

PROJECT NARRATIVE

May 20, 2022

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
139 Sharp Hill Rd. Montville, CT 06443
Latitude: 41°26'56.300" / Longitude: -72°9'4.100"

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 139 Sharp Hill Rd. in Montville (the "Property"). The existing 100-foot self-support tower is owned by American Tower Corporation ("ATC"). The underlying property is owned by Global Tower Assets III 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 Ronald K. McDaniel, Mayor of the Town of Montville, David Jensen, Town of Montville Building Official and Global Tower Assets III LLC as the property owner.

Background

This facility was approved by the Town of Montville's Zoning and Planning Commission on March 15, 1984. A copy of the approval letter is included in this filing. The existing ATC facility consists of a 100-foot self-support tower located within an existing leased area. Antennas are maintained by Others at the 86-foot and 92-foot levels. 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 ATC have agreed to the proposed shared use of the 139 Sharp Hill Rd. tower pursuant to mutually acceptable terms and conditions. Likewise, DISH and ATC have agreed to the proposed installation of equipment cabinets on the ground 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 75-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 139 Sharp Hill Rd. satisfies the criteria stated in C.G.S. §16-50aa and advances the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. The Applicant, therefore, respectfully requests that the Council issue an order approving the proposed shared use.

Sincerely,

David Hoogasian

David Hoogasian
Project Manager

LETTER OF AUTHORIZATION



AMERICAN TOWER®
CORPORATION

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

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

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

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

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



AMERICAN TOWER®
CORPORATION

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

Signature:

Print Name: Margaret Robinson
Senior Counsel
American Tower*



AMERICAN TOWER®
CORPORATION

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

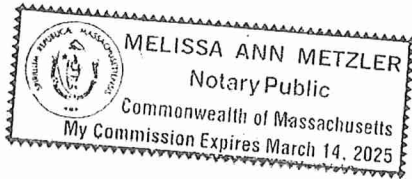
NOTARY BLOCK


Commonwealth of MASSACHUSETTS
County of Middlesex

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

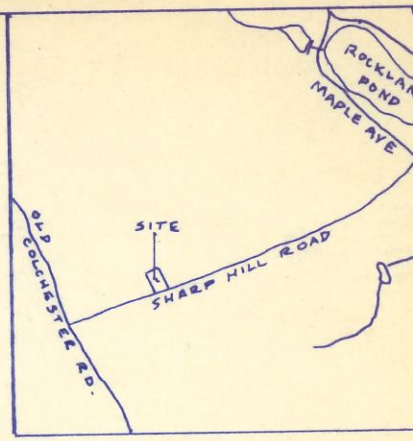
WITNESS my hand and official seal, this 10th day of September 2021.

NOTARY SEAL

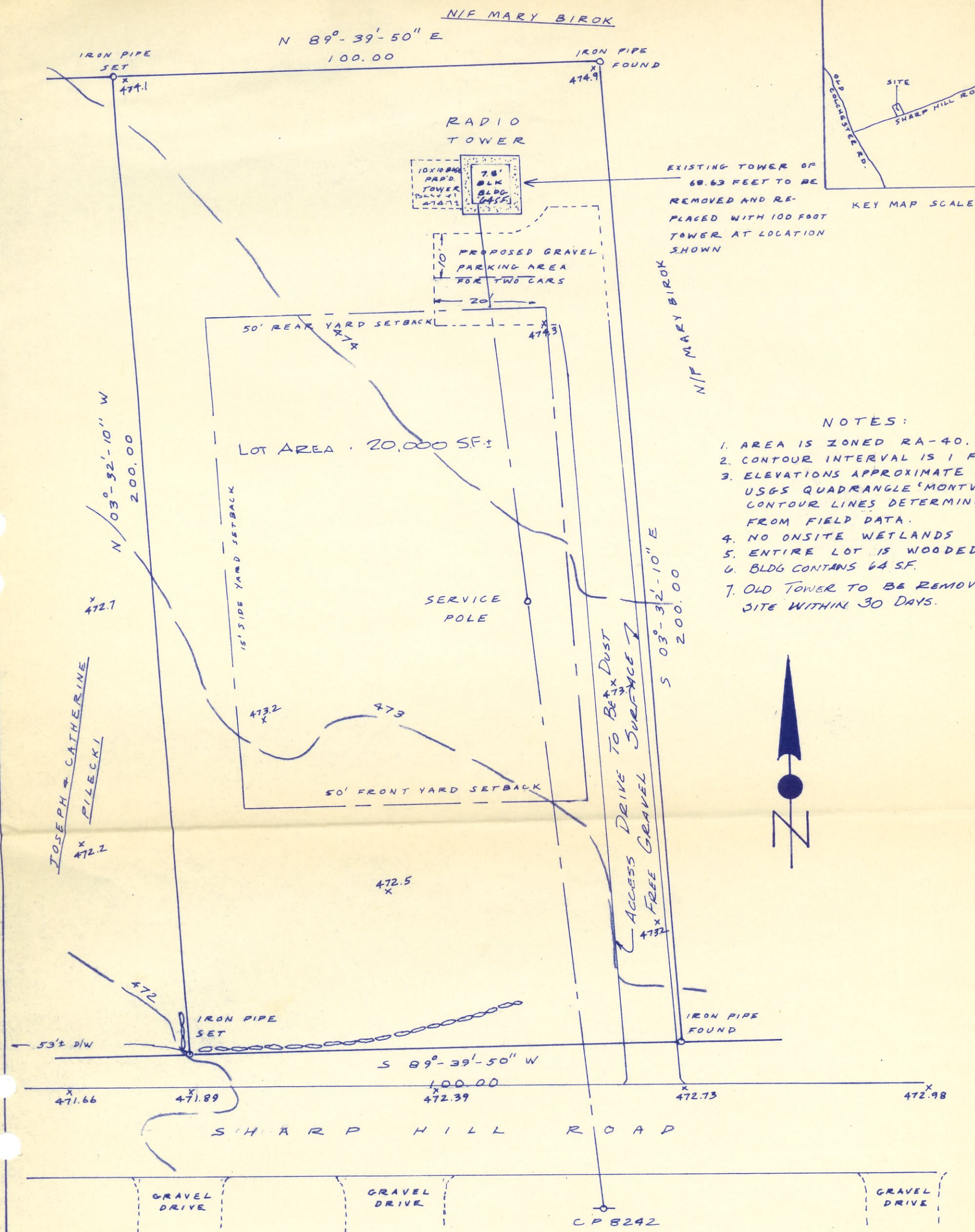


Notary Public 
My Commission Expires: March 14, 2025

ORIGINAL FACILITY APPROVAL



KEY MAP SCALE 1" = 200'



EXISTING TOWER OF 68.63 FEET TO BE REMOVED AND REPLACED WITH 100 FOOT TOWER AT LOCATION SHOWN

- NOTES:
1. AREA IS ZONED RA-40.
 2. CONTOUR INTERVAL IS 1 FOOT.
 3. ELEVATIONS APPROXIMATE FROM USGS QUADRANGLE 'MONTVILLE'. CONTOUR LINES DETERMINED FROM FIELD DATA.
 4. NO ONSITE WETLANDS
 5. ENTIRE LOT IS WOODED.
 6. BLDG CONTAINS 64 SF.
 7. OLD TOWER TO BE REMOVED FROM SITE WITHIN 30 DAYS.



I HEREBY CERTIFY THAT THIS MAP AND SURVEY WERE PREPARED IN ACCORDANCE WITH THE STANDARDS OF A CLASS A 2 SURVEY AS DEFINED IN THE CODE OF PRACTICE FOR STANDARDS OF ACCURACY OF SURVEYS AND MAPS, ADOPTED DECEMBER 10, 1975 AS AMENDED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC., AND IS SUBSTANTIALLY CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

David A. King

TITLE Lic. Land Surveyor

PLAN MADE FOR
HOWARD McAULIFFE INC.

SHARP HILL ROAD
MONTVILLE, CONNECTICUT
SCALE 1" = 20'
KING & MULLEN LAND SURVEYOR
AUGUST 9, 1984
REV. MARCH 12, 1985

C84-32-13

TOWN OF MONTVILLE

The Zoning & Planning Commission

TOWN PLANNER/ZONING ENFORCEMENT OFFICER
310 NORWICH-NEW LONDON TPKE.
UNCASVILLE, CONNECTICUT 06382

848-8549

NOTICE OF DECISION

At a meeting of the Montville Zoning & Planning Commission held on March 12, 1985 in Montville Town Hall, it was voted:

TO APPROVE, with conditions the Special Permit request of Howard McAuliffe, Inc. to allow construction of a private communications tower on Sharp Hill Road, Montville, Ct. Assessor's Map 22, Lot 23.

Maps showing above approvals are on file in the Office of the Montville Town Planner, Town Hall Annex. Special Permit shall become effective upon filing Notice of Decision in land records in Montville Town Clerk's Office.

Dated at Montville, Connecticut this 15th day of March, 1984.

MONTVILLE ZONING & PLANNING COMMISSION
Charles Korenkiewicz, Chm.
Magnus Wade, Secy.

TO BE INSERTED IN THE DAY ON March 20, 1985.

APPLICATION FOR A ZONING PERMIT, TOWN OF MONTVILLE, CONNECTICUT

To be filled out by Applicant - 1 original and two carbon copies

January 22, 1985

undersigned hereby applies to the Zoning and Planning Commission for a permit to Construct a 100 foot high radio tower

Location of Property Sharp Hill Road

Name of Subdivision N/A

Lot No. N/A

Assessor's Block No. 22, Assessor's Parcel No. 23

Name of (Owner) (Agent) Howard McAuliffe, Inc., Address 15 Industrial Park Place Middletown, Ct.

Width of Building in ft.: Front overall N/A, Depth overall N/A, Area N/A sq. ft.

Number of stories N/A Height in ft. 100, No. of rooms N/A, No. of bedrooms N/A

Number of bathrooms N/A Zoning District RA-40, Area of Lot 20,000 sq. ft., Lot frontage 100 ft.

Width 100 ft., Front Yard Depth 170 ft., Rear Yard Depth 20 ft., Side Yard Depth 18 ft.

Purpose of building and/or use is Private Communications Tower

Water supply to consist of None Sanitary facility to consist of None

Date of Sanitation Officer approval

Remarks

I hereby agree to conform to all requirements of the Laws of the State of Connecticut and the Ordinances and Regulations of the Town of Montville, and to notify the Zoning and Planning Commission of any alteration in the plans for which this permit is being asked. I furthermore agree that the above described facility is to be located at the proper distance from all setback lines as required by the Zoning Regulations or any other applicable local and state ordinances and regulations and it is understood that the facility upon completion will be used in compliance with Zoning Regulations of the Town of Montville.

Construction of Radio Tower for Howard McAuliffe

I hereby apply for a Certificate of Use and Compliance for

described in the above application for a permit. It is my understanding that the facility can not be occupied until a Certificate of Use and Compliance has been issued by the Zoning and Planning Commission.

Signed (Owner) (Agent)

Tel. No. 848-7741

Approved by Zoning Agent Date 3/20/85

Permit No. issued.

Approved by Date

Commission

Permission is hereby granted to Arnold McAulliffe to erect a Private Communications Tower on the Map 22, lot 23 side of Map 22, lot 23 as follows: Size 04 ft. long, 06 ft. wide, 04 stories high; distance from road center line 190 ft; distance from each side lot line: E 35 ft; W 95 ft; N 18 ft; S 175 ft; for the use of the facility as a Private Communications Tower with conditions as shown on plan

AS PER VARIANCE BY ZBA

Zoning and Planning Commission, Town of Montville, Connecticut

THIS PERMIT IS VALID FOR ONE YEAR

M. J. Muel
Zoning Agent

The recipient of this permit accepts it on the condition that he, as owner or as representing the owner, agrees to comply with all applicable ordinances and regulations of the Town of Montville and the State Statutes of the State of Connecticut regarding the use, occupancy and type of activity to be instituted. It is furthermore understood that the facility can not be used until a Certificate of Use and Compliance has been issued by the Zoning and Planning Commission and that any change of use similarly does require a new Certificate of Use and Compliance. Before a Certificate of Use and Compliance will be issued a plot plan drawn to a scale of 1" = 40' prepared and certified in compliance with provisions contained in Section 8.2 of the Zoning Regulations must be submitted to the Zoning and Planning Commission showing all boundaries of the property and as is location(s) of all buildings on the property including the center line of any public or private right-of-way, sanitary facilities and water supply.

TOWN OF MONTVILLE, CONNECTICUT - CERTIFICATE OF USE AND COMPLIANCE NO. 207

Dated: 10/10/86 198

Permission is hereby granted to use the facility located on Map 22, lot 23 SHAD HILL ROAD as a RADIO TOWER in accordance with the application for a zoning permit dated 3/20/85 and in compliance with the Zoning Regulations for the Town of Montville, Connecticut.

Zoning and Planning Commission, Town of Montville Connecticut

M. J. Muel
Agent for the Zoning and Planning Comm.

The recipient of this Certificate accepts this Certificate on the condition that he, as the owner or as representing the owner, agrees to comply with all applicable ordinances and regulations of the Town of Montville and the State Statutes of the State of Connecticut regarding the use, occupancy and type of activity to be instituted. It is furthermore understood that any change of use of the facility for which this Certificate is being issued does require a new Certificate of Use and Compliance.

NOTE: Changes granted applicant after issuance of the Zoning Permit are to be clearly specified in the Certificate of Use and Compliance.

ENGINEERING DRAWINGS



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

BOBOS00024A

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

**139 SHARP HILL ROAD
UNCASVILLE, CT 06382**

CONNECTICUT CODE COMPLIANCE

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

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

SHEET INDEX

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

SCOPE OF WORK

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

- TOWER SCOPE OF WORK:**
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
 - INSTALL (3) PROPOSED ANTENNA MOUNTS (1 PER SECTOR)
 - 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 SAFETY SWITCH (IF REQUIRED)
 - INSTALL (1) PROPOSED CIENA BOX (IF REQUIRED)
 - INSTALL (1) PROPOSED METER SOCKET

SITE PHOTO



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



CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

GENERAL NOTES

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

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

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

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

SITE INFORMATION

PROPERTY OWNER: N/A
ADDRESS: 139 SHARP HILL ROAD
UNCASVILLE, CT 06382

TOWER TYPE: SELF SUPPORT TOWER

TOWER CO SITE ID: 370623

TOWER APP NUMBER: 13693127

COUNTY: NEW LONDON

LATITUDE (NAD 83): 41° 26' 56.300" N
41.44897222

LONGITUDE (NAD 83): 72° 9' 4.100" W
-72.15113889

ZONING JURISDICTION: CONNECTICUT SITING COUNCIL

ZONING DISTRICT: R40

PARCEL NUMBER: 86-022/023-000

OCCUPANCY GROUP: U

CONSTRUCTION TYPE: V-B

POWER COMPANY: EVERSOURCE

TELEPHONE COMPANY: FRONTIER COMMUNICATIONS

PROJECT DIRECTORY

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

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

ENGINEER: NB+C ENGINEERING SERVICES, LLC.
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615

SITE ACQUISITION: DAVID GOODFELLOW
DAVID.GOODFELLOW@DISH.COM

CONSTRUCTION MANAGER: CHAD WILCOX
CHAD.WILCOX@DISH.COM

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

DIRECTIONS

FROM DOWNTOWN NEW LONDON CT START OUT GOING NORTH ON HUNTINGTON ST TOWARD GOVERNOR WINTHROP BLVD. TURN RIGHT ONTO WILLIAMS ST. TURN RIGHT ONTO MOHEGAN AVE. MOHEGAN AVE BECOMES MOHEGAN AVENUE PKWY/CT-32. TURN LEFT ONTO RICHARDS GROVE RD. TURN RIGHT ONTO OLD NORWICH RD. TURN LEFT ONTO OLD COLCHESTER RD. TURN RIGHT ONTO SHARP HILL RD. 163 SHARP HILL RD, UNCASVILLE, CT 06382-2037, 163 SHARP HILL RD IS ON THE LEFT.

VICINITY MAP



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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

DRAWN BY: CHECKED BY: APPROVED BY:

LAU BW BW

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	08/10/2021	ISSUED FOR REVIEW
D	10/19/2021	ISSUED FOR CONSTRUCTION



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

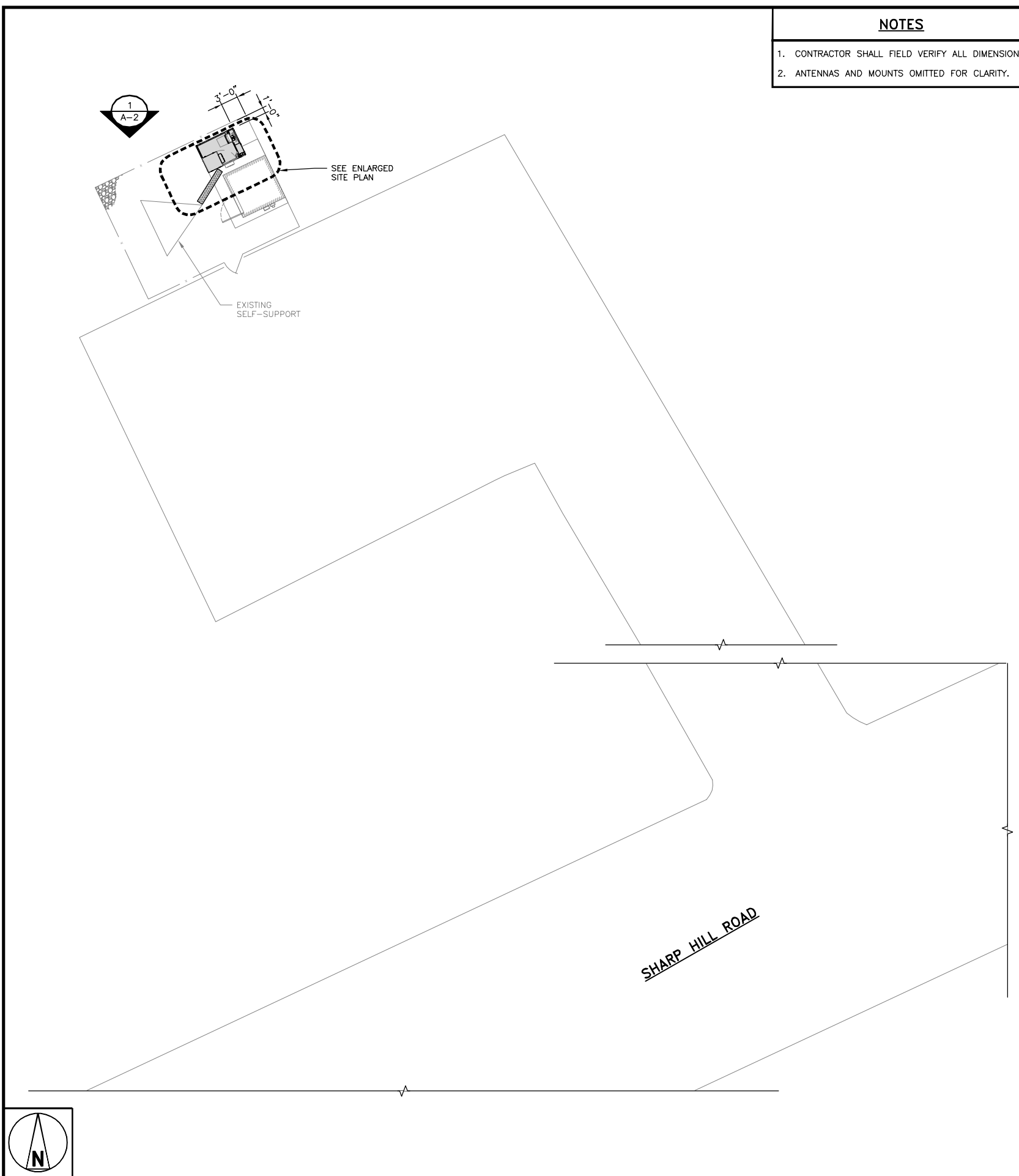
A&E PROJECT NUMBER
370623-13693127

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBOS00024A
139 SHARP HILL ROAD
UNCASVILLE, CT 06382

SHEET TITLE
TITLE SHEET

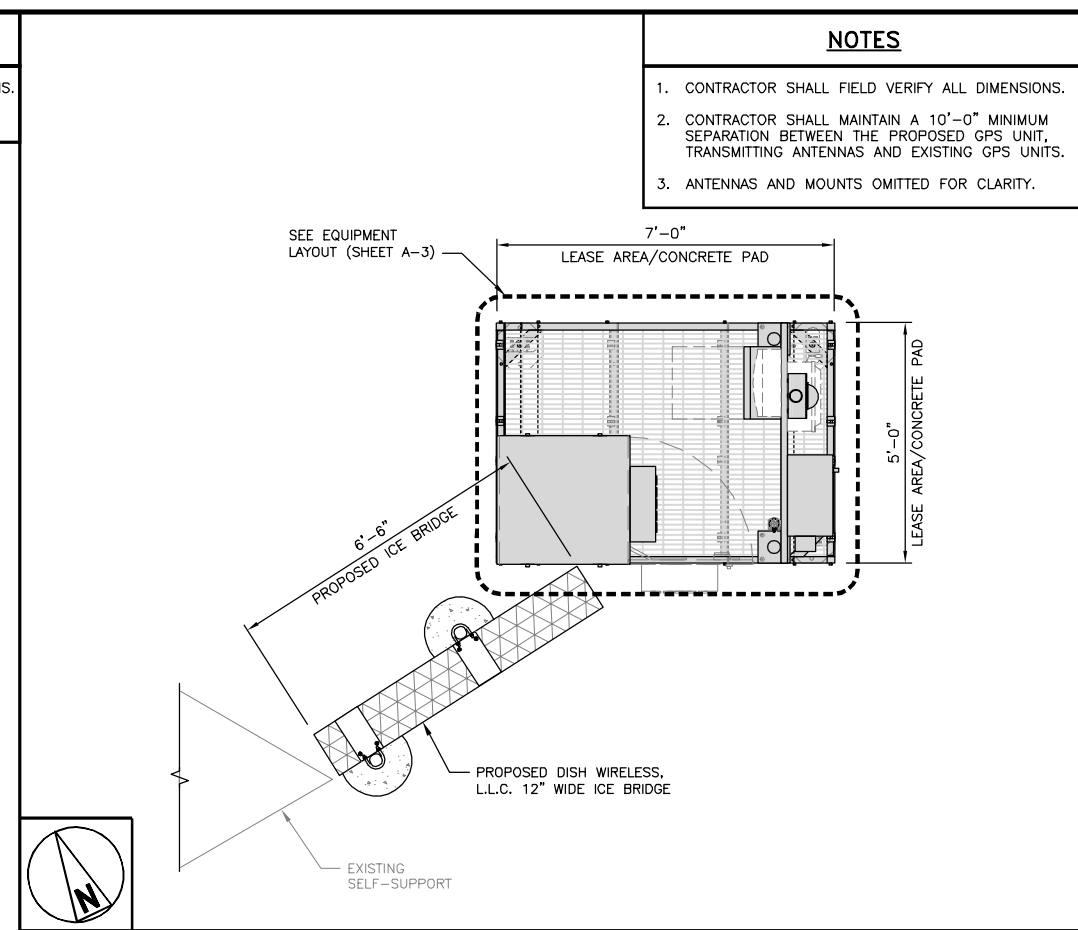
SHEET NUMBER

T-1



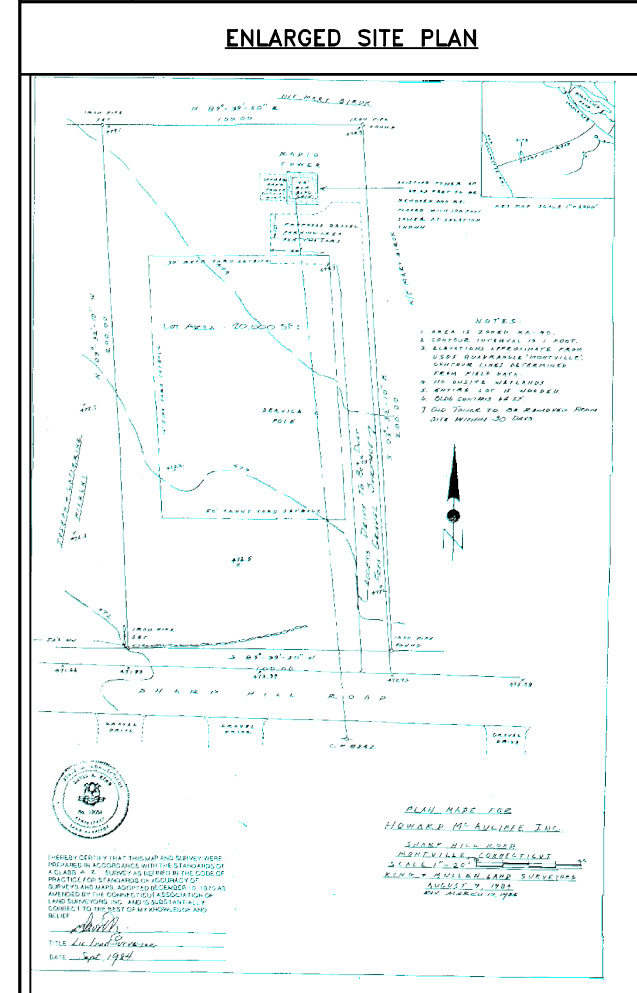
NOTES

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



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.



NOTES

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

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NB+C
TOTALLY COMMITTED.

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
LAU	BIW	BIW

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	08/10/2021	ISSUED FOR REVIEW
D	10/19/2021	ISSUED FOR CONSTRUCTION

10/19/21

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A&E PROJECT NUMBER
370623-13693127

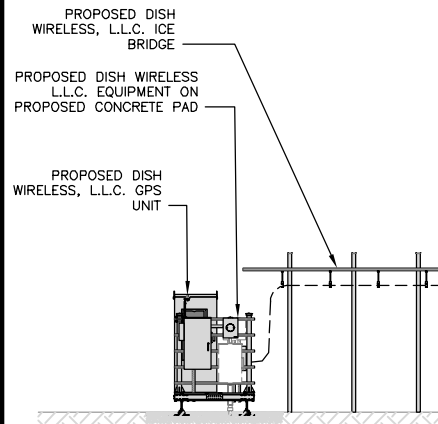
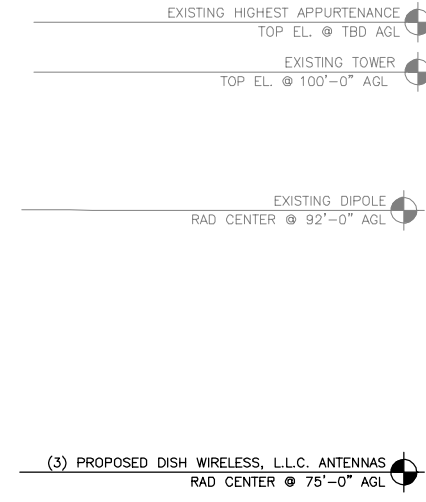
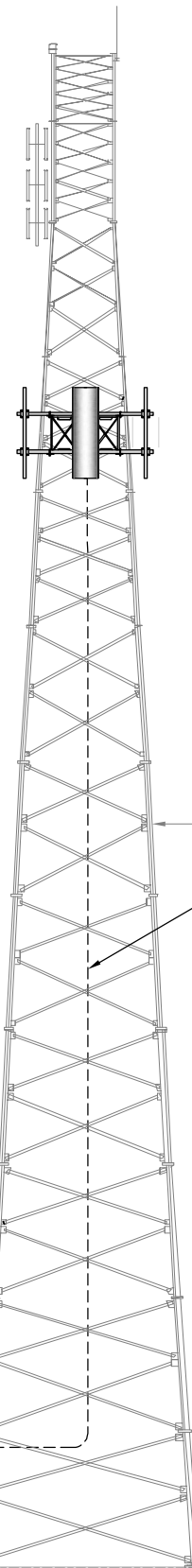
DISH WIRELESS, L.L.C. PROJECT INFORMATION
BOBOS00024A
139 SHARP HILL ROAD
UNCASVILLE, CT 06382

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.

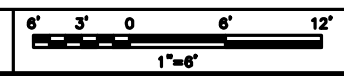


EXISTING TOWER

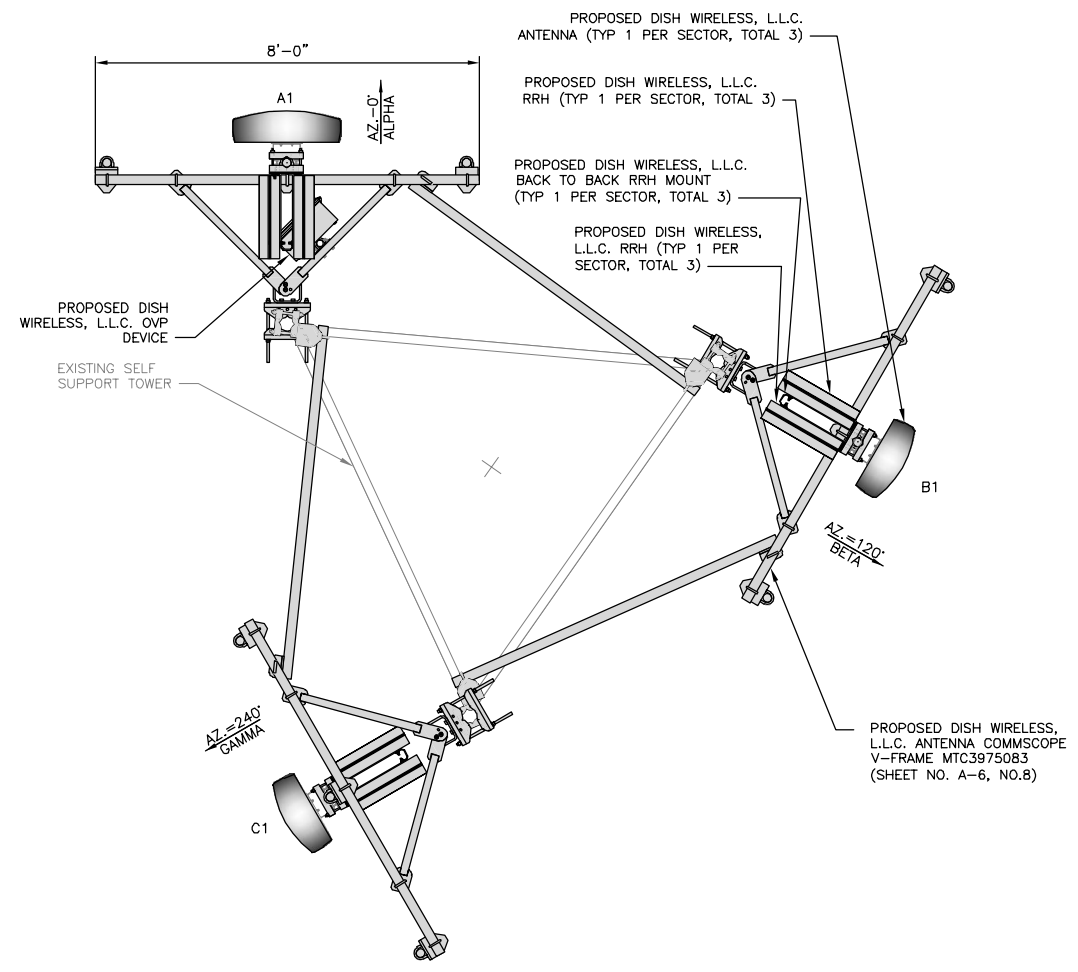
(1) PROPOSED DISH WIRELESS, L.L.C. HYBRID CABLE ROUTED PER ATC STRUCTURAL ANALYSIS



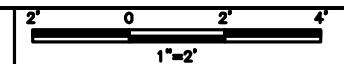
PROPOSED NORTH ELEVATION



1



ANTENNA LAYOUT



2

SECTOR	POSITION	ANTENNA					TRANSMISSION CABLE	
		EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA WIRELESS - MX08FRO665-21	5G	72.0" x 20.0"	0'	75'-0"	(1) HIGH-CAPACITY HYBRID CABLE (95' LONG)
BETA	B1	PROPOSED	JMA WIRELESS - MX08FRO665-21	5G	72.0" x 20.0"	120'	75'-0"	
GAMMA	C1	PROPOSED	JMA WIRELESS - MX08FRO665-21	5G	72.0" x 20.0"	240'	75'-0"	
SECTOR	POSITION	RRH		NOTES				
		MANUFACTURER - MODEL NUMBER	TECHNOLOGY					
ALPHA	A1	FUJITSU - TA08025-B605	N66,N70	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.				
	A1	FUJITSU - TA08025-B604	N29,N71					
BETA	B1	FUJITSU - TA08025-B605	N66,N70					
	B1	FUJITSU - TA08025-B604	N29,N71					
GAMMA	C1	FUJITSU - TA08025-B605	N66,N70					
	C1	FUJITSU - TA08025-B604	N29,N71					
SECTOR	POSITION	OVP						
		MANUFACTURER - MODEL NUMBER	TECHNOLOGY					
ALPHA	-	RAYCAP - RDIC-9181-PF-48	--					

ANTENNA SCHEDULE

NO SCALE

3



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



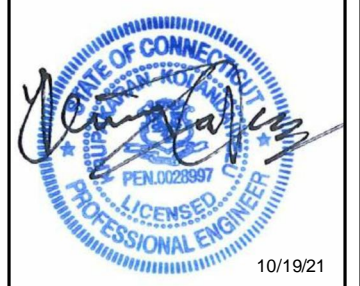
NB+C ENGINEERING SERVICES, L.L.C.
8601 SIX FORKS ROAD, SUITE 540
RALEIGH, NC 27615
(919) 657-9131

DRAWN BY:	CHECKED BY:	APPROVED BY:
LAU	BIW	BIW

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
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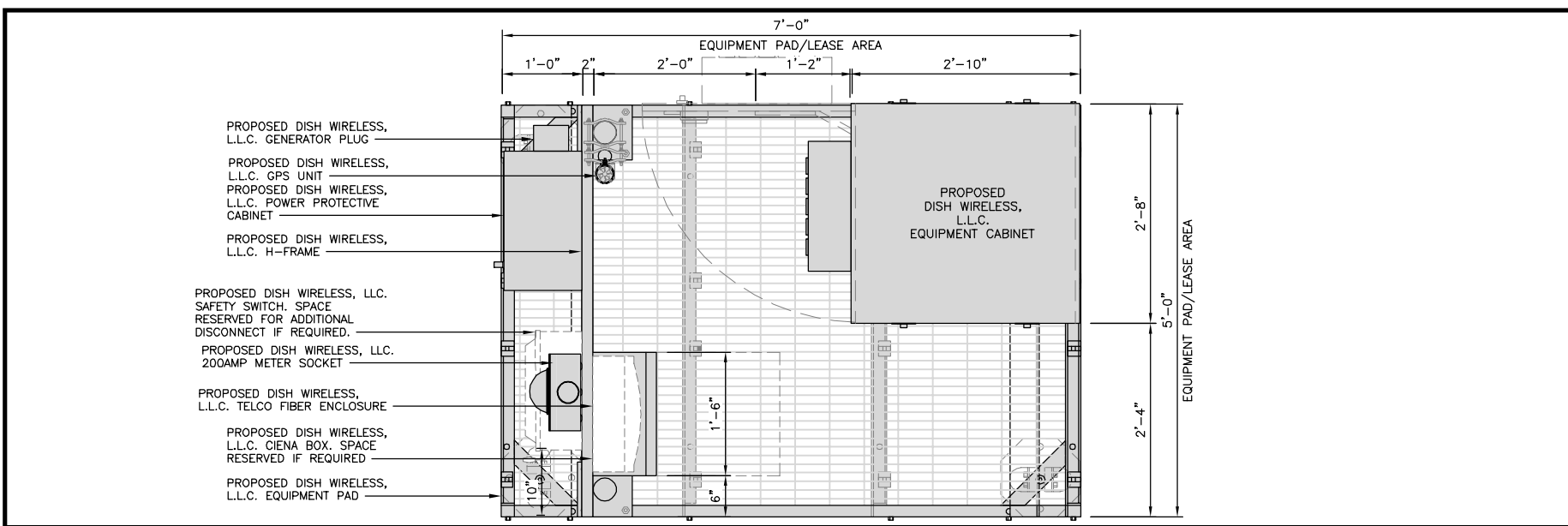
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370623-13693127

DISH WIRELESS, L.L.C. PROJECT INFORMATION
BOBOS00024A
139 SHARP HILL ROAD
UNCASVILLE, CT 06382

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2



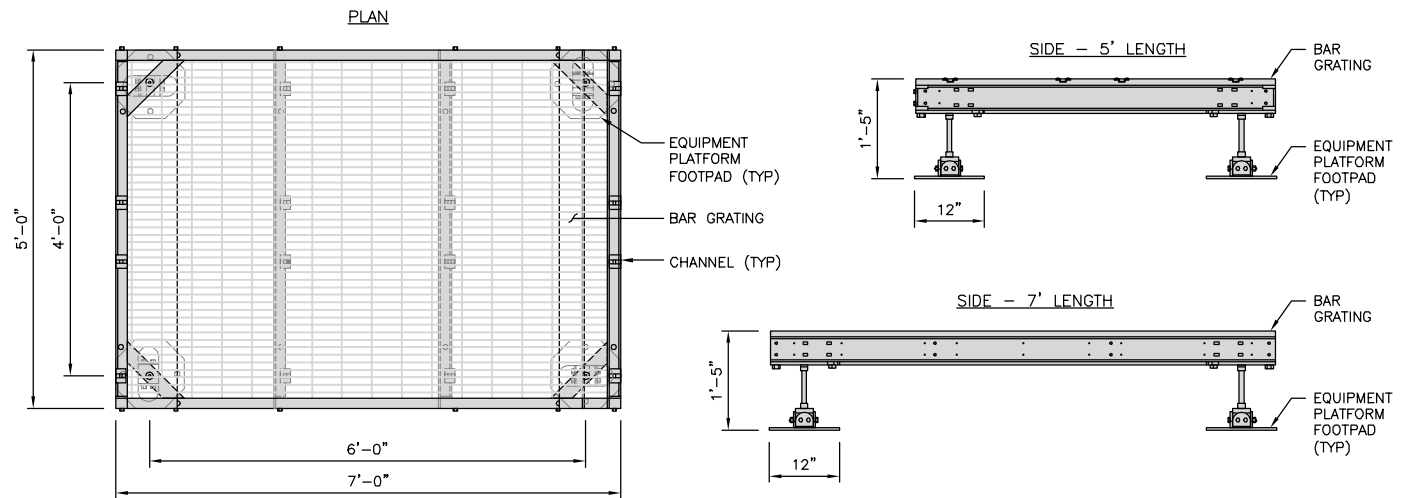
PLATFORM EQUIPMENT PLAN

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

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"

