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 439-455 HOMESTEAD AVENUE, HARTFORD, CONNECTICUT	:	PETITION NO. ____
	:	
	:	
	:	
	:	
	:	
	:	JANUARY 12, 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 439-455 Homestead Avenue in Hartford, Connecticut (the "Existing Facility").

II. Existing Facility

The Existing Facility is located on an approximately 1.8-acre parcel that is currently vacant. The Facility consists of a 140-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 Council on April 9, 1990, in Docket No. 126 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 93' AGL. The DISH antenna equipment will replace the existing decommissioned equipment currently installed at this level of the tower, which will be removed as part of this project.

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 replacement mounts are installed as documented in the Mount Replacement Analysis Report annexed hereto as **Attachment 5**.

DISH's 5' x 7' lease area is located along the eastern edge of the existing fenced compound. In order to fully enclose its ground equipment, DISH will install a 6'-3" x 9'-4" fence extension, thereby increasing the footprint of the Existing Facility by 58.3 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, 140' AGL, which has existing antennas at multiple levels, DISH's proposed antenna installation at a centerline height of approximately 93' AGL would have a minimal visual impact – especially since they will replace an existing decommissioned installation at the same level of the tower. 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 12, 2022, a copy of this Petition was sent to City of Hartford Mayor Luke Bronin, Aimee Chambers, Director of Planning and Talar Properties LLC, the owner of the Property. 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 Luke Bronin – Elected Official
City of Hartford
Hartford City Hall
550 Main St.
Hartford CT 06103

Aimee Chambers - Director of Planning
City of Hartford
Hartford City Hall
550 Main St.
Hartford CT 06103

Talar Properties LLC – Property Owner
705 N Mountain Road
Newington, CT 06111

Crown Castle – Tower Owner

ATTACHMENT 1

Unofficial Property Record Card - Hartford, CT

General Property Data

Parcel ID	152-181-002	**Account Number**	
Prior Parcel ID			
Property Owner	TALAR PROPERTIES LLC	**Property Location**	441-455 HOMESTEAD AVE
		Property Use	VAC LAND IND
Mailing Address	705 N MOUNTAIN RD	**Most Recent Sale Date**	3/7/2001
		Legal Reference	04350-0044
City	NEWINGTON	**Grantor**	HUDSON ASSOCIATES
Mailing State	CT Zip 06111-1412	**Sale Price**	0
ParcelZoning	CX-1	**Land Area**	79,715.000 acres

Current Property Assessment

Card 1 Value	Building Value 0	Xtra Features Value 0	Land Value 224,630	Total Value 224,630

Building Description

Building Style	N/A	**Foundation Type**	N/A	**Flooring Type**	N/A
# of Living Units	0	**Frame Type**	N/A	**Basement Floor**	N/A
Year Built	N/A	**Roof Structure**	N/A	**Heating Type**	N/A
Building Grade	N/A	**Roof Cover**	N/A	**Heating Fuel**	N/A
Building Condition	N/A	**Siding**	N/A	**Air Conditioning**	0%
Finished Area (SF)	0	**Interior Walls**	N/A	**# of Bsmt Garages**	0
Number Rooms	0	**# of Bedrooms**	0	**# of Full Baths**	0
# of 3/4 Baths	0	**# of 1/2 Baths**	0	**# of Other Fixtures**	0

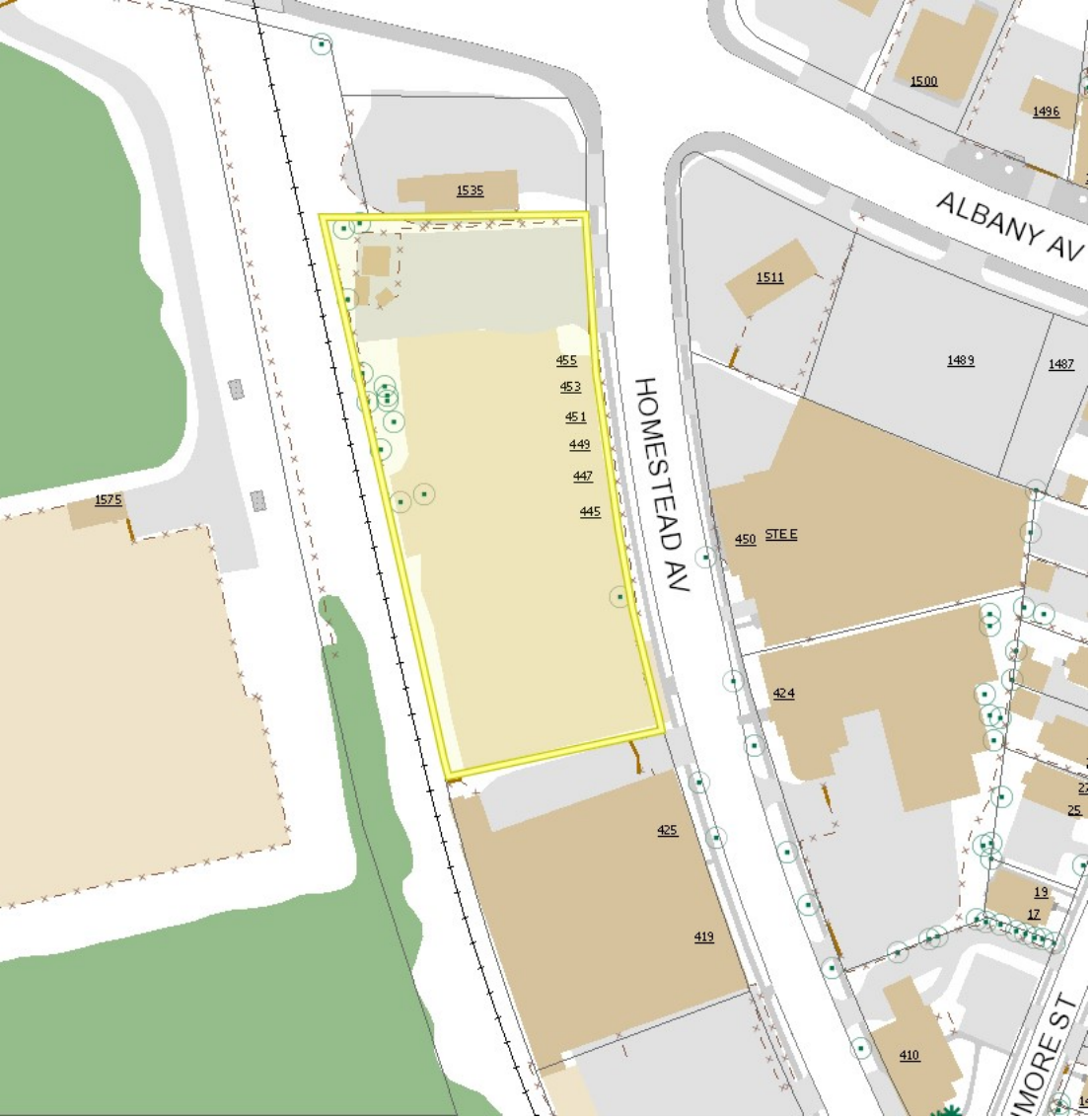
Legal Description

Narrative Description of Property

This property contains 79,715.000 acres of land mainly classified as VAC LAND IND with a(n) N/A style building, built about N/A , having N/A exterior and N/A roof cover, with 0 commercial unit(s) and 0 residential unit(s), 0 room(s), 0 bedroom(s), 0 bath(s), 0 half bath(s).

Property Images

SKETCH


1535
455
453
451
449
447
445
1575
HOMESTEAD AV
ALBANY AV
1511
1489
1487
1500
1496
450
STEE
424
425
419
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17
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MORE ST

ATTACHMENT 2

DOCKET NO. 126 - AN APPLICATION OF METRO MOBILE CTS OF HARTFORD, INC., FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, OPERATION, AND MAINTENANCE OF A CELLULAR TELEPHONE TOWER AND ASSOCIATED EQUIPMENT IN THE CITY OF HARTFORD, CONNECTICUT.	:	Connecticut Siting Council
	:	April 9, 1990

D E C I S I O N A N D O R D E R

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council finds that the effects associated with the construction, operation, and maintenance of a cellular telephone facility at the proposed Hartford site, including effects on the natural environment; ecological integrity and balance; forests and parks; air and water purity; and fish and wildlife are not significant either alone or cumulatively with other effects, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by Section 16-50k of the General Statutes of Connecticut (CGS), be issued to Metro Mobile CTS of Hartford, Inc., for the construction, operation, and maintenance of a cellular telecommunications tower, associated equipment, and building at the proposed site in Hartford, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The monopole tower including antennas and associated equipment shall not exceed a height of 153 feet above ground level, 215 feet AMSL.

2. The facility shall be constructed in accordance with the State of Connecticut Basic Building Code.

3. The tower shall be designed and constructed to withstand 125 mph winds with two-inch radial ice accumulation.

4. The Certificate Holder shall prepare a Development and Management (D&M) plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of State Agencies. The D&M plan shall include detailed plans of the site preparation with a soil boring report; plans, design details, and specifications for the tower foundation; and a site plan with placement of the tower as far removed from abutting properties and structures as possible.

5. The Certificate Holder shall prepare the D&M plan in consultation with the City of Hartford, which may provide its comments to the Council within 20 days of submission to the City.

6. The Certificate Holder shall comply with existing and any future radio frequency (RF) standard promulgated by State or federal regulatory agencies. Upon the establishment of any new governmental RF standards, the facility granted in this Decision and Order shall be brought into compliance with such standards.

7. The Certificate Holder shall provide the Council a recalculated report of power density if and when additional channels over the proposed 90 channels, higher wattage over the proposed 100 watts per channel, or if other circumstances in operation cause a change in power density above the levels originally calculated in the application.

8. The Certificate Holder shall permit public or private entities to share space on the tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

9. If this facility does not initially provide, or permanently ceases to provide, cellular service following the completion of construction, this Decision and Order shall be void, and the tower and all associated equipment in this application shall be dismantled and removed or reapplication of any new use shall be made to the Council before any such new use is made.

10. Unless otherwise approved by the Council, this Decision and Order shall be void if construction authorized herein is not completed within three years of the effective date of this Decision and Order.

Pursuant to Section 16-50p of the CGS, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below. A notice of issuance shall be published in the Hartford Courant.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of State Agencies.

The parties or intervenors to this proceeding are:

(Applicant)

Metro Mobile CTS of
Hartford, Inc.
100 Corporate Drive
Windsor, CT 06095
Attn: Gary N. Schulman
Vice President and
General Manager

(Its Representative)

Robinson & Cole
One Commercial Plaza
Hartford, CT 06103-3597
Attn: Earl W. Phillips
Jr., Esq.

(Intervenor)

SNET Cellular, Inc.
227 Church Street
New Haven, CT 06506

(Its Representative)

Peter J. Tyrrell
Senior Attorney
SNET Cellular, Inc.
227 Church Street
Room 1021
New Haven, CT 06506

JAW

4248E

CERTIFICATION

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case in Docket No. 126 - An application of Metro Mobile CTS of Hartford, Inc., for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a cellular telephone tower and associated equipment in the City of Hartford, Connecticut, or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut the 9th day of April, 1990.

Council Members	Vote Cast
Gloria Dibble Pond Chairperson	Yes
Commissioner Peter Boucher Designee: Robert A. Pulito	Yes
Commissioner Leslie Carothers Designee: Brian Emerick	Yes
Harry E. Covey	Yes
Mortimer A. Gelston	Yes
Daniel P. Lynch, Jr.	Yes
Paulann H. Sheets	Abstain
William H. Smith	Yes
Colin C. Tait	Yes

ATTACHMENT 3

DISH Wireless L.L.C. SITE ID:

BOBDL00044A

DISH Wireless L.L.C. SITE ADDRESS:

439-455 HOMESTEAD AVE
HARTFORD, CT 06105

CONNECTICUT CODE COMPLIANCE

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

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

SHEET INDEX

SCOPE OF WORK

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

TOWER SCOPE OF WORK:
- REMOVE ALL EXISTING ABANDONED EQUIPMENT AT 93'-0" MCL
- REMOVE EXISTING ANTENNA @ 91'-6" LEVEL
- 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:
- REMOVE EXISTING 4'-11"X3'-3" STEEL PLATFORM
- 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 FENCE EXPANSION 6'-3" X 9'-4" X 6'-2"

SITE PHOTO

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

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

811

GENERAL NOTES

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

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

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

SITE INFORMATION

PROPERTY OWNER:	GLOBAL SIGNAL ACQUISITIONS
ADDRESS:	P.O. BOX 277455 ATLANTA, GA. 30384-7455
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	806369
TOWER APP NUMBER:	556641
COUNTY:	HARTFORD
LATITUDE (NAD 83):	41° 47' 01.6" N 41.78378056 N
LONGITUDE (NAD 83):	72° 42' 13.7" W 72.70379444 W
ZONING JURISDICTION:	CT – CITY OF HARTFORD
ZONING DISTRICT:	CX-1
PARCEL NUMBER:	HTFD-000152-000181-000002
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	CONNECTICUT LIGHT & POWER
TELEPHONE COMPANY:	LIGHTOWER

PROJECT DIRECTORY

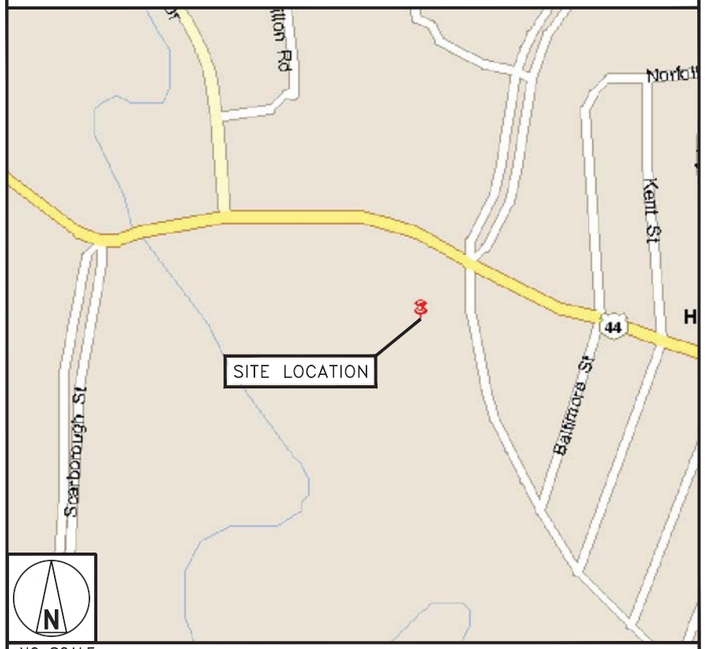
APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317 (877) 486-9377
SITE DESIGNER:	B+T GROUP 1717 S. BOULDER AVE, SUITE 300 TULSA, OK 74119 (918) 587-4630
SITE ACQUISITION:	SARAH PARSONS
CONSTRUCTION MANAGER: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

DIRECTIONS

DIRECTIONS FROM BRADLEY INTERNATIONAL AIRPORT:

GET ON I-91 N IN WINDSOR FROM CT-187 N/BLUE HILLS AVE AND CT-218 E 12 MIN (4.5 MI) HEAD NORTH TOWARD WESTBOURNE PKWY 266 FT TURN LEFT ONTO WESTBOURNE PKWY 0.4 MI TURN LEFT ONTO CT-187 N/BLUE HILLS AVE 2.0 MI TURN RIGHT ONTO CT-218 E/COTTAGE GROVE RD CONTINUE TO FOLLOW CT-218 E 1.6 MI TURN LEFT TO MERGE WITH I-91 N TOWARD SPRINGFIELD 0.3 MI CONTINUE ON I-91 N. TAKE CT-20 W TO SCHOEPHOESTER RD IN WINDSOR LOCKS 10 MIN (10.0 MI) MERGE WITH I-91 N 5.3 MI USE THE RIGHT 2 LANES TO TAKE EXIT 40 FOR CT-20 TOWARD BRADLEY INTERNATIONAL AIRPORT 0.6 MI CONTINUE ONTO CT-20 W 2.8 MI CONTINUE ONTO BRADLEY INTERNATIONAL AIRPORT CON 1.3 MI DRIVE TO YOUR DESTINATION 1 MIN (0.4 MI) USE ANY LANE TO TURN SLIGHTLY RIGHT ONTO SCHOEPHOESTER RD 0.2 MI USE THE RIGHT 2 LANES TO TURN SLIGHTLY 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 — PROFESSIONAL ENGINEER
7/26/2021

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
JJR	MTJ	MDW

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	6/2/21	ISSUED FOR REVIEW
B	7/2/21	ISSUED FOR REVIEW
0	7/26/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

89233.006.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00044A
439-455 HOMESTEAD AVE
HARTFORD, CT 06105

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

1 ABUTTERS MAP
SCALE: 15' 10' 0 15' 1"=15'-0" (FULL SIZE) 1"=30'-0" (11x17)

SUBJECT PROPERTY
152181003
1535 ALBANY AVE
HARTFORD, CT 06105
SOCCI JOSEPHINE C TRUSTEE
1208 MARINE WAY APT A203

152181002
1441 HOMESTEAD AVE
HARTFORD, CT 06105
TALAR PROPERTIES LLC
705 N MOUNTAIN RD
HARTFORD, CT 06111

265074018
450 WINDSOR ST
HARTFORD, CT 06105
NATIONAL RAILROAD
PASENGER CO
400 N CAPITOL ST NW
HARTFORD, CT 06111

152184031
1510 ALBANY AVE
HARTFORD, CT 06105
FAHIM LLC
1510 ALBANY AVE
HARTFORD, CT 06105

152184032
1500 ALBANY AVE
HARTFORD, CT 06105
GATEWAY PROFESSIONALS LLC
40 PRATTLING POND ROAD
HARTFORD, CT 06032

152184033
1496 ALBANY AVE
HARTFORD, CT 06105
PALMER CECIL
1496 ALBANY AVE
HARTFORD, CT 06112

152184015
14 WESTBOURNE PKWY
HARTFORD, CT 06105
RODNEY ANDREW
206 CORNWALL ST 208
HARTFORD, CT 06112

152184014
18 WESTBOURNE PKWY
HARTFORD, CT 06105
GRAY FLOYD
22 WESTBOURNE PKWY
HARTFORD, CT 06105

152184013
22 WESTBOURNE PKWY
HARTFORD, CT 06105
GRAY FLOYD
22 WESTBOURNE PKWY
HARTFORD, CT 06105

152137006
13 WESTBOURNE PKWY
HARTFORD, CT 06105
UNIVERSITY OF HARTFORD
200 BLOOMFIELD AV
HARTFORD, CT 06117

152137007
1530 ALBANY AVE
HARTFORD, CT 06105
UNIVERSITY OF HARTFORD
200 BLOOMFIELD AV
HARTFORD, CT 06117

265074018
450 WINDSOR ST
HARTFORD, CT 06105
NATIONAL RAILROAD
PASENGER CO
400 N CAPITOL ST NW
DC 20001-1511

152181004
1575 ALBANY AVE
HARTFORD, CT 06105
CONN LIGHT & POWER CO
PO BOX 270
CT, 06141-0270

152190030
1511 ALBANY AVE
HARTFORD, CT 06105
DIMAURO JOSEPH D TRUSTEE
72 CRYSTAL DR
HARTFORD, CT 06067

152190016
450 HOMESTEAD AVE
HARTFORD, CT 06105
HARTFORD UNLIMITED
ENTERPRISES
85 PATRIOT RD
CT, 06095-3841

152190029
1510 ALBANY AVE
HARTFORD, CT 06105
HARTFORD UNLIMITED
ENTERPRISES INC
85 PATRIOT RD
CT, 06095-3841

dish wireless
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1717 S. BOULDER
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TULSA, OK 74119
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www.btgrp.com

11/4/21

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

DRAWN BY:	CHECKED BY:	APPROVED BY:
JTS	JTS	MDW

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

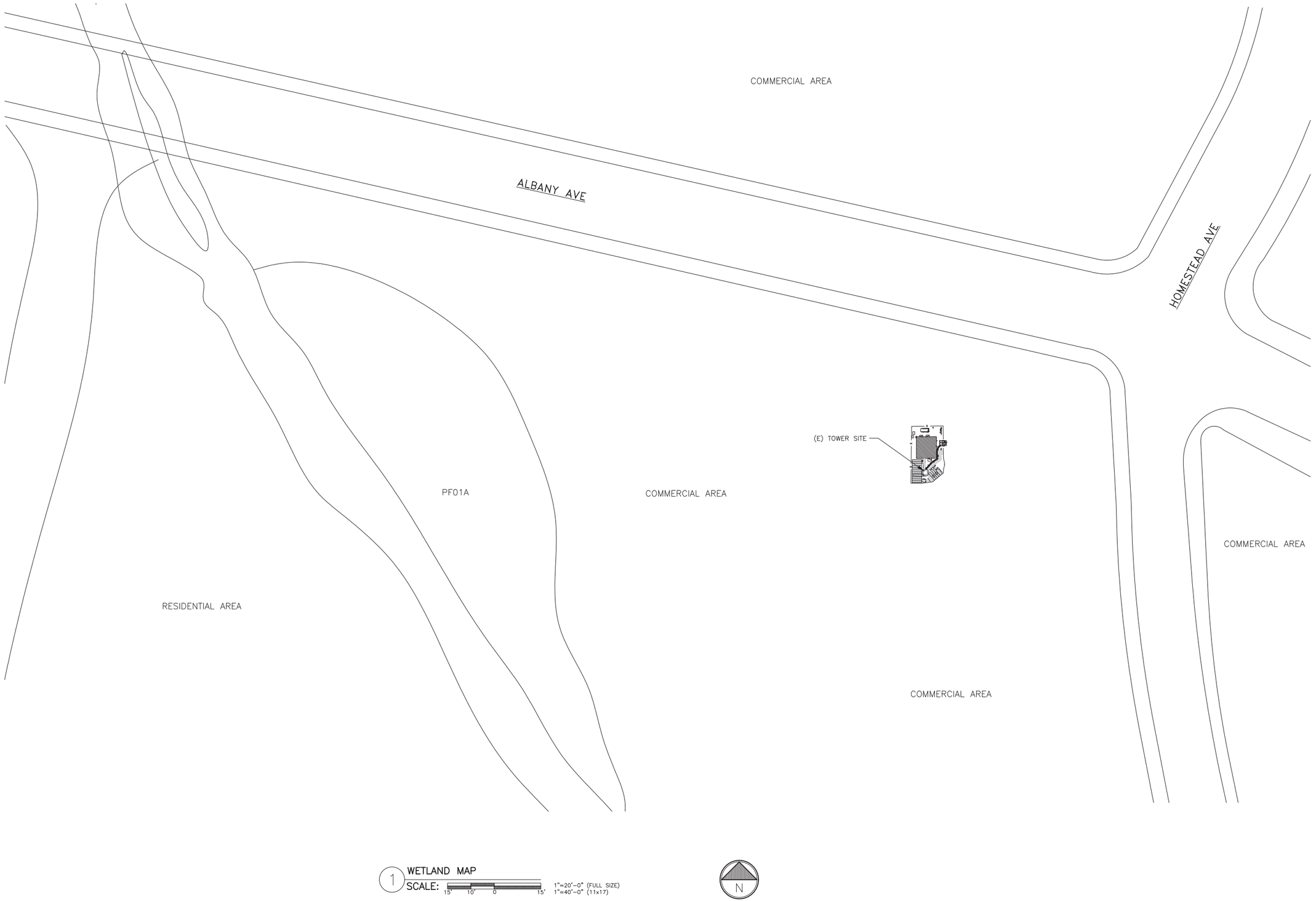
REV	DATE	DESCRIPTION
0	11/4/21	ISSUED FOR CONSTRUCTION
1	12/3/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
89233.006.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00044A
439-455 HOMESTEAD AVE
HARTFORD, CT 06105

SHEET TITLE
ABUTTERS EXHIBIT

SHEET NUMBER
M-1



1 WETLAND MAP
SCALE: 15' 10' 0 15' 1"=20'-0" (FULL SIZE) 1"=40'-0" (11x17)

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

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11/4/21

DRAWN BY:	CHECKED BY:	APPROVED BY:
JTS	JTS	MDW

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	11/4/21	ISSUED FOR CONSTRUCTION
1	11/4/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

89233.006.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00044A
439-455 HOMESTEAD AVE
HARTFORD, CT 06105

SHEET TITLE

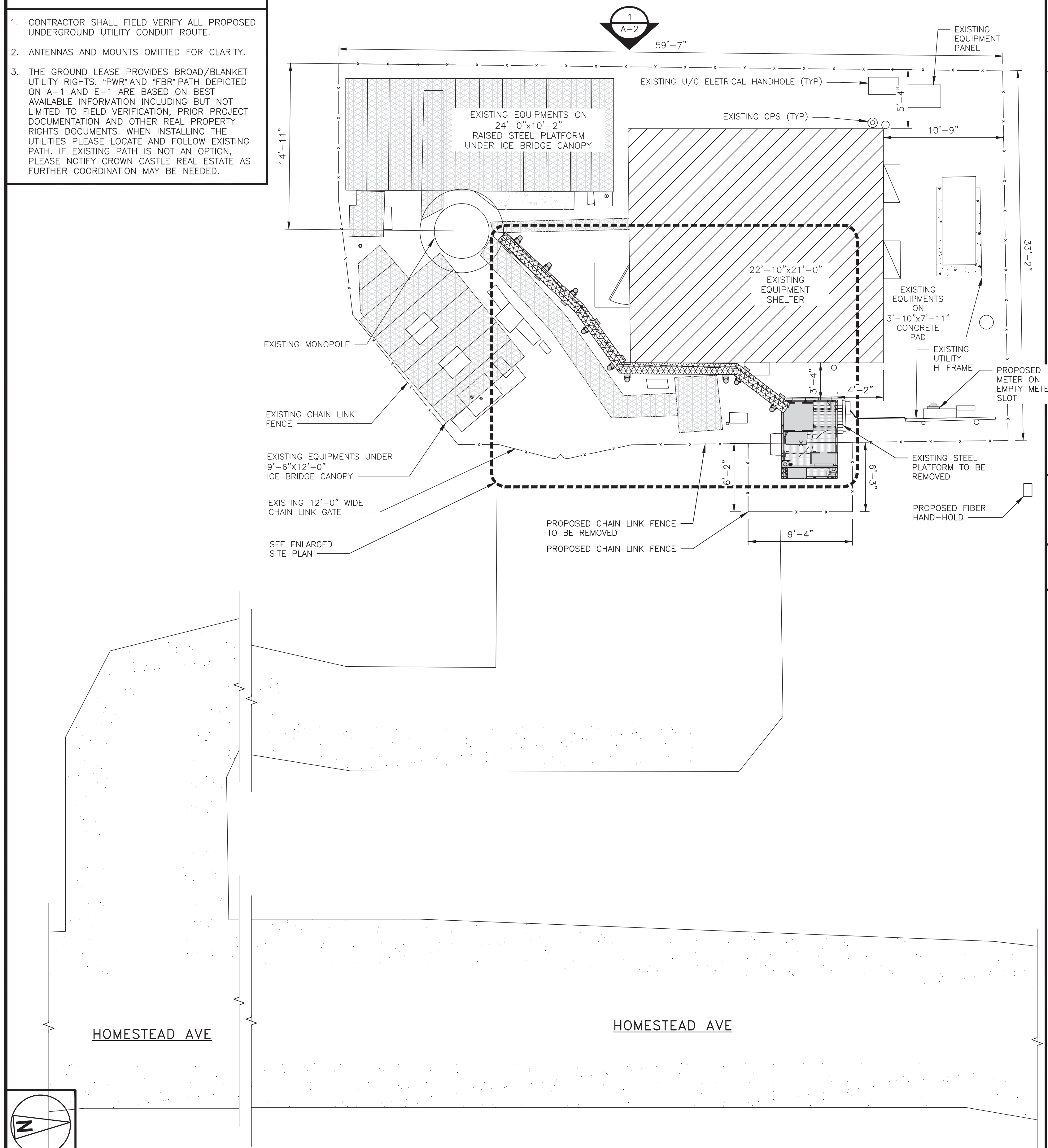
WETLAND MAP

SHEET NUMBER

M-2

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. THE GROUND LEASE PROVIDES BROAD/BLANKET UTILITY RIGHTS. "PWR" AND "FBR" PATH DEPICTED ON A-1 AND E-1 ARE BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO FIELD VERIFICATION, PRIOR PROJECT DOCUMENTATION AND OTHER REAL PROPERTY RIGHTS DOCUMENTS. WHEN INSTALLING THE UTILITIES PLEASE LOCATE AND FOLLOW EXISTING PATH. IF EXISTING PATH IS NOT AN OPTION, PLEASE NOTIFY CROWN CASTLE REAL ESTATE AS FURTHER COORDINATION MAY BE NEEDED.



OVERALL SITE PLAN

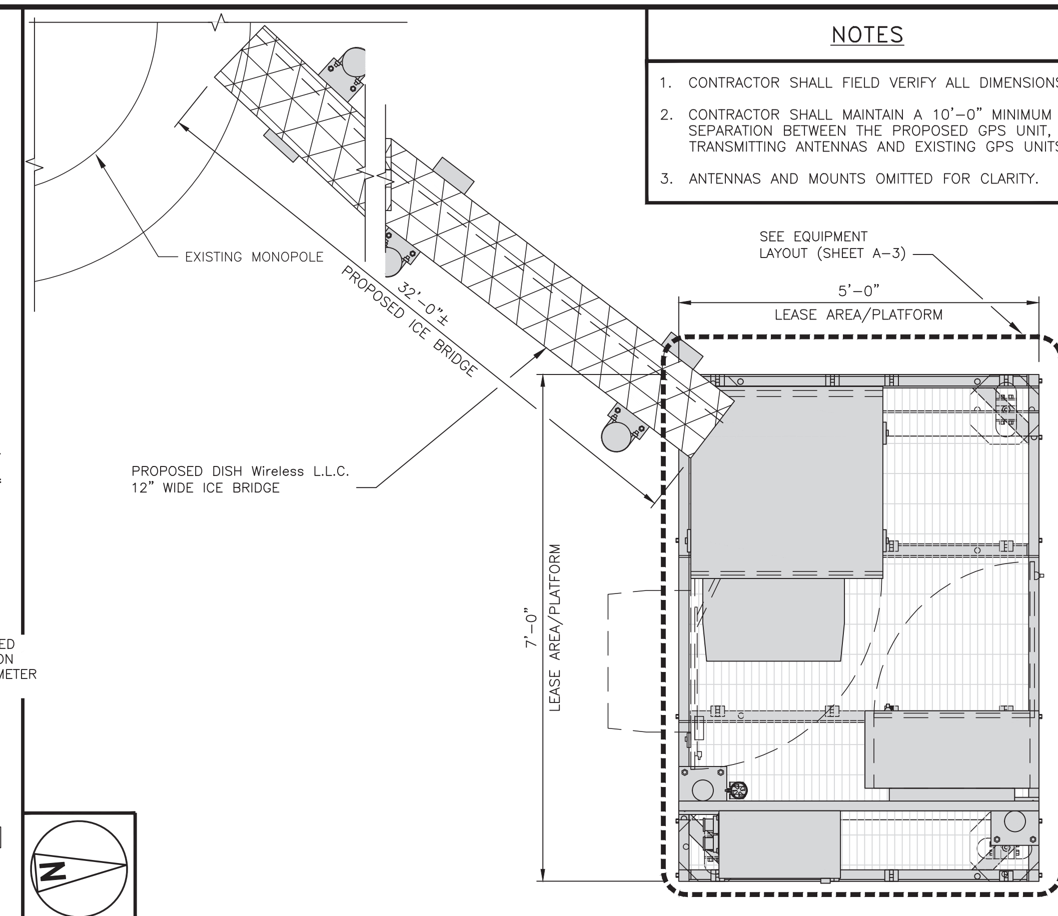
6' 4' 2' 0 5' 10'

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'

3/4"=1'-0"

2

UTILITY PLAN

3

dish wireless

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

CROWN CASTLE

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

7/26/2021

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

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DRAWN BY:	CHECKED BY:	APPROVED BY:
JJR	MTJ	MDW

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	6/2/21	ISSUED FOR REVIEW
B	7/2/21	ISSUED FOR REVIEW
0	7/26/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

89233.006.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00044A
439-455 HOMESTEAD AVE
HARTFORD, CT 06105

SHEET TITLE

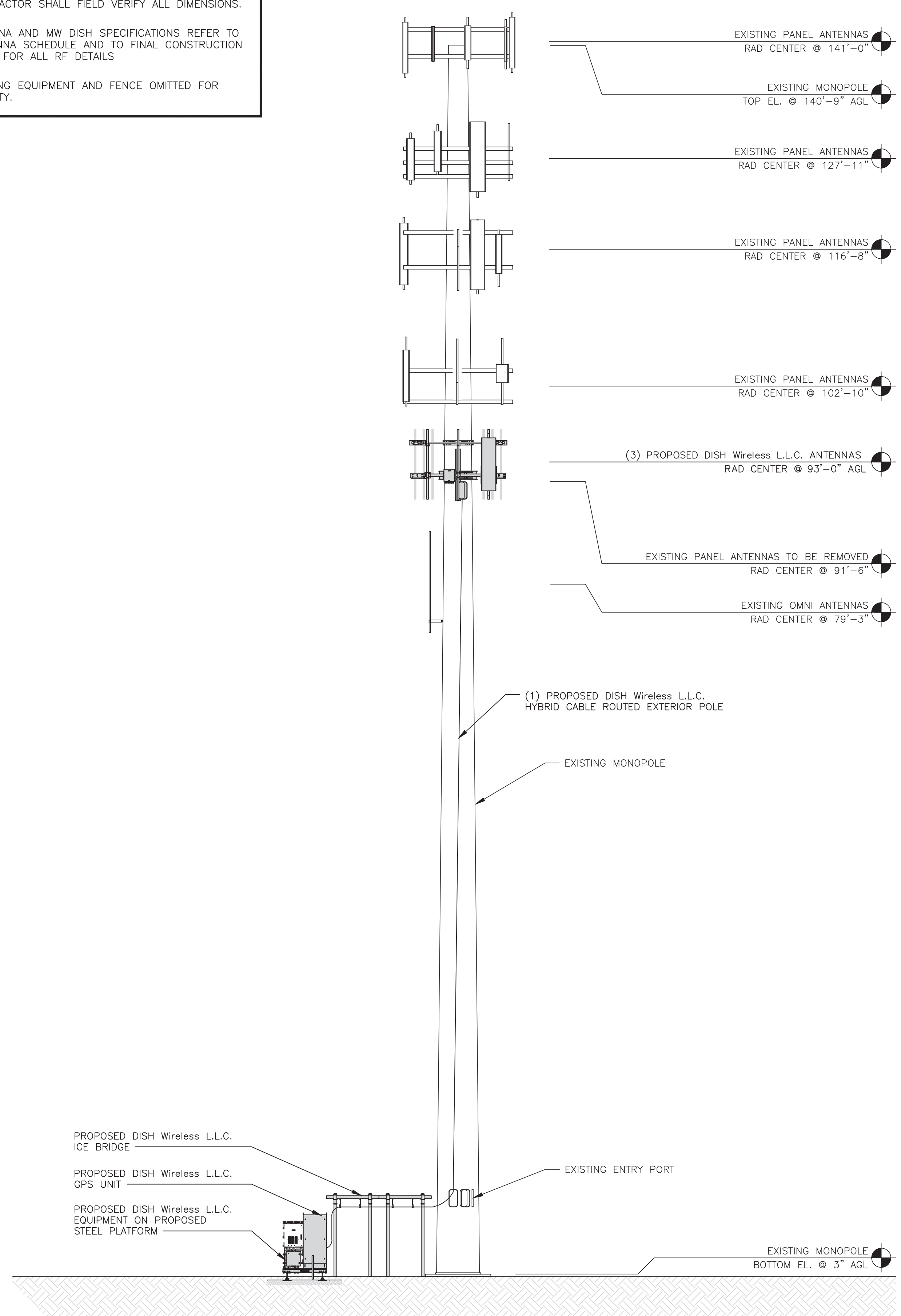
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

