PROJECT NARRATIVE

October 25, 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
99 Meadow St. Hartford, CT 06114
Latitude: 41'44'35.51" / Longitude: -72'40'03.00"

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 99 Meadow Street in Hartford (the "Property"). The existing 148 foot monopole tower is owned by American Tower Corporation ("ATC"). The underlying property is owned by Meadow Street Realty LLC. 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 Luke Bronin, Mayor of the City of Hartford, Charles Mathews, City of Hartford Director of Development Services and Meadow Street Realty LLC as the property owner.

Background

The existing ATC facility consists of a 148-foot monopole tower located within an existing leased area. AT&T Mobility currently maintains antennas at the 137-foot level. T-Mobile currently maintains antennas at the 123-foot level. Metro PCS currently maintains antennas at the 113-foot level. Sprint/Nextel currently maintains antennas at the 98-foot level. Clearwire currently maintains antennas at the 90-foot level and Verizon Wireless currently maintains antennas at the 79-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 99 Meadow Street 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 147-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 99 Meadow Street 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 prosed 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

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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

MELISSA ANN METZLER
Notary Public
Commonwealth of Massachusetts
My Commission Expires March 14, 2025

Notary Public _____
My Commission Expires: March 14, 2025

ENGINEERING DRAWINGS

DISH Wireless L.L.C. SITE ID:

BOBDL00009A

DISH Wireless L.L.C. SITE ADDRESS:

99 MEADOW ST
HARTFORD, CT 06114

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).

SCOPE OF WORK

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

TOWER SCOPE OF WORK:
- REMOVE (12) EXISTING PANEL ANTENNAS @ 152' RAD CENTER
- REMOVE (1) EXISTING ANTENNA PLATFORM MOUNT @ 152' RAD CENTER
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALL (1) PROPOSED ANTENNA PLATFORM MOUNT
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
- INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
- INSTALL (1) PROPOSED HYBRID CABLE

GROUND SCOPE OF WORK:
- INSTALL (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 METER SOCKET

SITE INFORMATION

PROPERTY OWNER:	MEADOW STREET REALTY, LLC.
ADDRESS:	99 MEADOW ST HARTFORD, CT 06114
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	302468
TOWER APP NUMBER:	13683501
COUNTY:	HARTFORD
LATITUDE (NAD 83):	41° 44' 35.51" N 41.743197 N
LONGITUDE (NAD 83):	72° 40' 03.00" W 72.667500 W
ZONING JURISDICTION:	CITY OF HARTFORD
ZONING DISTRICT:	INDUSTRIAL
PARCEL NUMBER:	09003064-275690115
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	EVERSOURCE ENERGY
TELEPHONE COMPANY:	AT&T FIBER

PROJECT DIRECTORY

APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	AMERICAN TOWER CORPORATION 10 PRESIDENTIAL WAY WOBURN, MA 01801 (781) 926-4500
SITE DESIGNER:	B+T GROUP 1717 S. BOULDER AVE, SUITE 300 TULSA, OK 74119 (918) 587-4630
SITE ACQUISITION:	KENNETH R. BRADBURY II (781) 926-4770
CONST. MANAGER:	JAVIER SOTO JAVIER.SOTO@DISH.COM
RF ENGINEER:	BOSSENER CHARLES BOSSENER.CHARLES@DISH.COM

CONNECTICUT CODE OF COMPLIANCE

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

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

SITE PHOTO

DIRECTIONS

DIRECTIONS FROM DISH Wireless L.L.C. OFFICE/AIRPORT/DOWNTOWN:

HEAD NORTH ON LINDBERGH DR TOWARD MAXIM RD TURN LEFT ONTO MAXIM RD TURN RIGHT ONTO RESERVE RD TURN LEFT TOWARD WAWARME AVE SLIGHT LEFT ONTO WAWARME AVE TURN LEFT ONTO LOCUST ST TURN RIGHT ONTO MEADOW ST TURN LEFT ARRIVE AT BOBDL00009A

SHEET INDEX

SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
LS1	SITE SURVEY
LS2	SITE SURVEY CONTINUED
A-1	OVERALL AND ENLARGED SITE PLAN
A-2	ELEVATION, ANTENNA LAYOUT AND SCHEDULE
A-3	EQUIPMENT PLATFORM AND H-FRAME DETAILS
A-4	EQUIPMENT DETAILS
A-5	EQUIPMENT DETAILS
A-6	EQUIPMENT DETAILS
E-1	ELECTRICAL/FIBER ROUTE PLAN AND NOTES
E-2	ELECTRICAL DETAILS
E-3	ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE
G-1	GROUNDING PLANS AND NOTES
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
RF-1	RF CABLE COLOR CODE
GN-1	LEGEND AND ABBREVIATIONS
GN-2	GENERAL NOTES
GN-3	GENERAL NOTES
GN-4	GENERAL NOTES

UNDERGROUND SERVICE ALERT CBYD 811
UTILITY NOTIFICATION CENTER OF CONNECTICUT
(800) 922-4455
WWW.CBYD.COM
CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

811

GENERAL NOTES

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

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

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

VICINITY MAP

NO SCALE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

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

STATE OF CONNECTICUT · CHRISTOPHER GRAVINESE · No. 23824 · LICENSED PROFESSIONAL ENGINEER
9/6/21

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
YF	YF	RCM

RFDS REV #: 2.0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	9/6/21	CONSTRUCTION

A&E PROJECT NUMBER

155739.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00009A
99 MEADOW ST
HARTFORD, CT 06114

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

PROJECT SUMMARY

FIELD SURVEY DATE: 02/11/2019

SITE ADDRESS: 99 MEADOW ST, HARTFORD, CONNECTICUT

PARCEL INFORMATION
OWNER: MEADOW STREET REALTY, LLC A LIMITED LIABILITY CONPANY
OWNER ADDRESS: 99 MEADOW STREET, HARTFORD, CONNECTICUT
APN: 2756901115

TOTAL AREAS:
PARENT PARCEL: 2.738 ± ACRES
ATC LEASE AREA: 2,500 SQ. FT.
ACCESS EASEMENT: NONE PROVIDED
ACCESS EASEMENT AS SURVEYED:
5,084 SQ. FT. (APN: 2976900087)
2,589 SQ. FT. (APN: 2756901115)
UTILITY EASEMENT: NONE PROVIDED

GEOGRAPHIC COORDINATES OF TOWER:
LATITUDE: N 041°44'35.5" N — LONGITUDE: W 072°40'43.13" W
VERTICAL DATUM: NAVD 1988 — HORIZONTAL DATUM: NAD83
GROUND ELEVATION: 18.04'

THIS IS TO CERTIFY THAT THE ABOVE INFORMATION IS PROVIDED TO THE FOLLOWING ACCURACY:
± TWENTY (20) FEET IN THE HORIZONTAL
± THREE (3) FEET IN THE VERTICAL

*MERIDIAN AND COORDINATES REFER TO CONNECTICUT STATE PLANE, NAD 83, AND ARE BASED ON GPS OBSERVATIONS.

FLOODPLAIN:
PER THE FEMA FLOODPLAIN MAPS, THE SITE IS LOCATED IN AN AREA DESIGNATED AS ZONE X.
COMMUNITY PANEL NO.: 09003C0009G
EFFECTIVE DATE: 09/26/2011

BOUNDARY NOTE
THIS SURVEY IS THE RESULT OF AN ACTUAL FIELD SURVEY BASED UPON SUFFICIENT RESEARCH AND FIELD EVIDENCE TO VERIFY THE PARENT PARCEL OF THE SUBJECT PROPERTY. HOWEVER, THIS SURVEYOR HAS RELIED UPON THE DEEDS OF RECORD, AS PROVIDED. THIS SURVEYOR MAKES NO GUARANTEE, EITHER EXPRESSED OR IMPLIED AS TO THE QUALITY OF THE DEED REPORT AND REFERENCE DOCUMENTS PROVIDED AND THE DOCUMENTS PROVIDED AFFECTING THE LEASE AND IMMEDIATE AREA HAVE BEEN PLOTTED. THE BOUNDARY SHOWN HEREON IS PLOTTED FROM THE RECORD INFORMATION PROVIDED AND DOES NOT CONSTITUTE A BOUNDARY SURVEY OF THE PROPERTY.

ENCROACHMENT NOTE
AT THE TIME OF THE SURVEY, THERE WAS VISIBLE EVIDENCE OF AN ENCROACHMENT AS FOLLOWS:

1. FENCE OUTSIDE PROVIDED LEASE AREA BY A MAXIMUM OF 4.0' ALONG SOUTH SIDE, WHICH WOULD BE REMEDIED BY THE AS-SURVEYED LEGAL DESCRIPTION SHOWN HEREON.
2. ACCESS ROAD ENCROACHES ONTO ABUTTING PROPERTY AS SHOWN AND IS LABELED AS AN ENCROACHMENT. TITLE COMMITMENT/REPORT FOR ABUTTERS PROPERTY IS REQUIRED TO ADDRESS ANY ADDITIONAL ENCROACHMENTS.

ATC LEASE AREA IS CONTAINED ENTIRELY ON THE PARENT PARCEL.

SURVEYOR'S NOTES

1. THERE IS ACCESS TO THE SUBJECT PROPERTY VIA MEADOW STREET, A PUBLIC RIGHT OF WAY.
2. THE LOCATIONS OF ALL UTILITIES SHOWN ON THE SURVEY ARE FROM VISIBLE SURFACE EVIDENCE ONLY.
3. AT THE TIME OF THIS SURVEY THERE WAS NO OBSERVABLE SURFACE EVIDENCE OF EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS WITHIN RECENT MONTHS.
4. AT THE TIME OF THIS SURVEY, THERE WAS NO OBSERVABLE EVIDENCE OF THE SUBJECT PROPERTY BEING USED AS A SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL.
5. AT THE TIME OF THIS SURVEY, THERE WAS NO OBSERVABLE EVIDENCE OF ANY RECENT CHANGES IN STREET RIGHT-OF-WAY LINES EITHER COMPLETED OR PROPOSED, AND AVAILABLE FROM THE CONTROLLING JURISDICTION.
6. AT THE TIME OF THIS SURVEY, THERE WAS NO OBSERVABLE EVIDENCE OF ANY RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS.
7. ANGLES OR BEARINGS SHOWN HEREON ARE FORMATTED IN DEGREES, MINUTES, AND SECONDS. DISTANCES OR ELEVATIONS SHOWN HEREON ARE IN U.S. SURVEY FEET, UNLESS NOTED OTHERWISE.
8. UNDERGROUND IMPROVEMENTS, IF ANY AND NOT VISIBLE AT THE TIME OF THE SURVEY, HAVE NOT BEEN LOCATED IN THE FIELD OR SHOWN HEREON.
9. WETLANDS, IF PRESENT, HAVE NOT BEEN LOCATED OR SHOWN HEREON.
10. NOT ALL IMPROVEMENTS ON THE PARENT PARCEL BEING SURVEYED ARE SHOWN HEREON.
11. REFERENCES:
    A. DEED: VOLUME 4225, PAGE 189.
    B. MAP ENTITLED: "TOWER DRAWING" ON 09/28/15.
    C. MAP ENTITLED: "SITE PLAN LAYOUT" PREPARED BY AMERICAN TOWER, DH 09/11/15.
    D. MAP ENTITLED: "EXISTING CONDITIONS OF 99 MEADOW STREET, HARTFORD, CONNECTICUT" PREPARED BY GEESICK & ASSOCIATES P.C. ON 08/03/96.
    E. MAP ENTITLED: "LEASE EXHIBIT OF PROPOSED NEXTEL LEASE PARCEL" PREPARED BY GEESICK & ASSOCIATES P.C. ON 07/25/96.
    F. THE TITLE REPORT PREPARED BY CATIC, AGENT NO. 5966 WITH AN EFFECTIVE DATE FEBRUARY 7, 2019

ZONING INFORMATION

ZONE: ID-1

SETBACKS:	REQUIRED:	EXISTING:
FRONT:	15'	40.7'
SIDE:	15'	1.7'
REAR:	5'	353.5'
HEIGHT:	4 STORIES	1 STORY

*ALL SITE RESTRICTIONS WERE OBTAINED FROM THE LOCAL MUNICIPALITY.

NOTES CORRESPONDING TO TITLE COMMITMENT

THE TITLE REPORT ISSUED BY CATIC, AGENT NO. 5966 WITH AN EFFECTIVE DATE FEBRUARY 7, 2019 AND CONTAINS THE FOLLOWING SURVEY RELATED ITEMS:

SCHEDULE B SECTION I:
ITEMS 1-4 ARE NOT SURVEY RELATED.

5. OPEN-END MORTGAGE DEED, FIXTURE FILING AND ASSIGNMENT OF LEASES AND RENTS FROM AMERICAN TOWER ASSET SUB, LLC, A DELAWARE LIMITED LIABILITY COMPANY (BORROWER) DATED MAY 4, 2007 AND FILED ON MAY 23, 2008 IN (BOOK) 5283 (PAGE) 98 (INSTRUMENT) 00003554, OF THE OFFICIAL PROPERTY RECORDS OF HARTFORD CITY, CONNECTICUT IN THE AMOUNT OF $1,750,000,000.00 AND IN FAVOR OF AMERICAN TOWER DEPOSITOR SUB, LLC, A DELAWARE LIMITED LIABILITY COMPANY (LENDER)(SHOWN HEREON)

   AFFECTED BY AN ASSIGNMENT OF OPEN-END MORTGAGE, FIXTURE FILING AND ASSIGNMENT OF LEASES AND RENTS FROM AMERICAN TOWER DEPOSITOR SUB, LLC, A DELAWARE LIMITED LIABILITY COMPANY TO LASALLE BANK NATIONAL ASSOCIATION IN (ASSIGNEE BOOK) 0494, (ASSIGNEE PAGE) 46 (ASSIGNEE INSTRUMENT) 00011665, OF THE OFFICIAL PROPERTY RECORDS OF HARTFORD CITY, CONNECTICUT. (SHOWN HEREON)

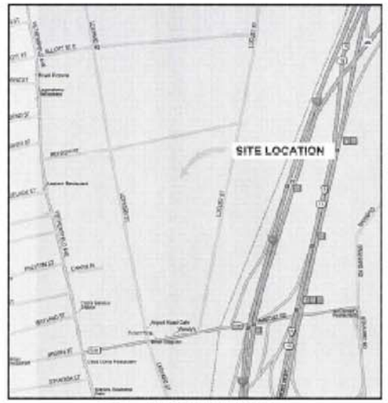
SCHEDULE B SECTION II:
ITEMS 1-5 ARE NOT SURVEY RELATED.

6. NOTICE OF GRANT OF VARIANCE, SPECIAL PERMIT OR SPECIAL EXCEPTION, DATED MARCH 6, 1979 AND RECORDED MARCH 19, 1979, IN BOOK 1689 PAGE 214, IN HARTFORD CITY, CONNECTICUT. (NOT SURVEY RELATED)
7. ANY AND ALL MATTERS SHOWN ON THE MAP ENTITLED "SURVEY MAP SHOWING PROPERTIES OF GIVITILLO BROS. & SALVATORE AMATO" RECORDED SEPTEMBER 6, 1979 AS CASE FILE NO. 1068 IN HARTFORD CITY, CONNECTICUT. (SHOWN HEREON)
8. TERMS AND CONDITIONS CONTAINED IN A PASSWAY AGREEMENT BETWEEN NUCCIA AMENTA, AND DAJORGI (CT) LLC, A CONNECTICUT LIMITED LIABILITY COMPANY, DATED NOVEMBER 28, 1995 AND RECORDED NOVEMBER 30, 1995, IN BOOK 3644 PAGE 151, IN HARTFORD CITY, CONNECTICUT (SHOWN HEREON)
9. TERMS AND CONDITIONS OF AN UNRECORDED LEASE BETWEEN NUCCIA AMENTA, AND NEXTEL COMMUNICATIONS OF THE MID-ATLANTIC, INC., D/B/A NEXTEL COMMUNICATIONS, DATED NOVEMBER 25, 1996. (NO METES AND BOUNDS)

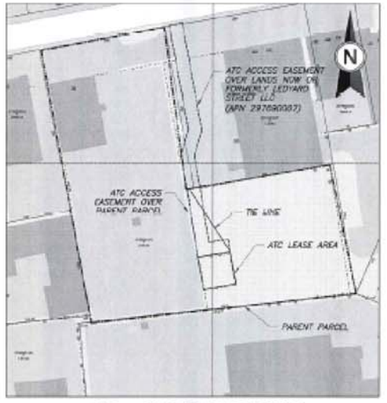
   AFFECTED BY THE TERMS AND CONDITIONS OF AN UNRECORDED ASSIGNMENT BETWEEN NEXTEL COMMUNICATIONS, INC.; AND TOWER ASSET SUB, LLC. (NO METES AND BOUNDS)

   FURTHER AFFECTED BY A CONNECTICUT ASSIGNMENT AND ASSUMPTION OF LEASE OR OTHER AGREEMENT BETWEEN TOWER ASSET SUB, LLC, A DELAWARE LIMITED LIABILITY COMPANY; AND AMERICAN TOWER ASSET SUB, LLC, A DELAWARE LIMITED LIABILITY COMPANY, DATED FEBRUARY 28, 2007 AND RECORDED MAY 23, 2008, IN BOOK 5283 PAGE 92, IN HARTFORD CITY, CONNECTICUT (SHOWN HEREON)

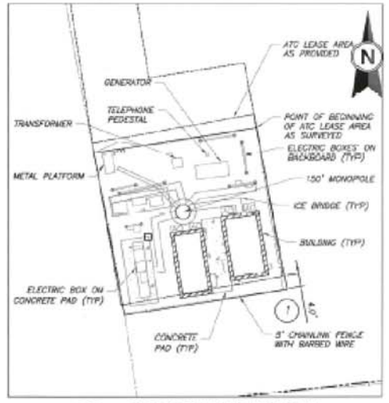
   FURTHER AFFECTED BY THE TERMS AND CONDITIONS OF AN UNRECORDED LEASE SUPPLEMENT, AS EVIDENCED BY A NOTICE OF LEASE, SUPPLEMENT BETWEEN AMERICAN TOWER ASSET SUB, LLC, A DELAWARE LIMITED LIABILITY COMPANY; AND CELLCO PARTNERSHIP, A DELAWARE GENERAL PARTNERSHIP, DBA VERIZON WIRELESS, DATED AUGUST 11, 2016 AND RECORDED SEPTEMBER 7, 2016, IN BOOK 7169 PAGE 150, IN HARTFORD CITY, CONNECTICUT (SHOWN HEREON)



1 VICINITY MAP
NTS



2 PARENT PARCEL
0 100' 200'
SCALE: 1"=100' (11X17)
1"=50' (22X34)



3 COMPOUND DETAIL
0 20' 40'
SCALE: 1"=20' (11X17)
1"=10' (22X34)

SURVEY LEGEND

	EXISTING PROPERTY
	EXISTING ADJ. PROPERTY
	EXISTING LEASE
	EXISTING EASEMENT
70	EXISTING CONTOUR (MAJOR)
71	EXISTING CONTOUR (MINOR)
	EXISTING TREELINE
	EXISTING CHAINLINK FENCE
	EXISTING OVERHEAD WIRES
	EXISTING BUILDING
	EXISTING CONCRETE
	EXISTING ROAD (STONE)
	EXISTING ROAD (PAVED)
	SURVEY IRON PIN FOUND
	SURVEY BENCHMARK
UP	EXISTING UTILITY POLE
GW	EXISTING GUY ANCHOR
CO	EXISTING CLEAN OUT
	EXISTING BOLLARD
EB	EXISTING ELECTRIC PULLBOX
	EXISTING GASPOST
	EXISTING LIGHT
(2)	TITLE REFERENCE #
(1)	ENCROACHMENT REFERENCE #

4 EXISTING CONDITIONS PLAN
0 50' 100'
SCALE: 1"=50' (11X17)
1"=25' (22X34)

AMERICAN TOWER®
ATC TOWER SERVICES, INC
3533 REGENCY PARKWAY
SUITE 133
CARY, NC 27551
PHONE: (919) 468-0145
COA: D-0204

REV.	DESCRIPTION	BY	DATE
0	ISSUED FOR COMMENT	SW	03/19/19

ATC SITE NUMBER:
302468

ATC SITE NAME:
PETRO LOCK CT

SITE ADDRESS:
99 MEADOW ST
HARTFORD, CONNECTICUT

SURVEY CERTIFICATE:
TO AMERICAN TOWER CORPORATION:
THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 3, 4, 6(B) (TO THE EXTENT GRAPHICALLY DEPICT ON SURVEY DRAWING THE ZONING SETBACK LINES), 7(A), 7(B)(1), 7(C), 8, 9, 11, AND 13 TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON 02/11/19.

DATE OF PLAT OR MAP: 9/6/19

(SIGNED)
NAME: TIMOTHY J. SIMPSON
REGISTERED LAND SURVEYOR
STATE OF CONNECTICUT
No. 23924

SURVEY LOGO: Tectonic
Tectonic Engineering & Surveying Consultants P.C.
www.tectonicengineering.com

DRAWN BY:	SW
APPROVED BY:	TJH
DATE DRAWN:	03/19/19
ATC JOB NO:	302468

ALTA/NSPS LAND TITLE SURVEY

SHEET NUMBER:	REVISION:
V-101	0

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

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

STATE OF CONNECTICUT
TIMOTHY J. SIMPSON
No. 23924
LICENSED
PROFESSIONAL ENGINEER
9/6/21

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
YF	YF	RCM

RFDS REV #: 2.0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	9/6/21	CONSTRUCTION

A&E PROJECT NUMBER
155739.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00009A
99 MEADOW ST
HARTFORD, CT 06114

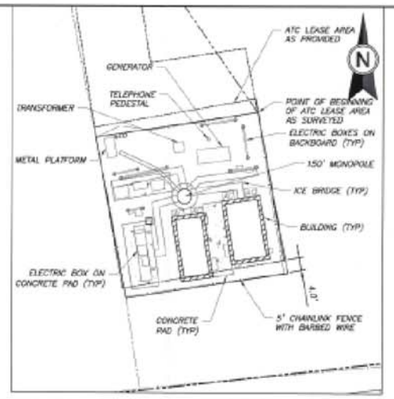
SHEET TITLE
SITE SURVEY

SHEET NUMBER
LS1

1 PARENT PARCEL

0 100' 200'

SCALE: 1"=100' (11X17)
1"=50' (22X34)



2 COMPOUND DETAIL

0 20' 40'

SCALE: 1"=20' (11X17)
1"=10' (22X34)

SURVEY LEGEND

- EXISTING PROPERTY
- EXISTING ADJ. PROPERTY
- EXISTING LEASE
- EXISTING EASEMENT
- 20 EXISTING CONTOUR (MAJOR)
- 20 EXISTING CONTOUR (MINOR)
- EXISTING TREELINE
- EXISTING CHAINLINK FENCE
- EXISTING OVERHEAD WIRES
- EXISTING BUILDING
- EXISTING CONCRETE
- EXISTING ROAD (STONE)
- EXISTING ROAD (PAVED)
- SURVEY IRON PIN FOUND
- SURVEY BENCHMARK
- EXISTING UTILITY POLE
- EXISTING GUY ANCHOR
- EXISTING CLEAN OUT
- EXISTING BOLLARD
- EXISTING ELECTRIC PULLBOX
- GATEPOST
- EXISTING LIGHT
- (5) TITLE REFERENCE #
- (7) ENCROACHMENT REFERENCE #

LEGAL DESCRIPTION

PARENT PARCEL - AS PROVIDED:
THE LAND HEREINAFTER REFERRED TO HEREIN BELOW IS SITUATED IN THE TOWN OF HARTFORD, COUNTY OF HARTFORD, STATE OF CONNECTICUT, AND IS DESCRIBED AS FOLLOWS:

A CERTAIN PIECE OR PARCEL OF LAND SITUATED IN THE TOWN OF HARTFORD, COUNTY OF HARTFORD AND STATE OF CONNECTICUT, LOCATED ON THE SOUTHERLY SIDE OF MEADOW STREET, AND MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS, TO WIT:

BEGINNING AT A POINT WHICH MARKS THE SOUTHWEST CORNER OF THE HEREIN DESCRIBED PARCEL, THENCE RUNNING N 10° 39' 47" W ALONG LAND NOW OR FORMERLY OF R. PASTIGIO ET AL AND LAND NOW OR FORMERLY OF ALFRED CHIULLI, PARTLY ON EACH, A DISTANCE OF FOUR HUNDRED TWENTY AND THIRTY-EIGHT ONE HUNDREDTHS (420.38) FEET TO A POINT IN THE SOUTHERLY STREET LINE OF MEADOW STREET, WHICH POINT MARKS THE NORTHWESTERLY CORNER OF THE HEREIN DESCRIBED PARCEL; RUNNING THENCE N 79° 42' 13" E A DISTANCE OF TWO HUNDRED (200) FEET ALONG THE SOUTHERLY LINE OF MEADOW STREET TO A POINT; RUNNING THENCE S 10° 39' 47" E ALONG OTHER LAND OF THE CIVITILLO'S, A DISTANCE OF TWO HUNDRED FIFTY (250) FEET TO A POINT; RUNNING THENCE N 79° 42' 13" E A DISTANCE OF TWO HUNDRED (200) FEET ALONG OTHER LAND OF THE CIVITILLOS, TO A POINT; RUNNING THENCE S 11° 30' 00" E ALONG LAND NOW OR FORMERLY OF ONE KRUTT A DISTANCE OF ONE HUNDRED NINETY-NINE AND TWENTY-SEVEN ONE-HUNDREDTHS (199.27) FEET TO A POINT WHICH MARKS THE SOUTHEASTERLY CORNER OF THE HEREIN DESCRIBED PARCEL AND RUNNING THENCE S 83° 43' 17" W ALONG LAND NOW OR FORMERLY OF HARTCON, INC. A DISTANCE OF 405.10 FEET TO THE POINT AND PLACE OF BEGINNING.

PARCEL ID# 27680116

THIS BEING THE SAME PROPERTY CONVEYED TO MEADOW STREET REALTY, LLC, A LIMITED LIABILITY COMPANY FROM NUCCIA AMENTA AND GAETANO AMENTA IN A DEED DATED MARCH 1, 2000 AND RECORDED APRIL 7, 2000, IN BOOK 4225 PAGE 189.

ATC LEASE AREA - AS PROVIDED:
COMMENCING AT AN IRON PIPE TO BE SET WHICH POINT IS LOT LINE OF NT DEFORO LLC & NT NUCCIA AMENIA. THENCE SOUTH 38°21'48" EAST A DISTANCE OF 112.26 FEET TO THE POINT OF BEGINNING OF SAID LEASE PARCEL, THENCE THE FOLLOWING COURSES AND DISTANCES:
SOUTH 03°58'52" EAST A DISTANCE OF 50.00 FEET TO AN IRON PIPE TO BE SET
SOUTH 86°01'10" WEST A DISTANCE OF 50.00 FEET TO AN IRON PIPE TO BE SET
NORTH 03°58'52" WEST A DISTANCE OF 50.00 FEET TO AN IRON PIPE TO BE SET
NORTH 86°01'10" EAST A DISTANCE OF 50.00 FEET TO AN IRON PIPE TO BE SET AND THE PLACE OF BEGINNING.
CONTAINING: 2,500 SQUARE FEET

ATC LEASE AREA - AS SURVEYED:
COMMENCING AT A POINT OF THE COMMON CORNER OF THE SOUTHWESTERLY CORNER OF LANDS NOW OR FORMERLY LEDYARD STREET LLC AND THE PARENT PARCEL OF LANDS NOW OR FORMERLY MEADOW STREET REALTY LLC, RUNNING THENCE SOUTH 34°34'04" EAST FOR A DISTANCE OF 116.00 FEET TO THE POINT OF BEGINNING, RUNNING THENCE
SOUTH 10°45'30" EAST FOR A DISTANCE OF 50.00 FEET TO A POINT; THENCE
SOUTH 81°01'59" WEST FOR A DISTANCE OF 50.00 FEET TO A POINT; THENCE
NEAR 8° 57'45.5" WEST FOR A DISTANCE OF 50.00 FEET TO A POINT; THENCE
NORTH 81°01'59" EAST FOR A DISTANCE OF 50.00 FEET TO THE POINT OF BEGINNING.

CONTAINING: 2,500 SQUARE FEET

ATC ACCESS EASEMENT OVER LANDS NOW OR FORMERLY LEDYARD STREET LLC (APN 297690007) - (NONE PROVIDED, AS SURVEYED)
COMMENCING AT A POINT OF THE COMMON CORNER OF THE SOUTHWESTERLY CORNER OF LANDS NOW OR FORMERLY LEDYARD STREET LLC AND THE PARENT PARCEL OF LANDS NOW OR FORMERLY MEADOW STREET REALTY LLC, RUNNING THENCE

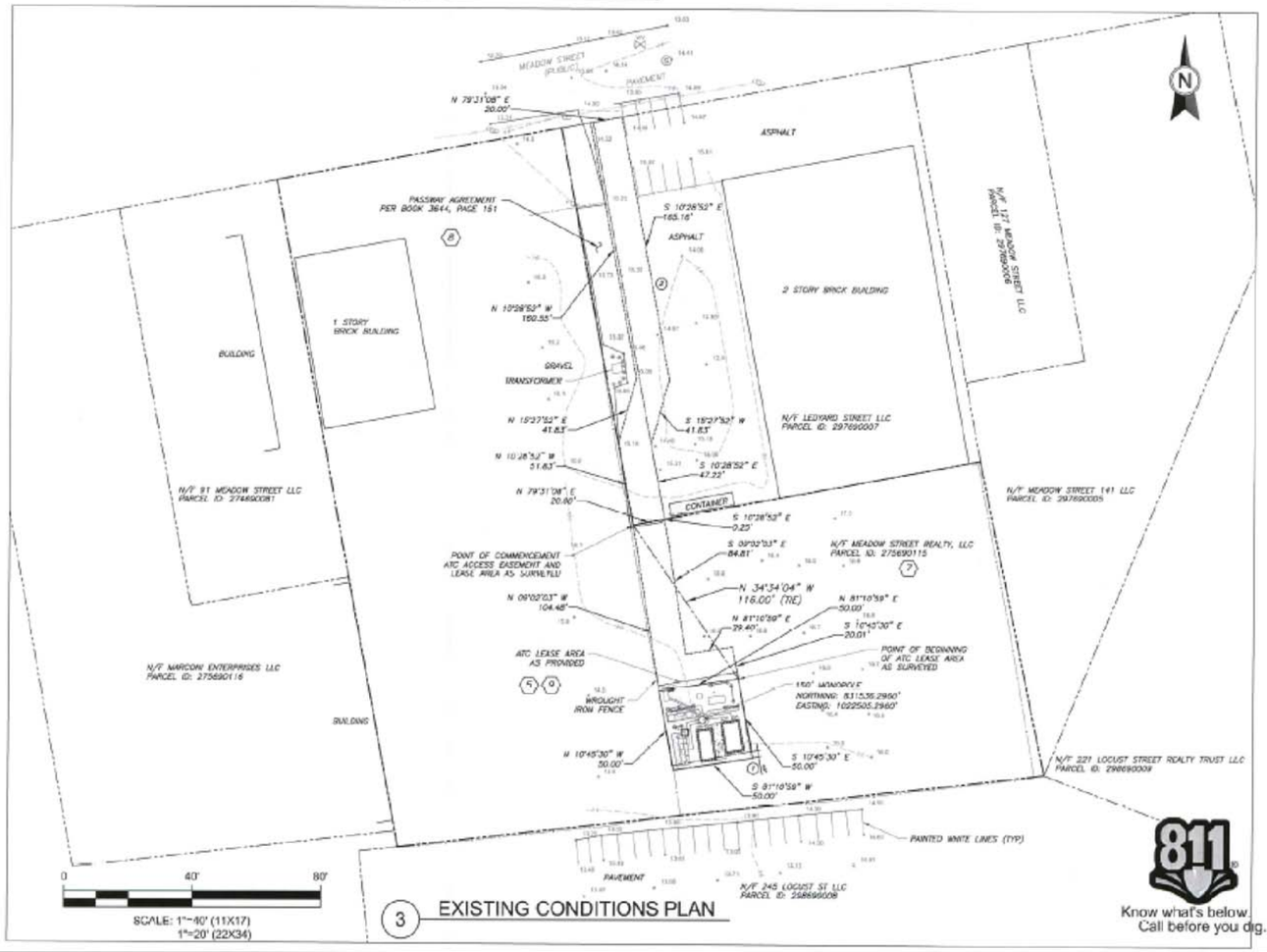
NORTH 10°28'52" WEST FOR A DISTANCE OF 51.63 FEET TO A POINT; THENCE
NORTH 15°27'52" EAST FOR A DISTANCE OF 41.83 FEET TO A POINT; THENCE
NORTH 10°28'52" WEST FOR A DISTANCE OF 160.55 FEET TO A POINT; THENCE
NORTH 79°31'08" EAST FOR A DISTANCE OF 20.00 FEET TO A POINT; THENCE
SOUTH 10°28'52" EAST FOR A DISTANCE OF 165.16 FEET TO A POINT; THENCE
SOUTH 15°27'52" WEST FOR A DISTANCE OF 41.83 FEET TO A POINT; THENCE
SOUTH 10°28'52" EAST FOR A DISTANCE OF 47.22 FEET TO A POINT; THENCE
SOUTH 79°31'08" WEST FOR A DISTANCE OF 30.00 FEET TO THE POINT OF BEGINNING.

CONTAINING 5,094 SQUARE FEET

ATC ACCESS EASEMENT OVER PARENT PARCEL - (NONE PROVIDED) AS SURVEYED:
COMMENCING AT A POINT OF THE COMMON CORNER OF THE SOUTHWESTERLY CORNER OF LANDS NOW OR FORMERLY LEDYARD STREET LLC AND THE PARENT PARCEL OF LANDS NOW OR FORMERLY MEADOW STREET REALTY LLC, RUNNING THENCE

NORTH 79°31'08" EAST FOR A DISTANCE OF 20.00 FEET TO A POINT; THENCE
SOUTH 10°28'52" EAST FOR A DISTANCE OF 0.25 FEET TO A POINT; THENCE
SOUTH 09°09'33" EAST FOR A DISTANCE OF 84.81 FEET TO A POINT; THENCE
NORTH 81°10'59" EAST FOR A DISTANCE OF 29.40 FEET TO A POINT; THENCE
SOUTH 10°45'30" EAST FOR A DISTANCE OF 20.01 FEET TO A POINT; THENCE
SOUTH 81°10'59" WEST FOR A DISTANCE OF 50.00 FEET TO A POINT; THENCE
NORTH 09°09'33" WEST FOR A DISTANCE OF 104.48 FEET TO THE POINT OF BEGINNING.

CONTAINING 2,689 SQUARE FEET



0 40' 80'

SCALE: 1"=40' (11X17)
1"=20' (22X34)

3 EXISTING CONDITIONS PLAN

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

AMERICAN TOWER®
ATC TOWER SERVICES, INC
3533 REGENCY PARKWAY
SUITE 133
CARY, NC 27551
PHONE: (919) 468-0145
COA: D-0204

REV.	DESCRIPTION	BY	DATE
0	ISSUED FOR COMMENT	SW	03/19/19

ATC SITE NUMBER:
302468

ATC SITE NAME:
PETRO LOCK CT

SITE ADDRESS:
99 MEADOW ST
HARTFORD, CONNECTICUT

SURVEY CERTIFICATE:
TO AMERICAN TOWER CORPORATION:
THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 3, 4, 6(B) (TO THE EXTENT, GRAPHICALLY DEPICT ON SURVEY DRAWING THE ZONING SETBACK LINE3), 7(A), 7(B)(1), 7(C), 8, 9, 11, AND 13 TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON 02/11/19.