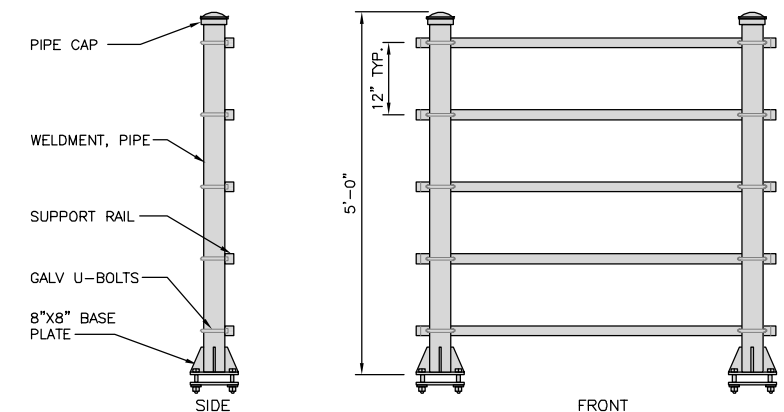
NOTE:
PLATFORM MUST BE LEVEL WITHIN 1 DEGREE



PLATFORM DETAIL

NO SCALE 2

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



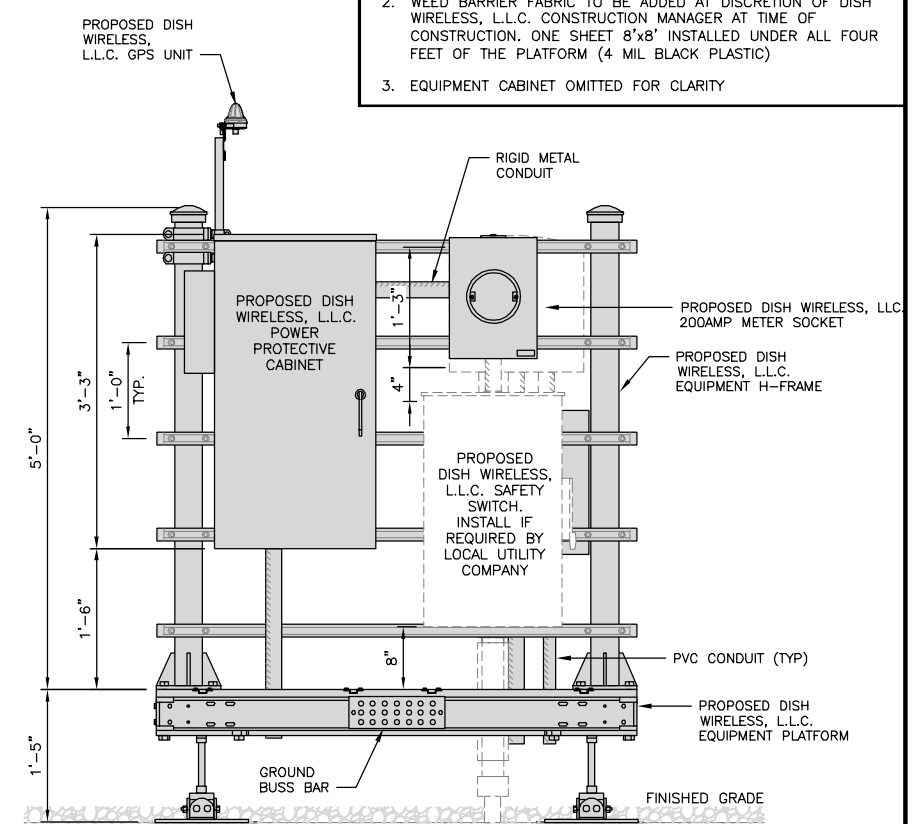
H-FRAME DETAIL

NO SCALE 4

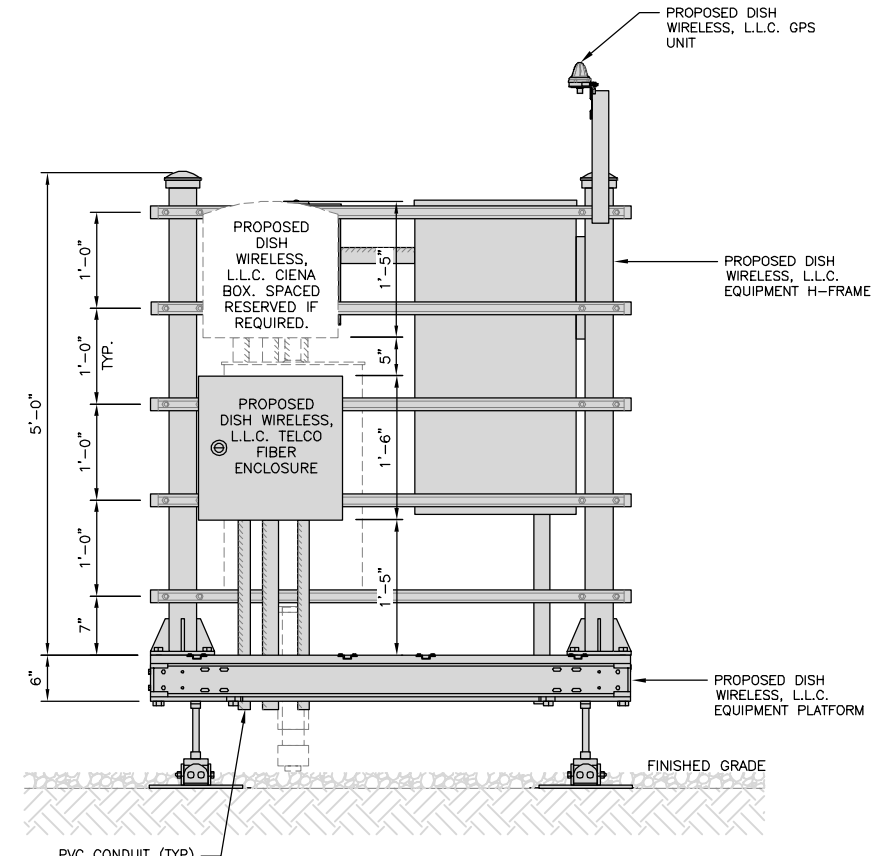
NOT USED 5

NOTES

- CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE
- 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)
- EQUIPMENT CABINET OMITTED FOR CLARITY



FRONT ELEVATION



BACK ELEVATION

H-FRAME EQUIPMENT ELEVATION

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



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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8601 SIX FORKS ROAD, SUITE 540
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RFDS REV #:		1

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370623-13693127

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBOS00024A
139 SHARP HILL ROAD
UNCASVILLE, CT 06382

SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER
A-3

CHARLES INDUSTRY HEX CUBE-PM639155N4	
DIMENSIONS (HxWxD):	74"x32"x32"
POWER PLANT:	-48VDC ABB/600W
TOTAL WEIGHT (EMPTY)	408 LBS

CABINET DETAIL NO SCALE 1

RAYCAP RDIAC-6512-P-240-MTS POWER & TELCO PROTECTION CABINET	
DIMENSIONS (HxWxD)	40"x20"x10"
WEIGHT/ VOLUME	124 LBS
MANUAL TRANSFER SWITCH	200A
LOAD CENTER	30 POSITION
MAIN BREAKER	200A, 65kA AIC
GENERATOR RECEPTACLE	CAMLOCK
NEMA RATING	3R POWDER COATED ALUMINUM
SURGE PROTECTION DEVICE	UL 1449 4TH EDITION LISTED

POWER PROTECTION CABINET (PPC) DETAIL NO SCALE 2

SQUARE D SAFETY SWITCH D324NRB	
ENCLOSURE DIM (HxWxD)	29.25"x17.25"x8.25"
TOTAL WEIGHT (EMPTY)	45.33 LBS
MAX VOLTAGE/AMPS/WATT	240V/200A/48000W
ENCLOSURE RATING	OUTDOOR NEMA 3R

SAFETY SWITCH NO SCALE 3

EATON METER SOCKET UNRRS213BEUSE	
METER SOCKET TYPE	RING
ENCLOSURE DIM (HxWxD)	16"x12"x6"
MAIN AMPERE RATING	200A
WEIGHT	18 LBS

METER SOCKET DETAIL NO SCALE 4

CIENA 3931 SERVICE DELIVERY SWITCH	
DIMENSIONS (HxWxD)	17.0"x16.8"x7.0" 431x427x178mm
WEIGHT	28.6 LBS/13.0 KG
POWER INPUT	60W MAX

CIENA DETAIL NO SCALE 5

CHARLES FIBER TELCO ENCLOSURE CUBE-MP1818WB-A	
ENCLOSURE DIM (HxWxD)	18.0"x18.0"x9.25"
NEMA RATING	4X
THERMAL	SEALED
MOUNTING BACKBOARD	WOOD

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

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

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

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LAU	BIW	BIW

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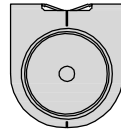
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370623-13693127

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBOS00024A
139 SHARP HILL ROAD
UNCASVILLE, CT 06382

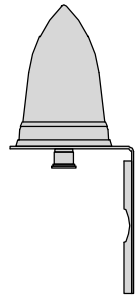
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

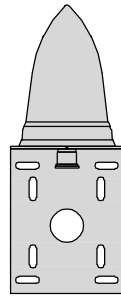
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



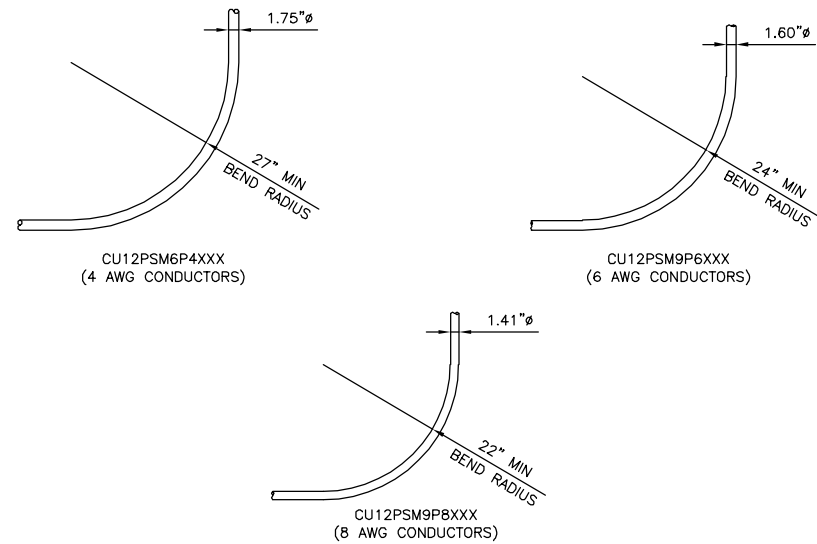
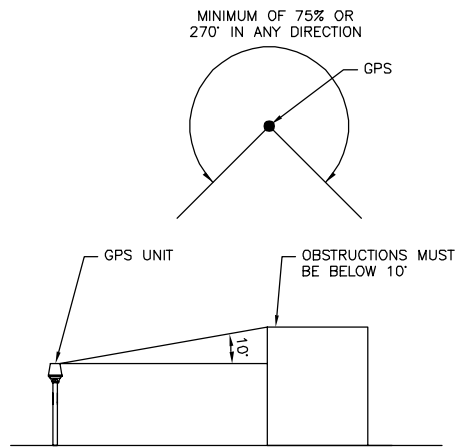
TOP



BACK



SIDE



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.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NB+C
TOTALLY COMMITTED.

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

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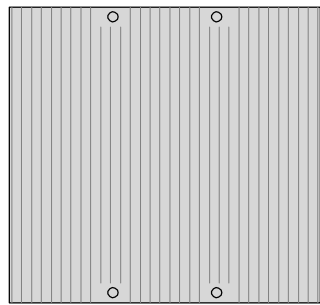
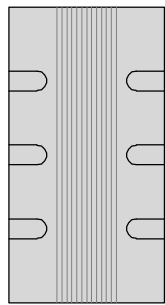
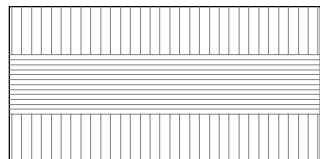
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370623-13693127

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBOS00024A
139 SHARP HILL ROAD
UNCASVILLE, CT 06382

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-5

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

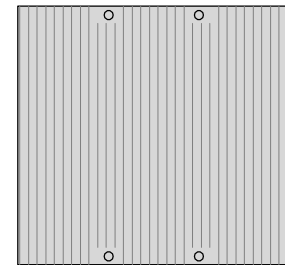
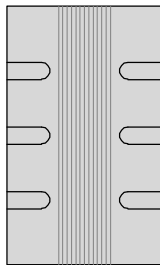
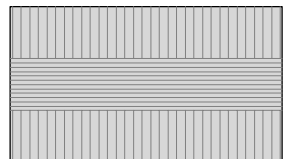


PLAN

SIDE

FRONT

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



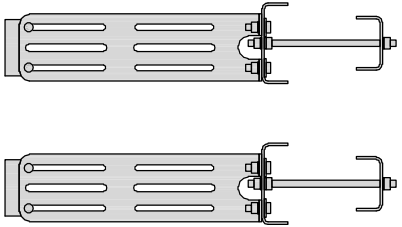
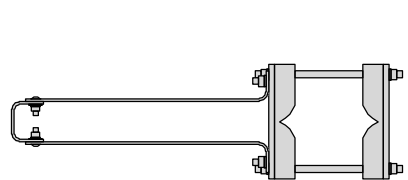
PLAN

SIDE

FRONT

COMMSCOPE RR-FA2 SMALL STABILIZER	
DIMENSIONS (HxWxD)	16.4"x8.5"x18"
WEIGHT	39.2 lbs

DESIGN NOTES:
MOUNT WILL FIT LEGS UP TO:
- 5.6" ROUND
- 6.0" 60° ANGLE
- 4.5" 90° ANGLE



PLAN

SIDE

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

REMOTE RADIO HEAD DETAIL

NO SCALE

1

REMOTE RADIO HEAD DETAIL

NO SCALE

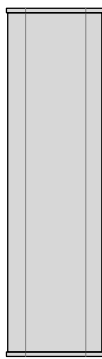
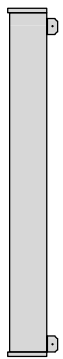
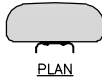
2

RRH MOUNT DETAIL

NO SCALE

3

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



PLAN

BACK

SIDE

FRONT

ANTENNA DETAIL

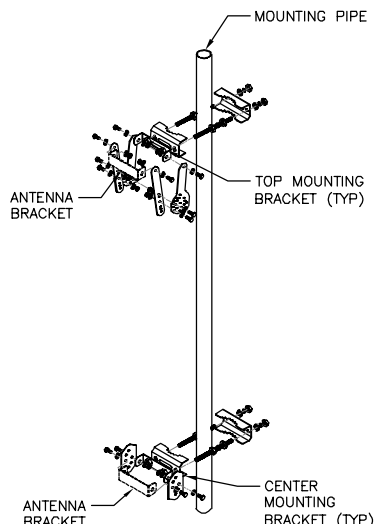
NO SCALE

4

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

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

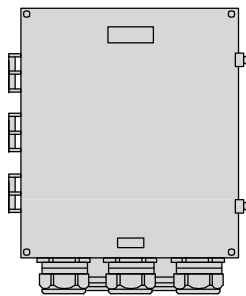
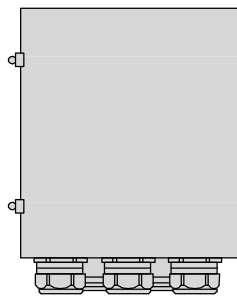
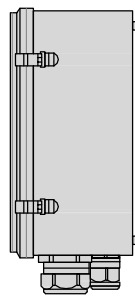
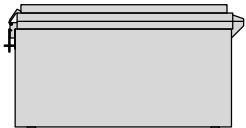


ANTENNA BRACKET DETAIL

NO SCALE

5

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



PLAN

SIDE

BACK

FRONT

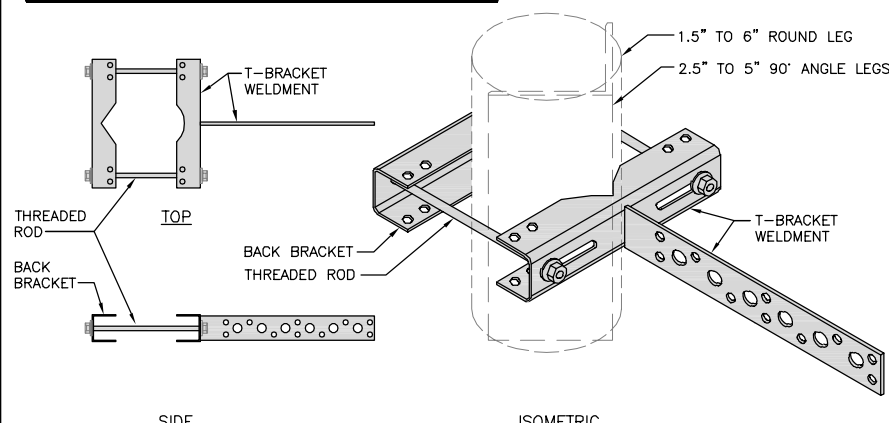
SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

6

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

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



SIDE

ISOMETRIC

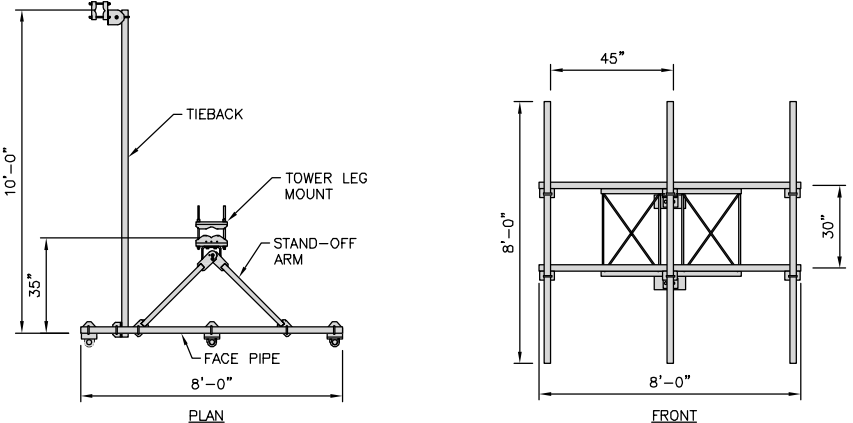
VERTICAL CABLE SUPPORT DETAIL

NO SCALE

7

COMMSCOPE V-FRAME MTC3975083	
FACE SIZE	8'-0"
WEIGHT	352.136 lbs

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



ANTENNA FRAME DETAIL

NO SCALE

8

NOT USED

NO SCALE

9



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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LAU BIW BIW

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DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBOS00024A
139 SHARP HILL ROAD
UNCASVILLE, CT 06382

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.

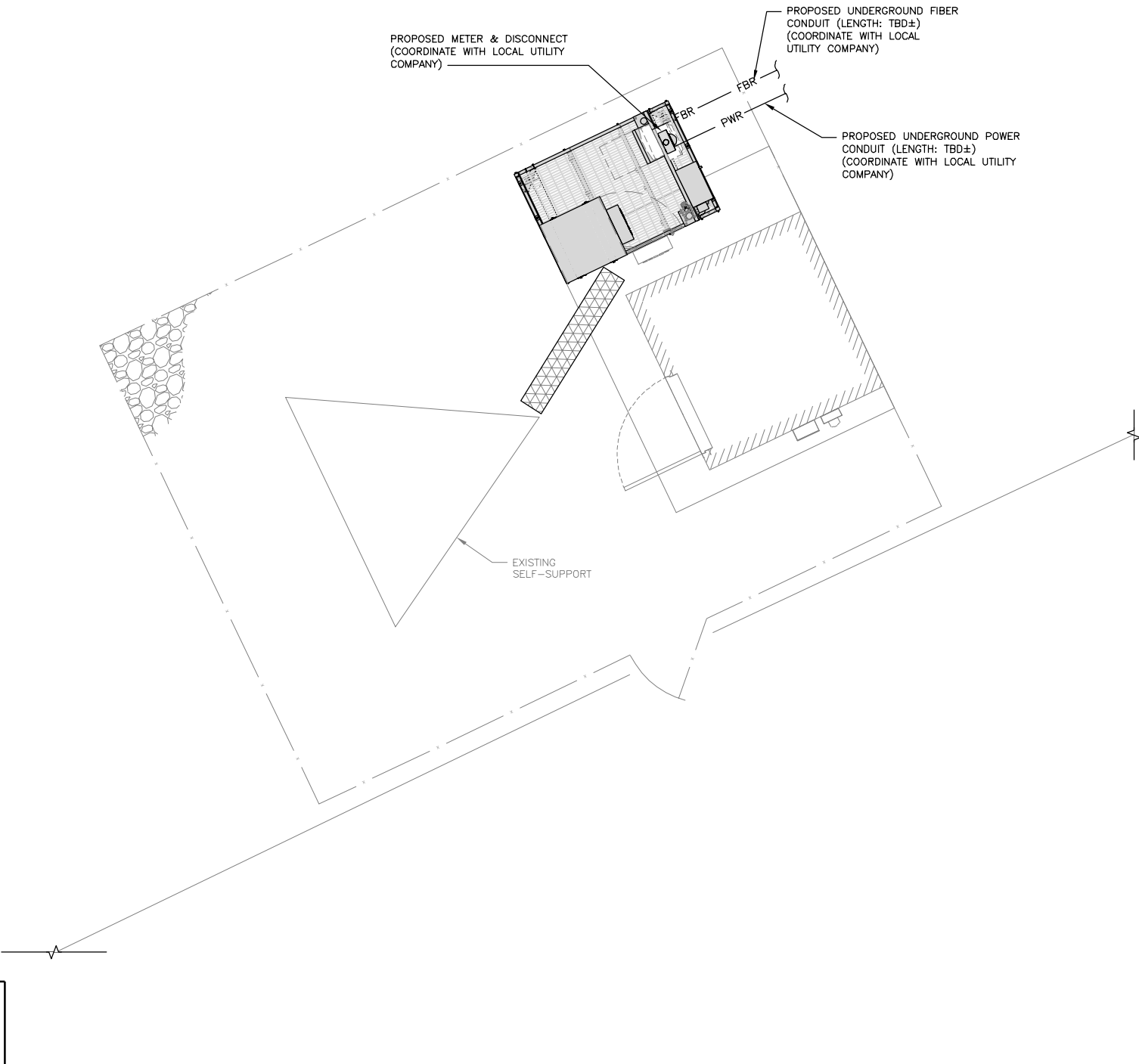
DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND -48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY -48V.

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

PROPOSED METER & DISCONNECT
(COORDINATE WITH LOCAL UTILITY COMPANY)

PROPOSED UNDERGROUND FIBER CONDUIT (LENGTH: TBD±)
(COORDINATE WITH LOCAL UTILITY COMPANY)

PROPOSED UNDERGROUND POWER CONDUIT (LENGTH: TBD±)
(COORDINATE WITH LOCAL UTILITY COMPANY)



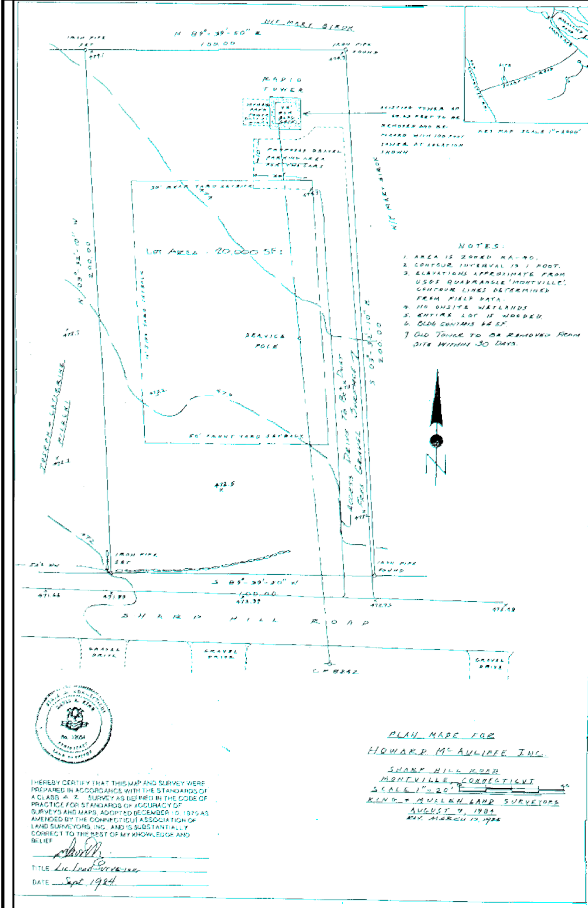
ELECTRICAL NOTES

NO SCALE

2

NOTES

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

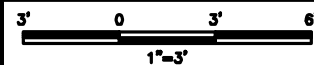


EXISTING SURVEY (BY OTHERS)

NO SCALE

3

UTILITY ROUTE PLAN



1



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



NB+C ENGINEERING SERVICES, L.L.C.
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RALEIGH, NC 27615
(919) 657-9131

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10/19/21

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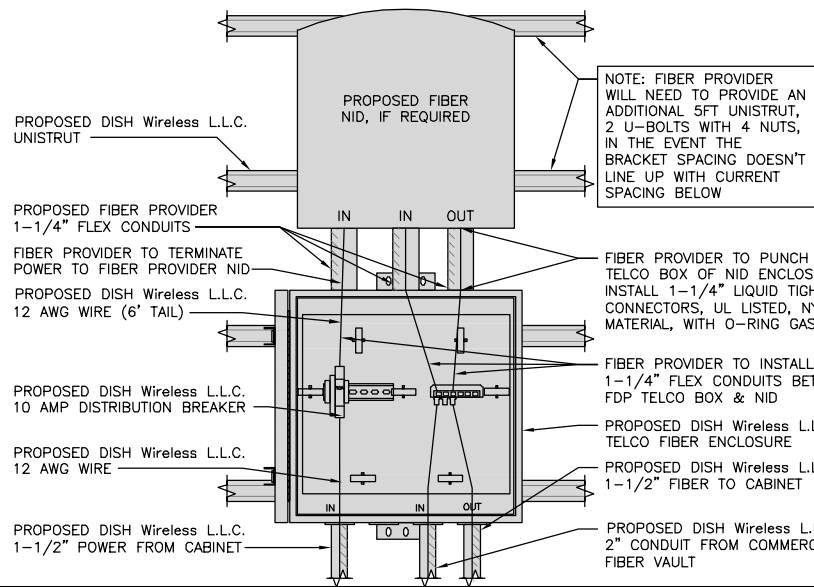
A&E PROJECT NUMBER
370623-13693127

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBOS00024A
139 SHARP HILL ROAD
UNCASVILLE, CT 06382

SHEET TITLE
ELECTRICAL/FIBER ROUTE
PLAN AND NOTES

SHEET NUMBER

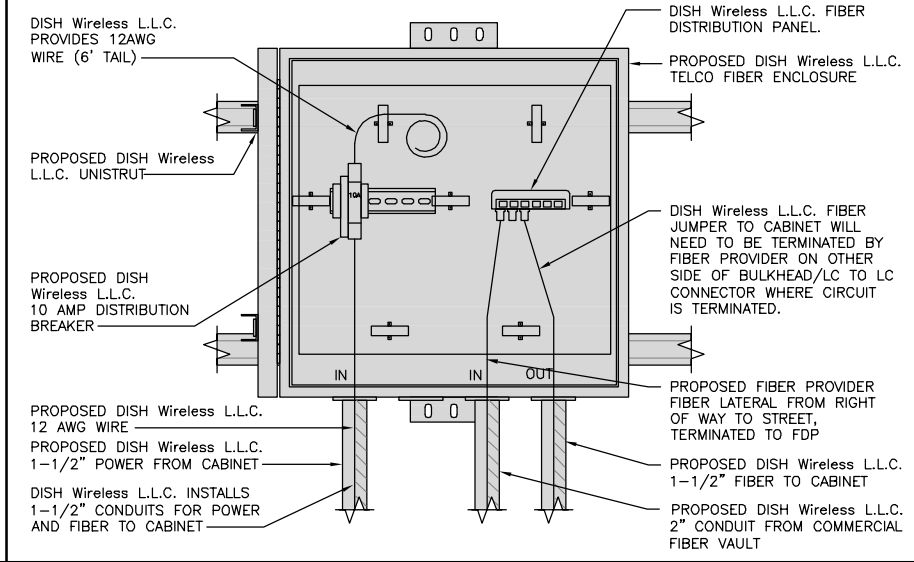
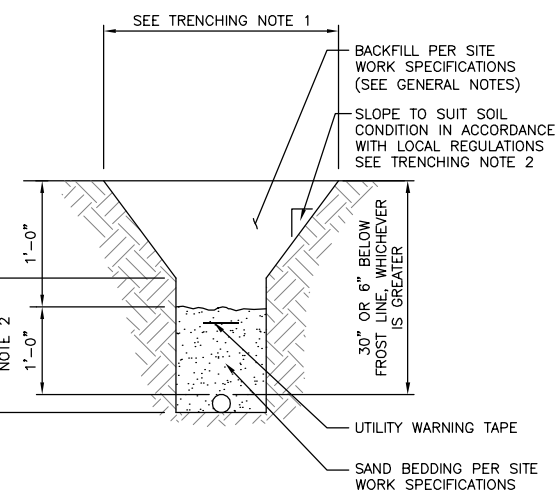
E-1



NOTE: FIBER PROVIDER WILL NEED TO PROVIDE AN ADDITIONAL 5FT UNISTRUT, 2 U-BOLTS WITH 4 NUTS, IN THE EVENT THE BRACKET SPACING DOESN'T LINE UP WITH CURRENT SPACING BELOW

TRENCHING NOTES

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



LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL)

NO SCALE 1

TYPICAL UNDERGROUND TRENCH DETAIL

NO SCALE 2

DARK TELCO BOX – INTERIOR WIRING LAYOUT

NO SCALE 3

NOT USED

NO SCALE 4

NOT USED

NO SCALE 5

NOT USED

NO SCALE 6

NOT USED

NO SCALE 7

NOT USED

NO SCALE 8

NOT USED

NO SCALE 9



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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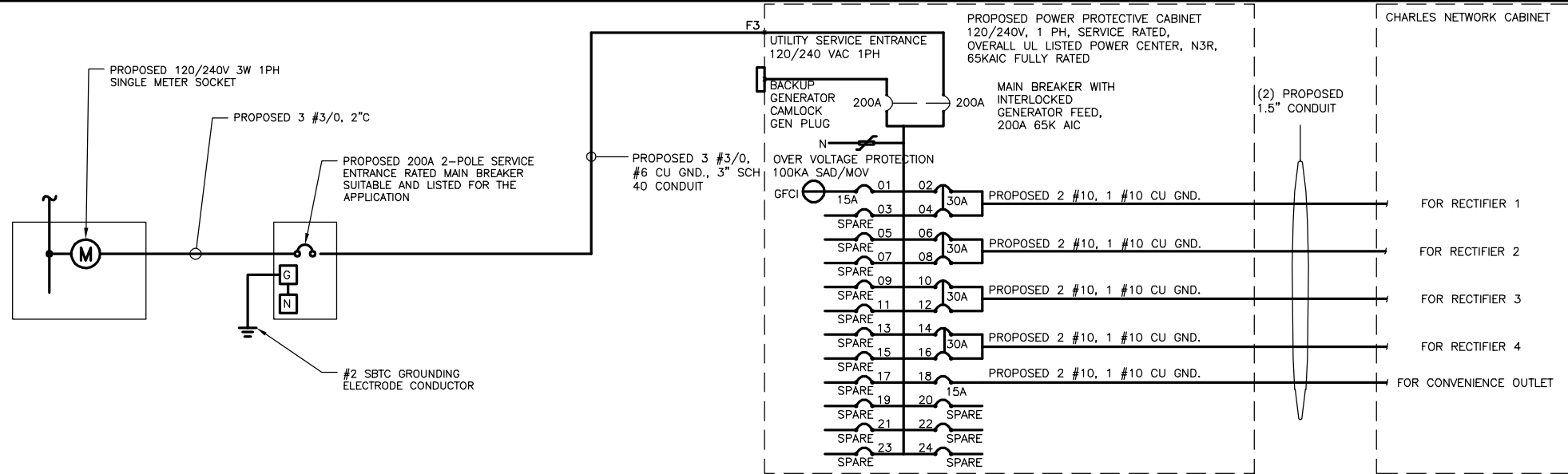
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370623-13693127

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBOS00024A
139 SHARP HILL ROAD
UNCASVILLE, CT 06382

SHEET TITLE
ELECTRICAL
DETAILS

SHEET NUMBER
E-2



(CHARLES ABB GE INFINITY) WITH STAND ALONE METER 120V240V 1PH SOURCE

NO SCALE 1

PROPOSED PANEL SCHEDULE										
LOAD SERVED	VOLT AMPS (WATTS)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS)		LOAD SERVED
	L1	L2						L1	L2	
GFCI IN PPC CAB.	1440A		15A	1	A	2	30A	2880	2880	ABB/GE INFINITY RECTIFIER 1
-SPARE-				3	B	4	30A	2880	2880	ABB/GE INFINITY RECTIFIER 1
-SPARE-				5	A	6	30A	2880	2880	ABB/GE INFINITY RECTIFIER 2
-SPARE-				7	B	8	30A	2880	2880	ABB/GE INFINITY RECTIFIER 2
-SPARE-				9	A	10	30A	2880	2880	ABB/GE INFINITY RECTIFIER 3
-SPARE-				11	B	12	30A	2880	2880	ABB/GE INFINITY RECTIFIER 3
-SPARE-				13	A	14	30A	2880	2880	ABB/GE INFINITY RECTIFIER 4
-SPARE-				15	B	16	30A	2880	2880	ABB/GE INFINITY RECTIFIER 4
-SPARE-				17	A	18	15A	1920		CHARLES GFCI OUTLET
-SPARE-				19	B	20				-SPARE-
-SPARE-				21	A	22				-SPARE-
-SPARE-				23	B	24				-SPARE-
VOLT AMPS	1440							12960A	11520	
200A MCB, 1φ, 3W, 120/240V				L1	L2					
MB RATING: 65,000 AIC				14400	11520			VOLT AMPS		
				120	96			AMPS		
								MAX AMPS		
								MAX 125%		

PANEL SCHEDULE

(CHARLES ABB GE INFINITY) WITH STAND ALONE METER 120V240V 1PH SOURCE

NO SCALE 2

NOT USED

NO SCALE 3

NOT USED

NO SCALE 4



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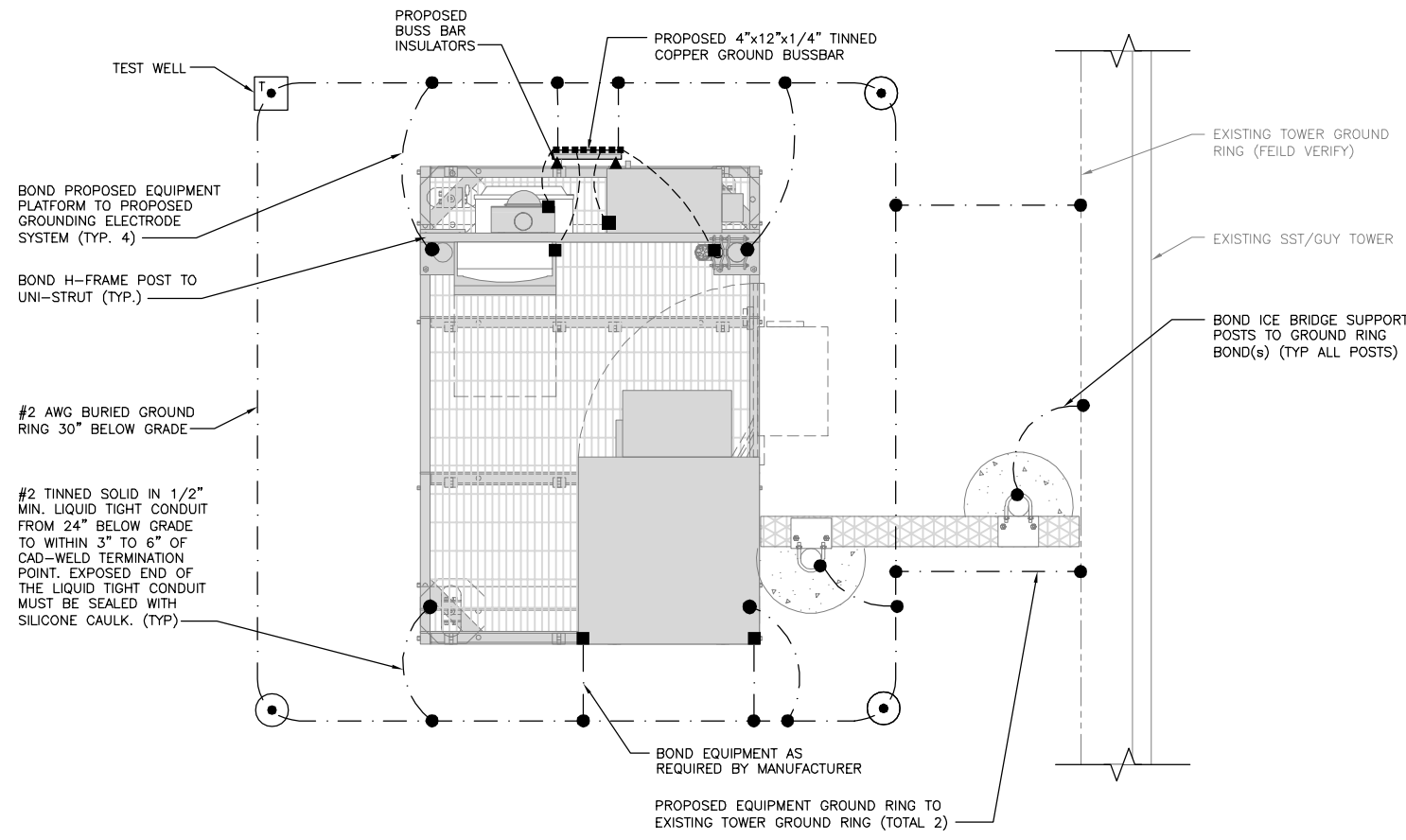
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370623-13693127

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBOS00024A
139 SHARP HILL ROAD
UNCASVILLE, CT 06382

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

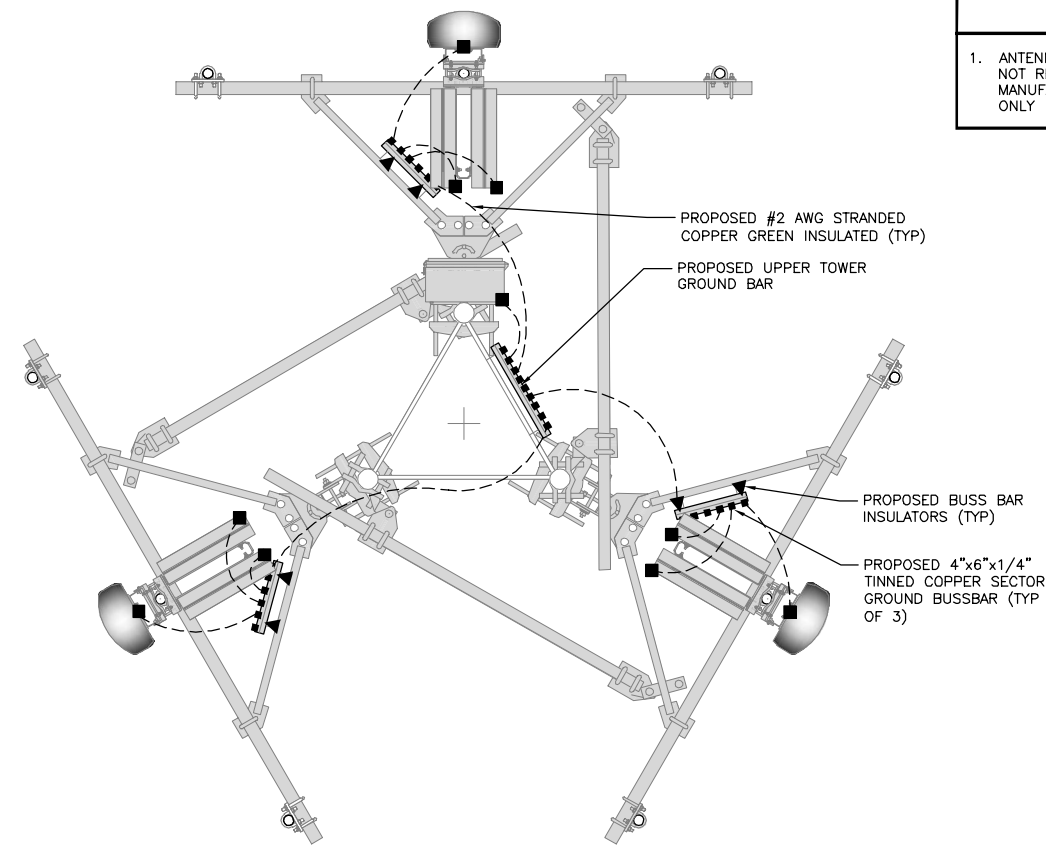
SHEET NUMBER

E-3



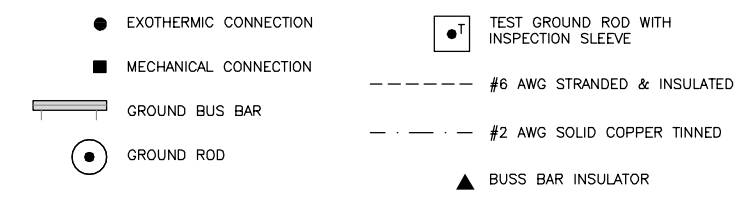
TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2



GROUNDING LEGEND

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

GROUNDING KEY NOTES

- (A) EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.
- (B) TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.
- (C) INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUNDED TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.
- (D) BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.
- (E) GROUND ROD: UL LISTED COPPER CLAD STEEL, MINIMUM 5/8" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.
- (F) CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.
- (G) HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.
- (H) EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE.
- (J) TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.
- (K) FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.
- (L) INTERIOR UNIT BONDS: METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.
- (M) FENCE AND GATE GROUNDING: METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.
- (N) EXTERIOR UNIT BONDS: METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. USING #2 TINNED SOLID COPPER WIRE.
- (P) ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.
- (Q) DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR.
- (R) TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT COLLAR. REFER TO DISH WIRELESS, L.L.C. GROUNDING NOTES.