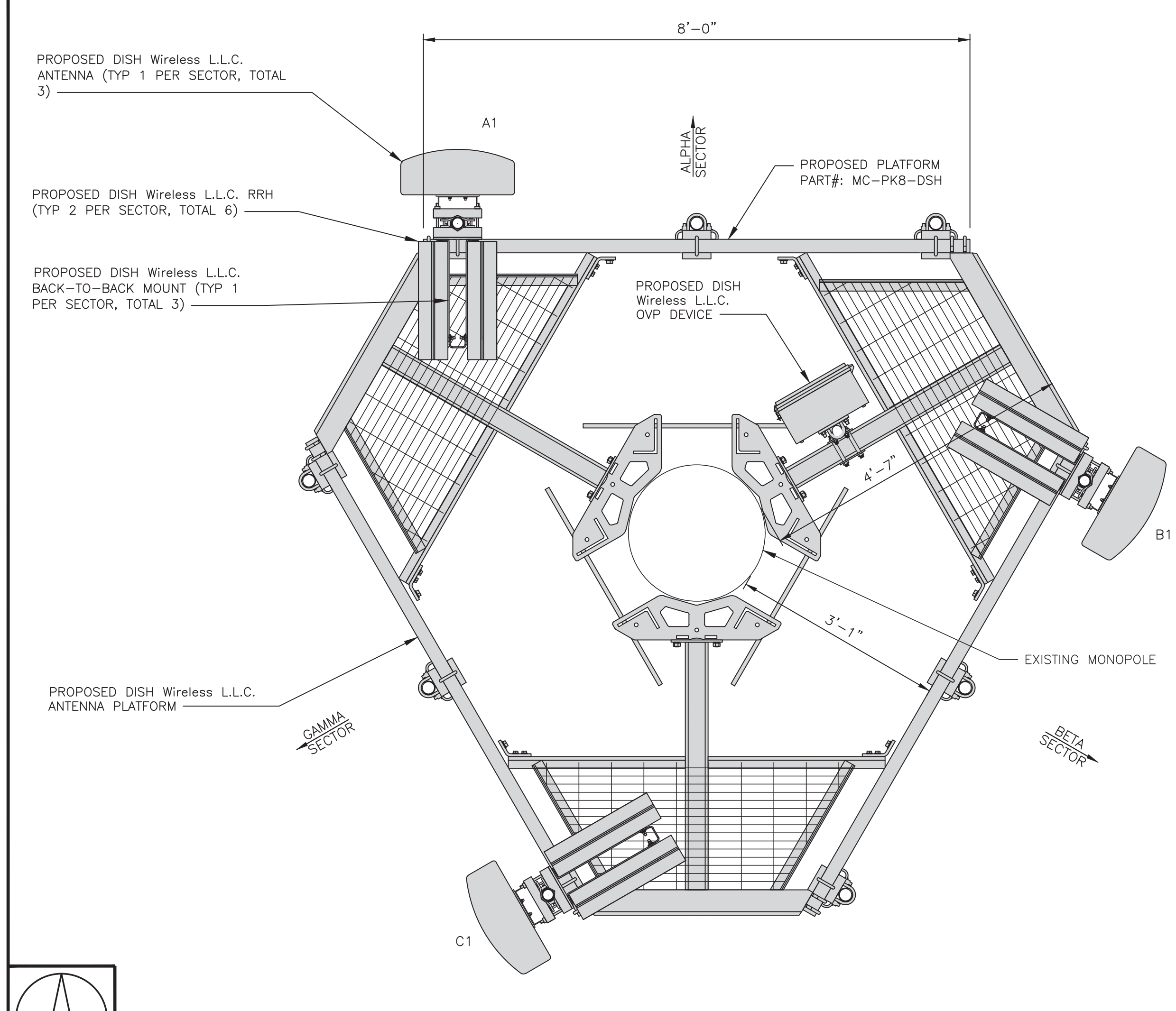
A-1

NOTES

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



PROPOSED WEST ELEVATION — 8' 4' 0 8' 16' — 1/8"=1'-0" — 1



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

SECTOR	POSITION	ANTENNA							TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA WIRELESS–MX08FRO665–21	5G	72.0" x 20.0"	0°	93'-0"	(1) HIGH-CAPACITY HYBRID CABLE (150' LONG)
BETA	B1	PROPOSED	JMA WIRELESS–MX08FRO665–21	5G	72.0" x 20.0"	120°	93'-0"	
GAMMA	C1	PROPOSED	JMA WIRELESS–MX08FRO665–21	5G	72.0" x 20.0"	240°	93'-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

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LITTLETON, CO 80120

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CANONSBURG, PA 15317

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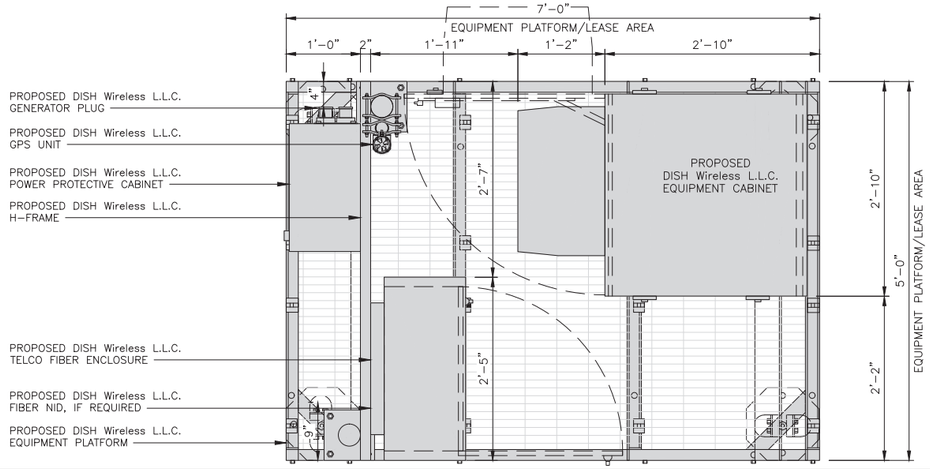
HARTFORD, CT 06105

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2



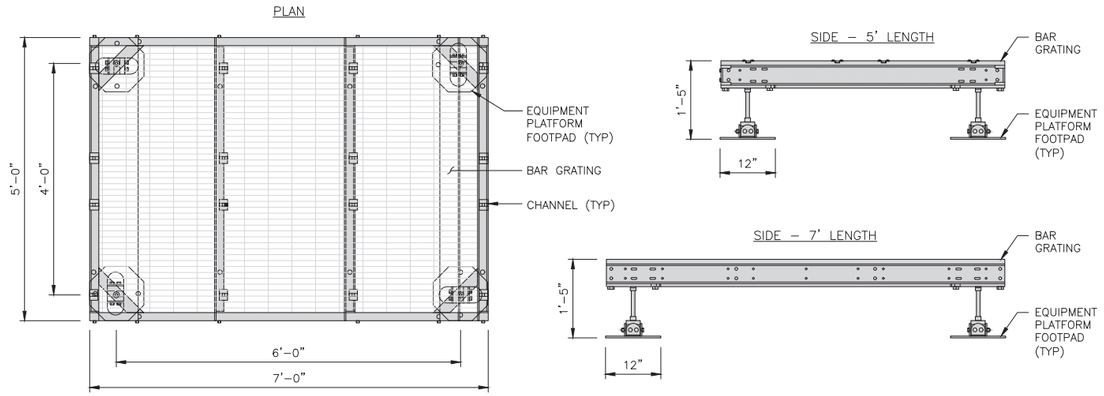
PLATFORM EQUIPMENT PLAN

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"

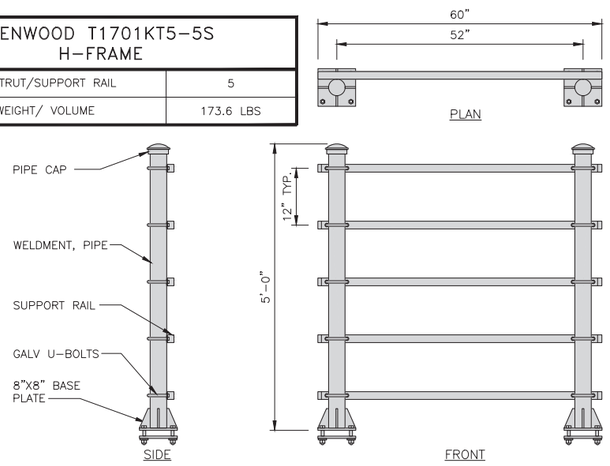


PLATFORM DETAIL

NO SCALE

2

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



H-FRAME DETAIL

NO SCALE

3

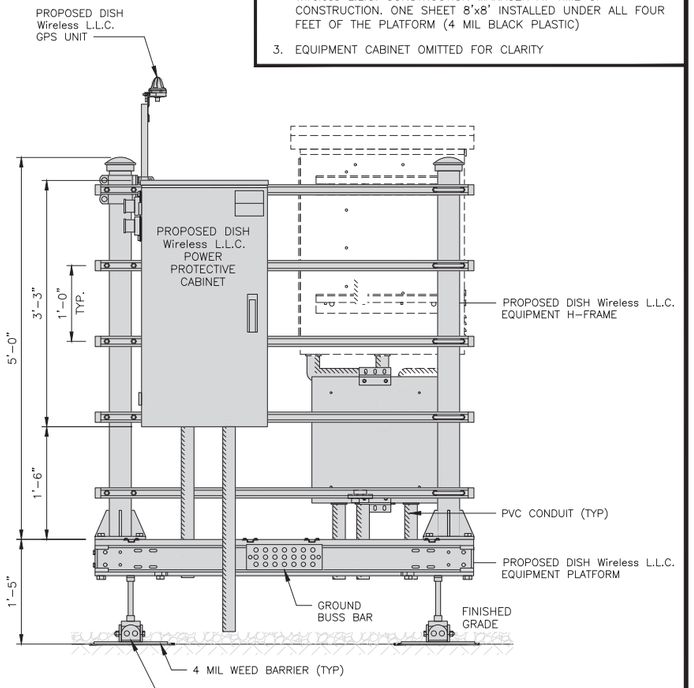
NOT USED

NO SCALE

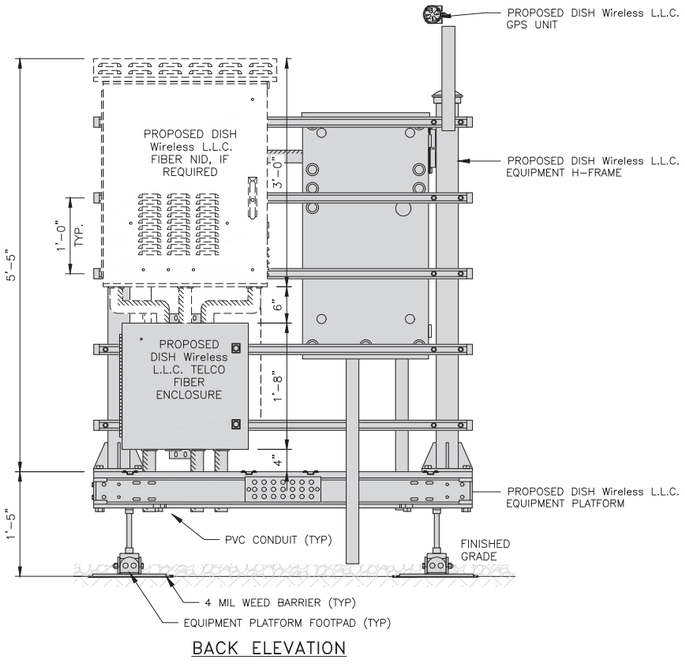
4

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

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

5

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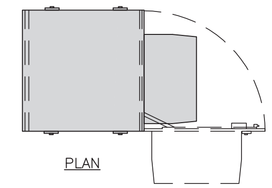
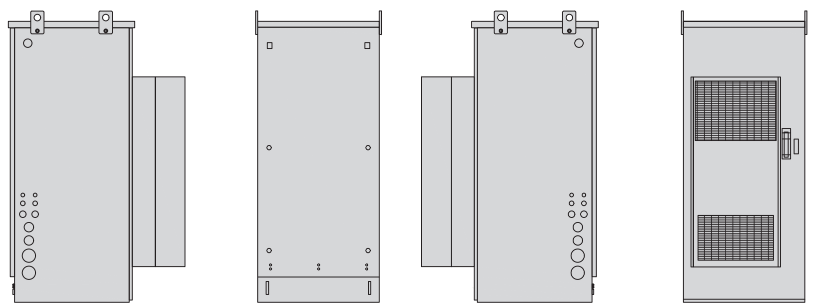
439-455 HOMESTEAD AVE
HARTFORD, CT 06105

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

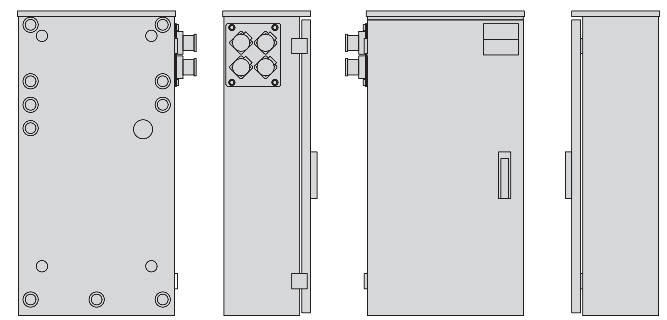

PLAN


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

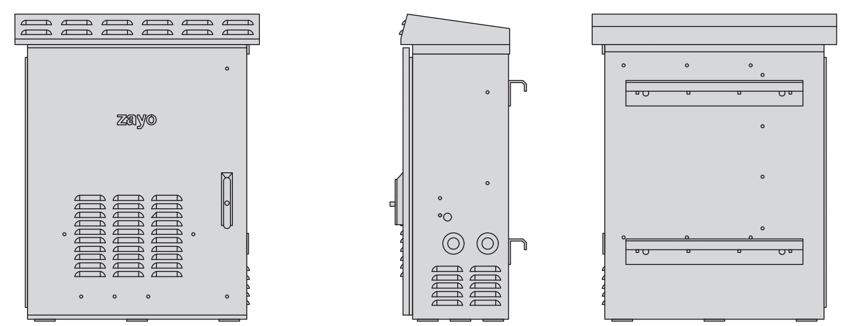
POWER PROTECTION CABINET (PPC) DETAIL — NO SCALE — 2

NOT USED — NO SCALE — 3

NOT USED — NO SCALE — 4

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

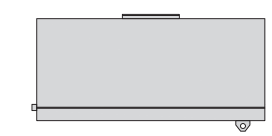

PLAN

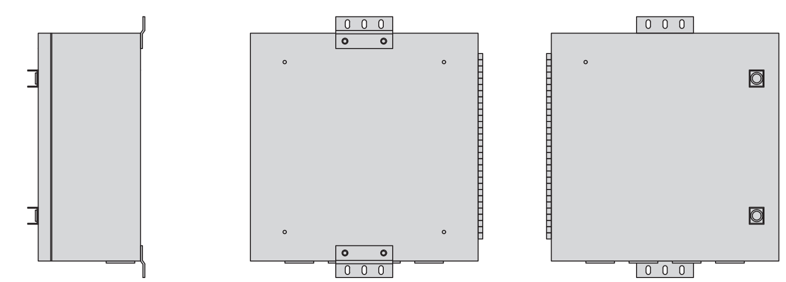


FRONT SIDE BACK

NETWORK INTERFACE UNIT DETAIL — NO SCALE — 5

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

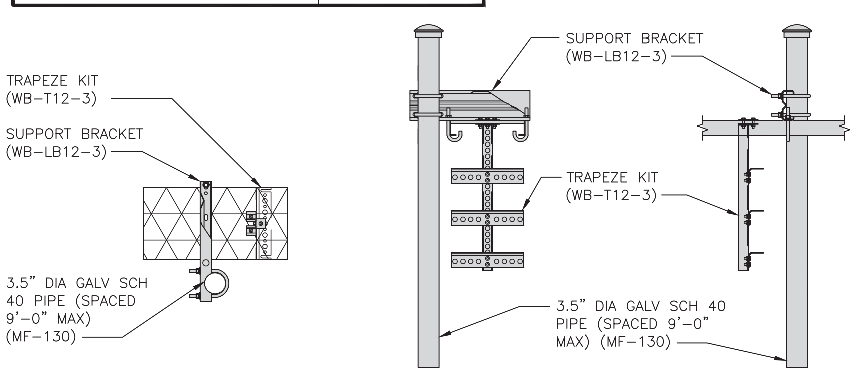

FRONT


SIDE BACK FRONT

FIBER TELCO ENCLOSURE DETAIL — NO SCALE — 6

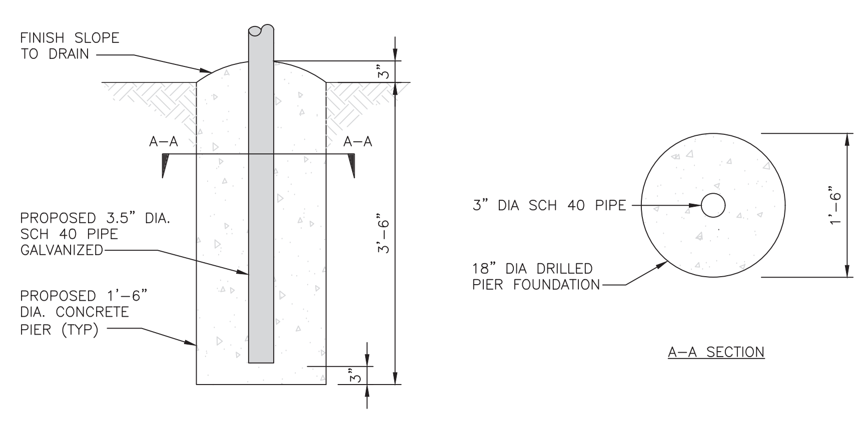
COMMSCOPE WB–K110–B WAVEGUIDE BRIDGE KIT	
DIMENSIONS (HxL)	160"x10'
WEIGHT/ VOLUME	325.0 LBS
CABLE RUN (QTY)	12

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



PLAN FRONT SIDE

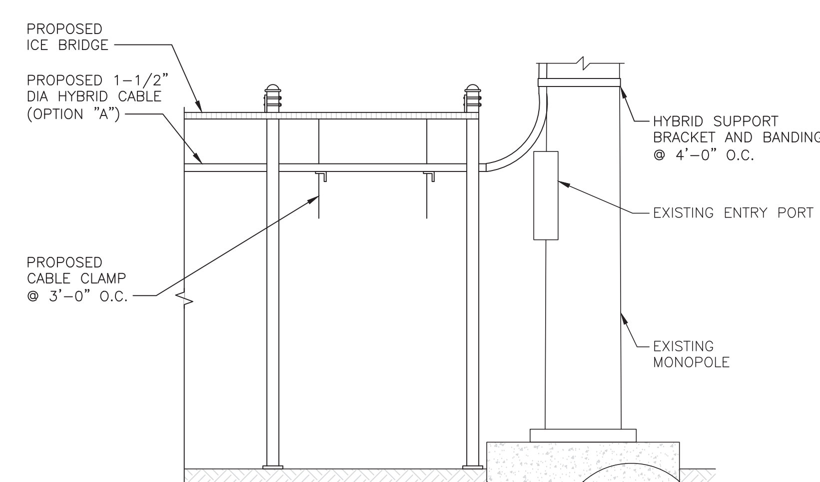
ICE BRIDGE DETAIL — NO SCALE — 7



CONCRETE PIER

A–A SECTION

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL — NO SCALE — 8



HYBRID CABLE RUN — NO SCALE — 9

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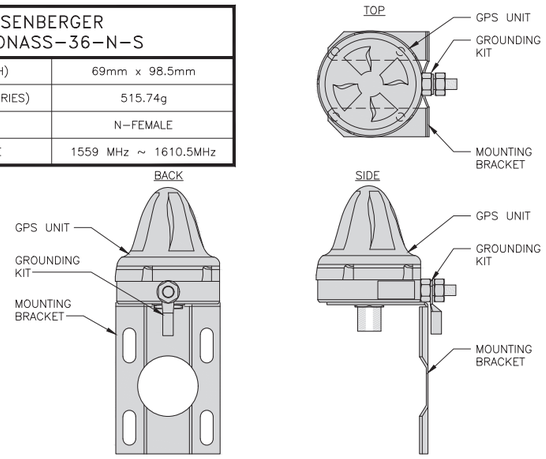
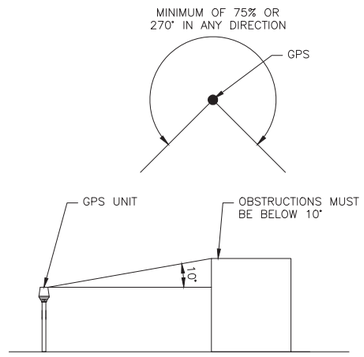
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

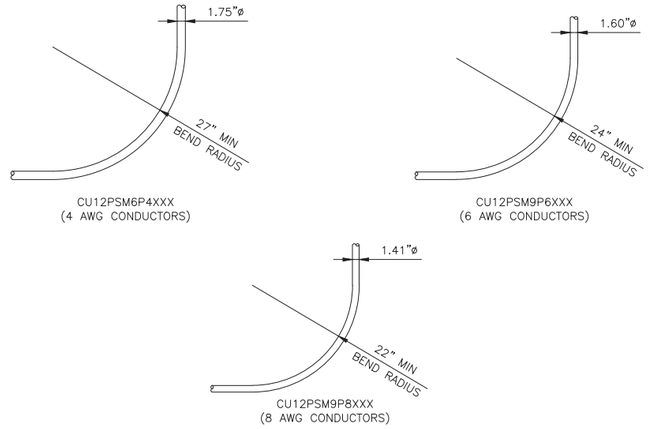
ROSENBERGER GPSGLONASS-36-N-S	
DIMENSION (DIA x H)	69mm x 98.5mm
WEIGHT (WITH ACCESSORIES)	515.74g
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1559 MHz ~ 1610.5MHz



GPS ANTENNA DETAIL | NO SCALE | 1



GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 2



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

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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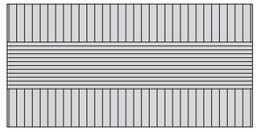
SHEET TITLE

EQUIPMENT DETAILS

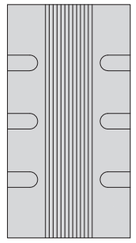
SHEET NUMBER

A-5

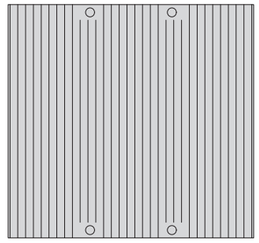
FUJITSU TA08025-B604 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x200/14.9"x15.7"x7.8"
WEIGHT(KG,LB)/ VOLUME	29kg,63.9lb/ 30L
POWER SUPPLY	DC-58~-36V



PLAN



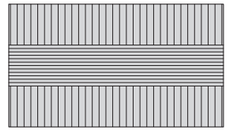
SIDE



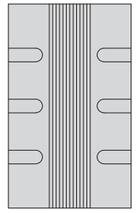
FRONT

REMOTE RADIO HEAD DETAIL | NO SCALE | 1

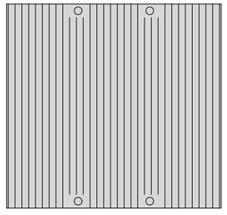
FUJITSU TA08025-B605 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x230/14.9"x15.7"x9.0"
WEIGHT(KG,LB)/ VOLUME	34kg,74.9lb/ 35L
POWER SUPPLY	DC-58~-36V



PLAN



SIDE

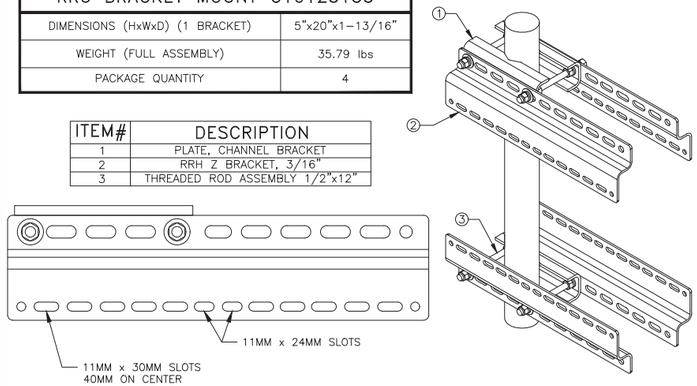


FRONT

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

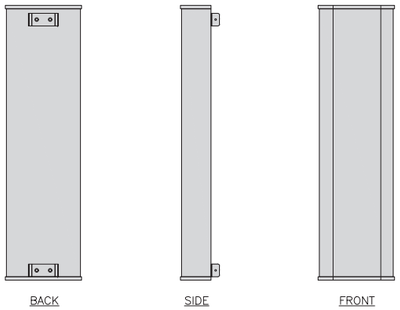
ITEM#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/16"
3	THREADED ROD ASSEMBLY 1/2"x12"



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

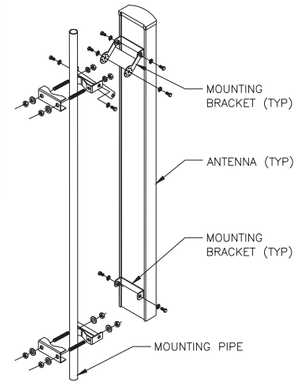
SIDE

FRONT

NO SCALE | 4

NOT USED | NO SCALE | 5

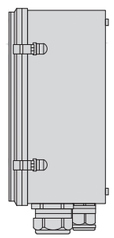
M04 MOUNTING BRACKET HPA-33R-BUU-H4-K	
WIDTH	5" (135mm)
DEPTH	2" (51mm)
HEIGHT	8" (213mm)
TOTAL WEIGHT (WITH BRACKETS)	1.5 LBS (15.50 Kg)
HOUSING MATERIAL	ASA/ABS/ALUMINUM
RADOME COLOR	LIGHT GRAY
CONNECTOR	1X8-PIN DAISY CHAIN



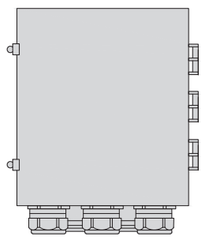
ANTENNA MOUNTING DETAIL | NO SCALE | 6

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

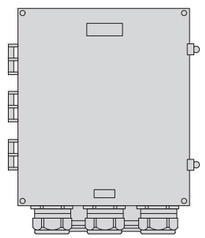
PLAN



SIDE



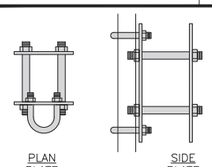
BACK



FRONT

SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

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

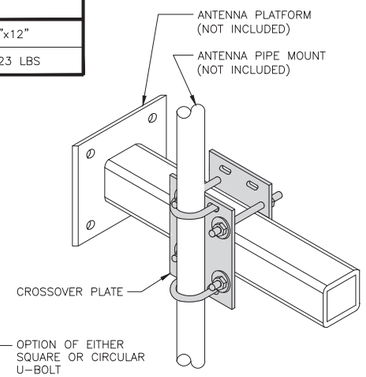


PLAN PLATE

SIDE PLATE

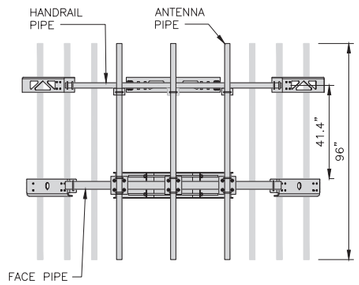
PLAN U-BOLT

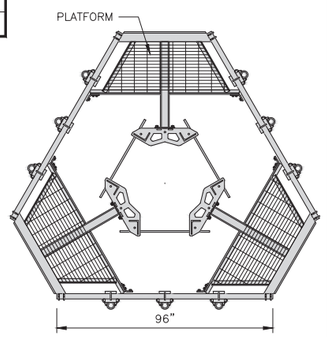
SIDE U-BOLT



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

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A&E PROJECT NUMBER

89233.006.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00044A
439-455 HOMESTEAD AVE
HARTFORD, CT 06105

SHEET TITLE

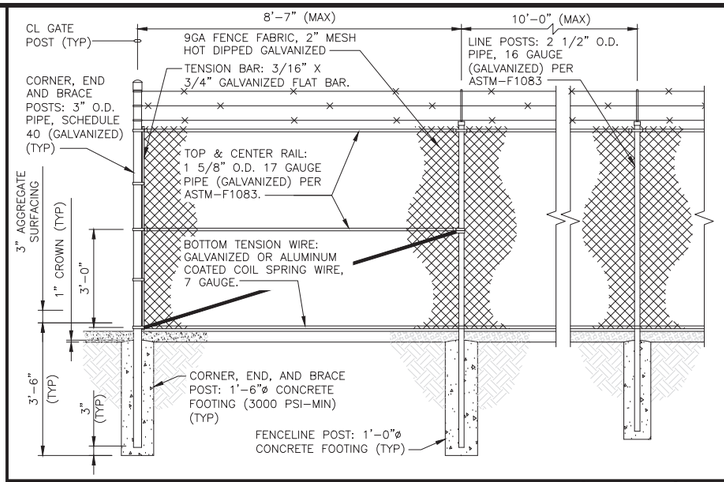
EQUIPMENT DETAILS

SHEET NUMBER

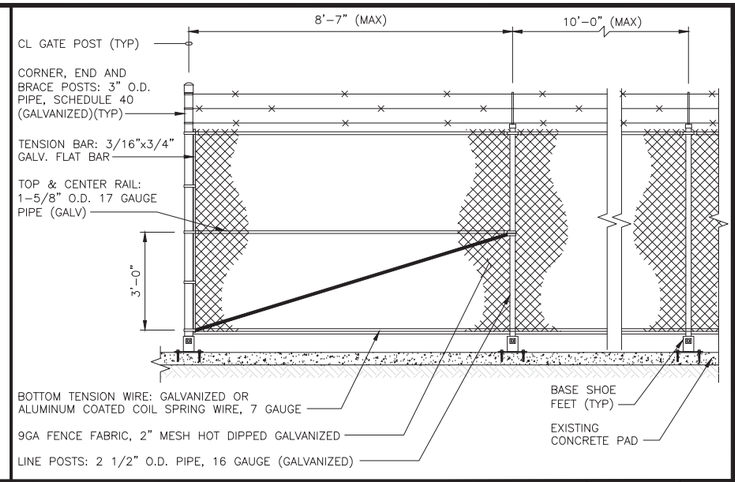
A-6

1. LINE POSTS: 2 1/2" O.D. PIPE, 16 GAUGE (GALVANIZED) PER ASTM–F1083.
2. CORNER, END AND BRACE POSTS: 3" O.D. PIPE, SCHEDULE 40 (GALVANIZED).
3. TOP RAIL: 1 5/8" O.D. 17 GAUGE PIPE (GALVANIZED) PER ASTM–F1083.
4. BRACE RAIL: 1 5/8" O.D. 17 GAUGE PIPE (GALVANIZED).
5. DIAGONAL TRUSS ROD: 3/8" GALVANIZED ROD WITH TURNBUCKLE.
6. TENSION BAR: 3/16" X 3/4" GALVANIZED FLAT BAR.
7. BOTTOM TENSION WIRE: GALVANIZED OR ALUMINUM COATED COIL SPRING WIRE, 7 GAUGE.
8. GATE POSTS: 2 7/8" O.D. SCHEDULE 40 PIPE (GALVANIZED).
9. COMBINATION PADLOCK ACCORDING TO DISH WIRELESS REQUIREMENTS.
10. GATE FRAMES: 1 7/8" O.D. SCHEDULE 40 PIPE (GALVANIZED).
11. BARBED WIRE SUPPORT ARM: SINGLE ARM TYPE (GALVANIZED). ARM SHALL BE INCLINED OUTWARD AT AN ANGLE OF 45 DEGREES.
12. BARBED WIRE: GALVANIZED, ASTM A121 CLASS 3; THREE 14 GAUGE MINIMUM STEEL WIRES WITH 4 POINT ROUND 14 GAUGE BARBS SPACED 4" APART.
13. 9GA FENCE FABRIC, 2" MESH HOT DIPPED GALVANIZED
14. MISCELLANEOUS:
    - A. RAIL COUPLINGS: SLEEVE TYPE, 6" LONG EXPANSION SPRING EVERY FIFTH COUPLING.
    - B. POST TOPS: PRESSED STEEL, MALLEABLE IRON WITH PRESSED STEEL EXTENSION ARM, OR ONE–PIECE ALUMINUM CASTING; WITH HOLE FOR TOP, ALL DESIGNED TO FIT OVER THE OUTSIDE OF THE POSTS AND TO PREVENT ENTRY OF MOISTURE INTO TUBULAR POSTS.
    - C. LATCHES SHALL BE FORKED TYPE AND SHALL BE ARRANGED FOR PADLOCKING WITH THE PADLOCK ACCESSIBLE FROM BOTH SIDES OF THE GATE.
    - D. KEEPERS SHALL CONSIST OF MECHANICAL DEVICES FOR SECURING AND SUPPORTING THE FREE END OF THE GATES WHEN IN THE FULL OPEN POSITION. KEEPERS SHALL BE MOUNTED ON 2 7/8" O.D. PIPE POSTS FILLED WITH CONCRETE AND SET IN CONCRETE FOUNDATIONS.
    - E. INSTALL FENCING PER ASTM–F567.
    - F. INSTALL SWING GATES PER ASTM–F900.
    - G. LOCAL ORDINANCE OF BARBED WIRE PERMIT REQUIREMENT SHALL BE COMPLETED IF REQUIRED.
    - H. USE GALVANIZED HOG RING WIRE TO MOUNT ALL SIGNS.
    - I. ALL SIGNS MUST BE MOUNTED ON INSIDE OF FENCE.

