Northeast Site Solutions
Victoria Masse
420 Main St Unit 1 Box 2
Sturbridge, MA 01566
victoria@northeastsitesolutions.com

February 3, 2022

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Tower Share Application
213 Court Street, Middletown, CT 06457
Latitude: 41.559400 N
Longitude: -72.651196 W
Site#: BOBDL00033C

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless LLC. Dish Wireless LLC plans to install antennas and related equipment to the rooftop site located at 213 Court Street, Middletown, Connecticut.

Dish Wireless LLC proposes to install six (3) 600/1900/2100 5G MHz antenna and twelve (6) RRUs, at the 160-foot level of the existing 220-foot building, three (1) hybrid line will also be installed. Dish Wireless LLC equipment cabinets will be placed within an existing Nextel equipment shelter. Included are plans by Infinigy, dated January 28, 2022, Exhibit C. Also included is a structural analysis prepared by Infinigy, dated February 1, 2022, confirming that the existing wall mount is structurally capable of supporting the proposed equipment. Attached as Exhibit D. This facility was approved by the Connecticut Siting Council, Docket No. 125 on April 9, 1990. Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Benjamin D. Florsheim, Mayor for the Town of Middletown, Ronald Baja, Zoning/Wetlands Enforcement Officer, as well as the property owner (213 Court Street Realty Trust).

The planned modifications of the facility fall squarely within those activities explicitly provided for in R.C.S.A. 16-50j-89.

1. The proposed modifications will not result in an increase in the height of the existing structure. The top of the building is 220-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 160-feet.

2.The proposed modification will not result in the increase of the site boundary as depicted on the attached site plan.

3.The proposed modification will not increase the noise levels at the facility by six decibels or more, or to levels that exceed local and state criteria. The incremental effect of the proposed changes will be negligent.

4.The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, the combined site operations will result in a total density of 18.45% as evidenced by Exhibit F.

Connecticut General Statutes 16-50-aa indicates that the Council must approve the shared use of a telecommunications facility provided it finds the shared use is technically, legally, environmentally, and economically feasible and meets public safety concerns. As demonstrated in this letter, Dish Wireless LLC respectfully indicates that the shared use of this facility satisfies these criteria.

A. Technical Feasibility. The existing wall mount has been deemed structurally capable of supporting Dish Wireless LLC proposed loading. The structural analysis is included in Exhibit D.

B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing wall mount such as this building in Middletown. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit Dish Wireless LLC to obtain a building permit for the proposed installation. Further, a letter of Authorization is included as Exhibit G, authorizing Dish Wireless LLC to file this application for shared use.

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish Wireless LLC equipment at the 160-foot level of the existing 220-foot building would have an insignificant visual impact on the area around the building. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

D. Economic Feasibility. Dish Wireless LLC will be entering into an agreement with the owner of this facility to mutually agreeable terms. As previously mentioned, the Letter of Authorization has been provided by the owner to assist Dish Wireless LLC with this tower share application.

E. Public Safety Concerns. As discussed above, the tower is structurally capable of supporting Dish Wireless LLC proposed loading. Dish Wireless LLC is not aware of any public safety concerns relative to the proposed sharing of the existing tower. Dish Wireless LLC intentions of providing new and improved wireless service through the shared use of this facility is expected to enhance the safety and welfare of local residents and individuals traveling through Middletown.

Sincerely,

Victoria Masse
Mobile: 860-306-2326
Fax: 413-521-0558
Office: 420 Main Street, Unit 1 Box 2, Sturbridge, MA 01566
Email: victoria@northeastsitesolutions.com

NORTHEAST
SITE SOLUTIONS
Turnkey Wireless Development
www.northeastsitesolutions.com

Attachments
Cc:
Benjamin D. Florsheim, Mayor
245 deKoven Drive
Middletown, CT 06457

Ronald Baja, Zoning/Wetlands Enforcement Officer
245 deKoven Drive
Middletown, CT 06457

213 Court Street Realty Trust, Property Owner
30 Adams Street
Milton, MA 02186

Exhibit A

Original Facility Approval

DOCKET NO. 125 - An application of Metro Mobile CTS of Hartford, Inc., for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of cellular telephone antennas and associated equipment in the City of Middletown, Connecticut.

Connecticut Siting Council

April 9, 1990

DECISION AND ORDER

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council finds that the effects associated with the construction, operation, and maintenance of a cellular telecommunications facility at the proposed site in Middletown, Connecticut, including effects on the natural environment; ecological balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not significant either alone or cumulatively with other effects, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the proposed Middletown site in this application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by Section 16-50k of the Connecticut General Statutes (CGS), be issued to Metro Mobile CTS of Hartford County, Inc., for the construction, operation, and maintenance of a cellular telephone facility at the proposed site on 213 Court Street, Middletown, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record on this matter, and subject to the following conditions:

1. The facility shall be constructed in accordance with applicable sections of the State of Connecticut Basic Building Code.

2. The Certificate Holder shall notify the Council if and when any equipment other than that listed in this application is added to this facility.

3. The receive/transmit panel antenna bases shall be mounted 177 feet above ground level (AGL) or 244 feet above mean sea level (AMSL). The omnidirectional antenna bases shall be mounted no higher than 207 feet AGL or 274 feet AMSL. The total height of the antennas shall not exceed 214 feet AGL or 281 feet AMSL.

4. If this facility does not initially provide, or permanently ceases to provide, cellular service following the completion of construction, this Decision and Order shall be void, and the antennas and all associated equipment in this application shall be dismantled and removed or reapplication for any new use shall be made to the Council and a Certificate granted before any such new use is made.

5. The Certificate Holder shall comply with any existing and future radio frequency (RF) standard promulgated by State or federal regulatory agencies. Upon the establishment of any new governmental RF standards, the facility granted in this Decision and Order shall be brought into compliance with such standards.

6. The Certificate Holder shall provide the Council with a report of recalculated power density if and when additional channels over the proposed 90 channels, higher wattage over the proposed 100 watts per channel, or if other circumstances in operation cause change in power density above the levels originally calculated in the application.

7. The Certificate Holder shall provide a final report to the Council upon completion of construction, including the final construction costs and date of commercial operation.

8. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the effective date of this Decision and Order.

Pursuant to Section 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below and notice of issuance be published in the Middletown Press and Hartford Courant.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of State Agencies.

Docket No. 125
Decision and Order
Page 3

The parties or intervenors to this proceeding are:

(Party)	(Its Representative)
Metro Mobile CTS of Hartford, Inc. 100 Corporate Drive Windsor, CT 06095 Attn: Gary N. Shulman Vice President and Gen. Mgr.	Robinson & Cole One Commercial Plaza Hartford, CT 06103-3597 Attn: Earl W. Phillips, Jr., Esq. (203) 275-8200
(Intervenor)	(Its Representative)
SNET Cellular, Inc. 227 Church Street New Haven, CT 06506	Peter J. Tyrrell Senior Attorney SNET Cellular, Inc. 227 Church Street Room 1021 New Haven, CT 06506

CERTIFICATION

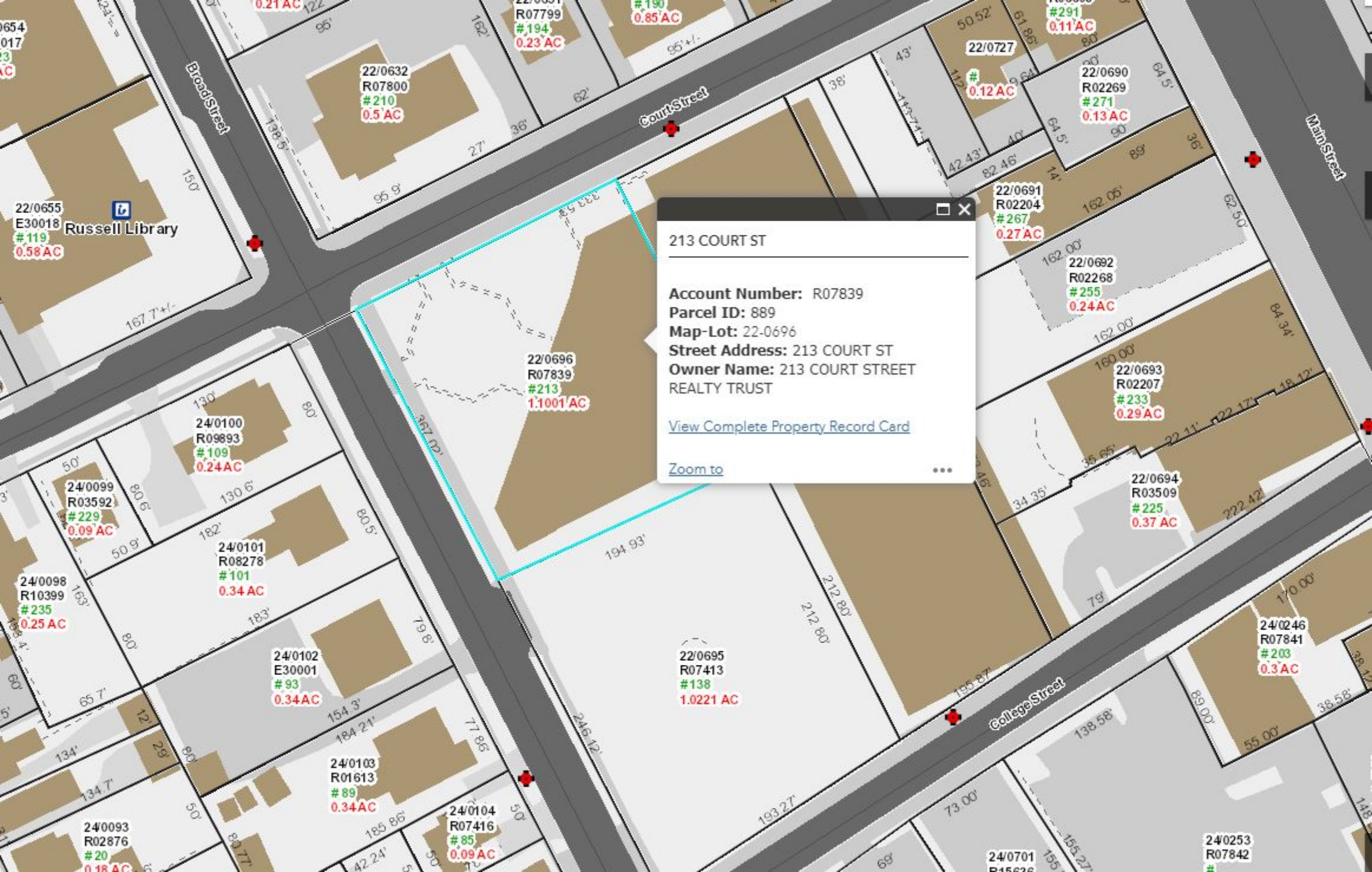
The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case in Docket No. 125 - An application of Metro Mobile CTS of Hartford, Inc., for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of cellular telephone antennas and associated equipment in the city of Middletown, Connecticut, or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut the 9th day of April, 1990.

Council Members	Vote Cast
Gloria Dibble Pond Chairperson	Yes
Commissioner Peter Boucher Designee: Robert A. Pulito	Yes
Commissioner Leslie Carothers Designee: Brian Emerick	Yes
Harry E. Covey	Yes
Mortimer A. Gelston	Yes
Daniel P. Lynch, Jr.	Yes
Paulann H. Sheets	Abstain
William H. Smith	Yes
Colin C. Tait	Yes

Exhibit B

Property Card


213 COURT ST
Account Number: R07839
Parcel ID: 889
Map-Lot: 22-0696
Street Address: 213 COURT ST
Owner Name: 213 COURT STREET REALTY TRUST
View Complete Property Record Card
Zoom to
22/0696
R07839
#213
1.1001 AC
22/0695
R07413
#138
1.0221 AC
22/0655
E30018
#119
0.58 AC
Russell Library
22/0632
R07800
#210
0.5 AC
R07799
#194
0.23 AC
#190
0.85 AC
22/0727
#
0.12 AC
#291
0.11 AC
22/0690
R02269
#271
0.13 AC
22/0691
R02204
#267
0.27 AC
22/0692
R02268
#255
0.24 AC
22/0693
R02207
#233
0.29 AC
22/0694
R03509
#225
0.37 AC
24/0100
R09893
#109
0.24 AC
24/0099
R03592
#229
0.09 AC
24/0101
R08278
#101
0.34 AC
24/0098
R10399
#235
0.25 AC
24/0102
E30001
#93
0.34 AC
24/0103
R01613
#89
0.34 AC
24/0104
R07416
#85
0.09 AC
24/0093
R02876
#20
0.18 AC
24/0246
R07841
#203
0.3 AC
24/0253
R07842
24/0701
Broad Street
Court Street
College Street
Main Street

MIDDLETOWN,CT

213 COURT ST

Location
213 COURT ST
Map-Lot
22/ / 0696/ /
Acct#
R07839
Owner
213 COURT STREET REALTY TRUST
Municipality
Assessment
$10,920,000
Appraisal
$15,600,000
PID
889
Building Count
1
Assessing District

Current Value

Appraisal

Valuation Year	Improvements	Land	Total
2018	$13,902,000	$1,698,000	$15,600,000

Assessment

Valuation Year	Improvements	Land	Total
2018	$9,731,400	$1,188,600	$10,920,000

Parcel Addreses

Additional Addresses

No Additional Addresses available for this parcel

Owner of Record

Owner 213 COURT STREET REALTY TRUST
Co-Owner HAJJAR CHARLES C TRUSTEE
Address 30 ADAMS STREET
MILTON, MA 02186
Sale Price $15,400,000
Certificate
Book & Page 1776/0098
Sale Date 12/19/2012
Instrument 03

Ownership History

Ownership History

Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
213 COURT STREET REALTY TRUST	$15,400,000		1776/0098	03	12/19/2012
213 COURT STREET REALTY TRUST	$0		0885/0065	29	12/23/1988

Building Information
Building 1 : Section 1
Year Built: 1989

Living Area:	177,765
Replacement Cost:	$20,407,807
Building Percent Good:	89
Replacement Cost Less Depreciation:	$18,162,950

Building Attributes

Field	Description
Style	Off/Ret Type
Model	Commercial
Grade	B-
Stories	13
Occupancy	14.00
Exterior Wall 1	Glass/Thermo.
Exterior Wall 2	Brick/Masonry
Roof Structure	Flat
Roof Cover	Metal/Tin
Interior Wall 1	Drywall
Interior Wall 2	K Pine/A Wd
Interior Floor 1	Carpet
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Forced Air
AC Type	Central
Struct Class	
Bldg Use	Commercial Improv
Cov Parking	0
Uncov Parking	0
Percent Fin	0
1st Floor Use	

Heat/AC	Heat/AC Pkg
Frame Type	Steel
Baths/Plumbing	Average
Ceiling/Walls	Ceil & Wall
Rooms/Prtns	Average
Wall Height	13.00

Building Sub-Areas (sq ft) Legend

Code	Description	Gross Area	Living Area
FUS	Finished Upper Story	161,318	161,318
BAS	First Floor	16,447	16,447
BSM	Basement	17,005	0
CAN	Canopy	588	0
FEP	Enclosed Porch	77	0
FOP	Framed Open Porch	1,025	0
PTO	Patio	3,047	0
UBM	Basement	2,608	0
UUS	Unfinished Upper Story	4,337	0
		206,452	177,765

Extra Features

Extra Features Legend

Code	Description	Size	Value	Bldg #
ELV2	Elevator - Freight	12.00 STOPS	$165,600	1
SPR2	Wet/Concealed	206436.00 UNITS	$121,070	1
ELV1	Elevator - Passenger	12.00 STOPS	$124,200	1
ELV1	Elevator - Passenger	12.00 STOPS	$124,200	1
ELV1	Elevator - Passenger	12.00 STOPS	$124,200	1
ELV1	Elevator - Passenger	12.00 STOPS	$124,200	1
LDL1	Load Levelers	1.00 UNITS	$1,740	1

Land

Land Use

Use Code 201

Description Commercial Improv

Zone B-1

Neighborhood 3150
Alt Land Appr No
Category
Land Line Valuation
Size (Acres) 1.10
Assessed Value $1,188,600
Appraised Value $1,698,000

Outbuildings

Outbuildings Legend

Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
PTO	Patio	BR	Brick	4500.00 UNITS	$17,100	1

Valuation History

Appraisal

Valuation Year	Improvements	Land	Total
2020	$13,902,000	$1,698,000	$15,600,000
2019	$13,902,000	$1,698,000	$15,600,000
2018	$13,902,000	$1,698,000	$15,600,000

Assessment

Valuation Year	Improvements	Land	Total
2020	$9,731,400	$1,188,600	$10,920,000
2019	$9,731,400	$1,188,600	$10,920,000
2018	$9,731,400	$1,188,600	$10,920,000

Exhibit C

Construction Drawings

DISH Wireless L.L.C. SITE ID:

BOBDL00033C

DISH Wireless L.L.C. SITE ADDRESS:

213 COURT STREET
MIDDLETOWN, CT 06457

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

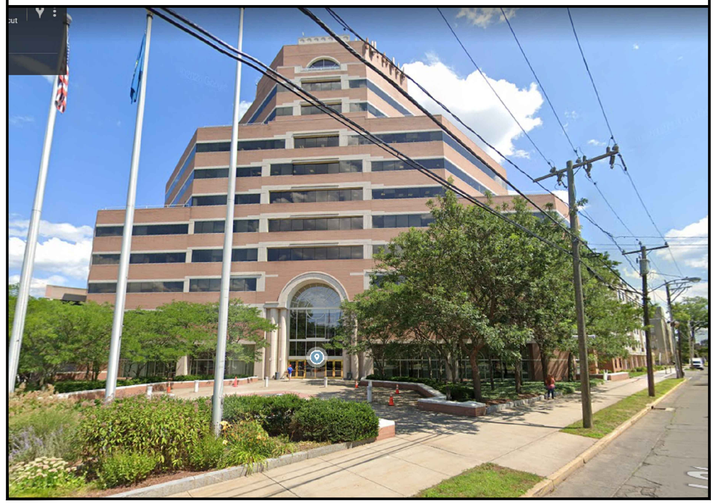
SCOPE OF WORK

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) AND (3) FUTURE PANEL ANTENNAS (1 PER SECTOR)
- INSTALL (3) PROPOSED ANTENNA MOUNTS (1 PER SECTOR) AND (1) FUTURE ANTENNA MOUNTS (1 PER SECTOR)
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRUS (2 PER SECTOR) AND (6) FUTURE RRUS (2 PER SECTOR)
- INSTALL (3) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
- INSTALL (1) PROPOSED HYBRID CABLE

GROUND SCOPE OF WORK:
- INSTALL (1) PROPOSED CABLE TRAY (IF REQUIRED)
- INSTALL (1) PROPOSED PPC CABINET (IF REQUIRED)
- 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 FIBER NID (IF REQUIRED)
- INSTALL (1) PROPOSED METER SOCKET (IF REQUIRED)

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.

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:	TBD
ADDRESS:	TBD TBD
TOWER TYPE:	ROOFTOP
TOWER CO SITE ID:	TBD
TOWER APP NUMBER:	TBD
COUNTY:	MIDDLESEX
LATITUDE (NAD 83):	41° 33' 33.8" N 41.559400 N
LONGITUDE (NAD 83):	72° 39' 04.3" W 72.651196 W
ZONING JURISDICTION:	TBD
ZONING DISTRICT:	TBD
PARCEL NUMBER:	TBD
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	EVERSOURCE CT ELECTRIC
TELEPHONE COMPANY:	TBD

PROJECT DIRECTORY

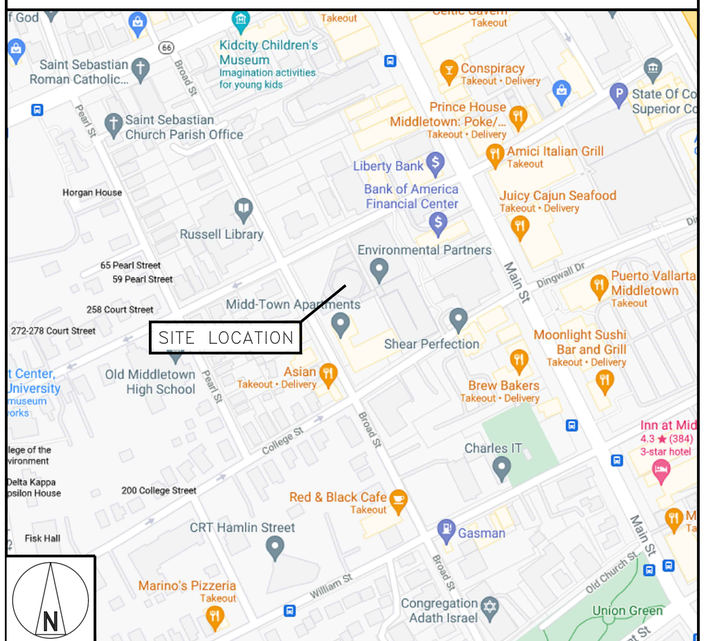
APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317 (877) 486-9377
SITE DESIGNER:	INFINIGY 2500 W. HIGGINS RD. STE. 500 HOFFMAN ESTATES, IL 60169 (847) 648-4068
SITE ACQUISITION:	APRIL PARROTT APRIL.PARROTT@DISH.COM
CONSTRUCTION MANAGER:	JAVIER SOTO JAVIER.SOTO@DISH.COM
RF ENGINEER:	BOSSENER CHARLES BOSSENER.CHARLES@DISH.COM

DIRECTIONS

DIRECTIONS FROM HARTFORD-BRAINARD AIRPORT:

DEPART AND HEAD TOWARD MAXIM RD,TURN LEFT ONTO MAXIM RD, BEAR RIGHT ONTO BRAINARD RD, TURN RIGHT ONTO AIRPORT RD, TAKE THE RAMP ON THE LEFT FOR CT-15 SOUTH / I-91 SOUTH / US-5 SOUTH AND HEAD TOWARD NEW HAVEN / WETHERSFIELD, AT EXIT 22S, HEAD LEFT ON THE RAMP FOR CT-9 SOUTH TOWARD MIDDLETOWN / OLD SAYBROOK, MINOR CONGESTION, KEEP STRAIGHT TO GET ONTO CT-17 / CT-9 S, AT EXIT 14, HEAD RIGHT ON THE RAMP FOR DEKOVEN DR TOWARD HARBOR AREA, KEEP STRAIGHT TO GET ONTO DR MARTIN LUTHER KING JR WAY, ROAD NAME CHANGES TO WILLIAM ST, TURN RIGHT ONTO BROAD ST, KRISPY KRUNCHY CHICKEN ON THE CORNER, ARRIVE AT 213 COURT STREET MIDDLETOWN, CT 06457

VICINITY MAP



dish wireless™

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
2500 W. HIGGINS RD. SUITE 500 |
HOFFMAN ESTATES, IL 60169
PHONE: 847-648-4068 | FAX: 518-690-0793
WWW.INFINIGY.COM

STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED
PROFESSIONAL ENGINEER
1/28/2022

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	01/07/2022	ISSUED FOR PERMIT
1	01/19/2022	ISSUED FOR PERMIT
2	01/28/2022	ISSUED FOR PERMIT

A&E PROJECT NUMBER

1197-F0001-C

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00033C
213 COURT STREET
MIDDLETOWN, CT 06457

SHEET TITLE

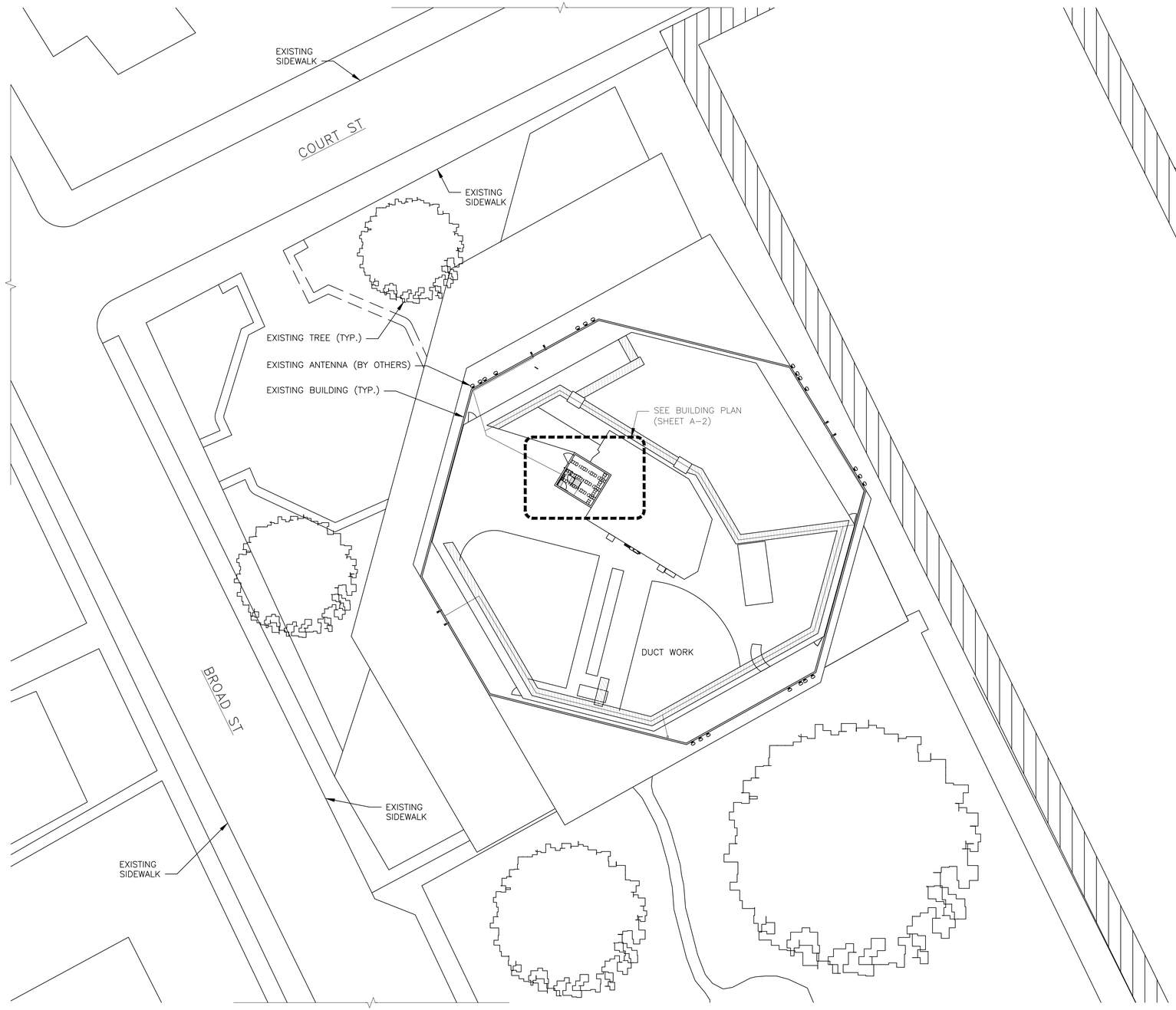
TITLE SHEET

SHEET NUMBER

T-1

NOTES

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



OVERALL SITE PLAN

20' 10' 0 20' 40'
1"=20'

1

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
2500 W. HIGGINS RD. SUITE 500 |
HOFFMAN ESTATES, IL 60169
PHONE: 847-648-4068 | FAX: 518-690-0793
WWW.INFINIGY.COM

STATE OF CONNECTICUT
SHUHEI SAKAGUE
34916
LICENSED PROFESSIONAL ENGINEER
1/28/2022

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00033C
213 COURT STREET
MIDDLETOWN, CT 06457

SHEET TITLE

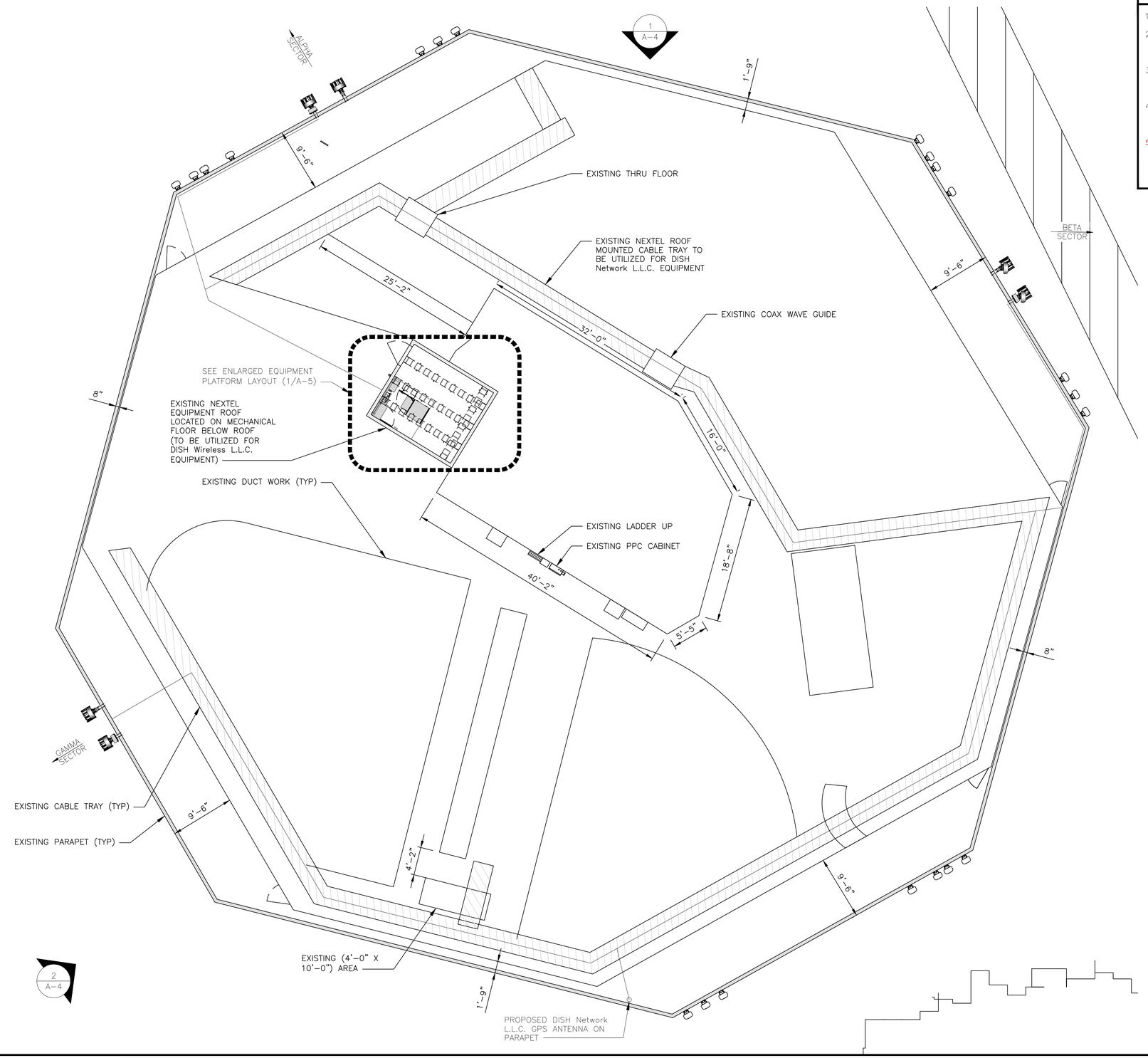
OVERALL SITE PLAN

SHEET NUMBER

A-1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. CONTRACTOR TO VERIFY WITH DISH Wireless L.L.C. C.M. THE LOCATION OF THE POWER AND FIBER SOURCE PRIOR TO CONSTRICTION.
4. UTILITY RUBBER MAT TO BE IN STALLED UNDER ALL DISH Wireless L.L.C. EQUIPMENT THAT IS RESTING ON OR AFFIXED TO ROOF MEMBRANE
5. CONTRACTOR SHALL VERIFY THE EXISTING NEXTEL CEILING MOUNTED CABLE TRAY CONDITION AND UTILIZE FOR DISH NETWORK LLC EQUIPMENT. APPROVED CABLE TRAY SHALL BE REPLACED OR ADDED FOR DISH NETWORK LLC USE WHERE NECESSARY



