

PROJECT NARRATIVE

November 4, 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
111 Second Hill Road Bridgewater, CT 06752
Latitude: 41°33'17.924" / Longitude: -73°22'15.284"

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 111 Second Hill Road in Bridgewater (the "Property"). The existing 160-foot monopole tower is owned by American Tower Corporation ("ATC"). The underlying property is owned by Robert J Riebe. 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 Curtis Read, First Selectman for the Town of Bridgewater, Joseph Manley, Town of Bridgewater Building Official and Robert J Riebe as the property owner.

Background

The existing ATC facility consists of a 160-foot monopole tower located within an existing leased area. AT&T Mobility currently maintains antennas at the 156-foot level. 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 111 Second Hill Road tower 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 145-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.

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 111 Second 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.**

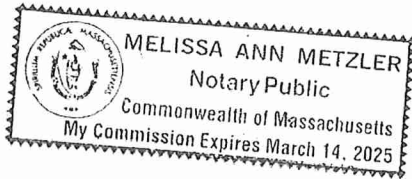
NOTARY BLOCK


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 10th day of September 2021.

NOTARY SEAL



Notary Public 
My Commission Expires: March 14, 2025



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

BOHVN00200A

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

**111 SECOND HILL RD
BRIDGEWATER, CT 06752**

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: <ul style="list-style-type: none"> • INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR) • INSTALL (1) PROPOSED ANTENNA PLATFORM MOUNT • 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: <ul style="list-style-type: none"> • 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)

SITE INFORMATION	PROJECT DIRECTORY
PROPERTY OWNER: ROBERT J RIEBE ADDRESS: 111 SECOND HILL RD BRIDGEWATER, CT 06752	APPLICANT: DISH WIRELESS, L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120 (303) 706-5008
TOWER TYPE: MONOPOLE	TOWER OWNER: AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801
TOWER CO SITE ID: 281862	ENGINEER: NB+C ENGINEERING SERVICES, LLC. 8601 SIX FORKS ROAD, SUITE 540 RALEIGH, NC 27615 (919) 657-9131
TOWER APP NUMBER: 13709418	SITE ACQUISITION: APRIL PARROTT APRIL.PARROTT@DISH.COM
COUNTY: LITCHFIELD	CONSTRUCTION MANAGER: JAVIER SOTO JAVIER.SOTO@DISH.COM
LATITUDE (NAD 83): 41° 33' 17.924" N 41.55497878	RF ENGINEER: SYED ZAIDI SYED.ZAIDI@DISH.COM
LONGITUDE (NAD 83): 73° 22' 15.284" W -73.37091232	
ZONING JURISDICTION: CONNECTICUT SITING COUNCIL	
ZONING DISTRICT: RR3	
PARCEL NUMBER: 28-50	
OCCUPANCY GROUP: U	
CONSTRUCTION TYPE: II-B	
POWER COMPANY: EVERSOURCE	
TELEPHONE COMPANY: FRONTIER COMMUNICATIONS	



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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

DRAWN BY:	CHECKED BY:	APPROVED BY:
NOA	BIW	BIW



RFDS REV #: 1

PRELIMINARY DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/27/2021	ISSUED FOR REVIEW
D	08/31/2021	ISSUED FOR CONSTRUCTION

CONNECTICUT CODE COMPLIANCE								
ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:								
<table border="0"> <tr> <td><u>CODE TYPE</u></td> <td><u>CODE</u></td> </tr> <tr> <td>BUILDING</td> <td>2018 CT STATE BUILDING CODE/2015 IBC W/ CT AMENDMENTS</td> </tr> <tr> <td>MECHANICAL</td> <td>2018 CT STATE BUILDING CODE/2015 IMC W/ CT AMENDMENTS</td> </tr> <tr> <td>ELECTRICAL</td> <td>2018 CT STATE BUILDING CODE/2017 NEC W/ CT AMENDMENTS</td> </tr> </table>	<u>CODE TYPE</u>	<u>CODE</u>	BUILDING	2018 CT STATE BUILDING CODE/2015 IBC W/ CT AMENDMENTS	MECHANICAL	2018 CT STATE BUILDING CODE/2015 IMC W/ CT AMENDMENTS	ELECTRICAL	2018 CT STATE BUILDING CODE/2017 NEC W/ CT AMENDMENTS
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MECHANICAL	2018 CT STATE BUILDING CODE/2015 IMC W/ CT AMENDMENTS							
ELECTRICAL	2018 CT STATE BUILDING CODE/2017 NEC W/ CT AMENDMENTS							




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

DIRECTIONS

FROM DANBURY CT START OUT GOING NORTHEAST ON FEDERAL RD TOWARD SWANSON AVE. TAKE THE 2ND RIGHT ONTO WHITE TURKEY RD. MERGE ONTO US-7 N. TURN RIGHT ONTO STILL RIVER DR. STILL RIVER DR BECOMES GROVE ST. TURN RIGHT ONTO HINE HILL RD. HINE HILL RD BECOMES TOWN FARM RD. TURN RIGHT ONTO CASCADE RD. TURN SHARP RIGHT ONTO BRIDGEWATER RD/CT-67. CONTINUE TO FOLLOW CT-67. TURN LEFT ONTO SECOND HILL RD. 157 SECOND HILL RD, BRIDGEWATER, CT 06752-1030, 157 SECOND HILL RD IS ON THE RIGHT.

SHEET INDEX	
SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
A-0	SURVEY
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
RF-2	RF PLUMBING DIAGRAM
GN-1	LEGEND AND ABBREVIATIONS
GN-2	GENERAL NOTES
GN-3	GENERAL NOTES
GN-4	GENERAL NOTES

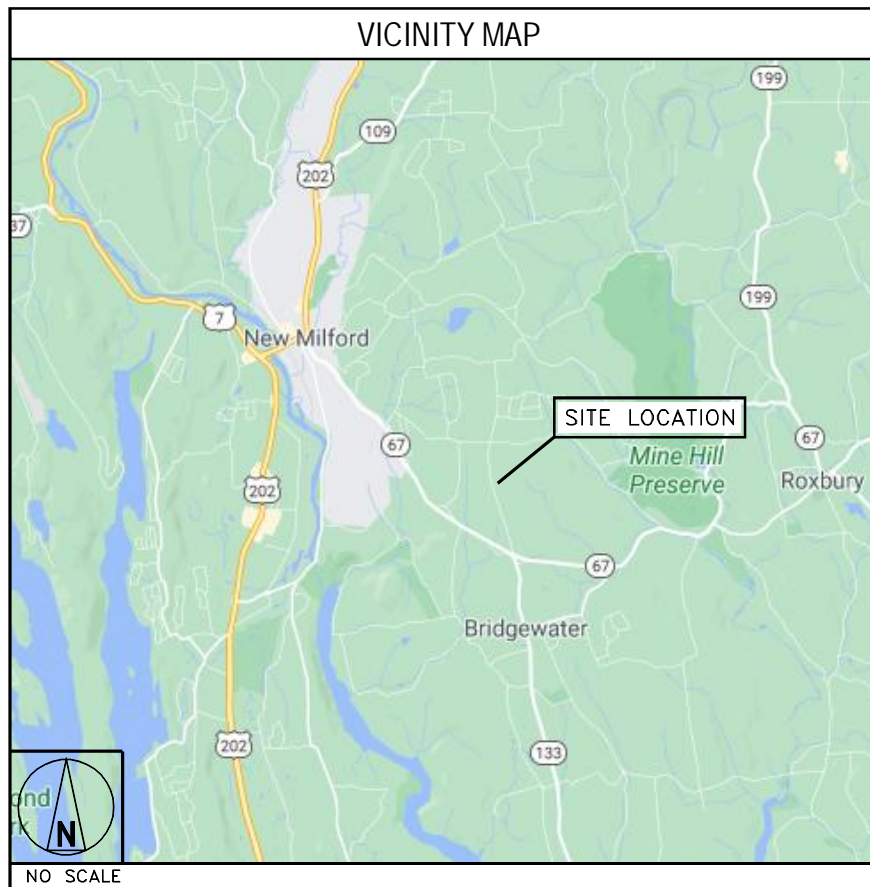
GENERAL NOTES

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.



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
281862-13709418

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00200A
111 SECOND HILL RD
BRIDGEWATER, CT 06752

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

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.



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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

DRAWN BY: NOA
CHECKED BY: BIW
APPROVED BY: BIW

RFDS REV #: 1

PRELIMINARY DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
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A&E PROJECT NUMBER
281862-13709418

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHV00200A
111 SECOND HILL RD
BRIDGEWATER, CT 06752

SHEET TITLE
SURVEY

SHEET NUMBER
A-0

AMERICAN TOWER®
ATC TOWER SERVICES, INC.
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
FAX: (919) 466-5415

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR VERSION OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	PRELIM	LKC	12/8/15
1	GENERAL COMMENTS	LKC	12/14/15

ATC SITE NUMBER:
281862
ATC SITE NAME:
BRIDGEWATER CT
SITE ADDRESS:
111 SECOND HILL RD.
BRIDGEWATER, CT 06752

THIS IS TO CERTIFY THAT THE UNDERSIGNED AT THE REQUEST AND FOR THE EXCLUSIVE USE OF AMERICAN TOWER CORPORATION AND LINEAR TITLE & CLOSING HAS PERFORMED THIS AS-BUILT SURVEY OF THE LEASE AREA ONLY, FROM THE RECORD SOURCES AND ACTUAL FIELD SURVEY ON NOVEMBER 23, 2015 IN ACCORDANCE WITH THE MINIMUM STANDARDS FOR PROPERTY BOUNDARY SURVEYS. ALL LINEAR AND ANGULAR VALUES SHOWN ARE BASED UPON DEED OR RECORD INFORMATION UNLESS OTHERWISE NOTED.

DATE OF PLAT OR MAP: 12/17/2015
TIMOTHY R. DURR
PLS. 70198
IN THE STATE OF CONNECTICUT

LMS SURVEYING LTD
P.O. Box 65 Sharon Center, OH 44274
Phone: 330-320-6812 / Fax: 330-239-1529

DRAWN BY: LKC
APPROVED BY: TRD
DATE DRAWN: 12/8/2015
JOB NO: B-150702

AS-BUILT SURVEY
SHEET NUMBER:
V-101
REVISION:
1

PROJECT SUMMARY

FIELD SURVEY DATE: 11/23/2015
SITE ADDRESS: 111 SECOND HILL ROAD, BRIDGEWATER, CT 06752

PARCEL INFORMATION
OWNER: ROBERT J. REIBE
OWNER ADDRESS: 111 SECOND HILL ROAD, BRIDGEWATER, CT 06752
APN: 28-50 BOOK 43, PAGE 362

TOTAL AREAS
PARENT PARCEL: 4.5+ ACRES (PER TAX RECORDS)
LEASE AREA: 10,000 SQ. FT. (0.230 ACRES)
ACCESS & UTILITY EASEMENT: 7,235 SQ. FT. (0.166 ACRES)

BASIS OF BEARINGS
BEARINGS ARE BASED ON CONNECTICUT STATE PLANE COORDINATE SYSTEM, ZONE 0600 BY GPS OBSERVATION.

FLOODPLAIN
PER THE FEMA FLOODPLAIN MAPS, THE SITE IS LOCATED IN AN AREA DESIGNATED AS ZONE C.
COMMUNITY PANEL NO.: 0901840001B DATED: 11/01/1979

ENCROACHMENT STATEMENT:
NO OBSERVABLE ENCROACHMENTS AT THE TIME OF SURVEY.

TOWER INFORMATION:
LATITUDE: 41° 33' 17.71" N, NAD 83
LONGITUDE: 073° 22' 15.2" W, NAD 83
GROUND ELEVATION AT BASE OF TOWER: 907.8 FEET (AMSL) NAVD 1988
TOP OF TOWER HEIGHT ABOVE GROUND: 160' (AGA)
ELEVATION OF TOP OF TOWER: 1067.8 FEET (AMSL) NAVD 1988

HEIGHT OF ANTENNA ABOVE TOWER TOP: 163'
ELEVATION OF TOP OF HIGHEST APPURTENANCE: 1073.8' (AMSL) NAVD 1988

I CERTIFY THAT THE GEODETIC COORDINATES SHOWN HEREON ARE ACCURATE TO WITHIN +/- 20 FEET HORIZONTALLY AND THE ELEVATION SHOWN HEREON IS ACCURATE TO WITHIN +/- 3 FEET VERTICALLY. THE HORIZONTAL DATUM COORDINATES ARE IN TERMS OF NAD83 AND ARE EXPRESSED AS DEGREES, MINUTES AND SECONDS, TO THE NEAREST HUNDRETH OF A SECOND. THE VERTICAL DATUM HEIGHTS ARE IN TERMS OF THE NAVD83 AND ARE DETERMINED TO THE NEAREST FOOT.

COORDINATES BASED ON CONNECTICUT STATE PLANE COORDINATE SYSTEM, ZONE 0600.

ZONING INFORMATION

N/A

LEGAL DESCRIPTION

SCORE REPORT LEGAL DESCRIPTION (PARENT PARCEL):

The land referred to herein below is situated in the County of Litchfield, City of Bridgewater, State of Connecticut and is described as follows:

First Piece: Commencing at a point marked by an iron pipe on the Easterly side of Second Hill Road, so-called, which point is the Southwesterly corner of the premises being herein described and the Northwesterly corner of premises now or formerly of Andre Vonderweid; and running thence along said Second Hill Road, North 07° 03' West a distance of 325.85 feet to a point marked by an iron pipe at the Southwesterly corner of premises formerly of Kenneth M. and Marie Evelyn Kubisek; running thence South 81° 18' 30" East along land formerly of said Kubiseks; a distance of 481.53 feet to a point marked by an iron pipe; running thence South 1° 42' 30" West still along land formerly of said Kubisek; a distance of 297.57 feet to a point marked by an iron pipe near an eight inch apple tree; running thence North 63° 41' West along land now or formerly of Andre Vonderweid a distance of 432.12 feet to an iron pipe which is the point and place of beginning, bounded.

Northerly and Easterly; by land formerly of Kenneth M. and Marie Kubisek; Southerly; by land now or formerly of Andre Vonderweid; and Westerly; by Second Hill Road, so-called.

Said premises contain 3.23 acres and are shown on the certain map entitled: "Property to be Conveyed to Joseph and Louise Poletto by Emily and Lester Whitney, Bridgewater (sic), Connecticut, Scale 1" = 40', December 1962, Certified Substantially Correct K. W. Rogers, Surveyor".

Second piece: Beginning at a point on the Easterly side of said highway marked by an iron pipe, which point is the Northwesterly corner of the First Piece above described; running thence along the Easterly side of said highway in a Northerly direction to a point on said highway, which is the Southwesterly corner of land of Lowenthal, running thence in a generally Easterly direction along the Southerly line of land of said Lowenthal a distance of 483 feet to the point, which point is the Northwesterly corner of the premises herein conveyed; running thence in a straight line in a generally Southerly direction along land of Andre H. and Mariene Vonderweid to an iron pipe, which marks the Northwesterly corner of the First Piece above described; running thence North 81° 18' 30" West along the Northerly boundary line of the First Piece above described, 483.91 feet to the point or place of beginning.

Parcel ID #28 50

This being the same property conveyed to Robert J. Reibe from Joseph Poletto, in a deed dated December 01, 1995 and Recorded December 04, 1995 in Book 43 Page 362.

Property Commonly Known As: 111 Second Hill Road, Bridgewater, CT 06752

Parcel ID: 28 50

LEASE AREA - AS SURVEYED:

SITUATED IN THE CITY OF BRIDGEWATER, COUNTY OF LITCHFIELD AND STATE OF CONNECTICUT, LYING WITHIN A TRACT OF LAND CONVEYED TO ROBERT J. REIBE IN BOOK 43, PAGE 362, DEED RECORDS OF LITCHFIELD COUNTY AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT A CONCRETE MONUMENT FOUND IN THE EASTERLY LINE OF SECOND HILL ROAD FOR THE NORTHWEST CORNER OF THE AFORESAID ROBERT J. REIBE TRACT;

THENCE LEAVING SECOND HILL ROAD AND ALONG THE NORTHERLY LINE OF SAID REIBE TRACT, NORTH 86°25'08" EAST, A DISTANCE OF 358.38 FEET;

THENCE CROSSING SAID REIBE TRACT, SOUTH 03°34'52" EAST, A DISTANCE OF 83.19 FEET TO THE POINT OF BEGINNING OF THE HEREIN DESCRIBED TRACT;

THENCE NORTH 86°25'08" EAST, A DISTANCE OF 100.00 FEET;

THENCE SOUTH 03°34'52" WEST, A DISTANCE OF 100.00 FEET;

THENCE SOUTH 86°25'08" WEST, A DISTANCE OF 100.00 FEET;

THENCE NORTH 03°34'52" WEST, A DISTANCE OF 100.00 FEET TO THE POINT OF BEGINNING.

HAVING AN AREA OF 10,000 SQUARE FEET (0.230 ACRES) OF LAND, MORE OR LESS.

ACCESS & UTILITY EASEMENT - AS SURVEYED:

SITUATED IN THE CITY OF BRIDGEWATER, COUNTY OF LITCHFIELD AND STATE OF CONNECTICUT, LYING WITHIN A TRACT OF LAND CONVEYED TO ROBERT J. REIBE IN BOOK 43, PAGE 362, DEED RECORDS OF LITCHFIELD COUNTY AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT A CONCRETE MONUMENT FOUND IN THE EASTERLY LINE OF SECOND HILL ROAD FOR THE NORTHWEST CORNER OF THE AFORESAID ROBERT J. REIBE TRACT;

THENCE LEAVING SECOND HILL ROAD AND ALONG THE NORTHERLY LINE OF SAID REIBE TRACT, NORTH 86°25'08" EAST, A DISTANCE OF 358.38 FEET;

THENCE CROSSING SAID REIBE TRACT, SOUTH 03°34'52" EAST, A DISTANCE OF 86.19 FEET TO THE POINT OF BEGINNING OF THE HEREIN DESCRIBED TRACT;

THENCE SOUTH 03°34'52" EAST, A DISTANCE OF 40.00 FEET;

THENCE SOUTH 86°25'08" WEST, A DISTANCE OF 35.00 FEET;

THENCE NORTH 03°34'52" WEST, A DISTANCE OF 20.00 FEET;

THENCE SOUTH 86°25'08" WEST, A DISTANCE OF 20.00 FEET;

THENCE SOUTH 82°49'56" WEST, A DISTANCE OF 168.31 FEET;

THENCE SOUTH 53°23'04" WEST, A DISTANCE OF 54.36 FEET;

THENCE SOUTH 84°11'04" WEST, A DISTANCE OF 45.68 FEET;

THENCE NORTH 19°37'09" WEST, A DISTANCE OF 20.12 FEET;

THENCE NORTH 64°11'04" EAST, A DISTANCE OF 41.62 FEET;

THENCE NORTH 53°23'04" EAST, A DISTANCE OF 51.73 FEET;

THENCE NORTH 82°49'56" EAST, A DISTANCE OF 174.19 FEET;

THENCE NORTH 86°25'08" EAST, A DISTANCE OF 56.13 FEET TO THE POINT OF BEGINNING.

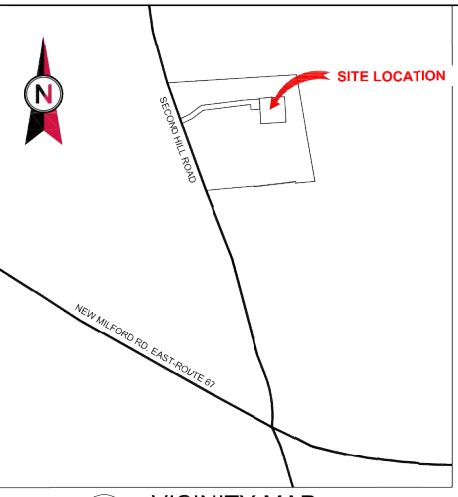
HAVING AN AREA OF 7,235 SQUARE FEET (0.166 ACRES) OF LAND, MORE OR LESS.

NOTES CORRESPONDING TO SCORE REPORT

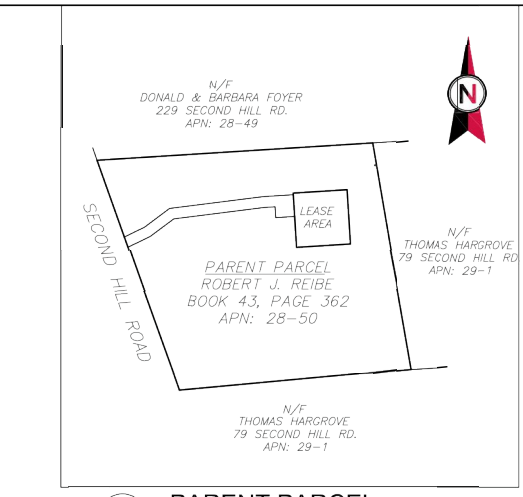
THE SCORE REPORT ISSUED BY LINEAR TITLE & CLOSING, FILE NO. ATC-41727-PR, DATED THROUGH NOVEMBER 4, 2015 CONTAINS THE FOLLOWING SURVEY RELATED ITEMS:

2. ELECTRIC DISTRIBUTION EASEMENT BETWEEN ROBERT J. REIBE AND NEW CINGULAR WIRELESS PCS, L.L.C. A DELAWARE LIMITED LIABILITY COMPANY, DATED JUNE 27, 2014 RECORDED JULY 09, 2014 IN BOOK 83 PAGE 874, IN LITCHFIELD COUNTY, CONNECTICUT. AFFECTS LEASE AREA - NOT PLOTTABLE, REFERENCED PLAN NOT PROVIDED.

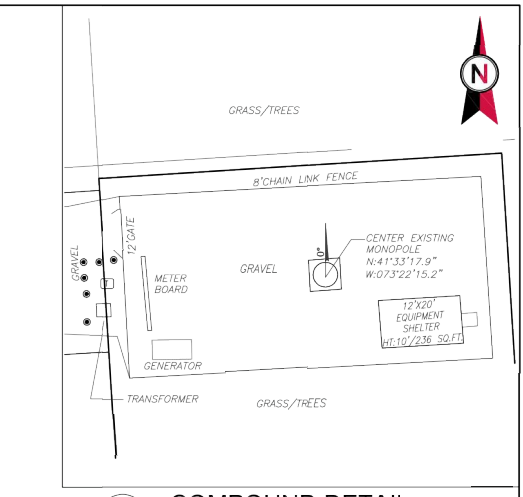
3. TELEPHONE DISTRIBUTION EASEMENT BETWEEN ROBERT J. REIBE AND NEW CINGULAR WIRELESS PCS, L.L.C. A DELAWARE LIMITED LIABILITY COMPANY AND THE SOUTHERN NEW ENGLAND TELEPHONE COMPANY DIVA I&T CONNECTICUT, A CORPORATION, DATED JUNE 27, 2014 RECORDED JULY 09, 2014 IN BOOK 83 PAGE 878, IN LITCHFIELD COUNTY, CONNECTICUT. AFFECTS LEASE AREA - NOT PLOTTABLE, REFERENCED PLAN NOT PROVIDED.



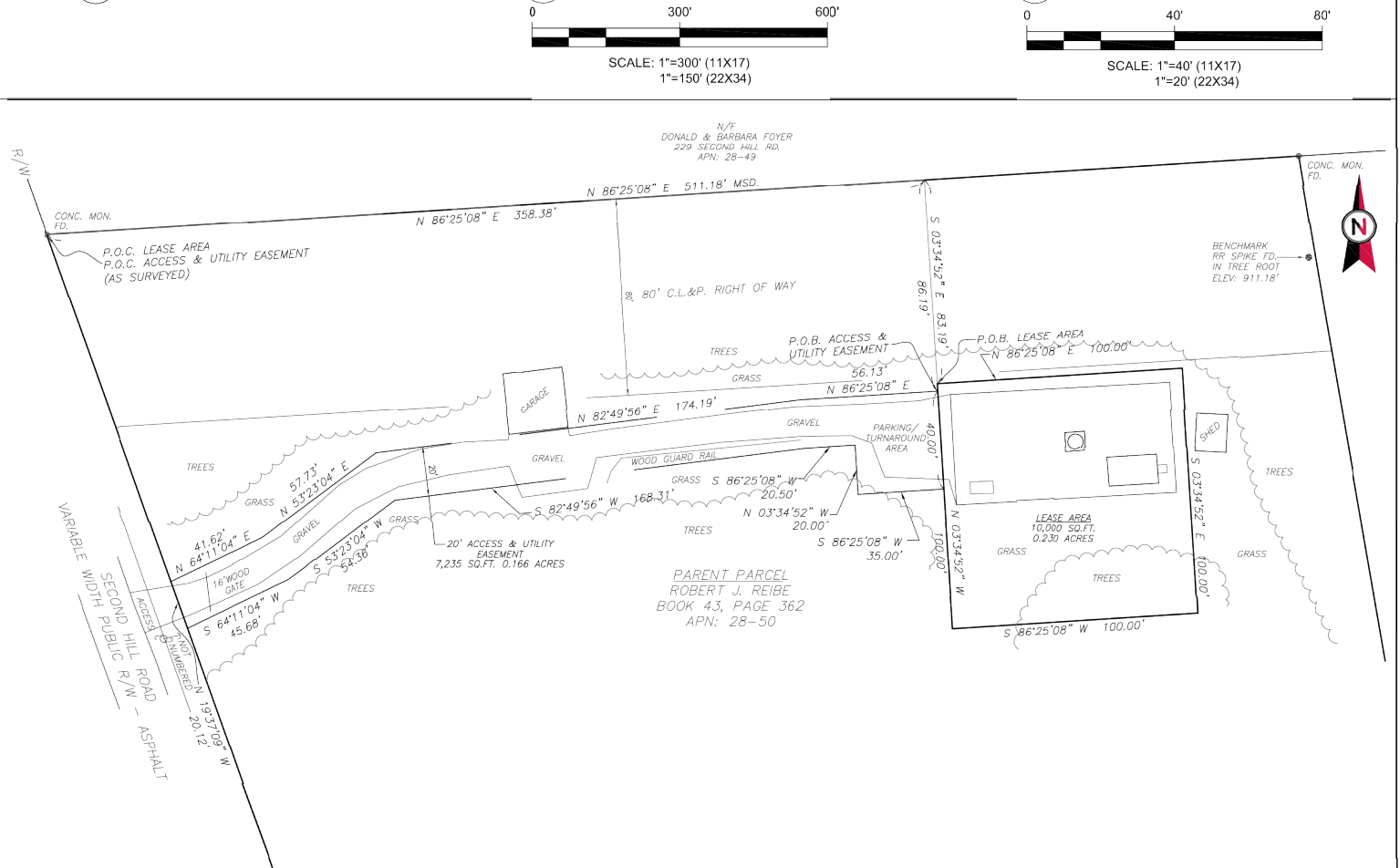
1 VICINITY MAP NTS



2 PARENT PARCEL

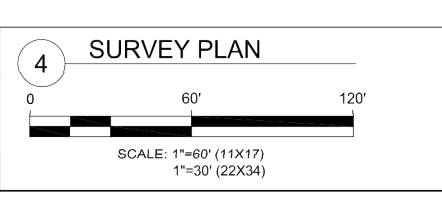


3 COMPOUND DETAIL



SURVEY LEGEND

	EXISTING PROPERTY
	EXISTING ADJ. PROPERTY
	EXISTING EASEMENT
	EXISTING CHAINLINK FENCE
	EXISTING BUILDING
	EXISTING ROAD (DIRT)
	EXISTING ROAD (STONE)
	EXISTING ROAD (PAVED)
	EXISTING CONCRETE

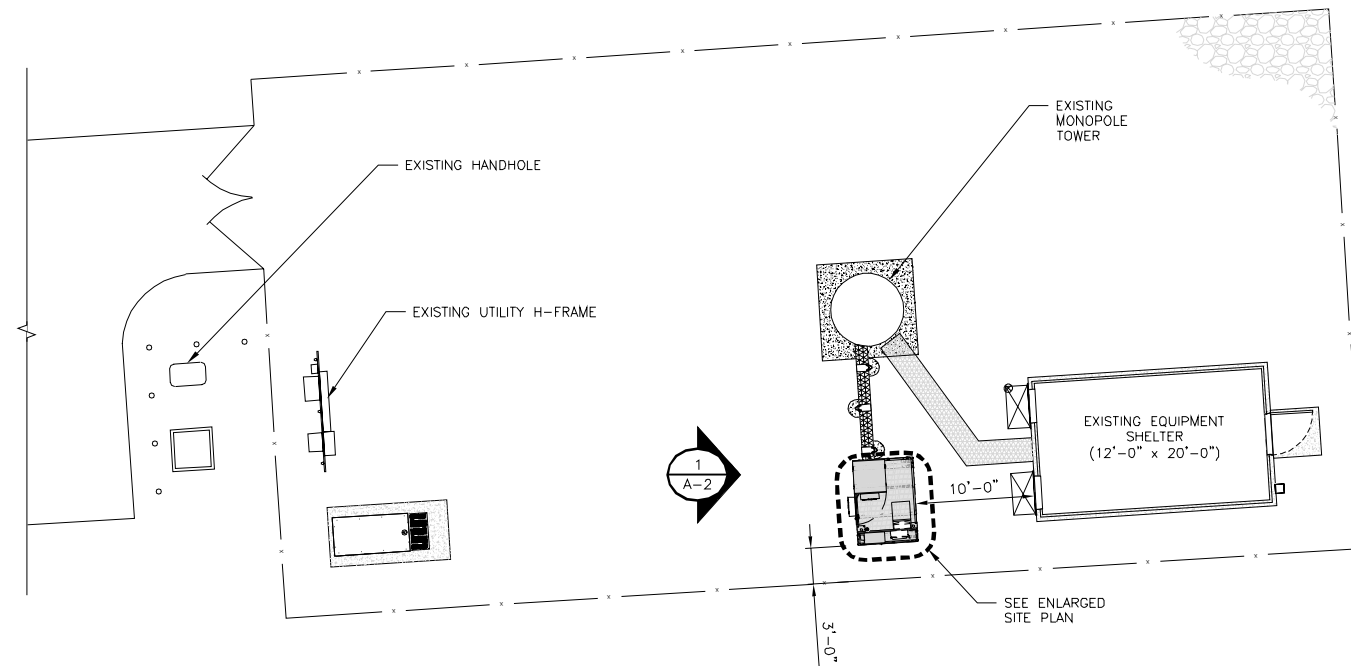


COX LEVIN
National Land Survey Consultants
surveys@coxlevin.com
781-640-3109 • www.coxlevin.com

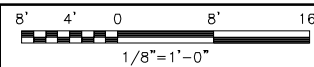
811
Know what's below.
Call before you dig.

NOTES

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



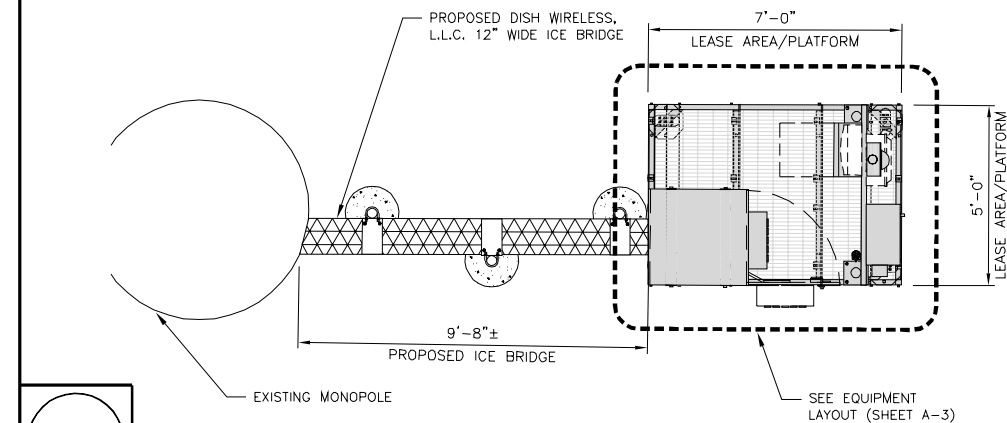
OVERALL SITE PLAN



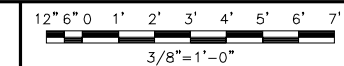
1

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.

<p>PROJECT SUMMARY</p> <p>PROJECT NAME: DISH WIRELESS TOWER</p> <p>PROJECT LOCATION: 111 SECOND HILL RD, BRIDGEWATER, CT 06752</p> <p>DATE: 08/27/2021</p> <p>SCALE: 1/8" = 1'-0"</p>	<p>SURVEYOR'S NOTES</p> <p>1. THE SURVEY PROVIDED ON THIS SHEET IS PROVIDED FOR REFERENCE ONLY, THE UTILITY ROUTE AND EXISTING EASEMENTS MUST BE VERIFIED PRIOR TO CONSTRUCTION.</p> <p>2. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.</p> <p>3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.</p>	<p>VICINITY MAP</p> <p>SCALE: 1/8" = 1'-0"</p>	<p>PARENT PARCEL</p> <p>SCALE: 1/8" = 1'-0"</p>	<p>COMPOUND DETAIL</p> <p>SCALE: 1/8" = 1'-0"</p>	<p>AS-BUILT SURVEY</p> <p>DATE: 08/27/2021</p> <p>SCALE: 1/8" = 1'-0"</p>
<p>LEGAL DESCRIPTION</p> <p>111 SECOND HILL RD, BRIDGEWATER, CT 06752</p>					
<p>NOTES CORRESPONDING TO SCORE REPORT</p> <p>1. THE SURVEY PROVIDED ON THIS SHEET IS PROVIDED FOR REFERENCE ONLY, THE UTILITY ROUTE AND EXISTING EASEMENTS MUST BE VERIFIED PRIOR TO CONSTRUCTION.</p>					

EXISTING SURVEY (BY OTHERS)

NO SCALE

3



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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

DRAWN BY:	CHECKED BY:	APPROVED BY:
NOA	BIW	BIW

RFDS REV #: 1

PRELIMINARY DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/27/2021	ISSUED FOR REVIEW
D	08/31/2021	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
281862-13709418

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00200A
111 SECOND HILL RD
BRIDGEWATER, CT 06752

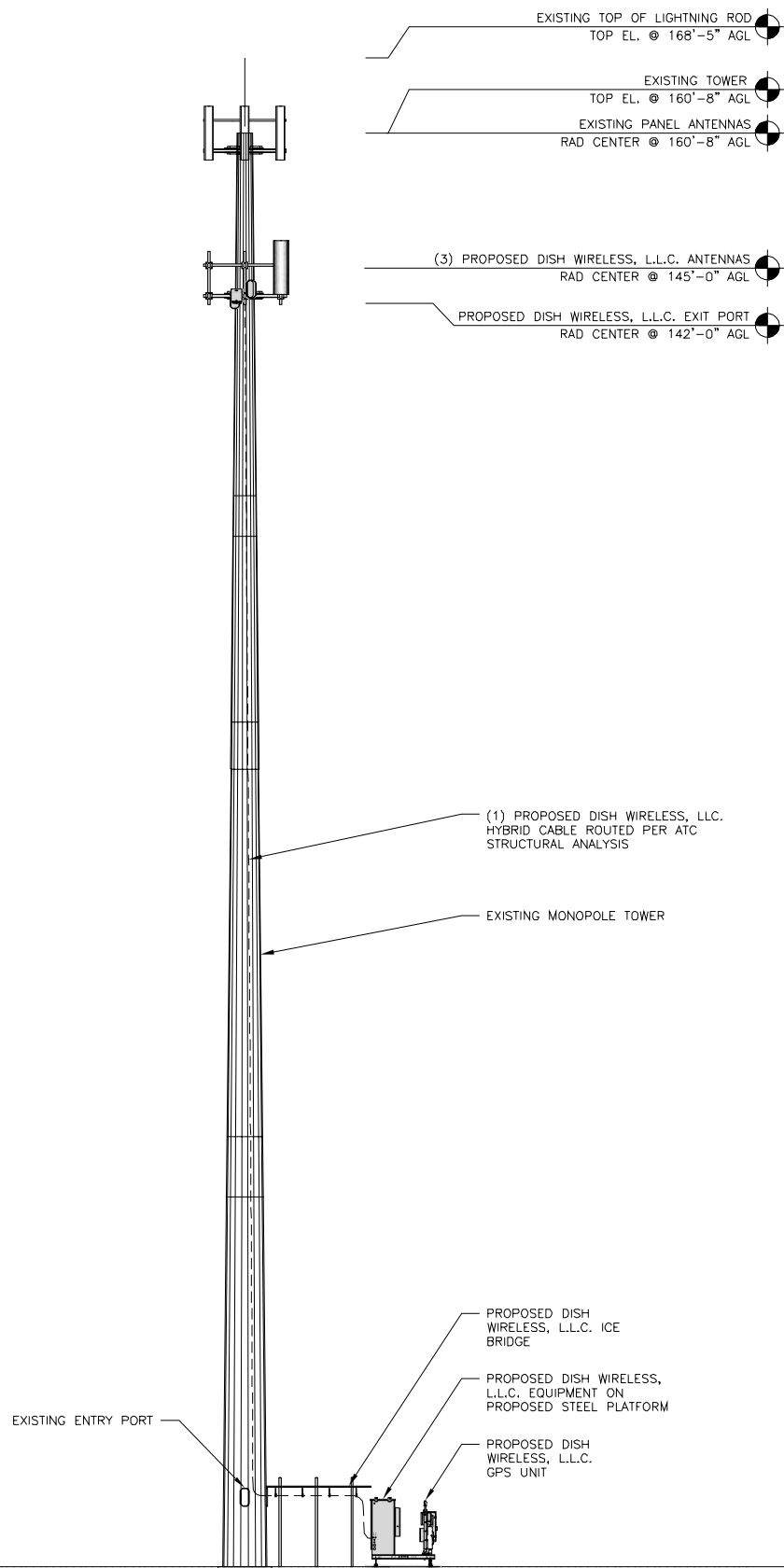
SHEET TITLE
OVERALL AND ENLARGED
SITE PLAN

SHEET NUMBER

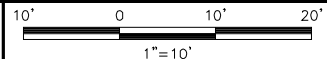
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NOTES

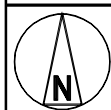
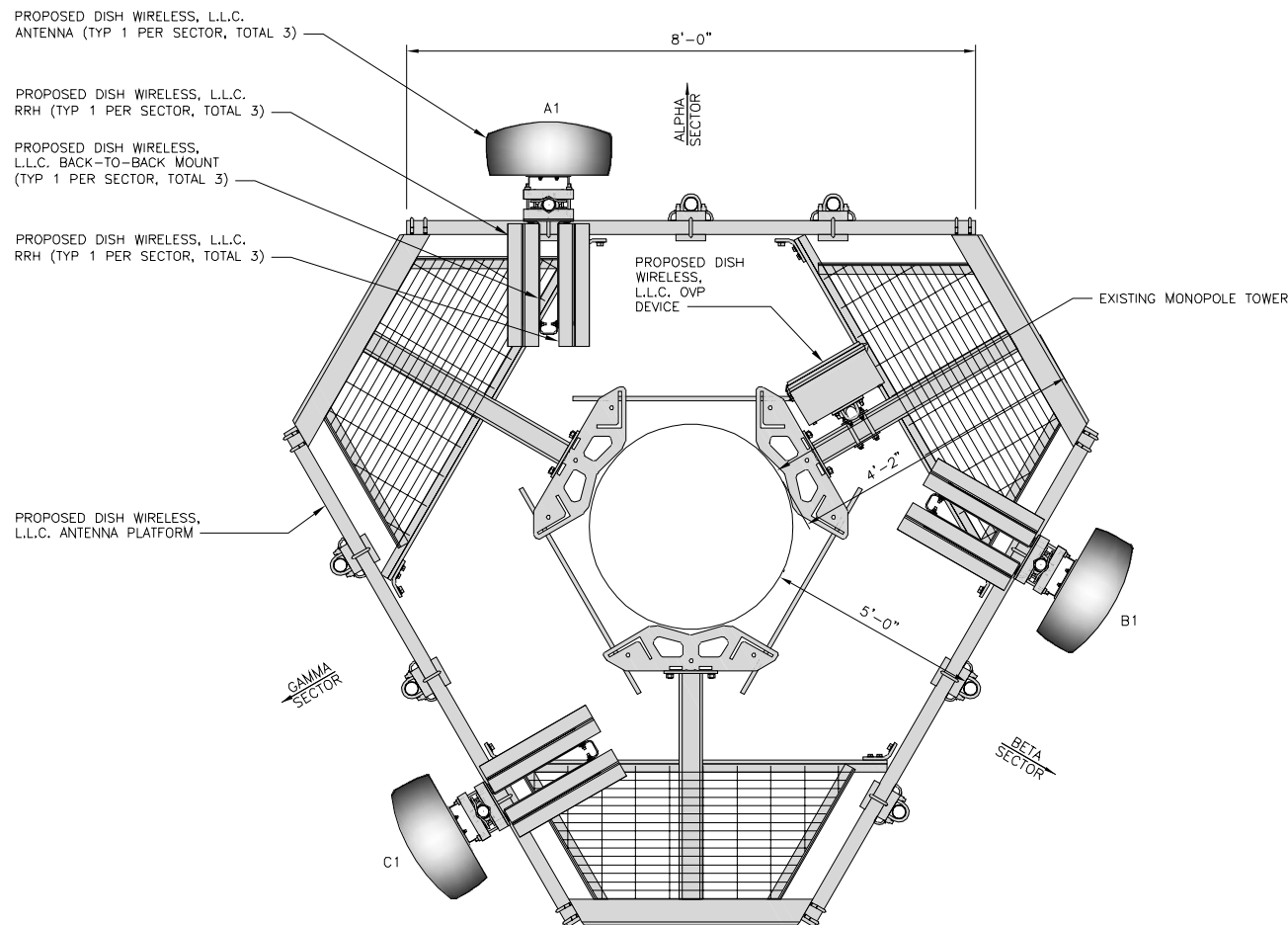
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



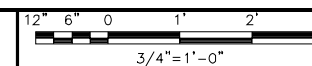
PROPOSED WEST ELEVATION



1



ANTENNA LAYOUT



2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE FEED LINE TYPE AND LENGTH
		EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	
ALPHA	A1	PROPOSED	JMA - MX08FRO665-21	5G	72.0" x 20.0"	0°	145'-0"	(1) HIGH-CAPACITY HYBRID CABLE (180' LONG)
BETA	B1	PROPOSED	JMA - MX08FRO665-21	5G	72.0" x 20.0"	120°	145'-0"	
GAMMA	G1	PROPOSED	JMA - MX08FRO665-21	5G	72.0" x 20.0"	240°	145'-0"	
SECTOR	POSITION	RRH		NOTES				
		MANUFACTURER - MODEL NUMBER	TECHNOLOGY					
ALPHA	A1	FUJITSU - TA08025-B604	N29, N71	1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS. 2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.				
	A2	FUJITSU - TA08025-B605	N66, N70					
BETA	B1	FUJITSU - TA08025-B604	N29, N71					
	B2	FUJITSU - TA08025-B605	N66, N70					
GAMMA	G1	FUJITSU - TA08025-B604	N29, N71					
	G2	FUJITSU - TA08025-B605	N66, N70					

ANTENNA SCHEDULE

NO SCALE

3



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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

DRAWN BY: NOA
CHECKED BY: BIW
APPROVED BY: BIW

RFDS REV #: 1

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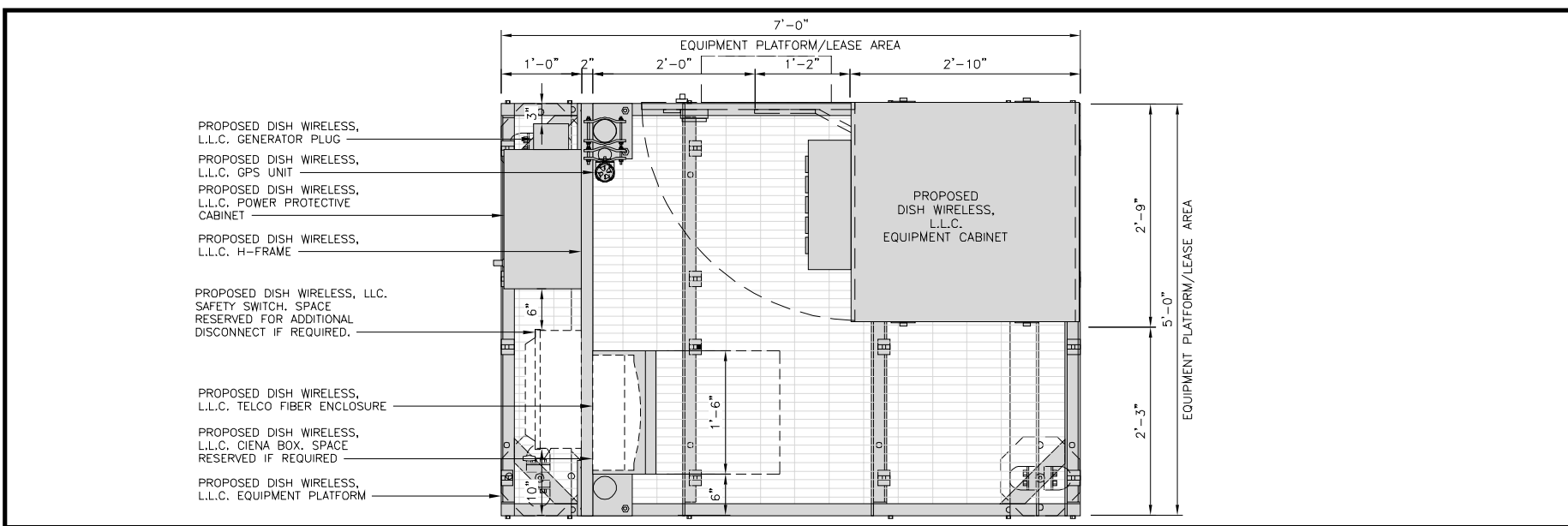
A&E PROJECT NUMBER
281862-13709418

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00200A
111 SECOND HILL RD
BRIDGEWATER, CT 06752

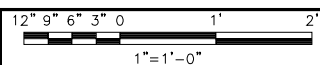
SHEET TITLE
ELEVATION, ANTENNA
LAYOUT AND SCHEDULE

SHEET NUMBER

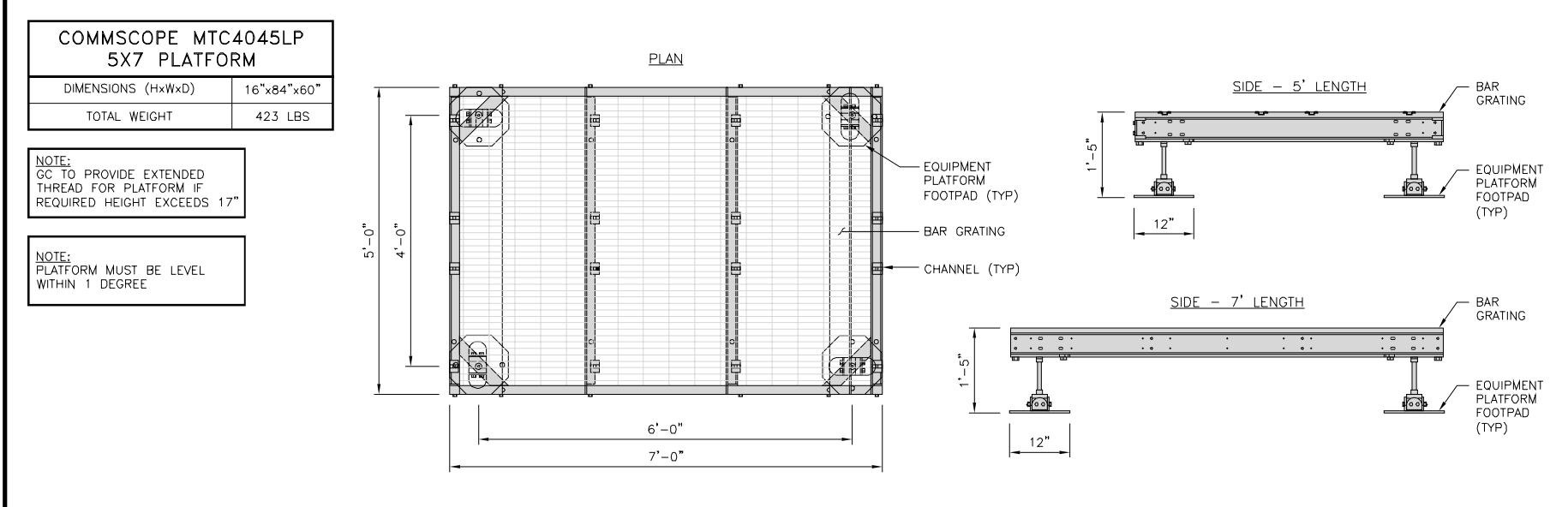
A-2



PLATFORM EQUIPMENT PLAN



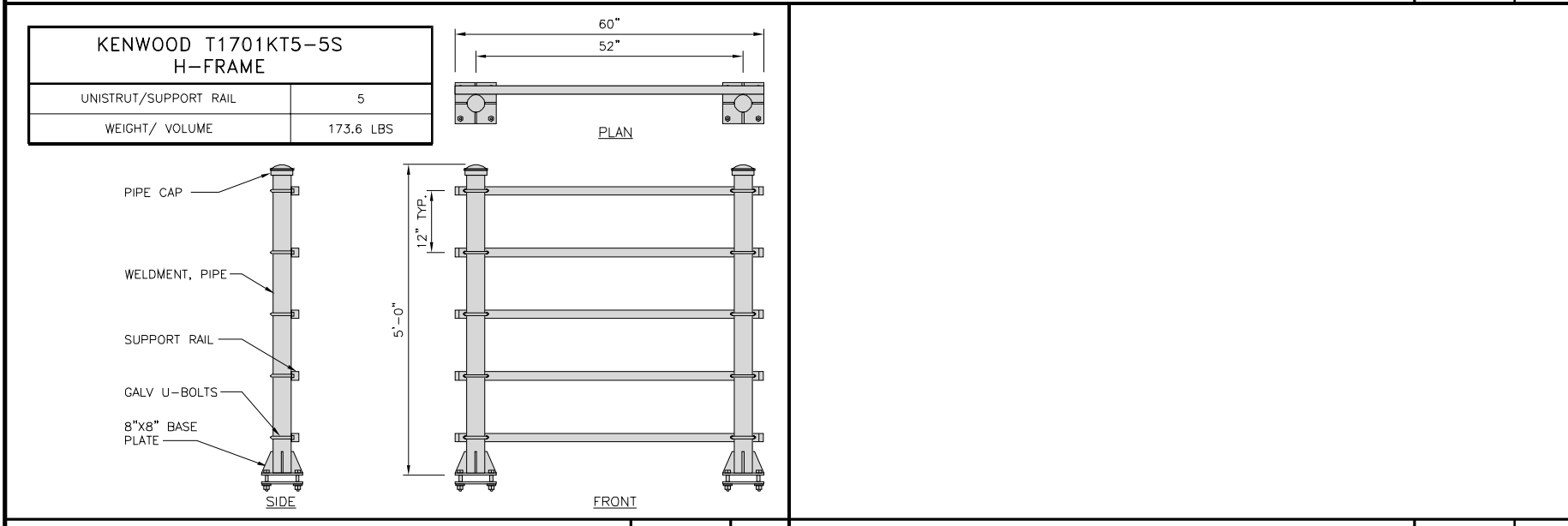
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PLATFORM DETAIL