MATERIAL DESCRIPTION | NO SCALE | 1



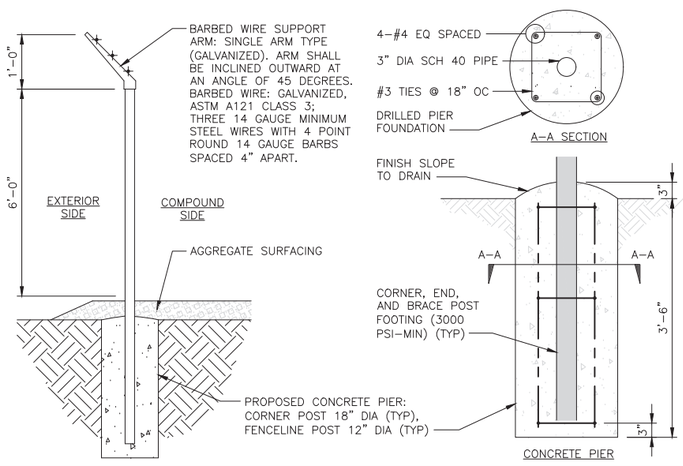
TYPICAL FENCE DETAIL | NO SCALE | 2



TYPICAL FENCE ELEVATION DETAIL | NO SCALE | 3

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5



TYPICAL FENCE & CONCRETE PIER SECTION | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00044A
439–455 HOMESTEAD AVE
HARTFORD, CT 06105

SHEET TITLE

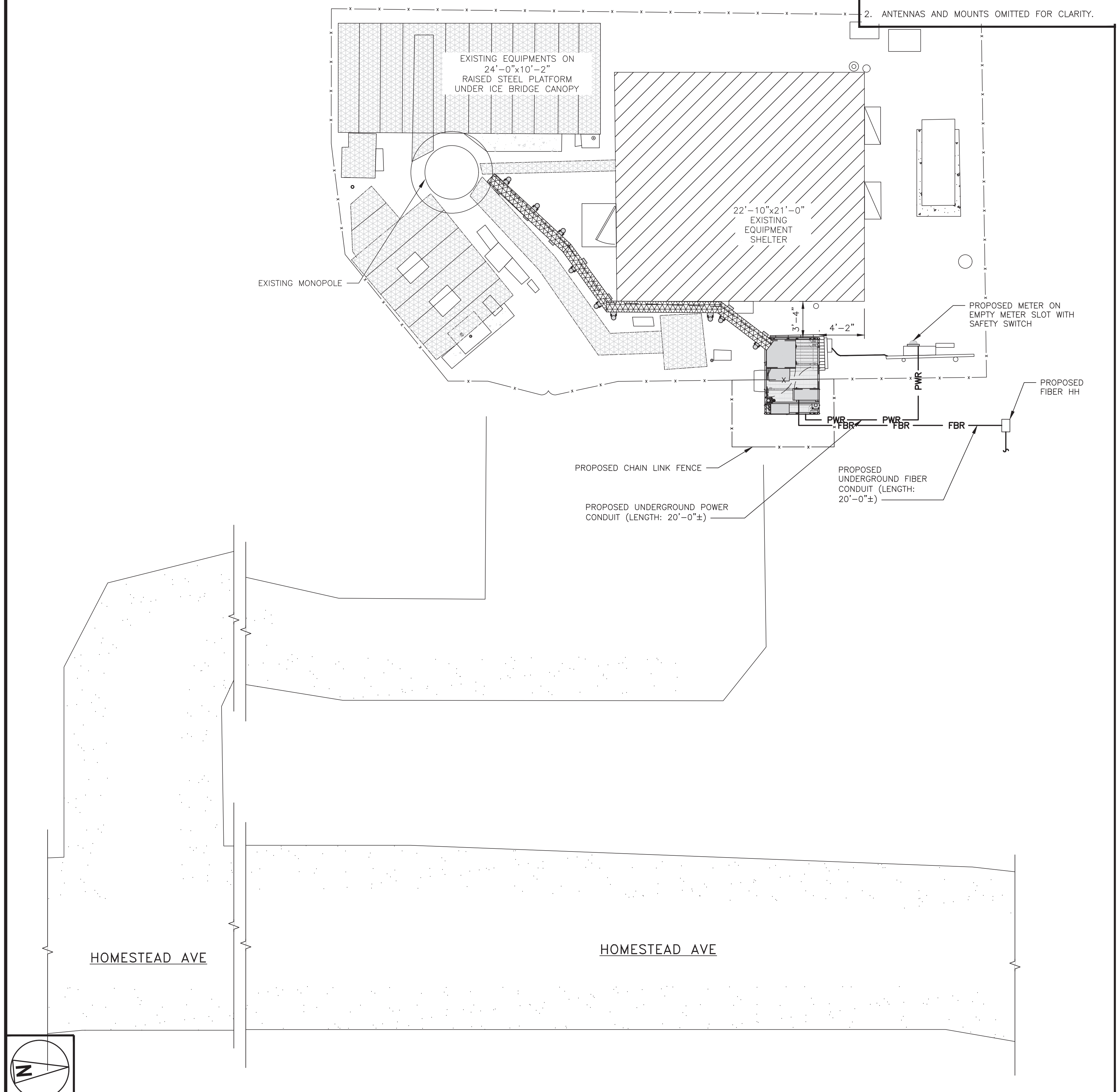
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER

E-1

NOTES

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



UTILITY ROUTE PLAN — 3/16"=1'–0" — 1

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

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

ELECTRICAL NOTES — NO SCALE — 2

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IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

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JJR	MTJ	MDW

RFDS REV #: ---

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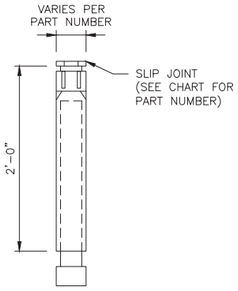
DISH Wireless L.L.C. PROJECT INFORMATION
BOBDL00044A
439–455 HOMESTEAD AVE
HARTFORD, CT 06105

SHEET TITLE
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER
E-1

CARLON EXPANSION FITTINGS

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

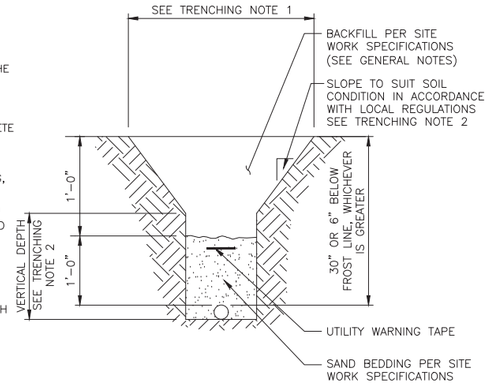


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

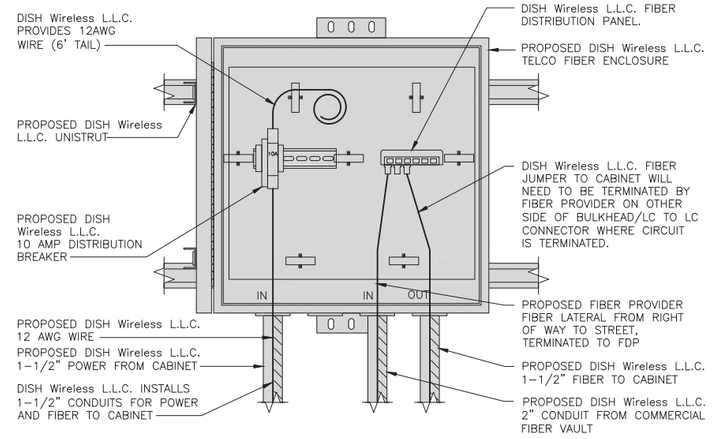
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

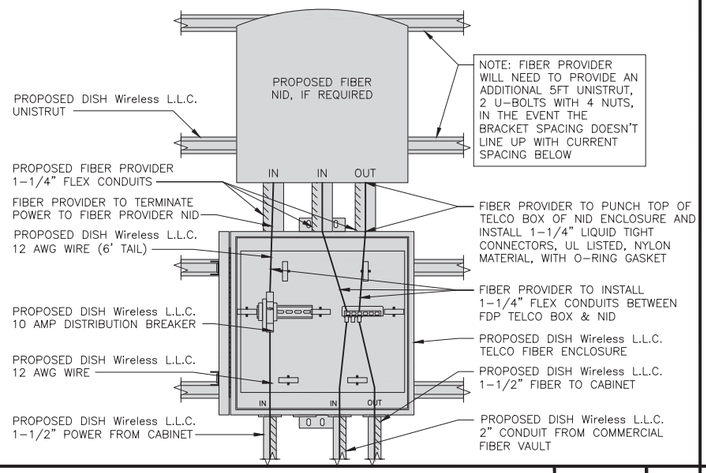
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT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



TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2



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



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

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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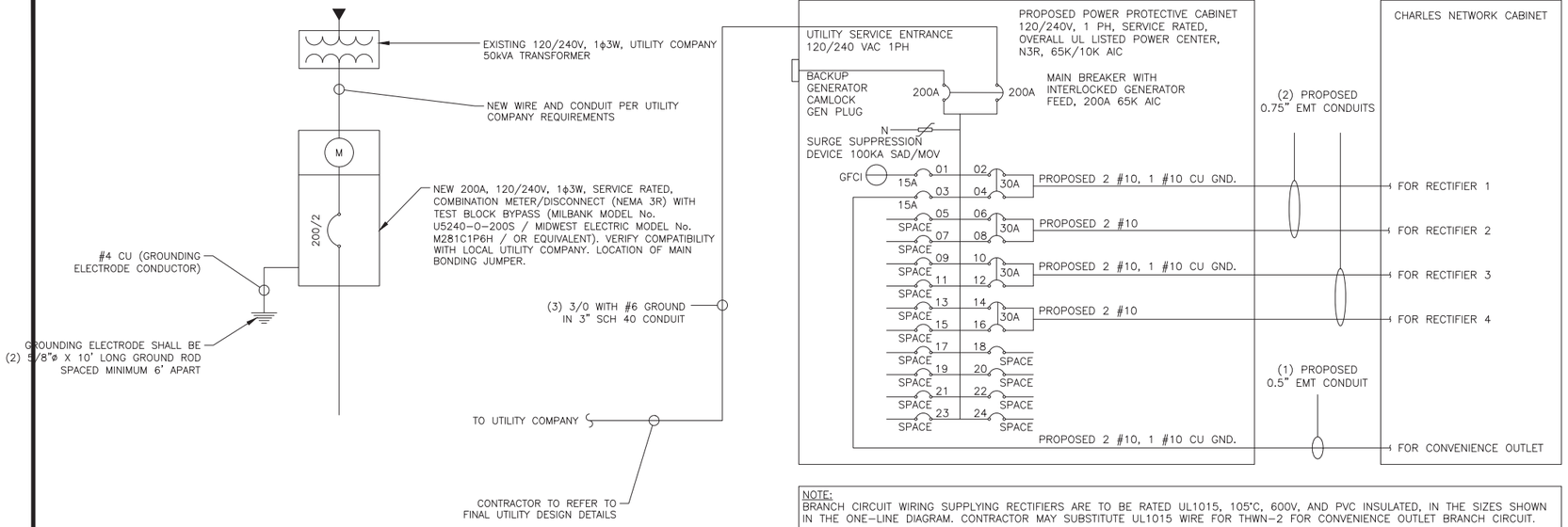
439-455 HOMESTEAD AVE
HARTFORD, CT 06105

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

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PROJECT INFORMATION
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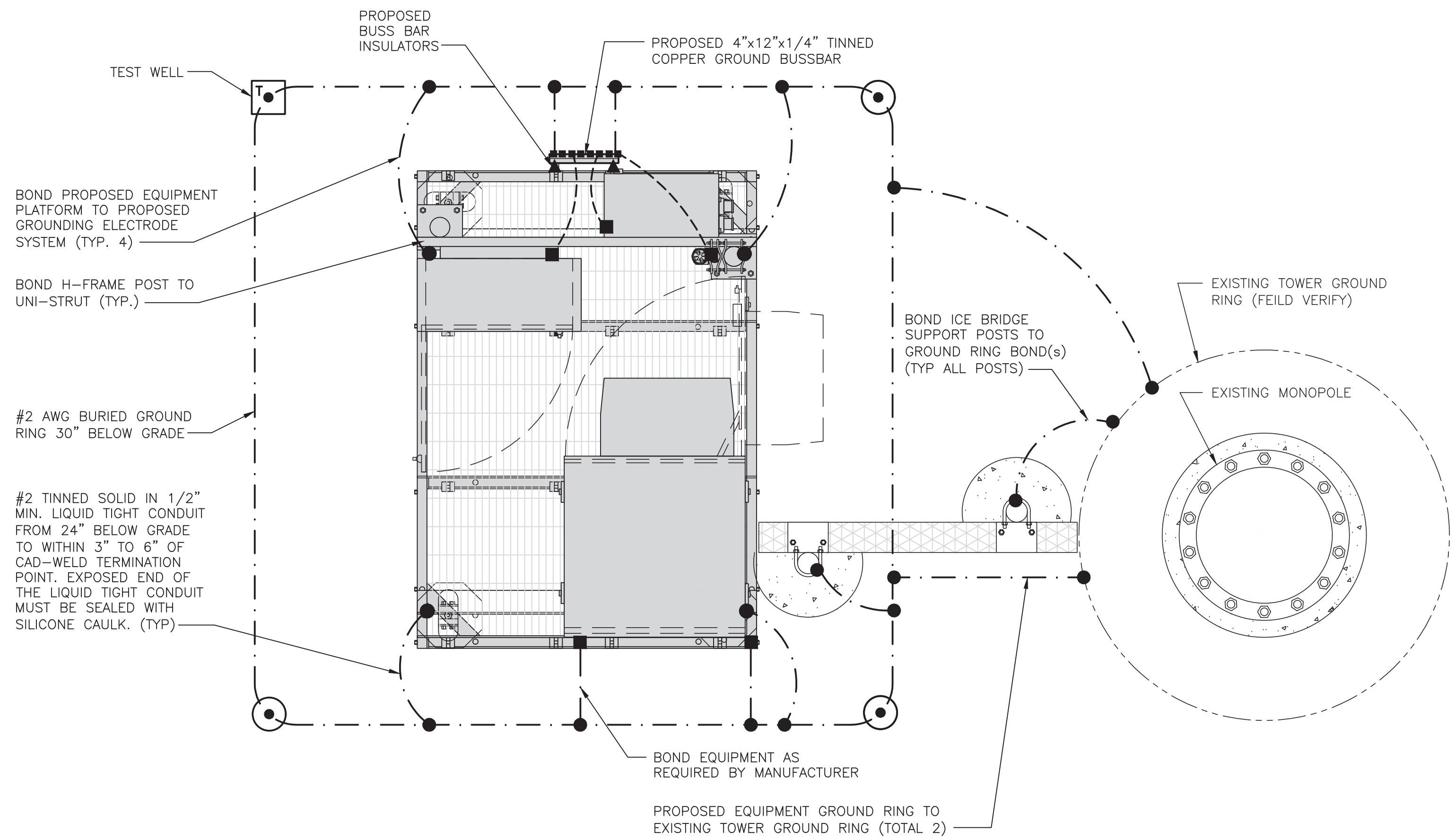
439-455 HOMESTEAD AVE
HARTFORD, CT 06105

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

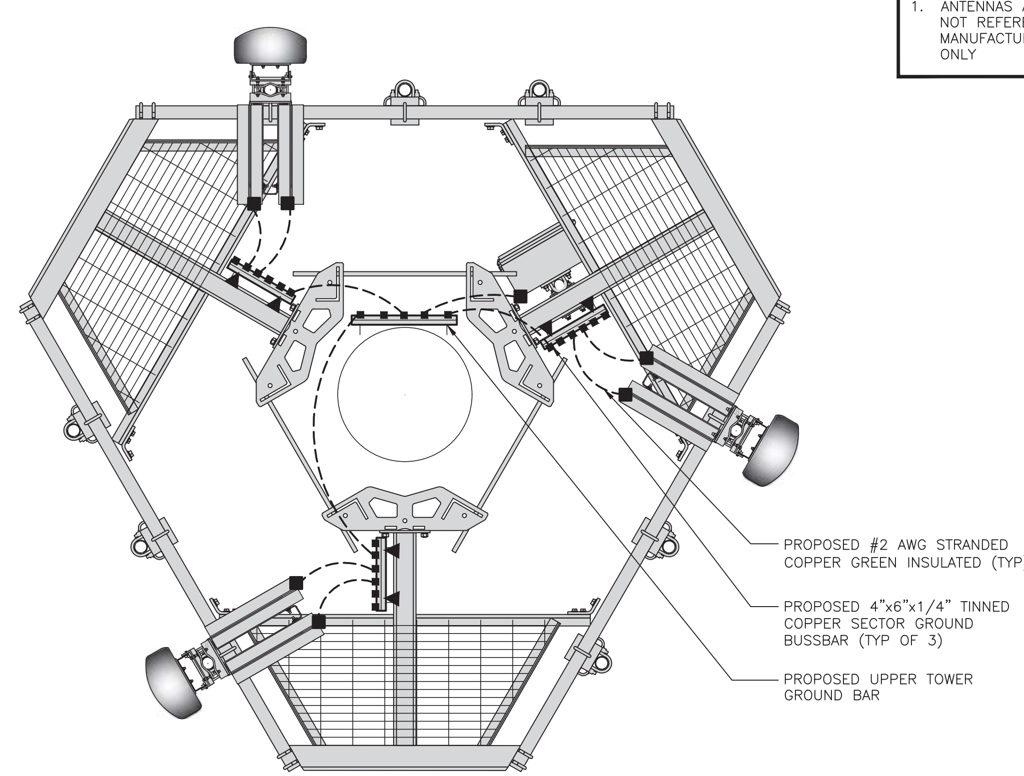
SHEET NUMBER
E-3



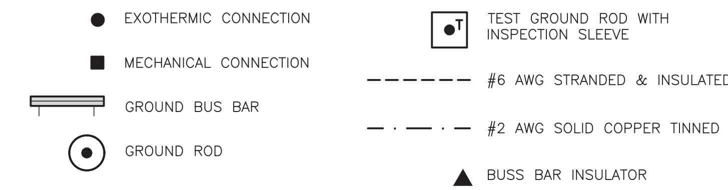
TYPICAL EQUIPMENT GROUNDING PLAN | NO SCALE | 1

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



GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GROUNDING KEY NOTES | NO SCALE | 3

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7/26/2021

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DRAWN BY:	CHECKED BY:	APPROVED BY:
JJR	MTJ	MDW

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

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B	7/2/21	ISSUED FOR REVIEW
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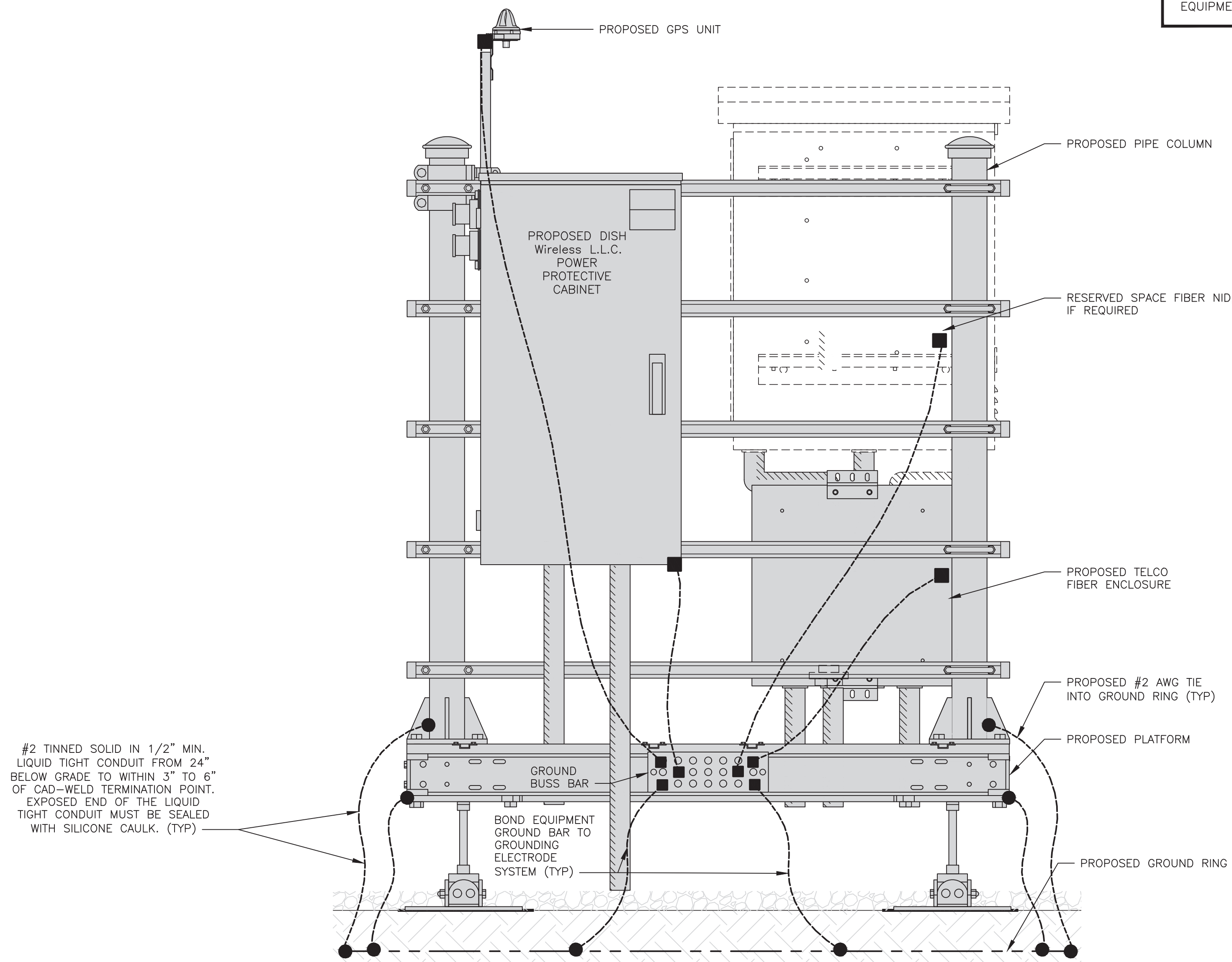
A&E PROJECT NUMBER
89233.006.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00044A
439-455 HOMESTEAD AVE
HARTFORD, CT 06105

SHEET TITLE
GROUNDING PLANS AND NOTES

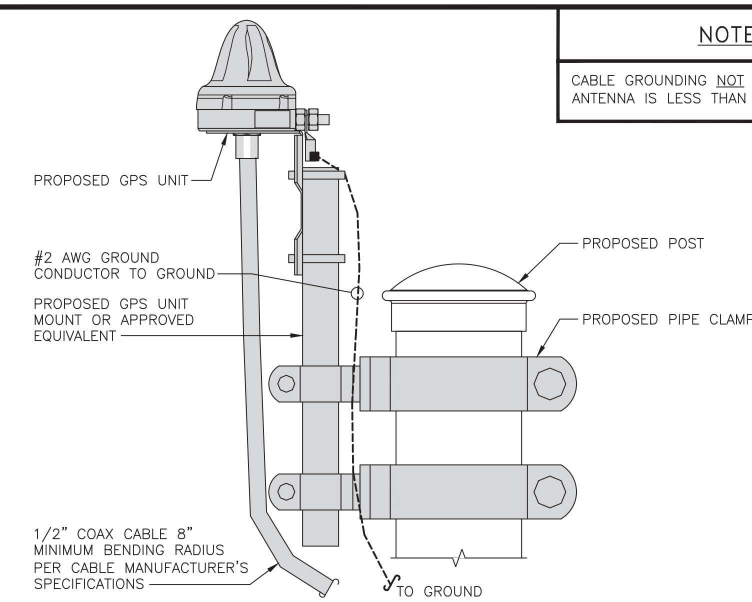
SHEET NUMBER
G-1

NOTES
EQUIPMENT CABINET OMITTED FOR CLARITY

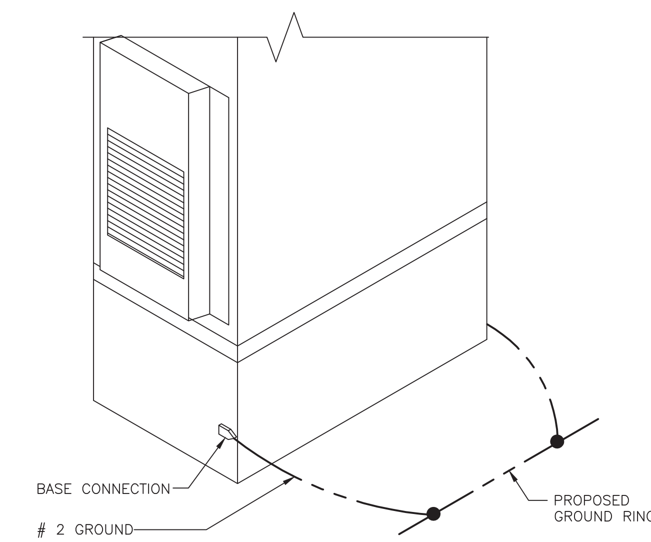


H-FRAME GROUNDING DETAIL — NO SCALE — 1

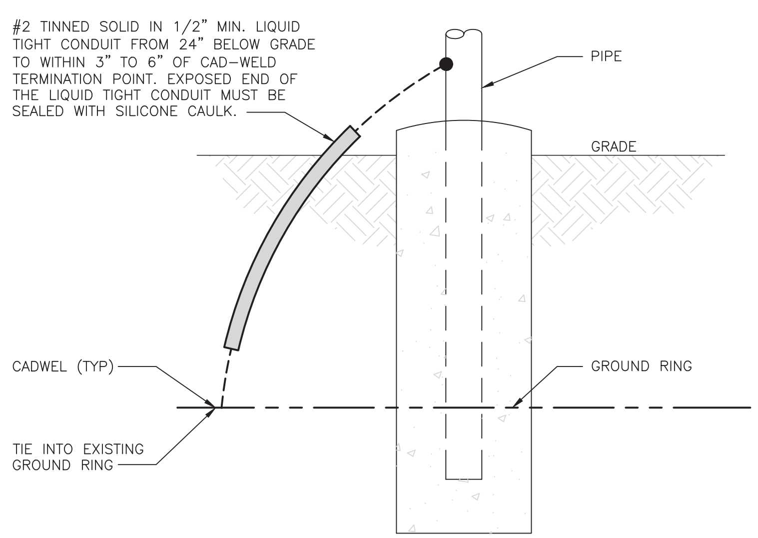
NOTES
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



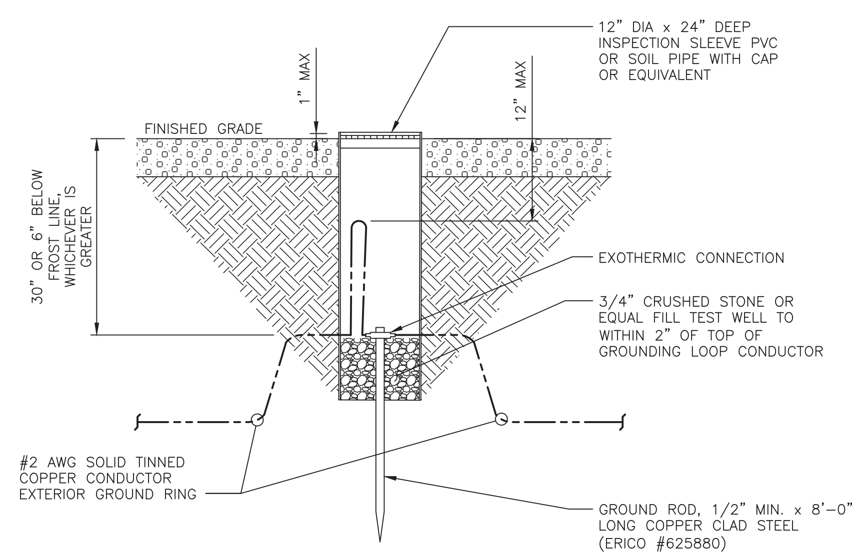
TYPICAL GPS UNIT GROUNDING — NO SCALE — 2



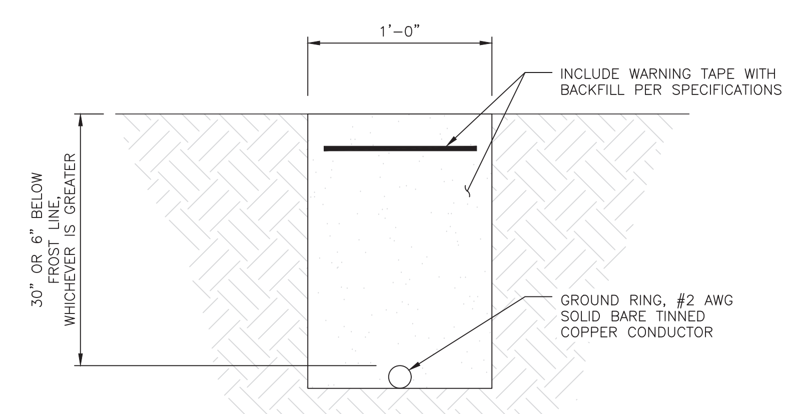
OUTDOOR CABINET GROUNDING — NO SCALE — 3



TRANSITIONING GROUND DETAIL — NO SCALE — 4



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



TYPICAL GROUND RING TRENCH — NO SCALE — 6

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No. 23924
LICENSED PROFESSIONAL ENGINEER
7/26/2021

B&T ENGINEERING, INC.
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IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

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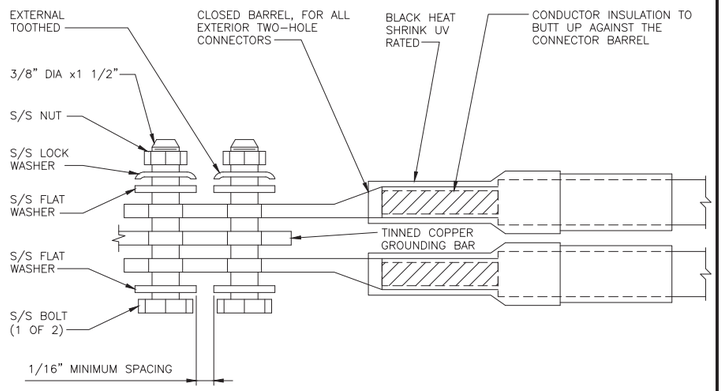
SHEET TITLE
GROUNDING DETAILS

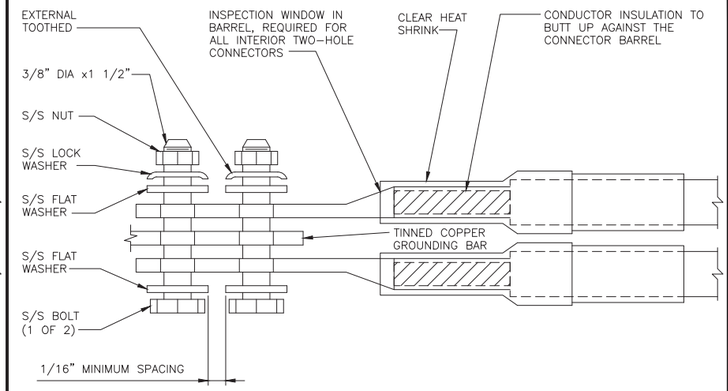
SHEET NUMBER
G-2

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

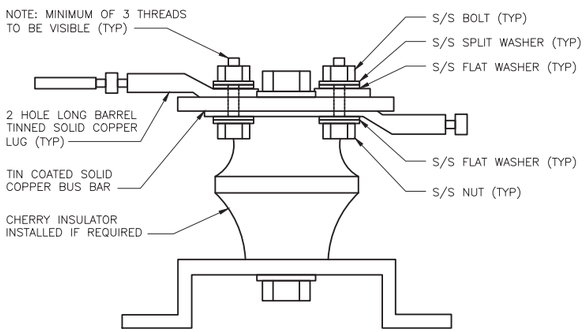
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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439-455 HOMESTEAD AVE
HARTFORD, CT 06105

SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER

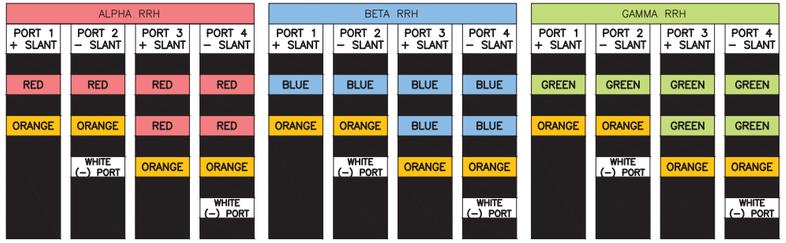
G-3

RF JUMPER COLOR CODING

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

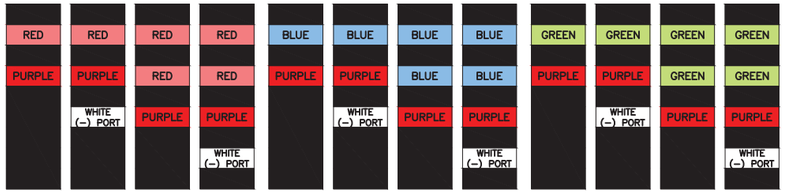
LOW-BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

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)

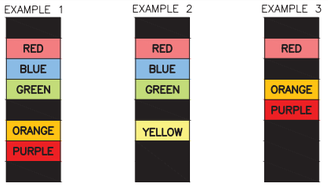


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED
ALONG WITH FREQUENCY BANDS

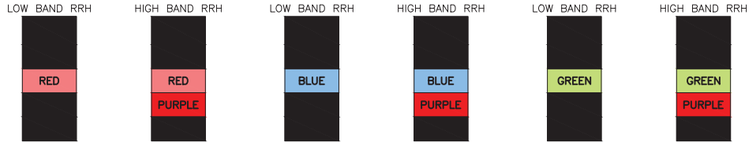
EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS
ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS

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



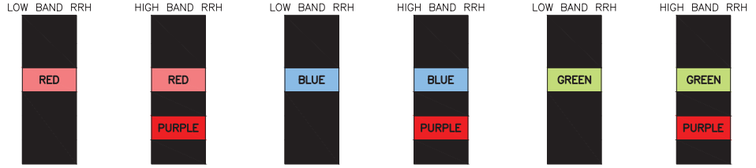
FIBER JUMPERS TO RRHs

LOW-BAND RRH FIBER CABLES HAVE SECTOR
STRIPE ONLY

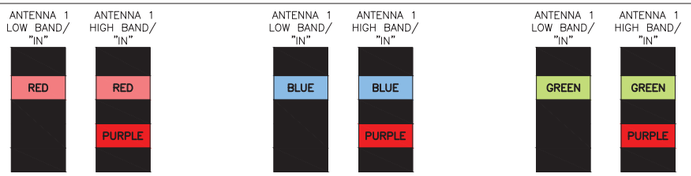


POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY



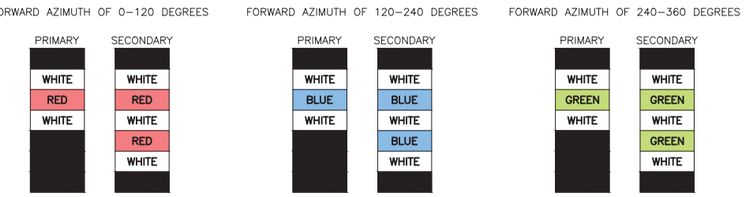
RET MOTORS AT ANTENNAS



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

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00044A
439-455 HOMESTEAD AVE
HARTFORD, CT 06105

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

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HARTFORD, CT 06105

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.

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7/26/2021

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
JJR	MTJ	MDW

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	6/2/21	ISSUED FOR REVIEW
B	7/2/21	ISSUED FOR REVIEW
0	7/26/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

89233.006.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00044A
439–455 HOMESTEAD AVE
HARTFORD, CT 06105

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.

