NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

August 11, 2021

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

RE: Tower Share Application
798 Toby Hill Road, Westbrook CT 06498
Latitude: 41.320167
Longitude: -72.441667
Site# 876384_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 798 Toby Hill Road in Westbrook, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900/2100 MHz antennas and six (6) RRUs, at the 120-foot level of the existing 150-foot monopole tower, one (1) Fiber cables will also be installed. Dish Wireless LLC equipment cabinets will be placed within 7x5 lease area. Included are plans by Infinigy, dated June 18, 2021 Exhibit C. Also included is a structural analysis prepared by Crown Castle, dated April 13, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. This facility was approved by the Town of Westbrook Planning and Zoning Commission on May 25, 2000. Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Noel Bishop, First Selectman for the Town of Westbrook, David Maiden-Building Official, as well as the tower owner (Crown Castle) and property owner (Toby Hill Farm LLC).

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the tower is 150-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 120-feet.

2. The proposed modifications will not result in the 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. As indicated in the attached power density calculations, the combined site operations will result in a total power density of 10.446% as evidenced by Exhibit F.

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

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

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this support tower in Westbrook. 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 120-foot level of the existing 150-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

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

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

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:

Town of Westbrook
Attn: Noel Bishop – First Selectman (nbishop@westbrookct.us)
866 Boston Post Road Westbrook, CT 06498

Town of Westbrook
Attn: David Maiden – Building Official (dmaiden@westbrookct.us)
866 Boston Post Road Westbrook, CT 06498

Toby Hill Farm LLC
439 Spencer Plains Rd Westbrook, CT 06498

Crown Castle, Tower Owner

Exhibit A

Original Facility Approval

TOWN OF WESTBROOK
ZONING

P.O. BOX G
WESTBROOK, CONNECTICUT 06498-0676
(860) 399-3046 • FAX (860) 399-9568

May 25, 2000

Donald Duthaler, Jr.
O'Brien & Gere Engineers, Inc.
Raritan Plaza 1
Edison, NJ 08837

RE: Special Permit/Site Plan application from Sprint Spectrum LP for a telecommunications facility at Toby Hill Road

Dear Mr. Duthaler:

At its meeting of May 23, 2000 the Westbrook Zoning Commission took the following action on the above named application:

APPROVED: To approve the Special Permit application for a telecommunications facility at Toby Hill Road as shown in drawing entitled " Site Plans Sprint PCS Site #CT 33XC548 Orsina Property Toby Hill Road Westbrook, Connecticut" dated October 26, 1999, prepared by Vanasse Hangen Brustlin, Inc.

A mylar and three (3) copies of the Site Plan must be delivered to the Zoning Office. Please include an approval signature block on these plans.

Sincerely,

James R. Taylor

James R. Taylor
Zoning Enforcement Officer

Cc: Town Clerk
Assessor
Building Dept.

JRT:cgg

CERTIFIED MAIL # Z 033 664 069

TOWN OF WESTBROOK
INLAND WETLANDS AND WATERCOURSES

P.O. BOX G
WESTBROOK, CONNECTICUT 06498-0676
(203) 399-3046

April 17, 2000

Sprint Spectrum, L.P.
One International Blvd.
Suite 800
Mahwah, NJ 07495

Re: Toby Hill Rd, Map 67, Lot 70, Westbrook, CT –Construction of Telecommunication Facility, 150-foot monopole tower

Ladies and Gentlemen:

At the last regular meeting of the Westbrook Inland Wetlands & Watercourses Commission on Tuesday, April 4, 2000, it was voted to approve the above-referenced application with the following stipulations:

To approve this activity with the following 5 stipulations:

1. A reference point denoting the water elevation will be outside the construction area
2. Asphalt will be used on downhill section of road, starting where drainage swale is and continuing to drainage basin #4, with 2" stone on embankments
3. Soil and erosion control measures must be shown on the plans
4. Detailed sequence of wetland crossing dewatering plan must be on file in the Town Hall Wetland Office at least 5 days prior to the start of dewatering
5. Inland Wetland Enforcement Officer must be notified prior to the start of construction so she may monitor the process.

If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,

Heidi K. Wallace

Heidi K. Wallace
Inland Wetland Enforcement Officer
Town of Westbrook

Exhibit B

Property Card

798 TOBY HILL RD

Location	798 TOBY HILL RD	**Mblu**	134/ / 010/ /
Acct#	O0268700	**Owner**	TOBY HILL FARM LLC
Assessment	$3,690	**Appraisal**	$146,910
PID	2783	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$2,490	$144,420	$146,910

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$1,740	$1,950	$3,690

Owner of Record

Owner	TOBY HILL FARM LLC	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	PO BOX 700 WESTBROOK, CT 06498	**Book & Page**	337/439
		Sale Date	11/05/2015

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
TOBY HILL FARM LLC	$0		337/439	11/05/2015
TOBY HILL FARM LLC	$0		327/637	12/12/2013
ORSINA PAUL J TRUSTEE	$0		136/480	12/29/1989

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Replacement Cost: $0
Building Percent Good:

Replacement Cost
Less Depreciation: $0

Building Attributes	
Field	**Description**
Style	Outbuildings
Model	
Grade:	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Full Bthrms:	
Half Baths:	
Extra Fixtures	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Extra Kitchens	
Fireplace(s)	
Gas Fireplace(s)	
Stacks	
Bsmt Garage(s)	
Callback	
Fireplaces	
Fin Bsmnt	
Fin Bsmnt Qual	
Bsmt Heat	
Int Vs Ext	
Fndtn Cndtn	
Basement	

Building Photo

(http://images.vgsi.com/photos2/WestbrookCTPhotos//default.jpg)

Building Layout

Building Layout
(http://images.vgsi.com/photos2/WestbrookCTPhotos//Sketches/2783_278

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

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	610
Description	Forest
Zone	RR
Neighborhood	0050
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	11.59
Depth	
Assessed Value	$1,950
Appraised Value	$144,420

Special Land			
Land Use Code	**Land Use Description**	**Units**	**Unit Type**
610	Forest	2	AC
610	Forest	9	AC

Outbuildings

Outbuildings							Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**	**Comment**
TCM	Telecomm			75.00 S.F.&HGT	$2,490	1	
TCS	Telecomm Site			0.00 UNITS	$0	1	

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$42,490	$144,420	$186,910
2018	$2,490	$144,400	$146,890
2017	$2,490	$144,400	$146,890

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$29,740	$1,950	$31,690
2018	$1,740	$1,950	$3,690
2017	$1,740	$1,950	$3,690

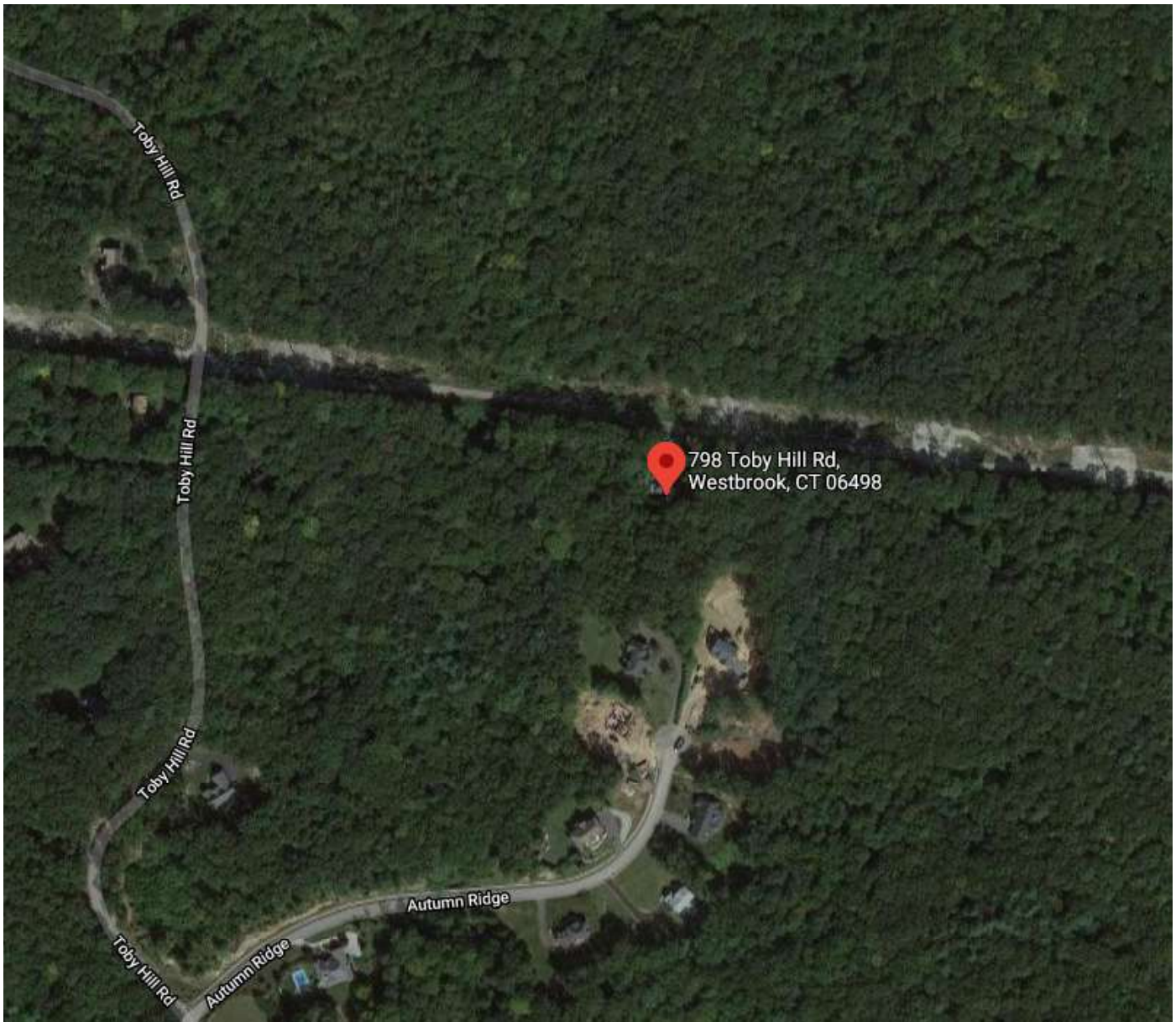

Toby Hill Rd
Toby Hill Rd
Toby Hill Rd
Toby Hill Rd
798 Toby Hill Rd,
Westbrook, CT 06498
Autumn Ridge
Autumn Ridge

Exhibit C

Construction Drawings

DISH WIRELESS, LLC. SITE ID:

BOBDL00097A

DISH WIRELESS, LLC. SITE ADDRESS:

798 TOBY HILL ROAD
WESTBROOK, CT 06498

CONNECTICUT CODE COMPLIANCE

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

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

SHEET INDEX

SCOPE OF WORK

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

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

GROUND SCOPE OF WORK:
- INSTALL (1) PROPOSED METAL PLATFORM
- INSTALL (1) PROPOSED ICE BRIDGE
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED SAFETY SWITCH (IF REQUIRED)
- INSTALL (1) PROPOSED CIENA BOX (IF REQUIRED)
- INSTALL (1) PROPOSED 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:	TOBY HILL FARM LLC (1)
ADDRESS:	PO BOX 700 WESTBROOK, CT 06498
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	876384
TOWER APP NUMBER:	553294
COUNTY:	MIDDLESEX
LATITUDE (NAD 83):	41° 19' 12.60" N 41.320167 N
LONGITUDE (NAD 83):	-72° 26' 30.00" W -72.441667 W
ZONING JURISDICTION:	CONNECTICUT SITING COUNCIL
ZONING DISTRICT:	CT - TOWN OF WESTBROOK
PARCEL NUMBER:	WBRO-000026-008700-0000000
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	CONNECTICUT LIGHT & POWER
TELEPHONE COMPANY:	TBD

PROJECT DIRECTORY

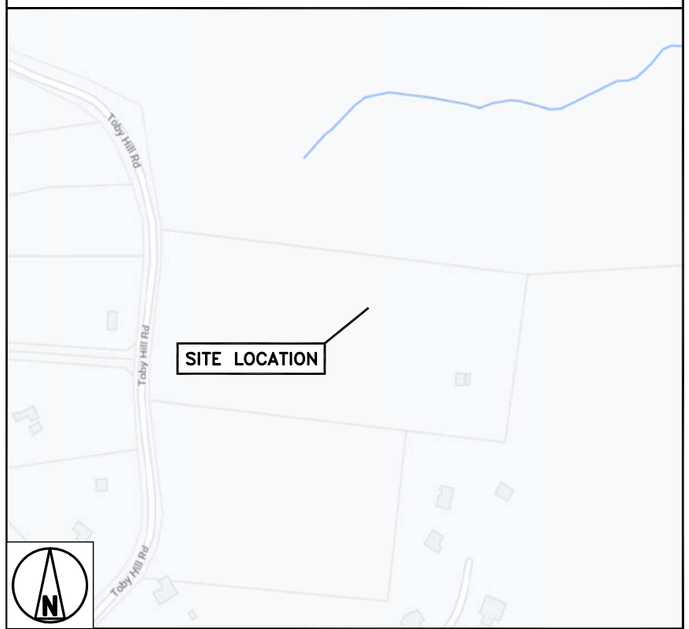
APPLICANT:	DISH WIRELESS, LLC. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317 (877) 486-9377
SITE DESIGNER:	INFINIGY 2500 W. HIGGINS RD. STE. 500 HOFFMAN ESTATES, IL 60169 (847) 648-4068
SITE ACQUISITION:	NICHOLAS CURRY TBD
CONSTRUCTION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

DIRECTIONS

DIRECTIONS FROM CHESTER AIRPORT:

HEAD NORTHWEST ON CHESTER AIRPORT TOWARD CROSS RD, TURN LEFT ONTO CT-145 / WINTHROP RD BEAR LEFT ONTO CEDAR LAKE ROAD EXT, BEAR LEFT ONTO CT-80 / WINTHROP RD, BEAR RIGHT, THEN TURN LEFT ONTO BUSHY HILL RD, KEEP STRAIGHT TO GET ONTO LYNN RD, ROAD NAME CHANGES TO LYNNE RD TURN LEFT ONTO E POND MEADOW RD, ROAD NAME CHANGES TO POND MEADOW RD, TURN RIGHT ONTO TOBY HILL RD, TURN LEFT ONTO AUTUMN RIDGE, ARRIVE AT 798 TOBY HILL ROAD, WESTBROOK, CT 06498

VICINITY MAP



NO SCALE

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

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

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

STATE OF CONNECTICUT
SHUHEI SAKANO
34916
LICENSED PROFESSIONAL ENGINEER
6/18/21

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	04/19/2021	ISSUED FOR REVIEW
0	06/17/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

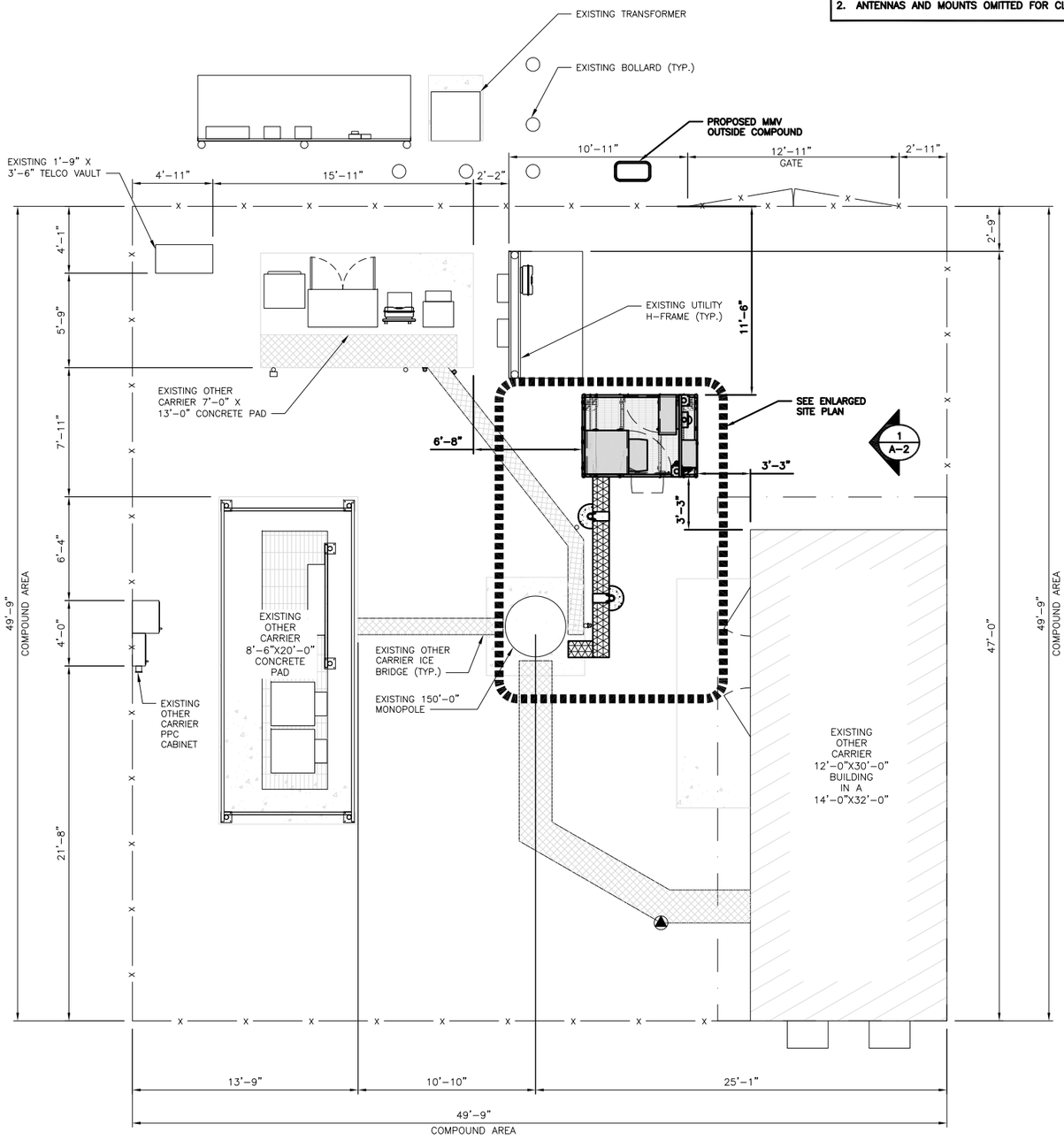
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00097A
798 TOBY HILL ROAD
WESTBROOK, CT 06498

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

NOTES

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



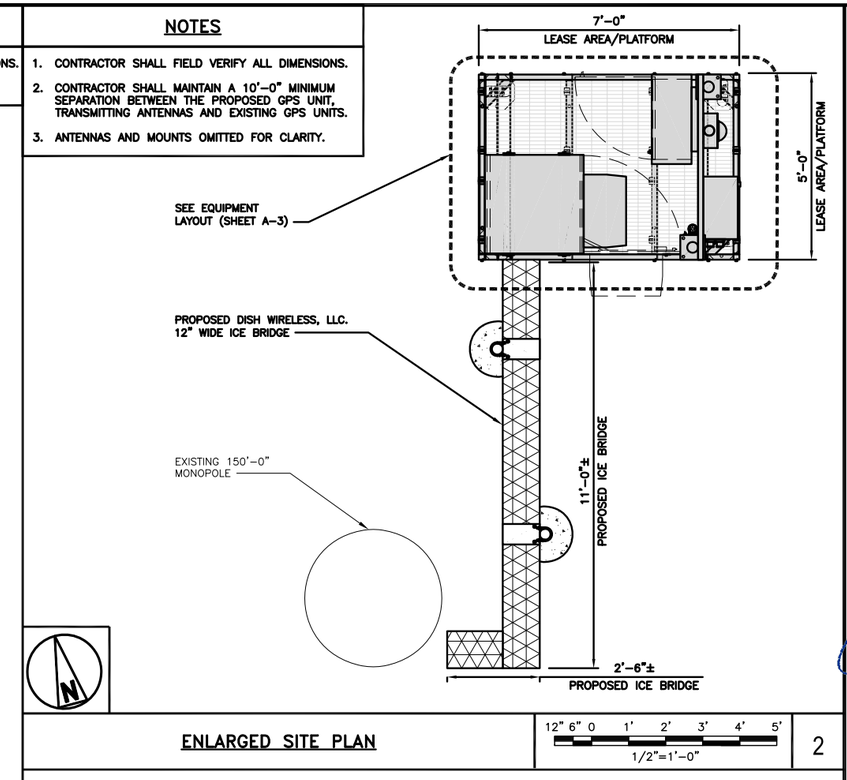
COMPOUND PLAN

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.



ENLARGED SITE PLAN

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

2

SITE PLAN

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

3

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

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WWW.INFINIGY.COM

STATE OF CONNECTICUT
SUHEI SAKANO
34916
LICENSED PROFESSIONAL ENGINEER
6/18/21

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

RFDS REV #: N/A

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2039-Z5555C

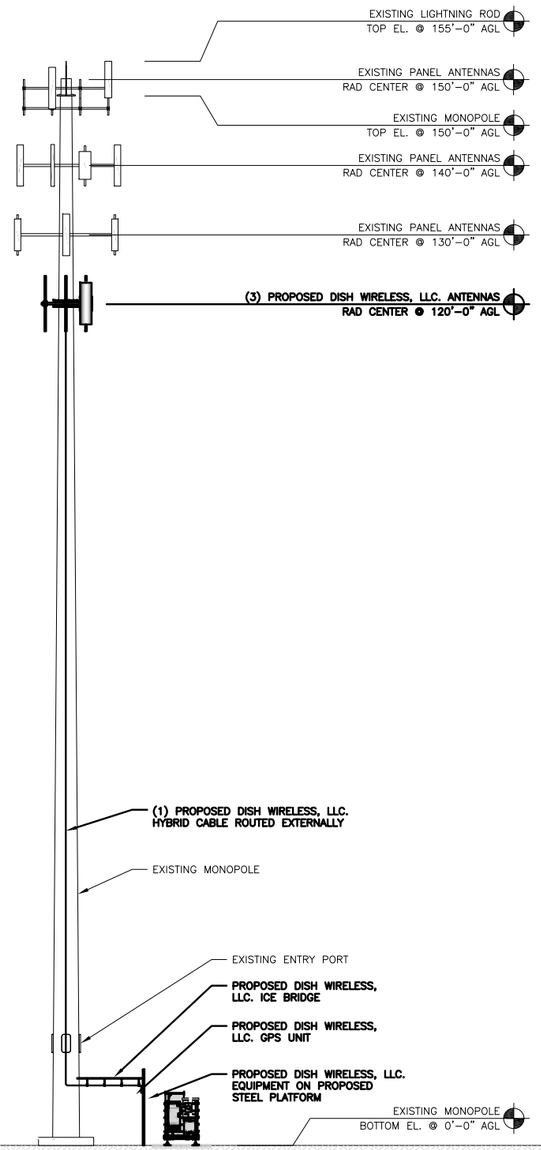
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00097A
798 TOBY HILL ROAD
WESTBROOK, CT 06498

SHEET TITLE
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER
A-1

NOTES

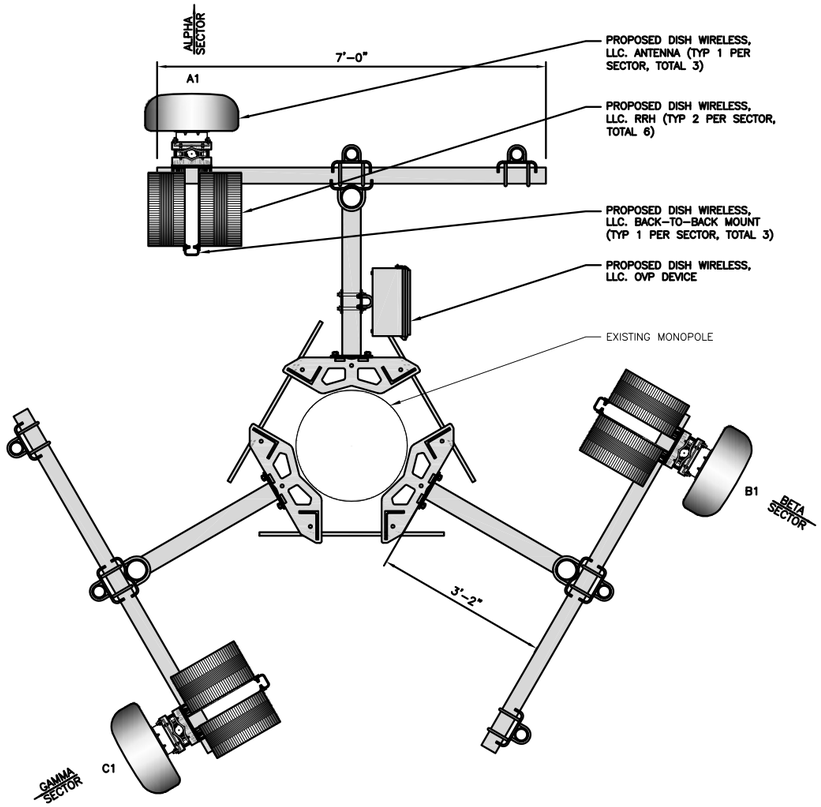
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.
4. INFINIGY HAS NOT EVALUATED THE TOWER OR MOUNT STRUCTURE AND ASSUMES NO RESPONSIBILITY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



PROPOSED EAST ELEVATION

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

1



ANTENNA LAYOUT

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

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZMUITH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	72.0" x 20.0"	0°	120'-0"	(1) HIGH-CAPACITY HYBRID CABLE (170' LONG)
BETA	B1	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	72.0" x 20.0"	120°	120'-0"	
GAMMA	C1	PROPOSED	JMA WIRELESS – MX08FRO665-21	5G	72.0" x 20.0"	240°	120'-0"	

NOTES

1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.
2. ANTENNA OR RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.

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

NOTES

1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.
2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.

ANTENNA SCHEDULE

NO SCALE

3

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

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

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STATE OF CONNECTICUT
SUSHEI SAKANO
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6/18/21

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

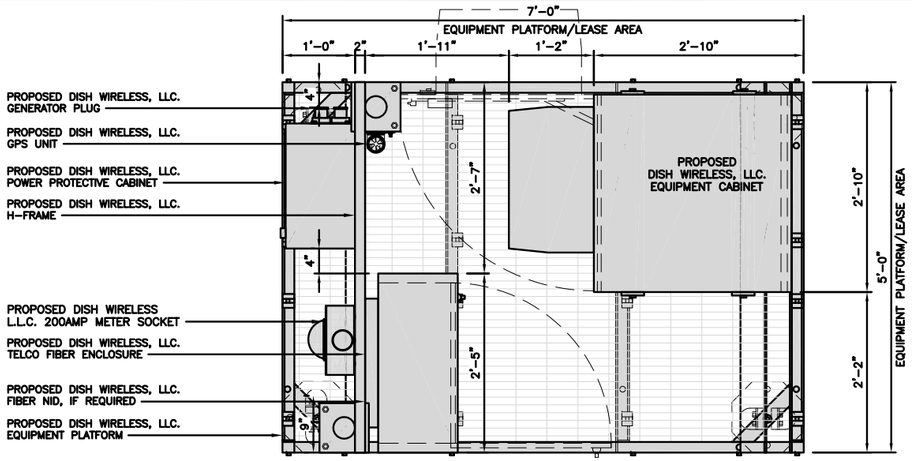
REV	DATE	DESCRIPTION
A	04/19/2021	ISSUED FOR REVIEW
0	06/17/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00097A
798 TOBY HILL ROAD
WESTBROOK, CT 06498

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2

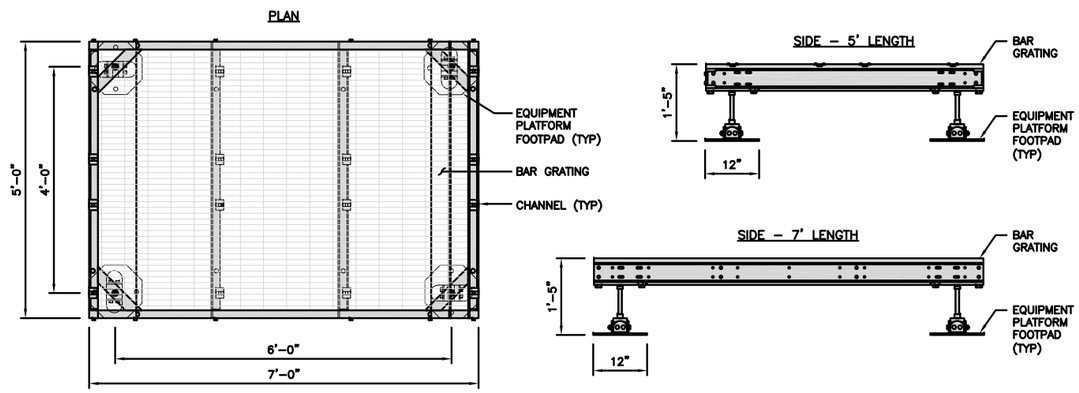


PLATFORM EQUIPMENT PLAN

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

1

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

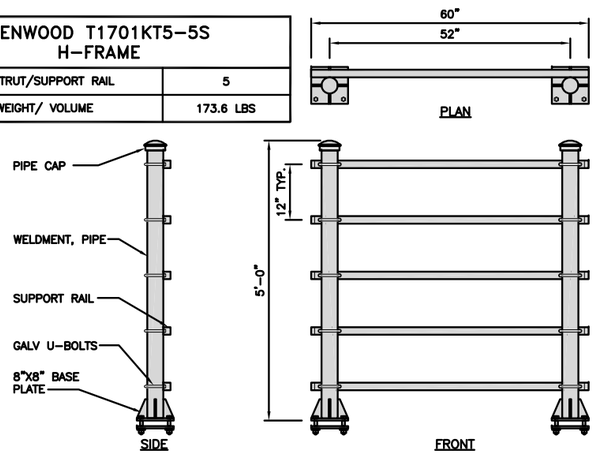


PLATFORM DETAIL

NO SCALE

2

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



H-FRAME DETAIL

NO SCALE

3

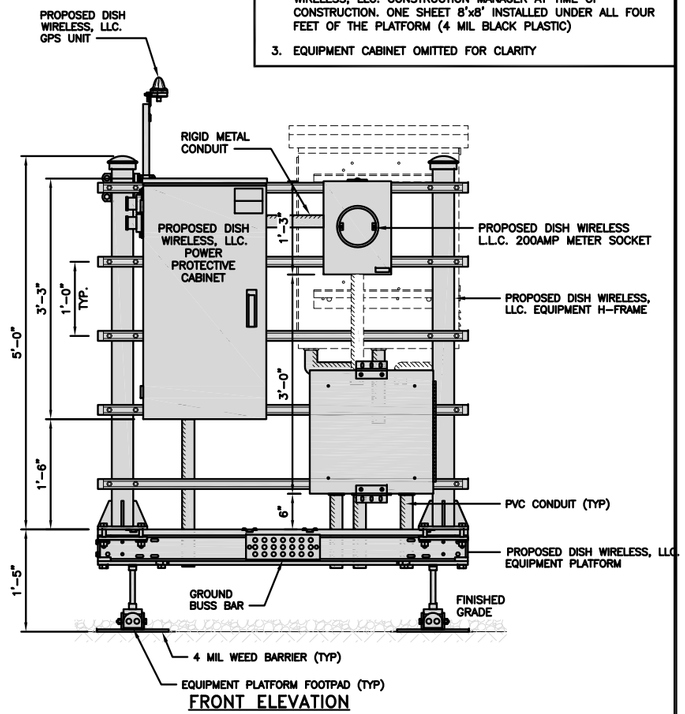
NOT USED

NO SCALE

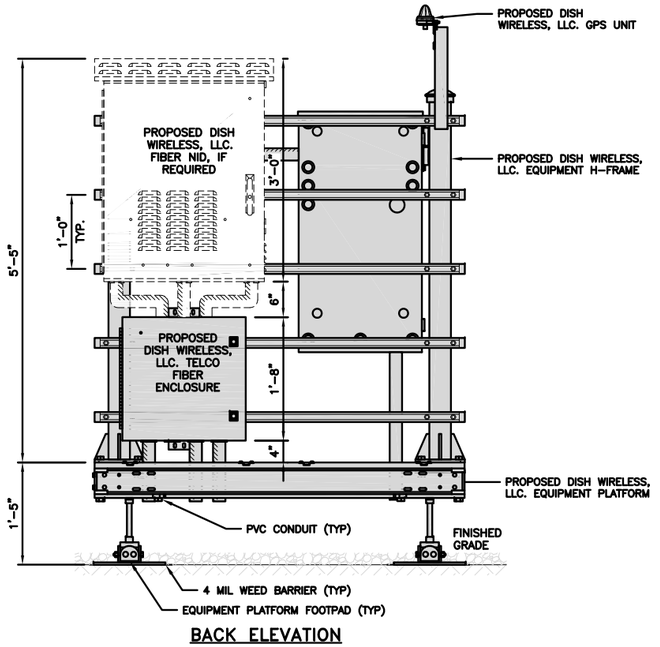
4

NOTES

1. CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE
2. WEED BARRIER FABRIC TO BE ADDED AT DISCRETION OF DISH WIRELESS, LLC. CONSTRUCTION MANAGER AT TIME OF CONSTRUCTION. ONE SHEET 8'x8' INSTALLED UNDER ALL FOUR FEET OF THE PLATFORM (4 MIL BLACK PLASTIC)
3. EQUIPMENT CABINET OMITTED FOR CLARITY



FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION

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

5

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STATE OF CONNECTICUT
SHUHEI SAKAMOTO
34916
LICENSED PROFESSIONAL ENGINEER
6/18/21

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	04/19/2021	ISSUED FOR REVIEW
0	06/17/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

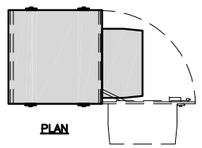
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00097A
798 TOBY HILL ROAD
WESTBROOK, CT 06498

SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

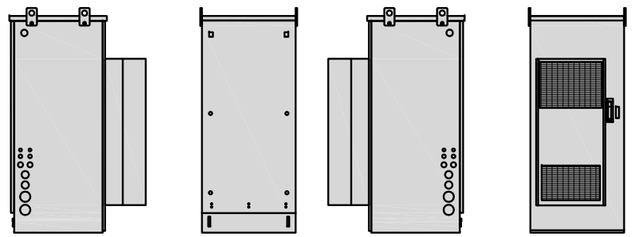
SHEET NUMBER
A-3

CHARLES INDUSTRY HEX CUBE–PM639155N4

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



PLAN



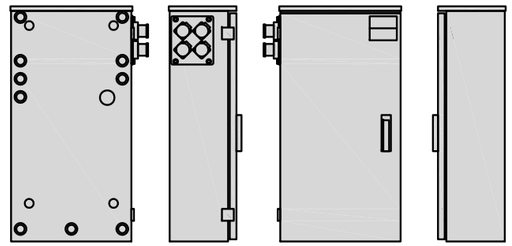
SIDE BACK SIDE FRONT

CABINET DETAIL | NO SCALE | 1

RAYCAP PPC RDIAC–2465–P–240–MTS

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

TOP



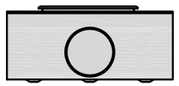
BACK SIDE FRONT SIDE

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

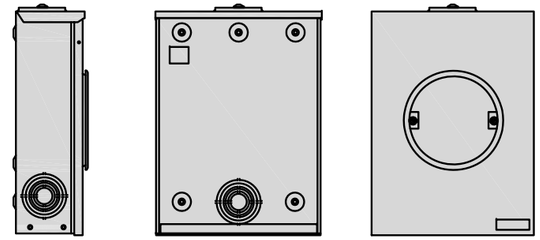
NOT USED | NO SCALE | 3

EATON METER SOCKET UNRRS213BEUSE

METER SOCKET TYPE	RING
ENCLOSURE DIM (HxWxD)	16"x12"x6"
MAIN AMPERE RATING	200A
WEIGHT	18 LBS



PLAN

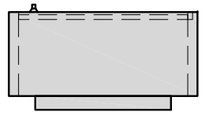


SIDE BACK FRONT

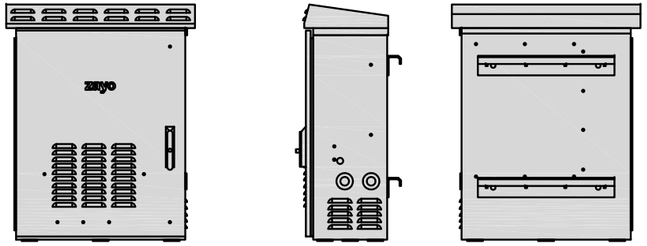
METER SOCKET DETAIL | NO SCALE | 4

ZAYO 5RU CABINET LEFT SWING DOOR ("LIT" SITES)

DIMENSIONS (HxWxD)	36.115"x29"x12.9"
WEIGHT	85 LBS
POWER INPUT	20A, –48VDC



PLAN

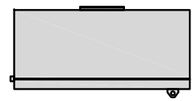


FRONT SIDE BACK

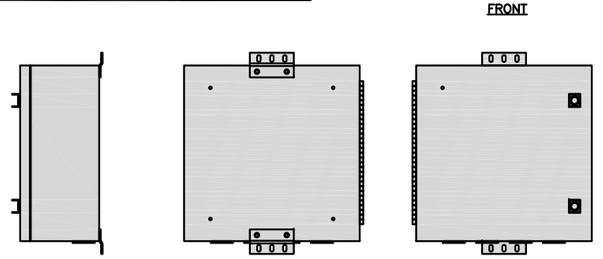
NETWORK INTERFACE UNIT DETAIL | NO SCALE | 5

CHARLES CFIT–PF2020DSH1 FIBER TELCO ENCLOSURE

ENCLOSURE DIMS (HxWxD)	20"x20"x9"
ENCLOSURE WEIGHT	20 lbs
MOUNTING	WALL
COMPLIANCE	TYPE 4



FRONT



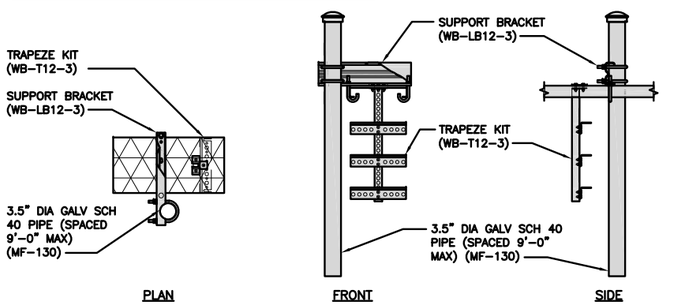
SIDE BACK FRONT

FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

COMMSCOPE WB–K110–B WAVEGUIDE BRIDGE KIT

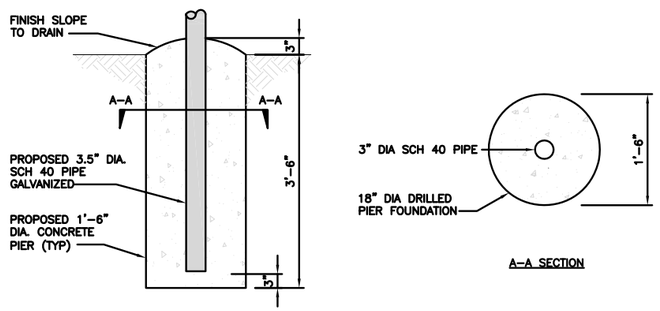
DIMENSIONS (HxL)	160"x10'
WEIGHT/ VOLUME	325.0 LBS
CABLE RUN (QTY)	12

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

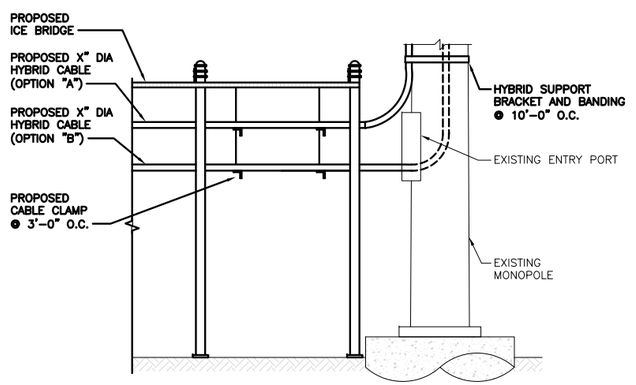
ICE BRIDGE DETAIL | NO SCALE | 7



CONCRETE PIER

A–A SECTION

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

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LICENSED PROFESSIONAL ENGINEER
6/18/21

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

RFDS REV #: N/A

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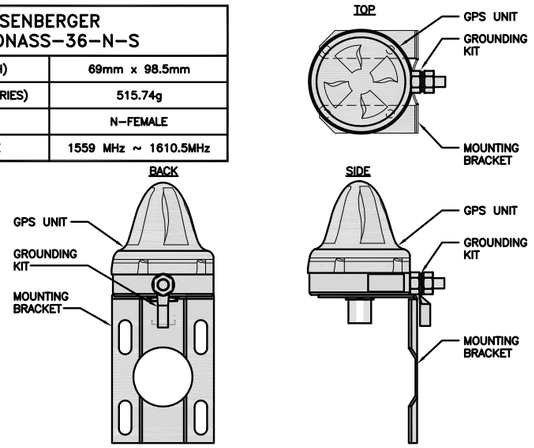
A&E PROJECT NUMBER
2039–Z5555C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00097A
798 TOBY HILL ROAD
WESTBROOK, CT 06498

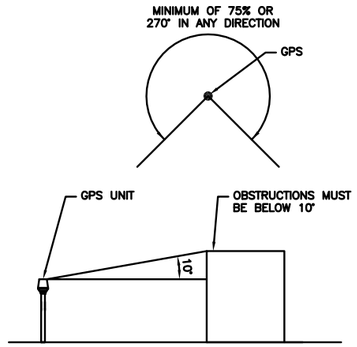
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

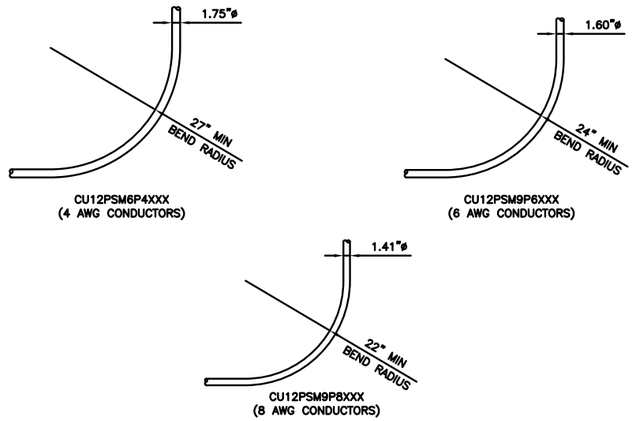
ROSENBERGER GPSGLONASS-36-N-S	
DIMENSION (DIA x H)	69mm x 98.5mm
WEIGHT (WITH ACCESSORIES)	515.74g
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1559 MHz ~ 1610.5MHz



GPS ANTENNA DETAIL — NO SCALE — 1



GPS MINIMUM SKY VIEW REQUIREMENTS — NO SCALE — 2



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

NOT USED — NO SCALE — 4

NOT USED — NO SCALE — 5

NOT USED — NO SCALE — 6

NOT USED — NO SCALE — 7

NOT USED — NO SCALE — 8

NOT USED — NO SCALE — 9

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

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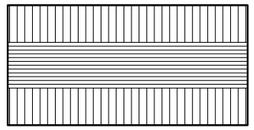
A&E PROJECT NUMBER
2039-Z5555C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00097A
798 TOBY HILL ROAD
WESTBROOK, CT 06498

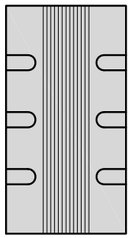
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-5

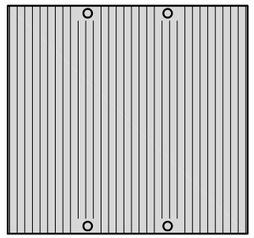
FUJITSU TA08025-B604 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x200/14.9"x15.7"x7.8"
WEIGHT(KG,LB)/ VOLUME	29kg,63.9lb/ 30L
POWER SUPPLY	DC-58~-36V



PLAN



SIDE



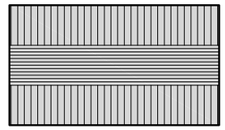
FRONT

NOTES

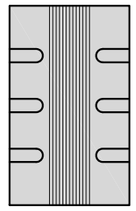
FINAL RRH SPECIFICATIONS TO BE CONFIRMED BY GC

REMOTE RADIO HEAD DETAIL | NO SCALE | 1

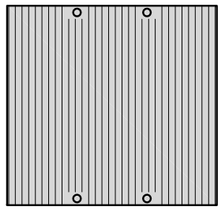
FUJITSU TA08025-B605 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x230/14.9"x15.7"x9.0"
WEIGHT(KG,LB)/ VOLUME	34kg,74.9lb/ 35L
POWER SUPPLY	DC-58~-36V



PLAN



SIDE



FRONT

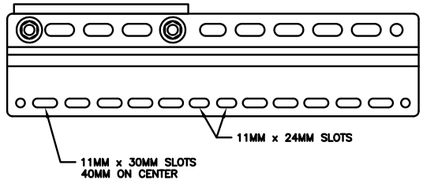
NOTES

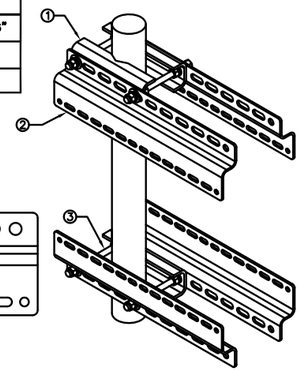
FINAL RRH SPECIFICATIONS TO BE CONFIRMED BY GC

REMOTE RADIO HEAD DETAIL | NO SCALE | 2

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

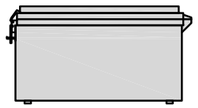
ITEM#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/16"
3	THREADED ROD ASSEMBLY 1/2"x12"



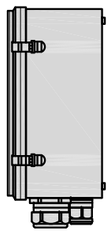


REMOTE RADIO MOUNT DETAIL | NO SCALE | 3

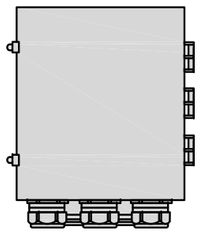
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



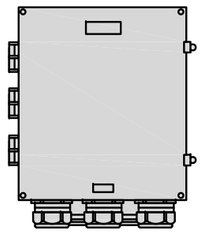
PLAN



SIDE



BACK

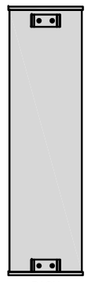


FRONT

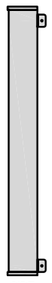
SURGE SUPPRESSION DETAIL | NO SCALE | 4

JMA WIRELESS MX08FRO665-21 ANTENNA	
DIMENSIONS (HxWxD)	72.0"x20.0"x8.0"
TOTAL WEIGHT	64.5 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE

PLAN



BACK



SIDE

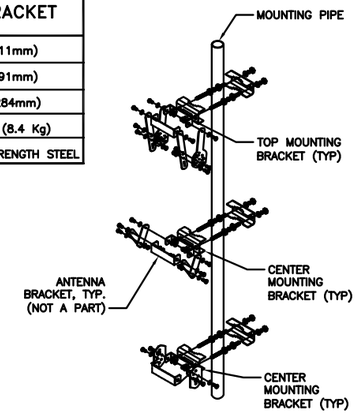
FRONT

NOTES

FINAL ANTENNA SPECIFICATIONS TO BE CONFIRMED BY GC

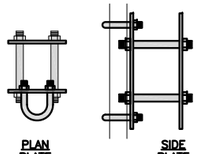
ANTENNA DETAIL | NO SCALE | 5

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



ANTENNA MOUNTING DETAIL | NO SCALE | 6

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

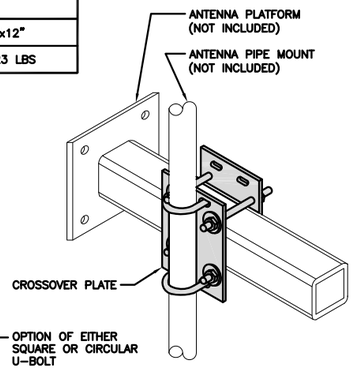


PLAN PLATE

SIDE PLATE

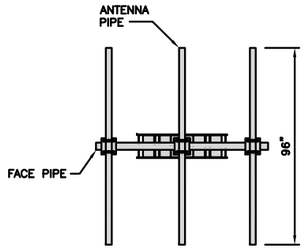
PLAN U-BOLT

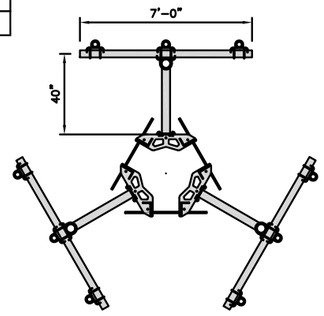
SIDE U-BOLT



RRH/OVP MOUNT DETAIL | NO SCALE | 7

COMMSCOPE MC-K6MHDX-9-96	
FACE WIDTH	7'-0"
WEIGHT	1203.31 lbs
NOTE: 15" TO 50" O.D.	





