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

January 18, 2023

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

RE: Tower Share Application
10 Redwood Lane, Avon, CT 06001
Latitude: 41.772499 N
Longitude: -72.879999 W
Site#: CT 01498-S_BOBDL00107B_SBA_DISH

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 tower site located at 10 Redwood Lane, Avon, Connecticut.

Dish Wireless LLC proposes to install three (3) 600 5G MHz antenna and six (6) RRUs, at the 65-foot level of the existing 105-foot monopole, one (1) Fiber cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within 7x5 lease area. Included are plans by B+T GRP, dated January 6, 2023, Exhibit C. Also included is a structural analysis prepared by Tower Engineering Solutions, dated January 4, 2023 confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. This facility was approved by the Town of Avon Planning and Zoning dated July 27, 2000. 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 Brandon Robertson, Town Manager, Hiram Peck III, AICP, CFM, ZEO, Director of Planning and Community Development, as well as the property owner and tower owner.

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 tower is 105-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 65-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 18.40% 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 monopole 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 tower such as this monopole in Avon. 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 65-foot level of the existing 105-foot tower would have an insignificant visual impact on the area around the monopole. 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 Avon.

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:
Brandon Robertson, Town Manager
Avon Town Hall
60 West Main Street
Avon, CT 06001

Hiram Peck III, AICP, CFM, ZEO
Avon Town Hall
60 West Main Street
Avon, CT 06001

Avon Water Company c/o Connecticut Water Co, Property Owner
93 West Main Street
Clinton, CT 06413

SBA, Tower Owner

Exhibit A

Original Facility Approval

Site Name: AVON

Site #: 4275-009/001498

TOWN OF AVON

60 West Main St. Avon, CT 06001-3743

POLICE, FIRE & MEDICAL EMERGENCY - 911

TOWN MANAGER'S OFFICE
Tel. (860) 409-4300
Fax (860) 409-4368

ACCOUNTING
Tel. (860) 409-4339
Fax (860) 409-4366

ASSESSOR'S OFFICE
Tel. (860) 409-4335
Fax (860) 409-4366

BUILDING DEPARTMENT
Tel. (860) 409-4316
Fax (860) 409-4364

COLLECTOR OF REVENUE
Tel. (860) 409-4306
Fax (860) 677-8428

ENGINEERING DEPARTMENT
Tel. (860) 409-4322
Fax (860) 409-4364

FINANCE DEPARTMENT
Tel. (860) 409-4339
Fax (860) 409-4366

FIRE MARSHAL
Tel. (860) 409-4319
Fax (860) 409-4364

LANDFILL
281 Huckleberry Hill Rd.
Tel. (860) 673-3677

PLANNING & ZONING
Tel. (860) 409-4328
Fax (860) 409-4364

POLICE DEPARTMENT
Tel. (860) 409-4200
Fax (860) 409-4206

PROBATE
Tel. (860) 409-4348
Fax (860) 409-4368

PUBLIC LIBRARY
281 Country Club Road
Tel. (860) 673-9712
Fax (860) 675-6364

PUBLIC WORKS
11 Arch Road
Tel. (860) 673-6151
Fax (860) 673-0338

RECREATION AND PARKS
Tel. (860) 409-4332
Fax (860) 409-4366
Cancellation (860) 409-4365

REGISTRAR OF VOTERS
Tel. (860) 409-4350
Fax (860) 409-4368

SOCIAL SERVICES
Tel. (860) 409-4346
Fax (860) 409-4366

TOWN CLERK
Tel. (860) 409-4310
Fax (860) 677-8428

TDD HEARING IMPAIRED
Tel. (860) 409-4361

July 27, 2000

Mr. Thomas F. Flynn III
SBA Inc.
80 Eastern Boulevard
Glastonbury, CT 06033

Dear Mr. Flynn:

At a meeting held on Tuesday, July 25, 2000, the Planning and Zoning Commission of the Town of Avon voted as follows:

App. #3624 - The Avon Water Company, owner, SBA Inc., applicant, request for Special Exception under Section IV.A.4.a. of Avon Zoning Regulations to remove existing 80-foot tower and replace with a 110-foot wireless telecommunications facility, 10 Redwood Lane in Farmington Woods, Assessor's Map 17, Parcel 7, in a R-30 Zone. APPROVED WITH CONDITIONS.

App. #3626 - The Avon Water Company, owner, SBA Inc., applicant, request for Site Plan Approval to remove existing tower and replace with 110-foot wireless telecommunications facility, 10 Redwood Lane in Farmington Woods, Assessor's Map 17, Parcel 7, in a R-30 Zone. APPROVED WITH CONDITIONS.

The Commission approved App. #3624 subject to the following conditions:

1. The color of the tower shall be matte gray.

2. The applicant shall post a bond in the amount of $50,000 to provide for removal of the tower if the tower is inactive for a period of one year or if the Town Engineer determines that it is a hazard.

3. Approval is for 5 antenna clusters on the tower and ancillary cabinets and sheds. Any modest changes in antenna appearance or structure or in structures on the ground may be approved by the Town Planner. If the Town Planner so chooses, such changes may be brought to the Commission for approval.

The Commission approved App. #3626 subject to the following condition:

1. Approval is for 5 antenna clusters on the tower and ancillary cabinets and sheds. Any modest changes in antenna appearance or structure or in structures on the ground may be approved by the Town Planner. If the Town Planner so chooses, such changes may be brought to the Commission for approval.

In addition, please note that the Commission has adopted a standard condition of approval relating to inspections of the property as may be necessary, which is as follows: Until the final permanent certificate of occupancy is issued, Town staff members, officials, and consultants as designated by the Town Planner or the Chairman shall be authorized and permitted to conduct inspections upon the property.

Please note that prior to your Special Exception becoming effective, a certified copy must be filed with the Town Clerk. The fee is $13 per page. Please return the enclosed Grant of Special Exception to this office for the Chairman's signature along with the recording fee (check should be payable to Town of Avon). No building permit shall be issued until this certification has been returned and the 15-day appeal period has expired.

Upon compliance with the foregoing conditions, the Chairman of the Planning and Zoning Commission has been authorized to sign the mylar maps for filing. This letter of approval shall be reproduced on the mylars. Please submit 1 set of fixed-line photo mylars and 4 copies. Please include a signature block for the Chairman's signature (sample enclosed).

Please note that this approval is valid for one year from the date of approval unless construction is in progress or unless an extension of time has been granted by the Commission. It is the applicant's responsibility to apply for renewal.

Sincerely yours,

Jean Frey

Jean Frey, Clerk
Planning and Zoning Commission

Enclosures

CERTIFIED MAIL 7099 3400 0010 2712 1020

cc: Building Official
Town Engineer
Assessor
The Avon Water Company

Signature Block For Site Plan Approval:

APPROVED BY THE PLANNING AND ZONING COMMISSION
OF THE TOWN OF AVON AT ITS MEETING ON _____
AND SIGNED BY CHAIRMAN

_____

ACCORDING TO CGS SEC. 8-3i, ALL WORK IN CONNECTION
WITH THE ABOVE SITE PLAN SHALL BE COMPLETED WITHIN
FIVE (5) YEARS _____

Signature block to go on each sheet.

Application # 3624

TOWN OF AVON, CONNECTICUT

GRANT OF VARIANCE AND SPECIAL EXCEPTION

On the application of SBA Inc.,

the Planning and Zoning Commission of the Town of Avon, Connecticut, did grant a

____ Variance

X Special Exception

effective on the 25th day of July, 20 00, in relation to the following property:

Street Address: 10 Redwood Lane

Description of Premises:

Assessor's Aerial Map No. 17

Lot No. 7

Owner of Record: The Avon Water Company

Volume 218 Page 362

Avon Land Records

This grant is made in accordance with the provisions of Section IV.A.4.a. of the regulations of the Commission. The applicant was granted the right to:

remove existing 80-foot tower and replace with a 110-foot wireless telecommunications facility subject to conditions.

Certified this _____ day of _____, 20____.

By _____

Chairman, Planning and Zoning Commission

Exhibit B

Property Card

Property at 00010 REDWOOD LANE | Prop ID 3680010 | Printed 14-Feb-2019 10:35 PM | Design and Layout (C) Right/Angles

Administrative Information

Owner name: AVON WATER COMPANY
Second name: C/O CONNECTICUT WATER CO
Address: 93 WEST MAIN STREET
City/state: CLINTON CT Zip: 06413

Location Information

Map: Clerk map:
Lot: 3680010 Neigh.: FW Zone: Vol: 218 Page: 362

Assessments

Assmt category	Qty	Amount
Pub Util Land	1.00	7,000

Exemptions

Exempt	Cat	Amount

Last sale

Sale date: 02-Feb-1989
Sale price:
Sale valid:

Values

Mkt value :
Cost value: 10,000

Summary

Total assessments	7,000
Total exemptions	
Net assessment	7,000

Utilities

Water	None
Sewer	None
Gas	None

Sales ratios

Cost/sale :
Mkt/sale :
Assmt/sale:

10 REDWOOD LANE

1/31/2022 4:36:18

1"=50'

Property Information

GISPin	3680010
Address	10 REDWOOD LANE
Sale Price	null

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analyses.

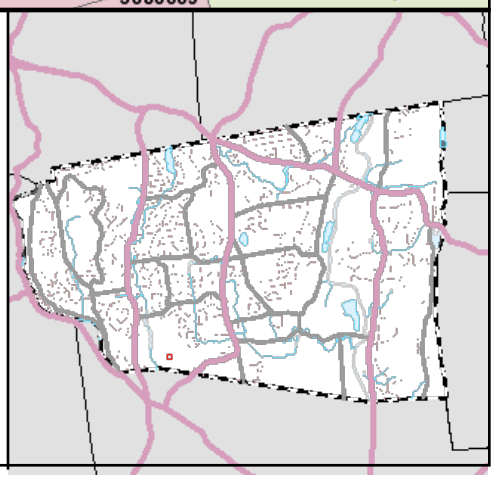


Exhibit C

Construction Drawings

dish wireless

DISH Wireless L.L.C. SITE ID:

BOBDL00107B

DISH Wireless L.L.C. SITE ADDRESS:

10 REDWOOD LANE
AVON, CT 06001

CONNECTICUT CODE OF COMPLIANCE

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

CODE TYPE	CODE
BUILDING	2021 IBC
MECHANICAL	2021 IMC
ELECTRICAL	2020 NEC

SHEET INDEX

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

SCOPE OF WORK

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

TOWER SCOPE OF WORK:
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALL (1) PROPOSED ANTENNA PLATFORM MOUNT
- INSTALL PROPOSED JUMPERS
- INSTALL (6) PROPOSED RRUs (2 PER SECTOR)
- INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
- INSTALL (1) PROPOSED HYBRID CABLE

GROUND SCOPE OF WORK:
- INSTALL (1) PROPOSED METAL PLATFORM
- INSTALL (1) PROPOSED ICE BRIDGE
- INSTALL (1) PROPOSED PPC CABINET
- INSTALL (1) PROPOSED EQUIPMENT CABINET
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED FIBER NID (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

811

GENERAL NOTES

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

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

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

SITE INFORMATION

PROPERTY OWNER:	AVON WATER COMPANY
ADDRESS:	P O BOX 424 AVON, CT 06001
TOWER TYPE:	MONOPOLE
TOWER CO SITE ID:	CT01498-S
TOWER APP NUMBER:	210365
COUNTY:	HARTFORD
LATITUDE (NAD 83):	41° 46' 20.20" N 41.772267°
LONGITUDE (NAD 83):	72° 52' 48.70" W -72.880183°
ZONING JURISDICTION:	HARTFORD COUNTY
ZONING DISTRICT:	RESIDENTIAL
PARCEL NUMBER:	3680010
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	II-B
POWER COMPANY:	EVERSOURCE 888-783-6617
TELEPHONE COMPANY:	VERIZON 800-275-2355

PROJECT DIRECTORY

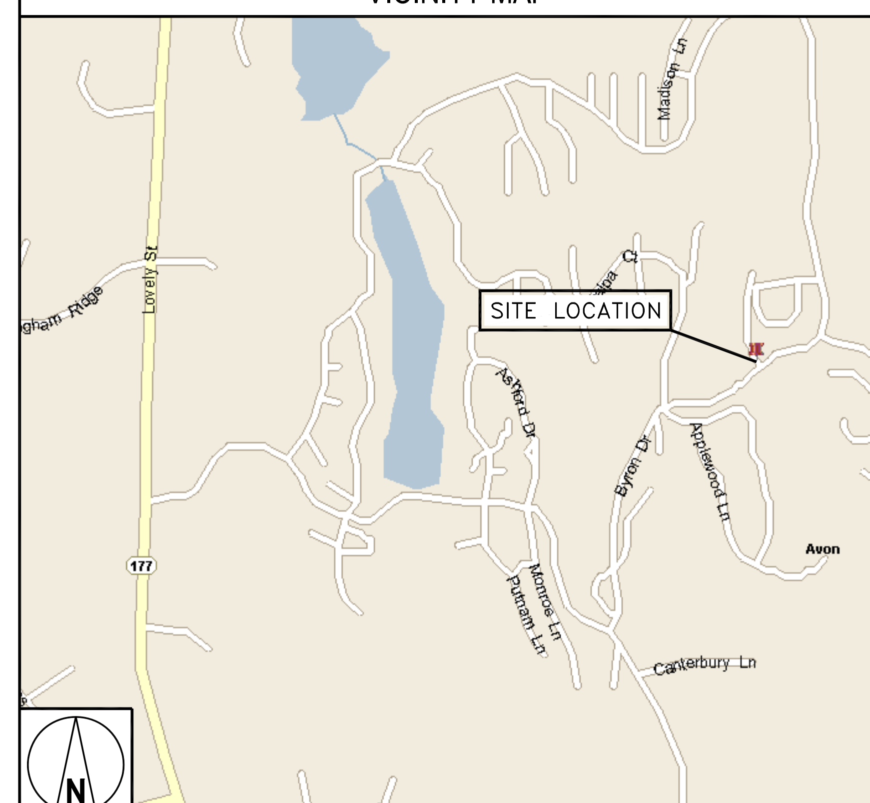
APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	SBA COMMUNICATAIONS CORP. 8051 CONGRESS AVENUE BOCA RATON, FL 33487 (800) 487-7483
SITE DESIGNER:	B+T GROUP 1717 S. BOULDER AVE, SUITE 300 TULSA, OK 74119 (918) 587-4630
SITE ACQUISITION:	JEAN COTTRELL jean.cottrell@dish.com
CONST. MANAGER:	JAMES ANDREWS james.andrews@dish.com
RF ENGINEER:	DIPESH PARIKH dipesh.parikh@dish.com

DIRECTIONS

DIRECTIONS FROM BRADLEY INTERNATIONAL AIRPORT:

HEAD NORTH TOWARD BRADLEY INTERNATIONAL AIRPORT. SLIGHT LEFT ONTO BRADLEY INTERNATIONAL AIRPORT. CONTINUE STRAIGHT. KEEP RIGHT TO CONTINUE TOWARD BRADLEY INTERNATIONAL AIRPORT CON. CONTINUE ONTO BRADLEY INTERNATIONAL AIRPORT CON. CONTINUE ONTO CT-20 E/BRADLEY INTERNATIONAL AIRPORT CON. USE THE RIGHT 2 LANES TO MERGE WITH I-91 S TOWARD HARTFORD. TAKE EXIT 32A-32B FOR I-84 W TOWARD WATERBURY. MERGE WITH I-84. USE THE RIGHT 2 LANES TO TAKE EXIT 39 TOWARD FARMINGTON/CT-4. CONTINUE ONTO STATE HWY 508. STATE HWY 508 TURNS SLIGHTLY RIGHT AND BECOMES CT-4 W. TURN RIGHT ONTO CT-167 N. TURN LEFT ONTO HERITAGE DR. TURN RIGHT TO STAY ON HERITAGE DR. TURN LEFT ONTO BYRON DR. TURN RIGHT ONTO CATALPA CT. ARRIVE AT BOBDL00107B.