ENLARGED BUILDING PLAN

8' 4' 0 8' 16'
1/8"=1'-0"

1

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

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless
2500 W. HIGGINS RD. SUITE 500 | HOFFMAN ESTATES, IL 60169
PHONE: 847-648-4068 | FAX: 518-690-0793
WWW.INFINIGY.COM

STATE OF CONNECTICUT
SHUHEI SAKAMOTO
34916
LICENSED PROFESSIONAL ENGINEER
1/28/2022

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	01/07/2022	ISSUED FOR PERMIT
1	01/19/2022	ISSUED FOR PERMIT
2	01/28/2022	ISSUED FOR PERMIT

A&E PROJECT NUMBER

1197-F0001-C

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00033C
213 COURT STREET
MIDDLETOWN, CT 06457

SHEET TITLE

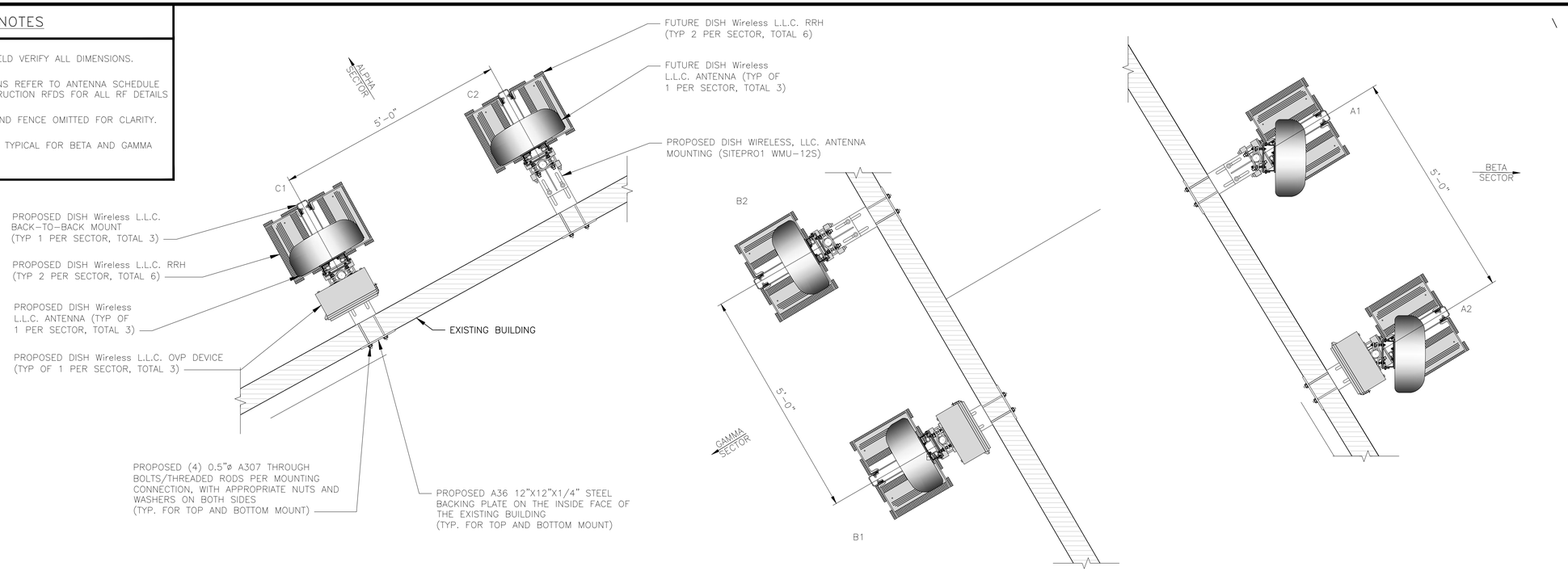
ENLARGED BUILDING PLAN

SHEET NUMBER

A-2

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.
4. ALPHA SECTOR SHOWN TYPICAL FOR BETA AND GAMMA SECTORS.

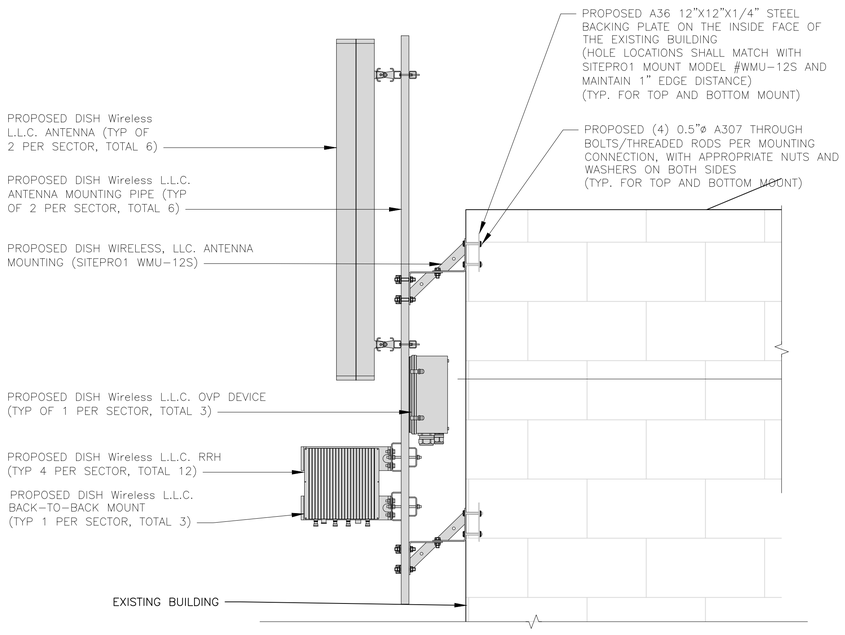


N

ANTENNA PLAN (TYPICAL PER SECTOR)

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

1



ANTENNA ELEVATION

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

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZMUITH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	UMA WIRELESS – MX08FRO665-**21**	5G	72.0" x 20.0"	330°	160-0"	(1) HIGH-CAPACITY HYBRID CABLE (393' LONG)
	A2	FUTURE	UMA WIRELESS – MX08FRO665-**21**	5G	72.0" x 20.0"	330°	160-0"	
BETA	B1	PROPOSED	UMA WIRELESS – MX08FRO665-**21**	5G	72.0" x 20.0"	90°	160-0"	
	B2	FUTURE	UMA WIRELESS – MX08FRO665-**21**	5G	72.0" x 20.0"	90°	160-0"	
GAMMA	C1	PROPOSED	UMA WIRELESS – MX08FRO665-**21**	5G	72.0" x 20.0"	210°	160-0"	
	C2	FUTURE	UMA WIRELESS – MX08FRO665-**21**	5G	72.0" x 20.0"	210°	160-0"	

SECTOR	POSITION	RRH	
		MANUFACTURER – MODEL NUMBER	TECHNOLOGY
ALPHA	A1	(2) FUJITSU – TA08025-B604	5G
	A2	FUTURE (2) FUJITSU – TA08025-B605	5G
BETA	B1	(2) FUJITSU – TA08025-B604	5G
	B2	FUTURE (2) FUJITSU – TA08025-B605	5G
GAMMA	C1	(2) FUJITSU – TA08025-B604	5G
	C2	FUTURE (2) FUJITSU – TA08025-B605	5G

NOTES

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

ANTENNA SCHEDULE

NO SCALE

3

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STATE OF CONNECTICUT
SHUHEI SAKAGUCHI
34916
LICENSED
PROFESSIONAL ENGINEER
1/28/2022

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

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1197-F0001-C

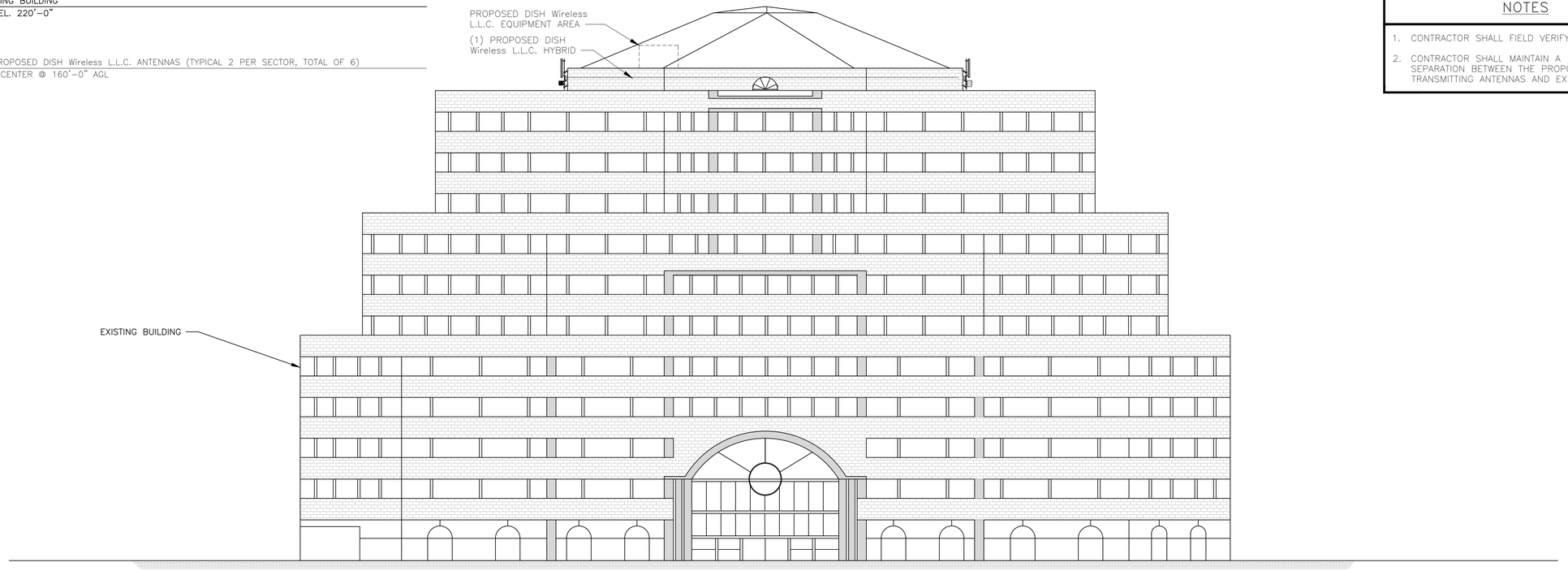
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00033C
213 COURT STREET
MIDDLETOWN, CT 06457

SHEET TITLE
ANTENNA PLAN, ELEVATION AND SCHEDULE

SHEET NUMBER
A-3

EXISTING BUILDING
TOP EL. 220'-0"

(6) PROPOSED DISH Wireless L.L.C. ANTENNAS (TYPICAL 2 PER SECTOR, TOTAL OF 6)
RAD CENTER @ 160'-0" AGL



PROPOSED NORTH ELEVATION

20' 10' 0 20' 40'
1"=20'

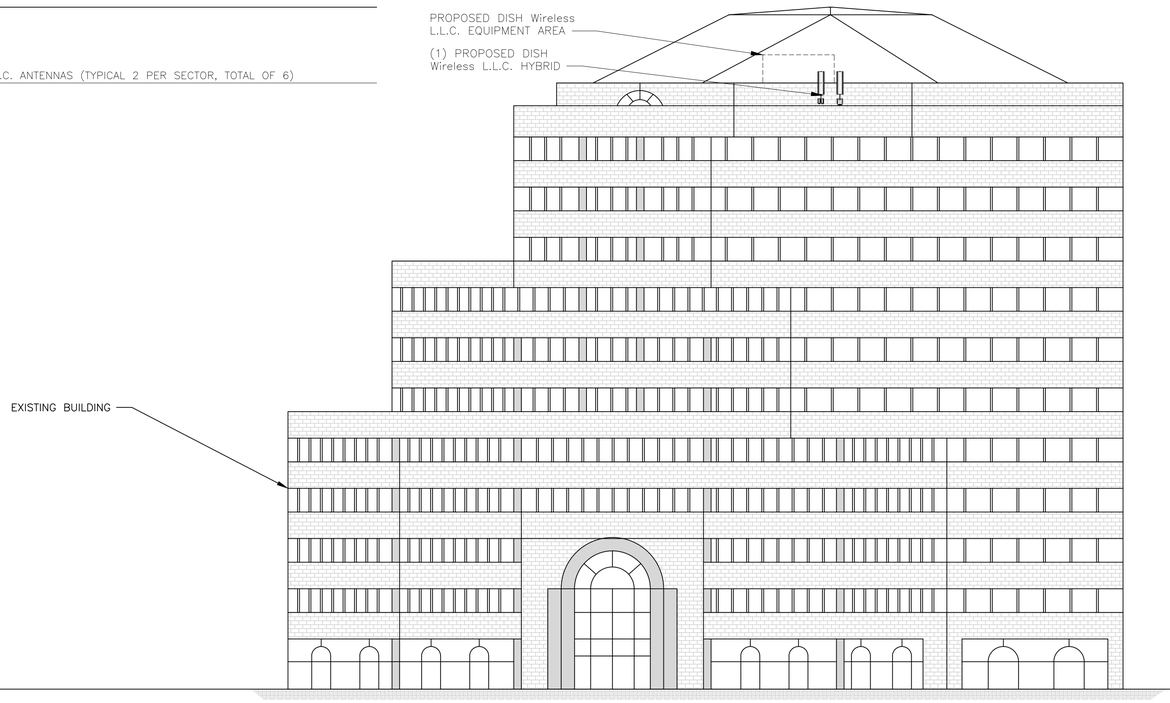
1

NOTES

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

EXISTING BUILDING
TOP EL. 220'-0"

(6) PROPOSED DISH Wireless L.L.C. ANTENNAS (TYPICAL 2 PER SECTOR, TOTAL OF 6)
RAD CENTER @ 160'-0" AGL



PROPOSED SOUTHWEST ELEVATION

20' 10' 0 20' 40'
1"=20'

2

NOTES

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

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PROFESSIONAL ENGINEER
1/28/2022

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

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A&E PROJECT NUMBER

1197-F0001-C

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00033C
213 COURT STREET
MIDDLETOWN, CT 06457

SHEET TITLE

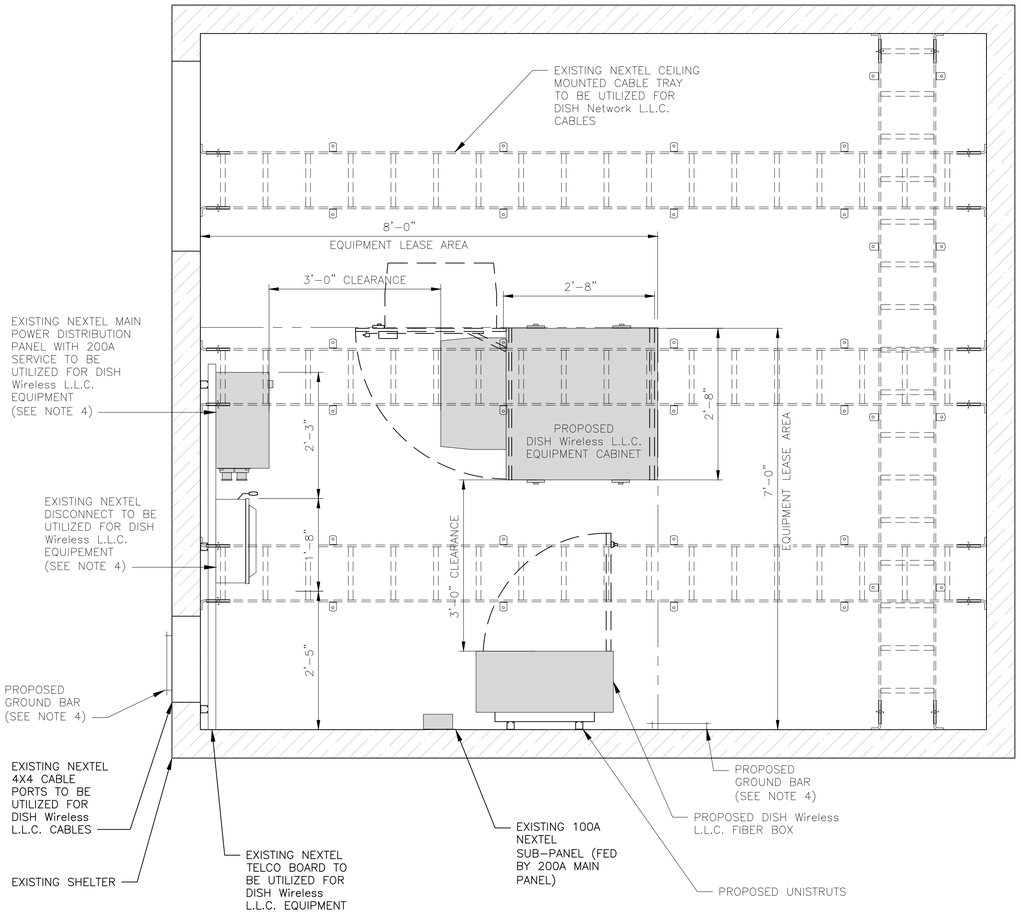
NORTH AND SOUTH ELEVATIONS

SHEET NUMBER

A-4

NOTES

1. PROPOSED EQUIPMENT CABINET WILL BE INSTALLED INSIDE EXISTING EQUIPMENT SHELTER
2. THE EXISTING EQUIPMENT SHELTER IS ASSUMED TO HAVE A CONCRETE DECK OF 3" MIN. OVER 6" METAL DECKING
3. PROPOSED EQUIPMENT CABINET WILL BE ANCHORED ONTO EXISTING CONCRETE USING A MIN. OF (4) HILTI KWIK BOLT TZ/TZ2 WITH 3/8"ø AND MIN. 1.5" EFFECTIVE EMBEDMENT DEPTH INTO THE CONCRETE (SEE ESR#1917 OR ESR#4266 FOR DETAILS AND INSTRUCTIONS)
4. CONTRACTOR SHALL VERIFY THE CONDITION OF EXISTING NEXTEL ELECTRICAL COMPONENT AND REPLACE FOR DISH APPROVED ITEMS WHERE NECESSARY.
5. 5. CONTRACTOR SHALL VERIFY THE EXISTING SHELTER ROOM GROUNDING SYSTEM IS ACCEPTABLE AND UPGRADE WHERE NECESSARY.



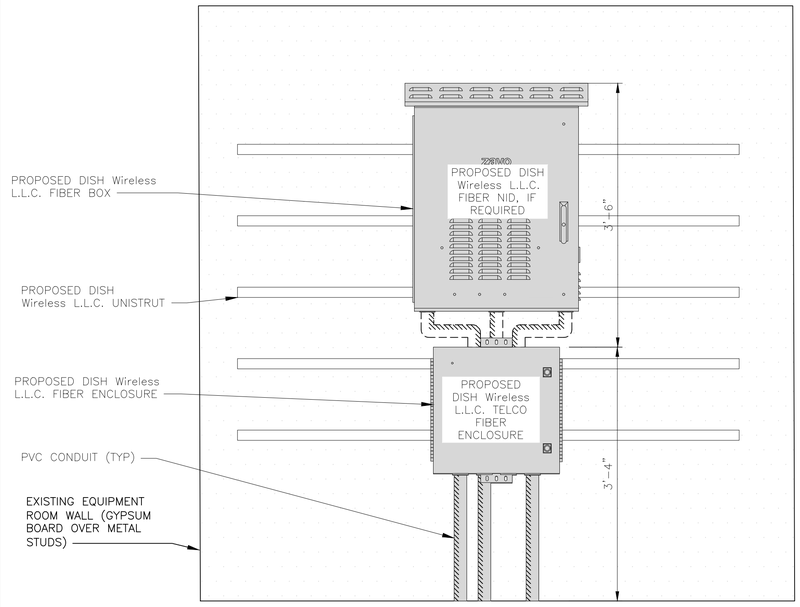
SHELTER EQUIPMENT PLAN

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

1

NOTES

1. EQUIPMENT CABINET OMITTED FOR CLARITY
2. PROPOSED UNISTRUTS TO BE ANCHORED ONTO EXISTING WALL WITH TAPCON 1/4"ø SCREWS OR EQUIVALENT FOR MASONRY WALLS. MAXIMUM LATERAL SPACING BETWEEN ANCHORS IS 30"
3. PROPOSED UNISTRUTS TO BE ANCHORED ONTO EXISTING WALL WITH SIMPSON X METAL SCREW #12 OR EQUIVALENT FOR METAL STUDS WALLS. MAXIMUM LATERAL SPACING BETWEEN ANCHORS IS 30"



FRONT ELEVATION

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

2

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RFDS REV #: N/A

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DISH Wireless L.L.C.
PROJECT INFORMATION

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213 COURT STREET
MIDDLETOWN, CT 06457

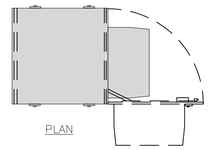
SHEET TITLE

SHELTER
EQUIPMENT DETAILS

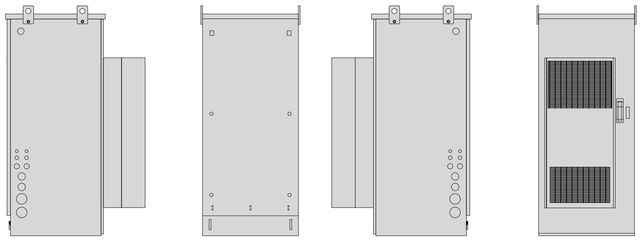
SHEET NUMBER

A-5

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



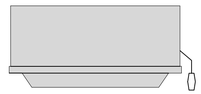
PLAN



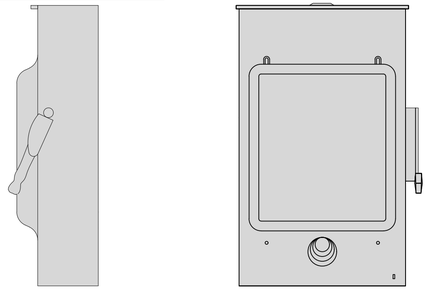
SIDE BACK SIDE FRONT

CABINET DETAIL | NO SCALE | 1

SQUARE D SAFETY SWITCHES D224NRB	
ENCLOSURE DIM (HxWxD)	29.25"x19.00"x8.50"
ENCLOSURE TYPE	NEMA 3R RAINPROOF
UL LISTED	FILE E–2875



TOP

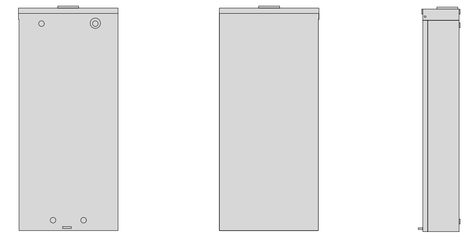


SIDE FRONT

SAFETY SWITCH DETAIL | NO SCALE | 2

GE BREAKER PANEL TLM1220RCUP	
ENCLOSURE DIM (HxWxD)	29"x13"x5"
TOTAL WEIGHT (EMPTY)	26 LBS
MAX VOLTAGE/MAX AMPS	240V/200A
ENCLOSURE RATING	OUTDOOR NEMA 3R

PLAN

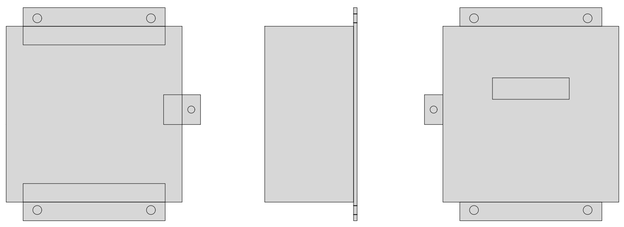


FRONT BACK SIDE

BREAKER PANEL DETAIL | NO SCALE | 3

LEVITON 1N240–21 SUBMETER	
WATTAGE	3
AMPS	200
VOLTS AC	120, 208, 240
PHASE	1

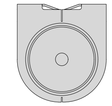
PLAN



BACK SIDE FRONT

E–MON D–MON DETAIL | NO SCALE | 4

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



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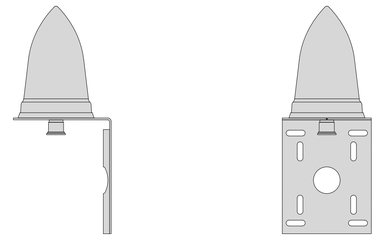
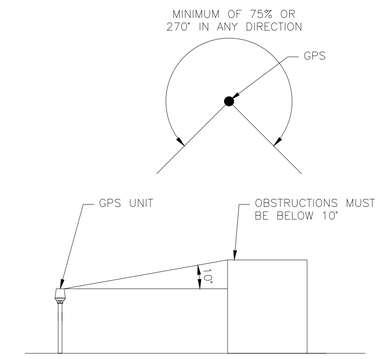
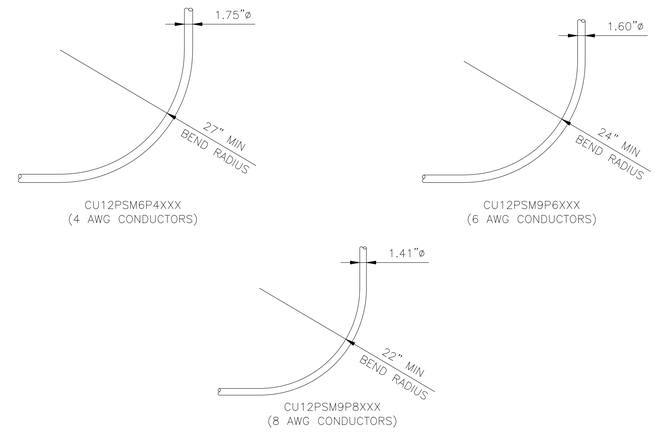


BACK SIDE

GPS DETAIL | NO SCALE | 5

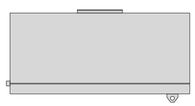


GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 6

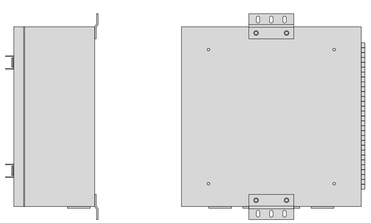


CABLES UNLIMITED HYBRID CABLE MINIMUM BEND RADIUSES | NO SCALE | 7

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



FRONT

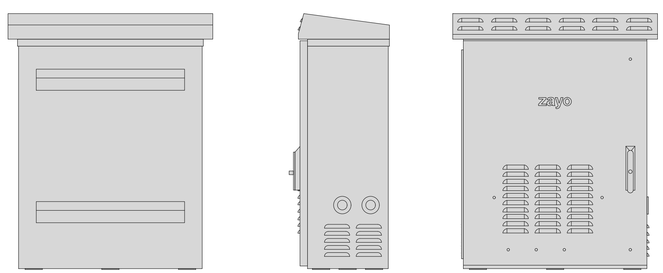


SIDE BACK FRONT

FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 8

ZAYO 5RU (LEFT SWING DOOR) FIBER NID ENCLOSURE	
DIMENSIONS (HxWxD)	36.1"x29"x12.9"
WEIGHT	85 lbs

BOTTOM



BACK SIDE FRONT

FIBER NID ENCLOSURE DETAIL | NO SCALE | 9

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00033C
213 COURT STREET
MIDDLETOWN, CT 06457

SHEET TITLE

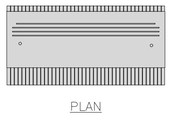
EQUIPMENT DETAILS

SHEET NUMBER

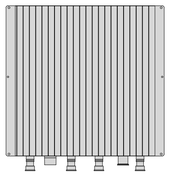
A-6

FUJITSU DUAL BAND TA08025-B604

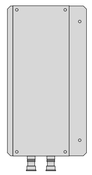
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



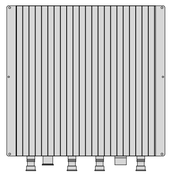
PLAN



BACK



SIDE

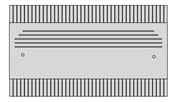


FRONT

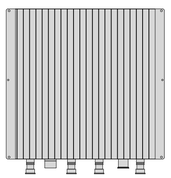
RRH DETAIL | NO SCALE | 1

FUJITSU TRIPLE BAND TA08025-B605

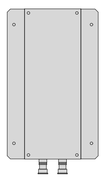
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



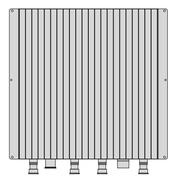
PLAN



BACK



SIDE



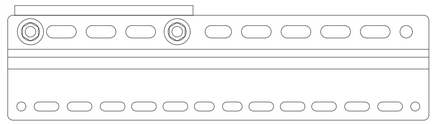
FRONT

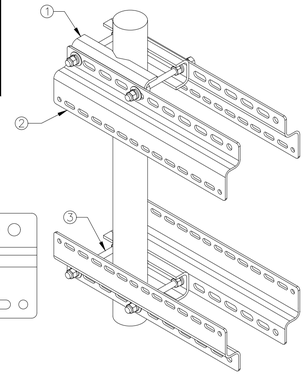
RRH DETAIL | NO SCALE | 2

SABRE DOUBLE Z-BRACKET C10123155

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

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





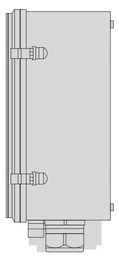
NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

RRH MOUNT DETAIL | NO SCALE | 3

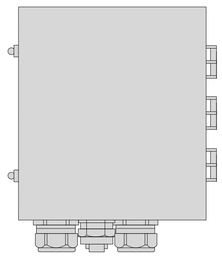
RAYCAP RDIDC-4045-PF-48 SURGE PROTECTION DEVICE (OVP)

