

PROJECT NARRATIVE

October 26, 2021

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

Re: Request of DISH Wireless LLC for an Order to Approve the Shared Use of an Existing Tower
1A Ecology Drive Enfield, CT 06082
Latitude: 41°57'55.177" / Longitude: -72°33'11.189"

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 1A Ecology Drive in Enfield (the "Property"). The existing 190-foot guyed tower is owned by American Tower Corporation ("ATC"). The underlying property is owned by The Town of Enfield. 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 Mike Ludwick, Mayor for the Town of Enfield, Raymond Steadward, Town of Enfield Building Official and the Town of Enfield as the property owner.

Background

The existing ATC facility consists of a 190-foot guyed tower located within an existing leased area. Antennas are maintained at the 176, 173, 166, 150, 148, 138, 136 and 98-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 Crown Castle have agreed to the proposed shared use of the 1A Ecology Drive tower pursuant to mutually acceptable terms and conditions. Likewise, DISH and ATC have agreed to the proposed installation of equipment cabinets on the ground on the south side of the tower within the existing compound. ATC has authorized DISH to apply for all necessary permits and approvals that may be required to share the existing tower.
(See attached Letter of Authorization)

DISH proposes to install three (3) antennas, (1) Tower platform mount, (6) Remote radio units at the 155-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 1A Ecology Drive 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.

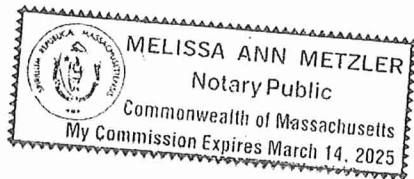
NOTARY BLOCK

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

ENGINEERING DRAWINGS



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

BOBDL00111A

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

1A ECOLOGY DRIVE
ENFIELD, CT 06082

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
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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 CALC & PANEL SCHEDULE
G-1	GROUNDING PLANS AND NOTES
G-2	GROUNDING DETAILS
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RF-2	RF PLUMBING DIAGRAM
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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 RRHs (2 PER SECTOR)
 - INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
 - INSTALL (1) PROPOSED HYBRID CABLE

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

SITE PHOTO



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

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION



GENERAL NOTES

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

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

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

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

SITE INFORMATION

PROPERTY OWNER: ENFIELD TOWN OF
ADDRESS: 820 ENFIELD ST
ENFIELD, CT 06082

TOWER TYPE: GUYED

TOWER CO SITE ID: 208450

TOWER APP NUMBER: 13688133

COUNTY: HARTFORD

LATITUDE (NAD 83): 41° 57' 55.177" N
41.96532700

LONGITUDE (NAD 83): 72° 33' 11.189" W
-72.55310800

ZONING JURISDICTION: HARTFORD COUNTY

ZONING DISTRICT: R88

PARCEL NUMBER: 002800010010

OCCUPANCY GROUP: U

CONSTRUCTION TYPE: V-B

POWER COMPANY: TBD

TELEPHONE COMPANY: TBD

PROJECT DIRECTORY

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

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 TALLEY

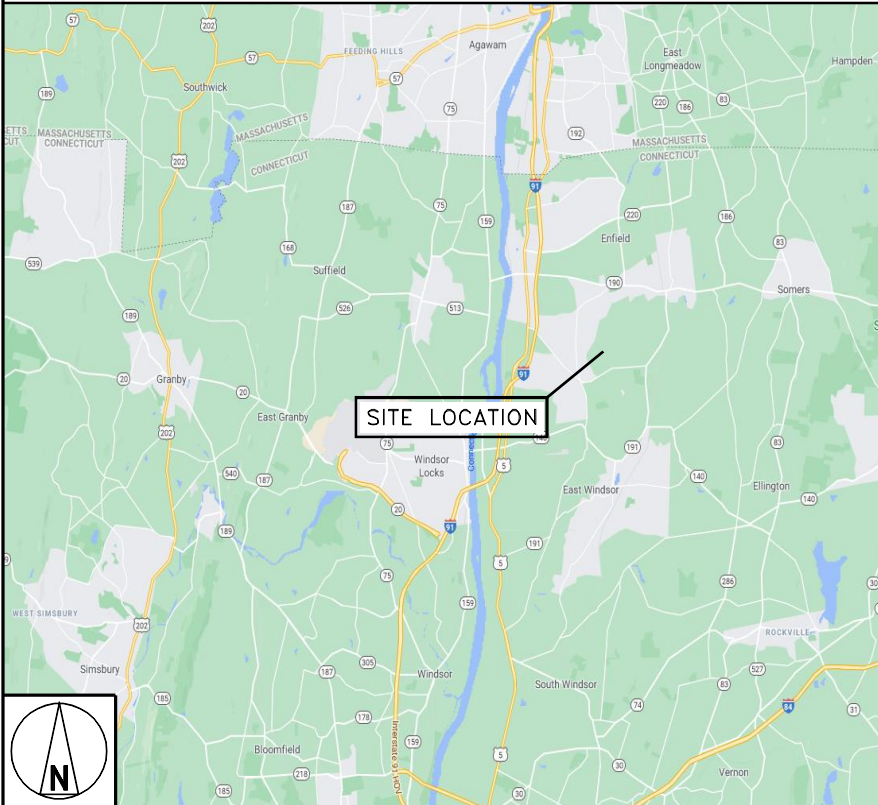
CONSTRUCTION MANAGER: TBD

RF ENGINEER: TBD

DIRECTIONS

FROM BRADLEY INTERNATIONAL AIRPORT, HEAD NORTH TOWARD BRADLEY INTERNATIONAL CON. CONTINUE ONTO CT-20 E/BRADLEY INTERNATIONAL AIRPORT CON. MERGE LEFT ONTO I-91 N TOWARD SPRINGFIELD. TAKE EXIT 46 FOR US-5/KING ST. TURN RIGHT ONTO US-5/KING ST. TURN RIGHT ONTO OLIVER RD. TURN RIGHT ONTO POST OFFICE RD. CONTINUE ONTO TOWN FARM RD. TURN LEFT ONTO ECOLOGY DR. CONTINUE TO THE END OF ECOLOGY DR, THE SITE IS ON THE LEFT.

VICINITY MAP



NO SCALE



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:

JES BIW BIW

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	07/30/2021	ISSUED FOR REVIEW

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

208450-13688133

DISH WIRELESS, L.L.C.
PROJECT INFORMATION

BOBDL00111A

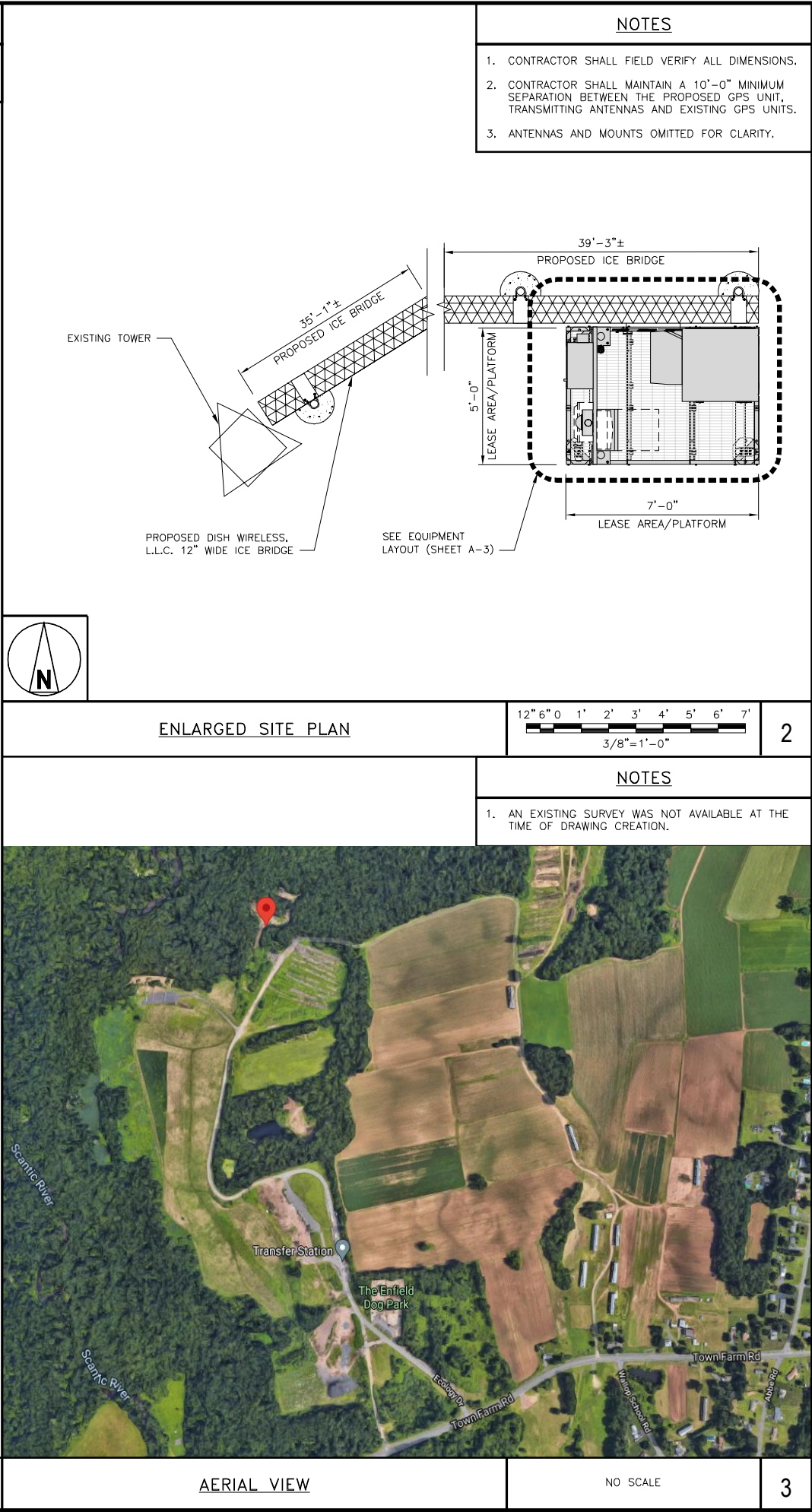
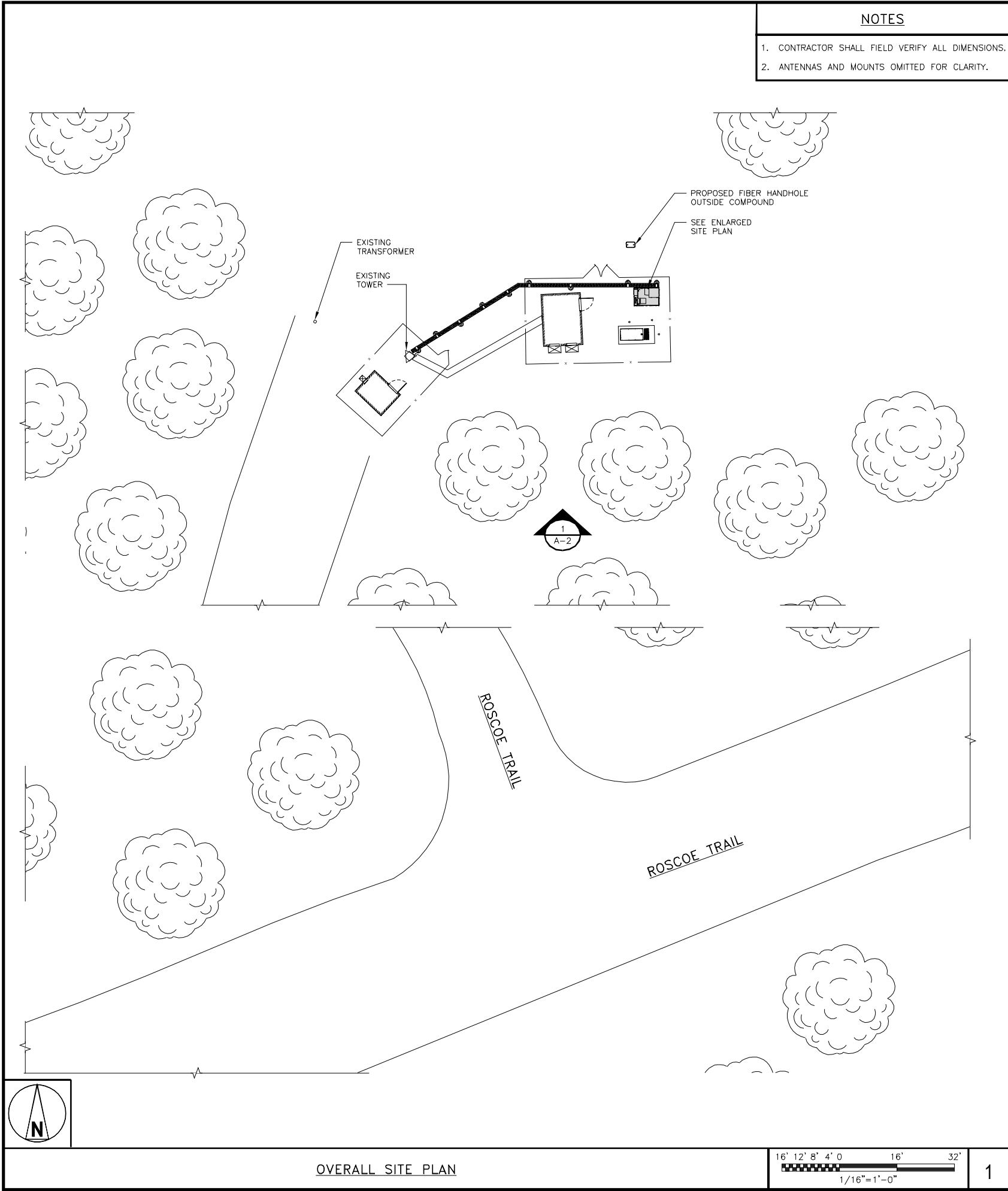
1A ECOLOGY DRIVE
ENFIELD, CT 06082

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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

RFDS REV #: 1

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208450-13688133

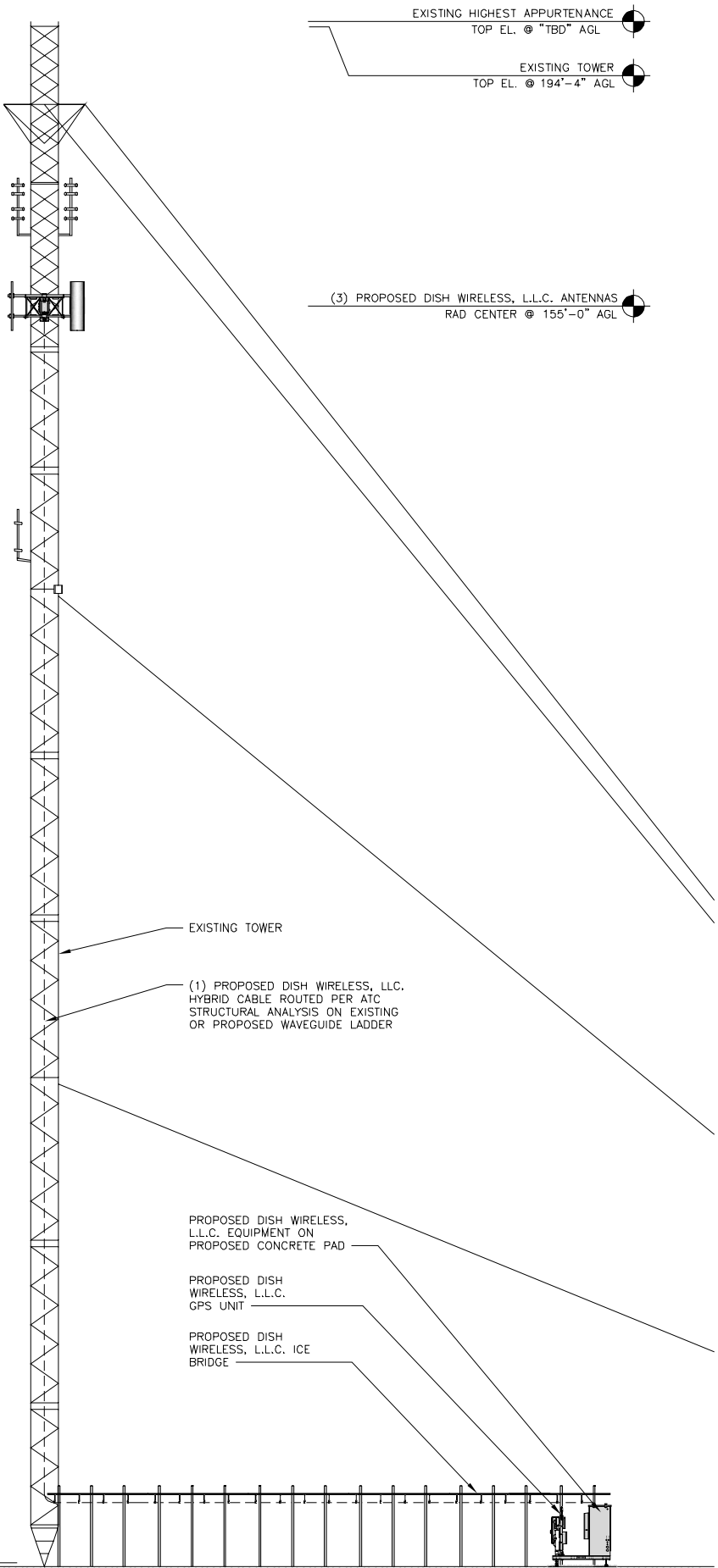
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SHEET TITLE
OVERALL AND ENLARGED
SITE PLAN

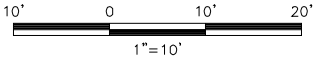
SHEET NUMBER
A-1

NOTES

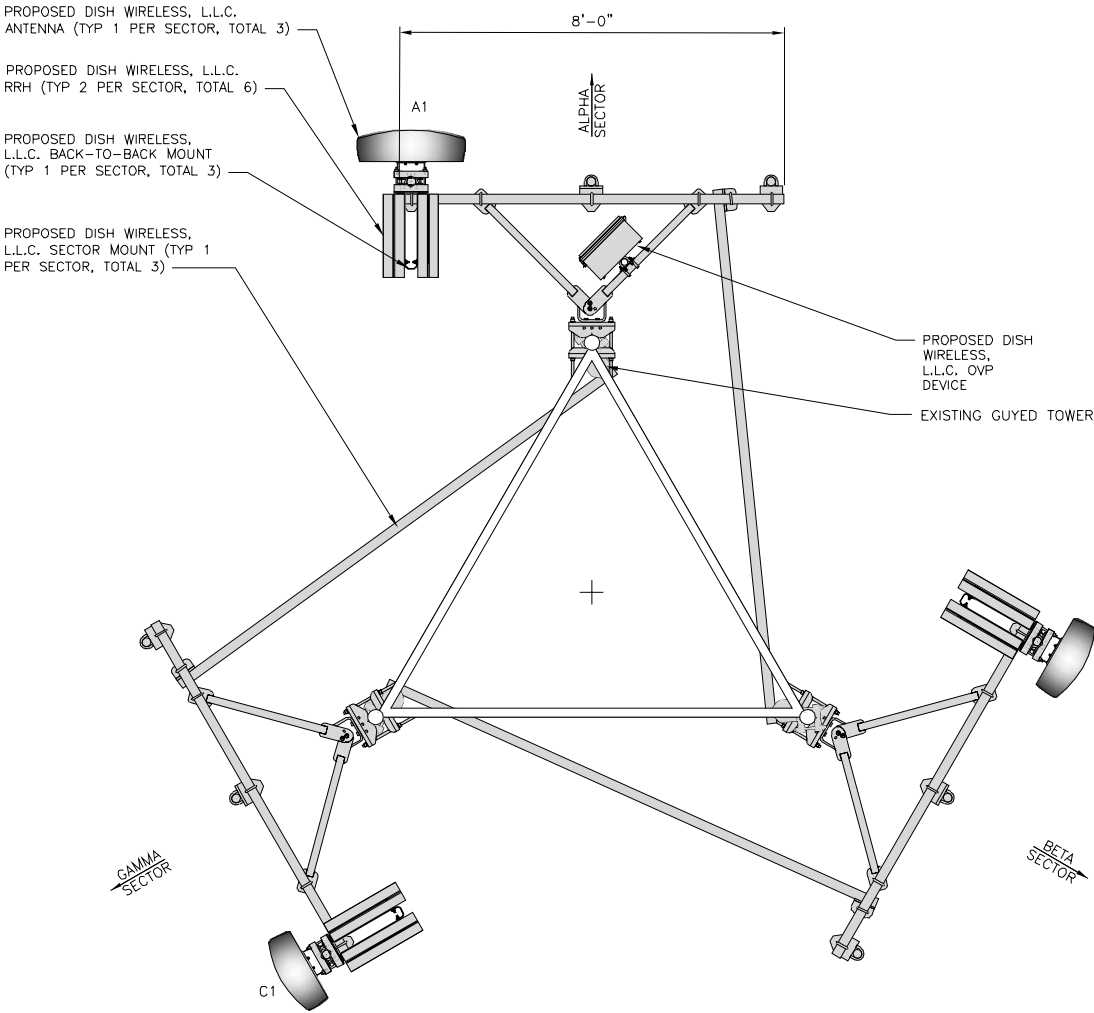
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



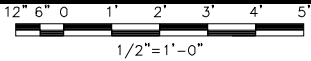
PROPOSED SOUTH ELEVATION



1



ANTENNA LAYOUT



2

SECTOR	POSITION	EXISTING OR PROPOSED	ANTENNA					TRANSMISSION CABLE	
			MANUFACTURER - MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH	
ALPHA	A1	PROPOSED	JMA - MX08FR0665-21	5G	72.0" x 20.0"	0°	155'-0"	(1) HIGH-CAPACITY HYBRID CABLE (249' LONG)	
BETA	B1	PROPOSED	JMA - MX08FR0665-21	5G	72.0" x 20.0"	120°	155'-0"		
GAMMA	C1	PROPOSED	JMA - MX08FR0665-21	5G	72.0" x 20.0"	240°	155'-0"		

SECTOR	POSITION	RRH		NOTES
		MANUFACTURER - MODEL NUMBER	TECHNOLOGY	
ALPHA	A1	FUJITSU - TA08025-B604	LTE	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-B605	LTE	
BETA	B1	FUJITSU - TA08025-B604	LTE	
	B1	FUJITSU - TA08025-B605	LTE	
GAMMA	C1	FUJITSU - TA08025-B604	LTE	
	C1	FUJITSU - TA08025-B605	LTE	

ANTENNA SCHEDULE

NO SCALE

3

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

DRAWN BY: CHECKED BY: APPROVED BY:

JES BIW BIW

RFDS REV #: 1

CONSTRUCTION
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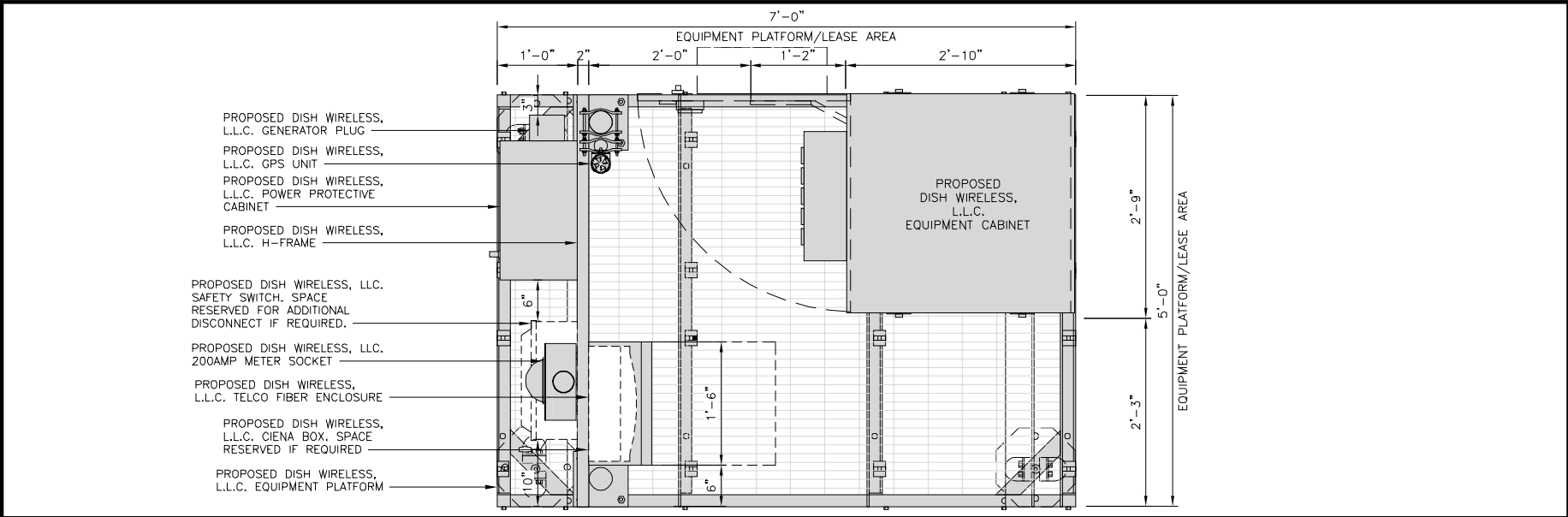
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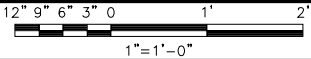
SHEET TITLE
ELEVATION, ANTENNA
LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



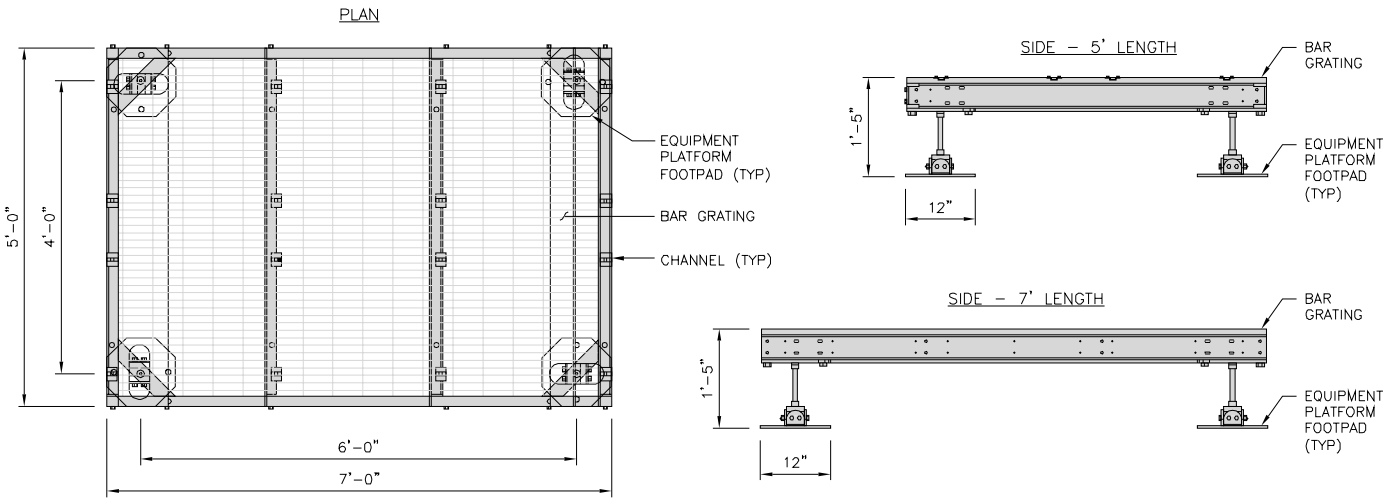
PLATFORM EQUIPMENT PLAN



1

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

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

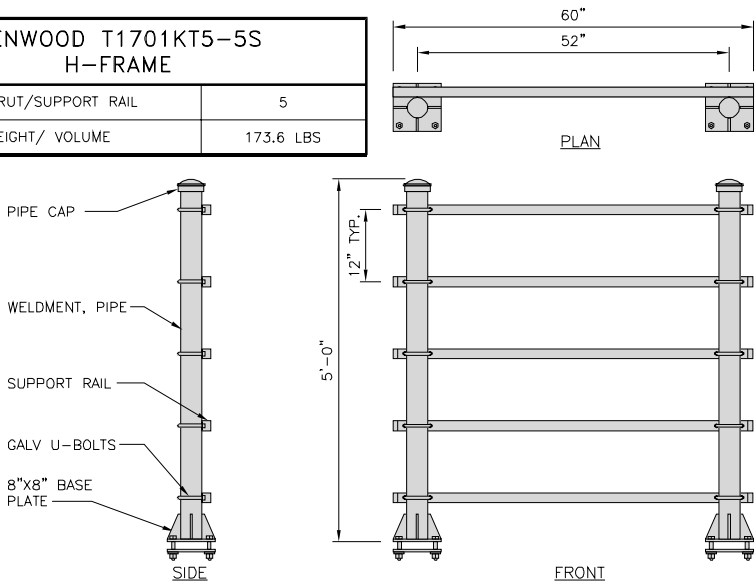


PLATFORM DETAIL

NO SCALE

2

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



H-FRAME DETAIL

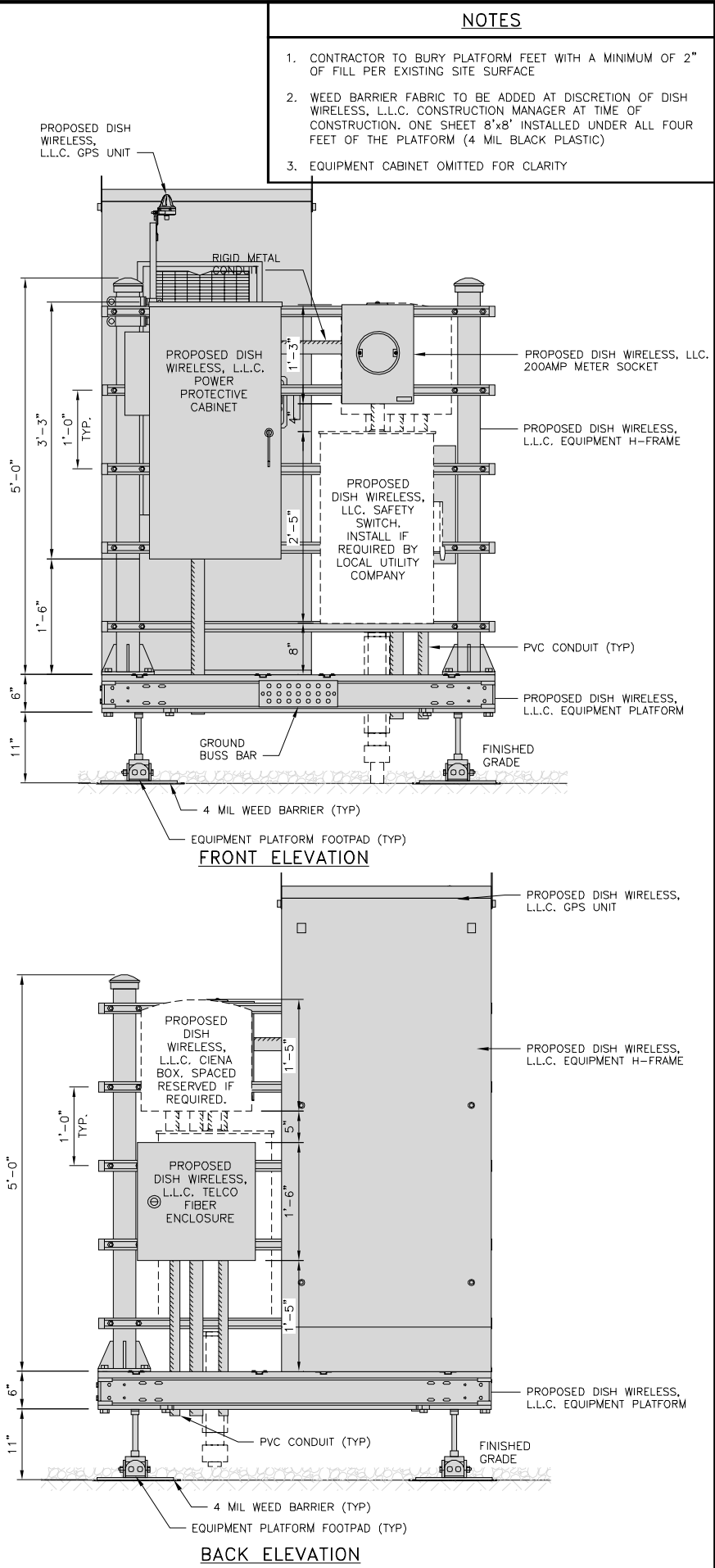
NO SCALE

3

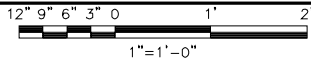
NOT USED

NO SCALE

4



H-FRAME EQUIPMENT ELEVATION



5

NOTES

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



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



DRAWN BY: CHECKED BY: APPROVED BY:

JES BIW BIW

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

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REV	DATE	DESCRIPTION
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A&E PROJECT NUMBER
208450-13688133

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBDL00111A
1A ECOLOGY DRIVE
ENFIELD, CT 06082

SHEET TITLE
EQUIPMENT PLATFORM AND
H-FRAME DETAILS

SHEET NUMBER

A-3

CHARLES INDUSTRY HEX CUBE-PM639155N4

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

PLAN

SIDE

BACK

SIDE

FRONT

CABINET DETAIL

NO SCALE

1

RAYCAP 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

PLAN

SIDE

FRONT

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

PLAN

SIDE

BACK

FRONT

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

PLAN

SIDE

BACK

FRONT

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

PLAN

FRONT

SIDE

BACK

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

PLAN

SIDE

BACK

FRONT

FIBER TELCO ENCLOSURE DETAIL

NO SCALE

6

COMMSCOPE WB-K110-B WAVEGUIDE BRIDGE KIT

DIMENSIONS (HxL)	160"x10'
WEIGHT/ VOLUME	325.0 LBS
CABLE RUN (QTY)	12

INCLUDED PRODUCTS:

WB-T12-3 TRAPEZE KIT, 3 RUNGS

WB-LB12-3 SUPPORT BRACKET

MF-130 DIRECT BURIAL PIPE COLUMN, 13'-4"

TRAPEZE KIT (WB-T12-3)

SUPPORT BRACKET (WB-LB12-3)

TRAPEZE KIT (WB-T12-3)

SUPPORT BRACKET (WB-LB12-3)

3.5" DIA GALV SCH 40 PIPE (SPACED 9'-0" MAX) (MF-130)

3.5" DIA GALV SCH 40 PIPE (SPACED 9'-0" MAX) (MF-130)

PLAN

FRONT

SIDE

ICE BRIDGE DETAIL

NO SCALE

7

FINISH SLOPE TO DRAIN

A-A

A-A

PROPOSED 3.5" DIA. SCH 40 PIPE GALVANIZED

PROPOSED 1'-6" DIA. CONCRETE PIER (TYP)

CONCRETE PIER

3" DIA SCH 40 PIPE

18" DIA DRILLED PIER FOUNDATION

A-A SECTION

1'-6"

TYPICAL ICE BRIDGE CONCRETE PIER DETAIL

NO SCALE

8

EXISTING GUYED TOWER

PROPOSED ICE BRIDGE

PROPOSED X" DIA HYBRID CABLE

PROPOSED CABLE CLAMP @ 3'-0" O.C.

HYBRID CABLE RUN

NO SCALE

9



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



DRAWN BY: CHECKED BY: APPROVED BY:

JES BIW BIW

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
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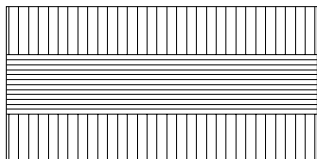
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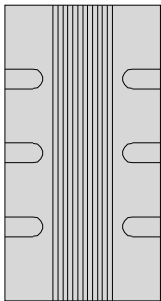
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

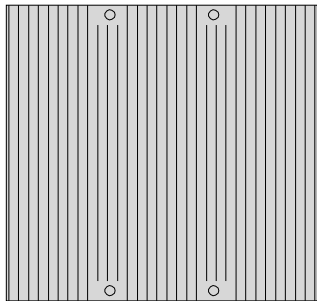
FUJITSU TA08025-B604 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x200/14.9"x15.7"x7.8"
WEIGHT(KG,LB)/ VOLUME	29kg,63.9lb/ 30L
POWER SUPPLY	DC-58~-36V



PLAN

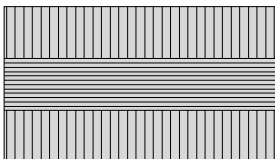


SIDE

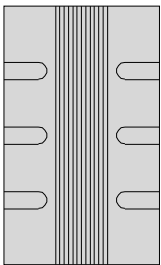


FRONT

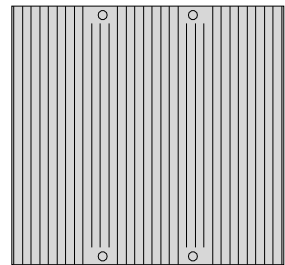
FUJITSU TA08025-B605 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x230/14.9"x15.7"x9.0"
WEIGHT(KG,LB)/ VOLUME	34kg,74.9lb/ 35L
POWER SUPPLY	DC-58~-36V



PLAN



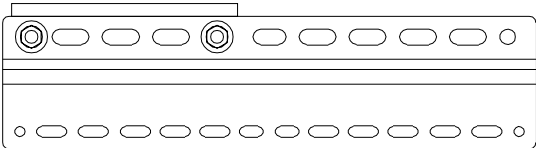
SIDE



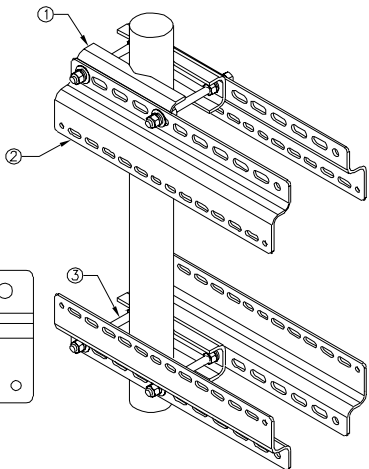
FRONT

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

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



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



REMOTE RADIO HEAD DETAIL

NO SCALE

1

REMOTE RADIO HEAD DETAIL

NO SCALE

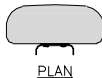
2

RRH MOUNT DETAIL

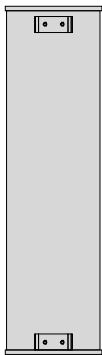
NO SCALE

3

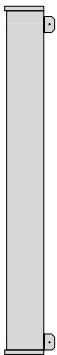
JMA WIRELESS MX08FRO665-21 ANTENNA	
DIMENSIONS (HxWxD)	72.0"x20.0"x8.0"
TOTAL WEIGHT	64.5 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE



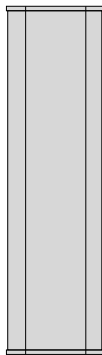
PLAN



BACK



SIDE



FRONT

ANTENNA DETAIL

NO SCALE

4

NOT USED

NO SCALE

5

ANTENNA BRACKET DETAIL

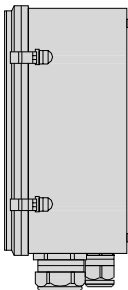
NO SCALE

6

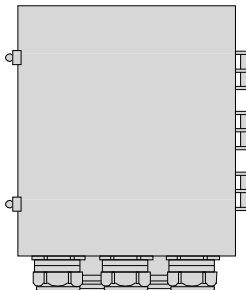
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



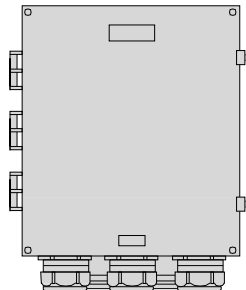
PLAN



SIDE



BACK



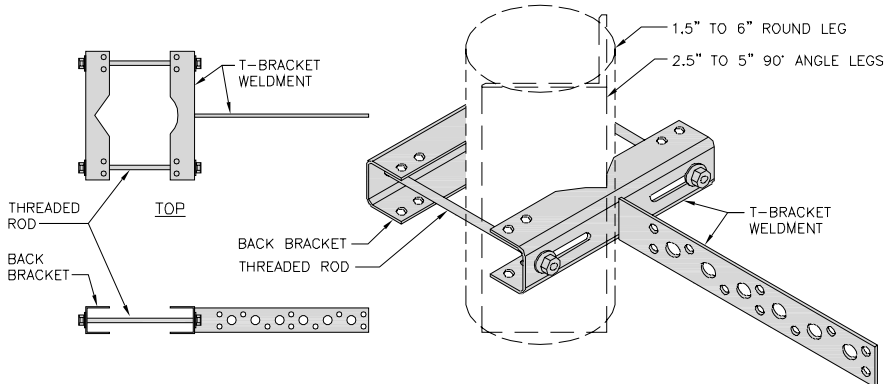
FRONT

SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

7

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



SIDE

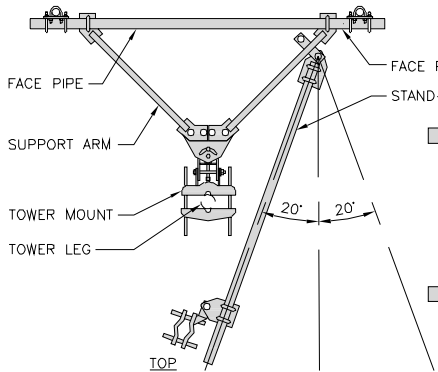
ISOMETRIC

VERTICAL CABLE SUPPORT DETAIL

NO SCALE

8

SITE PRO1 V-FRAME VFA6-SD-S	
FACE SIZE	6"-0"
WEIGHT	347.01 LB
NOTE: ANTENNA PIPES NOT INCLUDED	



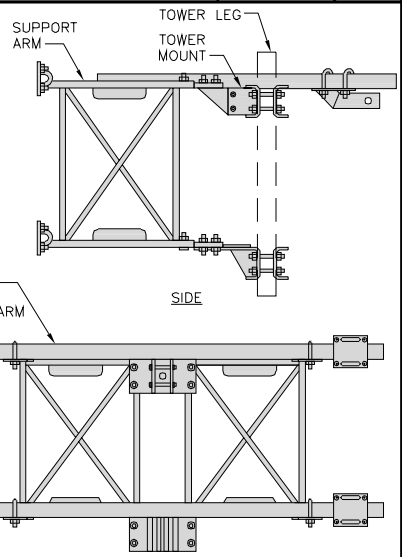
TOP

FRONT

ANTENNA PLATFORM DETAIL

NO SCALE

9



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:

JES BIW BIW

RFDS REV #: 1

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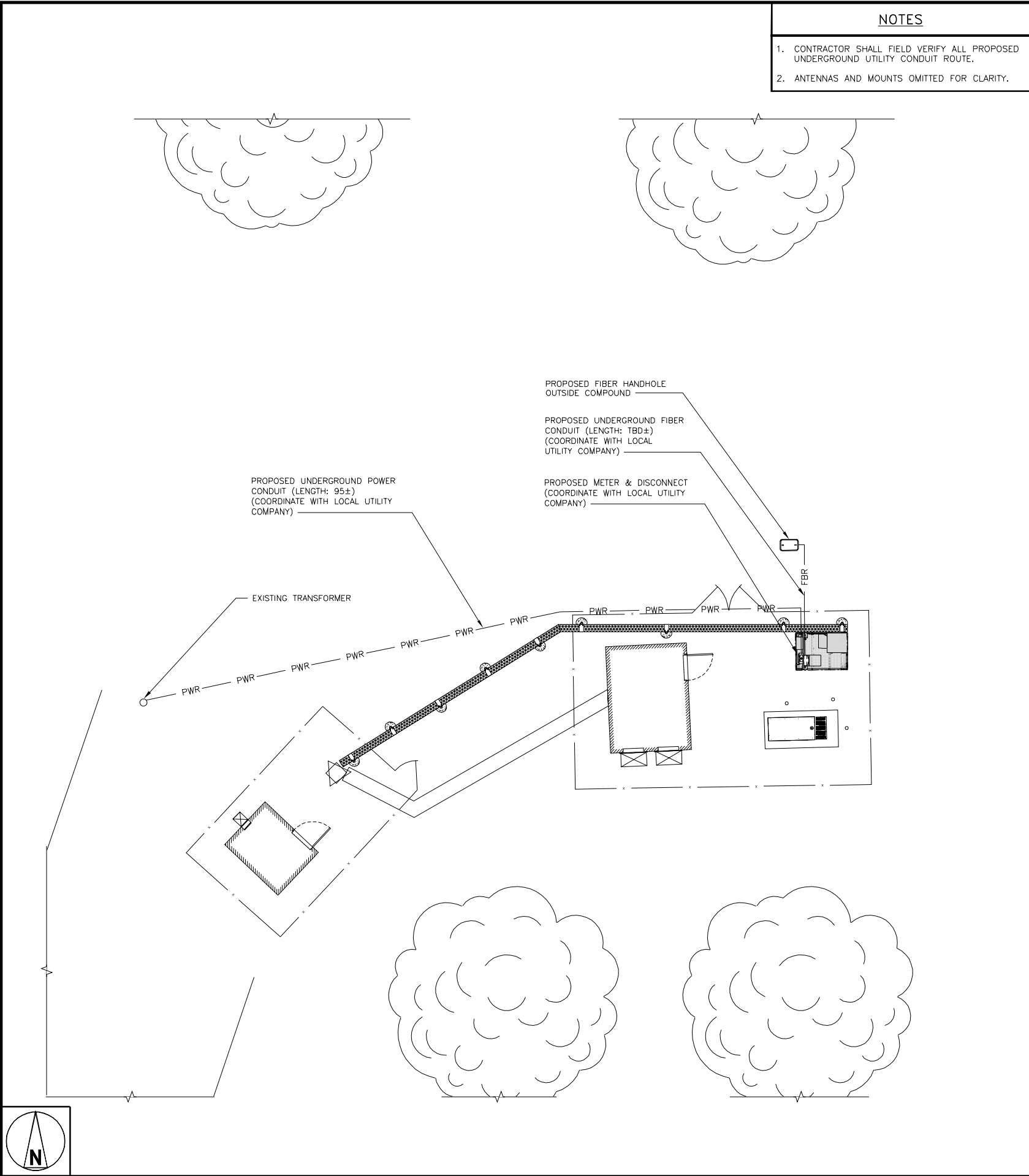
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DISH WIRELESS, L.L.C.
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SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER

A-6



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

1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.

2. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL STATE AND LOCAL CODES, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC STANDARDS.

3. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.

4. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH THE MECHANICAL EQUIPMENT CONTRACTOR AND COMPLY AS REQUIRED.

5. CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETE SYSTEM.

6. CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED BY THE NEC ARTICLE 314.

7. CONTRACTOR SHALL PROVIDE ALL STRAIN RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.

8. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM.

9. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC 250. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, AND EQUIPMENT CABINETS.

10. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.

11. PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.

12. CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.

13. ALL TRENCHES IN COMPOUND TO BE HAND DUG

ELECTRICAL NOTES

NO SCALE

2

NOTES

1. AN EXISTING SURVEY WAS NOT AVAILABLE AT THE TIME OF DRAWING CREATION.

AERIAL VIEW

NO SCALE

3

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

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

RFDS REV #: 1

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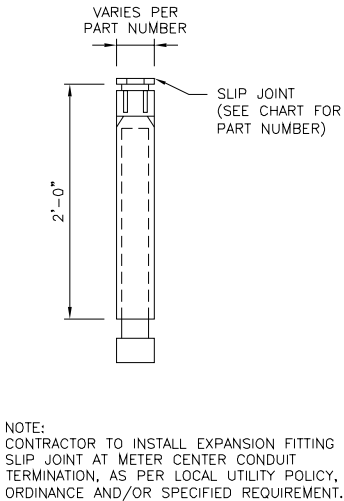
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SHEET TITLE
ELECTRICAL/FIBER ROUTE
PLAN AND NOTES

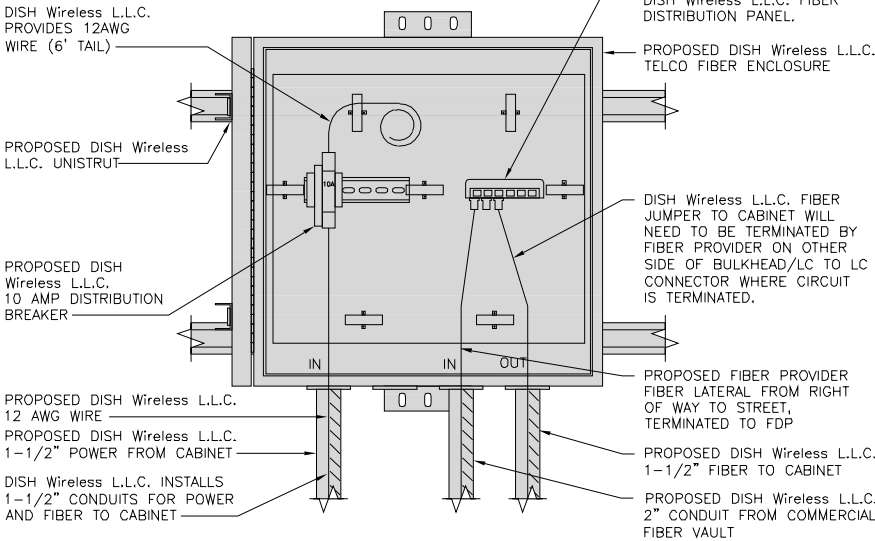
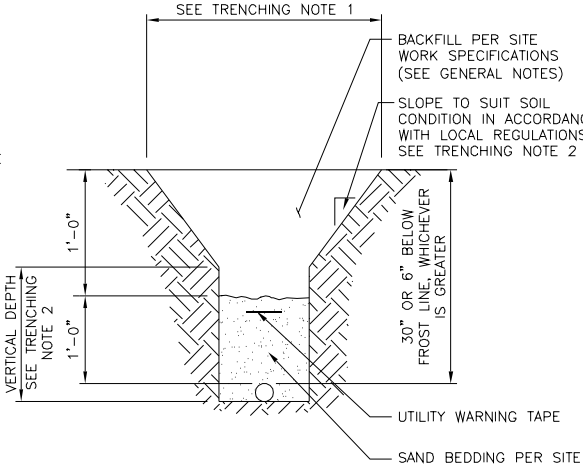
SHEET NUMBER
E-1

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



TRENCHING NOTES

- 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.
- TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT OSHA TRENCHING AND EXCAVATION SAFETY STANDARDS.
- 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.



EXPANSION JOINT DETAIL

NO SCALE

1

TYPICAL UNDERGROUND TRENCH DETAIL

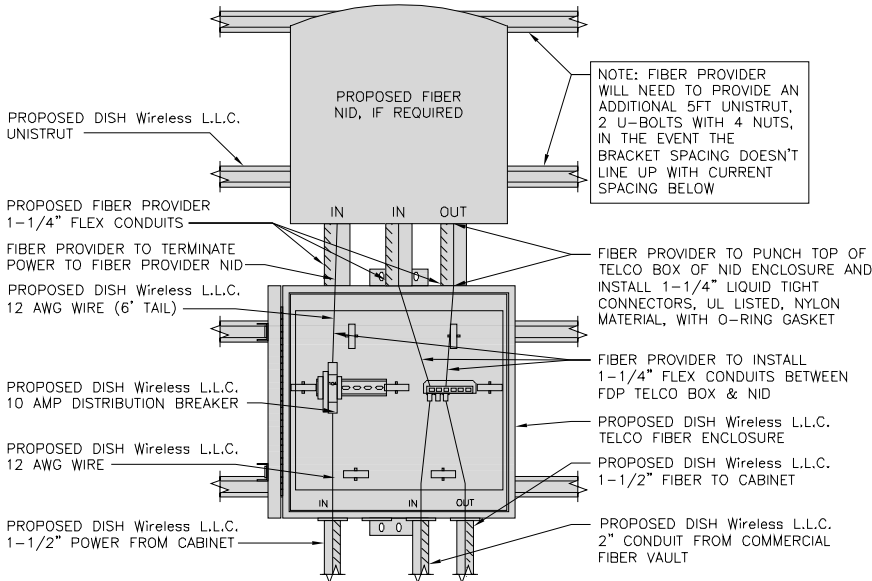
NO SCALE

2

DARK TELCO BOX – INTERIOR WIRING LAYOUT

NO SCALE

3



LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL)

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9



5701 SOUTH SANTA FE DRIVE
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NB+C ENGINEERING SERVICES, LLC.
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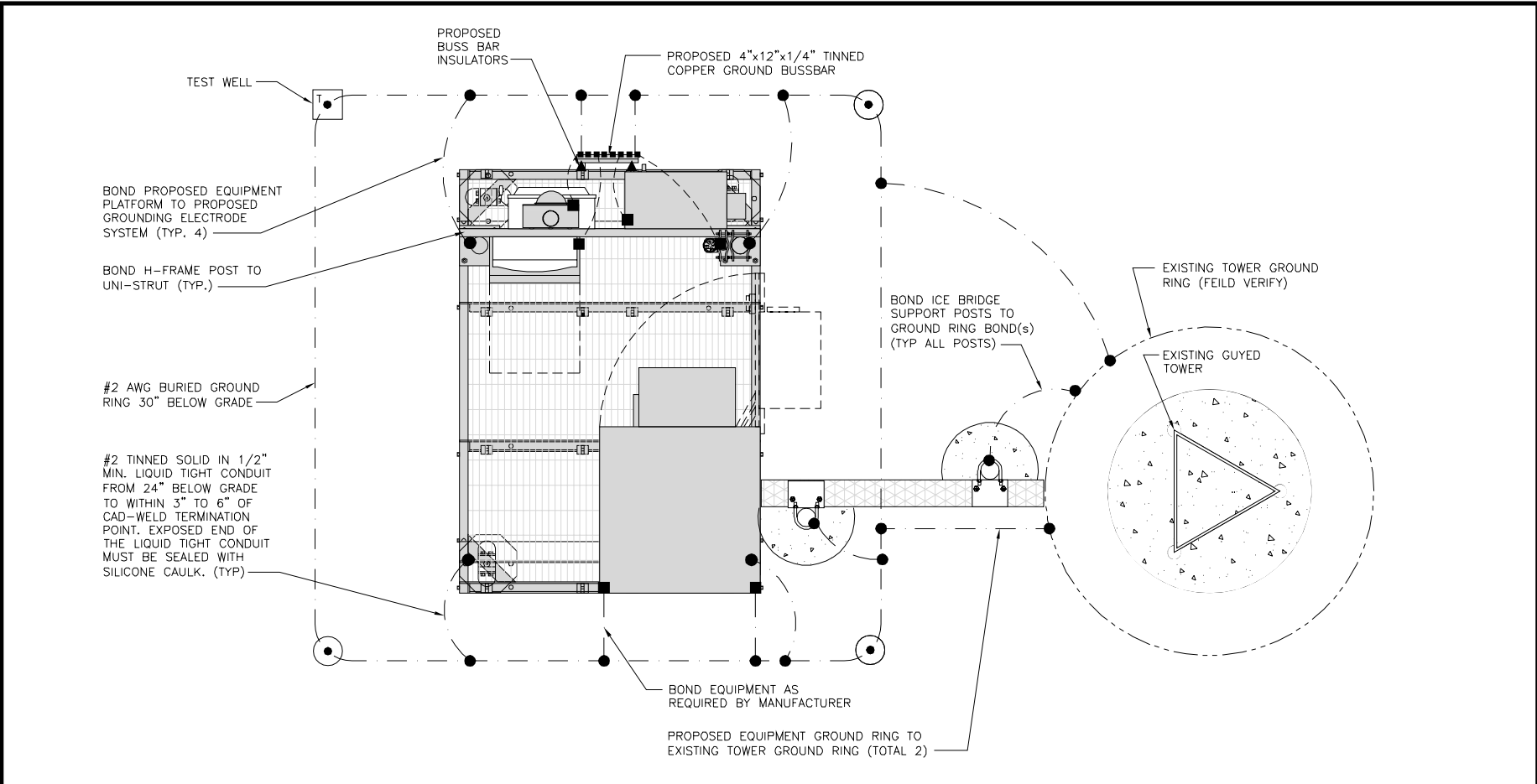
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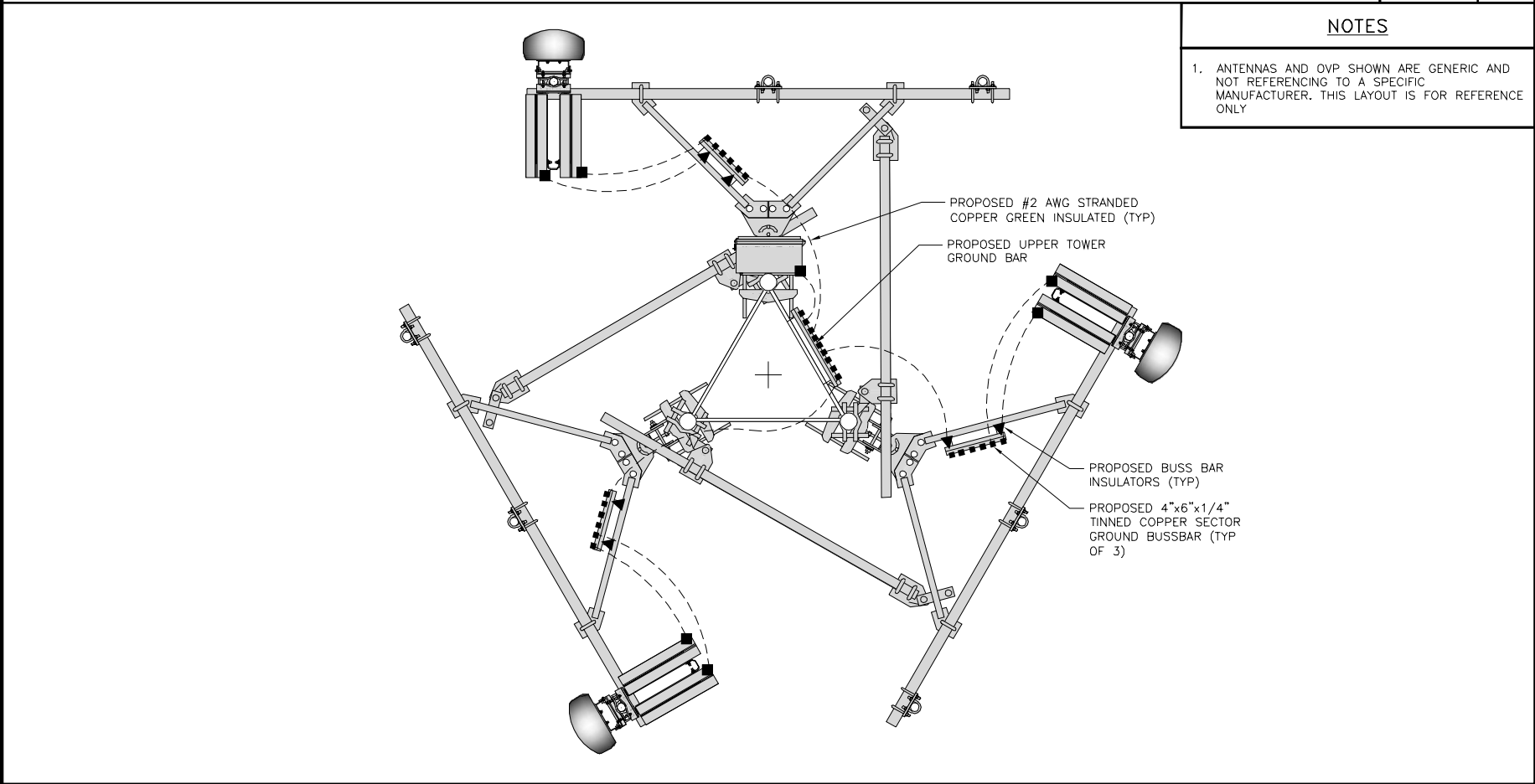
SHEET NUMBER

E-2



TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2

●

EXOTHERMIC CONNECTION

■

MECHANICAL CONNECTION

GROUND BUS BAR

GROUND ROD

●

T

TEST GROUND ROD WITH INSPECTION SLEEVE

#6 AWG STRANDED & INSULATED

#2 AWG SOLID COPPER TINNED

BUSS BAR INSULATOR

GROUNDING LEGEND

1. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.

2. CONTRACTOR SHALL GROUND ALL EQUIPMENT AS A COMPLETE SYSTEM. GROUNDING SHALL BE IN COMPLIANCE WITH NEC SECTION 250 AND DISH WIRELESS, L.L.C. GROUNDING AND BONDING REQUIREMENTS AND MANUFACTURER'S SPECIFICATIONS.

3. ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.

GROUNDING KEY NOTES

A

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

B

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

C

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

D

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

E

GROUND ROD: UL LISTED COPPER CLAD STEEL, MINIMUM 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

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

DRAWN BY:JES

CHECKED BY:BIW

APPROVED BY:BIW

RFDS REV #:1

CONSTRUCTION DOCUMENTS

REVDATEDESCRIPTION

A07/30/2021ISSUED FOR REVIEW

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A&E PROJECT NUMBER

208450-13688133

DISH WIRELESS, L.L.C. PROJECT INFORMATION

BOBDL00111A

1A ECOLOGY DRIVE

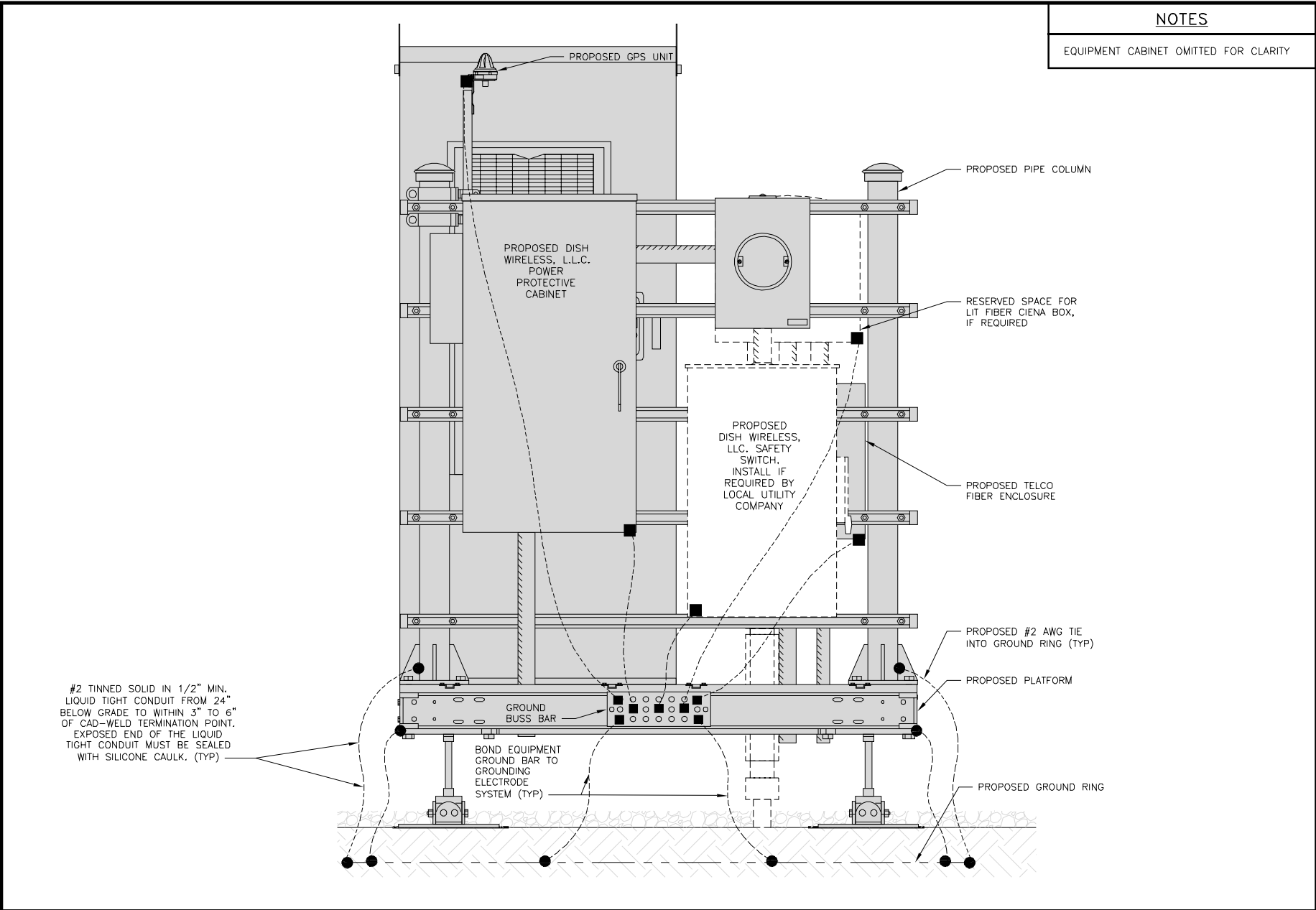
ENFIELD, CT 06082

SHEET TITLE

GROUNDING PLANS AND NOTES

SHEET NUMBER

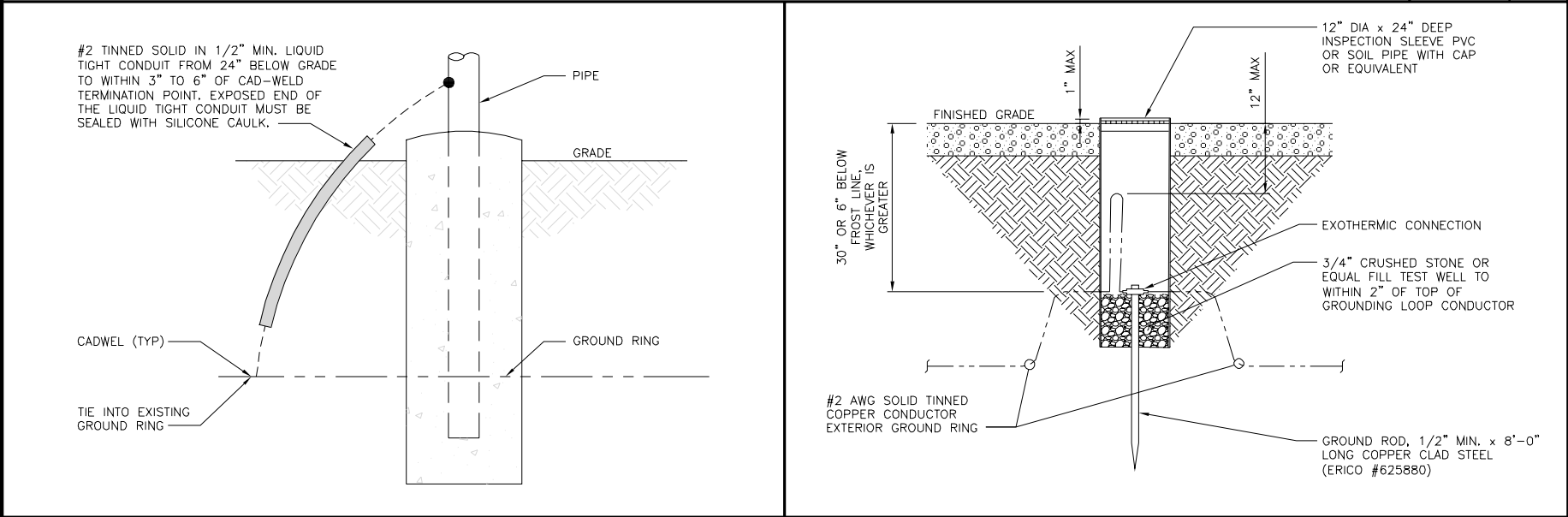
G-1



H-FRAME GROUNDING DETAIL

NO SCALE

1



TRANSITIONING GROUND DETAIL

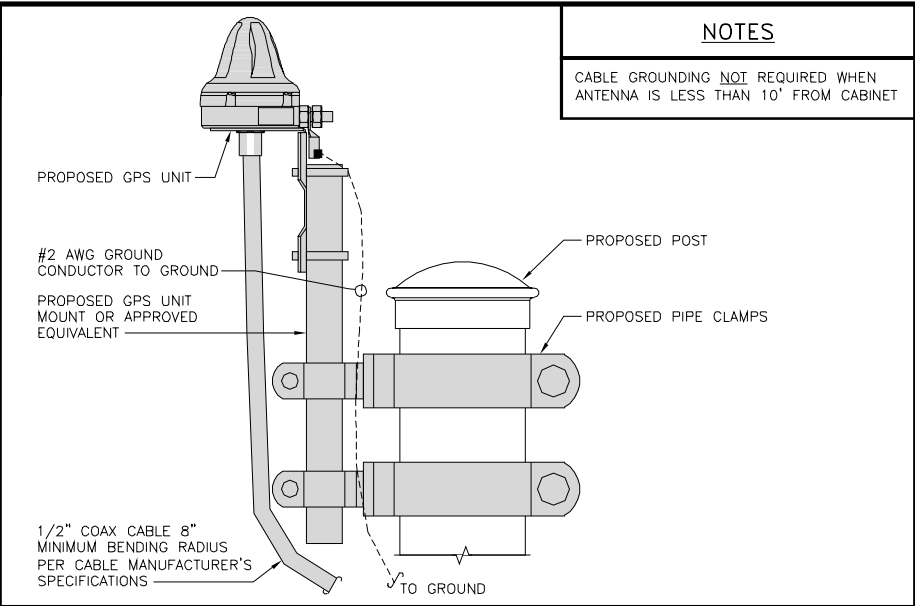
NO SCALE

4

TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE

NO SCALE

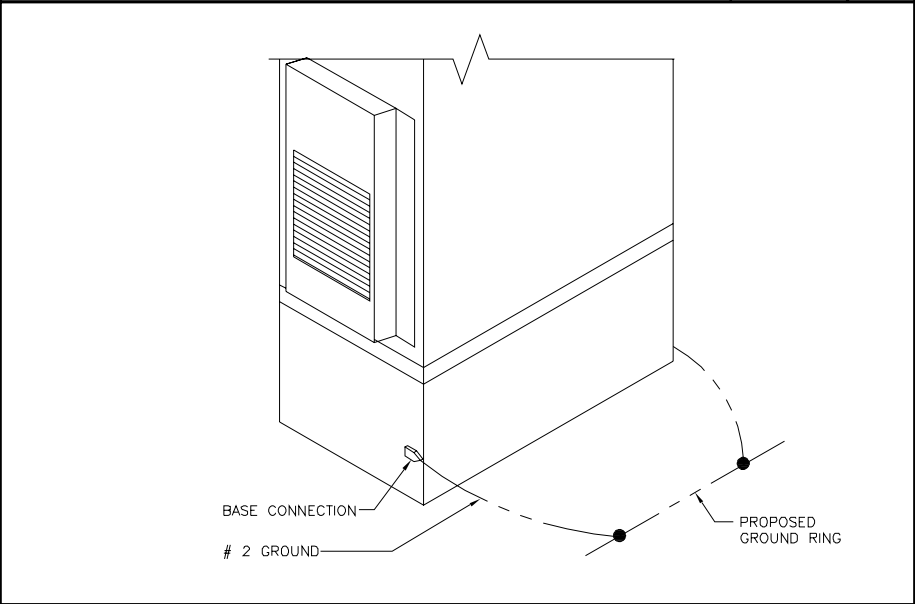
5



TYPICAL GPS UNIT GROUNDING

NO SCALE

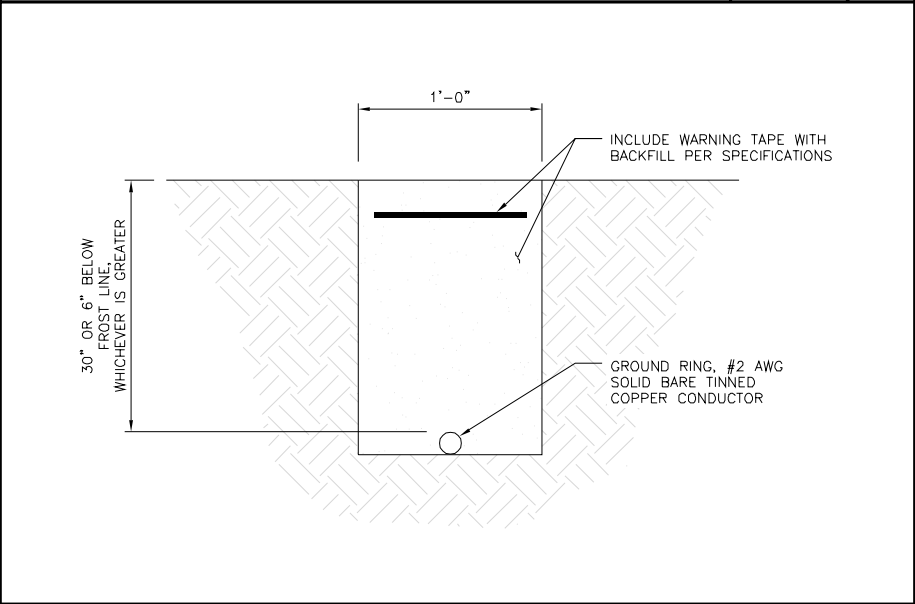
2



OUTDOOR CABINET GROUNDING

NO SCALE

3



TYPICAL GROUND RING TRENCH

NO SCALE

6



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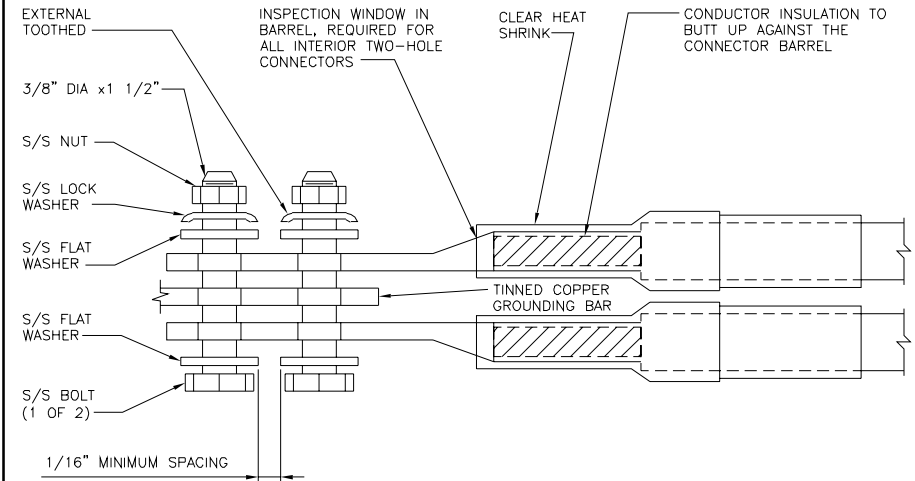
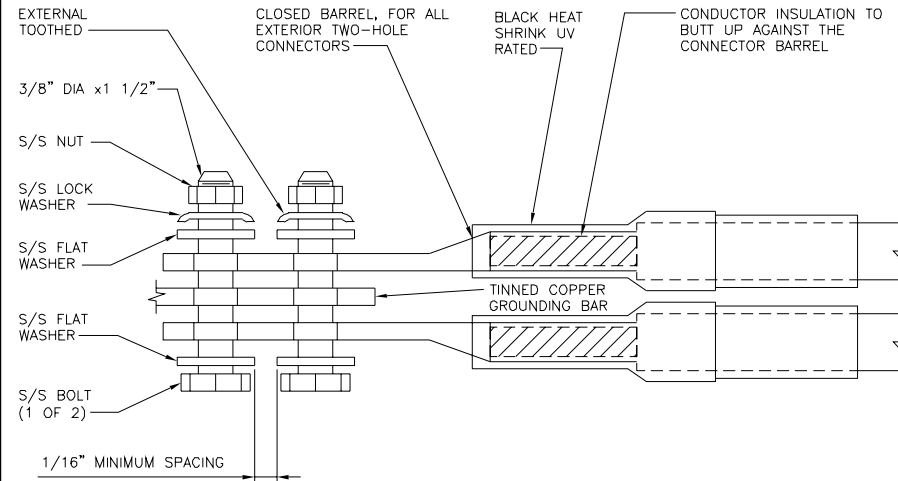
A&E PROJECT NUMBER
208450-13688133

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBDL00111A
1A ECOLOGY DRIVE
ENFIELD, CT 06082

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

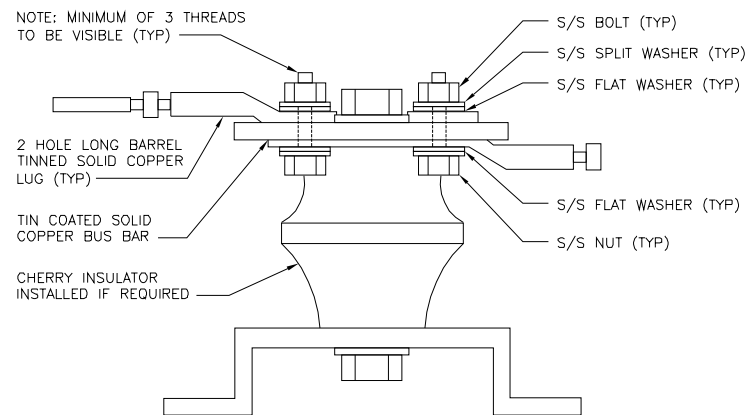
NO SCALE

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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LITTLETON, CO 80120



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RALEIGH, NC 27615
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DRAWN BY:	CHECKED BY:	APPROVED BY:
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JES	BIW	BIW
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RFDS REV #: 1

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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	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
ADD FREQUENCY COLOR TO SECTOR BAND (CBRS WILL USE YELLOW BANDS)												
MID-BAND RRH – (AWS BANDS N66+N70)												
	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												
	EXAMPLE 1	EXAMPLE 2	EXAMPLE 3									
	RED	RED	RED									
	BLUE	BLUE	BLUE									
	GREEN	GREEN	ORANGE									
INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS												
	ORANGE	YELLOW										
	PURPLE		PURPLE									
EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS												
EXAMPLE 2 – HYBRID, OR DISCREET, SUPPORTS CBRS ONLY, ALL SECTORS												
FIBER JUMPERS TO RRHs	LOW BAND RRH	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	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	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						
LINKS WILL HAVE A 1.5–2 INCH WHITE WRAP WITH THE AZIMUTH COLOR OVERLAPPING IN THE MIDDLE. ADD ADDITIONAL SECTOR COLOR BANDS FOR EACH ADDITIONAL MW RADIO.												
MICROWAVE CABLES WILL REQUIRE P–TOUCH LABELS INSIDE THE CABINET TO IDENTIFY THE LOCAL AND REMOTE SITE ID'S												

RF CABLE COLOR CODES

NO SCALE

1

NOT USED

NO SCALE

4

LOW BANDS (N71+N26)
OPTIONAL – (N29)

ORANGE

AWS
(N66+N70+H–BLOCK)

PURPLE

CBRS TECH
(3 GHz)

YELLOW

NEGATIVE SLANT PORT
ON ANT/RRH

WHITE

ALPHA SECTOR

RED

BETA SECTOR

BLUE

GAMMA SECTOR

GREEN

COLOR IDENTIFIER

NO SCALE

2

NOT USED

NO SCALE

3

NOT USED

NO SCALE

4

dish
wireless.

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DRAWN BY: CHECKED BY: APPROVED BY:

JES

BIW

BIW

RFDS REV #: 1

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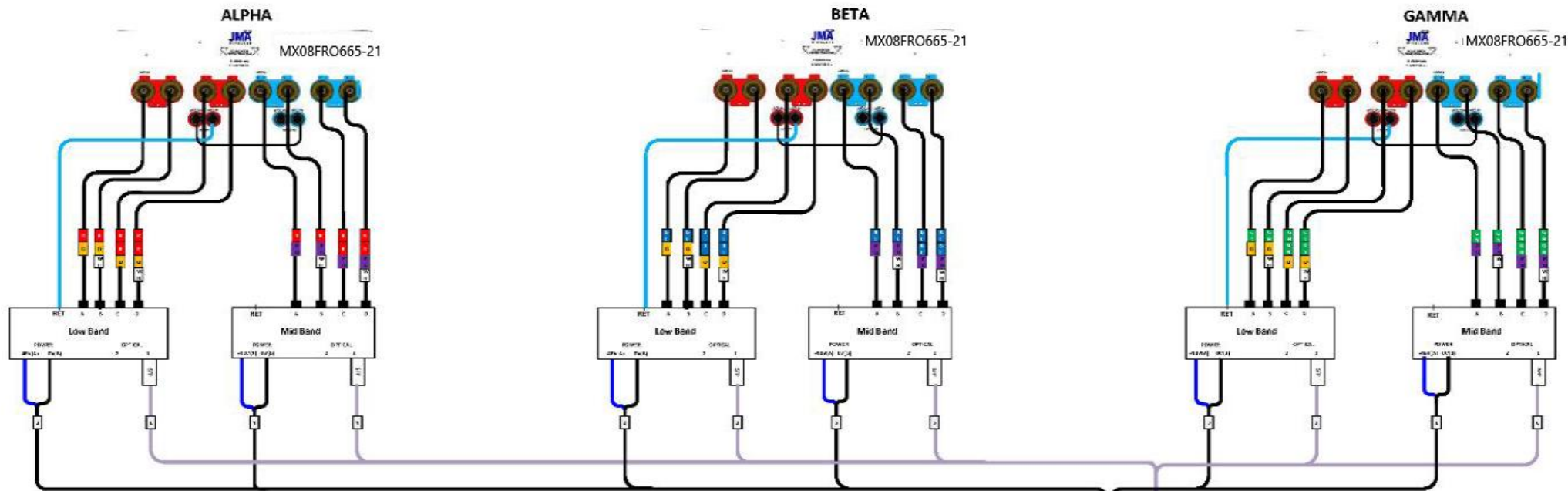
DISH WIRELESS, L.L.C.
PROJECT INFORMATION

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1A ECOLOGY DRIVE
ENFIELD, CT 06082

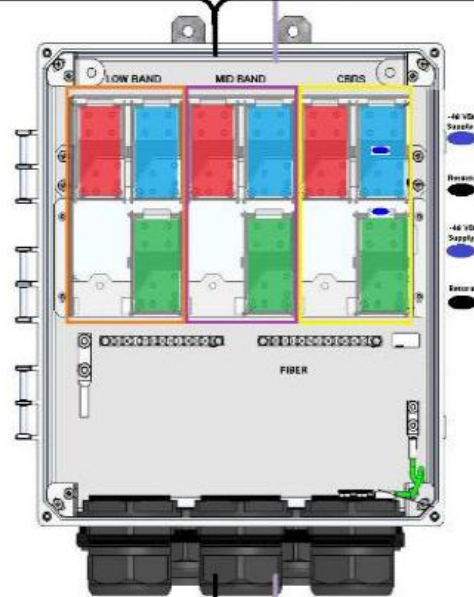
SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER

RF-1



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



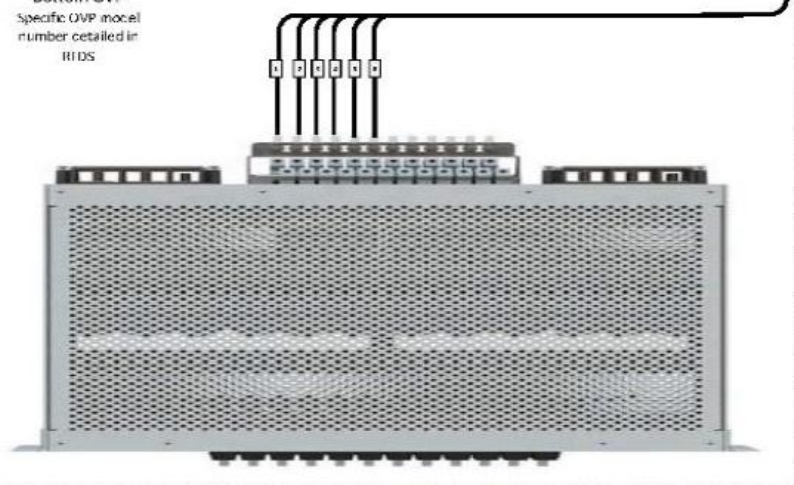
CSR NCS540		
Port	Interface	Description
0	G0/0/0	Sidewalk
1	G0/0/1	CBRS - Alpha
2	G0/0/2	CBRS - Beta
3	G0/0/3	CBRS - Gamma
4	Te0/0/4	Fujitsu Low-Band RU - Alpha
5	Te0/0/5	Fujitsu Mid-Band RU - Alpha
6	Te0/0/6	Fujitsu Low-Band RU - Beta
7	Te0/0/7	Fujitsu Mid-Band RU - Beta
8	Te0/0/8	Fujitsu Low-Band RU - Gamma
9	Te0/0/9	Fujitsu Mid-Band RU - Gamma
10	Te0/0/10	Fixed With
11	Te0/0/11	Fixed With
12	Te0/0/12	Fixed With
13	Te0/0/13	Fixed With
14	Te0/0/14	CBRS1
15	Te0/0/15	CBRS2
16	Te0/0/16	CBRS3
17	G0/0/17	SM1 - BMC
18	G0/0/18	SM2 - BMC
19	Te0/0/19	SM1 - Data 1
20	Te0/0/20	SM1 - Data 2
21	Te0/0/21	SM2 - Data 1
22	Te0/0/22	SM2 - Data 2
23	Te0/0/23	Reserved Uplink (EDC, LDC)
24	Te0/0/24	Blank/Future
25	Te0/0/25	Blank/Future
26	Te0/0/26	Fiber NIU
27	Te0/0/27	Fiber NIU
28	Te0/0/28	Blank/Future
29	Te0/0/29	Blank/Future

top

bottom

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

Bottom OVP
Specific OVP model
number detailed in
RIDS



5G Plumbing diagram IMA MX08FRO665-20 2-2-2(LB+MB)	
DATE: 07/30/2021	BY: JES
REVISION: 1	DESCRIPTION: RF PLUMBING DIAGRAM

SUBMITTALS		
REV	DATE	DESCRIPTION
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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-DDBTXD	
CHAIN LINK FENCE	
WOOD/WROUGHT IRON FENCE	
WALL STRUCTURE	
LEASE AREA	
PROPERTY LINE (PL)	
SETBACKS	
ICE BRIDGE	
CABLE TRAY	
WATER LINE	
UNDERGROUND POWER	
UNDERGROUND TELCO	
OVERHEAD POWER	
OVERHEAD TELCO	
UNDERGROUND TELCO/POWER	
ABOVE GROUND POWER	
ABOVE GROUND TELCO	
ABOVE GROUND TELCO/POWER	
WORKPOINT	
SECTION REFERENCE	
DETAIL REFERENCE	

LEGEND

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

ABBREVIATIONS



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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PROJECT INFORMATION
BOBDL00111A
1A ECOLOGY DRIVE
ENFIELD, CT 06082

SHEET TITLE
LEGEND AND ABBREVIATIONS

SHEET NUMBER
GN-1

SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH WIRELESS, L.L.C. AND TOWER OWNER NOC & THE DISH WIRELESS, L.L.C. AND TOWER OWNER CONSTRUCTION MANAGER.
2. "LOOK UP" – DISH WIRELESS, L.L.C. AND TOWER OWNER SAFETY CLIMB REQUIREMENT:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GENERAL NOTES:

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

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH WIRELESS, L.L.C.

TOWER OWNER:TOWER OWNER

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

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

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

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

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

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

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

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

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

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

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

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

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



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	07/30/2021	ISSUED FOR REVIEW

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
208450–13688133

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBDL00111A
1A ECOLOGY DRIVE
ENFIELD, CT 06082

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

#4 BARS AND SMALLER 40 ksi

#5 BARS AND LARGER 60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

• CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"

• CONCRETE EXPOSED TO EARTH OR WEATHER:

#6 BARS AND LARGER 2"

#5 BARS AND SMALLER 1-1/2"

• CONCRETE NOT EXPOSED TO EARTH OR WEATHER:

• SLAB AND WALLS 3/4"

• BEAMS AND COLUMNS 1-1/2"

7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
- ELECTRICAL INSTALLATION NOTES:
1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.

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

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

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

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

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

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

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

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

8. TIE WRAPS ARE NOT ALLOWED.

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

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

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

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

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

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

15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

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

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

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

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

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

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

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

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

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

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

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

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

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

30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.
-
- 5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120
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- DRAWN BY: CHECKED BY: APPROVED BY:
- JES BIW BIW
- RFDS REV #: 1
- CONSTRUCTION DOCUMENTS
- | SUBMITTALS | | |
|------------|------------|-------------------|
| REV | DATE | DESCRIPTION |
| A | 07/30/2021 | ISSUED FOR REVIEW |
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- IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.
- A&E PROJECT NUMBER
208450-13688133
- DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBDL00111A
1A ECOLOGY DRIVE
ENFIELD, CT 06082
- SHEET TITLE
GENERAL NOTES
- SHEET NUMBER
GN-3

GROUNDING NOTES:

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

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 ½"BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.

H. THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE REQUIRED DURING CONSTRUCTION UNTIL ALL CONNECTIONS ARE COMPLETE.

I. ANY FIELD CHANGES OR SUBSTITUTIONS SHALL HAVE PRIOR APPROVAL FROM THE ENGINEER, AND DISH WIRELESS L.L.C. PROJECT MANAGER IN WRITING



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



DRAWN BY: CHECKED BY: APPROVED BY:

JES BIW BIW

RFDS REV #: 1

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	07/30/2021	ISSUED FOR REVIEW

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
208450-13688133

DISH WIRELESS, L.L.C.
PROJECT INFORMATION
BOBDL00111A
1A ECOLOGY DRIVE
ENFIELD, CT 06082

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-4

ENGINEERING:
STRUCTURAL ANALYSIS
MOUNT ANALYSIS



AMERICAN TOWER®
C O R P O R A T I O N

Structural Analysis Report

Structure : 190 ft Guyed Tower
ATC Site Name : Enfield, CT
ATC Asset Number : 208450
Engineering Number : 13688133_C3_03
Proposed Carrier : DISH WIRELESS L.L.C.
Carrier Site Name : BOBDL00111A
Carrier Site Number : BOBDL00111A
Site Location : 1A Ecology Drive
Enfield, CT 06082
41.965300,-72.553100
County : Hartford
Date : July 23, 2021
Max Usage : 72%
Result : Pass

Prepared By:
Sammie Brown
Structural Engineer

Reviewed By:



COA: PEC.0001553



Table of Contents

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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 190 ft guyed tower to reflect the change in loading by DISH WIRELESS L.L.C..