T-ARM MOUNT DETAIL | NO SCALE | 8

NOT USED | NO SCALE | 9

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STATE OF CONNECTICUT
SUHEI SAKANO
34916
LICENSED PROFESSIONAL ENGINEER
6/18/21

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	04/19/2021	ISSUED FOR REVIEW
0	06/17/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

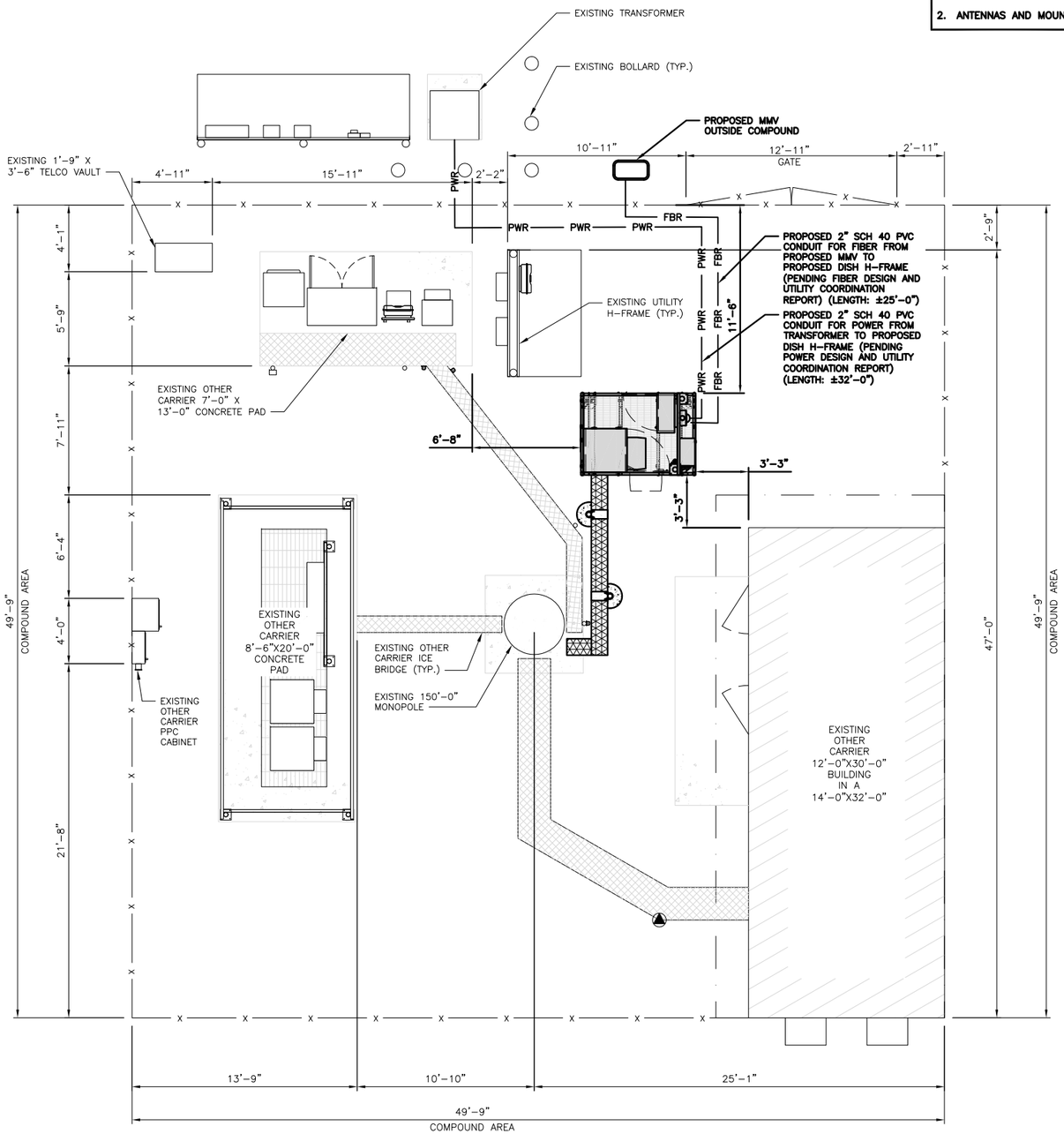
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00097A
798 TOBY HILL ROAD
WESTBROOK, CT 06498

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.



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

ELECTRICAL NOTES

2

OVERALL UTILITY ROUTE PLAN

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

3

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PROJECT INFORMATION
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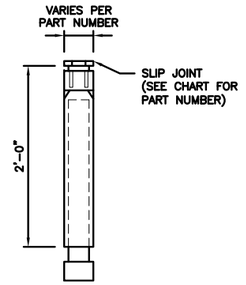
798 TOBY HILL ROAD
WESTBROOK, CT 06498

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"

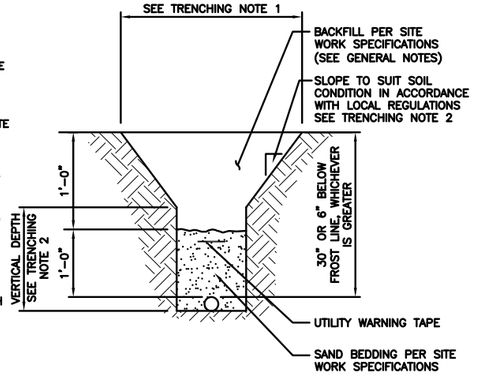


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

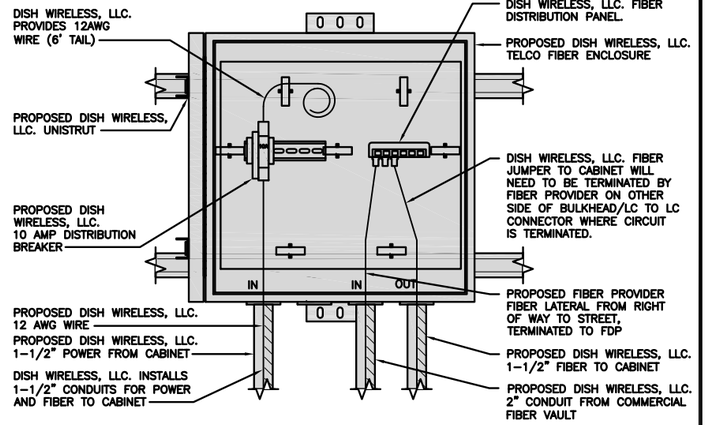
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

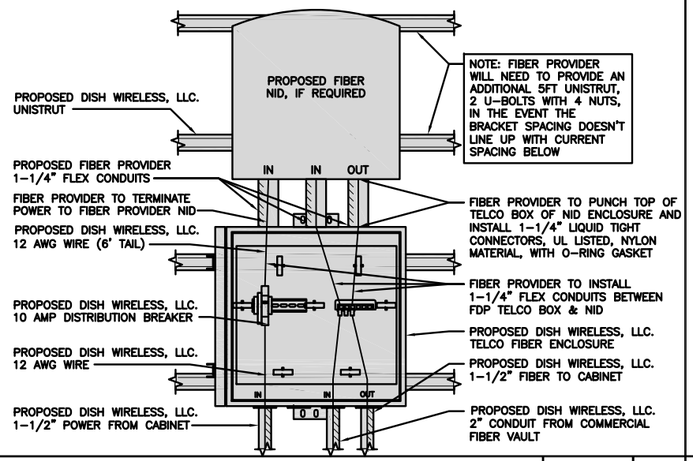
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT 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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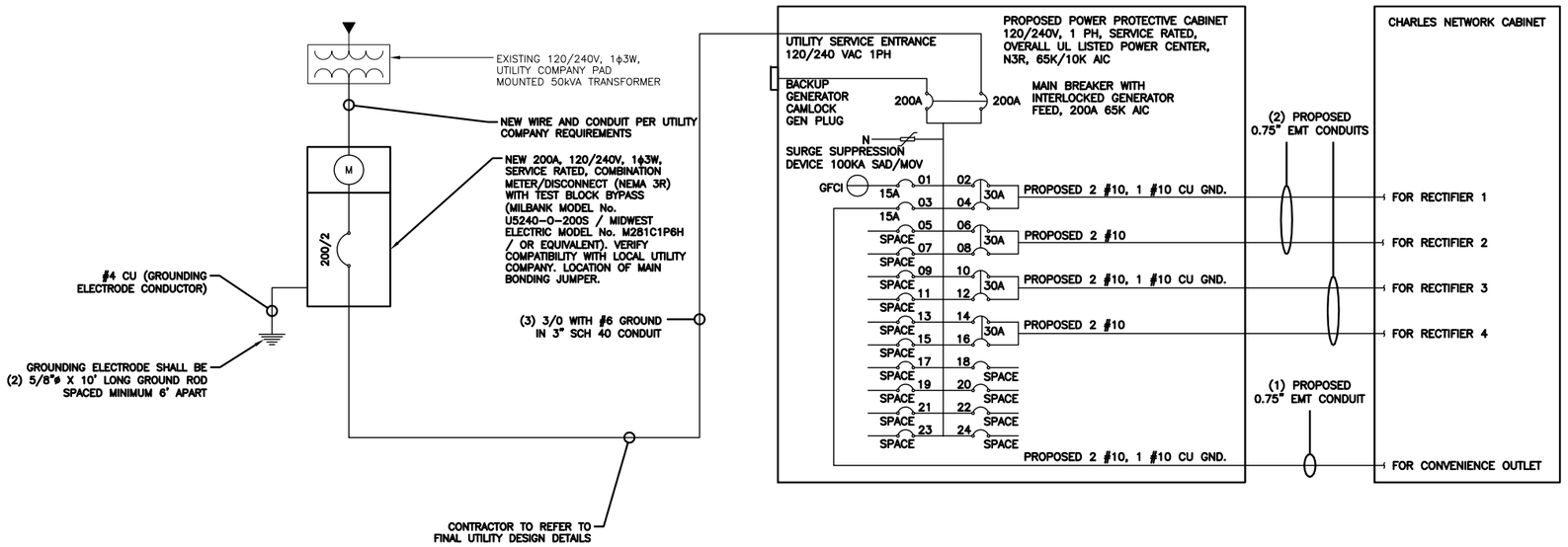
WESTBROOK, CT 06498

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2



NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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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MATTHEI SAKANOI
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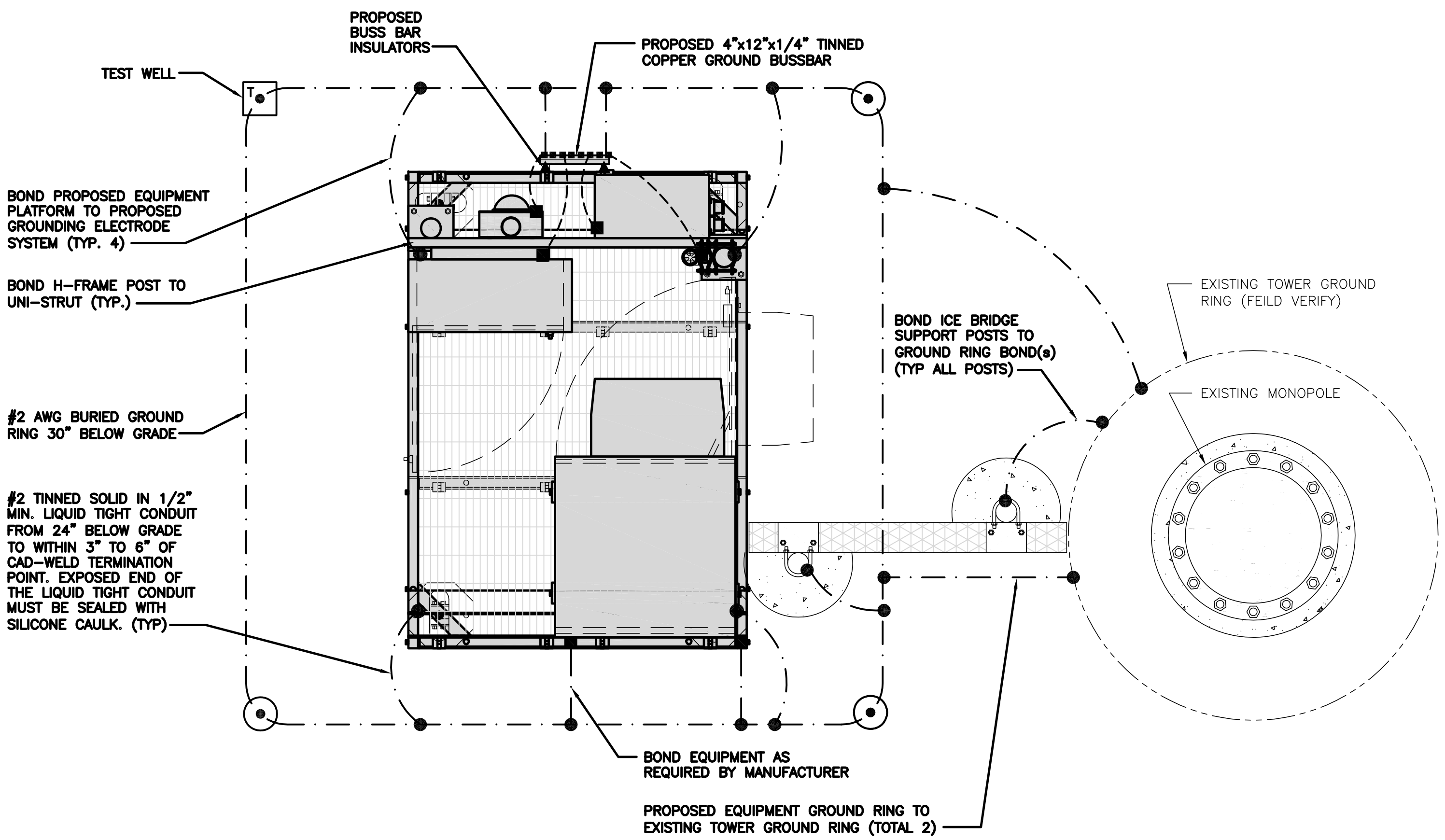
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00097A
798 TOBY HILL ROAD
WESTBROOK, CT 06498

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

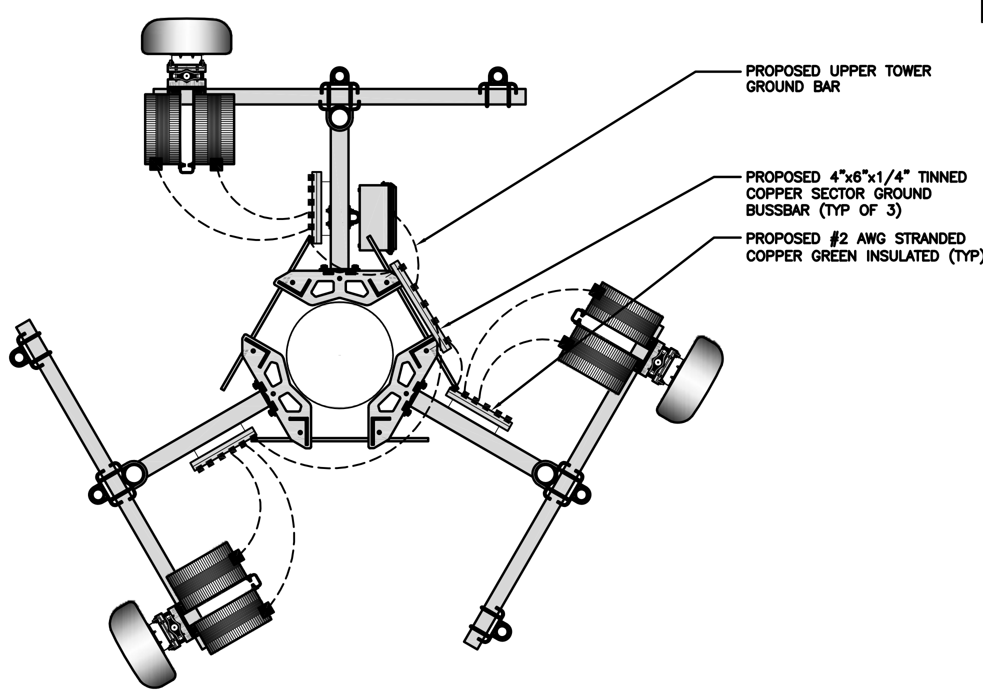
SHEET NUMBER
E-3



TYPICAL EQUIPMENT GROUNDING PLAN	NO SCALE	1

NOTES

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



TYPICAL ANTENNA GROUNDING PLAN	NO SCALE	2

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

REFER TO DISH WIRELESS, LLC. GROUNDING NOTES.

GROUNDING KEY NOTES	NO SCALE	3

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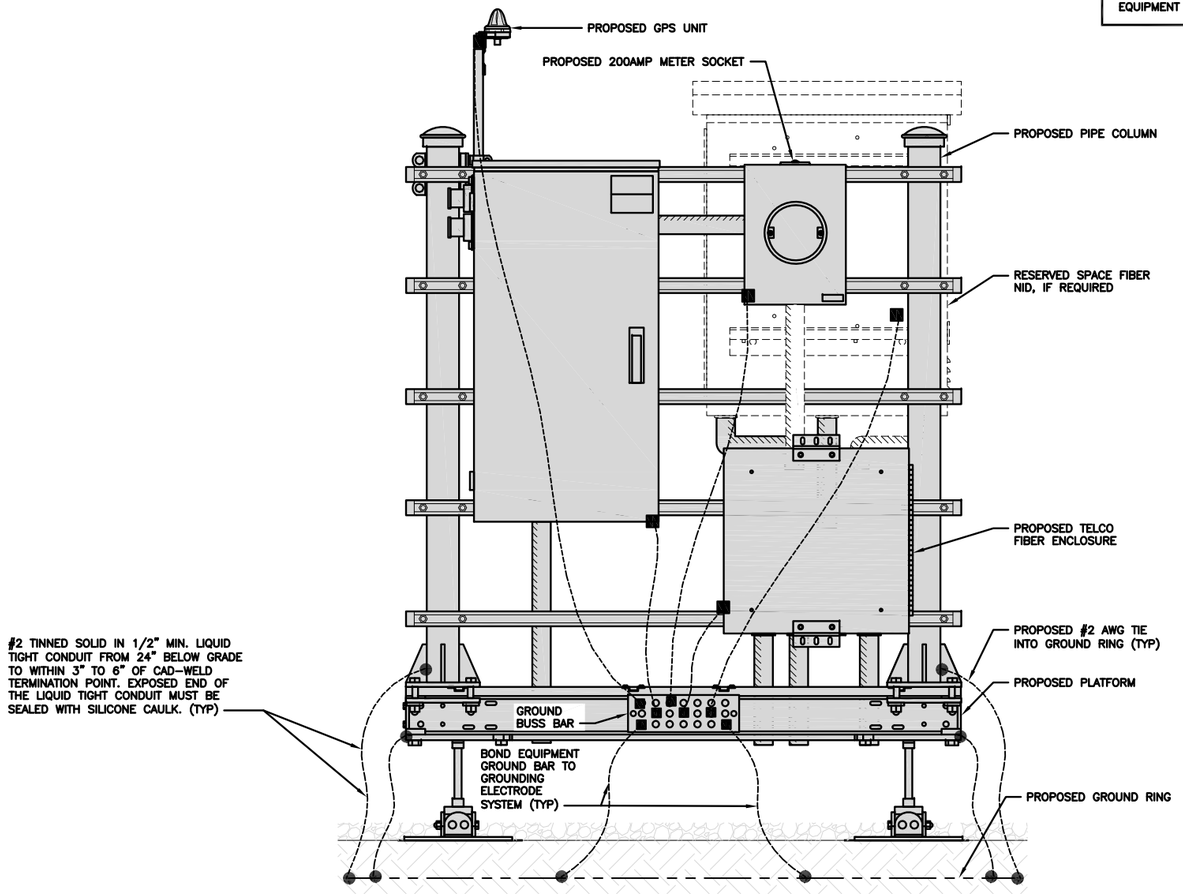
SHEET TITLE
GROUNDING PLANS AND NOTES

SHEET NUMBER
G-1

NOTES

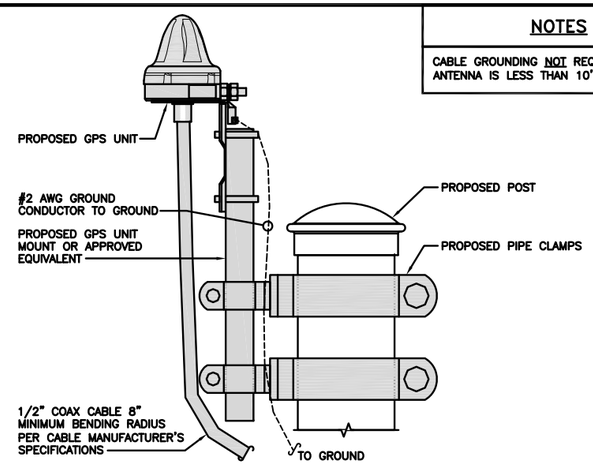
EQUIPMENT CABINET OMITTED FOR CLARITY



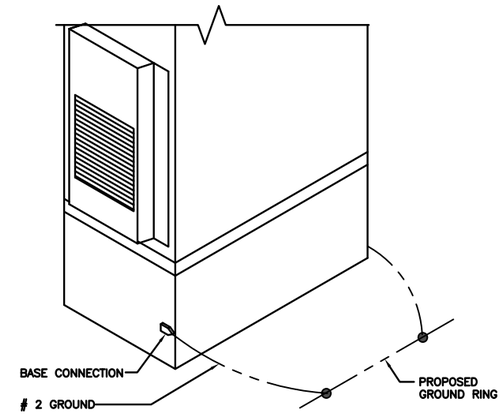
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

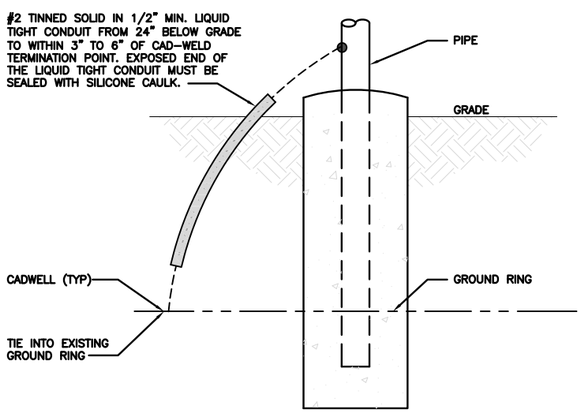
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



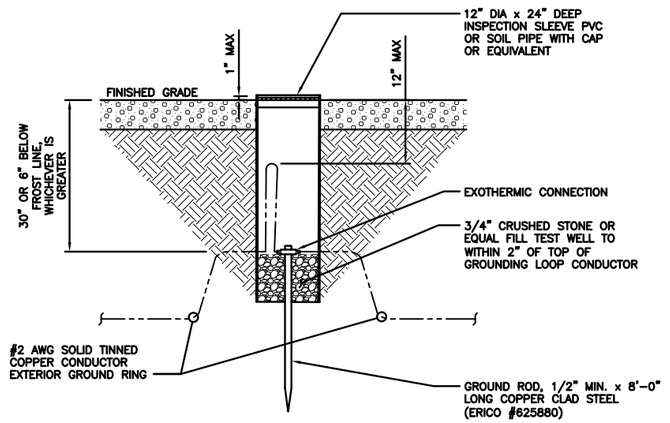
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



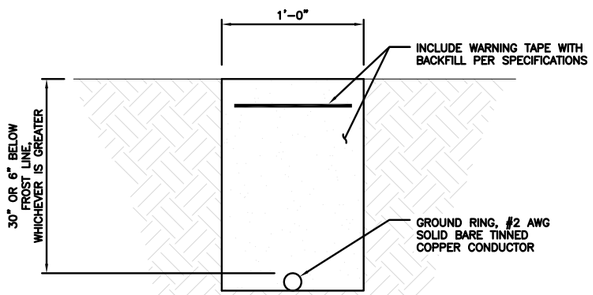
OUTDOOR CABINET GROUNDING | NO SCALE | 3



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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ATHEI SAKANOUSIS
34916
LICENSED PROFESSIONAL ENGINEER
6/18/21

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
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0	06/17/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

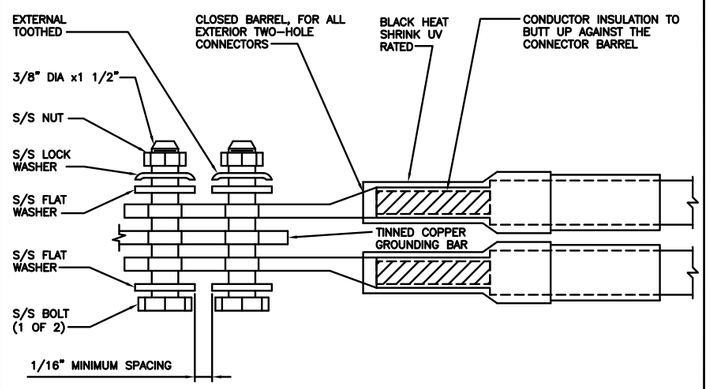
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00097A
798 TOBY HILL ROAD
WESTBROOK, CT 06498

SHEET TITLE
GROUNDING DETAILS

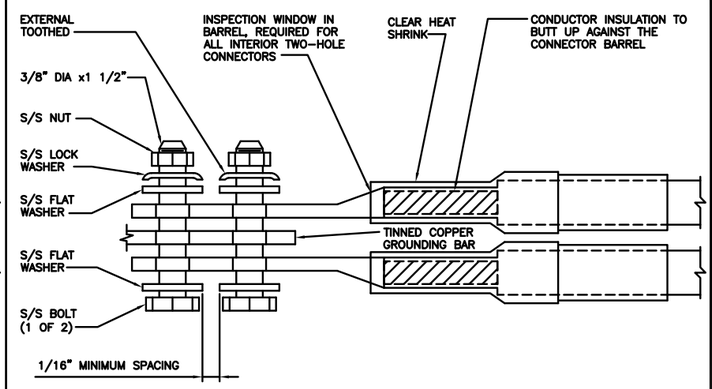
SHEET NUMBER
G-2

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

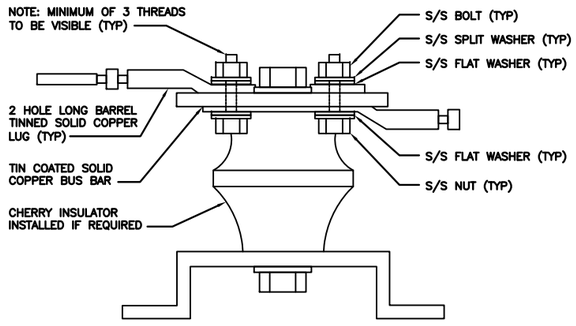
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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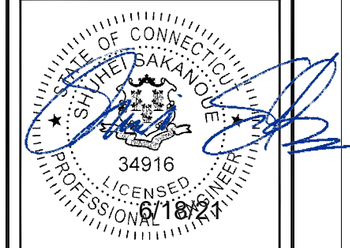

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WESTBROOK, CT 06498

SHEET TITLE
GROUNDING DETAILS

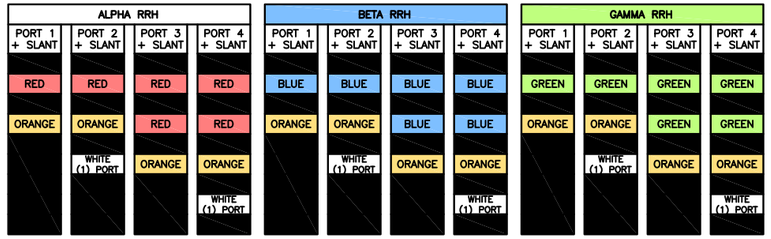
SHEET NUMBER
G-3

RF JUMPER COLOR CODING

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

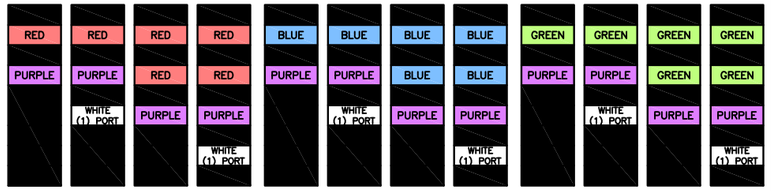
LOW-BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

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



MID-BAND RRH –
(AWS BANDS N66+N70)

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

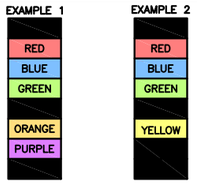


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED AM LONG WITH FREQUENCY BANDS

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

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

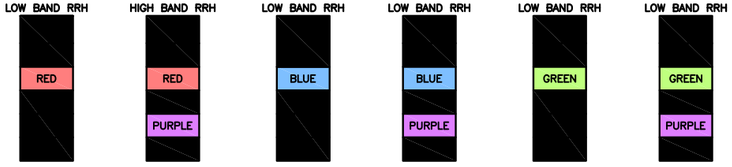


HYBRID/DISCREET CABLES

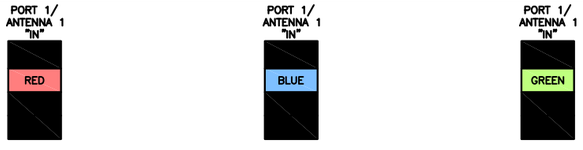
LOW-BAND RRH FIBER CABLES HAVE SECTOR STRIPE ONLY

POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY



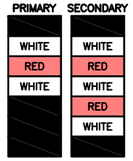
RET MOTORS AT ANTENNAS



MICROWAVE RADIO LINKS

LINKS WILL HAVE A 1.5-2 INCH WHITE WRAP WITH THE AZIMUTH COLOR OVERLAPPING IN THE MIDDLE. ADD ADDITIONAL SECTOR COLOR BANDS FOR EACH ADDITIONAL MW RADIO.

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



RF CABLE COLOR CODES | NO SCALE | 1

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

AWS
(N65+N70+H-BLOCK)
PURPLE

CBRS TECH
(3 GHz)
YELLOW

NEGATIVE SLANT PORT
ON ANTRRH
WHITE

ALPHA SECTOR
RED

BETA SECTOR
BLUE

GAMMA SECTOR
GREEN

COLOR IDENTIFIER | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

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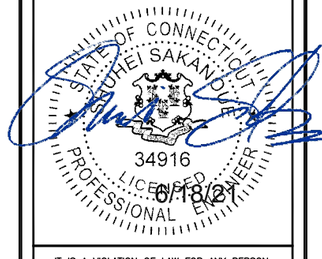

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RCD	SS	CJW

RFDS REV #: N/A

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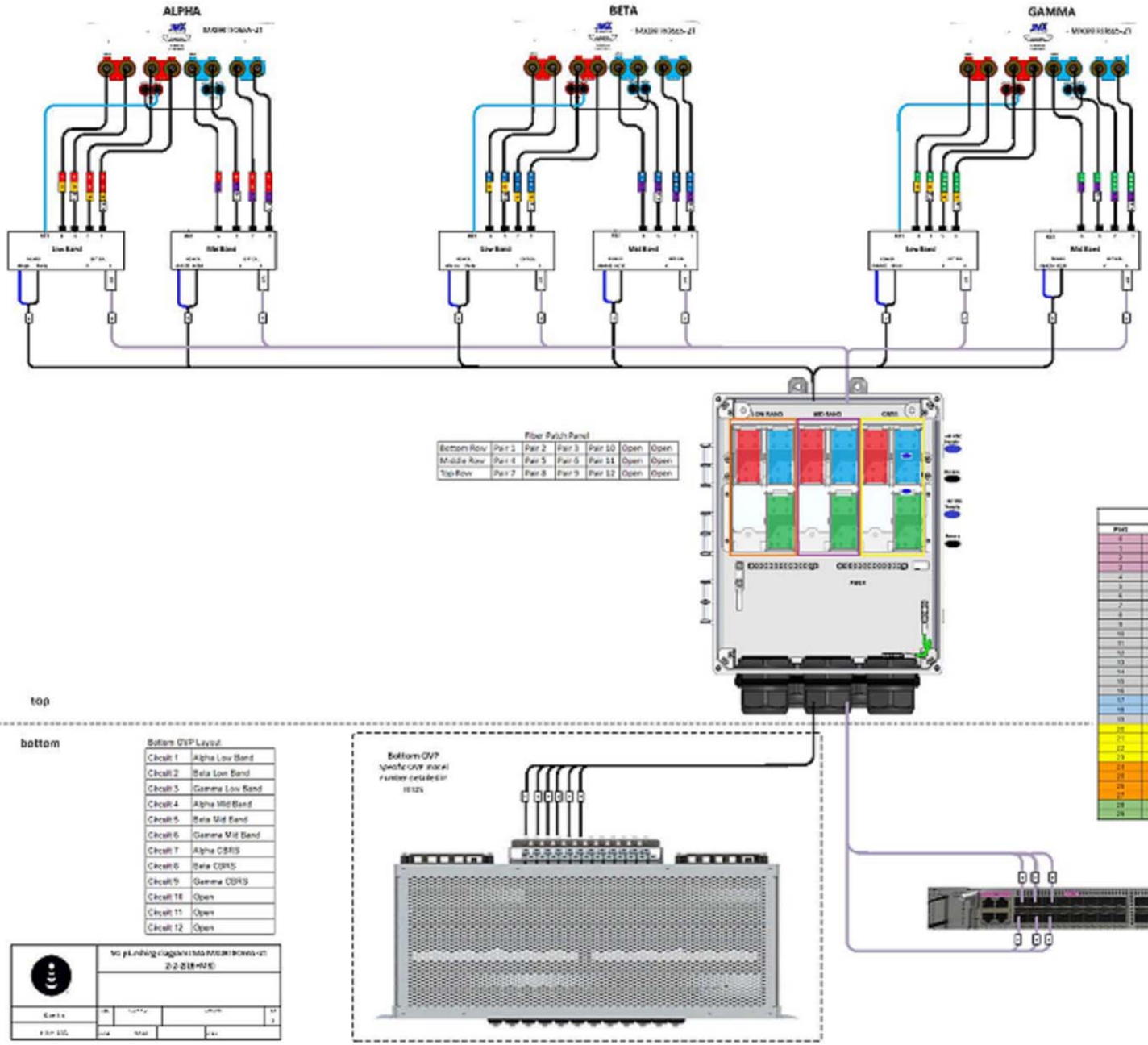
DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00097A
798 TOBY HILL ROAD
WESTBROOK, CT 06498

SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER
RF-1



PLUMBING DIAGRAM

NO SCALE

1

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WESTBROOK, CT 06498

SHEET TITLE

RF
PLUMBING DIAGRAM

SHEET NUMBER

RF-2

LEGEND

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE

FLUORESCENT LIGHTING FIXTURE
(2) TWO LAMPS 48–T8

SMOKE DETECTION (DC)

EMERGENCY LIGHTING (DC)

SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW
LED–1–25A400/51K–SR4–120–PE–DDBTXD

CHAIN LINK FENCE

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE

UNDERGROUND POWER

UNDERGROUND TELCO

OVERHEAD POWER

OVERHEAD TELCO

UNDERGROUND TELCO/POWER

ABOVE GROUND POWER

ABOVE GROUND TELCO

ABOVE GROUND TELCO/POWER

WORKPOINT

SECTION REFERENCE

DETAIL REFERENCE

ABBREVIATIONS

AB	ANCHOR BOLT
ABV	ABOVE
AC	ALTERNATING CURRENT
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AGL	ABOVE GROUND LEVEL
AIC	AMPERAGE INTERRUPTION CAPACITY
ALUM	ALUMINUM
ALT	ALTERNATE
ANT	ANTENNA
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BTC	BARE TINNED COPPER CONDUCTOR
BOF	BOTTOM OF FOOTING
CAB	CABINET
CANT	CANTILEVERED
CHG	CHARGING
CLG	CEILING
CLR	CLEAR
COL	COLUMN
COMM	COMMON
CONC	CONCRETE
CONSTR	CONSTRUCTION
DBL	DOUBLE
DC	DIRECT CURRENT
DEPT	DEPARTMENT
DF	DOUGLAS FIR
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DWG	DRAWING
DWL	DOWEL
EA	EACH
EC	ELECTRICAL CONDUCTOR
EL.	ELEVATION
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
ENG	ENGINEER
EQ	EQUAL
EXP	EXPANSION
EXT	EXTERIOR
EW	EACH WAY
FAB	FABRICATION
FF	FINISH FLOOR
FG	FINISH GRADE
FIF	FACILITY INTERFACE FRAME
FIN	FINISH(ED)
FLR	FLOOR
FDN	FOUNDATION
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FOW	FACE OF WALL
FS	FINISH SURFACE
FT	FOOT
FTG	FOOTING
GA	GAUGE
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GLB	GLUE LAMINATED BEAM
GLV	GALVANIZED
GPS	GLOBAL POSITIONING SYSTEM
GND	GROUND
GSM	GLOBAL SYSTEM FOR MOBILE
HDG	HOT DIPPED GALVANIZED
HDR	HEADER
HGR	HANGER
HVAC	HEAT/VENTILATION/AIR CONDITIONING
HT	HEIGHT
IGR	INTERIOR GROUND RING
IN	INCH
INT	INTERIOR
LB(S)	POUND(S)
LF	LINEAR FEET
LTE	LONG TERM EVOLUTION
MAS	MASONRY
MAX	MAXIMUM
MB	MACHINE BOLT
MECH	MECHANICAL
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
MTS	MANUAL TRANSFER SWITCH
MW	MICROWAVE
NEC	NATIONAL ELECTRIC CODE
NM	NEWTON METERS
NO.	NUMBER
#	NUMBER
NTS	NOT TO SCALE
OC	ON–CENTER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OPNG	OPENING
P/C	PRECAST CONCRETE
PCS	PERSONAL COMMUNICATION SERVICES
PCU	PRIMARY CONTROL UNIT
PRC	PRIMARY RADIO CABINET
PP	POLARIZING PRESERVING
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
PWR	POWER CABINET
QTY	QUANTITY
RAD	RADIUS
RECT	RECTIFIER
REF	REFERENCE
REINF	REINFORCEMENT
REQ'D	REQUIRED
RET	REMOTE ELECTRIC TILT
RF	RADIO FREQUENCY
RMC	RIGID METALLIC CONDUIT
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
RWY	RACEWAY
SCH	SCHEDULE
SHT	SHEET
SIAD	SMART INTEGRATED ACCESS DEVICE
SIM	SIMILAR
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
TEMP	TEMPORARY
THK	THICKNESS
TMA	TOWER MOUNTED AMPLIFIER
TN	TOE NAIL
TOA	TOP OF ANTENNA
TOC	TOP OF CURB
TOF	TOP OF FOUNDATION
TOP	TOP OF PLATE (PARAPET)
TOS	TOP OF STEEL
TOW	TOP OF WALL
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
UPS	UNITERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
VIF	VERIFIED IN FIELD
W	WIDE
W/	WITH
WD	WOOD
WP	WEATHERPROOF
WT	WEIGHT

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PROJECT INFORMATION
BOBDL00097A
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WESTBROOK, CT 06498

SHEET TITLE
LEGEND AND ABBREVIATIONS

SHEET NUMBER
GN-1

SITE ACTIVITY REQUIREMENTS:

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

2. "LOOK UP" – DISH WIRELESS, LLC. AND TOWER OWNER SAFETY CLIMB REQUIREMENT:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GENERAL NOTES:

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

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH WIRELESS, LLC.

TOWER OWNER:TOWER OWNER

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

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

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

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

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

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

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

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

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

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

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

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

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

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LICENSED PROFESSIONAL ENGINEER
6/18/21

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
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0	06/17/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

2039–Z5555C

DISH WIRELESS, LLC.
PROJECT INFORMATION

BOBDL00097A
798 TOBY HILL ROAD
WESTBROOK, CT 06498

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

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

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

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

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

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

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

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

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

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

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

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

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

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

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

8. TIE WRAPS ARE NOT ALLOWED.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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34916
LICENSED PROFESSIONAL ENGINEER
6/18/21

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	04/19/2021	ISSUED FOR REVIEW
0	06/17/2021	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBDL00097A
798 TOBY HILL ROAD
WESTBROOK, CT 06498

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-3

GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.

4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.

7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.

8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.

11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.

13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.

14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.

15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.

17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.

19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).

21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.

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DISH WIRELESS, LLC.
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SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-4

Exhibit D

Structural Analysis Report

Date: **April 13, 2021**

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***DISH Network* Co-Locate**	
	Site Number:	BOBDL00097A
	Site Name:	CT-CCI-T-876384
Crown Castle Designation:	**BU Number:**	876384
	Site Name:	WESTBROOK / ORSINA
	JDE Job Number:	645196
	Work Order Number:	1945903
	Order Number:	553294 Rev. 0
Engineering Firm Designation:	**Crown Castle Project Number:**	1945903
Site Data:	**798 Toby Hill Road, WESTBROOK, Middlesex County, CT**	
	Latitude *41° 19' 12.6"*, Longitude *-72° 26' 30"*	
	150 Foot - Monopole Tower	

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

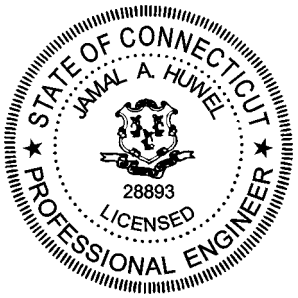
The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 135 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Brad Sparks

Respectfully submitted by:



Jamal A. Huwel, P.E.
Director Engineering

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1) INTRODUCTION

This tower is a 150 ft Monopole tower designed by Engineered Endeavors, Inc. The tower has been modified multiple times in the past to accommodate additional loading.

2) ANALYSIS CRITERIA

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

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
120.0	120.0	3	fujitsu	TA08025-B604	1	1-1/2
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-20 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-K6MHDX-9-96 (3)		

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)
150.0	152.0	3	ericsson	AIR6449 B41_T-MOBILE	4	1-5/8
		3	ericsson	RADIO 4415 B66A		
		3	ericsson	RADIO 4424 B25_TMO		
		3	ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		3	rfs celwave_cfd	APX16DWV-16DWV-S-E-A20		
		3	rfs celwave_cfd	APXVAALL24_43-U-NA20_TMO		
	150.0	1	tower mounts	Platform Mount [LP 301-1]		
140.0	140.0	6	commscope_cfd	JAHH-65B-R3B w/ Mount Pipe	6 2	1-5/8 1-1/4
		2	decibel_cfd	DB846F65ZAXY w/ Mount Pipe		
		4	decibel_cfd	DB846H80E-SX w/ Mount Pipe		
		2	raycap	RVZDC-6627-PF-48		
		3	rfs celwave	FDJ85020Q7-S1		
		3	samsung telecommunications	RFV01U-D1A		
		3	samsung telecommunications	RFV01U-D2A		
		1	tower mounts	Platform Mount [LP 304-1]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
130.0	130.0	3	cci antennas_cfd	DMP65R-BU6D w/ Mount Pipe	6 2 2 2	1-5/8 7/8 7/16 3/8
		3	cci antennas_cfd	OPA65R-BU6D w/ Mount Pipe		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 4478 B14		
		3	ericsson	RRUS 8843 B2/B66A		
		3	powerwave technologies	1001940		
		3	powerwave technologies	7770.00 w/ Mount Pipe		
		1	raycap	DC6-48-60-18-8F		
		1	raycap	DC6-48-60-18-8F		
		1	tower mounts	Platform Mount [LP 304-1]		
		1	tower mounts	Side Arm Mount [SO 102-3]		
		1	tower mounts	Side Arm Mount [SO 701-3]		
80.0	81.0	1	lucent	KS24019-L112A	1	1/2
	80.0	1	tower mounts	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	1615342	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1615435	CCISITES
4-TOWER MANUFACTURER DRAWINGS	1615370	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	2154747	CCISITES
4-POST-MODIFICATION INSPECTION	5840467	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	5650397	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.7.5), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

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

3.2) Assumptions

1) Tower and structures were maintained in accordance with theTIA-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
150 - 145	Pole	TP14.12x13x0.1875	Pole	20.0%	Pass
145 - 140	Pole	TP15.241x14.12x0.1875	Pole	31.9%	Pass
140 - 136.29	Pole	TP16.65x15.241x0.1875	Pole	45.4%	Pass
136.29 - 131.29	Pole	TP16.804x15.696x0.3125	Pole	38.3%	Pass
131.29 - 126.29	Pole	TP17.912x16.804x0.3125	Pole	49.7%	Pass
126.29 - 121.29	Pole	TP19.02x17.912x0.3125	Pole	59.2%	Pass
121.29 - 116.29	Pole	TP20.128x19.02x0.3125	Pole	68.3%	Pass
116.29 - 111.29	Pole	TP21.236x20.128x0.3125	Pole	75.7%	Pass
111.29 - 108.25	Pole	TP21.911x21.236x0.3125	Pole	79.3%	Pass
108.25 - 108	Pole + Reinf.	TP21.966x21.911x0.6375	Reinf. 9 Tension Rupture	65.2%	Pass
108 - 103	Pole + Reinf.	TP23.074x21.966x0.6125	Reinf. 9 Tension Rupture	71.0%	Pass
103 - 98	Pole + Reinf.	TP24.182x23.074x0.6	Reinf. 9 Tension Rupture	76.2%	Pass
98 - 93	Pole + Reinf.	TP25.29x24.182x0.5875	Reinf. 9 Tension Rupture	80.6%	Pass
93 - 91.92	Pole + Reinf.	TP26.38x25.29x0.5875	Reinf. 9 Tension Rupture	81.5%	Pass
91.92 - 86.92	Pole + Reinf.	TP26.012x24.906x0.6375	Reinf. 9 Tension Rupture	79.9%	Pass
86.92 - 85.17	Pole + Reinf.	TP26.399x26.012x0.6375	Reinf. 9 Tension Rupture	80.9%	Pass
85.17 - 84.92	Pole + Reinf.	TP26.454x26.399x0.6375	Reinf. 5 Tension Rupture	81.0%	Pass
84.92 - 79.92	Pole + Reinf.	TP27.561x26.454x0.625	Reinf. 5 Tension Rupture	83.7%	Pass
79.92 - 77	Pole + Reinf.	TP28.206x27.561x0.6125	Reinf. 5 Tension Rupture	85.0%	Pass
77 - 76.75	Pole + Reinf.	TP28.262x28.206x0.5375	Reinf. 5 Tension Rupture	86.8%	Pass
76.75 - 75	Pole + Reinf.	TP28.649x28.262x0.5313	Reinf. 5 Tension Rupture	87.6%	Pass
75 - 74.75	Pole + Reinf.	TP28.704x28.649x0.6125	Reinf. 5 Tension Rupture	86.0%	Pass
74.75 - 69.75	Pole + Reinf.	TP29.811x28.704x0.6	Reinf. 5 Tension Rupture	87.9%	Pass
69.75 - 65.08	Pole + Reinf.	TP30.843x29.811x0.5875	Reinf. 5 Tension Rupture	89.4%	Pass
65.08 - 64.83	Pole + Reinf.	TP30.899x30.843x0.5875	Reinf. 3 Tension Rupture	89.5%	Pass
64.83 - 59.83	Pole + Reinf.	TP32.005x30.899x0.5875	Reinf. 3 Tension Rupture	90.8%	Pass
59.83 - 54.83	Pole + Reinf.	TP33.111x32.005x0.575	Reinf. 3 Tension Rupture	92.0%	Pass
54.83 - 49.83	Pole + Reinf.	TP34.218x33.111x0.5625	Reinf. 3 Tension Rupture	93.0%	Pass
49.83 - 48.5	Pole + Reinf.	TP35.62x34.218x0.5625	Reinf. 3 Tension Rupture	93.2%	Pass
48.5 - 42.5	Pole + Reinf.	TP35.092x33.764x0.5625	Reinf. 3 Tension Rupture	97.6%	Pass
42.5 - 37.5	Pole + Reinf.	TP36.199x35.092x0.55	Reinf. 3 Tension Rupture	98.2%	Pass
37.5 - 33	Pole + Reinf.	TP37.194x36.199x0.55	Reinf. 3 Tension Rupture	98.6%	Pass
33 - 32.75	Pole + Reinf.	TP37.25x37.194x0.6625	Reinf. 4 Tension Rupture	84.4%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
32.75 - 32	Pole + Reinf.	TP37.416x37.25x0.6625	Reinf. 4 Tension Rupture	84.5%	Pass
32 - 31.75	Pole + Reinf.	TP37.471x37.416x0.5875	Reinf. 4 Tension Rupture	86.9%	Pass
31.75 - 30	Pole + Reinf.	TP37.858x37.471x0.5875	Reinf. 4 Tension Rupture	87.1%	Pass
30 - 29.75	Pole + Reinf.	TP37.914x37.858x0.5875	Reinf. 2 Tension Rupture	87.1%	Pass
29.75 - 24.75	Pole + Reinf.	TP39.021x37.914x0.575	Reinf. 2 Tension Rupture	87.5%	Pass
24.75 - 19.75	Pole + Reinf.	TP40.128x39.021x0.5688	Reinf. 2 Tension Rupture	87.7%	Pass
19.75 - 14.75	Pole + Reinf.	TP41.235x40.128x0.5625	Reinf. 2 Tension Rupture	87.9%	Pass
14.75 - 9.75	Pole + Reinf.	TP42.341x41.235x0.5625	Reinf. 2 Tension Rupture	88.1%	Pass
9.75 - 4.75	Pole + Reinf.	TP43.448x42.341x0.55	Reinf. 2 Tension Rupture	88.1%	Pass
4.75 - 0	Pole + Reinf.	TP44.5x43.448x0.55	Reinf. 2 Tension Rupture	88.2%	Pass
				Summary	
			Pole	79.3%	Pass
			Reinforcement	98.6%	Pass
			Overall	98.6%	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	91.3	Pass
1	Base Plate	0	83.8	Pass
1	Base Foundation Structure	0	93.8	Pass
1	Base Foundation Soil Interaction	0	65.7	Pass