NO SCALE

2



H-FRAME DETAIL

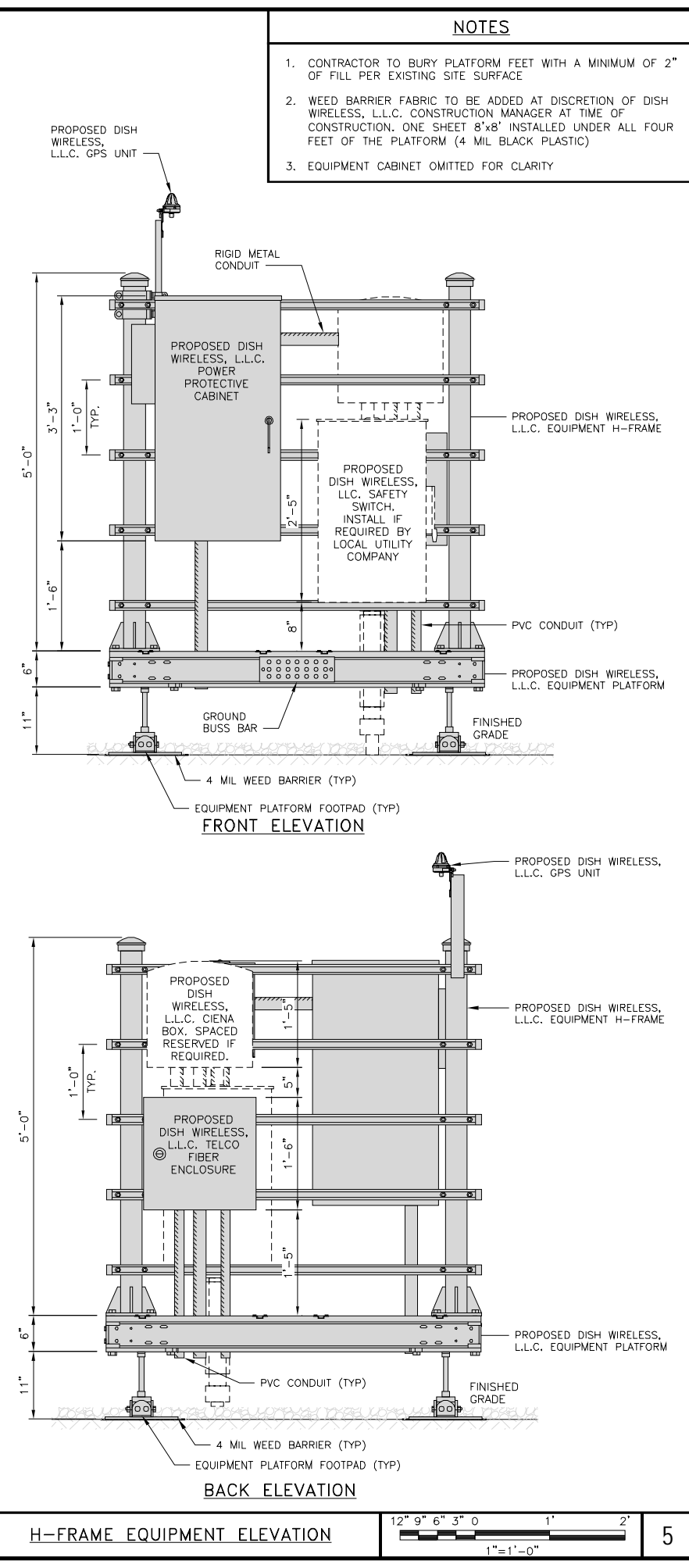
NO SCALE

3

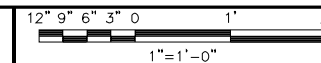
NOT USED

NO SCALE

4



H-FRAME EQUIPMENT ELEVATION



5



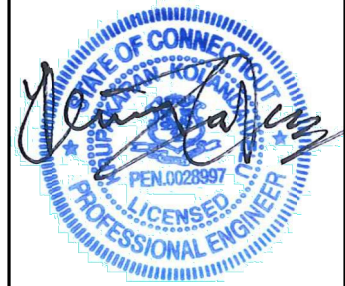
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



DRAWN BY:	CHECKED BY:	APPROVED BY:
NOA	BIW	BIW
RFDS REV #:		1

PRELIMINARY DOCUMENTS

SUBMITTALS		
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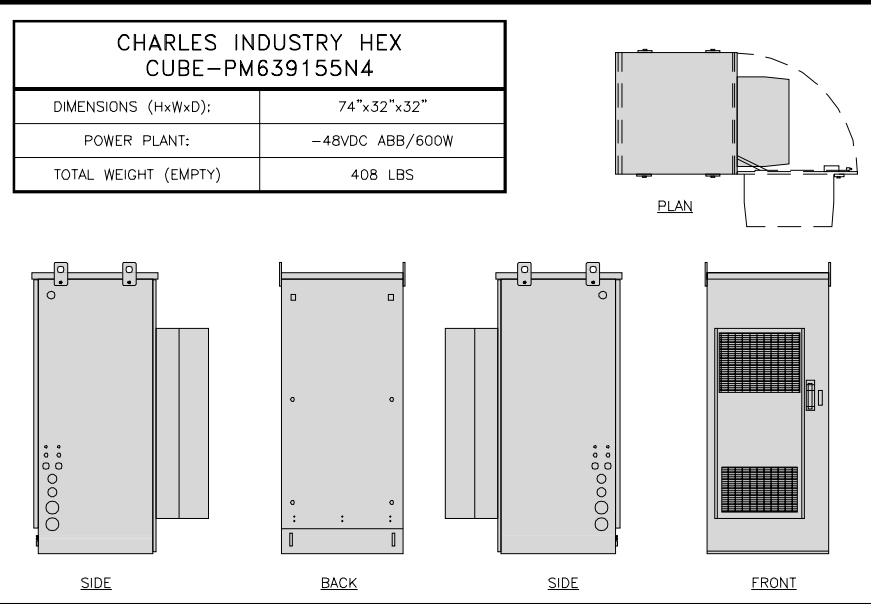
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A&E PROJECT NUMBER
281862-13709418

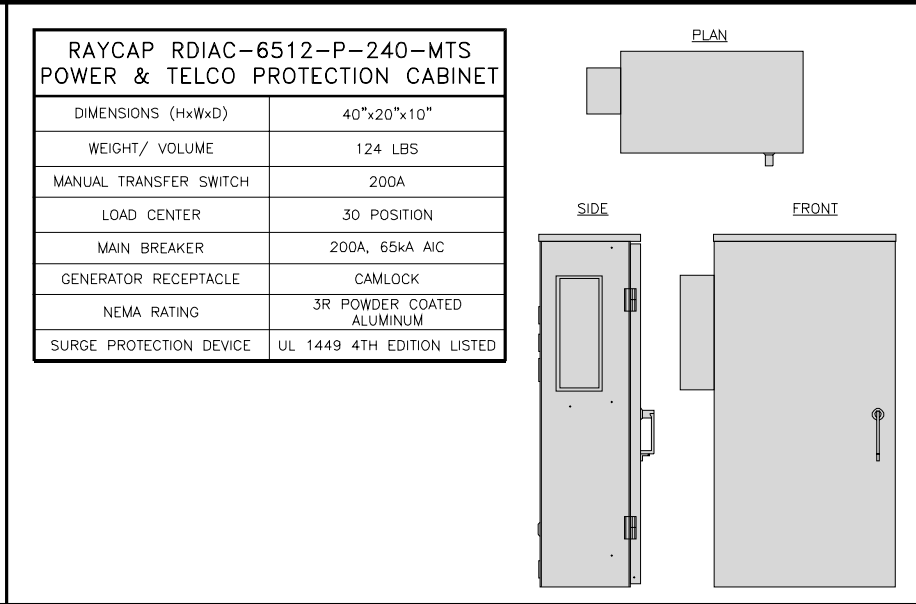
DISH WIRELESS, L.L.C. PROJECT INFORMATION
BOHVN00200A
111 SECOND HILL RD
BRIDGEWATER, CT 06752

SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

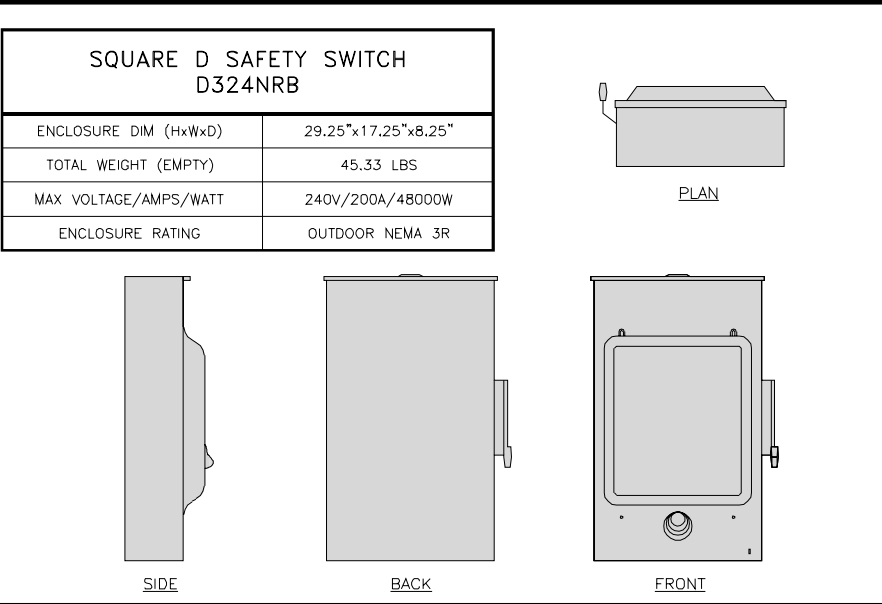
SHEET NUMBER
A-3



CABINET DETAIL NO SCALE **1**



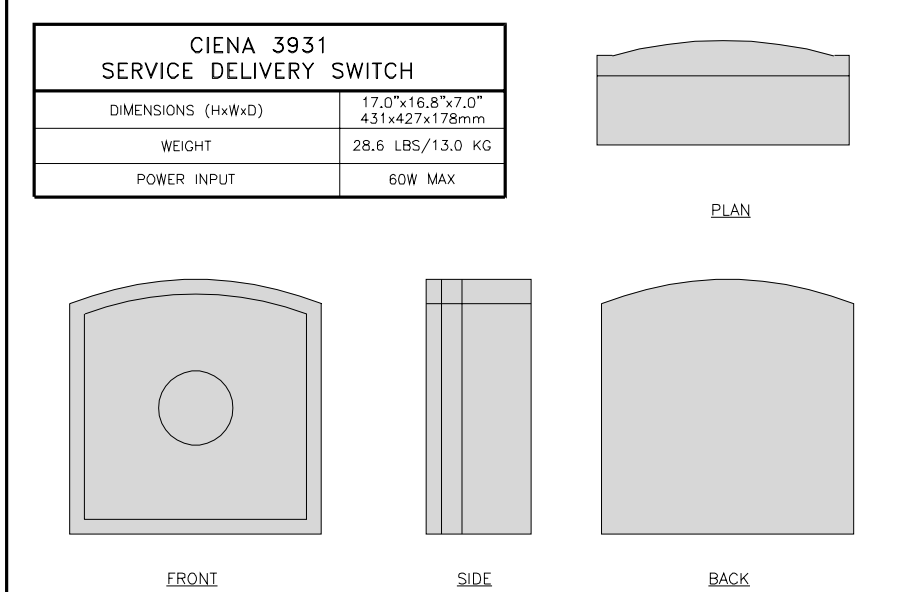
POWER PROTECTION CABINET (PPC) DETAIL NO SCALE **2**



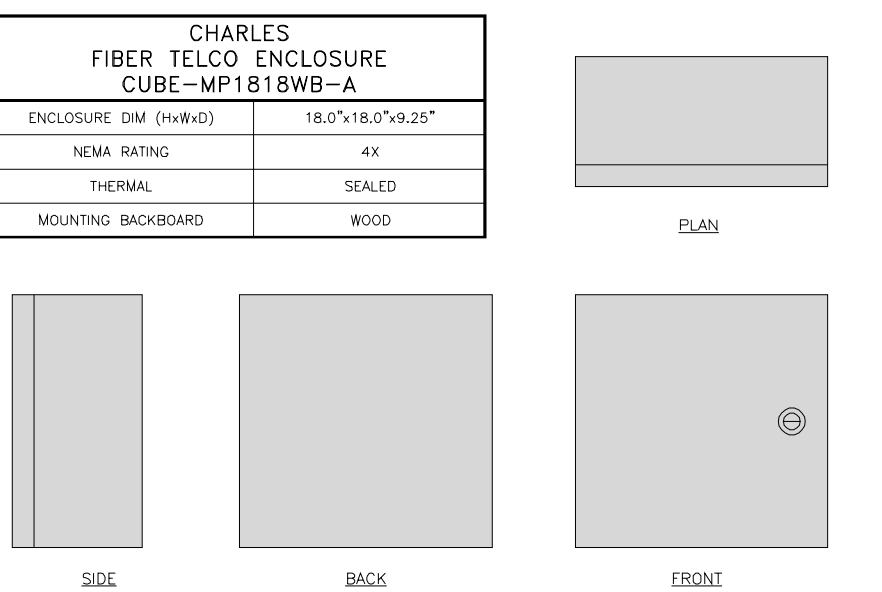
SAFETY SWITCH NO SCALE **3**



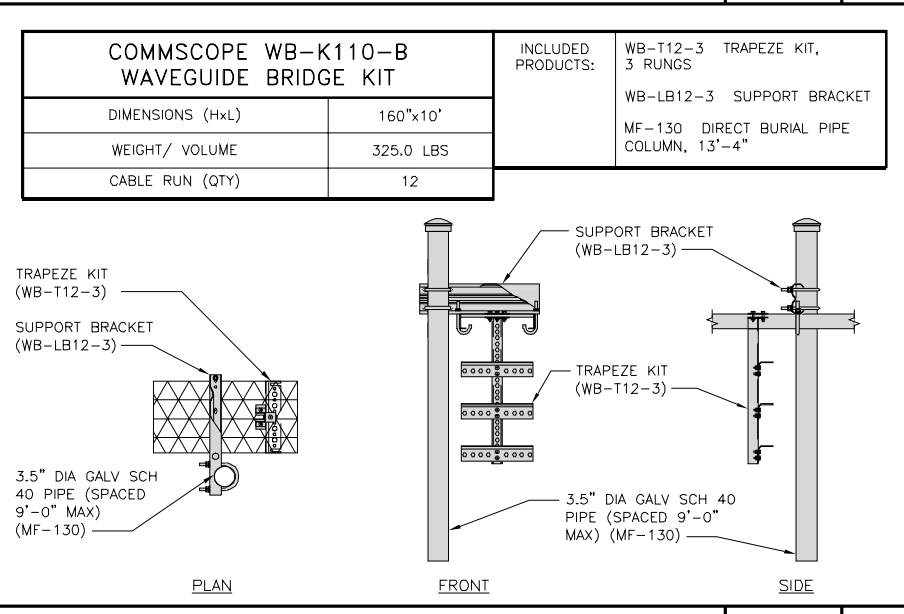
NOT USED NO SCALE **4**



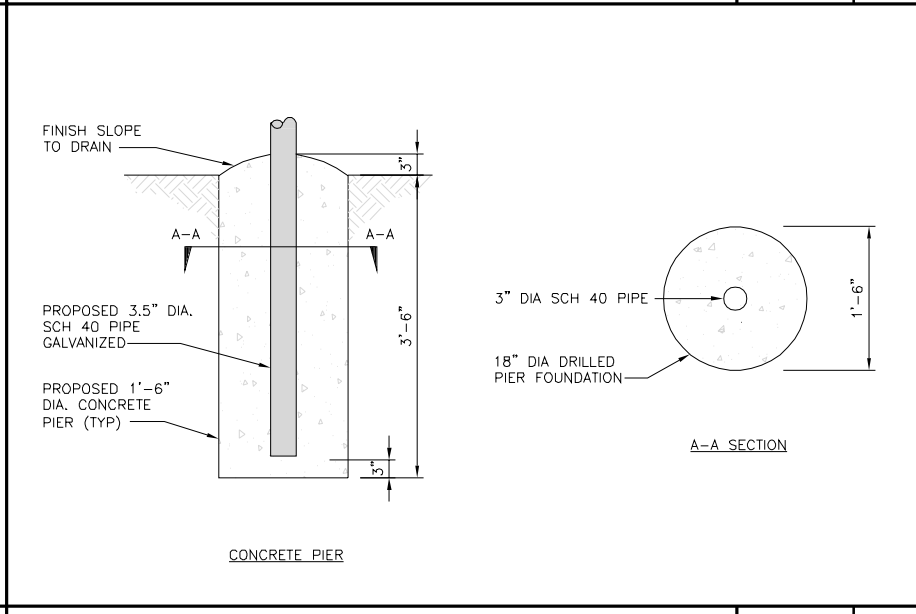
CIENA DETAIL NO SCALE **5**



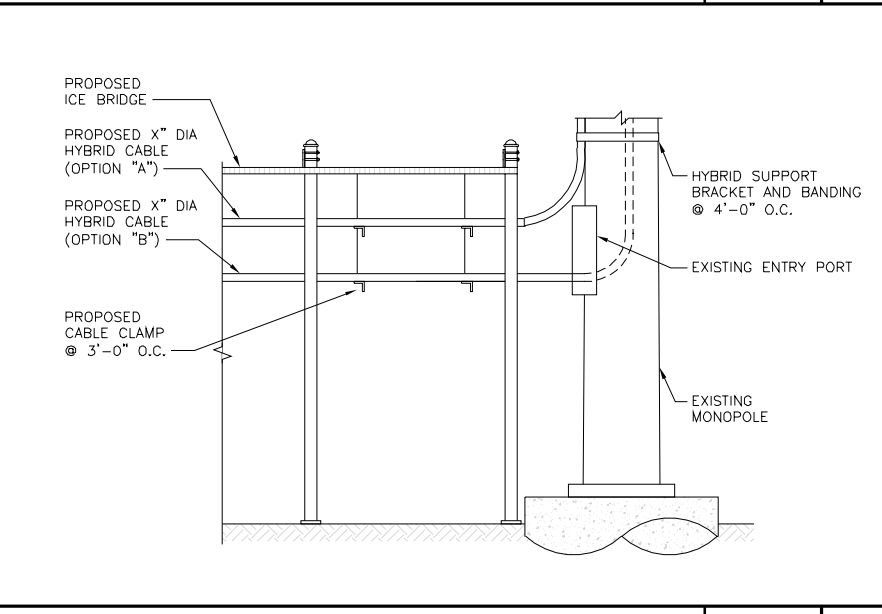
FIBER TELCO ENCLOSURE DETAIL NO SCALE **6**



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, LLC.
 8601 SIX FORKS ROAD, SUITE 540
 RALEIGH, NC 27615
 (919) 657-9131

DRAWN BY:	CHECKED BY:	APPROVED BY:
NOA	BIW	BIW

RFDS REV #: 1

PRELIMINARY DOCUMENTS

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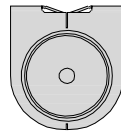
A&E PROJECT NUMBER
281862-13709418

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00200A
111 SECOND HILL RD
BRIDGEWATER, CT 06752

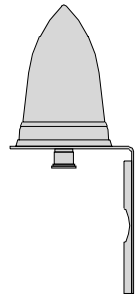
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

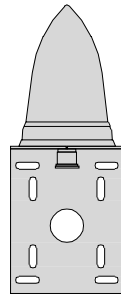
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



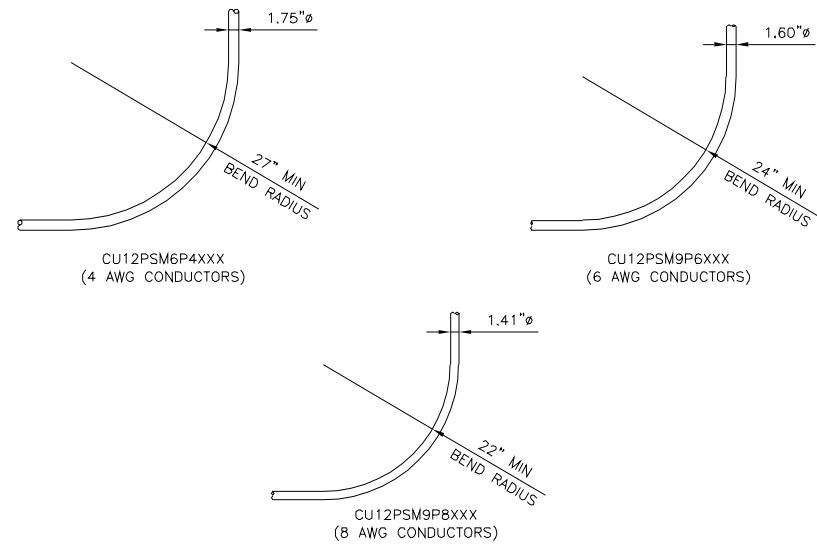
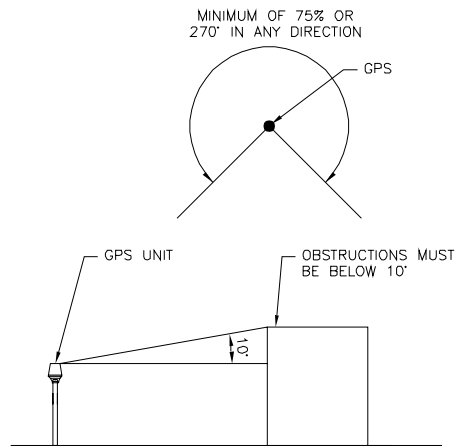
TOP



BACK



SIDE



dish
wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NB+C
TOTALLY COMMITTED.

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

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

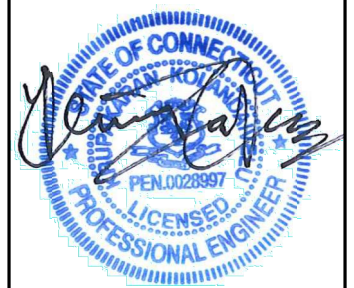
9

DRAWN BY: NOA
CHECKED BY: BIW
APPROVED BY: BIW

RFDS REV #: 1

PRELIMINARY
DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/27/2021	ISSUED FOR REVIEW
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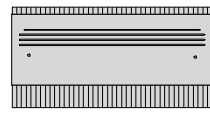
A&E PROJECT NUMBER
281862-13709418

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00200A
111 SECOND HILL RD
BRIDGEWATER, CT 06752

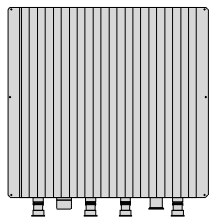
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-5

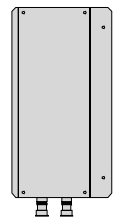
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



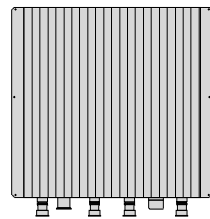
PLAN



BACK

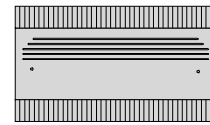


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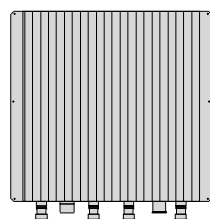


FRONT

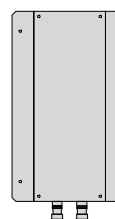
FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



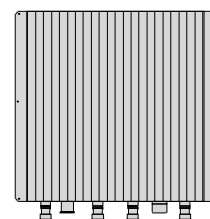
PLAN



BACK



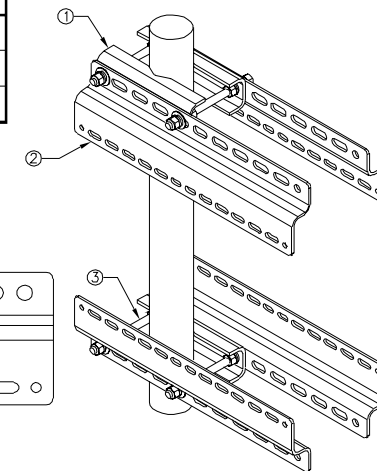
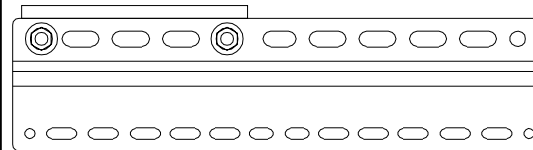
SIDE



FRONT

SABRE DOUBLE Z-BRACKET G10123155	
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_DETAIL

NO SCALE

1

RRH_DETAIL

NO SCALE

2

RRH_MOUNT_DETAIL

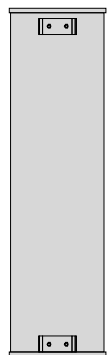
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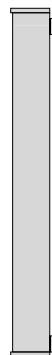
JMA WIRELESS MX08FRO665-21 ANTENNA	
DIMENSIONS (HxWxD)	72.0"x20.0"x8.0"
TOTAL WEIGHT	64.5 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE



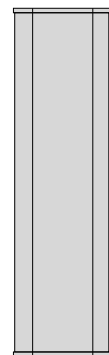
PLAN



BACK



SIDE



FRONT

ANTENNA_DETAIL

NO SCALE

4

NOT USED

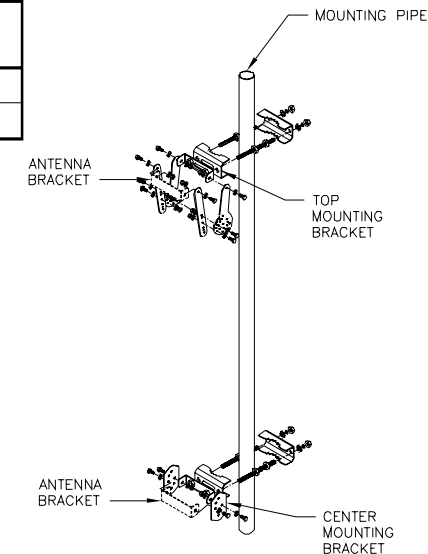
NO SCALE

5

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

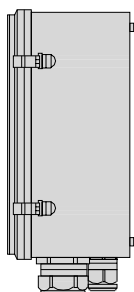
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6

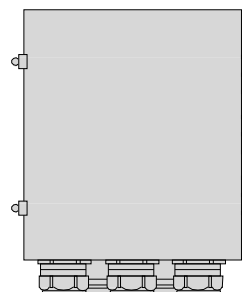
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



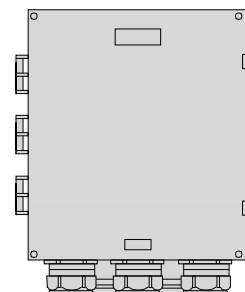
PLAN



SIDE



BACK



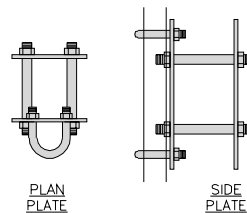
FRONT

SURGE SUPPRESSION_DETAIL (OVP)

NO SCALE

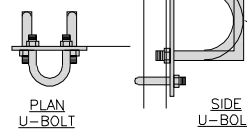
7

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



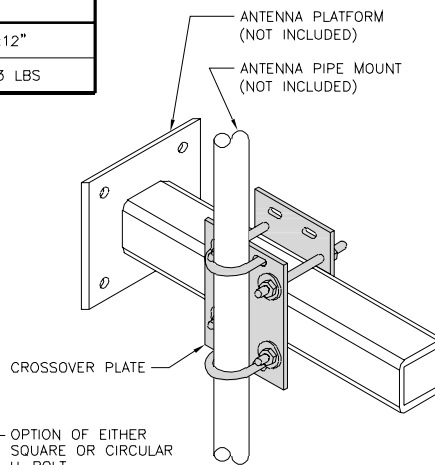
PLAN PLATE

SIDE PLATE



PLAN U-BOLT

SIDE U-BOLT



OPTION OF EITHER
SQUARE OR CIRCULAR
U-BOLT

RRH/OVP_MOUNT_DETAIL

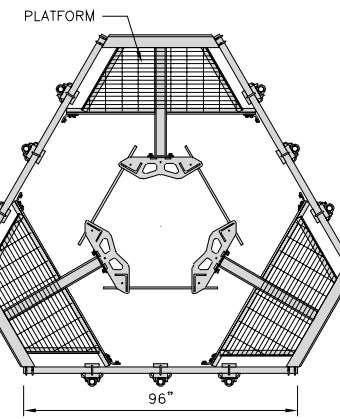
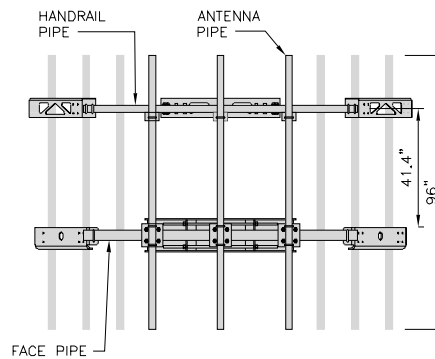
NO SCALE

8

COMMSCOPE
MC-PK8-DSH

FACE WIDTH	96"
WEIGHT	1373.08 lbs

NOTE: 15" TO 38" O.D.



ANTENNA PLATFORM_DETAIL

NO SCALE

9



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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

DRAWN BY: CHECKED BY: APPROVED BY:

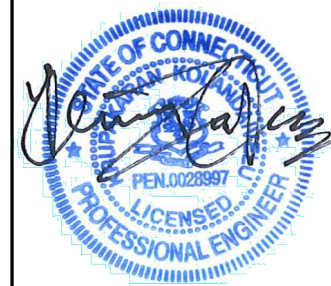
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RFDS REV #: 1

PRELIMINARY
DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	08/27/2021	ISSUED FOR REVIEW
D	08/31/2021	ISSUED FOR CONSTRUCTION



IT IS A VIOLATION OF LAW FOR ANY PERSON,
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TO ALTER THIS DOCUMENT.

A&E PROJECT NUMBER
281862-13709418

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00200A
111 SECOND HILL RD
BRIDGEWATER, CT 06752

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER

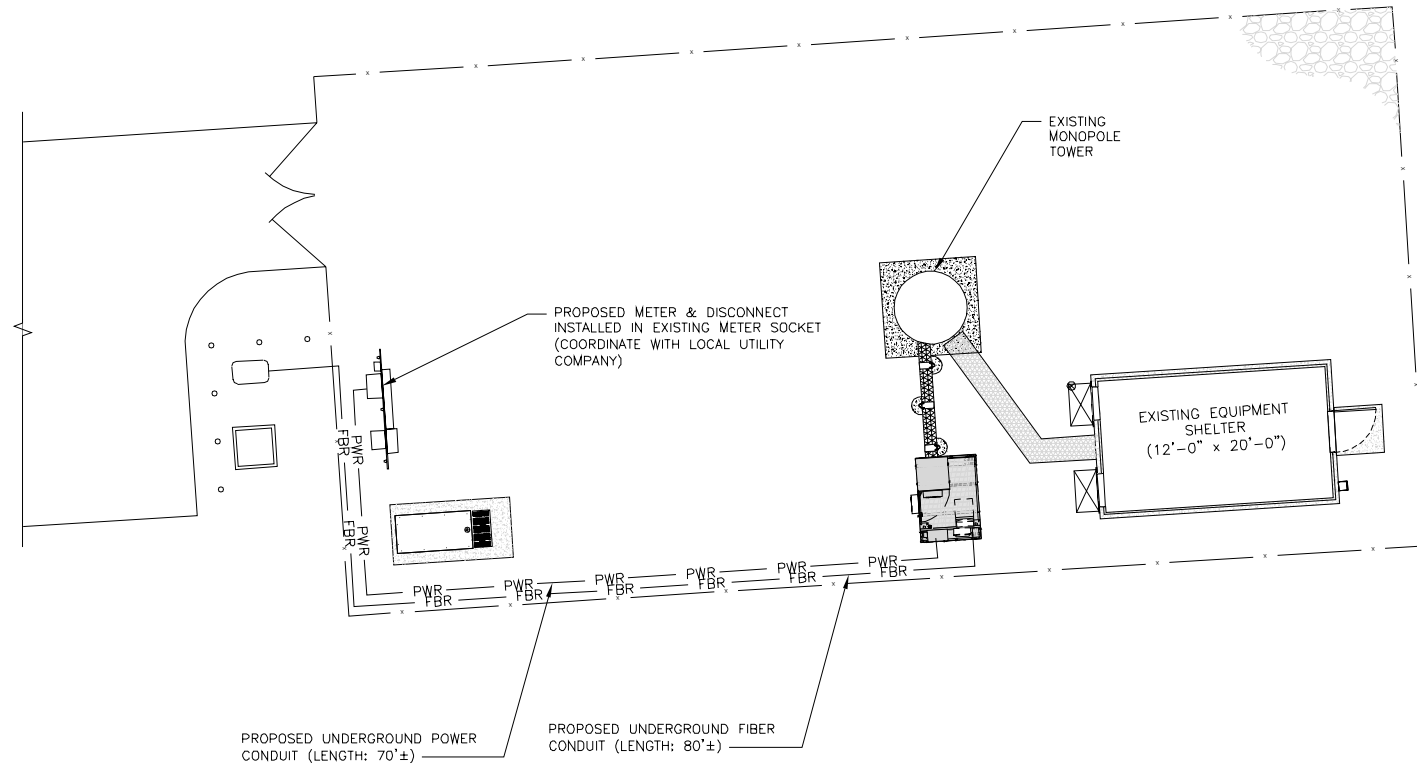
A-6

NOTES

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

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

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



ELECTRICAL NOTES

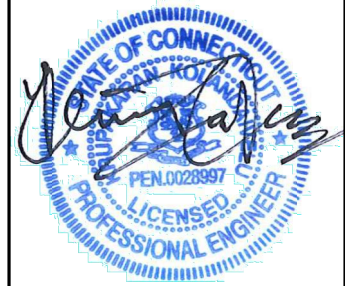
NO SCALE

2

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.

<p>PROJECT SUMMARY</p> <p>SURVEYOR'S NOTES</p> <p>ZONING INFORMATION</p> <p>LEGAL DESCRIPTION</p> <p>NOTES CORRESPONDING TO SCORE REPORT</p>	<p>1 VICINITY MAP 2 PARENT PARCEL 3 COMPOUND DETAIL</p>	<p>AMERICAN TOWER ATC TOWER SERVICES, INC. 3000 RESIDENCY PARKWAY SUITE 100 DALLAS, TX 75243 PHONE: (972) 486-1112 FAX: (972) 486-9151</p> <p>ATC SITE NUMBER: 281862</p> <p>ATC SITE NAME: BRIDGEWATER CT</p> <p>SITE ADDRESS: 111 SECOND HILL RD BRIDGEWATER, CT 06752</p> <p>LMS SURVEYING LTD 400 North Main Street New Britain, CT 06110</p> <p>DRAWN BY: LAC APPROVED BY: TEB DATE DRAWN: 8/19/2021 DATE PLOTTED: 8/19/2021</p> <p>AS-BUILT SURVEY</p> <p>SCALE: 1"=100' V-101 1</p>
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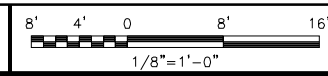
A&E PROJECT NUMBER
281862-13709418

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00200A
111 SECOND HILL RD
BRIDGEWATER, CT 06752

SHEET TITLE
ELECTRICAL/FIBER ROUTE
PLAN AND NOTES

SHEET NUMBER
E-1

UTILITY ROUTE PLAN

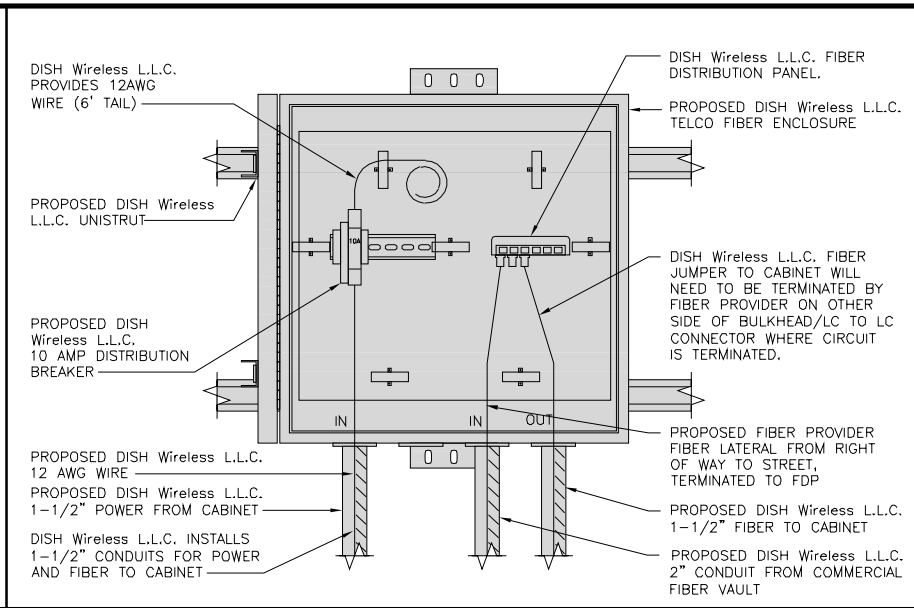
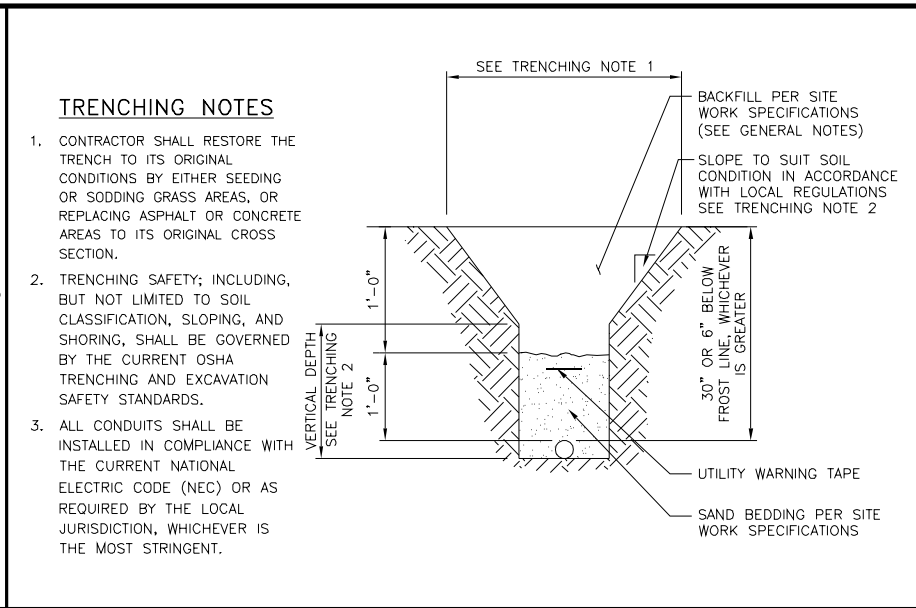
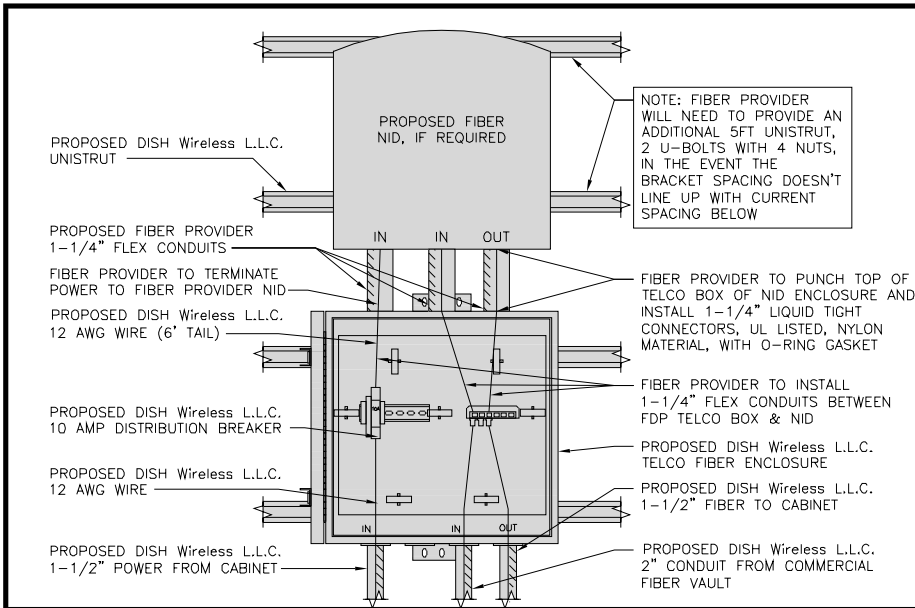


1

EXISTING SURVEY (BY OTHERS)

NO SCALE

3



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

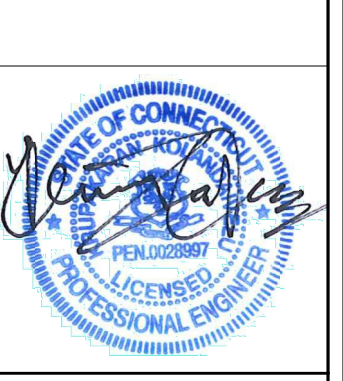
TOTALLY COMMITTED.
NB+C ENGINEERING SERVICES, LLC.
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615
(919) 657-9131

DRAWN BY:	CHECKED BY:	APPROVED BY:
NOA	BIW	BIW

RFDS REV #: 1

PRELIMINARY DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
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D	08/31/2021	ISSUED FOR CONSTRUCTION



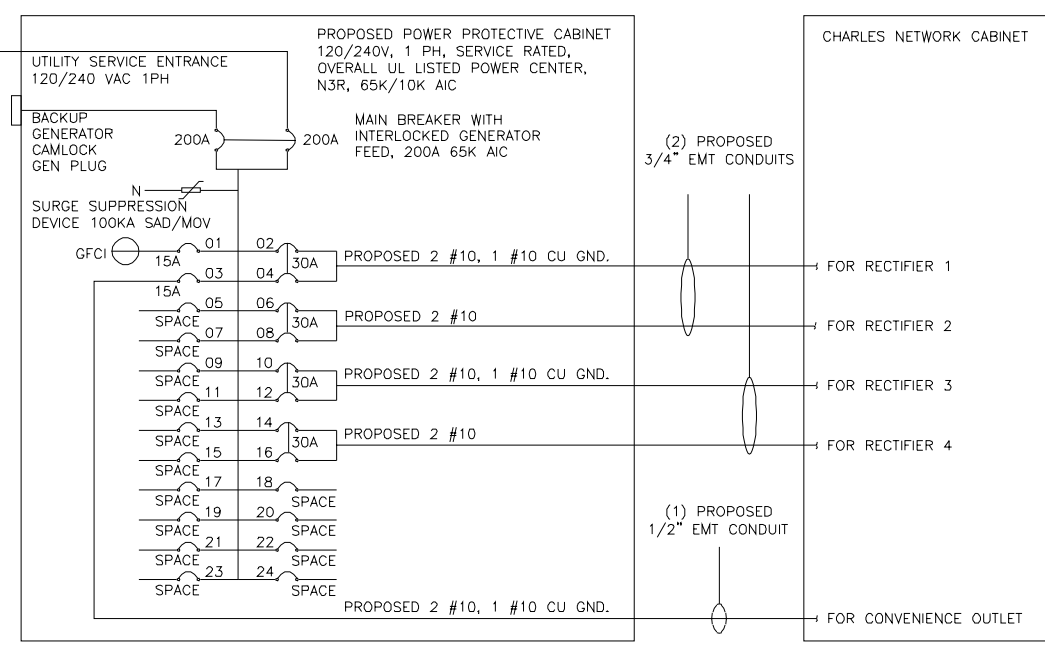
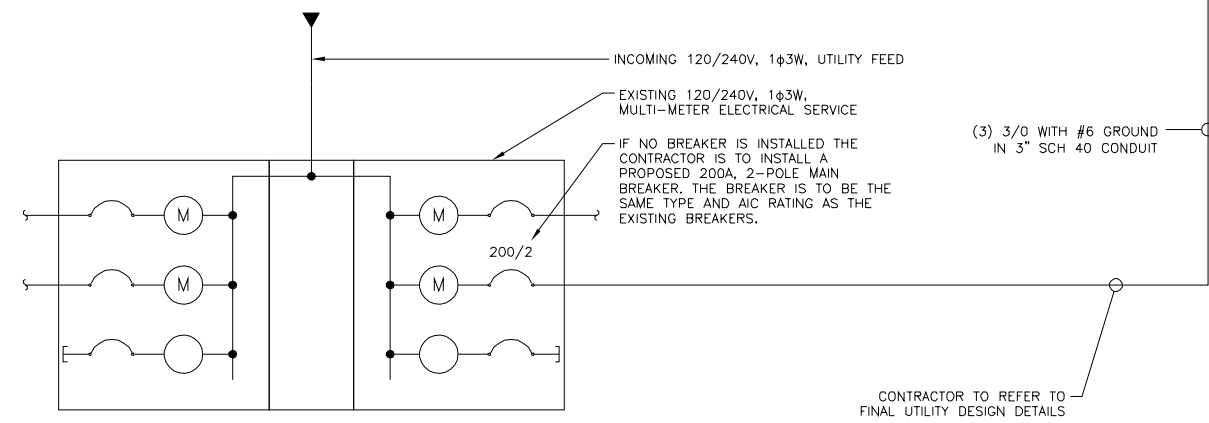
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A&E PROJECT NUMBER
281862-13709418

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00200A
111 SECOND HILL RD
BRIDGEWATER, CT 06752

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2



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

BREAKERS REQUIRED:
(4) 30A, 2P BREAKER - SQUARE D P/N:Q0230
(1) 15A, 1P BREAKER - SQUARE D P/N:Q0115

PPC ONE-LINE DIAGRAM

NO SCALE 1

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

PANEL SCHEDULE

NO SCALE 2

NOT USED

NO SCALE 3



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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