Supporting Documents

Tower Drawings	Mapping by Structural Components Job #170791, dated September 10, 2017
Foundation Drawing	Mapping by Delta Oaks Group Project #BGI21-08513-03, dated May 18, 2021
Geotechnical Report	Delta Oaks Group Project #GEO21-08513-03, dated April 7, 2021

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:	116 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1 1/2" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Spectral Response:	$S_s = 0.17$, $S_1 = 0.05$
Site Class:	D - Stiff Soil

Conclusion

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

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. 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
176.0	1	Motorola PTP 49600	Leg	(1) 0.26" (6.6mm) Cat 5e (4) 7/8" Coax	UNKNOWN
173.0	1	Generic 15' Omni	Side Arm		
166.0	2	Motorola PTP 49600	Leg	-	
150.0	1	Generic 20' Dipole	Side Arm	(5) 0.26" (6.6mm) Cat 5e	
148.0	1	Generic 20' Dipole			
138.0	1	Generic 10' Omni	Side Arm	(2) 7/8" Coax	
136.0	1	Generic 8' Dipole	Leg		
98.0	1	Motorola PTP 49600	Leg	-	

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
155.0	1	Commscope RDIDC-9181-PF-48	Sector Frame	(1) 1.60" (40.6mm) Hybrid	DISH WIRELESS L.L.C.
	3	Fujitsu TA08025-B604			
	3	Fujitsu TA08025-B605			
	3	JMA Wireless MX08FRO665-21			

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

Install proposed lines on any empty face.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Legs	72%	Pass
Diagonals	47%	Pass
Horizontals	63%	Pass
Guys	47%	Pass
Leg Bolts	5%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Base Axial (kips)	91.2	61%
A1 Uplift (kips)	21.2	13%
A1 Shear (kips)	22.2	12%

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) (°)
155.0	Commscope RDIDC-9181-PF-48	DISH WIRELESS L.L.C.	0.067	0.004	0.035
	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.

Quadrant 1

190.00

Sect 11

170.00

Sect 10

150.00

Sect 9

135.00

Sect 8

120.00

Sect 7

100.00

Sect 6

80.00

Sect 5

60.00

Sect 4

40.00

Sect 3

20.00

Sect 2

5.00

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Loads: 116 mph no ice
50 mph w/ 1"1/2 radial ice
Site Class: D Ss: 0.17 S1: 0.05
60 mph Serviceability

(2) 5/8 EHS @ 169.0
IT = 10%

9/16 EHS @ 119.4
IT = 10%

7/16 EHS @ 59.4
IT = 10%

R: 145.00

Job Information

Client : DISH WIRELESS L.L.C.

Tower : 208450

Location : Enfield, CT

Base Width : 3.42 ft

Code : ANSI/TIA-222-H

Topo Method: Method 1

Risk Cat : II

Topo: 1

Tower Ht : 190.00 ft

Exposure : C

Shape : Triangle

Sections Properties

Section	Leg Members	Diagonal Members	Horizontal Members
1	PX 50 ksi 2-1/2" DIA PIPE		CHN 36 ksi C12 x 30
2 - 7	PX 50 ksi 2" DIA PIPE	PSP 42 ksi ROHN 1.5x16GA	PSP 42 ksi ROHN 1.5x16GA
8 - 9	PX 50 ksi 2-1/2" DIA PIPE	PSP 42 ksi ROHN 1.5x16GA	PSP 42 ksi ROHN 1.5x16GA
10	PX 50 ksi 2-1/2" DIA PIPE	SAE 36 ksi 1.75X1.75X0.1875	SAE 36 ksi 1.75X1.75X0.1875
11	PST 50 ksi 2-1/2" DIA PIPE	SAE 36 ksi 2X2X0.25	SAE 36 ksi 2X2X0.25

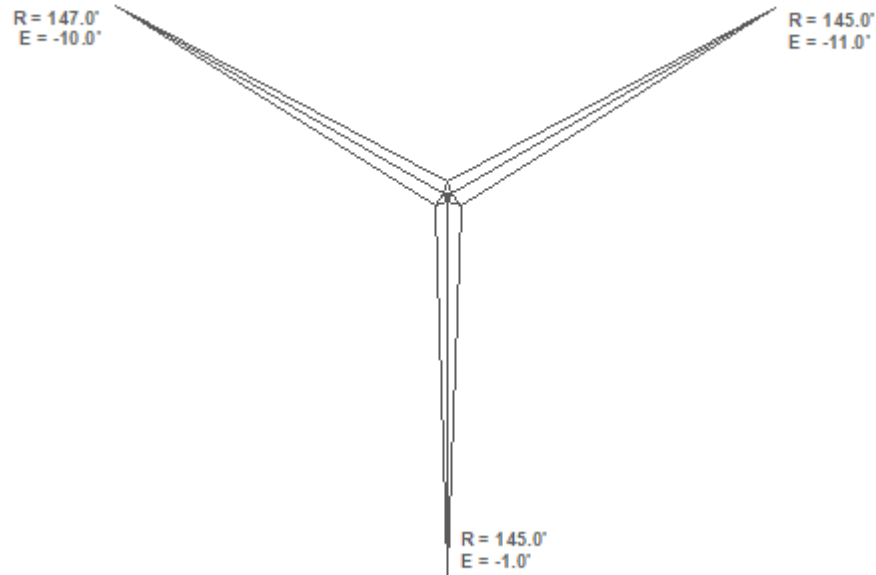
Discrete Appurtenance

Elev (ft)	Type	Qty	Description
176.00		1	Motorola PTP 49600
173.00	Whip	1	Generic 15' Omni
173.00	Straight Arm	1	Generic Round Side Arm
169.00	Other	1	Generic Torque Arm
166.00		2	Motorola PTP 49600
155.00	Panel	3	JMA Wireless MX08FRO665-21
155.00		3	Fujitsu TA08025-B605
155.00		3	Fujitsu TA08025-B604
155.00		1	Commscope RDIDC-9181-PF-48
155.00	Mounting Frame	3	Generic Flat Light Sector Fram
150.00	Whip	1	Generic 20' Dipole
150.00	Straight Arm	1	Generic Round Side Arm
148.00	Whip	1	Generic 20' Dipole
148.00	Straight Arm	1	Generic Round Side Arm
138.00	Straight Arm	1	Generic Round Side Arm
138.00	Whip	1	Generic 10' Omni
136.00	Whip	1	Generic 8' Dipole
98.00		1	Motorola PTP 49600

Linear Appurtenance

Elev (ft)				
From	To	Qty	Description	
0.00	176.00	1	0.26" (6.6mm) Cat 5e	
0.00	173.00	4	7/8" Coax	
0.00	155.00	1	1.60" (40.6mm) Hybri	
0.00	150.00	5	0.26" (6.6mm) Cat 5e	
0.00	138.00	1	7/8" Coax	
0.00	136.00	1	7/8" Coax	

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Job Information

Client : DISH WIRELESS L.L.C.

Tower : 208450

Location : Enfield, CT

Base Width : 3.42 ft

Code : ANSI/TIA-222-H

Topo Method: Method 1

Risk Cat : II

Topo: 1

Tower Ht : 190.00 ft

Exposure : C

Shape : Triangle

Guy Anchor Design Loads

Radius (ft)	Drop (ft)	Azimuth (°)	Uplift (kip)	Shear (kip)
145.00	-1.00	0	19.93	22.16
145.00	-11.00	120	21.20	21.98
147.00	-10.00	240	20.77	21.98

Global Base Foundation Design Loads

Vertical (kip)	Horizontal (kip)
91.22	0.84

Site Number: 208450	Code: ANSI/TIA-222-H	© 2007 - 2021 by ATC IP LLC. All rights reserved.
Site Name: Enfield, CT	Engineering Number: 13688133_C3_03	7/23/2021 10:01:55 AM
Customer: DISH WIRELESS L.L.C.		

Analysis Parameters

Location:	Hartford County, CT	Height (ft):	190
Code:	ANSI/TIA-222-H	Base Elevation (ft):	0.00
Shape:	Triangle	Bottom Face Width (ft):	3.42
Tower Manufacturer:	Rohn	Top Face Width (ft):	3.42
Tower Type:	Guyed		
Kd:	0.85		
Ke:	0.99		

Ice & Wind Parameters

Exposure Category:	C	Design Windspeed Without Ice:	116 mph
Risk Category:	II	Design Windspeed With Ice:	50 mph
Topographic Factor Procedure:	Method 1	Operational Windspeed:	60 mph
Topographic Category:	1	Design Ice Thickness:	1.50 in
Crest Height:	0 ft	HMSL:	170.00 ft

Seismic Parameters

Analysis Method:	Equivalent Lateral Force Method		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	0.48		
T_L (sec):	6	p:	1.3
S_S :	0.174	S_1 :	0.055
F_a :	1.600	F_v :	2.400
S_{ds} :	0.186	S_{d1} :	0.088
		C_S :	0.061
		C_S , Max:	0.061
		C_S , Min:	0.030

Load Cases

1.2D + 1.0W Normal	116 mph Normal with No Ice
1.2D + 1.0W 60 deg	116 mph 60 degree with No Ice
1.2D + 1.0W 90 deg	116 mph 90 degree with No Ice
1.2D + 1.0W 120 deg	116 mph 120 degree with No Ice
1.2D + 1.0W 180 deg	116 mph 180 degree with No Ice
1.2D + 1.0W 210 deg	116 mph 210 degree with No Ice
1.2D + 1.0W 240 deg	116 mph 240 degree with No Ice
1.2D + 1.0W 300 deg	116 mph 300 degree with No Ice
1.2D + 1.0W 330 deg	116 mph 330 degree with No Ice
1.2D + 1.0Di + 1.0Wi Normal	50 mph Normal with 1.50 in Radial Ice
1.2D + 1.0Di + 1.0Wi 60 deg	50 mph 60 deg with 1.50 in Radial Ice
1.2D + 1.0Di + 1.0Wi 90 deg	50 mph 90 deg with 1.50 in Radial Ice
1.2D + 1.0Di + 1.0Wi 120 deg	50 mph 120 deg with 1.50 in Radial Ice
1.2D + 1.0Di + 1.0Wi 180 deg	50 mph 180 deg with 1.50 in Radial Ice
1.2D + 1.0Di + 1.0Wi 210 deg	50 mph 210 deg with 1.50 in Radial Ice
1.2D + 1.0Di + 1.0Wi 240 deg	50 mph 240 deg with 1.50 in Radial Ice
1.2D + 1.0Di + 1.0Wi 300 deg	50 mph 300 deg with 1.50 in Radial Ice
1.2D + 1.0Di + 1.0Wi 330 deg	50 mph 330 deg with 1.50 in Radial Ice

Site Number: 208450

Code:

ANSI/TIA-222-H

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Site Name: Enfield, CT

Engineering Number: 13688133_C3_03

7/23/2021 10:01:55 AM

Customer: DISH WIRELESS L.L.C.

Analysis Parameters

1.2D + 1.0Ev + 1.0Eh Normal	Seismic Normal
1.2D + 1.0Ev + 1.0Eh 60 deg	Seismic 60 deg
1.2D + 1.0Ev + 1.0Eh 90 deg	Seismic 90 deg
1.2D + 1.0Ev + 1.0Eh 120 deg	Seismic 120 deg
1.2D + 1.0Ev + 1.0Eh 180 deg	Seismic 180 deg
1.2D + 1.0Ev + 1.0Eh 210 deg	Seismic 210 deg
1.2D + 1.0Ev + 1.0Eh 240 deg	Seismic 240 deg
1.2D + 1.0Ev + 1.0Eh 300 deg	Seismic 300 deg
1.2D + 1.0Ev + 1.0Eh 330 deg	Seismic 330 deg
1.0D + 1.0W Service Normal	Serviceability - 60 mph Wind Normal
1.0D + 1.0W Service 60 deg	Serviceability - 60 mph Wind 60 deg
1.0D + 1.0W Service 90 deg	Serviceability - 60 mph Wind 90 deg
1.0D + 1.0W Service 120 deg	Serviceability - 60 mph Wind 120 deg
1.0D + 1.0W Service 180 deg	Serviceability - 60 mph Wind 180 deg
1.0D + 1.0W Service 210 deg	Serviceability - 60 mph Wind 210 deg
1.0D + 1.0W Service 240 deg	Serviceability - 60 mph Wind 240 deg
1.0D + 1.0W Service 300 deg	Serviceability - 60 mph Wind 300 deg
1.0D + 1.0W Service 330 deg	Serviceability - 60 mph Wind 330 deg

Site Number: 208450

Code:

ANSI/TIA-222-H

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Site Name: Enfield, CT

Engineering Number: 13688133_C3_03

7/23/2021 10:01:55 AM

Customer: DISH WIRELESS L.L.C.

Tower Loading**Discrete Appurtenance Properties** 1.2D + 1.0W

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K _a	Orient. Factor	Vert. Ecc.(ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
176.0	Motorola PTP 49600	1	12	1.8	1.2	14.5	3.7	1.00	1.00	0.0	0.0	41.49	62	15
173.0	Generic 15' Omni	1	40	4.5	15.0	3.0	3.0	1.00	1.00	0.0	0.0	41.34	158	48
173.0	Generic Round Side	1	188	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.0	41.34	183	225
169.0	Generic Torque Arm	1	500	15.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	41.13	524	600
166.0	Motorola PTP 49600	2	12	1.8	1.2	14.5	3.7	1.00	0.50	0.0	0.0	40.98	61	29
155.0	Commscope RDIDC-	1	22	1.9	1.3	14.0	8.0	0.80	1.00	0.0	0.0	40.39	51	26
155.0	Fujitsu TA08025-	3	64	2.0	1.3	15.0	7.9	0.80	0.50	0.0	0.0	40.39	81	230
155.0	Fujitsu TA08025-	3	75	2.0	1.3	15.0	9.1	0.80	0.50	0.0	0.0	40.39	81	270
155.0	Generic Flat Light	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.0	40.39	1037	1440
155.0	JMA Wireless	3	65	12.5	6.0	20.0	8.0	0.80	0.64	0.0	0.0	40.39	659	232
150.0	Generic 20' Dipole	1	60	7.5	20.0	3.0	3.0	1.00	1.00	0.0	0.0	40.11	256	72
150.0	Generic Round Side	1	188	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.0	40.11	177	225
148.0	Generic 20' Dipole	1	60	7.5	20.0	3.0	3.0	1.00	1.00	0.0	0.0	40.00	256	72
148.0	Generic Round Side	1	188	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.0	40.00	177	225
138.0	Generic 10' Omni	1	25	3.0	10.0	3.0	3.0	1.00	1.00	0.0	0.0	39.41	101	30
138.0	Generic Round Side	1	188	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.0	39.41	174	225
136.0	Generic 8' Dipole	1	25	3.0	8.0	3.0	3.0	1.00	1.00	0.0	0.0	39.29	101	30
98.00	Motorola PTP 49600	1	12	1.8	1.2	14.5	3.7	1.00	1.00	0.0	0.0	36.67	55	15
Totals		27	3341	173.2									4193	4009

Discrete Appurtenance Properties 1.2D + 1.0Di + 1.0Wi

Elevation (ft)	Description	Qty	Ice Wt (lb)	Ice EPA (sf)	Length (ft)	Width (in)	Depth (in)	K _a	Orient. Factor	Vert. Ecc.(ft)	M _u (lb-ft)	Q _z (psf)	F _a (WL) (lb)	P _a (DL) (lb)
176.0	Motorola PTP 49600	1	53	2.6	1.2	14.5	3.7	1.00	1.00	0.0	0.0	7.71	17	55
173.0	Generic 15' Omni	1	155	10.0	15.0	3.0	3.0	1.00	1.00	0.0	0.0	7.68	65	163
173.0	Generic Round Side	1	281	8.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	7.68	52	318
169.0	Generic Torque Arm	1	851	25.5	0.0	0.0	0.0	1.00	1.00	0.0	0.0	7.64	166	951
166.0	Motorola PTP 49600	2	52	2.6	1.2	14.5	3.7	1.00	0.50	0.0	0.0	7.61	17	109
155.0	Commscope RDIDC-	1	79	2.8	1.3	14.0	8.0	0.80	1.00	0.0	0.0	7.50	14	84
155.0	Fujitsu TA08025-	3	123	2.9	1.3	15.0	7.9	0.80	0.50	0.0	0.0	7.50	22	406
155.0	Fujitsu TA08025-	3	138	2.9	1.3	15.0	9.1	0.80	0.50	0.0	0.0	7.50	22	460
155.0	Generic Flat Light	3	704	33.1	0.0	0.0	0.0	0.75	0.75	0.0	0.0	7.50	356	2351
155.0	JMA Wireless	3	324	15.3	6.0	20.0	8.0	0.80	0.64	0.0	0.0	7.50	150	1010
150.0	Generic 20' Dipole	1	281	19.3	20.0	3.0	3.0	1.00	1.00	0.0	0.0	7.45	123	293
150.0	Generic Round Side	1	279	7.9	0.0	0.0	0.0	1.00	1.00	0.0	0.0	7.45	50	316
148.0	Generic 20' Dipole	1	281	19.3	20.0	3.0	3.0	1.00	1.00	0.0	0.0	7.43	122	293
148.0	Generic Round Side	1	279	7.9	0.0	0.0	0.0	1.00	1.00	0.0	0.0	7.43	50	316
138.0	Generic 10' Omni	1	101	6.6	10.0	3.0	3.0	1.00	1.00	0.0	0.0	7.32	41	106
138.0	Generic Round Side	1	279	7.9	0.0	0.0	0.0	1.00	1.00	0.0	0.0	7.32	49	316
136.0	Generic 8' Dipole	1	114	7.7	8.0	3.0	3.0	1.00	1.00	0.0	0.0	7.30	48	119
98.00	Motorola PTP 49600	1	50	2.6	1.2	14.5	3.7	1.00	1.00	0.0	0.0	6.81	15	52
Totals		27	7050	296.0									1380	7719

Discrete Appurtenance Properties 1.0D + 1.0W Service

Elevation (ft)	Description	Qty	Wt. (lb)	EPA (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)
176.0	Motorola PTP 49600	1	12	1.8	1.2	14.5	3.7	1.00	1.00	0.0	0.0	11.10	17	12
173.0	Generic 15' Omni	1	40	4.5	15.0	3.0	3.0	1.00	1.00	0.0	0.0	11.06	42	40

Site Number: 208450

Code: ANSI/TIA-222-H

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Site Name: Enfield, CT

Engineering Number: 13688133_C3_03

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Customer: DISH WIRELESS L.L.C.

Tower Loading

173.0	Generic Round Side	1	188	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.0	11.06	49	188
169.0	Generic Torque Arm	1	500	15.0	0.0	0.0	0.0	1.00	1.00	0.0	0.0	11.00	140	500
166.0	Motorola PTP 49600	2	12	1.8	1.2	14.5	3.7	1.00	0.50	0.0	0.0	10.96	16	24
155.0	Commscope RDIDC-	1	22	1.9	1.3	14.0	8.0	0.80	1.00	0.0	0.0	10.81	14	22
155.0	Fujitsu TA08025-	3	64	2.0	1.3	15.0	7.9	0.80	0.50	0.0	0.0	10.81	22	192
155.0	Fujitsu TA08025-	3	75	2.0	1.3	15.0	9.1	0.80	0.50	0.0	0.0	10.81	22	225
155.0	Generic Flat Light	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.0	10.81	277	1200
155.0	JMA Wireless	3	65	12.5	6.0	20.0	8.0	0.80	0.64	0.0	0.0	10.81	176	194
150.0	Generic 20' Dipole	1	60	7.5	20.0	3.0	3.0	1.00	1.00	0.0	0.0	10.73	69	60
150.0	Generic Round Side	1	188	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.0	10.73	47	188
148.0	Generic 20' Dipole	1	60	7.5	20.0	3.0	3.0	1.00	1.00	0.0	0.0	10.70	68	60
148.0	Generic Round Side	1	188	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.0	10.70	47	188
138.0	Generic 10' Omni	1	25	3.0	10.0	3.0	3.0	1.00	1.00	0.0	0.0	10.54	27	25
138.0	Generic Round Side	1	188	5.2	0.0	0.0	0.0	1.00	1.00	0.0	0.0	10.54	47	188
136.0	Generic 8' Dipole	1	25	3.0	8.0	3.0	3.0	1.00	1.00	0.0	0.0	10.51	27	25
98.00	Motorola PTP 49600	1	12	1.8	1.2	14.5	3.7	1.00	1.00	0.0	0.0	9.81	15	12
Totals		27	3341	173.2									1122	3341

Site Number: 208450

Code:

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Site Name: Enfield, CT

Engineering Number: 13688133_C3_03

7/23/2021 10:01:55 AM

Customer: DISH WIRELESS L.L.C.

Tower LoadingLinear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out Of Zone	Spacing (in)	Orientation Factor	Ka Override
0.00	176.0	0.26" (6.6mm) Cat	1	0.26	0.04	100	None	Individual	0.00	N	1.00	1.00	0.00
0.00	173.0	7/8" Coax	4	1.09	0.33	50	None	Block	0.00	N	1.00	1.00	0.00
0.00	155.0	1.60" (40.6mm)	1	1.60	2.34	100	None	Individual	0.00	N	1.00	1.00	0.00
0.00	150.0	0.26" (6.6mm) Cat	5	0.26	0.04	60	None	Block	0.00	N	1.00	1.00	0.00
0.00	138.0	7/8" Coax	1	1.09	0.33	100	None	Individual	0.00	N	1.00	1.00	0.00
0.00	136.0	7/8" Coax	1	1.09	0.33	100	None	Individual	0.00	N	1.00	1.00	0.00

Section Forces

LoadCase 1.2D + 1.0W Normal

116 mph Normal with No Ice

Gust Response Factor (Gh): 0.85

Wind Importance Factor (Iw) : 1.00

Section	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)
11	180.00	41.68	11.552	9.583	0.000	0.289	2.33	1.00	1.00	0.0	17.26	40.14	0.00	1267	0	1422	29	1451
10	160.00	40.66	10.108	9.583	0.000	0.269	2.38	1.00	1.00	0.0	15.76	37.53	0.00	1160	0	1297	192	1489
9	142.50	39.68	0.000	10.918	0.000	0.199	2.60	1.00	1.00	0.0	6.41	16.66	0.00	591	0	562	225	787
8	127.50	38.76	0.000	10.918	0.000	0.199	2.60	1.00	1.00	0.0	6.41	16.66	0.00	601	0	549	276	825
7	110.00	37.58	1.281	12.295	0.000	0.188	2.64	1.00	1.00	0.0	8.45	22.28	0.00	663	0	712	357	1069
6	90.00	36.02	0.000	12.698	0.000	0.176	2.68	1.00	1.00	0.0	7.39	19.79	0.00	604	0	606	342	948
5	70.00	34.17	0.000	12.698	0.000	0.176	2.68	1.00	1.00	0.0	7.39	19.79	0.00	604	0	575	325	899
4	50.00	31.83	1.281	12.295	0.000	0.188	2.64	1.00	1.00	0.0	8.45	22.28	0.00	663	0	603	302	905
3	30.00	28.58	0.000	12.698	0.000	0.176	2.68	1.00	1.00	0.0	7.39	19.79	0.00	604	0	481	272	752
2	12.50	24.74	0.000	9.710	0.000	0.179	2.67	1.00	1.00	0.0	5.66	15.09	0.00	458	0	317	176	494
1	2.50	24.74	5.806	2.576	0.000	0.861	1.87	1.00	1.00	0.0	8.21	15.38	0.00	880	0	323	14	337
														8097	0			9957

LoadCase 1.2D + 1.0W 60 deg

116 mph 60 degree with No Ice

Gust Response Factor (Gh): 0.85

Wind Importance Factor (Iw) : 1.00

Section	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)
11	180.00	41.68	11.552	9.583	0.000	0.289	2.33	0.80	1.00	0.0	14.95	34.77	0.00	1267	0	1232	29	1260
10	160.00	40.66	10.108	9.583	0.000	0.269	2.38	0.80	1.00	0.0	13.74	32.71	0.00	1160	0	1131	192	1323
9	142.50	39.68	0.000	10.918	0.000	0.199	2.60	0.80	1.00	0.0	6.41	16.66	0.00	591	0	562	225	787
8	127.50	38.76	0.000	10.918	0.000	0.199	2.60	0.80	1.00	0.0	6.41	16.66	0.00	601	0	549	276	825
7	110.00	37.58	1.281	12.295	0.000	0.188	2.64	0.80	1.00	0.0	8.19	21.60	0.00	663	0	690	357	1047
6	90.00	36.02	0.000	12.698	0.000	0.176	2.68	0.80	1.00	0.0	7.39	19.79	0.00	604	0	606	342	948
5	70.00	34.17	0.000	12.698	0.000	0.176	2.68	0.80	1.00	0.0	7.39	19.79	0.00	604	0	575	325	899
4	50.00	31.83	1.281	12.295	0.000	0.188	2.64	0.80	1.00	0.0	8.19	21.60	0.00	663	0	584	302	887
3	30.00	28.58	0.000	12.698	0.000	0.176	2.68	0.80	1.00	0.0	7.39	19.79	0.00	604	0	481	272	752
2	12.50	24.74	0.000	9.710	0.000	0.179	2.67	0.80	1.00	0.0	5.66	15.09	0.00	458	0	317	176	494
1	2.50	24.74	5.806	2.576	0.000	0.861	1.87	0.80	1.00	0.0	7.05	13.20	0.00	880	0	278	14	291
														8097	0			9514

LoadCase 1.2D + 1.0W 90 deg

116 mph 90 degree with No Ice

Gust Response Factor (Gh): 0.85

Wind Importance Factor (Iw) : 1.00

Section	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)
11	180.00	41.68	11.552	9.583	0.000	0.289	2.33	0.85	1.00	0.0	15.53	36.11	0.00	1267	0	1279	29	1308
10	160.00	40.66	10.108	9.583	0.000	0.269	2.38	0.85	1.00	0.0	14.25	33.92	0.00	1160	0	1172	192	1364
9	142.50	39.68	0.000	10.918	0.000	0.199	2.60	0.85	1.00	0.0	6.41	16.66	0.00	591	0	562	225	787
8	127.50	38.76	0.000	10.918	0.000	0.199	2.60	0.85	1.00	0.0	6.41	16.66	0.00	601	0	549	276	825
7	110.00	37.58	1.281	12.295	0.000	0.188	2.64	0.85	1.00	0.0	8.26	21.77	0.00	663	0	695	357	1052
6	90.00	36.02	0.000	12.698	0.000	0.176	2.68	0.85	1.00	0.0	7.39	19.79	0.00	604	0	606	342	948
5	70.00	34.17	0.000	12.698	0.000	0.176	2.68	0.85	1.00	0.0	7.39	19.79	0.00	604	0	575	325	899
4	50.00	31.83	1.281	12.295	0.000	0.188	2.64	0.85	1.00	0.0	8.26	21.77	0.00	663	0	589	302	891
3	30.00	28.58	0.000	12.698	0.000	0.176	2.68	0.85	1.00	0.0	7.39	19.79	0.00	604	0	481	272	752

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 Site Name: Enfield, CT Engineering Number: 13688133_C3_03 7/23/2021 10:01:55 AM
 Customer: DISH WIRELESS L.L.C.

Section Forces

2	12.50	24.74	0.000	9.710	0.000	0.179	2.67	0.85	1.00	0.0	5.66	15.09	0.00	458	0	317	176	494
1	2.50	24.74	5.806	2.576	0.000	0.861	1.87	0.85	1.00	0.0	7.34	13.75	0.00	880	0	289	14	303
															8097	0		9625

LoadCase 1.2D + 1.0W 120 deg

116 mph 120 degree with No Ice

Gust Response Factor (Gh): 0.85

Wind Importance Factor (Iw): 1.00

Section	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)
11	180.00	41.68	11.552	9.583	0.000	0.289	2.33	1.00	1.00	0.0	17.26	40.14	0.00	1267	0	1422	29	1451
10	160.00	40.66	10.108	9.583	0.000	0.269	2.38	1.00	1.00	0.0	15.76	37.53	0.00	1160	0	1297	192	1489
9	142.50	39.68	0.000	10.918	0.000	0.199	2.60	1.00	1.00	0.0	6.41	16.66	0.00	591	0	562	225	787
8	127.50	38.76	0.000	10.918	0.000	0.199	2.60	1.00	1.00	0.0	6.41	16.66	0.00	601	0	549	276	825
7	110.00	37.58	1.281	12.295	0.000	0.188	2.64	1.00	1.00	0.0	8.45	22.28	0.00	663	0	712	357	1069
6	90.00	36.02	0.000	12.698	0.000	0.176	2.68	1.00	1.00	0.0	7.39	19.79	0.00	604	0	606	342	948
5	70.00	34.17	0.000	12.698	0.000	0.176	2.68	1.00	1.00	0.0	7.39	19.79	0.00	604	0	575	325	899
4	50.00	31.83	1.281	12.295	0.000	0.188	2.64	1.00	1.00	0.0	8.45	22.28	0.00	663	0	603	302	905
3	30.00	28.58	0.000	12.698	0.000	0.176	2.68	1.00	1.00	0.0	7.39	19.79	0.00	604	0	481	272	752
2	12.50	24.74	0.000	9.710	0.000	0.179	2.67	1.00	1.00	0.0	5.66	15.09	0.00	458	0	317	176	494
1	2.50	24.74	5.806	2.576	0.000	0.861	1.87	1.00	1.00	0.0	8.21	15.38	0.00	880	0	323	14	337
															8097	0		9957

LoadCase 1.2D + 1.0W 180 deg

116 mph 180 degree with No Ice

Gust Response Factor (Gh): 0.85

Wind Importance Factor (Iw): 1.00

Section	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)
11	180.00	41.68	11.552	9.583	0.000	0.289	2.33	0.80	1.00	0.0	14.95	34.77	0.00	1267	0	1232	29	1260
10	160.00	40.66	10.108	9.583	0.000	0.269	2.38	0.80	1.00	0.0	13.74	32.71	0.00	1160	0	1131	192	1323
9	142.50	39.68	0.000	10.918	0.000	0.199	2.60	0.80	1.00	0.0	6.41	16.66	0.00	591	0	562	225	787
8	127.50	38.76	0.000	10.918	0.000	0.199	2.60	0.80	1.00	0.0	6.41	16.66	0.00	601	0	549	276	825
7	110.00	37.58	1.281	12.295	0.000	0.188	2.64	0.80	1.00	0.0	8.19	21.60	0.00	663	0	690	357	1047
6	90.00	36.02	0.000	12.698	0.000	0.176	2.68	0.80	1.00	0.0	7.39	19.79	0.00	604	0	606	342	948
5	70.00	34.17	0.000	12.698	0.000	0.176	2.68	0.80	1.00	0.0	7.39	19.79	0.00	604	0	575	325	899
4	50.00	31.83	1.281	12.295	0.000	0.188	2.64	0.80	1.00	0.0	8.19	21.60	0.00	663	0	584	302	887
3	30.00	28.58	0.000	12.698	0.000	0.176	2.68	0.80	1.00	0.0	7.39	19.79	0.00	604	0	481	272	752
2	12.50	24.74	0.000	9.710	0.000	0.179	2.67	0.80	1.00	0.0	5.66	15.09	0.00	458	0	317	176	494
1	2.50	24.74	5.806	2.576	0.000	0.861	1.87	0.80	1.00	0.0	7.05	13.20	0.00	880	0	278	14	291
															8097	0		9514

LoadCase 1.2D + 1.0W 210 deg

116 mph 210 degree with No Ice

Gust Response Factor (Gh): 0.85

Wind Importance Factor (Iw): 1.00

Section	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)
11	180.00	41.68	11.552	9.583	0.000	0.289	2.33	0.85	1.00	0.0	15.53	36.11	0.00	1267	0	1279	29	1308
10	160.00	40.66	10.108	9.583	0.000	0.269	2.38	0.85	1.00	0.0	14.25	33.92	0.00	1160	0	1172	192	1364
9	142.50	39.68	0.000	10.918	0.000	0.199	2.60	0.85	1.00	0.0	6.41	16.66	0.00	591	0	562	225	787
8	127.50	38.76	0.000	10.918	0.000	0.199	2.60	0.85	1.00	0.0	6.41	16.66	0.00	601	0	549	276	825

Site Number: 208450

Code: ANSI/TIA-222-H

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Site Name: Enfield, CT

Engineering Number: 13688133_C3_03

7/23/2021 10:01:55 AM

Customer: DISH WIRELESS L.L.C.

Section Forces

7	110.00	37.58	1.281	12.295	0.000	0.188	2.64	0.85	1.00	0.0	8.26	21.77	0.00	663	0	695	357	1052	
6	90.00	36.02	0.000	12.698	0.000	0.176	2.68	0.85	1.00	0.0	7.39	19.79	0.00	604	0	606	342	948	
5	70.00	34.17	0.000	12.698	0.000	0.176	2.68	0.85	1.00	0.0	7.39	19.79	0.00	604	0	575	325	899	
4	50.00	31.83	1.281	12.295	0.000	0.188	2.64	0.85	1.00	0.0	8.26	21.77	0.00	663	0	589	302	891	
3	30.00	28.58	0.000	12.698	0.000	0.176	2.68	0.85	1.00	0.0	7.39	19.79	0.00	604	0	481	272	752	
2	12.50	24.74	0.000	9.710	0.000	0.179	2.67	0.85	1.00	0.0	5.66	15.09	0.00	458	0	317	176	494	
1	2.50	24.74	5.806	2.576	0.000	0.861	1.87	0.85	1.00	0.0	7.34	13.75	0.00	880	0	289	14	303	
														8097	0				9625

LoadCase 1.2D + 1.0W 240 deg

116 mph 240 degree with No Ice

Gust Response Factor (Gh): 0.85

Wind Importance Factor (Iw) : 1.00

Section	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)	
11	180.00	41.68	11.552	9.583	0.000	0.289	2.33	1.00	1.00	0.0	17.26	40.14	0.00	1267	0	1422	29	1451	
10	160.00	40.66	10.108	9.583	0.000	0.269	2.38	1.00	1.00	0.0	15.76	37.53	0.00	1160	0	1297	192	1489	
9	142.50	39.68	0.000	10.918	0.000	0.199	2.60	1.00	1.00	0.0	6.41	16.66	0.00	591	0	562	225	787	
8	127.50	38.76	0.000	10.918	0.000	0.199	2.60	1.00	1.00	0.0	6.41	16.66	0.00	601	0	549	276	825	
7	110.00	37.58	1.281	12.295	0.000	0.188	2.64	1.00	1.00	0.0	8.45	22.28	0.00	663	0	712	357	1069	
6	90.00	36.02	0.000	12.698	0.000	0.176	2.68	1.00	1.00	0.0	7.39	19.79	0.00	604	0	606	342	948	
5	70.00	34.17	0.000	12.698	0.000	0.176	2.68	1.00	1.00	0.0	7.39	19.79	0.00	604	0	575	325	899	
4	50.00	31.83	1.281	12.295	0.000	0.188	2.64	1.00	1.00	0.0	8.45	22.28	0.00	663	0	603	302	905	
3	30.00	28.58	0.000	12.698	0.000	0.176	2.68	1.00	1.00	0.0	7.39	19.79	0.00	604	0	481	272	752	
2	12.50	24.74	0.000	9.710	0.000	0.179	2.67	1.00	1.00	0.0	5.66	15.09	0.00	458	0	317	176	494	
1	2.50	24.74	5.806	2.576	0.000	0.861	1.87	1.00	1.00	0.0	8.21	15.38	0.00	880	0	323	14	337	
														8097	0				9957

LoadCase 1.2D + 1.0W 300 deg

116 mph 300 degree with No Ice

Gust Response Factor (Gh): 0.85

Wind Importance Factor (Iw) : 1.00

Section	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)	
11	180.00	41.68	11.552	9.583	0.000	0.289	2.33	0.80	1.00	0.0	14.95	34.77	0.00	1267	0	1232	29	1260	
10	160.00	40.66	10.108	9.583	0.000	0.269	2.38	0.80	1.00	0.0	13.74	32.71	0.00	1160	0	1131	192	1323	
9	142.50	39.68	0.000	10.918	0.000	0.199	2.60	0.80	1.00	0.0	6.41	16.66	0.00	591	0	562	225	787	
8	127.50	38.76	0.000	10.918	0.000	0.199	2.60	0.80	1.00	0.0	6.41	16.66	0.00	601	0	549	276	825	
7	110.00	37.58	1.281	12.295	0.000	0.188	2.64	0.80	1.00	0.0	8.19	21.60	0.00	663	0	690	357	1047	
6	90.00	36.02	0.000	12.698	0.000	0.176	2.68	0.80	1.00	0.0	7.39	19.79	0.00	604	0	606	342	948	
5	70.00	34.17	0.000	12.698	0.000	0.176	2.68	0.80	1.00	0.0	7.39	19.79	0.00	604	0	575	325	899	
4	50.00	31.83	1.281	12.295	0.000	0.188	2.64	0.80	1.00	0.0	8.19	21.60	0.00	663	0	584	302	887	
3	30.00	28.58	0.000	12.698	0.000	0.176	2.68	0.80	1.00	0.0	7.39	19.79	0.00	604	0	481	272	752	
2	12.50	24.74	0.000	9.710	0.000	0.179	2.67	0.80	1.00	0.0	5.66	15.09	0.00	458	0	317	176	494	
1	2.50	24.74	5.806	2.576	0.000	0.861	1.87	0.80	1.00	0.0	7.05	13.20	0.00	880	0	278	14	291	
														8097	0				9514

Section Forces

LoadCase 1.2D + 1.0W 330 deg

116 mph 330 degree with No Ice

Gust Response Factor (Gh): 0.85

Wind Importance Factor (Iw) : 1.00

Section	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)
11	180.00	41.68	11.552	9.583	0.000	0.289	2.33	0.85	1.00	0.0	15.53	36.11	0.00	1267	0	1279	29	1308
10	160.00	40.66	10.108	9.583	0.000	0.269	2.38	0.85	1.00	0.0	14.25	33.92	0.00	1160	0	1172	192	1364
9	142.50	39.68	0.000	10.918	0.000	0.199	2.60	0.85	1.00	0.0	6.41	16.66	0.00	591	0	562	225	787
8	127.50	38.76	0.000	10.918	0.000	0.199	2.60	0.85	1.00	0.0	6.41	16.66	0.00	601	0	549	276	825
7	110.00	37.58	1.281	12.295	0.000	0.188	2.64	0.85	1.00	0.0	8.26	21.77	0.00	663	0	695	357	1052
6	90.00	36.02	0.000	12.698	0.000	0.176	2.68	0.85	1.00	0.0	7.39	19.79	0.00	604	0	606	342	948
5	70.00	34.17	0.000	12.698	0.000	0.176	2.68	0.85	1.00	0.0	7.39	19.79	0.00	604	0	575	325	899
4	50.00	31.83	1.281	12.295	0.000	0.188	2.64	0.85	1.00	0.0	8.26	21.77	0.00	663	0	589	302	891
3	30.00	28.58	0.000	12.698	0.000	0.176	2.68	0.85	1.00	0.0	7.39	19.79	0.00	604	0	481	272	752
2	12.50	24.74	0.000	9.710	0.000	0.179	2.67	0.85	1.00	0.0	5.66	15.09	0.00	458	0	317	176	494
1	2.50	24.74	5.806	2.576	0.000	0.861	1.87	0.85	1.00	0.0	7.34	13.75	0.00	880	0	289	14	303
														8097	0			9625

LoadCase 1.2D + 1.0Di + 1.0Wi Normal

50 mph Normal with 1.50 in Radial Ice

Gust Response Factor (Gh): 0.85

Ice Dead Load Factor : 1.00

Ice Importance Factor : 1.00

Wind Importance Factor (Iw) : 1.00

Section	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)
11	180.00	7.74	11.552	43.241	33.65	0.693	1.78	1.00	1.00	1.8	46.41	82.42	33.66	3705	2437	543	10	552
10	160.00	7.55	10.108	42.847	33.26	0.671	1.78	1.00	1.00	1.8	43.97	78.15	33.26	3732	2572	502	57	559
9	142.50	7.37	0.000	28.791	17.87	0.486	1.92	1.00	1.00	1.7	19.68	37.74	17.87	2211	1620	237	126	363
8	127.50	7.20	0.000	28.594	17.67	0.484	1.92	1.00	1.00	1.7	19.50	37.48	17.68	2348	1747	229	160	390
7	110.00	6.98	1.281	34.919	22.62	0.465	1.95	1.00	1.00	1.7	24.70	48.18	22.62	2771	2107	286	213	499
6	90.00	6.69	0.000	34.872	22.17	0.448	1.98	1.00	1.00	1.7	23.12	45.70	22.17	2715	2111	260	208	467
5	70.00	6.35	0.000	34.321	21.62	0.442	1.99	1.00	1.00	1.6	22.65	45.02	21.62	2638	2034	243	196	439
4	50.00	5.91	1.281	33.203	20.90	0.445	1.98	1.00	1.00	1.6	23.24	46.05	20.91	2539	1876	231	178	409
3	30.00	5.31	0.000	32.565	19.86	0.422	2.02	1.00	1.00	1.5	21.19	42.87	19.87	2401	1797	194	161	354
2	12.50	4.60	0.000	23.722	14.01	0.412	2.04	1.00	1.00	1.4	15.34	31.32	14.01	1669	1211	122	101	223
1	2.50	4.60	5.806	5.912	3.337	1.000	2.10	1.00	1.00	1.2	11.72	24.61	3.34	1423	543	96	0	88
														28153	20057			4342

** = Section Force Exceeds Solidity Ratio Criteria

LoadCase 1.2D + 1.0Di + 1.0Wi 60 deg

50 mph 60 deg with 1.50 in Radial Ice

Gust Response Factor (Gh): 0.85

Ice Dead Load Factor : 1.00

Ice Importance Factor : 1.00

Wind Importance Factor (Iw) : 1.00

Section	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)
11	180.00	7.74	11.552	43.241	33.65	0.693	1.78	0.80	1.00	1.8	44.10	78.32	33.66	3705	2437	516	10	525
10	160.00	7.55	10.108	42.847	33.26	0.671	1.78	0.80	1.00	1.8	41.95	74.56	33.26	3732	2572	479	57	536
9	142.50	7.37	0.000	28.791	17.87	0.486	1.92	0.80	1.00	1.7	19.68	37.74	17.87	2211	1620	237	126	363
8	127.50	7.20	0.000	28.594	17.67	0.484	1.92	0.80	1.00	1.7	19.50	37.48	17.68	2348	1747	229	160	390
7	110.00	6.98	1.281	34.919	22.62	0.465	1.95	0.80	1.00	1.7	24.45	47.68	22.62	2771	2107	283	213	496
6	90.00	6.69	0.000	34.872	22.17	0.448	1.98	0.80	1.00	1.7	23.12	45.70	22.17	2715	2111	260	208	467
5	70.00	6.35	0.000	34.321	21.62	0.442	1.99	0.80	1.00	1.6	22.65	45.02	21.62	2638	2034	243	196	439
4	50.00	5.91	1.281	33.203	20.90	0.445	1.98	0.80	1.00	1.6	22.98	45.54	20.91	2539	1876	229	178	406
3	30.00	5.31	0.000	32.565	19.86	0.422	2.02	0.80	1.00	1.5	21.19	42.87	19.87	2401	1797	194	161	354

Site Number: 208450 Code: ANSI/TIA-222-H © 2007 - 2021 by ATC IP LLC. All rights reserved.
 Site Name: Enfield, CT Engineering Number: 13688133_C3_03 7/23/2021 10:01:55 AM
 Customer: DISH WIRELESS L.L.C.

