

# PROJECT NARRATIVE

November 8, 2021

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

Re: Request of DISH Wireless LLC for an Order to Approve the Shared Use of an Existing Tower  
118C Wintechog Hill Road North Stonington, CT 06359  
Latitude: 41°27'35.42" / Longitude: -71°55'38.416"

Dear Ms. Bachman:

Pursuant to Connecticut General Statutes ("C.G.S.") §16-50aa, as amended, DISH Wireless LLC ("DISH") hereby requests an order from the Connecticut Siting Council ("Council") to approve the shared use by DISH of an existing telecommunication tower at 118C Wintechog Hill Road in North Stonington (the "Property"). The existing 250-foot self-support tower is owned by American Tower Corporation ("ATC"). The underlying property is owned by American Tower. DISH requests that the Council find that the proposed shared use of the ATC tower satisfies the criteria of C.G.S. §16-50aa and issue an order approving the proposed shared use. A copy of this filing is being sent to Michael A. Urgo, First Selectman for the Town of North Stonington, Timothy Brennan, Town of North Stonington Building Official and American Tower as the property owner.

## **Background**

The existing ATC facility consists of a 250-foot self-support tower located within an existing leased area. The State of Connecticut currently maintains antennas at the 260-foot level, 200-foot level and 83-foot level. Sprint Nextel currently maintains antennas at the 246-foot level. SIGFOX currently maintains antennas at the 236-foot level. T-Mobile currently maintains antennas at the 225-foot level. AT&T Mobility currently maintains antennas at the 175-foot level. Metro PCS antennas at the 155-foot level are to be removed. Equipment associated with these antennas are located at various positions within the tower and compound.

DISH is licensed by the Federal Communications Commission ("FCC") to provide wireless services throughout the State of Connecticut. DISH and Crown Castle have agreed to the proposed shared use of the 118C Wintechog Hill Roadtower pursuant to mutually acceptable terms and conditions. Likewise, DISH and ATC have agreed to the proposed installation of equipment cabinets on the ground on the south side of the tower within the existing compound. ATC has authorized DISH to apply for all necessary permits and approvals that may be required to share the existing tower. (See attached Letter of Authorization)

DISH proposes to install three (3) antennas, (1) Tower platform mount, (6) Remote radio units at the 165-foot level along with, (1) over voltage protection device (OVP) and (1) Hybrid cable. DISH will install an equipment cabinet on a 5'x7' equipment platform. DISH's Construction Drawings provide project specifications for all proposed site improvement locations. The construction drawings also include specifications for DISH's proposed antenna and groundwork.

C.G.S. § 16-50aa(c)(1) provides that, upon written request for approval of a proposed shared use, "if the Council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such a shared use." DISH respectfully submits that the shared use of the tower satisfies these criteria.

**A. Technical Feasibility.** The existing ATC tower is structurally capable of supporting DISH's proposed improvements. The proposed shared use of this tower is, therefore, technically feasible. A Feasibility Structural Analysis Report ("Structural Report") prepared for this project confirms that this tower can support DISH's proposed loading. A copy of the Structural Report has been included in this application.

**B. Legal Feasibility.** Under C.G.S. § 16-50aa, the Council has been authorized to issue order approving the shared use of an existing tower such as the ATC tower. This authority complements the Council's prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council's jurisdiction. In addition, § 16-50x(a) directs the Council to "give such consideration to the other state laws and municipal regulations as it shall deem appropriate" in ruling on requests for the shared use of existing tower facilities. Under the statutory authority vested in the Council, an order by the Council approving the requested shared use would permit the Applicant to obtain a building permit for the proposed installations.

**C. Environmental Feasibility.** The proposed shared use of the ATC tower would have a minimal environmental effect for the following reasons:

1. The proposed installation will have no visual impact on the area of the tower. DISH's equipment cabinet would be installed within the existing facility compound. DISH's shared use of this tower therefore will not cause any significant change or alteration in the physical or environmental characteristics of the existing site.
2. Operation of DISH's antennas at this site would not exceed the RF emissions standard adopted by the Federal Communications Commission ("FCC"). Included in the EME report of this filing are the approximation tables that demonstrate that DISH's proposed facility will operate well within the FCC RF emissions safety standards.
3. Under ordinary operating conditions, the proposed installation would not require the use of any water or sanitary facilities and would not generate air emissions or discharges to water bodies or sanitary facilities. After construction is complete the proposed installations would not generate any increased traffic to the ATC facility other than periodic maintenance. The proposed shared use of the ATC tower, would, therefore, have a minimal environmental effect, and is environmentally feasible.

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D. **Economic Feasibility.** As previously mentioned, DISH has entered into an agreement with ATC for the shared use of the existing facility subject to mutually agreeable terms. The proposed tower sharing is, therefore, economically feasible.

E. **Public Safety Concerns.** As discussed above, the tower is structurally capable of supporting DISH's full array of three (3) antennas, (1) Tower platform mount, (6) Remote radio units, (1) over voltage protection device (OVP) and (1) Hybrid cable and all related equipment. DISH is not aware of any public safety concerns relative to the proposed sharing of the existing ATC tower.

### **Conclusion**

For the reasons discussed above, the proposed shared use of the existing ATC tower at 118C Wintechog Hill Road satisfies the criteria stated in C.G.S. §16-50aa and advances the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. The Applicant, therefore, respectfully requests that the Council issue an order approving the proposed shared use.

Sincerely,

*David Hoogasian*

**David Hoogasian**  
*Project Manager*

# LETTER OF AUTHORIZATION



**AMERICAN TOWER®**  
CORPORATION

**LETTER OF AUTHORIZATION**  
**LICENSEE: DISH WIRELESS L.L.C.**

I, Margaret Robinson, Senior Counsel for American Tower\*, owner/operator of the tower facility located at the address identified above (the "Tower Facility"), do hereby authorize DISH WIRELESS L.L.C., its successors and assigns, and/or its agent, (collectively, the "Licensee") to act as American Tower's non-exclusive agent for the sole purpose of filing and consummating any land-use or building permit application(s) as may be required by the applicable permitting authorities for Licensee's telecommunications' installation.

We understand that this application may be denied, modified or approved with conditions. The above authorization is limited to the acceptance by Licensee only of conditions related to Licensee's installation and any such conditions of approval or modifications will be Licensee's sole responsibility.

\*American Tower includes all affiliates and subsidiaries of American Tower Corporation.

Project #	ATC Site #	ATC Site Name	ATC Site Address
13688133	208450	Enfield	1A Ecology Drive, Enfield CT
13700322	209115	Ridgefield 2	320 Old Stagecoach Road, Ridgefield, CT
13688136	209185	Burlington 2	87 Monce Road, Burlington CT
13700320	209271	Brookfield 2	100 Pocono Road, Brookfield CT
13693702	243036	WEST HAVEN & RT 162 CT	668 Jones Hill Road, West Haven CT
13693677	280501	ROXBURY CT	377 Southbury Road, Roxbury CT
13685406	281416	WILLINGTON CT	196 Tolland Turnpike, Willington CT
13709418	281862	BRIDGEWATER CT	111 SECOND HILL RD, Bridgewater CT
13693659	283418	NORTH HAVEN CT	50 Devine Street, North Haven CT
13694329	283419	PINE ORCHARD BRANFORD CT	123 Pine Orchard Road, Branford CT
13694332	283422	SHORT BEACH BRANFORD CT	171 Short Beach Road, Branford CT
13698427	283423	NAUGATUCK CT	880 Andrew Mountain Road, Naugatuck CT
13685464	283563	MANSFIELD CT	343 Daleville Road, Willington CT
13692735	284983	OLD LYME CT	61-1 Buttonball Road, Old Lyme CT
13693120	284984	PAWCATUCK CT	166 Pawcatuck Ave, Pawcatuck CT
13693144	284988	GUILFORD CT	Moose Hill Road, Guilford CT
13694582	302465	Colchester CT 6	355 Route 85, Colchester CT
13683501	302468	Petro Lock	99 Meadow St, Hartford CT
13685427	302469	Bridgeport CT 2	1069 Connecticut Avenue, Bridgeport CT
13683503	302472	Andover-bunker Hill Road	104 Bunker Hill Road, Andover CT
13683507	302473	E H F R - Prestige Park	310 Prestige Park Road, East Hartford CT





**AMERICAN TOWER®**  
CORPORATION

Project #	ATC Site #	ATC Site Name	ATC Site Address
13683510	302474	South Windsor	391 Niederwerfer Road, South Windsor CT
13683513	302483	Brln - Berlin	286 Beckley Road, Berlin CT
13692185	302488	Cntn - Canton	4 Hoffmann Road, Canton CT
13692173	302495	Tolland CT	56 Ruops Road, Tolland CT
13694579	302496	Clch - Colchester	Chestnut Hill Road, Colchester CT
13701212	302501	Plymouth CT 3	297 North Street, Plymouth CT
13685414	302515	SMFR - North	5 High Ridge Park Road, Stamford CT
13702496	302516	Mlfd - Milford	438 Bridgeport Ave, Milford CT
13688395	302518	Newtown CT 3	25 Meridian Ridge Drive, Newton CT
13692174	302529	Vernon CT 6	777 Talcotville Road, Vernon Rockville CT
13693124	311014	NORWICH CT	202 N Wawecus Hill Rd, Norwich CT
13702522	311305	GLFD-GUILFORD REBUILD CT	10 Tanner Marsh Road, Guilford CT
13693127	370623	MONTVILLE CT	139 Sharp Hill Road, Uncasville CT
13681964	370625	Old Saybrook	77 Springbrook Road, Old Saybrook CT
13702535	383660	North Madison Volunteer FD	864 Opening Hill Road, Madison CT
13702538	411180	Good Hill CT	481 GOOD HILL ROAD, Woodbury CT
13693709	411182	Nepaug CT	20 Antolini Road, New Hartford CT
13693131	411183	WATERFORD CT	53 Dayton Rd., Waterford CT
13693135	411184	SALEM CT SQA	399 West Road, Salem CT
13692177	411186	West Granby, CT CT	207 West Granby Road, Granby CT
13692178	411187	Hartford North 2 CT	811 Blue Hills Avenue, Bloomfield CT
13693705	411188	Southbury CT	111 Upper Fishrock Road, Southbury CT
13692179	411256	CANTON CT	14 CANTON SPRINGS ROAD, Canton CT
13681988	411257	Middle Haddam Road-CROWN CT	191 Middle Haddam Rd, Portland CT
13692180	411258	Farmington North 2 CT	199 Town Farm Road, Farmington CT
13692182	411259	CT Collinsville CAC 802816 CT	650 Albany Turnpike, Collinsville CT
13692184	416862	SUFFIELD SW CT CT	106 South Grand St., West Suffield CT
13694578	6260	NORTH STONINGTON CT	118C Wintechog Hill Rd., off of Rt. 2, North Stonington CT
13681397	88013	Killingworth	131 Little City Road, Killingworth CT

Signature:

Print Name: Margaret Robinson  
Senior Counsel  
American Tower\*



**AMERICAN TOWER®**  
CORPORATION

**LETTER OF AUTHORIZATION  
LICENSEE: DISH WIRELESS L.L.C.**

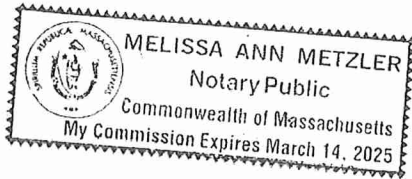
**NOTARY BLOCK**


Commonwealth of MASSACHUSETTS  
County of Middlesex

This instrument was acknowledged before me by Margaret Robinson, Senior Counsel for American Tower\*, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same.

WITNESS my hand and official seal, this 10<sup>th</sup> day of September 2021.

**NOTARY SEAL**



Notary Public   
My Commission Expires: March 14, 2025



# ENGINEERING DRAWINGS



DISH WIRELESS, L.L.C. SITE ID:

**BOBOS00884A**

DISH WIRELESS, L.L.C. SITE ADDRESS:

**118C WINTECHOG HILL RD., OFF OF RT. 2  
NORTH STONINGTON, CT 06359**

**BIRD WATCH SITE:  
PLEASE CONTACT BIRD.WATCH@AMERICANTOWER.COM OR  
AMERICAN TOWER NOC AT 77.51@937 FOR ASSISTANCE**

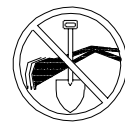
**SCOPE OF WORK**

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

- TOWER SCOPE OF WORK:**
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
  - INSTALL (3) PROPOSED ANTENNA SECTOR FRAME MOUNTS (1 PER SECTOR)
  - INSTALL PROPOSED JUMPERS
  - INSTALL (6) PROPOSED RRHs (2 PER SECTOR)
  - INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
  - INSTALL (1) PROPOSED HYBRID CABLE

- GROUND SCOPE OF WORK:**
- INSTALL (1) PROPOSED METAL PLATFORM
  - INSTALL (1) PROPOSED ICE BRIDGE
  - INSTALL (1) PROPOSED PPC CABINET
  - INSTALL (1) PROPOSED EQUIPMENT CABINET
  - INSTALL (1) PROPOSED POWER CONDUIT
  - INSTALL (1) PROPOSED TELCO CONDUIT
  - INSTALL (1) PROPOSED TELCO-FIBER BOX
  - INSTALL (1) PROPOSED GPS UNIT
  - INSTALL (1) PROPOSED SAFETY SWITCH (IF REQUIRED)
  - INSTALL (1) PROPOSED CIENA BOX (IF REQUIRED)
  - INSTALL (1) PROPOSED METER SOCKET

**SITE PHOTO**



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



CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

**GENERAL NOTES**

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

THE PROJECT DEPICTED IN THESE PLANS QUALIFIES AS AN ELIGIBLE FACILITIES REQUEST ENTITLED TO EXPEDITED REVIEW UNDER 47 U.S.C. § 1455(A) AS A MODIFICATION OF AN EXISTING WIRELESS TOWER THAT INVOLVES THE COLLOCATION, REMOVAL, AND/OR REPLACEMENT OF TRANSMISSION EQUIPMENT THAT IS NOT A SUBSTANTIAL CHANGE UNDER CFR § 1.61000 (B)(7).

**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: AMERICAN TOWER  
ADDRESS: P O BOX 723597  
ATLANTA, GA 31139

TOWER TYPE: SELF SUPPORT TOWER

TOWER CO SITE ID: 6260

TOWER APP NUMBER: 13694578

COUNTY: NEW LONDON

LATITUDE (NAD 83): 41° 27' 35.420" N  
41.45983887

LONGITUDE (NAD 83): 71° 55' 38.416" W  
-71.92733765

ZONING JURISDICTION: CONNECTICUT SITING COUNCIL

ZONING DISTRICT: R80

PARCEL NUMBER: 93-4392

OCCUPANCY GROUP: U

CONSTRUCTION TYPE: II-B

POWER COMPANY: NORTHEAST UTILITIES

TELEPHONE COMPANY: ATT

**PROJECT DIRECTORY**

APPLICANT: DISH WIRELESS, L.L.C.  
5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120  
(303) 706-5008

TOWER OWNER: AMERICAN TOWER  
10 PRESIDENTIAL WAY  
WOBURN, MA 01801

ENGINEER: NB+C ENGINEERING SERVICES, LLC.  
8601 SIX FORKS RD, SUITE 540  
RALEIGH, NC 27615  
(919) 657-9131

SITE ACQUISITION: APRIL PARROTT  
APRIL.PARROTT@DISH.COM

CONSTRUCTION MANAGER: JAVIER SOTO  
JAVIER.SOTO@DISH.COM

RF ENGINEER: ARVIN SEBASTIAN  
ARVIN.SEBASTIAN@DISH.COM



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



NB+C ENGINEERING SERVICES, LLC.  
5001 FOX CREEK ROAD, SUITE 500  
RALEIGH, NC 27615  
(919) 657-9131

DRAWN BY:	CHECKED BY:	APPROVED BY:
JES	BIW	BIW

RFDS REV #: 1

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/25/2021	ISSUED FOR REVIEW
D	08/30/2021	ISSUED FOR CONSTRUCTION

**DIRECTIONS**

TAKE I-395 TO EXIT 85 TO RTE 164 SOUTH; RIGHT ON RT 2 EAST. THEN RIGHT ON WINTECHOG HILL RD. LEFT AT THE BUSINESS ENTRANCE OF GREENHOUSE. & FOLLOW THE DIRT RD TO THE TOWER

**VICINITY MAP**



**SHEET INDEX**

SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
A-0	PARCEL PLAN
A-1	OVERALL AND ENLARGED SITE PLAN
A-2	ELEVATION, ANTENNA LAYOUT AND SCHEDULE
A-3	EQUIPMENT PLATFORM AND H-FRAME DETAILS
A-4	EQUIPMENT DETAILS
A-5	EQUIPMENT DETAILS
A-6	EQUIPMENT DETAILS
E-1	ELECTRICAL/FIBER ROUTE PLAN AND NOTES
E-2	ELECTRICAL DETAILS
E-3	ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE
G-1	GROUNDING PLANS AND NOTES
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
RF-1	RF CABLE COLOR CODE
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GN-1	LEGEND AND ABBREVIATIONS
GN-2	GENERAL NOTES
GN-3	GENERAL NOTES
GN-4	GENERAL NOTES



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.

A&E PROJECT NUMBER  
**6260-13694578**

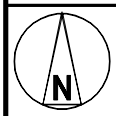
DISH WIRELESS, L.L.C.  
PROJECT INFORMATION  
**BOBOS00884A**  
118C WINTECHOG HILL RD., OFF OF RT. 2  
NORTH STONINGTON, CT 06359

SHEET TITLE  
**TITLE SHEET**

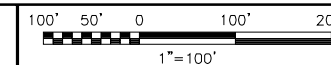
SHEET NUMBER  
**T-1**

NOTES

1. PARCEL LINES TAKEN FROM NEW LONDON COUNTY ONLINE GIS.



PARCEL PLAN



**dish**  
wireless.

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120

**NB+C**  
TOTALLY COMMITTED.

NB+C ENGINEERING SERVICES, LLC.  
1111 X FOR ROAD, SUITE 500  
RALEIGH, NC 27615  
919-579-1311

DRAWN BY:	CHECKED BY:	APPROVED BY:
JES	BIW	BIW

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

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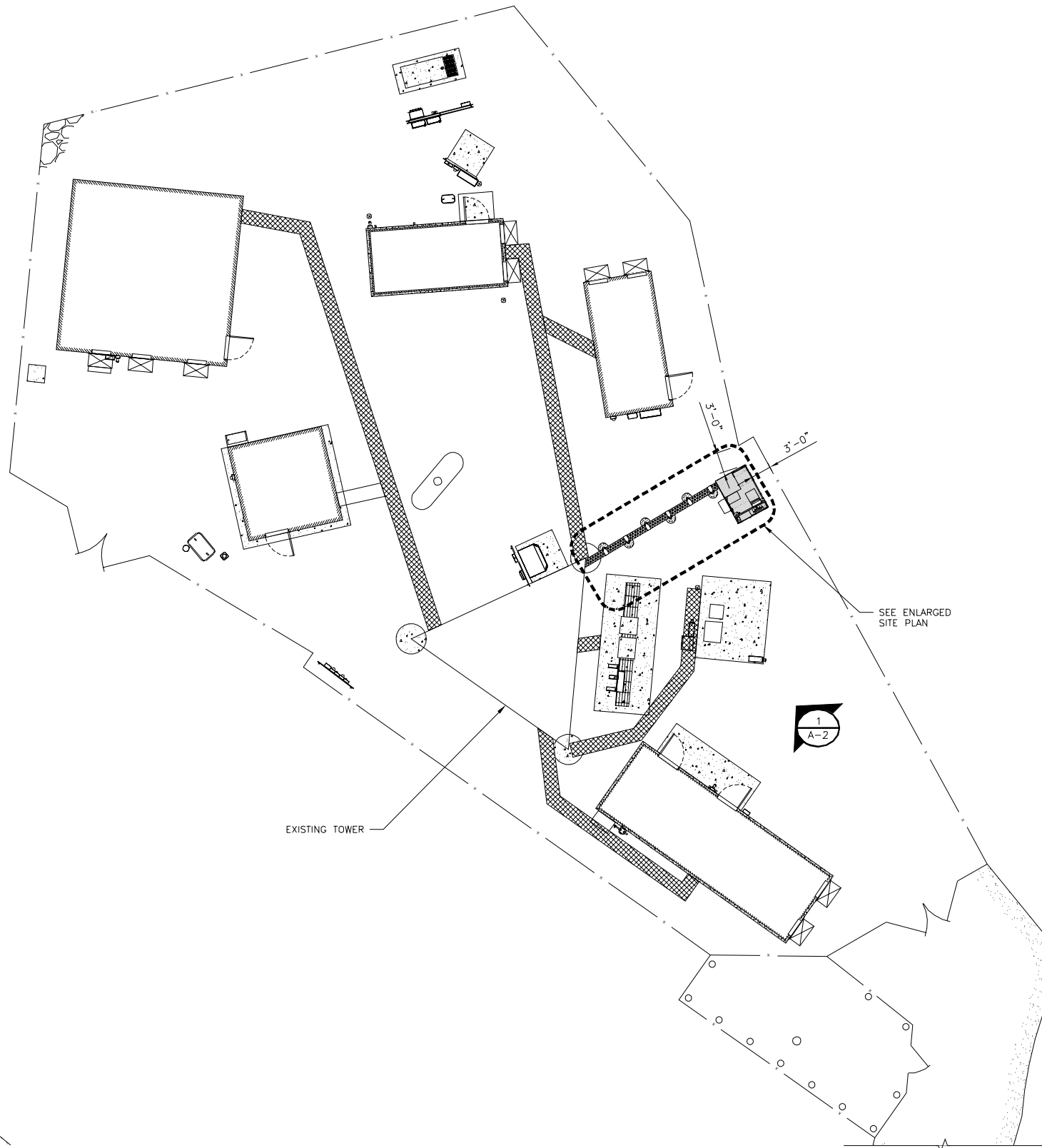
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SHEET TITLE  
PARCEL PLAN

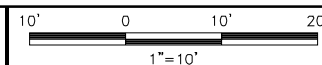
SHEET NUMBER  
**A-0**

NOTES

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



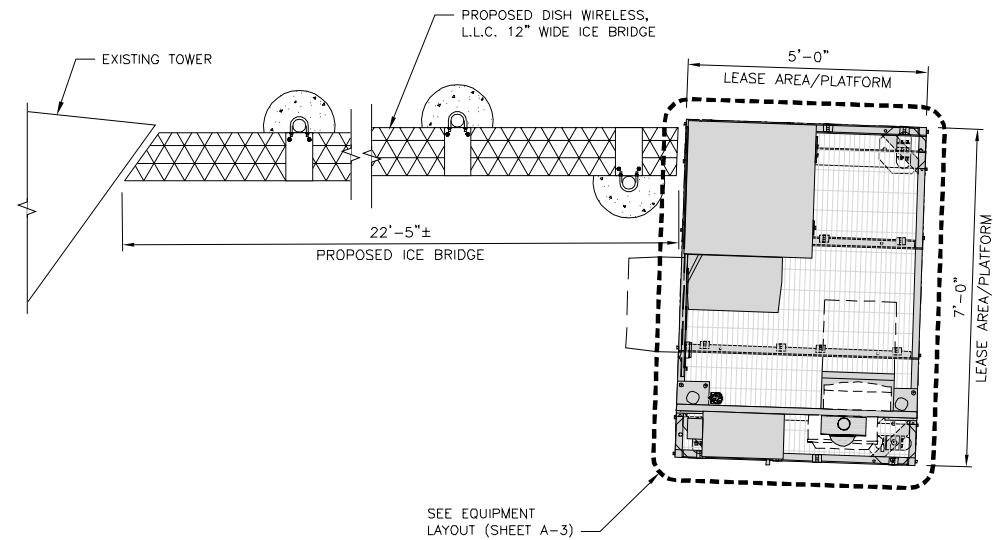
OVERALL SITE PLAN



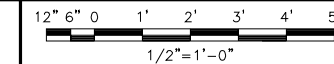
1

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.



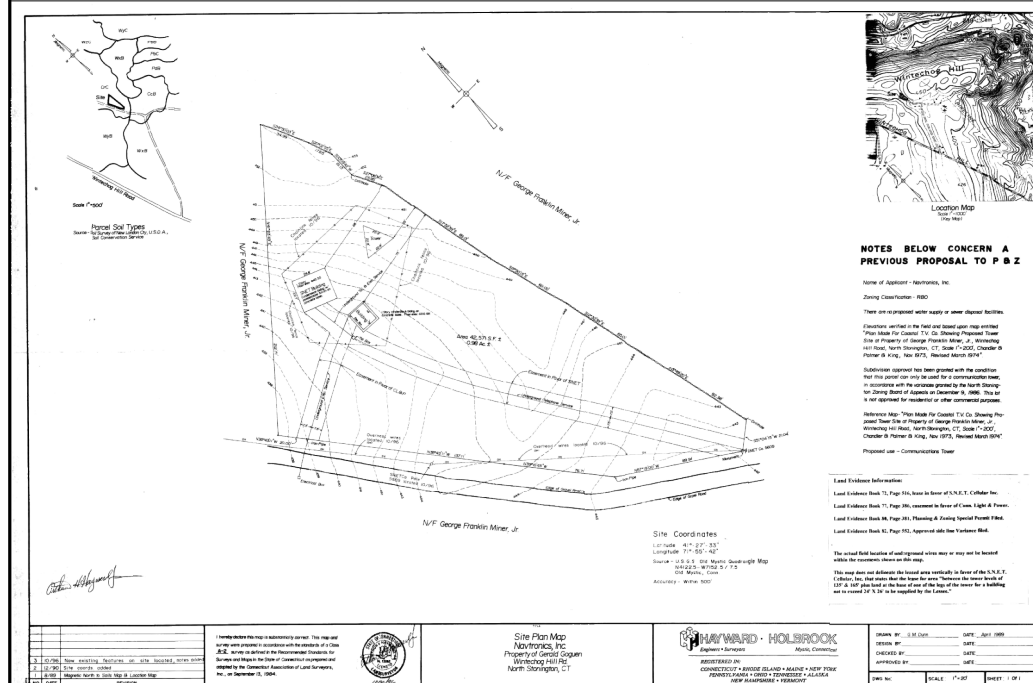
ENLARGED SITE PLAN



2

NOTES

1. THE SURVEY PROVIDED ON THIS SHEET IS PROVIDED FOR REFERENCE ONLY, THE UTILITY ROUTE AND EXISTING EASEMENTS MUST BE VERIFIED PRIOR TO CONSTRUCTION.



EXISTING SURVEY (BY OTHERS)

NO SCALE

3



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



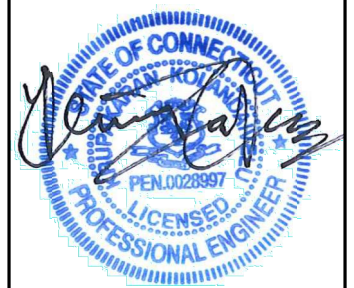
NB+C ENGINEERING SERVICES, L.L.C.  
111 X DR ROAD, SUITE 500  
RALEIGH, NC 27715  
(919) 579-9131

DRAWN BY:	CHECKED BY:	APPROVED BY:
JES	BIW	BIW

RFDS REV #: 1

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SHEET TITLE  
OVERALL AND ENLARGED  
SITE PLAN

SHEET NUMBER

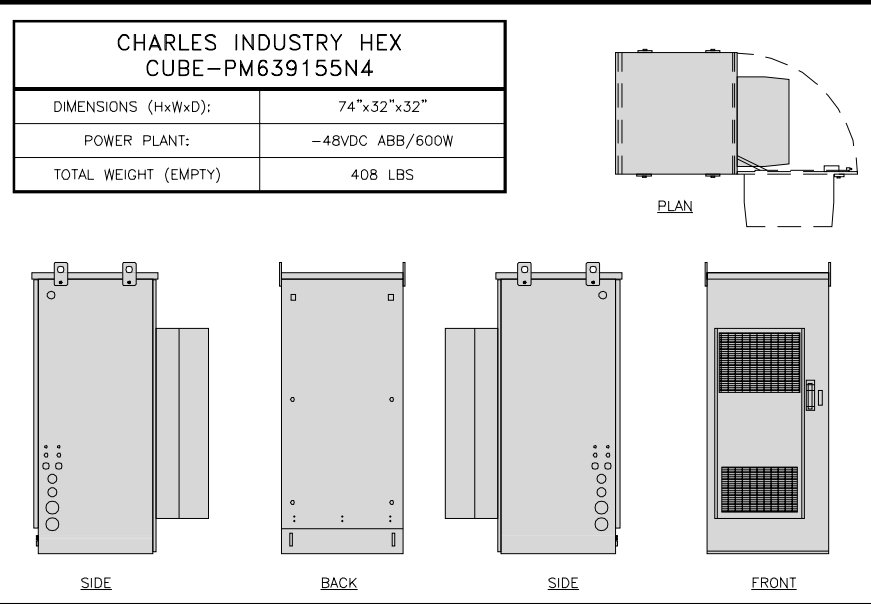
A-1







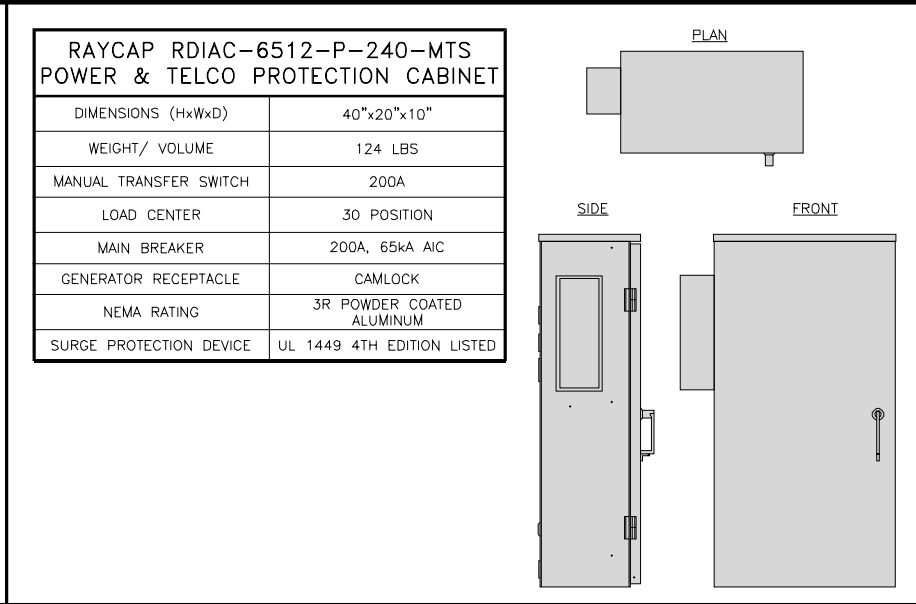




CABINET DETAIL

NO SCALE

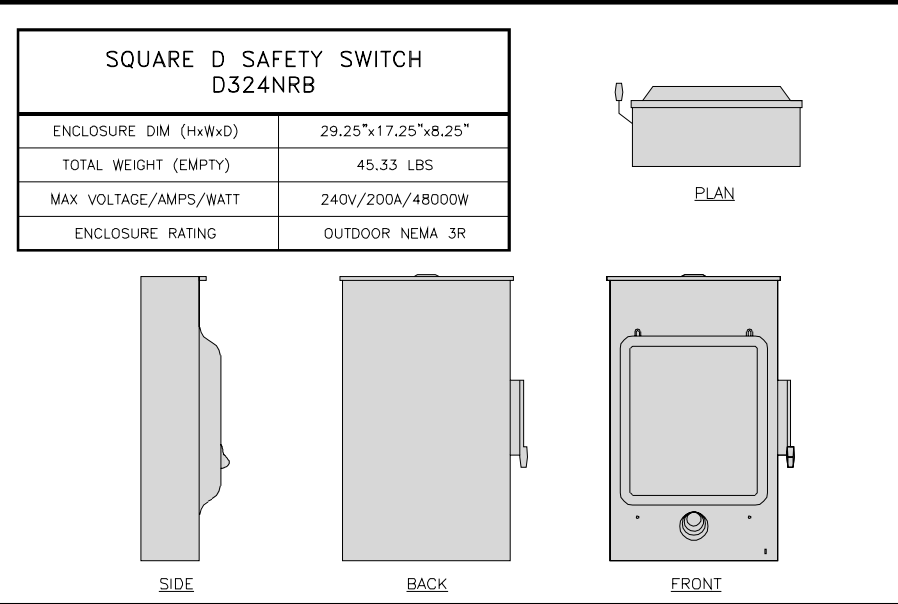
1



POWER PROTECTION CABINET (PPC) DETAIL

NO SCALE

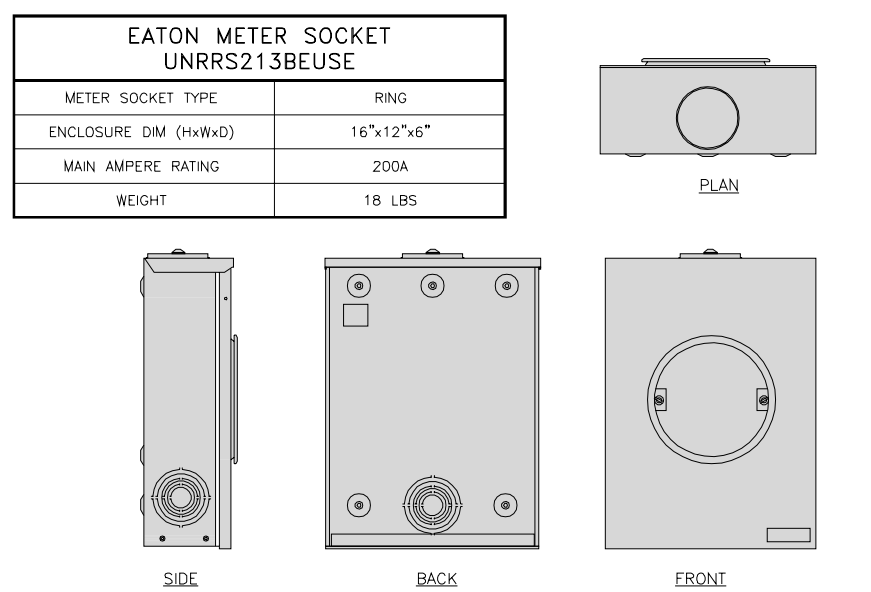
2



SAFETY SWITCH

NO SCALE

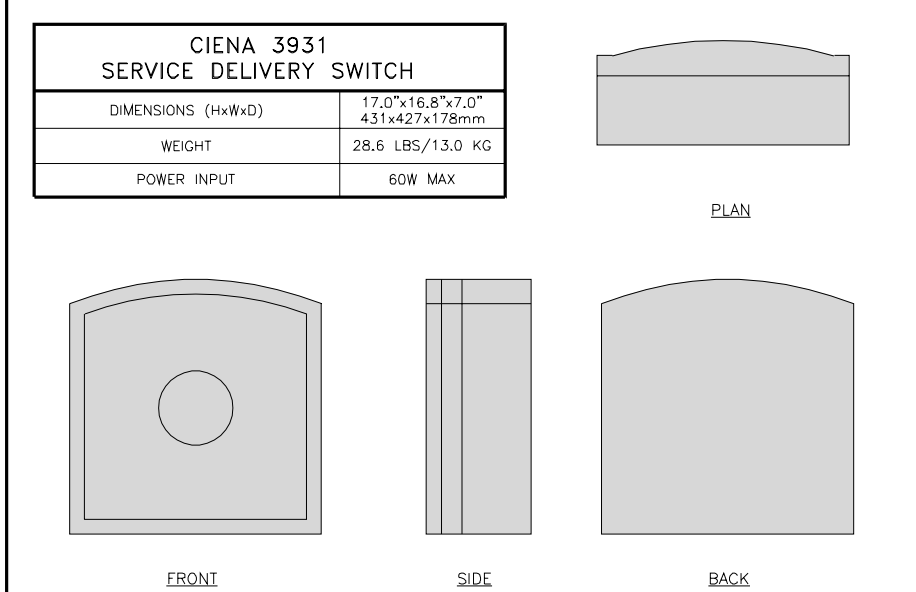
3



METER SOCKET DETAIL

NO SCALE

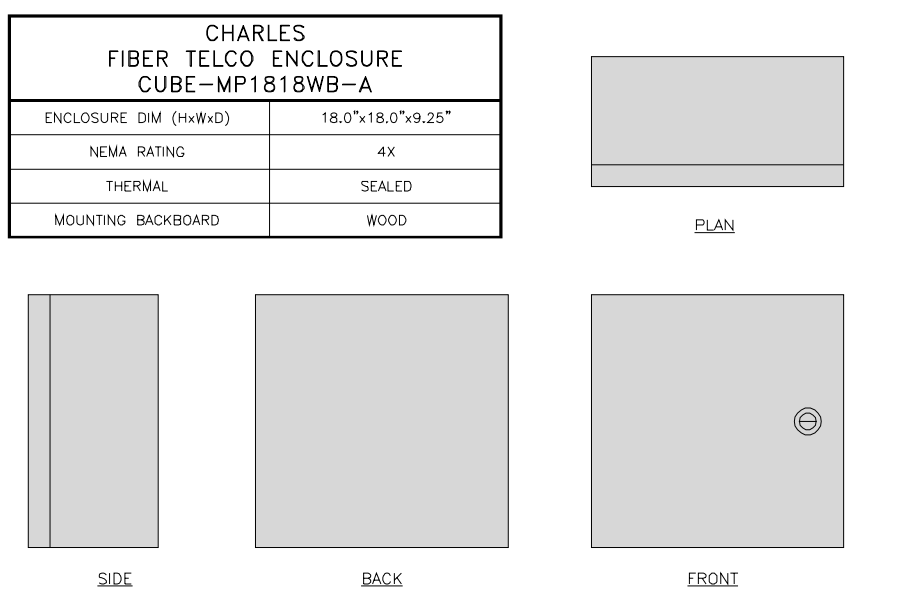
4



CIENA DETAIL

NO SCALE

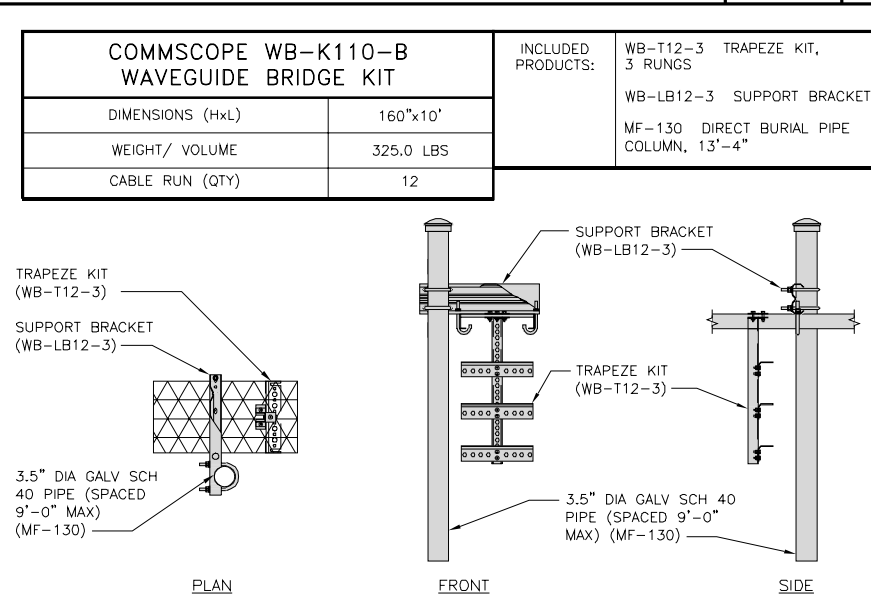
5



FIBER TELCO ENCLOSURE DETAIL

NO SCALE

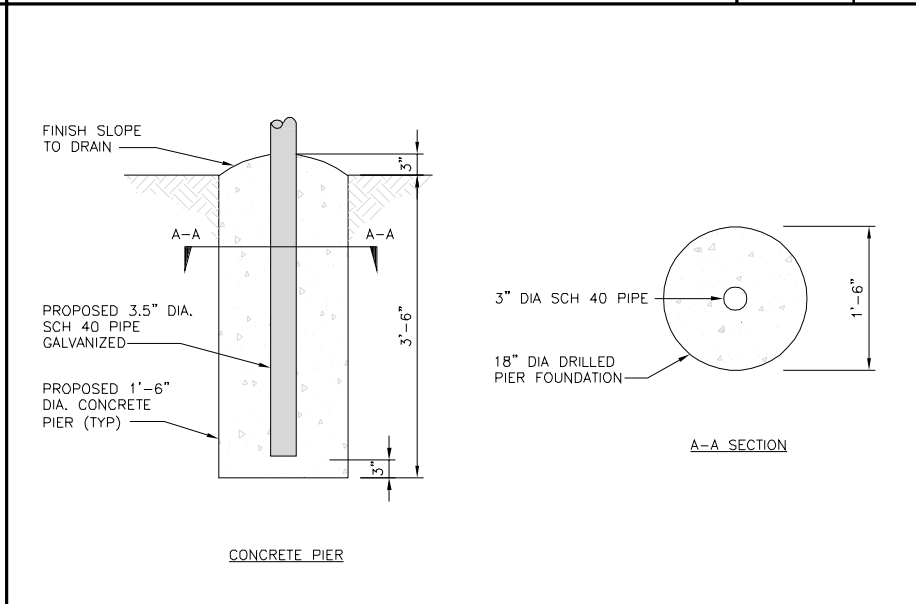
6



ICE BRIDGE DETAIL

NO SCALE

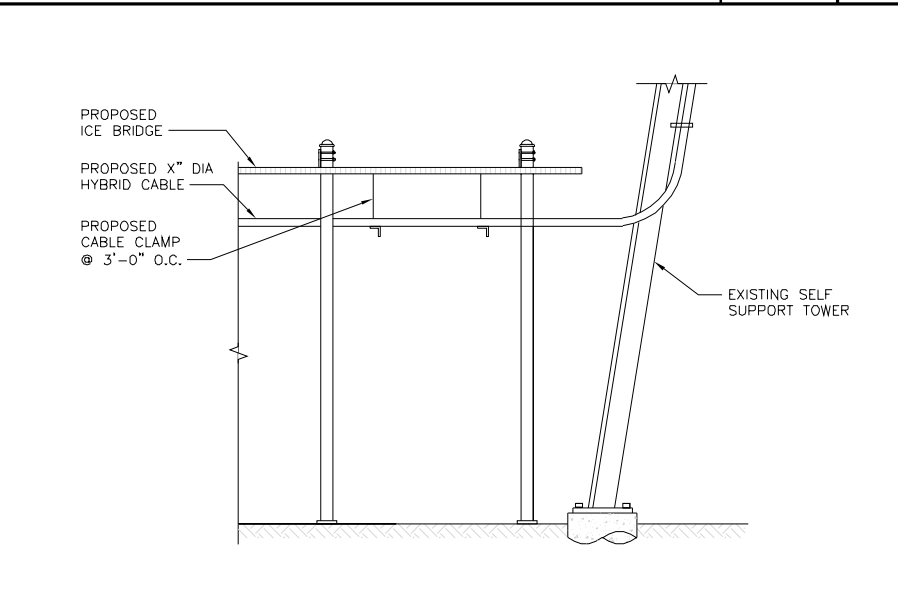
7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL

