STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

IN RE:	:	
	:	
A PETITION FOR A DECLARATORY RULING ON THE NEED TO OBTAIN A SITING COUNCIL CERTIFICATE FOR THE PROPOSED MODIFICATION OF AN EXISTING WIRELESS TELECOMMUNICATIONS FACILITY AT 340 BLOOMFIELD AVENUE, WINDSOR, CONNECTICUT	:	PETITION NO. ____
	:	
	:	
	:	
	:	
	:	
	:	JANUARY 14, 2022

PETITION FOR A DECLARATORY RULING:
INSTALLATION HAVING NO
SUBSTANTIAL ADVERSE ENVIRONMENTAL EFFECT

I. Introduction

Pursuant to Sections 16-50j-38 and 16-50j-39 of the Regulations of Connecticut State Agencies ("R.C.S.A."), DISH Wireless, LLC ("DISH") hereby petitions the Connecticut Siting Council (the "Council") for a declaratory ruling ("Petition") that no Certificate of Environmental Compatibility and Public Need ("Certificate") is required under Section 16-50k(a) of the Connecticut General Statutes ("C.G.S.") for the modification of an existing wireless telecommunications facility at 340 Bloomfield Avenue in Windsor, Connecticut (the "Existing Facility").

II. Existing Facility

The Existing Facility is located on an approximately 4.6-acre parcel that is the site of the Windsor Fire & EMS building. The Facility consists of a 148-foot monopole and associated compound owned by Crown Castle, and currently includes the telecommunications equipment of several wireless carriers. **Attachment 1** contains the owner's authorization permitting DISH to file this Petition. The Facility was originally approved by the Town of Windsor on October 10, 2000 as documented in **Attachment 2**.

III. DISH Facility

DISH's proposed facility is illustrated on the plans submitted as **Attachment 3**. DISH proposes the shared use of the Existing Facility to provide FCC licensed services. DISH will install three (3) panel antennas and six (6) remote radiohead units (RRH) on a new platform mount installed at the centerline height of approximately 99' AGL.

DISH has confirmed that the Existing Facility is capable of supporting the addition of DISH's

antennas and tower mounted equipment, as documented in the tower Structural Analysis Report annexed hereto as **Attachment 4**, and once new mounts are installed as documented in the Mount Analysis Report annexed hereto as **Attachment 5**.

DISH's 5' x 7' lease area is located along the southern edge of the existing fenced compound. In order to fully enclose its ground equipment, DISH will install a 7'-3" x 11' fence extension, thereby increasing the footprint of the Existing Facility by 79.8 sq. ft. Within its lease area, DISH will install a 5' x 7' steel platform for its ground equipment, supported by four (4) 12" x 12" footpads at grade.

IV. The Proposed Modification Will Not Have A Substantial Adverse Environmental Effect

1. Physical Environmental Effects

The attachment of DISH's antennas to the existing monopole, and the installation of radio and electrical equipment within the expanded compound will not involve a significant alteration to the physical and environmental characteristics of the Property. No native trees will need to be removed and no on-site or off-site wetlands or watercourses will be impacted by the proposed facility expansion.

2. Visual Effects

Given the height of the existing tower, 148' AGL, which has existing antennas at multiple levels, DISH's proposed antenna installation at a centerline height of approximately 99' AGL would have a minimal visual impact. The proposed compound expansion will impact a small portion of the existing fenced perimeter and will also have a minimal visual impact.

3. FCC Compliance

Radio frequency ("RF") emissions resulting from AT&T's shared use of the Existing Facility will be well below the standards adopted by the Federal Communications Commission ("FCC"). Included in **Attachment 6** is a Radio Frequency Emissions Analysis Report prepared by EBI Consulting. This report confirms that the modified facility will operate well within the RF emission standards established by the FCC.

V. Notice to the City, Property Owner and Abutting Landowners

On January 14, 2022, a copy of this Petition was sent to Town of Windsor Mayor Donald Trinks, Peter Souza, Town Manager, and Eric Barz, Town Planner. A notice of DISH's intent to file this Petition was also sent to the owners of land that may be considered to abut the Property. Included in **Attachment 7** is a sample abutter's letter and the list of those abutting landowners who were sent notice.

VI. Conclusion

Based on the information provided above, the Petitioners respectfully requests that the Council issue a determination in the form of a declaratory ruling that the installation of a temporary tower at the Property will not have a substantial adverse environmental effect and does not require the issuance of a Certificate of Environmental Compatibility and Public Need pursuant to § 16-50k of the General Statutes.

Respectfully submitted,

Denise Sabo
Northeast Site Solutions
Agent for AT&T
(860) 209-4690
denise@northeastsitesolutions.com

Attachments

Cc: Mayor Donald Trinks – Elected Official & Property Owner
Town of Windsor
275 Broad Street
Windsor, CT 06095

Peter Souza, Town Manager
Town of Windsor
275 Broad Street
Windsor, CT 06095

Eric Barz, Town Planner
Town of Windsor
275 Broad Street
Windsor, CT 06095

Crown Castle – Tower Owner

ATTACHMENT 1

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

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

Crown Castle Letter of Authorization

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

Re: Tower Share Application
Crown Castle telecommunications site at:
340 BLOOMFIELD AVENUE, WINDSOR, CT 06095

NCWPCS MPL 29 - YEAR SITES TOWER HOLDING ("Crown Castle") hereby authorizes DISH Wireless, LLC, including their Agent, to act as our Agent in the processing of all zoning applications, building permits and approvals through the CT - CONNECTICUT SITING COUNCIL for the existing wireless communications site described below:

Crown Site ID/Name: 855662/WINDSORCENTRAL
Customer Site ID: BOBDL00073A/CT-CCI-T-855662
Site Address: 340 BLOOMFIELD AVENUE, WINDSOR, CT 06095

Crown Castle

By: _____ Date: 10/26/2021

Richard Zajac
Site Acquisition Specialist

Property Location: 340 BLOOMFIELD AVE | *MAP ID:* 54/ 456/ 98/T / | *Bldg Name:* | *State Use:* 4340

Vision ID: 100890 | Account # 03788.01 | *Bldg #:* 1 of 1 | *Sec #:* 1 *of* 1 | *Card* 1 *of* 1 | *Print Date:* 06/19/2019 09:19

CURRENT OWNER

WINDSOR TOWN OF
C/O AT&T MOBILITY
575 MOROSGO DR SUITE 13-F
WEST TOWER ATTN: NREA TAX DEPT
ATLANTA, GA 30324
Additional Owners:

TOPO. / UTILITIES / STRT./ROAD / LOCATION

SUPPLEMENTAL DATA

Account #	03788.01	CTRACT	4736.02
INC:		CBLOCK	208
GH		DIST	
		HEART	
2007	277340	GL YEAR	
GIS ID:	3788.01	*ASSOC PID#*	

CURRENT ASSESSMENT

Description	Code	Appraised Value	Assessed Value
IND LAND	3-1	205,000	143,500
IND BLDG	3-2	19,100	13,370
IND IMPR	3-3	220,500	154,350
	Total	444,600	311,220

6164
WINDSOR, CT

VISION

RECORD OF OWNERSHIP

	BK-VOL/PAGE	SALE DATE	q/u	v/i	SALE PRICE	V.C.
WINDSOR TOWN OF	190/ 568	08/06/1963				

PREVIOUS ASSESSMENTS (HISTORY)

Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
2018	3-1	143,500	2017	3-1	143,500	2016	3-1	143,500
2018	3-2	13,370	2017	3-2	10,290	2016	3-2	10,290
2018	3-3	154,350	2017	3-3	154,350	2016	3-3	154,350
	Total:	311,220		*Total:*	308,140		*Total:*	308,140

EXEMPTIONS

Year	Type	Description	Amount
		Total:	

This signature acknowledges a visit by a Data Collector or Assessor

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	0
Appraised XF (B) Value (Bldg)	0
Appraised OB (L) Value (Bldg)	220,500
Appraised Land Value (Bldg)	205,000
Special Land Value	0
Total Appraised Parcel Value	444,600
Valuation Method:	I
Adjustment:	0
Net Total Appraised Parcel Value	**444,600**

NOTES

09310.01 LAND VALUE ADJUSTED
54-456-98T PER INC APPR 10/2003
AT&T CELLULAR TOWER
MARKET VALUE PER
INCOME CAPITALIZATION
10/01/2001 SK

BUILDING PERMIT RECORD

Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments
P-190267	02/13/2019	PL	Plumbing	2,500		0		GAS PIPING FOR GENE
B-190129	01/23/2019	CM	Commercial	8,500		0		INSTALL GENERATOR
B-182243	09/05/2018	RE	Renovation	15,000		0		GENERATOR ON CONC
B-170622	03/30/2017	CM	Commercial	20,000	08/17/2017	100	10/01/2017	REPLACE 3 ANTENNAS
E-160074	01/11/2016	EL	Electric	15,000	08/18/2016	100	10/01/2016	REPLACE 6 ANTENNA
B-150876	05/01/2015	CM	Commercial	20,000	06/19/2015	100	10/01/2015	ADD 3 NEW ANTENNA
B-141344	04/15/2015	CM	Commercial	0	06/19/2015	100	10/01/2015	SWAPPING 6 ANTENNA

VISIT/ CHANGE HISTORY

Type	Date	IS	ID	Cd.	Purpose/Result
	06/19/2015		LL	20	Bldg Permit Insp
	10/01/2001		SK	01	Measur+1Visit

LAND LINE VALUATION SECTION

B#	Use Code	Description	Zone	D	Frontage	Depth	Units		Unit Price	I. Factor	S.A.	S.O.	C. Factor	ST. Idx	Adj.	Notes- Adj	Special Pricing	Land Value
1	4340	Cell Tower	NZ				0.05	AC	82,000.00	50.0000	0	0	1.00		0.00	CELL TOWER SITE		205,000
						Total Card Land Units:	0.05	AC	*Parcel Total Land Area:*	0.05 AC							*Total Land Value:*	205,000

CONSTRUCTION DETAIL

Element	Cd.	Ch.	Description
Model	00		Vacant

CONSTRUCTION DETAIL (CONTINUED)

Element	Cd.	Ch.	Description

MIXED USE

Code	Description	Percentage
4340	Cell Tower	100

COST/MARKET VALUATION

Unadj. Base Rate	0
Net Other Adj:	0.00
Bldg Value New	0
Year Built	
Eff. Year Built	
Dep Code	
Remodel Rating	
Year Remodeled	
Nrml Physc Dep	
Functional Obslnc	
External Obslnc	
Condition	
% Complete	
Overall % Cond	
Depr Bldg Value	

PHOTO & SKETCH

No Photo On Record

OB-OUTBUILDING && YARD ITEMS(L) / XF-BUILDING EXTRA FEATURES(B)

Code	Description	L/B	Units	Unit Price	Yr	Dp Rt	%Cnd	Apr Value
CB3	PerCastConCel	L	900	350.00	2001	0	70	220,500

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Gross Area
	Ttl. Gross Liv/Lease Area:	0	0

Bldg Val:

Google Maps

41°51'09.3"N 72°39'37.8"W

Tower location - 340 BLOOMFIELD AVENUE, WINDSOR, CT 06095

Imagery ©2019 Google, Imagery ©2019 CNES / Airbus, Maxar Technologies, U.S. Geological Survey, USDA Farm Service Agency, Map data ©2019 200 ft

41°51'09.3"N 72°39'37.8"W

41.852594, -72.660497

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

340 Bloomfield Ave, Windsor, CT 06095

V83Q+2R Windsor, Connecticut

ATTACHMENT 2

TOWN OF
WINDSOR
First in Connecticut. First for its citizens.

October 25, 2000

Cuddy & Feder & Worby LLP
ATTN: Daniel F. Leary
90 Maple Avenue
White Plains, NY 10601-5196

Subject: **Special Use #546** - Wireless Telecommunications Tower, 340 Bloomfield Avenue, Zoning Regulations Sections 12.2 & 2.2.19E(1), NZ Zone, Town of Windsor/AT&T Wireless PCS, LLC

Site Plan #308E - Revision, Wireless Telecommunications Tower, 340 Bloomfield Avenue, NZ Zone, Town of Windsor/AT&T Wireless PCS, LLC

Dear Mr. Leary:

At its meeting on October 10, 2000 the Windsor Town Planning & Zoning Commission took the following action on the subject applications:

Approved subject to the following condition:

1) Final approval of the Fire Marshal regarding fire safety issues

Approval includes the following distance waiver:

1) 83 feet for Bloomfield Avenue south of site

Very truly yours,

Town Planning & Zoning Commission

/mm

I, Anita M. Mips, Chairperson of the Windsor Town Planning and Zoning Commission, hereby certify that on October 10, 2000 the Planning and Zoning Commission of the Town of Windsor granted approval of Special Use Application #546 for a Wireless Telecommunications Tower with a monopole height of 150 feet plus 20-foot Town public service whip antennas for a total height of 170 feet, under Zoning Regulations Sections 12.2 & 2.2.19E(1), subject to the following condition:

1) Final approval of the Fire Marshal regarding fire safety issues.

This approval also includes the following waiver in accordance with Zoning Regulations Section 12.1:

1) a waiver of the fall zone distance requirement for 83 feet in relation to the distance of the tower from Bloomfield Avenue, 340 feet being required, 257 feet being proposed.

Said Special Use was granted for the property located at: 340 Bloomfield Avenue

The owner of record of said parcel is: Town of Windsor

Dated at Windsor, Connecticut, this 30th day of November, 2000

_____ Chairperson

Public Act #75-317

Received for Record this _____ day of _____, 2000

_____ Attest: Town Clerk

ATTACHMENT 3

DISH Wireless L.L.C. SITE ID:

BOBDL00073A

DISH Wireless L.L.C. SITE ADDRESS:

340 BLOOMFIELD AVENUE
WINDSOR, CT 06095

CONNECTICUT CODE COMPLIANCE

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

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

SHEET INDEX

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

SCOPE OF WORK

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

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

GROUND SCOPE OF WORK:
- INSTALL 18'-0" PROPOSED CHAIN LINK FENCE
- 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 FIBER NID (IF REQUIRED)
- INSTALL (1) PROPOSED METER IN EXISTING 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:	WINDSOR TOWN OF
ADDRESS:	275 BROAD STREET WINDSOR, CT 06095
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	855662
TOWER APP NUMBER:	556619
COUNTY:	HARTFORD
LATITUDE (NAD 83):	41° 51' 9.34" N 41.85259444 N
LONGITUDE (NAD 83):	72° 39' 37.79" W 72.66049722 W
ZONING JURISDICTION:	CONNECTICUT SITING COUNCIL
ZONING DISTRICT:	NZ – MUNICIPAL MDL-94
PARCEL NUMBER:	3788
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	EVERSOURCE
TELEPHONE COMPANY:	CROWN CASTLE

PROJECT DIRECTORY

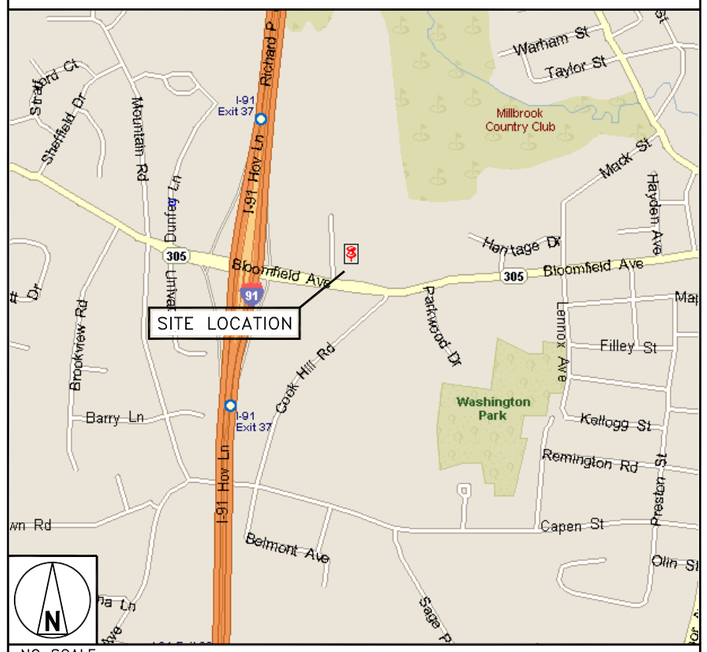
APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317 (877) 486-9377
SITE DESIGNER:	B+T GROUP 1717 S. BOULDER AVE, SUITE 300 TULSA, OK 74119 (918) 587-4630
SITE ACQUISITION:	NICHOLAS CURRY NICHOLAS.CURRY@CROWNCASTLE.COM
CONSTRUCTION MANAGER:	JAVIER SOTO JAVIER.SOTO@DISH.COM
RF ENGINEER:	BOSSENER CHARLES BOSSENER.CHARLES@DISH.COM

DIRECTIONS

DIRECTIONS FROM BRADLEY INTERNATIONAL AIRPORT:

CONTINUE TO BRADLEY INTERNATIONAL AIRPORT CON, HEAD NORTH TOWARD BRADLEY INTERNATIONAL AIRPORT, KEEP RIGHT TO CONTINUE ON BRADLEY INTERNATIONAL AIRPORT, TAKE CT-20 E AND I-91 S TO CT-305 E/BLOOMFIELD AVE IN WINDSOR. TAKE EXIT 37 FROM I-91 S, CONTINUE ONTO BRADLEY INTERNATIONAL AIRPORT CON, CONTINUE ONTO CT-20 E/BRADLEY INTERNATIONAL AIRPORT CON, USE THE RIGHT 2 LANES TO MERGE WITH I-91 S TOWARD HARTFORD, TAKE EXIT 37 FOR CT-305/BLOOMFIELD AVE TOWARD WINDSOR CENTER, CONTINUE ON CT-305 E/BLOOMFIELD AVE TO YOUR DESTINATION, TURN LEFT ONTO CT-305 E/BLOOMFIELD AVE, TURN LEFT ONTO WILLIAM ST, TURN RIGHT

VICINITY MAP



NO SCALE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

CROWN CASTLE

2000 CORPORATE DRIVE
CANONSBURG, PA 15317

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT — No. 23924 — LICENSED PROFESSIONAL ENGINEER — 12/30/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
LHT	BLJ	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	6/15/21	ISSUED FOR REVIEW
0	9/21/21	ISSUED FOR CONSTRUCTION
1	12/30/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

91728.014.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00073A
340 BLOOMFIELD AVENUE
WINDSOR, CT 06095

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

ABUTTERS MAP

40' 20' 0 40' 80'
1"=40'

PROPERTY INFORMATION

SUBJECT PROPERTY
MAP: 54 / BLOCK: 456 / LOT: 456
340 BLOOMFIELD AVENUE
WINDSOR, CT 06095

TOWN OF WINDSOR
275 BROAD STREET
WINDSOR, CT 06095

5070
MAP: 54 / BLOCK: 456 / LOT: 456
342 BLOOMFIELD AVENUE
WINDSOR, CT 06095

JR SILVESTER SPACE SERVICES LLC
105A FILLEY ST
BLOOMFIELD, CT 06002

5069
MAP: 54 / BLOCK: 456 / LOT: 456
58 WILLIAM STREET
WINDSOR, CT 06095

AUSTIN SAMUELS
123 EAST WOLCOTT AVENUE
WINDSOR, CT 06095

4979
MAP: 53 / BLOCK: 456 / LOT: 456
298 BLOOMFIELD AVENUE
WINDSOR, CT 06095

WILLIAM BEDNARZ
298 BLOOMFIELD AVENUE
WINDSOR, CT 06095

13597
MAP: 54 / BLOCK: 456 / LOT: 456
356 BLOOMFIELD AVENUE
WINDSOR, CT 06095

ALLIANCE ENERGY LLC
15 NORTHEAST INDUSTRIAL ROAD
BANFORD, CT 06405

12425
MAP: 54 / BLOCK: 456 / LOT: 456
350 BLOOMFIELD AVENUE
WINDSOR, CT 06095

MCDONALDS CORPORATION
PO BOX 182571
COLUMBUS, OH 43218

5067
MAP: 54 / BLOCK: 456 / LOT: 456
316 BLOOMFIELD AVENUE
WINDSOR, CT 06095

PUBLIC SAFETY EXPANSION PARCEL
275 BROAD STREET
WINDSOR, CT 06095

5066
MAP: 54 / BLOCK: 456 / LOT: 456
282 BLOOMFIELD AVENUE
WINDSOR, CT 06095

HELEN BEDNARZ
298 BLOOMFIELD AVENUE
WINDSOR, CT 06095

5171
MAP: 54 / BLOCK: 75 / LOT: 75
357 BLOOMFIELD AVENUE
WINDSOR, CT 06095

STATE OF CONNECTICUT
CAPITOL AVENUE
HARTFORD, CT 06106

5172
MAP: 54 / BLOCK: 75 / LOT: 75
153 COOK HILL ROAD
WINDSOR, CT 06095

CONN AGR EXP STATON TR UW
153 COOK HILL ROAD
WINDSOR, CT 06095

13603
MAP: 54 / BLOCK: 75 / LOT: 75
155 COOK HILL ROAD
WINDSOR, CT 06095

CONN AGR EXP STATON TR UW
153 COOK HILL ROAD
WINDSOR, CT 06095

12001
MAP: 54 / BLOCK: 75 / LOT: 75
321 BLOOMFIELD AVENUE
WINDSOR, CT 06095

CONN AGRICULTURAL
153 COOK HILL ROAD
WINDSOR, CT 06095

5170
MAP: 54 / BLOCK: 75 / LOT: 75
313 BLOOMFIELD AVENUE
WINDSOR, CT 06095

EDWARD OLEARY KINDER CARE
PO BOX 528
AGAWAM, MA 01001

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

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
12/30/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
LHT	BLJ	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

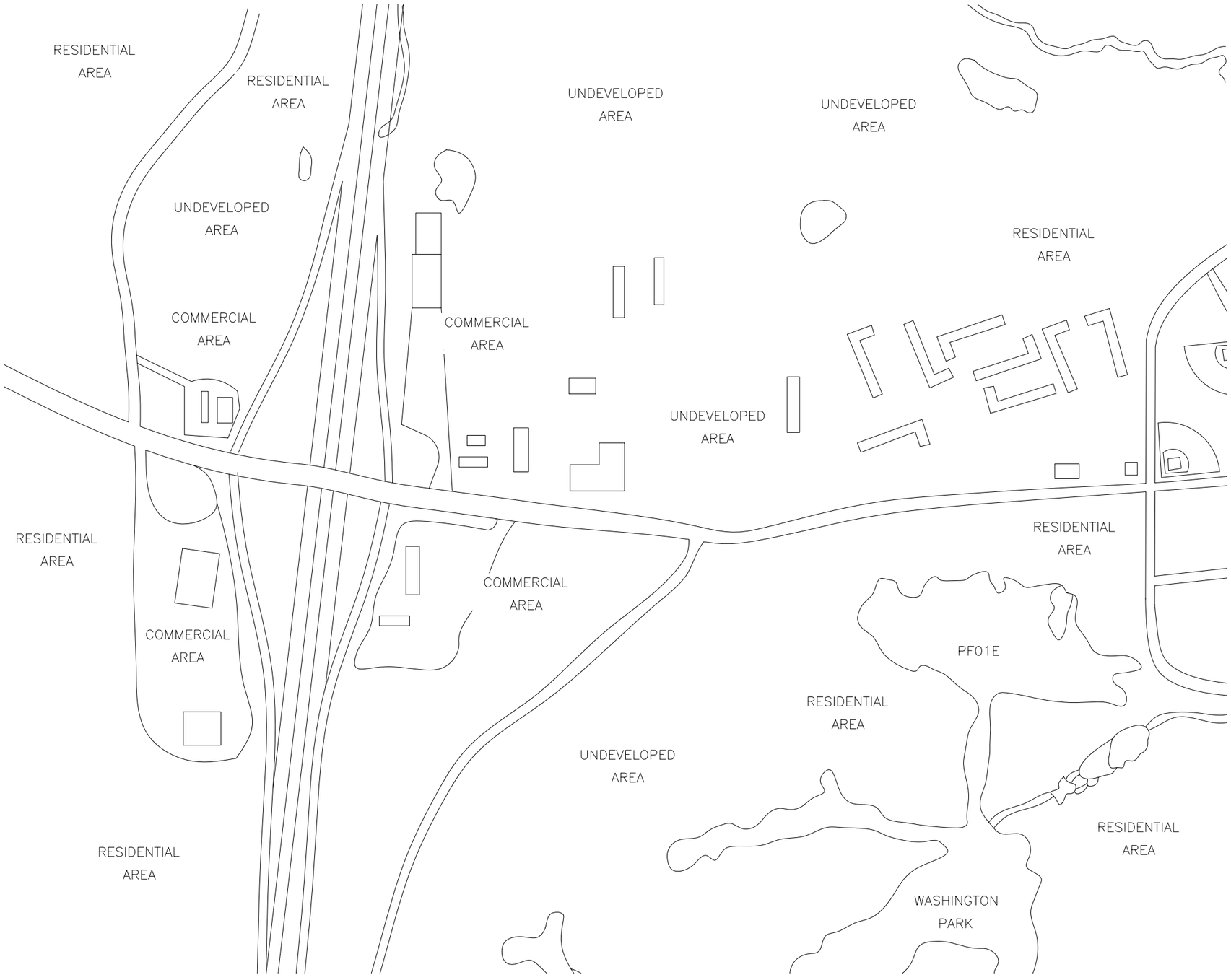
REV	DATE	DESCRIPTION
A	6/15/21	ISSUED FOR REVIEW
0	9/21/21	ISSUED FOR CONSTRUCTION
1	12/30/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
91728.014.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00073A
340 BLOOMFIELD AVENUE
WINDSOR, CT 06095

SHEET TITLE
ABUTTERS EXHIBIT

SHEET NUMBER
LS-1



WETLANDS MAP

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

CROWN CASTLE

2000 CORPORATE DRIVE
CANONSBURG, PA 15317

B+T GRP

1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT — No. 23924 — LICENSED PROFESSIONAL ENGINEER — 12/30/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
LHT	BLJ	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	6/15/21	ISSUED FOR REVIEW
0	9/21/21	ISSUED FOR CONSTRUCTION
1	12/30/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

91728.014.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00073A
340 BLOOMFIELD AVENUE
WINDSOR, CT 06095

SHEET TITLE

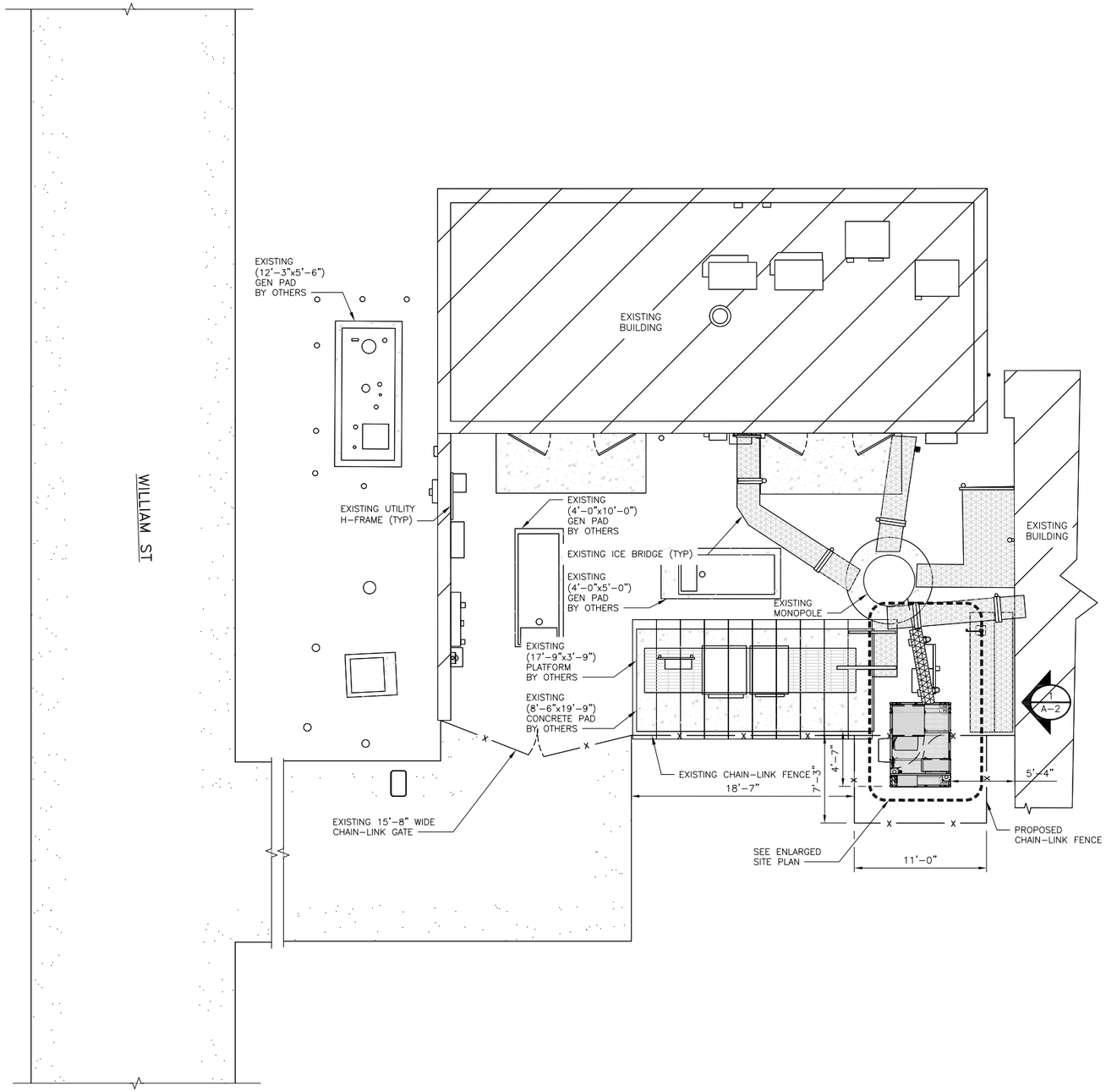
WETLANDS MAP

SHEET NUMBER

LS-2

NOTES

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



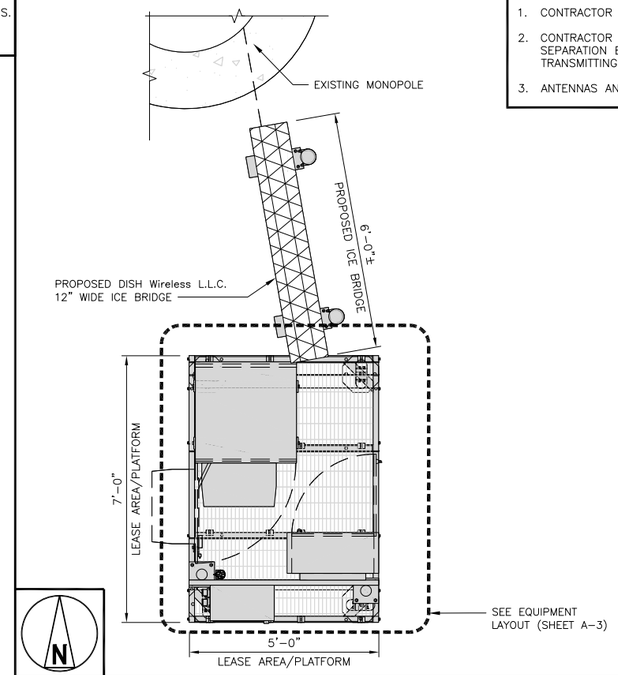
OVERALL SITE PLAN

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

1

NOTES

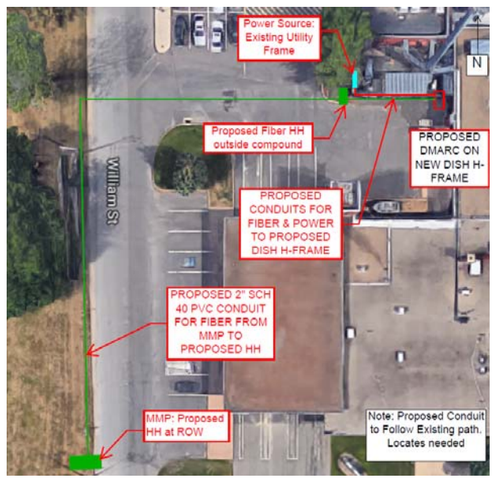
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



ENLARGED SITE PLAN

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

2



OVERALL ELECTRICAL NOTES

NO SCALE

3

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

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT — LICENSED PROFESSIONAL ENGINEER — No. 23924 — 12/30/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
LHT	BLJ	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	6/15/21	ISSUED FOR REVIEW
0	9/21/21	ISSUED FOR CONSTRUCTION
1	12/30/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

91728.014.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00073A
340 BLOOMFIELD AVENUE
WINDSOR, CT 06095

SHEET TITLE

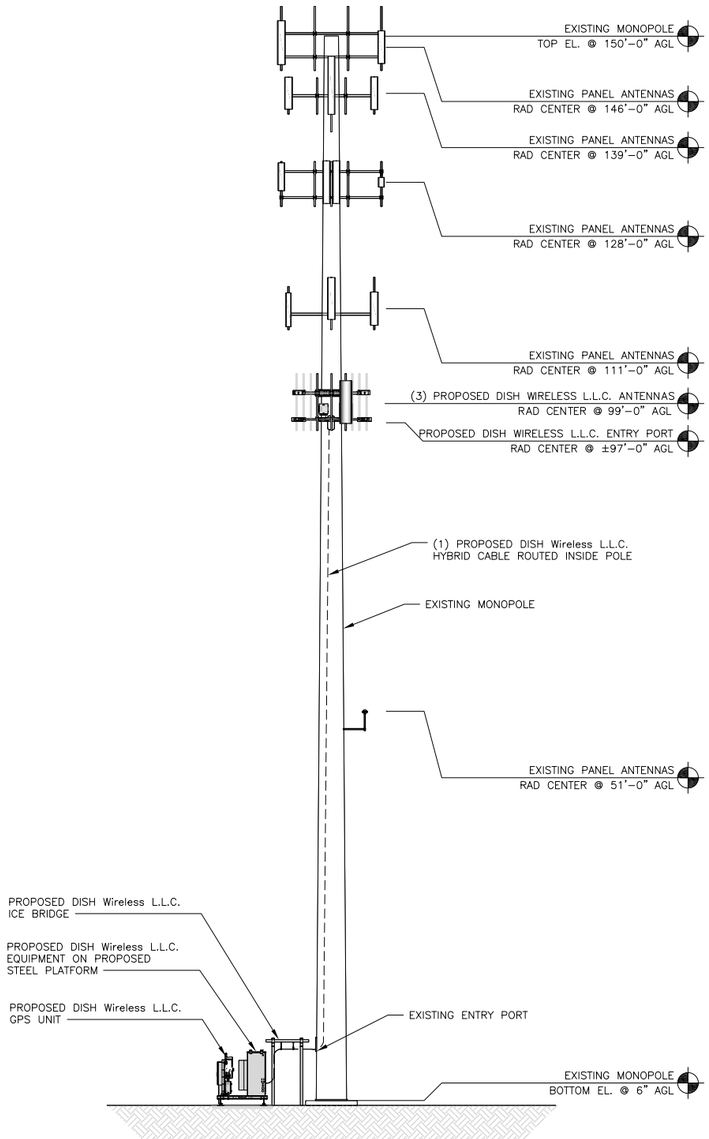
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

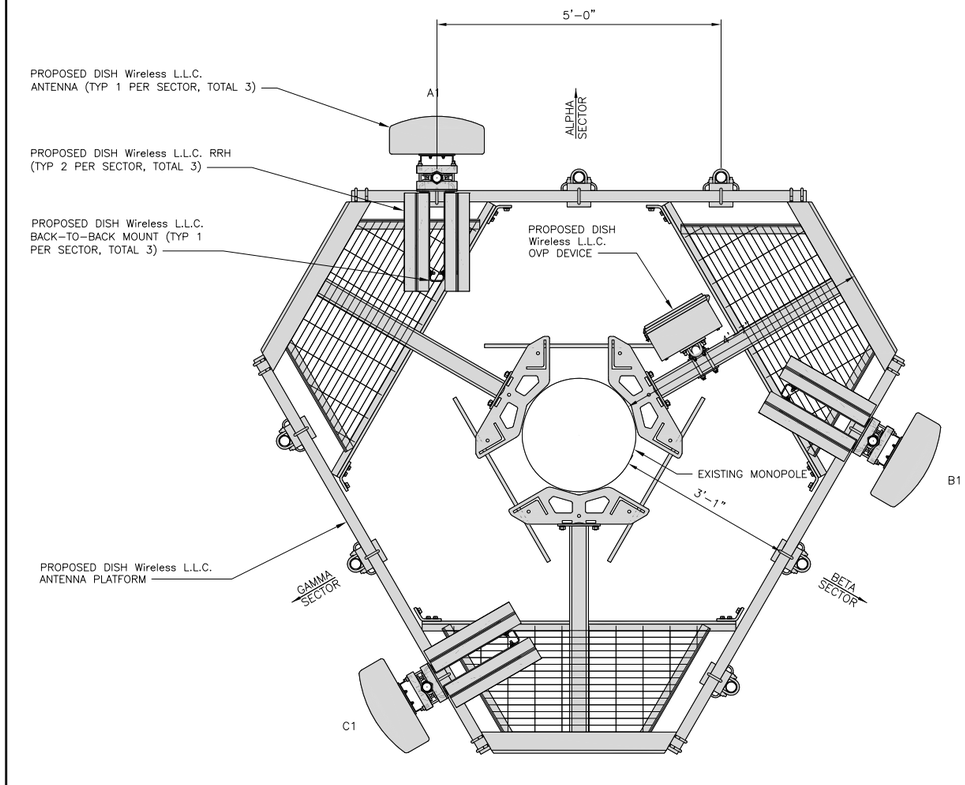
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



PROPOSED 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)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA WIRELESS–MX08FRO665–21	5G	72.0" x 20.0"	0°	99'–0"	(1) HIGH–CAPACITY HYBRID CABLE (140' LONG)
BETA	B1	PROPOSED	JMA WIRELESS–MX08FRO665–21	5G	72.0" x 20.0"	120°	99'–0"	
GAMMA	C1	PROPOSED	JMA WIRELESS–MX08FRO665–21	5G	72.0" x 20.0"	240°	99'–0"	

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

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
LHT	BLJ	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	6/15/21	ISSUED FOR REVIEW
0	9/21/21	ISSUED FOR CONSTRUCTION
1	12/30/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

91728.014.01

DISH Wireless L.L.C.
PROJECT INFORMATION

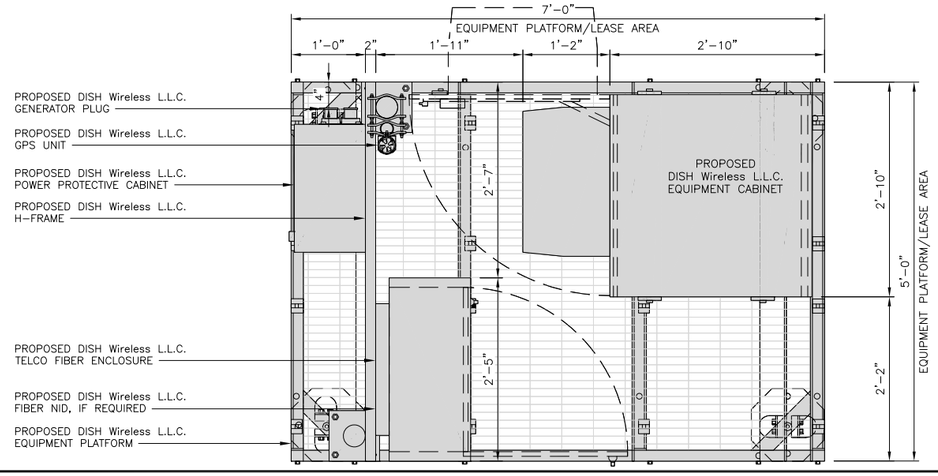
BOBDL00073A
340 BLOOMFIELD AVENUE
WINDSOR, CT 06095

SHEET TITLE

ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



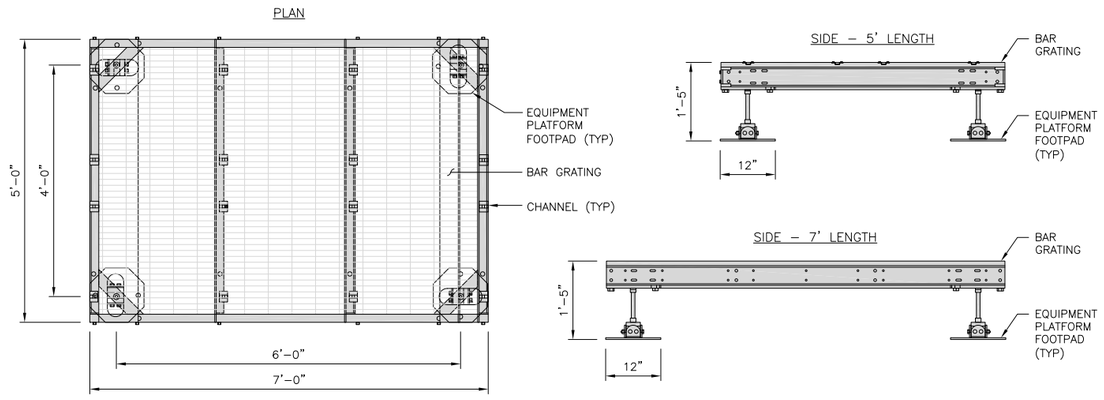
PLATFORM EQUIPMENT PLAN

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

1

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

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

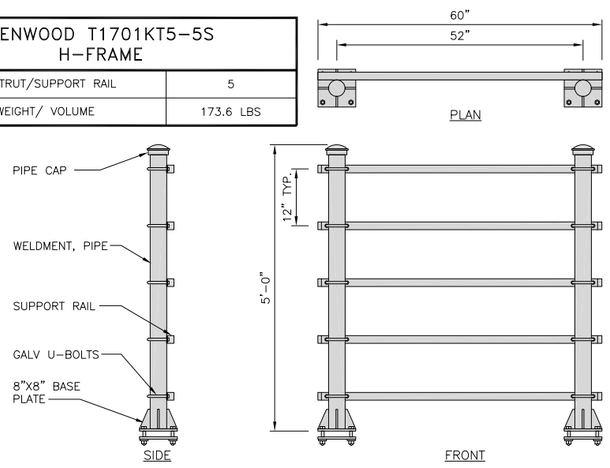


PLATFORM DETAIL

NO SCALE

2

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



H-FRAME DETAIL

NO SCALE

3

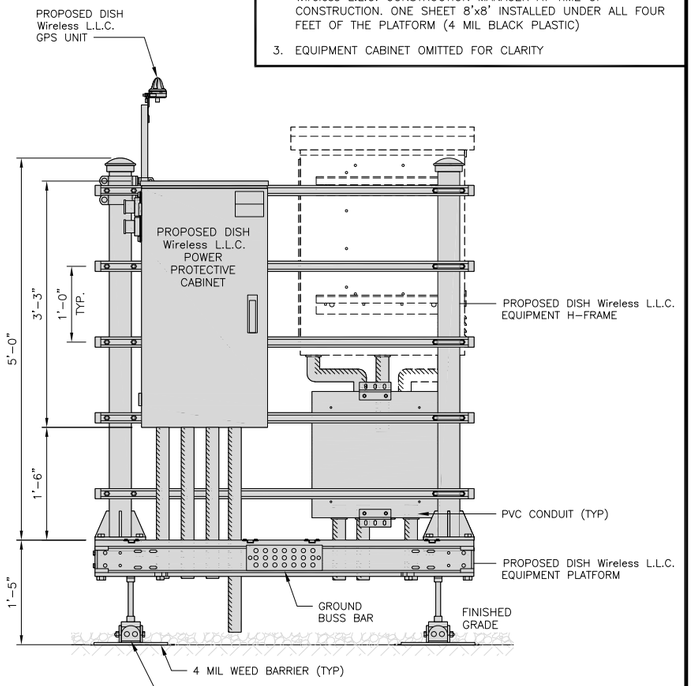
NOT USED

NO SCALE

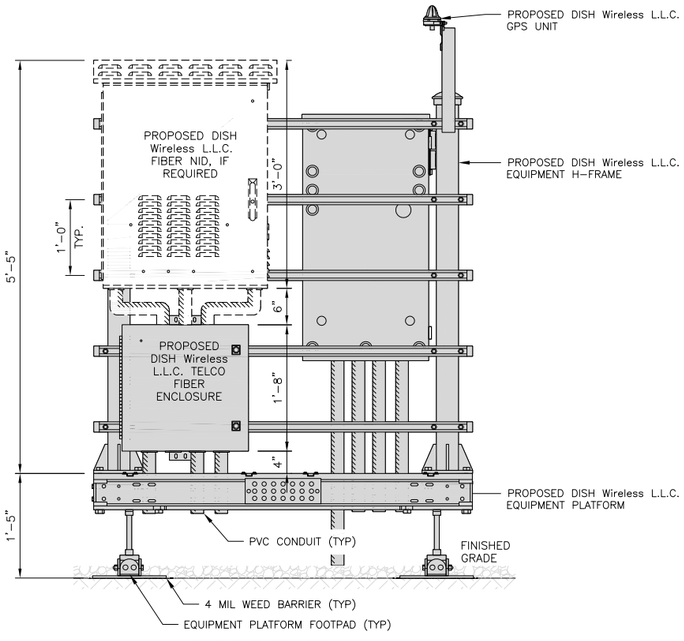
4

NOTES

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



FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION

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

5

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

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
LHT	BLJ	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	6/15/21	ISSUED FOR REVIEW
0	9/21/21	ISSUED FOR CONSTRUCTION
1	12/30/21	ISSUED FOR CONSTRUCTION

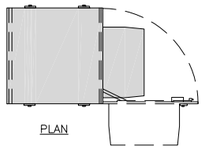
A&E PROJECT NUMBER
91728.014.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00073A
340 BLOOMFIELD AVENUE
WINDSOR, CT 06095

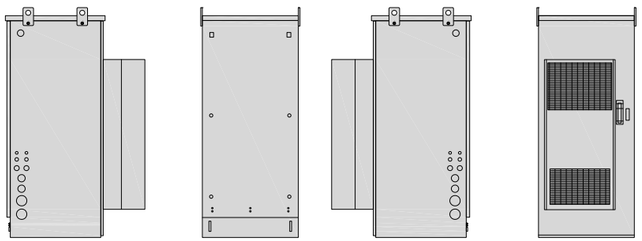
SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