Structure Rating (max from all components) =	**98.6%**

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

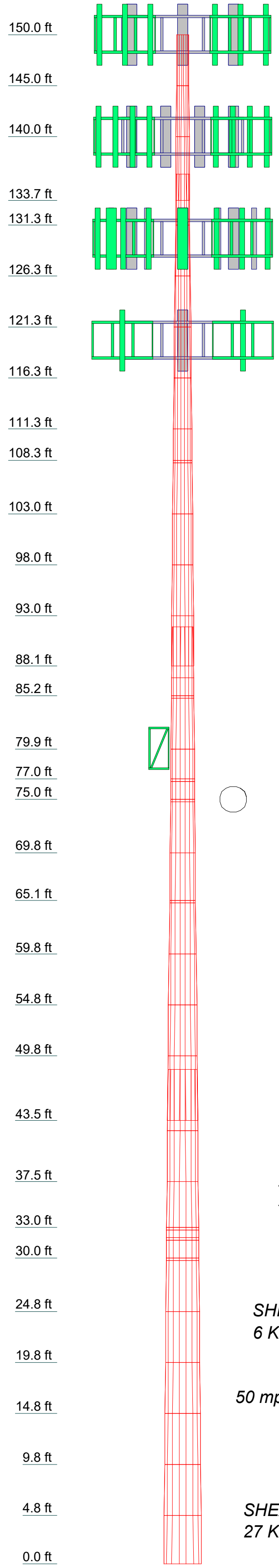
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	18	0.188		13.000	14.120	A572-65	0.1
2	5.00	18	0.188		14.120	15.241		0.1
3	6.29	18	0.188	2.58	15.241	16.650		0.2
4	5.00	18	0.313		15.696	16.804		0.3
5	5.00	18	0.313		16.804	17.912		0.3
6	5.00	18	0.313		17.912	19.020		0.3
7	5.00	18	0.313		19.020	20.128		0.3
8	5.00	18	0.313		20.128	21.236		0.3
9	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
10	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
11	5.00	18	[illegible]		[illegible]	23.074		0.7
12	5.00	18	0.600		23.074	24.182		0.7
13	5.00	18	0.588		24.182	25.290		0.7
14	[illegible]	18	0.588	3.83	25.290	26.380		0.7
15	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
16	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
17	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
18	5.00	18	[illegible]		[illegible]	[illegible]		0.8
19	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
20	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
21	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
22	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
23	5.00	18	0.600		[illegible]	[illegible]		0.9
24	[illegible]	18	0.588		[illegible]	[illegible]		0.8
25	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
26	5.00	18	[illegible]		[illegible]	32.005		0.9
27	5.00	18	0.575		32.005	33.111		1.0
28	5.00	18	0.563		33.111	34.218		1.0
29	[illegible]	18	0.563	5.00	34.218	35.620		1.3
30	[illegible]	18	0.563		[illegible]	[illegible]		1.2
31	5.00	18	0.550		35.092	36.199		1.0
32	4.50	18	0.550		36.199	37.194		0.9
33	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
34	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
35	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
36	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
37	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
38	5.00	18	[illegible]		[illegible]	39.021		1.2
39	5.00	18	0.569		39.021	40.128		1.2
40	5.00	18	0.563		40.128	41.235		1.2
41	5.00	18	0.563		41.235	42.341		1.2
42	5.00	18	0.550		42.341	43.448		1.3
43	4.75	18	0.550		43.448	44.500		1.2
								25.0



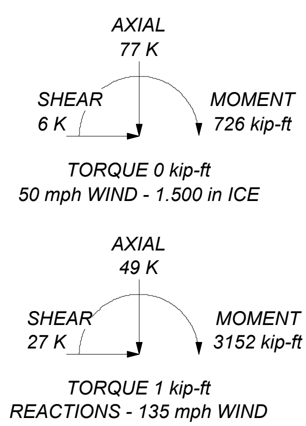
MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 135 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER CAPACITY: 98.6%

ALL REACTIONS ARE FACTORED



Crown Castle	Job: 876384		
2000 Corporate Drive	Project:		
Canonsburg, PA 15317	Client: Crown Castle	Drawn by: BSparks	App'd:
Phone: (724) 416-2000	Code: TIA-222-H	Date: 04/13/21	Scale: NTS
FAX:	Path: C:\Users\bsparks\OneDrive - Crown Castle USA Inc\Desktop\Work Area\876384\WO 1945903 - SA\Prod\876384_R.eri		Dwg No. E-1

The Pathway to Possible

Tower Input Data

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

1) Tower is located in Middlesex County, Connecticut.
2) Tower base elevation above sea level: 160.00 ft.
3) Basic wind speed of 135 mph.
4) Risk Category II.
5) Exposure Category B.
6) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
7) Topographic Category: 1.
8) Crest Height: 0.00 ft.
9) Nominal ice thickness of 1.500 in.
10) Ice thickness is considered to increase with height.
11) Ice density of 56 pcf.
12) A wind speed of 50 mph is used in combination with ice.
13) Temperature drop of 50 °F.
14) Deflections calculated using a wind speed of 60 mph.
15) TOWER CAPACITY: 98.6%.
16) A non-linear (P-delta) analysis was used.
17) Pressures are calculated at each section.
18) Stress ratio used in pole design is 1.05.
19) Tower analysis based on target reliabilities in accordance with Annex S.
20) Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
21) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	150.00-145.00	5.00	0.000	18	13.000	14.120	0.188	0.750	A572-65 (65 ksi)
L2	145.00-140.00	5.00	0.000	18	14.120	15.241	0.188	0.750	A572-65 (65 ksi)
L3	140.00-133.71	6.29	2.583	18	15.241	16.650	0.188	0.750	A572-65 (65 ksi)
L4	133.71-131.29	5.00	0.000	18	15.696	16.804	0.313	1.250	A572-65 (65 ksi)
L5	131.29-126.29	5.00	0.000	18	16.804	17.912	0.313	1.250	A572-65 (65 ksi)
L6	126.29-121.29	5.00	0.000	18	17.912	19.020	0.313	1.250	A572-65 (65 ksi)
L7	121.29-116.29	5.00	0.000	18	19.020	20.128	0.313	1.250	A572-65 (65 ksi)
L8	116.29-111.29	5.00	0.000	18	20.128	21.236	0.313	1.250	A572-65 (65 ksi)
L9	111.29-108.25	3.04	0.000	18	21.236	21.911	0.313	1.250	A572-65 (65 ksi)
L10	108.25-108.00	0.25	0.000	18	21.911	21.966	0.637	2.550	A572-65 (65 ksi)
L11	108.00-103.00	5.00	0.000	18	21.966	23.074	0.613	2.450	A572-65 (65 ksi)
L12	103.00-98.00	5.00	0.000	18	23.074	24.182	0.600	2.400	A572-65 (65 ksi)
L13	98.00-93.00	5.00	0.000	18	24.182	25.290	0.588	2.350	A572-65 (65 ksi)
L14	93.00-88.08	4.92	3.833	18	25.290	26.380	0.588	2.350	A572-65 (65 ksi)
L15	88.08-86.92	5.00	0.000	18	24.906	26.012	0.637	2.550	A572-65 (65 ksi)
L16	86.92-85.17	1.75	0.000	18	26.012	26.399	0.637	2.550	A572-65 (65 ksi)
L17	85.17-84.92	0.25	0.000	18	26.399	26.454	0.637	2.550	A572-65 (65 ksi)
L18	84.92-79.92	5.00	0.000	18	26.454	27.561	0.625	2.500	A572-65 (65 ksi)
L19	79.92-77.00	2.92	0.000	18	27.561	28.206	0.613	2.450	A572-65 (65 ksi)
L20	77.00-76.75	0.25	0.000	18	28.206	28.262	0.537	2.150	A572-65 (65 ksi)
L21	76.75-75.00	1.75	0.000	18	28.262	28.649	0.531	2.125	A572-65 (65 ksi)
L22	75.00-74.75	0.25	0.000	18	28.649	28.704	0.613	2.450	A572-65 (65 ksi)
L23	74.75-69.75	5.00	0.000	18	28.704	29.811	0.600	2.400	A572-65 (65 ksi)
L24	69.75-65.08	4.67	0.000	18	29.811	30.843	0.588	2.350	A572-65 (65 ksi)
L25	65.08-64.83	0.25	0.000	18	30.843	30.899	0.588	2.350	A572-65 (65 ksi)
L26	64.83-59.83	5.00	0.000	18	30.899	32.005	0.588	2.350	A572-65 (65 ksi)
L27	59.83-54.83	5.00	0.000	18	32.005	33.111	0.575	2.300	A572-65 (65 ksi)
L28	54.83-49.83	5.00	0.000	18	33.111	34.218	0.563	2.250	A572-65 (65 ksi)
L29	49.83-43.50	6.34	5.000	18	34.218	35.620	0.563	2.250	A572-65 (65 ksi)
L30	43.50-42.50	6.00	0.000	18	33.764	35.092	0.563	2.250	A572-65 (65 ksi)
L31	42.50-37.50	5.00	0.000	18	35.092	36.199	0.550	2.200	A572-65 (65 ksi)
L32	37.50-33.00	4.50	0.000	18	36.199	37.194	0.550	2.200	A572-65 (65 ksi)
L33	33.00-32.75	0.25	0.000	18	37.194	37.250	0.662	2.650	A572-65 (65 ksi)
L34	32.75-32.00	0.75	0.000	18	37.250	37.416	0.662	2.650	A572-65 (65 ksi)
L35	32.00-31.75	0.25	0.000	18	37.416	37.471	0.588	2.350	A572-65

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L36	31.75-30.00	1.75	0.000	18	37.471	37.858	0.588	2.350	(65 ksi) A572-65 (65 ksi)
L37	30.00-29.75	0.25	0.000	18	37.858	37.914	0.588	2.350	A572-65 (65 ksi)
L38	29.75-24.75	5.00	0.000	18	37.914	39.021	0.575	2.300	A572-65 (65 ksi)
L39	24.75-19.75	5.00	0.000	18	39.021	40.128	0.569	2.275	A572-65 (65 ksi)
L40	19.75-14.75	5.00	0.000	18	40.128	41.235	0.563	2.250	A572-65 (65 ksi)
L41	14.75-9.75	5.00	0.000	18	41.235	42.341	0.563	2.250	A572-65 (65 ksi)
L42	9.75-4.75	5.00	0.000	18	42.341	43.448	0.550	2.200	A572-65 (65 ksi)
L43	4.75-0.00	4.75		18	43.448	44.500	0.550	2.200	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	13.172	7.625	158.142	4.548	6.604	23.946	316.492	3.813	1.958	10.443
	14.309	8.292	203.359	4.946	7.173	28.350	406.985	4.147	2.155	11.494
L2	14.309	8.292	203.359	4.946	7.173	28.350	406.985	4.147	2.155	11.494
	15.447	8.958	256.464	5.344	7.742	33.125	513.266	4.480	2.352	12.546
L3	15.447	8.958	256.464	5.344	7.742	33.125	513.266	4.480	2.352	12.546
	16.878	9.797	335.454	5.844	8.458	39.660	671.349	4.900	2.600	13.869
L4	16.471	15.259	456.220	5.461	7.974	57.216	913.041	7.631	2.213	7.08
	17.015	16.358	562.073	5.855	8.537	65.843	1124.886	8.180	2.408	7.704
L5	17.015	16.358	562.073	5.855	8.537	65.843	1124.886	8.180	2.408	7.704
	18.140	17.457	683.150	6.248	9.099	75.076	1367.198	8.730	2.603	8.328
L6	18.140	17.457	683.150	6.248	9.099	75.076	1367.198	8.730	2.603	8.328
	19.266	18.556	820.473	6.641	9.662	84.915	1642.026	9.280	2.798	8.952
L7	19.266	18.556	820.473	6.641	9.662	84.915	1642.026	9.280	2.798	8.952
	20.391	19.655	975.067	7.035	10.225	95.359	1951.417	9.829	2.993	9.576
L8	20.391	19.655	975.067	7.035	10.225	95.359	1951.417	9.829	2.993	9.576
	21.516	20.754	1147.953	7.428	10.788	106.409	2297.417	10.379	3.188	10.2
L9	21.516	20.754	1147.953	7.428	10.788	106.409	2297.417	10.379	3.188	10.2
	22.201	21.423	1262.573	7.667	11.131	113.431	2526.807	10.713	3.306	10.58
L10	22.151	43.045	2461.119	7.552	11.131	221.111	4925.475	21.527	2.734	4.289
	22.207	43.157	2480.397	7.572	11.159	222.281	4964.058	21.583	2.744	4.304
L11	22.211	41.513	2391.517	7.581	11.159	214.316	4786.180	20.761	2.788	4.552
	23.336	43.667	2783.458	7.974	11.722	237.461	5570.578	21.838	2.983	4.87
L12	23.338	42.800	2731.207	7.978	11.722	233.003	5466.008	21.404	3.005	5.008
	24.463	44.910	3155.421	8.372	12.285	256.859	6314.995	22.459	3.200	5.333
L13	24.465	43.998	3094.599	8.376	12.285	251.908	6193.270	22.003	3.222	5.484
	25.590	46.064	3551.375	8.770	12.848	276.425	7107.424	23.036	3.417	5.816
L14	25.590	46.064	3551.375	8.770	12.848	276.425	7107.424	23.036	3.417	5.816
	26.696	48.096	4042.337	9.156	13.401	301.644	8089.994	24.053	3.609	6.143
L15	26.053	49.104	3653.647	8.615	12.652	288.780	7312.102	24.557	3.261	5.116
	26.315	51.343	4176.502	9.008	13.214	316.065	8358.499	25.676	3.456	5.421
L16	26.315	51.343	4176.502	9.008	13.214	316.065	8358.499	25.676	3.456	5.421
	26.708	52.127	4370.605	9.145	13.411	325.904	8746.961	26.068	3.524	5.528
L17	26.708	52.127	4370.605	9.145	13.411	325.904	8746.961	26.068	3.524	5.528
	26.764	52.239	4398.822	9.165	13.439	327.322	8803.432	26.124	3.534	5.543
L18	26.766	51.239	4318.838	9.169	13.439	321.370	8643.358	25.624	3.556	5.69
	27.890	53.434	4897.948	9.562	14.001	349.831	9802.341	26.722	3.751	6.001
L19	27.891	52.390	4806.675	9.567	14.001	343.312	9619.674	26.200	3.773	6.16
	28.547	53.644	5160.411	9.796	14.329	360.143	10327.611	26.827	3.886	6.345
L20	28.558	47.204	4565.550	9.822	14.329	318.628	9137.107	23.606	4.018	7.476
	28.615	47.298	4592.989	9.842	14.357	319.915	9192.022	23.654	4.028	7.494
L21	28.616	46.759	4542.653	9.844	14.357	316.409	9091.284	23.384	4.039	7.603
	29.009	47.412	4735.633	9.982	14.554	325.392	9477.497	23.710	4.107	7.731
L22	28.996	54.505	5412.711	9.953	14.554	371.915	10832.544	27.258	3.964	6.472

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
	29.052	54.612	5444.815	9.973	14.582	373.400	10896.795	27.311	3.974	6.488
L23	29.054	53.522	5340.820	9.977	14.582	366.268	10688.667	26.766	3.996	6.66
	30.178	55.629	5996.754	10.370	15.144	395.988	12001.400	27.820	4.191	6.984
L24	30.180	54.493	5879.363	10.374	15.144	388.236	11766.463	27.252	4.213	7.17
	31.228	56.419	6524.970	10.741	15.668	416.441	13058.525	28.215	4.394	7.48
L25	31.228	56.419	6524.970	10.741	15.668	416.441	13058.525	28.215	4.394	7.48
	31.285	56.522	6560.826	10.760	15.697	417.980	13130.286	28.266	4.404	7.496
L26	31.285	56.522	6560.826	10.760	15.697	417.980	13130.286	28.266	4.404	7.496
	32.408	58.585	7305.817	11.153	16.259	449.352	14621.248	29.298	4.599	7.828
L27	32.410	57.361	7158.912	11.158	16.259	440.316	14327.245	28.686	4.621	8.036
	33.534	59.381	7941.871	11.550	16.821	472.151	15894.193	29.696	4.816	8.375
L28	33.535	58.112	7778.180	11.555	16.821	462.419	15566.594	29.062	4.838	8.6
	34.659	60.087	8598.641	11.948	17.383	494.667	17208.597	30.049	5.032	8.946
L29	34.659	60.087	8598.641	11.948	17.383	494.667	17208.597	30.049	5.032	8.946
	36.083	62.591	9718.735	12.445	18.095	537.096	19450.258	31.301	5.279	9.385
L30	35.322	59.276	8255.128	11.786	17.152	481.295	16521.119	29.644	4.952	8.804
	35.546	61.648	9286.111	12.258	17.827	520.911	18584.441	30.830	5.186	9.22
L31	35.548	60.300	9089.617	12.262	17.827	509.888	18191.195	30.156	5.208	9.469
	36.672	62.232	9991.773	12.655	18.389	543.356	19996.694	31.122	5.403	9.824
L32	36.672	62.232	9991.773	12.655	18.389	543.356	19996.694	31.122	5.403	9.824
	37.683	63.970	10852.414	13.009	18.895	574.363	21719.108	31.991	5.578	10.142
L33	37.666	76.818	12952.198	12.969	18.895	685.494	25921.439	38.416	5.380	8.121
	37.722	76.935	13011.155	12.988	18.923	687.591	26039.431	38.475	5.390	8.136
L34	37.722	76.935	13011.155	12.988	18.923	687.591	26039.431	38.475	5.390	8.136
	37.891	77.284	13189.101	13.047	19.007	693.901	26395.556	38.649	5.419	8.18
L35	37.902	68.674	11767.743	13.074	19.007	619.121	23550.971	34.344	5.551	9.449
	37.958	68.778	11820.878	13.094	19.035	620.998	23657.309	34.395	5.561	9.465
L36	37.958	68.778	11820.878	13.094	19.035	620.998	23657.309	34.395	5.561	9.465
	38.352	69.500	12197.302	13.231	19.232	634.216	24410.654	34.757	5.629	9.581
L37	38.352	69.500	12197.302	13.231	19.232	634.216	24410.654	34.757	5.629	9.581
	38.408	69.603	12251.721	13.251	19.260	636.116	24519.563	34.808	5.639	9.598
L38	38.410	68.145	12003.097	13.255	19.260	623.207	24021.988	34.079	5.661	9.845
	39.534	70.165	13102.567	13.648	19.823	660.994	26222.374	35.089	5.856	10.184
L39	39.535	69.414	12966.469	13.650	19.823	654.128	25950.000	34.714	5.867	10.315
	40.659	71.412	14118.819	14.043	20.385	692.613	28256.216	35.713	6.061	10.658
L40	40.660	70.639	13970.287	14.046	20.385	685.327	27958.956	35.326	6.072	10.795
	41.784	72.615	15175.948	14.439	20.947	724.487	30371.866	36.314	6.267	11.142
L41	41.784	72.615	15175.948	14.439	20.947	724.487	30371.866	36.314	6.267	11.142
	42.908	74.591	16449.055	14.832	21.509	764.735	32919.754	37.303	6.462	11.488
L42	42.910	72.955	16097.961	14.836	21.509	748.412	32217.104	36.485	6.484	11.789
	44.034	74.888	17411.293	15.229	22.072	788.848	34845.495	37.451	6.679	12.143
L43	44.034	74.888	17411.293	15.229	22.072	788.848	34845.495	37.451	6.679	12.143
	45.102	76.724	18723.356	15.602	22.606	828.247	37471.349	38.369	6.864	12.48

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 150.00-145.00				1	1	1			
L2 145.00-140.00				1	1	1			
L3 140.00-133.71				1	1	1			
L4 133.71-131.29				1	1	1			
L5 131.29-126.29				1	1	1			
L6 126.29-121.29				1	1	1			
L7 121.29-116.29				1	1	1			
L8 116.29-111.29				1	1	1			
L9 111.29-108.25				1	1	1			
L10 108.25-108.00				1	1	0.914761			

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
L11 108.00-103.00				1	1	0.92924			
L12 103.00-98.00				1	1	0.927997			
L13 98.00-93.00				1	1	0.92861			
L14 93.00-88.08				1	1	0.924792			
L15 88.08-86.92				1	1	0.944915			
L16 86.92-85.17				1	1	0.939555			
L17 85.17-84.92				1	1	0.938802			
L18 84.92-79.92				1	1	0.942446			
L19 79.92-77.00				1	1	0.95307			
L20 77.00-76.75				1	1	0.955483			
L21 76.75-75.00				1	1	0.962917			
L22 75.00-74.75				1	1	0.947029			
L23 74.75-69.75				1	1	0.9534			
L24 69.75-65.08				1	1	0.961835			
L25 65.08-64.83				1	1	0.961245			
L26 64.83-59.83				1	1	0.949872			
L27 59.83-54.83				1	1	0.959323			
L28 54.83-49.83				1	1	0.969955			
L29 49.83-43.50				1	1	0.967313			
L30 43.50-42.50				1	1	0.962278			
L31 42.50-37.50				1	1	0.974415			
L32 37.50-33.00				1	1	0.966467			
L33 33.00-32.75				1	1	0.960442			
L34 32.75-32.00				1	1	0.95866			
L35 32.00-31.75				1	1	0.990939			
L36 31.75-30.00				1	1	0.987273			
L37 30.00-29.75				1	1	0.986755			
L38 29.75-24.75				1	1	0.997628			
L39 24.75-19.75				1	1	0.998659			
L40 19.75-14.75				1	1	1.00026			
L41 14.75-9.75				1	1	0.991424			
L42 9.75-4.75				1	1	1.00509			
L43 4.75-0.00				1	1	0.997356			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
Misc										
Safety Line 3/8	A	No	Surface Ar (CaAa)	150.00 - 0.00	1	1	0.500 0.500	0.000		0.220
2" Rigid Conduit	B	No	Surface Ar (CaAa)	130.00 - 0.00	1	1	0.500 0.500	2.000		2.800
***										
CU12PSM9P6XXX(1-1/2)	B	No	Surface Ar (CaAa)	120.00 - 0.00	1	1	-0.210 -0.200	1.600		2.350
Mods										
CCI-65FP-060100	A	No	Surface Af (CaAa)	35.00 - 0.00	1	1	0.500 0.500	6.000	14.000	0.000
CCI-65FP-060100	A	No	Surface Af (CaAa)	35.00 - 0.00	1	1	-0.250 -0.250	6.000	14.000	0.000
CCI-65FP-060100	B	No	Surface Af (CaAa)	30.00 - 0.00	1	1	0.250 0.250	6.000	14.000	0.000
CCI-65FP-060100	C	No	Surface Af (CaAa)	30.00 - 0.00	1	1	0.000 0.000	6.000	14.000	0.000
***										
CCI-65FP-060100	A	No	Surface Af (CaAa)	65.08 - 35.00	1	1	0.500 0.500	6.000	14.000	0.000
CCI-65FP-060100	A	No	Surface Af (CaAa)	65.08 - 35.00	1	1	-0.250 -0.250	6.000	14.000	0.000
CCI-65FP-060100	B	No	Surface Af (CaAa)	65.08 - 30.00	1	1	0.250 0.250	6.000	14.000	0.000
***										
CCI-65FP-060100	A	No	Surface Af (CaAa)	85.17 - 65.08	1	1	0.500 0.500	6.000	14.000	0.000
CCI-65FP-060100	A	No	Surface Af (CaAa)	85.17 - 65.08	1	1	-0.250 -0.250	6.000	14.000	0.000
CCI-65FP-060100	B	No	Surface Af (CaAa)	85.17 - 65.08	1	1	0.250 0.250	6.000	14.000	0.000
***										
CCI-65FP-060100	A	No	Surface Af (CaAa)	110.25 - 85.17	1	1	0.500 0.500	6.000	14.000	0.000
CCI-65FP-060100	A	No	Surface Af (CaAa)	110.25 - 85.17	1	1	-0.250 -0.250	6.000	14.000	0.000
CCI-65FP-060100	B	No	Surface Af (CaAa)	110.25 - 85.17	1	1	0.250 0.250	6.000	14.000	0.000
***										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
150									
HB158-21U6S24-xxM_TMO(1-5/8)	A	No	No	Inside Pole	150.00 - 0.00	4	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	2.500 2.500 2.500 2.500
140									
LCF158-50JA-A7(1 5/8)	C	No	No	Inside Pole	140.00 - 0.00	6	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.720 0.720 0.720 0.720
HB114-U6S12-xxx-LI(1-1/4)	C	No	No	Inside Pole	140.00 - 0.00	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	1.700 1.700 1.700 1.700
130									
LDF7-50A(1-5/8")	B	No	No	Inside Pole	130.00 - 0.00	6	No Ice	0.00	0.820

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
							1/2" Ice	0.00	0.820
							1" Ice	0.00	0.820
							2" Ice	0.00	0.820
WR-VG66ST-BRD(7/8)	B	No	No	Inside Pole	130.00 - 0.00	2	No Ice	0.00	0.912
							1/2" Ice	0.00	0.912
							1" Ice	0.00	0.912
							2" Ice	0.00	0.912
FB-L98B-002-75000(3/8)	B	No	No	Inside Pole	130.00 - 0.00	1	No Ice	0.00	0.059
							1/2" Ice	0.00	0.059
							1" Ice	0.00	0.059
							2" Ice	0.00	0.059
FB-L98B-002-75000(3/8)	B	No	No	Inside Pole	130.00 - 0.00	1	No Ice	0.00	0.059
							1/2" Ice	0.00	0.059
							1" Ice	0.00	0.059
							2" Ice	0.00	0.059
WR-VG122ST-BRDA(7/16)	B	No	No	Inside Pole	130.00 - 0.00	2	No Ice	0.00	0.141
							1/2" Ice	0.00	0.141
							1" Ice	0.00	0.141
							2" Ice	0.00	0.141
80									
LDF4-50A(1/2)	A	No	No	Inside Pole	80.00 - 0.00	1	No Ice	0.00	0.150
							1/2" Ice	0.00	0.150
							1" Ice	0.00	0.150
							2" Ice	0.00	0.150
***									

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	150.00-145.00	A	0.000	0.000	0.000	0.000	0.05
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L2	145.00-140.00	A	0.000	0.000	0.000	0.000	0.05
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L3	140.00-133.71	A	0.000	0.000	0.000	0.000	0.06
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.05
L4	133.71-131.29	A	0.000	0.000	0.000	0.000	0.02
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L5	131.29-126.29	A	0.000	0.000	0.000	0.000	0.05
		B	0.000	0.000	0.741	0.000	0.04
		C	0.000	0.000	0.000	0.000	0.04
L6	126.29-121.29	A	0.000	0.000	0.000	0.000	0.05
		B	0.000	0.000	1.000	0.000	0.05
		C	0.000	0.000	0.000	0.000	0.04
L7	121.29-116.29	A	0.000	0.000	0.000	0.000	0.05
		B	0.000	0.000	1.593	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L8	116.29-111.29	A	0.000	0.000	0.000	0.000	0.05
		B	0.000	0.000	1.800	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L9	111.29-108.25	A	0.000	0.000	4.000	0.000	0.03
		B	0.000	0.000	3.096	0.000	0.04
		C	0.000	0.000	0.000	0.000	0.02
L10	108.25-108.00	A	0.000	0.000	0.500	0.000	0.00
		B	0.000	0.000	0.340	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L11	108.00-103.00	A	0.000	0.000	10.000	0.000	0.05

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	6.800	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L12	103.00-98.00	A	0.000	0.000	10.000	0.000	0.05
		B	0.000	0.000	6.800	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L13	98.00-93.00	A	0.000	0.000	10.000	0.000	0.05
		B	0.000	0.000	6.800	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L14	93.00-88.08	A	0.000	0.000	9.833	0.000	0.05
		B	0.000	0.000	6.687	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L15	88.08-86.92	A	0.000	0.000	2.333	0.000	0.01
		B	0.000	0.000	1.587	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.01
L16	86.92-85.17	A	0.000	0.000	3.499	0.000	0.02
		B	0.000	0.000	2.379	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.01
L17	85.17-84.92	A	0.000	0.000	0.500	0.000	0.00
		B	0.000	0.000	0.340	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L18	84.92-79.92	A	0.000	0.000	10.000	0.000	0.05
		B	0.000	0.000	6.800	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L19	79.92-77.00	A	0.000	0.000	5.834	0.000	0.03
		B	0.000	0.000	3.967	0.000	0.04
		C	0.000	0.000	0.000	0.000	0.02
L20	77.00-76.75	A	0.000	0.000	0.500	0.000	0.00
		B	0.000	0.000	0.340	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L21	76.75-75.00	A	0.000	0.000	3.500	0.000	0.02
		B	0.000	0.000	2.380	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.01
L22	75.00-74.75	A	0.000	0.000	0.500	0.000	0.00
		B	0.000	0.000	0.340	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L23	74.75-69.75	A	0.000	0.000	10.000	0.000	0.05
		B	0.000	0.000	6.800	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L24	69.75-65.08	A	0.000	0.000	9.334	0.000	0.05
		B	0.000	0.000	6.347	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L25	65.08-64.83	A	0.000	0.000	0.500	0.000	0.00
		B	0.000	0.000	0.340	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L26	64.83-59.83	A	0.000	0.000	10.000	0.000	0.05
		B	0.000	0.000	6.800	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L27	59.83-54.83	A	0.000	0.000	10.000	0.000	0.05
		B	0.000	0.000	6.800	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L28	54.83-49.83	A	0.000	0.000	10.000	0.000	0.05
		B	0.000	0.000	6.800	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L29	49.83-43.50	A	0.000	0.000	12.673	0.000	0.07
		B	0.000	0.000	8.618	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.05
L30	43.50-42.50	A	0.000	0.000	2.000	0.000	0.01
		B	0.000	0.000	1.360	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.01
L31	42.50-37.50	A	0.000	0.000	10.000	0.000	0.05
		B	0.000	0.000	6.800	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.04
L32	37.50-33.00	A	0.000	0.000	8.993	0.000	0.05
		B	0.000	0.000	6.115	0.000	0.06
		C	0.000	0.000	0.000	0.000	0.03
L33	33.00-32.75	A	0.000	0.000	0.500	0.000	0.00
		B	0.000	0.000	0.340	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L34	32.75-32.00	A	0.000	0.000	1.500	0.000	0.01

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	1.020	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.01
L35	32.00-31.75	A	0.000	0.000	0.500	0.000	0.00
		B	0.000	0.000	0.340	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L36	31.75-30.00	A	0.000	0.000	3.500	0.000	0.02
		B	0.000	0.000	2.380	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.01
L37	30.00-29.75	A	0.000	0.000	0.500	0.000	0.00
		B	0.000	0.000	0.340	0.000	0.00
		C	0.000	0.000	0.250	0.000	0.00
L38	29.75-24.75	A	0.000	0.000	10.000	0.000	0.05
		B	0.000	0.000	6.800	0.000	0.06
		C	0.000	0.000	5.000	0.000	0.04
L39	24.75-19.75	A	0.000	0.000	10.000	0.000	0.05
		B	0.000	0.000	6.800	0.000	0.06
		C	0.000	0.000	5.000	0.000	0.04
L40	19.75-14.75	A	0.000	0.000	10.000	0.000	0.05
		B	0.000	0.000	6.800	0.000	0.06
		C	0.000	0.000	5.000	0.000	0.04
L41	14.75-9.75	A	0.000	0.000	10.000	0.000	0.05
		B	0.000	0.000	6.800	0.000	0.06
		C	0.000	0.000	5.000	0.000	0.04
L42	9.75-4.75	A	0.000	0.000	10.000	0.000	0.05
		B	0.000	0.000	6.800	0.000	0.06
		C	0.000	0.000	5.000	0.000	0.04
L43	4.75-0.00	A	0.000	0.000	9.500	0.000	0.05
		B	0.000	0.000	6.460	0.000	0.06
		C	0.000	0.000	4.750	0.000	0.04

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	150.00-145.00	A	1.481	0.000	0.000	1.481	0.000	0.06
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L2	145.00-140.00	A	1.476	0.000	0.000	1.476	0.000	0.06
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L3	140.00-133.71	A	1.470	0.000	0.000	1.849	0.000	0.08
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.05
L4	133.71-131.29	A	1.465	0.000	0.000	0.710	0.000	0.03
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.02
L5	131.29-126.29	A	1.461	0.000	0.000	1.461	0.000	0.06
		B		0.000	0.000	1.824	0.000	0.06
		C		0.000	0.000	0.000	0.000	0.04
L6	126.29-121.29	A	1.455	0.000	0.000	1.455	0.000	0.06
		B		0.000	0.000	2.455	0.000	0.08
		C		0.000	0.000	0.000	0.000	0.04
L7	121.29-116.29	A	1.449	0.000	0.000	1.449	0.000	0.06
		B		0.000	0.000	4.117	0.000	0.11
		C		0.000	0.000	0.000	0.000	0.04
L8	116.29-111.29	A	1.443	0.000	0.000	1.443	0.000	0.06
		B		0.000	0.000	4.686	0.000	0.12
		C		0.000	0.000	0.000	0.000	0.04
L9	111.29-108.25	A	1.438	0.000	0.000	6.025	0.000	0.08
		B		0.000	0.000	5.421	0.000	0.09
		C		0.000	0.000	0.000	0.000	0.02
L10	108.25-108.00	A	1.436	0.000	0.000	0.715	0.000	0.01
		B		0.000	0.000	0.555	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.00
L11	108.00-103.00	A	1.432	0.000	0.000	14.296	0.000	0.17

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
		B		0.000	0.000	11.096	0.000	0.17
		C		0.000	0.000	0.000	0.000	0.04
L12	103.00-98.00	A	1.425	0.000	0.000	14.276	0.000	0.17
		B		0.000	0.000	11.076	0.000	0.17
		C		0.000	0.000	0.000	0.000	0.04
L13	98.00-93.00	A	1.418	0.000	0.000	14.254	0.000	0.17
		B		0.000	0.000	11.054	0.000	0.17
		C		0.000	0.000	0.000	0.000	0.04
L14	93.00-88.08	A	1.410	0.000	0.000	13.994	0.000	0.17
		B		0.000	0.000	10.847	0.000	0.17
		C		0.000	0.000	0.000	0.000	0.04
L15	88.08-86.92	A	1.406	0.000	0.000	3.321	0.000	0.04
		B		0.000	0.000	2.574	0.000	0.04
		C		0.000	0.000	0.000	0.000	0.01
L16	86.92-85.17	A	1.403	0.000	0.000	4.972	0.000	0.06
		B		0.000	0.000	3.853	0.000	0.06
		C		0.000	0.000	0.000	0.000	0.01
L17	85.17-84.92	A	1.402	0.000	0.000	0.710	0.000	0.01
		B		0.000	0.000	0.550	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.00
L18	84.92-79.92	A	1.397	0.000	0.000	14.192	0.000	0.17
		B		0.000	0.000	10.992	0.000	0.17
		C		0.000	0.000	0.000	0.000	0.04
L19	79.92-77.00	A	1.390	0.000	0.000	8.267	0.000	0.10
		B		0.000	0.000	6.400	0.000	0.10
		C		0.000	0.000	0.000	0.000	0.02
L20	77.00-76.75	A	1.388	0.000	0.000	0.708	0.000	0.01
		B		0.000	0.000	0.548	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.00
L21	76.75-75.00	A	1.386	0.000	0.000	4.955	0.000	0.06
		B		0.000	0.000	3.835	0.000	0.06
		C		0.000	0.000	0.000	0.000	0.01
L22	75.00-74.75	A	1.384	0.000	0.000	0.708	0.000	0.01
		B		0.000	0.000	0.548	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.00
L23	74.75-69.75	A	1.379	0.000	0.000	14.137	0.000	0.17
		B		0.000	0.000	10.937	0.000	0.17
		C		0.000	0.000	0.000	0.000	0.04
L24	69.75-65.08	A	1.369	0.000	0.000	13.169	0.000	0.15
		B		0.000	0.000	10.182	0.000	0.15
		C		0.000	0.000	0.000	0.000	0.04
L25	65.08-64.83	A	1.364	0.000	0.000	0.705	0.000	0.01
		B		0.000	0.000	0.545	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.00
L26	64.83-59.83	A	1.359	0.000	0.000	14.076	0.000	0.16
		B		0.000	0.000	10.876	0.000	0.16
		C		0.000	0.000	0.000	0.000	0.04
L27	59.83-54.83	A	1.347	0.000	0.000	14.042	0.000	0.16
		B		0.000	0.000	10.842	0.000	0.16
		C		0.000	0.000	0.000	0.000	0.04
L28	54.83-49.83	A	1.335	0.000	0.000	14.005	0.000	0.16
		B		0.000	0.000	10.805	0.000	0.16
		C		0.000	0.000	0.000	0.000	0.04
L29	49.83-43.50	A	1.320	0.000	0.000	17.691	0.000	0.20
		B		0.000	0.000	13.636	0.000	0.20
		C		0.000	0.000	0.000	0.000	0.05
L30	43.50-42.50	A	1.309	0.000	0.000	2.792	0.000	0.03
		B		0.000	0.000	2.152	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.01
L31	42.50-37.50	A	1.300	0.000	0.000	13.899	0.000	0.16
		B		0.000	0.000	10.699	0.000	0.16
		C		0.000	0.000	0.000	0.000	0.04
L32	37.50-33.00	A	1.283	0.000	0.000	12.456	0.000	0.14
		B		0.000	0.000	9.578	0.000	0.14
		C		0.000	0.000	0.000	0.000	0.03
L33	33.00-32.75	A	1.275	0.000	0.000	0.691	0.000	0.01
		B		0.000	0.000	0.531	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.00
L34	32.75-32.00	A	1.273	0.000	0.000	2.073	0.000	0.02

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
		B		0.000	0.000	1.593	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.01
L35	32.00-31.75	A	1.271	0.000	0.000	0.691	0.000	0.01
		B		0.000	0.000	0.531	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.00
L36	31.75-30.00	A	1.267	0.000	0.000	4.830	0.000	0.05
		B		0.000	0.000	3.710	0.000	0.05
		C		0.000	0.000	0.000	0.000	0.01
L37	30.00-29.75	A	1.262	0.000	0.000	0.689	0.000	0.01
		B		0.000	0.000	0.529	0.000	0.01
		C		0.000	0.000	0.313	0.000	0.00
L38	29.75-24.75	A	1.251	0.000	0.000	13.752	0.000	0.15
		B		0.000	0.000	10.552	0.000	0.15
		C		0.000	0.000	6.251	0.000	0.08
L39	24.75-19.75	A	1.226	0.000	0.000	13.677	0.000	0.15
		B		0.000	0.000	10.477	0.000	0.15
		C		0.000	0.000	6.226	0.000	0.08
L40	19.75-14.75	A	1.195	0.000	0.000	13.585	0.000	0.15
		B		0.000	0.000	10.385	0.000	0.15
		C		0.000	0.000	6.195	0.000	0.08
L41	14.75-9.75	A	1.155	0.000	0.000	13.464	0.000	0.14
		B		0.000	0.000	10.264	0.000	0.14
		C		0.000	0.000	6.155	0.000	0.08
L42	9.75-4.75	A	1.096	0.000	0.000	13.287	0.000	0.14
		B		0.000	0.000	10.087	0.000	0.14
		C		0.000	0.000	6.096	0.000	0.08
L43	4.75-0.00	A	0.980	0.000	0.000	12.292	0.000	0.12
		B		0.000	0.000	9.252	0.000	0.12
		C		0.000	0.000	5.681	0.000	0.07

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	150.00-145.00	0.000	0.000	0.000	-1.021
L2	145.00-140.00	0.000	0.000	0.000	-1.043
L3	140.00-133.71	0.000	0.000	0.000	-1.063
L4	133.71-131.29	0.000	0.000	0.000	-1.075
L5	131.29-126.29	1.028	0.594	1.138	-0.280
L6	126.29-121.29	1.325	0.765	1.478	-0.059
L7	121.29-116.29	1.706	0.032	1.960	-0.913
L8	116.29-111.29	1.833	-0.195	2.131	-1.188
L9	111.29-108.25	2.797	-0.181	2.752	-0.783
L10	108.25-108.00	3.001	-0.178	2.928	-0.681
L11	108.00-103.00	3.056	-0.178	2.979	-0.690
L12	103.00-98.00	3.158	-0.179	3.075	-0.707
L13	98.00-93.00	3.257	-0.180	3.167	-0.724
L14	93.00-88.08	3.353	-0.181	3.256	-0.739
L15	88.08-86.92	3.358	-0.181	3.261	-0.740
L16	86.92-85.17	3.385	-0.182	3.285	-0.743
L17	85.17-84.92	3.404	-0.182	3.302	-0.745
L18	84.92-79.92	3.453	-0.182	3.347	-0.753
L19	79.92-77.00	3.525	-0.183	3.413	-0.764
L20	77.00-76.75	3.553	-0.183	3.439	-0.768
L21	76.75-75.00	3.571	-0.183	3.455	-0.770
L22	75.00-74.75	3.589	-0.183	3.472	-0.773
L23	74.75-69.75	3.636	-0.184	3.514	-0.780
L24	69.75-65.08	3.719	-0.185	3.589	-0.791
L25	65.08-64.83	3.761	-0.185	3.627	-0.797
L26	64.83-59.83	3.805	-0.186	3.666	-0.803
L27	59.83-54.83	3.887	-0.186	3.739	-0.813
L28	54.83-49.83	3.967	-0.187	3.808	-0.822
L29	49.83-43.50	4.055	-0.188	3.885	-0.831
L30	43.50-42.50	4.059	-0.188	3.890	-0.832

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L31	42.50-37.50	4.105	-0.188	3.923	-0.831
L32	37.50-33.00	4.176	-0.189	3.981	-0.837
L33	33.00-32.75	4.211	-0.189	4.010	-0.839
L34	32.75-32.00	4.219	-0.189	4.016	-0.839
L35	32.00-31.75	4.225	-0.189	4.021	-0.839
L36	31.75-30.00	4.240	-0.190	4.033	-0.840
L37	30.00-29.75	3.619	2.743	3.549	1.646
L38	29.75-24.75	3.654	2.770	3.577	1.666
L39	24.75-19.75	3.720	2.821	3.628	1.705
L40	19.75-14.75	3.785	2.871	3.675	1.746
L41	14.75-9.75	3.849	2.920	3.716	1.791
L42	9.75-4.75	3.911	2.968	3.746	1.843
L43	4.75-0.00	3.971	3.014	3.744	1.919

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	2	Safety Line 3/8	145.00 - 150.00	1.0000	1.0000
L2	2	Safety Line 3/8	140.00 - 145.00	1.0000	1.0000
L3	2	Safety Line 3/8	133.71 - 140.00	1.0000	1.0000
L4	2	Safety Line 3/8	131.29 - 133.71	1.0000	1.0000
L5	2	Safety Line 3/8	126.29 - 131.29	1.0000	1.0000
L5	18	2" Rigid Conduit	126.29 - 130.00	1.0000	1.0000
L6	2	Safety Line 3/8	121.29 - 126.29	1.0000	1.0000
L6	18	2" Rigid Conduit	121.29 - 126.29	1.0000	1.0000
L7	2	Safety Line 3/8	116.29 - 121.29	1.0000	1.0000
L7	18	2" Rigid Conduit	116.29 - 121.29	1.0000	1.0000
L7	22	CU12PSM9P6XXX(1-1/2)	116.29 - 120.00	1.0000	1.0000
L8	2	Safety Line 3/8	111.29 - 116.29	1.0000	1.0000
L8	18	2" Rigid Conduit	111.29 - 116.29	1.0000	1.0000
L8	22	CU12PSM9P6XXX(1-1/2)	111.29 - 116.29	1.0000	1.0000
L9	2	Safety Line 3/8	108.25 - 111.29	1.0000	1.0000
L9	18	2" Rigid Conduit	108.25 - 111.29	1.0000	1.0000
L9	22	CU12PSM9P6XXX(1-1/2)	108.25 - 111.29	1.0000	1.0000
L9	37	CCI-65FP-060100	108.25 - 110.25	1.0000	1.0000
L9	38	CCI-65FP-060100	108.25 - 110.25	1.0000	1.0000
L9	39	CCI-65FP-060100	108.25 - 110.25	1.0000	1.0000
L10	2	Safety Line 3/8	108.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L10	18	2" Rigid Conduit	108.25 108.00 - 108.25	1.0000	1.0000
L10	22	CU12PSM9P6XXX(1-1/2)	108.25 108.00 - 108.25	1.0000	1.0000
L10	37	CCI-65FP-060100	108.00 - 108.25	1.0000	1.0000
L10	38	CCI-65FP-060100	108.00 - 108.25	1.0000	1.0000
L10	39	CCI-65FP-060100	108.00 - 108.25	1.0000	1.0000
L11	2	Safety Line 3/8	103.00 - 108.00	1.0000	1.0000
L11	18	2" Rigid Conduit	103.00 - 108.00	1.0000	1.0000
L11	22	CU12PSM9P6XXX(1-1/2)	103.00 - 108.00	1.0000	1.0000
L11	37	CCI-65FP-060100	103.00 - 108.00	1.0000	1.0000
L11	38	CCI-65FP-060100	103.00 - 108.00	1.0000	1.0000
L11	39	CCI-65FP-060100	103.00 - 108.00	1.0000	1.0000
L12	2	Safety Line 3/8	98.00 - 103.00	1.0000	1.0000
L12	18	2" Rigid Conduit	98.00 - 103.00	1.0000	1.0000
L12	22	CU12PSM9P6XXX(1-1/2)	98.00 - 103.00	1.0000	1.0000
L12	37	CCI-65FP-060100	98.00 - 103.00	1.0000	1.0000
L12	38	CCI-65FP-060100	98.00 - 103.00	1.0000	1.0000
L12	39	CCI-65FP-060100	98.00 - 103.00	1.0000	1.0000
L13	2	Safety Line 3/8	93.00 - 98.00	1.0000	1.0000
L13	18	2" Rigid Conduit	93.00 - 98.00	1.0000	1.0000
L13	22	CU12PSM9P6XXX(1-1/2)	93.00 - 98.00	1.0000	1.0000
L13	37	CCI-65FP-060100	93.00 - 98.00	1.0000	1.0000
L13	38	CCI-65FP-060100	93.00 - 98.00	1.0000	1.0000
L13	39	CCI-65FP-060100	93.00 - 98.00	1.0000	1.0000
L14	2	Safety Line 3/8	88.08 - 93.00	1.0000	1.0000
L14	18	2" Rigid Conduit	88.08 - 93.00	1.0000	1.0000
L14	22	CU12PSM9P6XXX(1-1/2)	88.08 - 93.00	1.0000	1.0000
L14	37	CCI-65FP-060100	88.08 - 93.00	1.0000	1.0000
L14	38	CCI-65FP-060100	88.08 - 93.00	1.0000	1.0000
L14	39	CCI-65FP-060100	88.08 - 93.00	1.0000	1.0000
L15	2	Safety Line 3/8	86.92 - 88.08	1.0000	1.0000
L15	18	2" Rigid Conduit	86.92 - 88.08	1.0000	1.0000
L15	22	CU12PSM9P6XXX(1-1/2)	86.92 - 88.08	1.0000	1.0000
L15	37	CCI-65FP-060100	86.92 - 88.08	1.0000	1.0000
L15	38	CCI-65FP-060100	86.92 - 88.08	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L15	39	CCI-65FP-060100	86.92 - 88.08	1.0000	1.0000
L16	2	Safety Line 3/8	85.17 - 86.92	1.0000	1.0000
L16	18	2" Rigid Conduit	85.17 - 86.92	1.0000	1.0000
L16	22	CU12PSM9P6XXX(1-1/2)	85.17 - 86.92	1.0000	1.0000
L16	37	CCI-65FP-060100	85.17 - 86.92	1.0000	1.0000
L16	38	CCI-65FP-060100	85.17 - 86.92	1.0000	1.0000
L16	39	CCI-65FP-060100	85.17 - 86.92	1.0000	1.0000
L17	2	Safety Line 3/8	84.92 - 85.17	1.0000	1.0000
L17	18	2" Rigid Conduit	84.92 - 85.17	1.0000	1.0000
L17	22	CU12PSM9P6XXX(1-1/2)	84.92 - 85.17	1.0000	1.0000
L17	33	CCI-65FP-060100	84.92 - 85.17	1.0000	1.0000
L17	34	CCI-65FP-060100	84.92 - 85.17	1.0000	1.0000
L17	35	CCI-65FP-060100	84.92 - 85.17	1.0000	1.0000
L18	2	Safety Line 3/8	79.92 - 84.92	1.0000	1.0000
L18	18	2" Rigid Conduit	79.92 - 84.92	1.0000	1.0000
L18	22	CU12PSM9P6XXX(1-1/2)	79.92 - 84.92	1.0000	1.0000
L18	33	CCI-65FP-060100	79.92 - 84.92	1.0000	1.0000
L18	34	CCI-65FP-060100	79.92 - 84.92	1.0000	1.0000
L18	35	CCI-65FP-060100	79.92 - 84.92	1.0000	1.0000
L19	2	Safety Line 3/8	77.00 - 79.92	1.0000	1.0000
L19	18	2" Rigid Conduit	77.00 - 79.92	1.0000	1.0000
L19	22	CU12PSM9P6XXX(1-1/2)	77.00 - 79.92	1.0000	1.0000
L19	33	CCI-65FP-060100	77.00 - 79.92	1.0000	1.0000
L19	34	CCI-65FP-060100	77.00 - 79.92	1.0000	1.0000
L19	35	CCI-65FP-060100	77.00 - 79.92	1.0000	1.0000
L20	2	Safety Line 3/8	76.75 - 77.00	1.0000	1.0000
L20	18	2" Rigid Conduit	76.75 - 77.00	1.0000	1.0000
L20	22	CU12PSM9P6XXX(1-1/2)	76.75 - 77.00	1.0000	1.0000
L20	33	CCI-65FP-060100	76.75 - 77.00	1.0000	1.0000
L20	34	CCI-65FP-060100	76.75 - 77.00	1.0000	1.0000
L20	35	CCI-65FP-060100	76.75 - 77.00	1.0000	1.0000
L21	2	Safety Line 3/8	75.00 - 76.75	1.0000	1.0000
L21	18	2" Rigid Conduit	75.00 - 76.75	1.0000	1.0000
L21	22	CU12PSM9P6XXX(1-1/2)	75.00 - 76.75	1.0000	1.0000
L21	33	CCI-65FP-060100	75.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L21	34	CCI-65FP-060100	76.75 75.00 - 76.75	1.0000	1.0000
L21	35	CCI-65FP-060100	75.00 - 76.75	1.0000	1.0000
L22	2	Safety Line 3/8	74.75 - 75.00	1.0000	1.0000
L22	18	2" Rigid Conduit	74.75 - 75.00	1.0000	1.0000
L22	22	CU12PSM9P6XXX(1-1/2)	74.75 - 75.00	1.0000	1.0000
L22	33	CCI-65FP-060100	74.75 - 75.00	1.0000	1.0000
L22	34	CCI-65FP-060100	74.75 - 75.00	1.0000	1.0000
L22	35	CCI-65FP-060100	74.75 - 75.00	1.0000	1.0000
L23	2	Safety Line 3/8	69.75 - 74.75	1.0000	1.0000
L23	18	2" Rigid Conduit	69.75 - 74.75	1.0000	1.0000
L23	22	CU12PSM9P6XXX(1-1/2)	69.75 - 74.75	1.0000	1.0000
L23	33	CCI-65FP-060100	69.75 - 74.75	1.0000	1.0000
L23	34	CCI-65FP-060100	69.75 - 74.75	1.0000	1.0000
L23	35	CCI-65FP-060100	69.75 - 74.75	1.0000	1.0000
L24	2	Safety Line 3/8	65.08 - 69.75	1.0000	1.0000
L24	18	2" Rigid Conduit	65.08 - 69.75	1.0000	1.0000
L24	22	CU12PSM9P6XXX(1-1/2)	65.08 - 69.75	1.0000	1.0000
L24	33	CCI-65FP-060100	65.08 - 69.75	1.0000	1.0000
L24	34	CCI-65FP-060100	65.08 - 69.75	1.0000	1.0000
L24	35	CCI-65FP-060100	65.08 - 69.75	1.0000	1.0000
L25	2	Safety Line 3/8	64.83 - 65.08	1.0000	1.0000
L25	18	2" Rigid Conduit	64.83 - 65.08	1.0000	1.0000
L25	22	CU12PSM9P6XXX(1-1/2)	64.83 - 65.08	1.0000	1.0000
L25	29	CCI-65FP-060100	64.83 - 65.08	1.0000	1.0000
L25	30	CCI-65FP-060100	64.83 - 65.08	1.0000	1.0000
L25	31	CCI-65FP-060100	64.83 - 65.08	1.0000	1.0000
L26	2	Safety Line 3/8	59.83 - 64.83	1.0000	1.0000
L26	18	2" Rigid Conduit	59.83 - 64.83	1.0000	1.0000
L26	22	CU12PSM9P6XXX(1-1/2)	59.83 - 64.83	1.0000	1.0000
L26	29	CCI-65FP-060100	59.83 - 64.83	1.0000	1.0000
L26	30	CCI-65FP-060100	59.83 - 64.83	1.0000	1.0000
L26	31	CCI-65FP-060100	59.83 - 64.83	1.0000	1.0000
L27	2	Safety Line 3/8	54.83 - 59.83	1.0000	1.0000
L27	18	2" Rigid Conduit	54.83 - 59.83	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L27	22	CU12PSM9P6XXX(1-1/2)	54.83 - 59.83	1.0000	1.0000
L27	29	CCI-65FP-060100	54.83 - 59.83	1.0000	1.0000
L27	30	CCI-65FP-060100	54.83 - 59.83	1.0000	1.0000
L27	31	CCI-65FP-060100	54.83 - 59.83	1.0000	1.0000
L28	2	Safety Line 3/8	49.83 - 54.83	1.0000	1.0000
L28	18	2" Rigid Conduit	49.83 - 54.83	1.0000	1.0000
L28	22	CU12PSM9P6XXX(1-1/2)	49.83 - 54.83	1.0000	1.0000
L28	29	CCI-65FP-060100	49.83 - 54.83	1.0000	1.0000
L28	30	CCI-65FP-060100	49.83 - 54.83	1.0000	1.0000
L28	31	CCI-65FP-060100	49.83 - 54.83	1.0000	1.0000
L29	2	Safety Line 3/8	43.50 - 49.83	1.0000	1.0000
L29	18	2" Rigid Conduit	43.50 - 49.83	1.0000	1.0000
L29	22	CU12PSM9P6XXX(1-1/2)	43.50 - 49.83	1.0000	1.0000
L29	29	CCI-65FP-060100	43.50 - 49.83	1.0000	1.0000
L29	30	CCI-65FP-060100	43.50 - 49.83	1.0000	1.0000
L29	31	CCI-65FP-060100	43.50 - 49.83	1.0000	1.0000
L30	2	Safety Line 3/8	42.50 - 43.50	1.0000	1.0000
L30	18	2" Rigid Conduit	42.50 - 43.50	1.0000	1.0000
L30	22	CU12PSM9P6XXX(1-1/2)	42.50 - 43.50	1.0000	1.0000
L30	29	CCI-65FP-060100	42.50 - 43.50	1.0000	1.0000
L30	30	CCI-65FP-060100	42.50 - 43.50	1.0000	1.0000
L30	31	CCI-65FP-060100	42.50 - 43.50	1.0000	1.0000
L31	2	Safety Line 3/8	37.50 - 42.50	1.0000	1.0000
L31	18	2" Rigid Conduit	37.50 - 42.50	1.0000	1.0000
L31	22	CU12PSM9P6XXX(1-1/2)	37.50 - 42.50	1.0000	1.0000
L31	29	CCI-65FP-060100	37.50 - 42.50	1.0000	1.0000
L31	30	CCI-65FP-060100	37.50 - 42.50	1.0000	1.0000
L31	31	CCI-65FP-060100	37.50 - 42.50	1.0000	1.0000
L32	2	Safety Line 3/8	33.00 - 37.50	1.0000	1.0000
L32	18	2" Rigid Conduit	33.00 - 37.50	1.0000	1.0000
L32	22	CU12PSM9P6XXX(1-1/2)	33.00 - 37.50	1.0000	1.0000
L32	24	CCI-65FP-060100	33.00 - 35.00	1.0000	1.0000
L32	25	CCI-65FP-060100	33.00 - 35.00	1.0000	1.0000
L32	29	CCI-65FP-060100	35.00 - 37.50	1.0000	1.0000
L32	30	CCI-65FP-060100	35.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L32	31	CCI-65FP-060100	37.50 33.00 -	1.0000	1.0000
L33	2	Safety Line 3/8	37.50 32.75 -	1.0000	1.0000
L33	18	2" Rigid Conduit	33.00 32.75 -	1.0000	1.0000
L33	22	CU12PSM9P6XXX(1-1/2)	33.00 32.75 -	1.0000	1.0000
L33	24	CCI-65FP-060100	33.00 32.75 -	1.0000	1.0000
L33	25	CCI-65FP-060100	33.00 32.75 -	1.0000	1.0000
L33	31	CCI-65FP-060100	33.00 32.75 -	1.0000	1.0000
L34	2	Safety Line 3/8	33.00 32.00 -	1.0000	1.0000
L34	18	2" Rigid Conduit	32.75 32.00 -	1.0000	1.0000
L34	22	CU12PSM9P6XXX(1-1/2)	32.75 32.00 -	1.0000	1.0000
L34	24	CCI-65FP-060100	32.75 32.00 -	1.0000	1.0000
L34	25	CCI-65FP-060100	32.75 32.00 -	1.0000	1.0000
L34	31	CCI-65FP-060100	32.75 32.00 -	1.0000	1.0000
L35	2	Safety Line 3/8	32.75 31.75 -	1.0000	1.0000
L35	18	2" Rigid Conduit	32.00 31.75 -	1.0000	1.0000
L35	22	CU12PSM9P6XXX(1-1/2)	32.00 31.75 -	1.0000	1.0000
L35	24	CCI-65FP-060100	32.00 31.75 -	1.0000	1.0000
L35	25	CCI-65FP-060100	32.00 31.75 -	1.0000	1.0000
L35	31	CCI-65FP-060100	32.00 31.75 -	1.0000	1.0000
L36	2	Safety Line 3/8	32.00 30.00 -	1.0000	1.0000
L36	18	2" Rigid Conduit	31.75 30.00 -	1.0000	1.0000
L36	22	CU12PSM9P6XXX(1-1/2)	31.75 30.00 -	1.0000	1.0000
L36	24	CCI-65FP-060100	31.75 30.00 -	1.0000	1.0000
L36	25	CCI-65FP-060100	31.75 30.00 -	1.0000	1.0000
L36	31	CCI-65FP-060100	31.75 30.00 -	1.0000	1.0000
L37	2	Safety Line 3/8	31.75 29.75 -	1.0000	1.0000
L37	18	2" Rigid Conduit	30.00 29.75 -	1.0000	1.0000
L37	22	CU12PSM9P6XXX(1-1/2)	30.00 29.75 -	1.0000	1.0000
L37	24	CCI-65FP-060100	30.00 29.75 -	1.0000	1.0000
L37	25	CCI-65FP-060100	30.00 29.75 -	1.0000	1.0000
L37	26	CCI-65FP-060100	30.00 29.75 -	1.0000	1.0000
L37	27	CCI-65FP-060100	30.00 29.75 -	1.0000	1.0000
L38	2	Safety Line 3/8	30.00 24.75 -	1.0000	1.0000
L38	18	2" Rigid Conduit	29.75 24.75 -	1.0000	1.0000
			29.75		