DIMENSIONS (HxWxD)	14" x 16" x 8"
WEIGHT	21.85 LBS

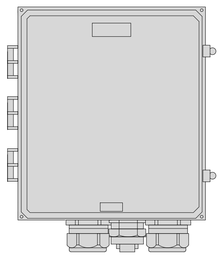
PLAN



SIDE



BACK



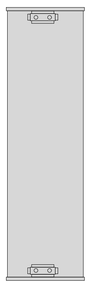
FRONT

SURGE PROTECTION DEVICE DETAIL (OVP) | NO SCALE | 4

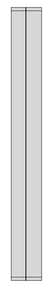
JMA WIRELESS MX08FRO665-21 ANTENNA

DIMENSIONS (HxWxD)	72.0"x20.0"x8.0"
TOTAL WEIGHT	96 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE

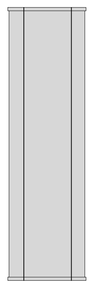
PLAN



BACK



SIDE

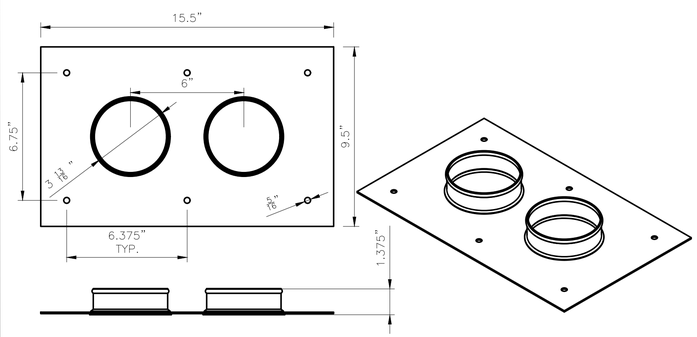


FRONT

ANTENNA DETAIL | NO SCALE | 5

NOTES

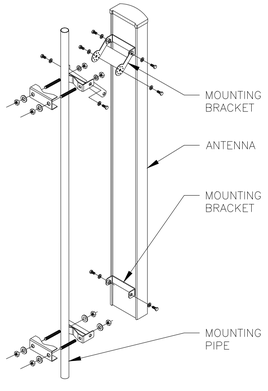
FINAL ANTENNA SPECIFICATIONS TO BE CONFIRMED BY GC



SITEPRO1 E1448 ALUMINUM ENTRY PORTS | NO SCALE | 6

M04 MOUNTING BRACKET HPA-33R-BUU-H4-K

WIDTH	5"
DEPTH	2"
HEIGHT	8"
TOTAL WEIGHT	1.5 lbs
HOUSING MATERIAL	ASA/ABS/ALUMINUM
RADOME COLOR	LIGHT GRAY
CONNECTOR	1x8-PIN DAISY CHAIN

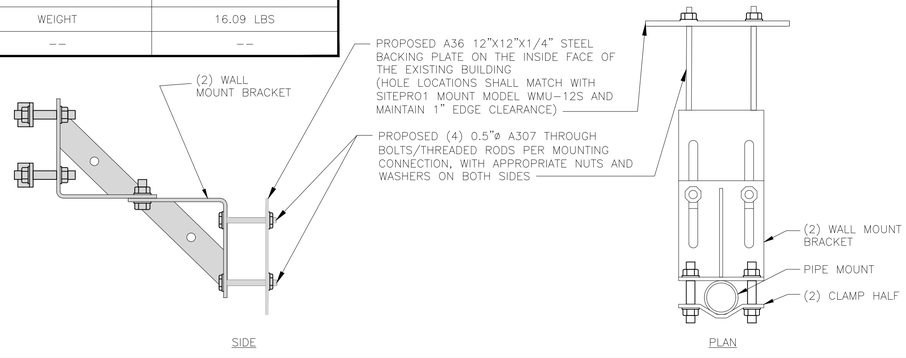


NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

ANTENNA MOUNTING DETAIL | NO SCALE | 7

SITEPRO1 WMU-12S UNIVERSAL ADJUSTABLE WALL MOUNT

STANDOFF	7" - 12"
DIMENSIONS (HxWxD)	14"x 6"x 7"-12"
WEIGHT	16.09 LBS
--	--



SIDE PLAN FRONT

ANTENNA WALL MOUNT DETAIL | NO SCALE | 8

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1/28/2022

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RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

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1197-F0001-C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00033C
213 COURT STREET
MIDDLETOWN, CT 06457

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-7

COMMSCOPE XP-2040 CROSSOVER PLATE

DIMENSIONS (HxW)	10"x12"
WEIGHT	11 lbs

NOTE:
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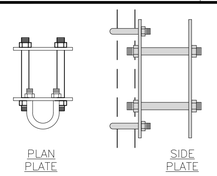
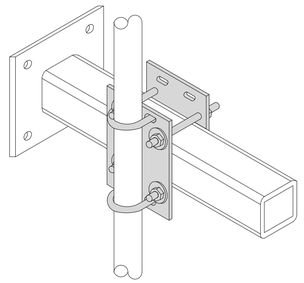
APPROVED EQUIVALENT



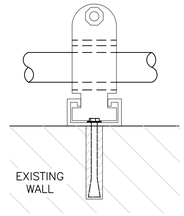


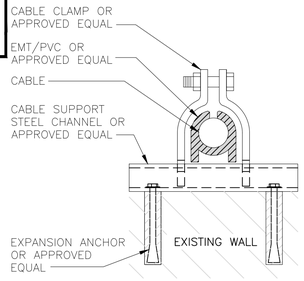
RRH/OVP MOUNT DETAIL | NO SCALE | 1

CABLE WALL MOUNT SUPPORT

UNISTRUT TYPE	GRAINGER P1000T
UNISTRUT DIMENSIONS (HxWxL)	1 5/8"x 1 5/8"x 12"
WEIGHT/ VOLUME	1.85 LB PER FOOT
ULTIMATE LOAD CAPACITY	718.5 LB

NOTES:
1. ALL HARDWARE AND PARTS SHALL BE HOT DIPPED GALVANIZED WITH LOCK WASHERS AND HEAVY HEX NUTS.
2. VERTICAL CABLE MOUNT: 4'-0" MAX. UNISTRUT SEPARATION
3. HORIZONTAL CABLE MOUNT: 3'-0" MAX UNISTRUT SEPARATION



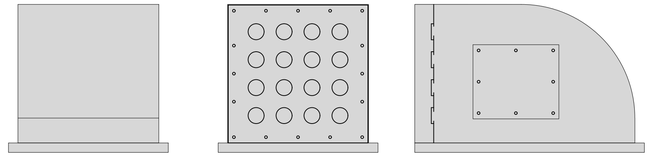


CABLE WALL MOUNT SUPPORT DETAIL | NO SCALE | 2

COMMSCOPE MT-365G ROOFTOP HOOD ENTRY KIT

DIMENSIONS (HxWxL)	32"x34"x49"
WEIGHT/ VOLUME	229.94 LB
MATERIAL TYPE	GALVANIZED STEEL

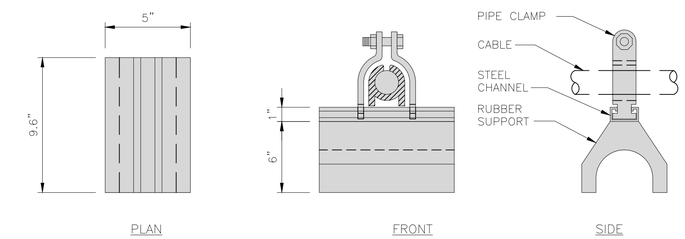

PLAN



ROOFTOP HOOD ENTRY KIT DETAIL | NO SCALE | 3

DURA-BLOK DB10 ROOFTOP CABLE SUPPORT

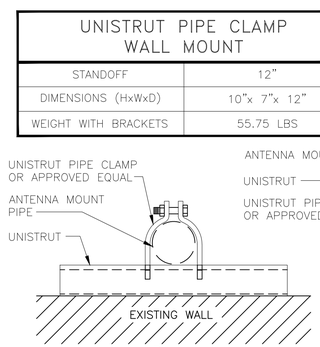
DIMENSIONS (HxWxL)	5"x6"x9.6"
WEIGHT/ VOLUME	5.28 LBS
ULTIMATE LOAD CAPACITY	500 LBS
NOTE: NON-PENETRATING	

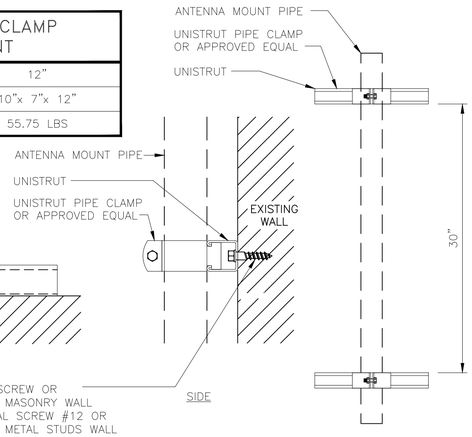


ROOFTOP CABLE SUPPORT DETAIL | NO SCALE | 4

UNISTRUT PIPE CLAMP WALL MOUNT

STANDOFF	12"
DIMENSIONS (HxWxD)	10"x 7"x 12"
WEIGHT WITH BRACKETS	55.75 LBS

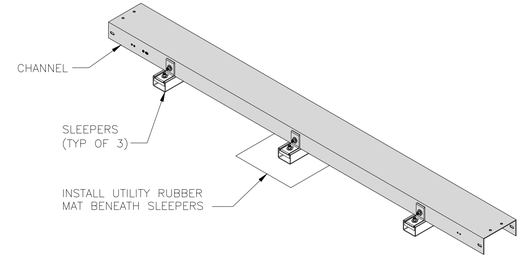




UNISTRUT WALL MOUNT DETAIL | NO SCALE | 5

COMMSCOPE MT-F1543 ROOFTOP CABLE BRIDGE KIT

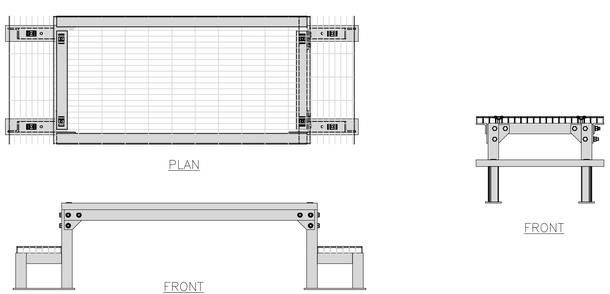
DIMENSIONS (HxWxL)	7"x30"x96"
WEIGHT	112.3 lbs
CABLE RUN, QUANTITY	8
NOTE: NON-PENETRATING, 12-GAUGE COVER, OR APPROVED EQUAL. INCLUDES: CHANNEL, HARDWARE AND (3) SLEEPERS	



WALL MOUNTED CABLE TRAY DETAIL | NO SCALE | 6

SITEPRO1 STEP 48 ROOFTOP STEEL STEP OVER

DIMENSIONS (HxWxL)	13.2"x41.5"x70.5"
WEIGHT/ VOLUME	146.387 LBS
NOTE: NON-PENETRATING	

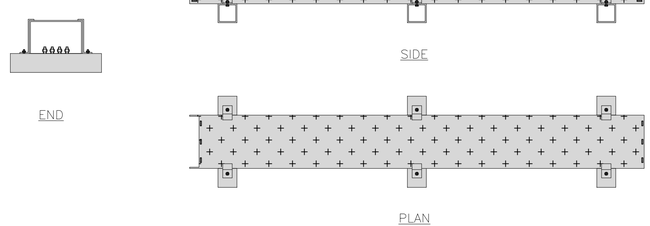


ROOFTOP STEEL STEP OVER DETAIL | NO SCALE | 7

COMMSCOPE RT-CB4D ROOFTOP COVER KIT

DIMENSIONS (HxWxL)	7"x 11.25"x 96"
WEIGHT/ VOLUME	85.98 LBS
CABLE RUN (QTY)	4

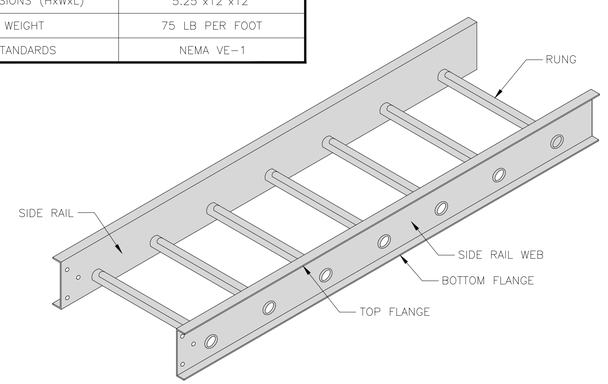
MOUNTING	NON-PENETRATING
INCLUDED PRODUCTS:	RTCB4D.01 CHANNEL (1)
	MT-F1598 SLEEPERS (3)
	RTCUH HARDWARE
	RTHC.01 HOLD-DOWN CLAMPS (6)



ROOFTOP CABLE TRAY DETAIL | NO SCALE | 8

COPE 1B48-12SL-12-09 ROOFTOP LADDER TRAY

DIMENSIONS (HxWxL)	5.25"x12"x12'
WEIGHT	75 LB PER FOOT
STANDARDS	NEMA VE-1



ROOFTOP LADDER TRAY DETAIL | NO SCALE | 9

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1/28/2022

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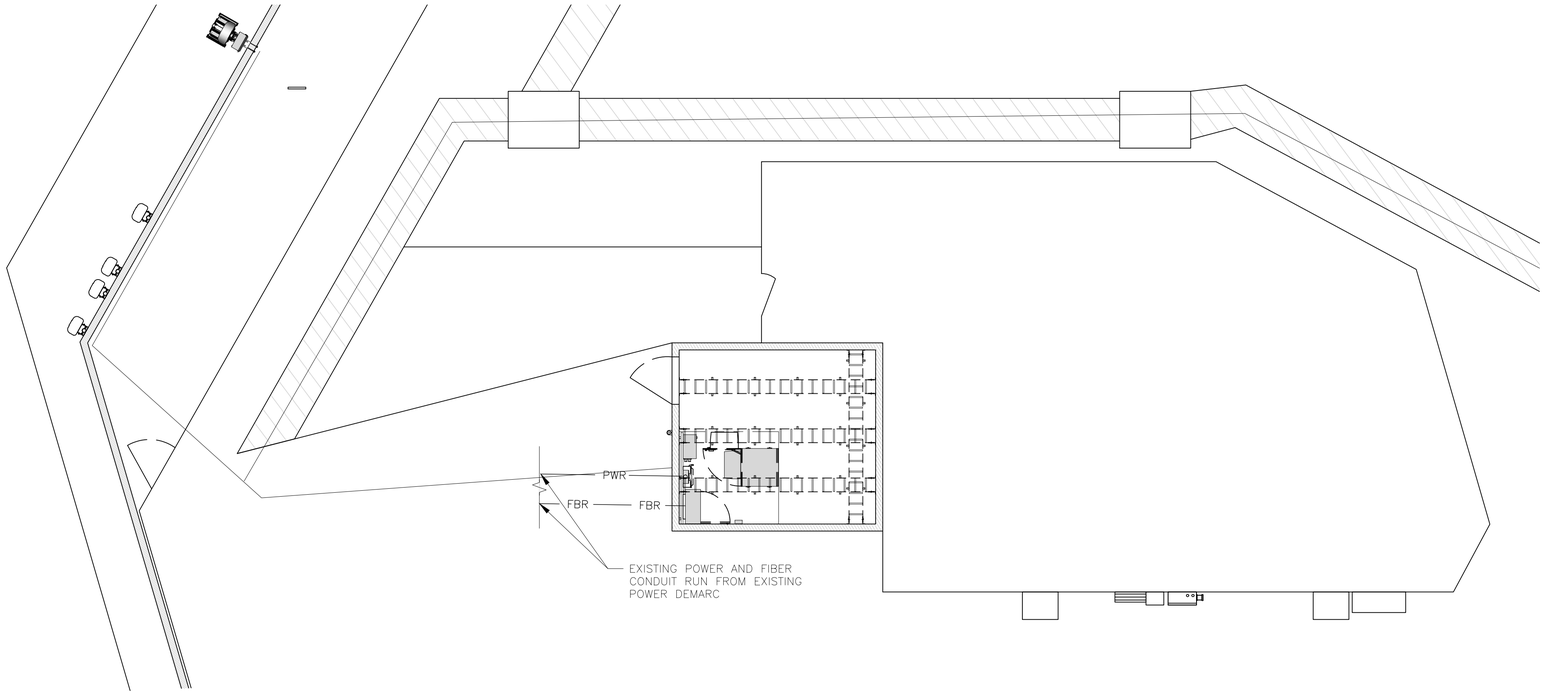

NOTE

CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.

N

UTILITY ROUTE PLAN

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

1

NOT USED

10' 0 10' 20'
1"=10'

2

NOT USED

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

3

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213 COURT STREET
MIDDLETOWN, CT 06457

SHEET TITLE

ELECTRICAL/FIBER ROUTE PLAN AND NOTES

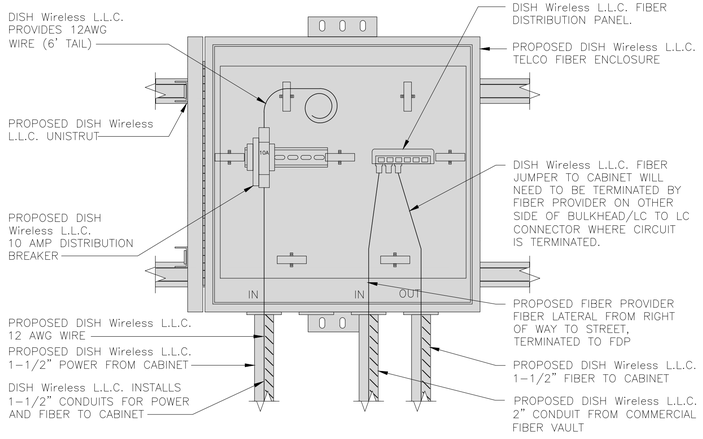
SHEET NUMBER

E-1

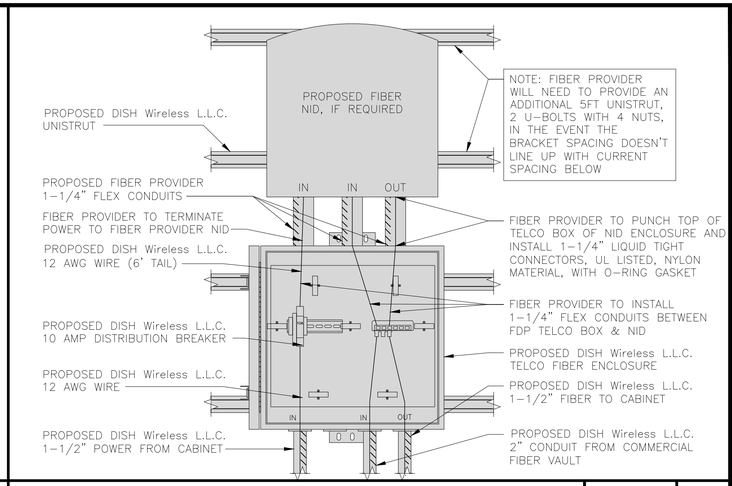
DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND −48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24V AND BLUE MARKINGS SHALL IDENTIFY −48V.

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.

ELECTRICAL NOTES | NO SCALE | 1



DARK TELCO BOX − INTERIOR WIRING LAYOUT | NO SCALE | 2



LIT TELCO BOX − INTERIOR WIRING LAYOUT (OPTIONAL) | NO SCALE | 3

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

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PROJECT INFORMATION

BOBDL00033C
213 COURT STREET
MIDDLETOWN, CT 06457

SHEET TITLE

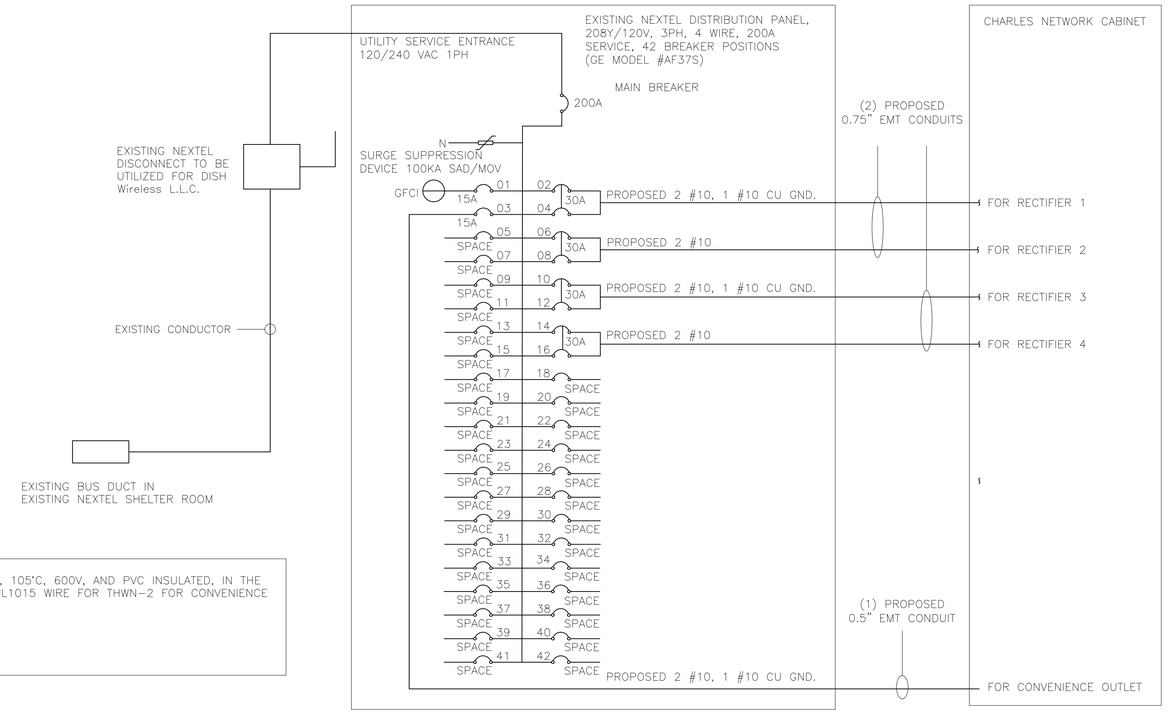
ELECTRICAL DETAILS

SHEET NUMBER

E-2

NOTES

1. CONTRACTOR SHALL LABEL EXISTING NEXTEL METER FOR DISH Network L.L.C.



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

BREAKERS REQUIRED:
(4) 30A, 2P BREAKER – SQUARE D P/N:QO230
(1) 15A, 1P BREAKER – SQUARE D P/N:QO115

NOTES

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED SHORT CIRCUIT CALCULATIONS AND THE AIC RATINGS FOR EACH DEVICE IS ADEQUATE TO PROTECT THE EQUIPMENT AND THE ELECTRICAL SYSTEM.

THE ENGINEER OF RECORD HAS PERFORMED ALL REQUIRED VOLTAGE DROP CALCULATIONS AND ALL BRANCH CIRCUIT AND FEEDERS COMPLY WITH THE NEC (LISTED ON T-1) ARTICLE 210.19(A)(1) FPN NO. 4.

THE (2) CONDUITS WITH (4) CURRENT CARRYING CONDUCTORS EACH, SHALL APPLY THE ADJUSTMENT FACTOR OF 80% PER 2014/17 NEC TABLE 310.15(B)(3)(a) OR 2020 NEC TABLE 310.15(C)(1) FOR UL1015 WIRE.

#12 FOR 15A-20A/1P BREAKER: 0.8 x 30A = 24.0A
#10 FOR 25A-30A/2P BREAKER: 0.8 x 40A = 32.0A
#8 FOR 35A-40A/2P BREAKER: 0.8 x 55A = 44.0A
#6 FOR 45A-60A/2P BREAKER: 0.8 x 75A = 60.0A

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

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

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

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

RECTIFIER CONDUCTORS (2 CONDUITS): USING UL1015, CU.

#10 – 0.0266 SQ. IN X 4 = 0.1064 SQ. IN
#10 – 0.0082 SQ. IN X 1 = 0.0082 SQ. IN <BARE GROUND
TOTAL = 0.1146 SQ. IN

0.75" EMT CONDUIT IS ADEQUATE TO HANDLE THE TOTAL OF (5) WIRES, INCLUDING GROUND WIRE, AS INDICATED ABOVE.

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

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

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

PPC ONE-LINE DIAGRAM

NO SCALE | 1

PROPOSED CHARLES PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	30A	2880		ABB/GE INFINITY RECTIFIER 1
CHARLES GFCI OUTLET		180	15A	3	B	4			2880	
-SPACE-				5	A	6	30A	2880		ABB/GE INFINITY RECTIFIER 2
-SPACE-				7	B	8			2880	
-SPACE-				9	A	10	30A	2880		ABB/GE INFINITY RECTIFIER 3
-SPACE-				11	B	12			2880	
-SPACE-				13	A	14	30A	2880		ABB/GE INFINITY RECTIFIER 4
-SPACE-				15	B	16			2880	
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
-SPACE-				25	A	26				-SPACE-
-SPACE-				27	B	28				-SPACE-
-SPACE-				29	A	30				-SPACE-
-SPACE-				31	B	32				-SPACE-
-SPACE-				33	A	34				-SPACE-
-SPACE-				35	B	36				-SPACE-
-SPACE-				37	A	38				-SPACE-
-SPACE-				39	B	40				-SPACE-
-SPACE-				41	A	42				-SPACE-
VOLTAGE AMPS	180	180						11520	11520	
200A MCB, 3φ, 42 SPACE, 208Y/240V			L1		L2					
MB RATING: 65,000 AIC			11700		11700		VOLTAGE AMPS			
			98		98		AMPS			
			98				MAX AMPS			
			123				MAX 125%			

PANEL SCHEDULE

NO SCALE | 2

NOT USED

NO SCALE | 3

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1/28/2022

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

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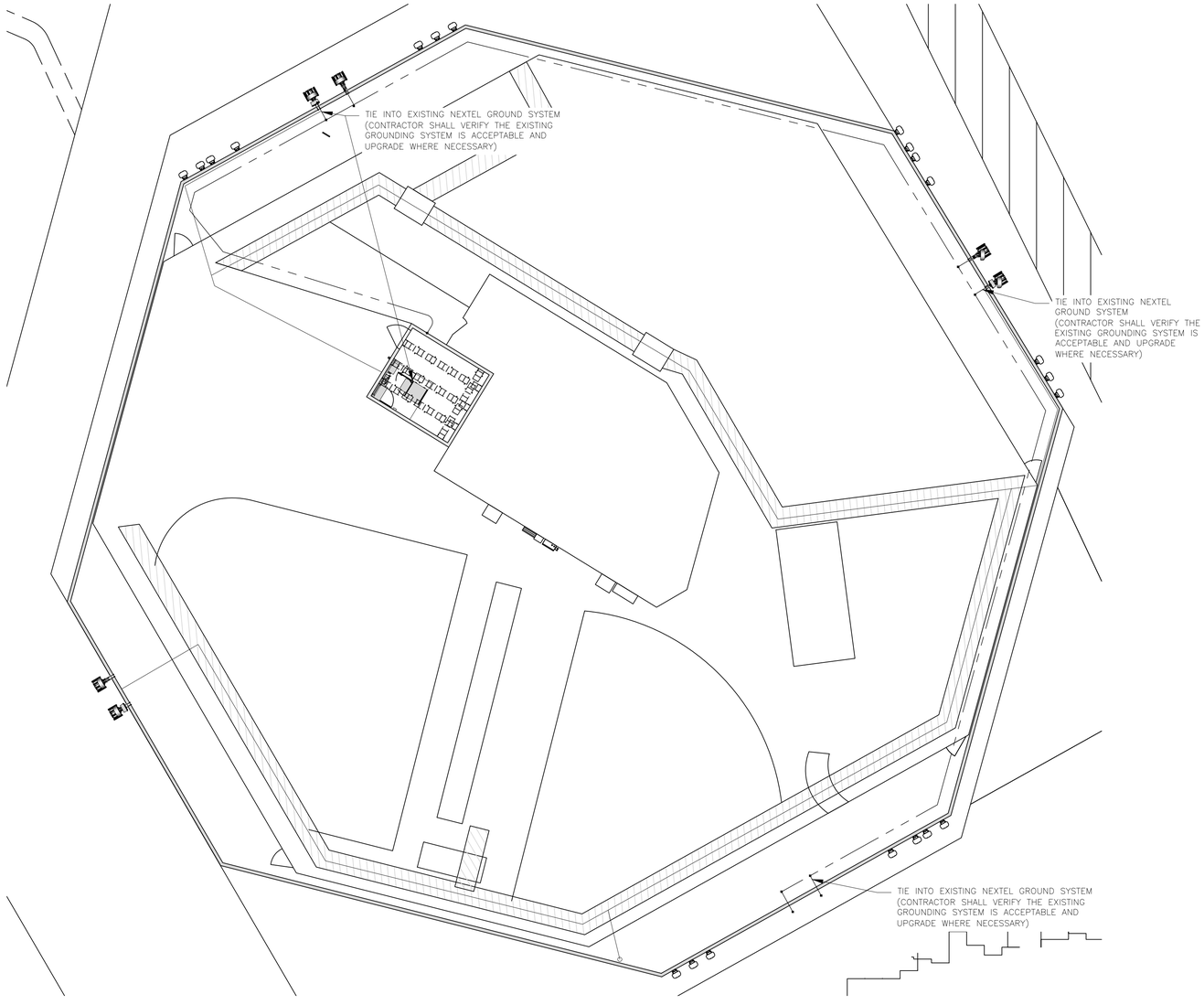
A&E PROJECT NUMBER
1197-F0001-C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00033C
213 COURT STREET
MIDDLETOWN, CT 06457

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

SHEET NUMBER
E-3



GROUNDING PLAN

12' 8' 4' 0 10' 20'
3/32"=1'-0"

1

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

GROUND BUS BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE

#6 AWG STRANDED & INSULATED

#2 AWG SOLID COPPER TINNED

BUSS BAR INSULATOR

GROUNDING LEGEND

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

GROUNDING ROOFTOP 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) ROOFTOP GROUND SYSTEM: THE 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 OR ROOM.

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

(F) CELL REFERENCE GROUND BAR (CRGB): 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 COMMON BUILDING GROUND SYSTEM WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.

(G) HATCH PLATE GROUND BAR: BOND TO THE COMMON BUILDING GROUND SYSTEM 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 ROOM. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH MECHANICAL CONNECTIONS.

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

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

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

(L) FENCE AND GATE GROUNDING: METAL FENCES SHALL BE BONDED TO THE COMMON BUILDING GROUND SYSTEM WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.

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

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

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

(P) ROOFTOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO COMMON BUILDING GROUND SYSTEM.

REFER TO DISH Wireless L.L.C. GROUNDING NOTES.