GROUNDING KEY NOTES

NO SCALE 3



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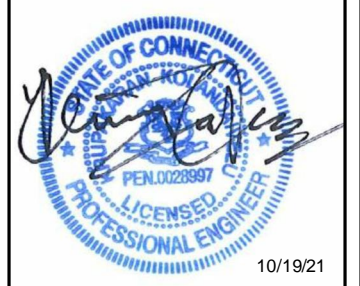
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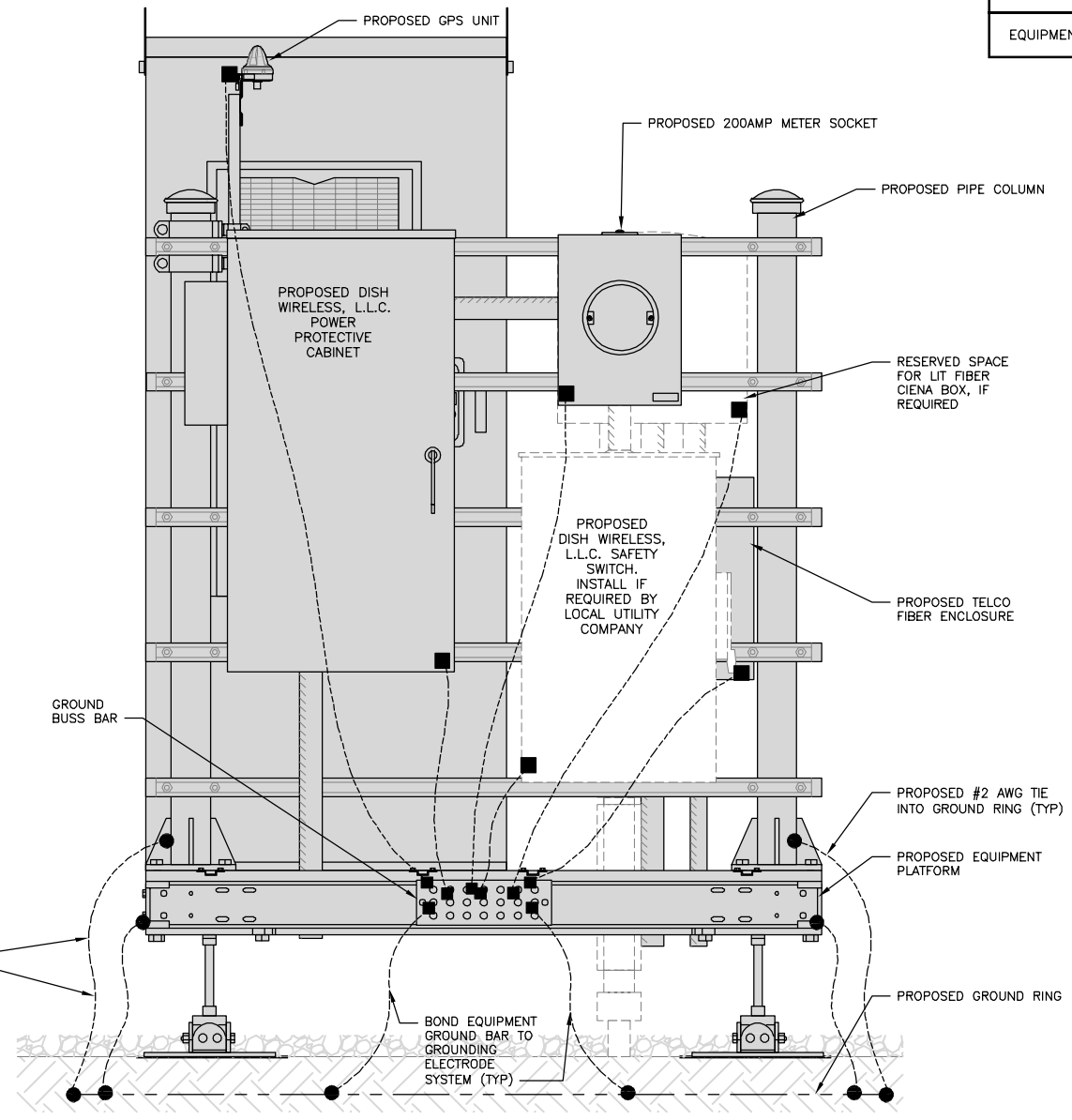
DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBOS00024A
139 SHARP HILL ROAD
UNCASVILLE, CT 06382

SHEET TITLE
GROUNDING PLANS AND NOTES

SHEET NUMBER

G-1

NOTES
EQUIPMENT CABINET OMITTED FOR CLARITY

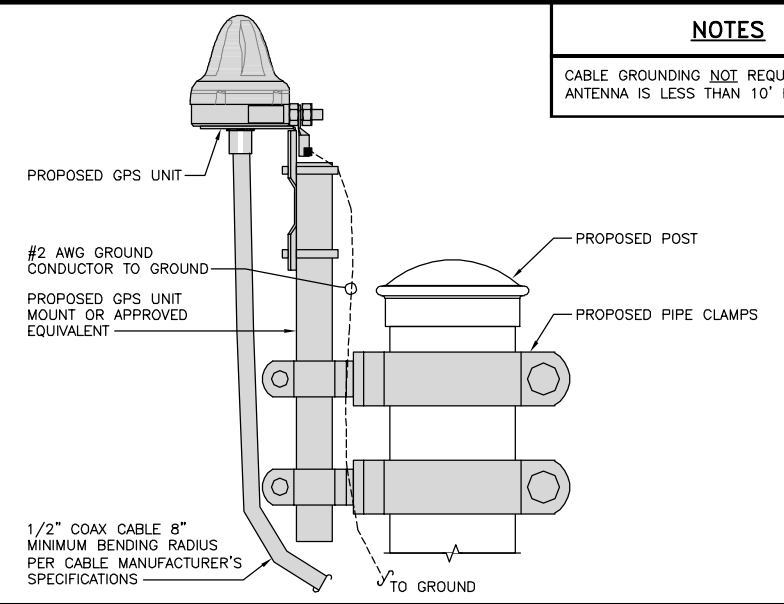


#2 TINNED SOLID IN 1/2" MIN. LIQUID TIGHT CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. EXPOSED END OF THE LIQUID TIGHT CONDUIT MUST BE SEALED WITH SILICONE CAULK. (TYP)

H-FRAME GROUNDING DETAIL

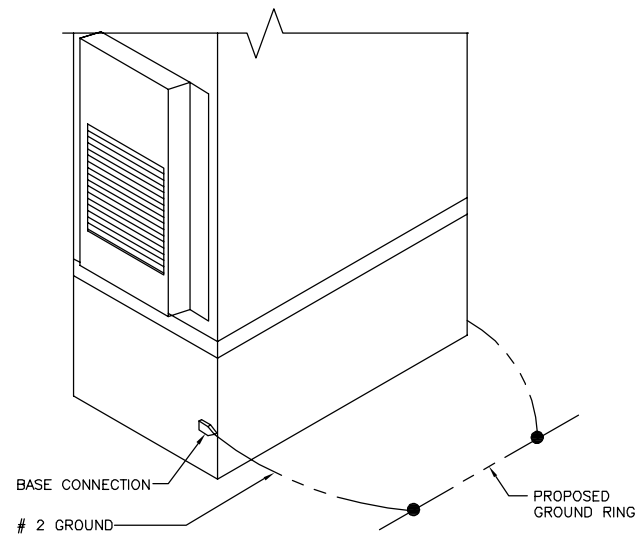
NO SCALE 1

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



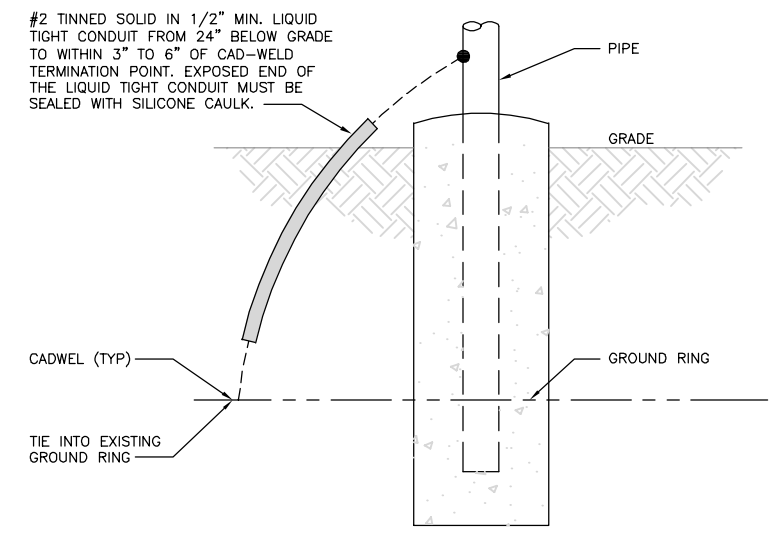
TYPICAL GPS UNIT GROUNDING

NO SCALE 2



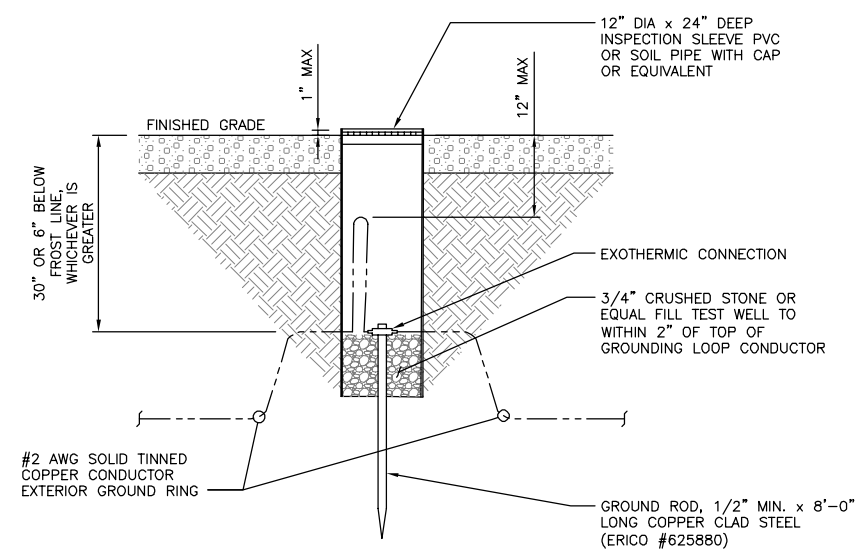
OUTDOOR CABINET GROUNDING

NO SCALE 3



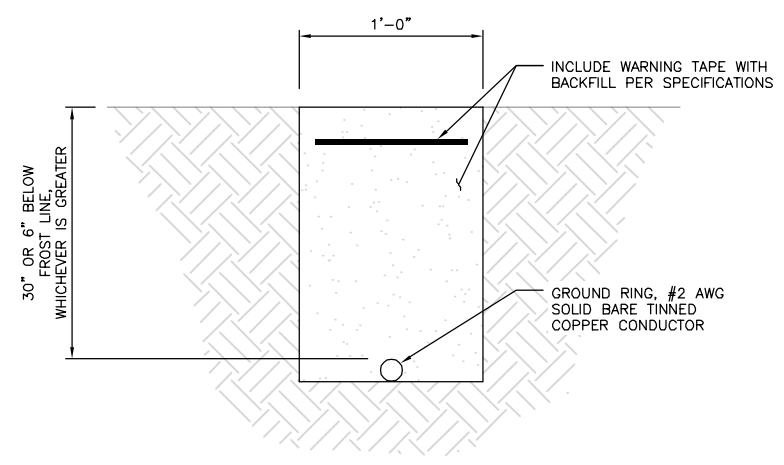
TRANSITIONING GROUND DETAIL

NO SCALE 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE

NO SCALE 5



TYPICAL GROUND RING TRENCH

NO SCALE 6



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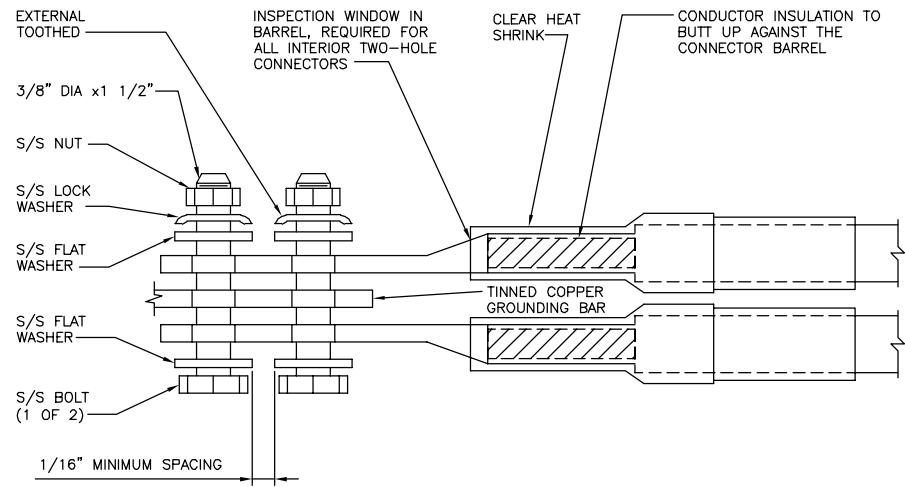
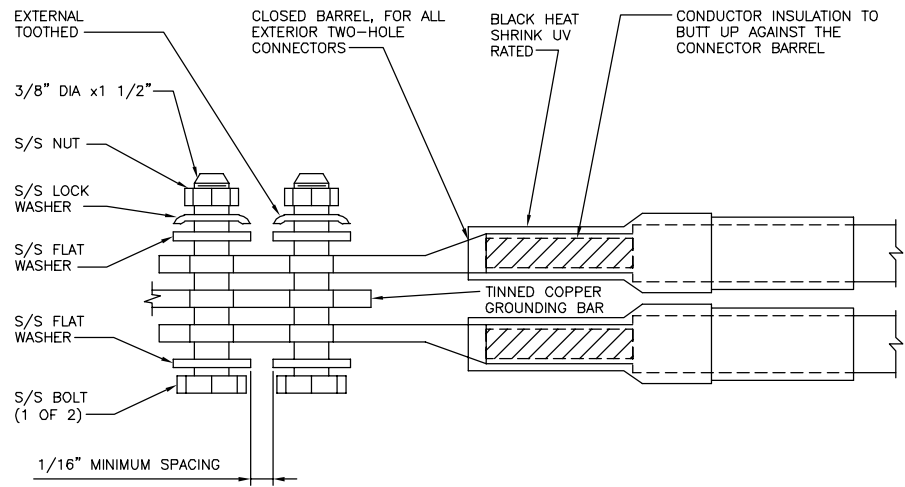
DISH WIRELESS, L.L.C. PROJECT INFORMATION
BOBOS00024A
139 SHARP HILL ROAD
UNCASVILLE, CT 06382

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER

G-2

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



TYPICAL GROUNDING NOTES

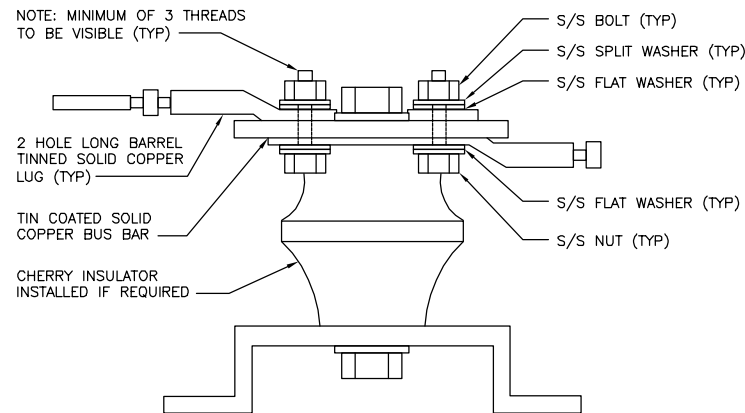
NO SCALE 1

TYPICAL EXTERIOR TWO HOLE LUG

NO SCALE 2

TYPICAL INTERIOR TWO HOLE LUG

NO SCALE 3



LUG DETAIL

NO SCALE 4

NOT USED

NO SCALE 5

NOT USED

NO SCALE 6

NOT USED

NO SCALE 7

NOT USED

NO SCALE 8

NOT USED

NO SCALE 9



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SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-3

RF JUMPER COLOR CODING

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

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

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

ALPHA RRH				BETA RRH				GAMMA RRH			
PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT
RED	RED	RED	RED	BLUE	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN	GREEN
ORANGE	ORANGE	RED	RED	ORANGE	ORANGE	BLUE	BLUE	ORANGE	ORANGE	GREEN	GREEN
	WHITE (-) PORT	ORANGE	ORANGE		WHITE (-) PORT	ORANGE	ORANGE		WHITE (-) PORT	ORANGE	ORANGE
			WHITE (-) PORT				WHITE (-) PORT				WHITE (-) PORT

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

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

PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT
RED	RED	RED	RED	BLUE	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN	GREEN
PURPLE	PURPLE	RED	RED	PURPLE	PURPLE	BLUE	BLUE	PURPLE	PURPLE	GREEN	GREEN
	WHITE (-) PORT	PURPLE	PURPLE		WHITE (-) PORT	PURPLE	PURPLE		WHITE (-) PORT	PURPLE	PURPLE
			WHITE (-) PORT				WHITE (-) PORT				WHITE (-) PORT

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

EXAMPLE 1	EXAMPLE 2	EXAMPLE 3
RED	RED	RED
BLUE	BLUE	
GREEN	GREEN	ORANGE
ORANGE	YELLOW	PURPLE
PURPLE		

FIBER JUMPERS TO RRHs

LOW-BAND RRH FIBER CABLES HAVE SECTOR STRIPE ONLY

LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH
RED	RED	BLUE	BLUE	GREEN	GREEN
	PURPLE		PURPLE		PURPLE

POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY

LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH
RED	RED	BLUE	BLUE	GREEN	GREEN
	PURPLE		PURPLE		PURPLE

RET MOTORS AT ANTENNAS

ANTENNA 1 LOW BAND/ "IN"	ANTENNA 1 HIGH BAND/ "IN"	ANTENNA 1 LOW BAND/ "IN"	ANTENNA 1 HIGH BAND/ "IN"	ANTENNA 1 LOW BAND/ "IN"	ANTENNA 1 HIGH BAND/ "IN"
RED	RED	BLUE	BLUE	GREEN	GREEN
	PURPLE		PURPLE		PURPLE

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.

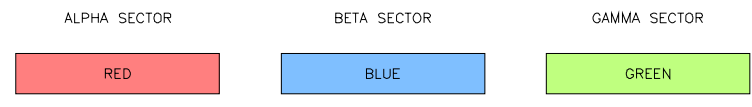
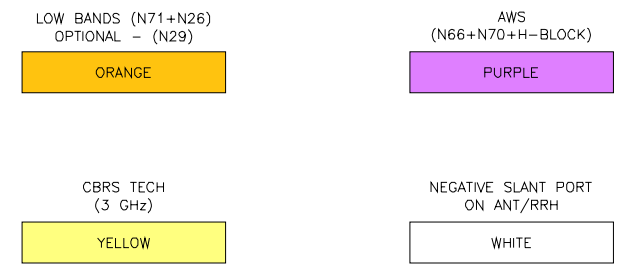
MICROWAVE CABLES WILL REQUIRE P-TOUCH LABELS INSIDE THE CABINET TO IDENTIFY THE LOCAL AND REMOTE SITE ID'S

FORWARD AZIMUTH OF 0-120 DEGREES		FORWARD AZIMUTH OF 120-240 DEGREES		FORWARD AZIMUTH OF 240-360 DEGREES	
PRIMARY	SECONDARY	PRIMARY	SECONDARY	PRIMARY	SECONDARY
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
RED	RED	BLUE	BLUE	GREEN	GREEN
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
	RED		BLUE		GREEN
	WHITE		WHITE		WHITE

RF CABLE COLOR CODES

NO SCALE

1



COLOR IDENTIFIER

NO SCALE

2

NOT USED

NO SCALE

3

NOT USED

NO SCALE

4



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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

DRAWN BY:	CHECKED BY:	APPROVED BY:
LAU	BIW	BIW

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	08/10/2021	ISSUED FOR REVIEW
D	10/19/2021	ISSUED FOR CONSTRUCTION



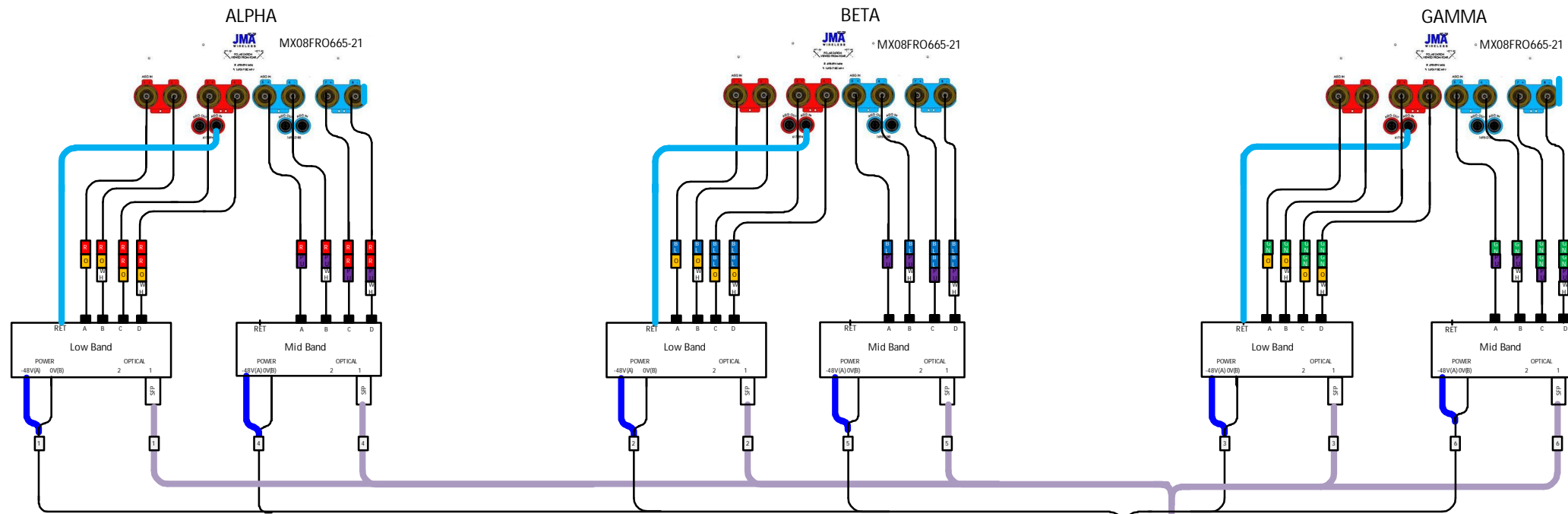
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A&E PROJECT NUMBER
370623-13693127

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBOS00024A
139 SHARP HILL ROAD
UNCASVILLE, CT 06382

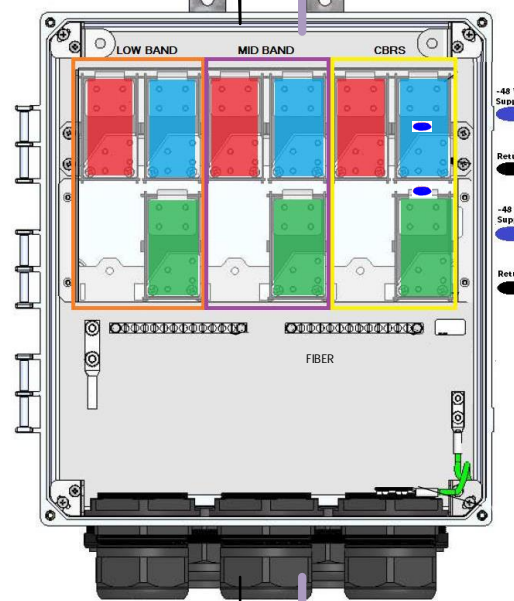
SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER
RF-1



Fiber Patch Panel

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



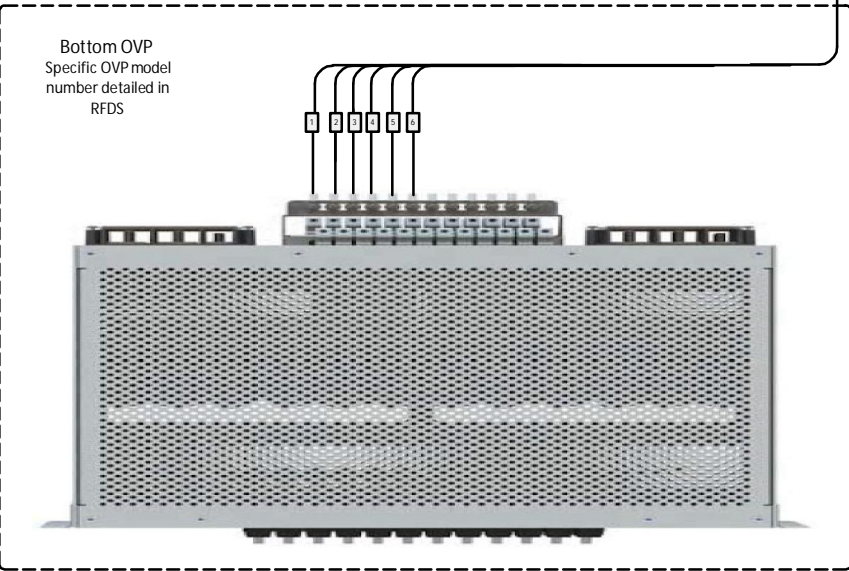
CSR NCS540

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

top
bottom

Bottom OVP Layout

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



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

PLUMBING DIAGRAM

NO SCALE 1



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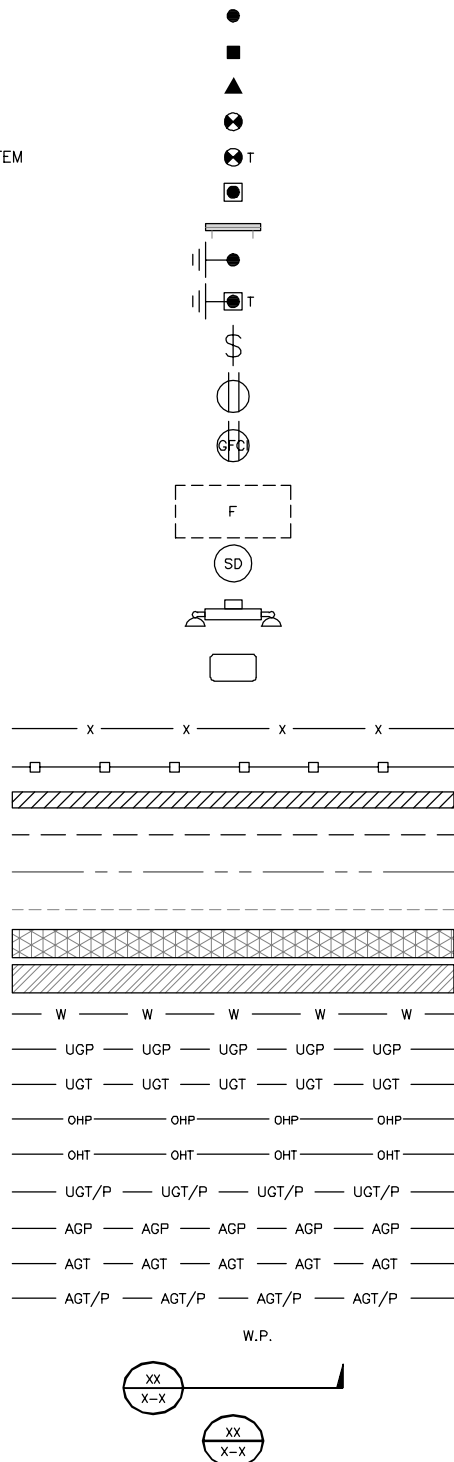
A&E PROJECT NUMBER
370623-13693127

DISH WIRELESS, LLC.
PROJECT INFORMATION
BOBOS00024A
139 SHARP HILL ROAD
UNCASVILLE, CT 06382

SHEET TITLE
RF
PLUMBING DIAGRAM

SHEET NUMBER
RF-2

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



SECTION REFERENCE
 DETAIL REFERENCE

LEGEND

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 UNINTERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
 VIF VERIFIED IN FIELD
 W WIDE
 W/ WITH
 WD WOOD
 WP WEATHERPROOF
 WT WEIGHT

ABBREVIATIONS

dish
 wireless.

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 PROJECT INFORMATION
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 139 SHARP HILL ROAD
 UNCASVILLE, CT 06382

SHEET TITLE
LEGEND AND ABBREVIATIONS

SHEET NUMBER
GN-1

SITE ACTIVITY REQUIREMENTS:

- 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.
- "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.
- 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.
- 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).
- 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."
- 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.
- 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.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.
- 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.
- ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
- 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.
- 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.
- 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.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
- THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- 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.
- 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.
- 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.
- 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.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
- 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:

- 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
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- 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.
- 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.
- 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
- 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.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.



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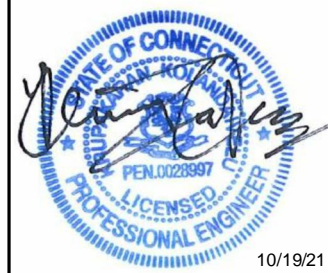
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A&E PROJECT NUMBER
370623-13693127

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBOS0024A
139 SHARP HILL ROAD
UNCASVILLE, CT 06382

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

ELECTRICAL INSTALLATION NOTES:

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

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



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A&E PROJECT NUMBER
370623-13693127

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBOS00024A
139 SHARP HILL ROAD
UNCASVILLE, CT 06382

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-3

GROUNDING NOTES:

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

STRUCTURAL STEEL NOTES:

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



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A&E PROJECT NUMBER
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DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBOS00024A
139 SHARP HILL ROAD
UNCASVILLE, CT 06382

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-4

ENGINEERING:
STRUCTURAL ANALYSIS
MOUNT ANALYSIS



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 100 ft Self Support Tower
ATC Site Name : MONTVILLE CT,CT
ATC Site Number : 370623
Engineering Number : 13693127_C3_02
Proposed Carrier : DISH WIRELESS L.L.C.
Carrier Site Name : BOBOS00024A
Carrier Site Number : BOBOS00024A
Site Location : 139 Sharp Hill Road
Uncasville, CT 06382-0000
41.449, -72.1511
County : New London
Date : August 20, 2021
Max Usage : 69%
Result : Pass

Prepared By:

Nicholas Beam
Structural Engineer

Reviewed By:



COA : PEC.0001553



Table of Contents

Introduction	3
Supporting Documents	3
Analysis	3
Conclusion	3
Existing and Reserved Equipment.....	4
Equipment to be Removed	4
Proposed Equipment	4
Structure Usages.....	5
Foundations	5
Deflection, Twist and Sway*	5
Standard Conditions	6
Calculations	Attached

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 100 ft Self Support tower to reflect the change in loading by DISH WIRELESS L.L.C..