VICINITY MAP



NO SCALE

dish wireless

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SBA

8051 CONGRESS AVENUE
BOCA RATON, FL 33487

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

STATE OF CONNECTICUT
CHAD TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
01/06/23

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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

DRAWN BY:	CHECKED BY:	APPROVED BY:
MEH	RMC	RMC

RFDS REV #: 1.0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	9/21/22	ISSUED FOR REVIEW
0	10/3/22	ISSUED FOR CONSTRUCTION
1	01/06/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

165630.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00107B
10 REDWOOD LANE
AVON, CT 06001

SHEET TITLE

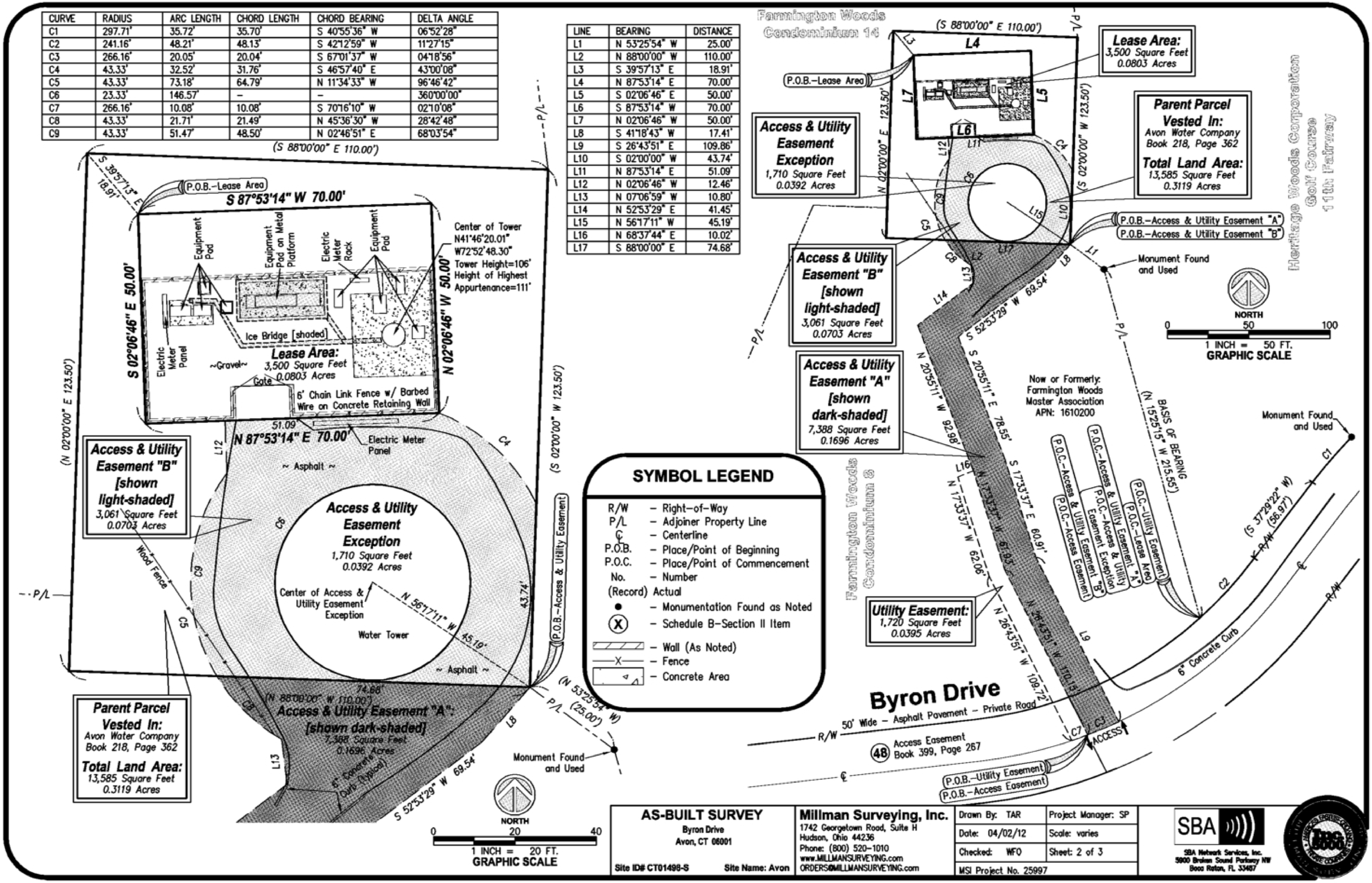
TITLE SHEET

SHEET NUMBER

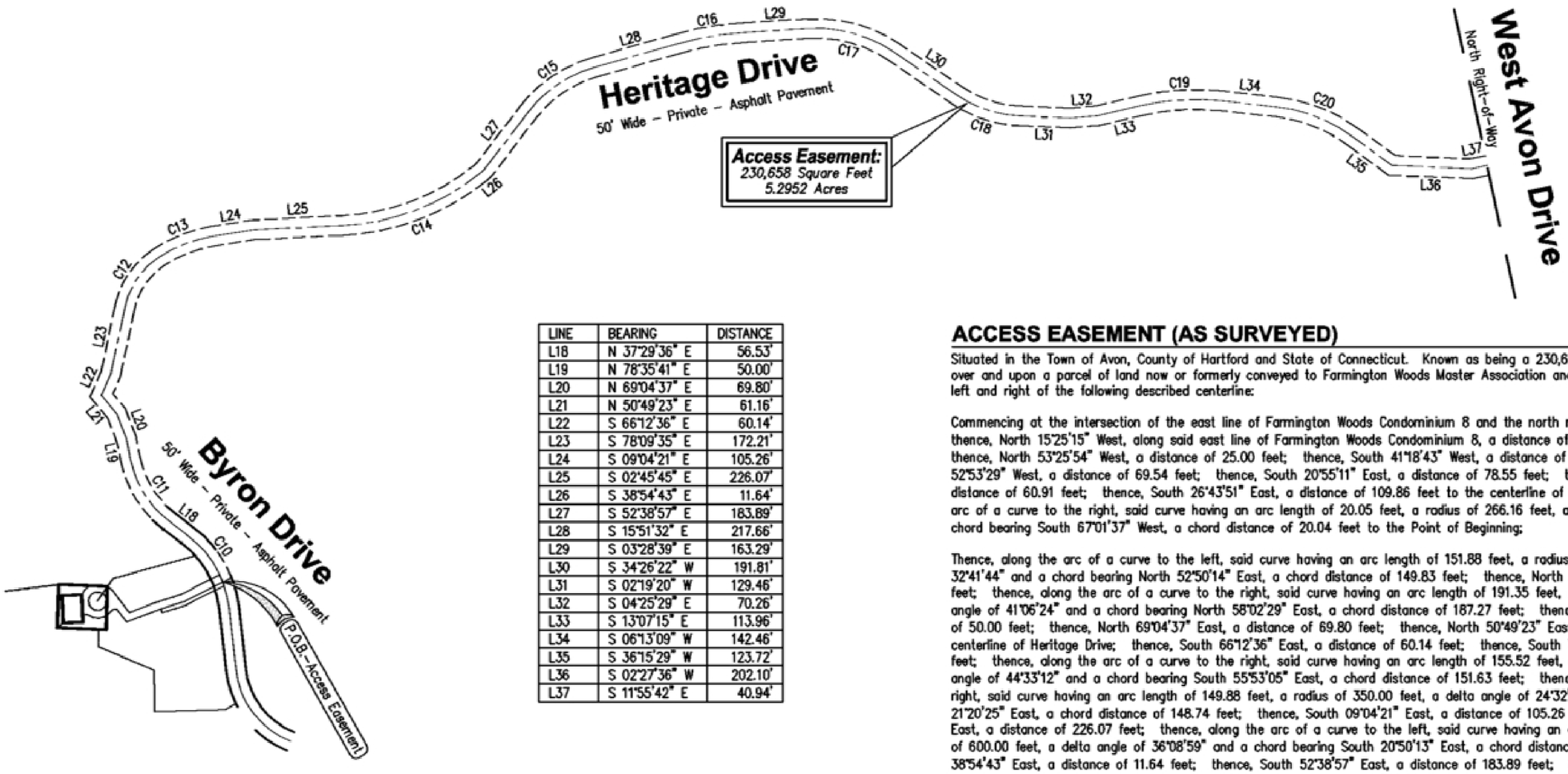
T-1

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	297.71'	35.72'	35.70'	S 40°55'36" W	06°52'28"
C2	241.16'	48.21'	48.13'	S 42°12'59" W	11°27'15"
C3	266.16'	20.05'	20.04'	S 67°01'37" W	04°18'56"
C4	43.33'	32.52'	31.76'	S 46°57'40" E	43°00'08"
C5	43.33'	73.18'	64.79'	N 11°34'33" W	96°46'42"
C6	23.33'	146.57'	–	–	360°00'00"
C7	266.16'	10.08'	10.08'	S 70°16'10" W	02°10'08"
C8	43.33'	21.71'	21.49'	N 45°36'30" W	28°42'48"
C9	43.33'	51.47'	48.50'	N 02°46'51" E	68°03'54"

LINE	BEARING	DISTANCE
L1	N 53°25'54" W	25.00'
L2	N 88°00'00" W	110.00'
L3	S 39°57'13" E	18.91'
L4	N 87°53'14" E	70.00'
L5	S 02°06'46" E	50.00'
L6	S 87°53'14" W	70.00'
L7	N 02°06'46" W	50.00'
L8	S 41°18'43" W	17.41'
L9	S 26°43'51" E	109.86'
L10	S 02°00'00" W	43.74'
L11	N 87°53'14" E	51.09'
L12	N 02°06'46" W	12.46'
L13	N 07°06'59" W	10.80'
L14	N 52°53'29" E	41.45'
L15	N 56°17'11" W	45.19'
L16	N 68°37'44" E	10.02'
L17	S 88°00'00" E	74.68'

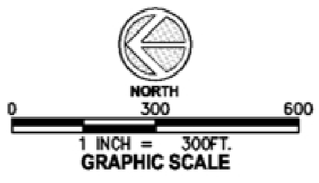


Farmington Woods Condominium 14
Heritage Woods Corporation Golf Course 11th Fairway
Farmington Woods Condominium 8
Lease Area: 3,500 Square Feet 0.0803 Acres
Parent Parcel Vested In: Avon Water Company Book 218, Page 362
Total Land Area: 13,585 Square Feet 0.3119 Acres
Access & Utility Easement Exception 1,710 Square Feet 0.0392 Acres
Access & Utility Easement "B" [shown light-shaded] 3,061 Square Feet 0.0703 Acres
Access & Utility Easement "A" [shown dark-shaded] 7,388 Square Feet 0.1696 Acres
Utility Easement: 1,720 Square Feet 0.0395 Acres
Center of Tower N41°46'20.01" W72°52'48.30" Tower Height=106' Height of Highest Appurtenance=111'
Equipment Pad
Equipment Pad on Metal Platform
Electric Meter Rack
Electric Meter Panel
Ice Bridge [shaded]
~Gravel~
Gate
6' Chain Link Fence w/ Barbed Wire on Concrete Retaining Wall
~ Asphalt ~
Wood Fence
Center of Access & Utility Easement Exception
Water Tower
6" Concrete Curb (Typical)
P.O.B.–Lease Area
P.O.B.–Access & Utility Easement
P.O.B.–Access & Utility Easement "A"
P.O.B.–Access & Utility Easement "B"
P.O.B.–Utility Easement
P.O.B.–Access Easement
P.O.C.–Access & Utility Easement Exception
P.O.C.–Access & Utility Easement "A"
P.O.C.–Access & Utility Easement "B"
P.O.C.–Lease Area
P.O.C.–Utility Easement
P.O.C.–Access Easement
Monument Found and Used
Now or Formerly: Farmington Woods Master Association APN: 1610200
BASIS OF BEARING (N 15°25'15" W 215.55')
Byron Drive
50' Wide – Asphalt Pavement – Private Road
48 Access Easement Book 399, Page 267
6" Concrete Curb
ACCESS
NORTH
GRAPHIC SCALE 1 INCH = 50 FT.
GRAPHIC SCALE 1 INCH = 20 FT.
SYMBOL LEGEND
R/W – Right-of-Way
P/L – Adjoiner Property Line
℄ – Centerline
P.O.B. – Place/Point of Beginning
P.O.C. – Place/Point of Commencement
No. – Number
(Record) Actual
● – Monumentation Found as Noted
(X) – Schedule B–Section II Item
– Wall (As Noted)
–X– – Fence
– Concrete Area
AS-BUILT SURVEY
Byron Drive
Avon, CT 06001
Site ID# CT01498-S
Site Name: Avon
Millman Surveying, Inc.
1742 Georgetown Road, Suite H
Hudson, Ohio 44236
Phone: (800) 520-1010
www.MILLMANSURVEYING.com
ORDERS@MILLMANSURVEYING.com
Drawn By: TAR
Project Manager: SP
Date: 04/02/12
Scale: varies
Checked: WFO
Sheet: 2 of 3
MSI Project No. 25997
SBA
SBA Network Services, Inc.
5900 Broken Sound Parkway NW
Boca Raton, FL 33487