NO SCALE

8



HYBRID CABLE RUN

NO SCALE

9

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120

**TOTALLY COMMITTED.**  
NB+C ENGINEERING SERVICES, L.L.C.  
RALEIGH, NC 27615  
(919) 579-9131

DRAWN BY:	CHECKED BY:	APPROVED BY:
JES	BIW	BIW
RFDS REV #:		1
CONSTRUCTION DOCUMENTS		
SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/25/2021	ISSUED FOR REVIEW
D	08/30/2021	ISSUED FOR CONSTRUCTION



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A&E PROJECT NUMBER  
**6260-13694578**

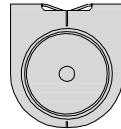
DISH WIRELESS, L.L.C.  
PROJECT INFORMATION  
**BOBOS00884A**

118C WINTECHOG HILL RD., OFF OF RT. 2  
NORTH STONINGTON, CT 06359

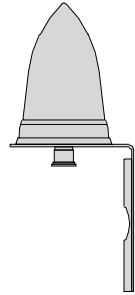
SHEET TITLE  
**EQUIPMENT DETAILS**

SHEET NUMBER  
**A-4**

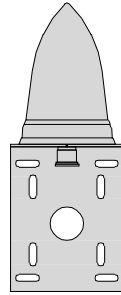
<b>PCTEL</b> <b>GPSGL-TMG-SPI-40NCB</b>	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



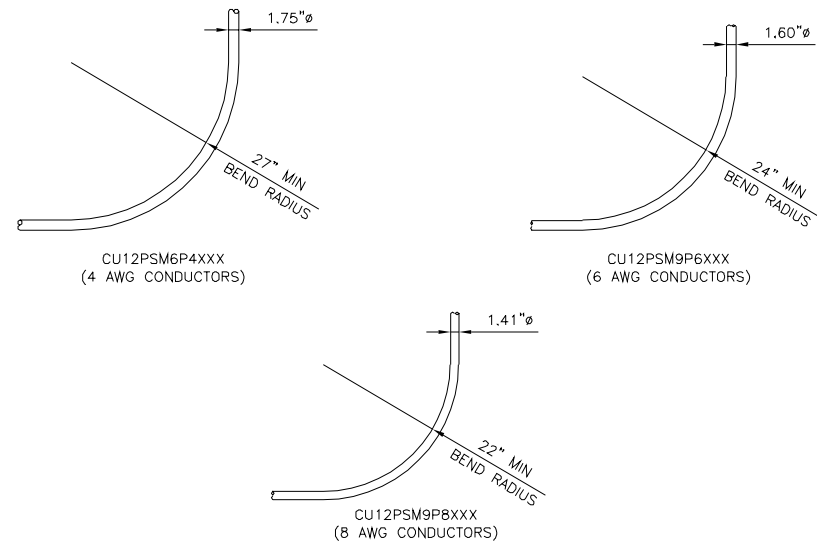
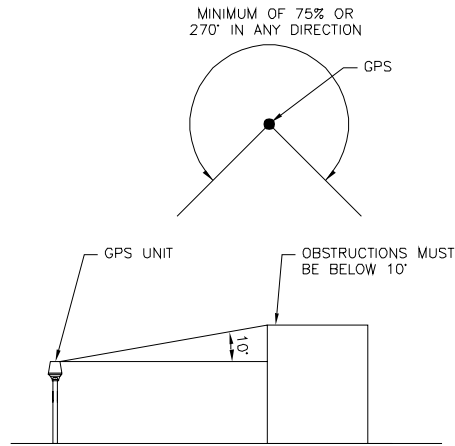
TOP



BACK



SIDE



**dish**  
wireless.

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120

**NB+C**  
TOTALLY COMMITTED.

NB+C ENGINEERING SERVICES, LLC.  
RALEIGH, NC 27615  
919-579-9131

GPS 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

DRAWN BY: JES  
CHECKED BY: BIW  
APPROVED BY: BIW

RFDS REV #: 1

CONSTRUCTION  
DOCUMENTS

SUBMITTALS		
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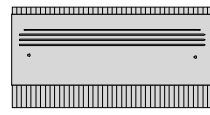
A&E PROJECT NUMBER  
6260-13694578

DISH WIRELESS, L.L.C.  
PROJECT INFORMATION  
BOBOS00884A  
118C WINTECHOG HILL RD., OFF OF RT. 2  
NORTH STONINGTON, CT 06359

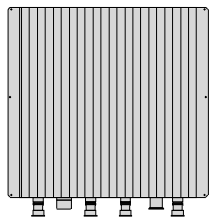
SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER  
**A-5**

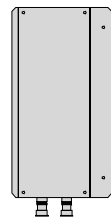
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



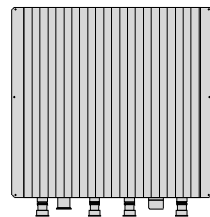
PLAN



BACK



SIDE



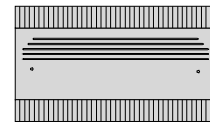
FRONT

RRH\_DETAIL

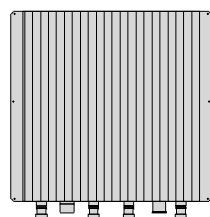
NO SCALE

1

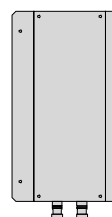
FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



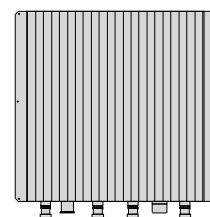
PLAN



BACK



SIDE



FRONT

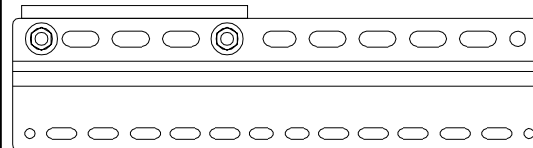
RRH\_DETAIL

NO SCALE

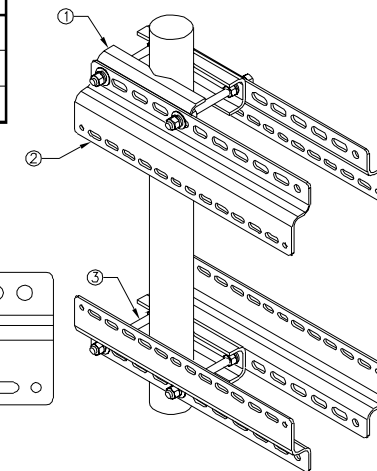
2

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

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



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

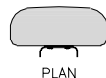


RRH\_MOUNT\_DETAIL

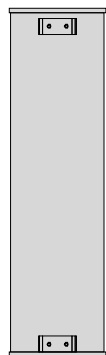
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3

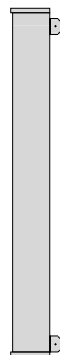
JMA WIRELESS MX08FRO665-21 ANTENNA	
DIMENSIONS (HxWxD)	72.0"x20.0"x8.0"
TOTAL WEIGHT	64.5 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE



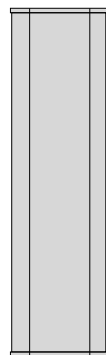
PLAN



BACK



SIDE



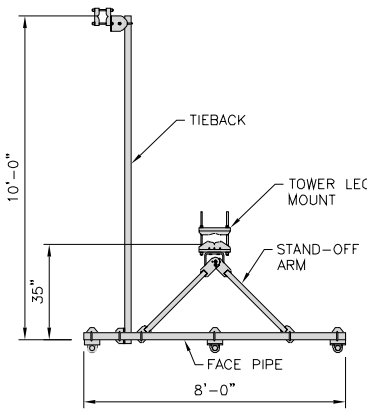
FRONT

ANTENNA\_DETAIL

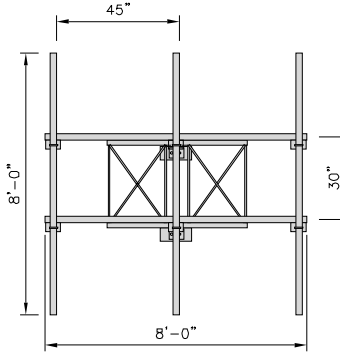
NO SCALE

4

COMMSCOPE V-FRAME MTC3975083	
FACE SIZE	8'-0"
WEIGHT	352,136 lbs



PLAN



FRONT

ANTENNA\_FRAME\_DETAIL

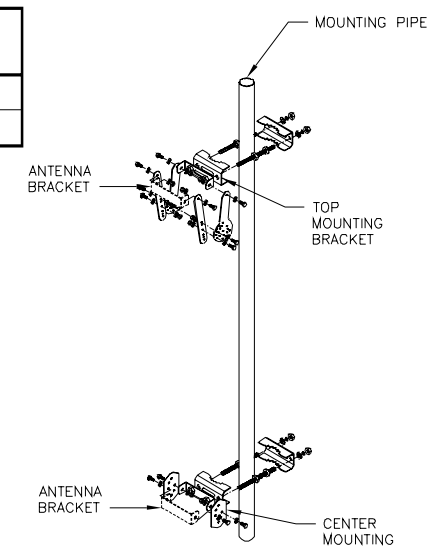
NO SCALE

5

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

NOTE:  
KIT #91900318: TOP AND BOTTOM BRACKETS  
FOR 4-, 6-, AND 8-FOOT ANTENNAS  
ANTENNA BRACKET NOT PART OF KIT

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



ANTENNA\_BRACKET\_DETAIL

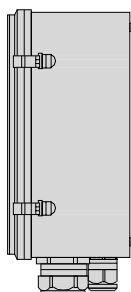
NO SCALE

6

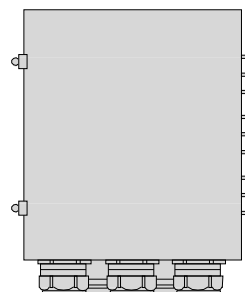
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



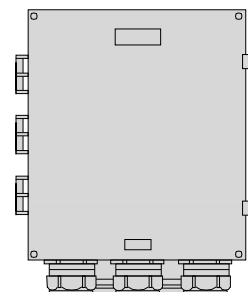
PLAN



SIDE



BACK



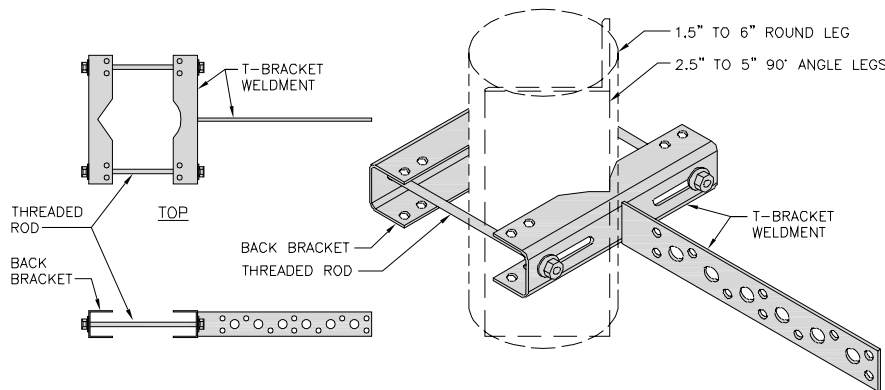
FRONT

SURGE\_SUPPRESSION\_DETAIL (OVP)

NO SCALE

7

SITEPRO1 T600 UNIVERSAL T-BRACKET	
DIMENSIONS (HxWxL)	2.25"x10.0"x15.25"
WEIGHT/ VOLUME	5.60 LBS



SIDE

ISOMETRIC

VERTICAL\_CABLE\_SUPPORT\_DETAIL

NO SCALE

8

NOT\_USED

NO SCALE

9

**dish**  
wireless.

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120

**NB+C**  
TOTALLY COMMITTED.

NB+C ENGINEERING SERVICES, L.L.C.  
RALEIGH, NC 27715  
919-579-9131

DRAWN BY: JES  
CHECKED BY: BIW  
APPROVED BY: BIW

RFDS REV #: 1

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DOCUMENTS

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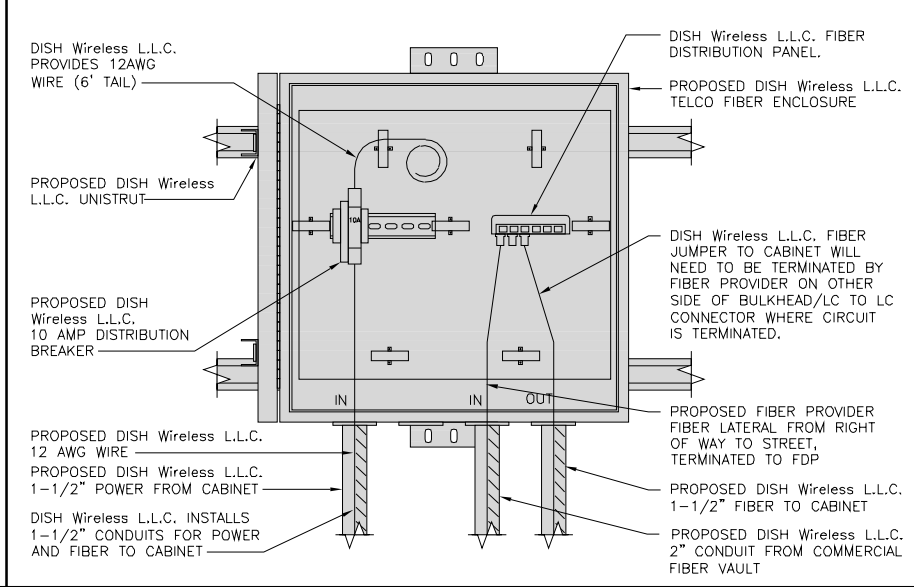
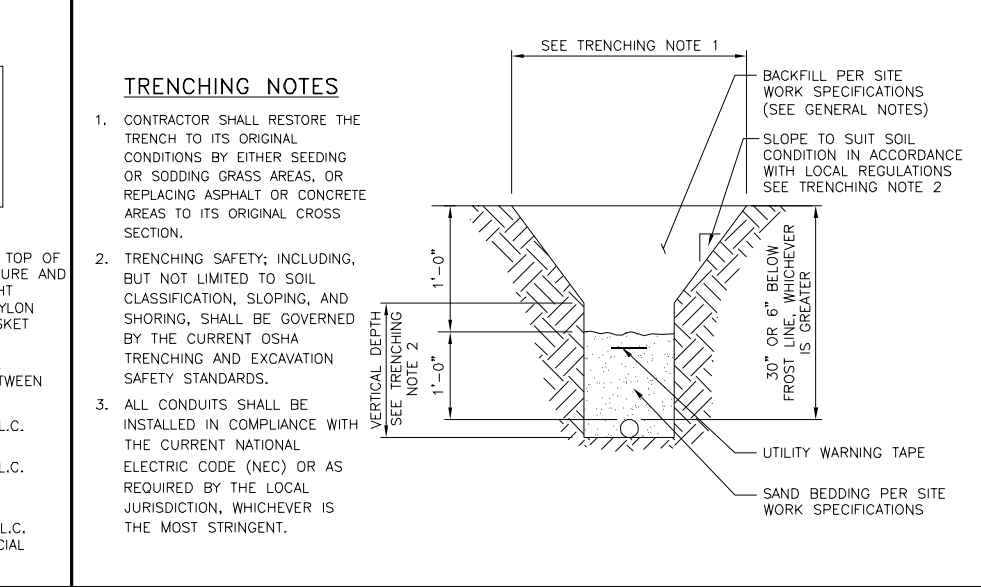
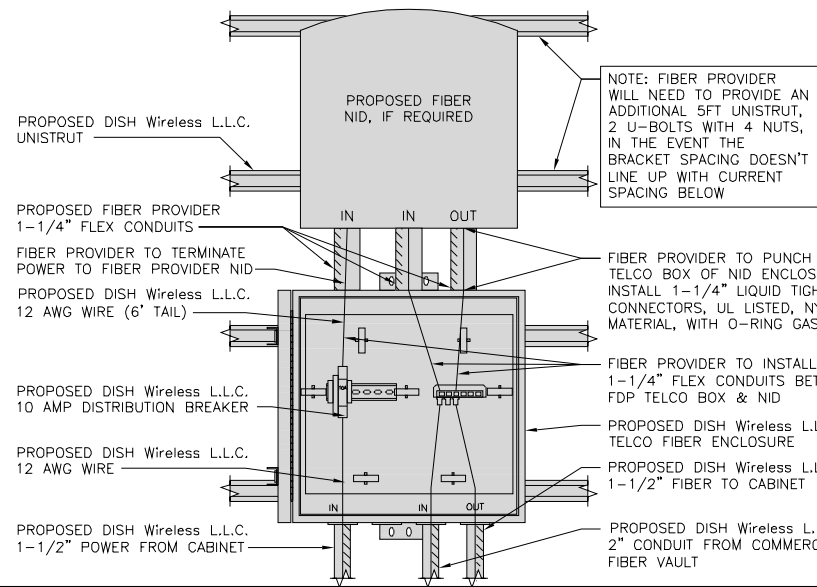
DISH WIRELESS, L.L.C.  
PROJECT INFORMATION  
BOBOS00884A  
118C WINTECHOG HILL RD., OFF OF RT. 2  
NORTH STONINGTON, CT 06359

SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER  
**A-6**







**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.

LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL)

NO SCALE 1

TYPICAL UNDERGROUND TRENCH DETAIL

NO SCALE 2

DARK TELCO BOX – INTERIOR WIRING LAYOUT

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



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



NB+C ENGINEERING SERVICES, LLC.  
RALEIGH, NC 27615  
919.57.9131

DRAWN BY: JES  
CHECKED BY: BIW  
APPROVED BY: BIW

RFDS REV #: 1

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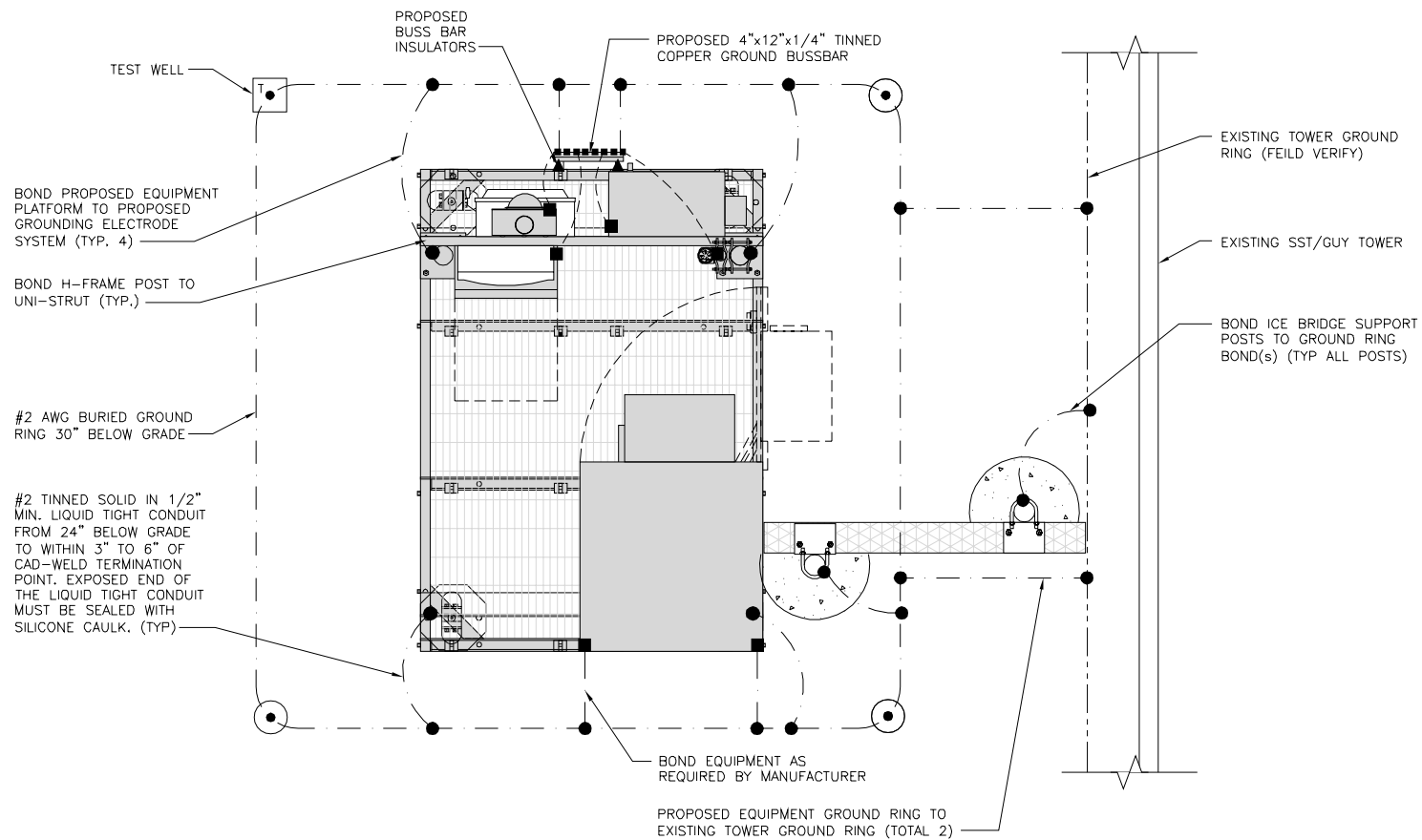
DISH WIRELESS, L.L.C.  
PROJECT INFORMATION  
BOBOS00884A  
118C WINTECHOG HILL RD., OFF OF RT. 2  
NORTH STONINGTON, CT 06359

SHEET TITLE  
ELECTRICAL  
DETAILS

SHEET NUMBER  
E-2

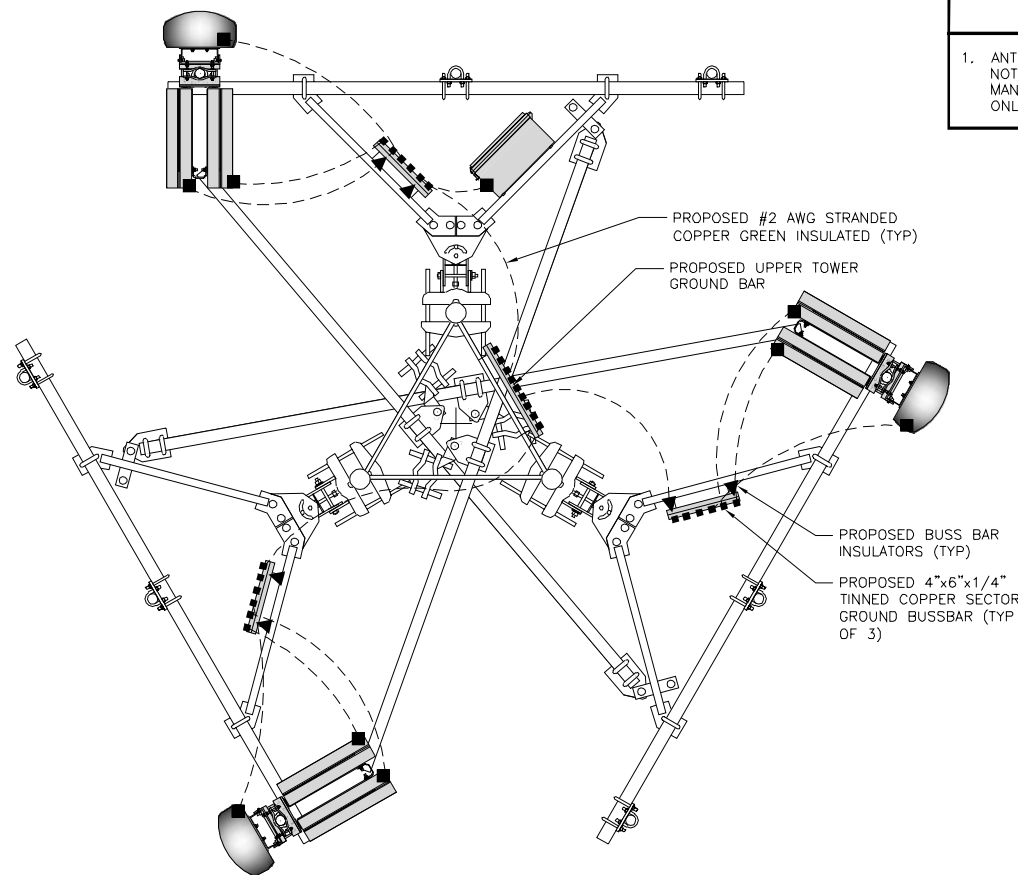






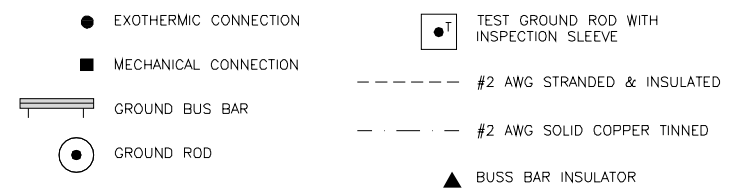
TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2



GROUNDING LEGEND

- GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
- 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.
- 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 5/8" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.
- (F) **CELL REFERENCE GROUND BAR:** POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.
- (G) **HATCH PLATE GROUND BAR:** BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.
- (H) **EXTERIOR CABLE ENTRY PORT GROUND BARS:** LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE.
- (J) **TELCO GROUND BAR:** BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.
- (K) **FRAME BONDING:** THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.
- (L) **INTERIOR UNIT BONDS:** METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.
- (M) **FENCE AND GATE GROUNDING:** METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.
- (N) **EXTERIOR UNIT BONDS:** METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. USING #2 TINNED SOLID COPPER WIRE
- (P) **ICE BRIDGE SUPPORTS:** EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.
- (Q) **DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR**
- (R) **TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT COLLAR. REFER TO DISH WIRELESS, L.L.C. GROUNDING NOTES.**

GROUNDING KEY NOTES

NO SCALE 3



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



NB+C ENGINEERING SERVICES, LLC.  
10110 FOX CREEK ROAD, SUITE 500  
RALEIGH, NC 27715  
919-579-9131

DRAWN BY:	CHECKED BY:	APPROVED BY:
JES	BIW	BIW

RFDS REV #: 1

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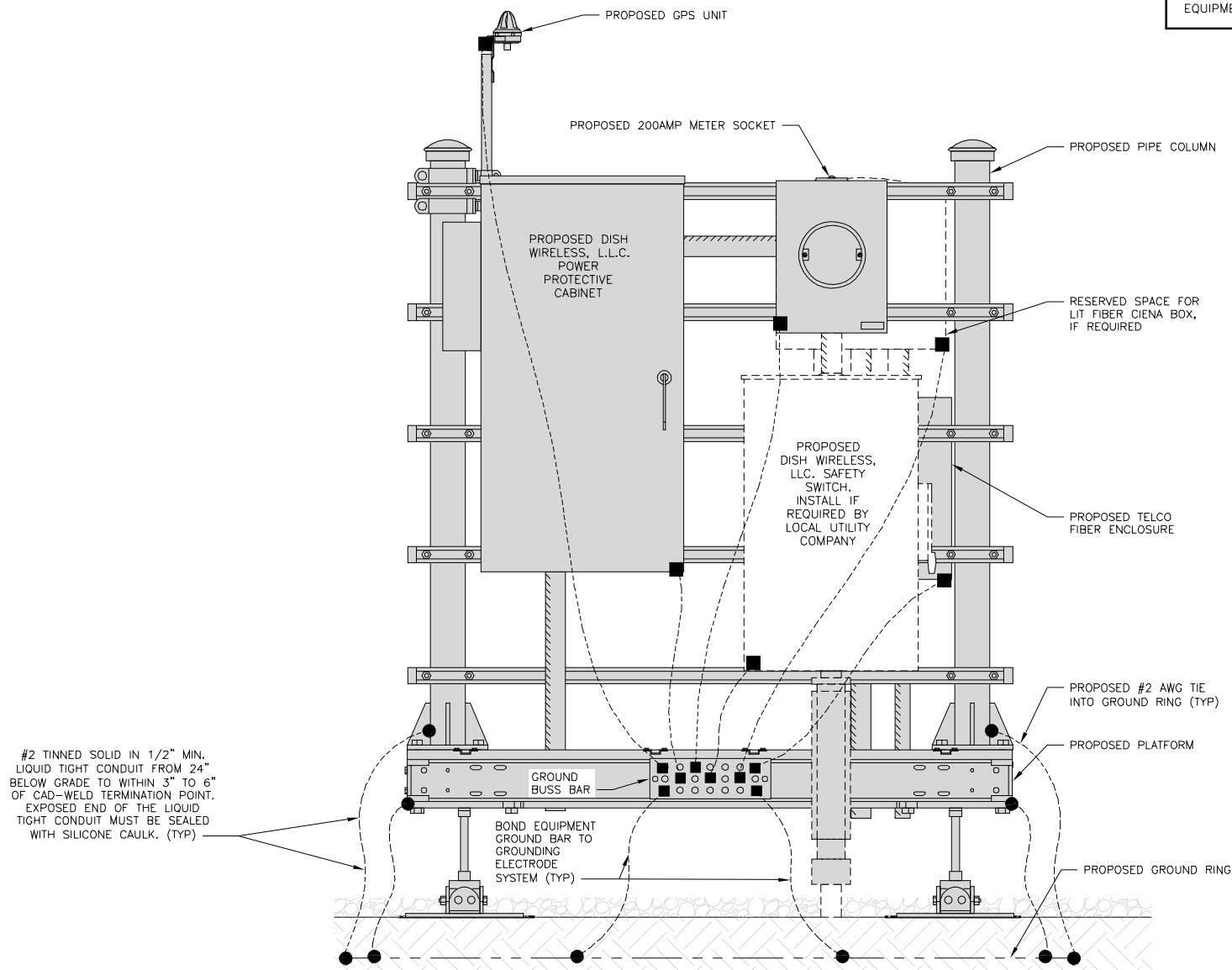
DISH WIRELESS, L.L.C.  
PROJECT INFORMATION  
BOBOS00884A  
118C WINTECHOG HILL RD., OFF OF RT. 2  
NORTH STONINGTON, CT 06359

SHEET TITLE  
GROUNDING PLANS AND NOTES

SHEET NUMBER  
G-1

NOTES

EQUIPMENT CABINET OMITTED FOR CLARITY

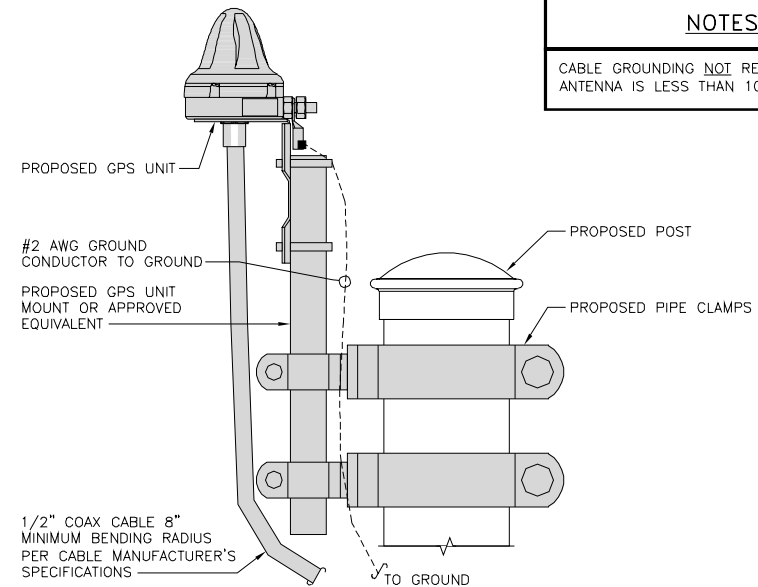


H-FRAME GROUNDING DETAIL

NO SCALE 1

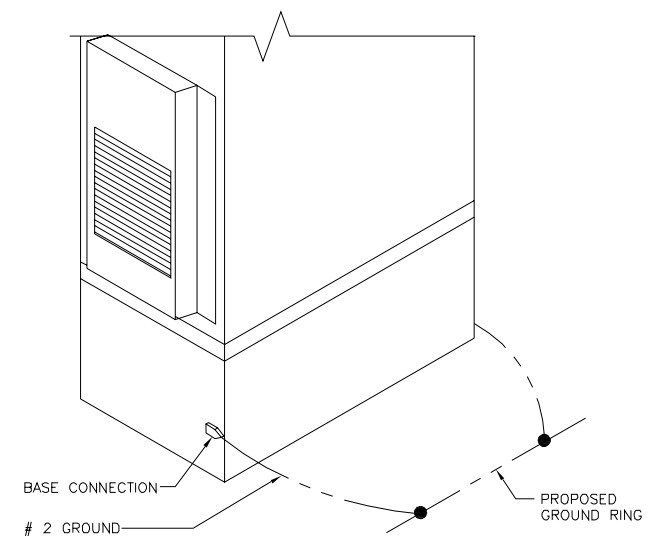
NOTES

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



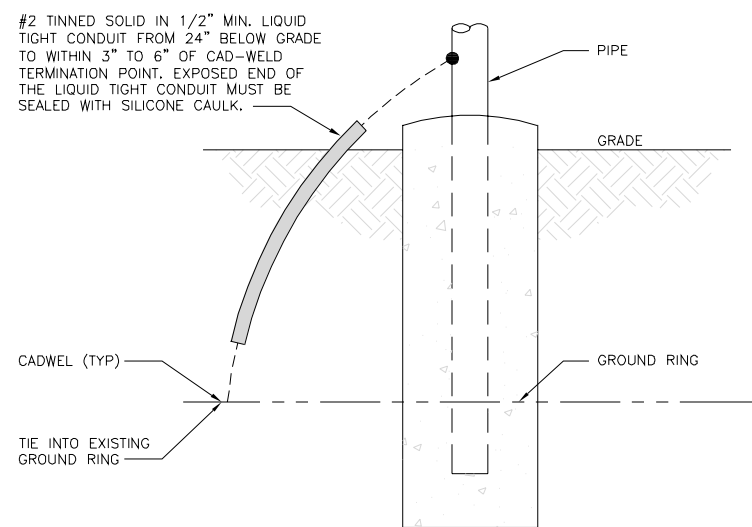
TYPICAL GPS UNIT GROUNDING

NO SCALE 2



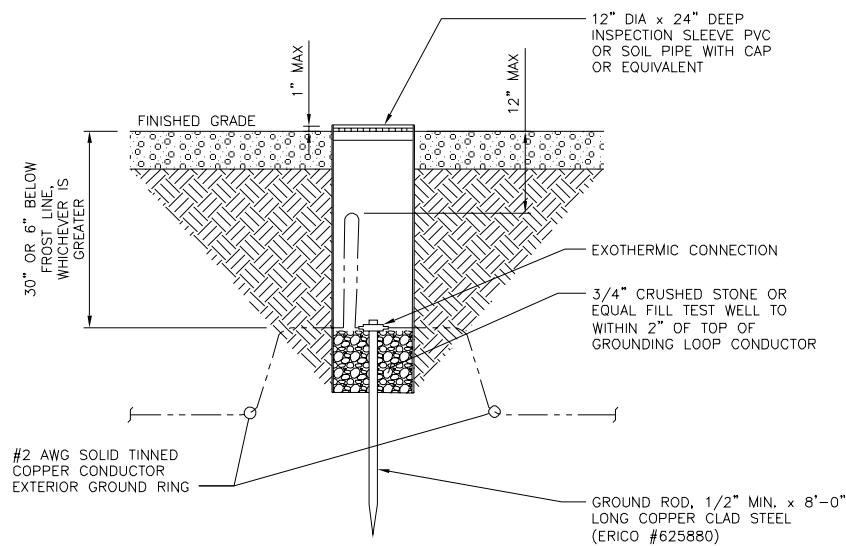
OUTDOOR CABINET GROUNDING

NO SCALE 3



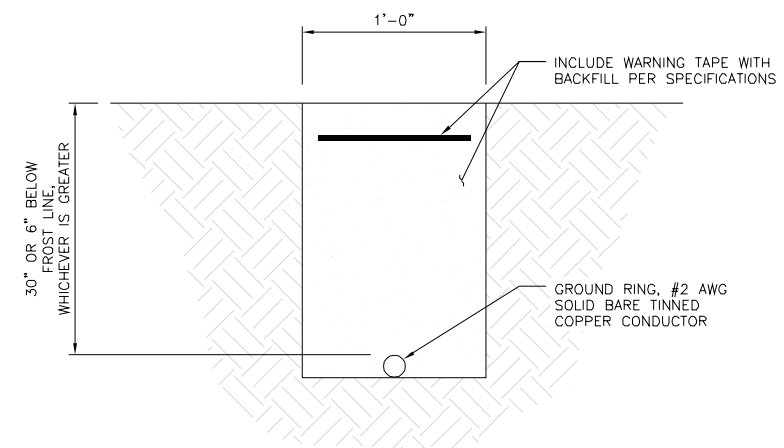
TRANSITIONING GROUND DETAIL

NO SCALE 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE

NO SCALE 5



TYPICAL GROUND RING TRENCH

NO SCALE 6

**dish**  
wireless.

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120

**NB+C**  
TOTALLY COMMITTED.

NB+C ENGINEERING SERVICES, L.L.C.  
10010 X COR ROAD, SUITE 500  
RALEIGH, NC 27715  
919-579-1311

DRAWN BY: JES CHECKED BY: BIW APPROVED BY: BIW

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/25/2021	ISSUED FOR REVIEW
D	08/30/2021	ISSUED FOR CONSTRUCTION



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.