Supporting Documents

Tower Drawings	Mapping by Intellisite Report #0548, dated August 14, 2014
Foundation Drawing	Mapping by Delta Oaks Group Project # BGI21-10896-02, dated August 11, 2021
Geotechnical Report	GEOServices Project #31-141216P, dated August 6, 2014

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:	125 mph (3-second gust)
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.00" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Spectral Response:	$S_s = 0.20, S_i = 0.05$
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
92.0	1	Generic 22' Dipole	Stand-Off	(1) 1/2" Coax	OTHER
86.0	1	Generic 12' Dipole	Stand-Off	(1) 1/2" Coax	

Equipment to be Removed

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

Proposed Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
75.0	3	Fujitsu TA08025-B604	Sector Frame	(1) 1.60" (40.6mm) Hybrid	DISH WIRELESS L.L.C.
	3	JMA Wireless MX08FRO665-21			
	1	Commscope RDIDC-9181-PF-48			
	3	Fujitsu TA08025-B605			

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

Install proposed lines anywhere on tower.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Legs	69%	Pass
Diagonals	28%	Pass
Horizontals	7%	Pass
Anchor Bolts	53%	Pass
Leg Bolts	58%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Download (kips)	42.0	25%
Moment (Kips-Ft)	358.4	38%
Shear (Kips)	4.1	16%

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

Deflection, Twist and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Twist (°)	Sway (Rotation) (°)
75.0	Commscope RDIDC-9181-PF-48	DISH WIRELESS L.L.C.	0.080	0.004	0.122
	Fujitsu TA08025-B604				
	Fujitsu TA08025-B605				
	JMA Wireless MX08FRO665-21				

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

Standard Conditions

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

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

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

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

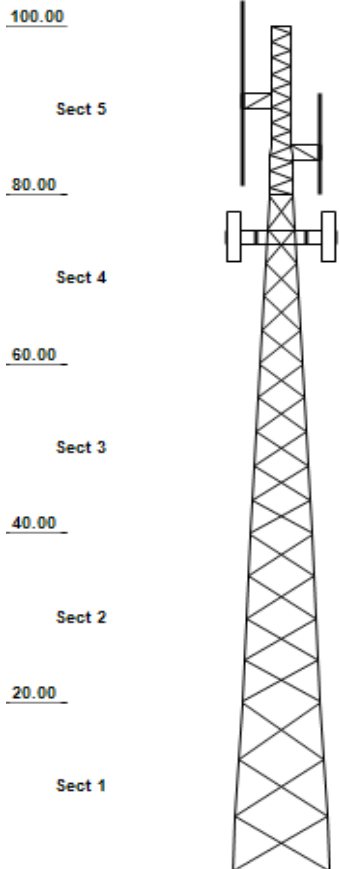
Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

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

Asset: 370623, MONTVILLE CT
 Client: DISH WIRELESS L.L.C.
 Code: ANSI/TIA-222-H

Height : 100 ft
 Base Width : 10.5 ft
 Shape : Triangle

Quadrant 1



SITE PARAMETERS

Nominal Wind : 125 mph wind with no ice Exposure : B Site Class : D
 Ice Wind: 50 mph wind with 1" radial Topo Method: Method 1 Risk Cat : II
 Service Wind : 60 mph Serviceability Topo Feature : S_g : 0.197 S₁ : 0.054

SECTION PROPERTIES

Section	Leg Members	Diagonal Members	Horizontal Members
1	PX 50 ksi 2-1/2" DIA	SAE 36 ksi 1.75X1.75X0.1875	
2	PST 50 ksi 2-1/2" DIA	SAE 36 ksi 1.5X1.5X0.1875	
3	PX 50 ksi 2" DIA PIPE	SAE 36 ksi 1.5X1.5X0.1875	
4	PST 50 ksi 2.375" x 0	SAE 36 ksi 1.5X1.5X0.1875	
5	SOL 50 ksi 1 1/2" SOL	SOL 36 ksi 5/8" SOLID	SOL 36 ksi 5/8" SOLID

REDUNDANT SECONDARY BRACING

Section	Sub Diag 1	Sub Horiz 1	Sub Diag 2	Sub Horiz 2	Sub Diag 3	Sub Horiz 3
1 - 5	-	-	-	-	-	-

DISCRETE APPURTENANCE

Elev (ft)	Type	Qty	Description
92.00	DIPOLE	1	Generic 22' Dipole
92.00	Side Arm	1	Generic Flat Side Arm
86.00	DIPOLE	1	Generic 12' Dipole
86.00	Side Arm	1	Generic Flat Side Arm
75.00	BOB/SSB	1	Commscope RDIDC-9181-PF-48
75.00	PANEL	3	JMA Wireless MX08FRO665-21
75.00	RRU/RRH	3	Fujitsu TA08025-B605
75.00	RRU/RRH	3	Fujitsu TA08025-B604
75.00	Sector Frame	3	Generic Flat Light Sector Fram

LINEAR APPURTENANCE

Elev (ft)	From	To	Qty	Description
0.00	0.00	92.00	1	1/2" Coax
0.00	0.00	86.00	1	1/2" Coax
0.00	0.00	75.00	1	Waveguide
0.00	0.00	75.00	1	1.60" (40.6mm) Hybrid

GLOBAL BASE FOUNDATION DESIGN LOADS

Load Case	Moment (k-ft)	Vertical (kip)	Horizontal (kip)
DL+WL	358.37	7.68	6.35
DL+WL+IL	94.81	14.45	1.68

INDIVIDUAL BASE FOUNDATION DESIGN LOADS

Vertical (kip)	Uplift (kip)	Horizontal (kip)
41.97	35.69	4.07

JOB INFORMATION

Asset: 370623, MONTVILLE CT
Client: DISH WIRELESS L.L.C.
Code: ANSI/TIA-222-H

Height : 100 ft
Base Width : 10.5 ft
Shape : Triangle

ASSET: # 370623, MONTVILLE CT
CUSTOMER DISH WIRELESS L.L.C.

STANDARD ANSI/TIA-222-H
ENG NO.: 13693127_C3_02

ANALYSIS PARAMETERS

Location:	New London County, CT	Height:	100 ft
Type and Shape:	Self Support, Triangle	Base Elevation:	0.00 ft
Manufacturer:	Undetermined	Bottom Face Width:	10.50 ft
Kd	0.85	Top Face Width:	2.17 ft
Ke:	0.98	Anchor Bolt Detail Type:	c

ICE & WIND PARAMETERS

Exposure Category:	B	Design Wind Speed Without Ice:	125 mph
Risk Category:	II	Design Wind Speed with Ice:	50 mph
Topographic Factor Procedure:	Method 1	Operational Windspeed:	60 mph
Topographic Category:	Flat	Design Ice Thickness:	1.00 in
Crest Height:	0 ft	HMSL:	475 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method		
Site Class:	D - Stiff Soil	Period Based on Rayleigh Method (sec):	0.69
T _L (sec):	6	P:	1
S _s :	0.197	S _{t1} :	0.054
F _a :	1.600	F _v :	2.400
S _{ds} :	0.210	S _{d1} :	0.086
		C _s :	0.042
		C _{s, Max} :	0.042
		C _{s, Min} :	0.030

LOAD CASES

1.2D + 1.0W Normal	125 mph wind with no ice
1.2D + 1.0W 60°	125 mph wind with no ice
1.2D + 1.0W 90°	125 mph wind with no ice
0.9D + 1.0W Normal	125 mph wind with no ice
0.9D + 1.0W 60°	125 mph wind with no ice
0.9D + 1.0W 90°	125 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Normal	50 mph wind with 1" radial ice
1.2D + 1.0Di + 1.0Wi 60°	50 mph wind with 1" radial ice
1.2D + 1.0Di + 1.0Wi 90°	50 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh Normal	Seismic
1.2D + 1.0Ev + 1.0Eh 60°	Seismic
1.2D + 1.0Ev + 1.0Eh 90°	Seismic
0.9D - 1.0Ev + 1.0Eh Normal	Seismic (Reduced DL)
0.9D - 1.0Ev + 1.0Eh 60°	Seismic (Reduced DL)
0.9D - 1.0Ev + 1.0Eh 90°	Seismic (Reduced DL)
1.0D + 1.0W Service Normal	60 mph Wind with No Ice
1.0D + 1.0W Service 60°	60 mph Wind with No Ice
1.0D + 1.0W Service 90°	60 mph Wind with No Ice

TOWER LOADING

Discrete Appurtenance Properties 1.2D + 1.0W

Elev (ft)	Description	Qty	Wt. (lb)	EPA Length (sf)	Width (in)	Depth (in)	K _a	Orient Factor	Vert Ecc (ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
92.0	Generic Flat Side Arm	1	188	6.3	0.0	0.0	1.00	1.00	0.0	0.00	32.25	173	225
92.0	Generic 22' Dipole	1	66	8.3	22.0	3.0	1.00	1.00	0.0	0.00	32.25	227	79
86.0	Generic 12' Dipole	1	40	4.5	12.0	3.0	1.00	1.00	0.0	0.00	31.63	121	48
86.0	Generic Flat Side Arm	1	188	6.3	0.0	0.0	1.00	1.00	0.0	0.00	31.63	169	225
75.0	Commscope RDIDC-9181-PF-48	1	22	1.9	1.3	14.0	0.80	1.00	0.0	0.00	30.42	39	26
75.0	Fujitsu TA08025-B604	3	64	2.0	1.3	15.0	0.80	0.50	0.0	0.00	30.42	61	230
75.0	Fujitsu TA08025-B605	3	75	2.0	1.3	15.0	0.80	0.50	0.0	0.00	30.42	61	270
75.0	JMA Wireless MX08FRO665-21	3	65	12.5	6.0	20.0	0.80	0.64	0.0	0.00	30.42	496	232
75.0	Generic Flat Light Sector Fram	3	400	17.9	0.0	0.0	0.75	0.75	0.0	0.00	30.42	781	1440
Totals		17	2,313	130.2								2,128	2,776

TOWER LOADING

Discrete Appurtenance Properties 0.9D + 1.0W

Elev (ft)	Description	Qty	Wt. (lb)	EPA Length (sf)	Width (in)	Depth (in)	K _a	Orient Factor	Vert Ecc (ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
92.0	Generic Flat Side Arm	1	188	6.3	0.0	0.0	1.00	1.00	0.0	0.00	32.25	173	169
92.0	Generic 22' Dipole	1	66	8.3	22.0	3.0	1.00	1.00	0.0	0.00	32.25	227	59
86.0	Generic 12' Dipole	1	40	4.5	12.0	3.0	1.00	1.00	0.0	0.00	31.63	121	36
86.0	Generic Flat Side Arm	1	188	6.3	0.0	0.0	1.00	1.00	0.0	0.00	31.63	169	169
75.0	Commscope RDIDC-9181-PF-48	1	22	1.9	1.3	14.0	0.80	1.00	0.0	0.00	30.42	39	20
75.0	Fujitsu TA08025-B604	3	64	2.0	1.3	15.0	0.80	0.50	0.0	0.00	30.42	61	173
75.0	Fujitsu TA08025-B605	3	75	2.0	1.3	15.0	0.80	0.50	0.0	0.00	30.42	61	202
75.0	JMA Wireless MX08FRO665-21	3	65	12.5	6.0	20.0	0.80	0.64	0.0	0.00	30.42	496	174
75.0	Generic Flat Light Sector Fram	3	400	17.9	0.0	0.0	0.75	0.75	0.0	0.00	30.42	781	1080
Totals		17	2,313	130.2								2,128	2,082

TOWER LOADING

Discrete Appurtenance Properties 1.2D + 1.0Di + 1.0Wi

Elev (ft)	Description	Qty	Ice Wt (lb)	Ice EPA Length (sf)	Width (in)	Depth (in)	K _a	Orient Factor	Vert Ecc (ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
92.0	Generic Flat Side Arm	1	272	8.3	0.0	0.0	1.00	1.00	0.0	0.00	5.16	36	310
92.0	Generic 22' Dipole	1	220	16.5	22.0	3.0	1.00	1.00	0.0	0.00	5.16	73	234
86.0	Generic 12' Dipole	1	125	9.1	12.0	3.0	1.00	1.00	0.0	0.00	5.06	39	133
86.0	Generic Flat Side Arm	1	272	8.3	0.0	0.0	1.00	1.00	0.0	0.00	5.06	36	310
75.0	Commscope RDIDC-9181-PF-48	1	57	2.4	1.3	14.0	0.80	1.00	0.0	0.00	4.87	8	62
75.0	Fujitsu TA08025-B604	3	100	2.5	1.3	15.0	0.80	0.50	0.0	0.00	4.87	13	338
75.0	Fujitsu TA08025-B605	3	114	2.5	1.3	15.0	0.80	0.50	0.0	0.00	4.87	13	386
75.0	JMA Wireless MX08FRO665-21	3	224	14.2	6.0	20.0	0.80	0.64	0.0	0.00	4.87	90	710
75.0	Generic Flat Light Sector Fram	3	586	27.2	0.0	0.0	0.75	0.75	0.0	0.00	4.87	190	1999
Totals		17	4,017	184.2								497	4,480

TOWER LOADING

Discrete Appurtenance Properties 1.0D + 1.0W Service

Elev (ft)	Description	Qty	Wt. (lb)	EPA Length (sf)	Width (in)	Depth (in)	K _a	Orient Factor	Vert Ecc (ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
92.0	Generic Flat Side Arm	1	188	6.3	0.0	0.0	1.00	1.00	0.0	0.00	7.43	40	188
92.0	Generic 22' Dipole	1	66	8.3	22.0	3.0	1.00	1.00	0.0	0.00	7.43	52	66
86.0	Generic 12' Dipole	1	40	4.5	12.0	3.0	1.00	1.00	0.0	0.00	7.29	28	40
86.0	Generic Flat Side Arm	1	188	6.3	0.0	0.0	1.00	1.00	0.0	0.00	7.29	39	188
75.0	Commscope RDIDC-9181-PF-48	1	22	1.9	1.3	14.0	0.80	1.00	0.0	0.00	7.01	9	22
75.0	Fujitsu TA08025-B604	3	64	2.0	1.3	15.0	0.80	0.50	0.0	0.00	7.01	14	192
75.0	Fujitsu TA08025-B605	3	75	2.0	1.3	15.0	0.80	0.50	0.0	0.00	7.01	14	225
75.0	JMA Wireless MX08FRO665-21	3	65	12.5	6.0	20.0	0.80	0.64	0.0	0.00	7.01	114	194

ASSET: # 370623, MONTVILLE CT

STANDARD ANSI/TIA-222-H

CUSTOMER DISH WIRELESS L.L.C.

ENG NO.: 13693127_C3_02

Elev (ft)	Description	Qty	Wt. (lb)	EPA Length (sf)	Length (ft)	Width (in)	Depth (in)	K _a	Orient Factor	Vert Ecc (ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
75.0	Generic Flat Light Sector Fram	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.00	7.01	180	1200
Totals		17	2,313	130.2									490	2,313

ASSET: # 370623, MONTVILLE CT
 CUSTOMER DISH WIRELESS L.L.C.

STANDARD ANSI/TIA-222-H
 ENG NO.: 13693127_C3_02

TOWER LOADING

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	% In Wind	Spread On Faces	Bundling	Cluster Dia (in)	Out of Zone	Spacing (in)	Orient Factor	K _a Override
0.0	92.0	1/2" Coax	1	0.63	0.15	100	2	Individual	0.00	N	1.00	1.00	0.00
0.0	86.0	1/2" Coax	1	0.63	0.15	100	2	Individual	0.00	N	1.00	1.00	0.00
0.0	75.0	1.60" (40.6mm) Hybrid	1	1.60	2.34	100	1	Individual	0.00	N	1.00	1.00	0.00
0.0	75.0	Waveguide	1	2.00	6.00	100	Lin App	Individual	0.00	N	1.00	1.00	0.00

SECTION FORCES

1.2D + 1.0W Normal Gust Response Factor (Gh): 0.85
 125 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _r	D _r	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
5	90	32.05	0.000	7.856	0.00	0.159	2.74	1.00	1.00	0.0	4.55	12.47	0.00	653	0	340	19	358	
4	70	29.83	6.370	7.930	0.00	0.192	2.62	1.00	1.00	0.0	10.92	28.61	0.00	862	0	725	151	876	
3	50	27.09	8.272	7.930	0.00	0.142	2.80	1.00	1.00	0.0	12.77	35.77	0.00	1011	0	824	171	995	
2	30	23.41	8.741	9.599	0.00	0.118	2.89	1.00	1.00	0.0	14.16	40.96	0.00	1090	0	815	148	963	
1	10	23.39	9.952	9.599	0.00	0.100	2.96	1.00	1.00	0.0	15.37	45.53	0.00	1292	0	905	148	1053	
															4,909	0			4,246

1.2D + 1.0W 60° Gust Response Factor (Gh): 0.85
 125 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _r	D _r	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
5	90	32.05	0.000	7.856	0.00	0.159	2.74	0.80	1.00	0.0	4.55	12.47	0.00	653	0	340	19	358	
4	70	29.83	6.370	7.930	0.00	0.192	2.62	0.80	1.00	0.0	9.64	25.27	0.00	862	0	641	151	792	
3	50	27.09	8.272	7.930	0.00	0.142	2.80	0.80	1.00	0.0	11.11	31.13	0.00	1011	0	717	171	888	
2	30	23.41	8.741	9.599	0.00	0.118	2.89	0.80	1.00	0.0	12.42	35.90	0.00	1090	0	714	148	862	
1	10	23.39	9.952	9.599	0.00	0.100	2.96	0.80	1.00	0.0	13.38	39.64	0.00	1292	0	788	148	936	
															4,909	0			3,836

1.2D + 1.0W 90° Gust Response Factor (Gh): 0.85
 125 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _r	D _r	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
5	90	32.05	0.000	7.856	0.00	0.159	2.74	0.85	1.00	0.0	4.55	12.47	0.00	653	0	340	19	358	
4	70	29.83	6.370	7.930	0.00	0.192	2.62	0.85	1.00	0.0	9.96	26.11	0.00	862	0	662	151	813	
3	50	27.09	8.272	7.930	0.00	0.142	2.80	0.85	1.00	0.0	11.53	32.29	0.00	1011	0	744	171	915	
2	30	23.41	8.741	9.599	0.00	0.118	2.89	0.85	1.00	0.0	12.85	37.16	0.00	1090	0	740	148	888	
1	10	23.39	9.952	9.599	0.00	0.100	2.96	0.85	1.00	0.0	13.88	41.11	0.00	1292	0	818	148	965	
															4,909	0			3,939

0.9D + 1.0W Normal Gust Response Factor (Gh): 0.85
 125 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _r	D _r	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
5	90	32.05	0.000	7.856	0.00	0.159	2.74	1.00	1.00	0.0	4.55	12.47	0.00	490	0	340	19	358	
4	70	29.83	6.370	7.930	0.00	0.192	2.62	1.00	1.00	0.0	10.92	28.61	0.00	647	0	725	151	876	
3	50	27.09	8.272	7.930	0.00	0.142	2.80	1.00	1.00	0.0	12.77	35.77	0.00	758	0	824	171	995	
2	30	23.41	8.741	9.599	0.00	0.118	2.89	1.00	1.00	0.0	14.16	40.96	0.00	818	0	815	148	963	
1	10	23.39	9.952	9.599	0.00	0.100	2.96	1.00	1.00	0.0	15.37	45.53	0.00	969	0	905	148	1053	
															3,682	0			4,246

0.9D + 1.0W 60° Gust Response Factor (Gh): 0.85
 125 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _r (sf)	A _r (sf)	Ice A _r (sf)	e	C _r	D _r	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)
5	90	32.05	0.000	7.856	0.00	0.159	2.74	0.80	1.00	0.0	4.55	12.47	0.00	490	0	340	19	358
4	70	29.83	6.370	7.930	0.00	0.192	2.62	0.80	1.00	0.0	9.64	25.27	0.00	647	0	641	151	792
3	50	27.09	8.272	7.930	0.00	0.142	2.80	0.80	1.00	0.0	11.11	31.13	0.00	758	0	717	171	888
2	30	23.41	8.741	9.599	0.00	0.118	2.89	0.80	1.00	0.0	12.42	35.90	0.00	818	0	714	148	862
1	10	23.39	9.952	9.599	0.00	0.100	2.96	0.80	1.00	0.0	13.38	39.64	0.00	969	0	788	148	936

SECTION FORCES

Sect #	Elev (ft)	Q _Z (psf)	A _f (sf)	A _r (sf)	Ice A _r (sf)	e	C _f	D _f	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
															3,682	0			3,836

0.9D + 1.0W 90° Gust Response Factor (Gh): 0.85
 125 mph wind with no ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _f (sf)	A _r (sf)	Ice A _r (sf)	e	C _f	D _f	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
5	90	32.05	0.000	7.856	0.00	0.159	2.74	0.85	1.00	0.0	4.55	12.47	0.00	490	0	340	19	358	
4	70	29.83	6.370	7.930	0.00	0.192	2.62	0.85	1.00	0.0	9.96	26.11	0.00	647	0	662	151	813	
3	50	27.09	8.272	7.930	0.00	0.142	2.80	0.85	1.00	0.0	11.53	32.29	0.00	758	0	744	171	915	
2	30	23.41	8.741	9.599	0.00	0.118	2.89	0.85	1.00	0.0	12.85	37.16	0.00	818	0	740	148	888	
1	10	23.39	9.952	9.599	0.00	0.100	2.96	0.85	1.00	0.0	13.88	41.11	0.00	969	0	818	148	965	
															3,682	0			3,939

1.2D + 1.0Di + 1.0Wi Normal Gust Response Factor (Gh): 0.85 Ice Importance Factor: 1.00
 50 mph wind with 1" radial ice Wind Importance Factor (Iw): 1.00 Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _f (sf)	A _r (sf)	Ice A _r (sf)	e	C _f	D _f	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
5	90	5.13	0.000	25.879	18.02	0.488	1.92	1.00	1.00	1.1	17.66	33.85	18.02	1312	659	148	11	159	
4	70	4.77	6.370	24.642	16.71	0.398	2.07	1.00	1.00	1.1	22.03	45.55	16.71	1883	1020	185	66	251	
3	50	4.33	8.272	26.740	18.81	0.298	2.30	1.00	1.00	1.0	24.27	55.88	18.81	2173	1162	206	77	283	
2	30	3.75	8.741	28.074	18.47	0.233	2.49	1.00	1.00	1.0	25.05	62.39	18.47	2248	1157	199	68	267	
1	10	3.74	9.952	25.832	16.23	0.181	2.66	1.00	1.00	0.9	24.71	65.76	16.23	2352	1061	209	67	276	
															9,968	5,059			1,236

1.2D + 1.0Di + 1.0Wi 60° Gust Response Factor (Gh): 0.85 Ice Importance Factor: 1.00
 50 mph wind with 1" radial ice Wind Importance Factor (Iw): 1.00 Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _f (sf)	A _r (sf)	Ice A _r (sf)	e	C _f	D _f	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
5	90	5.13	0.000	25.879	18.02	0.488	1.92	0.80	1.00	1.1	17.66	33.85	18.02	1312	659	148	11	159	
4	70	4.77	6.370	24.642	16.71	0.398	2.07	0.80	1.00	1.1	20.75	42.91	16.71	1883	1020	174	66	240	
3	50	4.33	8.272	26.740	18.81	0.298	2.30	0.80	1.00	1.0	22.61	52.07	18.81	2173	1162	192	77	269	
2	30	3.75	8.741	28.074	18.47	0.233	2.49	0.80	1.00	1.0	23.30	58.04	18.47	2248	1157	185	68	253	
1	10	3.74	9.952	25.832	16.23	0.181	2.66	0.80	1.00	0.9	22.72	60.46	16.23	2352	1061	192	67	259	
															9,968	5,059			1,181

1.2D + 1.0Di + 1.0Wi 90° Gust Response Factor (Gh): 0.85 Ice Importance Factor: 1.00
 50 mph wind with 1" radial ice Wind Importance Factor (Iw): 1.00 Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _f (sf)	A _r (sf)	Ice A _r (sf)	e	C _f	D _f	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
5	90	5.13	0.000	25.879	18.02	0.488	1.92	0.85	1.00	1.1	17.66	33.85	18.02	1312	659	148	11	159	
4	70	4.77	6.370	24.642	16.71	0.398	2.07	0.85	1.00	1.1	21.07	43.57	16.71	1883	1020	177	66	243	
3	50	4.33	8.272	26.740	18.81	0.298	2.30	0.85	1.00	1.0	23.03	53.02	18.81	2173	1162	195	77	273	
2	30	3.75	8.741	28.074	18.47	0.233	2.49	0.85	1.00	1.0	23.74	59.12	18.47	2248	1157	188	68	257	
1	10	3.74	9.952	25.832	16.23	0.181	2.66	0.85	1.00	0.9	23.22	61.79	16.23	2352	1061	197	67	263	
															9,968	5,059			1,195

1.0D + 1.0W Service Normal Gust Response Factor (Gh): 0.85
 60 mph Wind with No Ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _f (sf)	A _r (sf)	Ice A _r (sf)	e	C _f	D _f	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)
5	90	7.38	0.000	7.856	0.00	0.159	2.74	1.00	1.00	0.0	4.55	12.47	0.00	545	0	78	4	83
4	70	6.87	6.370	7.930	0.00	0.192	2.62	1.00	1.00	0.0	10.92	28.61	0.00	719	0	167	35	202
3	50	6.24	8.272	7.930	0.00	0.142	2.80	1.00	1.00	0.0	12.77	35.77	0.00	843	0	190	39	229
2	30	5.39	8.741	9.599	0.00	0.118	2.89	1.00	1.00	0.0	14.16	40.96	0.00	909	0	188	34	222
1	10	5.39	9.952	9.599	0.00	0.100	2.96	1.00	1.00	0.0	15.37	45.53	0.00	1076	0	209	34	243

SECTION FORCES

Sect #	Elev (ft)	Q _Z (psf)	A _f (sf)	A _r (sf)	Ice A _r (sf)	e	C _f	D _f	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
															4,091	0			978

1.0D + 1.0W Service 60° Gust Response Factor (Gh): 0.85
 60 mph Wind with No Ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _f (sf)	A _r (sf)	Ice A _r (sf)	e	C _f	D _f	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
5	90	7.38	0.000	7.856	0.00	0.159	2.74	0.80	1.00	0.0	4.55	12.47	0.00	545	0	78	4	83	
4	70	6.87	6.370	7.930	0.00	0.192	2.62	0.80	1.00	0.0	9.64	25.27	0.00	719	0	148	35	182	
3	50	6.24	8.272	7.930	0.00	0.142	2.80	0.80	1.00	0.0	11.11	31.13	0.00	843	0	165	39	205	
2	30	5.39	8.741	9.599	0.00	0.118	2.89	0.80	1.00	0.0	12.42	35.90	0.00	909	0	165	34	199	
1	10	5.39	9.952	9.599	0.00	0.100	2.96	0.80	1.00	0.0	13.38	39.64	0.00	1076	0	182	34	216	
															4,091	0			884

1.0D + 1.0W Service 90° Gust Response Factor (Gh): 0.85
 60 mph Wind with No Ice Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q _Z (psf)	A _f (sf)	A _r (sf)	Ice A _r (sf)	e	C _f	D _f	D _r	T _{iz} (in)	A _e (sf)	EPA _a (sf)	EPA _{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F _{st} (lb)	F _a (lb)	Force (lb)	
5	90	7.38	0.000	7.856	0.00	0.159	2.74	0.85	1.00	0.0	4.55	12.47	0.00	545	0	78	4	83	
4	70	6.87	6.370	7.930	0.00	0.192	2.62	0.85	1.00	0.0	9.96	26.11	0.00	719	0	153	35	187	
3	50	6.24	8.272	7.930	0.00	0.142	2.80	0.85	1.00	0.0	11.53	32.29	0.00	843	0	171	39	211	
2	30	5.39	8.741	9.599	0.00	0.118	2.89	0.85	1.00	0.0	12.85	37.16	0.00	909	0	170	34	204	
1	10	5.39	9.952	9.599	0.00	0.100	2.96	0.85	1.00	0.0	13.88	41.11	0.00	1076	0	188	34	222	
															4,091	0			907

EQUIVALENT LATERAL FORCE METHOD

Spectral Response Acceleration for Short Period (S_S):	0.20
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.05
Long-Period Transition Period (T_L – Seconds):	6
Importance Factor (I_a):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	3.00
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.21
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.09
Seismic Response Coefficient (C_s):	0.04
Upper Limit C_s :	0.04
Lower Limit C_s :	0.03
Period based on Rayleigh Method (sec):	0.69
Redundancy Factor (ρ):	1.00
Seismic Force Distribution Exponent (k):	1.09
Total Unfactored Dead Load:	6.40 k
Seismic Base Shear (E):	0.27 k

SEISMIC

Load Case: 0.9D - 1.0Ev + 1.0Eh

Seismic

Section	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
5	90.00	545	74,918	0.140	38	467
4	70.00	719	75,099	0.141	38	617
3	50.00	843	60,940	0.114	31	723
2	30.00	909	37,571	0.070	19	780
1	10.00	1,076	13,374	0.025	7	923
Generic Flat Side Arm	92.00	188	26,423	0.050	13	161
Generic 22' Dipole	92.00	66	9,301	0.017	5	57
Generic 12' Dipole	86.00	40	5,236	0.010	3	34
Generic Flat Side Arm	86.00	188	24,543	0.046	12	161
Commscope RDIDC-9181-PF-48	75.00	22	2,468	0.005	1	19
Fujitsu TA08025-B604	75.00	192	21,603	0.040	11	164
Fujitsu TA08025-B605	75.00	225	25,355	0.048	13	193
JMA Wireless MX08FRO665-21	75.00	194	21,806	0.041	11	166
Generic Flat Light Sector Frame	75.00	1,200	135,228	0.253	68	1,030
Totals		6,404	533,864	1.000	268	5,495

SEISMIC

Load Case: 1.2D + 1.0Ev + 1.0Eh

Seismic

Section	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
5	90.00	545	74,918	0.140	38	676
4	70.00	719	75,099	0.141	38	893
3	50.00	843	60,940	0.114	31	1,047
2	30.00	909	37,571	0.070	19	1,129
1	10.00	1,076	13,374	0.025	7	1,337
Generic Flat Side Arm	92.00	188	26,423	0.050	13	233
Generic 22' Dipole	92.00	66	9,301	0.017	5	82
Generic 12' Dipole	86.00	40	5,236	0.010	3	50

ASSET: # 370623, MONTVILLE CT

STANDARD

ANSI/TIA-222-H

CUSTOMER DISH WIRELESS L.L.C.

ENG NO.:

13693127_C3_02

Generic Flat Side Arm	86.00	188	24,543	0.046	12	233
Commscope RDIDC-9181-PF-48	75.00	22	2,468	0.005	1	27
Fujitsu TA08025-B604	75.00	192	21,603	0.040	11	238
Fujitsu TA08025-B605	75.00	225	25,355	0.048	13	279
JMA Wireless MX08FRO665-21	75.00	194	21,806	0.041	11	240
Generic Flat Light Sector Frame	75.00	1,200	135,228	0.253	68	1,490
<hr/>						
Totals		6,404	533,864	1.000	268	7,954

FORCE/STRESS SUMMARY

Section 1 – Bolt Elevation 0.0 (ft) and Height 20.00 (ft)

Max Compression	Pu		Len (ft)	Bracing %			KL/R	F _y (ksi)	Φ _c P _n (kip)	Shear		Bear		# Bolt	# Hole	Use % Controls
	(kip)	Load Case		Φ _{R_{nv}} (kip)	Φ _{R_n} (kip)											
L PX - 2-1/2" DIA PIPE	-40.69	1.2D + 1.0W N	6.678	100	100	100	86.72	50.0	58.42	0.00	0.00	0	0	69	Member X	
D SAE - 1.75X1.75X0.1875	-1.13	1.2D + 1.0W N	12.16	50	50	50	212.71	36.0	3.93	8.84	10.44	1	1	28	Member Z	

Max Tension Member	Pu		F _y (ksi)	F _u (ksi)	Φ _c P _n (kip)	Φ _{R_{nv}} (kip)	Φ _{R_n} (kip)	Φ _t P _n (kip)	# Bolt	# Hole	Use % Controls	
	(kip)	Load Case										
L PX - 2-1/2" DIA PIPE	34.75	0.9D + 1.0W 60°	50.0	65	101.25	0.00	0.00		0	0	34	Member
D SAE - 1.75X1.75X0.1875	1.04	1.2D + 1.0W N	36.0	58	16.82	8.84	6.20	5.71	1	1	18	Blk Shear

Max Splice Forces	Pu		Φ _{R_{nt}} (kip)	Use %	Num Bolts	Bolt Type
	(kip)	Load Case				
Top Tension	29.84	0.9D + 1.0W 60°	0.00	0	0	
Bot Tension	35.91	0.9D + 1.0W 60°	81.36	20	4	5/8" A449
Bot Compression	42.02	1.2D + 1.0W N	83.17	53	0	

Section 2 – Bolt Elevation 20.0 (ft) and Height 20.00 (ft)

Max Compression	Pu		Len (ft)	Bracing %			KL/R	F _y (ksi)	Φ _c P _n (kip)	Shear		Bear		# Bolt	# Hole	Use % Controls
	(kip)	Load Case		Φ _{R_{nv}} (kip)	Φ _{R_n} (kip)											
L PST - 2-1/2" DIA PIPE	-34.12	1.2D + 1.0W N	4.925	100	100	100	62.40	50.0	57.68	0.00	0.00	0	0	59	Member X	
D SAE - 1.5X1.5X0.1875	-0.89	1.2D + 1.0W 90°	9.599	50	50	50	196.57	36.0	3.93	8.84	10.44	1	1	22	Member Z	

Max Tension Member	Pu		F _y (ksi)	F _u (ksi)	Φ _c P _n (kip)	Φ _{R_{nv}} (kip)	Φ _{R_n} (kip)	Φ _t P _n (kip)	# Bolt	# Hole	Use % Controls	
	(kip)	Load Case										
L PST - 2-1/2" DIA PIPE	30.04	0.9D + 1.0W 60°	50.0	65	76.68	0.00	0.00		0	0	39	Member
D SAE - 1.5X1.5X0.1875	0.94	0.9D + 1.0W 90°	36.0	58	13.85	8.84	6.20	4.69	1	1	20	Blk Shear

Max Splice Forces	Pu		Φ _{R_{nt}} (kip)	Use %	Num Bolts	Bolt Type
	(kip)	Load Case				
Top Tension	23.45	0.9D + 1.0W 60°	0.00	0	0	
Bot Tension	29.84	0.9D + 1.0W 60°	51.08	58	4	1/2 A325

Section 3 – Bolt Elevation 40.0 (ft) and Height 20.00 (ft)

Max Compression	Pu		Len (ft)	Bracing %			KL/R	F _y (ksi)	Φ _c P _n (kip)	Shear		Bear		# Bolt	# Hole	Use % Controls
	(kip)	Load Case		Φ _{R_{nv}} (kip)	Φ _{R_n} (kip)											
L PX - 2" DIA PIPE	-26.45	1.2D + 1.0W N	4.007	100	100	100	62.77	50.0	49.93	0.00	0.00	0	0	52	Member X	
D SAE - 1.5X1.5X0.1875	-0.86	1.2D + 1.0W 90°	7.472	50	50	50	153.02	36.0	6.48	8.84	10.44	1	1	13	Member Z	

Max Tension Member	Pu		F _y (ksi)	F _u (ksi)	Φ _c P _n (kip)	Φ _{R_{nv}} (kip)	Φ _{R_n} (kip)	Φ _t P _n (kip)	# Bolt	# Hole	Use % Controls	
	(kip)	Load Case										
L PX - 2" DIA PIPE	22.67	0.9D + 1.0W 60°	50.0	65	66.60	0.00	0.00		0	0	34	Member
D SAE - 1.5X1.5X0.1875	0.85	1.2D + 1.0W 90°	36.0	58	13.85	8.84	6.20	4.69	1	1	18	Blk Shear

Max Splice Forces	Pu		Φ _{R_{nt}} (kip)	Use %	Num Bolts	Bolt Type
	(kip)	Load Case				
Top Tension	14.95	0.9D + 1.0W 60°	0.00	0	0	
Bot Tension	23.45	0.9D + 1.0W 60°	51.08	46	4	1/2 A325

Section 4 – Bolt Elevation 60.0 (ft) and Height 20.00 (ft)

FORCE/STRESS SUMMARY

Max Compression	Pu		Len (ft)	Bracing %			F _y (ksi)	Φ _c P _n (kip)	Shear		Bear		# Bolt	# Hole	Use %	Controls
	(kip)	Load Case		X	Y	Z			KL/R	Φ _{R_{nv}} (kip)	Φ _{R_n} (kip)					
L PST - 2.375" x 0.218"	-16.73	1.2D + 1.0W N	3.94	100	100	100	61.72	50.0	50.41	0.00	0.00	0.00	0	0	33	Member X
D SAE - 1.5X1.5X0.1875	-1.19	1.2D + 1.0W 90°	5.025	50	50	50	107.17	36.0	12.19	8.84	10.44	1	1	13	Bolt Shear	

Max Tension Member	Pu		F _y (ksi)	F _u (ksi)	Φ _c P _n (kip)	Φ _{R_{nv}} (kip)	Φ _{R_n} (kip)	Blk Shear		# Bolt	# Hole	Use %	Controls
	(kip)	Load Case						Φ _t P _n (kip)					
L PST - 2.375" x 0.218"	14.86	1.2D + 1.0W 60°	50.0	65	66.60	0.00	0.00			0	0	22	Member
D SAE - 1.5X1.5X0.1875	1.12	1.2D + 1.0W 90°	36.0	58	13.85	8.84	6.20	4.69		1	1	23	Blk Shear

Max Splice Forces	Pu		Φ _{R_{nt}} (kip)	Use %	Num Bolts	Bolt Type
	(kip)	Load Case				
Top Tension	4.36	0.9D + 1.0W 60°	0.00	0	0	
Bot Tension	14.95	0.9D + 1.0W 60°	51.08	29	4	1/2 A325

Section 5 – Bolt Elevation 80.0 (ft) and Height 20.00 (ft)

Max Compression	Pu		Len (ft)	Bracing %			F _y (ksi)	Φ _c P _n (kip)	Shear		Bear		# Bolt	# Hole	Use %	Controls
	(kip)	Load Case		X	Y	Z			KL/R	Φ _{R_{nv}} (kip)	Φ _{R_n} (kip)					
L SOL - 1 1/2" SOLID	-4.89	1.2D + 1.0W N	0.952	200	200	200	60.95	50.0	60.60	0.00	0.00	0.00	0	0	8	Member X
H SOL - 5/8" SOLID	-0.31	1.2D + 1.0W 60°	2.52	100	100	100	126.00	36.0	4.31	0.00	34.80	1	0	7	Member X	
D SOL - 5/8" SOLID	-0.67	1.2D + 1.0W 90°	2.686	100	100	100	144.64	36.0	3.31	0.00	34.80	1	0	20	Member X	

Max Tension Member	Pu		F _y (ksi)	F _u (ksi)	Φ _c P _n (kip)	Φ _{R_{nv}} (kip)	Φ _{R_n} (kip)	Blk Shear		# Bolt	# Hole	Use %	Controls
	(kip)	Load Case						Φ _t P _n (kip)					
L SOL - 1 1/2" SOLID	4.12	1.2D + 1.0W 60°	50.0	65	79.52	0.00	0.00			0	0	5	Member
H SOL - 5/8" SOLID	0.31	1.2D + 1.0W N	36.0	58	9.94	0.00	20.66	0.00		1	0	3	Member
D SOL - 5/8" SOLID	0.60	1.2D + 1.0W N	36.0	58	9.94	0.00	20.66	0.00		1	0	6	Member

Max Splice Forces	Pu		Φ _{R_{nt}} (kip)	Use %	Num Bolts	Bolt Type
	(kip)	Load Case				
Bot Tension	4.36	0.9D + 1.0W 60°	51.08	9	4	1/2 A325

