Moment (kip-ft)	1104.64
Axial Force (kips)	44.07	Axial Force (kips)	0.00
Shear Force (kips)	24.87	Shear Force (kips)	0.00

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(36) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 51" BC

Top Plate Data

54" OD x 1" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

48" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

48" x 0.55625" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Pole Data

54" x 0.5875" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bridge Stiffener Group 1 Data

(3) Bolted, 8.5''x1.25'', A572-65, Lu=16", Neglect Flange in MOI: No

Analysis Results

Bolt Capacity

Max Load (kips)	15.62	
Allowable (kips)	54.53	
Stress Rating:	**27.3%**	Pass

Top Plate Capacity

Max Stress (ksi):	16.85	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**49.5%**	Pass
Tension Side Stress Rating:	**15.6%**	Pass

Bottom Plate Capacity

Max Stress (ksi):	9.15	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**26.9%**	Pass
Tension Side Stress Rating:	**N/A**	

Bridge Stiffener Group 1 Analysis Capacity

Max Compression (kip):	319.89	
Max Tension (kip):	319.89	
Comp. Capacity (kip):	515.61	
Tens. Capacity (kip):	543.75	(Rupture)
Comp. Stress Rating:	**59.1%**	Pass
Tens. Stress Rating:	**56.0%**	Pass

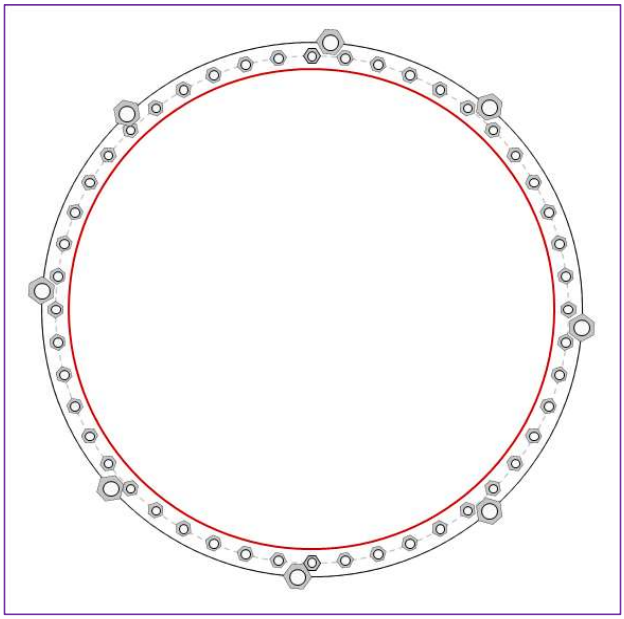
Monopole Base Plate Connection

Site Info	
BU #	822765
Site Name	Branford (I-95/X55)
Order #	553373 rev. 1

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

Applied Loads	
Moment (kip-ft)	2258.36
Axial Force (kips)	52.62
Shear Force (kips)	26.04

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (48) 1" ø bolts (A687 N; Fy=105 ksi, Fu=125 ksi) on 57" BC

GROUP 2: (8) 1-3/4" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 60.25" BC

pos. (deg): 49, 86, 133, 176, 222, 267, 311, 356

Base Plate Data

60.125" OD x 1" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Stiffener Data

N/A

Pole Data

54" x 0.4875" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

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

GROUP 1:		
Pu_t = 24.31	ϕPn_t = 56.81	**Stress Rating**
Vu = 0.54	ϕVn = 36.82	**40.8%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 2:		
Pu_t = 84.16	ϕPn_t = 178.13	**Stress Rating**
Vu = 0	ϕVn = 112.75	**45.0%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	29.14	(Flexural)
Allowable Stress (ksi):	32.4	
Stress Rating:	**85.7%**	**Pass**

CCIplate

Elevation (ft)	0	*(Base)*

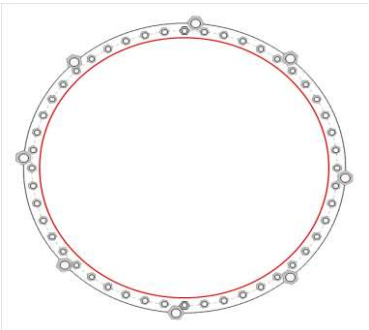
note: Bending interaction not considered when Grout Considered = "Yes"

Bolt Group	Resist Axial	Resist Shear	Induce Plate Bending	Grout Considered	Apply at BARB Elevation	BARB CL Elevation (ft)
1	Yes	Yes	Yes	Yes	No	
2	No	No	No	Yes	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	0	1	A687	57	0.5	2.5	N-Included		No
2	1	7.5	1	A687	57	0.5	2.5	N-Included		No
3	1	15	1	A687	57	0.5	2.5	N-Included		No
4	1	22.5	1	A687	57	0.5	2.5	N-Included		No
5	1	30	1	A687	57	0.5	2.5	N-Included		No
6	1	37.5	1	A687	57	0.5	2.5	N-Included		No
7	1	45	1	A687	57	0.5	2.5	N-Included		No
8	1	52.5	1	A687	57	0.5	2.5	N-Included		No
9	1	60	1	A687	57	0.5	2.5	N-Included		No
10	1	67.5	1	A687	57	0.5	2.5	N-Included		No
11	1	75	1	A687	57	0.5	2.5	N-Included		No
12	1	82.5	1	A687	57	0.5	2.5	N-Included		No
13	1	90	1	A687	57	0.5	2.5	N-Included		No
14	1	97.5	1	A687	57	0.5	2.5	N-Included		No
15	1	105	1	A687	57	0.5	2.5	N-Included		No
16	1	112.5	1	A687	57	0.5	2.5	N-Included		No
17	1	120	1	A687	57	0.5	2.5	N-Included		No
18	1	127.5	1	A687	57	0.5	2.5	N-Included		No
19	1	135	1	A687	57	0.5	2.5	N-Included		No
20	1	142.5	1	A687	57	0.5	2.5	N-Included		No
21	1	150	1	A687	57	0.5	2.5	N-Included		No
22	1	157.5	1	A687	57	0.5	2.5	N-Included		No
23	1	165	1	A687	57	0.5	2.5	N-Included		No
24	1	172.5	1	A687	57	0.5	2.5	N-Included		No
25	1	180	1	A687	57	0.5	2.5	N-Included		No
26	1	187.5	1	A687	57	0.5	2.5	N-Included		No
27	1	195	1	A687	57	0.5	2.5	N-Included		No
28	1	202.5	1	A687	57	0.5	2.5	N-Included		No
29	1	210	1	A687	57	0.5	2.5	N-Included		No
30	1	217.5	1	A687	57	0.5	2.5	N-Included		No
31	1	225	1	A687	57	0.5	2.5	N-Included		No
32	1	232.5	1	A687	57	0.5	2.5	N-Included		No
33	1	240	1	A687	57	0.5	2.5	N-Included		No
34	1	247.5	1	A687	57	0.5	2.5	N-Included		No
35	1	255	1	A687	57	0.5	2.5	N-Included		No
36	1	262.5	1	A687	57	0.5	2.5	N-Included		No
37	1	270	1	A687	57	0.5	2.5	N-Included		No
38	1	277.5	1	A687	57	0.5	2.5	N-Included		No
39	1	285	1	A687	57	0.5	2.5	N-Included		No
40	1	292.5	1	A687	57	0.5	2.5	N-Included		No
41	1	300	1	A687	57	0.5	2.5	N-Included		No
42	1	307.5	1	A687	57	0.5	2.5	N-Included		No
43	1	315	1	A687	57	0.5	2.5	N-Included		No
44	1	322.5	1	A687	57	0.5	2.5	N-Included		No
45	1	330	1	A687	57	0.5	2.5	N-Included		No
46	1	337.5	1	A687	57	0.5	2.5	N-Included		No
47	1	345	1	A687	57	0.5	2.5	N-Included		No
48	1	352.5	1	A687	57	0.5	2.5	N-Included		No
49	2	49	1.75	A193 Gr. B7	60.25	0.5	1.75	N-Included		No
50	2	86	1.75	A193 Gr. B7	60.25	0.5	1.75	N-Included		No
51	2	133	1.75	A193 Gr. B7	60.25	0.5	1.75	N-Included		No
52	2	176	1.75	A193 Gr. B7	60.25	0.5	1.75	N-Included		No
53	2	222	1.75	A193 Gr. B7	60.25	0.5	1.75	N-Included		No
54	2	267	1.75	A193 Gr. B7	60.25	0.5	1.75	N-Included		No
55	2	311	1.75	A193 Gr. B7	60.25	0.5	1.75	N-Included		No
56	2	356	1.75	A193 Gr. B7	60.25	0.5	1.75	N-Included		No

Plot Graphic



Drilled Pier Foundation

BU # :	822765
Site Name:	Branford / I-95 / X55
Order Number:	553373 rev. 1
TIA-222 Revison:	H
Tower Type:	Monopole

Applied Loads	Comp.	Uplift
Moment (kip-ft)	2258	
Axial Force (kips)	53	
Shear Force (kips)	26	

Material Properties			Rebar 2, Fy Override (ksi)
Concrete Strength, f'c:	3	ksi	
Rebar Strength, Fy:	60	ksi	
Tie Yield Strength, Fyt:	60	ksi	

Pier Design Data		
Depth	21	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 12.1' below grade		
Pier Diameter	6	ft
Rebar Quantity	24	
Rebar Size	9	
Clear Cover to Ties	3	in
Tie Size	5	
Tie Spacing	18	in
Rebar Quantity	2	
Rebar Size	14	
Rebar Cage Diameter	60.25	in
Pier Section 2		
From 12.1' below grade to 21' below grade		
Pier Diameter	6	ft
Rebar Quantity	24	
Rebar Size	9	
Clear Cover to Ties	3	in
Tie Size	5	
Tie Spacing	18	in

Rebar & Pier Options
Embedded Pole Inputs
Belled Pier Inputs

Analysis Results		
Soil Lateral Check	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	5.68	-
Soil Safety Factor	2.31	-
Max Moment (kip-ft)	2422.79	-
Rating*	*54.9%*	-
Soil Vertical Check	*Compression*	*Uplift*
Skin Friction (kips)	366.71	-
End Bearing (kips)	254.47	-
Weight of Concrete (kips)	109.42	-
Total Capacity (kips)	621.18	-
Axial (kips)	162.42	-
Rating*	*24.9%*	-
Reinforced Concrete Flexure	*Compression*	*Uplift*
Critical Depth (ft from TOC)	7.97	-
Critical Moment (kip-ft)	2371.07	-
Critical Moment Capacity	3314.68	-
Rating*	*68.1%*	-
Reinforced Concrete Shear	*Compression*	*Uplift*
Critical Depth (ft from TOC)	15.73	-
Critical Shear (kip)	332.31	-
Critical Shear Capacity	443.90	-
Rating*	*71.3%*	-

Structural Foundation Rating*	**71.3%**
Soil Interaction Rating*	**54.9%**

*Rating per TIA-222-H Section 15.5

Check Limitation	
Apply TIA-222-H Section 15.5:	☑
N/A	☐
Additional Longitudinal Rebar	
Input Effective Depths (else Actual):	☐
Shear Design Options	
Check Shear along Depth of Pier:	☑
Utilize Shear-Friction Methodology:	☐
Override Critical Depth:	☐

Go to Soil Calculations

Soil Profile

Groundwater Depth	N/A	# of Layers	3

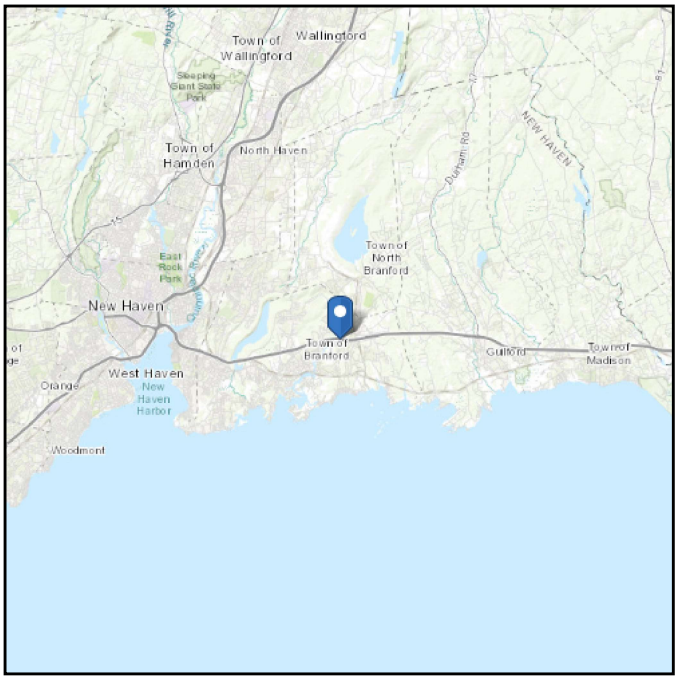
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	3.333	3.333	120	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	3.333	11	7.667	120	150	0	34	0.979	0.979				65	Cohesionless
3	11	21	10	120	150	0	33	1.843	1.843			12	100	Cohesionless

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 0 ft (NAVD 88)
Latitude: 41.293933
Longitude: -72.785706



Wind

Results:

Wind Speed:	122 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	93 Vmph
100-year MRI	99 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Tue Sep 21 2021

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

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

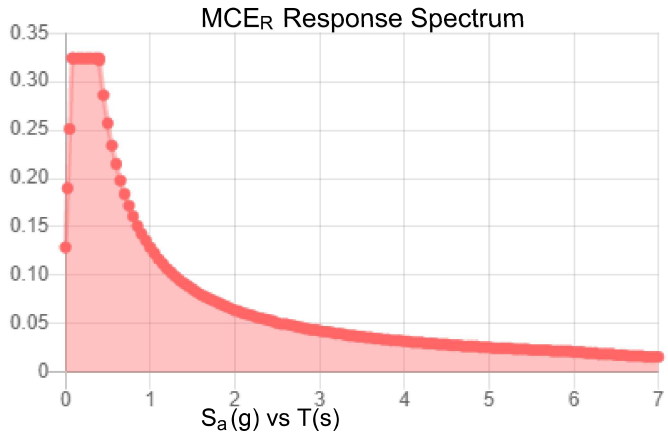
Seismic

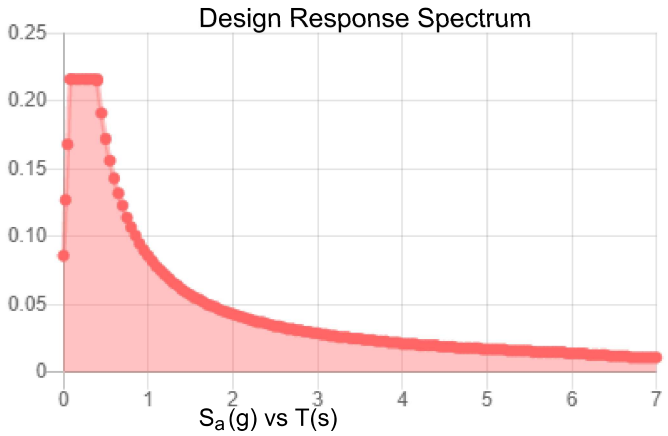
Site Soil Class: D - Stiff Soil

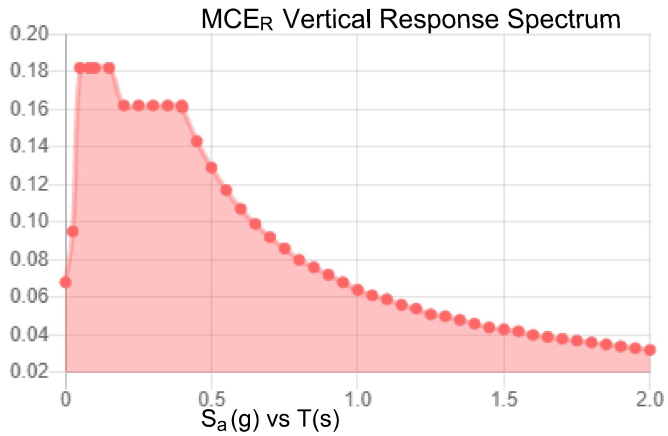
Results:

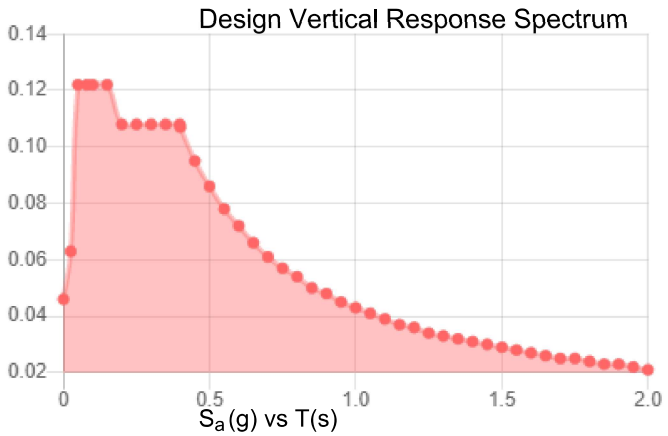
S_S :	0.202	S_{D1} :	0.086
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.113
F_v :	2.4	PGA_M :	0.178
S_{MS} :	0.324	F_{PGA} :	1.574
S_{M1} :	0.129	I_e :	1
S_{DS} :	0.216	C_v :	0.704

Seismic Design Category B









Data Accessed: Tue Sep 21 2021

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Tue Sep 21 2021

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

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

Exhibit E

Mount Analysis

Date: **September 13, 2021**

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Jacob Montoya
Crown Castle
2055 S. Stearman Dr,
Chandler, AZ 85286
480-298-9641

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

Subject:	**Mount Replacement Analysis Report**	
Carrier Designation:	**Dish Network 5G**	
	Carrier Site Number:	BOHVN00155A
	Carrier Site Name:	CT-CCI-T-822765
Crown Castle Designation:	**Crown Castle BU Number:**	822765
	Crown Castle Site Name:	Branford/ I-95/ X55/ Dtn1
	Crown Castle JDE Job Number:	645122
	Crown Castle Order Number:	553373 Rev. 1
Engineering Firm Designation:	**Infinigy Engineering, PLLC Report Designation:** 1039-Z0001-B	
Site Data:	**10 Sylvia St., Branford, New Haven County, CT, 06405** **Latitude 41°17'38.16" Longitude -72°47'8.54"**	
Structure Information:	**Tower Height & Type:**	**125.0 ft Monopole**
	Mount Elevation:	**81.0 ft**
	Mount Type:	**8.0 ft Platform**

Dear Jacob Montoya,

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

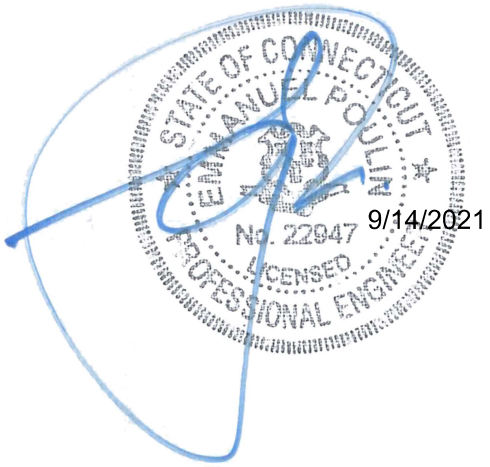
The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

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

This analysis has been performed in accordance with the 2015 International Building Code based upon an ultimate 3-second gust wind speed of 122 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Farhad Ahmadyar

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



9/14/2021

TABLE OF CONTENTS

1) INTRODUCTION

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

2) ANALYSIS CRITERIA

Building Code:	2015 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	122 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:	0.179
Seismic S_1:	0.061
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
81.0	81.0	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	553373 Rev. 1	CCI Sites
Mount Manufacturer Drawings	Commscope, Inc.	Part No. MC-PK8-DSH	Infinigy

3.1) Analysis Method

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

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

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *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)	MP4	81.0	19.3	Pass
	Horizontal(s)	HOR1		12.0	Pass
	Standoff(s)	S3		28.8	Pass
	Bracing(s)	M1		33.2	Pass
	Mount Connection(s)	--		21.3	Pass

Structure Rating (max from all components) =	33.2%

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

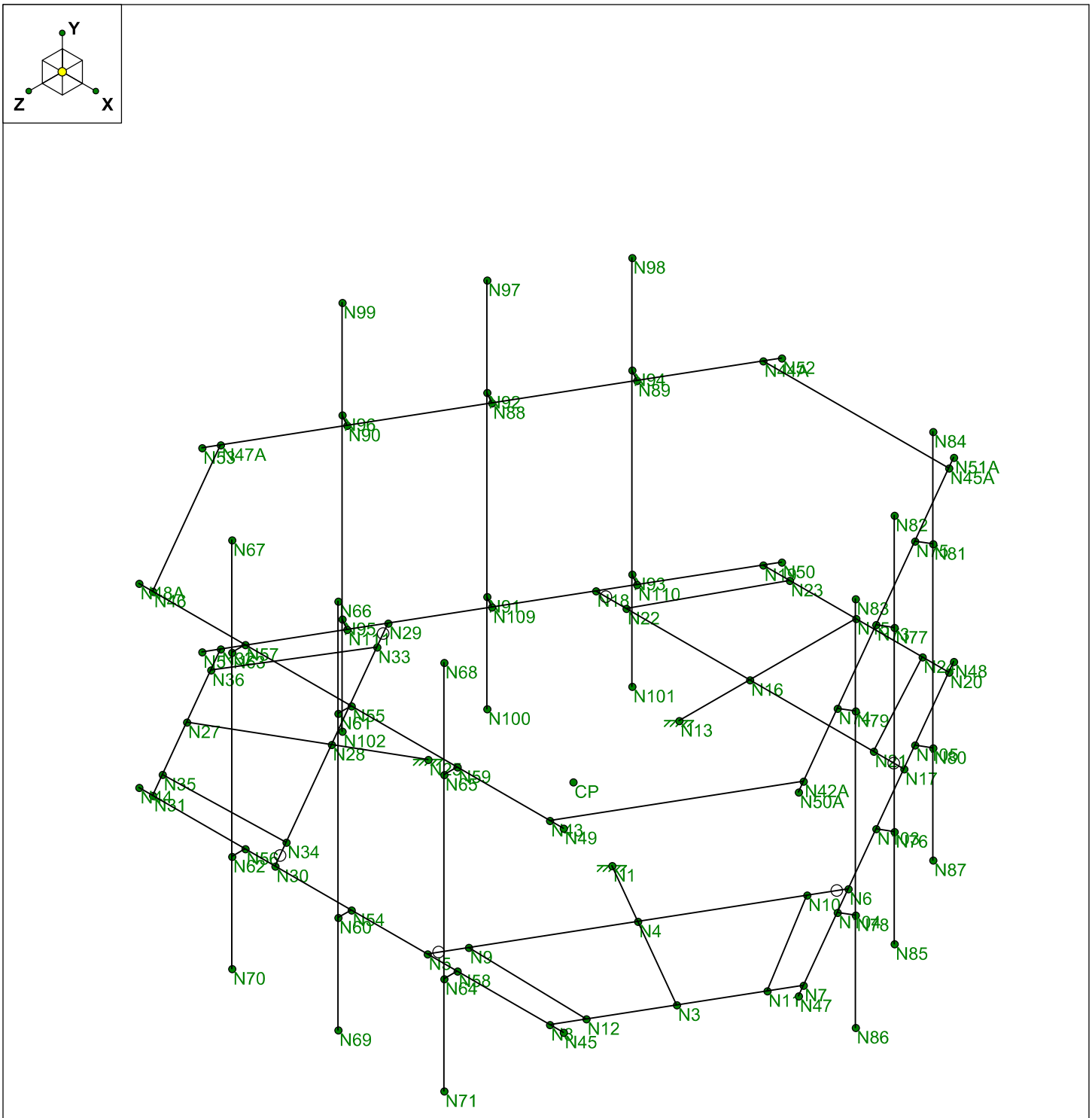
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the proposed mount listed below must be installed.

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



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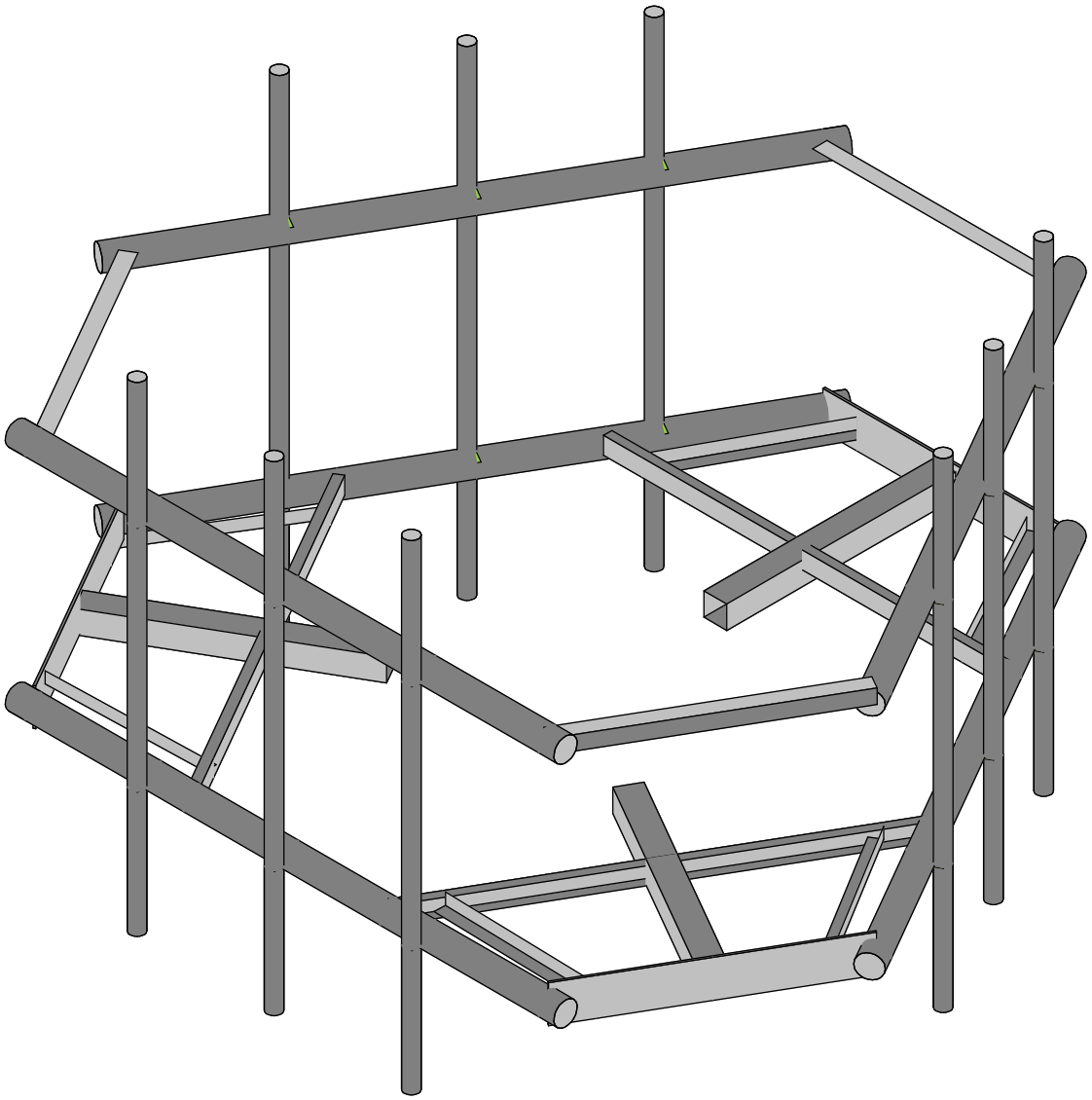
1039-Z0001-B		MC-PK8-B_loaded.r3d



Infinigy Engineering	822765	RENDERED
FA		Sept 13, 2021 at 4:58 PM
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APPENDIX B

SOFTWARE INPUT CALCULATIONS

Program Inputs

PROJECT INFORMATION	
Client:	Crown Castle
Carrier:	Dish Network
Engineer:	Farhad Ahmadyar

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	B	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	56.16	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Platform	
Num Sectors:	3	
Centerline AGL:	81.00	ft
Tower Height AGL:	125.00	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):	0.998	*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}):	122	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	1.5	in
Flat Pressure:	67.227	psf
Round Pressure:	40.336	psf
Ice Wind Pressure:	6.775	psf

SEISMIC DATA		
Short-Period Accel. (S_s):	0.179	g
1-Second Accel. (S_1):	0.061	g
Short-Period Design (S_{DS}):	0.191	
1-Second Design (S_{D1}):	0.098	
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	

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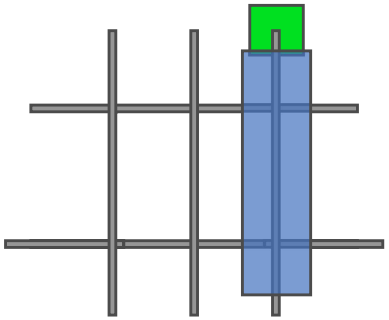
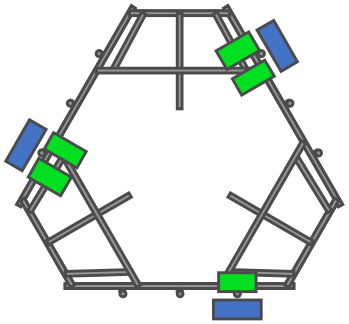
Infinigy Load Calculator V2.1.7

Program Inputs

ELEVATION VIEW



PLAN VIEW



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Infinigy Load Calculator V2.1.7

APPURTENANCE INFORMATION

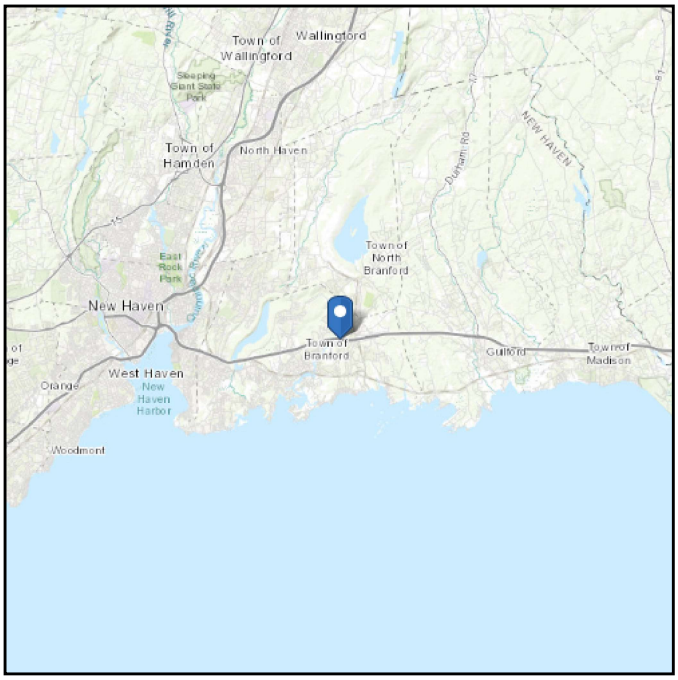
Appurtenance Name	Elevation	Qty.	K_a	q_z (psf)	EPA_N (ft^2)	EPA_T (ft^2)	Wind F_z (lbs)	Wind F_x (lbs)	Weight (lbs)	Seismic F (lbs)	Member (α sector)
JMA WIRELESS MX08FRO665-21	81.0	3	0.90	33.61	8.01	3.21	242.32	97.11	82.50	23.63	MP1
FUJITSU TA08025-B604	81.0	3	0.90	33.61	1.96	0.98	59.40	29.68	63.90	18.30	MP1
FUJITSU TA08025-B605	81.0	3	0.90	33.61	1.96	1.13	59.40	34.17	75.00	21.48	MP1
RAYCAP RDIDC-9181-PF-48	81.0	1	0.90	33.61	2.01	1.17	60.86	35.34	21.85	6.26	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: 56.16 ft (NAVD 88)
Latitude: 41.293933
Longitude: -72.785706