LINE	BEARING	DISTANCE
L18	N 37°29'36" E	56.53'
L19	N 78°35'41" E	50.00'
L20	N 69°04'37" E	69.80'
L21	N 50°49'23" E	61.16'
L22	S 66°12'36" E	60.14'
L23	S 78°09'35" E	172.21'
L24	S 09°04'21" E	105.26'
L25	S 02°45'45" E	226.07'
L26	S 38°54'43" E	11.64'
L27	S 52°38'57" E	183.89'
L28	S 15°51'32" E	217.66'
L29	S 03°28'39" E	163.29'
L30	S 34°26'22" W	191.81'
L31	S 02°19'20" W	129.46'
L32	S 04°25'29" E	70.26'
L33	S 13°07'15" E	113.96'
L34	S 06°13'09" W	142.46'
L35	S 36°15'29" W	123.72'
L36	S 02°27'36" W	202.10'
L37	S 11°55'42" E	40.94'

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C10	266.16'	151.88'	149.83'	N 52°50'14" E	32°41'44"
C11	266.71'	191.35'	187.27'	N 58°02'29" E	41°06'24"
C12	200.00'	155.52'	151.63'	S 55°53'05" E	44°33'12"
C13	350.00'	149.88'	148.74'	S 21°20'25" E	24°32'08"
C14	600.00'	378.56'	372.31'	S 20°50'13" E	36°08'59"
C15	325.00'	208.69'	205.12'	S 34°15'16" E	36°47'27"
C16	800.00'	172.88'	172.54'	S 09°40'06" E	12°22'54"
C17	350.00'	231.62'	227.42'	S 15°28'52" W	37°55'02"
C18	300.00'	168.17'	165.98'	S 18°22'53" W	32°07'05"
C19	600.00'	202.53'	201.57'	S 03°27'03" E	19°20'25"
C20	400.00'	209.71'	207.32'	S 21°14'19" W	30°02'19"



ACCESS EASEMENT (AS SURVEYED)

Situated in the Town of Avon, County of Hartford and State of Connecticut. Known as being a 230,658 square foot Access Easement over and upon a parcel of land now or formerly conveyed to Farmington Woods Master Association and being 50 foot wide, lying 25 feet left and right of the following described centerline:

Commencing at the intersection of the east line of Farmington Woods Condominium 8 and the north right-of-way of Byron Drive; thence, North 15°25'15" West, along said east line of Farmington Woods Condominium 8, a distance of 215.55 feet to a monument; thence, North 53°25'54" West, a distance of 25.00 feet; thence, South 41°18'43" West, a distance of 17.41 feet; thence, South 52°53'29" West, a distance of 69.54 feet; thence, South 20°55'11" East, a distance of 78.55 feet; thence, South 17°33'37" East, a distance of 60.91 feet; thence, South 26°43'51" East, a distance of 109.86 feet to the centerline of said Byron Drive; thence, along the arc of a curve to the right, said curve having an arc length of 20.05 feet, a radius of 266.16 feet, a delta angle of 04°18'56" and a chord bearing South 67°01'37" West, a chord distance of 20.04 feet to the Point of Beginning;

Thence, along the arc of a curve to the left, said curve having an arc length of 151.88 feet, a radius of 266.16 feet, a delta angle of 32°41'44" and a chord bearing North 52°50'14" East, a chord distance of 149.83 feet; thence, North 37°29'36" East, a distance of 56.53 feet; thence, along the arc of a curve to the right, said curve having an arc length of 191.35 feet, a radius of 266.71 feet, a delta angle of 41°06'24" and a chord bearing North 58°02'29" East, a chord distance of 187.27 feet; thence, North 78°35'41" East, a distance of 50.00 feet; thence, North 69°04'37" East, a distance of 69.80 feet; thence, North 50°49'23" East, a distance of 61.16 feet to the centerline of Heritage Drive; thence, South 66°12'36" East, a distance of 60.14 feet; thence, South 78°09'35" East, a distance of 172.21 feet; thence, along the arc of a curve to the right, said curve having an arc length of 155.52 feet, a radius of 200.00 feet, a delta angle of 44°33'12" and a chord bearing South 55°53'05" East, a chord distance of 151.63 feet; thence, along the arc of a curve to the right, said curve having an arc length of 149.88 feet, a radius of 350.00 feet, a delta angle of 24°32'08" and a chord bearing South 21°20'25" East, a chord distance of 148.74 feet; thence, South 09°04'21" East, a distance of 105.26 feet; thence, South 02°45'45" East, a distance of 226.07 feet; thence, along the arc of a curve to the left, said curve having an arc length of 378.56 feet, a radius of 600.00 feet, a delta angle of 36°08'59" and a chord bearing South 20°50'13" East, a chord distance of 372.31 feet; thence, South 38°54'43" East, a distance of 11.64 feet; thence, South 52°38'57" East, a distance of 183.89 feet; thence, along the arc of a curve to the right, said curve having an arc length of 208.69 feet, a radius of 325.00 feet, a delta angle of 36°47'27" and a chord bearing South 34°15'16" East, a chord distance of 205.12 feet; thence, South 15°51'32" East, a distance of 217.66 feet; thence, along the arc of a curve to the right, said curve having an arc length of 172.88 feet, a radius of 800.00 feet, a delta angle of 12°22'54" and a chord bearing South 09°40'06" East, a chord distance of 172.54 feet; thence, South 03°28'39" East, a distance of 163.29 feet; thence, along the arc of a curve to the right, said curve having an arc length of 231.62 feet, a radius of 350.00 feet, a delta angle of 37°55'02" and a chord bearing South 15°28'52" West, a chord distance of 227.42 feet; thence, South 34°26'22" West, a distance of 191.81 feet; thence, along the arc of a curve to the left, said curve having an arc length of 168.17 feet, a radius of 300.00 feet, a delta angle of 32°07'05" and a chord bearing South 18°22'53" West, a chord distance of 165.98 feet; thence, South 02°19'20" West, a distance of 129.46 feet; thence, South 04°25'29" East, a distance of 70.26 feet; thence, South 13°07'15" East, a distance of 113.96 feet; thence, along the arc of a curve to the right, said curve having an arc length of 202.53 feet, a radius of 600.00 feet, a delta angle of 19°20'25" and a chord bearing South 03°27'03" East, a chord distance of 201.57 feet; thence, South 06°13'09" West, a distance of 142.46 feet; thence, along the arc of a curve to the right, said curve having an arc length of 209.71 feet, a radius of 400.00 feet, a delta angle of 30°02'19" and a chord bearing South 21°14'19" West, a chord distance of 207.32 feet; thence, South 36°15'29" West, a distance of 123.72 feet; thence, South 02°27'36" West, a distance of 202.10 feet; thence, South 11°55'42" East, a distance of 40.94 feet to the Point of Termination and containing 5.2952 acres (230,658 square feet) of land, more or less.

AS-BUILT SURVEY
Byron Drive
Avon, CT 06001
Site ID# CT01498-S Site Name: Avon

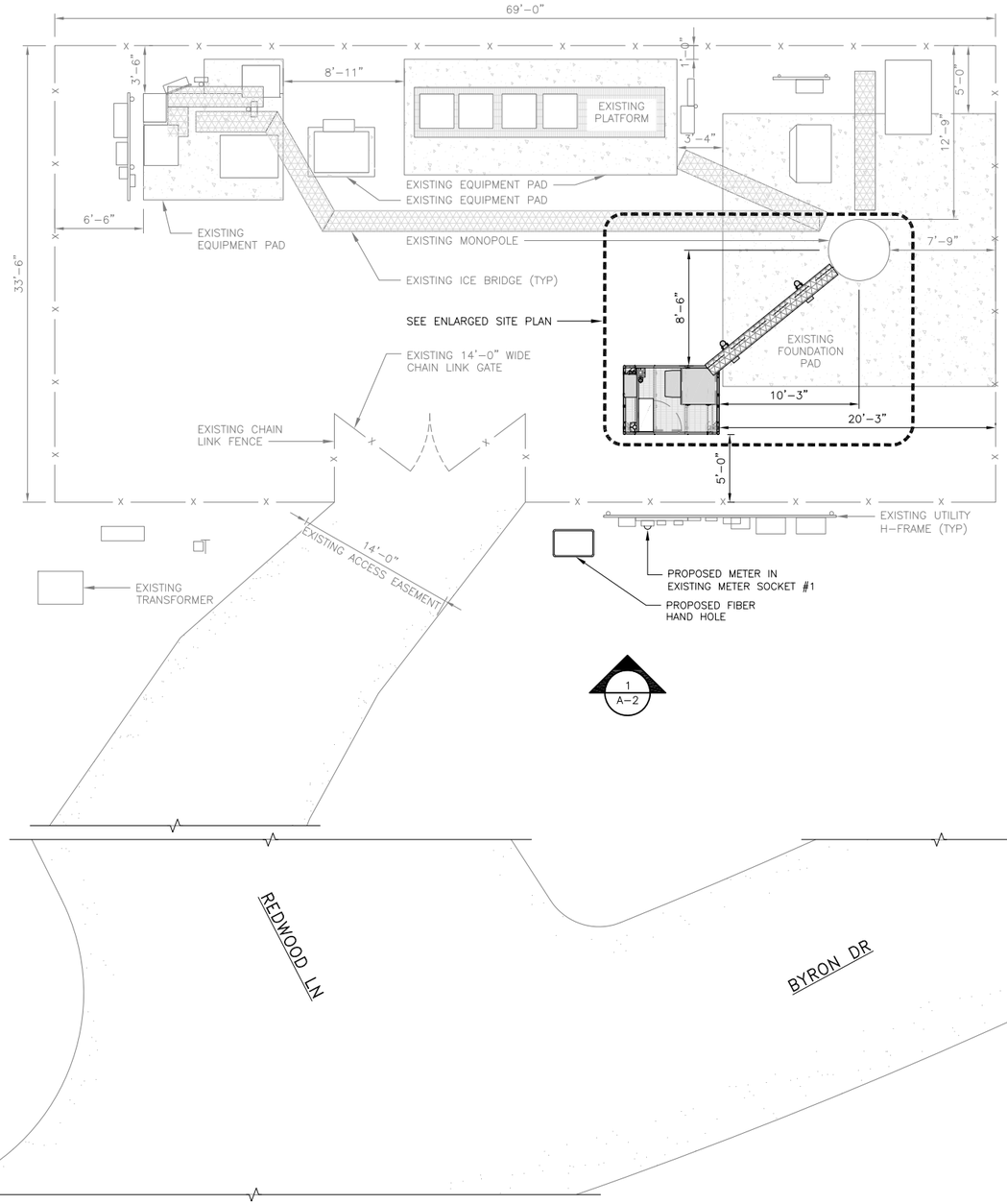
Millman Surveying, Inc.
1742 Georgetown Road, Suite H
Hudson, Ohio 44236
Phone: (800) 520-1010
www.MILLMANSURVEYING.com
ORDERS@MILLMANSURVEYING.com

Drawn By: TAR	Project Manager: SP
Date: 04/02/12	Scale: 1"=300'
Checked: WFO	Sheet: 3 of 3
MSI Project No. 25997	

SBA
SBA Network Services, Inc.
5900 Broken Sound Parkway NW
Boca Raton, FL 33487

NOTES

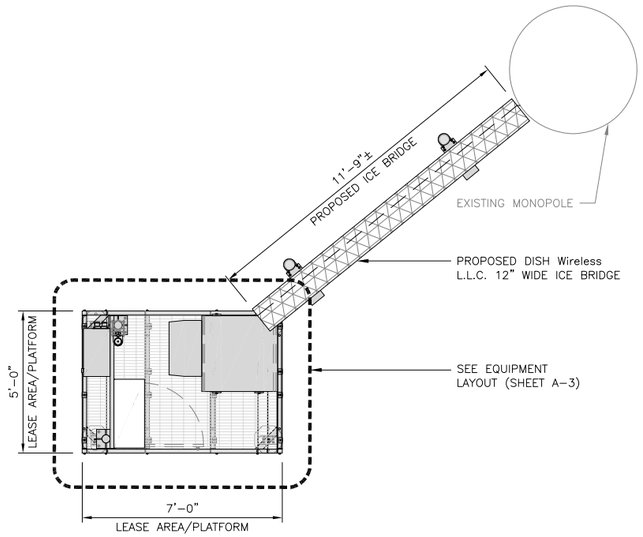
1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



OVERALL SITE PLAN | 6' 4' 2' 0 5' 10' 3/16"=1'-0" | 1

NOTES

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



ENLARGED SITE PLAN | 12" 6" 0 1' 2' 3' 4' 5' 6' 7' 3/8"=1'-0" | 2

NOT USED | NO SCALE | 3

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BOCA RATON, FL 33487

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www.btgrp.com

STATE OF CONNECTICUT
CHAD M. TUTTLE
No. 23924
LICENSED PROFESSIONAL ENGINEER
01/06/23

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
MEH	RMC	RMC

RFDS REV #: 1.0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	9/21/22	ISSUED FOR REVIEW
0	10/3/22	ISSUED FOR CONSTRUCTION
1	01/06/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

165630.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00107B
10 REDWOOD LANE
AVON, CT 06001