DETAILED REACTIONS

Load Case	Radius (ft)	Elevation (ft)	Azimuth (deg)	Node	*(-) Uplift and (+) Down		
					*Fx (kip)	*Fy (kip)	*Fz (kip)
1.2D + 1.0W Normal	6.06	0.00	0	1	0.00	41.97	-4.07
	6.06	0.00	120	1a	1.40	-17.14	-1.14
	6.06	0.00	240	1b	-1.40	-17.14	-1.14
1.2D + 1.0W 60°	6.06	0.00	0	1	-0.26	21.43	-2.00
	6.06	0.00	120	1a	-1.86	21.43	0.77
	6.06	0.00	240	1b	-3.03	-35.18	-1.75
1.2D + 1.0W 90°	6.06	0.00	0	1	-0.31	2.56	-0.16
	6.06	0.00	120	1a	-3.01	35.43	1.55
	6.06	0.00	240	1b	-2.71	-30.31	-1.39
0.9D + 1.0W Normal	6.06	0.00	0	1	0.00	41.28	-4.02
	6.06	0.00	120	1a	1.44	-17.76	-1.16
	6.06	0.00	240	1b	-1.44	-17.76	-1.16
0.9D + 1.0W 60°	6.06	0.00	0	1	-0.26	20.72	-1.95
	6.06	0.00	120	1a	-1.82	20.72	0.75
	6.06	0.00	240	1b	-3.06	-35.69	-1.77
0.9D + 1.0W 90°	6.06	0.00	0	1	-0.31	1.92	-0.12
	6.06	0.00	120	1a	-2.97	34.75	1.53
	6.06	0.00	240	1b	-2.75	-30.91	-1.41
1.2D + 1.0Di + 1.0Wi Normal	6.06	0.00	0	1	0.00	15.24	-1.10
	6.06	0.00	120	1a	0.35	-0.40	-0.29
	6.06	0.00	240	1b	-0.35	-0.40	-0.29
1.2D + 1.0Di + 1.0Wi 60°	6.06	0.00	0	1	-0.07	9.92	-0.57
	6.06	0.00	120	1a	-0.53	9.92	0.22
	6.06	0.00	240	1b	-0.81	-5.38	-0.47
1.2D + 1.0Di + 1.0Wi 90°	6.06	0.00	0	1	-0.08	4.82	-0.07
	6.06	0.00	120	1a	-0.84	13.70	0.43
	6.06	0.00	240	1b	-0.72	-4.07	-0.37
1.2D + 1.0Ev + 1.0Eh Normal	6.06	0.00	0	1	0.00	4.02	0.25
	6.06	0.00	120	1a	0.39	1.80	-0.23
	6.06	0.00	240	1b	-0.39	1.80	-0.23
1.2D + 1.0Ev + 1.0Eh 60°	6.06	0.00	0	1	0.00	3.23	0.32
	6.06	0.00	120	1a	0.28	3.23	-0.16
	6.06	0.00	240	1b	-0.44	1.16	-0.25
1.2D + 1.0Ev + 1.0Eh 90°	6.06	0.00	0	1	-0.01	2.54	0.38
	6.06	0.00	120	1a	0.23	3.83	-0.14
	6.06	0.00	240	1b	-0.43	1.25	-0.25
0.9D - 1.0Ev + 1.0Eh Normal	6.06	0.00	0	1	0.00	3.24	0.31
	6.06	0.00	120	1a	0.44	1.01	-0.26
	6.06	0.00	240	1b	-0.44	1.01	-0.26
0.9D - 1.0Ev + 1.0Eh 60°	6.06	0.00	0	1	0.00	2.45	0.38
	6.06	0.00	120	1a	0.33	2.45	-0.19
	6.06	0.00	240	1b	-0.49	0.37	-0.28
0.9D - 1.0Ev + 1.0Eh 90°	6.06	0.00	0	1	-0.01	1.75	0.44
	6.06	0.00	120	1a	0.28	3.04	-0.17
	6.06	0.00	240	1b	-0.48	0.47	-0.27
1.0D + 1.0W Service Normal	6.06	0.00	0	1	0.00	10.85	-0.46
	6.06	0.00	120	1a	0.71	-2.22	-0.48
	6.06	0.00	240	1b	-0.71	-2.22	-0.48
1.0D + 1.0W Service 60°	6.06	0.00	0	1	-0.06	6.29	0.01
	6.06	0.00	120	1a	-0.02	6.29	-0.05
	6.06	0.00	240	1b	-1.08	-6.18	-0.62
1.0D + 1.0W Service 90°	6.06	0.00	0	1	-0.07	2.13	0.42
	6.06	0.00	120	1a	-0.28	9.42	0.12
	6.06	0.00	240	1b	-1.01	-5.15	-0.54

Max Uplift: 35.69 (kip) Moment Ice: 94.81 (kip-ft) Moment: 358.37 (kip-ft)
 Max Down: 41.97 (kip) Total Down Ice: 14.45 (kip) Total Down: 7.68 (kip)
 Max Shear: 4.07 (kip) Total Shear Ice: 1.68 (kip) Total Shear: 6.35(kip)
 1.2D + 1.0W Normal

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
1.2D + 1.0W Normal 125 mph wind with no ice	75.90	0.362	-0.0177	0.5618	0.5620
1.2D + 1.0W Normal 125 mph wind with no ice	85.71	0.462	-0.0156	0.5992	0.5994
1.2D + 1.0W Normal 125 mph wind with no ice	92.38	0.532	-0.0131	0.5994	0.5995
1.2D + 1.0W 60° 125 mph wind with no ice	75.90	0.351	0.0183	0.5485	0.5488
1.2D + 1.0W 60° 125 mph wind with no ice	85.71	0.450	0.0165	0.5873	0.5875
1.2D + 1.0W 60° 125 mph wind with no ice	92.38	0.518	0.0143	0.5875	0.5876
1.2D + 1.0W 90° 125 mph wind with no ice	75.90	0.352	-0.0180	0.5487	0.5490
1.2D + 1.0W 90° 125 mph wind with no ice	85.71	0.450	-0.0159	0.5851	0.5853
1.2D + 1.0W 90° 125 mph wind with no ice	92.38	0.518	-0.0135	0.5852	0.5853
0.9D + 1.0W Normal 125 mph wind with no ice	75.90	0.361	-0.0177	0.5603	0.5606
0.9D + 1.0W Normal 125 mph wind with no ice	85.71	0.461	-0.0156	0.5978	0.5980
0.9D + 1.0W Normal 125 mph wind with no ice	92.38	0.531	-0.0132	0.5980	0.5981
0.9D + 1.0W 60° 125 mph wind with no ice	75.90	0.350	0.0177	0.5455	0.5458
0.9D + 1.0W 60° 125 mph wind with no ice	85.71	0.447	0.0157	0.5837	0.5839
0.9D + 1.0W 60° 125 mph wind with no ice	92.38	0.515	0.0133	0.5839	0.5839
0.9D + 1.0W 90° 125 mph wind with no ice	75.90	0.351	-0.0180	0.5474	0.5477
0.9D + 1.0W 90° 125 mph wind with no ice	85.71	0.449	-0.0159	0.5838	0.5840
0.9D + 1.0W 90° 125 mph wind with no ice	92.38	0.517	-0.0135	0.5838	0.5839
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	75.90	0.096	0.0043	0.1498	0.1499
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	85.71	0.123	0.0035	0.1607	0.1608
1.2D + 1.0Di + 1.0Wi Normal 50 mph wind with 1" radial ice	92.38	0.141	0.0027	0.1609	0.1609
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	75.90	0.094	0.0049	0.1478	0.1478
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	85.71	0.121	0.0038	0.1590	0.1590
1.2D + 1.0Di + 1.0Wi 60° 50 mph wind with 1" radial ice	92.38	0.140	0.0028	0.1591	0.1591
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	75.90	0.095	-0.0045	0.1484	0.1484
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	85.71	0.121	-0.0037	0.1594	0.1595
1.2D + 1.0Di + 1.0Wi 90° 50 mph wind with 1" radial ice	92.38	0.140	-0.0029	0.1595	0.1596
1.2D + 1.0Ev + 1.0Eh Normal Seismic	75.90	0.014	0.0009	0.0206	0.0206
1.2D + 1.0Ev + 1.0Eh Normal Seismic	85.71	0.018	0.0005	0.0211	0.0211
1.2D + 1.0Ev + 1.0Eh Normal Seismic	92.38	0.020	0.0003	0.0211	0.0211
1.2D + 1.0Ev + 1.0Eh 60° Seismic	75.90	0.013	0.0008	0.0185	0.0185
1.2D + 1.0Ev + 1.0Eh 60° Seismic	85.71	0.016	0.0004	0.0185	0.0185
1.2D + 1.0Ev + 1.0Eh 60° Seismic	92.38	0.018	0.0002	0.0185	0.0185
1.2D + 1.0Ev + 1.0Eh 90° Seismic	75.90	0.014	0.0006	0.0206	0.0206
1.2D + 1.0Ev + 1.0Eh 90° Seismic	85.71	0.018	-0.0004	0.0211	0.0211
1.2D + 1.0Ev + 1.0Eh 90° Seismic	92.38	0.020	-0.0003	0.0211	0.0211
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	75.90	0.014	0.0009	0.0206	0.0206
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	85.71	0.018	0.0005	0.0211	0.0211
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	92.38	0.020	0.0003	0.0211	0.0211
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	75.90	0.013	0.0007	0.0184	0.0184
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	85.71	0.016	0.0004	0.0185	0.0185
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	92.38	0.018	0.0002	0.0184	0.0184
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	75.90	0.014	-0.0007	0.0206	0.0206
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	85.71	0.018	-0.0004	0.0211	0.0211
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	92.38	0.020	-0.0003	0.0211	0.0211
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	75.90	0.080	0.0034	0.1219	0.1219
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	85.71	0.101	0.0027	0.1290	0.1291
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	92.38	0.116	0.0021	0.1289	0.1289
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	75.90	0.077	0.0037	0.1184	0.1185
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	85.71	0.098	0.0028	0.1260	0.1260
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	92.38	0.113	0.0021	0.1258	0.1258
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	75.90	0.078	-0.0037	0.1196	0.1196
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	85.71	0.099	-0.0029	0.1267	0.1267
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	92.38	0.114	-0.0023	0.1266	0.1266

Site Name: MONTVILLE CT, CT
Site Number: 370623
Tower Type: SST w/3 Legs
Design Loads (Factored) - Analysis per TIA-222-H Standards

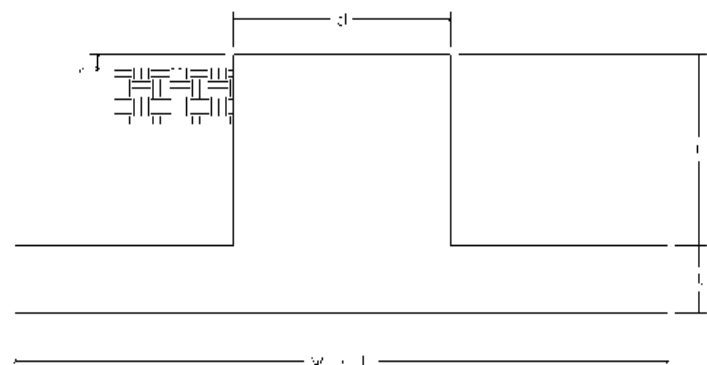
Monolithic Mat & Pier Foundation Analysis

Foundation Analysis Parameters		
Design / Analysis / Mapping:	Mapping	-
Compression/Leg:	42.0	k
Uplift/Leg:	35.7	k
Total Shear:	6.4	k
Moment:	358.4	k-ft
Tower + Appurtenance Weight:	7.7	k
Depth to Base of Foundation (l + t - h):	4.7	ft
Diameter Base Plate (d):	0	ft
Length of Pier (l):	0	ft
Height of Pier above Ground (h):	0	ft
Width of Pad (W):	14	ft
Length of Pad (L):	14	ft
Thickness of Pad (t):	5	ft
Tower Leg Center to Center:	10.5	ft
Number of Tower Legs:	3	-
Tower Center from Mat Center:	0	ft
Depth Below Ground Surface to Water Table:	99	ft
Unit Weight of Concrete:	150	pcf
Unit Weight of Soil Above Water Table:	125	pcf
Unit Weight of Water:	62.4	pcf
Unit Weight of Soil Below Water Table:	62.6	pcf
Friction Angle of Uplift:	15	°
Coefficient of Shear Friction:	0.35	-
Ultimate Compressive Bearing Pressure:	10,500	psf
Ultimate Passive Pressure on Pad Face:	0	psf
$f_{\text{Soil and Concrete Weight}}$:	0.9	-
f_{Soil} :	0.75	-

Overturning Moment Usage		
Design OTM:	390.1	k-ft
OTM Resistance:	1025.9	k-ft
Design OTM / OTM Resistance:	38%	Pass

Soil Bearing Pressure Usage		
Net Bearing Pressure:	2005	psf
Factored Nominal Bearing Pressure:	7875	psf
Factored Nominal (Net) Bearing Pressure:	25%	Pass
Load Direction Controlling Design Bearing Pressure:	<i>Diagonal to Pad Edge</i>	

Sliding Factor of Safety		
Ultimate Friction Resistance:	53.7	k
Ultimate Passive Pressure Resistance:	0.0	k
Total Factored Sliding Resistance:	40.3	k
Sliding Design / Sliding Resistance:	16%	Pass



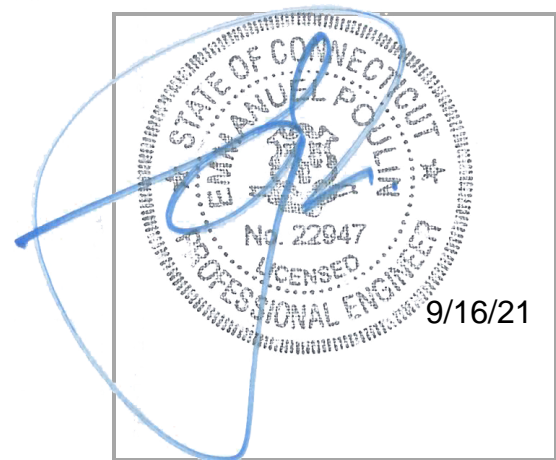
INFINIGY

MOUNT ANALYSIS REPORT

September 16, 2021

Dish Wireless Site Name	BOBOS00024A
Dish Wireless Site Number	BOBOS00024A
NSS/DISH Site Name	-
NSS/DISH Site Number	-
Infinigy Job Number	1197-F0001-B
Client	NSS/DISH
Carrier	Dish Wireless
Site Location	139 Sharp Hill Road Montville, CT 06353 New London County 41.44897200 N NAD83 72.15113889 W NAD83
Mount Type	8.0 ft Sector Frames
Mount Elevation	75.0 ft AGL
Structural Usage Ratio	40.0
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
2. Design/Analysis Parameters
3. Proposed Loading Configuration
4. Supporting Documentation
5. Results
6. Recommendations
7. Assumptions
8. Liability Waiver and Limitations
9. Calculations

1. INTRODUCTION

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

2. DESIGN/ANALYSIS PARAMETERS

Wind Speed	125 mph (3-Second Gust)
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 1.0" ice
Code / Standard	TIA-222-H
Adopted Code	2018 Connecticut State Building Code (2015 IBC)
Risk Category	II
Exposure Category	B
Topographic Category	1
Calculated Crest Height	0 ft.
Seismic Spectral Response	$S_s = 0.197 \text{ g} / S_1 = 0.054 \text{ g}$
Live Load Wind Speed	60 mph
Man Live Load at Mid/End Points	250 lbs
Man Live Load at Mount Pipes	500 lbs

3. PROPOSED LOADING CONFIGURATION - 75.0 ft. AGL Sector Frames

Antenna Centerline (ft)	Qty.	Appurtenance Manufacturers	Appurtenance Models
75.0	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-370623 Rev 0, Site #BOBOS00024A, dated May 25, 2021
Mount Manufacturer Drawings	Commscope Document # MTC3975083, dated March 17, 2021
Construction Drawings	NB+C, A&E Project #370623-13693127, dated August 10, 2021

5. RESULTS

Components	Capacity	Pass/Fail
Mount Pipes	19.3%	Pass
Horizontals	8.7%	Pass
Standoffs	40.0%	Pass
Connections	6.2%	Pass
MOUNT RATING =	40.0%	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 75.0 ft. The installation shall be performed in accordance with the construction documents issued for this site.

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

7. ASSUMPTIONS

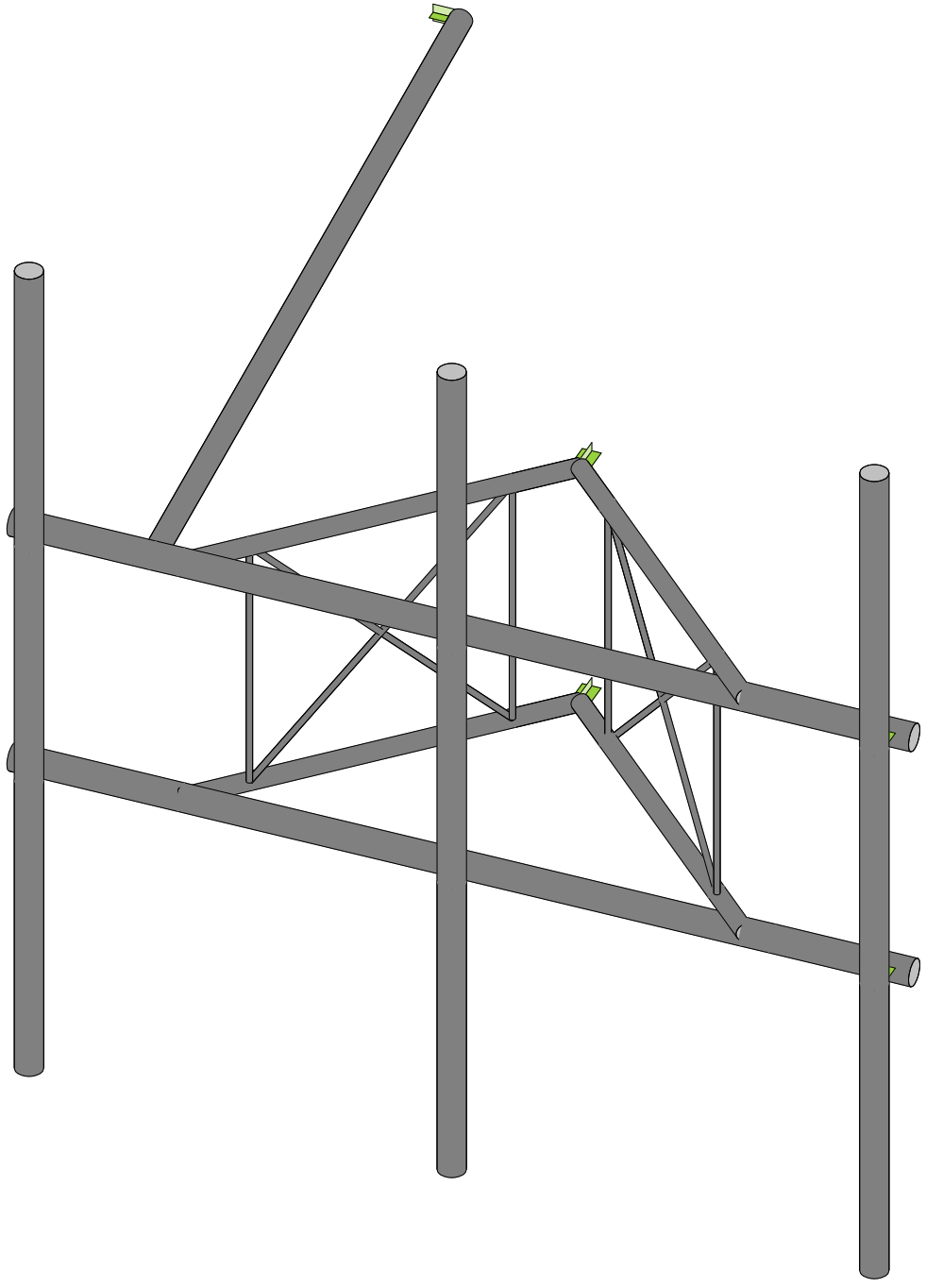
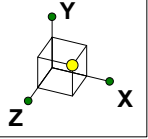
The antenna mounting system was properly fabricated, installed and maintained in accordance with its original design and manufacturer's specifications.	
The configuration of antennas, mounts, and other appurtenances are as specified in the proposed loading configuration table.	
All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.	
The analysis will require revisions if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.	
Steel grades have been assumed as follows, unless noted otherwise:	
Channel, Plate, Built-up Angle	ASTM A1011 36 KSI
Solid Round	ASTM A529 Gr 50
Structural Angle	ASTM A529 Gr. 50
HSS (Rectangular)	ASTM A500-B GR 46
HSS (Circular)	ASTM A500-B GR 42
Pipe	ASTM A500 Gr 46
Connection Bolts	ASTM A449
U-Bolts	ASTM A307
All bolted connections are pretensioned in accordance with Table 8.2 of the RCSC 2014 Standard	

8. LIABILITY WAIVER AND LIMITATIONS

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

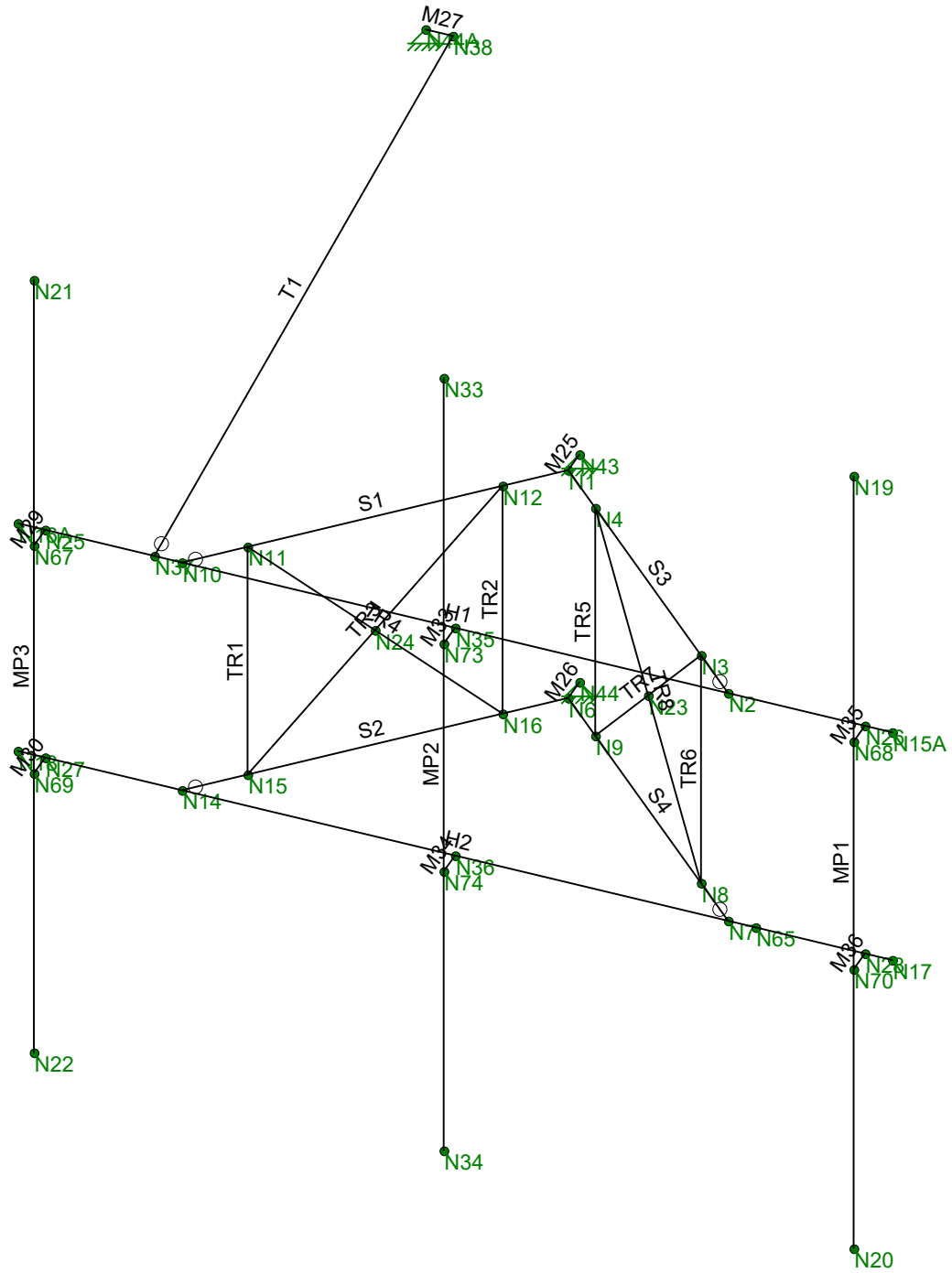
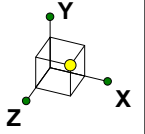
Our evaluation is completed using industry standard methods and procedures. The structural results, conclusions and recommendations contained in this report are proprietary and should not be used by others as their own. Infinigy is not responsible for decisions made by others that are or are not based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

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



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Envelope Only Solution

Infinigy Engineering, PLLC

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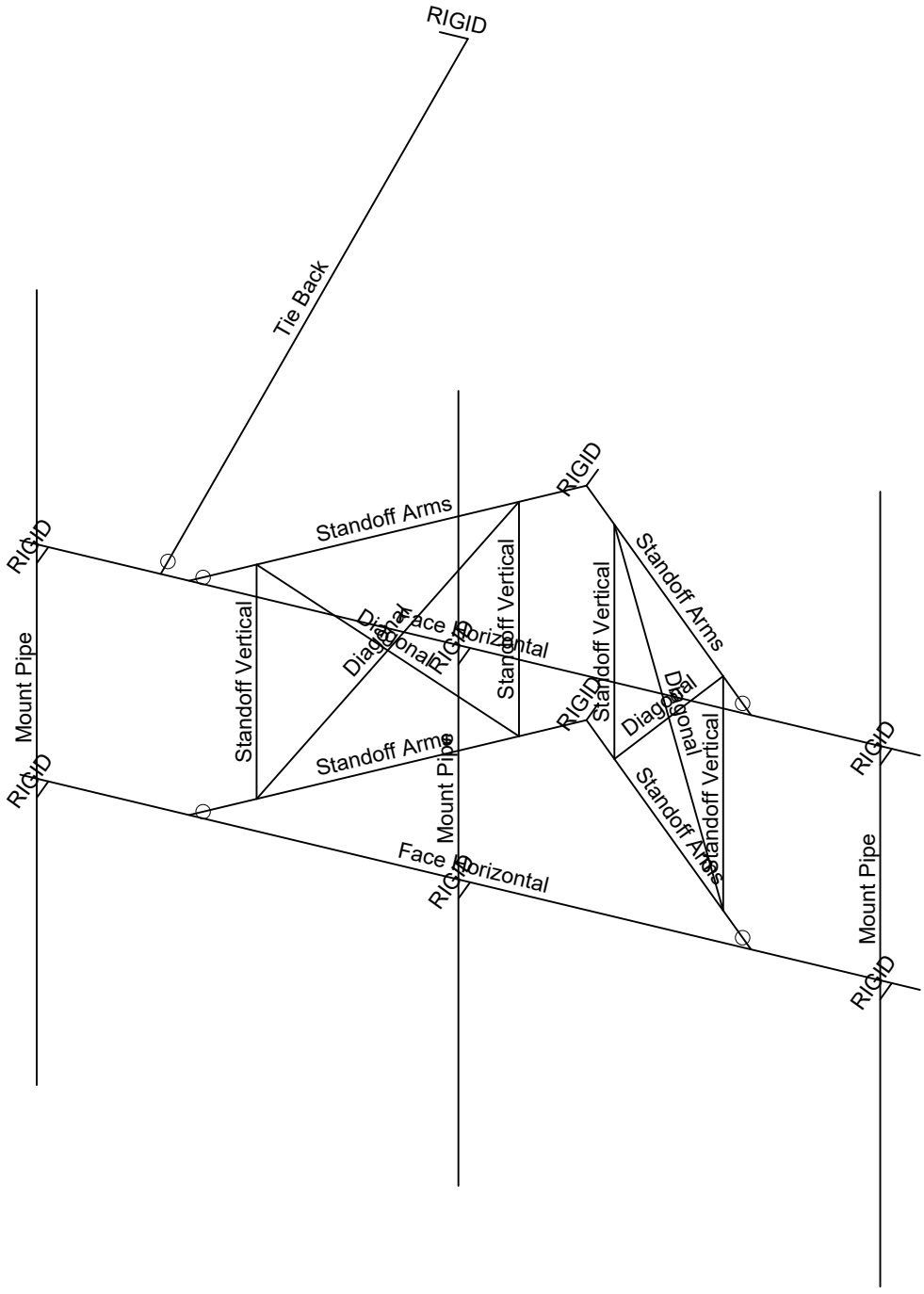
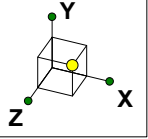
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WireFrame

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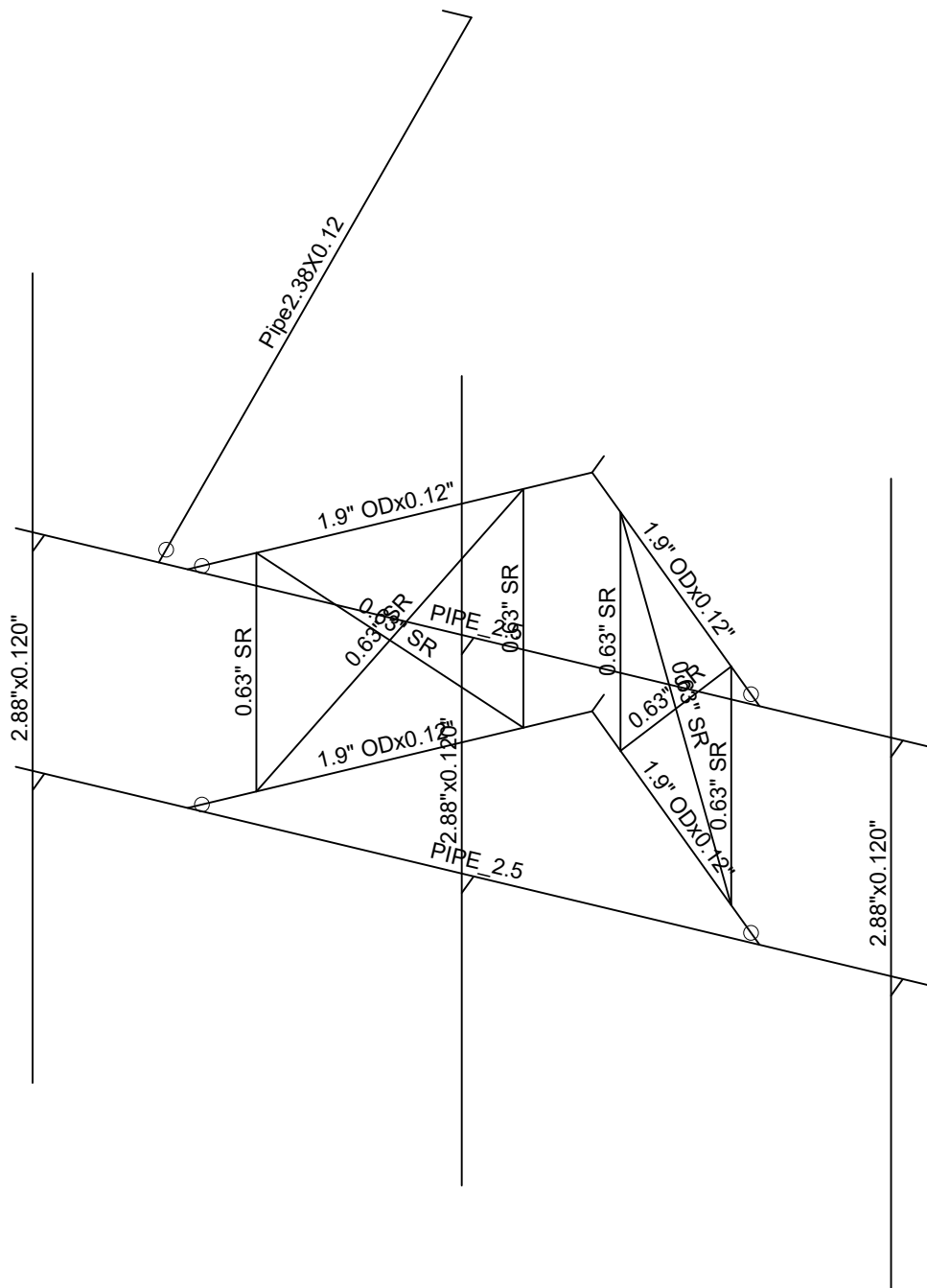
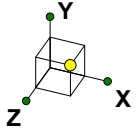


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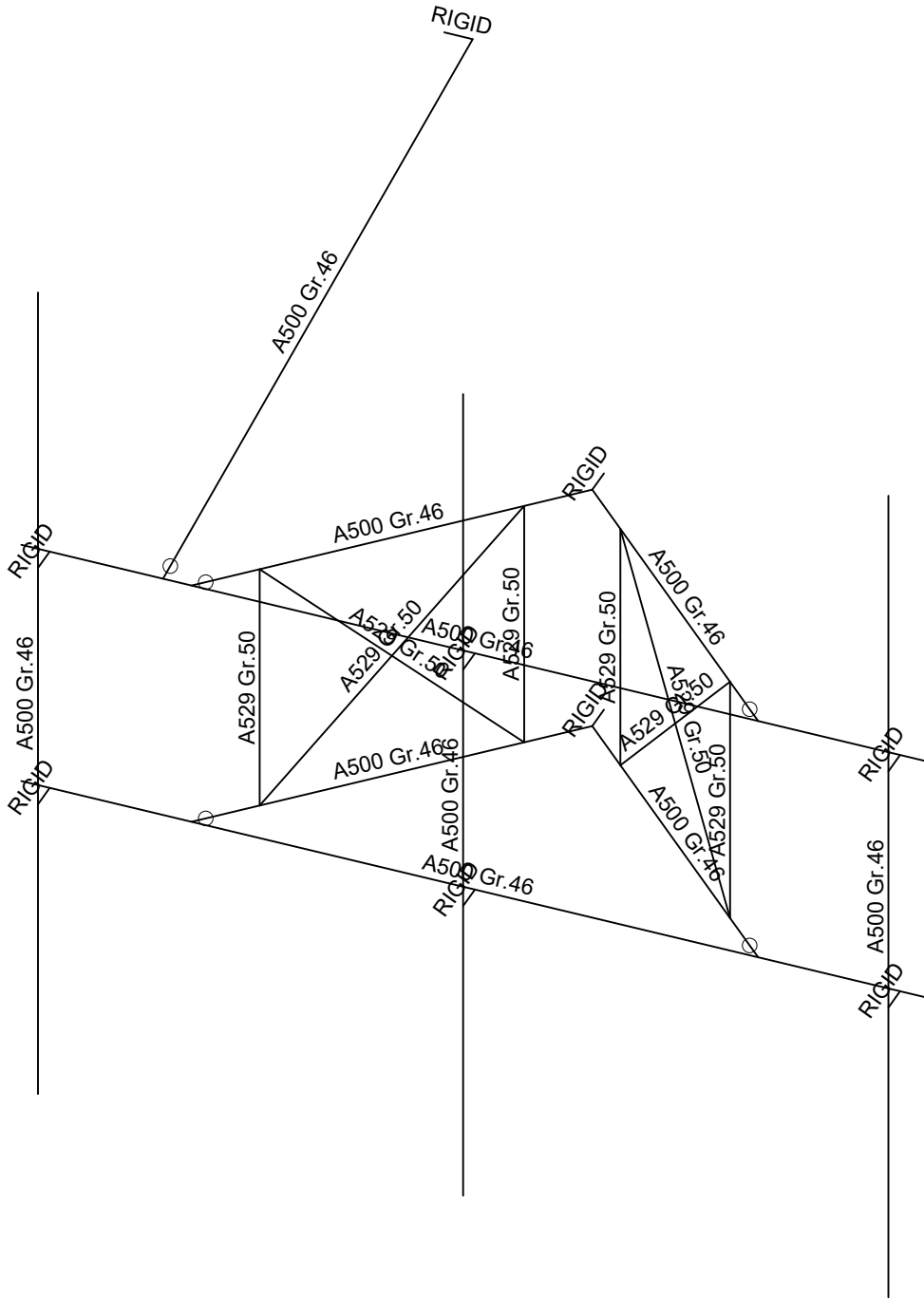
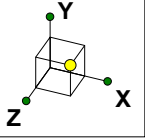
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Section Sets
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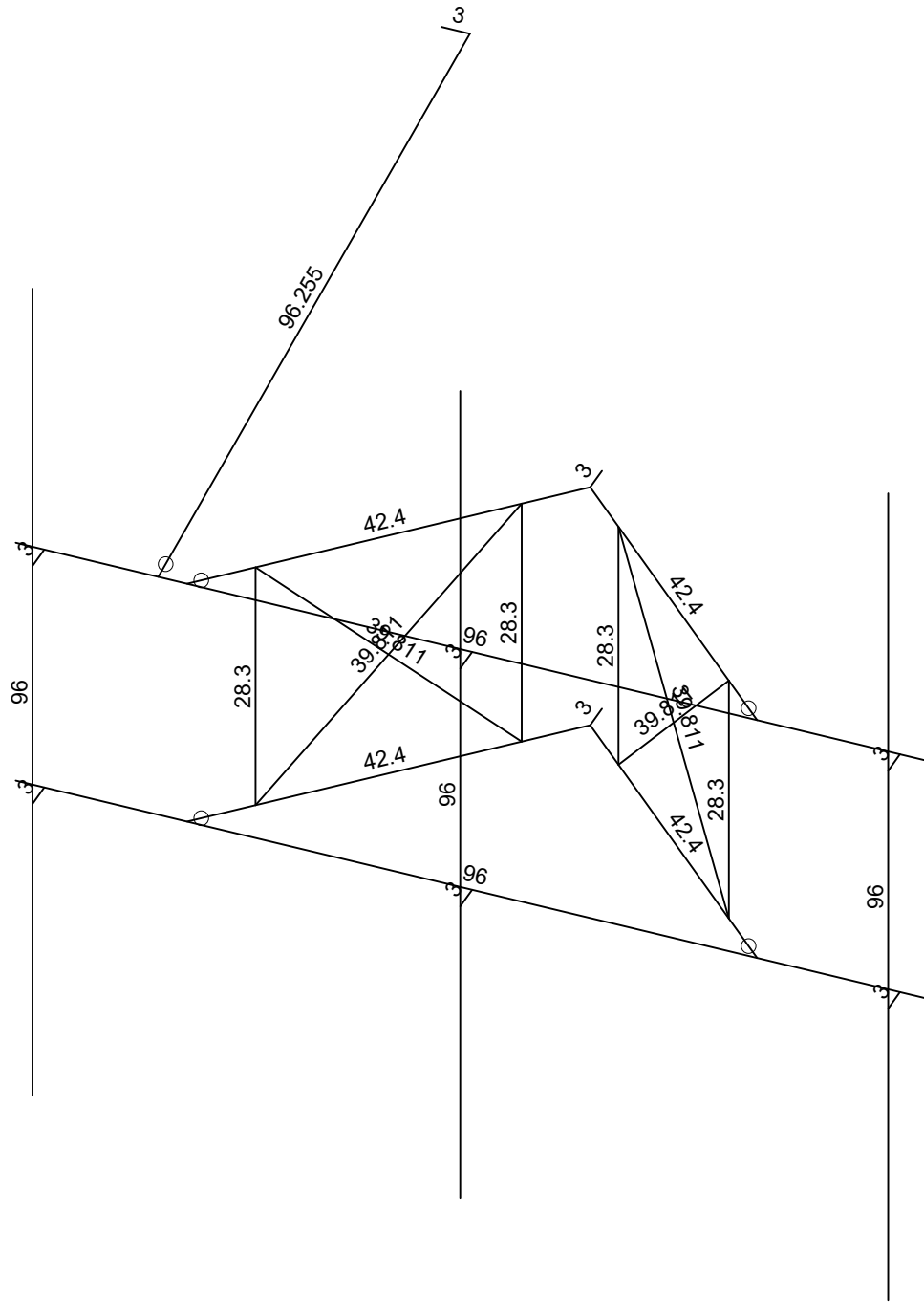
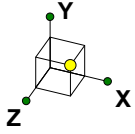
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Material Sets