A&E PROJECT NUMBER  
6260-13694578

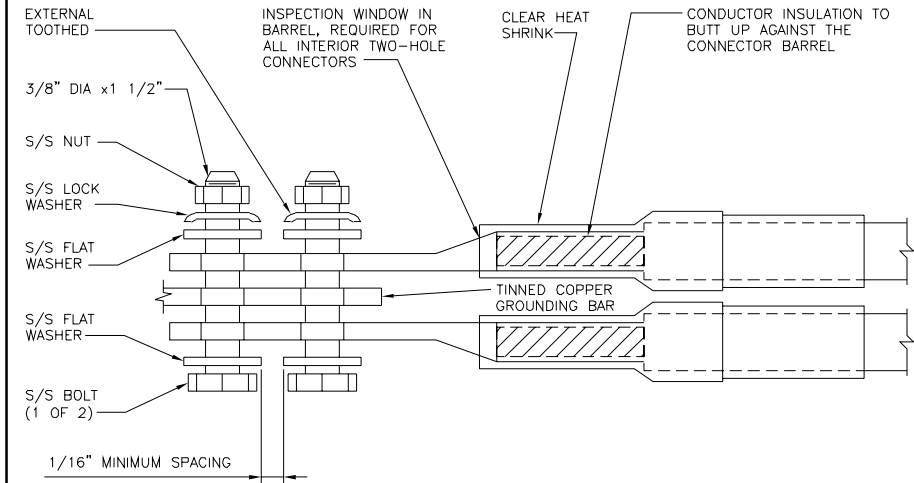
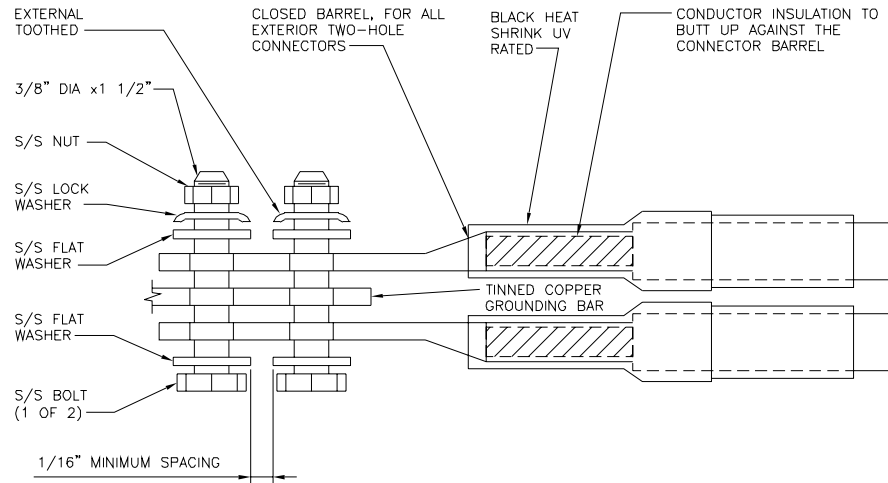
DISH WIRELESS, L.L.C.  
PROJECT INFORMATION  
BOBOS00884A  
118C WINTECHOG HILL RD., OFF OF RT. 2  
NORTH STONINGTON, CT 06359

SHEET TITLE  
GROUNDING DETAILS

SHEET NUMBER

G-2

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



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



NB+C ENGINEERING SERVICES, LLC.  
RALEIGH, NC 27715  
919-579-9131

DRAWN BY: JES  
CHECKED BY: BIW  
APPROVED BY: BIW

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/25/2021	ISSUED FOR REVIEW
D	08/30/2021	ISSUED FOR CONSTRUCTION



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A&E PROJECT NUMBER  
6260-13694578

DISH WIRELESS, L.L.C.  
PROJECT INFORMATION  
BOBOS00884A  
118C WINTECHOG HILL RD., OFF OF RT. 2  
NORTH STONINGTON, CT 06359

SHEET TITLE  
GROUNDING DETAILS

SHEET NUMBER  
**G-3**

TYPICAL GROUNDING NOTES

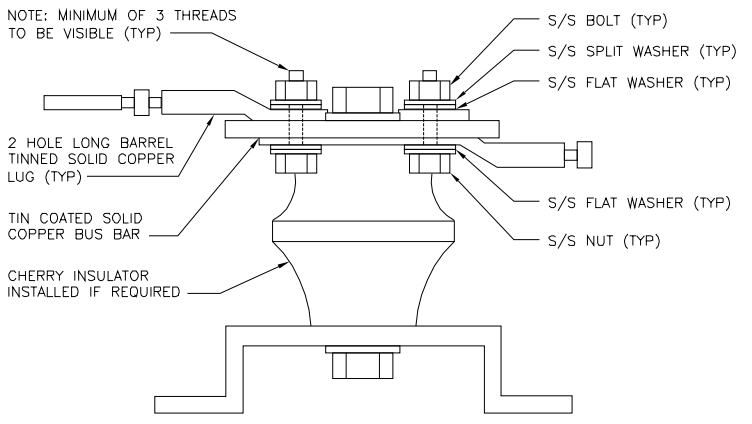
NO SCALE 1

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



















ENGINEERING:  
STRUCTURAL ANALYSIS  
MOUNT ANALYSIS



**AMERICAN TOWER®**  
CORPORATION

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## Structural Analysis Report

**Structure** : 250 ft Self Supported Tower  
**ATC Site Name** : NORTH STONINGTON CT, CT  
**ATC Asset Number** : 6260  
**Engineering Number** : 13694578\_C3\_02  
**Proposed Carrier** : DISH WIRELESS L.L.C.  
**Carrier Site Name** : BOBOS00884A  
**Carrier Site Number** : BOBOS00884A  
**Site Location** : 118C Wintechog Hill Rd., off of Rt. 2  
North Stonington, CT 06359-1228  
41.459800,-71.927300  
**County** : New London  
**Date** : June 24, 2021  
**Max Usage** : 56%  
**Result** : Pass



Prepared By:  
Lucas Tait  
Structural Engineer I

Reviewed By:

**COA: PEC.0001553**



**Table of Contents**

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Conclusion.....	1
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Proposed Equipment .....	3
Standard Conditions .....	4
Calculations .....	Attached





## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 250 ft self supported tower to reflect the change in loading by DISH WIRELESS L.L.C..

## Supporting Documents

<b>Tower Drawings</b>	FWT Job #19240001, dated September 13, 1999
<b>Foundation Drawing</b>	FWT Job #19240001, dated September 13, 1999
<b>Geotechnical Report</b>	Clarence Welti Associates, dated August 31, 1999
<b>Modifications</b>	CLS Engineering PLLC Project #41124-12927122-01-MR-R1, dated July 3, 2019

## Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

<b>Basic Wind Speed:</b>	127 mph (3-Second Gust)
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-Second Gust) w/ 1" radial ice concurrent
<b>Code:</b>	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
<b>Exposure Category:</b>	B
<b>Risk Category:</b>	II
<b>Topographic Factor Procedure:</b>	Method 1
<b>Topographic Category:</b>	1
<b>Spectral Response:</b>	$S_s = 0.19, S_1 = 0.05$
<b>Site Class:</b>	D - Stiff Soil

## Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at [Engineering@americantower.com](mailto:Engineering@americantower.com). Please include the American Tower site name, site number, and engineering number in the subject line for any questions.



**Existing and Reserved Equipment**

Elev. <sup>1</sup> (ft)	Qty	Equipment	Mount Type	Lines	Carrier
260.0	2	Generic 10' Omni	Leg	(4) 1 5/8" Coax	OTHER
	1	Decibel DB809DK-XT	Leg	(2) 1 5/8" Coax	STATE OF CT
250.0	1	Box Enclosures BEN-92P	Sector Frame	(4) 0.21" (5.3mm) Cat 5e (4) 1 1/4" Hybriflex Cable (1) 1" conduit	SPRINT NEXTEL
246.0	3	RFS APXVSP18-C-A20			
	3	Alcatel-Lucent TD-RRH8x20-25			
	3	Alcatel-Lucent 1900 MHz 4X45 RRH			
	6	Alcatel-Lucent RRH2x50-08			
236.0	3	KMW ETCR-654L12H6	Leg	(1) 1/2" Coax	SIGFOX S.A.
	1	Procom CXL 900-3LW	Sector Frame	(6) 1 5/8" Coax (4) 1 5/8" Hybriflex	T-MOBILE
	1	Generic 5" x 3" x 2" Cavity Filter			
1	Generic Low Noise Amplifier				
225.0	3	Ericsson Radio 4449 B12,B71	Sector Frame	(6) 1 5/8" Coax (4) 1 5/8" Hybriflex	T-MOBILE
	3	Ericsson AIR 21, 1.3M, B2A B4P (91.5 lbs)			
	3	Ericsson AIR 21, 1.3M, B4A B2P (90.4 lbs)			
	3	RFS APXVAARR24_43-U-NA20			
207.0	1	Sinclair SC479-HF1LDF(E5765)	Leg	(1) 1 5/8" Coax	STATE OF CT
200.0	1	Bird 432E-83I-01-T	Side Arm	(1) 0.51" (13mm) Cable	
192.0	2	Sinclair SC479-HF1LDF(E5765)	Leg	(2) 1 5/8" Coax	
175.0	1	Raycap DC6-48-60-18-8F (23.5" Height)	Sector Frame	(1) 0.39" (10mm) Fiber Trunk (1) 0.39" (9.8mm) Cable (4) 0.78" (19.7mm) 8 AWG 6 (6) 1 5/8" Coax (2) 3" conduit	AT&T MOBILITY
	1	Raycap DC6-48-60-18-8F ("Squid")			
	3	Ericsson RRUS 8843 B2, B66A			
	3	Powerwave Allgon 7020			
	6	Powerwave Allgon LGP21901			
	6	Powerwave Allgon LGP17201			
	3	CCI OPA65R-BU8D			
	3	CCI DMP65R-BU8D			
	3	Ericsson RRUS 4478 B14			
	3	Ericsson RRUS 4449 B5, B12			
	3	Allgon 7770.00			
96.0	1	Generic 24" x 24" Ice Shield	Leg	-	OTHER
89.0	1	Generic 6' Dish w/ Radome	Leg	(1) 1/2" Coax (1) EW52	
83.0	1	RFS PA6-65AC w/ Radome	Leg	(1) WE65	

**Equipment to be Removed**

Elev. <sup>1</sup> (ft)	Qty	Equipment	Mount Type	Lines	Carrier
155.0	6	Kathrein Scala 860 10025	Sector Frame	(6) 3/8" Coax (12) 1 5/8" Coax	METRO PCS INC
	6	Kathrein Scala 800 10504			



**Proposed Equipment**

Elev. <sup>1</sup> (ft)	Qty	Equipment	Mount Type	Lines	Carrier
165.0	1	Commscope RDIDC-9181-PF-48	Sector Frame	(1) 1.60" (40.6mm) Hybrid	DISH WIRELESS L.L.C.
	3	Fujitsu TA08025-B604			
	3	Fujitsu TA08025-B605			
	3	JMA Wireless MX08FRO665-21			

<sup>1</sup> Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed coax anywhere on tower.



## Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

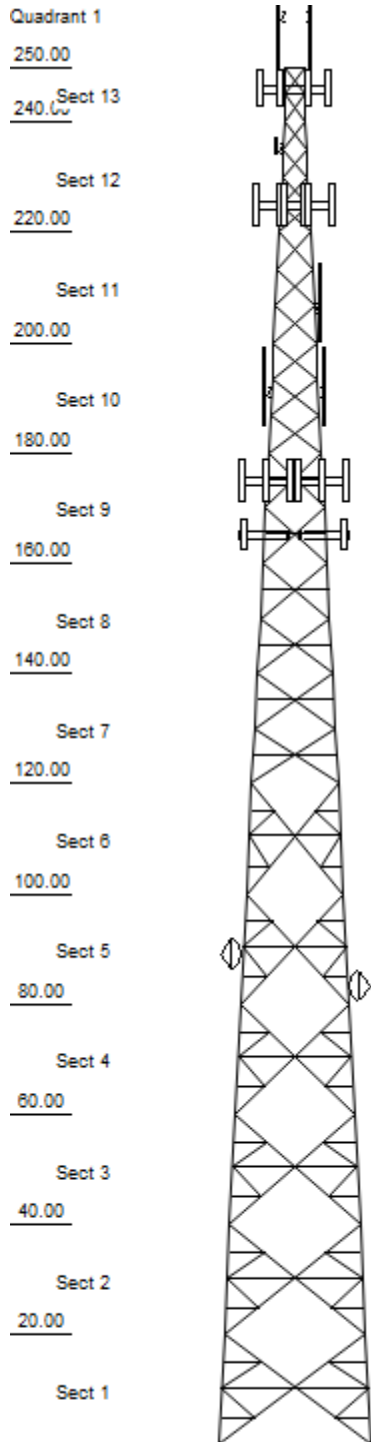
It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.





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Loads: 127 mph no ice  
 50 mph w/ 1" radial ice  
 Site Class: D Ss: 0.19 S1: 0.05  
 60 mph Serviceability

### Job Information

<b>Client : DISH WIRELESS L.L.C.</b>		
<b>Tower : 6260</b>	<b>Location : NORTH</b>	<b>Base Width : 28.00 ft</b>
<b>Code : ANSI/TIA-222-H</b>	<b>Topo Method: Method 1</b>	<b>Top Width : 4.00 ft</b>
<b>Risk Cat : II</b>	<b>Topo: 1</b>	<b>Tower Ht : 250.00 ft</b>
	<b>Exposure : B</b>	<b>Shape : Triangle</b>

### Sections Properties

Section	Leg Members	Diagonal Members	Horizontal Members
1	SOL 50 ksi 5 3/4" SOLID	DAE 36 ksi 3X3X0.25	
2	SOL 50 ksi 5 1/2" SOLID	DAE 36 ksi 3X3X0.25	
3	SOL 50 ksi 5 1/4" SOLID	DAE 36 ksi 3X3X0.25	
4	SOL 50 ksi 5" SOLID	DAE 36 ksi 3X3X0.1875	
5	SOL 50 ksi 4 3/4" SOLID	DAE 36 ksi 3X3X0.1875	
6	SOL 50 ksi 4 1/2" SOLID	DAE 36 ksi 3X3X0.1875	
7	SOL 50 ksi 4 1/4" SOLID	DAE 36 ksi 2.5X2.5X0.1875	
8	SOL 50 ksi 4" SOLID	DAE 36 ksi 2.5X2.5X0.1875	
9	SOL 50 ksi 3 3/4" SOLID	SAE 36 ksi 3.5X3.5X0.25	
10	SOL 50 ksi 3 3/4" SOLID	SAE 36 ksi 3X3X0.1875	
11	SOL 50 ksi 3 1/4" SOLID	SAE 36 ksi 2.5X2.5X0.1875	
12	SOL 50 ksi 2 1/4" SOLID	SAE 36 ksi 1.75X1.75X0.1875	
13	SOL 50 ksi 2" SOLID	SAE 36 ksi 1.75X1.75X0.1875	SAE 36 ksi 2X2X0.1875

### Redundant Secondary Bracing

Section	Sub Diag 1	Sub Horiz 1	Sub Diag 2	Sub Horiz 2	Sub Diag 3	Sub Horiz 3
1	D2.5X2.5X0.1875	D2.5X2.5X0.1875	D2.5X2.5X0.1875	D3X3X0.1875	-	D2.5X2.5X0.18
2	D2X2X0.1875	D2X2X0.1875	D2X2X0.1875	D3X3X0.1875	-	D2X2X0.1875
3	D2X2X0.1875	D2X2X0.1875	D2X2X0.1875	D2.5X2.5X0.1875	-	D2X2X0.1875
4	S3X3X0.1875	S2.5X2.5X0.1875	S3X3X0.1875	S3.5X3.5X0.25	-	S2.5X2.5X0.18
5	S3X3X0.1875	S2.5X2.5X0.1875	S3X3X0.1875	S3X3X0.25	-	S2.5X2.5X0.18
6	S2.5X2.5X0.1875	S2X2X0.1875	S2.5X2.5X0.1875	S3X3X0.1875	-	S2X2X0.1875
7	-	S3X3X0.1875	-	-	-	-
8	-	S2.5X2.5X0.1875	-	-	-	-
9	-	S2X2X0.1875	-	-	-	-
10 - 13	-	-	-	-	-	-

### Discrete Appurtenance

Elev (ft)	Type	Qty	Description
260.00	Whip	1	Decibel DB809DK-XT
260.00	Whip	2	Generic 10' Omni
250.00		1	Box Enclosures BEN-92P
246.00	Mounting Frame	3	Round Sector Frames
246.00	Panel	3	RFS APXVSP18-C-A20
246.00		3	Alcatel-Lucent TD-RRH8x20-25
246.00		3	Alcatel-Lucent 1900 MHz 4X45 R
246.00	Panel	3	KMW ETCR-654L12H6
246.00		6	Alcatel-Lucent RRH2x50-08
236.00		1	Generic Low Noise Amplifier
236.00		1	Generic 5" x 3" x 2" Cavity Fi
236.00	Whip	1	Procom CXL 900-3LW
225.00	Mounting Frame	3	Round Sector Frames
225.00	Panel	3	RFS APXVAARR24_43-U-NA20
225.00	Panel	3	Ericsson AIR 21, 1.3M, B4A B2P
225.00	Panel	3	Ericsson AIR 21, 1.3M, B2A B4P
225.00		3	Ericsson Radio 4449 B12,B71
207.00	Whip	1	Sinclair SC479-HF1LDF(E5765)
200.00	Straight Arm	3	Flat Side Arm
200.00		1	Bird 432E-83I-01-T
192.00	Whip	2	Sinclair SC479-HF1LDF(E5765)
175.00	Mounting Frame	3	Generic Heavy Sector Frame
175.00	Panel	3	CCI OPA65R-BU8D
175.00	Panel	3	CCI DMP65R-BU8D
175.00	Panel	3	Allgon 7770.00

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Job Information		
Client : DISH WIRELESS L.L.C.		
Tower : 6260	Location : NORTH	Base Width : 28.00 ft
Code : ANSI/TIA-222-H	Topo Method: Method 1	Top Width : 4.00 ft
Risk Cat : II	Topo: 1	Tower Ht : 250.00 ft
	Exposure : B	Shape : Triangle

175.00	3	Ericsson RRUS 4478 B14
175.00	6	Powerwave Allgon LGP17201
175.00	3	Ericsson RRUS 8843 B2, B66A
175.00	3	Ericsson RRUS 4449 B5, B12
175.00	1	Raycap DC6-48-60-18-8F ("Squid
175.00	1	Raycap DC6-48-60-18-8F (23.5"
175.00	3	Powerwave Allgon 7020
175.00	6	Powerwave Allgon LGP21901
165.00	3	Generic Flat Light Sector Fram
165.00	3	JMA Wireless MX08FRO665-21
165.00	3	Fujitsu TA08025-B605
165.00	3	Fujitsu TA08025-B604
165.00	1	Commscope RDIDC-9181-PF-48
96.00	1	Generic 24" x 24" Ice Shield
89.00	1	Generic 6' Dish w/ Radome
83.00	1	RFS PA6-65AC w/ Radome

### Linear Appurtenance

Elev (ft)			
From	To	Qty	Description
0.00	260.00	2	1 5/8" Coax
0.00	260.00	4	1 5/8" Coax
0.00	250.00	1	Waveguide
0.00	250.00	1	Climbing Ladder
0.00	246.00	1	Waveguide
0.00	246.00	1	1" conduit
0.00	246.00	4	1 1/4" Hybriflex Cab
0.00	246.00	4	0.21" (5.3mm) Cat 5e
0.00	236.00	1	1/2" Coax
0.00	225.00	1	Waveguide
0.00	225.00	4	1 5/8" Hybriflex
0.00	225.00	6	1 5/8" Coax
0.00	210.00	1	Waveguide
0.00	207.00	1	1 5/8" Coax
10.00	200.00	1	0.51" (13mm) Cable
0.00	192.00	2	1 5/8" Coax
10.00	175.00	2	3" conduit
10.00	175.00	4	0.78" (19.7mm) 8 AWG
10.00	175.00	1	0.39" (10mm) Fiber T
0.00	175.00	1	Waveguide
0.00	175.00	6	1 5/8" Coax
0.00	175.00	1	0.39" (9.8mm) Cable
0.00	165.00	1	1.60" (40.6mm) Hybri
0.00	158.00	1	Waveguide
0.00	89.00	1	EW52
0.00	89.00	1	1/2" Coax
0.00	83.00	1	WE65

### Global Base Foundation Design Loads

Load Case	Moment (k-ft)	Vertical (kip)	Horizontal (kip)
DL + WL	10,876.56	108.33	80.40
DL + WL + IL	3,369.05	194.34	25.11

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<b>Job Information</b>		
<b>Client : DISH WIRELESS L.L.C.</b>		
<b>Tower : 6260</b>	<b>Location : NORTH</b>	<b>Base Width : 28.00 ft</b>
<b>Code : ANSI/TIA-222-H</b>	<b>Topo Method: Method 1</b>	<b>Top Width : 4.00 ft</b>
<b>Risk Cat : II</b>	<b>Topo: 1</b>	<b>Tower Ht : 250.00 ft</b>
	<b>Exposure : B</b>	<b>Shape : Triangle</b>

<b>Individual Base Foundation Design Loads</b>		
<b>Vertical (kip)</b>	<b>Uplift (kip)</b>	<b>Horizontal (kip)</b>
484.65	399.07	48.37

Site Number: 6260

Code:

ANSI/TIA-222-H

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Site Name: NORTH STONINGTON CT, CT

Engineering Number: 13694578\_C3\_02

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Customer: DISH WIRELESS L.L.C.

### Analysis Parameters

Location:	New London County, CT	Height (ft):	250
Code:	ANSI/TIA-222-H	Base Elevation (ft):	0.00
Shape:	Triangle	Bottom Face Width (ft):	28.00
Tower Manufacturer:	FWT	Top Face Width (ft):	4.00
Tower Type:	Self Support	Anchor Bolt Detail Type	d
Kd:	0.85		
Ke:	0.98		

### Ice & Wind Parameters

Exposure Category:	B	Design Windspeed Without Ice:	127 mph
Risk Category:	II	Design Windspeed With Ice:	50 mph
Topographic Factor Procedure:	Method 1	Operational Windspeed:	60 mph
Topographic Category:	1	Design Ice Thickness:	1.00 in
Crest Height:	0 ft	HMSL:	447.00 ft

### Seismic Parameters

Analysis Method:	Equivalent Lateral Force Method		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	0.88		
$T_L$ (sec):	6	p:	1.3
$S_S$ :	0.188	$S_1$ :	0.053
$F_a$ :	1.600	$F_v$ :	2.400
$S_{ds}$ :	0.201	$S_{d1}$ :	0.085
		$C_S$ :	0.032
		$C_S, Max$ :	0.032
		$C_S, Min$ :	0.030

### Load Cases

1.2D + 1.0W Normal	127 mph Normal with No Ice
1.2D + 1.0W 60 deg	127 mph 60 degree with No Ice
1.2D + 1.0W 90 deg	127 mph 90 degree with No Ice
0.9D + 1.0W Normal	127 mph Normal with No Ice (Reduced DL)
0.9D + 1.0W 60 deg	127 mph 60 deg with No Ice (Reduced DL)
0.9D + 1.0W 90 deg	127 mph 90 deg with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi Normal	50 mph Normal with 1.00 in Radial Ice
1.2D + 1.0Di + 1.0Wi 60 deg	50 mph 60 deg with 1.00 in Radial Ice
1.2D + 1.0Di + 1.0Wi 90 deg	50 mph 90 deg with 1.00 in Radial Ice
1.2D + 1.0Ev + 1.0Eh Normal	Seismic Normal
1.2D + 1.0Ev + 1.0Eh 60 deg	Seismic 60 deg
1.2D + 1.0Ev + 1.0Eh 90 deg	Seismic 90 deg
0.9D - 1.0Ev + 1.0Eh Normal	Seismic (Reduced DL) Normal
0.9D - 1.0Ev + 1.0Eh 60 deg	Seismic (Reduced DL) 60 deg
0.9D - 1.0Ev + 1.0Eh 90 deg	Seismic (Reduced DL) 90 deg
1.0D + 1.0W Service Normal	Serviceability - 60 mph Wind Normal
1.0D + 1.0W Service 60 deg	Serviceability - 60 mph Wind 60 deg
1.0D + 1.0W Service 90 deg	Serviceability - 60 mph Wind 90 deg



Site Number: 6260

Code: ANSI/TIA-222-H

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Site Name: NORTH STONINGTON CT, CT

Engineering Number: 13694578\_C3\_02

6/24/2021 12:57:04 PM

Customer: DISH WIRELESS L.L.C.

### Tower Loading

#### Discrete Appurtenance Properties 1.2D + 1.0W

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K <sub>a</sub>	Orient. Factor	Vert. Ecc.(ft)	M <sub>u</sub> (lb-ft)	Q <sub>z</sub> (psf)	F <sub>a</sub> (WL) (lb)	P <sub>a</sub> (DL) (lb)
260.0	Generic 10' Omni	2	25	3.0	10.0	3.0	3.0	1.00	1.00	0.0	0.0	44.84	229	60
260.0	Decibel DB809DK-XT	1	64	6.3	21.2	3.0	3.0	1.00	1.00	0.0	0.0	44.84	242	77
250.0	Box Enclosures BEN-	1	2	0.7	0.8	8.0	5.1	0.80	1.00	0.0	0.0	44.34	20	3
246.0	Alcatel-Lucent	6	53	1.7	1.3	13.0	9.8	0.80	0.50	0.0	0.0	44.14	153	381
246.0	Alcatel-Lucent 1900	3	60	2.3	2.1	11.1	10.7	0.80	0.50	0.0	0.0	44.14	105	216
246.0	Alcatel-Lucent TD-	3	66	3.7	2.1	17.5	5.7	0.80	0.50	0.0	0.0	44.14	167	238
246.0	RFS APXVSP18-C-	3	57	8.0	6.0	11.8	7.0	0.80	0.69	0.0	0.0	44.14	498	205
246.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	44.14	912	1080
246.0	KMW ETCR-	3	85	15.7	7.1	21.0	6.3	0.80	0.61	0.0	0.0	44.14	863	306
236.0	Procom CXL 900-	1	2	0.1	2.3	0.6	0.6	1.00	1.00	0.0	0.0	43.62	5	2
236.0	Generic 5" x 3" x 2"	1	2	0.1	0.4	3.2	1.9	1.00	0.50	0.0	0.0	43.62	3	2
236.0	Generic Low Noise	1	2	0.2	0.4	4.0	2.0	1.00	0.50	0.0	0.0	43.62	3	2
225.0	Ericsson Radio 4449	3	74	1.6	1.2	13.2	9.3	0.80	0.50	0.0	0.0	43.03	72	266
225.0	Ericsson AIR 21,	3	92	6.0	4.7	12.0	7.8	0.80	0.70	0.0	0.0	43.03	371	329
225.0	Ericsson AIR 21,	3	90	6.1	4.7	12.1	7.9	0.80	0.70	0.0	0.0	43.03	374	325
225.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	43.03	889	1080
225.0	RFS	3	128	20.2	8.0	24.0	8.7	0.80	0.63	0.0	0.0	43.03	1119	460
207.0	Sinclair SC479-	1	34	5.0	14.4	3.5	3.5	1.00	1.00	0.0	0.0	42.01	180	41
200.0	Bird 432E-83I-01-T	1	25	1.2	1.0	12.0	7.5	0.80	0.67	0.0	0.0	41.60	23	30
200.0	Flat Side Arm	3	150	6.3	0.0	0.0	0.0	1.00	0.67	0.0	0.0	41.60	448	540
192.0	Sinclair SC479-	2	34	5.0	14.4	3.5	3.5	1.00	1.00	0.0	0.0	41.12	352	82
175.0	Powerwave Allgon	6	6	0.2	0.3	6.0	3.0	0.80	0.50	0.0	0.0	40.04	16	40
175.0	Powerwave Allgon	3	2	0.3	0.4	8.3	2.4	0.80	0.50	0.0	0.0	40.04	14	8
175.0	Raycap DC6-48-60-	1	20	1.3	2.0	9.7	9.7	0.80	0.67	0.0	0.0	40.04	23	24
175.0	Raycap DC6-48-60-	1	32	1.5	2.0	11.0	11.0	0.80	1.00	0.0	0.0	40.04	40	38
175.0	Ericsson RRUS 8843	3	72	1.6	1.2	13.2	10.9	0.80	0.50	0.0	0.0	40.04	67	259
175.0	Powerwave Allgon	6	31	1.7	1.2	14.4	3.7	0.80	0.50	0.0	0.0	40.04	136	223
175.0	Ericsson RRUS 4478	3	60	1.8	1.4	13.4	7.7	0.80	0.50	0.0	0.0	40.04	75	216
175.0	Ericsson RRUS 4449	3	71	2.0	1.5	13.2	9.4	0.80	0.50	0.0	0.0	40.04	80	256
175.0	Allgon 7770.00	3	35	5.5	4.6	11.0	5.0	0.80	0.65	0.0	0.0	40.04	292	126
175.0	CCI DMP65R-BU8D	3	96	17.9	8.0	20.7	7.7	0.80	0.63	0.0	0.0	40.04	920	345
175.0	CCI OPA65R-BU8D	3	77	18.1	8.0	21.0	7.8	0.80	0.63	0.0	0.0	40.04	931	275
175.0	Generic Heavy	3	500	29.3	0.0	0.0	0.0	0.75	0.75	0.0	0.0	40.04	1683	1800
165.0	Commscope RDIDC-	1	22	1.9	1.3	14.0	8.0	0.80	1.00	0.0	0.0	39.38	50	26
165.0	Fujitsu TA08025-	3	64	2.0	1.3	15.0	7.9	0.80	0.50	0.0	0.0	39.38	79	230
165.0	Fujitsu TA08025-	3	75	2.0	1.3	15.0	9.1	0.80	0.50	0.0	0.0	39.38	79	270
165.0	JMA Wireless	3	65	12.5	6.0	20.0	8.0	0.80	0.64	0.0	0.0	39.38	642	232
165.0	Generic Flat Light	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.0	39.38	1011	1440
96.00	Generic 24" x 24"	1	50	0.8	0.3	24.0	24.0	1.00	1.00	0.0	0.0	33.73	23	60
89.00	Generic 6' Dish w/	1	250	24.4	6.0	72.0	0.0	1.00	1.00	0.0	0.0	33.01	685	300
83.00	RFS PA6-65AC w/	1	308	24.4	6.0	72.0	0.0	1.00	1.00	0.0	0.0	32.36	671	370
Totals		104	10219	734.6									14543	12262

#### Discrete Appurtenance Properties 0.9D + 1.0W

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K <sub>a</sub>	Orient. Factor	Vert. Ecc.(ft)	M <sub>u</sub> (lb-ft)	Q <sub>z</sub> (psf)	F <sub>a</sub> (WL) (lb)	P <sub>a</sub> (DL) (lb)
260.0	Generic 10' Omni	2	25	3.0	10.0	3.0	3.0	1.00	1.00	0.0	0.0	44.84	229	45
260.0	Decibel DB809DK-XT	1	64	6.3	21.2	3.0	3.0	1.00	1.00	0.0	0.0	44.84	242	58
250.0	Box Enclosures BEN-	1	2	0.7	0.8	8.0	5.1	0.80	1.00	0.0	0.0	44.34	20	2
246.0	Alcatel-Lucent	6	53	1.7	1.3	13.0	9.8	0.80	0.50	0.0	0.0	44.14	153	286
246.0	Alcatel-Lucent 1900	3	60	2.3	2.1	11.1	10.7	0.80	0.50	0.0	0.0	44.14	105	162

Site Number: 6260

Code:

ANSI/TIA-222-H

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Site Name: NORTH STONINGTON CT, CT

Engineering Number: 13694578\_C3\_02

6/24/2021 12:57:04 PM

Customer: DISH WIRELESS L.L.C.

### Tower Loading

246.0	Alcatel-Lucent TD-	3	66	3.7	2.1	17.5	5.7	0.80	0.50	0.0	0.0	44.14	167	178
246.0	RFS APXVSPP18-C-	3	57	8.0	6.0	11.8	7.0	0.80	0.69	0.0	0.0	44.14	498	154
246.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	44.14	912	810
246.0	KMW ETCR-	3	85	15.7	7.1	21.0	6.3	0.80	0.61	0.0	0.0	44.14	863	229
236.0	Procom CXL 900-	1	2	0.1	2.3	0.6	0.6	1.00	1.00	0.0	0.0	43.62	5	1
236.0	Generic 5" x 3" x 2"	1	2	0.1	0.4	3.2	1.9	1.00	0.50	0.0	0.0	43.62	3	1
236.0	Generic Low Noise	1	2	0.2	0.4	4.0	2.0	1.00	0.50	0.0	0.0	43.62	3	2
225.0	Ericsson Radio 4449	3	74	1.6	1.2	13.2	9.3	0.80	0.50	0.0	0.0	43.03	72	200
225.0	Ericsson AIR 21,	3	92	6.0	4.7	12.0	7.8	0.80	0.70	0.0	0.0	43.03	371	247
225.0	Ericsson AIR 21,	3	90	6.1	4.7	12.1	7.9	0.80	0.70	0.0	0.0	43.03	374	244
225.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	43.03	889	810
225.0	RFS	3	128	20.2	8.0	24.0	8.7	0.80	0.63	0.0	0.0	43.03	1119	345
207.0	Sinclair SC479-	1	34	5.0	14.4	3.5	3.5	1.00	1.00	0.0	0.0	42.01	180	31
200.0	Bird 432E-83I-01-T	1	25	1.2	1.0	12.0	7.5	0.80	0.67	0.0	0.0	41.60	23	23
200.0	Flat Side Arm	3	150	6.3	0.0	0.0	0.0	1.00	0.67	0.0	0.0	41.60	448	405
192.0	Sinclair SC479-	2	34	5.0	14.4	3.5	3.5	1.00	1.00	0.0	0.0	41.12	352	61
175.0	Powerwave Allgon	6	6	0.2	0.3	6.0	3.0	0.80	0.50	0.0	0.0	40.04	16	30
175.0	Powerwave Allgon	3	2	0.3	0.4	8.3	2.4	0.80	0.50	0.0	0.0	40.04	14	6
175.0	Raycap DC6-48-60-	1	20	1.3	2.0	9.7	9.7	0.80	0.67	0.0	0.0	40.04	23	18
175.0	Raycap DC6-48-60-	1	32	1.5	2.0	11.0	11.0	0.80	1.00	0.0	0.0	40.04	40	29
175.0	Ericsson RRUS 8843	3	72	1.6	1.2	13.2	10.9	0.80	0.50	0.0	0.0	40.04	67	194
175.0	Powerwave Allgon	6	31	1.7	1.2	14.4	3.7	0.80	0.50	0.0	0.0	40.04	136	167
175.0	Ericsson RRUS 4478	3	60	1.8	1.4	13.4	7.7	0.80	0.50	0.0	0.0	40.04	75	162
175.0	Ericsson RRUS 4449	3	71	2.0	1.5	13.2	9.4	0.80	0.50	0.0	0.0	40.04	80	192
175.0	Allgon 7770.00	3	35	5.5	4.6	11.0	5.0	0.80	0.65	0.0	0.0	40.04	292	95
175.0	CCI DMP65R-BU8D	3	96	17.9	8.0	20.7	7.7	0.80	0.63	0.0	0.0	40.04	920	258
175.0	CCI OPA65R-BU8D	3	77	18.1	8.0	21.0	7.8	0.80	0.63	0.0	0.0	40.04	931	207
175.0	Generic Heavy	3	500	29.3	0.0	0.0	0.0	0.75	0.75	0.0	0.0	40.04	1683	1350
165.0	Commscope RDIDC-	1	22	1.9	1.3	14.0	8.0	0.80	1.00	0.0	0.0	39.38	50	20
165.0	Fujitsu TA08025-	3	64	2.0	1.3	15.0	7.9	0.80	0.50	0.0	0.0	39.38	79	173
165.0	Fujitsu TA08025-	3	75	2.0	1.3	15.0	9.1	0.80	0.50	0.0	0.0	39.38	79	203
165.0	JMA Wireless	3	65	12.5	6.0	20.0	8.0	0.80	0.64	0.0	0.0	39.38	642	174
165.0	Generic Flat Light	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.0	39.38	1011	1080
96.00	Generic 24" x 24"	1	50	0.8	0.3	24.0	24.0	1.00	1.00	0.0	0.0	33.73	23	45
89.00	Generic 6' Dish w/	1	250	24.4	6.0	72.0	0.0	1.00	1.00	0.0	0.0	33.01	685	225
83.00	RFS PA6-65AC w/	1	308	24.4	6.0	72.0	0.0	1.00	1.00	0.0	0.0	32.36	671	277
Totals		104	10219	734.6								14543	9197	

### Discrete Appurtenance Properties 1.2D + 1.0Di + 1.0Wi

Elevation (ft)	Description	Qty	Ice Wt (lb)	Ice EPA (sf)	Length (ft)	Width (in)	Depth (in)	K <sub>a</sub>	Orient. Factor	Vert. Ecc.(ft)	M <sub>u</sub> (lb-ft)	Q <sub>z</sub> (psf)	F <sub>a</sub> (WL) (lb)	P <sub>a</sub> (DL) (lb)
260.0	Generic 10' Omni	2	78	5.5	10.0	3.0	3.0	1.00	1.00	0.0	0.0	6.95	65	167
260.0	Decibel DB809DK-XT	1	176	11.6	21.2	3.0	3.0	1.00	1.00	0.0	0.0	6.95	69	188
250.0	Box Enclosures BEN-	1	18	1.1	0.8	8.0	5.1	0.80	1.00	0.0	0.0	6.87	5	18
246.0	Alcatel-Lucent	6	94	2.3	1.3	13.0	9.8	0.80	0.50	0.0	0.0	6.84	32	630
246.0	Alcatel-Lucent 1900	3	117	3.1	2.1	11.1	10.7	0.80	0.50	0.0	0.0	6.84	21	386
246.0	Alcatel-Lucent TD-	3	124	4.6	2.1	17.5	5.7	0.80	0.50	0.0	0.0	6.84	32	413
246.0	RFS APXVSPP18-C-	3	178	10.0	6.0	11.8	7.0	0.80	0.69	0.0	0.0	6.84	96	568
246.0	Round Sector	3	558	26.0	0.0	0.0	0.0	0.75	0.75	0.0	0.0	6.84	255	1854
246.0	KMW ETCR-	3	288	18.0	7.1	21.0	6.3	0.80	0.61	0.0	0.0	6.84	153	915
236.0	Procom CXL 900-	1	5	0.6	2.3	0.6	0.6	1.00	1.00	0.0	0.0	6.76	4	6
236.0	Generic 5" x 3" x 2"	1	5	0.3	0.4	3.2	1.9	1.00	0.50	0.0	0.0	6.76	1	5
236.0	Generic Low Noise	1	6	0.4	0.4	4.0	2.0	1.00	0.50	0.0	0.0	6.76	1	6
225.0	Ericsson Radio 4449	3	113	2.2	1.2	13.2	9.3	0.80	0.50	0.0	0.0	6.67	15	384
225.0	Ericsson AIR 21,	3	193	7.5	4.7	12.0	7.8	0.80	0.70	0.0	0.0	6.67	72	634

Site Number: 6260

Code: ANSI/TIA-222-H

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Site Name: NORTH STONINGTON CT, CT

Engineering Number: 13694578\_C3\_02

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Customer: DISH WIRELESS L.L.C.