DATE OF PLAT OR MAP: 03/19/19

(SIGNED)
NAME: THEODORE J. TANNER, LLS 70305
CT LICENSED LAND SURVEYOR

SURVEY LOGO: Tectonic — PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE. Tectonic Engineering & Surveying Consultants P.C. Phone: (860) 667-0839 (800) 329-8031 www.tectonicengineering.com

DRAWN BY:	SW
APPROVED BY:	TJH
DATE DRAWN:	03/19/19
ATC JOB NO:	302468

EXISTING CONDITIONS PLAN

SHEET NUMBER:	REVISION:
V-102	0

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

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

STATE OF CONNECTICUT — CHRISTOPHER T. CLOUTIER — No. 23924 — LICENSED PROFESSIONAL ENGINEER
9/6/21

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
YF	YF	RCM

RFDS REV #: 2.0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	9/6/21	CONSTRUCTION

A&E PROJECT NUMBER
155739.001.01

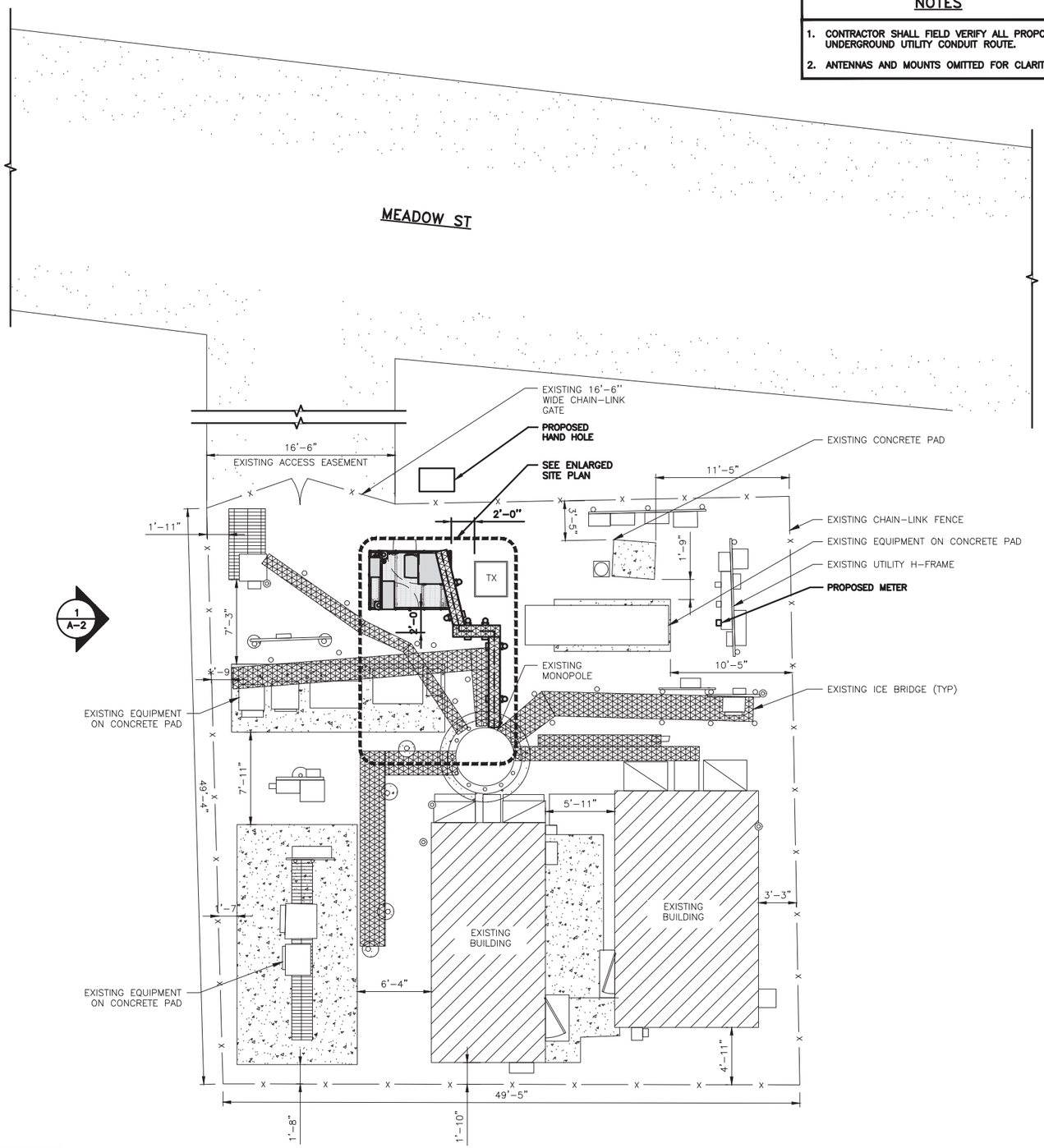
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00009A
99 MEADOW ST
HARTFORD, CT 06114

SHEET TITLE
SITE SURVEY CONTINUED

SHEET NUMBER
LS2

NOTES

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



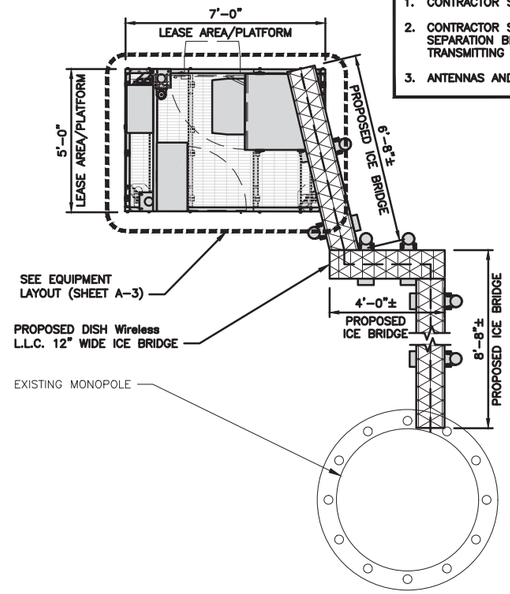
6' 4' 2' 0 5' 10'
3/16"=1'-0"

OVERALL SITE PLAN

1

NOTES

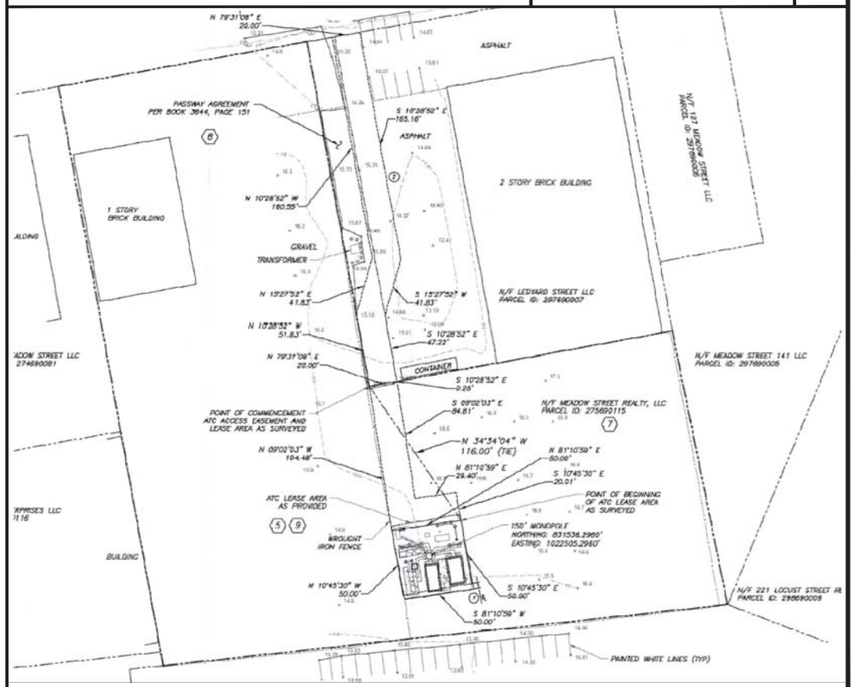
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



ENLARGED SITE PLAN

12" 6" 0 1' 2' 3' 4' 5' 6' 7'
3/8"=1'-0"

2



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

SURVEY

NO SCALE

3

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

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

STATE OF CONNECTICUT
No. 23824
LICENSED
PROFESSIONAL ENGINEER
9/6/21

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
YF	YF	RCM

RFDS REV #: 2.0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	9/6/21	CONSTRUCTION

A&E PROJECT NUMBER

155739.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00009A
99 MEADOW ST
HARTFORD, CT 06114

SHEET TITLE

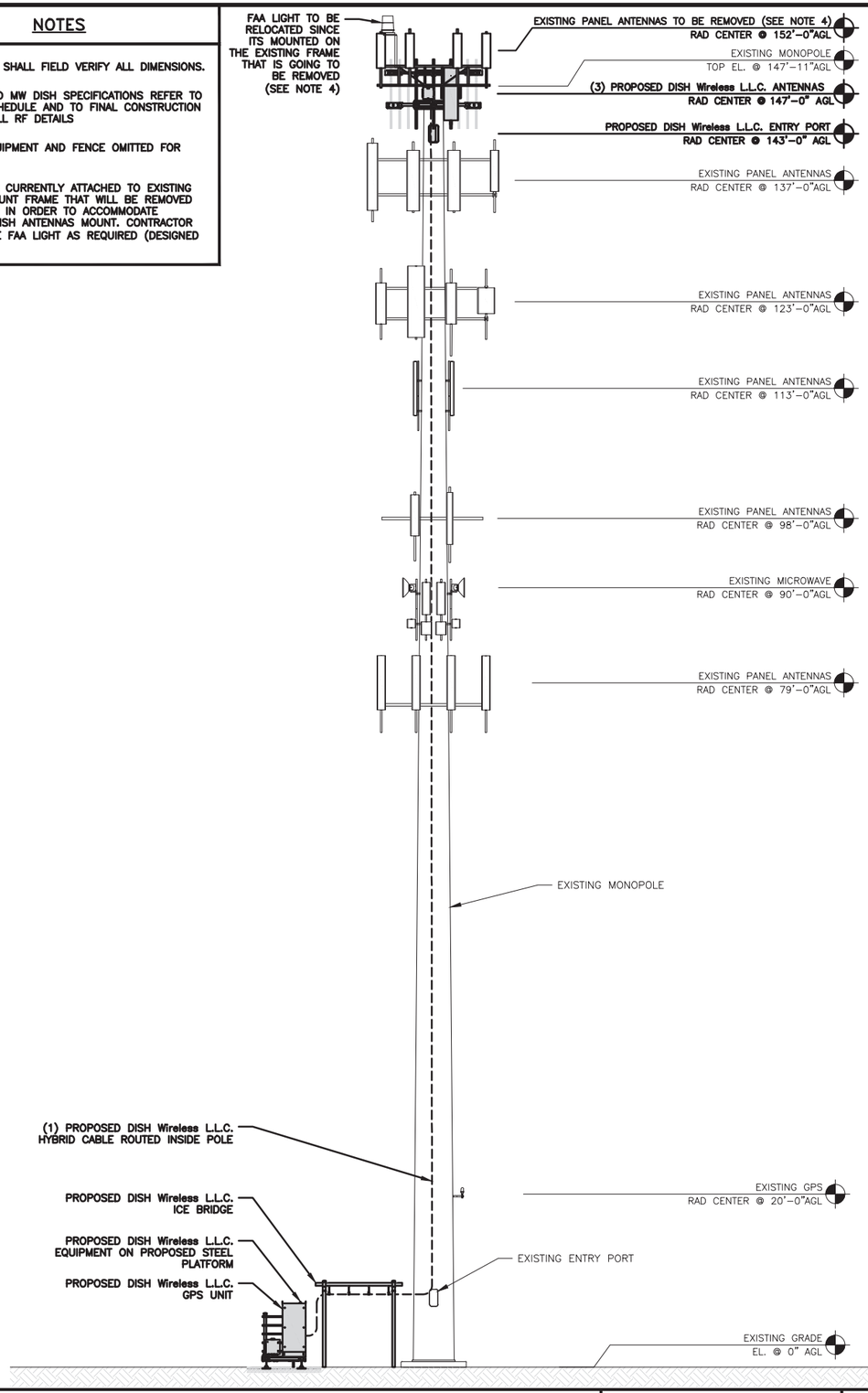
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

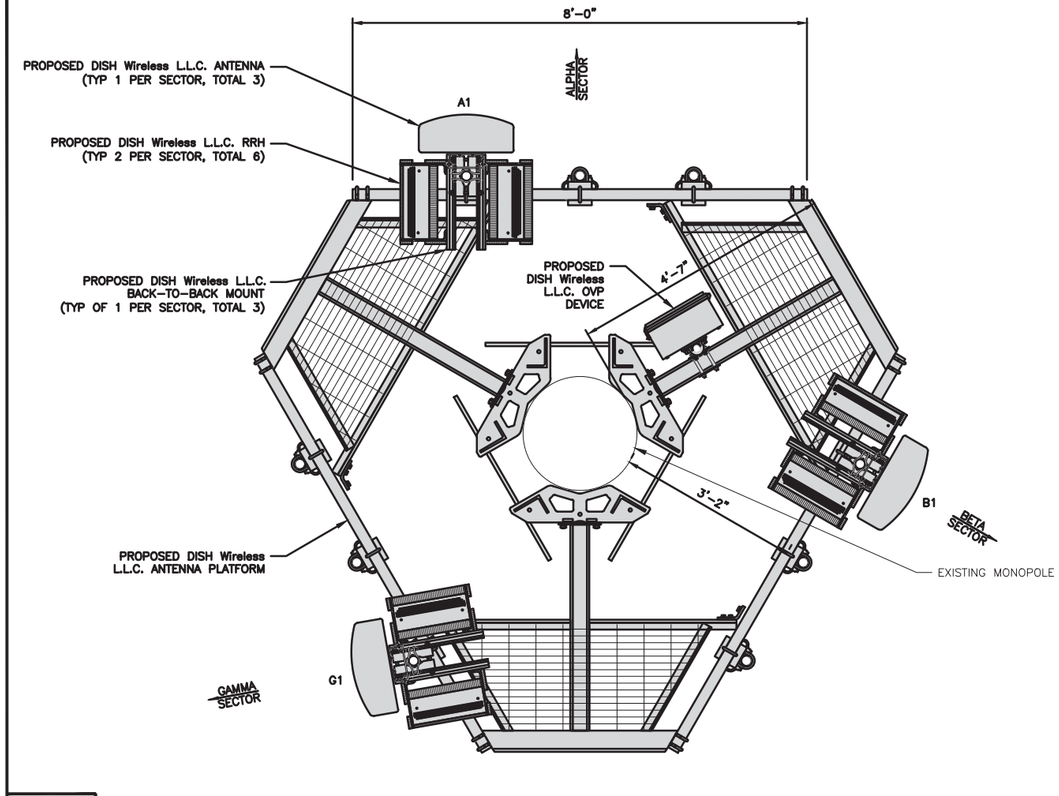
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.
4. FAA LIGHT IS CURRENTLY ATTACHED TO EXISTING ANTENNA MOUNT FRAME THAT WILL BE REMOVED FROM TOWER IN ORDER TO ACCOMMODATE PROPOSED DISH ANTENNAS MOUNT. CONTRACTOR TO RELOCATE FAA LIGHT AS REQUIRED (DESIGNED BY OTHER)



PROPOSED WEST ELEVATION

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

1



ANTENNA LAYOUT

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

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA WIRELESS–MX08FRO665–21	5G	72" x 20"	0°	147'–0"	(1) HIGH–CAPACITY HYBRID CABLE (170' LONG)
BETA	B1	PROPOSED	JMA WIRELESS–MX08FRO665–21	5G	72" x 20"	120°	147'–0"	
GAMMA	C1	PROPOSED	JMA WIRELESS–MX08FRO665–21	5G	72" x 20"	260°	147'–0"	

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

NOTES

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

ANTENNA SCHEDULE

NO SCALE

3

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

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

STATE OF CONNECTICUT · CHRISTOPHER COLE · No. 23824 · LICENSED PROFESSIONAL ENGINEER
9/6/21

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
YF	YF	RCM

RFDS REV #: 2.0

CONSTRUCTION DOCUMENTS

SUBMITTALS

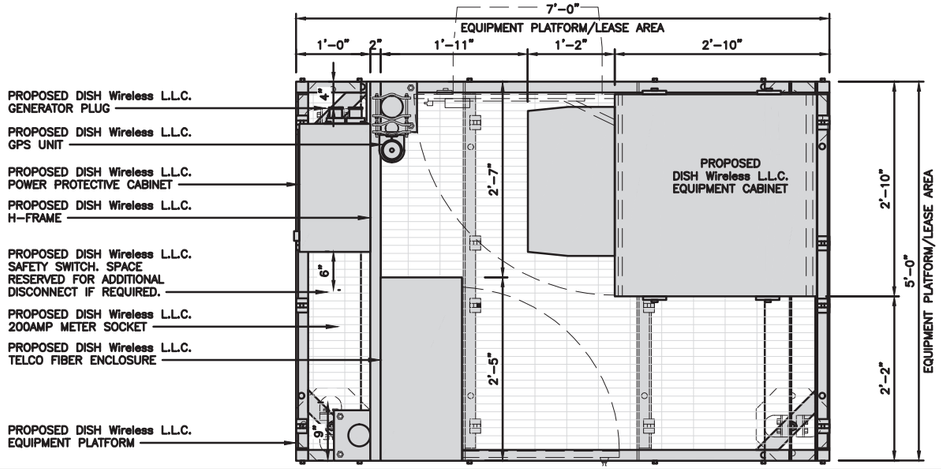
REV	DATE	DESCRIPTION
0	9/6/21	CONSTRUCTION

A&E PROJECT NUMBER
155739.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00009A
99 MEADOW ST
HARTFORD, CT 06114

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2



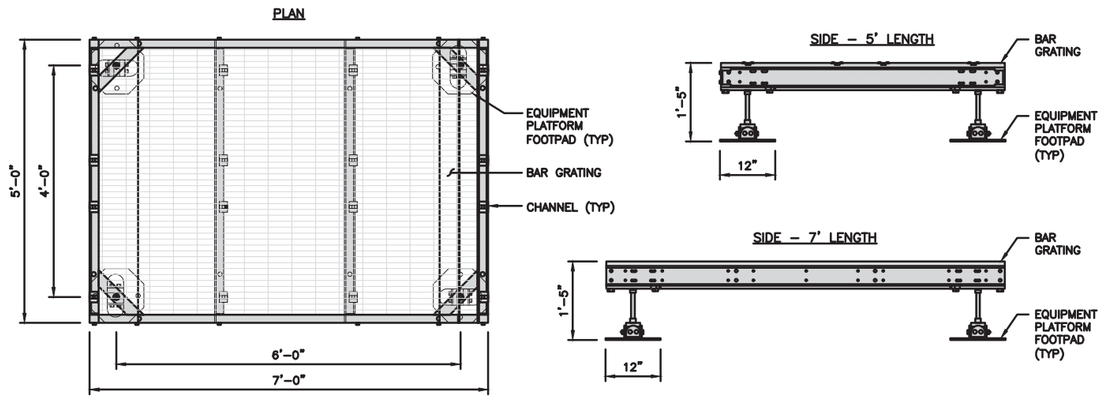
PLATFORM EQUIPMENT PLAN

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

1

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

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

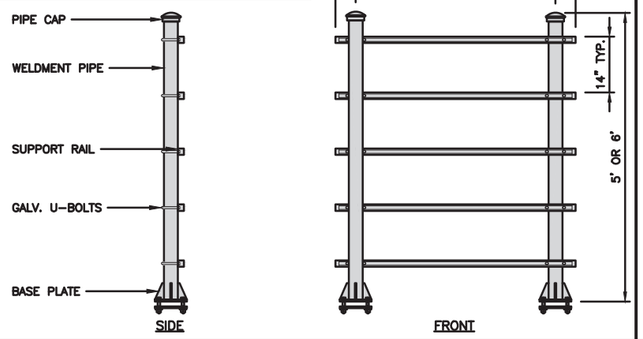


PLATFORM DETAIL

NO SCALE

2

COMMSCOPE MTC4045HFLD H-FRAME	
UNISTRUT/SUPPORT RAILS QTY	5
WEIGHT	59.74 lbs



H-FRAME DETAIL

NO SCALE

3

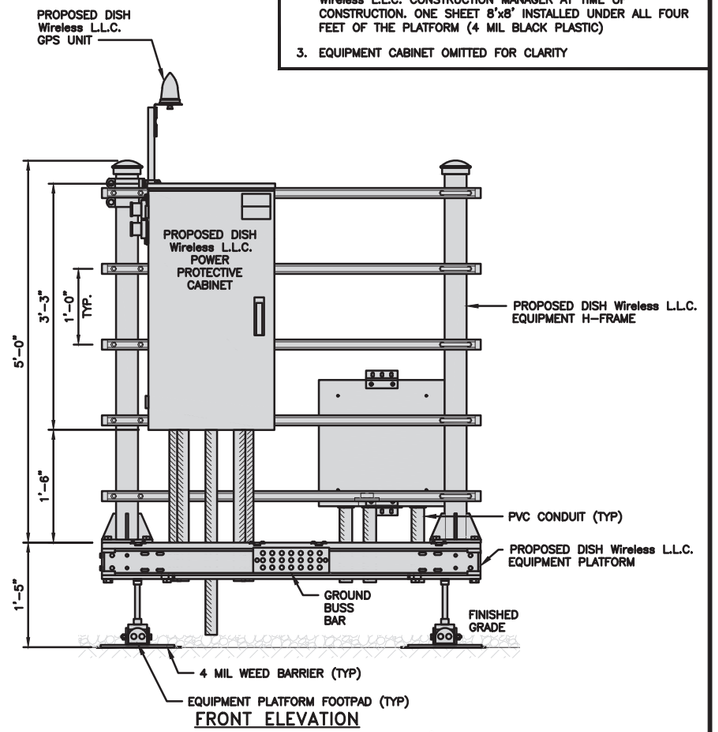
NOT USED

NO SCALE

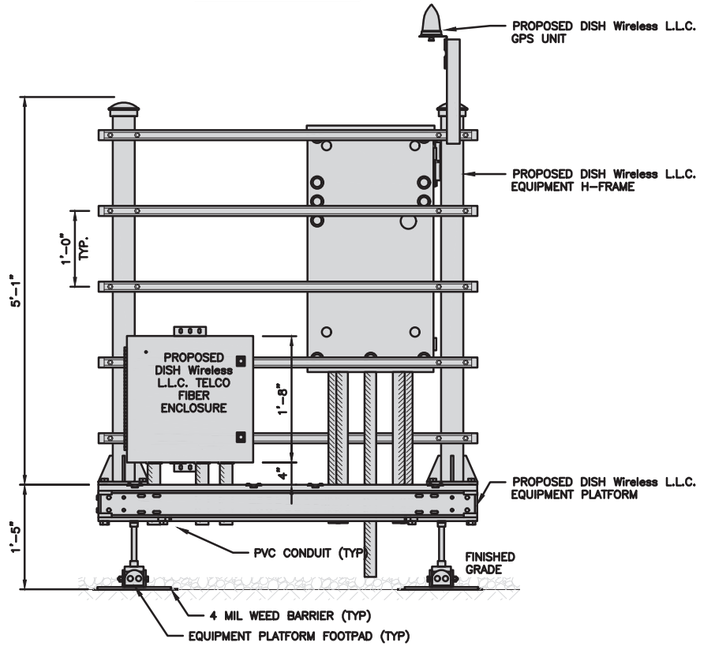
4

NOTES

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



FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION

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

5

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YF	YF	RCM

RFDS REV #: 2.0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	9/6/21	CONSTRUCTION

A&E PROJECT NUMBER

155739.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00009A
99 MEADOW ST
HARTFORD, CT 06114

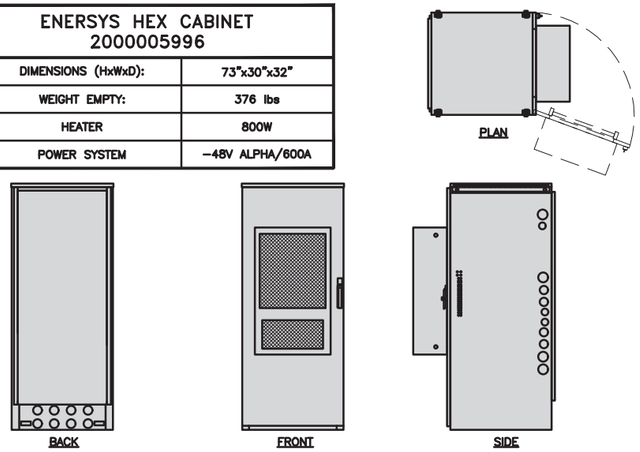
SHEET TITLE

EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER

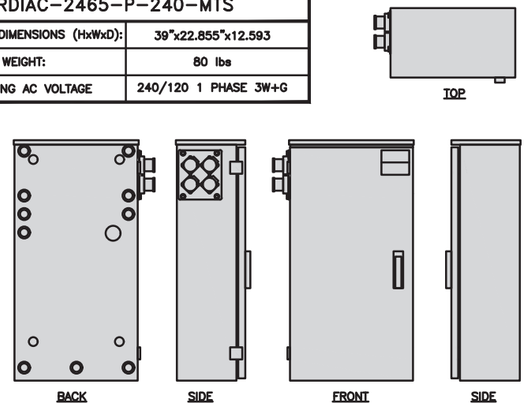
A-3

ENERSYS HEX CABINET 2000005996	
DIMENSIONS (HxWxD):	73"x30"x32"
WEIGHT EMPTY:	376 lbs
HEATER	800W
POWER SYSTEM	-48V ALPHA/600A



CABINET DETAIL | NO SCALE | 1

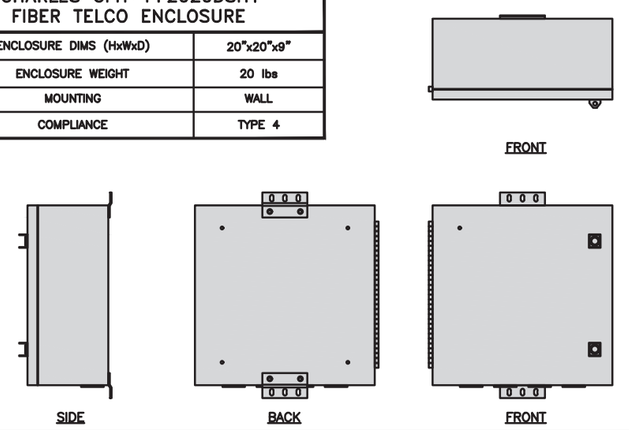
RAYCAP PPC RDIAC-2465-P-240-MTS	
ENCLOSURE DIMENSIONS (HxWxD):	39"x22.855"x12.593
WEIGHT:	80 lbs
OPERATING AC VOLTAGE	240/120 1 PHASE 3W+G



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

NOT USED | NO SCALE | 3

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



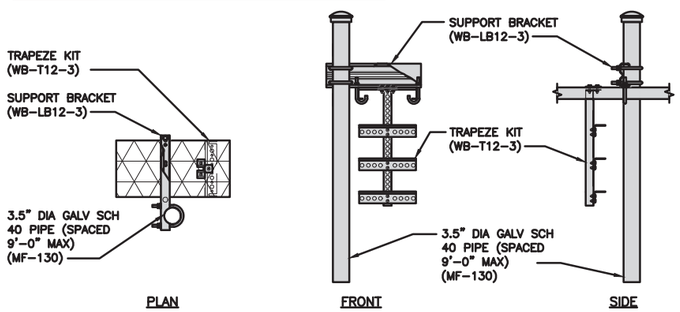
NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

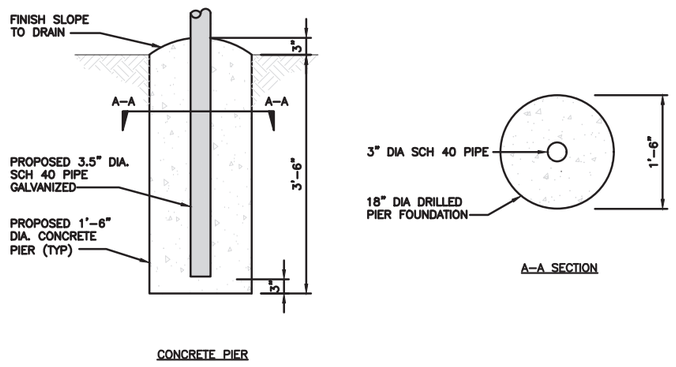
FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

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

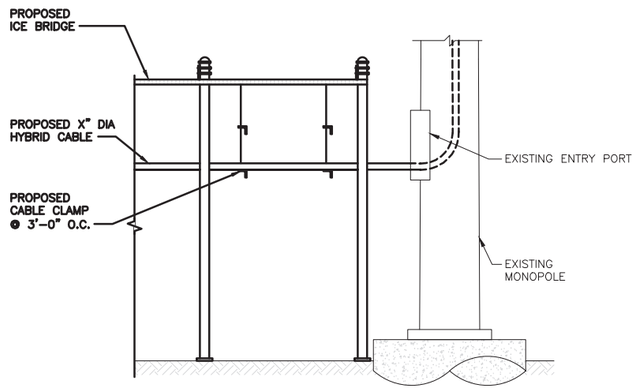
INCLUDED PRODUCTS:	WB-T12-3 TRAPEZE KIT, 3 RUNGS
	WB-LB12-3 SUPPORT BRACKET
	MF-130 DIRECT BURIAL PIPE COLUMN, 13'-4"



ICE BRIDGE DETAIL | NO SCALE | 7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00009A
99 MEADOW ST
HARTFORD, CT 06114

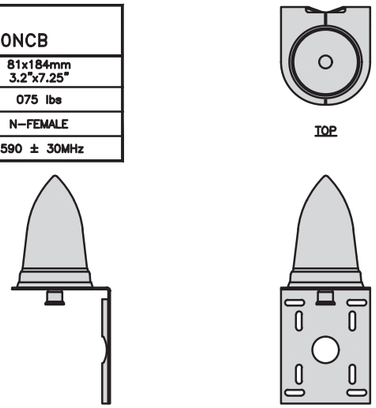
SHEET TITLE

EQUIPMENT DETAILS

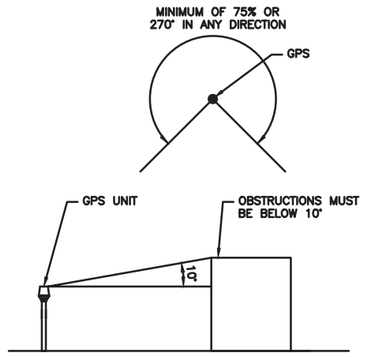
SHEET NUMBER

A-4

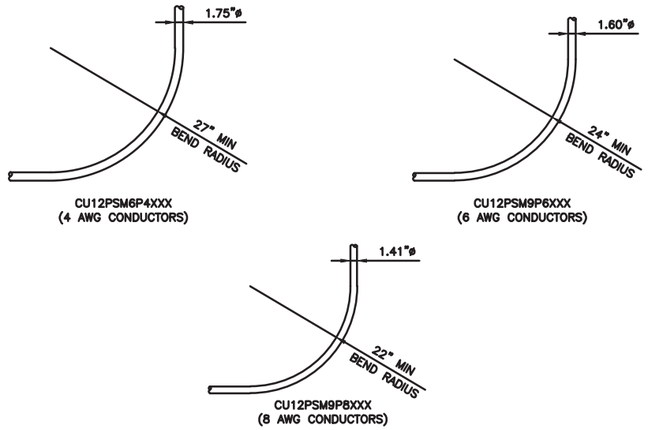
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



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

DISH Wireless L.L.C. TEMPLATE VERSION 40 – 08/13/2021

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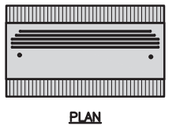
SHEET TITLE

EQUIPMENT DETAILS

SHEET NUMBER

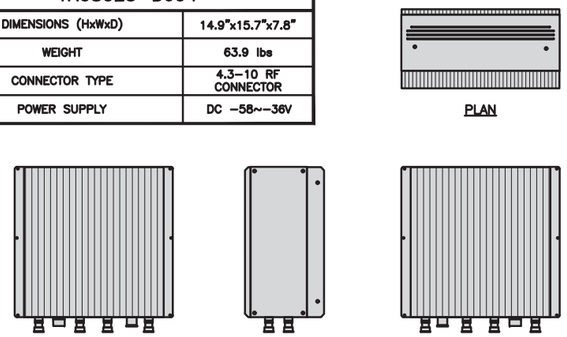
A-5

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



RRH DETAIL | NO SCALE | 1

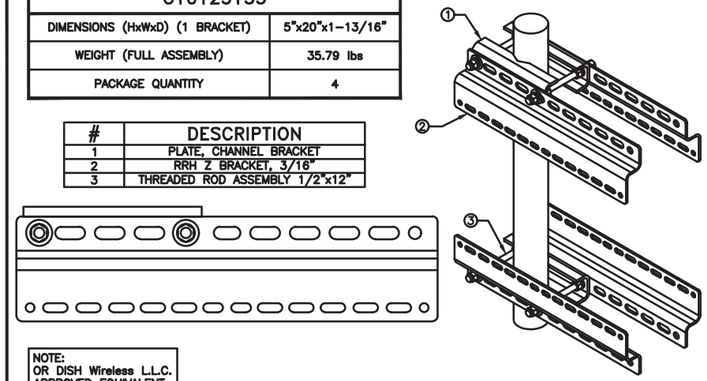
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



RRH DETAIL | NO SCALE | 2

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

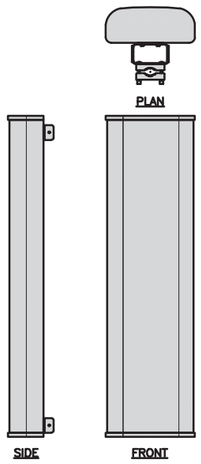
#	DESCRIPTION
1	PLATE, CHANNEL BRACKET
2	RRH Z BRACKET, 3/16"
3	THREADED ROD ASSEMBLY 1/2"x12"



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

RRH MOUNT DETAIL | NO SCALE | 3

JMA MX08FRO665-21	
DIMENSIONS (HxWxD)	72"x20.0"x8.0"
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE
WEIGHT	64.5 lbs
WEIGHT WITH BRACKETS	82.5 lbs



ANTENNA DETAIL | NO SCALE | 4

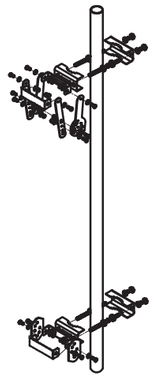
NOT USED | NO SCALE | 5

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

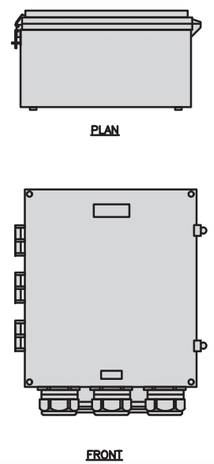
ANTENNA BRACKET NOT PART OF KIT

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



ANTENNA BRACKET DETAIL | NO SCALE | 6

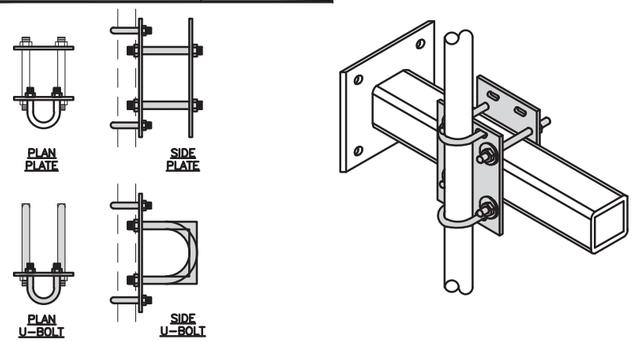
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11 lbs

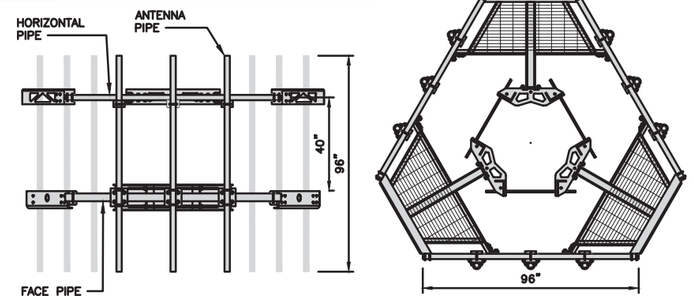
NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT



RRH/OVP MOUNT DETAIL | NO SCALE | 8

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

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



ANTENNA PLATFORM DETAIL | NO SCALE | 9

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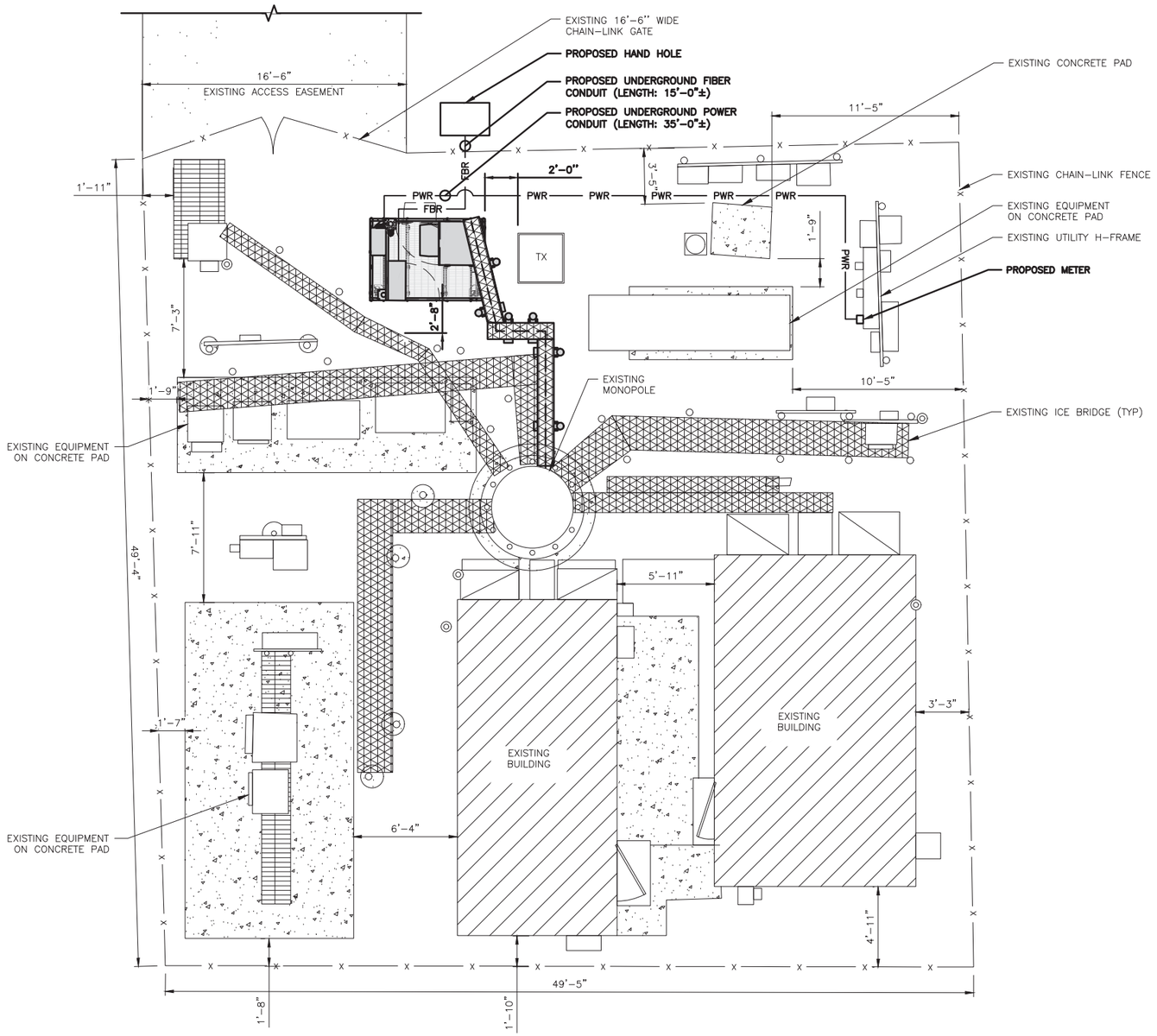
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00009A
99 MEADOW ST
HARTFORD, CT 06114

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-6

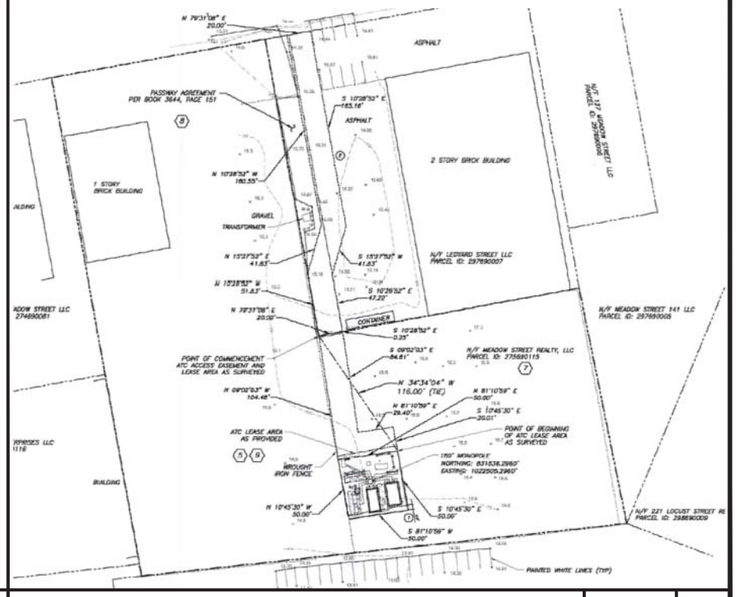
NOTES

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



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STATE OF CONNECTICUT — CHRISTOPHER R. CLEVELAND — No. 23924 — LICENSED PROFESSIONAL ENGINEER — 9/6/21

B&T ENGINEERING, INC.
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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00009A
99 MEADOW ST
HARTFORD, CT 06114

SHEET TITLE

ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER

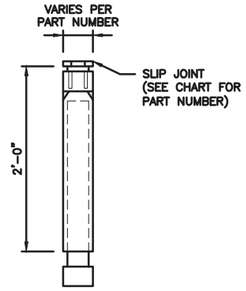
E-1

UTILITY ROUTE PLAN — 4' 2' 0 4' 8' — 1/4"=1'-0" — 1

ELECTRICAL NOTES — NO SCALE — 2

CARLON EXPANSION FITTINGS

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

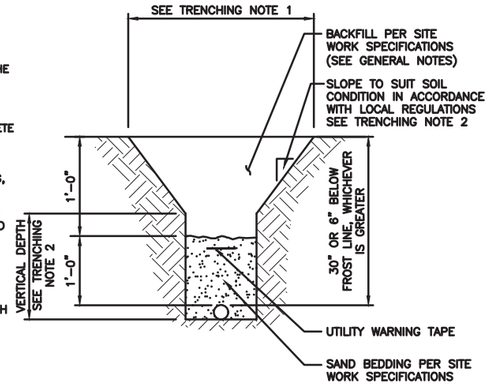


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

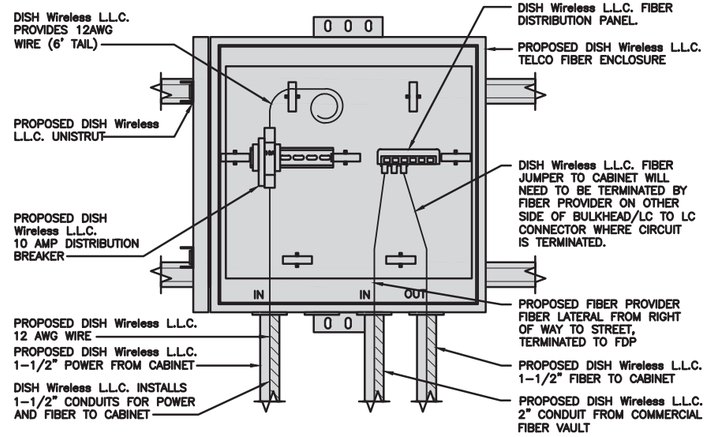
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

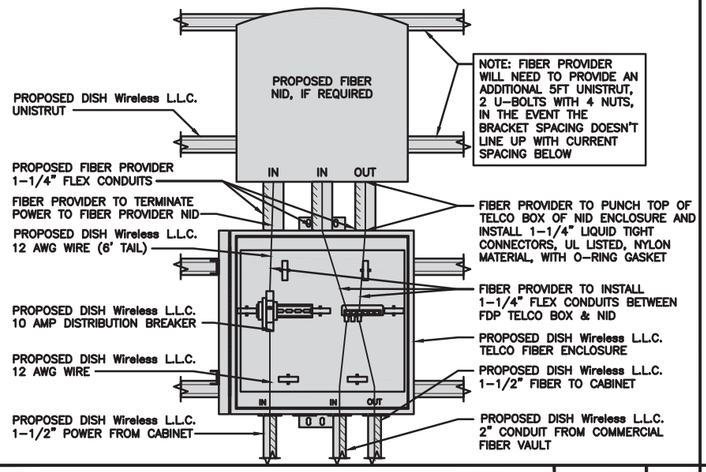
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT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



TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2



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



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

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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PEC.0001564
Expires 2/10/22

DRAWN BY:	CHECKED BY:	APPROVED BY:
YF	YF	RCM

RFDS REV #: 2.0

CONSTRUCTION DOCUMENTS

SUBMITTALS

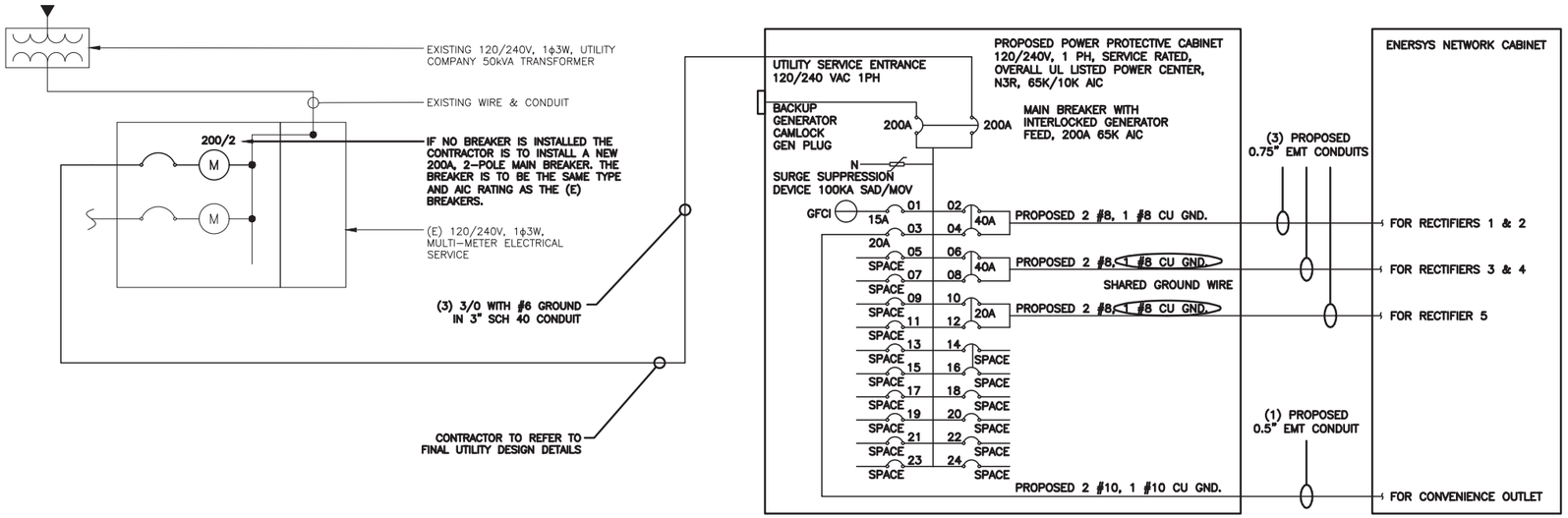
REV	DATE	DESCRIPTION
0	9/6/21	CONSTRUCTION

A&E PROJECT NUMBER
155739.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00009A
99 MEADOW ST
HARTFORD, CT 06114

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:
(2) 40A, 2P BREAKER - SQUARE D P/N:QO240
(1) 20A, 2P BREAKER - SQUARE D P/N:QO220
(1) 20A, 1P BREAKER - SQUARE D P/N:QO120

NOTES

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

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

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

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

RECTIFIER CONDUCTORS (3 CONDUITS): USING UL1015, CU.