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PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
JJR	MTJ	MDW

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

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89233.006.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00044A
439-455 HOMESTEAD AVE
HARTFORD, CT 06105

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
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7/26/2021

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
JJR	MTJ	MDW

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	6/2/21	ISSUED FOR REVIEW
B	7/2/21	ISSUED FOR REVIEW
0	7/26/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

89233.006.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00044A
439-455 HOMESTEAD AVE
HARTFORD, CT 06105

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

ATTACHMENT 4

Date: **May 28, 2021**

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***DISH Network* Co-Locate**	
	Site Number:	BOBDL00044A
	Site Name:	CT-CCI-T-806369
Crown Castle Designation:	**BU Number:**	806369
	Site Name:	HRT 094 943225
	JDE Job Number:	650039
	Work Order Number:	1968786
	Order Number:	556641 Rev. 0
Engineering Firm Designation:	**Crown Castle Project Number:**	1968786
Site Data:	**439-455 HOMESTEAD AVE, HARTFORD, HARTFORD County, CT** **Latitude *41° 47' 1.61"*, Longitude *-72° 42' 13.66"*** **140 Foot - Monopole Tower**	

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

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

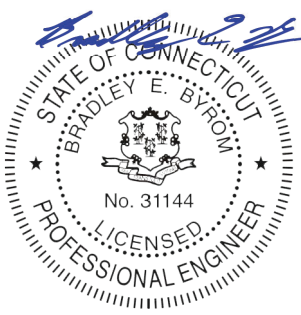
LC5: Proposed Equipment Configuration **Sufficient Capacity – 52.6%**

***The structure has sufficient capacity once the loading changes, described in the Recommendations section of this report, are completed.**

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

Structural analysis prepared by: Hayes Lei

Respectfully submitted by:



Digitally signed by Bradley E Byrom
Date: 2021.05.29 17:10:09 -04'00'

Bradley E. Byrom, P.E., S.E.
Senior Project Engineer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 140 ft Monopole tower designed by VALMONT.

2) ANALYSIS CRITERIA

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

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
93.0	93.0	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 - Non-Carrier Equipment To Be Conditionally Removed

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
93.0	93.0	3	kathrein	742 213 w/ Mount Pipe	-	-
		1	tower mounts	Pipe Mount [PM 602-3]		
		2	tower mounts	Side Arm Mount [SO 104-3]		

Table 3 - 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)
140.0	140.0	3	alcatel lucent	RRH2X40-AWS	13	1-5/8
		3	amphenol	BXA-80063-4BF-EDIN-X w/ Mount Pipe		
		3	antel	BXA-171063-8BF-EDIN-2 w/ Mount Pipe		
		3	antel	BXA-171063/8CF-EDIN-2 w/ Mount Pipe		
		3	css	X7C-FRO-660-V w/ Mount Pipe		
		1	raycap	RRFDC-3315-PF-48		
		6	rfs celwave	FD9R6004/2C-3L		
		1	tower mounts	Platform Mount [LP 713-1]		
		3	tower mounts	Side Arm Mount [SO 203-1]		

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	ericsson	AIR -32 B2A/B66AA w/ Mount Pipe	9 3 1	1-5/8 1-3/8 1-1/4
		3	ericsson	AIR 3246 B66 w/ Mount Pipe		
		3	ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
	126.0	3	rfs celwave	ATMAA1412D-1A20		
		1	tower mounts	Platform Mount [LP 713-1]		
117.0	120.0	2	cci antennas	DMP65R-BU6D w/ Mount Pipe	2 4 2 12 3	3/8 3/4 7/8 1-5/8 conduit
		1	cci antennas	DMP65R-BU8D w/ Mount Pipe		
		1	cci antennas	TPA-65R-LCUUUU-H8 w/ Mount Pipe		
		3	ericsson	RRUS 32 B30		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 8843 B2/B66A_CCIV2		
		3	powerwave technologies	7770.00 w/ Mount Pipe		
		6	powerwave technologies	LGP21401		
		2	quintel technology	QS66512-3 w/ Mount Pipe		
		1	raycap	DC6-48-60-0-8C-EV		
		2	raycap	DC6-48-60-18-8F		
	117.0	1	tower mounts	Platform Mount [LP 713-1]		
104.0	104.0	3	alcatel lucent	800MHz 2X50W RRH W/FILTER	-	-
		3	alcatel lucent	PCS 1900MHz 4x45W-65MHz		
		1	tower mounts	Pipe Mount [PM 601-3]		
103.0	107.0	1	andrew	VHLP2-180	1 3 3 3 3 2	1-1/2 1-1/4 1/4 5/16 1/2 conduit
		1	andrew	VHLP2.5-11		
		2	dragonwave	HORIZON COMPACT		
	105.0	3	argus technologies	LLPX310R-V1 w/ Mount Pipe		
		3	nokia	AAHC w/ Mount Pipe		
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		3	rfs celwave	IBC1900BB-1		
		3	rfs celwave	IBC1900HG-2A		
		3	samsung telecommunications	WIMAX DAP HEAD		
	103.0	1	tower mounts	Platform Mount [LP 713-1]		
93.0	93.0	-	-	-	6	1-5/8
74.0	80.0	1	antel	BCD-87010	1	7/8
	74.0	1	tower mounts	Side Arm Mount [SO 701-1]		
50.0	52.0	1	lucent	KS24019-L112A	1	7/8

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
	50.0	1	tower mounts	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	2294838	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	2294380	CCISITES
4-TOWER MANUFACTURER DRAWINGS	2294379	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.

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 3 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 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	140 - 86.83	Pole	TP39.223x26.216x0.3125	1	-25.24	2319.28	36.0	Pass
L2	86.83 - 38	Pole	TP50.56x37.2109x0.4063	2	-40.53	3892.16	50.1	Pass
L3	38 - 0	Pole	TP59.05x48.0329x0.5	3	-61.63	5790.26	49.0	Pass
							Summary	
						Pole (L2)	50.1	Pass
						Rating =	50.1	Pass

Table 6 - Tower Component Stresses vs. Capacity - LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	52.6	Pass
1	Base Plate	0	17.1	Pass
1	Base Foundation (Structure)	0	36.6	Pass
1	Base Foundation (Soil Interaction)	0	42.3	Pass

Structure Rating (max from all components) =	52.6%

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

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. In order for the results of this analysis to be considered valid, the loading modification, as follows, must be completed.

Loading Changes:

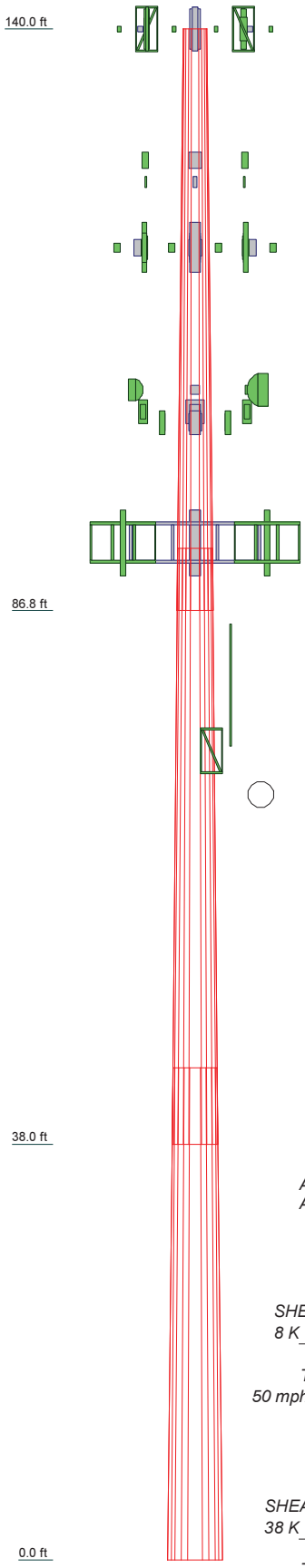
a) Removal of the abandoned antennas and mounts at the 93 ft level

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

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	53.17	12	0.3125	5.67	26.2160	39.2230		5.9
2	54.50	12	0.4063	7.00	37.2109	50.5600	A572-65	10.5
3	45.00	12	0.5000		48.0329	59.0500		13.1
								29.5



MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 2.00 in ice. Ice is considered to i ncrease in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 50.1%

ALL REACTIONS ARE FACTORED

AXIAL 90 K
SHEAR 8 K
MOMENT 744 kip-ft
TORQUE 0 kip-ft
50 mph WIND - 1.0000 in ICE

AXIAL 62 K
SHEAR 38 K
MOMENT 3643 kip-ft
TORQUE 1 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# 806369***			
Project:			
Client: CCI	Drawn by: HLei		App'd:
Code: TIA-222-H	Date: 05/28/21		Scale: NTS
Path: C:\Temporary Working Space - No One Drive\806369\WO 1968786 - SA\Prod\806369_RPA.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 is located in Hartford County, Connecticut.
- Tower base elevation above sea level: 60.06 ft.
- Basic wind speed of 125 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 2.0000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	140.00-86.83	53.17	5.67	12	26.2160	39.2230	0.3125	1.2500	A572-65 (65 ksi)
L2	86.83-38.00	54.50	7.00	12	37.2109	50.5600	0.4063	1.6250	A572-65 (65 ksi)
L3	38.00-0.00	45.00		12	48.0329	59.0500	0.5000	2.0000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	27.0306	26.0654	2232.3752	9.2735	13.5799	164.3883	4523.3974	12.8286	6.1884	19.803
	40.4964	39.1537	7566.4519	13.9300	20.3175	372.4103	15331.6830	19.2703	9.6743	30.958
L2	39.8181	48.1451	8324.2452	13.1761	19.2753	431.8614	16867.1776	23.6956	8.8838	21.868
	52.2003	65.6074	21064.2222	17.9550	26.1901	804.2825	42681.8251	32.2900	12.4613	30.674
L3	51.3252	76.5280	22069.6751	17.0168	24.8811	887.0069	44719.1451	37.6648	11.5328	23.066
	60.9567	94.2655	41247.0150	20.9609	30.5879	1348.4749	83577.6350	46.3946	14.4854	28.971

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 140.00-86.83				1	1	1			
L2 86.83-38.00				1	1	1			
L3 38.00-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
LDF7-50A(1-5/8)	B	No	Surface Ar (CaAa)	140.00 - 0.00	6	6	-0.500 -0.325	1.9800		0.82
HCS 6X12 6AWG(1-3/8)	C	No	Surface Ar (CaAa)	126.00 - 0.00	1	1	0.275 0.275	1.3800		1.70
LCF158-50JA(1-5/8)	C	No	Surface Ar (CaAa)	126.00 - 0.00	5	5	0.292 0.433	2.0100		0.92
2-1/4" (Nominal) Conduit	C	No	Surface Ar (CaAa)	117.00 - 0.00	1	1	0.408 0.408	2.5000		0.72
MLC6C-06C-008R-008R(1-1/2)	A	No	Surface Ar (CaAa)	103.00 - 0.00	1	1	-0.217 -0.217	1.4800		1.52
HB114-1-08U4-M5J(1-1/4)	A	No	Surface Ar (CaAa)	103.00 - 0.00	3	2	-0.458 -0.408	1.5400		1.08
2-1/4" (Nominal) Conduit	A	No	Surface Ar (CaAa)	103.00 - 0.00	2	2	-0.300 -0.233	2.5000		0.72
**********										
LDF5-50A(7/8)	B	No	Surface Ar (CaAa)	74.00 - 0.00	1	1	-0.258 -0.258	1.0900		0.33
**********										
LDF5-50A(7/8)	B	No	Surface Ar (CaAa)	50.00 - 0.00	1	1	-0.283 -0.283	1.0900		0.33

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
**********										
CU12PSM9P6XXX(1-1/2)	B	No	Surface Ar (CaAa)	93.00 - 0.00	1	1	0.000 0.000	1.6000		2.35
*** ** *										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LDF7-50A(1-5/8)	C	No	No	Inside Pole	140.00 - 0.00	6	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
HB158-1-08U8-S8J18(1-5/8)	C	No	No	Inside Pole	140.00 - 0.00	1	No Ice	0.00	1.30
							1/2" Ice	0.00	1.30
							1" Ice	0.00	1.30
**********									
HCS 6X12 6AWG(1-3/8)	C	No	No	Inside Pole	126.00 - 0.00	2	No Ice	0.00	1.70
							1/2" Ice	0.00	1.70
							1" Ice	0.00	1.70
LCF158-50JA(1-5/8)	C	No	No	Inside Pole	126.00 - 0.00	1	No Ice	0.00	0.92
							1/2" Ice	0.00	0.92
							1" Ice	0.00	0.92
LCF158-50JA(1-5/8)	C	No	No	Inside Pole	126.00 - 0.00	3	No Ice	0.00	0.92
							1/2" Ice	0.00	0.92
							1" Ice	0.00	0.92
HB114-21U3M12-XXXF(1-1/4)	C	No	No	Inside Pole	126.00 - 0.00	1	No Ice	0.00	1.22
							1/2" Ice	0.00	1.22
							1" Ice	0.00	1.22
**********									
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	117.00 - 0.00	4	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
LDF7-50A(1-5/8)	C	No	No	Inside Pole	117.00 - 0.00	12	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
FB-L98B-034-XXX(3/8)	C	No	No	Inside Pole	117.00 - 0.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
FB-L98B-034-XXXXXX(3/8)	C	No	No	Inside Pole	117.00 - 0.00	1	No Ice	0.00	0.05
							1/2" Ice	0.00	0.05
							1" Ice	0.00	0.05
WR-VG66ST-BRD_CCIV2(7/8)	C	No	No	Inside Pole	117.00 - 0.00	2	No Ice	0.00	0.88
							1/2" Ice	0.00	0.88
							1" Ice	0.00	0.88
**********									
LDF1-50A(1/4)	C	No	No	Inside Pole	103.00 - 0.00	3	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
ATCB-B01-005(5/16)	C	No	No	Inside Pole	103.00 - 0.00	3	No Ice	0.00	0.07
							1/2" Ice	0.00	0.07
							1" Ice	0.00	0.07
FSJ4-50B(1/2)	C	No	No	Inside Pole	103.00 - 0.00	3	No Ice	0.00	0.14
							1/2" Ice	0.00	0.14
							1" Ice	0.00	0.14
**********									
AVA7-50(1-5/8)	C	No	No	Inside Pole	93.00 - 0.00	6	No Ice	0.00	0.70
							1/2" Ice	0.00	0.70

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
							1" Ice	0.00	0.70
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Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	140.00-86.83	A	0.000	0.000	15.459	0.000	0.10
		B	0.000	0.000	64.153	0.000	0.28
		C	0.000	0.000	52.314	0.000	1.39
L2	86.83-38.00	A	0.000	0.000	46.681	0.000	0.30
		B	0.000	0.000	71.055	0.000	0.37
		C	0.000	0.000	68.020	0.000	1.98
L3	38.00-0.00	A	0.000	0.000	36.328	0.000	0.24
		B	0.000	0.000	59.508	0.000	0.30
		C	0.000	0.000	52.934	0.000	1.54

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	140.00-86.83	A	0.961	0.000	0.000	29.597	0.000	0.34
		B		0.000	0.000	93.898	0.000	0.96
		C		0.000	0.000	84.883	0.000	2.04
L2	86.83-38.00	A	0.905	0.000	0.000	89.378	0.000	1.02
		B		0.000	0.000	115.886	0.000	1.24
		C		0.000	0.000	110.776	0.000	2.84
L3	38.00-0.00	A	0.802	0.000	0.000	68.086	0.000	0.76
		B		0.000	0.000	100.037	0.000	1.02
		C		0.000	0.000	84.844	0.000	2.17

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	140.00-86.83	-2.6921	-1.2840	-2.8266	-0.8114
L2	86.83-38.00	-4.5365	-0.6362	-4.5575	-0.4228
L3	38.00-0.00	-4.8745	-1.0231	-4.7460	-0.9661

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	1	LDF7-50A(1-5/8)	86.83 - 140.00	1.0000	1.0000
L1	6	HCS 6X12 6AWG(1-3/8)	86.83 - 126.00	1.0000	1.0000
L1	7	LCF158-50JA(1-5/8)	86.83 - 126.00	1.0000	1.0000
L1	19	2-1/4" (Nominal) Conduit	86.83 - 117.00	1.0000	1.0000
L1	23	MLC6C-06C-008R-008R(1-1/2)	86.83 - 103.00	1.0000	1.0000
L1	24	HB114-1-08U4-M5J(1-1/4)	86.83 - 103.00	1.0000	1.0000
L1	26	2-1/4" (Nominal) Conduit	86.83 - 103.00	1.0000	1.0000
L1	34	CU12PSM9P6XXX(1-1/2)	86.83 - 93.00	1.0000	1.0000
L2	1	LDF7-50A(1-5/8)	38.00 - 86.83	1.0000	1.0000
L2	6	HCS 6X12 6AWG(1-3/8)	38.00 - 86.83	1.0000	1.0000
L2	7	LCF158-50JA(1-5/8)	38.00 - 86.83	1.0000	1.0000
L2	19	2-1/4" (Nominal) Conduit	38.00 - 86.83	1.0000	1.0000
L2	23	MLC6C-06C-008R-008R(1-1/2)	38.00 - 86.83	1.0000	1.0000
L2	24	HB114-1-08U4-M5J(1-1/4)	38.00 - 86.83	1.0000	1.0000
L2	26	2-1/4" (Nominal) Conduit	38.00 - 86.83	1.0000	1.0000
L2	30	LDF5-50A(7/8)	38.00 - 74.00	1.0000	1.0000
L2	32	LDF5-50A(7/8)	38.00 - 50.00	1.0000	1.0000
L2	34	CU12PSM9P6XXX(1-1/2)	38.00 - 86.83	1.0000	1.0000
L3	1	LDF7-50A(1-5/8)	0.00 - 38.00	1.0000	1.0000
L3	6	HCS 6X12 6AWG(1-3/8)	0.00 - 38.00	1.0000	1.0000
L3	7	LCF158-50JA(1-5/8)	0.00 - 38.00	1.0000	1.0000
L3	19	2-1/4" (Nominal) Conduit	0.00 - 38.00	1.0000	1.0000
L3	23	MLC6C-06C-008R-008R(1-1/2)	0.00 - 38.00	1.0000	1.0000
L3	24	HB114-1-08U4-M5J(1-1/4)	0.00 - 38.00	1.0000	1.0000
L3	26	2-1/4" (Nominal) Conduit	0.00 - 38.00	1.0000	1.0000
L3	30	LDF5-50A(7/8)	0.00 - 38.00	1.0000	1.0000
L3	32	LDF5-50A(7/8)	0.00 - 38.00	1.0000	1.0000
L3	34	CU12PSM9P6XXX(1-1/2)	0.00 - 38.00	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
BXA-80063-4BF-EDIN-X w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	4.62 4.99 5.36	3.47 4.04 4.63	0.03 0.07 0.12

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
BXA-80063-4BF-EDIN-X w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	4.62 4.99 5.36	3.47 4.04 4.63	0.03 0.07 0.12
BXA-80063-4BF-EDIN-X w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	4.62 4.99 5.36	3.47 4.04 4.63	0.03 0.07 0.12
BXA-171063/8CF-EDIN-2 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	3.14 3.52 3.89	3.51 4.13 4.76	0.03 0.06 0.10
BXA-171063/8CF-EDIN-2 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	3.14 3.52 3.89	3.51 4.13 4.76	0.03 0.06 0.10
BXA-171063/8CF-EDIN-2 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	3.14 3.52 3.89	3.51 4.13 4.76	0.03 0.06 0.10
X7C-FRO-660-V w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	8.88 9.60 10.34	6.44 7.13 7.83	0.07 0.15 0.23
X7C-FRO-660-V w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	8.88 9.60 10.34	6.44 7.13 7.83	0.07 0.15 0.23
X7C-FRO-660-V w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	8.88 9.60 10.34	6.44 7.13 7.83	0.07 0.15 0.23
BXA-171063-8BF-EDIN-2 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	3.18 3.56 3.93	3.35 3.97 4.60	0.03 0.06 0.10
BXA-171063-8BF-EDIN-2 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	3.18 3.56 3.93	3.35 3.97 4.60	0.03 0.06 0.10
BXA-171063-8BF-EDIN-2 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	3.18 3.56 3.93	3.35 3.97 4.60	0.03 0.06 0.10
(2) FD9R6004/2C-3L	A	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	0.31 0.39 0.47	0.08 0.12 0.17	0.00 0.01 0.01
(2) FD9R6004/2C-3L	B	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	0.31 0.39 0.47	0.08 0.12 0.17	0.00 0.01 0.01
(2) FD9R6004/2C-3L	C	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	0.31 0.39 0.47	0.08 0.12 0.17	0.00 0.01 0.01
RRH2X40-AWS	A	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.16 2.36 2.57	1.42 1.59 1.77	0.04 0.06 0.08
RRH2X40-AWS	B	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.16 2.36 2.57	1.42 1.59 1.77	0.04 0.06 0.08
RRH2X40-AWS	C	From Leg	4.00	0.0000	140.00	No Ice	2.16	1.42	0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	2.36	1.59	0.06
			0.00			1" Ice	2.57	1.77	0.08
RRFDC-3315-PF-48	B	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	3.36 3.60 3.84	2.19 2.39 2.61	0.03 0.06 0.09
Platform Mount [LP 713-1]	C	None		0.0000	140.00	No Ice 1/2" Ice 1" Ice	32.89 35.76 38.76	32.89 35.76 38.76	1.51 2.23 3.03
Side Arm Mount [SO 203-1]	A	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.96 4.10 5.24	3.36 4.68 6.00	0.13 0.15 0.18
Side Arm Mount [SO 203-1]	B	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.96 4.10 5.24	3.36 4.68 6.00	0.13 0.15 0.18
Side Arm Mount [SO 203-1]	C	From Leg	4.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.96 4.10 5.24	3.36 4.68 6.00	0.13 0.15 0.18
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APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	0.19 0.31 0.46
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	0.19 0.31 0.46
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	14.69 15.46 16.23	6.87 7.55 8.25	0.19 0.31 0.46
AIR 3246 B66 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	8.18 8.66 9.12	6.56 7.39 8.13	0.20 0.27 0.35
AIR 3246 B66 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	8.18 8.66 9.12	6.56 7.39 8.13	0.20 0.27 0.35
AIR 3246 B66 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	8.18 8.66 9.12	6.56 7.39 8.13	0.20 0.27 0.35
AIR -32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	3.76 4.12 4.48	3.15 3.49 3.84	0.19 0.25 0.32
AIR -32 B2A/B66AA w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	3.76 4.12 4.48	3.15 3.49 3.84	0.19 0.25 0.32
AIR -32 B2A/B66AA w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	3.76 4.12 4.48	3.15 3.49 3.84	0.19 0.25 0.32
RADIO 4449 B71 B85A_T-MOBILE	A	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	1.97 2.15 2.33	1.59 1.75 1.92	0.07 0.09 0.12

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RADIO 4449 B71 B85A_T-MOBILE	B	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	1.97 2.15 2.33	1.59 1.75 1.92	0.07 0.09 0.12
RADIO 4449 B71 B85A_T-MOBILE	C	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	1.97 2.15 2.33	1.59 1.75 1.92	0.07 0.09 0.12
ATMAA1412D-1A20	A	From Leg	4.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	0.41 0.50 0.59	1.00 1.13 1.26	0.01 0.02 0.03
ATMAA1412D-1A20	B	From Leg	4.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	0.41 0.50 0.59	1.00 1.13 1.26	0.01 0.02 0.03
ATMAA1412D-1A20	C	From Leg	4.00 0.00 0.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	0.41 0.50 0.59	1.00 1.13 1.26	0.01 0.02 0.03
Platform Mount [LP 713-1]	C	None		0.0000	126.00	No Ice 1/2" Ice 1" Ice	32.89 35.76 38.76	32.89 35.76 38.76	1.51 2.23 3.03
L 2.5" x 2.5" x 3/16" x 144"	A	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	0.05 0.08 0.12	3.00 3.82 4.64	0.03 0.06 0.10
L 2.5" x 2.5" x 3/16" x 144"	B	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	0.05 0.08 0.12	3.00 3.82 4.64	0.03 0.06 0.10
L 2.5" x 2.5" x 3/16" x 144"	C	From Leg	4.00 0.00 2.00	0.0000	126.00	No Ice 1/2" Ice 1" Ice	0.05 0.08 0.12	3.00 3.82 4.64	0.03 0.06 0.10
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7770.00 w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
7770.00 w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
7770.00 w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
TPA-65R-LCUUUU-H8 w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	11.85 12.77 13.71	8.99 9.88 10.79	0.11 0.21 0.32
QS66512-3 w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	4.04 4.42 4.82	4.18 4.57 4.97	0.13 0.20 0.28
QS66512-3 w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	4.04 4.42 4.82	4.18 4.57 4.97	0.13 0.20 0.28
DMP65R-BU8D w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	15.89 16.81 17.76	7.89 8.74 9.60	0.14 0.25 0.38

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
DMP65R-BU6D w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	11.96 12.70 13.46	5.97 6.63 7.30	0.11 0.20 0.30
DMP65R-BU6D w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	11.96 12.70 13.46	5.97 6.63 7.30	0.11 0.20 0.30
(2) LGP21401	A	From Leg	4.00 0.00 3.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
(2) LGP21401	B	From Leg	4.00 0.00 3.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
(2) LGP21401	C	From Leg	4.00 0.00 3.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
DC6-48-60-18-8F	A	From Leg	4.00 0.00 3.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	1.21 1.89 2.11	1.21 1.89 2.11	0.02 0.04 0.07
DC6-48-60-18-8F	B	From Leg	4.00 0.00 3.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	1.21 1.89 2.11	1.21 1.89 2.11	0.02 0.04 0.07
RRUS 32 B30	A	From Leg	4.00 0.00 3.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	2.69 2.91 3.14	1.57 1.76 1.95	0.06 0.08 0.10
RRUS 32 B30	B	From Leg	4.00 0.00 3.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	2.69 2.91 3.14	1.57 1.76 1.95	0.06 0.08 0.10
RRUS 32 B30	C	From Leg	4.00 0.00 3.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	2.69 2.91 3.14	1.57 1.76 1.95	0.06 0.08 0.10
(2) RRUS 8843 B2/B66A_CCIV2	A	From Leg	4.00 0.00 3.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	1.98 2.16 2.34	1.70 1.86 2.04	0.08 0.10 0.12
RRUS 8843 B2/B66A_CCIV2	B	From Leg	4.00 0.00 3.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	1.98 2.16 2.34	1.70 1.86 2.04	0.08 0.10 0.12
RRUS 4449 B5/B12	A	From Leg	4.00 0.00 3.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	1.97 2.14 2.33	1.41 1.56 1.73	0.07 0.09 0.11
RRUS 4449 B5/B12	B	From Leg	4.00 0.00 3.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	1.97 2.14 2.33	1.41 1.56 1.73	0.07 0.09 0.11
RRUS 4449 B5/B12	C	From Leg	4.00 0.00 3.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	1.97 2.14 2.33	1.41 1.56 1.73	0.07 0.09 0.11
DC6-48-60-0-8C-EV	C	From Leg	4.00 0.00 3.00	0.0000	117.00	No Ice 1/2" Ice 1" Ice	1.14 1.79 2.00	1.14 1.79 2.00	0.03 0.05 0.07
Platform Mount [LP 713-1]	C	None		0.0000	117.00	No Ice	32.89	32.89	1.51

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1/2" Ice	35.76 38.76	35.76 38.76	2.23 3.03
						1" Ice			
**********									
800MHz 2X50W RRH W/FILTER	A	From Leg	2.00 0.00 0.00	0.0000	104.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.93 2.11 2.29	0.06 0.09 0.11
800MHz 2X50W RRH W/FILTER	B	From Leg	2.00 0.00 0.00	0.0000	104.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.93 2.11 2.29	0.06 0.09 0.11
800MHz 2X50W RRH W/FILTER	C	From Leg	2.00 0.00 0.00	0.0000	104.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.93 2.11 2.29	0.06 0.09 0.11
PCS 1900MHz 4x45W-65MHz	A	From Leg	2.00 0.00 0.00	0.0000	104.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	0.06 0.08 0.11
PCS 1900MHz 4x45W-65MHz	B	From Leg	2.00 0.00 0.00	0.0000	104.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	0.06 0.08 0.11
PCS 1900MHz 4x45W-65MHz	C	From Leg	2.00 0.00 0.00	0.0000	104.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	0.06 0.08 0.11
Pipe Mount [PM 601-3]	C	None		0.0000	104.00	No Ice 1/2" Ice 1" Ice	4.39 5.48 6.57	4.39 5.48 6.57	0.20 0.24 0.28
***** sprint **********									
AAHC w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	4.41 4.73 5.06	2.69 3.08 3.49	0.12 0.16 0.20
AAHC w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	4.41 4.73 5.06	2.69 3.08 3.49	0.12 0.16 0.20
AAHC w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	4.41 4.73 5.06	2.69 3.08 3.49	0.12 0.16 0.20
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	4.60 5.05 5.50	4.01 4.45 4.89	0.10 0.16 0.23
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	4.60 5.05 5.50	4.01 4.45 4.89	0.10 0.16 0.23
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	4.60 5.05 5.50	4.01 4.45 4.89	0.10 0.16 0.23
IBC1900BB-1	A	From Leg	4.00 0.00 2.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	0.97 1.09 1.22	0.46 0.56 0.66	0.02 0.03 0.04
IBC1900BB-1	B	From Leg	4.00 0.00 2.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	0.97 1.09 1.22	0.46 0.56 0.66	0.02 0.03 0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
IBC1900BB-1	C	From Leg	4.00 0.00 2.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	0.97 1.09 1.22	0.46 0.56 0.66	0.02 0.03 0.04
IBC1900HG-2A	A	From Leg	4.00 0.00 2.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	0.97 1.09 1.22	0.46 0.56 0.66	0.02 0.03 0.04
IBC1900HG-2A	B	From Leg	4.00 0.00 2.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	0.97 1.09 1.22	0.46 0.56 0.66	0.02 0.03 0.04
IBC1900HG-2A	C	From Leg	4.00 0.00 2.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	0.97 1.09 1.22	0.46 0.56 0.66	0.02 0.03 0.04
********clearwireless **********									
LLPX310R-V1 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	3.88 4.29 4.72	2.36 2.73 3.12	0.06 0.09 0.13
LLPX310R-V1 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	3.88 4.29 4.72	2.36 2.73 3.12	0.06 0.09 0.13
LLPX310R-V1 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	3.88 4.29 4.72	2.36 2.73 3.12	0.06 0.09 0.13
WIMAX DAP HEAD	A	From Leg	4.00 0.00 2.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	1.55 1.70 1.87	0.68 0.80 0.92	0.03 0.04 0.06
WIMAX DAP HEAD	B	From Leg	4.00 0.00 2.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	1.55 1.70 1.87	0.68 0.80 0.92	0.03 0.04 0.06
WIMAX DAP HEAD	C	From Leg	4.00 0.00 2.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	1.55 1.70 1.87	0.68 0.80 0.92	0.03 0.04 0.06
HORIZON COMPACT	A	From Leg	4.00 0.00 4.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	0.72 0.83 0.94	0.37 0.45 0.54	0.01 0.02 0.03
HORIZON COMPACT	B	From Leg	4.00 0.00 4.00	0.0000	103.00	No Ice 1/2" Ice 1" Ice	0.72 0.83 0.94	0.37 0.45 0.54	0.01 0.02 0.03
Platform Mount [LP 713-1]	C	None		0.0000	103.00	No Ice 1/2" Ice 1" Ice	32.89 35.76 38.76	32.89 35.76 38.76	1.51 2.23 3.03
**********									
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	93.00	No Ice 1/2" Ice 1" Ice	8.01 8.52 9.04	4.23 4.69 5.16	0.11 0.19 0.29
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	93.00	No Ice 1/2" Ice 1" Ice	8.01 8.52 9.04	4.23 4.69 5.16	0.11 0.19 0.29
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00 0.00	0.0000	93.00	No Ice	8.01 8.52	4.23 4.69	0.11 0.19

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00				1/2" Ice	9.04	5.16	0.29
							1" Ice			
TA08025-B604	A	From Leg	4.00		0.0000	93.00	No Ice	1.96	0.98	0.06
			0.00				1/2" Ice	2.14	1.11	0.08
			0.00				1" Ice	2.32	1.25	0.10
TA08025-B604	B	From Leg	4.00		0.0000	93.00	No Ice	1.96	0.98	0.06
			0.00				1/2" Ice	2.14	1.11	0.08
			0.00				1" Ice	2.32	1.25	0.10
TA08025-B604	C	From Leg	4.00		0.0000	93.00	No Ice	1.96	0.98	0.06
			0.00				1/2" Ice	2.14	1.11	0.08
			0.00				1" Ice	2.32	1.25	0.10
TA08025-B605	A	From Leg	4.00		0.0000	93.00	No Ice	1.96	1.13	0.08
			0.00				1/2" Ice	2.14	1.27	0.09
			0.00				1" Ice	2.32	1.41	0.11
TA08025-B605	B	From Leg	4.00		0.0000	93.00	No Ice	1.96	1.13	0.08
			0.00				1/2" Ice	2.14	1.27	0.09
			0.00				1" Ice	2.32	1.41	0.11
TA08025-B605	C	From Leg	4.00		0.0000	93.00	No Ice	1.96	1.13	0.08
			0.00				1/2" Ice	2.14	1.27	0.09
			0.00				1" Ice	2.32	1.41	0.11
RDIDC-9181-PF-48	A	From Leg	4.00		0.0000	93.00	No Ice	2.31	1.29	0.02
			0.00				1/2" Ice	2.50	1.45	0.04
			0.00				1" Ice	2.70	1.61	0.06
(2) 8' x 2" Mount Pipe	A	From Leg	4.00		0.0000	93.00	No Ice	1.90	1.90	0.03
			0.00				1/2" Ice	2.73	2.73	0.04
			0.00				1" Ice	3.40	3.40	0.06
(2) 8' x 2" Mount Pipe	B	From Leg	4.00		0.0000	93.00	No Ice	1.90	1.90	0.03
			0.00				1/2" Ice	2.73	2.73	0.04
			0.00				1" Ice	3.40	3.40	0.06
(2) 8' x 2" Mount Pipe	C	From Leg	4.00		0.0000	93.00	No Ice	1.90	1.90	0.03
			0.00				1/2" Ice	2.73	2.73	0.04
			0.00				1" Ice	3.40	3.40	0.06
Commscope MC-PK8-DSH	C	None			0.0000	93.00	No Ice	34.24	34.24	1.75
							1/2" Ice	62.95	62.95	2.10
							1" Ice	91.66	91.66	2.45
**********										
**********										
BCD-87010	B	From Leg	2.00		60.0000	74.00	No Ice	2.90	2.90	0.03
			0.00				1/2" Ice	4.05	4.05	0.05
			6.00				1" Ice	5.21	5.21	0.08
Side Arm Mount [SO 701-1]	B	From Leg	0.00		60.0000	74.00	No Ice	0.85	1.67	0.07
			0.00				1/2" Ice	1.14	2.34	0.08
			0.00				1" Ice	1.43	3.01	0.09
**********										
KS24019-L112A	C	From Leg	4.00		0.0000	50.00	No Ice	0.10	0.10	0.01
			0.00				1/2" Ice	0.18	0.18	0.01
			2.00				1" Ice	0.26	0.26	0.01
Side Arm Mount [SO 701-1]	C	None			0.0000	50.00	No Ice	0.85	1.67	0.07
							1/2" Ice	1.14	2.34	0.08
								1.43	3.01	0.09

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
					1" Ice			
***								
**								
*								

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 K
VHLP2.5-11	B	Paraboloid w/Shroud (HP)	From Leg	4.00 0.00 4.00	3.0000		103.00	2.92	No Ice 1/2" Ice 1" Ice	6.68 7.07 7.46	0.03 0.04 0.05
VHLP2-180	C	Paraboloid w/Shroud (HP)	From Leg	4.00 0.00 4.00	86.0000		103.00	2.00	No Ice 1/2" Ice 1" Ice	3.14 3.41 3.68	0.03 0.04 0.06