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

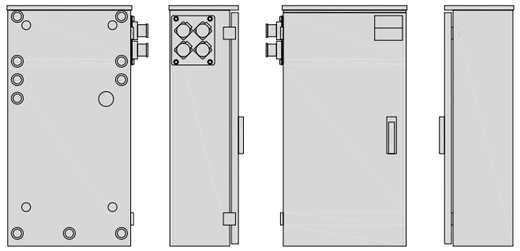


SIDE BACK SIDE FRONT

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



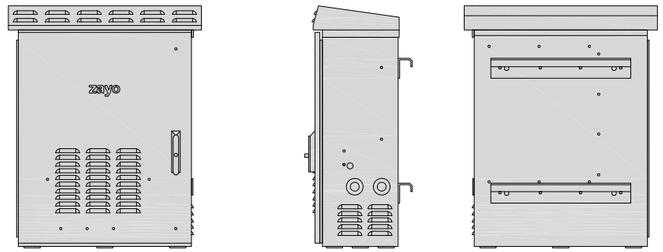
BACK SIDE FRONT SIDE

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

NOT USED | NO SCALE | 3

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

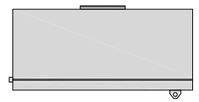
PLAN



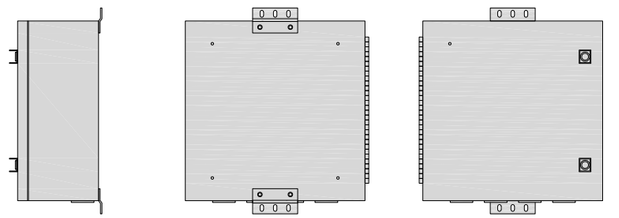
FRONT SIDE BACK

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



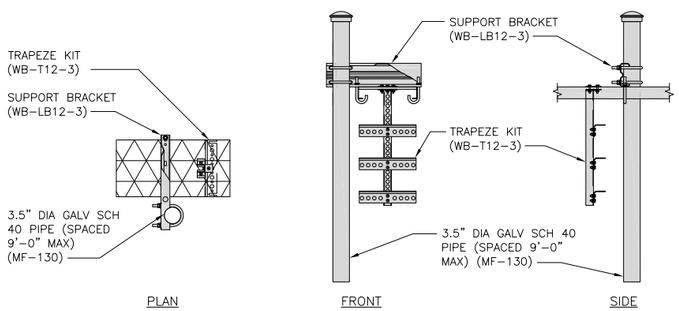
SIDE BACK FRONT

FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

NOT USED | NO SCALE | 4

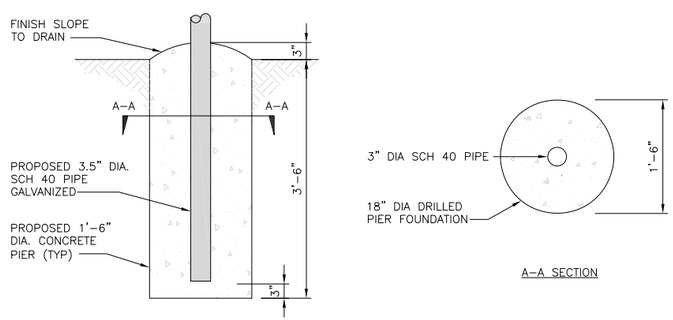
COMMSCOPE WB–K110–B WAVEGUIDE BRIDGE KIT	
DIMENSIONS (HxL)	160"x10'
WEIGHT/ VOLUME	325.0 LBS
CABLE RUN (QTY)	12

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



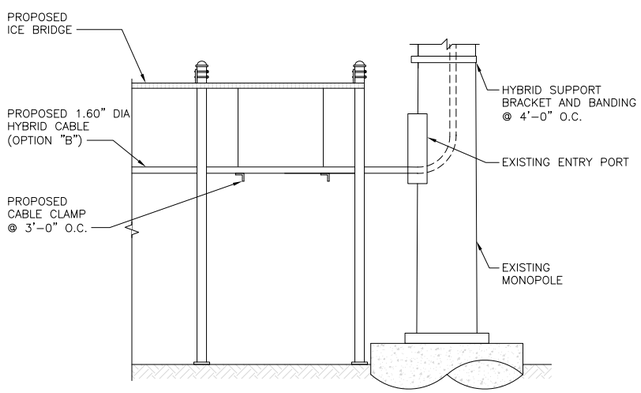
PLAN FRONT SIDE

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

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

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT No. 23924 LICENSED PROFESSIONAL ENGINEER 12/30/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
LHT	BLJ	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	6/15/21	ISSUED FOR REVIEW
0	9/21/21	ISSUED FOR CONSTRUCTION
1	12/30/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

91728.014.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00073A
340 BLOOMFIELD AVENUE
WINDSOR, CT 06095

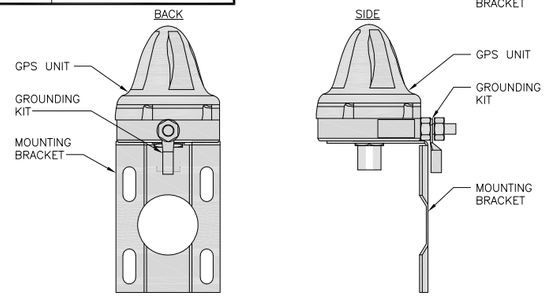
SHEET TITLE

EQUIPMENT DETAILS

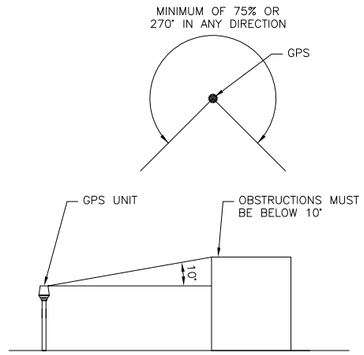
SHEET NUMBER

A-4

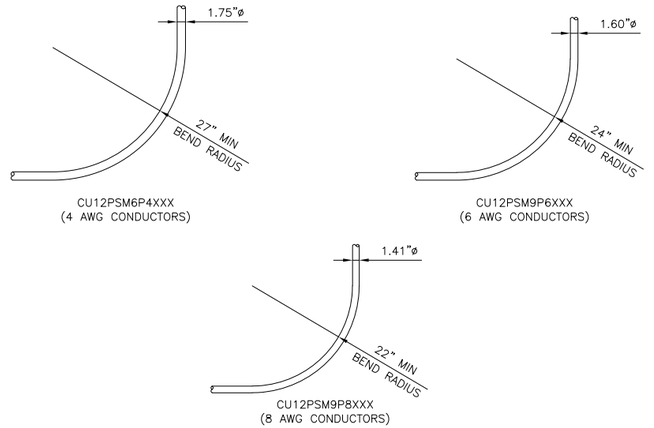
ROSENBERGER GPSGLONASS-36-N-S	
DIMENSION (DIA x H)	69mm x 98.5mm
WEIGHT (WITH ACCESSORIES)	515.74g
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1559 MHz ~ 1610.5MHz



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

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

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
LHT	BLJ	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	6/15/21	ISSUED FOR REVIEW
0	9/21/21	ISSUED FOR CONSTRUCTION
1	12/30/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

91728.014.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00073A
340 BLOOMFIELD AVENUE
WINDSOR, CT 06095

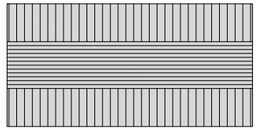
SHEET TITLE

EQUIPMENT DETAILS

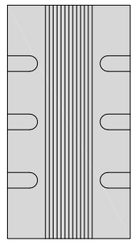
SHEET NUMBER

A-5

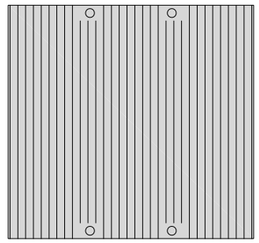
FUJITSU TA08025-B604 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x200/14.9"x15.7"x7.8"
WEIGHT(KG,LB)/ VOLUME	29kg,63.9lb/ 30L
POWER SUPPLY	DC-58~-36V



PLAN



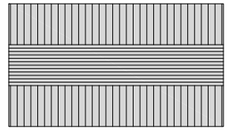
SIDE



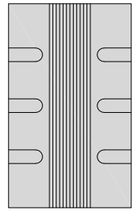
FRONT

REMOTE RADIO HEAD DETAIL | NO SCALE | 1

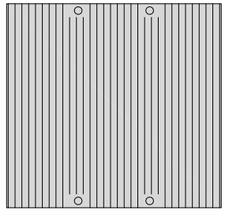
FUJITSU TA08025-B605 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x230/14.9"x15.7"x9.0"
WEIGHT(KG,LB)/ VOLUME	34kg,74.9lb/ 35L
POWER SUPPLY	DC-58~-36V



PLAN



SIDE

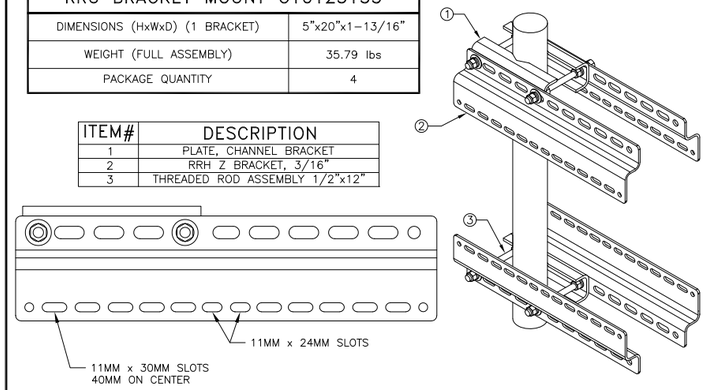


FRONT

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

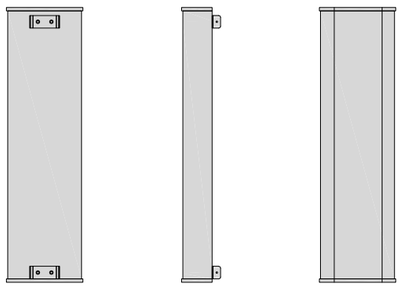
ITEM#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/16"
3	THREADED ROD ASSEMBLY 1/2"x12"



REMOTE RADIO MOUNT DETAIL | NO SCALE | 3

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

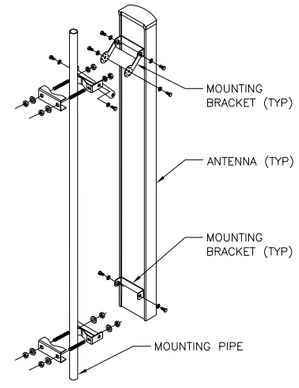
SIDE

FRONT

ANTENNA DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

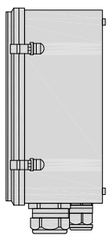
M04 MOUNTING BRACKET HPA-33R-BUU-H4-K	
WIDTH	5" (135mm)
DEPTH	2" (51mm)
HEIGHT	8" (213mm)
TOTAL WEIGHT (WITH BRACKETS)	1.5 LBS (15.50 Kg)
HOUSING MATERIAL	ASA/ABS/ALUMINUM
RADOME COLOR	LIGHT GRAY
CONNECTOR	1X8-PIN DAISY CHAIN



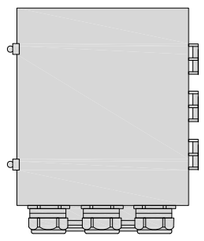
ANTENNA MOUNTING DETAIL | NO SCALE | 6

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

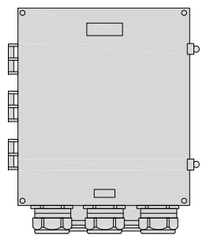
PLAN



SIDE



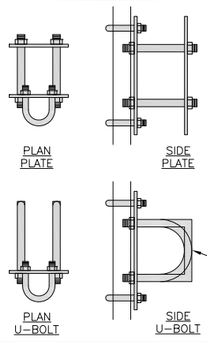
BACK

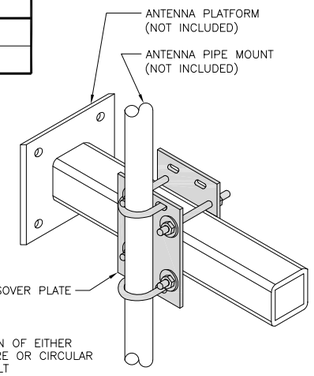


FRONT

SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

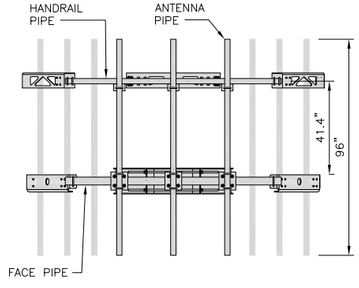
COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11.023 LBS

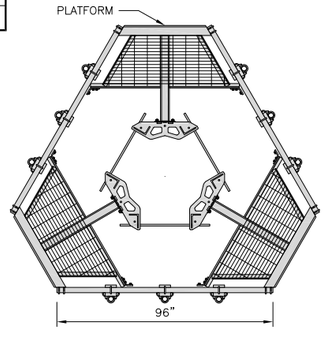




RRH/OVP MOUNT DETAIL | NO SCALE | 8

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





ANTENNA PLATFORM DETAIL | NO SCALE | 9

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

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT — No. 23924 — LICENSED PROFESSIONAL ENGINEER — 12/30/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
LHT	BLJ	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	6/15/21	ISSUED FOR REVIEW
0	9/21/21	ISSUED FOR CONSTRUCTION
1	12/30/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

91728.014.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00073A
340 BLOOMFIELD AVENUE
WINDSOR, CT 06095

SHEET TITLE

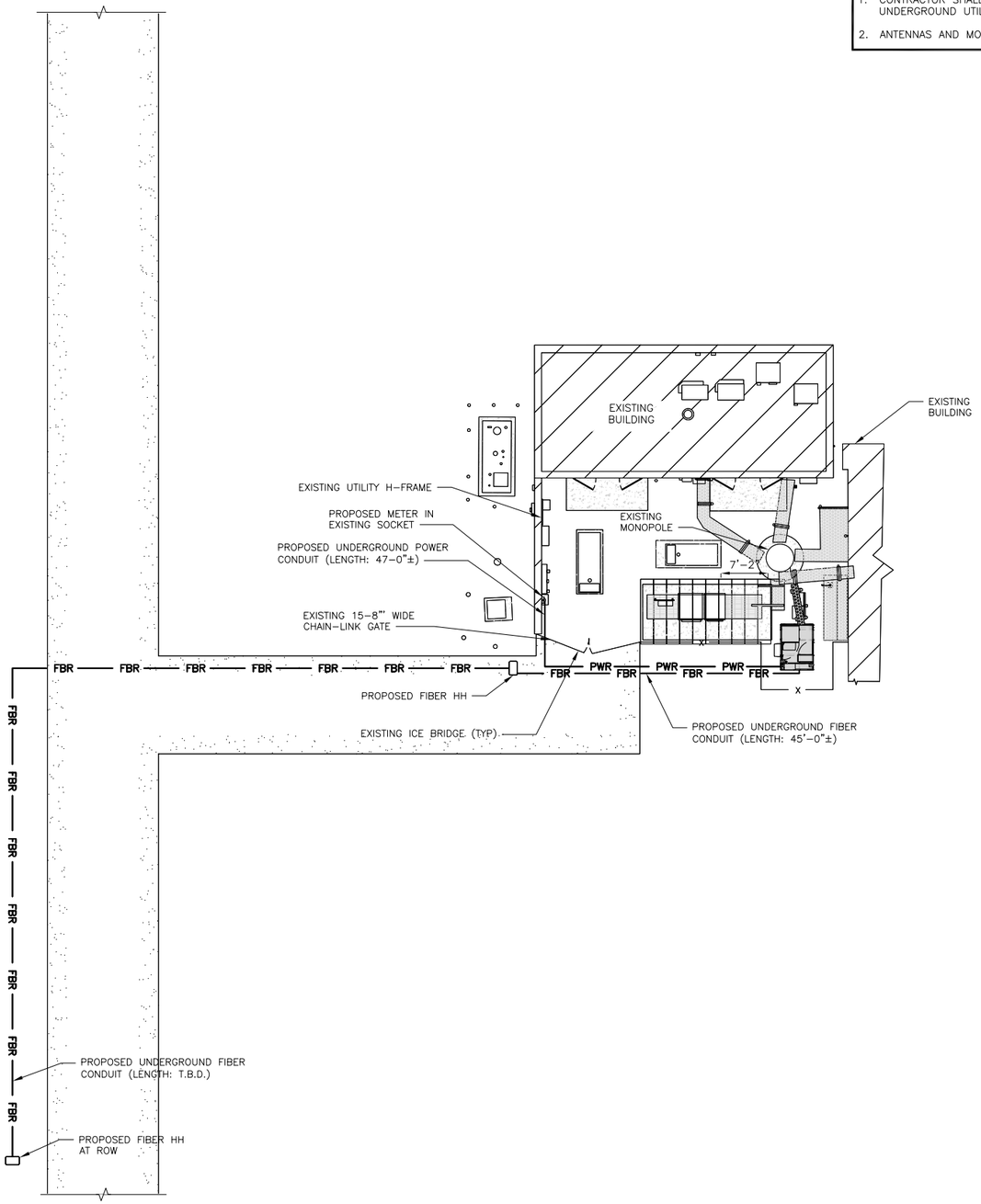
EQUIPMENT DETAILS

SHEET NUMBER

A-6

NOTES

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



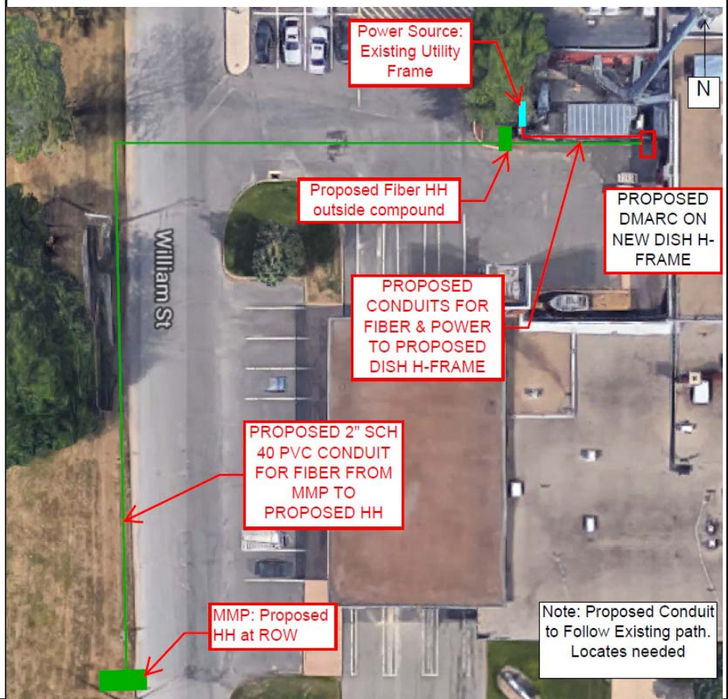
UTILITY ROUTE PLAN

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

1

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

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



ELECTRICAL NOTES

NO SCALE

2

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

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT — No. 23924 LICENSED PROFESSIONAL ENGINEER — 12/30/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
LHT	BLJ	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	6/15/21	ISSUED FOR REVIEW
0	9/21/21	ISSUED FOR CONSTRUCTION
1	12/30/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
91728.014.01

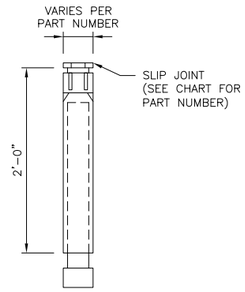
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00073A
340 BLOOMFIELD AVENUE
WINDSOR, CT 06095

SHEET TITLE
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER
E-1

CARLON EXPANSION FITTINGS

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

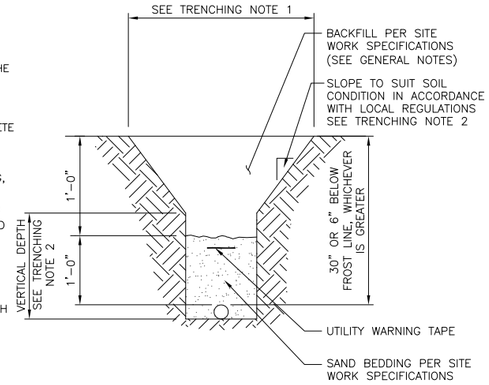


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

EXPANSION JOINT DETAIL | NO SCALE | 1

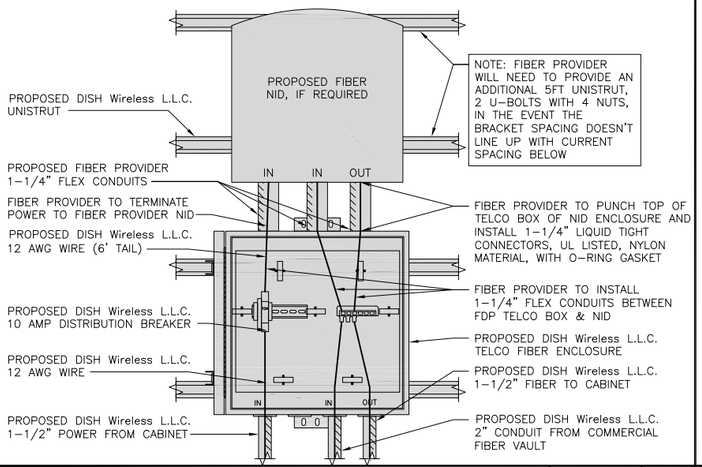
TRENCHING NOTES

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



TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2

NOT USED | NO SCALE | 3



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

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
LHT	BLJ	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	6/15/21	ISSUED FOR REVIEW
0	9/21/21	ISSUED FOR CONSTRUCTION
1	12/30/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

91728.014.01

DISH Wireless L.L.C.
PROJECT INFORMATION

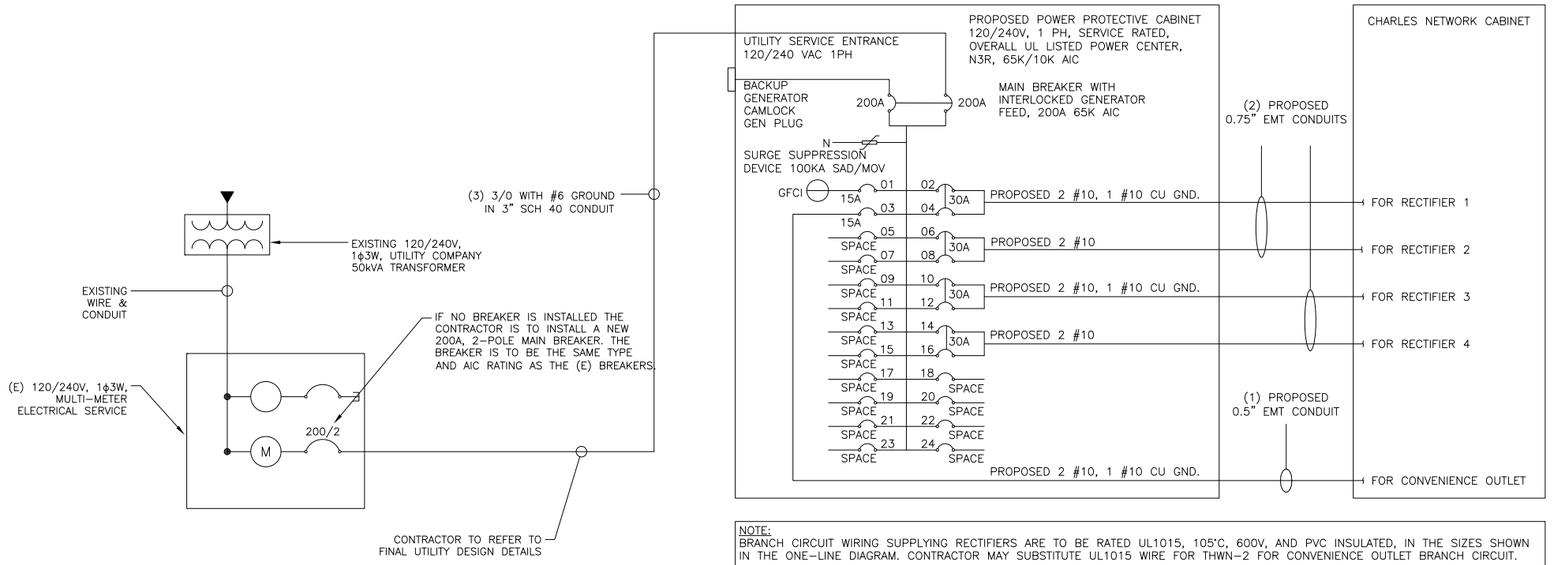
BOBDL00073A
340 BLOOMFIELD AVENUE
WINDSOR, CT 06095

SHEET TITLE

ELECTRICAL DETAILS

SHEET NUMBER

E-2



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

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

PPC ONE-LINE DIAGRAM — NO SCALE — 1

NOTES

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

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

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

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

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

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

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

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

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

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

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

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

PROPOSED CHARLES PANEL SCHEDULE

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

PANEL SCHEDULE — NO SCALE — 2

NOT USED — NO SCALE — 3

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

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT — No. 23924 — LICENSED PROFESSIONAL ENGINEER — 12/30/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
LHT	BLJ	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

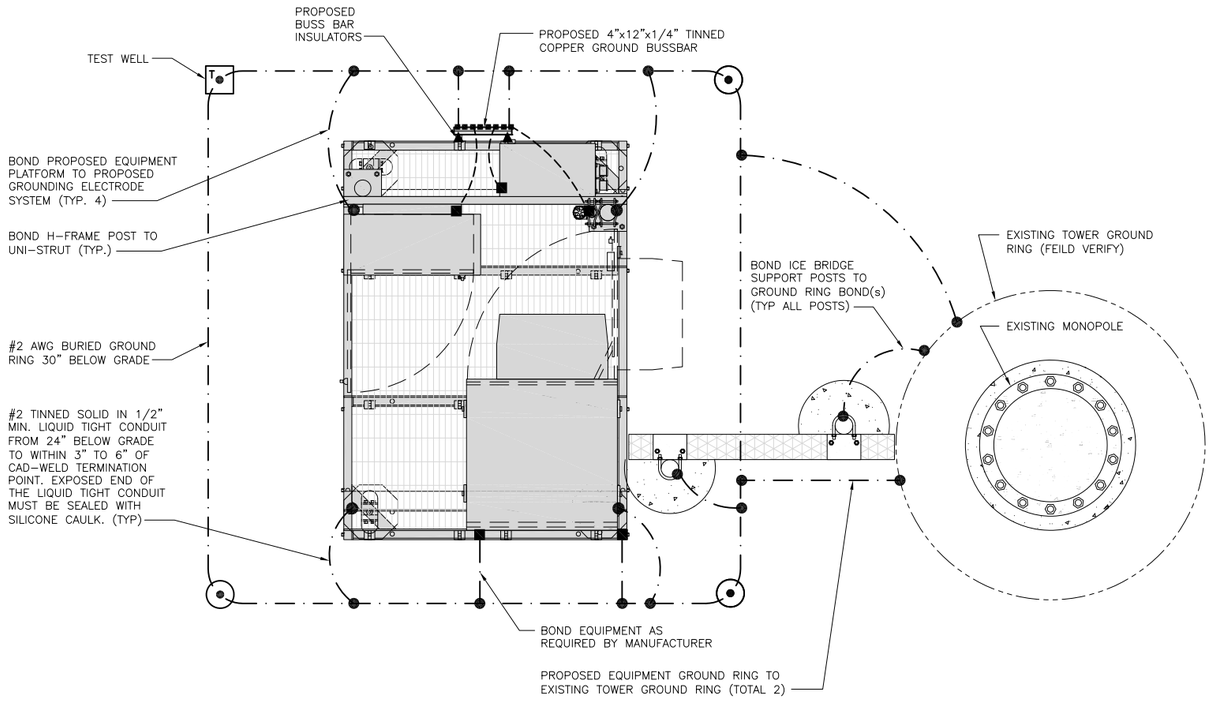
REV	DATE	DESCRIPTION
A	6/15/21	ISSUED FOR REVIEW
0	9/21/21	ISSUED FOR CONSTRUCTION
1	12/30/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
91728.014.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00073A
340 BLOOMFIELD AVENUE
WINDSOR, CT 06095

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

SHEET NUMBER
E-3

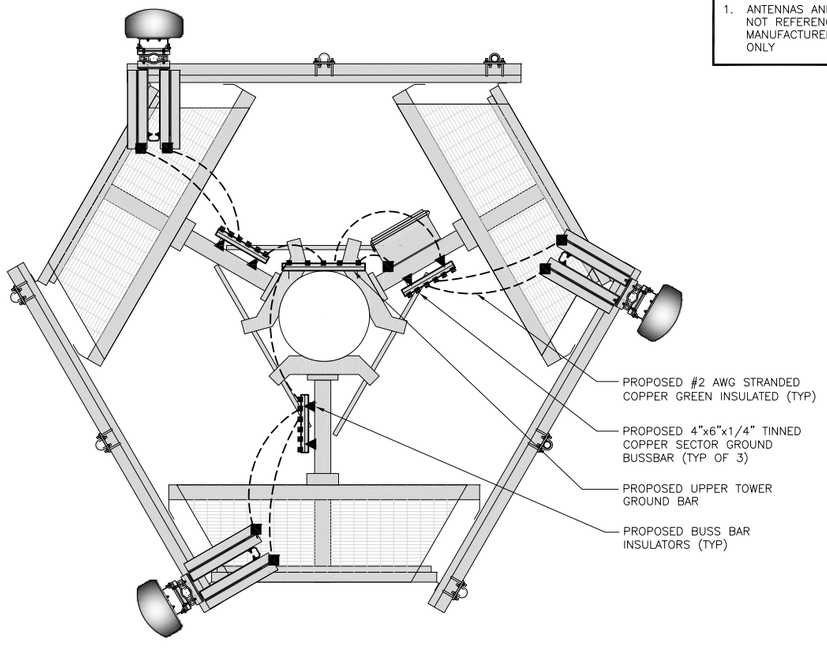


TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE | 1

NOTES

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



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE | 2

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GROUNDING KEY NOTES

NO SCALE | 3

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

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
LHT	BLJ	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	6/15/21	ISSUED FOR REVIEW
0	9/21/21	ISSUED FOR CONSTRUCTION
1	12/30/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

91728.014.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00073A
340 BLOOMFIELD AVENUE
WINDSOR, CT 06095

SHEET TITLE

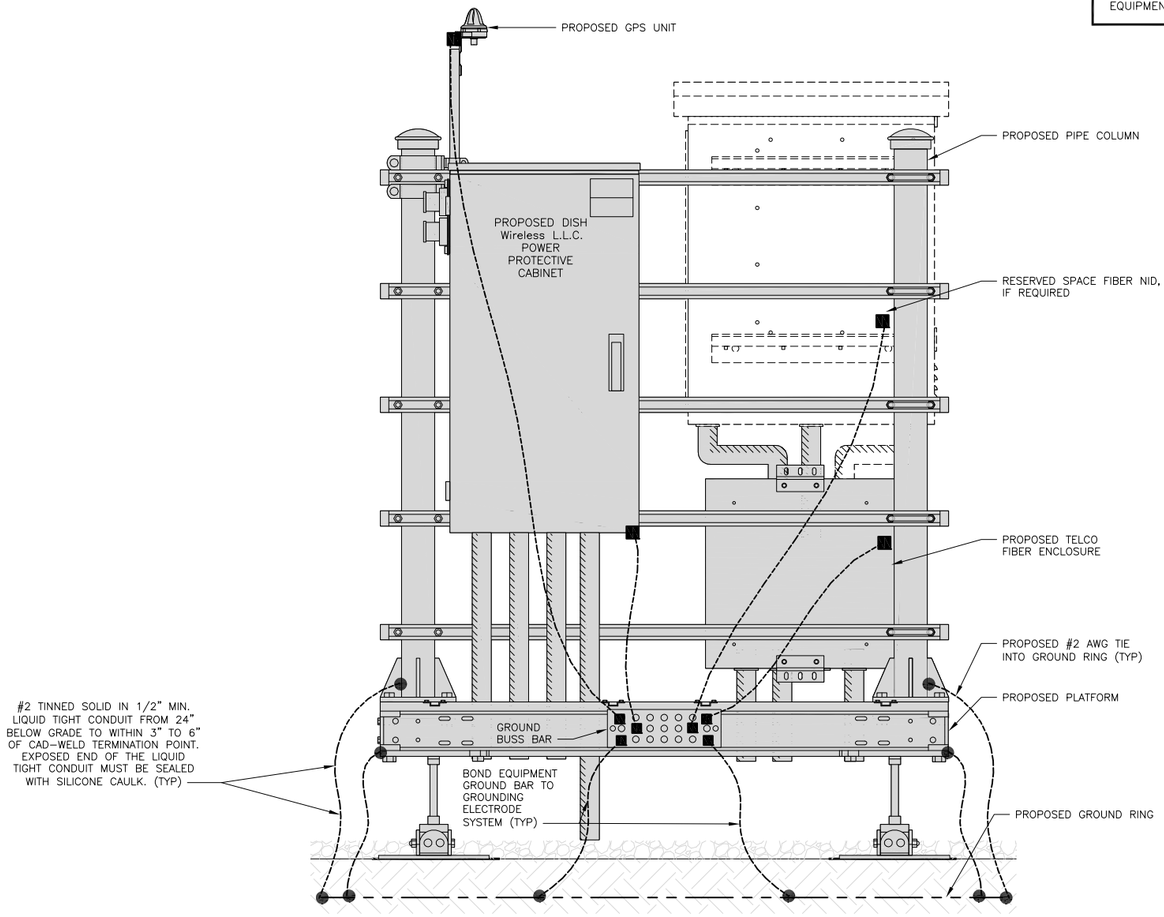
GROUNDING PLANS AND NOTES

SHEET NUMBER

G-1

NOTES

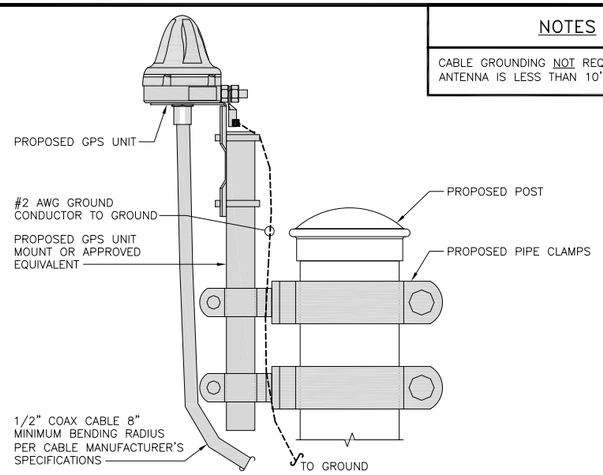
EQUIPMENT CABINET OMITTED FOR CLARITY



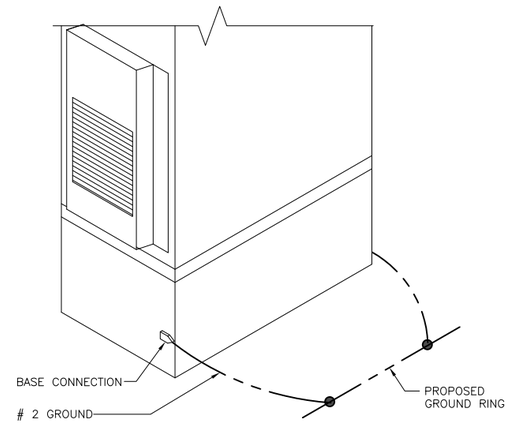
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

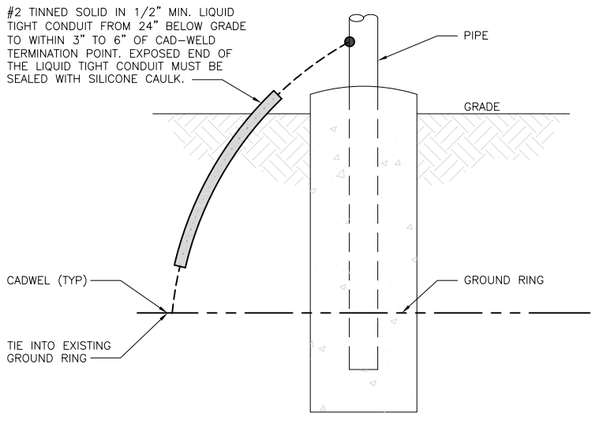
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



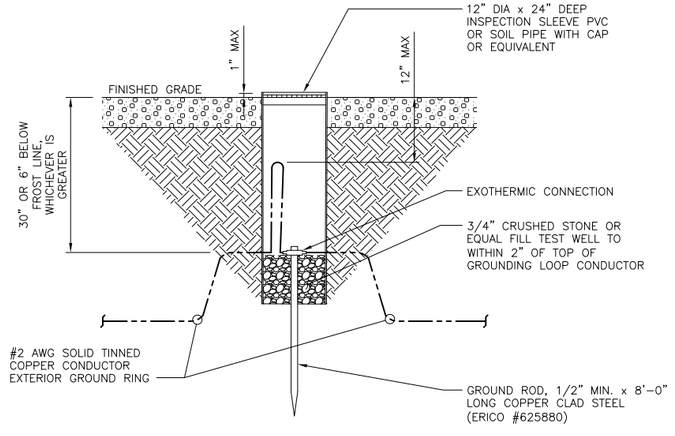
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



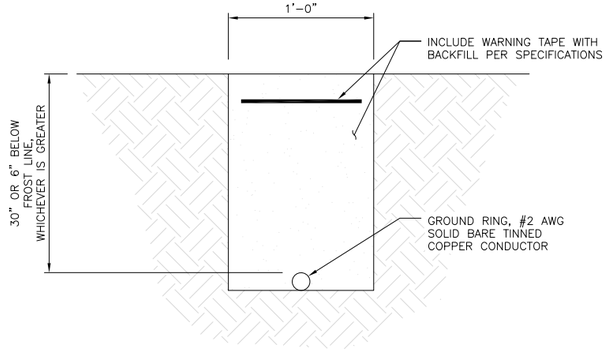
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



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



TYPICAL GROUND RING TRENCH | NO SCALE | 6

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

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT — No. 23924 — LICENSED PROFESSIONAL ENGINEER — 12/30/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
LHT	BLJ	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	6/15/21	ISSUED FOR REVIEW
0	9/21/21	ISSUED FOR CONSTRUCTION
1	12/30/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

91728.014.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00073A
340 BLOOMFIELD AVENUE
WINDSOR, CT 06095

SHEET TITLE

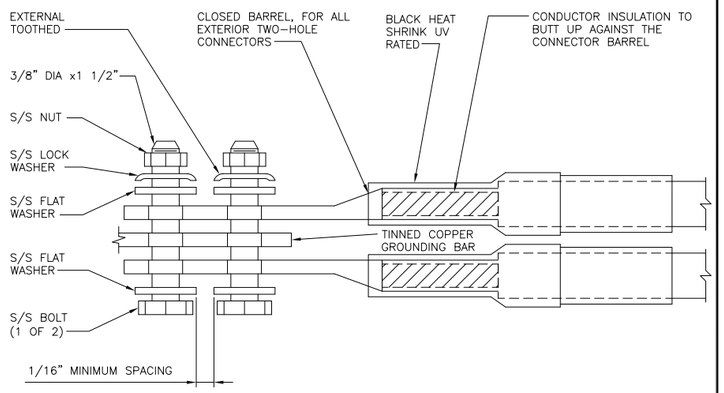
GROUNDING DETAILS

SHEET NUMBER

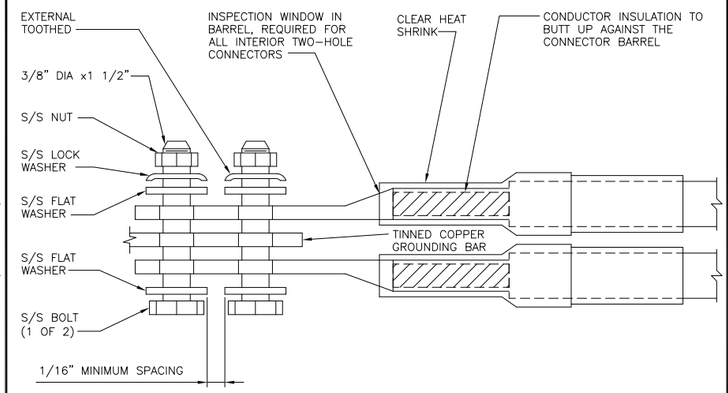
G-2

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

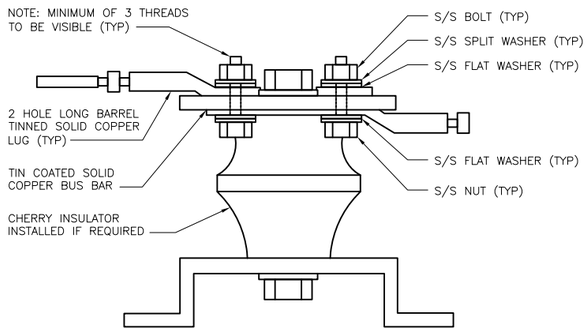
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
LHT	BLJ	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	6/15/21	ISSUED FOR REVIEW
0	9/21/21	ISSUED FOR CONSTRUCTION
1	12/30/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

91728.014.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00073A
340 BLOOMFIELD AVENUE
WINDSOR, CT 06095

SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER

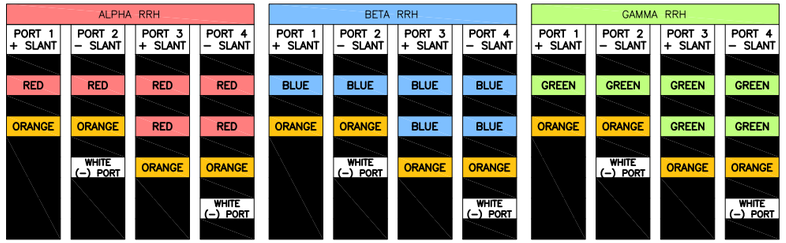
G-3

RF JUMPER COLOR CODING

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

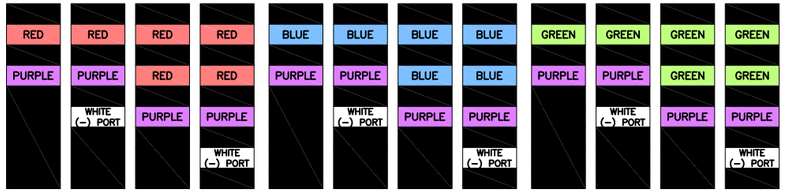
LOW-BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

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



MID-BAND RRH –
(AWS BANDS N66+N70)

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

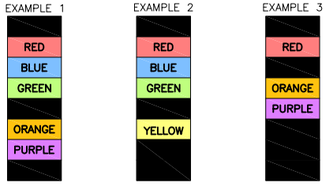


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED
ALONG WITH FREQUENCY BANDS

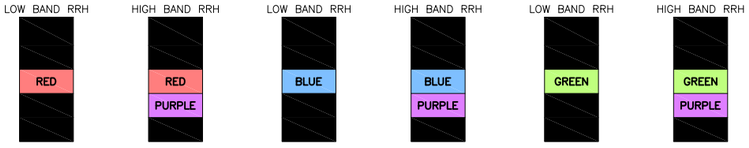
EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS
ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS

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



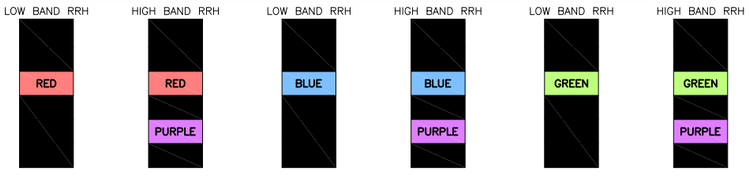
FIBER JUMPERS TO RRHs

LOW-BAND RRH FIBER CABLES HAVE SECTOR
STRIPE ONLY

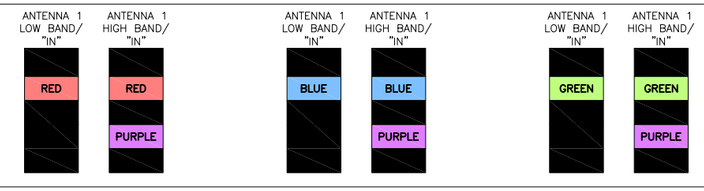


POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY



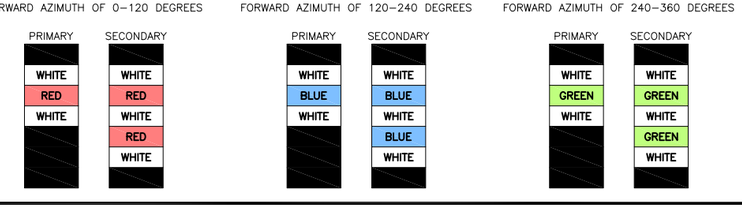
RET MOTORS AT ANTENNAS



MICROWAVE RADIO LINKS

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

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



RF CABLE COLOR CODES | NO SCALE | 1

LOW BANDS (N71+N26)
OPTIONAL – (N29)
ORANGE

AWS
(N66+N70+H-BLOCK)
PURPLE

CBRS TECH
(3 GHz)
YELLOW

NEGATIVE SLANT PORT
ON ANT/RRH
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

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

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
LHT	BLJ	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	6/15/21	ISSUED FOR REVIEW
0	9/21/21	ISSUED FOR CONSTRUCTION
1	12/30/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

91728.014.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00073A
340 BLOOMFIELD AVENUE
WINDSOR, CT 06095

SHEET TITLE

RF
CABLE COLOR CODES

SHEET NUMBER

RF-1

LEGEND

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM — T

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE — T

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE — GFCI

FLUORESCENT LIGHTING FIXTURE
(2) TWO LAMPS 48–T8 — F

SMOKE DETECTION (DC) — SD

EMERGENCY LIGHTING (DC)

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

CHAIN LINK FENCE — x — x — x — x —

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE — W — W — W — W — W —

UNDERGROUND POWER — UGP — UGP — UGP — UGP — UGP —

UNDERGROUND TELCO — UGT — UGT — UGT — UGT — UGT —

OVERHEAD POWER — OHP — OHP — OHP — OHP —

OVERHEAD TELCO — OHT — OHT — OHT — OHT —

UNDERGROUND TELCO/POWER — UGT/P — UGT/P — UGT/P — UGT/P —

ABOVE GROUND POWER — AGP — AGP — AGP — AGP — AGP —

ABOVE GROUND TELCO — AGT — AGT — AGT — AGT — AGT —

ABOVE GROUND TELCO/POWER — AGT/P — AGT/P — AGT/P — AGT/P —

WORKPOINT — W.P.