DRAWN BY: CHECKED BY: APPROVED BY:
NOA BIW BIW

RFDS REV #: 1

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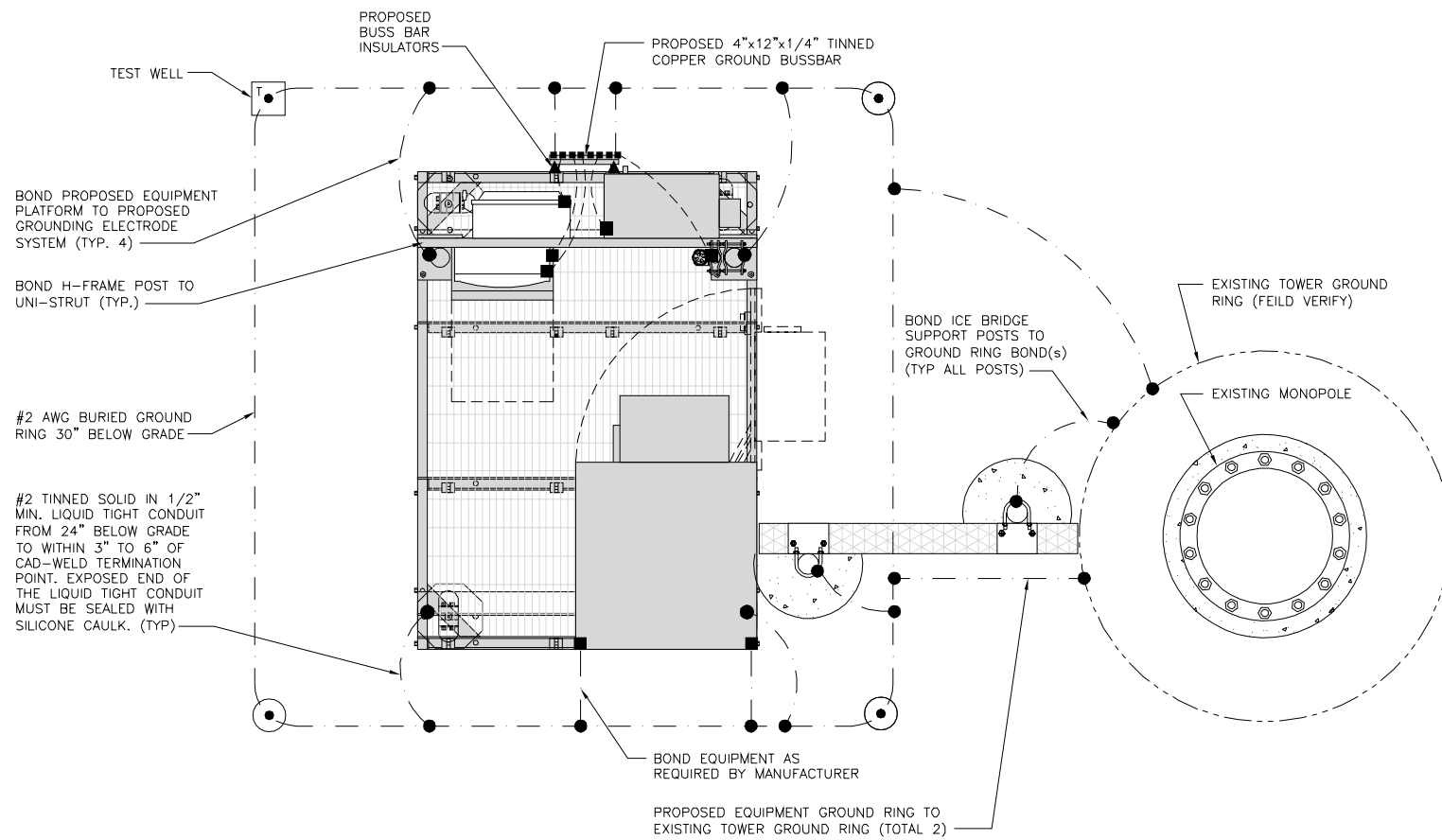
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281862-13709418

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00200A
111 SECOND HILL RD
BRIDGEWATER, CT 06752

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

SHEET NUMBER
E-3

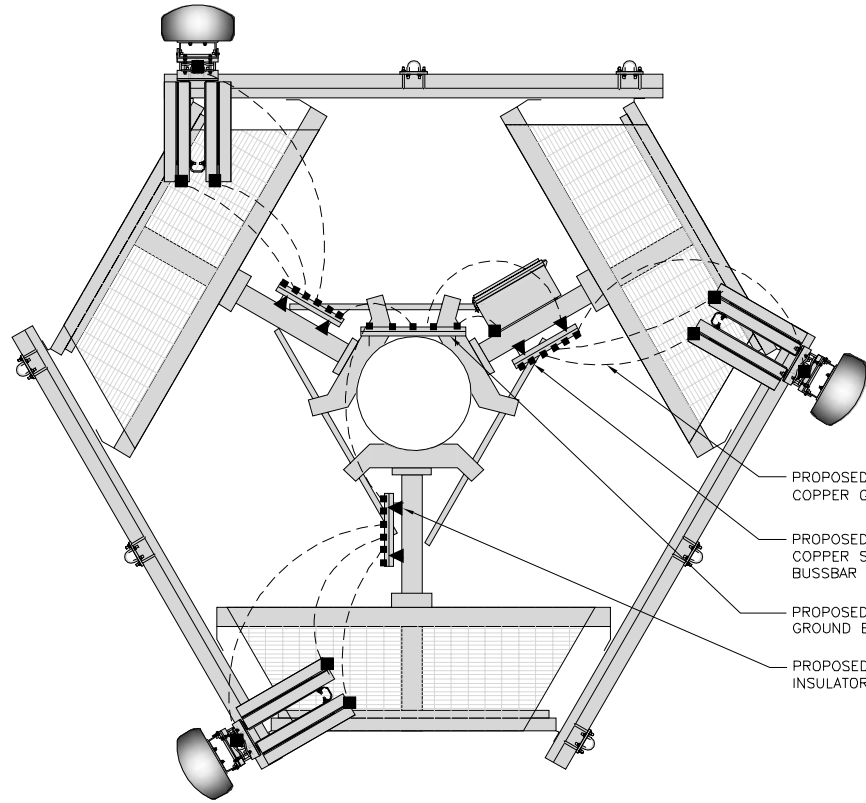


TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1

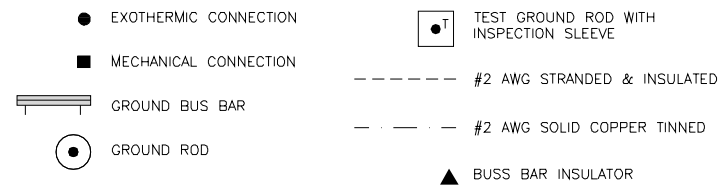
NOTES

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



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2



GROUNDING LEGEND

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

GROUNDING KEY NOTES

- (A) EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.
- (B) TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.
- (C) INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.
- (D) BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.
- (E) GROUND ROD: UL LISTED COPPER CLAD STEEL, MINIMUM 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



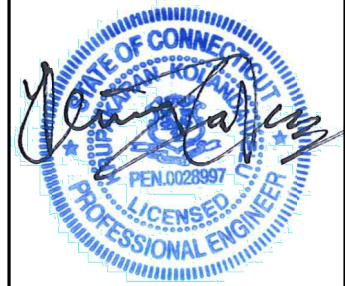
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8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615
(919) 657-9131

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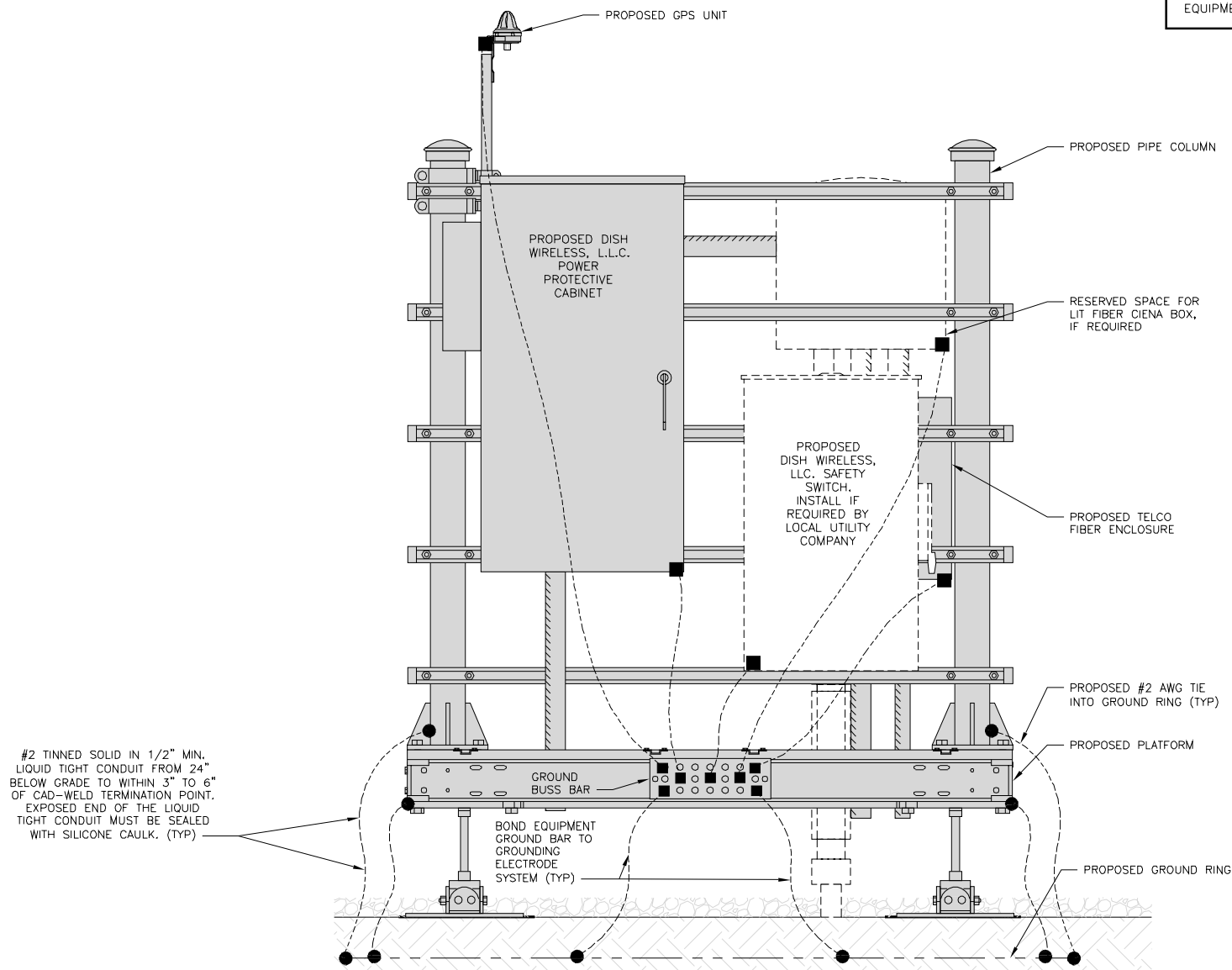
DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00200A
111 SECOND HILL RD
BRIDGEWATER, CT 06752

SHEET TITLE
GROUNDING PLANS AND NOTES

SHEET NUMBER
G-1

NOTES

EQUIPMENT CABINET OMITTED FOR CLARITY

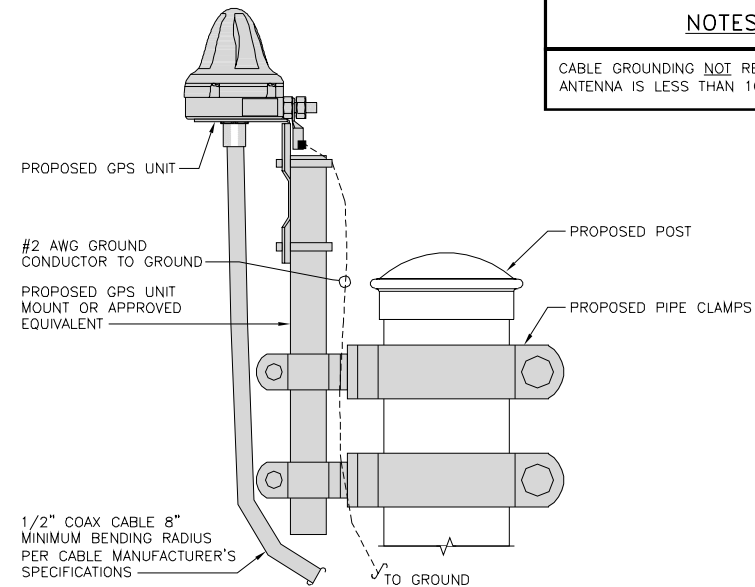


H-FRAME GROUNDING DETAIL

NO SCALE 1

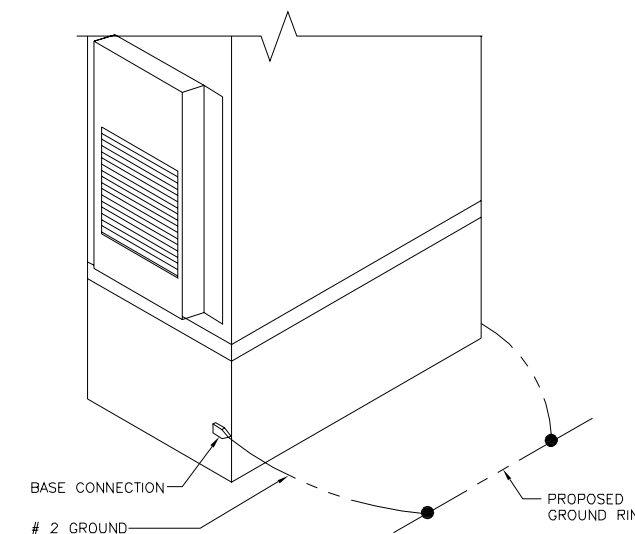
NOTES

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



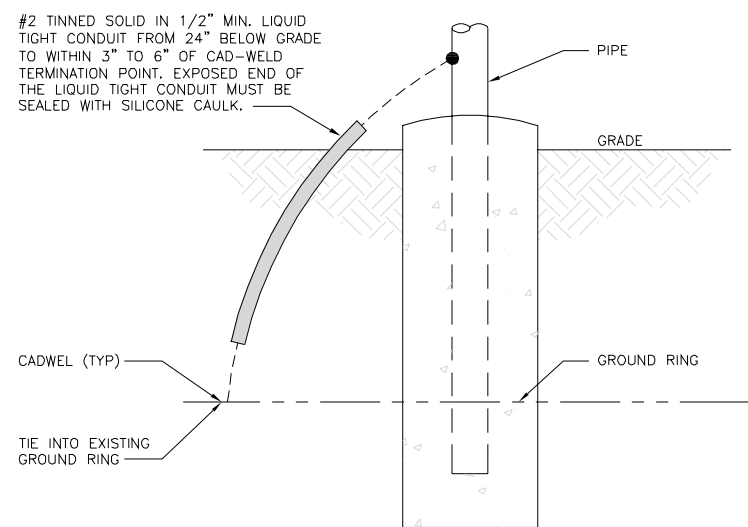
TYPICAL GPS UNIT GROUNDING

NO SCALE 2



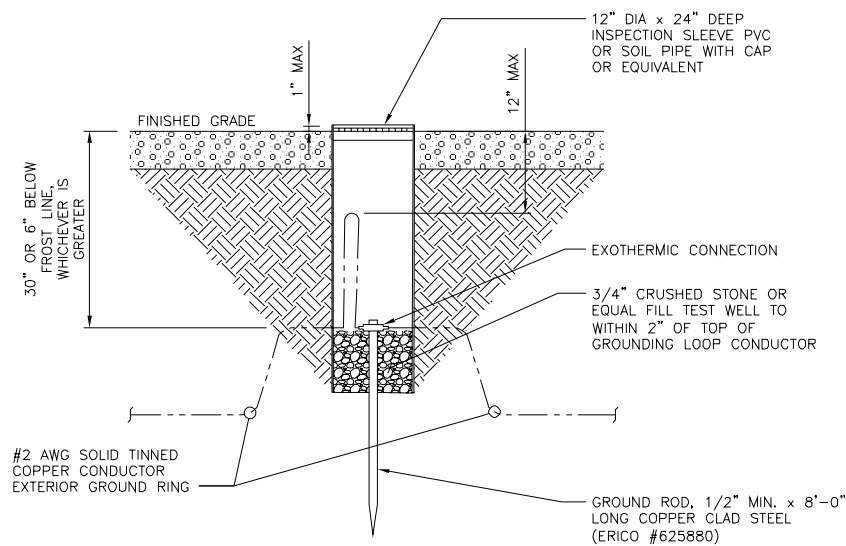
OUTDOOR CABINET GROUNDING

NO SCALE 3



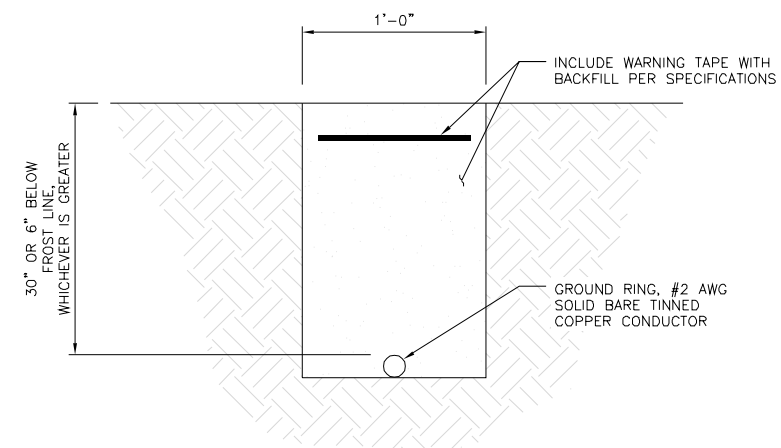
TRANSITIONING GROUND DETAIL

NO SCALE 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE

NO SCALE 5



TYPICAL GROUND RING TRENCH

NO SCALE 6

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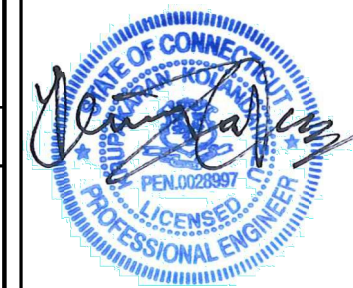
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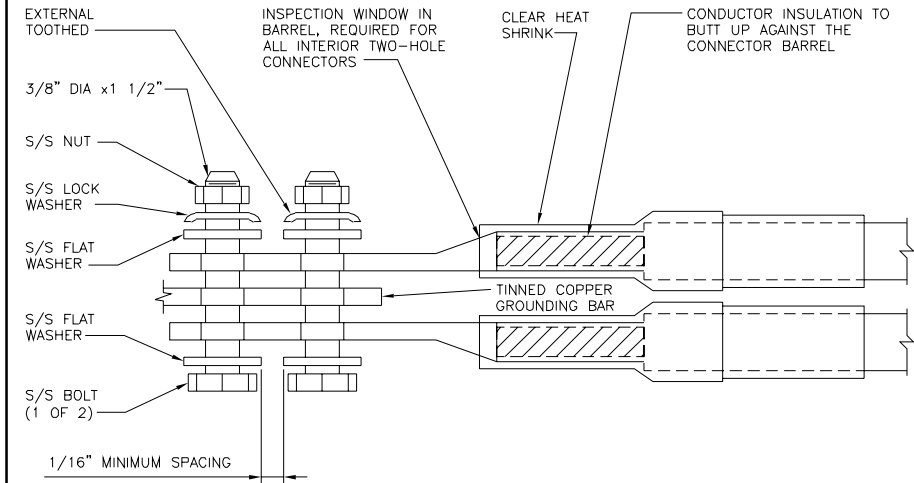
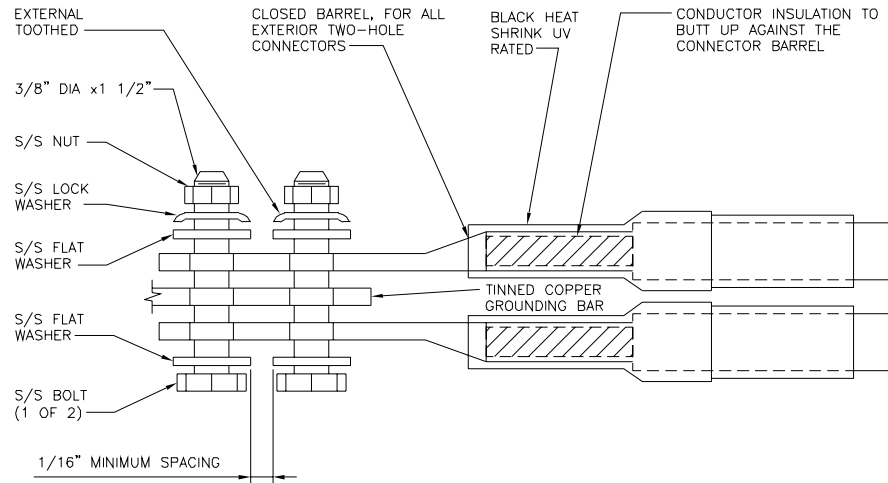
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SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER

G-2

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



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TYPICAL GROUNDING NOTES

NO SCALE

1

TYPICAL EXTERIOR TWO HOLE LUG

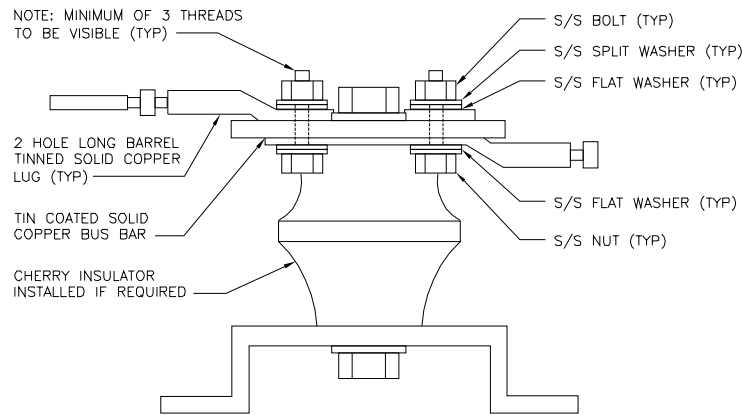
NO SCALE

2

TYPICAL INTERIOR TWO HOLE LUG

NO SCALE

3



LUG DETAIL

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9

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SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-3

RF JUMPER COLOR CODING

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

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

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

Table with 12 columns (ALPHA, BETA, GAMMA RRH) and 4 rows (PORT 1-4) showing color coding for slant and (-) ports.

MID-BAND RRH - (AWS BANDS N66+N70)

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

Table with 12 columns (ALPHA, BETA, GAMMA RRH) and 4 rows (PORT 1-4) showing color coding for slant and (-) ports.

HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS

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

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

Three examples of cable color coding: EXAMPLE 1, EXAMPLE 2, and EXAMPLE 3.

FIBER JUMPERS TO RRHs

LOW-BAND RRH FIBER CABLES HAVE SECTOR STRIPE ONLY

Table showing color coding for low band and high band fiber jumpers to RRHs.

POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY

Table showing color coding for low band and high band power cables to RRHs.

RET MOTORS AT ANTENNAS

Table showing color coding for antenna 1 low band and high band return motors.

MICROWAVE RADIO LINKS

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

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

Table showing color coding for microwave radio links based on forward azimuth (0-120, 120-240, 240-360 degrees).

RF CABLE COLOR CODES

NO SCALE

1

LOW BANDS (N71+N26) OPTIONAL - (N29)



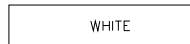
CBRS TECH (3 GHz)



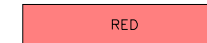
AWS (N66+N70+H-BLOCK)



NEGATIVE SLANT PORT ON ANT/RRH



ALPHA SECTOR



BETA SECTOR



GAMMA SECTOR



COLOR IDENTIFIER

NO SCALE

2

NOT USED

NO SCALE

3

NOT USED

NO SCALE

4



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Table with columns: REV, DATE, DESCRIPTION. Shows revision history.



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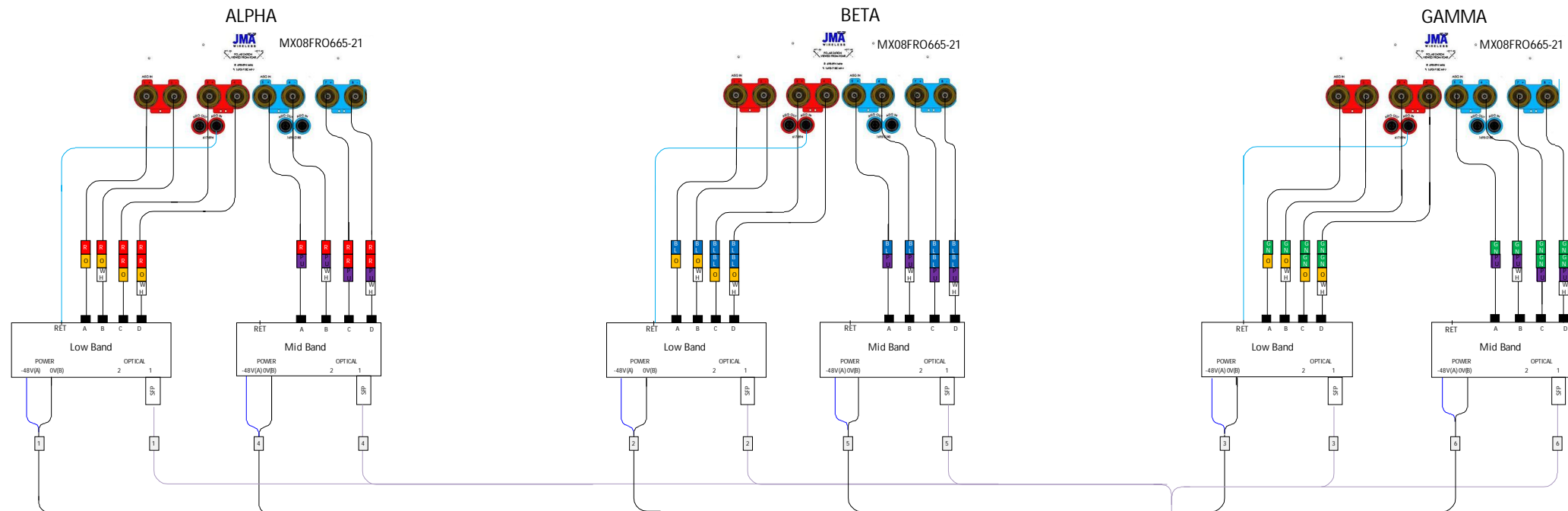
A&E PROJECT NUMBER 281862-13709418

DISH WIRELESS, L.L.C. PROJECT INFORMATION BOHVN00200A 111 SECOND HILL RD BRIDGEWATER, CT 06752

SHEET TITLE RF CABLE COLOR CODES

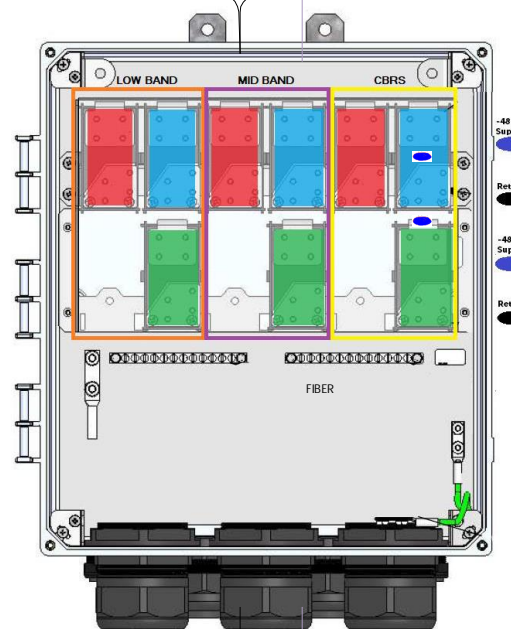
SHEET NUMBER

RF-1



Fiber Patch Panel

Bottom Row	Pair 1	Pair 2	Pair 3	Pair 10	Open	Open
Middle Row	Pair 4	Pair 5	Pair 6	Pair 11	Open	Open
Top Row	Pair 7	Pair 8	Pair 9	Pair 12	Open	Open



CSR NCS540

Port	Interface	Description
0	Gi0/0/0/0	SiteBoss
1	Gi0/0/0/1	CBRS - Alpha
2	Gi0/0/0/2	CBRS - Beta
3	Gi0/0/0/3	CBRS - Gamma
4	Te0/0/0/4	Fujitsu Low-Band RU - Alpha
5	Te0/0/0/5	Fujitsu Mid-Band RU - Alpha
6	Te0/0/0/6	Fujitsu Low-Band RU - Beta
7	Te0/0/0/7	Fujitsu Mid-Band RU - Beta
8	Te0/0/0/8	Fujitsu Low-Band RU - Gamma
9	Te0/0/0/9	Fujitsu Mid-Band RU - Gamma
10	Te0/0/0/10	Fixed Wifi
11	Te0/0/0/11	Fixed Wifi
12	Te0/0/0/12	Fixed Wifi
13	Te0/0/0/13	Fixed Wifi
14	Te0/0/0/14	CBRS1
15	Te0/0/0/15	CBRS2
16	Te0/0/0/16	CBRS3
17	Gi0/0/0/17	SM1 - BMC
18	Gi0/0/0/18	SM2 - BMC
19	Te0/0/0/19	SM1 - Data 1
20	Te0/0/0/20	SM1 - Data 2
21	Te0/0/0/21	SM2 - Data 1
22	Te0/0/0/22	SM2 - Data 2
23	Te0/0/0/23	Reserved Uplink (EDC, LDC)
24	Te0/0/0/24	Blank/Future
25	Te0/0/0/25	Blank/Future
26	Te0/0/0/26	Fiber NIU
27	Te0/0/0/27	Fiber NIU
28	Te0/0/0/28	Blank/Future
29	Te0/0/0/29	Blank/Future

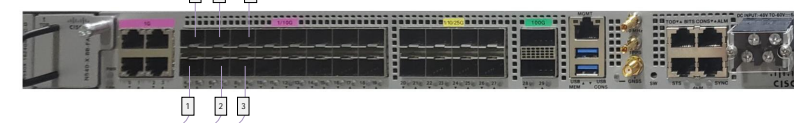
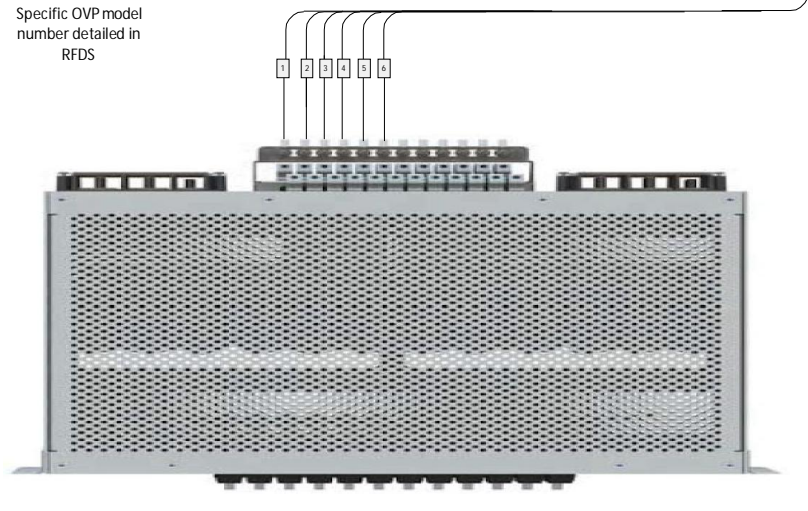
top

bottom

Bottom OVP Layout

Circuit 1	Alpha Low Band
Circuit 2	Beta Low Band
Circuit 3	Gamma Low Band
Circuit 4	Alpha Mid Band
Circuit 5	Beta Mid Band
Circuit 6	Gamma Mid Band
Circuit 7	Alpha CBRS
Circuit 8	Beta CBRS
Circuit 9	Gamma CBRS
Circuit 10	Open
Circuit 11	Open
Circuit 12	Open

Bottom OVP
Specific OVP model
number detailed in
RFDS



	5G plumbing diagram JMA MX08FRO665-21 2-2-2(LB+MB)			
	Qian Liu	SIZE	FSM/NO	DWG/NO
5-Jan-2021	SCALE	None	SHEET	3

PLUMBING DIAGRAM

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PROJECT INFORMATION
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111 SECOND HILL RD
BRIDGEWATER, CT 06752

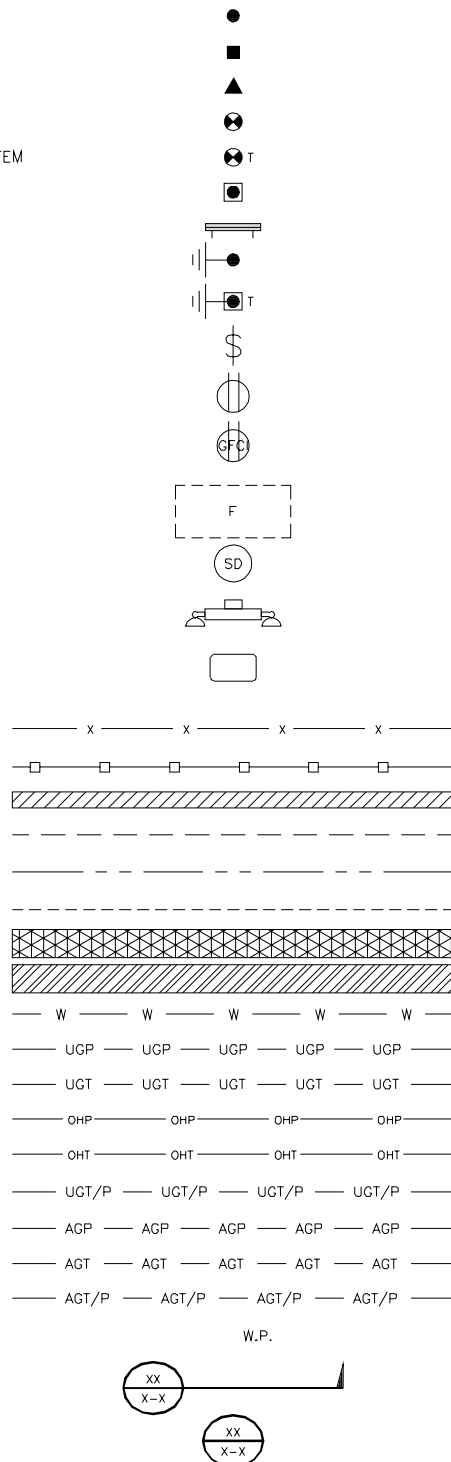
SHEET TITLE

RF
PLUMBING DIAGRAM

SHEET NUMBER

RF-2

EXOTHERMIC CONNECTION
 MECHANICAL CONNECTION
 BUSS BAR INSULATOR
 CHEMICAL ELECTROLYTIC GROUNDING SYSTEM
 TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM
 EXOTHERMIC WITH INSPECTION SLEEVE
 GROUNDING BAR
 GROUND ROD
 TEST GROUND ROD WITH INSPECTION SLEEVE
 SINGLE POLE SWITCH
 DUPLEX RECEPTACLE
 DUPLEX GFCI RECEPTACLE
 FLUORESCENT LIGHTING FIXTURE
 (2) TWO LAMPS 48-T8
 SMOKE DETECTION (DC)
 EMERGENCY LIGHTING (DC)
 SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW
 LED-1-25A400/51K-SR4-120-PE-DEBTD



LEGEND

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

ABBREVIATIONS



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SHEET TITLE
 LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH WIRELESS, L.L.C. AND TOWER OWNER NOC & THE DISH WIRELESS, L.L.C. AND TOWER OWNER CONSTRUCTION MANAGER.
2. "LOOK UP" – DISH WIRELESS, L.L.C. AND TOWER OWNER SAFETY CLIMB REQUIREMENT:
THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR DISH WIRELESS, L.L.C. AND DISH WIRELESS, L.L.C. AND TOWER OWNER POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND DISH WIRELESS, L.L.C. AND TOWER OWNER STANDARDS, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA-322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH DISH WIRELESS, L.L.C. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH WIRELESS, L.L.C. AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH WIRELESS, L.L.C. AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF DISH WIRELESS, L.L.C. AND TOWER OWNER, AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS AND RADIOS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

- 1.FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
CARRIER:DISH WIRELESS, L.L.C.
TOWER OWNER:TOWER OWNER
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CARRIER POC AND TOWER OWNER.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF DISH WIRELESS, L.L.C. AND TOWER OWNER
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.



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RFDS REV #: 1

PRELIMINARY DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/27/2021	ISSUED FOR REVIEW
D	08/31/2021	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
281862-13709418

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00200A
111 SECOND HILL RD
BRIDGEWATER, CT 06752

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
- UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
- CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.
- ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
 #4 BARS AND SMALLER 40 ksi
 #5 BARS AND LARGER 60 ksi
- THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
 - CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
 - CONCRETE EXPOSED TO EARTH OR WEATHER:
 - #6 BARS AND LARGER 2"
 - #5 BARS AND SMALLER 1-1/2"
 - CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
 - SLAB AND WALLS 3/4"
 - BEAMS AND COLUMNS 1-1/2"
- A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
- CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
 - ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
 - ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
- EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
- ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
- PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
- TIE WRAPS ARE NOT ALLOWED.
- ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
- ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

- ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
- WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECIMATE WIREWAY).
- SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
- CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
- EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3 (OR BETTER) FOR EXTERIOR LOCATIONS.
- METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
- NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
- THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR DISH WIRELESS, L.L.C. AND TOWER OWNER BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
- THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
- INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "DISH WIRELESS, L.L.C."
- ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.



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NOA	BIW	BIW

RFDS REV #: 1

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A&E PROJECT NUMBER
281862-13709418

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00200A
111 SECOND HILL RD
BRIDGEWATER, CT 06752

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-3

GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUND AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). DO NOT ATTACH GROUNDING TO FIRE SPRINKLER SYSTEM PIPES.

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
2. STRUCTURAL STEEL ROLLED SHAPES, PLATES AND BARS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:
 - A. ASTM A-572, GRADE 50 - ALL W SHAPES, UNLESS NOTED OR A992 OTHERWISE
 - B. ASTM A-36 - ALL OTHER ROLLED SHAPES, PLATES AND BARS UNLESS NOTED OTHERWISE.
 - C. ASTM A-500, GRADE B - HSS SECTION (SQUARE, RECTANGULAR, AND ROUND)
 - D. ASTM A-325, TYPE SC OR N - ALL BOLTS FOR CONNECTING STRUCTURAL MEMBERS
 - E. ASTM F-1554 07 - ALL ANCHOR BOLTS, UNLESS NOTED OTHERWISE
3. ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
4. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.
5. DO NOT DRILL HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
6. CONNECTIONS:
 - A. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
 - B. ALL WELDS SHALL BE INSPECTED VISUALLY. 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.
 - C. INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
 - D. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE BURNING/WELDING PERMITS AS REQUIRED BY LOCAL GOVERNING AUTHORITY AND IF REQUIRED SHALL HAVE FIRE DEPARTMENT DETAIL FOR ANY WELDING ACTIVITY.
 - E. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.
 - F. MINIMUM WELD SIZE TO BE 0.1875 INCH FILLET WELDS, UNLESS NOTED OTHERWISE.
 - G. PRIOR TO FIELD WELDING GALVANIZING MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING 1/2" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.
 - H. THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE REQUIRED DURING CONSTRUCTION UNTIL ALL CONNECTIONS ARE COMPLETE.
 - I. ANY FIELD CHANGES OR SUBSTITUTIONS SHALL HAVE PRIOR APPROVAL FROM THE ENGINEER, AND DISH WIRELESS L.L.C. PROJECT MANAGER IN WRITING



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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

DRAWN BY:	CHECKED BY:	APPROVED BY:
NOA	BIW	BIW

RFDS REV #: 1

PRELIMINARY DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	08/27/2021	ISSUED FOR REVIEW
D	08/31/2021	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
281862-13709418

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOHVN00200A
111 SECOND HILL RD
BRIDGEWATER, CT 06752

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-4

ENGINEERING DRAWINGS

ENGINEERING:
STRUCTURAL ANALYSIS
MOUNT ANALYSIS



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 160 ft Monopole
ATC Site Name : BRIDGEWATER CT,CT
ATC Site Number : 281862
Engineering Number : 13709418_C3_02
Proposed Carrier : DISH WIRELESS L.L.C.
Carrier Site Name : BOHVN00200A
Carrier Site Number : BOHVN00200A
Site Location : 111 SECOND HILL RD
BRIDGEWATER, CT 06752-1017
41.555, -73.3709
County : Litchfield
Date : August 20, 2021
Max Usage : 80%
Result : Pass

Prepared By:

Faisal Wakid
Structural Engineer

Faisal Wakid

Reviewed By:



COA : PEC.0001553



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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 160 ft Monopole to reflect the change in loading by DISH WIRELESS L.L.C..

Supporting Documents

Tower Drawings	TransAmerican Job #23513-0649, dated November 12, 2013
Foundation Drawing	TransAmerican Job #23513-0649, dated November 12, 2013
Geotechnical Report	Clarence Welti Associates Project - AT&T Tower Site #1252, dated September 10, 2013

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.

Basic Wind Speed:	115 mph (3-second gust)
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.00" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Risk Category:	II
Topographic Factor Procedure:	Method 2
Crest Height (H):	211 ft
Crest Length (L):	1340 ft
Spectral Response:	$S_s = 0.20$, $S_i = 0.06$
Site Class:	D - Stiff Soil - Default

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. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
156.0	4	Raycap DC6-48-60-18-8F	Triangular Platform with Handrails	(2) 0.39" (10mm) Fiber Trunk (10) 0.78" (19.7mm) 8 AWG 6 (6) 3" conduit (3) 3/8" (0.38"-9.5mm) RET Control Cable	AT&T MOBILITY
	3	Ericsson RRUS 4478 B14 (15")			
	3	Ericsson RRUS 4449 B5, B12			
	6	CCI DMP65R-BU8D			
	3	Ericsson RRUS 32 B2			
	6	CCI HPA-65R-BUU-H8			
	3	Ericsson RRUS 11 (Band 12) (55 lb)			

Equipment to be Removed

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
No loading was considered as removed as part of this analysis.					

Proposed Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
145.0	1	Commscope RDIDC-9181-PF-48	Triangular Platform with Handrails	(1) 1.60" (40.6mm) Hybrid	DISH WIRELESS L.L.C.
	3	Fujitsu TA08025-B604			
	3	Fujitsu TA08025-B605			
	3	JMA Wireless MX08FRO665-21			

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

Install proposed lines inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	80%	Pass
Shaft	74%	Pass
Base Plate	31%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	3494.3	45%
Axial (Kips)	45.6	46%
Shear (Kips)	33.5	27%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection, Twist and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
145.0	Commscope RDIDC-9181-PF-48	DISH WIRELESS L.L.C.	1.823	1.580
	JMA Wireless MX08FRO665-21			
	Fujitsu TA08025-B605			
	Fujitsu TA08025-B604			

*Deflection, Twist and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-H

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.

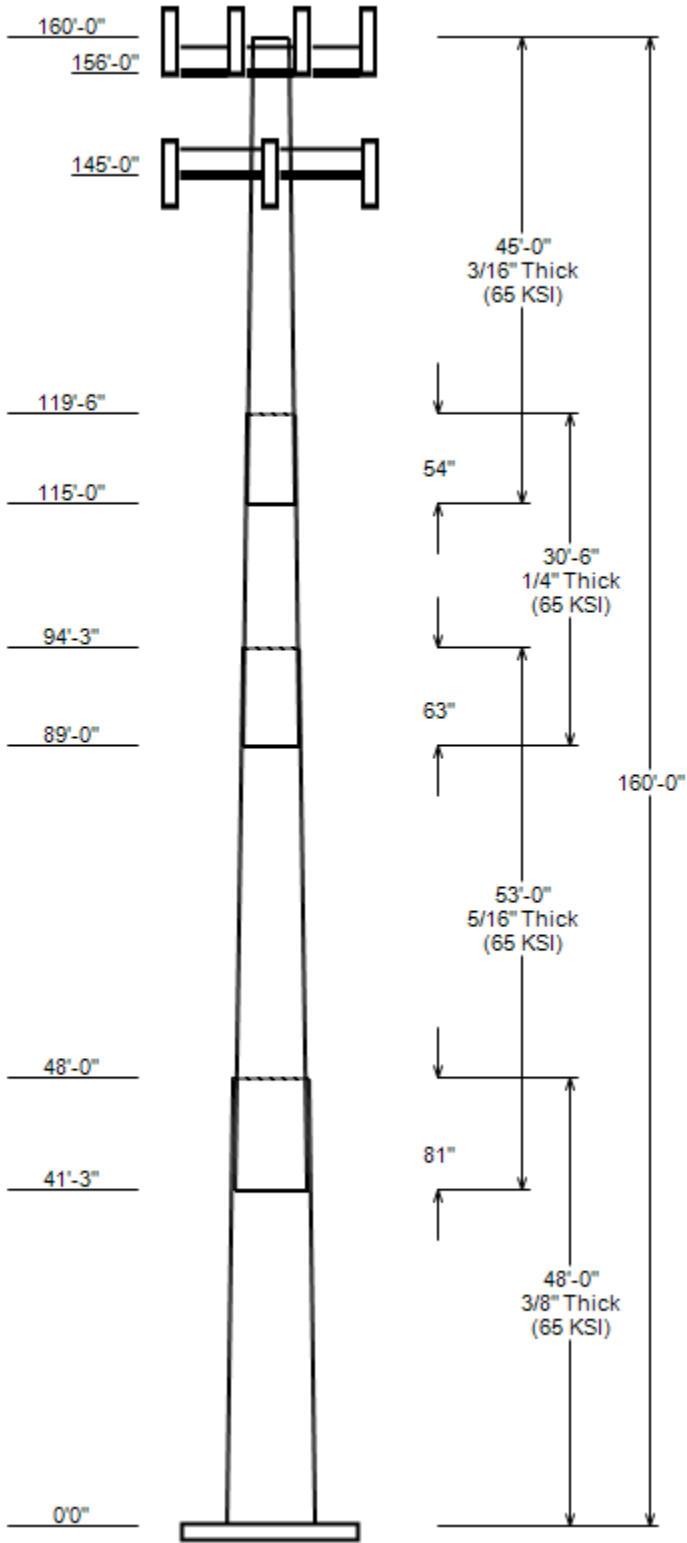
Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

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.

JOB INFORMATION

Asset : 281862, BRIDGEWATER CT
 Client : DISH WIRELESS L.L.C.
 Code : ANSI/TIA-222-H

Height : 160 ft
 Base Width : 58.5
 Shape : 18 Sides



SITE PARAMETERS

Base Elev (ft): 0.00 Structure Class: II
 Taper : 0.25000 (In/ft) Exposure : C
 Topographic Category : 0 Topographic Feature: Hill
 Topo Method : Method 2

SECTION PROPERTIES

Shaft Section	Length (ft)	Diameter (in)		Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
		Across Flats Top	Across Flats Bottom					
1	48.000	46.50	58.50	0.375		0.000	18 Sides	65
2	53.000	35.56	48.81	0.312	Slip Joint	81.000	18 Sides	65
3	30.500	29.75	37.38	0.250	Slip Joint	63.000	18 Sides	65
4	45.000	20.00	31.25	0.188	Slip Joint	54.000	18 Sides	65

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
156.0	155.6	4	Raycap DC6-48-60-18-8F
156.0	156.9	3	Ericsson RRUS 4478 B14 (15")
156.0	156.6	3	Ericsson RRUS 4449 B5, B12
156.0	158.0	3	Ericsson RRUS 11 (Band 12) (55
156.0	156.8	3	Ericsson RRUS 32 B2
156.0	156.8	6	CCI HPA-65R-BUU-H8
156.0	156.6	6	CCI DMP65R-BU8D
156.0	156.0	1	Round Platform w/ Handrails
145.0	145.0	1	Commscope RDIDC-9181-PF-48
145.0	145.0	3	Fujitsu TA08025-B604
145.0	145.0	3	Fujitsu TA08025-B605
145.0	145.0	3	JMA Wireless MX08FRO665-21
145.0	145.0	1	Generic Flat Platform with Han

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	156.0	3/8" (0.38"- 9.5mm) RET Control Cable	No
0.0	156.0	3" conduit	No
0.0	156.0	0.78" (19.7mm) 8 AWG 6	No
0.0	156.0	0.78" (19.7mm) 8 AWG 6	No
0.0	156.0	0.39" (10mm) Fiber Trunk	No
0.0	145.0	1.60" (40.6mm) Hybrid	No

LOAD CASES

1.2D + 1.0W Normal	115 mph wind with no ice
0.9D + 1.0W Normal	115 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Nor	50 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh Nor	Seismic
0.9D - 1.0Ev + 1.0Eh Nor	Seismic (Reduced DL)
1.0D + 1.0W Service Norm	60 mph Wind with No Ice

REACTIONS

Load Case	Moment (kip-ft)	Shear (Kip)	Axial (Kip)
1.2D + 1.0W Normal	3494.31	33.48	45.64
0.9D + 1.0W Normal	3456.36	33.46	34.22
1.2D + 1.0Di + 1.0Wi Normal	1018.24	10.04	60.38
1.2D + 1.0Ev + 1.0Eh Normal	151.08	1.14	45.52
0.9D - 1.0Ev + 1.0Eh Normal	148.96	1.14	31.42
1.0D + 1.0W Service Normal	846.11	8.15	38.07

DISH DEFLECTIONS

Load Case	Attach	Deflection	Rotation
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JOB INFORMATION

Asset : 281862, BRIDGEWATER CT
Client : DISH WIRELESS L.L.C.
Code : ANSI/TIA-222-H

Height : 160 ft
Base Width : 58.5
Shape : 18 Sides

Elev (ft) (in) (deg)

ASSET: 281862, BRIDGEWATER CT
CUSTOMER: DISH WIRELESS L.L.C.