Wind

Results:

Wind Speed:	122 Vmph per the State of Connecticut allowing ASCE 7-16 wind speed values
10-year MRI	78 Vmph
25-year MRI	88 Vmph
50-year MRI	95 Vmph
100-year MRI	104 Vmph

Data Accessed: Mon Sep 13 2021

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

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

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

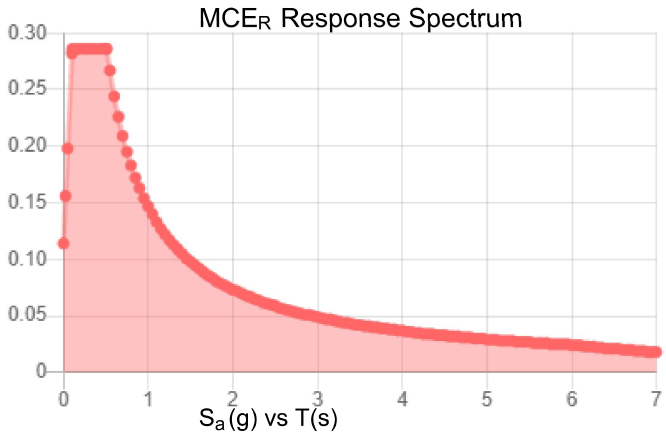
Seismic

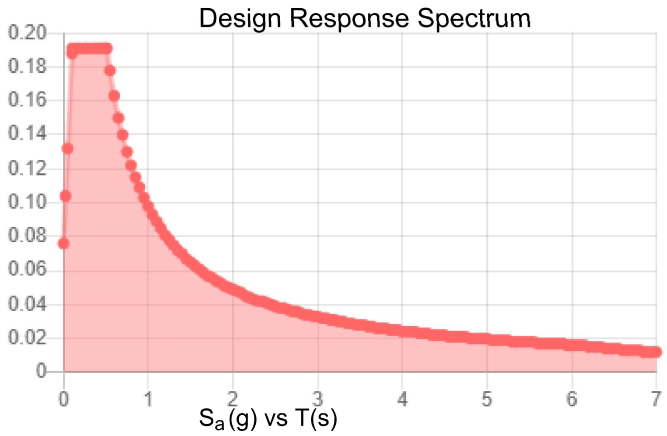
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.179	S_{DS} :	0.191
S_1 :	0.061	S_{D1} :	0.098
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.092
S_{MS} :	0.286	PGA_M :	0.147
S_{M1} :	0.147	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Mon Sep 13 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:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Mon Sep 13 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	M1	N5	N6			Channel 3" x 1...	Beam	Channel	A36 Gr.36	Typical
2	S3	N3	N1			Standoff	Beam	Tube	A500 Gr.B...	Typical
3	M3	N9	N12			L 2"x2"x3/16"	Beam	Single Angle	A36 Gr.36	Typical
4	M4	N10	N11			L 2"x2"x3/16"	Beam	Single Angle	A36 Gr.36	Typical
5	M5	N8	N7			6.5"x0.37" Plate	Beam	RECT	A36 Gr.36	Typical
6	M6	N17	N18			Channel 3" x 1...	Beam	Channel	A36 Gr.36	Typical
7	S2	N15	N13			Standoff	Beam	Tube	A500 Gr.B...	Typical
8	M8	N21	N24			L 2"x2"x3/16"	Beam	Single Angle	A36 Gr.36	Typical
9	M9	N22	N23			L 2"x2"x3/16"	Beam	Single Angle	A36 Gr.36	Typical
10	M10	N20	N19			6.5"x0.37" Plate	Beam	RECT	A36 Gr.36	Typical
11	M11	N29	N30			Channel 3" x 1...	Beam	Channel	A36 Gr.36	Typical
12	S1	N27	N25			Standoff	Beam	Tube	A500 Gr.B...	Typical
13	M13	N33	N36			L 2"x2"x3/16"	Beam	Single Angle	A36 Gr.36	Typical
14	M14	N34	N35			L 2"x2"x3/16"	Beam	Single Angle	A36 Gr.36	Typical
15	M15	N32	N31			6.5"x0.37" Plate	Beam	RECT	A36 Gr.36	Typical
16	HOR1	N44	N45			Horizontal	Beam	Pipe	A53 Gr.B	Typical
17	HOR3	N47	N48			Horizontal	Beam	Pipe	A53 Gr.B	Typical
18	HOR2	N50	N51			Horizontal	Beam	Pipe	A53 Gr.B	Typical
19	HR1	N48A	N49			Horizontal	Beam	Pipe	A53 Gr.B	Typical
20	HR3	N50A	N51A			Horizontal	Beam	Pipe	A53 Gr.B	Typical
21	HR2	N52	N53			Horizontal	Beam	Pipe	A53 Gr.B	Typical
22	M22	N57	N63			RIGID	None	None	RIGID	Typical
23	M23	N55	N61			RIGID	None	None	RIGID	Typical
24	M24	N56	N62			RIGID	None	None	RIGID	Typical
25	M25	N59	N65			RIGID	None	None	RIGID	Typical
26	M26	N54	N60			RIGID	None	None	RIGID	Typical
27	M27	N58	N64			RIGID	None	None	RIGID	Typical
28	MP3	N67	N70			Mount Pipes	Column	Pipe	A53 Gr.B	Typical
29	MP2	N66	N69			Mount Pipes	Column	Pipe	A53 Gr.B	Typical
30	MP1	N68	N71			Mount Pipes	Column	Pipe	A53 Gr.B	Typical
31	M31	N74	N79			RIGID	None	None	RIGID	Typical
32	M32	N73	N77			RIGID	None	None	RIGID	Typical
33	M33	N75	N81			RIGID	None	None	RIGID	Typical
34	MP9	N83	N86			Mount Pipes	Column	Pipe	A53 Gr.B	Typical
35	MP8	N82	N85			Mount Pipes	Column	Pipe	A53 Gr.B	Typical
36	MP7	N84	N87			Mount Pipes	Column	Pipe	A53 Gr.B	Typical
37	M37	N89	N94			RIGID	None	None	RIGID	Typical
38	M38	N88	N92			RIGID	None	None	RIGID	Typical
39	M39	N90	N96			RIGID	None	None	RIGID	Typical
40	MP6	N98	N101			Mount Pipes	Column	Pipe	A53 Gr.B	Typical
41	MP5	N97	N100			Mount Pipes	Column	Pipe	A53 Gr.B	Typical
42	MP4	N99	N102			Mount Pipes	Column	Pipe	A53 Gr.B	Typical
43	M43	N104	N78			RIGID	None	None	RIGID	Typical
44	M44	N103	N76			RIGID	None	None	RIGID	Typical
45	M45	N105	N80			RIGID	None	None	RIGID	Typical
46	M46	N110	N93			RIGID	None	None	RIGID	Typical
47	M47	N109	N91			RIGID	None	None	RIGID	Typical
48	M48	N111	N95			RIGID	None	None	RIGID	Typical
49	M49	N46	N47A		90	Handrail Plate	Beam	Single Angle	A36 Gr.36	Typical
50	M50	N44A	N45A		90	Handrail Plate	Beam	Single Angle	A36 Gr.36	Typical
51	M51	N42A	N43		90	Handrail Plate	Beam	Single Angle	A36 Gr.36	Typical

Hot Rolled Steel Properties

	Label	E [psi]	G [psi]	Nu	Therm (/1...	Density[lb/...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	2.9e+7	1.115e+7	.3	.65	490	50	1.1	65	1.1
2	A36 Gr.36	2.9e+7	1.115e+7	.3	.65	490	36	1.5	58	1.2
3	A572 Gr.50	2.9e+7	1.115e+7	.3	.65	490	50	1.1	65	1.1
4	A500 Gr.B RND	2.9e+7	1.115e+7	.3	.65	527	42	1.4	58	1.3
5	A500 Gr.B Rect	2.9e+7	1.115e+7	.3	.65	527	46	1.4	58	1.3
6	A53 Gr.B	2.9e+7	1.115e+7	.3	.65	490	35	1.6	60	1.2
7	A1085	2.9e+7	1.115e+7	.3	.65	490	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	6.5"x0.37" Pl...	6.5"x0.37...	Beam	RECT	A36 Gr.36	Typical	2.405	.027	8.468	.106
2	L 2"x2"x3/16"	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical	.722	.271	.271	.009
3	Handrail Plate	L2.5x2.5x3	Beam	Single Angle	A36 Gr.36	Typical	.901	.535	.535	.011
4	Horizontal	PIPE_3.5	Beam	Pipe	A53 Gr.B	Typical	2.5	4.52	4.52	9.04
5	Handrail	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
6	Mount Pipes	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
7	Standoff	HSS4X4X4	Beam	Tube	A500 Gr.B Rect	Typical	3.37	7.8	7.8	12.8
8	Channel 3" x ...	C3X5	Beam	Channel	A36 Gr.36	Typical	1.47	.241	1.85	.043

Joint Coordinates and Temperatures

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
1	N1	20.78461	0	-12	0	
2	CP	0	0	-24	0	
3	N3	55.425626	0	8	0	
4	N4	34.641016	0	-4	0	
5	N5	17.212813	0	26.186533	0	
6	N6	52.069219	0	-34.186533	0	
7	N7	65.925626	0	-10.186533	0	
8	N8	44.925626	0	26.186533	0	
9	N9	20.641016	0	20.248711	0	
10	N10	48.641016	0	-28.248711	0	
11	N11	62.925626	0	-4.990381	0	
12	N12	47.925626	0	20.990381	0	
13	N13	-0.	0	-48	0	
14	N15	-0.	0	-88	0	
15	N16	-0.	0	-64	0	
16	N17	34.856406	0	-64	0	
17	N18	-34.856406	0	-64	0	
18	N19	-21	0	-88	0	
19	N20	21	0	-88	0	
20	N21	28	0	-64	0	
21	N22	-28	0	-64	0	
22	N23	-15	0	-88	0	
23	N24	15	0	-88	0	
24	N25	-20.78461	0	-12	0	
25	N27	-55.425626	0	8	0	
26	N28	-34.641016	0	-4	0	
27	N29	-52.069219	0	-34.186533	0	
28	N30	-17.212813	0	26.186533	0	
29	N31	-44.925626	0	26.186533	0	
30	N32	-65.925626	0	-10.186533	0	
31	N33	-48.641016	0	-28.248711	0	
32	N34	-20.641016	0	20.248711	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
33	N35	-47.925626	0	20.990381	0	
34	N36	-62.925626	0	-4.990381	0	
35	N44	-48.000126	0	26.186533	0	
36	N45	48.000126	0	26.186533	0	
37	N47	67.462876	0	-7.523938	0	
38	N48	19.46275	0	-90.662595	0	
39	N50	-19.46275	0	-90.662595	0	
40	N51	-67.462876	0	-7.523938	0	
41	N42A	65.925626	40	-10.186533	0	
42	N43	44.925626	40	26.186533	0	
43	N44A	-21	40	-88	0	
44	N45A	21	40	-88	0	
45	N46	-44.925626	40	26.186533	0	
46	N47A	-65.925626	40	-10.186533	0	
47	N48A	-48.000126	40	26.186533	0	
48	N49	48.000126	40	26.186533	0	
49	N50A	67.462876	40	-7.523938	0	
50	N51A	19.46275	40	-90.662595	0	
51	N52	-19.46275	40	-90.662595	0	
52	N53	-67.462876	40	-7.523938	0	
53	N54	-0.000126	0	26.186533	0	
54	N55	-0.000126	40	26.186533	0	
55	N56	-24.000126	0	26.186533	0	
56	N57	-24.000126	40	26.186533	0	
57	N58	23.999874	0	26.186533	0	
58	N59	23.999874	40	26.186533	0	
59	N60	-0.000126	0	29.186533	0	
60	N61	-0.000126	40	29.186533	0	
61	N62	-24.000126	0	29.186533	0	
62	N63	-24.000126	40	29.186533	0	
63	N64	23.999874	0	29.186533	0	
64	N65	23.999874	40	29.186533	0	
65	N66	-0.000126	62	29.186533	0	
66	N67	-24.000126	62	29.186533	0	
67	N68	23.999874	62	29.186533	0	
68	N69	-0.000126	-22	29.186533	0	
69	N70	-24.000126	-22	29.186533	0	
70	N71	23.999874	-22	29.186533	0	
71	N73	43.462876	40	-49.093158	0	
72	N74	55.462876	40	-28.308548	0	
73	N75	31.462876	40	-69.877767	0	
74	N76	46.060952	0	-50.593158	0	
75	N77	46.060952	40	-50.593158	0	
76	N78	58.060952	0	-29.808548	0	
77	N79	58.060952	40	-29.808548	0	
78	N80	34.060952	0	-71.377767	0	
79	N81	34.060952	40	-71.377767	0	
80	N82	46.060952	62	-50.593158	0	
81	N83	58.060952	62	-29.808548	0	
82	N84	34.060952	62	-71.377767	0	
83	N85	46.060952	-22	-50.593158	0	
84	N86	58.060952	-22	-29.808548	0	
85	N87	34.060952	-22	-71.377767	0	
86	N88	-43.46275	40	-49.093376	0	
87	N89	-31.46275	40	-69.877985	0	
88	N90	-55.46275	40	-28.308766	0	
89	N91	-46.060826	0	-50.593376	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [F]	Detach From Diap...
90	N92	-46.060826	40	-50.593376	0	
91	N93	-34.060826	0	-71.377985	0	
92	N94	-34.060826	40	-71.377985	0	
93	N95	-58.060826	0	-29.808766	0	
94	N96	-58.060826	40	-29.808766	0	
95	N97	-46.060826	62	-50.593376	0	
96	N98	-34.060826	62	-71.377985	0	
97	N99	-58.060826	62	-29.808766	0	
98	N100	-46.060826	-22	-50.593376	0	
99	N101	-34.060826	-22	-71.377985	0	
100	N102	-58.060826	-22	-29.808766	0	
101	N103	43.462876	0	-49.093158	0	
102	N104	55.462876	0	-28.308548	0	
103	N105	31.462876	0	-69.877767	0	
104	N109	-43.46275	0	-49.093376	0	
105	N110	-31.46275	0	-69.877985	0	
106	N111	-55.46275	0	-28.308766	0	