SECTION REFERENCE — XX / X–X

DETAIL REFERENCE — XX / X–X

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

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

CROWN CASTLE

2000 CORPORATE DRIVE
CANONSBURG, PA 15317

B+T GRP

1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
LHT	BLJ	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	6/15/21	ISSUED FOR REVIEW
0	9/21/21	ISSUED FOR CONSTRUCTION
1	12/30/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

91728.014.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00073A
340 BLOOMFIELD AVENUE
WINDSOR, CT 06095

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GENERAL NOTES:

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

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH Wireless L.L.C.

TOWER OWNER:TOWER OWNER

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

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

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

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

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

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

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

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

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

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

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

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

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

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

CROWN CASTLE

2000 CORPORATE DRIVE
CANONSBURG, PA 15317

B+T GRP

1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

12/30/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
LHT	BLJ	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	6/15/21	ISSUED FOR REVIEW
0	9/21/21	ISSUED FOR CONSTRUCTION
1	12/30/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

91728.014.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00073A
340 BLOOMFIELD AVENUE
WINDSOR, CT 06095

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

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

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

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

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

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

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

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

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

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

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

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

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

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

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

8. TIE WRAPS ARE NOT ALLOWED.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

STATE OF CONNECTICUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
12/30/21

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
LHT	BLJ	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	6/15/21	ISSUED FOR REVIEW
0	9/21/21	ISSUED FOR CONSTRUCTION
1	12/30/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

91728.014.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00073A
340 BLOOMFIELD AVENUE
WINDSOR, CT 06095

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-3

GROUNDING NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

CROWN CASTLE

2000 CORPORATE DRIVE
CANONSBURG, PA 15317

B+T GRP

1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
LHT	BLJ	BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	6/15/21	ISSUED FOR REVIEW
0	9/21/21	ISSUED FOR CONSTRUCTION
1	12/30/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

91728.014.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00073A
340 BLOOMFIELD AVENUE
WINDSOR, CT 06095

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

ATTACHMENT 4

Date: **June 9, 2021**

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***DISH Network* Co-Locate**	
	Site Number:	BOBDL00073A
	Site Name:	CT-CCI-T-855662
Crown Castle Designation:	**BU Number:**	855662
	Site Name:	WINDSORCENTRAL
	JDE Job Number:	650064
	Work Order Number:	1966278
	Order Number:	556619 Rev. 1
Engineering Firm Designation:	**Crown Castle Project Number:**	1966278
Site Data:	**340 BLOOMFIELD AVENUE, WINDSOR, Hartford County, CT** **Latitude *41° 51' 9.34"*, Longitude *-72° 39' 37.79"*** **148 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 - 84.2%**

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

Structural analysis prepared by: Tyler Ho

Respectfully submitted by:

Terry P Styran
2021.06.10
11:41:57 -04'00'

Terry P. Styran, P.E.
Senior Project Engineer

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA
Table 1 - Proposed Equipment Configuration
Table 2 - Other Considered Equipment

3) ANALYSIS PROCEDURE
Table 3 - Documents Provided
3.1) Analysis Method
3.2) Assumptions

4) ANALYSIS RESULTS
Table 4 - Section Capacity (Summary)
Table 5 - Tower Component Stresses vs. Capacity - LC7
4.1) Recommendations

5) APPENDIX A
tnxTower Output

6) APPENDIX B
Base Level Drawing

7) APPENDIX C
Additional Calculations

1) INTRODUCTION

This tower is a 148 ft Monopole tower designed by Summit. The tower has been modified per reinforcement drawings prepared by B+T Group, in October of 2014. Reinforcement consists of installation of flat plate reinforcement with transition stiffeners at the base.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	125 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	2 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
99.0	99.0	3	fujitsu	TA08025-B604	1	1-1/2
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-PK8-DSH		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
148.0	148.0	1	tower mounts	Platform Mount [LP 1201-1_HR-1]	7 1 1 2 2 2	1-5/8 7/8 3/8 3/4 2” Conduit
	146.0	3	cci antennas	DTMABP7819VG12A		
		3	ericsson	RRUS 11		
		3	ericsson	RRUS12/RRUS A2		
		3	kathrein	800 10121 w/ Mount Pipe		
		2	quintel technology	QS66512-2 w/ Mount Pipe		
		1	quintel technology	QS86512-2 w/ Mount Pipe		
		1	raycap	DC6-48-60-18-8F		
		1	rfs celwave	PD320-2		
139.0	139.0	3	ericsson	AIR 32 B2A/B66AA w/ Mount Pipe	13	1-5/8
		3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe		
		3	ericsson	KRY 112 144/1		
		3	ericsson	RADIO 4449 B12/B71		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
		1	tower mounts	Platform Mount [LP 1201-1_HR-1]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
126.0	128.0	3	antel	BXA-70063-4CF-EDIN-X w/ Mount Pipe	8	1-5/8
		6	commscope	SBNHH-1D65B w/ Mount Pipe		
		1	rfs celwave	DB-T1-6Z-8AB-0Z		
		3	samsung telecommunications	CBRS w/ Mount Pipe		
		3	samsung telecommunications	MT6407-77A w/ Mount Pipe		
		3	samsung telecommunications	RFV01U-D1A		
		3	samsung telecommunications	RFV01U-D2A		
	126.0	1	tower mounts	Platform Mount [LP 404-1_KCKR]		
111.0	111.0	3	alcatel lucent	PCS 1900MHz 4x45W-65MHz	-	-
		3	alcatel lucent	TME-800MHz 2X50W RRH W/FILTER		
		1	tower mounts	Pipe Mount [PM 601-3]		
109.0	116.0	1	decibel	DB205-L	5 3 1 3	7/8 5/16 5/8 1-1/4
		1	kathrein	K732267		
	113.0	1	sinclair	SD212-SF3P2SNM W/Mount Piipe		
	110.0	3	alcatel lucent	TD-RRH8X20-25		
		4	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe		
	109.0	1	tower mounts	Platform Mount [LP 1201-1]		
79.0	79.0	1	tower mounts	Side Arm Mount [SO 702-3]	2	7/8
	76.0	1	kathrein	K732267		
	75.0	1	sinclair	SRL-227		
74.0	75.0	1	radiowaves	HP2-23	1	3/8
	74.0	1	tower mounts	Pipe Mount [PM 601-1]		
50.0	51.0	1	pctel	GPS-TMG-HR-26N	1	1/2
	50.0	1	tower mounts	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	5269642	CCISITES
4-POST-MODIFICATION INSPECTION	5649676	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	4864324	CCISITES
4-TOWER MANUFACTURER DRAWINGS	5338627	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	5373232	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.9.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

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

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
148 - 143	Pole	TP24.975x24x0.2188	Pole	3.5%	Pass
143 - 138	Pole	TP25.95x24.975x0.2188	Pole	8.3%	Pass
138 - 133	Pole	TP26.925x25.95x0.2188	Pole	14.8%	Pass
133 - 128	Pole	TP27.901x26.925x0.2188	Pole	20.8%	Pass
128 - 123	Pole	TP28.876x27.901x0.2188	Pole	29.4%	Pass
123 - 119.75	Pole	TP30.241x28.876x0.2188	Pole	34.7%	Pass
119.75 - 114.75	Pole	TP30.047x29.072x0.25	Pole	36.4%	Pass
114.75 - 109.75	Pole	TP31.022x30.047x0.25	Pole	42.6%	Pass
109.75 - 104.75	Pole	TP31.997x31.022x0.25	Pole	51.0%	Pass
104.75 - 99.75	Pole	TP32.972x31.997x0.25	Pole	58.1%	Pass
99.75 - 94.75	Pole	TP33.947x32.972x0.25	Pole	66.2%	Pass
94.75 - 93.5	Pole	TP34.191x33.947x0.25	Pole	68.1%	Pass

93.5 - 93.25	Pole + Reinf.	TP34.24x34.191x0.4375	Reinf. 4 Tension Rupture	56.2%	Pass
93.25 - 88.25	Pole + Reinf.	TP35.215x34.24x0.4313	Reinf. 4 Tension Rupture	62.3%	Pass
88.25 - 83.25	Pole + Reinf.	TP36.19x35.215x0.425	Reinf. 4 Tension Rupture	68.0%	Pass
83.25 - 79.5	Pole + Reinf.	TP37.847x36.19x0.425	Reinf. 4 Tension Rupture	72.0%	Pass
79.5 - 74.5	Pole + Reinf.	TP37.396x36.421x0.4875	Reinf. 4 Tension Rupture	68.6%	Pass
74.5 - 69.5	Pole + Reinf.	TP38.371x37.396x0.475	Reinf. 4 Tension Rupture	72.9%	Pass
69.5 - 64.5	Pole + Reinf.	TP39.346x38.371x0.475	Reinf. 4 Tension Rupture	76.8%	Pass
64.5 - 62.5	Pole + Reinf.	TP39.736x39.346x0.475	Reinf. 4 Tension Rupture	78.3%	Pass
62.5 - 62.25	Pole	TP39.785x39.736x0.3125	Pole	80.9%	Pass
62.25 - 57.75	Pole	TP40.663x39.785x0.3125	Pole	84.2%	Pass
57.75 - 57.5	Pole + Reinf.	TP40.711x40.663x0.525	Reinf. 2 Tension Rupture	72.0%	Pass
57.5 - 52.5	Pole + Reinf.	TP41.687x40.711x0.525	Reinf. 2 Tension Rupture	75.1%	Pass
52.5 - 47.5	Pole + Reinf.	TP42.662x41.687x0.5125	Reinf. 2 Tension Rupture	77.9%	Pass
47.5 - 45	Pole + Reinf.	TP44.222x42.662x0.5125	Reinf. 2 Tension Rupture	79.3%	Pass
45 - 38.5	Pole + Reinf.	TP43.792x42.524x0.575	Reinf. 2 Tension Rupture	75.5%	Pass
38.5 - 38.25	Pole + Reinf.	TP43.841x43.792x0.575	Reinf. 2 Tension Rupture	75.6%	Pass
38.25 - 38	Pole + Reinf.	TP43.889x43.841x0.5063	Reinf. 2 Tension Rupture	76.8%	Pass
38 - 33	Pole + Reinf.	TP44.865x43.889x0.5	Reinf. 2 Tension Rupture	78.8%	Pass
33 - 31.75	Pole + Reinf.	TP45.108x44.865x0.5	Reinf. 2 Tension Rupture	79.3%	Pass
31.75 - 31.5	Pole + Reinf.	TP45.157x45.108x0.725	Reinf. 1 Bolt Shear	65.2%	Pass
31.5 - 28.25	Pole + Reinf.	TP45.791x45.157x0.725	Reinf. 1 Compression	63.8%	Pass
28.25 - 28	Pole + Reinf.	TP45.84x45.791x0.5375	Reinf. 1 Compression	72.0%	Pass
28 - 23	Pole + Reinf.	TP46.815x45.84x0.5375	Reinf. 1 Compression	73.7%	Pass
23 - 18	Pole + Reinf.	TP47.79x46.815x0.525	Reinf. 1 Compression	75.3%	Pass
18 - 13	Pole + Reinf.	TP48.765x47.79x0.525	Reinf. 1 Compression	76.8%	Pass
13 - 8	Pole + Reinf.	TP49.74x48.765x0.525	Reinf. 1 Compression	78.2%	Pass
8 - 3	Pole + Reinf.	TP50.715x49.74x0.525	Reinf. 1 Compression	79.5%	Pass
3 - 0	Pole + Reinf.	TP51.3x50.715x0.5188	Reinf. 1 Bolt Shear	83.4%	Pass
				Summary	
			Pole	84.2%	Pass
			Reinforcement	83.4%	Pass
			Overall	84.2%	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	78.9	Pass
1	Base Plate	0	73.5	Pass
1	Base Foundation (Structure)	0	80.7	Pass
1	Base Foundation (Soil Interaction)	0	70.8	Pass

Structure Rating (max from all components) =	84.2%

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

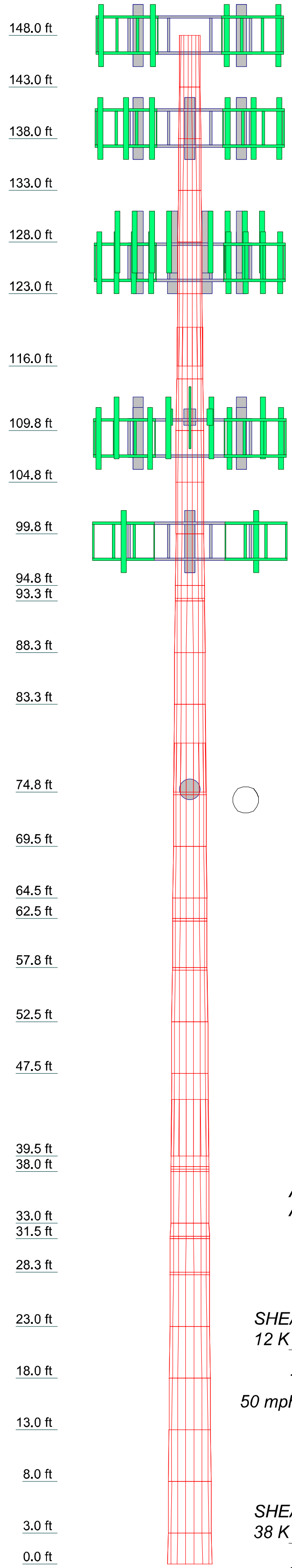
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	18	0.2188		24.0000	24.9752	A607-65	0.3
2	5.00	18	0.2188		24.9752	25.9503		0.3
3	5.00	18	0.2188		25.9503	26.9255		0.3
4	5.00	18	0.2188		26.9255	27.9006		0.3
5	5.00	18	0.2188		27.9006	28.8758		0.3
6	7.00	18	0.2188	3.75	28.8758	30.2410		0.5
7	[illegible]	18	[illegible]		[illegible]	[illegible]		0.4
8	5.00	18	0.2500		[illegible]	[illegible]		0.4
9	5.00	18	0.2500		31.0221	31.9971		0.4
10	5.00	18	0.2500		31.9971	32.9721		0.4
11	5.00	18	0.2500		32.9721	33.9471		0.4
12	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
13	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
14	5.00	18	[illegible]		[illegible]	[illegible]		0.8
15	5.00	18	0.4250		35.2145	36.1895		0.8
16	8.50	18	0.4250	4.75	36.1895	37.8470		1.4
17	[illegible]	18	[illegible]		[illegible]	[illegible]		0.9
18	5.00	18	[illegible]		[illegible]	[illegible]		0.9
19	5.00	18	0.4750		38.3711	39.3462		1.0
20	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
21	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
22	4.50	18	[illegible]		[illegible]	[illegible]		0.6
23	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
24	5.00	18	[illegible]		[illegible]	41.6866		1.1
25	5.00	18	0.5125		41.6866	42.6618		1.1
26	8.00	18	0.5125	5.50	42.6618	44.2220		1.8
27	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
28	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
29	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
30	5.00	18	[illegible]		[illegible]	[illegible]		1.2
31	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
32	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
33	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
34	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
35	5.00	18	[illegible]		[illegible]	46.8147		1.5
36	5.00	18	0.5250		46.8147	47.7897		1.5
37	5.00	18	0.5250		47.7897	48.7648		1.5
38	5.00	18	0.5250		48.7648	49.7399		1.5
39	5.00	18	0.5250		49.7399	50.7150		1.5
40	3.00	18	0.5188		50.7150	51.3005		0.9
								28.1



MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower designed for Exposure C to the TIA-222-H Standard.
2. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
3. Tower is also designed for a 50 mph basic wind with 2.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 84.2%

ALL REACTIONS ARE FACTORED

AXIAL 118 K
SHEAR 12 K
MOMENT 1333 kip-ft
TORQUE 1 kip-ft
50 mph WIND - 2.0000 in ICE

AXIAL 63 K
SHEAR 38 K
MOMENT 3984 kip-ft
TORQUE 6 kip-ft
REACTIONS - 125 mph WIND

CROWN CASTLE
The Pathway To Possible
Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
Phone: (724) 416-2000
FAX:

Job: BU 855662		
Project:		
Client: Crown Castle	Drawn by: THo	App'd:
Code: TIA-222-H	Date: 06/09/21	Scale: NTS
Path: C:\Users\THo\OneDrive - Crown Castle USA Inc\Desktop\WORK SPACE\855662\WO 1966278 - SA\Prod\855662 modified.eri		Dwg No. E-1

Tower Input Data

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

- Tower base elevation above sea level: 115.00 ft.
- Basic wind speed of 125 mph.
- Risk Category II.
- Exposure Category C.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 2.0000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56.00 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation	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	148.00-143.00	5.00	0.00	18	24.0000	24.9752	0.2188	0.8750	A607-65 (65 ksi)
L2	143.00-138.00	5.00	0.00	18	24.9752	25.9503	0.2188	0.8750	A607-65 (65 ksi)
L3	138.00-133.00	5.00	0.00	18	25.9503	26.9255	0.2188	0.8750	A607-65 (65 ksi)
L4	133.00-128.00	5.00	0.00	18	26.9255	27.9006	0.2188	0.8750	A607-65 (65 ksi)
L5	128.00-123.00	5.00	0.00	18	27.9006	28.8758	0.2188	0.8750	A607-65 (65 ksi)
L6	123.00-116.00	7.00	3.75	18	28.8758	30.2410	0.2188	0.8750	A607-65 (65 ksi)
L7	116.00-114.75	5.00	0.00	18	29.0721	30.0471	0.2500	1.0000	A607-65 (65 ksi)
L8	114.75-109.75	5.00	0.00	18	30.0471	31.0221	0.2500	1.0000	A607-65 (65 ksi)
L9	109.75-104.75	5.00	0.00	18	31.0221	31.9971	0.2500	1.0000	A607-65 (65 ksi)
L10	104.75-99.75	5.00	0.00	18	31.9971	32.9721	0.2500	1.0000	A607-65 (65 ksi)
L11	99.75-94.75	5.00	0.00	18	32.9721	33.9471	0.2500	1.0000	A607-65 (65 ksi)
L12	94.75-93.50	1.25	0.00	18	33.9471	34.1908	0.2500	1.0000	A607-65 (65 ksi)
L13	93.50-93.25	0.25	0.00	18	34.1908	34.2396	0.4375	1.7500	A607-65 (65 ksi)
L14	93.25-88.25	5.00	0.00	18	34.2396	35.2145	0.4313	1.7250	A607-65 (65 ksi)
L15	88.25-83.25	5.00	0.00	18	35.2145	36.1895	0.4250	1.7000	A607-65 (65 ksi)
L16	83.25-74.75	8.50	4.75	18	36.1895	37.8470	0.4250	1.7000	A607-65 (65 ksi)
L17	74.75-74.50	5.00	0.00	18	36.4208	37.3959	0.4875	1.9500	A607-65 (65 ksi)
L18	74.50-69.50	5.00	0.00	18	37.3959	38.3711	0.4750	1.9000	A607-65 (65 ksi)
L19	69.50-64.50	5.00	0.00	18	38.3711	39.3462	0.4750	1.9000	A607-65 (65 ksi)
L20	64.50-62.50	2.00	0.00	18	39.3462	39.7363	0.4750	1.9000	A607-65 (65 ksi)
L21	62.50-62.25	0.25	0.00	18	39.7363	39.7850	0.3125	1.2500	A607-65 (65 ksi)
L22	62.25-57.75	4.50	0.00	18	39.7850	40.6627	0.3125	1.2500	A607-65 (65 ksi)
L23	57.75-57.50	0.25	0.00	18	40.6627	40.7114	0.5250	2.1000	A607-65 (65 ksi)
L24	57.50-52.50	5.00	0.00	18	40.7114	41.6866	0.5250	2.1000	A607-65 (65 ksi)
L25	52.50-47.50	5.00	0.00	18	41.6866	42.6618	0.5125	2.0500	A607-65 (65 ksi)
L26	47.50-39.50	8.00	5.50	18	42.6618	44.2220	0.5125	2.0500	A607-65 (65 ksi)
L27	39.50-38.50	6.50	0.00	18	42.5243	43.7919	0.5750	2.3000	A607-65 (65 ksi)
L28	38.50-38.25	0.25	0.00	18	43.7919	43.8407	0.5750	2.3000	A607-65 (65 ksi)
L29	38.25-38.00	0.25	0.00	18	43.8407	43.8894	0.5062	2.0250	A607-65 (65 ksi)
L30	38.00-33.00	5.00	0.00	18	43.8894	44.8645	0.5000	2.0000	A607-65 (65 ksi)
L31	33.00-31.75	1.25	0.00	18	44.8645	45.1083	0.5000	2.0000	A607-65 (65 ksi)
L32	31.75-31.50	0.25	0.00	18	45.1083	45.1570	0.7250	2.9000	A607-65 (65 ksi)
L33	31.50-28.25	3.25	0.00	18	45.1570	45.7908	0.7250	2.9000	A607-65 (65 ksi)
L34	28.25-28.00	0.25	0.00	18	45.7908	45.8396	0.5375	2.1500	A607-65 (65 ksi)
L35	28.00-23.00	5.00	0.00	18	45.8396	46.8147	0.5375	2.1500	A607-65

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L36	23.00-18.00	5.00	0.00	18	46.8147	47.7897	0.5250	2.1000	(65 ksi) A607-65 (65 ksi)
L37	18.00-13.00	5.00	0.00	18	47.7897	48.7648	0.5250	2.1000	A607-65 (65 ksi)
L38	13.00-8.00	5.00	0.00	18	48.7648	49.7399	0.5250	2.1000	A607-65 (65 ksi)
L39	8.00-3.00	5.00	0.00	18	49.7399	50.7150	0.5250	2.1000	A607-65 (65 ksi)
L40	3.00-0.00	3.00		18	50.7150	51.3000	0.5188	2.0750	A607-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	24.3365	16.5116	1179.7676	8.4423	12.1920	96.7657	2361.0876	8.2574	3.8390	17.55
	25.3267	17.1887	1330.9301	8.7885	12.6874	104.9019	2663.6114	8.5960	4.0106	18.334
L2	25.3267	17.1887	1330.9301	8.7885	12.6874	104.9019	2663.6114	8.5960	4.0106	18.334
	26.3169	17.8657	1494.4828	9.1347	13.1828	113.3665	2990.9320	8.9346	4.1823	19.119
L3	26.3169	17.8657	1494.4828	9.1347	13.1828	113.3665	2990.9320	8.9346	4.1823	19.119
	27.3071	18.5428	1670.9138	9.4809	13.6781	122.1594	3344.0261	9.2732	4.3539	19.903
L4	27.3071	18.5428	1670.9138	9.4809	13.6781	122.1594	3344.0261	9.2732	4.3539	19.903
	28.2973	19.2199	1860.7111	9.8271	14.1735	131.2808	3723.8705	9.6118	4.5255	20.688
L5	28.2973	19.2199	1860.7111	9.8271	14.1735	131.2808	3723.8705	9.6118	4.5255	20.688
	29.2875	19.8969	2064.3628	10.1732	14.6689	140.7306	4131.4420	9.9504	4.6971	21.473
L6	29.2875	19.8969	2064.3628	10.1732	14.6689	140.7306	4131.4420	9.9504	4.6971	21.473
	30.6738	20.8448	2373.6799	10.6579	15.3624	154.5120	4750.4831	10.4244	4.9374	22.571
L7	30.2246	22.8704	2400.2845	10.2319	14.7686	162.5257	4803.7274	11.4374	4.6767	18.707
	30.4721	23.6440	2652.2055	10.5780	15.2639	173.7563	5307.9008	11.8243	4.8483	19.393
L8	30.4721	23.6440	2652.2055	10.5780	15.2639	173.7563	5307.9008	11.8243	4.8483	19.393
	31.4621	24.4177	2921.1639	10.9241	15.7592	185.3621	5846.1716	12.2112	5.0199	20.08
L9	31.4621	24.4177	2921.1639	10.9241	15.7592	185.3621	5846.1716	12.2112	5.0199	20.08
	32.4521	25.1913	3207.7173	11.2702	16.2545	197.3431	6419.6555	12.5981	5.1915	20.766
L10	32.4521	25.1913	3207.7173	11.2702	16.2545	197.3431	6419.6555	12.5981	5.1915	20.766
	33.4422	25.9650	3512.4232	11.6163	16.7498	209.6992	7029.4682	12.9849	5.3631	21.452
L11	33.4422	25.9650	3512.4232	11.6163	16.7498	209.6992	7029.4682	12.9849	5.3631	21.452
	34.4322	26.7386	3835.8391	11.9625	17.2451	222.4306	7676.7254	13.3718	5.5347	22.139
L12	34.4322	26.7386	3835.8391	11.9625	17.2451	222.4306	7676.7254	13.3718	5.5347	22.139
	34.6797	26.9320	3919.6818	12.0490	17.3689	225.6720	7844.5212	13.4686	5.5776	22.31
L13	34.6508	46.8707	6746.3886	11.9824	17.3689	388.4171	13501.6543	23.4398	5.2476	11.994
	34.7003	46.9384	6775.6619	11.9997	17.3937	389.5470	13560.2394	23.4736	5.2562	12.014
L14	34.7012	46.2764	6682.5722	12.0019	17.3937	384.1951	13373.9375	23.1426	5.2672	12.214
	35.6913	47.6109	7277.5542	12.3481	17.8890	406.8176	14564.6844	23.8100	5.4388	12.612
L15	35.6922	46.9293	7175.9492	12.3503	17.8890	401.1378	14361.3407	23.4691	5.4498	12.823
	36.6822	48.2446	7796.3386	12.6964	18.3843	424.0764	15602.9357	24.1269	5.6214	13.227
L16	36.6822	48.2446	7796.3386	12.6964	18.3843	424.0764	15602.9357	24.1269	5.6214	13.227
	38.3653	50.4804	8931.2919	13.2848	19.2263	464.5357	17874.3359	25.2450	5.9131	13.913
L17	37.8481	55.6004	9070.0357	12.7563	18.5017	490.2259	18152.0060	27.8055	5.5521	11.389
	37.8976	57.1093	9828.6824	13.1025	18.9971	517.3773	19670.2977	28.5601	5.7237	11.741
L18	37.8995	55.6638	9586.3984	13.1069	18.9971	504.6236	19185.4108	27.8372	5.7457	12.096
	38.8897	57.1340	10366.2244	13.4531	19.4925	531.8057	20746.0890	28.5724	5.9173	12.457
L19	38.8897	57.1340	10366.224	13.4531	19.4925	531.8057	20746.089	28.5724	5.9173	12.457

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
	39.8799	58.6042	11187.2344	13.7993	19.9879	559.7008	22389.1890	29.3077	6.0889	12.819
L20	39.8799	58.6042	11187.2347	13.7993	19.9879	559.7008	22389.1898	29.3077	6.0889	12.819
	40.2760	59.1923	11527.4077	13.9378	20.1860	571.0585	23069.9835	29.6018	6.1576	12.963
L21	40.3011	39.1035	7678.3780	13.9954	20.1860	380.3807	15366.8595	19.5555	6.4436	20.619
	40.3506	39.1518	7706.9022	14.0128	20.2108	381.3259	15423.9453	19.5796	6.4522	20.647
L22	40.3506	39.1518	7706.9022	14.0128	20.2108	381.3259	15423.9453	19.5796	6.4522	20.647
	41.2418	40.0223	8232.4864	14.3243	20.6566	398.5394	16475.8052	20.0150	6.6066	21.141
L23	41.2090	66.8834	13613.2140	14.2489	20.6566	659.0235	27244.3406	33.4481	6.2326	11.872
	41.2585	66.9647	13662.8847	14.2662	20.6814	660.6359	27343.7474	33.4887	6.2412	11.888
L24	41.2585	66.9647	13662.8847	14.2662	20.6814	660.6359	27343.7474	33.4887	6.2412	11.888
	42.2487	68.5896	14681.8359	14.6124	21.1768	693.2984	29382.9906	34.3013	6.4128	12.215
L25	42.2506	66.9769	14345.3297	14.6168	21.1768	677.4081	28709.5353	33.4948	6.4348	12.556
	43.2408	68.5631	15388.9108	14.9630	21.6722	710.0770	30798.0708	34.2881	6.6065	12.891
L26	43.2408	68.5631	15388.9108	14.9630	21.6722	710.0770	30798.0708	34.2881	6.6065	12.891
	44.8251	71.1012	17161.9154	15.5169	22.4648	763.9478	34346.4130	35.5573	6.8811	13.426
L27	44.1808	76.5596	17021.0875	14.8920	21.6024	787.9272	34064.5719	38.2871	6.4723	11.256
	44.3788	78.8731	18611.1779	15.3420	22.2463	836.5966	37246.8448	39.4440	6.6954	11.644
L28	44.3788	78.8731	18611.1779	15.3420	22.2463	836.5966	37246.8448	39.4440	6.6954	11.644
	44.4283	78.9620	18674.2357	15.3593	22.2711	838.4976	37373.0434	39.4885	6.7040	11.659
L29	44.4389	69.6314	16519.9486	15.3837	22.2711	741.7673	33061.6345	34.8223	6.8250	13.481
	44.4884	69.7097	16575.7690	15.4010	22.2958	743.4470	33173.3488	34.8615	6.8335	13.498
L30	44.4894	68.8590	16378.2064	15.4032	22.2958	734.5860	32777.9637	34.4361	6.8445	13.689
	45.4795	70.4065	17507.3900	15.7494	22.7912	768.1655	35037.8167	35.2099	7.0162	14.032
L31	45.4795	70.4065	17507.3900	15.7494	22.7912	768.1655	35037.8167	35.2099	7.0162	14.032
	45.7270	70.7933	17797.5709	15.8359	22.9150	776.6776	35618.5604	35.4034	7.0591	14.118
L32	45.6923	102.1326	25417.9478	15.7561	22.9150	1109.2272	50869.3411	51.0760	6.6631	9.19
	45.7418	102.2448	25501.8024	15.7734	22.9398	1111.6851	51037.1608	51.1321	6.6716	9.202
L33	45.7418	102.2448	25501.8024	15.7734	22.9398	1111.6851	51037.1608	51.1321	6.6716	9.202
	46.3854	103.7032	26608.7507	15.9984	23.2617	1143.8847	53252.5139	51.8615	6.7832	9.356
L34	46.4143	77.2033	19974.4326	16.0649	23.2617	858.6817	39975.1482	38.6090	7.1132	13.234
	46.4638	77.2865	20039.0606	16.0822	23.2865	860.5438	40104.4892	38.6506	7.1218	13.25
L35	46.4638	77.2865	20039.0606	16.0822	23.2865	860.5438	40104.4892	38.6506	7.1218	13.25
	47.4539	78.9500	21361.0634	16.4284	23.7818	898.2088	42750.2343	39.4825	7.2934	13.569
L36	47.4559	77.1348	20881.2061	16.4328	23.7818	878.0313	41789.8883	38.5747	7.3154	13.934
	48.4460	78.7596	22228.762	16.7790	24.2772	915.6236	44486.773	39.3873	7.4870	14.261

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
			0				2			
L37	48.4460	78.7596	22228.762	16.7790	24.2772	915.6236	44486.773	39.3873	7.4870	14.261
			0				2			
	49.4361	80.3844	23633.081	17.1251	24.7725	954.0039	47297.259	40.1998	7.6586	14.588
			1				3			
L38	49.4361	80.3844	23633.081	17.1251	24.7725	954.0039	47297.259	40.1998	7.6586	14.588
			1				3			
	50.4262	82.0092	25095.334	17.4713	25.2679	993.1722	50223.690	41.0124	7.8302	14.915
			6				4			
L39	50.4262	82.0092	25095.334	17.4713	25.2679	993.1722	50223.690	41.0124	7.8302	14.915
			6				4			
	51.4163	83.6340	26616.693	17.8174	25.7632	1033.1285	53268.409	41.8250	8.0018	15.242
			5				9			
L40	51.4173	82.6487	26309.654	17.8197	25.7632	1021.2108	52653.927	41.3322	8.0128	15.446
			4				8			
	52.0114	83.6120	27240.347	18.0273	26.0604	1045.2774	54516.538	41.8139	8.1158	15.645
			5				5			

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 148.00-143.00				1	1	1			
L2 143.00-138.00				1	1	1			
L3 138.00-133.00				1	1	1			
L4 133.00-128.00				1	1	1			
L5 128.00-123.00				1	1	1			
L6 123.00-116.00				1	1	1			
L7 116.00-114.75				1	1	1			
L8 114.75-109.75				1	1	1			
L9 109.75-104.75				1	1	1			
L10 104.75-99.75				1	1	1			
L11 99.75-94.75				1	1	1			
L12 94.75-93.50				1	1	1			
L13 93.50-93.25				1	1	0.958094			
L14 93.25-88.25				1	1	0.960809			
L15 88.25-83.25				1	1	0.964226			
L16 83.25-74.75				1	1	0.956693			
L17 74.75-74.50				1	1	0.959261			
L18 74.50-69.50				1	1	0.975776			
L19 69.50-64.50				1	1	0.967801			
L20 64.50-62.50				1	1	0.964722			
L21 62.50-62.25				1	1	1			
L22 62.25-57.75				1	1	1			
L23 57.75-57.50				1	1	0.962397			

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
L24 57.50-52.50				1	1	0.953698			
L25 52.50-47.50				1	1	0.968174			
L26 47.50-39.50				1	1	0.964075			
L27 39.50-38.50				1	1	0.964244			
L28 38.50-38.25				1	1	0.963892			
L29 38.25-38.00				1	1	0.9761			
L30 38.00-33.00				1	1	0.982924			
L31 33.00-31.75				1	1	0.981651			
L32 31.75-31.50				1	1	0.992017			
L33 31.50-28.25				1	1	0.98534			
L34 28.25-28.00				1	1	1.11262			
L35 28.00-23.00				1	1	1.10388			
L36 23.00-18.00				1	1	1.12128			
L37 18.00-13.00				1	1	1.11305			
L38 13.00-8.00				1	1	1.10515			
L39 8.00-3.00				1	1	1.09756			
L40 3.00-0.00				1	1	1.10618			

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
***										
LDF4-50A(1/2")	C	No	Surface Ar (CaAa)	50.00 - 0.00	1	1	0.000 0.000	0.6300		0.15
***										
Safety Line 3/8	A	No	Surface Ar (CaAa)	148.00 - 0.00	1	1	-0.250 -0.250	0.3750		0.22
MOD										
(Area) CCI-65FP-085125 (H)	A	No	Surface Af (CaAa)	35.50 - 0.00	1	1	-0.250 -0.250	8.5000	19.5000	0.00
(Area) CCI-65FP-085125 (H)	A	No	Surface Af (CaAa)	35.50 - 0.00	1	1	0.500 0.500	8.5000	19.5000	0.00
(Area) CCI-65FP-085125 (H)	B	No	Surface Af (CaAa)	35.50 - 0.00	1	1	0.250 0.250	8.5000	19.5000	0.00
***										
(Area) CCI-65FP-065125 (H)	B	No	Surface Af (CaAa)	60.50 - 25.50	1	1	-0.250 -0.250	6.5000	15.5000	0.00
(Area) CCI-65FP-065125 (H)	C	No	Surface Af (CaAa)	60.50 - 25.50	1	1	-0.250 -0.250	6.5000	15.5000	0.00
(Area) CCI-65FP-065125 (H)	A	No	Surface Af (CaAa)	60.50 - 35.50	1	1	-0.250 -0.250	6.5000	15.5000	0.00
***										
(Area) CCI-65FP-060100 (H)	A	No	Surface Af (CaAa)	95.50 - 60.50	1	1	-0.250 -0.250	6.0000	14.0000	0.00
(Area) CCI-65FP-	B	No	Surface Af	95.50 -	1	1	-0.250	6.0000	14.0000	0.00

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
060100 (H) (Area) CCI-65FP-060100 (H) **	C	No	(CaAa) Surface Af (CaAa)	60.50 95.50 - 60.50	1	1	-0.250 -0.250 -0.250	6.0000	14.0000	0.00

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C_AA_A ft^2/ft	Weight plf
LDF5-50A(7/8")	B	No	No	Inside Pole	148.00 - 0.00	0.0000	0	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.33 0.33 0.33 0.33
LDF7-50A(1-5/8")	B	No	No	Inside Pole	148.00 - 0.00	0.0000	0	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.82 0.82 0.82 0.82
***											
2" Flexible Conduit	B	No	No	Inside Pole	148.00 - 0.00	0.0000	0	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.34 0.34 0.34 0.34
LDF7-50A(1-5/8")	B	No	No	Inside Pole	148.00 - 0.00	0.0000	0	6	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.82 0.82 0.82 0.82
FB-L98B-002-75000(3/8)	B	No	No	Inside Pole	148.00 - 0.00	0.0000	0	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.06 0.06 0.06 0.06
WR-VG86ST-BRD(3/4)	B	No	No	Inside Pole	148.00 - 0.00	0.0000	0	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	0.58 0.58 0.58 0.58
***											
MLE Hybrid 9Power/18Fiber RL 2(1-5/8")	A	No	No	Inside Pole	139.00 - 0.00	0.0000	0	13	No Ice 1/2" Ice	0.00 0.00 0.00 0.00	1.07 1.07 1.07 1.07

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C_AA_A ft^2/ft	Weight plf
									1" Ice		
									2" Ice		
***											
HJ7-50A(1-5/8")	C	No	No	Inside Pole	126.00 - 0.00	0.0000	0	8	No Ice	0.00	1.04
									1/2" Ice	0.00	1.04
									1" Ice	0.00	1.04
									2" Ice	0.00	1.04
***											
LDF5-50A(7/8")	A	No	No	Inside Pole	109.00 - 0.00	0.0000	0	5	No Ice	0.00	0.33
									1/2" Ice	0.00	0.33
									1" Ice	0.00	0.33
									2" Ice	0.00	0.33
ATCB-B01-006(5/16")	A	No	No	Inside Pole	109.00 - 0.00	0.0000	0	3	No Ice	0.00	0.07
									1/2" Ice	0.00	0.07
									1" Ice	0.00	0.07
									2" Ice	0.00	0.07
MLE Hybrid 3Power/6Fiber RL 2(1-1/4")	A	No	No	Inside Pole	109.00 - 0.00	0.0000	0	3	No Ice	0.00	0.68
									1/2" Ice	0.00	0.68
									1" Ice	0.00	0.68
									2" Ice	0.00	0.68
HB058-M12-XXXF(5/8")	A	No	No	Inside Pole	109.00 - 0.00	0.0000	0	1	No Ice	0.00	0.24
									1/2" Ice	0.00	0.24
									1" Ice	0.00	0.24
									2" Ice	0.00	0.24
***											
***											
LDF5-50A(7/8")	A	No	No	Inside Pole	79.00 - 0.00	0.0000	0	2	No Ice	0.00	0.33
									1/2" Ice	0.00	0.33
									1" Ice	0.00	0.33
									2" Ice	0.00	0.33
**											
LDF2-50(3/8")	A	No	No	Inside Pole	74.00 - 0.00	0.0000	0	1	No Ice	0.00	0.08
									1/2" Ice	0.00	0.08
									1" Ice	0.00	0.08
									2" Ice	0.00	0.08
***											
3/8-in Detuner Wire	A	No	No	CaAa (Out Of Face)	147.00 - 15.00	36.0000	0	1	No Ice	0.02	0.10
									1/2" Ice	0.12	0.52

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C_AA_A ft^2/ft	Weight plf
									1/2" Ice	0.22	1.55
									1" Ice	0.42	5.44
									2" Ice		
3/8-in Detuner Wire	B	No	No	CaAa (Out Of Face)	147.00 - 15.00	36.0000	0	1	No Ice	0.02	0.10
									1/2" Ice	0.12	0.52
									1" Ice	0.22	1.55
									2" Ice	0.42	5.44
3/8-in Detuner Wire	C	No	No	CaAa (Out Of Face)	147.00 - 15.00	36.0000	0	1	No Ice	0.02	0.10
									1/2" Ice	0.12	0.52
									1" Ice	0.22	1.55
									2" Ice	0.42	5.44
***											
CU12PSM9P6XXX(1-1/2)	C	No	No	Inside Pole	99.00 - 0.00	0.0000	0	1	No Ice	0.00	2.35
									1/2" Ice	0.00	2.35
									1" Ice	0.00	2.35
									2" Ice	0.00	2.35
**											

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 lb
L1	148.00-143.00	A	0.000	0.000	0.188	0.075	1
		B	0.000	0.000	0.000	0.075	40
		C	0.000	0.000	0.000	0.075	0
L2	143.00-138.00	A	0.000	0.000	0.188	0.094	15
		B	0.000	0.000	0.000	0.094	40
		C	0.000	0.000	0.000	0.094	0
L3	138.00-133.00	A	0.000	0.000	0.188	0.094	71
		B	0.000	0.000	0.000	0.094	40
		C	0.000	0.000	0.000	0.094	0
L4	133.00-128.00	A	0.000	0.000	0.188	0.094	71
		B	0.000	0.000	0.000	0.094	40
		C	0.000	0.000	0.000	0.094	0
L5	128.00-123.00	A	0.000	0.000	0.188	0.094	71
		B	0.000	0.000	0.000	0.094	40
		C	0.000	0.000	0.000	0.094	25
L6	123.00-116.00	A	0.000	0.000	0.263	0.131	100
		B	0.000	0.000	0.000	0.131	57
		C	0.000	0.000	0.000	0.131	59
L7	116.00-114.75	A	0.000	0.000	0.047	0.023	18
		B	0.000	0.000	0.000	0.023	10
		C	0.000	0.000	0.000	0.023	11
L8	114.75-109.75	A	0.000	0.000	0.188	0.094	71
		B	0.000	0.000	0.000	0.094	40
		C	0.000	0.000	0.000	0.094	42
L9	109.75-104.75	A	0.000	0.000	0.188	0.094	89
		B	0.000	0.000	0.000	0.094	40
		C	0.000	0.000	0.000	0.094	42

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 lb
L10	104.75-99.75	A	0.000	0.000	0.188	0.094	92
		B	0.000	0.000	0.000	0.094	40
		C	0.000	0.000	0.000	0.094	42
L11	99.75-94.75	A	0.000	0.000	0.938	0.094	92
		B	0.000	0.000	0.750	0.094	40
		C	0.000	0.000	0.750	0.094	52
L12	94.75-93.50	A	0.000	0.000	1.297	0.023	23
		B	0.000	0.000	1.250	0.023	10
		C	0.000	0.000	1.250	0.023	13
L13	93.50-93.25	A	0.000	0.000	0.259	0.005	5
		B	0.000	0.000	0.250	0.005	2
		C	0.000	0.000	0.250	0.005	3
L14	93.25-88.25	A	0.000	0.000	5.188	0.094	92
		B	0.000	0.000	5.000	0.094	40
		C	0.000	0.000	5.000	0.094	54
L15	88.25-83.25	A	0.000	0.000	5.188	0.094	92
		B	0.000	0.000	5.000	0.094	40
		C	0.000	0.000	5.000	0.094	54
L16	83.25-74.75	A	0.000	0.000	8.819	0.159	159
		B	0.000	0.000	8.500	0.159	69
		C	0.000	0.000	8.500	0.159	92
L17	74.75-74.50	A	0.000	0.000	0.259	0.005	5
		B	0.000	0.000	0.250	0.005	2
		C	0.000	0.000	0.250	0.005	3
L18	74.50-69.50	A	0.000	0.000	5.188	0.094	95
		B	0.000	0.000	5.000	0.094	40
		C	0.000	0.000	5.000	0.094	54
L19	69.50-64.50	A	0.000	0.000	5.188	0.094	96
		B	0.000	0.000	5.000	0.094	40
		C	0.000	0.000	5.000	0.094	54
L20	64.50-62.50	A	0.000	0.000	2.075	0.037	38
		B	0.000	0.000	2.000	0.037	16
		C	0.000	0.000	2.000	0.037	22
L21	62.50-62.25	A	0.000	0.000	0.259	0.005	5
		B	0.000	0.000	0.250	0.005	2
		C	0.000	0.000	0.250	0.005	3
L22	62.25-57.75	A	0.000	0.000	4.898	0.084	86
		B	0.000	0.000	4.729	0.084	36
		C	0.000	0.000	4.729	0.084	48
L23	57.75-57.50	A	0.000	0.000	0.280	0.005	5
		B	0.000	0.000	0.271	0.005	2
		C	0.000	0.000	0.271	0.005	3
L24	57.50-52.50	A	0.000	0.000	5.604	0.094	96
		B	0.000	0.000	5.417	0.094	40
		C	0.000	0.000	5.417	0.094	54
L25	52.50-47.50	A	0.000	0.000	5.604	0.094	96
		B	0.000	0.000	5.417	0.094	40
		C	0.000	0.000	5.574	0.094	54
L26	47.50-39.50	A	0.000	0.000	8.967	0.150	153
		B	0.000	0.000	8.667	0.150	65
		C	0.000	0.000	9.171	0.150	87
L27	39.50-38.50	A	0.000	0.000	1.121	0.019	19
		B	0.000	0.000	1.083	0.019	8
		C	0.000	0.000	1.146	0.019	11
L28	38.50-38.25	A	0.000	0.000	0.280	0.005	5
		B	0.000	0.000	0.271	0.005	2
		C	0.000	0.000	0.287	0.005	3
L29	38.25-38.00	A	0.000	0.000	0.280	0.005	5
		B	0.000	0.000	0.271	0.005	2
		C	0.000	0.000	0.287	0.005	3
L30	38.00-33.00	A	0.000	0.000	9.979	0.094	96
		B	0.000	0.000	8.958	0.094	40
		C	0.000	0.000	5.732	0.094	55
L31	33.00-31.75	A	0.000	0.000	3.589	0.023	24
		B	0.000	0.000	3.125	0.023	10
		C	0.000	0.000	1.433	0.023	14
L32	31.75-31.50	A	0.000	0.000	0.718	0.005	5
		B	0.000	0.000	0.625	0.005	2
		C	0.000	0.000	0.287	0.005	3