SHEET TITLE

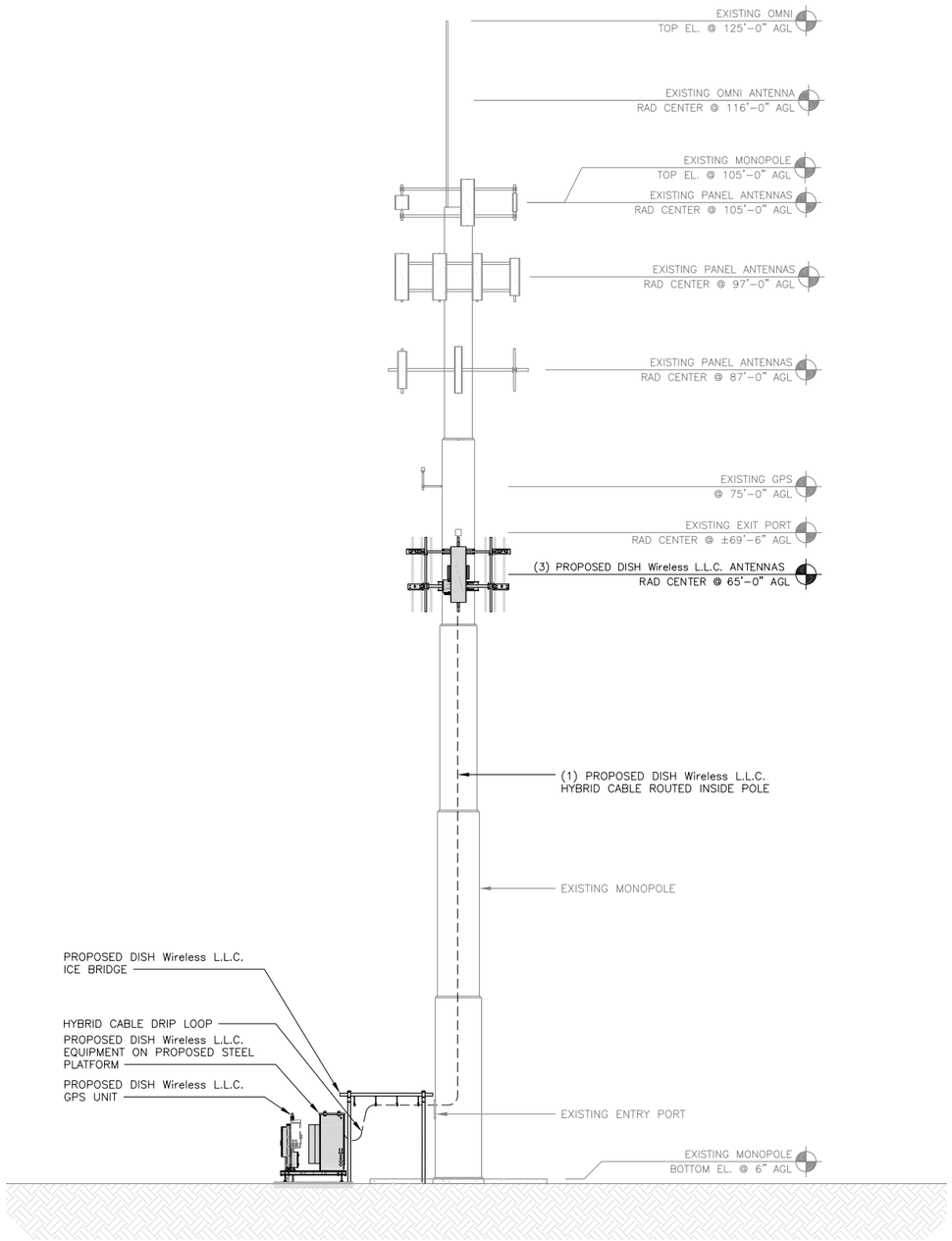
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER

A-1

NOTES

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



PROPOSED SOUTH ELEVATION

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

1

ANTENNA LAYOUT

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

2

SECTOR POS.	ANTENNA					TRANSMISSION CABLE	RRH			OVP
	EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECH	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH	MANUFACTURER – MODEL NUMBER	TECH	POS.	MANUFACTURER MODEL
A1	--	--	--	--	--	(1) HIGH-CAPACITY HYBRID CABLE (120' LONG)	FUJITSU – TA08025-B604	5G	A2	RAYCAP – RDIDC-9181-PF-48
A2	PROPOSED	JMA – MX08FRO665-21	5G	0°	65'-0"		FUJITSU – TA08025-B605	5G	A2	
A3	--	--	--	--	--		--	--	--	
B1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU – TA08025-B604	5G	B2	SHARED W/ALPHA
B2	PROPOSED	JMA – MX08FRO665-21	5G	120°	65'-0"		FUJITSU – TA08025-B605	5G	B2	
B3	--	--	--	--	--		--	--	--	
C1	--	--	--	--	--	SHARED W/ALPHA	FUJITSU – TA08025-B604	5G	C2	SHARED W/ALPHA
C2	PROPOSED	JMA – MX08FRO665-21	5G	240°	65'-0"		FUJITSU – TA08025-B605	5G	C2	
C3	--	--	--	--	--		--	--	--	

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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5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

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MTS ENGINEERING P.L.L.C.
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DISH Wireless L.L.C.
PROJECT INFORMATION

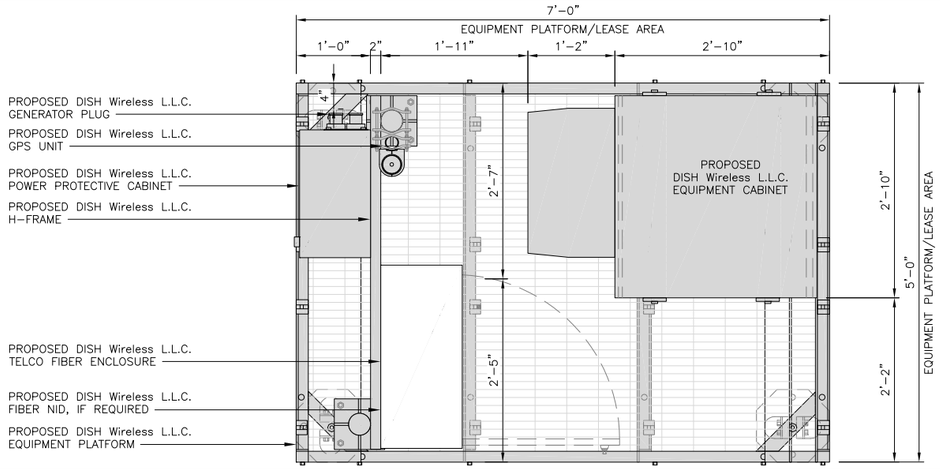
BOBDL00107B
10 REDWOOD LANE
AVON, CT 06001

SHEET TITLE

ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



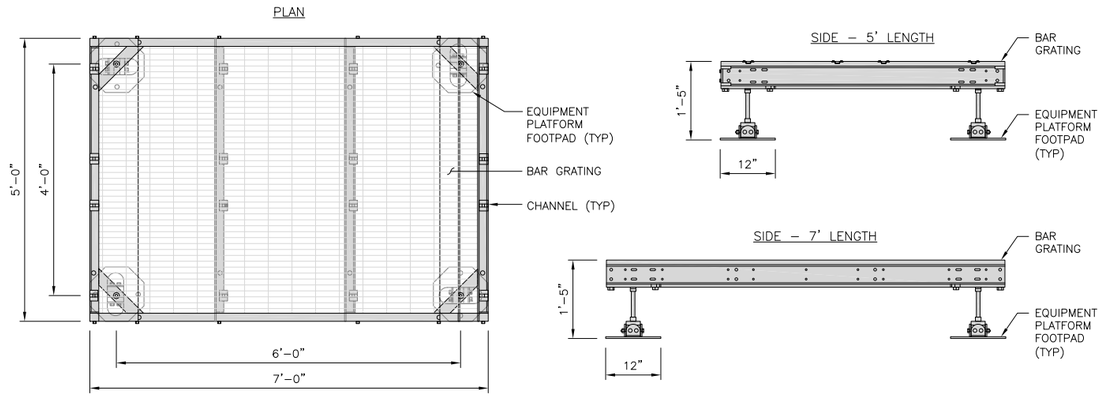
PLATFORM EQUIPMENT PLAN

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

1

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

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

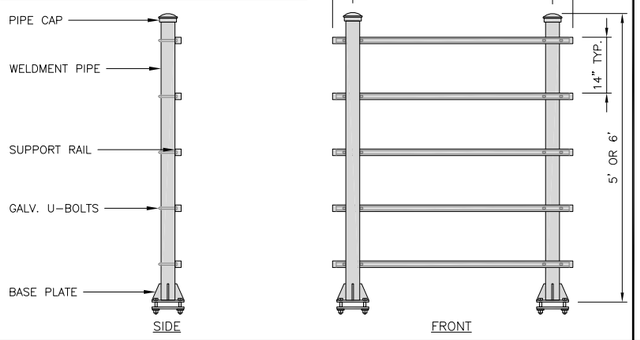


PLATFORM DETAIL

NO SCALE

2

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



H-FRAME DETAIL

NO SCALE

3

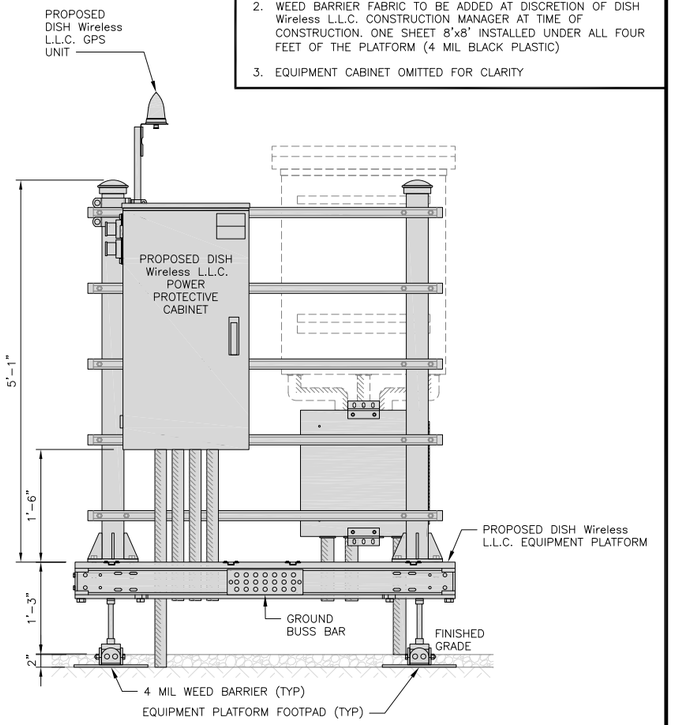
NOT USED

NO SCALE

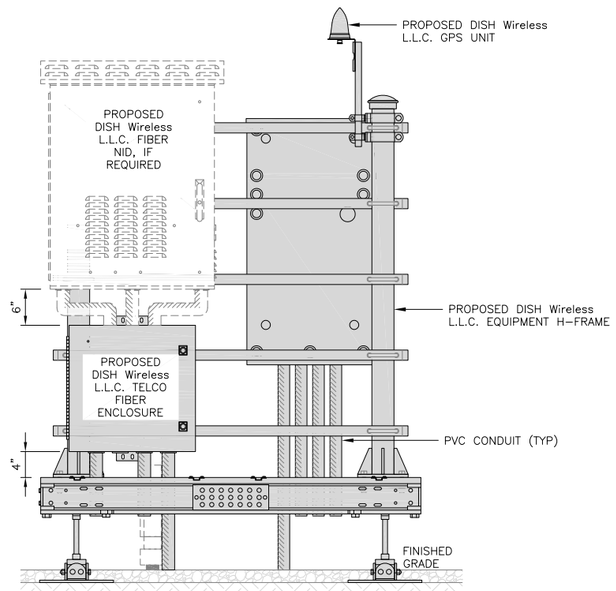
4

NOTES

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



FRONT ELEVATION



BACK ELEVATION

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

5

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LITTLETON, CO 80120

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RFDS REV #: 1.0

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1	01/06/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
165630.001.01

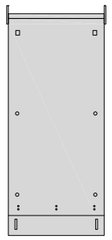
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00107B
10 REDWOOD LANE
AVON, CT 06001

SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

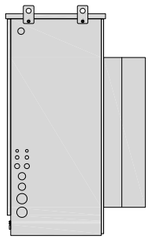
SHEET NUMBER
A-3

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

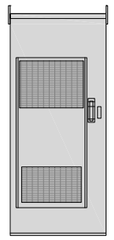
PLAN



BACK



SIDE

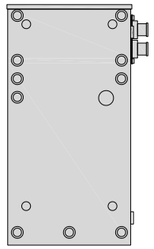


FRONT

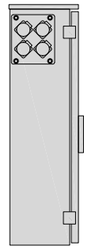
CABINET DETAIL | NO SCALE | 1

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

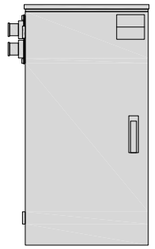
TOP



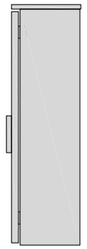
BACK



SIDE



FRONT



SIDE

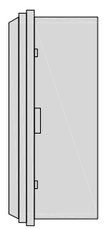
POWER PROTECTION CABINET (PPC) DETAIL | NO SCALE | 2

NOT USED | NO SCALE | 3

NOT USED | NO SCALE | 4

CIENA 3931 FIBER NID ENCLOSURE	
DIMENSIONS (HxWxD)	17"x16.8"x7"
WEIGHT	28.6 lbs

TOP



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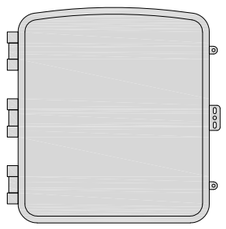
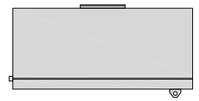


FRONT

FIBER NID ENCLOSURE DETAIL | NO SCALE | 5

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



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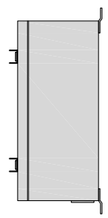