### Tower Loading

225.0	Ericsson AIR 21,	3	192	7.6	4.7	12.1	7.9	0.80	0.70	0.0	0.0	6.67	72	630
225.0	Round Sector	3	556	25.9	0.0	0.0	0.0	0.75	0.75	0.0	0.0	6.67	248	1849
225.0	RFS	3	402	22.8	8.0	24.0	8.7	0.80	0.63	0.0	0.0	6.67	196	1282
207.0	Sinclair SC479-	1	120	8.6	14.4	3.5	3.5	1.00	1.00	0.0	0.0	6.51	47	127
200.0	Bird 432E-83I-01-T	1	53	1.7	1.0	12.0	7.5	0.80	0.67	0.0	0.0	6.45	5	58
200.0	Flat Side Arm	3	200	8.0	0.0	0.0	0.0	1.00	0.67	0.0	0.0	6.45	88	690
192.0	Sinclair SC479-	2	119	8.5	14.4	3.5	3.5	1.00	1.00	0.0	0.0	6.37	93	251
175.0	Powerwave Allgon	6	11	0.4	0.3	6.0	3.0	0.80	0.50	0.0	0.0	6.21	5	71
175.0	Powerwave Allgon	3	9	0.6	0.4	8.3	2.4	0.80	0.50	0.0	0.0	6.21	4	29
175.0	Raycap DC6-48-60-	1	56	1.7	2.0	9.7	9.7	0.80	0.67	0.0	0.0	6.21	5	60
175.0	Raycap DC6-48-60-	1	74	1.9	2.0	11.0	11.0	0.80	1.00	0.0	0.0	6.21	8	80
175.0	Ericsson RRUS 8843	3	113	2.2	1.2	13.2	10.9	0.80	0.50	0.0	0.0	6.21	14	384
175.0	Powerwave Allgon	6	57	2.2	1.2	14.4	3.7	0.80	0.50	0.0	0.0	6.21	28	378
175.0	Ericsson RRUS 4478	3	97	2.4	1.4	13.4	7.7	0.80	0.50	0.0	0.0	6.21	16	328
175.0	Ericsson RRUS 4449	3	115	2.6	1.5	13.2	9.4	0.80	0.50	0.0	0.0	6.21	16	386
175.0	Allgon 7770.00	3	120	6.2	4.6	11.0	5.0	0.80	0.65	0.0	0.0	6.21	51	380
175.0	CCI DMP65R-BU8D	3	326	20.4	8.0	20.7	7.7	0.80	0.63	0.0	0.0	6.21	162	1034
175.0	CCI OPA65R-BU8D	3	310	20.6	8.0	21.0	7.8	0.80	0.63	0.0	0.0	6.21	164	975
175.0	Generic Heavy	3	872	41.0	0.0	0.0	0.0	0.75	0.75	0.0	0.0	6.21	365	2917
165.0	Commscope RDIDC-	1	60	2.5	1.3	14.0	8.0	0.80	1.00	0.0	0.0	6.10	10	64
165.0	Fujitsu TA08025-	3	103	2.6	1.3	15.0	7.9	0.80	0.50	0.0	0.0	6.10	16	347
165.0	Fujitsu TA08025-	3	117	2.6	1.3	15.0	9.1	0.80	0.50	0.0	0.0	6.10	16	396
165.0	JMA Wireless	3	236	14.4	6.0	20.0	8.0	0.80	0.64	0.0	0.0	6.10	114	747
165.0	Generic Flat Light	3	601	28.0	0.0	0.0	0.0	0.75	0.75	0.0	0.0	6.10	245	2043
96.00	Generic 24" x 24"	1	109	1.3	0.3	24.0	24.0	1.00	1.00	0.0	0.0	5.23	6	119
89.00	Generic 6' Dish w/	1	689	25.9	6.0	72.0	0.0	1.00	1.00	0.0	0.0	5.12	113	739
83.00	RFS PA6-65AC w/	1	747	25.9	6.0	72.0	0.0	1.00	1.00	0.0	0.0	5.02	110	808
	Totals	104	21301	979.5									3041	23344

### Discrete Appurtenance Properties 1.0D + 1.0W Service

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K <sub>a</sub>	Orient. Factor	Vert. Ecc.(ft)	M <sub>u</sub> (lb-ft)	Q <sub>z</sub> (psf)	F <sub>a</sub> (WL) (lb)	P <sub>a</sub> (DL) (lb)
260.0	Generic 10' Omni	2	25	3.0	10.0	3.0	3.0	1.00	1.00	0.0	0.0	10.01	51	50
260.0	Decibel DB809DK-XT	1	64	6.3	21.2	3.0	3.0	1.00	1.00	0.0	0.0	10.01	54	64
250.0	Box Enclosures BEN-	1	2	0.7	0.8	8.0	5.1	0.80	1.00	0.0	0.0	9.90	4	2
246.0	Alcatel-Lucent	6	53	1.7	1.3	13.0	9.8	0.80	0.50	0.0	0.0	9.85	34	317
246.0	Alcatel-Lucent 1900	3	60	2.3	2.1	11.1	10.7	0.80	0.50	0.0	0.0	9.85	23	180
246.0	Alcatel-Lucent TD-	3	66	3.7	2.1	17.5	5.7	0.80	0.50	0.0	0.0	9.85	37	198
246.0	RFS APXVSP18-C-	3	57	8.0	6.0	11.8	7.0	0.80	0.69	0.0	0.0	9.85	111	171
246.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	9.85	203	900
246.0	KMW ETCR-	3	85	15.7	7.1	21.0	6.3	0.80	0.61	0.0	0.0	9.85	193	255
236.0	Procom CXL 900-	1	2	0.1	2.3	0.6	0.6	1.00	1.00	0.0	0.0	9.74	1	2
236.0	Generic 5" x 3" x 2"	1	2	0.1	0.4	3.2	1.9	1.00	0.50	0.0	0.0	9.74	1	2
236.0	Generic Low Noise	1	2	0.2	0.4	4.0	2.0	1.00	0.50	0.0	0.0	9.74	1	2
225.0	Ericsson Radio 4449	3	74	1.6	1.2	13.2	9.3	0.80	0.50	0.0	0.0	9.60	16	222
225.0	Ericsson AIR 21,	3	92	6.0	4.7	12.0	7.8	0.80	0.70	0.0	0.0	9.60	83	275
225.0	Ericsson AIR 21,	3	90	6.1	4.7	12.1	7.9	0.80	0.70	0.0	0.0	9.60	84	271
225.0	Round Sector	3	300	14.4	0.0	0.0	0.0	0.75	0.75	0.0	0.0	9.60	198	900
225.0	RFS	3	128	20.2	8.0	24.0	8.7	0.80	0.63	0.0	0.0	9.60	250	384
207.0	Sinclair SC479-	1	34	5.0	14.4	3.5	3.5	1.00	1.00	0.0	0.0	9.38	40	34
200.0	Bird 432E-83I-01-T	1	25	1.2	1.0	12.0	7.5	0.80	0.67	0.0	0.0	9.29	5	25
200.0	Flat Side Arm	3	150	6.3	0.0	0.0	0.0	1.00	0.67	0.0	0.0	9.29	100	450
192.0	Sinclair SC479-	2	34	5.0	14.4	3.5	3.5	1.00	1.00	0.0	0.0	9.18	78	68
175.0	Powerwave Allgon	6	6	0.2	0.3	6.0	3.0	0.80	0.50	0.0	0.0	8.94	4	33
175.0	Powerwave Allgon	3	2	0.3	0.4	8.3	2.4	0.80	0.50	0.0	0.0	8.94	3	7

Site Number: 6260

Code: ANSI/TIA-222-H

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Site Name: NORTH STONINGTON CT, CT

Engineering Number: 13694578\_C3\_02

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Customer: DISH WIRELESS L.L.C.

### Tower Loading

175.0	Raycap DC6-48-60-	1	20	1.3	2.0	9.7	9.7	0.80	0.67	0.0	0.0	8.94	5	20
175.0	Raycap DC6-48-60-	1	32	1.5	2.0	11.0	11.0	0.80	1.00	0.0	0.0	8.94	9	32
175.0	Ericsson RRUS 8843	3	72	1.6	1.2	13.2	10.9	0.80	0.50	0.0	0.0	8.94	15	216
175.0	Powerwave Allgon	6	31	1.7	1.2	14.4	3.7	0.80	0.50	0.0	0.0	8.94	30	186
175.0	Ericsson RRUS 4478	3	60	1.8	1.4	13.4	7.7	0.80	0.50	0.0	0.0	8.94	17	180
175.0	Ericsson RRUS 4449	3	71	2.0	1.5	13.2	9.4	0.80	0.50	0.0	0.0	8.94	18	213
175.0	Allgon 7770.00	3	35	5.5	4.6	11.0	5.0	0.80	0.65	0.0	0.0	8.94	65	105
175.0	CCI DMP65R-BU8D	3	96	17.9	8.0	20.7	7.7	0.80	0.63	0.0	0.0	8.94	205	287
175.0	CCI OPA65R-BU8D	3	77	18.1	8.0	21.0	7.8	0.80	0.63	0.0	0.0	8.94	208	230
175.0	Generic Heavy	3	500	29.3	0.0	0.0	0.0	0.75	0.75	0.0	0.0	8.94	376	1500
165.0	Commscope RDIDC-	1	22	1.9	1.3	14.0	8.0	0.80	1.00	0.0	0.0	8.79	11	22
165.0	Fujitsu TA08025-	3	64	2.0	1.3	15.0	7.9	0.80	0.50	0.0	0.0	8.79	18	192
165.0	Fujitsu TA08025-	3	75	2.0	1.3	15.0	9.1	0.80	0.50	0.0	0.0	8.79	18	225
165.0	JMA Wireless	3	65	12.5	6.0	20.0	8.0	0.80	0.64	0.0	0.0	8.79	143	194
165.0	Generic Flat Light	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.0	8.79	226	1200
96.00	Generic 24" x 24"	1	50	0.8	0.3	24.0	24.0	1.00	1.00	0.0	0.0	7.53	5	50
89.00	Generic 6' Dish w/	1	250	24.4	6.0	72.0	0.0	1.00	1.00	0.0	0.0	7.37	153	250
83.00	RFS PA6-65AC w/	1	308	24.4	6.0	72.0	0.0	1.00	1.00	0.0	0.0	7.22	150	308
	Totals	104	10219	734.6									3246	10219



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Site Name: NORTH STONINGTON CT, CT

Engineering Number: 13694578\_C3\_02

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Customer: DISH WIRELESS L.L.C.

### Tower Loading

#### Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out Of Zone	Spacing (in)	Orientation Factor	Ka Override
0.00	260.0	1 5/8" Coax	4	1.98	0.82	100	1	Individual	0.00	N	1.00	1.00	0.00
0.00	260.0	1 5/8" Coax	2	1.98	0.82	100	1	Individual	0.00	N	1.00	1.00	0.00
0.00	250.0	Climbing Ladder	1	1.50	6.90	100	3	Individual	0.00	N	1.00	1.00	0.00
0.00	250.0	Waveguide	1	1.50	6.00	100	3	Individual	0.00	N	1.00	1.00	0.00
0.00	246.0	0.21" (5.3mm) Cat	4	0.21	0.02	100	3	Individual	0.00	N	1.00	1.00	0.00
0.00	246.0	1 1/4" Hybriflex	4	1.54	1.00	100	3	Individual	0.00	N	1.00	1.00	0.00
0.00	246.0	1" conduit	1	1.32	1.68	100	3	Individual	0.00	N	1.00	1.00	0.00
0.00	246.0	Waveguide	1	2.00	6.00	100	3	Individual	0.00	N	1.00	1.00	0.00
0.00	236.0	1/2" Coax	1	0.63	0.15	100	1	Individual	0.00	N	1.00	1.00	0.00
0.00	225.0	1 5/8" Coax	6	1.98	0.82	100	2	Individual	0.00	N	1.00	1.00	0.00
0.00	225.0	1 5/8" Hybriflex	4	1.98	1.30	100	None	Individual	0.00	N	1.00	1.00	0.00
0.00	225.0	Waveguide	1	2.00	6.00	100	2	Individual	0.00	N	1.00	1.00	0.00
0.00	210.0	Waveguide	1	2.00	6.00	100	3	Individual	0.00	N	1.00	1.00	0.00
0.00	207.0	1 5/8" Coax	1	1.98	0.82	100	1	Individual	0.00	N	1.00	1.00	0.00
10.00	200.0	0.51" (13mm)	1	0.51	0.14	100	1	Individual	0.00	N	1.00	1.00	0.00
0.00	192.0	1 5/8" Coax	2	1.98	0.82	100	1	Individual	0.00	N	1.00	1.00	0.00
0.00	175.0	0.39" (9.8mm)	1	0.39	0.07	100	2	Individual	0.00	N	1.00	1.00	0.00
0.00	175.0	1 5/8" Coax	6	1.98	0.82	100	2	Individual	0.00	N	1.00	1.00	0.00
0.00	175.0	Waveguide	1	1.50	6.00	100	2	Individual	0.00	N	1.00	1.00	0.00
10.00	175.0	0.39" (10mm) Fiber	1	0.39	0.06	100	2	Individual	0.00	N	1.00	1.00	0.00
10.00	175.0	0.78" (19.7mm) 8	4	0.78	0.59	100	2	Individual	0.00	N	1.00	1.00	0.00
10.00	175.0	3" conduit	2	3.50	7.58	100	2	Individual	0.00	N	1.00	1.00	0.00
0.00	165.0	1.60" (40.6mm)	1	1.60	2.34	100	None	Individual	0.00	N	1.00	1.00	0.00
0.00	158.0	Waveguide	1	1.50	6.00	100	3	Individual	0.00	N	1.00	1.00	0.00
0.00	89.00	1/2" Coax	1	0.63	0.15	100	1	Individual	0.00	N	1.00	1.00	0.00
0.00	89.00	EW52	1	2.25	0.59	100	1	Individual	0.00	N	1.00	1.00	0.00
0.00	83.00	WE65	1	2.03	0.53	100	1	Individual	0.00	N	1.00	1.00	0.00

Site Number: 6260

Code:

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Site Name: NORTH STONINGTON CT, CT

Engineering Number: 13694578\_C3\_02

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Customer: DISH WIRELESS L.L.C.

### Equivalent Lateral Force Method

Spectral Response Acceleration for Short Period ( $S_s$ ):	0.19
Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.05
Long-Period Transition Period ( $T_L$ - Seconds):	6
Importance Factor ( $I_p$ ):	1.00
Site Coefficient $F_a$ :	1.60
Site Coefficient $F_v$ :	2.40
Response Modification Coefficient (R):	3.00
Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):	0.20
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.08
Seismic Response Coefficient ( $C_s$ ):	0.03
Upper Limit $C_s$ :	0.03
Lower Limit $C_s$ :	0.03
Period based on Rayleigh Method (sec):	0.88
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.19
Total Unfactored Dead Load:	90.27 k
Seismic Base Shear (E):	3.77 k

#### LoadCase 1.2D + 1.0Ev + 1.0Eh

#### Seismic

Section	Height Above Base (ft)	Weight (lb)	$W_z$ (lb-ft)	$C_{vx}$	Horizontal Force (lb)	Vertical Force (lb)
13	245.00	762	529,425	0.022	83	945
12	230.00	1,848	1,191,68	0.049	186	2,292
11	210.00	3,214	1,859,82	0.077	291	3,986
10	190.00	4,083	2,097,36	0.087	328	5,063
9	170.00	4,984	2,242,85	0.093	351	6,180
8	150.00	5,833	2,261,96	0.094	354	7,234
7	130.00	6,390	2,090,20	0.087	327	7,925
6	110.00	6,792	1,821,12	0.075	285	8,422
5	90.00	7,436	1,570,47	0.065	246	9,221
4	70.00	8,027	1,257,18	0.052	197	9,954
3	50.00	10,021	1,051,84	0.044	164	12,427
2	30.00	9,985	570,775	0.024	89	12,382
1	10.00	10,679	165,229	0.007	26	13,243
Generic 10' Omni	250.00	50	35,601	0.001	6	62
Decibel DB809DK-XT	250.00	64	45,570	0.002	7	79
Box Enclosures BEN-92P	250.00	2	1,566	0.000	0	3
Alcatel-Lucent RRH2x50-08	246.00	317	221,702	0.009	35	394
Alcatel-Lucent 1900 MHz 4X45 RRH	246.00	180	125,729	0.005	20	223
Alcatel-Lucent TD-RRH8x20-25	246.00	198	138,302	0.006	22	246
RFS APXVSP18-C-A20	246.00	171	119,442	0.005	19	212
Round Sector Frames	246.00	900	628,644	0.026	98	1,116
KMW ETCR-654L12H6	246.00	255	177,906	0.007	28	316
Procom CXL 900-3LW	236.00	2	997	0.000	0	2
Generic 5" x 3" x 2" Cavity Filter	236.00	2	997	0.000	0	2
Generic Low Noise Amplifier	236.00	2	1,330	0.000	0	2

Site Number: 6260

Code:

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Site Name: NORTH STONINGTON CT, CT

Engineering Number: 13694578\_C3\_02

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Customer: DISH WIRELESS L.L.C.

### Equivalent Lateral Force Method

Ericsson Radio 4449 B12,B71	225.00	222	139,449	0.006	22	275
Ericsson AIR 21, 1.3M, B2A B4P (91.5 lbs)	225.00	275	172,427	0.007	27	340
Ericsson AIR 21, 1.3M, B4A B2P (90.4 lbs)	225.00	271	170,354	0.007	27	336
Round Sector Frames	225.00	900	565,335	0.023	88	1,116
RFS APXVAARR24_43-U-NA20	225.00	384	241,021	0.010	38	476
Sinclair SC479-HF1LDF(E5765)	207.00	34	19,340	0.001	3	42
Bird 432E-831-01-T	200.00	25	13,651	0.001	2	31
Flat Side Arm	200.00	450	245,712	0.010	38	558
Sinclair SC479-HF1LDF(E5765)	192.00	68	35,370	0.001	6	84
Powerwave Allgon LGP21901	175.00	33	15,372	0.001	2	41
Powerwave Allgon 7020	175.00	7	3,074	0.000	0	8
Raycap DC6-48-60-18-8F (23.5" Height)	175.00	20	9,317	0.000	1	25
Raycap DC6-48-60-18-8F ("Squid")	175.00	32	14,813	0.001	2	39
Ericsson RRUS 8843 B2, B66A	175.00	216	100,620	0.004	16	268
Powerwave Allgon LGP17201	175.00	186	86,645	0.004	14	231
Ericsson RRUS 4478 B14	175.00	180	83,710	0.003	13	223
Ericsson RRUS 4449 B5, B12	175.00	213	99,222	0.004	16	264
Allgon 7770.00	175.00	105	48,912	0.002	8	130
CCI DMP65R-BU8D	175.00	287	133,740	0.006	21	356
CCI OPA65R-BU8D	175.00	229	106,908	0.004	17	285
Generic Heavy Sector Frame	175.00	1,500	698,748	0.029	109	1,860
Commscope RDIDC-9181-PF-48	165.00	22	9,512	0.000	1	27
Fujitsu TA08025-B604	165.00	192	83,263	0.003	13	238
Fujitsu TA08025-B605	165.00	225	97,727	0.004	15	279
JMA Wireless MX08FRO665-21	165.00	193	84,045	0.003	13	240
Generic Flat Light Sector Frame	165.00	1,200	521,210	0.022	82	1,488
Generic 24" x 24" Ice Shield	96.00	50	11,403	0.000	2	62
Generic 6' Dish w/ Radome	89.00	250	52,102	0.002	8	310
RFS PA6-65AC w/ Radome	83.00	308	59,076	0.002	9	382
		90,272	24,129,831	1.000	3,773	111,947

### LoadCase 0.9D - 1.0Ev + 1.0Eh

### Seismic (Reduced DL)

Section	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
13	245.00	762	529,425	0.022	83	655
12	230.00	1,848	1,191,68	0.049	186	1,589
11	210.00	3,214	1,859,82	0.077	291	2,764
10	190.00	4,083	2,097,36	0.087	328	3,511
9	170.00	4,984	2,242,85	0.093	351	4,285
8	150.00	5,833	2,261,96	0.094	354	5,016
7	130.00	6,390	2,090,20	0.087	327	5,495
6	110.00	6,792	1,821,12	0.075	285	5,840
5	90.00	7,436	1,570,47	0.065	246	6,394
4	70.00	8,027	1,257,18	0.052	197	6,902
3	50.00	10,021	1,051,84	0.044	164	8,617
2	30.00	9,985	570,775	0.024	89	8,586
1	10.00	10,679	165,228	0.007	26	9,183
Generic 10' Omni	250.00	50	35,601	0.001	6	43
Decibel DB809DK-XT	250.00	64	45,570	0.002	7	55
Box Enclosures BEN-92P	250.00	2	1,566	0.000	0	2
Alcatel-Lucent RRH2x50-08	246.00	317	221,702	0.009	35	273
Alcatel-Lucent 1900 MHz 4X45 RRH	246.00	180	125,729	0.005	20	155
Alcatel-Lucent TD-RRH8x20-25	246.00	198	138,302	0.006	22	170

Site Number: 6260

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Site Name: NORTH STONINGTON CT, CT

Engineering Number: 13694578\_C3\_02

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Customer: DISH WIRELESS L.L.C.

### Equivalent Lateral Force Method

RFS APXVSP18-C-A20	246.00	171	119,442	0.005	19	147
Round Sector Frames	246.00	900	628,644	0.026	98	774
KMW ETCR-654L12H6	246.00	255	177,906	0.007	28	219
Procom CXL 900-3LW	236.00	2	997	0.000	0	1
Generic 5" x 3" x 2" Cavity Filter	236.00	2	997	0.000	0	1
Generic Low Noise Amplifier	236.00	2	1,330	0.000	0	2
Ericsson Radio 4449 B12,B71	225.00	222	139,449	0.006	22	191
Ericsson AIR 21, 1.3M, B2A B4P (91.5 lbs)	225.00	275	172,427	0.007	27	236
Ericsson AIR 21, 1.3M, B4A B2P (90.4 lbs)	225.00	271	170,354	0.007	27	233
Round Sector Frames	225.00	900	565,335	0.023	88	774
RFS APXVAARR24_43-U-NA20	225.00	384	241,021	0.010	38	330
Sinclair SC479-HF1LDF(E5765)	207.00	34	19,340	0.001	3	29
Bird 432E-831-01-T	200.00	25	13,651	0.001	2	21
Flat Side Arm	200.00	450	245,712	0.010	38	387
Sinclair SC479-HF1LDF(E5765)	192.00	68	35,370	0.001	6	58
Powerwave Allgon LGP21901	175.00	33	15,372	0.001	2	28
Powerwave Allgon 7020	175.00	7	3,074	0.000	0	6
Raycap DC6-48-60-18-8F (23.5" Height)	175.00	20	9,317	0.000	1	17
Raycap DC6-48-60-18-8F ("Squid")	175.00	32	14,813	0.001	2	27
Ericsson RRUS 8843 B2, B66A	175.00	216	100,620	0.004	16	186
Powerwave Allgon LGP17201	175.00	186	86,645	0.004	14	160
Ericsson RRUS 4478 B14	175.00	180	83,710	0.003	13	155
Ericsson RRUS 4449 B5, B12	175.00	213	99,222	0.004	16	183
Allgon 7770.00	175.00	105	48,912	0.002	8	90
CCI DMP65R-BU8D	175.00	287	133,740	0.006	21	247
CCI OPA65R-BU8D	175.00	229	106,908	0.004	17	197
Generic Heavy Sector Frame	175.00	1,500	698,748	0.029	109	1,290
Commscope RDIDC-9181-PF-48	165.00	22	9,512	0.000	1	19
Fujitsu TA08025-B604	165.00	192	83,263	0.003	13	165
Fujitsu TA08025-B605	165.00	225	97,727	0.004	15	193
JMA Wireless MX08FRO665-21	165.00	193	84,045	0.003	13	166
Generic Flat Light Sector Frame	165.00	1,200	521,210	0.022	82	1,032
Generic 24" x 24" Ice Shield	96.00	50	11,403	0.000	2	43
Generic 6' Dish w/ Radome	89.00	250	52,102	0.002	8	215
RFS PA6-65AC w/ Radome	83.00	308	59,076	0.002	9	265
		90,272	24,129,831	1.000	3,773	77,624



Site Number: 6260

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Site Name: NORTH STONINGTON CT, CT

Engineering Number: 13694578\_C3\_02

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Customer: DISH WIRELESS L.L.C.

### Force/Stress Summary

Section: 1		Base	Bot Elev (ft): 0.00				Height (ft): 20.000								
Max Compression Member		Pu (kip)	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic (kip)	Pn Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG SOL - 5 3/4" SOLID		-465.49	1.2D + 1.0W Normal	20.03	25	25	25	41.8	50.0	1,028.3	0	0	0.00	0.00	45 Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0
DIAG DAE - 3X3X0.25		-16.47	1.2D + 1.0W 90 deg	33.60	25	49	13	167.5	36.0	29.39	4	2	55.22	69.60	56 Member Y

Max Tension Member		Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit (kip)	Pn Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG SOL - 5 3/4" SOLID		377.21	1.2D + 1.0W 60 deg	50	65	1,168.5	0	0	0.00	0.00			32 Member
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0.00		0
DIAG DAE - 3X3X0.25		15.63	1.2D + 1.0W 90 deg	36	58	82.75	4	2	55.22	55.68	41.05		38 Blk Shear

Max Splice Forces		Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension		367.80	0.9D + 1.0W 60 deg	0.00	0	0	
Top Compression		447.30	1.2D + 1.0W Normal	0.00	0		
Bot Tension		402.41	0.9D + 1.0W 60 deg	1287.77	10	6	2.75" A36
Bot Compression		484.45	1.2D + 1.0W Normal	1065.74	48	6	2.75" A36

Section: 2		1	Bot Elev (ft): 20.00				Height (ft): 20.000								
Max Compression Member		Pu (kip)	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic (kip)	Pn Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG SOL - 5 1/2" SOLID		-426.63	1.2D + 1.0W Normal	20.03	25	25	25	43.7	50.0	929.73	0	0	0.00	0.00	45 Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0
DIAG DAE - 3X3X0.25		-16.87	1.2D + 1.0W 90 deg	32.02	25	50	13	161.9	36.0	31.43	4	2	55.22	69.60	53 Member Y

Max Tension Member		Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit (kip)	Pn Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG SOL - 5 1/2" SOLID		344.74	1.2D + 1.0W 60 deg	50	65	1,069.1	0	0	0.00	0.00			32 Member
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0.00		0
DIAG DAE - 3X3X0.25		16.78	1.2D + 1.0W 90 deg	36	58	82.75	4	2	55.22	55.68	41.05		40 Blk Shear

Max Splice Forces		Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension		333.47	0.9D + 1.0W 60 deg	0.00	0	0	
Top Compression		407.03	1.2D + 1.0W Normal	0.00	0		
Bot Tension		367.80	0.9D + 1.0W 60 deg	1349.04	27	6	2" A325
Bot Compression		0.00		0.00	0		

Site Number: 6260

Code: ANSI/TIA-222-H

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Site Name: NORTH STONINGTON CT, CT

Engineering Number: 13694578\_C3\_02

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Customer: DISH WIRELESS L.L.C.

### Force/Stress Summary

Section: 3		2		Bot Elev (ft): 40.00				Height (ft): 20.000							
Max Compression Member		Pu (kip)	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG	SOL - 5 1/4" SOLID	-383.30	1.2D + 1.0W Normal	20.03	25	25	25	45.8	50.0	835.70	0	0	0.00	0.00	45 Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0
DIAG	DAE - 3X3X0.25	-17.23	1.2D + 1.0W 90 deg	30.48	25	50	13	154.2	36.0	34.68	4	2	55.22	69.60	49 Member Y

Max Tension Member		Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG	SOL - 5 1/4" SOLID	312.21	1.2D + 1.0W 60 deg	50	65	974.16	0	0	0.00	0.00			32 Member
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0.00		0
DIAG	DAE - 3X3X0.25	16.49	1.2D + 1.0W 90 deg	36	58	82.75	4	2	55.22	55.68	41.05		40 Blk Shear

Max Splice Forces		Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension		298.81	0.9D + 1.0W 60 deg	0.00	0	0	
Top Compression		362.73	1.2D + 1.0W Normal	0.00	0		
Bot Tension		333.47	0.9D + 1.0W 60 deg	1349.04	25	6	2" A325
Bot Compression		0.00		0.00	0		

Section: 4		3		Bot Elev (ft): 60.00				Height (ft): 20.000							
Max Compression Member		Pu (kip)	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG	SOL - 5" SOLID	-337.89	1.2D + 1.0W Normal	20.03	25	25	25	48.1	50.0	746.17	0	0	0.00	0.00	45 Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0
DIAG	DAE - 3X3X0.1875	-16.85	1.2D + 1.0W 90 deg	29.00	25	49	13	145.0	36.0	29.66	4	2	55.22	52.20	56 Member Y

Max Tension Member		Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG	SOL - 5" SOLID	277.15	1.2D + 1.0W 60 deg	50	65	883.58	0	0	0.00	0.00			31 Member
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0.00		0
DIAG	DAE - 3X3X0.1875	16.43	1.2D + 1.0W 90 deg	36	58	62.71	4	2	55.22	41.76	30.79		53 Blk Shear

Max Splice Forces		Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension		262.65	0.9D + 1.0W 60 deg	0.00	0	0	
Top Compression		317.34	1.2D + 1.0W Normal	0.00	0		
Bot Tension		298.81	0.9D + 1.0W 60 deg	758.83	39	6	OA
Bot Compression		0.00		0.00	0		

Site Number: 6260

Code: ANSI/TIA-222-H

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Site Name: NORTH STONINGTON CT, CT

Engineering Number: 13694578\_C3\_02

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Customer: DISH WIRELESS L.L.C.

### Force/Stress Summary

Section: 5		4		Bot Elev (ft): 80.00				Height (ft): 20.000							
Max Compression Member		Pu (kip)	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG	SOL - 4 3/4" SOLID	-293.50	1.2D + 1.0W Normal	20.03	25	25	25	50.6	50.0	661.25	0	0	0.00	0.00	44 Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0
DIAG	DAE - 3X3X0.1875	-15.84	1.2D + 1.0W 90 deg	27.59	25	50	13	140.0	36.0	31.82	4	2	55.22	52.20	49 Member Y

Max Tension Member		Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG	SOL - 4 3/4" SOLID	241.80	1.2D + 1.0W 60 deg	50	65	797.45	0	0	0.00	0.00		30	Member
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0.00	0	
DIAG	DAE - 3X3X0.1875	15.51	1.2D + 1.0W 90 deg	36	58	62.71	4	2	55.22	41.76	30.79	50	Blk Shear

Max Splice Forces		Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension		226.57	0.9D + 1.0W 60 deg	0.00	0	0	
Top Compression		272.72	1.2D + 1.0W Normal	0.00	0		
Bot Tension		262.65	0.9D + 1.0W 60 deg	758.83	35	6	OA
Bot Compression		0.00		0.00	0		

Section: 6		5		Bot Elev (ft): 100.0				Height (ft): 20.000							
Max Compression Member		Pu (kip)	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG	SOL - 4 1/2" SOLID	-248.22	1.2D + 1.0W Normal	20.03	25	25	25	53.4	50.0	580.89	0	0	0.00	0.00	42 Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0
DIAG	DAE - 3X3X0.1875	-15.68	1.2D + 1.0W 90 deg	26.25	25	50	13	133.2	36.0	35.15	4	2	55.22	52.20	44 Member Y

Max Tension Member		Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG	SOL - 4 1/2" SOLID	209.07	0.9D + 1.0W 60 deg	50	65	715.68	0	0	0.00	0.00		29	Member
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0.00	0	
DIAG	DAE - 3X3X0.1875	15.00	1.2D + 1.0W 90 deg	36	58	62.71	4	2	55.22	41.76	30.79	48	Blk Shear

Max Splice Forces		Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension		188.88	0.9D + 1.0W 60 deg	0.00	0	0	
Top Compression		227.79	1.2D + 1.0W Normal	0.00	0		
Bot Tension		226.57	0.9D + 1.0W 60 deg	758.83	30	6	OA
Bot Compression		0.00		0.00	0		

Site Number: 6260

Code: ANSI/TIA-222-H

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Site Name: NORTH STONINGTON CT, CT

Engineering Number: 13694578\_C3\_02

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Customer: DISH WIRELESS L.L.C.

### Force/Stress Summary

Section: 7		6		Bot Elev (ft): 120.0				Height (ft): 20.000							
Max Compression Member		Pu (kip)	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG	SOL - 4 1/4" SOLID	-215.40	1.2D + 1.0W Normal	10.02	50	50	50	56.6	50.0	505.21	0	0	0.00	0.00	42 Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0
DIAG	DAE - 2.5X2.5X0.1875	-10.45	1.2D + 1.0W 90 deg	18.44	50	50	25	145.9	36.0	24.19	4	2	55.22	52.20	43 Member Y

Max Tension Member		Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG	SOL - 4 1/4" SOLID	181.75	0.9D + 1.0W 60 deg	50	65	638.37	0	0	0.00	0.00			28 Member
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0.00		0
DIAG	DAE - 2.5X2.5X0.1875	10.51	1.2D + 1.0W 90 deg	36	58	50.31	4	2	55.22	41.76	28.75		36 Blk Shear

Max Splice Forces		Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension		152.69	0.9D + 1.0W 60 deg	0.00	0	0	
Top Compression		182.67	1.2D + 1.0W Normal	0.00	0		
Bot Tension		188.88	0.9D + 1.0W 60 deg	623.64	30	6	1.375" A325
Bot Compression		0.00		0.00	0		

Section: 8		7		Bot Elev (ft): 140.0				Height (ft): 20.000							
Max Compression Member		Pu (kip)	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG	SOL - 4" SOLID	-171.26	1.2D + 1.0W Normal	10.02	50	50	50	60.1	50.0	434.22	0	0	0.00	0.00	39 Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0
DIAG	DAE - 2.5X2.5X0.1875	-9.91	1.2D + 1.0W 90 deg	16.80	50	50	25	132.9	36.0	29.16	4	2	55.22	52.20	33 Member Y

Max Tension Member		Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG	SOL - 4" SOLID	144.02	0.9D + 1.0W 60 deg	50	65	565.47	0	0	0.00	0.00			25 Member
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0.00		0
DIAG	DAE - 2.5X2.5X0.1875	9.90	1.2D + 1.0W 90 deg	36	58	50.31	4	2	55.22	41.76	28.75		34 Blk Shear

Max Splice Forces		Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension		113.62	0.9D + 1.0W 60 deg	0.00	0	0	
Top Compression		137.53	1.2D + 1.0W Normal	0.00	0		
Bot Tension		152.69	0.9D + 1.0W 60 deg	523.32	29	6	1.25" A325
Bot Compression		0.00		0.00	0		

Site Number: 6260

Code: ANSI/TIA-222-H

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Site Name: NORTH STONINGTON CT, CT

Engineering Number: 13694578\_C3\_02

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Customer: DISH WIRELESS L.L.C.

### Force/Stress Summary

Section: 9		8		Bot Elev (ft): 160.0				Height (ft): 20.000							
Max Compression Member		Pu (kip)	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic (kip)	Pn Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG	SOL - 3 3/4" SOLID	-125.38	1.2D + 1.0W Normal	10.02	50	50	50	64.1	50.0	368.03	0	0	0.00	0.00	34 Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0
DIAG	SAE - 3.5X3.5X0.25	-8.70	1.2D + 1.0W 90 deg	15.24	50	50	50	132.9	36.0	27.37	2	1	27.61	34.80	31 Member Z

Max Tension Member		Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit (kip)	Pn Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG	SOL - 3 3/4" SOLID	105.35	0.9D + 1.0W 60 deg	50	65	497.02	0	0	0.00	0.00		21	Member
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0.00	0	
DIAG	SAE - 3.5X3.5X0.25	8.61	1.2D + 1.0W 90 deg	36	58	49.53	2	1	27.61	27.84	23.25	37	Blk Shear

Max Splice Forces		Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension		82.29	0.9D + 1.0W 60 deg	0.00	0	0	
Top Compression		97.42	1.2D + 1.0W Normal	0.00	0		
Bot Tension		113.62	0.9D + 1.0W 60 deg	412.17	28	6	1 1/8 A325
Bot Compression		0.00		0.00	0		

Section: 10		10		Bot Elev (ft): 180.0				Height (ft): 20.000							
Max Compression Member		Pu (kip)	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic (kip)	Pn Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG	SOL - 3 3/4" SOLID	-91.81	1.2D + 1.0W Normal	6.68	100	100	100	85.5	50.0	291.33	0	0	0.00	0.00	31 Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0
DIAG	SAE - 3X3X0.1875	-4.89	1.2D + 1.0W 90 deg	11.74	50	50	50	118.7	36.0	21.86	2	1	27.61	26.10	22 Member Z

Max Tension Member		Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit (kip)	Pn Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG	SOL - 3 3/4" SOLID	77.36	1.2D + 1.0W 60 deg	50	65	497.02	0	0	0.00	0.00		15	Member
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0.00	0	
DIAG	SAE - 3X3X0.1875	4.88	1.2D + 1.0W 90 deg	36	58	31.36	2	1	27.61	20.88	15.39	31	Blk Shear

Max Splice Forces		Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension		55.19	0.9D + 1.0W 60 deg	0.00	0	0	
Top Compression		65.36	1.2D + 1.0W Normal	0.00	0		
Bot Tension		82.29	0.9D + 1.0W 60 deg	412.17	20	6	1 1/8 A325
Bot Compression		0.00		0.00	0		

Site Number: 6260

Code: ANSI/TIA-222-H

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Site Name: NORTH STONINGTON CT, CT

Engineering Number: 13694578\_C3\_02

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Customer: DISH WIRELESS L.L.C.

### Force/Stress Summary

Section: 11		11		Bot Elev (ft): 200.0				Height (ft): 20.000							
Max Compression Member		Pu (kip)	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic (kip)	Pn Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG	SOL - 3 1/4" SOLID	-59.97	1.2D + 1.0W Normal	6.68	100	100	100	98.6	50.0	183.32	0	0	0.00	0.00	32 Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0
DIAG	SAE - 2.5X2.5X0.1875	-4.13	1.2D + 1.0W 90 deg	10.16	50	50	50	123.2	36.0	16.98	2	1	27.61	26.10	24 Member Z

Max Tension Member		Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit (kip)	Pn Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG	SOL - 3 1/4" SOLID	50.42	1.2D + 1.0W 60 deg	50	65	373.32	0	0	0.00	0.00			13 Member
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0.00		0
DIAG	SAE - 2.5X2.5X0.1875	4.07	1.2D + 1.0W 90 deg	36	58	25.22	2	1	27.61	20.88	14.38		28 Blk Shear

Max Splice Forces		Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension		28.15	0.9D + 1.0W 60 deg	0.00	0	0	
Top Compression		34.51	1.2D + 1.0W Normal	0.00	0		
Bot Tension		55.19	0.9D + 1.0W 60 deg	327.10	17	6	1 A325
Bot Compression		0.00		0.00	0		

Section: 12		12		Bot Elev (ft): 220.0				Height (ft): 20.000							
Max Compression Member		Pu (kip)	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic (kip)	Pn Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Use %	Controls
LEG	SOL - 2 1/4" SOLID	-30.10	1.2D + 1.0W Normal	5.01	100	100	100	106.8	50.0	77.66	0	0	0.00	0.00	38 Member X
HORIZ		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00	0
DIAG	SAE - 1.75X1.75X0.18	-3.31	1.2D + 1.0W 90 deg	7.621	50	50	50	133.3	36.0	10.00	2	1	17.67	20.88	33 Member Z

Max Tension Member		Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit (kip)	Pn Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG	SOL - 2 1/4" SOLID	24.02	1.2D + 1.0W 60 deg	50	65	178.92	0	0	0.00	0.00			13 Member
HORIZ		0.00		0	0	0.00	0	0	0.00	0.00	0.00		0
DIAG	SAE - 1.75X1.75X0.18	3.26	1.2D + 1.0W 90 deg	36	58	16.82	2	1	17.67	16.64	9.99		32 Blk Shear

Max Splice Forces		Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension		6.55	0.9D + 1.0W 60 deg	0.00	0	0	
Top Compression		9.08	1.2D + 1.0W Normal	0.00	0		
Bot Tension		28.15	0.9D + 1.0W 60 deg	122.04	23	6	5/8 A325
Bot Compression		0.00		0.00	0		



Site Number: 6260

Code: ANSI/TIA-222-H

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Site Name: NORTH STONINGTON CT, CT

Engineering Number: 13694578\_C3\_02

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Customer: DISH WIRELESS L.L.C.

### Force/Stress Summary

Section: 13		13		Bot Elev (ft): 240.0				Height (ft): 10.000				Shear		Bear		Use	
Max Compression Member		Pu (kip)	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic	Pn (kip)	Num Bolts	Num Holes	phiRnv (kip)	phiRn (kip)	%	Controls	
LEG	SOL - 2" SOLID	-5.52	1.2D + 1.0W Normal	5.00	100	100	100	120.0	50.0	49.29	0	0	0.00	0.00	11	Member X	
HORIZ	SAE - 2X2X0.1875	-0.21	1.2D + 1.0W Normal	4.000	100	100	100	121.8	36.0	13.73	1	1	13.81	13.05	1	Bolt Bear	
DIAG	SAE - 1.75X1.75X0.18	-2.33	1.2D + 1.0W 90 deg	6.403	50	50	50	114.0	36.0	13.22	2	1	17.67	20.88	17	Member Z	

Max Tension Member		Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	Phit (kip)	Pn (kip)	Num Bolts	Num Holes	Shear phiRnv (kip)	Bear phiRn (kip)	Blk Shear phit Pn (kip)	Use %	Controls
LEG	SOL - 2" SOLID	3.24	1.2D + 1.0W 60 deg	50	65	141.37	0	0	0	0.00	0.00		2	Member
HORIZ	SAE - 2X2X0.1875	0.18	1.2D + 1.0W 60 deg	36	58	19.12	1	1	1	13.81	7.83	6.83	2	Blk Shear
DIAG	SAE - 1.75X1.75X0.18	2.24	1.2D + 1.0W 90 deg	36	58	16.82	2	1	1	17.67	16.64	9.99	22	Blk Shear

Max Splice Forces		Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension		0.00		0.00	0	0	
Top Compression		0.60	1.2D + 1.0Ev + 1.0Eh	0.00	0		
Bot Tension		6.55	0.9D + 1.0W 60 deg	81.36	8	4	5/8 A325
Bot Compression		0.00		0.00	0		

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Site Name: NORTH STONINGTON CT, CT

Engineering Number: 13694578\_C3\_02

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Customer: DISH WIRELESS L.L.C.