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 lb
L33	31.50-28.25	A	0.000	0.000	9.330	0.061	62
		B	0.000	0.000	8.125	0.061	26
		C	0.000	0.000	3.726	0.061	35
L34	28.25-28.00	A	0.000	0.000	0.718	0.005	5
		B	0.000	0.000	0.625	0.005	2
		C	0.000	0.000	0.287	0.005	3
L35	28.00-23.00	A	0.000	0.000	14.354	0.094	96
		B	0.000	0.000	9.792	0.094	40
		C	0.000	0.000	3.023	0.094	55
L36	23.00-18.00	A	0.000	0.000	14.354	0.094	96
		B	0.000	0.000	7.083	0.094	40
		C	0.000	0.000	0.315	0.094	55
L37	18.00-13.00	A	0.000	0.000	14.354	0.056	95
		B	0.000	0.000	7.083	0.056	40
		C	0.000	0.000	0.315	0.056	54
L38	13.00-8.00	A	0.000	0.000	14.354	0.000	95
		B	0.000	0.000	7.083	0.000	40
		C	0.000	0.000	0.315	0.000	54
L39	8.00-3.00	A	0.000	0.000	14.354	0.000	95
		B	0.000	0.000	7.083	0.000	40
		C	0.000	0.000	0.315	0.000	54
L40	3.00-0.00	A	0.000	0.000	8.613	0.000	57
		B	0.000	0.000	4.250	0.000	24
		C	0.000	0.000	0.189	0.000	32

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 lb
L1	148.00-143.00	A	1.972	0.000	0.000	2.159	1.653	51
		B		0.000	0.000	0.000	1.653	61
		C		0.000	0.000	0.000	1.653	21
L2	143.00-138.00	A	1.965	0.000	0.000	2.152	2.059	70
		B		0.000	0.000	0.000	2.059	66
		C		0.000	0.000	0.000	2.059	27
L3	138.00-133.00	A	1.958	0.000	0.000	2.145	2.052	125
		B		0.000	0.000	0.000	2.052	66
		C		0.000	0.000	0.000	2.052	26
L4	133.00-128.00	A	1.951	0.000	0.000	2.138	2.044	125
		B		0.000	0.000	0.000	2.044	66
		C		0.000	0.000	0.000	2.044	26
L5	128.00-123.00	A	1.943	0.000	0.000	2.130	2.037	124
		B		0.000	0.000	0.000	2.037	66
		C		0.000	0.000	0.000	2.037	51
L6	123.00-116.00	A	1.933	0.000	0.000	2.969	2.838	173
		B		0.000	0.000	0.000	2.838	92
		C		0.000	0.000	0.000	2.838	95
L7	116.00-114.75	A	1.927	0.000	0.000	0.530	0.507	31
		B		0.000	0.000	0.000	0.507	16
		C		0.000	0.000	0.000	0.507	17
L8	114.75-109.75	A	1.921	0.000	0.000	2.109	2.015	123
		B		0.000	0.000	0.000	2.015	66
		C		0.000	0.000	0.000	2.015	67
L9	109.75-104.75	A	1.913	0.000	0.000	2.100	2.006	140
		B		0.000	0.000	0.000	2.006	65
		C		0.000	0.000	0.000	2.006	67
L10	104.75-99.75	A	1.904	0.000	0.000	2.091	1.997	143
		B		0.000	0.000	0.000	1.997	65
		C		0.000	0.000	0.000	1.997	67
L11	99.75-94.75	A	1.894	0.000	0.000	3.116	1.988	154
		B		0.000	0.000	1.034	1.988	77
		C		0.000	0.000	1.034	1.988	88
L12	94.75-93.50	A	1.888	0.000	0.000	2.241	0.495	55
		B		0.000	0.000	1.722	0.495	36
		C		0.000	0.000	1.722	0.495	39

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 lb
L13	93.50-93.25	A	1.886	0.000	0.000	0.448	0.099	11
		B		0.000	0.000	0.344	0.099	7
		C		0.000	0.000	0.344	0.099	8
L14	93.25-88.25	A	1.881	0.000	0.000	8.949	1.975	219
		B		0.000	0.000	6.881	1.975	142
		C		0.000	0.000	6.881	1.975	155
L15	88.25-83.25	A	1.870	0.000	0.000	8.928	1.964	218
		B		0.000	0.000	6.870	1.964	141
		C		0.000	0.000	6.870	1.964	155
L16	83.25-74.75	A	1.855	0.000	0.000	15.126	3.313	371
		B		0.000	0.000	11.653	3.313	238
		C		0.000	0.000	11.653	3.313	261
L17	74.75-74.50	A	1.845	0.000	0.000	0.445	0.097	11
		B		0.000	0.000	0.343	0.097	7
		C		0.000	0.000	0.343	0.097	8
L18	74.50-69.50	A	1.838	0.000	0.000	8.863	1.932	219
		B		0.000	0.000	6.838	1.932	139
		C		0.000	0.000	6.838	1.932	152
L19	69.50-64.50	A	1.825	0.000	0.000	8.837	1.918	218
		B		0.000	0.000	6.825	1.918	138
		C		0.000	0.000	6.825	1.918	151
L20	64.50-62.50	A	1.815	0.000	0.000	3.527	0.763	87
		B		0.000	0.000	2.726	0.763	55
		C		0.000	0.000	2.726	0.763	60
L21	62.50-62.25	A	1.812	0.000	0.000	0.441	0.095	11
		B		0.000	0.000	0.341	0.095	7
		C		0.000	0.000	0.341	0.095	8
L22	62.25-57.75	A	1.805	0.000	0.000	8.146	1.709	197
		B		0.000	0.000	6.353	1.709	126
		C		0.000	0.000	6.353	1.709	138
L23	57.75-57.50	A	1.797	0.000	0.000	0.460	0.095	11
		B		0.000	0.000	0.361	0.095	7
		C		0.000	0.000	0.361	0.095	8
L24	57.50-52.50	A	1.789	0.000	0.000	9.182	1.883	219
		B		0.000	0.000	7.206	1.883	140
		C		0.000	0.000	7.206	1.883	154
L25	52.50-47.50	A	1.772	0.000	0.000	9.148	1.866	218
		B		0.000	0.000	7.189	1.866	139
		C		0.000	0.000	8.232	1.866	166
L26	47.50-39.50	A	1.748	0.000	0.000	14.559	2.946	344
		B		0.000	0.000	11.463	2.946	220
		C		0.000	0.000	14.763	2.946	283
L27	39.50-38.50	A	1.729	0.000	0.000	1.820	0.368	43
		B		0.000	0.000	1.433	0.368	27
		C		0.000	0.000	1.845	0.368	35
L28	38.50-38.25	A	1.726	0.000	0.000	0.453	0.091	11
		B		0.000	0.000	0.357	0.091	7
		C		0.000	0.000	0.459	0.091	9
L29	38.25-38.00	A	1.725	0.000	0.000	0.453	0.091	11
		B		0.000	0.000	0.357	0.091	7
		C		0.000	0.000	0.459	0.091	9
L30	38.00-33.00	A	1.712	0.000	0.000	14.260	1.806	262
		B		0.000	0.000	11.527	1.806	178
		C		0.000	0.000	9.156	1.806	173
L31	33.00-31.75	A	1.697	0.000	0.000	4.861	0.448	77
		B		0.000	0.000	3.973	0.448	55
		C		0.000	0.000	2.281	0.448	43
L32	31.75-31.50	A	1.693	0.000	0.000	0.972	0.089	15
		B		0.000	0.000	0.794	0.089	11
		C		0.000	0.000	0.456	0.089	9
L33	31.50-28.25	A	1.683	0.000	0.000	12.612	1.155	199
		B		0.000	0.000	10.313	1.155	141
		C		0.000	0.000	5.914	1.155	111
L34	28.25-28.00	A	1.673	0.000	0.000	0.969	0.088	15
		B		0.000	0.000	0.792	0.088	11
		C		0.000	0.000	0.454	0.088	8
L35	28.00-23.00	A	1.657	0.000	0.000	19.324	1.750	302
		B		0.000	0.000	12.277	1.750	178
		C		0.000	0.000	5.508	1.750	133

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 lb
L36	23.00-18.00	A	1.621	0.000	0.000	19.217	1.715	296
		B		0.000	0.000	8.704	1.715	141
		C		0.000	0.000	1.936	1.715	96
L37	18.00-13.00	A	1.576	0.000	0.000	19.083	1.002	281
		B		0.000	0.000	8.660	1.002	129
		C		0.000	0.000	1.891	1.002	87
L38	13.00-8.00	A	1.516	0.000	0.000	18.902	0.000	261
		B		0.000	0.000	8.599	0.000	114
		C		0.000	0.000	1.831	0.000	74
L39	8.00-3.00	A	1.421	0.000	0.000	18.617	0.000	248
		B		0.000	0.000	8.504	0.000	109
		C		0.000	0.000	1.736	0.000	72
L40	3.00-0.00	A	1.248	0.000	0.000	10.858	0.000	135
		B		0.000	0.000	4.999	0.000	59
		C		0.000	0.000	0.938	0.000	41

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	148.00-143.00	-0.2926	0.0000	-1.2483	0.0000
L2	143.00-138.00	-0.2910	0.0000	-1.1984	0.0000
L3	138.00-133.00	-0.2915	0.0000	-1.2154	0.0000
L4	133.00-128.00	-0.2919	0.0000	-1.2315	0.0000
L5	128.00-123.00	-0.2923	0.0000	-1.2465	0.0000
L6	123.00-116.00	-0.2927	0.0000	-1.2633	0.0000
L7	116.00-114.75	-0.2929	0.0000	-1.2699	0.0000
L8	114.75-109.75	-0.2931	0.0000	-1.2752	0.0000
L9	109.75-104.75	-0.2934	0.0000	-1.2872	0.0000
L10	104.75-99.75	-0.2937	0.0000	-1.2984	0.0000
L11	99.75-94.75	-0.2432	0.0000	-1.1734	0.0000
L12	94.75-93.50	-0.1243	0.0000	-0.7470	0.0000
L13	93.50-93.25	-0.1246	0.0000	-0.7488	0.0000
L14	93.25-88.25	-0.1257	0.0000	-0.7545	0.0000
L15	88.25-83.25	-0.1277	0.0000	-0.7650	0.0000
L16	83.25-74.75	-0.1304	0.0000	-0.7782	0.0000
L17	74.75-74.50	-0.1311	0.0000	-0.7830	0.0000
L18	74.50-69.50	-0.1321	0.0000	-0.7848	0.0000
L19	69.50-64.50	-0.1340	0.0000	-0.7933	0.0000
L20	64.50-62.50	-0.1353	0.0000	-0.7989	0.0000
L21	62.50-62.25	-0.1357	0.0000	-0.8004	0.0000
L22	62.25-57.75	-0.1329	0.0000	-0.7919	0.0000
L23	57.75-57.50	-0.1316	0.0000	-0.7880	0.0000
L24	57.50-52.50	-0.1325	0.0000	-0.7915	0.0000
L25	52.50-47.50	-0.1335	0.1135	-0.7820	0.4213
L26	47.50-39.50	-0.1350	0.2281	-0.7739	0.8297
L27	39.50-38.50	-0.1354	0.2289	-0.7769	0.8329
L28	38.50-38.25	-0.1357	0.2292	-0.7719	0.8281
L29	38.25-38.00	-0.1357	0.2293	-0.7720	0.8283
L30	38.00-33.00	3.5445	-0.6558	2.1274	0.0482
L31	33.00-31.75	5.9972	-1.2444	4.2943	-0.5328
L32	31.75-31.50	6.0120	-1.2472	4.3061	-0.5348
L33	31.50-28.25	6.0433	-1.2531	4.3313	-0.5393
L34	28.25-28.00	6.0733	-1.2588	4.3557	-0.5438
L35	28.00-23.00	5.3624	-0.6765	3.6015	0.0012
L36	23.00-18.00	4.4529	0.0853	2.6858	0.6759
L37	18.00-13.00	4.5214	0.0890	2.8307	0.6958
L38	13.00-8.00	4.5962	0.0928	3.0369	0.7219
L39	8.00-3.00	4.6493	0.0962	3.1016	0.6966
L40	3.00-0.00	4.6911	0.0989	3.1872	0.6378

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	33	Safety Line 3/8	143.00 - 148.00	1.0000	1.0000
L2	33	Safety Line 3/8	138.00 - 143.00	1.0000	1.0000
L3	33	Safety Line 3/8	133.00 - 138.00	1.0000	1.0000
L4	33	Safety Line 3/8	128.00 - 133.00	1.0000	1.0000
L5	33	Safety Line 3/8	123.00 - 128.00	1.0000	1.0000
L6	33	Safety Line 3/8	116.00 - 123.00	1.0000	1.0000
L7	33	Safety Line 3/8	114.75 - 116.00	1.0000	1.0000
L8	33	Safety Line 3/8	109.75 - 114.75	1.0000	1.0000
L9	33	Safety Line 3/8	104.75 - 109.75	1.0000	1.0000
L10	33	Safety Line 3/8	99.75 - 104.75	1.0000	1.0000
L11	33	Safety Line 3/8	94.75 - 99.75	1.0000	1.0000
L11	43	(Area) CCI-65FP-060100 (H)	94.75 - 95.50	1.0000	1.0000
L11	44	(Area) CCI-65FP-060100 (H)	94.75 - 95.50	1.0000	1.0000
L11	45	(Area) CCI-65FP-060100 (H)	94.75 - 95.50	1.0000	1.0000
L12	33	Safety Line 3/8	93.50 - 94.75	1.0000	1.0000
L12	43	(Area) CCI-65FP-060100 (H)	93.50 - 94.75	1.0000	1.0000
L12	44	(Area) CCI-65FP-060100 (H)	93.50 - 94.75	1.0000	1.0000
L12	45	(Area) CCI-65FP-060100 (H)	93.50 - 94.75	1.0000	1.0000
L13	33	Safety Line 3/8	93.25 - 93.50	1.0000	1.0000
L13	43	(Area) CCI-65FP-060100 (H)	93.25 - 93.50	1.0000	1.0000
L13	44	(Area) CCI-65FP-060100 (H)	93.25 - 93.50	1.0000	1.0000
L13	45	(Area) CCI-65FP-060100 (H)	93.25 - 93.50	1.0000	1.0000
L14	33	Safety Line 3/8	88.25 - 93.25	1.0000	1.0000
L14	43	(Area) CCI-65FP-060100 (H)	88.25 - 93.25	1.0000	1.0000
L14	44	(Area) CCI-65FP-060100 (H)	88.25 - 93.25	1.0000	1.0000
L14	45	(Area) CCI-65FP-060100 (H)	88.25 - 93.25	1.0000	1.0000
L15	33	Safety Line 3/8	83.25 - 88.25	1.0000	1.0000
L15	43	(Area) CCI-65FP-060100 (H)	83.25 - 88.25	1.0000	1.0000
L15	44	(Area) CCI-65FP-060100 (H)	83.25 - 88.25	1.0000	1.0000
L15	45	(Area) CCI-65FP-060100 (H)	83.25 - 88.25	1.0000	1.0000
L16	33	Safety Line 3/8	74.75 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			83.25		
L16	43	(Area) CCI-65FP-060100 (H)	74.75 - 83.25	1.0000	1.0000
L16	44	(Area) CCI-65FP-060100 (H)	74.75 - 83.25	1.0000	1.0000
L16	45	(Area) CCI-65FP-060100 (H)	74.75 - 83.25	1.0000	1.0000
L17	33	Safety Line 3/8	74.50 - 74.75	1.0000	1.0000
L17	43	(Area) CCI-65FP-060100 (H)	74.50 - 74.75	1.0000	1.0000
L17	44	(Area) CCI-65FP-060100 (H)	74.50 - 74.75	1.0000	1.0000
L17	45	(Area) CCI-65FP-060100 (H)	74.50 - 74.75	1.0000	1.0000
L18	33	Safety Line 3/8	69.50 - 74.50	1.0000	1.0000
L18	43	(Area) CCI-65FP-060100 (H)	69.50 - 74.50	1.0000	1.0000
L18	44	(Area) CCI-65FP-060100 (H)	69.50 - 74.50	1.0000	1.0000
L18	45	(Area) CCI-65FP-060100 (H)	69.50 - 74.50	1.0000	1.0000
L19	33	Safety Line 3/8	64.50 - 69.50	1.0000	1.0000
L19	43	(Area) CCI-65FP-060100 (H)	64.50 - 69.50	1.0000	1.0000
L19	44	(Area) CCI-65FP-060100 (H)	64.50 - 69.50	1.0000	1.0000
L19	45	(Area) CCI-65FP-060100 (H)	64.50 - 69.50	1.0000	1.0000
L20	33	Safety Line 3/8	62.50 - 64.50	1.0000	1.0000
L20	43	(Area) CCI-65FP-060100 (H)	62.50 - 64.50	1.0000	1.0000
L20	44	(Area) CCI-65FP-060100 (H)	62.50 - 64.50	1.0000	1.0000
L20	45	(Area) CCI-65FP-060100 (H)	62.50 - 64.50	1.0000	1.0000
L21	33	Safety Line 3/8	62.25 - 62.50	1.0000	1.0000
L21	43	(Area) CCI-65FP-060100 (H)	62.25 - 62.50	1.0000	1.0000
L21	44	(Area) CCI-65FP-060100 (H)	62.25 - 62.50	1.0000	1.0000
L21	45	(Area) CCI-65FP-060100 (H)	62.25 - 62.50	1.0000	1.0000
L22	33	Safety Line 3/8	57.75 - 62.25	1.0000	1.0000
L22	39	(Area) CCI-65FP-065125 (H)	57.75 - 60.50	1.0000	1.0000
L22	40	(Area) CCI-65FP-065125 (H)	57.75 - 60.50	1.0000	1.0000
L22	41	(Area) CCI-65FP-065125 (H)	57.75 - 60.50	1.0000	1.0000
L22	43	(Area) CCI-65FP-060100 (H)	60.50 - 62.25	1.0000	1.0000
L22	44	(Area) CCI-65FP-060100 (H)	60.50 - 62.25	1.0000	1.0000
L22	45	(Area) CCI-65FP-060100 (H)	60.50 - 62.25	1.0000	1.0000
L23	33	Safety Line 3/8	57.50 - 57.75	1.0000	1.0000
L23	39	(Area) CCI-65FP-065125 (H)	57.50 - 57.75	1.0000	1.0000
L23	40	(Area) CCI-65FP-065125 (H)	57.50 - 57.75	1.0000	1.0000
L23	41	(Area) CCI-65FP-065125 (H)	57.50 - 57.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L24	33	Safety Line 3/8	52.50 - 57.50	1.0000	1.0000
L24	39	(Area) CCI-65FP-065125 (H)	52.50 - 57.50	1.0000	1.0000
L24	40	(Area) CCI-65FP-065125 (H)	52.50 - 57.50	1.0000	1.0000
L24	41	(Area) CCI-65FP-065125 (H)	52.50 - 57.50	1.0000	1.0000
L25	27	LDF4-50A(1/2")	47.50 - 50.00	1.0000	1.0000
L25	33	Safety Line 3/8	47.50 - 52.50	1.0000	1.0000
L25	39	(Area) CCI-65FP-065125 (H)	47.50 - 52.50	1.0000	1.0000
L25	40	(Area) CCI-65FP-065125 (H)	47.50 - 52.50	1.0000	1.0000
L25	41	(Area) CCI-65FP-065125 (H)	47.50 - 52.50	1.0000	1.0000
L26	27	LDF4-50A(1/2")	39.50 - 47.50	1.0000	1.0000
L26	33	Safety Line 3/8	39.50 - 47.50	1.0000	1.0000
L26	39	(Area) CCI-65FP-065125 (H)	39.50 - 47.50	1.0000	1.0000
L26	40	(Area) CCI-65FP-065125 (H)	39.50 - 47.50	1.0000	1.0000
L26	41	(Area) CCI-65FP-065125 (H)	39.50 - 47.50	1.0000	1.0000
L27	27	LDF4-50A(1/2")	38.50 - 39.50	1.0000	1.0000
L27	33	Safety Line 3/8	38.50 - 39.50	1.0000	1.0000
L27	39	(Area) CCI-65FP-065125 (H)	38.50 - 39.50	1.0000	1.0000
L27	40	(Area) CCI-65FP-065125 (H)	38.50 - 39.50	1.0000	1.0000
L27	41	(Area) CCI-65FP-065125 (H)	38.50 - 39.50	1.0000	1.0000
L28	27	LDF4-50A(1/2")	38.25 - 38.50	1.0000	1.0000
L28	33	Safety Line 3/8	38.25 - 38.50	1.0000	1.0000
L28	39	(Area) CCI-65FP-065125 (H)	38.25 - 38.50	1.0000	1.0000
L28	40	(Area) CCI-65FP-065125 (H)	38.25 - 38.50	1.0000	1.0000
L28	41	(Area) CCI-65FP-065125 (H)	38.25 - 38.50	1.0000	1.0000
L29	27	LDF4-50A(1/2")	38.00 - 38.25	1.0000	1.0000
L29	33	Safety Line 3/8	38.00 - 38.25	1.0000	1.0000
L29	39	(Area) CCI-65FP-065125 (H)	38.00 - 38.25	1.0000	1.0000
L29	40	(Area) CCI-65FP-065125 (H)	38.00 - 38.25	1.0000	1.0000
L29	41	(Area) CCI-65FP-065125 (H)	38.00 - 38.25	1.0000	1.0000
L30	27	LDF4-50A(1/2")	33.00 - 38.00	1.0000	1.0000
L30	33	Safety Line 3/8	33.00 - 38.00	1.0000	1.0000
L30	35	(Area) CCI-65FP-085125 (H)	33.00 - 35.50	1.0000	1.0000
L30	36	(Area) CCI-65FP-085125 (H)	33.00 - 35.50	1.0000	1.0000
L30	37	(Area) CCI-65FP-085125 (H)	33.00 - 35.50	1.0000	1.0000
L30	39	(Area) CCI-65FP-065125	33.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		(H)	38.00		
L30	40	(Area) CCI-65FP-065125	33.00 -	1.0000	1.0000
		(H)	38.00		
L30	41	(Area) CCI-65FP-065125	35.50 -	1.0000	1.0000
		(H)	38.00		
L31	27	LDF4-50A(1/2")	31.75 -	1.0000	1.0000
			33.00		
L31	33	Safety Line 3/8	31.75 -	1.0000	1.0000
			33.00		
L31	35	(Area) CCI-65FP-085125	31.75 -	1.0000	1.0000
		(H)	33.00		
L31	36	(Area) CCI-65FP-085125	31.75 -	1.0000	1.0000
		(H)	33.00		
L31	37	(Area) CCI-65FP-085125	31.75 -	1.0000	1.0000
		(H)	33.00		
L31	39	(Area) CCI-65FP-065125	31.75 -	1.0000	1.0000
		(H)	33.00		
L31	40	(Area) CCI-65FP-065125	31.75 -	1.0000	1.0000
		(H)	33.00		
L32	27	LDF4-50A(1/2")	31.50 -	1.0000	1.0000
			31.75		
L32	33	Safety Line 3/8	31.50 -	1.0000	1.0000
			31.75		
L32	35	(Area) CCI-65FP-085125	31.50 -	1.0000	1.0000
		(H)	31.75		
L32	36	(Area) CCI-65FP-085125	31.50 -	1.0000	1.0000
		(H)	31.75		
L32	37	(Area) CCI-65FP-085125	31.50 -	1.0000	1.0000
		(H)	31.75		
L32	39	(Area) CCI-65FP-065125	31.50 -	1.0000	1.0000
		(H)	31.75		
L32	40	(Area) CCI-65FP-065125	31.50 -	1.0000	1.0000
		(H)	31.75		
L33	27	LDF4-50A(1/2")	28.25 -	1.0000	1.0000
			31.50		
L33	33	Safety Line 3/8	28.25 -	1.0000	1.0000
			31.50		
L33	35	(Area) CCI-65FP-085125	28.25 -	1.0000	1.0000
		(H)	31.50		
L33	36	(Area) CCI-65FP-085125	28.25 -	1.0000	1.0000
		(H)	31.50		
L33	37	(Area) CCI-65FP-085125	28.25 -	1.0000	1.0000
		(H)	31.50		
L33	39	(Area) CCI-65FP-065125	28.25 -	1.0000	1.0000
		(H)	31.50		
L33	40	(Area) CCI-65FP-065125	28.25 -	1.0000	1.0000
		(H)	31.50		
L34	27	LDF4-50A(1/2")	28.00 -	1.0000	1.0000
			28.25		
L34	33	Safety Line 3/8	28.00 -	1.0000	1.0000
			28.25		
L34	35	(Area) CCI-65FP-085125	28.00 -	1.0000	1.0000
		(H)	28.25		
L34	36	(Area) CCI-65FP-085125	28.00 -	1.0000	1.0000
		(H)	28.25		
L34	37	(Area) CCI-65FP-085125	28.00 -	1.0000	1.0000
		(H)	28.25		
L34	39	(Area) CCI-65FP-065125	28.00 -	1.0000	1.0000
		(H)	28.25		
L34	40	(Area) CCI-65FP-065125	28.00 -	1.0000	1.0000
		(H)	28.25		
L35	27	LDF4-50A(1/2")	23.00 -	1.0000	1.0000
			28.00		
L35	33	Safety Line 3/8	23.00 -	1.0000	1.0000
			28.00		
L35	35	(Area) CCI-65FP-085125	23.00 -	1.0000	1.0000
		(H)	28.00		
L35	36	(Area) CCI-65FP-085125	23.00 -	1.0000	1.0000
		(H)	28.00		

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L35	37	(Area) CCI-65FP-085125 (H)	23.00 - 28.00	1.0000	1.0000
L35	39	(Area) CCI-65FP-065125 (H)	25.50 - 28.00	1.0000	1.0000
L35	40	(Area) CCI-65FP-065125 (H)	25.50 - 28.00	1.0000	1.0000
L36	27	LDF4-50A(1/2")	18.00 - 23.00	1.0000	1.0000
L36	33	Safety Line 3/8	18.00 - 23.00	1.0000	1.0000
L36	35	(Area) CCI-65FP-085125 (H)	18.00 - 23.00	1.0000	1.0000
L36	36	(Area) CCI-65FP-085125 (H)	18.00 - 23.00	1.0000	1.0000
L36	37	(Area) CCI-65FP-085125 (H)	18.00 - 23.00	1.0000	1.0000
L37	27	LDF4-50A(1/2")	13.00 - 18.00	1.0000	1.0000
L37	33	Safety Line 3/8	13.00 - 18.00	1.0000	1.0000
L37	35	(Area) CCI-65FP-085125 (H)	13.00 - 18.00	1.0000	1.0000
L37	36	(Area) CCI-65FP-085125 (H)	13.00 - 18.00	1.0000	1.0000
L37	37	(Area) CCI-65FP-085125 (H)	13.00 - 18.00	1.0000	1.0000
L38	27	LDF4-50A(1/2")	8.00 - 13.00	1.0000	1.0000
L38	33	Safety Line 3/8	8.00 - 13.00	1.0000	1.0000
L38	35	(Area) CCI-65FP-085125 (H)	8.00 - 13.00	1.0000	1.0000
L38	36	(Area) CCI-65FP-085125 (H)	8.00 - 13.00	1.0000	1.0000
L38	37	(Area) CCI-65FP-085125 (H)	8.00 - 13.00	1.0000	1.0000
L39	27	LDF4-50A(1/2")	3.00 - 8.00	1.0000	1.0000
L39	33	Safety Line 3/8	3.00 - 8.00	1.0000	1.0000
L39	35	(Area) CCI-65FP-085125 (H)	3.00 - 8.00	1.0000	1.0000
L39	36	(Area) CCI-65FP-085125 (H)	3.00 - 8.00	1.0000	1.0000
L39	37	(Area) CCI-65FP-085125 (H)	3.00 - 8.00	1.0000	1.0000
L40	27	LDF4-50A(1/2")	0.00 - 3.00	1.0000	1.0000
L40	33	Safety Line 3/8	0.00 - 3.00	1.0000	1.0000
L40	35	(Area) CCI-65FP-085125 (H)	0.00 - 3.00	1.0000	1.0000
L40	36	(Area) CCI-65FP-085125 (H)	0.00 - 3.00	1.0000	1.0000
L40	37	(Area) CCI-65FP-085125 (H)	0.00 - 3.00	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
L11	43	(Area) CCI-65FP-060100 (H)	94.75 - 95.50	Auto	0.0797
L11	44	(Area) CCI-65FP-060100 (H)	94.75 - 95.50	Auto	0.0797

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L11	45	(Area) CCI-65FP-060100 (H)	94.75 - 95.50	Auto	0.0797
L12	43	(Area) CCI-65FP-060100 (H)	93.50 - 94.75	Auto	0.0740
L12	44	(Area) CCI-65FP-060100 (H)	93.50 - 94.75	Auto	0.0740
L12	45	(Area) CCI-65FP-060100 (H)	93.50 - 94.75	Auto	0.0740
L13	43	(Area) CCI-65FP-060100 (H)	93.25 - 93.50	Auto	0.1247
L13	44	(Area) CCI-65FP-060100 (H)	93.25 - 93.50	Auto	0.1247
L13	45	(Area) CCI-65FP-060100 (H)	93.25 - 93.50	Auto	0.1247
L14	43	(Area) CCI-65FP-060100 (H)	88.25 - 93.25	Auto	0.1078
L14	44	(Area) CCI-65FP-060100 (H)	88.25 - 93.25	Auto	0.1078
L14	45	(Area) CCI-65FP-060100 (H)	88.25 - 93.25	Auto	0.1078
L15	43	(Area) CCI-65FP-060100 (H)	83.25 - 88.25	Auto	0.0774
L15	44	(Area) CCI-65FP-060100 (H)	83.25 - 88.25	Auto	0.0774
L15	45	(Area) CCI-65FP-060100 (H)	83.25 - 88.25	Auto	0.0774
L16	43	(Area) CCI-65FP-060100 (H)	74.75 - 83.25	Auto	0.0388
L16	44	(Area) CCI-65FP-060100 (H)	74.75 - 83.25	Auto	0.0388
L16	45	(Area) CCI-65FP-060100 (H)	74.75 - 83.25	Auto	0.0388
L17	43	(Area) CCI-65FP-060100 (H)	74.50 - 74.75	Auto	0.0468
L17	44	(Area) CCI-65FP-060100 (H)	74.50 - 74.75	Auto	0.0468
L17	45	(Area) CCI-65FP-060100 (H)	74.50 - 74.75	Auto	0.0468
L18	43	(Area) CCI-65FP-060100 (H)	69.50 - 74.50	Auto	0.0281
L18	44	(Area) CCI-65FP-060100 (H)	69.50 - 74.50	Auto	0.0281
L18	45	(Area) CCI-65FP-060100 (H)	69.50 - 74.50	Auto	0.0281
L19	43	(Area) CCI-65FP-060100 (H)	64.50 - 69.50	Auto	0.0033
L19	44	(Area) CCI-65FP-060100 (H)	64.50 - 69.50	Auto	0.0033
L19	45	(Area) CCI-65FP-060100 (H)	64.50 - 69.50	Auto	0.0033
L20	43	(Area) CCI-65FP-060100 (H)	62.50 - 64.50	Auto	0.0000
L20	44	(Area) CCI-65FP-060100 (H)	62.50 - 64.50	Auto	0.0000
L20	45	(Area) CCI-65FP-060100 (H)	62.50 - 64.50	Auto	0.0000
L21	43	(Area) CCI-65FP-060100 (H)	62.25 - 62.50	Auto	0.0000
L21	44	(Area) CCI-65FP-060100 (H)	62.25 - 62.50	Auto	0.0000
L21	45	(Area) CCI-65FP-060100 (H)	62.25 - 62.50	Auto	0.0000
L22	39	(Area) CCI-65FP-065125 (H)	57.75 - 60.50	Auto	0.0000
L22	40	(Area) CCI-65FP-065125 (H)	57.75 - 60.50	Auto	0.0000
L22	41	(Area) CCI-65FP-065125 (H)	57.75 - 60.50	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L22	43	(Area) CCI-65FP-060100 (H)	60.50 - 62.25	Auto	0.0000
L22	44	(Area) CCI-65FP-060100 (H)	60.50 - 62.25	Auto	0.0000
L22	45	(Area) CCI-65FP-060100 (H)	60.50 - 62.25	Auto	0.0000
L23	39	(Area) CCI-65FP-065125 (H)	57.50 - 57.75	Auto	0.0405
L23	40	(Area) CCI-65FP-065125 (H)	57.50 - 57.75	Auto	0.0405
L23	41	(Area) CCI-65FP-065125 (H)	57.50 - 57.75	Auto	0.0405
L24	39	(Area) CCI-65FP-065125 (H)	52.50 - 57.50	Auto	0.0266
L24	40	(Area) CCI-65FP-065125 (H)	52.50 - 57.50	Auto	0.0266
L24	41	(Area) CCI-65FP-065125 (H)	52.50 - 57.50	Auto	0.0266
L25	39	(Area) CCI-65FP-065125 (H)	47.50 - 52.50	Auto	0.0019
L25	40	(Area) CCI-65FP-065125 (H)	47.50 - 52.50	Auto	0.0019
L25	41	(Area) CCI-65FP-065125 (H)	47.50 - 52.50	Auto	0.0019
L26	39	(Area) CCI-65FP-065125 (H)	39.50 - 47.50	Auto	0.0000
L26	40	(Area) CCI-65FP-065125 (H)	39.50 - 47.50	Auto	0.0000
L26	41	(Area) CCI-65FP-065125 (H)	39.50 - 47.50	Auto	0.0000
L27	39	(Area) CCI-65FP-065125 (H)	38.50 - 39.50	Auto	0.0000
L27	40	(Area) CCI-65FP-065125 (H)	38.50 - 39.50	Auto	0.0000
L27	41	(Area) CCI-65FP-065125 (H)	38.50 - 39.50	Auto	0.0000
L28	39	(Area) CCI-65FP-065125 (H)	38.25 - 38.50	Auto	0.0000
L28	40	(Area) CCI-65FP-065125 (H)	38.25 - 38.50	Auto	0.0000
L28	41	(Area) CCI-65FP-065125 (H)	38.25 - 38.50	Auto	0.0000
L29	39	(Area) CCI-65FP-065125 (H)	38.00 - 38.25	Auto	0.0000
L29	40	(Area) CCI-65FP-065125 (H)	38.00 - 38.25	Auto	0.0000
L29	41	(Area) CCI-65FP-065125 (H)	38.00 - 38.25	Auto	0.0000
L30	35	(Area) CCI-65FP-085125 (H)	33.00 - 35.50	Auto	0.1796
L30	36	(Area) CCI-65FP-085125 (H)	33.00 - 35.50	Auto	0.1796
L30	37	(Area) CCI-65FP-085125 (H)	33.00 - 35.50	Auto	0.1796
L30	39	(Area) CCI-65FP-065125 (H)	33.00 - 38.00	Auto	0.0000
L30	40	(Area) CCI-65FP-065125 (H)	33.00 - 38.00	Auto	0.0000
L30	41	(Area) CCI-65FP-065125 (H)	35.50 - 38.00	Auto	0.0000
L31	35	(Area) CCI-65FP-085125 (H)	31.75 - 33.00	Auto	0.1720
L31	36	(Area) CCI-65FP-085125 (H)	31.75 - 33.00	Auto	0.1720
L31	37	(Area) CCI-65FP-085125 (H)	31.75 - 33.00	Auto	0.1720
L31	39	(Area) CCI-65FP-065125 (H)	31.75 - 33.00	Auto	0.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L31	40	(Area) CCI-65FP-065125 (H)	31.75 - 33.00	Auto	0.0000
L32	35	(Area) CCI-65FP-085125 (H)	31.50 - 31.75	Auto	0.2156
L32	36	(Area) CCI-65FP-085125 (H)	31.50 - 31.75	Auto	0.2156
L32	37	(Area) CCI-65FP-085125 (H)	31.50 - 31.75	Auto	0.2156
L32	39	(Area) CCI-65FP-065125 (H)	31.50 - 31.75	Auto	0.0000
L32	40	(Area) CCI-65FP-065125 (H)	31.50 - 31.75	Auto	0.0000
L33	35	(Area) CCI-65FP-085125 (H)	28.25 - 31.50	Auto	0.2085
L33	36	(Area) CCI-65FP-085125 (H)	28.25 - 31.50	Auto	0.2085
L33	37	(Area) CCI-65FP-085125 (H)	28.25 - 31.50	Auto	0.2085
L33	39	(Area) CCI-65FP-065125 (H)	28.25 - 31.50	Auto	0.0000
L33	40	(Area) CCI-65FP-065125 (H)	28.25 - 31.50	Auto	0.0000
L34	35	(Area) CCI-65FP-085125 (H)	28.00 - 28.25	Auto	0.1626
L34	36	(Area) CCI-65FP-085125 (H)	28.00 - 28.25	Auto	0.1626
L34	37	(Area) CCI-65FP-085125 (H)	28.00 - 28.25	Auto	0.1626
L34	39	(Area) CCI-65FP-065125 (H)	28.00 - 28.25	Auto	0.0000
L34	40	(Area) CCI-65FP-065125 (H)	28.00 - 28.25	Auto	0.0000
L35	35	(Area) CCI-65FP-085125 (H)	23.00 - 28.00	Auto	0.1521
L35	36	(Area) CCI-65FP-085125 (H)	23.00 - 28.00	Auto	0.1521
L35	37	(Area) CCI-65FP-085125 (H)	23.00 - 28.00	Auto	0.1521
L35	39	(Area) CCI-65FP-065125 (H)	25.50 - 28.00	Auto	0.0000
L35	40	(Area) CCI-65FP-065125 (H)	25.50 - 28.00	Auto	0.0000
L36	35	(Area) CCI-65FP-085125 (H)	18.00 - 23.00	Auto	0.1293
L36	36	(Area) CCI-65FP-085125 (H)	18.00 - 23.00	Auto	0.1293
L36	37	(Area) CCI-65FP-085125 (H)	18.00 - 23.00	Auto	0.1293
L37	35	(Area) CCI-65FP-085125 (H)	13.00 - 18.00	Auto	0.1091
L37	36	(Area) CCI-65FP-085125 (H)	13.00 - 18.00	Auto	0.1091
L37	37	(Area) CCI-65FP-085125 (H)	13.00 - 18.00	Auto	0.1091
L38	35	(Area) CCI-65FP-085125 (H)	8.00 - 13.00	Auto	0.0889
L38	36	(Area) CCI-65FP-085125 (H)	8.00 - 13.00	Auto	0.0889
L38	37	(Area) CCI-65FP-085125 (H)	8.00 - 13.00	Auto	0.0889
L39	35	(Area) CCI-65FP-085125 (H)	3.00 - 8.00	Auto	0.0687
L39	36	(Area) CCI-65FP-085125 (H)	3.00 - 8.00	Auto	0.0687
L39	37	(Area) CCI-65FP-085125 (H)	3.00 - 8.00	Auto	0.0687
L40	35	(Area) CCI-65FP-085125 (H)	0.00 - 3.00	Auto	0.0513

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L40	36	(Area) CCI-65FP-085125 (H)	0.00 - 3.00	Auto	0.0513
L40	37	(Area) CCI-65FP-085125 (H)	0.00 - 3.00	Auto	0.0513

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 lb
148									
800 10121 w/ Mount Pipe	A	From Leg	4.00 0.00 -2.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.60 4.00 4.42 5.29	2.95 3.34 3.74 4.59	72 115 166 297
800 10121 w/ Mount Pipe	B	From Leg	4.00 0.00 -2.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.60 4.00 4.42 5.29	2.95 3.34 3.74 4.59	72 115 166 297
800 10121 w/ Mount Pipe	C	From Leg	4.00 0.00 -2.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.60 4.00 4.42 5.29	2.95 3.34 3.74 4.59	72 115 166 297
QS66512-2 w/ Mount Pipe	A	From Leg	4.00 0.00 -2.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.04 4.42 4.82 5.63	4.18 4.57 4.97 5.79	137 206 287 482
QS86512-2 w/ Mount Pipe	B	From Leg	4.00 0.00 -2.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.42 5.92 6.43 7.48	5.62 6.12 6.63 7.69	173 264 368 619
QS66512-2 w/ Mount Pipe	C	From Leg	4.00 0.00 -2.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.04 4.42 4.82 5.63	4.18 4.57 4.97 5.79	137 206 287 482
PD320-2	B	From Leg	4.00 0.00 -2.00	0.0000	148.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	1.80 3.41 5.02 8.23	1.00 2.02 3.03 5.07	15 22 29 43
DC6-48-60-18-8F	B	From Leg	4.00 0.00 -2.00	0.0000	148.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	1.21 1.89 2.11 2.57	1.21 1.89 2.11 2.57	20 42 67 126
RRUS12/RRUS A2	A	From Leg	4.00 0.00 -2.00	0.0000	148.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	3.14 3.36 3.59 4.07	1.84 2.01 2.20 2.59	72 99 130 203
RRUS12/RRUS A2	B	From Leg	4.00	0.0000	148.00	No Ice	3.14	1.84	72

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 lb
			0.00			1/2"	3.36	2.01	99
			-2.00			Ice	3.59	2.20	130
						1" Ice	4.07	2.59	203
						2" Ice			
RRUS12/RRUS A2	C	From Leg	4.00	0.0000	148.00	No Ice	3.14	1.84	72
			0.00			1/2"	3.36	2.01	99
			-2.00			Ice	3.59	2.20	130
						1" Ice	4.07	2.59	203
						2" Ice			
RRUS 11	A	From Leg	4.00	0.0000	148.00	No Ice	2.78	1.19	48
			0.00			1/2"	2.99	1.33	68
			-2.00			Ice	3.21	1.49	92
						1" Ice	3.66	1.83	150
						2" Ice			
RRUS 11	B	From Leg	4.00	0.0000	148.00	No Ice	2.78	1.19	48
			0.00			1/2"	2.99	1.33	68
			-2.00			Ice	3.21	1.49	92
						1" Ice	3.66	1.83	150
						2" Ice			
RRUS 11	C	From Leg	4.00	0.0000	148.00	No Ice	2.78	1.19	48
			0.00			1/2"	2.99	1.33	68
			-2.00			Ice	3.21	1.49	92
						1" Ice	3.66	1.83	150
						2" Ice			
DTMABP7819VG12A	A	From Leg	4.00	0.0000	148.00	No Ice	0.98	0.34	19
			0.00			1/2"	1.10	0.42	26
			-2.00			Ice	1.23	0.51	36
						1" Ice	1.52	0.71	60
						2" Ice			
DTMABP7819VG12A	B	From Leg	4.00	0.0000	148.00	No Ice	0.98	0.34	19
			0.00			1/2"	1.10	0.42	26
			-2.00			Ice	1.23	0.51	36
						1" Ice	1.52	0.71	60
						2" Ice			
DTMABP7819VG12A	C	From Leg	4.00	0.0000	148.00	No Ice	0.98	0.34	19
			0.00			1/2"	1.10	0.42	26
			-2.00			Ice	1.23	0.51	36
						1" Ice	1.52	0.71	60
						2" Ice			
(2) 2.4" Dia. x 6-ft	A	From Leg	4.00	0.0000	148.00	No Ice	1.43	1.43	22
			0.00			1/2"	1.92	1.92	33
			-2.00			Ice	2.29	2.29	48
						1" Ice	3.06	3.06	90
						2" Ice			
(2) 2.4" Dia. x 6-ft	B	From Leg	4.00	0.0000	148.00	No Ice	1.43	1.43	22
			0.00			1/2"	1.92	1.92	33
			-2.00			Ice	2.29	2.29	48
						1" Ice	3.06	3.06	90
						2" Ice			
(2) 2.4" Dia. x 6-ft	C	From Leg	4.00	0.0000	148.00	No Ice	1.43	1.43	22
			0.00			1/2"	1.92	1.92	33
			-2.00			Ice	2.29	2.29	48
						1" Ice	3.06	3.06	90
						2" Ice			
Platform Mount [LP 1201-1_HR-1]	C	None		0.0000	148.00	No Ice	26.39	26.39	2356
						1/2"	31.40	31.40	3061
						Ice	36.20	36.20	3864
						1" Ice	45.40	45.40	5764
						2" Ice			
139									
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.00	0.0000	139.00	No Ice	3.14	2.59	112
			0.00			1/2"	3.45	2.88	164
			0.00			Ice	3.77	3.19	225
						1" Ice	4.43	3.84	375
						2" Ice			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.14 3.45 3.77 4.43	2.59 2.88 3.19 3.84	112 164 225 375
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.14 3.45 3.77 4.43	2.59 2.88 3.19 3.84	112 164 225 375
AIR 32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.76 4.12 4.48 5.24	3.15 3.49 3.84 4.58	194 252 320 485
AIR 32 B2A/B66AA w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.76 4.12 4.48 5.24	3.15 3.49 3.84 4.58	194 252 320 485
AIR 32 B2A/B66AA w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.76 4.12 4.48 5.24	3.15 3.49 3.84 4.58	194 252 320 485
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	186 315 458 788
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	186 315 458 788
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	186 315 458 788
RADIO 4449 B12/B71	A	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.65 1.81 1.98 2.34	1.16 1.30 1.45 1.76	74 90 109 155
RADIO 4449 B12/B71	B	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.65 1.81 1.98 2.34	1.16 1.30 1.45 1.76	74 90 109 155
RADIO 4449 B12/B71	C	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.65 1.81 1.98 2.34	1.16 1.30 1.45 1.76	74 90 109 155
KRY 112 144/1	A	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.17 0.23 0.30 0.46	11 14 19 32
KRY 112 144/1	B	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.17 0.23 0.30 0.46	11 14 19 32