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	Channel 3" ...	69.713	28	28	28	28	28				Lateral
2	S3	Standoff	40	24	24	24	24	24				Lateral
3	M3	L 2"x2"x3/16"	27.295			Lbyy						Lateral
4	M4	L 2"x2"x3/16"	27.295			Lbyy						Lateral
5	M5	6.5"x0.37" P...	42			Lbyy						Lateral
6	M6	Channel 3" ...	69.713	28	28	28	28	28				Lateral
7	S2	Standoff	40	24	24	24	24	24				Lateral
8	M8	L 2"x2"x3/16"	27.295			Lbyy						Lateral
9	M9	L 2"x2"x3/16"	27.295			Lbyy						Lateral
10	M10	6.5"x0.37" P...	42			Lbyy						Lateral
11	M11	Channel 3" ...	69.713	28	28	28	28	28				Lateral
12	S1	Standoff	40	24	24	24	24	24				Lateral
13	M13	L 2"x2"x3/16"	27.295			Lbyy						Lateral
14	M14	L 2"x2"x3/16"	27.295			Lbyy						Lateral
15	M15	6.5"x0.37" P...	42			Lbyy						Lateral
16	HOR1	Horizontal	96	34.5	34.5	34.5	34.5	34.5				Lateral
17	HOR3	Horizontal	96	34.5	34.5	34.5	34.5	34.5				Lateral
18	HOR2	Horizontal	96	34.5	34.5	34.5	34.5	34.5				Lateral
19	HR1	Horizontal	96	34.5	34.5	34.5	34.5	34.5				Lateral
20	HR3	Horizontal	96	34.5	34.5	34.5	34.5	34.5				Lateral
21	HR2	Horizontal	96	34.5	34.5	34.5	34.5	34.5				Lateral
22	MP3	Mount Pipes	84									Lateral
23	MP2	Mount Pipes	84									Lateral
24	MP1	Mount Pipes	84									Lateral
25	MP9	Mount Pipes	84									Lateral
26	MP8	Mount Pipes	84									Lateral
27	MP7	Mount Pipes	84									Lateral
28	MP6	Mount Pipes	84									Lateral
29	MP5	Mount Pipes	84									Lateral
30	MP4	Mount Pipes	84									Lateral
31	M49	Handrail Pla...	42			Lbyy						Lateral
32	M50	Handrail Pla...	42			Lbyy						Lateral
33	M51	Handrail Pla...	42			Lbyy						Lateral

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Self Weight	DL		-1			13		3	
2	Wind Load AZI 0	WLZ					26			
3	Wind Load AZI 30	None					26			
4	Wind Load AZI 60	None					26			
5	Wind Load AZI 90	WLX					26			
6	Wind Load AZI 120	None					26			
7	Wind Load AZI 150	None					26			
8	Wind Load AZI 180	None					26			
9	Wind Load AZI 210	None					26			
10	Wind Load AZI 240	None					26			
11	Wind Load AZI 270	None					26			
12	Wind Load AZI 300	None					26			
13	Wind Load AZI 330	None					26			
14	Distr. Wind Load Z	WLZ						51		
15	Distr. Wind Load X	WLX						51		
16	Ice Weight	OL1					13	51	3	
17	Ice Wind Load AZI 0	OL2					26			
18	Ice Wind Load AZI 30	None					26			
19	Ice Wind Load AZI 60	None					26			
20	Ice Wind Load AZI 90	OL3					26			
21	Ice Wind Load AZI 120	None					26			
22	Ice Wind Load AZI 150	None					26			
23	Ice Wind Load AZI 180	None					26			
24	Ice Wind Load AZI 210	None					26			
25	Ice Wind Load AZI 240	None					26			
26	Ice Wind Load AZI 270	None					26			
27	Ice Wind Load AZI 300	None					26			
28	Ice Wind Load AZI 330	None					26			
29	Distr. Ice Wind Load Z	OL2						51		
30	Distr. Ice Wind Load X	OL3						51		
31	Seismic Load Z	ELZ			-.286		13			
32	Seismic Load X	ELX	-.286				13			
33	Service Live Loads	LL				1				
34	Maintenance Load 1	LL				1				
35	Maintenance Load 2	LL				1				
36	Maintenance Load 3	LL				1				
37	Maintenance Load 4	LL				1				
38	Maintenance Load 5	LL				1				
39	Maintenance Load 6	LL				1				
40	Maintenance Load 7	LL				1				
41	Maintenance Load 8	LL				1				
42	Maintenance Load 9	LL				1				
43	BLC 1 Transient Area...	None						9		
44	BLC 16 Transient Are...	None						9		

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	N45	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	N58	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	N54	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	N56	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	N111	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	N109	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	N110	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	N105	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	N103	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	N104	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	66
3	MP1	Y	-63.9	20
4	MP1	Y	-75	40
5	MP1	Y	-21.85	60
6	MP4	Y	-41.25	6
7	MP4	Y	-41.25	66
8	MP4	Y	-63.9	20
9	MP4	Y	-75	40
10	MP7	Y	-41.25	6
11	MP7	Y	-41.25	66
12	MP7	Y	-63.9	20
13	MP7	Y	-75	40

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	-121.16	6
3	MP1	X	0	66

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
4	MP1	Z	-121.16	66
5	MP1	X	0	20
6	MP1	Z	-59.4	20
7	MP1	X	0	40
8	MP1	Z	-59.4	40
9	MP1	X	0	60
10	MP1	Z	-60.86	60
11	MP4	X	0	6
12	MP4	Z	-66.71	6
13	MP4	X	0	66
14	MP4	Z	-66.71	66
15	MP4	X	0	20
16	MP4	Z	-37.11	20
17	MP4	X	0	40
18	MP4	Z	-40.48	40
19	MP7	X	0	6
20	MP7	Z	-66.71	6
21	MP7	X	0	66
22	MP7	Z	-66.71	66
23	MP7	X	0	20
24	MP7	Z	-37.11	20
25	MP7	X	0	40
26	MP7	Z	-40.48	40

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-51.5	6
2	MP1	Z	-89.21	6
3	MP1	X	-51.5	66
4	MP1	Z	-89.21	66
5	MP1	X	-25.99	20
6	MP1	Z	-45.01	20
7	MP1	X	-26.55	40
8	MP1	Z	-45.98	40
9	MP1	X	-27.24	60
10	MP1	Z	-47.18	60
11	MP4	X	-51.5	6
12	MP4	Z	-89.21	6
13	MP4	X	-51.5	66
14	MP4	Z	-89.21	66
15	MP4	X	-25.99	20
16	MP4	Z	-45.01	20
17	MP4	X	-26.55	40
18	MP4	Z	-45.98	40
19	MP7	X	-24.28	6
20	MP7	Z	-42.05	6
21	MP7	X	-24.28	66
22	MP7	Z	-42.05	66
23	MP7	X	-14.84	20
24	MP7	Z	-25.7	20
25	MP7	X	-17.08	40
26	MP7	Z	-29.59	40

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-57.77	6

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
2	MP1	Z	-33.35	6
3	MP1	X	-57.77	66
4	MP1	Z	-33.35	66
5	MP1	X	-32.14	20
6	MP1	Z	-18.56	20
7	MP1	X	-35.05	40
8	MP1	Z	-20.24	40
9	MP1	X	-36.13	60
10	MP1	Z	-20.86	60
11	MP4	X	-104.93	6
12	MP4	Z	-60.58	6
13	MP4	X	-104.93	66
14	MP4	Z	-60.58	66
15	MP4	X	-51.44	20
16	MP4	Z	-29.7	20
17	MP4	X	-51.44	40
18	MP4	Z	-29.7	40
19	MP7	X	-57.77	6
20	MP7	Z	-33.35	6
21	MP7	X	-57.77	66
22	MP7	Z	-33.35	66
23	MP7	X	-32.14	20
24	MP7	Z	-18.56	20
25	MP7	X	-35.05	40
26	MP7	Z	-20.24	40

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-48.55	6
2	MP1	Z	0	6
3	MP1	X	-48.55	66
4	MP1	Z	0	66
5	MP1	X	-29.68	20
6	MP1	Z	0	20
7	MP1	X	-34.17	40
8	MP1	Z	0	40
9	MP1	X	-35.34	60
10	MP1	Z	0	60
11	MP4	X	-103.01	6
12	MP4	Z	0	6
13	MP4	X	-103.01	66
14	MP4	Z	0	66
15	MP4	X	-51.97	20
16	MP4	Z	0	20
17	MP4	X	-53.09	40
18	MP4	Z	0	40
19	MP7	X	-103.01	6
20	MP7	Z	0	6
21	MP7	X	-103.01	66
22	MP7	Z	0	66
23	MP7	X	-51.97	20
24	MP7	Z	0	20
25	MP7	X	-53.09	40
26	MP7	Z	0	40

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-57.77	6
2	MP1	Z	33.35	6
3	MP1	X	-57.77	66
4	MP1	Z	33.35	66
5	MP1	X	-32.14	20
6	MP1	Z	18.56	20
7	MP1	X	-35.05	40
8	MP1	Z	20.24	40
9	MP1	X	-36.13	60
10	MP1	Z	20.86	60
11	MP4	X	-57.77	6
12	MP4	Z	33.35	6
13	MP4	X	-57.77	66
14	MP4	Z	33.35	66
15	MP4	X	-32.14	20
16	MP4	Z	18.56	20
17	MP4	X	-35.05	40
18	MP4	Z	20.24	40
19	MP7	X	-104.93	6
20	MP7	Z	60.58	6
21	MP7	X	-104.93	66
22	MP7	Z	60.58	66
23	MP7	X	-51.44	20
24	MP7	Z	29.7	20
25	MP7	X	-51.44	40
26	MP7	Z	29.7	40

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-51.5	6
2	MP1	Z	89.21	6
3	MP1	X	-51.5	66
4	MP1	Z	89.21	66
5	MP1	X	-25.99	20
6	MP1	Z	45.01	20
7	MP1	X	-26.55	40
8	MP1	Z	45.98	40
9	MP1	X	-27.24	60
10	MP1	Z	47.18	60
11	MP4	X	-24.28	6
12	MP4	Z	42.05	6
13	MP4	X	-24.28	66
14	MP4	Z	42.05	66
15	MP4	X	-14.84	20
16	MP4	Z	25.7	20
17	MP4	X	-17.08	40
18	MP4	Z	29.59	40
19	MP7	X	-51.5	6
20	MP7	Z	89.21	6
21	MP7	X	-51.5	66
22	MP7	Z	89.21	66
23	MP7	X	-25.99	20
24	MP7	Z	45.01	20
25	MP7	X	-26.55	40
26	MP7	Z	45.98	40

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	121.16	6
3	MP1	X	0	66
4	MP1	Z	121.16	66
5	MP1	X	0	20
6	MP1	Z	59.4	20
7	MP1	X	0	40
8	MP1	Z	59.4	40
9	MP1	X	0	60
10	MP1	Z	60.86	60
11	MP4	X	0	6
12	MP4	Z	66.71	6
13	MP4	X	0	66
14	MP4	Z	66.71	66
15	MP4	X	0	20
16	MP4	Z	37.11	20
17	MP4	X	0	40
18	MP4	Z	40.48	40
19	MP7	X	0	6
20	MP7	Z	66.71	6
21	MP7	X	0	66
22	MP7	Z	66.71	66
23	MP7	X	0	20
24	MP7	Z	37.11	20
25	MP7	X	0	40
26	MP7	Z	40.48	40

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	51.5	6
2	MP1	Z	89.21	6
3	MP1	X	51.5	66
4	MP1	Z	89.21	66
5	MP1	X	25.99	20
6	MP1	Z	45.01	20
7	MP1	X	26.55	40
8	MP1	Z	45.98	40
9	MP1	X	27.24	60
10	MP1	Z	47.18	60
11	MP4	X	51.5	6
12	MP4	Z	89.21	6
13	MP4	X	51.5	66
14	MP4	Z	89.21	66
15	MP4	X	25.99	20
16	MP4	Z	45.01	20
17	MP4	X	26.55	40
18	MP4	Z	45.98	40
19	MP7	X	24.28	6
20	MP7	Z	42.05	6
21	MP7	X	24.28	66
22	MP7	Z	42.05	66
23	MP7	X	14.84	20
24	MP7	Z	25.7	20
25	MP7	X	17.08	40
26	MP7	Z	29.59	40

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	57.77	6
2	MP1	Z	33.35	6
3	MP1	X	57.77	66
4	MP1	Z	33.35	66
5	MP1	X	32.14	20
6	MP1	Z	18.56	20
7	MP1	X	35.05	40
8	MP1	Z	20.24	40
9	MP1	X	36.13	60
10	MP1	Z	20.86	60
11	MP4	X	104.93	6
12	MP4	Z	60.58	6
13	MP4	X	104.93	66
14	MP4	Z	60.58	66
15	MP4	X	51.44	20
16	MP4	Z	29.7	20
17	MP4	X	51.44	40
18	MP4	Z	29.7	40
19	MP7	X	57.77	6
20	MP7	Z	33.35	6
21	MP7	X	57.77	66
22	MP7	Z	33.35	66
23	MP7	X	32.14	20
24	MP7	Z	18.56	20
25	MP7	X	35.05	40
26	MP7	Z	20.24	40

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	48.55	6
2	MP1	Z	0	6
3	MP1	X	48.55	66
4	MP1	Z	0	66
5	MP1	X	29.68	20
6	MP1	Z	0	20
7	MP1	X	34.17	40
8	MP1	Z	0	40
9	MP1	X	35.34	60
10	MP1	Z	0	60
11	MP4	X	103.01	6
12	MP4	Z	0	6
13	MP4	X	103.01	66
14	MP4	Z	0	66
15	MP4	X	51.97	20
16	MP4	Z	0	20
17	MP4	X	53.09	40
18	MP4	Z	0	40
19	MP7	X	103.01	6
20	MP7	Z	0	6
21	MP7	X	103.01	66
22	MP7	Z	0	66
23	MP7	X	51.97	20
24	MP7	Z	0	20
25	MP7	X	53.09	40
26	MP7	Z	0	40

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	57.77	6
2	MP1	Z	-33.35	6
3	MP1	X	57.77	66
4	MP1	Z	-33.35	66
5	MP1	X	32.14	20
6	MP1	Z	-18.56	20
7	MP1	X	35.05	40
8	MP1	Z	-20.24	40
9	MP1	X	36.13	60
10	MP1	Z	-20.86	60
11	MP4	X	57.77	6
12	MP4	Z	-33.35	6
13	MP4	X	57.77	66
14	MP4	Z	-33.35	66
15	MP4	X	32.14	20
16	MP4	Z	-18.56	20
17	MP4	X	35.05	40
18	MP4	Z	-20.24	40
19	MP7	X	104.93	6
20	MP7	Z	-60.58	6
21	MP7	X	104.93	66
22	MP7	Z	-60.58	66
23	MP7	X	51.44	20
24	MP7	Z	-29.7	20
25	MP7	X	51.44	40
26	MP7	Z	-29.7	40

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	51.5	6
2	MP1	Z	-89.21	6
3	MP1	X	51.5	66
4	MP1	Z	-89.21	66
5	MP1	X	25.99	20
6	MP1	Z	-45.01	20
7	MP1	X	26.55	40
8	MP1	Z	-45.98	40
9	MP1	X	27.24	60
10	MP1	Z	-47.18	60
11	MP4	X	24.28	6
12	MP4	Z	-42.05	6
13	MP4	X	24.28	66
14	MP4	Z	-42.05	66
15	MP4	X	14.84	20
16	MP4	Z	-25.7	20
17	MP4	X	17.08	40
18	MP4	Z	-29.59	40
19	MP7	X	51.5	6
20	MP7	Z	-89.21	6
21	MP7	X	51.5	66
22	MP7	Z	-89.21	66
23	MP7	X	25.99	20
24	MP7	Z	-45.01	20
25	MP7	X	26.55	40
26	MP7	Z	-45.98	40