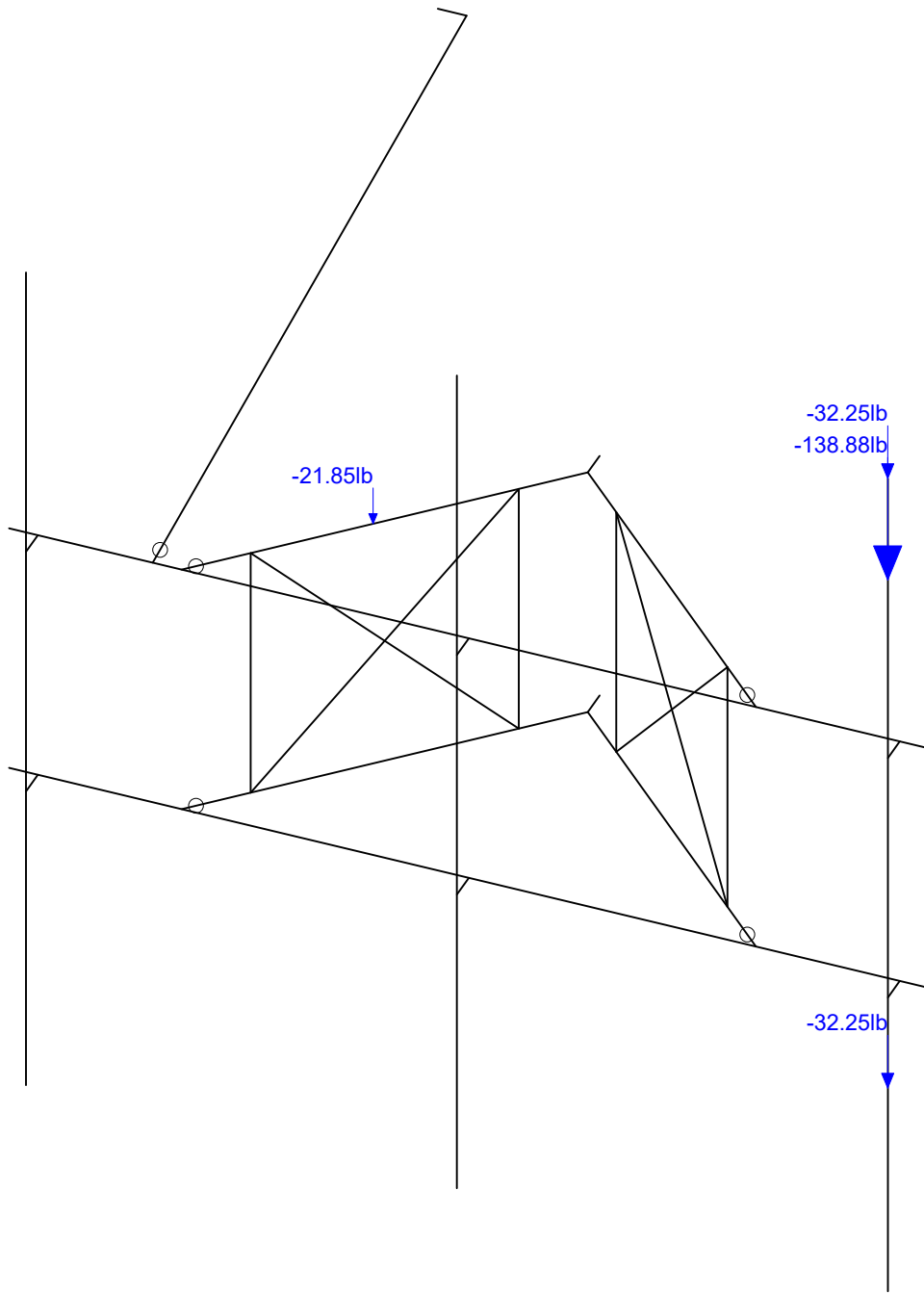
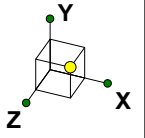
Sept 16, 2021 at 10:57 AM

BOBOS00024A_loaded.r3d



Member Length (in) Displayed
Envelope Only Solution

Infinigy Engineering, PLLC	BOBOS00024A	Member Lengths
PSM		Sept 16, 2021 at 10:57 AM
1197-F0001-B		BOBOS00024A_loaded.r3d

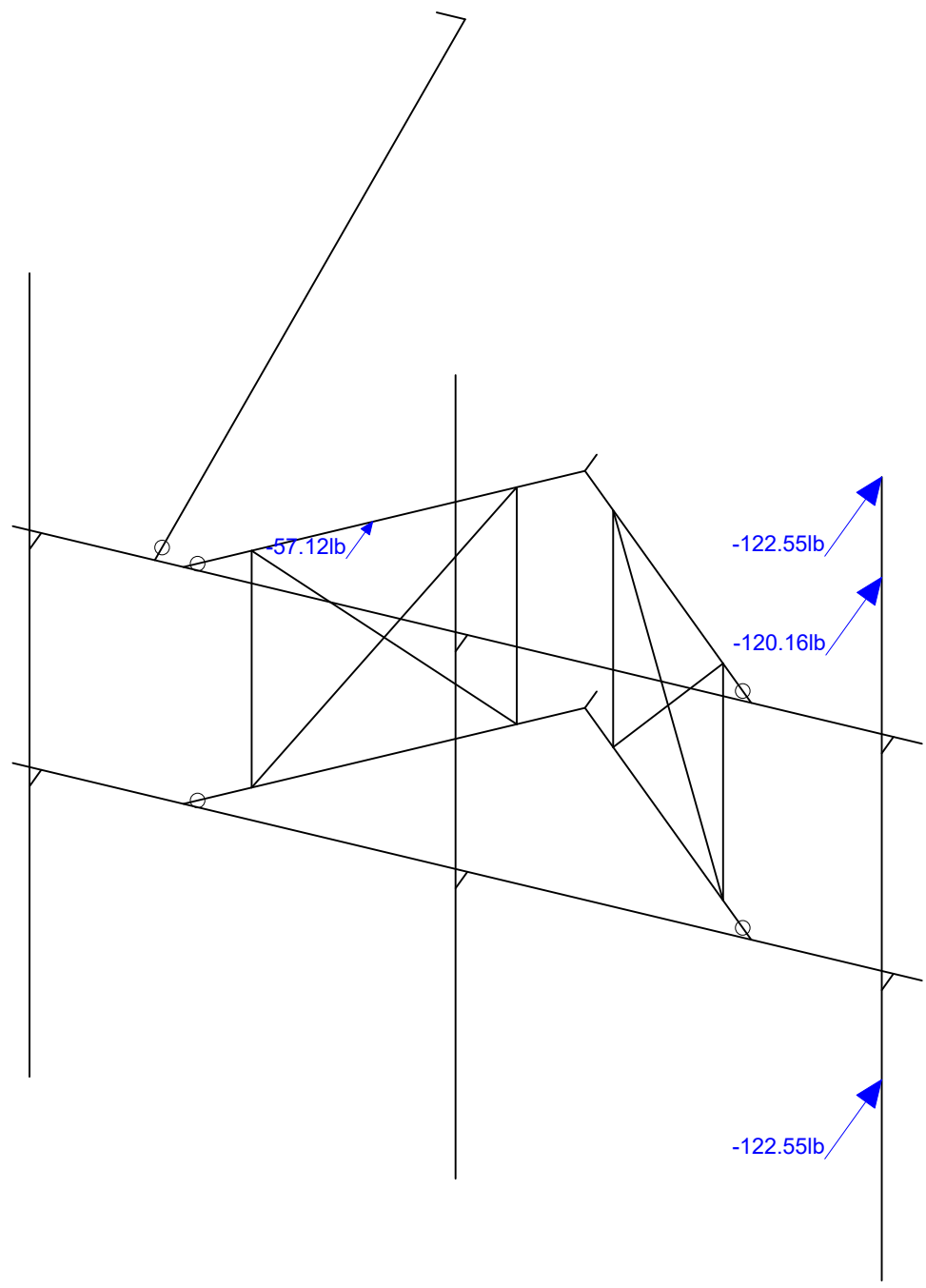
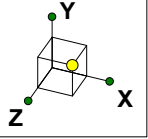


Loads: BLC 1, Self Weight
Envelope Only Solution

Infinigy Engineering, PLLC
PSM
1197-F0001-B

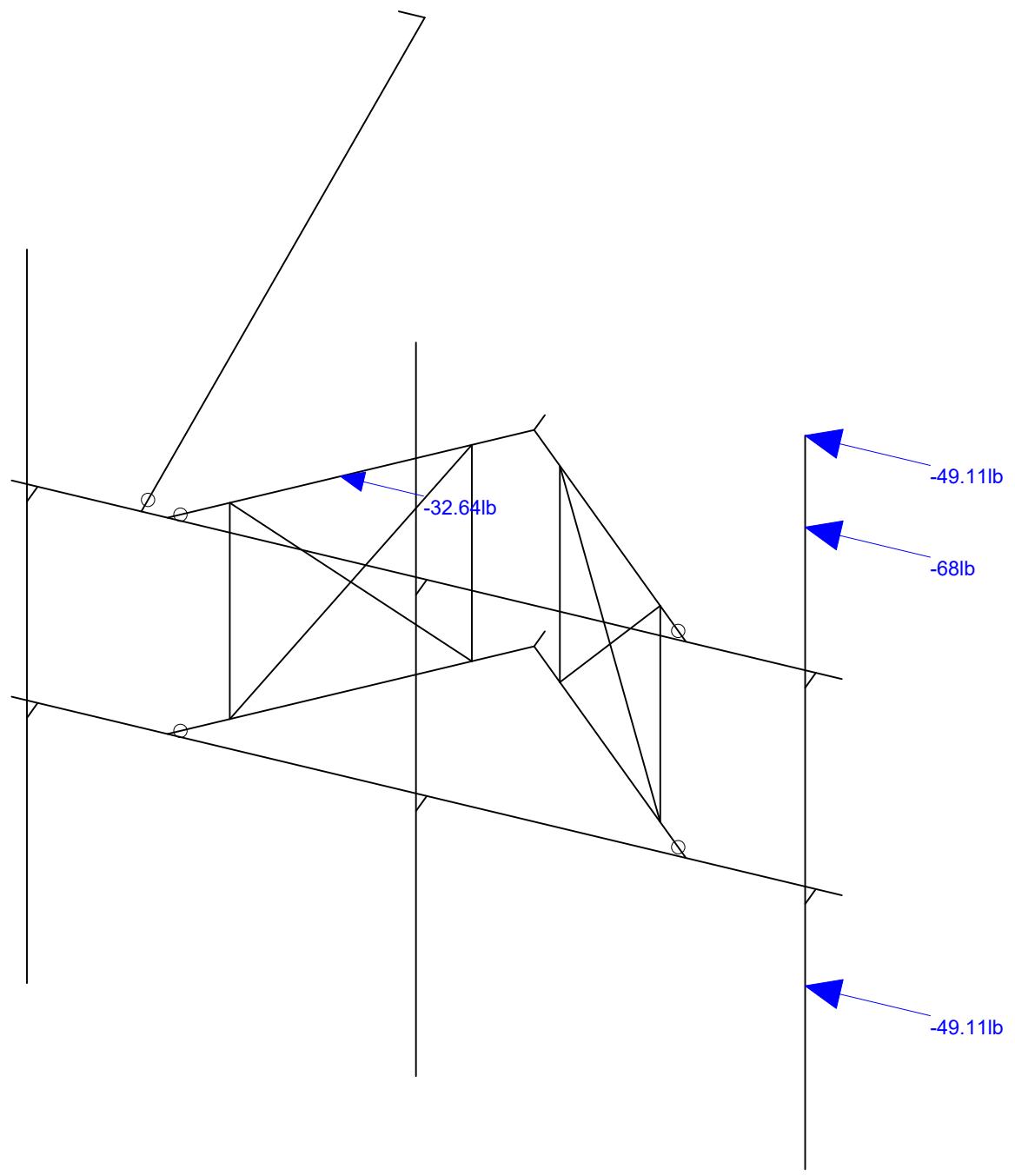
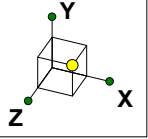
BOBOS00024A

Self Weight
Sept 16, 2021 at 10:58 AM
BOBOS00024A_loaded.r3d



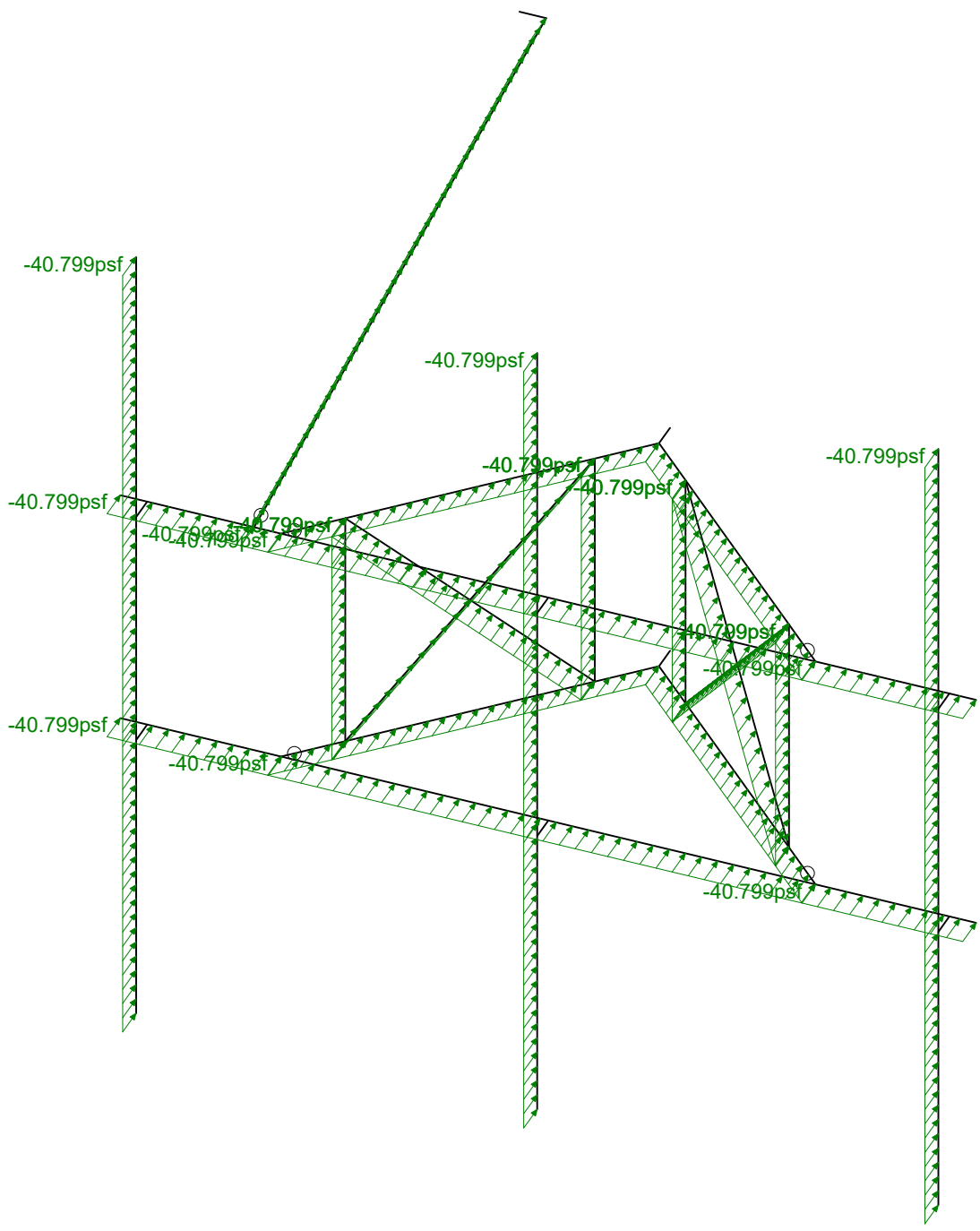
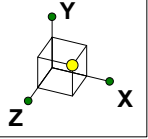
Loads: BLC 2, Wind Load AZI 0
Envelope Only Solution

Infinigy Engineering, PLLC	BOBOS00024A	Wind Load AZI 000
PSM		Sept 16, 2021 at 10:58 AM
1197-F0001-B		BOBOS00024A_loaded.r3d



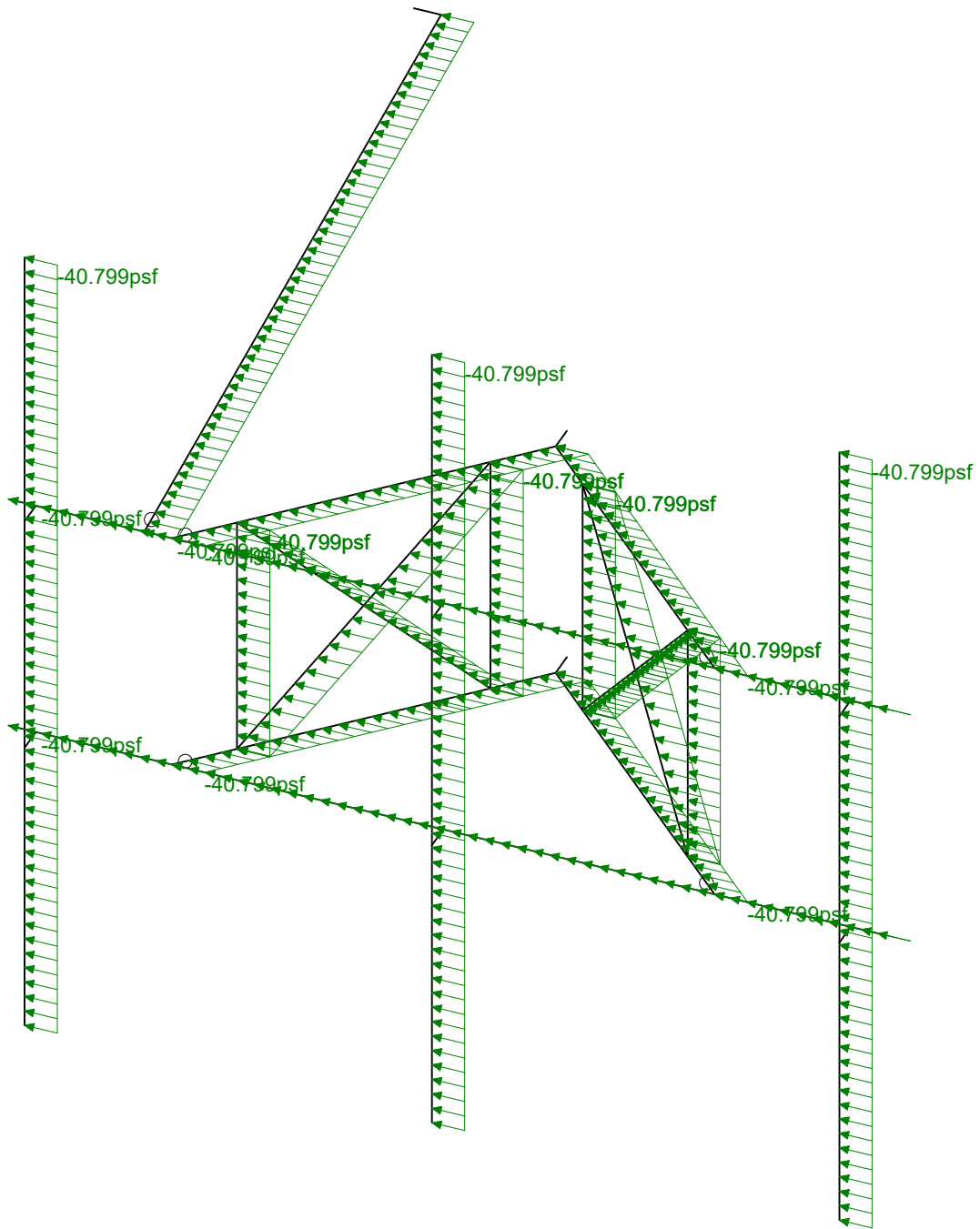
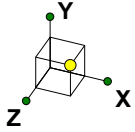
Loads: BLC 5, Wind Load AZI 90
Envelope Only Solution

Infinigy Engineering, PLLC	BOBOS00024A	Wind Load AZI 090
PSM		Sept 16, 2021 at 10:58 AM
1197-F0001-B		BOBOS00024A_loaded.r3d



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

Infinigy Engineering, PLLC	BOBOS00024A	Distr Wind Load AZI 000
PSM		Sept 16, 2021 at 10:58 AM
1197-F0001-B		BOBOS00024A_loaded.r3d



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

Infinigy Engineering, PLLC

PSM

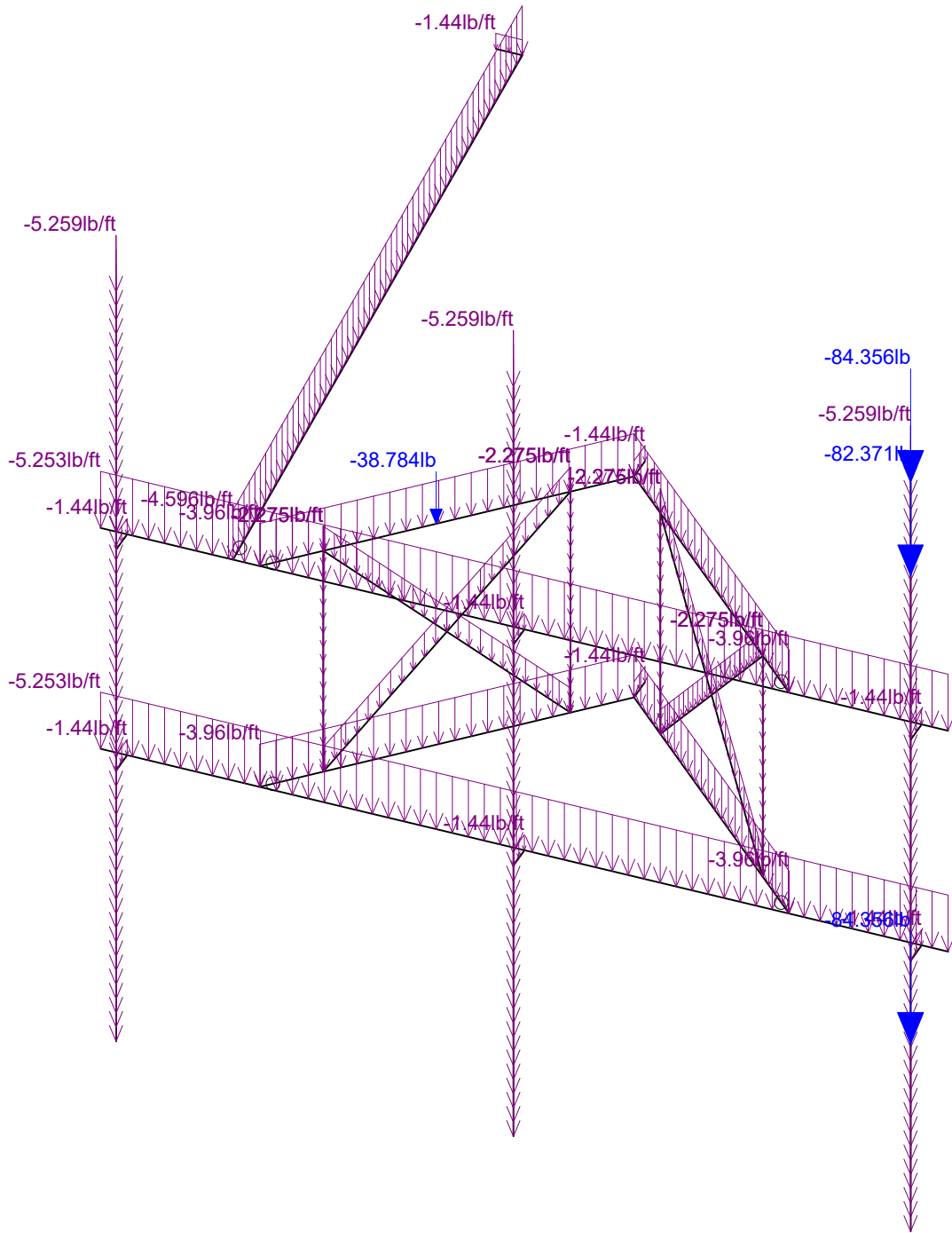
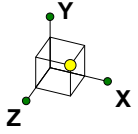
1197-F0001-B

BOBOS00024A

Distr Wind Load AZI 090

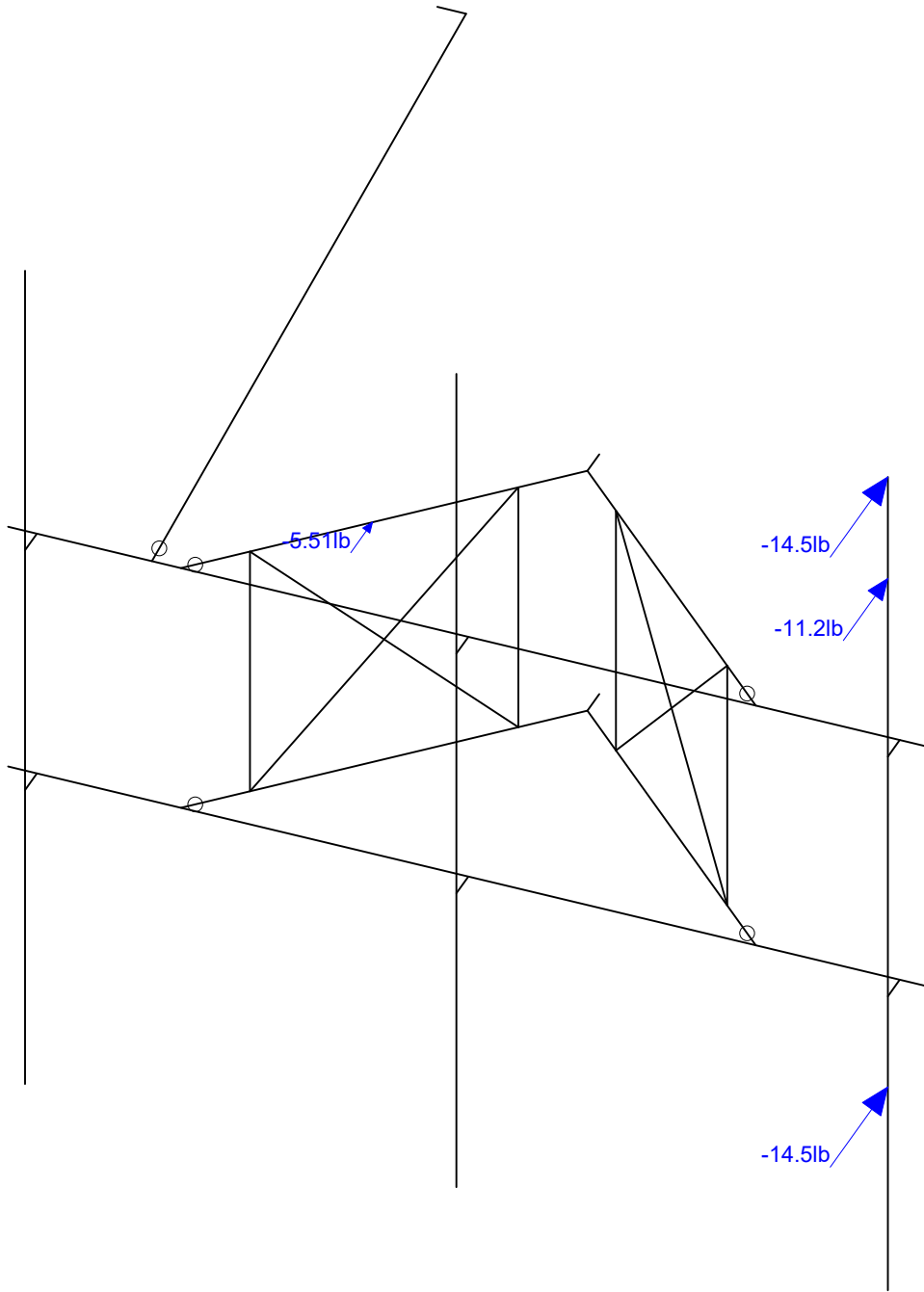
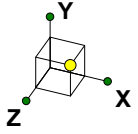
Sept 16, 2021 at 10:59 AM

BOBOS00024A_loaded.r3d



Loads: BLC 16, Ice Weight
Envelope Only Solution

Infinigy Engineering, PLLC	BOBOS00024A	Ice Weight
PSM		Sept 16, 2021 at 10:59 AM
1197-F0001-B		BOBOS00024A_loaded.r3d

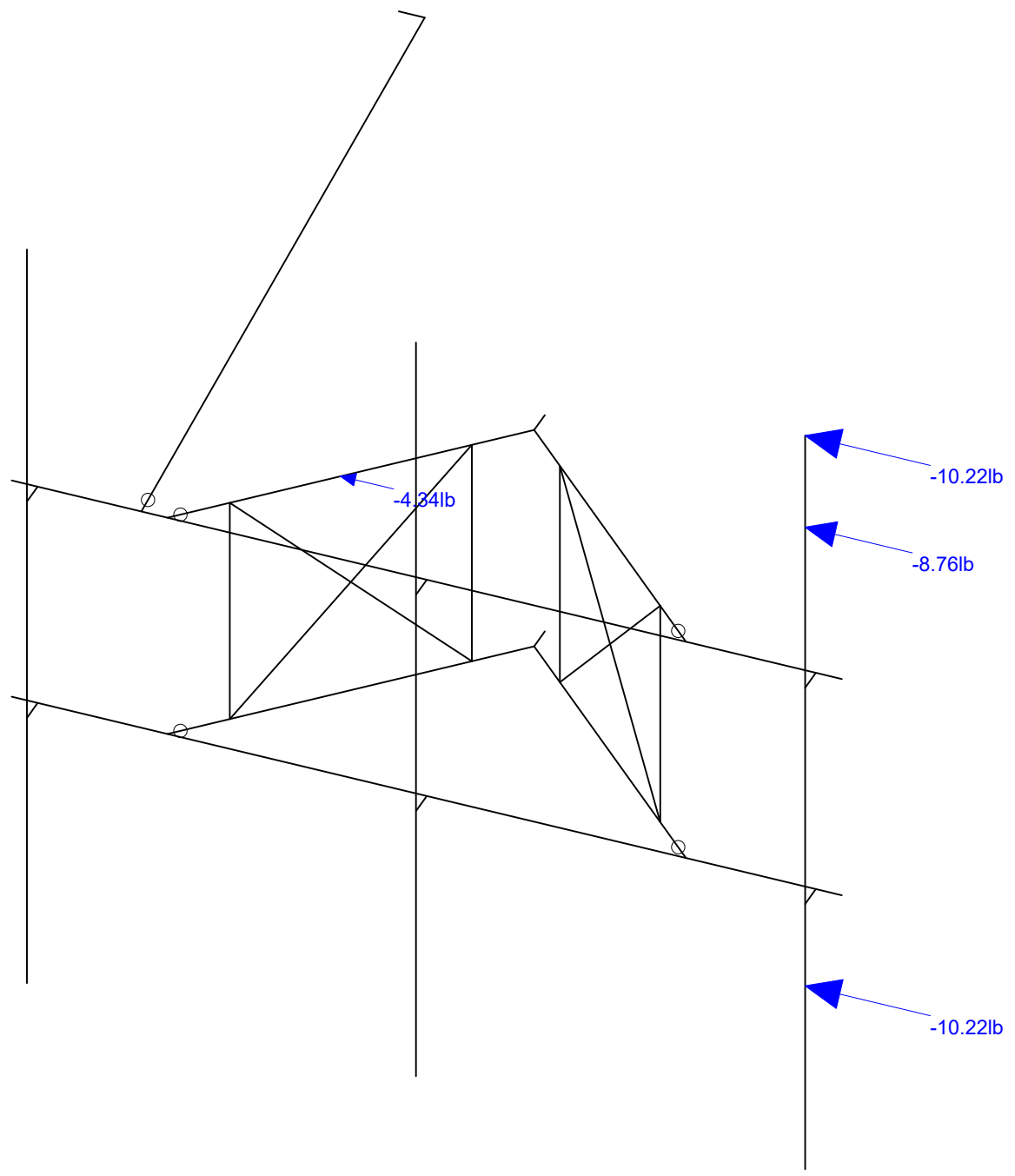
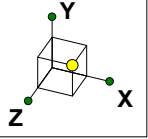


Loads: BLC 17, Ice Wind Load AZI 0
Envelope Only Solution

Infinigy Engineering, PLLC
PSM
1197-F0001-B

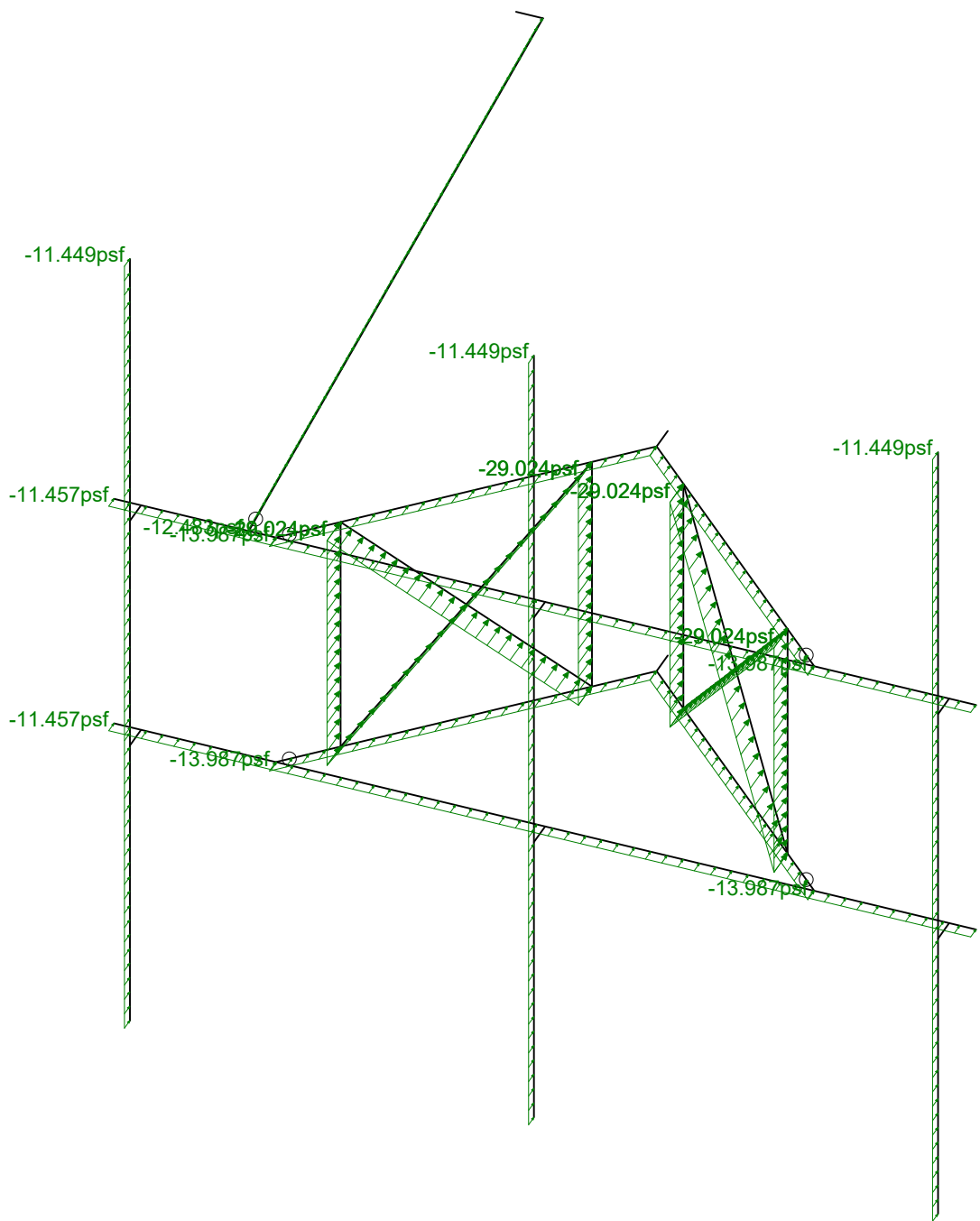
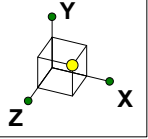
BOBOS00024A