Section Forces

2	12.50	4.60	0.000	23.722	14.01	0.412	2.04	0.80	1.00	1.4	15.34	31.32	14.01	1669	1211	122	101	223
1	2.50	4.60	5.806	5.912	3.337	1.000	2.10	0.80	1.00	1.2	10.56	22.17	3.34	1423	543	87	0	87
														28153	20057	4286		

** = Section Force Exceeds Solidity Ratio Criteria

LoadCase 1.2D + 1.0Di + 1.0Wi 90 deg

50 mph 90 deg with 1.50 in Radial Ice

Gust Response Factor (Gh): 0.85 Ice Dead Load Factor : 1.00 Ice Importance Factor : 1.00
 Wind Importance Factor (Iw) : 1.00

Section	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)
11	180.00	7.74	11.552	43.241	33.65	0.693	1.78	0.85	1.00	1.8	44.68	79.34	33.66	3705	2437	522	10	532
10	160.00	7.55	10.108	42.847	33.26	0.671	1.78	0.85	1.00	1.8	42.46	75.46	33.26	3732	2572	485	57	541
9	142.50	7.37	0.000	28.791	17.87	0.486	1.92	0.85	1.00	1.7	19.68	37.74	17.87	2211	1620	237	126	363
8	127.50	7.20	0.000	28.594	17.67	0.484	1.92	0.85	1.00	1.7	19.50	37.48	17.68	2348	1747	229	160	390
7	110.00	6.98	1.281	34.919	22.62	0.465	1.95	0.85	1.00	1.7	24.51	47.80	22.62	2771	2107	284	213	496
6	90.00	6.69	0.000	34.872	22.17	0.448	1.98	0.85	1.00	1.7	23.12	45.70	22.17	2715	2111	260	208	467
5	70.00	6.35	0.000	34.321	21.62	0.442	1.99	0.85	1.00	1.6	22.65	45.02	21.62	2638	2034	243	196	439
4	50.00	5.91	1.281	33.203	20.90	0.445	1.98	0.85	1.00	1.6	23.04	45.67	20.91	2539	1876	230	178	407
3	30.00	5.31	0.000	32.565	19.86	0.422	2.02	0.85	1.00	1.5	21.19	42.87	19.87	2401	1797	194	161	354
2	12.50	4.60	0.000	23.722	14.01	0.412	2.04	0.85	1.00	1.4	15.34	31.32	14.01	1669	1211	122	101	223
1	2.50	4.60	5.806	5.912	3.337	1.000	2.10	0.85	1.00	1.2	10.85	22.78	3.34	1423	543	89	0	88
														28153	20057	4301		

** = Section Force Exceeds Solidity Ratio Criteria

LoadCase 1.2D + 1.0Di + 1.0Wi 120 deg

50 mph 120 deg with 1.50 in Radial Ice

Gust Response Factor (Gh): 0.85 Ice Dead Load Factor : 1.00 Ice Importance Factor : 1.00
 Wind Importance Factor (Iw) : 1.00

Section	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)
11	180.00	7.74	11.552	43.241	33.65	0.693	1.78	1.00	1.00	1.8	46.41	82.42	33.66	3705	2437	543	10	552
10	160.00	7.55	10.108	42.847	33.26	0.671	1.78	1.00	1.00	1.8	43.97	78.15	33.26	3732	2572	502	57	559
9	142.50	7.37	0.000	28.791	17.87	0.486	1.92	1.00	1.00	1.7	19.68	37.74	17.87	2211	1620	237	126	363
8	127.50	7.20	0.000	28.594	17.67	0.484	1.92	1.00	1.00	1.7	19.50	37.48	17.68	2348	1747	229	160	390
7	110.00	6.98	1.281	34.919	22.62	0.465	1.95	1.00	1.00	1.7	24.70	48.18	22.62	2771	2107	286	213	499
6	90.00	6.69	0.000	34.872	22.17	0.448	1.98	1.00	1.00	1.7	23.12	45.70	22.17	2715	2111	260	208	467
5	70.00	6.35	0.000	34.321	21.62	0.442	1.99	1.00	1.00	1.6	22.65	45.02	21.62	2638	2034	243	196	439
4	50.00	5.91	1.281	33.203	20.90	0.445	1.98	1.00	1.00	1.6	23.24	46.05	20.91	2539	1876	231	178	409
3	30.00	5.31	0.000	32.565	19.86	0.422	2.02	1.00	1.00	1.5	21.19	42.87	19.87	2401	1797	194	161	354
2	12.50	4.60	0.000	23.722	14.01	0.412	2.04	1.00	1.00	1.4	15.34	31.32	14.01	1669	1211	122	101	223
1	2.50	4.60	5.806	5.912	3.337	1.000	2.10	1.00	1.00	1.2	11.72	24.61	3.34	1423	543	96	0	88
														28153	20057	4342		

** = Section Force Exceeds Solidity Ratio Criteria

LoadCase 1.2D + 1.0Di + 1.0Wi 180 deg

50 mph 180 deg with 1.50 in Radial Ice

Gust Response Factor (Gh): 0.85 Ice Dead Load Factor : 1.00 Ice Importance Factor : 1.00
 Wind Importance Factor (Iw) : 1.00

Section	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)
11	180.00	7.74	11.552	43.241	33.65	0.693	1.78	0.80	1.00	1.8	44.10	78.32	33.66	3705	2437	516	10	525
10	160.00	7.55	10.108	42.847	33.26	0.671	1.78	0.80	1.00	1.8	41.95	74.56	33.26	3732	2572	479	57	536
9	142.50	7.37	0.000	28.791	17.87	0.486	1.92	0.80	1.00	1.7	19.68	37.74	17.87	2211	1620	237	126	363
8	127.50	7.20	0.000	28.594	17.67	0.484	1.92	0.80	1.00	1.7	19.50	37.48	17.68	2348	1747	229	160	390

Site Number: 208450

Code: ANSI/TIA-222-H

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Site Name: Enfield, CT

Engineering Number: 13688133_C3_03

7/23/2021 10:01:55 AM

Customer: DISH WIRELESS L.L.C.

Section Forces

7	110.00	6.98	1.281	34.919	22.62	0.465	1.95	0.80	1.00	1.7	24.45	47.68	22.62	2771	2107	283	213	496
6	90.00	6.69	0.000	34.872	22.17	0.448	1.98	0.80	1.00	1.7	23.12	45.70	22.17	2715	2111	260	208	467
5	70.00	6.35	0.000	34.321	21.62	0.442	1.99	0.80	1.00	1.6	22.65	45.02	21.62	2638	2034	243	196	439
4	50.00	5.91	1.281	33.203	20.90	0.445	1.98	0.80	1.00	1.6	22.98	45.54	20.91	2539	1876	229	178	406
3	30.00	5.31	0.000	32.565	19.86	0.422	2.02	0.80	1.00	1.5	21.19	42.87	19.87	2401	1797	194	161	354
2	12.50	4.60	0.000	23.722	14.01	0.412	2.04	0.80	1.00	1.4	15.34	31.32	14.01	1669	1211	122	101	223
1	2.50	4.60	5.806	5.912	3.337	1.000	2.10	0.80	1.00	1.2	10.56	22.17	3.34	1423	543	87	0	87

** = Section Force Exceeds Solidity Ratio Criteria

28153 20057 4286

LoadCase 1.2D + 1.0Di + 1.0Wi 210 deg

50 mph 210 deg with 1.50 in Radial Ice

Gust Response Factor (Gh): 0.85

Ice Dead Load Factor : 1.00

Ice Importance Factor : 1.00

Wind Importance Factor (Iw) : 1.00

Section	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)
11	180.00	7.74	11.552	43.241	33.65	0.693	1.78	0.85	1.00	1.8	44.68	79.34	33.66	3705	2437	522	10	532
10	160.00	7.55	10.108	42.847	33.26	0.671	1.78	0.85	1.00	1.8	42.46	75.46	33.26	3732	2572	485	57	541
9	142.50	7.37	0.000	28.791	17.87	0.486	1.92	0.85	1.00	1.7	19.68	37.74	17.87	2211	1620	237	126	363
8	127.50	7.20	0.000	28.594	17.67	0.484	1.92	0.85	1.00	1.7	19.50	37.48	17.68	2348	1747	229	160	390
7	110.00	6.98	1.281	34.919	22.62	0.465	1.95	0.85	1.00	1.7	24.51	47.80	22.62	2771	2107	284	213	496
6	90.00	6.69	0.000	34.872	22.17	0.448	1.98	0.85	1.00	1.7	23.12	45.70	22.17	2715	2111	260	208	467
5	70.00	6.35	0.000	34.321	21.62	0.442	1.99	0.85	1.00	1.6	22.65	45.02	21.62	2638	2034	243	196	439
4	50.00	5.91	1.281	33.203	20.90	0.445	1.98	0.85	1.00	1.6	23.04	45.67	20.91	2539	1876	230	178	407
3	30.00	5.31	0.000	32.565	19.86	0.422	2.02	0.85	1.00	1.5	21.19	42.87	19.87	2401	1797	194	161	354
2	12.50	4.60	0.000	23.722	14.01	0.412	2.04	0.85	1.00	1.4	15.34	31.32	14.01	1669	1211	122	101	223
1	2.50	4.60	5.806	5.912	3.337	1.000	2.10	0.85	1.00	1.2	10.85	22.78	3.34	1423	543	89	0	88

** = Section Force Exceeds Solidity Ratio Criteria

28153 20057 4301

LoadCase 1.2D + 1.0Di + 1.0Wi 240 deg

50 mph 240 deg with 1.50 in Radial Ice

Gust Response Factor (Gh): 0.85

Ice Dead Load Factor : 1.00

Ice Importance Factor : 1.00

Wind Importance Factor (Iw) : 1.00

Section	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)
11	180.00	7.74	11.552	43.241	33.65	0.693	1.78	1.00	1.00	1.8	46.41	82.42	33.66	3705	2437	543	10	552
10	160.00	7.55	10.108	42.847	33.26	0.671	1.78	1.00	1.00	1.8	43.97	78.15	33.26	3732	2572	502	57	559
9	142.50	7.37	0.000	28.791	17.87	0.486	1.92	1.00	1.00	1.7	19.68	37.74	17.87	2211	1620	237	126	363
8	127.50	7.20	0.000	28.594	17.67	0.484	1.92	1.00	1.00	1.7	19.50	37.48	17.68	2348	1747	229	160	390
7	110.00	6.98	1.281	34.919	22.62	0.465	1.95	1.00	1.00	1.7	24.70	48.18	22.62	2771	2107	286	213	499
6	90.00	6.69	0.000	34.872	22.17	0.448	1.98	1.00	1.00	1.7	23.12	45.70	22.17	2715	2111	260	208	467
5	70.00	6.35	0.000	34.321	21.62	0.442	1.99	1.00	1.00	1.6	22.65	45.02	21.62	2638	2034	243	196	439
4	50.00	5.91	1.281	33.203	20.90	0.445	1.98	1.00	1.00	1.6	23.24	46.05	20.91	2539	1876	231	178	409
3	30.00	5.31	0.000	32.565	19.86	0.422	2.02	1.00	1.00	1.5	21.19	42.87	19.87	2401	1797	194	161	354
2	12.50	4.60	0.000	23.722	14.01	0.412	2.04	1.00	1.00	1.4	15.34	31.32	14.01	1669	1211	122	101	223
1	2.50	4.60	5.806	5.912	3.337	1.000	2.10	1.00	1.00	1.2	11.72	24.61	3.34	1423	543	96	0	88

** = Section Force Exceeds Solidity Ratio Criteria

28153 20057 4342

Section Forces

LoadCase 1.2D + 1.0Di + 1.0Wi 300 deg

50 mph 300 deg with 1.50 in Radial Ice

Gust Response Factor (Gh): 0.85 Ice Dead Load Factor : 1.00 Ice Importance Factor : 1.00
 Wind Importance Factor (Iw) : 1.00

Section	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)
11	180.00	7.74	11.552	43.241	33.65	0.693	1.78	0.80	1.00	1.8	44.10	78.32	33.66	3705	2437	516	10	525
10	160.00	7.55	10.108	42.847	33.26	0.671	1.78	0.80	1.00	1.8	41.95	74.56	33.26	3732	2572	479	57	536
9	142.50	7.37	0.000	28.791	17.87	0.486	1.92	0.80	1.00	1.7	19.68	37.74	17.87	2211	1620	237	126	363
8	127.50	7.20	0.000	28.594	17.67	0.484	1.92	0.80	1.00	1.7	19.50	37.48	17.68	2348	1747	229	160	390
7	110.00	6.98	1.281	34.919	22.62	0.465	1.95	0.80	1.00	1.7	24.45	47.68	22.62	2771	2107	283	213	496
6	90.00	6.69	0.000	34.872	22.17	0.448	1.98	0.80	1.00	1.7	23.12	45.70	22.17	2715	2111	260	208	467
5	70.00	6.35	0.000	34.321	21.62	0.442	1.99	0.80	1.00	1.6	22.65	45.02	21.62	2638	2034	243	196	439
4	50.00	5.91	1.281	33.203	20.90	0.445	1.98	0.80	1.00	1.6	22.98	45.54	20.91	2539	1876	229	178	406
3	30.00	5.31	0.000	32.565	19.86	0.422	2.02	0.80	1.00	1.5	21.19	42.87	19.87	2401	1797	194	161	354
2	12.50	4.60	0.000	23.722	14.01	0.412	2.04	0.80	1.00	1.4	15.34	31.32	14.01	1669	1211	122	101	223
1	2.50	4.60	5.806	5.912	3.337	1.000	2.10	0.80	1.00	1.2	10.56	22.17	3.34	1423	543	87	0	87
** = Section Force Exceeds Solidity Ratio Criteria														28153	20057			4286

LoadCase 1.2D + 1.0Di + 1.0Wi 330 deg

50 mph 330 deg with 1.50 in Radial Ice

Gust Response Factor (Gh): 0.85 Ice Dead Load Factor : 1.00 Ice Importance Factor : 1.00
 Wind Importance Factor (Iw) : 1.00

Section	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)
11	180.00	7.74	11.552	43.241	33.65	0.693	1.78	0.85	1.00	1.8	44.68	79.34	33.66	3705	2437	522	10	532
10	160.00	7.55	10.108	42.847	33.26	0.671	1.78	0.85	1.00	1.8	42.46	75.46	33.26	3732	2572	485	57	541
9	142.50	7.37	0.000	28.791	17.87	0.486	1.92	0.85	1.00	1.7	19.68	37.74	17.87	2211	1620	237	126	363
8	127.50	7.20	0.000	28.594	17.67	0.484	1.92	0.85	1.00	1.7	19.50	37.48	17.68	2348	1747	229	160	390
7	110.00	6.98	1.281	34.919	22.62	0.465	1.95	0.85	1.00	1.7	24.51	47.80	22.62	2771	2107	284	213	496
6	90.00	6.69	0.000	34.872	22.17	0.448	1.98	0.85	1.00	1.7	23.12	45.70	22.17	2715	2111	260	208	467
5	70.00	6.35	0.000	34.321	21.62	0.442	1.99	0.85	1.00	1.6	22.65	45.02	21.62	2638	2034	243	196	439
4	50.00	5.91	1.281	33.203	20.90	0.445	1.98	0.85	1.00	1.6	23.04	45.67	20.91	2539	1876	230	178	407
3	30.00	5.31	0.000	32.565	19.86	0.422	2.02	0.85	1.00	1.5	21.19	42.87	19.87	2401	1797	194	161	354
2	12.50	4.60	0.000	23.722	14.01	0.412	2.04	0.85	1.00	1.4	15.34	31.32	14.01	1669	1211	122	101	223
1	2.50	4.60	5.806	5.912	3.337	1.000	2.10	0.85	1.00	1.2	10.85	22.78	3.34	1423	543	89	0	88
** = Section Force Exceeds Solidity Ratio Criteria														28153	20057			4301

LoadCase 1.0D + 1.0W Service Normal

Serviceability - 60 mph Wind Normal

Gust Response Factor (Gh): 0.85
 Wind Importance Factor (Iw) : 1.00

Section	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)
11	180.00	11.15	11.552	9.583	0.000	0.289	2.33	1.00	1.00	0.0	17.26	40.14	0.00	1056	0	380	8	388
10	160.00	10.88	10.108	9.583	0.000	0.269	2.38	1.00	1.00	0.0	15.76	37.53	0.00	967	0	347	51	398
9	142.50	10.62	0.000	10.918	0.000	0.199	2.60	1.00	1.00	0.0	6.41	16.66	0.00	492	0	150	60	211
8	127.50	10.37	0.000	10.918	0.000	0.199	2.60	1.00	1.00	0.0	6.41	16.66	0.00	501	0	147	74	221
7	110.00	10.05	1.281	12.295	0.000	0.188	2.64	1.00	1.00	0.0	8.45	22.28	0.00	553	0	190	96	286
6	90.00	9.64	0.000	12.698	0.000	0.176	2.68	1.00	1.00	0.0	7.39	19.79	0.00	503	0	162	92	254
5	70.00	9.14	0.000	12.698	0.000	0.176	2.68	1.00	1.00	0.0	7.39	19.79	0.00	503	0	154	87	241
4	50.00	8.52	1.281	12.295	0.000	0.188	2.64	1.00	1.00	0.0	8.45	22.28	0.00	553	0	161	81	242

Site Number: 208450 Code: ANSI/TIA-222-H © 2007 - 2021 by ATC IP LLC. All rights reserved.
 Site Name: Enfield, CT Engineering Number: 13688133_C3_03 7/23/2021 10:01:55 AM
 Customer: DISH WIRELESS L.L.C.

Section Forces

3	30.00	7.65	0.000	12.698	0.000	0.176	2.68	1.00	1.00	0.0	7.39	19.79	0.00	503	0	129	73	201
2	12.50	6.62	0.000	9.710	0.000	0.179	2.67	1.00	1.00	0.0	5.66	15.09	0.00	382	0	85	47	132
1	2.50	6.62	5.806	2.576	0.000	0.861	1.87	1.00	1.00	0.0	8.21	15.38	0.00	734	0	87	4	90

** = Section Force Exceeds Solidity Ratio Criteria

6747 0 2664

LoadCase 1.0D + 1.0W Service 60 deg

Serviceability - 60 mph Wind 60 deg

Gust Response Factor (Gh): 0.85

Wind Importance Factor (Iw) : 1.00

Section	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)
11	180.00	11.15	11.552	9.583	0.000	0.289	2.33	0.80	1.00	0.0	14.95	34.77	0.00	1056	0	330	8	337
10	160.00	10.88	10.108	9.583	0.000	0.269	2.38	0.80	1.00	0.0	13.74	32.71	0.00	967	0	302	51	354
9	142.50	10.62	0.000	10.918	0.000	0.199	2.60	0.80	1.00	0.0	6.41	16.66	0.00	492	0	150	60	211
8	127.50	10.37	0.000	10.918	0.000	0.199	2.60	0.80	1.00	0.0	6.41	16.66	0.00	501	0	147	74	221
7	110.00	10.05	1.281	12.295	0.000	0.188	2.64	0.80	1.00	0.0	8.19	21.60	0.00	553	0	185	96	280
6	90.00	9.64	0.000	12.698	0.000	0.176	2.68	0.80	1.00	0.0	7.39	19.79	0.00	503	0	162	92	254
5	70.00	9.14	0.000	12.698	0.000	0.176	2.68	0.80	1.00	0.0	7.39	19.79	0.00	503	0	154	87	241
4	50.00	8.52	1.281	12.295	0.000	0.188	2.64	0.80	1.00	0.0	8.19	21.60	0.00	553	0	156	81	237
3	30.00	7.65	0.000	12.698	0.000	0.176	2.68	0.80	1.00	0.0	7.39	19.79	0.00	503	0	129	73	201
2	12.50	6.62	0.000	9.710	0.000	0.179	2.67	0.80	1.00	0.0	5.66	15.09	0.00	382	0	85	47	132
1	2.50	6.62	5.806	2.576	0.000	0.861	1.87	0.80	1.00	0.0	7.05	13.20	0.00	734	0	74	4	78

** = Section Force Exceeds Solidity Ratio Criteria

6747 0 2545

LoadCase 1.0D + 1.0W Service 90 deg

Serviceability - 60 mph Wind 90 deg

Gust Response Factor (Gh): 0.85

Wind Importance Factor (Iw) : 1.00

Section	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)
11	180.00	11.15	11.552	9.583	0.000	0.289	2.33	0.85	1.00	0.0	15.53	36.11	0.00	1056	0	342	8	350
10	160.00	10.88	10.108	9.583	0.000	0.269	2.38	0.85	1.00	0.0	14.25	33.92	0.00	967	0	314	51	365
9	142.50	10.62	0.000	10.918	0.000	0.199	2.60	0.85	1.00	0.0	6.41	16.66	0.00	492	0	150	60	211
8	127.50	10.37	0.000	10.918	0.000	0.199	2.60	0.85	1.00	0.0	6.41	16.66	0.00	501	0	147	74	221
7	110.00	10.05	1.281	12.295	0.000	0.188	2.64	0.85	1.00	0.0	8.26	21.77	0.00	553	0	186	96	282
6	90.00	9.64	0.000	12.698	0.000	0.176	2.68	0.85	1.00	0.0	7.39	19.79	0.00	503	0	162	92	254
5	70.00	9.14	0.000	12.698	0.000	0.176	2.68	0.85	1.00	0.0	7.39	19.79	0.00	503	0	154	87	241
4	50.00	8.52	1.281	12.295	0.000	0.188	2.64	0.85	1.00	0.0	8.26	21.77	0.00	553	0	158	81	238
3	30.00	7.65	0.000	12.698	0.000	0.176	2.68	0.85	1.00	0.0	7.39	19.79	0.00	503	0	129	73	201
2	12.50	6.62	0.000	9.710	0.000	0.179	2.67	0.85	1.00	0.0	5.66	15.09	0.00	382	0	85	47	132
1	2.50	6.62	5.806	2.576	0.000	0.861	1.87	0.85	1.00	0.0	7.34	13.75	0.00	734	0	77	4	81

** = Section Force Exceeds Solidity Ratio Criteria

6747 0 2575

LoadCase 1.0D + 1.0W Service 120 deg

Serviceability - 60 mph Wind 120 deg

Gust Response Factor (Gh): 0.85

Wind Importance Factor (Iw) : 1.00

Section	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)
11	180.00	11.15	11.552	9.583	0.000	0.289	2.33	1.00	1.00	0.0	17.26	40.14	0.00	1056	0	380	8	388
10	160.00	10.88	10.108	9.583	0.000	0.269	2.38	1.00	1.00	0.0	15.76	37.53	0.00	967	0	347	51	398
9	142.50	10.62	0.000	10.918	0.000	0.199	2.60	1.00	1.00	0.0	6.41	16.66	0.00	492	0	150	60	211

Site Number: 208450

Code: ANSI/TIA-222-H

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Site Name: Enfield, CT

Engineering Number: 13688133_C3_03

7/23/2021 10:01:55 AM

Customer: DISH WIRELESS L.L.C.

Section Forces

8	127.50	10.37	0.000	10.918	0.000	0.199	2.60	1.00	1.00	0.0	6.41	16.66	0.00	501	0	147	74	221
7	110.00	10.05	1.281	12.295	0.000	0.188	2.64	1.00	1.00	0.0	8.45	22.28	0.00	553	0	190	96	286
6	90.00	9.64	0.000	12.698	0.000	0.176	2.68	1.00	1.00	0.0	7.39	19.79	0.00	503	0	162	92	254
5	70.00	9.14	0.000	12.698	0.000	0.176	2.68	1.00	1.00	0.0	7.39	19.79	0.00	503	0	154	87	241
4	50.00	8.52	1.281	12.295	0.000	0.188	2.64	1.00	1.00	0.0	8.45	22.28	0.00	553	0	161	81	242
3	30.00	7.65	0.000	12.698	0.000	0.176	2.68	1.00	1.00	0.0	7.39	19.79	0.00	503	0	129	73	201
2	12.50	6.62	0.000	9.710	0.000	0.179	2.67	1.00	1.00	0.0	5.66	15.09	0.00	382	0	85	47	132
1	2.50	6.62	5.806	2.576	0.000	0.861	1.87	1.00	1.00	0.0	8.21	15.38	0.00	734	0	87	4	90

** = Section Force Exceeds Solidity Ratio Criteria

6747 0 2664

LoadCase 1.0D + 1.0W Service 180 deg

Serviceability - 60 mph Wind 180 deg

Gust Response Factor (Gh): 0.85

Wind Importance Factor (Iw): 1.00

Section	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)
11	180.00	11.15	11.552	9.583	0.000	0.289	2.33	0.80	1.00	0.0	14.95	34.77	0.00	1056	0	330	8	337
10	160.00	10.88	10.108	9.583	0.000	0.269	2.38	0.80	1.00	0.0	13.74	32.71	0.00	967	0	302	51	354
9	142.50	10.62	0.000	10.918	0.000	0.199	2.60	0.80	1.00	0.0	6.41	16.66	0.00	492	0	150	60	211
8	127.50	10.37	0.000	10.918	0.000	0.199	2.60	0.80	1.00	0.0	6.41	16.66	0.00	501	0	147	74	221
7	110.00	10.05	1.281	12.295	0.000	0.188	2.64	0.80	1.00	0.0	8.19	21.60	0.00	553	0	185	96	280
6	90.00	9.64	0.000	12.698	0.000	0.176	2.68	0.80	1.00	0.0	7.39	19.79	0.00	503	0	162	92	254
5	70.00	9.14	0.000	12.698	0.000	0.176	2.68	0.80	1.00	0.0	7.39	19.79	0.00	503	0	154	87	241
4	50.00	8.52	1.281	12.295	0.000	0.188	2.64	0.80	1.00	0.0	8.19	21.60	0.00	553	0	156	81	237
3	30.00	7.65	0.000	12.698	0.000	0.176	2.68	0.80	1.00	0.0	7.39	19.79	0.00	503	0	129	73	201
2	12.50	6.62	0.000	9.710	0.000	0.179	2.67	0.80	1.00	0.0	5.66	15.09	0.00	382	0	85	47	132
1	2.50	6.62	5.806	2.576	0.000	0.861	1.87	0.80	1.00	0.0	7.05	13.20	0.00	734	0	74	4	78

** = Section Force Exceeds Solidity Ratio Criteria

6747 0 2545

LoadCase 1.0D + 1.0W Service 210 deg

Serviceability - 60 mph Wind 210 deg

Gust Response Factor (Gh): 0.85

Wind Importance Factor (Iw): 1.00

Section	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)
11	180.00	11.15	11.552	9.583	0.000	0.289	2.33	0.85	1.00	0.0	15.53	36.11	0.00	1056	0	342	8	350
10	160.00	10.88	10.108	9.583	0.000	0.269	2.38	0.85	1.00	0.0	14.25	33.92	0.00	967	0	314	51	365
9	142.50	10.62	0.000	10.918	0.000	0.199	2.60	0.85	1.00	0.0	6.41	16.66	0.00	492	0	150	60	211
8	127.50	10.37	0.000	10.918	0.000	0.199	2.60	0.85	1.00	0.0	6.41	16.66	0.00	501	0	147	74	221
7	110.00	10.05	1.281	12.295	0.000	0.188	2.64	0.85	1.00	0.0	8.26	21.77	0.00	553	0	186	96	282
6	90.00	9.64	0.000	12.698	0.000	0.176	2.68	0.85	1.00	0.0	7.39	19.79	0.00	503	0	162	92	254
5	70.00	9.14	0.000	12.698	0.000	0.176	2.68	0.85	1.00	0.0	7.39	19.79	0.00	503	0	154	87	241
4	50.00	8.52	1.281	12.295	0.000	0.188	2.64	0.85	1.00	0.0	8.26	21.77	0.00	553	0	158	81	238
3	30.00	7.65	0.000	12.698	0.000	0.176	2.68	0.85	1.00	0.0	7.39	19.79	0.00	503	0	129	73	201
2	12.50	6.62	0.000	9.710	0.000	0.179	2.67	0.85	1.00	0.0	5.66	15.09	0.00	382	0	85	47	132
1	2.50	6.62	5.806	2.576	0.000	0.861	1.87	0.85	1.00	0.0	7.34	13.75	0.00	734	0	77	4	81

** = Section Force Exceeds Solidity Ratio Criteria

6747 0 2575

Site Number: 208450

Code:

ANSI/TIA-222-H

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Site Name: Enfield, CT

Engineering Number: 13688133_C3_03

7/23/2021 10:01:55 AM

Customer: DISH WIRELESS L.L.C.

Section ForcesLoadCase 1.0D + 1.0W Service 240 deg

Serviceability - 60 mph Wind 240 deg

Gust Response Factor (Gh): 0.85

Wind Importance Factor (Iw): 1.00

Section	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)
11	180.00	11.15	11.552	9.583	0.000	0.289	2.33	1.00	1.00	0.0	17.26	40.14	0.00	1056	0	380	8	388
10	160.00	10.88	10.108	9.583	0.000	0.269	2.38	1.00	1.00	0.0	15.76	37.53	0.00	967	0	347	51	398
9	142.50	10.62	0.000	10.918	0.000	0.199	2.60	1.00	1.00	0.0	6.41	16.66	0.00	492	0	150	60	211
8	127.50	10.37	0.000	10.918	0.000	0.199	2.60	1.00	1.00	0.0	6.41	16.66	0.00	501	0	147	74	221
7	110.00	10.05	1.281	12.295	0.000	0.188	2.64	1.00	1.00	0.0	8.45	22.28	0.00	553	0	190	96	286
6	90.00	9.64	0.000	12.698	0.000	0.176	2.68	1.00	1.00	0.0	7.39	19.79	0.00	503	0	162	92	254
5	70.00	9.14	0.000	12.698	0.000	0.176	2.68	1.00	1.00	0.0	7.39	19.79	0.00	503	0	154	87	241
4	50.00	8.52	1.281	12.295	0.000	0.188	2.64	1.00	1.00	0.0	8.45	22.28	0.00	553	0	161	81	242
3	30.00	7.65	0.000	12.698	0.000	0.176	2.68	1.00	1.00	0.0	7.39	19.79	0.00	503	0	129	73	201
2	12.50	6.62	0.000	9.710	0.000	0.179	2.67	1.00	1.00	0.0	5.66	15.09	0.00	382	0	85	47	132
1	2.50	6.62	5.806	2.576	0.000	0.861	1.87	1.00	1.00	0.0	8.21	15.38	0.00	734	0	87	4	90
** = Section Force Exceeds Solidity Ratio Criteria														6747	0			2664

LoadCase 1.0D + 1.0W Service 300 deg

Serviceability - 60 mph Wind 300 deg

Gust Response Factor (Gh): 0.85

Wind Importance Factor (Iw): 1.00

Section	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)
11	180.00	11.15	11.552	9.583	0.000	0.289	2.33	0.80	1.00	0.0	14.95	34.77	0.00	1056	0	330	8	337
10	160.00	10.88	10.108	9.583	0.000	0.269	2.38	0.80	1.00	0.0	13.74	32.71	0.00	967	0	302	51	354
9	142.50	10.62	0.000	10.918	0.000	0.199	2.60	0.80	1.00	0.0	6.41	16.66	0.00	492	0	150	60	211
8	127.50	10.37	0.000	10.918	0.000	0.199	2.60	0.80	1.00	0.0	6.41	16.66	0.00	501	0	147	74	221
7	110.00	10.05	1.281	12.295	0.000	0.188	2.64	0.80	1.00	0.0	8.19	21.60	0.00	553	0	185	96	280
6	90.00	9.64	0.000	12.698	0.000	0.176	2.68	0.80	1.00	0.0	7.39	19.79	0.00	503	0	162	92	254
5	70.00	9.14	0.000	12.698	0.000	0.176	2.68	0.80	1.00	0.0	7.39	19.79	0.00	503	0	154	87	241
4	50.00	8.52	1.281	12.295	0.000	0.188	2.64	0.80	1.00	0.0	8.19	21.60	0.00	553	0	156	81	237
3	30.00	7.65	0.000	12.698	0.000	0.176	2.68	0.80	1.00	0.0	7.39	19.79	0.00	503	0	129	73	201
2	12.50	6.62	0.000	9.710	0.000	0.179	2.67	0.80	1.00	0.0	5.66	15.09	0.00	382	0	85	47	132
1	2.50	6.62	5.806	2.576	0.000	0.861	1.87	0.80	1.00	0.0	7.05	13.20	0.00	734	0	74	4	78
** = Section Force Exceeds Solidity Ratio Criteria														6747	0			2545

LoadCase 1.0D + 1.0W Service 330 deg

Serviceability - 60 mph Wind 330 deg

Gust Response Factor (Gh): 0.85

Wind Importance Factor (Iw): 1.00

Section	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)
11	180.00	11.15	11.552	9.583	0.000	0.289	2.33	0.85	1.00	0.0	15.53	36.11	0.00	1056	0	342	8	350
10	160.00	10.88	10.108	9.583	0.000	0.269	2.38	0.85	1.00	0.0	14.25	33.92	0.00	967	0	314	51	365
9	142.50	10.62	0.000	10.918	0.000	0.199	2.60	0.85	1.00	0.0	6.41	16.66	0.00	492	0	150	60	211
8	127.50	10.37	0.000	10.918	0.000	0.199	2.60	0.85	1.00	0.0	6.41	16.66	0.00	501	0	147	74	221
7	110.00	10.05	1.281	12.295	0.000	0.188	2.64	0.85	1.00	0.0	8.26	21.77	0.00	553	0	186	96	282
6	90.00	9.64	0.000	12.698	0.000	0.176	2.68	0.85	1.00	0.0	7.39	19.79	0.00	503	0	162	92	254
5	70.00	9.14	0.000	12.698	0.000	0.176	2.68	0.85	1.00	0.0	7.39	19.79	0.00	503	0	154	87	241
4	50.00	8.52	1.281	12.295	0.000	0.188	2.64	0.85	1.00	0.0	8.26	21.77	0.00	553	0	158	81	238
3	30.00	7.65	0.000	12.698	0.000	0.176	2.68	0.85	1.00	0.0	7.39	19.79	0.00	503	0	129	73	201

Site Number: 208450

Code: ANSI/TIA-222-H

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Site Name: Enfield, CT

Engineering Number: 13688133_C3_03

7/23/2021 10:01:55 AM

Customer: DISH WIRELESS L.L.C.

Section Forces

2	12.50	6.62	0.000	9.710	0.000	0.179	2.67	0.85	1.00	0.0	5.66	15.09	0.00	382	0	85	47	132
1	2.50	6.62	5.806	2.576	0.000	0.861	1.87	0.85	1.00	0.0	7.34	13.75	0.00	734	0	77	4	81
** = Section Force Exceeds Solidity Ratio Criteria														6747	0			2575

Site Number: 208450

Code: ANSI/TIA-222-H

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Site Name: Enfield, CT

Engineering Number: 13688133_C3_03

7/23/2021 10:01:55 AM

Customer: DISH WIRELESS L.L.C.

Equivalent Lateral Force Method

Spectral Response Acceleration for Short Period (S_s):	0.17
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.05
Long-Period Transition Period (T_L - Seconds):	6
Importance Factor (I_e):	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}):	0.19
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.09
Seismic Response Coefficient (C_s):	0.06
Upper Limit C_s :	0.06
Lower Limit C_s :	0.03
Period based on Rayleigh Method (sec):	0.48
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.00
Total Unfactored Dead Load:	10.09 k
Seismic Base Shear (E):	0.81 k

LoadCase 1.2D + 1.0Ev + 1.0Eh

Seismic

Section	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
11	180.00	1,056	190,111	0.160	129	1,307
10	160.00	967	154,679	0.130	105	1,196
9	142.50	492	70,137	0.059	47	609
8	127.50	501	63,848	0.054	43	620
7	110.00	553	60,812	0.051	41	684
6	90.00	503	45,309	0.038	31	623
5	70.00	503	35,240	0.030	24	623
4	50.00	553	27,642	0.023	19	684
3	30.00	503	15,103	0.013	10	623
2	12.50	382	4,775	0.004	3	473
1	2.50	734	1,834	0.002	1	907
Motorola PTP 49600	176.00	12	2,130	0.002	1	15
Generic 15' Omni	173.00	40	6,920	0.006	5	49
Generic Round Side Arm	173.00	188	32,438	0.027	22	232
Generic Torque Arm	169.00	500	84,500	0.071	57	619
Motorola PTP 49600	166.00	24	4,017	0.003	3	30
Commscope RDIDC-9181-PF-48	155.00	22	3,395	0.003	2	27
Fujitsu TA08025-B604	155.00	192	29,714	0.025	20	237
Fujitsu TA08025-B605	155.00	225	34,875	0.029	24	278
Generic Flat Light Sector Frame	155.00	1,200	186,000	0.156	126	1,485
JMA Wireless MX08FRO665-21	155.00	193	29,992	0.025	20	239
Generic 20' Dipole	150.00	60	9,000	0.008	6	74
Generic Round Side Arm	150.00	188	28,125	0.024	19	232
Generic 20' Dipole	148.00	60	8,880	0.007	6	74

Site Number: 208450

Code: ANSI/TIA-222-H

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Site Name: Enfield, CT

Engineering Number: 13688133_C3_03

7/23/2021 10:01:56 AM

Customer: DISH WIRELESS L.L.C.

Equivalent Lateral Force Method

Generic Round Side Arm	148.00	188	27,750	0.023	19	232
Generic 10' Omni	138.00	25	3,450	0.003	2	31
Generic Round Side Arm	138.00	188	25,875	0.022	17	232
Generic 8' Dipole	136.00	25	3,400	0.003	2	31
Motorola PTP 49600	98.00	12	1,186	0.001	1	15
		10,088	1,191,132	1.000	806	12,480

Site Number: 208450 Code: ANSI/TIA-222-H © 2007 - 2021 by ATC IP LLC. All rights reserved.
 Site Name: Enfield, CT Engineering Number: 13688133_C3_03 7/23/2021 10:01:56 AM
 Customer: DISH WIRELESS L.L.C.

Force/Stress Summary

Section: 1		Base		Bot Elev (ft): 0.00				Height (ft): 5.000									
		Pu		Len	Bracing %			F'y	Phic Pn	Num	Num	Shear	Bear	Use			
Max Compression Member		(kip)	Load Case	(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	%	Controls	
LEG	PX - 2-1/2" DIA PIPE	-33.31	1.2D + 1.0Di + 1.0Wi	1.71	33	33	33	7.3	50.0	100.85	0	0	0.00	0.00	33	Member X	
HORIZ	CHN - C12 x 30	-0.12	1.2D + 1.0W Normal	1.087	100	100	100	68.6	36.0	270.60	0	0	0.00	0.00	0	Member Y	
DIAG		0.00		0.000	0	0	0	0.0	0.0	0.00	0	0	0.00	0.00			
		Pu		Fy	Fu	Phit Pn	Num	Num	Shear	Bear	Blk Shear	Use					
Max Tension Member		(kip)	Load Case	(ksi)	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	phit Pn	%	Controls				
LEG		0.00		0	0	0.00	0	0	0.00	0.00		0					
HORIZ	CHN - C12 x 30	3.11	1.2D + 1.0W Normal	36	58	285.77	0	0	0.00	0.00	0.00	1	Member				
DIAG		0.00		0	0	0.00	0	0	0.00	0.00	0.00	0					
		Pu		phiRnt	Use	Num											
Max Splice Forces		(kip)	Load Case	(kip)	%	Bolts	Bolt Type										
Top Tension		0.00		0.00	0	0											
Top Compression		29.85	1.2D + 1.0Di + 1.0Wi	0.00	0												
Bot Tension		0.00		0.00	0												
Bot Compression		0.00		0.00	0												

Section: 2		S1		Bot Elev (ft): 5.00				Height (ft): 15.000									
		Pu		Len	Bracing %			F'y	Phic Pn	Num	Num	Shear	Bear	Use			
Max Compression Member		(kip)	Load Case	(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	%	Controls	
LEG	PX - 2" DIA PIPE	-31.72	1.2D + 1.0Di + 1.0Wi	2.36	200	200	200	74.1	50.0	44.59	0	0	0.00	0.00	71	Member X	
HORIZ	PSP - ROHN	-0.10	1.2D + 1.0W Normal	3.417	100	100	100	0.0	0.0	7.02	1	0	0.00	6.29	1	User Input	
DIAG	PSP - ROHN	-0.44	1.2D + 1.0W Normal	4.155	100	100	100	0.0	0.0	6.21	1	0	0.00	6.29	7	User Input	
		Pu		Fy	Fu	Phit Pn	Num	Num	Shear	Bear	Blk Shear	Use					
Max Tension Member		(kip)	Load Case	(ksi)	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	phit Pn	%	Controls				
LEG		0.00		0	0	0.00	0	0	0.00	0.00		0					
HORIZ	PSP - ROHN	1.78	1.2D + 1.0Di + 1.0Wi	42	63	5.92	1	0	0.00	0.00	0.00	30	User Input				
DIAG	PSP - ROHN	0.52	1.2D + 1.0W 90 deg	42	63	5.47	1	0	0.00	0.00	0.00	9	User Input				
		Pu		phiRnt	Use	Num											
Max Splice Forces		(kip)	Load Case	(kip)	%	Bolts	Bolt Type										
Top Tension		0.00		0.00	0	0											
Top Compression		31.86	1.2D + 1.0Di + 1.0Wi	0.00	0												
Bot Tension		0.00		0.00	0												
Bot Compression		0.00		0.00	0												

Site Number: 208450	Code: ANSI/TIA-222-H	© 2007 - 2021 by ATC IP LLC. All rights reserved.
Site Name: Enfield, CT	Engineering Number: 13688133_C3_03	7/23/2021 10:01:56 AM
Customer: DISH WIRELESS L.L.C.		

Force/Stress Summary

Section: 3		S2	Bot Elev (ft): 20.00				Height (ft): 20.000									
		Pu			Len		Bracing %		Fy	Phic Pn	Num	Num	Shear	Bear	Use	
Max Compression Member		(kip)	Load Case		(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	% Controls
LEG	PX - 2" DIA PIPE	-31.77	1.2D + 1.0Di + 1.0Wi		2.40	200	200	200	75.1	50.0	44.07	0	0	0.00	0.00	72 Member X
HORIZ	PSP - ROHN	-0.14	1.2D + 1.0W 60 deg		3.417	100	100	100	0.0	0.0	7.02	1	0	0.00	6.29	2 User Input
DIAG	PSP - ROHN	-0.39	1.2D + 1.0W Normal		4.174	100	100	100	0.0	0.0	6.21	1	0	0.00	6.29	6 User Input

		Pu			Fy	Fu	Phit Pn	Num	Num	Shear	Bear	Blk Shear	Use			
Max Tension Member		(kip)	Load Case		(ksi)	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	phit Pn	%	Controls		
LEG		0.00			0	0	0.00	0	0	0.00	0.00			0		
HORIZ	PSP - ROHN	0.19	1.2D + 1.0W Normal		42	63	5.92	1	0	0.00	0.00	0.00		3	User Input	
DIAG	PSP - ROHN	0.39	1.2D + 1.0W 210 deg		42	63	5.47	1	0	0.00	0.00	0.00		7	User Input	

Max Splice Forces		Pu			phiRnt	Use	Num		
		(kip)	Load Case		(kip)	%	Bolts	Bolt Type	
Top Tension		0.00			0.00	0	0		
Top Compression		31.10	1.2D + 1.0Di + 1.0Wi		0.00	0			
Bot Tension		0.00			0.00	0			
Bot Compression		0.00			0.00	0			

Section: 4		S3	Bot Elev (ft): 40.00				Height (ft): 20.000									
		Pu			Len		Bracing %		Fy	Phic Pn	Num	Num	Shear	Bear	Use	
Max Compression Member		(kip)	Load Case		(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	% Controls
LEG	PX - 2" DIA PIPE	-30.70	1.2D + 1.0Di + 1.0Wi		2.40	200	200	200	75.1	50.0	44.07	0	0	0.00	0.00	69 Member X
HORIZ	PSP - ROHN	-0.22	1.2D + 1.0W Normal		3.417	100	100	100	0.0	0.0	7.02	1	0	0.00	6.29	3 User Input
DIAG	PSP - ROHN	-0.97	1.2D + 1.0W 90 deg		4.174	100	100	100	0.0	0.0	6.21	1	0	0.00	6.29	15 User Input

		Pu			Fy	Fu	Phit Pn	Num	Num	Shear	Bear	Blk Shear	Use			
Max Tension Member		(kip)	Load Case		(ksi)	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	phit Pn	%	Controls		
LEG		0.00			0	0	0.00	0	0	0.00	0.00			0		
HORIZ	PSP - ROHN	0.28	1.2D + 1.0W 60 deg		42	63	5.92	1	0	0.00	0.00	0.00		4	User Input	
DIAG	PSP - ROHN	0.99	1.2D + 1.0W 90 deg		42	63	5.47	1	0	0.00	0.00	0.00		18	User Input	

Max Splice Forces		Pu			phiRnt	Use	Num		
		(kip)	Load Case		(kip)	%	Bolts	Bolt Type	
Top Tension		0.00			0.00	0	0		
Top Compression		25.91	1.2D + 1.0Di + 1.0Wi		0.00	0			
Bot Tension		0.00			0.00	0			
Bot Compression		0.00			0.00	0			

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Site Name: Enfield, CT	Engineering Number: 13688133_C3_03	7/23/2021 10:01:56 AM
Customer: DISH WIRELESS L.L.C.		

Force/Stress Summary

Section: 5	S4	Bot Elev (ft): 60.00	Height (ft): 20.000
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		Pu	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear	Bear	Use %	Controls
Max Compression Member		(kip)			X	Y	Z					phiRnv (kip)	phiRn (kip)		
LEG	PX - 2" DIA PIPE	-27.79	1.2D + 1.0Di + 1.0Wi	2.40	200	200	200	75.1	50.0	44.07	0	0	0.00	0.00	63 Member X
HORIZ	PSP - ROHN	-0.59	1.2D + 1.0W 60 deg	3.417	100	100	100	0.0	0.0	7.02	1	0	0.00	6.29	8 User Input
DIAG	PSP - ROHN	-1.24	1.2D + 1.0W Normal	4.174	100	100	100	0.0	0.0	6.21	1	0	0.00	6.29	20 User Input

		Pu	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear	Bear	Blk Shear	Use %	Controls
Max Tension Member		(kip)							phiRnv (kip)	phiRn (kip)	phit Pn (kip)		
LEG		0.00		0	0	0.00	0	0	0.00	0.00		0	
HORIZ	PSP - ROHN	0.72	1.2D + 1.0W Normal	42	63	5.92	1	0	0.00	0.00	0.00	12	User Input
DIAG	PSP - ROHN	1.35	1.2D + 1.0W 90 deg	42	63	5.47	1	0	0.00	0.00	0.00	24	User Input

Max Splice Forces		Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension		0.00		0.00	0	0	
Top Compression		27.94	1.2D + 1.0Di + 1.0Wi	0.00	0		
Bot Tension		0.00		0.00	0		
Bot Compression		0.00		0.00	0		

Section: 6	S5	Bot Elev (ft): 80.00	Height (ft): 20.000
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		Pu	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear	Bear	Use %	Controls
Max Compression Member		(kip)			X	Y	Z					phiRnv (kip)	phiRn (kip)		
LEG	PX - 2" DIA PIPE	-27.83	1.2D + 1.0Di + 1.0Wi	2.40	200	200	200	75.1	50.0	44.07	0	0	0.00	0.00	63 Member X
HORIZ	PSP - ROHN	-0.21	1.2D + 1.0W 90 deg	3.417	100	100	100	0.0	0.0	7.02	1	0	0.00	6.29	3 User Input
DIAG	PSP - ROHN	-0.52	1.2D + 1.0W Normal	4.174	100	100	100	0.0	0.0	6.21	1	0	0.00	6.29	8 User Input

		Pu	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear	Bear	Blk Shear	Use %	Controls
Max Tension Member		(kip)							phiRnv (kip)	phiRn (kip)	phit Pn (kip)		
LEG		0.00		0	0	0.00	0	0	0.00	0.00		0	
HORIZ	PSP - ROHN	0.25	1.2D + 1.0W Normal	42	63	5.92	1	0	0.00	0.00	0.00	4	User Input
DIAG	PSP - ROHN	0.53	1.2D + 1.0W 90 deg	42	63	5.47	1	0	0.00	0.00	0.00	9	User Input

Max Splice Forces		Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension		0.00		0.00	0	0	
Top Compression		27.64	1.2D + 1.0Di + 1.0Wi	0.00	0		
Bot Tension		0.00		0.00	0		
Bot Compression		0.00		0.00	0		

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Customer: DISH WIRELESS L.L.C.		