GROUNDING KEY NOTES

NO SCALE

2

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PROJECT INFORMATION

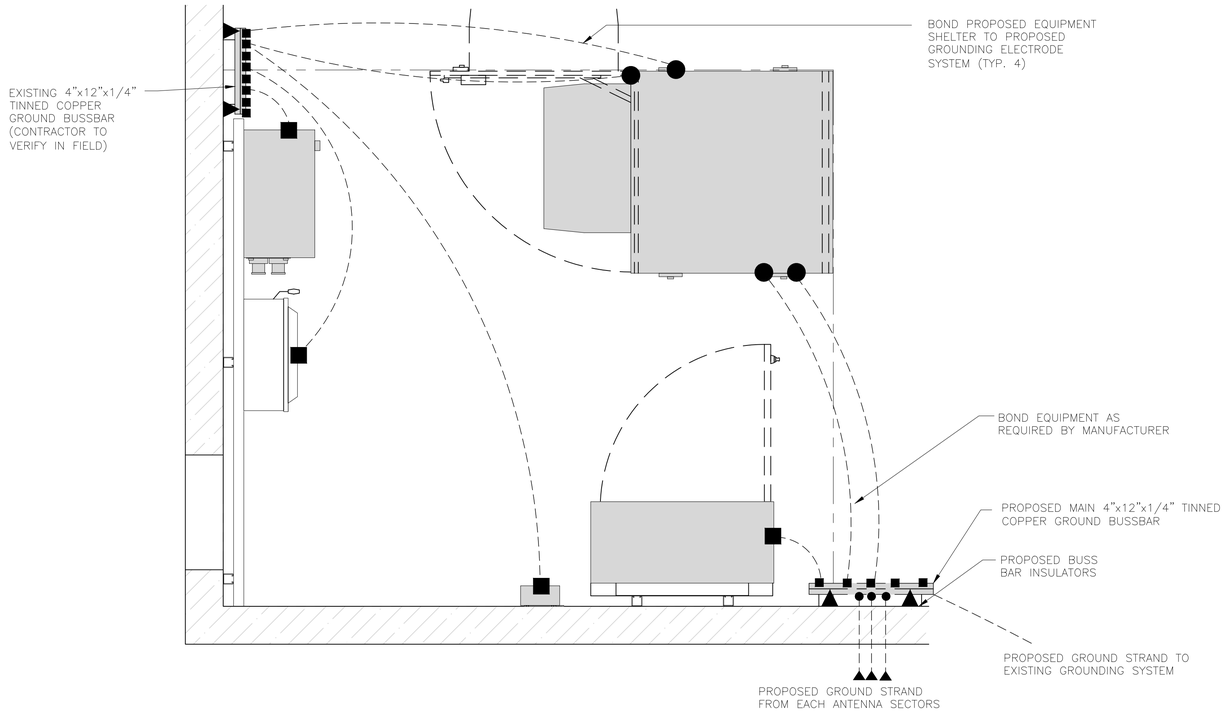
BOBDL00033C
213 COURT STREET
MIDDLETOWN, CT 06457

SHEET TITLE

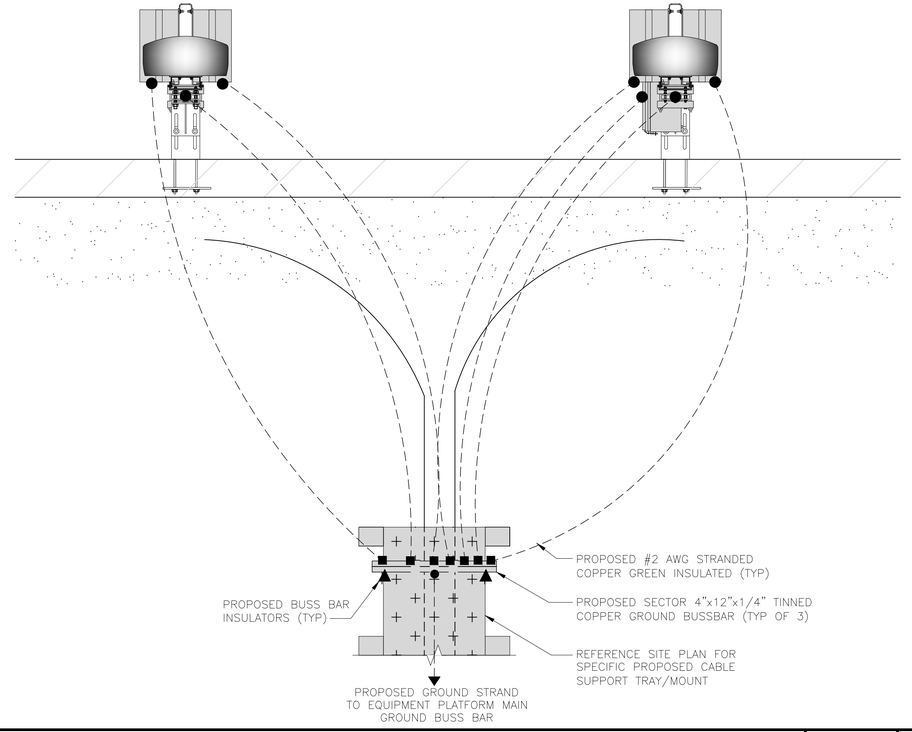
GROUNDING PLANS AND NOTES

SHEET NUMBER

G-1



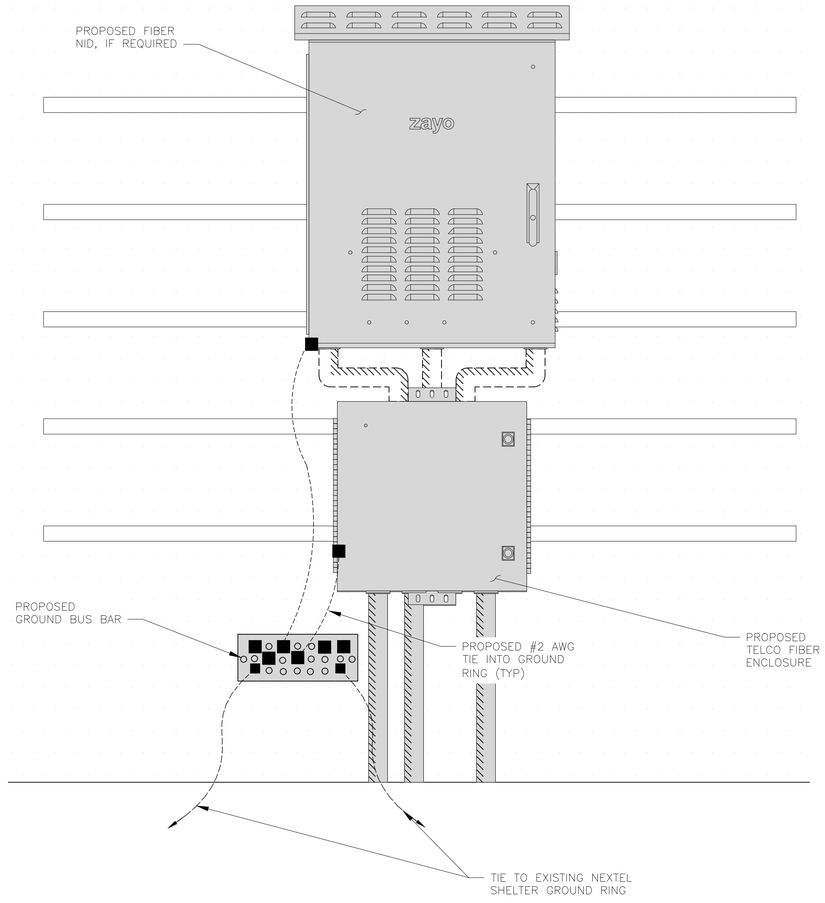
NO SCALE | 1



TYPICAL ROOFTOP ANTENNA GROUNDING PLAN | NO SCALE | 2

NOTE

EQUIPMENT CABINET OMITTED FOR CLARITY



H-FRAME GROUNDING DETAIL | NO SCALE | 3

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PROJECT INFORMATION

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213 COURT STREET
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SHEET TITLE

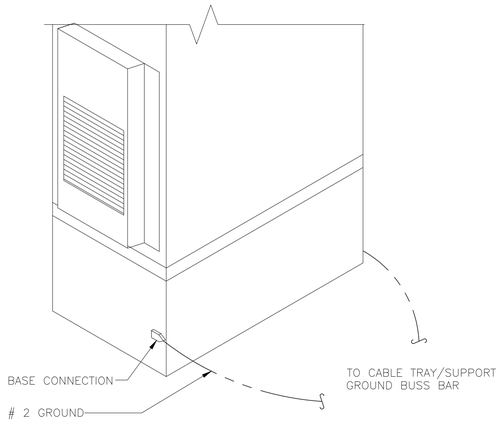
GROUNDING DETAILS

SHEET NUMBER

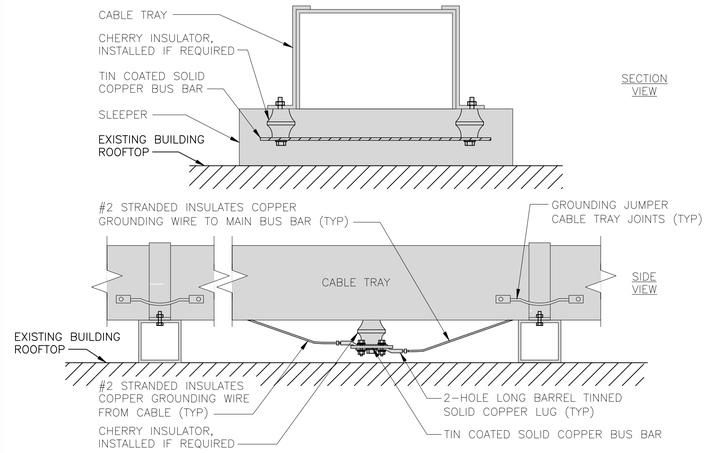
G-2

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

TYPICAL GROUNDING NOTES | NO SCALE | 1



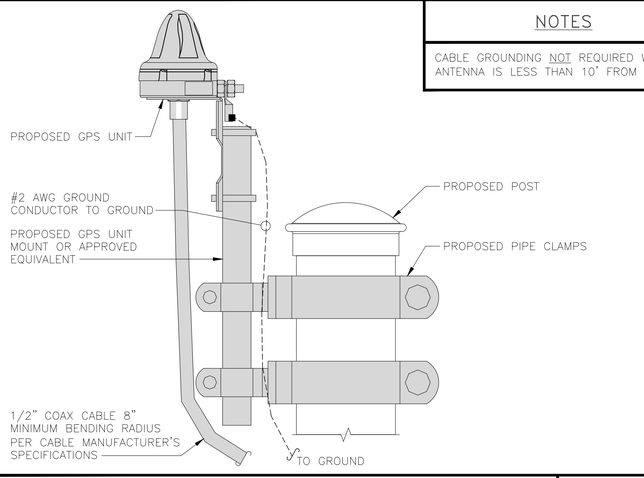
OUTDOOR CABINET GROUNDING | NO SCALE | 2



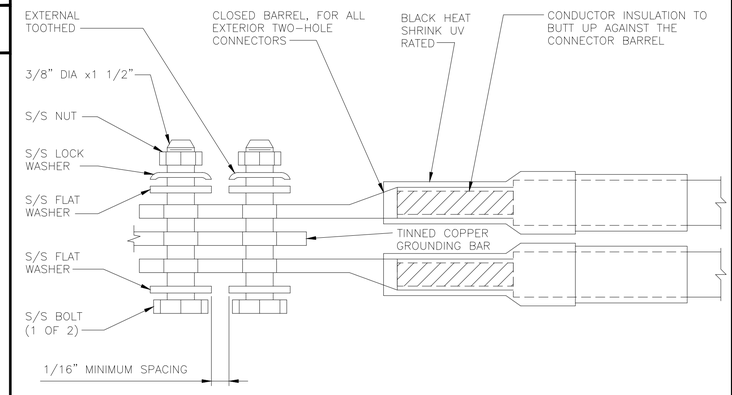
TYPICAL CABLE TRAY GROUND BUSS BAR | NO SCALE | 3

NOTES

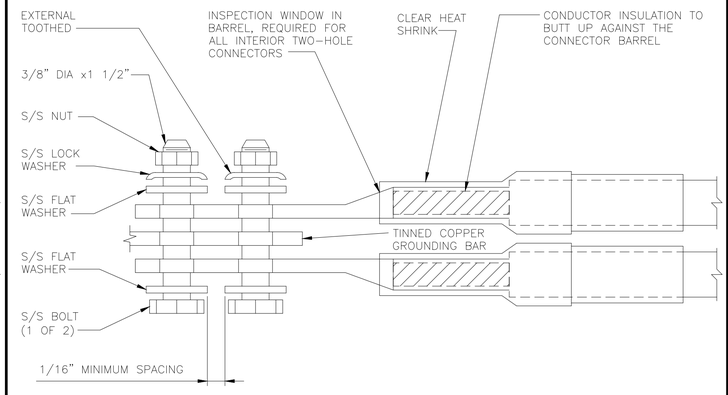
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



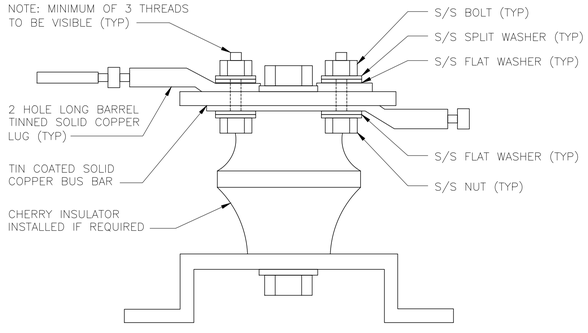
TYPICAL GPS UNIT GROUNDING | NO SCALE | 4



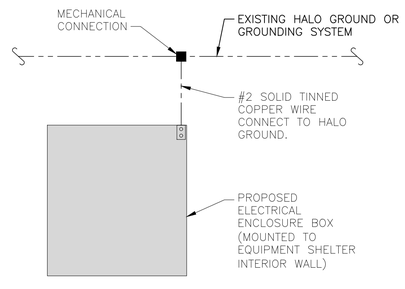
TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 5



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 6



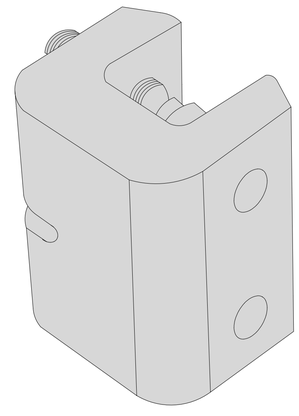
LUG DETAIL | NO SCALE | 7



TYPICAL INDOOR ELECTRICAL ENCLOSURE BOX GROUNDING DETAIL | NO SCALE | 8

PANDUIT GUBC500-6 UNIVERSAL BEAM GROUNDING, CLAMP	
COPPER CONDUCTOR SIZE RANGE AWG	#6-500
FLANGE THICKNESS INCHES	0.250-0.675
STUD SIZE INCHES	1/2"
THREAD SIZE	1/2"-13
DIMENSIONS (LxWxH)	3.15"x 2.13"x 2.50"

NOTE:
1. UNIVERSAL, FITS ON A WIDE RANGE OF STANDARD (ANGLED) AND WIDE FLANGE (PARALLEL) STRUCTURAL STEEL BEAMS.
2. UL 467 LISTED FOR GROUNDING AND BONDING ONLY



BUILDING STEEL GROUNDING DETAIL | NO SCALE | 9

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SHEET TITLE
GROUNDING DETAILS

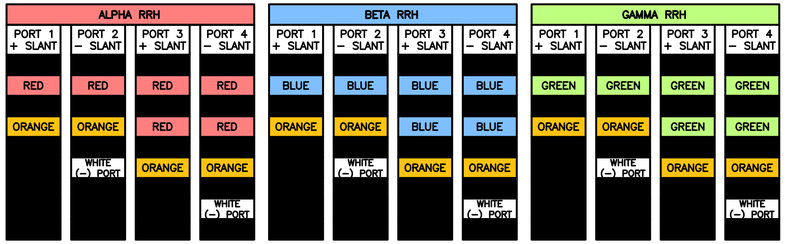
SHEET NUMBER
G-3

RF JUMPER COLOR CODING

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

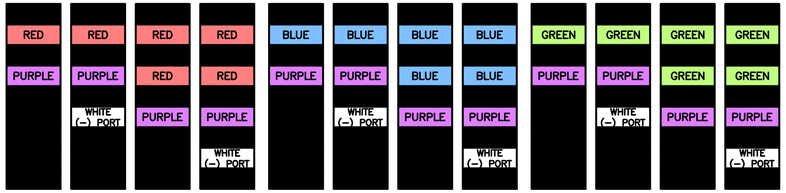
LOW-BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

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



MID-BAND RRH –
(AWS BANDS N66+N70)

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

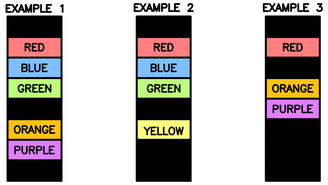


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED
ALONG WITH FREQUENCY BANDS

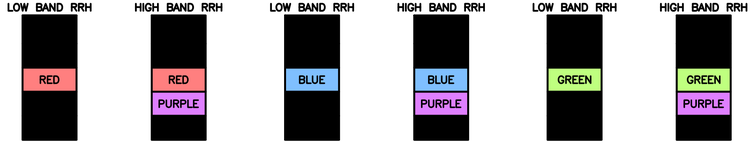
EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS
ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS

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



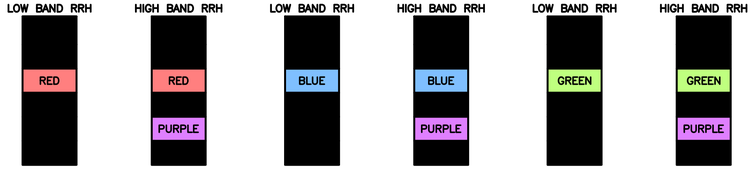
FIBER JUMPERS TO RRHs

LOW-BAND RRH FIBER CABLES HAVE SECTOR
STRIPE ONLY

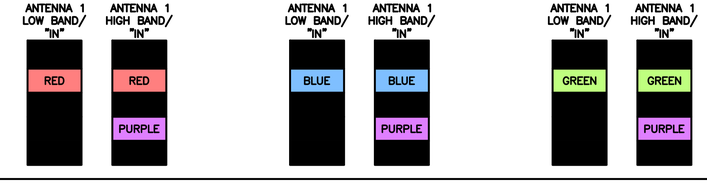


POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR
STRIPE ONLY



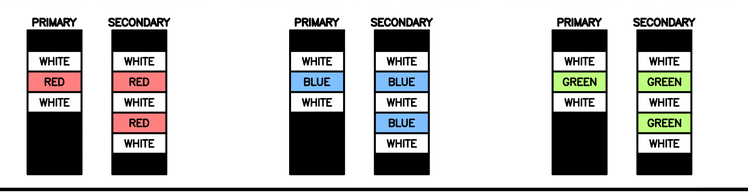
RET MOTORS AT ANTENNAS



MICROWAVE RADIO LINKS

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

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



RF CABLE COLOR CODES | NO SCALE | 1

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

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SHUHEI SAKAGUE
34916
LICENSED PROFESSIONAL ENGINEER
1/28/2022

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	01/07/2022	ISSUED FOR PERMIT
1	01/19/2022	ISSUED FOR PERMIT
2	01/28/2022	ISSUED FOR PERMIT

A&E PROJECT NUMBER
1197-F0001-C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00033C
213 COURT STREET
MIDDLETOWN, CT 06457

SHEET TITLE
RF
CABLE COLOR CODE

SHEET NUMBER
RF-1

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM T

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE T

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE GFCI

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

SMOKE DETECTION (DC) SD

EMERGENCY LIGHTING (DC)

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

CHAIN LINK FENCE X X X X

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE W W W W W

UNDERGROUND POWER UGP UGP UGP UGP UGP

UNDERGROUND TELCO UGT UGT UGT UGT UGT

OVERHEAD POWER OHP OHP OHP OHP

OVERHEAD TELCO OHT OHT OHT OHT

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

ABOVE GROUND POWER AGP AGP AGP AGP AGP

ABOVE GROUND TELCO AGT AGT AGT AGT AGT

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

WORKPOINT W.P.

SECTION REFERENCE XX / X–X

DETAIL REFERENCE XX / X–X

LEGEND

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

ABBREVIATIONS

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

CROWN CASTLE
2000 CORPORATE DRIVE
CANONSBURG, PA 15317

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LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GENERAL NOTES:

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

CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

CARRIER:DISH Wireless L.L.C.

TOWER OWNER:TOWER OWNER

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

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

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

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

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

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

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

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

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

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

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

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

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

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GENERAL NOTES

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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.

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STATE OF CONNECTICUT
SHUHEI SAKANOUE
34916
LICENSED
PROFESSIONAL ENGINEER
1/28/2022

DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	01/07/2022	ISSUED FOR PERMIT
1	01/19/2022	ISSUED FOR PERMIT
2	01/28/2022	ISSUED FOR PERMIT

A&E PROJECT NUMBER

1197-F0001-C

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00033C
213 COURT STREET
MIDDLETOWN, CT 06457

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.

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DRAWN BY:	CHECKED BY:	APPROVED BY:
RCD	SS	CJW

RFDS REV #: N/A

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00033C
213 COURT STREET
MIDDLETOWN, CT 06457

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

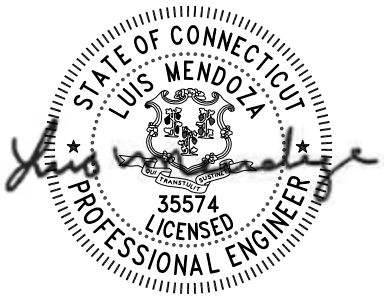
Exhibit D

Structural Analysis Report

ROOFTOP STRUCTURAL ANALYSIS REPORT

February 1, 2022

Dish Site Name	--
Dish Site Number	BOBDL00033C
Infinigy Job Number	1197-F0001
Client	Northeast Site Solutions, LLC
Carrier	Dish Wireless
Site Location	213 Court Street Middletown, CT 06457 Middlesex County 41.559400 N NAD83 72.651196 W NAD83
Structural Type	Wall Mount
Structural Usage Ratio	58.1%
Overall Result	Pass



2-1-2022

Luis Mendoza, PE
Connecticut License 35574

CONTENTS

INTRODUCTION

Infinigy Engineering has been requested to perform a structural analysis on the proposed rooftop telecommunication installation 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 mounts and the equipment support system have been analyzed using RISA 3D analysis software.

SUPPORTING DOCUMENTATION

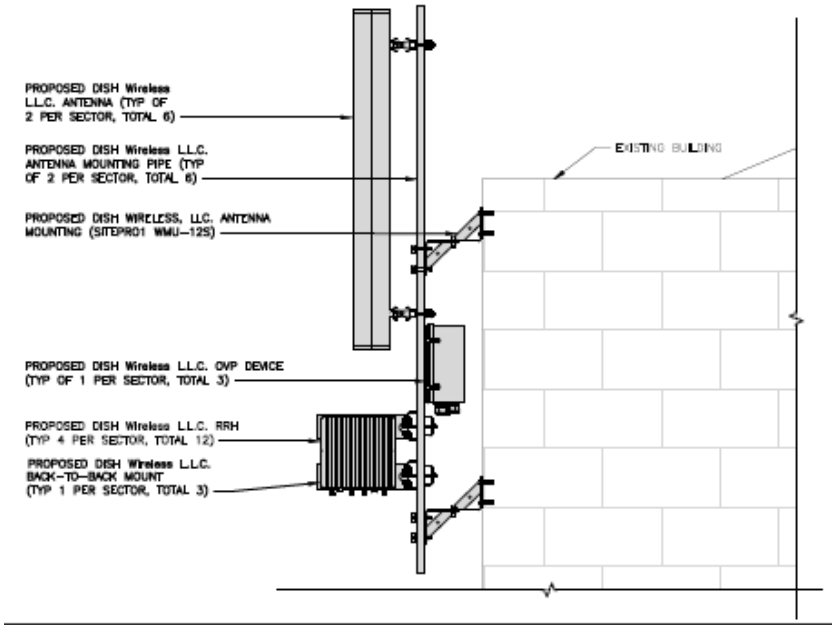
Construction Drawings	Infinigy Engineering, Site ID: BOBDL00033C, dated January 19, 2022
Proposed Loading	Dish Wireless RFDS, Site Number: BOBDL00033C, dated January 20, 2022
Building Drawings	Jeter Cook & Jepson, Job: 8540-01, dated June 1 1987
Structural Analysis Report	EFI Global, Side ID: CT11232B, dated June 24, 2020

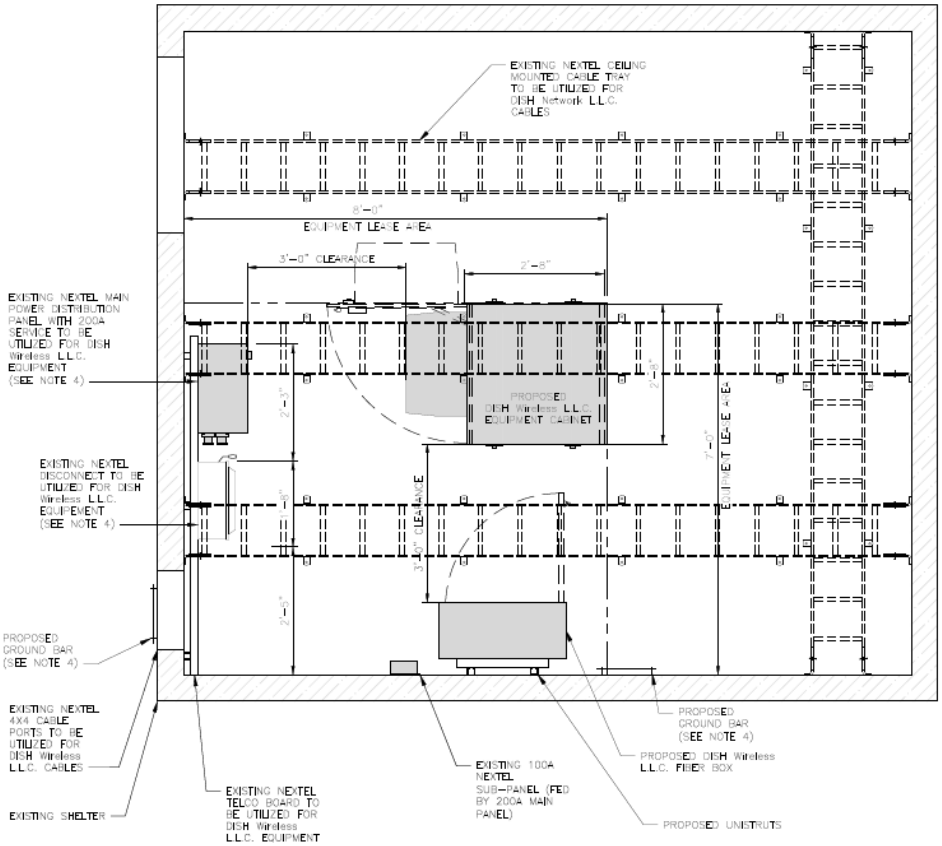
EVALUATION PARAMETERS

Wind Speed	119 mph (3-Second Gust)
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 1" Ice
ASCE Revision	ANSI/TIA-222-H
Adopted Code	2015 IBC
Risk Category	II
Exposure Category	C
Topographic Category	1
Calculated Crest Height	0 ft.
Seismic Spectral Response	S_s = 0.209 g / S_1 = 0.056 g
Seismic Site Class	D-Stiff Soil (Assumed)

SITE DESCRIPTION

At this site, the telecommunication equipment is supported by wythe brick walls (assumed min 13" thick). The equipment will be installed inside a vacant equipment room on assumed metal stud or masonry walls. The cabinet will be floor mounted to the 3" concrete deck over 6" metal decking.





PROPOSED/FINAL LOADING

RAD Center (ft)	Mount Center (ft)	Qty.	Appurtenance*	Mount Type	Carrier	Sector
160.0	160.0	2	JMA Wireless MX08FRO665-21	Pipe Mount	Dish Wireless	Alpha
		2	Fujitsu Dual Band TA08025-B604			
		2	Fujitsu Triple Band TA08025-B605			
		2	Raycap RDIDC-4045-PF-48			
		2	JMA Wireless MX08FRO665-21			Beta
		2	Fujitsu Dual Band TA08025-B604			
		2	Fujitsu Triple Band TA08025-B605			
		2	Raycap RDIDC-4045-PF-48			
		2	JMA Wireless MX08FRO665-21			Gamma
		2	Fujitsu Dual Band TA08025-B604			
		2	Fujitsu Triple Band TA08025-B605			
		1	Raycap RDIDC-4045-PF-48			

** for each sector, (1) JMA Wireless MX08FRO665-21 is proposed and (1) JMA Wireless MX08FRO665-21 is future antennas and similarly, (1) Fujitsu Dual Band TA08025-B604 is proposed and (1) Fujitsu Dual Band TA08025-B604 is future, and (1) Fujitsu Dual Band TA08025-B605 is proposed and (1) Fujitsu Dual Band TA08025-B605 is future*

CABINET EQUIPMENT INFORMATION

Description	Manufacturer	Size (HxWxD) (in)	Weight (lbs)
CUBE-PM639155N4	Charles	74”x32”x32”	500.0
CFIT-PF2020DSH1	Charles	20”x20”x9”	50.0
5RU Fiber Nid Enclosure	Zayo	36.1”x29.0”x12.9”	100.0

EQUIPMENT SUPPORTING SYSTEM USAGES

Unistrut	15.3%	Pass
RATING =	**15.3%**	**Pass**

ANTENNA AND RADIO SUPPORTING SYSTEM USAGES

Pipe Mount	58.1%	Pass
RATING =	**58.1%**	**Pass**

MOUNT ANCHOR REACTIONS

Reaction Data	Design Capacity*	Analysis Reactions	Results
Max Tension (lbs.)	6,626.8	2275.9	34.3%
Max Shear (lbs.)	3,976.1	785.8	19.8%
Combined Tension/Shear	--	--	34.3%

*Proposed (1) 1/2” diameter A307 through bolt, total of (4) per wall mount to building connection.

WALL ANCHOR REACTIONS

Reaction Data	Design Capacity*	Analysis Reactions	Results
Max Tension (lbs.)	100.0	19.06	19.1%
Max Shear (lbs.)	200.0	79.8	39.9%
Combined Tension/Shear	--	--	19.6%

*Proposed (1) 1/4" Tapcon masonry screw or #12 Simpson X Metal screw, total of (2) per unistrut to wall connection.

CABINET ANCHOR REACTIONS

Reaction Data	Design Capacity*	Analysis Reactions	Results
Max Tension (lbs.)	941.0	60.0	7.0%
Max Shear (lbs.)	1,197.0	38.0	4.0%
Combined Tension/Shear	--	--	2.0%

*Proposed (1) 3/8" KB-TZ CS bolt with min. 1.5" embedment, total of (4) per cabinet to floor connection.

Anchor reactions are acceptable per rigorous structural analysis. Please see the calculations appended in this report for further detail.