Member Point Loads (BLC 16 : Ice Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Y	-133.74	6
2	MP1	Y	-133.74	66
3	MP1	Y	-65.376	20
4	MP1	Y	-69.678	40
5	MP1	Y	-68.664	60
6	MP4	Y	-133.74	6
7	MP4	Y	-133.74	66
8	MP4	Y	-65.376	20
9	MP4	Y	-69.678	40
10	MP7	Y	-133.74	6
11	MP7	Y	-133.74	66
12	MP7	Y	-65.376	20
13	MP7	Y	-69.678	40

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	-15.97	6
3	MP1	X	0	66
4	MP1	Z	-15.97	66
5	MP1	X	0	20
6	MP1	Z	-6.19	20
7	MP1	X	0	40
8	MP1	Z	-6.19	40
9	MP1	X	0	60
10	MP1	Z	-6.52	60
11	MP4	X	0	6
12	MP4	Z	-12.36	6
13	MP4	X	0	66
14	MP4	Z	-12.36	66
15	MP4	X	0	20
16	MP4	Z	-5.07	20
17	MP4	X	0	40
18	MP4	Z	-5.26	40
19	MP7	X	0	6
20	MP7	Z	-12.36	6
21	MP7	X	0	66
22	MP7	Z	-12.36	66
23	MP7	X	0	20
24	MP7	Z	-5.07	20
25	MP7	X	0	40
26	MP7	Z	-5.26	40

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-7.38	6
2	MP1	Z	-12.79	6
3	MP1	X	-7.38	66
4	MP1	Z	-12.79	66
5	MP1	X	-2.91	20
6	MP1	Z	-5.04	20
7	MP1	X	-2.94	40
8	MP1	Z	-5.09	40
9	MP1	X	-3.1	60
10	MP1	Z	-5.37	60
11	MP4	X	-7.38	6

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
12	MP4	Z	-12.79	6
13	MP4	X	-7.38	66
14	MP4	Z	-12.79	66
15	MP4	X	-2.91	20
16	MP4	Z	-5.04	20
17	MP4	X	-2.94	40
18	MP4	Z	-5.09	40
19	MP7	X	-5.58	6
20	MP7	Z	-9.66	6
21	MP7	X	-5.58	66
22	MP7	Z	-9.66	66
23	MP7	X	-2.35	20
24	MP7	Z	-4.07	20
25	MP7	X	-2.48	40
26	MP7	Z	-4.29	40

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-10.7	6
2	MP1	Z	-6.18	6
3	MP1	X	-10.7	66
4	MP1	Z	-6.18	66
5	MP1	X	-4.39	20
6	MP1	Z	-2.54	20
7	MP1	X	-4.56	40
8	MP1	Z	-2.63	40
9	MP1	X	-4.82	60
10	MP1	Z	-2.79	60
11	MP4	X	-13.83	6
12	MP4	Z	-7.98	6
13	MP4	X	-13.83	66
14	MP4	Z	-7.98	66
15	MP4	X	-5.36	20
16	MP4	Z	-3.1	20
17	MP4	X	-5.36	40
18	MP4	Z	-3.1	40
19	MP7	X	-10.7	6
20	MP7	Z	-6.18	6
21	MP7	X	-10.7	66
22	MP7	Z	-6.18	66
23	MP7	X	-4.39	20
24	MP7	Z	-2.54	20
25	MP7	X	-4.56	40
26	MP7	Z	-2.63	40

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-11.16	6
2	MP1	Z	0	6
3	MP1	X	-11.16	66
4	MP1	Z	0	66
5	MP1	X	-4.7	20
6	MP1	Z	0	20
7	MP1	X	-4.95	40
8	MP1	Z	0	40
9	MP1	X	-5.25	60

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
10	MP1	Z	0	60
11	MP4	X	-14.76	6
12	MP4	Z	0	6
13	MP4	X	-14.76	66
14	MP4	Z	0	66
15	MP4	X	-5.82	20
16	MP4	Z	0	20
17	MP4	X	-5.88	40
18	MP4	Z	0	40
19	MP7	X	-14.76	6
20	MP7	Z	0	6
21	MP7	X	-14.76	66
22	MP7	Z	0	66
23	MP7	X	-5.82	20
24	MP7	Z	0	20
25	MP7	X	-5.88	40
26	MP7	Z	0	40

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-10.7	6
2	MP1	Z	6.18	6
3	MP1	X	-10.7	66
4	MP1	Z	6.18	66
5	MP1	X	-4.39	20
6	MP1	Z	2.54	20
7	MP1	X	-4.56	40
8	MP1	Z	2.63	40
9	MP1	X	-4.82	60
10	MP1	Z	2.79	60
11	MP4	X	-10.7	6
12	MP4	Z	6.18	6
13	MP4	X	-10.7	66
14	MP4	Z	6.18	66
15	MP4	X	-4.39	20
16	MP4	Z	2.54	20
17	MP4	X	-4.56	40
18	MP4	Z	2.63	40
19	MP7	X	-13.83	6
20	MP7	Z	7.98	6
21	MP7	X	-13.83	66
22	MP7	Z	7.98	66
23	MP7	X	-5.36	20
24	MP7	Z	3.1	20
25	MP7	X	-5.36	40
26	MP7	Z	3.1	40

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-7.38	6
2	MP1	Z	12.79	6
3	MP1	X	-7.38	66
4	MP1	Z	12.79	66
5	MP1	X	-2.91	20
6	MP1	Z	5.04	20
7	MP1	X	-2.94	40

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
8	MP1	Z	5.09	40
9	MP1	X	-3.1	60
10	MP1	Z	5.37	60
11	MP4	X	-5.58	6
12	MP4	Z	9.66	6
13	MP4	X	-5.58	66
14	MP4	Z	9.66	66
15	MP4	X	-2.35	20
16	MP4	Z	4.07	20
17	MP4	X	-2.48	40
18	MP4	Z	4.29	40
19	MP7	X	-7.38	6
20	MP7	Z	12.79	6
21	MP7	X	-7.38	66
22	MP7	Z	12.79	66
23	MP7	X	-2.91	20
24	MP7	Z	5.04	20
25	MP7	X	-2.94	40
26	MP7	Z	5.09	40

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	15.97	6
3	MP1	X	0	66
4	MP1	Z	15.97	66
5	MP1	X	0	20
6	MP1	Z	6.19	20
7	MP1	X	0	40
8	MP1	Z	6.19	40
9	MP1	X	0	60
10	MP1	Z	6.52	60
11	MP4	X	0	6
12	MP4	Z	12.36	6
13	MP4	X	0	66
14	MP4	Z	12.36	66
15	MP4	X	0	20
16	MP4	Z	5.07	20
17	MP4	X	0	40
18	MP4	Z	5.26	40
19	MP7	X	0	6
20	MP7	Z	12.36	6
21	MP7	X	0	66
22	MP7	Z	12.36	66
23	MP7	X	0	20
24	MP7	Z	5.07	20
25	MP7	X	0	40
26	MP7	Z	5.26	40

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	7.38	6
2	MP1	Z	12.79	6
3	MP1	X	7.38	66
4	MP1	Z	12.79	66
5	MP1	X	2.91	20

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
6	MP1	Z	5.04	20
7	MP1	X	2.94	40
8	MP1	Z	5.09	40
9	MP1	X	3.1	60
10	MP1	Z	5.37	60
11	MP4	X	7.38	6
12	MP4	Z	12.79	6
13	MP4	X	7.38	66
14	MP4	Z	12.79	66
15	MP4	X	2.91	20
16	MP4	Z	5.04	20
17	MP4	X	2.94	40
18	MP4	Z	5.09	40
19	MP7	X	5.58	6
20	MP7	Z	9.66	6
21	MP7	X	5.58	66
22	MP7	Z	9.66	66
23	MP7	X	2.35	20
24	MP7	Z	4.07	20
25	MP7	X	2.48	40
26	MP7	Z	4.29	40

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	10.7	6
2	MP1	Z	6.18	6
3	MP1	X	10.7	66
4	MP1	Z	6.18	66
5	MP1	X	4.39	20
6	MP1	Z	2.54	20
7	MP1	X	4.56	40
8	MP1	Z	2.63	40
9	MP1	X	4.82	60
10	MP1	Z	2.79	60
11	MP4	X	13.83	6
12	MP4	Z	7.98	6
13	MP4	X	13.83	66
14	MP4	Z	7.98	66
15	MP4	X	5.36	20
16	MP4	Z	3.1	20
17	MP4	X	5.36	40
18	MP4	Z	3.1	40
19	MP7	X	10.7	6
20	MP7	Z	6.18	6
21	MP7	X	10.7	66
22	MP7	Z	6.18	66
23	MP7	X	4.39	20
24	MP7	Z	2.54	20
25	MP7	X	4.56	40
26	MP7	Z	2.63	40

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	11.16	6
2	MP1	Z	0	6
3	MP1	X	11.16	66

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
4	MP1	Z	0	66
5	MP1	X	4.7	20
6	MP1	Z	0	20
7	MP1	X	4.95	40
8	MP1	Z	0	40
9	MP1	X	5.25	60
10	MP1	Z	0	60
11	MP4	X	14.76	6
12	MP4	Z	0	6
13	MP4	X	14.76	66
14	MP4	Z	0	66
15	MP4	X	5.82	20
16	MP4	Z	0	20
17	MP4	X	5.88	40
18	MP4	Z	0	40
19	MP7	X	14.76	6
20	MP7	Z	0	6
21	MP7	X	14.76	66
22	MP7	Z	0	66
23	MP7	X	5.82	20
24	MP7	Z	0	20
25	MP7	X	5.88	40
26	MP7	Z	0	40

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	10.7	6
2	MP1	Z	-6.18	6
3	MP1	X	10.7	66
4	MP1	Z	-6.18	66
5	MP1	X	4.39	20
6	MP1	Z	-2.54	20
7	MP1	X	4.56	40
8	MP1	Z	-2.63	40
9	MP1	X	4.82	60
10	MP1	Z	-2.79	60
11	MP4	X	10.7	6
12	MP4	Z	-6.18	6
13	MP4	X	10.7	66
14	MP4	Z	-6.18	66
15	MP4	X	4.39	20
16	MP4	Z	-2.54	20
17	MP4	X	4.56	40
18	MP4	Z	-2.63	40
19	MP7	X	13.83	6
20	MP7	Z	-7.98	6
21	MP7	X	13.83	66
22	MP7	Z	-7.98	66
23	MP7	X	5.36	20
24	MP7	Z	-3.1	20
25	MP7	X	5.36	40
26	MP7	Z	-3.1	40

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	7.38	6

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
2	MP1	Z	-12.79	6
3	MP1	X	7.38	66
4	MP1	Z	-12.79	66
5	MP1	X	2.91	20
6	MP1	Z	-5.04	20
7	MP1	X	2.94	40
8	MP1	Z	-5.09	40
9	MP1	X	3.1	60
10	MP1	Z	-5.37	60
11	MP4	X	5.58	6
12	MP4	Z	-9.66	6
13	MP4	X	5.58	66
14	MP4	Z	-9.66	66
15	MP4	X	2.35	20
16	MP4	Z	-4.07	20
17	MP4	X	2.48	40
18	MP4	Z	-4.29	40
19	MP7	X	7.38	6
20	MP7	Z	-12.79	6
21	MP7	X	7.38	66
22	MP7	Z	-12.79	66
23	MP7	X	2.91	20
24	MP7	Z	-5.04	20
25	MP7	X	2.94	40
26	MP7	Z	-5.09	40

Member Point Loads (BLC 31 : Seismic Load Z)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	-11.814	6
2	MP1	Z	-11.814	66
3	MP1	Z	-18.301	20
4	MP1	Z	-21.48	40
5	MP1	Z	-6.258	60
6	MP4	Z	-11.814	6
7	MP4	Z	-11.814	66
8	MP4	Z	-18.301	20
9	MP4	Z	-21.48	40
10	MP7	Z	-11.814	6
11	MP7	Z	-11.814	66
12	MP7	Z	-18.301	20
13	MP7	Z	-21.48	40

Member Point Loads (BLC 32 : Seismic Load X)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-11.814	6
2	MP1	X	-11.814	66
3	MP1	X	-18.301	20
4	MP1	X	-21.48	40
5	MP1	X	-6.258	60
6	MP4	X	-11.814	6
7	MP4	X	-11.814	66
8	MP4	X	-18.301	20
9	MP4	X	-21.48	40
10	MP7	X	-11.814	6
11	MP7	X	-11.814	66
12	MP7	X	-18.301	20

Member Point Loads (BLC 32 : Seismic Load X) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
13	MP7	X	-21.48	40