Tower Section	*Feed Line Record No.*	*Description*	*Feed Line Segment Elev.*	*K_a No Ice*	*K_a Ice*
L38	22	CU12PSM9P6XXX(1-1/2)	24.75 - 29.75	1.0000	1.0000
L38	24	CCI-65FP-060100	24.75 - 29.75	1.0000	1.0000
L38	25	CCI-65FP-060100	24.75 - 29.75	1.0000	1.0000
L38	26	CCI-65FP-060100	24.75 - 29.75	1.0000	1.0000
L38	27	CCI-65FP-060100	24.75 - 29.75	1.0000	1.0000
L39	2	Safety Line 3/8	19.75 - 24.75	1.0000	1.0000
L39	18	2" Rigid Conduit	19.75 - 24.75	1.0000	1.0000
L39	22	CU12PSM9P6XXX(1-1/2)	19.75 - 24.75	1.0000	1.0000
L39	24	CCI-65FP-060100	19.75 - 24.75	1.0000	1.0000
L39	25	CCI-65FP-060100	19.75 - 24.75	1.0000	1.0000
L39	26	CCI-65FP-060100	19.75 - 24.75	1.0000	1.0000
L39	27	CCI-65FP-060100	19.75 - 24.75	1.0000	1.0000
L40	2	Safety Line 3/8	14.75 - 19.75	1.0000	1.0000
L40	18	2" Rigid Conduit	14.75 - 19.75	1.0000	1.0000
L40	22	CU12PSM9P6XXX(1-1/2)	14.75 - 19.75	1.0000	1.0000
L40	24	CCI-65FP-060100	14.75 - 19.75	1.0000	1.0000
L40	25	CCI-65FP-060100	14.75 - 19.75	1.0000	1.0000
L40	26	CCI-65FP-060100	14.75 - 19.75	1.0000	1.0000
L40	27	CCI-65FP-060100	14.75 - 19.75	1.0000	1.0000
L41	2	Safety Line 3/8	9.75 - 14.75	1.0000	1.0000
L41	18	2" Rigid Conduit	9.75 - 14.75	1.0000	1.0000
L41	22	CU12PSM9P6XXX(1-1/2)	9.75 - 14.75	1.0000	1.0000
L41	24	CCI-65FP-060100	9.75 - 14.75	1.0000	1.0000
L41	25	CCI-65FP-060100	9.75 - 14.75	1.0000	1.0000
L41	26	CCI-65FP-060100	9.75 - 14.75	1.0000	1.0000
L41	27	CCI-65FP-060100	9.75 - 14.75	1.0000	1.0000
L42	2	Safety Line 3/8	4.75 - 9.75	1.0000	1.0000
L42	18	2" Rigid Conduit	4.75 - 9.75	1.0000	1.0000
L42	22	CU12PSM9P6XXX(1-1/2)	4.75 - 9.75	1.0000	1.0000
L42	24	CCI-65FP-060100	4.75 - 9.75	1.0000	1.0000
L42	25	CCI-65FP-060100	4.75 - 9.75	1.0000	1.0000
L42	26	CCI-65FP-060100	4.75 - 9.75	1.0000	1.0000
L42	27	CCI-65FP-060100	4.75 - 9.75	1.0000	1.0000
L43	2	Safety Line 3/8	0.00 - 4.75	1.0000	1.0000
L43	18	2" Rigid Conduit	0.00 - 4.75	1.0000	1.0000
L43	22	CU12PSM9P6XXX(1-1/2)	0.00 - 4.75	1.0000	1.0000
L43	24	CCI-65FP-060100	0.00 - 4.75	1.0000	1.0000
L43	25	CCI-65FP-060100	0.00 - 4.75	1.0000	1.0000
L43	26	CCI-65FP-060100	0.00 - 4.75	1.0000	1.0000
L43	27	CCI-65FP-060100	0.00 - 4.75	1.0000	1.0000

Effective Width of Flat Linear Attachments / Feed Lines

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L9	37	CCI-65FP-060100	108.25 - 110.25	Auto	0.4554
L9	38	CCI-65FP-060100	108.25 - 110.25	Auto	0.4554
L9	39	CCI-65FP-060100	108.25 - 110.25	Auto	0.4554
L10	37	CCI-65FP-060100	108.00 - 108.25	Auto	0.5435
L10	38	CCI-65FP-060100	108.00 - 108.25	Auto	0.5435
L10	39	CCI-65FP-060100	108.00 - 108.25	Auto	0.5435
L11	37	CCI-65FP-060100	103.00 - 108.00	Auto	0.5191
L11	38	CCI-65FP-060100	103.00 - 108.00	Auto	0.5191
L11	39	CCI-65FP-060100	103.00 - 108.00	Auto	0.5191
L12	37	CCI-65FP-060100	98.00 - 103.00	Auto	0.4829
L12	38	CCI-65FP-060100	98.00 - 103.00	Auto	0.4829
L12	39	CCI-65FP-060100	98.00 - 103.00	Auto	0.4829
L13	37	CCI-65FP-060100	93.00 - 98.00	Auto	0.4467
L13	38	CCI-65FP-060100	93.00 - 98.00	Auto	0.4467
L13	39	CCI-65FP-060100	93.00 - 98.00	Auto	0.4467
L14	37	CCI-65FP-060100	88.08 - 93.00	Auto	0.4145
L14	38	CCI-65FP-060100	88.08 - 93.00	Auto	0.4145
L14	39	CCI-65FP-060100	88.08 - 93.00	Auto	0.4145
L15	37	CCI-65FP-060100	86.92 - 88.08	Auto	0.4278
L15	38	CCI-65FP-060100	86.92 - 88.08	Auto	0.4278
L15	39	CCI-65FP-060100	86.92 - 88.08	Auto	0.4278
L16	37	CCI-65FP-060100	85.17 - 86.92	Auto	0.4183
L16	38	CCI-65FP-060100	85.17 - 86.92	Auto	0.4183
L16	39	CCI-65FP-060100	85.17 - 86.92	Auto	0.4183
L17	33	CCI-65FP-060100	84.92 - 85.17	Auto	0.4118
L17	34	CCI-65FP-060100	84.92 - 85.17	Auto	0.4118
L17	35	CCI-65FP-060100	84.92 - 85.17	Auto	0.4118
L18	33	CCI-65FP-060100	79.92 - 84.92	Auto	0.3911
L18	34	CCI-65FP-060100	79.92 - 84.92	Auto	0.3911
L18	35	CCI-65FP-060100	79.92 - 84.92	Auto	0.3911
L19	33	CCI-65FP-060100	77.00 - 79.92	Auto	0.3617
L19	34	CCI-65FP-060100	77.00 - 79.92	Auto	0.3617
L19	35	CCI-65FP-060100	77.00 - 79.92	Auto	0.3617
L20	33	CCI-65FP-060100	76.75 -	Auto	0.3295

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L20	34	CCI-65FP-060100	77.00 76.75 - 77.00	Auto	0.3295
L20	35	CCI-65FP-060100	76.75 - 77.00	Auto	0.3295
L21	33	CCI-65FP-060100	75.00 - 76.75	Auto	0.3211
L21	34	CCI-65FP-060100	75.00 - 76.75	Auto	0.3211
L21	35	CCI-65FP-060100	75.00 - 76.75	Auto	0.3211
L22	33	CCI-65FP-060100	74.75 - 75.00	Auto	0.3385
L22	34	CCI-65FP-060100	74.75 - 75.00	Auto	0.3385
L22	35	CCI-65FP-060100	74.75 - 75.00	Auto	0.3385
L23	33	CCI-65FP-060100	69.75 - 74.75	Auto	0.3178
L23	34	CCI-65FP-060100	69.75 - 74.75	Auto	0.3178
L23	35	CCI-65FP-060100	69.75 - 74.75	Auto	0.3178
L24	33	CCI-65FP-060100	65.08 - 69.75	Auto	0.2827
L24	34	CCI-65FP-060100	65.08 - 69.75	Auto	0.2827
L24	35	CCI-65FP-060100	65.08 - 69.75	Auto	0.2827
L25	29	CCI-65FP-060100	64.83 - 65.08	Auto	0.2668
L25	30	CCI-65FP-060100	64.83 - 65.08	Auto	0.2668
L25	31	CCI-65FP-060100	64.83 - 65.08	Auto	0.2668
L26	29	CCI-65FP-060100	59.83 - 64.83	Auto	0.2497
L26	30	CCI-65FP-060100	59.83 - 64.83	Auto	0.2497
L26	31	CCI-65FP-060100	59.83 - 64.83	Auto	0.2497
L27	29	CCI-65FP-060100	54.83 - 59.83	Auto	0.2136
L27	30	CCI-65FP-060100	54.83 - 59.83	Auto	0.2136
L27	31	CCI-65FP-060100	54.83 - 59.83	Auto	0.2136
L28	29	CCI-65FP-060100	49.83 - 54.83	Auto	0.1775
L28	30	CCI-65FP-060100	49.83 - 54.83	Auto	0.1775
L28	31	CCI-65FP-060100	49.83 - 54.83	Auto	0.1775
L29	29	CCI-65FP-060100	43.50 - 49.83	Auto	0.1407
L29	30	CCI-65FP-060100	43.50 - 49.83	Auto	0.1407
L29	31	CCI-65FP-060100	43.50 - 49.83	Auto	0.1407
L30	29	CCI-65FP-060100	42.50 - 43.50	Auto	0.1389
L30	30	CCI-65FP-060100	42.50 - 43.50	Auto	0.1389
L30	31	CCI-65FP-060100	42.50 - 43.50	Auto	0.1389
L31	29	CCI-65FP-060100	37.50 - 42.50	Auto	0.1157
L31	30	CCI-65FP-060100	37.50 -	Auto	0.1157

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L31	31	CCI-65FP-060100	42.50 37.50 - 42.50	Auto	0.1157
L32	24	CCI-65FP-060100	33.00 - 35.00	Auto	0.0768
L32	25	CCI-65FP-060100	33.00 - 35.00	Auto	0.0768
L32	29	CCI-65FP-060100	35.00 - 37.50	Auto	0.0914
L32	30	CCI-65FP-060100	35.00 - 37.50	Auto	0.0914
L32	31	CCI-65FP-060100	33.00 - 37.50	Auto	0.0849
L33	24	CCI-65FP-060100	32.75 - 33.00	Auto	0.1025
L33	25	CCI-65FP-060100	32.75 - 33.00	Auto	0.1025
L33	31	CCI-65FP-060100	32.75 - 33.00	Auto	0.1025
L34	24	CCI-65FP-060100	32.00 - 32.75	Auto	0.0992
L34	25	CCI-65FP-060100	32.00 - 32.75	Auto	0.0992
L34	31	CCI-65FP-060100	32.00 - 32.75	Auto	0.0992
L35	24	CCI-65FP-060100	31.75 - 32.00	Auto	0.0740
L35	25	CCI-65FP-060100	31.75 - 32.00	Auto	0.0740
L35	31	CCI-65FP-060100	31.75 - 32.00	Auto	0.0740
L36	24	CCI-65FP-060100	30.00 - 31.75	Auto	0.0675
L36	25	CCI-65FP-060100	30.00 - 31.75	Auto	0.0675
L36	31	CCI-65FP-060100	30.00 - 31.75	Auto	0.0675
L37	24	CCI-65FP-060100	29.75 - 30.00	Auto	0.0610
L37	25	CCI-65FP-060100	29.75 - 30.00	Auto	0.0610
L37	26	CCI-65FP-060100	29.75 - 30.00	Auto	0.0610
L37	27	CCI-65FP-060100	29.75 - 30.00	Auto	0.0610
L38	24	CCI-65FP-060100	24.75 - 29.75	Auto	0.0403
L38	25	CCI-65FP-060100	24.75 - 29.75	Auto	0.0403
L38	26	CCI-65FP-060100	24.75 - 29.75	Auto	0.0403
L38	27	CCI-65FP-060100	24.75 - 29.75	Auto	0.0403
L39	24	CCI-65FP-060100	19.75 - 24.75	Auto	0.0076
L39	25	CCI-65FP-060100	19.75 - 24.75	Auto	0.0076
L39	26	CCI-65FP-060100	19.75 - 24.75	Auto	0.0076
L39	27	CCI-65FP-060100	19.75 - 24.75	Auto	0.0076
L40	24	CCI-65FP-060100	14.75 - 19.75	Auto	0.0000
L40	25	CCI-65FP-060100	14.75 - 19.75	Auto	0.0000
L40	26	CCI-65FP-060100	14.75 - 19.75	Auto	0.0000
L40	27	CCI-65FP-060100	14.75 -	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
			19.75		
L41	24	CCI-65FP-060100	9.75 - 14.75	Auto	0.0000
L41	25	CCI-65FP-060100	9.75 - 14.75	Auto	0.0000
L41	26	CCI-65FP-060100	9.75 - 14.75	Auto	0.0000
L41	27	CCI-65FP-060100	9.75 - 14.75	Auto	0.0000
L42	24	CCI-65FP-060100	4.75 - 9.75	Auto	0.0000
L42	25	CCI-65FP-060100	4.75 - 9.75	Auto	0.0000
L42	26	CCI-65FP-060100	4.75 - 9.75	Auto	0.0000
L42	27	CCI-65FP-060100	4.75 - 9.75	Auto	0.0000
L43	24	CCI-65FP-060100	0.00 - 4.75	Auto	0.0000
L43	25	CCI-65FP-060100	0.00 - 4.75	Auto	0.0000
L43	26	CCI-65FP-060100	0.00 - 4.75	Auto	0.0000
L43	27	CCI-65FP-060100	0.00 - 4.75	Auto	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
150									
AIR6449 B41_T-MOBILE	A	From Centroid-Face	4.00 6.000 2.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.27 5.70 6.14 7.06	2.03 2.36 2.70 3.43	0.11 0.15 0.20 0.30
AIR6449 B41_T-MOBILE	B	From Centroid-Face	4.00 6.000 2.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.27 5.70 6.14 7.06	2.03 2.36 2.70 3.43	0.11 0.15 0.20 0.30
AIR6449 B41_T-MOBILE	C	From Centroid-Face	4.00 6.000 2.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.27 5.70 6.14 7.06	2.03 2.36 2.70 3.43	0.11 0.15 0.20 0.30
APX16DWV-16DWV-S-E-A20	A	From Centroid-Face	4.00 -6.000 2.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.26 6.85 7.46 8.72	1.50 2.00 2.52 3.62	0.04 0.07 0.11 0.20
APX16DWV-16DWV-S-E-A20	B	From Centroid-Face	4.00 -6.000 2.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.26 6.85 7.46 8.72	1.50 2.00 2.52 3.62	0.04 0.07 0.11 0.20
APX16DWV-16DWV-S-E-A20	C	From Centroid-Face	4.00 -6.000 2.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.26 6.85 7.46 8.72	1.50 2.00 2.52 3.62	0.04 0.07 0.11 0.20
APXVAALL24_43-U-NA20_TMO	A	From Centroid-Face	4.00 -2.000 2.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.67 15.43 16.21 17.81	5.32 5.99 6.68 8.08	0.15 0.26 0.38 0.65
APXVAALL24_43-U-NA20_TMO	B	From Centroid-	4.00 -2.000	0.000	150.00	No Ice 1/2"	14.67 15.43	5.32 5.99	0.15 0.26

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
		Face	2.000			Ice	16.21	6.68	0.38
						1" Ice	17.81	8.08	0.65
						2" Ice			
APXVAALL24_43-U-NA20_TMO	C	From Centroid-Face	4.00 -2.000 2.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.67 15.43 16.21 17.81	5.32 5.99 6.68 8.08	0.15 0.26 0.38 0.65
RADIO 4415 B66A	A	From Centroid-Face	4.00 -6.000 2.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.86 2.03 2.20 2.58	0.87 1.00 1.13 1.43	0.05 0.06 0.08 0.12
RADIO 4415 B66A	B	From Centroid-Face	4.00 -6.000 2.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.86 2.03 2.20 2.58	0.87 1.00 1.13 1.43	0.05 0.06 0.08 0.12
RADIO 4415 B66A	C	From Centroid-Face	4.00 -6.000 2.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.86 2.03 2.20 2.58	0.87 1.00 1.13 1.43	0.05 0.06 0.08 0.12
RADIO 4424 B25_TMO	A	From Centroid-Face	4.00 -6.000 2.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.05 2.23 2.42 2.81	1.61 1.77 1.94 2.30	0.09 0.11 0.13 0.19
RADIO 4424 B25_TMO	B	From Centroid-Face	4.00 -6.000 2.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.05 2.23 2.42 2.81	1.61 1.77 1.94 2.30	0.09 0.11 0.13 0.19
RADIO 4424 B25_TMO	C	From Centroid-Face	4.00 -6.000 2.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.05 2.23 2.42 2.81	1.61 1.77 1.94 2.30	0.09 0.11 0.13 0.19
RADIO 4449 B71 B85A_T-MOBILE	A	From Centroid-Face	4.00 -6.000 2.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.15 2.33 2.72	1.59 1.75 1.92 2.28	0.07 0.09 0.12 0.17
RADIO 4449 B71 B85A_T-MOBILE	B	From Centroid-Face	4.00 -6.000 2.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.15 2.33 2.72	1.59 1.75 1.92 2.28	0.07 0.09 0.12 0.17
RADIO 4449 B71 B85A_T-MOBILE	C	From Centroid-Face	4.00 -6.000 2.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.15 2.33 2.72	1.59 1.75 1.92 2.28	0.07 0.09 0.12 0.17
Platform Mount [LP 301-1]	C	None		0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	30.10 40.80 51.50 72.90	30.10 40.80 51.50 72.90	1.59 2.03 2.47 3.35
140									
(2) JAHH-65B-R3B w/ Mount Pipe	A	From Centroid-Leg	4.00 4.750 0.000	40.000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.50 5.97 6.45 7.44	4.38 4.84 5.30 6.26	0.10 0.17 0.25 0.46
(2) JAHH-65B-R3B w/	B	From	4.00	45.000	140.00	No Ice	5.50	4.38	0.10

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Mount Pipe		Centroid-Leg	4.750 0.000			1/2" Ice 1" Ice 2" Ice	5.97 6.45 7.44	4.84 5.30 6.26	0.17 0.25 0.46
(2) JAHH-65B-R3B w/ Mount Pipe	C	From Centroid-Leg	4.00 4.750 0.000	50.000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.50 5.97 6.45 7.44	4.38 4.84 5.30 6.26	0.10 0.17 0.25 0.46
(2) DB846H80E-SX w/ Mount Pipe	A	From Centroid-Leg	4.00 -4.750 0.000	10.000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.12 4.76 5.42 6.78	6.38 7.05 7.74 9.17	0.05 0.10 0.17 0.32
(2) DB846F65ZAXY w/ Mount Pipe	B	From Centroid-Leg	4.00 -4.750 0.000	0.000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.10 6.80 7.51 8.98	6.81 7.52 8.24 9.73	0.06 0.12 0.19 0.37
(2) DB846H80E-SX w/ Mount Pipe	C	From Centroid-Leg	4.00 -4.750 0.000	30.000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.12 4.76 5.42 6.78	6.38 7.05 7.74 9.17	0.05 0.10 0.17 0.32
RVZDC-6627-PF-48	A	From Centroid-Leg	4.00 -7.000 0.000	10.000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.79 4.04 4.30 4.84	2.51 2.73 2.95 3.42	0.03 0.06 0.10 0.18
RVZDC-6627-PF-48	B	From Centroid-Leg	4.00 -7.000 0.000	0.000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.79 4.04 4.30 4.84	2.51 2.73 2.95 3.42	0.03 0.06 0.10 0.18
FDJ85020Q7-S1	A	From Centroid-Leg	4.00 -7.000 0.000	10.000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.96 1.09 1.24 1.54	0.36 0.43 0.52 0.71	0.02 0.03 0.04 0.08
FDJ85020Q7-S1	B	From Centroid-Leg	4.00 -7.000 0.000	0.000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.96 1.09 1.24 1.54	0.36 0.43 0.52 0.71	0.02 0.03 0.04 0.08
FDJ85020Q7-S1	C	From Centroid-Leg	4.00 -7.000 0.000	30.000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.96 1.09 1.24 1.54	0.36 0.43 0.52 0.71	0.02 0.03 0.04 0.08
RFV01U-D1A	B	From Centroid-Leg	4.00 -7.000 0.000	0.000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.25 1.39 1.54 1.86	0.08 0.10 0.12 0.18
(2) RFV01U-D1A	C	From Centroid-Leg	4.00 -7.000 0.000	30.000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.25 1.39 1.54 1.86	0.08 0.10 0.12 0.18
(2) RFV01U-D2A	A	From Centroid-Leg	4.00 -7.000 0.000	10.000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.01 1.14 1.28 1.59	0.07 0.09 0.11 0.15
RFV01U-D2A	B	From	4.00	0.000	140.00	No Ice	1.88	1.01	0.07

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
		Centroid-Leg	-7.000 0.000			1/2" Ice 1" Ice 2" Ice	2.05 2.22 2.60	1.14 1.28 1.59	0.09 0.11 0.15
Platform Mount [LP 304-1]	C	None		0.000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	17.46 22.44 27.42 37.38	17.46 22.44 27.42 37.38	1.35 1.62 1.90 2.45
130									
DMP65R-BU6D w/ Mount Pipe	A	From Centroid-Face	4.00 -7.000 0.000	-20.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	11.96 12.70 13.46 15.02	5.97 6.63 7.30 8.69	0.11 0.20 0.30 0.53
DMP65R-BU6D w/ Mount Pipe	B	From Centroid-Face	4.00 7.000 0.000	-10.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	11.96 12.70 13.46 15.02	5.97 6.63 7.30 8.69	0.11 0.20 0.30 0.53
DMP65R-BU6D w/ Mount Pipe	C	From Centroid-Face	4.00 7.000 0.000	-10.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	11.96 12.70 13.46 15.02	5.97 6.63 7.30 8.69	0.11 0.20 0.30 0.53
OPA65R-BU6D w/ Mount Pipe	A	From Centroid-Face	4.00 0.000 0.000	-20.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	12.25 13.00 13.76 15.34	6.05 6.71 7.39 8.79	0.09 0.18 0.27 0.51
OPA65R-BU6D w/ Mount Pipe	B	From Centroid-Face	4.00 0.000 0.000	-10.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	12.25 13.00 13.76 15.34	6.05 6.71 7.39 8.79	0.09 0.18 0.27 0.51
OPA65R-BU6D w/ Mount Pipe	C	From Centroid-Face	4.00 0.000 0.000	-10.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	12.25 13.00 13.76 15.34	6.05 6.71 7.39 8.79	0.09 0.18 0.27 0.51
7770.00 w/ Mount Pipe	A	From Centroid-Face	4.00 7.000 0.000	-20.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	0.06 0.10 0.16 0.29
7770.00 w/ Mount Pipe	B	From Centroid-Face	4.00 -7.000 0.000	-10.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	0.06 0.10 0.16 0.29
7770.00 w/ Mount Pipe	C	From Centroid-Face	4.00 -7.000 0.000	-10.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	0.06 0.10 0.16 0.29
RRUS 4449 B5/B12	A	From Centroid-Face	4.00 7.000 0.000	-20.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.14 2.33 2.72	1.41 1.56 1.73 2.07	0.07 0.09 0.11 0.16
RRUS 4449 B5/B12	B	From Centroid-Face	4.00 0.000 0.000	-10.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.14 2.33 2.72	1.41 1.56 1.73 2.07	0.07 0.09 0.11 0.16

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RRUS 4449 B5/B12	C	From Centroid-Face	4.00 7.000 0.000	-10.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.14 2.33 2.72	1.41 1.56 1.73 2.07	0.07 0.09 0.11 0.16
RRUS 4478 B14	A	From Centroid-Face	4.00 0.000 0.000	-20.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.84 2.01 2.19 2.57	1.06 1.20 1.34 1.66	0.06 0.08 0.09 0.14
RRUS 4478 B14	B	From Centroid-Face	4.00 -7.000 0.000	-10.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.84 2.01 2.19 2.57	1.06 1.20 1.34 1.66	0.06 0.08 0.09 0.14
RRUS 4478 B14	C	From Centroid-Face	4.00 0.000 0.000	-10.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.84 2.01 2.19 2.57	1.06 1.20 1.34 1.66	0.06 0.08 0.09 0.14
RRUS 8843 B2/B66A	A	From Centroid-Face	4.00 -7.000 0.000	-20.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.32	1.35 1.50 1.65 1.99	0.07 0.09 0.11 0.16
RRUS 8843 B2/B66A	B	From Centroid-Face	4.00 7.000 0.000	-10.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.32	1.35 1.50 1.65 1.99	0.07 0.09 0.11 0.16
RRUS 8843 B2/B66A	C	From Centroid-Face	4.00 -7.000 0.000	-10.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.32	1.35 1.50 1.65 1.99	0.07 0.09 0.11 0.16
1001940	A	From Centroid-Face	4.00 -7.000 0.000	-20.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.18 0.23 0.30 0.44	0.08 0.13 0.18 0.30	0.00 0.00 0.01 0.01
1001940	B	From Centroid-Face	4.00 7.000 0.000	-10.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.18 0.23 0.30 0.44	0.08 0.13 0.18 0.30	0.00 0.00 0.01 0.01
1001940	C	From Centroid-Face	4.00 -7.000 0.000	-10.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.18 0.23 0.30 0.44	0.08 0.13 0.18 0.30	0.00 0.00 0.01 0.01
DC6-48-60-18-8F	B	From Centroid-Face	4.00 -7.000 0.000	-10.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.21 1.89 2.11 2.57	1.21 1.89 2.11 2.57	0.02 0.04 0.07 0.13
DC6-48-60-18-8F	C	From Centroid-Face	4.00 0.000 0.000	-10.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.21 1.89 2.11 2.57	1.21 1.89 2.11 2.57	0.02 0.04 0.07 0.13
2.4" Dia x 4-ft Mount Pipe	A	From Centroid-Face	4.00 0.000 0.000	0.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.87 1.12 1.37 1.91	0.87 1.12 1.37 1.91	0.01 0.02 0.03 0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
2.4" Dia x 4-ft Mount Pipe	B	From Centroid-Face	4.00 0.000 0.000	0.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.87 1.12 1.37 1.91	0.87 1.12 1.37 1.91	0.01 0.02 0.03 0.06
2.4" Dia x 4-ft Mount Pipe	C	From Centroid-Face	4.00 0.000 0.000	0.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.87 1.12 1.37 1.91	0.87 1.12 1.37 1.91	0.01 0.02 0.03 0.06
Side Arm Mount [SO 102-3]	C	None		0.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.60 4.18 4.75 5.90	3.60 4.18 4.75 5.90	0.07 0.11 0.14 0.20
Side Arm Mount [SO 701-3]	C	None		0.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.83 3.92 5.01 7.19	2.83 3.92 5.01 7.19	0.20 0.24 0.28 0.36
Platform Mount [LP 304-1]	C	None		0.000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	17.46 22.44 27.42 37.38	17.46 22.44 27.42 37.38	1.35 1.62 1.90 2.45
120									
MX08FRO665-20 w/ Mount Pipe	A	From Leg	4.00 0.000 0.000	0.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.10 0.18 0.28 0.51
MX08FRO665-20 w/ Mount Pipe	B	From Leg	4.00 0.000 0.000	0.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.10 0.18 0.28 0.51
MX08FRO665-20 w/ Mount Pipe	C	From Leg	4.00 0.000 0.000	0.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.10 0.18 0.28 0.51
TA08025-B604	A	From Leg	4.00 0.000 0.000	0.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B604	B	From Leg	4.00 0.000 0.000	0.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B604	C	From Leg	4.00 0.000 0.000	0.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	0.98 1.11 1.25 1.55	0.06 0.08 0.10 0.15
TA08025-B605	A	From Leg	4.00 0.000 0.000	0.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
TA08025-B605	B	From Leg	4.00 0.000 0.000	0.000	120.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice			
TA08025-B605	C	From Leg	4.00 0.000 0.000	0.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.96 2.14 2.32 2.71	1.13 1.27 1.41 1.72	0.08 0.09 0.11 0.16
RDIDC-9181-PF-48	B	From Leg	4.00 0.000 0.000	0.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.31 2.50 2.70 3.12	1.29 1.45 1.61 1.96	0.02 0.04 0.06 0.12
Commscope MC-K6MHDX-9-96 (3)	C	None		0.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	15.30 20.48 25.66 36.02	15.30 20.48 25.66 36.02	1.19 1.71 2.22 3.25
(2) 8' x 2'' Mount Pipe	A	From Leg	4.00 0.000 0.000	0.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
(2) 8' x 2'' Mount Pipe	B	From Leg	4.00 0.000 0.000	0.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
(2) 8' x 2'' Mount Pipe	C	From Leg	4.00 0.000 0.000	0.000	120.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.90 2.73 3.40 4.40	1.90 2.73 3.40 4.40	0.03 0.04 0.06 0.12
80									
KS24019-L112A	C	From Leg	3.00 0.000 1.000	30.000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.10 0.18 0.26 0.42	0.10 0.18 0.26 0.42	0.01 0.01 0.01 0.01
Side Arm Mount [SO 701-1]	C	From Leg	1.50 0.000 0.000	30.000	80.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.85 1.14 1.43 2.01	1.67 2.34 3.01 4.35	0.07 0.08 0.09 0.12
***									

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

Comb. No.	Description
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	150 - 145	Pole	Max Tension	26	0.00	-0.00	0.00
			Max. Compression	26	-7.85	0.01	0.00
			Max. Mx	20	-3.03	35.43	-0.00
			Max. My	14	-3.03	0.00	-35.42
			Max. Vy	8	5.82	-35.42	0.00
			Max. Vx	14	5.82	0.00	-35.42
			Max. Torque	22			-0.00
L2	145 - 140	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-8.25	0.01	0.01
			Max. Mx	20	-3.25	65.15	-0.00
			Max. My	14	-3.25	0.01	-65.14
			Max. Vy	8	6.07	-65.14	0.01
			Max. Vx	14	6.07	0.01	-65.14
			Max. Torque	22			-0.00
L3	140 - 133.71	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-16.21	-0.54	1.05
			Max. Mx	8	-6.14	-105.16	-0.30
			Max. My	2	-6.14	0.10	105.37
			Max. Vy	20	-10.85	104.83	0.04
			Max. Vx	14	10.90	-0.24	-105.03
			Max. Torque	22			-1.84
L4	133.71 -	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
	131.293						
			Max. Compression	26	-17.00	-0.53	1.04
			Max. Mx	8	-6.69	-160.14	-0.54
			Max. My	2	-6.68	0.34	160.62
			Max. Vy	20	-11.14	159.81	0.26
			Max. Vx	14	11.20	-0.46	-160.29
			Max. Torque	22			-1.84
L5	131.293 - 126.293	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-25.48	0.73	-1.21
			Max. Mx	20	-10.18	235.91	-0.28
			Max. My	14	-10.19	-0.13	-236.68
			Max. Vy	20	-16.63	235.91	-0.28
			Max. Vx	14	16.58	-0.13	-236.68
			Max. Torque	22			-1.83
L6	126.293 - 121.293	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-26.23	0.71	-1.20
			Max. Mx	20	-10.83	319.63	-0.51
			Max. My	14	-10.83	0.09	-320.17
			Max. Vy	20	-16.88	319.63	-0.51
			Max. Vx	14	16.84	0.09	-320.17
			Max. Torque	11			-0.83
L7	121.293 - 116.293	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-32.70	0.28	-1.38
			Max. Mx	20	-13.72	414.21	-0.72
			Max. My	14	-13.73	0.16	-414.59
			Max. Vy	8	19.75	-414.02	-0.53
			Max. Vx	14	19.68	0.16	-414.59
			Max. Torque	11			-0.83
L8	116.293 - 111.293	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.56	0.21	-1.33
			Max. Mx	20	-14.49	513.39	-0.86
			Max. My	14	-14.50	0.29	-513.45
			Max. Vy	8	19.97	-513.25	-0.38
			Max. Vx	14	19.90	0.29	-513.45
			Max. Torque	11			-0.83
L9	111.293 - 108.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-34.17	0.18	-1.27
			Max. Mx	20	-14.97	574.29	-0.94
			Max. My	14	-14.98	0.36	-574.14
			Max. Vy	8	20.10	-574.18	-0.29
			Max. Vx	14	20.03	0.36	-574.14
			Max. Torque	11			-0.83
L10	108.25 - 108	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-34.24	0.18	-1.26
			Max. Mx	20	-15.05	579.32	-0.95
			Max. My	14	-15.06	0.37	-579.15
			Max. Vy	8	20.10	-579.21	-0.28
			Max. Vx	14	20.03	0.37	-579.15
			Max. Torque	11			-0.82
L11	108 - 103	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.67	0.14	-1.13
			Max. Mx	20	-16.11	680.60	-1.09
			Max. My	14	-16.12	0.49	-680.10
			Max. Vy	8	20.44	-680.55	-0.13
			Max. Vx	14	20.37	0.49	-680.10
			Max. Torque	11			-0.82
L12	103 - 98	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.13	0.09	-1.00
			Max. Mx	20	-17.21	783.55	-1.22
			Max. My	14	-17.22	0.61	-782.71
			Max. Vy	8	20.77	-783.55	0.02
			Max. Vx	14	20.70	0.61	-782.71
			Max. Torque	11			-0.82
L13	98 - 93	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	26	-38.63	0.04	-0.86
			Max. Mx	8	-18.34	-888.19	0.17
			Max. My	14	-18.34	0.72	-886.97
			Max. Vy	8	21.10	-888.19	0.17
			Max. Vx	14	21.03	0.72	-886.97
			Max. Torque	11			-0.82
L14	93 - 88.0833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38.95	0.03	-0.83
			Max. Mx	8	-18.58	-911.09	0.21
			Max. My	14	-18.59	0.75	-909.77
			Max. Vy	8	21.17	-911.09	0.21
			Max. Vx	14	21.10	0.75	-909.77
			Max. Torque	11			-0.82
L15	88.0833 - 86.9166	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41.44	-0.02	-0.68
			Max. Mx	8	-20.46	-1018.09	0.36
			Max. My	14	-20.47	0.86	-1016.38
			Max. Vy	8	21.62	-1018.09	0.36
			Max. Vx	14	21.55	0.86	-1016.38
			Max. Torque	11			-0.82
L16	86.9166 - 85.167	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.01	-0.04	-0.63
			Max. Mx	8	-20.89	-1055.99	0.42
			Max. My	14	-20.90	0.90	-1054.15
			Max. Vy	8	21.74	-1055.99	0.42
			Max. Vx	14	21.67	0.90	-1054.15
			Max. Torque	11			-0.82
L17	85.167 - 84.917	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.09	-0.04	-0.62
			Max. Mx	8	-20.98	-1061.43	0.43
			Max. My	14	-20.99	0.91	-1059.56
			Max. Vy	8	21.74	-1061.43	0.43
			Max. Vx	14	21.67	0.91	-1059.56
			Max. Torque	11			-0.82
L18	84.917 - 79.917	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.87	0.21	-0.65
			Max. Mx	20	-22.33	1170.93	-1.81
			Max. My	14	-22.34	1.21	-1168.81
			Max. Vy	8	22.12	-1170.75	0.47
			Max. Vx	14	22.09	1.21	-1168.81
			Max. Torque	11			-0.97
L19	79.917 - 77	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-44.86	0.18	-0.56
			Max. Mx	20	-23.10	1235.67	-1.88
			Max. My	14	-23.10	1.28	-1233.45
			Max. Vy	8	22.31	-1235.53	0.56
			Max. Vx	14	22.28	1.28	-1233.45
			Max. Torque	11			-0.97
L20	77 - 76.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-44.94	0.18	-0.55
			Max. Mx	20	-23.17	1241.25	-1.89
			Max. My	14	-23.18	1.28	-1239.02
			Max. Vy	8	22.31	-1241.10	0.57
			Max. Vx	14	22.28	1.28	-1239.02
			Max. Torque	11			-0.96
L21	76.75 - 75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.49	0.16	-0.49
			Max. Mx	20	-23.58	1280.37	-1.93
			Max. My	14	-23.58	1.32	-1278.08
			Max. Vy	8	22.44	-1280.25	0.63
			Max. Vx	14	22.41	1.32	-1278.08
			Max. Torque	11			-0.96
L22	75 - 74.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.58	0.15	-0.49
			Max. Mx	20	-23.67	1285.97	-1.94

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	14	-23.67	1.33	-1283.68
			Max. Vy	8	22.43	-1285.85	0.64
			Max. Vx	14	22.40	1.33	-1283.68
			Max. Torque	11			-0.96
L23	74.75 - 69.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.30	0.10	-0.33
			Max. Mx	20	-25.01	1398.87	-2.07
			Max. My	14	-25.01	1.44	-1396.42
			Max. Vy	8	22.76	-1398.82	0.80
			Max. Vx	14	22.73	1.44	-1396.42
			Max. Torque	11			-0.96
L24	69.75 - 65.083	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.94	0.04	-0.17
			Max. Mx	8	-26.29	-1505.69	0.95
			Max. My	14	-26.29	1.54	-1503.07
			Max. Vy	8	23.06	-1505.69	0.95
			Max. Vx	14	23.02	1.54	-1503.07
			Max. Torque	11			-0.96
L25	65.083 - 64.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.03	0.04	-0.17
			Max. Mx	8	-26.37	-1511.45	0.95
			Max. My	14	-26.38	1.55	-1508.83
			Max. Vy	8	23.06	-1511.45	0.95
			Max. Vx	14	23.02	1.55	-1508.83
			Max. Torque	11			-0.96
L26	64.833 - 59.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.82	-0.02	0.00
			Max. Mx	8	-27.77	-1627.52	1.12
			Max. My	14	-27.77	1.65	-1624.67
			Max. Vy	8	23.38	-1627.52	1.12
			Max. Vx	14	23.34	1.65	-1624.67
			Max. Torque	11			-0.96
L27	59.833 - 54.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.64	-0.08	0.18
			Max. Mx	8	-29.20	-1745.12	1.28
			Max. My	14	-29.20	1.76	-1742.03
			Max. Vy	8	23.68	-1745.12	1.28
			Max. Vx	14	23.65	1.76	-1742.03
			Max. Torque	11			-0.96
L28	54.833 - 49.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.49	-0.14	0.35
			Max. Mx	8	-30.66	-1864.20	1.44
			Max. My	14	-30.67	1.86	-1860.89
			Max. Vy	8	23.97	-1864.20	1.44
			Max. Vx	14	23.94	1.86	-1860.89
			Max. Torque	11			-0.96
L29	49.833 - 43.4966	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-55.00	-0.16	0.40
			Max. Mx	8	-31.05	-1896.28	1.49
			Max. My	14	-31.06	1.89	-1892.90
			Max. Vy	8	24.05	-1896.28	1.49
			Max. Vx	14	24.02	1.89	-1892.90
			Max. Torque	11			-0.96
L30	43.4966 - 42.4966	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.75	-0.24	0.62
			Max. Mx	8	-33.99	-2042.00	1.68
			Max. My	14	-33.99	2.01	-2038.35
			Max. Vy	8	24.52	-2042.00	1.68
			Max. Vx	14	24.48	2.01	-2038.35
			Max. Torque	11			-0.96
L31	42.4966 -	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
	37.4966						
			Max. Compression	26	-60.65	-0.30	0.80
			Max. Mx	8	-35.51	-2165.16	1.85
			Max. My	14	-35.51	2.11	-2161.27
			Max. Vy	8	24.77	-2165.16	1.85
			Max. Vx	14	24.73	2.11	-2161.27
			Max. Torque	11			-0.96
L32	37.4966 - 33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-62.39	-0.36	0.96
			Max. Mx	8	-36.90	-2276.94	2.00
			Max. My	14	-36.90	2.20	-2272.84
			Max. Vy	8	24.98	-2276.94	2.00
			Max. Vx	14	24.95	2.20	-2272.84
			Max. Torque	11			-0.96
L33	33 - 32.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-62.50	-0.37	0.97
			Max. Mx	8	-37.00	-2283.19	2.01
			Max. My	14	-37.00	2.21	-2279.07
			Max. Vy	8	24.98	-2283.19	2.01
			Max. Vx	14	24.94	2.21	-2279.07
			Max. Torque	11			-0.96
L34	32.75 - 32	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-62.82	-0.38	1.00
			Max. Mx	8	-37.26	-2301.94	2.03
			Max. My	14	-37.27	2.22	-2297.79
			Max. Vy	8	25.02	-2301.94	2.03
			Max. Vx	14	24.99	2.22	-2297.79
			Max. Torque	11			-0.96
L35	32 - 31.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-62.93	-0.38	1.01
			Max. Mx	8	-37.35	-2308.19	2.04
			Max. My	14	-37.35	2.23	-2304.03
			Max. Vy	8	25.03	-2308.19	2.04
			Max. Vx	14	25.00	2.23	-2304.03
			Max. Torque	11			-0.96
L36	31.75 - 30	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.65	-0.40	1.07
			Max. Mx	8	-37.92	-2352.08	2.10
			Max. My	14	-37.93	2.26	-2347.83
			Max. Vy	8	25.14	-2352.08	2.10
			Max. Vx	14	25.11	2.26	-2347.83
			Max. Torque	11			-0.96
L37	30 - 29.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.76	-0.41	1.08
			Max. Mx	8	-38.03	-2358.36	2.10
			Max. My	14	-38.03	2.27	-2354.10
			Max. Vy	8	25.13	-2358.36	2.10
			Max. Vx	14	25.09	2.27	-2354.10
			Max. Torque	11			-0.96
L38	29.75 - 24.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.90	-0.48	1.19
			Max. Mx	8	-39.72	-2484.59	2.27
			Max. My	14	-39.72	2.36	-2480.10
			Max. Vy	8	25.37	-2484.59	2.27
			Max. Vx	14	25.34	2.36	-2480.10
			Max. Torque	11			-0.96
L39	24.75 - 19.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-68.06	-0.55	1.30
			Max. Mx	8	-41.45	-2612.00	2.44
			Max. My	14	-41.45	2.45	-2607.27
			Max. Vy	8	25.61	-2612.00	2.44
			Max. Vx	14	25.58	2.45	-2607.27
			Max. Torque	11			-0.96
L40	19.75 - 14.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-70.23	-0.62	1.41
			Max. Mx	8	-43.20	-2740.59	2.60