### Detailed Reactions

Load Case	Radius (ft)	Elevation (ft)	Azimuth (deg)	Node	FX (kip)	FY (kip)	FZ (kip)	(-) = Uplift (+) = Down
<b>1.2D + 1.0W Normal</b>	16.17	00.00	0	1	0.00	484.65	-48.37	
	16.17	00.00	120	1a	15.55	-188.16	-16.02	
	16.17	00.00	240	1b	-15.55	-188.16	-16.02	
<b>1.2D + 1.0W 60 deg</b>	16.17	00.00	0	1	-5.98	249.40	-23.62	
	16.17	00.00	120	1a	-23.45	249.40	6.63	
	16.17	00.00	240	1b	-36.26	-390.47	-20.93	
<b>1.2D + 1.0W 90 deg</b>	16.17	00.00	0	1	-6.87	36.11	-1.64	
	16.17	00.00	120	1a	-36.77	410.29	17.10	
	16.17	00.00	240	1b	-33.37	-338.08	-15.46	
<b>0.9D + 1.0W Normal</b>	16.17	00.00	0	1	0.00	475.21	-47.91	
	16.17	00.00	120	1a	16.00	-196.98	-16.28	
	16.17	00.00	240	1b	-16.00	-196.98	-16.28	
<b>0.9D + 1.0W 60 deg</b>	16.17	00.00	0	1	-5.97	240.16	-23.13	
	16.17	00.00	120	1a	-23.02	240.16	6.39	
	16.17	00.00	240	1b	-36.70	-399.07	-21.19	
<b>0.9D + 1.0W 90 deg</b>	16.17	00.00	0	1	-6.86	27.08	-1.14	
	16.17	00.00	120	1a	-36.34	400.90	16.86	
	16.17	00.00	240	1b	-33.80	-346.74	-15.72	
<b>1.2D + 1.0Di + 1.0Wi Normal</b>	16.17	00.00	0	1	0.00	203.72	-17.59	
	16.17	00.00	120	1a	2.68	-4.69	-3.76	
	16.17	00.00	240	1b	-2.68	-4.69	-3.76	
<b>1.2D + 1.0Di + 1.0Wi 60 deg</b>	16.17	00.00	0	1	-1.88	132.71	-10.13	
	16.17	00.00	120	1a	-9.71	132.72	3.44	
	16.17	00.00	240	1b	-9.58	-71.09	-5.53	
<b>1.2D + 1.0Di + 1.0Wi 90 deg</b>	16.17	00.00	0	1	-2.17	64.78	-3.05	
	16.17	00.00	120	1a	-13.89	183.11	6.75	
	16.17	00.00	240	1b	-8.56	-53.55	-3.70	
<b>1.2D + 1.0Ev + 1.0Eh Normal M1</b>	16.17	00.00	0	1	0.00	60.38	-4.32	
	16.17	00.00	120	1a	-0.94	22.47	0.29	
	16.17	00.00	240	1b	0.94	22.47	0.29	
<b>1.2D + 1.0Ev + 1.0Eh 60 deg M1</b>	16.17	00.00	0	1	-0.22	47.74	-3.20	
	16.17	00.00	120	1a	-2.88	47.74	1.41	
	16.17	00.00	240	1b	-0.14	9.84	-0.08	
<b>1.2D + 1.0Ev + 1.0Eh 90 deg M1</b>	16.17	00.00	0	1	-0.25	35.11	-2.08	
	16.17	00.00	120	1a	-3.55	56.99	1.90	
	16.17	00.00	240	1b	0.05	13.23	0.17	
<b>0.9D - 1.0Ev + 1.0Eh Normal M1</b>	16.17	00.00	0	1	0.00	49.58	-3.69	
	16.17	00.00	120	1a	-0.38	11.73	-0.03	
	16.17	00.00	240	1b	0.38	11.73	-0.03	
<b>0.9D - 1.0Ev + 1.0Eh 60 deg M1</b>	16.17	00.00	0	1	-0.22	36.96	-2.57	
	16.17	00.00	120	1a	-2.33	36.96	1.10	
	16.17	00.00	240	1b	-0.70	-0.89	-0.40	
<b>0.9D - 1.0Ev + 1.0Eh 90 deg M1</b>	16.17	00.00	0	1	-0.25	24.34	-1.44	
	16.17	00.00	120	1a	-3.00	46.20	1.59	

Site Number: 6260

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Site Name: NORTH STONINGTON CT, CT

Engineering Number: 13694578\_C3\_02

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Customer: DISH WIRELESS L.L.C.

	<b>16.17</b>	<b>00.00</b>	<b>240</b>	<b>1b</b>	<b>-0.50</b>	<b>2.49</b>	<b>-0.14</b>
<b>1.0D + 1.0W Service Normal</b>	<b>16.17</b>	<b>00.00</b>	<b>0</b>	<b>1</b>	<b>0.00</b>	<b>129.07</b>	<b>-11.94</b>
	<b>16.17</b>	<b>00.00</b>	<b>120</b>	<b>1a</b>	<b>2.33</b>	<b>-19.40</b>	<b>-2.93</b>
	<b>16.17</b>	<b>00.00</b>	<b>240</b>	<b>1b</b>	<b>-2.33</b>	<b>-19.40</b>	<b>-2.93</b>
<b>1.0D + 1.0W Service 60 deg</b>	<b>16.17</b>	<b>00.00</b>	<b>0</b>	<b>1</b>	<b>-1.29</b>	<b>77.13</b>	<b>-6.50</b>
	<b>16.17</b>	<b>00.00</b>	<b>120</b>	<b>1a</b>	<b>-6.28</b>	<b>77.13</b>	<b>2.13</b>
	<b>16.17</b>	<b>00.00</b>	<b>240</b>	<b>1b</b>	<b>-6.95</b>	<b>-64.00</b>	<b>-4.01</b>
<b>1.0D + 1.0W Service 90 deg</b>	<b>16.17</b>	<b>00.00</b>	<b>0</b>	<b>1</b>	<b>-1.51</b>	<b>30.09</b>	<b>-1.65</b>
	<b>16.17</b>	<b>00.00</b>	<b>120</b>	<b>1a</b>	<b>-9.20</b>	<b>112.63</b>	<b>4.43</b>
	<b>16.17</b>	<b>00.00</b>	<b>240</b>	<b>1b</b>	<b>-6.31</b>	<b>-52.45</b>	<b>-2.78</b>

Max Uplift:	399.07 (kip)	Moment Ice:	3,369.05 (kip-ft)	Moment:	10,876.56 (kip-ft)	1.2D + 1.0W Normal
Max Down:	484.65 (kip)	Total Down Ice:	194.34 (kip)	Total Down:	108.33 (kip)	
Max Shear:	48.37 (kip)	Total Shear Ice:	25.11 (kip)	Total Shear:	80.40 (kip)	

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Site Name: NORTH STONINGTON CT, CT

Engineering Number: 13694578\_C3\_02

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Customer: DISH WIRELESS L.L.C.

### Deflections and Rotations

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
127 mph Normal with No Ice	80.00	0.157	0.0094	0.2131	0.2133
127 mph Normal with No Ice	100.00	0.241	0.0107	0.2623	0.2623
127 mph Normal with No Ice	160.00	0.599	0.0167	0.4264	0.4268
127 mph Normal with No Ice	170.00	0.676	0.0171	0.4515	0.4515
127 mph Normal with No Ice	193.33	0.873	0.0183	0.5132	0.5132
127 mph Normal with No Ice	200.00	0.933	0.0186	0.5276	0.5279
127 mph Normal with No Ice	206.67	0.996	0.0186	0.5475	0.5478
127 mph Normal with No Ice	225.00	1.179	0.0156	0.5985	0.5987
127 mph Normal with No Ice	235.00	1.285	0.0097	0.6253	0.6254
127 mph Normal with No Ice	245.00	1.395	0.0062	0.6402	0.6402
127 mph Normal with No Ice	250.00	1.450	0.0062	0.6297	0.6297
127 mph 60 degree with No Ice	80.00	0.149	0.0089	0.2040	0.2042
127 mph 60 degree with No Ice	100.00	0.229	0.0099	0.2496	0.2496
127 mph 60 degree with No Ice	160.00	0.572	0.0157	0.4101	0.4104
127 mph 60 degree with No Ice	170.00	0.646	0.0160	0.4337	0.4337
127 mph 60 degree with No Ice	193.33	0.836	0.0170	0.4931	0.4931
127 mph 60 degree with No Ice	200.00	0.894	0.0172	0.5070	0.5073
127 mph 60 degree with No Ice	206.67	0.954	0.0171	0.5267	0.5270
127 mph 60 degree with No Ice	225.00	1.130	0.0137	0.5760	0.5762
127 mph 60 degree with No Ice	235.00	1.232	0.0074	0.6026	0.6027
127 mph 60 degree with No Ice	245.00	1.338	0.0036	0.6176	0.6176
127 mph 60 degree with No Ice	250.00	1.391	0.0039	0.6087	0.6087
127 mph 90 degree with No Ice	80.00	0.151	-0.0104	0.2081	0.2083
127 mph 90 degree with No Ice	100.00	0.230	-0.0117	0.2504	0.2505
127 mph 90 degree with No Ice	160.00	0.578	-0.0185	0.4144	0.4148
127 mph 90 degree with No Ice	170.00	0.653	-0.0188	0.4378	0.4379
127 mph 90 degree with No Ice	193.33	0.844	-0.0201	0.4976	0.4977
127 mph 90 degree with No Ice	200.00	0.903	-0.0204	0.5123	0.5127
127 mph 90 degree with No Ice	206.67	0.964	-0.0203	0.5319	0.5323
127 mph 90 degree with No Ice	225.00	1.142	-0.0166	0.5822	0.5824
127 mph 90 degree with No Ice	235.00	1.245	-0.0095	0.6100	0.6101
127 mph 90 degree with No Ice	245.00	1.352	-0.0054	0.6263	0.6264
127 mph 90 degree with No Ice	250.00	1.405	-0.0055	0.6088	0.6088
127 mph Normal with No Ice (Reduced DL)	80.00	0.157	0.0094	0.2127	0.2129
127 mph Normal with No Ice (Reduced DL)	100.00	0.241	0.0107	0.2618	0.2618
127 mph Normal with No Ice (Reduced DL)	160.00	0.598	0.0167	0.4258	0.4261
127 mph Normal with No Ice (Reduced DL)	170.00	0.675	0.0171	0.4508	0.4508
127 mph Normal with No Ice (Reduced DL)	193.33	0.871	0.0183	0.5124	0.5124
127 mph Normal with No Ice (Reduced DL)	200.00	0.932	0.0186	0.5267	0.5270
127 mph Normal with No Ice (Reduced DL)	206.67	0.995	0.0186	0.5466	0.5469
127 mph Normal with No Ice (Reduced DL)	225.00	1.177	0.0156	0.5974	0.5976
127 mph Normal with No Ice (Reduced DL)	235.00	1.283	0.0097	0.6242	0.6243
127 mph Normal with No Ice (Reduced DL)	245.00	1.393	0.0063	0.6391	0.6391
127 mph Normal with No Ice (Reduced DL)	250.00	1.447	0.0062	0.6289	0.6289
127 mph 60 deg with No Ice (Reduced DL)	80.00	0.149	0.0089	0.2038	0.2040
127 mph 60 deg with No Ice (Reduced DL)	100.00	0.229	0.0099	0.2494	0.2494
127 mph 60 deg with No Ice (Reduced DL)	160.00	0.572	0.0157	0.4094	0.4097
127 mph 60 deg with No Ice (Reduced DL)	170.00	0.645	0.0159	0.4330	0.4330
127 mph 60 deg with No Ice (Reduced DL)	193.33	0.834	0.0170	0.4924	0.4924
127 mph 60 deg with No Ice (Reduced DL)	200.00	0.892	0.0172	0.5062	0.5065
127 mph 60 deg with No Ice (Reduced DL)	206.67	0.953	0.0171	0.5258	0.5261
127 mph 60 deg with No Ice (Reduced DL)	225.00	1.128	0.0137	0.5751	0.5753
127 mph 60 deg with No Ice (Reduced DL)	235.00	1.230	0.0074	0.6016	0.6017
127 mph 60 deg with No Ice (Reduced DL)	245.00	1.336	0.0037	0.6165	0.6165
127 mph 60 deg with No Ice (Reduced DL)	250.00	1.389	0.0040	0.6074	0.6074

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Customer: DISH WIRELESS L.L.C.

127 mph 90 deg with No Ice (Reduced DL)	80.00	0.151	-0.0104	0.2078	0.2080
127 mph 90 deg with No Ice (Reduced DL)	100.00	0.230	-0.0117	0.2499	0.2500
127 mph 90 deg with No Ice (Reduced DL)	160.00	0.578	-0.0184	0.4137	0.4141
127 mph 90 deg with No Ice (Reduced DL)	170.00	0.652	-0.0188	0.4371	0.4372
127 mph 90 deg with No Ice (Reduced DL)	193.33	0.843	-0.0201	0.4968	0.4969
127 mph 90 deg with No Ice (Reduced DL)	200.00	0.902	-0.0204	0.5115	0.5119
127 mph 90 deg with No Ice (Reduced DL)	206.67	0.963	-0.0203	0.5310	0.5314
127 mph 90 deg with No Ice (Reduced DL)	225.00	1.140	-0.0166	0.5812	0.5814
127 mph 90 deg with No Ice (Reduced DL)	235.00	1.243	-0.0096	0.6090	0.6090
127 mph 90 deg with No Ice (Reduced DL)	245.00	1.350	-0.0054	0.6252	0.6253
127 mph 90 deg with No Ice (Reduced DL)	250.00	1.403	-0.0056	0.6075	0.6075
50 mph Normal with 1.00 in Radial Ice	80.00	0.048	0.0030	0.0680	0.0680
50 mph Normal with 1.00 in Radial Ice	100.00	0.073	0.0035	0.0792	0.0793
50 mph Normal with 1.00 in Radial Ice	160.00	0.184	0.0054	0.1315	0.1315
50 mph Normal with 1.00 in Radial Ice	170.00	0.208	0.0056	0.1374	0.1375
50 mph Normal with 1.00 in Radial Ice	193.33	0.267	0.0061	0.1556	0.1556
50 mph Normal with 1.00 in Radial Ice	200.00	0.286	0.0062	0.1595	0.1597
50 mph Normal with 1.00 in Radial Ice	206.67	0.304	0.0063	0.1651	0.1651
50 mph Normal with 1.00 in Radial Ice	225.00	0.359	0.0057	0.1789	0.1790
50 mph Normal with 1.00 in Radial Ice	235.00	0.390	0.0044	0.1857	0.1857
50 mph Normal with 1.00 in Radial Ice	245.00	0.423	0.0036	0.1888	0.1888
50 mph Normal with 1.00 in Radial Ice	250.00	0.439	0.0036	0.1848	0.1848
50 mph 60 deg with 1.00 in Radial Ice	80.00	0.048	-0.0030	0.0666	0.0667
50 mph 60 deg with 1.00 in Radial Ice	100.00	0.075	-0.0034	0.0806	0.0806
50 mph 60 deg with 1.00 in Radial Ice	160.00	0.181	-0.0053	0.1280	0.1281
50 mph 60 deg with 1.00 in Radial Ice	170.00	0.204	-0.0055	0.1357	0.1357
50 mph 60 deg with 1.00 in Radial Ice	193.33	0.262	-0.0060	0.1522	0.1523
50 mph 60 deg with 1.00 in Radial Ice	200.00	0.281	-0.0061	0.1576	0.1576
50 mph 60 deg with 1.00 in Radial Ice	206.67	0.299	-0.0061	0.1619	0.1621
50 mph 60 deg with 1.00 in Radial Ice	225.00	0.352	-0.0055	0.1765	0.1765
50 mph 60 deg with 1.00 in Radial Ice	235.00	0.383	-0.0042	0.1821	0.1821
50 mph 60 deg with 1.00 in Radial Ice	245.00	0.415	-0.0034	0.1858	0.1859
50 mph 60 deg with 1.00 in Radial Ice	250.00	0.431	-0.0034	0.1855	0.1855
50 mph 90 deg with 1.00 in Radial Ice	80.00	0.048	-0.0035	0.0671	0.0671
50 mph 90 deg with 1.00 in Radial Ice	100.00	0.074	-0.0040	0.0801	0.0801
50 mph 90 deg with 1.00 in Radial Ice	160.00	0.182	-0.0062	0.1294	0.1294
50 mph 90 deg with 1.00 in Radial Ice	170.00	0.205	-0.0064	0.1361	0.1361
50 mph 90 deg with 1.00 in Radial Ice	193.33	0.264	-0.0070	0.1534	0.1534
50 mph 90 deg with 1.00 in Radial Ice	200.00	0.282	-0.0071	0.1581	0.1581
50 mph 90 deg with 1.00 in Radial Ice	206.67	0.300	-0.0071	0.1629	0.1629
50 mph 90 deg with 1.00 in Radial Ice	225.00	0.354	-0.0064	0.1771	0.1771
50 mph 90 deg with 1.00 in Radial Ice	235.00	0.385	-0.0049	0.1832	0.1833
50 mph 90 deg with 1.00 in Radial Ice	245.00	0.417	-0.0040	0.1872	0.1873
50 mph 90 deg with 1.00 in Radial Ice	250.00	0.433	-0.0040	0.1848	0.1849
Seismic Normal M1	80.00	0.009	0.0006	0.0128	0.0129
Seismic Normal M1	100.00	0.015	0.0007	0.0167	0.0167
Seismic Normal M1	160.00	0.036	0.0012	0.0276	0.0276
Seismic Normal M1	170.00	0.041	0.0013	0.0297	0.0297
Seismic Normal M1	193.33	0.054	0.0015	0.0337	0.0337
Seismic Normal M1	200.00	0.058	0.0015	0.0347	0.0348
Seismic Normal M1	206.67	0.062	0.0016	0.0364	0.0364
Seismic Normal M1	225.00	0.074	0.0016	0.0408	0.0409
Seismic Normal M1	235.00	0.082	0.0015	0.0430	0.0430
Seismic Normal M1	245.00	0.089	0.0014	0.0446	0.0446
Seismic Normal M1	250.00	0.093	0.0014	0.0444	0.0445
Seismic 60 deg M1	80.00	0.009	-0.0006	0.0129	0.0129
Seismic 60 deg M1	100.00	0.014	-0.0007	0.0158	0.0158
Seismic 60 deg M1	160.00	0.036	-0.0012	0.0273	0.0273
Seismic 60 deg M1	170.00	0.041	-0.0013	0.0296	0.0296
Seismic 60 deg M1	193.33	0.054	-0.0015	0.0336	0.0337
Seismic 60 deg M1	200.00	0.058	-0.0015	0.0349	0.0349
Seismic 60 deg M1	206.67	0.062	-0.0016	0.0363	0.0363

Site Number: 6260

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Site Name: NORTH STONINGTON CT, CT

Engineering Number: 13694578\_C3\_02

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Customer: DISH WIRELESS L.L.C.

Seismic 60 deg M1	225.00	0.074	-0.0016	0.0409	0.0409
Seismic 60 deg M1	235.00	0.082	-0.0015	0.0431	0.0431
Seismic 60 deg M1	245.00	0.089	-0.0014	0.0443	0.0443
Seismic 60 deg M1	250.00	0.093	-0.0014	0.0454	0.0454
Seismic 90 deg M1	80.00	0.009	-0.0007	0.0129	0.0129
Seismic 90 deg M1	100.00	0.014	-0.0008	0.0164	0.0164
Seismic 90 deg M1	160.00	0.036	-0.0014	0.0275	0.0275
Seismic 90 deg M1	170.00	0.041	-0.0016	0.0297	0.0297
Seismic 90 deg M1	193.33	0.054	-0.0017	0.0337	0.0337
Seismic 90 deg M1	200.00	0.058	-0.0018	0.0348	0.0349
Seismic 90 deg M1	206.67	0.062	-0.0018	0.0364	0.0364
Seismic 90 deg M1	225.00	0.074	-0.0019	0.0409	0.0409
Seismic 90 deg M1	235.00	0.082	-0.0018	0.0431	0.0431
Seismic 90 deg M1	245.00	0.089	-0.0016	0.0445	0.0445
Seismic 90 deg M1	250.00	0.093	-0.0016	0.0452	0.0452
Seismic (Reduced DL) Normal M1	80.00	0.009	0.0006	0.0127	0.0127
Seismic (Reduced DL) Normal M1	100.00	0.014	0.0007	0.0164	0.0164
Seismic (Reduced DL) Normal M1	160.00	0.036	0.0012	0.0275	0.0275
Seismic (Reduced DL) Normal M1	170.00	0.041	0.0013	0.0296	0.0296
Seismic (Reduced DL) Normal M1	193.33	0.054	0.0015	0.0336	0.0336
Seismic (Reduced DL) Normal M1	200.00	0.058	0.0015	0.0347	0.0347
Seismic (Reduced DL) Normal M1	206.67	0.062	0.0016	0.0363	0.0363
Seismic (Reduced DL) Normal M1	225.00	0.074	0.0016	0.0407	0.0407
Seismic (Reduced DL) Normal M1	235.00	0.081	0.0015	0.0428	0.0428
Seismic (Reduced DL) Normal M1	245.00	0.089	0.0014	0.0443	0.0443
Seismic (Reduced DL) Normal M1	250.00	0.093	0.0014	0.0441	0.0441
Seismic (Reduced DL) 60 deg M1	80.00	0.009	-0.0006	0.0127	0.0127
Seismic (Reduced DL) 60 deg M1	100.00	0.014	-0.0007	0.0156	0.0156
Seismic (Reduced DL) 60 deg M1	160.00	0.036	-0.0012	0.0272	0.0272
Seismic (Reduced DL) 60 deg M1	170.00	0.041	-0.0013	0.0295	0.0295
Seismic (Reduced DL) 60 deg M1	193.33	0.054	-0.0015	0.0336	0.0336
Seismic (Reduced DL) 60 deg M1	200.00	0.058	-0.0015	0.0348	0.0348
Seismic (Reduced DL) 60 deg M1	206.67	0.062	-0.0016	0.0362	0.0362
Seismic (Reduced DL) 60 deg M1	225.00	0.074	-0.0016	0.0407	0.0407
Seismic (Reduced DL) 60 deg M1	235.00	0.081	-0.0015	0.0429	0.0429
Seismic (Reduced DL) 60 deg M1	245.00	0.089	-0.0014	0.0441	0.0441
Seismic (Reduced DL) 60 deg M1	250.00	0.093	-0.0014	0.0448	0.0448
Seismic (Reduced DL) 90 deg M1	80.00	0.009	-0.0007	0.0127	0.0127
Seismic (Reduced DL) 90 deg M1	100.00	0.014	-0.0008	0.0161	0.0162
Seismic (Reduced DL) 90 deg M1	160.00	0.036	-0.0014	0.0274	0.0274
Seismic (Reduced DL) 90 deg M1	170.00	0.041	-0.0015	0.0295	0.0296
Seismic (Reduced DL) 90 deg M1	193.33	0.054	-0.0017	0.0336	0.0336
Seismic (Reduced DL) 90 deg M1	200.00	0.058	-0.0018	0.0347	0.0348
Seismic (Reduced DL) 90 deg M1	206.67	0.062	-0.0018	0.0363	0.0363
Seismic (Reduced DL) 90 deg M1	225.00	0.074	-0.0019	0.0407	0.0407
Seismic (Reduced DL) 90 deg M1	235.00	0.081	-0.0018	0.0429	0.0429
Seismic (Reduced DL) 90 deg M1	245.00	0.089	-0.0016	0.0443	0.0443
Seismic (Reduced DL) 90 deg M1	250.00	0.093	-0.0016	0.0446	0.0446
Serviceability - 60 mph Wind Normal	80.00	0.035	0.0021	0.0473	0.0473
Serviceability - 60 mph Wind Normal	100.00	0.054	0.0024	0.0584	0.0584
Serviceability - 60 mph Wind Normal	160.00	0.132	0.0039	0.0943	0.0944
Serviceability - 60 mph Wind Normal	170.00	0.149	0.0040	0.0998	0.0998
Serviceability - 60 mph Wind Normal	193.33	0.193	0.0043	0.1136	0.1136
Serviceability - 60 mph Wind Normal	200.00	0.206	0.0044	0.1168	0.1169
Serviceability - 60 mph Wind Normal	206.67	0.220	0.0044	0.1211	0.1212
Serviceability - 60 mph Wind Normal	225.00	0.261	0.0037	0.1327	0.1327
Serviceability - 60 mph Wind Normal	235.00	0.284	0.0024	0.1385	0.1386
Serviceability - 60 mph Wind Normal	245.00	0.308	0.0015	0.1417	0.1417
Serviceability - 60 mph Wind Normal	250.00	0.320	0.0015	0.1388	0.1388
Serviceability - 60 mph Wind 60 deg	80.00	0.033	-0.0020	0.0446	0.0446
Serviceability - 60 mph Wind 60 deg	100.00	0.050	-0.0023	0.0544	0.0544
Serviceability - 60 mph Wind 60 deg	160.00	0.126	-0.0037	0.0904	0.0905



Site Number: 6260

Code:

ANSI/TIA-222-H

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Site Name: NORTH STONINGTON CT, CT

Engineering Number: 13694578\_C3\_02

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Customer: DISH WIRELESS L.L.C.

Serviceability - 60 mph Wind 60 deg	170.00	0.142	-0.0038	0.0959	0.0959
Serviceability - 60 mph Wind 60 deg	193.33	0.184	-0.0041	0.1090	0.1090
Serviceability - 60 mph Wind 60 deg	200.00	0.197	-0.0041	0.1121	0.1121
Serviceability - 60 mph Wind 60 deg	206.67	0.210	-0.0041	0.1164	0.1165
Serviceability - 60 mph Wind 60 deg	225.00	0.249	-0.0035	0.1275	0.1275
Serviceability - 60 mph Wind 60 deg	235.00	0.272	-0.0021	0.1330	0.1330
Serviceability - 60 mph Wind 60 deg	245.00	0.295	-0.0013	0.1366	0.1366
Serviceability - 60 mph Wind 60 deg	250.00	0.307	-0.0013	0.1351	0.1351
Serviceability - 60 mph Wind 90 deg	80.00	0.033	-0.0024	0.0458	0.0459
Serviceability - 60 mph Wind 90 deg	100.00	0.051	-0.0027	0.0558	0.0558
Serviceability - 60 mph Wind 90 deg	160.00	0.128	-0.0043	0.0915	0.0916
Serviceability - 60 mph Wind 90 deg	170.00	0.144	-0.0044	0.0968	0.0968
Serviceability - 60 mph Wind 90 deg	193.33	0.186	-0.0048	0.1100	0.1101
Serviceability - 60 mph Wind 90 deg	200.00	0.199	-0.0048	0.1133	0.1134
Serviceability - 60 mph Wind 90 deg	206.67	0.213	-0.0049	0.1176	0.1177
Serviceability - 60 mph Wind 90 deg	225.00	0.252	-0.0041	0.1288	0.1289
Serviceability - 60 mph Wind 90 deg	235.00	0.275	-0.0025	0.1349	0.1349
Serviceability - 60 mph Wind 90 deg	245.00	0.299	-0.0015	0.1385	0.1386
Serviceability - 60 mph Wind 90 deg	250.00	0.310	-0.0016	0.1351	0.1351

### Maximum Reactions Summary

Anchor Group	Vertical (kip)				Horizontal (kip)		Moment (kip-ft)	
	DL+WL	DL+WL+IL	UpLift	Shear	DL+WL	DL+WL+IL	DL+WL	DL+WL+IL
Base	108.33	194.34	484.65	48.37	80.40	25.11	10876.56	3369.05

# INFINIGY

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## MOUNT ANALYSIS REPORT

August 13, 2021

Dish Wireless Site Name	BOBOS00884A
Dish Wireless Site Number	BOBOS00884A
ATC Site Name	North Stonington CT, CT
ATC Site Number	6260
Infinigy Job Number	1197-F0001-C
Client	ATC
Carrier	Dish Wireless
Site Location	118C Wintechog Hill Rd., off of Rt. 2 North Stonington, CT 06359 New London County 41.459830 N NAD83 71.927300 W NAD83
Mount Type	8.0 ft Sector Frames
Mount Elevation	165.0 ft AGL
Structural Usage Ratio	<b>43.0</b>
<b>Overall Result</b>	<b>Pass</b>

The enclosed mount structural analysis has been performed in accordance with the 2018 Connecticut State Building Code (2015 IBC) based on an ultimate 3-second gust wind speed of 135 mph. The evaluation criteria and applicable codes are presented in the next section of this report.



**CONTENTS**

1. Introduction
2. Design/Analysis Parameters
3. Proposed Loading Configuration
4. Supporting Documentation
5. Results
6. Recommendations
7. Assumptions
8. Liability Waiver and Limitations
9. Calculations

## 1. INTRODUCTION

Infinigy performed a structural analysis on the Dish Wireless proposed telecommunication equipment supporting Sector Frames mounted to the existing structure located at the aforementioned address. All referenced supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The mount was analyzed using Risa-3D version 17.0.4 analysis software.

## 2. DESIGN/ANALYSIS PARAMETERS

Wind Speed	135 mph (3-Second Gust)
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 1.5" ice
Code / Standard	TIA-222-H
Adopted Code	2018 Connecticut State Building Code (2015 IBC)
Risk Category	II
Exposure Category	B
Topographic Category	1
Calculated Crest Height	0 ft.
Seismic Spectral Response	$S_s = 0.163 \text{ g} / S_1 = 0.059 \text{ g}$
Live Load Wind Speed	60 mph
Man Live Load at Mid/End Points	250 lbs
Man Live Load at Mount Pipes	500 lbs

## 3. PROPOSED LOADING CONFIGURATION - 165.0 ft. AGL Sector Frames

Antenna Centerline (ft)	Qty.	Appurtenance Manufacturers	Appurtenance Models
165.0	3	JMA WIRELESS	MX08FRO665-21
	3	FUJITSU	TA08025-B605
	3	FUJITSU	TA08025-B604
	1	RAYCAP	RDIDC-9181-PF-48

## 4. SUPPORTING DOCUMENTATION

Proposed Loading	Dish Wireless Asset ID CT-ATC-T-6260 Rev 0, Site #BOBOS00884A, dated June 14, 2021
Mount Manufacturer Drawings	Commscope Document # MTC3975083, dated March 17, 2021
Structural Analysis Report	American Tower Corporation, Site #6260, dated June 24, 2021

**5. RESULTS**

<b>Components</b>	<b>Capacity</b>	<b>Pass/Fail</b>
Mount Pipes	27.9%	Pass
Horizontals	16.2%	Pass
Standoffs	43.0%	Pass
Connections	14.6%	Pass
<b>MOUNT RATING =</b>	<b>43.0 %</b>	<b>Pass</b>

Notes:

1. See additional documentation in Appendix for calculations supporting the capacity consumed and detailed mount connection calculations.

**6. RECOMMENDATIONS**

Infinigy recommends installing Dish Wireless’s proposed equipment loading configuration on the mount at 165.0 ft. The installation shall be performed in accordance with the construction documents issued for this site.

Pradin Suinyal Magar  
 Project Engineer II | **INFINIGY**

**7. ASSUMPTIONS**

The antenna mounting system was properly fabricated, installed and maintained in accordance with its original design and manufacturer's specifications.	
The configuration of antennas, mounts, and other appurtenances are as specified in the proposed loading configuration table.	
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.	
The analysis will require revisions 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.	
Steel grades have been assumed as follows, unless noted otherwise:	
Channel, Plate, Built-up Angle	ASTM A1011 36 KSI
Solid Round	ASTM A529 Gr 50
Structural Angle	ASTM A529 Gr. 50
HSS (Rectangular)	ASTM A500-B GR 46
HSS (Circular)	ASTM A500-B GR 42
Pipe	ASTM A500 Gr 46
Connection Bolts	ASTM A449
U-Bolts	ASTM A307
All bolted connections are pretensioned in accordance with Table 8.2 of the RCSC 2014 Standard	

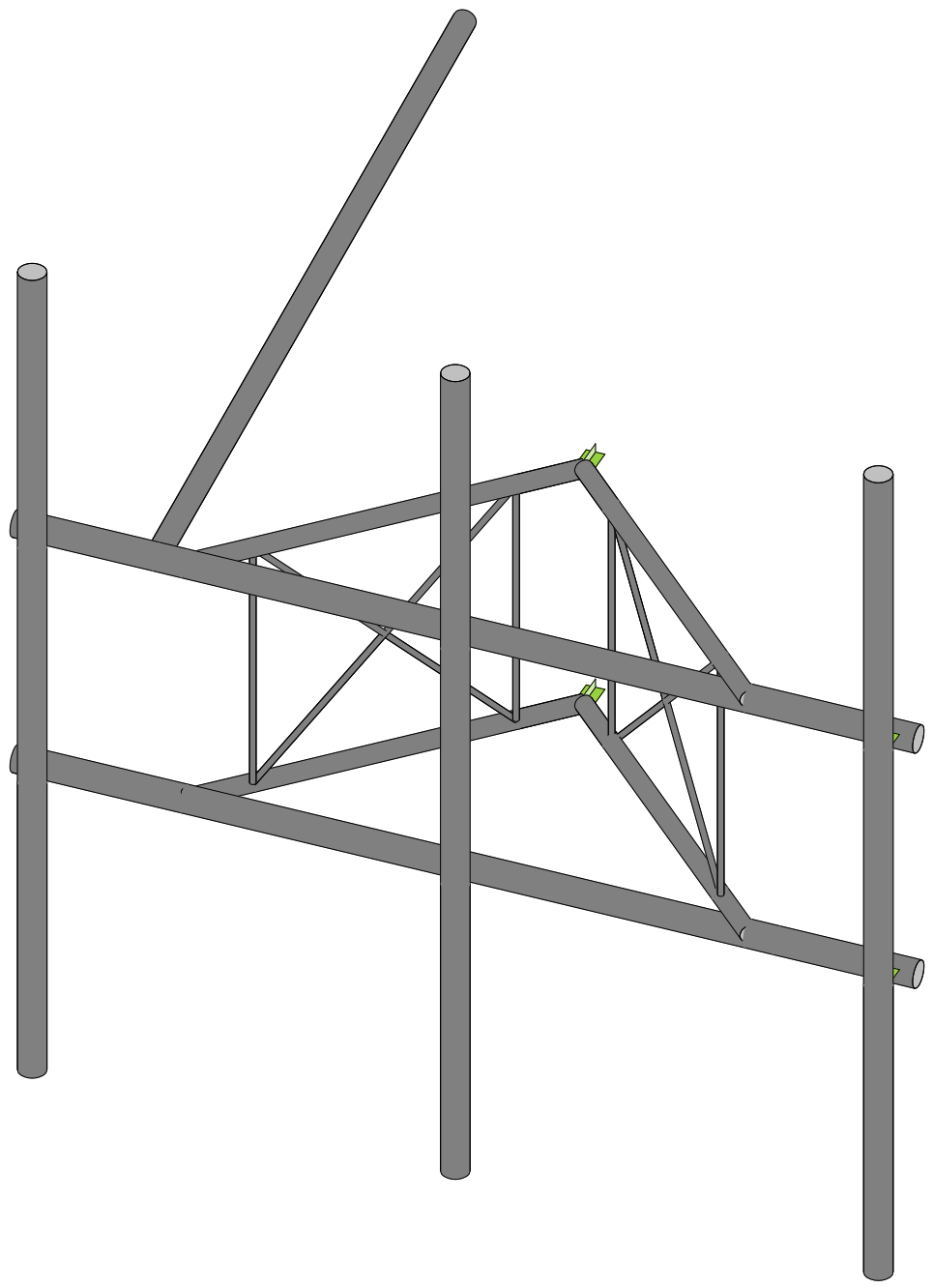
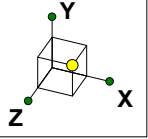
**8. LIABILITY WAIVER AND LIMITATIONS**

Our structural calculations are completed assuming all information provided to Infinigy is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition as erected and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure's condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report, Infinigy should be notified immediately to assess the impact on the results of this report.

Our evaluation is completed using industry standard methods and procedures. The structural results, conclusions and recommendations contained in this report are proprietary and should not be used by others as their own. Infinigy is not responsible for decisions made by others that are or are not based on the stated assumptions and conclusions in this report.

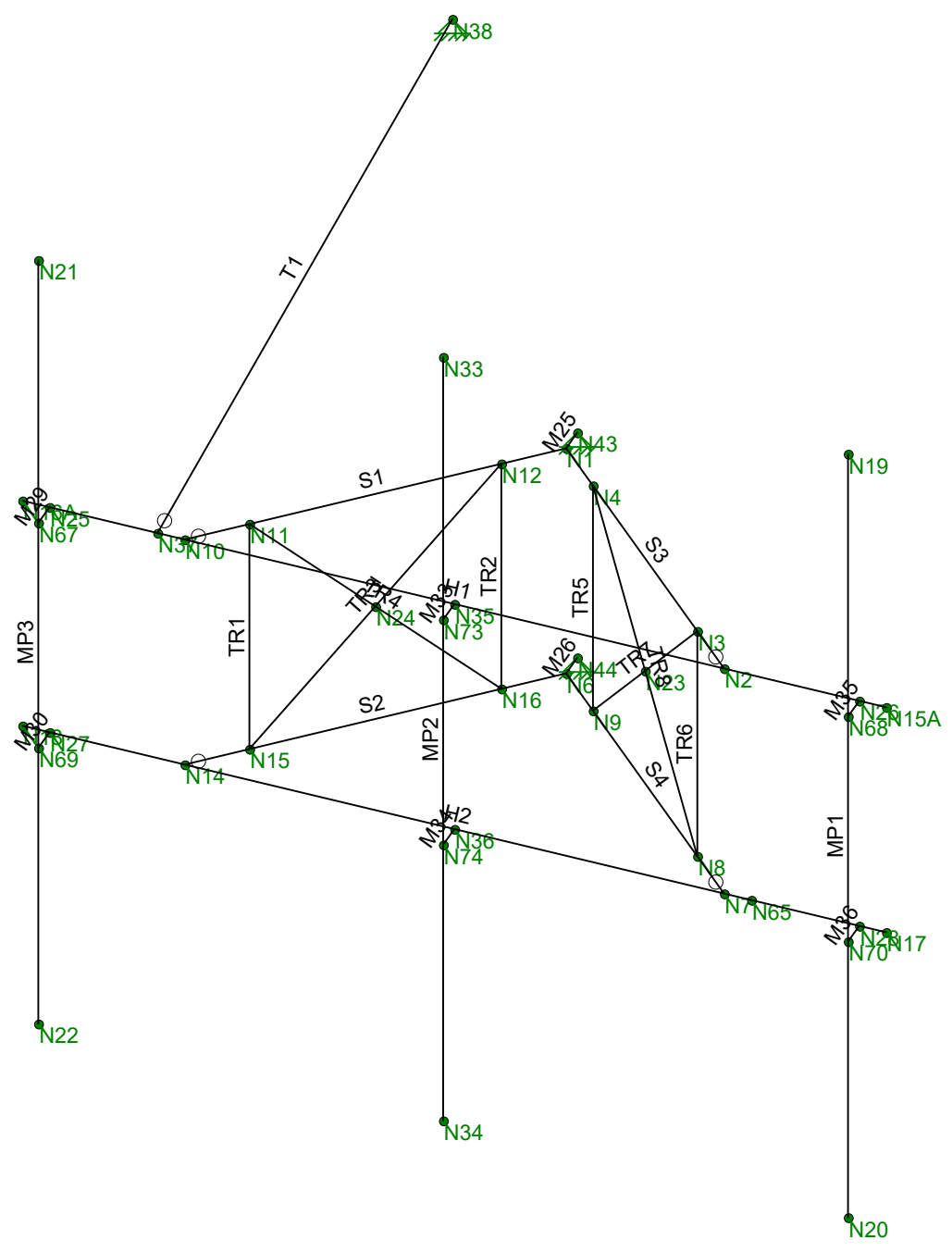
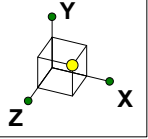
This report is an evaluation of the mount structure only and does not determine the adequacy of the supporting structure, other carrier mounts or cable mounting attachments. The analysis of these elements is outside the scope of this analysis, are assumed to be adequate for the purpose of this report and to have been installed per their manufacturer requirements. This document is not for construction purposes.