Ice + Wind Load AZI 000
Sept 16, 2021 at 10:59 AM
BOBOS00024A_loaded.r3d



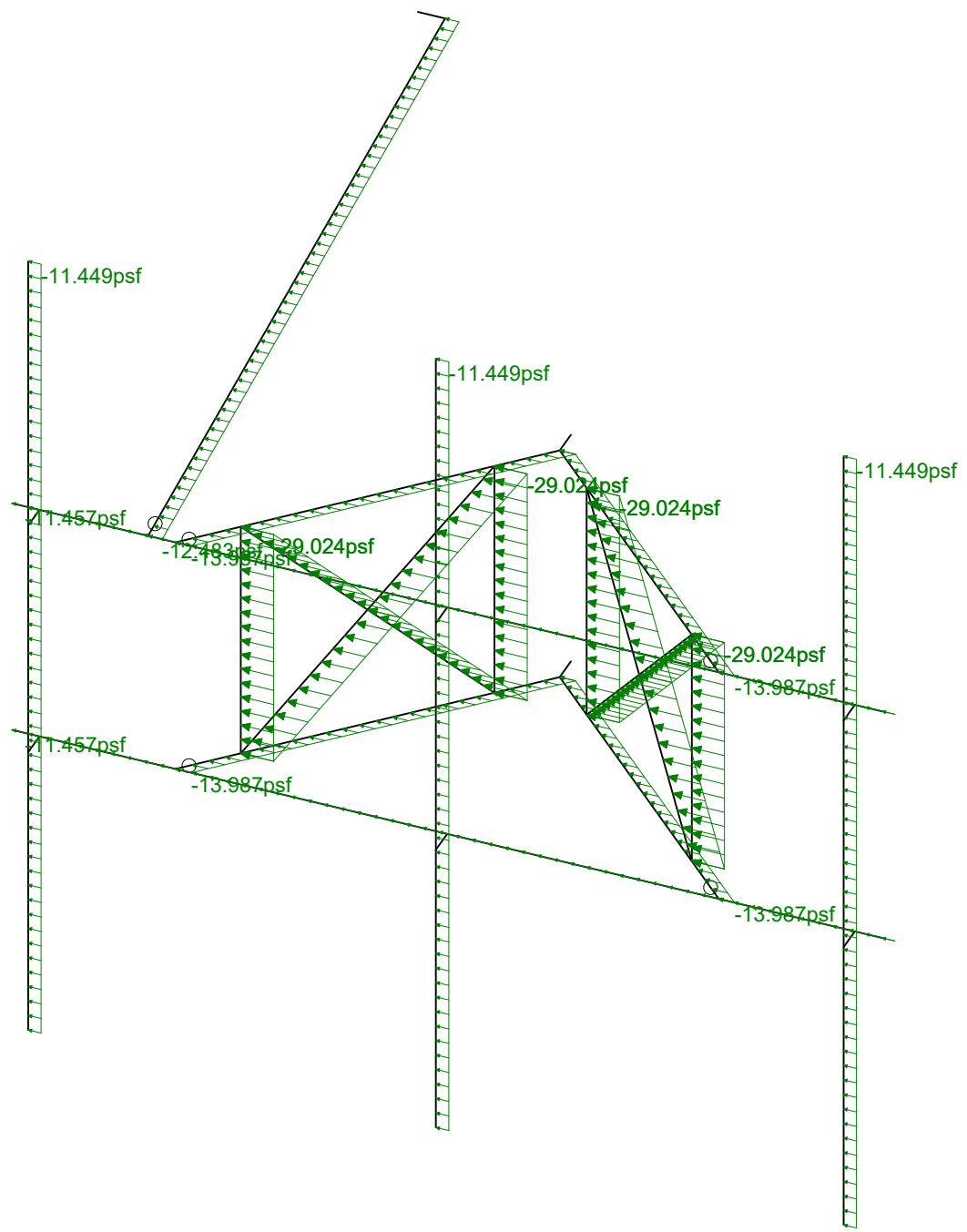
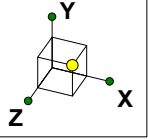
Loads: BLC 20, Ice Wind Load AZI 90
Envelope Only Solution

Infinigy Engineering, PLLC	BOBOS00024A	Ice + Wind Load AZI 090
PSM		Sept 16, 2021 at 10:59 AM
1197-F0001-B		BOBOS00024A_loaded.r3d



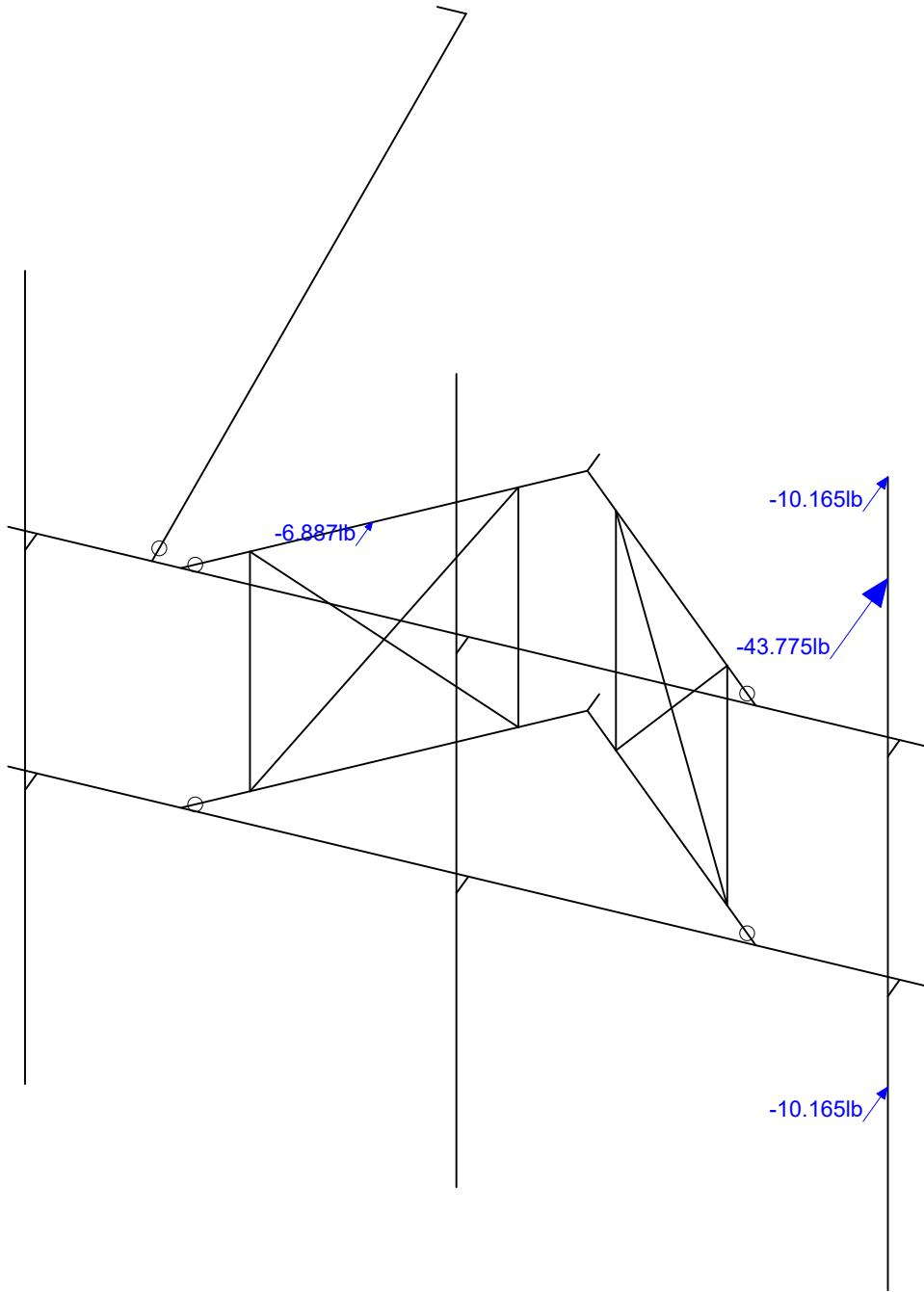
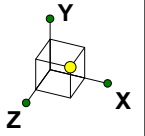
Loads: BLC 29, Distr. Ice Wind Load Z
Envelope Only Solution

Infinigy Engineering, PLLC	BOBOS00024A	Distr Ice + Wind Load AZI 000
PSM		Sept 16, 2021 at 11:00 AM
1197-F0001-B		BOBOS00024A_loaded.r3d



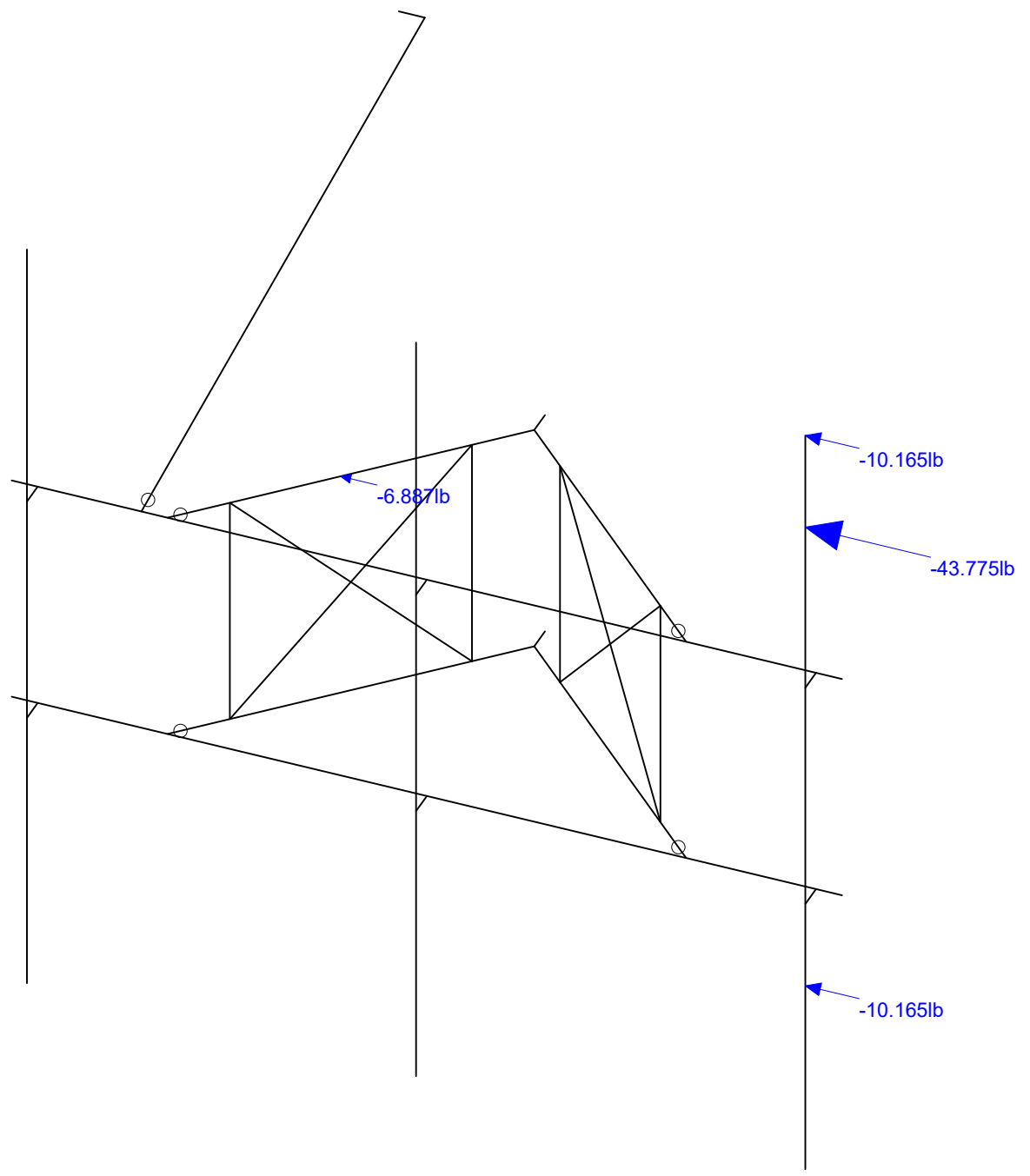
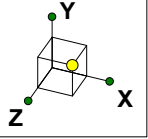
Loads: BLC 30, Distr. Ice Wind Load X
Envelope Only Solution

Infinigy Engineering, PLLC	BOBOS00024A	Distr Ice + Wind Load AZI 090
PSM		Sept 16, 2021 at 11:00 AM
1197-F0001-B		BOBOS00024A_loaded.r3d



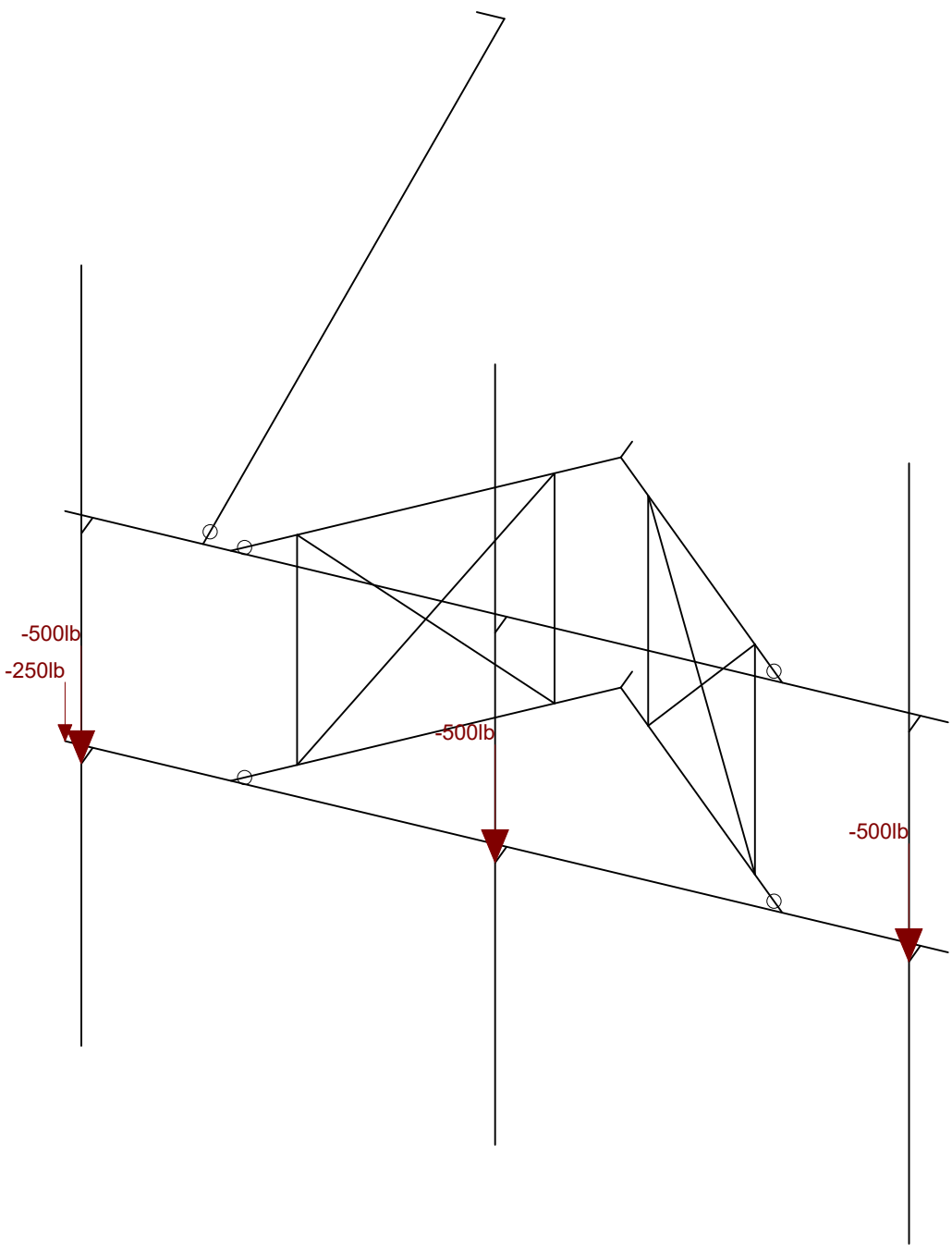
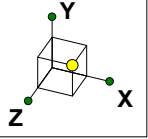
Loads: BLC 31, Seismic Load Z
Envelope Only Solution

Infinigy Engineering, PLLC	BOBOS00024A	Seismic Load AZI 000
PSM		Sept 16, 2021 at 11:00 AM
1197-F0001-B		BOBOS00024A_loaded.r3d



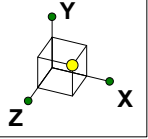
Loads: BLC 32, Seismic Load X
Envelope Only Solution

Infinigy Engineering, PLLC	BOBOS00024A	Seismic Load AZI 090
PSM		Sept 16, 2021 at 11:00 AM
1197-F0001-B		BOBOS00024A_loaded.r3d

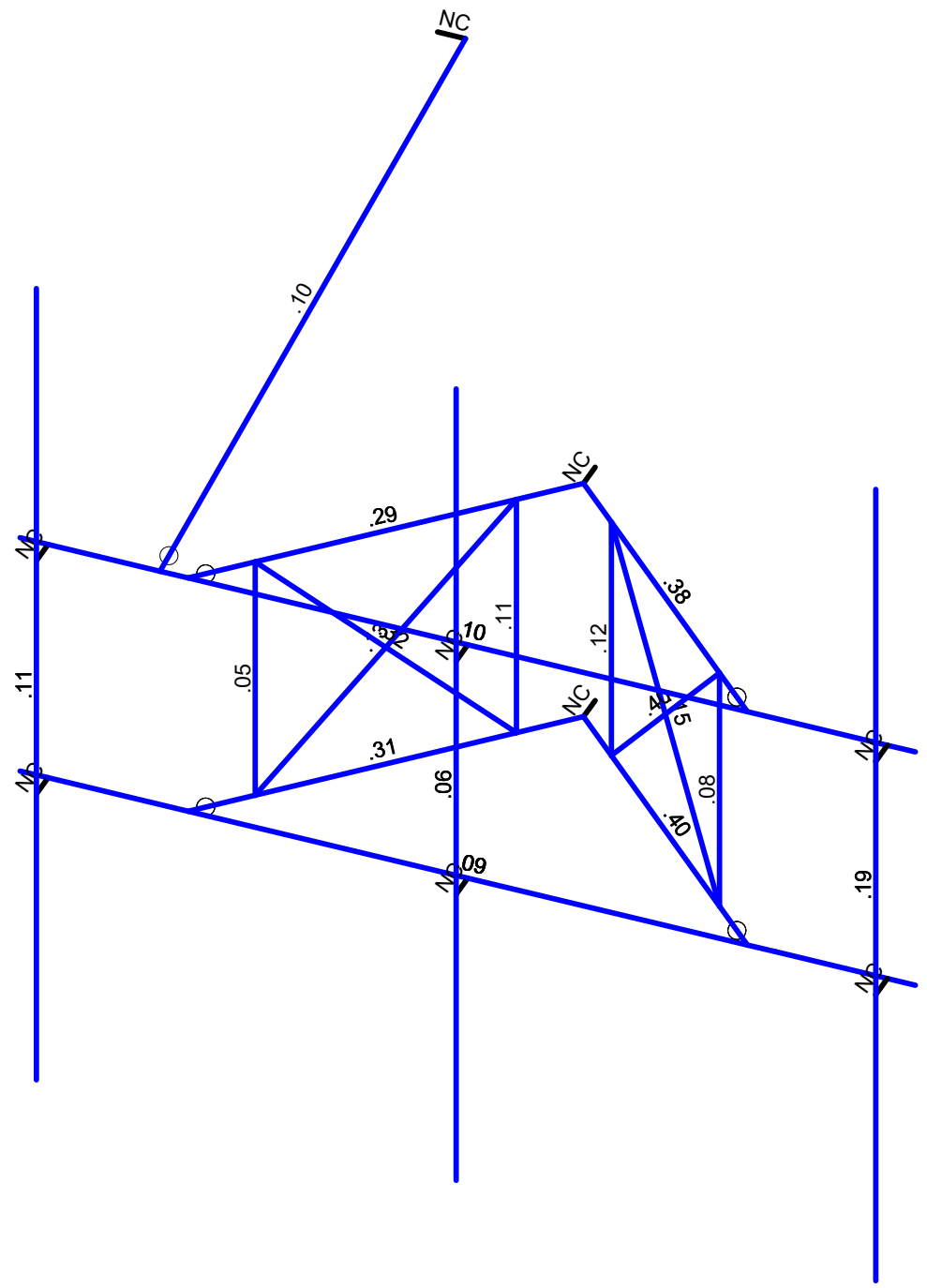


Loads: LL - Live Load
Envelope Only Solution

Infinigy Engineering, PLLC	BOBOS00024A	Non-concurrent Live Loads
PSM		Sept 16, 2021 at 11:01 AM
1197-F0001-B		BOBOS00024A_loaded.r3d

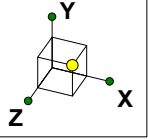


Code Check (Env)	
Black	No Calc
Red	> 1.0
Magenta	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50

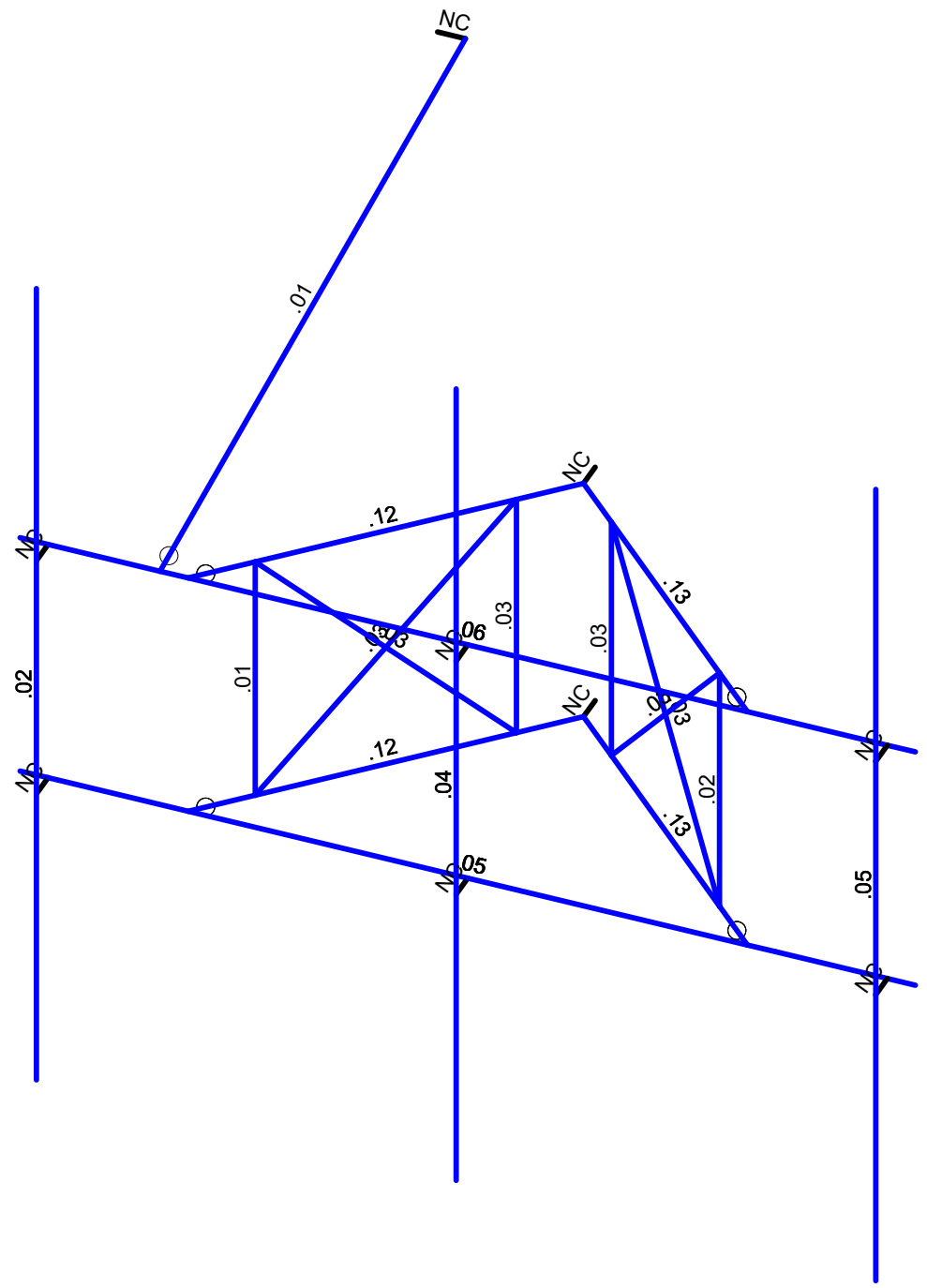


Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Infinigy Engineering, PLLC	BOBOS00024A	Bending Check
PSM		Sept 16, 2021 at 11:01 AM
1197-F0001-B		BOBOS00024A_loaded.r3d



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



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Infinigy Engineering, PLLC	BOBOS00024A	Shear Check
PSM		Sept 16, 2021 at 11:01 AM
1197-F0001-B		BOBOS00024A_loaded.r3d

Program Inputs

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

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	B	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	475.92	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Sector Frame	
Num Sectors:	3	
Centerline AGL:	75.00	ft
Tower Height AGL:	101.00	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):	0.983	*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 7-16	

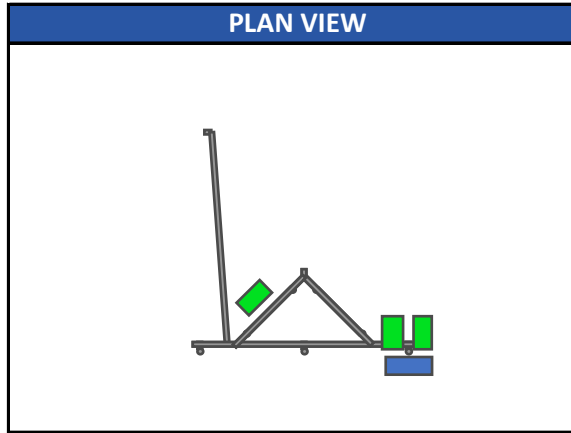
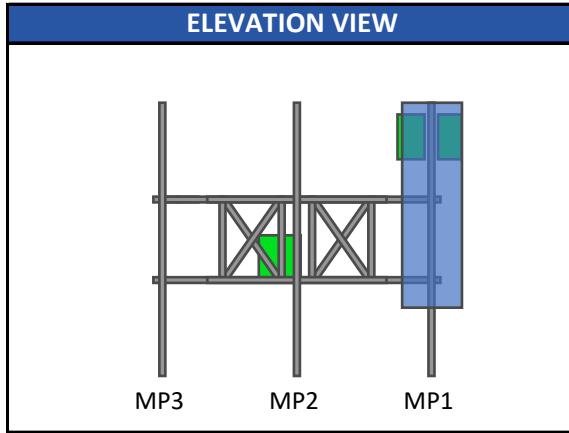
WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	125	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	1	in
Flat Pressure:	67.998	psf
Round Pressure:	40.799	psf
Ice Wind Pressure:	6.528	psf

SEISMIC DATA		
Short-Period Accel. (S_s):	0.197	g
1-Second Accel. (S_1):	0.054	g
Short-Period Design (S_{DS}):	0.210	
1-Second Design (S_{D1}):	0.086	
Short-Period Coeff. (F_a):	1.600	
1-Second Coeff. (F_v):	2.400	
Amplification Factor (A_s):	3.000	
Response Mod. Coeff. (R):	2.000	



Infinigy Load Calculator V2.1.7

Program Inputs



Infinigy Load Calculator V2.1.7

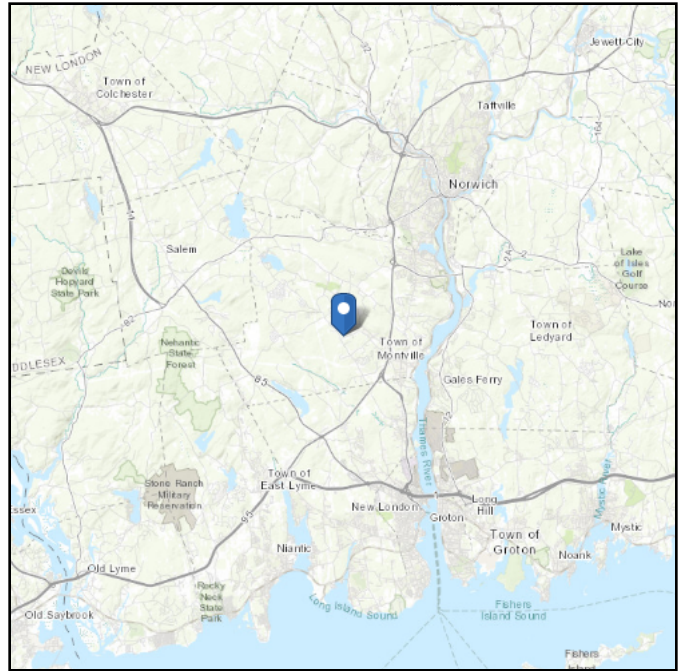
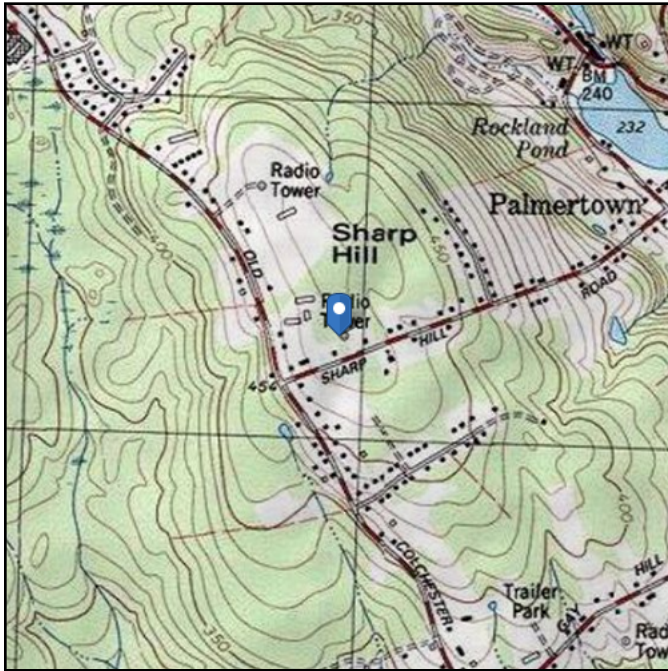
APPURTENANCE INFORMATION											
Appurtenance Name	Elevation	Qty.	K_a	q_z (psf)	EPA_N (ft ²)	EPA_T (ft ²)	Wind F_z (lbs)	Wind F_x (lbs)	Weight (lbs)	Seismic F (lbs)	Member (α sector)
JMA WIRELESS MX08FRO665-21	75.0	3	0.90	34.00	8.01	3.21	245.10	98.22	64.50	20.33	MP1
FUJITSU TA08025-B605	75.0	3	0.90	34.00	1.96	1.19	60.08	36.39	74.95	23.62	MP1
FUJITSU TA08025-B604	75.0	3	0.90	34.00	1.96	1.03	60.08	31.61	63.93	20.15	MP1
RAYCAP RDIDC-9181-PF-48	75.0	1	0.90	34.00	1.87	1.07	57.12	32.64	21.85	6.89	S1

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 475.92 ft (NAVD 88)
Latitude: 41.448972
Longitude: -72.151139



Wind

Results:

Wind Speed:	125 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	97 Vmph
100-year MRI	102 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Thu Sep 16 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 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

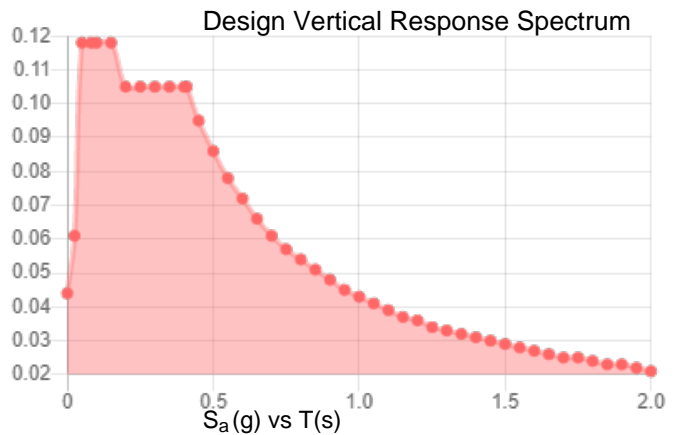
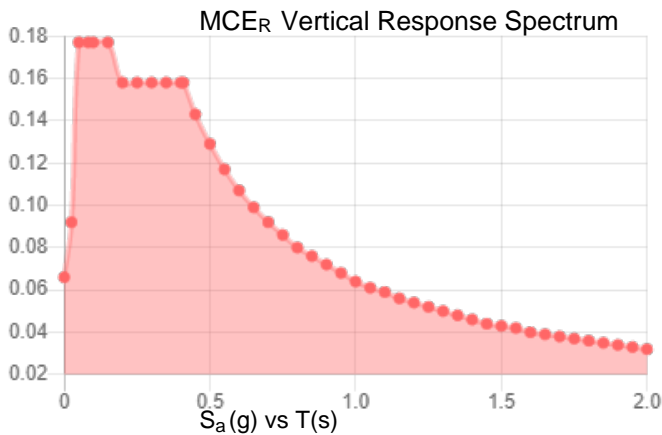
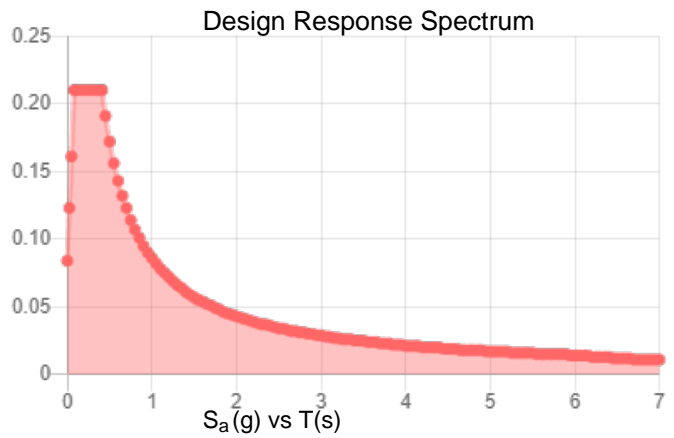
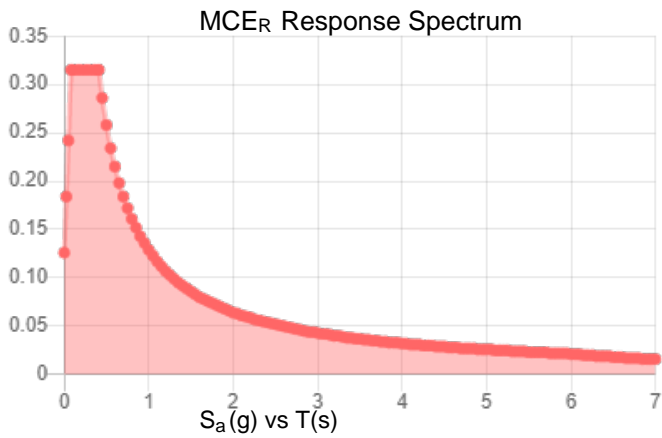
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Default (see Section 11.4.3)

Results:

S_s :	0.197	S_{D1} :	0.086
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.109
F_v :	2.4	PGA _M :	0.172
S_{MS} :	0.315	F_{PGA} :	1.582
S_{M1} :	0.129	I_e :	1
S_{DS} :	0.21	C_v :	0.7

Seismic Design Category B



Data Accessed:

Thu Sep 16 2021

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 1.00 in.

Concurrent Temperature: 15 F

Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Thu Sep 16 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 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...)	Section/Shape	Type	Design List	Material	Design Rules
1	S3	N2	N1			Standoff Arms	Beam	Pipe	A500 Gr.46	Typical
2	S4	N7	N6			Standoff Arms	Beam	Pipe	A500 Gr.46	Typical
3	TR6	N3	N8			Standoff Vertical	None	None	A529 Gr.50	Typical
4	TR5	N4	N9			Standoff Vertical	None	None	A529 Gr.50	Typical
5	TR8	N4	N8			Diagonal	None	None	A529 Gr.50	Typical
6	TR7	N3	N9			Diagonal	None	None	A529 Gr.50	Typical
7	S1	N10	N1			Standoff Arms	Beam	Pipe	A500 Gr.46	Typical
8	S2	N14	N6			Standoff Arms	Beam	Pipe	A500 Gr.46	Typical
9	TR1	N11	N15			Standoff Vertical	None	None	A529 Gr.50	Typical
10	TR2	N12	N16			Standoff Vertical	None	None	A529 Gr.50	Typical
11	TR3	N12	N15			Diagonal	None	None	A529 Gr.50	Typical
12	TR4	N11	N16			Diagonal	None	None	A529 Gr.50	Typical
13	H1	N16A	N15A			Face Horizontal	Beam	Pipe	A500 Gr.46	Typical
14	H2	N18	N17			Face Horizontal	Beam	Pipe	A500 Gr.46	Typical
15	MP3	N21	N22			Mount Pipe	Colu...	Pipe	A500 Gr.46	Typical
16	MP1	N19	N20			Mount Pipe	Colu...	Pipe	A500 Gr.46	Typical
17	MP2	N33	N34			Mount Pipe	Colu...	Pipe	A500 Gr.46	Typical
18	T1	N37	N38			Tie Back	None	None	A500 Gr.46	Typical
19	M29	N25	N67			RIGID	None	None	RIGID	Typical
20	M30	N27	N69			RIGID	None	None	RIGID	Typical
21	M33	N35	N73			RIGID	None	None	RIGID	Typical
22	M34	N36	N74			RIGID	None	None	RIGID	Typical
23	M35	N26	N68			RIGID	None	None	RIGID	Typical
24	M36	N28	N70			RIGID	None	None	RIGID	Typical
25	M25	N43	N1			RIGID	None	None	RIGID	Typical
26	M26	N44	N6			RIGID	None	None	RIGID	Typical
27	M27	N44A	N38			RIGID	None	None	RIGID	Typical

Hot Rolled Steel Design Parameters

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

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Lengt...	Lbyy[in]	Lbzz[in]	Lcomp t...	Lcomp b...	L-tor...	Kyy	Kzz	Cb	Func...
11	TR3	Diagonal	39.811			Lbyy			.7	.7		Late...
12	TR4	Diagonal	39.811			Lbyy			.5	.5		Late...
13	H1	Face Horizontal	96			Lbyy						Late...
14	H2	Face Horizontal	96			Lbyy						Late...
15	MP3	Mount Pipe	96			Lbyy						Late...
16	MP1	Mount Pipe	96			Lbyy						Late...
17	MP2	Mount Pipe	96			Lbyy						Late...
18	T1	Tie Back	96.255			Lbyy						Late...