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	14	-43.21	2.55	-2735.62
			Max. Vy	8	25.85	-2740.59	2.60
			Max. Vx	14	25.81	2.55	-2735.62
			Max. Torque	11			-0.96
L41	14.75 - 9.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-72.43	-0.69	1.53
			Max. Mx	8	-44.99	-2870.36	2.77
			Max. My	14	-44.99	2.64	-2865.16
			Max. Vy	8	26.08	-2870.36	2.77
			Max. Vx	14	26.05	2.64	-2865.16
			Max. Torque	11			-0.96
L42	9.75 - 4.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-74.62	-0.76	1.63
			Max. Mx	8	-46.80	-3001.32	2.93
			Max. My	14	-46.80	2.72	-2995.88
			Max. Vy	8	26.32	-3001.32	2.93
			Max. Vx	14	26.29	2.72	-2995.88
			Max. Torque	11			-0.96
L43	4.75 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-76.69	-0.83	1.73
			Max. Mx	8	-48.54	-3126.84	3.09
			Max. My	14	-48.54	2.80	-3121.18
			Max. Vy	8	26.55	-3126.84	3.09
			Max. Vx	14	26.52	2.80	-3121.18
			Max. Torque	11			-0.96

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	30	76.69	-5.88	0.00
	Max. H_x	21	36.41	26.53	-0.03
	Max. H_z	3	36.41	-0.03	26.50
	Max. M_x	2	3120.59	-0.03	26.50
	Max. M_z	8	3126.84	-26.53	0.03
	Max. Torsion	23	0.95	22.96	13.23
	Min. Vert	23	36.41	22.96	13.23
	Min. H_x	9	36.41	-26.53	0.03
	Min. H_z	15	36.41	0.03	-26.50
	Min. M_x	14	-3121.18	0.03	-26.50
	Min. M_z	20	-3125.71	26.53	-0.03
	Min. Torsion	11	-0.96	-23.15	-13.34

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	40.46	0.00	0.00	0.20	-0.46	-0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	48.55	0.03	-26.50	-3120.59	-3.96	-0.57
0.9 Dead+1.0 Wind 0 deg - No Ice	36.41	0.03	-26.50	-3065.04	-3.76	-0.58
1.2 Dead+1.0 Wind 30 deg - No Ice	48.55	13.29	-22.97	-2704.86	-1567.07	-0.11
0.9 Dead+1.0 Wind 30 deg - No Ice	36.41	13.29	-22.97	-2656.74	-1539.00	-0.11
1.2 Dead+1.0 Wind 60 deg - No Ice	48.55	22.99	-13.27	-1563.05	-2709.69	0.37
0.9 Dead+1.0 Wind 60 deg -	36.41	22.99	-13.27	-1535.28	-2661.25	0.38

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						
1.2 Dead+1.0 Wind 90 deg - No Ice	48.55	26.53	-0.03	-3.09	-3126.84	0.76
0.9 Dead+1.0 Wind 90 deg - No Ice	36.41	26.53	-0.03	-3.13	-3070.96	0.78
1.2 Dead+1.0 Wind 120 deg - No Ice	48.55	23.15	13.34	1569.97	-2727.44	0.94
0.9 Dead+1.0 Wind 120 deg - No Ice	36.41	23.15	13.34	1541.94	-2678.75	0.96
1.2 Dead+1.0 Wind 150 deg - No Ice	48.55	13.35	23.12	2722.46	-1572.99	0.87
0.9 Dead+1.0 Wind 150 deg - No Ice	36.41	13.35	23.12	2673.92	-1544.85	0.88
1.2 Dead+1.0 Wind 180 deg - No Ice	48.55	-0.03	26.50	3121.18	2.80	0.56
0.9 Dead+1.0 Wind 180 deg - No Ice	36.41	-0.03	26.50	3065.45	2.90	0.57
1.2 Dead+1.0 Wind 210 deg - No Ice	48.55	-13.40	23.16	2726.56	1578.10	0.11
0.9 Dead+1.0 Wind 210 deg - No Ice	36.41	-13.40	23.16	2677.95	1550.15	0.11
1.2 Dead+1.0 Wind 240 deg - No Ice	48.55	-23.18	13.38	1575.83	2729.65	-0.37
0.9 Dead+1.0 Wind 240 deg - No Ice	36.41	-23.18	13.38	1547.70	2681.20	-0.38
1.2 Dead+1.0 Wind 270 deg - No Ice	48.55	-26.53	0.03	3.67	3125.71	-0.76
0.9 Dead+1.0 Wind 270 deg - No Ice	36.41	-26.53	0.03	3.53	3070.12	-0.77
1.2 Dead+1.0 Wind 300 deg - No Ice	48.55	-22.96	-13.23	-1557.22	2705.19	-0.94
0.9 Dead+1.0 Wind 300 deg - No Ice	36.41	-22.96	-13.23	-1529.54	2657.10	-0.95
1.2 Dead+1.0 Wind 330 deg - No Ice	48.55	-13.24	-22.93	-2700.79	1559.65	-0.87
0.9 Dead+1.0 Wind 330 deg - No Ice	36.41	-13.24	-22.93	-2652.72	1531.98	-0.88
1.2 Dead+1.0 Ice+1.0 Temp	76.69	-0.00	0.00	-1.73	-0.83	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	76.69	0.00	-5.88	-725.71	-1.20	-0.08
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	76.69	2.94	-5.09	-628.88	-363.28	-0.03
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	76.69	5.09	-2.94	-364.02	-628.25	0.03
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	76.69	5.88	-0.00	-2.09	-725.12	0.08
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	76.69	5.09	2.94	359.95	-627.98	0.11
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	76.69	2.94	5.09	625.08	-362.74	0.12
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	76.69	-0.00	5.88	722.18	-0.54	0.08
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	76.69	-2.94	5.09	625.40	361.57	0.03
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	76.69	-5.09	2.94	360.52	626.57	-0.03
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	76.69	-5.88	0.00	-1.44	723.39	-0.08
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	76.69	-5.09	-2.94	-363.45	626.19	-0.11
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	76.69	-2.94	-5.09	-628.56	360.98	-0.12
Dead+Wind 0 deg - Service	40.46	0.00	-4.93	-575.66	-1.09	-0.11
Dead+Wind 30 deg - Service	40.46	2.47	-4.27	-498.95	-289.54	-0.02
Dead+Wind 60 deg - Service	40.46	4.28	-2.47	-288.24	-500.40	0.07
Dead+Wind 90 deg - Service	40.46	4.94	-0.00	-0.37	-577.38	0.15
Dead+Wind 120 deg - Service	40.46	4.31	2.48	289.93	-503.69	0.18
Dead+Wind 150 deg -	40.46	2.49	4.30	502.61	-290.64	0.17

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Service						
Dead+Wind 180 deg - Service	40.46	-0.00	4.93	576.16	0.16	0.11
Dead+Wind 210 deg - Service	40.46	-2.49	4.31	503.37	290.87	0.02
Dead+Wind 240 deg - Service	40.46	-4.31	2.49	291.01	503.38	-0.07
Dead+Wind 270 deg - Service	40.46	-4.94	0.00	0.88	576.44	-0.15
Dead+Wind 300 deg - Service	40.46	-4.27	-2.46	-287.16	498.84	-0.18
Dead+Wind 330 deg - Service	40.46	-2.46	-4.27	-498.19	287.45	-0.17

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-40.46	0.00	0.00	40.46	0.00	0.000%
2	0.03	-48.55	-26.50	-0.03	48.55	26.50	0.000%
3	0.03	-36.41	-26.50	-0.03	36.41	26.50	0.000%
4	13.29	-48.55	-22.97	-13.29	48.55	22.97	0.000%
5	13.29	-36.41	-22.97	-13.29	36.41	22.97	0.000%
6	22.99	-48.55	-13.27	-22.99	48.55	13.27	0.000%
7	22.99	-36.41	-13.27	-22.99	36.41	13.27	0.000%
8	26.53	-48.55	-0.03	-26.53	48.55	0.03	0.000%
9	26.53	-36.41	-0.03	-26.53	36.41	0.03	0.000%
10	23.15	-48.55	13.34	-23.15	48.55	-13.34	0.000%
11	23.15	-36.41	13.34	-23.15	36.41	-13.34	0.000%
12	13.35	-48.55	23.12	-13.35	48.55	-23.12	0.000%
13	13.35	-36.41	23.12	-13.35	36.41	-23.12	0.000%
14	-0.03	-48.55	26.50	0.03	48.55	-26.50	0.000%
15	-0.03	-36.41	26.50	0.03	36.41	-26.50	0.000%
16	-13.40	-48.55	23.16	13.40	48.55	-23.16	0.000%
17	-13.40	-36.41	23.16	13.40	36.41	-23.16	0.000%
18	-23.18	-48.55	13.38	23.18	48.55	-13.38	0.000%
19	-23.18	-36.41	13.38	23.18	36.41	-13.38	0.000%
20	-26.53	-48.55	0.03	26.53	48.55	-0.03	0.000%
21	-26.53	-36.41	0.03	26.53	36.41	-0.03	0.000%
22	-22.96	-48.55	-13.23	22.96	48.55	13.23	0.000%
23	-22.96	-36.41	-13.23	22.96	36.41	13.23	0.000%
24	-13.24	-48.55	-22.93	13.24	48.55	22.93	0.000%
25	-13.24	-36.41	-22.93	13.24	36.41	22.93	0.000%
26	0.00	-76.69	0.00	0.00	76.69	-0.00	0.000%
27	0.00	-76.69	-5.88	-0.00	76.69	5.88	0.000%
28	2.94	-76.69	-5.09	-2.94	76.69	5.09	0.000%
29	5.09	-76.69	-2.94	-5.09	76.69	2.94	0.000%
30	5.88	-76.69	-0.00	-5.88	76.69	0.00	0.000%
31	5.09	-76.69	2.94	-5.09	76.69	-2.94	0.000%
32	2.94	-76.69	5.09	-2.94	76.69	-5.09	0.000%
33	-0.00	-76.69	5.88	0.00	76.69	-5.88	0.000%
34	-2.94	-76.69	5.09	2.94	76.69	-5.09	0.000%
35	-5.09	-76.69	2.94	5.09	76.69	-2.94	0.000%
36	-5.88	-76.69	0.00	5.88	76.69	-0.00	0.000%
37	-5.09	-76.69	-2.94	5.09	76.69	2.94	0.000%
38	-2.94	-76.69	-5.09	2.94	76.69	5.09	0.000%
39	0.00	-40.46	-4.93	-0.00	40.46	4.93	0.000%
40	2.47	-40.46	-4.27	-2.47	40.46	4.27	0.000%
41	4.28	-40.46	-2.47	-4.28	40.46	2.47	0.000%
42	4.94	-40.46	-0.00	-4.94	40.46	0.00	0.000%
43	4.31	-40.46	2.48	-4.31	40.46	-2.48	0.000%
44	2.49	-40.46	4.30	-2.49	40.46	-4.30	0.000%
45	-0.00	-40.46	4.93	0.00	40.46	-4.93	0.000%
46	-2.49	-40.46	4.31	2.49	40.46	-4.31	0.000%
47	-4.31	-40.46	2.49	4.31	40.46	-2.49	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
48	-4.94	-40.46	0.00	4.94	40.46	-0.00	0.000%
49	-4.27	-40.46	-2.46	4.27	40.46	2.46	0.000%
50	-2.46	-40.46	-4.27	2.46	40.46	4.27	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	6	0.00000001	0.00008359
3	Yes	5	0.00000001	0.00046803
4	Yes	7	0.00000001	0.00054290
5	Yes	7	0.00000001	0.00011764
6	Yes	7	0.00000001	0.00054052
7	Yes	7	0.00000001	0.00011702
8	Yes	6	0.00000001	0.00012021
9	Yes	5	0.00000001	0.00069694
10	Yes	7	0.00000001	0.00055419
11	Yes	7	0.00000001	0.00012024
12	Yes	7	0.00000001	0.00053949
13	Yes	7	0.00000001	0.00011630
14	Yes	6	0.00000001	0.00011779
15	Yes	5	0.00000001	0.00067701
16	Yes	7	0.00000001	0.00054856
17	Yes	7	0.00000001	0.00011854
18	Yes	7	0.00000001	0.00055102
19	Yes	7	0.00000001	0.00011919
20	Yes	6	0.00000001	0.00015772
21	Yes	5	0.00000001	0.00091758
22	Yes	7	0.00000001	0.00053403
23	Yes	7	0.00000001	0.00011551
24	Yes	7	0.00000001	0.00054828
25	Yes	7	0.00000001	0.00011938
26	Yes	4	0.00000001	0.00006378
27	Yes	7	0.00000001	0.00057526
28	Yes	7	0.00000001	0.00075951
29	Yes	7	0.00000001	0.00075972
30	Yes	7	0.00000001	0.00057635
31	Yes	7	0.00000001	0.00076145
32	Yes	7	0.00000001	0.00075887
33	Yes	7	0.00000001	0.00057648
34	Yes	7	0.00000001	0.00076086
35	Yes	7	0.00000001	0.00076106
36	Yes	7	0.00000001	0.00057629
37	Yes	7	0.00000001	0.00075775
38	Yes	7	0.00000001	0.00075993
39	Yes	5	0.00000001	0.00012307
40	Yes	5	0.00000001	0.00081926
41	Yes	5	0.00000001	0.00080793
42	Yes	5	0.00000001	0.00013210
43	Yes	5	0.00000001	0.00087445
44	Yes	5	0.00000001	0.00080795
45	Yes	5	0.00000001	0.00012483
46	Yes	5	0.00000001	0.00084430
47	Yes	5	0.00000001	0.00085651
48	Yes	5	0.00000001	0.00013382
49	Yes	5	0.00000001	0.00078493
50	Yes	5	0.00000001	0.00084882

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 145	26.689	46	1.871	0.001
L2	145 - 140	24.744	46	1.840	0.001
L3	140 - 133.71	22.845	46	1.783	0.001
L4	136.293 - 131.293	21.483	46	1.724	0.001
L5	131.293 - 126.293	19.702	46	1.670	0.002
L6	126.293 - 121.293	17.995	46	1.587	0.002
L7	121.293 - 116.293	16.384	47	1.489	0.002
L8	116.293 - 111.293	14.882	47	1.381	0.001
L9	111.293 - 108.25	13.496	47	1.265	0.001
L10	108.25 - 108	12.713	47	1.193	0.001
L11	108 - 103	12.651	47	1.190	0.001
L12	103 - 98	11.438	47	1.126	0.001
L13	98 - 93	10.294	47	1.060	0.001
L14	93 - 88.0833	9.219	47	0.994	0.001
L15	91.9166 - 86.9166	8.995	47	0.980	0.001
L16	86.9166 - 85.167	7.987	47	0.940	0.001
L17	85.167 - 84.917	7.647	47	0.918	0.001
L18	84.917 - 79.917	7.599	47	0.914	0.001
L19	79.917 - 77	6.675	47	0.851	0.001
L20	77 - 76.75	6.167	47	0.813	0.001
L21	76.75 - 75	6.124	47	0.810	0.001
L22	75 - 74.75	5.832	47	0.785	0.000
L23	74.75 - 69.75	5.791	47	0.782	0.000
L24	69.75 - 65.083	5.005	47	0.720	0.000
L25	65.083 - 64.833	4.330	47	0.662	0.000
L26	64.833 - 59.833	4.295	47	0.659	0.000
L27	59.833 - 54.833	3.637	47	0.599	0.000
L28	54.833 - 49.833	3.041	47	0.540	0.000
L29	49.833 - 43.4966	2.506	47	0.482	0.000
L30	48.4966 - 42.4966	2.373	47	0.467	0.000
L31	42.4966 - 37.4966	1.809	47	0.426	0.000
L32	37.4966 - 33	1.394	47	0.368	0.000
L33	33 - 32.75	1.071	47	0.317	0.000
L34	32.75 - 32	1.055	47	0.315	0.000
L35	32 - 31.75	1.006	47	0.308	0.000
L36	31.75 - 30	0.990	47	0.305	0.000
L37	30 - 29.75	0.881	47	0.288	0.000
L38	29.75 - 24.75	0.866	47	0.285	0.000
L39	24.75 - 19.75	0.594	47	0.234	0.000
L40	19.75 - 14.75	0.375	47	0.184	0.000
L41	14.75 - 9.75	0.208	47	0.136	0.000
L42	9.75 - 4.75	0.090	47	0.089	0.000
L43	4.75 - 0	0.021	47	0.043	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	AIR6449 B41_T-MOBILE	46	26.689	1.871	0.001	6409
140.00	(2) JAHH-65B-R3B w/ Mount Pipe	46	22.845	1.783	0.001	4287
130.00	DMP65R-BU6D w/ Mount Pipe	46	19.252	1.652	0.002	3728
120.00	MX08FRO665-20 w/ Mount Pipe	47	15.985	1.461	0.002	2720
80.00	KS24019-L112A	47	6.690	0.852	0.001	4463

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 145	144.041	18	10.125	0.006
L2	145 - 140	133.602	18	9.962	0.006
L3	140 - 133.71	123.409	18	9.652	0.006
L4	136.293 - 131.293	116.091	18	9.333	0.007
L5	131.293 - 126.293	106.520	18	9.036	0.011
L6	126.293 - 121.293	97.346	18	8.590	0.011
L7	121.293 - 116.293	88.673	18	8.064	0.009
L8	116.293 - 111.293	80.571	18	7.484	0.007
L9	111.293 - 108.25	73.091	18	6.861	0.006
L10	108.25 - 108	68.859	18	6.470	0.005
L11	108 - 103	68.521	18	6.454	0.005
L12	103 - 98	61.967	18	6.107	0.005
L13	98 - 93	55.778	18	5.751	0.004
L14	93 - 88.0833	49.960	18	5.392	0.004
L15	91.9166 - 86.9166	48.748	18	5.315	0.004
L16	86.9166 - 85.167	43.292	18	5.098	0.003
L17	85.167 - 84.917	41.450	18	4.979	0.003
L18	84.917 - 79.917	41.190	18	4.962	0.003
L19	79.917 - 77	36.187	18	4.615	0.003
L20	77 - 76.75	33.434	18	4.414	0.003
L21	76.75 - 75	33.204	18	4.394	0.003
L22	75 - 74.75	31.620	18	4.261	0.003
L23	74.75 - 69.75	31.398	18	4.244	0.003
L24	69.75 - 65.083	27.138	18	3.905	0.002
L25	65.083 - 64.833	23.480	18	3.591	0.002
L26	64.833 - 59.833	23.292	18	3.575	0.002
L27	59.833 - 54.833	19.723	18	3.250	0.002
L28	54.833 - 49.833	16.491	18	2.930	0.002
L29	49.833 - 43.4966	13.591	18	2.614	0.001
L30	48.4966 - 42.4966	12.871	18	2.531	0.001
L31	42.4966 - 37.4966	9.812	18	2.312	0.001
L32	37.4966 - 33	7.558	18	1.996	0.001
L33	33 - 32.75	5.810	18	1.721	0.001
L34	32.75 - 32	5.720	18	1.708	0.001
L35	32 - 31.75	5.455	18	1.671	0.001
L36	31.75 - 30	5.368	18	1.657	0.001
L37	30 - 29.75	4.778	18	1.561	0.001
L38	29.75 - 24.75	4.697	18	1.547	0.001
L39	24.75 - 19.75	3.222	18	1.270	0.001
L40	19.75 - 14.75	2.034	18	1.000	0.000
L41	14.75 - 9.75	1.125	18	0.737	0.000
L42	9.75 - 4.75	0.487	18	0.482	0.000
L43	4.75 - 0	0.114	18	0.231	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	AIR6449 B41_T-MOBILE	18	144.041	10.125	0.006	1256
140.00	(2) JAHH-65B-R3B w/ Mount	18	123.409	9.652	0.006	841

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
	Pipe					
130.00	DMP65R-BU6D w/ Mount Pipe	18	104.105	8.939	0.012	724
120.00	MX08FRO665-20 w/ Mount Pipe	18	86.521	7.917	0.009	524
80.00	KS24019-L112A	18	36.267	4.621	0.003	835

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	150 - 145 (1)	TP14.12x13x0.188	5.00	0.00	0.0	8.292	-3.02	485.07	0.006
L2	145 - 140 (2)	TP15.241x14.12x0.188	5.00	0.00	0.0	8.958	-3.25	524.07	0.006
L3	140 - 133.71 (3)	TP16.65x15.241x0.188	6.29	0.00	0.0	9.453	-6.13	552.99	0.011
L4	133.71 - 131.293 (4)	TP16.804x15.696x0.313	5.00	0.00	0.0	16.358	-6.68	956.93	0.007
L5	131.293 - 126.293 (5)	TP17.912x16.804x0.313	5.00	0.00	0.0	17.457	-10.19	1021.22	0.010
L6	126.293 - 121.293 (6)	TP19.02x17.912x0.313	5.00	0.00	0.0	18.556	-10.81	1085.52	0.010
L7	121.293 - 116.293 (7)	TP20.128x19.02x0.313	5.00	0.00	0.0	19.655	-13.71	1149.81	0.012
L8	116.293 - 111.293 (8)	TP21.236x20.128x0.313	5.00	0.00	0.0	20.754	-14.47	1214.10	0.012
L9	111.293 - 108.25 (9)	TP21.911x21.236x0.313	3.04	0.00	0.0	21.423	-14.96	1253.24	0.012
L10	108.25 - 108 (10)	TP21.966x21.911x0.638	0.25	0.00	0.0	43.157	-15.03	2524.69	0.006
L11	108 - 103 (11)	TP23.074x21.966x0.613	5.00	0.00	0.0	43.667	-16.07	2554.55	0.006
L12	103 - 98 (12)	TP24.182x23.074x0.6	5.00	0.00	0.0	44.910	-17.17	2627.25	0.007
L13	98 - 93 (13)	TP25.29x24.182x0.588	5.00	0.00	0.0	46.064	-18.30	2694.75	0.007
L14	93 - 88.0833 (14)	TP26.38x25.29x0.588	4.92	0.00	0.0	46.512	-18.55	2720.94	0.007
L15	88.0833 - 86.9166 (15)	TP26.012x24.906x0.638	5.00	0.00	0.0	51.343	-20.42	3003.58	0.007
L16	86.9166 - 85.167 (16)	TP26.399x26.012x0.638	1.75	0.00	0.0	52.127	-20.86	3049.41	0.007
L17	85.167 - 84.917 (17)	TP26.454x26.399x0.638	0.25	0.00	0.0	52.238	-20.94	3055.95	0.007
L18	84.917 - 79.917 (18)	TP27.561x26.454x0.625	5.00	0.00	0.0	53.434	-22.30	3125.88	0.007
L19	79.917 - 77 (19)	TP28.206x27.561x0.613	2.92	0.00	0.0	53.644	-23.06	3138.20	0.007
L20	77 - 76.75 (20)	TP28.262x28.206x0.538	0.25	0.00	0.0	47.298	-23.14	2766.93	0.008
L21	76.75 - 75 (21)	TP28.649x28.262x0.531	1.75	0.00	0.0	47.411	-23.55	2773.58	0.008
L22	75 - 74.75 (22)	TP28.704x28.649x0.613	0.25	0.00	0.0	54.612	-23.64	3194.82	0.007
L23	74.75 - 69.75 (23)	TP29.811x28.704x0.6	5.00	0.00	0.0	55.629	-24.98	3254.28	0.008
L24	69.75 - 65.083 (24)	TP30.843x29.811x0.588	4.67	0.00	0.0	56.419	-26.26	3300.50	0.008
L25	65.083 - 64.833 (25)	TP30.899x30.843x0.588	0.25	0.00	0.0	56.522	-26.35	3306.53	0.008
L26	64.833 - 59.833 (26)	TP32.005x30.899x0.588	5.00	0.00	0.0	58.585	-27.74	3427.23	0.008
L27	59.833 - 54.833 (27)	TP33.111x32.005x0.575	5.00	0.00	0.0	58.573	-28.63	3426.52	0.008
L28	54.833 -	TP34.218x33.111x0.563	5.00	0.00	0.0	58.112	-29.20	3399.56	0.009

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	49.833 (28)								
L29	49.833 - 43.4966 (29)	TP35.62x34.218x0.563	6.34	0.00	0.0	60.087	-30.67	3515.12	0.009
L30	43.4966 - 42.4966 (30)	TP35.092x33.764x0.563	6.00	0.00	0.0	61.253	-33.70	3583.28	0.009
L31	42.4966 - 37.4966 (31)	TP36.199x35.092x0.55	5.00	0.00	0.0	60.300	-34.00	3527.54	0.010
L32	37.4966 - 33 (32)	TP37.194x36.199x0.55	4.50	0.00	0.0	62.232	-35.52	3640.58	0.010
L33	33 - 32.75 (33)	TP37.25x37.194x0.663	0.25	0.00	0.0	76.818	-36.90	4493.86	0.008
L34	32.75 - 32 (34)	TP37.416x37.25x0.663	0.75	0.00	0.0	76.935	-37.00	4500.67	0.008
L35	32 - 31.75 (35)	TP37.471x37.416x0.588	0.25	0.00	0.0	68.674	-37.26	4017.45	0.009
L36	31.75 - 30 (36)	TP37.858x37.471x0.588	1.75	0.00	0.0	68.778	-37.36	4023.49	0.009
L37	30 - 29.75 (37)	TP37.914x37.858x0.588	0.25	0.00	0.0	69.500	-37.94	4065.75	0.009
L38	29.75 - 24.75 (38)	TP39.021x37.914x0.575	5.00	0.00	0.0	68.145	-38.03	3986.49	0.010
L39	24.75 - 19.75 (39)	TP40.128x39.021x0.569	5.00	0.00	0.0	69.414	-39.73	4060.72	0.010
L40	19.75 - 14.75 (40)	TP41.235x40.128x0.563	5.00	0.00	0.0	70.639	-41.46	4132.36	0.010
L41	14.75 - 9.75 (41)	TP42.341x41.235x0.563	5.00	0.00	0.0	72.615	-43.22	4247.97	0.010
L42	9.75 - 4.75 (42)	TP43.448x42.341x0.55	5.00	0.00	0.0	72.955	-45.01	4267.89	0.011
L43	4.75 - 0 (43)	TP44.5x43.448x0.55	4.75	0.00	0.0	74.888	-46.82	4380.94	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	150 - 145 (1)	TP14.12x13x0.188	35.44	175.52	0.202	0.00	175.52	0.000
L2	145 - 140 (2)	TP15.241x14.12x0.188	65.17	205.09	0.318	0.00	205.09	0.000
L3	140 - 133.71 (3)	TP16.65x15.241x0.188	105.36	228.49	0.461	0.00	228.49	0.000
L4	133.71 - 131.293 (4)	TP16.804x15.696x0.313	160.75	407.65	0.394	0.00	407.65	0.000
L5	131.293 - 126.293 (5)	TP17.912x16.804x0.313	236.73	464.82	0.509	0.00	464.82	0.000
L6	126.293 - 121.293 (6)	TP19.02x17.912x0.313	320.24	525.73	0.609	0.00	525.73	0.000
L7	121.293 - 116.293 (7)	TP20.128x19.02x0.313	414.90	590.39	0.703	0.00	590.39	0.000
L8	116.293 - 111.293 (8)	TP21.236x20.128x0.313	513.99	658.81	0.780	0.00	658.81	0.000
L9	111.293 - 108.25 (9)	TP21.911x21.236x0.313	574.94	702.28	0.819	0.00	702.28	0.000
L10	108.25 - 108 (10)	TP21.966x21.911x0.638	579.97	1376.19	0.421	0.00	1376.19	0.000
L11	108 - 103 (11)	TP23.074x21.966x0.613	681.91	1470.18	0.464	0.00	1470.18	0.000
L12	103 - 98 (12)	TP24.182x23.074x0.6	786.03	1590.28	0.494	0.00	1590.28	0.000
L13	98 - 93 (13)	TP25.29x24.182x0.588	891.80	1711.42	0.521	0.00	1711.42	0.000
L14	93 - 88.0833 (14)	TP26.38x25.29x0.588	914.93	1745.23	0.524	0.00	1745.23	0.000
L15	88.0833 - 86.9166 (15)	TP26.012x24.906x0.638	1023.07	1956.84	0.523	0.00	1956.84	0.000
L16	86.9166 - 85.167 (16)	TP26.399x26.012x0.638	1061.37	2017.75	0.526	0.00	2017.75	0.000
L17	85.167 - 84.917 (17)	TP26.454x26.399x0.638	1066.86	2026.53	0.526	0.00	2026.53	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 $\frac{M_{uy}}{\phi M_{ny}}$
L18	84.917 - 79.917 (18)	TP27.561x26.454x0.625	1177.73	2165.89	0.544	0.00	2165.89	0.000
L19	79.917 - 77 (19)	TP28.206x27.561x0.613	1243.19	2229.73	0.558	0.00	2229.73	0.000
L20	77 - 76.75 (20)	TP28.262x28.206x0.538	1248.83	1980.68	0.631	0.00	1980.68	0.000
L21	76.75 - 75 (21)	TP28.649x28.262x0.531	1288.38	2014.58	0.640	0.00	2014.58	0.000
L22	75 - 74.75 (22)	TP28.704x28.649x0.613	1294.04	2311.82	0.560	0.00	2311.82	0.000
L23	74.75 - 69.75 (23)	TP29.811x28.704x0.6	1408.18	2451.66	0.574	0.00	2451.66	0.000
L24	69.75 - 65.083 (24)	TP30.843x29.811x0.588	1516.13	2578.29	0.588	0.00	2578.29	0.000
L25	65.083 - 64.833 (25)	TP30.899x30.843x0.588	1521.94	2587.82	0.588	0.00	2587.82	0.000
L26	64.833 - 59.833 (26)	TP32.005x30.899x0.588	1639.17	2782.05	0.589	0.00	2782.05	0.000
L27	59.833 - 54.833 (27)	TP33.111x32.005x0.575	1710.23	2843.54	0.601	0.00	2843.54	0.000
L28	54.833 - 49.833 (28)	TP34.218x33.111x0.563	1757.92	2862.95	0.614	0.00	2862.95	0.000
L29	49.833 - 43.4966 (29)	TP35.62x34.218x0.563	1878.15	3062.61	0.613	0.00	3062.61	0.000
L30	43.4966 - 42.4966 (30)	TP35.092x33.764x0.563	2032.92	3183.53	0.639	0.00	3183.53	0.000
L31	42.4966 - 37.4966 (31)	TP36.199x35.092x0.55	2057.63	3156.85	0.652	0.00	3156.85	0.000
L32	37.4966 - 33 (32)	TP37.194x36.199x0.55	2181.92	3364.05	0.649	0.00	3364.05	0.000
L33	33 - 32.75 (33)	TP37.25x37.194x0.663	2294.72	4244.06	0.541	0.00	4244.06	0.000
L34	32.75 - 32 (34)	TP37.416x37.25x0.663	2301.02	4257.05	0.541	0.00	4257.05	0.000
L35	32 - 31.75 (35)	TP37.471x37.416x0.588	2319.93	3833.13	0.605	0.00	3833.13	0.000
L36	31.75 - 30 (36)	TP37.858x37.471x0.588	2326.25	3844.76	0.605	0.00	3844.76	0.000
L37	30 - 29.75 (37)	TP37.914x37.858x0.588	2370.53	3926.59	0.604	0.00	3926.59	0.000
L38	29.75 - 24.75 (38)	TP39.021x37.914x0.575	2376.86	3858.43	0.616	0.00	3858.43	0.000
L39	24.75 - 19.75 (39)	TP40.128x39.021x0.569	2504.21	4049.87	0.618	0.00	4049.87	0.000
L40	19.75 - 14.75 (40)	TP41.235x40.128x0.563	2632.73	4243.03	0.620	0.00	4243.03	0.000
L41	14.75 - 9.75 (41)	TP42.341x41.235x0.563	2762.42	4485.48	0.616	0.00	4485.48	0.000
L42	9.75 - 4.75 (42)	TP43.448x42.341x0.55	2893.28	4633.61	0.624	0.00	4633.61	0.000
L43	4.75 - 0 (43)	TP44.5x43.448x0.55	3025.32	4883.96	0.619	0.00	4883.96	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	150 - 145 (1)	TP14.12x13x0.188	5.82	145.52	0.040	0.00	177.56	0.000
L2	145 - 140 (2)	TP15.241x14.12x0.188	6.07	157.22	0.039	0.00	207.26	0.000
L3	140 - 133.71 (3)	TP16.65x15.241x0.188	10.93	165.90	0.066	1.36	230.76	0.006
L4	133.71 - 131.293 (4)	TP16.804x15.696x0.313	11.23	287.08	0.039	1.36	414.62	0.003
L5	131.293 - 126.293 (5)	TP17.912x16.804x0.313	16.56	306.37	0.054	0.81	472.20	0.002

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 $\frac{T_u}{\phi T_n}$
L6	126.293 - 121.293 (6)	TP19.02x17.912x0.313	16.90	325.65	0.052	0.21	533.53	0.000
L7	121.293 - 116.293 (7)	TP20.128x19.02x0.313	19.74	344.94	0.057	0.02	598.61	0.000
L8	116.293 - 111.293 (8)	TP21.236x20.128x0.313	19.98	364.23	0.055	0.42	667.42	0.001
L9	111.293 - 108.25 (9)	TP21.911x21.236x0.313	20.12	375.97	0.054	0.42	711.14	0.001
L10	108.25 - 108 (10)	TP21.966x21.911x0.638	20.14	757.41	0.027	0.42	1414.73	0.000
L11	108 - 103 (11)	TP23.074x21.966x0.613	20.68	766.36	0.027	0.42	1507.51	0.000
L12	103 - 98 (12)	TP24.182x23.074x0.6	21.01	788.17	0.027	0.42	1627.76	0.000
L13	98 - 93 (13)	TP25.29x24.182x0.588	21.34	808.43	0.026	0.42	1748.92	0.000
L14	93 - 88.0833 (14)	TP26.38x25.29x0.588	21.41	816.28	0.026	0.42	1783.08	0.000
L15	88.0833 - 86.9166 (15)	TP26.012x24.906x0.638	21.86	901.07	0.024	0.42	2002.33	0.000
L16	86.9166 - 85.167 (16)	TP26.399x26.012x0.638	21.98	914.82	0.024	0.42	2063.90	0.000
L17	85.167 - 84.917 (17)	TP26.454x26.399x0.638	21.98	916.79	0.024	0.42	2072.78	0.000
L18	84.917 - 79.917 (18)	TP27.561x26.454x0.625	22.37	937.76	0.024	0.42	2212.10	0.000
L19	79.917 - 77 (19)	TP28.206x27.561x0.613	22.56	941.46	0.024	0.38	2275.06	0.000
L20	77 - 76.75 (20)	TP28.262x28.206x0.538	22.57	830.08	0.027	0.38	2015.38	0.000
L21	76.75 - 75 (21)	TP28.649x28.262x0.531	22.69	832.07	0.027	0.38	2048.89	0.000
L22	75 - 74.75 (22)	TP28.704x28.649x0.613	22.68	958.45	0.024	0.38	2357.90	0.000
L23	74.75 - 69.75 (23)	TP29.811x28.704x0.6	23.01	976.28	0.024	0.38	2497.44	0.000
L24	69.75 - 65.083 (24)	TP30.843x29.811x0.588	23.30	990.15	0.024	0.38	2623.55	0.000
L25	65.083 - 64.833 (25)	TP30.899x30.843x0.588	23.31	991.96	0.023	0.38	2633.15	0.000
L26	64.833 - 59.833 (26)	TP32.005x30.899x0.588	23.62	1028.17	0.023	0.38	2828.89	0.000
L27	59.833 - 54.833 (27)	TP33.111x32.005x0.575	23.86	1035.04	0.023	0.37	2889.19	0.000
L28	54.833 - 49.833 (28)	TP34.218x33.111x0.563	23.98	1026.80	0.023	0.37	2907.11	0.000
L29	49.833 - 43.4966 (29)	TP35.62x34.218x0.563	24.30	1063.80	0.023	0.37	3108.10	0.000
L30	43.4966 - 42.4966 (30)	TP35.092x33.764x0.563	24.76	1081.92	0.023	0.37	3229.82	0.000
L31	42.4966 - 37.4966 (31)	TP36.199x35.092x0.55	24.81	1065.04	0.023	0.37	3201.25	0.000
L32	37.4966 - 33 (32)	TP37.194x36.199x0.55	25.06	1099.80	0.023	0.37	3409.71	0.000
L33	33 - 32.75 (33)	TP37.25x37.194x0.663	25.22	1350.20	0.019	0.37	4313.13	0.000
L34	32.75 - 32 (34)	TP37.416x37.25x0.663	25.27	1356.33	0.019	0.37	4326.20	0.000
L35	32 - 31.75 (35)	TP37.471x37.416x0.588	25.27	1207.05	0.021	0.37	3887.16	0.000
L36	31.75 - 30 (36)	TP37.858x37.471x0.588	25.38	1219.73	0.021	0.37	3898.85	0.000
L37	30 - 29.75 (37)	TP37.914x37.858x0.588	25.37	1221.54	0.021	0.37	3981.19	0.000
L38	29.75 - 24.75 (38)	TP39.021x37.914x0.575	25.43	1203.04	0.021	0.37	3910.68	0.000
L39	24.75 - 19.75 (39)	TP40.128x39.021x0.569	25.66	1225.23	0.021	0.37	4102.26	0.000
L40	19.75 - 14.75 (40)	TP41.235x40.128x0.563	25.90	1246.64	0.021	0.37	4295.48	0.000
L41	14.75 - 9.75 (41)	TP42.341x41.235x0.563	26.13	1281.33	0.020	0.37	4539.20	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L42	9.75 - 4.75 (42)	TP43.448x42.341x0.55	26.37	1287.15	0.020	0.37	4686.00	0.000
L43	4.75 - 0 (43)	TP44.5x43.448x0.55	26.62	1322.33	0.020	0.37	4937.52	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	150 - 145 (1)	0.006	0.202	0.000	0.040	0.000	0.210	1.050	4.8.2
L2	145 - 140 (2)	0.006	0.318	0.000	0.039	0.000	0.325	1.050	4.8.2
L3	140 - 133.71 (3)	0.011	0.461	0.000	0.066	0.006	0.477	1.050	4.8.2
L4	133.71 - 131.293 (4)	0.007	0.394	0.000	0.039	0.003	0.403	1.050	4.8.2
L5	131.293 - 126.293 (5)	0.010	0.509	0.000	0.054	0.002	0.522	1.050	4.8.2
L6	126.293 - 121.293 (6)	0.010	0.609	0.000	0.052	0.000	0.622	1.050	4.8.2
L7	121.293 - 116.293 (7)	0.012	0.703	0.000	0.057	0.000	0.718	1.050	4.8.2
L8	116.293 - 111.293 (8)	0.012	0.780	0.000	0.055	0.001	0.795	1.050	4.8.2
L9	111.293 - 108.25 (9)	0.012	0.819	0.000	0.054	0.001	0.834	1.050	4.8.2
L10	108.25 - 108 (10)	0.006	0.421	0.000	0.027	0.000	0.428	1.050	4.8.2
L11	108 - 103 (11)	0.006	0.464	0.000	0.027	0.000	0.471	1.050	4.8.2
L12	103 - 98 (12)	0.007	0.494	0.000	0.027	0.000	0.502	1.050	4.8.2
L13	98 - 93 (13)	0.007	0.521	0.000	0.026	0.000	0.529	1.050	4.8.2
L14	93 - 88.0833 (14)	0.007	0.524	0.000	0.026	0.000	0.532	1.050	4.8.2
L15	88.0833 - 86.9166 (15)	0.007	0.523	0.000	0.024	0.000	0.530	1.050	4.8.2
L16	86.9166 - 85.167 (16)	0.007	0.526	0.000	0.024	0.000	0.533	1.050	4.8.2
L17	85.167 - 84.917 (17)	0.007	0.526	0.000	0.024	0.000	0.534	1.050	4.8.2
L18	84.917 - 79.917 (18)	0.007	0.544	0.000	0.024	0.000	0.551	1.050	4.8.2
L19	79.917 - 77 (19)	0.007	0.558	0.000	0.024	0.000	0.565	1.050	4.8.2
L20	77 - 76.75 (20)	0.008	0.631	0.000	0.027	0.000	0.640	1.050	4.8.2
L21	76.75 - 75 (21)	0.008	0.640	0.000	0.027	0.000	0.649	1.050	4.8.2
L22	75 - 74.75 (22)	0.007	0.560	0.000	0.024	0.000	0.568	1.050	4.8.2
L23	74.75 - 69.75 (23)	0.008	0.574	0.000	0.024	0.000	0.583	1.050	4.8.2
L24	69.75 - 65.083 (24)	0.008	0.588	0.000	0.024	0.000	0.597	1.050	4.8.2
L25	65.083 - 64.833 (25)	0.008	0.588	0.000	0.023	0.000	0.597	1.050	4.8.2
L26	64.833 - 59.833 (26)	0.008	0.589	0.000	0.023	0.000	0.598	1.050	4.8.2
L27	59.833 - 54.833 (27)	0.008	0.601	0.000	0.023	0.000	0.610	1.050	4.8.2
L28	54.833 - 49.833 (28)	0.009	0.614	0.000	0.023	0.000	0.623	1.050	4.8.2
L29	49.833 - 43.4966 (29)	0.009	0.613	0.000	0.023	0.000	0.623	1.050	4.8.2
L30	43.4966 -	0.009	0.639	0.000	0.023	0.000	0.649	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
	42.4966 (30)								
L31	42.4966 - 37.4966 (31)	0.010	0.652	0.000	0.023	0.000	0.662	1.050	4.8.2
L32	37.4966 - 33 (32)	0.010	0.649	0.000	0.023	0.000	0.659	1.050	4.8.2
L33	33 - 32.75 (33)	0.008	0.541	0.000	0.019	0.000	0.549	1.050	4.8.2
L34	32.75 - 32 (34)	0.008	0.541	0.000	0.019	0.000	0.549	1.050	4.8.2
L35	32 - 31.75 (35)	0.009	0.605	0.000	0.021	0.000	0.615	1.050	4.8.2
L36	31.75 - 30 (36)	0.009	0.605	0.000	0.021	0.000	0.615	1.050	4.8.2
L37	30 - 29.75 (37)	0.009	0.604	0.000	0.021	0.000	0.613	1.050	4.8.2
L38	29.75 - 24.75 (38)	0.010	0.616	0.000	0.021	0.000	0.626	1.050	4.8.2
L39	24.75 - 19.75 (39)	0.010	0.618	0.000	0.021	0.000	0.629	1.050	4.8.2
L40	19.75 - 14.75 (40)	0.010	0.620	0.000	0.021	0.000	0.631	1.050	4.8.2
L41	14.75 - 9.75 (41)	0.010	0.616	0.000	0.020	0.000	0.626	1.050	4.8.2
L42	9.75 - 4.75 (42)	0.011	0.624	0.000	0.020	0.000	0.635	1.050	4.8.2
L43	4.75 - 0 (43)	0.011	0.619	0.000	0.020	0.000	0.631	1.050	4.8.2

Section Capacity Table

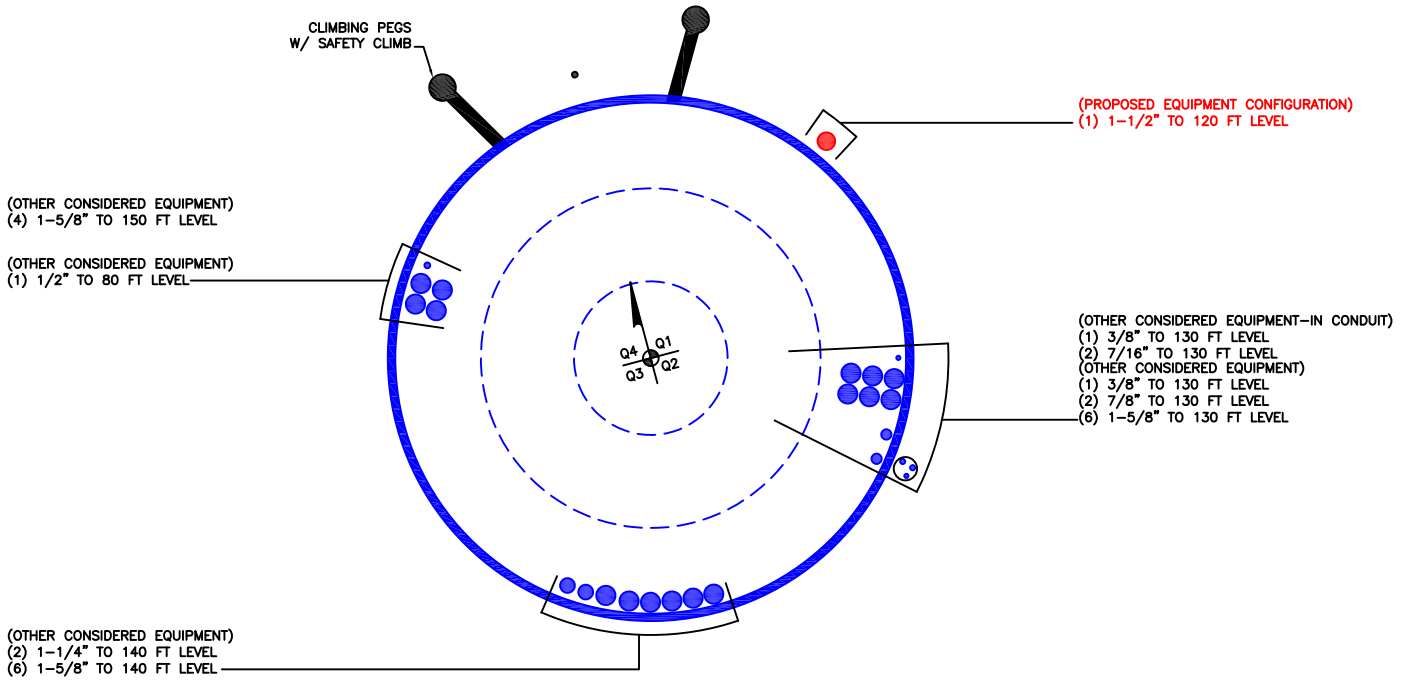
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	150 - 145	Pole	TP14.12x13x0.188	1	-3.02	509.32	20.0	Pass
L2	145 - 140	Pole	TP15.241x14.12x0.188	2	-3.25	550.28	31.0	Pass
L3	140 - 133.71	Pole	TP16.65x15.241x0.188	3	-6.13	580.64	45.5	Pass
L4	133.71 - 131.293	Pole	TP16.804x15.696x0.313	4	-6.68	1004.77	38.4	Pass
L5	131.293 - 126.293	Pole	TP17.912x16.804x0.313	5	-10.19	1072.28	49.8	Pass
L6	126.293 - 121.293	Pole	TP19.02x17.912x0.313	6	-10.81	1139.80	59.2	Pass
L7	121.293 - 116.293	Pole	TP20.128x19.02x0.313	7	-13.71	1207.30	68.4	Pass
L8	116.293 - 111.293	Pole	TP21.236x20.128x0.313	8	-14.47	1274.80	75.7	Pass
L9	111.293 - 108.25	Pole	TP21.911x21.236x0.313	9	-14.96	1315.90	79.4	Pass
L10	108.25 - 108	Pole	TP21.966x21.911x0.638	10	-15.03	2650.92	40.8	Pass
L11	108 - 103	Pole	TP23.074x21.966x0.613	11	-16.07	2682.28	44.8	Pass
L12	103 - 98	Pole	TP24.182x23.074x0.6	12	-17.17	2758.61	47.8	Pass
L13	98 - 93	Pole	TP25.29x24.182x0.588	13	-18.30	2829.49	50.3	Pass
L14	93 - 88.0833	Pole	TP26.38x25.29x0.588	14	-18.55	2856.99	50.6	Pass
L15	88.0833 - 86.9166	Pole	TP26.012x24.906x0.638	15	-20.42	3153.76	50.5	Pass
L16	86.9166 - 85.167	Pole	TP26.399x26.012x0.638	16	-20.86	3201.88	50.8	Pass
L17	85.167 - 84.917	Pole	TP26.454x26.399x0.638	17	-20.94	3208.75	50.8	Pass
L18	84.917 - 79.917	Pole	TP27.561x26.454x0.625	18	-22.30	3282.17	52.5	Pass
L19	79.917 - 77	Pole	TP28.206x27.561x0.613	19	-23.06	3295.11	53.9	Pass
L20	77 - 76.75	Pole	TP28.262x28.206x0.538	20	-23.14	2905.28	60.9	Pass
L21	76.75 - 75	Pole	TP28.649x28.262x0.531	21	-23.55	2912.26	61.8	Pass
L22	75 - 74.75	Pole	TP28.704x28.649x0.613	22	-23.64	3354.56	54.1	Pass
L23	74.75 - 69.75	Pole	TP29.811x28.704x0.6	23	-24.98	3416.99	55.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$øP_{allow}$ K	% Capacity	Pass Fail
L24	69.75 - 65.083	Pole	TP30.843x29.811x0.588	24	-26.26	3465.52	56.8	Pass
L25	65.083 - 64.833	Pole	TP30.899x30.843x0.588	25	-26.35	3471.86	56.8	Pass
L26	64.833 - 59.833	Pole	TP32.005x30.899x0.588	26	-27.74	3598.59	56.9	Pass
L27	59.833 - 54.833	Pole	TP33.111x32.005x0.575	27	-28.63	3597.85	58.1	Pass
L28	54.833 - 49.833	Pole	TP34.218x33.111x0.563	28	-29.20	3569.54	59.3	Pass
L29	49.833 - 43.4966	Pole	TP35.62x34.218x0.563	29	-30.67	3690.88	59.3	Pass
L30	43.4966 - 42.4966	Pole	TP35.092x33.764x0.563	30	-33.70	3762.44	61.8	Pass
L31	42.4966 - 37.4966	Pole	TP36.199x35.092x0.55	31	-34.00	3703.92	63.0	Pass
L32	37.4966 - 33	Pole	TP37.194x36.199x0.55	32	-35.52	3822.61	62.8	Pass
L33	33 - 32.75	Pole	TP37.25x37.194x0.663	33	-36.90	4718.55	52.3	Pass
L34	32.75 - 32	Pole	TP37.416x37.25x0.663	34	-37.00	4725.70	52.3	Pass
L35	32 - 31.75	Pole	TP37.471x37.416x0.588	35	-37.26	4218.32	58.6	Pass
L36	31.75 - 30	Pole	TP37.858x37.471x0.588	36	-37.36	4224.66	58.5	Pass
L37	30 - 29.75	Pole	TP37.914x37.858x0.588	37	-37.94	4269.04	58.4	Pass
L38	29.75 - 24.75	Pole	TP39.021x37.914x0.575	38	-38.03	4185.81	59.6	Pass
L39	24.75 - 19.75	Pole	TP40.128x39.021x0.569	39	-39.73	4263.76	59.9	Pass
L40	19.75 - 14.75	Pole	TP41.235x40.128x0.563	40	-41.46	4338.98	60.1	Pass
L41	14.75 - 9.75	Pole	TP42.341x41.235x0.563	41	-43.22	4460.37	59.7	Pass
L42	9.75 - 4.75	Pole	TP43.448x42.341x0.55	42	-45.01	4481.28	60.5	Pass
L43	4.75 - 0	Pole	TP44.5x43.448x0.55	43	-46.82	4599.99	60.1	Pass
							Summary	
						Pole (L9)	79.4	Pass
						RATING =	**79.4**	**Pass**