CODE: ANSI/TIA-222-H
ENG NO: 13709418_C3_02

ANALYSIS PARAMETERS

Location:	Litchfield County,CT	Height:	160 ft
Type and Shape:	Taper, 18 Sides	Base Diameter:	58.50 in
Manufacturer:	Undetermined	Top Diameter:	20.00 in
K _d (non-service):	0.95	Taper:	0.2500 in/ft
K _e :	0.97	Rotation:	0.000°

ICE & WIND PARAMETERS

Exposure Category:	C	Design Wind Speed w/o Ice:	115 mph
Risk Category:	II	Design Wind Speed w/Ice:	50 mph
Topo Factor Procedure:	Method 2	Operational Wind Speed:	60 mph
		Design Ice Thickness:	1.00 in
		HMSL:	908.00 ft
Crest Height(H):	211 ft	Distance from Apex (x):	50 ft
Crest Length(L):	1340 ft	Upwind/Downwind:	Upwind
Feature:	Hill		

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method		
Site Class:	D - Stiff Soil	Period Based on Rayleigh Method (sec):	2.42
T _L (sec):	6	P:	1
S _s :	0.199	S ₁ :	0.055
F _a :	1.600	F _v :	2.400
S _{ds} :	0.212	S _{d1} :	0.088
		C _s :	0.030
		C _s Max:	0.030
		C _s Min:	0.030

LOAD CASES

1.2D + 1.0W Normal	115 mph wind with no ice
0.9D + 1.0W Normal	115 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Normal	50 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh Normal	Seismic
0.9D - 1.0Ev + 1.0Eh Normal	Seismic (Reduced DL)
1.0D + 1.0W Service Normal	60 mph Wind with No Ice

ASSET: 281862, BRIDGEWATER CT
 CUSTOMER: DISH WIRELESS L.L.C.

CODE: ANSI/TIA-222-H
 ENG NO: 13709418_C3_02

SHAFT SECTION PROPERTIES

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint len (in)	Bottom							Top						
						Weight (lb)	Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-18	48.00	0.3750	65		0.00	10,133	58.50	0.000	69.18	29,530.1	25.74	156.00	46.50	48.00	54.90	14,756.5	20.10	124.00	0.2500
2-18	53.00	0.3125	65	Slip	81.00	7,490	48.81	41.250	48.10	14,296.2	25.78	156.20	35.56	94.25	34.96	5,488.7	18.30	113.80	0.2500
3-18	30.50	0.2500	65	Slip	63.00	2,743	37.38	89.000	29.46	5,129.6	24.60	149.50	29.75	119.50	23.41	2,573.7	19.22	119.00	0.2500
4-18	45.00	0.1875	65	Slip	54.00	2,318	31.25	115.000	18.49	2,253.5	27.62	166.67	20.00	160.00	11.79	584.7	17.04	106.67	0.2500

Shaft Weight 22,684

DISCRETE APPURTENANCE PROPERTIES

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice			Ice		
					Weight (lb)	EPAA (sf)	Orientation Factor	Weight (lb)	EPAA (sf)	Orientation Factor
156.00	Ericsson RRUS 4478 B14 (15")	3	0.75	0.900	59.40	1.650	0.50	95.59	2.267	0.50
156.00	CCI DMP65R-BU8D	6	0.75	0.600	95.70	17.871	0.63	343.21	20.555	0.63
156.00	CCI HPA-65R-BUU-H8	6	0.75	0.800	68.00	12.976	0.67	255.12	15.583	0.67
156.00	Ericsson RRUS 32 B2	3	0.75	0.800	53.00	2.743	0.67	106.56	3.595	0.67
156.00	Ericsson RRUS 11 (Band 12) (55	3	0.75	2.000	55.00	2.522	0.67	104.00	3.279	0.67
156.00	Raycap DC6-48-60-18-8F	4	0.75	-0.400	20.00	1.260	1.00	58.34	1.739	1.00
156.00	Round Platform w/ Handrails	1	1.00	0.000	2000.00	27.200	1.00	2943.63	45.001	1.00
156.00	Ericsson RRUS 4449 B5, B12	3	0.75	0.600	71.00	1.969	0.50	117.93	2.648	0.50
145.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	3790.49	57.635	1.00
145.00	JMA Wireless MX08FRO665-21	3	0.75	0.000	64.50	12.489	0.64	251.21	14.530	0.64
145.00	Fujitsu TA08025-B605	3	0.75	0.000	75.00	1.962	0.50	120.51	2.630	0.50
145.00	Fujitsu TA08025-B604	3	0.75	0.000	63.90	1.962	0.50	106.26	2.630	0.50
145.00	Commscope RDIDC-9181-PF-48	1	0.75	0.000	21.90	1.867	1.00	63.24	2.521	1.00
Totals	Num Loadings: 13	40			6,909.50			13,326.88		

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg) : _

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Max Flat	Coax/ Row	Dist Between Rows (in)	Dist Between Cols (in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	156.00	8	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	156.00	6	3" conduit	3.5	7.58	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	156.00	3	3/8" (0.38"- 9.5mm) R	0.38	0.23	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	156.00	2	0.39" (10mm) Fiber Tr	0.39	0.06	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	156.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	145.00	1	1.60" (40.6mm) Hybrid	1.6	2.34	N	0	0	0	0	0	N	DISH WIRELESS

ASSET: 281862, BRIDGEWATER CT
 CUSTOMER: DISH WIRELESS L.L.C.

CODE: ANSI/TIA-222-H
 ENG NO: 13709418_C3_02

SEGMENT PROPERTIES

(Max Len: 5.ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in ³)	Z (in ³)	Weight (lb)
0.00		0.3750	58.500	69.181	29,530.10	25.74	156.00	71.1	994.2	0.0	0.0
5.00		0.3750	57.250	67.693	27,665.60	25.16	152.67	71.8	951.8	0.0	1,164.4
10.00		0.3750	56.000	66.205	25,881.30	24.57	149.33	72.5	910.3	0.0	1,139.1
15.00		0.3750	54.750	64.718	24,175.40	23.98	146.00	73.2	869.7	0.0	1,113.8
20.00		0.3750	53.500	63.230	22,546.20	23.39	142.67	73.9	830.0	0.0	1,088.4
25.00		0.3750	52.250	61.742	20,991.80	22.80	139.33	74.6	791.3	0.0	1,063.1
30.00		0.3750	51.000	60.254	19,510.60	22.22	136.00	75.3	753.5	0.0	1,037.8
35.00		0.3750	49.750	58.766	18,100.80	21.63	132.67	76	716.6	0.0	1,012.5
40.00		0.3750	48.500	57.279	16,760.50	21.04	129.33	76.7	680.7	0.0	987.2
41.25	Bot - Section 2	0.3750	48.188	56.907	16,436.10	20.89	128.50	76.8	671.8	0.0	242.8
45.00		0.3750	47.250	55.791	15,488.10	20.45	126.00	77.3	645.6	0.0	1,326.9
48.00	Top - Section 1	0.3125	47.125	46.430	12,855.20	24.83	150.80	72.2	537.3	0.0	1,042.8
50.00		0.3125	46.625	45.935	12,447.70	24.54	149.20	72.5	525.8	0.0	314.3
55.00		0.3125	45.375	44.695	11,466.70	23.84	145.20	73.4	497.7	0.0	771.0
60.00		0.3125	44.125	43.455	10,538.70	23.13	141.20	74.2	470.4	0.0	749.9
65.00		0.3125	42.875	42.215	9,662.20	22.43	137.20	75	443.9	0.0	728.8
70.00		0.3125	41.625	40.975	8,835.70	21.72	133.20	75.8	418.1	0.0	707.7
75.00		0.3125	40.375	39.736	8,057.70	21.02	129.20	76.7	393.1	0.0	686.6
80.00		0.3125	39.125	38.496	7,326.70	20.31	125.20	77.5	368.8	0.0	665.5
85.00		0.3125	37.875	37.256	6,641.40	19.61	121.20	78.3	345.4	0.0	644.4
89.00	Bot - Section 3	0.3125	36.875	36.264	6,124.90	19.04	118.00	79	327.2	0.0	500.3
90.00		0.3125	36.625	36.016	6,000.20	18.90	117.20	79.2	322.7	0.0	222.9
94.25	Top - Section 2	0.2500	36.063	28.416	4,604.60	23.67	144.25	73.6	251.5	0.0	930.3
95.00		0.2500	35.875	28.267	4,532.60	23.54	143.50	73.7	248.9	0.0	72.3
100.00		0.2500	34.625	27.276	4,072.00	22.66	138.50	74.8	231.6	0.0	472.5
105.00		0.2500	33.375	26.284	3,643.80	21.78	133.50	75.8	215.0	0.0	455.6
110.00		0.2500	32.125	25.292	3,246.60	20.89	128.50	76.8	199.1	0.0	438.8
115.00	Bot - Section 4	0.2500	30.875	24.300	2,879.50	20.01	123.50	77.9	183.7	0.0	421.9
119.50	Top - Section 3	0.1875	30.125	17.816	2,017.40	26.57	160.67	70.2	131.9	0.0	643.2
120.00		0.1875	30.000	17.742	1,992.20	26.45	160.00	70.3	130.8	0.0	30.2
125.00		0.1875	28.750	16.998	1,752.00	25.27	153.33	71.7	120.0	0.0	295.5
130.00		0.1875	27.500	16.254	1,531.90	24.10	146.67	73.1	109.7	0.0	282.9
135.00		0.1875	26.250	15.510	1,331.00	22.92	140.00	74.4	99.9	0.0	270.2
140.00		0.1875	25.000	14.766	1,148.60	21.75	133.33	75.8	90.5	0.0	257.6
145.00		0.1875	23.750	14.022	983.60	20.57	126.67	77.2	81.6	0.0	244.9
150.00		0.1875	22.500	13.278	835.20	19.40	120.00	78.6	73.1	0.0	232.2
155.00		0.1875	21.250	12.534	702.50	18.22	113.33	80	65.1	0.0	219.6
156.00		0.1875	21.000	12.386	677.80	17.99	112.00	80.2	63.6	0.0	42.4
160.00		0.1875	20.000	11.790	584.70	17.04	106.67	81.4	57.6	0.0	164.5

Totals: 22,684.8

Load Case: 1.2D + 1.0W Normal	115 mph wind with no ice	24 Iterations
Gust Response Factor: 1.10		
Dead load Factor: 1.20		
Wind Load Factor: 1.00		

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-45.64	-33.48	0.00	-3,494.3	0.00	3,494.31	4,428.22	1,214.12	6,373.87	5,303.38	0	0	0.670
5.00	-43.82	-32.72	0.00	-3,326.9	0.00	3,326.93	4,375.11	1,188.01	6,102.70	5,126.36	0.09	-0.16	0.660
10.00	-42.04	-31.99	0.00	-3,163.3	0.00	3,163.32	4,320.14	1,161.90	5,837.43	4,949.98	0.35	-0.33	0.650
15.00	-40.29	-31.27	0.00	-3,003.4	0.00	3,003.38	4,263.32	1,135.79	5,578.04	4,774.37	0.79	-0.5	0.639
20.00	-38.57	-30.53	0.00	-2,847.0	0.00	2,847.05	4,204.66	1,109.68	5,324.56	4,599.68	1.41	-0.67	0.629
25.00	-36.89	-29.78	0.00	-2,694.4	0.00	2,694.41	4,144.14	1,083.57	5,076.96	4,426.06	2.21	-0.85	0.618
30.00	-35.24	-29.01	0.00	-2,545.5	0.00	2,545.53	4,081.76	1,057.46	4,835.26	4,253.64	3.19	-1.03	0.608
35.00	-33.63	-28.25	0.00	-2,400.5	0.00	2,400.47	4,017.54	1,031.35	4,599.46	4,082.58	4.36	-1.21	0.597
40.00	-32.07	-27.75	0.00	-2,259.2	0.00	2,259.24	3,951.47	1,005.24	4,369.55	3,913.02	5.72	-1.39	0.586
41.25	-31.66	-27.38	0.00	-2,224.6	0.00	2,224.55	3,934.66	998.71	4,312.99	3,870.88	6.09	-1.44	0.583
45.00	-29.78	-26.83	0.00	-2,121.9	0.00	2,121.89	3,883.54	979.13	4,145.53	3,745.09	7.28	-1.58	0.575
48.00	-28.30	-26.42	0.00	-2,041.4	0.00	2,041.41	3,017.05	814.85	3,445.27	2,909.43	8.3	-1.69	0.712
50.00	-27.74	-25.91	0.00	-1,988.6	0.00	1,988.57	2,998.54	806.15	3,372.07	2,860.50	9.03	-1.77	0.705
55.00	-26.42	-25.16	0.00	-1,859.0	0.00	1,859.04	2,950.98	784.39	3,192.52	2,738.63	11	-1.99	0.689
60.00	-25.13	-24.42	0.00	-1,733.2	0.00	1,733.25	2,901.57	762.63	3,017.88	2,617.56	13.2	-2.21	0.672
65.00	-23.86	-23.69	0.00	-1,611.1	0.00	1,611.14	2,850.30	740.88	2,848.15	2,497.43	15.64	-2.44	0.655
70.00	-22.63	-22.98	0.00	-1,492.7	0.00	1,492.67	2,797.18	719.12	2,683.33	2,378.39	18.32	-2.67	0.637
75.00	-21.43	-22.28	0.00	-1,377.8	0.00	1,377.78	2,742.21	697.36	2,523.42	2,260.57	21.23	-2.9	0.618
80.00	-20.25	-21.59	0.00	-1,266.4	0.00	1,266.40	2,685.39	675.60	2,368.43	2,144.13	24.39	-3.13	0.599
85.00	-19.11	-20.97	0.00	-1,158.5	0.00	1,158.48	2,626.72	653.84	2,218.35	2,029.20	27.8	-3.37	0.579
89.00	-18.23	-20.61	0.00	-1,074.6	0.00	1,074.61	2,578.45	636.44	2,101.82	1,938.44	30.7	-3.56	0.562
90.00	-17.87	-20.28	0.00	-1,054.0	0.00	1,054.00	2,566.20	632.08	2,073.18	1,915.93	31.45	-3.61	0.558
94.25	-16.46	-19.88	0.00	-967.8	0.00	967.82	1,881.22	498.70	1,613.10	1,387.42	34.75	-3.81	0.708
95.00	-16.30	-19.55	0.00	-952.9	0.00	952.91	1,875.33	496.09	1,596.26	1,375.78	35.35	-3.85	0.703
100.00	-15.36	-18.92	0.00	-855.2	0.00	855.17	1,834.99	478.69	1,486.22	1,298.62	39.53	-4.13	0.668
105.00	-14.44	-18.31	0.00	-760.6	0.00	760.55	1,792.79	461.28	1,380.11	1,222.29	44.01	-4.41	0.632
110.00	-13.55	-17.72	0.00	-669.0	0.00	668.98	1,748.74	443.87	1,277.92	1,146.93	48.78	-4.69	0.593
115.00	-12.69	-17.16	0.00	-580.4	0.00	580.38	1,702.84	426.47	1,179.67	1,072.68	53.84	-4.97	0.550
119.50	-11.61	-16.81	0.00	-503.2	0.00	503.16	1,124.87	312.67	845.43	694.00	58.63	-5.21	0.738
120.00	-11.52	-16.54	0.00	-494.8	0.00	494.75	1,122.38	311.36	838.38	689.55	59.18	-5.24	0.731
125.00	-10.81	-16.01	0.00	-412.0	0.00	412.05	1,096.47	298.31	769.56	645.21	64.83	-5.56	0.651
130.00	-10.12	-15.48	0.00	-332.0	0.00	332.03	1,068.71	285.25	703.68	601.18	70.81	-5.86	0.565
135.00	-9.45	-14.97	0.00	-254.6	0.00	254.62	1,039.10	272.20	640.75	557.59	77.09	-6.13	0.469
140.00	-8.82	-14.47	0.00	-179.8	0.00	179.77	1,007.63	259.14	580.77	514.58	83.63	-6.37	0.361
145.00	-4.94	-9.59	0.00	-107.4	0.00	107.42	974.32	246.09	523.73	472.32	90.38	-6.54	0.234
150.00	-4.39	-9.12	0.00	-59.5	0.00	59.46	939.15	233.03	469.65	430.93	97.29	-6.66	0.144
155.00	-3.84	-8.81	0.00	-13.9	0.00	13.89	902.14	219.98	418.50	390.56	104.3	-6.73	0.041
156.00	-0.18	-0.15	0.00	-0.6	0.00	0.62	894.51	217.37	408.63	382.62	105.7	-6.73	0.002
160.00	0.00	-0.13	0.00	0.0	0.00	0.00	863.27	206.92	370.31	351.36	111.33	-6.73	0.000

Load Case: 0.9D + 1.0W Normal	115 mph wind with no ice	24 Iterations
Gust Response Factor: 1.10		
Dead load Factor: 0.90		
Wind Load Factor: 1.00		

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-34.22	-33.46	0.00	-3,456.4	0.00	3,456.36	4,428.22	1,214.12	6,373.87	5,303.38	0	0	0.660
5.00	-32.83	-32.67	0.00	-3,289.1	0.00	3,289.06	4,375.11	1,188.01	6,102.70	5,126.36	0.09	-0.16	0.650
10.00	-31.47	-31.91	0.00	-3,125.7	0.00	3,125.70	4,320.14	1,161.90	5,837.43	4,949.98	0.35	-0.33	0.639
15.00	-30.14	-31.16	0.00	-2,966.2	0.00	2,966.16	4,263.32	1,135.79	5,578.04	4,774.37	0.78	-0.49	0.629
20.00	-28.83	-30.39	0.00	-2,810.4	0.00	2,810.37	4,204.66	1,109.68	5,324.56	4,599.68	1.39	-0.66	0.619
25.00	-27.55	-29.62	0.00	-2,658.4	0.00	2,658.40	4,144.14	1,083.57	5,076.96	4,426.06	2.18	-0.84	0.608
30.00	-26.30	-28.83	0.00	-2,510.3	0.00	2,510.31	4,081.76	1,057.46	4,835.26	4,253.64	3.15	-1.01	0.597
35.00	-25.07	-28.05	0.00	-2,366.2	0.00	2,366.15	4,017.54	1,031.35	4,599.46	4,082.58	4.31	-1.19	0.587
40.00	-23.90	-27.54	0.00	-2,225.9	0.00	2,225.93	3,951.47	1,005.24	4,369.55	3,913.02	5.65	-1.37	0.576
41.25	-23.58	-27.15	0.00	-2,191.5	0.00	2,191.50	3,934.66	998.71	4,312.99	3,870.88	6.02	-1.42	0.573
45.00	-22.16	-26.60	0.00	-2,089.7	0.00	2,089.67	3,883.54	979.13	4,145.53	3,745.09	7.19	-1.56	0.564
48.00	-21.04	-26.19	0.00	-2,009.9	0.00	2,009.87	3,017.05	814.85	3,445.27	2,909.43	8.2	-1.67	0.699
50.00	-20.61	-25.66	0.00	-1,957.5	0.00	1,957.48	2,998.54	806.15	3,372.07	2,860.50	8.92	-1.75	0.692
55.00	-19.61	-24.90	0.00	-1,829.2	0.00	1,829.18	2,950.98	784.39	3,192.52	2,738.63	10.86	-1.96	0.676
60.00	-18.62	-24.15	0.00	-1,704.7	0.00	1,704.68	2,901.57	762.63	3,017.88	2,617.56	13.03	-2.18	0.659
65.00	-17.66	-23.41	0.00	-1,584.0	0.00	1,583.95	2,850.30	740.88	2,848.15	2,497.43	15.44	-2.4	0.641
70.00	-16.72	-22.68	0.00	-1,466.9	0.00	1,466.92	2,797.18	719.12	2,683.33	2,378.39	18.07	-2.63	0.624
75.00	-15.81	-21.97	0.00	-1,353.5	0.00	1,353.53	2,742.21	697.36	2,523.42	2,260.57	20.95	-2.86	0.606
80.00	-14.92	-21.27	0.00	-1,243.7	0.00	1,243.70	2,685.39	675.60	2,368.43	2,144.13	24.06	-3.08	0.587
85.00	-14.05	-20.65	0.00	-1,137.4	0.00	1,137.36	2,626.72	653.84	2,218.35	2,029.20	27.41	-3.32	0.567
89.00	-13.39	-20.29	0.00	-1,054.8	0.00	1,054.77	2,578.45	636.44	2,101.82	1,938.44	30.27	-3.5	0.550
90.00	-13.12	-19.95	0.00	-1,034.5	0.00	1,034.48	2,566.20	632.08	2,073.18	1,915.93	31.01	-3.55	0.546
94.25	-12.05	-19.58	0.00	-949.7	0.00	949.68	1,881.22	498.70	1,613.10	1,387.42	34.26	-3.75	0.692
95.00	-11.92	-19.23	0.00	-935.0	0.00	935.00	1,875.33	496.09	1,596.26	1,375.78	34.85	-3.79	0.687
100.00	-11.21	-18.60	0.00	-838.9	0.00	838.86	1,834.99	478.69	1,486.22	1,298.62	38.97	-4.07	0.654
105.00	-10.51	-17.99	0.00	-745.9	0.00	745.86	1,792.79	461.28	1,380.11	1,222.29	43.37	-4.34	0.618
110.00	-9.84	-17.39	0.00	-655.9	0.00	655.93	1,748.74	443.87	1,277.92	1,146.93	48.07	-4.62	0.579
115.00	-9.19	-16.83	0.00	-569.0	0.00	568.98	1,702.84	426.47	1,179.67	1,072.68	53.04	-4.89	0.537
119.50	-8.38	-16.50	0.00	-493.2	0.00	493.23	1,124.87	312.67	845.43	694.00	57.76	-5.12	0.721
120.00	-8.30	-16.22	0.00	-485.0	0.00	484.98	1,122.38	311.36	838.38	689.55	58.29	-5.15	0.713
125.00	-7.76	-15.68	0.00	-403.9	0.00	403.88	1,096.47	298.31	769.56	645.21	63.85	-5.47	0.636
130.00	-7.24	-15.16	0.00	-325.5	0.00	325.46	1,068.71	285.25	703.68	601.18	69.73	-5.76	0.551
135.00	-6.74	-14.66	0.00	-249.6	0.00	249.64	1,039.10	272.20	640.75	557.59	75.9	-6.03	0.457
140.00	-6.26	-14.17	0.00	-176.4	0.00	176.36	1,007.63	259.14	580.77	514.58	82.34	-6.26	0.352
145.00	-3.47	-9.41	0.00	-105.5	0.00	105.53	974.32	246.09	523.73	472.32	88.98	-6.43	0.228
150.00	-3.06	-8.95	0.00	-58.5	0.00	58.47	939.15	233.03	469.65	430.93	95.77	-6.55	0.140
155.00	-2.65	-8.66	0.00	-13.7	0.00	13.71	902.14	219.98	418.50	390.56	102.65	-6.61	0.040
156.00	-0.13	-0.15	0.00	-0.6	0.00	0.59	894.51	217.37	408.63	382.62	104.04	-6.62	0.002
160.00	0.00	-0.13	0.00	0.0	0.00	0.00	863.27	206.92	370.31	351.36	109.57	-6.62	0.000

Load Case: 1.2D + 1.0Di + 1.0Wi Normal		50 mph wind with 1" radial ice		23 Iterations
Gust Response Factor:	1.10	Ice Dead Load Factor	1.00	
Dead load Factor:	1.20			Ice Importance Factor 1.00
Wind Load Factor:	1.00			

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-60.38	-10.04	0.00	-1,018.2	0.00	1,018.24	4,428.22	1,214.12	6,373.87	5,303.38	0	0	0.206
5.00	-58.31	-9.80	0.00	-968.0	0.00	968.04	4,375.11	1,188.01	6,102.70	5,126.36	0.03	-0.05	0.202
10.00	-56.24	-9.58	0.00	-919.0	0.00	919.02	4,320.14	1,161.90	5,837.43	4,949.98	0.1	-0.1	0.199
15.00	-54.19	-9.35	0.00	-871.1	0.00	871.14	4,263.32	1,135.79	5,578.04	4,774.37	0.23	-0.15	0.195
20.00	-52.16	-9.12	0.00	-824.4	0.00	824.40	4,204.66	1,109.68	5,324.56	4,599.68	0.41	-0.2	0.192
25.00	-50.17	-8.88	0.00	-778.8	0.00	778.80	4,144.14	1,083.57	5,076.96	4,426.06	0.64	-0.25	0.188
30.00	-48.21	-8.64	0.00	-734.4	0.00	734.40	4,081.76	1,057.46	4,835.26	4,253.64	0.93	-0.3	0.185
35.00	-46.29	-8.40	0.00	-691.2	0.00	691.20	4,017.54	1,031.35	4,599.46	4,082.58	1.27	-0.35	0.181
40.00	-44.40	-8.24	0.00	-649.2	0.00	649.21	3,951.47	1,005.24	4,369.55	3,913.02	1.66	-0.4	0.177
41.25	-43.94	-8.12	0.00	-638.9	0.00	638.91	3,934.66	998.71	4,312.99	3,870.88	1.77	-0.42	0.176
45.00	-41.82	-7.95	0.00	-608.5	0.00	608.46	3,883.54	979.13	4,145.53	3,745.09	2.11	-0.46	0.173
48.00	-40.15	-7.82	0.00	-584.6	0.00	584.62	3,017.05	814.85	3,445.27	2,909.43	2.41	-0.49	0.214
50.00	-39.49	-7.65	0.00	-569.0	0.00	568.99	2,998.54	806.15	3,372.07	2,860.50	2.62	-0.51	0.212
55.00	-37.88	-7.42	0.00	-530.7	0.00	530.72	2,950.98	784.39	3,192.52	2,738.63	3.19	-0.57	0.207
60.00	-36.30	-7.18	0.00	-493.6	0.00	493.64	2,901.57	762.63	3,017.88	2,617.56	3.82	-0.64	0.201
65.00	-34.76	-6.95	0.00	-457.7	0.00	457.73	2,850.30	740.88	2,848.15	2,497.43	4.52	-0.7	0.196
70.00	-33.25	-6.72	0.00	-423.0	0.00	422.99	2,797.18	719.12	2,683.33	2,378.39	5.29	-0.77	0.190
75.00	-31.77	-6.49	0.00	-389.4	0.00	389.40	2,742.21	697.36	2,523.42	2,260.57	6.13	-0.83	0.184
80.00	-30.33	-6.27	0.00	-357.0	0.00	356.95	2,685.39	675.60	2,368.43	2,144.13	7.04	-0.9	0.178
85.00	-28.92	-6.07	0.00	-325.6	0.00	325.60	2,626.72	653.84	2,218.35	2,029.20	8.02	-0.96	0.172
89.00	-27.82	-5.95	0.00	-301.3	0.00	301.33	2,578.45	636.44	2,101.82	1,938.44	8.85	-1.02	0.166
90.00	-27.43	-5.85	0.00	-295.4	0.00	295.37	2,566.20	632.08	2,073.18	1,915.93	9.06	-1.03	0.165
94.25	-25.78	-5.72	0.00	-270.5	0.00	270.53	1,881.22	498.70	1,613.10	1,387.42	10.01	-1.09	0.209
95.00	-25.60	-5.61	0.00	-266.2	0.00	266.24	1,875.33	496.09	1,596.26	1,375.78	10.18	-1.1	0.207
100.00	-24.42	-5.41	0.00	-238.2	0.00	238.19	1,834.99	478.69	1,486.22	1,298.62	11.37	-1.18	0.197
105.00	-23.28	-5.21	0.00	-211.2	0.00	211.15	1,792.79	461.28	1,380.11	1,222.29	12.65	-1.26	0.186
110.00	-22.16	-5.02	0.00	-185.1	0.00	185.10	1,748.74	443.87	1,277.92	1,146.93	14.01	-1.33	0.174
115.00	-21.07	-4.83	0.00	-160.0	0.00	160.03	1,702.84	426.47	1,179.67	1,072.68	15.44	-1.41	0.162
119.50	-19.78	-4.72	0.00	-138.3	0.00	138.29	1,124.87	312.67	845.43	694.00	16.81	-1.48	0.217
120.00	-19.69	-4.63	0.00	-135.9	0.00	135.93	1,122.38	311.36	838.38	689.55	16.96	-1.48	0.215
125.00	-18.77	-4.45	0.00	-112.8	0.00	112.78	1,096.47	298.31	769.56	645.21	18.56	-1.57	0.192
130.00	-17.87	-4.28	0.00	-90.5	0.00	90.52	1,068.71	285.25	703.68	601.18	20.26	-1.65	0.168
135.00	-17.00	-4.11	0.00	-69.1	0.00	69.12	1,039.10	272.20	640.75	557.59	22.03	-1.73	0.141
140.00	-16.16	-3.94	0.00	-48.6	0.00	48.58	1,007.63	259.14	580.77	514.58	23.88	-1.79	0.111
145.00	-9.89	-2.61	0.00	-28.9	0.00	28.88	974.32	246.09	523.73	472.32	25.78	-1.84	0.071
150.00	-9.12	-2.45	0.00	-15.8	0.00	15.82	939.15	233.03	469.65	430.93	27.73	-1.87	0.047
155.00	-8.36	-2.34	0.00	-3.6	0.00	3.59	902.14	219.98	418.50	390.56	29.7	-1.89	0.019
156.00	-0.33	-0.06	0.00	-0.2	0.00	0.24	894.51	217.37	408.63	382.62	30.09	-1.89	0.001
160.00	0.00	-0.05	0.00	0.0	0.00	0.00	863.27	206.92	370.31	351.36	31.68	-1.89	0.000

Load Case: 1.0D + 1.0W Service Normal	60 mph Wind with No Ice	23 Iterations
Gust Response Factor: 1.10		
Dead load Factor: 1.00		
Wind Load Factor: 1.00		

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-38.07	-8.15	0.00	-846.1	0.00	846.11	4,428.22	1,214.12	6,373.87	5,303.38	0	0	0.168
5.00	-36.63	-7.96	0.00	-805.4	0.00	805.36	4,375.11	1,188.01	6,102.70	5,126.36	0.02	-0.04	0.166
10.00	-35.21	-7.78	0.00	-765.6	0.00	765.55	4,320.14	1,161.90	5,837.43	4,949.98	0.08	-0.08	0.163
15.00	-33.82	-7.60	0.00	-726.7	0.00	726.66	4,263.32	1,135.79	5,578.04	4,774.37	0.19	-0.12	0.160
20.00	-32.46	-7.41	0.00	-688.7	0.00	688.68	4,204.66	1,109.68	5,324.56	4,599.68	0.34	-0.16	0.157
25.00	-31.11	-7.23	0.00	-651.6	0.00	651.61	4,144.14	1,083.57	5,076.96	4,426.06	0.53	-0.21	0.155
30.00	-29.80	-7.04	0.00	-615.5	0.00	615.47	4,081.76	1,057.46	4,835.26	4,253.64	0.77	-0.25	0.152
35.00	-28.51	-6.85	0.00	-580.3	0.00	580.29	4,017.54	1,031.35	4,599.46	4,082.58	1.05	-0.29	0.149
40.00	-27.25	-6.73	0.00	-546.0	0.00	546.05	3,951.47	1,005.24	4,369.55	3,913.02	1.38	-0.34	0.146
41.25	-26.94	-6.63	0.00	-537.6	0.00	537.64	3,934.66	998.71	4,312.99	3,870.88	1.47	-0.35	0.146
45.00	-25.40	-6.50	0.00	-512.8	0.00	512.76	3,883.54	979.13	4,145.53	3,745.09	1.76	-0.38	0.144
48.00	-24.19	-6.40	0.00	-493.3	0.00	493.26	3,017.05	814.85	3,445.27	2,909.43	2.01	-0.41	0.178
50.00	-23.77	-6.27	0.00	-480.5	0.00	480.46	2,998.54	806.15	3,372.07	2,860.50	2.18	-0.43	0.176
55.00	-22.72	-6.09	0.00	-449.1	0.00	449.10	2,950.98	784.39	3,192.52	2,738.63	2.66	-0.48	0.172
60.00	-21.69	-5.91	0.00	-418.6	0.00	418.65	2,901.57	762.63	3,017.88	2,617.56	3.19	-0.53	0.167
65.00	-20.69	-5.73	0.00	-389.1	0.00	389.12	2,850.30	740.88	2,848.15	2,497.43	3.78	-0.59	0.163
70.00	-19.70	-5.55	0.00	-360.5	0.00	360.47	2,797.18	719.12	2,683.33	2,378.39	4.43	-0.64	0.159
75.00	-18.74	-5.38	0.00	-332.7	0.00	332.70	2,742.21	697.36	2,523.42	2,260.57	5.14	-0.7	0.154
80.00	-17.80	-5.21	0.00	-305.8	0.00	305.80	2,685.39	675.60	2,368.43	2,144.13	5.9	-0.76	0.149
85.00	-16.88	-5.06	0.00	-279.7	0.00	279.73	2,626.72	653.84	2,218.35	2,029.20	6.72	-0.81	0.144
89.00	-16.16	-4.98	0.00	-259.5	0.00	259.48	2,578.45	636.44	2,101.82	1,938.44	7.42	-0.86	0.140
90.00	-15.88	-4.90	0.00	-254.5	0.00	254.50	2,566.20	632.08	2,073.18	1,915.93	7.61	-0.87	0.139
94.25	-14.72	-4.80	0.00	-233.7	0.00	233.70	1,881.22	498.70	1,613.10	1,387.42	8.4	-0.92	0.176
95.00	-14.60	-4.72	0.00	-230.1	0.00	230.10	1,875.33	496.09	1,596.26	1,375.78	8.55	-0.93	0.175
100.00	-13.86	-4.57	0.00	-206.5	0.00	206.50	1,834.99	478.69	1,486.22	1,298.62	9.56	-1	0.167
105.00	-13.13	-4.42	0.00	-183.7	0.00	183.66	1,792.79	461.28	1,380.11	1,222.29	10.64	-1.07	0.158
110.00	-12.41	-4.28	0.00	-161.6	0.00	161.56	1,748.74	443.87	1,277.92	1,146.93	11.8	-1.13	0.148
115.00	-11.72	-4.14	0.00	-140.2	0.00	140.18	1,702.84	426.47	1,179.67	1,072.68	13.02	-1.2	0.138
119.50	-10.83	-4.06	0.00	-121.6	0.00	121.55	1,124.87	312.67	845.43	694.00	14.18	-1.26	0.185
120.00	-10.77	-3.99	0.00	-119.5	0.00	119.52	1,122.38	311.36	838.38	689.55	14.31	-1.26	0.183
125.00	-10.20	-3.86	0.00	-99.6	0.00	99.56	1,096.47	298.31	769.56	645.21	15.68	-1.34	0.164
130.00	-9.64	-3.74	0.00	-80.2	0.00	80.24	1,068.71	285.25	703.68	601.18	17.13	-1.42	0.143
135.00	-9.10	-3.61	0.00	-61.6	0.00	61.55	1,039.10	272.20	640.75	557.59	18.65	-1.48	0.119
140.00	-8.57	-3.49	0.00	-43.5	0.00	43.48	1,007.63	259.14	580.77	514.58	20.23	-1.54	0.093
145.00	-4.95	-2.32	0.00	-26.0	0.00	26.01	974.32	246.09	523.73	472.32	21.87	-1.58	0.060
150.00	-4.46	-2.21	0.00	-14.4	0.00	14.40	939.15	233.03	469.65	430.93	23.54	-1.61	0.038
155.00	-3.98	-2.13	0.00	-3.4	0.00	3.37	902.14	219.98	418.50	390.56	25.24	-1.63	0.013
156.00	-0.16	-0.04	0.00	-0.2	0.00	0.15	894.51	217.37	408.63	382.62	25.58	-1.63	0.001
160.00	0.00	-0.03	0.00	0.0	0.00	0.00	863.27	206.92	370.31	351.36	26.94	-1.63	0.000

EQUIVALENT LATERAL FORCES METHOD ANALYSIS
(Based on ASCE7-16 Chapters 11, 12 and 15)

Spectral Response Acceleration for Short Period (S_S):	0.199
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.055
Long-Period Transition Period (T_L – Seconds):	6
Importance Factor (I_a):	1.000
Site Coefficient F_a :	1.600
Site Coefficient F_v :	2.400
Response Modification Coefficient (R):	1.500
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.212
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.088
Seismic Response Coefficient (C_s):	0.030
Upper Limit C_s :	0.030
Lower Limit C_s :	0.030
Period based on Rayleigh Method (sec):	2.420
Redundancy Factor (ρ):	1.000
Seismic Force Distribution Exponent (k):	1.960
Total Unfactored Dead Load:	38.080 k
Seismic Base Shear (E):	1.140 k

1.2D + 1.0Ev + 1.0Eh Normal Seismic

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
38	158	165	3,320	0.012	14	204
37	155.5	95	1,850	0.007	8	118
36	152.5	481	9,047	0.032	37	597
35	147.5	493	8,698	0.031	36	613
34	142.5	518	8,532	0.031	35	643
33	137.5	530	8,150	0.029	33	659
32	132.5	543	7,761	0.028	32	674
31	127.5	556	7,366	0.026	30	690
30	122.5	568	6,966	0.025	29	706
29	119.75	58	674	0.002	3	71
28	117.25	889	9,999	0.036	41	1,104
27	112.5	695	7,207	0.026	30	863
26	107.5	711	6,754	0.024	28	884
25	102.5	728	6,298	0.023	26	905
24	97.5	745	5,843	0.021	24	926
23	94.625	113	837	0.003	3	141
22	92.125	1,162	8,154	0.029	33	1,444
21	89.5	277	1,840	0.007	8	345
20	87	718	4,507	0.016	18	893
19	82.5	917	5,185	0.019	21	1,139
18	77.5	938	4,693	0.017	19	1,166
17	72.5	959	4,211	0.015	17	1,192
16	67.5	980	3,742	0.013	15	1,218
15	62.5	1,001	3,288	0.012	13	1,244
14	57.5	1,023	2,851	0.010	12	1,270
13	52.5	1,044	2,435	0.009	10	1,297
12	49	423	863	0.003	4	526
11	46.5	1,206	2,220	0.008	9	1,499
10	43.125	1,531	2,431	0.009	10	1,903
9	40.625	311	439	0.002	2	386
8	37.5	1,260	1,521	0.006	6	1,565
7	32.5	1,285	1,173	0.004	5	1,597
6	27.5	1,310	862	0.003	4	1,628
5	22.5	1,336	593	0.002	2	1,660

ASSET: 281862, BRIDGEWATER CT
 CUSTOMER: DISH WIRELESS L.L.C.

CODE: ANSI/TIA-222-H
 ENG NO: 13709418_C3_02

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
4	17.5	1,361	370	0.001	2	1,691
3	12.5	1,386	195	0.001	1	1,723
2	7.5	1,412	73	0.000	0	1,754
1	2.5	1,437	9	0.000	0	1,785
Raycap DC6-48-60-18-8F	156	80	1,574	0.006	6	99
Ericsson RRUS 4478 B14 (15")	156	178	3,507	0.013	14	221
Ericsson RRUS 4449 B5, B12	156	213	4,192	0.015	17	265
Ericsson RRUS 11 (Band 12) (55 lb)	156	165	3,247	0.012	13	205
Ericsson RRUS 32 B2	156	159	3,129	0.011	13	198
CCI HPA-65R-BUJ-H8	156	408	8,030	0.029	33	507
CCI DMP65R-BU8D	156	574	11,301	0.040	46	713
Round Platform w/ Handrails	156	2,000	39,362	0.141	161	2,485
Commscope RDIDC-9181-PF-48	145	22	374	0.001	2	27
Fujitsu TA08025-B604	145	192	3,270	0.012	13	238
Fujitsu TA08025-B605	145	225	3,838	0.014	16	280
JMA Wireless MX08FRO665-21	145	194	3,300	0.012	14	240
Generic Flat Platform with Handrails	145	2,500	42,639	0.153	175	3,106
		38,075	278,719	1.000	1,142	47,307

0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
38	158	165	3,320	0.012	14	141
37	155.5	95	1,850	0.007	8	81
36	152.5	481	9,047	0.032	37	412
35	147.5	493	8,698	0.031	36	423
34	142.5	518	8,532	0.031	35	444
33	137.5	530	8,150	0.029	33	455
32	132.5	543	7,761	0.028	32	466
31	127.5	556	7,366	0.026	30	476
30	122.5	568	6,966	0.025	29	487
29	119.75	58	674	0.002	3	49
28	117.25	889	9,999	0.036	41	762
27	112.5	695	7,207	0.026	30	596
26	107.5	711	6,754	0.024	28	610
25	102.5	728	6,298	0.023	26	625
24	97.5	745	5,843	0.021	24	639
23	94.625	113	837	0.003	3	97
22	92.125	1,162	8,154	0.029	33	997
21	89.5	277	1,840	0.007	8	238
20	87	718	4,507	0.016	18	616
19	82.5	917	5,185	0.019	21	786
18	77.5	938	4,693	0.017	19	805
17	72.5	959	4,211	0.015	17	823
16	67.5	980	3,742	0.013	15	841
15	62.5	1,001	3,288	0.012	13	859
14	57.5	1,023	2,851	0.010	12	877
13	52.5	1,044	2,435	0.009	10	895
12	49	423	863	0.003	4	363
11	46.5	1,206	2,220	0.008	9	1,034
10	43.125	1,531	2,431	0.009	10	1,313
9	40.625	311	439	0.002	2	267
8	37.5	1,260	1,521	0.006	6	1,080
7	32.5	1,285	1,173	0.004	5	1,102
6	27.5	1,310	862	0.003	4	1,124
5	22.5	1,336	593	0.002	2	1,145
4	17.5	1,361	370	0.001	2	1,167
3	12.5	1,386	195	0.001	1	1,189
2	7.5	1,412	73	0.000	0	1,211
1	2.5	1,437	9	0.000	0	1,232
Raycap DC6-48-60-18-8F	156	80	1,574	0.006	6	99
Ericsson RRUS 4478 B14 (15")	156	178	3,507	0.013	14	221

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
Ericsson RRUS 4449 B5, B12	156	213	4,192	0.015	17	183
Ericsson RRUS 11 (Band 12) (55 lb)	156	165	3,247	0.012	13	141
Ericsson RRUS 32 B2	156	159	3,129	0.011	13	136
CCI HPA-65R-BUU-H8	156	408	8,030	0.029	33	350
CCI DMP65R-BU8D	156	574	11,301	0.040	46	492
Round Platform w/ Handrails	156	2,000	39,362	0.141	161	1,715
Commscope RDIDC-9181-PF-48	145	22	374	0.001	2	19
Fujitsu TA08025-B604	145	192	3,270	0.012	13	164
Fujitsu TA08025-B605	145	225	3,838	0.014	16	193
JMA Wireless MX08FRO665-21	145	194	3,300	0.012	14	166
Generic Flat Platform with Handrails	145	2,500	42,639	0.153	175	2,144
		38,075	278,719	1.000	1,142	32,651

1.2D + 1.0Ev + 1.0Eh Normal Seismic

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-45.52	-1.14	0.00	-151.08	0.00	151.08	4,428.22	1,214.12	6,374	5,303.38	0.00	0.00	0.04
5.00	-43.77	-1.15	0.00	-145.35	0.00	145.35	4,375.11	1,188.01	6,103	5,126.36	0.00	-0.01	0.04
10.00	-42.04	-1.15	0.00	-139.60	0.00	139.60	4,320.14	1,161.90	5,837	4,949.98	0.02	-0.01	0.04
15.00	-40.35	-1.16	0.00	-133.83	0.00	133.83	4,263.32	1,135.79	5,578	4,774.37	0.03	-0.02	0.04
20.00	-38.69	-1.16	0.00	-128.05	0.00	128.05	4,204.66	1,109.68	5,325	4,599.68	0.06	-0.03	0.04
25.00	-37.07	-1.16	0.00	-122.25	0.00	122.25	4,144.14	1,083.57	5,077	4,426.06	0.10	-0.04	0.04
30.00	-35.47	-1.16	0.00	-116.45	0.00	116.45	4,081.76	1,057.46	4,835	4,253.64	0.14	-0.05	0.04
35.00	-33.90	-1.16	0.00	-110.65	0.00	110.65	4,017.54	1,031.35	4,599	4,082.58	0.19	-0.05	0.04
40.00	-33.52	-1.16	0.00	-104.87	0.00	104.87	3,951.47	1,005.24	4,370	3,913.02	0.25	-0.06	0.04
41.25	-31.61	-1.15	0.00	-103.42	0.00	103.42	3,934.66	998.71	4,313	3,870.88	0.27	-0.06	0.04
45.00	-30.11	-1.14	0.00	-99.12	0.00	99.12	3,883.54	979.13	4,146	3,745.09	0.32	-0.07	0.03
48.00	-29.59	-1.14	0.00	-95.70	0.00	95.70	3,017.05	814.85	3,445	2,909.43	0.37	-0.08	0.04
50.00	-28.29	-1.13	0.00	-93.42	0.00	93.42	2,998.54	806.15	3,372	2,860.50	0.40	-0.08	0.04
55.00	-27.02	-1.12	0.00	-87.77	0.00	87.77	2,950.98	784.39	3,193	2,738.63	0.49	-0.09	0.04
60.00	-25.78	-1.11	0.00	-82.16	0.00	82.16	2,901.57	762.63	3,018	2,617.56	0.59	-0.10	0.04
65.00	-24.56	-1.10	0.00	-76.61	0.00	76.61	2,850.30	740.88	2,848	2,497.43	0.71	-0.11	0.04
70.00	-23.37	-1.08	0.00	-71.12	0.00	71.12	2,797.18	719.12	2,683	2,378.39	0.83	-0.12	0.04
75.00	-22.20	-1.06	0.00	-65.71	0.00	65.71	2,742.21	697.36	2,523	2,260.57	0.96	-0.13	0.04
80.00	-21.06	-1.04	0.00	-60.39	0.00	60.39	2,685.39	675.60	2,368	2,144.13	1.11	-0.14	0.04
85.00	-20.17	-1.03	0.00	-55.16	0.00	55.16	2,626.72	653.84	2,218	2,029.20	1.27	-0.16	0.04
89.00	-19.82	-1.02	0.00	-51.05	0.00	51.05	2,578.45	636.44	2,102	1,938.44	1.40	-0.17	0.03
90.00	-18.38	-0.99	0.00	-50.03	0.00	50.03	2,566.20	632.08	2,073	1,915.93	1.44	-0.17	0.03
94.25	-18.24	-0.98	0.00	-45.84	0.00	45.84	1,881.22	498.70	1,613	1,387.42	1.59	-0.18	0.04
95.00	-17.31	-0.96	0.00	-45.10	0.00	45.10	1,875.33	496.09	1,596	1,375.78	1.62	-0.18	0.04
100.00	-16.41	-0.93	0.00	-40.31	0.00	40.31	1,834.99	478.69	1,486	1,298.62	1.81	-0.19	0.04
105.00	-15.52	-0.91	0.00	-35.64	0.00	35.64	1,792.79	461.28	1,380	1,222.29	2.02	-0.21	0.04
110.00	-14.66	-0.88	0.00	-31.10	0.00	31.10	1,748.74	443.87	1,278	1,146.93	2.24	-0.22	0.04
115.00	-13.56	-0.84	0.00	-26.72	0.00	26.72	1,702.84	426.47	1,180	1,072.68	2.48	-0.23	0.03
119.50	-13.49	-0.83	0.00	-22.96	0.00	22.96	1,124.87	312.67	845	694.00	2.70	-0.24	0.05
120.00	-12.78	-0.80	0.00	-22.54	0.00	22.54	1,122.38	311.36	838	689.55	2.73	-0.24	0.04
125.00	-12.09	-0.77	0.00	-18.52	0.00	18.52	1,096.47	298.31	770	645.21	2.99	-0.26	0.04
130.00	-11.41	-0.74	0.00	-14.66	0.00	14.66	1,068.71	285.25	704	601.18	3.27	-0.27	0.04
135.00	-10.76	-0.71	0.00	-10.95	0.00	10.95	1,039.10	272.20	641	557.59	3.56	-0.28	0.03
140.00	-10.11	-0.67	0.00	-7.42	0.00	7.42	1,007.63	259.14	581	514.58	3.86	-0.29	0.02
145.00	-5.61	-0.39	0.00	-4.07	0.00	4.07	974.32	246.09	524	472.32	4.17	-0.30	0.01
150.00	-5.01	-0.35	0.00	-2.11	0.00	2.11	939.15	233.03	470	430.93	4.49	-0.31	0.01
155.00	-4.90	-0.34	0.00	-0.34	0.00	0.34	902.14	219.98	418	390.56	4.81	-0.31	0.01
156.00	0.00	0.00	0.00	0.00	0.00	0.00	894.51	217.37	409	382.62	4.88	-0.31	0.00
160.00	0.00	0.00	0.00	0.00	0.00	0.00	863.27	206.92	370	351.36	5.13	-0.31	0.00

0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)

CALCULATED FORCES

Seg Elev	Pu FY (-)	Vu FX (-)	Tu MY	Mu MZ	Mu Mx	Resultant Moment	Phi Pn	Phi Vn	Phi Tn	Phi Mn	Total Deflect	Rotation (deg)	Ratio
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(ft)	(kips)	(kips)	(ft-kips)	(fr-kips)	(ft-kips)	(ft-kips)	(kips)	(kips)	(kips)	(kips)	(in)		
0.00	-31.42	-1.14	0.00	-148.96	0.00	148.96	4,428.22	1,214.12	6,374	5,303.38	0.00	0.00	0.04
5.00	-30.21	-1.15	0.00	-143.24	0.00	143.24	4,375.11	1,188.01	6,103	5,126.36	0.00	-0.01	0.04
10.00	-29.02	-1.15	0.00	-137.51	0.00	137.51	4,320.14	1,161.90	5,837	4,949.98	0.02	-0.01	0.03
15.00	-27.85	-1.15	0.00	-131.76	0.00	131.76	4,263.32	1,135.79	5,578	4,774.37	0.03	-0.02	0.03
20.00	-26.71	-1.15	0.00	-126.00	0.00	126.00	4,204.66	1,109.68	5,325	4,599.68	0.06	-0.03	0.03
25.00	-25.58	-1.15	0.00	-120.24	0.00	120.24	4,144.14	1,083.57	5,077	4,426.06	0.10	-0.04	0.03
30.00	-24.48	-1.15	0.00	-114.48	0.00	114.48	4,081.76	1,057.46	4,835	4,253.64	0.14	-0.04	0.03
35.00	-23.40	-1.15	0.00	-108.73	0.00	108.73	4,017.54	1,031.35	4,599	4,082.58	0.19	-0.05	0.03
40.00	-23.13	-1.15	0.00	-103.01	0.00	103.01	3,951.47	1,005.24	4,370	3,913.02	0.25	-0.06	0.03
41.25	-21.82	-1.14	0.00	-101.57	0.00	101.57	3,934.66	998.71	4,313	3,870.88	0.27	-0.06	0.03
45.00	-20.78	-1.13	0.00	-97.31	0.00	97.31	3,883.54	979.13	4,146	3,745.09	0.32	-0.07	0.03
48.00	-20.42	-1.13	0.00	-93.93	0.00	93.93	3,017.05	814.85	3,445	2,909.43	0.36	-0.08	0.04
50.00	-19.53	-1.12	0.00	-91.68	0.00	91.68	2,998.54	806.15	3,372	2,860.50	0.40	-0.08	0.04
55.00	-18.65	-1.11	0.00	-86.10	0.00	86.10	2,950.98	784.39	3,193	2,738.63	0.49	-0.09	0.04
60.00	-17.79	-1.10	0.00	-80.56	0.00	80.56	2,901.57	762.63	3,018	2,617.56	0.58	-0.10	0.04
65.00	-16.95	-1.08	0.00	-75.09	0.00	75.09	2,850.30	740.88	2,848	2,497.43	0.69	-0.11	0.04
70.00	-16.13	-1.07	0.00	-69.68	0.00	69.68	2,797.18	719.12	2,683	2,378.39	0.81	-0.12	0.04
75.00	-15.32	-1.05	0.00	-64.35	0.00	64.35	2,742.21	697.36	2,523	2,260.57	0.95	-0.13	0.03
80.00	-14.54	-1.03	0.00	-59.11	0.00	59.11	2,685.39	675.60	2,368	2,144.13	1.09	-0.14	0.03
85.00	-13.92	-1.01	0.00	-53.98	0.00	53.98	2,626.72	653.84	2,218	2,029.20	1.24	-0.15	0.03
89.00	-13.68	-1.00	0.00	-49.94	0.00	49.94	2,578.45	636.44	2,102	1,938.44	1.38	-0.16	0.03
90.00	-12.68	-0.97	0.00	-48.94	0.00	48.94	2,566.20	632.08	2,073	1,915.93	1.41	-0.16	0.03
94.25	-12.59	-0.97	0.00	-44.83	0.00	44.83	1,881.22	498.70	1,613	1,387.42	1.56	-0.17	0.04
95.00	-11.95	-0.94	0.00	-44.10	0.00	44.10	1,875.33	496.09	1,596	1,375.78	1.59	-0.18	0.04
100.00	-11.32	-0.92	0.00	-39.40	0.00	39.40	1,834.99	478.69	1,486	1,298.62	1.78	-0.19	0.04
105.00	-10.71	-0.89	0.00	-34.82	0.00	34.82	1,792.79	461.28	1,380	1,222.29	1.99	-0.20	0.03
110.00	-10.12	-0.86	0.00	-30.38	0.00	30.38	1,748.74	443.87	1,278	1,146.93	2.20	-0.21	0.03
115.00	-9.36	-0.82	0.00	-26.08	0.00	26.08	1,702.84	426.47	1,180	1,072.68	2.43	-0.23	0.03
119.50	-9.31	-0.81	0.00	-22.41	0.00	22.41	1,124.87	312.67	845	694.00	2.65	-0.24	0.04
120.00	-8.82	-0.79	0.00	-22.00	0.00	22.00	1,122.38	311.36	838	689.55	2.68	-0.24	0.04
125.00	-8.34	-0.76	0.00	-18.07	0.00	18.07	1,096.47	298.31	770	645.21	2.94	-0.25	0.04
130.00	-7.88	-0.72	0.00	-14.29	0.00	14.29	1,068.71	285.25	704	601.18	3.21	-0.27	0.03
135.00	-7.42	-0.69	0.00	-10.68	0.00	10.68	1,039.10	272.20	641	557.59	3.49	-0.28	0.03
140.00	-6.98	-0.65	0.00	-7.23	0.00	7.23	1,007.63	259.14	581	514.58	3.79	-0.29	0.02
145.00	-3.87	-0.38	0.00	-3.97	0.00	3.97	974.32	246.09	524	472.32	4.10	-0.29	0.01
150.00	-3.46	-0.34	0.00	-2.06	0.00	2.06	939.15	233.03	470	430.93	4.41	-0.30	0.01
155.00	-3.38	-0.34	0.00	-0.34	0.00	0.34	902.14	219.98	418	390.56	4.72	-0.30	0.01
156.00	0.00	0.00	0.00	0.00	0.00	0.00	894.51	217.37	409	382.62	4.78	-0.30	0.00
160.00	0.00	0.00	0.00	0.00	0.00	0.00	863.27	206.92	370	351.36	5.04	-0.30	0.00

ASSET: 281862, BRIDGEWATER CT
 CUSTOMER: DISH WIRELESS L.L.C.