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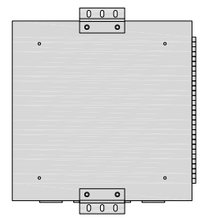

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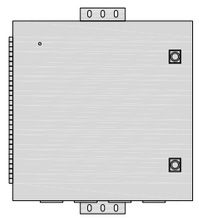
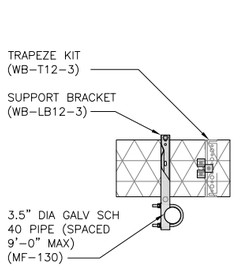


FRONT

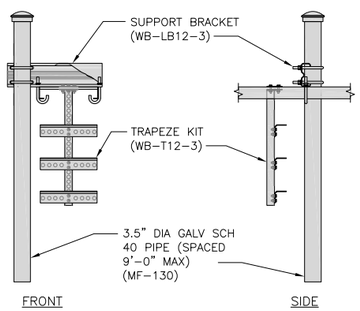
FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 6

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

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



PLAN



FRONT

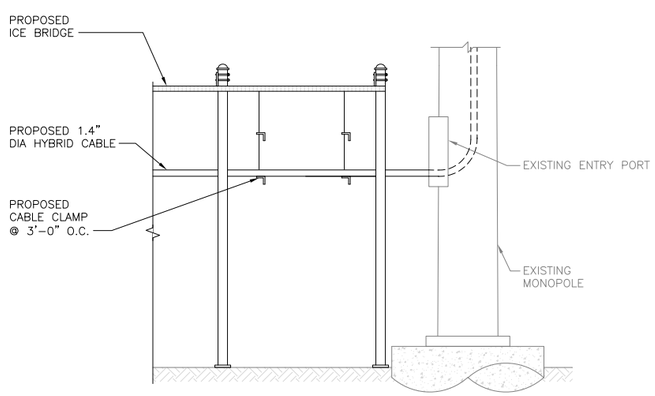
SIDE

ICE BRIDGE DETAIL | NO SCALE | 7

SITEPRO1 BSF35 BASE SHOE FEET	
DIMENSIONS (HxWxL)	8"x8"x1/2"
WEIGHT	15.0 LBS
POST SIZE:	2–7/8" OR 3–1/2"

CONCRETE SLAB

ICE BRIDGE PIPE MOUNT DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

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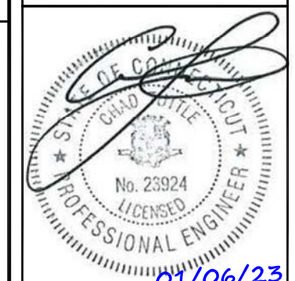

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

DRAWN BY:	CHECKED BY:	APPROVED BY:
MEH	RMC	RMC

RFDS REV #: 1.0

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
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0	10/3/22	ISSUED FOR CONSTRUCTION
1	01/06/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER

165630.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00107B
10 REDWOOD LANE
AVON, CT 06001

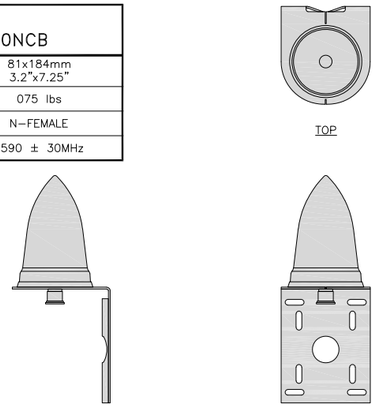
SHEET TITLE

EQUIPMENT DETAILS

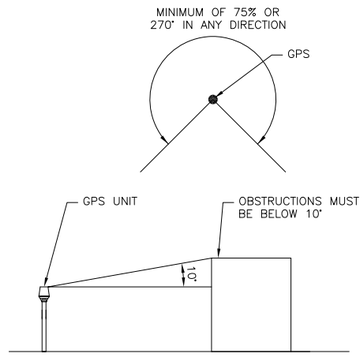
SHEET NUMBER

A-4

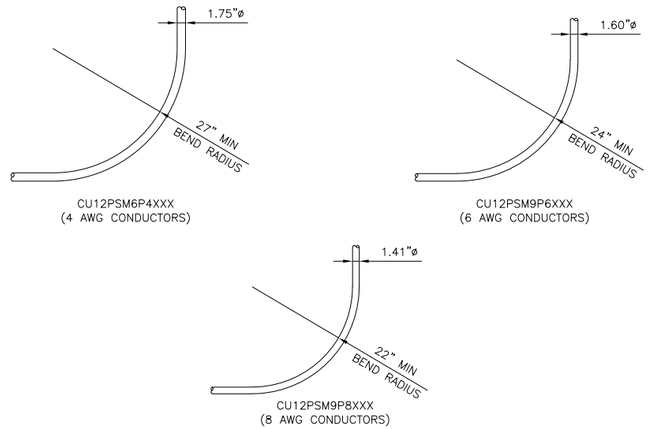
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



GPS DETAIL | NO SCALE | 1



GPS MINIMUM SKY VIEW REQUIREMENTS | NO SCALE | 2



CABLES UNLIMITED HYBRID CABLE MINIMUM BEND RADIUSES | NO SCALE | 3

NOT USED | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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STATE OF CONNECTICUT
CHAD M. TUTTLE
No. 23924
LICENSED
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01/06/23

MTS ENGINEERING P.L.L.C.
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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00107B
10 REDWOOD LANE
AVON, CT 06001

SHEET TITLE

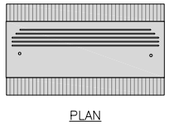
EQUIPMENT DETAILS

SHEET NUMBER

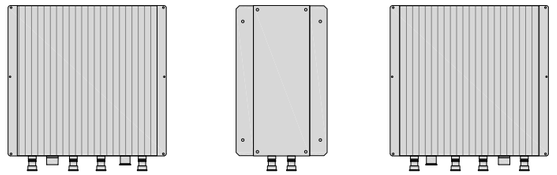
A-5

FUJITSU TRIPLE BAND TA08025-B605

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



PLAN

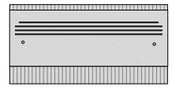


BACK SIDE FRONT

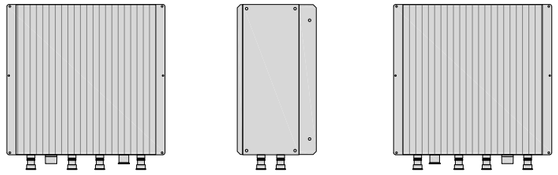
RRH DETAIL | NO SCALE | 1

FUJITSU DUAL BAND TA08025-B604

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



PLAN



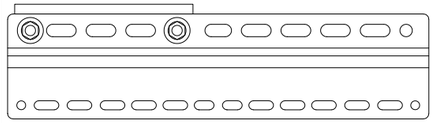
BACK SIDE FRONT

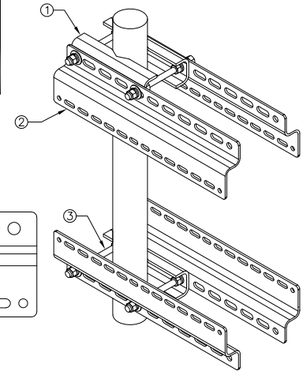
RRH DETAIL | NO SCALE | 2

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"



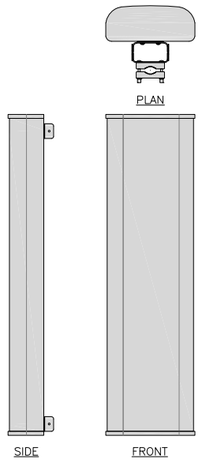


NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

RRH MOUNT DETAIL | NO SCALE | 3

JMA MX08FRO665-21

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



PLAN

SIDE FRONT

ANTENNA DETAIL | NO SCALE | 4

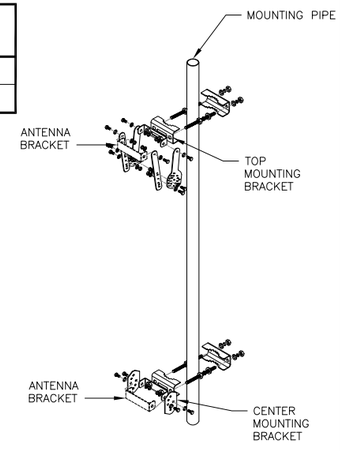
NOT USED | NO SCALE | 5

JMA ANTENNA MOUNT BRACKET #91900318

TOTAL WEIGHT (WITH BRACKETS)	18 lbs (8.18 Kg)
POLE DIAMETER RANGE	2.5" TO 4.5"

NOTE:
KIT #91900318: TOP AND BOTTOM BRACKETS FOR 4-,6-, AND 8-FOOT ANTENNAS

ANTENNA BRACKET NOT PART OF KIT



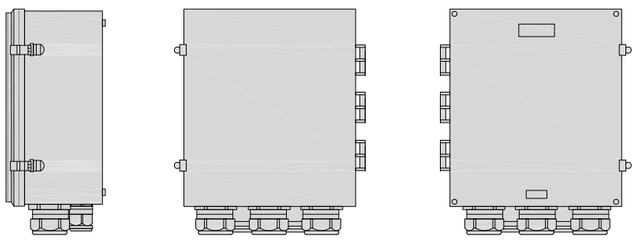
NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT

ANTENNA BRACKET DETAIL | NO SCALE | 6

RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)

DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS

PLAN



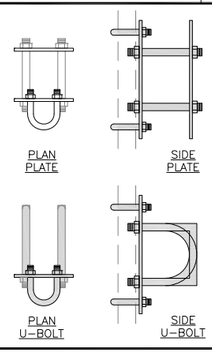
SIDE BACK FRONT

SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

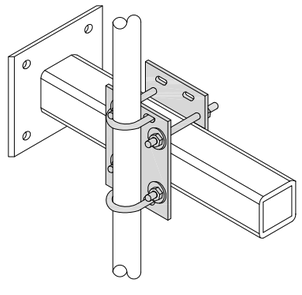
COMMSCOPE XP-2040 CROSSOVER PLATE

DIMENSIONS (HxW)	10"x12"
WEIGHT	11 lbs

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



PLAN PLATE SIDE PLATE PLAN U-BOLT SIDE U-BOLT

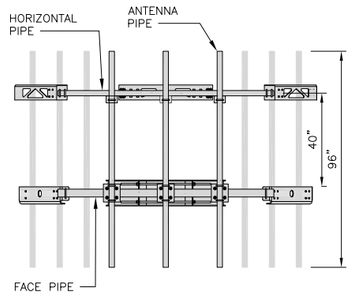


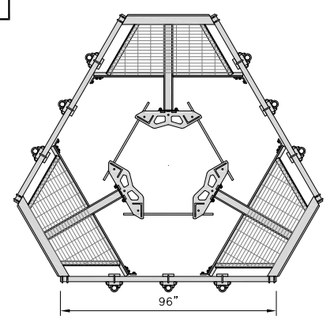
RRH/OVP MOUNT DETAIL | NO SCALE | 8

COMMSCOPE MC-PK8-DSH

FACE WIDTH	96"
WEIGHT	1373.08 lbs
NOTE: 15" TO 38" O.D.	

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





ANTENNA PLATFORM DETAIL | NO SCALE | 9

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No. 23924
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01/06/23

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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A&E PROJECT NUMBER

165630.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00107B
10 REDWOOD LANE
AVON, CT 06001

SHEET TITLE

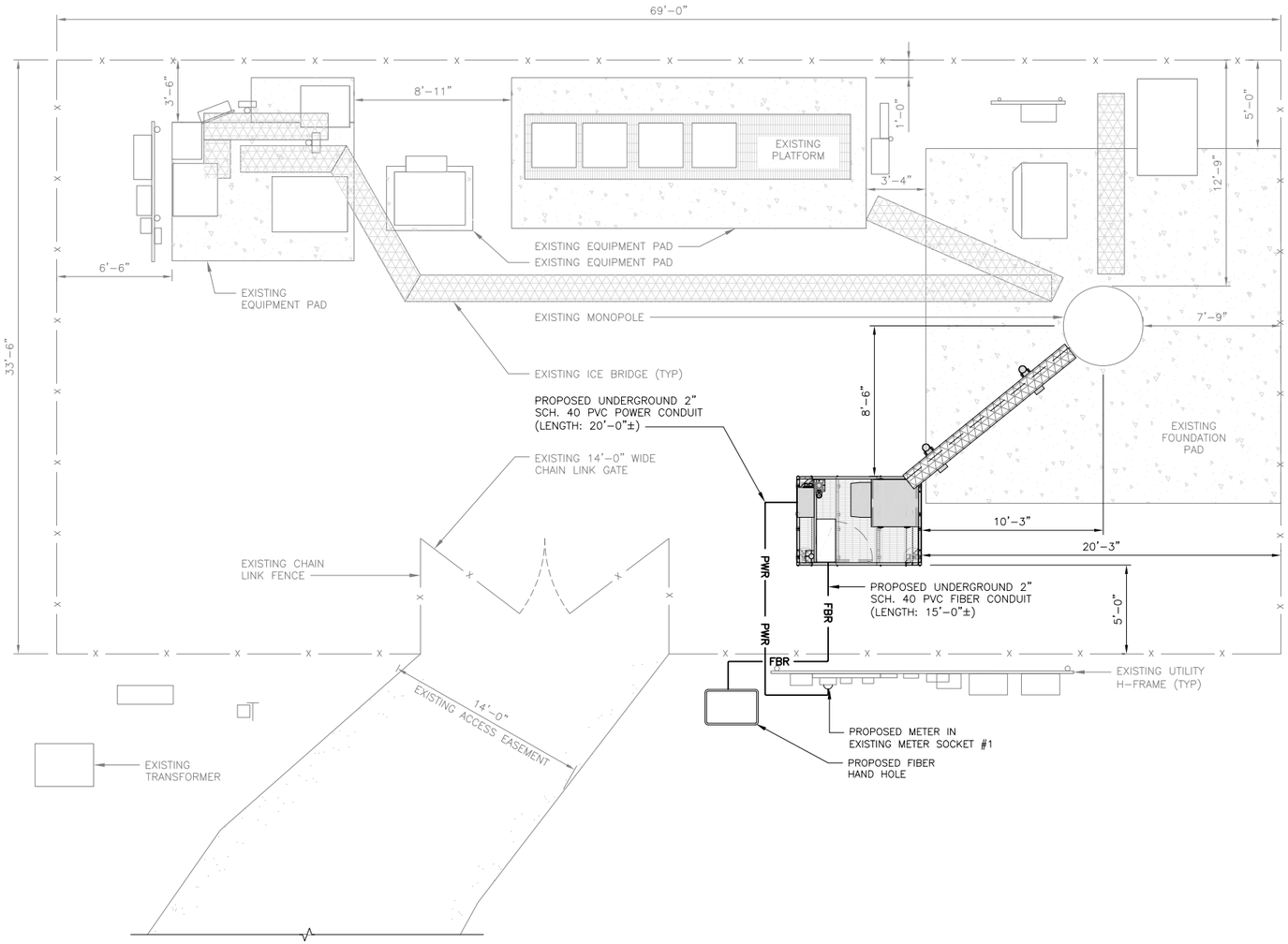
EQUIPMENT DETAILS

SHEET NUMBER

A-6

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. THE GROUND LEASE PROVIDES BROAD/BLANKET UTILITY RIGHTS. "PWR" AND "FBR" PATH DEPICTED ON A-1 AND E-1 ARE BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO FIELD VERIFICATION, PRIOR PROJECT DOCUMENTATION AND OTHER REAL PROPERTY RIGHTS DOCUMENTS. WHEN INSTALLING THE UTILITIES PLEASE LOCATE AND FOLLOW EXISTING PATH. IF EXISTING PATH IS NOT AN OPTION, PLEASE NOTIFY TOWER OWNER AS FURTHER COORDINATION MAY BE NEEDED.