CONCLUSION AND RECOMMENDATIONS

Telecommunication equipment and cabinets
Unistrut: Adequate
Supporting Existing Structural members: Adequate

Antennas and Radio Equipment
Pipe Mount: Adequate
Supporting Existing Structural members: Adequate

Infinigy recommends the installation of the Dish Wireless proposed equipment at this site. The installation shall be performed by the construction documents issued by Infinigy for this site.

If you have any questions, require additional information, or believe the actual conditions differ from those detailed in this report, please contact us immediately.

Christopher H. Lee, MS, EIT
Technical Specialist | INFINIGY

ASSUMPTIONS

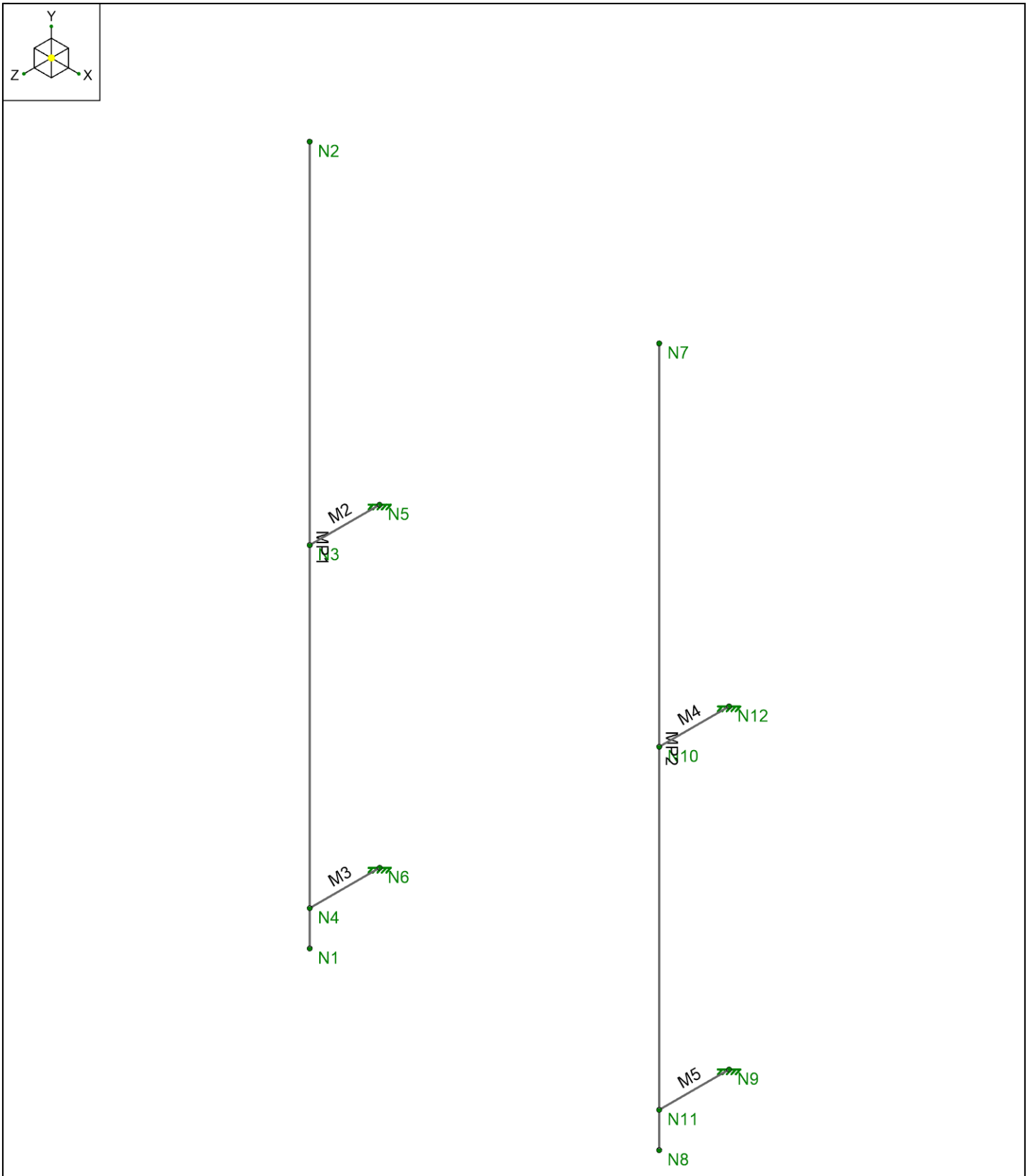
The existing building and platform have been designed and maintained in accordance with all applicable building codes
The existing building structural members are not currently overstressed
The information on member connections is accurate as supplied. All mechanical connections and welds have structural strength to fully develop the member capacities unless noted otherwise
Pipes have a yield strength of 35ksi. Unistruts have a yield strength of 33ksi.
The cabinet weights are assumed based on our past experience of similar equipment.
Supporting composite deck, shelter wall, and brick parapet wall assumed adequate to support proposed loading based on engineering judgement.
Antenna mount to parapet connection to be made with through bolts connected to 12”x12”x1/4” A36 backing plate mounted to the backside of the brick parapet wall.

LIABILITY WAIVER AND LIMITATIONS

Our structural calculations are completed assuming all information provided to Infinigy Engineering 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 Engineering should be notified immediately to assess the impact on the results of this report.

Our evaluation is completed using standard TIA, AISC, ACI and ASCE 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 Engineering 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 equipment supporting structures only and does not verify adequacy of any existing antenna mounts, mount connections, or cable mounting attachments. The analysis of these elements is outside the scope of this analysis and are assumed to be adequate for the purposes of this report and are assumed to have been installed per their manufacturer requirements. This document is not for construction purposes.



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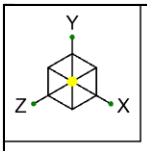

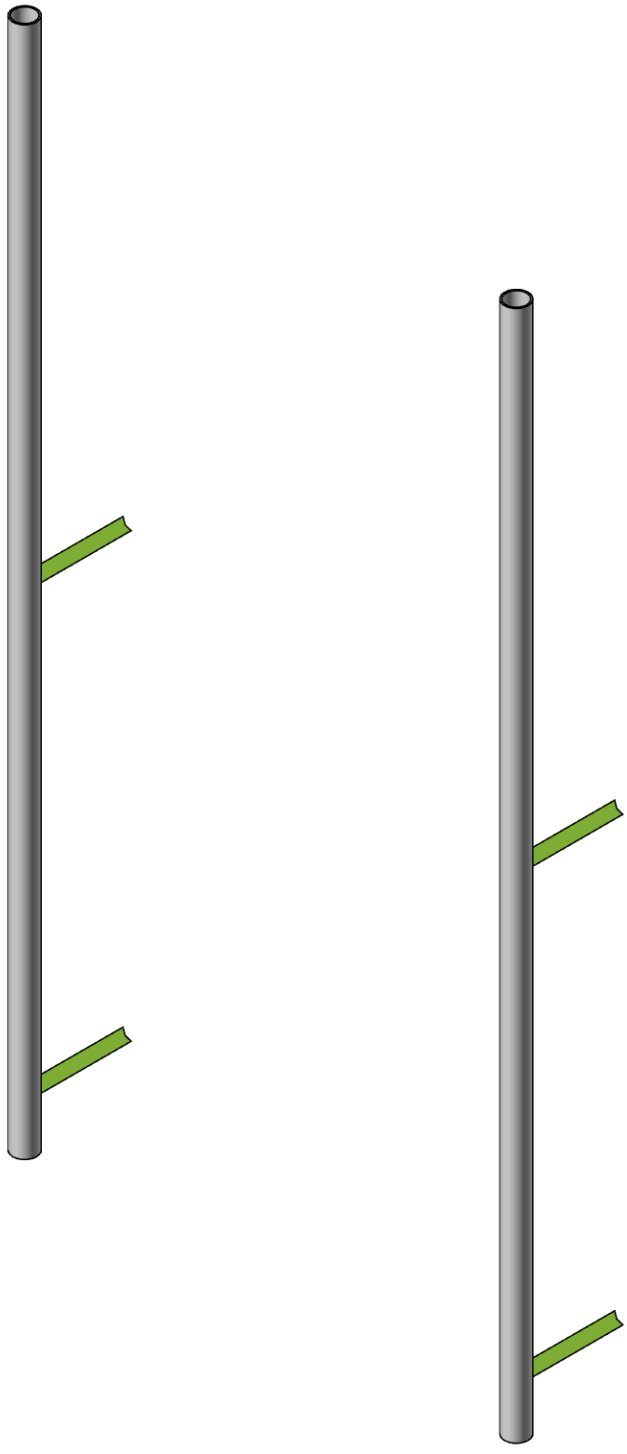

Infinigy Engineering, PLLC	BOBDL00033C	Rendered - 2
CL		Jan 04, 2022
1197-F0001 / 39546		BOBDL00033C_loaded.r3d

Program Inputs

PROJECT INFORMATION	
Client:	Northeast Site Solutions
Carrier:	Dish Wireless
Engineer:	Chris Lee

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	C	
Topo Category:	1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	62.7	ft *7-16

MOUNT INFORMATION		
Mount Type:	Rooftop	
Num Sectors:	3	
Centerline AGL:	160.0	ft
Roof Height AGL:	160.0	ft

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

FACTORS		
Directionality Factor (K_d):	0.850	
Ground Ele. Factor (K_e):	0.998	*7-16 Only
Height Esc. Factor (K_{zt}):	1.000	
Gust Effect Factor (GC_r):	1.900	

CODE STANDARDS		
Building Code:	2015 IBC	
ASCE Standard:	ASCE 7-16	

WIND AND ICE DATA		
Basic Wind (V):	119	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	1.5	in
Velocity Pressure[1] (q_z):	42.96	
Ice Velocity Pressure (q_{zi}):	7.58	

SEISMIC DATA		
Short-Period Accel. (S_s):	0.209	g
1-Second Accel. (S_1):	0.056	g
Short-Period Design (S_{DS}):	0.223	
1-Second Design (S_{D1}):	0.090	
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	

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Infinigy Load Calculator V2.1.7

1) Velocity Pressure Equation
qz = 0.00256*Kz*Kzt*Ke*Kd*V^2

Program Inputs

Infinigy Load Calculator V2.1.7

APPURTENANCE INFORMATION									
Appurtenance Name	Elevation	Qty.	q_z (psf)	EPA_N*(ft^2)	EPA_T* (ft^2)	Wind F_z (lbs)	Wind F_x (lbs)	Weight (lbs)	Seismic F (lbs)
JMA WIRELESS MX08FRO665-21	160.0	3	42.96	10.00	4.00	816.20	326.48	96.68	32.33
JMA WIRELESS MX08FRO665-21	160.0	3	42.96	10.00	4.00	816.20	326.48	96.68	32.33
FUJITSU DUAL BAND TA08025-B604	160.0	6	42.96	1.64	0.82	66.73	133.55	81.83	27.36
FUJITSU DUAL BAND TA08025-B605	160.0	6	42.96	1.64	0.82	66.73	133.55	92.85	31.05
RAYCAP RDIDC-4045-PF-48	160.0	5	42.96	1.56	0.78	126.96	63.48	21.85	7.31

***EPA is defined as the force coefficient multiplied by the area of the appurtenance projected on a plane normal to the wind direction**

Member Primary Data

	Label	I Node	J Node	Section/Shape	Type	Design List	Material	Design Rule
1	MP1	N2	N1	Mount Pipe	Column	Pipe	A53 Gr.B	Typical
2	M2	N3	N5	RIGID	None	None	RIGID	Typical
3	M3	N4	N6	RIGID	None	None	RIGID	Typical
4	M4	N10	N12	RIGID	None	None	RIGID	Typical
5	M5	N11	N9	RIGID	None	None	RIGID	Typical
6	MP2	N7	N8	Mount Pipe	Column	Pipe	A53 Gr.B	Typical

Material Take-Off

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General Members				
2	RIGID		4	48	0
3	Total General		4	48	0
4					
5	Hot Rolled Steel				
6	A53 Gr.B	PIPE_2.5	2	240	109.57
7	Total HR Steel		2	240	109.57

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Point	Distributed
1	Self Weight	DL		-1		10	
2	Wind Load AZI 0	WLZ				20	
3	Wind Load AZI 30	None				20	
4	Wind Load AZI 60	None				20	
5	Wind Load AZI 90	WLX				20	
6	Wind Load AZI 120	None				20	
7	Wind Load AZI 150	None				20	
8	Wind Load AZI 180	None				20	
9	Wind Load AZI 210	None				20	
10	Wind Load AZI 240	None				20	
11	Wind Load AZI 270	None				20	
12	Wind Load AZI 300	None				20	
13	Wind Load AZI 330	None				20	
14	Distr. Wind Load Z	WLZ					6
15	Distr. Wind Load X	WLX					6
16	Ice Weight	OL1				10	6
17	Ice Wind Load AZI 0	OL2				20	
18	Ice Wind Load AZI 30	None				20	
19	Ice Wind Load AZI 60	None				20	
20	Ice Wind Load AZI 90	OL3				20	
21	Ice Wind Load AZI 120	None				20	
22	Ice Wind Load AZI 150	None				20	
23	Ice Wind Load AZI 180	None				20	
24	Ice Wind Load AZI 210	None				20	
25	Ice Wind Load AZI 240	None				20	
26	Ice Wind Load AZI 270	None				20	
27	Ice Wind Load AZI 300	None				20	
28	Ice Wind Load AZI 330	None				20	
29	Distr. Ice Wind Load Z	OL2					6
30	Distr. Ice Wind Load X	OL3					6
31	Seismic Load Z	ELZ			-0.334	10	
32	Seismic Load X	ELX	-0.334			10	
33	Service Live Loads	LL					

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4DL	Yes	Y	1	1.4								
2	1.2DL + 1WL AZI 0	Yes	Y	1	1.2	2	1	14	1	15			
3	1.2DL + 1WL AZI 30	Yes	Y	1	1.2	3	1	14	0.866	15	0.5		
4	1.2DL + 1WL AZI 60	Yes	Y	1	1.2	4	1	14	0.5	15	0.866		
5	1.2DL + 1WL AZI 90	Yes	Y	1	1.2	5	1	14		15	1		
6	1.2DL + 1WL AZI 120	Yes	Y	1	1.2	6	1	14	-0.5	15	0.866		
7	1.2DL + 1WL AZI 150	Yes	Y	1	1.2	7	1	14	-0.866	15	0.5		
8	1.2DL + 1WL AZI 180	Yes	Y	1	1.2	8	1	14	-1	15			
9	1.2DL + 1WL AZI 210	Yes	Y	1	1.2	9	1	14	-0.866	15	-0.5		
10	1.2DL + 1WL AZI 240	Yes	Y	1	1.2	10	1	14	-0.5	15	-0.866		
11	1.2DL + 1WL AZI 270	Yes	Y	1	1.2	11	1	14		15	-1		
12	1.2DL + 1WL AZI 300	Yes	Y	1	1.2	12	1	14	0.5	15	-0.866		
13	1.2DL + 1WL AZI 330	Yes	Y	1	1.2	13	1	14	0.866	15	-0.5		
14	0.9DL + 1WL AZI 0	Yes	Y	1	0.9	2	1	14	1	15			
15	0.9DL + 1WL AZI 30	Yes	Y	1	0.9	3	1	14	0.866	15	0.5		
16	0.9DL + 1WL AZI 60	Yes	Y	1	0.9	4	1	14	0.5	15	0.866		
17	0.9DL + 1WL AZI 90	Yes	Y	1	0.9	5	1	14		15	1		
18	0.9DL + 1WL AZI 120	Yes	Y	1	0.9	6	1	14	-0.5	15	0.866		
19	0.9DL + 1WL AZI 150	Yes	Y	1	0.9	7	1	14	-0.866	15	0.5		
20	0.9DL + 1WL AZI 180	Yes	Y	1	0.9	8	1	14	-1	15			
21	0.9DL + 1WL AZI 210	Yes	Y	1	0.9	9	1	14	-0.866	15	-0.5		
22	0.9DL + 1WL AZI 240	Yes	Y	1	0.9	10	1	14	-0.5	15	-0.866		
23	0.9DL + 1WL AZI 270	Yes	Y	1	0.9	11	1	14		15	-1		
24	0.9DL + 1WL AZI 300	Yes	Y	1	0.9	12	1	14	0.5	15	-0.866		
25	0.9DL + 1WL AZI 330	Yes	Y	1	0.9	13	1	14	0.866	15	-0.5		
26	1.2D + 1.0Di	Yes	Y	1	1.2	16	1						
27	1.2D + 1.0Di +1.0Wi AZI 0	Yes	Y	1	1.2	16	1	17	1	29	1	30	
28	1.2D + 1.0Di +1.0Wi AZI 30	Yes	Y	1	1.2	16	1	18	1	29	0.866	30	0.5
29	1.2D + 1.0Di +1.0Wi AZI 60	Yes	Y	1	1.2	16	1	19	1	29	0.5	30	0.866
30	1.2D + 1.0Di +1.0Wi AZI 90	Yes	Y	1	1.2	16	1	20	1	29		30	1
31	1.2D + 1.0Di +1.0Wi AZI 120	Yes	Y	1	1.2	16	1	21	1	29	-0.5	30	0.866
32	1.2D + 1.0Di +1.0Wi AZI 150	Yes	Y	1	1.2	16	1	22	1	29	-0.866	30	0.5
33	1.2D + 1.0Di +1.0Wi AZI 180	Yes	Y	1	1.2	16	1	23	1	29	-1	30	
34	1.2D + 1.0Di +1.0Wi AZI 210	Yes	Y	1	1.2	16	1	24	1	29	-0.866	30	-0.5
35	1.2D + 1.0Di +1.0Wi AZI 240	Yes	Y	1	1.2	16	1	25	1	29	-0.5	30	-0.866
36	1.2D + 1.0Di +1.0Wi AZI 270	Yes	Y	1	1.2	16	1	26	1	29		30	-1
37	1.2D + 1.0Di +1.0Wi AZI 300	Yes	Y	1	1.2	16	1	27	1	29	0.5	30	-0.866
38	1.2D + 1.0Di +1.0Wi AZI 330	Yes	Y	1	1.2	16	1	28	1	29	0.866	30	-0.5
39	(1.2 + 0.2Sds)DL + 1.0E AZI 0	Yes	Y	1	1.245	31	1	32					
40	(1.2 + 0.2Sds)DL + 1.0E AZI 30	Yes	Y	1	1.245	31	0.866	32	0.5				
41	(1.2 + 0.2Sds)DL + 1.0E AZI 60	Yes	Y	1	1.245	31	0.5	32	0.866				
42	(1.2 + 0.2Sds)DL + 1.0E AZI 90	Yes	Y	1	1.245	31		32	1				
43	(1.2 + 0.2Sds)DL + 1.0E AZI 120	Yes	Y	1	1.245	31	-0.5	32	0.866				
44	(1.2 + 0.2Sds)DL + 1.0E AZI 150	Yes	Y	1	1.245	31	-0.866	32	0.5				
45	(1.2 + 0.2Sds)DL + 1.0E AZI 180	Yes	Y	1	1.245	31	-1	32					
46	(1.2 + 0.2Sds)DL + 1.0E AZI 210	Yes	Y	1	1.245	31	-0.866	32	-0.5				
47	(1.2 + 0.2Sds)DL + 1.0E AZI 240	Yes	Y	1	1.245	31	-0.5	32	-0.866				
48	(1.2 + 0.2Sds)DL + 1.0E AZI 270	Yes	Y	1	1.245	31		32	-1				
49	(1.2 + 0.2Sds)DL + 1.0E AZI 300	Yes	Y	1	1.245	31	0.5	32	-0.866				
50	(1.2 + 0.2Sds)DL + 1.0E AZI 330	Yes	Y	1	1.245	31	0.866	32	-0.5				
51	(0.9 - 0.2Sds)DL + 1.0E AZI 0	Yes	Y	1	0.855	31	1	32					
52	(0.9 - 0.2Sds)DL + 1.0E AZI 30	Yes	Y	1	0.855	31	0.866	32	0.5				
53	(0.9 - 0.2Sds)DL + 1.0E AZI 60	Yes	Y	1	0.855	31	0.5	32	0.866				
54	(0.9 - 0.2Sds)DL + 1.0E AZI 90	Yes	Y	1	0.855	31		32	1				
55	(0.9 - 0.2Sds)DL + 1.0E AZI 120	Yes	Y	1	0.855	31	-0.5	32	0.866				

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
56	(0.9 - 0.2Sds)DL + 1.0E AZI 150	Yes	Y	1	0.855	31	-0.866	32	0.5				
57	(0.9 - 0.2Sds)DL + 1.0E AZI 180	Yes	Y	1	0.855	31	-1	32					
58	(0.9 - 0.2Sds)DL + 1.0E AZI 210	Yes	Y	1	0.855	31	-0.866	32	-0.5				
59	(0.9 - 0.2Sds)DL + 1.0E AZI 240	Yes	Y	1	0.855	31	-0.5	32	-0.866				
60	(0.9 - 0.2Sds)DL + 1.0E AZI 270	Yes	Y	1	0.855	31		32	-1				
61	(0.9 - 0.2Sds)DL + 1.0E AZI 300	Yes	Y	1	0.855	31	0.5	32	-0.866				
62	(0.9 - 0.2Sds)DL + 1.0E AZI 330	Yes	Y	1	0.855	31	0.866	32	-0.5				

Envelope Node Reactions

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N5	max	559.066	6	623.917	27	1013.763	14	1643.842	14	559.066	4	913.709	12
2		min	-559.066	10	151.498	57	-1013.763	8	-2016.544	8	-559.066	12	-913.709	4
3	N6	max	329.774	17	388.286	33	258.405	2	65.941	14	329.774	17	239.38	11
4		min	-329.774	23	136.746	51	-258.405	20	-449.34	33	-329.774	23	-239.38	5
5	N9	max	329.774	17	408.857	33	258.405	2	50.513	14	329.774	17	239.38	11
6		min	-329.774	23	151.409	51	-258.405	20	-469.911	33	-329.774	23	-239.38	5
7	N12	max	559.066	6	629.795	27	1013.763	14	1639.434	14	559.066	4	913.709	12
8		min	-559.066	10	155.688	57	-1013.763	8	-2022.422	8	-559.066	12	-913.709	4
9	Totals:	max	1705.215	5	2050.853	35	2544.335	14						
10		min	-1705.215	11	595.342	51	-2544.335	8						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
1	MP1	PIPE_2.5	0.581	60	2	0.033	60	8	22373.407	50715	3596.25	3596.25	1	H1-1b
2	MP2	PIPE_2.5	0.581	60	2	0.033	60	8	22373.407	50715	3596.25	3596.25	1	H1-1b

INFINIGY

FROM ZERO TO INFINIGY

the solutions are endless

Bolt Calculation Tool, V1.5.1

PROJECT DATA	
Site Name:	--
Site Number:	BOBDL00033C
Connection Description:	Mount to Wall

MAXIMUM BOLT LOADS		
Bolt Tension:	2275.86	lbs
Bolt Shear:	785.84	lbs

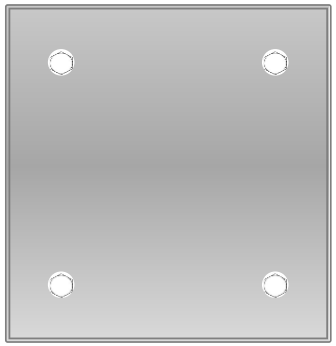
WORST CASE BOLT LOADS[1]		
Bolt Tension:	2275.86	lbs
Bolt Shear:	54.60	lbs

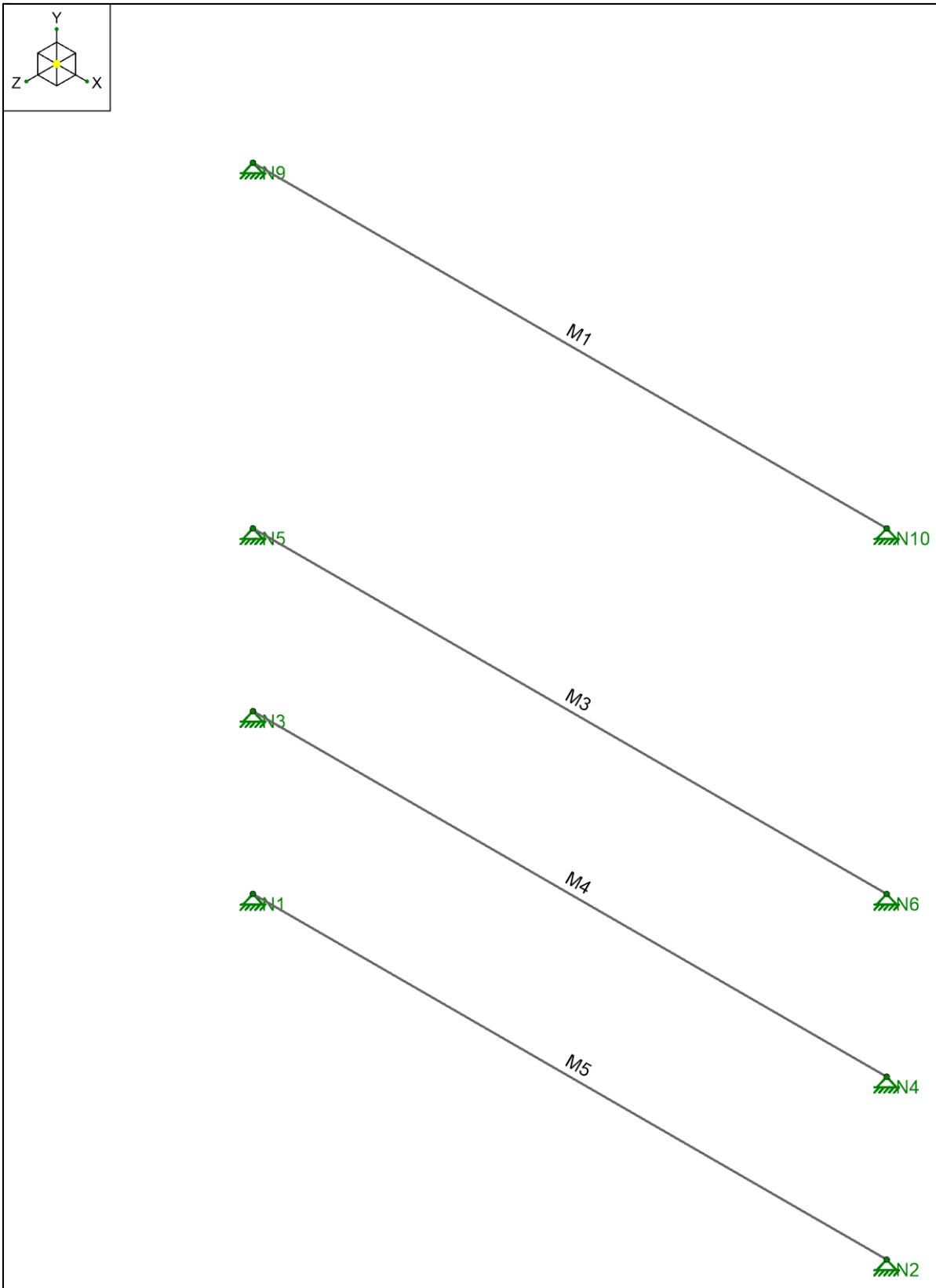
BOLT PROPERTIES		
Bolt Type:	Threaded Rod	-
Bolt Diameter:	0.5	in
Bolt Grade:	A307	-
# of Threaded Rods:	4	-
Threads Excluded?	No	-

[1] *Worst case bolt loads correspond to Load combination #8 on member M4 in RISA-3D, which causes the maximum demand on the bolts.*

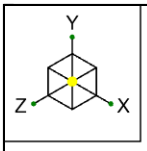
Member Information
J nodes of M2, M3, M4, M5

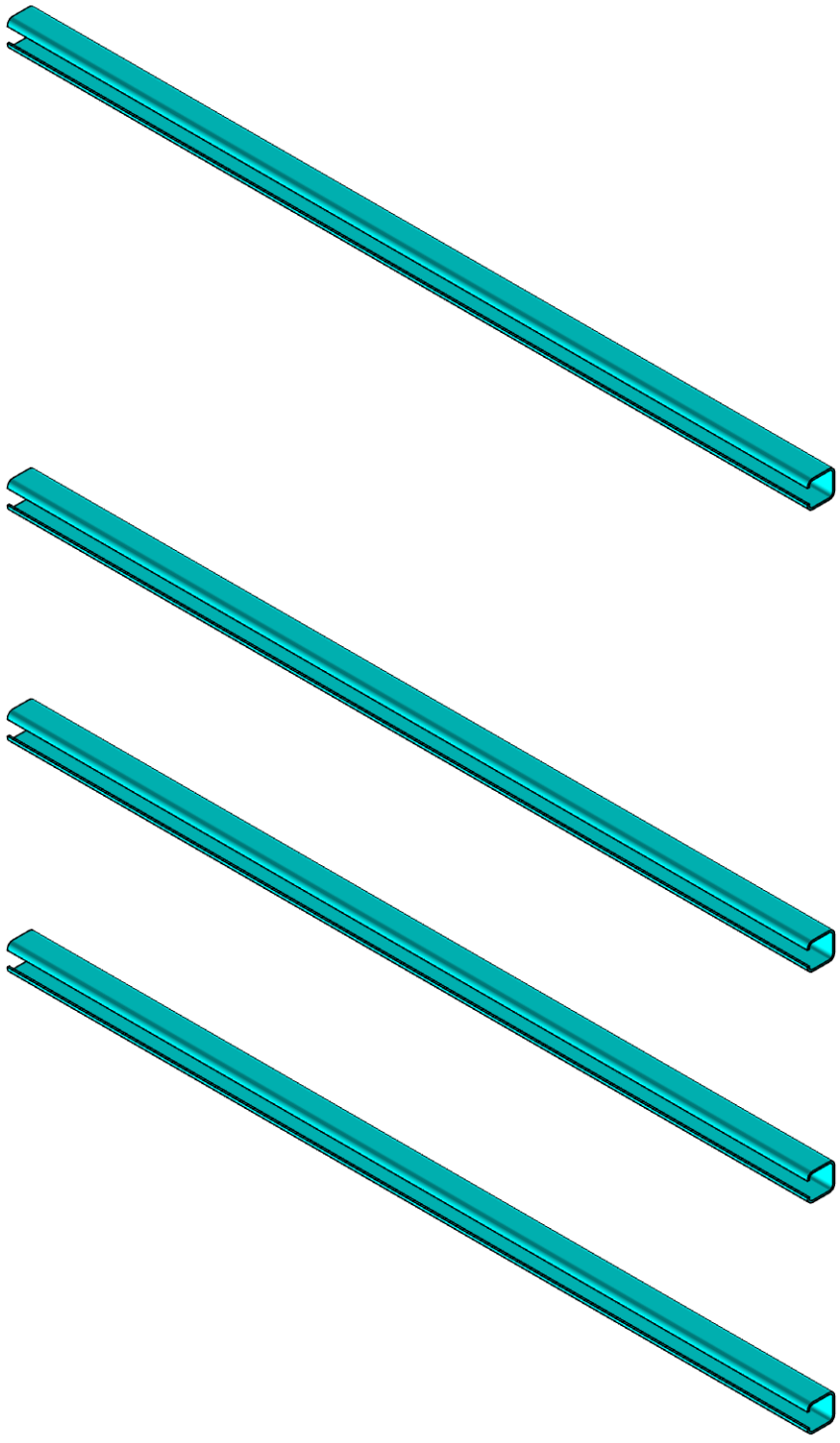
BOLT CHECK	
Tensile Strength	6626.80
Shear Strength	3976.08
Max Tensile Usage	34.3%
Max Shear Usage	19.8%
Combined Shear and Tension (Worst Case)	34.3%
Result	Pass