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	M1	SZ	-67.227	-67.227	0	%100
2	S3	SZ	-67.227	-67.227	0	%100
3	M3	SZ	-67.227	-67.227	0	%100
4	M4	SZ	-67.227	-67.227	0	%100
5	M5	SZ	-67.227	-67.227	0	%100
6	M6	SZ	-67.227	-67.227	0	%100
7	S2	SZ	-67.227	-67.227	0	%100
8	M8	SZ	-67.227	-67.227	0	%100
9	M9	SZ	-67.227	-67.227	0	%100
10	M10	SZ	-67.227	-67.227	0	%100
11	M11	SZ	-67.227	-67.227	0	%100
12	S1	SZ	-67.227	-67.227	0	%100
13	M13	SZ	-67.227	-67.227	0	%100
14	M14	SZ	-67.227	-67.227	0	%100
15	M15	SZ	-67.227	-67.227	0	%100
16	HOR1	SZ	-40.336	-40.336	0	%100
17	HOR3	SZ	-40.336	-40.336	0	%100
18	HOR2	SZ	-40.336	-40.336	0	%100
19	HR1	SZ	-40.336	-40.336	0	%100
20	HR3	SZ	-40.336	-40.336	0	%100
21	HR2	SZ	-40.336	-40.336	0	%100
22	M22	SZ	0	0	0	%100
23	M23	SZ	0	0	0	%100
24	M24	SZ	0	0	0	%100
25	M25	SZ	0	0	0	%100
26	M26	SZ	0	0	0	%100
27	M27	SZ	0	0	0	%100
28	MP3	SZ	-40.336	-40.336	0	%100
29	MP2	SZ	-40.336	-40.336	0	%100
30	MP1	SZ	-40.336	-40.336	0	%100
31	M31	SZ	0	0	0	%100
32	M32	SZ	0	0	0	%100
33	M33	SZ	0	0	0	%100
34	MP9	SZ	-40.336	-40.336	0	%100
35	MP8	SZ	-40.336	-40.336	0	%100
36	MP7	SZ	-40.336	-40.336	0	%100
37	M37	SZ	0	0	0	%100
38	M38	SZ	0	0	0	%100
39	M39	SZ	0	0	0	%100
40	MP6	SZ	-40.336	-40.336	0	%100
41	MP5	SZ	-40.336	-40.336	0	%100
42	MP4	SZ	-40.336	-40.336	0	%100
43	M43	SZ	0	0	0	%100
44	M44	SZ	0	0	0	%100
45	M45	SZ	0	0	0	%100
46	M46	SZ	0	0	0	%100
47	M47	SZ	0	0	0	%100
48	M48	SZ	0	0	0	%100
49	M49	SZ	-67.227	-67.227	0	%100
50	M50	SZ	-67.227	-67.227	0	%100
51	M51	SZ	-67.227	-67.227	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	M1	SX	-67.227	-67.227	0	%100
2	S3	SX	-67.227	-67.227	0	%100
3	M3	SX	-67.227	-67.227	0	%100
4	M4	SX	-67.227	-67.227	0	%100
5	M5	SX	-67.227	-67.227	0	%100
6	M6	SX	-67.227	-67.227	0	%100
7	S2	SX	-67.227	-67.227	0	%100
8	M8	SX	-67.227	-67.227	0	%100
9	M9	SX	-67.227	-67.227	0	%100
10	M10	SX	-67.227	-67.227	0	%100
11	M11	SX	-67.227	-67.227	0	%100
12	S1	SX	-67.227	-67.227	0	%100
13	M13	SX	-67.227	-67.227	0	%100
14	M14	SX	-67.227	-67.227	0	%100
15	M15	SX	-67.227	-67.227	0	%100
16	HOR1	SX	-40.336	-40.336	0	%100
17	HOR3	SX	-40.336	-40.336	0	%100
18	HOR2	SX	-40.336	-40.336	0	%100
19	HR1	SX	-40.336	-40.336	0	%100
20	HR3	SX	-40.336	-40.336	0	%100
21	HR2	SX	-40.336	-40.336	0	%100
22	M22	SX	0	0	0	%100
23	M23	SX	0	0	0	%100
24	M24	SX	0	0	0	%100
25	M25	SX	0	0	0	%100
26	M26	SX	0	0	0	%100
27	M27	SX	0	0	0	%100
28	MP3	SX	-40.336	-40.336	0	%100
29	MP2	SX	-40.336	-40.336	0	%100
30	MP1	SX	-40.336	-40.336	0	%100
31	M31	SX	0	0	0	%100
32	M32	SX	0	0	0	%100
33	M33	SX	0	0	0	%100
34	MP9	SX	-40.336	-40.336	0	%100
35	MP8	SX	-40.336	-40.336	0	%100
36	MP7	SX	-40.336	-40.336	0	%100
37	M37	SX	0	0	0	%100
38	M38	SX	0	0	0	%100
39	M39	SX	0	0	0	%100
40	MP6	SX	-40.336	-40.336	0	%100
41	MP5	SX	-40.336	-40.336	0	%100
42	MP4	SX	-40.336	-40.336	0	%100
43	M43	SX	0	0	0	%100
44	M44	SX	0	0	0	%100
45	M45	SX	0	0	0	%100
46	M46	SX	0	0	0	%100
47	M47	SX	0	0	0	%100
48	M48	SX	0	0	0	%100
49	M49	SX	-67.227	-67.227	0	%100
50	M50	SX	-67.227	-67.227	0	%100
51	M51	SX	-67.227	-67.227	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	M1	Y	-10.014	-10.014	0	%100
2	S3	Y	-14.63	-14.63	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,%]
3	M3	Y	-8.96	-8.96	0	%100
4	M4	Y	-8.96	-8.96	0	%100
5	M5	Y	-16.342	-16.342	0	%100
6	M6	Y	-10.014	-10.014	0	%100
7	S2	Y	-14.63	-14.63	0	%100
8	M8	Y	-8.96	-8.96	0	%100
9	M9	Y	-8.96	-8.96	0	%100
10	M10	Y	-16.342	-16.342	0	%100
11	M11	Y	-10.014	-10.014	0	%100
12	S1	Y	-14.63	-14.63	0	%100
13	M13	Y	-8.96	-8.96	0	%100
14	M14	Y	-8.96	-8.96	0	%100
15	M15	Y	-16.342	-16.342	0	%100
16	HOR1	Y	-11.309	-11.309	0	%100
17	HOR3	Y	-11.309	-11.309	0	%100
18	HOR2	Y	-11.309	-11.309	0	%100
19	HR1	Y	-11.309	-11.309	0	%100
20	HR3	Y	-11.309	-11.309	0	%100
21	HR2	Y	-11.309	-11.309	0	%100
22	M22	Y	-3.29	-3.29	0	%100
23	M23	Y	-3.29	-3.29	0	%100
24	M24	Y	-3.29	-3.29	0	%100
25	M25	Y	-3.29	-3.29	0	%100
26	M26	Y	-3.29	-3.29	0	%100
27	M27	Y	-3.29	-3.29	0	%100
28	MP3	Y	-8.051	-8.051	0	%100
29	MP2	Y	-8.051	-8.051	0	%100
30	MP1	Y	-8.051	-8.051	0	%100
31	M31	Y	-3.29	-3.29	0	%100
32	M32	Y	-3.29	-3.29	0	%100
33	M33	Y	-3.29	-3.29	0	%100
34	MP9	Y	-8.051	-8.051	0	%100
35	MP8	Y	-8.051	-8.051	0	%100
36	MP7	Y	-8.051	-8.051	0	%100
37	M37	Y	-3.29	-3.29	0	%100
38	M38	Y	-3.29	-3.29	0	%100
39	M39	Y	-3.29	-3.29	0	%100
40	MP6	Y	-8.051	-8.051	0	%100
41	MP5	Y	-8.051	-8.051	0	%100
42	MP4	Y	-8.051	-8.051	0	%100
43	M43	Y	-3.29	-3.29	0	%100
44	M44	Y	-3.29	-3.29	0	%100
45	M45	Y	-3.29	-3.29	0	%100
46	M46	Y	-3.29	-3.29	0	%100
47	M47	Y	-3.29	-3.29	0	%100
48	M48	Y	-3.29	-3.29	0	%100
49	M49	Y	-10.378	-10.378	0	%100
50	M50	Y	-10.378	-10.378	0	%100
51	M51	Y	-10.378	-10.378	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	M1	SZ	-13.404	-13.404	0	%100
2	S3	SZ	-10.706	-10.706	0	%100
3	M3	SZ	-14.636	-14.636	0	%100
4	M4	SZ	-14.636	-14.636	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,%]
5	M5	SZ	-10.19	-10.19	0	%100
6	M6	SZ	-13.404	-13.404	0	%100
7	S2	SZ	-10.706	-10.706	0	%100
8	M8	SZ	-14.636	-14.636	0	%100
9	M9	SZ	-14.636	-14.636	0	%100
10	M10	SZ	-10.19	-10.19	0	%100
11	M11	SZ	-13.404	-13.404	0	%100
12	S1	SZ	-10.706	-10.706	0	%100
13	M13	SZ	-14.636	-14.636	0	%100
14	M14	SZ	-14.636	-14.636	0	%100
15	M15	SZ	-10.19	-10.19	0	%100
16	HOR1	SZ	-12.334	-12.334	0	%100
17	HOR3	SZ	-12.334	-12.334	0	%100
18	HOR2	SZ	-12.334	-12.334	0	%100
19	HR1	SZ	-12.334	-12.334	0	%100
20	HR3	SZ	-12.334	-12.334	0	%100
21	HR2	SZ	-12.334	-12.334	0	%100
22	M22	SZ	0	0	0	%100
23	M23	SZ	0	0	0	%100
24	M24	SZ	0	0	0	%100
25	M25	SZ	0	0	0	%100
26	M26	SZ	0	0	0	%100
27	M27	SZ	0	0	0	%100
28	MP3	SZ	-16.137	-16.137	0	%100
29	MP2	SZ	-16.137	-16.137	0	%100
30	MP1	SZ	-16.137	-16.137	0	%100
31	M31	SZ	0	0	0	%100
32	M32	SZ	0	0	0	%100
33	M33	SZ	0	0	0	%100
34	MP9	SZ	-16.137	-16.137	0	%100
35	MP8	SZ	-16.137	-16.137	0	%100
36	MP7	SZ	-16.137	-16.137	0	%100
37	M37	SZ	0	0	0	%100
38	M38	SZ	0	0	0	%100
39	M39	SZ	0	0	0	%100
40	MP6	SZ	-16.137	-16.137	0	%100
41	MP5	SZ	-16.137	-16.137	0	%100
42	MP4	SZ	-16.137	-16.137	0	%100
43	M43	SZ	0	0	0	%100
44	M44	SZ	0	0	0	%100
45	M45	SZ	0	0	0	%100
46	M46	SZ	0	0	0	%100
47	M47	SZ	0	0	0	%100
48	M48	SZ	0	0	0	%100
49	M49	SZ	-13.064	-13.064	0	%100
50	M50	SZ	-13.064	-13.064	0	%100
51	M51	SZ	-13.064	-13.064	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	M1	SX	-13.404	-13.404	0	%100
2	S3	SX	-10.706	-10.706	0	%100
3	M3	SX	-14.636	-14.636	0	%100
4	M4	SX	-14.636	-14.636	0	%100
5	M5	SX	-10.19	-10.19	0	%100
6	M6	SX	-13.404	-13.404	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,%]
7	S2	SX	-10.706	-10.706	0	%100
8	M8	SX	-14.636	-14.636	0	%100
9	M9	SX	-14.636	-14.636	0	%100
10	M10	SX	-10.19	-10.19	0	%100
11	M11	SX	-13.404	-13.404	0	%100
12	S1	SX	-10.706	-10.706	0	%100
13	M13	SX	-14.636	-14.636	0	%100
14	M14	SX	-14.636	-14.636	0	%100
15	M15	SX	-10.19	-10.19	0	%100
16	HOR1	SX	-12.334	-12.334	0	%100
17	HOR3	SX	-12.334	-12.334	0	%100
18	HOR2	SX	-12.334	-12.334	0	%100
19	HR1	SX	-12.334	-12.334	0	%100
20	HR3	SX	-12.334	-12.334	0	%100
21	HR2	SX	-12.334	-12.334	0	%100
22	M22	SX	0	0	0	%100
23	M23	SX	0	0	0	%100
24	M24	SX	0	0	0	%100
25	M25	SX	0	0	0	%100
26	M26	SX	0	0	0	%100
27	M27	SX	0	0	0	%100
28	MP3	SX	-16.137	-16.137	0	%100
29	MP2	SX	-16.137	-16.137	0	%100
30	MP1	SX	-16.137	-16.137	0	%100
31	M31	SX	0	0	0	%100
32	M32	SX	0	0	0	%100
33	M33	SX	0	0	0	%100
34	MP9	SX	-16.137	-16.137	0	%100
35	MP8	SX	-16.137	-16.137	0	%100
36	MP7	SX	-16.137	-16.137	0	%100
37	M37	SX	0	0	0	%100
38	M38	SX	0	0	0	%100
39	M39	SX	0	0	0	%100
40	MP6	SX	-16.137	-16.137	0	%100
41	MP5	SX	-16.137	-16.137	0	%100
42	MP4	SX	-16.137	-16.137	0	%100
43	M43	SX	0	0	0	%100
44	M44	SX	0	0	0	%100
45	M45	SX	0	0	0	%100
46	M46	SX	0	0	0	%100
47	M47	SX	0	0	0	%100
48	M48	SX	0	0	0	%100
49	M49	SX	-13.064	-13.064	0	%100
50	M50	SX	-13.064	-13.064	0	%100
51	M51	SX	-13.064	-13.064	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	S3	Y	-3.185	-3.185	0	23.596
2	M3	Y	-1.406	-1.406	.498	27.295
3	M4	Y	-1.406	-1.406	.498	27.295
4	S2	Y	-3.185	-3.185	0	23.596
5	M8	Y	-1.406	-1.406	.498	27.295
6	M9	Y	-1.406	-1.406	.498	27.295
7	S1	Y	-3.185	-3.185	0	23.596
8	M13	Y	-1.406	-1.406	.498	27.295

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
9	M14	Y	-1.406	-1.406	.498	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	S3	Y	-27.849	-27.849	0	23.596
2	M3	Y	-12.29	-12.29	.498	27.295
3	M4	Y	-12.29	-12.29	.498	27.295
4	S2	Y	-27.849	-27.849	0	23.596
5	M8	Y	-12.29	-12.29	.498	27.295
6	M9	Y	-12.29	-12.29	.498	27.295
7	S1	Y	-27.849	-27.849	0	23.596
8	M13	Y	-12.29	-12.29	.498	27.295
9	M14	Y	-12.29	-12.29	.498	27.295

Load Combinations

	Description	S...	P...	SRSS	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																
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 ..	Yes	Y		1	1.2	16	1	18	1	29	.866	30	.5										
29	1.2D + 1.0Di +1.0Wi AZI ..	Yes	Y		1	1.2	16	1	19	1	29	.5	30	.866										
30	1.2D + 1.0Di +1.0Wi AZI ..	Yes	Y		1	1.2	16	1	20	1	29		30	1										
31	1.2D + 1.0Di +1.0Wi AZI ..	Yes	Y		1	1.2	16	1	21	1	29	-.5	30	.866										
32	1.2D + 1.0Di +1.0Wi AZI ..	Yes	Y		1	1.2	16	1	22	1	29	-.8...	30	.5										
33	1.2D + 1.0Di +1.0Wi AZI ..	Yes	Y		1	1.2	16	1	23	1	29	-1	30											
34	1.2D + 1.0Di +1.0Wi AZI ..	Yes	Y		1	1.2	16	1	24	1	29	-.8...	30	-.5										
35	1.2D + 1.0Di +1.0Wi AZI ..	Yes	Y		1	1.2	16	1	25	1	29	-.5	30	-.8...										
36	1.2D + 1.0Di +1.0Wi AZI ..	Yes	Y		1	1.2	16	1	26	1	29		30	-1										
37	1.2D + 1.0Di +1.0Wi AZI ..	Yes	Y		1	1.2	16	1	27	1	29	.5	30	-.8...										
38	1.2D + 1.0Di +1.0Wi AZI ..	Yes	Y		1	1.2	16	1	28	1	29	.866	30	-.5										
39	(1.2 + 0.2Sds)DL + 1.0E ..	Yes	Y		1	1.2...	31	1	32															

Load Combinations (Continued)

	Description	S...	P...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
40	(1.2 + 0.2Sds)DL + 1.0E ...	Yes	Y		1	1.2...	31	.866	32	.5														
41	(1.2 + 0.2Sds)DL + 1.0E ...	Yes	Y		1	1.2...	31	.5	32	.866														
42	(1.2 + 0.2Sds)DL + 1.0E ...	Yes	Y		1	1.2...	31		32	1														
43	(1.2 + 0.2Sds)DL + 1.0E ...	Yes	Y		1	1.2...	31	-.5	32	.866														
44	(1.2 + 0.2Sds)DL + 1.0E ...	Yes	Y		1	1.2...	31	-.8...	32	.5														
45	(1.2 + 0.2Sds)DL + 1.0E ...	Yes	Y		1	1.2...	31	-1	32															
46	(1.2 + 0.2Sds)DL + 1.0E ...	Yes	Y		1	1.2...	31	-.8...	32	-.5														
47	(1.2 + 0.2Sds)DL + 1.0E ...	Yes	Y		1	1.2...	31	-.5	32	-.8...														
48	(1.2 + 0.2Sds)DL + 1.0E ...	Yes	Y		1	1.2...	31		32	-1														
49	(1.2 + 0.2Sds)DL + 1.0E ...	Yes	Y		1	1.2...	31	.5	32	-.8...														
50	(1.2 + 0.2Sds)DL + 1.0E ...	Yes	Y		1	1.2...	31	.866	32	-.5														
51	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.862	31	1	32															
52	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.862	31	.866	32	.5														
53	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.862	31	.5	32	.866														
54	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.862	31		32	1														
55	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.862	31	-.5	32	.866														
56	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.862	31	-.8...	32	.5														
57	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.862	31	-1	32															
58	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.862	31	-.8...	32	-.5														
59	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.862	31	-.5	32	-.8...														
60	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.862	31		32	-1														
61	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.862	31	.5	32	-.8...														
62	(0.9 - 0.2Sds)DL + 1.0E ...	Yes	Y		1	.862	31	.866	32	-.5														
63	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	2	.242	14	.242	15		33	1.5										
64	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	3	.242	14	.209	15	.121	33	1.5										
65	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	4	.242	14	.121	15	.209	33	1.5										
66	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	5	.242	14		15	.242	33	1.5										
67	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	6	.242	14	-.1...	15	.209	33	1.5										
68	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	7	.242	14	-.2...	15	.121	33	1.5										
69	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	8	.242	14	-.2...	15		33	1.5										
70	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	9	.242	14	-.2...	15	-.1...	33	1.5										
71	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	10	.242	14	-.1...	15	-.2...	33	1.5										
72	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	11	.242	14		15	-.2...	33	1.5										
73	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	12	.242	14	.121	15	-.2...	33	1.5										
74	1.0DL + 1.5LL + 1.0SWL...	Yes	Y		1	1	13	.242	14	.209	15	-.1...	33	1.5										
75	1.2DL + 1.5LL	Yes	Y		1	1.2	33	1.5																
76	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	2	.06	14	.06	15											
77	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	3	.06	14	.052	15	.03										
78	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	4	.06	14	.03	15	.052										
79	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	5	.06	14		15	.06										
80	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	6	.06	14	-.03	15	.052										
81	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	7	.06	14	-.0...	15	.03										
82	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	8	.06	14	-.06	15											
83	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	9	.06	14	-.0...	15	-.03										
84	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	10	.06	14	-.03	15	-.0...										
85	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	11	.06	14		15	-.06										
86	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	12	.06	14	.03	15	-.0...										
87	1.2DL + 1.5LM-MP1 + 1...	Yes	Y		1	1.2	34	1.5	13	.06	14	.052	15	-.03										
88	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	2	.06	14	.06	15											
89	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	3	.06	14	.052	15	.03										
90	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	4	.06	14	.03	15	.052										
91	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	5	.06	14		15	.06										
92	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	6	.06	14	-.03	15	.052										
93	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	7	.06	14	-.0...	15	.03										
94	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	8	.06	14	-.06	15											
95	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	9	.06	14	-.0...	15	-.03										
96	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	10	.06	14	-.03	15	-.0...										