UTILITY ROUTE PLAN

4' 2' 0 4' 8'
1/4"=1'-0"

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.
13. ALL TRENCHES IN COMPOUND TO BE HAND DUG

ELECTRICAL NOTES

NO SCALE

2

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DISH Wireless L.L.C.
PROJECT INFORMATION

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10 REDWOOD LANE
AVON, CT 06001

SHEET TITLE

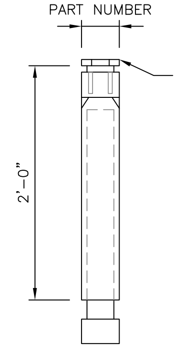
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER

E-1

165630.001.01.0001_CT01498-S BOBDL00107B.dwg - Sheet:E-1 - User: rcarson - Jan 06, 2023 - 1:17pm

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

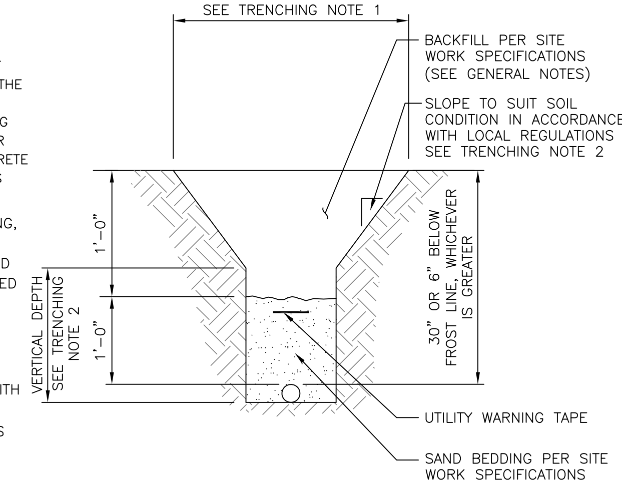


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

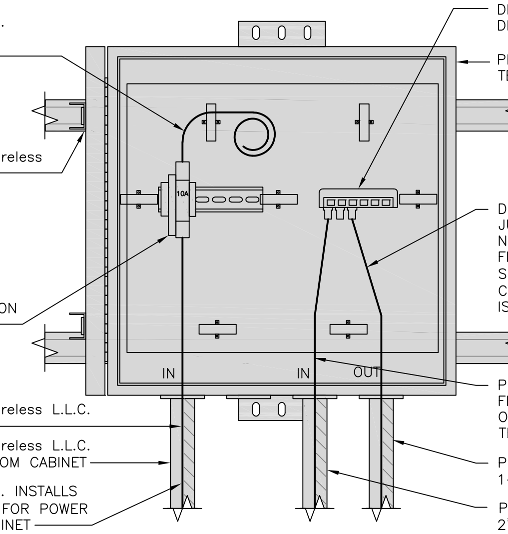
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

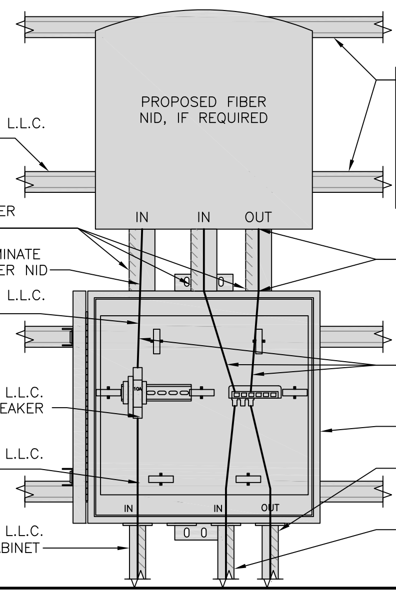
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT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



TYPICAL UNDERGROUND TRENCH DETAIL | NO SCALE | 2



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



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

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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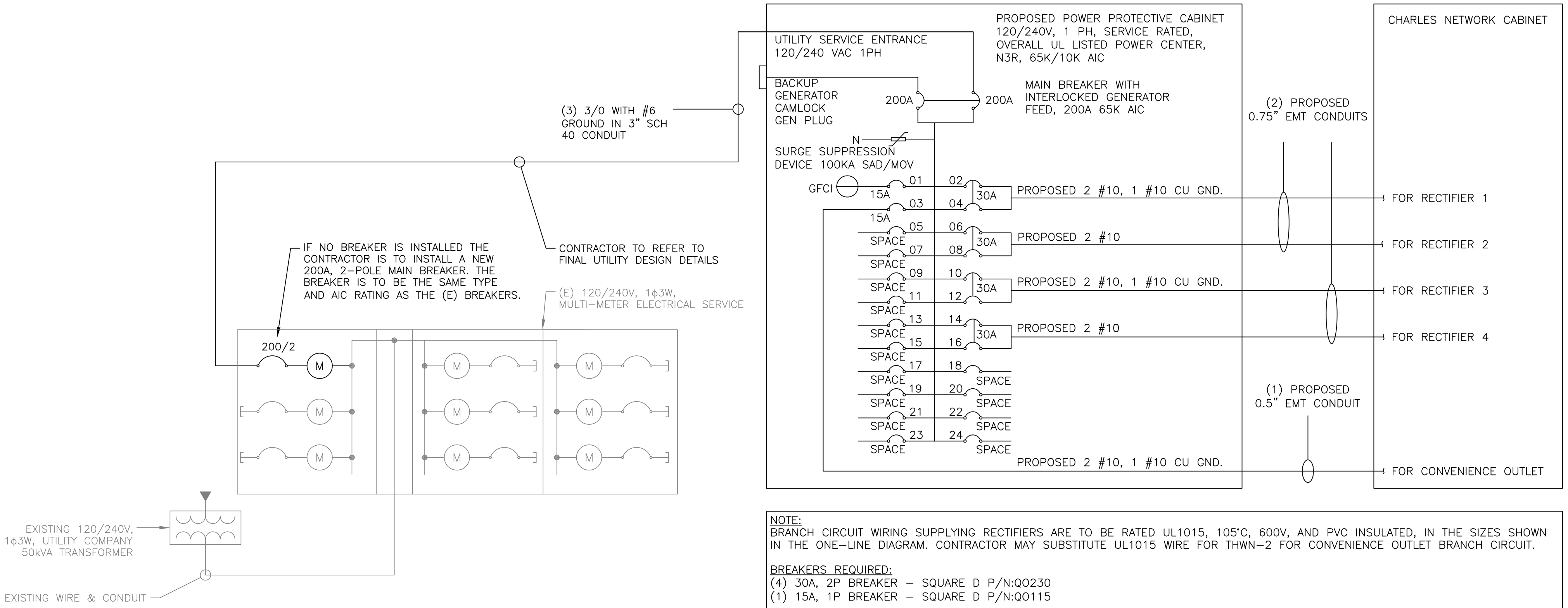
10 REDWOOD LANE
AVON, CT 06001

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2



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

BREAKERS REQUIRED:
(4) 30A, 2P BREAKER – SQUARE D P/N: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)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS)		LOAD SERVED
	L1	L2						L1	L2	
PPC GFCI OUTLET	180		15A	1	A	2	30A	2880		ABB/GE INFINITY
CHARLES GFCI OUTLET		180	15A	3	B	4			2880	RECTIFIER 1
-SPACE-				5	A	6	30A	2880		ABB/GE INFINITY
-SPACE-				7	B	8			2880	RECTIFIER 2
-SPACE-				9	A	10	30A	2880		ABB/GE INFINITY
-SPACE-				11	B	12			2880	RECTIFIER 3
-SPACE-				13	A	14	30A	2880		ABB/GE INFINITY
-SPACE-				15	B	16			2880	RECTIFIER 4
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
VOLTAGE AMPS	180	180						11520	11520	
200A MCB, 1ϕ, 24 SPACE, 120/240V			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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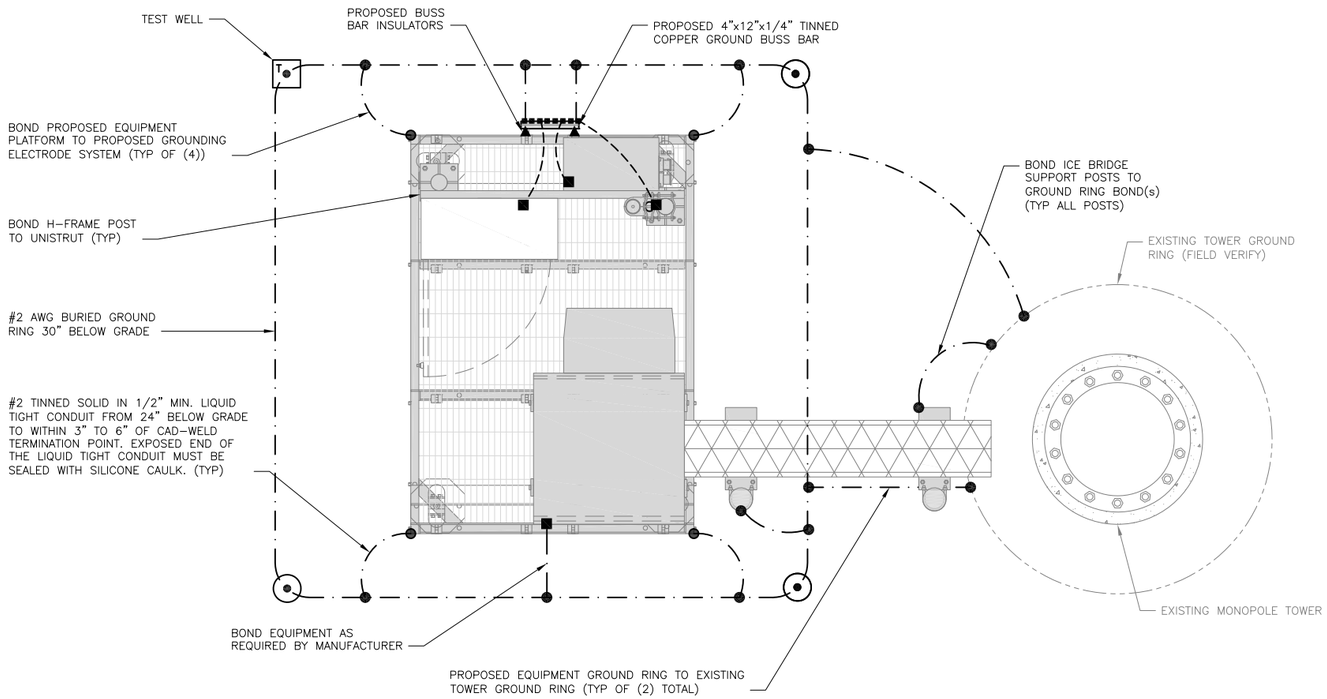
A&E PROJECT NUMBER
165630.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00107B
10 REDWOOD LANE
AVON, CT 06001

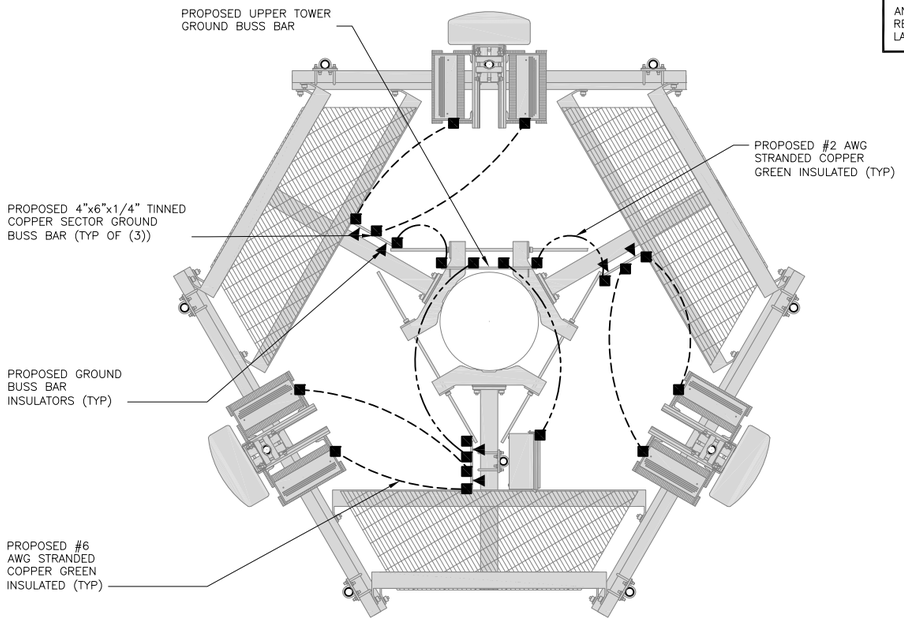
SHEET TITLE
ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE

SHEET NUMBER
E-3



TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE | 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE | 2

NOTES

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

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GROUNDING KEY NOTES

NO SCALE | 3

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MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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MEH	RMC	RMC

RFDS REV #: 1.0

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A&E PROJECT NUMBER
165630.001.01

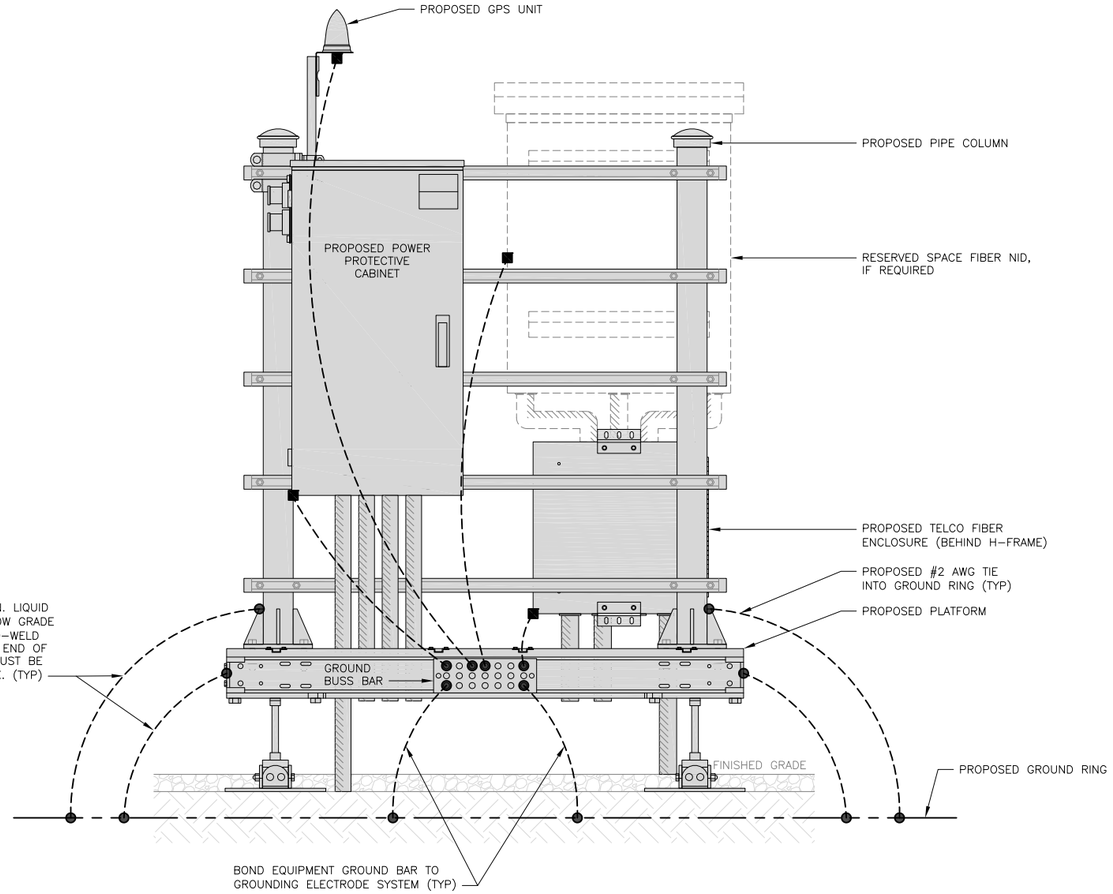
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00107B
10 REDWOOD LANE
AVON, CT 06001

SHEET TITLE
GROUNDING PLANS AND NOTES

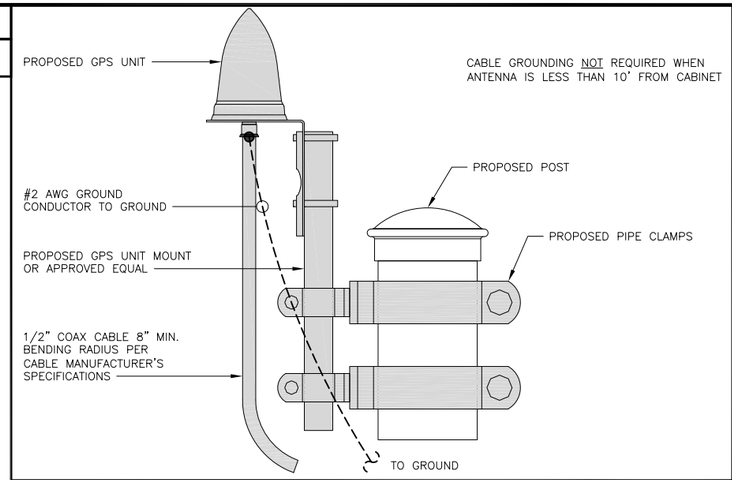
SHEET NUMBER
G-1

NOTES

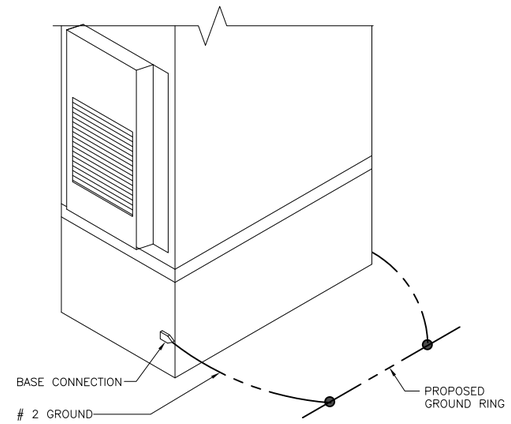
EQUIPMENT CABINET OMITTED FOR CLARITY



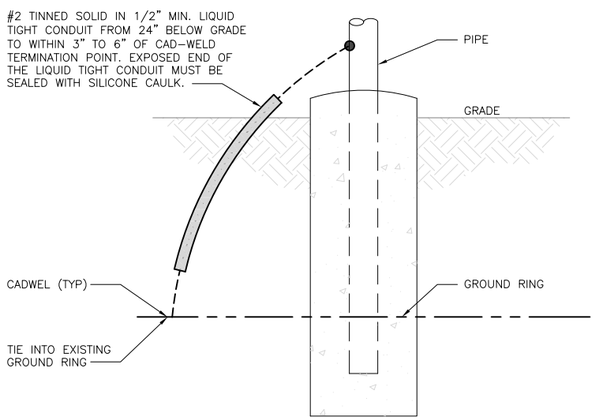
H-FRAME GROUNDING DETAIL | NO SCALE | 1



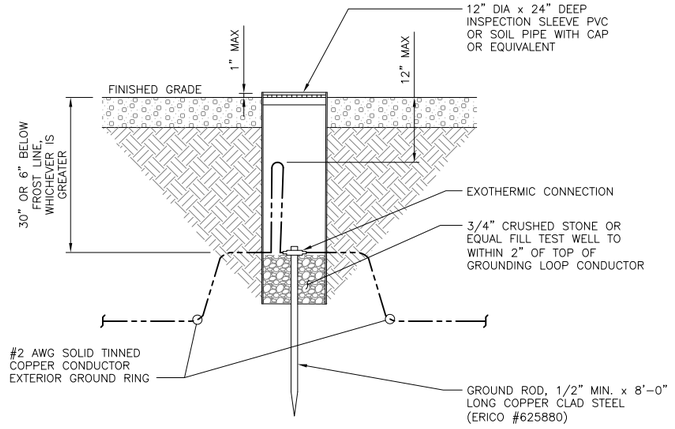
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



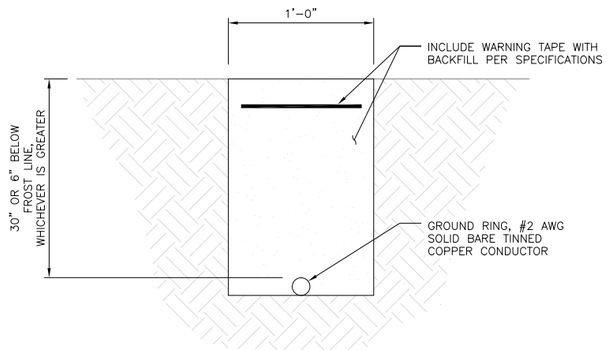
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE | NO SCALE | 5



TYPICAL GROUND RING TRENCH | NO SCALE | 6

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STATE OF CONNECTICUT * CHAD M. TILLE * No. 23924 LICENSED PROFESSIONAL ENGINEER *

01/06/23

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BER:2386985
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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00107B
10 REDWOOD LANE
AVON, CT 06001

SHEET TITLE

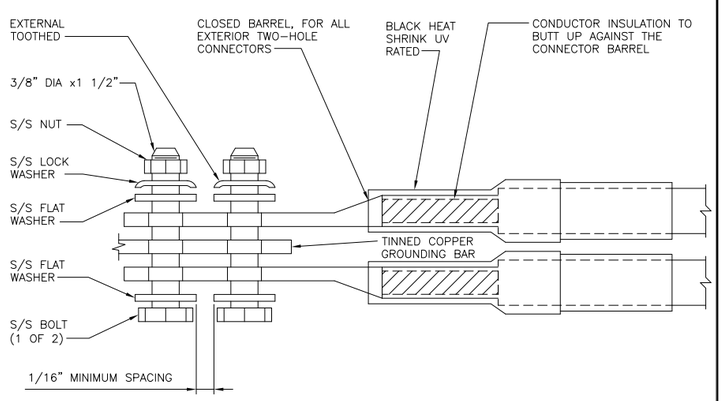
GROUNDING DETAILS

SHEET NUMBER

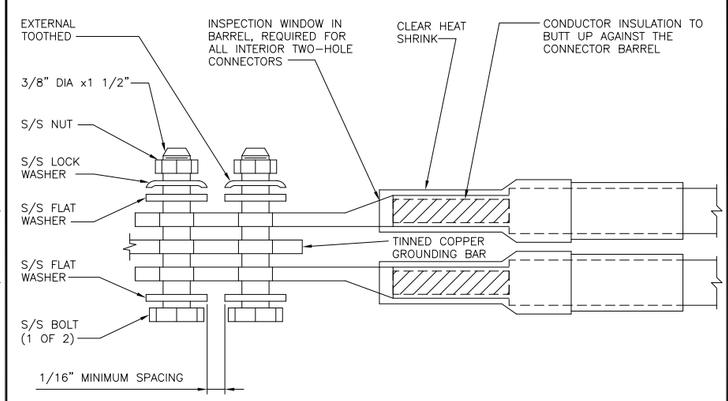
G-2

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

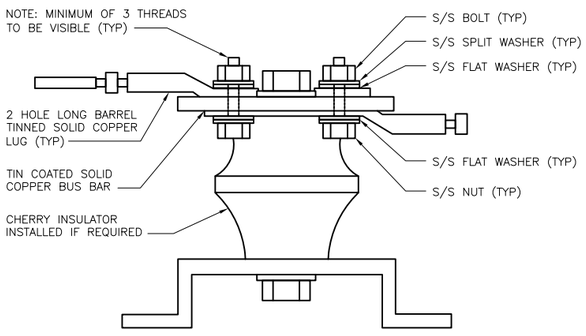
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

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10 REDWOOD LANE
AVON, CT 06001

SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER

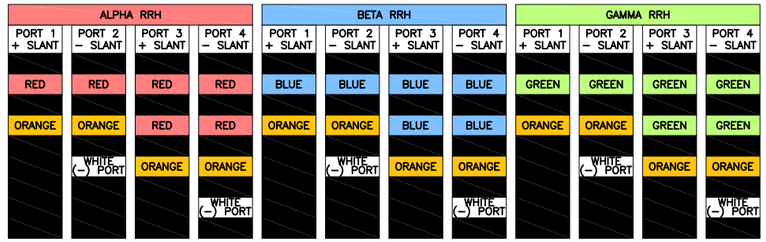
G-3

HYBRID/DISCREET CABLES

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

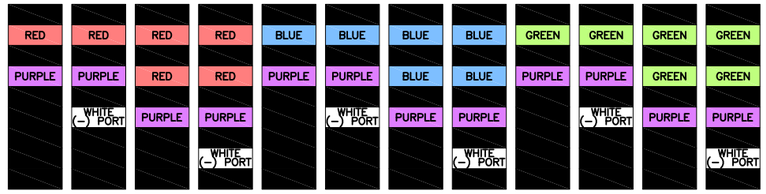
LOW-BAND RRH
(600 MHz N71 BASEBAND) +
(850 MHz N26 BAND) +
(700 MHz N29 BAND) - OPTIONAL PER MARKET

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



MID-BAND RRH
(AWS BANDS N66+N70)

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



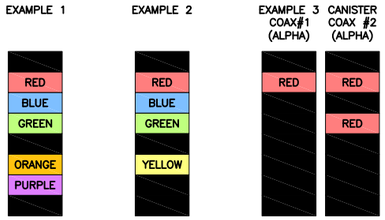
HYBRID/DISCREET CABLES

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.

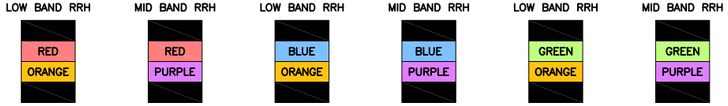
EXAMPLE 3 - MAIN COAX WITH GROUND MOUNTED RRHs.



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

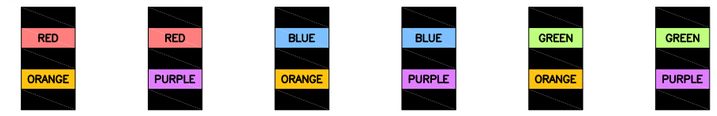
FIBER JUMPERS TO RRHs

LOW-BAND HHR FIBER CABLES HAVE SECTOR STRIPE ONLY.