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

APPENDIX B

BASE LEVEL DRAWING


CLIMBING PEGS
W/ SAFETY CLIMB
(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1-1/2" TO 120 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(4) 1-5/8" TO 150 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 80 FT LEVEL
Q1
Q2
Q3
Q4
(OTHER CONSIDERED EQUIPMENT-IN CONDUIT)
(1) 3/8" TO 130 FT LEVEL
(2) 7/16" TO 130 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 3/8" TO 130 FT LEVEL
(2) 7/8" TO 130 FT LEVEL
(6) 1-5/8" TO 130 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(2) 1-1/4" TO 140 FT LEVEL
(6) 1-5/8" TO 140 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 876384

Work Order: 1945903

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	150	16.29	2.5833	18	13	16.65	0.1875	Auto	A572-65
2	136.2933	48.21	3.8333	18	15.70	26.38	0.3125	Auto	A572-65
3	91.9166	48.42	5	18	24.91	35.62	0.375	Auto	A572-65
4	48.4966	48.4966	0	18	33.76	44.5	0.375	Auto	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	33	plate	CCI-WSFP-060100	2																		
2	0	30	plate	CCI-WSFP-060100	2																		
3	32	65.083	plate	CCI-SFP-060100	1																		
4	30	65.083	plate	CCI-SFP-060100	2																		
5	65.083	85.167	plate	CCI-SFP-060100	2																		
6	65.083	75	plate	CCI-SFP-060100	1																		
7	75	77	plate	PL 1x5	1							-0.5											
8	77	85.167	plate	CCI-SFP-060100	1																		
9	85.167	108.25	plate	CCI-SFP-060100	3																		
10																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in2)	Bolt Hole Size (in)	Reinforcement Material
1	6	1	6	0.5	Welded	n/a	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
2	6	1	6	0.5	Welded	n/a	PC 8.8 - M20 (100)	24.000	16.000	4.750	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	16.000	4.750	1.1875	A572-65
5	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
6	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
7	5	1	5	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	8.000	3.750	1.1875	A572-65
8	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
9	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65

Connection Details for Custom Reinforcements

Reinforcement	End	# Bolts	N or X	Bolt Spacing (in)	Edge Dist (in)	Weld Grade (ksi)	Transverse (Horiz.) Weld Type	Horiz. Weld Length (in)	Horiz. Groove Depth (in)	Horiz. Groove Angle (deg)	Horiz. Fillet Size (in)	Vertical Weld Length (in)	Vertical Fillet Size (in)	Rev H Connection Capacity (kip)
PL 1x5	Top	8	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	8	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	150 - 145	5		18	13.000	14.120	0.1875	A572-65	1.000
2	145 - 140	5		18	14.120	15.241	0.1875	A572-65	1.000
3	140 - 136.293	6.29	2.5833	18	15.241	16.650	0.1875	A572-65	1.000
4	136.293 - 131.293	5		18	15.696	16.804	0.3125	A572-65	1.000
5	131.293 - 126.293	5		18	16.804	17.912	0.3125	A572-65	1.000
6	126.293 - 121.293	5		18	17.912	19.020	0.3125	A572-65	1.000
7	121.293 - 116.293	5		18	19.020	20.128	0.3125	A572-65	1.000
8	116.293 - 111.293	5		18	20.128	21.236	0.3125	A572-65	1.000
9	111.293 - 108.25	3.0433		18	21.236	21.911	0.3125	A572-65	1.000
10	108.25 - 108	0.25		18	21.911	21.966	0.6375	A572-65	0.915
11	108 - 103	5		18	21.966	23.074	0.6125	A572-65	0.929
12	103 - 98	5		18	23.074	24.182	0.6	A572-65	0.928
13	98 - 93	5		18	24.182	25.290	0.5875	A572-65	0.929
14	93 - 91.9166	4.9167	3.8333	18	25.290	26.380	0.5875	A572-65	0.925
15	91.9166 - 86.9166	5		18	24.906	26.012	0.6375	A572-65	0.945
16	86.9166 - 85.167	1.7496		18	26.012	26.399	0.6375	A572-65	0.940
17	85.167 - 84.917	0.25		18	26.399	26.454	0.6375	A572-65	0.939
18	84.917 - 79.917	5		18	26.454	27.561	0.625	A572-65	0.942
19	79.917 - 77	2.917		18	27.561	28.206	0.6125	A572-65	0.953
20	77 - 76.75	0.25		18	28.206	28.262	0.5375	A572-65	0.955
21	76.75 - 75	1.75		18	28.262	28.649	0.53125	A572-65	0.963
22	75 - 74.75	0.25		18	28.649	28.704	0.6125	A572-65	0.947
23	74.75 - 69.75	5		18	28.704	29.811	0.6	A572-65	0.953
24	69.75 - 65.083	4.667		18	29.811	30.843	0.5875	A572-65	0.962
25	65.083 - 64.833	0.25		18	30.843	30.899	0.5875	A572-65	0.961
26	64.833 - 59.833	5		18	30.899	32.005	0.5875	A572-65	0.950
27	59.833 - 54.833	5		18	32.005	33.111	0.575	A572-65	0.959
28	54.833 - 49.833	5		18	33.111	34.218	0.5625	A572-65	0.970
29	49.833 - 48.4966	6.3364	5	18	34.218	35.620	0.5625	A572-65	0.967
30	48.4966 - 42.4966	6		18	33.764	35.092	0.5625	A572-65	0.962
31	42.4966 - 37.4966	5		18	35.092	36.199	0.55	A572-65	0.974
32	37.4966 - 33	4.4966		18	36.199	37.194	0.55	A572-65	0.966
33	33 - 32.75	0.25		18	37.194	37.250	0.6625	A572-65	0.960
34	32.75 - 32	0.75		18	37.250	37.416	0.6625	A572-65	0.959
35	32 - 31.75	0.25		18	37.416	37.471	0.5875	A572-65	0.991
36	31.75 - 30	1.75		18	37.471	37.858	0.5875	A572-65	0.987
37	30 - 29.75	0.25		18	37.858	37.914	0.5875	A572-65	0.987
38	29.75 - 24.75	5		18	37.914	39.021	0.575	A572-65	0.998
39	24.75 - 19.75	5		18	39.021	40.128	0.56875	A572-65	0.999
40	19.75 - 14.75	5		18	40.128	41.235	0.5625	A572-65	1.000
41	14.75 - 9.75	5		18	41.235	42.341	0.5625	A572-65	0.991
42	9.75 - 4.75	5		18	42.341	43.448	0.55	A572-65	1.005
43	4.75 - 0	4.75		18	43.448	44.500	0.55	A572-65	0.997

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	150 - 145	3.02	35.44	5.82
2	145 - 140	6.64	65.37	10.15
3	140 - 136.2933	6.14	105.37	10.90
4	136.2933 - 131.2933	6.68	160.75	11.23
5	131.2933 - 126.2933	10.19	236.73	16.56
6	126.2933 - 121.2933	10.81	320.24	16.90
7	121.2933 - 116.2933	13.71	414.90	19.74
8	116.2933 - 111.2933	14.48	514.03	19.96
9	111.2933 - 108.25	14.96	574.94	20.12
10	108.25 - 108	15.03	579.97	20.14
11	108 - 103	16.07	681.91	20.68
12	103 - 98	17.17	786.03	21.01
13	98 - 93	18.30	891.80	21.34
14	93 - 91.9166	18.55	914.94	21.41
15	91.9166 - 86.9166	20.42	1023.06	21.86
16	86.9166 - 85.167	20.86	1061.36	21.98
17	85.167 - 84.917	20.94	1066.85	21.98
18	84.917 - 79.917	22.30	1177.73	22.37
19	79.917 - 77	23.06	1243.19	22.56
20	77 - 76.75	23.14	1248.83	22.57
21	76.75 - 75	23.55	1288.38	22.69
22	75 - 74.75	23.64	1294.04	22.68
23	74.75 - 69.75	24.98	1408.17	23.01
24	69.75 - 65.083	26.26	1516.12	23.30
25	65.083 - 64.833	26.35	1521.94	23.31
26	64.833 - 59.833	27.74	1639.17	23.62
27	59.833 - 54.833	29.18	1757.92	23.93
28	54.833 - 49.833	30.64	1878.15	24.22
29	49.833 - 48.4966	31.04	1910.53	24.30
30	48.4966 - 42.4966	33.97	2057.62	24.76
31	42.4966 - 37.4966	35.49	2181.91	25.01
32	37.4966 - 33	36.89	2294.72	25.22
33	33 - 32.75	36.99	2301.02	25.22
34	32.75 - 32	37.25	2319.94	25.27
35	32 - 31.75	37.34	2326.25	25.27
36	31.75 - 30	37.91	2370.52	25.38
37	30 - 29.75	38.01	2376.86	25.37
38	29.75 - 24.75	39.71	2504.21	25.62
39	24.75 - 19.75	41.44	2632.73	25.85
40	19.75 - 14.75	43.20	2762.42	26.09
41	14.75 - 9.75	44.98	2893.28	26.32
42	9.75 - 4.75	46.80	3025.32	26.56
43	4.75 - 0	48.54	3151.86	26.79

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
150 - 145	Pole	TP14.12x13x0.1875	Pole	20.0%	Pass
145 - 140	Pole	TP15.241x14.12x0.1875	Pole	31.9%	Pass
140 - 136.29	Pole	TP16.65x15.241x0.1875	Pole	45.4%	Pass
136.29 - 131.29	Pole	TP16.804x15.696x0.3125	Pole	38.3%	Pass
131.29 - 126.29	Pole	TP17.912x16.804x0.3125	Pole	49.7%	Pass
126.29 - 121.29	Pole	TP19.02x17.912x0.3125	Pole	59.2%	Pass
121.29 - 116.29	Pole	TP20.128x19.02x0.3125	Pole	68.3%	Pass
116.29 - 111.29	Pole	TP21.236x20.128x0.3125	Pole	75.7%	Pass
111.29 - 108.25	Pole	TP21.911x21.236x0.3125	Pole	79.3%	Pass
108.25 - 108	Pole + Reinf.	TP21.966x21.911x0.6375	Reinf. 9 Tension Rupture	65.2%	Pass
108 - 103	Pole + Reinf.	TP23.074x21.966x0.6125	Reinf. 9 Tension Rupture	71.0%	Pass
103 - 98	Pole + Reinf.	TP24.182x23.074x0.6	Reinf. 9 Tension Rupture	76.2%	Pass
98 - 93	Pole + Reinf.	TP25.29x24.182x0.5875	Reinf. 9 Tension Rupture	80.6%	Pass
93 - 91.92	Pole + Reinf.	TP26.38x25.29x0.5875	Reinf. 9 Tension Rupture	81.5%	Pass
91.92 - 86.92	Pole + Reinf.	TP26.012x24.906x0.6375	Reinf. 9 Tension Rupture	79.9%	Pass
86.92 - 85.17	Pole + Reinf.	TP26.399x26.012x0.6375	Reinf. 9 Tension Rupture	80.9%	Pass
85.17 - 84.92	Pole + Reinf.	TP26.454x26.399x0.6375	Reinf. 5 Tension Rupture	81.0%	Pass
84.92 - 79.92	Pole + Reinf.	TP27.561x26.454x0.625	Reinf. 5 Tension Rupture	83.7%	Pass
79.92 - 77	Pole + Reinf.	TP28.206x27.561x0.6125	Reinf. 5 Tension Rupture	85.0%	Pass
77 - 76.75	Pole + Reinf.	TP28.262x28.206x0.5375	Reinf. 5 Tension Rupture	86.8%	Pass
76.75 - 75	Pole + Reinf.	TP28.649x28.262x0.5313	Reinf. 5 Tension Rupture	87.6%	Pass
75 - 74.75	Pole + Reinf.	TP28.704x28.649x0.6125	Reinf. 5 Tension Rupture	86.0%	Pass
74.75 - 69.75	Pole + Reinf.	TP29.811x28.704x0.6	Reinf. 5 Tension Rupture	87.9%	Pass
69.75 - 65.08	Pole + Reinf.	TP30.843x29.811x0.5875	Reinf. 5 Tension Rupture	89.4%	Pass
65.08 - 64.83	Pole + Reinf.	TP30.899x30.843x0.5875	Reinf. 3 Tension Rupture	89.5%	Pass
64.83 - 59.83	Pole + Reinf.	TP32.005x30.899x0.5875	Reinf. 3 Tension Rupture	90.8%	Pass
59.83 - 54.83	Pole + Reinf.	TP33.111x32.005x0.575	Reinf. 3 Tension Rupture	92.0%	Pass
54.83 - 49.83	Pole + Reinf.	TP34.218x33.111x0.5625	Reinf. 3 Tension Rupture	93.0%	Pass
49.83 - 48.5	Pole + Reinf.	TP35.62x34.218x0.5625	Reinf. 3 Tension Rupture	93.2%	Pass
48.5 - 42.5	Pole + Reinf.	TP35.092x33.764x0.5625	Reinf. 3 Tension Rupture	97.6%	Pass
42.5 - 37.5	Pole + Reinf.	TP36.199x35.092x0.55	Reinf. 3 Tension Rupture	98.2%	Pass
37.5 - 33	Pole + Reinf.	TP37.194x36.199x0.55	Reinf. 3 Tension Rupture	98.6%	Pass
33 - 32.75	Pole + Reinf.	TP37.25x37.194x0.6625	Reinf. 4 Tension Rupture	84.4%	Pass
32.75 - 32	Pole + Reinf.	TP37.416x37.25x0.6625	Reinf. 4 Tension Rupture	84.5%	Pass
32 - 31.75	Pole + Reinf.	TP37.471x37.416x0.5875	Reinf. 4 Tension Rupture	86.9%	Pass
31.75 - 30	Pole + Reinf.	TP37.858x37.471x0.5875	Reinf. 4 Tension Rupture	87.1%	Pass
30 - 29.75	Pole + Reinf.	TP37.914x37.858x0.5875	Reinf. 2 Tension Rupture	87.1%	Pass
29.75 - 24.75	Pole + Reinf.	TP39.021x37.914x0.575	Reinf. 2 Tension Rupture	87.5%	Pass
24.75 - 19.75	Pole + Reinf.	TP40.128x39.021x0.5688	Reinf. 2 Tension Rupture	87.7%	Pass
19.75 - 14.75	Pole + Reinf.	TP41.235x40.128x0.5625	Reinf. 2 Tension Rupture	87.9%	Pass
14.75 - 9.75	Pole + Reinf.	TP42.341x41.235x0.5625	Reinf. 2 Tension Rupture	88.1%	Pass
9.75 - 4.75	Pole + Reinf.	TP43.448x42.341x0.55	Reinf. 2 Tension Rupture	88.1%	Pass
4.75 - 0	Pole + Reinf.	TP44.5x43.448x0.55	Reinf. 2 Tension Rupture	88.2%	Pass
				Summary	
			Pole	79.3%	Pass
			Reinforcement	98.6%	Pass
			Overall	98.6%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity*									
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9
150 - 145	203	n/a	203	8.29	n/a	8.29	20.0%									
145 - 140	256	n/a	256	8.96	n/a	8.96	31.9%									
140 - 136.29	301	n/a	301	9.45	n/a	9.45	45.4%									
136.29 - 131.29	562	n/a	562	16.36	n/a	16.36	38.3%									
131.29 - 126.29	683	n/a	683	17.46	n/a	17.46	49.7%									
126.29 - 121.29	820	n/a	820	18.56	n/a	18.56	59.2%									
121.29 - 116.29	975	n/a	975	19.65	n/a	19.65	68.3%									
116.29 - 111.29	1148	n/a	1148	20.75	n/a	20.75	75.7%									
111.29 - 108.25	1262	n/a	1262	21.42	n/a	21.42	79.3%									
108.25 - 108	1272	1215	2486	21.48	18.00	39.48	40.1%									65.2%
108 - 103	1477	1332	2809	22.58	18.00	40.58	43.8%									71.0%
103 - 98	1704	1455	3158	23.68	18.00	41.68	47.1%									76.2%
98 - 93	1952	1583	3535	24.77	18.00	42.77	49.9%									80.6%
93 - 91.92	2009	1611	3620	25.01	18.00	43.01	50.4%									81.5%
91.92 - 86.92	2533	1669	4202	30.51	18.00	48.51	49.5%									79.9%
86.92 - 85.17	2650	1717	4366	30.97	18.00	48.97	50.1%									80.9%
85.17 - 84.92	2666	1724	4390	31.04	18.00	49.04	50.2%					81.0%			81.0%	
84.92 - 79.92	3020	1863	4884	32.36	18.00	50.36	51.9%					83.7%			83.7%	
79.92 - 77	3241	1947	5188	33.12	18.00	51.12	52.8%					85.0%			85.0%	
77 - 76.75	3312	1291	4602	33.19	12.00	45.19	66.0%					86.8%				
76.75 - 75	3451	1326	4776	33.65	12.00	45.65	66.5%					87.6%				
75 - 74.75	3418	2013	5431	33.72	18.00	51.72	53.4%					86.0%	86.0%			
74.75 - 69.75	3834	2164	5998	35.03	18.00	53.03	54.7%					87.9%	87.9%			
69.75 - 65.08	4252	2309	6561	36.26	18.00	54.26	55.7%					89.4%	89.4%			
65.08 - 64.83	4275	2317	6592	36.33	18.00	54.33	55.7%			89.5%	89.5%					
64.83 - 59.83	4757	2479	7236	37.65	18.00	55.65	56.7%			90.8%	90.8%					
59.83 - 54.83	5274	2646	7920	38.96	18.00	56.96	57.4%			92.0%	92.0%					
54.83 - 49.83	5827	2818	8645	40.28	18.00	58.28	58.1%			93.0%	93.0%					
49.83 - 48.5	5981	2865	8846	40.63	18.00	58.63	58.3%			93.2%	93.2%					
48.5 - 42.5	6290	2959	9249	41.32	18.00	59.32	61.1%			97.6%	97.6%					
42.5 - 37.5	6911	3141	10052	42.64	18.00	60.64	61.6%			98.2%	98.2%					
37.5 - 33	7503	3310	10813	43.82	18.00	61.82	62.3%			98.6%	98.6%					
33 - 32.75	7590	5391	12981	43.89	30.00	73.89	55.7%	76.0%		83.3%	84.4%					
32.75 - 32	7693	5437	13130	44.09	30.00	74.09	55.9%	76.1%		83.4%	84.5%					
32 - 31.75	7674	4095	11768	44.15	24.00	68.15	58.5%	86.9%			86.9%					
31.75 - 30	7917	4177	12093	44.61	24.00	68.61	58.8%	87.1%			87.1%					
30 - 29.75	7952	4188	12140	44.68	24.00	68.68	58.8%	87.1%	87.1%							
29.75 - 24.75	8676	4428	13104	46.00	24.00	70.00	59.6%	87.5%	87.5%							
24.75 - 19.75	9443	4674	14117	47.31	24.00	71.31	60.2%	87.7%	87.7%							
19.75 - 14.75	10254	4927	15181	48.63	24.00	72.63	60.9%	87.9%	87.9%							
14.75 - 9.75	11110	5186	16297	49.95	24.00	73.95	61.5%	88.1%	88.1%							
9.75 - 4.75	12013	5452	17465	51.27	24.00	75.27	62.0%	88.1%	88.1%							
4.75 - 0	12914	5712	18626	52.52	24.00	76.52	62.5%	88.2%	88.2%							

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

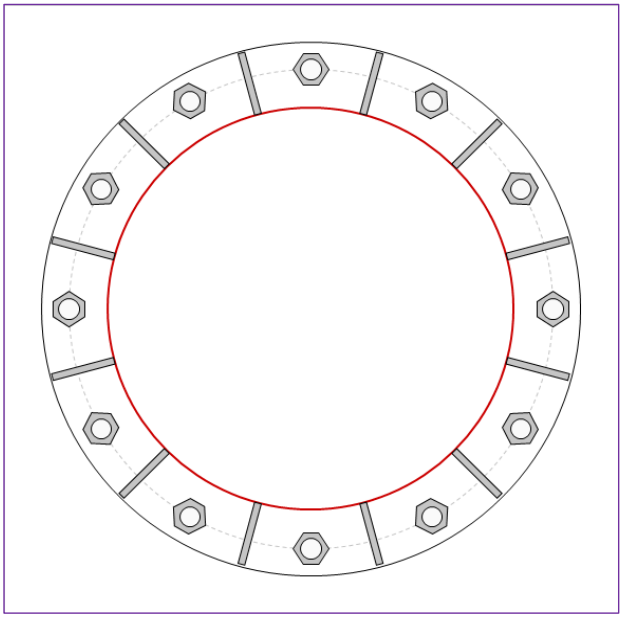
Monopole Base Plate Connection

Site Info	
BU #	876384
Site Name	Westbrook/ Orsina
Order #	553294 - Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0.75

Applied Loads	
Moment (kip-ft)	3151.86
Axial Force (kips)	48.54
Shear Force (kips)	26.79

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(12) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 53" BC

Base Plate Data

59" OD x 1.75" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

(12) 18"H x 7"W x 0.75"T, Notch: 0.75"
plate: Fy= 50 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.375" groove, 45° dbl bevelFALSE
vert. weld: 0.375" fillet

Pole Data

44.5" x 0.375" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary		*(units of kips, kip-in)*
Pu_t = 233.66	ϕPn_t = 243.75	**Stress Rating**
Vu = 2.23	ϕVn = 149.1	**91.3%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary		
Max Stress (ksi):	47.52	(Roark's Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**83.8%**	**Pass**

Stiffener Summary		
Horizontal Weld:	**75.5%**	**Pass**
Vertical Weld:	**56.7%**	**Pass**
Plate Flexure+Shear:	**28.2%**	**Pass**
Plate Tension+Shear:	**76.5%**	**Pass**
Plate Compression:	**82.6%**	**Pass**
Pole Summary		
Punching Shear:	**17.0%**	**Pass**

Pier and Pad Foundation

BU # :	876384
Site Name:	Westbrook/Orsina
App. Number:	553294 - Rev. 0

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp}:	49	kips
Base Shear, Vu_comp:	27	kips
Moment, M_u:	3152	ft-kips
Tower Height, **H**:	150	ft
BP Dist. Above Fdn, bp_{dist}:	3	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, **dpier**:	6	ft
Ext. Above Grade, **E**:	1	ft
Pier Rebar Size, **Sc**:	8	
Pier Rebar Quantity, **mc**:	30	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	7	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	5	in

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

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

Soil Properties		
Total Soil Unit Weight, γ:	100	pcf
Ultimate Gross Bearing, Qult:	8.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	0	degrees
SPT Blow Count, N_{blows}:	13	
Base Friction, μ:	0.3	
Neglected Depth, **N**:	3.33	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	2.5	ft

<--Toggle between Gross and Net

Foundation Analysis Checks	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	99.48	27.00	**25.8%**	**Pass**
Bearing Pressure (ksf)	6.00	1.52	**25.3%**	**Pass**
*Overturning (kip*ft)*	5056.03	3320.75	**65.7%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	3280.86	3233.00	**93.8%**	**Pass**
Pier Compression (kip)	22913.28	68.44	**0.3%**	**Pass**
*Pad Flexure (kip*ft)*	3077.69	1473.64	**45.6%**	**Pass**
Pad Shear - 1-way (kips)	1004.09	191.66	**18.2%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.190	0.038	**19.1%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	3248.34	1939.80	**56.9%**	**Pass**

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

Soil Rating*:	**65.7%**
Structural Rating*:	**93.8%**

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	159.59 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.320167
Soil Class:	D - Stiff Soil	**Longitude:**	-72.441667

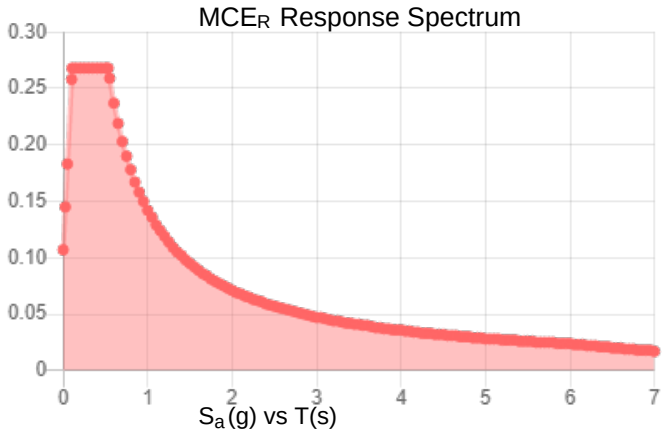
Seismic

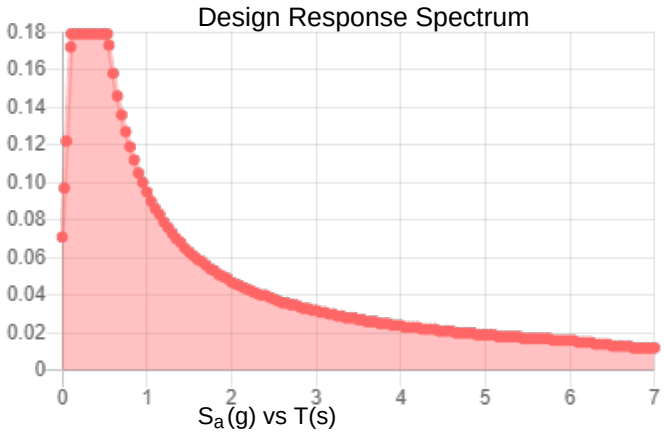
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.167	S_{DS} :	0.179
S_1 :	0.059	S_{D1} :	0.095
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.084
S_{MS} :	0.268	PGA_M :	0.135
S_{M1} :	0.142	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Thu Oct 15 2020

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

Ice

Results:

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

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

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

Exhibit E

Mount Analysis

Date: **July 27, 2021**

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

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

Subject:	**Mount Replacement Analysis Report**	
Carrier Designation:	**Dish Network Equipment Change Out**	
	Carrier Site Number:	BOBDL00097A
	Carrier Site Name:	CT-CCI-T-876384
Crown Castle Designation:	**Crown Castle BU Number:**	876384
	Crown Castle Site Name:	WESTBROOK / ORSINA
	Crown Castle JDE Job Number:	645196
	Crown Castle Order Number:	553294 Rev. 2
Engineering Firm Designation:	**Trylon Report Designation:**	188635
Site Data:	**798 Toby Hill Road, Westbrook, Middlesex County, CT, 06498**	
	Latitude 41°19'12.60" Longitude -72°26'30.00"	
Structure Information:	**Tower Height & Type:**	**150.0 ft Monopole**
	Mount Elevation:	**120.0 ft**
	Mount Type:	**8.0 ft Platform**

Dear Darcy Tarr,

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

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

Platform	**Sufficient**

This analysis utilizes an ultimate 3-second gust wind speed of 130 mph as required by the 2015 International Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Jordan Everson, E.I.T.

Respectfully Submitted by:
Cliff Abernathy, P.E.

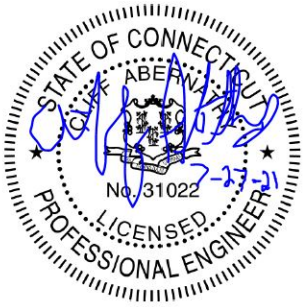


TABLE OF CONTENTS

1) INTRODUCTION

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

2) ANALYSIS CRITERIA

Building Code: 2015 IBC
TIA-222 Revision: TIA-222-H
Risk Category: II
Ultimate Wind Speed: 135 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: 0.167
Seismic S_1: 0.059
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
120.0	120.0	3	JMA WIRELESS	MX08FRO665-20	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	553294 Rev. 2	CCI Sites
Mount Manufacturer Drawings	Commscope	MC-PK8-DSH	TSA

3.1) Analysis Method

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

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

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

3.2) Assumptions

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

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

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

4) ANALYSIS RESULTS

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

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1, 2	Mount Pipe(s)	MP3	120.0	28.4	Pass
	Horizontal(s)	H1		10.8	Pass
	Standoff(s)	M12		49.0	Pass
	Bracing(s)	M1		37.8	Pass
	Mount Connection(s)	--		20.2	Pass

Structure Rating (max from all components) =	**49.0%**

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

4.1) Recommendations

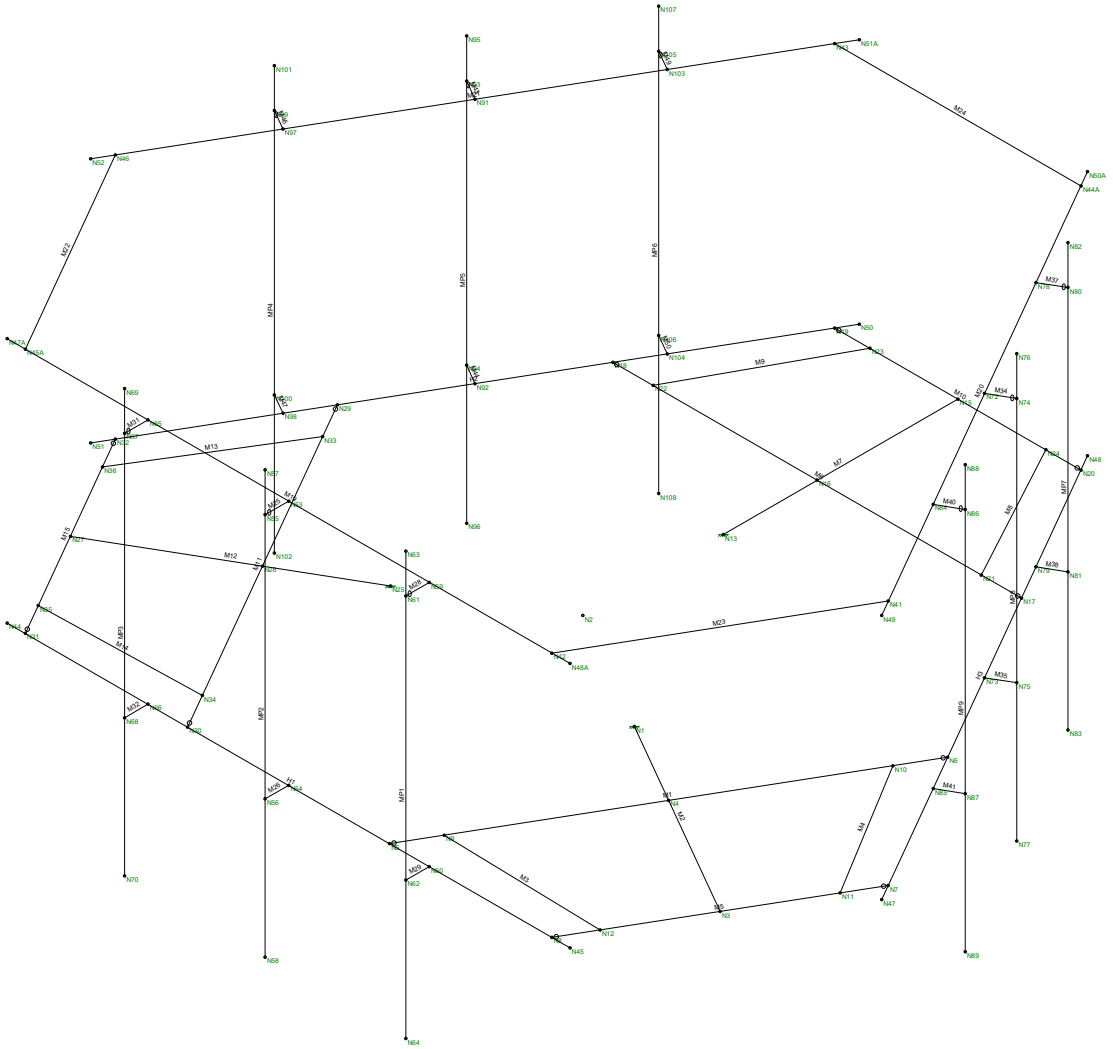
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the proposed mount listed below must be installed.

1. Commscope MC-PK8-DSH.

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

APPENDIX A

WIRE FRAME AND RENDERED MODELS



Trylon	876384	Wireframe
JE		July 27, 2021 at 12:58 PM
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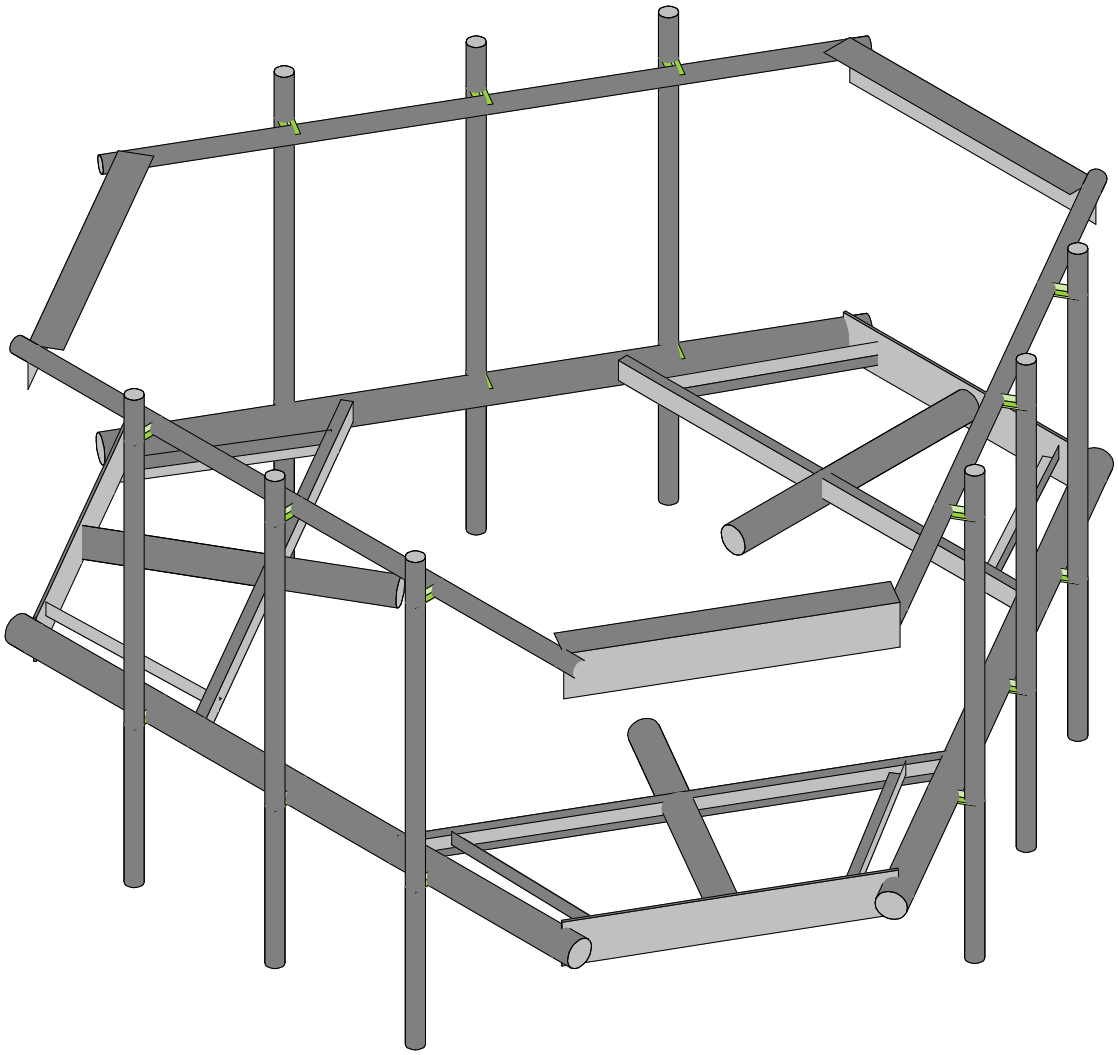

Trylon	876384	Render
JE		July 27, 2021 at 12:58 PM
		876384_loaded.r3d

APPENDIX B

SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 159.59 ft (NAVD 88)
Latitude: 41.320167
Longitude: -72.441667

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: Tue Jul 27 2021

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

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

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

TIA LOAD CALCULATOR 2.0

PROJECT DATA	
Job Code:	188635
Carrier Site ID:	876384
Carrier Site Name:	WESTBROOK / ORSINA

CODES AND STANDARDS	
Building Code:	2015 IBC
Local Building Code:	0
Design Standard:	TIA-222-H

STRUCTURE DETAILS		
Mount Type:	Platform	--
Mount Elevation:	120.0	ft.
Number of Sectors:	3	--
Structure Type:	Monopole	--
Structure Height:	150.0	ft.

ANALYSIS CRITERIA		
Structure Risk Category:	II	--
Exposure Category:	B	--
Site Class:	D - Default	--
Ground Elevation:	159	ft.

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

WIND PARAMETERS		
Design Wind Speed:	135	mph
Wind Escalation Factor (K_s):	1.00	--
Velocity Coefficient (K_z):	1.04	--
Directionality Factor (K_d):	0.95	--
Gust Effect Factor (Gh):	1.00	--
Shielding Factor (K_a):	0.90	--
Velocity Pressure (q_z):	45.88	psf

ICE PARAMETERS		
Design Ice Wind Speed:	50	mph
Design Ice Thickness (t_i):	1.50	in
Importance Factor (I_i):	1.00	--
Ice Velocity Pressure (q_{zi}):	45.88	psf
Mount Ice Thickness (t_{iz}):	1.71	in

WIND STRUCTURE CALCULATIONS		
Flat Member Pressure:	82.58	psf
Round Member Pressure:	49.55	psf
Ice Wind Pressure:	7.43	psf

SEISMIC PARAMETERS		
Importance Factor (I_e):	1.00	--
Short Period Accel .(S_s):	0.17	g
1 Second Accel (S_1):	0.06	g
Short Period Des. (S_{DS}):	0.18	g
1 Second Des. (S_{D1}):	0.09	g
Short Period Coeff. (F_a):	1.60	--
1 Second Coeff. (F_v):	2.40	--
Response Coefficient (Cs):	0.09	--
Amplification Factor (A_S):	1.20	--

LOAD COMBINATIONS [LRFD]

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

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

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

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

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

EQUIPMENT LOADING

Appurtenance Name/Location	Qty.	Elevation [ft]	--	EPA $_N$ (ft2)	EPA $_T$ (ft2)	Weight (lbs)
MX08FRO665-20	3	120	No Ice	8.01	3.21	82.50
MP3/MP6/MP9, 0/120/240	--	--	w/ Ice	9.63	4.63	282.54
TA08025-B604	3	120	No Ice	1.96	0.98	63.90
MP3/MP6/MP9, 0/120/240	--	--	w/ Ice	2.38	1.31	68.66
TA08025-B605	3	120	No Ice	1.96	1.13	75.00
MP3/MP6/MP9, 0/120/240	--	--	w/ Ice	2.38	1.47	73.15
RDIDC-9181-PF-48	1	120	No Ice	2.01	1.17	21.85
MP/MP6, 120	--	--	w/ Ice	2.44	1.52	72.09
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
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			No Ice			
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			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			

EQUIPMENT WIND CALCULATIONS

Appurtenance Name	Qty.	Elevation [ft]	K_{zt}	K_z	K_d	t_d	q_z [psf]	q_{zi} [psf]
MX08FRO665-20	3	120	1.00	1.04	0.95	1.71	45.88	6.29
TA08025-B604	3	120	1.00	1.04	0.95	1.71	45.88	6.29
TA08025-B605	3	120	1.00	1.04	0.95	1.71	45.88	6.29
RDIDC-9181-PF-48	1	120	1.00	1.04	0.95	1.71	45.88	6.29

EQUIPMENT LATERAL WIND FORCE CALCULATIONS

Appurtenance Name	Qty.	--	0° 180°	30° 210°	60° 240°	90° 270°	120° 300°	150° 330°
MX08FRO665-20	3	No Ice	330.74	182.09	281.19	132.54	281.19	182.09
MP3/MP6/MP9, 0/120/240	--	w/ Ice	54.56	33.32	47.48	26.24	47.48	33.32
TA08025-B604	3	No Ice	81.07	50.65	70.93	40.51	70.93	50.65
MP3/MP6/MP9, 0/120/240	--	w/ Ice	13.49	8.92	11.96	7.40	11.96	8.92
TA08025-B605	3	No Ice	81.07	55.25	72.47	46.64	72.47	55.25
MP3/MP6/MP9, 0/120/240	--	w/ Ice	13.49	9.61	12.19	8.31	12.19	9.61
RDIDC-9181-PF-48	1	No Ice	83.07	56.94	74.36	48.24	74.36	56.94
MP/MP6, 120	--	w/ Ice	13.80	9.91	12.50	8.61	12.50	9.91
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
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		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						

EQUIPMENT SEISMIC FORCE CALCULATIONS

Appurtenance Name	Qty.	Elevation [ft]	Weight [lbs]	F_p [lbs]
MX08FRO665-20	3	120	82.5	8.82
TA08025-B604	3	120	63.9	6.83
TA08025-B605	3	120	75	8.02
RDIDC-9181-PF-48	1	120	21.85	2.34

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Irving, Texas 75038

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

(Global) Model Settings

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

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

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

(Global) Model Settings, Continued

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

Hot Rolled Steel Properties

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

Hot Rolled Steel Section Sets

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

Joint Boundary Conditions

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

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N5	N6			Standoff Bracing	Beam	Channel	A36 Gr.36	Typical
2	M2	N3	N1			Standoffs	Beam	Pipe	A53 Gr.B	Typical
3	M3	N9	N12		270	Grating Bracing	Beam	Single Angle	A36 Gr.36	Typical
4	M4	N10	N11			Grating Bracing	Beam	Single Angle	A36 Gr.36	Typical
5	M5	N8	N7			Plates	Beam	RECT	A53 Gr.B	Typical
6	M6	N17	N18			Standoff Bracing	Beam	Channel	A36 Gr.36	Typical
7	M7	N15	N13			Standoffs	Beam	Pipe	A53 Gr.B	Typical
8	M8	N21	N24		270	Grating Bracing	Beam	Single Angle	A36 Gr.36	Typical
9	M9	N22	N23			Grating Bracing	Beam	Single Angle	A36 Gr.36	Typical
10	M10	N20	N19			Plates	Beam	RECT	A53 Gr.B	Typical
11	M11	N29	N30			Standoff Bracing	Beam	Channel	A36 Gr.36	Typical
12	M12	N27	N25			Standoffs	Beam	Pipe	A53 Gr.B	Typical
13	M13	N33	N36		270	Grating Bracing	Beam	Single Angle	A36 Gr.36	Typical
14	M14	N34	N35			Grating Bracing	Beam	Single Angle	A36 Gr.36	Typical
15	M15	N32	N31			Plates	Beam	RECT	A53 Gr.B	Typical
16	H1	N44	N45			Horizontals	Beam	Pipe	A53 Gr.B	Typical
17	H3	N47	N48			Horizontals	Beam	Pipe	A53 Gr.B	Typical
18	H2	N50	N51			Horizontals	Beam	Pipe	A53 Gr.B	Typical
19	M19	N47A	N48A			Handrails	Beam	Pipe	A53 Gr.B	Typical
20	M20	N49	N50A			Handrails	Beam	Pipe	A53 Gr.B	Typical
21	M21	N51A	N52			Handrails	Beam	Pipe	A53 Gr.B	Typical
22	M22	N46	N45A		180	Handrail Corne...	Beam	Single Angle	A36 Gr.36	Typical
23	M23	N42	N41		180	Handrail Corne...	Beam	Single Angle	A36 Gr.36	Typical
24	M24	N44A	N43		180	Handrail Corne...	Beam	Single Angle	A36 Gr.36	Typical
25	M25	N55	N53			RIGID	None	None	RIGID	Typical
26	M26	N56	N54			RIGID	None	None	RIGID	Typical
27	MP2	N57	N58			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
28	M28	N61	N59			RIGID	None	None	RIGID	Typical
29	M29	N62	N60			RIGID	None	None	RIGID	Typical
30	MP1	N63	N64			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
31	M31	N67	N65			RIGID	None	None	RIGID	Typical
32	M32	N68	N66			RIGID	None	None	RIGID	Typical
33	MP3	N69	N70			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
34	M34	N74	N72			RIGID	None	None	RIGID	Typical
35	M35	N75	N73			RIGID	None	None	RIGID	Typical
36	MP8	N76	N77			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
37	M37	N80	N78			RIGID	None	None	RIGID	Typical
38	M38	N81	N79			RIGID	None	None	RIGID	Typical
39	MP7	N82	N83			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
40	M40	N86	N84			RIGID	None	None	RIGID	Typical
41	M41	N87	N85			RIGID	None	None	RIGID	Typical
42	MP9	N88	N89			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
43	M43	N93	N91			RIGID	None	None	RIGID	Typical
44	M44	N94	N92			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
45	MP5	N95	N96			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
46	M46	N99	N97			RIGID	None	None	RIGID	Typical
47	M47	N100	N98			RIGID	None	None	RIGID	Typical
48	MP4	N101	N102			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical
49	M49	N105	N103			RIGID	None	None	RIGID	Typical
50	M50	N106	N104			RIGID	None	None	RIGID	Typical
51	MP6	N107	N108			Mount Pipes	Beam	Pipe	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1	BenPIN	BenPIN				Yes				None
2	M2						Yes				None
3	M3						Yes				None
4	M4						Yes				None
5	M5	OOOOXO	OOOOXO				Yes	Default			None
6	M6	BenPIN	BenPIN				Yes				None
7	M7						Yes				None
8	M8						Yes				None
9	M9						Yes				None
10	M10	OOOOXO	OOOOXO				Yes	Default			None
11	M11	BenPIN	BenPIN				Yes				None
12	M12						Yes				None
13	M13						Yes				None
14	M14						Yes				None
15	M15	OOOOXO	OOOOXO				Yes	Default			None
16	H1						Yes	Default			None
17	H3						Yes				None
18	H2						Yes				None
19	M19						Yes				None
20	M20						Yes				None
21	M21						Yes				None
22	M22						Yes				None
23	M23						Yes				None
24	M24						Yes				None
25	M25	OOOXOO					Yes	** NA **			None
26	M26						Yes	** NA **			None
27	MP2						Yes				None
28	M28	OOOXOO					Yes	** NA **			None
29	M29						Yes	** NA **			None
30	MP1						Yes				None
31	M31	OOOXOO					Yes	** NA **			None
32	M32						Yes	** NA **			None
33	MP3						Yes				None
34	M34	OOOXOO					Yes	** NA **			None
35	M35						Yes	** NA **			None
36	MP8						Yes				None
37	M37	OOOXOO					Yes	** NA **			None
38	M38						Yes	** NA **			None
39	MP7						Yes				None
40	M40	OOOXOO					Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
41	M41						Yes	** NA **			None
42	MP9						Yes				None
43	M43	OOOXOO					Yes	** NA **			None
44	M44						Yes	** NA **			None
45	MP5						Yes				None
46	M46	OOOXOO					Yes	** NA **			None
47	M47						Yes	** NA **			None
48	MP4						Yes				None
49	M49	OOOXOO					Yes	** NA **			None
50	M50						Yes	** NA **			None
51	MP6						Yes				None

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	Standoff Br...	69.713			Lbyy						Lateral
2	M2	Standoffs	40			Lbyy						Lateral
3	M3	Grating Bra...	27.295			Lbyy						Lateral
4	M4	Grating Bra...	27.295			Lbyy						Lateral
5	M5	Plates	42			Lbyy						Lateral
6	M6	Standoff Br...	69.713	28	28	28	28	28				Lateral
7	M7	Standoffs	40			Lbyy						Lateral
8	M8	Grating Bra...	27.295			Lbyy						Lateral
9	M9	Grating Bra...	27.295			Lbyy						Lateral
10	M10	Plates	42			Lbyy						Lateral
11	M11	Standoff Br...	69.713			Lbyy						Lateral
12	M12	Standoffs	40			Lbyy						Lateral
13	M13	Grating Bra...	27.295			Lbyy						Lateral
14	M14	Grating Bra...	27.295			Lbyy						Lateral
15	M15	Plates	42			Lbyy						Lateral
16	H1	Horizontals	96			Lbyy						Lateral
17	H3	Horizontals	96			Lbyy						Lateral
18	H2	Horizontals	96			Lbyy						Lateral
19	M19	Handrails	96			Lbyy						Lateral
20	M20	Handrails	96			Lbyy						Lateral
21	M21	Handrails	96			Lbyy						Lateral
22	M22	Handrail Co...	42			Lbyy						Lateral
23	M23	Handrail Co...	42			Lbyy						Lateral
24	M24	Handrail Co...	42			Lbyy						Lateral
25	MP2	Mount Pipes	72			Lbyy						Lateral
26	MP1	Mount Pipes	72			Lbyy						Lateral
27	MP3	Mount Pipes	72			Lbyy						Lateral
28	MP8	Mount Pipes	72			Lbyy						Lateral
29	MP7	Mount Pipes	72			Lbyy						Lateral
30	MP9	Mount Pipes	72			Lbyy						Lateral
31	MP5	Mount Pipes	72			Lbyy						Lateral
32	MP4	Mount Pipes	72			Lbyy						Lateral
33	MP6	Mount Pipes	72			Lbyy						Lateral

Joint Loads and Enforced Displacements

Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^...
No Data to Print ...			