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

Comb. No.	Description
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	140 - 86.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-44.04	-1.82	1.15
			Max. Mx	8	-25.31	-653.71	-3.42
			Max. My	2	-25.30	3.73	657.28
			Max. Vy	20	-24.99	652.81	4.39
			Max. Vx	14	25.13	-4.67	-656.30
			Max. Torque	22			-1.55
L2	86.83 - 38	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.94	-2.59	0.72
			Max. Mx	20	-40.59	1978.58	14.14
			Max. My	2	-40.58	15.47	1995.32
			Max. Vy	20	-30.76	1978.58	14.14
			Max. Vx	14	31.19	-14.79	-1995.01
			Max. Torque	24			-1.36
L3	38 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-89.51	-3.19	0.70
			Max. Mx	20	-61.63	3472.87	23.37
			Max. My	2	-61.63	26.58	3510.91
			Max. Vy	20	-35.60	3472.87	23.37
			Max. Vx	14	36.08	-24.05	-3510.90
			Max. Torque	24			-1.34

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	89.51	0.00	0.00
	Max. H_x	20	61.65	35.58	0.20
	Max. H_z	2	61.65	0.25	36.05
	Max. M_x	2	3510.91	0.25	36.05
	Max. M_z	8	3470.00	-35.53	-0.21
	Max. Torsion	12	1.16	-19.13	-33.07
	Min. Vert	13	46.24	-19.13	-33.07
	Min. H_x	8	61.65	-35.53	-0.21
	Min. H_z	14	61.65	-0.20	-36.05
	Min. M_x	14	-3510.90	-0.20	-36.05
	Min. M_z	20	-3472.87	35.58	0.20
	Min. Torsion	24	-1.34	19.16	33.09

Tower Mast Reaction Summary

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead Only	51.37	0.00	0.00	-0.30	-1.11	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	61.65	-0.25	-36.05	-3510.91	26.58	1.02
0.9 Dead+1.0 Wind 0 deg - No Ice	46.24	-0.25	-36.05	-3486.06	26.74	1.01
1.2 Dead+1.0 Wind 30 deg - No Ice	61.65	17.66	-30.83	-3012.60	-1723.15	0.75
0.9 Dead+1.0 Wind 30 deg - No Ice	46.24	17.66	-30.83	-2991.21	-1710.62	0.74
1.2 Dead+1.0 Wind 60 deg - No Ice	61.65	30.73	-17.69	-1727.08	-3001.18	0.04
0.9 Dead+1.0 Wind 60 deg - No Ice	46.24	30.73	-17.69	-1714.77	-2979.61	0.04
1.2 Dead+1.0 Wind 90 deg - No Ice	61.65	35.53	0.21	23.07	-3470.00	-0.46
0.9 Dead+1.0 Wind 90 deg - No Ice	46.24	35.53	0.21	23.00	-3445.13	-0.46
1.2 Dead+1.0 Wind 120 deg - No Ice	61.65	32.84	19.12	1833.59	-3145.50	-0.95
0.9 Dead+1.0 Wind 120 deg - No Ice	46.24	32.84	19.12	1820.82	-3123.10	-0.95
1.2 Dead+1.0 Wind 150 deg - No Ice	61.65	19.13	33.07	3135.46	-1814.85	-1.16
0.9 Dead+1.0 Wind 150 deg - No Ice	46.24	19.13	33.07	3113.68	-1801.84	-1.16
1.2 Dead+1.0 Wind 180 deg - No Ice	61.65	0.20	36.05	3510.90	-24.05	-1.02
0.9 Dead+1.0 Wind 180 deg - No Ice	46.24	0.20	36.05	3486.24	-23.53	-1.02
1.2 Dead+1.0 Wind 210 deg - No Ice	61.65	-17.60	30.87	3016.48	1713.95	-0.67
0.9 Dead+1.0 Wind 210 deg - No Ice	46.24	-17.60	30.87	2995.25	1702.19	-0.67
1.2 Dead+1.0 Wind 240 deg - No Ice	61.65	-30.78	17.63	1719.69	3003.68	0.04
0.9 Dead+1.0 Wind 240 deg - No Ice	46.24	-30.78	17.63	1707.62	2982.80	0.04
1.2 Dead+1.0 Wind 270 deg - No Ice	61.65	-35.58	-0.20	-23.37	3472.87	0.67
0.9 Dead+1.0 Wind 270 deg - No Ice	46.24	-35.58	-0.20	-23.10	3448.67	0.67
1.2 Dead+1.0 Wind 300 deg - No Ice	61.65	-32.88	-19.13	-1835.72	3146.36	1.18
0.9 Dead+1.0 Wind 300 deg - No Ice	46.24	-32.88	-19.13	-1822.75	3124.65	1.18
1.2 Dead+1.0 Wind 330 deg - No Ice	61.65	-19.16	-33.09	-3138.70	1815.75	1.34
0.9 Dead+1.0 Wind 330 deg - No Ice	46.24	-19.16	-33.09	-3116.70	1803.43	1.34
1.2 Dead+1.0 Ice+1.0 Temp	89.51	0.00	0.00	-0.70	-3.19	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	89.51	-0.04	-7.52	-742.55	1.69	0.22
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	89.51	3.73	-6.50	-641.78	-370.60	0.17
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	89.51	6.49	-3.73	-368.61	-642.63	0.03
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	89.51	7.50	0.04	3.54	-742.40	-0.07
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	89.51	6.51	3.78	372.53	-644.53	-0.19
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	89.51	3.77	6.52	642.49	-375.59	-0.24
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	89.51	0.04	7.52	741.19	-7.51	-0.23

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	89.51	-3.72	6.51	641.12	362.65	-0.16
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	89.51	-6.50	3.72	365.87	636.83	-0.02
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	89.51	-7.51	-0.04	-4.94	736.64	0.11
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	89.51	-6.51	-3.78	-374.28	638.40	0.23
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	89.51	-3.78	-6.52	-644.43	369.47	0.27
Dead+Wind 0 deg - Service	51.37	-0.05	-7.83	-759.37	4.89	0.22
Dead+Wind 30 deg - Service	51.37	3.83	-6.69	-651.62	-373.43	0.16
Dead+Wind 60 deg - Service	51.37	6.67	-3.84	-373.67	-649.77	0.01
Dead+Wind 90 deg - Service	51.37	7.71	0.04	4.75	-751.14	-0.10
Dead+Wind 120 deg - Service	51.37	7.13	4.15	396.23	-680.99	-0.21
Dead+Wind 150 deg - Service	51.37	4.15	7.18	677.75	-393.28	-0.25
Dead+Wind 180 deg - Service	51.37	0.04	7.83	758.90	-6.05	-0.22
Dead+Wind 210 deg - Service	51.37	-3.82	6.70	651.99	369.74	-0.15
Dead+Wind 240 deg - Service	51.37	-6.68	3.83	371.60	648.61	0.01
Dead+Wind 270 deg - Service	51.37	-7.73	-0.04	-5.28	750.06	0.15
Dead+Wind 300 deg - Service	51.37	-7.14	-4.15	-397.16	679.48	0.26
Dead+Wind 330 deg - Service	51.37	-4.16	-7.19	-678.91	391.77	0.29

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-51.37	0.00	0.00	51.37	0.00	0.000%
2	-0.25	-61.65	-36.05	0.25	61.65	36.05	0.000%
3	-0.25	-46.24	-36.05	0.25	46.24	36.05	0.000%
4	17.66	-61.65	-30.83	-17.66	61.65	30.83	0.000%
5	17.66	-46.24	-30.83	-17.66	46.24	30.83	0.000%
6	30.73	-61.65	-17.69	-30.73	61.65	17.69	0.000%
7	30.73	-46.24	-17.69	-30.73	46.24	17.69	0.000%
8	35.53	-61.65	0.21	-35.53	61.65	-0.21	0.000%
9	35.53	-46.24	0.21	-35.53	46.24	-0.21	0.000%
10	32.84	-61.65	19.12	-32.84	61.65	-19.12	0.000%
11	32.84	-46.24	19.12	-32.84	46.24	-19.12	0.000%
12	19.13	-61.65	33.07	-19.13	61.65	-33.07	0.000%
13	19.13	-46.24	33.07	-19.13	46.24	-33.07	0.000%
14	0.20	-61.65	36.05	-0.20	61.65	-36.05	0.000%
15	0.20	-46.24	36.05	-0.20	46.24	-36.05	0.000%
16	-17.60	-61.65	30.87	17.60	61.65	-30.87	0.000%
17	-17.60	-46.24	30.87	17.60	46.24	-30.87	0.000%
18	-30.78	-61.65	17.63	30.78	61.65	-17.63	0.000%
19	-30.78	-46.24	17.63	30.78	46.24	-17.63	0.000%
20	-35.58	-61.65	-0.20	35.58	61.65	0.20	0.000%
21	-35.58	-46.24	-0.20	35.58	46.24	0.20	0.000%
22	-32.88	-61.65	-19.13	32.88	61.65	19.13	0.000%
23	-32.88	-46.24	-19.13	32.88	46.24	19.13	0.000%
24	-19.16	-61.65	-33.09	19.16	61.65	33.09	0.000%
25	-19.16	-46.24	-33.09	19.16	46.24	33.09	0.000%
26	0.00	-89.51	0.00	0.00	89.51	0.00	0.000%
27	-0.04	-89.51	-7.52	0.04	89.51	7.52	0.000%
28	3.73	-89.51	-6.50	-3.73	89.51	6.50	0.000%
29	6.49	-89.51	-3.73	-6.49	89.51	3.73	0.000%
30	7.50	-89.51	0.04	-7.50	89.51	-0.04	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
31	6.51	-89.51	3.78	-6.51	89.51	-3.78	0.000%
32	3.77	-89.51	6.52	-3.77	89.51	-6.52	0.000%
33	0.04	-89.51	7.52	-0.04	89.51	-7.52	0.000%
34	-3.72	-89.51	6.51	3.72	89.51	-6.51	0.000%
35	-6.50	-89.51	3.72	6.50	89.51	-3.72	0.000%
36	-7.51	-89.51	-0.04	7.51	89.51	0.04	0.000%
37	-6.51	-89.51	-3.78	6.51	89.51	3.78	0.000%
38	-3.78	-89.51	-6.52	3.78	89.51	6.52	0.000%
39	-0.05	-51.37	-7.83	0.05	51.37	7.83	0.000%
40	3.83	-51.37	-6.69	-3.83	51.37	6.69	0.000%
41	6.67	-51.37	-3.84	-6.67	51.37	3.84	0.000%
42	7.71	-51.37	0.04	-7.71	51.37	-0.04	0.000%
43	7.13	-51.37	4.15	-7.13	51.37	-4.15	0.000%
44	4.15	-51.37	7.18	-4.15	51.37	-7.18	0.000%
45	0.04	-51.37	7.83	-0.04	51.37	-7.83	0.000%
46	-3.82	-51.37	6.70	3.82	51.37	-6.70	0.000%
47	-6.68	-51.37	3.83	6.68	51.37	-3.83	0.000%
48	-7.73	-51.37	-0.04	7.73	51.37	0.04	0.000%
49	-7.14	-51.37	-4.15	7.14	51.37	4.15	0.000%
50	-4.16	-51.37	-7.19	4.16	51.37	7.19	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00006783
3	Yes	4	0.00000001	0.00003851
4	Yes	5	0.00000001	0.00005251
5	Yes	4	0.00000001	0.00098157
6	Yes	5	0.00000001	0.00005165
7	Yes	4	0.00000001	0.00096563
8	Yes	4	0.00000001	0.00005651
9	Yes	4	0.00000001	0.00002964
10	Yes	5	0.00000001	0.00005543
11	Yes	5	0.00000001	0.00002616
12	Yes	5	0.00000001	0.00005651
13	Yes	5	0.00000001	0.00002678
14	Yes	4	0.00000001	0.00010884
15	Yes	4	0.00000001	0.00006793
16	Yes	5	0.00000001	0.00005065
17	Yes	4	0.00000001	0.00094728
18	Yes	5	0.00000001	0.00005100
19	Yes	4	0.00000001	0.00095405
20	Yes	4	0.00000001	0.00009736
21	Yes	4	0.00000001	0.00006028
22	Yes	5	0.00000001	0.00005845
23	Yes	5	0.00000001	0.00002767
24	Yes	5	0.00000001	0.00005333
25	Yes	4	0.00000001	0.00099193
26	Yes	4	0.00000001	0.00000001
27	Yes	4	0.00000001	0.00052674
28	Yes	4	0.00000001	0.00054739
29	Yes	4	0.00000001	0.00054699
30	Yes	4	0.00000001	0.00052707
31	Yes	4	0.00000001	0.00054893
32	Yes	4	0.00000001	0.00054886
33	Yes	4	0.00000001	0.00052420
34	Yes	4	0.00000001	0.00053969
35	Yes	4	0.00000001	0.00053807
36	Yes	4	0.00000001	0.00051995
37	Yes	4	0.00000001	0.00054435
38	Yes	4	0.00000001	0.00054645
39	Yes	4	0.00000001	0.00001020
40	Yes	4	0.00000001	0.00002322
41	Yes	4	0.00000001	0.00002239
42	Yes	4	0.00000001	0.00000981
43	Yes	4	0.00000001	0.00002335
44	Yes	4	0.00000001	0.00002561
45	Yes	4	0.00000001	0.00001039
46	Yes	4	0.00000001	0.00002136
47	Yes	4	0.00000001	0.00002173
48	Yes	4	0.00000001	0.00001009
49	Yes	4	0.00000001	0.00002638
50	Yes	4	0.00000001	0.00002239

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	140 - 86.83	11.086	43	0.6582	0.0011
L2	92.5 - 38	5.009	43	0.5129	0.0005
L3	45 - 0	1.169	43	0.2347	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
140.00	BXA-80063-4BF-EDIN-X w/ Mount Pipe	43	11.086	0.6582	0.0011	102356
126.00	APXVAARR24_43-U-NA20 w/ Mount Pipe	43	9.182	0.6255	0.0009	36556
117.00	7770.00 w/ Mount Pipe	43	7.988	0.6018	0.0008	22251
107.00	VHLP2.5-11	43	6.713	0.5708	0.0006	15508
104.00	800MHz 2X50W RRH W/FILTER	43	6.345	0.5602	0.0006	14216
103.00	AAHC w/ Mount Pipe	43	6.224	0.5566	0.0006	13831
93.00	MX08FRO665-21 w/ Mount Pipe	43	5.064	0.5152	0.0005	10982
74.00	BCD-87010	43	3.168	0.4132	0.0003	9513
50.00	KS24019-L112A	43	1.430	0.2648	0.0002	8259

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	140 - 86.83	51.240	22	3.0427	0.0049
L2	92.5 - 38	23.165	22	2.3727	0.0023
L3	45 - 0	5.408	22	1.0857	0.0007

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
140.00	BXA-80063-4BF-EDIN-X w/ Mount Pipe	22	51.240	3.0427	0.0049	22273
126.00	APXVAARR24_43-U-NA20 w/ Mount Pipe	22	42.446	2.8920	0.0040	7954
117.00	7770.00 w/ Mount Pipe	22	36.930	2.7827	0.0035	4840
107.00	VHLP2.5-11	22	31.042	2.6396	0.0030	3372
104.00	800MHz 2X50W RRH W/FILTER	22	29.340	2.5909	0.0028	3091
103.00	AAHC w/ Mount Pipe	22	28.780	2.5740	0.0028	3007
93.00	MX08FRO665-21 w/ Mount Pipe	22	23.421	2.3833	0.0023	2386
74.00	BCD-87010	22	14.652	1.9116	0.0015	2063
50.00	KS24019-L112A	22	6.613	1.2249	0.0008	1787

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	140 - 86.83 (1)	TP39.223x26.216x0.3125	53.17	0.00	0.0	37.7580	-25.24	2208.84	0.011
L2	86.83 - 38 (2)	TP50.56x37.2109x0.4063	54.50	0.00	0.0	63.3645	-40.53	3706.82	0.011
L3	38 - 0 (3)	TP59.05x48.0329x0.5	45.00	0.00	0.0	94.2655	-61.63	5514.53	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	140 - 86.83 (1)	TP39.223x26.216x0.3125	671.16	1838.14	0.365	0.00	1838.14	0.000
L2	86.83 - 38 (2)	TP50.56x37.2109x0.4063	2054.50	3995.66	0.514	0.00	3995.66	0.000
L3	38 - 0 (3)	TP59.05x48.0329x0.5	3642.72	7247.00	0.503	0.00	7247.00	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	140 - 86.83 (1)	TP39.223x26.216x0.3125	25.73	662.65	0.039	0.99	2187.20	0.000
L2	86.83 - 38 (2)	TP50.56x37.2109x0.4063	32.46	1112.05	0.029	1.18	4738.27	0.000
L3	38 - 0 (3)	TP59.05x48.0329x0.5	38.06	1654.36	0.023	1.18	8520.33	0.000

Pole Interaction Design Data

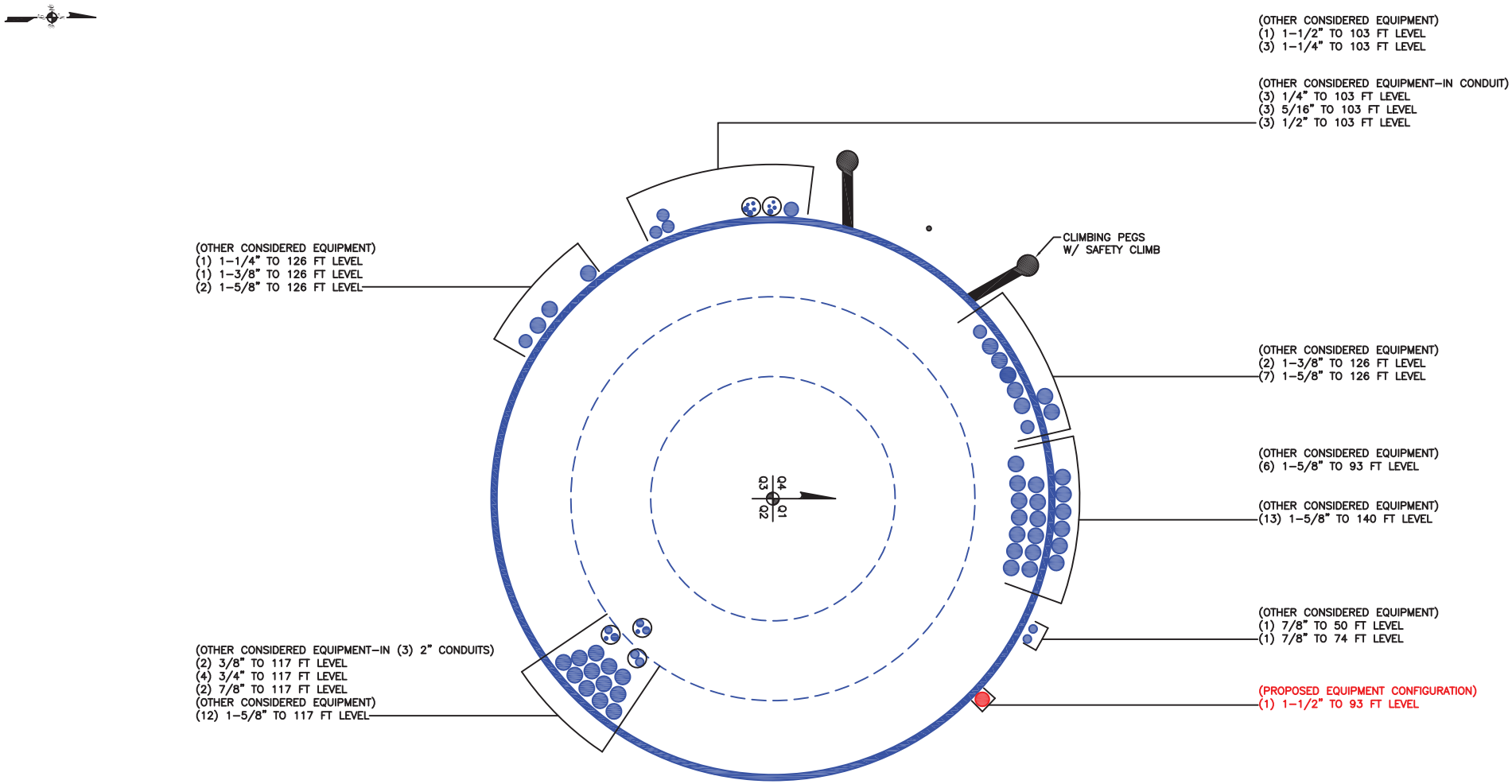
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	140 - 86.83 (1)	0.011	0.365	0.000	0.039	0.000	0.378	1.050	4.8.2
L2	86.83 - 38 (2)	0.011	0.514	0.000	0.029	0.000	0.526	1.050	4.8.2
L3	38 - 0 (3)	0.011	0.503	0.000	0.023	0.000	0.514	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	140 - 86.83	Pole	TP39.223x26.216x0.3125	1	-25.24	2319.28	36.0	Pass
L2	86.83 - 38	Pole	TP50.56x37.2109x0.4063	2	-40.53	3892.16	50.1	Pass
L3	38 - 0	Pole	TP59.05x48.0329x0.5	3	-61.63	5790.26	49.0	Pass
							Summary	
						Pole (L2)	50.1	Pass
						RATING =	**50.1**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


(OTHER CONSIDERED EQUIPMENT)
(1) 1-1/2" TO 103 FT LEVEL
(3) 1-1/4" TO 103 FT LEVEL
(OTHER CONSIDERED EQUIPMENT-IN CONDUIT)
(3) 1/4" TO 103 FT LEVEL
(3) 5/16" TO 103 FT LEVEL
(3) 1/2" TO 103 FT LEVEL
CLIMBING PEGS
W/ SAFETY CLIMB
(OTHER CONSIDERED EQUIPMENT)
(1) 1-1/4" TO 126 FT LEVEL
(1) 1-3/8" TO 126 FT LEVEL
(2) 1-5/8" TO 126 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(2) 1-3/8" TO 126 FT LEVEL
(7) 1-5/8" TO 126 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(6) 1-5/8" TO 93 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(13) 1-5/8" TO 140 FT LEVEL
Q4
Q3
Q1
Q2
(OTHER CONSIDERED EQUIPMENT)
(1) 7/8" TO 50 FT LEVEL
(1) 7/8" TO 74 FT LEVEL
(OTHER CONSIDERED EQUIPMENT-IN (3) 2" CONDUITS)
(2) 3/8" TO 117 FT LEVEL
(4) 3/4" TO 117 FT LEVEL
(2) 7/8" TO 117 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(12) 1-5/8" TO 117 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1-1/2" TO 93 FT LEVEL

APPENDIX C

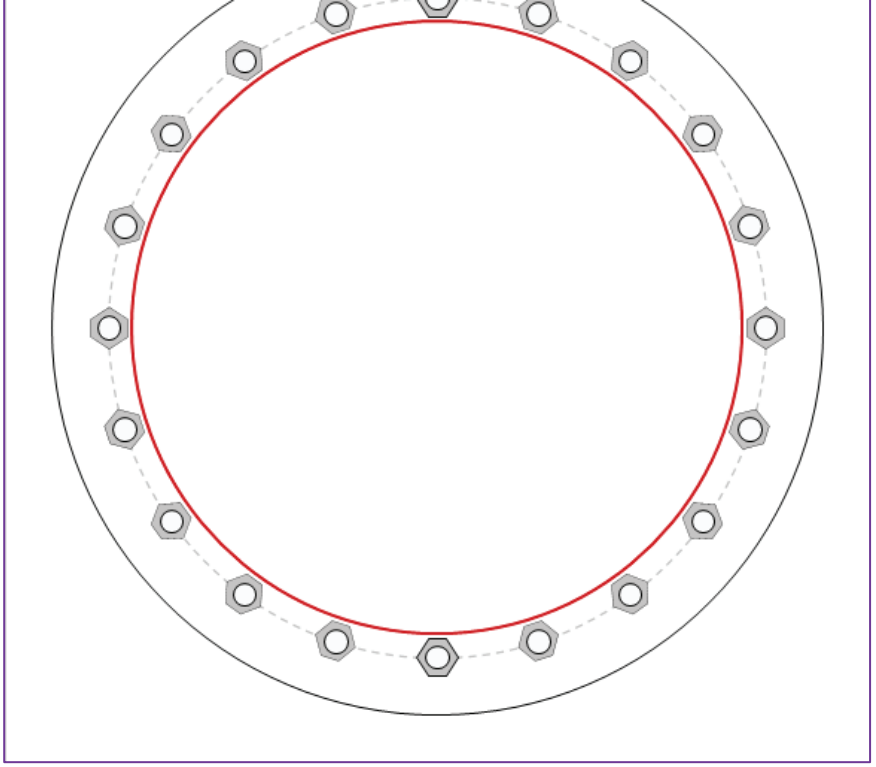
ADDITIONAL CALCULATIONS

Order #	556641, Rev 0

siderations	
22 Revision	H
Considered:	No
l_{ar} (in)	0.25

ls	
nent (kip-ft)	3642.72
Force (kips)	61.63
Force (kips)	38.06

ction 15.5 Applied



Connection Properties

Data

bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 63.5" BC

ata

3" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

ta

12-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary

(units of kip

Pu_t = 134.53	ϕPn_t = 243.75	**Stres**
Vu = 1.9	ϕVn = 149.1	**5**
Mu = n/a	ϕMn = n/a	

Base Plate Summary

Max Stress (ksi):	9.7	(Fl
Allowable Stress (ksi):	54	
Stress Rating:	**17.1%**	

Site Name:	HRT 094 943225
Order Number:	556641, Rev 0
TIA-222 Revison:	H
Tower Type:	Monopole

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

Applied Loads	Comp.	Uplift
Moment (kip-ft)	3642.73	
Axial Force (kips)	61.65	
Shear Force (kips)	38.04	

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

Pier Design Data		
Depth	47	ft
Ext. Above Grade	0	ft
Pier Section 1		
From 0' below grade to 47' below grade		
Pier Diameter	7.5	ft
Rebar Quantity	52	
Rebar Size	10	
bar Cage Diameter	82	in
Tie Size	4	
Tie Spacing		in

Rebar & Pier Options

Embedded Pole Inputs

Belled Pier Inputs

Analysis Results

Soil Lateral Check	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	7.59	-
Soil Safety Factor	6.97	-
Max Moment (kip-ft)	3862.90	-
Rating*	*18.2%*	-

Soil Vertical Check	*Compression*	*Uplift*
Skin Friction (kips)	406.44	-
End Bearing (kips)	298.21	-
Weight of Concrete (kips)	251.31	-
Total Capacity (kips)	704.65	-
Axial (kips)	312.96	-
Rating*	*42.3%*	-

Reinforced Concrete Flexure	*Compression*	*Uplift*
Critical Depth (ft from TOC)	7.52	-
Critical Moment (kip-ft)	3862.87	-
Critical Moment Capacity	10727.68	-
Rating*	*34.3%*	-

Reinforced Concrete Shear	*Compression*	*Uplift*
Critical Depth (ft from TOC)	25.54	-
Critical Shear (kip)	216.45	-
Critical Shear Capacity	563.37	-
Rating*	*36.6%*	-

Structural Foundation Rating*	**36.6%**
Soil Interaction Rating*	**42.3%**

*Rating per TIA-222-H Section 15.5

Soil Profile

oundwater Depth	10

# of Layers	8

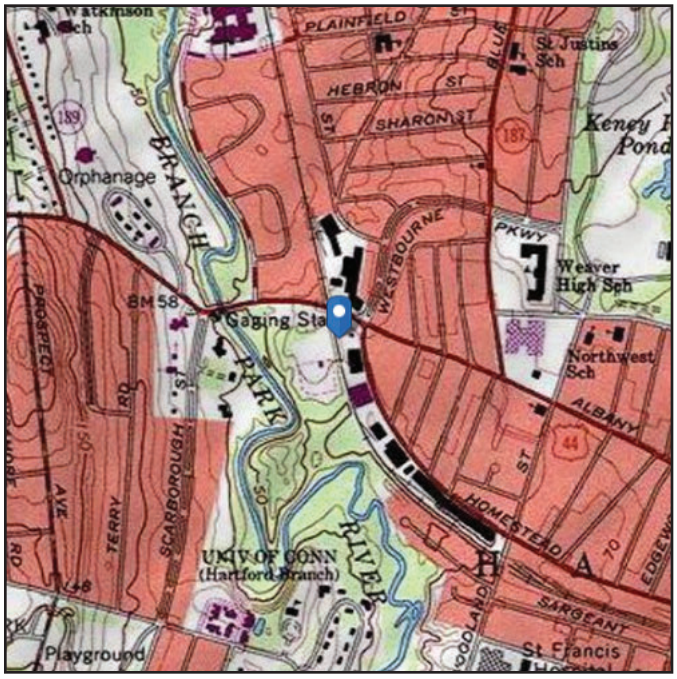
ayer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count
1	0	2	2	105	150	0	0	0.000	0.000	0.00	0.00		
2	2	3.75	1.75	100	150	0	0	0.000	0.000	0.00	0.00		
3	3.75	5	1.25	100	150	0.5	30	0.000	0.000	0.00	0.00		
4	5	10	5	100	150	0.5	30	0.000	0.000	0.60	0.60		
5	10	25	15	36	87.6	0.1	27	0.000	0.000	0.40	0.40		
6	25	35	10	36	87.6	0.1	27	0.000	0.000	0.60	0.60		
7	35	45	10	41	87.6	0.2	0	0.11	0.11	0.60	0.60		
8	45	47	2	41	87.6	0	32	0.00	0.00	1.00	1.00	9	

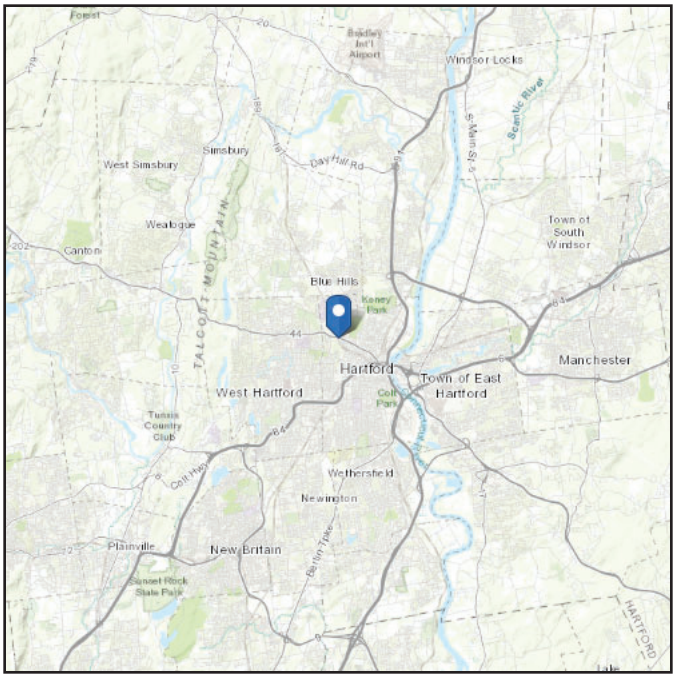
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 60.06 ft (NAVD 88)
Latitude: 41.783781
Longitude: -72.703794





Wind

Results:

Wind Speed:	122 Vmph	125 Vmph required by Jurisdiction
10-year MRI	76 Vmph	
25-year MRI	86 Vmph	
50-year MRI	92 Vmph	
100-year MRI	99 Vmph	

Data Accessed: Wed May 12 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.

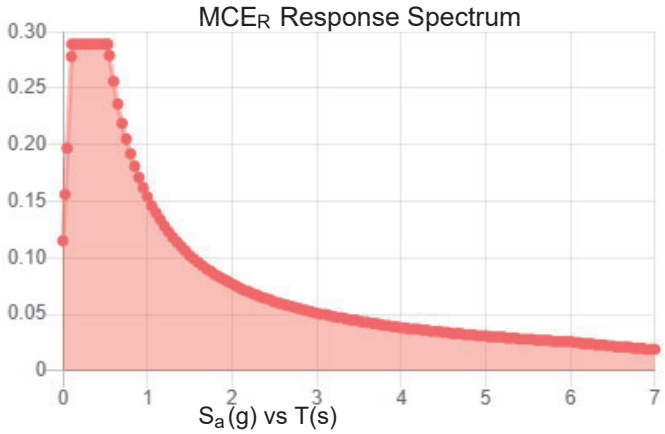
Seismic

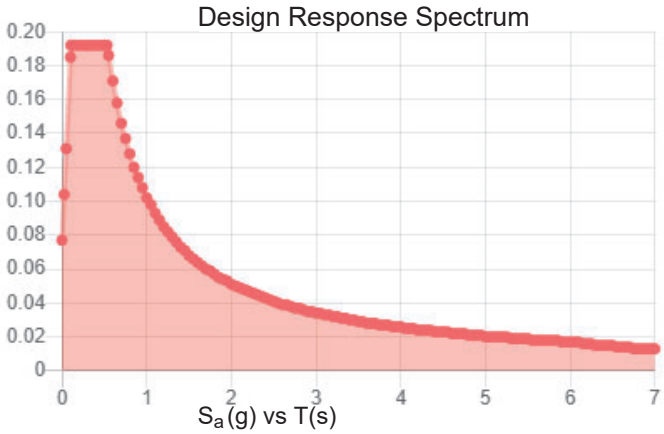
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.18	S_{DS} :	0.192
S_1 :	0.064	S_{D1} :	0.102
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.091
S_{MS} :	0.289	PGA_M :	0.145
S_{M1} :	0.154	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Wed May 12 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:	Wed May 12 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 30, 2021**

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

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

Subject:	**Mount Replacement Analysis Report**	
Carrier Designation:	**Dish Network Equipment Change out**	
	Carrier Site Number:	BOBDL00044A
	Carrier Site Name:	CT-CCI-T-806369
Crown Castle Designation:	**Crown Castle BU Number:**	806369
	Crown Castle Site Name:	HRT 094 943225
	Crown Castle JDE Job Number:	650039
	Crown Castle Order Number:	556641 Rev. *0*
Engineering Firm Designation:	**Trylon Report Designation:**	189050
Site Data:	**439-455 Homestead Ave, Hartford, Hartford County, CT, 06105**	
	Latitude 41°47'1.61" Longitude -72°42'13.66"	
Structure Information:	**Tower Height & Type:**	**140.0 ft Monopole**
	Mount Elevation:	**93.0 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 has been performed in accordance with the 2015 International Building Code based upon an ultimate 3-second gust wind speed of 125 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Mostafa Faghihnia, P.E.

Respectfully Submitted by:
Cliff Abernathy, P.E.