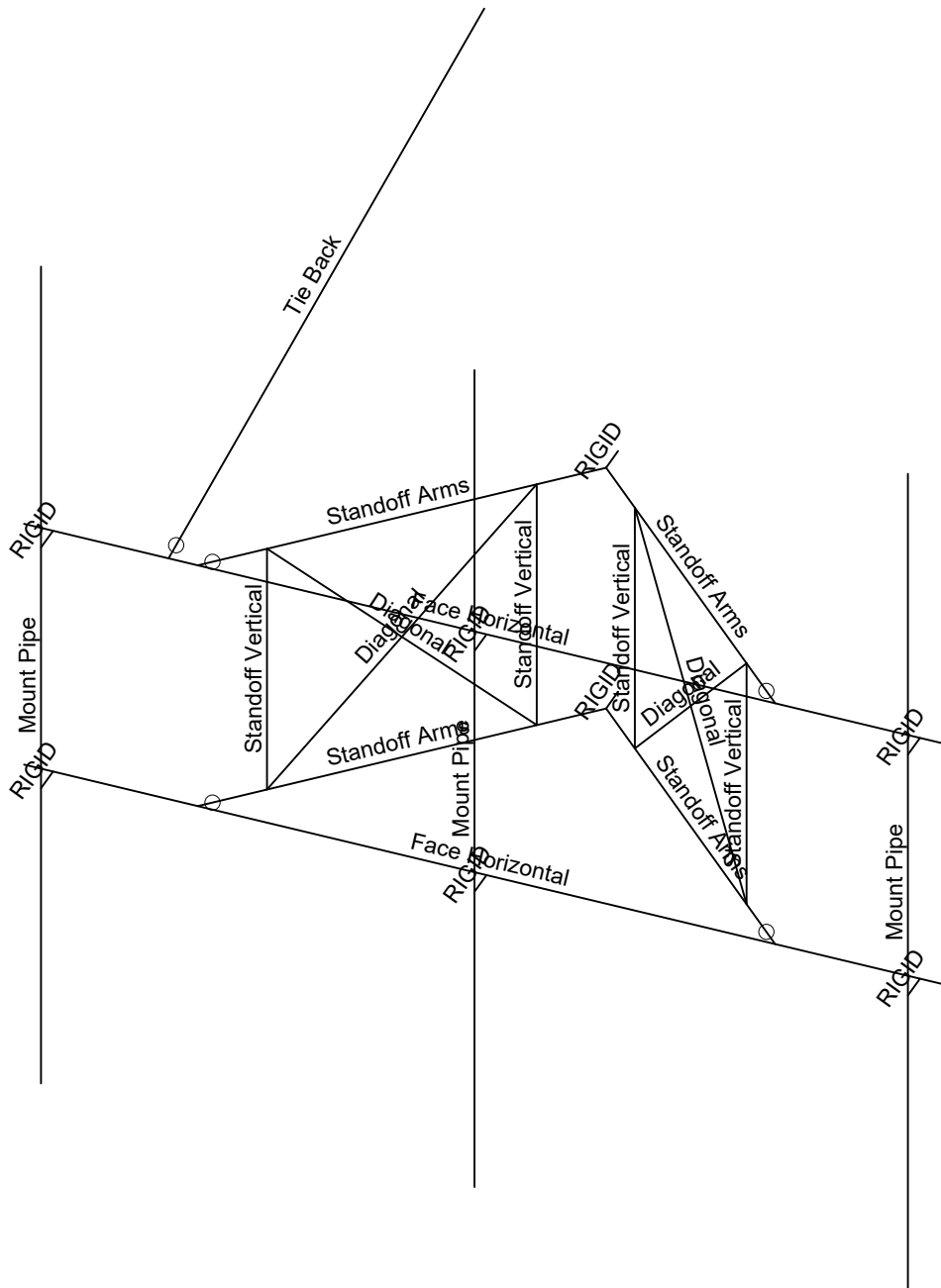
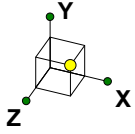
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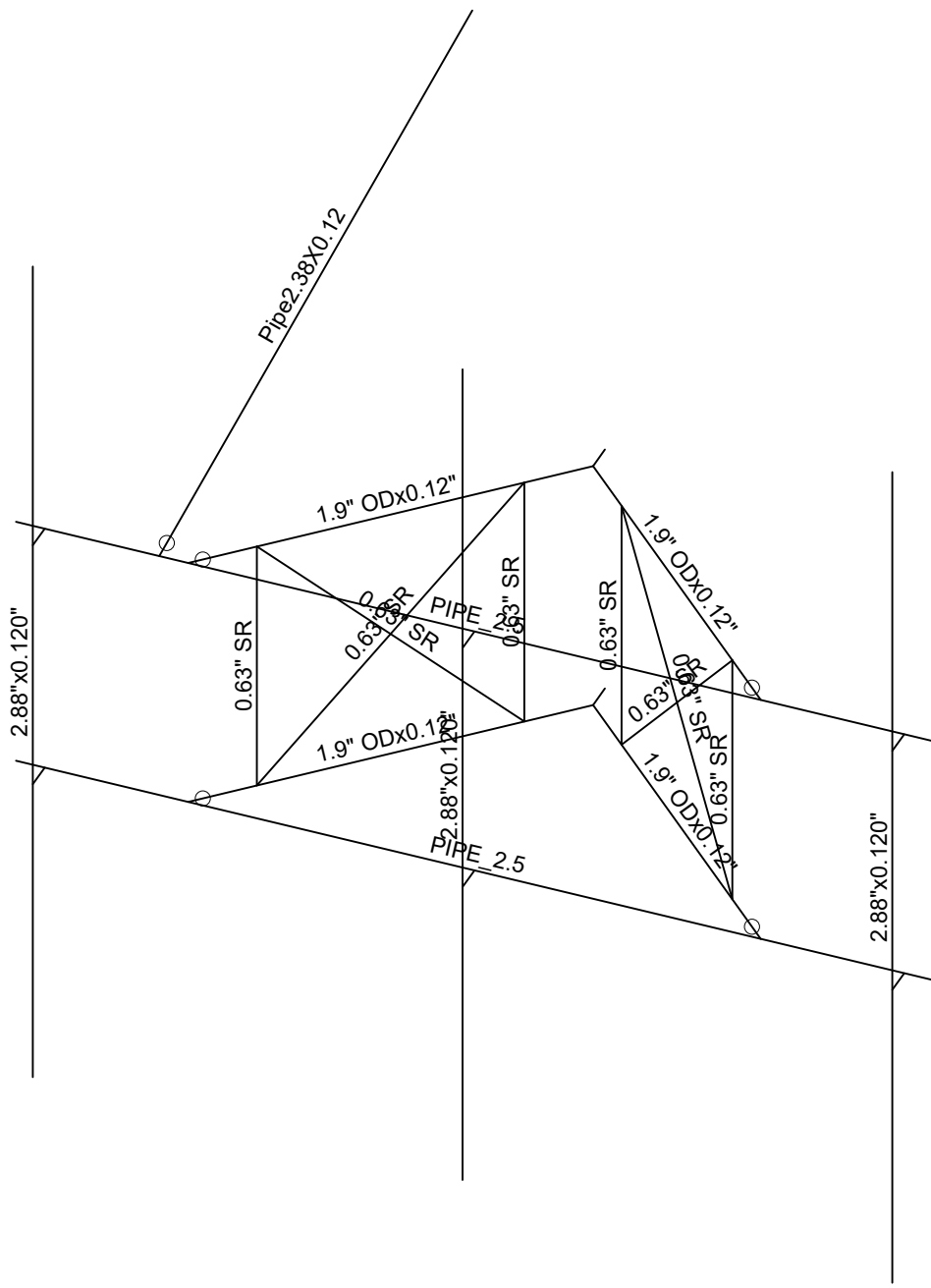
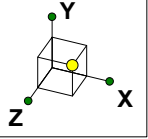
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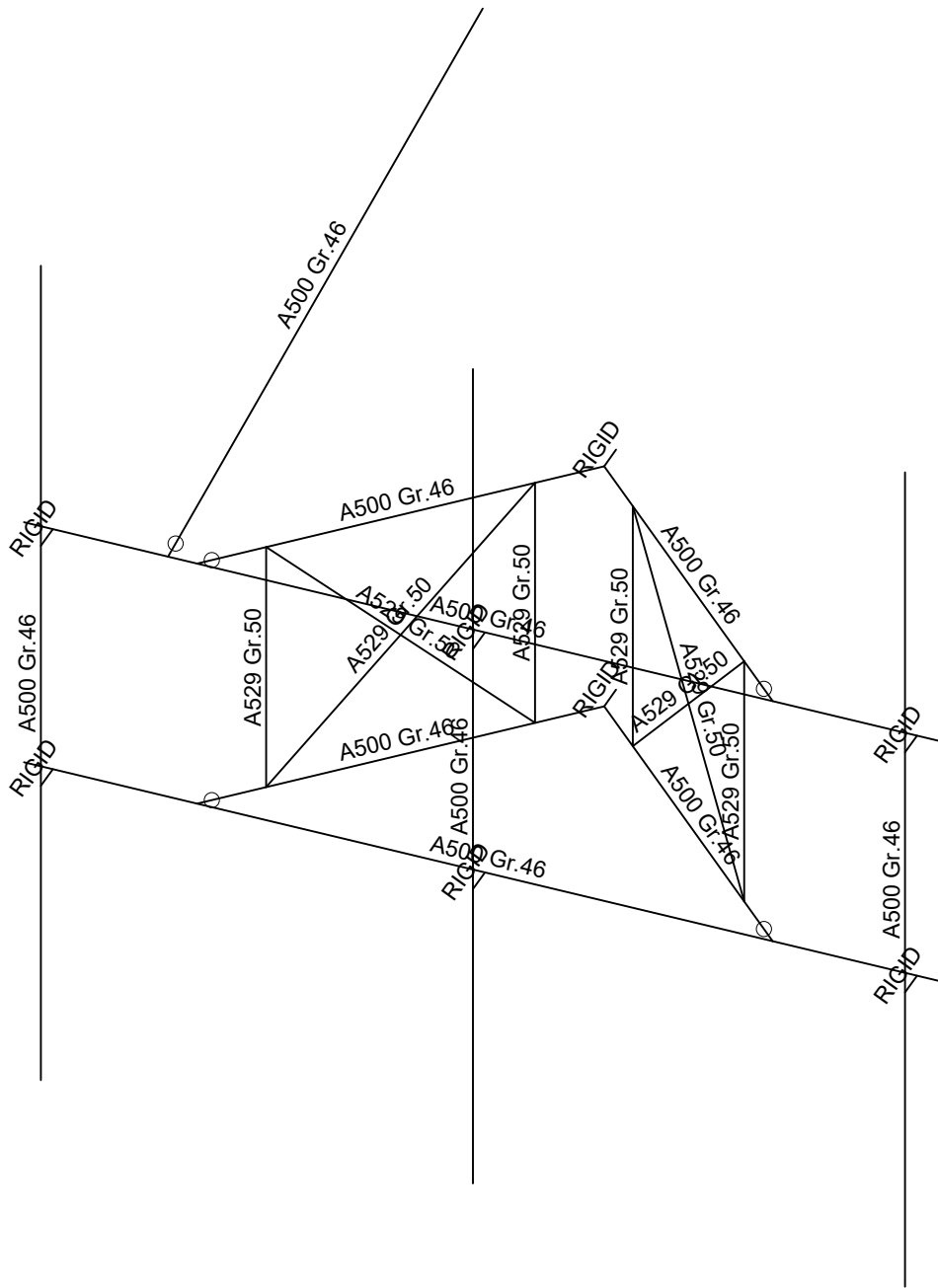
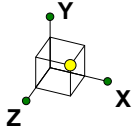
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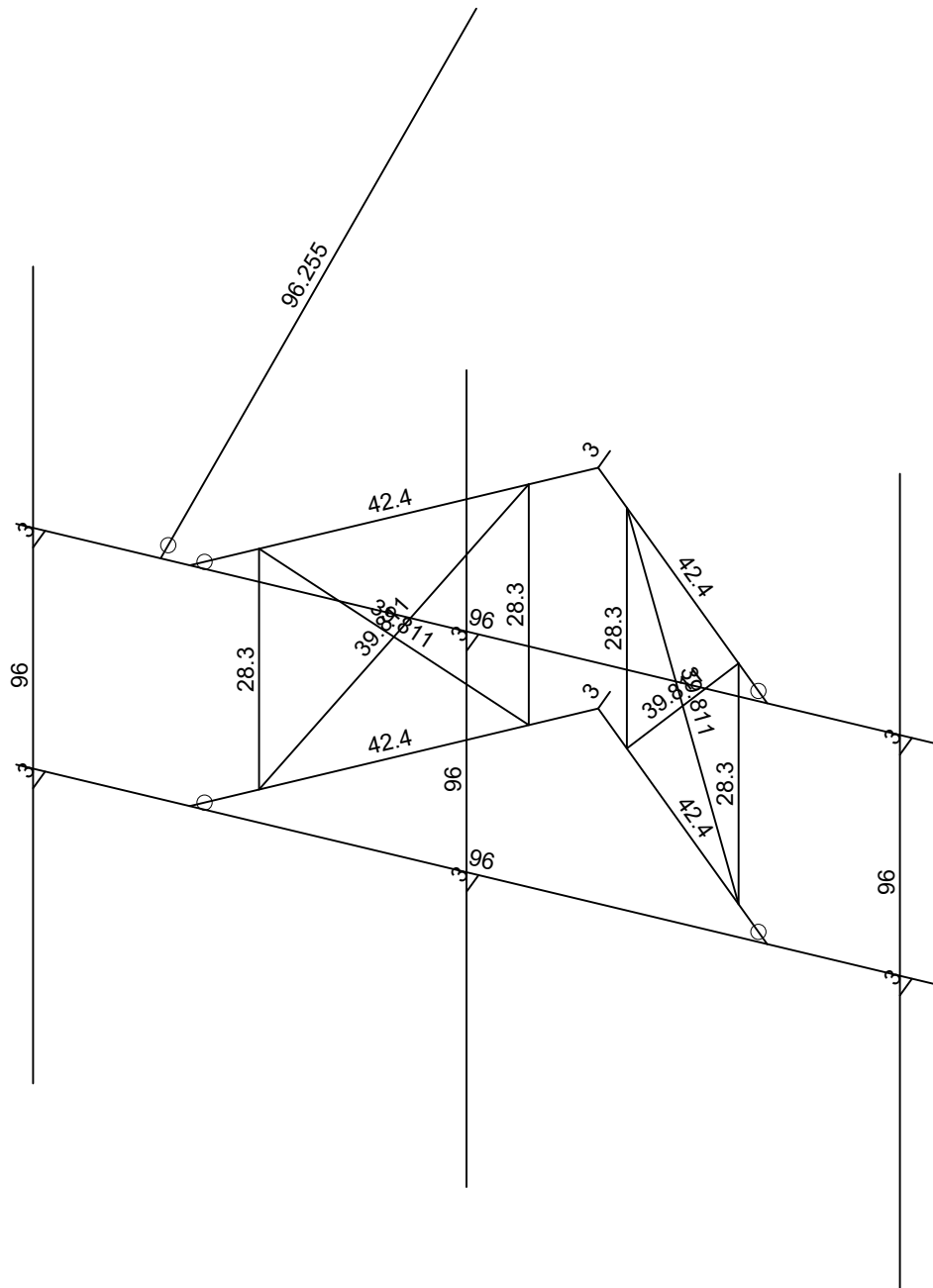
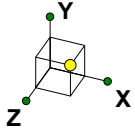
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Material Sets

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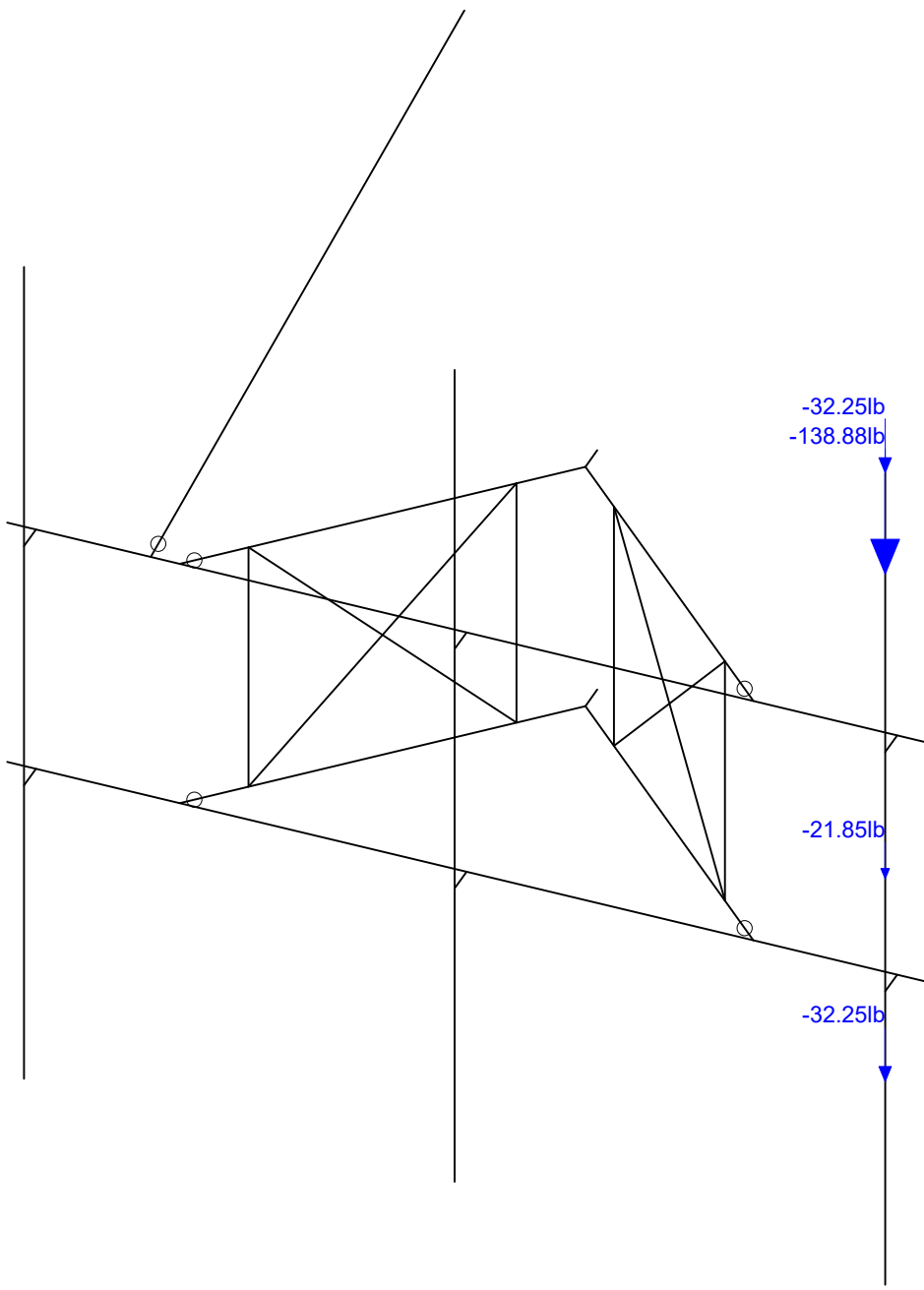
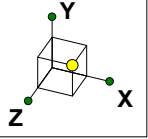
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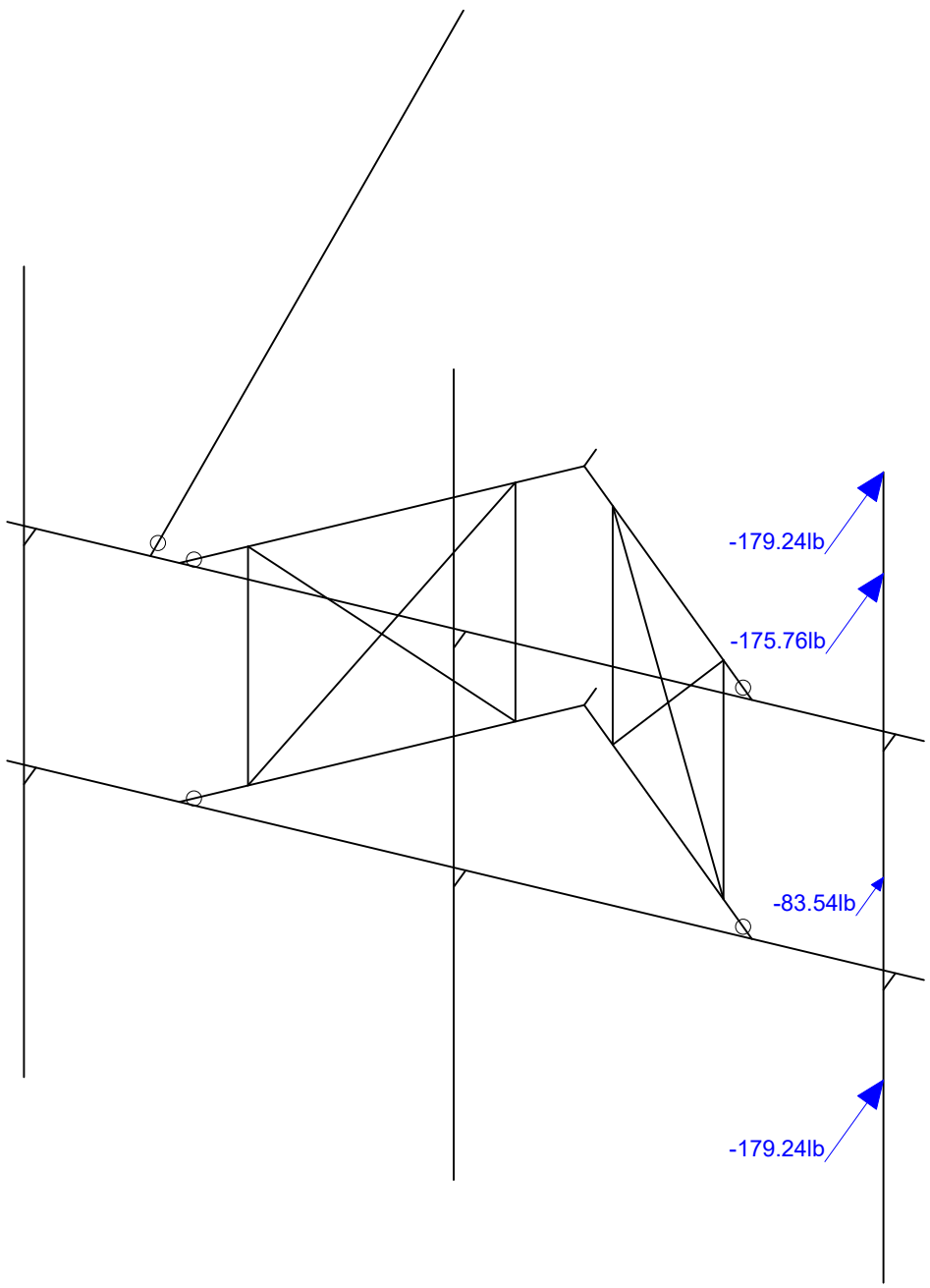
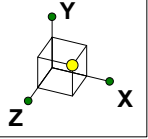
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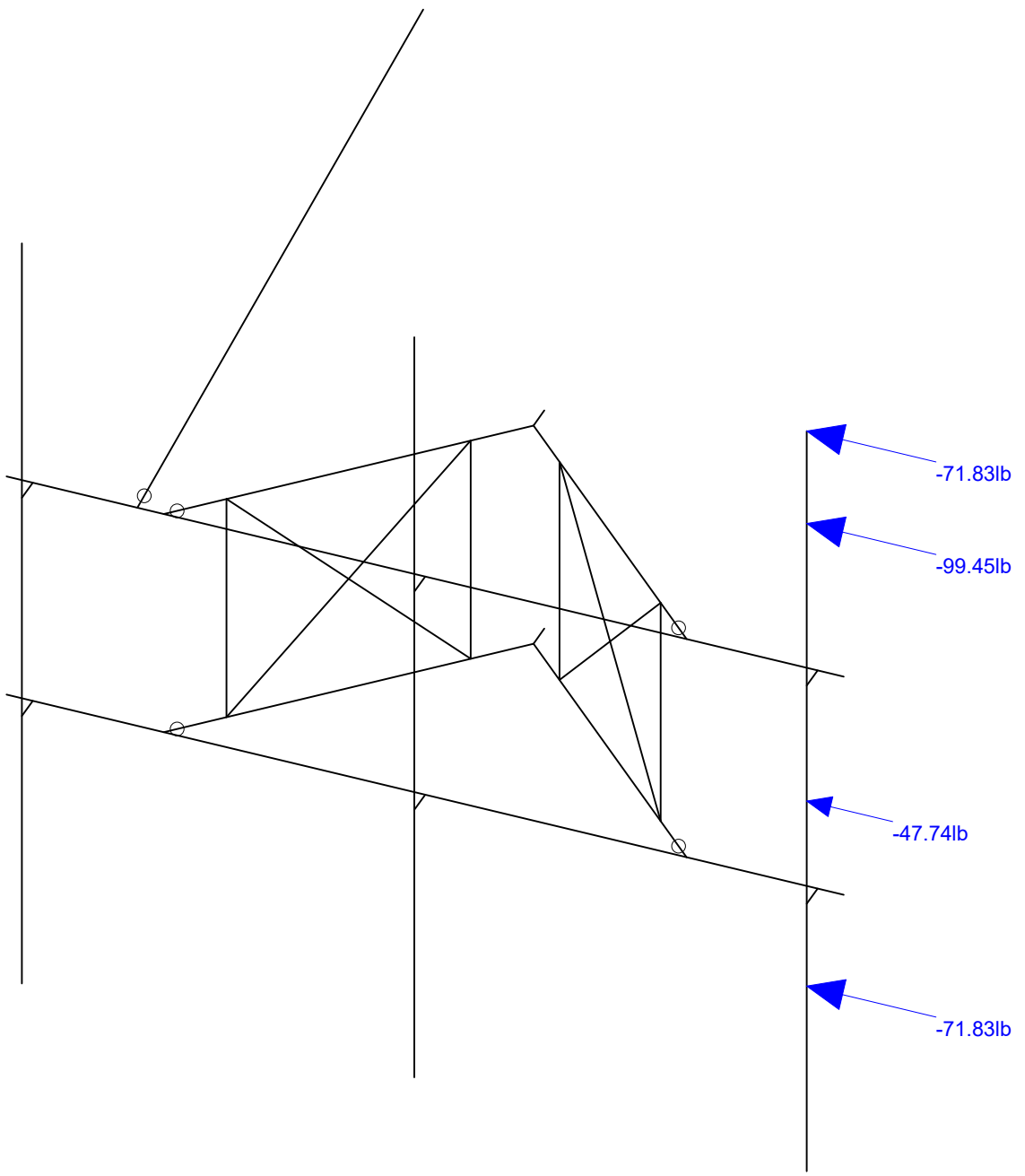
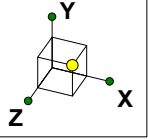
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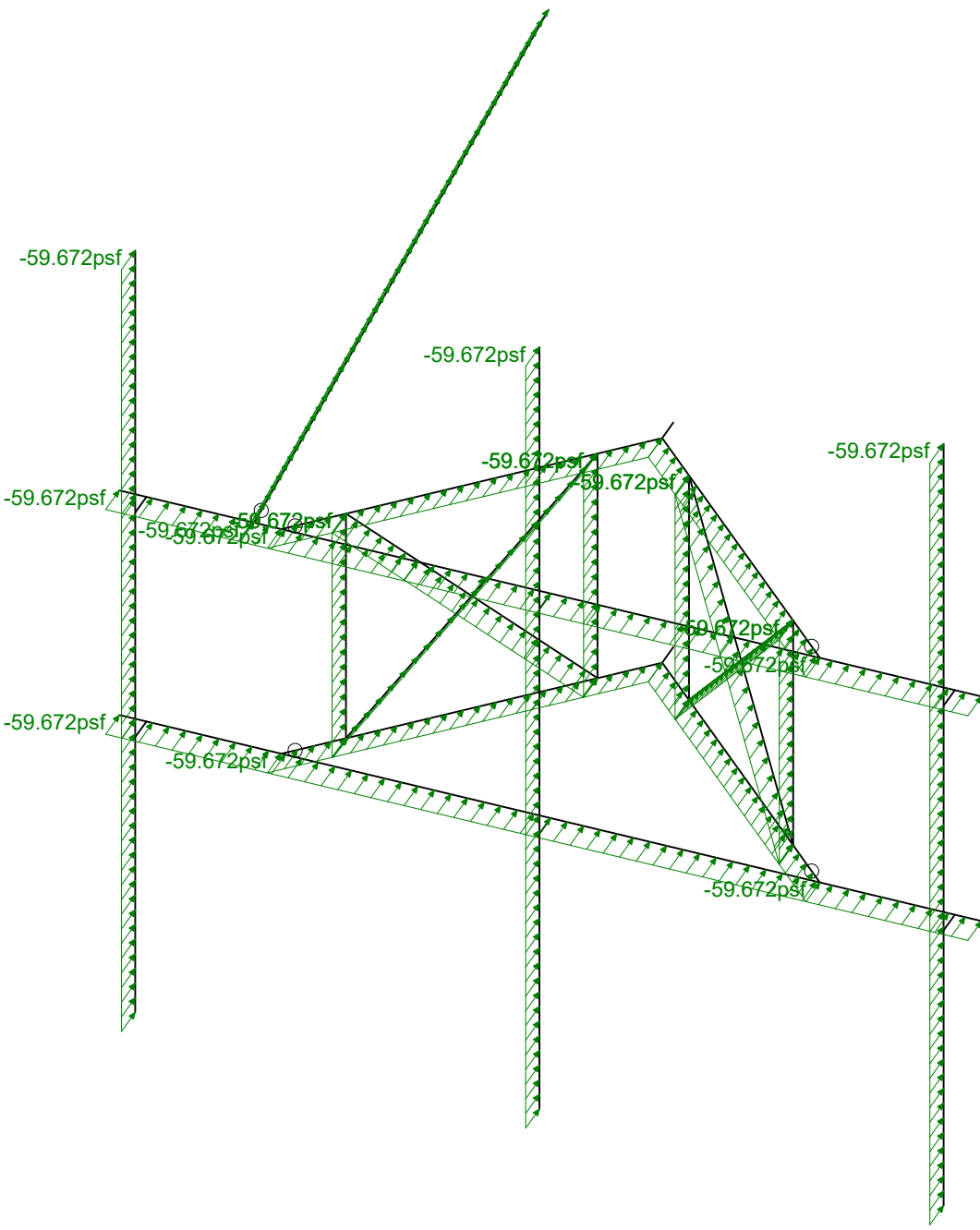
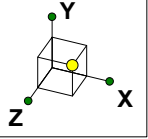
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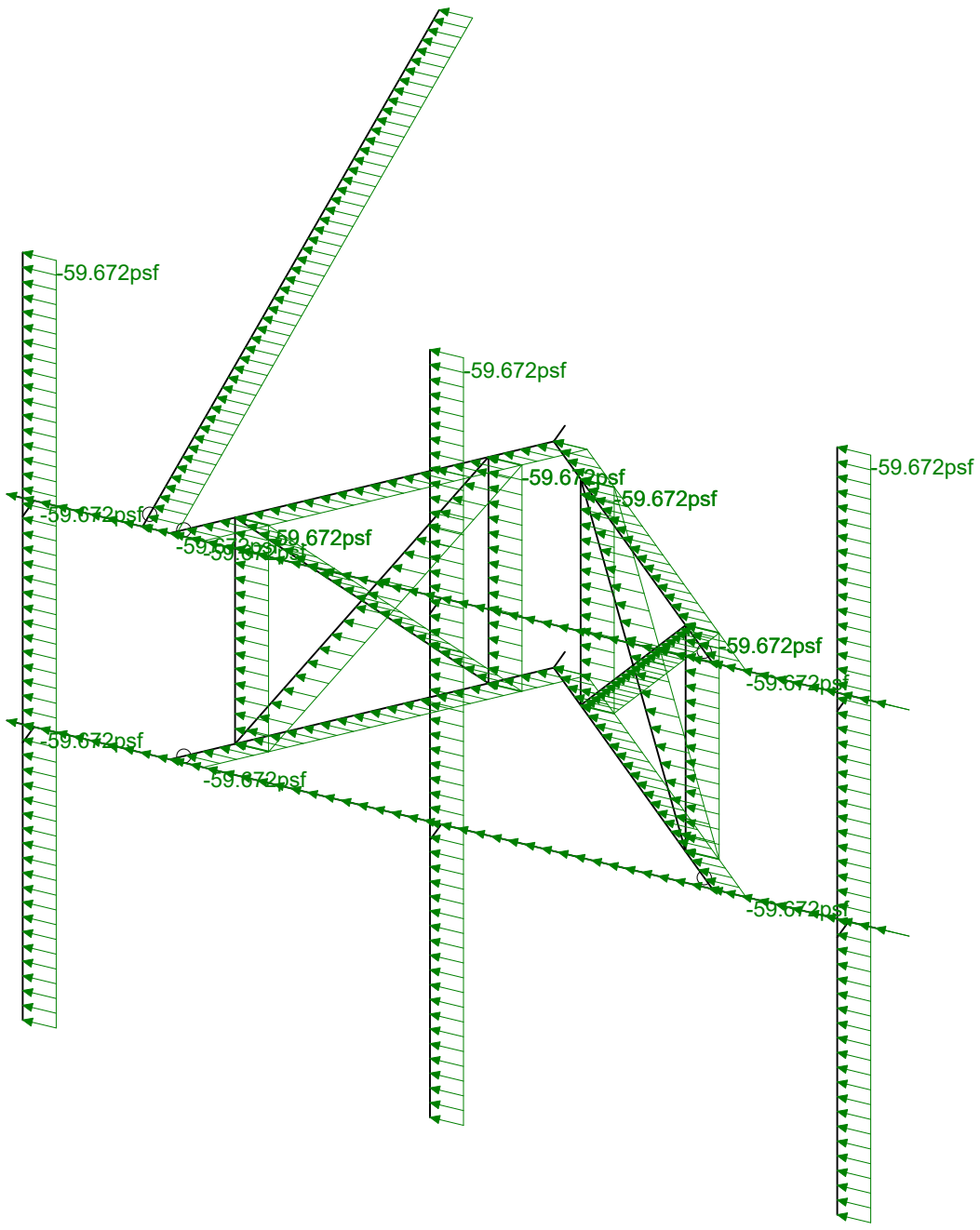
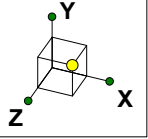
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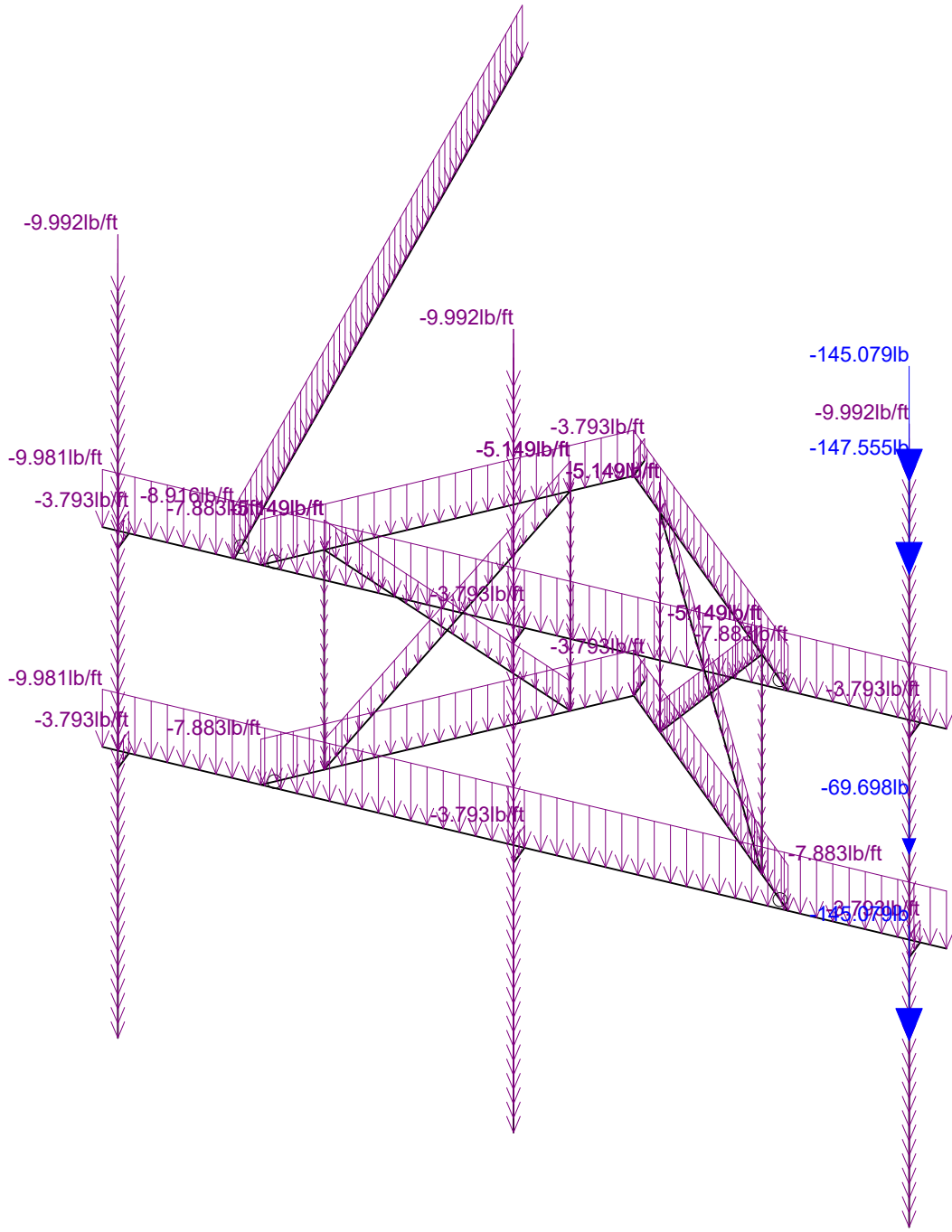
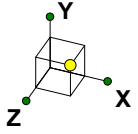
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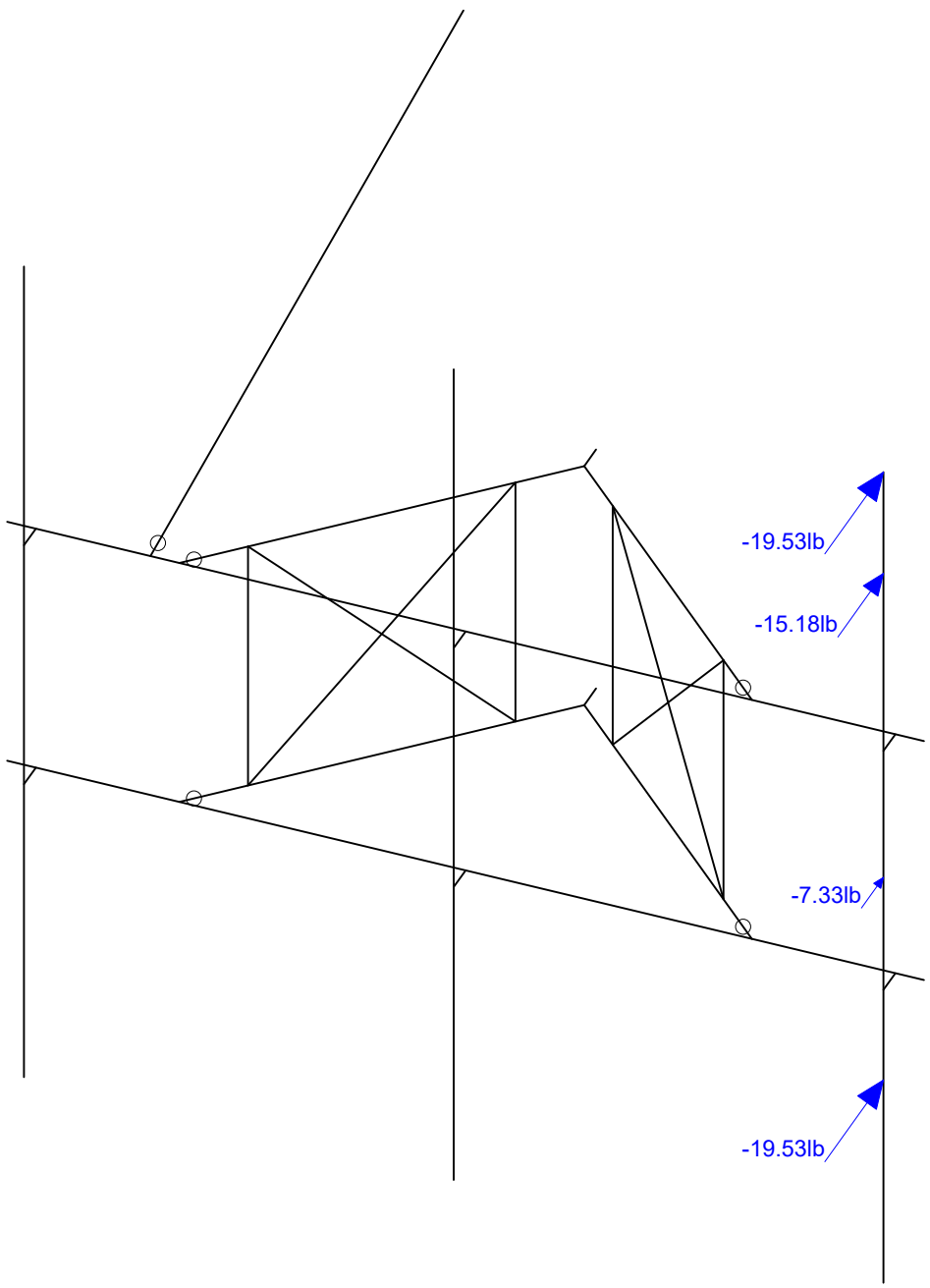
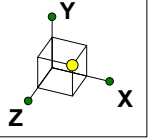
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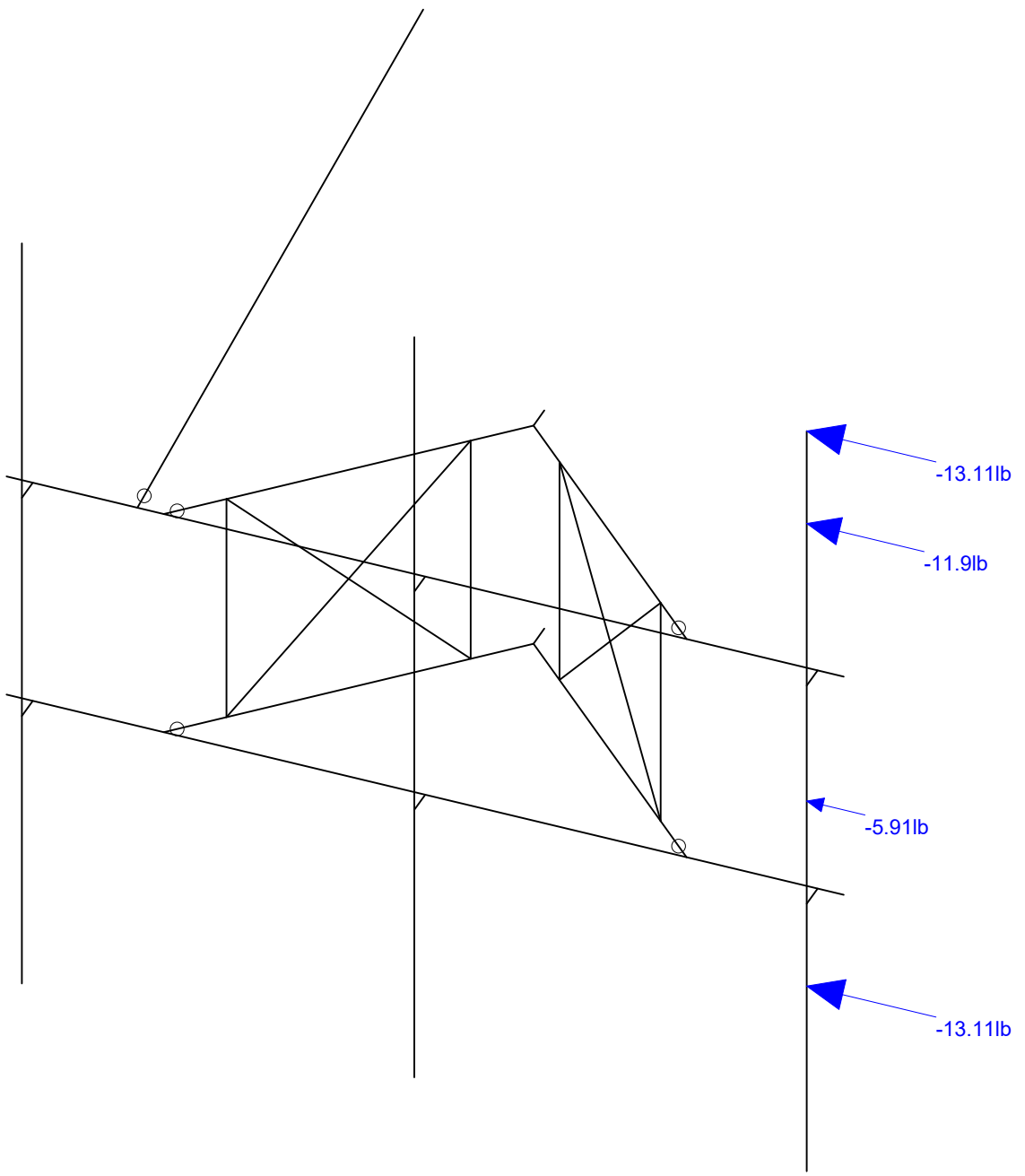
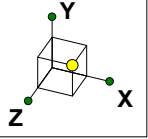
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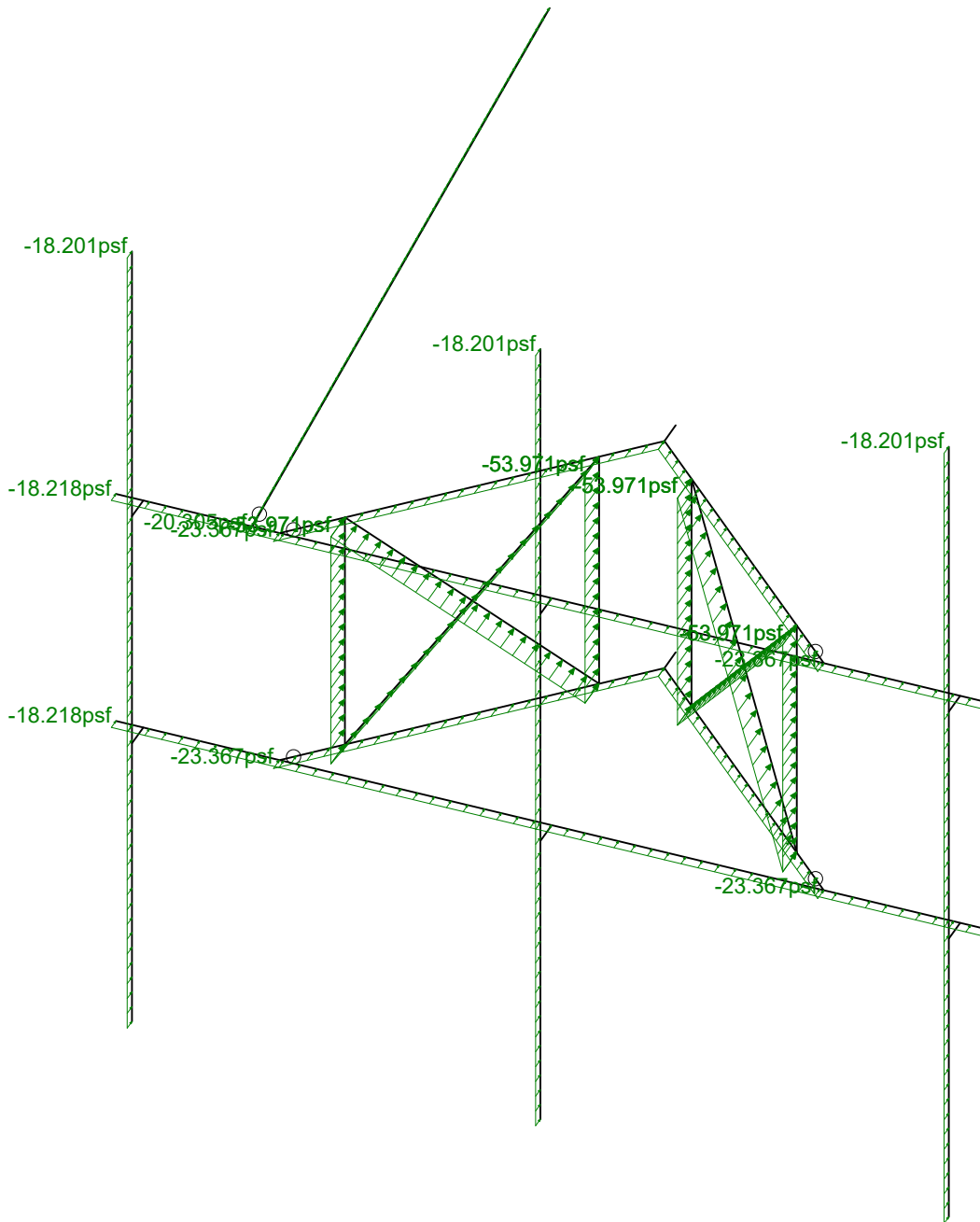
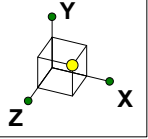
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Loads: BLC 20, Ice Wind Load AZI 90  
Envelope Only Solution