Infinigy Engineering, PLLC	BOBDL00033C (Equipment)	Wireframe - 1
CL		Feb 01, 2022
1197-F0001 / 39546		BOBDL00033C (Equipment)_load…





Infinigy Engineering, PLLC	BOBDL00033C (Equipment)	Rendered - 2
CL		Feb 01, 2022
1197-F0001 / 39546		BOBDL00033C (Equipment)_load…

Program Inputs

PROJECT INFORMATION	
Client:	Northeast Site Solutions
Carrier:	Dish Wireless
Engineer:	Chris Lee

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	C	
Topo Category:	1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	62.7	ft *7-16

MOUNT INFORMATION		
Mount Type:	Rooftop	
Num Sectors:	1	
Centerline AGL:	165.0	ft
Roof Height AGL:	160.0	ft

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

FACTORS		
Directionality Factor (K_d):	0.850	
Ground Ele. Factor (K_e):	0.998	*7-16 Only
Height Esc. Factor (K_{zt}):	1.000	
Gust Effect Factor (GC_r):	1.900	

CODE STANDARDS		
Building Code:	2015 IBC	
ASCE Standard:	ASCE 7-16	

WIND AND ICE DATA		
Basic Wind (V):	119	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	1.5	in
Velocity Pressure[1] (q_z):	43.24	
Ice Velocity Pressure (q_{zi}):	7.63	

SEISMIC DATA		
Short-Period Accel. (S_s):	0.209	g
1-Second Accel. (S_1):	0.056	g
Short-Period Design (S_{DS}):	0.223	
1-Second Design (S_{D1}):	0.090	
Short-Period Coeff. (F_a):	1.600	
1-Second Coeff. (F_v):	2.400	
Amplification Factor (A_S):	3.000	
Response Mod. Coeff. (R):	2.000	

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Infinigy Load Calculator V2.1.7

1) Velocity Pressure Equation
qz = 0.00256*Kz*Kzt*Ke*Kd*V^2

Program Inputs

Infinigy Load Calculator V2.1.7

APPURTENANCE INFORMATION									
Appurtenance Name	Elevation	Qty.	q_z (psf)	EPA_N*(ft^2)	EPA_T* (ft^2)	Wind F_z (lbs)	Wind F_x (lbs)	Weight (lbs)	Seismic F (lbs)
ARLES INDUSTRY HEX CUBE-PM639155I	165.0	1	43.24	16.44	16.44	1350.92	1350.92	500.00	167.20
ZAYO 5RU FIBER NID ENCLOSURE	165.0	1	43.24	7.27	3.23	597.24	265.67	100.00	33.44
ES CFIT-PF2020DSH1 FIBER TELCO ENCL	165.0	1	43.24	2.78	1.25	228.20	102.69	50.00	16.72

***EPA is defined as the force coefficient multiplied by the area of the appurtenance projected on a plane normal to the wind direction**

Member Primary Data

	Label	I Node	J Node	Section/Shape	Type	Design List	Material	Design Rule
1	M1	N9	N10	Unistrut	Beam	None	A653 SS Gr33	Typical
2	M3	N5	N6	Unistrut	Beam	None	A653 SS Gr33	Typical
3	M4	N3	N4	Unistrut	Beam	None	A653 SS Gr33	Typical
4	M5	N1	N2	Unistrut	Beam	None	A653 SS Gr33	Typical

Material Take-Off

	Material	Size	Pieces	Length[in]	Weight[LB]
1	Cold Formed Steel				
2	A653 SS Gr33	P1000	4	192	28.007
3	Total CF Steel		4	192	28.007

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Point	Distributed
1	Self Weight	DL		-1		4	
2	Wind Load AZI 0	WLZ				8	
3	Wind Load AZI 30	None				8	
4	Wind Load AZI 60	None				8	
5	Wind Load AZI 90	WLX				8	
6	Wind Load AZI 120	None				8	
7	Wind Load AZI 150	None				8	
8	Wind Load AZI 180	None				8	
9	Wind Load AZI 210	None				8	
10	Wind Load AZI 240	None				8	
11	Wind Load AZI 270	None				8	
12	Wind Load AZI 300	None				8	
13	Wind Load AZI 330	None				8	
14	Distr. Wind Load Z	WLZ					4
15	Distr. Wind Load X	WLX					4
16	Ice Weight	OL1				4	4
17	Ice Wind Load AZI 0	OL2				8	
18	Ice Wind Load AZI 30	None				8	
19	Ice Wind Load AZI 60	None				8	
20	Ice Wind Load AZI 90	OL3				8	
21	Ice Wind Load AZI 120	None				8	
22	Ice Wind Load AZI 150	None				8	
23	Ice Wind Load AZI 180	None				8	
24	Ice Wind Load AZI 210	None				8	
25	Ice Wind Load AZI 240	None				8	
26	Ice Wind Load AZI 270	None				8	
27	Ice Wind Load AZI 300	None				8	
28	Ice Wind Load AZI 330	None				8	
29	Distr. Ice Wind Load Z	OL2					4
30	Distr. Ice Wind Load X	OL3					4
31	Seismic Load Z	ELZ			-0.334	4	
32	Seismic Load X	ELX	-0.334			4	
33	Service Live Loads	LL					

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4DL	Yes	Y	1	1.4				
2	(1.2 + 0.2Sds)DL + 1.0E AZI 0	Yes	Y	1	1.245	31	1	32	

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
3	(1.2 + 0.2Sds)DL + 1.0E AZI 30	Yes	Y	1	1.245	31	0.866	32	0.5
4	(1.2 + 0.2Sds)DL + 1.0E AZI 60	Yes	Y	1	1.245	31	0.5	32	0.866
5	(1.2 + 0.2Sds)DL + 1.0E AZI 90	Yes	Y	1	1.245	31		32	1
6	(1.2 + 0.2Sds)DL + 1.0E AZI 120	Yes	Y	1	1.245	31	-0.5	32	0.866
7	(1.2 + 0.2Sds)DL + 1.0E AZI 150	Yes	Y	1	1.245	31	-0.866	32	0.5
8	(1.2 + 0.2Sds)DL + 1.0E AZI 180	Yes	Y	1	1.245	31	-1	32	
9	(1.2 + 0.2Sds)DL + 1.0E AZI 210	Yes	Y	1	1.245	31	-0.866	32	-0.5
10	(1.2 + 0.2Sds)DL + 1.0E AZI 240	Yes	Y	1	1.245	31	-0.5	32	-0.866
11	(1.2 + 0.2Sds)DL + 1.0E AZI 270	Yes	Y	1	1.245	31		32	-1
12	(1.2 + 0.2Sds)DL + 1.0E AZI 300	Yes	Y	1	1.245	31	0.5	32	-0.866
13	(1.2 + 0.2Sds)DL + 1.0E AZI 330	Yes	Y	1	1.245	31	0.866	32	-0.5
14	(0.9 - 0.2Sds)DL + 1.0E AZI 0	Yes	Y	1	0.855	31	1	32	
15	(0.9 - 0.2Sds)DL + 1.0E AZI 30	Yes	Y	1	0.855	31	0.866	32	0.5
16	(0.9 - 0.2Sds)DL + 1.0E AZI 60	Yes	Y	1	0.855	31	0.5	32	0.866
17	(0.9 - 0.2Sds)DL + 1.0E AZI 90	Yes	Y	1	0.855	31		32	1
18	(0.9 - 0.2Sds)DL + 1.0E AZI 120	Yes	Y	1	0.855	31	-0.5	32	0.866
19	(0.9 - 0.2Sds)DL + 1.0E AZI 150	Yes	Y	1	0.855	31	-0.866	32	0.5
20	(0.9 - 0.2Sds)DL + 1.0E AZI 180	Yes	Y	1	0.855	31	-1	32	
21	(0.9 - 0.2Sds)DL + 1.0E AZI 210	Yes	Y	1	0.855	31	-0.866	32	-0.5
22	(0.9 - 0.2Sds)DL + 1.0E AZI 240	Yes	Y	1	0.855	31	-0.5	32	-0.866
23	(0.9 - 0.2Sds)DL + 1.0E AZI 270	Yes	Y	1	0.855	31		32	-1
24	(0.9 - 0.2Sds)DL + 1.0E AZI 300	Yes	Y	1	0.855	31	0.5	32	-0.866
25	(0.9 - 0.2Sds)DL + 1.0E AZI 330	Yes	Y	1	0.855	31	0.866	32	-0.5

Envelope Node Reactions

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N1	max	5.351	17	22.401	1	5.351	14	LOCKED		0	25	0	25
2		min	-5.351	11	13.687	14	-5.351	8	LOCKED		0	1	0	1
3	N4	max	5.351	17	22.401	1	5.351	14	LOCKED		0	25	0	25
4		min	-5.351	11	13.687	14	-5.351	8	LOCKED		0	1	0	1
5	N2	max	5.351	17	22.401	1	5.351	14	0	25	0	25	0	25
6		min	-5.351	11	13.687	14	-5.351	8	0	1	0	1	0	1
7	N5	max	9.531	17	39.901	1	9.531	14	0	25	0	25	0	25
8		min	-9.531	11	24.38	14	-9.531	8	0	1	0	1	0	1
9	N10	max	9.531	17	39.901	1	9.531	14	LOCKED		0	25	0	25
10		min	-9.531	11	24.38	14	-9.531	8	LOCKED		0	1	0	1
11	N9	max	9.531	17	39.901	1	9.531	14	0	25	0	25	0	25
12		min	-9.531	11	24.38	14	-9.531	8	0	1	0	1	0	1
13	N3	max	5.351	17	22.401	1	5.351	14	0	25	0	25	0	25
14		min	-5.351	11	13.687	14	-5.351	8	0	1	0	1	0	1
15	N6	max	9.531	17	39.901	1	9.531	14	LOCKED		0	25	0	25
16		min	-9.531	11	24.38	14	-9.531	8	LOCKED		0	1	0	1
17	Totals:	max	59.526	17	249.21	1	59.526	14						
18		min	-59.526	11	152.27	14	-59.526	8						

Envelope AISI S100-16: LRFD Member Cold Formed Steel Code Checks

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pn[lb]	phi*Tn[lb]	phi*Mnyy[lb-ft]	phi*Mnzz[lb-ft]	phi*Vny[lb]	phi*Vnz[lb]	Cb	Eqn
1	M1	P1000	0.153	24	8	0.02	48	y	1	6949.699	15278.279	347.859	653.029	1986.731	3973.462	1.302	H1.2-1
2	M3	P1000	0.153	24	8	0.02	48	y	1	6949.699	15278.279	347.859	653.029	1986.731	3973.462	1.302	H1.2-1
3	M4	P1000	0.082	24	8	0.011	48	y	1	6949.699	15278.279	347.859	653.029	1986.731	3973.462	1.291	H1.2-1
4	M5	P1000	0.082	24	8	0.011	48	y	1	6949.699	15278.279	347.859	653.029	1986.731	3973.462	1.291	H1.2-1

Date:	2/1/2022
Client	NSS
Carrier	Dish
Engineer:	CL
Site:	BOBDL00033C
Job #:	1197-F0001-B
	Unistrut to Shelter
Code:	LRFD
Axial:	9.53 lbs
Shear:	39.90 lbs

Masonry Screw Capacity (1/4" Screw)				
	Ult Load / Bolt	Fact Load / Bolt	Ω	
Axial (lb)	500.0	100.0	2	19.1%
Shear(lb)	1000.0	200.0	2	39.9%

*Proposed (1) Tapcon 1/4" Screw, (2) Total for (1) Unistrut to Wall Connection

Metal Screw Capacity (#12 Screw)				
	Ult Load / Bolt	Fact Load / Bolt	Ω	
Axial (lb)	117.0	58.5	1	16.3%
Shear(lb)	280.0	140.0	1	28.5%

*Proposed (1) Simpson X Metal Screw #12, (2) Total for (1) Unistrut to Wall Connection

Interaction Check	
$T / \phi T_n$	19.1%
$V / \phi Vn$	39.9%
≤1.0	19.6%
	OK

INFINIGY ENGINEERING, LLP
26455 RANCHO PARKWAY SOUTH
LAKE FOREST, CALIFORNIA 92630

PROJECT DATA	
Site Name:	--
Site Number:	BOBDL00033C
Job Code:	1197-F0001 / 39546
Date:	1/4/2022

ASCE 7-16 WIND PRESSURE - ROOFTOP CHIMNEYS, TANKS AND SIMILAR STRUCTURES

Structure Description:

Charles Industry Hex Cube-PM639155N4

STRUCTURE INFORMATION		
Structure Cross Section:	Square Chimney, Tank, or Similar Structure	
Risk Category:	II	ASCE 7-16 Table 1.5-1
Ultimate Wind Speed (mph):	119	ASCE 7-16 Figure 26.5-1 A, B, or C
Ground Elevation, z_g (ft):	62.70	ASCE 7-16 Section 26.9
Roof height above ground level, h (ft):	160.0	(0.00 ft if ground mounted)

WIND LOAD PARAMETERS		
Wind Directionality Factor, K_d:	0.9	ASCE 7-16 Table 26.6-1
Ground Elevation Factor, K_e:	1.00	ASCE 7-16 Table 26.9-1
Exposure Category:	C	ASCE 7-16 Section 26.7
Topographic Factor, K_zt:	1.00	ASCE 7-16 Table 26.8 / Figure 26.8-1
Gust Effect Factor, G:	0.85	ASCE 7-16 Section 26.9

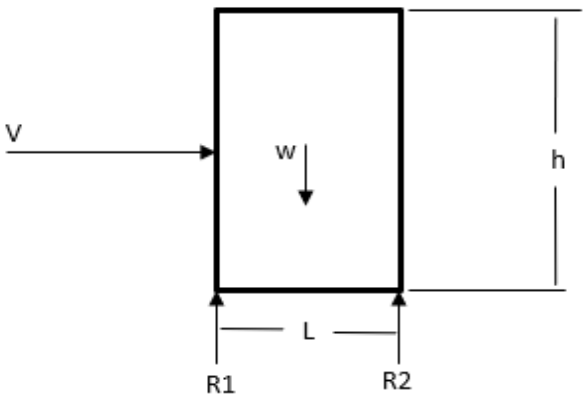
FORCE COEFFICIENT		
Smallest Horizontal Dimension, D (ft):	2.67	
Height of Structure, h (ft):	6.00	
h/D:	2.25	
Force Coefficient, C_f:	1.32	ASCE 7-16 Fig. 29.4-1

WIND FORCE AT CENTROID OF STRUCTURE (163.0 FT)		
Velocity Pressure Exposure Coeff., K_z:	1.40	ASCE 7-16 Table 26.10-1
Velocity Pressure, q_z (psf):	45.66	ASCE 7-16 Eq. 26.10-1
F = q_z(GC_f) (psf):	51.27	ASCE 7-16 Eq. 29.4-1

Total Shear (lbs): 496

Seismic Design Requirements for Non-Structural Components (ASCE7-16 Chapter 13)		
ap:	1.00	Amplification Factor - Table 13.5-1
Rp:	2.50	Response Modification Factor - Table 13.5-1
Ωo:	2.00	Overstrength Coefficient - Table 13.5-1
Cabinet Width:	99999.00	in
WP:	500	
z:	160.00	Attachment elevation (ft)
h:	160.00	Avg. Roof height (ft)
Ss:	0.209	
S1:	0.056	
Site Class:	D (Default)	Section 11.4.4 (Default is "D")
Structure Class:	II	
Importance Factor:	1.00	
Fa:	1.60	ASCE7-16 Table 11.4-1
Fv:	N/A	ASCE7-16 Table 11.4-2
SDS:	0.223	g
SD1:	N/A	g
Fp Max:	178	lbs 13.3.2
Fp Min:	33	lbs 13.3.3
Fp Design:	54	lbs 13.3.1
E_{v7} Factor (0.9-0.2Sds):	0.86	
Total Seismic Design Force:	54	lbs
Anchorage Shear Force:	107	lbs

Base Reactions		
V:	107	lbs - (Seismic controls)
Factored W:	428	lbs
R1:	120	lbs
R2:	308	lbs
# of Bolts	4	
Tension Per Bolt:	60	lbs
Shear Per Bolt:	27	lbs



Company:	Infinigy Engineering, LLP	Page:	1
Address:	26471 Rancho Pkwy S, Suite B	Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Metal deck - Jan 4, 2022 (2)	Date:	1/5/2022
Fastening point:			

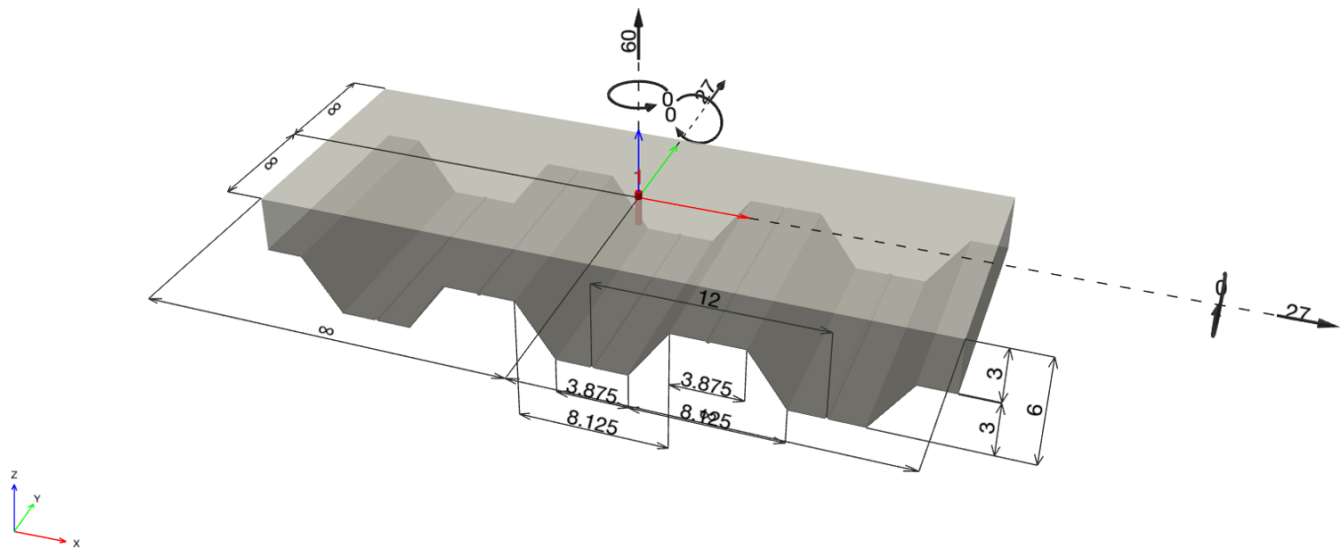
Specifier's comments:

1 Input data

Metal deck:	3 7/8 W Deck
Metal deck type:	W2
Anchor installation:	On top of concrete-filled metal deck
Anchor type and diameter:	**Kwik Bolt TZ - CS 3/8 (1 1/2)**
Item number:	not available
Effective embedment depth:	h_{ef} = 1.500 in., h_{nom} = 1.813 in.
Material:	Carbon Steel
Evaluation Service Report:	ESR-1917
Issued I Valid:	1/1/2020 | 5/1/2021
Proof:	Design Method ACI 318 / AC193 in concrete over metal deck installation
Stand-off installation:	
Profile:	
Base material:	cracked concrete, 3000, f_c' = 3,000 psi; h = 3.000 in.
Reinforcement:	tension: condition B, shear: condition B; no supplemental splitting reinforcement present edge reinforcement: none or < No. 4 bar
Seismic loads (cat. C, D, E, or F)	no

Application also possible with Kwik Bolt TZ2 - CS 3/8 (1 1/2) hnom1 under the selected boundary conditions.
More information in section Alternative fastening data of this report.

Geometry [in.] & Loading [lb, in.lb]



Company:	Infinigy Engineering, LLP	Page:	2
Address:	26471 Rancho Pkwy S, Suite B	Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Metal deck - Jan 4, 2022 (2)	Date:	1/5/2022
Fastening point:			

1.1 Design results

Case	Description	Forces [lb] / Moments [in.lb]	Seismic	Max. Util. Anchor [%]
1	Combination 1	N = 60; V_x = 27; V_y = 27; M_x = 0; M_y = 0; M_z = 0;	no	7

2 Load case/Resulting anchor forces

Anchor reactions [lb]

Tension force: (+Tension, -Compression)

Anchor	Tension force	Shear force	Shear force x	Shear force y
1	60	38	27	27

max. concrete compressive strain: - [‰]
max. concrete compressive stress: - [psi]
resulting tension force in (x/y)=(0.000/0.000): 0 [lb]
resulting compression force in (x/y)=(0.000/0.000): 0 [lb]

3 Tension load

	Load N_{ua} [lb]	Capacity ϕ N_n [lb]	Utilization $\beta_N = N_{ua}/\phi$ N_n	Status
Steel Strength*	60	4,875	2	OK
Pullout Strength*	N/A	N/A	N/A	N/A
Concrete Breakout Failure**	60	941	7	OK

* highest loaded anchor **anchor group (anchors in tension)

3.1 Steel Strength

N_{sa} [lb]	ϕ	ϕ N_{sa} [lb]	N_{ua} [lb]
6,500	0.750	4,875	60

3.2 Concrete Breakout Failure

A_{Nc} [in.^{2}]	A_{Nc0} [in.^{2}]	$c_{a,min}$ [in.]	c_{ac} [in.]	$\Psi_{c,N}$
20.25	20.25	∞	8.000	1.000

$e_{c1,N}$ [in.]	$\Psi_{ec1,N}$	$e_{c2,N}$ [in.]	$\Psi_{ec2,N}$	$\Psi_{ed,N}$	$\Psi_{cp,N}$	k_{cr}
0.000	1.000	0.000	1.000	1.000	1.000	17

N_b [lb]	ϕ	ϕ N_{cbg} [lb]	N_{ua} [lb]
1,711	0.550	941	60

Company:	Infinigy Engineering, LLP	Page:	3
Address:	26471 Rancho Pkwy S, Suite B	Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Metal deck - Jan 4, 2022 (2)	Date:	1/5/2022
Fastening point:			

4 Shear load

	Load V_{ua} [lb]	Capacity ϕ V_n [lb]	Utilization $\beta_V = V_{ua}/\phi$ V_n	Status
Steel Strength*	38	1,417	3	OK
Steel failure (with lever arm)*	N/A	N/A	N/A	N/A
Pryout Strength**	38	1,197	4	OK
Concrete edge failure in direction **	N/A	N/A	N/A	N/A

* highest loaded anchor **anchor group (relevant anchors)

4.1 Steel Strength

V_{sa} [lb]	$\alpha_{V,seis}$	ϕ	ϕ V_{sa} [lb]	V_{ua} [lb]
2,180	1.000	0.650	1,417	38

4.2 Pryout Strength

A_{Nc} [in.^{2}]	A_{Nc0} [in.^{2}]	$c_{a,min}$ [in.]	k_{cp}	c_{ac} [in.]	$\Psi_{c,N}$
20.25	20.25	∞	1	8.000	1.000

$e_{c1,V}$ [in.]	$\Psi_{ec1,V}$	$e_{c2,V}$ [in.]	$\Psi_{ec2,V}$	$\Psi_{ed,N}$	$\Psi_{cp,N}$	k_{cr}
0.000	1.000	0.000	1.000	1.000	1.000	17

N_b [lb]	ϕ	ϕ V_{cpg} [lb]	V_{ua} [lb]
1,711	0.700	1,197	38

5 Combined tension and shear loads

β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
0.064	0.032	5/3	2	OK

$\beta_{NV} = \beta_N^{\zeta} + \beta_V^{\zeta} <= 1$

6 Warnings

- The anchor design methods in PROFIS Engineering require rigid anchor plates per current regulations (AS 5216:2021, ETAG 001/Annex C, EOTA TR029 etc.). This means load re-distribution on the anchors due to elastic deformations of the anchor plate are not considered - the anchor plate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. PROFIS Engineering calculates the minimum required anchor plate thickness with CBFEM to limit the stress of the anchor plate based on the assumptions explained above. The proof if the rigid anchor plate assumption is valid is not carried out by PROFIS Engineering. Input data and results must be checked for agreement with the existing conditions and for plausibility!
- Condition A applies where the potential concrete failure surfaces are crossed by supplementary reinforcement proportioned to tie the potential concrete failure prism into the structural member. Condition B applies where such supplementary reinforcement is not provided, or where pullout or pryout strength governs.
- Refer to the manufacturer's product literature for cleaning and installation instructions.
- For additional information about ACI 318 strength design provisions, please go to https://submittals.us.hilti.com/PROFISAnchorDesignGuide/

Company:	Infinigy Engineering, LLP	Page:	4
Address:	26471 Rancho Pkwy S, Suite B	Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Metal deck - Jan 4, 2022 (2)	Date:	1/5/2022
Fastening point:			

Fastening meets the design criteria!

Company:	Infinigy Engineering, LLP	Page:	5
Address:	26471 Rancho Pkwy S, Suite B	Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Metal deck - Jan 4, 2022 (2)	Date:	1/5/2022
Fastening point:			

7 Installation data

Anchor type and diameter: Kwik Bolt TZ - CS 3/8 (1 1/2)

Profile: -

Item number: not available

Hole diameter in the fixture: -

Maximum installation torque: 300 in.lb

Plate thickness (input): -

Hole diameter in the base material: 0.375 in.

Hole depth in the base material: 2.000 in.

Drilling method: Hammer drilled

Minimum thickness of the base material: 3.250 in.

Cleaning: Manual cleaning of the drilled hole according to instructions for use is required.

Hilti KB-TZ stud anchor with 1.81252 in embedment, 3/8 (1 1/2), Carbon steel, installation per ESR-1917

7.1 Recommended accessories

Drilling	Cleaning	Setting
• Suitable Rotary Hammer • Properly sized drill bit	• Manual blow-out pump	• Torque controlled cordless impact tool • Torque wrench • Hammer

Coordinates Anchor in.

Anchor	x	y	c_{-x}	c_{+x}	c_{-y}	c_{+y}
1	0.000	0.000	-	-	-	-

Company:	Infinigy Engineering, LLP	Page:	6
Address:	26471 Rancho Pkwy S, Suite B	Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Metal deck - Jan 4, 2022 (2)	Date:	1/5/2022
Fastening point:			

8 Alternative fastening

8.1 Alternative fastening data

Metal deck:	3 7/8 W Deck
Metal deck type:	W2
Anchor installation:	On top of concrete-filled metal deck
Anchor type and diameter:	**Kwik Bolt TZ2 - CS 3/8 (1 1/2) hnom1**
Item number:	2210234 KB-TZ2 3/8x2 1/2
Effective embedment depth:	h_{ef} = 1.500 in., h_{nom} = 1.875 in.
Material:	Carbon Steel
Evaluation Service Report:	ESR-4266
Issued I Valid:	7/1/2021 | 12/1/2021
Proof:	Design Method ACI 318 / AC193 in concrete over metal deck installation
Stand-off installation:	
Profile:	
Base material:	cracked concrete, 3000, f_c' = 3,000 psi; h = 3.000 in.
Reinforcement:	tension: condition B, shear: condition B; no supplemental splitting reinforcement present edge reinforcement: none or < No. 4 bar
Seismic loads (cat. C, D, E, or F)	no

Max. Utilization with Kwik Bolt TZ2 - CS 3/8 (1 1/2) hnom1: 5 %
Fastening meets the design criteria!

Company:	Infinigy Engineering, LLP	Page:	7
Address:	26471 Rancho Pkwy S, Suite B	Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Metal deck - Jan 4, 2022 (2)	Date:	1/5/2022
Fastening point:			

8.2 Installation data

Anchor type and diameter: Kwik Bolt TZ2 - CS 3/8 (1 1/2) hnom1

Profile: -

Item number: 2210234 KB-TZ2 3/8x2 1/2

Hole diameter in the fixture: -

Maximum installation torque: 361 in.lb

Plate thickness (input): -

Hole diameter in the base material: 0.375 in.

Hole depth in the base material: 2.000 in.

Drilling method: Hammer drilled

Minimum thickness of the base material: 3.250 in.

Cleaning: Manual cleaning of the drilled hole according to instructions for use is required.

Hilti KB-TZ2 stud anchor with 1.875 in embedment, 3/8 (1 1/2) hnom1, Carbon steel, installation per ESR-4266

8.2.1 Recommended accessories

Drilling	Cleaning	Setting
• Suitable Rotary Hammer • Properly sized drill bit	• Manual blow-out pump	• Torque controlled cordless impact tool • Torque wrench • Hammer

Company:	Infinigy Engineering, LLP	Page:	8
Address:	26471 Rancho Pkwy S, Suite B	Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Metal deck - Jan 4, 2022 (2)	Date:	1/5/2022
Fastening point:			

9 Remarks; Your Cooperation Duties

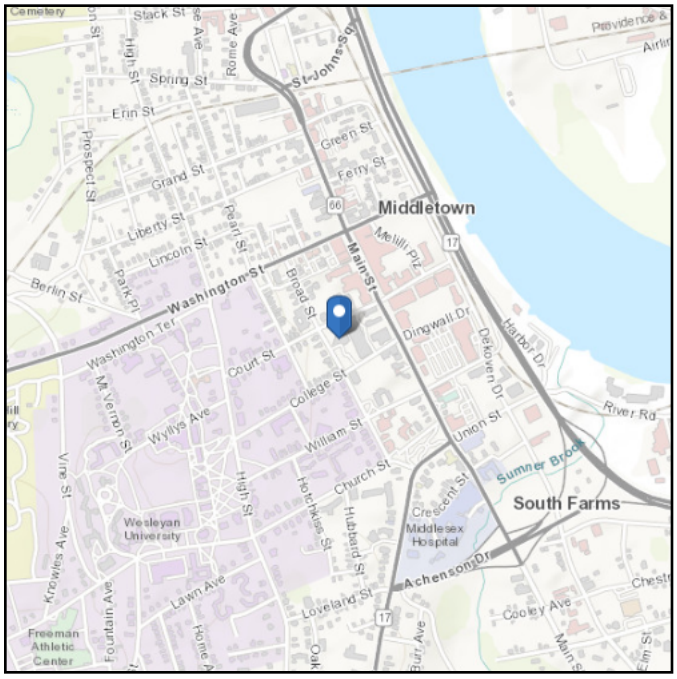
- Any and all information and data contained in the Software concern solely the use of Hilti products and are based on the principles, formulas and security regulations in accordance with Hilti's technical directions and operating, mounting and assembly instructions, etc., that must be strictly complied with by the user. All figures contained therein are average figures, and therefore use-specific tests are to be conducted prior to using the relevant Hilti product. The results of the calculations carried out by means of the Software are based essentially on the data you put in. Therefore, you bear the sole responsibility for the absence of errors, the completeness and the relevance of the data to be put in by you. Moreover, you bear sole responsibility for having the results of the calculation checked and cleared by an expert, particularly with regard to compliance with applicable norms and permits, prior to using them for your specific facility. The Software serves only as an aid to interpret norms and permits without any guarantee as to the absence of errors, the correctness and the relevance of the results or suitability for a specific application.
- You must take all necessary and reasonable steps to prevent or limit damage caused by the Software. In particular, you must arrange for the regular backup of programs and data and, if applicable, carry out the updates of the Software offered by Hilti on a regular basis. If you do not use the AutoUpdate function of the Software, you must ensure that you are using the current and thus up-to-date version of the Software in each case by carrying out manual updates via the Hilti Website. Hilti will not be liable for consequences, such as the recovery of lost or damaged data or programs, arising from a culpable breach of duty by you.