#8 - 0.0552 SQ. IN X 2 =	0.1103 SQ. IN
#8 - 0.0131 SQ. IN X 1 =	0.0131 SQ. IN <BARE GROUND
TOTAL	= 0.1234 SQ. IN

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

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

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

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

PPC ONE-LINE DIAGRAM

NO SCALE | 1

PROPOSED ENERSYS PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	40A	3840		ENERSYS ALPHA CORDEX
ENERSYS GFCI OUTLET		180	20A	3	B	4			3840	RECTIFIERS 1 & 2
-SPACE-				5	A	6	40A	3840		ENERSYS ALPHA CORDEX
-SPACE-				7	B	8			3840	RECTIFIER 3 & 4
-SPACE-				9	A	10	20A	1920		ENERSYS ALPHA CORDEX
-SPACE-				11	B	12			1920	RECTIFIER 5
-SPACE-				13	A	14				-SPACE-
-SPACE-				15	B	16				-SPACE-
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
VOLTAGE AMPS	180	180						9500	9500	
200A MCB, 1ϕ, 24 SPACE, 120/240V			L1		L2					
MB RATING: 65,000 AIC			9680		9680		VOLTAGE AMPS			
			81		81		AMPS			
			81				MAX AMPS			
			102				MAX 125%			

PANEL SCHEDULE

NO SCALE | 2

NOT USED

NO SCALE | 3

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STATE OF COLORADO · CHRISTOPHER R. MCMURRY · No. 23824 · LICENSED · PROFESSIONAL ENGINEER
9/6/21

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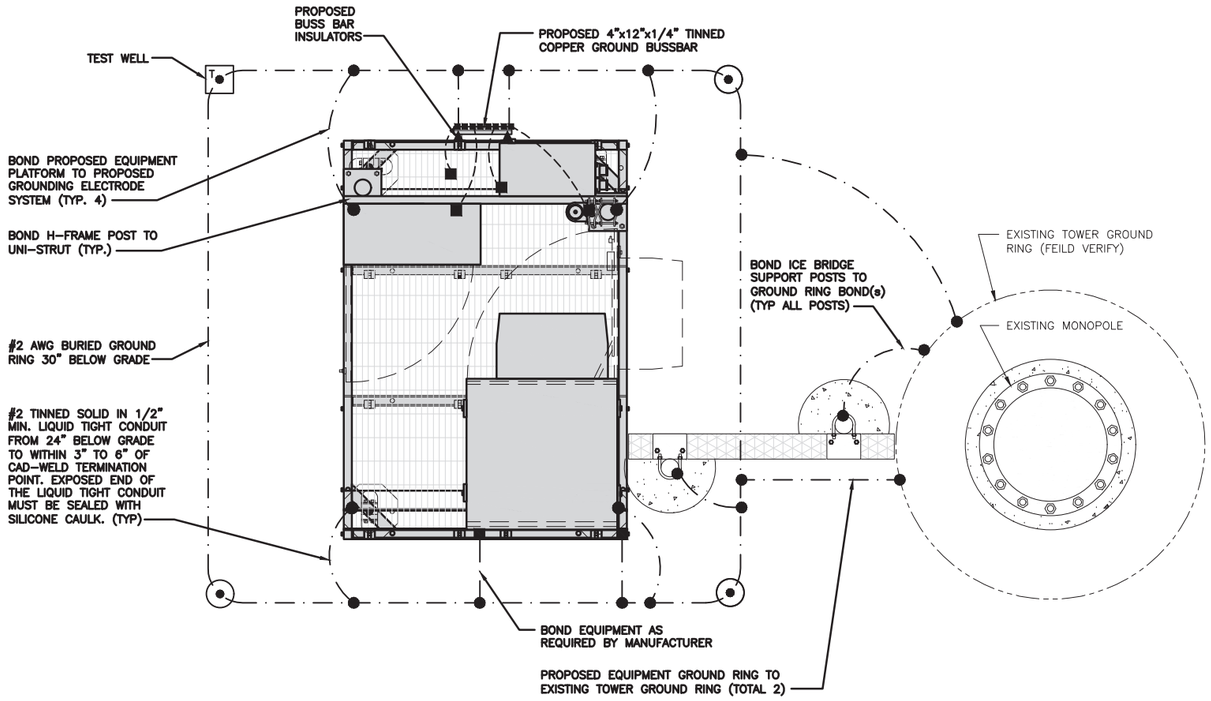
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00009A
99 MEADOW ST
HARTFORD, CT 06114

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

SHEET NUMBER
E-3

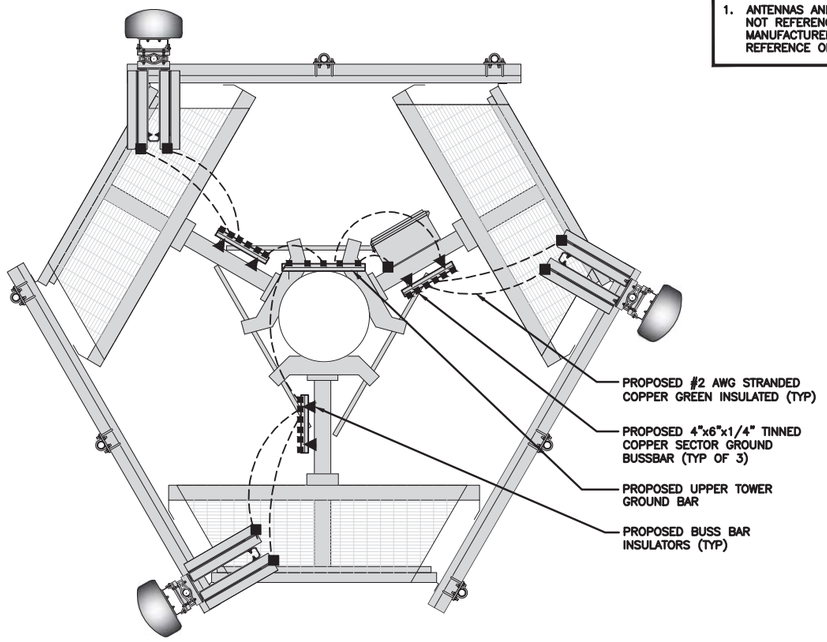


TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE | 1

NOTES

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



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE | 2

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(Q) REFER TO DISH Wireless L.L.C. GROUNDING NOTES.

GROUNDING KEY NOTES

NO SCALE | 3

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STATE OF COLORADO — CHRISTOPHER R. CHOUTEAU — No. 23824 — REGISTERED PROFESSIONAL ENGINEER
9/6/21

B&T ENGINEERING, INC.
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155739.001.01

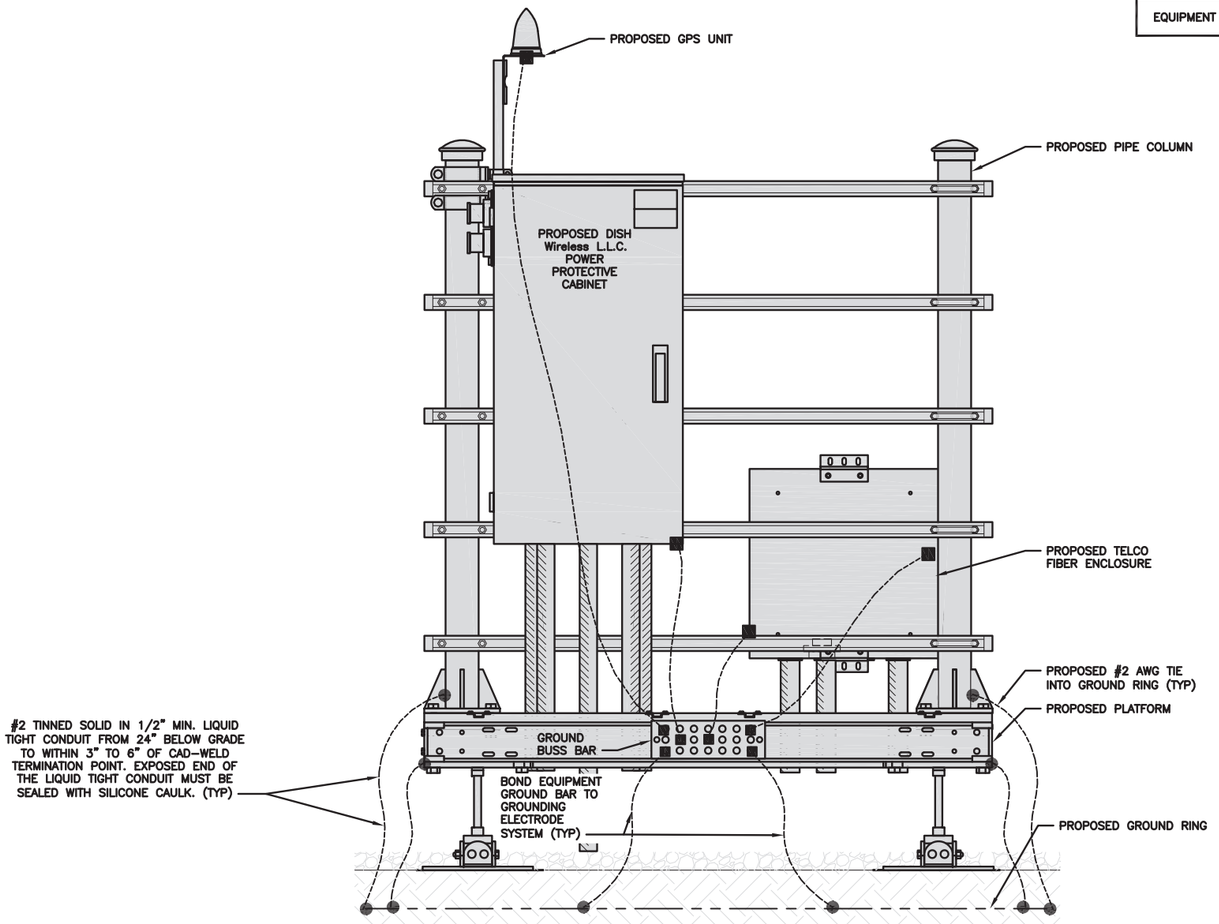
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00009A
99 MEADOW ST
HARTFORD, CT 06114

SHEET TITLE
GROUNDING PLANS AND NOTES

SHEET NUMBER
G-1

NOTES

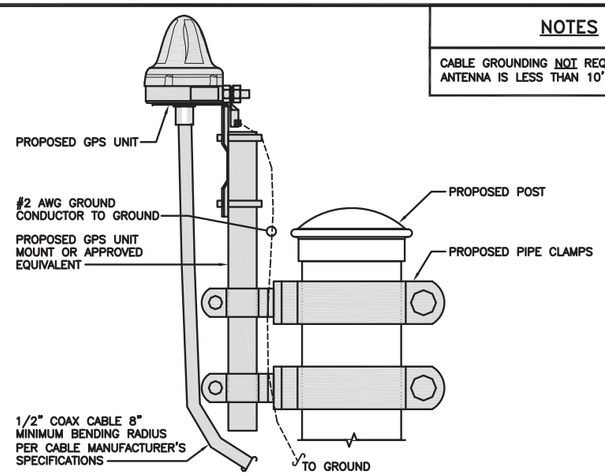
EQUIPMENT CABINET OMITTED FOR CLARITY



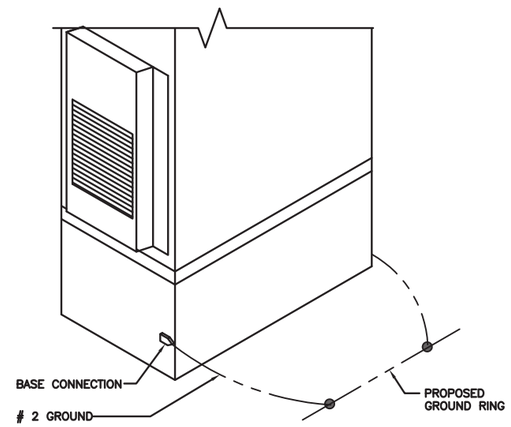
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

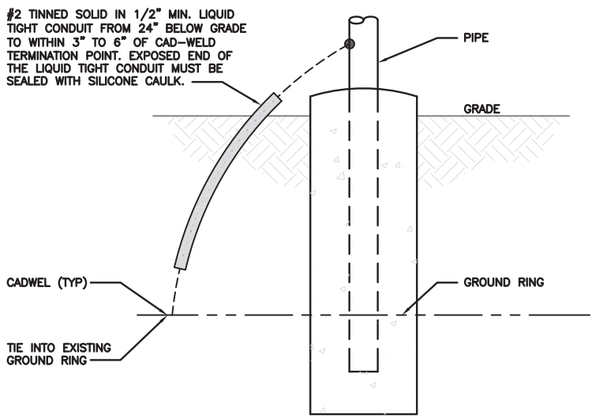
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



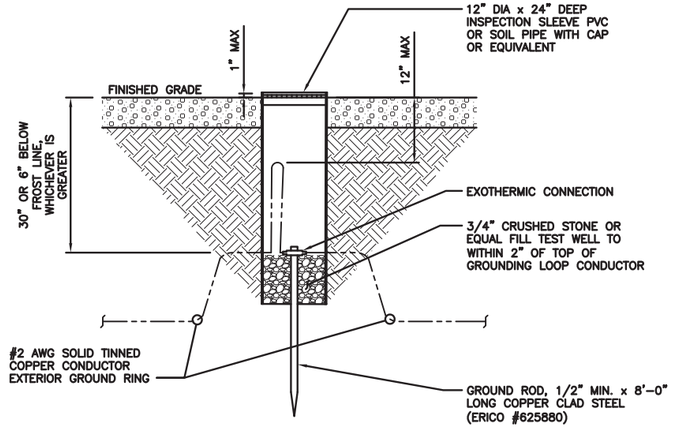
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



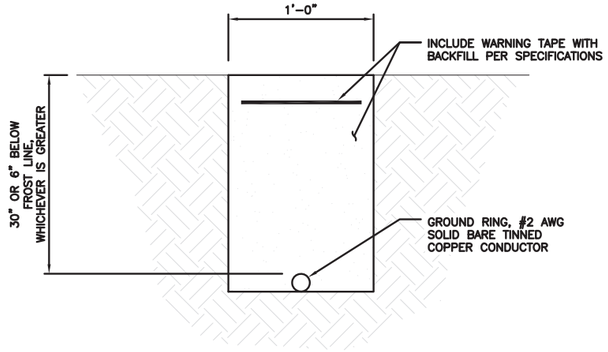
OUTDOOR CABINET GROUNDING | NO SCALE | 3



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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STATE OF CONNECTICUT — CHRISTOPHER — No. 23924 — LICENSED PROFESSIONAL ENGINEER
9/6/21

B&T ENGINEERING, INC.
PEC.0001564
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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00009A
99 MEADOW ST
HARTFORD, CT 06114

SHEET TITLE

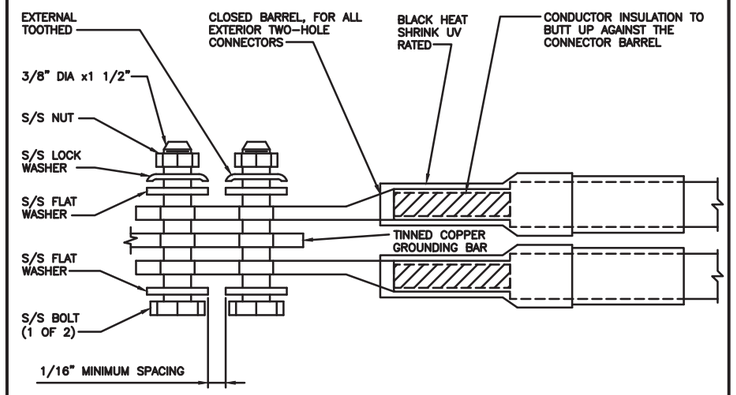
GROUNDING DETAILS

SHEET NUMBER

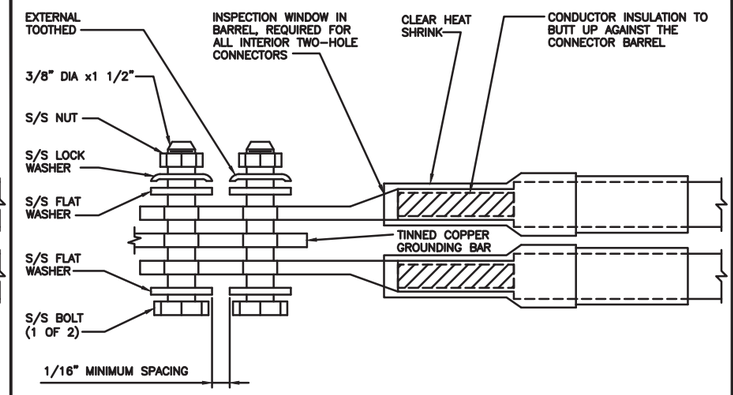
G-2

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

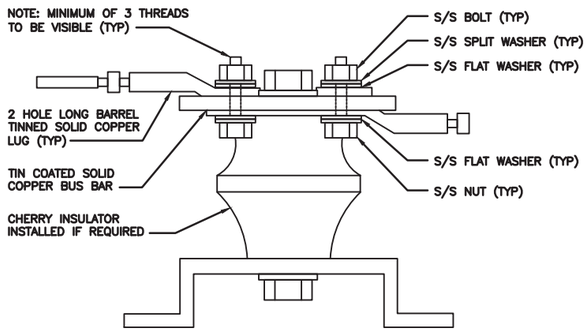
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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PROJECT INFORMATION
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99 MEADOW ST
HARTFORD, CT 06114

SHEET TITLE
GROUNDING DETAILS

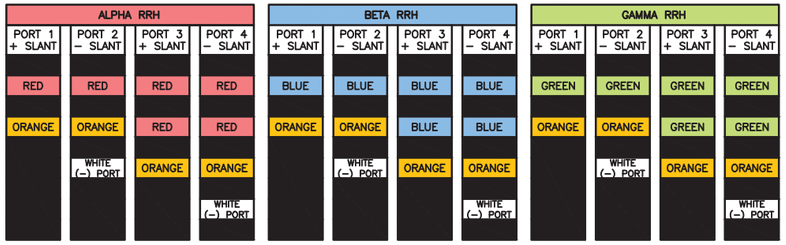
SHEET NUMBER
G-3

RF JUMPER COLOR CODING

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

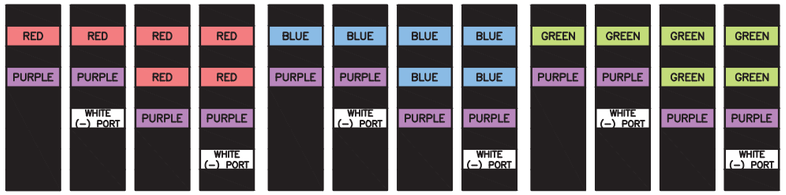
LOW-BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

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



MID-BAND RRH –
(AWS BANDS N66+N70)

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

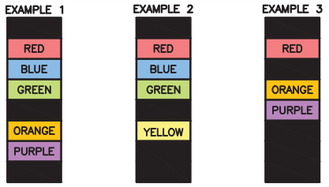


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED
ALONG WITH FREQUENCY BANDS

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

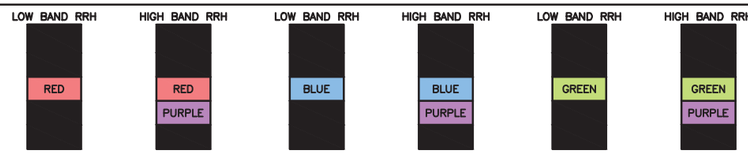
EXAMPLE 2 – HYBRID, OR DISCREET, SUPPORTS
CBRS ONLY, ALL SECTORS



CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RD DETAILS. FINAL RFDS IS IN NEXSYSONE.

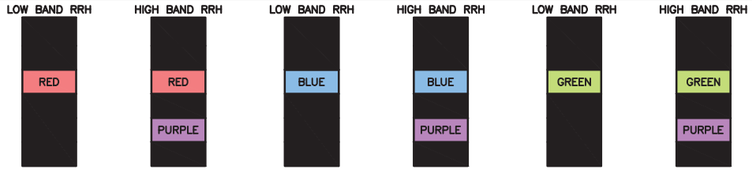
FIBER JUMPERS TO RRHs

LOW-BAND RRH FIBER CABLES HAVE SECTOR
STRIPE ONLY

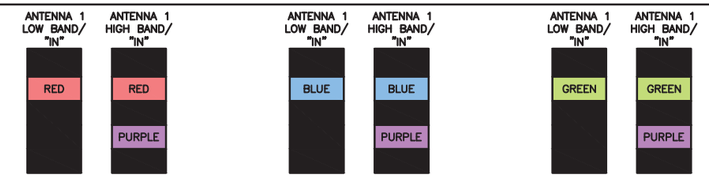


POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY



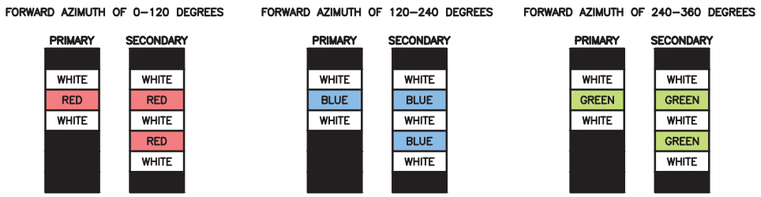
RET MOTORS AT ANTENNAS



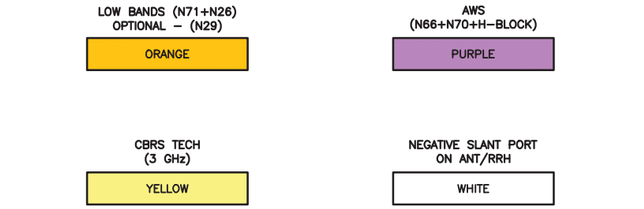
MICROWAVE RADIO LINKS

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

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



RF CABLE COLOR CODES	NO SCALE	1



COLOR IDENTIFIER	NO SCALE	2

NOT USED	NO SCALE	3

NOT USED	NO SCALE	4

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
YF	YF	RCM

RFDS REV #: 2.0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	9/6/21	CONSTRUCTION

A&E PROJECT NUMBER

155739.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00009A
99 MEADOW ST
HARTFORD, CT 06114

SHEET TITLE

RF
CABLE COLOR CODES

SHEET NUMBER

RF-1

LEGEND

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM — T

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE — T

SINGLE POLE SWITCH — $

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE — GFCI

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

SMOKE DETECTION (DC) — SD

EMERGENCY LIGHTING (DC)

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

CHAIN LINK FENCE — X — X — X — X

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE — W — W — W — W — W

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

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

OVERHEAD POWER — OHP — OHP — OHP — OHP

OVERHEAD TELCO — OHT — OHT — OHT — OHT

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

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

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

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

WORKPOINT — W.P.

SECTION REFERENCE — XX / X–X

DETAIL REFERENCE — XX / X–X

ABBREVIATIONS

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

dish wireless.

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STATE OF CONNECTICUT — No. 23924 — LICENSED PROFESSIONAL ENGINEER

9/6/21

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HARTFORD, CT 06114

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GENERAL NOTES:

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

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH Wireless L.L.C.

TOWER OWNER:TOWER OWNER

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

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

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

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

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

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

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

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

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

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

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

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

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

dish wireless.

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PROJECT INFORMATION

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SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

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

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

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

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

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi

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

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

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

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

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

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

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

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

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

8. TIE WRAPS ARE NOT ALLOWED.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

dish wireless.

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
YF	YF	RCM

RFDS REV #: 2.0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	9/6/21	CONSTRUCTION

A&E PROJECT NUMBER

155739.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00009A
99 MEADOW ST
HARTFORD, CT 06114

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-3

GROUNDING NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

dish wireless.

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CONSTRUCTION DOCUMENTS

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REV	DATE	DESCRIPTION
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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00009A
99 MEADOW ST
HARTFORD, CT 06114

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

ENGINEERING:

STRUCTURAL ANALYSIS

MOUNT ANALYSIS

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**148 ft Monopole**
ATC Site Name	:	**Petro Lock,CT**
ATC Site Number	:	**302468**
Engineering Number	:	**13683501_C3_02**
Proposed Carrier	:	**DISH WIRELESS L.L.C.**
Carrier Site Name	:	**BOBDL00009A**
Carrier Site Number	:	**BOBDL00009A**
Site Location	:	**99 Meadow St** **Hartford, CT 06114-1598** **41.7432, -72.6675**
County	:	**Hartford**
Date	:	**August 27, 2021**
Max Usage	:	**66%**
Result	:	**Pass**

Prepared By:

Cole Melody Koffi
Structural Engineer I

Reviewed By:

COA : PEC.0001553

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 148 ft Monopole to reflect the change in loading by DISH WIRELESS L.L.C..

Supporting Documents

Tower Drawings	FWT Job #21719000 Rev. 1, dated July 18, 2000
Foundation Drawing	FWT Job #21719000 Rev. 1, dated July 18, 2000
Geotechnical Report	Osprey Environmental Engineering Job #98083-01, dated August 28, 1998

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:	118 mph (3-second gust)
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.50" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Spectral Response:	Ss = 0.19, S_1 = 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
137.0	2	Raycap DC6-48-60-18-8F (23.5" Height)	Platform with Handrails	(2) 0.39" (10mm) Fiber Trunk (2) 0.39" (9.8mm) Cable (8) 0.78" (19.7mm) 8 AWG 6 (11) 1 5/8" Coax (3) 3" conduit	AT&T MOBILITY
	1	Raycap DC6-48-60-18-8C			
	6	Powerwave Allgon 7020.00 Dual Band RET			
	7	Powerwave Allgon LGP21401			
	1	Raycap DC6-48-60-18-8F ("Squid")			
	3	Ericsson RRUS 4478 B14 (15")			
	3	Ericsson RRUS 4449 B5, B12			
	1	CCI DMP65R-BU8D			
	1	Kathrein Scala 80010966			
	2	Kathrein Scala 80010965			
	1	CCI TPA-65R-LCUUUU-H8			
	2	CCI DMP65R-BU6DA			
	2	Quintel QS66512-3 (112 lbs.)			
	3	Powerwave Allgon 7750.00			
	3	Ericsson RRUS-32 B30 (77 lbs)			
	3	Ericsson RRUS E2 B29			
	6	Ericsson RRUS 32 B2			
	3	Ericsson RRUS 32 B66A			
	6	Powerwave Allgon LGP21901			
123.0	3	RFS APXVAARR24_43-U-NA20	Platform with Handrails	(2) 1 1/4" (1.25"-31.8mm) Fiber (1) 1 5/8" (1.63"-41.3mm) Fiber (12) 1 5/8" Coax	T-MOBILE
	3	RFS APX16DWV-16DWVS-E-A20			
	3	Ericsson AIR32 B66Aa/B2a			
	3	Ericsson Air6449 B41			
	3	Ericsson RRUS 4415 B25			
	3	Ericsson KRY 112 144/1			
	5	Ericsson KRY 112 489/1			
	3	Ericsson Radio 4449 B71 B85A			
113.0	3	RFS APXV18-206517	Flush	(6) 1 5/8" Coax	METRO PCS INC
98.0	3	RFS APXVSPP18-C-A20	Triangular Low Profile Platform	(3) 1 1/4" Hybriflex Cable (1) 1.7" (43.2mm) Hybrid	SPRINT NEXTEL
	3	Alcatel-Lucent 800 MHz 2X50W RRH w/ Filter			
	3	Nokia 2.5G MAA - AAHC(64T64R)			
	3	RFS IBC1900HG-2A			
	3	Alcatel-Lucent 4x40W RRH (88 lb)			
	3	RFS IBC1900BB-1			
90.0	3	DragonWave Horizon Compact	Side Arm	(3) 1/2" Coax (1) 2" conduit	CLEARWIRE CORPORATION
	3	Argus LLPX310R			
	2	DragonWave A-ANT-18G-2-C			
	1	DragonWave A-ANT-11G-2.5-C			
	3	NextNet BTS-2500			
79.0	3	Samsung B5/B13 RRH-BR04C	Triangular Low Profile Platform	(2) 1 5/8" Hybriflex	VERIZON WIRELESS
	3	Samsung B2/B66A RRH-BR049			
	3	Samsung MT6407-77A			
	2	RFS DB-T1-6Z-8AB-0Z			
	9	Commscope SBNHH-1D65B			
20.0	1	Lucent KS-24019	Stand-Off	(1) 1/2" Coax	SPRINT NEXTEL

Equipment to be Removed

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
152.0	4	Decibel DB844H90E-XY	Triangular Platform with Handrails	-	SPRINT NEXTEL
	8	Andrew 844G65VTZASX			

Proposed Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
147.0	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 line inside the pole shaft.

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.

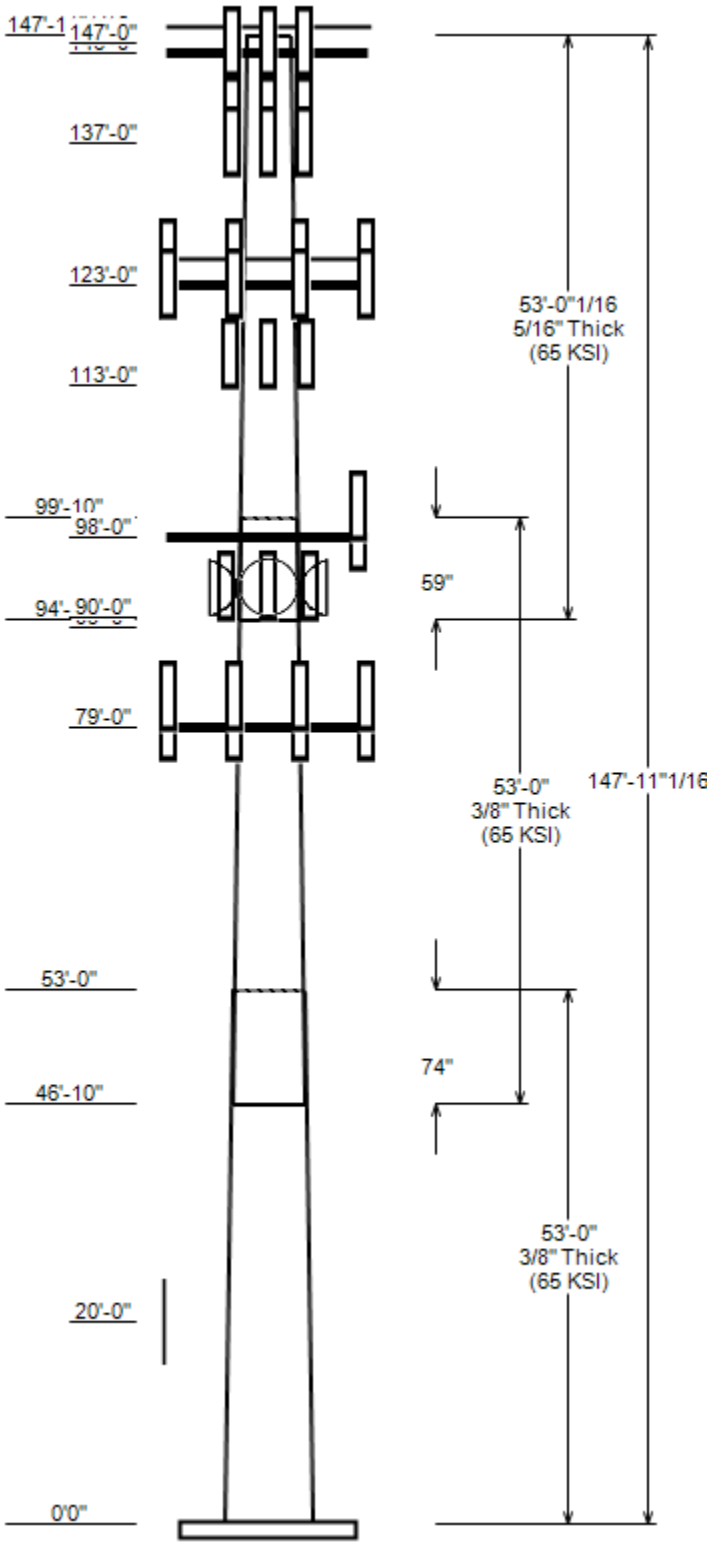
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with 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 :	302468, Petro Lock	Height :	147.92 ft
Client :	DISH WIRELESS L.L.C.	Base Width :	56.58
Code :	ANSI/TIA-222-H	Shape :	18 Sides



SITE PARAMETERS

Base Elev (ft):	0.00	Structure Class:	II
Taper :	0.21500 (In/ft)	Exposure :	B
Topographic Category :	1	Topographic Feature:	
Topo Method :	Method 1		

SECTION PROPERTIES

Shaft Section	Length (ft)	Diameter (in) Across Flats Top	Diameter (in) Across Flats Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	53.000	45.21	56.58	0.375		0.000	18 Sides	65
2	53.000	35.91	47.28	0.375	Slip Joint	74.000	18 Sides	65
3	53.003	26.22	37.59	0.312	Slip Joint	59.000	18 Sides	65

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
147.0	147.0	1	Commscope RDIDC-9181-PF-48
147.0	147.0	3	Fujitsu TA08025-B604
147.0	147.0	3	Fujitsu TA08025-B605
147.0	147.0	3	JMA Wireless MX08FRO665-21
146.0	146.0	1	Generic Round Platform with Ha
137.0	138.0	6	Powerwave Allgon LGP21901
137.0	137.0	6	Powerwave Allgon 7020.00 Dual
137.0	138.0	7	Powerwave Allgon LGP21401
137.0	138.0	2	Raycap DC6-48-60-18-8F (23.5"
137.0	137.0	1	Raycap DC6-48-60-18-8F ("Squid
137.0	138.0	3	Ericsson RRUS 4478 B14 (15")
137.0	137.0	3	Ericsson RRUS 4449 B5, B12
137.0	138.0	1	Raycap DC6-48-60-18-8C
137.0	137.0	3	Ericsson RRUS 32 B66A
137.0	138.0	6	Ericsson RRUS 32 B2
137.0	137.0	3	Ericsson RRUS E2 B29
137.0	137.0	3	Ericsson RRUS-32 B30 (77 lbs)
137.0	138.0	3	Powerwave Allgon 7750.00
137.0	138.0	2	Quintel QS66512-3 (112 lbs.)
137.0	137.0	2	CCI DMP65R-BU6DA
137.0	138.0	1	CCI TPA-65R-LCUUUU-H8
137.0	138.0	2	Kathrein Scala 80010965
137.0	137.0	1	Kathrein Scala 80010966
137.0	137.0	1	CCI DMP65R-BU8D
137.0	137.0	1	Site Pro1 RMQLP-4120-H10
123.0	123.0	3	Ericsson KRY 112 144/1
123.0	124.0	5	Ericsson KRY 112 489/1
123.0	123.0	3	Ericsson Radio 4449 B71 B85A
123.0	123.0	3	Ericsson RRUS 4415 B25
123.0	123.0	3	Ericsson Air6449 B41
123.0	123.0	3	Ericsson AIR32 B66Aa/B2a
123.0	124.0	3	RFS APX16DWV-16DWVS-E-A20
123.0	123.0	3	RFS APXVAARR24_43-U-NA20
123.0	123.0	1	Generic Flat Platform with Han
113.0	114.0	3	RFS APXV18-206517
98.0	99.0	3	RFS IBC1900BB-1
98.0	99.0	3	RFS IBC1900HG-2A
98.0	99.0	3	Alcatel-Lucent 800 MHz 2X50W R
98.0	99.0	3	Alcatel-Lucent 4x40W RRH (88 l
98.0	98.0	3	Nokia 2.5G MAA - AAHC(64T64R)
98.0	99.0	3	RFS APXVSPP18-C-A20
98.0	98.0	1	Generic Round Low Profile Plat
90.0	91.0	3	DragonWave Horizon Compact
90.0	91.0	3	NextNet BTS-2500
90.0	91.0	3	Argus LLPX310R

JOB INFORMATION

Asset :	302468, Petro Lock	Height :	147.92 ft
Client :	DISH WIRELESS L.L.C.	Base Width :	56.58
Code :	ANSI/TIA-222-H	Shape :	18 Sides

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
90.0	91.0	2	DragonWave A-ANT-18G-2-C
90.0	91.0	1	DragonWave A-ANT-11G-2.5-C
89.0	89.0	1	Side Arms
79.0	79.0	3	Samsung B2/B66A RRH-BR049
79.0	79.0	3	Samsung B5/B13 RRH-BR04C
79.0	79.0	3	Samsung MT6407-77A
79.0	80.0	2	RFS DB-T1-6Z-8AB-0Z
79.0	80.0	9	Commscope SBNHH-1D65B
79.0	79.0	1	Generic Round Low Profile Plat
20.0	20.0	1	Lucent KS-24019

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	147.0	1.60" (40.6mm) Hybrid	No
5.0	137.0	3" conduit	No
5.0	137.0	1 5/8" Coax	No
5.0	137.0	1 5/8" Coax	No
5.0	137.0	0.78" (19.7mm) 8 AWG 6	No
5.0	137.0	0.39" (9.8mm) Cable	No
5.0	137.0	0.39" (10mm) Fiber Trunk	No
5.0	123.0	1 5/8" Coax	No
5.0	123.0	1 5/8" Coax	Yes
5.0	123.0	1 5/8" (1.63"-41.3mm) Fiber	No
5.0	123.0	1 1/4" (1.25"- 31.8mm) Fiber	Yes
5.0	113.0	1 5/8" Coax	No
5.0	98.0	1.7" (43.2mm) Hybrid	No
5.0	98.0	1 1/4" Hybriflex Cable	No
5.0	90.0	2" conduit	Yes
5.0	90.0	1/2" Coax	Yes
5.0	79.0	1 5/8" Hybriflex	Yes
5.0	20.0	1/2" Coax	Yes

LOAD CASES

1.2D + 1.0W Normal	118 mph wind with no ice
0.9D + 1.0W Normal	118 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Nor	50 mph wind with 1.5" 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	3232.86	30.59	64.42
0.9D + 1.0W Normal	3188.95	30.56	48.30
1.2D + 1.0Di + 1.0Wi Normal	925.73	8.64	99.23
1.2D + 1.0Ev + 1.0Eh Normal	198.07	1.62	65.24
0.9D - 1.0Ev + 1.0Eh Normal	194.62	1.61	45.18
1.0D + 1.0W Service Normal	741.43	7.07	53.72

DISH DEFLECTIONS

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W Service Normal	90.00	6.575	0.669
1.0D + 1.0W Service Normal	90.00	6.575	0.669

ANALYSIS PARAMETERS

Location:	Hartford County,CT	Height:	147.92 ft
Type and Shape:	Taper, 18 Sides	Base Diameter:	56.58 in
Manufacturer:	Undetermined	Top Diameter:	26.22 in
K_d (non-service):	0.95	Taper:	0.2150 in/ft
K_e:	1.00	Rotation:	0.000°

ICE & WIND PARAMETERS

Exposure Category:	B	Design Wind Speed w/o Ice:	118 mph
Risk Category:	II	Design Wind Speed w/Ice:	50 mph
Topo Factor Procedure:	Method 1	Operational Wind Speed:	60 mph
Topographic Category:	1	Design Ice Thickness:	1.50 in
Crest Height:	0 ft	HMSL:	18.00 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil			Period Based on Rayleigh Method (sec):	2.52
T_L (sec):	6	P:	1	$C_{s:}$	0.030
$S_{s:}$	0.191	$S_{1:}$	0.055	C_s Max:	0.030
$F_{a:}$	1.600	$F_{v:}$	2.400	C_s Min:	0.030
$S_{ds:}$	0.204	$S_{d1:}$	0.088		

LOAD CASES

1.2D + 1.0W Normal	118 mph wind with no ice
0.9D + 1.0W Normal	118 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Normal	50 mph wind with 1.5" 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

SHAFT SECTION PROPERTIES

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (in)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	53.00	0.3750	65		0.00	10,844	56.58	0.000	66.90	26,699.3	24.84	150.88	45.21	53.00	53.36	13,550.7	19.49	120.55	0.2146
2-18	53.00	0.3750	65	Slip	74.00	8,848	47.28	46.830	55.83	15,518.9	20.47	126.08	35.91	99.83	42.29	6,746.8	15.12	95.76	0.2146
3-18	53.00	0.3125	65	Slip	59.00	5,651	37.59	94.917	36.97	6,490.7	19.45	120.28	26.22	147.92	25.69	2,178.0	13.03	83.89	0.2146
				Shaft Weight		25,343													