Cliff Abernathy
Digitally signed by Cliff Abernathy
Date: 2021.07.30 16:41:39 -04'00'

TABLE OF CONTENTS

1) INTRODUCTION

This is a proposed 3 sector 8.0 ft Platform Mount, 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:	B
Topographic Factor at Base:	1.0
Topographic Factor at Mount:	1.0
Ice Thickness:	2.0 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.181
Seismic S_1:	0.064
Live Loading Wind Speed:	60 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
93.0	93.0	3	JMA WIRELESS	MX08FRO665-21	8.0 ft Platform [Commscope MC-PK8-DSH]
		3	FUJITSU	TA08025-B604	
		3	FUJITSU	TA08025-B605	
		1	RAYCAP	RDIDC-9181-PF-48	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	Dish Network Application	556641 Rev. 0	CCI Sites
Mount Manufacturer Drawings	Commscope	MC-PK8-DSH	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	93.0	23.7	Pass
	Horizontal(s)	H1		11.1	Pass
	Standoff(s)	M2		58.5	Pass
	Bracing(s)	M1		47.0	Pass
	Handrail(s)	M19		8.9	Pass
	Mount Connection(s)	---		24.0	Pass

Structure Rating (max from all components) =	58.5%

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

4.1) Recommendations

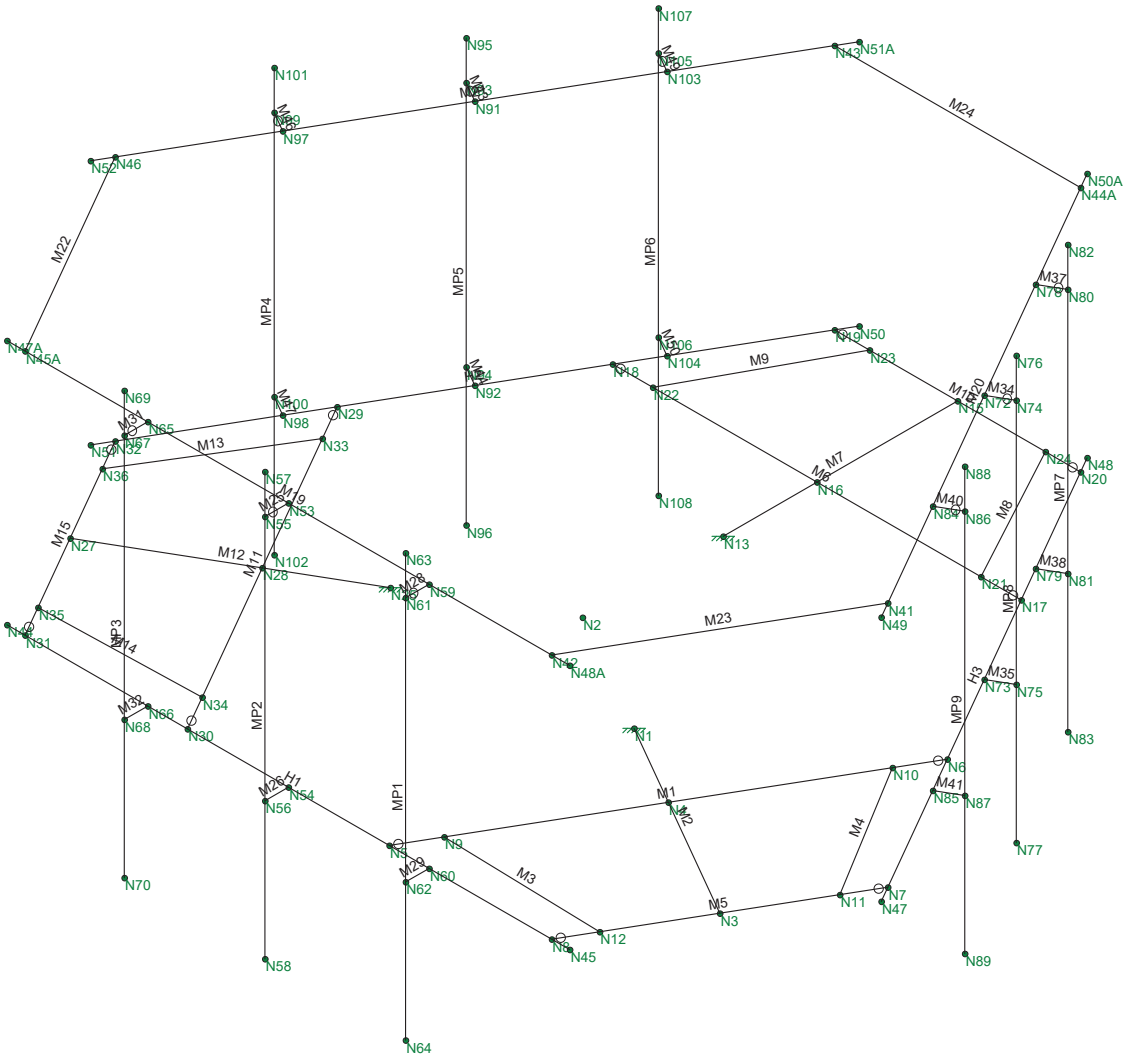
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the proposed mount listed below must be installed.

1. Commscope MC-PK8-DSH.

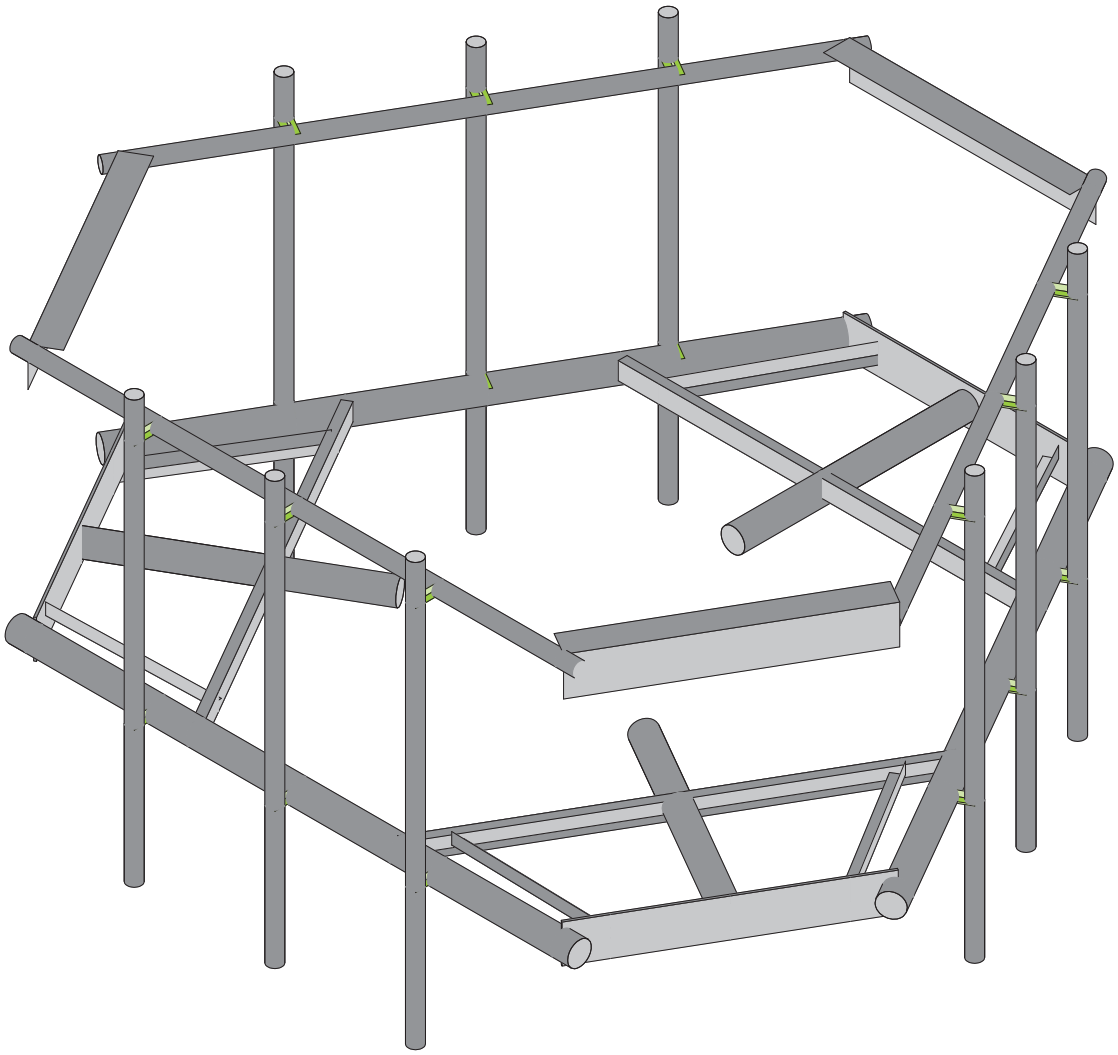
No structural modifications are required at this time, provided that the above-listed changes are implemented.

APPENDIX A

WIRE FRAME AND RENDERED MODELS



Trylon	806369	Wireframe
MFT		July 30, 2021 at 12:43 PM
189050		HRT094_loaded.r3d



Trylon	806369	Render
MFT		July 30, 2021 at 12:44 PM
189050		HRT094_loaded.r3d

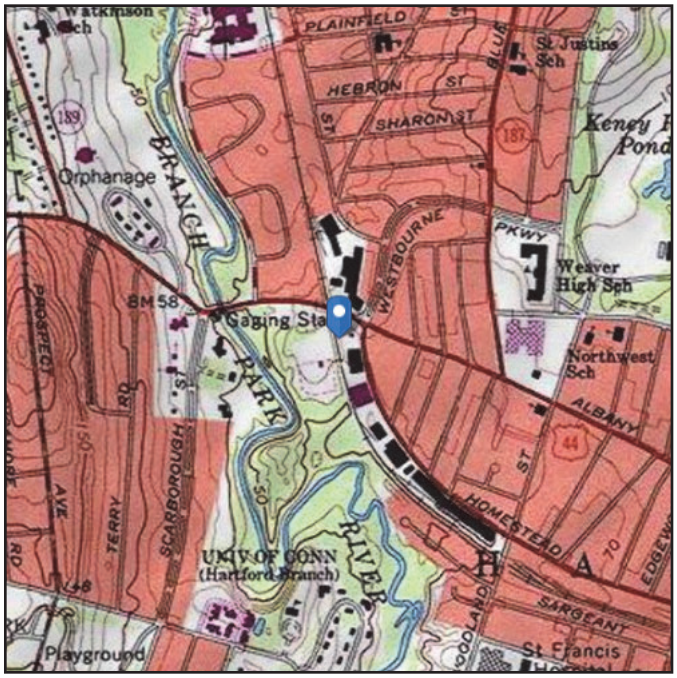
APPENDIX B

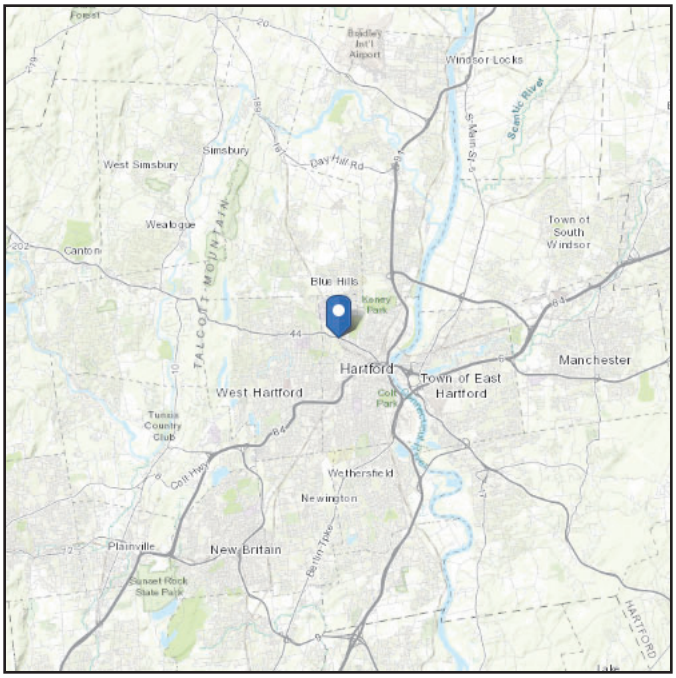
SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	60.06 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.783781
Soil Class:	D - Stiff Soil	**Longitude:**	-72.703794





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.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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

TIA LOAD CALCULATOR 2.0

PROJECT DATA	
Job Code:	189050
Carrier Site ID:	806369
Carrier Site Name:	HRT 094 943225

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

STRUCTURE DETAILS		
Mount Type:	Platform	--
Mount Elevation:	93.0	ft.
Number of Sectors:	3	--
Structure Type:	Monopole	--
Structure Height:	140.0	ft.

ANALYSIS CRITERIA		
Structure Risk Category:	II	--
Exposure Category:	B	--
Site Class:	D - Stiff Soil	--
Ground Elevation:	57.7	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):	0.97	--
Directionality Factor (K_d):	0.95	--
Gust Effect Factor (Gh):	1.00	--
Shielding Factor (K_a):	0.90	--
Velocity Pressure (q_z):	36.71	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}):	36.71	psf
Mount Ice Thickness (t_{iz}):	2.22	in

WIND STRUCTURE CALCULATIONS		
Flat Member Pressure:	66.07	psf
Round Member Pressure:	39.64	psf
Ice Wind Pressure:	7.27	psf

SEISMIC PARAMETERS		
Importance Factor (I_e):	1.00	--
Short Period Accel .(S_s):	0.18	g
1 Second Accel (S_1):	0.06	g
Short Period Des. (S_{DS}):	0.19	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	93	No Ice	8.01	3.21	82.50
MP2/MP5/MP8, 0/120/240	--	--	w/ Ice	10.18	5.12	379.49
TA08025-B604	3	93	No Ice	1.96	0.98	63.90
MP2/MP5/MP8, 0/120/240	--	--	w/ Ice	2.52	1.42	96.07
TA08025-B605	3	93	No Ice	1.96	1.13	75.00
MP2/MP5/MP8, 0/120/240	--	--	w/ Ice	2.52	1.59	102.08
RDIDC-9181-PF-48	1	93	No Ice	2.01	1.17	21.85
MP1, 0/0/0	--	--	w/ Ice	2.58	1.64	100.68
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
--	--	--	w/ Ice			
			No Ice			
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			No Ice			
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			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			

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	93	1.00	0.97	0.95	2.22	36.71	5.87
TA08025-B604	3	93	1.00	0.97	0.95	2.22	36.71	5.87
TA08025-B605	3	93	1.00	0.97	0.95	2.22	36.71	5.87
RDIDC-9181-PF-48	1	93	1.00	0.97	0.95	2.22	36.71	5.87

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	264.61	145.68	224.97	106.04	224.97	145.68
MP2/MP5/MP8, 0/120/240	--	w/ Ice	53.82	33.75	47.13	27.06	47.13	33.75
TA08025-B604	3	No Ice	64.86	40.52	56.75	32.41	56.75	40.52
MP2/MP5/MP8, 0/120/240	--	w/ Ice	13.33	8.96	11.88	7.50	11.88	8.96
TA08025-B605	3	No Ice	64.86	44.20	57.98	37.31	57.98	44.20
MP2/MP5/MP8, 0/120/240	--	w/ Ice	13.33	9.62	12.10	8.38	12.10	9.62
RDIDC-9181-PF-48	1	No Ice	66.46	45.56	59.49	38.59	59.49	45.56
MP1, 0/0/0	--	w/ Ice	13.63	9.92	12.39	8.68	12.39	9.92
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
		No Ice						
--	--	w/ Ice						
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		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	93	82.5	9.56
TA08025-B604	3	93	63.9	7.40
TA08025-B605	3	93	75	8.69
RDIDC-9181-PF-48	1	93	21.85	2.53

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

(Global) Model Settings

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

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

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

(Global) Model Settings, Continued

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

Hot Rolled Steel Properties

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

Hot Rolled Steel Section Sets

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

Joint Boundary Conditions

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

Member Primary Data

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

Member Primary Data (Continued)

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

Member Advanced Data

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

Member Advanced Data (Continued)

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

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	Standoff Br...	69.713			Lbyy						Lateral
2	M2	Standoffs	40			Lbyy						Lateral
3	M3	Grating Bra...	27.295			Lbyy						Lateral
4	M4	Grating Bra...	27.295			Lbyy						Lateral
5	M5	Plates	42			Lbyy						Lateral
6	M6	Standoff Br...	69.713	28	28	28	28	28				Lateral
7	M7	Standoffs	40			Lbyy						Lateral
8	M8	Grating Bra...	27.295			Lbyy						Lateral
9	M9	Grating Bra...	27.295			Lbyy						Lateral
10	M10	Plates	42			Lbyy						Lateral
11	M11	Standoff Br...	69.713			Lbyy						Lateral
12	M12	Standoffs	40			Lbyy						Lateral
13	M13	Grating Bra...	27.295			Lbyy						Lateral
14	M14	Grating Bra...	27.295			Lbyy						Lateral
15	M15	Plates	42			Lbyy						Lateral
16	H1	Horizontals	96			Lbyy						Lateral
17	H3	Horizontals	96			Lbyy						Lateral
18	H2	Horizontals	96			Lbyy						Lateral
19	M19	Handrails	96			Lbyy						Lateral
20	M20	Handrails	96			Lbyy						Lateral
21	M21	Handrails	96			Lbyy						Lateral
22	M22	Handrail Co...	42			Lbyy						Lateral
23	M23	Handrail Co...	42			Lbyy						Lateral
24	M24	Handrail Co...	42			Lbyy						Lateral
25	MP2	Mount Pipes	72			Lbyy						Lateral
26	MP1	Mount Pipes	72			Lbyy						Lateral
27	MP3	Mount Pipes	72			Lbyy						Lateral
28	MP8	Mount Pipes	72			Lbyy						Lateral
29	MP7	Mount Pipes	72			Lbyy						Lateral
30	MP9	Mount Pipes	72			Lbyy						Lateral
31	MP5	Mount Pipes	72			Lbyy						Lateral
32	MP4	Mount Pipes	72			Lbyy						Lateral
33	MP6	Mount Pipes	72			Lbyy						Lateral

Joint Loads and Enforced Displacements

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

Member Point Loads (BLC 1 : Self Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Y	-41.25	0
2	MP2	Y	-41.25	72
3	MP2	Y	-63.9	27.625
4	MP2	Y	-75	27.625
5	MP1	Y	-21.85	27.625
6	MP5	Y	-41.25	0
7	MP5	Y	-41.25	72
8	MP5	Y	-63.9	27.625
9	MP5	Y	-75	27.625
10	MP8	Y	-41.25	0
11	MP8	Y	-41.25	72
12	MP8	Y	-63.9	27.625
13	MP8	Y	-75	27.625

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	-132.305	0
2	MP2	Z	-132.305	72
3	MP2	Z	-64.864	27.625
4	MP2	Z	-64.864	27.625
5	MP1	Z	-66.462	27.625
6	MP5	Z	-72.842	0
7	MP5	Z	-72.842	72
8	MP5	Z	-40.525	27.625
9	MP5	Z	-44.2	27.625
10	MP8	Z	-72.842	0
11	MP8	Z	-72.842	72
12	MP8	Z	-40.525	27.625
13	MP8	Z	-44.2	27.625
14	MP2	X	0	0
15	MP2	X	0	72
16	MP2	X	0	27.625
17	MP2	X	0	27.625
18	MP1	X	0	27.625
19	MP5	X	0	0
20	MP5	X	0	72
21	MP5	X	0	27.625
22	MP5	X	0	27.625
23	MP8	X	0	0
24	MP8	X	0	72
25	MP8	X	0	27.625
26	MP8	X	0	27.625

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

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

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	-97.414	0
2	MP2	Z	-97.414	72
3	MP2	Z	-49.148	27.625
4	MP2	Z	-50.209	27.625
5	MP1	Z	-51.524	27.625
6	MP5	Z	-97.414	0
7	MP5	Z	-97.414	72
8	MP5	Z	-49.148	27.625
9	MP5	Z	-50.209	27.625
10	MP8	Z	-45.918	0
11	MP8	Z	-45.918	72
12	MP8	Z	-28.069	27.625
13	MP8	Z	-32.313	27.625
14	MP2	X	-56.242	0
15	MP2	X	-56.242	72
16	MP2	X	-28.375	27.625
17	MP2	X	-28.988	27.625
18	MP1	X	-29.747	27.625
19	MP5	X	-56.242	0
20	MP5	X	-56.242	72
21	MP5	X	-28.375	27.625
22	MP5	X	-28.988	27.625
23	MP8	X	-26.51	0
24	MP8	X	-26.51	72
25	MP8	X	-16.206	27.625
26	MP8	X	-18.656	27.625

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	-65.523	0
2	MP2	Z	-65.523	72
3	MP2	Z	-34.392	27.625
4	MP2	Z	-36.125	27.625
5	MP1	Z	-37.142	27.625
6	MP5	Z	-89.798	0
7	MP5	Z	-89.798	72
8	MP5	Z	-44.329	27.625
9	MP5	Z	-44.561	27.625
10	MP8	Z	-41.247	0
11	MP8	Z	-41.247	72
12	MP8	Z	-24.456	27.625
13	MP8	Z	-27.689	27.625
14	MP2	X	-65.523	0
15	MP2	X	-65.523	72
16	MP2	X	-34.392	27.625
17	MP2	X	-36.125	27.625
18	MP1	X	-37.142	27.625
19	MP5	X	-89.798	0
20	MP5	X	-89.798	72
21	MP5	X	-44.329	27.625
22	MP5	X	-44.561	27.625

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
23	MP8	X	-41.247	0
24	MP8	X	-41.247	72
25	MP8	X	-24.456	27.625
26	MP8	X	-27.689	27.625

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	-36.421	0
2	MP2	Z	-36.421	72
3	MP2	Z	-20.262	27.625
4	MP2	Z	-22.1	27.625
5	MP1	Z	-22.779	27.625
6	MP5	Z	-66.152	0
7	MP5	Z	-66.152	72
8	MP5	Z	-32.432	27.625
9	MP5	Z	-32.432	27.625
10	MP8	Z	-36.421	0
11	MP8	Z	-36.421	72
12	MP8	Z	-20.262	27.625
13	MP8	Z	-22.1	27.625
14	MP2	X	-63.083	0
15	MP2	X	-63.083	72
16	MP2	X	-35.095	27.625
17	MP2	X	-38.278	27.625
18	MP1	X	-39.455	27.625
19	MP5	X	-114.579	0
20	MP5	X	-114.579	72
21	MP5	X	-56.174	27.625
22	MP5	X	-56.174	27.625
23	MP8	X	-63.083	0
24	MP8	X	-63.083	72
25	MP8	X	-35.095	27.625
26	MP8	X	-38.278	27.625

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	-3.247e-15	0
2	MP2	Z	-3.247e-15	72
3	MP2	Z	-1.985e-15	27.625
4	MP2	Z	-2.285e-15	27.625
5	MP1	Z	-2.363e-15	27.625
6	MP5	Z	-6.888e-15	0
7	MP5	Z	-6.888e-15	72
8	MP5	Z	-3.475e-15	27.625
9	MP5	Z	-3.55e-15	27.625
10	MP8	Z	-6.888e-15	0
11	MP8	Z	-6.888e-15	72
12	MP8	Z	-3.475e-15	27.625
13	MP8	Z	-3.55e-15	27.625
14	MP2	X	-53.021	0
15	MP2	X	-53.021	72

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
16	MP2	X	-32.411	27.625
17	MP2	X	-37.312	27.625
18	MP1	X	-38.591	27.625
19	MP5	X	-112.484	0
20	MP5	X	-112.484	72
21	MP5	X	-56.751	27.625
22	MP5	X	-57.976	27.625
23	MP8	X	-112.484	0
24	MP8	X	-112.484	72
25	MP8	X	-56.751	27.625
26	MP8	X	-57.976	27.625

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	36.421	0
2	MP2	Z	36.421	72
3	MP2	Z	20.262	27.625
4	MP2	Z	22.1	27.625
5	MP1	Z	22.779	27.625
6	MP5	Z	36.421	0
7	MP5	Z	36.421	72
8	MP5	Z	20.262	27.625
9	MP5	Z	22.1	27.625
10	MP8	Z	66.152	0
11	MP8	Z	66.152	72
12	MP8	Z	32.432	27.625
13	MP8	Z	32.432	27.625
14	MP2	X	-63.083	0
15	MP2	X	-63.083	72
16	MP2	X	-35.095	27.625
17	MP2	X	-38.278	27.625
18	MP1	X	-39.455	27.625
19	MP5	X	-63.083	0
20	MP5	X	-63.083	72
21	MP5	X	-35.095	27.625
22	MP5	X	-38.278	27.625
23	MP8	X	-114.579	0
24	MP8	X	-114.579	72
25	MP8	X	-56.174	27.625
26	MP8	X	-56.174	27.625

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	65.523	0
2	MP2	Z	65.523	72
3	MP2	Z	34.392	27.625
4	MP2	Z	36.125	27.625
5	MP1	Z	37.142	27.625
6	MP5	Z	41.247	0
7	MP5	Z	41.247	72
8	MP5	Z	24.456	27.625

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
9	MP5	Z	27.689	27.625
10	MP8	Z	89.798	0
11	MP8	Z	89.798	72
12	MP8	Z	44.329	27.625
13	MP8	Z	44.561	27.625
14	MP2	X	-65.523	0
15	MP2	X	-65.523	72
16	MP2	X	-34.392	27.625
17	MP2	X	-36.125	27.625
18	MP1	X	-37.142	27.625
19	MP5	X	-41.247	0
20	MP5	X	-41.247	72
21	MP5	X	-24.456	27.625
22	MP5	X	-27.689	27.625
23	MP8	X	-89.798	0
24	MP8	X	-89.798	72
25	MP8	X	-44.329	27.625
26	MP8	X	-44.561	27.625

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	97.414	0
2	MP2	Z	97.414	72
3	MP2	Z	49.148	27.625
4	MP2	Z	50.209	27.625
5	MP1	Z	51.524	27.625
6	MP5	Z	45.918	0
7	MP5	Z	45.918	72
8	MP5	Z	28.069	27.625
9	MP5	Z	32.313	27.625
10	MP8	Z	97.414	0
11	MP8	Z	97.414	72
12	MP8	Z	49.148	27.625
13	MP8	Z	50.209	27.625
14	MP2	X	-56.242	0
15	MP2	X	-56.242	72
16	MP2	X	-28.375	27.625
17	MP2	X	-28.988	27.625
18	MP1	X	-29.747	27.625
19	MP5	X	-26.51	0
20	MP5	X	-26.51	72
21	MP5	X	-16.206	27.625
22	MP5	X	-18.656	27.625
23	MP8	X	-56.242	0
24	MP8	X	-56.242	72
25	MP8	X	-28.375	27.625
26	MP8	X	-28.988	27.625

Member Point Loads (BLC 12 : Ice Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Y	-189.744	0

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
2	MP2	Y	-189.744	72
3	MP2	Y	-96.068	27.625
4	MP2	Y	-102.082	27.625
5	MP1	Y	-100.682	27.625
6	MP5	Y	-189.744	0
7	MP5	Y	-189.744	72
8	MP5	Y	-96.068	27.625
9	MP5	Y	-102.082	27.625
10	MP8	Y	-189.744	0
11	MP8	Y	-189.744	72
12	MP8	Y	-96.068	27.625
13	MP8	Y	-102.082	27.625

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	-26.911	0
2	MP2	Z	-26.911	72
3	MP2	Z	-13.334	27.625
4	MP2	Z	-13.334	27.625
5	MP1	Z	-13.632	27.625
6	MP5	Z	-16.874	0
7	MP5	Z	-16.874	72
8	MP5	Z	-8.959	27.625
9	MP5	Z	-9.619	27.625
10	MP8	Z	-16.874	0
11	MP8	Z	-16.874	72
12	MP8	Z	-8.959	27.625
13	MP8	Z	-9.619	27.625
14	MP2	X	0	0
15	MP2	X	0	72
16	MP2	X	0	27.625
17	MP2	X	0	27.625
18	MP1	X	0	27.625
19	MP5	X	0	0
20	MP5	X	0	72
21	MP5	X	0	27.625
22	MP5	X	0	27.625
23	MP8	X	0	0
24	MP8	X	0	72
25	MP8	X	0	27.625
26	MP8	X	0	27.625

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	-20.408	0
2	MP2	Z	-20.408	72
3	MP2	Z	-10.284	27.625
4	MP2	Z	-10.475	27.625
5	MP1	Z	-10.733	27.625
6	MP5	Z	-20.408	0
7	MP5	Z	-20.408	72

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
8	MP5	Z	-10.284	27.625
9	MP5	Z	-10.475	27.625
10	MP8	Z	-11.716	0
11	MP8	Z	-11.716	72
12	MP8	Z	-6.495	27.625
13	MP8	Z	-7.258	27.625
14	MP2	X	-11.783	0
15	MP2	X	-11.783	72
16	MP2	X	-5.938	27.625
17	MP2	X	-6.048	27.625
18	MP1	X	-6.197	27.625
19	MP5	X	-11.783	0
20	MP5	X	-11.783	72
21	MP5	X	-5.938	27.625
22	MP5	X	-6.048	27.625
23	MP8	X	-6.764	0
24	MP8	X	-6.764	72
25	MP8	X	-3.75	27.625
26	MP8	X	-4.19	27.625

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	-14.298	0
2	MP2	Z	-14.298	72
3	MP2	Z	-7.366	27.625
4	MP2	Z	-7.677	27.625
5	MP1	Z	-7.888	27.625
6	MP5	Z	-18.395	0
7	MP5	Z	-18.395	72
8	MP5	Z	-9.152	27.625
9	MP5	Z	-9.194	27.625
10	MP8	Z	-10.2	0
11	MP8	Z	-10.2	72
12	MP8	Z	-5.58	27.625
13	MP8	Z	-6.16	27.625
14	MP2	X	-14.298	0
15	MP2	X	-14.298	72
16	MP2	X	-7.366	27.625
17	MP2	X	-7.677	27.625
18	MP1	X	-7.888	27.625
19	MP5	X	-18.395	0
20	MP5	X	-18.395	72
21	MP5	X	-9.152	27.625
22	MP5	X	-9.194	27.625
23	MP8	X	-10.2	0
24	MP8	X	-10.2	72
25	MP8	X	-5.58	27.625
26	MP8	X	-6.16	27.625

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

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

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	-8.437	0
2	MP2	Z	-8.437	72
3	MP2	Z	-4.479	27.625
4	MP2	Z	-4.809	27.625
5	MP1	Z	-4.958	27.625
6	MP5	Z	-13.456	0
7	MP5	Z	-13.456	72
8	MP5	Z	-6.667	27.625
9	MP5	Z	-6.667	27.625
10	MP8	Z	-8.437	0
11	MP8	Z	-8.437	72
12	MP8	Z	-4.479	27.625
13	MP8	Z	-4.809	27.625
14	MP2	X	-14.613	0
15	MP2	X	-14.613	72
16	MP2	X	-7.758	27.625
17	MP2	X	-8.33	27.625
18	MP1	X	-8.588	27.625
19	MP5	X	-23.306	0
20	MP5	X	-23.306	72
21	MP5	X	-11.547	27.625
22	MP5	X	-11.547	27.625
23	MP8	X	-14.613	0
24	MP8	X	-14.613	72
25	MP8	X	-7.758	27.625
26	MP8	X	-8.33	27.625

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	-8.284e-16	0
2	MP2	Z	-8.284e-16	72
3	MP2	Z	-4.593e-16	27.625
4	MP2	Z	-5.131e-16	27.625
5	MP1	Z	-5.314e-16	27.625
6	MP5	Z	-1.443e-15	0
7	MP5	Z	-1.443e-15	72
8	MP5	Z	-7.272e-16	27.625
9	MP5	Z	-7.406e-16	27.625
10	MP8	Z	-1.443e-15	0
11	MP8	Z	-1.443e-15	72
12	MP8	Z	-7.272e-16	27.625
13	MP8	Z	-7.406e-16	27.625
14	MP2	X	-13.528	0
15	MP2	X	-13.528	72
16	MP2	X	-7.5	27.625
17	MP2	X	-8.38	27.625
18	MP1	X	-8.678	27.625
19	MP5	X	-23.566	0
20	MP5	X	-23.566	72
21	MP5	X	-11.875	27.625
22	MP5	X	-12.095	27.625

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
23	MP8	X	-23.566	0
24	MP8	X	-23.566	72
25	MP8	X	-11.875	27.625
26	MP8	X	-12.095	27.625

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	8.437	0
2	MP2	Z	8.437	72
3	MP2	Z	4.479	27.625
4	MP2	Z	4.809	27.625
5	MP1	Z	4.958	27.625
6	MP5	Z	8.437	0
7	MP5	Z	8.437	72
8	MP5	Z	4.479	27.625
9	MP5	Z	4.809	27.625
10	MP8	Z	13.456	0
11	MP8	Z	13.456	72
12	MP8	Z	6.667	27.625
13	MP8	Z	6.667	27.625
14	MP2	X	-14.613	0
15	MP2	X	-14.613	72
16	MP2	X	-7.758	27.625
17	MP2	X	-8.33	27.625
18	MP1	X	-8.588	27.625
19	MP5	X	-14.613	0
20	MP5	X	-14.613	72
21	MP5	X	-7.758	27.625
22	MP5	X	-8.33	27.625
23	MP8	X	-23.306	0
24	MP8	X	-23.306	72
25	MP8	X	-11.547	27.625
26	MP8	X	-11.547	27.625

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	14.298	0
2	MP2	Z	14.298	72
3	MP2	Z	7.366	27.625
4	MP2	Z	7.677	27.625
5	MP1	Z	7.888	27.625
6	MP5	Z	10.2	0
7	MP5	Z	10.2	72
8	MP5	Z	5.58	27.625
9	MP5	Z	6.16	27.625
10	MP8	Z	18.395	0
11	MP8	Z	18.395	72
12	MP8	Z	9.152	27.625
13	MP8	Z	9.194	27.625
14	MP2	X	-14.298	0
15	MP2	X	-14.298	72

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
16	MP2	X	-7.366	27.625
17	MP2	X	-7.677	27.625
18	MP1	X	-7.888	27.625
19	MP5	X	-10.2	0
20	MP5	X	-10.2	72
21	MP5	X	-5.58	27.625
22	MP5	X	-6.16	27.625
23	MP8	X	-18.395	0
24	MP8	X	-18.395	72
25	MP8	X	-9.152	27.625
26	MP8	X	-9.194	27.625

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	20.408	0
2	MP2	Z	20.408	72
3	MP2	Z	10.284	27.625
4	MP2	Z	10.475	27.625
5	MP1	Z	10.733	27.625
6	MP5	Z	11.716	0
7	MP5	Z	11.716	72
8	MP5	Z	6.495	27.625
9	MP5	Z	7.258	27.625
10	MP8	Z	20.408	0
11	MP8	Z	20.408	72
12	MP8	Z	10.284	27.625
13	MP8	Z	10.475	27.625
14	MP2	X	-11.783	0
15	MP2	X	-11.783	72
16	MP2	X	-5.938	27.625
17	MP2	X	-6.048	27.625
18	MP1	X	-6.197	27.625
19	MP5	X	-6.764	0
20	MP5	X	-6.764	72
21	MP5	X	-3.75	27.625
22	MP5	X	-4.19	27.625
23	MP8	X	-11.783	0
24	MP8	X	-11.783	72
25	MP8	X	-5.938	27.625
26	MP8	X	-6.048	27.625

Member Point Loads (BLC 23 : Seismic Load Z)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	Z	-4.778	0
2	MP2	Z	-4.778	72
3	MP2	Z	-7.402	27.625
4	MP2	Z	-8.688	27.625
5	MP1	Z	-2.531	27.625
6	MP5	Z	-4.778	0
7	MP5	Z	-4.778	72
8	MP5	Z	-7.402	27.625

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
9	MP5	Z	-8.688	27.625
10	MP8	Z	-4.778	0
11	MP8	Z	-4.778	72
12	MP8	Z	-7.402	27.625
13	MP8	Z	-8.688	27.625

Member Point Loads (BLC 24 : Seismic Load X)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP2	X	-4.778	0
2	MP2	X	-4.778	72
3	MP2	X	-7.402	27.625
4	MP2	X	-8.688	27.625
5	MP1	X	-2.531	27.625
6	MP5	X	-4.778	0
7	MP5	X	-4.778	72
8	MP5	X	-7.402	27.625
9	MP5	X	-8.688	27.625
10	MP8	X	-4.778	0
11	MP8	X	-4.778	72
12	MP8	X	-7.402	27.625
13	MP8	X	-8.688	27.625