Load Combinations (Continued)

	Description	S...	P...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
97	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	11	.06	14		15	-.06										
98	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	12	.06	14	.03	15	-.0...										
99	1.2DL + 1.5LM-MP2 + 1...	Yes	Y		1	1.2	35	1.5	13	.06	14	.052	15	-.03										
100	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	2	.06	14	.06	15											
101	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	3	.06	14	.052	15	.03										
102	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	4	.06	14	.03	15	.052										
103	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	5	.06	14		15	.06										
104	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	6	.06	14	-.03	15	.052										
105	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	7	.06	14	-.0...	15	.03										
106	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	8	.06	14	-.06	15											
107	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	9	.06	14	-.0...	15	-.03										
108	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	10	.06	14	-.03	15	-.0...										
109	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	11	.06	14		15	-.06										
110	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	12	.06	14	.03	15	-.0...										
111	1.2DL + 1.5LM-MP3 + 1...	Yes	Y		1	1.2	36	1.5	13	.06	14	.052	15	-.03										
112	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	2	.06	14	.06	15											
113	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	3	.06	14	.052	15	.03										
114	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	4	.06	14	.03	15	.052										
115	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	5	.06	14		15	.06										
116	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	6	.06	14	-.03	15	.052										
117	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	7	.06	14	-.0...	15	.03										
118	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	8	.06	14	-.06	15											
119	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	9	.06	14	-.0...	15	-.03										
120	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	10	.06	14	-.03	15	-.0...										
121	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	11	.06	14		15	-.06										
122	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	12	.06	14	.03	15	-.0...										
123	1.2DL + 1.5LM-MP4 + 1...	Yes	Y		1	1.2	37	1.5	13	.06	14	.052	15	-.03										
124	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	2	.06	14	.06	15											
125	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	3	.06	14	.052	15	.03										
126	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	4	.06	14	.03	15	.052										
127	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	5	.06	14		15	.06										
128	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	6	.06	14	-.03	15	.052										
129	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	7	.06	14	-.0...	15	.03										
130	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	8	.06	14	-.06	15											
131	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	9	.06	14	-.0...	15	-.03										
132	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	10	.06	14	-.03	15	-.0...										
133	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	11	.06	14		15	-.06										
134	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	12	.06	14	.03	15	-.0...										
135	1.2DL + 1.5LM-MP5 + 1...	Yes	Y		1	1.2	38	1.5	13	.06	14	.052	15	-.03										
136	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	2	.06	14	.06	15											
137	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	3	.06	14	.052	15	.03										
138	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	4	.06	14	.03	15	.052										
139	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	5	.06	14		15	.06										
140	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	6	.06	14	-.03	15	.052										
141	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	7	.06	14	-.0...	15	.03										
142	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	8	.06	14	-.06	15											
143	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	9	.06	14	-.0...	15	-.03										
144	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	10	.06	14	-.03	15	-.0...										
145	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	11	.06	14		15	-.06										
146	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	12	.06	14	.03	15	-.0...										
147	1.2DL + 1.5LM-MP6 + 1...	Yes	Y		1	1.2	39	1.5	13	.06	14	.052	15	-.03										
148	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	2	.06	14	.06	15											
149	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	3	.06	14	.052	15	.03										
150	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	4	.06	14	.03	15	.052										
151	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	5	.06	14		15	.06										
152	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	6	.06	14	-.03	15	.052										
153	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	7	.06	14	-.0...	15	.03										

Load Combinations (Continued)

	Description	S...	P...	SRSS	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
154	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	8	.06	14	-.06	15											
155	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	9	.06	14	-.0...	15	-.03										
156	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	10	.06	14	-.03	15	-.0...										
157	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	11	.06	14		15	-.06										
158	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	12	.06	14	.03	15	-.0...										
159	1.2DL + 1.5LM-MP7 + 1...	Yes	Y		1	1.2	40	1.5	13	.06	14	.052	15	-.03										
160	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	2	.06	14	.06	15											
161	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	3	.06	14	.052	15	.03										
162	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	4	.06	14	.03	15	.052										
163	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	5	.06	14		15	.06										
164	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	6	.06	14	-.03	15	.052										
165	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	7	.06	14	-.0...	15	.03										
166	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	8	.06	14	-.06	15											
167	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	9	.06	14	-.0...	15	-.03										
168	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	10	.06	14	-.03	15	-.0...										
169	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	11	.06	14		15	-.06										
170	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	12	.06	14	.03	15	-.0...										
171	1.2DL + 1.5LM-MP8 + 1...	Yes	Y		1	1.2	41	1.5	13	.06	14	.052	15	-.03										
172	1.2DL + 1.5LM-MP9 + 1...	Yes	Y		1	1.2	42	1.5	2	.06	14	.06	15											
173	1.2DL + 1.5LM-MP9 + 1...	Yes	Y		1	1.2	42	1.5	3	.06	14	.052	15	.03										
174	1.2DL + 1.5LM-MP9 + 1...	Yes	Y		1	1.2	42	1.5	4	.06	14	.03	15	.052										
175	1.2DL + 1.5LM-MP9 + 1...	Yes	Y		1	1.2	42	1.5	5	.06	14		15	.06										
176	1.2DL + 1.5LM-MP9 + 1...	Yes	Y		1	1.2	42	1.5	6	.06	14	-.03	15	.052										
177	1.2DL + 1.5LM-MP9 + 1...	Yes	Y		1	1.2	42	1.5	7	.06	14	-.0...	15	.03										
178	1.2DL + 1.5LM-MP9 + 1...	Yes	Y		1	1.2	42	1.5	8	.06	14	-.06	15											
179	1.2DL + 1.5LM-MP9 + 1...	Yes	Y		1	1.2	42	1.5	9	.06	14	-.0...	15	-.03										
180	1.2DL + 1.5LM-MP9 + 1...	Yes	Y		1	1.2	42	1.5	10	.06	14	-.03	15	-.0...										
181	1.2DL + 1.5LM-MP9 + 1...	Yes	Y		1	1.2	42	1.5	11	.06	14		15	-.06										
182	1.2DL + 1.5LM-MP9 + 1...	Yes	Y		1	1.2	42	1.5	12	.06	14	.03	15	-.0...										

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N25	max	766.01	4	1914.078	31	1208.23	3	128.395	25	1514.172	15	-17.63	24
2		min	-762.506	22	100.244	24	-1203.179	21	-2119.542	32	-1523.69	9	-3839.176	31
3	N1	max	693.401	7	1960.909	35	1254.815	25	83.2	15	1548.504	19	3782.142	35
4		min	-690.902	25	110.034	16	-1258.822	7	-2485.18	34	-1560.644	13	25.279	16
5	N13	max	1319.002	17	1871.745	27	331.08	14	4273.917	27	1375.915	23	618.219	157
6		min	-1325.199	11	77.359	20	-332.895	8	-43.099	20	-1385.319	5	-489.746	139
7	Totals:	max	2407.805	17	5449.118	36	2556.699	14						
8		min	-2407.806	11	1476.141	54	-2556.7	8						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc...	...	LC	phi*Pn...	phi*Pn...	phi*M...	phi*M...	...	Eqn
1	M1	C3X5	.332	34.856	35	.101	63....	y	31	37027....	47628	981.263	4020.2...	1	H1-1b
2	M11	C3X5	.321	34.856	31	.101	63....	y	28	37027....	47628	981.263	4020.2...	1	H1-1b
3	M6	C3X5	.315	34.856	27	.097	63....	y	35	37027....	47628	981.263	4020.2...	1	H1-1b
4	S3	HSS4X4X4	.288	40	33	.081	40	y	82	13720...	139518	16180.5	16180.5	1	H1-1b
5	S1	HSS4X4X4	.281	40	33	.078	40	y	114	13720...	139518	16180.5	16180.5	1	H1-1b
6	M51	L2.5x2.5x3	.276	42	2	.022	0	z	13	19573....	29192.4	872.574	1878.3...	1...	H2-1
7	S2	HSS4X4X4	.273	40	29	.079	40	y	158	13720...	139518	16180.5	16180.5	1	H1-1b
8	M49	L2.5x2.5x3	.266	42	10	.022	0	z	9	19573....	29192.4	872.574	1868.2...	1...	H2-1
9	M50	L2.5x2.5x3	.265	42	6	.022	0	z	5	19573....	29192.4	872.574	1904.2...	1...	H2-1
10	M15	6.5"x0.37...	.198	21	6	.077	21	y	30	3513.8...	77922	600.647	6602.8...	1...	H1-1b
11	M5	6.5"x0.37...	.197	21	10	.080	21	y	34	3513.8...	77922	600.647	6644.51	1...	H1-1b

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc...	...	LC	phi*Pn...	phi*Pn...	phi*M...	phi*M...	...	Eqn
12	M10	6.5"x0.37...	.197	21	2	.076	21	y	38	3513.8...	77922	600.647	6629.48	1...	H1-1b
13	MP4	PIPE_2.0	.193	61.25	8	.039	61.25		7	17855....	32130	1871.6...	1871.6...	2...	H1-1b
14	MP7	PIPE_2.0	.191	61.25	4	.037	61.25		3	17855....	32130	1871.6...	1871.6...	3...	H1-1b
15	MP1	PIPE_2.0	.190	61.25	13	.040	61.25		11	17855....	32130	1871.6...	1871.6...	3...	H1-1b
16	MP9	PIPE_2.0	.188	61.25	8	.032	61.25		3	17855....	32130	1871.6...	1871.6...	2...	H1-1b
17	MP6	PIPE_2.0	.187	61.25	12	.031	61.25		7	17855....	32130	1871.6...	1871.6...	3...	H1-1b
18	MP3	PIPE_2.0	.182	61.25	4	.030	61.25		6	17855....	32130	1871.6...	1871.6...	4...	H1-1b
19	MP8	PIPE_2.0	.145	61.25	8	.047	61.25		9	17855....	32130	1871.6...	1871.6...	3...	H1-1b
20	MP5	PIPE_2.0	.143	61.25	12	.047	61.25		13	17855....	32130	1871.6...	1871.6...	3...	H1-1b
21	MP2	PIPE_2.0	.139	61.25	4	.045	61.25		5	17855....	32130	1871.6...	1871.6...	4...	H1-1b
22	HOR1	PIPE_3.5	.120	72	86	.064	24		9	76140....	78750	7953.75	7953.75	1	H1-1b
23	M3	L2x2x3	.118	0	3	.022	0	y	37	18051...	23392.8	557.717	1239.29	2...	H2-1
24	HOR2	PIPE_3.5	.118	72	118	.062	24		5	76140....	78750	7953.75	7953.75	1	H1-1b
25	HOR3	PIPE_3.5	.118	72	150	.063	24		13	76140....	78750	7953.75	7953.75	1	H1-1b
26	M13	L2x2x3	.117	0	11	.022	0	y	33	18051...	23392.8	557.717	1239.29	2...	H2-1
27	M8	L2x2x3	.106	0	8	.022	0	y	29	18051...	23392.8	557.717	1239.29	2...	H2-1
28	M4	L2x2x3	.098	0	10	.023	0	y	33	18051...	23392.8	557.717	1239.29	2...	H2-1
29	M9	L2x2x3	.088	0	2	.023	0	y	37	18051...	23392.8	557.717	1239.29	2...	H2-1
30	M14	L2x2x3	.083	0	6	.023	0	y	29	18051...	23392.8	557.717	1239.29	2...	H2-1
31	HR1	PIPE_3.5	.061	48	98	.037	24		7	76140....	78750	7953.75	7953.75	1	H1-1b
32	HR2	PIPE_3.5	.060	48	130	.036	24		3	76140....	78750	7953.75	7953.75	1	H1-1b
33	HR3	PIPE_3.5	.060	48	162	.036	24		10	76140....	78750	7953.75	7953.75	1	H1-1b

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General				
2	RIGID		18	54	0
3	Total General		18	54	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	6.5"x0.37" Plate	3	126	85.929
7	A36 Gr.36	C3X5	3	209.1	87.177
8	A36 Gr.36	L2x2x3	6	163.8	33.529
9	A36 Gr.36	L2.5x2.5x3	3	126	32.192
10	A500 Gr.B Rect	HSS4X4X4	3	120	123.333
11	A53 Gr.B	PIPE_2.0	9	756	218.663
12	A53 Gr.B	PIPE_3.5	6	576	408.334
13	Total HR Steel		33	2076.9	989.156

APPENDIX D

ADDITIONAL CALCUATIONS

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Bolt Calculation Tool, V1.5.1

PROJECT DATA	
Site Name:	Branford/ I-95/ X55/ Dtn1
Site Number:	822765
Connection Description:	Mount to Tower

MAXIMUM BOLT LOADS		
Bolt Tension:	4338.39	lbs
Bolt Shear:	1019.75	lbs

WORST CASE BOLT LOADS[1]		
Bolt Tension:	4338.39	lbs
Bolt Shear:	631.23	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 #33 on member S3 in RISA-3D, which causes the maximum demand on the bolts.*

Member Information
J nodes of S3, S2, S1

BOLT CHECK		
Tensile Strength	20340.15	
Shear Strength	13805.83	
Max Tensile Usage	21.3%	
Max Shear Usage	7.4%	
Interaction Check (Worst Case)	0.05	***≤1.05***
Result	Pass	

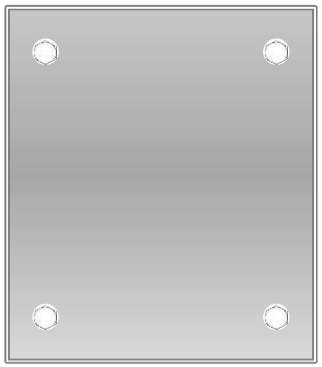


Exhibit F

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: BOHVN00155A

822765
10 Sylvia Street
Branford, Connecticut 06405

November 18, 2021

EBI Project Number: 6221007192

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**56.86%**

November 18, 2021

Dish Wireless

Emissions Analysis for Site: BOHVN00155A - 822765

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **10 Sylvia Street** in **Branford, 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 10 Sylvia Street in Branford, 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 81 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):	81 feet	Height (AGL):	81 feet	Height (AGL):	81 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 %:	**4.20%**	Antenna B1 MPE %:	**4.20%**	Antenna C1 MPE %:	**4.20%**