DISCRETE APPURTENANCE PROPERTIES

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor
147.00	JMA Wireless MX08FRO665-21	3	0.75	0.000	64.50	12.489	0.64	321.44	15.298	0.64
147.00	Fujitsu TA08025-B605	3	0.75	0.000	75.00	1.962	0.50	137.63	2.882	0.50
147.00	Fujitsu TA08025-B604	3	0.75	0.000	63.90	1.962	0.50	122.20	2.882	0.50
147.00	Commscope RDIDC-9181-PF-48	1	0.75	0.000	21.90	1.867	1.00	78.79	2.767	1.00
146.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	4118.11	51.620	1.00
137.00	Powerwave Allgon LGP21401	7	0.75	1.000	14.10	1.104	0.50	38.86	1.812	0.50
137.00	Powerwave Allgon 7020.00 Dual	6	0.75	0.000	2.20	0.339	0.50	12.34	0.745	0.50
137.00	Raycap DC6-48-60-18-8F ("Squid	1	0.75	0.000	31.80	1.470	1.00	93.02	2.163	1.00
137.00	Ericsson RRUS 4478 B14 (15")	3	0.75	1.000	59.40	1.650	0.50	108.72	2.491	0.50
137.00	Ericsson RRUS 4449 B5, B12	3	0.75	0.000	71.00	1.969	0.50	134.95	2.895	0.50
137.00	Raycap DC6-48-60-18-8C	1	0.75	1.000	16.00	2.030	1.00	73.77	2.784	1.00
137.00	Ericsson RRUS 32 B66A	3	0.75	0.000	50.70	2.720	0.67	123.42	3.874	0.67
137.00	Ericsson RRUS 32 B2	6	0.75	1.000	53.00	2.743	0.67	125.98	3.903	0.67
137.00	Ericsson RRUS E2 B29	3	0.75	0.000	60.00	3.145	0.62	140.26	4.295	0.62
137.00	Ericsson RRUS-32 B30 (77 lbs)	3	0.75	0.000	77.00	3.314	0.71	173.50	4.588	0.71
137.00	Powerwave Allgon 7750.00	3	0.75	1.000	27.00	5.555	0.65	139.81	7.679	0.65
137.00	Quintel QS66512-3 (112 lbs.)	2	0.75	1.000	112.00	8.133	0.80	309.74	10.899	0.80
137.00	CCI DMP65R-BU6DA	2	0.75	0.000	79.40	12.709	0.72	335.01	15.476	0.72
137.00	CCI TPA-65R-LCUUUU-H8	1	0.75	1.000	81.60	13.298	1.00	356.25	17.003	1.00
137.00	Kathrein Scala 80010965	2	0.75	1.000	97.60	13.814	0.62	362.15	16.841	0.62
137.00	Kathrein Scala 80010966	1	0.75	0.000	114.60	17.363	1.00	433.23	21.024	1.00
137.00	CCI DMP65R-BU8D	1	0.75	0.000	95.70	17.871	1.00	432.96	21.528	1.00
137.00	Site Pro1 RMQLP-4120-H10	1	1.00	0.000	3249.50	27.200	1.00	5495.81	46.003	1.00
137.00	Powerwave Allgon LGP21901	6	0.75	1.000	5.50	0.200	0.50	13.12	0.517	0.50
137.00	Raycap DC6-48-60-18-8F (23.5"	2	0.75	1.000	20.00	1.260	1.00	72.25	1.913	1.00
123.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	4243.00	62.977	1.00
123.00	Ericsson AIR32 B66Aa/B2a	3	0.80	0.000	132.20	6.510	0.71	288.80	8.659	0.71
123.00	RFS APX16DWV-16DWVS-E-A20	3	0.80	1.000	40.70	6.586	0.60	155.32	8.711	0.60
123.00	RFS APXVAARR24_43-U-NA20	3	0.80	0.000	127.90	20.243	0.63	513.09	23.882	0.63
123.00	Ericsson Air6449 B41	3	0.80	0.000	104.00	5.682	0.63	237.71	7.239	0.63
123.00	Ericsson RRUS 4415 B25	3	0.80	0.000	46.00	1.842	0.50	94.11	2.722	0.50
123.00	Ericsson Radio 4449 B71 B85A	3	0.80	0.000	75.00	1.650	0.50	134.01	2.483	0.50
123.00	Ericsson KRY 112 489/1	5	0.80	1.000	15.40	0.559	0.50	32.65	1.074	0.50
123.00	Ericsson KRY 112 144/1	3	0.80	0.000	11.00	0.351	0.50	21.56	0.749	0.50
113.00	RFS APXV18-206517	3	1.00	1.000	26.40	5.050	0.68	115.30	7.350	0.68
98.00	Nokia 2.5G MAA - AAHC(64T64R)	3	0.80	0.000	103.60	4.203	0.64	211.69	5.489	0.64
98.00	Alcatel-Lucent 4x40W RRH (88 l	3	0.80	1.000	88.00	3.258	1.00	192.45	4.398	1.00
98.00	Alcatel-Lucent 800 MHz 2X50W R	3	0.80	1.000	64.00	2.058	1.00	137.87	2.976	1.00
98.00	RFS IBC1900HG-2A	3	0.80	1.000	22.00	0.966	0.50	47.88	1.600	0.50
98.00	Generic Round Low Profile Plat	1	1.00	0.000	1875.00	21.700	1.00	2651.51	40.108	1.00
98.00	RFS APXVSPP18-C-A20	3	0.80	1.000	57.00	8.024	0.69	222.39	10.699	0.69
98.00	RFS IBC1900BB-1	3	0.80	1.000	22.00	0.966	0.50	47.88	1.600	0.50
90.00	DragonWave A-ANT-18G-2-C	2	1.00	1.000	27.10	4.688	1.00	119.97	5.900	1.00
90.00	Argus LLPX310R	3	0.80	1.000	28.60	4.292	0.63	114.36	5.866	0.63
90.00	NextNet BTS-2500	3	0.80	1.000	35.00	1.817	0.50	79.13	2.689	0.50
90.00	DragonWave Horizon Compact	3	0.80	1.000	10.60	0.721	0.50	32.00	1.263	0.50
90.00	DragonWave A-ANT-11G-2.5-C	1	1.00	1.000	47.60	8.670	1.00	216.21	10.314	1.00
89.00	Side Arms	1	1.00	0.000	560.00	8.500	1.00	930.20	14.119	1.00
79.00	Generic Round Low Profile Plat	1	1.00	0.000	1875.00	21.700	1.00	2634.17	39.698	1.00
79.00	Commscope SBNHH-1D65B	9	0.80	1.000	50.70	8.173	0.69	215.22	10.826	0.69
79.00	RFS DB-T1-6Z-8AB-0Z	2	0.80	1.000	44.00	4.800	0.72	161.98	6.132	0.72
79.00	Samsung MT6407-77A	3	0.80	0.000	81.60	4.709	0.61	177.15	6.133	0.61
79.00	Samsung B2/B66A RRH-BR049	3	0.80	0.000	84.40	1.875	0.50	144.20	2.721	0.50
79.00	Samsung B5/B13 RRH-BR04C	3	0.80	0.000	70.30	1.875	0.50	123.92	2.721	0.50
20.00	Lucent KS-24019	1	1.00	0.000	4.00	0.910	1.00	24.34	1.721	1.00
Totals	Num Loadings: 55	152			20,065.50			41,262.71		

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg) : _

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax/ Row	Dist Between Rows(in)	Dist Between Cols(in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	147.00	1	1.60" (40.6mm) Hybrid	1.6	2.34	N	0	0	0	0	0	N	DISH WIRELESS
5.00	137.00	8	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	0	N	AT&T MOBILITY
5.00	137.00	6	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	AT&T MOBILITY
5.00	137.00	5	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	AT&T MOBILITY
5.00	137.00	3	3" conduit	3.5	7.58	N	0	0	0	0	0	N	AT&T MOBILITY
5.00	137.00	2	0.39" (10mm) Fiber Tr	0.39	0.06	N	0	0	0	0	0	N	AT&T MOBILITY
5.00	137.00	2	0.39" (9.8mm) Cable	0.39	0.07	N	0	0	0	0	0	N	AT&T MOBILITY
5.00	123.00	6	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	T-MOBILE
5.00	123.00	6	1 5/8" Coax	1.98	0.82	N	6	1	1	40	1	Y	T-MOBILE
5.00	123.00	2	1 1/4" (1.25"- 31.8mm	1.25	1.05	N	2	1	1	60	1	Y	T-MOBILE
5.00	123.00	1	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0	0	0	0	N	T-MOBILE
5.00	113.00	6	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	METRO PCS INC
5.00	98.00	3	1 1/4" Hybriflex Cabl	1.54	1	N	0	0	0	0	0	N	SPRINT NEXTEL
5.00	98.00	1	1.7" (43.2mm) Hybrid	1.7	1.78	N	0	0	0	0	0	N	SPRINT NEXTEL
5.00	90.00	3	1/2" Coax	0.63	0.15	N	3	1	0	318	1	Y	CLEARWIRE COR
5.00	90.00	1	2" conduit	2.38	3.65	N	1	1	1	315	1	Y	CLEARWIRE COR
5.00	79.00	2	1 5/8" Hybriflex	1.98	1.3	N	2	1	1	180	1	Y	VERIZON WIREL
5.00	20.00	1	1/2" Coax	0.63	0.15	N	1	0	0	270	1	Y	SPRINT NEXTEL

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	56.580	66.896	26,699.30	24.84	150.88	72.2	929.4	0.0	0.0
5.00		0.3750	55.507	65.619	25,199.40	24.34	148.02	72.8	894.2	0.0	1,127.3
10.00		0.3750	54.434	64.342	23,756.70	23.83	145.16	73.4	859.6	0.0	1,105.6
15.00		0.3750	53.361	63.065	22,370.20	23.33	142.30	74	825.7	0.0	1,083.8
20.00		0.3750	52.289	61.788	21,038.70	22.82	139.44	74.6	792.5	0.0	1,062.1
25.00		0.3750	51.216	60.511	19,761.10	22.32	136.58	75.1	760.0	0.0	1,040.4
30.00		0.3750	50.143	59.234	18,536.30	21.81	133.71	75.7	728.1	0.0	1,018.7
35.00		0.3750	49.070	57.957	17,363.20	21.31	130.85	76.3	696.9	0.0	996.9
40.00		0.3750	47.997	56.680	16,240.70	20.81	127.99	76.9	666.5	0.0	975.2
45.00		0.3750	46.924	55.403	15,167.60	20.30	125.13	77.5	636.6	0.0	953.5
46.83	Bot - Section 2	0.3750	46.531	54.935	14,786.30	20.12	124.08	77.7	625.9	0.0	344.2
50.00		0.3750	45.852	54.126	14,142.80	19.80	122.27	78.1	607.5	0.0	1,184.8
53.00	Top - Section 1	0.3750	45.958	54.253	14,242.20	19.85	122.55	78.1	610.4	0.0	1,106.4
55.00		0.3750	45.529	53.742	13,843.80	19.64	121.41	78.3	598.9	0.0	367.5
60.00		0.3750	44.456	52.465	12,880.20	19.14	118.55	78.9	570.7	0.0	903.5
65.00		0.3750	43.383	51.188	11,962.50	18.64	115.69	79.5	543.1	0.0	881.8
70.00		0.3750	42.310	49.911	11,089.40	18.13	112.83	80.1	516.2	0.0	860.1
75.00		0.3750	41.237	48.635	10,259.90	17.63	109.97	80.7	490.0	0.0	838.3
79.00		0.3750	40.379	47.613	9,626.90	17.22	107.68	81.1	469.6	0.0	655.0
80.00		0.3750	40.164	47.358	9,472.80	17.12	107.11	81.3	464.5	0.0	161.6
85.00		0.3750	39.092	46.081	8,727.00	16.62	104.24	81.9	439.7	0.0	794.9
89.00		0.3750	38.233	45.059	8,159.40	16.21	101.96	82.3	420.3	0.0	620.3
90.00		0.3750	38.019	44.804	8,021.40	16.11	101.38	82.4	415.6	0.0	152.9
94.92	Bot - Section 3	0.3750	36.964	43.548	7,365.80	15.62	98.57	82.6	392.5	0.0	739.1
95.00		0.3750	36.946	43.527	7,355.00	15.61	98.52	82.6	392.1	0.0	22.8
98.00		0.3750	36.302	42.761	6,973.40	15.31	96.81	82.6	378.3	0.0	814.4
99.83	Top - Section 2	0.3125	36.534	35.926	5,955.00	18.85	116.91	79.2	321.0	0.0	490.6
100.00		0.3125	36.498	35.890	5,937.40	18.83	116.79	79.3	320.4	0.0	20.4
105.00		0.3125	35.425	34.826	5,424.80	18.23	113.36	80	301.6	0.0	601.6
110.00		0.3125	34.352	33.762	4,942.60	17.62	109.93	80.7	283.4	0.0	583.5
113.00		0.3125	33.709	33.124	4,667.50	17.26	107.87	81.1	272.7	0.0	341.4
115.00		0.3125	33.279	32.698	4,489.80	17.01	106.49	81.4	265.7	0.0	224.0
120.00		0.3125	32.207	31.634	4,065.60	16.41	103.06	82.1	248.6	0.0	547.3
123.00		0.3125	31.563	30.995	3,824.40	16.05	101.00	82.5	238.7	0.0	319.7
125.00		0.3125	31.134	30.570	3,669.00	15.80	99.63	82.6	232.1	0.0	209.5
130.00		0.3125	30.061	29.506	3,299.00	15.20	96.19	82.6	216.2	0.0	511.1
135.00		0.3125	28.988	28.442	2,954.80	14.59	92.76	82.6	200.8	0.0	493.0
137.00		0.3125	28.559	28.016	2,824.10	14.35	91.39	82.6	194.8	0.0	192.1
140.00		0.3125	27.915	27.377	2,635.40	13.99	89.33	82.6	185.9	0.0	282.7
145.00		0.3125	26.842	26.313	2,339.90	13.38	85.90	82.6	171.7	0.0	456.7
146.00		0.3125	26.628	26.101	2,283.60	13.26	85.21	82.6	168.9	0.0	89.2
147.00		0.3125	26.413	25.888	2,228.20	13.14	84.52	82.6	166.2	0.0	88.5
147.92		0.3125	26.216	25.692	2,178.00	13.03	83.89	82.6	163.6	0.0	80.7
								Totals:			25,343.1

Load Case: 1.2D + 1.0W Normal 118 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	-64.42	-30.59	0.00	-3,232.9	0.00	3,232.86	4,345.88	1,174.02	5,959.78	5,031.73	0	0	0.658
5.00	-62.96	-30.32	0.00	-3,079.9	0.00	3,079.93	4,297.96	1,151.61	5,734.45	4,880.64	0.09	-0.17	0.646
10.00	-61.13	-30.06	0.00	-2,928.3	0.00	2,928.32	4,248.68	1,129.20	5,513.47	4,730.16	0.36	-0.34	0.634
15.00	-59.33	-29.79	0.00	-2,778.0	0.00	2,778.03	4,198.04	1,106.79	5,296.82	4,580.38	0.8	-0.51	0.621
20.00	-57.55	-29.51	0.00	-2,629.1	0.00	2,629.06	4,146.03	1,084.38	5,084.52	4,431.40	1.43	-0.68	0.608
25.00	-55.81	-29.24	0.00	-2,481.5	0.00	2,481.53	4,092.66	1,061.97	4,876.56	4,283.31	2.24	-0.85	0.594
30.00	-54.09	-28.97	0.00	-2,335.3	0.00	2,335.33	4,037.93	1,039.56	4,672.94	4,136.20	3.22	-1.03	0.579
35.00	-52.40	-28.68	0.00	-2,190.5	0.00	2,190.49	3,981.83	1,017.15	4,473.67	3,990.15	4.39	-1.2	0.563
40.00	-50.74	-28.38	0.00	-2,047.1	0.00	2,047.08	3,924.37	994.74	4,278.73	3,845.26	5.74	-1.37	0.546
45.00	-49.13	-28.16	0.00	-1,905.2	0.00	1,905.17	3,865.54	972.33	4,088.14	3,701.63	7.27	-1.55	0.528
46.83	-48.53	-28.00	0.00	-1,853.6	0.00	1,853.55	3,843.63	964.11	4,019.35	3,649.30	7.88	-1.61	0.521
50.00	-46.81	-27.77	0.00	-1,764.9	0.00	1,764.89	3,805.36	949.92	3,901.89	3,559.34	8.99	-1.72	0.509
53.00	-45.20	-27.57	0.00	-1,681.6	0.00	1,681.59	3,811.38	952.14	3,920.15	3,573.37	10.1	-1.83	0.483
55.00	-44.54	-27.34	0.00	-1,626.4	0.00	1,626.44	3,786.98	943.18	3,846.69	3,516.79	10.88	-1.9	0.475
60.00	-42.99	-26.97	0.00	-1,489.8	0.00	1,489.77	3,725.01	920.77	3,666.09	3,376.38	12.96	-2.06	0.454
65.00	-41.46	-26.59	0.00	-1,354.9	0.00	1,354.93	3,661.69	898.36	3,489.84	3,237.52	15.19	-2.21	0.431
70.00	-39.96	-26.20	0.00	-1,222.0	0.00	1,221.98	3,597.00	875.95	3,317.92	3,100.31	17.59	-2.37	0.406
75.00	-38.50	-25.84	0.00	-1,091.0	0.00	1,090.97	3,530.94	853.54	3,150.34	2,964.82	20.15	-2.51	0.380
79.00	-33.74	-22.72	0.00	-986.0	0.00	986.00	3,477.12	835.61	3,019.41	2,857.75	22.31	-2.63	0.355
80.00	-33.45	-22.50	0.00	-963.3	0.00	963.28	3,463.53	831.13	2,987.11	2,831.17	22.86	-2.66	0.351
85.00	-32.07	-22.13	0.00	-850.8	0.00	850.76	3,394.74	808.72	2,828.22	2,699.42	25.72	-2.79	0.325
89.00	-30.33	-21.56	0.00	-762.3	0.00	762.26	3,338.74	790.79	2,704.24	2,595.47	28.11	-2.9	0.304
90.00	-29.72	-20.33	0.00	-739.7	0.00	739.71	3,324.60	786.31	2,673.67	2,569.69	28.72	-2.93	0.297
94.92	-28.46	-20.09	0.00	-639.7	0.00	639.74	3,235.41	764.27	2,525.94	2,429.97	31.79	-3.05	0.273
95.00	-28.42	-19.98	0.00	-638.1	0.00	638.06	3,233.83	763.90	2,523.47	2,427.59	31.84	-3.05	0.272
98.00	-23.79	-17.48	0.00	-577.1	0.00	577.09	3,176.91	750.45	2,435.43	2,342.45	33.78	-3.12	0.254
99.83	-23.08	-17.36	0.00	-545.0	0.00	545.05	2,561.71	630.50	2,062.78	1,907.73	34.99	-3.16	0.295
100.00	-23.03	-17.18	0.00	-542.2	0.00	542.15	2,559.95	629.87	2,058.71	1,904.52	35.1	-3.16	0.294
105.00	-21.96	-16.75	0.00	-456.3	0.00	456.28	2,506.36	611.20	1,938.46	1,808.89	38.48	-3.28	0.262
110.00	-20.91	-16.40	0.00	-372.5	0.00	372.52	2,451.42	592.52	1,821.82	1,714.70	41.97	-3.39	0.227
113.00	-20.22	-15.78	0.00	-322.9	0.00	322.93	2,417.80	581.32	1,753.58	1,658.91	44.13	-3.45	0.204
115.00	-19.83	-15.51	0.00	-291.4	0.00	291.36	2,395.11	573.85	1,708.81	1,622.03	45.58	-3.49	0.189
120.00	-18.86	-15.16	0.00	-213.8	0.00	213.83	2,337.43	555.17	1,599.41	1,530.98	49.28	-3.57	0.148
123.00	-13.54	-10.42	0.00	-168.0	0.00	167.95	2,302.17	543.97	1,535.51	1,477.15	51.53	-3.61	0.120
125.00	-13.21	-10.14	0.00	-147.1	0.00	147.11	2,271.18	536.50	1,493.64	1,437.06	53.05	-3.63	0.109
130.00	-12.38	-9.73	0.00	-96.4	0.00	96.39	2,192.12	517.82	1,391.48	1,338.27	56.88	-3.68	0.078
135.00	-11.57	-9.43	0.00	-47.7	0.00	47.73	2,113.06	499.15	1,292.94	1,243.00	60.75	-3.71	0.044
137.00	-4.80	-3.05	0.00	-26.6	0.00	26.55	2,081.44	491.68	1,254.54	1,205.88	62.31	-3.72	0.024
140.00	-4.47	-2.75	0.00	-17.4	0.00	17.40	2,034.01	480.47	1,198.02	1,151.25	64.65	-3.73	0.017
145.00	-3.92	-2.51	0.00	-3.7	0.00	3.66	1,954.95	461.80	1,106.72	1,063.01	68.55	-3.73	0.005
146.00	-0.89	-1.12	0.00	-1.2	0.00	1.15	1,939.14	458.06	1,088.89	1,045.79	69.33	-3.73	0.002
147.00	-0.09	-0.03	0.00	-0.0	0.00	0.03	1,923.33	454.33	1,071.21	1,028.70	70.11	-3.73	0.000
147.92	0.00	-0.03	0.00	0.0	0.00	0.00	1,908.78	450.89	1,055.07	1,013.11	70.83	-3.73	0.000

Load Case: 0.9D + 1.0W Normal 118 mph wind with no ice 23 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	-48.30	-30.56	0.00	-3,189.0	0.00	3,188.95	4,345.88	1,174.02	5,959.78	5,031.73	0	0	0.646
5.00	-47.19	-30.25	0.00	-3,036.2	0.00	3,036.16	4,297.96	1,151.61	5,734.45	4,880.64	0.09	-0.17	0.634
10.00	-45.80	-29.94	0.00	-2,884.9	0.00	2,884.92	4,248.68	1,129.20	5,513.47	4,730.16	0.35	-0.33	0.621
15.00	-44.43	-29.63	0.00	-2,735.2	0.00	2,735.22	4,198.04	1,106.79	5,296.82	4,580.38	0.79	-0.5	0.608
20.00	-43.07	-29.30	0.00	-2,587.1	0.00	2,587.07	4,146.03	1,084.38	5,084.52	4,431.40	1.41	-0.67	0.595
25.00	-41.75	-29.00	0.00	-2,440.6	0.00	2,440.56	4,092.66	1,061.97	4,876.56	4,283.31	2.2	-0.84	0.581
30.00	-40.44	-28.69	0.00	-2,295.6	0.00	2,295.58	4,037.93	1,039.56	4,672.94	4,136.20	3.17	-1.01	0.566
35.00	-39.16	-28.37	0.00	-2,152.1	0.00	2,152.14	3,981.83	1,017.15	4,473.67	3,990.15	4.33	-1.18	0.550
40.00	-37.90	-28.04	0.00	-2,010.3	0.00	2,010.29	3,924.37	994.74	4,278.73	3,845.26	5.66	-1.35	0.533
45.00	-36.68	-27.79	0.00	-1,870.1	0.00	1,870.10	3,865.54	972.33	4,088.14	3,701.63	7.16	-1.52	0.516
46.83	-36.22	-27.62	0.00	-1,819.2	0.00	1,819.15	3,843.63	964.11	4,019.35	3,649.30	7.76	-1.59	0.509
50.00	-34.91	-27.38	0.00	-1,731.7	0.00	1,731.69	3,805.36	949.92	3,901.89	3,559.34	8.85	-1.69	0.497
53.00	-33.70	-27.18	0.00	-1,649.5	0.00	1,649.54	3,811.38	952.14	3,920.15	3,573.37	9.95	-1.8	0.471
55.00	-33.20	-26.92	0.00	-1,595.2	0.00	1,595.19	3,786.98	943.18	3,846.69	3,516.79	10.71	-1.86	0.463
60.00	-32.02	-26.54	0.00	-1,460.6	0.00	1,460.57	3,725.01	920.77	3,666.09	3,376.38	12.75	-2.02	0.442
65.00	-30.86	-26.14	0.00	-1,327.9	0.00	1,327.89	3,661.69	898.36	3,489.84	3,237.52	14.95	-2.17	0.419
70.00	-29.73	-25.74	0.00	-1,197.2	0.00	1,197.18	3,597.00	875.95	3,317.92	3,100.31	17.31	-2.32	0.395
75.00	-28.63	-25.37	0.00	-1,068.5	0.00	1,068.47	3,530.94	853.54	3,150.34	2,964.82	19.82	-2.47	0.369
79.00	-25.08	-22.30	0.00	-965.4	0.00	965.38	3,477.12	835.61	3,019.41	2,857.75	21.94	-2.58	0.346
80.00	-24.85	-22.07	0.00	-943.1	0.00	943.08	3,463.53	831.13	2,987.11	2,831.17	22.49	-2.61	0.341
85.00	-23.81	-21.69	0.00	-832.7	0.00	832.72	3,394.74	808.72	2,828.22	2,699.42	25.29	-2.74	0.316
89.00	-22.52	-21.14	0.00	-746.0	0.00	745.95	3,338.74	790.79	2,704.24	2,595.47	27.64	-2.85	0.295
90.00	-22.06	-19.91	0.00	-723.8	0.00	723.82	3,324.60	786.31	2,673.67	2,569.69	28.23	-2.87	0.289
94.92	-21.11	-19.68	0.00	-625.9	0.00	625.92	3,235.41	764.27	2,525.94	2,429.97	31.26	-2.99	0.265
95.00	-21.08	-19.56	0.00	-624.3	0.00	624.29	3,233.83	763.90	2,523.47	2,427.59	31.31	-2.99	0.264
98.00	-17.64	-17.12	0.00	-564.6	0.00	564.57	3,176.91	750.45	2,435.43	2,342.45	33.21	-3.06	0.247
99.83	-17.10	-17.01	0.00	-533.2	0.00	533.18	2,561.71	630.50	2,062.78	1,907.73	34.39	-3.1	0.287
100.00	-17.07	-16.82	0.00	-530.3	0.00	530.34	2,559.95	629.87	2,058.71	1,904.52	34.5	-3.11	0.286
105.00	-16.26	-16.40	0.00	-446.2	0.00	446.25	2,506.36	611.20	1,938.46	1,808.89	37.82	-3.22	0.254
110.00	-15.47	-16.06	0.00	-364.2	0.00	364.25	2,451.42	592.52	1,821.82	1,714.70	41.25	-3.33	0.219
113.00	-14.96	-15.45	0.00	-315.7	0.00	315.69	2,417.80	581.32	1,753.58	1,658.91	43.36	-3.39	0.197
115.00	-14.67	-15.17	0.00	-284.8	0.00	284.80	2,395.11	573.85	1,708.81	1,622.03	44.79	-3.43	0.182
120.00	-13.94	-14.83	0.00	-209.0	0.00	208.95	2,337.43	555.17	1,599.41	1,530.98	48.42	-3.5	0.143
123.00	-10.02	-10.18	0.00	-164.0	0.00	164.04	2,302.17	543.97	1,535.51	1,477.15	50.63	-3.54	0.116
125.00	-9.77	-9.91	0.00	-143.7	0.00	143.68	2,271.18	536.50	1,493.64	1,437.06	52.12	-3.57	0.105
130.00	-9.15	-9.51	0.00	-94.1	0.00	94.12	2,192.12	517.82	1,391.48	1,338.27	55.88	-3.61	0.075
135.00	-8.55	-9.22	0.00	-46.6	0.00	46.57	2,113.06	499.15	1,292.94	1,243.00	59.68	-3.64	0.042
137.00	-3.56	-2.96	0.00	-25.8	0.00	25.80	2,081.44	491.68	1,254.54	1,205.88	61.21	-3.65	0.023
140.00	-3.31	-2.67	0.00	-16.9	0.00	16.92	2,034.01	480.47	1,198.02	1,151.25	63.5	-3.66	0.016
145.00	-2.91	-2.44	0.00	-3.6	0.00	3.57	1,954.95	461.80	1,106.72	1,063.01	67.33	-3.66	0.005
146.00	-0.65	-1.11	0.00	-1.1	0.00	1.14	1,939.14	458.06	1,088.89	1,045.79	68.1	-3.66	0.001
147.00	-0.07	-0.03	0.00	-0.0	0.00	0.03	1,923.33	454.33	1,071.21	1,028.70	68.86	-3.66	0.000
147.92	0.00	-0.03	0.00	0.0	0.00	0.00	1,908.78	450.89	1,055.07	1,013.11	69.57	-3.66	0.000

Load Case: 1.2D + 1.0Di + 1.0Wi Normal		50 mph wind with 1.5" 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	-99.23	-8.64	0.00	-925.7	0.00	925.73	4,345.88	1,174.02	5,959.78	5,031.73	0	0	0.207
5.00	-97.44	-8.58	0.00	-882.5	0.00	882.54	4,297.96	1,151.61	5,734.45	4,880.64	0.03	-0.05	0.204
10.00	-95.06	-8.52	0.00	-839.6	0.00	839.64	4,248.68	1,129.20	5,513.47	4,730.16	0.1	-0.1	0.200
15.00	-92.68	-8.47	0.00	-797.0	0.00	797.02	4,198.04	1,106.79	5,296.82	4,580.38	0.23	-0.15	0.196
20.00	-90.29	-8.40	0.00	-754.7	0.00	754.69	4,146.03	1,084.38	5,084.52	4,431.40	0.41	-0.2	0.192
25.00	-87.95	-8.34	0.00	-712.7	0.00	712.71	4,092.66	1,061.97	4,876.56	4,283.31	0.64	-0.24	0.188
30.00	-85.63	-8.27	0.00	-671.0	0.00	671.03	4,037.93	1,039.56	4,672.94	4,136.20	0.92	-0.29	0.184
35.00	-83.34	-8.20	0.00	-629.7	0.00	629.67	3,981.83	1,017.15	4,473.67	3,990.15	1.26	-0.34	0.179
40.00	-81.07	-8.13	0.00	-588.7	0.00	588.66	3,924.37	994.74	4,278.73	3,845.26	1.65	-0.39	0.174
45.00	-78.83	-8.07	0.00	-548.0	0.00	548.03	3,865.54	972.33	4,088.14	3,701.63	2.09	-0.44	0.169
46.83	-78.02	-8.03	0.00	-533.2	0.00	533.24	3,843.63	964.11	4,019.35	3,649.30	2.26	-0.46	0.166
50.00	-75.90	-7.97	0.00	-507.8	0.00	507.82	3,805.36	949.92	3,901.89	3,559.34	2.58	-0.49	0.163
53.00	-73.91	-7.91	0.00	-483.9	0.00	483.93	3,811.38	952.14	3,920.15	3,573.37	2.9	-0.52	0.155
55.00	-73.03	-7.85	0.00	-468.1	0.00	468.10	3,786.98	943.18	3,846.69	3,516.79	3.12	-0.54	0.152
60.00	-70.86	-7.75	0.00	-428.9	0.00	428.86	3,725.01	920.77	3,666.09	3,376.38	3.72	-0.59	0.146
65.00	-68.71	-7.64	0.00	-390.1	0.00	390.13	3,661.69	898.36	3,489.84	3,237.52	4.36	-0.64	0.139
70.00	-66.60	-7.53	0.00	-351.9	0.00	351.93	3,597.00	875.95	3,317.92	3,100.31	5.05	-0.68	0.132
75.00	-64.52	-7.42	0.00	-314.3	0.00	314.29	3,530.94	853.54	3,150.34	2,964.82	5.79	-0.72	0.124
79.00	-56.51	-6.55	0.00	-284.2	0.00	284.23	3,477.12	835.61	3,019.41	2,857.75	6.41	-0.76	0.116
80.00	-56.11	-6.49	0.00	-277.7	0.00	277.68	3,463.53	831.13	2,987.11	2,831.17	6.57	-0.76	0.114
85.00	-54.16	-6.37	0.00	-245.2	0.00	245.24	3,394.74	808.72	2,828.22	2,699.42	7.39	-0.8	0.107
89.00	-51.64	-6.20	0.00	-219.8	0.00	219.75	3,338.74	790.79	2,704.24	2,595.47	8.07	-0.83	0.100
90.00	-50.19	-5.88	0.00	-213.3	0.00	213.32	3,324.60	786.31	2,673.67	2,569.69	8.25	-0.84	0.098
94.92	-48.40	-5.81	0.00	-184.4	0.00	184.39	3,235.41	764.27	2,525.94	2,429.97	9.13	-0.88	0.091
95.00	-48.35	-5.77	0.00	-183.9	0.00	183.91	3,233.83	763.90	2,523.47	2,427.59	9.15	-0.88	0.091
98.00	-41.36	-5.03	0.00	-166.3	0.00	166.33	3,176.91	750.45	2,435.43	2,342.45	9.71	-0.9	0.084
99.83	-40.44	-5.00	0.00	-157.1	0.00	157.10	2,561.71	630.50	2,062.78	1,907.73	10.05	-0.91	0.098
100.00	-40.39	-4.94	0.00	-156.3	0.00	156.27	2,559.95	629.87	2,058.71	1,904.52	10.09	-0.91	0.098
105.00	-38.79	-4.81	0.00	-131.6	0.00	131.57	2,506.36	611.20	1,938.46	1,808.89	11.06	-0.94	0.088
110.00	-37.22	-4.69	0.00	-107.6	0.00	107.55	2,451.42	592.52	1,821.82	1,714.70	12.06	-0.98	0.078
113.00	-35.97	-4.51	0.00	-93.4	0.00	93.37	2,417.80	581.32	1,753.58	1,658.91	12.68	-0.99	0.071
115.00	-35.37	-4.42	0.00	-84.4	0.00	84.35	2,395.11	573.85	1,708.81	1,622.03	13.1	-1	0.067
120.00	-33.89	-4.30	0.00	-62.2	0.00	62.25	2,337.43	555.17	1,599.41	1,530.98	14.17	-1.03	0.055
123.00	-24.13	-3.04	0.00	-49.2	0.00	49.23	2,302.17	543.97	1,535.51	1,477.15	14.82	-1.04	0.044
125.00	-23.64	-2.95	0.00	-43.2	0.00	43.15	2,271.18	536.50	1,493.64	1,437.06	15.25	-1.05	0.040
130.00	-22.45	-2.81	0.00	-28.4	0.00	28.39	2,192.12	517.82	1,391.48	1,338.27	16.36	-1.06	0.031
135.00	-21.30	-2.71	0.00	-14.3	0.00	14.32	2,113.06	499.15	1,292.94	1,243.00	17.47	-1.07	0.022
137.00	-8.06	-0.97	0.00	-8.3	0.00	8.33	2,081.44	491.68	1,254.54	1,205.88	17.92	-1.07	0.011
140.00	-7.52	-0.87	0.00	-5.4	0.00	5.42	2,034.01	480.47	1,198.02	1,151.25	18.59	-1.07	0.008
145.00	-6.65	-0.78	0.00	-1.1	0.00	1.09	1,954.95	461.80	1,106.72	1,063.01	19.72	-1.07	0.004
146.00	-2.10	-0.29	0.00	-0.3	0.00	0.31	1,939.14	458.06	1,088.89	1,045.79	19.94	-1.08	0.001
147.00	-0.15	-0.01	0.00	-0.0	0.00	0.01	1,923.33	454.33	1,071.21	1,028.70	20.17	-1.08	0.000
147.92	0.00	-0.01	0.00	0.0	0.00	0.00	1,908.78	450.89	1,055.07	1,013.11	20.38	-1.08	0.000

Load Case: 1.0D + 1.0W Service Normal 60 mph Wind with No Ice 22 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	-53.72	-7.07	0.00	-741.4	0.00	741.43	4,345.88	1,174.02	5,959.78	5,031.73	0	0	0.160
5.00	-52.57	-7.00	0.00	-706.1	0.00	706.08	4,297.96	1,151.61	5,734.45	4,880.64	0.02	-0.04	0.157
10.00	-51.12	-6.93	0.00	-671.1	0.00	671.07	4,248.68	1,129.20	5,513.47	4,730.16	0.08	-0.08	0.154
15.00	-49.68	-6.87	0.00	-636.4	0.00	636.40	4,198.04	1,106.79	5,296.82	4,580.38	0.18	-0.12	0.151
20.00	-48.27	-6.79	0.00	-602.1	0.00	602.07	4,146.03	1,084.38	5,084.52	4,431.40	0.33	-0.16	0.148
25.00	-46.88	-6.73	0.00	-568.1	0.00	568.10	4,092.66	1,061.97	4,876.56	4,283.31	0.51	-0.2	0.144
30.00	-45.51	-6.66	0.00	-534.5	0.00	534.47	4,037.93	1,039.56	4,672.94	4,136.20	0.74	-0.24	0.141
35.00	-44.16	-6.59	0.00	-501.2	0.00	501.18	3,981.83	1,017.15	4,473.67	3,990.15	1.01	-0.27	0.137
40.00	-42.84	-6.51	0.00	-468.2	0.00	468.24	3,924.37	994.74	4,278.73	3,845.26	1.32	-0.31	0.133
45.00	-41.54	-6.46	0.00	-435.7	0.00	435.68	3,865.54	972.33	4,088.14	3,701.63	1.67	-0.35	0.128
46.83	-41.06	-6.42	0.00	-423.8	0.00	423.84	3,843.63	964.11	4,019.35	3,649.30	1.81	-0.37	0.127
50.00	-39.66	-6.37	0.00	-403.5	0.00	403.51	3,805.36	949.92	3,901.89	3,559.34	2.06	-0.39	0.124
53.00	-38.34	-6.32	0.00	-384.4	0.00	384.41	3,811.38	952.14	3,920.15	3,573.37	2.31	-0.42	0.118
55.00	-37.84	-6.26	0.00	-371.8	0.00	371.77	3,786.98	943.18	3,846.69	3,516.79	2.49	-0.43	0.116
60.00	-36.58	-6.17	0.00	-340.5	0.00	340.46	3,725.01	920.77	3,666.09	3,376.38	2.97	-0.47	0.111
65.00	-35.35	-6.09	0.00	-309.6	0.00	309.59	3,661.69	898.36	3,489.84	3,237.52	3.48	-0.51	0.105
70.00	-34.15	-5.99	0.00	-279.2	0.00	279.16	3,597.00	875.95	3,317.92	3,100.31	4.03	-0.54	0.100
75.00	-32.96	-5.91	0.00	-249.2	0.00	249.19	3,530.94	853.54	3,150.34	2,964.82	4.61	-0.58	0.093
79.00	-28.91	-5.20	0.00	-225.2	0.00	225.18	3,477.12	835.61	3,019.41	2,857.75	5.11	-0.6	0.087
80.00	-28.68	-5.14	0.00	-220.0	0.00	219.99	3,463.53	831.13	2,987.11	2,831.17	5.23	-0.61	0.086
85.00	-27.55	-5.06	0.00	-194.3	0.00	194.27	3,394.74	808.72	2,828.22	2,699.42	5.89	-0.64	0.080
89.00	-26.10	-4.93	0.00	-174.0	0.00	174.05	3,338.74	790.79	2,704.24	2,595.47	6.43	-0.66	0.075
90.00	-25.56	-4.64	0.00	-168.9	0.00	168.89	3,324.60	786.31	2,673.67	2,569.69	6.57	-0.67	0.073
94.92	-24.52	-4.59	0.00	-146.1	0.00	146.06	3,235.41	764.27	2,525.94	2,429.97	7.28	-0.7	0.068
95.00	-24.49	-4.56	0.00	-145.7	0.00	145.68	3,233.83	763.90	2,523.47	2,427.59	7.29	-0.7	0.068
98.00	-20.55	-3.99	0.00	-131.8	0.00	131.75	3,176.91	750.45	2,435.43	2,342.45	7.73	-0.71	0.063
99.83	-19.95	-3.97	0.00	-124.4	0.00	124.43	2,561.71	630.50	2,062.78	1,907.73	8.01	-0.72	0.073
100.00	-19.92	-3.92	0.00	-123.8	0.00	123.77	2,559.95	629.87	2,058.71	1,904.52	8.04	-0.72	0.073
105.00	-19.03	-3.83	0.00	-104.2	0.00	104.16	2,506.36	611.20	1,938.46	1,808.89	8.81	-0.75	0.065
110.00	-18.16	-3.75	0.00	-85.0	0.00	85.03	2,451.42	592.52	1,821.82	1,714.70	9.61	-0.78	0.057
113.00	-17.57	-3.60	0.00	-73.7	0.00	73.70	2,417.80	581.32	1,753.58	1,658.91	10.1	-0.79	0.052
115.00	-17.24	-3.54	0.00	-66.5	0.00	66.49	2,395.11	573.85	1,708.81	1,622.03	10.43	-0.8	0.048
120.00	-16.43	-3.46	0.00	-48.8	0.00	48.79	2,337.43	555.17	1,599.41	1,530.98	11.28	-0.82	0.039
123.00	-11.78	-2.38	0.00	-38.3	0.00	38.31	2,302.17	543.97	1,535.51	1,477.15	11.8	-0.83	0.031
125.00	-11.49	-2.31	0.00	-33.6	0.00	33.55	2,271.18	536.50	1,493.64	1,437.06	12.14	-0.83	0.028
130.00	-10.79	-2.22	0.00	-22.0	0.00	21.98	2,192.12	517.82	1,391.48	1,338.27	13.02	-0.84	0.021
135.00	-10.10	-2.15	0.00	-10.9	0.00	10.88	2,113.06	499.15	1,292.94	1,243.00	13.91	-0.85	0.014
137.00	-4.14	-0.69	0.00	-6.0	0.00	6.03	2,081.44	491.68	1,254.54	1,205.88	14.26	-0.85	0.007
140.00	-3.85	-0.62	0.00	-4.0	0.00	3.96	2,034.01	480.47	1,198.02	1,151.25	14.8	-0.85	0.005
145.00	-3.39	-0.57	0.00	-0.8	0.00	0.83	1,954.95	461.80	1,106.72	1,063.01	15.69	-0.85	0.003
146.00	-0.80	-0.26	0.00	-0.3	0.00	0.26	1,939.14	458.06	1,088.89	1,045.79	15.87	-0.85	0.001
147.00	-0.08	-0.01	0.00	-0.0	0.00	0.01	1,923.33	454.33	1,071.21	1,028.70	16.05	-0.85	0.000
147.92	0.00	-0.01	0.00	0.0	0.00	0.00	1,908.78	450.89	1,055.07	1,013.11	16.21	-0.85	0.000