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ra...	Analysis ...	Inactive	Seismi...
1	S3	BenPIN					Yes	Default			None
2	S4	BenPIN					Yes	Default			None
3	TR6						Yes	** NA **			None
4	TR5						Yes	** NA **			None
5	TR8						Yes	** NA **			None
6	TR7						Yes	** NA **			None
7	S1	BenPIN					Yes	Default			None
8	S2	BenPIN					Yes	Default			None
9	TR1						Yes	** NA **			None
10	TR2						Yes	** NA **			None
11	TR3						Yes	** NA **			None
12	TR4						Yes	** NA **			None
13	H1						Yes				None
14	H2						Yes				None
15	MP3						Yes	** NA **			None
16	MP1						Yes	** NA **			None
17	MP2						Yes	** NA **			None
18	T1	BenPIN					Yes	** NA **			None
19	M29						Yes	** NA **			None
20	M30						Yes	** NA **			None
21	M33						Yes	** NA **			None
22	M34						Yes	** NA **			None
23	M35						Yes	** NA **			None
24	M36						Yes	** NA **			None
25	M25						Yes	** NA **			None
26	M26						Yes	** NA **			None
27	M27						Yes	** NA **			None

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General				
2	RIGID		9	27	0
3	Total General		9	27	0
4					
5	Hot Rolled Steel				
6	A500 Gr.46	1.9" ODx0.12"	4	169.6	32.27
7	A500 Gr.46	PIPE 2.5	2	192	87.656
8	A500 Gr.46	2.88"x0.120"	3	288	84.933
9	A500 Gr.46	Pipe2.38X0.12	1	96.3	23.255
10	A529 Gr.50	0.63" SR	8	272.4	24.082
11	Total HR Steel		18	1018.3	252.196

Hot Rolled Steel Section Sets

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

Basic Load Cases

	BLC Description	Category	X Gr...	Y Gr...	Z Gr...	Joint	Point	Distributed	Area(Memb...	Surface(Plate/Wall)
1	Self Weight	DL		-1			5			
2	Wind Load AZI 0	WLZ					10			
3	Wind Load AZI 30	None					10			
4	Wind Load AZI 60	None					10			
5	Wind Load AZI 90	WLX					10			
6	Wind Load AZI 1...	None					10			
7	Wind Load AZI 1...	None					10			
8	Wind Load AZI 1...	None					10			
9	Wind Load AZI 2...	None					10			
10	Wind Load AZI 2...	None					10			
11	Wind Load AZI 2...	None					10			
12	Wind Load AZI 3...	None					10			
13	Wind Load AZI 3...	None					10			
14	Distr. Wind Load Z	WLZ						27		



Basic Load Cases (Continued)

	BLC Description	Category	X Gr...	Y Gr...	Z Gr...	Joint	Point	Distributed	Area(Memb...	Surface(Plate/Wall)
15	Distr. Wind Load X	WLX						27		
16	Ice Weight	OL1					5	27		
17	Ice Wind Load A...	OL2					10			
18	Ice Wind Load A...	None					10			
19	Ice Wind Load A...	None					10			
20	Ice Wind Load A...	OL3					10			
21	Ice Wind Load A...	None					10			
22	Ice Wind Load A...	None					10			
23	Ice Wind Load A...	None					10			
24	Ice Wind Load A...	None					10			
25	Ice Wind Load A...	None					10			
26	Ice Wind Load A...	None					10			
27	Ice Wind Load A...	None					10			
28	Ice Wind Load A...	None					10			
29	Distr. Ice Wind L...	OL2						27		
30	Distr. Ice Wind L...	OL3						27		
31	Seismic Load Z	ELZ			-.315		5			
32	Seismic Load X	ELX	-.315				5			
33	Service Live Loa...	LL				1				
34	Maintenance Loa...	LL				1				
35	Maintenance Loa...	LL				1				
36	Maintenance Loa...	LL				1				

Load Combinations

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



Load Combinations (Continued)

Description	S...	P...	S...B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...
17 0.9DL + 1WL AZI 90	Y...	Y	1 .9	5	1	14	15	1													
18 0.9DL + 1WL AZI 120	Y...	Y	1 .9	6	1	14	-.5	15	.866												
19 0.9DL + 1WL AZI 150	Y...	Y	1 .9	7	1	14	-.8	15	.5												
20 0.9DL + 1WL AZI 180	Y...	Y	1 .9	8	1	14	-.1	15													
21 0.9DL + 1WL AZI 210	Y...	Y	1 .9	9	1	14	-.8	15	-.5												
22 0.9DL + 1WL AZI 240	Y...	Y	1 .9	10	1	14	-.5	15	-.8												
23 0.9DL + 1WL AZI 270	Y...	Y	1 .9	11	1	14		15	-.1												
24 0.9DL + 1WL AZI 300	Y...	Y	1 .9	12	1	14	.5	15	-.8												
25 0.9DL + 1WL AZI 330	Y...	Y	1 .9	13	1	14	.866	15	-.5												
26 1.2D + 1.0Di	Y...	Y	1 1.2	16	1																
27 1.2D + 1.0Di + 1.0Wi AZI 0	Y...	Y	1 1.2	16	1	17	1	29	1	30											
28 1.2D + 1.0Di + 1.0Wi AZI 30	Y...	Y	1 1.2	16	1	18	1	29	.866	30	.5										
29 1.2D + 1.0Di + 1.0Wi AZI 60	Y...	Y	1 1.2	16	1	19	1	29	.5	30	.866										
30 1.2D + 1.0Di + 1.0Wi AZI 90	Y...	Y	1 1.2	16	1	20	1	29		30	1										
31 1.2D + 1.0Di + 1.0Wi AZI 120	Y...	Y	1 1.2	16	1	21	1	29	-.5	30	.866										
32 1.2D + 1.0Di + 1.0Wi AZI 150	Y...	Y	1 1.2	16	1	22	1	29	-.8	30	.5										
33 1.2D + 1.0Di + 1.0Wi AZI 180	Y...	Y	1 1.2	16	1	23	1	29	-.1	30											
34 1.2D + 1.0Di + 1.0Wi AZI 210	Y...	Y	1 1.2	16	1	24	1	29	-.8	30	-.5										
35 1.2D + 1.0Di + 1.0Wi AZI 240	Y...	Y	1 1.2	16	1	25	1	29	-.5	30	-.8										
36 1.2D + 1.0Di + 1.0Wi AZI 270	Y...	Y	1 1.2	16	1	26	1	29		30	-.1										
37 1.2D + 1.0Di + 1.0Wi AZI 300	Y...	Y	1 1.2	16	1	27	1	29	.5	30	-.8										
38 1.2D + 1.0Di + 1.0Wi AZI 330	Y...	Y	1 1.2	16	1	28	1	29	.866	30	-.5										
39 (1.2 + 0.2Sds)DL + 1.0E AZI 0	Y...	Y	1 1.2	.31	1	32															
40 (1.2 + 0.2Sds)DL + 1.0E AZI 30	Y...	Y	1 1.2	.31	.866	32	.5														
41 (1.2 + 0.2Sds)DL + 1.0E AZI 60	Y...	Y	1 1.2	.31	.5	32	.866														
42 (1.2 + 0.2Sds)DL + 1.0E AZI 90	Y...	Y	1 1.2	.31		32	1														
43 (1.2 + 0.2Sds)DL + 1.0E AZI 1...	Y...	Y	1 1.2	.31	-.5	32	.866														
44 (1.2 + 0.2Sds)DL + 1.0E AZI 1...	Y...	Y	1 1.2	.31	-.8	32	.5														
45 (1.2 + 0.2Sds)DL + 1.0E AZI 1...	Y...	Y	1 1.2	.31	-.1	32															
46 (1.2 + 0.2Sds)DL + 1.0E AZI 2...	Y...	Y	1 1.2	.31	-.8	32	-.5														
47 (1.2 + 0.2Sds)DL + 1.0E AZI 2...	Y...	Y	1 1.2	.31	-.5	32	-.8														
48 (1.2 + 0.2Sds)DL + 1.0E AZI 2...	Y...	Y	1 1.2	.31		32	-.1														
49 (1.2 + 0.2Sds)DL + 1.0E AZI 3...	Y...	Y	1 1.2	.31	.5	32	-.8														
50 (1.2 + 0.2Sds)DL + 1.0E AZI 3...	Y...	Y	1 1.2	.31	.866	32	-.5														
51 (0.9 - 0.2Sds)DL + 1.0E AZI 0	Y...	Y	1 .858	31	1	32															
52 (0.9 - 0.2Sds)DL + 1.0E AZI 30	Y...	Y	1 .858	31	.866	32	.5														
53 (0.9 - 0.2Sds)DL + 1.0E AZI 60	Y...	Y	1 .858	31	.5	32	.866														
54 (0.9 - 0.2Sds)DL + 1.0E AZI 90	Y...	Y	1 .858	31		32	1														
55 (0.9 - 0.2Sds)DL + 1.0E AZI 1...	Y...	Y	1 .858	31	-.5	32	.866														
56 (0.9 - 0.2Sds)DL + 1.0E AZI 1...	Y...	Y	1 .858	31	-.8	32	.5														
57 (0.9 - 0.2Sds)DL + 1.0E AZI 1...	Y...	Y	1 .858	31	-.1	32															
58 (0.9 - 0.2Sds)DL + 1.0E AZI 2...	Y...	Y	1 .858	31	-.8	32	-.5														



Load Combinations (Continued)

	Description	S...	P...	S...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...	Fa...B...
59	(0.9 - 0.2Sds)DL + 1.0E AZI 2...	Y...	Y	1	.858	31	-.5	32	-8...										
60	(0.9 - 0.2Sds)DL + 1.0E AZI 2...	Y...	Y	1	.858	31		32	-1										
61	(0.9 - 0.2Sds)DL + 1.0E AZI 3...	Y...	Y	1	.858	31	.5	32	-8...										
62	(0.9 - 0.2Sds)DL + 1.0E AZI 3...	Y...	Y	1	.858	31	.866	32	-.5										
63	1.0DL + 1.5LL + 1.0SWL (60 ...	Y...	Y	1	1	2	.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						
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							

Load Combinations (Continued)

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

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N1						
2	N6						
3	N38						
4	N43	Reaction	Reaction	Reaction			
5	N44	Reaction	Reaction	Reaction			
6	N44A	Reaction	Reaction	Reaction			

Envelope Joint Reactions

	Joint	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N43	855.618	78	667.268	89	736.044	25	0	110	0	110	0	110
2		-1571.965	96	185.86	20	-1853.3...	7	0	1	0	1	0	1
3	N44	1557.148	91	648.297	107	1605.2...	88	0	110	0	110	0	110
4		-840.572	85	187.521	14	287.127	20	0	1	0	1	0	1
5	N44A	89.194	6	32.694	37	634.559	7	0	110	0	110	0	110
6		-89.448	12	9.943	55	-635.397	25	0	1	0	1	0	1
7	Totals:	583.249	17	1322.9...	96	923.357	2						
8		-583.249	23	409.62	53	-923.357	20						

Member Point Loads (BLC 1 : Self Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Y	-32.25	0
2	MP1	Y	-32.25	72
3	MP1	Y	-74.95	12
4	MP1	Y	-63.93	12
5	S1	Y	-21.85	20



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	-122.55	0
3	MP1	X	0	72
4	MP1	Z	-122.55	72
5	MP1	X	0	12
6	MP1	Z	-60.08	12
7	MP1	X	0	12
8	MP1	Z	-60.08	12
9	S1	X	0	20
10	S1	Z	-57.12	20

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-52.09	0
2	MP1	Z	-90.23	0
3	MP1	X	-52.09	72
4	MP1	Z	-90.23	72
5	MP1	X	-27.08	12
6	MP1	Z	-46.9	12
7	MP1	X	-26.48	12
8	MP1	Z	-45.87	12
9	S1	X	-25.5	20
10	S1	Z	-44.17	20

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-58.43	0
2	MP1	Z	-33.74	0
3	MP1	X	-58.43	72
4	MP1	Z	-33.74	72
5	MP1	X	-36.64	12
6	MP1	Z	-21.15	12
7	MP1	X	-33.54	12
8	MP1	Z	-19.36	12
9	S1	X	-33.57	20
10	S1	Z	-19.38	20

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-49.11	0
2	MP1	Z	0	0



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
3	MP1	X	-49.11	72
4	MP1	Z	0	72
5	MP1	X	-36.39	12
6	MP1	Z	0	12
7	MP1	X	-31.61	12
8	MP1	Z	0	12
9	S1	X	-32.64	20
10	S1	Z	0	20

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-58.43	0
2	MP1	Z	33.74	0
3	MP1	X	-58.43	72
4	MP1	Z	33.74	72
5	MP1	X	-36.64	12
6	MP1	Z	21.15	12
7	MP1	X	-33.54	12
8	MP1	Z	19.36	12
9	S1	X	-33.57	20
10	S1	Z	19.38	20

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-52.09	0
2	MP1	Z	90.23	0
3	MP1	X	-52.09	72
4	MP1	Z	90.23	72
5	MP1	X	-27.08	12
6	MP1	Z	46.9	12
7	MP1	X	-26.48	12
8	MP1	Z	45.87	12
9	S1	X	-25.5	20
10	S1	Z	44.17	20

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	122.55	0
3	MP1	X	0	72
4	MP1	Z	122.55	72

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
5	MP1	X	0	12
6	MP1	Z	60.08	12
7	MP1	X	0	12
8	MP1	Z	60.08	12
9	S1	X	0	20
10	S1	Z	57.12	20

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	52.09	0
2	MP1	Z	90.23	0
3	MP1	X	52.09	72
4	MP1	Z	90.23	72
5	MP1	X	27.08	12
6	MP1	Z	46.9	12
7	MP1	X	26.48	12
8	MP1	Z	45.87	12
9	S1	X	25.5	20
10	S1	Z	44.17	20

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	58.43	0
2	MP1	Z	33.74	0
3	MP1	X	58.43	72
4	MP1	Z	33.74	72
5	MP1	X	36.64	12
6	MP1	Z	21.15	12
7	MP1	X	33.54	12
8	MP1	Z	19.36	12
9	S1	X	33.57	20
10	S1	Z	19.38	20

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	49.11	0
2	MP1	Z	0	0
3	MP1	X	49.11	72
4	MP1	Z	0	72
5	MP1	X	36.39	12
6	MP1	Z	0	12



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
7	MP1	X	31.61	12
8	MP1	Z	0	12
9	S1	X	32.64	20
10	S1	Z	0	20

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	58.43	0
2	MP1	Z	-33.74	0
3	MP1	X	58.43	72
4	MP1	Z	-33.74	72
5	MP1	X	36.64	12
6	MP1	Z	-21.15	12
7	MP1	X	33.54	12
8	MP1	Z	-19.36	12
9	S1	X	33.57	20
10	S1	Z	-19.38	20

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	52.09	0
2	MP1	Z	-90.23	0
3	MP1	X	52.09	72
4	MP1	Z	-90.23	72
5	MP1	X	27.08	12
6	MP1	Z	-46.9	12
7	MP1	X	26.48	12
8	MP1	Z	-45.87	12
9	S1	X	25.5	20
10	S1	Z	-44.17	20

Member Point Loads (BLC 16 : Ice Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Y	-84.356	0
2	MP1	Y	-84.356	72
3	MP1	Y	-42.562	12
4	MP1	Y	-39.809	12
5	S1	Y	-38.784	20

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

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	0
2	MP1	Z	-14.5	0
3	MP1	X	0	72
4	MP1	Z	-14.5	72
5	MP1	X	0	12
6	MP1	Z	-5.6	12
7	MP1	X	0	12
8	MP1	Z	-5.6	12
9	S1	X	0	20
10	S1	Z	-5.51	20

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-6.72	0
2	MP1	Z	-11.63	0
3	MP1	X	-6.72	72
4	MP1	Z	-11.63	72
5	MP1	X	-2.66	12
6	MP1	Z	-4.61	12
7	MP1	X	-2.63	12
8	MP1	Z	-4.56	12
9	S1	X	-2.61	20
10	S1	Z	-4.52	20

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-9.78	0
2	MP1	Z	-5.65	0
3	MP1	X	-9.78	72
4	MP1	Z	-5.65	72
5	MP1	X	-4.14	12
6	MP1	Z	-2.39	12
7	MP1	X	-3.98	12
8	MP1	Z	-2.3	12
9	S1	X	-4.01	20
10	S1	Z	-2.32	20

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-10.22	0
2	MP1	Z	0	0



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
3	MP1	X	-10.22	72
4	MP1	Z	0	72
5	MP1	X	-4.51	12
6	MP1	Z	0	12
7	MP1	X	-4.25	12
8	MP1	Z	0	12
9	S1	X	-4.34	20
10	S1	Z	0	20

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-9.78	0
2	MP1	Z	5.65	0
3	MP1	X	-9.78	72
4	MP1	Z	5.65	72
5	MP1	X	-4.14	12
6	MP1	Z	2.39	12
7	MP1	X	-3.98	12
8	MP1	Z	2.3	12
9	S1	X	-4.01	20
10	S1	Z	2.32	20

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-6.72	0
2	MP1	Z	11.63	0
3	MP1	X	-6.72	72
4	MP1	Z	11.63	72
5	MP1	X	-2.66	12
6	MP1	Z	4.61	12
7	MP1	X	-2.63	12
8	MP1	Z	4.56	12
9	S1	X	-2.61	20
10	S1	Z	4.52	20

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	14.5	0
3	MP1	X	0	72
4	MP1	Z	14.5	72



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
5	MP1	X	0	12
6	MP1	Z	5.6	12
7	MP1	X	0	12
8	MP1	Z	5.6	12
9	S1	X	0	20
10	S1	Z	5.51	20

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	6.72	0
2	MP1	Z	11.63	0
3	MP1	X	6.72	72
4	MP1	Z	11.63	72
5	MP1	X	2.66	12
6	MP1	Z	4.61	12
7	MP1	X	2.63	12
8	MP1	Z	4.56	12
9	S1	X	2.61	20
10	S1	Z	4.52	20

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	9.78	0
2	MP1	Z	5.65	0
3	MP1	X	9.78	72
4	MP1	Z	5.65	72
5	MP1	X	4.14	12
6	MP1	Z	2.39	12
7	MP1	X	3.98	12
8	MP1	Z	2.3	12
9	S1	X	4.01	20
10	S1	Z	2.32	20

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	10.22	0
2	MP1	Z	0	0
3	MP1	X	10.22	72
4	MP1	Z	0	72
5	MP1	X	4.51	12
6	MP1	Z	0	12



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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
7	MP1	X	4.25	12
8	MP1	Z	0	12
9	S1	X	4.34	20
10	S1	Z	0	20

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	9.78	0
2	MP1	Z	-5.65	0
3	MP1	X	9.78	72
4	MP1	Z	-5.65	72
5	MP1	X	4.14	12
6	MP1	Z	-2.39	12
7	MP1	X	3.98	12
8	MP1	Z	-2.3	12
9	S1	X	4.01	20
10	S1	Z	-2.32	20

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	6.72	0
2	MP1	Z	-11.63	0
3	MP1	X	6.72	72
4	MP1	Z	-11.63	72
5	MP1	X	2.66	12
6	MP1	Z	-4.61	12
7	MP1	X	2.63	12
8	MP1	Z	-4.56	12
9	S1	X	2.61	20
10	S1	Z	-4.52	20

Member Point Loads (BLC 31 : Seismic Load Z)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Z	-10.165	0
2	MP1	Z	-10.165	72
3	MP1	Z	-23.624	12
4	MP1	Z	-20.151	12
5	S1	Z	-6.887	20

Member Point Loads (BLC 32 : Seismic Load X)

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-10.165	0
2	MP1	X	-10.165	72
3	MP1	X	-23.624	12
4	MP1	X	-20.151	12
5	S1	X	-6.887	20

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

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

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

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

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

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

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

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

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

	Member Label	Direction	Start Magnitude[lb/ft,....	End Magn...	Start Location...	End Location[in,%]
1	S3	SZ	-40.799	-40.799	0	%100
2	S4	SZ	-40.799	-40.799	0	%100
3	TR6	SZ	-40.799	-40.799	0	%100
4	TR5	SZ	-40.799	-40.799	0	%100
5	TR8	SZ	-40.799	-40.799	0	%100
6	TR7	SZ	-40.799	-40.799	0	%100
7	S1	SZ	-40.799	-40.799	0	%100
8	S2	SZ	-40.799	-40.799	0	%100
9	TR1	SZ	-40.799	-40.799	0	%100
10	TR2	SZ	-40.799	-40.799	0	%100
11	TR3	SZ	-40.799	-40.799	0	%100
12	TR4	SZ	-40.799	-40.799	0	%100
13	H1	SZ	-40.799	-40.799	0	%100
14	H2	SZ	-40.799	-40.799	0	%100



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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in, %]
15	MP3	SZ	-40.799	-40.799	0	%100
16	MP1	SZ	-40.799	-40.799	0	%100
17	MP2	SZ	-40.799	-40.799	0	%100
18	T1	SZ	-40.799	-40.799	0	%100
19	M29	SZ	0	0	0	%100
20	M30	SZ	0	0	0	%100
21	M33	SZ	0	0	0	%100
22	M34	SZ	0	0	0	%100
23	M35	SZ	0	0	0	%100
24	M36	SZ	0	0	0	%100
25	M25	SZ	0	0	0	%100
26	M26	SZ	0	0	0	%100
27	M27	SZ	0	0	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in, %]
1	S3	SX	-40.799	-40.799	0	%100
2	S4	SX	-40.799	-40.799	0	%100
3	TR6	SX	-40.799	-40.799	0	%100
4	TR5	SX	-40.799	-40.799	0	%100
5	TR8	SX	-40.799	-40.799	0	%100
6	TR7	SX	-40.799	-40.799	0	%100
7	S1	SX	-40.799	-40.799	0	%100
8	S2	SX	-40.799	-40.799	0	%100
9	TR1	SX	-40.799	-40.799	0	%100
10	TR2	SX	-40.799	-40.799	0	%100
11	TR3	SX	-40.799	-40.799	0	%100
12	TR4	SX	-40.799	-40.799	0	%100
13	H1	SX	-40.799	-40.799	0	%100
14	H2	SX	-40.799	-40.799	0	%100
15	MP3	SX	-40.799	-40.799	0	%100
16	MP1	SX	-40.799	-40.799	0	%100
17	MP2	SX	-40.799	-40.799	0	%100
18	T1	SX	-40.799	-40.799	0	%100
19	M29	SX	0	0	0	%100
20	M30	SX	0	0	0	%100
21	M33	SX	0	0	0	%100
22	M34	SX	0	0	0	%100
23	M35	SX	0	0	0	%100
24	M36	SX	0	0	0	%100
25	M25	SX	0	0	0	%100
26	M26	SX	0	0	0	%100



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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
27	M27	SX	0	0	0	%100

Member Distributed Loads (BLC 16 : Ice Weight)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
1	S3	Y	-3.96	-3.96	0	%100
2	S4	Y	-3.96	-3.96	0	%100
3	TR6	Y	-2.275	-2.275	0	%100
4	TR5	Y	-2.275	-2.275	0	%100
5	TR8	Y	-2.275	-2.275	0	%100
6	TR7	Y	-2.275	-2.275	0	%100
7	S1	Y	-3.96	-3.96	0	%100
8	S2	Y	-3.96	-3.96	0	%100
9	TR1	Y	-2.275	-2.275	0	%100
10	TR2	Y	-2.275	-2.275	0	%100
11	TR3	Y	-2.275	-2.275	0	%100
12	TR4	Y	-2.275	-2.275	0	%100
13	H1	Y	-5.253	-5.253	0	%100
14	H2	Y	-5.253	-5.253	0	%100
15	MP3	Y	-5.259	-5.259	0	%100
16	MP1	Y	-5.259	-5.259	0	%100
17	MP2	Y	-5.259	-5.259	0	%100
18	T1	Y	-4.596	-4.596	0	%100
19	M29	Y	-1.44	-1.44	0	%100
20	M30	Y	-1.44	-1.44	0	%100
21	M33	Y	-1.44	-1.44	0	%100
22	M34	Y	-1.44	-1.44	0	%100
23	M35	Y	-1.44	-1.44	0	%100
24	M36	Y	-1.44	-1.44	0	%100
25	M25	Y	-1.44	-1.44	0	%100
26	M26	Y	-1.44	-1.44	0	%100
27	M27	Y	-1.44	-1.44	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
1	S3	SZ	-13.987	-13.987	0	%100
2	S4	SZ	-13.987	-13.987	0	%100
3	TR6	SZ	-29.024	-29.024	0	%100
4	TR5	SZ	-29.024	-29.024	0	%100
5	TR8	SZ	-29.024	-29.024	0	%100
6	TR7	SZ	-29.024	-29.024	0	%100
7	S1	SZ	-13.987	-13.987	0	%100



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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in, %]
8	S2	SZ	-13.987	-13.987	0	%100
9	TR1	SZ	-29.024	-29.024	0	%100
10	TR2	SZ	-29.024	-29.024	0	%100
11	TR3	SZ	-29.024	-29.024	0	%100
12	TR4	SZ	-29.024	-29.024	0	%100
13	H1	SZ	-11.457	-11.457	0	%100
14	H2	SZ	-11.457	-11.457	0	%100
15	MP3	SZ	-11.449	-11.449	0	%100
16	MP1	SZ	-11.449	-11.449	0	%100
17	MP2	SZ	-11.449	-11.449	0	%100
18	T1	SZ	-12.483	-12.483	0	%100
19	M29	SZ	0	0	0	%100
20	M30	SZ	0	0	0	%100
21	M33	SZ	0	0	0	%100
22	M34	SZ	0	0	0	%100
23	M35	SZ	0	0	0	%100
24	M36	SZ	0	0	0	%100
25	M25	SZ	0	0	0	%100
26	M26	SZ	0	0	0	%100
27	M27	SZ	0	0	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in, %]
1	S3	SX	-13.987	-13.987	0	%100
2	S4	SX	-13.987	-13.987	0	%100
3	TR6	SX	-29.024	-29.024	0	%100
4	TR5	SX	-29.024	-29.024	0	%100
5	TR8	SX	-29.024	-29.024	0	%100
6	TR7	SX	-29.024	-29.024	0	%100
7	S1	SX	-13.987	-13.987	0	%100
8	S2	SX	-13.987	-13.987	0	%100
9	TR1	SX	-29.024	-29.024	0	%100
10	TR2	SX	-29.024	-29.024	0	%100
11	TR3	SX	-29.024	-29.024	0	%100
12	TR4	SX	-29.024	-29.024	0	%100
13	H1	SX	-11.457	-11.457	0	%100
14	H2	SX	-11.457	-11.457	0	%100
15	MP3	SX	-11.449	-11.449	0	%100
16	MP1	SX	-11.449	-11.449	0	%100
17	MP2	SX	-11.449	-11.449	0	%100
18	T1	SX	-12.483	-12.483	0	%100
19	M29	SX	0	0	0	%100



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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in, %]
20	M30	SX	0	0	0	%100
21	M33	SX	0	0	0	%100
22	M34	SX	0	0	0	%100
23	M35	SX	0	0	0	%100
24	M36	SX	0	0	0	%100
25	M25	SX	0	0	0	%100
26	M26	SX	0	0	0	%100
27	M27	SX	0	0	0	%100

Member Area Loads

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

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

Member	Shape	Code Check	Loc[in]	LC	She...Loc[in]	Dir	LC	phi*P...	phi*P...	phi*M...	phi*Mn z-z [lb...	Cb	Eqn	
1	TR7	0.63" SR	.400	39.811	88	.026 19.905		85	4409...	1402...	147.2...	147.295	2....	H1-1a
2	S4	1.9" ODx0.1...	.395	35.333	91	.134 42.4		94	2049...	2777...	1314...	1314.45	1....	H1-1b
3	S3	1.9" ODx0.1...	.378	35.333	94	.134 42.4		88	2049...	2777...	1314...	1314.45	1....	H1-1b
4	TR4	0.63" SR	.318	39.811	87	.030 19.905		90	4409...	1402...	147.2...	147.295	2....	H1-1a
5	S2	1.9" ODx0.1...	.307	35.333	85	.119 42.4		84	2049...	2777...	1314...	1314.45	1....	H1-1b
6	S1	1.9" ODx0.1...	.292	35.333	81	.118 42.4		87	2049...	2777...	1314...	1314.45	1.79	H1-1b
7	MP1	2.88"x0.120"	.193	33	2	.052 33		8	2249...	43056	3156...	3156.75	4....	H1-1b
8	TR8	0.63" SR	.153	0	94	.026 19.905		81	2249...	1402...	147.2...	147.295	2....	H1-1b
9	TR3	0.63" SR	.125	0	81	.030 19.905		96	2249...	1402...	147.2...	147.295	2....	H1-1b
10	TR5	0.63" SR	.119	0	94	.033 0		95	5162...	1402...	147.2...	147.295	2....	H1-1b
11	TR2	0.63" SR	.110	0	81	.034 0		95	5162...	1402...	147.2...	147.295	2....	H1-1b
12	MP3	2.88"x0.120"	.109	33	81	.022 61		87	2249...	43056	3156...	3156.75	4....	H1-1b
13	H1	PIPE 2.5	.104	77	8	.065 78		2	3348...	66654	4726.5	4726.5	2....	H1-1b
14	T1	Pipe2.38X0...	.099	96.255	7	.008 96.255		30	1328...	3527...	2114...	2114.85	1....	H1-1b
15	H2	PIPE 2.5	.087	93	96	.047 78		94	3348...	66654	4726.5	4726.5	2....	H1-1b
16	TR6	0.63" SR	.076	28.3	90	.016 0		96	5162...	1402...	147.2...	147.295	2....	H1-1b
17	MP2	2.88"x0.120"	.062	33	8	.038 33		93	2249...	43056	3156...	3156.75	4....	H1-1b
18	TR1	0.63" SR	.053	28.3	77	.015 28.3		96	5162...	1402...	147.2...	147.295	2....	H1-1b

Bolt Calculation Tool, V1.5.1

PROJECT DATA	
Site Name:	BOBOS00024A
Site Number:	BOBOS00024A
Connection Description:	Sector Frame to Tower Leg

MAXIMUM BOLT LOADS		
Bolt Tension:	926.68	lbs
Bolt Shear:	849.32	lbs

WORST CASE BOLT LOADS ¹		
Bolt Tension:	0.00	lbs
Bolt Shear:	849.32	lbs

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

¹ Worst case bolt loads correspond to Load combination #91 on member M26 in RISA-3D, which causes the maximum demand on the bolts.

Member Information
I nodes of M25, M26

BOLT CHECK		
Tensile Strength	20340.15	
Shear Strength	13805.83	
Max Tensile Usage	4.6%	
Max Shear Usage	6.2%	
Interaction Check (Worst Case)	0.00	≤1.05
Result	Pass	



Bolt Calculation Tool, V1.5.1

PROJECT DATA	
Site Name:	BOBOS00024A
Site Number:	BOBOS00024A
Connection Description:	Tieback to Tower Leg

MAXIMUM BOLT LOADS		
Bolt Tension:	44.72	lbs
Bolt Shear:	317.61	lbs

WORST CASE BOLT LOADS ¹		
Bolt Tension:	41.34	lbs
Bolt Shear:	317.61	lbs

BOLT PROPERTIES		
Bolt Type:	Threaded Rod	-
Bolt Diameter:	0.5	in
Bolt Grade:	A449	-
# of Threaded Rods:	2	-
Threads Excluded?	No	-

¹ Worst case bolt loads correspond to Load combination #13 on member M27 in RISA-3D, which causes the maximum demand on the bolts.

Member Information
I nodes of M27

BOLT CHECK		
Tensile Strength	12770.86	
Shear Strength	8835.73	
Max Tensile Usage*	0.3%	
Max Shear Usage*	3.6%	
Interaction Check (Worst Case)*	0.00	≤1.0
Result	Pass	

*Usage per TIA-222-H Section 15.5



POWER DENSITY STUDY

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

Dish Wireless Existing Facility

Site ID: BOBOS00024A

BOBOS00024A
139 Sharp Hill Road
Montville, Connecticut 06353

October 27, 2021

EBI Project Number: 6221003990

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	4.97%

October 27, 2021

Dish Wireless

Emissions Analysis for Site: BOBOS00024A - BOBOS00024A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **139 Sharp Hill Road in Montville, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless antenna facility located at 139 Sharp Hill Road in Montville, 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 75 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) Emissions from additional carriers were not included because emissions data for the site location are not available.
- 10) 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 #:	I	Antenna #:	I	Antenna #:	I
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):	75 feet	Height (AGL):	75 feet	Height (AGL):	75 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts
ERP (W):	5,236.31	ERP (W):	5,236.31	ERP (W):	5,236.31
Antenna AI MPE %:	4.97%	Antenna BI MPE %:	4.97%	Antenna CI MPE %:	4.97%

Site Composite MPE %	
Carrier	MPE %
Dish Wireless (Max at Sector A):	4.97%
no additional carriers listed on CTSC database	N/A
Site Total MPE % :	4.97%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	4.97%
Dish Wireless Sector B Total:	4.97%
Dish Wireless Sector C Total:	4.97%
Site Total MPE % :	4.97%

Dish Wireless Maximum MPE Power Values (Sector A)							
Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
Dish Wireless 600 MHz n71	4	223.68	75.0	6.76	600 MHz n71	400	1.69%
Dish Wireless 1900 MHz n70	4	542.70	75.0	16.39	1900 MHz n70	1000	1.64%
Dish Wireless 2190 MHz n66	4	542.70	75.0	16.39	2190 MHz n66	1000	1.64%
						Total:	4.97%

• 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:	4.97%
Sector B:	4.97%
Sector C:	4.97%
Dish Wireless Maximum MPE % (Sector A):	4.97%
Site Total:	4.97%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **4.97%** 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.

UNDERLYING PROPERTY INFORMATION



Property Card: 139 SHARP HILL RD
Town of Montville, CT

Parcel Information

Location:	139 SHARP HILL RD	Property Use:	Public Utility	Primary Use:	Utility Building
Unique ID:	M0079800	Map Block Lot:	022-023-000	Acres:	0.45
		Zone:	R40	Volume / Page:	0616/0128
		Sale Date:	06/06/2016	Sale Price:	\$0

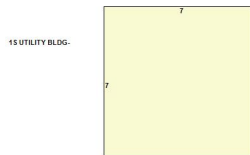
Value Information

	Appraised Value	Assessed Value
Land	78400	54880
Buildings	4000	2800
Detached Outbuildings	271200	189840
Total	353600	247520

Owner's Information

Owner's Data
GLOBAL TOWER ASSETS III LLC P O BOX 723597 ATLANTA, GA 31139

Building 1



Category:	Commercial	Siding:	Metal	Total Rooms:	0
Stories:	1.00	Fuel:	Wood	Beds/Units:	0
GLA:	48	Heating:	None	Baths:	0
Year Built:	1990	Fireplace:	0		
Class:	Masonry	Cooling Percent:	None	Half Baths:	0
Use:	Utility Building	Floors:	Concrete	Basement Garage:	0
Construction Style:	Utility Building	Roof Material:		Finished Basement:	0

NOTIFICATIONS

Track Another Package +

Tracking Number: 9505511588612143477549

Remove X

Your item has been delivered to an agent for final delivery in ATLANTA, GA 30339 on May 26, 2022 at 12:09 pm.

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Delivered to Agent for Final Delivery

May 26, 2022 at 12:09 pm
ATLANTA, GA 30339

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Product Information



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May 25, 2022

Dear Customer,

The following is the proof-of-delivery for tracking number: 776933304828

Delivery Information:

Status:	Delivered	Delivered To:	Shipping/Receiving
Signed for by:	A.HARRING	Delivery Location:	Montville Town Hall, 2nd Floor
Service type:	FedEx 2Day		310 Norwich-New London Tpke.
Special Handling:	Deliver Weekday		UNCASVILLE, CT, 06382
		Delivery date:	May 24, 2022 11:05

Shipping Information:

Tracking number:	776933304828	Ship Date:	May 23, 2022
		Weight:	0.5 LB/0.23 KG

Recipient:
Ronald K. McDaniel,
Montville Town Hall, 2nd Floor
310 Norwich-New London Tpke.
UNCASVILLE, CT, US, 06382

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

Reference 100814

Thank you for choosing FedEx



May 25, 2022

Dear Customer,

The following is the proof-of-delivery for tracking number: 776933370678

Delivery Information:

Status:	Delivered	Delivered To:	Shipping/Receiving
Signed for by:	A.HARRING	Delivery Location:	Lower Level, Room B-4
Service type:	FedEx 2Day		310 Norwich-New London Tpke.
Special Handling:	Deliver Weekday		UNCASVILLE, CT, 06382
		Delivery date:	May 24, 2022 11:05

Shipping Information:

Tracking number:	776933370678	Ship Date:	May 23, 2022
		Weight:	0.5 LB/0.23 KG

Recipient:
David Jensen - Bldg Official, Montville Town Hall
Lower Level, Room B-4
310 Norwich-New London Tpke.
UNCASVILLE, CT, US, 06382

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

Reference 100814

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