Site Composite MPE %	
Carrier	**MPE %**
Dish Wireless (Max at Sector A):	4.20%
AT&T	29.73%
Verizon	4.24%
T-Mobile	6.37%
Clearwire	12.32%
Site Total MPE % :	56.86%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	4.20%
Dish Wireless Sector B Total:	4.20%
Dish Wireless Sector C Total:	4.20%
Site Total MPE % :	56.86%

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	81.0	5.72	600 MHz n71	400	1.43%
Dish Wireless 1900 MHz n70	4	542.70	81.0	13.87	1900 MHz n70	1000	1.39%
Dish Wireless 2190 MHz n66	4	542.70	81.0	13.87	2190 MHz n66	1000	1.39%
						Total:	**4.20%**

• 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:	4.20%
Sector B:	4.20%
Sector C:	4.20%
Dish Wireless Maximum MPE % (Sector A):	4.20%
Site Total:	56.86%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **56.86%** 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:
10 SYLVIA ST., BRANFORD, CT 06405

T-MOBILE USA TOWER 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:

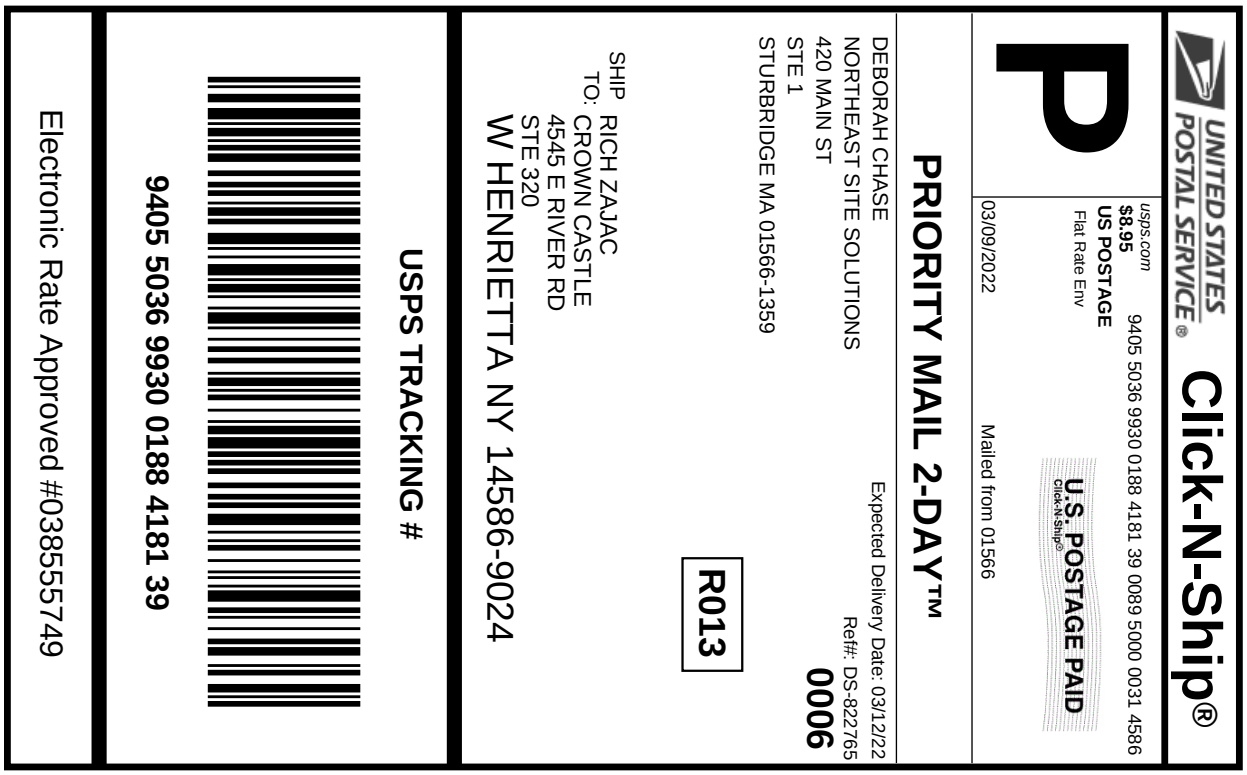
Crown Site ID/Name:	**822765/Branford/ I-95/ X55/ Dtn1**
Customer Site ID:	**BOHVN00155A/CT-CCI-T-822765**
Site Address:	**10 Sylvia St., Branford, CT 06405**

Crown Castle

By: _____ Date: _____
Richard Zajac
Site Acquisition Specialist

Exhibit H

Recipient Mailings



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5. **Mail your package on the "Ship Date" you selected when creating this label.**

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USPS TRACKING # :
9405 5036 9930 0188 4181 39

Trans. #:	558450557
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-822765

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!
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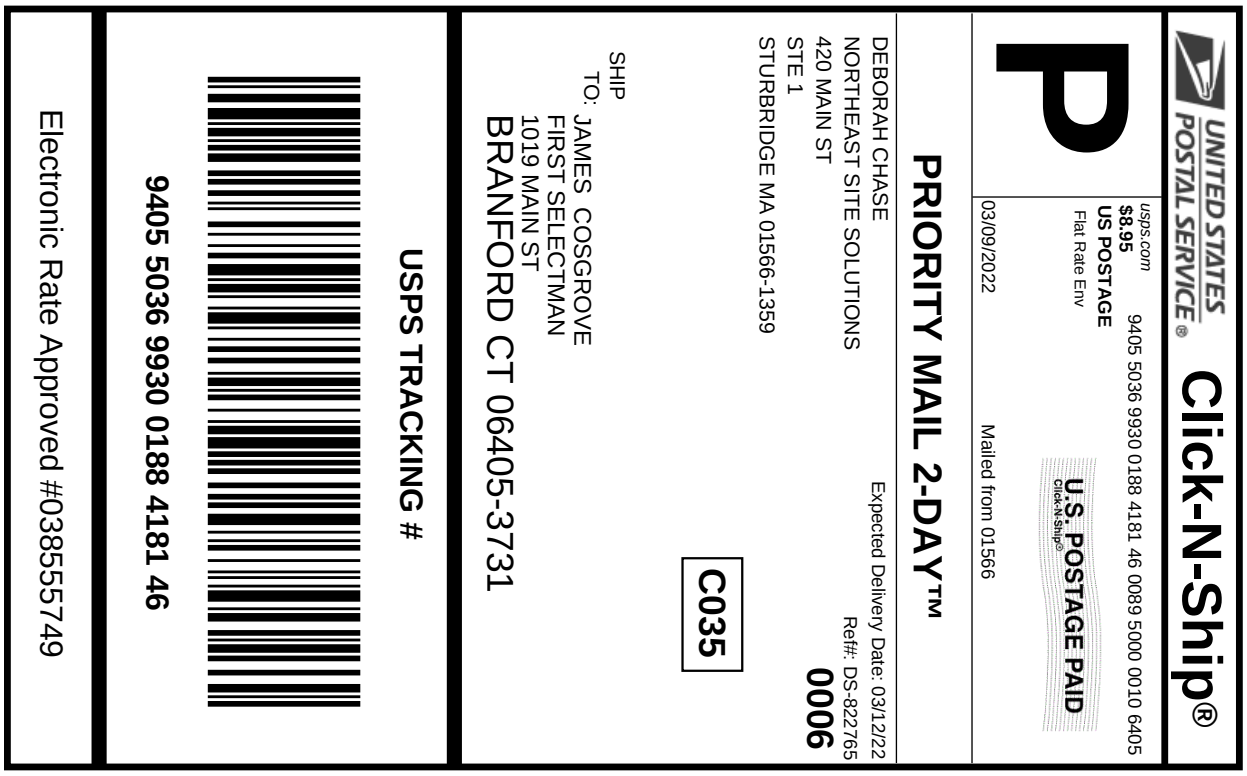

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0188 4181 46

Trans. #:	558450557
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-822765

To: JAMES COSGROVE
FIRST SELECTMAN
1019 MAIN ST
BRANFORD CT 06405-3731

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

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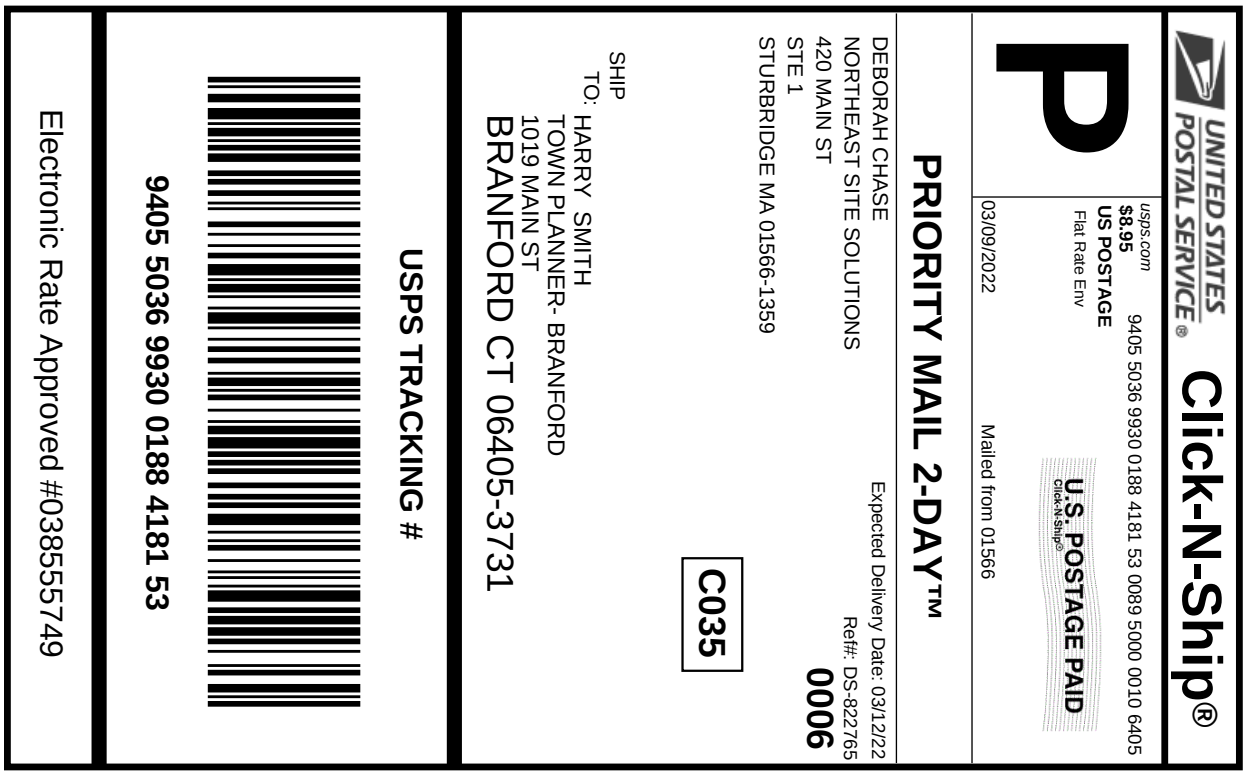

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2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail 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 4181 53

Trans. #:	558450557
Print Date:	03/09/2022
Ship Date:	03/09/2022
Expected Delivery Date:	03/12/2022

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

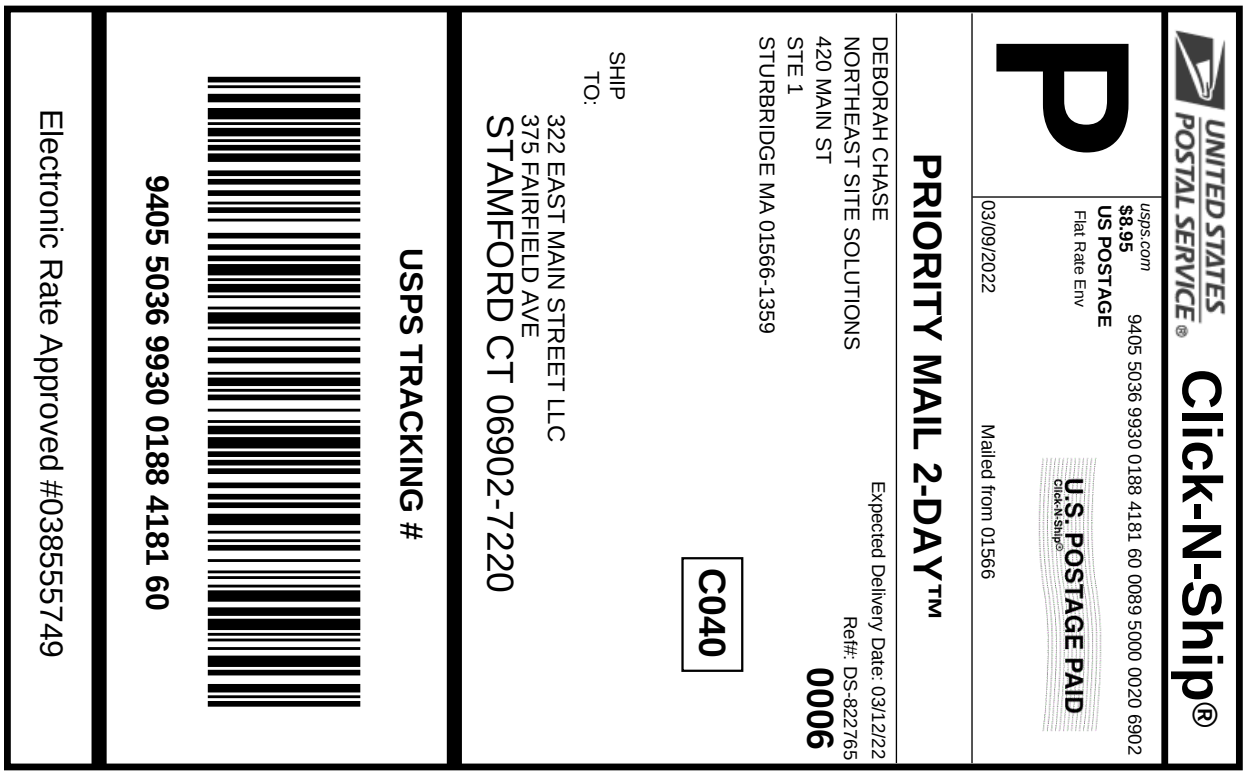
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DS-822765

To: HARRY SMITH
TOWN PLANNER- BRANFORD
1019 MAIN ST
BRANFORD CT 06405-3731

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

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



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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 4181 60

Trans. #:	558450557
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-822765

To: 322 EAST MAIN STREET LLC
375 FAIRFIELD AVE
STAMFORD CT 06902-7220

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

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Check the status of your shipment on the USPS Tracking® page at usps.com

822765 Crown Dish

UNITED STATES POSTAL SERVICE.

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

03/11/2022 08:42 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 4181 39	1		$0.00
Prepaid Mail Stamford, CT 06902 Weight: 0 lb 8.70 oz Acceptance Date: Fri 03/11/2022 Tracking #: 9405 5036 9930 0188 4181 60	1		$0.00
Prepaid Mail Branford, CT 06405 Weight: 1 lb 1.40 oz Acceptance Date: Fri 03/11/2022 Tracking #: 9405 5036 9930 0188 4181 53	1		$0.00
Prepaid Mail Branford, CT 06405 Weight: 0 lb 8.70 oz Acceptance Date: Fri 03/11/2022 Tracking #: 9405 5036 9930 0188 4181 46	1		$0.00
Grand Total:			$0.00

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USPS is experiencing unprecedented volume increases and limited employee availability due to the impacts of COVID-19. We appreciate your patience.
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