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Member Distributed Loads (BLC 2 : Structure Wind Z)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	M1	SZ	-66.07	-66.07	0	%100
2	M2	SZ	-39.642	-39.642	0	%100
3	M3	SZ	-66.07	-66.07	0	%100
4	M4	SZ	-66.07	-66.07	0	%100
5	M5	SZ	-66.07	-66.07	0	%100
6	M6	SZ	-66.07	-66.07	0	%100
7	M7	SZ	-39.642	-39.642	0	%100
8	M8	SZ	-66.07	-66.07	0	%100
9	M9	SZ	-66.07	-66.07	0	%100
10	M10	SZ	-66.07	-66.07	0	%100
11	M11	SZ	-66.07	-66.07	0	%100
12	M12	SZ	-39.642	-39.642	0	%100
13	M13	SZ	-66.07	-66.07	0	%100
14	M14	SZ	-66.07	-66.07	0	%100
15	M15	SZ	-66.07	-66.07	0	%100
16	H1	SZ	-39.642	-39.642	0	%100
17	H3	SZ	-39.642	-39.642	0	%100
18	H2	SZ	-39.642	-39.642	0	%100
19	M19	SZ	-39.642	-39.642	0	%100
20	M20	SZ	-39.642	-39.642	0	%100
21	M21	SZ	-39.642	-39.642	0	%100
22	M22	SZ	-66.07	-66.07	0	%100
23	M23	SZ	-66.07	-66.07	0	%100
24	M24	SZ	-66.07	-66.07	0	%100
25	M25	SZ	-66.07	-66.07	0	%100
26	M26	SZ	-66.07	-66.07	0	%100
27	MP2	SZ	-39.642	-39.642	0	%100
28	M28	SZ	-66.07	-66.07	0	%100
29	M29	SZ	-66.07	-66.07	0	%100
30	MP1	SZ	-39.642	-39.642	0	%100
31	M31	SZ	-66.07	-66.07	0	%100
32	M32	SZ	-66.07	-66.07	0	%100
33	MP3	SZ	-39.642	-39.642	0	%100
34	M34	SZ	-66.07	-66.07	0	%100
35	M35	SZ	-66.07	-66.07	0	%100
36	MP8	SZ	-39.642	-39.642	0	%100
37	M37	SZ	-66.07	-66.07	0	%100
38	M38	SZ	-66.07	-66.07	0	%100
39	MP7	SZ	-39.642	-39.642	0	%100
40	M40	SZ	-66.07	-66.07	0	%100
41	M41	SZ	-66.07	-66.07	0	%100
42	MP9	SZ	-39.642	-39.642	0	%100
43	M43	SZ	-66.07	-66.07	0	%100
44	M44	SZ	-66.07	-66.07	0	%100
45	MP5	SZ	-39.642	-39.642	0	%100
46	M46	SZ	-66.07	-66.07	0	%100
47	M47	SZ	-66.07	-66.07	0	%100
48	MP4	SZ	-39.642	-39.642	0	%100
49	M49	SZ	-66.07	-66.07	0	%100
50	M50	SZ	-66.07	-66.07	0	%100
51	MP6	SZ	-39.642	-39.642	0	%100

Member Distributed Loads (BLC 3 : Structure Wind X)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	M1	SX	-66.07	-66.07	0	%100
2	M2	SX	-39.642	-39.642	0	%100
3	M3	SX	-66.07	-66.07	0	%100
4	M4	SX	-66.07	-66.07	0	%100
5	M5	SX	-66.07	-66.07	0	%100
6	M6	SX	-66.07	-66.07	0	%100
7	M7	SX	-39.642	-39.642	0	%100
8	M8	SX	-66.07	-66.07	0	%100
9	M9	SX	-66.07	-66.07	0	%100
10	M10	SX	-66.07	-66.07	0	%100
11	M11	SX	-66.07	-66.07	0	%100
12	M12	SX	-39.642	-39.642	0	%100
13	M13	SX	-66.07	-66.07	0	%100
14	M14	SX	-66.07	-66.07	0	%100
15	M15	SX	-66.07	-66.07	0	%100
16	H1	SX	-39.642	-39.642	0	%100
17	H3	SX	-39.642	-39.642	0	%100
18	H2	SX	-39.642	-39.642	0	%100
19	M19	SX	-39.642	-39.642	0	%100
20	M20	SX	-39.642	-39.642	0	%100
21	M21	SX	-39.642	-39.642	0	%100
22	M22	SX	-66.07	-66.07	0	%100
23	M23	SX	-66.07	-66.07	0	%100
24	M24	SX	-66.07	-66.07	0	%100
25	M25	SX	-66.07	-66.07	0	%100
26	M26	SX	-66.07	-66.07	0	%100
27	MP2	SX	-39.642	-39.642	0	%100
28	M28	SX	-66.07	-66.07	0	%100
29	M29	SX	-66.07	-66.07	0	%100
30	MP1	SX	-39.642	-39.642	0	%100
31	M31	SX	-66.07	-66.07	0	%100
32	M32	SX	-66.07	-66.07	0	%100
33	MP3	SX	-39.642	-39.642	0	%100
34	M34	SX	-66.07	-66.07	0	%100
35	M35	SX	-66.07	-66.07	0	%100
36	MP8	SX	-39.642	-39.642	0	%100
37	M37	SX	-66.07	-66.07	0	%100
38	M38	SX	-66.07	-66.07	0	%100
39	MP7	SX	-39.642	-39.642	0	%100
40	M40	SX	-66.07	-66.07	0	%100
41	M41	SX	-66.07	-66.07	0	%100
42	MP9	SX	-39.642	-39.642	0	%100
43	M43	SX	-66.07	-66.07	0	%100
44	M44	SX	-66.07	-66.07	0	%100
45	MP5	SX	-39.642	-39.642	0	%100
46	M46	SX	-66.07	-66.07	0	%100
47	M47	SX	-66.07	-66.07	0	%100
48	MP4	SX	-39.642	-39.642	0	%100
49	M49	SX	-66.07	-66.07	0	%100
50	M50	SX	-66.07	-66.07	0	%100
51	MP6	SX	-39.642	-39.642	0	%100

Member Distributed Loads (BLC 12 : Ice Weight)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	M1	Y	-15.102	-15.102	0	%100
2	M2	Y	-16.853	-16.853	0	%100
3	M3	Y	-13.678	-13.678	0	%100
4	M4	Y	-13.678	-13.678	0	%100
5	M5	Y	-23.657	-23.657	0	%100
6	M6	Y	-15.102	-15.102	0	%100
7	M7	Y	-16.853	-16.853	0	%100
8	M8	Y	-13.678	-13.678	0	%100
9	M9	Y	-13.678	-13.678	0	%100
10	M10	Y	-23.657	-23.657	0	%100
11	M11	Y	-15.102	-15.102	0	%100
12	M12	Y	-16.853	-16.853	0	%100
13	M13	Y	-13.678	-13.678	0	%100
14	M14	Y	-13.678	-13.678	0	%100
15	M15	Y	-23.657	-23.657	0	%100
16	H1	Y	-16.853	-16.853	0	%100
17	H3	Y	-16.853	-16.853	0	%100
18	H2	Y	-16.853	-16.853	0	%100
19	M19	Y	-12.449	-12.449	0	%100
20	M20	Y	-12.449	-12.449	0	%100
21	M21	Y	-12.449	-12.449	0	%100
22	M22	Y	-27.623	-27.623	0	%100
23	M23	Y	-27.623	-27.623	0	%100
24	M24	Y	-27.623	-27.623	0	%100
25	M25	Y	0	0	0	%100
26	M26	Y	0	0	0	%100
27	MP2	Y	-12.449	-12.449	0	%100
28	M28	Y	0	0	0	%100
29	M29	Y	0	0	0	%100
30	MP1	Y	-12.449	-12.449	0	%100
31	M31	Y	0	0	0	%100
32	M32	Y	0	0	0	%100
33	MP3	Y	-12.449	-12.449	0	%100
34	M34	Y	0	0	0	%100
35	M35	Y	0	0	0	%100
36	MP8	Y	-12.449	-12.449	0	%100
37	M37	Y	0	0	0	%100
38	M38	Y	0	0	0	%100
39	MP7	Y	-12.449	-12.449	0	%100
40	M40	Y	0	0	0	%100
41	M41	Y	0	0	0	%100
42	MP9	Y	-12.449	-12.449	0	%100
43	M43	Y	0	0	0	%100
44	M44	Y	0	0	0	%100
45	MP5	Y	-12.449	-12.449	0	%100
46	M46	Y	0	0	0	%100
47	M47	Y	0	0	0	%100
48	MP4	Y	-12.449	-12.449	0	%100
49	M49	Y	0	0	0	%100
50	M50	Y	0	0	0	%100
51	MP6	Y	-12.449	-12.449	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	M1	SZ	-16.882	-16.882	0	%100
2	M2	SZ	-15.33	-15.33	0	%100
3	M3	SZ	-18.669	-18.669	0	%100
4	M4	SZ	-18.669	-18.669	0	%100
5	M5	SZ	-12.221	-12.221	0	%100
6	M6	SZ	-16.882	-16.882	0	%100
7	M7	SZ	-15.33	-15.33	0	%100
8	M8	SZ	-18.669	-18.669	0	%100
9	M9	SZ	-18.669	-18.669	0	%100
10	M10	SZ	-12.221	-12.221	0	%100
11	M11	SZ	-16.882	-16.882	0	%100
12	M12	SZ	-15.33	-15.33	0	%100
13	M13	SZ	-18.669	-18.669	0	%100
14	M14	SZ	-18.669	-18.669	0	%100
15	M15	SZ	-12.221	-12.221	0	%100
16	H1	SZ	-15.33	-15.33	0	%100
17	H3	SZ	-15.33	-15.33	0	%100
18	H2	SZ	-15.33	-15.33	0	%100
19	M19	SZ	-20.845	-20.845	0	%100
20	M20	SZ	-20.845	-20.845	0	%100
21	M21	SZ	-20.845	-20.845	0	%100
22	M22	SZ	-11.312	-11.312	0	%100
23	M23	SZ	-11.312	-11.312	0	%100
24	M24	SZ	-11.312	-11.312	0	%100
25	M25	SZ	0	0	0	%100
26	M26	SZ	0	0	0	%100
27	MP2	SZ	-20.845	-20.845	0	%100
28	M28	SZ	0	0	0	%100
29	M29	SZ	0	0	0	%100
30	MP1	SZ	-20.845	-20.845	0	%100
31	M31	SZ	0	0	0	%100
32	M32	SZ	0	0	0	%100
33	MP3	SZ	-20.845	-20.845	0	%100
34	M34	SZ	0	0	0	%100
35	M35	SZ	0	0	0	%100
36	MP8	SZ	-20.845	-20.845	0	%100
37	M37	SZ	0	0	0	%100
38	M38	SZ	0	0	0	%100
39	MP7	SZ	-20.845	-20.845	0	%100
40	M40	SZ	0	0	0	%100
41	M41	SZ	0	0	0	%100
42	MP9	SZ	-20.845	-20.845	0	%100
43	M43	SZ	0	0	0	%100
44	M44	SZ	0	0	0	%100
45	MP5	SZ	-20.845	-20.845	0	%100
46	M46	SZ	0	0	0	%100
47	M47	SZ	0	0	0	%100
48	MP4	SZ	-20.845	-20.845	0	%100
49	M49	SZ	0	0	0	%100
50	M50	SZ	0	0	0	%100
51	MP6	SZ	-20.845	-20.845	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	M1	SX	-16.882	-16.882	0	%100
2	M2	SX	-15.33	-15.33	0	%100
3	M3	SX	-18.669	-18.669	0	%100
4	M4	SX	-18.669	-18.669	0	%100
5	M5	SX	-12.221	-12.221	0	%100
6	M6	SX	-16.882	-16.882	0	%100
7	M7	SX	-15.33	-15.33	0	%100
8	M8	SX	-18.669	-18.669	0	%100
9	M9	SX	-18.669	-18.669	0	%100
10	M10	SX	-12.221	-12.221	0	%100
11	M11	SX	-16.882	-16.882	0	%100
12	M12	SX	-15.33	-15.33	0	%100
13	M13	SX	-18.669	-18.669	0	%100
14	M14	SX	-18.669	-18.669	0	%100
15	M15	SX	-12.221	-12.221	0	%100
16	H1	SX	-15.33	-15.33	0	%100
17	H3	SX	-15.33	-15.33	0	%100
18	H2	SX	-15.33	-15.33	0	%100
19	M19	SX	-20.845	-20.845	0	%100
20	M20	SX	-20.845	-20.845	0	%100
21	M21	SX	-20.845	-20.845	0	%100
22	M22	SX	-11.312	-11.312	0	%100
23	M23	SX	-11.312	-11.312	0	%100
24	M24	SX	-11.312	-11.312	0	%100
25	M25	SX	0	0	0	%100
26	M26	SX	0	0	0	%100
27	MP2	SX	-20.845	-20.845	0	%100
28	M28	SX	0	0	0	%100
29	M29	SX	0	0	0	%100
30	MP1	SX	-20.845	-20.845	0	%100
31	M31	SX	0	0	0	%100
32	M32	SX	0	0	0	%100
33	MP3	SX	-20.845	-20.845	0	%100
34	M34	SX	0	0	0	%100
35	M35	SX	0	0	0	%100
36	MP8	SX	-20.845	-20.845	0	%100
37	M37	SX	0	0	0	%100
38	M38	SX	0	0	0	%100
39	MP7	SX	-20.845	-20.845	0	%100
40	M40	SX	0	0	0	%100
41	M41	SX	0	0	0	%100
42	MP9	SX	-20.845	-20.845	0	%100
43	M43	SX	0	0	0	%100
44	M44	SX	0	0	0	%100
45	MP5	SX	-20.845	-20.845	0	%100
46	M46	SX	0	0	0	%100
47	M47	SX	0	0	0	%100
48	MP4	SX	-20.845	-20.845	0	%100
49	M49	SX	0	0	0	%100
50	M50	SX	0	0	0	%100
51	MP6	SX	-20.845	-20.845	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	M12	Y	-3.185	-3.185	0	23.596
2	M13	Y	-1.605	-1.605	3.828	27.295
3	M14	Y	-1.605	-1.605	3.828	27.295
4	M7	Y	-3.185	-3.185	0	23.596
5	M8	Y	-1.605	-1.605	3.828	27.295
6	M9	Y	-1.605	-1.605	3.828	27.295
7	M2	Y	-3.185	-3.185	0	23.596
8	M3	Y	-1.605	-1.605	3.828	27.295
9	M4	Y	-1.605	-1.605	3.828	27.295

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magnitude[lb/ft,F...	Start Location[in,%]	End Location[in,%]
1	M12	Y	-37.696	-37.696	0	23.596
2	M13	Y	-18.997	-18.997	3.828	27.295
3	M14	Y	-18.997	-18.997	3.828	27.295
4	M7	Y	-37.696	-37.696	0	23.596
5	M8	Y	-18.997	-18.997	3.828	27.295
6	M9	Y	-18.997	-18.997	3.828	27.295
7	M2	Y	-37.696	-37.696	0	23.596
8	M3	Y	-18.997	-18.997	3.828	27.295
9	M4	Y	-18.997	-18.997	3.828	27.295

Member Area Loads (BLC 1 : Self Weight)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N36	N35	N34	N33	Y	Two Way	-1.75
2	N22	N23	N24	N21	Y	Two Way	-1.75
3	N10	N11	N12	N9	Y	Two Way	-1.75

Member Area Loads (BLC 12 : Ice Weight)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	N33	N34	N35	N36	Y	Two Way	-20.71
2	N22	N23	N24	N21	Y	Two Way	-20.71
3	N10	N11	N12	N9	Y	Two Way	-20.71

Basic Load Cases

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

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
13	Ice Structure Wind Z	OL2						51		
14	Ice Structure Wind X	OL3						51		
15	Ice Wind Load 0 AZI	OL2					26			
16	Ice Wind Load 30 AZI	None					26			
17	Ice Wind Load 45 AZI	None					26			
18	Ice Wind Load 60 AZI	None					26			
19	Ice Wind Load 90 AZI	OL3					26			
20	Ice Wind Load 120 AZI	None					26			
21	Ice Wind Load 135 AZI	None					26			
22	Ice Wind Load 150 AZI	None					26			
23	Seismic Load Z	ELZ			-.116		13			
24	Seismic Load X	ELX	-.116				13			
25	Live Load 1 (Lv)	None					1			
26	Live Load 2 (Lv)	None					1			
27	Live Load 3 (Lv)	None					1			
28	Live Load 4 (Lv)	None					1			
29	Live Load 5 (Lv)	None					1			
30	Live Load 6 (Lv)	None					1			
31	Live Load 7 (Lv)	None					1			
32	Live Load 8 (Lv)	None					1			
33	Live Load 9 (Lv)	None					1			
34	Maintenance Load 1 (...	None					1			
35	Maintenance Load 2 (...	None					1			
36	Maintenance Load 3 (...	None					1			
37	Maintenance Load 4 (...	None					1			
38	Maintenance Load 5 (...	None					1			
39	Maintenance Load 6 (...	None					1			
40	Maintenance Load 7 (...	None					1			
41	Maintenance Load 8 (...	None					1			
42	Maintenance Load 9 (...	None					1			
43	BLC 1 Transient Area...	None						9		
44	BLC 12 Transient Are...	None						9		

Load Combinations

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
1	1.4DL	Yes	Y		DL	1.4																				
2	1.2DL + 1...	Yes	Y		DL	1.2	2	1	3		4	1														
3	1.2DL + 1...	Yes	Y		DL	1.2	2	.866	3	.5	5	1														
4	1.2DL + 1...	Yes	Y		DL	1.2	2	.707	3	.707	6	1														
5	1.2DL + 1...	Yes	Y		DL	1.2	2	.5	3	.866	7	1														
6	1.2DL + 1...	Yes	Y		DL	1.2	2		3	1	8	1														
7	1.2DL + 1...	Yes	Y		DL	1.2	2	-.5	3	.866	9	1														
8	1.2DL + 1...	Yes	Y		DL	1.2	2	-.707	3	.707	10	1														
9	1.2DL + 1...	Yes	Y		DL	1.2	2	-.866	3	.5	11	1														
10	1.2DL + 1...	Yes	Y		DL	1.2	2	-1	3		4	-1														
11	1.2DL + 1...	Yes	Y		DL	1.2	2	-.866	3	-.5	5	-1														
12	1.2DL + 1...	Yes	Y		DL	1.2	2	-.707	3	-.707	6	-1														
13	1.2DL + 1...	Yes	Y		DL	1.2	2	-.5	3	-.866	7	-1														
14	1.2DL + 1...	Yes	Y		DL	1.2	2		3	-1	8	-1														
15	1.2DL + 1...	Yes	Y		DL	1.2	2	.5	3	-.866	9	-1														

Load Combinations (Continued)

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
16	1.2DL + 1...	Yes	Y		DL	1.2	2	.707	3	-.707	10	-1														
17	1.2DL + 1...	Yes	Y		DL	1.2	2	.866	3	-.5	11	-1														
18	0.9DL + 1...	Yes	Y		DL	.9	2	1	3		4	1														
19	0.9DL + 1...	Yes	Y		DL	.9	2	.866	3	.5	5	1														
20	0.9DL + 1...	Yes	Y		DL	.9	2	.707	3	.707	6	1														
21	0.9DL + 1...	Yes	Y		DL	.9	2	.5	3	.866	7	1														
22	0.9DL + 1...	Yes	Y		DL	.9	2		3	1	8	1														
23	0.9DL + 1...	Yes	Y		DL	.9	2	-.5	3	.866	9	1														
24	0.9DL + 1...	Yes	Y		DL	.9	2	-.707	3	.707	10	1														
25	0.9DL + 1...	Yes	Y		DL	.9	2	-.866	3	.5	11	1														
26	0.9DL + 1...	Yes	Y		DL	.9	2	-1	3		4	-1														
27	0.9DL + 1...	Yes	Y		DL	.9	2	-.866	3	-.5	5	-1														
28	0.9DL + 1...	Yes	Y		DL	.9	2	-.707	3	-.707	6	-1														
29	0.9DL + 1...	Yes	Y		DL	.9	2	-.5	3	-.866	7	-1														
30	0.9DL + 1...	Yes	Y		DL	.9	2		3	-1	8	-1														
31	0.9DL + 1...	Yes	Y		DL	.9	2	.5	3	-.866	9	-1														
32	0.9DL + 1...	Yes	Y		DL	.9	2	.707	3	-.707	10	-1														
33	0.9DL + 1...	Yes	Y		DL	.9	2	.866	3	-.5	11	-1														
34	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	1	14		15	1												
35	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	.866	14	.5	16	1												
36	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	.707	14	.707	17	1												
37	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	.5	14	.866	18	1												
38	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13		14	1	19	1												
39	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	-.5	14	.866	20	1												
40	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	-.707	14	.707	21	1												
41	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	-.866	14	.5	22	1												
42	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	-1	14		15	-1												
43	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	-.866	14	-.5	16	-1												
44	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	-.707	14	-.707	17	-1												
45	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	-.5	14	-.866	18	-1												
46	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13		14	-1	19	-1												
47	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	.5	14	-.866	20	-1												
48	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	.707	14	-.707	21	-1												
49	1.2DL + 1...	Yes	Y		DL	1.2	OL1	1	13	.866	14	-.5	22	-1												
50	(1.2+0.2S...	Yes	Y		DL	1.239	23	1	24																	
51	(1.2+0.2S...	Yes	Y		DL	1.239	23	.866	24	.5																
52	(1.2+0.2S...	Yes	Y		DL	1.239	23	.707	24	.707																
53	(1.2+0.2S...	Yes	Y		DL	1.239	23	.5	24	.866																
54	(1.2+0.2S...	Yes	Y		DL	1.239	23		24	1																
55	(1.2+0.2S...	Yes	Y		DL	1.239	23	-.5	24	.866																
56	(1.2+0.2S...	Yes	Y		DL	1.239	23	-.707	24	.707																
57	(1.2+0.2S...	Yes	Y		DL	1.239	23	-.866	24	.5																
58	(1.2+0.2S...	Yes	Y		DL	1.239	23	-1	24																	
59	(1.2+0.2S...	Yes	Y		DL	1.239	23	-.866	24	-.5																
60	(1.2+0.2S...	Yes	Y		DL	1.239	23	-.707	24	-.707																
61	(1.2+0.2S...	Yes	Y		DL	1.239	23	-.5	24	-.866																
62	(1.2+0.2S...	Yes	Y		DL	1.239	23		24	-1																
63	(1.2+0.2S...	Yes	Y		DL	1.239	23	.5	24	-.866																
64	(1.2+0.2S...	Yes	Y		DL	1.239	23	.707	24	-.707																
65	(1.2+0.2S...	Yes	Y		DL	1.239	23	.866	24	-.5																
66	(0.9-0.2Sd...	Yes	Y		DL	.861	23	1	24																	
67	(0.9-0.2Sd...	Yes	Y		DL	.861	23	.866	24	.5																

Load Combinations (Continued)

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
68	(0.9-0.2Sd..	Yes	Y		DL	.861	23	.707	24	.707																
69	(0.9-0.2Sd..	Yes	Y		DL	.861	23	.5	24	.866																
70	(0.9-0.2Sd..	Yes	Y		DL	.861	23		24	1																
71	(0.9-0.2Sd..	Yes	Y		DL	.861	23	-.5	24	.866																
72	(0.9-0.2Sd..	Yes	Y		DL	.861	23	-.707	24	.707																
73	(0.9-0.2Sd..	Yes	Y		DL	.861	23	-.866	24	.5																
74	(0.9-0.2Sd..	Yes	Y		DL	.861	23	-1	24																	
75	(0.9-0.2Sd..	Yes	Y		DL	.861	23	-.866	24	-.5																
76	(0.9-0.2Sd..	Yes	Y		DL	.861	23	-.707	24	-.707																
77	(0.9-0.2Sd..	Yes	Y		DL	.861	23	-.5	24	-.866																
78	(0.9-0.2Sd..	Yes	Y		DL	.861	23		24	-1																
79	(0.9-0.2Sd..	Yes	Y		DL	.861	23	.5	24	-.866																
80	(0.9-0.2Sd..	Yes	Y		DL	.861	23	.707	24	-.707																
81	(0.9-0.2Sd..	Yes	Y		DL	.861	23	.866	24	-.5																
82	1.2DL + 1...	Yes	Y		DL	1.2	25	1.5																		
83	1.2DL + 1...	Yes	Y		DL	1.2	26	1.5																		
84	1.2DL + 1...	Yes	Y		DL	1.2	27	1.5																		
85	1.2DL + 1...	Yes	Y		DL	1.2	28	1.5																		
86	1.2DL + 1...	Yes	Y		DL	1.2	29	1.5																		
87	1.2DL + 1...	Yes	Y		DL	1.2	30	1.5																		
88	1.2DL + 1...	Yes	Y		DL	1.2	31	1.5																		
89	1.2DL + 1...	Yes	Y		DL	1.2	32	1.5																		
90	1.2DL + 1...	Yes	Y		DL	1.2	33	1.5																		
91	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	.058	3		4	.058												
92	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	.05	3	.029	5	.058												
93	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	.041	3	.041	6	.058												
94	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	.029	3	.05	7	.058												
95	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2		3	.058	8	.058												
96	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	-.029	3	.05	9	.058												
97	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	-.041	3	.041	10	.058												
98	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	-.05	3	.029	11	.058												
99	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	-.058	3		4	-.058												
100	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	-.05	3	-.029	5	-.058												
101	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	-.041	3	-.041	6	-.058												
102	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	-.029	3	-.05	7	-.058												
103	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2		3	-.058	8	-.058												
104	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	.029	3	-.05	9	-.058												
105	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	.041	3	-.041	10	-.058												
106	1.2DL + 1...	Yes	Y		DL	1.2	34	1.5	2	.05	3	-.029	11	-.058												
107	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	.058	3		4	.058												
108	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	.05	3	.029	5	.058												
109	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	.041	3	.041	6	.058												
110	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	.029	3	.05	7	.058												
111	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2		3	.058	8	.058												
112	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	-.029	3	.05	9	.058												
113	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	-.041	3	.041	10	.058												
114	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	-.05	3	.029	11	.058												
115	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	-.058	3		4	-.058												
116	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	-.05	3	-.029	5	-.058												
117	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	-.041	3	-.041	6	-.058												
118	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	-.029	3	-.05	7	-.058												
119	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2		3	-.058	8	-.058												

Load Combinations (Continued)

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
120	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	.029	3	-.05	9	-.058												
121	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	.041	3	-.041	10	-.058												
122	1.2DL + 1...	Yes	Y		DL	1.2	35	1.5	2	.05	3	-.029	11	-.058												
123	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	.058	3		4	.058												
124	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	.05	3	.029	5	.058												
125	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	.041	3	.041	6	.058												
126	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	.029	3	.05	7	.058												
127	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2		3	.058	8	.058												
128	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	-.029	3	.05	9	.058												
129	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	-.041	3	.041	10	.058												
130	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	-.05	3	.029	11	.058												
131	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	-.058	3		4	-.058												
132	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	-.05	3	-.029	5	-.058												
133	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	-.041	3	-.041	6	-.058												
134	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	-.029	3	-.05	7	-.058												
135	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2		3	-.058	8	-.058												
136	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	.029	3	-.05	9	-.058												
137	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	.041	3	-.041	10	-.058												
138	1.2DL + 1...	Yes	Y		DL	1.2	36	1.5	2	.05	3	-.029	11	-.058												
139	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	.058	3		4	.058												
140	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	.05	3	.029	5	.058												
141	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	.041	3	.041	6	.058												
142	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	.029	3	.05	7	.058												
143	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2		3	.058	8	.058												
144	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	-.029	3	.05	9	.058												
145	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	-.041	3	.041	10	.058												
146	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	-.05	3	.029	11	.058												
147	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	-.058	3		4	-.058												
148	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	-.05	3	-.029	5	-.058												
149	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	-.041	3	-.041	6	-.058												
150	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	-.029	3	-.05	7	-.058												
151	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2		3	-.058	8	-.058												
152	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	.029	3	-.05	9	-.058												
153	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	.041	3	-.041	10	-.058												
154	1.2DL + 1...	Yes	Y		DL	1.2	37	1.5	2	.05	3	-.029	11	-.058												
155	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	.058	3		4	.058												
156	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	.05	3	.029	5	.058												
157	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	.041	3	.041	6	.058												
158	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	.029	3	.05	7	.058												
159	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2		3	.058	8	.058												
160	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	-.029	3	.05	9	.058												
161	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	-.041	3	.041	10	.058												
162	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	-.05	3	.029	11	.058												
163	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	-.058	3		4	-.058												
164	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	-.05	3	-.029	5	-.058												
165	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	-.041	3	-.041	6	-.058												
166	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	-.029	3	-.05	7	-.058												
167	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2		3	-.058	8	-.058												
168	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	.029	3	-.05	9	-.058												
169	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	.041	3	-.041	10	-.058												
170	1.2DL + 1...	Yes	Y		DL	1.2	38	1.5	2	.05	3	-.029	11	-.058												
171	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	.058	3		4	.058												

Load Combinations (Continued)

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
172	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	.05	3	.029	5	.058												
173	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	.041	3	.041	6	.058												
174	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	.029	3	.05	7	.058												
175	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2		3	.058	8	.058												
176	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	-.029	3	.05	9	.058												
177	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	-.041	3	.041	10	.058												
178	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	-.05	3	.029	11	.058												
179	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	-.058	3		4	-.058												
180	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	-.05	3	-.029	5	-.058												
181	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	-.041	3	-.041	6	-.058												
182	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	-.029	3	-.05	7	-.058												
183	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2		3	-.058	8	-.058												
184	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	.029	3	-.05	9	-.058												
185	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	.041	3	-.041	10	-.058												
186	1.2DL + 1...	Yes	Y		DL	1.2	39	1.5	2	.05	3	-.029	11	-.058												
187	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	.058	3		4	.058												
188	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	.05	3	.029	5	.058												
189	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	.041	3	.041	6	.058												
190	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	.029	3	.05	7	.058												
191	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2		3	.058	8	.058												
192	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	-.029	3	.05	9	.058												
193	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	-.041	3	.041	10	.058												
194	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	-.05	3	.029	11	.058												
195	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	-.058	3		4	-.058												
196	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	-.05	3	-.029	5	-.058												
197	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	-.041	3	-.041	6	-.058												
198	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	-.029	3	-.05	7	-.058												
199	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2		3	-.058	8	-.058												
200	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	.029	3	-.05	9	-.058												
201	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	.041	3	-.041	10	-.058												
202	1.2DL + 1...	Yes	Y		DL	1.2	40	1.5	2	.05	3	-.029	11	-.058												
203	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	.058	3		4	.058												
204	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	.05	3	.029	5	.058												
205	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	.041	3	.041	6	.058												
206	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	.029	3	.05	7	.058												
207	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2		3	.058	8	.058												
208	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	-.029	3	.05	9	.058												
209	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	-.041	3	.041	10	.058												
210	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	-.05	3	.029	11	.058												
211	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	-.058	3		4	-.058												
212	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	-.05	3	-.029	5	-.058												
213	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	-.041	3	-.041	6	-.058												
214	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	-.029	3	-.05	7	-.058												
215	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2		3	-.058	8	-.058												
216	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	.029	3	-.05	9	-.058												
217	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	.041	3	-.041	10	-.058												
218	1.2DL + 1...	Yes	Y		DL	1.2	41	1.5	2	.05	3	-.029	11	-.058												
219	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	.058	3		4	.058												
220	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	.05	3	.029	5	.058												
221	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	.041	3	.041	6	.058												
222	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	.029	3	.05	7	.058												
223	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2		3	.058	8	.058												

Load Combinations (Continued)

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
224	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	-.029	3	.05	9	.058										
225	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	-.041	3	.041	10	.058										
226	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	-.05	3	.029	11	.058										
227	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	-.058	3		4	-.058										
228	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	-.05	3	-.029	5	-.058										
229	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	-.041	3	-.041	6	-.058										
230	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	-.029	3	-.05	7	-.058										
231	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2		3	-.058	8	-.058										
232	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	.029	3	-.05	9	-.058										
233	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	.041	3	-.041	10	-.058										
234	1.2DL + 1...	Yes	Y		DL	1.2	42	1.5	2	.05	3	-.029	11	-.058										

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N25	max	777.292	20	2321.485	39	1265.67	3	96.37	33	1441.785	3	-76.934	31
2		min	-782.845	12	149.453	31	-1262.167	27	-2462.653	41	-1441.546	27	-4028.413	39
3	N1	max	787.911	8	2387.255	45	1291.189	17	85.384	19	1474.496	25	4168.807	45
4		min	-781.911	32	159.179	21	-1287.216	25	-2580.481	43	-1475.595	17	93.572	21
5	N13	max	1272.707	22	2262.887	34	324.957	18	4585.426	34	1209.053	14	678.678	167
6		min	-1273.141	14	122.391	26	-332.468	10	21.326	26	-1208.524	22	-678.256	223
7	Totals:	max	2389.687	22	6686.971	42	2556.501	18						
8		min	-2389.687	30	1346.461	66	-2556.503	10						

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

	Member	Shape	Code ...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt ...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	M2	PIPE 3.5	.614	40	45	.153	40		1...	75262.68	78750	7953.75	7953.75	2...	H1-1b
2	M12	PIPE 3.5	.591	40	39	.151	40		1...	75262.68	78750	7953.75	7953.75	2...	H1-1b
3	M7	PIPE 3.5	.577	40	34	.148	40		1...	75262.68	78750	7953.75	7953.75	2...	H1-1b
4	M1	C3X5	.494	34.8...	46	.171	63.177	y	39	11202.9...	47628	981.263	4104	1...	H1-1b
5	M11	C3X5	.488	34.8...	38	.170	63.177	y	34	11202.9...	47628	981.263	4104	1...	H1-1b
6	M6	C3X5	.471	34.8...	34	.165	6.536	y	39	37027.8...	47628	981.263	4020.228	1	H1-1b
7	MP1	PIPE 2.0	.249	48	15	.032	48		11	20866.7...	32130	1871.625	1871.625	2...	H1-1b
8	MP8	PIPE 2.0	.237	48	10	.036	48		10	20866.7...	32130	1871.625	1871.625	1...	H1-1b
9	MP2	PIPE 2.0	.235	48	5	.037	48		7	20866.7...	32130	1871.625	1871.625	1...	H1-1b
10	MP3	PIPE 2.0	.235	48	5	.030	48		10	20866.7...	32130	1871.625	1871.625	2...	H1-1b
11	MP9	PIPE 2.0	.234	48	10	.022	48		15	20866.7...	32130	1871.625	1871.625	1...	H1-1b
12	MP5	PIPE 2.0	.233	48	10	.035	48		10	20866.7...	32130	1871.625	1871.625	1...	H1-1b
13	MP4	PIPE 2.0	.230	48	10	.022	48		5	20866.7...	32130	1871.625	1871.625	1...	H1-1b
14	MP7	PIPE 2.0	.210	48	4	.029	48		16	20866.7...	32130	1871.625	1871.625	2...	H1-1b
15	MP6	PIPE 2.0	.209	48	16	.028	48		4	20866.7...	32130	1871.625	1871.625	2...	H1-1b
16	M5	6.5"x0.37" ...	.191	21	13	.111	21	y	42	3513.807	75757.5	583.963	6284.768	1...	H1-1b
17	M15	6.5"x0.37" ...	.190	21	8	.107	21	y	42	3513.807	75757.5	583.963	6407.446	1...	H1-1b
18	M10	6.5"x0.37" ...	.189	21	2	.105	21	y	37	3513.807	75757.5	583.963	6212.932	1...	H1-1b
19	M13	L2x2x3	.120	0	7	.036	0	z	43	18051.7...	23392.8	557.717	1239.29	2...	H2-1
20	M4	L2x2x3	.120	0	13	.037	0	y	41	18051.7...	23392.8	557.717	1239.29	2...	H2-1
21	H1	PIPE 3.5	.117	48	92	.067	72		10	60666.0...	78750	7953.75	7953.75	1...	H1-1b
22	H2	PIPE 3.5	.116	48	196	.061	72		5	60666.0...	78750	7953.75	7953.75	1...	H1-1b
23	H3	PIPE 3.5	.116	48	146	.062	24		16	60666.0...	78750	7953.75	7953.75	1...	H1-1b
24	M3	L2x2x3	.111	0	12	.036	0	z	49	18051.7...	23392.8	557.717	1239.29	2...	H2-1