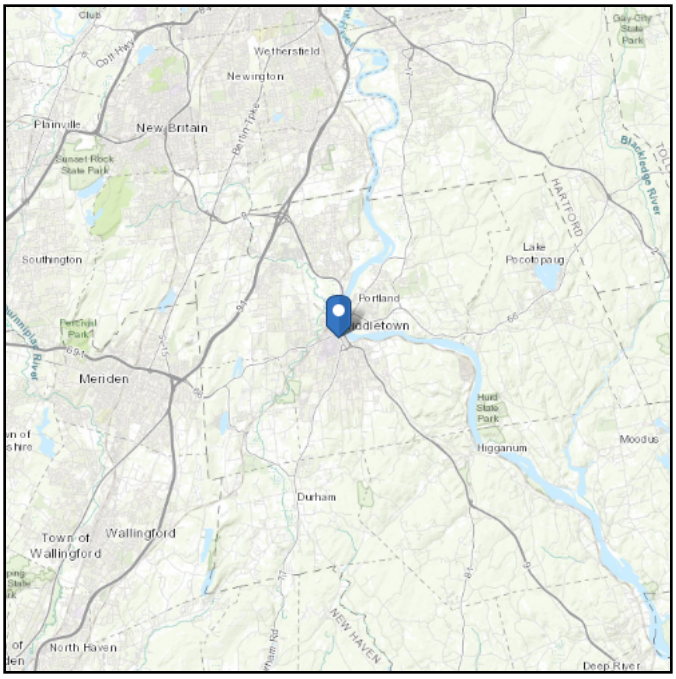
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 62.7 ft (NAVD 88)
Latitude: 41.5594
Longitude: -72.651196





Wind

Results:

Wind Speed	119 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	91 Vmph
100-year MRI	98 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Mon Jan 03 2022

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

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

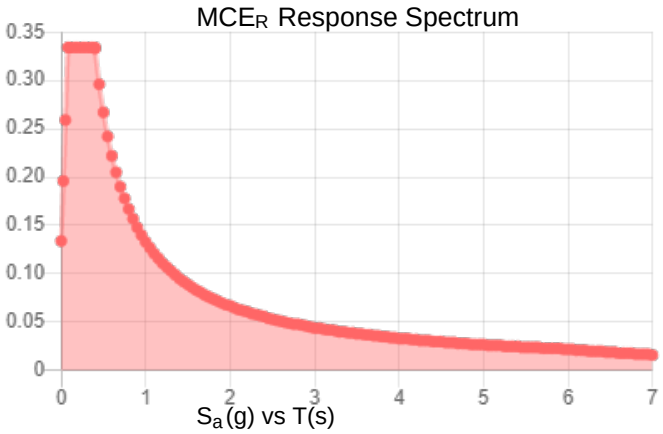
Seismic

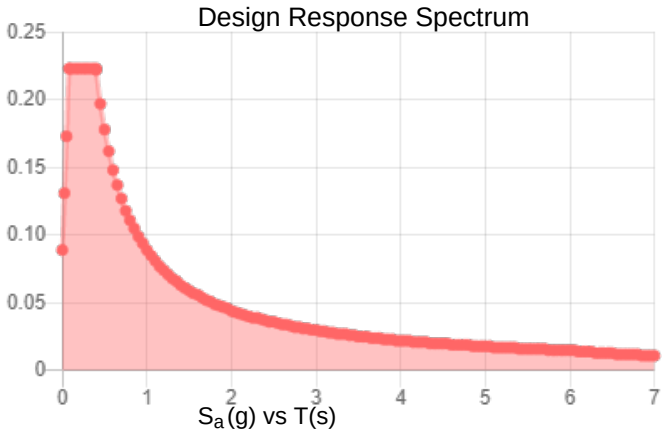
Site Soil Class: D - Stiff Soil

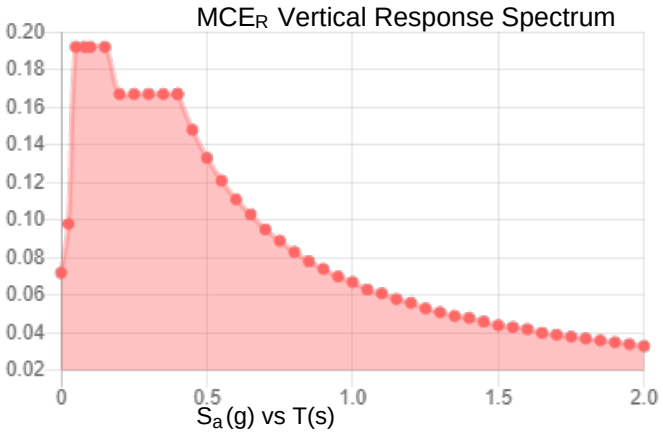
Results:

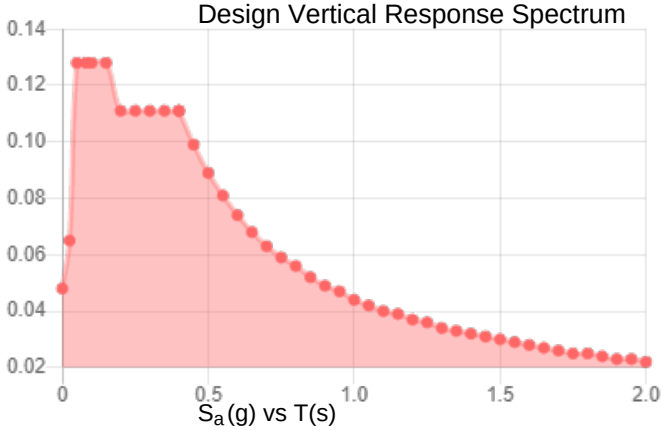
S_S :	0.209	S_{D1} :	0.089
S_1 :	0.056	T_L :	6
F_a :	1.6	PGA :	0.116
F_v :	2.4	PGA_M :	0.182
S_{MS} :	0.334	F_{PGA} :	1.568
S_{M1} :	0.133	I_e :	1
S_{DS} :	0.223	C_v :	0.717

Seismic Design Category B









Data Accessed: **Mon Jan 03 2022**

Date Source:

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Mon Jan 03 2022

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Exhibit E

Mount Analysis

MOUNT ANALYSIS REPORT

February 2, 2022

Dish Site Name	--
Dish Site Number	BOBDL00033C
Infinigy Job Number	1197-F0001
Client	Northeast Site Solutions, LLC
Carrier	Dish Wireless
Site Location	213 Court Street Middletown, CT 06457 Middlesex County 41.559400 N NAD83 72.651196 W NAD83
Structural Type	Wall Mount
Structural Usage Ratio	**58.1%**
Overall Result	**Pass**

2-2-2022

Luis Mendoza, PE
Connecticut License 35574

CONTENTS

INTRODUCTION

Infinigy Engineering has been requested to perform a mount analysis on the proposed rooftop telecommunication installation 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 mounts have been analyzed using RISA 3D analysis software.

SUPPORTING DOCUMENTATION

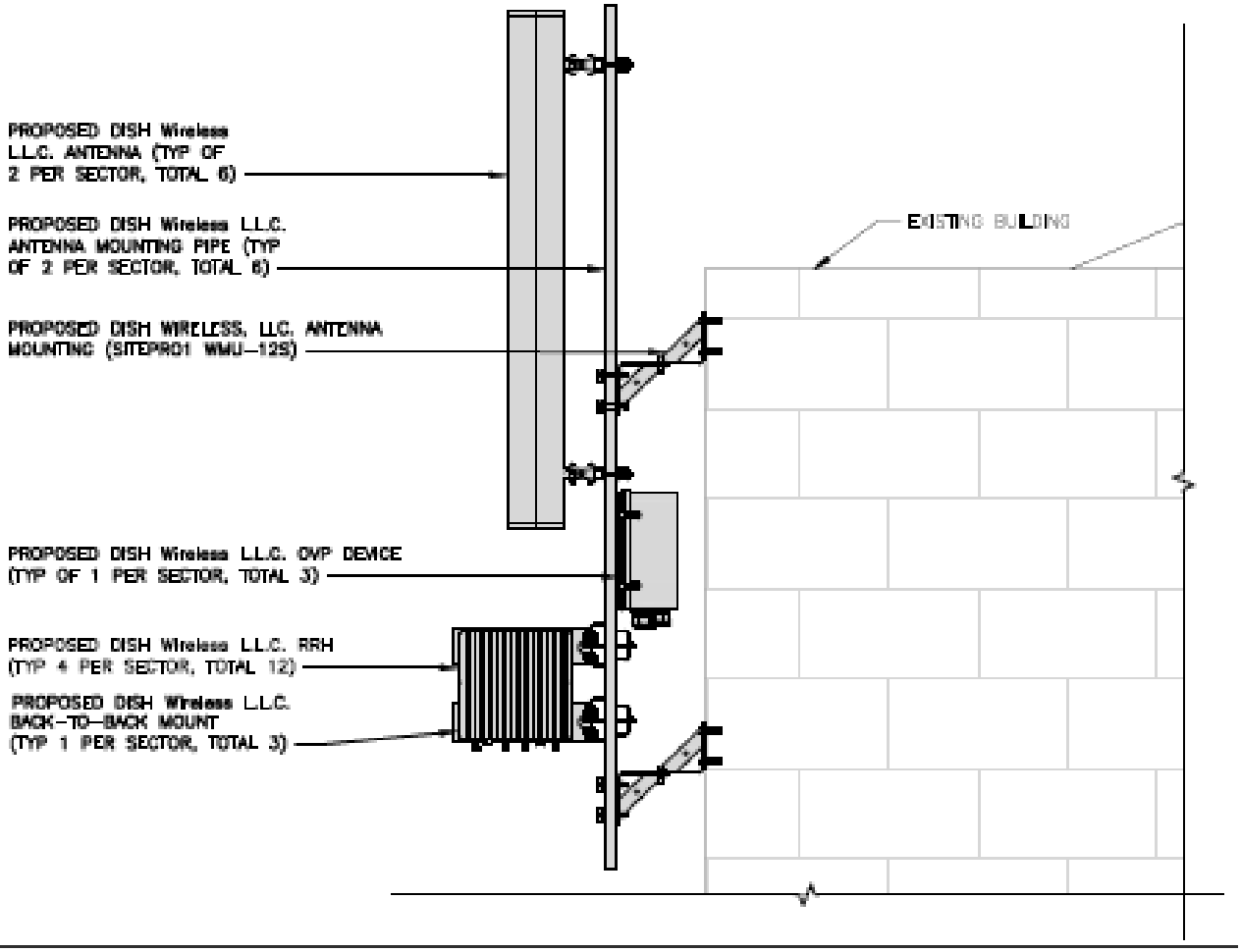
Construction Drawings	Infinigy Engineering, Site ID: BOBDL00033C, dated January 19, 2022
Proposed Loading	Dish Wireless RFDS, Site Number: BOBDL00033C, dated January 20, 2022
Building Drawings	Jeter Cook & Jepson, Job: 8540-01, dated June 1 1987
Structural Analysis Report	EFI Global, Side ID: CT11232B, dated June 24, 2020

EVALUATION PARAMETERS

Wind Speed	119 mph (3-Second Gust)
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 1" Ice
ASCE Revision	ANSI/TIA-222-H
Adopted Code	2015 IBC
Risk Category	II
Exposure Category	C
Topographic Category	1
Calculated Crest Height	0 ft.
Seismic Spectral Response	S_s = 0.209 g / S_1 = 0.056 g
Seismic Site Class	D-Stiff Soil (Assumed)

SITE DESCRIPTION

At this site, the proposed telecommunication equipment will be supported by wythe brick walls (assumed min 13" thick).



PROPOSED/FINAL LOADING

RAD Center (ft)	Mount Center (ft)	Qty.	Appurtenance*	Mount Type	Carrier	Sector
160.0	160.0	2	JMA Wireless MX08FRO665-21	Pipe Mount	Dish Wireless	Alpha
		2	Fujitsu Dual Band TA08025-B604			
		2	Fujitsu Triple Band TA08025-B605			
		2	Raycap RDIDC-4045-PF-48			
		2	JMA Wireless MX08FRO665-21			Beta
		2	Fujitsu Dual Band TA08025-B604			
		2	Fujitsu Triple Band TA08025-B605			
		2	Raycap RDIDC-4045-PF-48			
		2	JMA Wireless MX08FRO665-21			Gamma
		2	Fujitsu Dual Band TA08025-B604			
		2	Fujitsu Triple Band TA08025-B605			
		1	Raycap RDIDC-4045-PF-48			

** for each sector, (1) JMA Wireless MX08FRO665-21 is proposed and (1) JMA Wireless MX08FRO665-21 is future antennas and similarly, (1) Fujitsu Dual Band TA08025-B604 is proposed and (1) Fujitsu Dual Band TA08025-B604 is future, and (1) Fujitsu Dual Band TA08025-B605 is proposed and (1) Fujitsu Dual Band TA08025-B605 is future*

ANTENNA AND RADIO SUPPORTING SYSTEM USAGES

Pipe Mount	58.1%	Pass
RATING =	**58.1%**	**Pass**

MOUNT ANCHOR REACTIONS

Reaction Data	Design Capacity*	Analysis Reactions	Results
Max Tension (lbs.)	6,626.8	2275.9	34.3%
Max Shear (lbs.)	3,976.1	785.8	19.8%
Combined Tension/Shear	--	--	34.3%

*Proposed (1) 1/2" diameter A307 through bolt, total of (4) per wall mount to building connection.

CONCLUSION AND RECOMMENDATIONS

Antennas and Radio Equipment
Pipe Mount: Adequate
Supporting Existing Structural members: Adequate

Infinigy recommends the installation of the Dish Wireless proposed equipment at this site. The installation shall be performed by the construction documents issued by Infinigy for this site.

If you have any questions, require additional information, or believe the actual conditions differ from those detailed in this report, please contact us immediately.

Christopher H. Lee, MS, EIT
Technical Specialist | **INFINIGY**

ASSUMPTIONS

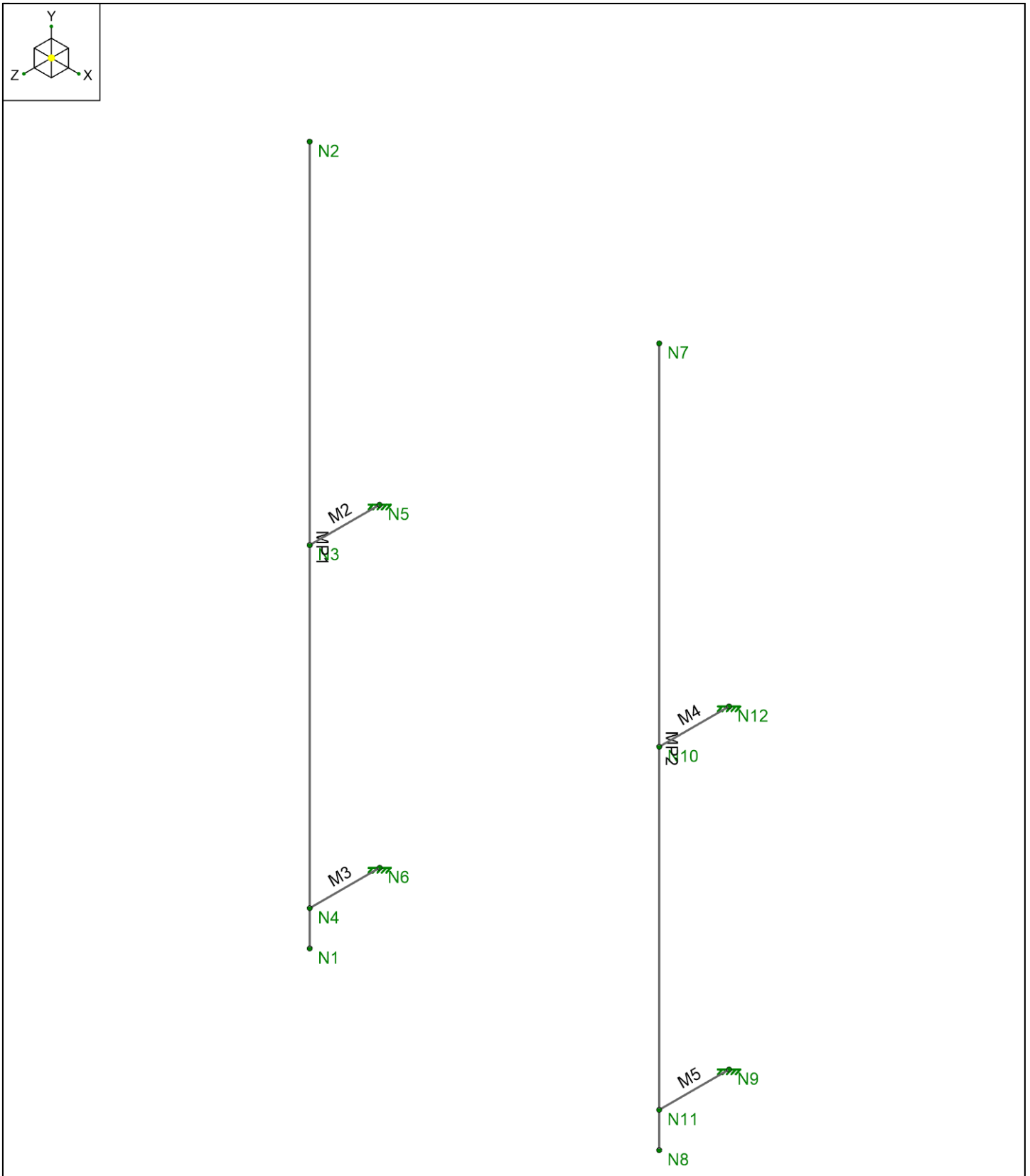
The existing building and platform have been designed and maintained in accordance with all applicable building codes
The existing building structural members are not currently overstressed
The information on member connections is accurate as supplied. All mechanical connections and welds have structural strength to fully develop the member capacities unless noted otherwise
Pipes have a yield strength of 35ksi. Unistruts have a yield strength of 33ksi.
The cabinet weights are assumed based on our past experience of similar equipment.
Supporting composite deck, shelter wall, and brick parapet wall assumed adequate to support proposed loading based on engineering judgement.
Antenna mount to parapet connection to be made with through bolts connected to 12”x12”x1/4” A36 backing plate mounted to the backside of the brick parapet wall.

LIABILITY WAIVER AND LIMITATIONS

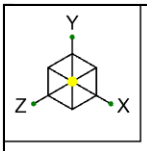
Our structural calculations are completed assuming all information provided to Infinigy Engineering is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition as erected and all members and connections to be free of corrosion and/or structural 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 Engineering should be notified immediately to assess the impact on the results of this report.

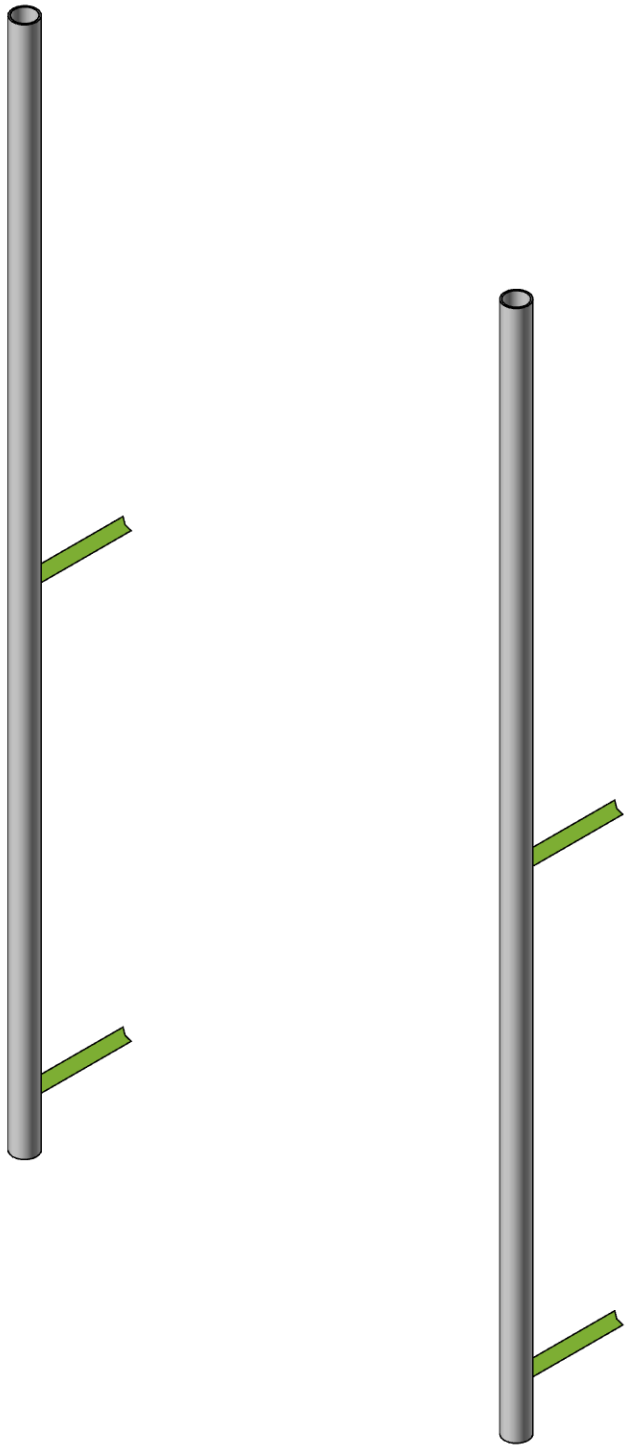
Our evaluation is completed using standard TIA, AISC, ACI and ASCE methods and procedures. The structural results, conclusions and recommendations contained in this report are proprietary and should not be used by others as their own. Infinigy Engineering is not responsible for decisions made by others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

This report is an evaluation of the equipment supporting structures only and does not verify adequacy of any existing antenna mounts, mount connections, or cable mounting attachments. The analysis of these elements is outside the scope of this analysis and are assumed to be adequate for the purposes of this report and are assumed to have been installed per their manufacturer requirements. This document is not for construction purposes.



Infinigy Engineering, PLLC	BOBDL00033C	Wireframe - 1
CL		Jan 04, 2022
1197-F0001 / 39546		BOBDL00033C_loaded.r3d





Infinigy Engineering, PLLC	BOBDL00033C	Rendered - 2
CL		Jan 04, 2022
1197-F0001 / 39546		BOBDL00033C_loaded.r3d

Program Inputs

PROJECT INFORMATION	
Client:	Northeast Site Solutions
Carrier:	Dish Wireless
Engineer:	Chris Lee

SITE INFORMATION		
Risk Category:	II	
Exposure Category:	C	
Topo Category:	1	
Site Class:	D - Stiff Soil (Assumed)	
Ground Elevation:	62.7	ft *7-16

MOUNT INFORMATION		
Mount Type:	Rooftop	
Num Sectors:	3	
Centerline AGL:	160.0	ft
Roof Height AGL:	160.0	ft

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

FACTORS		
Directionality Factor (K_d):	0.850	
Ground Ele. Factor (K_e):	0.998	*7-16 Only
Height Esc. Factor (K_{zt}):	1.000	
Gust Effect Factor (GC_r):	1.900	

CODE STANDARDS		
Building Code:	2015 IBC	
ASCE Standard:	ASCE 7-16	

WIND AND ICE DATA		
Basic Wind (V):	119	mph
Ice Wind (V_{ice}):	50	mph
Base Ice Thickness (t_i):	1.5	in
Velocity Pressure[1] (q_z):	42.96	
Ice Velocity Pressure (q_{zi}):	7.58	

SEISMIC DATA		
Short-Period Accel. (S_s):	0.209	g
1-Second Accel. (S_1):	0.056	g
Short-Period Design (S_{DS}):	0.223	
1-Second Design (S_{D1}):	0.090	
Short-Period Coeff. (F_a):	1.600	
1-Second Coeff. (F_v):	2.400	
Amplification Factor (A_S):	3.000	
Response Mod. Coeff. (R):	2.000	

INFINIGY
FROM ZERO TO INFINIGY
the solutions are endless

Infinigy Load Calculator V2.1.7

1) Velocity Pressure Equation
qz = 0.00256*Kz*Kzt*Ke*Kd*V^2

Program Inputs

Infinigy Load Calculator V2.1.7

APPURTENANCE INFORMATION									
Appurtenance Name	Elevation	Qty.	q_z (psf)	EPA_N*(ft^2)	EPA_T* (ft^2)	Wind F_z (lbs)	Wind F_x (lbs)	Weight (lbs)	Seismic F (lbs)
JMA WIRELESS MX08FRO665-21	160.0	3	42.96	10.00	4.00	816.20	326.48	96.68	32.33
JMA WIRELESS MX08FRO665-21	160.0	3	42.96	10.00	4.00	816.20	326.48	96.68	32.33
FUJITSU DUAL BAND TA08025-B604	160.0	6	42.96	1.64	0.82	66.73	133.55	81.83	27.36
FUJITSU DUAL BAND TA08025-B605	160.0	6	42.96	1.64	0.82	66.73	133.55	92.85	31.05
RAYCAP RDIDC-4045-PF-48	160.0	5	42.96	1.56	0.78	126.96	63.48	21.85	7.31

***EPA is defined as the force coefficient multiplied by the area of the appurtenance projected on a plane normal to the wind direction**

Member Primary Data

	Label	I Node	J Node	Section/Shape	Type	Design List	Material	Design Rule
1	MP1	N2	N1	Mount Pipe	Column	Pipe	A53 Gr.B	Typical
2	M2	N3	N5	RIGID	None	None	RIGID	Typical
3	M3	N4	N6	RIGID	None	None	RIGID	Typical
4	M4	N10	N12	RIGID	None	None	RIGID	Typical
5	M5	N11	N9	RIGID	None	None	RIGID	Typical
6	MP2	N7	N8	Mount Pipe	Column	Pipe	A53 Gr.B	Typical

Material Take-Off

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General Members				
2	RIGID		4	48	0
3	Total General		4	48	0
4					
5	Hot Rolled Steel				
6	A53 Gr.B	PIPE_2.5	2	240	109.57
7	Total HR Steel		2	240	109.57

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Point	Distributed
1	Self Weight	DL		-1		10	
2	Wind Load AZI 0	WLZ				20	
3	Wind Load AZI 30	None				20	
4	Wind Load AZI 60	None				20	
5	Wind Load AZI 90	WLX				20	
6	Wind Load AZI 120	None				20	
7	Wind Load AZI 150	None				20	
8	Wind Load AZI 180	None				20	
9	Wind Load AZI 210	None				20	
10	Wind Load AZI 240	None				20	
11	Wind Load AZI 270	None				20	
12	Wind Load AZI 300	None				20	
13	Wind Load AZI 330	None				20	
14	Distr. Wind Load Z	WLZ					6
15	Distr. Wind Load X	WLX					6
16	Ice Weight	OL1				10	6
17	Ice Wind Load AZI 0	OL2				20	
18	Ice Wind Load AZI 30	None				20	
19	Ice Wind Load AZI 60	None				20	
20	Ice Wind Load AZI 90	OL3				20	
21	Ice Wind Load AZI 120	None				20	
22	Ice Wind Load AZI 150	None				20	
23	Ice Wind Load AZI 180	None				20	
24	Ice Wind Load AZI 210	None				20	
25	Ice Wind Load AZI 240	None				20	
26	Ice Wind Load AZI 270	None				20	
27	Ice Wind Load AZI 300	None				20	
28	Ice Wind Load AZI 330	None				20	
29	Distr. Ice Wind Load Z	OL2					6
30	Distr. Ice Wind Load X	OL3					6
31	Seismic Load Z	ELZ			-0.334	10	
32	Seismic Load X	ELX	-0.334			10	
33	Service Live Loads	LL					