CODE: ANSI/TIA-222-H
 ENG NO: 13709418_C3_02

ANALYSIS SUMMARY

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W Normal	33.48	0.00	45.64	0.00	0.00	3494.31	119.50	0.74
0.9D + 1.0W Normal	33.46	0.00	34.22	0.00	0.00	3456.36	119.50	0.72
1.2D + 1.0Di + 1.0Wi Normal	10.04	0.00	60.38	0.00	0.00	1018.24	119.50	0.22
1.2D + 1.0Ev + 1.0Eh Normal	1.16	0.00	45.52	0.00	0.00	151.08	119.50	0.05
0.9D - 1.0Ev + 1.0Eh Normal	1.15	0.00	31.42	0.00	0.00	148.96	119.50	0.04
1.0D + 1.0W Service Normal	8.15	0.00	38.07	0.00	0.00	846.11	119.50	0.18

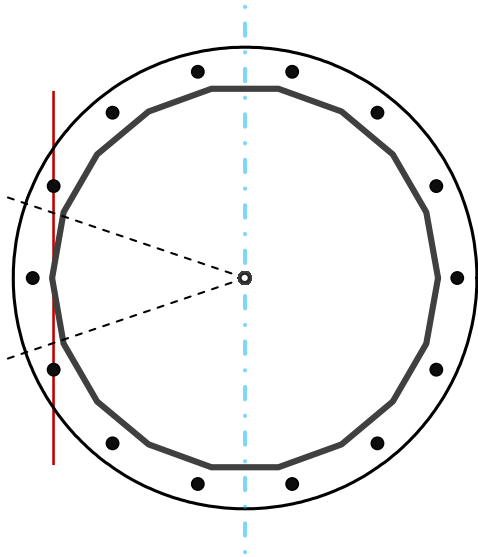
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	18	-
Diameter	58.5	in
Thickness	3/8	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	3,494.3	k-ft
Axial, Pu	45.6	k
Shear, Vu	33.5	k
Neutral Axis	90	°

Report Capacities		
Component	Capacity	Result
Base Plate	31%	Pass
Anchor Rods	80%	Pass
Dwyidag	-	-

Base Plate		
Shape	Round	-
Diameter, ϕ	71.5	in
Thickness	2 1/4	in
Grade	A572-50	
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Clip	N/A	in
Orientation Offset		°
Anchor Rod Detail	d	$\eta=0.5$
Clear Distance	3	in
Applied Moment, Mu	434.1	k
Bending Stress, ϕMn	1390.3	k



Original Anchor Rods		
Arrangement	Radial	-
Quantity	14	-
Diameter, ϕ	2 1/4	in
Bolt Circle	65.5	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	14.7	in
Orientation Offset	0	°
Applied Force, Pu	192.9	k
Anchor Rods, ϕPn	243.6	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	33.5	3494.3	1.00
Anchor Rod Forces	33.5	3494.3	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in ²	in ²	in ⁴	#	in ⁴
Pole	68.1298	3.7850	0.1780		28775.39
Bolt	3.9761	3.2477	0.8393	4.5	22658.99
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Round	-
Diameter, D	71.5	in
Thickness, t	2.25	in
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Base Plate Chord	41.110	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods		
Anchor Rod Quantity, N	14	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	65.5	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	192.9	k
Applied Shear, Vu	0.8	k
Compressive Capacity, φPn	243.6	k
Tensile Capacity, φRnt	0.792	OK
Interaction Capacity	0.799	OK

External Base Plate		
Chord Length AA	34.454	in
Additional AA	4.500	in
Section Modulus, Z	49.302	in ³
Applied Moment, Mu	434.1	k-ft
Bending Capacity, φMn	2218.6	k-ft
Capacity, Mu/φMn	0.196	OK
Chord Length AB	32.867	in
Additional AB	4.500	in
Section Modulus, Z	47.293	in ³
Applied Moment, Mu	346.9	k-ft
Bending Capacity, φMn	2128.2	k-ft
Capacity, Mu/φMn	0.163	OK
Bend Line Length	24.411	in
Additional Bend Line	0.000	in
Section Modulus, Z	30.895	in ³
Applied Moment, Mu	434.1	k-ft
Bending Capacity, φMn	1390.3	k-ft
Capacity, Mu/φMn	0.312	OK

Internal Base Plate		
Arc Length	0.000	in
Section Modulus, Z	0.000	in ³
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, φMn	0.0	k-ft
Capacity, Mu/φMn		

Site Name: Bridgewater CT, CT
Site Number: 281862
Tower Type: MP
Design Loads (Factored) - Analysis per TIA-222-H Standards

Monolithic Mat & Pier Foundation Analysis

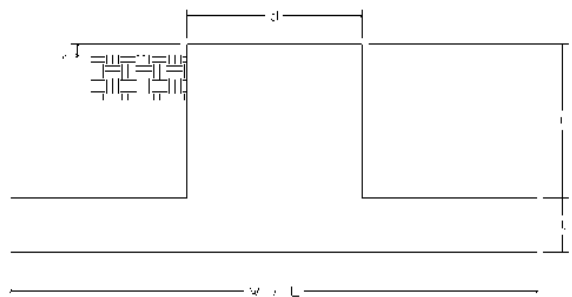
Foundation Analysis Parameters		
Design / Analysis / Mapping:	Analysis	-
Compression/Leg:	45.6	k
Uplift/Leg:	0.0	k
Total Shear:	33.5	k
Moment:	3,494.3	k-ft
Tower + Appurtenance Weight:	45.6	k
Depth to Base of Foundation (l + t - h):	6	ft
Diameter of Pier (d):	9.03	ft
Length of Pier (l):	3.5	ft
Height of Pier above Ground (h):	0.5	ft
Width of Pad (W):	27	ft
Length of Pad (L):	27	ft
Thickness of Pad (t):	3	ft
Tower Leg Center to Center:	0	ft
Number of Tower Legs:	1	-
Tower Center from Mat Center:	0	ft
Depth Below Ground Surface to Water Table:	99	ft
Unit Weight of Concrete:	150	pcf
Unit Weight of Soil Above Water Table:	125	pcf
Unit Weight of Water:	62.4	pcf
Unit Weight of Soil Below Water Table:	62.6	pcf
Friction Angle of Uplift:	15	°
Coefficient of Shear Friction:	0.28	-
Ultimate Compressive Bearing Pressure:	8,000	psf
Ultimate Passive Pressure on Pad Face:		psf
$f_{\text{Soil and Concrete Weight}}$:	0.9	-
f_{Soil} :	0.75	-

Overturning Moment Usage		
Design OTM:	3712.1	k-ft
OTM Resistance:	8175.7	k-ft
Design OTM / OTM Resistance:	45%	Pass

Soil Bearing Pressure Usage		
Net Bearing Pressure:	2738	psf
Factored Nominal Bearing Pressure:	6000	psf
Factored Nominal (Net) Bearing Pressure:	46%	Pass
Load Direction Controlling Design Bearing Pressure:	Diagonal to Pad Edge	

Sliding Factor of Safety		
Ultimate Friction Resistance:	181.7	k
Ultimate Passive Pressure Resistance:	0.0	k
Total Factored Sliding Resistance:	136.3	k
Sliding Design / Sliding Resistance:	25%	Pass

Foundation Steel Parameters		
Shear/Leg (Compression):	22.3	k
Shear/Leg (Uplift):	18.4	k
Concrete Strength (f'_c):	4,000	psi
Pad Tension Steel Depth:	32.44	in
Dead Load Factor:	0.9	-
f_{Shear} :	0.75	-
$f_{\text{Flexure / Tension}}$:	0.9	-
$f_{\text{Compression}}$:	0.65	-
b:	0.85	-
Bottom Pad Rebar Size #:	9	-
# of Bottom Pad Rebar:	28	-
Pad Bottom Steel Area:	28.00	in ²
Pad Steel F_y :	60,000	psi
Top Pad Rebar Size #:	9	-
# of Top Pad Rebar:	28	-
Pad Top Steel Area:	28.00	in ²
Pier Rebar Size #:	9	-
Pier Steel Area (Single Bar):	1.00	in ²
# of Pier Rebar:	48	-
Pier Steel F_y :	60,000	psi
Pier Cage Diameter:	100.2	in
Rebar Strain Limit:	0.008	-
Steel Elastic Modulus:	29,000	ksi
Tie Rebar Size #:	4	-
Tie Steel Area (Single Bar):	0.20	in ²
Tie Spacing:	6	in
Tie Steel F_y :	40,000	psi
Clear Cover:	3	in



Pad Strength Capacity			
Factored One Way Shear (V_u):	239.0	k	
One Way Shear Capacity (fV_n):	876.9	k	ACI 318-14 25.5.5.1
V_u / fV_n :	27%	Pass	
Load Direction Controlling Shear Capacity:	Diagonal to Pad Edge		
Lower Steel Pad Factored Moment (M_u):	1707.7	k-ft	
Lower Steel Pad Moment Capacity (fM_n):	4005.5	k-ft	ACI 318-14 22.3.1.1
M_u / fM_n :	43%	Pass	
Load Direction Controlling Flexural Capacity:	Parallel to Pad Edge		
Upper Steel Pad Factored Moment (M_u):	876.8	k-ft	
Upper Steel Pad Moment Capacity (fM_n):	4005.5	k-ft	
M_u / fM_n :	22%	Pass	
Lower Pad Flexural Reinforcement Ratio:	0.0027		OK - ACI 318-14 7.6.1.1 & 8.6.1.1
Upper Pad Flexural Reinforcement Ratio:	0.0027		OK - ACI 318-14 7.6.1.1 & 8.6.1.1
Pad Shrinkage Reinforcement Ratio:	0.0053		OK - ACI 318-14 24.4.3.2
Lower Pad Reinforcement Spacing:	11.8	in	OK - ACI 318-14 7.7.2.3, 8.7.2.2, & 24.4.3.3
Upper Pad Reinforcement Spacing:	11.8	in	OK - ACI 318-14 7.7.2.3, 8.7.2.2, & 24.4.3.3
Ultimate Punching Shear Stress, v_u :	25.47	psi	ACI 318-14 R8.4.4.2.3
Nominal Punching Shear Capacity ($f_c v_c$):	189.7	psi	ACI 318-14 22.6.5.2
$v_u / f_c v_c$:	13%	Pass	
Pier Moment Pad Flexure Transfer Ratio, γ_f :	0.60		TIA-222-H 9.4.2
Moment Transfer Effective Flexural Width, B_{eff} :	18.03	ft	TIA-222-H 9.4.2
Moment Transfer Through Pad Flexure:	26003.16	k-in	TIA-222-H 9.4.2
Moment Transfer Flexural Capacity ($fM_{sc,f}$):	33281.63	k-in	
$g_f M_{sc} / fM_{sc,f}$:	0%	Pass	

Pier Strength Capacity			
Factored Moment in Pier (M_u):	3611.6	k-ft	
Pier Moment Capacity (fM_n):	10587.1	k-ft	
M_u / fM_n :	34%	Pass	
Factored Shear in Pier (V_u):	33.5	k	
Pier Shear Capacity (fV_n):	1050.4	k	ACI 318-14 22.5.1.1
V_u / fV_n :	3%	Pass	
Pier Shear Reinforcement Ratio:	0.0002		OK - No Ties Necessary for Shear - ACI 11.5.6.1
Factored Tension in Pier (T_u):	0.0	k	
Pier Tension Capacity (fT_n):	2592.0	k	
T_u / fT_n :	0%	Pass	
Factored Compression in Pier (P_u):	45.6	k	
Pier Compression Capacity (fP_n):	16250.9	k	ACI 318-14 22.4.2.1
P_u / fP_n :	0%	Pass	
Pier Compression Reinforcement Ratio:	0.005		OK - TIA-222-H 9.4.1
Minimum Depth to Develop Vertical Rebar:	37	in	ACI 318-14 25.4.2.3
Minimum Hook Development Length:	22	in	ACI 318-14 25.4.3.1
Minimum Mat Thickness / Edge Distance from Pier:	25.0	in	
Minimum Foundation Depth:	5.43	ft	
$M_u / f_B M_n + T_u / f_T T_n$:	34%	Pass	

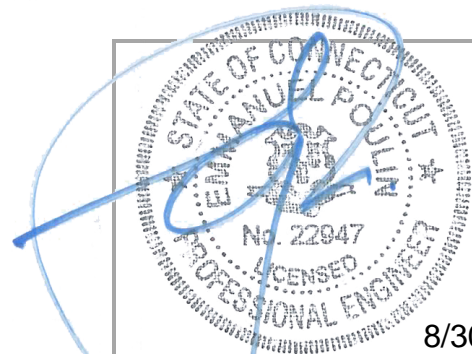
INFINIGY

MOUNT ANALYSIS REPORT

August 27, 2021

Dish Wireless Site Name	BOHVN00200A
Dish Wireless Site Number	BOHVN00200A
ATC Site Name	Bridgewater CT, CT
ATC Site Number	281862
Infinigy Job Number	1197-F0001-B
Client	ATC
Carrier	Dish Wireless
Site Location	111 Second Hill Rd Bridgewater, CT 06752 Litchfield County 41.55497200 N NAD83 73.37088889 W NAD83
Mount Type	8.0 ft Platform
Mount Elevation	145.0 ft AGL
Structural Usage Ratio	41.2
Overall Result	Pass

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 120 mph. The evaluation criteria and applicable codes are presented in the next section of this report.



8/30/21

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 Platform 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	120 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	C
Topographic Category	3
Calculated Crest Height	211 ft.
Seismic Spectral Response	$S_s = 0.199 \text{ g} / S_1 = 0.066 \text{ g}$
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 - 145.0 ft. AGL Platform

Antenna Centerline (ft)	Qty.	Appurtenance Manufacturers	Appurtenance Models
145.0	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-281862 Rev 1, Site #BOHVN00200A, dated July 12, 2021
Mount Manufacturer Drawings	Commscope Document # MC-PK8-DSH, dated March 08, 2021
Structural Analysis Report	ATC, Asset #281862, dated August 20, 2021

5. RESULTS

Components	Capacity	Pass/Fail
Mount Pipes	28.8%	Pass
Horizontals	17.6%	Pass
Standoffs	41.2%	Pass
Handrails	34.9%	Pass
Connections	40.9%	Pass
MOUNT RATING =	41.2 %	Pass

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 145.0 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

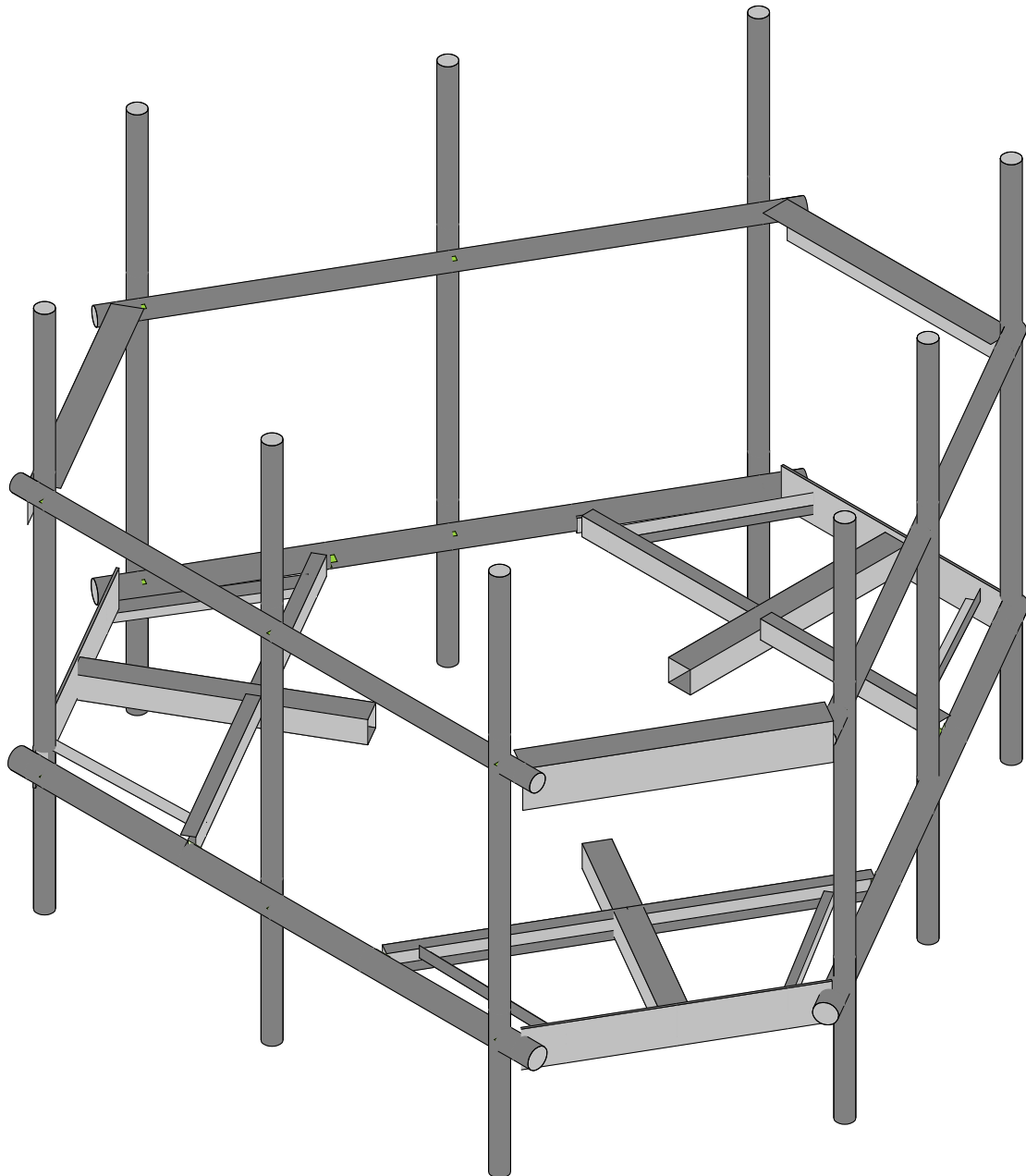
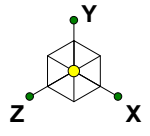
The antenna mounting system was properly fabricated, installed and maintained in accordance with its original design and manufacturer's specifications.	
The configuration of antennas, mounts, and other appurtenances are as specified in the proposed loading configuration table.	
All member connections 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, Solid Round, Plate, Built-up Angle	ASTM A1011 36 KSI
Structural Angle	ASTM A529 Gr. 50
HSS (Rectangular)	ASTM A500-B GR 46
HSS (Circular)	ASTM A500-B GR 42
Pipe	ASTM A500 Gr C
Connection Bolts	ASTM A325
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.



Envelope Only Solution

Infinigy Engineering, PLLC

PSM

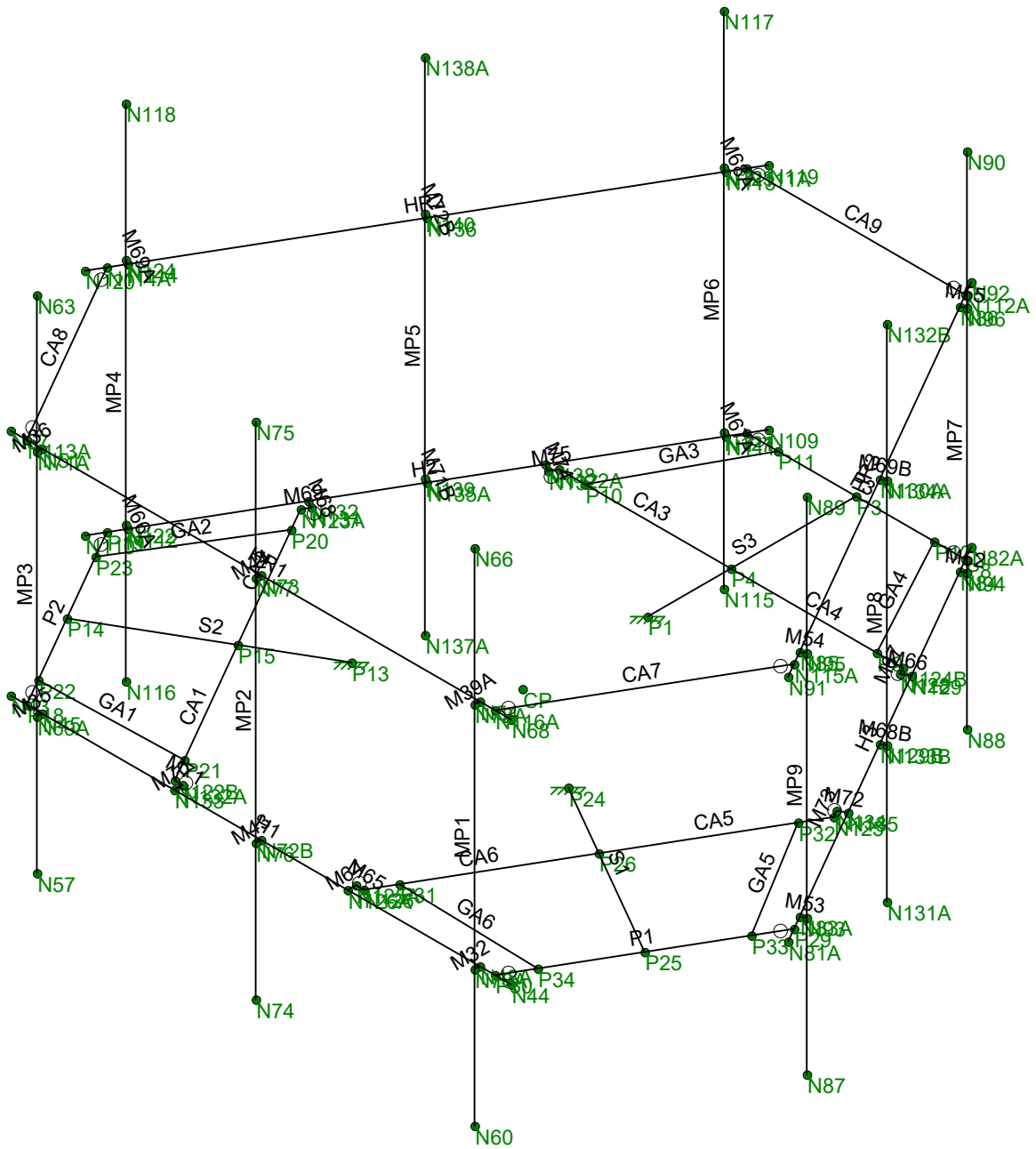
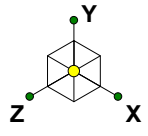
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BOHVN00200A

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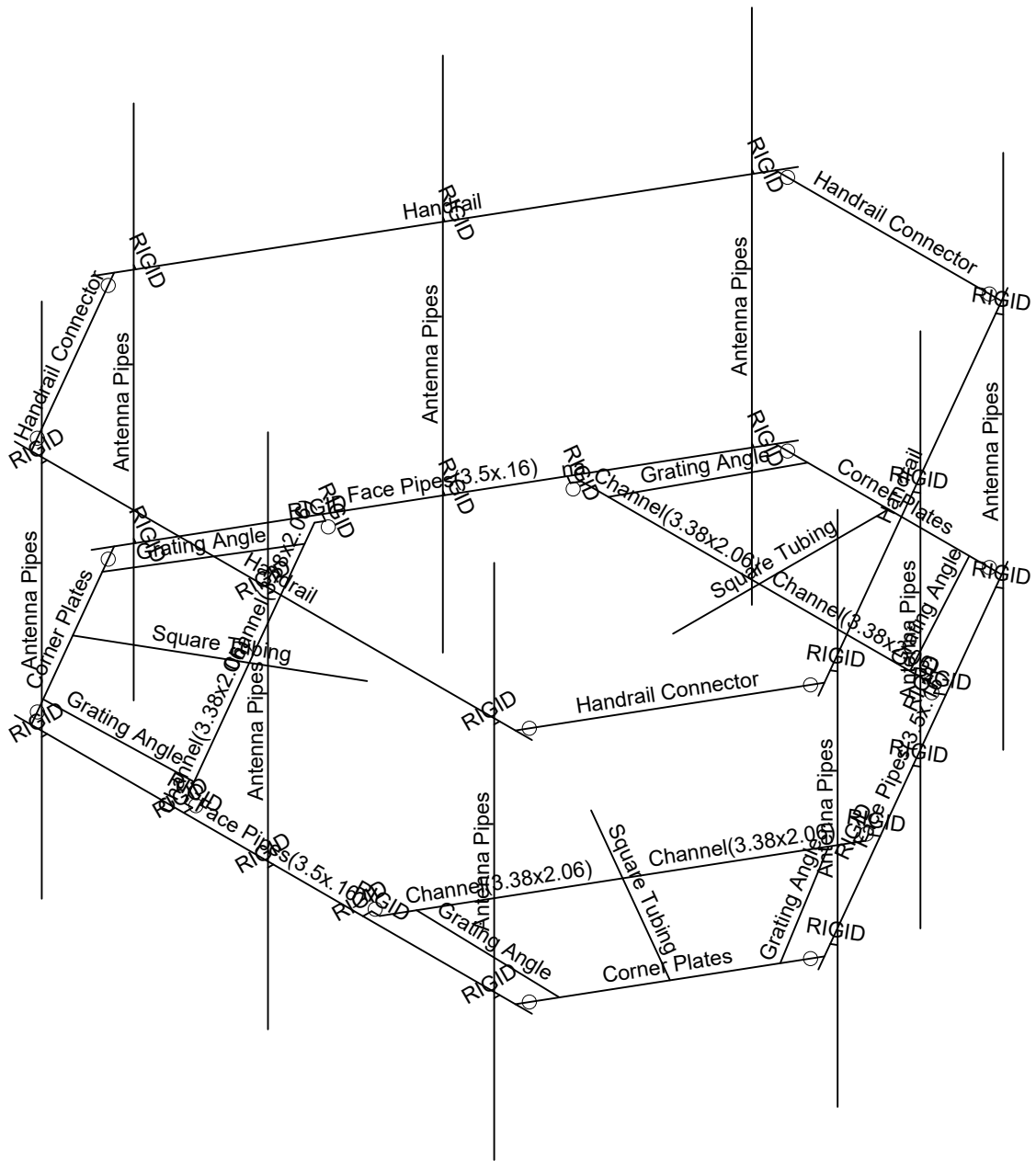
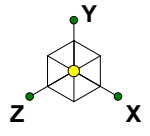
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WireFrame

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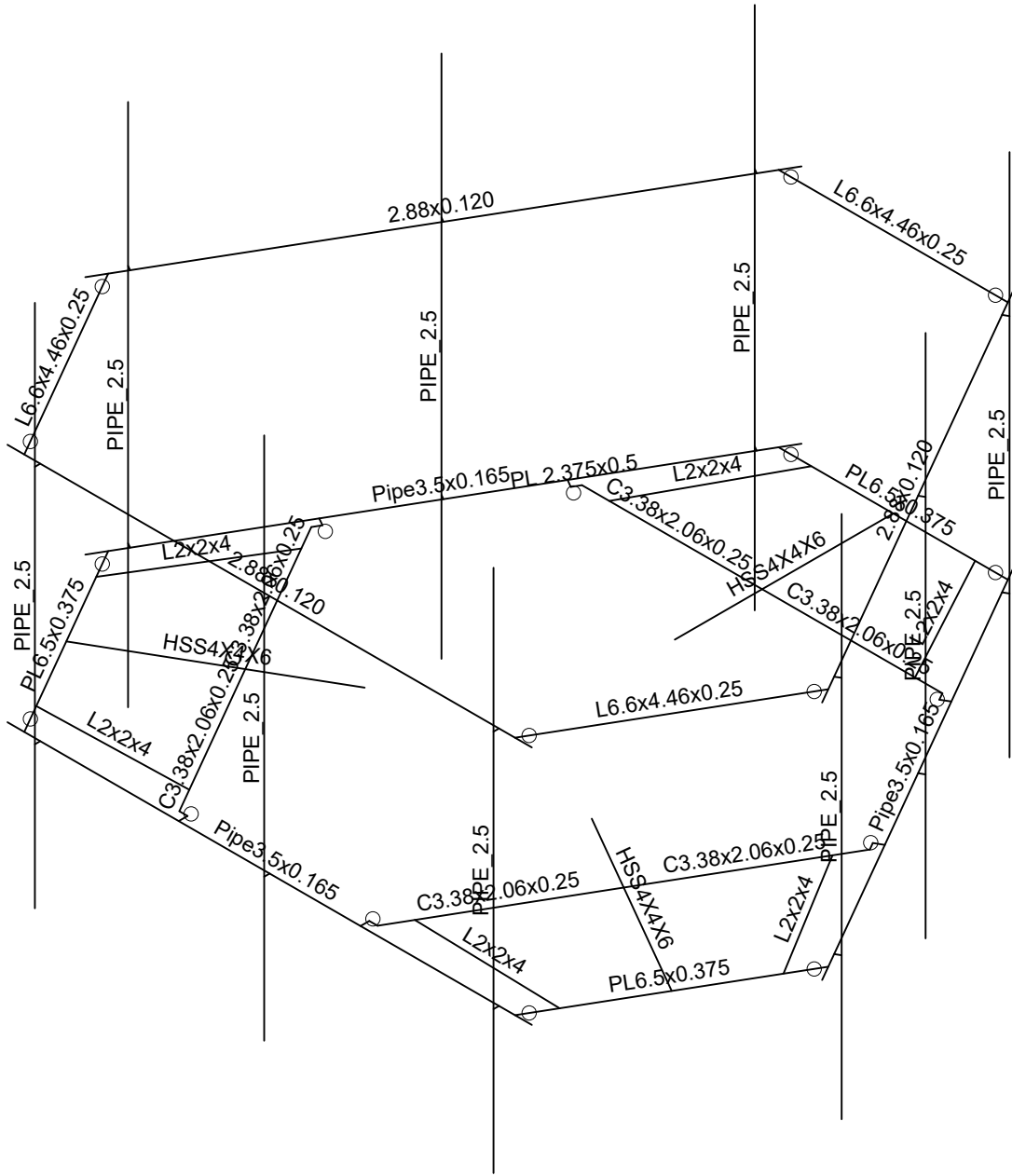
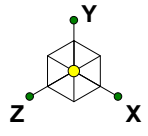
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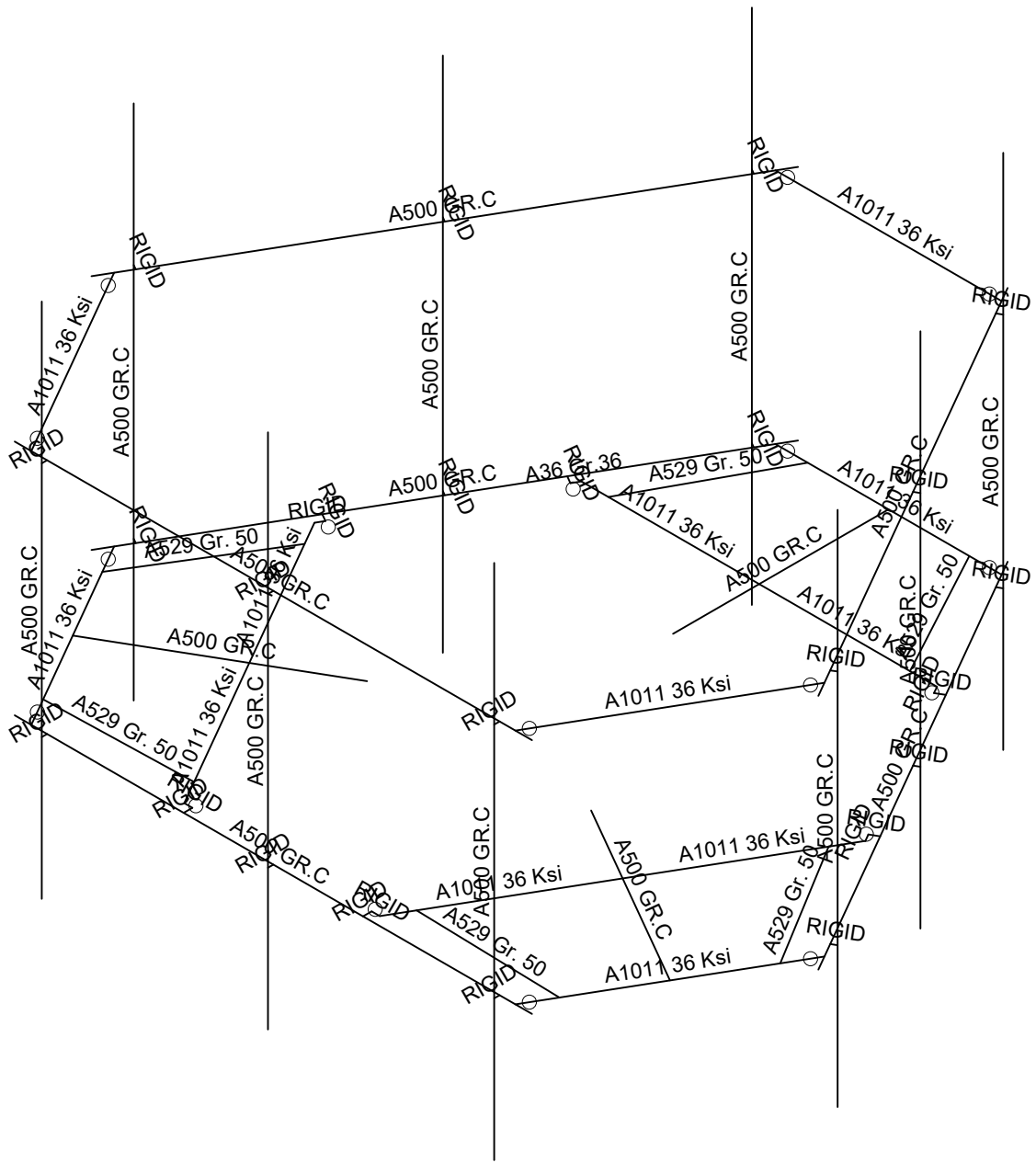
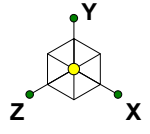
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Member Shapes

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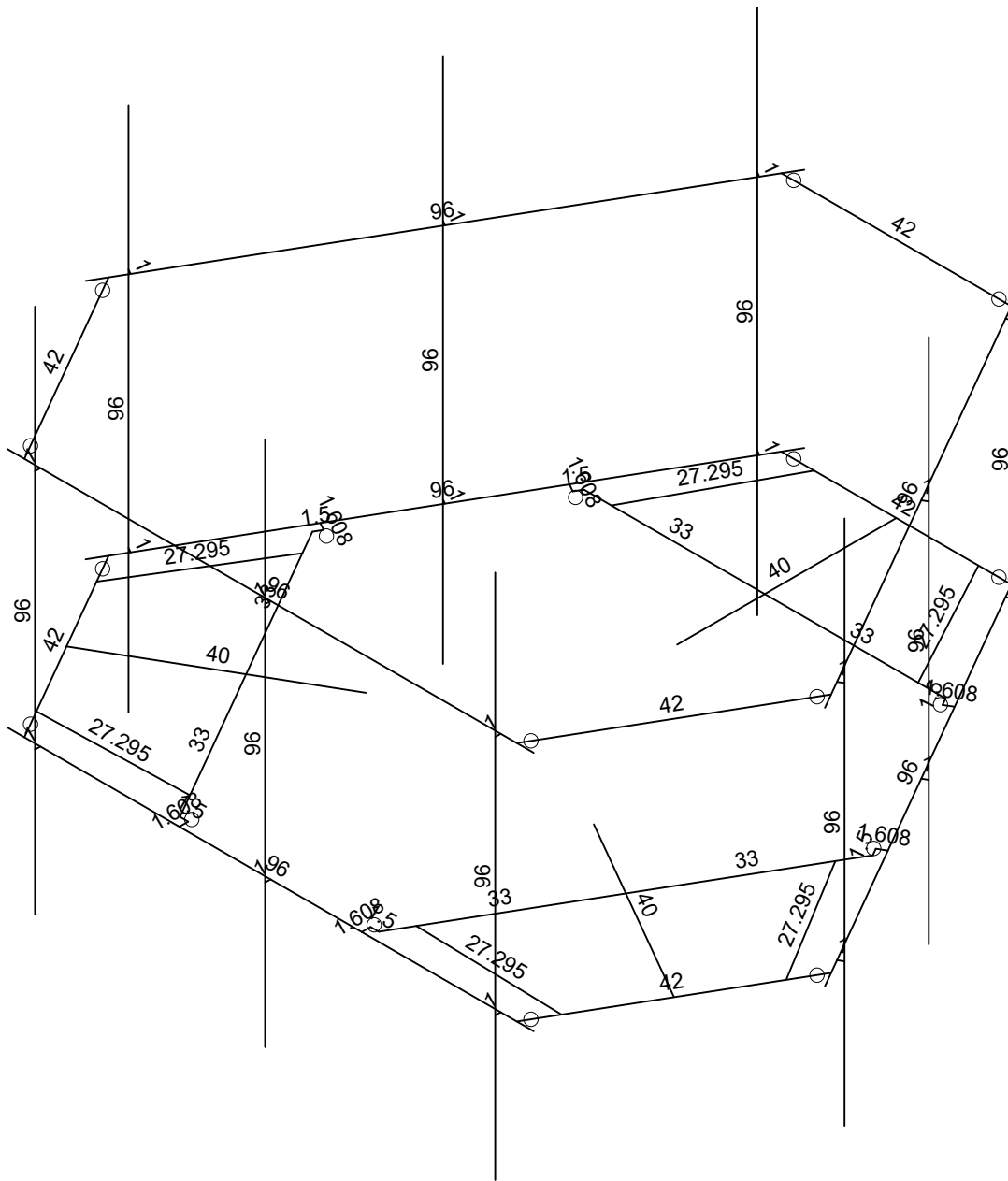
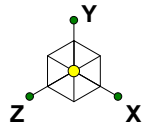
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BOHVN00200A