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

(Based on ASCE7-16 Chapters 11, 12 and 15)

Spectral Response Acceleration for Short Period (S_S):	0.191
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.055
Long-Period Transition Period (T_L – Seconds):	6
Importance Factor (I_e):	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}):	0.204
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):	2.520
Redundancy Factor (p):	1.000
Seismic Force Distribution Exponent (k):	2.000
Total Unfactored Dead Load:	53.720 k
Seismic Base Shear (E):	1.610 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)
42	147.46	81	1,756	0.004	6	100
41	146.5	91	1,949	0.004	7	113
40	145.5	92	1,937	0.004	6	114
39	142.5	468	9,512	0.020	32	581
38	138.5	290	5,558	0.012	19	360
37	136	270	4,999	0.010	17	335
36	132.5	688	12,085	0.025	40	854
35	127.5	706	11,484	0.024	38	877
34	124	288	4,423	0.009	15	357
33	121.5	478	7,050	0.015	24	593
32	117.5	810	11,189	0.023	37	1,006
31	114	329	4,279	0.009	14	408
30	111.5	514	6,391	0.013	21	638
29	107.5	871	10,068	0.021	34	1,081
28	102.5	889	9,344	0.019	31	1,103
27	99.9167	30	299	0.001	1	37
26	98.9167	596	5,833	0.012	20	740
25	96.5	1,001	9,325	0.019	31	1,242
24	94.9583	28	253	0.000	1	35
23	92.4583	1,046	8,938	0.019	30	1,297
22	89.5	219	1,757	0.004	6	272
21	87	886	6,706	0.014	22	1,099
20	82.5	1,127	7,671	0.016	26	1,398
19	79.5	228	1,441	0.003	5	283
18	77	931	5,521	0.012	18	1,155
17	72.5	1,183	6,221	0.013	21	1,468
16	67.5	1,205	5,491	0.011	18	1,495
15	62.5	1,227	4,793	0.010	16	1,522
14	57.5	1,249	4,128	0.009	14	1,549
13	54	506	1,474	0.003	5	627
12	51.5	1,313	3,484	0.007	12	1,630
11	48.4167	1,403	3,290	0.007	11	1,741
10	45.9167	471	992	0.002	3	584
9	42.5	1,299	2,346	0.005	8	1,611

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
8	37.5	1,320	1,857	0.004	6	1,638
7	32.5	1,342	1,418	0.003	5	1,665
6	27.5	1,364	1,031	0.002	3	1,692
5	22.5	1,386	701	0.002	2	1,719
4	17.5	1,408	431	0.001	1	1,747
3	12.5	1,430	223	0.000	1	1,774
2	7.5	1,451	82	0.000	0	1,801
1	2.5	1,139	7	0.000	0	1,413
Commscope RDIDC-9181-PF-48	147	22	473	0.001	2	27
Fujitsu TA08025-B604	147	192	4,142	0.009	14	238
Fujitsu TA08025-B605	147	225	4,862	0.010	16	279
JMA Wireless MX08FRO665-21	147	194	4,181	0.009	14	240
Generic Round Platform with Handrails	146	2,500	53,290	0.111	179	3,102
Powerwave Allgon LGP21901	137	33	619	0.001	2	41
Powerwave Allgon 7020.00 Dual Band RET	137	13	248	0.000	1	16
Powerwave Allgon LGP21401	137	99	1,853	0.004	6	122
Raycap DC6-48-60-18-8F (23.5" Height)	137	40	751	0.002	3	50
Raycap DC6-48-60-18-8F ("Squid")	137	32	597	0.001	2	39
Ericsson RRUS 4478 B14 (15")	137	178	3,345	0.007	11	221
Ericsson RRUS 4449 B5, B12	137	213	3,998	0.008	13	264
Raycap DC6-48-60-18-8C	137	16	300	0.001	1	20
Ericsson RRUS 32 B66A	137	152	2,855	0.006	10	189
Ericsson RRUS 32 B2	137	318	5,969	0.012	20	395
Ericsson RRUS E2 B29	137	180	3,378	0.007	11	223
Ericsson RRUS-32 B30 (77 lbs)	137	231	4,336	0.009	15	287
Powerwave Allgon 7750.00	137	81	1,520	0.003	5	101
Quintel QS66512-3 (112 lbs.)	137	224	4,204	0.009	14	278
CCI DMP65R-BU6DA	137	159	2,981	0.006	10	197
CCI TPA-65R-LCUUUU-H8	137	82	1,532	0.003	5	101
Kathrein Scala 80010965	137	195	3,664	0.008	12	242
Kathrein Scala 80010966	137	115	2,151	0.004	7	142
CCI DMP65R-BU8D	137	96	1,796	0.004	6	119
Site Pro1 RMQLP-4120-H10	137	3,250	60,990	0.127	204	4,032
Ericsson KRY 112 144/1	123	33	499	0.001	2	41
Ericsson KRY 112 489/1	123	77	1,165	0.002	4	96
Ericsson Radio 4449 B71 B85A	123	225	3,404	0.007	11	279
Ericsson RRUS 4415 B25	123	138	2,088	0.004	7	171
Ericsson Air6449 B41	123	312	4,720	0.010	16	387
Ericsson AIR32 B66Aa/B2a	123	397	6,000	0.012	20	492
RFS APX16DWV-16DWVS-E-A20	123	122	1,847	0.004	6	151
RFS APXVAARR24_43-U-NA20	123	384	5,805	0.012	19	476
Generic Flat Platform with Handrails	123	2,500	37,822	0.079	127	3,102
RFS APXV18-206517	113	79	1,011	0.002	3	98
RFS IBC1900BB-1	98	66	634	0.001	2	82
RFS IBC1900HG-2A	98	66	634	0.001	2	82
Alcatel-Lucent 800 MHz 2X50W RRH w/ Filter	98	192	1,844	0.004	6	238
Alcatel-Lucent 4x40W RRH (88 lb)	98	264	2,535	0.005	8	328
Nokia 2.5G MAA - AAHC(64T64R)	98	311	2,985	0.006	10	386
RFS APXVSPP18-C-A20	98	171	1,642	0.003	6	212
Generic Round Low Profile Platform	98	1,875	18,008	0.037	60	2,326
Generic Round Low Profile Platform	79	1,875	11,702	0.024	39	2,326
DragonWave Horizon Compact	90	32	258	0.000	1	39
NextNet BTS-2500	90	105	850	0.002	3	130
Argus LLPX310R	90	86	695	0.001	2	106
DragonWave A-ANT-18G-2-C	90	54	439	0.001	1	67
DragonWave A-ANT-11G-2.5-C	90	48	386	0.001	1	59
Side Arms	89	560	4,436	0.009	15	695
Samsung B5/B13 RRH-BR04C	79	211	1,316	0.003	4	262
Samsung B2/B66A RRH-BR049	79	253	1,580	0.003	5	314
Samsung MT6407-77A	79	245	1,528	0.003	5	304
RFS DB-T1-6Z-8AB-0Z	79	88	549	0.001	2	109
Commscope SBNHH-1D65B	79	456	2,848	0.006	10	566
Lucent KS-24019	20	4	2	0.000	0	5
		53,720	481,002	1.000	1,612	66,653

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)
42	147.46	81	1,756	0.004	6	69
41	146.5	91	1,949	0.004	7	78
40	145.5	92	1,937	0.004	6	79
39	142.5	468	9,512	0.020	32	403
38	138.5	290	5,558	0.012	19	249
37	136	270	4,999	0.010	17	232
36	132.5	688	12,085	0.025	40	591
35	127.5	706	11,484	0.024	38	607
34	124	288	4,423	0.009	15	247
33	121.5	478	7,050	0.015	24	410
32	117.5	810	11,189	0.023	37	696
31	114	329	4,279	0.009	14	283
30	111.5	514	6,391	0.013	21	442
29	107.5	871	10,068	0.021	34	749
28	102.5	889	9,344	0.019	31	764
27	99.9167	30	299	0.001	1	26
26	98.9167	596	5,833	0.012	20	512
25	96.5	1,001	9,325	0.019	31	860
24	94.9583	28	253	0.000	1	24
23	92.4583	1,046	8,938	0.019	30	898
22	89.5	219	1,757	0.004	6	188
21	87	886	6,706	0.014	22	761
20	82.5	1,127	7,671	0.016	26	968
19	79.5	228	1,441	0.003	5	196
18	77	931	5,521	0.012	18	800
17	72.5	1,183	6,221	0.013	21	1,017
16	67.5	1,205	5,491	0.011	18	1,036
15	62.5	1,227	4,793	0.010	16	1,054
14	57.5	1,249	4,128	0.009	14	1,073
13	54	506	1,474	0.003	5	434
12	51.5	1,313	3,484	0.007	12	1,129
11	48.4167	1,403	3,290	0.007	11	1,206
10	45.9167	471	992	0.002	3	404
9	42.5	1,299	2,346	0.005	8	1,116
8	37.5	1,320	1,857	0.004	6	1,135
7	32.5	1,342	1,418	0.003	5	1,153
6	27.5	1,364	1,031	0.002	3	1,172
5	22.5	1,386	701	0.002	2	1,191
4	17.5	1,408	431	0.001	1	1,210
3	12.5	1,430	223	0.000	1	1,229
2	7.5	1,451	82	0.000	0	1,247
1	2.5	1,139	7	0.000	0	979
Commscope RDIDC-9181-PF-48	147	22	473	0.001	2	19
Fujitsu TA08025-B604	147	192	4,142	0.009	14	165
Fujitsu TA08025-B605	147	225	4,862	0.010	16	193
JMA Wireless MX08FRO665-21	147	194	4,181	0.009	14	166
Generic Round Platform with Handrails	146	2,500	53,290	0.111	179	2,148
Powerwave Allgon LGP21901	137	33	619	0.001	2	28
Powerwave Allgon 7020.00 Dual Band RET	137	13	248	0.000	1	11
Powerwave Allgon LGP21401	137	99	1,853	0.004	6	85
Raycap DC6-48-60-18-8F (23.5" Height)	137	40	751	0.002	3	34
Raycap DC6-48-60-18-8F ("Squid")	137	32	597	0.001	2	27
Ericsson RRUS 4478 B14 (15")	137	178	3,345	0.007	11	153
Ericsson RRUS 4449 B5, B12	137	213	3,998	0.008	13	183
Raycap DC6-48-60-18-8C	137	16	300	0.001	1	14
Ericsson RRUS 32 B66A	137	152	2,855	0.006	10	131
Ericsson RRUS 32 B2	137	318	5,969	0.012	20	273
Ericsson RRUS E2 B29	137	180	3,378	0.007	11	155
Ericsson RRUS-32 B30 (77 lbs)	137	231	4,336	0.009	15	198
Powerwave Allgon 7750.00	137	81	1,520	0.003	5	70
Quintel QS66512-3 (112 lbs.)	137	224	4,204	0.009	14	192
CCI DMP65R-BU6DA	137	159	2,981	0.006	10	136
CCI TPA-65R-LCUUUU-H8	137	82	1,532	0.003	5	70
Kathrein Scala 80010965	137	195	3,664	0.008	12	168
Kathrein Scala 80010966	137	115	2,151	0.004	7	98
CCI DMP65R-BU8D	137	96	1,796	0.004	6	82
Site Pro1 RMQLP-4120-H10	137	3,250	60,990	0.127	204	2,792
Ericsson KRY 112 144/1	123	33	499	0.001	2	28
Ericsson KRY 112 489/1	123	77	1,165	0.002	4	66

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
Ericsson Radio 4449 B71 B85A	123	225	3,404	0.007	11	193
Ericsson RRUS 4415 B25	123	138	2,088	0.004	7	119
Ericsson Air6449 B41	123	312	4,720	0.010	16	268
Ericsson AIR32 B66Aa/B2a	123	397	6,000	0.012	20	341
RFS APX16DWV-16DWVS-E-A20	123	122	1,847	0.004	6	105
RFS APXVAARR24_43-U-NA20	123	384	5,805	0.012	19	330
Generic Flat Platform with Handrails	123	2,500	37,822	0.079	127	2,148
RFS APXV18-206517	113	79	1,011	0.002	3	68
RFS IBC1900BB-1	98	66	634	0.001	2	57
RFS IBC1900HG-2A	98	66	634	0.001	2	57
Alcatel-Lucent 800 MHz 2X50W RRH w/ Filter	98	192	1,844	0.004	6	165
Alcatel-Lucent 4x40W RRH (88 lb)	98	264	2,535	0.005	8	227
Nokia 2.5G MAA - AAHC(64T64R)	98	311	2,985	0.006	10	267
RFS APXVSPP18-C-A20	98	171	1,642	0.003	6	147
Generic Round Low Profile Platform	98	1,875	18,008	0.037	60	1,611
Generic Round Low Profile Platform	79	1,875	11,702	0.024	39	1,611
DragonWave Horizon Compact	90	32	258	0.000	1	27
NextNet BTS-2500	90	105	850	0.002	3	90
Argus LLPX310R	90	86	695	0.001	2	74
DragonWave A-ANT-18G-2-C	90	54	439	0.001	1	47
DragonWave A-ANT-11G-2.5-C	90	48	386	0.001	1	41
Side Arms	89	560	4,436	0.009	15	481
Samsung B5/B13 RRH-BR04C	79	211	1,316	0.003	4	181
Samsung B2/B66A RRH-BR049	79	253	1,580	0.003	5	218
Samsung MT6407-77A	79	245	1,528	0.003	5	210
RFS DB-T1-6Z-8AB-0Z	79	88	549	0.001	2	76
Commscope SBNHH-1D65B	79	456	2,848	0.006	10	392
Lucent KS-24019	20	4	2	0.000	0	3
		53,720	481,002	1.000	1,612	46,159

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	-65.24	-1.62	0.00	-198.07	0.00	198.07	4,345.88	1,174.02	5,960	5,031.73	0.00	0.00	0.05
5.00	-63.44	-1.63	0.00	-189.99	0.00	189.99	4,297.96	1,151.61	5,734	4,880.64	0.01	-0.01	0.05
10.00	-61.66	-1.64	0.00	-181.85	0.00	181.85	4,248.68	1,129.20	5,513	4,730.16	0.02	-0.02	0.05
15.00	-59.92	-1.65	0.00	-173.66	0.00	173.66	4,198.04	1,106.79	5,297	4,580.38	0.05	-0.03	0.05
20.00	-58.19	-1.65	0.00	-165.43	0.00	165.43	4,146.03	1,084.38	5,085	4,431.40	0.09	-0.04	0.05
25.00	-56.50	-1.66	0.00	-157.16	0.00	157.16	4,092.66	1,061.97	4,877	4,283.31	0.14	-0.05	0.05
30.00	-54.83	-1.66	0.00	-148.86	0.00	148.86	4,037.93	1,039.56	4,673	4,136.20	0.20	-0.06	0.05
35.00	-53.20	-1.67	0.00	-140.54	0.00	140.54	3,981.83	1,017.15	4,474	3,990.15	0.27	-0.08	0.05
40.00	-51.58	-1.67	0.00	-132.21	0.00	132.21	3,924.37	994.74	4,279	3,845.26	0.36	-0.09	0.05
45.00	-51.00	-1.67	0.00	-123.88	0.00	123.88	3,865.54	972.33	4,088	3,701.63	0.45	-0.10	0.05
46.83	-49.26	-1.66	0.00	-120.82	0.00	120.82	3,843.63	964.11	4,019	3,649.30	0.49	-0.10	0.05
50.00	-47.63	-1.65	0.00	-115.56	0.00	115.56	3,805.36	949.92	3,902	3,559.34	0.56	-0.11	0.05
53.00	-47.00	-1.65	0.00	-110.61	0.00	110.61	3,811.38	952.14	3,920	3,573.37	0.63	-0.12	0.04
55.00	-45.45	-1.64	0.00	-107.31	0.00	107.31	3,786.98	943.18	3,847	3,516.79	0.68	-0.12	0.04
60.00	-43.93	-1.63	0.00	-99.12	0.00	99.12	3,725.01	920.77	3,666	3,376.38	0.82	-0.13	0.04
65.00	-42.43	-1.61	0.00	-90.98	0.00	90.98	3,661.69	898.36	3,490	3,237.52	0.96	-0.14	0.04
70.00	-40.96	-1.60	0.00	-82.92	0.00	82.92	3,597.00	875.95	3,318	3,100.31	1.11	-0.15	0.04
75.00	-39.81	-1.58	0.00	-74.94	0.00	74.94	3,530.94	853.54	3,150	2,964.82	1.28	-0.16	0.04
79.00	-35.65	-1.50	0.00	-68.62	0.00	68.62	3,477.12	835.61	3,019	2,857.75	1.42	-0.17	0.03
80.00	-34.25	-1.47	0.00	-67.12	0.00	67.12	3,463.53	831.13	2,987	2,831.17	1.45	-0.17	0.03
85.00	-33.15	-1.45	0.00	-59.75	0.00	59.75	3,394.74	808.72	2,828	2,699.42	1.64	-0.18	0.03
89.00	-32.18	-1.43	0.00	-53.93	0.00	53.93	3,338.74	790.79	2,704	2,595.47	1.79	-0.19	0.03
90.00	-30.48	-1.39	0.00	-52.50	0.00	52.50	3,324.60	786.31	2,674	2,569.69	1.83	-0.19	0.03
94.92	-30.45	-1.39	0.00	-45.66	0.00	45.66	3,235.41	764.27	2,526	2,429.97	2.03	-0.20	0.03
95.00	-29.20	-1.36	0.00	-45.55	0.00	45.55	3,233.83	763.90	2,523	2,427.59	2.04	-0.20	0.03
98.00	-24.81	-1.23	0.00	-41.47	0.00	41.47	3,176.91	750.45	2,435	2,342.45	2.16	-0.20	0.03
99.83	-24.77	-1.23	0.00	-39.22	0.00	39.22	2,561.71	630.50	2,063	1,907.73	2.24	-0.21	0.03
100.00	-23.67	-1.20	0.00	-39.01	0.00	39.01	2,559.95	629.87	2,059	1,904.52	2.25	-0.21	0.03
105.00	-22.59	-1.16	0.00	-33.03	0.00	33.03	2,506.36	611.20	1,938	1,808.89	2.47	-0.22	0.03
110.00	-21.95	-1.14	0.00	-27.22	0.00	27.22	2,451.42	592.52	1,822	1,714.70	2.70	-0.22	0.03

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
113.00	-21.44	-1.12	0.00	-23.80	0.00	23.80	2,417.80	581.32	1,754	1,658.91	2.85	-0.23	0.02
115.00	-20.44	-1.08	0.00	-21.56	0.00	21.56	2,395.11	573.85	1,709	1,622.03	2.94	-0.23	0.02
120.00	-19.85	-1.06	0.00	-16.15	0.00	16.15	2,337.43	555.17	1,599	1,530.98	3.19	-0.24	0.02
123.00	-14.29	-0.81	0.00	-12.98	0.00	12.98	2,302.17	543.97	1,536	1,477.15	3.34	-0.24	0.02
125.00	-13.42	-0.77	0.00	-11.36	0.00	11.36	2,271.18	536.50	1,494	1,437.06	3.44	-0.24	0.01
130.00	-12.56	-0.72	0.00	-7.53	0.00	7.53	2,192.12	517.82	1,391	1,338.27	3.70	-0.25	0.01
135.00	-12.23	-0.71	0.00	-3.91	0.00	3.91	2,113.06	499.15	1,293	1,243.00	3.96	-0.25	0.01
137.00	-4.79	-0.30	0.00	-2.50	0.00	2.50	2,081.44	491.68	1,255	1,205.88	4.06	-0.25	0.00
140.00	-4.21	-0.26	0.00	-1.62	0.00	1.62	2,034.01	480.47	1,198	1,151.25	4.22	-0.25	0.00
145.00	-4.10	-0.25	0.00	-0.31	0.00	0.31	1,954.95	461.80	1,107	1,063.01	4.48	-0.25	0.00
146.00	-0.88	-0.06	0.00	-0.06	0.00	0.06	1,939.14	458.06	1,089	1,045.79	4.53	-0.25	0.00
147.00	0.00	0.00	0.00	0.00	0.00	0.00	1,923.33	454.33	1,071	1,028.70	4.58	-0.25	0.00
147.92	0.00	0.00	0.00	0.00	0.00	0.00	1,908.78	450.89	1,055	1,013.11	4.63	-0.25	0.00

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

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	-45.18	-1.61	0.00	-194.62	0.00	194.62	4,345.88	1,174.02	5,960	5,031.73	0.00	0.00	0.05
5.00	-43.93	-1.62	0.00	-186.55	0.00	186.55	4,297.96	1,151.61	5,734	4,880.64	0.01	-0.01	0.05
10.00	-42.70	-1.63	0.00	-178.44	0.00	178.44	4,248.68	1,129.20	5,513	4,730.16	0.02	-0.02	0.05
15.00	-41.49	-1.63	0.00	-170.30	0.00	170.30	4,198.04	1,106.79	5,297	4,580.38	0.05	-0.03	0.05
20.00	-40.30	-1.64	0.00	-162.13	0.00	162.13	4,146.03	1,084.38	5,085	4,431.40	0.09	-0.04	0.05
25.00	-39.13	-1.64	0.00	-153.94	0.00	153.94	4,092.66	1,061.97	4,877	4,283.31	0.14	-0.05	0.05
30.00	-37.97	-1.64	0.00	-145.73	0.00	145.73	4,037.93	1,039.56	4,673	4,136.20	0.20	-0.06	0.05
35.00	-36.84	-1.64	0.00	-137.51	0.00	137.51	3,981.83	1,017.15	4,474	3,990.15	0.27	-0.07	0.04
40.00	-35.72	-1.64	0.00	-129.30	0.00	129.30	3,924.37	994.74	4,279	3,845.26	0.35	-0.08	0.04
45.00	-35.32	-1.64	0.00	-121.10	0.00	121.10	3,865.54	972.33	4,088	3,701.63	0.45	-0.10	0.04
46.83	-34.11	-1.63	0.00	-118.10	0.00	118.10	3,843.63	964.11	4,019	3,649.30	0.48	-0.10	0.04
50.00	-32.98	-1.62	0.00	-112.93	0.00	112.93	3,805.36	949.92	3,902	3,559.34	0.55	-0.11	0.04
53.00	-32.55	-1.62	0.00	-108.07	0.00	108.07	3,811.38	952.14	3,920	3,573.37	0.62	-0.11	0.04
55.00	-31.48	-1.61	0.00	-104.83	0.00	104.83	3,786.98	943.18	3,847	3,516.79	0.67	-0.12	0.04
60.00	-30.42	-1.59	0.00	-96.80	0.00	96.80	3,725.01	920.77	3,666	3,376.38	0.80	-0.13	0.04
65.00	-29.39	-1.58	0.00	-88.84	0.00	88.84	3,661.69	898.36	3,490	3,237.52	0.94	-0.14	0.04
70.00	-28.37	-1.56	0.00	-80.95	0.00	80.95	3,597.00	875.95	3,318	3,100.31	1.09	-0.15	0.03
75.00	-27.57	-1.54	0.00	-73.15	0.00	73.15	3,530.94	853.54	3,150	2,964.82	1.25	-0.16	0.03
79.00	-24.68	-1.47	0.00	-66.98	0.00	66.98	3,477.12	835.61	3,019	2,857.75	1.39	-0.17	0.03
80.00	-23.72	-1.44	0.00	-65.51	0.00	65.51	3,463.53	831.13	2,987	2,831.17	1.42	-0.17	0.03
85.00	-22.95	-1.42	0.00	-58.31	0.00	58.31	3,394.74	808.72	2,828	2,699.42	1.60	-0.18	0.03
89.00	-22.28	-1.40	0.00	-52.63	0.00	52.63	3,338.74	790.79	2,704	2,595.47	1.76	-0.18	0.03
90.00	-21.11	-1.36	0.00	-51.23	0.00	51.23	3,324.60	786.31	2,674	2,569.69	1.79	-0.19	0.03
94.92	-21.08	-1.36	0.00	-44.56	0.00	44.56	3,235.41	764.27	2,526	2,429.97	1.99	-0.20	0.03
95.00	-20.22	-1.32	0.00	-44.44	0.00	44.44	3,233.83	763.90	2,523	2,427.59	1.99	-0.20	0.03
98.00	-17.18	-1.20	0.00	-40.47	0.00	40.47	3,176.91	750.45	2,435	2,342.45	2.12	-0.20	0.02
99.83	-17.16	-1.20	0.00	-38.27	0.00	38.27	2,561.71	630.50	2,063	1,907.73	2.20	-0.20	0.03
100.00	-16.39	-1.17	0.00	-38.07	0.00	38.07	2,559.95	629.87	2,059	1,904.52	2.20	-0.20	0.03
105.00	-15.64	-1.13	0.00	-32.23	0.00	32.23	2,506.36	611.20	1,938	1,808.89	2.42	-0.21	0.02
110.00	-15.20	-1.11	0.00	-26.56	0.00	26.56	2,451.42	592.52	1,822	1,714.70	2.65	-0.22	0.02
113.00	-14.85	-1.09	0.00	-23.22	0.00	23.22	2,417.80	581.32	1,754	1,658.91	2.79	-0.22	0.02
115.00	-14.15	-1.06	0.00	-21.04	0.00	21.04	2,395.11	573.85	1,709	1,622.03	2.88	-0.23	0.02
120.00	-13.74	-1.03	0.00	-15.76	0.00	15.76	2,337.43	555.17	1,599	1,530.98	3.12	-0.23	0.02
123.00	-9.90	-0.79	0.00	-12.67	0.00	12.67	2,302.17	543.97	1,536	1,477.15	3.27	-0.24	0.01
125.00	-9.29	-0.75	0.00	-11.09	0.00	11.09	2,271.18	536.50	1,494	1,437.06	3.37	-0.24	0.01
130.00	-8.70	-0.71	0.00	-7.35	0.00	7.35	2,192.12	517.82	1,391	1,338.27	3.62	-0.24	0.01
135.00	-8.47	-0.69	0.00	-3.82	0.00	3.82	2,113.06	499.15	1,293	1,243.00	3.87	-0.24	0.01
137.00	-3.32	-0.29	0.00	-2.45	0.00	2.45	2,081.44	491.68	1,255	1,205.88	3.97	-0.24	0.00
140.00	-2.92	-0.26	0.00	-1.58	0.00	1.58	2,034.01	480.47	1,198	1,151.25	4.13	-0.24	0.00
145.00	-2.84	-0.25	0.00	-0.30	0.00	0.30	1,954.95	461.80	1,107	1,063.01	4.38	-0.24	0.00
146.00	-0.61	-0.05	0.00	-0.05	0.00	0.05	1,939.14	458.06	1,089	1,045.79	4.43	-0.24	0.00
147.00	0.00	0.00	0.00	0.00	0.00	0.00	1,923.33	454.33	1,071	1,028.70	4.48	-0.24	0.00
147.92	0.00	0.00	0.00	0.00	0.00	0.00	1,908.78	450.89	1,055	1,013.11	4.53	-0.24	0.00

ANALYSIS SUMMARY

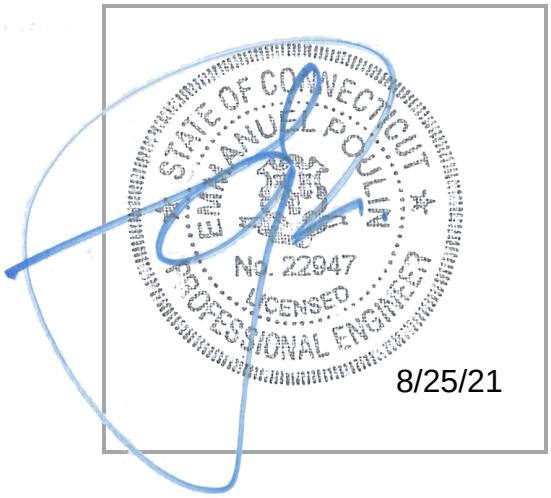
	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W Normal	30.59	0.00	64.42	0.00	0.00	3232.86	0.00	0.66
0.9D + 1.0W Normal	30.56	0.00	48.30	0.00	0.00	3188.95	0.00	0.65
1.2D + 1.0Di + 1.0Wi Normal	8.64	0.00	99.23	0.00	0.00	925.73	0.00	0.21
1.2D + 1.0Ev + 1.0Eh Normal	1.67	0.00	65.24	0.00	0.00	198.07	0.00	0.05
0.9D - 1.0Ev + 1.0Eh Normal	1.64	0.00	45.18	0.00	0.00	194.62	0.00	0.05
1.0D + 1.0W Service Normal	7.07	0.00	53.72	0.00	0.00	741.43	0.00	0.16

MOUNT ANALYSIS REPORT

August 25, 2021

Dish Wireless Site Name	BOBDL00009A
Dish Wireless Site Number	ATC – Meadow St
ATC Site Name	-
ATC Site Number	302468
Infinigy Job Number	1197-F0001-C
Client	ATC
Carrier	Dish Wireless
Site Location	99 Meadow St Hartford, CT 06114 Hartford County 41.743197 N NAD83 72.667500 W NAD83
Mount Type	8.0 ft Platform
Mount Elevation	147.0 ft AGL
Structural Usage Ratio	**47.1**
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 125 mph. The evaluation criteria and applicable codes are presented in the next section of this report.



CONTENTS

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	125 mph (3-Second Gust)
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 2.0" ice
Code / Standard	TIA-222-H
Adopted Code	2018 Connecticut State Building Code (2015 IBC)
Risk Category	II
Exposure Category	C
Topographic Category	1
Calculated Crest Height	0 ft.
Seismic Spectral Response	S_s = 0.181 g / S_1 = 0.064 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 - 147.0 ft. AGL Platform

Antenna Centerline (ft)	Qty.	Appurtenance Manufacturers	Appurtenance Models
147.0	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-302468 Rev 2, Site #BOBDL00009A, dated August 12, 2021
Mount Manufacturer Drawings	Commscope Document # MC-PK8-DSH, dated March 08, 2021

5. RESULTS

Components	Capacity	Pass/Fail
Mount Pipes	25.7%	Pass
Horizontals	15.8%	Pass
Standoffs	38.0%	Pass
Handrails	31.6%	Pass
Connections	47.1%	Pass
MOUNT RATING =	**47.1 %**	**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 147.0 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

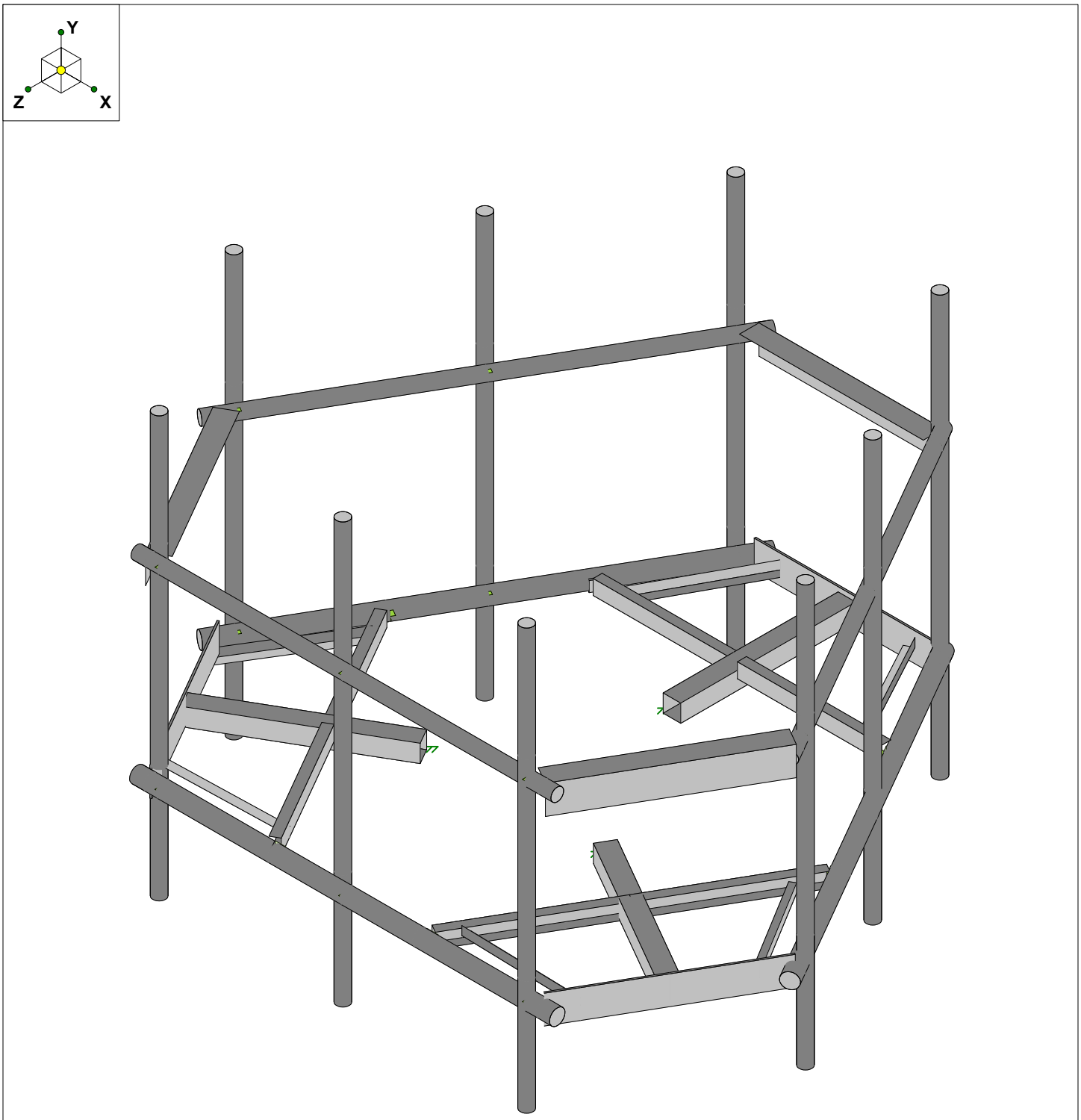
The antenna mounting system was properly fabricated, installed and maintained in accordance with its original design and manufacturer's specifications.
The configuration of antennas, mounts, and other appurtenances are as specified in the proposed loading configuration table.
All member connections are 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.



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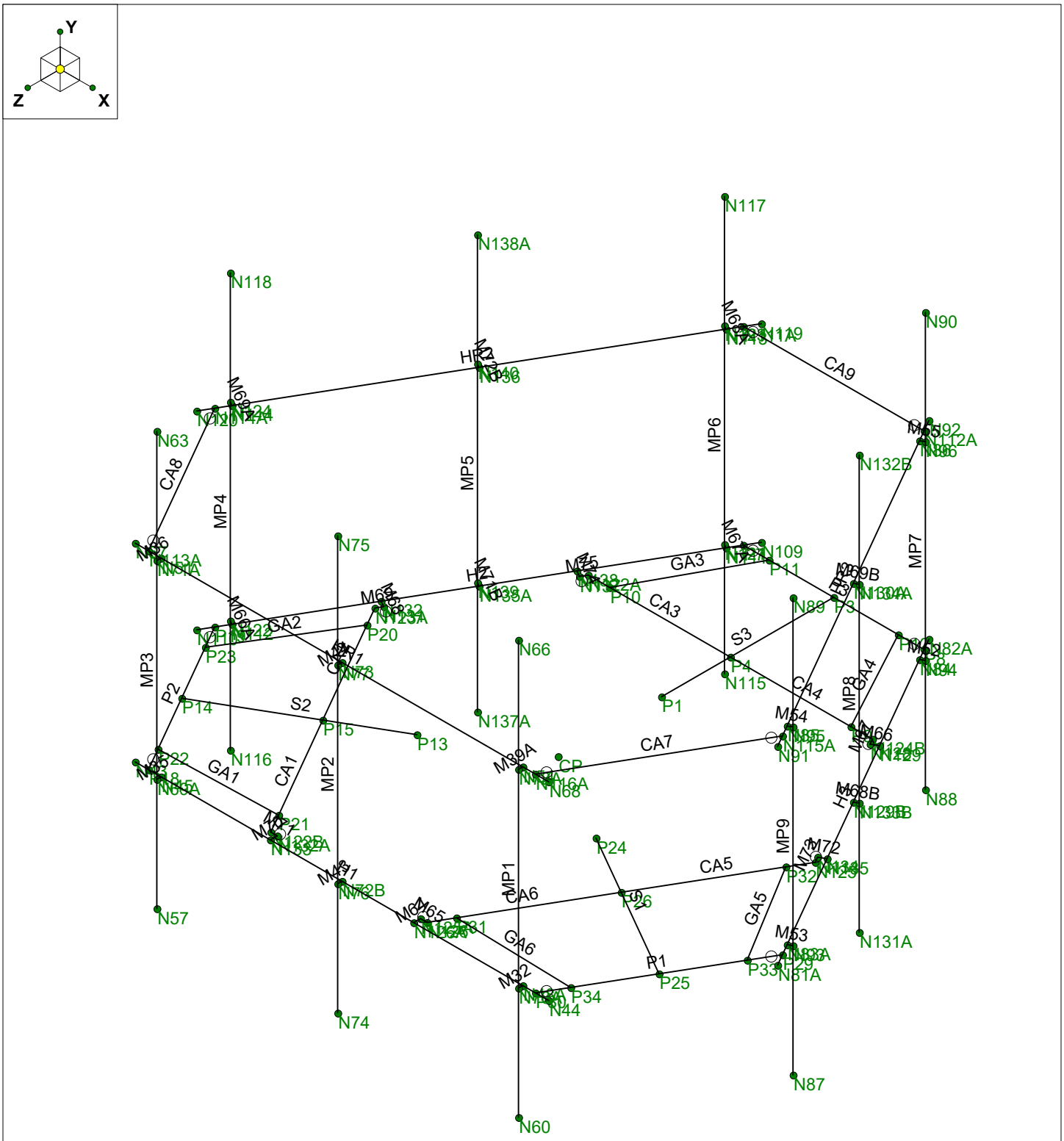

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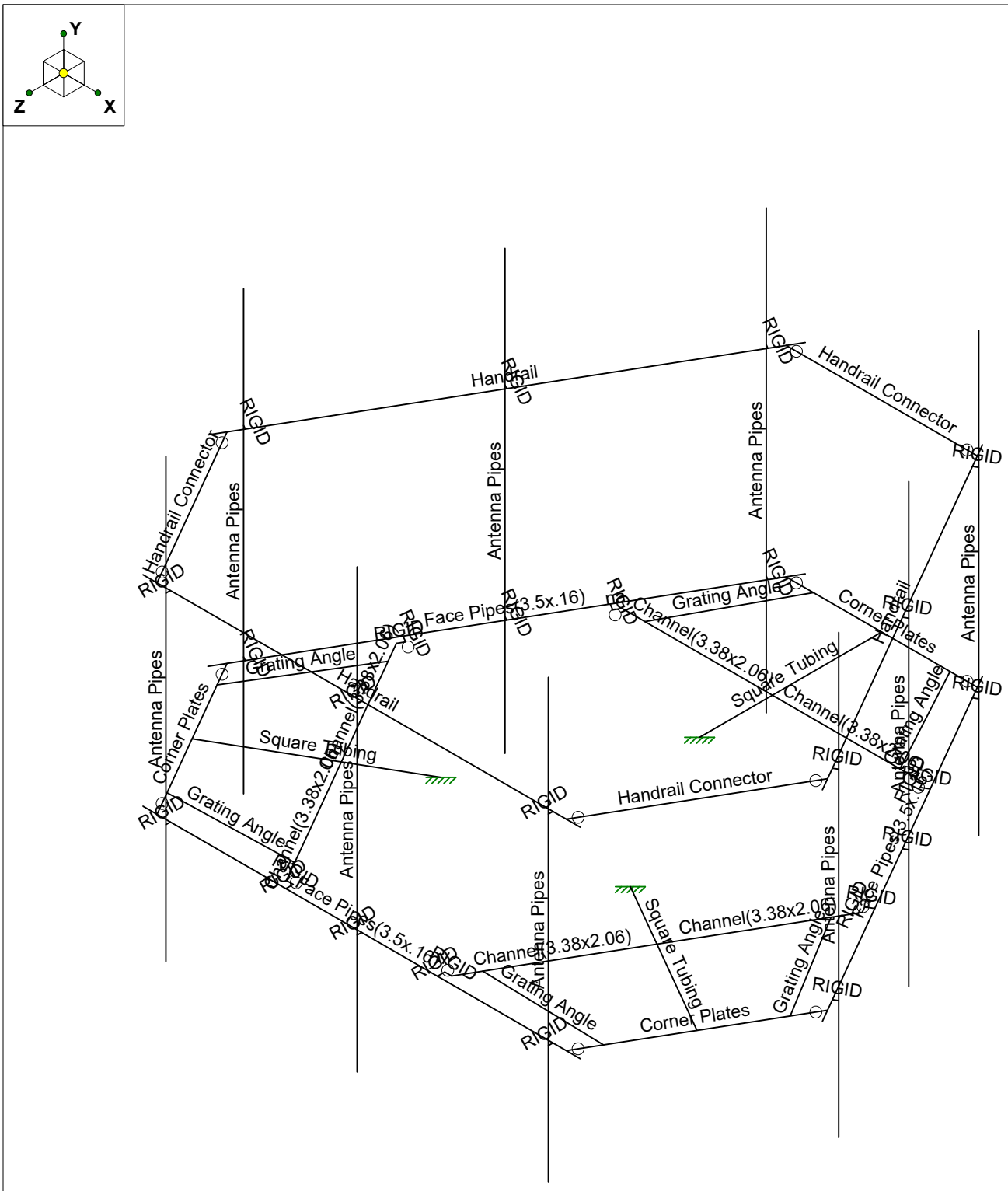