Force/Stress Summary

Section: 7	S6	Bot Elev (ft): 100.0	Height (ft): 20.000
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		Pu	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear	Bear	Use %	Controls
Max Compression Member		(kip)			X	Y	Z					phiRnv (kip)	phiRn (kip)		
LEG	PX - 2" DIA PIPE	-27.20	1.2D + 1.0Di + 1.0Wi	2.40	200	200	200	75.1	50.0	44.07	0	0	0.00	0.00	61 Member X
HORIZ	PSP - ROHN	-0.15	1.2D + 1.0W Normal	3.417	100	100	100	0.0	0.0	7.02	1	0	0.00	6.29	2 User Input
DIAG	PSP - ROHN	-0.81	1.2D + 1.0W 60 deg	4.174	100	100	100	0.0	0.0	6.21	1	0	0.00	6.29	13 User Input

		Pu	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear	Bear	Blk Shear	Use %	Controls
Max Tension Member		(kip)							phiRnv (kip)	phiRn (kip)	phit Pn (kip)		
LEG		0.00		0	0	0.00	0	0	0.00	0.00		0	
HORIZ	PSP - ROHN	0.24	1.2D + 1.0W 180 deg	42	63	5.92	1	0	0.00	0.00	0.00	4	User Input
DIAG	PSP - ROHN	0.89	1.2D + 1.0W 90 deg	42	63	5.47	1	0	0.00	0.00	0.00	16	User Input

Max Splice Forces		Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension		0.00		0.00	0	0	
Top Compression		18.94	1.2D + 1.0Di + 1.0Wi	0.00	0		
Bot Tension		0.00		0.00	0		
Bot Compression		0.00		0.00	0		

Section: 8	S7	Bot Elev (ft): 120.0	Height (ft): 15.000
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		Pu	Load Case	Len (ft)	Bracing %			F'y (ksi)	Phic Pn (kip)	Num Bolts	Num Holes	Shear	Bear	Use %	Controls
Max Compression Member		(kip)			X	Y	Z					phiRnv (kip)	phiRn (kip)		
LEG	PX - 2-1/2" DIA PIPE	-21.70	1.2D + 1.0Di + 1.0Wi	2.36	200	200	200	61.4	50.0	76.85	0	0	0.00	0.00	28 Member X
HORIZ	PSP - ROHN	-1.09	1.2D + 1.0W 60 deg	3.417	100	100	100	0.0	0.0	7.02	1	0	0.00	6.29	15 User Input
DIAG	PSP - ROHN	-2.31	1.2D + 1.0W 60 deg	4.155	100	100	100	0.0	0.0	6.21	1	0	0.00	6.29	37 User Input

		Pu	Load Case	Fy (ksi)	Fu (ksi)	Phit Pn (kip)	Num Bolts	Num Holes	Shear	Bear	Blk Shear	Use %	Controls
Max Tension Member		(kip)							phiRnv (kip)	phiRn (kip)	phit Pn (kip)		
LEG		0.00		0	0	0.00	0	0	0.00	0.00		0	
HORIZ	PSP - ROHN	1.16	1.2D + 1.0W Normal	42	63	5.92	1	0	0.00	0.00	0.00	19	User Input
DIAG	PSP - ROHN	2.58	1.2D + 1.0W 330 deg	42	63	5.47	1	0	0.00	0.00	0.00	47	User Input

Max Splice Forces		Pu (kip)	Load Case	phiRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension		0.00		0.00	0	0	
Top Compression		22.14	1.2D + 1.0Di + 1.0Wi	0.00	0		
Bot Tension		0.00		0.00	0		
Bot Compression		0.00		0.00	0		

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 Customer: DISH WIRELESS L.L.C.

Force/Stress Summary

Section: 9		S8		Bot Elev (ft): 135.0				Height (ft): 15.000												
				Pu				Len	Bracing %			F'y	Phic Pn	Num	Num	Shear	Bear	Use		
Max Compression Member				(kip)	Load Case			(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	%	Controls
LEG	PX - 2-1/2" DIA PIPE	-25.14	1.2D + 1.0W 60 deg		2.36	200	200	200	61.4	50.0	76.85	0	0	0.00	0.00			32	Member X	
HORIZ	PSP - ROHN	-0.57	1.2D + 1.0W 90 deg		3.417	100	100	100	0.0	0.0	7.02	1	0	0.00	6.29			8	User Input	
DIAG	PSP - ROHN	-1.52	1.2D + 1.0W 60 deg		4.155	100	100	100	0.0	0.0	6.21	1	0	0.00	6.29			24	User Input	
				Pu				Fy	Fu	Phit Pn	Num	Num	Shear	Bear	Blk Shear			Use	Controls	
Max Tension Member				(kip)	Load Case			(ksi)	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	phit Pn	(kip)	%			
LEG	PX - 2-1/2" DIA PIPE	5.69	1.2D + 1.0W Normal		50	65	101.25	0	0		0.00		0.00					5	Member	
HORIZ	PSP - ROHN	0.54	1.2D + 1.0W Normal		42	63	5.92	1	0		0.00		0.00		0.00			9	User Input	
DIAG	PSP - ROHN	1.65	1.2D + 1.0W 330 deg		42	63	5.47	1	0		0.00		0.00		0.00			30	User Input	
				Pu				phiRnt			Use	Num								
Max Splice Forces				(kip)	Load Case			(kip)		%	Bolts	Bolt Type								
Top Tension				5.96	1.2D + 1.0W Normal				0.00	0	0									
Top Compression				25.67	1.2D + 1.0W 300 deg				0.00	0										
Bot Tension				0.00					0.00	0										
Bot Compression				0.00					0.00	0										

Section: 10		S9		Bot Elev (ft): 150.0				Height (ft): 20.000												
				Pu				Len	Bracing %			F'y	Phic Pn	Num	Num	Shear	Bear	Use		
Max Compression Member				(kip)	Load Case			(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	%	Controls
LEG	PX - 2-1/2" DIA PIPE	-25.66	1.2D + 1.0W 300 deg		2.40	100	100	100	31.1	50.0	94.32	0	0	0.00	0.00			27	Member X	
HORIZ	SAE - 1.75X1.75X0.18	-2.24	1.2D + 1.0W Normal		3.417	100	100	100	119.6	36.0	12.29	1	1	8.84	10.44			25	Bolt Shear	
DIAG	SAE - 1.75X1.75X0.18	-1.59	1.2D + 1.0W 90 deg		4.174	50	50	50	84.8	36.0	17.31	1	1	8.84	10.44			18	Bolt Shear	
				Pu				Fy	Fu	Phit Pn	Num	Num	Shear	Bear	Blk Shear			Use	Controls	
Max Tension Member				(kip)	Load Case			(ksi)	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	phit Pn	(kip)	%			
LEG	PX - 2-1/2" DIA PIPE	6.09	1.2D + 1.0W Normal		50	65	101.25	0	0		0.00		0.00					6	Member	
HORIZ	SAE - 1.75X1.75X0.18	3.60	1.2D + 1.0W 300 deg		36	58	16.82	1	1		8.84		6.20		5.71			63	Blk Shear	
DIAG	SAE - 1.75X1.75X0.18	1.60	1.2D + 1.0W 90 deg		36	58	16.82	1	1		8.84		6.20		5.71			28	Blk Shear	
				Pu				phiRnt			Use	Num								
Max Splice Forces				(kip)	Load Case			(kip)		%	Bolts	Bolt Type								
Top Tension				4.49	1.2D + 1.0W 180 deg				0.00	0	0									
Top Compression				6.30	1.2D + 1.0W 120 deg				0.00	0										
Bot Tension				5.96	1.2D + 1.0W Normal			120.41	5	4	0.75" A325									
Bot Compression				0.00				0.00	0											

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Customer: DISH WIRELESS L.L.C.

Force/Stress Summary

Section: 11 S10			Bot Elev (ft): 170.0				Height (ft): 20.000										
			Pu		Len	Bracing %			F'y	Phic Pn	Num	Num	Shear	Bear	Use		
Max Compression Member			(kip)	Load Case	(ft)	X	Y	Z	KL/R	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	%	Controls
LEG	PST - 2-1/2" DIA PIP		-6.26	1.2D + 1.0W Normal	0.17	100	100	100	2.1	50.0	76.65	0	0	0.00	0.00	8	Member X
HORIZ	SAE - 2X2X0.25		-0.90	1.2D + 1.0W Normal	3.417	100	100	100	112.4	36.0	20.39	2	1	17.67	27.84	5	Bolt Shear
DIAG	SAE - 2X2X0.25		-0.80	1.2D + 1.0W Normal	4.174	50	50	50	78.0	36.0	27.36	2	1	17.67	27.84	4	Bolt Shear
			Pu		Fy	Fu	Phit Pn	Num	Num	Shear	Bear	Blk Shear	Use				
Max Tension Member			(kip)	Load Case	(ksi)	(ksi)	(kip)	Bolts	Holes	phiRnv	phiRn	phiRn	%	Controls			
LEG	PST - 2-1/2" DIA PIP		4.53	1.2D + 1.0W 60 deg	50	65	76.68	0	0	0.00	0.00		5	Member			
HORIZ	SAE - 2X2X0.25		1.04	1.2D + 1.0W 60 deg	36	58	26.08	2	1	17.67	22.18	14.68	7	Blk Shear			
DIAG	SAE - 2X2X0.25		0.60	1.2D + 1.0W Normal	36	58	26.08	2	1	17.67	22.18	14.68	4	Blk Shear			
Max Splice Forces			Pu			phiRnt	Use	Num									
			(kip)	Load Case		(kip)	%	Bolts	Bolt Type								
Top Tension			0.00			0.00	0	0									
Top Compression			0.12	1.2D + 1.0Di + 1.0Wi		0.00	0										
Bot Tension			4.49	1.2D + 1.0W 180 deg		120.41	4	4	0.75" A325								
Bot Compression			0.00			0.00	0										

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Site Name: Enfield, CT

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Customer: DISH WIRELESS L.L.C.

Detailed Reactions

Load Case	Radius (ft)	Elevation (ft)	Azimuth (deg)	Node	FX (kip)	FY (kip)	FZ (kip)	(-) = Uplift (+) = Down
1.2D + 1.0W Normal	0.00	00.00		1	0.00	48.49	-0.84	
	145.00	-01.00	0	A1	0.00	-2.20	1.81	
	145.00	-11.00	120	A1a	14.33	-16.38	-8.99	
	147.00	-10.00	240	A1b	-14.32	-16.03	-8.99	
1.2D + 1.0W 60 deg	0.00	00.00		1	-0.69	49.11	-0.40	
	145.00	-01.00	0	A1	-0.59	-7.14	7.24	
	145.00	-11.00	120	A1a	5.95	-7.64	-4.13	
	147.00	-10.00	240	A1b	-19.03	-20.77	-10.99	
1.2D + 1.0W 90 deg	0.00	00.00		1	-0.80	48.79	-0.02	
	145.00	-01.00	0	A1	-0.74	-11.28	12.16	
	145.00	-11.00	120	A1a	2.95	-4.21	-2.04	
	147.00	-10.00	240	A1b	-18.11	-19.59	-10.10	
1.2D + 1.0W 120 deg	0.00	00.00		1	-0.71	48.33	0.41	
	145.00	-01.00	0	A1	-0.61	-15.52	17.14	
	145.00	-11.00	120	A1a	1.74	-2.63	-1.01	
	147.00	-10.00	240	A1b	-15.17	-16.33	-8.04	
1.2D + 1.0W 180 deg	0.00	00.00		1	0.00	49.04	0.81	
	145.00	-01.00	0	A1	0.00	-19.93	22.16	
	145.00	-11.00	120	A1a	6.74	-7.87	-3.20	
	147.00	-10.00	240	A1b	-6.75	-7.71	-3.20	
1.2D + 1.0W 210 deg	0.00	00.00		1	0.38	48.71	0.70	
	145.00	-01.00	0	A1	0.30	-18.67	20.76	
	145.00	-11.00	120	A1a	10.95	-12.17	-5.46	
	147.00	-10.00	240	A1b	-3.30	-4.19	-1.57	
1.2D + 1.0W 240 deg	0.00	00.00		1	0.71	48.42	0.41	
	145.00	-01.00	0	A1	0.61	-15.45	17.08	
	145.00	-11.00	120	A1a	15.12	-16.61	-8.01	
	147.00	-10.00	240	A1b	-1.70	-2.52	-0.98	
1.2D + 1.0W 300 deg	0.00	00.00		1	0.69	49.34	-0.40	
	145.00	-01.00	0	A1	0.59	-7.12	7.22	
	145.00	-11.00	120	A1a	19.04	-21.20	-10.99	
	147.00	-10.00	240	A1b	-5.94	-7.47	-4.12	
1.2D + 1.0W 330 deg	0.00	00.00		1	0.41	48.94	-0.68	
	145.00	-01.00	0	A1	0.28	-3.76	3.42	
	145.00	-11.00	120	A1a	17.64	-19.81	-10.55	
	147.00	-10.00	240	A1b	-9.98	-11.66	-6.63	
1.2D + 1.0Di + 1.0Wi Normal	0.00	00.00		1	-0.01	91.22	-0.33	
	145.00	-01.00	0	A1	0.00	-9.73	12.00	
	145.00	-11.00	120	A1a	16.64	-16.98	-10.43	
	147.00	-10.00	240	A1b	-16.63	-16.57	-10.42	
1.2D + 1.0Di + 1.0Wi 60 deg	0.00	00.00		1	-0.26	90.50	-0.14	
	145.00	-01.00	0	A1	-0.70	-11.71	14.33	
	145.00	-11.00	120	A1a	12.03	-12.64	-7.77	
	147.00	-10.00	240	A1b	-19.00	-18.60	-10.97	
1.2D + 1.0Di + 1.0Wi 90 deg	0.00	00.00		1	-0.32	90.53	0.03	
	145.00	-01.00	0	A1	-0.86	-13.67	16.93	
	145.00	-11.00	120	A1a	10.67	-11.08	-6.56	
	147.00	-10.00	240	A1b	-18.67	-18.06	-10.38	

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1.2D + 1.0Di + 1.0Wi 120 deg	0.00	00.00		1	-0.30	90.68	0.17
	145.00	-01.00	0	A1	-0.69	-15.70	19.60
	145.00	-11.00	120	A1a	10.35	-10.52	-5.98
	147.00	-10.00	240	A1b	-17.34	-16.57	-9.19
1.2D + 1.0Di + 1.0Wi 180 deg	0.00	00.00		1	0.00	90.27	0.30
	145.00	-01.00	0	A1	0.00	-17.68	21.96
	145.00	-11.00	120	A1a	12.79	-12.69	-6.57
	147.00	-10.00	240	A1b	-12.80	-12.40	-6.57
1.2D + 1.0Di + 1.0Wi 210 deg	0.00	00.00		1	0.18	90.48	0.27
	145.00	-01.00	0	A1	0.33	-17.13	21.36
	145.00	-11.00	120	A1a	15.13	-14.80	-7.73
	147.00	-10.00	240	A1b	-11.06	-10.85	-5.99
1.2D + 1.0Di + 1.0Wi 240 deg	0.00	00.00		1	0.29	90.81	0.17
	145.00	-01.00	0	A1	0.70	-15.69	19.60
	145.00	-11.00	120	A1a	17.35	-16.97	-9.20
	147.00	-10.00	240	A1b	-10.36	-10.26	-5.98
1.2D + 1.0Di + 1.0Wi 300 deg	0.00	00.00		1	0.25	90.65	-0.14
	145.00	-01.00	0	A1	0.70	-11.70	14.33
	145.00	-11.00	120	A1a	19.03	-19.06	-10.99
	147.00	-10.00	240	A1b	-12.04	-12.34	-7.77
1.2D + 1.0Di + 1.0Wi 330 deg	0.00	00.00		1	0.13	90.95	-0.28
	145.00	-01.00	0	A1	0.34	-10.26	12.57
	145.00	-11.00	120	A1a	18.35	-18.51	-10.99
	147.00	-10.00	240	A1b	-14.22	-14.43	-9.23
1.2D + 1.0Ev + 1.0Eh Normal M1	0.00	00.00		1	0.00	38.16	0.00
	145.00	-01.00	0	A1	0.00	-7.24	8.03
	145.00	-11.00	120	A1a	7.51	-8.51	-4.34
	147.00	-10.00	240	A1b	-7.52	-8.34	-4.35
1.2D + 1.0Ev + 1.0Eh 60 deg M1	0.00	00.00		1	0.00	38.16	0.00
	145.00	-01.00	0	A1	0.00	-7.50	8.29
	145.00	-11.00	120	A1a	7.13	-8.02	-4.12
	147.00	-10.00	240	A1b	-7.70	-8.57	-4.45
1.2D + 1.0Ev + 1.0Eh 90 deg M1	0.00	00.00		1	0.00	38.17	0.00
	145.00	-01.00	0	A1	0.00	-7.73	8.50
	145.00	-11.00	120	A1a	6.98	-7.83	-4.03
	147.00	-10.00	240	A1b	-7.68	-8.54	-4.43
1.2D + 1.0Ev + 1.0Eh 120 deg M1	0.00	00.00		1	0.00	38.17	0.00
	145.00	-01.00	0	A1	0.00	-7.97	8.73
	145.00	-11.00	120	A1a	6.96	-7.79	-4.02
	147.00	-10.00	240	A1b	-7.52	-8.34	-4.34
1.2D + 1.0Ev + 1.0Eh 180 deg M1	0.00	00.00		1	0.00	38.18	0.00
	145.00	-01.00	0	A1	0.00	-8.20	8.95
	145.00	-11.00	120	A1a	7.14	-8.03	-4.12
	147.00	-10.00	240	A1b	-7.16	-7.88	-4.13
1.2D + 1.0Ev + 1.0Eh 210 deg M1	0.00	00.00		1	0.00	38.18	0.00
	145.00	-01.00	0	A1	0.00	-8.14	8.89
	145.00	-11.00	120	A1a	7.32	-8.26	-4.23
	147.00	-10.00	240	A1b	-7.02	-7.71	-4.06
1.2D + 1.0Ev + 1.0Eh 240 deg M1	0.00	00.00		1	0.00	38.18	0.00
	145.00	-01.00	0	A1	0.00	-7.97	8.74
	145.00	-11.00	120	A1a	7.52	-8.52	-4.34
	147.00	-10.00	240	A1b	-6.95	-7.62	-4.01

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Site Name: Enfield, CT Engineering Number: 13688133_C3_03 7/23/2021 10:01:56 AM

Customer: DISH WIRELESS L.L.C.

1.2D + 1.0Ev + 1.0Eh 300 deg M1	0.00	00.00	1	0.00	38.17	0.00
	145.00	-01.00	0 A1	0.00	-7.48	8.26
	145.00	-11.00	120 A1a	7.71	-8.76	-4.45
	147.00	-10.00	240 A1b	-7.13	-7.85	-4.12
1.2D + 1.0Ev + 1.0Eh 330 deg M1	0.00	00.00	1	0.00	38.16	0.00
	145.00	-01.00	0 A1	0.00	-7.30	8.09
	145.00	-11.00	120 A1a	7.65	-8.69	-4.42
	147.00	-10.00	240 A1b	-7.33	-8.10	-4.23
1.0D + 1.0W Service Normal	0.00	00.00	1	0.00	36.61	-0.24
	145.00	-01.00	0 A1	0.00	-5.64	6.08
	145.00	-11.00	120 A1a	8.57	-9.72	-5.13
	147.00	-10.00	240 A1b	-8.57	-9.51	-5.13
1.0D + 1.0W Service 60 deg	0.00	00.00	1	-0.20	36.62	-0.12
	145.00	-01.00	0 A1	-0.16	-6.89	7.46
	145.00	-11.00	120 A1a	6.37	-7.39	-3.87
	147.00	-10.00	240 A1b	-9.73	-10.68	-5.62
1.0D + 1.0W Service 90 deg	0.00	00.00	1	-0.23	36.59	0.00
	145.00	-01.00	0 A1	-0.19	-7.99	8.75
	145.00	-11.00	120 A1a	5.59	-6.49	-3.32
	147.00	-10.00	240 A1b	-9.54	-10.42	-5.42
1.0D + 1.0W Service 120 deg	0.00	00.00	1	-0.21	36.59	0.12
	145.00	-01.00	0 A1	-0.16	-9.13	10.08
	145.00	-11.00	120 A1a	5.33	-6.14	-3.08
	147.00	-10.00	240 A1b	-8.80	-9.59	-4.89
1.0D + 1.0W Service 180 deg	0.00	00.00	1	0.00	36.65	0.23
	145.00	-01.00	0 A1	0.00	-10.23	11.33
	145.00	-11.00	120 A1a	6.59	-7.46	-3.62
	147.00	-10.00	240 A1b	-6.60	-7.31	-3.62
1.0D + 1.0W Service 210 deg	0.00	00.00	1	0.12	36.62	0.20
	145.00	-01.00	0 A1	0.08	-9.92	10.99
	145.00	-11.00	120 A1a	7.69	-8.60	-4.21
	147.00	-10.00	240 A1b	-5.72	-6.41	-3.21
1.0D + 1.0W Service 240 deg	0.00	00.00	1	0.21	36.60	0.12
	145.00	-01.00	0 A1	0.16	-9.11	10.06
	145.00	-11.00	120 A1a	8.78	-9.77	-4.88
	147.00	-10.00	240 A1b	-5.32	-5.99	-3.07
1.0D + 1.0W Service 300 deg	0.00	00.00	1	0.20	36.65	-0.12
	145.00	-01.00	0 A1	0.16	-6.87	7.45
	145.00	-11.00	120 A1a	9.72	-10.89	-5.61
	147.00	-10.00	240 A1b	-6.36	-7.23	-3.86
1.0D + 1.0W Service 330 deg	0.00	00.00	1	0.11	36.63	-0.21
	145.00	-01.00	0 A1	0.08	-5.98	6.43
	145.00	-11.00	120 A1a	9.43	-10.61	-5.54
	147.00	-10.00	240 A1b	-7.42	-8.34	-4.52

Site Number: 208450

Code: ANSI/TIA-222-H

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Site Name: Enfield, CT

Engineering Number: 13688133_C3_03

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Customer: DISH WIRELESS L.L.C.

Guy Anchor Design Loads

Radius (ft)	Drop (ft)	Azimuth (°)	Uplift (kip)	Shear (kip)
145.00	-1.00	0	19.93	22.16
145.00	-11.00	120	21.20	21.98
147.00	-10.00	240	20.77	21.98

Maximum Cable Forces Summary

Load Case	Elevation (ft)	Cable	Anchor Node	Tower Node	Allow Tension (kip)	Applied Tension (kip)	Use %
1.2D + 1.0Di + 1.0Wi 300 deg	59.35	7/16 EHS	A1a	32a	12.48	5.82	47
1.2D + 1.0W 300 deg	119.35	9/16 EHS	A1a	62a	21.00	8.76	42
1.2D + 1.0Di + 1.0Wi 300 deg	169.35	5/8 EHS	A1a	T3	25.44	9.05	36

Maximum Torque Arm Stress Summary

Load Case	Elevation (ft)	Member	Type	Compression %	Tension %
1.2D + 1.0Di + 1.0Wi Normal	59.00	PL 4.5 x 0.375"	Horiz		8
1.2D + 1.0W Normal	119.00	PL 4.5 x 0.375"	Horiz		9
1.2D + 1.0W 180 deg	169.00	2" DIA PIPE	Horiz		23
1.2D + 1.0Di + 1.0Wi 60 deg	169.00	2.375" x 0.218"	Kicker	23	

Site Number: 208450

Code: ANSI/TIA-222-H

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Site Name: Enfield, CT

Engineering Number: 13688133_C3_03

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Customer: DISH WIRELESS L.L.C.

Deflections and Rotations

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
116 mph Normal with No Ice	96.96	0.318	0.0036	0.1094	0.1094
116 mph Normal with No Ice	135.17	0.365	-0.0007	0.1247	0.1247
116 mph Normal with No Ice	137.53	0.368	-0.0007	0.0351	0.0351
116 mph Normal with No Ice	146.99	0.367	-0.0007	0.0409	0.0409
116 mph Normal with No Ice	150.00	0.364	-0.0007	0.0625	0.0625
116 mph Normal with No Ice	154.96	0.357	-0.0007	0.1070	0.1070
116 mph Normal with No Ice	166.96	0.328	-0.0007	0.1666	0.1666
116 mph Normal with No Ice	169.35	0.322	-0.0007	0.1265	0.1265
116 mph Normal with No Ice	172.57	0.315	-0.0007	0.1324	0.1324
116 mph Normal with No Ice	174.96	0.310	-0.0007	0.1184	0.1184
116 mph 60 degree with No Ice	96.96	0.279	-0.0046	0.1102	0.1103
116 mph 60 degree with No Ice	135.17	0.337	-0.0082	0.1583	0.1585
116 mph 60 degree with No Ice	137.53	0.341	-0.0080	0.0756	0.0761
116 mph 60 degree with No Ice	146.99	0.347	-0.0077	0.0066	0.0099
116 mph 60 degree with No Ice	150.00	0.346	-0.0076	0.0231	0.0246
116 mph 60 degree with No Ice	154.96	0.342	-0.0074	0.0692	0.0696
116 mph 60 degree with No Ice	166.96	0.322	-0.0071	0.1268	0.1270
116 mph 60 degree with No Ice	169.35	0.317	-0.0070	0.0855	0.0857
116 mph 60 degree with No Ice	172.57	0.312	-0.0070	0.0939	0.0942
116 mph 60 degree with No Ice	174.96	0.309	-0.0069	0.0817	0.0820
116 mph 90 degree with No Ice	96.96	0.299	0.0655	0.1109	0.1287
116 mph 90 degree with No Ice	135.17	0.353	0.0470	0.1465	0.1538
116 mph 90 degree with No Ice	137.53	0.356	0.0470	0.0590	0.0746
116 mph 90 degree with No Ice	146.99	0.359	0.0468	0.0322	0.0568
116 mph 90 degree with No Ice	150.00	0.357	0.0467	0.0477	0.0667
116 mph 90 degree with No Ice	154.96	0.352	0.0467	0.0895	0.1003
116 mph 90 degree with No Ice	166.96	0.327	0.0465	0.1512	0.1582
116 mph 90 degree with No Ice	169.35	0.321	0.0465	0.1073	0.1164
116 mph 90 degree with No Ice	172.57	0.316	0.0465	0.1163	0.1252
116 mph 90 degree with No Ice	174.96	0.312	0.0465	0.1021	0.1116
116 mph 120 degree with No Ice	96.96	0.303	-0.0095	0.1142	0.1146
116 mph 120 degree with No Ice	135.17	0.356	-0.0119	0.1362	0.1368
116 mph 120 degree with No Ice	137.53	0.360	-0.0118	0.0475	0.0491
116 mph 120 degree with No Ice	146.99	0.362	-0.0116	0.0271	0.0297
116 mph 120 degree with No Ice	150.00	0.359	-0.0115	0.0489	0.0504
116 mph 120 degree with No Ice	154.96	0.353	-0.0114	0.0926	0.0934
116 mph 120 degree with No Ice	166.96	0.328	-0.0112	0.1510	0.1514
116 mph 120 degree with No Ice	169.35	0.322	-0.0111	0.1106	0.1113
116 mph 120 degree with No Ice	172.57	0.316	-0.0111	0.1168	0.1173
116 mph 120 degree with No Ice	174.96	0.312	-0.0110	0.1027	0.1034
116 mph 180 degree with No Ice	96.96	0.257	0.0017	0.1026	0.1026
116 mph 180 degree with No Ice	135.17	0.313	-0.0006	0.1595	0.1595
116 mph 180 degree with No Ice	137.53	0.317	-0.0006	0.0775	0.0775
116 mph 180 degree with No Ice	146.99	0.323	-0.0005	0.0114	0.0114
116 mph 180 degree with No Ice	150.00	0.322	-0.0004	0.0183	0.0184
116 mph 180 degree with No Ice	154.96	0.319	-0.0004	0.0633	0.0633
116 mph 180 degree with No Ice	166.96	0.300	-0.0003	0.1183	0.1183
116 mph 180 degree with No Ice	169.35	0.296	-0.0003	0.0770	0.0770
116 mph 180 degree with No Ice	172.57	0.292	-0.0003	0.0856	0.0856
116 mph 180 degree with No Ice	174.96	0.288	-0.0003	0.0737	0.0737
116 mph 210 degree with No Ice	96.96	0.283	0.0824	0.1039	0.1326
116 mph 210 degree with No Ice	135.17	0.335	0.0640	0.1465	0.1599
116 mph 210 degree with No Ice	137.53	0.338	0.0640	0.0597	0.0866
116 mph 210 degree with No Ice	146.99	0.341	0.0638	0.0333	0.0720
116 mph 210 degree with No Ice	150.00	0.339	0.0637	0.0474	0.0793

Customer: DISH WIRELESS L.L.C.

116 mph 210 degree with No Ice	154.96	0.334	0.0637	0.0877	0.1076
116 mph 210 degree with No Ice	166.96	0.310	0.0635	0.1479	0.1609
116 mph 210 degree with No Ice	169.35	0.304	0.0634	0.1052	0.1222
116 mph 210 degree with No Ice	172.57	0.299	0.0634	0.1135	0.1300
116 mph 210 degree with No Ice	174.96	0.295	0.0634	0.0995	0.1172
116 mph 240 degree with No Ice	96.96	0.306	0.0126	0.1146	0.1153
116 mph 240 degree with No Ice	135.17	0.359	0.0102	0.1356	0.1359
116 mph 240 degree with No Ice	137.53	0.363	0.0101	0.0471	0.0480
116 mph 240 degree with No Ice	146.99	0.364	0.0099	0.0283	0.0298
116 mph 240 degree with No Ice	150.00	0.362	0.0098	0.0497	0.0505
116 mph 240 degree with No Ice	154.96	0.356	0.0097	0.0936	0.0939
116 mph 240 degree with No Ice	166.96	0.331	0.0094	0.1524	0.1527
116 mph 240 degree with No Ice	169.35	0.325	0.0094	0.1121	0.1123
116 mph 240 degree with No Ice	172.57	0.319	0.0094	0.1182	0.1185
116 mph 240 degree with No Ice	174.96	0.314	0.0093	0.1041	0.1044
116 mph 300 degree with No Ice	96.96	0.284	0.0096	0.1153	0.1157
116 mph 300 degree with No Ice	135.17	0.345	0.0070	0.1625	0.1626
116 mph 300 degree with No Ice	137.53	0.349	0.0069	0.0789	0.0791
116 mph 300 degree with No Ice	146.99	0.355	0.0065	0.0124	0.0140
116 mph 300 degree with No Ice	150.00	0.355	0.0064	0.0198	0.0204
116 mph 300 degree with No Ice	154.96	0.351	0.0062	0.0674	0.0675
116 mph 300 degree with No Ice	166.96	0.331	0.0058	0.1260	0.1261
116 mph 300 degree with No Ice	169.35	0.326	0.0057	0.0849	0.0850
116 mph 300 degree with No Ice	172.57	0.321	0.0056	0.0930	0.0932
116 mph 300 degree with No Ice	174.96	0.318	0.0056	0.0809	0.0811
116 mph 330 degree with No Ice	96.96	0.304	0.0850	0.1113	0.1399
116 mph 330 degree with No Ice	135.17	0.356	0.0663	0.1437	0.1582
116 mph 330 degree with No Ice	137.53	0.360	0.0662	0.0599	0.0883
116 mph 330 degree with No Ice	146.99	0.361	0.0661	0.0422	0.0784
116 mph 330 degree with No Ice	150.00	0.359	0.0660	0.0571	0.0872
116 mph 330 degree with No Ice	154.96	0.354	0.0660	0.0977	0.1172
116 mph 330 degree with No Ice	166.96	0.328	0.0658	0.1600	0.1729
116 mph 330 degree with No Ice	169.35	0.322	0.0658	0.1175	0.1340
116 mph 330 degree with No Ice	172.57	0.316	0.0658	0.1255	0.1416
116 mph 330 degree with No Ice	174.96	0.312	0.0657	0.1115	0.1288
50 mph Normal with 1.50 in Radial Ice	96.96	0.148	0.0055	0.0473	0.0476
50 mph Normal with 1.50 in Radial Ice	135.17	0.101	0.0005	0.0893	0.0893
50 mph Normal with 1.50 in Radial Ice	137.53	0.098	0.0005	0.1133	0.1133
50 mph Normal with 1.50 in Radial Ice	146.99	0.077	0.0004	0.1436	0.1436
50 mph Normal with 1.50 in Radial Ice	150.00	0.070	0.0004	0.1569	0.1569
50 mph Normal with 1.50 in Radial Ice	154.96	0.056	0.0003	0.1747	0.1747
50 mph Normal with 1.50 in Radial Ice	166.96	0.020	0.0003	0.1957	0.1957
50 mph Normal with 1.50 in Radial Ice	169.35	0.014	0.0003	0.1847	0.1847
50 mph Normal with 1.50 in Radial Ice	172.57	0.011	0.0003	0.1836	0.1836
50 mph Normal with 1.50 in Radial Ice	174.96	0.014	0.0003	0.1783	0.1783
50 mph 60 deg with 1.50 in Radial Ice	96.96	0.156	-0.0003	0.0315	0.0315
50 mph 60 deg with 1.50 in Radial Ice	135.17	0.141	-0.0051	0.0224	0.0230
50 mph 60 deg with 1.50 in Radial Ice	137.53	0.140	-0.0050	0.0544	0.0546
50 mph 60 deg with 1.50 in Radial Ice	146.99	0.130	-0.0046	0.0833	0.0834
50 mph 60 deg with 1.50 in Radial Ice	150.00	0.126	-0.0044	0.0890	0.0891
50 mph 60 deg with 1.50 in Radial Ice	154.96	0.118	-0.0043	0.1054	0.1055
50 mph 60 deg with 1.50 in Radial Ice	166.96	0.094	-0.0039	0.1270	0.1271
50 mph 60 deg with 1.50 in Radial Ice	169.35	0.089	-0.0038	0.1080	0.1081
50 mph 60 deg with 1.50 in Radial Ice	172.57	0.083	-0.0037	0.1130	0.1131
50 mph 60 deg with 1.50 in Radial Ice	174.96	0.079	-0.0037	0.1087	0.1087
50 mph 90 deg with 1.50 in Radial Ice	96.96	0.140	0.0754	0.0487	0.0897
50 mph 90 deg with 1.50 in Radial Ice	135.17	0.115	0.0508	0.0664	0.0836
50 mph 90 deg with 1.50 in Radial Ice	137.53	0.113	0.0506	0.0879	0.1015
50 mph 90 deg with 1.50 in Radial Ice	146.99	0.101	0.0499	0.1155	0.1257
50 mph 90 deg with 1.50 in Radial Ice	150.00	0.097	0.0497	0.1251	0.1346
50 mph 90 deg with 1.50 in Radial Ice	154.96	0.090	0.0493	0.1422	0.1504
50 mph 90 deg with 1.50 in Radial Ice	166.96	0.074	0.0487	0.1625	0.1696

Site Number:	208450	Code:	ANSI/TIA-222-H		© 2007 - 2021 by ATC IP LLC. All rights reserved.
Site Name:	Enfield, CT	Engineering Number:	13688133_C3_03		7/23/2021 10:01:56 AM
Customer:	DISH WIRELESS L.L.C.				
50 mph 90 deg with 1.50 in Radial Ice	169.35	0.072	0.0486	0.1481	0.1558
50 mph 90 deg with 1.50 in Radial Ice	172.57	0.070	0.0484	0.1490	0.1567
50 mph 90 deg with 1.50 in Radial Ice	174.96	0.070	0.0483	0.1436	0.1515
50 mph 120 deg with 1.50 in Radial Ice	96.96	0.123	-0.0011	0.0508	0.0508
50 mph 120 deg with 1.50 in Radial Ice	135.17	0.074	-0.0054	0.0890	0.0892
50 mph 120 deg with 1.50 in Radial Ice	137.53	0.070	-0.0053	0.1123	0.1125
50 mph 120 deg with 1.50 in Radial Ice	146.99	0.050	-0.0049	0.1411	0.1412
50 mph 120 deg with 1.50 in Radial Ice	150.00	0.042	-0.0047	0.1546	0.1547
50 mph 120 deg with 1.50 in Radial Ice	154.96	0.029	-0.0046	0.1701	0.1701
50 mph 120 deg with 1.50 in Radial Ice	166.96	0.010	-0.0042	0.1885	0.1886
50 mph 120 deg with 1.50 in Radial Ice	169.35	0.017	-0.0042	0.1772	0.1772
50 mph 120 deg with 1.50 in Radial Ice	172.57	0.027	-0.0041	0.1766	0.1766
50 mph 120 deg with 1.50 in Radial Ice	174.96	0.034	-0.0040	0.1712	0.1713
50 mph 180 deg with 1.50 in Radial Ice	96.96	0.138	0.0016	0.0267	0.0268
50 mph 180 deg with 1.50 in Radial Ice	135.17	0.126	-0.0030	0.0186	0.0188
50 mph 180 deg with 1.50 in Radial Ice	137.53	0.125	-0.0029	0.0471	0.0472
50 mph 180 deg with 1.50 in Radial Ice	146.99	0.117	-0.0025	0.0739	0.0740
50 mph 180 deg with 1.50 in Radial Ice	150.00	0.113	-0.0025	0.0794	0.0794
50 mph 180 deg with 1.50 in Radial Ice	154.96	0.106	-0.0023	0.0942	0.0942
50 mph 180 deg with 1.50 in Radial Ice	166.96	0.085	-0.0020	0.1131	0.1131
50 mph 180 deg with 1.50 in Radial Ice	169.35	0.080	-0.0020	0.0939	0.0939
50 mph 180 deg with 1.50 in Radial Ice	172.57	0.075	-0.0019	0.0994	0.0994
50 mph 180 deg with 1.50 in Radial Ice	174.96	0.071	-0.0019	0.0949	0.0949
50 mph 210 deg with 1.50 in Radial Ice	96.96	0.133	0.0804	0.0430	0.0912
50 mph 210 deg with 1.50 in Radial Ice	135.17	0.105	0.0553	0.0641	0.0846
50 mph 210 deg with 1.50 in Radial Ice	137.53	0.103	0.0551	0.0843	0.1007
50 mph 210 deg with 1.50 in Radial Ice	146.99	0.091	0.0543	0.1106	0.1231
50 mph 210 deg with 1.50 in Radial Ice	150.00	0.086	0.0541	0.1201	0.1316
50 mph 210 deg with 1.50 in Radial Ice	154.96	0.078	0.0537	0.1370	0.1471
50 mph 210 deg with 1.50 in Radial Ice	166.96	0.058	0.0530	0.1563	0.1651
50 mph 210 deg with 1.50 in Radial Ice	169.35	0.055	0.0529	0.1428	0.1522
50 mph 210 deg with 1.50 in Radial Ice	172.57	0.053	0.0528	0.1434	0.1528
50 mph 210 deg with 1.50 in Radial Ice	174.96	0.051	0.0527	0.1380	0.1476
50 mph 240 deg with 1.50 in Radial Ice	96.96	0.136	0.0053	0.0447	0.0450
50 mph 240 deg with 1.50 in Radial Ice	135.17	0.089	0.0003	0.0874	0.0874
50 mph 240 deg with 1.50 in Radial Ice	137.53	0.086	0.0003	0.1108	0.1108
50 mph 240 deg with 1.50 in Radial Ice	146.99	0.067	0.0003	0.1396	0.1396
50 mph 240 deg with 1.50 in Radial Ice	150.00	0.059	0.0003	0.1532	0.1532
50 mph 240 deg with 1.50 in Radial Ice	154.96	0.046	0.0003	0.1694	0.1694
50 mph 240 deg with 1.50 in Radial Ice	166.96	0.016	0.0003	0.1887	0.1887
50 mph 240 deg with 1.50 in Radial Ice	169.35	0.014	0.0004	0.1775	0.1775
50 mph 240 deg with 1.50 in Radial Ice	172.57	0.017	0.0004	0.1768	0.1768
50 mph 240 deg with 1.50 in Radial Ice	174.96	0.023	0.0003	0.1714	0.1714
50 mph 300 deg with 1.50 in Radial Ice	96.96	0.166	0.0088	0.0346	0.0357
50 mph 300 deg with 1.50 in Radial Ice	135.17	0.155	0.0037	0.0169	0.0173
50 mph 300 deg with 1.50 in Radial Ice	137.53	0.154	0.0036	0.0496	0.0497
50 mph 300 deg with 1.50 in Radial Ice	146.99	0.145	0.0034	0.0791	0.0792
50 mph 300 deg with 1.50 in Radial Ice	150.00	0.141	0.0033	0.0848	0.0848
50 mph 300 deg with 1.50 in Radial Ice	154.96	0.133	0.0031	0.1024	0.1024
50 mph 300 deg with 1.50 in Radial Ice	166.96	0.110	0.0029	0.1250	0.1251
50 mph 300 deg with 1.50 in Radial Ice	169.35	0.105	0.0028	0.1061	0.1062
50 mph 300 deg with 1.50 in Radial Ice	172.57	0.099	0.0028	0.1109	0.1109
50 mph 300 deg with 1.50 in Radial Ice	174.96	0.094	0.0028	0.1066	0.1066
50 mph 330 deg with 1.50 in Radial Ice	96.96	0.157	0.0860	0.0486	0.0987
50 mph 330 deg with 1.50 in Radial Ice	135.17	0.133	0.0605	0.0670	0.0902
50 mph 330 deg with 1.50 in Radial Ice	137.53	0.131	0.0602	0.0874	0.1061
50 mph 330 deg with 1.50 in Radial Ice	146.99	0.119	0.0596	0.1154	0.1298
50 mph 330 deg with 1.50 in Radial Ice	150.00	0.114	0.0594	0.1246	0.1380
50 mph 330 deg with 1.50 in Radial Ice	154.96	0.106	0.0591	0.1438	0.1554
50 mph 330 deg with 1.50 in Radial Ice	166.96	0.085	0.0585	0.1661	0.1761
50 mph 330 deg with 1.50 in Radial Ice	169.35	0.081	0.0585	0.1526	0.1633
50 mph 330 deg with 1.50 in Radial Ice	172.57	0.078	0.0584	0.1528	0.1636