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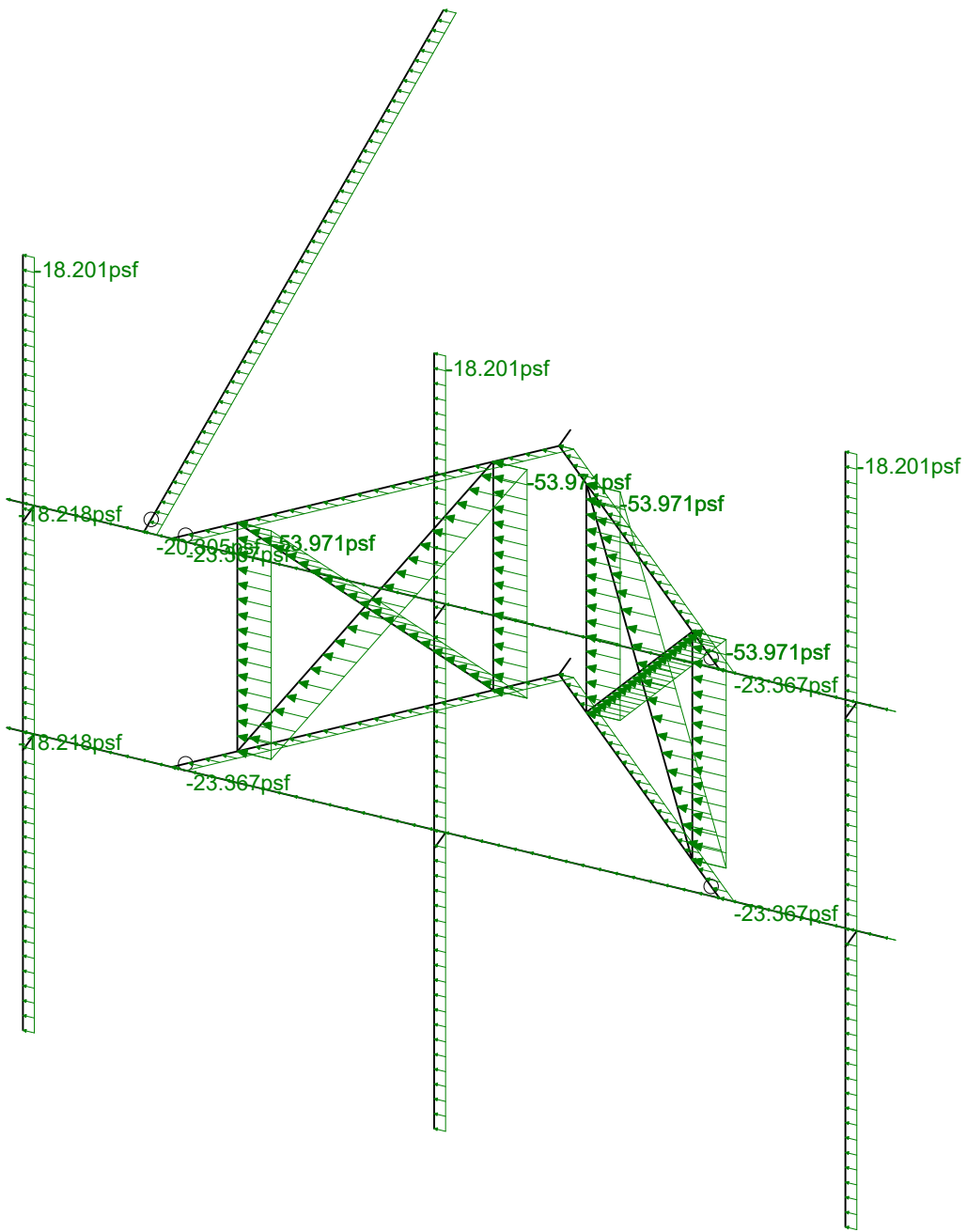
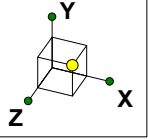


Loads: BLC 29, Distr. Ice Wind Load Z  
Envelope Only Solution

Infinigy Engineering, PLLC  
PSM  
1197-F0001-C

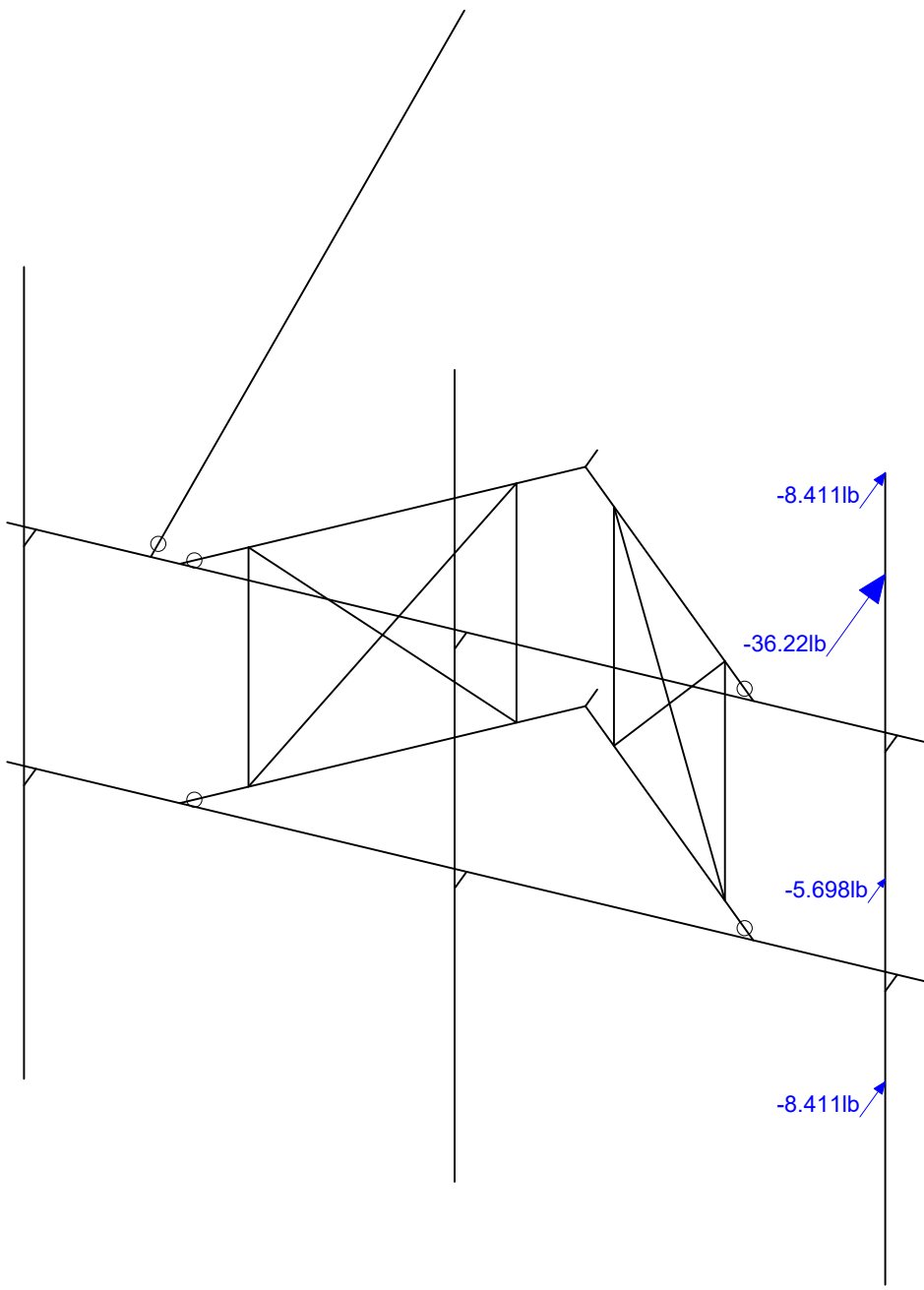
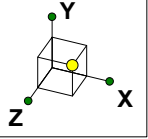
BOBOS00884A

Distr Wind +Ice Load AZI 000  
Aug 13, 2021 at 1:30 PM  
BOBOS00884A\_loaded.r3d



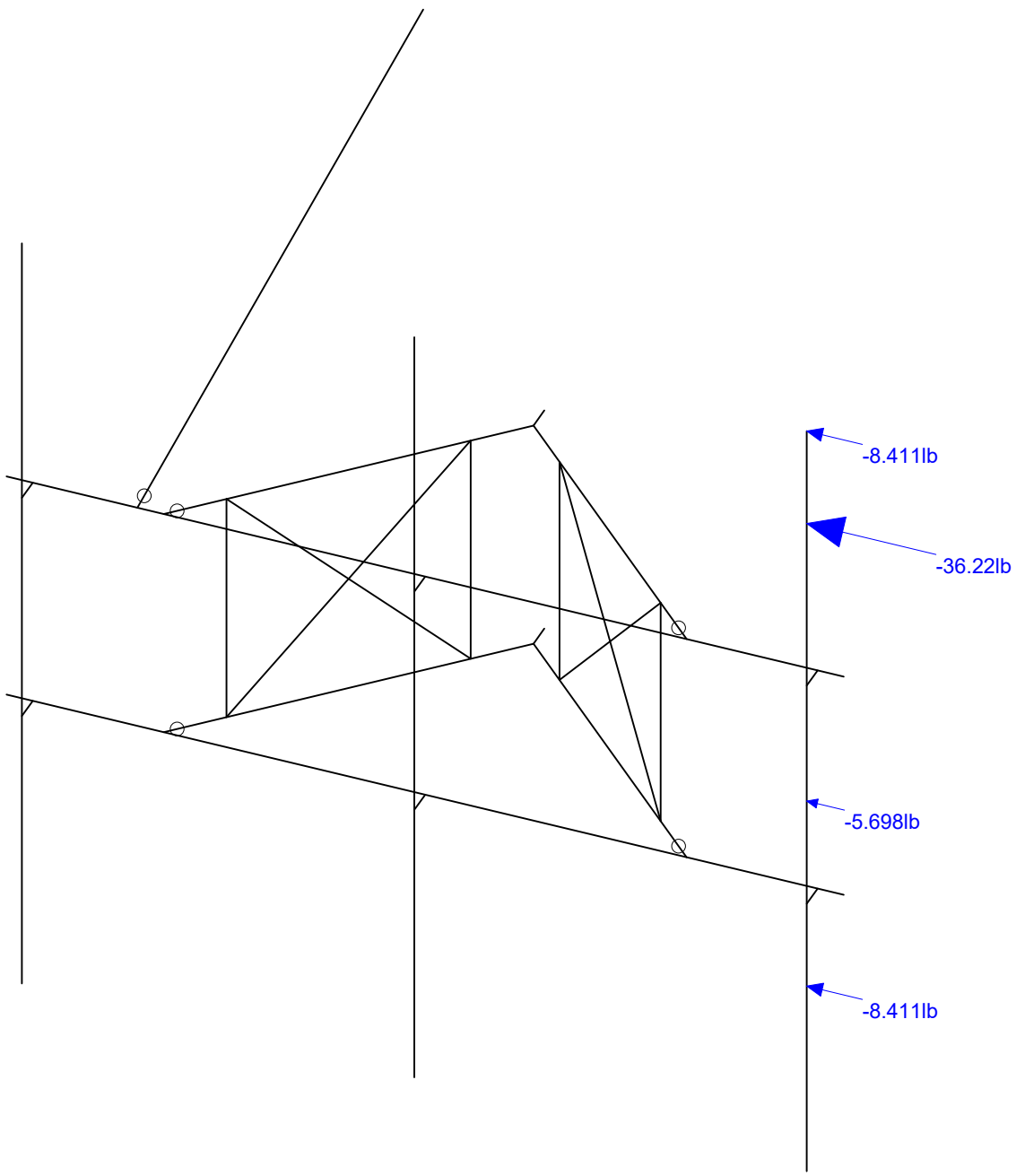
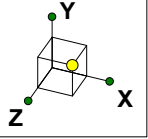
Loads: BLC 30, Distr. Ice Wind Load X  
Envelope Only Solution

Infinigy Engineering, PLLC	BOBOS00884A	Distr Wind +Ice Load AZI 090
PSM		Aug 13, 2021 at 1:30 PM
1197-F0001-C		BOBOS00884A_loaded.r3d



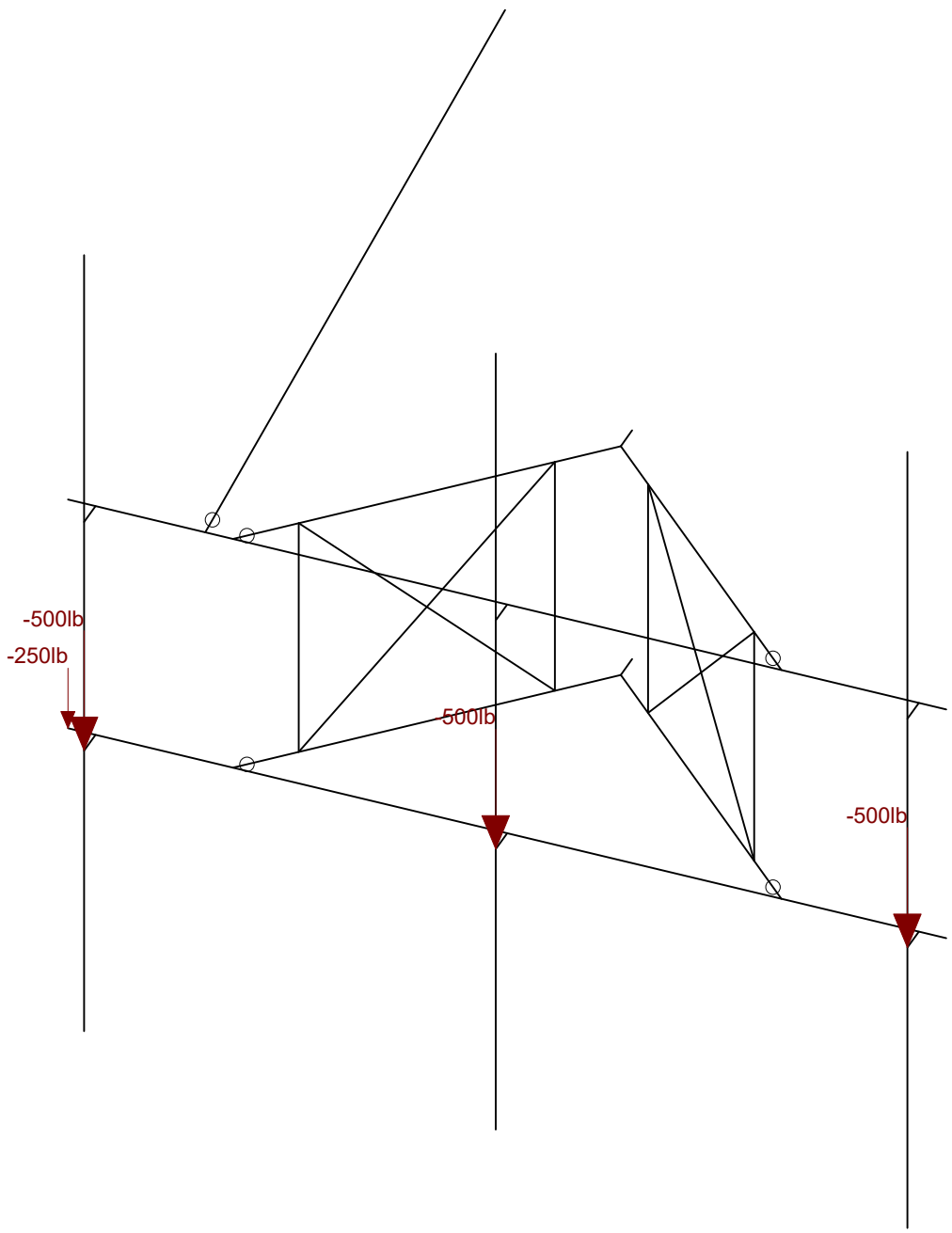
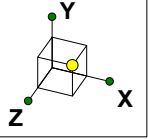
Loads: BLC 31, Seismic Load Z  
Envelope Only Solution

Infinigy Engineering, PLLC	BOBOS00884A	Seismic Load AZI 000
PSM		Aug 13, 2021 at 1:31 PM
1197-F0001-C		BOBOS00884A_loaded.r3d



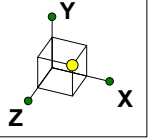
Loads: BLC 32, Seismic Load X  
Envelope Only Solution

Infinigy Engineering, PLLC	BOBOS00884A	Seismic Load AZI 090
PSM		Aug 13, 2021 at 1:31 PM
1197-F0001-C		BOBOS00884A_loaded.r3d

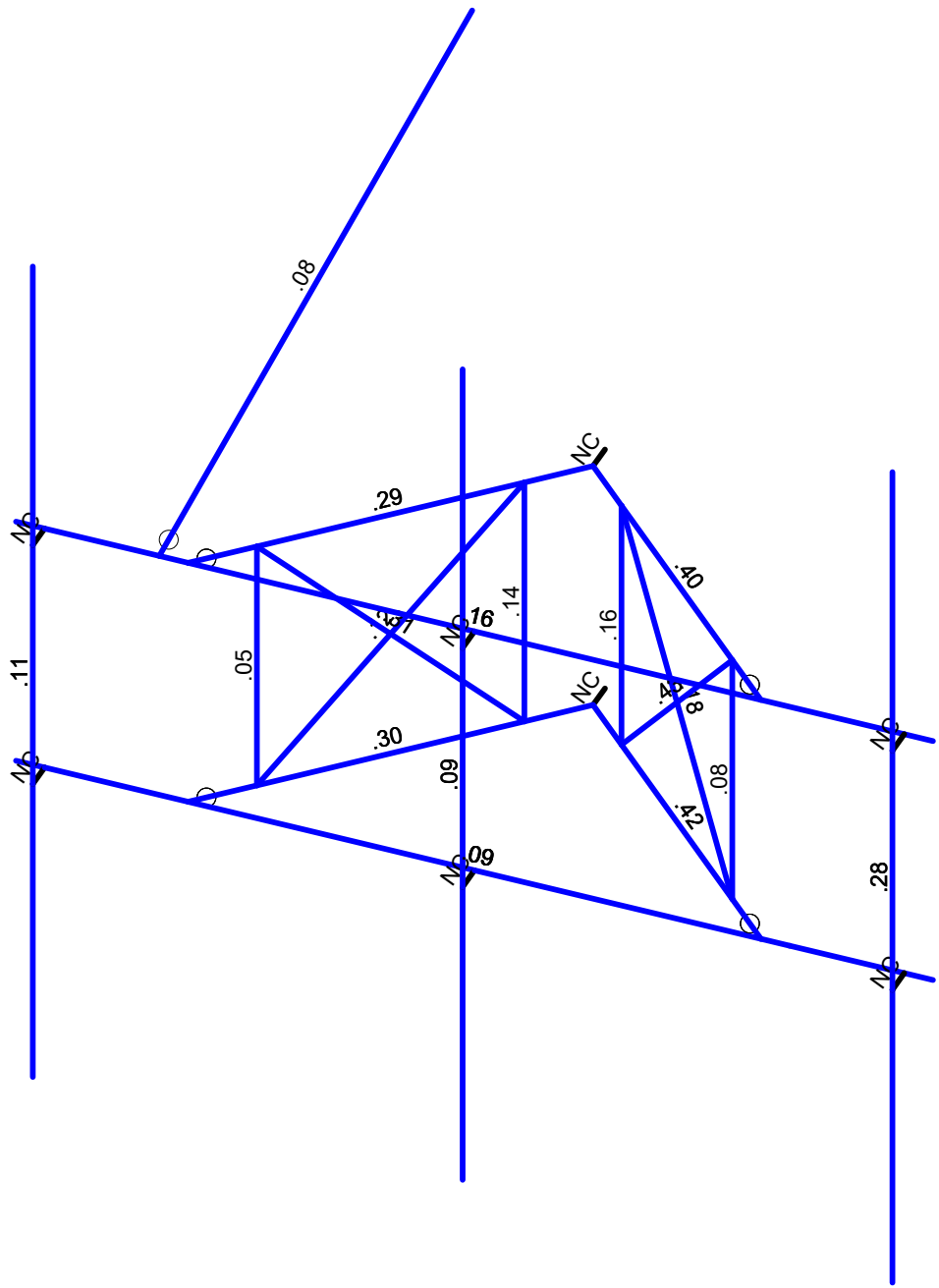


Loads: LL - Live Load  
Envelope Only Solution

Infinigy Engineering, PLLC	BOBOS00884A	Non-concurrent Live Loads
PSM		Aug 13, 2021 at 1:31 PM
1197-F0001-C		BOBOS00884A_loaded.r3d



Code Check ( Env )	
Black	No Calc
Red	> 1.0
Magenta	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50



Member Code Checks Displayed (Enveloped)  
Envelope Only Solution

Infinigy Engineering, PLLC	BOBOS00884A	Bending Check
PSM		Aug 13, 2021 at 1:32 PM
1197-F0001-C		BOBOS00884A_loaded.r3d





## Program Inputs

PROJECT INFORMATION		
Client:	ATC	
Carrier:	Dish Wireless	
Engineer:	Pradin Suinyal Magar, M.S	

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	B	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	447.53	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Sector Frame	
Num Sectors:	3	
Centerline AGL:	165.00	ft
Tower Height AGL:	250.00	ft

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

FACTORS		
Directionality Fact. ( $K_d$ ):	0.950	
Ground Ele. Factor ( $K_e$ ):	0.984	*Rev H Only
Rooftop Speed-Up ( $K_s$ ):	1.000	*Rev H Only
Topographic Factor ( $K_{zt}$ ):	1.000	
Gust Effect Factor ( $G_h$ ):	1.000	

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

WIND AND ICE DATA		
Ultimate Wind ( $V_{ult}$ ):	135	mph
Design Wind ( $V$ ):	N/A	mph
Ice Wind ( $V_{ice}$ ):	50	mph
Base Ice Thickness ( $t_i$ ):	1.5	in
Flat Pressure:	99.454	psf
Round Pressure:	59.672	psf
Ice Wind Pressure:	8.186	psf

SEISMIC DATA		
Short-Period Accel. ( $S_s$ ):	0.163	g
1-Second Accel. ( $S_1$ ):	0.059	g
Short-Period Design ( $S_{DS}$ ):	0.174	
1-Second Design ( $S_{D1}$ ):	0.094	
Short-Period Coeff. ( $F_a$ ):	1.600	
1-Second Coeff. ( $F_v$ ):	2.400	
Amplification Factor ( $A_s$ ):	3.000	
Response Mod. Coeff. ( $R$ ):	2.000	



Infinigy Load Calculator V2.1.7

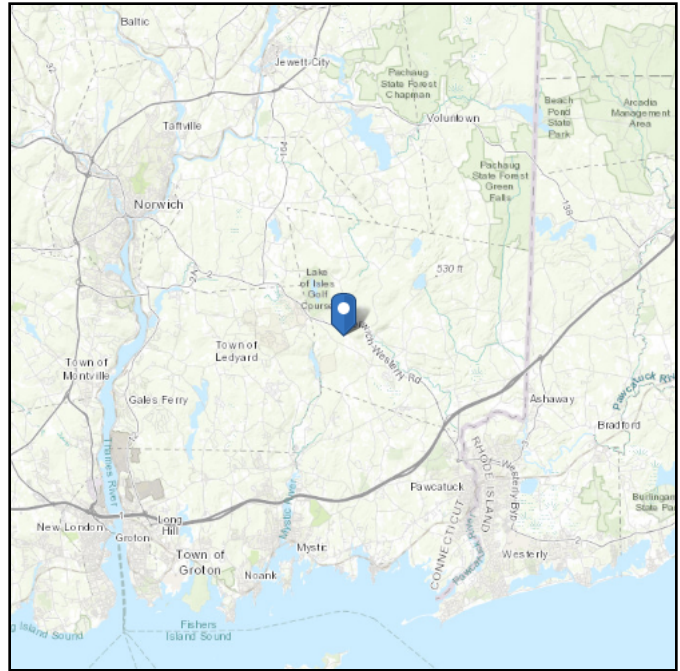
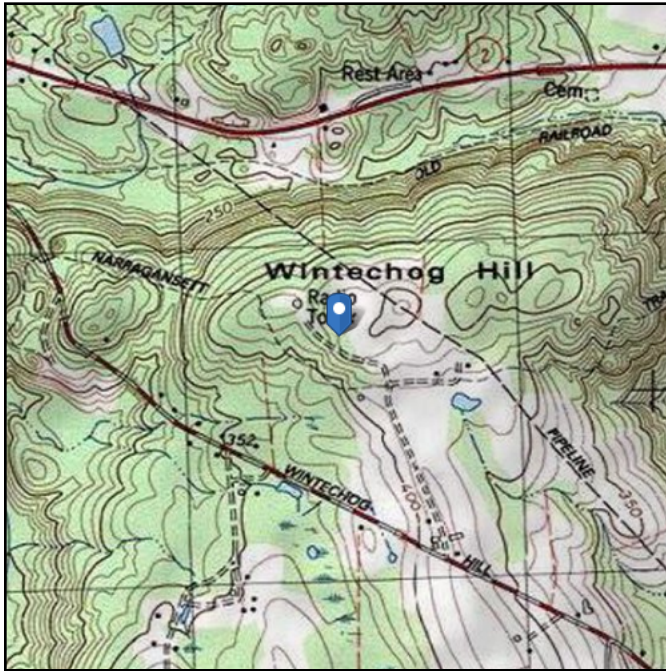


# ASCE 7 Hazards Report

**Address:**  
No Address at This Location

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

**Elevation:** 447.53 ft (NAVD 88)  
**Latitude:** 41.45983  
**Longitude:** -71.9273



## Wind

### Results:

Wind Speed:	135 mph per North Stonington City Requirements in WSEL
10-year MRI	80 Vmph
25-year MRI	90 Vmph
50-year MRI	99 Vmph
100-year MRI	109 Vmph

**Data 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).

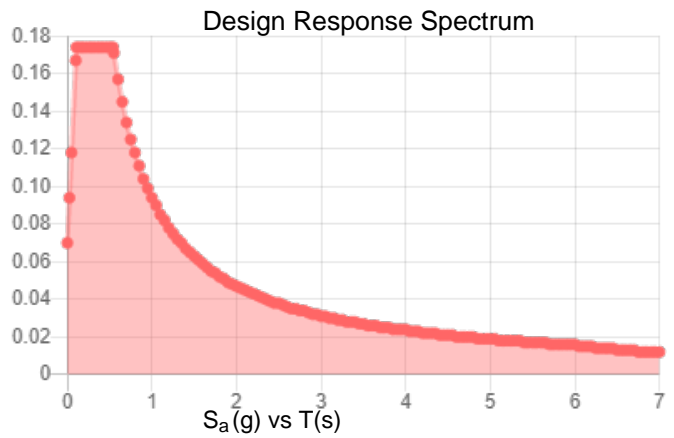
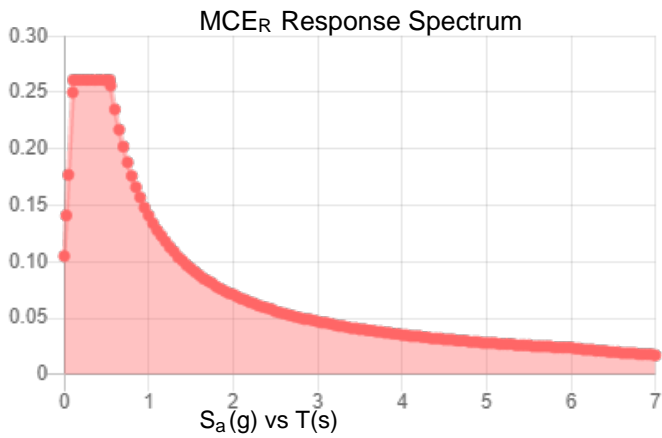
Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

**Site Soil Class:** D - Stiff Soil

**Results:**

$S_S$ :	0.163	$S_{DS}$ :	0.174
$S_1$ :	0.059	$S_{D1}$ :	0.094
$F_a$ :	1.6	$T_L$ :	6
$F_v$ :	2.4	PGA :	0.082
$S_{MS}$ :	0.261	PGA <sub>M</sub> :	0.131
$S_{M1}$ :	0.141	F <sub>PGA</sub> :	1.6
		$I_e$ :	1

**Seismic Design Category** B



**Data Accessed:**

Fri Aug 13 2021

**Date Source:**

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

## Ice

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**Results:**

Ice Thickness: 0.75 in.

Concurrent Temperature: 15 F

Gust Speed: 50 mph

**Data Source:** Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8

**Date Accessed:** Fri Aug 13 2021

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

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

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### Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...)	Section/Shape	Type	Design List	Material	Design Rules
1	S3	N2	N1			Standoff Arms	Beam	Pipe	A500 Gr.46	Typical
2	S4	N7	N6			Standoff Arms	Beam	Pipe	A500 Gr.46	Typical
3	TR6	N3	N8			Standoff Vertical	None	None	A529 Gr.50	Typical
4	TR5	N4	N9			Standoff Vertical	None	None	A529 Gr.50	Typical
5	TR8	N4	N8			Diagonal	None	None	A529 Gr.50	Typical
6	TR7	N3	N9			Diagonal	None	None	A529 Gr.50	Typical
7	S1	N10	N1			Standoff Arms	Beam	Pipe	A500 Gr.46	Typical
8	S2	N14	N6			Standoff Arms	Beam	Pipe	A500 Gr.46	Typical
9	TR1	N11	N15			Standoff Vertical	None	None	A529 Gr.50	Typical
10	TR2	N12	N16			Standoff Vertical	None	None	A529 Gr.50	Typical
11	TR3	N12	N15			Diagonal	None	None	A529 Gr.50	Typical
12	TR4	N11	N16			Diagonal	None	None	A529 Gr.50	Typical
13	H1	N16A	N15A			Face Horizontal	Beam	Pipe	A500 Gr.46	Typical
14	H2	N18	N17			Face Horizontal	Beam	Pipe	A500 Gr.46	Typical
15	MP3	N21	N22			Mount Pipe	Colu...	Pipe	A500 Gr.46	Typical
16	MP1	N19	N20			Mount Pipe	Colu...	Pipe	A500 Gr.46	Typical
17	MP2	N33	N34			Mount Pipe	Colu...	Pipe	A500 Gr.46	Typical
18	T1	N37	N38			Tie Back	None	None	A500 Gr.46	Typical
19	M29	N25	N67			RIGID	None	None	RIGID	Typical
20	M30	N27	N69			RIGID	None	None	RIGID	Typical
21	M33	N35	N73			RIGID	None	None	RIGID	Typical
22	M34	N36	N74			RIGID	None	None	RIGID	Typical
23	M35	N26	N68			RIGID	None	None	RIGID	Typical
24	M36	N28	N70			RIGID	None	None	RIGID	Typical
25	M25	N43	N1			RIGID	None	None	RIGID	Typical
26	M26	N44	N6			RIGID	None	None	RIGID	Typical

### Hot Rolled Steel Design Parameters

	Label	Shape	Lengt...	Lbyy[in]	Lbzz[in]	Lcomp t...	Lcomp b...	L-tor...	Kyy	Kzz	Cb	Func...
1	S3	Standoff Arms	42.4			Lbyy						Late...
2	S4	Standoff Arms	42.4			Lbyy						Late...
3	TR6	Standoff Vertical	28.3			Lbyy			.65	.65		Late...
4	TR5	Standoff Vertical	28.3			Lbyy			.65	.65		Late...
5	TR8	Diagonal	39.811			Lbyy			.7	.7		Late...
6	TR7	Diagonal	39.811			Lbyy			.5	.5		Late...
7	S1	Standoff Arms	42.4			Lbyy						Late...
8	S2	Standoff Arms	42.4			Lbyy						Late...
9	TR1	Standoff Vertical	28.3			Lbyy			.65	.65		Late...
10	TR2	Standoff Vertical	28.3			Lbyy			.65	.65		Late...
11	TR3	Diagonal	39.811			Lbyy			.7	.7		Late...



**Hot Rolled Steel Design Parameters (Continued)**

	Label	Shape	Lengt...	Lbyy[in]	Lbzz[in]	Lcomp t...	Lcomp b...	L-tor...	Kyy	Kzz	Cb	Func...
12	TR4	Diagonal	39.811			Lbyy			.5	.5		Late...
13	H1	Face Horizontal	96			Lbyy						Late...
14	H2	Face Horizontal	96			Lbyy						Late...
15	MP3	Mount Pipe	96			Lbyy						Late...
16	MP1	Mount Pipe	96			Lbyy						Late...
17	MP2	Mount Pipe	96			Lbyy						Late...
18	T1	Tie Back	96.255			Lbyy						Late...