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 lb
KRY 112 144/1	C	From Leg	4.00 0.00 0.00	0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.43 0.51 0.70	0.17 0.23 0.30 0.46	11 14 19 32
(2) 2.4" Dia. x 4-ft	A	From Leg	4.00 0.00 0.00	0.0000	139.00	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	15 22 32 62
(2) 2.4" Dia. x 4-ft	B	From Leg	4.00 0.00 0.00	0.0000	139.00	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	15 22 32 62
(2) 2.4" Dia. x 4-ft	C	From Leg	4.00 0.00 0.00	0.0000	139.00	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	15 22 32 62
Platform Mount [LP 1201-1_HR-1]	C	None		0.0000	139.00	No Ice 1/2" Ice 1" Ice 2" Ice	26.39 31.40 36.20 45.40	26.39 31.40 36.20 45.40	2356 3061 3864 5764
126									
MT6407-77A w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.91 5.26 5.61 6.36	2.68 3.14 3.62 4.63	96 136 180 288
MT6407-77A w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.91 5.26 5.61 6.36	2.68 3.14 3.62 4.63	96 136 180 288
MT6407-77A w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.91 5.26 5.61 6.36	2.68 3.14 3.62 4.63	96 136 180 288
BXA-70063-4CF-EDIN-X w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.84 5.35 5.88 6.99	3.54 4.03 4.53 5.59	37 75 121 237
BXA-70063-4CF-EDIN-X w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.84 5.35 5.88 6.99	3.54 4.03 4.53 5.59	37 75 121 237
BXA-70063-4CF-EDIN-X w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.84 5.35 5.88 6.99	3.54 4.03 4.53 5.59	37 75 121 237
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	66 130 204 386
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	66 130 204 386

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 lb
						2" Ice			
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.49 4.89 5.72	3.30 3.68 4.07 4.87	66 130 204 386
CBRS w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.45 1.67 1.90 2.42	0.99 1.18 1.39 1.85	32 48 68 123
CBRS w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.45 1.67 1.90 2.42	0.99 1.18 1.39 1.85	32 48 68 123
CBRS w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.45 1.67 1.90 2.42	0.99 1.18 1.39 1.85	32 48 68 123
RFV01U-D1A	A	From Leg	4.00 0.00 2.00	0.0000	126.00	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	84 103 124 175
RFV01U-D1A	B	From Leg	4.00 0.00 2.00	0.0000	126.00	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	84 103 124 175
RFV01U-D1A	C	From Leg	4.00 0.00 2.00	0.0000	126.00	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	84 103 124 175
RFV01U-D2A	A	From Leg	4.00 0.00 2.00	0.0000	126.00	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	70 87 106 153
RFV01U-D2A	B	From Leg	4.00 0.00 2.00	0.0000	126.00	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	70 87 106 153
RFV01U-D2A	C	From Leg	4.00 0.00 2.00	0.0000	126.00	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	70 87 106 153
DB-T1-6Z-8AB-0Z	C	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.80 5.07 5.35 5.93	2.00 2.19 2.39 2.81	44 80 120 213
Platform Mount [LP 404-1_KCKR]	C	None		0.0000	126.00	No Ice 1/2" Ice 1" Ice 2" Ice	35.82 45.85 55.76 75.77	35.82 45.85 55.76 75.77	2318 3016 3886 6142
111 TME-800MHz 2X50W RRH W/FILTER	A	From Leg	1.00 0.00 0.00	0.0000	111.00	No Ice 1/2" Ice	2.06 2.24 2.43	1.93 2.11 2.29	64 86 111

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 lb
						1" Ice	2.83	2.68	172
						2" Ice			
TME-800MHz 2X50W RRH W/FILTER	B	From Leg	1.00 0.00 0.00	0.0000	111.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.06 2.24 2.43 2.83	1.93 2.11 2.29 2.68	64 86 111 172
TME-800MHz 2X50W RRH W/FILTER	C	From Leg	1.00 0.00 0.00	0.0000	111.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.06 2.24 2.43 2.83	1.93 2.11 2.29 2.68	64 86 111 172
PCS 1900MHz 4x45W-65MHz	A	From Leg	1.00 0.00 0.00	0.0000	111.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	60 83 110 173
PCS 1900MHz 4x45W-65MHz	B	From Leg	1.00 0.00 0.00	0.0000	111.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	60 83 110 173
PCS 1900MHz 4x45W-65MHz	C	From Leg	1.00 0.00 0.00	0.0000	111.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	60 83 110 173
Pipe Mount [PM 601-3]	C	None		0.0000	111.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.17 3.79 4.42 5.76	3.17 3.79 4.42 5.76	195 232 279 401
109									
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	109.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	77 127 185 331
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	109.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	77 127 185 331
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	109.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.09 4.48 4.88 5.71	2.86 3.23 3.61 4.40	77 127 185 331
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	109.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	95 160 235 419
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	109.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	95 160 235 419
(2) APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	109.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.60 5.05 5.50 6.44	4.01 4.45 4.89 5.82	95 160 235 419
SD212-SF3P2SNM W/Mount Piipe	B	From Leg	4.00 0.00	0.0000	109.00	No Ice 1/2"	6.37 6.97	28.33 29.54	40 189

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 lb
			4.00			Ice	7.58	30.62	343
						1" Ice	8.82	32.84	687
						2" Ice			
TD-RRH8X20-25	A	From Leg	4.00	0.0000	109.00	No Ice	4.05	1.53	70
			0.00			1/2"	4.30	1.71	97
			1.00			Ice	4.56	1.90	128
						1" Ice	5.10	2.30	201
						2" Ice			
TD-RRH8X20-25	B	From Leg	4.00	0.0000	109.00	No Ice	4.05	1.53	70
			0.00			1/2"	4.30	1.71	97
			1.00			Ice	4.56	1.90	128
						1" Ice	5.10	2.30	201
						2" Ice			
TD-RRH8X20-25	C	From Leg	4.00	0.0000	109.00	No Ice	4.05	1.53	70
			0.00			1/2"	4.30	1.71	97
			1.00			Ice	4.56	1.90	128
						1" Ice	5.10	2.30	201
						2" Ice			
DB205-L	B	From Leg	4.00	0.0000	109.00	No Ice	1.72	1.72	36
			0.00			1/2"	3.45	3.45	52
			7.00			Ice	5.20	5.20	78
						1" Ice	8.75	8.75	164
						2" Ice			
K732267	A	From Leg	4.00	0.0000	109.00	No Ice	0.65	3.10	14
			0.00			1/2"	0.76	3.34	37
			7.00			Ice	0.87	3.59	63
						1" Ice	1.12	4.11	126
						2" Ice			
(2) 2.4" Dia. x 6-ft	A	From Leg	4.00	0.0000	109.00	No Ice	1.43	1.43	22
			0.00			1/2"	1.92	1.92	33
			0.00			Ice	2.29	2.29	48
						1" Ice	3.06	3.06	90
						2" Ice			
(2) 2.4" Dia. x 6-ft	B	From Leg	4.00	0.0000	109.00	No Ice	1.43	1.43	22
			0.00			1/2"	1.92	1.92	33
			0.00			Ice	2.29	2.29	48
						1" Ice	3.06	3.06	90
						2" Ice			
(2) 2.4" Dia. x 6-ft	C	From Leg	4.00	0.0000	109.00	No Ice	1.43	1.43	22
			0.00			1/2"	1.92	1.92	33
			0.00			Ice	2.29	2.29	48
						1" Ice	3.06	3.06	90
						2" Ice			
Platform Mount [LP 1201-1]	C	None		0.0000	109.00	No Ice	18.38	18.38	2100
						1/2"	22.11	22.11	2652
						Ice	25.87	25.87	3263
						1" Ice	33.47	33.47	4662
						2" Ice			
**									
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00	0.0000	99.00	No Ice	8.01	4.23	108
			0.00			1/2"	8.52	4.69	194
			0.00			Ice	9.04	5.16	292
						1" Ice	10.11	6.12	522
						2" Ice			
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00	0.0000	99.00	No Ice	8.01	4.23	108
			0.00			1/2"	8.52	4.69	194
			0.00			Ice	9.04	5.16	292
						1" Ice	10.11	6.12	522
						2" Ice			
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00	0.0000	99.00	No Ice	8.01	4.23	108
			0.00			1/2"	8.52	4.69	194
			0.00			Ice	9.04	5.16	292
						1" Ice	10.11	6.12	522
						2" Ice			
TA08025-B604	A	From Leg	4.00	0.0000	99.00	No Ice	1.96	0.98	64

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 lb
			0.00			1/2"	2.14	1.11	81
			0.00			Ice	2.32	1.25	100
						1" Ice	2.71	1.55	148
						2" Ice			
TA08025-B605	A	From Leg	4.00	0.0000	99.00	No Ice	1.96	1.13	75
			0.00			1/2"	2.14	1.27	93
			0.00			Ice	2.32	1.41	114
						1" Ice	2.71	1.72	164
						2" Ice			
TA08025-B604	B	From Leg	4.00	0.0000	99.00	No Ice	1.96	0.98	64
			0.00			1/2"	2.14	1.11	81
			0.00			Ice	2.32	1.25	100
						1" Ice	2.71	1.55	148
						2" Ice			
TA08025-B605	B	From Leg	4.00	0.0000	99.00	No Ice	1.96	1.13	75
			0.00			1/2"	2.14	1.27	93
			0.00			Ice	2.32	1.41	114
						1" Ice	2.71	1.72	164
						2" Ice			
TA08025-B604	C	From Leg	4.00	0.0000	99.00	No Ice	1.96	0.98	64
			0.00			1/2"	2.14	1.11	81
			0.00			Ice	2.32	1.25	100
						1" Ice	2.71	1.55	148
						2" Ice			
TA08025-B605	C	From Leg	4.00	0.0000	99.00	No Ice	1.96	1.13	75
			0.00			1/2"	2.14	1.27	93
			0.00			Ice	2.32	1.41	114
						1" Ice	2.71	1.72	164
						2" Ice			
RDIDC-9181-PF-48	A	From Leg	4.00	0.0000	99.00	No Ice	2.31	1.29	22
			0.00			1/2"	2.50	1.45	41
			0.00			Ice	2.70	1.61	63
						1" Ice	3.12	1.96	117
						2" Ice			
(2) 8' x 2" Mount Pipe	A	From Leg	4.00	0.0000	99.00	No Ice	1.90	1.90	29
			0.00			1/2"	2.73	2.73	44
			0.00			Ice	3.40	3.40	63
						1" Ice	4.40	4.40	119
						2" Ice			
(2) 8' x 2" Mount Pipe	B	From Leg	4.00	0.0000	99.00	No Ice	1.90	1.90	29
			0.00			1/2"	2.73	2.73	44
			0.00			Ice	3.40	3.40	63
						1" Ice	4.40	4.40	119
						2" Ice			
(2) 8' x 2" Mount Pipe	C	From Leg	4.00	0.0000	99.00	No Ice	1.90	1.90	29
			0.00			1/2"	2.73	2.73	44
			0.00			Ice	3.40	3.40	63
						1" Ice	4.40	4.40	119
						2" Ice			
Commscope MC-PK8-DSH	C	None		0.0000	99.00	No Ice	34.24	34.24	1749
						1/2"	62.95	62.95	2099
						Ice	91.66	91.66	2450
						1" Ice	149.08	149.08	3151
						2" Ice			
80									
79									
SRL-227	A	From Leg	6.00	0.0000	79.00	No Ice	4.63	1.45	35
			0.00			1/2"	9.39	3.73	71
			-4.00			Ice	14.15	6.02	106
						1" Ice	23.67	10.59	178
						2" Ice			
K732267	B	From Leg	4.00	0.0000	79.00	No Ice	0.65	3.10	14
			0.00			1/2"	0.76	3.34	37
			-3.00			Ice	0.87	3.59	63
						1" Ice	1.12	4.11	126

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 lb
						2" Ice			
2.4" Dia. x 4-ft	A	From Leg	6.00 0.00 0.00	0.0000	79.00	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	15 22 32 62
2.4" Dia. x 4-ft	B	From Leg	6.00 0.00 0.00	0.0000	79.00	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	15 22 32 62
2.4" Dia. x 4-ft	C	From Leg	6.00 0.00 0.00	0.0000	79.00	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	15 22 32 62
Side Arm Mount [SO 702-3]	C	None		0.0000	79.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.53 3.37 4.12 5.76	2.53 3.37 4.12 5.76	81 126 188 365
74									
Pipe Mount [PM 601-1]	A	From Leg	0.50 0.00 0.00	0.0000	74.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.32 1.58 1.84 2.40	1.32 1.58 1.84 2.40	65 77 93 134
50									
GPS-TMG-HR-26N	A	From Leg	4.00 0.00 1.00	0.0000	50.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.21 0.27 0.33 0.49	0.13 0.18 0.24 0.37	1 3 6 17
2.4" Dia. x 2-ft	A	From Leg	3.00 0.00 0.00	0.0000	50.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.35 0.48 0.62 0.92	0.35 0.48 0.62 0.92	7 11 17 33
Side Arm Mount [SO 701-1]	A	From Leg	1.50 0.00 0.00	0.0000	50.00	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	65 79 93 121
** ***									
Side Arm Mount [SO 601-3]	C	None		0.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.63 9.41 11.34 15.83	7.63 9.41 11.34 15.83	476 587 724 1077
Side Arm Mount [SO 601-3]	C	None		0.0000	15.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.63 9.41 11.34 15.83	7.63 9.41 11.34 15.83	476 587 724 1077
***									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
SC3-W100ASTX	B	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	-61.0000		80.00	3.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.07 7.47 7.87 8.66	40 78 117 193
**											
HP2-23	A	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 1.00	0.0000		74.00	2.04	No Ice 1/2" Ice 1" Ice 2" Ice	3.27 3.55 3.82 4.36	27 50 60 100
***											

Load Combinations

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

Comb. No.	Description
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
L1	148 - 143	Pole	Max Tension	26	0	0	0
			Max. Compression	26	-12781	-1359	-792
			Max. Mx	8	-4830	-19451	-198
			Max. My	14	-4828	-324	-19256
			Max. Vy	20	-5066	18713	-159
			Max. Vx	14	5052	-324	-19256
			Max. Torque	4			-896
L2	143 - 138	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-25964	-1349	-795
			Max. Mx	8	-9824	-50464	-248
			Max. My	14	-9819	-375	-50200
			Max. Vy	20	-10048	49730	-126
			Max. Vx	14	10037	-375	-50200
			Max. Torque	4			-896
L3	138 - 133	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-26919	-1345	-809
			Max. Mx	8	-10298	-101903	-279
			Max. My	14	-10292	-407	-101585
			Max. Vy	20	-10533	101173	-125
			Max. Vx	14	10521	-407	-101585
			Max. Torque	4			-896
L4	133 - 128	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-27897	-1339	-822
			Max. Mx	8	-10792	-155773	-307
			Max. My	14	-10786	-437	-155403
			Max. Vy	20	-11023	155049	-126
			Max. Vx	14	11012	-437	-155403
			Max. Torque	4			-896
L5	128 - 123	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-41020	-363	-1402
			Max. Mx	8	-15366	-232520	-184
			Max. My	14	-15362	2	-232189
			Max. Vy	20	-16553	232278	-523
			Max. Vx	14	16486	2	-232189
			Max. Torque	4			-896
L6	123 - 116	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-41719	-363	-1416
			Max. Mx	8	-15756	-286811	-20
			Max. My	14	-15751	163	-286267
			Max. Vy	20	-16870	286574	-714
			Max. Vx	14	16803	163	-286267
			Max. Torque	18			776
L7	116 - 114.75	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-43457	-363	-1436
			Max. Mx	8	-16719	-372507	235
			Max. My	14	-16713	415	-371638
			Max. Vy	20	-17412	372278	-1012
			Max. Vx	14	17346	415	-371638
			Max. Torque	18			775
L8	114.75 - 109.75	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-46128	-363	-1456
			Max. Mx	8	-18039	-461665	495
			Max. My	14	-18032	670	-460475
			Max. Vy	20	-18640	461445	-1314
			Max. Vx	14	18575	670	-460475
			Max. Torque	18			775
L9	109.75 - 104.75	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-57125	-2255	-4149

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Mx	20	-22280	576599	-5132
			Max. My	14	-22245	4726	-578166
			Max. Vy	20	-22855	576599	-5132
			Max. Vx	14	23130	4726	-578166
			Max. Torque	4			-6417
L10	104.75 - 99.75	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-58361	-2256	-4164
			Max. Mx	20	-23078	691986	-7462
			Max. My	14	-23044	7019	-694925
			Max. Vy	20	-23321	691986	-7462
			Max. Vx	14	23596	7019	-694925
			Max. Torque	4			-6414
L11	99.75 - 94.75	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-66478	-2255	-3549
			Max. Mx	20	-26911	824673	-9681
			Max. My	14	-26874	9326	-829024
			Max. Vy	20	-27303	824673	-9681
			Max. Vx	14	27621	9326	-829024
			Max. Torque	4			-6411
L12	94.75 - 93.5	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-66859	-2254	-3550
			Max. Mx	20	-27127	858853	-10266
			Max. My	14	-27090	9904	-863600
			Max. Vy	20	-27417	858853	-10266
			Max. Vx	14	27734	9904	-863600
			Max. Torque	4			-6269
L13	93.5 - 93.25	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-66954	-2258	-3555
			Max. Mx	20	-27203	865706	-10386
			Max. My	14	-27166	10016	-870533
			Max. Vy	8	27434	-865676	9261
			Max. Vx	14	27749	10016	-870533
			Max. Torque	4			-6268
L14	93.25 - 88.25	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-68854	-2248	-3553
			Max. Mx	20	-28395	1004123	-12723
			Max. My	14	-28360	12328	-1010535
			Max. Vy	20	-27952	1004123	-12723
			Max. Vx	14	28270	12328	-1010535
			Max. Torque	4			-6268
L15	88.25 - 83.25	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-70775	-2218	-3536
			Max. Mx	20	-29620	1145117	-15060
			Max. My	14	-29586	14640	-1153114
			Max. Vy	20	-28466	1145117	-15060
			Max. Vx	14	28784	14640	-1153114
			Max. Torque	4			-6266
L16	83.25 - 74.75	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-72426	-2608	-3760
			Max. Mx	8	-30586	-1252726	15650
			Max. My	14	-30553	16425	-1261917
			Max. Vy	20	-29240	1252625	-16893
			Max. Vx	14	29439	16425	-1261917
			Max. Torque	16			7197
L17	74.75 - 74.5	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-76802	-3148	-2510
			Max. Mx	20	-33087	1401438	-19655
			Max. My	14	-33046	19824	-1411628
			Max. Vy	20	-30288	1401438	-19655
			Max. Vx	14	30752	19824	-1411628
			Max. Torque	16			7552
L18	74.5 - 69.5	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-79065	-3107	-2194
			Max. Mx	20	-34585	1554400	-22653

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. My	14	-34547	23424	-1566743
			Max. Vy	20	-30864	1554400	-22653
			Max. Vx	14	31327	23424	-1566743
			Max. Torque	16			7552
L19	69.5 - 64.5	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-81211	-3070	-2172
			Max. Mx	20	-36044	1709894	-25803
			Max. My	14	-36008	27021	-1724551
			Max. Vy	20	-31361	1709894	-25803
			Max. Vx	14	31824	27021	-1724551
			Max. Torque	16			7488
L20	64.5 - 62.5	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-82077	-3055	-2163
			Max. Mx	20	-36636	1772786	-27061
			Max. My	14	-36601	28459	-1788367
			Max. Vy	20	-31558	1772786	-27061
			Max. Vx	14	32021	28459	-1788367
			Max. Torque	16			7485
L21	62.5 - 62.25	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-82167	-3055	-2165
			Max. Mx	20	-36703	1780675	-27219
			Max. My	14	-36668	28638	-1796371
			Max. Vy	20	-31573	1780675	-27219
			Max. Vx	14	32037	28638	-1796371
			Max. Torque	16			7484
L22	62.25 - 57.75	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-83810	-3018	-2142
			Max. Mx	20	-37761	1923521	-30039
			Max. My	14	-37730	31873	-1941294
			Max. Vy	20	-31947	1923521	-30039
			Max. Vx	14	32409	31873	-1941294
			Max. Torque	16			7484
L23	57.75 - 57.5	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-83927	-3021	-2145
			Max. Mx	20	-37861	1931505	-30197
			Max. My	14	-37830	32051	-1949394
			Max. Vy	20	-31955	1931505	-30197
			Max. Vx	14	32417	32051	-1949394
			Max. Torque	16			7481
L24	57.5 - 52.5	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-86273	-2978	-2118
			Max. Mx	20	-39491	2092478	-33322
			Max. My	14	-39462	35635	-2112669
			Max. Vy	20	-32456	2092478	-33322
			Max. Vx	14	32917	35635	-2112669
			Max. Torque	16			7481
L25	52.5 - 47.5	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-88827	-2939	-1474
			Max. Mx	20	-41240	2256133	-36154
			Max. My	14	-41215	39213	-2278249
			Max. Vy	20	-33033	2256133	-36154
			Max. Vx	14	33461	39213	-2278249
			Max. Torque	16			7479
L26	47.5 - 39.5	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-90033	-2920	-1486
			Max. Mx	20	-42081	2338969	-37711
			Max. My	14	-42058	40999	-2362154
			Max. Vy	20	-33269	2338969	-37711
			Max. Vx	14	33697	40999	-2362154
			Max. Torque	16			7309
L27	39.5 - 38.5	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-95447	-2870	-1520
			Max. Mx	20	-45956	2557587	-41759
			Max. My	14	-45935	45640	-2583550
			Max. Vy	20	-34008	2557587	-41759
			Max. Vx	14	34436	45640	-2583550
			Max. Torque	16			7308
L28	38.5 - 38.25	Pole	Max Tension	1	0	0	0

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Compression	26	-95577	-2872	-1525
			Max. Mx	20	-46059	2566089	-41915
			Max. My	14	-46038	45818	-2592158
			Max. Vy	20	-34023	2566089	-41915
			Max. Vx	14	34451	45818	-2592158
			Max. Torque	16			7307
L29	38.25 - 38	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-95698	-2869	-1526
			Max. Mx	20	-46145	2574595	-42070
			Max. My	14	-46124	45997	-2600771
			Max. Vy	20	-34045	2574595	-42070
			Max. Vx	14	34473	45997	-2600771
			Max. Torque	16			7307
L30	38 - 33	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-98234	-2873	-1429
			Max. Mx	20	-47880	2745829	-45173
			Max. My	14	-47861	49564	-2774137
			Max. Vy	20	-34475	2745829	-45173
			Max. Vx	14	34901	49564	-2774137
			Max. Torque	16			7307
L31	33 - 31.75	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-98894	-2887	-1376
			Max. Mx	20	-48318	2788964	-45947
			Max. My	14	-48300	50454	-2817804
			Max. Vy	20	-34582	2788964	-45947
			Max. Vx	14	35008	50454	-2817804
			Max. Torque	16			7305
L32	31.75 - 31.5	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-99059	-2894	-1370
			Max. Mx	20	-48451	2797607	-46102
			Max. My	14	-48433	50631	-2826554
			Max. Vy	20	-34589	2797607	-46102
			Max. Vx	14	35015	50631	-2826554
			Max. Torque	16			7305
L33	31.5 - 28.25	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-101200	-2925	-1228
			Max. Mx	20	-49991	2910498	-48111
			Max. My	14	-49975	52942	-2940826
			Max. Vy	20	-34903	2910498	-48111
			Max. Vx	14	35328	52942	-2940826
			Max. Torque	16			7305
L34	28.25 - 28	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-101349	-2930	-1221
			Max. Mx	20	-50104	2919223	-48266
			Max. My	14	-50087	53120	-2949657
			Max. Vy	20	-34916	2919223	-48266
			Max. Vx	14	35342	53120	-2949657
			Max. Torque	16			7304
L35	28 - 23	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-104252	-2904	-1001
			Max. Mx	20	-52199	3094765	-51347
			Max. My	14	-52186	56667	-3127319
			Max. Vy	20	-35326	3094765	-51347
			Max. Vx	14	35750	56667	-3127319
			Max. Torque	16			7304
L36	23 - 18	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-107096	-2804	-780
			Max. Mx	20	-54334	3272223	-54415
			Max. My	14	-54323	60202	-3306888
			Max. Vy	20	-35695	3272223	-54415
			Max. Vx	14	36117	60202	-3306888
			Max. Torque	16			7303
L37	18 - 13	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-110946	-2707	-562
			Max. Mx	20	-57064	3451949	-57468
			Max. My	14	-57056	63722	-3488716
			Max. Vy	20	-36287	3451949	-57468
			Max. Vx	14	36707	63722	-3488716
			Max. Torque	16			7302

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
L38	13 - 8	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-113740	-2613	-349
			Max. Mx	20	-59250	3634073	-60505
			Max. My	14	-59245	67227	-3672933
			Max. Vy	20	-36603	3634073	-60505
			Max. Vx	14	37022	67227	-3672933
			Max. Torque	16			7301
L39	8 - 3	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-116516	-2525	-149
			Max. Mx	20	-61462	3817769	-63524
			Max. My	14	-61460	70715	-3858711
			Max. Vy	20	-36917	3817769	-63524
			Max. Vx	14	37333	70715	-3858711
			Max. Torque	16			7301
L40	3 - 0	Pole	Max Tension	1	0	0	0
			Max. Compression	26	-118141	-2480	-44
			Max. Mx	20	-62804	3928732	-65327
			Max. My	14	-62804	72800	-3970918
			Max. Vy	20	-37102	3928732	-65327
			Max. Vx	14	37517	72800	-3970918
			Max. Torque	16			7301

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	26	118141	0	0
	Max. H_x	21	47113	37080	-600
	Max. H_z	3	47113	-613	37434
	Max. M_x	2	3966336	-613	37434
	Max. M_z	8	3922216	-36997	607
	Max. Torsion	16	7301	19057	-32770
	Min. Vert	9	47113	-36997	607
	Min. H_x	9	47113	-36997	607
	Min. H_z	15	47113	692	-37494
	Min. M_x	14	-3970918	692	-37494
	Min. M_z	20	-3928732	37079	-600
	Min. Torsion	4	-7211	-18984	32670

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	52348	0	0	-85	-134	0
1.2 Dead+1.0 Wind 0 deg - No Ice	62818	613	-37434	-3966336	-66500	6615
0.9 Dead+1.0 Wind 0 deg - No Ice	47113	613	-37434	-3915882	-65700	6614
1.2 Dead+1.0 Wind 30 deg - No Ice	62818	18984	-32670	-3463483	-2014908	7211
0.9 Dead+1.0 Wind 30 deg - No Ice	47113	18984	-32670	-3419433	-1989260	7206
1.2 Dead+1.0 Wind 60 deg - No Ice	62818	32291	-19210	-2037442	-3425344	5919
0.9 Dead+1.0 Wind 60 deg - No Ice	47113	32291	-19210	-2011554	-3381685	5912
1.2 Dead+1.0 Wind 90 deg - No Ice	62818	36997	-607	-65940	-3922216	3139
0.9 Dead+1.0 Wind 90 deg -	47113	36997	-607	-65151	-3872219	3133

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
No Ice						
1.2 Dead+1.0 Wind 120 deg - No Ice	62818	31787	18256	1931036	-3368250	-371
0.9 Dead+1.0 Wind 120 deg - No Ice	47113	31787	18256	1906445	-3325261	-375
1.2 Dead+1.0 Wind 150 deg - No Ice	62818	18048	32183	3407325	-1910449	-4000
0.9 Dead+1.0 Wind 150 deg - No Ice	47113	18048	32183	3363979	-1886030	-4001
1.2 Dead+1.0 Wind 180 deg - No Ice	62818	-692	37494	3970918	72800	-6659
0.9 Dead+1.0 Wind 180 deg - No Ice	47113	-692	37494	3920459	71999	-6658
1.2 Dead+1.0 Wind 210 deg - No Ice	62818	-19057	32770	3471284	2020720	-7301
0.9 Dead+1.0 Wind 210 deg - No Ice	47113	-19057	32770	3427213	1995076	-7296
1.2 Dead+1.0 Wind 240 deg - No Ice	62818	-32352	19289	2043535	3430151	-6136
0.9 Dead+1.0 Wind 240 deg - No Ice	47113	-32352	19289	2017652	3386525	-6130
1.2 Dead+1.0 Wind 270 deg - No Ice	62818	-37079	600	65326	3928732	-3405
0.9 Dead+1.0 Wind 270 deg - No Ice	47113	-37080	600	64588	3878755	-3399
1.2 Dead+1.0 Wind 300 deg - No Ice	62818	-31851	-18161	-1923520	3373118	104
0.9 Dead+1.0 Wind 300 deg - No Ice	47113	-31851	-18161	-1898967	3330177	109
1.2 Dead+1.0 Wind 330 deg - No Ice	62818	-17981	-32180	-3407398	1904610	4134
0.9 Dead+1.0 Wind 330 deg - No Ice	47113	-17981	-32180	-3364031	1880314	4136
1.2 Dead+1.0 Ice+1.0 Temp	118141	0	0	44	-2480	0
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	118141	103	-12011	-1331040	-14087	1581
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	118141	6029	-10443	-1157436	-672195	1535
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	118141	10345	-6087	-674619	-1151328	1085
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	118141	11899	-102	-11055	-1323556	366
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	118141	10263	5931	657167	-1141827	-427
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	118141	5876	10365	1148599	-654690	-1150
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	118141	-118	12023	1332429	9900	-1586
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	118141	-6043	10462	1159479	667919	-1553
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	118141	-10357	6103	676314	1146825	-1132
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	118141	-11915	100	11303	1319409	-420
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	118141	-10276	-5912	-655186	1137366	378
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	118141	-5863	-10364	-1148155	648032	1180
Dead+Wind 0 deg - Service	52348	133	-8124	-854539	-14450	1453
Dead+Wind 30 deg - Service	52348	4120	-7090	-746244	-434225	1581
Dead+Wind 60 deg - Service	52348	7008	-4169	-438985	-738055	1297
Dead+Wind 90 deg - Service	52348	8028	-132	-14253	-845010	689
Dead+Wind 120 deg - Service	52348	6898	3962	415942	-725706	-79
Dead+Wind 150 deg - Service	52348	3917	6984	734006	-411687	-874
Dead+Wind 180 deg - Service	52348	-150	8137	855434	15572	-1461
Dead+Wind 210 deg -	52348	-4136	7112	747844	435244	-1605

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Service						
Dead+Wind 240 deg - Service	52348	-7021	4186	440237	738896	-1350
Dead+Wind 270 deg - Service	52348	-8046	130	14033	846196	-749
Dead+Wind 300 deg - Service	52348	-6912	-3941	-414420	726543	25
Dead+Wind 330 deg - Service	52348	-3902	-6984	-734101	410184	910

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0	-52348	0	0	52348	0	0.000%
2	613	-62818	-37434	-613	62818	37434	0.000%
3	613	-47113	-37434	-613	47113	37434	0.000%
4	18984	-62818	-32670	-18984	62818	32670	0.000%
5	18984	-47113	-32670	-18984	47113	32670	0.000%
6	32291	-62818	-19210	-32291	62818	19210	0.000%
7	32291	-47113	-19210	-32291	47113	19210	0.000%
8	36997	-62818	-607	-36997	62818	607	0.001%
9	36997	-47113	-607	-36997	47113	607	0.001%
10	31787	-62818	18256	-31787	62818	-18256	0.000%
11	31787	-47113	18256	-31787	47113	-18256	0.000%
12	18048	-62818	32183	-18048	62818	-32183	0.000%
13	18048	-47113	32183	-18048	47113	-32183	0.000%
14	-692	-62818	37494	692	62818	-37494	0.000%
15	-692	-47113	37494	692	47113	-37494	0.000%
16	-19057	-62818	32770	19057	62818	-32770	0.000%
17	-19057	-47113	32770	19057	47113	-32770	0.000%
18	-32352	-62818	19289	32352	62818	-19289	0.000%
19	-32352	-47113	19289	32352	47113	-19289	0.000%
20	-37080	-62818	600	37079	62818	-600	0.000%
21	-37080	-47113	600	37080	47113	-600	0.000%
22	-31851	-62818	-18161	31851	62818	18161	0.000%
23	-31851	-47113	-18161	31851	47113	18161	0.000%
24	-17981	-62818	-32180	17981	62818	32180	0.000%
25	-17981	-47113	-32180	17981	47113	32180	0.000%
26	0	-118141	0	0	118141	0	0.000%
27	103	-118141	-12011	-103	118141	12011	0.000%
28	6029	-118141	-10443	-6029	118141	10443	0.000%
29	10345	-118141	-6088	-10345	118141	6087	0.000%
30	11899	-118141	-102	-11899	118141	102	0.000%
31	10263	-118141	5931	-10263	118141	-5931	0.000%
32	5876	-118141	10365	-5876	118141	-10365	0.000%
33	-118	-118141	12023	118	118141	-12023	0.000%
34	-6043	-118141	10462	6043	118141	-10462	0.000%
35	-10357	-118141	6103	10357	118141	-6103	0.000%
36	-11915	-118141	100	11915	118141	-100	0.000%
37	-10276	-118141	-5912	10276	118141	5912	0.000%
38	-5863	-118141	-10364	5863	118141	10364	0.000%
39	133	-52348	-8124	-133	52348	8124	0.001%
40	4120	-52348	-7090	-4120	52348	7090	0.000%
41	7008	-52348	-4169	-7008	52348	4169	0.001%
42	8029	-52348	-132	-8028	52348	132	0.002%
43	6899	-52348	3962	-6898	52348	-3962	0.001%
44	3917	-52348	6985	-3917	52348	-6984	0.000%
45	-150	-52348	8137	150	52348	-8137	0.001%
46	-4136	-52348	7112	4136	52348	-7112	0.000%
47	-7021	-52348	4186	7021	52348	-4186	0.000%
48	-8047	-52348	130	8046	52348	-130	0.002%
49	-6913	-52348	-3941	6912	52348	3941	0.001%
50	-3902	-52348	-6984	3902	52348	6984	0.001%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	20	0.00000001	0.00009389
3	Yes	20	0.00000001	0.00006842
4	Yes	22	0.00000001	0.00010786
5	Yes	22	0.00000001	0.00007313
6	Yes	22	0.00000001	0.00009241
7	Yes	21	0.00000001	0.00014332
8	Yes	18	0.00000001	0.00011093
9	Yes	18	0.00000001	0.00008299
10	Yes	22	0.00000001	0.00009084
11	Yes	21	0.00000001	0.00014164
12	Yes	22	0.00000001	0.00009607
13	Yes	22	0.00000001	0.00006523
14	Yes	19	0.00000001	0.00012546
15	Yes	19	0.00000001	0.00009451
16	Yes	22	0.00000001	0.00009173
17	Yes	21	0.00000001	0.00014205
18	Yes	22	0.00000001	0.00010651
19	Yes	22	0.00000001	0.00007219
20	Yes	19	0.00000001	0.00013162
21	Yes	19	0.00000001	0.00009732
22	Yes	22	0.00000001	0.00009070
23	Yes	21	0.00000001	0.00014145
24	Yes	22	0.00000001	0.00008662
25	Yes	21	0.00000001	0.00013472
26	Yes	12	0.00000001	0.00013197
27	Yes	21	0.00000001	0.00010552
28	Yes	21	0.00000001	0.00013053
29	Yes	21	0.00000001	0.00012815
30	Yes	21	0.00000001	0.00010539
31	Yes	21	0.00000001	0.00012715
32	Yes	21	0.00000001	0.00012863
33	Yes	21	0.00000001	0.00010635
34	Yes	21	0.00000001	0.00012825
35	Yes	21	0.00000001	0.00012987
36	Yes	21	0.00000001	0.00010456
37	Yes	21	0.00000001	0.00012549
38	Yes	21	0.00000001	0.00012487
39	Yes	16	0.00000001	0.00010392
40	Yes	17	0.00000001	0.00010356
41	Yes	16	0.00000001	0.00014827
42	Yes	15	0.00000001	0.00012440
43	Yes	16	0.00000001	0.00014568
44	Yes	17	0.00000001	0.00008309
45	Yes	16	0.00000001	0.00009623
46	Yes	17	0.00000001	0.00007283
47	Yes	17	0.00000001	0.00009873
48	Yes	15	0.00000001	0.00014172
49	Yes	16	0.00000001	0.00014543
50	Yes	16	0.00000001	0.00013437

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	148 - 143	20.305	46	1.1844	0.0075
L2	143 - 138	19.065	46	1.1828	0.0072
L3	138 - 133	17.830	46	1.1758	0.0070
L4	133 - 128	16.606	46	1.1614	0.0068

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L5	128 - 123	15.401	46	1.1394	0.0066
L6	123 - 116	14.222	46	1.1097	0.0064
L7	119.75 - 114.75	13.475	46	1.0856	0.0063
L8	114.75 - 109.75	12.350	46	1.0598	0.0063
L9	109.75 - 104.75	11.263	46	1.0142	0.0062
L10	104.75 - 99.75	10.228	46	0.9620	0.0054
L11	99.75 - 94.75	9.251	46	0.9037	0.0047
L12	94.75 - 93.5	8.337	46	0.8399	0.0040
L13	93.5 - 93.25	8.120	46	0.8233	0.0038
L14	93.25 - 88.25	8.077	46	0.8213	0.0038
L15	88.25 - 83.25	7.238	46	0.7797	0.0034
L16	83.25 - 74.75	6.445	46	0.7352	0.0031
L17	79.5 - 74.5	5.881	46	0.7004	0.0029
L18	74.5 - 69.5	5.159	46	0.6766	0.0027
L19	69.5 - 64.5	4.475	46	0.6305	0.0024
L20	64.5 - 62.5	3.839	46	0.5834	0.0021
L21	62.5 - 62.25	3.599	46	0.5643	0.0020
L22	62.25 - 57.75	3.569	46	0.5607	0.0020
L23	57.75 - 57.5	3.072	46	0.4955	0.0017
L24	57.5 - 52.5	3.046	46	0.4933	0.0016
L25	52.5 - 47.5	2.552	46	0.4490	0.0014
L26	47.5 - 39.5	2.106	46	0.4033	0.0012
L27	45 - 38.5	1.901	46	0.3804	0.0011
L28	38.5 - 38.25	1.403	46	0.3475	0.0010
L29	38.25 - 38	1.385	46	0.3453	0.0010
L30	38 - 33	1.367	46	0.3429	0.0010
L31	33 - 31.75	1.033	46	0.2938	0.0008
L32	31.75 - 31.5	0.958	46	0.2817	0.0008
L33	31.5 - 28.25	0.943	46	0.2800	0.0008
L34	28.25 - 28	0.760	46	0.2577	0.0007
L35	28 - 23	0.747	46	0.2554	0.0007
L36	23 - 18	0.503	46	0.2100	0.0006
L37	18 - 13	0.308	46	0.1638	0.0004
L38	13 - 8	0.160	46	0.1179	0.0003
L39	8 - 3	0.061	46	0.0723	0.0002
L40	3 - 0	0.009	46	0.0272	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
148.00	800 10121 w/ Mount Pipe	46	20.305	1.1844	0.0076	61200
147.00	Side Arm Mount [SO 601-3]	46	20.057	1.1843	0.0075	61200
139.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	46	18.077	1.1778	0.0071	30471
126.00	MT6407-77A w/ Mount Pipe	46	14.925	1.1289	0.0065	9614
111.00	TME-800MHz 2X50W RRH W/FILTER	46	11.530	1.0270	0.0063	6181
109.00	APXVTM14-C-120 w/ Mount Pipe	46	11.105	1.0065	0.0061	5739
99.00	MX08FRO665-21 w/ Mount Pipe	46	9.110	0.8949	0.0046	4632
80.00	SC3-W100ASTX	46	5.955	0.7041	0.0029	8089
79.00	SRL-227	46	5.807	0.6972	0.0029	8597
75.00	HP2-23	46	5.230	0.6794	0.0027	8294
74.00	Pipe Mount [PM 601-1]	46	5.089	0.6733	0.0027	7818
50.00	GPS-TMG-HR-26N	46	2.323	0.4267	0.0014	6247
15.00	Side Arm Mount [SO 601-3]	46	0.213	0.1362	0.0004	6215

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	148 - 143	94.291	16	5.5107	0.0343
L2	143 - 138	88.537	16	5.5032	0.0330
L3	138 - 133	82.805	16	5.4707	0.0319
L4	133 - 128	77.123	16	5.4031	0.0309
L5	128 - 123	71.530	16	5.3002	0.0300
L6	123 - 116	66.062	16	5.1620	0.0292
L7	119.75 - 114.75	62.593	16	5.0496	0.0289
L8	114.75 - 109.75	57.369	16	4.9295	0.0285
L9	109.75 - 104.75	52.326	16	4.7171	0.0281
L10	104.75 - 99.75	47.520	16	4.4746	0.0248
L11	99.75 - 94.75	42.982	16	4.2034	0.0213
L12	94.75 - 93.5	38.739	16	3.9067	0.0181
L13	93.5 - 93.25	37.728	16	3.8293	0.0174
L14	93.25 - 88.25	37.528	16	3.8201	0.0173
L15	88.25 - 83.25	33.632	16	3.6268	0.0157
L16	83.25 - 74.75	29.946	16	3.4194	0.0141
L17	79.5 - 74.5	27.326	16	3.2577	0.0130
L18	74.5 - 69.5	23.973	16	3.1467	0.0122
L19	69.5 - 64.5	20.792	16	2.9322	0.0109
L20	64.5 - 62.5	17.838	16	2.7127	0.0096
L21	62.5 - 62.25	16.721	16	2.6237	0.0092
L22	62.25 - 57.75	16.584	16	2.6070	0.0091
L23	57.75 - 57.5	14.271	16	2.3035	0.0075
L24	57.5 - 52.5	14.151	16	2.2933	0.0075
L25	52.5 - 47.5	11.858	16	2.0872	0.0065
L26	47.5 - 39.5	9.784	16	1.8747	0.0056
L27	45 - 38.5	8.831	16	1.7682	0.0052
L28	38.5 - 38.25	6.517	16	1.6147	0.0046
L29	38.25 - 38	6.432	16	1.6048	0.0046
L30	38 - 33	6.349	16	1.5935	0.0046
L31	33 - 31.75	4.800	16	1.3652	0.0038
L32	31.75 - 31.5	4.450	16	1.3087	0.0036
L33	31.5 - 28.25	4.382	16	1.3008	0.0036
L34	28.25 - 28	3.532	16	1.1972	0.0032
L35	28 - 23	3.469	16	1.1867	0.0032
L36	23 - 18	2.337	16	0.9754	0.0026
L37	18 - 13	1.428	16	0.7606	0.0019
L38	13 - 8	0.744	16	0.5474	0.0014
L39	8 - 3	0.281	16	0.3358	0.0008
L40	3 - 0	0.040	16	0.1262	0.0003

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
148.00	800 10121 w/ Mount Pipe	16	94.291	5.5107	0.0343	14189
147.00	Side Arm Mount [SO 601-3]	16	93.139	5.5101	0.0341	14189
139.00	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	16	83.948	5.4798	0.0321	6837
126.00	MT6407-77A w/ Mount Pipe	16	69.325	5.2513	0.0296	2103
111.00	TME-800MHz 2X50W RRH W/FILTER	16	53.567	4.7766	0.0285	1346
109.00	APXVTM14-C-120 w/ Mount Pipe	16	51.589	4.6814	0.0279	1252
99.00	MX08FRO665-21 w/ Mount Pipe	16	42.326	4.1624	0.0210	1008
80.00	SC3-W100ASTX	16	27.670	3.2750	0.0133	1751
79.00	SRL-227	16	26.984	3.2430	0.0131	1861
75.00	HP2-23	16	24.301	3.1599	0.0125	1793
74.00	Pipe Mount [PM 601-1]	16	23.646	3.1313	0.0123	1690
50.00	GPS-TMG-HR-26N	16	10.793	1.9836	0.0062	1346
15.00	Side Arm Mount [SO 601-3]	16	0.991	0.6324	0.0016	1338

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	lb	lb	
L1	148 - 143 (1)	TP24.9752x24x0.2188	5.00	0.00	0.0	17.1887	-4833	1005540	0.005
L2	143 - 138 (2)	TP25.9503x24.9752x0.2188	5.00	0.00	0.0	17.8657	-9831	1045150	0.009
L3	138 - 133 (3)	TP26.9255x25.9503x0.2188	5.00	0.00	0.0	18.5428	-10305	1084750	0.009
L4	133 - 128 (4)	TP27.9006x26.9255x0.2188	5.00	0.00	0.0	19.2199	-10799	1124360	0.010
L5	128 - 123 (5)	TP28.8758x27.9006x0.2188	5.00	0.00	0.0	19.8969	-15367	1163970	0.013
L6	123 - 116 (6)	TP30.241x28.8758x0.2188	7.00	0.00	0.0	20.3370	-15735	1189720	0.013
L7	116 - 114.75 (7)	TP30.0471x29.0721x0.25	5.00	0.00	0.0	23.6440	-16697	1383170	0.012
L8	114.75 - 109.75 (8)	TP31.0221x30.0471x0.25	5.00	0.00	0.0	24.4177	-18016	1428430	0.013
L9	109.75 - 104.75 (9)	TP31.9971x31.0221x0.25	5.00	0.00	0.0	25.1913	-22203	1473690	0.015
L10	104.75 - 99.75 (10)	TP32.9721x31.9971x0.25	5.00	0.00	0.0	25.9650	-23003	1518950	0.015
L11	99.75 - 94.75 (11)	TP33.9471x32.9721x0.25	5.00	0.00	0.0	26.7386	-26833	1564210	0.017
L12	94.75 - 93.5 (12)	TP34.1908x33.9471x0.25	1.25	0.00	0.0	26.9320	-27050	1575520	0.017
L13	93.5 - 93.25 (13)	TP34.2396x34.1908x0.4375	0.25	0.00	0.0	46.9384	-27127	2745900	0.010
L14	93.25 - 88.25 (14)	TP35.2145x34.2396x0.4313	5.00	0.00	0.0	47.6109	-28321	2785240	0.010
L15	88.25 - 83.25 (15)	TP36.1895x35.2145x0.425	5.00	0.00	0.0	48.2446	-29549	2822310	0.010
L16	83.25 - 74.75 (16)	TP37.847x36.1895x0.425	8.50	0.00	0.0	49.2310	-30511	2880010	0.011
L17	74.75 - 74.5 (17)	TP37.3959x36.4208x0.4875	5.00	0.00	0.0	57.1093	-33006	3340900	0.010
L18	74.5 - 69.5 (18)	TP38.3711x37.3959x0.475	5.00	0.00	0.0	57.1340	-34509	3342340	0.010
L19	69.5 - 64.5 (19)	TP39.3462x38.3711x0.475	5.00	0.00	0.0	58.6042	-35973	3428350	0.010
L20	64.5 - 62.5 (20)	TP39.7363x39.3462x0.475	2.00	0.00	0.0	59.1923	-36567	3462750	0.011
L21	62.5 - 62.25 (21)	TP39.785x39.7363x0.3125	0.25	0.00	0.0	39.1518	-36634	2290380	0.016
L22	62.25 - 57.75 (22)	TP40.6627x39.785x0.3125	4.50	0.00	0.0	40.0223	-37699	2341310	0.016
L23	57.75 - 57.5 (23)	TP40.7114x40.6627x0.525	0.25	0.00	0.0	66.9647	-37800	3917430	0.010
L24	57.5 - 52.5 (24)	TP41.6866x40.7114x0.525	5.00	0.00	0.0	68.5896	-39434	4012490	0.010
L25	52.5 - 47.5 (25)	TP42.6618x41.6866x0.5125	5.00	0.00	0.0	68.5631	-41190	4010940	0.010
L26	47.5 - 39.5 (26)	TP44.222x42.6618x0.5125	8.00	0.00	0.0	69.3563	-42033	4057340	0.010
L27	39.5 - 38.5 (27)	TP43.7919x42.5243x0.575	6.50	0.00	0.0	78.8731	-45912	4614070	0.010
L28	38.5 - 38.25 (28)	TP43.8407x43.7919x0.575	0.25	0.00	0.0	78.9620	-46015	4619280	0.010
L29	38.25 - 38 (29)	TP43.8894x43.8407x0.5063	0.25	0.00	0.0	69.7097	-46102	4078020	0.011
L30	38 - 33 (30)	TP44.8645x43.8894x0.5	5.00	0.00	0.0	70.4065	-47842	4118780	0.012