Member Point Loads (BLC 1 : Self Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Y	-41.25	3
2	MP3	Y	-41.25	69
3	MP3	Y	-63.9	%50
4	MP3	Y	-75	%50
5	MP6	Y	-41.25	3
6	MP6	Y	-41.25	69
7	MP6	Y	-63.9	%50
8	MP6	Y	-75	%50
9	MP6	Y	-21.85	%33
10	MP9	Y	-41.25	3
11	MP9	Y	-41.25	69
12	MP9	Y	-63.9	%50
13	MP9	Y	-75	%50

Member Point Loads (BLC 4 : Wind Load 0 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Z	-165.371	3
2	MP3	Z	-165.371	69
3	MP3	Z	-81.075	%50
4	MP3	Z	-81.075	%50
5	MP6	Z	-91.047	3
6	MP6	Z	-91.047	69
7	MP6	Z	-50.653	%50
8	MP6	Z	-55.247	%50
9	MP6	Z	-56.945	%33
10	MP9	Z	-91.047	3
11	MP9	Z	-91.047	69
12	MP9	Z	-50.653	%50
13	MP9	Z	-55.247	%50
14	MP3	X	0	3
15	MP3	X	0	69
16	MP3	X	0	%50
17	MP3	X	0	%50
18	MP6	X	0	3
19	MP6	X	0	69
20	MP6	X	0	%50
21	MP6	X	0	%50
22	MP6	X	0	%33
23	MP9	X	0	3
24	MP9	X	0	69
25	MP9	X	0	%50
26	MP9	X	0	%50

Member Point Loads (BLC 5 : Wind Load 30 AZI)

Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]

Member Point Loads (BLC 5 : Wind Load 30 AZI) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Z	-121.76	3
2	MP3	Z	-121.76	69
3	MP3	Z	-61.431	%50
4	MP3	Z	-62.757	%50
5	MP6	Z	-121.76	3
6	MP6	Z	-121.76	69
7	MP6	Z	-61.431	%50
8	MP6	Z	-62.757	%50
9	MP6	Z	-64.4	%33
10	MP9	Z	-57.393	3
11	MP9	Z	-57.393	69
12	MP9	Z	-35.084	%50
13	MP9	Z	-40.389	%50
14	MP3	X	-70.298	3
15	MP3	X	-70.298	69
16	MP3	X	-35.467	%50
17	MP3	X	-36.233	%50
18	MP6	X	-70.298	3
19	MP6	X	-70.298	69
20	MP6	X	-35.467	%50
21	MP6	X	-36.233	%50
22	MP6	X	-37.182	%33
23	MP9	X	-33.136	3
24	MP9	X	-33.136	69
25	MP9	X	-20.256	%50
26	MP9	X	-23.319	%50

Member Point Loads (BLC 6 : Wind Load 45 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Z	-81.898	3
2	MP3	Z	-81.898	69
3	MP3	Z	-42.987	%50
4	MP3	Z	-45.153	%50
5	MP6	Z	-112.241	3
6	MP6	Z	-112.241	69
7	MP6	Z	-55.407	%50
8	MP6	Z	-55.697	%50
9	MP6	Z	-57.091	%33
10	MP9	Z	-51.555	3
11	MP9	Z	-51.555	69
12	MP9	Z	-30.567	%50
13	MP9	Z	-34.609	%50
14	MP3	X	-81.898	3
15	MP3	X	-81.898	69
16	MP3	X	-42.987	%50
17	MP3	X	-45.153	%50
18	MP6	X	-112.241	3
19	MP6	X	-112.241	69
20	MP6	X	-55.407	%50
21	MP6	X	-55.697	%50
22	MP6	X	-57.091	%33

Member Point Loads (BLC 6 : Wind Load 45 AZI) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
23	MP9	X	-51.555	3
24	MP9	X	-51.555	69
25	MP9	X	-30.567	%50
26	MP9	X	-34.609	%50

Member Point Loads (BLC 7 : Wind Load 60 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Z	-45.523	3
2	MP3	Z	-45.523	69
3	MP3	Z	-25.326	%50
4	MP3	Z	-27.623	%50
5	MP6	Z	-82.685	3
6	MP6	Z	-82.685	69
7	MP6	Z	-40.537	%50
8	MP6	Z	-40.537	%50
9	MP6	Z	-41.536	%33
10	MP9	Z	-45.523	3
11	MP9	Z	-45.523	69
12	MP9	Z	-25.326	%50
13	MP9	Z	-27.623	%50
14	MP3	X	-78.849	3
15	MP3	X	-78.849	69
16	MP3	X	-43.866	%50
17	MP3	X	-47.845	%50
18	MP6	X	-143.215	3
19	MP6	X	-143.215	69
20	MP6	X	-70.213	%50
21	MP6	X	-70.213	%50
22	MP6	X	-71.943	%33
23	MP9	X	-78.849	3
24	MP9	X	-78.849	69
25	MP9	X	-43.866	%50
26	MP9	X	-47.845	%50

Member Point Loads (BLC 8 : Wind Load 90 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Z	-4.058e-15	3
2	MP3	Z	-4.058e-15	69
3	MP3	Z	-2.481e-15	%50
4	MP3	Z	-2.856e-15	%50
5	MP6	Z	-8.609e-15	3
6	MP6	Z	-8.609e-15	69
7	MP6	Z	-4.343e-15	%50
8	MP6	Z	-4.437e-15	%50
9	MP6	Z	-4.553e-15	%33
10	MP9	Z	-8.609e-15	3
11	MP9	Z	-8.609e-15	69
12	MP9	Z	-4.343e-15	%50
13	MP9	Z	-4.437e-15	%50
14	MP3	X	-66.272	3
15	MP3	X	-66.272	69

Member Point Loads (BLC 8 : Wind Load 90 AZI) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
16	MP3	X	-40.512	%50
17	MP3	X	-46.637	%50
18	MP6	X	-140.596	3
19	MP6	X	-140.596	69
20	MP6	X	-70.934	%50
21	MP6	X	-72.466	%50
22	MP6	X	-74.363	%33
23	MP9	X	-140.596	3
24	MP9	X	-140.596	69
25	MP9	X	-70.934	%50
26	MP9	X	-72.466	%50

Member Point Loads (BLC 9 : Wind Load 120 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Z	45.523	3
2	MP3	Z	45.523	69
3	MP3	Z	25.326	%50
4	MP3	Z	27.623	%50
5	MP6	Z	45.523	3
6	MP6	Z	45.523	69
7	MP6	Z	25.326	%50
8	MP6	Z	27.623	%50
9	MP6	Z	28.472	%33
10	MP9	Z	82.685	3
11	MP9	Z	82.685	69
12	MP9	Z	40.537	%50
13	MP9	Z	40.537	%50
14	MP3	X	-78.849	3
15	MP3	X	-78.849	69
16	MP3	X	-43.866	%50
17	MP3	X	-47.845	%50
18	MP6	X	-78.849	3
19	MP6	X	-78.849	69
20	MP6	X	-43.866	%50
21	MP6	X	-47.845	%50
22	MP6	X	-49.316	%33
23	MP9	X	-143.215	3
24	MP9	X	-143.215	69
25	MP9	X	-70.213	%50
26	MP9	X	-70.213	%50

Member Point Loads (BLC 10 : Wind Load 135 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Z	81.898	3
2	MP3	Z	81.898	69
3	MP3	Z	42.987	%50
4	MP3	Z	45.153	%50
5	MP6	Z	51.555	3
6	MP6	Z	51.555	69
7	MP6	Z	30.567	%50
8	MP6	Z	34.609	%50

Member Point Loads (BLC 10 : Wind Load 135 AZI) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
9	MP6	Z	35.758	%33
10	MP9	Z	112.241	3
11	MP9	Z	112.241	69
12	MP9	Z	55.407	%50
13	MP9	Z	55.697	%50
14	MP3	X	-81.898	3
15	MP3	X	-81.898	69
16	MP3	X	-42.987	%50
17	MP3	X	-45.153	%50
18	MP6	X	-51.555	3
19	MP6	X	-51.555	69
20	MP6	X	-30.567	%50
21	MP6	X	-34.609	%50
22	MP6	X	-35.758	%33
23	MP9	X	-112.241	3
24	MP9	X	-112.241	69
25	MP9	X	-55.407	%50
26	MP9	X	-55.697	%50

Member Point Loads (BLC 11 : Wind Load 150 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Z	121.76	3
2	MP3	Z	121.76	69
3	MP3	Z	61.431	%50
4	MP3	Z	62.757	%50
5	MP6	Z	57.393	3
6	MP6	Z	57.393	69
7	MP6	Z	35.084	%50
8	MP6	Z	40.389	%50
9	MP6	Z	41.773	%33
10	MP9	Z	121.76	3
11	MP9	Z	121.76	69
12	MP9	Z	61.431	%50
13	MP9	Z	62.757	%50
14	MP3	X	-70.298	3
15	MP3	X	-70.298	69
16	MP3	X	-35.467	%50
17	MP3	X	-36.233	%50
18	MP6	X	-33.136	3
19	MP6	X	-33.136	69
20	MP6	X	-20.256	%50
21	MP6	X	-23.319	%50
22	MP6	X	-24.118	%33
23	MP9	X	-70.298	3
24	MP9	X	-70.298	69
25	MP9	X	-35.467	%50
26	MP9	X	-36.233	%50

Member Point Loads (BLC 12 : Ice Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Y	-141.268	3

Member Point Loads (BLC 12 : Ice Weight) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
2	MP3	Y	-141.268	69
3	MP3	Y	-68.656	%50
4	MP3	Y	-73.148	%50
5	MP6	Y	-141.268	3
6	MP6	Y	-141.268	69
7	MP6	Y	-68.656	%50
8	MP6	Y	-73.148	%50
9	MP6	Y	-72.09	%33
10	MP9	Y	-141.268	3
11	MP9	Y	-141.268	69
12	MP9	Y	-68.656	%50
13	MP9	Y	-73.148	%50

Member Point Loads (BLC 15 : Ice Wind Load 0 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Z	-27.281	3
2	MP3	Z	-27.281	69
3	MP3	Z	-13.487	%50
4	MP3	Z	-13.487	%50
5	MP6	Z	-16.66	3
6	MP6	Z	-16.66	69
7	MP6	Z	-8.918	%50
8	MP6	Z	-9.607	%50
9	MP6	Z	-9.907	%33
10	MP9	Z	-16.66	3
11	MP9	Z	-16.66	69
12	MP9	Z	-8.918	%50
13	MP9	Z	-9.607	%50
14	MP3	X	0	3
15	MP3	X	0	69
16	MP3	X	0	%50
17	MP3	X	0	%50
18	MP6	X	0	3
19	MP6	X	0	69
20	MP6	X	0	%50
21	MP6	X	0	%50
22	MP6	X	0	%33
23	MP9	X	0	3
24	MP9	X	0	69
25	MP9	X	0	%50
26	MP9	X	0	%50

Member Point Loads (BLC 16 : Ice Wind Load 30 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Z	-20.56	3
2	MP3	Z	-20.56	69
3	MP3	Z	-10.361	%50
4	MP3	Z	-10.56	%50
5	MP6	Z	-20.56	3
6	MP6	Z	-20.56	69
7	MP6	Z	-10.361	%50

Member Point Loads (BLC 16 : Ice Wind Load 30 AZI) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
8	MP6	Z	-10.56	%50
9	MP6	Z	-10.825	%33
10	MP9	Z	-11.362	3
11	MP9	Z	-11.362	69
12	MP9	Z	-6.404	%50
13	MP9	Z	-7.2	%50
14	MP3	X	-11.87	3
15	MP3	X	-11.87	69
16	MP3	X	-5.982	%50
17	MP3	X	-6.097	%50
18	MP6	X	-11.87	3
19	MP6	X	-11.87	69
20	MP6	X	-5.982	%50
21	MP6	X	-6.097	%50
22	MP6	X	-6.25	%33
23	MP9	X	-6.56	3
24	MP9	X	-6.56	69
25	MP9	X	-3.698	%50
26	MP9	X	-4.157	%50

Member Point Loads (BLC 17 : Ice Wind Load 45 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Z	-14.284	3
2	MP3	Z	-14.284	69
3	MP3	Z	-7.383	%50
4	MP3	Z	-7.708	%50
5	MP6	Z	-18.62	3
6	MP6	Z	-18.62	69
7	MP6	Z	-9.248	%50
8	MP6	Z	-9.292	%50
9	MP6	Z	-9.51	%33
10	MP9	Z	-9.948	3
11	MP9	Z	-9.948	69
12	MP9	Z	-5.518	%50
13	MP9	Z	-6.124	%50
14	MP3	X	-14.284	3
15	MP3	X	-14.284	69
16	MP3	X	-7.383	%50
17	MP3	X	-7.708	%50
18	MP6	X	-18.62	3
19	MP6	X	-18.62	69
20	MP6	X	-9.248	%50
21	MP6	X	-9.292	%50
22	MP6	X	-9.51	%33
23	MP9	X	-9.948	3
24	MP9	X	-9.948	69
25	MP9	X	-5.518	%50
26	MP9	X	-6.124	%50

Member Point Loads (BLC 18 : Ice Wind Load 60 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]

Member Point Loads (BLC 18 : Ice Wind Load 60 AZI) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Z	-8.33	3
2	MP3	Z	-8.33	69
3	MP3	Z	-4.459	%50
4	MP3	Z	-4.804	%50
5	MP6	Z	-13.641	3
6	MP6	Z	-13.641	69
7	MP6	Z	-6.743	%50
8	MP6	Z	-6.743	%50
9	MP6	Z	-6.898	%33
10	MP9	Z	-8.33	3
11	MP9	Z	-8.33	69
12	MP9	Z	-4.459	%50
13	MP9	Z	-4.804	%50
14	MP3	X	-14.428	3
15	MP3	X	-14.428	69
16	MP3	X	-7.723	%50
17	MP3	X	-8.32	%50
18	MP6	X	-23.626	3
19	MP6	X	-23.626	69
20	MP6	X	-11.68	%50
21	MP6	X	-11.68	%50
22	MP6	X	-11.948	%33
23	MP9	X	-14.428	3
24	MP9	X	-14.428	69
25	MP9	X	-7.723	%50
26	MP9	X	-8.32	%50

Member Point Loads (BLC 19 : Ice Wind Load 90 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Z	-8.034e-16	3
2	MP3	Z	-8.034e-16	69
3	MP3	Z	-4.528e-16	%50
4	MP3	Z	-5.091e-16	%50
5	MP6	Z	-1.454e-15	3
6	MP6	Z	-1.454e-15	69
7	MP6	Z	-7.326e-16	%50
8	MP6	Z	-7.467e-16	%50
9	MP6	Z	-7.654e-16	%33
10	MP9	Z	-1.454e-15	3
11	MP9	Z	-1.454e-15	69
12	MP9	Z	-7.326e-16	%50
13	MP9	Z	-7.467e-16	%50
14	MP3	X	-13.12	3
15	MP3	X	-13.12	69
16	MP3	X	-7.395	%50
17	MP3	X	-8.314	%50
18	MP6	X	-23.741	3
19	MP6	X	-23.741	69
20	MP6	X	-11.964	%50
21	MP6	X	-12.194	%50
22	MP6	X	-12.5	%33

Member Point Loads (BLC 19 : Ice Wind Load 90 AZI) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
23	MP9	X	-23.741	3
24	MP9	X	-23.741	69
25	MP9	X	-11.964	%50
26	MP9	X	-12.194	%50

Member Point Loads (BLC 20 : Ice Wind Load 120 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Z	8.33	3
2	MP3	Z	8.33	69
3	MP3	Z	4.459	%50
4	MP3	Z	4.804	%50
5	MP6	Z	8.33	3
6	MP6	Z	8.33	69
7	MP6	Z	4.459	%50
8	MP6	Z	4.804	%50
9	MP6	Z	4.953	%33
10	MP9	Z	13.641	3
11	MP9	Z	13.641	69
12	MP9	Z	6.743	%50
13	MP9	Z	6.743	%50
14	MP3	X	-14.428	3
15	MP3	X	-14.428	69
16	MP3	X	-7.723	%50
17	MP3	X	-8.32	%50
18	MP6	X	-14.428	3
19	MP6	X	-14.428	69
20	MP6	X	-7.723	%50
21	MP6	X	-8.32	%50
22	MP6	X	-8.58	%33
23	MP9	X	-23.626	3
24	MP9	X	-23.626	69
25	MP9	X	-11.68	%50
26	MP9	X	-11.68	%50

Member Point Loads (BLC 21 : Ice Wind Load 135 AZI)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Z	14.284	3
2	MP3	Z	14.284	69
3	MP3	Z	7.383	%50
4	MP3	Z	7.708	%50
5	MP6	Z	9.948	3
6	MP6	Z	9.948	69
7	MP6	Z	5.518	%50
8	MP6	Z	6.124	%50
9	MP6	Z	6.334	%33
10	MP9	Z	18.62	3
11	MP9	Z	18.62	69
12	MP9	Z	9.248	%50
13	MP9	Z	9.292	%50
14	MP3	X	-14.284	3
15	MP3	X	-14.284	69

Member Point Loads (BLC 21 : Ice Wind Load 135 AZI) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
16	MP3	X	-7.383	%50
17	MP3	X	-7.708	%50
18	MP6	X	-9.948	3
19	MP6	X	-9.948	69
20	MP6	X	-5.518	%50
21	MP6	X	-6.124	%50
22	MP6	X	-6.334	%33
23	MP9	X	-18.62	3
24	MP9	X	-18.62	69
25	MP9	X	-9.248	%50
26	MP9	X	-9.292	%50

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Z	20.56	3
2	MP3	Z	20.56	69
3	MP3	Z	10.361	%50
4	MP3	Z	10.56	%50
5	MP6	Z	11.362	3
6	MP6	Z	11.362	69
7	MP6	Z	6.404	%50
8	MP6	Z	7.2	%50
9	MP6	Z	7.457	%33
10	MP9	Z	20.56	3
11	MP9	Z	20.56	69
12	MP9	Z	10.361	%50
13	MP9	Z	10.56	%50
14	MP3	X	-11.87	3
15	MP3	X	-11.87	69
16	MP3	X	-5.982	%50
17	MP3	X	-6.097	%50
18	MP6	X	-6.56	3
19	MP6	X	-6.56	69
20	MP6	X	-3.698	%50
21	MP6	X	-4.157	%50
22	MP6	X	-4.305	%33
23	MP9	X	-11.87	3
24	MP9	X	-11.87	69
25	MP9	X	-5.982	%50
26	MP9	X	-6.097	%50

Member Point Loads (BLC 23 : Seismic Load Z)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Z	-4.409	3
2	MP3	Z	-4.409	69
3	MP3	Z	-6.83	%50
4	MP3	Z	-8.016	%50
5	MP6	Z	-4.409	3
6	MP6	Z	-4.409	69
7	MP6	Z	-6.83	%50
8	MP6	Z	-8.016	%50

Member Point Loads (BLC 23 : Seismic Load Z) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
9	MP6	Z	-2.335	%33
10	MP9	Z	-4.409	3
11	MP9	Z	-4.409	69
12	MP9	Z	-6.83	%50
13	MP9	Z	-8.016	%50

Member Point Loads (BLC 24 : Seismic Load X)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	X	-4.409	3
2	MP3	X	-4.409	69
3	MP3	X	-6.83	%50
4	MP3	X	-8.016	%50
5	MP6	X	-4.409	3
6	MP6	X	-4.409	69
7	MP6	X	-6.83	%50
8	MP6	X	-8.016	%50
9	MP6	X	-2.335	%33
10	MP9	X	-4.409	3
11	MP9	X	-4.409	69
12	MP9	X	-6.83	%50
13	MP9	X	-8.016	%50

Member Point Loads (BLC 25 : Live Load 1 (Lv))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	H1	Y	-250	0

Member Point Loads (BLC 26 : Live Load 2 (Lv))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	H1	Y	-250	%50

Member Point Loads (BLC 27 : Live Load 3 (Lv))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	H1	Y	-250	%100

Member Point Loads (BLC 28 : Live Load 4 (Lv))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	H3	Y	-250	0

Member Point Loads (BLC 29 : Live Load 5 (Lv))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	H3	Y	-250	%50

Member Point Loads (BLC 30 : Live Load 6 (Lv))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	H3	Y	-250	%100

Member Point Loads (BLC 31 : Live Load 7 (Lv))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]

Member Point Loads (BLC 31 : Live Load 7 (Lv)) (Continued)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	H2	Y	-250	0

Member Point Loads (BLC 32 : Live Load 8 (Lv))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	H2	Y	-250	%50

Member Point Loads (BLC 33 : Live Load 9 (Lv))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	H2	Y	-250	%100

Member Point Loads (BLC 34 : Maintenance Load 1 (Lm))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Y	-500	%50

Member Point Loads (BLC 35 : Maintenance Load 2 (Lm))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Y	-500	%50

Member Point Loads (BLC 36 : Maintenance Load 3 (Lm))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP3	Y	-500	%50

Member Point Loads (BLC 37 : Maintenance Load 4 (Lm))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP8	Y	-500	%50

Member Point Loads (BLC 38 : Maintenance Load 5 (Lm))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP7	Y	-500	%50

Member Point Loads (BLC 39 : Maintenance Load 6 (Lm))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP9	Y	-500	%50

Member Point Loads (BLC 40 : Maintenance Load 7 (Lm))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP5	Y	-500	%50

Member Point Loads (BLC 41 : Maintenance Load 8 (Lm))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP4	Y	-500	%50

Member Point Loads (BLC 42 : Maintenance Load 9 (Lm))

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP6	Y	-500	%50

Member Distributed Loads (BLC 2 : Structure Wind Z)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	M1	SZ	-82.582	-82.582	0	%100
2	M2	SZ	-49.549	-49.549	0	%100
3	M3	SZ	-82.582	-82.582	0	%100
4	M4	SZ	-82.582	-82.582	0	%100
5	M5	SZ	-82.582	-82.582	0	%100
6	M6	SZ	-82.582	-82.582	0	%100
7	M7	SZ	-49.549	-49.549	0	%100
8	M8	SZ	-82.582	-82.582	0	%100
9	M9	SZ	-82.582	-82.582	0	%100
10	M10	SZ	-82.582	-82.582	0	%100
11	M11	SZ	-82.582	-82.582	0	%100
12	M12	SZ	-49.549	-49.549	0	%100
13	M13	SZ	-82.582	-82.582	0	%100
14	M14	SZ	-82.582	-82.582	0	%100
15	M15	SZ	-82.582	-82.582	0	%100
16	H1	SZ	-49.549	-49.549	0	%100
17	H3	SZ	-49.549	-49.549	0	%100
18	H2	SZ	-49.549	-49.549	0	%100
19	M19	SZ	-49.549	-49.549	0	%100
20	M20	SZ	-49.549	-49.549	0	%100
21	M21	SZ	-49.549	-49.549	0	%100
22	M22	SZ	-82.582	-82.582	0	%100
23	M23	SZ	-82.582	-82.582	0	%100
24	M24	SZ	-82.582	-82.582	0	%100
25	M25	SZ	-82.582	-82.582	0	%100
26	M26	SZ	-82.582	-82.582	0	%100
27	MP2	SZ	-49.549	-49.549	0	%100
28	M28	SZ	-82.582	-82.582	0	%100
29	M29	SZ	-82.582	-82.582	0	%100
30	MP1	SZ	-49.549	-49.549	0	%100
31	M31	SZ	-82.582	-82.582	0	%100
32	M32	SZ	-82.582	-82.582	0	%100
33	MP3	SZ	-49.549	-49.549	0	%100
34	M34	SZ	-82.582	-82.582	0	%100
35	M35	SZ	-82.582	-82.582	0	%100
36	MP8	SZ	-49.549	-49.549	0	%100
37	M37	SZ	-82.582	-82.582	0	%100
38	M38	SZ	-82.582	-82.582	0	%100
39	MP7	SZ	-49.549	-49.549	0	%100
40	M40	SZ	-82.582	-82.582	0	%100
41	M41	SZ	-82.582	-82.582	0	%100
42	MP9	SZ	-49.549	-49.549	0	%100
43	M43	SZ	-82.582	-82.582	0	%100
44	M44	SZ	-82.582	-82.582	0	%100
45	MP5	SZ	-49.549	-49.549	0	%100
46	M46	SZ	-82.582	-82.582	0	%100
47	M47	SZ	-82.582	-82.582	0	%100
48	MP4	SZ	-49.549	-49.549	0	%100
49	M49	SZ	-82.582	-82.582	0	%100
50	M50	SZ	-82.582	-82.582	0	%100
51	MP6	SZ	-49.549	-49.549	0	%100

Member Distributed Loads (BLC 3 : Structure Wind X)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	M1	SX	-82.582	-82.582	0	%100
2	M2	SX	-49.549	-49.549	0	%100
3	M3	SX	-82.582	-82.582	0	%100
4	M4	SX	-82.582	-82.582	0	%100
5	M5	SX	-82.582	-82.582	0	%100
6	M6	SX	-82.582	-82.582	0	%100
7	M7	SX	-49.549	-49.549	0	%100
8	M8	SX	-82.582	-82.582	0	%100
9	M9	SX	-82.582	-82.582	0	%100
10	M10	SX	-82.582	-82.582	0	%100
11	M11	SX	-82.582	-82.582	0	%100
12	M12	SX	-49.549	-49.549	0	%100
13	M13	SX	-82.582	-82.582	0	%100
14	M14	SX	-82.582	-82.582	0	%100
15	M15	SX	-82.582	-82.582	0	%100
16	H1	SX	-49.549	-49.549	0	%100
17	H3	SX	-49.549	-49.549	0	%100
18	H2	SX	-49.549	-49.549	0	%100
19	M19	SX	-49.549	-49.549	0	%100
20	M20	SX	-49.549	-49.549	0	%100
21	M21	SX	-49.549	-49.549	0	%100
22	M22	SX	-82.582	-82.582	0	%100
23	M23	SX	-82.582	-82.582	0	%100
24	M24	SX	-82.582	-82.582	0	%100
25	M25	SX	-82.582	-82.582	0	%100
26	M26	SX	-82.582	-82.582	0	%100
27	MP2	SX	-49.549	-49.549	0	%100
28	M28	SX	-82.582	-82.582	0	%100
29	M29	SX	-82.582	-82.582	0	%100
30	MP1	SX	-49.549	-49.549	0	%100
31	M31	SX	-82.582	-82.582	0	%100
32	M32	SX	-82.582	-82.582	0	%100
33	MP3	SX	-49.549	-49.549	0	%100
34	M34	SX	-82.582	-82.582	0	%100
35	M35	SX	-82.582	-82.582	0	%100
36	MP8	SX	-49.549	-49.549	0	%100
37	M37	SX	-82.582	-82.582	0	%100
38	M38	SX	-82.582	-82.582	0	%100
39	MP7	SX	-49.549	-49.549	0	%100
40	M40	SX	-82.582	-82.582	0	%100
41	M41	SX	-82.582	-82.582	0	%100
42	MP9	SX	-49.549	-49.549	0	%100
43	M43	SX	-82.582	-82.582	0	%100
44	M44	SX	-82.582	-82.582	0	%100
45	MP5	SX	-49.549	-49.549	0	%100
46	M46	SX	-82.582	-82.582	0	%100
47	M47	SX	-82.582	-82.582	0	%100
48	MP4	SX	-49.549	-49.549	0	%100
49	M49	SX	-82.582	-82.582	0	%100
50	M50	SX	-82.582	-82.582	0	%100
51	MP6	SX	-49.549	-49.549	0	%100

Member Distributed Loads (BLC 12 : Ice Weight)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	M1	Y	-10.552	-10.552	0	%100
2	M2	Y	-11.899	-11.899	0	%100
3	M3	Y	-9.456	-9.456	0	%100
4	M4	Y	-9.456	-9.456	0	%100
5	M5	Y	-17.134	-17.134	0	%100
6	M6	Y	-10.552	-10.552	0	%100
7	M7	Y	-11.899	-11.899	0	%100
8	M8	Y	-9.456	-9.456	0	%100
9	M9	Y	-9.456	-9.456	0	%100
10	M10	Y	-17.134	-17.134	0	%100
11	M11	Y	-10.552	-10.552	0	%100
12	M12	Y	-11.899	-11.899	0	%100
13	M13	Y	-9.456	-9.456	0	%100
14	M14	Y	-9.456	-9.456	0	%100
15	M15	Y	-17.134	-17.134	0	%100
16	H1	Y	-11.899	-11.899	0	%100
17	H3	Y	-11.899	-11.899	0	%100
18	H2	Y	-11.899	-11.899	0	%100
19	M19	Y	-8.511	-8.511	0	%100
20	M20	Y	-8.511	-8.511	0	%100
21	M21	Y	-8.511	-8.511	0	%100
22	M22	Y	-20.185	-20.185	0	%100
23	M23	Y	-20.185	-20.185	0	%100
24	M24	Y	-20.185	-20.185	0	%100
25	M25	Y	0	0	0	%100
26	M26	Y	0	0	0	%100
27	MP2	Y	-8.511	-8.511	0	%100
28	M28	Y	0	0	0	%100
29	M29	Y	0	0	0	%100
30	MP1	Y	-8.511	-8.511	0	%100
31	M31	Y	0	0	0	%100
32	M32	Y	0	0	0	%100
33	MP3	Y	-8.511	-8.511	0	%100
34	M34	Y	0	0	0	%100
35	M35	Y	0	0	0	%100
36	MP8	Y	-8.511	-8.511	0	%100
37	M37	Y	0	0	0	%100
38	M38	Y	0	0	0	%100
39	MP7	Y	-8.511	-8.511	0	%100
40	M40	Y	0	0	0	%100
41	M41	Y	0	0	0	%100
42	MP9	Y	-8.511	-8.511	0	%100
43	M43	Y	0	0	0	%100
44	M44	Y	0	0	0	%100
45	MP5	Y	-8.511	-8.511	0	%100
46	M46	Y	0	0	0	%100
47	M47	Y	0	0	0	%100
48	MP4	Y	-8.511	-8.511	0	%100
49	M49	Y	0	0	0	%100
50	M50	Y	0	0	0	%100
51	MP6	Y	-8.511	-8.511	0	%100

Member Distributed Loads (BLC 13 : Ice Structure Wind Z)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	M1	SZ	-14.988	-14.988	0	%100
2	M2	SZ	-13.767	-13.767	0	%100
3	M3	SZ	-16.393	-16.393	0	%100
4	M4	SZ	-16.393	-16.393	0	%100
5	M5	SZ	-11.323	-11.323	0	%100
6	M6	SZ	-14.988	-14.988	0	%100
7	M7	SZ	-13.767	-13.767	0	%100
8	M8	SZ	-16.393	-16.393	0	%100
9	M9	SZ	-16.393	-16.393	0	%100
10	M10	SZ	-11.323	-11.323	0	%100
11	M11	SZ	-14.988	-14.988	0	%100
12	M12	SZ	-13.767	-13.767	0	%100
13	M13	SZ	-16.393	-16.393	0	%100
14	M14	SZ	-16.393	-16.393	0	%100
15	M15	SZ	-11.323	-11.323	0	%100
16	H1	SZ	-13.767	-13.767	0	%100
17	H3	SZ	-13.767	-13.767	0	%100
18	H2	SZ	-13.767	-13.767	0	%100
19	M19	SZ	-18.105	-18.105	0	%100
20	M20	SZ	-18.105	-18.105	0	%100
21	M21	SZ	-18.105	-18.105	0	%100
22	M22	SZ	-10.608	-10.608	0	%100
23	M23	SZ	-10.608	-10.608	0	%100
24	M24	SZ	-10.608	-10.608	0	%100
25	M25	SZ	0	0	0	%100
26	M26	SZ	0	0	0	%100
27	MP2	SZ	-18.105	-18.105	0	%100
28	M28	SZ	0	0	0	%100
29	M29	SZ	0	0	0	%100
30	MP1	SZ	-18.105	-18.105	0	%100
31	M31	SZ	0	0	0	%100
32	M32	SZ	0	0	0	%100
33	MP3	SZ	-18.105	-18.105	0	%100
34	M34	SZ	0	0	0	%100
35	M35	SZ	0	0	0	%100
36	MP8	SZ	-18.105	-18.105	0	%100
37	M37	SZ	0	0	0	%100
38	M38	SZ	0	0	0	%100
39	MP7	SZ	-18.105	-18.105	0	%100
40	M40	SZ	0	0	0	%100
41	M41	SZ	0	0	0	%100
42	MP9	SZ	-18.105	-18.105	0	%100
43	M43	SZ	0	0	0	%100
44	M44	SZ	0	0	0	%100
45	MP5	SZ	-18.105	-18.105	0	%100
46	M46	SZ	0	0	0	%100
47	M47	SZ	0	0	0	%100
48	MP4	SZ	-18.105	-18.105	0	%100
49	M49	SZ	0	0	0	%100
50	M50	SZ	0	0	0	%100
51	MP6	SZ	-18.105	-18.105	0	%100

Member Distributed Loads (BLC 14 : Ice Structure Wind X)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	M1	SX	-14.988	-14.988	0	%100
2	M2	SX	-13.767	-13.767	0	%100
3	M3	SX	-16.393	-16.393	0	%100
4	M4	SX	-16.393	-16.393	0	%100
5	M5	SX	-11.323	-11.323	0	%100
6	M6	SX	-14.988	-14.988	0	%100
7	M7	SX	-13.767	-13.767	0	%100
8	M8	SX	-16.393	-16.393	0	%100
9	M9	SX	-16.393	-16.393	0	%100
10	M10	SX	-11.323	-11.323	0	%100
11	M11	SX	-14.988	-14.988	0	%100
12	M12	SX	-13.767	-13.767	0	%100
13	M13	SX	-16.393	-16.393	0	%100
14	M14	SX	-16.393	-16.393	0	%100
15	M15	SX	-11.323	-11.323	0	%100
16	H1	SX	-13.767	-13.767	0	%100
17	H3	SX	-13.767	-13.767	0	%100
18	H2	SX	-13.767	-13.767	0	%100
19	M19	SX	-18.105	-18.105	0	%100
20	M20	SX	-18.105	-18.105	0	%100
21	M21	SX	-18.105	-18.105	0	%100
22	M22	SX	-10.608	-10.608	0	%100
23	M23	SX	-10.608	-10.608	0	%100
24	M24	SX	-10.608	-10.608	0	%100
25	M25	SX	0	0	0	%100
26	M26	SX	0	0	0	%100
27	MP2	SX	-18.105	-18.105	0	%100
28	M28	SX	0	0	0	%100
29	M29	SX	0	0	0	%100
30	MP1	SX	-18.105	-18.105	0	%100
31	M31	SX	0	0	0	%100
32	M32	SX	0	0	0	%100
33	MP3	SX	-18.105	-18.105	0	%100
34	M34	SX	0	0	0	%100
35	M35	SX	0	0	0	%100
36	MP8	SX	-18.105	-18.105	0	%100
37	M37	SX	0	0	0	%100
38	M38	SX	0	0	0	%100
39	MP7	SX	-18.105	-18.105	0	%100
40	M40	SX	0	0	0	%100
41	M41	SX	0	0	0	%100
42	MP9	SX	-18.105	-18.105	0	%100
43	M43	SX	0	0	0	%100
44	M44	SX	0	0	0	%100
45	MP5	SX	-18.105	-18.105	0	%100
46	M46	SX	0	0	0	%100
47	M47	SX	0	0	0	%100
48	MP4	SX	-18.105	-18.105	0	%100
49	M49	SX	0	0	0	%100
50	M50	SX	0	0	0	%100
51	MP6	SX	-18.105	-18.105	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	M7	Y	-10.921	-10.921	0	23.596
2	M8	Y	-5.504	-5.504	3.828	27.295
3	M9	Y	-5.504	-5.504	3.828	27.295
4	M2	Y	-10.921	-10.921	0	23.596
5	M3	Y	-5.504	-5.504	3.828	27.295
6	M4	Y	-5.504	-5.504	3.828	27.295
7	M12	Y	-10.921	-10.921	0	23.596
8	M13	Y	-5.504	-5.504	3.828	27.295
9	M14	Y	-5.504	-5.504	3.828	27.295

Member Distributed Loads (BLC 44 : BLC 12 Transient Area Loads)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	M7	Y	-28.995	-28.995	0	23.596
2	M8	Y	-14.612	-14.612	3.828	27.295
3	M9	Y	-14.612	-14.612	3.828	27.295
4	M2	Y	-28.995	-28.995	0	23.596
5	M3	Y	-14.612	-14.612	3.828	27.295
6	M4	Y	-14.612	-14.612	3.828	27.295
7	M12	Y	-28.995	-28.995	0	23.596
8	M13	Y	-14.612	-14.612	3.828	27.295
9	M14	Y	-14.612	-14.612	3.828	27.295

Member Area Loads (BLC 1 : Self Weight)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N22	N23	N24	N21	Y	Two Way	-6
2	N10	N11	N12	N9	Y	Two Way	-6
3	N34	N35	N36	N33	Y	Two Way	-6

Member Area Loads (BLC 12 : Ice Weight)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N22	N23	N24	N21	Y	Two Way	-15.93
2	N10	N11	N12	N9	Y	Two Way	-15.93
3	N34	N35	N36	N33	Y	Two Way	-15.93

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Self Weight	DL		-1			13		3	
2	Structure Wind Z	WLZ						51		
3	Structure Wind X	WLX						51		
4	Wind Load 0 AZI	WLZ					26			
5	Wind Load 30 AZI	None					26			
6	Wind Load 45 AZI	None					26			
7	Wind Load 60 AZI	None					26			
8	Wind Load 90 AZI	WLX					26			
9	Wind Load 120 AZI	None					26			
10	Wind Load 135 AZI	None					26			
11	Wind Load 150 AZI	None					26			
12	Ice Weight	OL1					13	51	3	

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
13	Ice Structure Wind Z	OL2						51		
14	Ice Structure Wind X	OL3						51		
15	Ice Wind Load 0 AZI	OL2					26			
16	Ice Wind Load 30 AZI	None					26			
17	Ice Wind Load 45 AZI	None					26			
18	Ice Wind Load 60 AZI	None					26			
19	Ice Wind Load 90 AZI	OL3					26			
20	Ice Wind Load 120 AZI	None					26			
21	Ice Wind Load 135 AZI	None					26			
22	Ice Wind Load 150 AZI	None					26			
23	Seismic Load Z	ELZ			-.107		13			
24	Seismic Load X	ELX	-.107				13			
25	Live Load 1 (Lv)	None					1			
26	Live Load 2 (Lv)	None					1			
27	Live Load 3 (Lv)	None					1			
28	Live Load 4 (Lv)	None					1			
29	Live Load 5 (Lv)	None					1			
30	Live Load 6 (Lv)	None					1			
31	Live Load 7 (Lv)	None					1			
32	Live Load 8 (Lv)	None					1			
33	Live Load 9 (Lv)	None					1			
34	Maintenance Load 1 (...	None					1			
35	Maintenance Load 2 (...	None					1			
36	Maintenance Load 3 (...	None					1			
37	Maintenance Load 4 (...	None					1			
38	Maintenance Load 5 (...	None					1			
39	Maintenance Load 6 (...	None					1			
40	Maintenance Load 7 (...	None					1			
41	Maintenance Load 8 (...	None					1			
42	Maintenance Load 9 (...	None					1			
43	BLC 1 Transient Area...	None						9		
44	BLC 12 Transient Are...	None						9		

Load Combinations

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
1	1.4DL	Yes	Y		DL	1.4																				
2	1.2DL + 1WL 0 AZI	Yes	Y		DL	1.2	2	1	3		4	1														
3	1.2DL + 1WL 30 AZI	Yes	Y		DL	1.2	2	.866	3	.5	5	1														
4	1.2DL + 1WL 45 AZI	Yes	Y		DL	1.2	2	.707	3	.707	6	1														
5	1.2DL + 1WL 60 AZI	Yes	Y		DL	1.2	2	.5	3	.866	7	1														
6	1.2DL + 1WL 90 AZI	Yes	Y		DL	1.2	2		3	1	8	1														
7	1.2DL + 1WL 120 AZI	Yes	Y		DL	1.2	2	-.5	3	.866	9	1														
8	1.2DL + 1WL 135 AZI	Yes	Y		DL	1.2	2	-.707	3	.707	10	1														
9	1.2DL + 1WL 150 AZI	Yes	Y		DL	1.2	2	-.866	3	.5	11	1														
10	1.2DL + 1WL 180 AZI	Yes	Y		DL	1.2	2	-1	3		4	-1														
11	1.2DL + 1WL 210 AZI	Yes	Y		DL	1.2	2	-.866	3	-.5	5	-1														
12	1.2DL + 1WL 225 AZI	Yes	Y		DL	1.2	2	-.707	3	-.707	6	-1														
13	1.2DL + 1WL 240 AZI	Yes	Y		DL	1.2	2	-.5	3	-.866	7	-1														
14	1.2DL + 1WL 270 AZI	Yes	Y		DL	1.2	2		3	-1	8	-1														
15	1.2DL + 1WL 300 AZI	Yes	Y		DL	1.2	2	.5	3	-.866	9	-1														

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
16	1.2DL + 1WL 315 AZI	Yes	Y		DL	1.2	2	.707	3	-.707	10	-1														
17	1.2DL + 1WL 330 AZI	Yes	Y		DL	1.2	2	.866	3	-.5	11	-1														
18	0.9DL + 1WL 0 AZI	Yes	Y		DL	.9	2	1	3		4	1														
19	0.9DL + 1WL 30 AZI	Yes	Y		DL	.9	2	.866	3	.5	5	1														
20	0.9DL + 1WL 45 AZI	Yes	Y		DL	.9	2	.707	3	.707	6	1														
21	0.9DL + 1WL 60 AZI	Yes	Y		DL	.9	2	.5	3	.866	7	1														
22	0.9DL + 1WL 90 AZI	Yes	Y		DL	.9	2		3	1	8	1														
23	0.9DL + 1WL 120 AZI	Yes	Y		DL	.9	2	-.5	3	.866	9	1														
24	0.9DL + 1WL 135 AZI	Yes	Y		DL	.9	2	-.707	3	.707	10	1														
25	0.9DL + 1WL 150 AZI	Yes	Y		DL	.9	2	-.866	3	.5	11	1														
26	0.9DL + 1WL 180 AZI	Yes	Y		DL	.9	2	-1	3		4	-1														
27	0.9DL + 1WL 210 AZI	Yes	Y		DL	.9	2	-.866	3	-.5	5	-1														
28	0.9DL + 1WL 225 AZI	Yes	Y		DL	.9	2	-.707	3	-.707	6	-1														
29	0.9DL + 1WL 240 AZI	Yes	Y		DL	.9	2	-.5	3	-.866	7	-1														
30	0.9DL + 1WL 270 AZI	Yes	Y		DL	.9	2		3	-1	8	-1														
31	0.9DL + 1WL 300 AZI	Yes	Y		DL	.9	2	.5	3	-.866	9	-1														
32	0.9DL + 1WL 315 AZI	Yes	Y		DL	.9	2	.707	3	-.707	10	-1														
33	0.9DL + 1WL 330 AZI	Yes	Y		DL	.9	2	.866	3	-.5	11	-1														
34	1.2DL + 1DLi + 1WLi ...	Yes	Y		DL	1.2	OL1	1	13	1	14		15	1												
35	1.2DL + 1DLi + 1WLi ...	Yes	Y		DL	1.2	OL1	1	13	.866	14	.5	16	1												
36	1.2DL + 1DLi + 1WLi ...	Yes	Y		DL	1.2	OL1	1	13	.707	14	.707	17	1												
37	1.2DL + 1DLi + 1WLi ...	Yes	Y		DL	1.2	OL1	1	13	.5	14	.866	18	1												
38	1.2DL + 1DLi + 1WLi ...	Yes	Y		DL	1.2	OL1	1	13		14	1	19	1												
39	1.2DL + 1DLi + 1WLi ...	Yes	Y		DL	1.2	OL1	1	13	-.5	14	.866	20	1												
40	1.2DL + 1DLi + 1WLi ...	Yes	Y		DL	1.2	OL1	1	13	-.707	14	.707	21	1												
41	1.2DL + 1DLi + 1WLi ...	Yes	Y		DL	1.2	OL1	1	13	-.866	14	.5	22	1												
42	1.2DL + 1DLi + 1WLi ...	Yes	Y		DL	1.2	OL1	1	13	-1	14		15	-1												
43	1.2DL + 1DLi + 1WLi ...	Yes	Y		DL	1.2	OL1	1	13	-.866	14	-.5	16	-1												
44	1.2DL + 1DLi + 1WLi ...	Yes	Y		DL	1.2	OL1	1	13	-.707	14	-.707	17	-1												
45	1.2DL + 1DLi + 1WLi ...	Yes	Y		DL	1.2	OL1	1	13	-.5	14	-.866	18	-1												
46	1.2DL + 1DLi + 1WLi ...	Yes	Y		DL	1.2	OL1	1	13		14	-1	19	-1												
47	1.2DL + 1DLi + 1WLi ...	Yes	Y		DL	1.2	OL1	1	13	.5	14	-.866	20	-1												
48	1.2DL + 1DLi + 1WLi ...	Yes	Y		DL	1.2	OL1	1	13	.707	14	-.707	21	-1												
49	1.2DL + 1DLi + 1WLi ...	Yes	Y		DL	1.2	OL1	1	13	.866	14	-.5	22	-1												
50	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	1	24																	
51	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	.866	24	.5																
52	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	.707	24	.707																
53	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	.5	24	.866																
54	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23		24	1																
55	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	-.5	24	.866																
56	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	-.707	24	.707																
57	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	-.866	24	.5																
58	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	-1	24																	
59	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	-.866	24	-.5																
60	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	-.707	24	-.707																
61	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	-.5	24	-.866																
62	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23		24	-1																
63	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	.5	24	-.866																
64	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	.707	24	-.707																
65	(1.2+0.2Sds)DL + 1E ...	Yes	Y		DL	1.2...	23	.866	24	-.5																
66	(0.9-0.2Sds)DL + 1E 0..	Yes	Y		DL	.864	23	1	24																	
67	(0.9-0.2Sds)DL + 1E 3..	Yes	Y		DL	.864	23	.866	24	.5																

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
68	(0.9-0.2Sds)DL + 1E 4..	Yes	Y		DL	.864	23	.707	24	.707														
69	(0.9-0.2Sds)DL + 1E 6..	Yes	Y		DL	.864	23	.5	24	.866														
70	(0.9-0.2Sds)DL + 1E 9..	Yes	Y		DL	.864	23		24	1														
71	(0.9-0.2Sds)DL + 1E 1..	Yes	Y		DL	.864	23	-.5	24	.866														
72	(0.9-0.2Sds)DL + 1E 1..	Yes	Y		DL	.864	23	-.707	24	.707														
73	(0.9-0.2Sds)DL + 1E 1..	Yes	Y		DL	.864	23	-.866	24	.5														
74	(0.9-0.2Sds)DL + 1E 1..	Yes	Y		DL	.864	23	-1	24															
75	(0.9-0.2Sds)DL + 1E 2..	Yes	Y		DL	.864	23	-.866	24	-.5														
76	(0.9-0.2Sds)DL + 1E 2..	Yes	Y		DL	.864	23	-.707	24	-.707														
77	(0.9-0.2Sds)DL + 1E 2..	Yes	Y		DL	.864	23	-.5	24	-.866														
78	(0.9-0.2Sds)DL + 1E 2..	Yes	Y		DL	.864	23		24	-1														
79	(0.9-0.2Sds)DL + 1E 3..	Yes	Y		DL	.864	23	.5	24	-.866														
80	(0.9-0.2Sds)DL + 1E 3..	Yes	Y		DL	.864	23	.707	24	-.707														
81	(0.9-0.2Sds)DL + 1E 3..	Yes	Y		DL	.864	23	.866	24	-.5														
82	1.2DL + 1Lv1	Yes	Y		DL	1.2	25	1.5																
83	1.2DL + 1Lv2	Yes	Y		DL	1.2	26	1.5																
84	1.2DL + 1Lv3	Yes	Y		DL	1.2	27	1.5																
85	1.2DL + 1Lv4	Yes	Y		DL	1.2	28	1.5																
86	1.2DL + 1Lv5	Yes	Y		DL	1.2	29	1.5																
87	1.2DL + 1Lv6	Yes	Y		DL	1.2	30	1.5																
88	1.2DL + 1Lv7	Yes	Y		DL	1.2	31	1.5																
89	1.2DL + 1Lv8	Yes	Y		DL	1.2	32	1.5																
90	1.2DL + 1Lv9	Yes	Y		DL	1.2	33	1.5																
91	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	.049	3		4	.049										
92	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	.043	3	.025	5	.049										
93	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	.035	3	.035	6	.049										
94	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	.025	3	.043	7	.049										
95	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2		3	.049	8	.049										
96	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	-.025	3	.043	9	.049										
97	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	-.035	3	.035	10	.049										
98	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	-.043	3	.025	11	.049										
99	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	-.049	3		4	-.049										
100	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	-.043	3	-.025	5	-.049										
101	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	-.035	3	-.035	6	-.049										
102	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	-.025	3	-.043	7	-.049										
103	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2		3	-.049	8	-.049										
104	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	.025	3	-.043	9	-.049										
105	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	.035	3	-.035	10	-.049										
106	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	34	1.5	2	.043	3	-.025	11	-.049										
107	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	.049	3		4	.049										
108	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	.043	3	.025	5	.049										
109	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	.035	3	.035	6	.049										
110	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	.025	3	.043	7	.049										
111	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2		3	.049	8	.049										
112	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	-.025	3	.043	9	.049										
113	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	-.035	3	.035	10	.049										
114	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	-.043	3	.025	11	.049										
115	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	-.049	3		4	-.049										
116	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	-.043	3	-.025	5	-.049										
117	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	-.035	3	-.035	6	-.049										
118	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	-.025	3	-.043	7	-.049										
119	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2		3	-.049	8	-.049										