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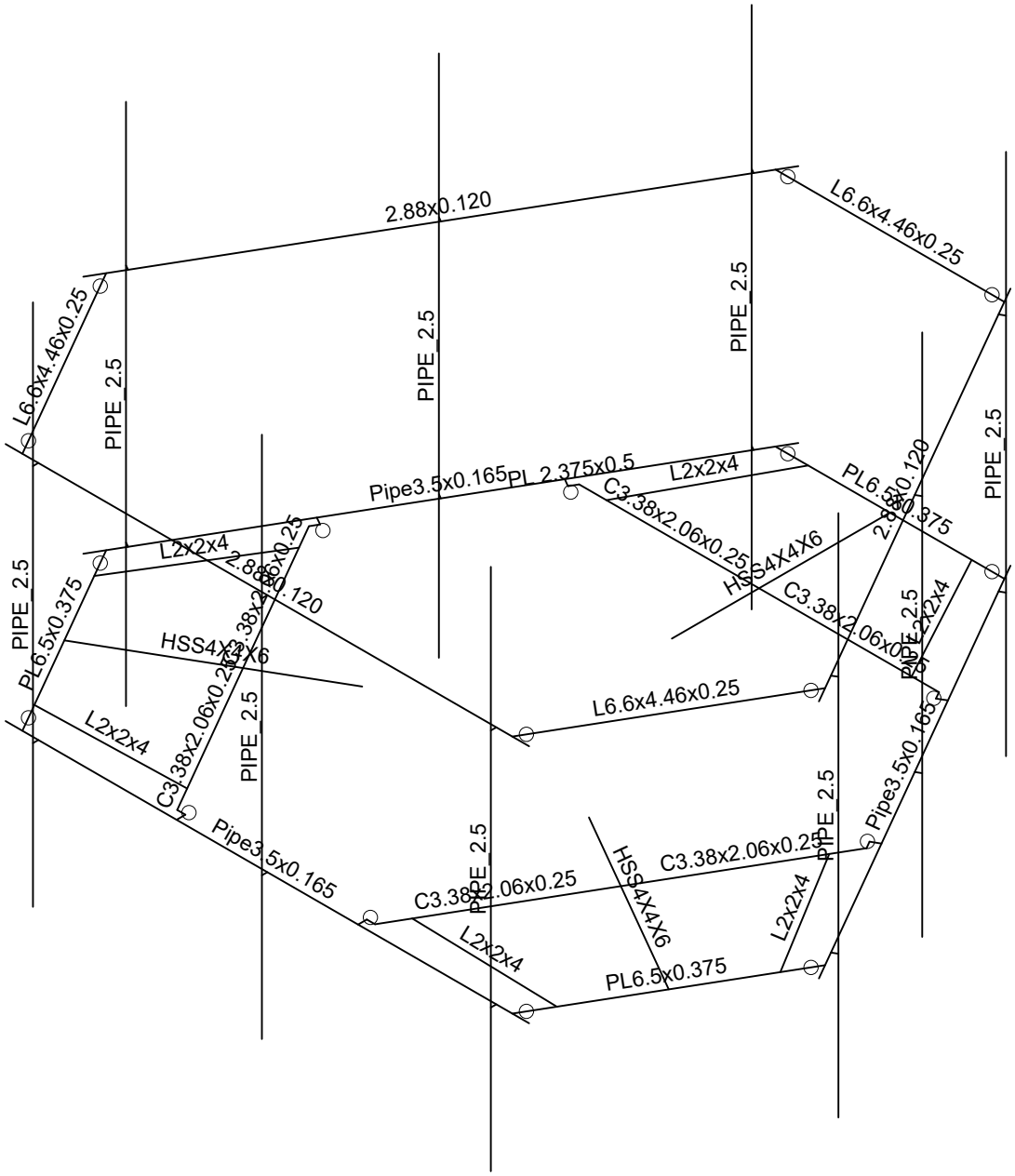

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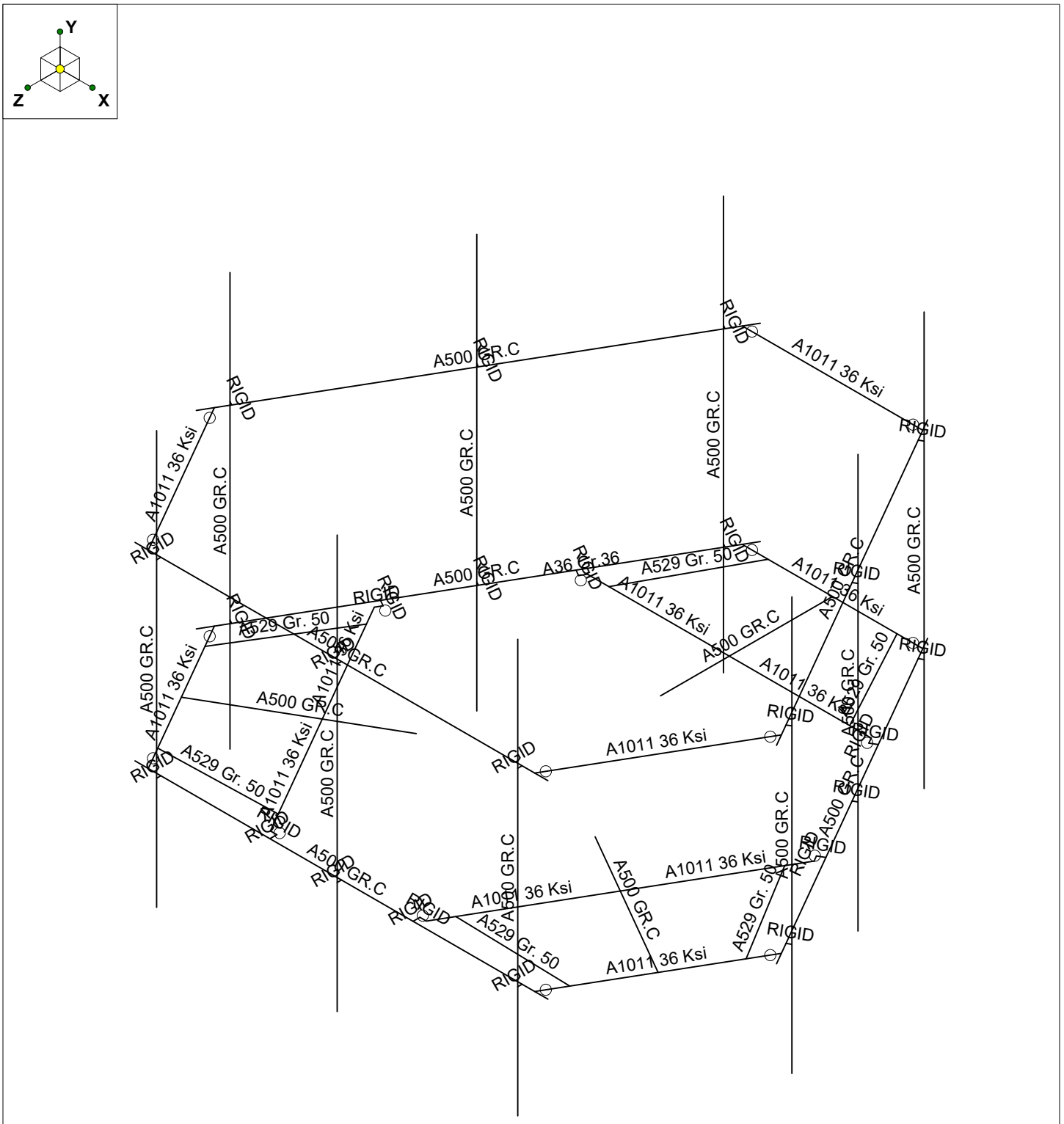

Infinigy Engineering, PLLC	ATC - Meadow St	Material Sets
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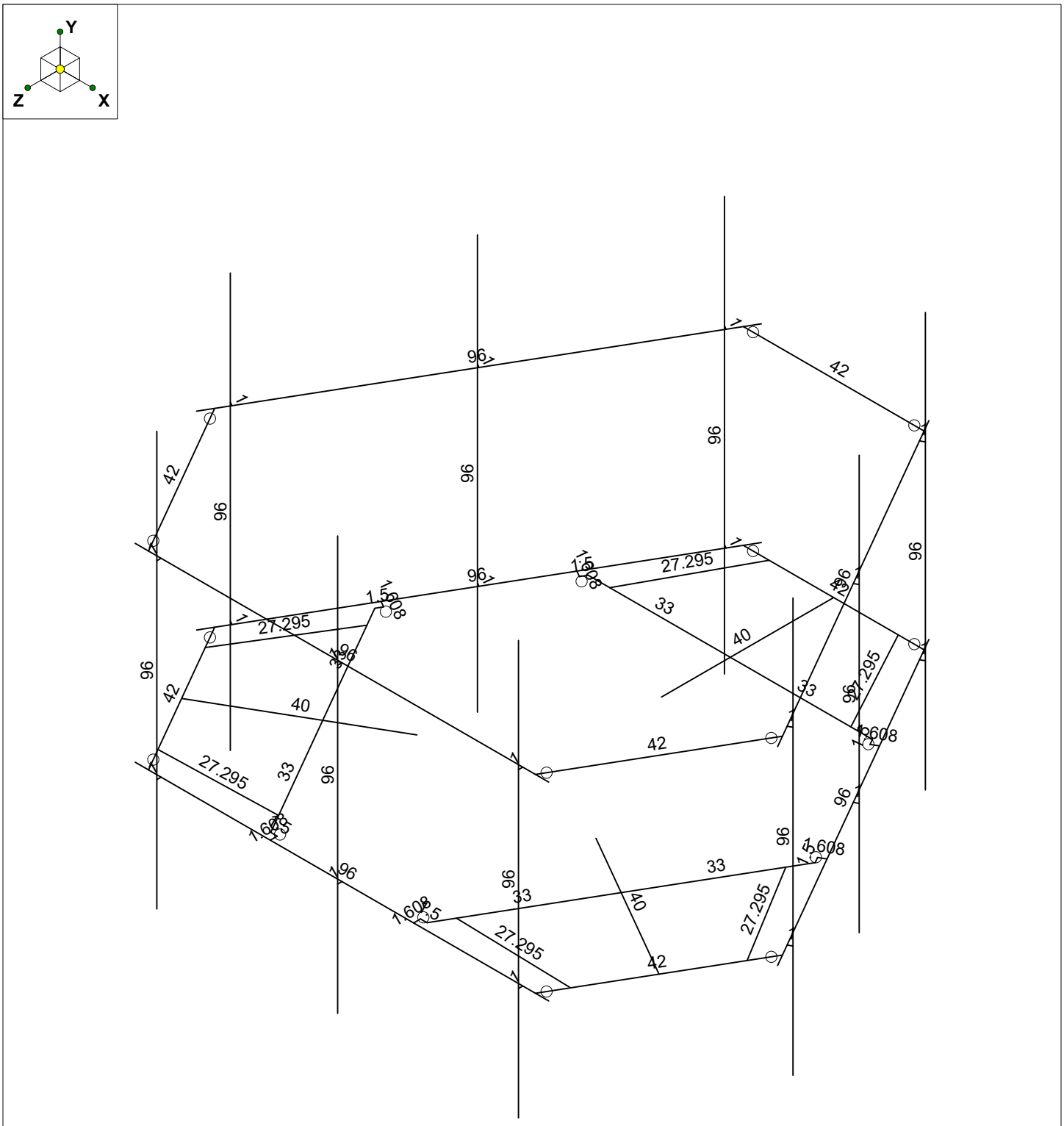

Member Length (in) Displayed

Infinigy Engineering, PLLC	ATC - Meadow St	Member Lengths
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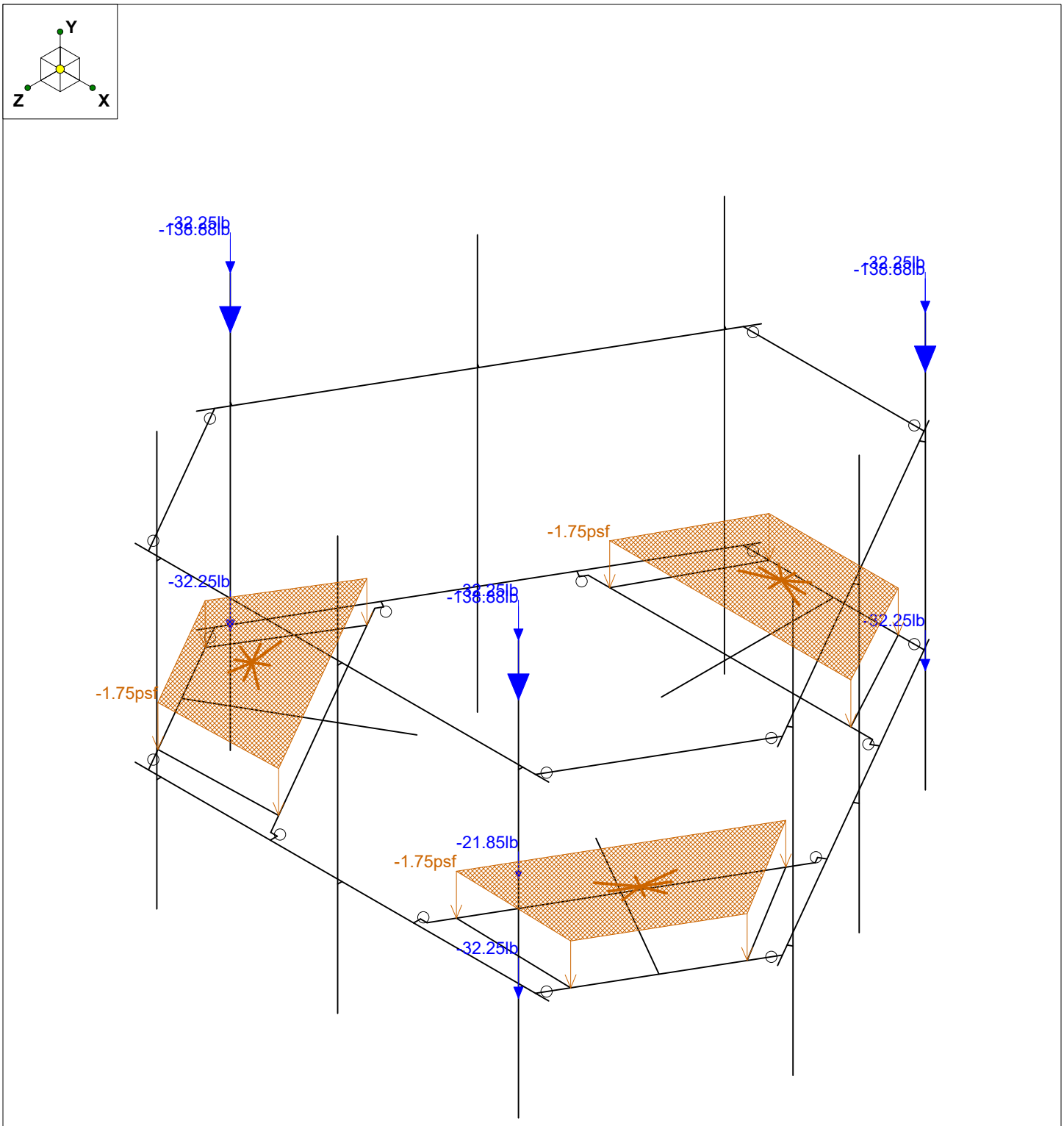

Loads: BLC 1, Self Weight

Infinigy Engineering, PLLC	ATC - Meadow St	Self Weight
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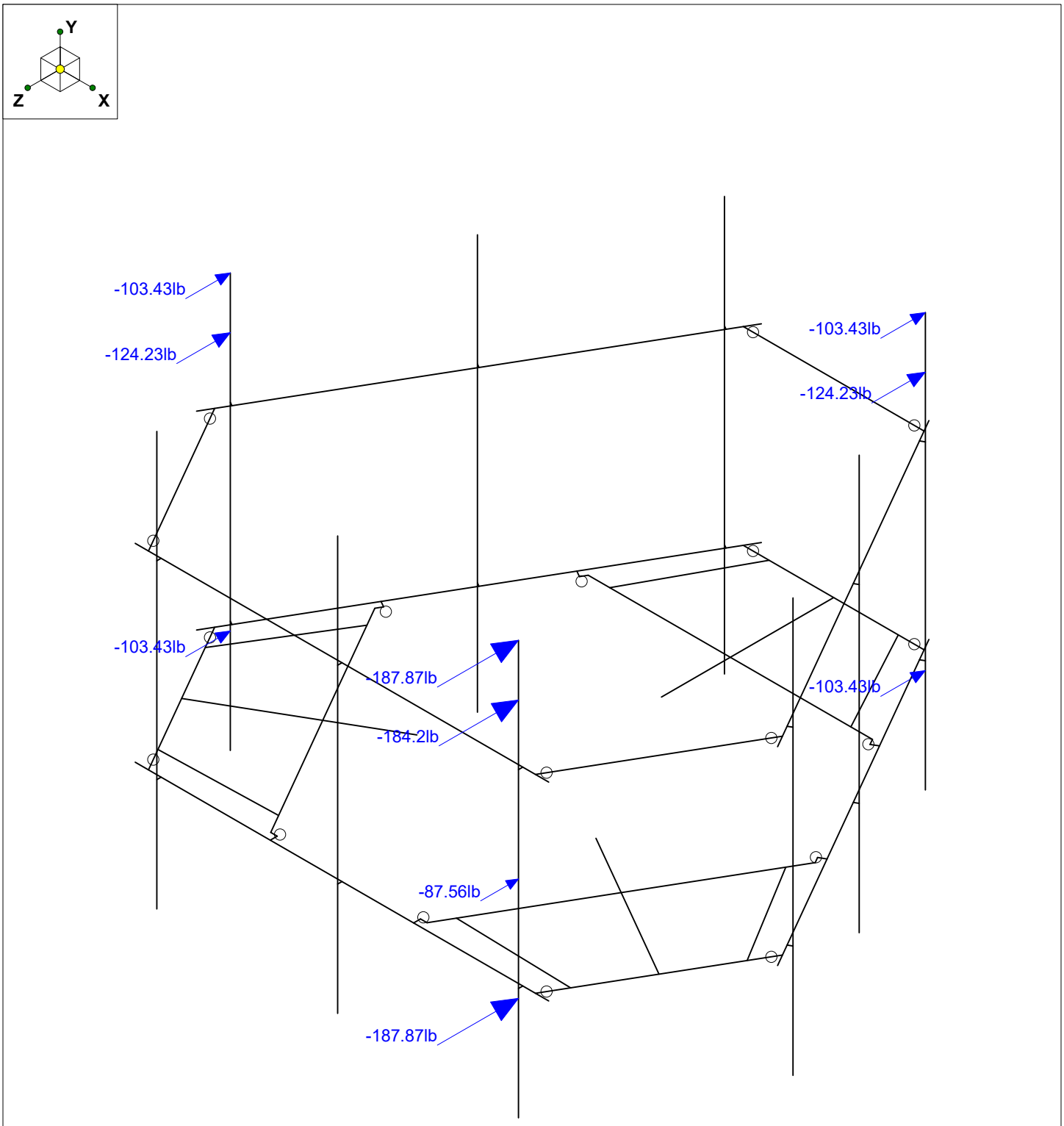

Loads: BLC 2, Wind Load AZI 0

Infinigy Engineering, PLLC	ATC - Meadow St	Wind Load AZI 000
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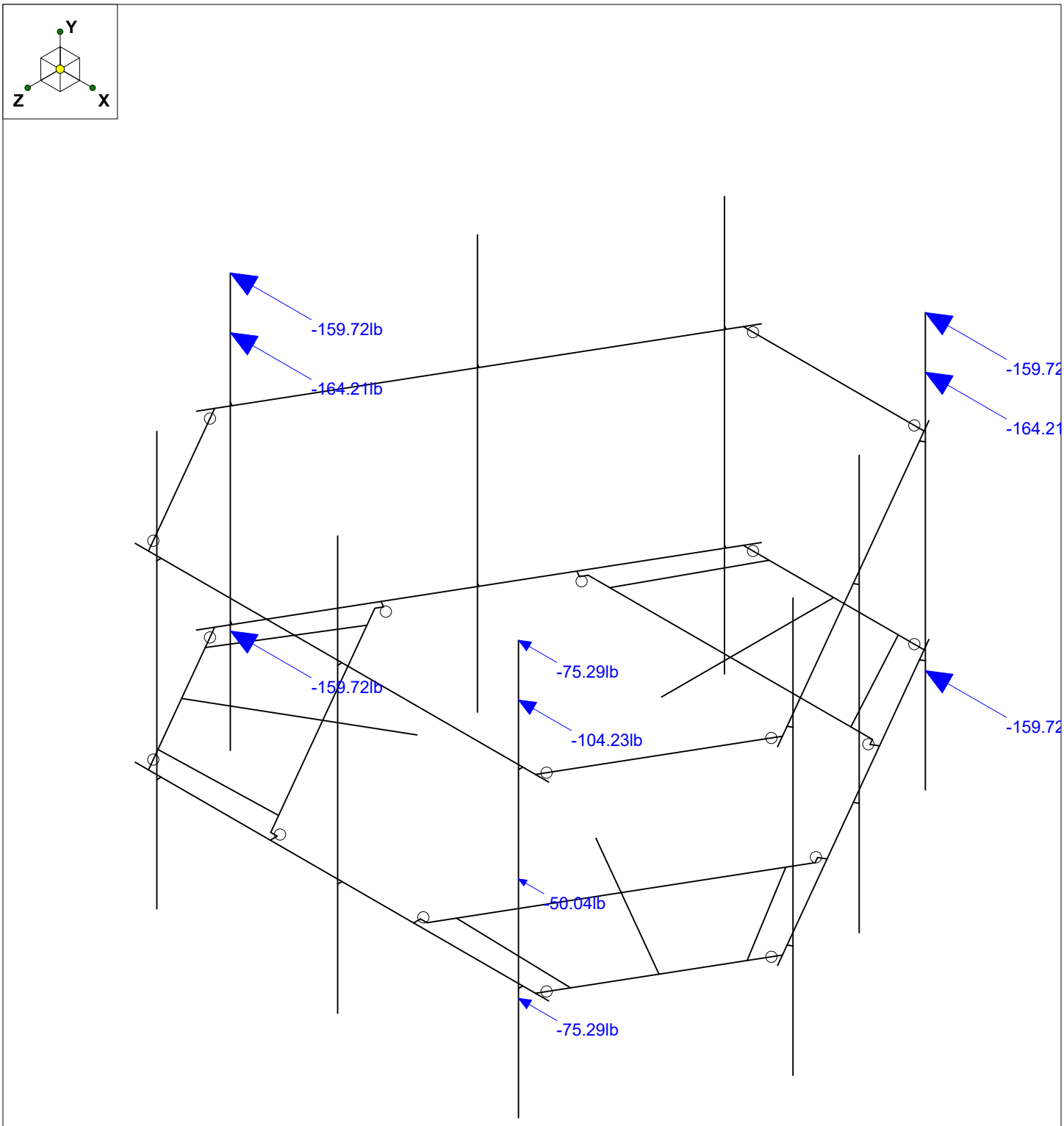

Loads: BLC 5, Wind Load AZI 90

Infinigy Engineering, PLLC	ATC - Meadow St	Wind Load AZI 090
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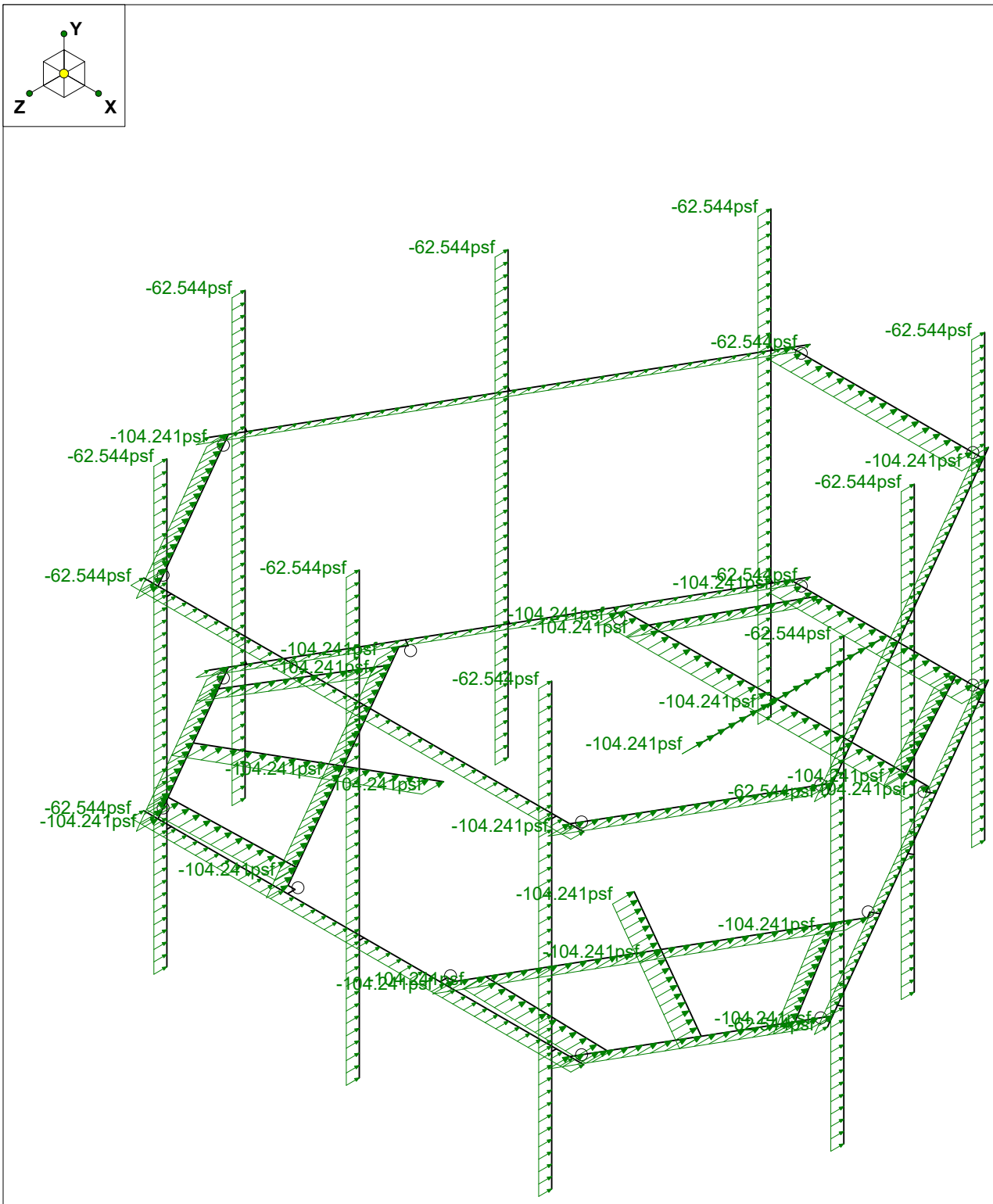

Loads: BLC 14, Distr. Wind Load Z

Infinigy Engineering, PLLC	ATC - Meadow St	Distr Wind Load AZI 000
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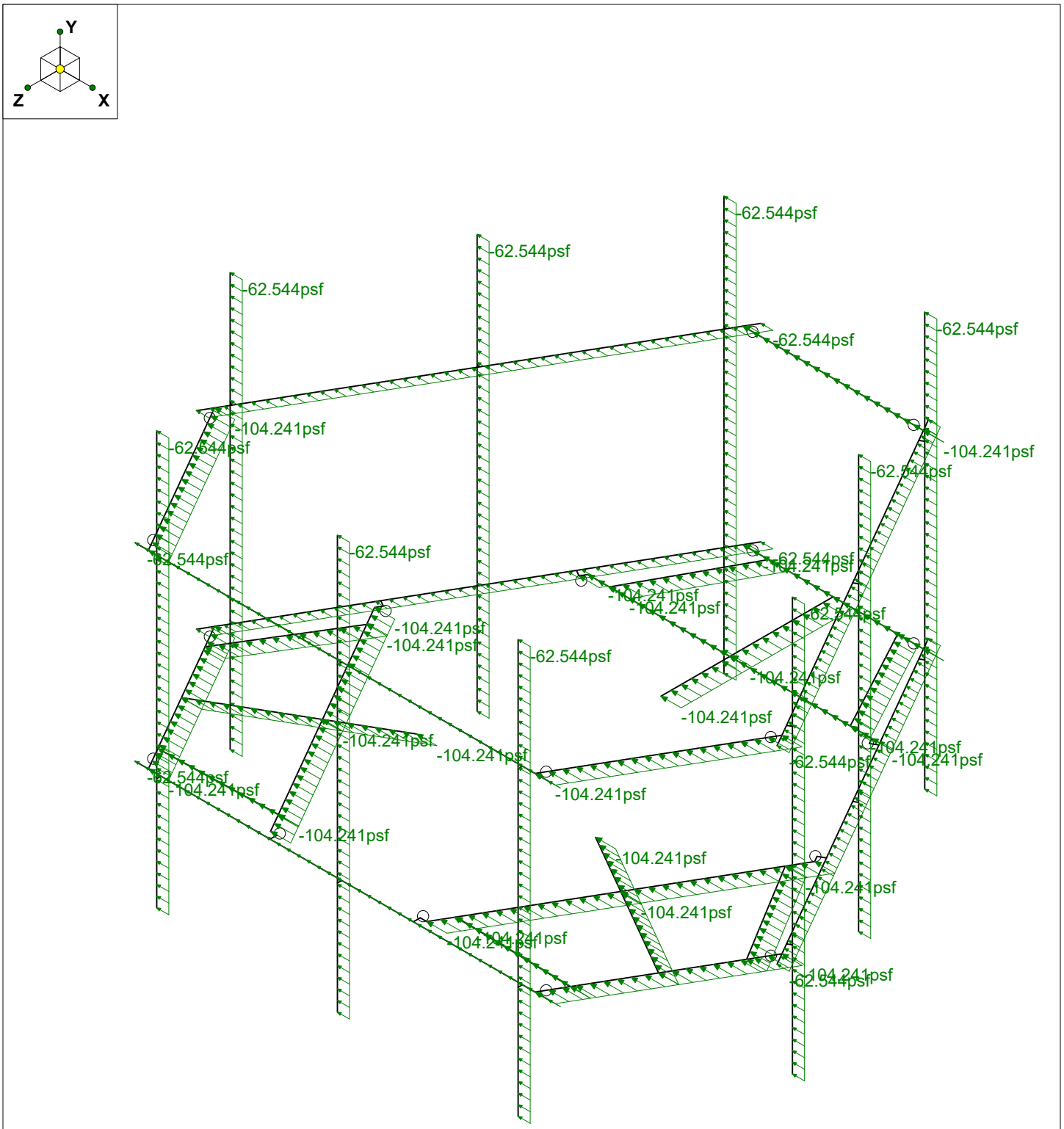

Loads: BLC 15, Distr. Wind Load X

Infinigy Engineering, PLLC	ATC - Meadow St	Distr Wind Load AZI 090
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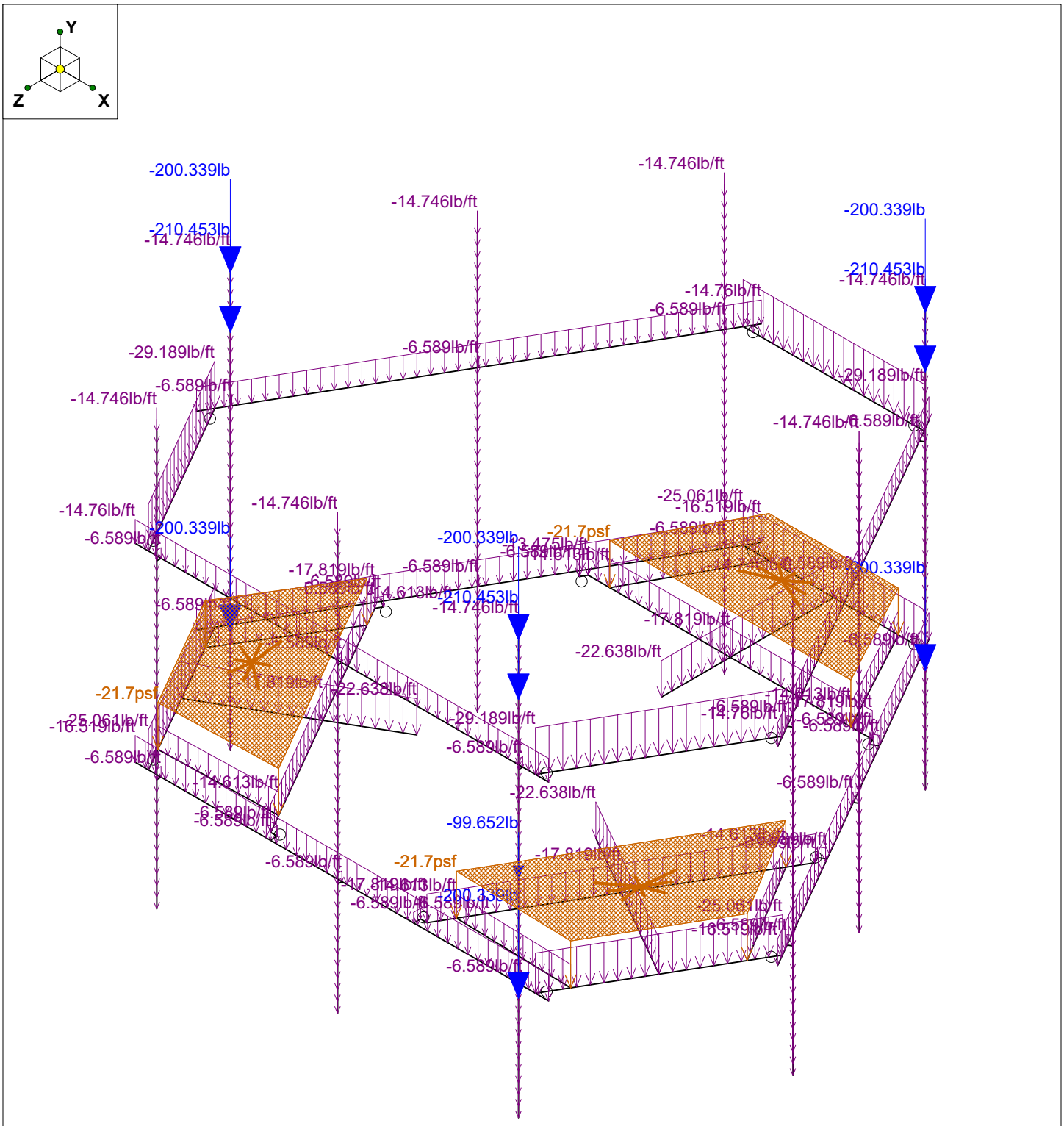

Loads: BLC 16, Ice Weight

Infinigy Engineering, PLLC	ATC - Meadow St	Ice Weight
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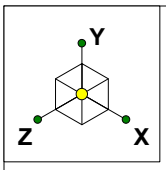

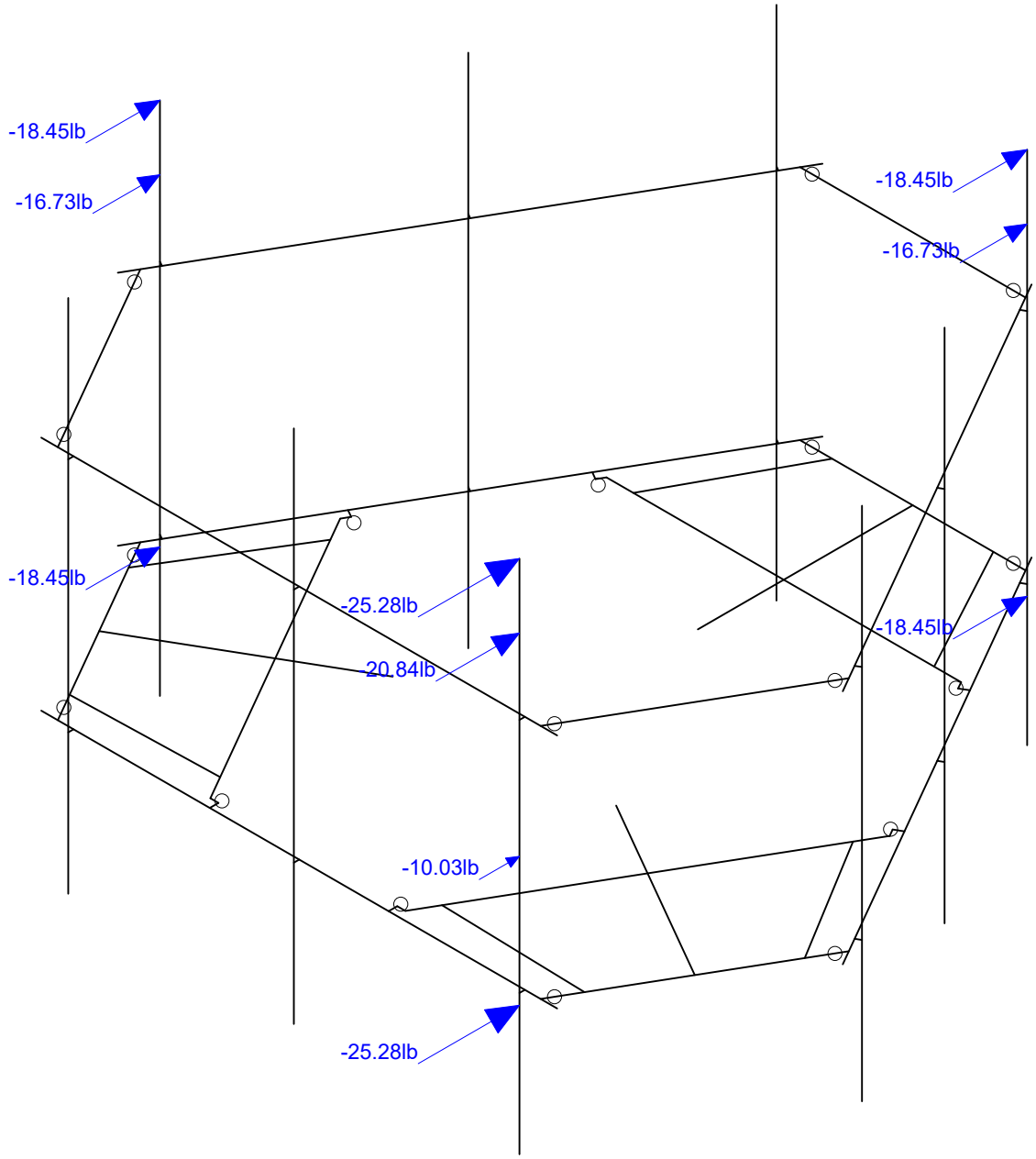

Loads: BLC 17, Ice Wind Load AZI 0

Infinigy Engineering, PLLC	ATC - Meadow St	Ice + Wind Load AZI 000
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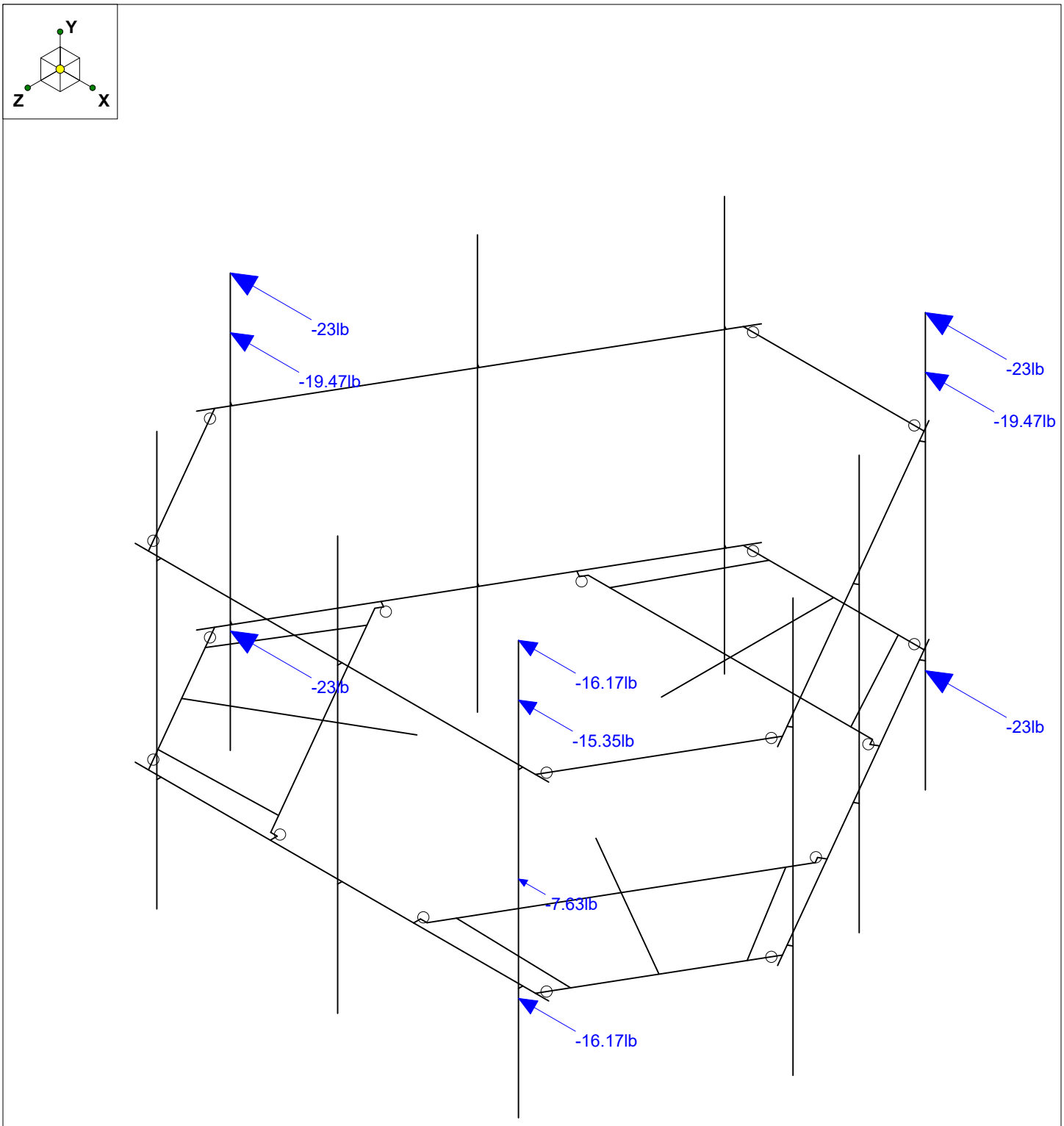