Material Sets

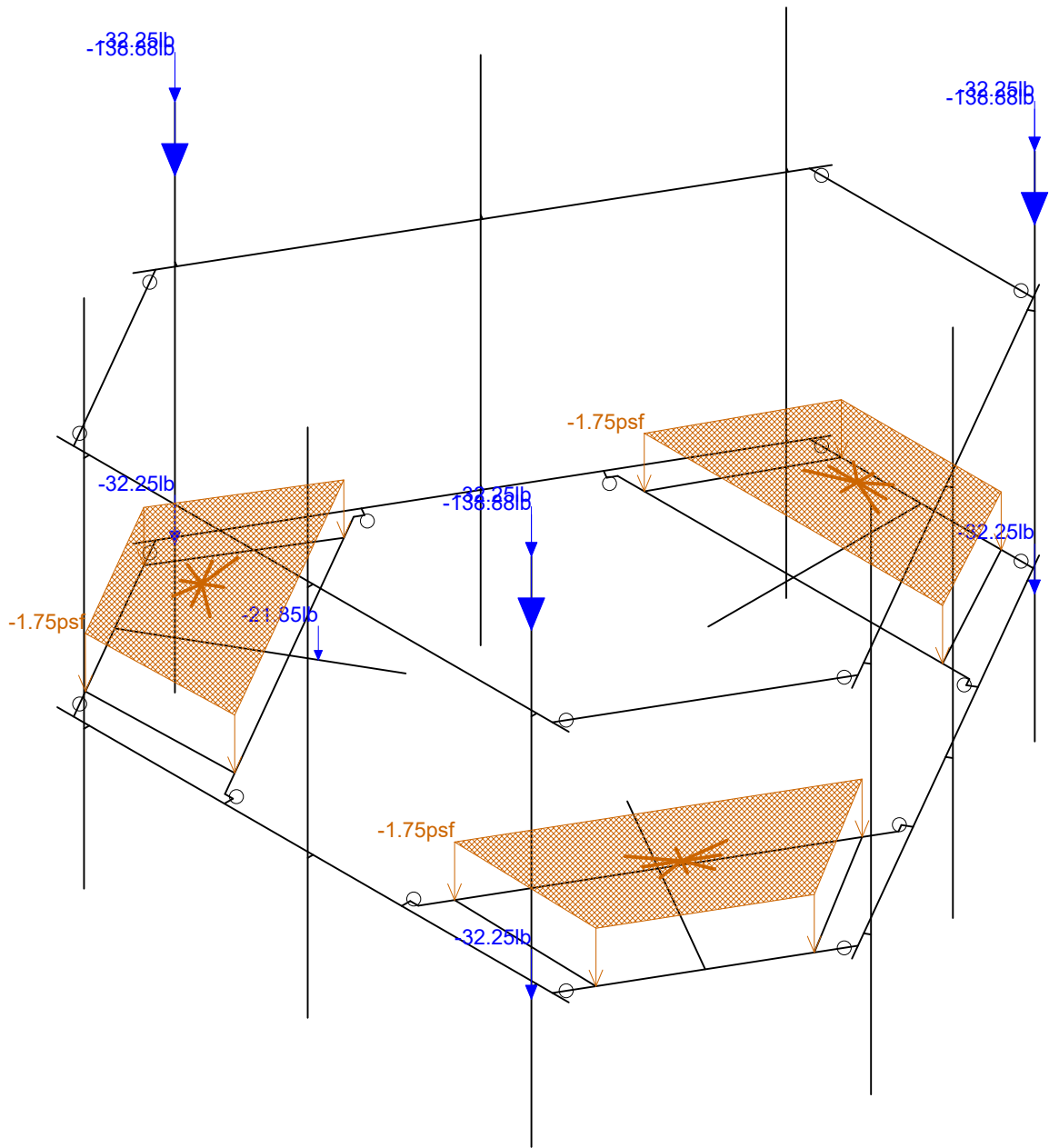
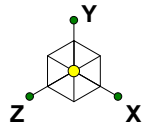
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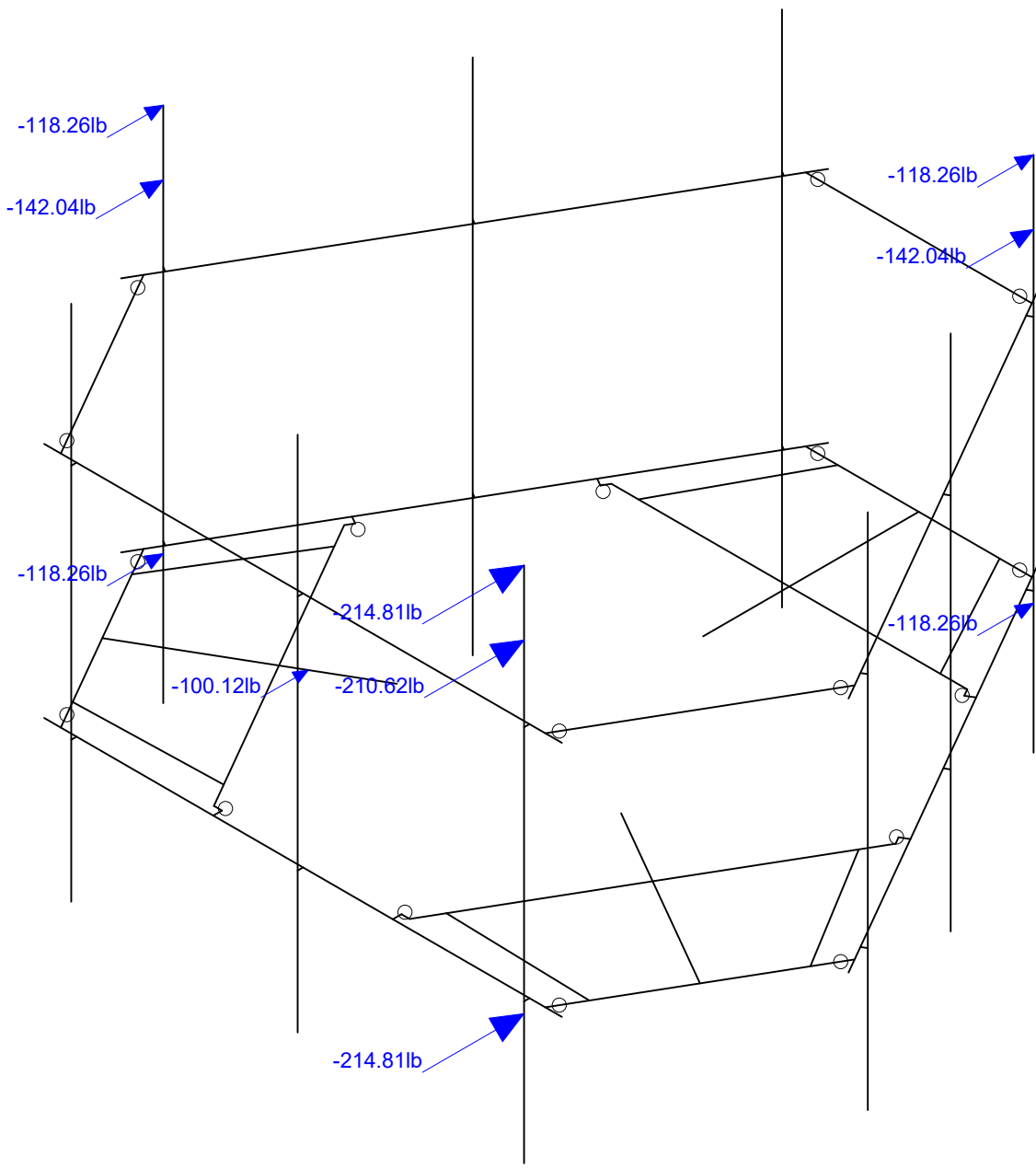
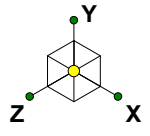
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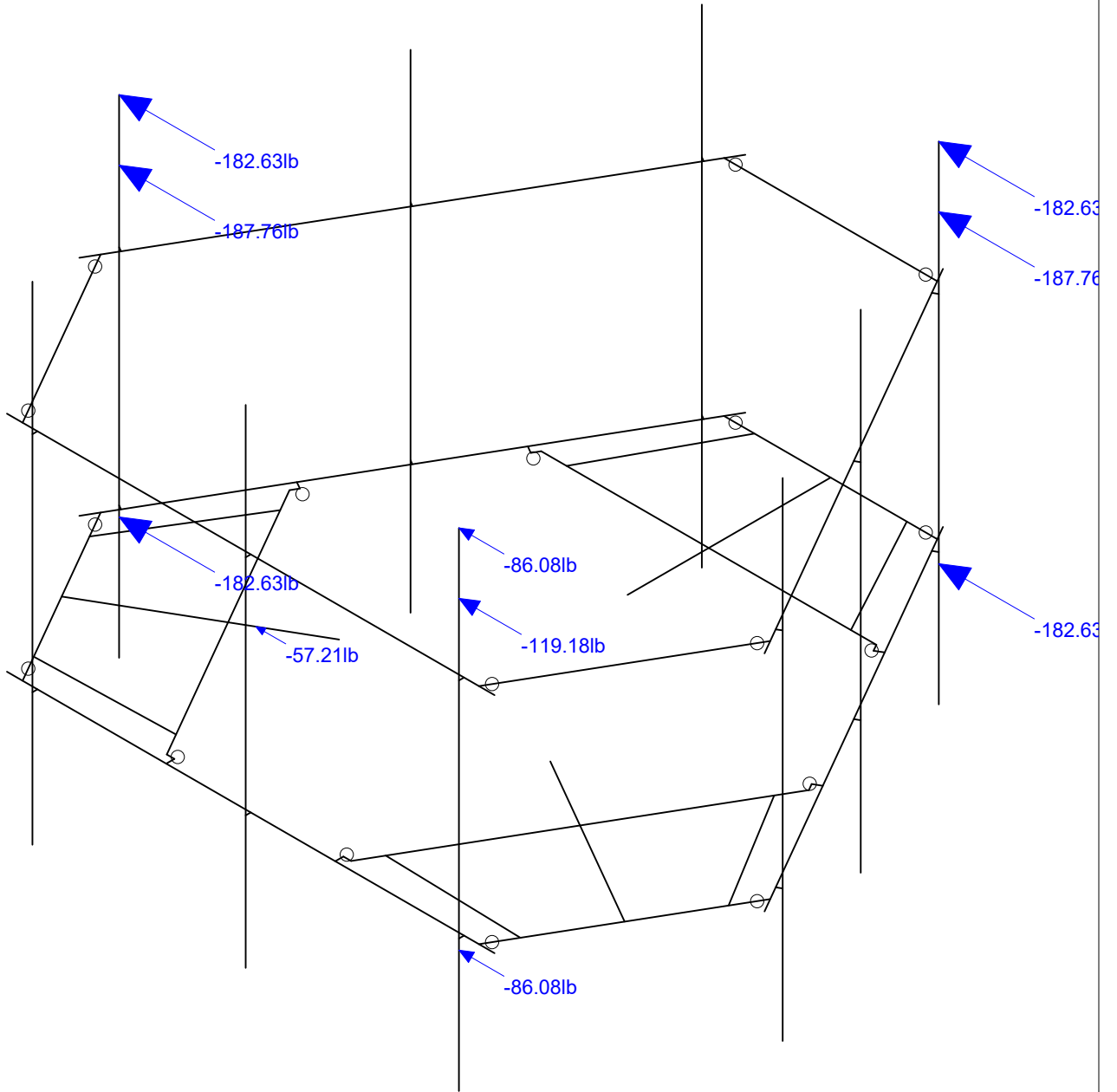
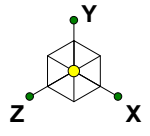
Loads: BLC 1, Self Weight
Envelope Only Solution

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Loads: BLC 2, Wind Load AZI 0
Envelope Only Solution

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Loads: BLC 5, Wind Load AZI 90
Envelope Only Solution

Infinigy Engineering, PLLC

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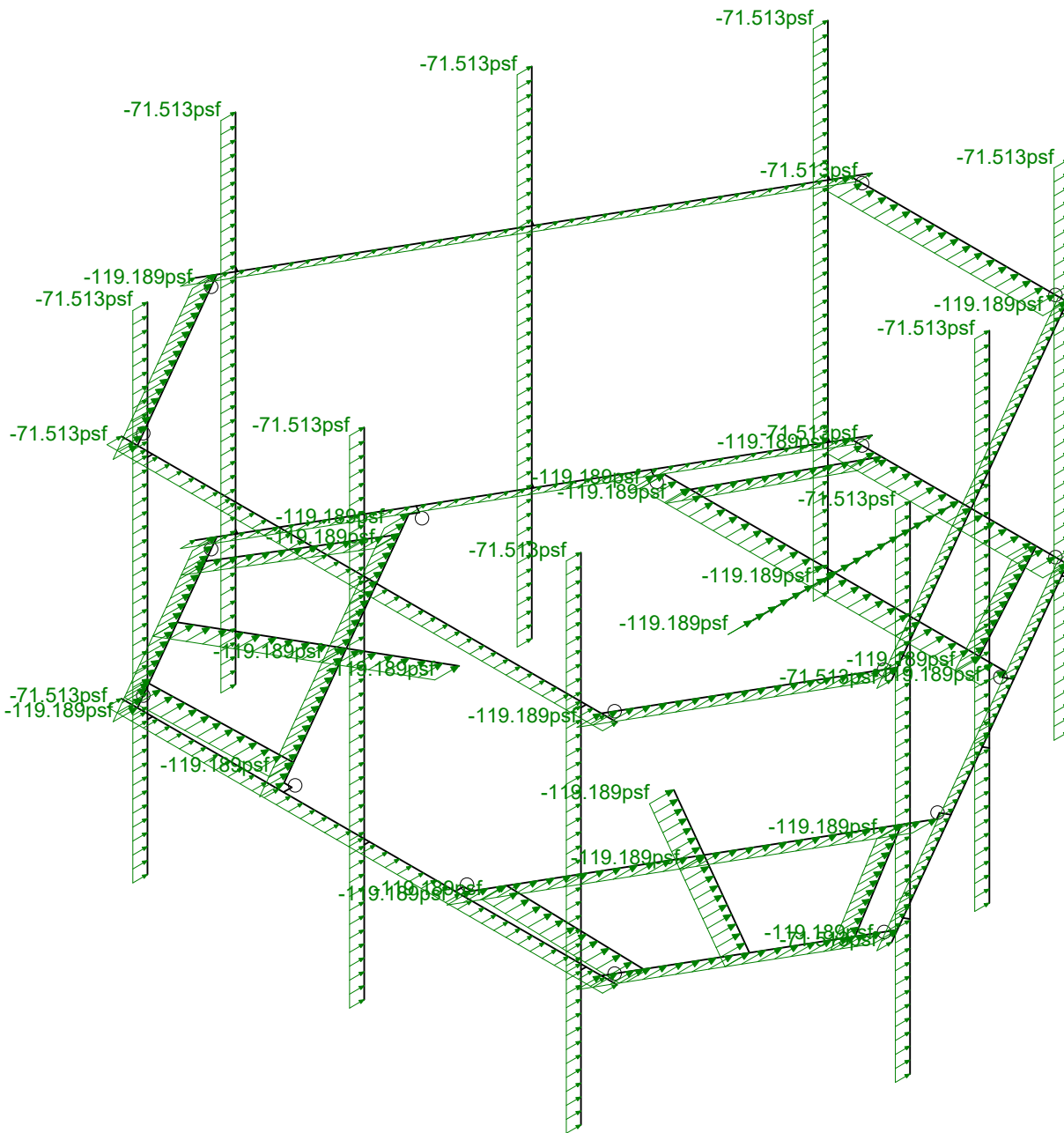
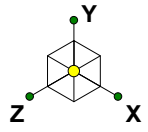
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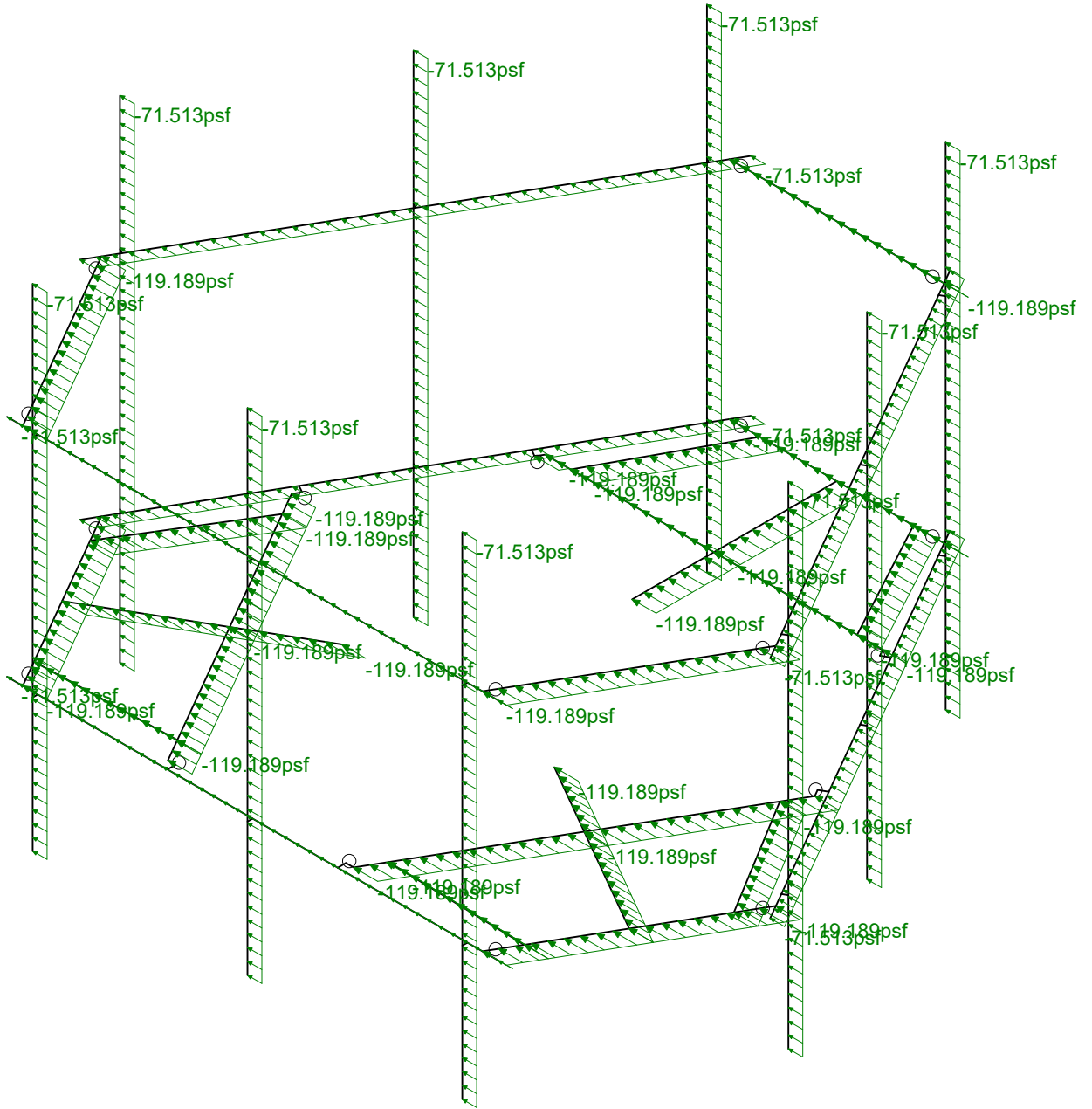
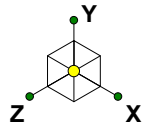
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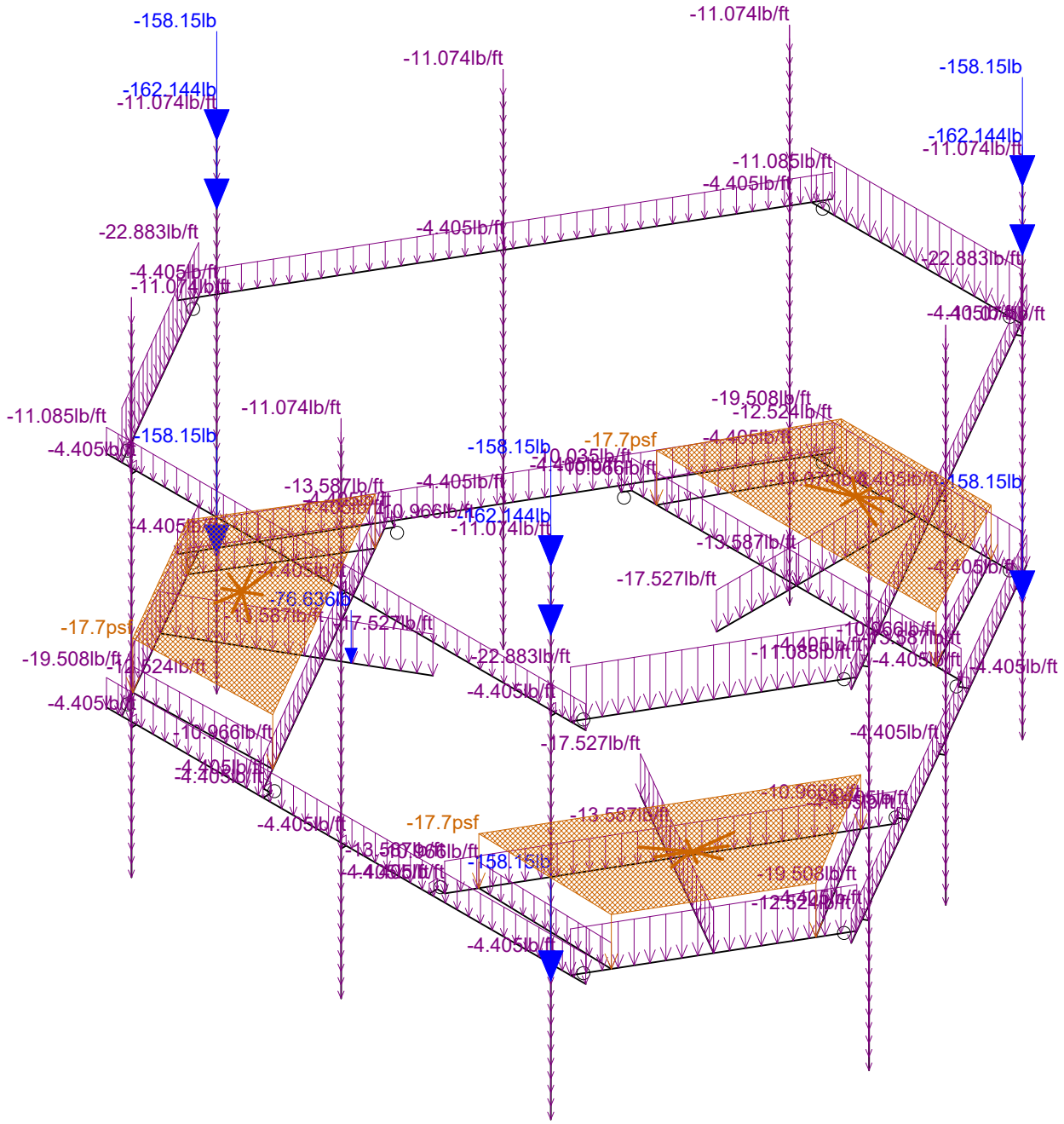
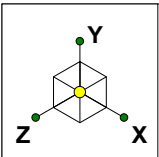
Loads: BLC 14, Distr. Wind Load Z
Envelope Only Solution

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Loads: BLC 15, Distr. Wind Load X
Envelope Only Solution

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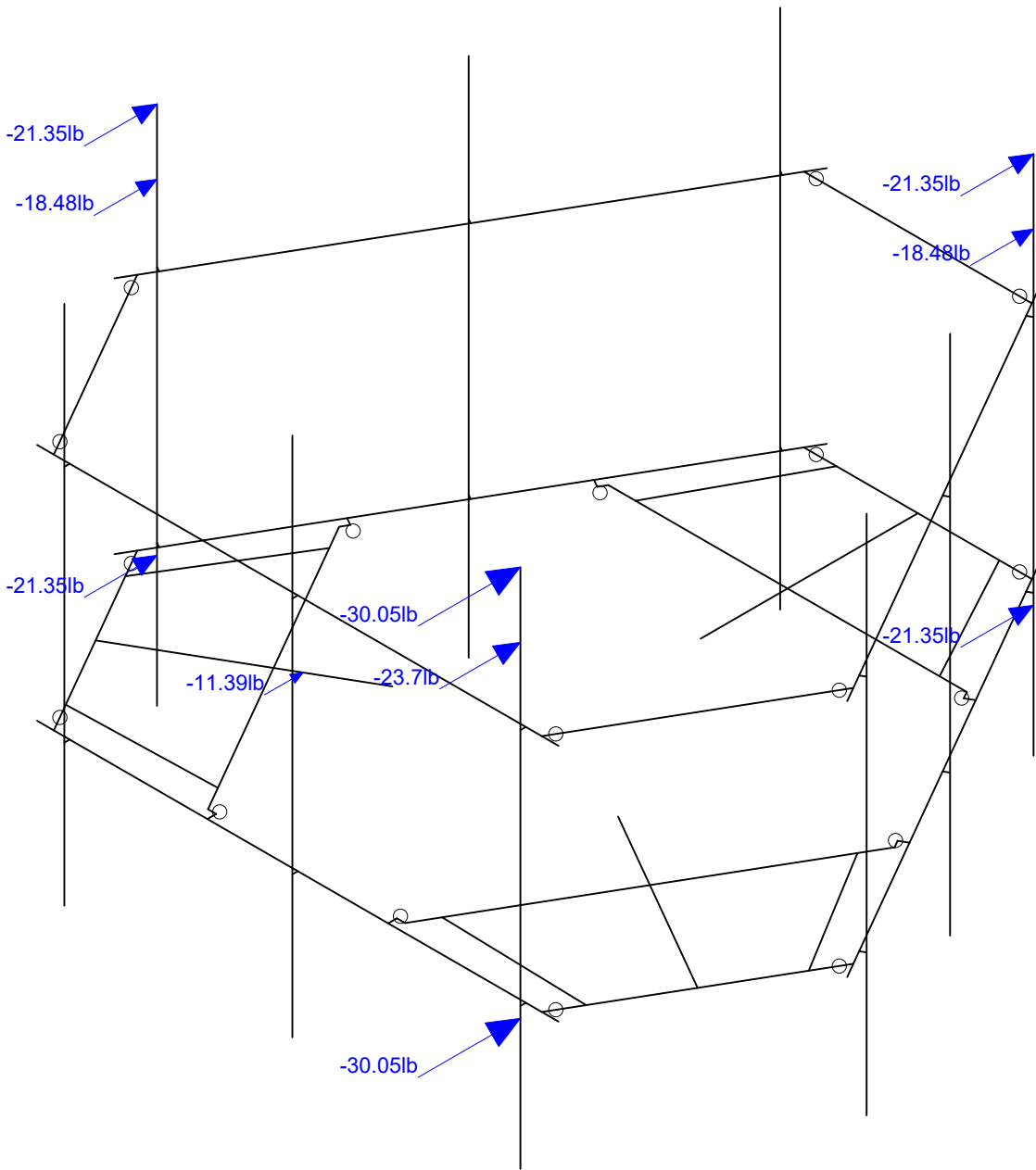
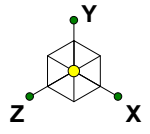


Loads: BLC 16, Ice Weight
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Infinigy Engineering, PLLC
PSM
1197-F0001-B

BOHVN00200A

Ice Weight
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BOHVN00200A_loaded.r3d



Loads: BLC 17, Ice Wind Load AZI 0
Envelope Only Solution

Infinigy Engineering, PLLC

PSM

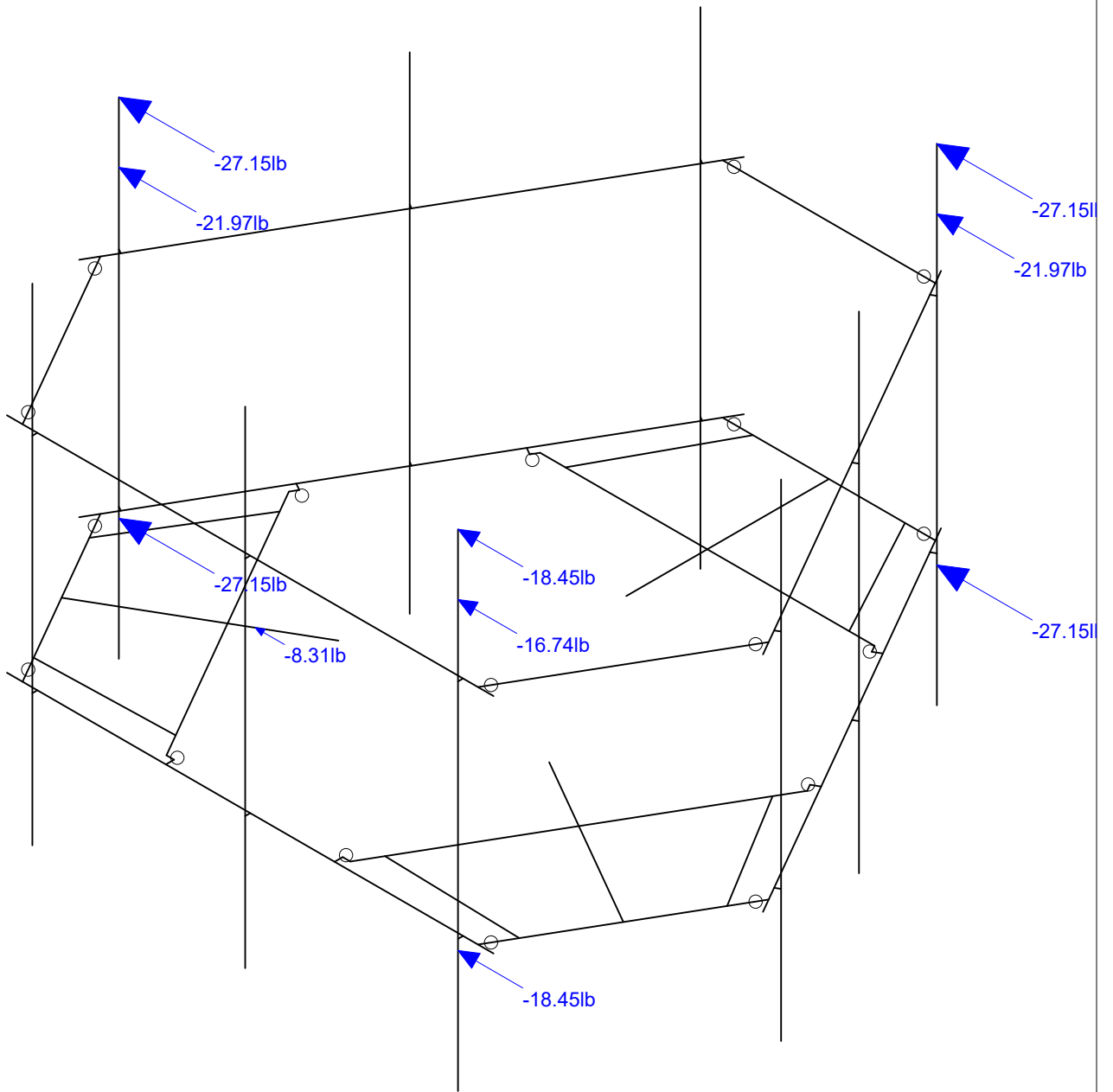
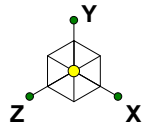
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Ice + Wind Load AZI 000

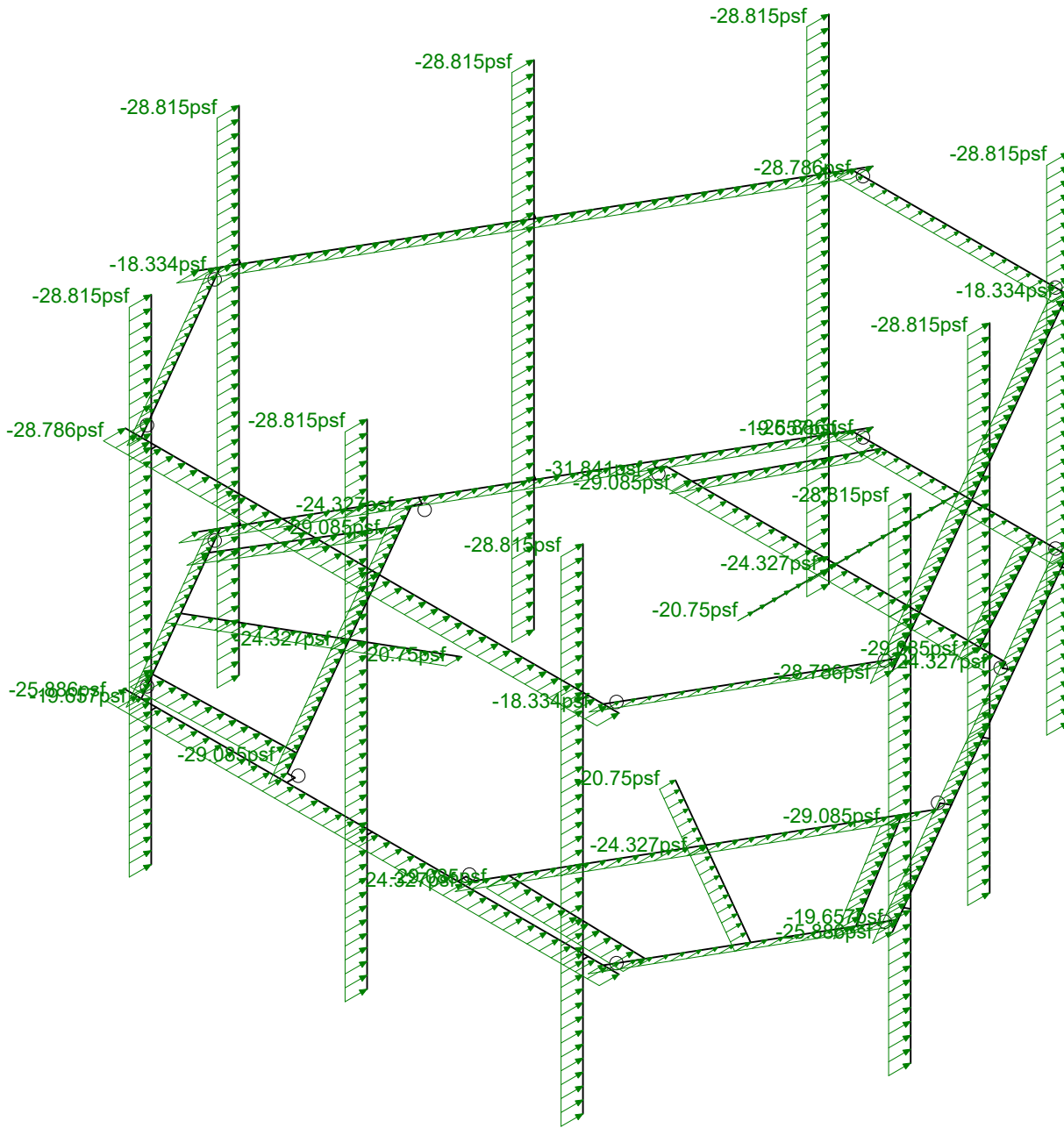
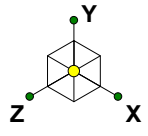
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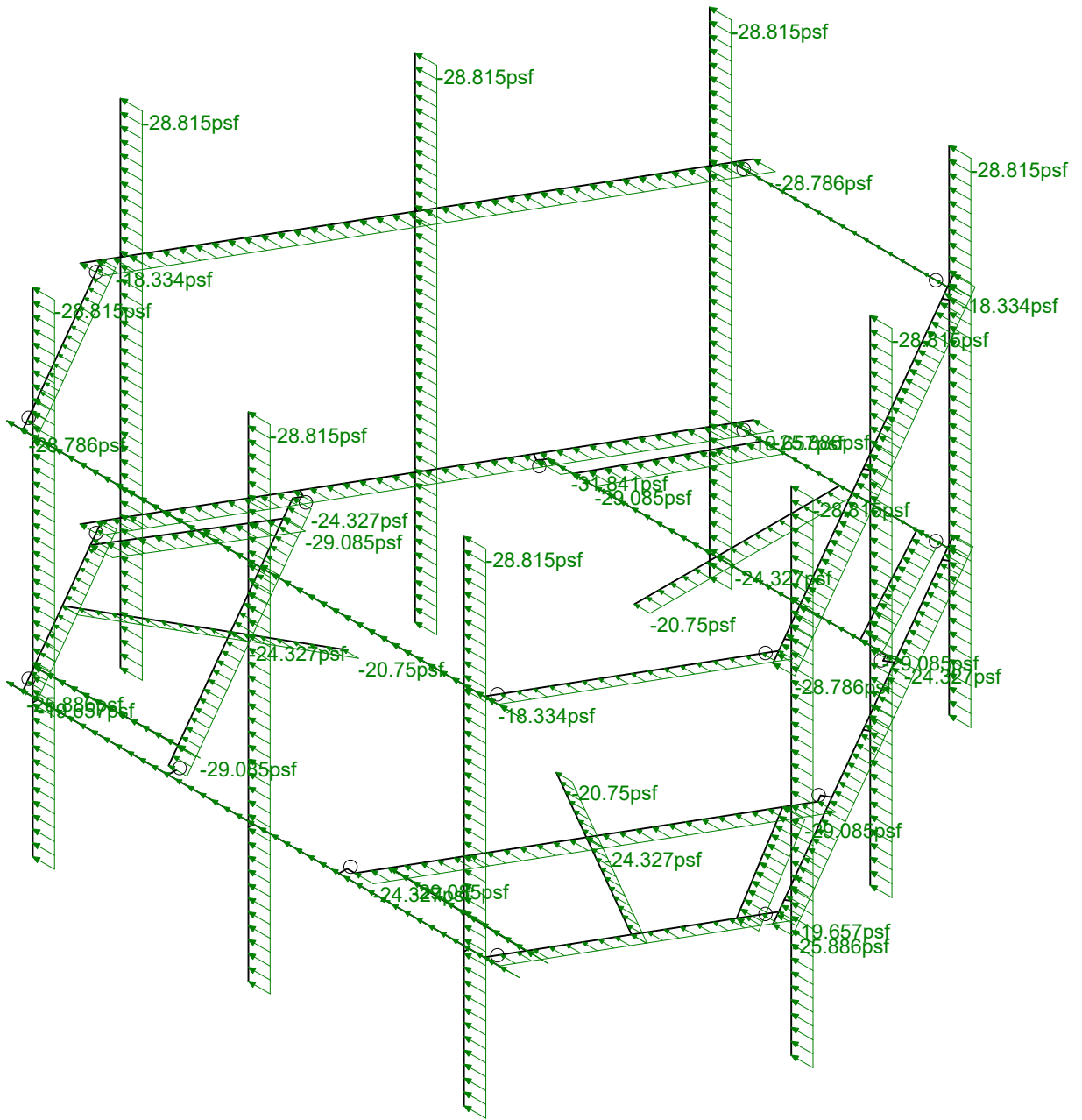
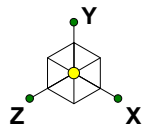
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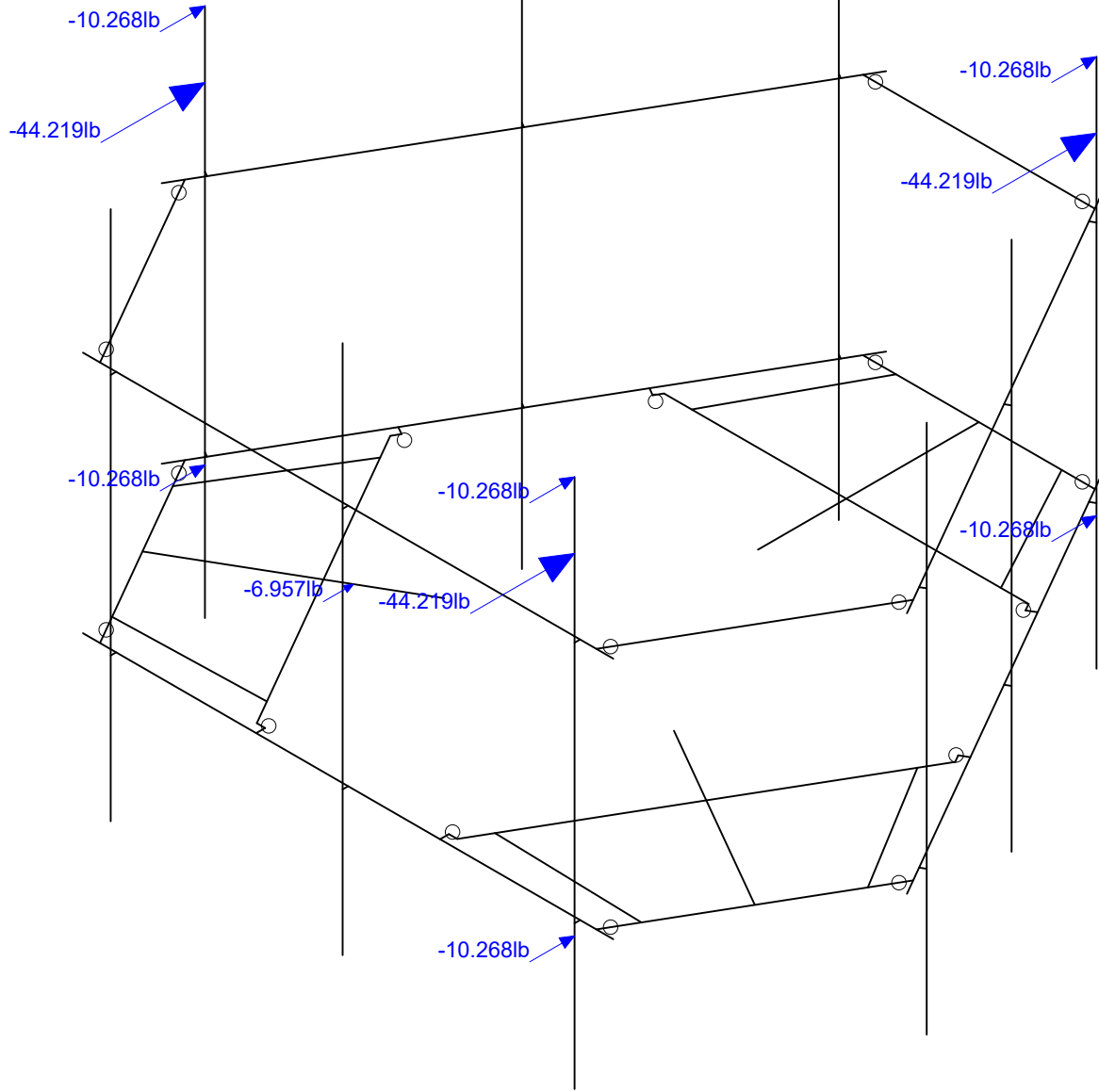
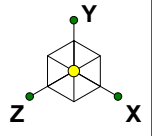
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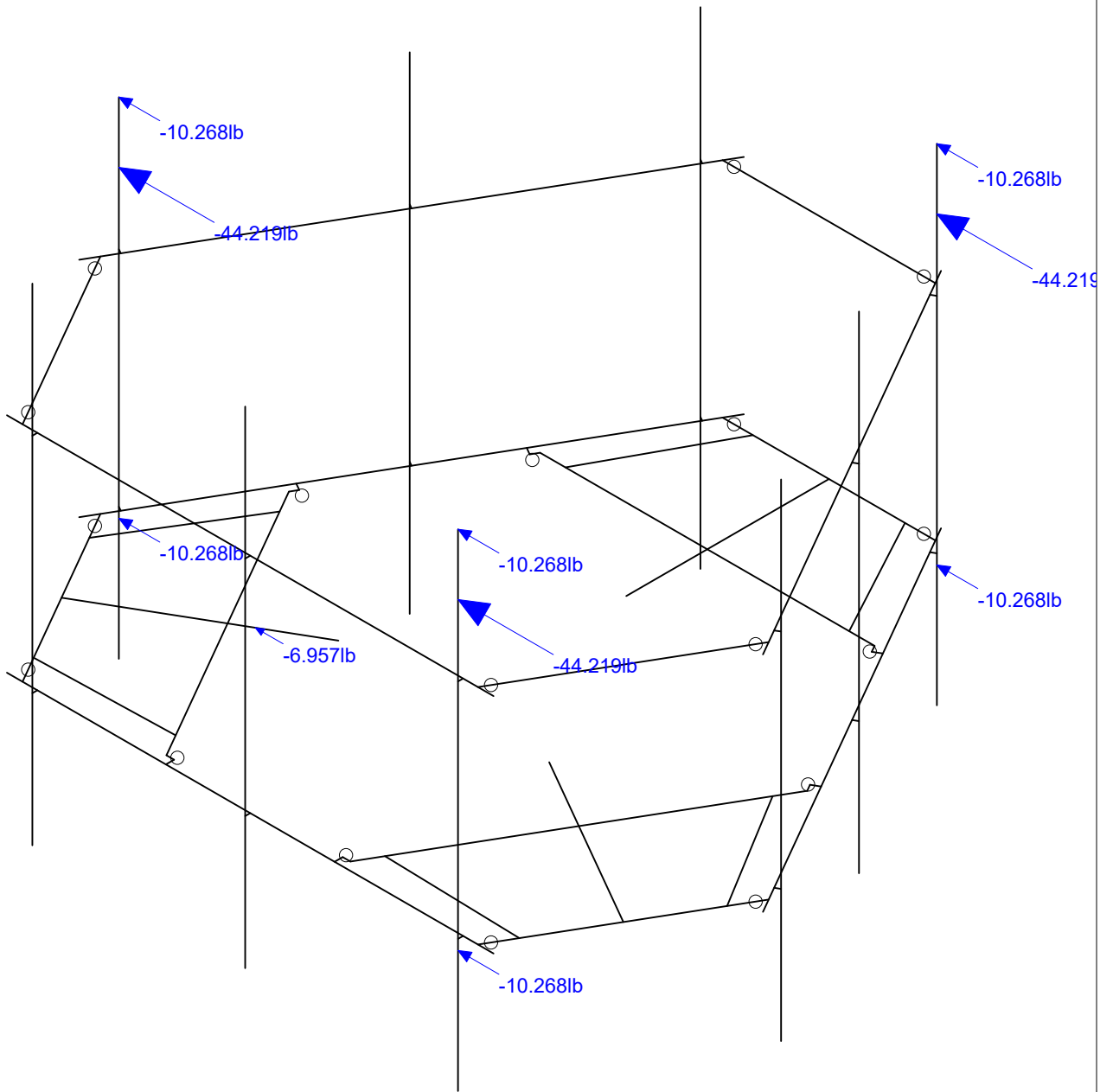
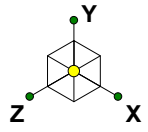
Loads: BLC 30, Distr. Ice Wind Load X
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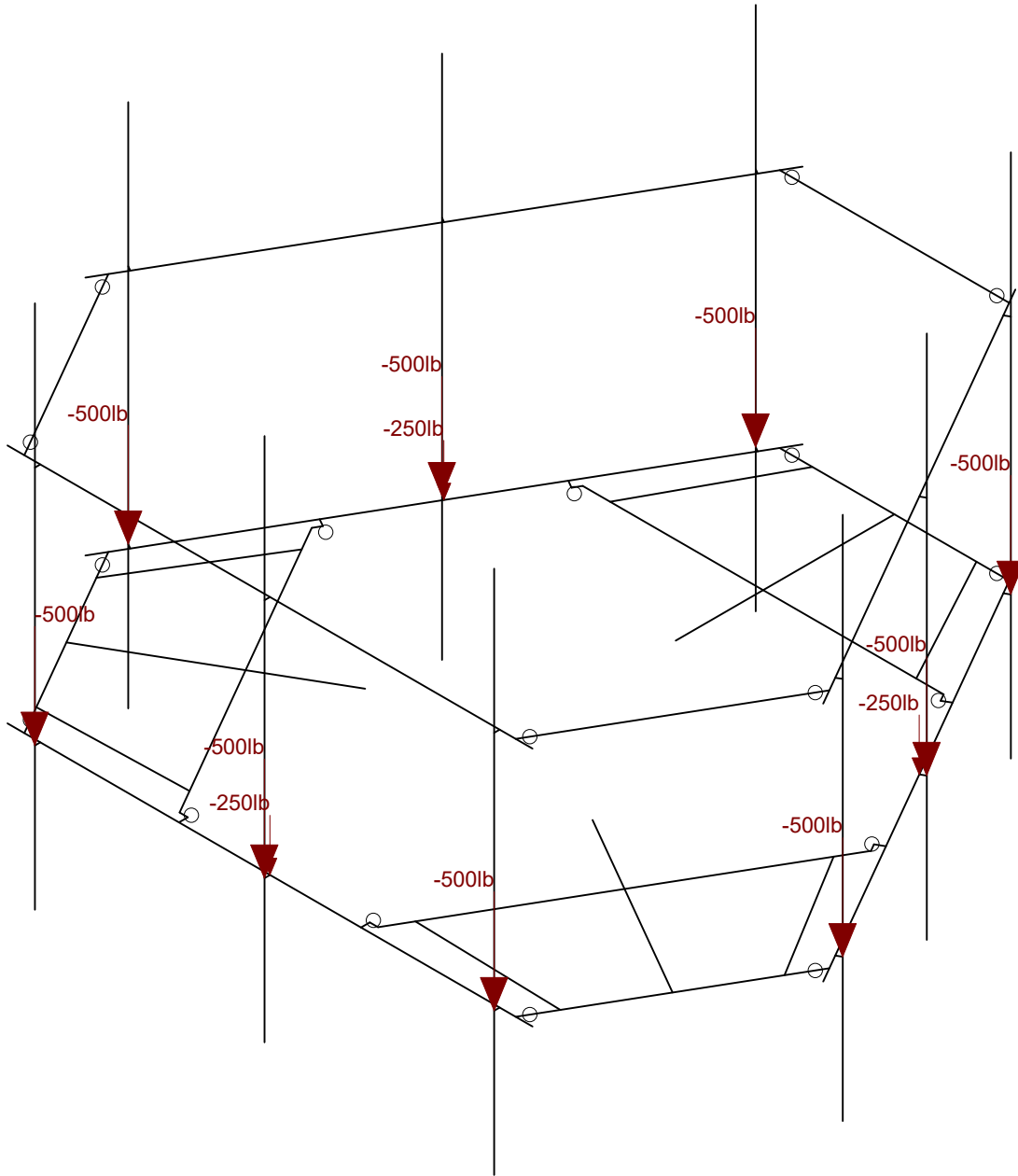
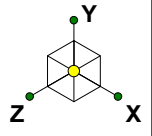
Loads: BLC 31, Seismic Load Z
Envelope Only Solution

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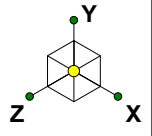
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Envelope Only Solution

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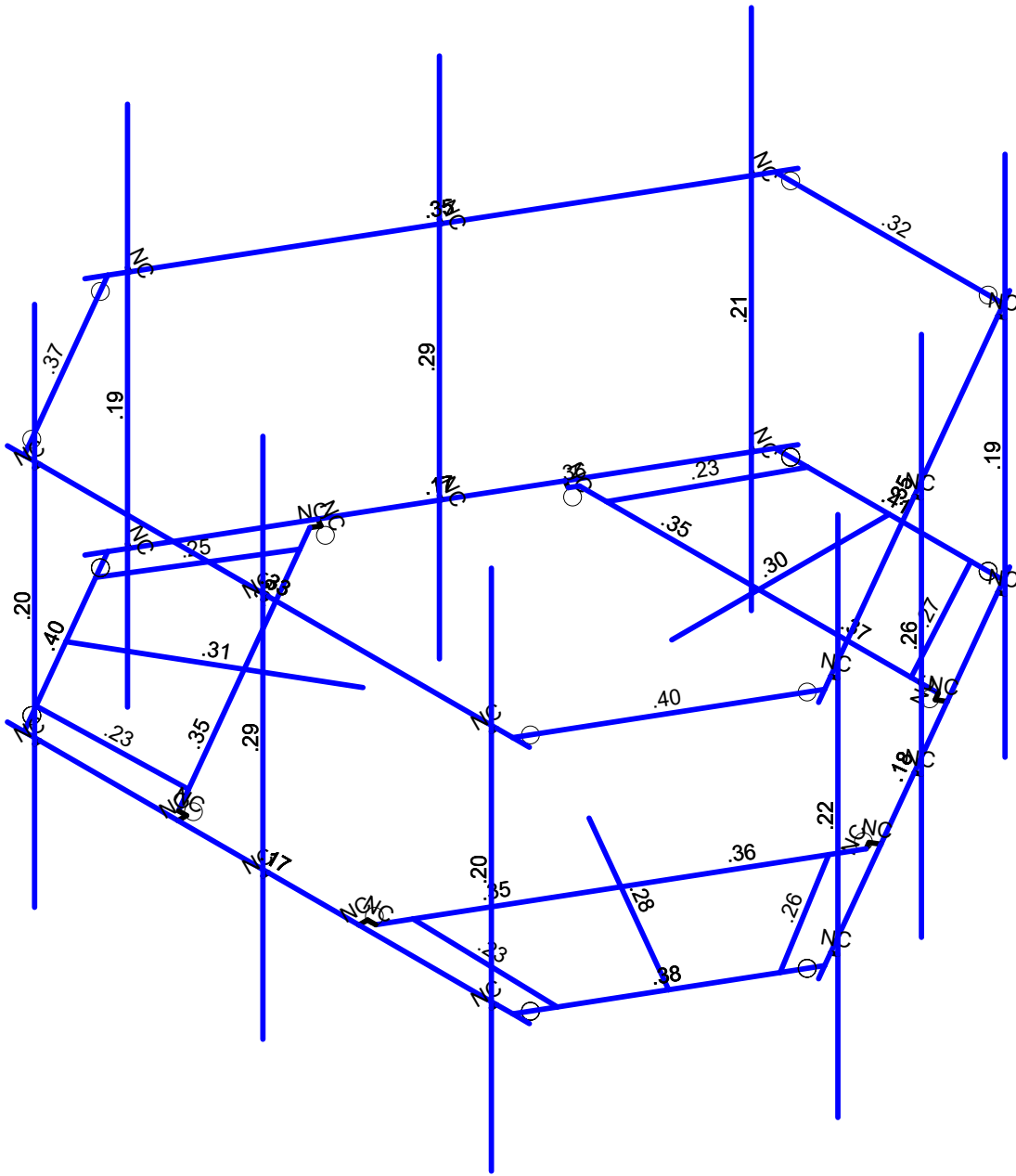