Site Number:	208450	Code:	ANSI/TIA-222-H	© 2007 - 2021 by ATC IP LLC. All rights reserved.		
Site Name:	Enfield, CT	Engineering Number:	13688133_C3_03	7/23/2021 10:01:56 AM		
Customer:	DISH WIRELESS L.L.C.					
50 mph 330 deg with 1.50 in Radial Ice	174.96	0.076	0.0583	0.1475	0.1585	
Seismic Normal M1	96.96	0.009	0.0017	0.0178	0.0179	
Seismic Normal M1	135.17	0.016	-0.0006	0.0174	0.0174	
Seismic Normal M1	137.53	0.017	-0.0005	0.0135	0.0135	
Seismic Normal M1	146.99	0.018	-0.0003	0.0111	0.0111	
Seismic Normal M1	150.00	0.019	-0.0002	0.0085	0.0085	
Seismic Normal M1	154.96	0.019	-0.0001	0.0058	0.0058	
Seismic Normal M1	166.96	0.019	-0.0001	0.0015	0.0015	
Seismic Normal M1	169.35	0.019	0.0000	0.0045	0.0045	
Seismic Normal M1	172.57	0.020	0.0000	0.0032	0.0032	
Seismic Normal M1	174.96	0.020	0.0000	0.0031	0.0031	
Seismic 60 deg M1	96.96	0.007	0.0017	0.0151	0.0152	
Seismic 60 deg M1	135.17	0.013	-0.0005	0.0155	0.0155	
Seismic 60 deg M1	137.53	0.014	-0.0004	0.0147	0.0147	
Seismic 60 deg M1	146.99	0.015	-0.0002	0.0100	0.0101	
Seismic 60 deg M1	150.00	0.015	-0.0001	0.0089	0.0089	
Seismic 60 deg M1	154.96	0.016	-0.0001	0.0067	0.0067	
Seismic 60 deg M1	166.96	0.016	0.0000	0.0015	0.0015	
Seismic 60 deg M1	169.35	0.016	0.0000	0.0048	0.0048	
Seismic 60 deg M1	172.57	0.016	0.0000	0.0034	0.0034	
Seismic 60 deg M1	174.96	0.016	0.0000	0.0038	0.0038	
Seismic 90 deg M1	96.96	0.006	0.0017	0.0150	0.0151	
Seismic 90 deg M1	135.17	0.012	-0.0006	0.0152	0.0152	
Seismic 90 deg M1	137.53	0.013	-0.0005	0.0141	0.0141	
Seismic 90 deg M1	146.99	0.014	-0.0003	0.0100	0.0100	
Seismic 90 deg M1	150.00	0.015	-0.0002	0.0081	0.0082	
Seismic 90 deg M1	154.96	0.015	-0.0001	0.0064	0.0064	
Seismic 90 deg M1	166.96	0.015	-0.0001	0.0018	0.0018	
Seismic 90 deg M1	169.35	0.015	0.0000	0.0061	0.0061	
Seismic 90 deg M1	172.57	0.016	0.0000	0.0044	0.0044	
Seismic 90 deg M1	174.96	0.016	0.0000	0.0045	0.0045	
Seismic 120 deg M1	96.96	0.004	0.0017	0.0151	0.0152	
Seismic 120 deg M1	135.17	0.010	-0.0004	0.0153	0.0153	
Seismic 120 deg M1	137.53	0.011	-0.0004	0.0122	0.0123	
Seismic 120 deg M1	146.99	0.012	-0.0002	0.0104	0.0104	
Seismic 120 deg M1	150.00	0.012	-0.0001	0.0077	0.0077	
Seismic 120 deg M1	154.96	0.013	-0.0001	0.0061	0.0061	
Seismic 120 deg M1	166.96	0.013	0.0000	0.0022	0.0022	
Seismic 120 deg M1	169.35	0.013	0.0000	0.0064	0.0064	
Seismic 120 deg M1	172.57	0.013	0.0000	0.0048	0.0048	
Seismic 120 deg M1	174.96	0.013	0.0000	0.0048	0.0048	
Seismic 180 deg M1	96.96	0.003	0.0018	0.0132	0.0133	
Seismic 180 deg M1	135.17	0.009	-0.0004	0.0143	0.0143	
Seismic 180 deg M1	137.53	0.010	-0.0003	0.0142	0.0142	
Seismic 180 deg M1	146.99	0.011	-0.0001	0.0095	0.0095	
Seismic 180 deg M1	150.00	0.011	-0.0001	0.0083	0.0083	
Seismic 180 deg M1	154.96	0.012	-0.0001	0.0071	0.0071	
Seismic 180 deg M1	166.96	0.012	0.0000	0.0027	0.0027	
Seismic 180 deg M1	169.35	0.012	0.0000	0.0063	0.0063	
Seismic 180 deg M1	172.57	0.013	0.0000	0.0043	0.0043	
Seismic 180 deg M1	174.96	0.013	0.0000	0.0051	0.0051	
Seismic 210 deg M1	96.96	0.004	0.0018	0.0153	0.0154	
Seismic 210 deg M1	135.17	0.010	-0.0003	0.0153	0.0153	
Seismic 210 deg M1	137.53	0.011	-0.0003	0.0139	0.0139	
Seismic 210 deg M1	146.99	0.013	-0.0001	0.0106	0.0106	
Seismic 210 deg M1	150.00	0.013	-0.0001	0.0082	0.0082	
Seismic 210 deg M1	154.96	0.013	0.0000	0.0070	0.0070	
Seismic 210 deg M1	166.96	0.014	0.0000	0.0025	0.0025	
Seismic 210 deg M1	169.35	0.014	0.0000	0.0064	0.0064	
Seismic 210 deg M1	172.57	0.014	0.0000	0.0049	0.0049	
Seismic 210 deg M1	174.96	0.014	0.0000	0.0052	0.0052	
Seismic 240 deg M1	96.96	0.007	0.0018	0.0169	0.0170	

Site Number:	208450	Code:	ANSI/TIA-222-H			© 2007 - 2021 by ATC IP LLC. All rights reserved.
Site Name:	Enfield, CT	Engineering Number:	13688133_C3_03			7/23/2021 10:01:56 AM
Customer:	DISH WIRELESS L.L.C.					
Seismic 240 deg M1	135.17	0.013	-0.0004	0.0172	0.0172	
Seismic 240 deg M1	137.53	0.014	-0.0004	0.0138	0.0138	
Seismic 240 deg M1	146.99	0.016	-0.0002	0.0116	0.0116	
Seismic 240 deg M1	150.00	0.016	-0.0001	0.0092	0.0092	
Seismic 240 deg M1	154.96	0.016	-0.0001	0.0067	0.0067	
Seismic 240 deg M1	166.96	0.017	0.0000	0.0022	0.0022	
Seismic 240 deg M1	169.35	0.017	0.0000	0.0067	0.0067	
Seismic 240 deg M1	172.57	0.017	0.0000	0.0052	0.0052	
Seismic 240 deg M1	174.96	0.017	0.0000	0.0052	0.0052	
Seismic 300 deg M1	96.96	0.009	0.0018	0.0157	0.0158	
Seismic 300 deg M1	135.17	0.016	-0.0005	0.0171	0.0171	
Seismic 300 deg M1	137.53	0.017	-0.0004	0.0161	0.0161	
Seismic 300 deg M1	146.99	0.019	-0.0002	0.0110	0.0110	
Seismic 300 deg M1	150.00	0.019	-0.0002	0.0099	0.0099	
Seismic 300 deg M1	154.96	0.019	-0.0001	0.0074	0.0074	
Seismic 300 deg M1	166.96	0.020	0.0000	0.0017	0.0017	
Seismic 300 deg M1	169.35	0.020	0.0000	0.0050	0.0050	
Seismic 300 deg M1	172.57	0.020	0.0000	0.0037	0.0037	
Seismic 300 deg M1	174.96	0.020	0.0000	0.0041	0.0041	
Seismic 330 deg M1	96.96	0.009	0.0018	0.0173	0.0174	
Seismic 330 deg M1	135.17	0.017	-0.0005	0.0171	0.0171	
Seismic 330 deg M1	137.53	0.017	-0.0005	0.0153	0.0153	
Seismic 330 deg M1	146.99	0.019	-0.0002	0.0108	0.0108	
Seismic 330 deg M1	150.00	0.019	-0.0002	0.0092	0.0092	
Seismic 330 deg M1	154.96	0.020	-0.0001	0.0068	0.0068	
Seismic 330 deg M1	166.96	0.020	0.0000	0.0017	0.0017	
Seismic 330 deg M1	169.35	0.020	0.0000	0.0046	0.0046	
Seismic 330 deg M1	172.57	0.020	0.0000	0.0031	0.0031	
Seismic 330 deg M1	174.96	0.020	0.0000	0.0035	0.0035	
Serviceability - 60 mph Wind Normal	96.96	0.052	0.0018	0.0193	0.0194	
Serviceability - 60 mph Wind Normal	135.17	0.057	-0.0007	0.0282	0.0282	
Serviceability - 60 mph Wind Normal	137.53	0.058	-0.0006	0.0070	0.0070	
Serviceability - 60 mph Wind Normal	146.99	0.057	-0.0005	0.0163	0.0163	
Serviceability - 60 mph Wind Normal	150.00	0.056	-0.0004	0.0211	0.0211	
Serviceability - 60 mph Wind Normal	154.96	0.054	-0.0004	0.0345	0.0345	
Serviceability - 60 mph Wind Normal	166.96	0.045	-0.0003	0.0480	0.0480	
Serviceability - 60 mph Wind Normal	169.35	0.044	-0.0002	0.0386	0.0386	
Serviceability - 60 mph Wind Normal	172.57	0.041	-0.0002	0.0394	0.0394	
Serviceability - 60 mph Wind Normal	174.96	0.040	-0.0002	0.0355	0.0355	
Serviceability - 60 mph Wind 60 deg	96.96	0.056	0.0008	0.0235	0.0235	
Serviceability - 60 mph Wind 60 deg	135.17	0.065	-0.0017	0.0326	0.0327	
Serviceability - 60 mph Wind 60 deg	137.53	0.065	-0.0016	0.0137	0.0138	
Serviceability - 60 mph Wind 60 deg	146.99	0.066	-0.0011	0.0115	0.0116	
Serviceability - 60 mph Wind 60 deg	150.00	0.065	-0.0010	0.0144	0.0144	
Serviceability - 60 mph Wind 60 deg	154.96	0.063	-0.0009	0.0269	0.0269	
Serviceability - 60 mph Wind 60 deg	166.96	0.056	-0.0006	0.0404	0.0404	
Serviceability - 60 mph Wind 60 deg	169.35	0.055	-0.0005	0.0283	0.0283	
Serviceability - 60 mph Wind 60 deg	172.57	0.053	-0.0005	0.0314	0.0314	
Serviceability - 60 mph Wind 60 deg	174.96	0.052	-0.0004	0.0285	0.0285	
Serviceability - 60 mph Wind 90 deg	96.96	0.053	0.0092	0.0203	0.0222	
Serviceability - 60 mph Wind 90 deg	135.17	0.060	0.0048	0.0289	0.0293	
Serviceability - 60 mph Wind 90 deg	137.53	0.060	0.0045	0.0102	0.0110	
Serviceability - 60 mph Wind 90 deg	146.99	0.060	0.0034	0.0153	0.0156	
Serviceability - 60 mph Wind 90 deg	150.00	0.059	0.0031	0.0196	0.0198	
Serviceability - 60 mph Wind 90 deg	154.96	0.057	0.0026	0.0321	0.0322	
Serviceability - 60 mph Wind 90 deg	166.96	0.050	0.0018	0.0458	0.0458	
Serviceability - 60 mph Wind 90 deg	169.35	0.048	0.0017	0.0346	0.0346	
Serviceability - 60 mph Wind 90 deg	172.57	0.046	0.0015	0.0365	0.0366	
Serviceability - 60 mph Wind 90 deg	174.96	0.045	0.0014	0.0328	0.0328	
Serviceability - 60 mph Wind 120 deg	96.96	0.047	0.0009	0.0177	0.0178	
Serviceability - 60 mph Wind 120 deg	135.17	0.052	-0.0013	0.0270	0.0270	
Serviceability - 60 mph Wind 120 deg	137.53	0.053	-0.0012	0.0078	0.0079	

Site Number:	208450	Code:	ANSI/TIA-222-H		© 2007 - 2021 by ATC IP LLC. All rights reserved.
Site Name:	Enfield, CT	Engineering Number:	13688133_C3_03		7/23/2021 10:01:56 AM
Customer:	DISH WIRELESS L.L.C.				
Serviceability - 60 mph Wind 120 deg	146.99	0.052	-0.0009	0.0157	0.0157
Serviceability - 60 mph Wind 120 deg	150.00	0.051	-0.0008	0.0209	0.0209
Serviceability - 60 mph Wind 120 deg	154.96	0.049	-0.0006	0.0332	0.0332
Serviceability - 60 mph Wind 120 deg	166.96	0.041	-0.0004	0.0454	0.0454
Serviceability - 60 mph Wind 120 deg	169.35	0.039	-0.0004	0.0359	0.0359
Serviceability - 60 mph Wind 120 deg	172.57	0.037	-0.0003	0.0369	0.0369
Serviceability - 60 mph Wind 120 deg	174.96	0.036	-0.0003	0.0330	0.0330
Serviceability - 60 mph Wind 180 deg	96.96	0.050	0.0016	0.0211	0.0211
Serviceability - 60 mph Wind 180 deg	135.17	0.058	-0.0005	0.0322	0.0322
Serviceability - 60 mph Wind 180 deg	137.53	0.059	-0.0005	0.0140	0.0141
Serviceability - 60 mph Wind 180 deg	146.99	0.059	-0.0003	0.0105	0.0105
Serviceability - 60 mph Wind 180 deg	150.00	0.058	-0.0003	0.0134	0.0134
Serviceability - 60 mph Wind 180 deg	154.96	0.057	-0.0002	0.0251	0.0251
Serviceability - 60 mph Wind 180 deg	166.96	0.051	-0.0001	0.0374	0.0374
Serviceability - 60 mph Wind 180 deg	169.35	0.049	-0.0001	0.0251	0.0251
Serviceability - 60 mph Wind 180 deg	172.57	0.048	-0.0001	0.0284	0.0284
Serviceability - 60 mph Wind 180 deg	174.96	0.047	-0.0001	0.0255	0.0255
Serviceability - 60 mph Wind 210 deg	96.96	0.048	0.0097	0.0184	0.0208
Serviceability - 60 mph Wind 210 deg	135.17	0.055	0.0058	0.0299	0.0304
Serviceability - 60 mph Wind 210 deg	137.53	0.055	0.0054	0.0107	0.0118
Serviceability - 60 mph Wind 210 deg	146.99	0.055	0.0039	0.0137	0.0142
Serviceability - 60 mph Wind 210 deg	150.00	0.055	0.0035	0.0179	0.0183
Serviceability - 60 mph Wind 210 deg	154.96	0.053	0.0029	0.0302	0.0303
Serviceability - 60 mph Wind 210 deg	166.96	0.045	0.0019	0.0433	0.0434
Serviceability - 60 mph Wind 210 deg	169.35	0.044	0.0018	0.0327	0.0327
Serviceability - 60 mph Wind 210 deg	172.57	0.042	0.0016	0.0343	0.0344
Serviceability - 60 mph Wind 210 deg	174.96	0.041	0.0014	0.0306	0.0306
Serviceability - 60 mph Wind 240 deg	96.96	0.049	0.0022	0.0190	0.0191
Serviceability - 60 mph Wind 240 deg	135.17	0.055	0.0002	0.0278	0.0278
Serviceability - 60 mph Wind 240 deg	137.53	0.055	0.0002	0.0085	0.0085
Serviceability - 60 mph Wind 240 deg	146.99	0.055	0.0002	0.0152	0.0152
Serviceability - 60 mph Wind 240 deg	150.00	0.054	0.0002	0.0204	0.0204
Serviceability - 60 mph Wind 240 deg	154.96	0.052	0.0001	0.0330	0.0330
Serviceability - 60 mph Wind 240 deg	166.96	0.044	0.0001	0.0457	0.0457
Serviceability - 60 mph Wind 240 deg	169.35	0.042	0.0001	0.0362	0.0362
Serviceability - 60 mph Wind 240 deg	172.57	0.040	0.0001	0.0372	0.0372
Serviceability - 60 mph Wind 240 deg	174.96	0.039	0.0001	0.0333	0.0333
Serviceability - 60 mph Wind 300 deg	96.96	0.058	0.0026	0.0249	0.0250
Serviceability - 60 mph Wind 300 deg	135.17	0.068	0.0007	0.0343	0.0343
Serviceability - 60 mph Wind 300 deg	137.53	0.069	0.0006	0.0151	0.0151
Serviceability - 60 mph Wind 300 deg	146.99	0.069	0.0005	0.0103	0.0104
Serviceability - 60 mph Wind 300 deg	150.00	0.068	0.0004	0.0131	0.0131
Serviceability - 60 mph Wind 300 deg	154.96	0.067	0.0004	0.0262	0.0262
Serviceability - 60 mph Wind 300 deg	166.96	0.060	0.0003	0.0403	0.0403
Serviceability - 60 mph Wind 300 deg	169.35	0.059	0.0002	0.0282	0.0282
Serviceability - 60 mph Wind 300 deg	172.57	0.057	0.0002	0.0312	0.0312
Serviceability - 60 mph Wind 300 deg	174.96	0.056	0.0002	0.0284	0.0284
Serviceability - 60 mph Wind 330 deg	96.96	0.057	0.0119	0.0214	0.0244
Serviceability - 60 mph Wind 330 deg	135.17	0.064	0.0073	0.0305	0.0313
Serviceability - 60 mph Wind 330 deg	137.53	0.065	0.0069	0.0112	0.0130
Serviceability - 60 mph Wind 330 deg	146.99	0.064	0.0054	0.0156	0.0164
Serviceability - 60 mph Wind 330 deg	150.00	0.064	0.0049	0.0197	0.0203
Serviceability - 60 mph Wind 330 deg	154.96	0.062	0.0043	0.0332	0.0335
Serviceability - 60 mph Wind 330 deg	166.96	0.054	0.0031	0.0479	0.0480
Serviceability - 60 mph Wind 330 deg	169.35	0.052	0.0030	0.0371	0.0372
Serviceability - 60 mph Wind 330 deg	172.57	0.050	0.0027	0.0387	0.0388
Serviceability - 60 mph Wind 330 deg	174.96	0.049	0.0026	0.0350	0.0351

Site Number: 208450

Code: ANSI/TIA-222-H

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Site Name: Enfield, CT

Engineering Number: 13688133_C3_03

7/23/2021 10:01:56 AM

Customer: DISH WIRELESS L.L.C.

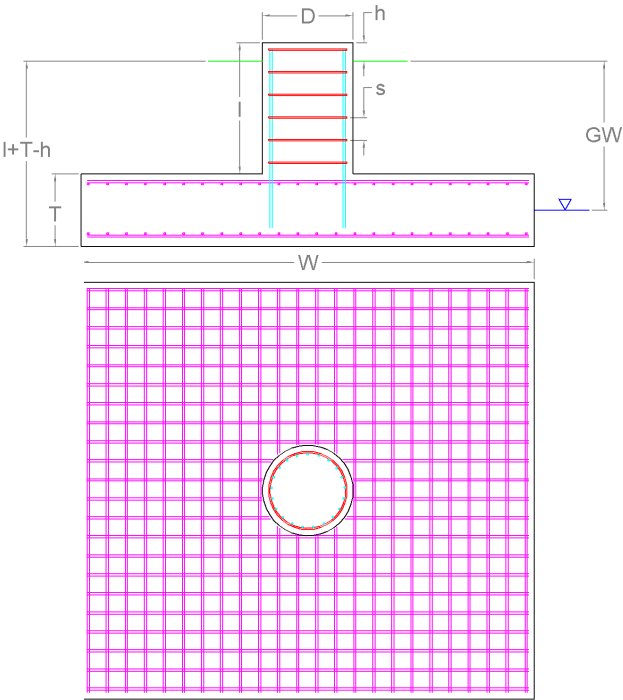
Maximum Reactions Summary

Anchor Group	UpLift	Shear
Base	91.22	0.84
A1	21.20	22.16

Pad & Pier Foundation Analysis (ANSI/TIA-222-H)

Foundation & Soil Parameters			
Ignore Rebar?		Y	
Pier Diameter	D	2.26	ft
Pier Height Above Ground	h	1.5	ft
Pad Base Depth	$I+T-h$	3.6	ft
Pad Width	W	8.0	ft
Pad Thickness	T	1.6	ft
Water Table Depth [BGL]	GW	99	ft
Unit Weight of Concrete		150	pcf
Unit Weight of Soil Above Water Table		105.0	pcf
Unit Weight of Water		62.4	pcf
Unit Weight of Soil [Submerged]		42.6	pcf
Cohesion		0	psf
Friction Angle		29	°
Ultimate Skin Friction		0	psf
Ultimate Bearing Pressure		4,212	psf
Conical Failure Angle		30	°
Soil Uplift at ____ of Pad		Top	
Capacity Increase (Transient Loads)		1.00	
Bearing Strength Reduction Factor, ϕ_s		0.60	
Uplift Strength Reduction Factor, ϕ_s		0.75	

Reactions		
Moment, M_u	0.0	k-ft
Shear, V_u	0.8	k
Compression, P_u	91.2	k
Uplift, T_u	0.0	k



Soil Axial Capacities and Design Moment		
Weight of Concrete [Buoyancy Considered]	17.5	k
Weight of Soil [Buoyancy Considered]	16.8	k
Skin Friction Resistance	0.0	k
Controlling Failure Mode	Top	
Compressive Force, P_u	98.3	k
Nominal Compressive Capacity per Leg, $\phi_s P_n$	161.7	k
$P_u / \phi_s P_n$	60.8%	
Inflection Point [BGL]	2.1	ft
Design Moment at Inflection Point, M_u	1.1	k-ft



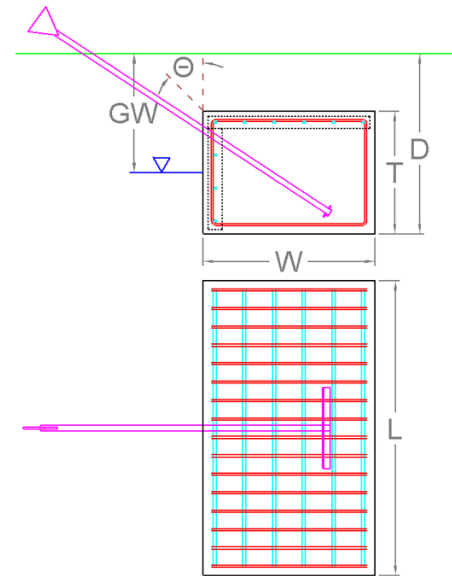
Guy Anchor Block Analysis (ANSI/TIA-222-H)

Anchor Block Parameters

Include Berm?		N	
Analyze Anchor Rod?		Y	
Ignore Rebar?		Y	
Base Depth	D	11.0	ft
Width	W	4.0	ft
Length	L	20.0	ft
Thickness	T	4.0	ft
Water Table Depth [BGL]	GW	99	ft
Unit Weight of Concrete		150	pcf
Unit Weight of Soil Above Water Table		105.0	pcf
Unit Weight of Water		62.4	pcf
Unit Weight of Soil [Submerged]		42.6	pcf
Friction Angle		29	°
Cohesion		0	psf
Ultimate Skin Friction		0	psf
Coefficient of Shear Friction		0.35	
Conical Failure Angle	Θ	30	°
Soil Uplift at _____ of Anchor		Top	
Capacity Increase (Transient Loads)		1.00	
Uplift Strength Reduction Factor, ϕ_u		0.75	
Shear Strength Reduction Factor, ϕ_v		0.75	
Dead Load Factor		0.90	

Reactions

Uplift, T_u	21.2	k
Shear, V_u	22.2	k
Anchor Radius	145	ft
Node	A1	-



Soil Uplift Capacity

Uplift Resistance from Skin Friction and Soil Shear	0.0	k
Nominal Uplift Resistance, $\phi_u T_n$	159.0	k
$T_u / \phi_u T_n$	13.3%	

Soil Shear Capacity

Shear Resistance from Skin Friction	0.0	k
Shear Friction Resistance Due to Normal Force	26.2	k
Passive Pressure	2,724	psf
Passive Pressure Resistance	217.9	k
Nominal Shear Resistance, $\phi_v V_n$	183.1	k
$V_u / \phi_v V_n$	12.1%	



Anchor Rod Capacity		
Anchor Rod Shape	Solid Rod	
Quantity of Rods	2	
Gross Area (Individual)	3.98	in ²
Net Area (Individual)	3.98	in ²
Yield Strength, F _y	36	ksi
Tensile Strength, F _u	58	ksi
Yield Strength Reduction Factor, ϕ_y	0.80	
Tensile Strength Reduction Factor, ϕ_t	0.65	
Resultant Tensile Load, T _u	30.7	k
Tensile Resistance, ϕT_n	229.2	k
T _u / ϕT_n :	13.4%	



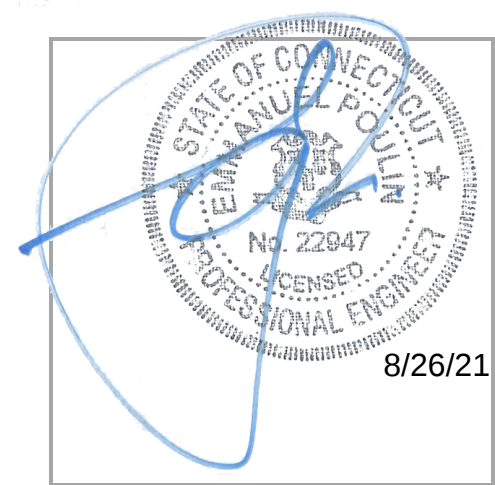
INFINIGY®

MOUNT ANALYSIS REPORT

August 26, 2021

Dish Wireless Site Name	BOBDL00111A
Dish Wireless Site Number	BOBDL00111A
ATC Site Name	Enfield, CT
ATC Site Number	208450
Infinigy Job Number	1197-F0001-C
Client	ATC
Carrier	Dish Wireless
Site Location	1A Ecology Drive Enfield, CT 06082 Hartford County 41.965300 N NAD83 72.553100 W NAD83
Mount Type	8.0 ft Sector Frames
Mount Elevation	155.0 ft AGL
Structural Usage Ratio	56.1
Overall Result	Pass

The enclosed mount structural analysis has been performed in accordance with the 2018 Connecticut State Building Code (2015 IBC) based on an ultimate 3-second gust wind speed of 125 mph. The evaluation criteria and applicable codes are presented in the next section of this report.



CONTENTS

1. Introduction
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/ 2.0" ice
Code / Standard	TIA-222-H
Adopted Code	2018 Connecticut State Building Code (2015 IBC)
Risk Category	II
Exposure Category	C
Topographic Category	1
Calculated Crest Height	0 ft.
Seismic Spectral Response	$S_s = 0.176 \text{ g} / S_1 = 0.064 \text{ g}$
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 - 155.0 ft. AGL Sector Frames

Antenna Centerline (ft)	Qty.	Appurtenance Manufacturers	Appurtenance Models
155.0	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-INS-T-CT904 Rev 1, Site #BOBDL00111A, dated July 09, 2021
Mount Manufacturer Drawings	Commscope Document # MTC3975083, dated March 17, 2021
Structural Analysis Report	ATC, Asset #208450, dated July 23, 2021

5. RESULTS

Components	Capacity	Pass/Fail
Mount Pipes	29.4%	Pass
Horizontals	17.0%	Pass
Standoffs	56.1%	Pass
Connections	20.8%	Pass
MOUNT RATING =	56.1 %	Pass

Notes:

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

6. RECOMMENDATIONS

Infinigy recommends installing Dish Wireless's proposed equipment loading configuration on the mount at 155.0 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

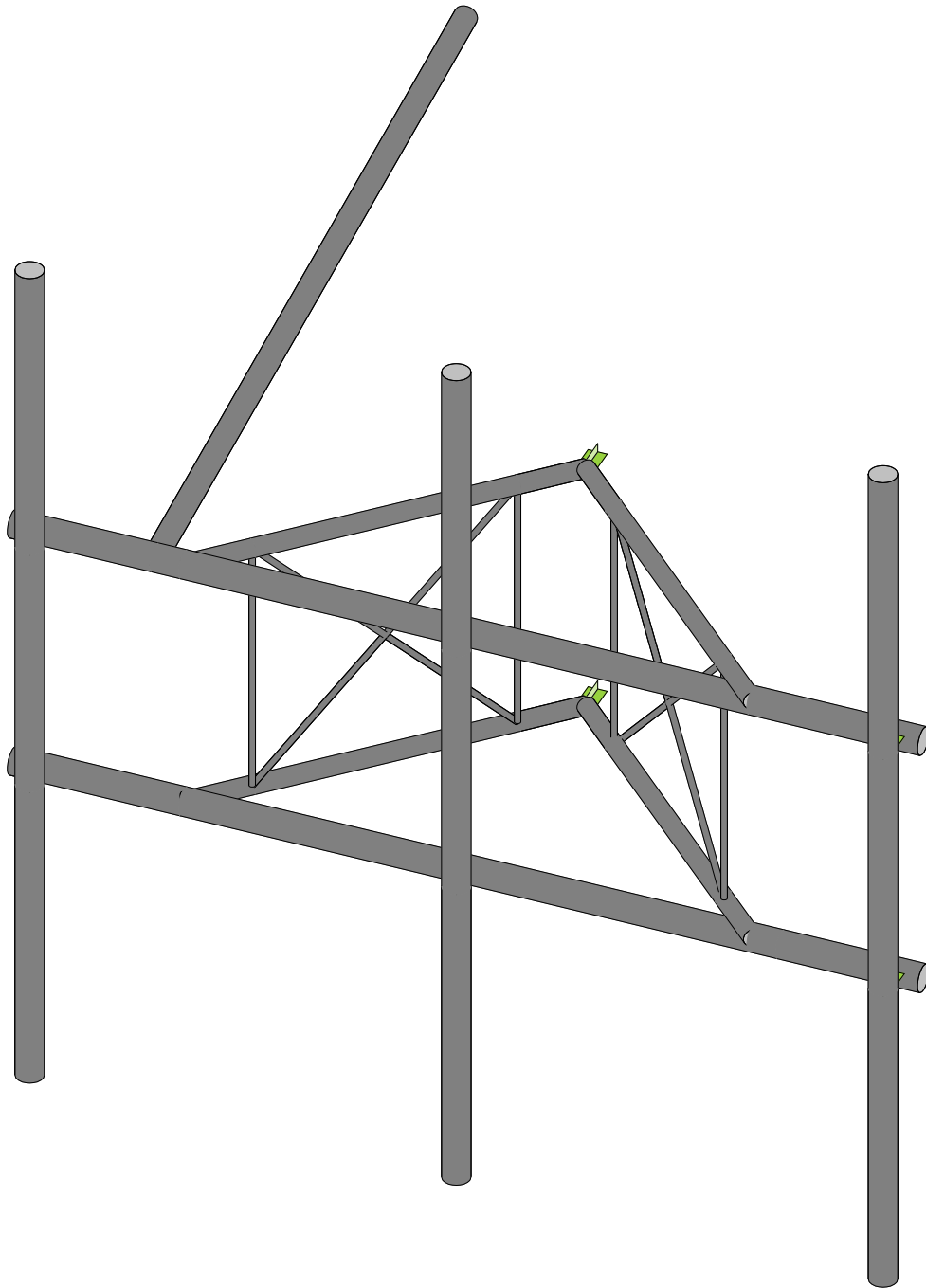
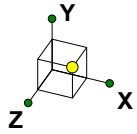
The antenna mounting system was properly fabricated, installed and maintained in accordance with its original design and manufacturer's specifications.	
The configuration of antennas, mounts, and other appurtenances are as specified in the proposed loading configuration table.	
All member connections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



Envelope Only Solution

Infinigy Engineering, PLLC

PSM

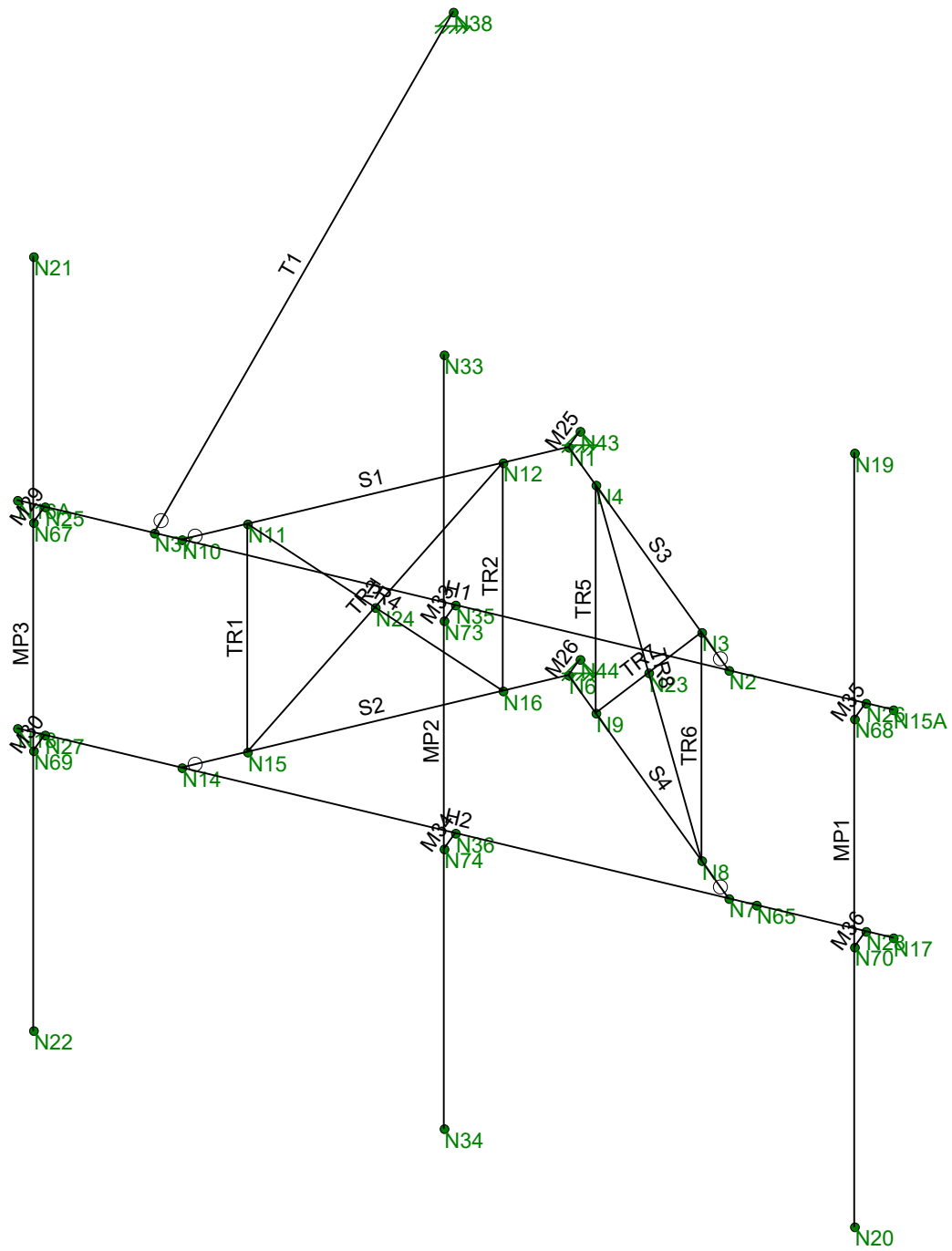
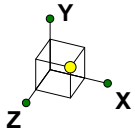
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BOBDL00111A