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4DL	Yes	Y	1	1.4								
2	1.2DL + 1WL AZI 0	Yes	Y	1	1.2	2	1	14	1	15			
3	1.2DL + 1WL AZI 30	Yes	Y	1	1.2	3	1	14	0.866	15	0.5		
4	1.2DL + 1WL AZI 60	Yes	Y	1	1.2	4	1	14	0.5	15	0.866		
5	1.2DL + 1WL AZI 90	Yes	Y	1	1.2	5	1	14		15	1		
6	1.2DL + 1WL AZI 120	Yes	Y	1	1.2	6	1	14	-0.5	15	0.866		
7	1.2DL + 1WL AZI 150	Yes	Y	1	1.2	7	1	14	-0.866	15	0.5		
8	1.2DL + 1WL AZI 180	Yes	Y	1	1.2	8	1	14	-1	15			
9	1.2DL + 1WL AZI 210	Yes	Y	1	1.2	9	1	14	-0.866	15	-0.5		
10	1.2DL + 1WL AZI 240	Yes	Y	1	1.2	10	1	14	-0.5	15	-0.866		
11	1.2DL + 1WL AZI 270	Yes	Y	1	1.2	11	1	14		15	-1		
12	1.2DL + 1WL AZI 300	Yes	Y	1	1.2	12	1	14	0.5	15	-0.866		
13	1.2DL + 1WL AZI 330	Yes	Y	1	1.2	13	1	14	0.866	15	-0.5		
14	0.9DL + 1WL AZI 0	Yes	Y	1	0.9	2	1	14	1	15			
15	0.9DL + 1WL AZI 30	Yes	Y	1	0.9	3	1	14	0.866	15	0.5		
16	0.9DL + 1WL AZI 60	Yes	Y	1	0.9	4	1	14	0.5	15	0.866		
17	0.9DL + 1WL AZI 90	Yes	Y	1	0.9	5	1	14		15	1		
18	0.9DL + 1WL AZI 120	Yes	Y	1	0.9	6	1	14	-0.5	15	0.866		
19	0.9DL + 1WL AZI 150	Yes	Y	1	0.9	7	1	14	-0.866	15	0.5		
20	0.9DL + 1WL AZI 180	Yes	Y	1	0.9	8	1	14	-1	15			
21	0.9DL + 1WL AZI 210	Yes	Y	1	0.9	9	1	14	-0.866	15	-0.5		
22	0.9DL + 1WL AZI 240	Yes	Y	1	0.9	10	1	14	-0.5	15	-0.866		
23	0.9DL + 1WL AZI 270	Yes	Y	1	0.9	11	1	14		15	-1		
24	0.9DL + 1WL AZI 300	Yes	Y	1	0.9	12	1	14	0.5	15	-0.866		
25	0.9DL + 1WL AZI 330	Yes	Y	1	0.9	13	1	14	0.866	15	-0.5		
26	1.2D + 1.0Di	Yes	Y	1	1.2	16	1						
27	1.2D + 1.0Di +1.0Wi AZI 0	Yes	Y	1	1.2	16	1	17	1	29	1	30	
28	1.2D + 1.0Di +1.0Wi AZI 30	Yes	Y	1	1.2	16	1	18	1	29	0.866	30	0.5
29	1.2D + 1.0Di +1.0Wi AZI 60	Yes	Y	1	1.2	16	1	19	1	29	0.5	30	0.866
30	1.2D + 1.0Di +1.0Wi AZI 90	Yes	Y	1	1.2	16	1	20	1	29		30	1
31	1.2D + 1.0Di +1.0Wi AZI 120	Yes	Y	1	1.2	16	1	21	1	29	-0.5	30	0.866
32	1.2D + 1.0Di +1.0Wi AZI 150	Yes	Y	1	1.2	16	1	22	1	29	-0.866	30	0.5
33	1.2D + 1.0Di +1.0Wi AZI 180	Yes	Y	1	1.2	16	1	23	1	29	-1	30	
34	1.2D + 1.0Di +1.0Wi AZI 210	Yes	Y	1	1.2	16	1	24	1	29	-0.866	30	-0.5
35	1.2D + 1.0Di +1.0Wi AZI 240	Yes	Y	1	1.2	16	1	25	1	29	-0.5	30	-0.866
36	1.2D + 1.0Di +1.0Wi AZI 270	Yes	Y	1	1.2	16	1	26	1	29		30	-1
37	1.2D + 1.0Di +1.0Wi AZI 300	Yes	Y	1	1.2	16	1	27	1	29	0.5	30	-0.866
38	1.2D + 1.0Di +1.0Wi AZI 330	Yes	Y	1	1.2	16	1	28	1	29	0.866	30	-0.5
39	(1.2 + 0.2Sds)DL + 1.0E AZI 0	Yes	Y	1	1.245	31	1	32					
40	(1.2 + 0.2Sds)DL + 1.0E AZI 30	Yes	Y	1	1.245	31	0.866	32	0.5				
41	(1.2 + 0.2Sds)DL + 1.0E AZI 60	Yes	Y	1	1.245	31	0.5	32	0.866				
42	(1.2 + 0.2Sds)DL + 1.0E AZI 90	Yes	Y	1	1.245	31		32	1				
43	(1.2 + 0.2Sds)DL + 1.0E AZI 120	Yes	Y	1	1.245	31	-0.5	32	0.866				
44	(1.2 + 0.2Sds)DL + 1.0E AZI 150	Yes	Y	1	1.245	31	-0.866	32	0.5				
45	(1.2 + 0.2Sds)DL + 1.0E AZI 180	Yes	Y	1	1.245	31	-1	32					
46	(1.2 + 0.2Sds)DL + 1.0E AZI 210	Yes	Y	1	1.245	31	-0.866	32	-0.5				
47	(1.2 + 0.2Sds)DL + 1.0E AZI 240	Yes	Y	1	1.245	31	-0.5	32	-0.866				
48	(1.2 + 0.2Sds)DL + 1.0E AZI 270	Yes	Y	1	1.245	31		32	-1				
49	(1.2 + 0.2Sds)DL + 1.0E AZI 300	Yes	Y	1	1.245	31	0.5	32	-0.866				
50	(1.2 + 0.2Sds)DL + 1.0E AZI 330	Yes	Y	1	1.245	31	0.866	32	-0.5				
51	(0.9 - 0.2Sds)DL + 1.0E AZI 0	Yes	Y	1	0.855	31	1	32					
52	(0.9 - 0.2Sds)DL + 1.0E AZI 30	Yes	Y	1	0.855	31	0.866	32	0.5				
53	(0.9 - 0.2Sds)DL + 1.0E AZI 60	Yes	Y	1	0.855	31	0.5	32	0.866				
54	(0.9 - 0.2Sds)DL + 1.0E AZI 90	Yes	Y	1	0.855	31		32	1				
55	(0.9 - 0.2Sds)DL + 1.0E AZI 120	Yes	Y	1	0.855	31	-0.5	32	0.866				

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
56	(0.9 - 0.2Sds)DL + 1.0E AZI 150	Yes	Y	1	0.855	31	-0.866	32	0.5				
57	(0.9 - 0.2Sds)DL + 1.0E AZI 180	Yes	Y	1	0.855	31	-1	32					
58	(0.9 - 0.2Sds)DL + 1.0E AZI 210	Yes	Y	1	0.855	31	-0.866	32	-0.5				
59	(0.9 - 0.2Sds)DL + 1.0E AZI 240	Yes	Y	1	0.855	31	-0.5	32	-0.866				
60	(0.9 - 0.2Sds)DL + 1.0E AZI 270	Yes	Y	1	0.855	31		32	-1				
61	(0.9 - 0.2Sds)DL + 1.0E AZI 300	Yes	Y	1	0.855	31	0.5	32	-0.866				
62	(0.9 - 0.2Sds)DL + 1.0E AZI 330	Yes	Y	1	0.855	31	0.866	32	-0.5				

Envelope Node Reactions

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N5	max	559.066	6	623.917	27	1013.763	14	1643.842	14	559.066	4	913.709	12
2		min	-559.066	10	151.498	57	-1013.763	8	-2016.544	8	-559.066	12	-913.709	4
3	N6	max	329.774	17	388.286	33	258.405	2	65.941	14	329.774	17	239.38	11
4		min	-329.774	23	136.746	51	-258.405	20	-449.34	33	-329.774	23	-239.38	5
5	N9	max	329.774	17	408.857	33	258.405	2	50.513	14	329.774	17	239.38	11
6		min	-329.774	23	151.409	51	-258.405	20	-469.911	33	-329.774	23	-239.38	5
7	N12	max	559.066	6	629.795	27	1013.763	14	1639.434	14	559.066	4	913.709	12
8		min	-559.066	10	155.688	57	-1013.763	8	-2022.422	8	-559.066	12	-913.709	4
9	Totals:	max	1705.215	5	2050.853	35	2544.335	14						
10		min	-1705.215	11	595.342	51	-2544.335	8						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
1	MP1	PIPE_2.5	0.581	60	2	0.033	60	8	22373.407	50715	3596.25	3596.25	1	H1-1b
2	MP2	PIPE_2.5	0.581	60	2	0.033	60	8	22373.407	50715	3596.25	3596.25	1	H1-1b

INFINIGY

FROM ZERO TO INFINIGY

the solutions are endless

Bolt Calculation Tool, V1.5.1

PROJECT DATA	
Site Name:	--
Site Number:	BOBDL00033C
Connection Description:	Mount to Wall

MAXIMUM BOLT LOADS		
Bolt Tension:	2275.86	lbs
Bolt Shear:	785.84	lbs

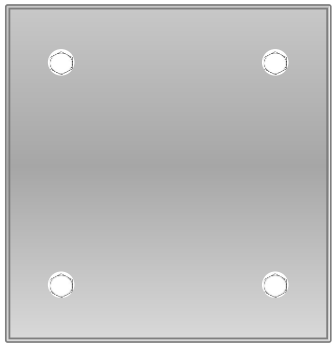
WORST CASE BOLT LOADS[1]		
Bolt Tension:	2275.86	lbs
Bolt Shear:	54.60	lbs

BOLT PROPERTIES		
Bolt Type:	Threaded Rod	-
Bolt Diameter:	0.5	in
Bolt Grade:	A307	-
# of Threaded Rods:	4	-
Threads Excluded?	No	-

[1] *Worst case bolt loads correspond to Load combination #8 on member M4 in RISA-3D, which causes the maximum demand on the bolts.*

Member Information
J nodes of M2, M3, M4, M5

BOLT CHECK	
Tensile Strength	6626.80
Shear Strength	3976.08
Max Tensile Usage	34.3%
Max Shear Usage	19.8%
Combined Shear and Tension (Worst Case)	34.3%
Result	Pass

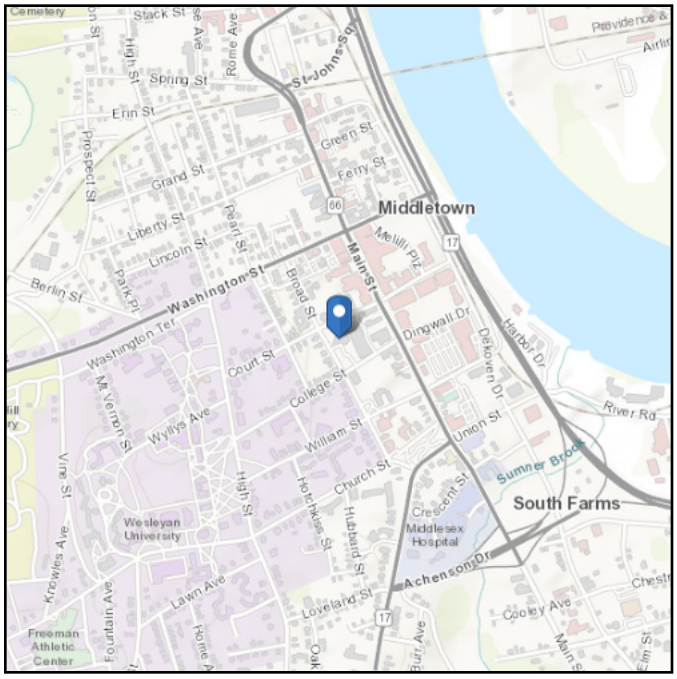


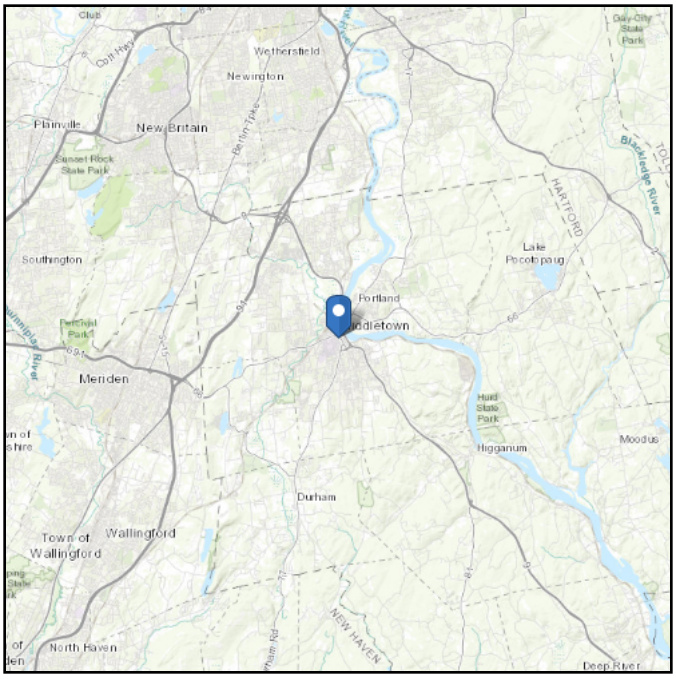
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 62.7 ft (NAVD 88)
Latitude: 41.5594
Longitude: -72.651196





Wind

Results:

Wind Speed	119 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	91 Vmph
100-year MRI	98 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Mon Jan 03 2022

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

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

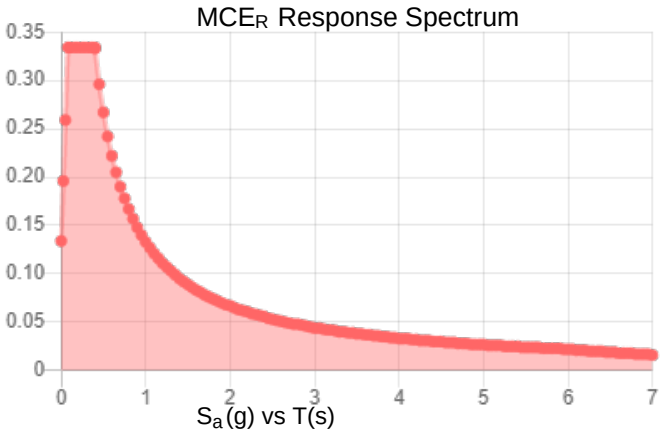
Seismic

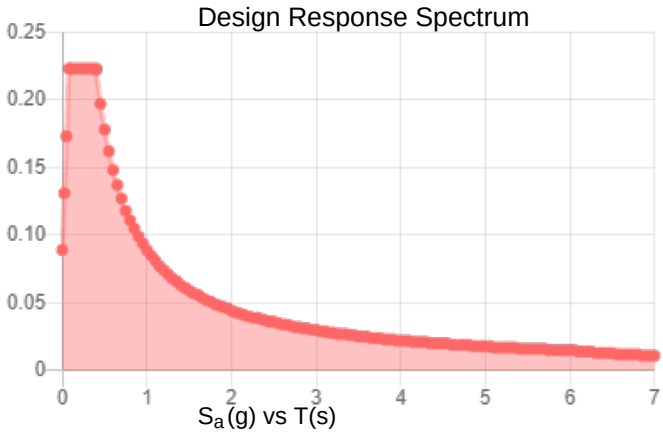
Site Soil Class: D - Stiff Soil

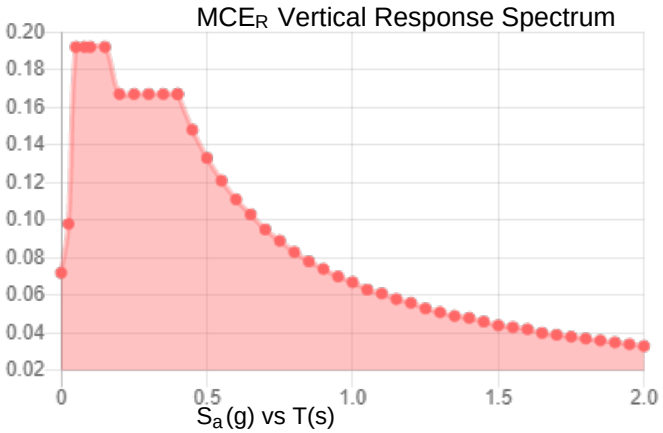
Results:

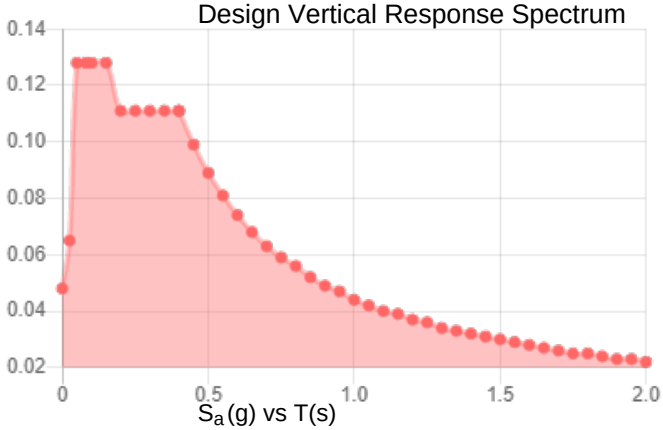
S_S :	0.209	S_{D1} :	0.089
S_1 :	0.056	T_L :	6
F_a :	1.6	PGA :	0.116
F_v :	2.4	PGA_M :	0.182
S_{MS} :	0.334	F_{PGA} :	1.568
S_{M1} :	0.133	I_e :	1
S_{DS} :	0.223	C_v :	0.717

Seismic Design Category B









Data Accessed: **Mon Jan 03 2022**

Date Source:

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Mon Jan 03 2022

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Exhibit F

Power Density/RF Emissions Report

Fox Hill Telecom

Radio Frequency Emissions Analysis Report

dish

Site ID: BOBDL00033C

213 Court Street
Middletown, CT 06457

February 2, 2022

Fox Hill Telecom Project Number: 210747

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**18.45 %**

Fox Hill Telecom

February 2, 2022

Dish Wireless
5701 South Santa Fe Drive
Littleton, CO 80120

Emissions Analysis for Site: **BOBDL00033C –**

Fox Hill Telecom, Inc ("Fox Hill") was directed to analyze the proposed radio installation for Dish Wireless, LLC (Dish) facility located at **213 Court Street, Middletown, CT**, for the purpose of determining whether the emissions from the Proposed Dish radio and antenna installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz & 700 MHz bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS / AWS-4) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed radio system installation for **Dish** on the subject site located at **213 Court Street, Middletown, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since **Dish** 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 manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

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. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
5G	n71 (600 MHz)	4	61.5
5G	n70 (AWS-4 / 1995-2020)	4	40
5G	n66 (AWS-4 / 2180-2200)	4	40

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz (n71) frequency band and the 2100 MHz (AWS 4) frequency bands at 1995-2020 MHz (n70) and 2180-2200 MHz (n66). This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	JMA MX08FRO665-21	160
A	2	JMA MX08FRO665-21 (Future)	160
B	1	JMA MX08FRO665-21	160
B	2	JMA MX08FRO665-21 (Future)	160
C	1	JMA MX08FRO665-21	160
C	2	JMA MX08FRO665-21 (Future)	160

Table 2: Antenna Data

All calculations were done with respect to uncontrolled / general population threshold limits.

RESULTS

Per the calculations completed for the proposed **Dish** configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	3.42
Antenna A2	JMA MX08FRO665-21	Future	NA	0	0	0.00	0.00
						Sector A Composite MPE%	**3.42**
Antenna B1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	3.42
Antenna B2	JMA MX08FRO665-21	Future	NA	0	0	0.00	0.00
						Sector B Composite MPE%	**3.42**
Antenna C1	JMA MX08FRO665-21	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	3.42
Antenna C2	JMA MX08FRO665-21	Future	NA	0	0	0.00	0.00
						Sector C Composite MPE%	**3.42**

Table 3: Dish Emissions Levels

The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum **Dish** MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each **Dish** Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
Dish – Max Per Sector Value	**3.42 %**
T-Mobile	2.20 %
Sprint	1.60 %
AT&T	5.54 %
Verizon Wireless	5.69 %
Site Total MPE %:	**18.45 %**

Table 4: All Carrier MPE Contributions

Dish Sector A Total:	3.42 %
Dish Sector B Total:	3.42 %
Dish Sector C Total:	3.42 %
Site Total:	18.45 %

Table 5: Site MPE Summary

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated **Dish** sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

Dish _ Frequency Band / Technology Max Power Values (Per Sector)	**# Channels**	**Watts ERP (Per Channel)**	**Height (feet)**	**Total Power Density ($\mu W/cm^2$)**	**Frequency (MHz)**	**Allowable MPE ($\mu W/cm^2$)**	**Calculated % MPE**
Dish 600 MHz 5G	4	858.77	160	5.21	600 MHz	400	1.30%
Dish 1900 MHz (PCS) 5G	4	1,648.39	160	10.00	1900 MHz (PCS)	1000	1.00%
Dish 2100 MHz (AWS) 5G	4	1,849.52	160	11.21	2100 MHz (AWS)	1000	1.12%
						Total:	**3.42%**

Table 6: Dish Maximum Sector MPE Power Values

Fox Hill Telecom

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 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 Sector	Power Density Value (%)
Sector A:	3.42 %
Sector B:	3.42 %
Sector C:	3.42 %
Dish Maximum Total (per sector):	3.42 %
Site Total:	18.45 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **18.45 %** 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.

Scott Heffernan
Principal RF Engineer
Fox Hill Telecom, Inc
Holden, MA 01520
(978)660-3998

Exhibit G

Letter of Authorization

Letter of Authorization

Re: Dish Site #: BOBDL00033C
Site Address: 213 Court Street, Middletown, CT
RE: Application for CT Siting Council

To whom it may concern:

This letter authorizes Dish Wireless, LLC and its authorized agents from Northeast Site Solutions, LLC to file all necessary administrative approvals, zoning approvals and building permits for the purposes of installing and maintaining telecommunications equipment located at 213 Court Street, Middletown, CT on behalf of Dish.

By: _____

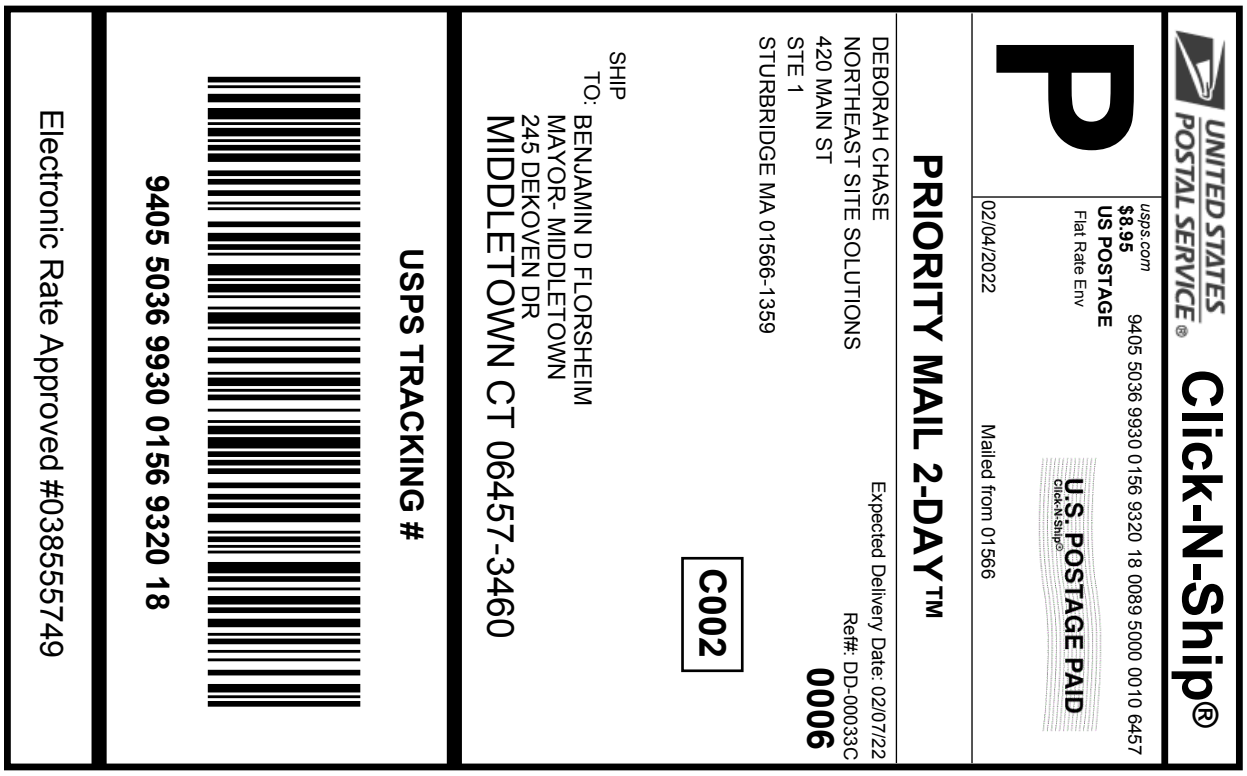
Name: Thomas Fan

Title: Managing Director

Date: 1/24/2022

Exhibit H

Recipient Mailings



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5. **Mail your package on the "Ship Date" you selected when creating this label.**

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USPS TRACKING # :
9405 5036 9930 0156 9320 18

Trans. #:	555814929
Print Date:	02/04/2022
Ship Date:	02/04/2022
Expected Delivery Date:	02/07/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DD-00033C

To: BENJAMIN D FLORSHEIM
MAYOR- MIDDLETOWN
245 DEKOVEN DR
MIDDLETOWN CT 06457-3460

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

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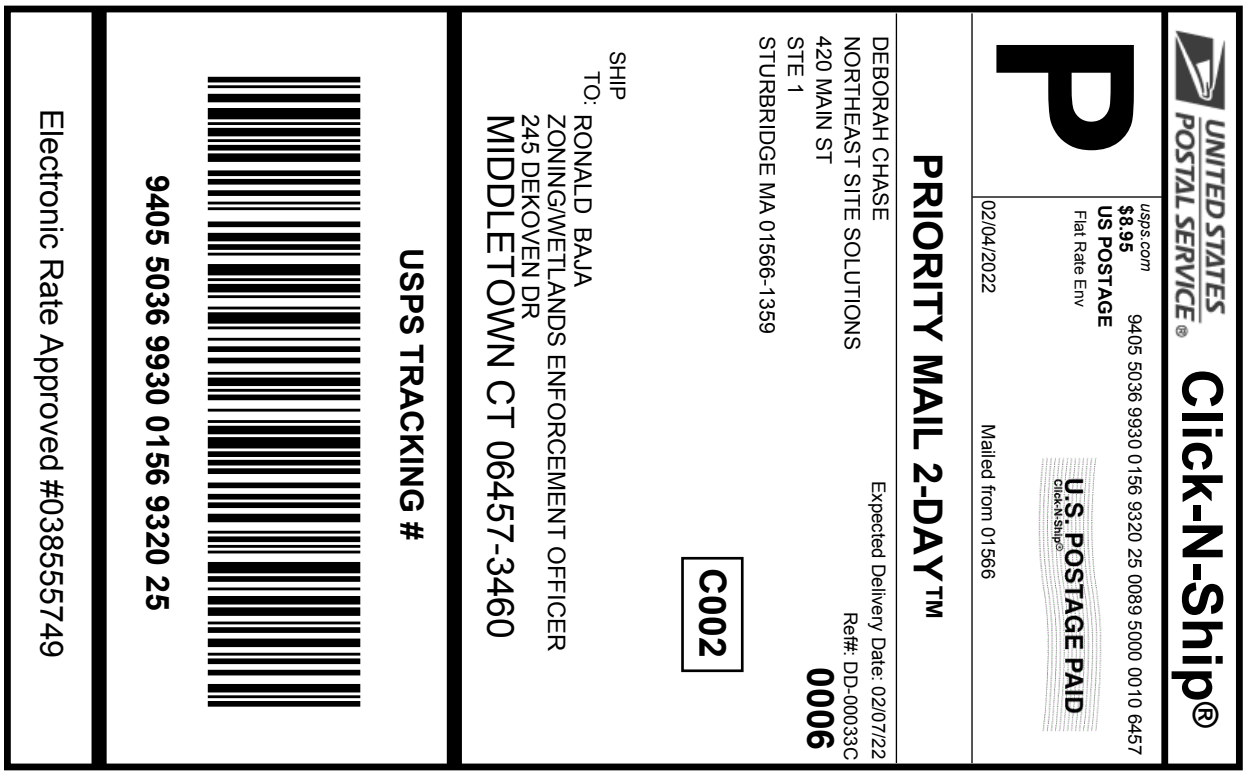

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USPS TRACKING # :
9405 5036 9930 0156 9320 25

Trans. #:	555814929
Print Date:	02/04/2022
Ship Date:	02/04/2022
Expected Delivery Date:	02/07/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DD-00033C

To: RONALD BAJA
ZONING/WETLANDS ENFORCEMENT OFFICER
245 DEKOVEN DR
MIDDLETOWN CT 06457-3460

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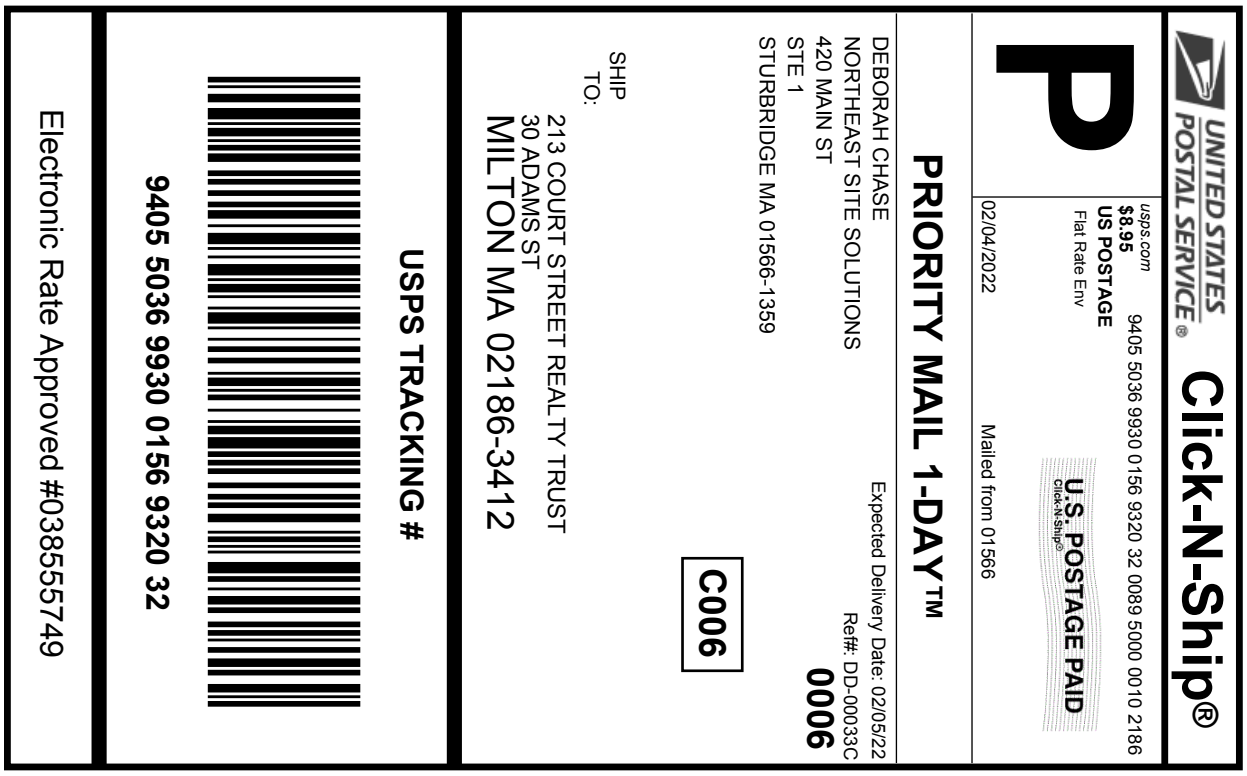

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5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0156 9320 32

Trans. #:	555814929
Print Date:	02/04/2022
Ship Date:	02/04/2022
Expected Delivery Date:	02/05/2022

Priority Mail® Postage:	**$8.95**
Total:	**$8.95**

From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359

Ref#: DD-00033C

To: 213 COURT STREET REALTY TRUST
30 ADAMS ST
MILTON MA 02186-3412

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