**Member Advanced Data**

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ra..	Analysis ...	Inactive	Seismi...
1	S3	BenPIN					Yes	Default			None
2	S4	BenPIN					Yes	Default			None
3	TR6						Yes	** NA **			None
4	TR5						Yes	** NA **			None
5	TR8						Yes	** NA **			None
6	TR7						Yes	** NA **			None
7	S1	BenPIN					Yes	Default			None
8	S2	BenPIN					Yes	Default			None
9	TR1						Yes	** NA **			None
10	TR2						Yes	** NA **			None
11	TR3						Yes	** NA **			None
12	TR4						Yes	** NA **			None
13	H1						Yes				None
14	H2						Yes				None
15	MP3						Yes	** NA **			None
16	MP1						Yes	** NA **			None
17	MP2						Yes	** NA **			None
18	T1	BenPIN					Yes	** NA **			None
19	M29						Yes	** NA **			None
20	M30						Yes	** NA **			None
21	M33						Yes	** NA **			None
22	M34						Yes	** NA **			None
23	M35						Yes	** NA **			None
24	M36						Yes	** NA **			None
25	M25						Yes	** NA **			None
26	M26						Yes	** NA **			None



### Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General				
2	RIGID		8	24	0
3	Total General		8	24	0
4					
5	Hot Rolled Steel				
6	A500 Gr.46	1.9" ODx0.12"	4	169.6	32.27
7	A500 Gr.46	PIPE 2.5	2	192	87.656
8	A500 Gr.46	2.88"x0.120"	3	288	84.933
9	A500 Gr.46	Pipe2.38X0.12	1	96.3	23.255
10	A529 Gr.50	0.63" SR	8	272.4	24.082
11	Total HR Steel		18	1018.3	252.196

### Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design...	A [in2]	Iyy [in...]	Izz [in...]	J [in4]
1	Face Horizontal	PIPE 2.5	Beam	Pipe	A500 G...	Typical	1.61	1.45	1.45	2.89
2	Standoff Arms	1.9" ODx0.12"	Beam	Pipe	A500 G...	Typical	.671	.267	.267	.534
3	Diagonal	0.63" SR	None	None	A529 G...	Typical	.312	.008	.008	.015
4	Mount Pipe	2.88"x0.120"	Colu...	Pipe	A500 G...	Typical	1.04	.993	.993	1.985
5	Tie Back	Pipe2.38X0.12	None	None	A500 G...	Typical	.852	.545	.545	1.091
6	End Support Pipe	3.5"x0.120	None	None	A500 G...	Typical	1.274	1.822	1.822	3.644
7	Standoff Vertical	0.63" SR	None	None	A529 G...	Typical	.312	.008	.008	.015

### Basic Load Cases

	BLC Description	Category	X Gr...	Y Gr...	Z Gr...	Joint	Point	Distributed	Area(Memb...	Surface(Plate/Wall)
1	Self Weight	DL		-1			5			
2	Wind Load AZI 0	WLZ					10			
3	Wind Load AZI 30	None					10			
4	Wind Load AZI 60	None					10			
5	Wind Load AZI 90	WLX					10			
6	Wind Load AZI 1...	None					10			
7	Wind Load AZI 1...	None					10			
8	Wind Load AZI 1...	None					10			
9	Wind Load AZI 2...	None					10			
10	Wind Load AZI 2...	None					10			
11	Wind Load AZI 2...	None					10			
12	Wind Load AZI 3...	None					10			
13	Wind Load AZI 3...	None					10			
14	Distr. Wind Load Z	WLZ						26		



**Basic Load Cases (Continued)**

	BLC Description	Category	X Gr...	Y Gr...	Z Gr...	Joint	Point	Distributed	Area(Memb...	Surface(Plate/Wall)
15	Distr. Wind Load X	WLX						26		
16	Ice Weight	OL1					5	26		
17	Ice Wind Load A...	OL2					10			
18	Ice Wind Load A...	None					10			
19	Ice Wind Load A...	None					10			
20	Ice Wind Load A...	OL3					10			
21	Ice Wind Load A...	None					10			
22	Ice Wind Load A...	None					10			
23	Ice Wind Load A...	None					10			
24	Ice Wind Load A...	None					10			
25	Ice Wind Load A...	None					10			
26	Ice Wind Load A...	None					10			
27	Ice Wind Load A...	None					10			
28	Ice Wind Load A...	None					10			
29	Distr. Ice Wind L...	OL2						26		
30	Distr. Ice Wind L...	OL3						26		
31	Seismic Load Z	ELZ			-.261		5			
32	Seismic Load X	ELX	-.261				5			
33	Service Live Loa...	LL				1				
34	Maintenance Loa...	LL				1				
35	Maintenance Loa...	LL				1				
36	Maintenance Loa...	LL				1				

**Load Combinations**

	Description	S...	P...	S...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...
1	1.4DL	Y...Y		1	1.4												
2	1.2DL + 1WL AZI 0	Y...Y		1	1.2	2	1	14	1	15							
3	1.2DL + 1WL AZI 30	Y...Y		1	1.2	3	1	14	.866	15	.5						
4	1.2DL + 1WL AZI 60	Y...Y		1	1.2	4	1	14	.5	15	.866						
5	1.2DL + 1WL AZI 90	Y...Y		1	1.2	5	1	14		15	1						
6	1.2DL + 1WL AZI 120	Y...Y		1	1.2	6	1	14	-.5	15	.866						
7	1.2DL + 1WL AZI 150	Y...Y		1	1.2	7	1	14	-.8...	15	.5						
8	1.2DL + 1WL AZI 180	Y...Y		1	1.2	8	1	14	-1	15							
9	1.2DL + 1WL AZI 210	Y...Y		1	1.2	9	1	14	-.8...	15	-.5						
10	1.2DL + 1WL AZI 240	Y...Y		1	1.2	10	1	14	-.5	15	-.8...						
11	1.2DL + 1WL AZI 270	Y...Y		1	1.2	11	1	14		15	-1						
12	1.2DL + 1WL AZI 300	Y...Y		1	1.2	12	1	14	.5	15	-.8...						
13	1.2DL + 1WL AZI 330	Y...Y		1	1.2	13	1	14	.866	15	-.5						
14	0.9DL + 1WL AZI 0	Y...Y		1	.9	2	1	14	1	15							
15	0.9DL + 1WL AZI 30	Y...Y		1	.9	3	1	14	.866	15	.5						
16	0.9DL + 1WL AZI 60	Y...Y		1	.9	4	1	14	.5	15	.866						



**Load Combinations (Continued)**

Description	S...	P...	S...B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...
17 0.9DL + 1WL AZI 90	Y...	Y	1 .9	5	1	14	15	1													
18 0.9DL + 1WL AZI 120	Y...	Y	1 .9	6	1	14	-.5	15	.866												
19 0.9DL + 1WL AZI 150	Y...	Y	1 .9	7	1	14	-.8	15	.5												
20 0.9DL + 1WL AZI 180	Y...	Y	1 .9	8	1	14	-.1	15													
21 0.9DL + 1WL AZI 210	Y...	Y	1 .9	9	1	14	-.8	15	-.5												
22 0.9DL + 1WL AZI 240	Y...	Y	1 .9	10	1	14	-.5	15	-.8												
23 0.9DL + 1WL AZI 270	Y...	Y	1 .9	11	1	14		15	-.1												
24 0.9DL + 1WL AZI 300	Y...	Y	1 .9	12	1	14	.5	15	-.8												
25 0.9DL + 1WL AZI 330	Y...	Y	1 .9	13	1	14	.866	15	-.5												
26 1.2D + 1.0Di	Y...	Y	1	1.2	16	1															
27 1.2D + 1.0Di + 1.0Wi AZI 0	Y...	Y	1	1.2	16	1	17	1	29	1	30										
28 1.2D + 1.0Di + 1.0Wi AZI 30	Y...	Y	1	1.2	16	1	18	1	29	.866	30	.5									
29 1.2D + 1.0Di + 1.0Wi AZI 60	Y...	Y	1	1.2	16	1	19	1	29	.5	30	.866									
30 1.2D + 1.0Di + 1.0Wi AZI 90	Y...	Y	1	1.2	16	1	20	1	29		30	1									
31 1.2D + 1.0Di + 1.0Wi AZI 120	Y...	Y	1	1.2	16	1	21	1	29	-.5	30	.866									
32 1.2D + 1.0Di + 1.0Wi AZI 150	Y...	Y	1	1.2	16	1	22	1	29	-.8	30	.5									
33 1.2D + 1.0Di + 1.0Wi AZI 180	Y...	Y	1	1.2	16	1	23	1	29	-.1	30										
34 1.2D + 1.0Di + 1.0Wi AZI 210	Y...	Y	1	1.2	16	1	24	1	29	-.8	30	-.5									
35 1.2D + 1.0Di + 1.0Wi AZI 240	Y...	Y	1	1.2	16	1	25	1	29	-.5	30	-.8									
36 1.2D + 1.0Di + 1.0Wi AZI 270	Y...	Y	1	1.2	16	1	26	1	29		30	-.1									
37 1.2D + 1.0Di + 1.0Wi AZI 300	Y...	Y	1	1.2	16	1	27	1	29	.5	30	-.8									
38 1.2D + 1.0Di + 1.0Wi AZI 330	Y...	Y	1	1.2	16	1	28	1	29	.866	30	-.5									
39 (1.2 + 0.2Sds)DL + 1.0E AZI 0	Y...	Y	1	1.2	.31	1	32														
40 (1.2 + 0.2Sds)DL + 1.0E AZI 30	Y...	Y	1	1.2	.31	.866	32	.5													
41 (1.2 + 0.2Sds)DL + 1.0E AZI 60	Y...	Y	1	1.2	.31	.5	32	.866													
42 (1.2 + 0.2Sds)DL + 1.0E AZI 90	Y...	Y	1	1.2	.31		32	1													
43 (1.2 + 0.2Sds)DL + 1.0E AZI 1..	Y...	Y	1	1.2	.31	-.5	32	.866													
44 (1.2 + 0.2Sds)DL + 1.0E AZI 1..	Y...	Y	1	1.2	.31	-.8	32	.5													
45 (1.2 + 0.2Sds)DL + 1.0E AZI 1..	Y...	Y	1	1.2	.31	-.1	32														
46 (1.2 + 0.2Sds)DL + 1.0E AZI 2..	Y...	Y	1	1.2	.31	-.8	32	-.5													
47 (1.2 + 0.2Sds)DL + 1.0E AZI 2..	Y...	Y	1	1.2	.31	-.5	32	-.8													
48 (1.2 + 0.2Sds)DL + 1.0E AZI 2..	Y...	Y	1	1.2	.31		32	-.1													
49 (1.2 + 0.2Sds)DL + 1.0E AZI 3..	Y...	Y	1	1.2	.31	.5	32	-.8													
50 (1.2 + 0.2Sds)DL + 1.0E AZI 3..	Y...	Y	1	1.2	.31	.866	32	-.5													
51 (0.9 - 0.2Sds)DL + 1.0E AZI 0	Y...	Y	1	.865	31	1	32														
52 (0.9 - 0.2Sds)DL + 1.0E AZI 30	Y...	Y	1	.865	31	.866	32	.5													
53 (0.9 - 0.2Sds)DL + 1.0E AZI 60	Y...	Y	1	.865	31	.5	32	.866													
54 (0.9 - 0.2Sds)DL + 1.0E AZI 90	Y...	Y	1	.865	31		32	1													
55 (0.9 - 0.2Sds)DL + 1.0E AZI 1..	Y...	Y	1	.865	31	-.5	32	.866													
56 (0.9 - 0.2Sds)DL + 1.0E AZI 1..	Y...	Y	1	.865	31	-.8	32	.5													
57 (0.9 - 0.2Sds)DL + 1.0E AZI 1..	Y...	Y	1	.865	31	-.1	32														
58 (0.9 - 0.2Sds)DL + 1.0E AZI 2..	Y...	Y	1	.865	31	-.8	32	-.5													



**Load Combinations (Continued)**

	Description	S...	P...	S...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...
59	(0.9 - 0.2Sds)DL + 1.0E AZI 2...	Y...	Y	1	.865	31	-.5	32	-8...									
60	(0.9 - 0.2Sds)DL + 1.0E AZI 2...	Y...	Y	1	.865	31		32	-1									
61	(0.9 - 0.2Sds)DL + 1.0E AZI 3...	Y...	Y	1	.865	31	.5	32	-8...									
62	(0.9 - 0.2Sds)DL + 1.0E AZI 3...	Y...	Y	1	.865	31	.866	32	-.5									
63	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	2	.198	14	.198	15		33	1.5					
64	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	3	.198	14	.171	15	.099	33	1.5					
65	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	4	.198	14	.099	15	.171	33	1.5					
66	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	5	.198	14		15	.198	33	1.5					
67	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	6	.198	14	-.0...	15	.171	33	1.5					
68	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	7	.198	14	-.1...	15	.099	33	1.5					
69	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	8	.198	14	-.1...	15		33	1.5					
70	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	9	.198	14	-.1...	15	-.0...	33	1.5					
71	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	10	.198	14	-.0...	15	-.1...	33	1.5					
72	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	11	.198	14		15	-.1...	33	1.5					
73	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	12	.198	14	.099	15	-.1...	33	1.5					
74	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	13	.198	14	.171	15	-.0...	33	1.5					
75	1.2DL + 1.5LL	Y...	Y	1	1.2	33	1.5											
76	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y	1	1.2	34	1.5	2	.049	14	.049	15						
77	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y	1	1.2	34	1.5	3	.049	14	.043	15	.025					
78	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y	1	1.2	34	1.5	4	.049	14	.025	15	.043					
79	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y	1	1.2	34	1.5	5	.049	14		15	.049					
80	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y	1	1.2	34	1.5	6	.049	14	-.0...	15	.043					
81	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y	1	1.2	34	1.5	7	.049	14	-.0...	15	.025					
82	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y	1	1.2	34	1.5	8	.049	14	-.0...	15						
83	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y	1	1.2	34	1.5	9	.049	14	-.0...	15	-.0...					
84	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y	1	1.2	34	1.5	10	.049	14	-.0...	15	-.0...					
85	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y	1	1.2	34	1.5	11	.049	14		15	-.0...					
86	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y	1	1.2	34	1.5	12	.049	14	.025	15	-.0...					
87	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y	1	1.2	34	1.5	13	.049	14	.043	15	-.0...					
88	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	2	.049	14	.049	15						
89	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	3	.049	14	.043	15	.025					
90	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	4	.049	14	.025	15	.043					
91	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	5	.049	14		15	.049					
92	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	6	.049	14	-.0...	15	.043					
93	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	7	.049	14	-.0...	15	.025					
94	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	8	.049	14	-.0...	15						
95	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	9	.049	14	-.0...	15	-.0...					
96	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	10	.049	14	-.0...	15	-.0...					
97	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	11	.049	14		15	-.0...					
98	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	12	.049	14	.025	15	-.0...					
99	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	13	.049	14	.043	15	-.0...					
100	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y	1	1.2	36	1.5	2	.049	14	.049	15						

### Load Combinations (Continued)

	Description	S...	P...	S...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...
101	1.2DL + 1.5LM-MP3 + 1SWL (...Y...)	Y		1	1.2	36	1.5	3	.049	14	.043	15	.025						
102	1.2DL + 1.5LM-MP3 + 1SWL (...Y...)	Y		1	1.2	36	1.5	4	.049	14	.025	15	.043						
103	1.2DL + 1.5LM-MP3 + 1SWL (...Y...)	Y		1	1.2	36	1.5	5	.049	14		15	.049						
104	1.2DL + 1.5LM-MP3 + 1SWL (...Y...)	Y		1	1.2	36	1.5	6	.049	14	-.0...	15	.043						
105	1.2DL + 1.5LM-MP3 + 1SWL (...Y...)	Y		1	1.2	36	1.5	7	.049	14	-.0...	15	.025						
106	1.2DL + 1.5LM-MP3 + 1SWL (...Y...)	Y		1	1.2	36	1.5	8	.049	14	-.0...	15							
107	1.2DL + 1.5LM-MP3 + 1SWL (...Y...)	Y		1	1.2	36	1.5	9	.049	14	-.0...	15	-.0...						
108	1.2DL + 1.5LM-MP3 + 1SWL (...Y...)	Y		1	1.2	36	1.5	10	.049	14	-.0...	15	-.0...						
109	1.2DL + 1.5LM-MP3 + 1SWL (...Y...)	Y		1	1.2	36	1.5	11	.049	14		15	-.0...						
110	1.2DL + 1.5LM-MP3 + 1SWL (...Y...)	Y		1	1.2	36	1.5	12	.049	14	.025	15	-.0...						

### 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	N1						
2	N6						
3	N38	Reaction	Reaction	Reaction			
4	N43	Reaction	Reaction	Reaction			
5	N44	Reaction	Reaction	Reaction			

### 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	N38	110.717	6	49.768	37	1084.3...	7	0	110	0	110	0	110
2		-111.111	12	10.052	55	-1085.3...	25	0	1	0	1	0	1
3	N43	805.844	78	891.595	31	1408.04	25	0	110	0	110	0	110
4		-1631.903	96	179.573	20	-2552.7...	7	0	1	0	1	0	1
5	N44	1615.139	91	850.481	37	2118.47	27	0	110	0	110	0	110
6		-788.769	85	176.216	14	165.56	20	0	1	0	1	0	1
7	Totals:	853.062	5	1787.2...	33	1350.5...	2						
8		-853.062	23	413.083	53	-1350.5...	20						

### Member Point Loads (BLC 1 : Self Weight)

	Member Label	Direction	Magnitude [lb, lb-ft]	Location [in, %]
1	MP1	Y	-32.25	0
2	MP1	Y	-32.25	72
3	MP1	Y	-74.95	12
4	MP1	Y	-63.93	12
5	MP1	Y	-21.85	48



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	0
2	MP1	Z	-179.24	0
3	MP1	X	0	72
4	MP1	Z	-179.24	72
5	MP1	X	0	12
6	MP1	Z	-87.88	12
7	MP1	X	0	12
8	MP1	Z	-87.88	12
9	MP1	X	0	48
10	MP1	Z	-83.54	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-76.19	0
2	MP1	Z	-131.97	0
3	MP1	X	-76.19	72
4	MP1	Z	-131.97	72
5	MP1	X	-39.61	12
6	MP1	Z	-68.6	12
7	MP1	X	-38.73	12
8	MP1	Z	-67.09	12
9	MP1	X	-37.3	48
10	MP1	Z	-64.6	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-85.46	0
2	MP1	Z	-49.34	0
3	MP1	X	-85.46	72
4	MP1	Z	-49.34	72
5	MP1	X	-53.59	12
6	MP1	Z	-30.94	12
7	MP1	X	-49.05	12
8	MP1	Z	-28.32	12
9	MP1	X	-49.09	48
10	MP1	Z	-28.34	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-71.83	0
2	MP1	Z	0	0



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
3	MP1	X	-71.83	72
4	MP1	Z	0	72
5	MP1	X	-53.22	12
6	MP1	Z	0	12
7	MP1	X	-46.23	12
8	MP1	Z	0	12
9	MP1	X	-47.74	48
10	MP1	Z	0	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-85.46	0
2	MP1	Z	49.34	0
3	MP1	X	-85.46	72
4	MP1	Z	49.34	72
5	MP1	X	-53.59	12
6	MP1	Z	30.94	12
7	MP1	X	-49.05	12
8	MP1	Z	28.32	12
9	MP1	X	-49.09	48
10	MP1	Z	28.34	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-76.19	0
2	MP1	Z	131.97	0
3	MP1	X	-76.19	72
4	MP1	Z	131.97	72
5	MP1	X	-39.61	12
6	MP1	Z	68.6	12
7	MP1	X	-38.73	12
8	MP1	Z	67.09	12
9	MP1	X	-37.3	48
10	MP1	Z	64.6	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	0
2	MP1	Z	179.24	0
3	MP1	X	0	72
4	MP1	Z	179.24	72



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
5	MP1	X	0	12
6	MP1	Z	87.88	12
7	MP1	X	0	12
8	MP1	Z	87.88	12
9	MP1	X	0	48
10	MP1	Z	83.54	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	76.19	0
2	MP1	Z	131.97	0
3	MP1	X	76.19	72
4	MP1	Z	131.97	72
5	MP1	X	39.61	12
6	MP1	Z	68.6	12
7	MP1	X	38.73	12
8	MP1	Z	67.09	12
9	MP1	X	37.3	48
10	MP1	Z	64.6	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	85.46	0
2	MP1	Z	49.34	0
3	MP1	X	85.46	72
4	MP1	Z	49.34	72
5	MP1	X	53.59	12
6	MP1	Z	30.94	12
7	MP1	X	49.05	12
8	MP1	Z	28.32	12
9	MP1	X	49.09	48
10	MP1	Z	28.34	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	71.83	0
2	MP1	Z	0	0
3	MP1	X	71.83	72
4	MP1	Z	0	72
5	MP1	X	53.22	12
6	MP1	Z	0	12





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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
7	MP1	X	46.23	12
8	MP1	Z	0	12
9	MP1	X	47.74	48
10	MP1	Z	0	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	85.46	0
2	MP1	Z	-49.34	0
3	MP1	X	85.46	72
4	MP1	Z	-49.34	72
5	MP1	X	53.59	12
6	MP1	Z	-30.94	12
7	MP1	X	49.05	12
8	MP1	Z	-28.32	12
9	MP1	X	49.09	48
10	MP1	Z	-28.34	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	76.19	0
2	MP1	Z	-131.97	0
3	MP1	X	76.19	72
4	MP1	Z	-131.97	72
5	MP1	X	39.61	12
6	MP1	Z	-68.6	12
7	MP1	X	38.73	12
8	MP1	Z	-67.09	12
9	MP1	X	37.3	48
10	MP1	Z	-64.6	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Y	-145.079	0
2	MP1	Y	-145.079	72
3	MP1	Y	-76.104	12
4	MP1	Y	-71.452	12
5	MP1	Y	-69.698	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
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**Member Point Loads (BLC 17 : Ice Wind Load AZI 0) (Continued)**

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	0
2	MP1	Z	-19.53	0
3	MP1	X	0	72
4	MP1	Z	-19.53	72
5	MP1	X	0	12
6	MP1	Z	-7.59	12
7	MP1	X	0	12
8	MP1	Z	-7.59	12
9	MP1	X	0	48
10	MP1	Z	-7.33	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-8.96	0
2	MP1	Z	-15.53	0
3	MP1	X	-8.96	72
4	MP1	Z	-15.53	72
5	MP1	X	-3.61	12
6	MP1	Z	-6.25	12
7	MP1	X	-3.57	12
8	MP1	Z	-6.19	12
9	MP1	X	-3.49	48
10	MP1	Z	-6.04	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-12.74	0
2	MP1	Z	-7.36	0
3	MP1	X	-12.74	72
4	MP1	Z	-7.36	72
5	MP1	X	-5.61	12
6	MP1	Z	-3.24	12
7	MP1	X	-5.41	12
8	MP1	Z	-3.12	12
9	MP1	X	-5.42	48
10	MP1	Z	-3.13	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-13.11	0
2	MP1	Z	0	0



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
3	MP1	X	-13.11	72
4	MP1	Z	0	72
5	MP1	X	-6.1	12
6	MP1	Z	0	12
7	MP1	X	-5.8	12
8	MP1	Z	0	12
9	MP1	X	-5.91	48
10	MP1	Z	0	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-12.74	0
2	MP1	Z	7.36	0
3	MP1	X	-12.74	72
4	MP1	Z	7.36	72
5	MP1	X	-5.61	12
6	MP1	Z	3.24	12
7	MP1	X	-5.41	12
8	MP1	Z	3.12	12
9	MP1	X	-5.42	48
10	MP1	Z	3.13	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-8.96	0
2	MP1	Z	15.53	0
3	MP1	X	-8.96	72
4	MP1	Z	15.53	72
5	MP1	X	-3.61	12
6	MP1	Z	6.25	12
7	MP1	X	-3.57	12
8	MP1	Z	6.19	12
9	MP1	X	-3.49	48
10	MP1	Z	6.04	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	0
2	MP1	Z	19.53	0
3	MP1	X	0	72
4	MP1	Z	19.53	72

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
5	MP1	X	0	12
6	MP1	Z	7.59	12
7	MP1	X	0	12
8	MP1	Z	7.59	12
9	MP1	X	0	48
10	MP1	Z	7.33	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	8.96	0
2	MP1	Z	15.53	0
3	MP1	X	8.96	72
4	MP1	Z	15.53	72
5	MP1	X	3.61	12
6	MP1	Z	6.25	12
7	MP1	X	3.57	12
8	MP1	Z	6.19	12
9	MP1	X	3.49	48
10	MP1	Z	6.04	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	12.74	0
2	MP1	Z	7.36	0
3	MP1	X	12.74	72
4	MP1	Z	7.36	72
5	MP1	X	5.61	12
6	MP1	Z	3.24	12
7	MP1	X	5.41	12
8	MP1	Z	3.12	12
9	MP1	X	5.42	48
10	MP1	Z	3.13	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	13.11	0
2	MP1	Z	0	0
3	MP1	X	13.11	72
4	MP1	Z	0	72
5	MP1	X	6.1	12
6	MP1	Z	0	12



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
7	MP1	X	5.8	12
8	MP1	Z	0	12
9	MP1	X	5.91	48
10	MP1	Z	0	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	12.74	0
2	MP1	Z	-7.36	0
3	MP1	X	12.74	72
4	MP1	Z	-7.36	72
5	MP1	X	5.61	12
6	MP1	Z	-3.24	12
7	MP1	X	5.41	12
8	MP1	Z	-3.12	12
9	MP1	X	5.42	48
10	MP1	Z	-3.13	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	8.96	0
2	MP1	Z	-15.53	0
3	MP1	X	8.96	72
4	MP1	Z	-15.53	72
5	MP1	X	3.61	12
6	MP1	Z	-6.25	12
7	MP1	X	3.57	12
8	MP1	Z	-6.19	12
9	MP1	X	3.49	48
10	MP1	Z	-6.04	48

**Member Point Loads (BLC 31 : Seismic Load Z)**

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	-8.411	0
2	MP1	Z	-8.411	72
3	MP1	Z	-19.547	12
4	MP1	Z	-16.673	12
5	MP1	Z	-5.698	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
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**Member Point Loads (BLC 32 : Seismic Load X) (Continued)**

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-8.411	0
2	MP1	X	-8.411	72
3	MP1	X	-19.547	12
4	MP1	X	-16.673	12
5	MP1	X	-5.698	48

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N18	L	Y	-250

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

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

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N70	L	Y	-500

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N74	L	Y	-500

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

	Member Label	Direction	Start Magnitude[lb/ft,....	End Magn...	Start Location...	End Location[in,%]
1	S3	SZ	-59.672	-59.672	0	%100
2	S4	SZ	-59.672	-59.672	0	%100
3	TR6	SZ	-59.672	-59.672	0	%100
4	TR5	SZ	-59.672	-59.672	0	%100
5	TR8	SZ	-59.672	-59.672	0	%100
6	TR7	SZ	-59.672	-59.672	0	%100
7	S1	SZ	-59.672	-59.672	0	%100
8	S2	SZ	-59.672	-59.672	0	%100
9	TR1	SZ	-59.672	-59.672	0	%100
10	TR2	SZ	-59.672	-59.672	0	%100
11	TR3	SZ	-59.672	-59.672	0	%100
12	TR4	SZ	-59.672	-59.672	0	%100
13	H1	SZ	-59.672	-59.672	0	%100
14	H2	SZ	-59.672	-59.672	0	%100



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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
15	MP3	SZ	-59.672	-59.672	0	%100
16	MP1	SZ	-59.672	-59.672	0	%100
17	MP2	SZ	-59.672	-59.672	0	%100
18	T1	SZ	-59.672	-59.672	0	%100
19	M29	SZ	0	0	0	%100
20	M30	SZ	0	0	0	%100
21	M33	SZ	0	0	0	%100
22	M34	SZ	0	0	0	%100
23	M35	SZ	0	0	0	%100
24	M36	SZ	0	0	0	%100
25	M25	SZ	0	0	0	%100
26	M26	SZ	0	0	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
1	S3	SX	-59.672	-59.672	0	%100
2	S4	SX	-59.672	-59.672	0	%100
3	TR6	SX	-59.672	-59.672	0	%100
4	TR5	SX	-59.672	-59.672	0	%100
5	TR8	SX	-59.672	-59.672	0	%100
6	TR7	SX	-59.672	-59.672	0	%100
7	S1	SX	-59.672	-59.672	0	%100
8	S2	SX	-59.672	-59.672	0	%100
9	TR1	SX	-59.672	-59.672	0	%100
10	TR2	SX	-59.672	-59.672	0	%100
11	TR3	SX	-59.672	-59.672	0	%100
12	TR4	SX	-59.672	-59.672	0	%100
13	H1	SX	-59.672	-59.672	0	%100
14	H2	SX	-59.672	-59.672	0	%100
15	MP3	SX	-59.672	-59.672	0	%100
16	MP1	SX	-59.672	-59.672	0	%100
17	MP2	SX	-59.672	-59.672	0	%100
18	T1	SX	-59.672	-59.672	0	%100
19	M29	SX	0	0	0	%100
20	M30	SX	0	0	0	%100
21	M33	SX	0	0	0	%100
22	M34	SX	0	0	0	%100
23	M35	SX	0	0	0	%100
24	M36	SX	0	0	0	%100
25	M25	SX	0	0	0	%100
26	M26	SX	0	0	0	%100



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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in, %]
1	S3	Y	-7.883	-7.883	0	%100
2	S4	Y	-7.883	-7.883	0	%100
3	TR6	Y	-5.149	-5.149	0	%100
4	TR5	Y	-5.149	-5.149	0	%100
5	TR8	Y	-5.149	-5.149	0	%100
6	TR7	Y	-5.149	-5.149	0	%100
7	S1	Y	-7.883	-7.883	0	%100
8	S2	Y	-7.883	-7.883	0	%100
9	TR1	Y	-5.149	-5.149	0	%100
10	TR2	Y	-5.149	-5.149	0	%100
11	TR3	Y	-5.149	-5.149	0	%100
12	TR4	Y	-5.149	-5.149	0	%100
13	H1	Y	-9.981	-9.981	0	%100
14	H2	Y	-9.981	-9.981	0	%100
15	MP3	Y	-9.992	-9.992	0	%100
16	MP1	Y	-9.992	-9.992	0	%100
17	MP2	Y	-9.992	-9.992	0	%100
18	T1	Y	-8.916	-8.916	0	%100
19	M29	Y	-3.793	-3.793	0	%100
20	M30	Y	-3.793	-3.793	0	%100
21	M33	Y	-3.793	-3.793	0	%100
22	M34	Y	-3.793	-3.793	0	%100
23	M35	Y	-3.793	-3.793	0	%100
24	M36	Y	-3.793	-3.793	0	%100
25	M25	Y	-3.793	-3.793	0	%100
26	M26	Y	-3.793	-3.793	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in, %]
1	S3	SZ	-23.367	-23.367	0	%100
2	S4	SZ	-23.367	-23.367	0	%100
3	TR6	SZ	-53.971	-53.971	0	%100
4	TR5	SZ	-53.971	-53.971	0	%100
5	TR8	SZ	-53.971	-53.971	0	%100
6	TR7	SZ	-53.971	-53.971	0	%100
7	S1	SZ	-23.367	-23.367	0	%100
8	S2	SZ	-23.367	-23.367	0	%100
9	TR1	SZ	-53.971	-53.971	0	%100
10	TR2	SZ	-53.971	-53.971	0	%100
11	TR3	SZ	-53.971	-53.971	0	%100
12	TR4	SZ	-53.971	-53.971	0	%100
13	H1	SZ	-18.218	-18.218	0	%100





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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in, %]
14	H2	SZ	-18.218	-18.218	0	%100
15	MP3	SZ	-18.201	-18.201	0	%100
16	MP1	SZ	-18.201	-18.201	0	%100
17	MP2	SZ	-18.201	-18.201	0	%100
18	T1	SZ	-20.305	-20.305	0	%100
19	M29	SZ	0	0	0	%100
20	M30	SZ	0	0	0	%100
21	M33	SZ	0	0	0	%100
22	M34	SZ	0	0	0	%100
23	M35	SZ	0	0	0	%100
24	M36	SZ	0	0	0	%100
25	M25	SZ	0	0	0	%100
26	M26	SZ	0	0	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in, %]
1	S3	SX	-23.367	-23.367	0	%100
2	S4	SX	-23.367	-23.367	0	%100
3	TR6	SX	-53.971	-53.971	0	%100
4	TR5	SX	-53.971	-53.971	0	%100
5	TR8	SX	-53.971	-53.971	0	%100
6	TR7	SX	-53.971	-53.971	0	%100
7	S1	SX	-23.367	-23.367	0	%100
8	S2	SX	-23.367	-23.367	0	%100
9	TR1	SX	-53.971	-53.971	0	%100
10	TR2	SX	-53.971	-53.971	0	%100
11	TR3	SX	-53.971	-53.971	0	%100
12	TR4	SX	-53.971	-53.971	0	%100
13	H1	SX	-18.218	-18.218	0	%100
14	H2	SX	-18.218	-18.218	0	%100
15	MP3	SX	-18.201	-18.201	0	%100
16	MP1	SX	-18.201	-18.201	0	%100
17	MP2	SX	-18.201	-18.201	0	%100
18	T1	SX	-20.305	-20.305	0	%100
19	M29	SX	0	0	0	%100
20	M30	SX	0	0	0	%100
21	M33	SX	0	0	0	%100
22	M34	SX	0	0	0	%100
23	M35	SX	0	0	0	%100
24	M36	SX	0	0	0	%100
25	M25	SX	0	0	0	%100
26	M26	SX	0	0	0	%100



**Member Area Loads**

Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
No Data to Print ...						

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

Member	Shape	Code Check	Loc[in]	LC	She...	Loc[in]	Dir	LC	phi*P...	phi*P...	phi*M...	phi*Mn z-z [lb...	Cb	Eqn	
1	TR7	0.63" SR	.430	39.811	27	.025	19.905		85	4409...	1402...	147.2...	147.295	2....	H1-1a
2	S4	1.9" ODx0.1...	.417	35.333	30	.159	42.4		28	2049...	2777...	1314...	1314.45	1....	H1-1b
3	S3	1.9" ODx0.1...	.397	35.333	31	.160	42.4		30	2049...	2777...	1314...	1314.45	1....	H1-1b
4	TR4	0.63" SR	.311	39.811	87	.038	19.905		30	4409...	1402...	147.2...	147.295	2....	H1-1a
5	S2	1.9" ODx0.1...	.299	35.333	85	.117	42.4		84	2049...	2777...	1314...	1314.45	1....	H1-1b
6	S1	1.9" ODx0.1...	.287	35.333	81	.118	42.4		87	2049...	2777...	1314...	1314.45	1.83	H1-1b
7	MP1	2.88"x0.120"	.279	33	2	.076	33		2	2249...	43056	3156...	3156.75	3....	H1-1b
8	TR8	0.63" SR	.178	0	32	.025	19.905		81	2249...	1402...	147.2...	147.295	2....	H1-1b
9	H1	PIPE 2.5	.162	77	8	.091	78		2	3348...	66654	4726.5	4726.5	1....	H1-1b
10	TR5	0.63" SR	.160	28.3	27	.034	0		95	5162...	1402...	147.2...	147.295	2....	H1-1b
11	TR2	0.63" SR	.139	0	32	.035	0		95	5162...	1402...	147.2...	147.295	2....	H1-1b
12	TR3	0.63" SR	.122	0	81	.037	19.905		36	2249...	1402...	147.2...	147.295	2....	H1-1b
13	MP3	2.88"x0.120"	.109	33	81	.022	61		87	2249...	43056	3156...	3156.75	4....	H1-1b
14	H2	PIPE 2.5	.090	93	96	.048	78		94	3348...	66654	4726.5	4726.5	2....	H1-1b
15	MP2	2.88"x0.120"	.089	33	8	.039	33		93	2249...	43056	3156...	3156.75	4....	H1-1b
16	T1	Pipe2.38X0...	.082	0	7	.005	96.255		36	1328...	3527...	2114...	2114.85	1....	H1-1...
17	TR6	0.63" SR	.078	0	93	.016	28.3		98	5162...	1402...	147.2...	147.295	2....	H1-1b
18	TR1	0.63" SR	.054	28.3	77	.015	0		98	5162...	1402...	147.2...	147.295	2....	H1-1b

## Bolt Calculation Tool, V1.5.1

PROJECT DATA	
Site Name:	BOBOS00884A
Site Number:	BOBOS00884A
Connection Description:	Sector Frame to Tower Leg

MAXIMUM BOLT LOADS		
Bolt Tension:	1276.35	lbs
Bolt Shear:	875.84	lbs

WORST CASE BOLT LOADS <sup>1</sup>		
Bolt Tension:	802.81	lbs
Bolt Shear:	875.84	lbs

WORST CASE CONNECTION SLIP LOADS <sup>2</sup>		
Sliding Force:	869.44	lbs
Torsion About Leg:	0.00	lbs-ft

BOLT PROPERTIES		
Bolt Type:	Threaded Rod	-
Bolt Diameter:	0.625	in
Bolt Grade:	A449	-
# of Threaded Rods:	2	-
Leg Diameter:	3.75	in
Threads Excluded?	No	-

<sup>1</sup> Worst case bolt loads correspond to Load combination #96 on member M25 in RISA-3D, which causes the maximum demand on the bolts.

<sup>2</sup> Worst Case slip loads correspond to Load combination #32 on member M25 in RISA 3D, which causes the maximum slip demand on the connection.

Member Information
I nodes of M25, M26

BOLT CHECK		
Tensile Strength	20340.15	
Shear Strength	13805.83	
Max Tensile Usage	6.3%	
Max Shear Usage	6.3%	
Interaction Check (Worst Case)	0.01	≤1.05
Result	Pass	

SLIP CHECK (WORST CASE)		
Torsional Slip Resistance	933.10	
Sliding Resistance	5971.83	
Torsional Slip Usage	0.0%	
Sliding Usage	14.6%	
Interaction Check	0.02	≤1.05
Result	Pass	



# POWER DENSITY STUDY

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

**Dish Wireless Existing Facility**

**Site ID: BOBOS00884A**

**BOBOS00884A  
118C Wintechog Hill Road, Off Rt. 2  
North Stonington, Connecticut 06359**

**October 12, 2021**

**EBI Project Number: 6221003993**

<b>Site Compliance Summary</b>	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>13.80%</b>

October 12, 2021

Dish Wireless

Emissions Analysis for Site: BOBOS00884A - BOBOS00884A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **118C Wintechog Hill Road, Off Rt. 2** in **North Stonington, 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The number of  $\mu\text{W}/\text{cm}^2$  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 ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately  $400 \mu\text{W}/\text{cm}^2$  and  $467 \mu\text{W}/\text{cm}^2$ , respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is  $1000 \mu\text{W}/\text{cm}^2$ . 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 118C Wintechog Hill Road, Off Rt. 2 in North Stonington, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

- 1) 4 n71 channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 4 n70 channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 3) 4 n66 channels (AWS Band - 2190 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 5) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative

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

- 6) The antennas used in this modeling are the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector A, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector B, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 20 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 7) The antenna mounting height centerline of the proposed antennas is 165 feet above ground level (AGL).
- 8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 9) All calculations were done with respect to uncontrolled / general population threshold limits.



## Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21	Make / Model:	JMA MX08FRO665-21
Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz	Frequency Bands:	600 MHz / 1900 MHz / 2190 MHz
Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd / 22.65 dBd
Height (AGL):	165 feet	Height (AGL):	165 feet	Height (AGL):	165 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts
ERP (W):	5,236.31	ERP (W):	5,236.31	ERP (W):	5,236.31
Antenna AI MPE %:	<b>0.94%</b>	Antenna BI MPE %:	<b>0.94%</b>	Antenna CI MPE %:	<b>0.94%</b>

Site Composite MPE %	
Carrier	MPE %
Dish Wireless (Max at Sector A):	0.94%
AT&T	3.36%
Metro PCS	0.22%
T-Mobile	1.24%
Sprint	0.8%
State Police	0.67%
Mobile Comm	0.33%
PageNet	0.11%
Destineer	0.09%
TSR Paging	0.1%
Air Touch	3.46%
Nextel	0.14
FM Broadcast	1.97
PageMart	0.38
Site Total MPE % :	13.80%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	0.94%
Dish Wireless Sector B Total:	0.94%
Dish Wireless Sector C Total:	0.94%
Site Total MPE % :	13.80%

Dish Wireless Maximum MPE Power Values (Sector A)							
Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	otal Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
Dish Wireless 600 MHz n71	4	223.68	165.0	1.27	600 MHz n71	400	0.32%
Dish Wireless 1900 MHz n70	4	542.70	165.0	3.09	1900 MHz n70	1000	0.31%
Dish Wireless 2190 MHz n66	4	542.70	165.0	3.09	2190 MHz n66	1000	0.31%
						<b>Total:</b>	<b>0.94%</b>

• 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:	0.94%
Sector B:	0.94%
Sector C:	0.94%
Dish Wireless Maximum MPE % (Sector A):	0.94%
Site Total:	13.80%
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **13.80%** 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.



November 11, 2021

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