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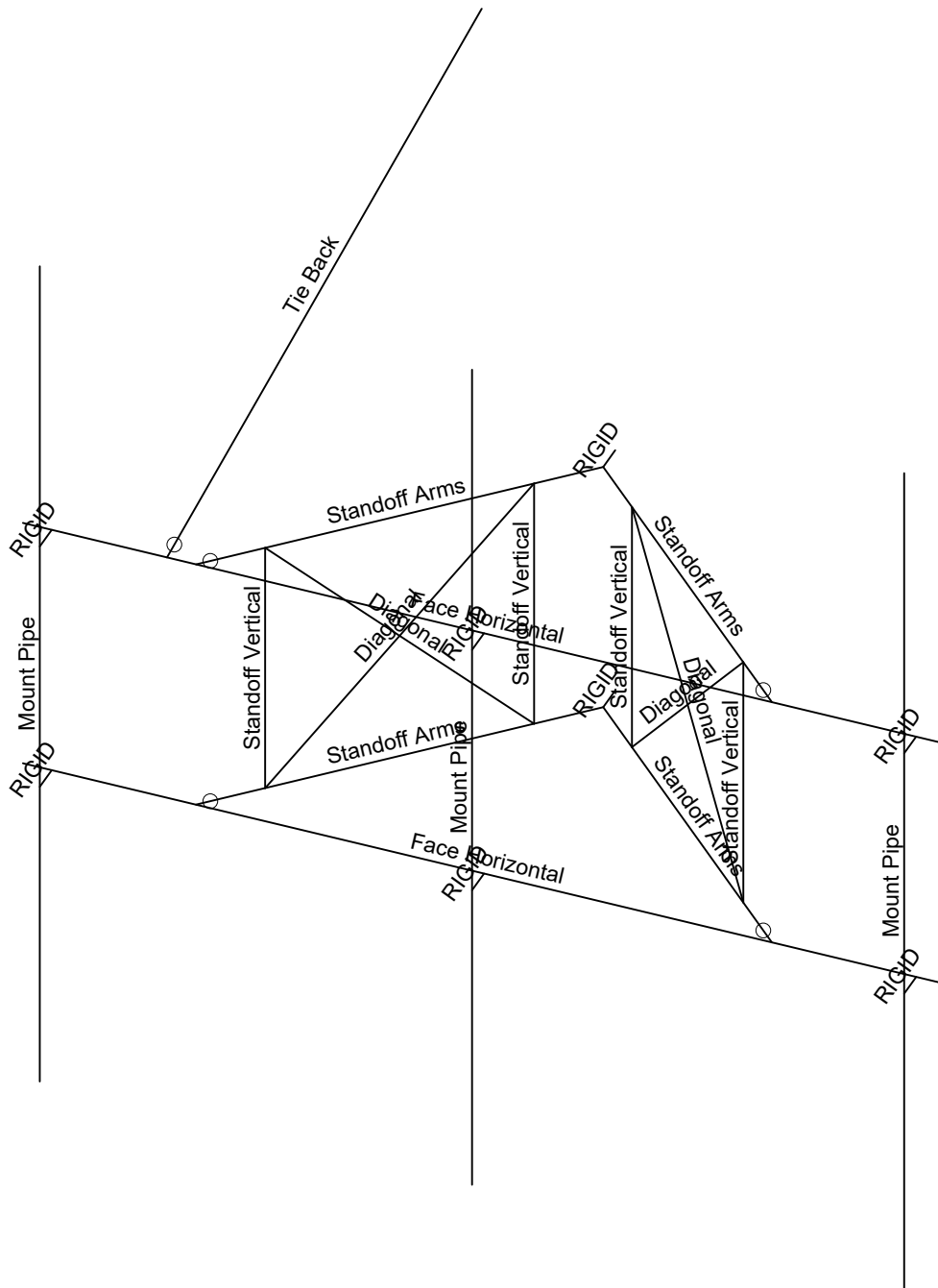
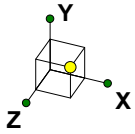
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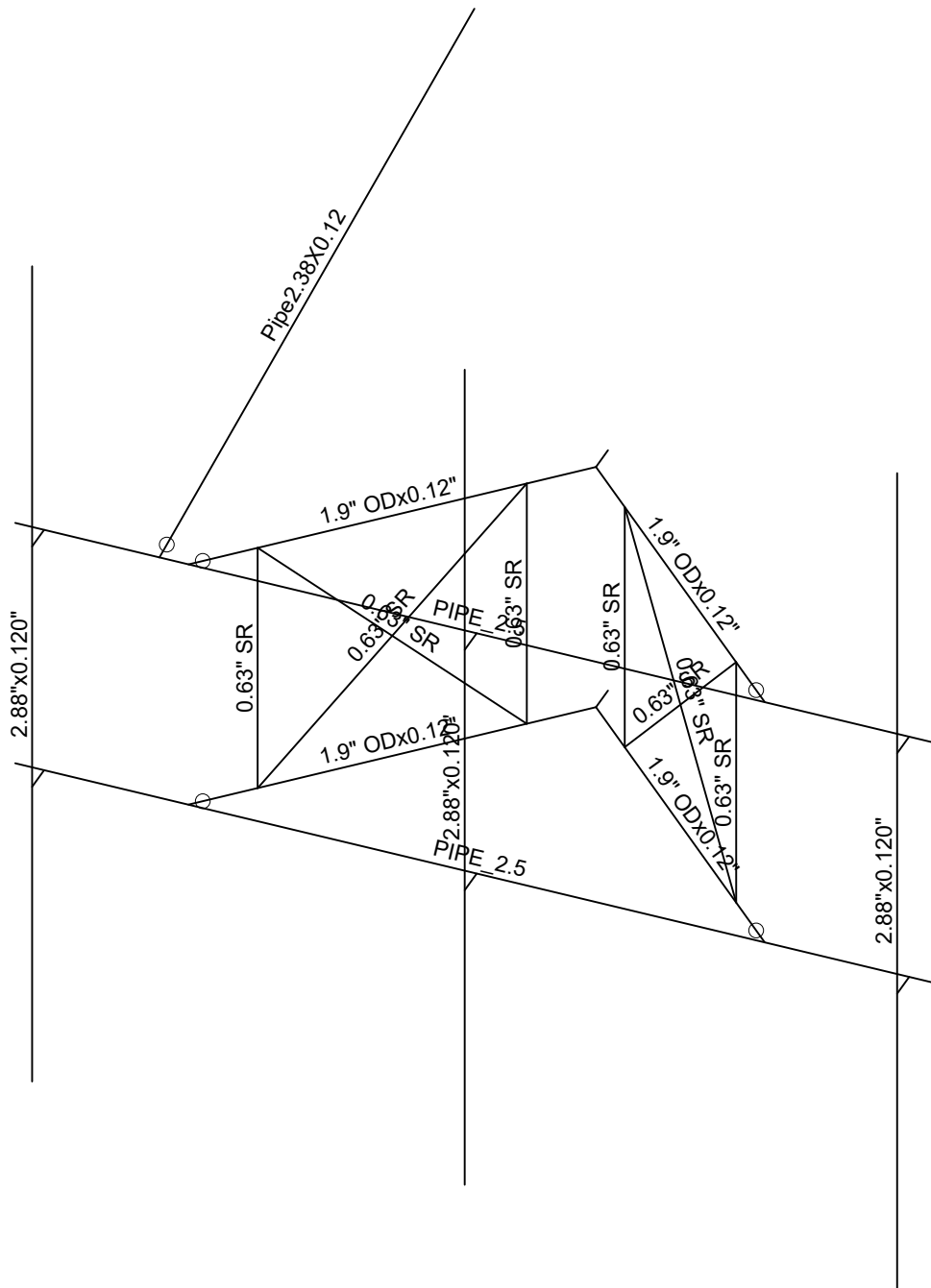
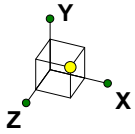
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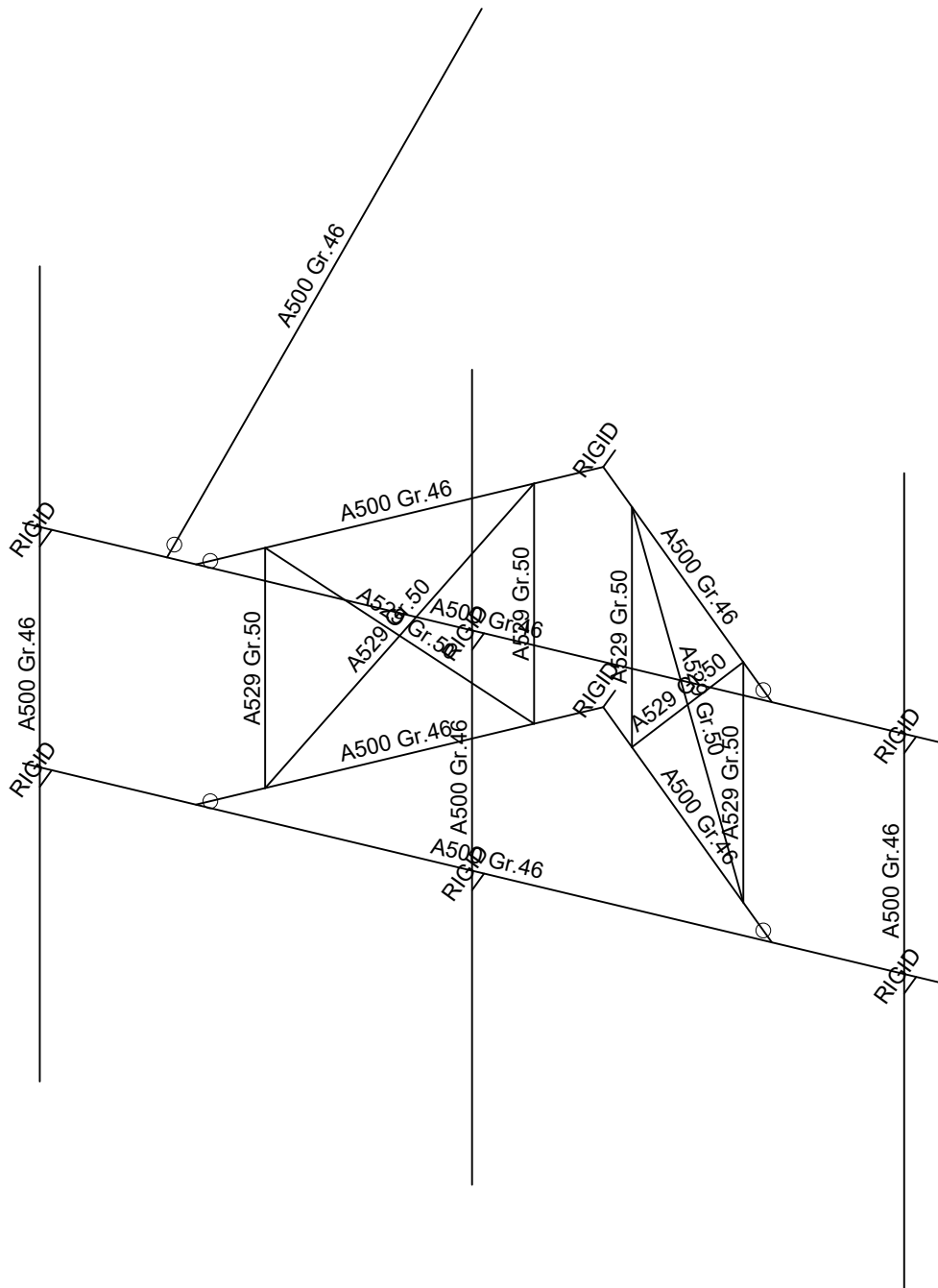
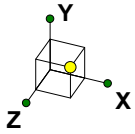
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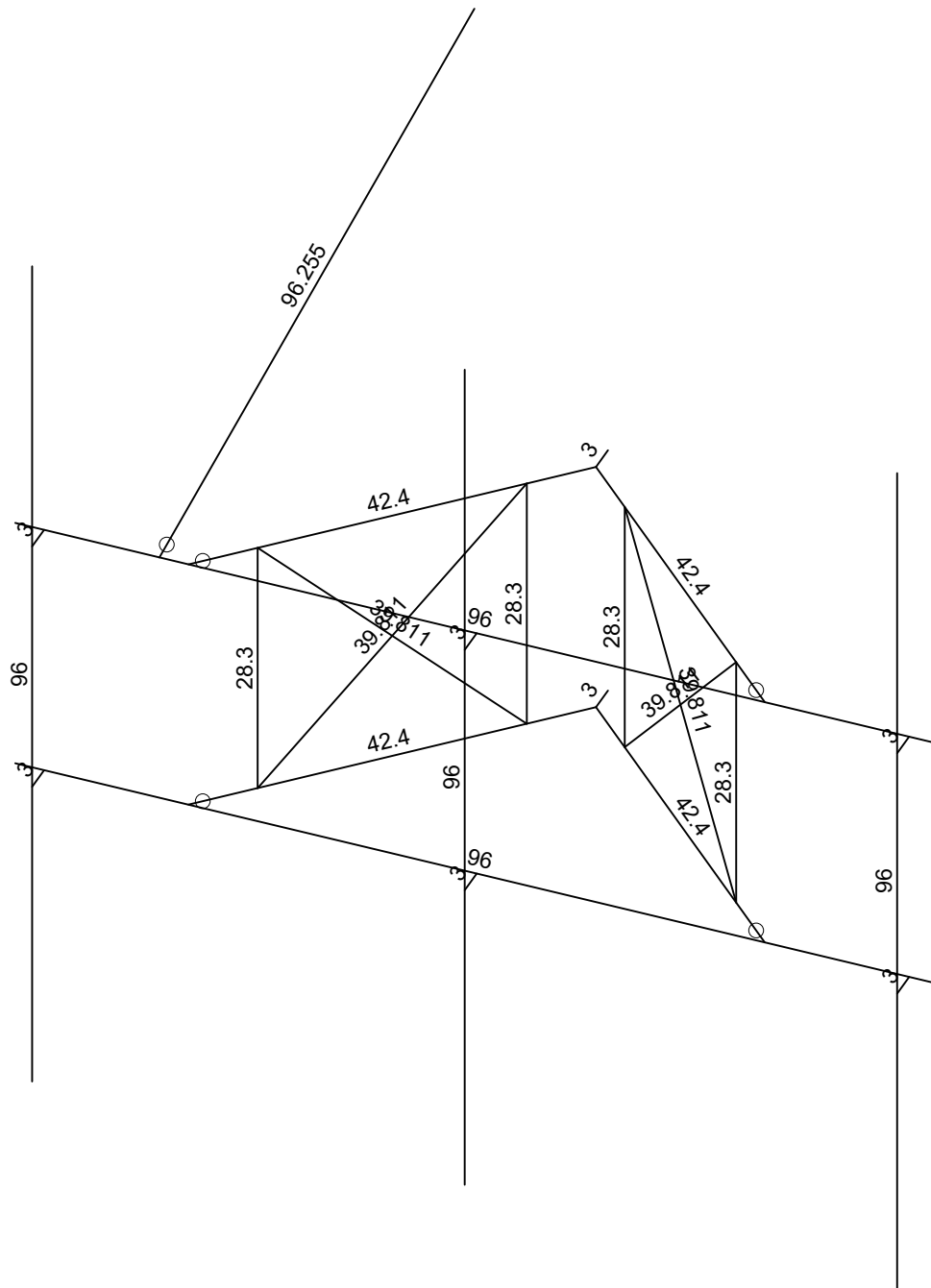
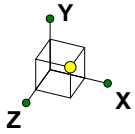
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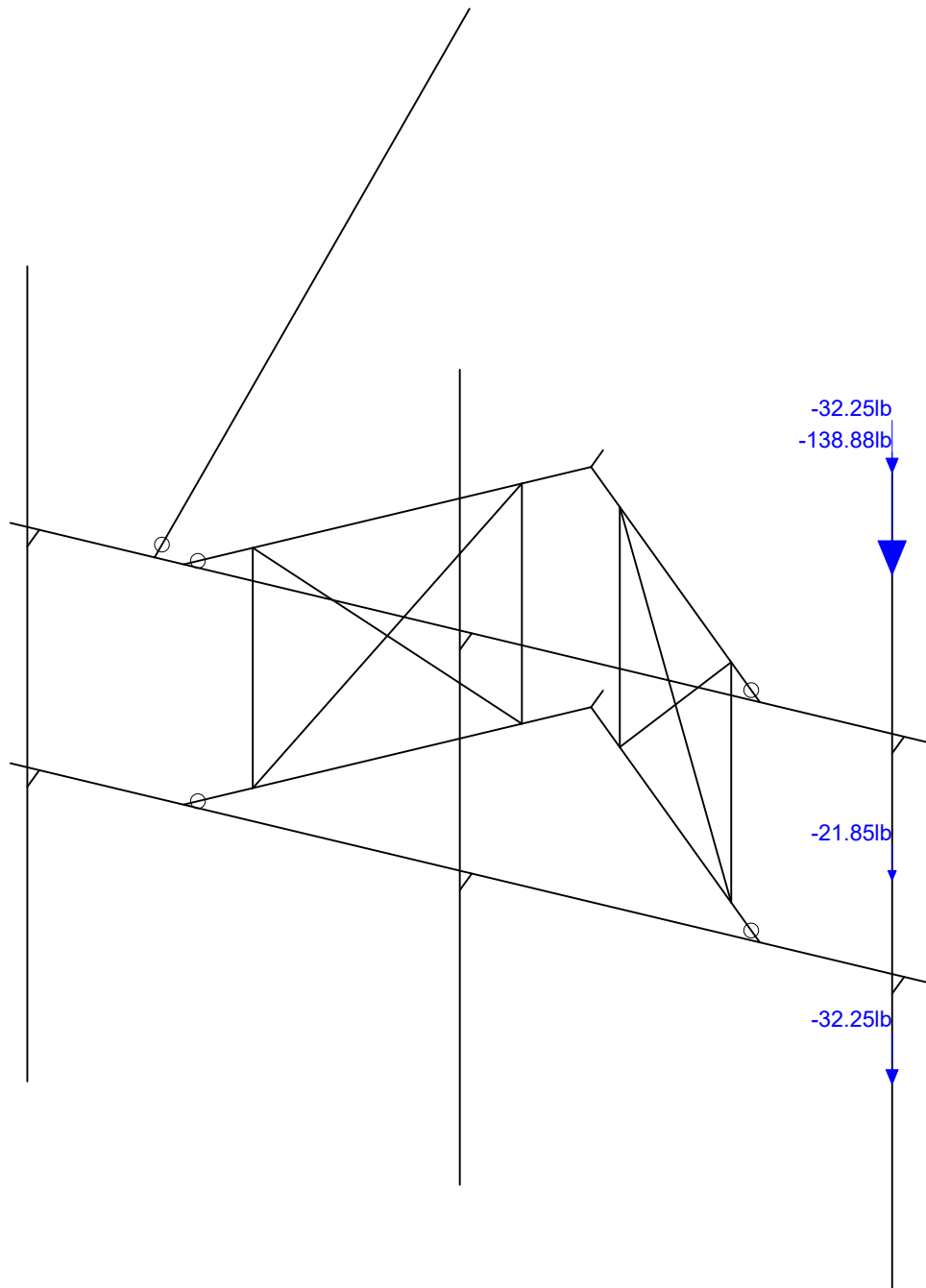
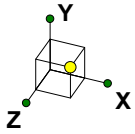
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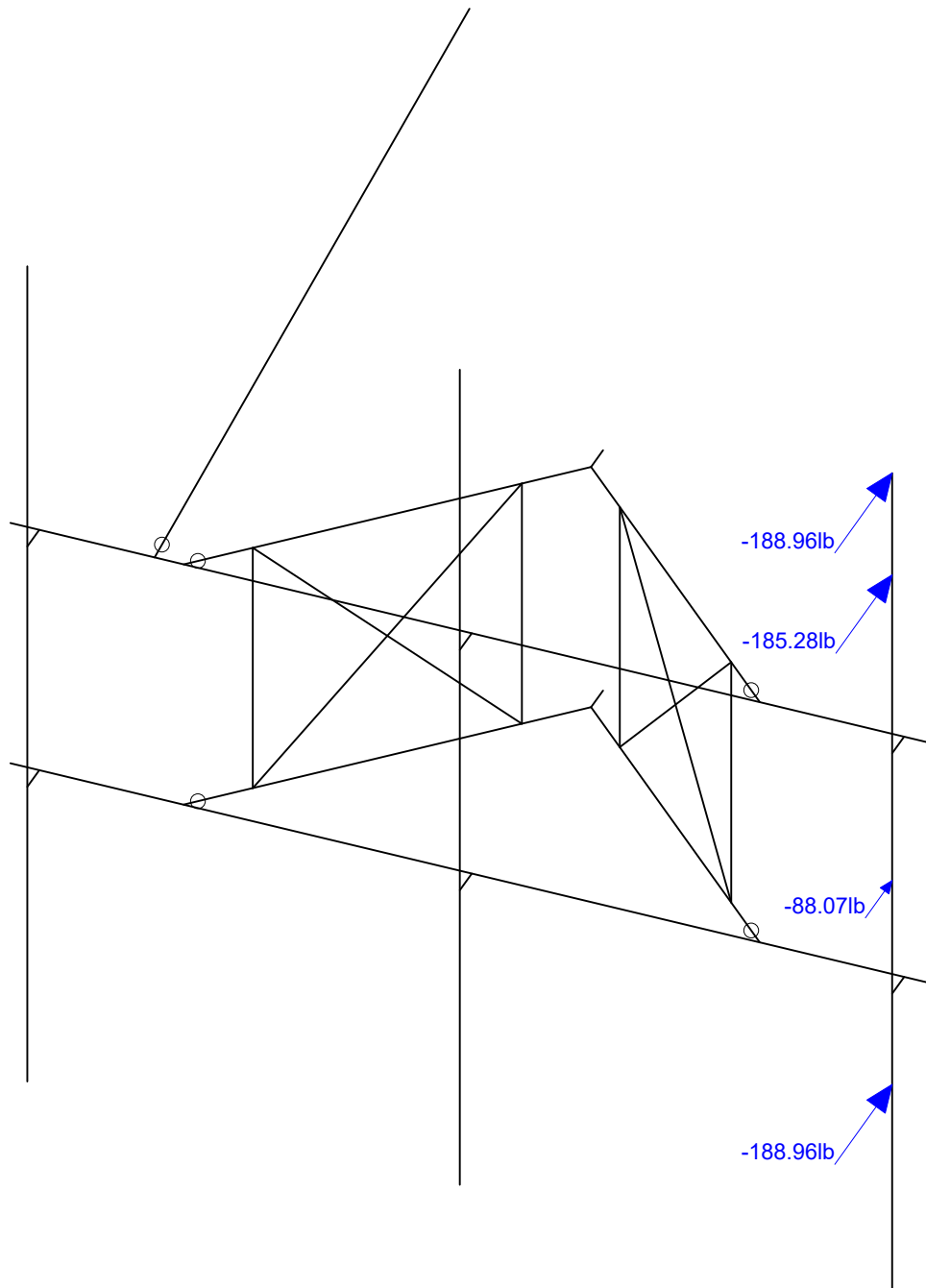
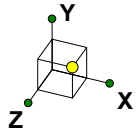
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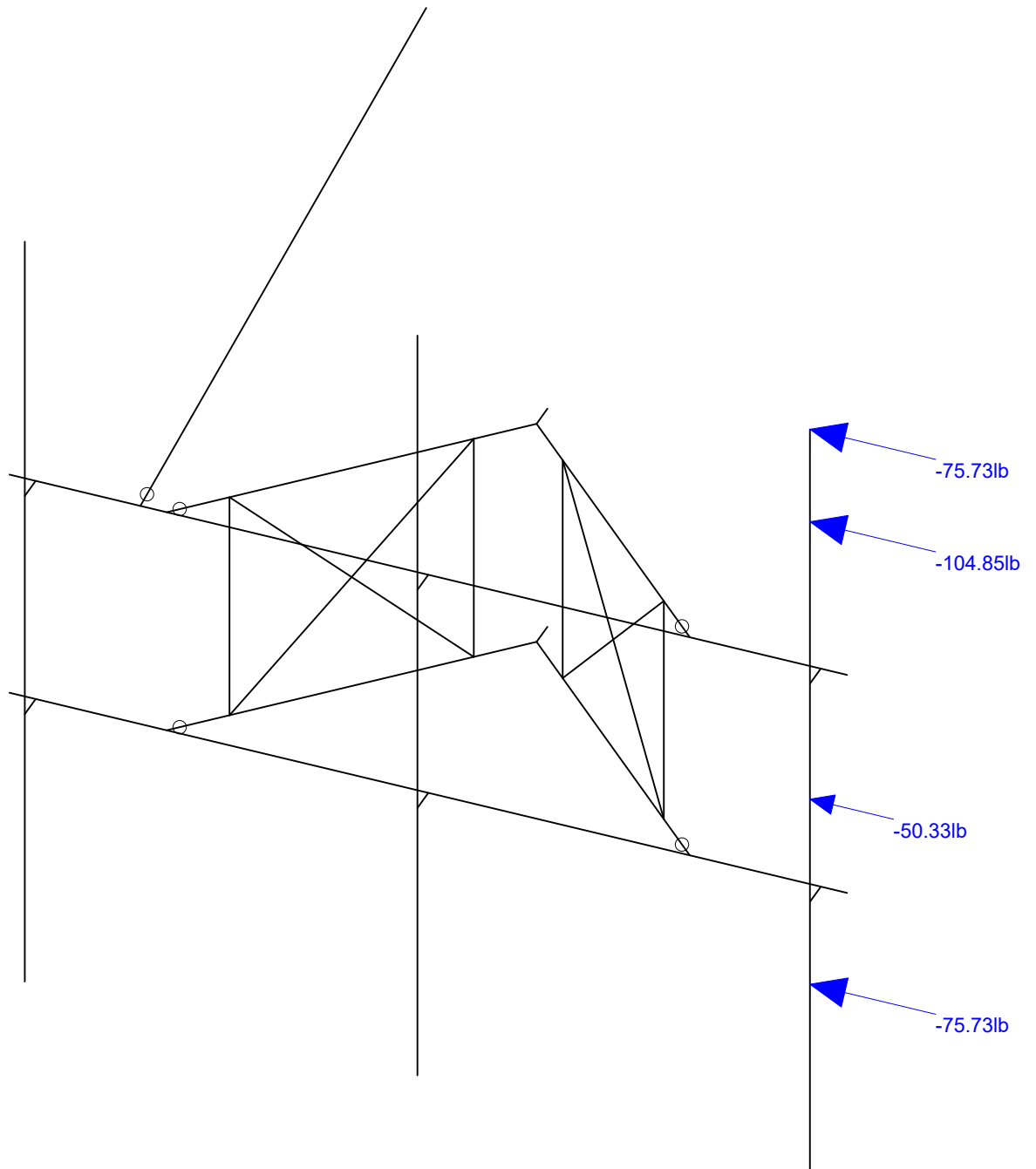
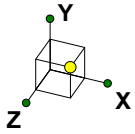
Loads: BLC 1, Self Weight
Envelope Only Solution

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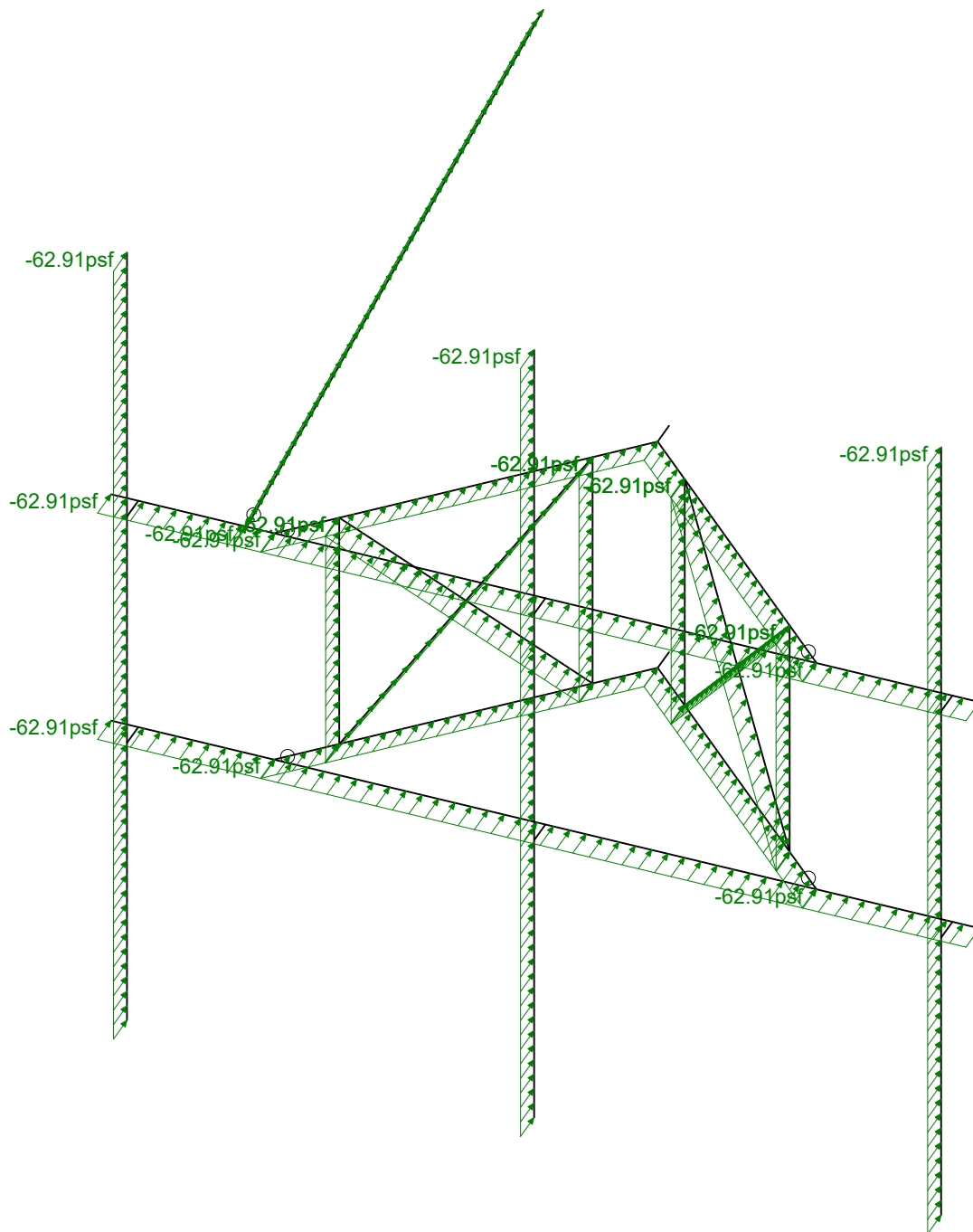
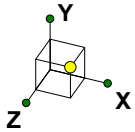
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Envelope Only Solution

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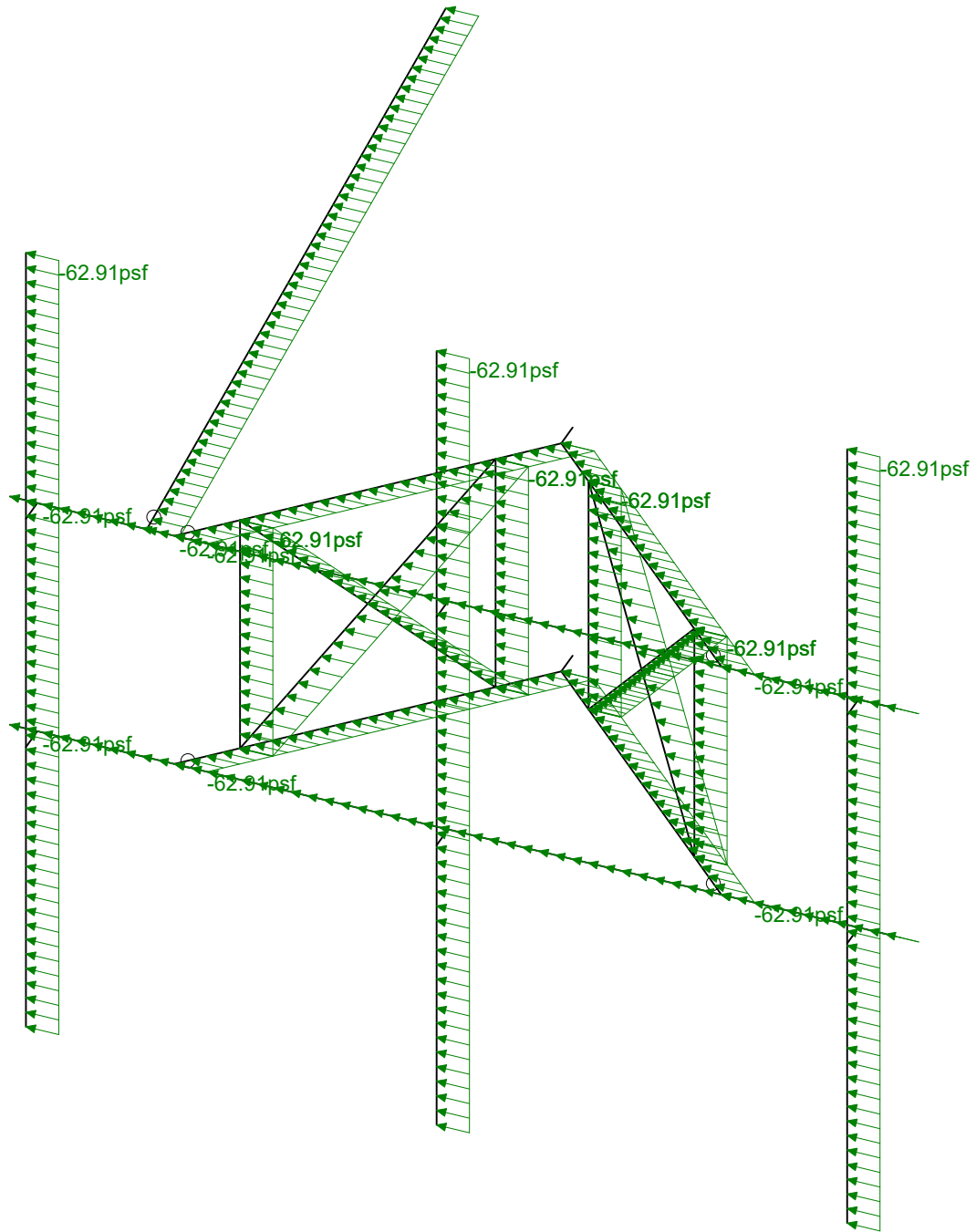
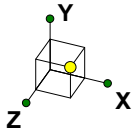
Loads: BLC 5, Wind Load AZI 90
Envelope Only Solution

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

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

Infinigy Engineering, PLLC

PSM

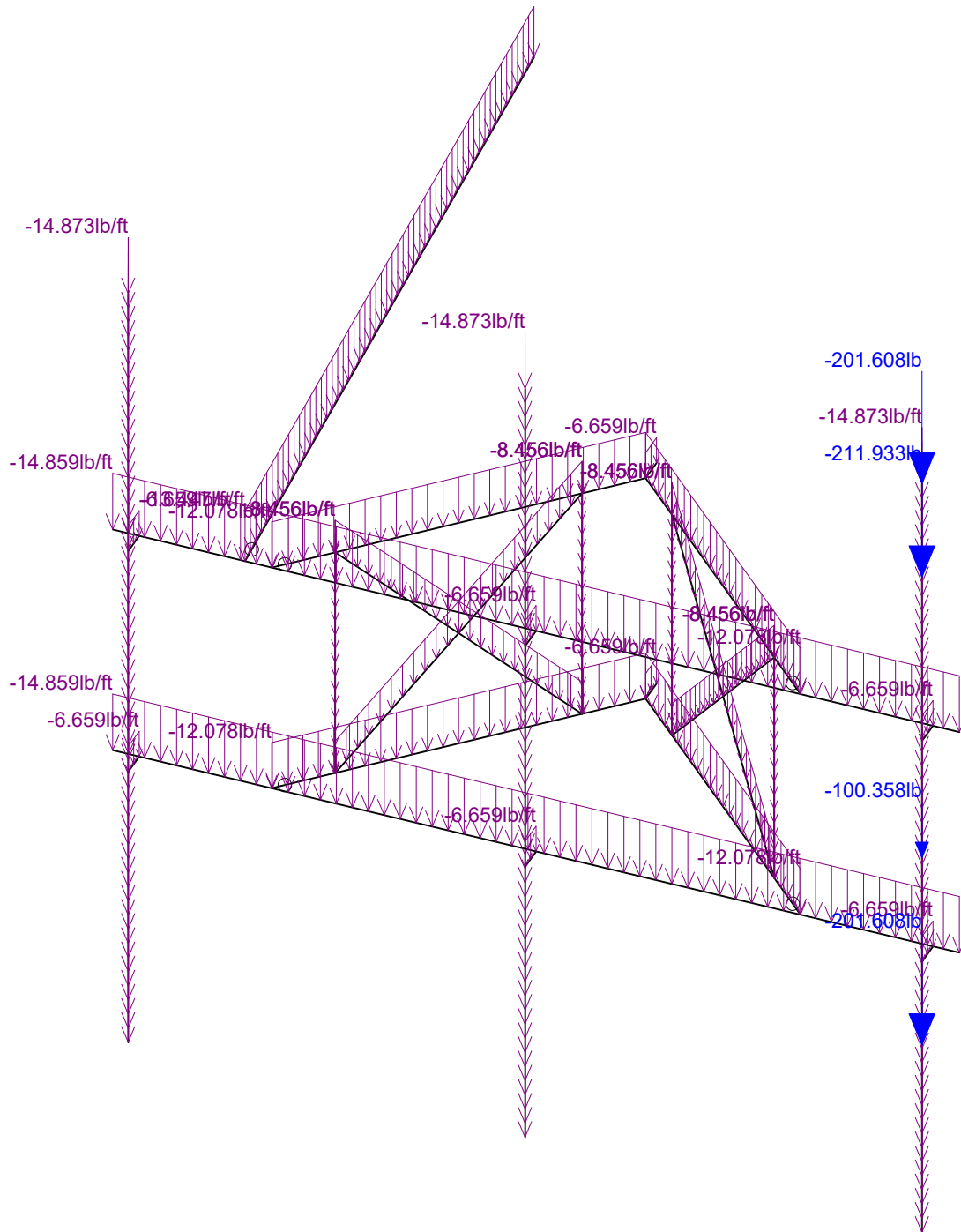
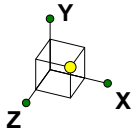
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Distr Wind Load AZI 090

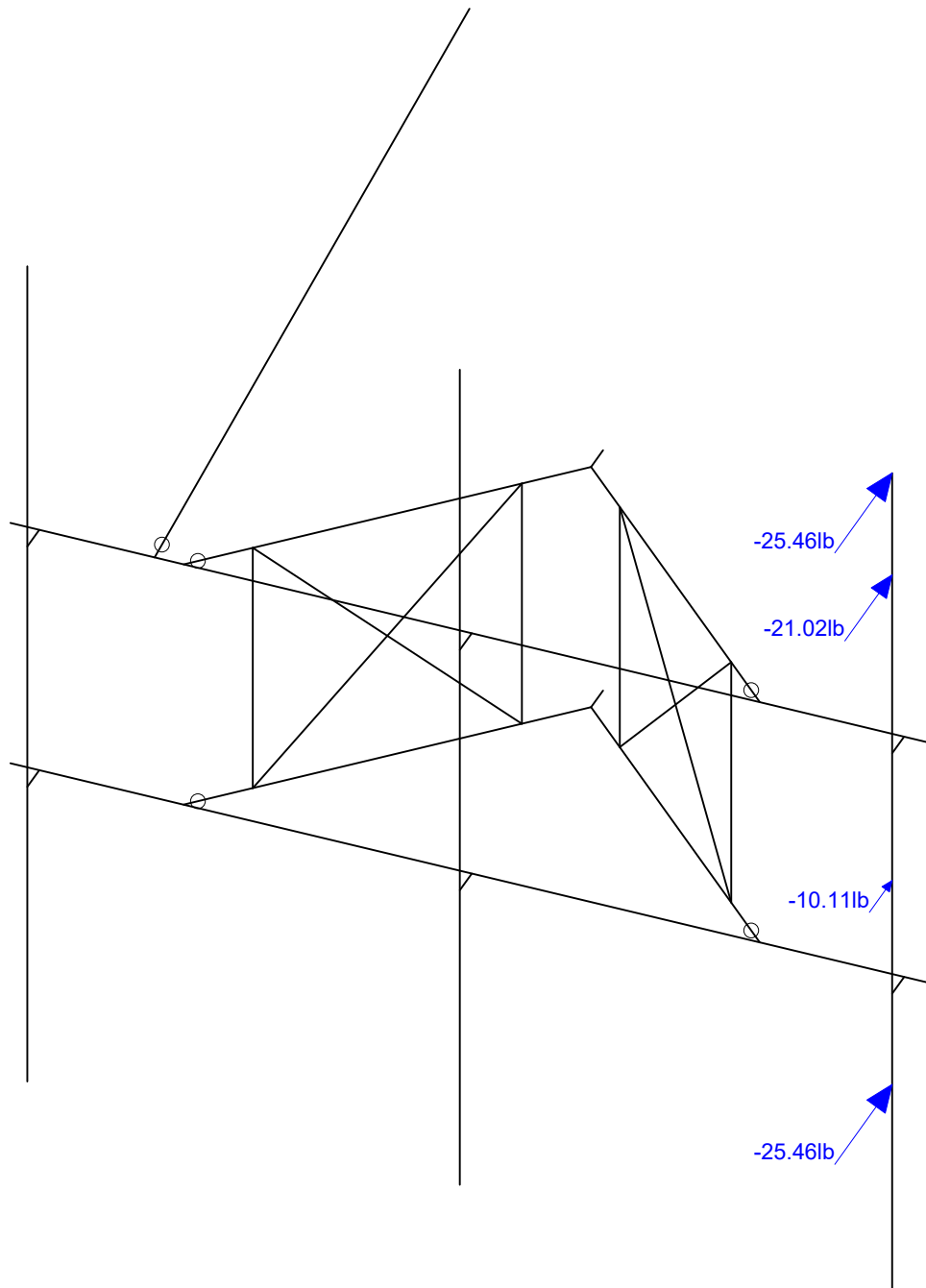
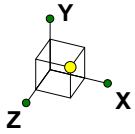
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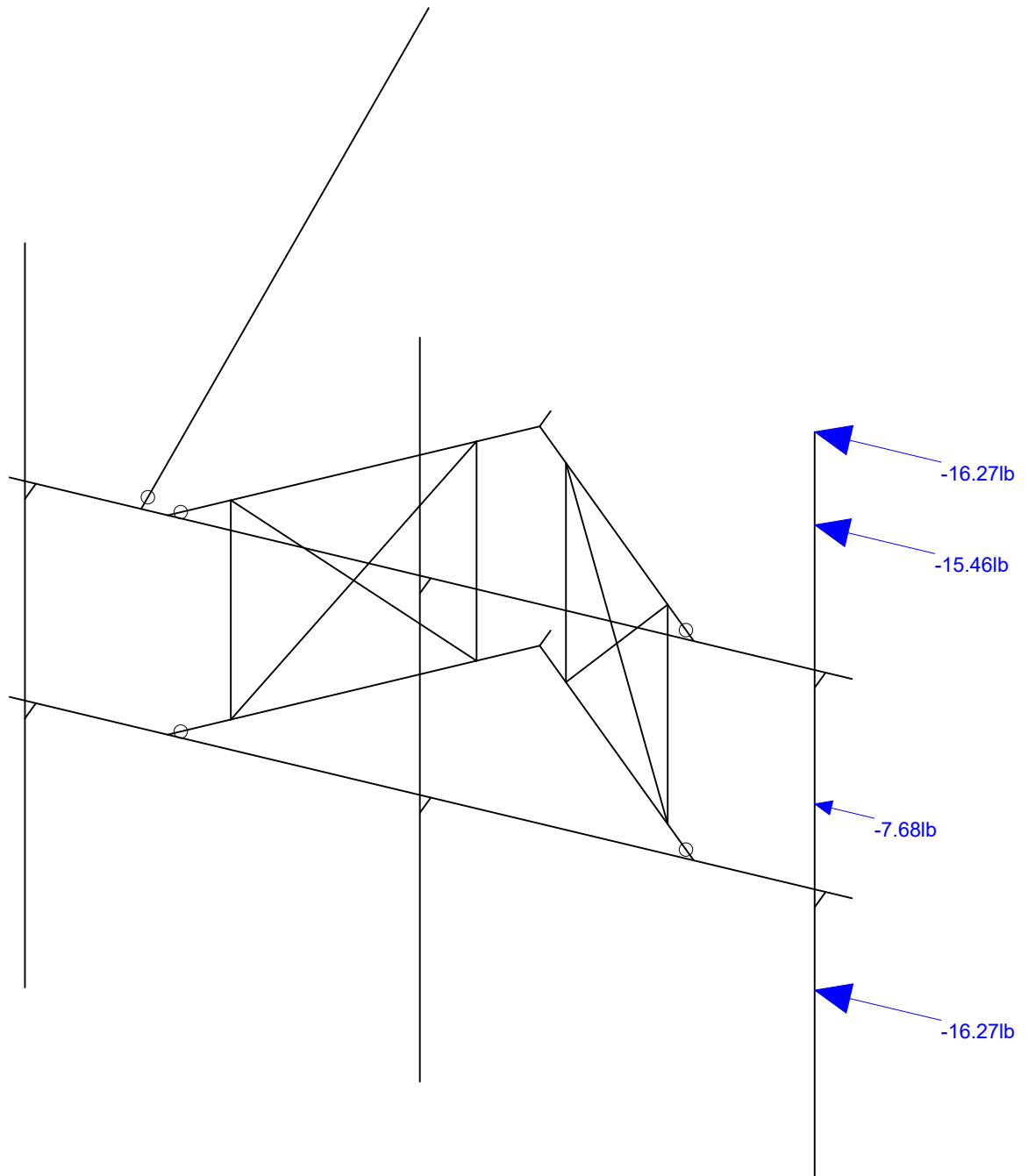
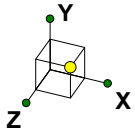
Loads: BLC 16, Ice Weight
Envelope Only Solution

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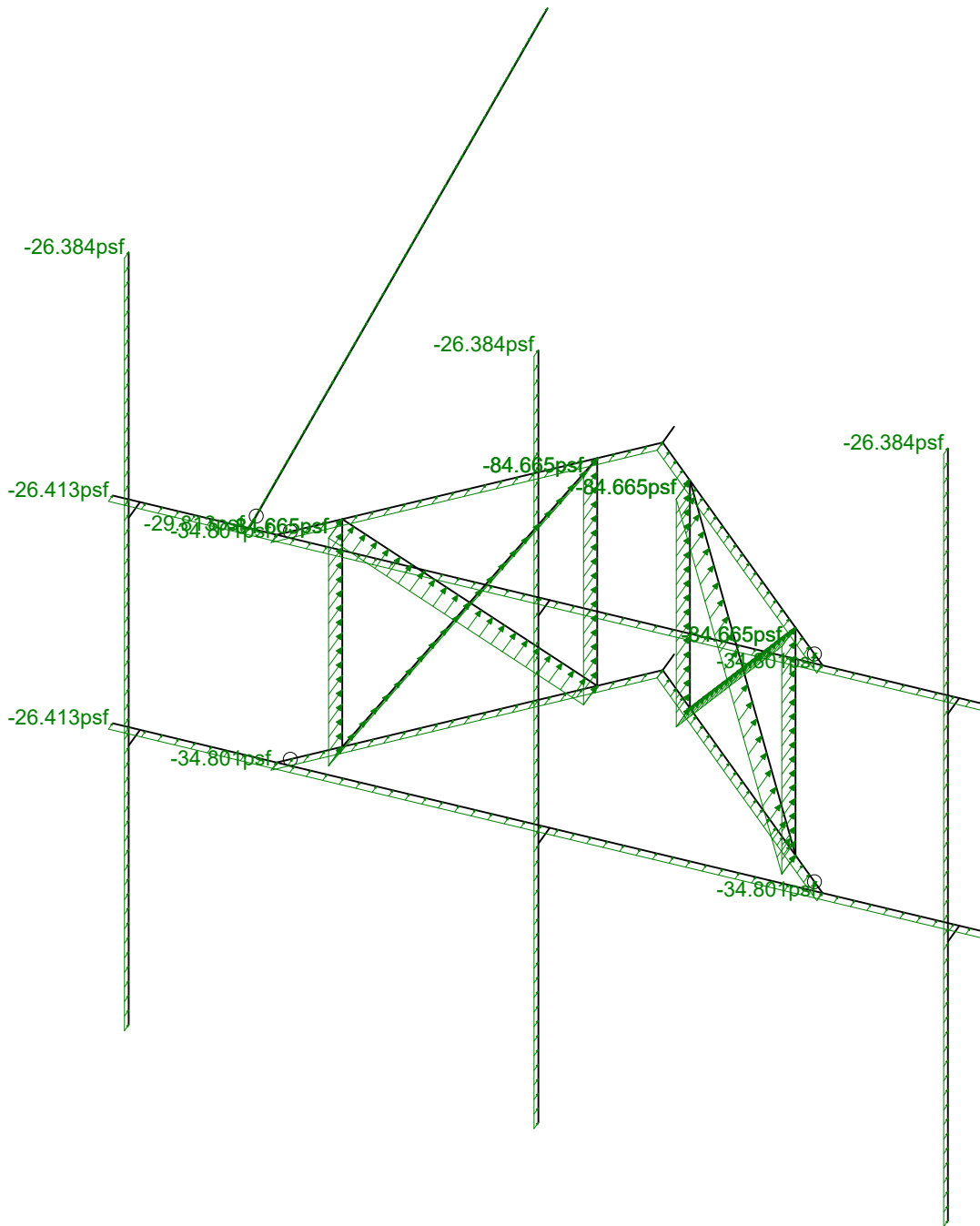
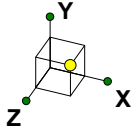
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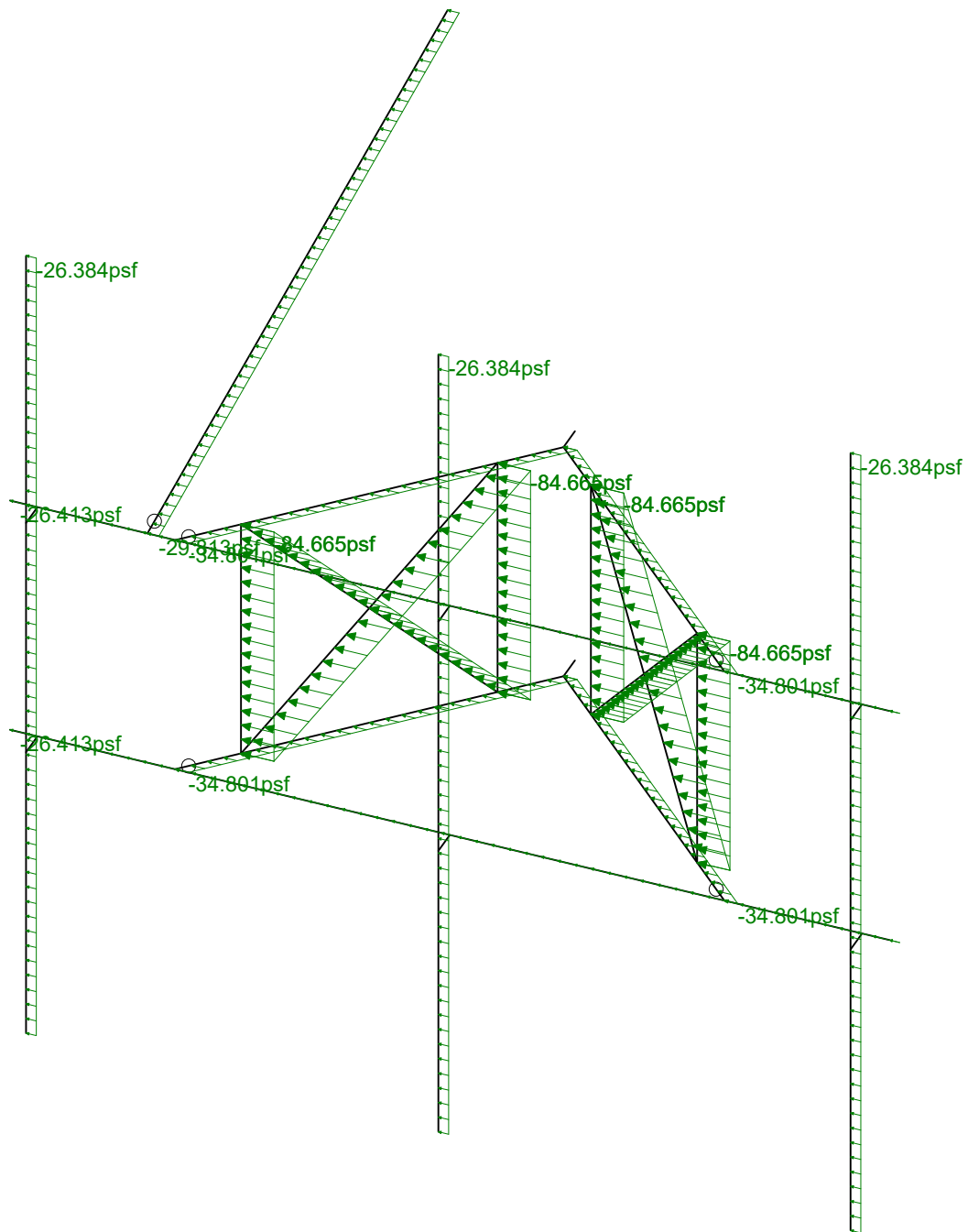
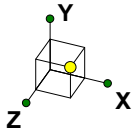
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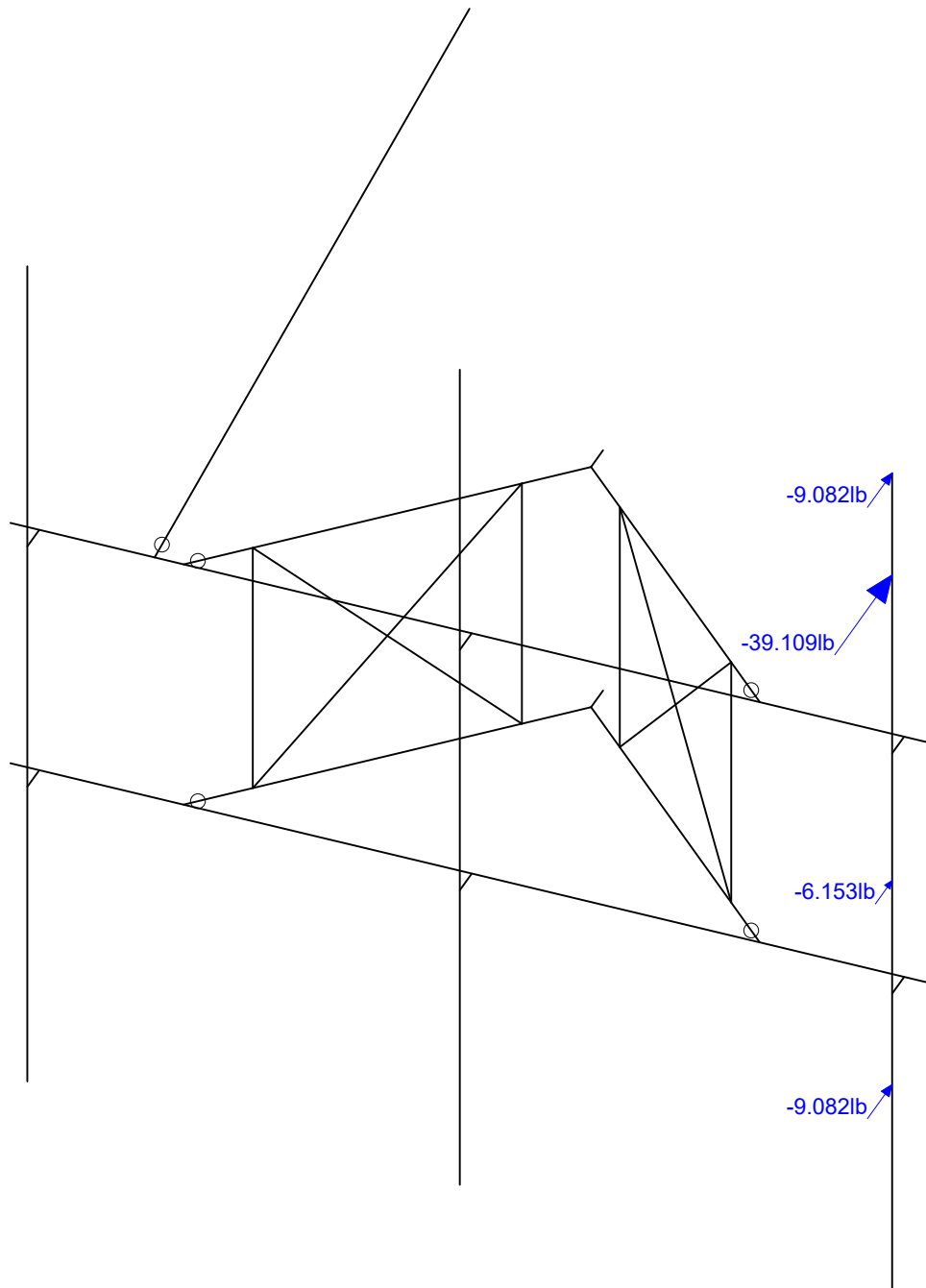
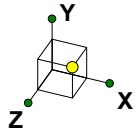
Loads: BLC 29, Distr. Ice Wind Load Z
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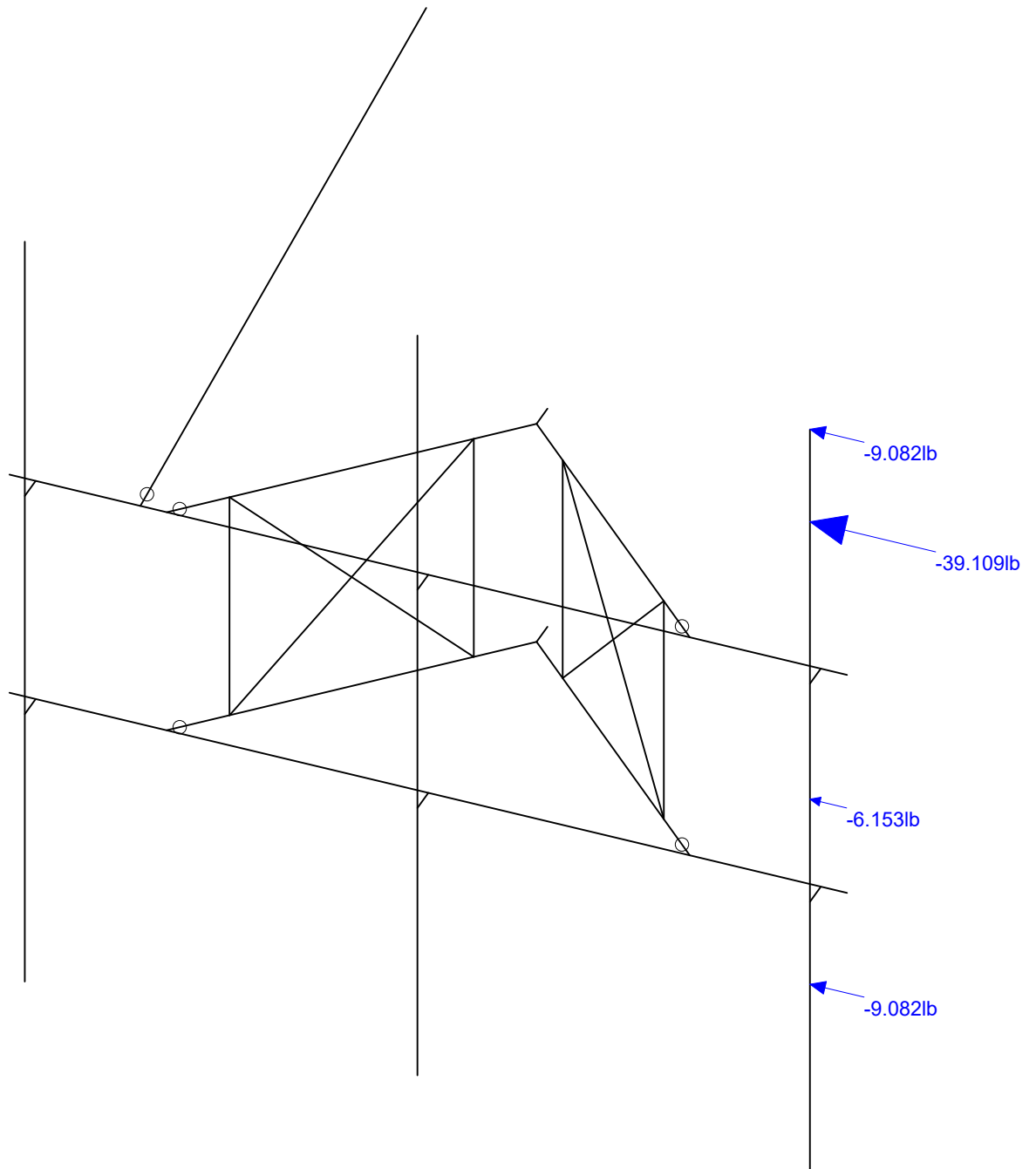
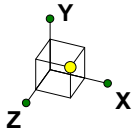
Loads: BLC 30, Distr. Ice Wind Load X
Envelope Only Solution