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L31	33 - 31.75 (31)	TP45.1083x44.8645x0.5	1.25	0.00	0.0	70.7933	-48281	4141410	0.012
L32	31.75 - 31.5 (32)	TP45.157x45.1083x0.725	0.25	0.00	0.0	102.2450	-48415	5981320	0.008
L33	31.5 - 28.25 (33)	TP45.7908x45.157x0.725	3.25	0.00	0.0	103.7030	-49958	6066640	0.008
L34	28.25 - 28 (34)	TP45.8396x45.7908x0.5375	0.25	0.00	0.0	77.2865	-50071	4521260	0.011
L35	28 - 23 (35)	TP46.8147x45.8396x0.5375	5.00	0.00	0.0	78.9500	-52172	4618570	0.011
L36	23 - 18 (36)	TP47.7897x46.8147x0.525	5.00	0.00	0.0	78.7596	-54312	4607440	0.012
L37	18 - 13 (37)	TP48.7648x47.7897x0.525	5.00	0.00	0.0	80.3844	-57048	4702490	0.012
L38	13 - 8 (38)	TP49.7399x48.7648x0.525	5.00	0.00	0.0	82.0092	-59240	4797540	0.012
L39	8 - 3 (39)	TP50.715x49.7399x0.525	5.00	0.00	0.0	83.6340	-61458	4892590	0.013
L40	3 - 0 (40)	TP51.3x50.715x0.5188	3.00	0.00	0.0	83.6120	-62804	4891300	0.013

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} lb-ft	ϕM_{ny} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	148 - 143 (1)	TP24.9752x24x0.2188	19519	619979	0.031	0	619979	0.000
L2	143 - 138 (2)	TP25.9503x24.9752x0.2188	50555	662160	0.076	0	662160	0.000
L3	138 - 133 (3)	TP26.9255x25.9503x0.2188	102001	705064	0.145	0	705064	0.000
L4	133 - 128 (4)	TP27.9006x26.9255x0.2188	155877	748623	0.208	0	748623	0.000
L5	128 - 123 (5)	TP28.8758x27.9006x0.2188	232521	792771	0.293	0	792771	0.000
L6	123 - 116 (6)	TP30.241x28.8758x0.2188	286846	821749	0.349	0	821749	0.000
L7	116 - 114.75 (7)	TP30.0471x29.0721x0.25	372699	1010683	0.369	0	1010683	0.000
L8	114.75 - 109.75 (8)	TP31.0221x30.0471x0.25	462020	1066967	0.433	0	1066967	0.000
L9	109.75 - 104.75 (9)	TP31.9971x31.0221x0.25	581710	1123983	0.518	0	1123983	0.000
L10	104.75 - 99.75 (10)	TP32.9721x31.9971x0.25	700120	1181667	0.592	0	1181667	0.000
L11	99.75 - 94.75 (11)	TP33.9471x32.9721x0.25	835858	1239942	0.674	0	1239942	0.000
L12	94.75 - 93.5 (12)	TP34.1908x33.9471x0.25	870833	1254592	0.694	0	1254592	0.000
L13	93.5 - 93.25 (13)	TP34.2396x34.1908x0.4375	877850	2411783	0.364	0	2411783	0.000
L14	93.25 - 88.25 (14)	TP35.2145x34.2396x0.4313	1019458	2518708	0.405	0	2518708	0.000
L15	88.25 - 83.25 (15)	TP36.1895x35.2145x0.425	1163650	2625567	0.443	0	2625567	0.000
L16	83.25 - 74.75 (16)	TP37.847x36.1895x0.425	1273658	2734667	0.466	0	2734667	0.000
L17	74.75 - 74.5 (17)	TP37.3959x36.4208x0.4875	1425633	3203208	0.445	0	3203208	0.000
L18	74.5 - 69.5 (18)	TP38.3711x37.3959x0.475	1582900	3292542	0.481	0	3292542	0.000
L19	69.5 - 64.5 (19)	TP39.3462x38.3711x0.475	1742833	3465250	0.503	0	3465250	0.000
L20	64.5 - 62.5 (20)	TP39.7363x39.3462x0.475	1807500	3535567	0.511	0	3535567	0.000

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} lb-ft	ϕM_{ny} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L21	62.5 - 62.25 (21)	TP39.785x39.7363x0.3125	1815608	2175875	0.834	0	2175875	0.000
L22	62.25 - 57.75 (22)	TP40.6627x39.785x0.3125	1962442	2256725	0.870	0	2256725	0.000
L23	57.75 - 57.5 (23)	TP40.7114x40.6627x0.525	1970650	4090158	0.482	0	4090158	0.000
L24	57.5 - 52.5 (24)	TP41.6866x40.7114x0.525	2136033	4292383	0.498	0	4292383	0.000
L25	52.5 - 47.5 (25)	TP42.6618x41.6866x0.5125	2303783	4396267	0.524	0	4396267	0.000
L26	47.5 - 39.5 (26)	TP44.222x42.6618x0.5125	2388767	4499183	0.531	0	4499183	0.000
L27	39.5 - 38.5 (27)	TP43.7919x42.5243x0.575	2612950	5179575	0.504	0	5179575	0.000
L28	38.5 - 38.25 (28)	TP43.8407x43.7919x0.575	2621667	5191350	0.505	0	5191350	0.000
L29	38.25 - 38 (29)	TP43.8894x43.8407x0.5063	2630392	4602867	0.571	0	4602867	0.000
L30	38 - 33 (30)	TP44.8645x43.8894x0.5	2805900	4755908	0.590	0	4755908	0.000
L31	33 - 31.75 (31)	TP45.1083x44.8645x0.5	2850100	4808608	0.593	0	4808608	0.000
L32	31.75 - 31.5 (32)	TP45.157x45.1083x0.725	2858958	6882717	0.415	0	6882717	0.000
L33	31.5 - 28.25 (33)	TP45.7908x45.157x0.725	2974617	7082075	0.420	0	7082075	0.000
L34	28.25 - 28 (34)	TP45.8396x45.7908x0.5375	2983550	5327842	0.560	0	5327842	0.000
L35	28 - 23 (35)	TP46.8147x45.8396x0.5375	3163342	5561033	0.569	0	5561033	0.000
L36	23 - 18 (36)	TP47.7897x46.8147x0.525	3345033	5668858	0.590	0	5668858	0.000
L37	18 - 13 (37)	TP48.7648x47.7897x0.525	3528967	5906475	0.597	0	5906475	0.000
L38	13 - 8 (38)	TP49.7399x48.7648x0.525	3715283	6148975	0.604	0	6148975	0.000
L39	8 - 3 (39)	TP50.715x49.7399x0.525	3903150	6387725	0.611	0	6387725	0.000
L40	3 - 0 (40)	TP51.3x50.715x0.5188	4016608	6425658	0.625	0	6425658	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	148 - 143 (1)	TP24.9752x24x0.2188	5072	301661	0.017	1	654014	0.000
L2	143 - 138 (2)	TP25.9503x24.9752x0.2188	10051	313544	0.032	1	706553	0.000
L3	138 - 133 (3)	TP26.9255x25.9503x0.2188	10534	325426	0.032	1	761120	0.000
L4	133 - 128 (4)	TP27.9006x26.9255x0.2188	11024	337309	0.033	1	817718	0.000
L5	128 - 123 (5)	TP28.8758x27.9006x0.2188	16552	349191	0.047	666	876342	0.001
L6	123 - 116 (6)	TP30.241x28.8758x0.2188	16900	356915	0.047	776	915542	0.001
L7	116 - 114.75 (7)	TP30.0471x29.0721x0.25	17443	414952	0.042	775	1082808	0.001
L8	114.75 - 109.75 (8)	TP31.0221x30.0471x0.25	18673	428530	0.044	774	1154833	0.001
L9	109.75 - 104.75 (9)	TP31.9971x31.0221x0.25	23461	442108	0.053	6402	1229167	0.005
L10	104.75 - 99.75 (10)	TP32.9721x31.9971x0.25	23927	455685	0.053	6399	1305825	0.005
L11	99.75 - 94.75 (11)	TP33.9471x32.9721x0.25	27943	469263	0.060	6258	1384800	0.005
L12	94.75 - 93.5	TP34.1908x33.9471x0.25	28056	472657	0.059	6257	1404908	0.004

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
L13	93.5 - 93.25 (12)	TP34.2396x34.1908x0.4375	28090	823769	0.034	6256	2438533	0.003
L14	93.25 - 88.25 (13)	TP35.2145x34.2396x0.4375	28593	835572	0.034	6254	2545275	0.002
L15	88.25 - 83.25 (14)	TP36.1895x35.2145x0.425	29107	846692	0.034	6252	2651908	0.002
L16	83.25 - 74.75 (15)	TP37.847x36.1895x0.425	29887	864003	0.035	7197	2761458	0.003
L17	74.75 - 74.5 (16)	TP37.3959x36.4208x0.4875	31193	1002270	0.031	7552	3239583	0.002
L18	74.5 - 69.5 (17)	TP38.3711x37.3959x0.475	31754	1002700	0.032	7488	3327717	0.002
L19	69.5 - 64.5 (18)	TP39.3462x38.3711x0.475	32250	1028500	0.031	7486	3501175	0.002
L20	64.5 - 62.5 (19)	TP39.7363x39.3462x0.475	32446	1038820	0.031	7485	3571800	0.002
L21	62.5 - 62.25 (20)	TP39.785x39.7363x0.3125	32466	687115	0.047	7484	2375225	0.003
L22	62.25 - 57.75 (21)	TP40.6627x39.785x0.3125	32833	702392	0.047	7481	2482017	0.003
L23	57.75 - 57.5 (22)	TP40.7114x40.6627x0.525	32846	1175230	0.028	7481	4136017	0.002
L24	57.5 - 52.5 (23)	TP41.6866x40.7114x0.525	33340	1203750	0.028	7479	4339183	0.002
L25	52.5 - 47.5 (24)	TP42.6618x41.6866x0.5125	33891	1203280	0.028	7310	4441583	0.002
L26	47.5 - 39.5 (25)	TP44.222x42.6618x0.5125	34127	1217200	0.028	7309	4544933	0.002
L27	39.5 - 38.5 (26)	TP43.7919x42.5243x0.575	34865	1384220	0.025	7308	5238892	0.001
L28	38.5 - 38.25 (27)	TP43.8407x43.7919x0.575	34881	1385780	0.025	7307	5250725	0.001
L29	38.25 - 38 (28)	TP43.8894x43.8407x0.5063	34902	1223410	0.029	7307	4648058	0.002
L30	38 - 33 (29)	TP44.8645x43.8894x0.5	35329	1235630	0.029	7306	4800708	0.002
L31	33 - 31.75 (30)	TP45.1083x44.8645x0.5	35436	1242420	0.029	7305	4853608	0.002
L32	31.75 - 31.5 (31)	TP45.157x45.1083x0.725	35443	1794400	0.020	7305	6982233	0.001
L33	31.5 - 28.25 (32)	TP45.7908x45.157x0.725	35755	1819990	0.020	7305	7182850	0.001
L34	28.25 - 28 (33)	TP45.8396x45.7908x0.5375	35767	1356380	0.026	7304	5381200	0.001
L35	28 - 23 (34)	TP46.8147x45.8396x0.5375	36175	1385570	0.026	7303	5615333	0.001
L36	23 - 18 (35)	TP47.7897x46.8147x0.525	36540	1382230	0.026	7302	5721341	0.001
L37	18 - 13 (36)	TP48.7648x47.7897x0.525	37128	1410750	0.026	7301	5959841	0.001
L38	13 - 8 (37)	TP49.7399x48.7648x0.525	37440	1439260	0.026	7301	6203208	0.001
L39	8 - 3 (38)	TP50.715x49.7399x0.525	37749	1467780	0.026	7301	6451441	0.001
L40	3 - 0 (39)	TP51.3x50.715x0.5188	37931	1467390	0.026	7301	6525725	0.001

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	148 - 143 (1)	0.005	0.031	0.000	0.017	0.000	0.037	1.050	4.8.2
L2	143 - 138 (2)	0.009	0.076	0.000	0.032	0.000	0.087	1.050	4.8.2
L3	138 - 133 (3)	0.009	0.145	0.000	0.032	0.000	0.155	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
L4	133 - 128 (4)	0.010	0.208	0.000	0.033	0.000	0.219	1.050	4.8.2
L5	128 - 123 (5)	0.013	0.293	0.000	0.047	0.001	0.309	1.050	4.8.2
L6	123 - 116 (6)	0.013	0.349	0.000	0.047	0.001	0.365	1.050	4.8.2
L7	116 - 114.75 (7)	0.012	0.369	0.000	0.042	0.001	0.383	1.050	4.8.2
L8	114.75 - 109.75 (8)	0.013	0.433	0.000	0.044	0.001	0.448	1.050	4.8.2
L9	109.75 - 104.75 (9)	0.015	0.518	0.000	0.053	0.005	0.536	1.050	4.8.2
L10	104.75 - 99.75 (10)	0.015	0.592	0.000	0.053	0.005	0.611	1.050	4.8.2
L11	99.75 - 94.75 (11)	0.017	0.674	0.000	0.060	0.005	0.695	1.050	4.8.2
L12	94.75 - 93.5 (12)	0.017	0.694	0.000	0.059	0.004	0.715	1.050	4.8.2
L13	93.5 - 93.25 (13)	0.010	0.364	0.000	0.034	0.003	0.375	1.050	4.8.2
L14	93.25 - 88.25 (14)	0.010	0.405	0.000	0.034	0.002	0.416	1.050	4.8.2
L15	88.25 - 83.25 (15)	0.010	0.443	0.000	0.034	0.002	0.455	1.050	4.8.2
L16	83.25 - 74.75 (16)	0.011	0.466	0.000	0.035	0.003	0.478	1.050	4.8.2
L17	74.75 - 74.5 (17)	0.010	0.445	0.000	0.031	0.002	0.456	1.050	4.8.2
L18	74.5 - 69.5 (18)	0.010	0.481	0.000	0.032	0.002	0.492	1.050	4.8.2
L19	69.5 - 64.5 (19)	0.010	0.503	0.000	0.031	0.002	0.515	1.050	4.8.2
L20	64.5 - 62.5 (20)	0.011	0.511	0.000	0.031	0.002	0.523	1.050	4.8.2
L21	62.5 - 62.25 (21)	0.016	0.834	0.000	0.047	0.003	0.853	1.050	4.8.2
L22	62.25 - 57.75 (22)	0.016	0.870	0.000	0.047	0.003	0.888	1.050	4.8.2
L23	57.75 - 57.5 (23)	0.010	0.482	0.000	0.028	0.002	0.492	1.050	4.8.2
L24	57.5 - 52.5 (24)	0.010	0.498	0.000	0.028	0.002	0.508	1.050	4.8.2
L25	52.5 - 47.5 (25)	0.010	0.524	0.000	0.028	0.002	0.535	1.050	4.8.2
L26	47.5 - 39.5 (26)	0.010	0.531	0.000	0.028	0.002	0.542	1.050	4.8.2
L27	39.5 - 38.5 (27)	0.010	0.504	0.000	0.025	0.001	0.515	1.050	4.8.2
L28	38.5 - 38.25 (28)	0.010	0.505	0.000	0.025	0.001	0.516	1.050	4.8.2
L29	38.25 - 38 (29)	0.011	0.571	0.000	0.029	0.002	0.584	1.050	4.8.2
L30	38 - 33 (30)	0.012	0.590	0.000	0.029	0.002	0.603	1.050	4.8.2
L31	33 - 31.75 (31)	0.012	0.593	0.000	0.029	0.002	0.605	1.050	4.8.2
L32	31.75 - 31.5 (32)	0.008	0.415	0.000	0.020	0.001	0.424	1.050	4.8.2
L33	31.5 - 28.25 (33)	0.008	0.420	0.000	0.020	0.001	0.429	1.050	4.8.2
L34	28.25 - 28 (34)	0.011	0.560	0.000	0.026	0.001	0.572	1.050	4.8.2
L35	28 - 23 (35)	0.011	0.569	0.000	0.026	0.001	0.581	1.050	4.8.2
L36	23 - 18 (36)	0.012	0.590	0.000	0.026	0.001	0.603	1.050	4.8.2
L37	18 - 13 (37)	0.012	0.597	0.000	0.026	0.001	0.610	1.050	4.8.2
L38	13 - 8 (38)	0.012	0.604	0.000	0.026	0.001	0.617	1.050	4.8.2
L39	8 - 3 (39)	0.013	0.611	0.000	0.026	0.001	0.624	1.050	4.8.2
L40	3 - 0 (40)	0.013	0.625	0.000	0.026	0.001	0.639	1.050	4.8.2

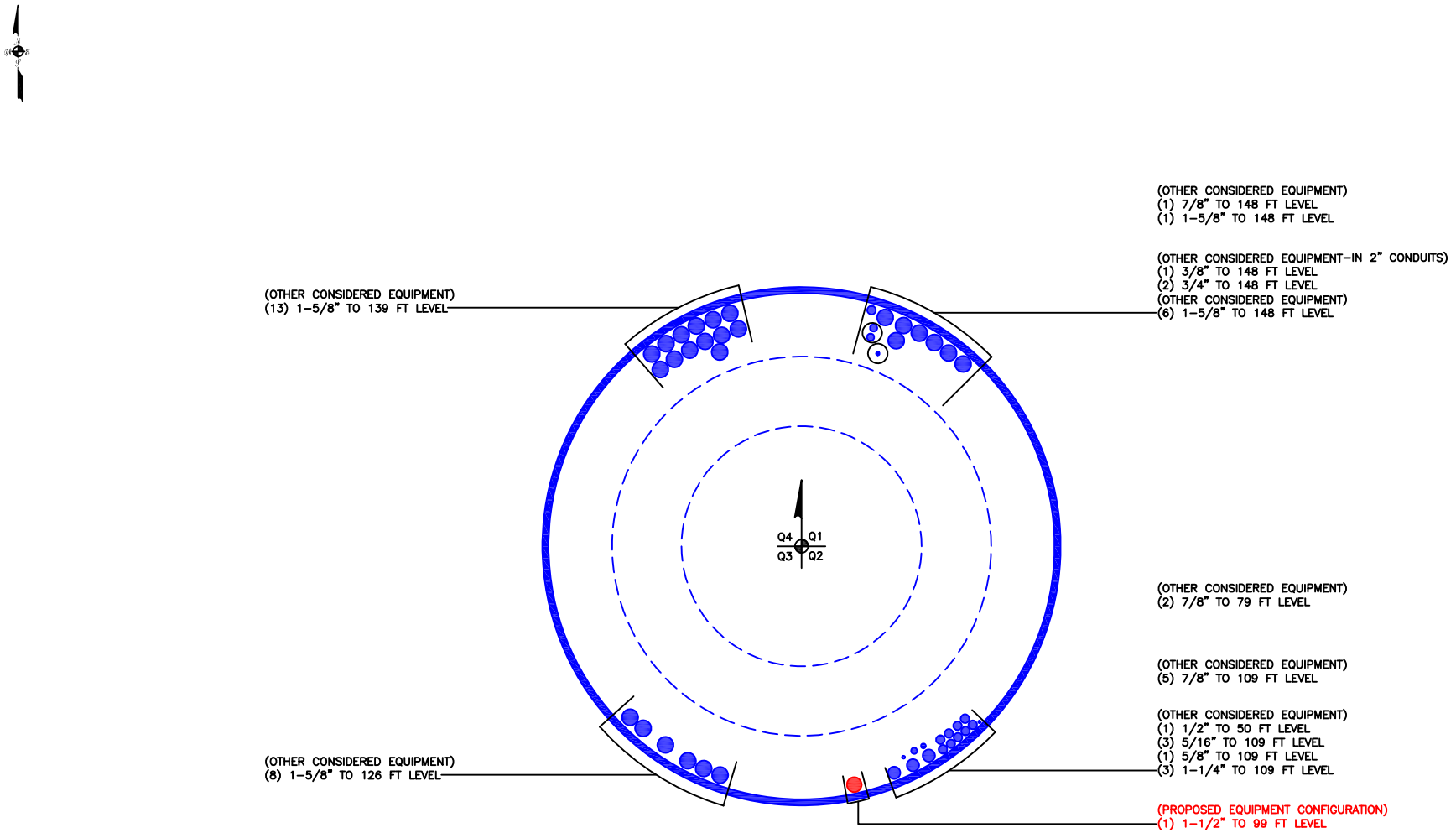
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	148 - 143	Pole	TP24.9752x24x0.2188	1	-4833	1055817	3.5	Pass
L2	143 - 138	Pole	TP25.9503x24.9752x0.2188	2	-9831	1097407	8.3	Pass
L3	138 - 133	Pole	TP26.9255x25.9503x0.2188	3	-10305	1138987	14.8	Pass
L4	133 - 128	Pole	TP27.9006x26.9255x0.2188	4	-10799	1180578	20.8	Pass
L5	128 - 123	Pole	TP28.8758x27.9006x0.2188	5	-15367	1222168	29.4	Pass
L6	123 - 116	Pole	TP30.241x28.8758x0.2188	6	-15735	1249206	34.7	Pass
L7	116 - 114.75	Pole	TP30.0471x29.0721x0.25	7	-16697	1452328	36.4	Pass
L8	114.75 - 109.75	Pole	TP31.0221x30.0471x0.25	8	-18016	1499851	42.6	Pass
L9	109.75 - 104.75	Pole	TP31.9971x31.0221x0.25	9	-22203	1547374	51.0	Pass
L10	104.75 - 99.75	Pole	TP32.9721x31.9971x0.25	10	-23003	1594897	58.2	Pass
L11	99.75 - 94.75	Pole	TP33.9471x32.9721x0.25	11	-26833	1642420	66.2	Pass
L12	94.75 - 93.5	Pole	TP34.1908x33.9471x0.25	12	-27050	1654296	68.1	Pass
L13	93.5 - 93.25	Pole	TP34.2396x34.1908x0.4375	13	-27127	2883195	35.7	Pass
L14	93.25 - 88.25	Pole	TP35.2145x34.2396x0.4313	14	-28321	2924502	39.6	Pass
L15	88.25 - 83.25	Pole	TP36.1895x35.2145x0.425	15	-29549	2963425	43.3	Pass
L16	83.25 - 74.75	Pole	TP37.847x36.1895x0.425	16	-30511	3024010	45.5	Pass
L17	74.75 - 74.5	Pole	TP37.3959x36.4208x0.4875	17	-33006	3507945	43.4	Pass
L18	74.5 - 69.5	Pole	TP38.3711x37.3959x0.475	18	-34509	3509457	46.9	Pass
L19	69.5 - 64.5	Pole	TP39.3462x38.3711x0.475	19	-35973	3599767	49.0	Pass
L20	64.5 - 62.5	Pole	TP39.7363x39.3462x0.475	20	-36567	3635887	49.8	Pass
L21	62.5 - 62.25	Pole	TP39.785x39.7363x0.3125	21	-36634	2404899	81.2	Pass
L22	62.25 - 57.75	Pole	TP40.6627x39.785x0.3125	22	-37699	2458375	84.6	Pass
L23	57.75 - 57.5	Pole	TP40.7114x40.6627x0.525	23	-37800	4113301	46.9	Pass
L24	57.5 - 52.5	Pole	TP41.6866x40.7114x0.525	24	-39434	4213114	48.4	Pass
L25	52.5 - 47.5	Pole	TP42.6618x41.6866x0.5125	25	-41190	4211487	51.0	Pass
L26	47.5 - 39.5	Pole	TP44.222x42.6618x0.5125	26	-42033	4260207	51.6	Pass
L27	39.5 - 38.5	Pole	TP43.7919x42.5243x0.575	27	-45912	4844773	49.1	Pass
L28	38.5 - 38.25	Pole	TP43.8407x43.7919x0.575	28	-46015	4850244	49.1	Pass
L29	38.25 - 38	Pole	TP43.8894x43.8407x0.5063	29	-46102	4281921	55.6	Pass
L30	38 - 33	Pole	TP44.8645x43.8894x0.5	30	-47842	4324719	57.4	Pass
L31	33 - 31.75	Pole	TP45.1083x44.8645x0.5	31	-48281	4348480	57.6	Pass
L32	31.75 - 31.5	Pole	TP45.157x45.1083x0.725	32	-48415	6280386	40.4	Pass
L33	31.5 - 28.25	Pole	TP45.7908x45.157x0.725	33	-49958	6369972	40.8	Pass
L34	28.25 - 28	Pole	TP45.8396x45.7908x0.5375	34	-50071	4747323	54.5	Pass
L35	28 - 23	Pole	TP46.8147x45.8396x0.5375	35	-52172	4849498	55.3	Pass
L36	23 - 18	Pole	TP47.7897x46.8147x0.525	36	-54312	4837812	57.4	Pass
L37	18 - 13	Pole	TP48.7648x47.7897x0.525	37	-57048	4937614	58.1	Pass
L38	13 - 8	Pole	TP49.7399x48.7648x0.525	38	-59240	5037417	58.8	Pass
L39	8 - 3	Pole	TP50.715x49.7399x0.525	39	-61458	5137219	59.5	Pass
L40	3 - 0	Pole	TP51.3x50.715x0.5188	40	-62804	5135865	60.8	Pass
							Summary	
						Pole (L22)	84.6	Pass
						RATING =	**84.6**	**Pass**

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

APPENDIX B

BASE LEVEL DRAWING


(OTHER CONSIDERED EQUIPMENT)
(1) 7/8" TO 148 FT LEVEL
(1) 1-5/8" TO 148 FT LEVEL
(OTHER CONSIDERED EQUIPMENT-IN 2" CONDUITS)
(1) 3/8" TO 148 FT LEVEL
(2) 3/4" TO 148 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(6) 1-5/8" TO 148 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(13) 1-5/8" TO 139 FT LEVEL
Q4
Q1
Q3
Q2
(OTHER CONSIDERED EQUIPMENT)
(2) 7/8" TO 79 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(5) 7/8" TO 109 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 50 FT LEVEL
(3) 5/16" TO 109 FT LEVEL
(1) 5/8" TO 109 FT LEVEL
(3) 1-1/4" TO 109 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(8) 1-5/8" TO 126 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1-1/2" TO 99 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 855662

Work Order: 1966278

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	148	32	3.75	18	24	30.241	0.21875	Auto	A607-65
2	119.75	45	4.75	18	29.07	37.847	0.25	Auto	A607-65
3	79.5	40	5.5	18	36.42	44.222	0.3125	Auto	A607-65
4	45	45	0	18	42.52	51.3	0.375	Auto	A607-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	31.75	plate	CCI-SFP-085125	3								x					x					x
2	28.25	57.75	plate	CCI-SFP-065125	2						x						x						
3	38.25	57.75	plate	CCI-SFP-065125	1																		x
4	62.5	93.5	plate	CCI-SFP-060100	3						x						x						x
5																							
6																							
7																							
8																							
9																							
10																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in2)	Bolt Hole Size (in)	Reinforcement Material
1	8.5	1.25	10.625	0.625	PC 8.8 - M20 (100)	45	PC 8.8 - M20 (100)	45.000	17.000	9.063	1.1875	A572-65
2	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	33	PC 8.8 - M20 (100)	33.000	19.000	6.563	1.1875	A572-65
3	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	33	PC 8.8 - M20 (100)	33.000	19.000	6.563	1.1875	A572-65
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

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	148 - 143	5		18	24.000	24.975	0.21875	A607-65	1.000
2	143 - 138	5		18	24.975	25.950	0.21875	A607-65	1.000
3	138 - 133	5		18	25.950	26.925	0.21875	A607-65	1.000
4	133 - 128	5		18	26.925	27.901	0.21875	A607-65	1.000
5	128 - 123	5		18	27.901	28.876	0.21875	A607-65	1.000
6	123 - 119.75	7	3.75	18	28.876	30.241	0.21875	A607-65	1.000
7	119.75 - 114.75	5		18	29.072	30.047	0.25	A607-65	1.000
8	114.75 - 109.75	5		18	30.047	31.022	0.25	A607-65	1.000
9	109.75 - 104.75	5		18	31.022	31.997	0.25	A607-65	1.000
10	104.75 - 99.75	5		18	31.997	32.972	0.25	A607-65	1.000
11	99.75 - 94.75	5		18	32.972	33.947	0.25	A607-65	1.000
12	94.75 - 93.5	1.25		18	33.947	34.191	0.25	A607-65	1.000
13	93.5 - 93.25	0.25		18	34.191	34.240	0.4375	A607-65	0.958
14	93.25 - 88.25	5		18	34.240	35.215	0.43125	A607-65	0.961
15	88.25 - 83.25	5		18	35.215	36.190	0.425	A607-65	0.964
16	83.25 - 79.5	8.5	4.75	18	36.190	37.847	0.425	A607-65	0.957
17	79.5 - 74.5	5		18	36.421	37.396	0.4875	A607-65	0.959
18	74.5 - 69.5	5		18	37.396	38.371	0.475	A607-65	0.976
19	69.5 - 64.5	5		18	38.371	39.346	0.475	A607-65	0.968
20	64.5 - 62.5	2		18	39.346	39.736	0.475	A607-65	0.965
21	62.5 - 62.25	0.25		18	39.736	39.785	0.3125	A607-65	1.000
22	62.25 - 57.75	4.5		18	39.785	40.663	0.3125	A607-65	1.000
23	57.75 - 57.5	0.25		18	40.663	40.711	0.525	A607-65	0.962
24	57.5 - 52.5	5		18	40.711	41.687	0.525	A607-65	0.954
25	52.5 - 47.5	5		18	41.687	42.662	0.5125	A607-65	0.968
26	47.5 - 45	8	5.5	18	42.662	44.222	0.5125	A607-65	0.964
27	45 - 38.5	6.5		18	42.524	43.792	0.575	A607-65	0.964
28	38.5 - 38.25	0.25		18	43.792	43.841	0.575	A607-65	0.964
29	38.25 - 38	0.25		18	43.841	43.889	0.50625	A607-65	0.976
30	38 - 33	5		18	43.889	44.865	0.5	A607-65	0.983
31	33 - 31.75	1.25		18	44.865	45.108	0.5	A607-65	0.982
32	31.75 - 31.5	0.25		18	45.108	45.157	0.725	A607-65	0.992
33	31.5 - 28.25	3.25		18	45.157	45.791	0.725	A607-65	0.985
34	28.25 - 28	0.25		18	45.791	45.840	0.5375	A607-65	1.113
35	28 - 23	5		18	45.840	46.815	0.5375	A607-65	1.104
36	23 - 18	5		18	46.815	47.790	0.525	A607-65	1.121
37	18 - 13	5		18	47.790	48.765	0.525	A607-65	1.113
38	13 - 8	5		18	48.765	49.740	0.525	A607-65	1.105
39	8 - 3	5		18	49.740	50.715	0.525	A607-65	1.098
40	3 - 0	3		18	50.715	51.300	0.51875	A607-65	1.106

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	148 - 143	4.83	19.51	5.07
2	143 - 138	9.83	50.54	10.05
3	138 - 133	10.31	101.98	10.53
4	133 - 128	10.80	155.84	11.02
5	128 - 123	15.37	232.46	16.55
6	123 - 119.75	15.74	286.74	16.89
7	119.75 - 114.75	16.70	372.57	17.44
8	114.75 - 109.75	18.02	461.86	18.67
9	109.75 - 104.75	22.21	581.52	23.45
10	104.75 - 99.75	23.01	699.89	23.92
11	99.75 - 94.75	26.84	835.58	27.93
12	94.75 - 93.5	27.06	870.55	28.05
13	93.5 - 93.25	27.14	877.56	28.08
14	93.25 - 88.25	28.33	1019.12	28.58
15	88.25 - 83.25	29.56	1163.26	29.10
16	83.25 - 79.5	30.50	1273.04	29.48
17	79.5 - 74.5	32.99	1422.96	30.78
18	74.5 - 69.5	34.49	1578.18	31.34
19	69.5 - 64.5	35.95	1736.07	31.84
20	64.5 - 62.5	36.55	1799.91	32.04
21	62.5 - 62.25	36.61	1807.92	32.06
22	62.25 - 57.75	37.68	1952.91	32.42
23	57.75 - 57.5	37.78	1961.02	32.44
24	57.5 - 52.5	39.41	2124.36	32.93
25	52.5 - 47.5	41.16	2290.08	33.48
26	47.5 - 45	42.01	2374.03	33.72
27	45 - 38.5	45.88	2595.57	34.46
28	38.5 - 38.25	45.99	2604.19	34.47
29	38.25 - 38	46.07	2612.81	34.49
30	38 - 33	47.81	2786.28	34.92
31	33 - 31.75	48.25	2829.97	35.03
32	31.75 - 31.5	48.38	2838.73	35.04
33	31.5 - 28.25	49.92	2953.07	35.35
34	28.25 - 28	50.04	2961.91	35.36
35	28 - 23	52.14	3139.67	35.77
36	23 - 18	54.27	3319.35	36.14
37	18 - 13	57.01	3501.27	36.73
38	13 - 8	59.20	3685.59	37.04
39	8 - 3	61.41	3871.46	37.35
40	3 - 0	62.76	3983.73	37.53

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
148 - 143	Pole	TP24.975x24x0.2188	Pole	3.5%	Pass
143 - 138	Pole	TP25.95x24.975x0.2188	Pole	8.3%	Pass
138 - 133	Pole	TP26.925x25.95x0.2188	Pole	14.8%	Pass
133 - 128	Pole	TP27.901x26.925x0.2188	Pole	20.8%	Pass
128 - 123	Pole	TP28.876x27.901x0.2188	Pole	29.4%	Pass
123 - 119.75	Pole	TP30.241x28.876x0.2188	Pole	34.7%	Pass
119.75 - 114.75	Pole	TP30.047x29.072x0.25	Pole	36.4%	Pass
114.75 - 109.75	Pole	TP31.022x30.047x0.25	Pole	42.6%	Pass
109.75 - 104.75	Pole	TP31.997x31.022x0.25	Pole	51.0%	Pass
104.75 - 99.75	Pole	TP32.972x31.997x0.25	Pole	58.1%	Pass
99.75 - 94.75	Pole	TP33.947x32.972x0.25	Pole	66.2%	Pass
94.75 - 93.5	Pole	TP34.191x33.947x0.25	Pole	68.1%	Pass
93.5 - 93.25	Pole + Reinf.	TP34.24x34.191x0.4375	Reinf. 4 Tension Rupture	56.2%	Pass
93.25 - 88.25	Pole + Reinf.	TP35.215x34.24x0.4313	Reinf. 4 Tension Rupture	62.3%	Pass
88.25 - 83.25	Pole + Reinf.	TP36.19x35.215x0.425	Reinf. 4 Tension Rupture	68.0%	Pass
83.25 - 79.5	Pole + Reinf.	TP37.847x36.19x0.425	Reinf. 4 Tension Rupture	72.0%	Pass
79.5 - 74.5	Pole + Reinf.	TP37.396x36.421x0.4875	Reinf. 4 Tension Rupture	68.6%	Pass
74.5 - 69.5	Pole + Reinf.	TP38.371x37.396x0.475	Reinf. 4 Tension Rupture	72.9%	Pass
69.5 - 64.5	Pole + Reinf.	TP39.346x38.371x0.475	Reinf. 4 Tension Rupture	76.8%	Pass
64.5 - 62.5	Pole + Reinf.	TP39.736x39.346x0.475	Reinf. 4 Tension Rupture	78.3%	Pass
62.5 - 62.25	Pole	TP39.785x39.736x0.3125	Pole	80.9%	Pass
62.25 - 57.75	Pole	TP40.663x39.785x0.3125	Pole	84.2%	Pass
57.75 - 57.5	Pole + Reinf.	TP40.711x40.663x0.525	Reinf. 2 Tension Rupture	72.0%	Pass
57.5 - 52.5	Pole + Reinf.	TP41.687x40.711x0.525	Reinf. 2 Tension Rupture	75.1%	Pass
52.5 - 47.5	Pole + Reinf.	TP42.662x41.687x0.5125	Reinf. 2 Tension Rupture	77.9%	Pass
47.5 - 45	Pole + Reinf.	TP44.222x42.662x0.5125	Reinf. 2 Tension Rupture	79.3%	Pass
45 - 38.5	Pole + Reinf.	TP43.792x42.524x0.575	Reinf. 2 Tension Rupture	75.5%	Pass
38.5 - 38.25	Pole + Reinf.	TP43.841x43.792x0.575	Reinf. 2 Tension Rupture	75.6%	Pass
38.25 - 38	Pole + Reinf.	TP43.889x43.841x0.5063	Reinf. 2 Tension Rupture	76.8%	Pass
38 - 33	Pole + Reinf.	TP44.865x43.889x0.5	Reinf. 2 Tension Rupture	78.8%	Pass
33 - 31.75	Pole + Reinf.	TP45.108x44.865x0.5	Reinf. 2 Tension Rupture	79.3%	Pass
31.75 - 31.5	Pole + Reinf.	TP45.157x45.108x0.725	Reinf. 1 Bolt Shear	65.2%	Pass
31.5 - 28.25	Pole + Reinf.	TP45.791x45.157x0.725	Reinf. 1 Compression	63.8%	Pass
28.25 - 28	Pole + Reinf.	TP45.84x45.791x0.5375	Reinf. 1 Compression	72.0%	Pass
28 - 23	Pole + Reinf.	TP46.815x45.84x0.5375	Reinf. 1 Compression	73.7%	Pass
23 - 18	Pole + Reinf.	TP47.79x46.815x0.525	Reinf. 1 Compression	75.3%	Pass
18 - 13	Pole + Reinf.	TP48.765x47.79x0.525	Reinf. 1 Compression	76.8%	Pass
13 - 8	Pole + Reinf.	TP49.74x48.765x0.525	Reinf. 1 Compression	78.2%	Pass
8 - 3	Pole + Reinf.	TP50.715x49.74x0.525	Reinf. 1 Compression	79.5%	Pass
3 - 0	Pole + Reinf.	TP51.3x50.715x0.5188	Reinf. 1 Bolt Shear	83.4%	Pass
				Summary	
			Pole	84.2%	Pass
			Reinforcement	83.4%	Pass
			Overall	84.2%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity*				
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4
148 - 143	1330	n/a	1330	17.19	n/a	17.19	3.5%				
143 - 138	1494	n/a	1494	17.87	n/a	17.87	8.3%				
138 - 133	1670	n/a	1670	18.54	n/a	18.54	14.8%				
133 - 128	1860	n/a	1860	19.22	n/a	19.22	20.8%				
128 - 123	2064	n/a	2064	19.90	n/a	19.90	29.4%				
123 - 119.75	2204	n/a	2204	20.34	n/a	20.34	34.7%				
119.75 - 114.75	2651	n/a	2651	23.64	n/a	23.64	36.4%				
114.75 - 109.75	2920	n/a	2920	24.42	n/a	24.42	42.6%				
109.75 - 104.75	3207	n/a	3207	25.19	n/a	25.19	51.0%				
104.75 - 99.75	3511	n/a	3511	25.96	n/a	25.96	58.1%				
99.75 - 94.75	3834	n/a	3834	26.74	n/a	26.74	66.2%				
94.75 - 93.5	3918	n/a	3918	26.93	n/a	26.93	68.1%				
93.5 - 93.25	3935	2822	6757	26.97	18.00	44.97	39.3%				56.2%
93.25 - 88.25	4284	2979	7262	27.74	18.00	45.74	44.0%				62.3%
88.25 - 83.25	4652	3140	7792	28.52	18.00	46.52	48.6%				68.0%
83.25 - 79.5	4942	3263	8205	29.10	18.00	47.10	51.9%				72.0%
79.5 - 74.5	6388	3345	9733	36.78	18.00	54.78	45.8%				68.6%
74.5 - 69.5	6906	3515	10421	37.75	18.00	55.75	49.1%				72.9%
69.5 - 64.5	7450	3690	11140	38.72	18.00	56.72	52.2%				76.8%
64.5 - 62.5	7676	3762	11437	39.10	18.00	57.10	53.4%				78.3%
62.5 - 62.25	7704	n/a	7704	39.15	n/a	39.15	80.9%				
62.25 - 57.75	8230	n/a	8230	40.02	n/a	40.02	84.2%				
57.75 - 57.5	8259	5409	13669	40.07	24.38	64.44	50.2%		72.0%	72.0%	
57.5 - 52.5	8872	5662	14534	41.04	24.38	65.41	52.8%		75.1%	75.1%	
52.5 - 47.5	9514	5920	15434	42.00	24.38	66.38	55.3%		77.9%	77.9%	
47.5 - 45	9847	6051	15897	42.49	24.38	66.86	56.6%		79.3%	79.3%	
45 - 38.5	12303	6226	18529	51.68	24.38	76.05	50.9%		75.5%	75.5%	
38.5 - 38.25	12344	6239	18583	51.73	24.38	76.11	51.0%		75.6%	75.6%	
38.25 - 38	12541	4166	16707	51.79	16.25	68.04	62.2%		76.8%		
38 - 33	13397	4352	17749	52.95	16.25	69.20	64.2%		78.8%		
33 - 31.75	13617	4399	18017	53.24	16.25	69.49	64.7%		79.3%		
31.75 - 31.5	13800	12075	25875	53.30	48.13	101.42	46.3%	65.2%	59.5%		
31.5 - 28.25	14389	12408	26798	54.05	48.13	102.18	47.4%	63.8%	60.5%		
28.25 - 28	14322	5866	20187	54.11	31.88	85.99	61.0%	72.0%			
28 - 23	15257	6111	21369	55.27	31.88	87.15	62.8%	73.7%			
23 - 18	16233	6362	22595	56.43	31.88	88.31	64.5%	75.3%			
18 - 13	17249	6618	23867	57.59	31.88	89.47	66.1%	76.8%			
13 - 8	18307	6880	25186	58.75	31.88	90.63	67.7%	78.2%			
8 - 3	19407	7146	26553	59.91	31.88	91.79	69.2%	79.5%			
3 - 0	20088	7309	27396	60.61	31.88	92.49	70.0%	83.4%			

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

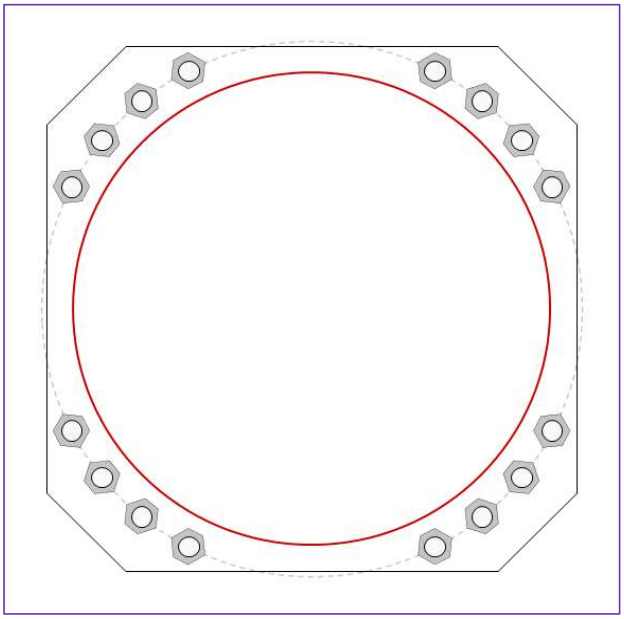
Monopole Base Plate Connection

Site Info	
BU #	855662
Site Name	WINDSORCENTRAL
Order #	556619 Rev. 1

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	2

Applied Loads	
Moment (kip-ft)	3984.00
Axial Force (kips)	63.00
Shear Force (kips)	38.00

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(16) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 58" BC

Anchor Spacing: 6 in

Base Plate Data

57" W x 2.75" Plate (A572-55; Fy=55 ksi, Fu=70 ksi); Clip: 8.5 in

Stiffener Data

N/A

Pole Data

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

Analysis Results

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

Pu_t = 202	ϕPn_t = 243.75	**Stress Rating**
Vu = 2.38	ϕVn = 149.1	**78.9%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	38.22	(Flexural)
Allowable Stress (ksi):	49.5	
Stress Rating:	**73.5%**	**Pass**

Drilled Pier Foundation

BU # :	855662
Site Name:	WINDSORCENTRAL
Order Number:	1966278
TIA-222 Revison:	H
Tower Type:	Monopole

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

Go to Soil Calculations

Applied Loads	Comp.	Uplift
Moment (kip-ft)	3984	
Axial Force (kips)	63	
Shear Force (kips)	38	

Material Properties		
Concrete Strength, f'c:	3	ksi
Rebar Strength, Fy:	60	ksi
Tie Yield Strength, Fyt:	40	ksi

Pier Design Data		
Depth	32.5	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 32.5' below grade		
Pier Diameter	7	ft
Rebar Quantity	20	
Rebar Size	11	
Clear Cover to Ties	4	in
Tie Size	5	
Tie Spacing	18	in