Loads: LL - Live Load
Envelope Only Solution

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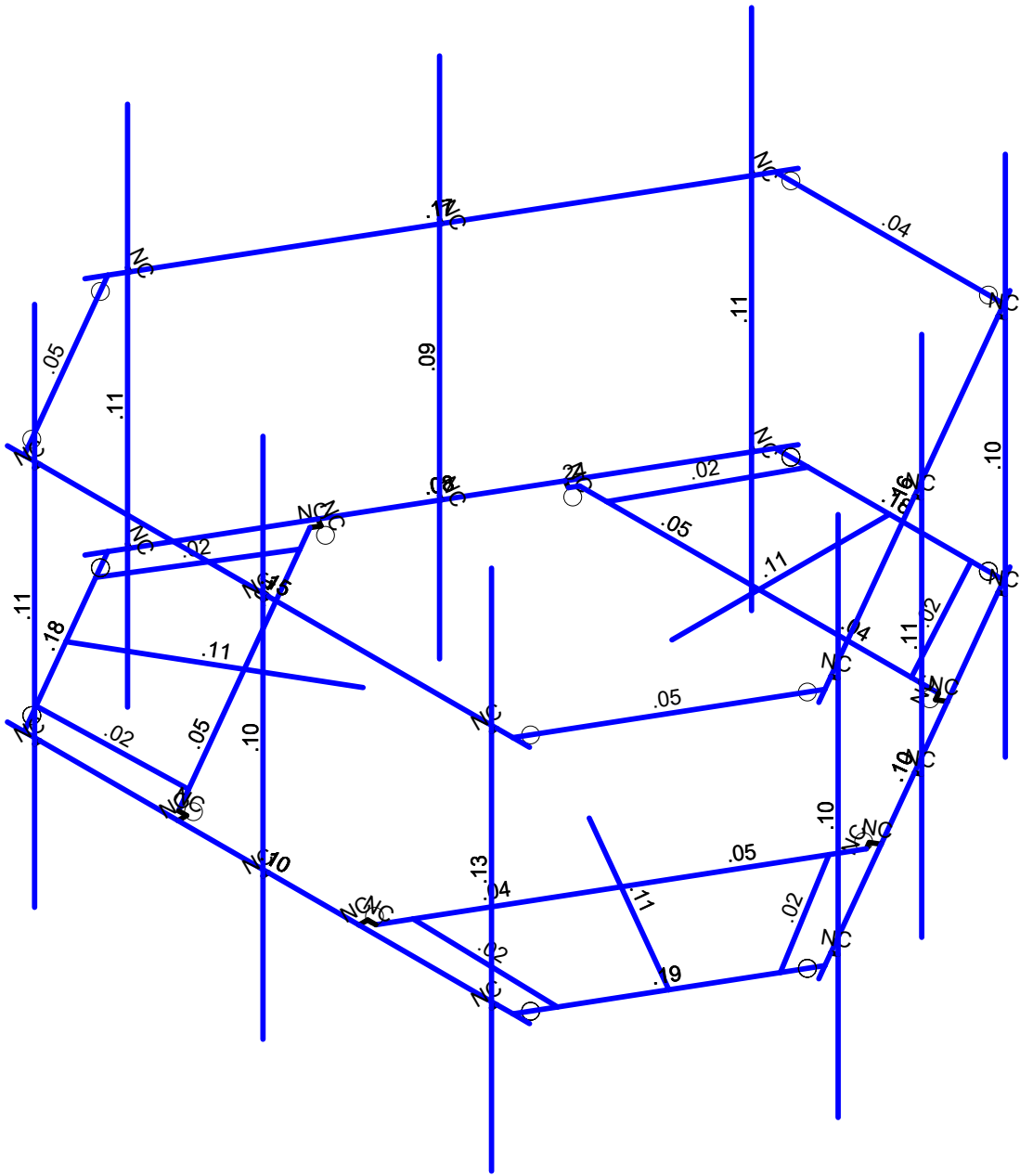
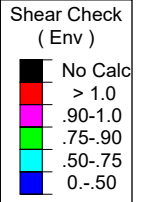
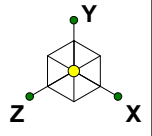


Code Check (Env)	
Black	No Calc
Red	> 1.0
Magenta	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0.-.50



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Infinigy Engineering, PLLC	BOHVN00200A	Bending Check
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1197-F0001-B		BOHVN00200A_loaded.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

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1197-F0001-B		BOHVN00200A_loaded.r3d

Program Inputs

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

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	C	
Topo Factor Procedure:	Method 2	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	904.42	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Platform	
Num Sectors:	3	
Centerline AGL:	145.00	ft
Tower Height AGL:	160.00	ft

TOPOGRAPHIC DATA		
Topo Feature:	Hill	
Slope Distance:	1340.0	ft
Crest Distance:	50.0	ft
Crest Height:	211.0	ft

FACTORS		
Directionality Fact. (K_d):	0.950	
Ground Ele. Factor (K_e):	0.968	*Rev H Only
Rooftop Speed-Up (K_s):	1.000	*Rev H Only
Topographic Factor (K_{zt}):	1.285	
Gust Effect Factor (G_h):	1.000	

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

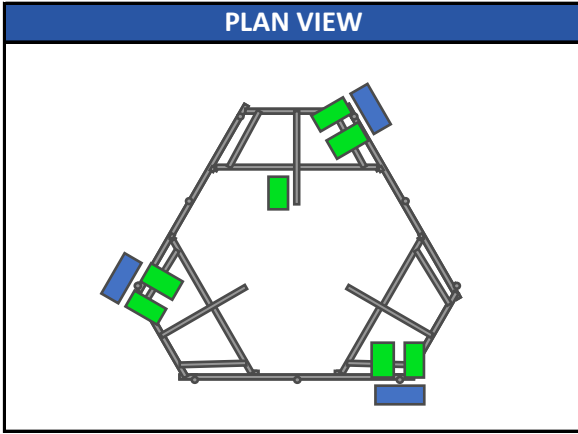
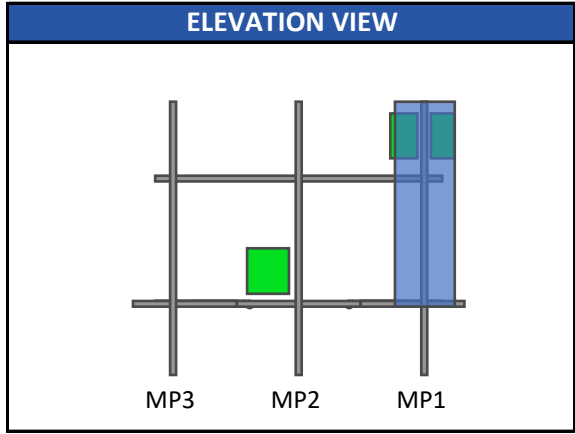
WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	120	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	1.5	in
Flat Pressure:	119.189	psf
Round Pressure:	71.513	psf
Ice Wind Pressure:	12.415	psf

SEISMIC DATA		
Short-Period Accel. (S_s):	0.199	g
1-Second Accel. (S_1):	0.066	g
Short-Period Design (S_{DS}):	0.212	
1-Second Design (S_{D1}):	0.106	
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

Program Inputs



Infinigy Load Calculator V2.1.7

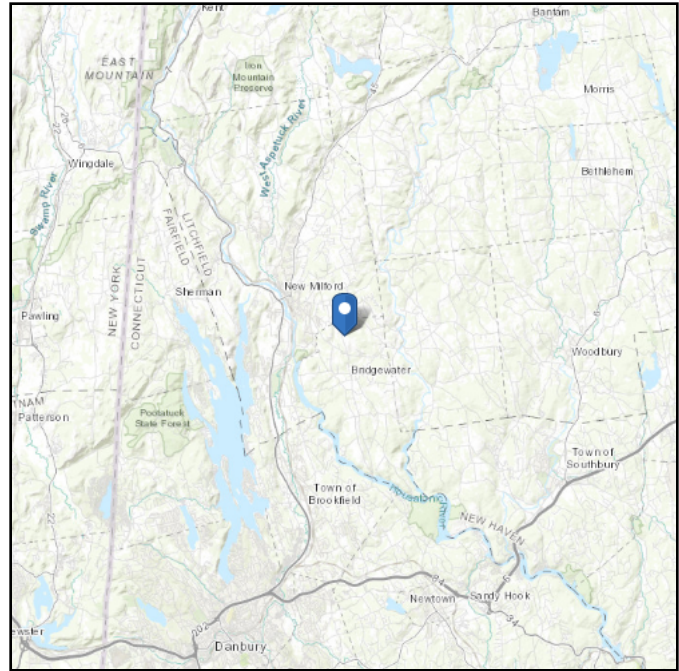
APPURTENANCE INFORMATION											
Appurtenance Name	Elevation	Qty.	K _a	q _z (psf)	EPA _N (ft ²)	EPA _T (ft ²)	Wind F _z (lbs)	Wind F _x (lbs)	Weight (lbs)	Seismic F (lbs)	Member (α sector)
JMA WIRELESS MX08FRO665-21	145.0	3	0.90	59.59	8.01	3.21	429.62	172.17	64.50	20.54	MP1
FUJITSU TA08025-B605	145.0	3	0.90	59.59	1.96	1.19	105.31	63.78	74.95	23.86	MP1
FUJITSU TA08025-B604	145.0	3	0.90	59.59	1.96	1.03	105.31	55.40	63.93	20.36	MP1
RAYCAP RDIDC-9181-PF-48	145.0	1	0.90	59.59	1.87	1.07	100.12	57.21	21.85	6.96	S2

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 904.42 ft (NAVD 88)
Latitude: 41.554972
Longitude: -73.370889



Wind

Results:

Wind Speed:	120 mph per Bridgewater City Requirements in WSEL
10-year MRI	76 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	96 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).

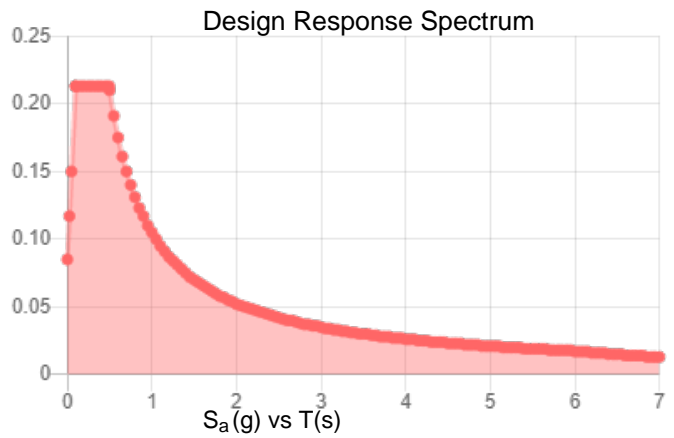
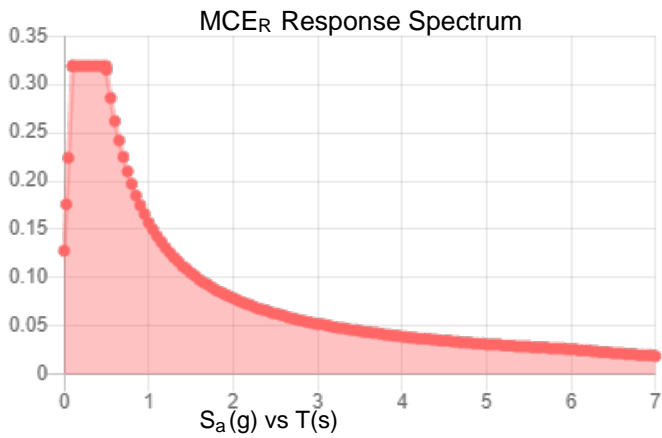
Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.199	S_{DS} :	0.213
S_1 :	0.066	S_{D1} :	0.105
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.105
S_{MS} :	0.319	PGA _M :	0.167
S_{M1} :	0.157	F _{PGA} :	1.59
		I_e :	1

Seismic Design Category B



Data Accessed:

Tue Aug 31 2021

Date Source:

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

Ice

Results:

Ice Thickness: 0.75 in.
Concurrent Temperature: 15 F
Gust Speed: 50 mph

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

Date Accessed: Tue Aug 31 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	P1	P3			Square Tubing	Beam	None	A500 GR.C	Typical
2	GA4	P9	P12		270	Grating Angle	Beam	None	A529 Gr. 50	Typical
3	GA3	P10	P11			Grating Angle	Beam	None	A529 Gr. 50	Typical
4	P3	P7	P8			Corner Plates	Beam	None	A1011 36 Ksi	Typical
5	S2	P13	P14			Square Tubing	Beam	None	A500 GR.C	Typical
6	GA2	P20	P23		270	Grating Angle	Beam	None	A529 Gr. 50	Typical
7	GA1	P21	P22			Grating Angle	Beam	None	A529 Gr. 50	Typical
8	P2	P18	P19			Corner Plates	Beam	None	A1011 36 Ksi	Typical
9	S1	P24	P25			Square Tubing	Beam	None	A500 GR.C	Typical
10	GA6	P31	P34		270	Grating Angle	Beam	None	A529 Gr. 50	Typical
11	GA5	P32	P33			Grating Angle	Beam	None	A529 Gr. 50	Typical
12	P1	P29	P30			Corner Plates	Beam	None	A1011 36 Ksi	Typical
13	H1	N43	N44			Face Pipes(3.5x.16)	Beam	None	A500 GR.C	Typical
14	MP1	N66	N60			Antenna Pipes	Beam	None	A500 GR.C	Typical
15	MP3	N63	N57			Antenna Pipes	Beam	None	A500 GR.C	Typical
16	HR1	N67	N68			Handrail	Beam	None	A500 GR.C	Typical
17	CA8	N114A	N113A		180	Handrail Connector	Beam	None	A1011 36 Ksi	Typical
18	CA9	N112A	N111A		180	Handrail Connector	Beam	None	A1011 36 Ksi	Typical
19	CA7	N116A	N115A		180	Handrail Connector	Beam	None	A1011 36 Ksi	Typical
20	M32	N48A	N70A			RIGID	None	None	RIGID	Typical
21	M35	N45	N69A			RIGID	None	None	RIGID	Typical
22	M36	N51	N71A			RIGID	None	None	RIGID	Typical
23	M39A	N54	N72A			RIGID	None	None	RIGID	Typical
24	CA3	P4	N122A			Channel(3.38x2.06)	Beam	None	A1011 36 Ksi	Typical
25	CA4	N124B	P4			Channel(3.38x2.06)	Beam	None	A1011 36 Ksi	Typical
26	CA1	P15	N122B			Channel(3.38x2.06)	Beam	None	A1011 36 Ksi	Typical
27	CA2	N123A	P15			Channel(3.38x2.06)	Beam	None	A1011 36 Ksi	Typical
28	CA5	P26	N125			Channel(3.38x2.06)	Beam	None	A1011 36 Ksi	Typical
29	CA6	N126	P26			Channel(3.38x2.06)	Beam	None	A1011 36 Ksi	Typical
30	M64	N126A	N125A			RIGID	None	None	RIGID	Typical
31	M65	N126	N125A			RIGID	None	None	RIGID	Typical
32	M66	N129	N128			RIGID	None	None	RIGID	Typical
33	M67	N124B	N128			RIGID	None	None	RIGID	Typical
34	M68	N132	N131			RIGID	None	None	RIGID	Typical
35	M69	N123A	N131			RIGID	None	None	RIGID	Typical
36	M70	N133	N132A			RIGID	None	None	RIGID	Typical
37	M71	N122B	N132A			RIGID	None	None	RIGID	Typical
38	M72	N135	N134			RIGID	None	None	RIGID	Typical
39	M73	N125	N134			RIGID	None	None	RIGID	Typical
40	M74	N138	N137			RIGID	None	None	RIGID	Typical
41	M75	N122A	N137			PL 2.375x0.5	None	None	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...)	Section/Shape	Type	Design List	Material	Design Rules
42	MP2	N75	N74			Antenna Pipes	Beam	None	A500 GR.C	Typical
43	M43	N72B	N76			RIGID	None	None	RIGID	Typical
44	M44	N73	N77			RIGID	None	None	RIGID	Typical
45	H3	N81A	N82A			Face Pipes(3.5x.16)	Beam	None	A500 GR.C	Typical
46	MP7	N90	N88			Antenna Pipes	Beam	None	A500 GR.C	Typical
47	MP9	N89	N87			Antenna Pipes	Beam	None	A500 GR.C	Typical
48	HR3	N91	N92			Handrail	Beam	None	A500 GR.C	Typical
49	M52	N84	N94			RIGID	None	None	RIGID	Typical
50	M53	N83A	N93			RIGID	None	None	RIGID	Typical
51	M54	N85	N95			RIGID	None	None	RIGID	Typical
52	M55	N86	N96			RIGID	None	None	RIGID	Typical
53	H2	N109	N110			Face Pipes(3.5x.16)	Beam	None	A500 GR.C	Typical
54	MP4	N118	N116			Antenna Pipes	Beam	None	A500 GR.C	Typical
55	MP6	N117	N115			Antenna Pipes	Beam	None	A500 GR.C	Typical
56	HR2	N119	N120			Handrail	Beam	None	A500 GR.C	Typical
57	M66A	N112	N122			RIGID	None	None	RIGID	Typical
58	M67A	N111	N121			RIGID	None	None	RIGID	Typical
59	M68A	N113	N123			RIGID	None	None	RIGID	Typical
60	M69A	N114	N124			RIGID	None	None	RIGID	Typical
61	MP8	N132B	N131A			Antenna Pipes	Beam	None	A500 GR.C	Typical
62	M68B	N129B	N133B			RIGID	None	None	RIGID	Typical
63	M69B	N130A	N134A			RIGID	None	None	RIGID	Typical
64	MP5	N138A	N137A			Antenna Pipes	Beam	None	A500 GR.C	Typical
65	M71B	N135A	N139			RIGID	None	None	RIGID	Typical
66	M72B	N136	N140			RIGID	None	None	RIGID	Typical

Hot Rolled Steel Design Parameters

	Label	Shape	Lengt...	Lbby[in]	Lbzz[in]	Lcomp t...	Lcomp b...	L-tor...	Kyy	Kzz	Cb	Func...
1	S3	Square Tubing	40			Lbby						Late...
2	GA4	Grating Angle	27.295			Lbby						Late...
3	GA3	Grating Angle	27.295			Lbby						Late...
4	P3	Corner Plates	42			Lbby						Late...
5	S2	Square Tubing	40			Lbby						Late...
6	GA2	Grating Angle	27.295			Lbby						Late...
7	GA1	Grating Angle	27.295			Lbby						Late...
8	P2	Corner Plates	42			Lbby						Late...
9	S1	Square Tubing	40			Lbby						Late...
10	GA6	Grating Angle	27.295			Lbby						Late...
11	GA5	Grating Angle	27.295			Lbby						Late...
12	P1	Corner Plates	42			Lbby						Late...
13	H1	Face Pipes(3.5x.16)	96			Lbby						Late...



Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Lenqt...	Lbby[in]	Lbzz[in]	Lcomp t...	Lcomp b...	L-tor...	Kyy	Kzz	Cb	Func...
14	MP1	Antenna Pipes	96			Lbyy						Late...
15	MP3	Antenna Pipes	96			Lbyy						Late...
16	HR1	Handrail	96			Lbyy						Late...
17	CA8	Handrail Connector	42			Lbyy						Late...
18	CA9	Handrail Connector	42			Lbyy						Late...
19	CA7	Handrail Connector	42			Lbyy						Late...
20	CA3	Channel(3.38x2.06)	33			Lbyy						Late...
21	CA4	Channel(3.38x2.06)	33			Lbyy						Late...
22	CA1	Channel(3.38x2.06)	33			Lbyy						Late...
23	CA2	Channel(3.38x2.06)	33			Lbyy						Late...
24	CA5	Channel(3.38x2.06)	33			Lbyy						Late...
25	CA6	Channel(3.38x2.06)	33			Lbyy						Late...
26	M75	PL 2.375x0.5	1.5			Lbyy						Late...
27	MP2	Antenna Pipes	96			Lbyy						Late...
28	H3	Face Pipes(3.5x.16)	96			Lbyy						Late...
29	MP7	Antenna Pipes	96			Lbyy						Late...
30	MP9	Antenna Pipes	96			Lbyy						Late...
31	HR3	Handrail	96			Lbyy						Late...
32	H2	Face Pipes(3.5x.16)	96			Lbyy						Late...
33	MP4	Antenna Pipes	96			Lbyy						Late...
34	MP6	Antenna Pipes	96			Lbyy						Late...
35	HR2	Handrail	96			Lbyy						Late...
36	MP8	Antenna Pipes	96			Lbyy						Late...
37	MP5	Antenna Pipes	96			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						Yes			None
2	GA4						Yes			None
3	GA3						Yes			None
4	P3	BenPIN	BenPIN				Yes	Default		None
5	S2						Yes			None
6	GA2						Yes			None
7	GA1						Yes			None
8	P2	BenPIN	BenPIN				Yes	Default		None
9	S1						Yes	Default		None
10	GA6						Yes			None
11	GA5						Yes			None
12	P1	BenPIN	BenPIN				Yes	Default		None
13	H1						Yes			None
14	MP1						Yes	+y+3		None



Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ra..	Analysis ...	Inactive	Seismi...
15	MP3						Yes		+y+3		None
16	HR1						Yes				None
17	CA8	00000X	00000X				Yes				None
18	CA9	00000X	00000X				Yes				None
19	CA7	00000X	00000X				Yes	Default			None
20	M32						Yes	** NA **			None
21	M35						Yes	** NA **			None
22	M36						Yes	** NA **			None
23	M39A						Yes	** NA **			None
24	CA3						Yes	Default			None
25	CA4						Yes	Default			None
26	CA1						Yes	Default			None
27	CA2						Yes	Default			None
28	CA5						Yes	Default			None
29	CA6						Yes	Default			None
30	M64	BenPIN					Yes	** NA **			None
31	M65						Yes	** NA **			None
32	M66	BenPIN					Yes	** NA **			None
33	M67						Yes	** NA **			None
34	M68	BenPIN					Yes	** NA **			None
35	M69						Yes	** NA **			None
36	M70	BenPIN					Yes	** NA **			None
37	M71						Yes	** NA **			None
38	M72	BenPIN					Yes	** NA **			None
39	M73						Yes	** NA **			None
40	M74	BenPIN					Yes	** NA **			None
41	M75						Yes	** NA **			None
42	MP2						Yes		+y+3		None
43	M43						Yes	** NA **			None
44	M44						Yes	** NA **			None
45	H3						Yes				None
46	MP7						Yes		+y+3		None
47	MP9						Yes		+y+3		None
48	HR3						Yes				None
49	M52						Yes	** NA **			None
50	M53						Yes	** NA **			None
51	M54						Yes	** NA **			None
52	M55						Yes	** NA **			None
53	H2						Yes				None
54	MP4						Yes		+y+3		None
55	MP6						Yes		+y+3		None
56	HR2						Yes				None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical Defl Ra..	Analysis ...	Inactive	Seismi...
57	M66A						Yes ** NA **			None
58	M67A						Yes ** NA **			None
59	M68A						Yes ** NA **			None
60	M69A						Yes ** NA **			None
61	MP8						Yes	+y+3		None
62	M68B						Yes ** NA **			None
63	M69B						Yes ** NA **			None
64	MP5						Yes	+y+3		None
65	M71B						Yes ** NA **			None
66	M72B						Yes ** NA **			None

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General				
2	RIGID		29	35.1	0
3	Total General		29	35.1	0
4					
5	Hot Rolled Steel				
6	A1011 36 Ksi	C3.38x2.06x0.25	6	198	98.255
7	A1011 36 Ksi	PL6.5x0.375	3	126	87.09
8	A1011 36 Ksi	L6.6x4.46x0.25	3	126	96.558
9	A36 Gr.36	PL 2.375x0.5	1	1.5	.505
10	A500 GR.C	2.88x0.120	3	288	84.974
11	A500 GR.C	HSS4X4X6	3	120	162.653
12	A500 GR.C	Pipe3.5x0.165	3	288	141.202
13	A500 GR.C	PIPE 2.5	9	864	394.45
14	A529 Gr. 50	L2x2x4	6	163.8	43.838
15	Total HR Steel		37	2175.3	1109.525

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design... A [in2]	Iyy [in...lzz [in... J [in4]
1	Corner Plates	PL6.5x0.375	Beam	None	A1011 ...	Typical 2.438	.029 8.582 .11
2	6"x0.37" Plate	Plate 6x.37	Beam	None	A1011 ...	Typical 2.22	.025 6.66 .097
3	Grating Angle	L2x2x4	Beam	None	A529 G...	Typical .944	.346 .346 .021
4	Face Pipes(3.5x.1...	Pipe3.5x0.165	Beam	None	A500 G...	Typical 1.729	2.409 2.409 4.819
5	Antenna Pipes	PIPE 2.5	Beam	None	A500 G...	Typical 1.61	1.45 1.45 2.89
6	Channel(3.38x2.06)	C3.38x2.06x0.25	Beam	None	A1011 ...	Typical 1.75	.715 3.026 .034
7	Square Tubing	HSS4X4X6	Beam	None	A500 G...	Typical 4.78	10.3 10.3 17.5
8	Handrail Connector	L6.6x4.46x0.25	Beam	None	A1011 ...	Typical 2.703	4.759 12.473 .055



Hot Rolled Steel Section Sets (Continued)

Label	Shape	Type	Design List	Material	Design... A [in2]	lyy [in...lzz [in... J [in4]
9 Handrail	2.88x0.120	Beam	None	A500 G...	Typical 1.04	.993 .993 1.985

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			13		3	
2 Wind Load AZI 0	WLZ					26			
3 Wind Load AZI 30	None					26			
4 Wind Load AZI 60	None					26			
5 Wind Load AZI 90	WLX					26			
6 Wind Load AZI 1...	None					26			
7 Wind Load AZI 1...	None					26			
8 Wind Load AZI 1...	None					26			
9 Wind Load AZI 2...	None					26			
10 Wind Load AZI 2...	None					26			
11 Wind Load AZI 2...	None					26			
12 Wind Load AZI 3...	None					26			
13 Wind Load AZI 3...	None					26			
14 Distr. Wind Load Z	WLZ						66		
15 Distr. Wind Load X	WLX						66		
16 Ice Weight	OL1					13	66	3	
17 Ice Wind Load A...	OL2					26			
18 Ice Wind Load A...	None					26			
19 Ice Wind Load A...	None					26			
20 Ice Wind Load A...	OL3					26			
21 Ice Wind Load A...	None					26			
22 Ice Wind Load A...	None					26			
23 Ice Wind Load A...	None					26			
24 Ice Wind Load A...	None					26			
25 Ice Wind Load A...	None					26			
26 Ice Wind Load A...	None					26			
27 Ice Wind Load A...	None					26			
28 Ice Wind Load A...	None					26			
29 Distr. Ice Wind L...	OL2						66		
30 Distr. Ice Wind L...	OL3						66		
31 Seismic Load Z	ELZ			-.318		13			
32 Seismic Load X	ELX	-.318				13			
33 Service Live Loa...	LL					3			
34 Maintenance Loa...	LL					1			
35 Maintenance Loa...	LL					1			
36 Maintenance Loa...	LL					1			
37 Maintenance Loa...	LL					1			



Basic Load Cases (Continued)

BLC Description	Category	X Gr...	Y Gr...	Z Gr...	Joint	Point	Distributed	Area(Memb...	Surface(Plate/Wall)
38 Maintenance Loa...	LL				1				
39 Maintenance Loa...	LL				1				
40 Maintenance Loa...	LL				1				
41 Maintenance Loa...	LL				1				
42 Maintenance Loa...	LL				1				
43 BLC 1 Transient ...	None						9		
44 BLC 16 Transien...	None						9		

Load Combinations

Description	S...	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
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							
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					



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...
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	.858	.31	1	32											
52	(0.9 - 0.2Sds)DL + 1.0E AZI 30	Y...	Y	1	.858	.31	.866	32	.5										
53	(0.9 - 0.2Sds)DL + 1.0E AZI 60	Y...	Y	1	.858	.31	.5	32	.866										
54	(0.9 - 0.2Sds)DL + 1.0E AZI 90	Y...	Y	1	.858	.31		32	1										
55	(0.9 - 0.2Sds)DL + 1.0E AZI 1..	Y...	Y	1	.858	.31	-.5	32	.866										
56	(0.9 - 0.2Sds)DL + 1.0E AZI 1..	Y...	Y	1	.858	.31	-8...	32	.5										
57	(0.9 - 0.2Sds)DL + 1.0E AZI 1..	Y...	Y	1	.858	.31	-1	32											
58	(0.9 - 0.2Sds)DL + 1.0E AZI 2..	Y...	Y	1	.858	.31	-8...	32	-.5										
59	(0.9 - 0.2Sds)DL + 1.0E AZI 2..	Y...	Y	1	.858	.31	-.5	32	-8...										
60	(0.9 - 0.2Sds)DL + 1.0E AZI 2..	Y...	Y	1	.858	.31		32	-1										
61	(0.9 - 0.2Sds)DL + 1.0E AZI 3..	Y...	Y	1	.858	.31	.5	32	-8...										
62	(0.9 - 0.2Sds)DL + 1.0E AZI 3..	Y...	Y	1	.858	.31	.866	32	-.5										
63	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	2	.25	14	.25	15		33	1.5						
64	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	3	.25	14	.216	15	.125	33	1.5						
65	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	4	.25	14	.125	15	.216	33	1.5						
66	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	5	.25	14		15	.25	33	1.5						
67	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	6	.25	14	-.1...	15	.216	33	1.5						
68	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	7	.25	14	-.2...	15	.125	33	1.5						
69	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	8	.25	14	-.25	15		33	1.5						
70	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	9	.25	14	-.2...	15	-.1...	33	1.5						
71	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	10	.25	14	-.1...	15	-.2...	33	1.5						
72	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	11	.25	14		15	-.25	33	1.5						
73	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	12	.25	14	.125	15	-.2...	33	1.5						



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...	Fa...B...
74	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	13	.25	14	.216	15	-1...	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	.063	14	.063	15							
77	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y	1	1.2	34	1.5	3	.063	14	.054	15	.031						
78	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y	1	1.2	34	1.5	4	.063	14	.031	15	.054						
79	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y	1	1.2	34	1.5	5	.063	14		15	.063						
80	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y	1	1.2	34	1.5	6	.063	14	-0...	15	.054						
81	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y	1	1.2	34	1.5	7	.063	14	-0...	15	.031						
82	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y	1	1.2	34	1.5	8	.063	14	-0...	15							
83	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y	1	1.2	34	1.5	9	.063	14	-0...	15	-0...						
84	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y	1	1.2	34	1.5	10	.063	14	-0...	15	-0...						
85	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y	1	1.2	34	1.5	11	.063	14		15	-0...						
86	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y	1	1.2	34	1.5	12	.063	14	.031	15	-0...						
87	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y	1	1.2	34	1.5	13	.063	14	.054	15	-0...						
88	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	2	.063	14	.063	15							
89	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	3	.063	14	.054	15	.031						
90	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	4	.063	14	.031	15	.054						
91	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	5	.063	14		15	.063						
92	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	6	.063	14	-0...	15	.054						
93	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	7	.063	14	-0...	15	.031						
94	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	8	.063	14	-0...	15							
95	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	9	.063	14	-0...	15	-0...						
96	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	10	.063	14	-0...	15	-0...						
97	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	11	.063	14		15	-0...						
98	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	12	.063	14	.031	15	-0...						
99	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y	1	1.2	35	1.5	13	.063	14	.054	15	-0...						
100	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y	1	1.2	36	1.5	2	.063	14	.063	15							
101	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y	1	1.2	36	1.5	3	.063	14	.054	15	.031						
102	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y	1	1.2	36	1.5	4	.063	14	.031	15	.054						
103	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y	1	1.2	36	1.5	5	.063	14		15	.063						
104	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y	1	1.2	36	1.5	6	.063	14	-0...	15	.054						
105	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y	1	1.2	36	1.5	7	.063	14	-0...	15	.031						
106	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y	1	1.2	36	1.5	8	.063	14	-0...	15							
107	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y	1	1.2	36	1.5	9	.063	14	-0...	15	-0...						
108	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y	1	1.2	36	1.5	10	.063	14	-0...	15	-0...						
109	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y	1	1.2	36	1.5	11	.063	14		15	-0...						
110	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y	1	1.2	36	1.5	12	.063	14	.031	15	-0...						
111	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y	1	1.2	36	1.5	13	.063	14	.054	15	-0...						
112	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y	1	1.2	37	1.5	2	.063	14	.063	15							
113	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y	1	1.2	37	1.5	3	.063	14	.054	15	.031						
114	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y	1	1.2	37	1.5	4	.063	14	.031	15	.054						
115	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y	1	1.2	37	1.5	5	.063	14		15	.063						



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...
116	1.2DL + 1.5LM-MP4 + 1SWL (...Y...)	Y		1	1.2	37	1.5	6	.063	14	-0...	15	.054						
117	1.2DL + 1.5LM-MP4 + 1SWL (...Y...)	Y		1	1.2	37	1.5	7	.063	14	-0...	15	.031						
118	1.2DL + 1.5LM-MP4 + 1SWL (...Y...)	Y		1	1.2	37	1.5	8	.063	14	-0...	15							
119	1.2DL + 1.5LM-MP4 + 1SWL (...Y...)	Y		1	1.2	37	1.5	9	.063	14	-0...	15	-0...						
120	1.2DL + 1.5LM-MP4 + 1SWL (...Y...)	Y		1	1.2	37	1.5	10	.063	14	-0...	15	-0...						
121	1.2DL + 1.5LM-MP4 + 1SWL (...Y...)	Y		1	1.2	37	1.5	11	.063	14		15	-0...						
122	1.2DL + 1.5LM-MP4 + 1SWL (...Y...)	Y		1	1.2	37	1.5	12	.063	14	.031	15	-0...						
123	1.2DL + 1.5LM-MP4 + 1SWL (...Y...)	Y		1	1.2	37	1.5	13	.063	14	.054	15	-0...						
124	1.2DL + 1.5LM-MP5 + 1SWL (...Y...)	Y		1	1.2	38	1.5	2	.063	14	.063	15							
125	1.2DL + 1.5LM-MP5 + 1SWL (...Y...)	Y		1	1.2	38	1.5	3	.063	14	.054	15	.031						
126	1.2DL + 1.5LM-MP5 + 1SWL (...Y...)	Y		1	1.2	38	1.5	4	.063	14	.031	15	.054						
127	1.2DL + 1.5LM-MP5 + 1SWL (...Y...)	Y		1	1.2	38	1.5	5	.063	14		15	.063						
128	1.2DL + 1.5LM-MP5 + 1SWL (...Y...)	Y		1	1.2	38	1.5	6	.063	14	-0...	15	.054						
129	1.2DL + 1.5LM-MP5 + 1SWL (...Y...)	Y		1	1.2	38	1.5	7	.063	14	-0...	15	.031						
130	1.2DL + 1.5LM-MP5 + 1SWL (...Y...)	Y		1	1.2	38	1.5	8	.063	14	-0...	15							
131	1.2DL + 1.5LM-MP5 + 1SWL (...Y...)	Y		1	1.2	38	1.5	9	.063	14	-0...	15	-0...						
132	1.2DL + 1.5LM-MP5 + 1SWL (...Y...)	Y		1	1.2	38	1.5	10	.063	14	-0...	15	-0...						
133	1.2DL + 1.5LM-MP5 + 1SWL (...Y...)	Y		1	1.2	38	1.5	11	.063	14		15	-0...						
134	1.2DL + 1.5LM-MP5 + 1SWL (...Y...)	Y		1	1.2	38	1.5	12	.063	14	.031	15	-0...						
135	1.2DL + 1.5LM-MP5 + 1SWL (...Y...)	Y		1	1.2	38	1.5	13	.063	14	.054	15	-0...						
136	1.2DL + 1.5LM-MP6 + 1SWL (...Y...)	Y		1	1.2	39	1.5	2	.063	14	.063	15							
137	1.2DL + 1.5LM-MP6 + 1SWL (...Y...)	Y		1	1.2	39	1.5	3	.063	14	.054	15	.031						
138	1.2DL + 1.5LM-MP6 + 1SWL (...Y...)	Y		1	1.2	39	1.5	4	.063	14	.031	15	.054						
139	1.2DL + 1.5LM-MP6 + 1SWL (...Y...)	Y		1	1.2	39	1.5	5	.063	14		15	.063						
140	1.2DL + 1.5LM-MP6 + 1SWL (...Y...)	Y		1	1.2	39	1.5	6	.063	14	-0...	15	.054						
141	1.2DL + 1.5LM-MP6 + 1SWL (...Y...)	Y		1	1.2	39	1.5	7	.063	14	-0...	15	.031						
142	1.2DL + 1.5LM-MP6 + 1SWL (...Y...)	Y		1	1.2	39	1.5	8	.063	14	-0...	15							
143	1.2DL + 1.5LM-MP6 + 1SWL (...Y...)	Y		1	1.2	39	1.5	9	.063	14	-0...	15	-0...						
144	1.2DL + 1.5LM-MP6 + 1SWL (...Y...)	Y		1	1.2	39	1.5	10	.063	14	-0...	15	-0...						
145	1.2DL + 1.5LM-MP6 + 1SWL (...Y...)	Y		1	1.2	39	1.5	11	.063	14		15	-0...						
146	1.2DL + 1.5LM-MP6 + 1SWL (...Y...)	Y		1	1.2	39	1.5	12	.063	14	.031	15	-0...						
147	1.2DL + 1.5LM-MP6 + 1SWL (...Y...)	Y		1	1.2	39	1.5	13	.063	14	.054	15	-0...						
148	1.2DL + 1.5LM-MP7 + 1SWL (...Y...)	Y		1	1.2	40	1.5	2	.063	14	.063	15							
149	1.2DL + 1.5LM-MP7 + 1SWL (...Y...)	Y		1	1.2	40	1.5	3	.063	14	.054	15	.031						
150	1.2DL + 1.5LM-MP7 + 1SWL (...Y...)	Y		1	1.2	40	1.5	4	.063	14	.031	15	.054						
151	1.2DL + 1.5LM-MP7 + 1SWL (...Y...)	Y		1	1.2	40	1.5	5	.063	14		15	.063						
152	1.2DL + 1.5LM-MP7 + 1SWL (...Y...)	Y		1	1.2	40	1.5	6	.063	14	-0...	15	.054						
153	1.2DL + 1.5LM-MP7 + 1SWL (...Y...)	Y		1	1.2	40	1.5	7	.063	14	-0...	15	.031						
154	1.2DL + 1.5LM-MP7 + 1SWL (...Y...)	Y		1	1.2	40	1.5	8	.063	14	-0...	15							
155	1.2DL + 1.5LM-MP7 + 1SWL (...Y...)	Y		1	1.2	40	1.5	9	.063	14	-0...	15	-0...						
156	1.2DL + 1.5LM-MP7 + 1SWL (...Y...)	Y		1	1.2	40	1.5	10	.063	14	-0...	15	-0...						
157	1.2DL + 1.5LM-MP7 + 1SWL (...Y...)	Y		1	1.2	40	1.5	11	.063	14		15	-0...						

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...
158	1.2DL + 1.5LM-MP7 + 1SWL (...Y...)	Y		1	1.2	40	1.5	12	.063	14	.031	15	-0...						
159	1.2DL + 1.5LM-MP7 + 1SWL (...Y...)	Y		1	1.2	40	1.5	13	.063	14	.054	15	-0...						
160	1.2DL + 1.5LM-MP8 + 1SWL (...Y...)	Y		1	1.2	41	1.5	2	.063	14	.063	15							
161	1.2DL + 1.5LM-MP8 + 1SWL (...Y...)	Y		1	1.2	41	1.5	3	.063	14	.054	15	.031						
162	1.2DL + 1.5LM-MP8 + 1SWL (...Y...)	Y		1	1.2	41	1.5	4	.063	14	.031	15	.054						
163	1.2DL + 1.5LM-MP8 + 1SWL (...Y...)	Y		1	1.2	41	1.5	5	.063	14		15	.063						
164	1.2DL + 1.5LM-MP8 + 1SWL (...Y...)	Y		1	1.2	41	1.5	6	.063	14	-0...	15	.054						
165	1.2DL + 1.5LM-MP8 + 1SWL (...Y...)	Y		1	1.2	41	1.5	7	.063	14	-0...	15	.031						
166	1.2DL + 1.5LM-MP8 + 1SWL (...Y...)	Y		1	1.2	41	1.5	8	.063	14	-0...	15							
167	1.2DL + 1.5LM-MP8 + 1SWL (...Y...)	Y		1	1.2	41	1.5	9	.063	14	-0...	15	-0...						
168	1.2DL + 1.5LM-MP8 + 1SWL (...Y...)	Y		1	1.2	41	1.5	10	.063	14	-0...	15	-0...						
169	1.2DL + 1.5LM-MP8 + 1SWL (...Y...)	Y		1	1.2	41	1.5	11	.063	14		15	-0...						
170	1.2DL + 1.5LM-MP8 + 1SWL (...Y...)	Y		1	1.2	41	1.5	12	.063	14	.031	15	-0...						
171	1.2DL + 1.5LM-MP8 + 1SWL (...Y...)	Y		1	1.2	41	1.5	13	.063	14	.054	15	-0...						
172	1.2DL + 1.5LM-MP9 + 1SWL (...Y...)	Y		1	1.2	42	1.5	2	.063	14	.063	15							
173	1.2DL + 1.5LM-MP9 + 1SWL (...Y...)	Y		1	1.2	42	1.5	3	.063	14	.054	15	.031						
174	1.2DL + 1.5LM-MP9 + 1SWL (...Y...)	Y		1	1.2	42	1.5	4	.063	14	.031	15	.054						
175	1.2DL + 1.5LM-MP9 + 1SWL (...Y...)	Y		1	1.2	42	1.5	5	.063	14		15	.063						
176	1.2DL + 1.5LM-MP9 + 1SWL (...Y...)	Y		1	1.2	42	1.5	6	.063	14	-0...	15	.054						
177	1.2DL + 1.5LM-MP9 + 1SWL (...Y...)	Y		1	1.2	42	1.5	7	.063	14	-0...	15	.031						
178	1.2DL + 1.5LM-MP9 + 1SWL (...Y...)	Y		1	1.2	42	1.5	8	.063	14	-0...	15							
179	1.2DL + 1.5LM-MP9 + 1SWL (...Y...)	Y		1	1.2	42	1.5	9	.063	14	-0...	15	-0...						
180	1.2DL + 1.5LM-MP9 + 1SWL (...Y...)	Y		1	1.2	42	1.5	10	.063	14	-0...	15	-0...						
181	1.2DL + 1.5LM-MP9 + 1SWL (...Y...)	Y		1	1.2	42	1.5	11	.063	14		15	-0...						
182	1.2DL + 1.5LM-MP9 + 1SWL (...Y...)	Y		1	1.2	42	1.5	12	.063	14	.031	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	P24	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	P13	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	P1	Reaction	Reaction	Reaction	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	P24	...	1313.281	6	2267.6...	35	2000.6...	13	1604.2...	16	2536.091	19	4556.879	10
2		...	-1292.607	24	-900.8...	16	-1992.94	19	-3496.7...	35	-2551.087	13	-2642.615	16
3	P13	...	1604.745	4	2687.13	31	2123.4...	15	1430.72	24	2858.867	15	2554.493	24
4		...	-1605.644	22	-810.2...	24	-2128.6...	9	-2855.9...	92	-2902.064	9	-6093.883	31
5	P1	...	2069.184	17	2423.2...	27	1065.7...	2	5959.0...	2	2339.984	11	1595.751	115



Envelope Joint Reactions (Continued)

Joint	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
6	-2089.398	11	-903.7...	20	-1077.8...	8	-3124.3...	20	-2285.796	17	-874.393	157
7	Totals: 4750.069	5	6399.6...	34	5031.0...	14						
8	-4750.062	23	1525.6...	53	-5031.09	8						

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	S2	Y	-21.85	12
6	MP4	Y	-32.25	0
7	MP4	Y	-32.25	72
8	MP4	Y	-74.95	12
9	MP4	Y	-63.93	12
10	MP7	Y	-32.25	0
11	MP7	Y	-32.25	72
12	MP7	Y	-74.95	12
13	MP7	Y	-63.93	12

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	-214.81	0
3	MP1	X	0	72
4	MP1	Z	-214.81	72
5	MP1	X	0	12
6	MP1	Z	-105.31	12
7	MP1	X	0	12
8	MP1	Z	-105.31	12
9	S2	X	0	12
10	S2	Z	-100.12	12
11	MP4	X	0	0
12	MP4	Z	-118.26	0
13	MP4	X	0	72
14	MP4	Z	-118.26	72
15	MP4	X	0	12
16	MP4	Z	-74.16	12
17	MP4	X	0	12
18	MP4	Z	-67.88	12



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
19	MP7	X	0	0
20	MP7	Z	-118.26	0
21	MP7	X	0	72
22	MP7	Z	-118.26	72
23	MP7	X	0	12
24	MP7	Z	-74.16	12
25	MP7	X	0	12
26	MP7	Z	-67.88	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-91.31	0
2	MP1	Z	-158.16	0
3	MP1	X	-91.31	72
4	MP1	Z	-158.16	72
5	MP1	X	-47.46	12
6	MP1	Z	-82.21	12
7	MP1	X	-46.42	12
8	MP1	Z	-80.4	12
9	S2	X	-44.7	12
10	S2	Z	-77.42	12
11	MP4	X	-91.31	0
12	MP4	Z	-158.16	0
13	MP4	X	-91.31	72
14	MP4	Z	-158.16	72
15	MP4	X	-47.46	12
16	MP4	Z	-82.21	12
17	MP4	X	-46.42	12
18	MP4	Z	-80.4	12
19	MP7	X	-43.04	0
20	MP7	Z	-74.55	0
21	MP7	X	-43.04	72
22	MP7	Z	-74.55	72
23	MP7	X	-31.89	12
24	MP7	Z	-55.23	12
25	MP7	X	-27.7	12
26	MP7	Z	-47.98	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-102.42	0

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
2	MP1	Z	-59.13	0
3	MP1	X	-102.42	72
4	MP1	Z	-59.13	72
5	MP1	X	-64.23	12
6	MP1	Z	-37.08	12
7	MP1	X	-58.79	12
8	MP1	Z	-33.94	12
9	S2	X	-58.84	12
10	S2	Z	-33.97	12
11	MP4	X	-186.03	0
12	MP4	Z	-107.4	0
13	MP4	X	-186.03	72
14	MP4	Z	-107.4	72
15	MP4	X	-91.2	12
16	MP4	Z	-52.66	12
17	MP4	X	-91.2	12
18	MP4	Z	-52.66	12
19	MP7	X	-102.42	0
20	MP7	Z	-59.13	0
21	MP7	X	-102.42	72
22	MP7	Z	-59.13	72
23	MP7	X	-64.23	12
24	MP7	Z	-37.08	12
25	MP7	X	-58.79	12
26	MP7	Z	-33.94	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-86.08	0
2	MP1	Z	0	0
3	MP1	X	-86.08	72
4	MP1	Z	0	72
5	MP1	X	-63.78	12
6	MP1	Z	0	12
7	MP1	X	-55.4	12
8	MP1	Z	0	12
9	S2	X	-57.21	12
10	S2	Z	0	12
11	MP4	X	-182.63	0
12	MP4	Z	0	0
13	MP4	X	-182.63	72
14	MP4	Z	0	72