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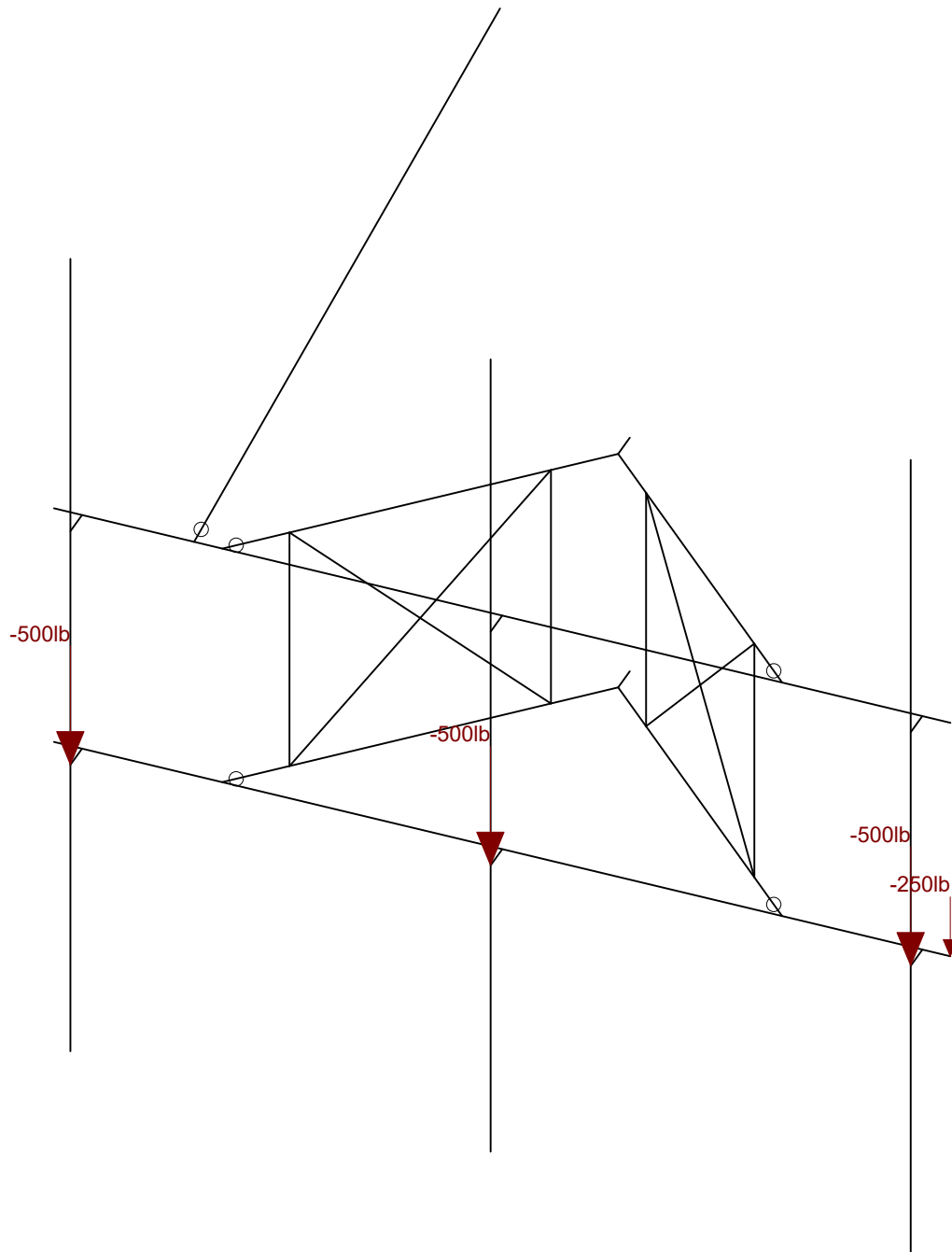
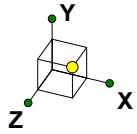
Loads: BLC 31, Seismic Load Z
Envelope Only Solution

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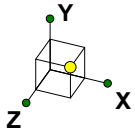
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Envelope Only Solution

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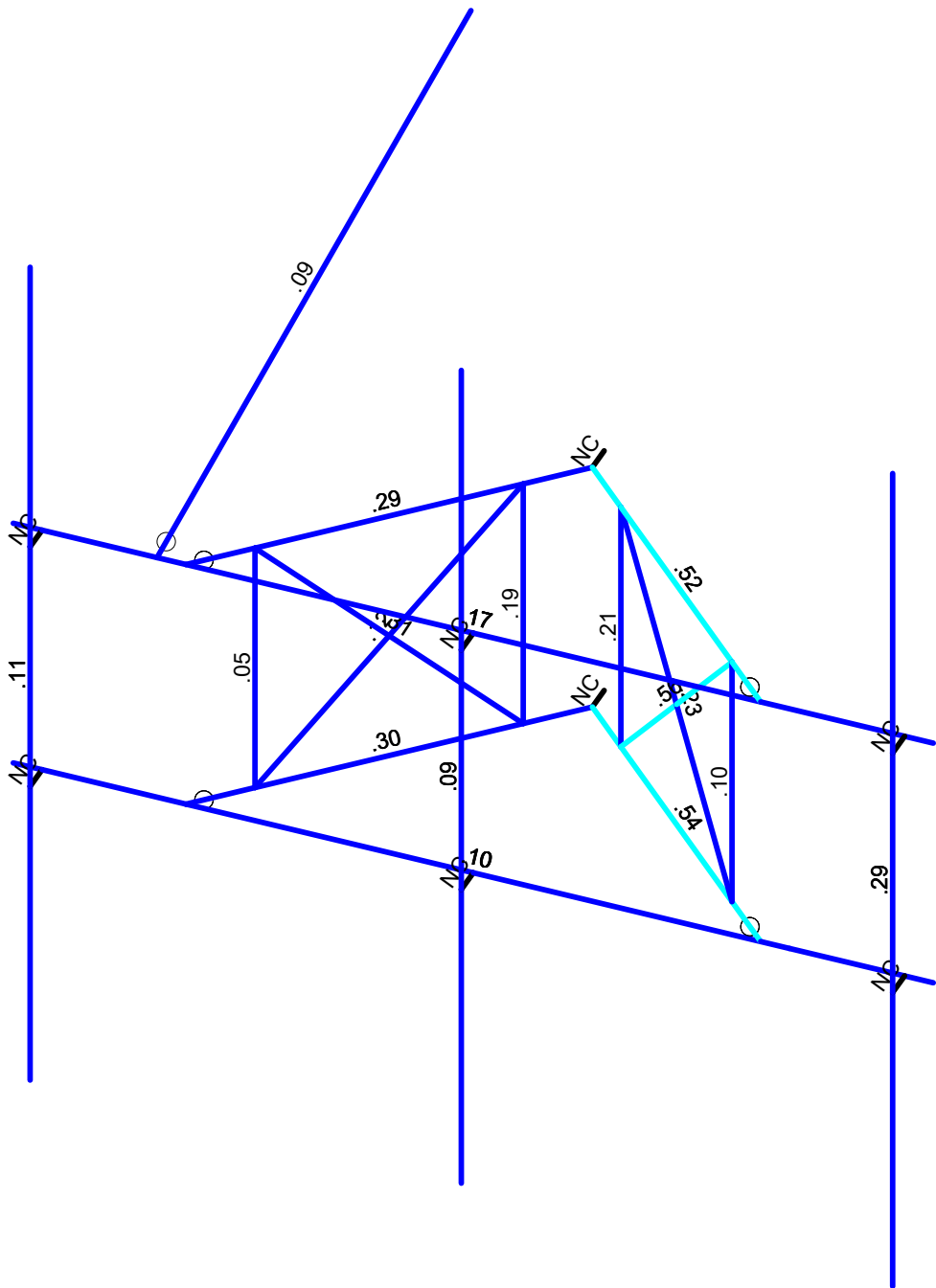


Loads: LL - Live Load
Envelope Only Solution

Infinigy Engineering, PLLC	BOBDL00111A	Non-concurrent Live Loads
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1197-F0001-C		BOBDL00111A_loaded.r3d



Code Check (Env)	
No Calc	
> 1.0	
.90-1.0	
.75-.90	
.50-.75	
0.-.50	



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Infinigy Engineering, PLLC

PSM

1197-F0001-C

BOBDL00111A

Bending Check

Aug 26, 2021 at 4:08 PM

BOBDL00111A_loaded.r3d

Program Inputs

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

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	C	
Topo Factor Procedure:	Method 1, Category 1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	166.68	ft *Rev H

MOUNT INFORMATION		
Mount Type:	Sector Frame	
Num Sectors:	3	
Centerline AGL:	155.00	ft
Tower Height AGL:	190.00	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):	0.994	*Rev H Only
Rooftop Speed-Up (K_s):	1.000	*Rev H Only
Topographic Factor (K_{zt}):	1.000	
Gust Effect Factor (G_h):	1.000	

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

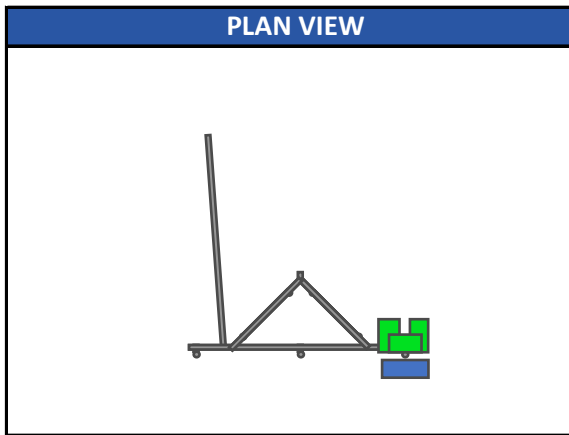
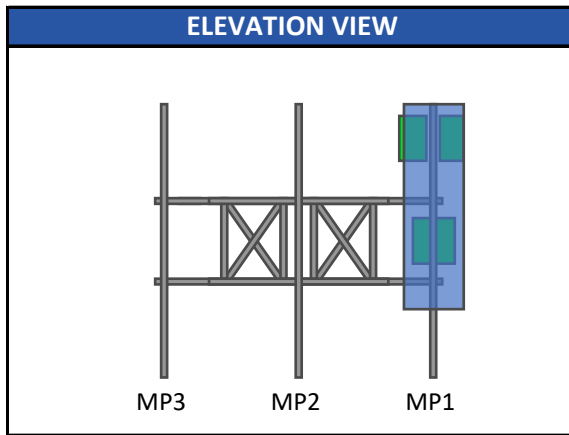
WIND AND ICE DATA		
Ultimate Wind (V_{ult}):	125	mph
Design Wind (V):	N/A	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	2	in
Flat Pressure:	104.849	psf
Round Pressure:	62.910	psf
Ice Wind Pressure:	10.066	psf

SEISMIC DATA		
Short-Period Accel. (S_s):	0.176	g
1-Second Accel. (S_1):	0.064	g
Short-Period Design (S_{DS}):	0.188	
1-Second Design (S_{D1}):	0.102	
Short-Period Coeff. (F_a):	1.600	
1-Second Coeff. (F_v):	2.400	
Amplification Factor (A_s):	3.000	
Response Mod. Coeff. (R):	2.000	



Infinigy Load Calculator V2.1.7

Program Inputs

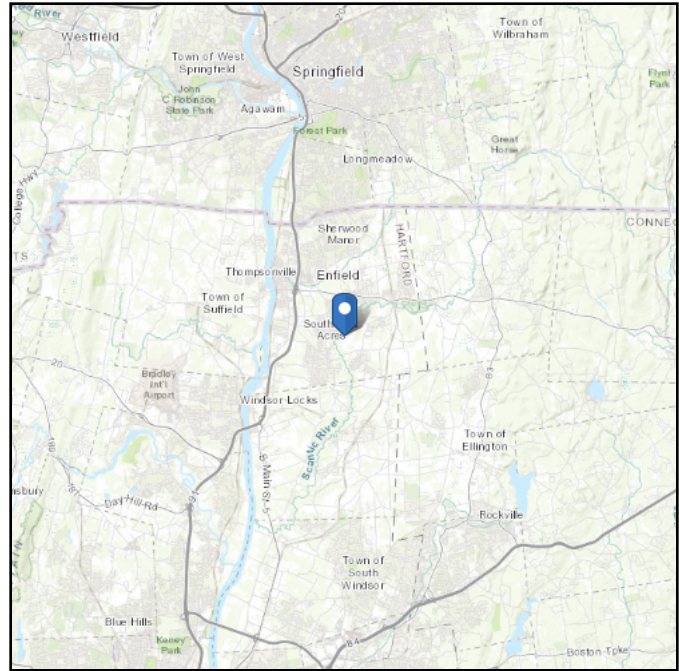
[illegible]

ASCE 7 Hazards Report

Address:
No Address at This
Location

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

Elevation: 166.68 ft (NAVD 88)
Latitude: 41.965361
Longitude: -72.553083



Wind

Results:

Wind Speed:	125 mph per Enfield City Requirements in WSEL
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	92 Vmph
100-year MRI	99 Vmph

Data Sources: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, and Section 26.5.2, incorporating errata of March 12, 2014

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

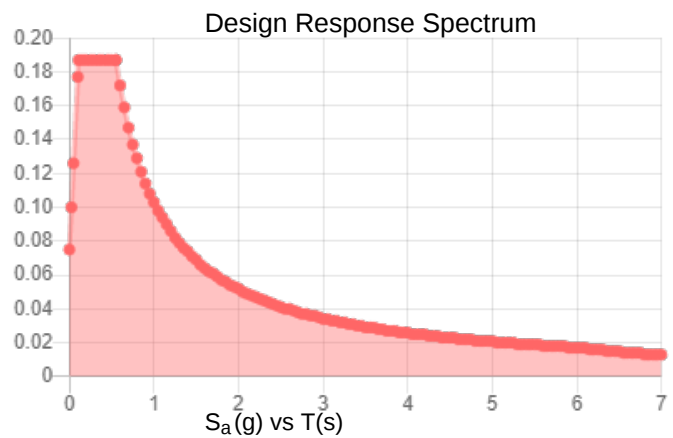
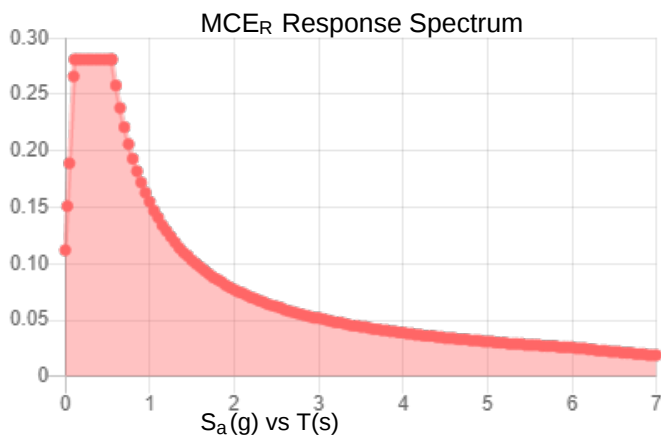
Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Stiff Soil

Results:

S_S :	0.176	S_{DS} :	0.187
S_1 :	0.064	S_{D1} :	0.103
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.086
S_{MS} :	0.281	PGA_M :	0.138
S_{M1} :	0.155	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Thu Aug 26 2021

Date Source:

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

Results:

Ice Thickness: 1.00 in.
Concurrent Temperature: 5 F
Gust Speed: 50 mph

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

Date Accessed: Thu Aug 26 2021

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

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

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Member Primary Data

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

Hot Rolled Steel Design Parameters

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

Hot Rolled Steel Design Parameters (Continued)

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

Member Advanced Data

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

Material Takeoff

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

Hot Rolled Steel Section Sets

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

Basic Load Cases

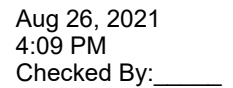
	BLC Description	Category	X Gr...	Y Gr...	Z Gr...	Joint	Point	Distributed	Area(Memb...	Surface(Plate/Wall)
1	Self Weight	DL		-1			5			
2	Wind Load AZI 0	WLZ					10			
3	Wind Load AZI 30	None					10			
4	Wind Load AZI 60	None					10			
5	Wind Load AZI 90	WLX					10			
6	Wind Load AZI 1...	None					10	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

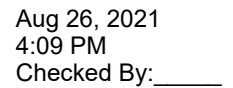
Basic Load Cases (Continued)

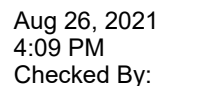
	BLC Description	Category	X Gr...	Y Gr...	Z Gr...	Joint	Point	Distributed	Area(Memb...	Surface(Plate/Wall)
15	Distr. Wind Load X	WLX						26		
16	Ice Weight	OL1					5	26		
17	Ice Wind Load A...	OL2					10			
18	Ice Wind Load A...	None					10			
19	Ice Wind Load A...	None					10			
20	Ice Wind Load A...	OL3					10			
21	Ice Wind Load A...	None					10			
22	Ice Wind Load A...	None					10			
23	Ice Wind Load A...	None					10			
24	Ice Wind Load A...	None					10			
25	Ice Wind Load A...	None					10			
26	Ice Wind Load A...	None					10			
27	Ice Wind Load A...	None					10			
28	Ice Wind Load A...	None					10			
29	Distr. Ice Wind L...	OL2						26		
30	Distr. Ice Wind L...	OL3						26		
31	Seismic Load Z	ELZ			-.282		5			
32	Seismic Load X	ELX	-.282				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								







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	-188.96	0
3	MP1	X	0	72
4	MP1	Z	-188.96	72
5	MP1	X	0	12
6	MP1	Z	-92.64	12
7	MP1	X	0	12
8	MP1	Z	-92.64	12
9	MP1	X	0	48
10	MP1	Z	-88.07	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-80.33	0
2	MP1	Z	-139.13	0
3	MP1	X	-80.33	72
4	MP1	Z	-139.13	72
5	MP1	X	-41.75	12
6	MP1	Z	-72.32	12
7	MP1	X	-40.83	12
8	MP1	Z	-70.72	12
9	MP1	X	-39.32	48
10	MP1	Z	-68.1	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-90.1	0
2	MP1	Z	-52.02	0
3	MP1	X	-90.1	72
4	MP1	Z	-52.02	72
5	MP1	X	-56.5	12
6	MP1	Z	-32.62	12
7	MP1	X	-51.71	12
8	MP1	Z	-29.86	12
9	MP1	X	-51.76	48
10	MP1	Z	-29.88	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-75.73	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	-75.73	72
4	MP1	Z	0	72
5	MP1	X	-56.11	12
6	MP1	Z	0	12
7	MP1	X	-48.74	12
8	MP1	Z	0	12
9	MP1	X	-50.33	48
10	MP1	Z	0	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-90.1	0
2	MP1	Z	52.02	0
3	MP1	X	-90.1	72
4	MP1	Z	52.02	72
5	MP1	X	-56.5	12
6	MP1	Z	32.62	12
7	MP1	X	-51.71	12
8	MP1	Z	29.86	12
9	MP1	X	-51.76	48
10	MP1	Z	29.88	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-80.33	0
2	MP1	Z	139.13	0
3	MP1	X	-80.33	72
4	MP1	Z	139.13	72
5	MP1	X	-41.75	12
6	MP1	Z	72.32	12
7	MP1	X	-40.83	12
8	MP1	Z	70.72	12
9	MP1	X	-39.32	48
10	MP1	Z	68.1	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	0
2	MP1	Z	188.96	0
3	MP1	X	0	72
4	MP1	Z	188.96	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	92.64	12
7	MP1	X	0	12
8	MP1	Z	92.64	12
9	MP1	X	0	48
10	MP1	Z	88.07	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	80.33	0
2	MP1	Z	139.13	0
3	MP1	X	80.33	72
4	MP1	Z	139.13	72
5	MP1	X	41.75	12
6	MP1	Z	72.32	12
7	MP1	X	40.83	12
8	MP1	Z	70.72	12
9	MP1	X	39.32	48
10	MP1	Z	68.1	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	90.1	0
2	MP1	Z	52.02	0
3	MP1	X	90.1	72
4	MP1	Z	52.02	72
5	MP1	X	56.5	12
6	MP1	Z	32.62	12
7	MP1	X	51.71	12
8	MP1	Z	29.86	12
9	MP1	X	51.76	48
10	MP1	Z	29.88	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	75.73	0
2	MP1	Z	0	0
3	MP1	X	75.73	72
4	MP1	Z	0	72
5	MP1	X	56.11	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	48.74	12
8	MP1	Z	0	12
9	MP1	X	50.33	48
10	MP1	Z	0	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	90.1	0
2	MP1	Z	-52.02	0
3	MP1	X	90.1	72
4	MP1	Z	-52.02	72
5	MP1	X	56.5	12
6	MP1	Z	-32.62	12
7	MP1	X	51.71	12
8	MP1	Z	-29.86	12
9	MP1	X	51.76	48
10	MP1	Z	-29.88	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	80.33	0
2	MP1	Z	-139.13	0
3	MP1	X	80.33	72
4	MP1	Z	-139.13	72
5	MP1	X	41.75	12
6	MP1	Z	-72.32	12
7	MP1	X	40.83	12
8	MP1	Z	-70.72	12
9	MP1	X	39.32	48
10	MP1	Z	-68.1	48

Member Point Loads (BLC 16 : Ice Weight)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	Y	-201.608	0
2	MP1	Y	-201.608	72
3	MP1	Y	-109.152	12
4	MP1	Y	-102.781	12
5	MP1	Y	-100.358	48

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

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	0
2	MP1	Z	-25.46	0
3	MP1	X	0	72
4	MP1	Z	-25.46	72
5	MP1	X	0	12
6	MP1	Z	-10.51	12
7	MP1	X	0	12
8	MP1	Z	-10.51	12
9	MP1	X	0	48
10	MP1	Z	-10.11	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-11.58	0
2	MP1	Z	-20.06	0
3	MP1	X	-11.58	72
4	MP1	Z	-20.06	72
5	MP1	X	-4.93	12
6	MP1	Z	-8.54	12
7	MP1	X	-4.88	12
8	MP1	Z	-8.46	12
9	MP1	X	-4.75	48
10	MP1	Z	-8.23	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-16.08	0
2	MP1	Z	-9.28	0
3	MP1	X	-16.08	72
4	MP1	Z	-9.28	72
5	MP1	X	-7.41	12
6	MP1	Z	-4.28	12
7	MP1	X	-7.18	12
8	MP1	Z	-4.14	12
9	MP1	X	-7.18	48
10	MP1	Z	-4.14	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-16.27	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	-16.27	72
4	MP1	Z	0	72
5	MP1	X	-7.91	12
6	MP1	Z	0	12
7	MP1	X	-7.55	12
8	MP1	Z	0	12
9	MP1	X	-7.68	48
10	MP1	Z	0	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-16.08	0
2	MP1	Z	9.28	0
3	MP1	X	-16.08	72
4	MP1	Z	9.28	72
5	MP1	X	-7.41	12
6	MP1	Z	4.28	12
7	MP1	X	-7.18	12
8	MP1	Z	4.14	12
9	MP1	X	-7.18	48
10	MP1	Z	4.14	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-11.58	0
2	MP1	Z	20.06	0
3	MP1	X	-11.58	72
4	MP1	Z	20.06	72
5	MP1	X	-4.93	12
6	MP1	Z	8.54	12
7	MP1	X	-4.88	12
8	MP1	Z	8.46	12
9	MP1	X	-4.75	48
10	MP1	Z	8.23	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	0	0
2	MP1	Z	25.46	0
3	MP1	X	0	72
4	MP1	Z	25.46	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	10.51	12
7	MP1	X	0	12
8	MP1	Z	10.51	12
9	MP1	X	0	48
10	MP1	Z	10.11	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	11.58	0
2	MP1	Z	20.06	0
3	MP1	X	11.58	72
4	MP1	Z	20.06	72
5	MP1	X	4.93	12
6	MP1	Z	8.54	12
7	MP1	X	4.88	12
8	MP1	Z	8.46	12
9	MP1	X	4.75	48
10	MP1	Z	8.23	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	16.08	0
2	MP1	Z	9.28	0
3	MP1	X	16.08	72
4	MP1	Z	9.28	72
5	MP1	X	7.41	12
6	MP1	Z	4.28	12
7	MP1	X	7.18	12
8	MP1	Z	4.14	12
9	MP1	X	7.18	48
10	MP1	Z	4.14	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	16.27	0
2	MP1	Z	0	0
3	MP1	X	16.27	72
4	MP1	Z	0	72
5	MP1	X	7.91	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	7.55	12
8	MP1	Z	0	12
9	MP1	X	7.68	48
10	MP1	Z	0	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in, %]
1	MP1	X	16.08	0
2	MP1	Z	-9.28	0
3	MP1	X	16.08	72
4	MP1	Z	-9.28	72
5	MP1	X	7.41	12
6	MP1	Z	-4.28	12
7	MP1	X	7.18	12
8	MP1	Z	-4.14	12
9	MP1	X	7.18	48
10	MP1	Z	-4.14	48

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in, %]
1	MP1	X	11.58	0
2	MP1	Z	-20.06	0
3	MP1	X	11.58	72
4	MP1	Z	-20.06	72
5	MP1	X	4.93	12
6	MP1	Z	-8.54	12
7	MP1	X	4.88	12
8	MP1	Z	-8.46	12
9	MP1	X	4.75	48
10	MP1	Z	-8.23	48

Member Point Loads (BLC 31 : Seismic Load Z)

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in, %]
1	MP1	Z	-9.082	0
2	MP1	Z	-9.082	72
3	MP1	Z	-21.106	12
4	MP1	Z	-18.003	12
5	MP1	Z	-6.153	48

Member Point Loads (BLC 32 : Seismic Load X)

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

	Member Label	Direction	Magnitude[lb,lb-ft]	Location[in,%]
1	MP1	X	-9.082	0
2	MP1	X	-9.082	72
3	MP1	X	-21.106	12
4	MP1	X	-18.003	12
5	MP1	X	-6.153	48

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

	Joint Label	L,D,M	Direction	Magnitude[(lb,lb-ft), (in,rad), (lb*s^2/in, lb*s^2*in)]
1	N17	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	-62.91	-62.91	0	%100
2	S4	SZ	-62.91	-62.91	0	%100
3	TR6	SZ	-62.91	-62.91	0	%100
4	TR5	SZ	-62.91	-62.91	0	%100
5	TR8	SZ	-62.91	-62.91	0	%100
6	TR7	SZ	-62.91	-62.91	0	%100
7	S1	SZ	-62.91	-62.91	0	%100
8	S2	SZ	-62.91	-62.91	0	%100
9	TR1	SZ	-62.91	-62.91	0	%100
10	TR2	SZ	-62.91	-62.91	0	%100
11	TR3	SZ	-62.91	-62.91	0	%100
12	TR4	SZ	-62.91	-62.91	0	%100
13	H1	SZ	-62.91	-62.91	0	%100
14	H2	SZ	-62.91	-62.91	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	-62.91	-62.91	0	%100
16	MP1	SZ	-62.91	-62.91	0	%100
17	MP2	SZ	-62.91	-62.91	0	%100
18	T1	SZ	-62.91	-62.91	0	%100
19	M29	SZ	0	0	0	%100
20	M30	SZ	0	0	0	%100
21	M33	SZ	0	0	0	%100
22	M34	SZ	0	0	0	%100
23	M35	SZ	0	0	0	%100
24	M36	SZ	0	0	0	%100
25	M25	SZ	0	0	0	%100
26	M26	SZ	0	0	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
1	S3	SX	-62.91	-62.91	0	%100
2	S4	SX	-62.91	-62.91	0	%100
3	TR6	SX	-62.91	-62.91	0	%100
4	TR5	SX	-62.91	-62.91	0	%100
5	TR8	SX	-62.91	-62.91	0	%100
6	TR7	SX	-62.91	-62.91	0	%100
7	S1	SX	-62.91	-62.91	0	%100
8	S2	SX	-62.91	-62.91	0	%100
9	TR1	SX	-62.91	-62.91	0	%100
10	TR2	SX	-62.91	-62.91	0	%100
11	TR3	SX	-62.91	-62.91	0	%100
12	TR4	SX	-62.91	-62.91	0	%100
13	H1	SX	-62.91	-62.91	0	%100
14	H2	SX	-62.91	-62.91	0	%100
15	MP3	SX	-62.91	-62.91	0	%100
16	MP1	SX	-62.91	-62.91	0	%100
17	MP2	SX	-62.91	-62.91	0	%100
18	T1	SX	-62.91	-62.91	0	%100
19	M29	SX	0	0	0	%100
20	M30	SX	0	0	0	%100
21	M33	SX	0	0	0	%100
22	M34	SX	0	0	0	%100
23	M35	SX	0	0	0	%100
24	M36	SX	0	0	0	%100
25	M25	SX	0	0	0	%100
26	M26	SX	0	0	0	%100

Member Distributed Loads (BLC 16 : Ice Weight)

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in, %]
1	S3	Y	-12.078	-12.078	0	%100
2	S4	Y	-12.078	-12.078	0	%100
3	TR6	Y	-8.456	-8.456	0	%100
4	TR5	Y	-8.456	-8.456	0	%100
5	TR8	Y	-8.456	-8.456	0	%100
6	TR7	Y	-8.456	-8.456	0	%100
7	S1	Y	-12.078	-12.078	0	%100
8	S2	Y	-12.078	-12.078	0	%100
9	TR1	Y	-8.456	-8.456	0	%100
10	TR2	Y	-8.456	-8.456	0	%100
11	TR3	Y	-8.456	-8.456	0	%100
12	TR4	Y	-8.456	-8.456	0	%100
13	H1	Y	-14.859	-14.859	0	%100
14	H2	Y	-14.859	-14.859	0	%100
15	MP3	Y	-14.873	-14.873	0	%100
16	MP1	Y	-14.873	-14.873	0	%100
17	MP2	Y	-14.873	-14.873	0	%100
18	T1	Y	-13.447	-13.447	0	%100
19	M29	Y	-6.659	-6.659	0	%100
20	M30	Y	-6.659	-6.659	0	%100
21	M33	Y	-6.659	-6.659	0	%100
22	M34	Y	-6.659	-6.659	0	%100
23	M35	Y	-6.659	-6.659	0	%100
24	M36	Y	-6.659	-6.659	0	%100
25	M25	Y	-6.659	-6.659	0	%100
26	M26	Y	-6.659	-6.659	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	-34.801	-34.801	0	%100
2	S4	SZ	-34.801	-34.801	0	%100
3	TR6	SZ	-84.665	-84.665	0	%100
4	TR5	SZ	-84.665	-84.665	0	%100
5	TR8	SZ	-84.665	-84.665	0	%100
6	TR7	SZ	-84.665	-84.665	0	%100
7	S1	SZ	-34.801	-34.801	0	%100
8	S2	SZ	-34.801	-34.801	0	%100
9	TR1	SZ	-84.665	-84.665	0	%100
10	TR2	SZ	-84.665	-84.665	0	%100
11	TR3	SZ	-84.665	-84.665	0	%100
12	TR4	SZ	-84.665	-84.665	0	%100
13	H1	SZ	-26.413	-26.413	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
14	H2	SZ	-26.413	-26.413	0	%100
15	MP3	SZ	-26.384	-26.384	0	%100
16	MP1	SZ	-26.384	-26.384	0	%100
17	MP2	SZ	-26.384	-26.384	0	%100
18	T1	SZ	-29.813	-29.813	0	%100
19	M29	SZ	0	0	0	%100
20	M30	SZ	0	0	0	%100
21	M33	SZ	0	0	0	%100
22	M34	SZ	0	0	0	%100
23	M35	SZ	0	0	0	%100
24	M36	SZ	0	0	0	%100
25	M25	SZ	0	0	0	%100
26	M26	SZ	0	0	0	%100

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

	Member Label	Direction	Start Magnitude[lb/ft,...	End Magn...	Start Location...	End Location[in,%]
1	S3	SX	-34.801	-34.801	0	%100
2	S4	SX	-34.801	-34.801	0	%100
3	TR6	SX	-84.665	-84.665	0	%100
4	TR5	SX	-84.665	-84.665	0	%100
5	TR8	SX	-84.665	-84.665	0	%100
6	TR7	SX	-84.665	-84.665	0	%100
7	S1	SX	-34.801	-34.801	0	%100
8	S2	SX	-34.801	-34.801	0	%100
9	TR1	SX	-84.665	-84.665	0	%100
10	TR2	SX	-84.665	-84.665	0	%100
11	TR3	SX	-84.665	-84.665	0	%100
12	TR4	SX	-84.665	-84.665	0	%100
13	H1	SX	-26.413	-26.413	0	%100
14	H2	SX	-26.413	-26.413	0	%100
15	MP3	SX	-26.384	-26.384	0	%100
16	MP1	SX	-26.384	-26.384	0	%100
17	MP2	SX	-26.384	-26.384	0	%100
18	T1	SX	-29.813	-29.813	0	%100
19	M29	SX	0	0	0	%100
20	M30	SX	0	0	0	%100
21	M33	SX	0	0	0	%100
22	M34	SX	0	0	0	%100
23	M35	SX	0	0	0	%100
24	M36	SX	0	0	0	%100
25	M25	SX	0	0	0	%100
26	M26	SX	0	0	0	%100

Member Area Loads

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

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

	Member	Shape	Code Check	Loc[in]	LC	She...	Loc[in]	Dir	LC	phi*P...	phi*P...	phi*M...	phi*Mn z-z [lb...	Cb	Eqn
1	TR7	0.63" SR	.561	39.811	27	.031	19.905		36	4409...	1402...	147.2...	147.295	2....	H1-1a
2	S4	1.9" ODx0.1...	.544	35.333	29	.209	42.4		27	2049...	2777...	1314...	1314.45	1....	H1-1b
3	S3	1.9" ODx0.1...	.517	35.333	31	.211	42.4		30	2049...	2777...	1314...	1314.45	1....	H1-1b
4	TR4	0.63" SR	.311	39.811	87	.051	19.905		30	4409...	1402...	147.2...	147.295	2....	H1-1a
5	S2	1.9" ODx0.1...	.299	35.333	85	.152	42.4		38	2049...	2777...	1314...	1314.45	1....	H1-1b
6	MP1	2.88"x0.120"	.294	33	2	.080	33		2	2249...	43056	3156...	3156.75	3....	H1-1b
7	S1	1.9" ODx0.1...	.287	35.333	81	.153	42.4		36	2049...	2777...	1314...	1314.45	1.83	H1-1b
8	TR8	0.63" SR	.235	0	32	.032	19.905		30	2249...	1402...	147.2...	147.295	2....	H1-1b
9	TR5	0.63" SR	.215	28.3	27	.034	0		95	5162...	1402...	147.2...	147.295	2....	H1-1b
10	TR2	0.63" SR	.188	28.3	27	.036	0		32	5162...	1402...	147.2...	147.295	2....	H1-1b
11	H1	PIPE 2.5	.170	77	8	.096	78		2	3348...	66654	4726.5	4726.5	1....	H1-1b
12	TR3	0.63" SR	.122	0	81	.049	19.905		36	2249...	1402...	147.2...	147.295	2....	H1-1b
13	MP3	2.88"x0.120"	.109	33	81	.023	61		87	2249...	43056	3156...	3156.75	4....	H1-1b
14	TR6	0.63" SR	.099	0	33	.016	28.3		37	5162...	1402...	147.2...	147.295	2....	H1-1b
15	H2	PIPE 2.5	.099	93	36	.057	78		30	3348...	66654	4726.5	4726.5	3....	H1-1b
16	MP2	2.88"x0.120"	.093	33	8	.045	33		30	2249...	43056	3156...	3156.75	4....	H1-1b
17	T1	Pipe2.38X0...	.087	0	7	.007	96.255		36	1328...	3527...	2114...	2114.85	1....	H1-1...
18	TR1	0.63" SR	.054	28.3	77	.016	28.3		37	5162...	1402...	147.2...	147.295	2....	H1-1b

Bolt Calculation Tool, V1.5.1

PROJECT DATA		
Site Name:	BOBDL00111A	
Site Number:	BOBDL00111A	
Connection Description:	Sector Frame to Tower Leg	

MAXIMUM BOLT LOADS		
Bolt Tension:	1535.69	lbs
Bolt Shear:	1009.52	lbs

WORST CASE BOLT LOADS ¹		
Bolt Tension:	1535.69	lbs
Bolt Shear:	898.63	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 #32 on member M25 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	7.6%	
Max Shear Usage	7.3%	
Interaction Check (Worst Case)	0.01	≤1.05
Result	Pass	



POWER DENSITY STUDY



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

Dish Wireless Existing Facility

Site ID: BOBDL00111A

BOBDL00111A

Enfield - Town Farm Road (Ecology Drive)
Enfield, Connecticut 06082

October 6, 2021

EBI Project Number: 62210040020

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	1.22%

October 6, 2021

Dish Wireless

Emissions Analysis for Site: BOBDL00111A - BOBDL00111A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **Enfield - Town Farm Road (Ecology Drive)** in **Enfield, 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 Enfield - Town Farm Road (Ecology Drive) in Enfield, 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 MX08FRO665-2I for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector A, the JMA MX08FRO665-2I for the 600 MHz / 1900 MHz / 2190 MHz channel(s) in Sector B, the JMA MX08FRO665-2I 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 155 feet above ground level (AGL).
- 8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 9) All calculations were done with respect to uncontrolled / general population threshold limits.



Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	I	Antenna #:	I	Antenna #:	I
Make / Model:	JMA MX08FRO665-2I	Make / Model:	JMA MX08FRO665-2I	Make / Model:	JMA MX08FRO665-2I
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):	155 feet	Height (AGL):	155 feet	Height (AGL):	155 feet
Channel Count:	12	Channel Count:	12	Channel Count:	12
Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts
ERP (W):	5,236.31	ERP (W):	5,236.31	ERP (W):	5,236.31
Antenna AI MPE %:	1.07%	Antenna BI MPE %:	1.07%	Antenna CI MPE %:	1.07%

Site Composite MPE %	
Carrier	MPE %
Dish Wireless (Max at Sector A):	1.07%
TS-Enfield-049-100104	0.15%
Site Total MPE % :	1.22%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	1.07%
Dish Wireless Sector B Total:	1.07%
Dish Wireless Sector C Total:	1.07%
Site Total MPE % :	1.22%

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	155.0	1.45	600 MHz n71	400	0.36%
Dish Wireless 1900 MHz n70	4	542.70	155.0	3.52	1900 MHz n70	1000	0.35%
Dish Wireless 2190 MHz n66	4	542.70	155.0	3.52	2190 MHz n66	1000	0.35%
						Total:	1.07%

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



Summary

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

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

Dish Wireless Sector	Power Density Value (%)
Sector A:	1.07%
Sector B:	1.07%
Sector C:	1.07%
Dish Wireless Maximum MPE % (Sector A):	1.07%
Site Total:	1.22%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **1.22%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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



November 09, 2021

Dear Customer,

The following is the proof-of-delivery for tracking number: 775107383190

Delivery Information:

Status:	Delivered	Delivered To:	Receptionist/Front Desk
Signed for by:	T.CC	Delivery Location:	820 ENFIELD ST
Service type:	FedEx 2Day		
Special Handling:	Deliver Weekday		ENFIELD, CT, 06082
		Delivery date:	Nov 9, 2021 11:19

Shipping Information:

Tracking number:	775107383190	Ship Date:	Nov 5, 2021
		Weight:	1.0 LB/0.45 KG

Recipient:
Raymond Steadward,
820 Enfield Street
ENFIELD, CT, US, 06082

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

Reference 100814



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November 09, 2021

Dear Customer,

The following is the proof-of-delivery for tracking number: 775107403884

Delivery Information:

Status:	Delivered	Delivered To:	Receptionist/Front Desk
Signed for by:	T.CC	Delivery Location:	820 ENFIELD ST
Service type:	FedEx 2Day		
Special Handling:	Deliver Weekday		ENFIELD, CT, 06082
		Delivery date:	Nov 9, 2021 11:19

Shipping Information:

Tracking number:	775107403884	Ship Date:	Nov 5, 2021
		Weight:	1.0 LB/0.45 KG

Recipient:
Town of Enfield,
820 Enfield Street
ENFIELD, CT, US, 06082

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

Reference 100814



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November 09, 2021

Dear Customer,

The following is the proof-of-delivery for tracking number: 775107356289

Delivery Information:

Status:	Delivered	Delivered To:	Residence
Signed for by:	Signature not required	Delivery Location:	16 SILVER LN
Service type:	FedEx 2Day		
Special Handling:	Deliver Weekday; Residential Delivery		ENFIELD, CT, 06082
		Delivery date:	Nov 9, 2021 12:36

Shipping Information:

Tracking number:	775107356289	Ship Date:	Nov 5, 2021
		Weight:	1.0 LB/0.45 KG

Recipient:
Mike Ludwick,
16 Silver Lane
ENFIELD, CT, US, 06082

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

Reference	100814
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