Rebar & Pier Options

Embedded Pole Inputs

Belled Pier Inputs

Analysis Results		
Soil Lateral Check	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	7.56	-
Soil Safety Factor	1.79	-
Max Moment (kip-ft)	4241.36	-
Rating*	*70.8%*	-
Soil Vertical Check	*Compression*	*Uplift*
Skin Friction (kips)	150.09	-
End Bearing (kips)	138.54	-
Weight of Concrete (kips)	140.68	-
Total Capacity (kips)	288.63	-
Axial (kips)	203.68	-
Rating*	*67.2%*	-
Reinforced Concrete Flexure	*Compression*	*Uplift*
Critical Depth (ft from TOC)	7.66	-
Critical Moment (kip-ft)	4241.26	-
Critical Moment Capacity	5008.19	-
Rating*	*80.7%*	-
Reinforced Concrete Shear	*Compression*	*Uplift*
Critical Depth (ft from TOC)	19.60	-
Critical Shear (kip)	335.43	-
Critical Shear Capacity	1965.60	-
Rating*	*16.3%*	-

Shear-Friction Methodology is Applied

Structural Foundation Rating*	**80.7%**
Soil Interaction Rating*	**70.8%**

*Rating per TIA-222-H Section 15.5

Soil Profile

Groundwater Depth	2	# of Layers	5

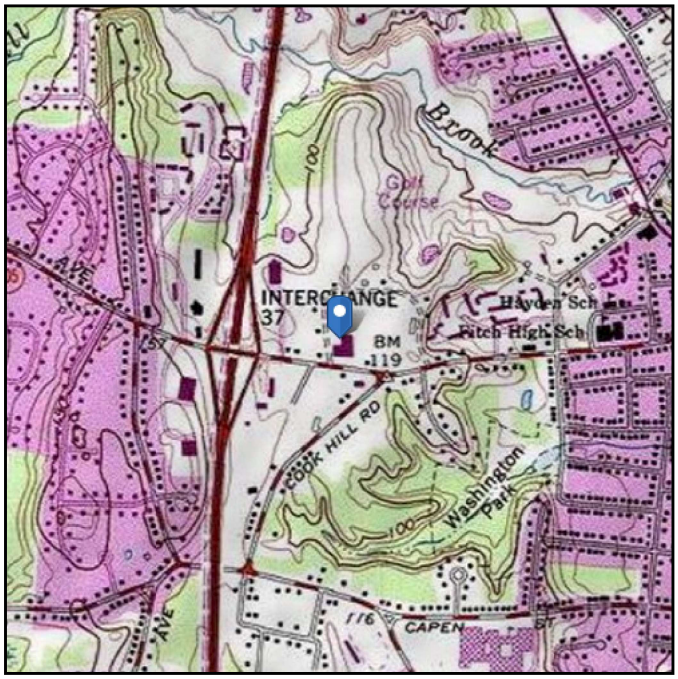
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	2	2	110	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	2	5	3	50	87.6	0	0	0.000	0.000	0.00	0.00			Cohesionless
3	5	12	7	55	87.6		35	0.000	0.000	0.36	0.36			Cohesionless
4	12	16	4	50	87.6		31	0.000	0.000	0.49	0.49			Cohesionless
5	16	32.5	16.5	50	87.6	0.8		0.440	0.440	0.28	0.28	4.8		Cohesive

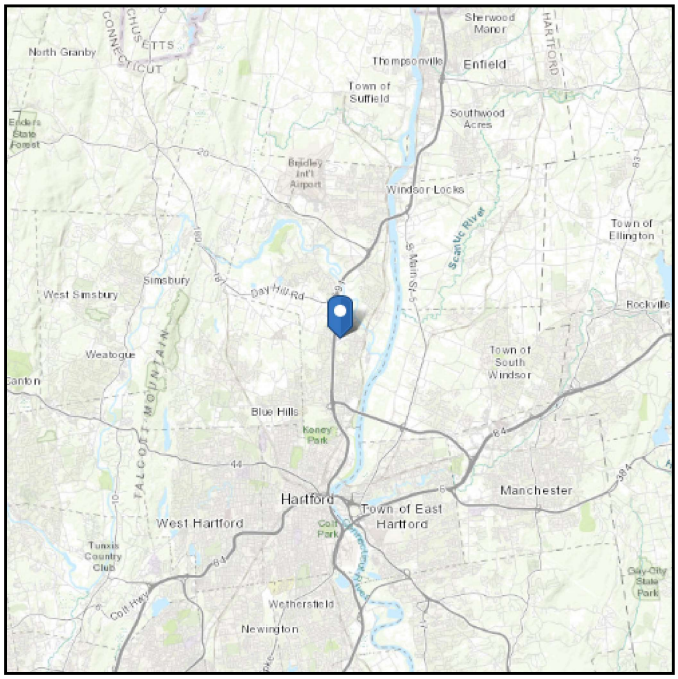
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 115.16 ft (NAVD 88)
Latitude: 41.852594
Longitude: -72.660497





Wind

Results:

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

Data Accessed: Thu Apr 29 2021

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

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

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

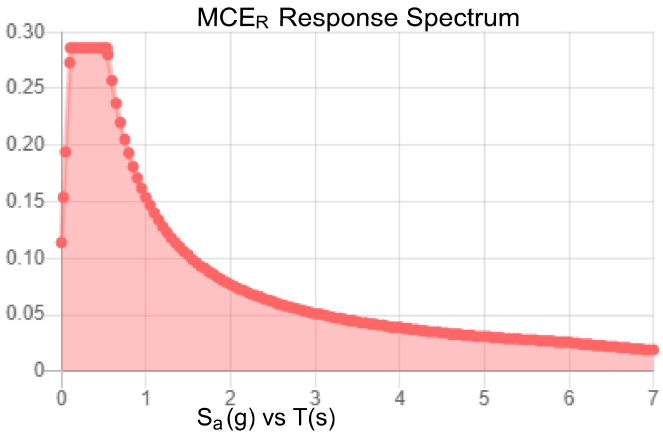
Seismic

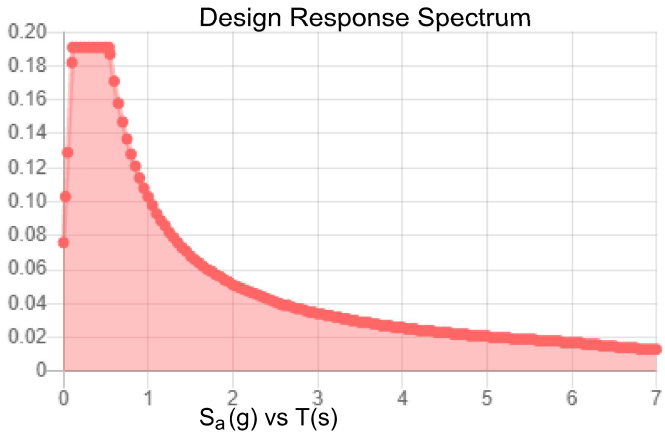
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.179	S_{DS} :	0.191
S_1 :	0.064	S_{D1} :	0.103
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.089
S_{MS} :	0.286	PGA_M :	0.142
S_{M1} :	0.154	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Thu Apr 29 2021

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Thu Apr 29 2021

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

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

ATTACHMENT 5

Date: **July 29, 2021**

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

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

Subject:	**Mount Replacement Analysis Report**	
Carrier Designation:	**Dish Network Dish 5G**	
	Carrier Site Number:	BOBDL00073A
	Carrier Site Name:	CT-CCI-T-855662
Crown Castle Designation:	**Crown Castle BU Number:**	855662
	Crown Castle Site Name:	WINDSORCENTRAL
	Crown Castle JDE Job Number:	650064
	Crown Castle Order Number:	556619 Rev. 1
Engineering Firm Designation:	**Trylon Report Designation:**	189048
Site Data:	**340 Bloomfield Avenue, Windsor, Hartford County, CT, 06095**	
	Latitude 41°51'9.34" Longitude -72°39'37.79"	
Structure Information:	**Tower Height & Type:**	**150.0 ft Monopole**
	Mount Elevation:	**99.0 ft**
	Mount Type:	**8.0 ft Platform**

Dear Darcy Tarr,

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

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

Platform **Sufficient***

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

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

Mount analysis prepared by: Marius Balan

Respectfully Submitted by:
Cliff Abernathy, P.E.

Cliff Abernathy

Digitally signed by Cliff Abernathy
Date: 2021.08.02 16:09:55 -04'00'

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA
Table 1 - Proposed Equipment Configuration

3) ANALYSIS PROCEDURE
Table 2 - Documents Provided
3.1) Analysis Method
3.2) Assumptions

4) ANALYSIS RESULTS
Table 3 - Mount Component Stresses vs. Capacity
4.1) Recommendations

5) APPENDIX A
Wire Frame and Rendered Models

6) APPENDIX B
Software Input Calculations

7) APPENDIX C
Software Analysis Output

8) APPENDIX D
Additional Calculations

9) APPENDIX E
Supplemental Drawings

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:	125 mph
Exposure Category:	C
Topographic Factor at Base:	1.0
Topographic Factor at Mount:	1.0
Ice Thickness:	2.0 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.179
Seismic S_1:	0.064
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 – Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
99.0	99.0	3	JMA WIRELESS	MX08FRO665-21	8.0 ft Platform **[Commscope MC-PK8-C]**
		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	556619, Rev. 1	CCI Sites
Mount Manufacturer Drawings	Commscope	MC-PK8-C	Trylon

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)	MP1	99.0	30.4	Pass
	Horizontal(s)	H1		10.9	Pass
	Standoff(s)	M2		59.3	Pass
	Bracing(s)	M1		44.4	Pass
	Plate(s)	M15		22.7	Pass
	Handrail(s)	M20		12.4	Pass
	Mount Connection(s)	-		24.1	Pass

Structure Rating (max from all components) =	59.3%

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

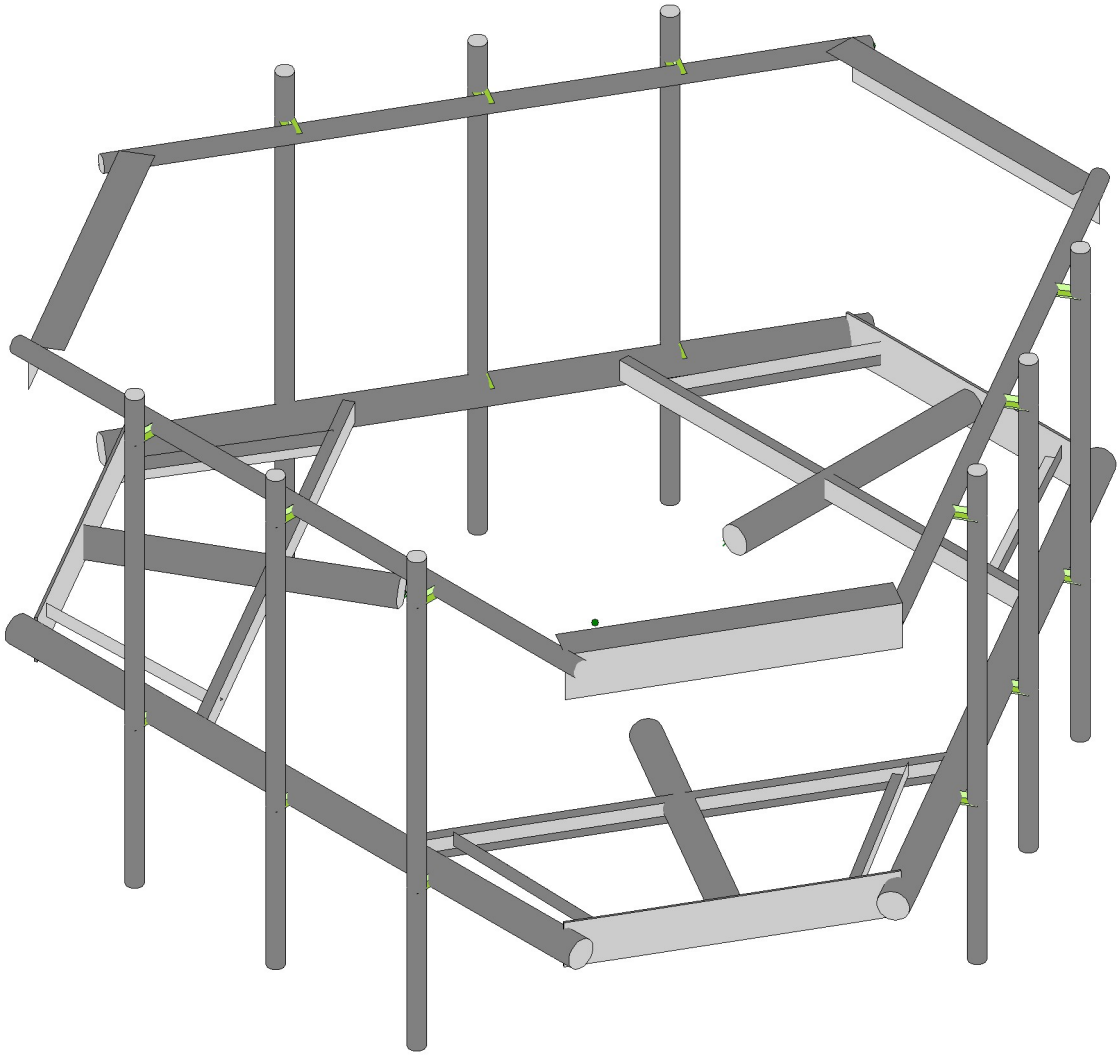
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the proposed mount listed below must be installed.

1. Commscope, part no MC-PK8-C.

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

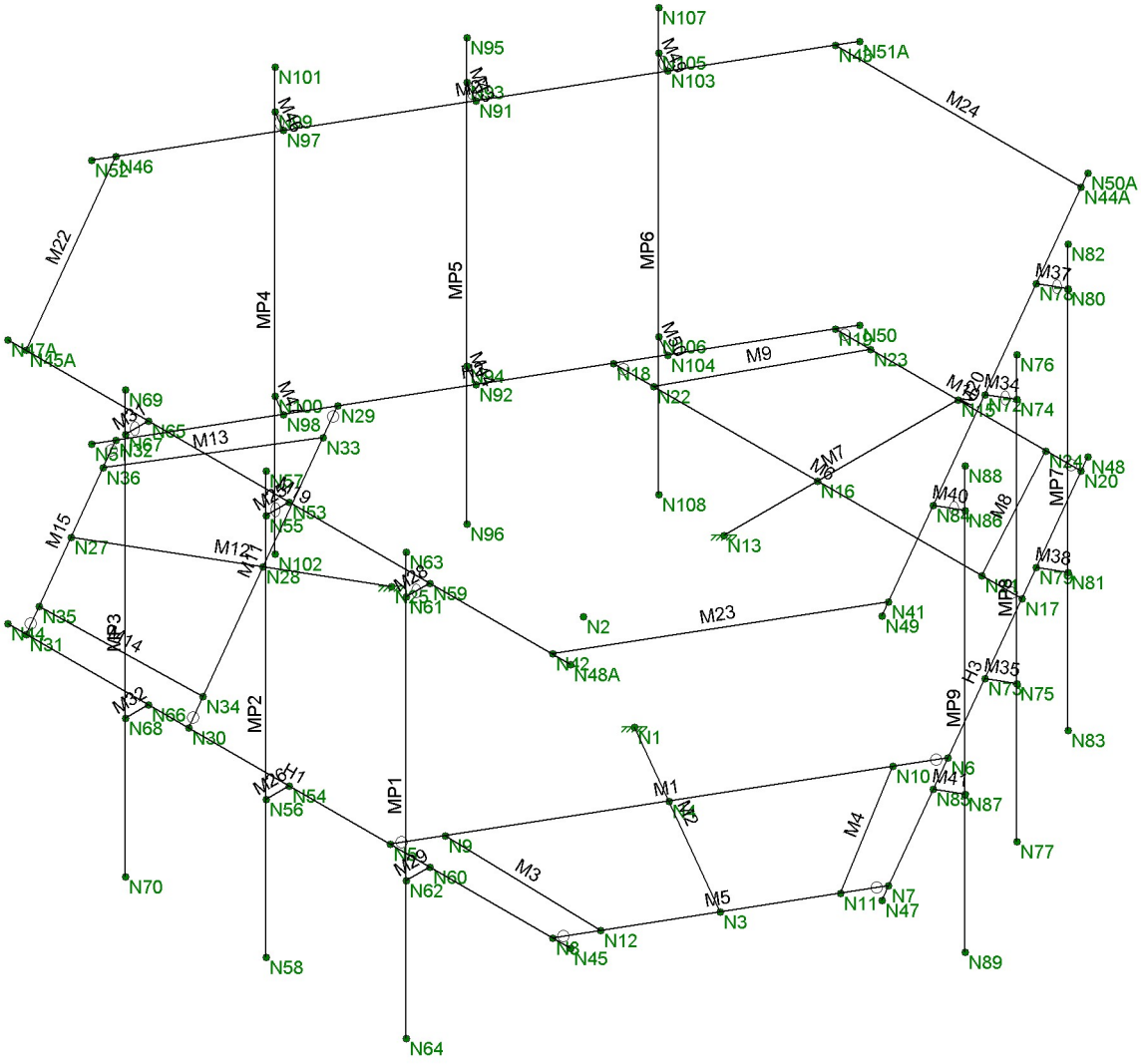
APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

Trylon	855662	SK - 1
MB		July 29, 2021 at 2:00 PM
189048		855662.r3d



Envelope Only Solution

Trylon	855662	SK - 2
MB		July 29, 2021 at 2:01 PM
189048		855662.r3d

APPENDIX B

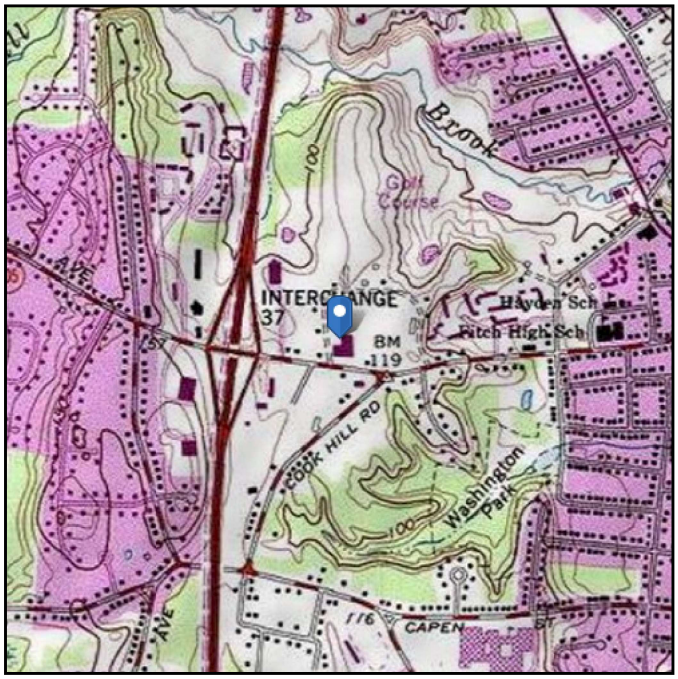
SOFTWARE INPUT CALCULATIONS

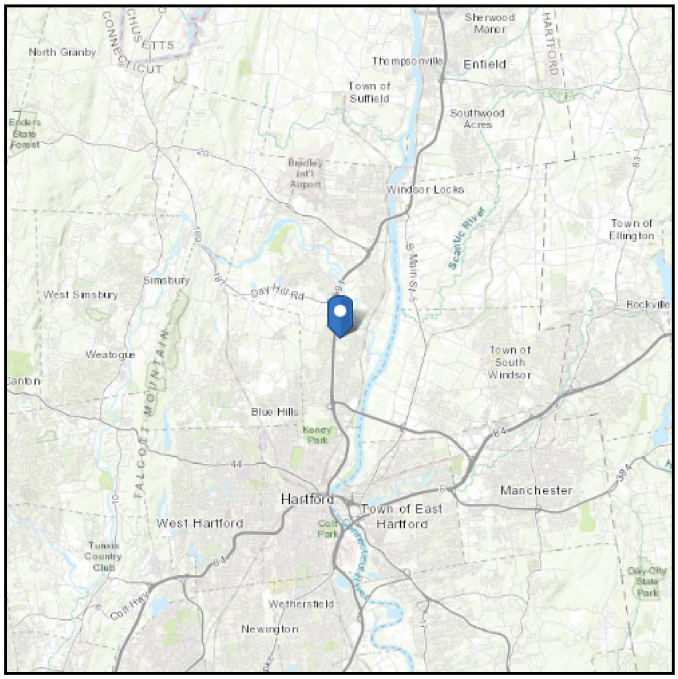
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 115.16 ft (NAVD 88)
Latitude: 41.852594
Longitude: -72.660497





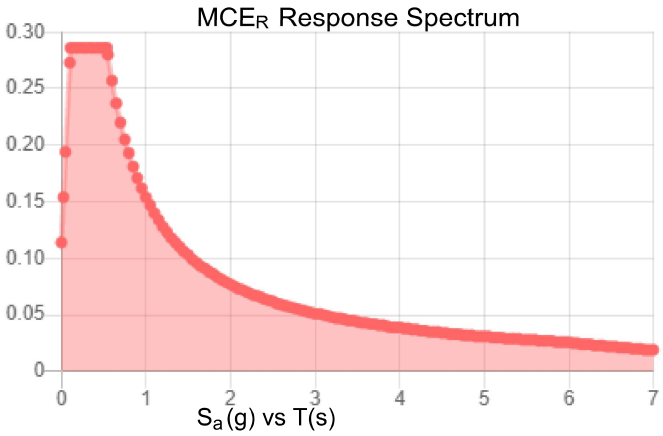
Seismic

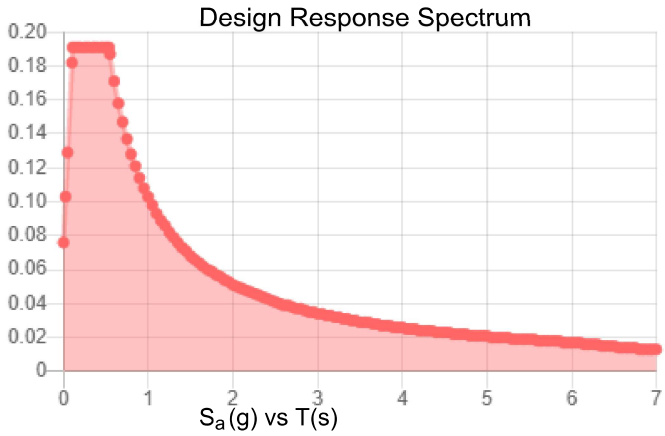
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.179	S_{DS} :	0.191
S_1 :	0.064	S_{D1} :	0.103
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.089
S_{MS} :	0.286	PGA_M :	0.142
S_{M1} :	0.154	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Thu Jul 29 2021

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Thu Jul 29 2021

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

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

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

TIA LOAD CALCULATOR 2.0

PROJECT DATA	
Job Code:	189048
Carrier Site ID:	BOBDL00073A
Carrier Site Name:	CT-CCI-T-855662

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

STRUCTURE DETAILS		
Mount Type:	Platform	--
Mount Elevation:	99.0	ft.
Number of Sectors:	3	--
Structure Type:	Monopole	--
Structure Height:	150.0	ft.

ANALYSIS CRITERIA		
Structure Risk Category:	II	--
Exposure Category:	C	--
Site Class:	D - Stiff Soil	--
Ground Elevation:	115.16	ft.

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

WIND PARAMETERS		
Design Wind Speed:	125	mph
Wind Escalation Factor (K_s):	1.00	--
Velocity Coefficient (K_z):	1.26	--
Directionality Factor (K_d):	0.95	--
Gust Effect Factor (Gh):	1.00	--
Shielding Factor (K_a):	0.90	--
Velocity Pressure (q_z):	47.79	psf

ICE PARAMETERS		
Design Ice Wind Speed:	50	mph
Design Ice Thickness (t_i):	2.00	in
Importance Factor (I_i):	1.00	--
Ice Velocity Pressure (q_{zi}):	47.79	psf
Mount Ice Thickness (t_{iz}):	2.23	in

WIND STRUCTURE CALCULATIONS		
Flat Member Pressure:	86.03	psf
Round Member Pressure:	51.62	psf
Ice Wind Pressure:	7.30	psf

SEISMIC PARAMETERS		
Importance Factor (I_e):	1.00	--
Short Period Accel .(S_s):	0.179	g
1 Second Accel (S_1):	0.064	g
Short Period Des. (S_{DS}):	0.19	g
1 Second Des. (S_{D1}):	0.10	g
Short Period Coeff. (F_a):	1.60	--
1 Second Coeff. (F_v):	2.40	--
Response Coefficient (Cs):	0.10	--
Amplification Factor (A_S):	1.20	--

LOAD COMBINATIONS [LRFD]

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

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

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

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

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

EQUIPMENT LOADING

Appurtenance Name/Location	Qty.	Elevation [ft]	--	EPA $_N$ (ft2)	EPA $_T$ (ft2)	Weight (lbs)
MX08FRO665-21	3	99	No Ice	8.01	3.21	82.50
MP1/MP4/MP7, 0/120/240	--	--	w/ Ice	10.18	5.12	382.31
TA08025-B604	3	99	No Ice	1.96	0.98	63.90
MP1/MP4/MP7, 0/120/240	--	--	w/ Ice	2.53	1.42	96.86
TA08025-B605	3	99	No Ice	1.96	1.13	75.00
MP1/MP4/MP7, 0/120/240	--	--	w/ Ice	2.53	1.59	102.92
RDIDC-9181-PF-48	1	99	No Ice	2.01	1.17	21.85
MP1/MP/MP, 0/120/240	--	--	w/ Ice	2.58	1.65	101.51
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			

EQUIPMENT LOADING [CONT.]

Appurtenance Name/Location	Qty.	Elevation [ft]	--	EPA $_N$ (ft2)	EPA $_T$ (ft2)	Weight (lbs)
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			

EQUIPMENT WIND CALCULATIONS

Appurtenance Name	Qty.	Elevation [ft]	K_{zt}	K_z	K_d	t_d	q_z [psf]	q_{zi} [psf]
MX08FRO665-21	3	99	1.00	1.26	0.95	2.23	47.79	7.65
TA08025-B604	3	99	1.00	1.26	0.95	2.23	47.79	7.65
TA08025-B605	3	99	1.00	1.26	0.95	2.23	47.79	7.65
RDIDC-9181-PF-48	1	99	1.00	1.26	0.95	2.23	47.79	7.65

EQUIPMENT LATERAL WIND FORCE CALCULATIONS

Appurtenance Name	Qty.	--	0° 180°	30° 210°	60° 240°	90° 270°	120° 300°	150° 330°
MX08FRO665-21	3	No Ice	344.53	189.69	292.92	138.07	292.92	189.69
MP1/MP4/MP7, 0/120/240	--	w/ Ice	70.08	43.94	61.37	35.23	61.37	43.94
TA08025-B604	3	No Ice	84.46	52.76	73.89	42.20	73.89	52.76
MP1/MP4/MP7, 0/120/240	--	w/ Ice	17.39	11.69	15.49	9.79	15.49	11.69
TA08025-B605	3	No Ice	84.46	57.55	75.49	48.58	75.49	57.55
MP1/MP4/MP7, 0/120/240	--	w/ Ice	17.39	12.55	15.77	10.93	15.77	12.55
RDIDC-9181-PF-48	1	No Ice	86.54	59.32	77.46	50.25	77.46	59.32
MP1/MP/MP, 0/120/240	--	w/ Ice	17.78	12.94	16.16	11.32	16.16	12.94
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						

EQUIPMENT LATERAL WIND FORCE CALCULATIONS [CONT.]

Appurtenance Name	Qty.	--	0° 180°	30° 210°	60° 240°	90° 270°	120° 300°	150° 330°
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						

EQUIPMENT SEISMIC FORCE CALCULATIONS

Appurtenance Name	Qty.	Elevation [ft]	Weight [lbs]	F_p [lbs]
MX08FRO665-21	3	99	82.5	9.45
TA08025-B604	3	99	63.9	7.32
TA08025-B605	3	99	75	8.59
RDIDC-9181-PF-48	1	99	21.85	2.50

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	Z
Global Member Orientation Plane	XY
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	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - 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?	No
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 7-16
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

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E5 F)	Density[k/ft^3]	Yield[psi]	Fu[psi]
1	A653 SS Gr33	29500	11346	.3	.65	.49	33000	45000
2	A653 SS Gr50/1	29500	11346	.3	.65	.49	50000	65000

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	6.5"x0.37" Plate	6.5"x0.37" Plate	Beam	RECT	A36 Gr.36	Typical	2.405	.027	8.468	.106
2	L2x2x3	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical	.722	.271	.271	.009
3	PIPE 3.5	PIPE 3.5	Beam	Pipe	A53 Gr.B	Typical	2.5	4.52	4.52	9.04
4	C3X5	C3X5	Beam	Channel	A36 Gr.36	Typical	1.47	.241	1.85	.043
5	PIPE 2.0	PIPE 2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
6	L6.6"X4.46"X0.25"	L6.6"X4.46"X0.25"	Beam	Single Angle	A36 Gr.36	Typical	2.703	4.759	12.473	.055

Cold Formed Steel Section Sets

	Label	Shape	Type	Design Li...	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	CF1A	8CU1.25X057	Beam	None	A653 SS Gr33	Typical	.581	.057	4.41	.00063

Joint Boundary Conditions

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

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(...
1	Self Weight	DL			-1		20		3	
2	Structure Wind X	WLX						33		
3	Structure Wind Y	WLY						33		
4	Wind Load 0 AZI	WLX					20			
5	Wind Load 30 AZI	None					40			
6	Wind Load 45 AZI	None					40			
7	Wind Load 60 AZI	None					40			
8	Wind Load 90 AZI	WLY					20			
9	Wind Load 120 AZI	None					40			
10	Wind Load 135 AZI	None					40			
11	Wind Load 150 AZI	None					40			
12	Ice Weight	OL1					20	33	3	
13	Structure Ice Wind X	OL2						33		
14	Structure Ice Wind Y	OL3						33		
15	Ice Wind Load 0 AZI	OL2					20			
16	Ice Wind Load 30 AZI	None					40			
17	Ice Wind Load 45 AZI	None					40			
18	Ice Wind Load 60 AZI	None					40			
19	Ice Wind Load 90 AZI	OL3					20			
20	Ice Wind Load 120 AZI	None					40			
21	Ice Wind Load 135 AZI	None					40			
22	Ice Wind Load 150 AZI	None					40			
23	Seismic Load X	ELX	-.115				20			
24	Seismic Load Y	ELY		-.115			20			
25	Live Load 1 (Lv)	LL				1				
26	Live Load 2 (Lv)	LL				1				
27	Live Load 3 (Lv)	LL				1				
28	Live Load 4 (Lv)	LL				1				
29	Live Load 5 (Lv)	LL				1				
30	Live Load 6 (Lv)	LL				1				
31	Maintenance Load 1 (Lm)	None				1				
32	Maintenance Load 2 (Lm)	None				1				
33	Maintenance Load 3 (Lm)	None				1				
34	Maintenance Load 4 (Lm)	None				1				
35	Maintenance Load 5 (Lm)	None				1				
36	Maintenance Load 6 (Lm)	None				1				
37	Maintenance Load 7 (Lm)	None				1				
38	Maintenance Load 8 (Lm)	None				1				

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(...
39	Maintenance Load 9 (Lm)	None				1				
40	BLC 1 Transient Area Loads	None						9		
41	BLC 12 Transient Area Loa...	None						9		

Load Combinations

	Description	S...	P...	S...	B...	Factor	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac...
1	1.4DL	Yes	Y		DL	1.4																						
2	1.2DL + 1WL 0 AZI	Yes	Y		DL	1.2	2	1	3		4	1																
3	1.2DL + 1WL 30 AZI	Yes	Y		DL	1.2	2	.866	3	.5	5	1																
4	1.2DL + 1WL 45 AZI	Yes	Y		DL	1.2	2	.707	3	.707	6	1																
5	1.2DL + 1WL 60 AZI	Yes	Y		DL	1.2	2	.5	3	.866	7	1																
6	1.2DL + 1WL 90 AZI	Yes	Y		DL	1.2	2		3	1	8	1																
7	1.2DL + 1WL 120 AZI	Yes	Y		DL	1.2	2	-.5	3	.866	9	1																
8	1.2DL + 1WL 135 AZI	Yes	Y		DL	1.2	2	-.707	3	.707	10	1																
9	1.2DL + 1WL 150 AZI	Yes	Y		DL	1.2	2	-.866	3	.5	11	1																
10	1.2DL + 1WL 180 AZI	Yes	Y		DL	1.2	2	-1	3		4	-1																
11	1.2DL + 1WL 210 AZI	Yes	Y		DL	1.2	2	-.866	3	-.5	5	-1																
12	1.2DL + 1WL 225 AZI	Yes	Y		DL	1.2	2	-.707	3	-.707	6	-1																
13	1.2DL + 1WL 240 AZI	Yes	Y		DL	1.2	2	-.5	3	-.866	7	-1																
14	1.2DL + 1WL 270 AZI	Yes	Y		DL	1.2	2		3	-1	8	-1																
15	1.2DL + 1WL 300 AZI	Yes	Y		DL	1.2	2	.5	3	-.866	9	-1																
16	1.2DL + 1WL 315 AZI	Yes	Y		DL	1.2	2	.707	3	-.707	10	-1																
17	1.2DL + 1WL 330 AZI	Yes	Y		DL	1.2	2	.866	3	-.5	11	-1																
18	0.9DL + 1WL 0 AZI	Yes	Y		DL	.9	2	1	3		4	1																
19	0.9DL + 1WL 30 AZI	Yes	Y		DL	.9	2	.866	3	.5	5	1																
20	0.9DL + 1WL 45 AZI	Yes	Y		DL	.9	2	.707	3	.707	6	1																
21	0.9DL + 1WL 60 AZI	Yes	Y		DL	.9	2	.5	3	.866	7	1																
22	0.9DL + 1WL 90 AZI	Yes	Y		DL	.9	2		3	1	8	1																
23	0.9DL + 1WL 120 AZI	Yes	Y		DL	.9	2	-.5	3	.866	9	1																
24	0.9DL + 1WL 135 AZI	Yes	Y		DL	.9	2	-.707	3	.707	10	1																
25	0.9DL + 1WL 150 AZI	Yes	Y		DL	.9	2	-.866	3	.5	11	1																
26	0.9DL + 1WL 180 AZI	Yes	Y		DL	.9	2	-1	3		4	-1																
27	0.9DL + 1WL 210 AZI	Yes	Y		DL	.9	2	-.866	3	-.5	5	-1																
28	0.9DL + 1WL 225 AZI	Yes	Y		DL	.9	2	-.707	3	-.707	6	-1																
29	0.9DL + 1WL 240 AZI	Yes	Y		DL	.9	2	-.5	3	-.866	7	-1																
30	0.9DL + 1WL 270 AZI	Yes	Y		DL	.9	2		3	-1	8	-1																
31	0.9DL + 1WL 300 AZI	Yes	Y		DL	.9	2	.5	3	-.866	9	-1																
32	0.9DL + 1WL 315 AZI	Yes	Y		DL	.9	2	.707	3	-.707	10	-1																
33	0.9DL + 1WL 330 AZI	Yes	Y		DL	.9	2	.866	3	-.5	11	-1																
34	1.2DL + 1DLi + 1WLi 0 A...	Yes	Y		DL	1.2	O...	1	13	1	14		15	1														
35	1.2DL + 1DLi + 1WLi 30 ...	Yes	Y		DL	1.2	O...	1	13	.866	14	.5	16	1														
36	1.2DL + 1DLi + 1WLi 45 ...	Yes	Y		DL	1.2	O...	1	13	.707	14	.707	17	1														
37	1.2DL + 1DLi + 1WLi 60 ...	Yes	Y		DL	1.2	O...	1	13	.5	14	.866	18	1														
38	1.2DL + 1DLi + 1WLi 90 ...	Yes	Y		DL	1.2	O...	1	13		14	1	19	1														
39	1.2DL + 1DLi + 1WLi 12...	Yes	Y		DL	1.2	O...	1	13	-.5	14	.866	20	1														
40	1.2DL + 1DLi + 1WLi 13...	Yes	Y		DL	1.2	O...	1	13	-.707	14	.707	21	1														
41	1.2DL + 1DLi + 1WLi 15...	Yes	Y		DL	1.2	O...	1	13	-.866	14	.5	22	1														
42	1.2DL + 1DLi + 1WLi 18...	Yes	Y		DL	1.2	O...	1	13	-1	14		15	-1														
43	1.2DL + 1DLi + 1WLi 21...	Yes	Y		DL	1.2	O...	1	13	-.866	14	-.5	16	-1														
44	1.2DL + 1DLi + 1WLi 22...	Yes	Y		DL	1.2	O...	1	13	-.707	14	-.707	17	-1														

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Factor	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac...
45	1.2DL + 1DLi + 1W Li 24...	Yes	Y		DL	1.2	O...	1	13	-.5	14	-.866	18	-1												
46	1.2DL + 1DLi + 1W Li 27...	Yes	Y		DL	1.2	O...	1	13		14	-1	19	-1												
47	1.2DL + 1DLi + 1W Li 30...	Yes	Y		DL	1.2	O...	1	13	.5	14	-.866	20	-1												
48	1.2DL + 1DLi + 1W Li 31...	Yes	Y		DL	1.2	O...	1	13	.707	14	-.707	21	-1												
49	1.2DL + 1DLi + 1W Li 33...	Yes	Y		DL	1.2	O...	1	13	.866	14	-.5	22	-1												
50	(1.2+0.2Sds) + 1.0E 0 AZI	Yes	Y		DL	1.238	E...	1	E...																	
51	(1.2+0.2Sds) + 1.0E 30 ...	Yes	Y		DL	1.238	E...	.866	E...	.5																
52	(1.2+0.2Sds) + 1.0E 45 ...	Yes	Y		DL	1.238	E...	.707	E...	.707																
53	(1.2+0.2Sds) + 1.0E 60 ...	Yes	Y		DL	1.238	E...	.5	E...	.866																
54	(1.2+0.2Sds) + 1.0E 90 ...	Yes	Y		DL	1.238	E...		E...	1																
55	(1.2+0.2Sds) + 1.0E 120 ...	Yes	Y		DL	1.238	E...	-.5	E...	.866																
56	(1.2+0.2Sds) + 1.0E 135 ...	Yes	Y		DL	1.238	E...	-.707	E...	.707																
57	(1.2+0.2Sds) + 1.0E 150 ...	Yes	Y		DL	1.238	E...	-.866	E...	.5																
58	(1.2+0.2Sds) + 1.0E 180 ...	Yes	Y		DL	1.238	E...	-1	E...																	
59	(1.2+0.2Sds) + 1.0E 210 ...	Yes	Y		DL	1.238	E...	-.866	E...	-.5																
60	(1.2+0.2Sds) + 1.0E 225 ...	Yes	Y		DL	1.238	E...	-.707	E...	-.707																
61	(1.2+0.2Sds) + 1.0E 240 ...	Yes	Y		DL	1.238	E...	-.5	E...	-.866																
62	(1.2+0.2Sds) + 1.0E 270 ...	Yes	Y		DL	1.238	E...		E...	-1																
63	(1.2+0.2Sds) + 1.0E 300 ...	Yes	Y		DL	1.238	E...	.5	E...	-.866																
64	(1.2+0.2Sds) + 1.0E 315 ...	Yes	Y		DL	1.238	E...	.707	E...	-.707																
65	(1.2+0.2Sds) + 1.0E 330 ...	Yes	Y		DL	1.238	E...	.866	E...	-.5																
66	(0.9-0.2Sds) + 1.0E 0 AZI	Yes	Y		DL	.862	E...	1	E...																	
67	(0.9-0.2Sds) + 1.0E 30 A...	Yes	Y		DL	.862	E...	.866	E...	.5																
68	(0.9-0.2Sds) + 1.0E 45 A...	Yes	Y		DL	.862	E...	.707	E...	.707																
69	(0.9-0.2Sds) + 1.0E 60 A...	Yes	Y		DL	.862	E...	.5	E...	.866																
70	(0.9-0.2Sds) + 1.0E 90 A...	Yes	Y		DL	.862	E...		E...	1																
71	(0.9-0.2Sds) + 1.0E 120 ...	Yes	Y		DL	.862	E...	-.5	E...	.866																
72	(0.9-0.2Sds) + 1.0E 135 ...	Yes	Y		DL	.862	E...	-.707	E...	.707																
73	(0.9-0.2Sds) + 1.0E 150 ...	Yes	Y		DL	.862	E...	-.866	E...	.5																
74	(0.9-0.2Sds) + 1.0E 180 ...	Yes	Y		DL	.862	E...	-1	E...																	
75	(0.9-0.2Sds) + 1.0E 210 ...	Yes	Y		DL	.862	E...	-.866	E...	-.5																
76	(0.9-0.2Sds) + 1.0E 225 ...	Yes	Y		DL	.862	E...	-.707	E...	-.707																
77	(0.9-0.2Sds) + 1.0E 240 ...	Yes	Y		DL	.862	E...	-.5	E...	-.866																
78	(0.9-0.2Sds) + 1.0E 270 ...	Yes	Y		DL	.862	E...		E...	-1																
79	(0.9-0.2Sds) + 1.0E 300 ...	Yes	Y		DL	.862	E...	.5	E...	-.866																
80	(0.9-0.2Sds) + 1.0E 315 ...	Yes	Y		DL	.862	E...	.707	E...	-.707																
81	(0.9-0.2Sds) + 1.0E 330 ...	Yes	Y		DL	.862	E...	.866	E...	-.5																
82	1.2D + 1.5 Lv1	Yes	Y		DL	1.2	25	1.5																		
83	1.2D + 1.5 Lv2	Yes	Y		DL	1.2	26	1.5																		
84	1.2D + 1.5 Lv3	Yes	Y		DL	1.2	27	1.5																		
85	1.2D + 1.5 Lv4	Yes	Y		DL	1.2	28	1.5																		
86	1.2D + 1.5 Lv5	Yes	Y		DL	1.2	29	1.5																		
87	1.2D + 1.5 Lv6	Yes	Y		DL	1.2	30	1.5																		
88	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	4	.058	2	.058	3													
89	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	5	.058	2	.05	3	.029												
90	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	6	.058	2	.041	3	.041												
91	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	7	.058	2	.029	3	.05												
92	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	8	.058	2	3.5...	3	.058												
93	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	9	.058	2	-.029	3	.05												
94	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	10	.058	2	-.041	3	.041												
95	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	11	.058	2	-.05	3	.029												
96	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	4	.058	2	-.058	3	7.0...												