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

	Member	Shape	Code ...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt ...	phi*Mn ...	phi*Mn ...	Cb	Eqn
25	M9	L2x2x3	.107	0	2	.035	0	y	46	18051.7...	23392.8	557.717	1239.29	2...	H2-1
26	M8	L2x2x3	.107	0	2	.035	0	z	38	18051.7...	23392.8	557.717	1239.29	2...	H2-1
27	M14	L2x2x3	.104	0	8	.036	0	y	35	18051.7...	23392.8	557.717	1239.29	2...	H2-1
28	M19	PIPE 2.0	.093	24	10	.081	24		2	14916.0...	32130	1871.625	1871.625	1...	H1-1b
29	M20	PIPE 2.0	.093	24	48	.077	72		8	14916.0...	32130	1871.625	1871.625	1...	H1-1b
30	M21	PIPE 2.0	.091	72	4	.078	24		12	14916.0...	32130	1871.625	1871.625	1...	H1-1b
31	M24	L6 5/8x4 7/...	.080	20.5...	18	.021	42	y	6	15453.0...	66065.6...	1040.591	3031.076	1...	H2-1
32	M23	L6 5/8x4 7/...	.079	42	32	.022	0	y	9	15453.0...	66065.6...	1040.591	3031.076	2...	H2-1
33	M22	L6 5/8x4 7/...	.075	0	21	.022	42	y	11	15453.0...	66065.6...	1040.591	3031.076	2...	H2-1

APPENDIX D

ADDITIONAL CALCUATIONS

Trylon

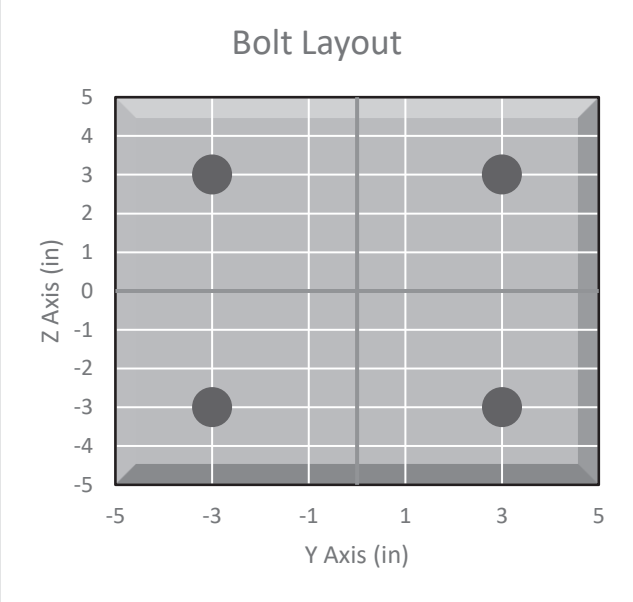
Analysis date: 7/30/2021

BOLT TOOL 1.5.2

Project Data	
Job Code:	189050
Carrier Site ID:	806369
Carrier Site Name:	HRT 094 943225

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

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
Mount to Collar Connection

Bolt Check*		
Tensile Capacity (ϕT_n):	20340.1	lbs
Shear Capacity (ϕV_n):	13805.8	lbs
Tension Force (T_u):	5126.9	lbs
Shear Force (V_u):	727.6	lbs
Tension Usage:	24.0%	--
Shear Usage:	5.0%	--
Interaction:	24.0%	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

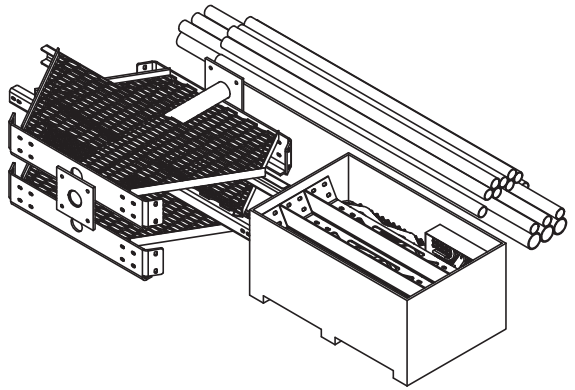
APPENDIX E

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	

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

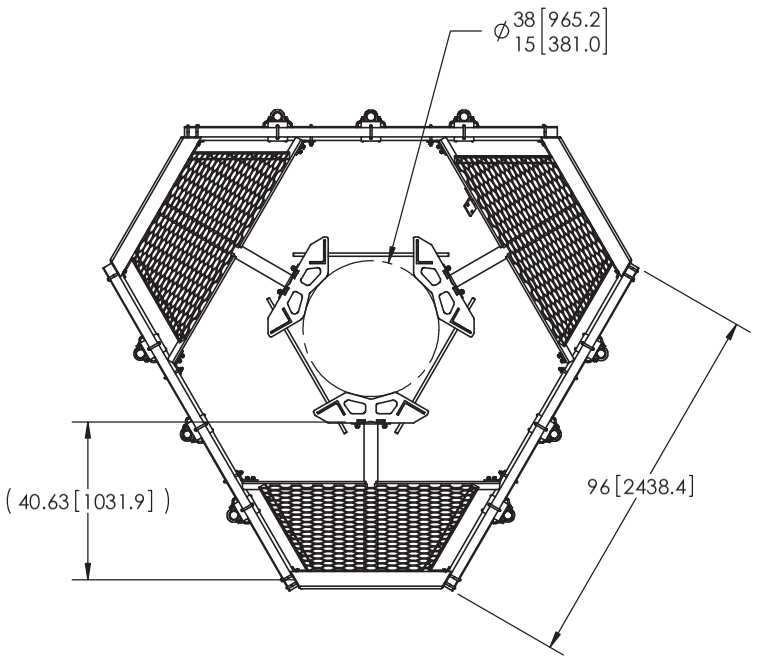
FOR BOM ENTRY ONLY

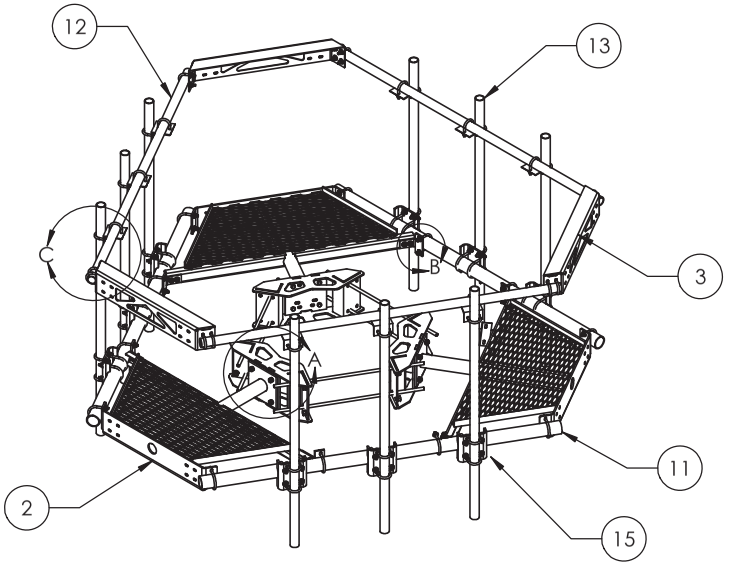


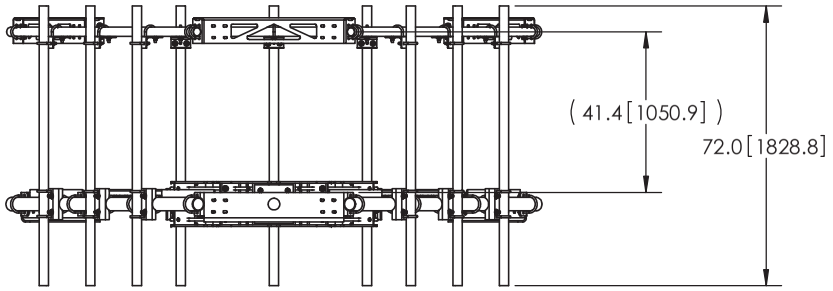
NOTES:
1. CUSTOMER ASSEMBLY SHEETS 2–3.

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.







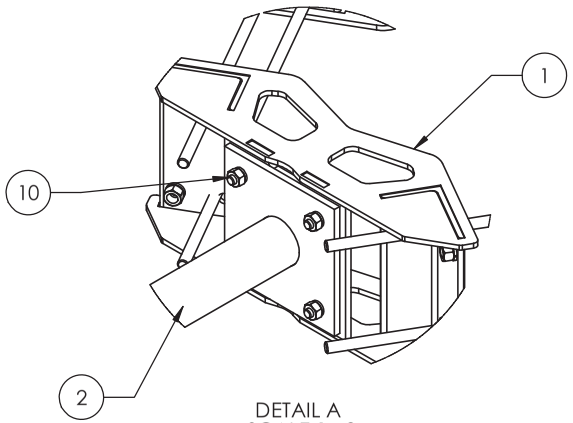
	ITEM	PART NO.	DESCRIPTION	QTY.	WEIGHT
C	1	MC-RM1550-3	12" - 50" OD RINGMOUNT	1	230.42 LBS
	2	MTC300601	Low Profile Co-Location Platform Snub Nose	3	134.21 LBS
	3	MT195801	Corner Weldment Snub Nose Handrail	3	27.10 LBS
	4	XA2020.01	CROSS OVER ANGLE	9	2.65 LBS
	5	GUB-4356	1/2" X 3-5/8" X 6" GALV U-BOLT	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.

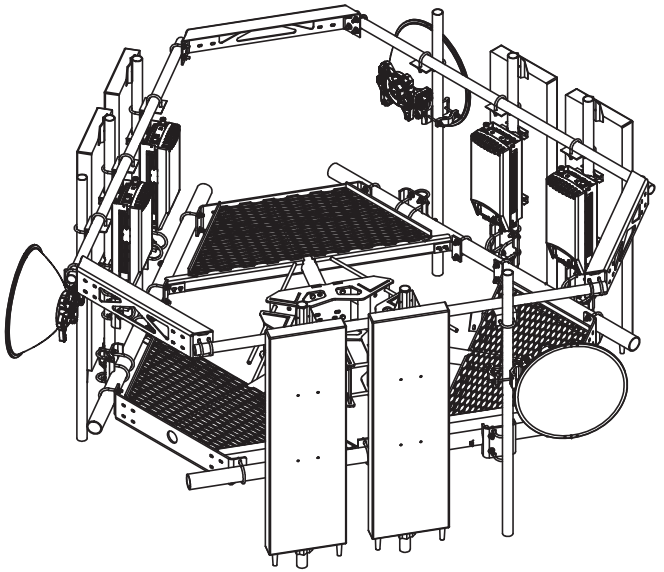
ALL DIMENSIONS ARE IN INCHES U.O.S.
TOLERANCES UNLESS OTHERWISE SPECIFIED:
.X = ± .12 ANGLES ±2°
.XX = ± .06 FRACTIONS ±1/32
.XXX= ± .03
REMOVE BURRS AND BREAK EDGES .005

DO NOT SCALE THIS PRINT

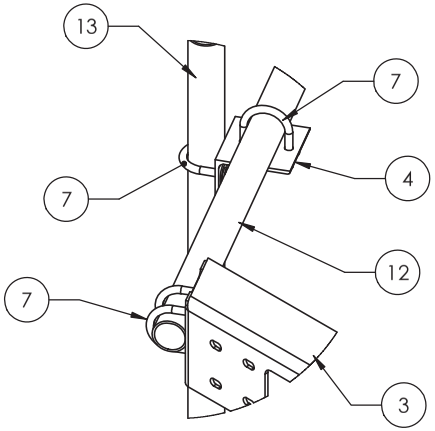
DRAWN BY: MSM	SHEET: 2 of 3	PART NUMBER: MC-PK8-C	
CHECKED BY: TP	SCALE: NTS	DESCRIPTION: 25" OD Snub Nose MT-196	
DATE: 10/18/11	MATERIAL: A36, A53	DRAWING TYPE: ASSEMBLY DRAWING	
REVISION: C	FINISH: GALV A123	WEIGHT: 1361.27 LBS	ANDREW® WESTCHESTER, IL. 60154 U.S.A.



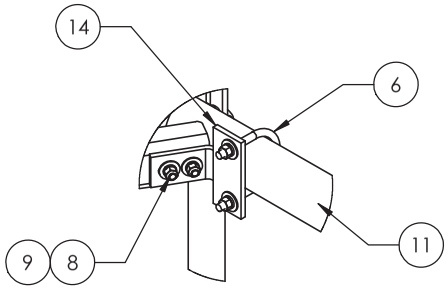
DETAIL A
SCALE 1 : 8



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	ANDREW® WESTCHESTER, IL. 60154 U.S.A.	
	WEIGHT: 1361.27 LBS		

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: 806369

BOBDL00044A
439-455 Homestead Avenue
Hartford, Connecticut 06105

June 24, 2021

EBI Project Number: 6221003213

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**48.94%**

June 24, 2021

Dish Wireless

Emissions Analysis for Site: 806369 - BOBDL00044A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **439-455 Homestead Avenue** in **Hartford, 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 439-455 Homestead Avenue in Hartford, 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 10 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 5G 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 5G 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 10 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 10 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 93 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):	93 feet	Height (AGL):	93 feet	Height (AGL):	93 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):	36,123.20	ERP (W):	36,123.20	ERP (W):	36,123.20
Antenna A1 MPE %:	**21.91%**	Antenna B1 MPE %:	**21.91%**	Antenna C1 MPE %:	**21.91%**

Site Composite MPE %	
Carrier	**MPE %**
Dish Wireless (Max at Sector A):	21.91%
Sprint	1.23%
Clearwire	0.19%
Sensus (CL&P)	0.25%
Metro PCS	1.57%
T-Mobile	13.2%
Verizon	2.87%
AT&T	7.72%
Site Total MPE % :	48.94%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	21.91%
Dish Wireless Sector B Total:	21.91%
Dish Wireless Sector C Total:	21.91%
Site Total MPE % :	48.94%

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 5G	4	1667.71	93.0	31.69	600 MHz 5G	400	7.92%
Dish Wireless 1900 MHz 5G	4	7363.09	93.0	139.89	1900 MHz 5G	1000	13.99%
						Total:	**21.91%**

• 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:	21.91%
Sector B:	21.91%
Sector C:	21.91%
Dish Wireless Maximum MPE % (Sector A):	21.91%
Site Total:	48.94%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **48.94%** 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

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:
439-455 HOMESTEAD AVE, HARTFORD, CT 06105

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

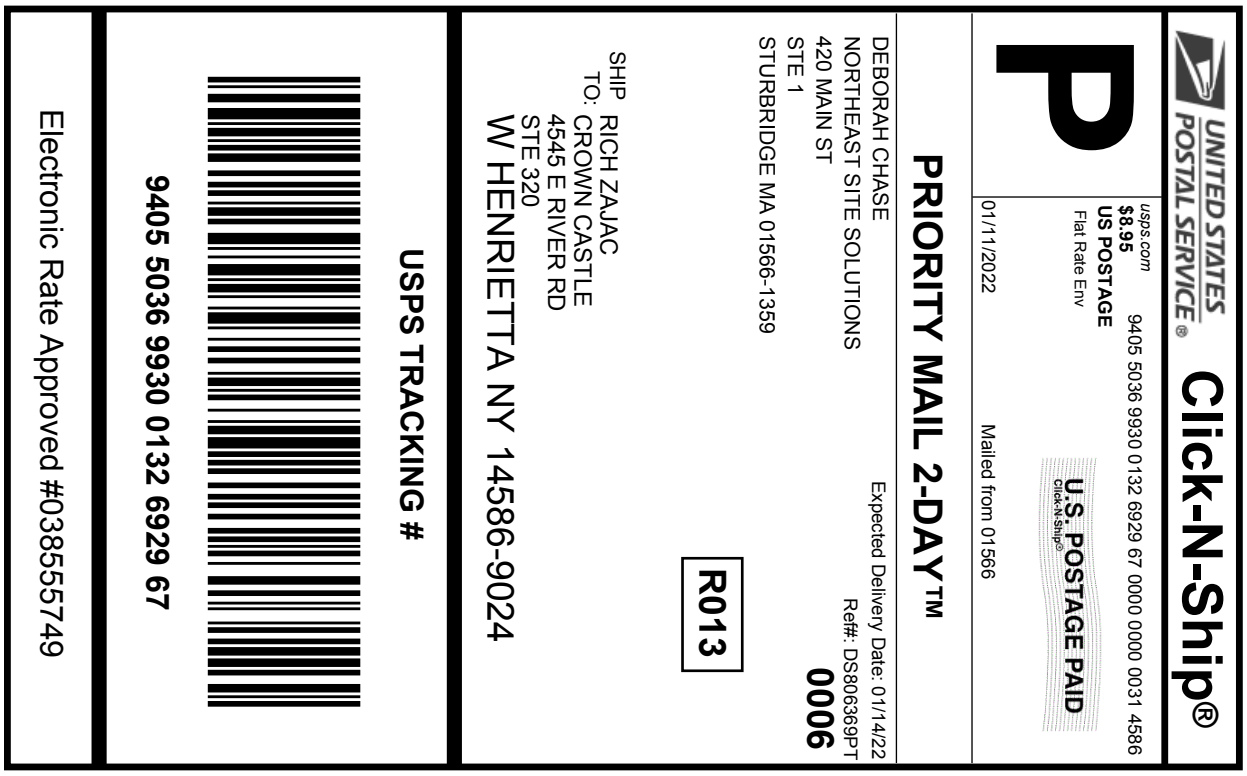
Crown Site ID/Name:	**806369/HRT 094 943225**
Customer Site ID:	**BOBDL00044A/CT-CCI-T-806369**
Site Address:	**439-455 HOMESTEAD AVE, HARTFORD, CT 06105**

Crown Castle

By: _____ Date: 1/10/2021

Richard Zajac
Site Acquisition Specialist

ATTACHMENT 8



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9405 5036 9930 0132 6929 67

Trans. #:	553752172
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Ship Date:	01/11/2022
Expected Delivery Date:	01/14/2022

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

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

Ref#: DS806369PT

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

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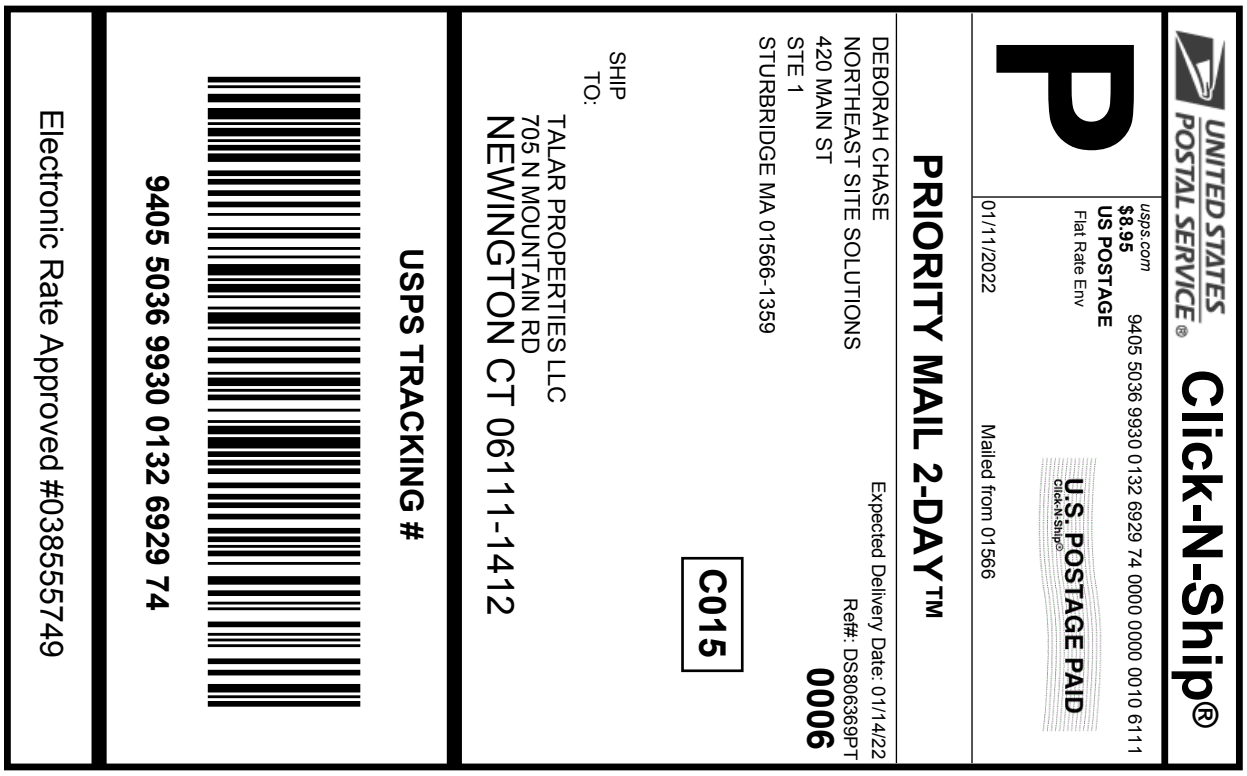

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Expected Delivery Date:	01/14/2022

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

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

Ref#: DS806369PT

To: TALAR PROPERTIES LLC
705 N MOUNTAIN RD
NEWINGTON CT 06111-1412

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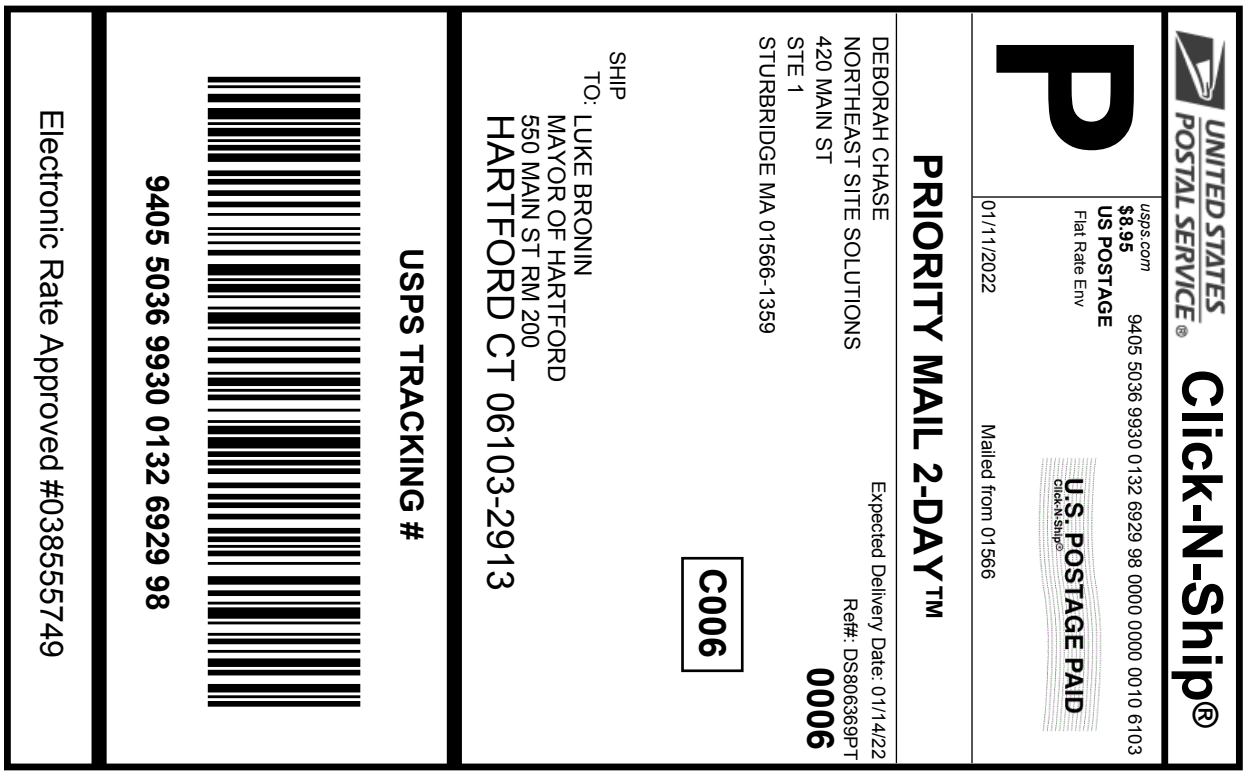

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4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
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Click-N-Ship® Label Record

USPS TRACKING # :
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Print Date:	01/11/2022
Ship Date:	01/11/2022
Expected Delivery Date:	01/14/2022

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

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

Ref#: DS806369PT

To: LUKE BRONIN
MAYOR OF HARTFORD
550 MAIN ST RM 200
HARTFORD CT 06103-2913

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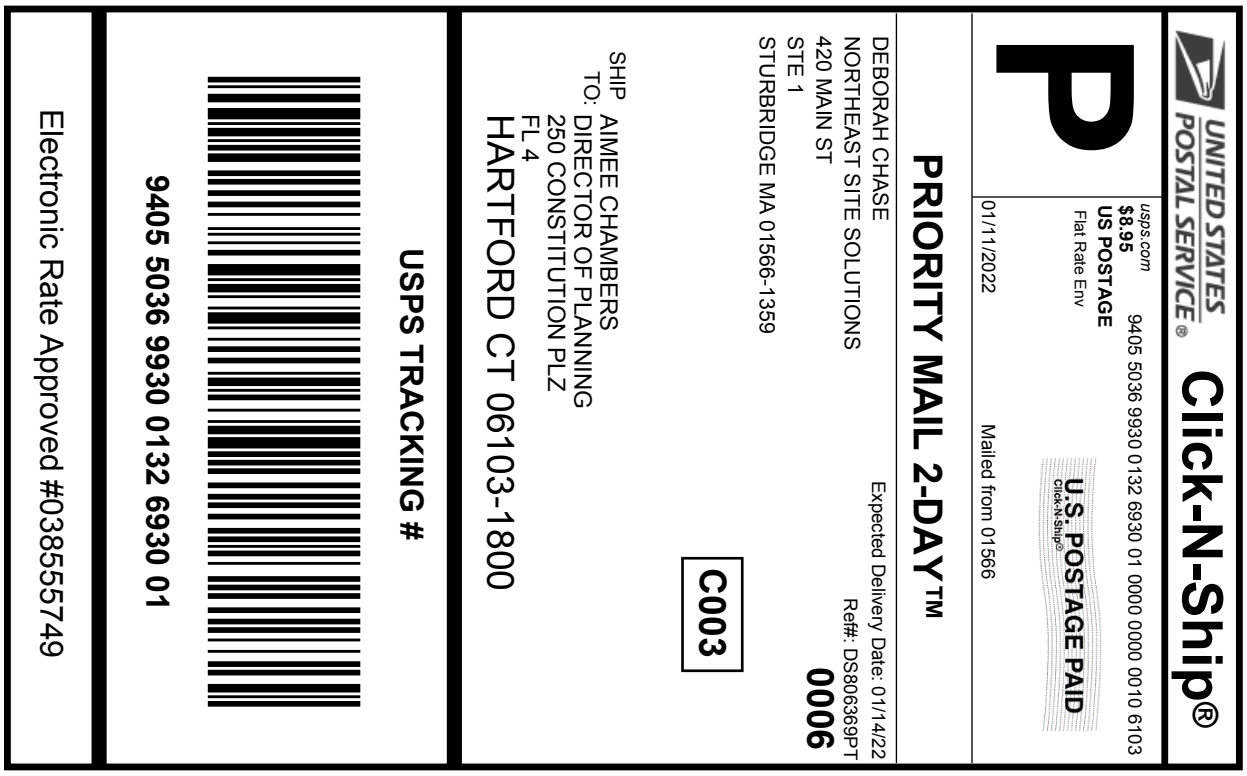

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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0132 6930 01

Trans. #:	553752172
Print Date:	01/11/2022
Ship Date:	01/11/2022
Expected Delivery Date:	01/14/2022

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

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

Ref#: DS806369PT

To: AIMEE CHAMBERS
DIRECTOR OF PLANNING
250 CONSTITUTION PLZ
FL 4
HARTFORD CT 06103-1800

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806369

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

01/13/2022 04:44 PM

Product	Qty	Unit Price	Price
Prepaid Mail West Henrietta, NY 14586 Weight: 0 lb 13.50 oz Acceptance Date: Thu 01/13/2022 Tracking #: 9405 5036 9930 0132 6929 67	1		$0.00
Prepaid Mail Hartford, CT 06103 Weight: 0 lb 13.40 oz Acceptance Date: Thu 01/13/2022 Tracking #: 9405 5036 9930 0132 6930 01	1		$0.00
Prepaid Mail Hartford, CT 06103 Weight: 1 lb 10.90 oz Acceptance Date: Thu 01/13/2022 Tracking #: 9405 5036 9930 0132 6929 98	1		$0.00
Prepaid Mail Newington, CT 06111 Weight: 0 lb 13.50 oz Acceptance Date: Thu 01/13/2022 Tracking #: 9405 5036 9930 0132 6929 74	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 12th 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 439-455 Homestead Avenue in Hartford, Connecticut, to the following:

Abutters

SOCCI JOSEPHINE C TRUSTEE
1535 ALBANY AVE
HARTFORD, CT 06105

NATIONAL RAILROAD PASSENGER CO
400 N CAPITOL ST NW
HARTFORD, CT 06111

ROBERT F JUDGE
PO BOX 715
KILINGWORTH, CT 06419

CITY OF HARTFORD
550 MAIN STREET
HARTFORD, CT 06103

DIMAURO JOSEPH D TRUSTEE
72 CRYSTAL DR
HARTFORD, CT 06067

HARTFORD UNLIMITED ENTERPRISES
85 PATRIOT RD
WINDSOR, CT 06095-3841

Owner

TALAR PROPERTIES LLC
705 N MOUNTAIN RD
HARTFORD, CT 06111

Respectfully Submitted,

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

January 12, 2022

VIA USPS CERTIFIED MAIL/
RETURN RECEIPT REQUESTED

CITY OF HARTFORD
550 MAIN STREET
HARTFORD, CT 06103

RE: Proposed Modification to Existing Wireless Telecommunications Facility at 439-455 Homestead Avenue in Hartford, 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 12, 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 City Clerk at the Hartford City 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

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☐ Certified Mail Restricted Delivery	$0.00
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☐ Adult Signature Restricted Delivery	$
Postage	$0.58
Total Postage and Fees	$7.38

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City, State, ZIP+4®: Hartford CT 06112-2115

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7021 1970 0001 2284 0637

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☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
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City, State, ZIP+4®: Hartford CT 06106

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Killingworth, CT 06419

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☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.58
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Sent To: Robert F. Judge

Street and Apt. No., or PO Box No.: P.O. Box 715

City, State, ZIP+4®: Killingworth, CT 06419

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7021 2720 0001 9314 7288

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Hartford, CT 06103

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☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
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01/11/2022

Sent To: City of Hartford

Street and Apt. No., or PO Box No.: 550 Main St

City, State, ZIP+4®: Hartford, CT 06103

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

7021 2720 0001 9314 7349

7021 2720 0001 9314 7356

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Windsor, CT 06095

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$	$3.05
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☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.58
$	
Total Postage and Fees	$7.38
$	

1103
14
STATION WORCESTER MA. 01606
JAN 11 2022
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USPS
01/11/2022

Sent To: Hartford Unlimited Enterprises
Street and Apt. No., or PO Box No.: 55 Patriot Rd
City, State, ZIP+4®: Windsor CT 06095-3844

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

7021 2720 0001 9314 7363

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Newington, CT 06111

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$	$3.05
Extra Services & Fees (check box, add fee as appropriate)	
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☐ 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
$	

1103
14
STATION WORCESTER MA. 01606
JAN 11 2022
Postmark Here
USPS
01/11/2022

Sent To: Talor Properties LLC
Street and Apt. No., or PO Box No.: 705 N. Mountain Road
City, State, ZIP+4®: Hartford, CT 06111-1412

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

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$	$3.05
Extra Services & Fees (check box, add fee as appropriate)	
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☐ 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
$	

1103
14
STATION WORCESTER MA. 01606
JAN 11 2022
Postmark Here
USPS
01/11/2022

Sent To: Joseph D. DiMauro
Street and Apt. No., or PO Box No.: 12 Crystal Dr
City, State, ZIP+4®: Hartford CT 06109

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

UNITED STATES POSTAL SERVICE.

GREENDALE
290 W BOYLSTON ST
WORCESTER, MA 01606-2378
(800)275-8777

01/11/2022 10:52 AM

Product	Qty	Unit Price	Price
First-Class Mail® Letter	1		$0.58
Wethersfield, CT 06109			
Weight: 0 lb 0.40 oz			
Estimated Delivery Date			
Fri 01/14/2022			
Certified Mail®			$3.75
Tracking #:			
70212720000193147370			
Return Receipt			$3.05
Tracking #:			
9590 9402 7092 1251 8087 95			
Total			$7.38
First-Class Mail® Letter	1		$0.58
Newington, CT 06111			
Weight: 0 lb 0.40 oz			
Estimated Delivery Date			
Fri 01/14/2022			
Certified Mail®			$3.75
Tracking #:			
70212720000193147363			
Return Receipt			$3.05
Tracking #:			
9590 9402 7092 1251 8088 01			
Total			$7.38
First-Class Mail® Letter	1		$0.58
Windsor, CT 06095			
Weight: 0 lb 0.40 oz			
Estimated Delivery Date			
Fri 01/14/2022			
Certified Mail®			$3.75
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Return Receipt			$3.05
Tracking #:			
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Total			$7.38
First-Class Mail® Letter	1		$0.58
Hartford, CT 06103			
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Estimated Delivery Date			
Fri 01/14/2022			
Certified Mail®			$3.75
Tracking #:			
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Return Receipt			$3.05
Tracking #:			
9590 9402 7260 1284 3620 72			
Total			$7.38
First-Class Mail® Letter	1		$0.58
Killingworth, CT 06419			
Weight: 0 lb 0.40 oz			
Estimated Delivery Date			
Fri 01/14/2022			
Certified Mail®			$3.75
Tracking #:			
70212720000193147288			
Return Receipt			$3.05
Tracking #:			
9590 9402 7260 1284 3620 89			
Total			$7.38

Fri 01/14/2022

First-Class Mail® 1 $0.58
Letter
Hartford, CT 06106
Weight: 0 lb 0.40 oz
Estimated Delivery Date
Fri 01/14/2022
Certified Mail® $3.75
Tracking #:
70212720000193147271
Return Receipt $3.05
Tracking #:
9590 9402 7260 1284 3620 96
Total $7.38

First-Class Mail® 1 $0.58
Letter
Hartford, CT 06112
Weight: 0 lb 0.40 oz
Estimated Delivery Date
Fri 01/14/2022
Certified Mail® $3.75
Tracking #:
70211970000122840637
Return Receipt $3.05
Tracking #:
9590 9402 7260 1284 3619 83
Total $7.38

Grand Total: $51.66

Credit Card Remitted $51.66