Loads: BLC 20, Ice Wind Load AZI 90

Infinigy Engineering, PLLC	ATC - Meadow St	Ice + Wind Load AZI 090
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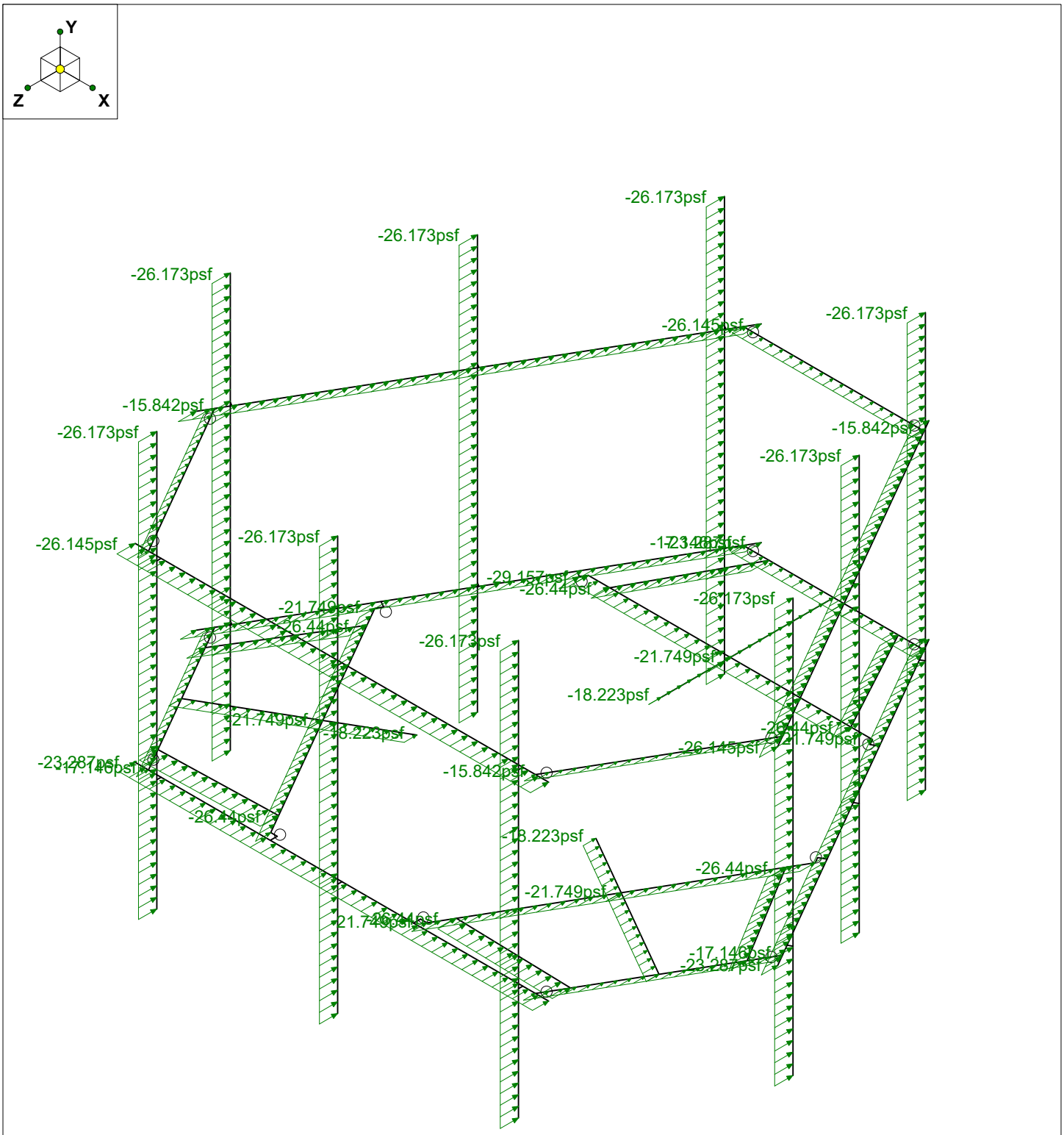

Loads: BLC 29, Distr. Ice Wind Load Z

Infinigy Engineering, PLLC	ATC - Meadow St	Distr Ice + Wind Load AZI 000
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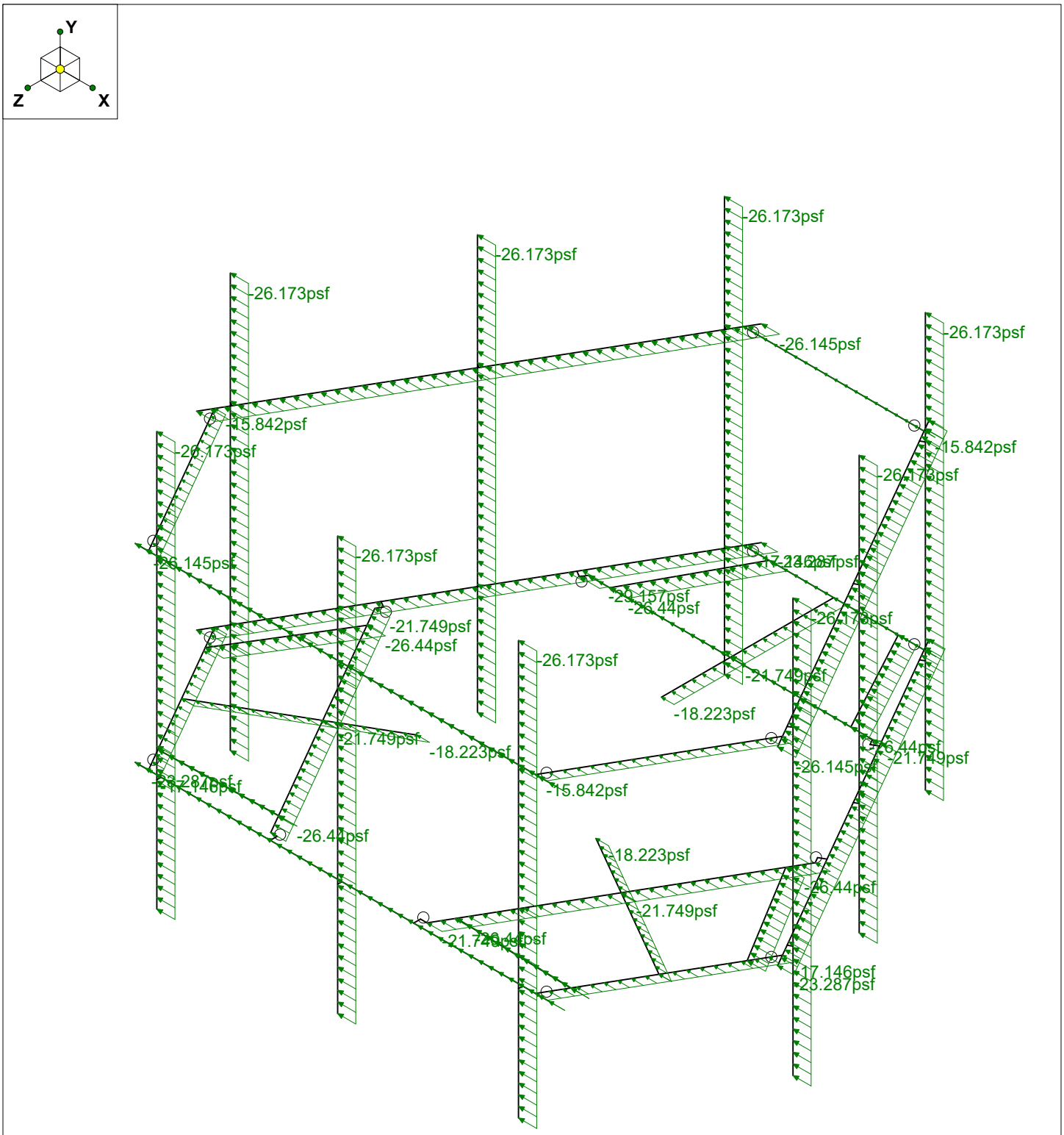

Loads: BLC 30, Distr. Ice Wind Load X

Infinigy Engineering, PLLC	ATC - Meadow St	Distr Ice + Wind Load AZI 090
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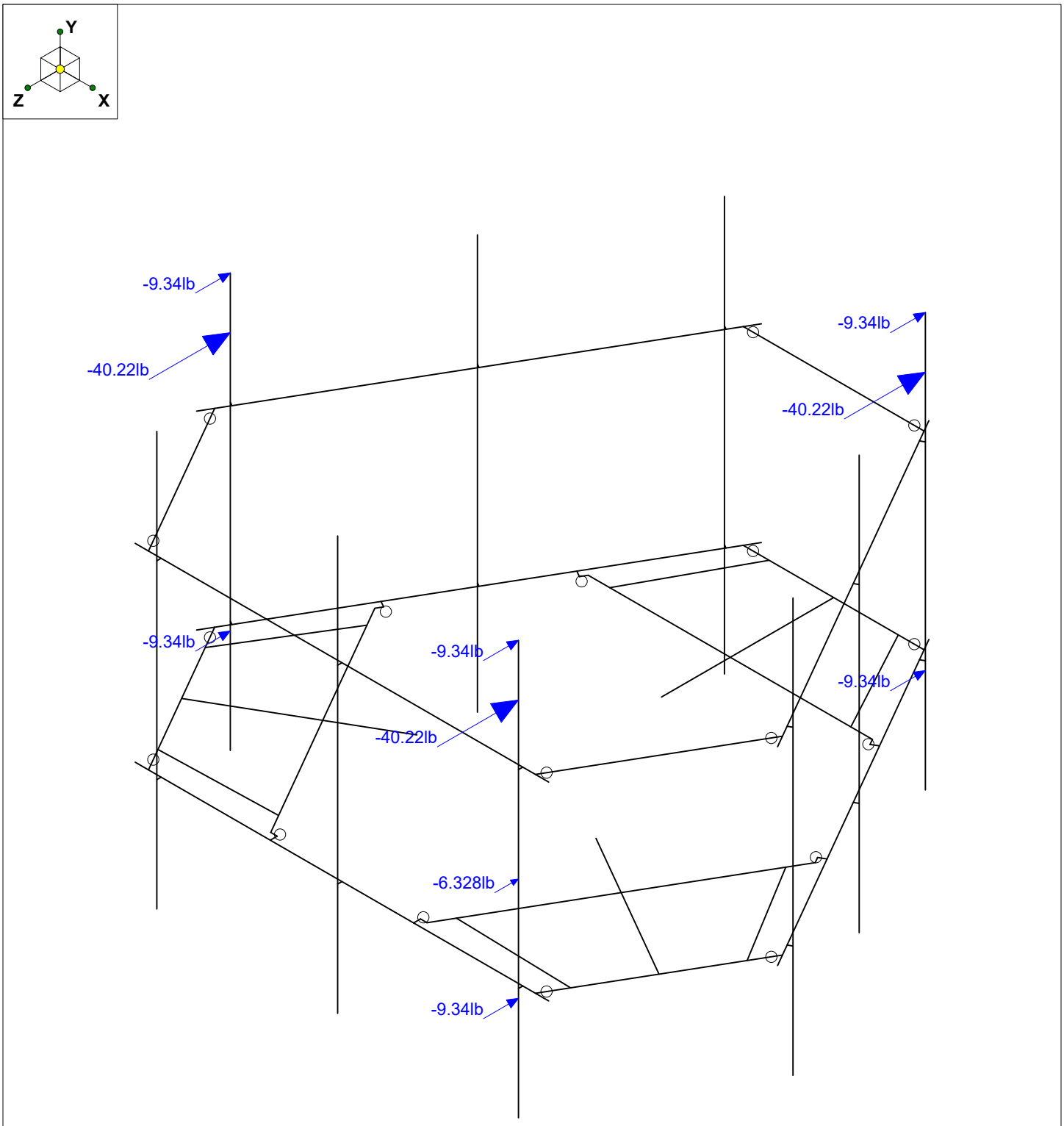

Loads: BLC 31, Seismic Load Z

Infinigy Engineering, PLLC	ATC - Meadow St	Seismic Load AZI 000
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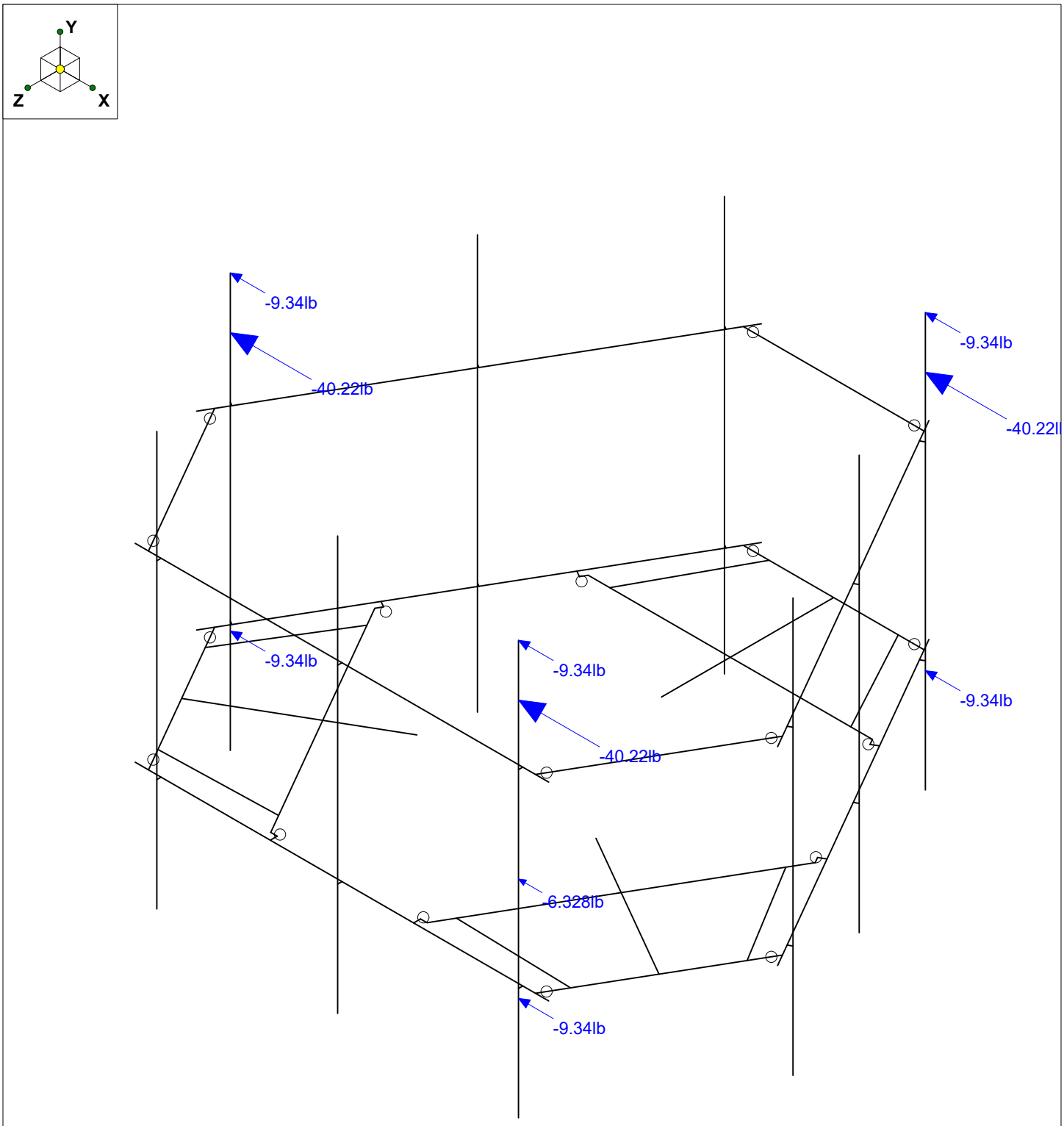

Loads: BLC 32, Seismic Load X

Infinigy Engineering, PLLC	ATC - Meadow St	Seismic Load AZI 090
PSM		Aug 25, 2021 at 1:06 PM
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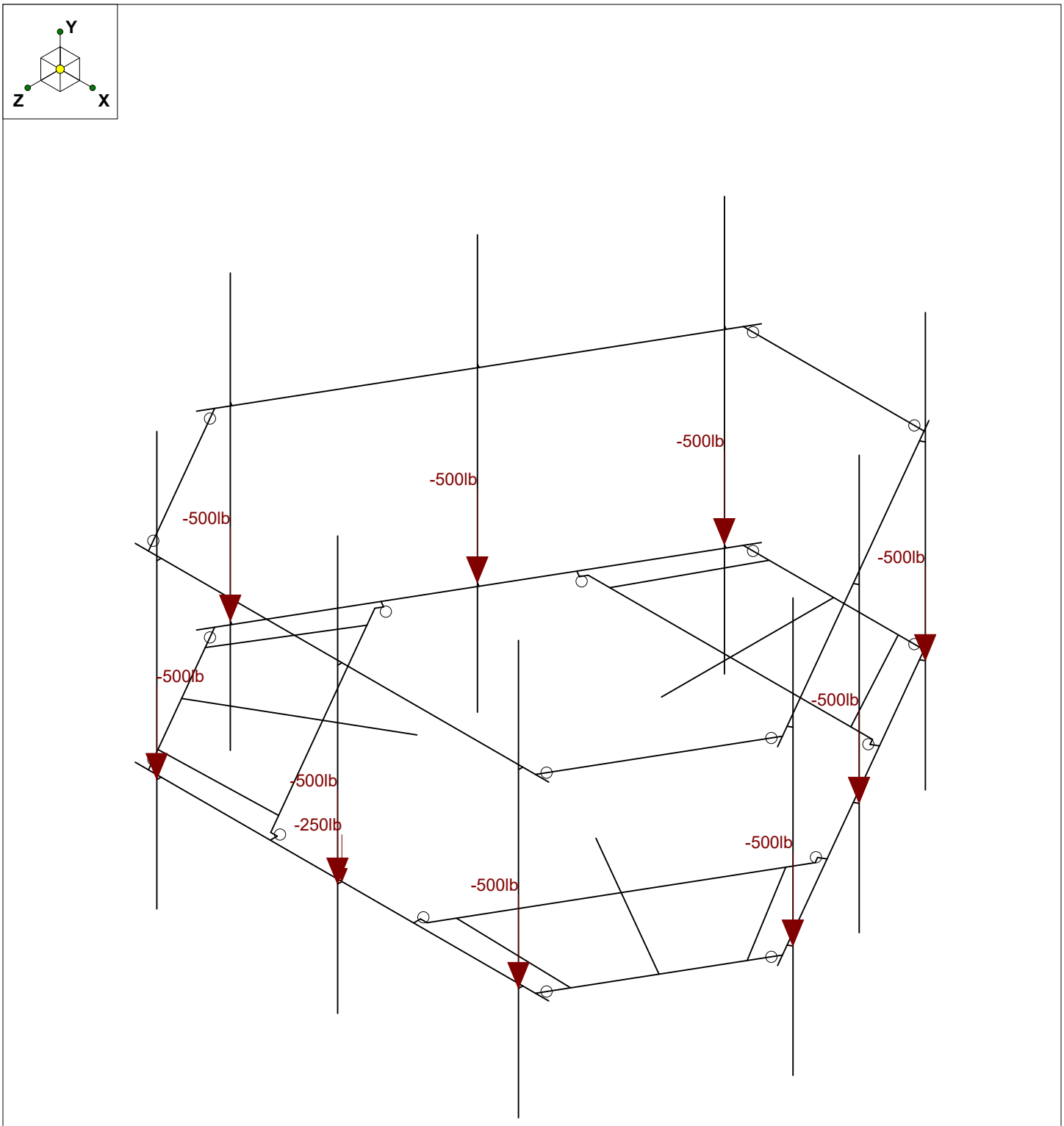

Loads: LL - Live Load

Infinigy Engineering, PLLC	ATC - Meadow St	Non-concurrent Live Loads
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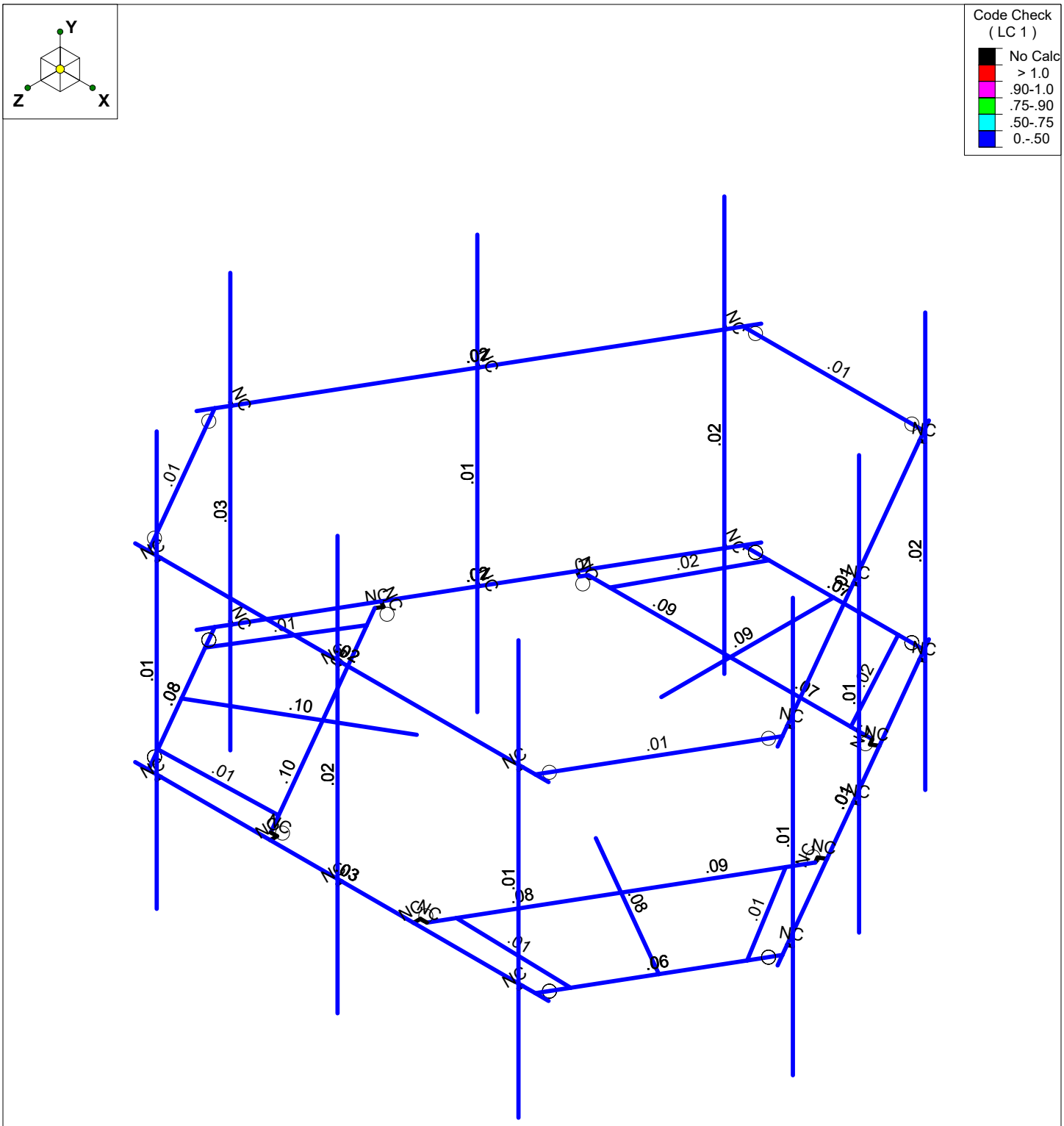

Member Code Checks Displayed
Results for LC 1, 1.4DL

Infinigy Engineering, PLLC	ATC - Meadow St	Bending Check
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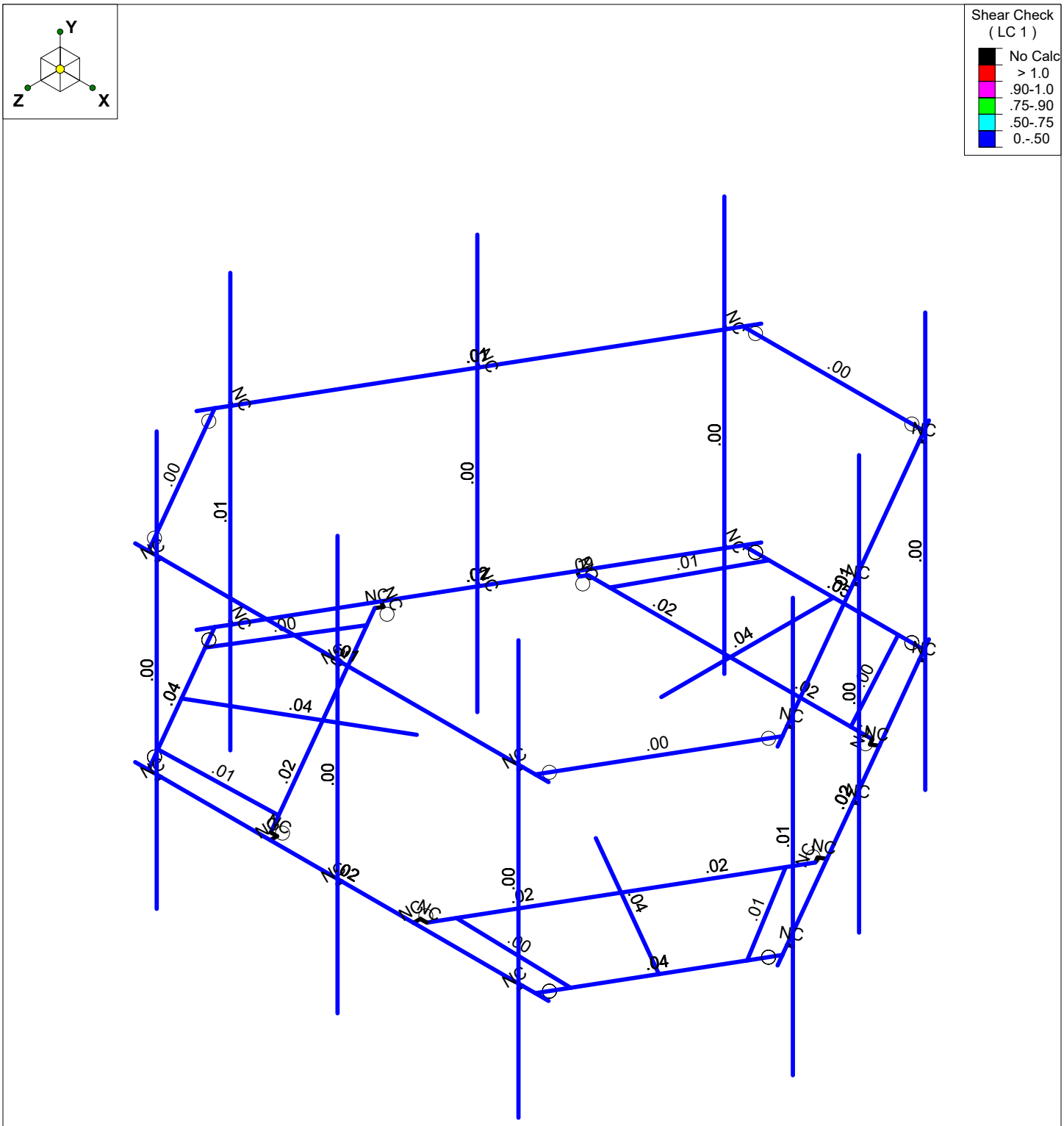


Member Shear Checks Displayed
Results for LC 1, 1.4DL

Infinigy Engineering, PLLC	ATC - Meadow St	Shear Check
PSM		Aug 25, 2021 at 1:06 PM
1197-F0001-C		BOBDL00009A_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 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	19.30	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Platform	
Num Sectors:	3	
Centerline AGL:	147.00	ft
Tower Height AGL:	150.00	ft

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

FACTORS		
Directionality Fact. (K_d):	0.950	
Ground Ele. Factor (K_e):	0.999	*Rev H Only
Rooftop Speed-Up (K_s):	1.000	*Rev H Only
Topographic Factor (K_{zt}):	1.000	
Gust Effect Factor (G_h):	1.000	

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

WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	125	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	2	in
Flat Pressure:	104.241	psf
Round Pressure:	62.544	psf
Ice Wind Pressure:	10.007	psf

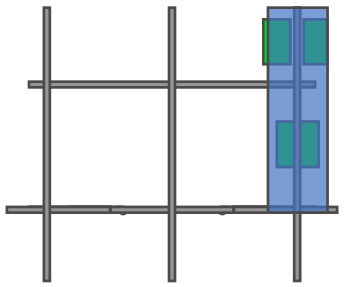
SEISMIC DATA		
Short-Period Accel. (S_s):	0.181	g
1-Second Accel. (S_1):	0.064	g
Short-Period Design (S_{DS}):	0.193	
1-Second Design (S_{D1}):	0.102	
Short-Period Coeff. (F_a):	1.600	
1-Second Coeff. (F_v):	2.400	
Amplification Factor (A_s):	3.000	
Response Mod. Coeff. (R):	2.000	

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

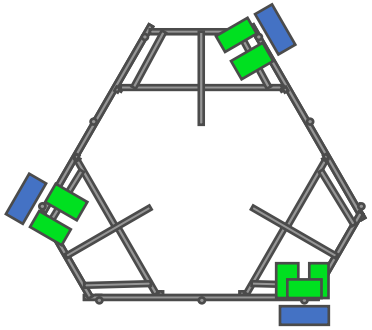
Infinigy Load Calculator V2.1.7

Program Inputs

ELEVATION VIEW



PLAN VIEW



INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Infinigy Load Calculator V2.1.7

APPURTENANCE INFORMATION

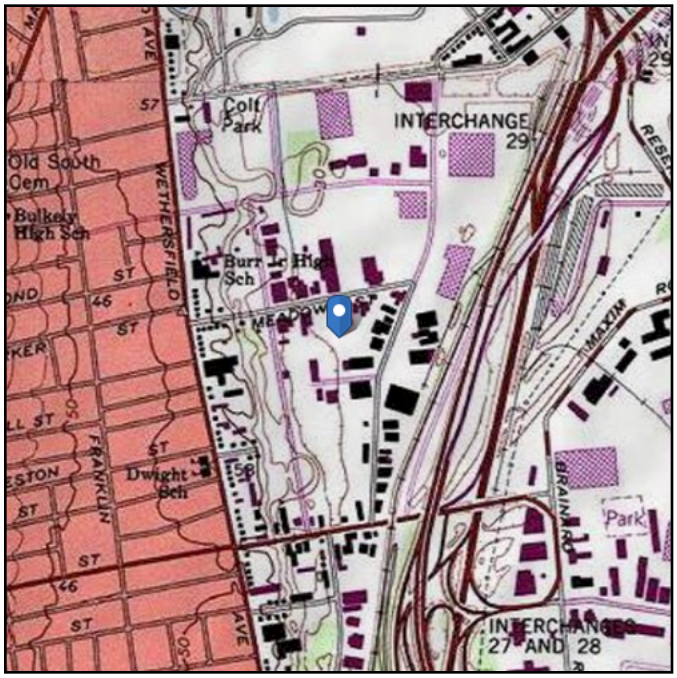
Appurtenance Name	Elevation	Qty.	K_a	q_z (psf)	EPA_N (ft^2)	EPA_T (ft^2)	Wind F_z (lbs)	Wind F_x (lbs)	Weight (lbs)	Seismic F (lbs)	Member (α sector)
JMA WIRELESS MX08FRO665-21	147.0	3	0.90	52.12	8.01	3.21	375.74	150.58	64.50	18.68	MP1
FUJITSU TA08025-B605	147.0	3	0.90	52.12	1.96	1.19	92.10	55.78	74.95	21.71	MP1
FUJITSU TA08025-B604	147.0	3	0.90	52.12	1.96	1.03	92.10	48.45	63.93	18.51	MP1
RAYCAP RDIDC-9181-PF-48	147.0	1	0.90	52.12	1.87	1.07	87.56	50.04	21.85	6.33	MP1

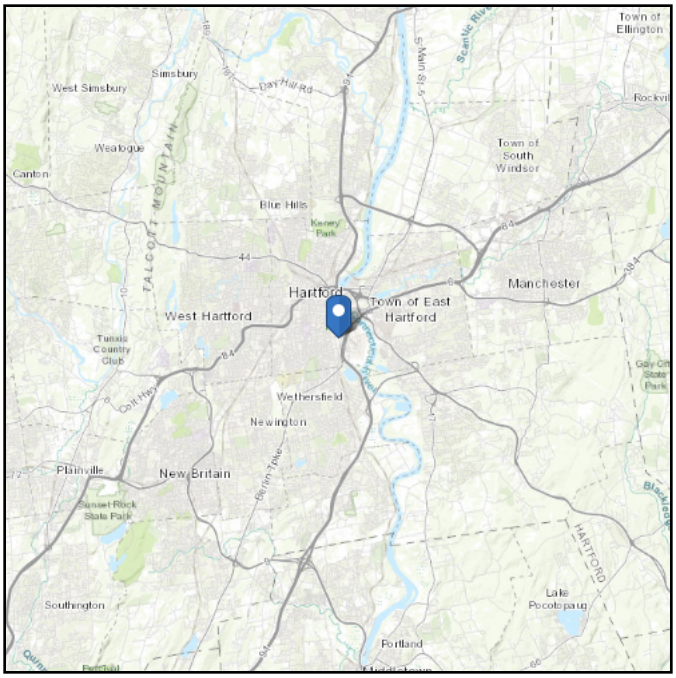
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 19.3 ft (NAVD 88)
Latitude: 41.743197
Longitude: -72.6675





Wind

Results:

Wind Speed:	125 mph per Hartford City Requirements in WSEL
10-year MRI	77 Vmph
25-year MRI	86 Vmph
50-year MRI	93 Vmph
100-year MRI	100 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

Date Accessed: Wed Aug 25 2021

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

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

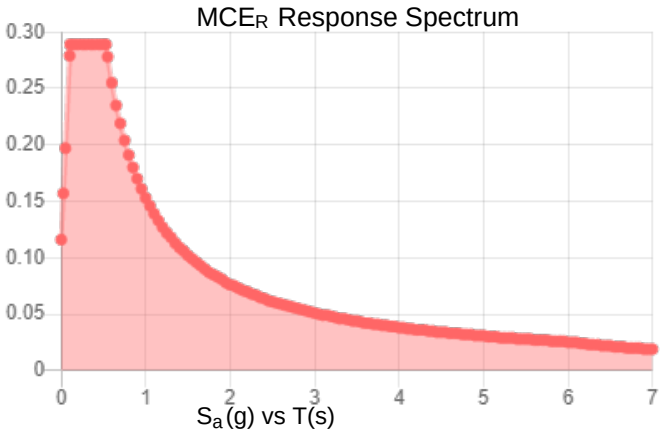
Seismic

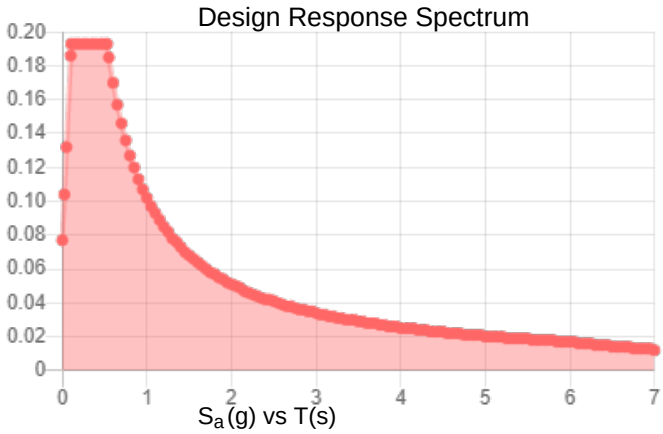
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.181	S_{DS} :	0.193
S_1 :	0.064	S_{D1} :	0.102
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.091
S_{MS} :	0.289	PGA_M :	0.146
S_{M1} :	0.153	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Wed Aug 25 2021

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Wed Aug 25 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.