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Factor	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac...
97	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	5	.058	2	-.05	3	-.029										
98	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	6	.058	2	-.041	3	-.041										
99	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	7	.058	2	-.029	3	-.05										
100	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	8	.058	2	-1....	3	-.058										
101	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	9	.058	2	.029	3	-.05										
102	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	10	.058	2	.041	3	-.041										
103	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	31	1.5	11	.058	2	.05	3	-.029										
104	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	4	.058	2	.058	3											
105	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	5	.058	2	.05	3	.029										
106	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	6	.058	2	.041	3	.041										
107	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	7	.058	2	.029	3	.05										
108	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	8	.058	2	3.5...	3	.058										
109	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	9	.058	2	-.029	3	.05										
110	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	10	.058	2	-.041	3	.041										
111	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	11	.058	2	-.05	3	.029										
112	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	4	.058	2	-.058	3	7.0...										
113	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	5	.058	2	-.05	3	-.029										
114	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	6	.058	2	-.041	3	-.041										
115	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	7	.058	2	-.029	3	-.05										
116	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	8	.058	2	-1....	3	-.058										
117	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	9	.058	2	.029	3	-.05										
118	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	10	.058	2	.041	3	-.041										
119	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	32	1.5	11	.058	2	.05	3	-.029										
120	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	4	.058	2	.058	3											
121	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	5	.058	2	.05	3	.029										
122	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	6	.058	2	.041	3	.041										
123	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	7	.058	2	.029	3	.05										
124	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	8	.058	2	3.5...	3	.058										
125	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	9	.058	2	-.029	3	.05										
126	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	10	.058	2	-.041	3	.041										
127	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	11	.058	2	-.05	3	.029										
128	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	4	.058	2	-.058	3	7.0...										
129	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	5	.058	2	-.05	3	-.029										
130	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	6	.058	2	-.041	3	-.041										
131	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	7	.058	2	-.029	3	-.05										
132	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	8	.058	2	-1....	3	-.058										
133	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	9	.058	2	.029	3	-.05										
134	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	10	.058	2	.041	3	-.041										
135	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	33	1.5	11	.058	2	.05	3	-.029										
136	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	4	.058	2	.058	3											
137	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	5	.058	2	.05	3	.029										
138	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	6	.058	2	.041	3	.041										
139	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	7	.058	2	.029	3	.05										
140	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	8	.058	2	3.5...	3	.058										
141	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	9	.058	2	-.029	3	.05										
142	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	10	.058	2	-.041	3	.041										
143	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	11	.058	2	-.05	3	.029										
144	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	4	.058	2	-.058	3	7.0...										
145	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	5	.058	2	-.05	3	-.029										
146	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	6	.058	2	-.041	3	-.041										
147	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	7	.058	2	-.029	3	-.05										
148	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	8	.058	2	-1....	3	-.058										

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Factor	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac...
149	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	9	.058	2	.029	3	-.05												
150	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	10	.058	2	.041	3	-.041												
151	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	34	1.5	11	.058	2	.05	3	-.029												
152	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	4	.058	2	.058	3													
153	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	5	.058	2	.05	3	.029												
154	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	6	.058	2	.041	3	.041												
155	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	7	.058	2	.029	3	.05												
156	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	8	.058	2	3.5...	3	.058												
157	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	9	.058	2	-.029	3	.05												
158	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	10	.058	2	-.041	3	.041												
159	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	11	.058	2	-.05	3	.029												
160	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	4	.058	2	-.058	3	7.0...												
161	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	5	.058	2	-.05	3	-.029												
162	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	6	.058	2	-.041	3	-.041												
163	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	7	.058	2	-.029	3	-.05												
164	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	8	.058	2	-1....	3	-.058												
165	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	9	.058	2	.029	3	-.05												
166	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	10	.058	2	.041	3	-.041												
167	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	35	1.5	11	.058	2	.05	3	-.029												
168	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	4	.058	2	.058	3													
169	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	5	.058	2	.05	3	.029												
170	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	6	.058	2	.041	3	.041												
171	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	7	.058	2	.029	3	.05												
172	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	8	.058	2	3.5...	3	.058												
173	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	9	.058	2	-.029	3	.05												
174	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	10	.058	2	-.041	3	.041												
175	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	11	.058	2	-.05	3	.029												
176	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	4	.058	2	-.058	3	7.0...												
177	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	5	.058	2	-.05	3	-.029												
178	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	6	.058	2	-.041	3	-.041												
179	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	7	.058	2	-.029	3	-.05												
180	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	8	.058	2	-1....	3	-.058												
181	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	9	.058	2	.029	3	-.05												
182	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	10	.058	2	.041	3	-.041												
183	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	36	1.5	11	.058	2	.05	3	-.029												
184	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	4	.058	2	.058	3													
185	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	5	.058	2	.05	3	.029												
186	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	6	.058	2	.041	3	.041												
187	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	7	.058	2	.029	3	.05												
188	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	8	.058	2	3.5...	3	.058												
189	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	9	.058	2	-.029	3	.05												
190	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	10	.058	2	-.041	3	.041												
191	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	11	.058	2	-.05	3	.029												
192	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	4	.058	2	-.058	3	7.0...												
193	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	5	.058	2	-.05	3	-.029												
194	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	6	.058	2	-.041	3	-.041												
195	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	7	.058	2	-.029	3	-.05												
196	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	8	.058	2	-1....	3	-.058												
197	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	9	.058	2	.029	3	-.05												
198	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	10	.058	2	.041	3	-.041												
199	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	37	1.5	11	.058	2	.05	3	-.029												
200	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	4	.058	2	.058	3													

Load Combinations (Continued)

	Description	S...	P...	S...	B...	Factor	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac..	B...	Fac...
201	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	5	.058	2	.05	3	.029												
202	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	6	.058	2	.041	3	.041												
203	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	7	.058	2	.029	3	.05												
204	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	8	.058	2	3.5...	3	.058												
205	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	9	.058	2	-.029	3	.05												
206	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	10	.058	2	-.041	3	.041												
207	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	11	.058	2	-.05	3	.029												
208	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	4	.058	2	-.058	3	7.0...												
209	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	5	.058	2	-.05	3	-.029												
210	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	6	.058	2	-.041	3	-.041												
211	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	7	.058	2	-.029	3	-.05												
212	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	8	.058	2	-1....	3	-.058												
213	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	9	.058	2	.029	3	-.05												
214	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	10	.058	2	.041	3	-.041												
215	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	38	1.5	11	.058	2	.05	3	-.029												
216	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	4	.058	2	.058	3													
217	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	5	.058	2	.05	3	.029												
218	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	6	.058	2	.041	3	.041												
219	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	7	.058	2	.029	3	.05												
220	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	8	.058	2	3.5...	3	.058												
221	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	9	.058	2	-.029	3	.05												
222	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	10	.058	2	-.041	3	.041												
223	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	11	.058	2	-.05	3	.029												
224	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	4	.058	2	-.058	3	7.0...												
225	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	5	.058	2	-.05	3	-.029												
226	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	6	.058	2	-.041	3	-.041												
227	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	7	.058	2	-.029	3	-.05												
228	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	8	.058	2	-1....	3	-.058												
229	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	9	.058	2	.029	3	-.05												
230	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	10	.058	2	.041	3	-.041												
231	1.2D + 1.5Lm + 1.0Wm ...	Yes	Y		DL	1.2	39	1.5	11	.058	2	.05	3	-.029												

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	1615.18	3	1076.489	20	2311.367	39	86.894	31	186.667	33	1917.76	19
2		min	-1609.166	27	-1081.272	12	72.772	31	-4209.326	38	-2283.837	41	-1920.944	11
3	N1	max	1698.64	17	960.339	8	2377.357	45	4120.316	45	159.962	19	1965.815	25
4		min	-1696.522	25	-952.507	32	83.543	21	-52.497	21	-2790.389	43	-1970.414	17
5	N13	max	428.935	18	1646.732	22	2249.585	34	652.262	194	4652.38	34	1614.53	30
6		min	-437.189	10	-1649.584	14	43.274	26	-540.795	172	-166.177	26	-1617.459	6
7	Totals:	max	3327.43	18	3110.372	22	6752.443	43						
8		min	-3327.431	10	-3110.373	14	1367.852	67						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Lo...	...	...	phi*P...	phi*P...	phi*M...	phi*M.....	Eqn
1	M2	PIPE 3.5	.623	0	45	.165	0		9	6449...	78750	7953...	7953...	H1-1b
2	M12	PIPE 3.5	.601	0	39	.160	0		3	6449...	78750	7953...	7953...	H1-1b
3	M7	PIPE 3.5	.585	0	34	.151	0		14	6449...	78750	7953...	7953...	H1-1b
4	M1	C3X5	.467	34.856	45	.168	63....	y	40	3710...	47628	981.2...	4104	H1-1b

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Lo...	...	...	phi*P ...	phi*P ...	phi*M...	phi*M...	...	Eqn
5	M11	C3X5	.456	34.856	45	.166	63...	y	35	3710...	47628	981.2...	4104	...	H1-1b
6	M6	C3X5	.439	34.856	34	.161	63...	y	46	3710...	47628	981.2...	4104	...	H1-1b
7	MP1	PIPE_2.0	.320	48	16	.044	48		17	2086...	32130	1871...	1871...	...	H1-1b
8	MP4	PIPE_2.0	.314	48	11	.045	48		11	2086...	32130	1871...	1871...	...	H1-1b
9	MP3	PIPE_2.0	.299	48	5	.026	48		10	2086...	32130	1871...	1871...	1	H1-1b
10	MP7	PIPE_2.0	.296	48	10	.036	48		6	2086...	32130	1871...	1871...	...	H1-1b
11	MP9	PIPE_2.0	.295	48	10	.029	48		3	2086...	32130	1871...	1871...	...	H1-1b
12	MP2	PIPE_2.0	.289	48	5	.041	48		8	2086...	32130	1871...	1871...	1	H1-1b
13	MP8	PIPE_2.0	.287	48	10	.034	48		14	2086...	32130	1871...	1871...	...	H1-1b
14	MP5	PIPE_2.0	.274	48	16	.041	48		3	2086...	32130	1871...	1871...	...	H1-1b
15	MP6	PIPE_2.0	.272	48	15	.030	48		9	2086...	32130	1871...	1871...	...	H1-1b
16	M15	6.5"x0.37" Pl...	.239	21	7	.112	21	y	37	3513....	77922	600.6...	6357...	...	H1-1b
17	M10	6.5"x0.37" Pl...	.238	21	2	.110	21	y	48	3513....	77922	600.6...	6384...	...	H1-1b
18	M5	6.5"x0.37" Pl...	.233	21	12	.117	21	y	42	3513....	77922	600.6...	6586...	...	H1-1b
19	M3	L2x2x3	.201	0	3	.034	0	z	49	2096...	2339...	557.7...	1182...	1	H2-1
20	M13	L2x2x3	.199	0	14	.033	0	z	43	2096...	2339...	557.7...	1182...	1	H2-1
21	M8	L2x2x3	.172	0	9	.033	0	z	38	2096...	2339...	557.7...	1182...	1	H2-1
22	M4	L2x2x3	.147	0	13	.037	0	y	41	2096...	2339...	557.7...	1182...	1	H2-1
23	M9	L2x2x3	.132	0	2	.035	0	y	46	2096...	2339...	557.7...	1182...	1	H2-1
24	M20	PIPE_2.0	.131	24	16	.117	72		8	1491...	32130	1871...	1871...	...	H1-1b
25	M19	PIPE_2.0	.130	24	11	.124	72		2	1491...	32130	1871...	1871...	...	H1-1b
26	M21	PIPE_2.0	.129	72	5	.119	72		13	1491...	32130	1871...	1871...	...	H1-1b
27	M14	L2x2x3	.123	0	7	.036	0	y	36	2096...	2339...	557.7...	1182...	1	H2-1
28	H1	PIPE_3.5	.115	72	102	.087	24		11	6066...	78750	7953...	7953...	1	H1-1b
29	H3	PIPE_3.5	.114	31	10	.090	24		16	6066...	78750	7953...	7953...	...	H1-1b
30	H2	PIPE_3.5	.113	72	143	.082	24		5	6066...	78750	7953...	7953...	1	H1-1b
31	M22	L6.6"X4.46"X...	.059	0	22	.033	42	z	4	5117...	87561	2464...	7125...	1	H2-1
32	M23	L6.6"X4.46"X...	.058	0	26	.032	0	y	9	5117...	87561	2464...	7125...	1	H2-1
33	M24	L6.6"X4.46"X...	.052	4.813	33	.030	0	y	14	5117...	87561	2464...	7125...	1	H2-1

Envelope None Cold Formed Steel Code Checks

Member	Shape	Code Check	Loc[in]	LC	Shea...	Loc[i...	Dir	LC	Pn[lb]	Tn[lb]	Mnyy[l...	Mnzz[l...	Cb	Cmyy	Cmzz	Eqn
No Data to Print ...																

APPENDIX D

ADDITIONAL CALCUATIONS

Trylon

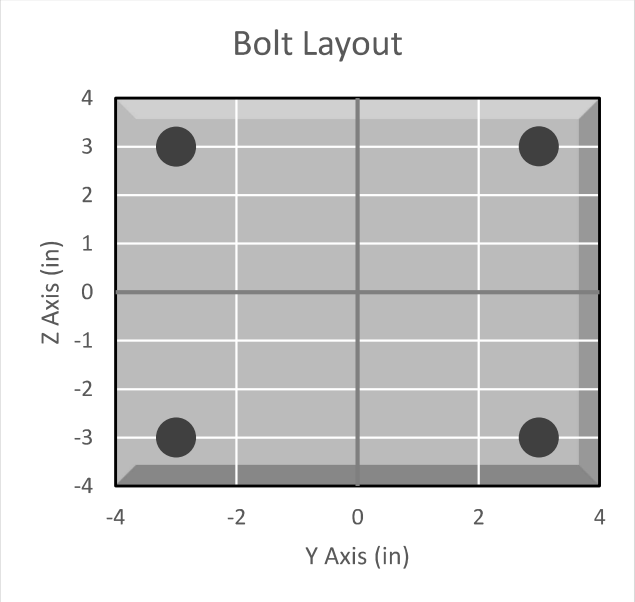
Analysis date: 7/29/2021

BOLT TOOL 1.5.2

Project Data	
Job Code:	189048
Carrier Site ID:	BOBDL00073A
Carrier Site Name:	CT-CCI-T-855662

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

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):	5141.3	lbs
Shear Force (V_u):	411.4	lbs
Tension Usage:	24.1%	--
Shear Usage:	2.8%	--
Interaction:	24.1%	Pass
Controlling Member:	M2	--
Controlling LC:	42	--

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

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

APPENDIX E

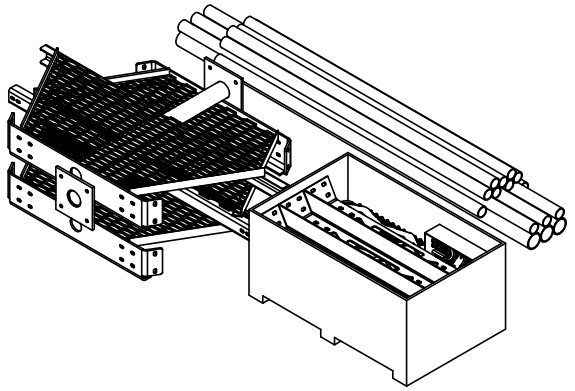
SUPPLEMENTAL DRAWINGS

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

C

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

FOR BOM ENTRY ONLY

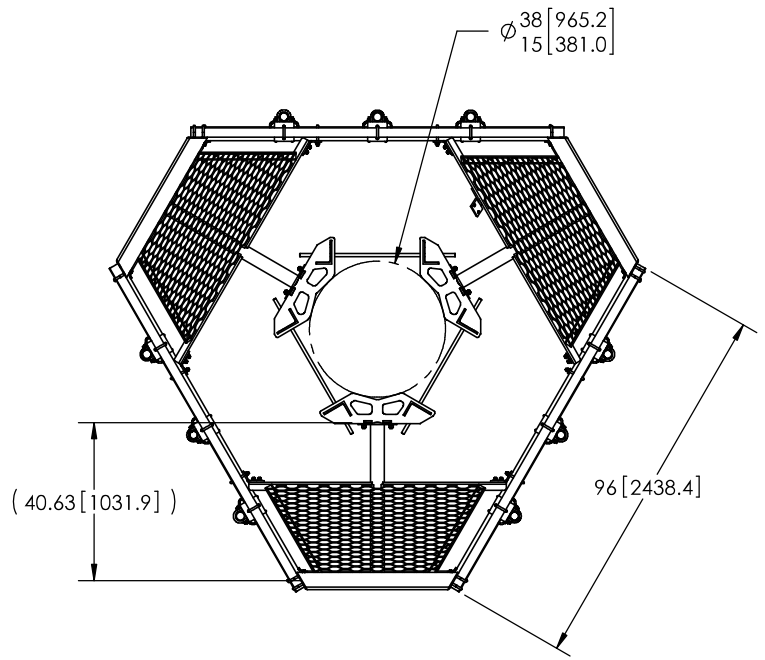


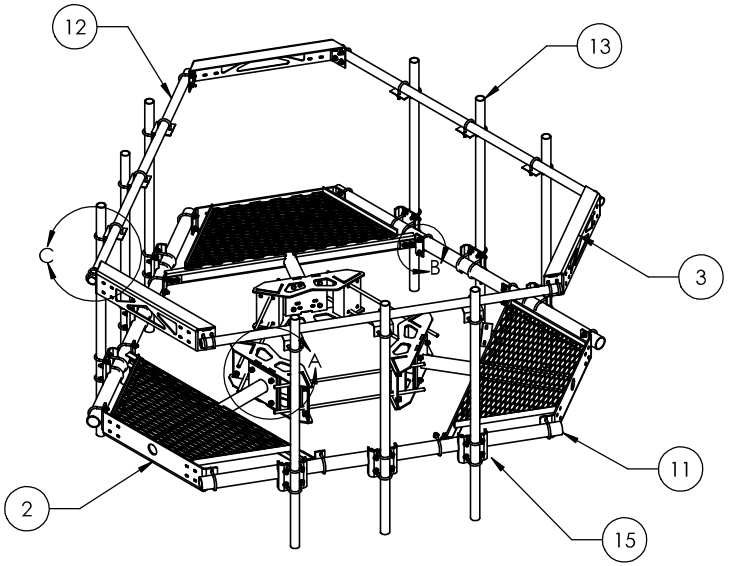
NOTES:
1. CUSTOMER ASSEMBLY SHEETS 2–3.

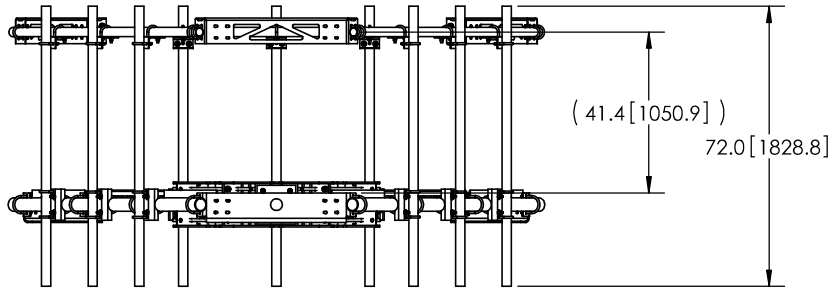
ALL DIMENSIONS ARE IN INCHES U.O.S.
TOLERANCES UNLESS OTHERWISE SPECIFIED:
.X = ± .12 ANGLES ±2°
.XX = ± .06 FRACTIONS ±1/32
.XXX= ± .03
REMOVE BURRS AND BREAK EDGES .005

DO NOT SCALE THIS PRINT

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





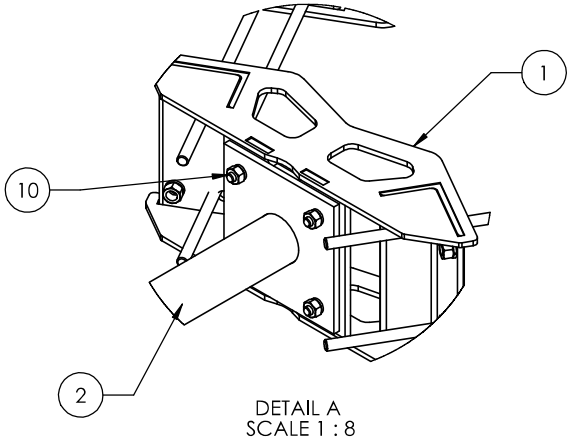


ITEM	PART NO.	DESCRIPTION	QTY.	WEIGHT
C				
1	MC-RM1550-3	12" - 50" OD RINGMOUNT	1	230.42 LBS
2	MTC300601	Low Profile Co-Location Platform Snub Nose	3	134.21 LBS
3	MT195801	Corner Weldment Snub Nose Handrail	3	27.10 LBS
4	XA2020.01	CROSS OVER ANGLE	9	2.65 LBS
5	GUB-4356	1/2" X 3-5/8" X 6" GALV U-BOLT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

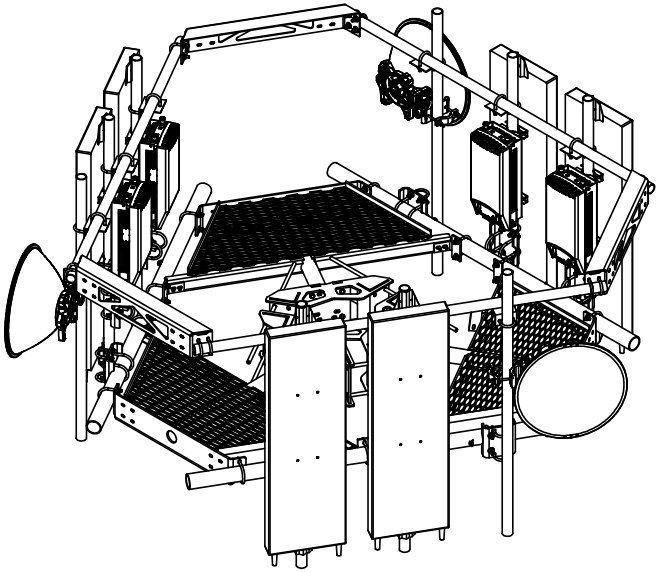
NOTES:
1. ALL METRIC DIMENSIONS ARE IN BRACKETS.
2. WILL FIT MONOPOLES 15"–38" OD.

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

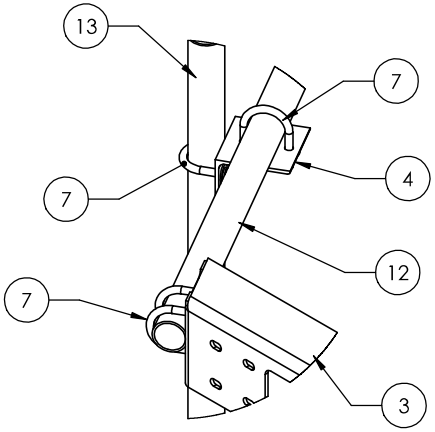
DRAWN BY: MSM	SHEET: 2 of 3	PART NUMBER: MC-PK8-C	
CHECKED BY: TP	SCALE: NTS	DESCRIPTION: 25" OD Snub Nose MT-196	
DATE: 10/18/11	MATERIAL: A36, A53	DRAWING TYPE: ASSEMBLY DRAWING	
REVISION: C	FINISH: GALV A123	WEIGHT: 1361.27 LBS	ANDREW® WESTCHESTER, IL. 60154 U.S.A.



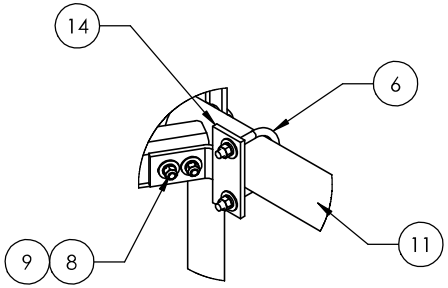
DETAIL A
SCALE 1 : 8



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	
	WEIGHT: 1361.27 LBS	

ANDREW®
WESTCHESTER, IL. 60154
U.S.A.

ATTACHMENT 6

EBI Consulting

environmental | engineering | due diligence

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

Dish Wireless Existing Facility

Site ID: BOBDL00073A

855662
340 Bloomfield Avenue
Windsor, Connecticut 06095

October 26, 2021

EBI Project Number: 6221006488

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**21.21%**

21 B Street, Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

October 26, 2021

Dish Wireless

Emissions Analysis for Site: BOBDL00073A - 855662

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **340 Bloomfield Avenue** in **Windsor, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless Wireless antenna facility located at 340 Bloomfield Avenue in Windsor, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

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

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

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

6) The antenna mounting height centerline of the proposed antennas is 99 feet above ground level (AGL).

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

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

Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21
Frequency Bands:	600 MHz / 1900 MHz	Frequency Bands:	600 MHz / 1900 MHz	Frequency Bands:	600 MHz / 1900 MHz
Gain:	17.45 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd
Height (AGL):	99 feet	Height (AGL):	99 feet	Height (AGL):	99 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	280 Watts	Total TX Power (W):	280 Watts	Total TX Power (W):	280 Watts
ERP (W):	3,065.51	ERP (W):	3,065.51	ERP (W):	3,065.51
Antenna A1 MPE %:	**1.83%**	Antenna B1 MPE %:	**1.83%**	Antenna C1 MPE %:	**1.83%**

Site Composite MPE %	
Carrier	**MPE %**
Dish Wireless (Max at Sector A):	1.83%
Verizon	7.27%
AT&T	0.95%
T-Mobile	2.14%
Clearwire	0.12%
Sprint	0.07%
Town	8.83%
Site Total MPE % :	21.21%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	1.83%
Dish Wireless Sector B Total:	1.83%
Dish Wireless Sector C Total:	1.83%
Site Total MPE % :	21.21%

Dish Wireless Maximum MPE Power Values (Sector A)

Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
Dish Wireless 600 MHz n71	4	223.68	99.0	3.72	600 MHz n71	400	0.93%
Dish Wireless 1900 MHz n70	4	542.70	99.0	9.02	1900 MHz n70	1000	0.90%
						Total:	**1.83%**

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

Summary

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

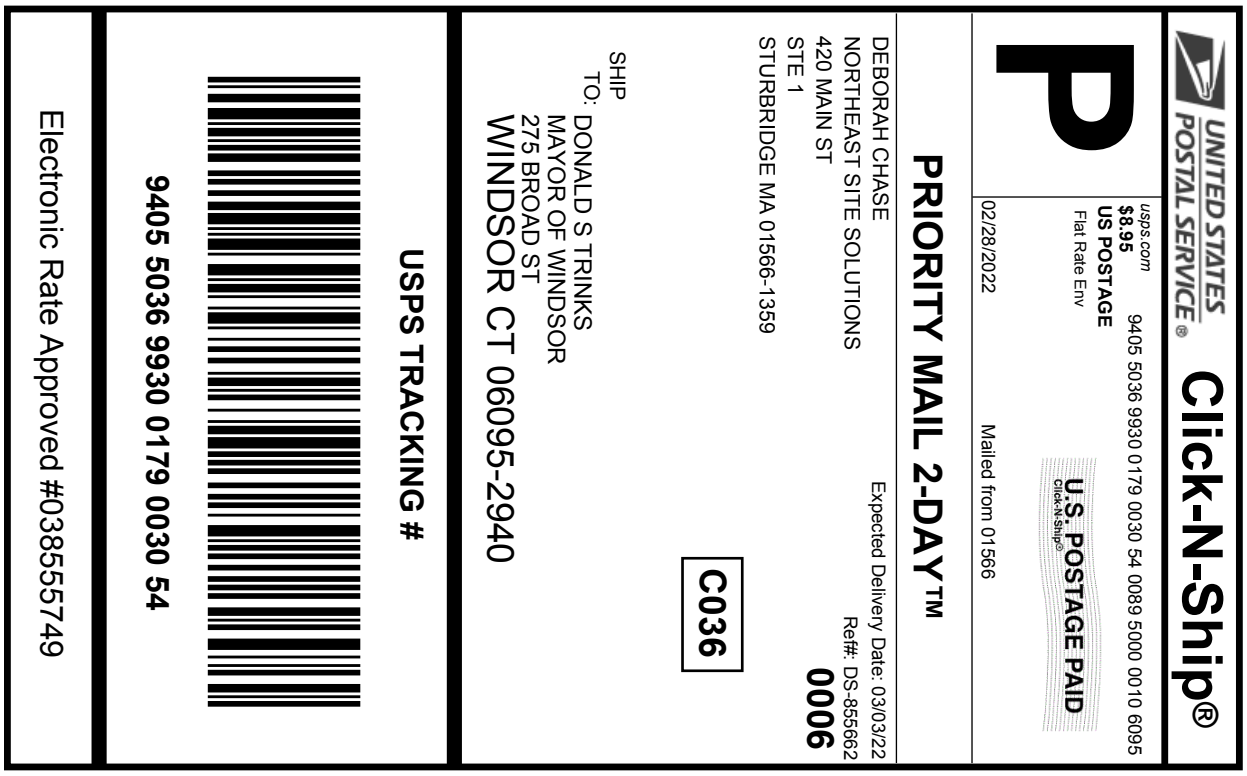
The anticipated maximum composite contributions from the Dish Wireless facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

Dish Wireless Sector	Power Density Value (%)
Sector A:	1.83%
Sector B:	1.83%
Sector C:	1.83%
Dish Wireless Maximum MPE % (Sector A):	1.83%
Site Total:	21.21%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **21.21%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

ATTACHMENT 7



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 0179 0030 54

Trans. #:	557656548
Print Date:	02/28/2022
Ship Date:	02/28/2022
Expected Delivery Date:	03/03/2022

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

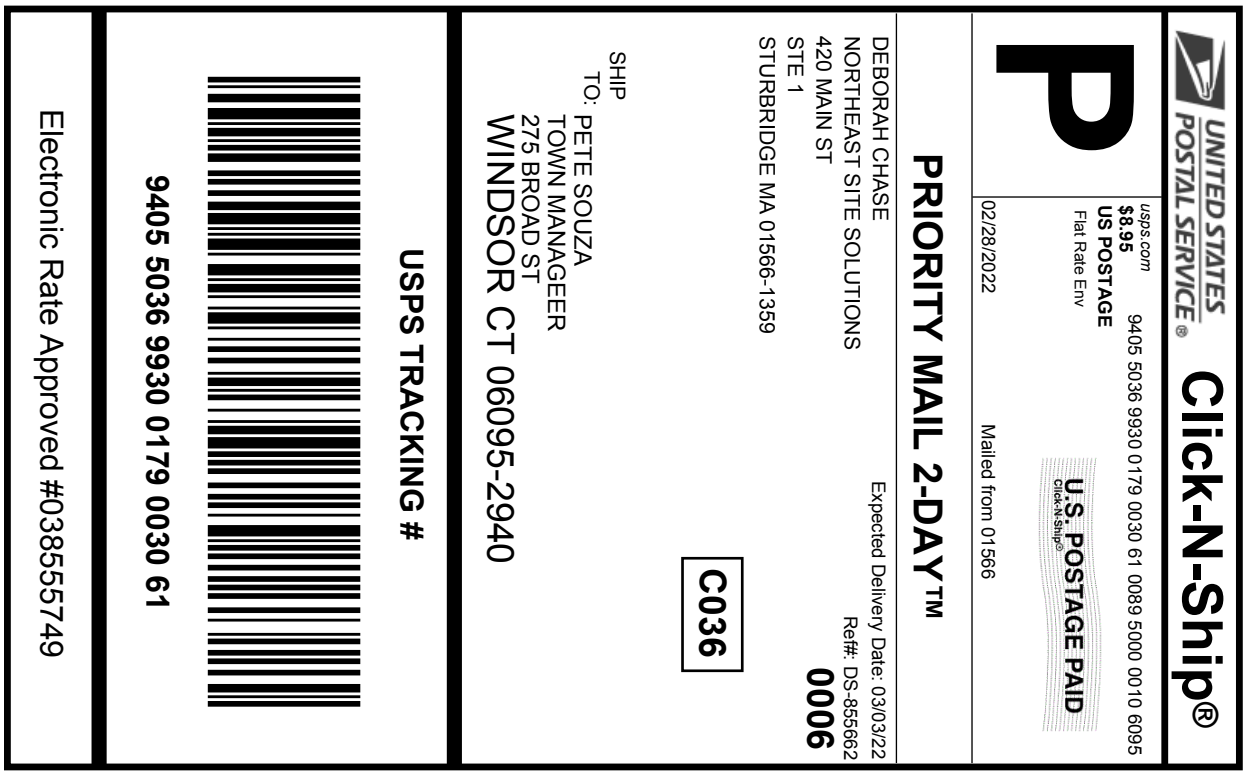
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DS-855662

To: DONALD S TRINKS
MAYOR OF WINDSOR
275 BROAD ST
WINDSOR CT 06095-2940

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

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



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0179 0030 61

Trans. #:	557656548
Print Date:	02/28/2022
Ship Date:	02/28/2022
Expected Delivery Date:	03/03/2022

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

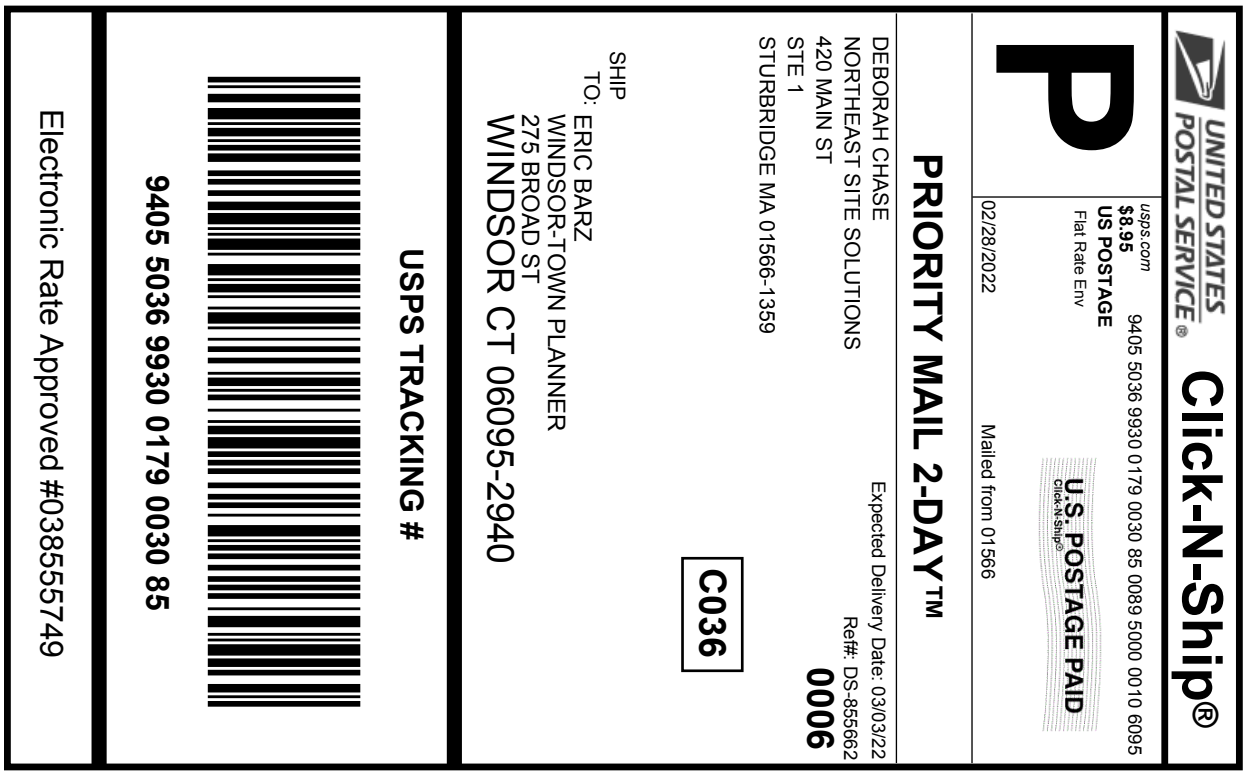
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DS-855662

To: PETE SOUZA
TOWN MANAGEER
275 BROAD ST
WINDSOR CT 06095-2940

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

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



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0179 0030 85

Trans. #:	557656548
Print Date:	02/28/2022
Ship Date:	02/28/2022
Expected Delivery Date:	03/03/2022

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

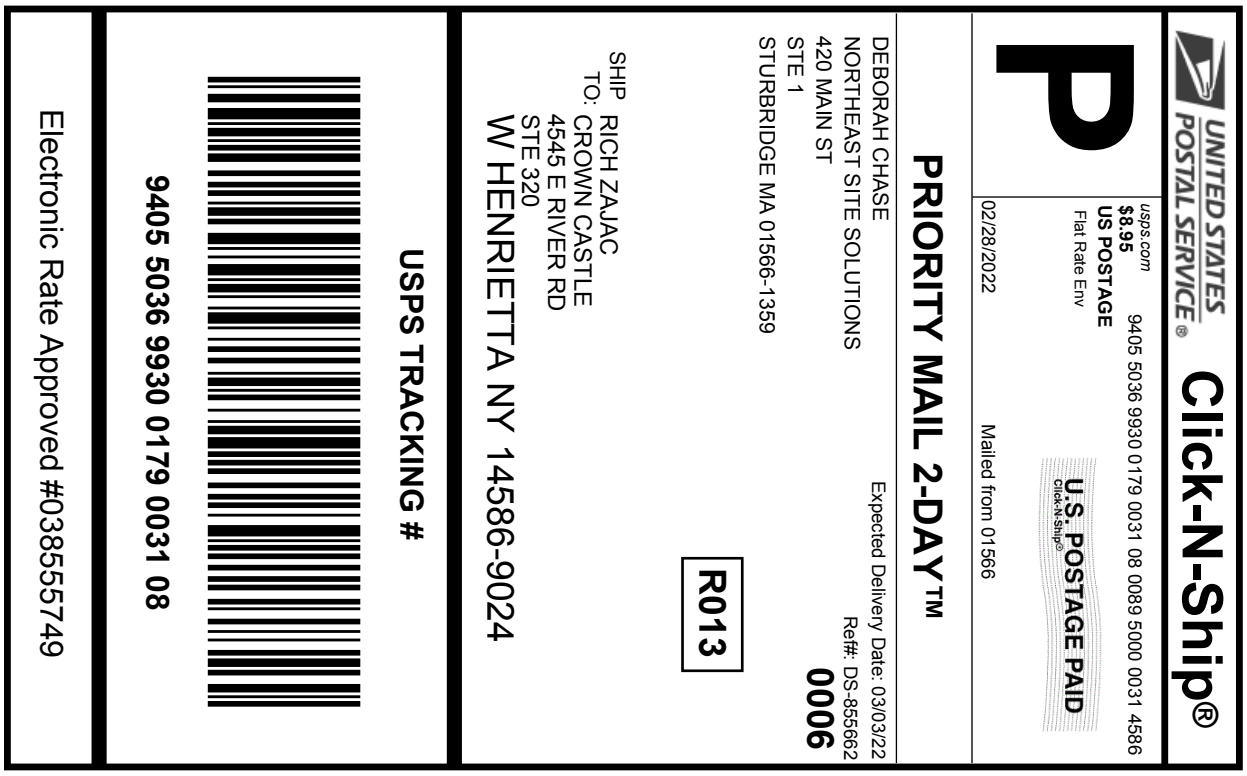
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DS-855662

To: ERIC BARZ
WINDSOR-TOWN PLANNER
275 BROAD ST
WINDSOR CT 06095-2940

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

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



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0179 0031 08

Trans. #:	557656548
Print Date:	02/28/2022
Ship Date:	02/28/2022
Expected Delivery Date:	03/03/2022

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

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

Ref#: DS-855662

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

855662

UNITED STATES POSTAL SERVICE.

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

03/01/2022 03:58 PM

Product	Qty	Unit Price	Price
Prepaid Mail West Henrietta, NY 14586 Weight: 0 lb 14.10 oz Acceptance Date: Tue 03/01/2022 Tracking #: 9405 5036 9930 0179 0031 08	1		$0.00
Prepaid Mail Windsor, CT 06095 Weight: 0 lb 14.10 oz Acceptance Date: Tue 03/01/2022 Tracking #: 9405 5036 9930 0179 0030 85	1		$0.00
Prepaid Mail Windsor, CT 06095 Weight: 0 lb 14.20 oz Acceptance Date: Tue 03/01/2022 Tracking #: 9405 5036 9930 0179 0030 54	1		$0.00
Prepaid Mail Windsor, CT 06095 Weight: 0 lb 14.20 oz Acceptance Date: Tue 03/01/2022 Tracking #: 9405 5036 9930 0179 0030 61	1		$0.00
Grand Total:			$0.00

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

CERTIFICATION OF SERVICE

I hereby certify that on the 14th day of January 2022, DISH Wireless, LLC provided notice of its intent to file a Petition for a declaratory ruling that a Certificate of Environmental Compatibility and Public Need is not required for the modification of a wireless telecommunications facility at 340 Bloomfield Avenue in Windsor, Connecticut, to the following:

Abutters

MCDONALDS CORPORATION
PO BOX 182571
COLUMBUS, OH 43218

AUSTIN SAMUELS
123 EAST WOLCOTT AVENUE
WINDSOR, CT 06095

WILLIAM BEDNARZ
298 BLOOMFIELD AVENUE
WINDSOR, CT 06095

PUBLIC SAFETY EXPANSION PARCEL
275 BROAD STREET
WINDSOR, CT 06095

EDWARD OLEARY KINDER CARE
PO BOX 528
AGAWAM, MA 01001

CONN AGRICULTURAL
153 COOK HILL ROAD
WINDSOR, CT 06095

CONN AGR EXP STATON TR UW
153 COOK HILL ROAD
WINDSOR, CT 06095

Owner

TOWN OF WINDSOR
275 BROAD STREET
WINDSOR, CT 06095

Respectfully Submitted,

Victoria Masse
Northeast Site Solutions
420 Main Street #2
Sturbridge, MA 01566

January 14, 2022

VIA USPS CERTIFIED MAIL/
RETURN RECEIPT REQUESTED

TOWN OF WINDSOR
275 BROAD STREET
WINDSOR, CT 06095

RE: Proposed Modification to Existing Wireless Telecommunications Facility at 340 Bloomfield Avenue in Windsor, CT

To Whom It May Concern:

I am writing to you on behalf of DISH Wireless, LLC ("DISH"). DISH intends to file with the Connecticut Siting Council ("Council") a petition for declaratory ruling ("Petition") that a Certificate of Environmental Compatibility and Public Need is not required.

The Petition will provide details of the Existing Facility modification and explain why it will have no significant adverse environmental effect.

This letter serves as notice to you as an abutting property owner pursuant to § 16-50j-40 of the Regulations of Connecticut State Agencies. DISH will file the Petition on or about January 14, 2022 and will request that the Council place the Petition on some future agenda.

You may review the Petition at the office of the Council, which is located at Ten Franklin Square, New Britain, Connecticut, 06051, or at the Office of the Town Clerk at the Windsor Town Hall. All inquiries should be addressed to Council or to the undersigned.

Sincerely,

Victoria Masse
Northeast Site Solutions
420 Main Street #2
Sturbridge, MA 01566

7021 0350 0000 6029 2692

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

Columbus OH 43215

OFFICIAL USE

Certified Mail Fee	$3.75
$	$3.05
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$ $0.00
☐ Return Receipt (electronic)	$ $0.00
☐ Certified Mail Restricted Delivery	$ $0.00
☐ Adult Signature Required	$ $0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.58
$	
Total Postage and Fees	$7.38
$	

MAR 1 - 2022
Postmark Here
03/01/2022

Sent To McDonalds Corporation
Street and Apt. No., or PO Box No. P.O. BOX 182517
City, State, ZIP+4® Columbus, OH 43218-2517

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7021 0350 0000 6029 2708

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

Windsor CT 06095

OFFICIAL USE

Certified Mail Fee	$3.75
$	$3.05
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$ $0.00
☐ Return Receipt (electronic)	$ $0.00
☐ Certified Mail Restricted Delivery	$ $0.00
☐ Adult Signature Required	$ $0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.58
$	
Total Postage and Fees	$7.38
$	

Postmark Here
MAR 1 2022
03/01/2022

Sent To Austin Samuels
Street and Apt. No., or PO Box No. 123 East Wolcott Ave
City, State, ZIP+4® Windsor, CT 06095

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7021 0350 0000 6029 2715

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

Windsor CT 06095

OFFICIAL USE

Certified Mail Fee	$3.75
$	$3.05
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$ $0.00
☐ Return Receipt (electronic)	$ $0.00
☐ Certified Mail Restricted Delivery	$ $0.00
☐ Adult Signature Required	$ $0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.58
$	
Total Postage and Fees	$7.38
$	

Postmark Here
MAR 1 - 2022

Sent To William Bednarz
Street and Apt. No., or PO Box No. 248 Bloomfield Ave
City, State, ZIP+4® Windsor, CT 06095

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7021 0350 0000 6029 2722

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

Windsor CT 06095

OFFICIAL USE

Certified Mail Fee	$3.75
$	$3.05
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$ $0.00
☐ Return Receipt (electronic)	$ $0.00
☐ Certified Mail Restricted Delivery	$ $0.00
☐ Adult Signature Required	$ $0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.58
$	
Total Postage and Fees	$7.38
$	

Postmark Here
MAR 1 - 2022

Sent To Public Safety Expansion Parcel
Street and Apt. No., or PO Box No. 275 Broad St
City, State, ZIP+4® Windsor, CT 06095

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7021 0350 0000 6029 2746

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at *www.usps.com®*.

Agawam, MA 01001

OFFICIAL USE

Certified Mail Fee	$3.75
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.58
Total Postage and Fees	$7.38

LINCOLN STREET STATION AGAWAM MA 01001 Postmark Here MAR 1 2022

Sent To: Edward O'Leary Kinder Care
Street and Apt. No., or PO Box No.: P.O. Box 528
City, State, ZIP+4®: Agawam, MA 01001

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7021 0350 0000 6029 2739

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at *www.usps.com®*.

Windsor CT 06095

OFFICIAL USE

Certified Mail Fee	$3.75
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.58
Total Postage and Fees	$7.38

LINCOLN STREET STATION WINDSOR MA 06095 Postmark Here MAR 1 2022

Sent To: Conn Agricultural
Street and Apt. No., or PO Box No.: 153 Cook Hill Road
City, State, ZIP+4®: Windsor, CT 06095

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7020 3160 0000 5719 2982

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at *www.usps.com®*.

Windsor CT 06095

OFFICIAL USE

Certified Mail Fee	$3.75
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$0.00
Postage	$0.58
Total Postage and Fees	$7.38

LINCOLN STREET STATION WINDSOR MA 06095 Postmark Here MAR 1 2022

03/01/2022

Sent To: Conn. Agr. Exp. Station
Street and Apt. No., or PO Box No.: 153 Cook Hill Road
City, State, ZIP+4®: Windsor, CT 06095

7021 0350 0000 6029 2685

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at *www.usps.com®*.

Windsor CT 06095

OFFICIAL USE

Certified Mail Fee	$3.75
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.58
Total Postage and Fees	$7.38

LINCOLN STREET STATION WINDSOR MA 06095 Postmark Here MAR 1 2022

03/01/2022

Sent To: Town of Windsor (855462)
Street and Apt. No., or PO Box No.: 275 Broad St
City, State, ZIP+4®: Windsor, CT 06095

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

First-Class Mail® 1 $0.58
Letter
Windsor, CT 06095
Weight: 0 lb 0.40 oz
Estimated Delivery Date
Thu 03/03/2022
Certified Mail® $3.75
Tracking #:
70210350000060292722
Return Receipt $3.05
Tracking #:
9590 9402 7092 1251 8084 67
Total $7.38

First-Class Mail® 1 $0.58
Letter
Windsor, CT 06095
Weight: 0 lb 0.40 oz
Estimated Delivery Date
Thu 03/03/2022
Certified Mail® $3.75
Tracking #:
70210350000060292715
Return Receipt $3.05
Tracking #:
9590 9402 7092 1251 8087 57
Total $7.38

First-Class Mail® 1 $0.58
Letter
Windsor, CT 06095
Weight: 0 lb 0.40 oz
Estimated Delivery Date
Thu 03/03/2022
Certified Mail® $3.75
Tracking #:
70210350000060292708
Return Receipt $3.05
Tracking #:
9590 9402 7092 1251 8087 40
Total $7.38

First-Class Mail® 1 $0.58
Letter
Columbus, OH 43218
Weight: 0 lb 0.40 oz
Estimated Delivery Date
Fri 03/04/2022
Certified Mail® $3.75
Tracking #:
70210350000060292692
Return Receipt $3.05
Tracking #:
9590 9402 7092 1251 8086 03
Total $7.38

Grand Total: $50.04

First-Class Mail® 1 $0.58
Letter
Windsor, CT 06095
Weight: 0 lb 0.40 oz
Estimated Delivery Date
Thu 03/03/2022
Certified Mail® $3.75
Tracking #:
70210350000060292685
Return Receipt $3.05
Tracking #:
9590 9402 7092 1251 8085 97
Total $7.38

First-Class Mail® 1 $0.58
Letter
Windsor, CT 06095
Weight: 0 lb 0.40 oz
Estimated Delivery Date
Thu 03/03/2022
Certified Mail® $3.75
Tracking #:
70203160000057192982
Return Receipt $3.05
Tracking #:
9590 9402 7092 1251 8086 72
Total $7.38

First-Class Mail® 1 $0.58
Letter
Windsor, CT 06095
Weight: 0 lb 0.40 oz
Estimated Delivery Date
Thu 03/03/2022
Certified Mail® $3.75
Tracking #:
70210350000060292739
Return Receipt $3.05
Tracking #:
9590 9402 7092 1251 8086 89
Total $7.38

First-Class Mail® 1 $0.58
Letter
Agawam, MA 01001
Weight: 0 lb 0.40 oz
Estimated Delivery Date
Thu 03/03/2022
Certified Mail® $3.75
Tracking #:
70210350000060292746
Return Receipt $3.05
Tracking #:
9590 9402 7092 1251 8084 74
Total $7.38