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
15	MP4	X	-94.93	12
16	MP4	Z	0	12
17	MP4	X	-92.83	12
18	MP4	Z	0	12
19	MP7	X	-182.63	0
20	MP7	Z	0	0
21	MP7	X	-182.63	72
22	MP7	Z	0	72
23	MP7	X	-94.93	12
24	MP7	Z	0	12
25	MP7	X	-92.83	12
26	MP7	Z	0	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-102.42	0
2	MP1	Z	59.13	0
3	MP1	X	-102.42	72
4	MP1	Z	59.13	72
5	MP1	X	-64.23	12
6	MP1	Z	37.08	12
7	MP1	X	-58.79	12
8	MP1	Z	33.94	12
9	S2	X	-58.84	12
10	S2	Z	33.97	12
11	MP4	X	-102.42	0
12	MP4	Z	59.13	0
13	MP4	X	-102.42	72
14	MP4	Z	59.13	72
15	MP4	X	-64.23	12
16	MP4	Z	37.08	12
17	MP4	X	-58.79	12
18	MP4	Z	33.94	12
19	MP7	X	-186.03	0
20	MP7	Z	107.4	0
21	MP7	X	-186.03	72
22	MP7	Z	107.4	72
23	MP7	X	-91.2	12
24	MP7	Z	52.66	12
25	MP7	X	-91.2	12
26	MP7	Z	52.66	12



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-91.31	0
2	MP1	Z	158.16	0
3	MP1	X	-91.31	72
4	MP1	Z	158.16	72
5	MP1	X	-47.46	12
6	MP1	Z	82.21	12
7	MP1	X	-46.42	12
8	MP1	Z	80.4	12
9	S2	X	-44.7	12
10	S2	Z	77.42	12
11	MP4	X	-43.04	0
12	MP4	Z	74.55	0
13	MP4	X	-43.04	72
14	MP4	Z	74.55	72
15	MP4	X	-31.89	12
16	MP4	Z	55.23	12
17	MP4	X	-27.7	12
18	MP4	Z	47.98	12
19	MP7	X	-91.31	0
20	MP7	Z	158.16	0
21	MP7	X	-91.31	72
22	MP7	Z	158.16	72
23	MP7	X	-47.46	12
24	MP7	Z	82.21	12
25	MP7	X	-46.42	12
26	MP7	Z	80.4	12

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	214.81	0
3	MP1	X	0	72
4	MP1	Z	214.81	72
5	MP1	X	0	12
6	MP1	Z	105.31	12
7	MP1	X	0	12
8	MP1	Z	105.31	12
9	S2	X	0	12
10	S2	Z	100.12	12
11	MP4	X	0	0
12	MP4	Z	118.26	0
13	MP4	X	0	72



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in, %]
14	MP4	Z	118.26	72
15	MP4	X	0	12
16	MP4	Z	74.16	12
17	MP4	X	0	12
18	MP4	Z	67.88	12
19	MP7	X	0	0
20	MP7	Z	118.26	0
21	MP7	X	0	72
22	MP7	Z	118.26	72
23	MP7	X	0	12
24	MP7	Z	74.16	12
25	MP7	X	0	12
26	MP7	Z	67.88	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in, %]
1	MP1	X	91.31	0
2	MP1	Z	158.16	0
3	MP1	X	91.31	72
4	MP1	Z	158.16	72
5	MP1	X	47.46	12
6	MP1	Z	82.21	12
7	MP1	X	46.42	12
8	MP1	Z	80.4	12
9	S2	X	44.7	12
10	S2	Z	77.42	12
11	MP4	X	91.31	0
12	MP4	Z	158.16	0
13	MP4	X	91.31	72
14	MP4	Z	158.16	72
15	MP4	X	47.46	12
16	MP4	Z	82.21	12
17	MP4	X	46.42	12
18	MP4	Z	80.4	12
19	MP7	X	43.04	0
20	MP7	Z	74.55	0
21	MP7	X	43.04	72
22	MP7	Z	74.55	72
23	MP7	X	31.89	12
24	MP7	Z	55.23	12
25	MP7	X	27.7	12
26	MP7	Z	47.98	12



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	102.42	0
2	MP1	Z	59.13	0
3	MP1	X	102.42	72
4	MP1	Z	59.13	72
5	MP1	X	64.23	12
6	MP1	Z	37.08	12
7	MP1	X	58.79	12
8	MP1	Z	33.94	12
9	S2	X	58.84	12
10	S2	Z	33.97	12
11	MP4	X	186.03	0
12	MP4	Z	107.4	0
13	MP4	X	186.03	72
14	MP4	Z	107.4	72
15	MP4	X	91.2	12
16	MP4	Z	52.66	12
17	MP4	X	91.2	12
18	MP4	Z	52.66	12
19	MP7	X	102.42	0
20	MP7	Z	59.13	0
21	MP7	X	102.42	72
22	MP7	Z	59.13	72
23	MP7	X	64.23	12
24	MP7	Z	37.08	12
25	MP7	X	58.79	12
26	MP7	Z	33.94	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	86.08	0
2	MP1	Z	0	0
3	MP1	X	86.08	72
4	MP1	Z	0	72
5	MP1	X	63.78	12
6	MP1	Z	0	12
7	MP1	X	55.4	12
8	MP1	Z	0	12
9	S2	X	57.21	12
10	S2	Z	0	12
11	MP4	X	182.63	0
12	MP4	Z	0	0
13	MP4	X	182.63	72



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	0	72
15	MP4	X	94.93	12
16	MP4	Z	0	12
17	MP4	X	92.83	12
18	MP4	Z	0	12
19	MP7	X	182.63	0
20	MP7	Z	0	0
21	MP7	X	182.63	72
22	MP7	Z	0	72
23	MP7	X	94.93	12
24	MP7	Z	0	12
25	MP7	X	92.83	12
26	MP7	Z	0	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	102.42	0
2	MP1	Z	-59.13	0
3	MP1	X	102.42	72
4	MP1	Z	-59.13	72
5	MP1	X	64.23	12
6	MP1	Z	-37.08	12
7	MP1	X	58.79	12
8	MP1	Z	-33.94	12
9	S2	X	58.84	12
10	S2	Z	-33.97	12
11	MP4	X	102.42	0
12	MP4	Z	-59.13	0
13	MP4	X	102.42	72
14	MP4	Z	-59.13	72
15	MP4	X	64.23	12
16	MP4	Z	-37.08	12
17	MP4	X	58.79	12
18	MP4	Z	-33.94	12
19	MP7	X	186.03	0
20	MP7	Z	-107.4	0
21	MP7	X	186.03	72
22	MP7	Z	-107.4	72
23	MP7	X	91.2	12
24	MP7	Z	-52.66	12
25	MP7	X	91.2	12
26	MP7	Z	-52.66	12



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	91.31	0
2	MP1	Z	-158.16	0
3	MP1	X	91.31	72
4	MP1	Z	-158.16	72
5	MP1	X	47.46	12
6	MP1	Z	-82.21	12
7	MP1	X	46.42	12
8	MP1	Z	-80.4	12
9	S2	X	44.7	12
10	S2	Z	-77.42	12
11	MP4	X	43.04	0
12	MP4	Z	-74.55	0
13	MP4	X	43.04	72
14	MP4	Z	-74.55	72
15	MP4	X	31.89	12
16	MP4	Z	-55.23	12
17	MP4	X	27.7	12
18	MP4	Z	-47.98	12
19	MP7	X	91.31	0
20	MP7	Z	-158.16	0
21	MP7	X	91.31	72
22	MP7	Z	-158.16	72
23	MP7	X	47.46	12
24	MP7	Z	-82.21	12
25	MP7	X	46.42	12
26	MP7	Z	-80.4	12

Member Point Loads (BLC 16 : Ice Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Y	-158.15	0
2	MP1	Y	-158.15	72
3	MP1	Y	-83.599	12
4	MP1	Y	-78.545	12
5	S2	Y	-76.636	12
6	MP4	Y	-158.15	0
7	MP4	Y	-158.15	72
8	MP4	Y	-83.599	12
9	MP4	Y	-78.545	12
10	MP7	Y	-158.15	0
11	MP7	Y	-158.15	72
12	MP7	Y	-83.599	12
13	MP7	Y	-78.545	12



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	0
2	MP1	Z	-30.05	0
3	MP1	X	0	72
4	MP1	Z	-30.05	72
5	MP1	X	0	12
6	MP1	Z	-11.85	12
7	MP1	X	0	12
8	MP1	Z	-11.85	12
9	S2	X	0	12
10	S2	Z	-11.39	12
11	MP4	X	0	0
12	MP4	Z	-21.35	0
13	MP4	X	0	72
14	MP4	Z	-21.35	72
15	MP4	X	0	12
16	MP4	Z	-9.4	12
17	MP4	X	0	12
18	MP4	Z	-9.08	12
19	MP7	X	0	0
20	MP7	Z	-21.35	0
21	MP7	X	0	72
22	MP7	Z	-21.35	72
23	MP7	X	0	12
24	MP7	Z	-9.4	12
25	MP7	X	0	12
26	MP7	Z	-9.08	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-13.57	0
2	MP1	Z	-23.51	0
3	MP1	X	-13.57	72
4	MP1	Z	-23.51	72
5	MP1	X	-5.52	12
6	MP1	Z	-9.56	12
7	MP1	X	-5.47	12
8	MP1	Z	-9.47	12
9	S2	X	-5.31	12
10	S2	Z	-9.2	12
11	MP4	X	-13.57	0
12	MP4	Z	-23.51	0
13	MP4	X	-13.57	72



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	-23.51	72
15	MP4	X	-5.52	12
16	MP4	Z	-9.56	12
17	MP4	X	-5.47	12
18	MP4	Z	-9.47	12
19	MP7	X	-9.22	0
20	MP7	Z	-15.98	0
21	MP7	X	-9.22	72
22	MP7	Z	-15.98	72
23	MP7	X	-4.29	12
24	MP7	Z	-7.43	12
25	MP7	X	-4.08	12
26	MP7	Z	-7.07	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-18.49	0
2	MP1	Z	-10.67	0
3	MP1	X	-18.49	72
4	MP1	Z	-10.67	72
5	MP1	X	-8.14	12
6	MP1	Z	-4.7	12
7	MP1	X	-7.87	12
8	MP1	Z	-4.54	12
9	S2	X	-7.86	12
10	S2	Z	-4.54	12
11	MP4	X	-26.02	0
12	MP4	Z	-15.02	0
13	MP4	X	-26.02	72
14	MP4	Z	-15.02	72
15	MP4	X	-10.27	12
16	MP4	Z	-5.93	12
17	MP4	X	-10.27	12
18	MP4	Z	-5.93	12
19	MP7	X	-18.49	0
20	MP7	Z	-10.67	0
21	MP7	X	-18.49	72
22	MP7	Z	-10.67	72
23	MP7	X	-8.14	12
24	MP7	Z	-4.7	12
25	MP7	X	-7.87	12
26	MP7	Z	-4.54	12



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-18.45	0
2	MP1	Z	0	0
3	MP1	X	-18.45	72
4	MP1	Z	0	72
5	MP1	X	-8.58	12
6	MP1	Z	0	12
7	MP1	X	-8.16	12
8	MP1	Z	0	12
9	S2	X	-8.31	12
10	S2	Z	0	12
11	MP4	X	-27.15	0
12	MP4	Z	0	0
13	MP4	X	-27.15	72
14	MP4	Z	0	72
15	MP4	X	-11.04	12
16	MP4	Z	0	12
17	MP4	X	-10.93	12
18	MP4	Z	0	12
19	MP7	X	-27.15	0
20	MP7	Z	0	0
21	MP7	X	-27.15	72
22	MP7	Z	0	72
23	MP7	X	-11.04	12
24	MP7	Z	0	12
25	MP7	X	-10.93	12
26	MP7	Z	0	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-18.49	0
2	MP1	Z	10.67	0
3	MP1	X	-18.49	72
4	MP1	Z	10.67	72
5	MP1	X	-8.14	12
6	MP1	Z	4.7	12
7	MP1	X	-7.87	12
8	MP1	Z	4.54	12
9	S2	X	-7.86	12
10	S2	Z	4.54	12
11	MP4	X	-18.49	0
12	MP4	Z	10.67	0
13	MP4	X	-18.49	72



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	10.67	72
15	MP4	X	-8.14	12
16	MP4	Z	4.7	12
17	MP4	X	-7.87	12
18	MP4	Z	4.54	12
19	MP7	X	-26.02	0
20	MP7	Z	15.02	0
21	MP7	X	-26.02	72
22	MP7	Z	15.02	72
23	MP7	X	-10.27	12
24	MP7	Z	5.93	12
25	MP7	X	-10.27	12
26	MP7	Z	5.93	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-13.57	0
2	MP1	Z	23.51	0
3	MP1	X	-13.57	72
4	MP1	Z	23.51	72
5	MP1	X	-5.52	12
6	MP1	Z	9.56	12
7	MP1	X	-5.47	12
8	MP1	Z	9.47	12
9	S2	X	-5.31	12
10	S2	Z	9.2	12
11	MP4	X	-9.22	0
12	MP4	Z	15.98	0
13	MP4	X	-9.22	72
14	MP4	Z	15.98	72
15	MP4	X	-4.29	12
16	MP4	Z	7.43	12
17	MP4	X	-4.08	12
18	MP4	Z	7.07	12
19	MP7	X	-13.57	0
20	MP7	Z	23.51	0
21	MP7	X	-13.57	72
22	MP7	Z	23.51	72
23	MP7	X	-5.52	12
24	MP7	Z	9.56	12
25	MP7	X	-5.47	12
26	MP7	Z	9.47	12



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	30.05	0
3	MP1	X	0	72
4	MP1	Z	30.05	72
5	MP1	X	0	12
6	MP1	Z	11.85	12
7	MP1	X	0	12
8	MP1	Z	11.85	12
9	S2	X	0	12
10	S2	Z	11.39	12
11	MP4	X	0	0
12	MP4	Z	21.35	0
13	MP4	X	0	72
14	MP4	Z	21.35	72
15	MP4	X	0	12
16	MP4	Z	9.4	12
17	MP4	X	0	12
18	MP4	Z	9.08	12
19	MP7	X	0	0
20	MP7	Z	21.35	0
21	MP7	X	0	72
22	MP7	Z	21.35	72
23	MP7	X	0	12
24	MP7	Z	9.4	12
25	MP7	X	0	12
26	MP7	Z	9.08	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	13.57	0
2	MP1	Z	23.51	0
3	MP1	X	13.57	72
4	MP1	Z	23.51	72
5	MP1	X	5.52	12
6	MP1	Z	9.56	12
7	MP1	X	5.47	12
8	MP1	Z	9.47	12
9	S2	X	5.31	12
10	S2	Z	9.2	12
11	MP4	X	13.57	0
12	MP4	Z	23.51	0
13	MP4	X	13.57	72



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	23.51	72
15	MP4	X	5.52	12
16	MP4	Z	9.56	12
17	MP4	X	5.47	12
18	MP4	Z	9.47	12
19	MP7	X	9.22	0
20	MP7	Z	15.98	0
21	MP7	X	9.22	72
22	MP7	Z	15.98	72
23	MP7	X	4.29	12
24	MP7	Z	7.43	12
25	MP7	X	4.08	12
26	MP7	Z	7.07	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	18.49	0
2	MP1	Z	10.67	0
3	MP1	X	18.49	72
4	MP1	Z	10.67	72
5	MP1	X	8.14	12
6	MP1	Z	4.7	12
7	MP1	X	7.87	12
8	MP1	Z	4.54	12
9	S2	X	7.86	12
10	S2	Z	4.54	12
11	MP4	X	26.02	0
12	MP4	Z	15.02	0
13	MP4	X	26.02	72
14	MP4	Z	15.02	72
15	MP4	X	10.27	12
16	MP4	Z	5.93	12
17	MP4	X	10.27	12
18	MP4	Z	5.93	12
19	MP7	X	18.49	0
20	MP7	Z	10.67	0
21	MP7	X	18.49	72
22	MP7	Z	10.67	72
23	MP7	X	8.14	12
24	MP7	Z	4.7	12
25	MP7	X	7.87	12
26	MP7	Z	4.54	12



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	18.45	0
2	MP1	Z	0	0
3	MP1	X	18.45	72
4	MP1	Z	0	72
5	MP1	X	8.58	12
6	MP1	Z	0	12
7	MP1	X	8.16	12
8	MP1	Z	0	12
9	S2	X	8.31	12
10	S2	Z	0	12
11	MP4	X	27.15	0
12	MP4	Z	0	0
13	MP4	X	27.15	72
14	MP4	Z	0	72
15	MP4	X	11.04	12
16	MP4	Z	0	12
17	MP4	X	10.93	12
18	MP4	Z	0	12
19	MP7	X	27.15	0
20	MP7	Z	0	0
21	MP7	X	27.15	72
22	MP7	Z	0	72
23	MP7	X	11.04	12
24	MP7	Z	0	12
25	MP7	X	10.93	12
26	MP7	Z	0	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	18.49	0
2	MP1	Z	-10.67	0
3	MP1	X	18.49	72
4	MP1	Z	-10.67	72
5	MP1	X	8.14	12
6	MP1	Z	-4.7	12
7	MP1	X	7.87	12
8	MP1	Z	-4.54	12
9	S2	X	7.86	12
10	S2	Z	-4.54	12
11	MP4	X	18.49	0
12	MP4	Z	-10.67	0
13	MP4	X	18.49	72



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	-10.67	72
15	MP4	X	8.14	12
16	MP4	Z	-4.7	12
17	MP4	X	7.87	12
18	MP4	Z	-4.54	12
19	MP7	X	26.02	0
20	MP7	Z	-15.02	0
21	MP7	X	26.02	72
22	MP7	Z	-15.02	72
23	MP7	X	10.27	12
24	MP7	Z	-5.93	12
25	MP7	X	10.27	12
26	MP7	Z	-5.93	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	13.57	0
2	MP1	Z	-23.51	0
3	MP1	X	13.57	72
4	MP1	Z	-23.51	72
5	MP1	X	5.52	12
6	MP1	Z	-9.56	12
7	MP1	X	5.47	12
8	MP1	Z	-9.47	12
9	S2	X	5.31	12
10	S2	Z	-9.2	12
11	MP4	X	9.22	0
12	MP4	Z	-15.98	0
13	MP4	X	9.22	72
14	MP4	Z	-15.98	72
15	MP4	X	4.29	12
16	MP4	Z	-7.43	12
17	MP4	X	4.08	12
18	MP4	Z	-7.07	12
19	MP7	X	13.57	0
20	MP7	Z	-23.51	0
21	MP7	X	13.57	72
22	MP7	Z	-23.51	72
23	MP7	X	5.52	12
24	MP7	Z	-9.56	12
25	MP7	X	5.47	12
26	MP7	Z	-9.47	12

Member Point Loads (BLC 31 : Seismic Load Z)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	-10.268	0
2	MP1	Z	-10.268	72
3	MP1	Z	-23.864	12
4	MP1	Z	-20.355	12
5	S2	Z	-6.957	12
6	MP4	Z	-10.268	0
7	MP4	Z	-10.268	72
8	MP4	Z	-23.864	12
9	MP4	Z	-20.355	12
10	MP7	Z	-10.268	0
11	MP7	Z	-10.268	72
12	MP7	Z	-23.864	12
13	MP7	Z	-20.355	12

Member Point Loads (BLC 32 : Seismic Load X)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-10.268	0
2	MP1	X	-10.268	72
3	MP1	X	-23.864	12
4	MP1	X	-20.355	12
5	S2	X	-6.957	12
6	MP4	X	-10.268	0
7	MP4	X	-10.268	72
8	MP4	X	-23.864	12
9	MP4	X	-20.355	12
10	MP7	X	-10.268	0
11	MP7	X	-10.268	72
12	MP7	X	-23.864	12
13	MP7	X	-20.355	12

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	N72B	L	Y	-250
2	N135A	L	Y	-250
3	N129B	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	N70A	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	N69A	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	N76	L	Y	-500

Joint Loads and Enforced Displacements (BLC 37 : Maintenance Load 4)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N94	L	Y	-500

Joint Loads and Enforced Displacements (BLC 38 : Maintenance Load 5)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N93	L	Y	-500

Joint Loads and Enforced Displacements (BLC 39 : Maintenance Load 6)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N122	L	Y	-500

Joint Loads and Enforced Displacements (BLC 40 : Maintenance Load 7)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N121	L	Y	-500

Joint Loads and Enforced Displacements (BLC 41 : Maintenance Load 8)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N133B	L	Y	-500

Joint Loads and Enforced Displacements (BLC 42 : Maintenance Load 9)

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N139	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	-119.189	-119.189	0	%100
2	GA4	SZ	-119.189	-119.189	0	%100
3	GA3	SZ	-119.189	-119.189	0	%100
4	P3	SZ	-119.189	-119.189	0	%100
5	S2	SZ	-119.189	-119.189	0	%100
6	GA2	SZ	-119.189	-119.189	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,%]
7	GA1	SZ	-119.189	-119.189	0	%100
8	P2	SZ	-119.189	-119.189	0	%100
9	S1	SZ	-119.189	-119.189	0	%100
10	GA6	SZ	-119.189	-119.189	0	%100
11	GA5	SZ	-119.189	-119.189	0	%100
12	P1	SZ	-119.189	-119.189	0	%100
13	H1	SZ	-71.513	-71.513	0	%100
14	MP1	SZ	-71.513	-71.513	0	%100
15	MP3	SZ	-71.513	-71.513	0	%100
16	HR1	SZ	-71.513	-71.513	0	%100
17	CA8	SZ	-119.189	-119.189	0	%100
18	CA9	SZ	-119.189	-119.189	0	%100
19	CA7	SZ	-119.189	-119.189	0	%100
20	M32	SZ	0	0	0	%100
21	M35	SZ	0	0	0	%100
22	M36	SZ	0	0	0	%100
23	M39A	SZ	0	0	0	%100
24	CA3	SZ	-119.189	-119.189	0	%100
25	CA4	SZ	-119.189	-119.189	0	%100
26	CA1	SZ	-119.189	-119.189	0	%100
27	CA2	SZ	-119.189	-119.189	0	%100
28	CA5	SZ	-119.189	-119.189	0	%100
29	CA6	SZ	-119.189	-119.189	0	%100
30	M64	SZ	0	0	0	%100
31	M65	SZ	0	0	0	%100
32	M66	SZ	0	0	0	%100
33	M67	SZ	0	0	0	%100
34	M68	SZ	0	0	0	%100
35	M69	SZ	0	0	0	%100
36	M70	SZ	0	0	0	%100
37	M71	SZ	0	0	0	%100
38	M72	SZ	0	0	0	%100
39	M73	SZ	0	0	0	%100
40	M74	SZ	0	0	0	%100
41	M75	SZ	-119.189	-119.189	0	%100
42	MP2	SZ	-71.513	-71.513	0	%100
43	M43	SZ	0	0	0	%100
44	M44	SZ	0	0	0	%100
45	H3	SZ	-71.513	-71.513	0	%100
46	MP7	SZ	-71.513	-71.513	0	%100
47	MP9	SZ	-71.513	-71.513	0	%100
48	HR3	SZ	-71.513	-71.513	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, %]
49	M52	SZ	0	0	0	%100
50	M53	SZ	0	0	0	%100
51	M54	SZ	0	0	0	%100
52	M55	SZ	0	0	0	%100
53	H2	SZ	-71.513	-71.513	0	%100
54	MP4	SZ	-71.513	-71.513	0	%100
55	MP6	SZ	-71.513	-71.513	0	%100
56	HR2	SZ	-71.513	-71.513	0	%100
57	M66A	SZ	0	0	0	%100
58	M67A	SZ	0	0	0	%100
59	M68A	SZ	0	0	0	%100
60	M69A	SZ	0	0	0	%100
61	MP8	SZ	-71.513	-71.513	0	%100
62	M68B	SZ	0	0	0	%100
63	M69B	SZ	0	0	0	%100
64	MP5	SZ	-71.513	-71.513	0	%100
65	M71B	SZ	0	0	0	%100
66	M72B	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	-119.189	-119.189	0	%100
2	GA4	SX	-119.189	-119.189	0	%100
3	GA3	SX	-119.189	-119.189	0	%100
4	P3	SX	-119.189	-119.189	0	%100
5	S2	SX	-119.189	-119.189	0	%100
6	GA2	SX	-119.189	-119.189	0	%100
7	GA1	SX	-119.189	-119.189	0	%100
8	P2	SX	-119.189	-119.189	0	%100
9	S1	SX	-119.189	-119.189	0	%100
10	GA6	SX	-119.189	-119.189	0	%100
11	GA5	SX	-119.189	-119.189	0	%100
12	P1	SX	-119.189	-119.189	0	%100
13	H1	SX	-71.513	-71.513	0	%100
14	MP1	SX	-71.513	-71.513	0	%100
15	MP3	SX	-71.513	-71.513	0	%100
16	HR1	SX	-71.513	-71.513	0	%100
17	CA8	SX	-119.189	-119.189	0	%100
18	CA9	SX	-119.189	-119.189	0	%100
19	CA7	SX	-119.189	-119.189	0	%100
20	M32	SX	0	0	0	%100
21	M35	SX	0	0	0	%100



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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
22	M36	SX	0	0	0	%100
23	M39A	SX	0	0	0	%100
24	CA3	SX	-119.189	-119.189	0	%100
25	CA4	SX	-119.189	-119.189	0	%100
26	CA1	SX	-119.189	-119.189	0	%100
27	CA2	SX	-119.189	-119.189	0	%100
28	CA5	SX	-119.189	-119.189	0	%100
29	CA6	SX	-119.189	-119.189	0	%100
30	M64	SX	0	0	0	%100
31	M65	SX	0	0	0	%100
32	M66	SX	0	0	0	%100
33	M67	SX	0	0	0	%100
34	M68	SX	0	0	0	%100
35	M69	SX	0	0	0	%100
36	M70	SX	0	0	0	%100
37	M71	SX	0	0	0	%100
38	M72	SX	0	0	0	%100
39	M73	SX	0	0	0	%100
40	M74	SX	0	0	0	%100
41	M75	SX	-119.189	-119.189	0	%100
42	MP2	SX	-71.513	-71.513	0	%100
43	M43	SX	0	0	0	%100
44	M44	SX	0	0	0	%100
45	H3	SX	-71.513	-71.513	0	%100
46	MP7	SX	-71.513	-71.513	0	%100
47	MP9	SX	-71.513	-71.513	0	%100
48	HR3	SX	-71.513	-71.513	0	%100
49	M52	SX	0	0	0	%100
50	M53	SX	0	0	0	%100
51	M54	SX	0	0	0	%100
52	M55	SX	0	0	0	%100
53	H2	SX	-71.513	-71.513	0	%100
54	MP4	SX	-71.513	-71.513	0	%100
55	MP6	SX	-71.513	-71.513	0	%100
56	HR2	SX	-71.513	-71.513	0	%100
57	M66A	SX	0	0	0	%100
58	M67A	SX	0	0	0	%100
59	M68A	SX	0	0	0	%100
60	M69A	SX	0	0	0	%100
61	MP8	SX	-71.513	-71.513	0	%100
62	M68B	SX	0	0	0	%100
63	M69B	SX	0	0	0	%100



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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
64	MP5	SX	-71.513	-71.513	0	%100
65	M71B	SX	0	0	0	%100
66	M72B	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	-17.527	-17.527	0	%100
2	GA4	Y	-10.966	-10.966	0	%100
3	GA3	Y	-10.966	-10.966	0	%100
4	P3	Y	-19.508	-19.508	0	%100
5	S2	Y	-17.527	-17.527	0	%100
6	GA2	Y	-10.966	-10.966	0	%100
7	GA1	Y	-10.966	-10.966	0	%100
8	P2	Y	-19.508	-19.508	0	%100
9	S1	Y	-17.527	-17.527	0	%100
10	GA6	Y	-10.966	-10.966	0	%100
11	GA5	Y	-10.966	-10.966	0	%100
12	P1	Y	-19.508	-19.508	0	%100
13	H1	Y	-12.524	-12.524	0	%100
14	MP1	Y	-11.074	-11.074	0	%100
15	MP3	Y	-11.074	-11.074	0	%100
16	HR1	Y	-11.085	-11.085	0	%100
17	CA8	Y	-22.883	-22.883	0	%100
18	CA9	Y	-22.883	-22.883	0	%100
19	CA7	Y	-22.883	-22.883	0	%100
20	M32	Y	-4.405	-4.405	0	%100
21	M35	Y	-4.405	-4.405	0	%100
22	M36	Y	-4.405	-4.405	0	%100
23	M39A	Y	-4.405	-4.405	0	%100
24	CA3	Y	-13.587	-13.587	0	%100
25	CA4	Y	-13.587	-13.587	0	%100
26	CA1	Y	-13.587	-13.587	0	%100
27	CA2	Y	-13.587	-13.587	0	%100
28	CA5	Y	-13.587	-13.587	0	%100
29	CA6	Y	-13.587	-13.587	0	%100
30	M64	Y	-4.405	-4.405	0	%100
31	M65	Y	-4.405	-4.405	0	%100
32	M66	Y	-4.405	-4.405	0	%100
33	M67	Y	-4.405	-4.405	0	%100
34	M68	Y	-4.405	-4.405	0	%100
35	M69	Y	-4.405	-4.405	0	%100
36	M70	Y	-4.405	-4.405	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in, %]
37	M71	Y	-4.405	-4.405	0	%100
38	M72	Y	-4.405	-4.405	0	%100
39	M73	Y	-4.405	-4.405	0	%100
40	M74	Y	-4.405	-4.405	0	%100
41	M75	Y	-10.035	-10.035	0	%100
42	MP2	Y	-11.074	-11.074	0	%100
43	M43	Y	-4.405	-4.405	0	%100
44	M44	Y	-4.405	-4.405	0	%100
45	H3	Y	-12.524	-12.524	0	%100
46	MP7	Y	-11.074	-11.074	0	%100
47	MP9	Y	-11.074	-11.074	0	%100
48	HR3	Y	-11.085	-11.085	0	%100
49	M52	Y	-4.405	-4.405	0	%100
50	M53	Y	-4.405	-4.405	0	%100
51	M54	Y	-4.405	-4.405	0	%100
52	M55	Y	-4.405	-4.405	0	%100
53	H2	Y	-12.524	-12.524	0	%100
54	MP4	Y	-11.074	-11.074	0	%100
55	MP6	Y	-11.074	-11.074	0	%100
56	HR2	Y	-11.085	-11.085	0	%100
57	M66A	Y	-4.405	-4.405	0	%100
58	M67A	Y	-4.405	-4.405	0	%100
59	M68A	Y	-4.405	-4.405	0	%100
60	M69A	Y	-4.405	-4.405	0	%100
61	MP8	Y	-11.074	-11.074	0	%100
62	M68B	Y	-4.405	-4.405	0	%100
63	M69B	Y	-4.405	-4.405	0	%100
64	MP5	Y	-11.074	-11.074	0	%100
65	M71B	Y	-4.405	-4.405	0	%100
66	M72B	Y	-4.405	-4.405	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	-20.75	-20.75	0	%100
2	GA4	SZ	-29.085	-29.085	0	%100
3	GA3	SZ	-29.085	-29.085	0	%100
4	P3	SZ	-19.657	-19.657	0	%100
5	S2	SZ	-20.75	-20.75	0	%100
6	GA2	SZ	-29.085	-29.085	0	%100
7	GA1	SZ	-29.085	-29.085	0	%100
8	P2	SZ	-19.657	-19.657	0	%100
9	S1	SZ	-20.75	-20.75	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,%]
10	GA6	SZ	-29.085	-29.085	0	%100
11	GA5	SZ	-29.085	-29.085	0	%100
12	P1	SZ	-19.657	-19.657	0	%100
13	H1	SZ	-25.886	-25.886	0	%100
14	MP1	SZ	-28.815	-28.815	0	%100
15	MP3	SZ	-28.815	-28.815	0	%100
16	HR1	SZ	-28.786	-28.786	0	%100
17	CA8	SZ	-18.334	-18.334	0	%100
18	CA9	SZ	-18.334	-18.334	0	%100
19	CA7	SZ	-18.334	-18.334	0	%100
20	M32	SZ	0	0	0	%100
21	M35	SZ	0	0	0	%100
22	M36	SZ	0	0	0	%100
23	M39A	SZ	0	0	0	%100
24	CA3	SZ	-24.327	-24.327	0	%100
25	CA4	SZ	-24.327	-24.327	0	%100
26	CA1	SZ	-24.327	-24.327	0	%100
27	CA2	SZ	-24.327	-24.327	0	%100
28	CA5	SZ	-24.327	-24.327	0	%100
29	CA6	SZ	-24.327	-24.327	0	%100
30	M64	SZ	0	0	0	%100
31	M65	SZ	0	0	0	%100
32	M66	SZ	0	0	0	%100
33	M67	SZ	0	0	0	%100
34	M68	SZ	0	0	0	%100
35	M69	SZ	0	0	0	%100
36	M70	SZ	0	0	0	%100
37	M71	SZ	0	0	0	%100
38	M72	SZ	0	0	0	%100
39	M73	SZ	0	0	0	%100
40	M74	SZ	0	0	0	%100
41	M75	SZ	-31.841	-31.841	0	%100
42	MP2	SZ	-28.815	-28.815	0	%100
43	M43	SZ	0	0	0	%100
44	M44	SZ	0	0	0	%100
45	H3	SZ	-25.886	-25.886	0	%100
46	MP7	SZ	-28.815	-28.815	0	%100
47	MP9	SZ	-28.815	-28.815	0	%100
48	HR3	SZ	-28.786	-28.786	0	%100
49	M52	SZ	0	0	0	%100
50	M53	SZ	0	0	0	%100
51	M54	SZ	0	0	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,%]
52	M55	SZ	0	0	0	%100
53	H2	SZ	-25.886	-25.886	0	%100
54	MP4	SZ	-28.815	-28.815	0	%100
55	MP6	SZ	-28.815	-28.815	0	%100
56	HR2	SZ	-28.786	-28.786	0	%100
57	M66A	SZ	0	0	0	%100
58	M67A	SZ	0	0	0	%100
59	M68A	SZ	0	0	0	%100
60	M69A	SZ	0	0	0	%100
61	MP8	SZ	-28.815	-28.815	0	%100
62	M68B	SZ	0	0	0	%100
63	M69B	SZ	0	0	0	%100
64	MP5	SZ	-28.815	-28.815	0	%100
65	M71B	SZ	0	0	0	%100
66	M72B	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	-20.75	-20.75	0	%100
2	GA4	SX	-29.085	-29.085	0	%100
3	GA3	SX	-29.085	-29.085	0	%100
4	P3	SX	-19.657	-19.657	0	%100
5	S2	SX	-20.75	-20.75	0	%100
6	GA2	SX	-29.085	-29.085	0	%100
7	GA1	SX	-29.085	-29.085	0	%100
8	P2	SX	-19.657	-19.657	0	%100
9	S1	SX	-20.75	-20.75	0	%100
10	GA6	SX	-29.085	-29.085	0	%100
11	GA5	SX	-29.085	-29.085	0	%100
12	P1	SX	-19.657	-19.657	0	%100
13	H1	SX	-25.886	-25.886	0	%100
14	MP1	SX	-28.815	-28.815	0	%100
15	MP3	SX	-28.815	-28.815	0	%100
16	HR1	SX	-28.786	-28.786	0	%100
17	CA8	SX	-18.334	-18.334	0	%100
18	CA9	SX	-18.334	-18.334	0	%100
19	CA7	SX	-18.334	-18.334	0	%100
20	M32	SX	0	0	0	%100
21	M35	SX	0	0	0	%100
22	M36	SX	0	0	0	%100
23	M39A	SX	0	0	0	%100
24	CA3	SX	-24.327	-24.327	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in, %]
25	CA4	SX	-24.327	-24.327	0	%100
26	CA1	SX	-24.327	-24.327	0	%100
27	CA2	SX	-24.327	-24.327	0	%100
28	CA5	SX	-24.327	-24.327	0	%100
29	CA6	SX	-24.327	-24.327	0	%100
30	M64	SX	0	0	0	%100
31	M65	SX	0	0	0	%100
32	M66	SX	0	0	0	%100
33	M67	SX	0	0	0	%100
34	M68	SX	0	0	0	%100
35	M69	SX	0	0	0	%100
36	M70	SX	0	0	0	%100
37	M71	SX	0	0	0	%100
38	M72	SX	0	0	0	%100
39	M73	SX	0	0	0	%100
40	M74	SX	0	0	0	%100
41	M75	SX	-31.841	-31.841	0	%100
42	MP2	SX	-28.815	-28.815	0	%100
43	M43	SX	0	0	0	%100
44	M44	SX	0	0	0	%100
45	H3	SX	-25.886	-25.886	0	%100
46	MP7	SX	-28.815	-28.815	0	%100
47	MP9	SX	-28.815	-28.815	0	%100
48	HR3	SX	-28.786	-28.786	0	%100
49	M52	SX	0	0	0	%100
50	M53	SX	0	0	0	%100
51	M54	SX	0	0	0	%100
52	M55	SX	0	0	0	%100
53	H2	SX	-25.886	-25.886	0	%100
54	MP4	SX	-28.815	-28.815	0	%100
55	MP6	SX	-28.815	-28.815	0	%100
56	HR2	SX	-28.786	-28.786	0	%100
57	M66A	SX	0	0	0	%100
58	M67A	SX	0	0	0	%100
59	M68A	SX	0	0	0	%100
60	M69A	SX	0	0	0	%100
61	MP8	SX	-28.815	-28.815	0	%100
62	M68B	SX	0	0	0	%100
63	M69B	SX	0	0	0	%100
64	MP5	SX	-28.815	-28.815	0	%100
65	M71B	SX	0	0	0	%100
66	M72B	SX	0	0	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in, %]
1	S2	Y	-3.185	-3.185	16.404	40
2	GA2	Y	-1.605	-1.605	3.828	27.295
3	GA1	Y	-1.605	-1.605	3.828	27.295
4	S3	Y	-3.185	-3.185	16.404	40
5	GA4	Y	-1.605	-1.605	3.828	27.295
6	GA3	Y	-1.605	-1.605	3.828	27.295
7	S1	Y	-3.185	-3.185	16.404	40
8	GA6	Y	-1.605	-1.605	3.828	27.295
9	GA5	Y	-1.605	-1.605	3.828	27.295

Member Distributed Loads (BLC 44 : BLC 16 Transient Area Loads)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in, %]
1	S2	Y	-32.217	-32.217	16.404	40
2	GA2	Y	-16.236	-16.236	3.828	27.295
3	GA1	Y	-16.236	-16.236	3.828	27.295
4	S3	Y	-32.217	-32.217	16.404	40
5	GA4	Y	-16.236	-16.236	3.828	27.295
6	GA3	Y	-16.236	-16.236	3.828	27.295
7	S1	Y	-32.217	-32.217	16.404	40
8	GA6	Y	-16.236	-16.236	3.828	27.295
9	GA5	Y	-16.236	-16.236	3.828	27.295

Member Area Loads (BLC 1 : Self Weight)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	P22	P21	P20	P23	Y	Two Way	-1.75
2	P10	P11	P12	P9	Y	Two Way	-1.75
3	P31	P34	P33	P32	Y	Two Way	-1.75

Member Area Loads (BLC 16 : Ice Weight)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
1	P22	P21	P20	P23	Y	Two Way	-17.7
2	P10	P11	P12	P9	Y	Two Way	-17.7
3	P31	P34	P33	P32	Y	Two Way	-17.7

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	P3	PL6.5x0.375	.412	21	2	.181	36.312	y	5	3658...	78975	616.9...	7880.906	1....	H1-1b
2	P2	PL6.5x0.375	.401	21	6	.177	36.312	y	10	3658...	78975	616.9...	7884.035	1....	H1-1b
3	CA7	L6.6x4.46x0...	.399	41.562	14	.047	42	z	8	5117...	87561	2464...	7125.374	1....	H2-1

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

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
4	P1	PL6.5x0.375	.381	21	10	.188	36.312	y	2	3658...	78975	616.9...	7894.172	1...	H1-1b
5	CA4	C3.38x2.06...	.374	33	2	.041	33	y	31	4776...	56700	2202...	5751.945	1...	H1-1b
6	CA8	L6.6x4.46x0...	.370	41.562	22	.050	42	z	4	5117...	87561	2464...	7125.374	1...	H2-1
7	CA5	C3.38x2.06...	.363	0	10	.048	28.187	y	28	4776...	56700	2202...	5751.945	1...	H1-1b
8	M75	PL 2.375x0.5	.360	1.5	12	.240	0	y	28	3825...	38475	400.7...	1903.711	2...	H1-1b
9	CA3	C3.38x2.06...	.355	0	2	.050	28.188	y	32	4776...	56700	2202...	5751.945	1.61	H1-1b
10	CA2	C3.38x2.06...	.352	33	6	.042	33	y	34	4776...	56700	2202...	5751.945	1...	H1-1b
11	HR2	2.88x0.120	.349	90	3	.174	92		4	2249...	4307...	3155...	3155.674	1...	H1-1b
12	CA1	C3.38x2.06...	.349	0	6	.050	28.188	y	36	4776...	56700	2202...	5751.945	1...	H1-1b
13	HR3	2.88x0.120	.347	6	2	.162	92		6	2249...	4307...	3155...	3155.674	1...	H1-1b
14	CA6	C3.38x2.06...	.347	33	10	.041	33	y	38	4776...	56700	2202...	5751.945	1...	H1-1b
15	HR1	2.88x0.120	.334	6	4	.151	6		4	2249...	4307...	3155...	3155.674	1...	H1-1b
16	CA9	L6.6x4.46x0...	.320	41.562	6	.045	42	z	12	5117...	87561	2464...	7125.374	1...	H2-1
17	S2	HSS4X4X6	.308	0	32	.112	0	y	142	1882...	1978...	2204...	22045.5	1...	H1-1b
18	S3	HSS4X4X6	.302	0	13	.112	0	y	114	1882...	1978...	2204...	22045.5	1...	H1-1b
19	MP2	PIPE 2.5	.288	70	5	.103	70		5	3348...	66654	4726.5	4726.5	4...	H1-1b
20	MP5	PIPE 2.5	.286	70	7	.089	70		7	3348...	66654	4726.5	4726.5	4...	H1-1b
21	S1	HSS4X4X6	.279	0	9	.109	0	y	86	1882...	1978...	2204...	22045.5	1...	H1-1b
22	GA4	L2x2x4	.268	0	2	.019	27.295	y	9	2952...	42480	959.63	2190.068	2.22	H2-1
23	GA5	L2x2x4	.257	0	9	.022	27.295	y	38	2952...	42480	959.63	2190.068	2...	H2-1
24	MP8	PIPE 2.5	.257	70	9	.110	70		3	3348...	66654	4726.5	4726.5	4...	H1-1b
25	GA2	L2x2x4	.249	0	12	.020	0	y	12	2952...	42480	959.63	2190.068	2...	H2-1
26	GA6	L2x2x4	.230	0	4	.018	0	y	4	2952...	42480	959.63	2190.068	2...	H2-1
27	GA1	L2x2x4	.230	0	6	.023	27.295	y	34	2952...	42480	959.63	2190.068	2...	H2-1
28	GA3	L2x2x4	.229	0	7	.024	27.295	y	30	2952...	42480	959.63	2190.068	2...	H2-1
29	MP9	PIPE 2.5	.225	70	2	.103	70		7	3348...	66654	4726.5	4726.5	3...	H1-1b
30	MP6	PIPE 2.5	.206	70	7	.111	70		6	3348...	66654	4726.5	4726.5	4...	H1-1b
31	MP1	PIPE 2.5	.203	70	11	.126	26		8	3348...	66654	4726.5	4726.5	2...	H1-1b
32	MP3	PIPE 2.5	.202	70	5	.114	70		3	3348...	66654	4726.5	4726.5	4...	H1-1b
33	MP4	PIPE 2.5	.194	70	7	.113	26		4	3348...	66654	4726.5	4726.5	1...	H1-1b
34	MP7	PIPE 2.5	.190	70	9	.102	26		6	3348...	66654	4726.5	4726.5	3...	H1-1b
35	H3	Pipe3.5x0.1...	.176	31	2	.103	90		2	4587...	7158...	6337...	6337.65	1...	H1-1b
36	H1	Pipe3.5x0.1...	.169	31	10	.096	48		4	4587...	7158...	6337...	6337.65	1...	H1-1b
37	H2	Pipe3.5x0.1...	.168	31	6	.077	48		12	4587...	7158...	6337...	6337.65	1...	H1-1b

Bolt Calculation Tool, V1.5.1

PROJECT DATA	
Site Name:	BOHVN00200A
Site Number:	BOHVN00200A
Connection Description:	Platform to Monopole

MAXIMUM BOLT LOADS		
Bolt Tension:	8328.34	lbs
Bolt Shear:	1651.34	lbs

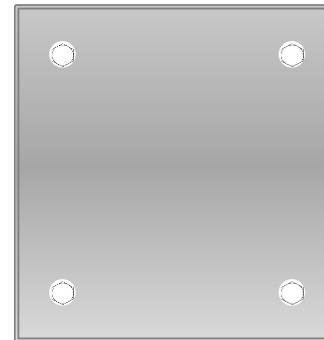
WORST CASE BOLT LOADS ¹		
Bolt Tension:	8328.34	lbs
Bolt Shear:	562.23	lbs

BOLT PROPERTIES		
Bolt Type:	Bolt	-
Bolt Diameter:	0.625	in
Bolt Grade:	A325	-
# of Bolts:	4	-
Threads Excluded?	No	-

¹ Worst case bolt loads correspond to Load combination #5 on member S2 in RISA-3D, which causes the maximum demand on the bolts.

Member Information
I nodes of S3, S2, S1

BOLT CHECK		
Tensile Strength	20340.15	
Shear Strength	13805.83	
Max Tensile Usage	40.9%	
Max Shear Usage	12.0%	
Interaction Check (Worst Case)	0.17	≤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: BOHVN00200A

**BOHVN00200A
111 Second Hill Road
Bridgewater, Connecticut 06752**

October 18, 2021

EBI Project Number: 6221004018

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	4.89%

October 18, 2021

Dish Wireless

Emissions Analysis for Site: BOHVN00200A - BOHVN00200A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **111 Second Hill Road in Bridgewater, 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 111 Second Hill Road in Bridgewater, 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 145 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):	145 feet	Height (AGL):	145 feet	Height (AGL):	145 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 %:	1.22%	Antenna BI MPE %:	1.22%	Antenna CI MPE %:	1.22%

Site Composite MPE %	
Carrier	MPE %
Dish Wireless (Max at Sector A):	1.22%
AT&T	3.67%
Site Total MPE % :	4.89%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	1.22%
Dish Wireless Sector B Total:	1.22%
Dish Wireless Sector C Total:	1.22%
Site Total MPE % :	4.89%

Dish Wireless Maximum MPE Power Values (Sector A)							
Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
Dish Wireless 600 MHz n71	4	223.68	145.0	1.66	600 MHz n71	400	0.42%
Dish Wireless 1900 MHz n70	4	542.70	145.0	4.04	1900 MHz n70	1000	0.40%
Dish Wireless 2190 MHz n66	4	542.70	145.0	4.04	2190 MHz n66	1000	0.40%
						Total:	1.22%

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

Summary

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

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

Dish Wireless Sector	Power Density Value (%)
Sector A:	1.22%
Sector B:	1.22%
Sector C:	1.22%
Dish Wireless Maximum MPE % (Sector A):	1.22%
Site Total:	4.89%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **4.89%** 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.

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 **Delivered, PO Box**

November 8, 2021 at 9:34 am
BRIDGEWATER, CT 06752

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FAQs



November 09, 2021

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Delivery Information:

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Signed for by:	Signature not required	Delivery Location:	11 SECOND HILL RD
Service type:	FedEx 2Day		
Special Handling:	Deliver Weekday; Residential Delivery		BRIDGEWATER, CT, 06752
		Delivery date:	Nov 9, 2021 12:47

Shipping Information:

Tracking number:	775121666421	Ship Date:	Nov 5, 2021
		Weight:	1.0 LB/0.45 KG

Recipient:
Robert J. Riebe - Owner,
11 Second Hill Road
BRIDGEWATER, CT, US, 06752

Shipper:
Corey Milan, NB+C
100 Apollo Dr.
Suite 303
CHELMSFORD, MA, US, 01824

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Special Handling:	Deliver Weekday		BRIDGEWATER, CT, 06752
		Delivery date:	Nov 9, 2021 13:00

Shipping Information:

Tracking number:	775121632125	Ship Date:	Nov 5, 2021
		Weight:	1.0 LB/0.45 KG

Recipient:
Joseph Manley - Building Official,
44 Main Street South
PO Box 216
BRIDGEWATER, CT, US, 06752

Shipper:
Corey Milan, NB+C
100 Apollo Dr.
Suite 303
CHELMSFORD, MA, US, 01824

Reference 100814