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

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

Material Takeoff (Continued)

	Material	Size	Pieces	Length[in]	Weight[LB]
14	A529 Gr. 50	L2x2x4	6	163.8	43.838
15	Total HR Steel		37	2175.3	1109.525

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	6	
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			-.29		13			
32	Seismic Load X	ELX	-.29				13			
33	Service Live Loa...	LL				1				
34	Maintenance Loa...	LL				1				
35	Maintenance Loa...	LL				1				
36	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)
37	Maintenance Loa...	LL				1				
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...	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												

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...
31	1.2D + 1.0Di +1.0Wi AZI 120	Y...	Y		1	1.2	16	1	21	1	29	-.5	30	.866												
32	1.2D + 1.0Di +1.0Wi AZI 150	Y...	Y		1	1.2	16	1	22	1	29	-.8...	30	.5												
33	1.2D + 1.0Di +1.0Wi AZI 180	Y...	Y		1	1.2	16	1	23	1	29	-1	30													
34	1.2D + 1.0Di +1.0Wi AZI 210	Y...	Y		1	1.2	16	1	24	1	29	-.8...	30	-.5												
35	1.2D + 1.0Di +1.0Wi AZI 240	Y...	Y		1	1.2	16	1	25	1	29	-.5	30	-.8...												
36	1.2D + 1.0Di +1.0Wi AZI 270	Y...	Y		1	1.2	16	1	26	1	29		30	-1												
37	1.2D + 1.0Di +1.0Wi AZI 300	Y...	Y		1	1.2	16	1	27	1	29	.5	30	-.8...												
38	1.2D + 1.0Di +1.0Wi AZI 330	Y...	Y		1	1.2	16	1	28	1	29	.866	30	-.5												
39	(1.2 + 0.2Sds)DL + 1.0E AZI 0	Y...	Y		1	1.2...	31	1	32																	
40	(1.2 + 0.2Sds)DL + 1.0E AZI 30	Y...	Y		1	1.2...	31	.866	32	.5																
41	(1.2 + 0.2Sds)DL + 1.0E AZI 60	Y...	Y		1	1.2...	31	.5	32	.866																
42	(1.2 + 0.2Sds)DL + 1.0E AZI 90	Y...	Y		1	1.2...	31		32	1																
43	(1.2 + 0.2Sds)DL + 1.0E AZI 1...	Y...	Y		1	1.2...	31	-.5	32	.866																
44	(1.2 + 0.2Sds)DL + 1.0E AZI 1...	Y...	Y		1	1.2...	31	-.8...	32	.5																
45	(1.2 + 0.2Sds)DL + 1.0E AZI 1...	Y...	Y		1	1.2...	31	-1	32																	
46	(1.2 + 0.2Sds)DL + 1.0E AZI 2...	Y...	Y		1	1.2...	31	-.8...	32	-.5																
47	(1.2 + 0.2Sds)DL + 1.0E AZI 2...	Y...	Y		1	1.2...	31	-.5	32	-.8...																
48	(1.2 + 0.2Sds)DL + 1.0E AZI 2...	Y...	Y		1	1.2...	31		32	-1																
49	(1.2 + 0.2Sds)DL + 1.0E AZI 3...	Y...	Y		1	1.2...	31	.5	32	-.8...																
50	(1.2 + 0.2Sds)DL + 1.0E AZI 3...	Y...	Y		1	1.2...	31	.866	32	-.5																
51	(0.9 - 0.2Sds)DL + 1.0E AZI 0	Y...	Y		1	.861	31	1	32																	
52	(0.9 - 0.2Sds)DL + 1.0E AZI 30	Y...	Y		1	.861	31	.866	32	.5																
53	(0.9 - 0.2Sds)DL + 1.0E AZI 60	Y...	Y		1	.861	31	.5	32	.866																
54	(0.9 - 0.2Sds)DL + 1.0E AZI 90	Y...	Y		1	.861	31		32	1																
55	(0.9 - 0.2Sds)DL + 1.0E AZI 1...	Y...	Y		1	.861	31	-.5	32	.866																
56	(0.9 - 0.2Sds)DL + 1.0E AZI 1...	Y...	Y		1	.861	31	-.8...	32	.5																
57	(0.9 - 0.2Sds)DL + 1.0E AZI 1...	Y...	Y		1	.861	31	-1	32																	
58	(0.9 - 0.2Sds)DL + 1.0E AZI 2...	Y...	Y		1	.861	31	-.8...	32	-.5																
59	(0.9 - 0.2Sds)DL + 1.0E AZI 2...	Y...	Y		1	.861	31	-.5	32	-.8...																
60	(0.9 - 0.2Sds)DL + 1.0E AZI 2...	Y...	Y		1	.861	31		32	-1																
61	(0.9 - 0.2Sds)DL + 1.0E AZI 3...	Y...	Y		1	.861	31	.5	32	-.8...																
62	(0.9 - 0.2Sds)DL + 1.0E AZI 3...	Y...	Y		1	.861	31	.866	32	-.5																
63	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	2	.23	14	.23	15		33	1.5												
64	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	3	.23	14	.2	15	.115	33	1.5												
65	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	4	.23	14	.115	15	.2	33	1.5												
66	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	5	.23	14		15	.23	33	1.5												
67	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	6	.23	14	-.1...	15	.2	33	1.5												
68	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	7	.23	14	-.2	15	.115	33	1.5												
69	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	8	.23	14	-.23	15		33	1.5												
70	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	9	.23	14	-.2	15	-.1...	33	1.5												
71	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	10	.23	14	-.1...	15	-.2	33	1.5												
72	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	11	.23	14		15	-.23	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...
73	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	12	.23	14	.115	15	-.2	33	1.5												
74	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y		1	1	13	.23	14	.2	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	.058	14	.058	15													
77	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	3	.058	14	.05	15	.029												
78	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	4	.058	14	.029	15	.05												
79	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	5	.058	14		15	.058												
80	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	6	.058	14	-.0...	15	.05												
81	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	7	.058	14	-.05	15	.029												
82	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	8	.058	14	-.0...	15													
83	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	9	.058	14	-.05	15	-.0...												
84	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	10	.058	14	-.0...	15	-.05												
85	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	11	.058	14		15	-.0...												
86	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	12	.058	14	.029	15	-.05												
87	1.2DL + 1.5LM-MP1 + 1SWL (...	Y...	Y		1	1.2	34	1.5	13	.058	14	.05	15	-.0...												
88	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	2	.058	14	.058	15													
89	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	3	.058	14	.05	15	.029												
90	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	4	.058	14	.029	15	.05												
91	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	5	.058	14		15	.058												
92	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	6	.058	14	-.0...	15	.05												
93	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	7	.058	14	-.05	15	.029												
94	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	8	.058	14	-.0...	15													
95	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	9	.058	14	-.05	15	-.0...												
96	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	10	.058	14	-.0...	15	-.05												
97	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	11	.058	14		15	-.0...												
98	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	12	.058	14	.029	15	-.05												
99	1.2DL + 1.5LM-MP2 + 1SWL (...	Y...	Y		1	1.2	35	1.5	13	.058	14	.05	15	-.0...												
100	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	2	.058	14	.058	15													
101	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	3	.058	14	.05	15	.029												
102	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	4	.058	14	.029	15	.05												
103	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	5	.058	14		15	.058												
104	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	6	.058	14	-.0...	15	.05												
105	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	7	.058	14	-.05	15	.029												
106	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	8	.058	14	-.0...	15													
107	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	9	.058	14	-.05	15	-.0...												
108	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	10	.058	14	-.0...	15	-.05												
109	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	11	.058	14		15	-.0...												
110	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	12	.058	14	.029	15	-.05												
111	1.2DL + 1.5LM-MP3 + 1SWL (...	Y...	Y		1	1.2	36	1.5	13	.058	14	.05	15	-.0...												
112	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	2	.058	14	.058	15													
113	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	3	.058	14	.05	15	.029												
114	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	4	.058	14	.029	15	.05												

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...
115	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	5	.058	14		15	.058											
116	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	6	.058	14	-.0...	15	.05											
117	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	7	.058	14	-.05	15	.029											
118	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	8	.058	14	-.0...	15												
119	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	9	.058	14	-.05	15	-.0...											
120	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	10	.058	14	-.0...	15	-.05											
121	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	11	.058	14		15	-.0...											
122	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	12	.058	14	.029	15	-.05											
123	1.2DL + 1.5LM-MP4 + 1SWL (...	Y...	Y		1	1.2	37	1.5	13	.058	14	.05	15	-.0...											
124	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	2	.058	14	.058	15												
125	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	3	.058	14	.05	15	.029											
126	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	4	.058	14	.029	15	.05											
127	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	5	.058	14		15	.058											
128	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	6	.058	14	-.0...	15	.05											
129	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	7	.058	14	-.05	15	.029											
130	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	8	.058	14	-.0...	15												
131	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	9	.058	14	-.05	15	-.0...											
132	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	10	.058	14	-.0...	15	-.05											
133	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	11	.058	14		15	-.0...											
134	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	12	.058	14	.029	15	-.05											
135	1.2DL + 1.5LM-MP5 + 1SWL (...	Y...	Y		1	1.2	38	1.5	13	.058	14	.05	15	-.0...											
136	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	2	.058	14	.058	15												
137	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	3	.058	14	.05	15	.029											
138	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	4	.058	14	.029	15	.05											
139	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	5	.058	14		15	.058											
140	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	6	.058	14	-.0...	15	.05											
141	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	7	.058	14	-.05	15	.029											
142	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	8	.058	14	-.0...	15												
143	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	9	.058	14	-.05	15	-.0...											
144	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	10	.058	14	-.0...	15	-.05											
145	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	11	.058	14		15	-.0...											
146	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	12	.058	14	.029	15	-.05											
147	1.2DL + 1.5LM-MP6 + 1SWL (...	Y...	Y		1	1.2	39	1.5	13	.058	14	.05	15	-.0...											
148	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	2	.058	14	.058	15												
149	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	3	.058	14	.05	15	.029											
150	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	4	.058	14	.029	15	.05											
151	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	5	.058	14		15	.058											
152	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	6	.058	14	-.0...	15	.05											
153	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	7	.058	14	-.05	15	.029											
154	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	8	.058	14	-.0...	15												
155	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	9	.058	14	-.05	15	-.0...											
156	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	10	.058	14	-.0...	15	-.05											

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...
157	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	11	.058	14		15	-.0...										
158	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	12	.058	14	.029	15	-.05										
159	1.2DL + 1.5LM-MP7 + 1SWL (...	Y...	Y		1	1.2	40	1.5	13	.058	14	.05	15	-.0...										
160	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	2	.058	14	.058	15											
161	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	3	.058	14	.05	15	.029										
162	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	4	.058	14	.029	15	.05										
163	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	5	.058	14		15	.058										
164	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	6	.058	14	-.0...	15	.05										
165	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	7	.058	14	-.05	15	.029										
166	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	8	.058	14	-.0...	15											
167	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	9	.058	14	-.05	15	-.0...										
168	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	10	.058	14	-.0...	15	-.05										
169	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	11	.058	14		15	-.0...										
170	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	12	.058	14	.029	15	-.05										
171	1.2DL + 1.5LM-MP8 + 1SWL (...	Y...	Y		1	1.2	41	1.5	13	.058	14	.05	15	-.0...										
172	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	2	.058	14	.058	15											
173	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	3	.058	14	.05	15	.029										
174	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	4	.058	14	.029	15	.05										
175	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	5	.058	14		15	.058										
176	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	6	.058	14	-.0...	15	.05										
177	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	7	.058	14	-.05	15	.029										
178	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	8	.058	14	-.0...	15											
179	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	9	.058	14	-.05	15	-.0...										
180	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	10	.058	14	-.0...	15	-.05										
181	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	11	.058	14		15	-.0...										
182	1.2DL + 1.5LM-MP9 + 1SWL (...	Y...	Y		1	1.2	42	1.5	12	.058	14	.029	15	-.05										

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	...	1184.819	6	2896.6...	35	1821.9...	2	1300.2...	16	2329.239	19	5208.4	35
2		...	-1165.569	24	-723.9...	16	-1814.0...	19	-4526.9...	35	-2344.464	13	-2217.505	16
3	P13	...	1382.648	4	3162.2...	31	1810.8...	15	1234.8...	24	2467.672	15	2122.434	24
4		...	-1382.604	22	-667.9...	24	-1816.5...	9	-2854.5...	31	-2512.045	9	-7186.524	31
5	P1	...	1807.289	17	2945.9...	27	940.512	2	7071.4...	27	2044.115	11	1586.102	115
6		...	-1826.782	11	-747.2...	20	-949.811	8	-2645.0...	20	-1992.012	17	-867.874	157
7	Totals:	...	4154.333	5	8123.6...	34	4400.1...	14						
8		...	-4154.325	23	1532.4...	53	-4400.13	8						

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	CA1	C3.38x2.06...	.380	0	31	.065	28.188	y	36	4776...	56700	2202....	5751.945	1....	H1-1b
2	P3	PL6.5x0.375	.373	21	2	.176	36.312	y	30	3658....	78975	616.9...	7913.844	1....	H1-1b
3	S2	HSS4X4X6	.361	0	32	.122	0	y	32	1882...	1978...	2204...	22045.5	1....	H1-1b
4	P2	PL6.5x0.375	.361	21	6	.160	36.312	y	10	3658....	78975	616.9...	7892.179	1....	H1-1b
5	CA5	C3.38x2.06...	.348	0	35	.062	28.187	y	28	4776...	56700	2202....	5751.945	1....	H1-1b
6	P1	PL6.5x0.375	.347	21	10	.178	36.312	y	2	3658....	78975	616.9...	7949.739	1....	H1-1b
7	CA3	C3.38x2.06...	.340	0	27	.062	28.188	y	32	4776...	56700	2202....	5751.945	1....	H1-1b
8	CA4	C3.38x2.06...	.338	33	2	.051	33	y	31	4776...	56700	2202....	5751.945	1....	H1-1b
9	S3	HSS4X4X6	.334	0	38	.125	0	y	29	1882...	1978...	2204...	22045.5	1....	H1-1b
10	CA7	L6.6x4.46x0...	.323	41.562	3	.042	42	z	8	5117...	87561	2464....	7125.374	1....	H2-1
11	CA6	C3.38x2.06...	.321	33	10	.054	33	y	38	4776...	56700	2202....	5751.945	1.62	H1-1b
12	CA8	L6.6x4.46x0...	.320	41.562	22	.044	42	z	4	5117...	87561	2464....	7125.374	1....	H2-1
13	CA2	C3.38x2.06...	.318	33	6	.052	33	y	34	4776...	56700	2202....	5751.945	1....	H1-1b
14	HR3	2.88x0.120	.316	6	2	.143	92		6	2249...	4307...	3155....	3155.674	1....	H1-1b
15	M75	PL 2.375x0.5	.316	1.5	12	.285	0	y	28	3825...	38475	400.7...	1903.711	2....	H1-1b
16	S1	HSS4X4X6	.315	0	36	.127	0	y	37	1882...	1978...	2204...	22045.5	1.97	H1-1b
17	HR2	2.88x0.120	.309	90	3	.153	92		4	2249...	4307...	3155....	3155.674	1....	H1-1b
18	HR1	2.88x0.120	.295	6	4	.133	6		4	2249...	4307...	3155....	3155.674	1....	H1-1b
19	CA9	L6.6x4.46x0...	.284	41.562	6	.039	42	z	12	5117...	87561	2464....	7125.374	1....	H2-1
20	MP2	PIPE_2.5	.257	70	5	.092	70		5	3348...	66654	4726.5	4726.5	4....	H1-1b
21	MP5	PIPE_2.5	.253	70	7	.079	70		7	3348...	66654	4726.5	4726.5	4....	H1-1b
22	GA4	L2x2x4	.238	0	2	.017	27.295	y	9	2952...	42480	959.63	2190.068	2....	H2-1
23	MP8	PIPE_2.5	.229	70	9	.098	70		3	3348...	66654	4726.5	4726.5	4....	H1-1b
24	GA5	L2x2x4	.225	0	9	.030	27.295	y	38	2952...	42480	959.63	2190.068	2....	H2-1
25	GA2	L2x2x4	.220	0	12	.018	0	y	12	2952...	42480	959.63	2190.068	2....	H2-1
26	GA6	L2x2x4	.210	0	4	.017	0	y	4	2952...	42480	959.63	2190.068	2....	H2-1
27	GA1	L2x2x4	.207	0	5	.030	27.295	y	34	2952...	42480	959.63	2190.068	2....	H2-1
28	MP9	PIPE_2.5	.203	70	2	.092	70		7	3348...	66654	4726.5	4726.5	3....	H1-1b
29	GA3	L2x2x4	.203	0	7	.030	27.295	y	30	2952...	42480	959.63	2190.068	2....	H2-1
30	MP1	PIPE_2.5	.186	70	11	.113	26		8	3348...	66654	4726.5	4726.5	2....	H1-1b
31	MP6	PIPE_2.5	.183	70	7	.098	70		6	3348...	66654	4726.5	4726.5	4....	H1-1b
32	MP3	PIPE_2.5	.179	70	5	.102	70		3	3348...	66654	4726.5	4726.5	4....	H1-1b
33	MP4	PIPE_2.5	.172	70	7	.099	26		4	3348...	66654	4726.5	4726.5	1....	H1-1b
34	MP7	PIPE_2.5	.170	70	9	.091	26		6	3348...	66654	4726.5	4726.5	3....	H1-1b
35	H3	Pipe3.5x0.1...	.158	31	2	.094	90		2	4587...	7158...	6337....	6337.65	1....	H1-1b
36	H1	Pipe3.5x0.1...	.153	31	10	.085	48		4	4587...	7158...	6337....	6337.65	1....	H1-1b
37	H2	Pipe3.5x0.1...	.147	31	6	.068	48		12	4587...	7158...	6337....	6337.65	1....	H1-1b

Hot Rolled Steel Section Sets

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

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

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
15	MP3						Yes		+y+3		None
16	HR1						Yes				None
17	CA8	OOOOOX	OOOOOX				Yes				None
18	CA9	OOOOOX	OOOOOX				Yes				None
19	CA7	OOOOOX	OOOOOX				Yes	Default			None
20	M32						Yes	** NA **			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...
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
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

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ra..	Analysis ...	Inactive	Seismi...
63	M69B						Yes	** NA **			None
64	MP5						Yes		+y+3		None
65	M71B						Yes	** NA **			None
66	M72B						Yes	** NA **			None

Hot Rolled Steel Design Parameters

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

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Lengt...	Lbyy[in]	Lbzz[in]	Lcomp t...	Lcomp b...	L-tor...	Kyy	Kzz	Cb	Func...
35	HR2	Handrail	96			Lbyy						Late...
36	MP8	Antenna Pipes	96			Lbyy						Late...
37	MP5	Antenna Pipes	96			Lbyy						Late...

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

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)]

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

	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 Point Loads (BLC 1 : Self Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Y	-32.25	0
2	MP1	Y	-32.25	72
3	MP1	Y	-74.95	12
4	MP1	Y	-63.93	12
5	MP1	Y	-21.85	48
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	-187.87	0
3	MP1	X	0	72
4	MP1	Z	-187.87	72
5	MP1	X	0	12
6	MP1	Z	-92.1	12
7	MP1	X	0	12
8	MP1	Z	-92.1	12
9	MP1	X	0	48
10	MP1	Z	-87.56	48
11	MP4	X	0	0
12	MP4	Z	-103.43	0
13	MP4	X	0	72
14	MP4	Z	-103.43	72
15	MP4	X	0	12
16	MP4	Z	-64.86	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
17	MP4	X	0	12
18	MP4	Z	-59.37	12
19	MP7	X	0	0
20	MP7	Z	-103.43	0
21	MP7	X	0	72
22	MP7	Z	-103.43	72
23	MP7	X	0	12
24	MP7	Z	-64.86	12
25	MP7	X	0	12
26	MP7	Z	-59.37	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-79.86	0
2	MP1	Z	-138.32	0
3	MP1	X	-79.86	72
4	MP1	Z	-138.32	72
5	MP1	X	-41.51	12
6	MP1	Z	-71.9	12
7	MP1	X	-40.6	12
8	MP1	Z	-70.31	12
9	MP1	X	-39.09	48
10	MP1	Z	-67.71	48
11	MP4	X	-79.86	0
12	MP4	Z	-138.32	0
13	MP4	X	-79.86	72
14	MP4	Z	-138.32	72
15	MP4	X	-41.51	12
16	MP4	Z	-71.9	12
17	MP4	X	-40.6	12
18	MP4	Z	-70.31	12
19	MP7	X	-37.64	0
20	MP7	Z	-65.2	0
21	MP7	X	-37.64	72
22	MP7	Z	-65.2	72
23	MP7	X	-27.89	12
24	MP7	Z	-48.31	12
25	MP7	X	-24.23	12
26	MP7	Z	-41.96	12

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

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

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-89.58	0
2	MP1	Z	-51.72	0
3	MP1	X	-89.58	72
4	MP1	Z	-51.72	72
5	MP1	X	-56.17	12
6	MP1	Z	-32.43	12
7	MP1	X	-51.41	12
8	MP1	Z	-29.68	12
9	MP1	X	-51.46	48
10	MP1	Z	-29.71	48
11	MP4	X	-162.7	0
12	MP4	Z	-93.93	0
13	MP4	X	-162.7	72
14	MP4	Z	-93.93	72
15	MP4	X	-79.76	12
16	MP4	Z	-46.05	12
17	MP4	X	-79.76	12
18	MP4	Z	-46.05	12
19	MP7	X	-89.58	0
20	MP7	Z	-51.72	0
21	MP7	X	-89.58	72
22	MP7	Z	-51.72	72
23	MP7	X	-56.17	12
24	MP7	Z	-32.43	12
25	MP7	X	-51.41	12
26	MP7	Z	-29.68	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-75.29	0
2	MP1	Z	0	0
3	MP1	X	-75.29	72
4	MP1	Z	0	72
5	MP1	X	-55.78	12
6	MP1	Z	0	12
7	MP1	X	-48.45	12
8	MP1	Z	0	12
9	MP1	X	-50.04	48
10	MP1	Z	0	48
11	MP4	X	-159.72	0
12	MP4	Z	0	0
13	MP4	X	-159.72	72

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	0	72
15	MP4	X	-83.02	12
16	MP4	Z	0	12
17	MP4	X	-81.19	12
18	MP4	Z	0	12
19	MP7	X	-159.72	0
20	MP7	Z	0	0
21	MP7	X	-159.72	72
22	MP7	Z	0	72
23	MP7	X	-83.02	12
24	MP7	Z	0	12
25	MP7	X	-81.19	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	-89.58	0
2	MP1	Z	51.72	0
3	MP1	X	-89.58	72
4	MP1	Z	51.72	72
5	MP1	X	-56.17	12
6	MP1	Z	32.43	12
7	MP1	X	-51.41	12
8	MP1	Z	29.68	12
9	MP1	X	-51.46	48
10	MP1	Z	29.71	48
11	MP4	X	-89.58	0
12	MP4	Z	51.72	0
13	MP4	X	-89.58	72
14	MP4	Z	51.72	72
15	MP4	X	-56.17	12
16	MP4	Z	32.43	12
17	MP4	X	-51.41	12
18	MP4	Z	29.68	12
19	MP7	X	-162.7	0
20	MP7	Z	93.93	0
21	MP7	X	-162.7	72
22	MP7	Z	93.93	72
23	MP7	X	-79.76	12
24	MP7	Z	46.05	12
25	MP7	X	-79.76	12
26	MP7	Z	46.05	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-79.86	0
2	MP1	Z	138.32	0
3	MP1	X	-79.86	72
4	MP1	Z	138.32	72
5	MP1	X	-41.51	12
6	MP1	Z	71.9	12
7	MP1	X	-40.6	12
8	MP1	Z	70.31	12
9	MP1	X	-39.09	48
10	MP1	Z	67.71	48
11	MP4	X	-37.64	0
12	MP4	Z	65.2	0
13	MP4	X	-37.64	72
14	MP4	Z	65.2	72
15	MP4	X	-27.89	12
16	MP4	Z	48.31	12
17	MP4	X	-24.23	12
18	MP4	Z	41.96	12
19	MP7	X	-79.86	0
20	MP7	Z	138.32	0
21	MP7	X	-79.86	72
22	MP7	Z	138.32	72
23	MP7	X	-41.51	12
24	MP7	Z	71.9	12
25	MP7	X	-40.6	12
26	MP7	Z	70.31	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	187.87	0
3	MP1	X	0	72
4	MP1	Z	187.87	72
5	MP1	X	0	12
6	MP1	Z	92.1	12
7	MP1	X	0	12
8	MP1	Z	92.1	12
9	MP1	X	0	48
10	MP1	Z	87.56	48
11	MP4	X	0	0
12	MP4	Z	103.43	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	103.43	72
15	MP4	X	0	12
16	MP4	Z	64.86	12
17	MP4	X	0	12
18	MP4	Z	59.37	12
19	MP7	X	0	0
20	MP7	Z	103.43	0
21	MP7	X	0	72
22	MP7	Z	103.43	72
23	MP7	X	0	12
24	MP7	Z	64.86	12
25	MP7	X	0	12
26	MP7	Z	59.37	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	79.86	0
2	MP1	Z	138.32	0
3	MP1	X	79.86	72
4	MP1	Z	138.32	72
5	MP1	X	41.51	12
6	MP1	Z	71.9	12
7	MP1	X	40.6	12
8	MP1	Z	70.31	12
9	MP1	X	39.09	48
10	MP1	Z	67.71	48
11	MP4	X	79.86	0
12	MP4	Z	138.32	0
13	MP4	X	79.86	72
14	MP4	Z	138.32	72
15	MP4	X	41.51	12
16	MP4	Z	71.9	12
17	MP4	X	40.6	12
18	MP4	Z	70.31	12
19	MP7	X	37.64	0
20	MP7	Z	65.2	0
21	MP7	X	37.64	72
22	MP7	Z	65.2	72
23	MP7	X	27.89	12
24	MP7	Z	48.31	12
25	MP7	X	24.23	12
26	MP7	Z	41.96	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	89.58	0
2	MP1	Z	51.72	0
3	MP1	X	89.58	72
4	MP1	Z	51.72	72
5	MP1	X	56.17	12
6	MP1	Z	32.43	12
7	MP1	X	51.41	12
8	MP1	Z	29.68	12
9	MP1	X	51.46	48
10	MP1	Z	29.71	48
11	MP4	X	162.7	0
12	MP4	Z	93.93	0
13	MP4	X	162.7	72
14	MP4	Z	93.93	72
15	MP4	X	79.76	12
16	MP4	Z	46.05	12
17	MP4	X	79.76	12
18	MP4	Z	46.05	12
19	MP7	X	89.58	0
20	MP7	Z	51.72	0
21	MP7	X	89.58	72
22	MP7	Z	51.72	72
23	MP7	X	56.17	12
24	MP7	Z	32.43	12
25	MP7	X	51.41	12
26	MP7	Z	29.68	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	75.29	0
2	MP1	Z	0	0
3	MP1	X	75.29	72
4	MP1	Z	0	72
5	MP1	X	55.78	12
6	MP1	Z	0	12
7	MP1	X	48.45	12
8	MP1	Z	0	12
9	MP1	X	50.04	48
10	MP1	Z	0	48
11	MP4	X	159.72	0
12	MP4	Z	0	0
13	MP4	X	159.72	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	83.02	12
16	MP4	Z	0	12
17	MP4	X	81.19	12
18	MP4	Z	0	12
19	MP7	X	159.72	0
20	MP7	Z	0	0
21	MP7	X	159.72	72
22	MP7	Z	0	72
23	MP7	X	83.02	12
24	MP7	Z	0	12
25	MP7	X	81.19	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	89.58	0
2	MP1	Z	-51.72	0
3	MP1	X	89.58	72
4	MP1	Z	-51.72	72
5	MP1	X	56.17	12
6	MP1	Z	-32.43	12
7	MP1	X	51.41	12
8	MP1	Z	-29.68	12
9	MP1	X	51.46	48
10	MP1	Z	-29.71	48
11	MP4	X	89.58	0
12	MP4	Z	-51.72	0
13	MP4	X	89.58	72
14	MP4	Z	-51.72	72
15	MP4	X	56.17	12
16	MP4	Z	-32.43	12
17	MP4	X	51.41	12
18	MP4	Z	-29.68	12
19	MP7	X	162.7	0
20	MP7	Z	-93.93	0
21	MP7	X	162.7	72
22	MP7	Z	-93.93	72
23	MP7	X	79.76	12
24	MP7	Z	-46.05	12
25	MP7	X	79.76	12
26	MP7	Z	-46.05	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	79.86	0
2	MP1	Z	-138.32	0
3	MP1	X	79.86	72
4	MP1	Z	-138.32	72
5	MP1	X	41.51	12
6	MP1	Z	-71.9	12
7	MP1	X	40.6	12
8	MP1	Z	-70.31	12
9	MP1	X	39.09	48
10	MP1	Z	-67.71	48
11	MP4	X	37.64	0
12	MP4	Z	-65.2	0
13	MP4	X	37.64	72
14	MP4	Z	-65.2	72
15	MP4	X	27.89	12
16	MP4	Z	-48.31	12
17	MP4	X	24.23	12
18	MP4	Z	-41.96	12
19	MP7	X	79.86	0
20	MP7	Z	-138.32	0
21	MP7	X	79.86	72
22	MP7	Z	-138.32	72
23	MP7	X	41.51	12
24	MP7	Z	-71.9	12
25	MP7	X	40.6	12
26	MP7	Z	-70.31	12

Member Point Loads (BLC 16 : Ice Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Y	-200.339	0
2	MP1	Y	-200.339	72
3	MP1	Y	-108.393	12
4	MP1	Y	-102.06	12
5	MP1	Y	-99.652	48
6	MP4	Y	-200.339	0
7	MP4	Y	-200.339	72
8	MP4	Y	-108.393	12
9	MP4	Y	-102.06	12
10	MP7	Y	-200.339	0
11	MP7	Y	-200.339	72
12	MP7	Y	-108.393	12
13	MP7	Y	-102.06	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	-25.28	0
3	MP1	X	0	72
4	MP1	Z	-25.28	72
5	MP1	X	0	12
6	MP1	Z	-10.42	12
7	MP1	X	0	12
8	MP1	Z	-10.42	12
9	MP1	X	0	48
10	MP1	Z	-10.03	48
11	MP4	X	0	0
12	MP4	Z	-18.45	0
13	MP4	X	0	72
14	MP4	Z	-18.45	72
15	MP4	X	0	12
16	MP4	Z	-8.5	12
17	MP4	X	0	12
18	MP4	Z	-8.23	12
19	MP7	X	0	0
20	MP7	Z	-18.45	0
21	MP7	X	0	72
22	MP7	Z	-18.45	72
23	MP7	X	0	12
24	MP7	Z	-8.5	12
25	MP7	X	0	12
26	MP7	Z	-8.23	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-11.5	0
2	MP1	Z	-19.92	0
3	MP1	X	-11.5	72
4	MP1	Z	-19.92	72
5	MP1	X	-4.89	12
6	MP1	Z	-8.47	12
7	MP1	X	-4.84	12
8	MP1	Z	-8.39	12
9	MP1	X	-4.72	48
10	MP1	Z	-8.17	48
11	MP4	X	-11.5	0
12	MP4	Z	-19.92	0
13	MP4	X	-11.5	72

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	-19.92	72
15	MP4	X	-4.89	12
16	MP4	Z	-8.47	12
17	MP4	X	-4.84	12
18	MP4	Z	-8.39	12
19	MP7	X	-8.09	0
20	MP7	Z	-14.01	0
21	MP7	X	-8.09	72
22	MP7	Z	-14.01	72
23	MP7	X	-3.93	12
24	MP7	Z	-6.8	12
25	MP7	X	-3.75	12
26	MP7	Z	-6.49	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-15.98	0
2	MP1	Z	-9.23	0
3	MP1	X	-15.98	72
4	MP1	Z	-9.23	72
5	MP1	X	-7.36	12
6	MP1	Z	-4.25	12
7	MP1	X	-7.12	12
8	MP1	Z	-4.11	12
9	MP1	X	-7.13	48
10	MP1	Z	-4.11	48
11	MP4	X	-21.89	0
12	MP4	Z	-12.64	0
13	MP4	X	-21.89	72
14	MP4	Z	-12.64	72
15	MP4	X	-9.02	12
16	MP4	Z	-5.21	12
17	MP4	X	-9.02	12
18	MP4	Z	-5.21	12
19	MP7	X	-15.98	0
20	MP7	Z	-9.23	0
21	MP7	X	-15.98	72
22	MP7	Z	-9.23	72
23	MP7	X	-7.36	12
24	MP7	Z	-4.25	12
25	MP7	X	-7.12	12
26	MP7	Z	-4.11	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-16.17	0
2	MP1	Z	0	0
3	MP1	X	-16.17	72
4	MP1	Z	0	72
5	MP1	X	-7.85	12
6	MP1	Z	0	12
7	MP1	X	-7.5	12
8	MP1	Z	0	12
9	MP1	X	-7.63	48
10	MP1	Z	0	48
11	MP4	X	-23	0
12	MP4	Z	0	0
13	MP4	X	-23	72
14	MP4	Z	0	72
15	MP4	X	-9.78	12
16	MP4	Z	0	12
17	MP4	X	-9.69	12
18	MP4	Z	0	12
19	MP7	X	-23	0
20	MP7	Z	0	0
21	MP7	X	-23	72
22	MP7	Z	0	72
23	MP7	X	-9.78	12
24	MP7	Z	0	12
25	MP7	X	-9.69	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	-15.98	0
2	MP1	Z	9.23	0
3	MP1	X	-15.98	72
4	MP1	Z	9.23	72
5	MP1	X	-7.36	12
6	MP1	Z	4.25	12
7	MP1	X	-7.12	12
8	MP1	Z	4.11	12
9	MP1	X	-7.13	48
10	MP1	Z	4.11	48
11	MP4	X	-15.98	0
12	MP4	Z	9.23	0
13	MP4	X	-15.98	72

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	9.23	72
15	MP4	X	-7.36	12
16	MP4	Z	4.25	12
17	MP4	X	-7.12	12
18	MP4	Z	4.11	12
19	MP7	X	-21.89	0
20	MP7	Z	12.64	0
21	MP7	X	-21.89	72
22	MP7	Z	12.64	72
23	MP7	X	-9.02	12
24	MP7	Z	5.21	12
25	MP7	X	-9.02	12
26	MP7	Z	5.21	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-11.5	0
2	MP1	Z	19.92	0
3	MP1	X	-11.5	72
4	MP1	Z	19.92	72
5	MP1	X	-4.89	12
6	MP1	Z	8.47	12
7	MP1	X	-4.84	12
8	MP1	Z	8.39	12
9	MP1	X	-4.72	48
10	MP1	Z	8.17	48
11	MP4	X	-8.09	0
12	MP4	Z	14.01	0
13	MP4	X	-8.09	72
14	MP4	Z	14.01	72
15	MP4	X	-3.93	12
16	MP4	Z	6.8	12
17	MP4	X	-3.75	12
18	MP4	Z	6.49	12
19	MP7	X	-11.5	0
20	MP7	Z	19.92	0
21	MP7	X	-11.5	72
22	MP7	Z	19.92	72
23	MP7	X	-4.89	12
24	MP7	Z	8.47	12
25	MP7	X	-4.84	12
26	MP7	Z	8.39	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	25.28	0
3	MP1	X	0	72
4	MP1	Z	25.28	72
5	MP1	X	0	12
6	MP1	Z	10.42	12
7	MP1	X	0	12
8	MP1	Z	10.42	12
9	MP1	X	0	48
10	MP1	Z	10.03	48
11	MP4	X	0	0
12	MP4	Z	18.45	0
13	MP4	X	0	72
14	MP4	Z	18.45	72
15	MP4	X	0	12
16	MP4	Z	8.5	12
17	MP4	X	0	12
18	MP4	Z	8.23	12
19	MP7	X	0	0
20	MP7	Z	18.45	0
21	MP7	X	0	72
22	MP7	Z	18.45	72
23	MP7	X	0	12
24	MP7	Z	8.5	12
25	MP7	X	0	12
26	MP7	Z	8.23	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	11.5	0
2	MP1	Z	19.92	0
3	MP1	X	11.5	72
4	MP1	Z	19.92	72
5	MP1	X	4.89	12
6	MP1	Z	8.47	12
7	MP1	X	4.84	12
8	MP1	Z	8.39	12
9	MP1	X	4.72	48
10	MP1	Z	8.17	48
11	MP4	X	11.5	0
12	MP4	Z	19.92	0
13	MP4	X	11.5	72

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	19.92	72
15	MP4	X	4.89	12
16	MP4	Z	8.47	12
17	MP4	X	4.84	12
18	MP4	Z	8.39	12
19	MP7	X	8.09	0
20	MP7	Z	14.01	0
21	MP7	X	8.09	72
22	MP7	Z	14.01	72
23	MP7	X	3.93	12
24	MP7	Z	6.8	12
25	MP7	X	3.75	12
26	MP7	Z	6.49	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	15.98	0
2	MP1	Z	9.23	0
3	MP1	X	15.98	72
4	MP1	Z	9.23	72
5	MP1	X	7.36	12
6	MP1	Z	4.25	12
7	MP1	X	7.12	12
8	MP1	Z	4.11	12
9	MP1	X	7.13	48
10	MP1	Z	4.11	48
11	MP4	X	21.89	0
12	MP4	Z	12.64	0
13	MP4	X	21.89	72
14	MP4	Z	12.64	72
15	MP4	X	9.02	12
16	MP4	Z	5.21	12
17	MP4	X	9.02	12
18	MP4	Z	5.21	12
19	MP7	X	15.98	0
20	MP7	Z	9.23	0
21	MP7	X	15.98	72
22	MP7	Z	9.23	72
23	MP7	X	7.36	12
24	MP7	Z	4.25	12
25	MP7	X	7.12	12
26	MP7	Z	4.11	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	16.17	0
2	MP1	Z	0	0
3	MP1	X	16.17	72
4	MP1	Z	0	72
5	MP1	X	7.85	12
6	MP1	Z	0	12
7	MP1	X	7.5	12
8	MP1	Z	0	12
9	MP1	X	7.63	48
10	MP1	Z	0	48
11	MP4	X	23	0
12	MP4	Z	0	0
13	MP4	X	23	72
14	MP4	Z	0	72
15	MP4	X	9.78	12
16	MP4	Z	0	12
17	MP4	X	9.69	12
18	MP4	Z	0	12
19	MP7	X	23	0
20	MP7	Z	0	0
21	MP7	X	23	72
22	MP7	Z	0	72
23	MP7	X	9.78	12
24	MP7	Z	0	12
25	MP7	X	9.69	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	15.98	0
2	MP1	Z	-9.23	0
3	MP1	X	15.98	72
4	MP1	Z	-9.23	72
5	MP1	X	7.36	12
6	MP1	Z	-4.25	12
7	MP1	X	7.12	12
8	MP1	Z	-4.11	12
9	MP1	X	7.13	48
10	MP1	Z	-4.11	48
11	MP4	X	15.98	0
12	MP4	Z	-9.23	0
13	MP4	X	15.98	72

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
14	MP4	Z	-9.23	72
15	MP4	X	7.36	12
16	MP4	Z	-4.25	12
17	MP4	X	7.12	12
18	MP4	Z	-4.11	12
19	MP7	X	21.89	0
20	MP7	Z	-12.64	0
21	MP7	X	21.89	72
22	MP7	Z	-12.64	72
23	MP7	X	9.02	12
24	MP7	Z	-5.21	12
25	MP7	X	9.02	12
26	MP7	Z	-5.21	12

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	11.5	0
2	MP1	Z	-19.92	0
3	MP1	X	11.5	72
4	MP1	Z	-19.92	72
5	MP1	X	4.89	12
6	MP1	Z	-8.47	12
7	MP1	X	4.84	12
8	MP1	Z	-8.39	12
9	MP1	X	4.72	48
10	MP1	Z	-8.17	48
11	MP4	X	8.09	0
12	MP4	Z	-14.01	0
13	MP4	X	8.09	72
14	MP4	Z	-14.01	72
15	MP4	X	3.93	12
16	MP4	Z	-6.8	12
17	MP4	X	3.75	12
18	MP4	Z	-6.49	12
19	MP7	X	11.5	0
20	MP7	Z	-19.92	0
21	MP7	X	11.5	72
22	MP7	Z	-19.92	72
23	MP7	X	4.89	12
24	MP7	Z	-8.47	12
25	MP7	X	4.84	12
26	MP7	Z	-8.39	12

Member Point Loads (BLC 31 : Seismic Load Z)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	-9.34	0
2	MP1	Z	-9.34	72
3	MP1	Z	-21.706	12
4	MP1	Z	-18.514	12
5	MP1	Z	-6.328	48
6	MP4	Z	-9.34	0
7	MP4	Z	-9.34	72
8	MP4	Z	-21.706	12
9	MP4	Z	-18.514	12
10	MP7	Z	-9.34	0
11	MP7	Z	-9.34	72
12	MP7	Z	-21.706	12
13	MP7	Z	-18.514	12

Member Point Loads (BLC 32 : Seismic Load X)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-9.34	0
2	MP1	X	-9.34	72
3	MP1	X	-21.706	12
4	MP1	X	-18.514	12
5	MP1	X	-6.328	48
6	MP4	X	-9.34	0
7	MP4	X	-9.34	72
8	MP4	X	-21.706	12
9	MP4	X	-18.514	12
10	MP7	X	-9.34	0
11	MP7	X	-9.34	72
12	MP7	X	-21.706	12
13	MP7	X	-18.514	12

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	-21.7
2	P10	P11	P12	P9	Y	Two Way	-21.7

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

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
3	P31	P34	P33	P32	Y	Two Way	-21.7
4	P22	P21	P20	P23	Y	Two Way	-21.7
5	P10	P11	P12	P9	Y	Two Way	-21.7
6	P31	P34	P33	P32	Y	Two Way	-21.7

INFINIGY

FROM ZERO TO INFINIGY

the solutions are endless

Bolt Calculation Tool, V1.5.1

PROJECT DATA	
Site Name:	ATC - Meadow St
Site Number:	BOBDL00009A
Connection Description:	Platform to Monopole

MAXIMUM BOLT LOADS		
Bolt Tension:	9589.57	lbs
Bolt Shear:	1800.34	lbs

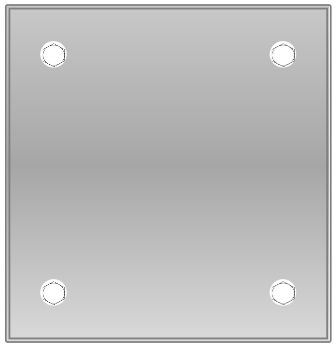
WORST CASE BOLT LOADS[1]		
Bolt Tension:	9589.57	lbs
Bolt Shear:	1610.69	lbs

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 #32 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	47.1%	
Max Shear Usage	13.0%	
Interaction Check (Worst Case)	0.24	***≤1.05***
Result	Pass	



POWER DENSITY STUDY

EBI Consulting

environmental | engineering | due diligence

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

Dish Wireless Existing Facility

Site ID: BOBDL00009A

BOBDL00009A
99 Meadow Street
Hartford, Connecticut 06114

October 6, 2021

EBI Project Number: 6221005577

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**74.31%**

October 6, 2021

Dish Wireless

Emissions Analysis for Site: BOBDL00009A - BOBDL00009A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **99 Meadow Street** in **Hartford, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless antenna facility located at 99 Meadow Street in Hartford, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 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 147 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):	147 feet	Height (AGL):	147 feet	Height (AGL):	147 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 A1 MPE %:	**1.19%**	Antenna B1 MPE %:	**1.19%**	Antenna C1 MPE %:	**1.19%**

Site Composite MPE %	
Carrier	**MPE %**
Dish Wireless (Max at Sector A):	1.19%
T-Mobile	14.57%
Metro PCS	1.06%
AT&T	6.36%
Nextel	0.28%
Clearwire	0.27%
Sprint	17.25%
Verizon	33.33%
Site Total MPE % :	74.31%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	1.19%
Dish Wireless Sector B Total:	1.19%
Dish Wireless Sector C Total:	1.19%
Site Total MPE % :	74.31%

Dish Wireless Maximum MPE Power Values (Sector A)

Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
Dish Wireless 600 MHz n71	4	223.68	147.0	1.62	600 MHz n71	400	0.40%
Dish Wireless 1900 MHz n70	4	542.70	147.0	3.93	1900 MHz n70	1000	0.39%
Dish Wireless 2190 MHz n66	4	542.70	147.0	3.93	2190 MHz n66	1000	0.39%
						Total:	**1.19%**

• 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:	1.19%
Sector B:	1.19%
Sector C:	1.19%
Dish Wireless Maximum MPE % (Sector A):	1.19%
Site Total:	74.31%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **74.31%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

November 10, 2021

Dear Customer,

The following is the proof-of-delivery for tracking number: 775109093542

Delivery Information:

Status:	Delivered	**Delivered To:**	Receptionist/Front Desk
Signed for by:	F.DESK	**Delivery Location:**	99 MEADOW ST
Service type:	FedEx 2Day		
Special Handling:	Deliver Weekday		HARTFORD, CT, 06114
		Delivery date:	Nov 9, 2021 15:39

Shipping Information:

Tracking number:	775109093542	**Ship Date:**	Nov 5, 2021
		Weight:	1.0 LB/0.45 KG

Recipient:
Meadow Street Realty LLC,
99 Meadow St
HARTFORD, CT, US, 06114

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

Reference 100814

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November 09, 2021

Dear Customer,

The following is the proof-of-delivery for tracking number: 775109063940

Delivery Information:

Status:	Delivered	**Delivered To:**	Receptionist/Front Desk
Signed for by:	C.MATTHEWS	**Delivery Location:**	260 CONSTITUTION PLZ 1
Service type:	FedEx 2Day		
Special Handling:	Deliver Weekday		HARTFORD, CT, 06103
		Delivery date:	Nov 9, 2021 10:27

Shipping Information:

Tracking number:	775109063940	**Ship Date:**	Nov 5, 2021
		Weight:	1.0 LB/0.45 KG

Recipient:
Charles Mathews,
260 Constitution Plaza
1st Floor
HARTFORD, CT, US, 06103

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

Reference 100814

Thank you for choosing FedEx

November 09, 2021

Dear Customer,

The following is the proof-of-delivery for tracking number: 775109031691

Delivery Information:

Status:	Delivered	**Delivered To:**	
Signed for by:	Signature release on file	**Delivery Location:**	550 MAIN ST
Service type:	FedEx 2Day		
Special Handling:	Deliver Weekday		HARTFORD, CT, 06103
		Delivery date:	Nov 9, 2021 10:17

Shipping Information:

Tracking number:	775109031691	**Ship Date:**	Nov 5, 2021
		Weight:	1.0 LB/0.45 KG

Recipient:
Luke Bronin,
550 Main St
2nd Floor, Room 200
HARTFORD, CT, US, 06103

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

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