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
120	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	.025	3	-.043	9	-.049										
121	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	.035	3	-.035	10	-.049										
122	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	35	1.5	2	.043	3	-.025	11	-.049										
123	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	.049	3		4	.049										
124	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	.043	3	.025	5	.049										
125	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	.035	3	.035	6	.049										
126	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	.025	3	.043	7	.049										
127	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2		3	.049	8	.049										
128	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	-.025	3	.043	9	.049										
129	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	-.035	3	.035	10	.049										
130	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	-.043	3	.025	11	.049										
131	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	-.049	3		4	-.049										
132	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	-.043	3	-.025	5	-.049										
133	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	-.035	3	-.035	6	-.049										
134	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	-.025	3	-.043	7	-.049										
135	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2		3	-.049	8	-.049										
136	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	.025	3	-.043	9	-.049										
137	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	.035	3	-.035	10	-.049										
138	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	36	1.5	2	.043	3	-.025	11	-.049										
139	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	.049	3		4	.049										
140	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	.043	3	.025	5	.049										
141	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	.035	3	.035	6	.049										
142	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	.025	3	.043	7	.049										
143	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2		3	.049	8	.049										
144	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	-.025	3	.043	9	.049										
145	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	-.035	3	.035	10	.049										
146	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	-.043	3	.025	11	.049										
147	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	-.049	3		4	-.049										
148	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	-.043	3	-.025	5	-.049										
149	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	-.035	3	-.035	6	-.049										
150	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	-.025	3	-.043	7	-.049										
151	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2		3	-.049	8	-.049										
152	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	.025	3	-.043	9	-.049										
153	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	.035	3	-.035	10	-.049										
154	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	37	1.5	2	.043	3	-.025	11	-.049										
155	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	.049	3		4	.049										
156	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	.043	3	.025	5	.049										
157	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	.035	3	.035	6	.049										
158	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	.025	3	.043	7	.049										
159	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2		3	.049	8	.049										
160	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	-.025	3	.043	9	.049										
161	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	-.035	3	.035	10	.049										
162	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	-.043	3	.025	11	.049										
163	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	-.049	3		4	-.049										
164	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	-.043	3	-.025	5	-.049										
165	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	-.035	3	-.035	6	-.049										
166	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	-.025	3	-.043	7	-.049										
167	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2		3	-.049	8	-.049										
168	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	.025	3	-.043	9	-.049										
169	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	.035	3	-.035	10	-.049										
170	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	38	1.5	2	.043	3	-.025	11	-.049										
171	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	.049	3		4	.049										

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
172	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	.043	3	.025	5	.049										
173	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	.035	3	.035	6	.049										
174	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	.025	3	.043	7	.049										
175	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2		3	.049	8	.049										
176	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	-.025	3	.043	9	.049										
177	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	-.035	3	.035	10	.049										
178	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	-.043	3	.025	11	.049										
179	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	-.049	3		4	-.049										
180	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	-.043	3	-.025	5	-.049										
181	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	-.035	3	-.035	6	-.049										
182	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	-.025	3	-.043	7	-.049										
183	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2		3	-.049	8	-.049										
184	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	.025	3	-.043	9	-.049										
185	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	.035	3	-.035	10	-.049										
186	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	39	1.5	2	.043	3	-.025	11	-.049										
187	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	.049	3		4	.049										
188	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	.043	3	.025	5	.049										
189	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	.035	3	.035	6	.049										
190	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	.025	3	.043	7	.049										
191	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2		3	.049	8	.049										
192	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	-.025	3	.043	9	.049										
193	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	-.035	3	.035	10	.049										
194	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	-.043	3	.025	11	.049										
195	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	-.049	3		4	-.049										
196	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	-.043	3	-.025	5	-.049										
197	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	-.035	3	-.035	6	-.049										
198	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	-.025	3	-.043	7	-.049										
199	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2		3	-.049	8	-.049										
200	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	.025	3	-.043	9	-.049										
201	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	.035	3	-.035	10	-.049										
202	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	40	1.5	2	.043	3	-.025	11	-.049										
203	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	.049	3		4	.049										
204	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	.043	3	.025	5	.049										
205	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	.035	3	.035	6	.049										
206	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	.025	3	.043	7	.049										
207	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2		3	.049	8	.049										
208	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	-.025	3	.043	9	.049										
209	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	-.035	3	.035	10	.049										
210	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	-.043	3	.025	11	.049										
211	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	-.049	3		4	-.049										
212	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	-.043	3	-.025	5	-.049										
213	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	-.035	3	-.035	6	-.049										
214	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	-.025	3	-.043	7	-.049										
215	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2		3	-.049	8	-.049										
216	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	.025	3	-.043	9	-.049										
217	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	.035	3	-.035	10	-.049										
218	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	41	1.5	2	.043	3	-.025	11	-.049										
219	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	.049	3		4	.049										
220	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	.043	3	.025	5	.049										
221	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	.035	3	.035	6	.049										
222	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	.025	3	.043	7	.049										
223	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2		3	.049	8	.049										

Load Combinations (Continued)

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
224	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	-.025	3	.043	9	.049										
225	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	-.035	3	.035	10	.049										
226	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	-.043	3	.025	11	.049										
227	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	-.049	3		4	-.049										
228	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	-.043	3	-.025	5	-.049										
229	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	-.035	3	-.035	6	-.049										
230	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	-.025	3	-.043	7	-.049										
231	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2		3	-.049	8	-.049										
232	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	.025	3	-.043	9	-.049										
233	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	.035	3	-.035	10	-.049										
234	1.2DL + 1.5Lm + 1W...	Yes	Y		DL	1.2	42	1.5	2	.043	3	-.025	11	-.049										

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	887.641	20	1897.177	39	1607.639	3	136.892	33	1847.523	3	-11.708	31
2		min	-894.689	12	116.993	31	-1606.716	27	-2106.107	41	-1844.252	27	-3351.214	39
3	N1	max	1007.499	8	1848.405	45	1514.942	17	159.449	19	1802.957	9	3417.692	45
4		min	-1002.805	32	104.209	21	-1508.835	25	-1943.824	116	-1799.959	33	-4.301	21
5	N13	max	1663.33	6	1952.357	34	419.756	18	4089.898	34	1641.885	14	587.535	167
6		min	-1661.367	30	107.252	26	-427.236	10	-20.473	26	-1637.315	22	-768.073	223
7	Totals:	max	3013.053	22	5446.268	41	3169.292	18						
8		min	-3013.054	14	1430.112	81	-3169.293	10						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	M7	PIPE_3.5	.515	40	34	.164	40		2...	75262.68	78750	7953.75	7953.75	2....	H1-1b
2	M12	PIPE_3.5	.496	40	39	.157	40		1...	75262.68	78750	7953.75	7953.75	2....	H1-1b
3	M2	PIPE_3.5	.483	40	45	.159	40		1...	75262.68	78750	7953.75	7953.75	2....	H1-1b
4	M6	C3X5	.397	34.856	34	.138	6.536	y	39	37027.8...	47628	981.263	4020.228	1	H1-1b
5	M11	C3X5	.386	34.856	39	.137	6.536	y	45	11202.9...	47628	981.263	4104	1....	H1-1b
6	M1	C3X5	.369	34.856	46	.133	6.536	y	49	11202.9...	47628	981.263	4104	1....	H1-1b
7	MP3	PIPE_2.0	.298	48	4	.046	48		3	20866.7...	32130	1871.625	1871.625	2	H1-1b
8	MP6	PIPE_2.0	.295	48	10	.039	48		11	20866.7...	32130	1871.625	1871.625	1....	H1-1b
9	MP9	PIPE_2.0	.291	48	9	.043	48		9	20866.7...	32130	1871.625	1871.625	2....	H1-1b
10	MP4	PIPE_2.0	.273	48	10	.026	48		17	20866.7...	32130	1871.625	1871.625	1....	H1-1b
11	MP5	PIPE_2.0	.265	48	10	.031	48		6	20866.7...	32130	1871.625	1871.625	1....	H1-1b
12	MP1	PIPE_2.0	.265	48	15	.023	48		10	20866.7...	32130	1871.625	1871.625	2....	H1-1b
13	MP2	PIPE_2.0	.256	48	14	.038	48		12	20866.7...	32130	1871.625	1871.625	2....	H1-1b
14	MP8	PIPE_2.0	.254	48	4	.036	48		17	20866.7...	32130	1871.625	1871.625	2....	H1-1b
15	MP7	PIPE_2.0	.250	48	5	.028	48		11	20866.7...	32130	1871.625	1871.625	2....	H1-1b
16	M10	6.5"x0.37" P...	.240	21	2	.100	21	y	36	3513.807	75757.5	583.963	6444.038	1....	H1-1b
17	M5	6.5"x0.37" P...	.232	21	13	.093	21	y	47	3513.807	75757.5	583.963	6376.87	1....	H1-1b
18	M15	6.5"x0.37" P...	.221	21	7	.096	21	y	42	3513.807	75757.5	583.963	6392.926	1....	H1-1b
19	M4	L2x2x3	.190	0	6	.027	0	y	41	18051.7...	23392.8	557.717	1239.29	2....	H2-1
20	M9	L2x2x3	.177	0	11	.028	0	y	46	18051.7...	23392.8	557.717	1239.29	2....	H2-1
21	M14	L2x2x3	.174	0	17	.027	0	y	35	18051.7...	23392.8	557.717	1239.29	2....	H2-1
22	M13	L2x2x3	.146	0	7	.030	0	z	43	18051.7...	23392.8	557.717	1239.29	2....	H2-1
23	M8	L2x2x3	.126	0	2	.030	0	z	38	18051.7...	23392.8	557.717	1239.29	2....	H2-1
24	M23	L6 5/8x4 7/...	.119	42	31	.024	0	z	16	15453.0...	66065.6...	1040.591	3031.076	2....	H2-1

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

	Member	Shape	Code Check	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn y...	phi*Mn z...	Cb	Eqn
25	M21	PIPE_2.0	.118	72	4	.098	24		12	14916.0...	32130	1871.625	1871.625	1....	H1-1b
26	M22	L6 5/8x4 7/...	.118	42	26	.024	0	y	3	15453.0...	66065.6...	1040.591	3031.076	1....	H2-1
27	M19	PIPE_2.0	.114	72	9	.101	24		2	14916.0...	32130	1871.625	1871.625	1....	H1-1b
28	M3	L2x2x3	.114	0	12	.029	0	z	48	18051.7...	23392.8	557.717	1239.29	2....	H2-1
29	H2	PIPE_3.5	.113	65	10	.087	72		4	60666.0...	78750	7953.75	7953.75	1....	H1-1b
30	M20	PIPE_2.0	.111	72	15	.099	24		7	14916.0...	32130	1871.625	1871.625	1....	H1-1b
31	H3	PIPE_3.5	.106	65	5	.078	72		15	60666.0...	78750	7953.75	7953.75	1....	H1-1b
32	M24	L6 5/8x4 7/...	.106	25.375	18	.023	0	y	14	15453.0...	66065.6...	1040.591	3031.076	1....	H2-1
33	H1	PIPE_3.5	.104	24	125	.081	72		10	60666.0...	78750	7953.75	7953.75	1....	H1-1b

APPENDIX D

ADDITIONAL CALCUATIONS

Trylon

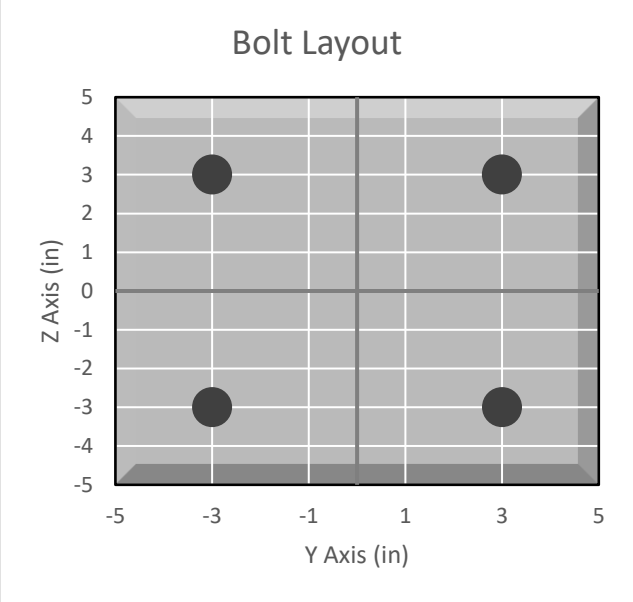
Analysis date: 7/27/2021

BOLT TOOL 1.5.2

Project Data	
Job Code:	188635
Carrier Site ID:	876384
Carrier Site Name:	WESTBROOK / ORSINA

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

Bolt Properties		
Connection Type:	Bolt	
Diameter:	0.625	in
Grade:	A325	--
Yield Strength (Fy):	92	ksi
Ultimate Strength (Fu):	120	ksi
Number of Bolts:	4	--
Threads Included:	Yes	--
Double Shear:	No	--
Connection Pipe Size:	-	in



Connection Description
Standoff to Collar

Bolt Check*		
Tensile Capacity (ϕT_n):	20340.1	lbs
Shear Capacity (ϕV_n):	13805.8	lbs
Tension Force (T_u):	4312.4	lbs
Shear Force (V_u):	705.7	lbs
Tension Usage:	20.2%	--
Shear Usage:	4.9%	--
Interaction:	20.2%	Pass
Controlling Member:	M7	--
Controlling LC:	37	--

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

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

APPENDIX E

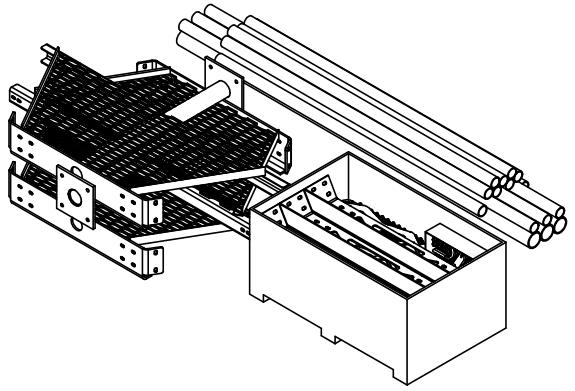
SUPPLEMENTAL DRAWINGS

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

C

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

FOR BOM ENTRY ONLY



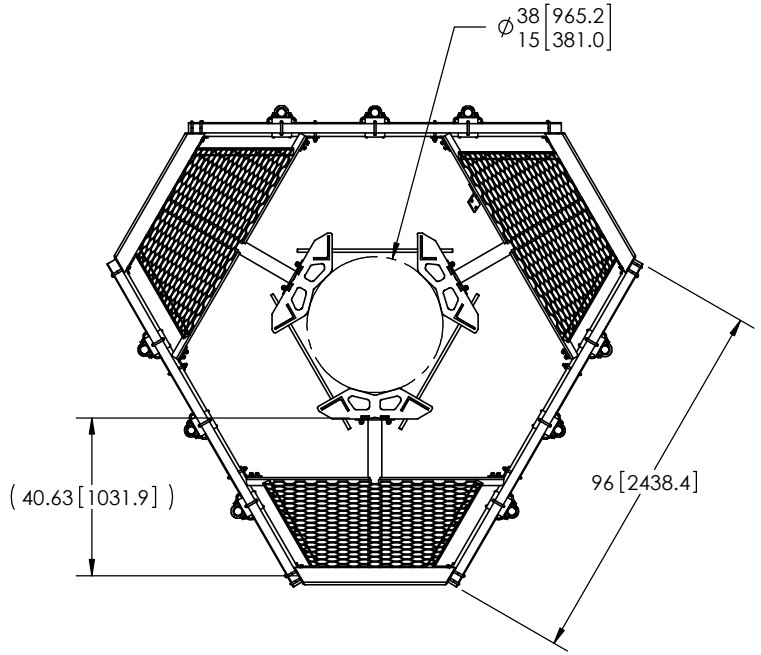
NOTES:
1. CUSTOMER ASSEMBLY SHEETS 2–3.

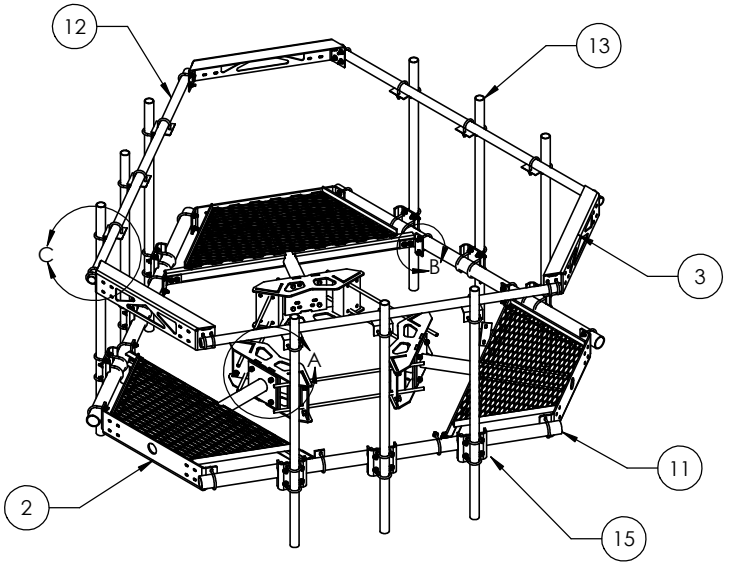
ALL DIMENSIONS ARE IN INCHES U.O.S.
TOLERANCES UNLESS OTHERWISE SPECIFIED:
.X = ± .12 ANGLES ±2°
.XX = ± .06 FRACTIONS ±1/32
.XXX= ± .03

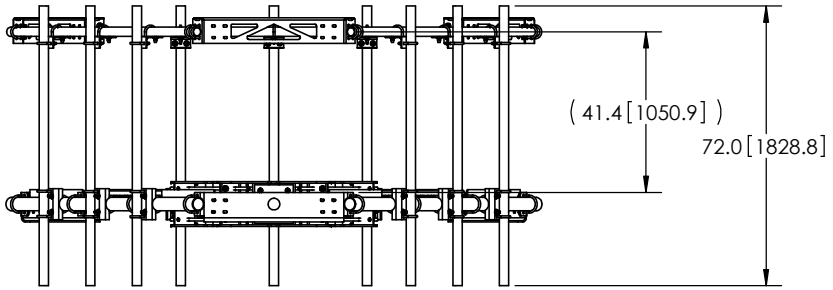
REMOVE BURRS AND BREAK EDGES .005

DO NOT SCALE THIS PRINT

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





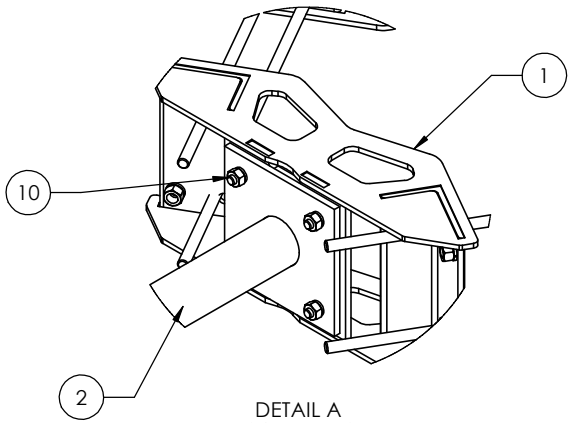


ITEM	PART NO.	DESCRIPTION	QTY.	WEIGHT
C 1	MC-RM1550-3	12" - 50" OD RINGMOUNT	1	230.42 LBS
2	MTC300601	Low Profile Co-Location Platform Snub Nose	3	134.21 LBS
3	MT195801	Corner Weldment Snub Nose Handrail	3	27.10 LBS
4	XA2020.01	CROSS OVER ANGLE	9	2.65 LBS
5	GUB-4356	1/2" X 3-5/8" X 6" GALV U-BOLT	18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

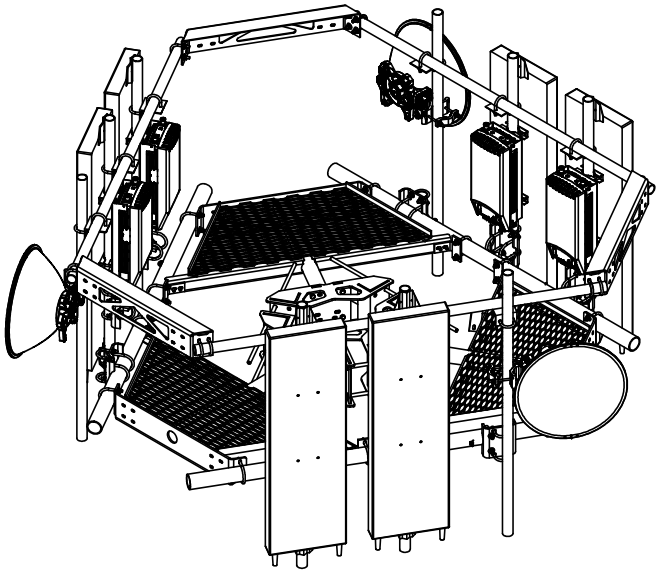
NOTES:
1. ALL METRIC DIMENSIONS ARE IN BRACKETS.
2. WILL FIT MONOPOLES 15"–38" OD.

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

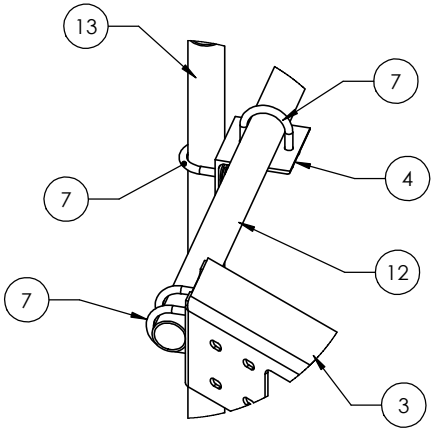
DRAWN BY: MSM	SHEET: 2 of 3	PART NUMBER: MC-PK8-C	
CHECKED BY: TP	SCALE: NTS	DESCRIPTION: 25" OD Snub Nose MT-196	
DATE: 10/18/11	MATERIAL: A36, A53	DRAWING TYPE: ASSEMBLY DRAWING	
REVISION: C	FINISH: GALV A123	ANDREW® WESTCHESTER, IL. 60154 U.S.A.	
	WEIGHT: 1361.27 LBS		



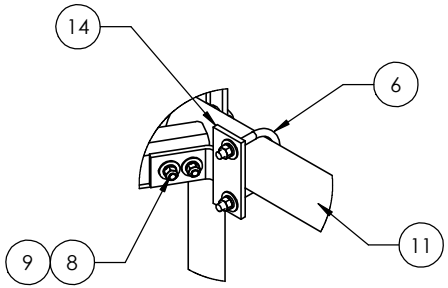
DETAIL A
SCALE 1 : 8



WITH ANTENNAS



DETAIL C
SCALE 1 : 8



DETAIL B
SCALE 1 : 8

NOTES:
1. ALL METRIC DIMENSIONS ARE IN BRACKETS.

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

DO NOT SCALE THIS PRINT

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

Exhibit F

Power Density/RF Emissions Report

RF EMISSIONS COMPLIANCE REPORT

Crown Castle on behalf of Dish Wireless

Crown Castle Site Name: WESTBROOK / ORSINA
Crown Castle Site BU Number: 876384
Dish Wireless Site Name: CT-CCI-T-876384
Dish Wireless Site ID: BOBDL00097A
Application ID: 553294
798 Toby Hill Road
Westbrook, CT
6/10/2021

Report Status:

Dish Wireless is Compliant

Signed 10 June 2021

Prepared By:

Site Safe, LLC

8618 Westwood Center Drive
Suite 315

Vienna, VA 22182

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

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

My signature on the cover of this document indicates:

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

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

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

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

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

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

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

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

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

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

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

That when applying the uncontrolled environment standards, the predicted Maximum Power Density at two meters above ground level from the proposed T-Mobile operation is no more than 2.168% of the maximum permissible exposure limits in any accessible area on the ground; and

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

That when applying the uncontrolled environment standards, the cumulative predicted energy density from the proposed operation is no more than 10.446% of the maximum in any accessible area up to two meters above the ground per OET 65; and

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

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

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

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

Crown Castle
WESTBROOK / ORSINA
Site Summary

Carrier	Area Maximum Percentage MPE
AT&T Mobility, LLC	0.502 %
AT&T Mobility, LLC	0.195 %
AT&T Mobility, LLC	0.118 %
AT&T Mobility, LLC (Not in service)	0.000 %
Dish Wireless (Proposed)	0.968 %
Dish Wireless (Proposed)	0.922 %
Dish Wireless (Proposed)	0.278 %
Sprint (T-Mobile)	3.965 %
Sprint (T-Mobile)	0.604 %
Sprint (T-Mobile)	0.286 %
Sprint (T-Mobile)	0.384 %
Sprint (T-Mobile)	0.471 %
Verizon Wireless	0.425 %
Verizon Wireless	0.449 %
Verizon Wireless	0.351 %
Verizon Wireless	0.528 %
Composite Site MPE:	10.446 %

AT&T Mobility, LLC
WESTBROOK / ORSINA
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	$\mu W/cm^2$
Maximum power density at ground level:	5.02095	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.50210	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
Powerwave	P65-16-XLH-RR	130	50	5130	2.372210	0.237221	4.295224	0.429522
KMW	AM-X-CD-16-65	130	170	4888	1.317103	0.131710	2.229323	0.222932
ANDREW	DBXNH-6565B-VTM	130	280	8019	2.469272	0.246927	4.952824	0.495282

AT&T Mobility, LLC
WESTBROOK / ORSINA
Carrier Summary

Frequency:	737	MHz
Maximum Permissible Exposure (MPE):	491.33	$\mu W/cm^2$
Maximum power density at ground level:	0.95928	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.19524	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
Powerwave	P65-16-XLH-RR	130	50	1107	0.511899	0.104186	0.926866	0.188643
KMW	AM-X-CD-16-65	130	170	1239	0.782023	0.159163	0.809310	0.164717
ANDREW	DBXNH-6565B-VTM	130	280	1225	0.526110	0.107078	0.668797	0.136119

AT&T Mobility, LLC
WESTBROOK / ORSINA
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	$\mu W/cm^2$
Maximum power density at ground level:	0.66741	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.11778	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
Powerwave	7770	130	50	547	0.316121	0.055786	0.487815	0.086085
Powerwave	7770	130	170	547	0.316121	0.055786	0.487815	0.086085
Powerwave	7770	130	280	547	0.316121	0.055786	0.487815	0.086085

AT&T Mobility, LLC (Not in service)
WESTBROOK / ORSINA
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	$\mu W/cm^2$
Maximum power density at ground level:	0.00000	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.00000	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
Powerwave	7770	130	50	0	0.000000	0.000000	0.000000	0.000000
Powerwave	7770	130	170	0	0.000000	0.000000	0.000000	0.000000
Powerwave	7770	130	280	0	0.000000	0.000000	0.000000	0.000000

Dish Wireless (Proposed)
WESTBROOK / ORSINA
Carrier Summary

Frequency:	2100	MHz
Maximum Permissible Exposure (MPE):	1000	$\mu W/cm^2$
Maximum power density at ground level:	9.68208	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.96821	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
JMA Wireless	MX08FRO665-20	120	0	11861	4.904459	0.490446	9.590392	0.959039
JMA Wireless	MX08FRO665-20	120	120	11861	4.904459	0.490446	9.590392	0.959039
JMA Wireless	MX08FRO665-20	120	240	11861	4.904459	0.490446	9.590392	0.959039

Dish Wireless (Proposed)
WESTBROOK / ORSINA
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	$\mu W/cm^2$
Maximum power density at ground level:	9.22007	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.92201	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
JMA Wireless	MX08FRO665-20	120	0	9866	4.347828	0.434783	9.117614	0.911761
JMA Wireless	MX08FRO665-20	120	120	9866	4.347828	0.434783	9.117614	0.911761
JMA Wireless	MX08FRO665-20	120	240	9866	4.347828	0.434783	9.117614	0.911761

Dish Wireless (Proposed)
WESTBROOK / ORSINA
Carrier Summary

Frequency:	600	MHz
Maximum Permissible Exposure (MPE):	400	$\mu W/cm^2$
Maximum power density at ground level:	1.11205	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.27801	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
JMA Wireless	MX08FRO665-20	120	0	1304	0.839854	0.209963	1.054466	0.263617
JMA Wireless	MX08FRO665-20	120	120	1304	0.839854	0.209963	1.054466	0.263617
JMA Wireless	MX08FRO665-20	120	240	1304	0.839854	0.209963	1.054466	0.263617

Sprint (T-Mobile)
WESTBROOK / ORSINA
Carrier Summary

Frequency:	2500	MHz
Maximum Permissible Exposure (MPE):	1000	$\mu W/cm^2$
Maximum power density at ground level:	39.64606	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	3.96461	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
Ericsson	AIR6449	152	60	27612	7.860965	0.786097	11.254486	1.125449
Ericsson	AIR6449	152	60	27612	7.860965	0.786097	11.254486	1.125449
Ericsson	AIR6449	152	180	27612	7.860965	0.786097	11.254486	1.125449
Ericsson	AIR6449	152	180	27612	7.860965	0.786097	11.254486	1.125449
Ericsson	AIR6449	152	300	27612	7.860965	0.786097	11.254486	1.125449
Ericsson	AIR6449	152	300	27612	7.860965	0.786097	11.254486	1.125449

Sprint (T-Mobile)
WESTBROOK / ORSINA
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	$\mu W/cm^2$
Maximum power density at ground level:	6.04001	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.60400	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
RFS	APXVAALL24_43-U-NA20	152	60	1340	0.417997	0.041800	0.742982	0.074298
RFS	APXVAALL24_43-U-NA20	152	60	1340	0.417997	0.041800	0.742982	0.074298
RFS	APXVAALL24_43-U-NA20	152	60	8039	2.507992	0.250799	4.457909	0.445791
RFS	APXVAALL24_43-U-NA20	152	180	1340	0.417997	0.041800	0.742982	0.074298
RFS	APXVAALL24_43-U-NA20	152	180	1340	0.417997	0.041800	0.742982	0.074298
RFS	APXVAALL24_43-U-NA20	152	180	8039	2.507992	0.250799	4.457909	0.445791
RFS	APXVAALL24_43-U-NA20	152	300	1340	0.417997	0.041800	0.742982	0.074298
RFS	APXVAALL24_43-U-NA20	152	300	1340	0.417997	0.041800	0.742982	0.074298
RFS	APXVAALL24_43-U-NA20	152	300	8039	2.507992	0.250799	4.457909	0.445791

Sprint (T-Mobile)
WESTBROOK / ORSINA
Carrier Summary

Frequency:	700	MHz
Maximum Permissible Exposure (MPE):	466.67	$\mu W/cm^2$
Maximum power density at ground level:	1.33278	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.28560	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
RFS	APXVAALL24_43-U-NA20	152	60	3794	1.020849	0.218753	1.273492	0.272891
RFS	APXVAALL24_43-U-NA20	152	180	3794	1.020849	0.218753	1.273492	0.272891
RFS	APXVAALL24_43-U-NA20	152	300	3794	1.020849	0.218753	1.273492	0.272891

Sprint (T-Mobile)
WESTBROOK / ORSINA
Carrier Summary

Frequency:	600	MHz
Maximum Permissible Exposure (MPE):	400	$\mu W/cm^2$
Maximum power density at ground level:	1.53629	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.38407	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
RFS	APXVAALL24_43-U-NA20	152	60	1730	0.477165	0.119291	0.731426	0.182857
RFS	APXVAALL24_43-U-NA20	152	60	1730	0.477165	0.119291	0.731426	0.182857
RFS	APXVAALL24_43-U-NA20	152	180	1730	0.477165	0.119291	0.731426	0.182857
RFS	APXVAALL24_43-U-NA20	152	180	1730	0.477165	0.119291	0.731426	0.182857
RFS	APXVAALL24_43-U-NA20	152	300	1730	0.477165	0.119291	0.731426	0.182857
RFS	APXVAALL24_43-U-NA20	152	300	1730	0.477165	0.119291	0.731426	0.182857

Sprint (T-Mobile)
WESTBROOK / ORSINA
Carrier Summary

Frequency:	2100	MHz
Maximum Permissible Exposure (MPE):	1000	$\mu W/cm^2$
Maximum power density at ground level:	4.71416	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.47142	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
RFS	APX16DWV-16DWVS-C-A20	152	60	6763	4.671087	0.467109	4.671087	0.467109
RFS	APX16DWV-16DWVS-C-A20	152	180	6763	4.671087	0.467109	4.671087	0.467109
RFS	APX16DWV-16DWVS-C-A20	152	300	6763	4.671087	0.467109	4.671087	0.467109

Verizon Wireless
WESTBROOK / ORSINA
Carrier Summary

Frequency:	2100	MHz
Maximum Permissible Exposure (MPE):	1000	$\mu W/cm^2$
Maximum power density at ground level:	4.24973	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.42497	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
Commscope	JAHH-65B-R3B	140	40	6069	2.306392	0.230639	4.020131	0.402013
Commscope	JAHH-65B-R3B	140	165	6069	2.306392	0.230639	4.020131	0.402013
Commscope	JAHH-65B-R3B	140	290	6069	2.306392	0.230639	4.020131	0.402013

Verizon Wireless
WESTBROOK / ORSINA
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	$\mu W/cm^2$
Maximum power density at ground level:	4.48869	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.44887	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
Commscope	JAHH-65B-R3B	140	40	5890	2.624538	0.262454	4.172078	0.417208
Commscope	JAHH-65B-R3B	140	165	5890	2.624538	0.262454	4.172078	0.417208
Commscope	JAHH-65B-R3B	140	290	5890	2.624538	0.262454	4.172078	0.417208

Verizon Wireless
WESTBROOK / ORSINA
Carrier Summary

Frequency:	751	MHz
Maximum Permissible Exposure (MPE):	500.67	$\mu W/cm^2$
Maximum power density at ground level:	1.75877	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.35129	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
Commscope	JAHH-65B-R3B	140	40	2661	0.939061	0.187562	1.367863	0.273208
Commscope	JAHH-65B-R3B	140	165	2661	0.939061	0.187562	1.367863	0.273208
Commscope	JAHH-65B-R3B	140	290	2661	0.939061	0.187562	1.367863	0.273208

Verizon Wireless
WESTBROOK / ORSINA
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	$\mu W/cm^2$
Maximum power density at ground level:	2.98921	$\mu W/cm^2$
Highest percentage of Maximum Permissible Exposure:	0.52751	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**	**Max Power Density ($\mu W/cm^2$)**	**Percent of MPE**
ANDREW	DB846H80ESX	140	10	1005	0.361162	0.063735	0.464286	0.081933
ANDREW	DB846H80ESX	140	10	1005	0.361162	0.063735	0.464286	0.081933
Commscope	JAHH-65B-R3B	140	40	3120	0.954236	0.168395	1.549411	0.273426
ANDREW	DB846F65ZAXY	140	120	1127	0.441812	0.077967	0.474157	0.083675
ANDREW	DB846F65ZAXY	140	120	1127	0.441812	0.077967	0.474157	0.083675
Commscope	JAHH-65B-R3B	140	165	3120	0.956398	0.168776	1.549411	0.273426
ANDREW	DB846H80ESX	140	270	1005	0.361162	0.063735	0.464286	0.081933
ANDREW	DB846H80ESX	140	270	1005	0.361162	0.063735	0.464286	0.081933
Commscope	JAHH-65B-R3B	140	290	3120	0.956398	0.168776	1.549411	0.273426

Exhibit G

Letter of Authorization

3 Corporate Dr, Suite 101
Clifton Park, NY 12065

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

Crown Castle Letter of Authorization

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

Re: Tower Share Application
Crown Castle telecommunications site at:
798 TOBY HILL ROAD, WESTBROOK, CT 06498

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

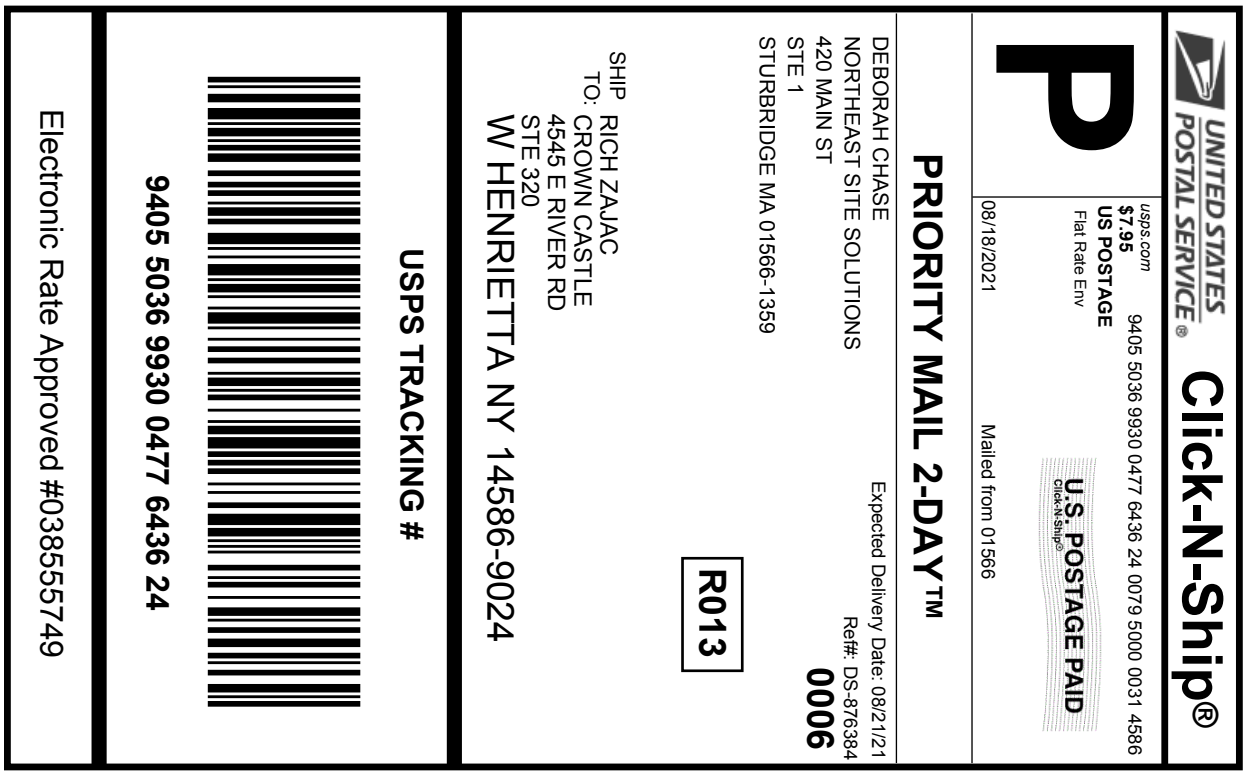
Crown Site ID/Name: 876384/WESTBROOK / ORSINA
Customer Site ID: BOBDL00097A/CT-CCI-T-876384
Site Address: 798 Toby Hill Road, WESTBROOK, CT 06498

Crown Castle

By: Anne Marie Zsamba Date: 7/22/21
Anne Marie Zsamba
Project Manager – Site Acquisition

Exhibit H

Recipient Mailings



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0477 6436 24

Trans. #:	541110601
Print Date:	08/18/2021
Ship Date:	08/18/2021
Expected Delivery Date:	08/21/2021

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

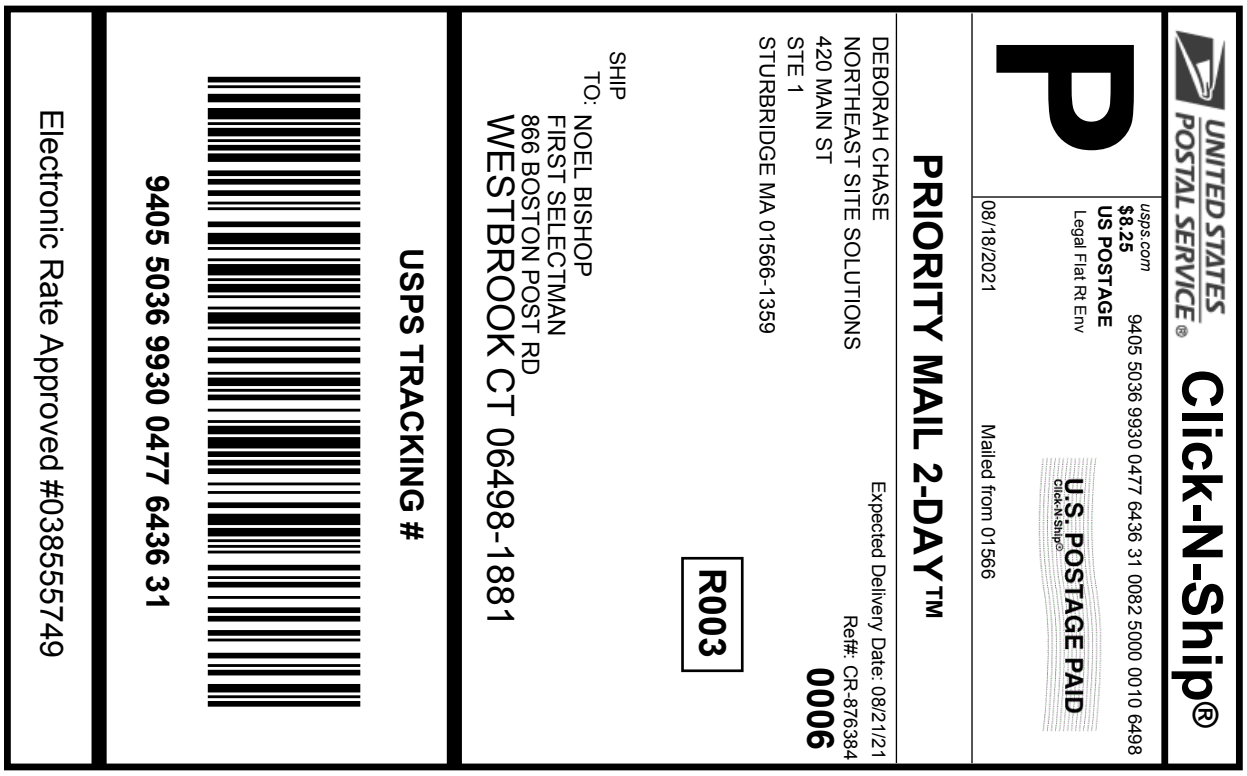
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DS-876384

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

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

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



Cut on dotted line.

Instructions

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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 0477 6436 31

Trans. #:	541110601
Print Date:	08/18/2021
Ship Date:	08/18/2021
Expected Delivery Date:	08/21/2021

Priority Mail® Postage:	**$8.25**
Total:	**$8.25**

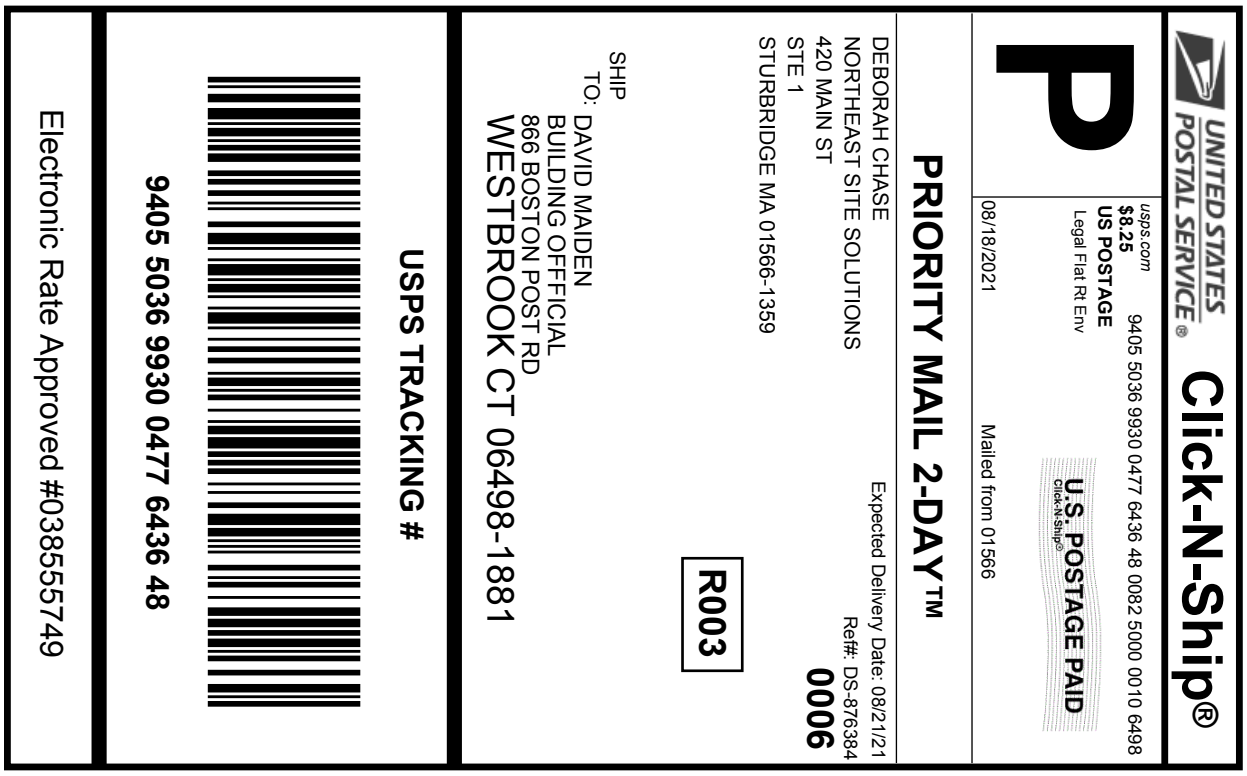
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: CR-876384

To: NOEL BISHOP
FIRST SELECTMAN
866 BOSTON POST RD
WESTBROOK CT 06498-1881

* 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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Instructions

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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 0477 6436 48

Trans. #:	541110601
Print Date:	08/18/2021
Ship Date:	08/18/2021
Expected Delivery Date:	08/21/2021

Priority Mail® Postage:	**$8.25**
Total:	**$8.25**

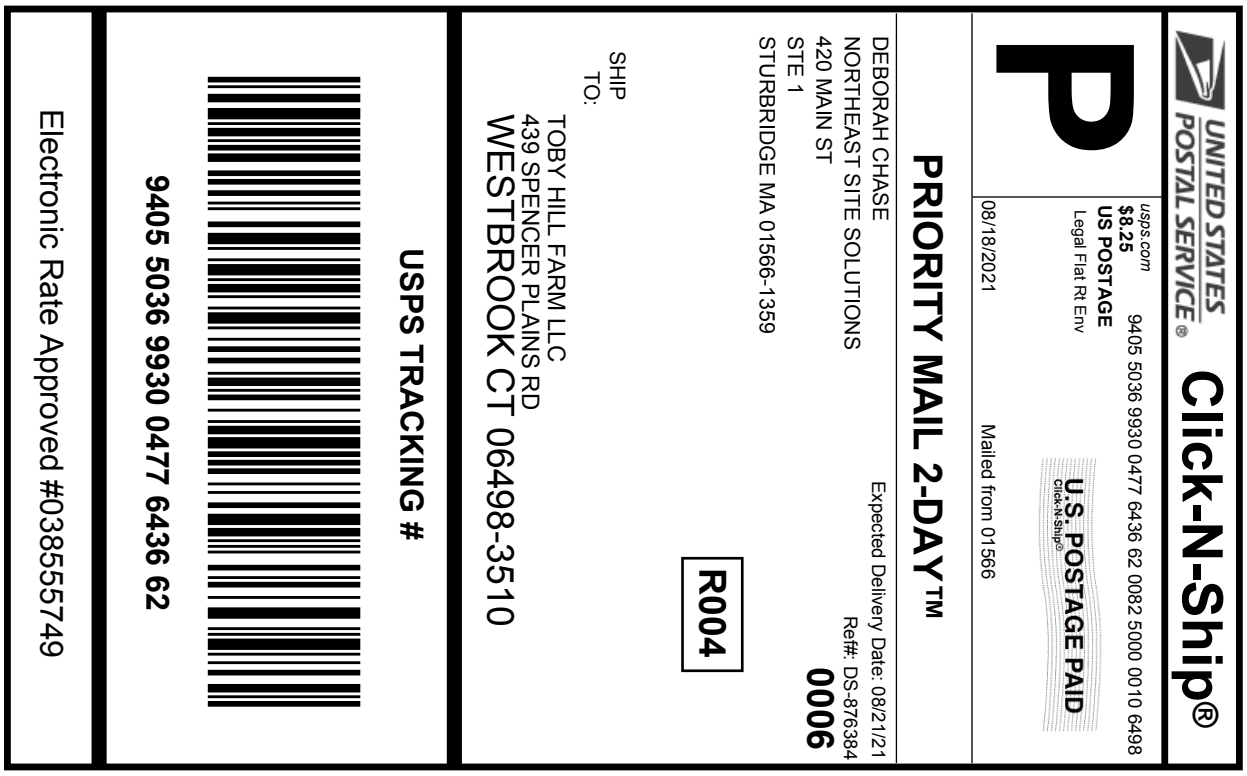
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DS-876384

To: DAVID MAIDEN
BUILDING OFFFICIAL
866 BOSTON POST RD
WESTBROOK CT 06498-1881

* 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 0477 6436 62

Trans. #:	541110601
Print Date:	08/18/2021
Ship Date:	08/18/2021
Expected Delivery Date:	08/21/2021

Priority Mail® Postage:	**$8.25**
Total:	**$8.25**

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

Ref#: DS-876384

To: TOBY HILL FARM LLC
439 SPENCER PLAINS RD
WESTBROOK CT 06498-3510

* 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

876384

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

08/18/2021 04:14 PM

Product	Qty	Unit Price	Price
Prepaid Mail West Henrietta, NY 14586 Weight: 0 lb 2.00 oz Acceptance Date: Wed 08/18/2021 Tracking #: 9405 5036 9930 0477 6436 24	1		$0.00
Prepaid Mail Westbrook, CT 06498 Weight: 2 lb 3.80 oz Acceptance Date: Wed 08/18/2021 Tracking #: 9405 5036 9930 0477 6436 48	1		$0.00
Prepaid Mail Westbrook, CT 06498 Weight: 2 lb 4.10 oz Acceptance Date: Wed 08/18/2021 Tracking #: 9405 5036 9930 0477 6436 31	1		$0.00
Prepaid Mail Westbrook, CT 06498 Weight: 2 lb 4.10 oz Acceptance Date: Wed 08/18/2021 Tracking #: 9405 5036 9930 0477 6436 62	1		$0.00
Grand Total:			$0.00