POWER CABLES TO RRHs

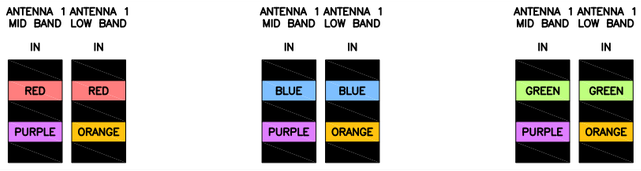
LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY



RET MOTORS AT ANTENNAS

RET CONTROL IS HANDLED BY THE MID-BAND RRH WHEN ONE SET OF RET PORTS EXIST ON ANTENNA.

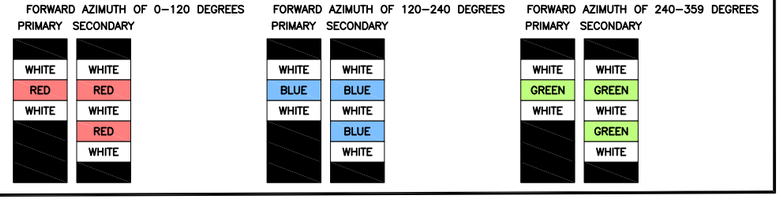
SEPARATE RET CABLES ARE USED WHEN ANTENNA PORTS PROVIDE INPUTS FOR BOTH LOW AND MID BANDS.



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

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

SBA
8051 CONGRESS AVENUE
BOCA RATON, FL 33487

B+T GRP
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TULSA, OK 74119
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STATE OF CONNECTICUT
CHAD M. TUTTLE
No. 23924
LICENSED PROFESSIONAL ENGINEER
01/06/23

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

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A&E PROJECT NUMBER
165630.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00107B
10 REDWOOD LANE
AVON, CT 06001

SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER
RF-1

LEGEND

EXOTHERMIC CONNECTION	
MECHANICAL CONNECTION	
BUSS BAR INSULATOR	
CHEMICAL ELECTROLYTIC GROUNDING SYSTEM	
TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM	T
EXOTHERMIC WITH INSPECTION SLEEVE	
GROUNDING BAR	
GROUND ROD	
TEST GROUND ROD WITH INSPECTION SLEEVE	T
SINGLE POLE SWITCH	
DUPLEX RECEPTACLE	
DUPLEX GFCI RECEPTACLE	GFCI
FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48–T8	F
SMOKE DETECTION (DC)	SD
EMERGENCY LIGHTING (DC)	
SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW LED–1–25A400/51K–SR4–120–PE–DDBTXD	
CHAIN LINK FENCE	X X X X
WOOD/WROUGHT IRON FENCE	
WALL STRUCTURE	
LEASE AREA	
PROPERTY LINE (PL)	
SETBACKS	
ICE BRIDGE	
CABLE TRAY	
WATER LINE	W W W W W
UNDERGROUND POWER	UGP UGP UGP UGP UGP
UNDERGROUND TELCO	UGT UGT UGT UGT UGT
OVERHEAD POWER	OHP OHP OHP OHP
OVERHEAD TELCO	OHT OHT OHT OHT
UNDERGROUND TELCO/POWER	UGT/P UGT/P UGT/P UGT/P
ABOVE GROUND POWER	AGP AGP AGP AGP AGP
ABOVE GROUND TELCO	AGT AGT AGT AGT AGT
ABOVE GROUND TELCO/POWER	AGT/P AGT/P AGT/P AGT/P
WORKPOINT	W.P.
SECTION REFERENCE	XX / X–X
DETAIL REFERENCE	XX / X–X

ABBREVIATIONS

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

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BOBDL00107B
10 REDWOOD LANE
AVON, CT 06001

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SIGN TYPES		
TYPE	COLOR	COLOR CODE PURPOSE
INFORMATION	GREEN	**"INFORMATIONAL SIGN"** TO NOTIFY OTHERS OF SITE OWNERSHIP & CONTACT NUMBER AND POTENTIAL RF EXPOSURE.
NOTICE	BLUE	**"NOTICE BEYOND THIS POINT"** RF FIELDS BEYOND THIS POINT MAY EXCEED THE FCC GENERAL PUBLIC EXPOSURE LIMIT. OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)
CAUTION	YELLOW	**"CAUTION BEYOND THIS POINT"** RF FIELDS BEYOND THIS POINT MAY EXCEED THE FCC GENERAL PUBLIC EXPOSURE LIMIT. OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)
WARNING	ORANGE/RED	**"WARNING BEYOND THIS POINT"** RF FIELDS AT THIS SITE EXCEED FCC RULES FOR HUMAN EXPOSURE. FAILURE TO OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN RF ENVIRONMENTS COULD RESULT IN SERIOUS INJURY. IN ACCORDANCE WITH FEDERAL COMMUNICATIONS COMMISSION RULES ON RADIO FREQUENCY EMISSIONS 47 CFR-1.1307(b)

SIGN PLACEMENT:

- RF SIGNAGE PLACEMENT SHALL FOLLOW THE RECOMMENDATIONS OF AN EXISTING EME REPORT, CREATED BY A THIRD PARTY PREVIOUSLY AUTHORIZED BY DISH Wireless L.L.C.
- INFORMATION SIGN (GREEN) SHALL BE LOCATED ON EXISTING DISH Wireless L.L.C EQUIPMENT.
  A) IF THE INFORMATION SIGN IS A STICKER, IT SHALL BE PLACED ON EXISTING DISH Wireless L.L.C EQUIPMENT CABINET.
  B) IF THE INFORMATION SIGH IS A METAL SIGN IT SHALL BE PLACED ON EXISTING DISH Wireless L.L.C H-FRAME WITH A SECURE ATTACH METHOD.
- IF EME REPORT IS NOT AVAILABLE AT THE TIME OF CREATION OF CONSTRUCTION DOCUMENTS; PLEASE CONTACT DISH Wireless L.L.C. CONSTRUCTION MANAGER FOR FURTHER INSTRUCTION ON HOW TO PROCEED.

NOTES:

1. FOR DISH Wireless L.L.C. LOGO, SEE DISH Wireless L.L.C. DESIGN SPECIFICATIONS (PROVIDED BY DISH Wireless L.L.C.)
2. SITE ID SHALL BE APPLIED TO SIGNS USING "LASER ENGRAVING" OR ANY OTHER WEATHER RESISTANT METHOD (DISH Wireless L.L.C. APPROVAL REQUIRED)
3. TEXT FOR SIGNAGE SHALL INDICATE CORRECT SITE NAME AND NUMBER AS PER DISH Wireless L.L.C. CONSTRUCTION MANAGER RECOMMENDATIONS.
4. CABINET/SHELTER MOUNTING APPLICATION REQUIRES ANOTHER PLATE APPLIED TO THE FACE OF THE CABINET WITH WATER PROOF POLYURETHANE ADHESIVE
5. ALL SIGNS WILL BE SECURED WITH EITHER STAINLESS STEEL ZIP TIES OR STAINLESS STEEL TECH SCREWS
6. ALL SIGNS TO BE 8.5"x11" AND MADE WITH 0.04" OF ALUMINUM MATERIAL

INFORMATION

This is an access point to an area with transmitting antennas.

Obey all signs and barriers beyond this point.
Call the DISH Wireless L.L.C. NOC at 1-866-624-6874

Site ID: _____

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

NOTICE

Transmitting Antenna(s)

Radio frequency fields beyond this point MAY *EXCEED* the FCC Occupational exposure limit.

Obey all posted signs and site guidelines for working in radio frequency environments.

Call the DISH Wireless L.L.C. NOC at 1-866-624-6874 prior to working beyond this point.

Site ID: _____

dish

THIS SIGN IS FOR REFERENCE PURPOSES ONLY

CAUTION

Transmitting Antenna(s)

Radio frequency fields beyond this point MAY *EXCEED* the FCC Occupational exposure limit.

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dish

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dish

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RF SIGNAGE

dish wireless.
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LITTLETON, CO 80120

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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00107B
10 REDWOOD LANE
AVON, CT 06001

SHEET TITLE
RF SIGNAGE

SHEET NUMBER
GN-2

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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STATE OF CONNECTICUT
CHAD M. TUTTLE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
01/06/23

MTS ENGINEERING P.L.L.C.
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DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00107B
10 REDWOOD LANE
AVON, CT 06001

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-3

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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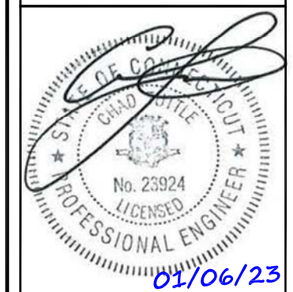

01/06/23

MTS ENGINEERING P.L.L.C.
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DISH Wireless L.L.C.
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BOBDL00107B
10 REDWOOD LANE
AVON, CT 06001

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

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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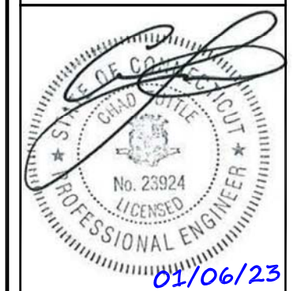

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10 REDWOOD LANE
AVON, CT 06001

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-5

Exhibit D

Structural Analysis Report

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 105 ft PIROD Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT01498-S

Customer Site Name: Avon

Carrier Name: Dish Wireless (App#: 210365-1)

Carrier Site ID / Name: BOBDL00107B / 0

Site Location: 10 Redwood Lane

Avon, Connecticut

Hartford County

Latitude: 41.772499

Longitude: -72.879999

Analysis Result:

Max Structural Usage: 56.6% [Pass]

Max Foundation Usage: 55.4% [Pass]

Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By: Jacob C. Ehrmann

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Report Prepared By: Jacob C. Ehrmann

Introduction

The purpose of this report is to summarize the analysis results on the 105 ft PIROD Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Pirod, Inc., Eng. File #A-117586 dated September 26, 2000
Foundation Drawing	Pirod, Inc., Eng. File #A-117586 dated September 26, 2000
Geotechnical Report	Jaworski Geotech, Inc., Project #00301G dated August 31, 2000
Modification Drawings	N/A
Mount Analysis	N/A

Analysis Criteria

The comprehensive analysis was performed in accordance with the requirements and stipulations of the TIA-222-H**.** In accordance with this standard, the structure was analyzed using **TESPoles,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	120.0 mph (3-Sec. Gust) (Ultimate wind speed)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1½" radial ice concurrent
Service Load Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-H / 2021 IBC / 2022 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.18, S_1 = 0.054

This structural analysis is based upon the tower being classified as a Risk Category II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	116.0	1	20' Omni	Direct	(1) 7/8"	Farmington Woods
2	110.0	3	RFS APXVAARR24_43-U-NA20 (Octa) Panel	Low Profile Platform w/ Inner Bracing, Kicker Kit (Perfect 10 PVBK), Collar Mount (PV-RM3060) and (3) Metrosite Support Rail Center Pipe Kit: MS-HRCP-35-2875 (1) Metrosite Support Rail with End Connection Kit: MS-HRECP-35_18 (9) Metrosite Crossover Channel Bracket Kit: MS-CHB 350-2875 (6) PST2375-8 (3) PST2875-9	(10) 1 5/8" (2) 1 1/4" Hybrid (1) 1 5/8" Fiber	T-Mobile
3		3	Ericsson AIR32 KRD901146-1_B66A (Octa) Panel			
4		3	Ericsson AIR6449 B41 Panel			
5		3	Ericsson KRY 112 144/2 TMA			
6		3	Ericsson 4449 B71 + B85 RRU			
7		3	Ericsson 4415 B25 RRU			
8		3	Commscope SDX1926Q-43 Diplexer			
9	98.8	3	AIR 6419 B77G - Panel	(1) Low Profile Platform w/ Support rail Kit (SitePro1 HRK-14) & Platform Reinforcement Kit (SitePro 1 PRK-1245L) & (6) Pipe masts (30"x2.88") & (6) Steel Angles (L2-1/2x2-1/2x1/4) & (1) Universal Ring Mount	(6) 1 5/8" (3) 3" Conduit [Each conduit housing (2) 3/4" DC power & (1) 1/2" Fiber cables]	AT&T
10		6	Kathrein 800 10965 - Panel			
11		6	Powerwave LGP21401 TMA			
12		6	Kathrein 782-10250 RET			
13		6	Kathrein 860 10025 RET			
14		3	Ericsson RRUS 8843 B2 B66A RRU			
15		3	Ericsson RRUS 4449 B5/12 RRU			
16		3	Ericsson B14 4478			
17		3	Raycap DC6-48-60-18-8F			
18	95.2	3	AIR 6449 B77D - Panel			
19	91.0	3	Andrew VHLP2.5 Dish	(3) Dish Mounts	(3) 1/2" (6) 5/16"	Clearwire
20		3	Horizon DUO Radios			
21		3	Samsung RRU Radios			
22	87.0	3	RFS APXVSPP18-C-A20 Panel	Low Profile Platform	(4) 1-1/4" Hybrid	Sprint
23		3	RFS APXVTM14-C-120 Panel			
24		3	Alcatel Lucent 1900 MHz RRH			
25		3	Alcatel Lucent 800 MHz RRH			
26		3	Alcatel Lucent TD-RRH8x20-25 RRH			
27		3	Alcatel Lucent 800MHz Filter			
28		4	RFS ACU-A20-N RET			
29	75.0	1	GPS	(1) Standoff	(1) 1/2"	

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
30	65.0	3	JMA Wireless MX08FRO665-21- Panel	(1) Commscope MC-PK8-DSH- Platform w/HRK	(1) 1.411" Hybrid	Dish Wireless
31		3	Fujitsu TA08025-B605- RRU			
32		3	Fujitsu TA08025-B604- RRU			
33		1	Raycap RDIDC-9181-PF-48- OVP			

The proposed transmission lines can be installed inside or outside of the pole shafts. If installed outside, the lines shall be strapped tightly to the face of the pole shafts. Stacking lines is not allowed.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	**56.6%**	**0.0%**	**0.0%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	1946.7	23.6	45.3

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Service Load Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.2078 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the TIA-222 Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.

3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the ANSI/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Usage Diagram - Max Ratio 56.62% at 0.0ft

Structure:	CT01498-S-SBA	**Code:**	EIA/TIA-222-H	1/4/2023
Site Name:	Avon	**Exposure:**	B	
Height:	105.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

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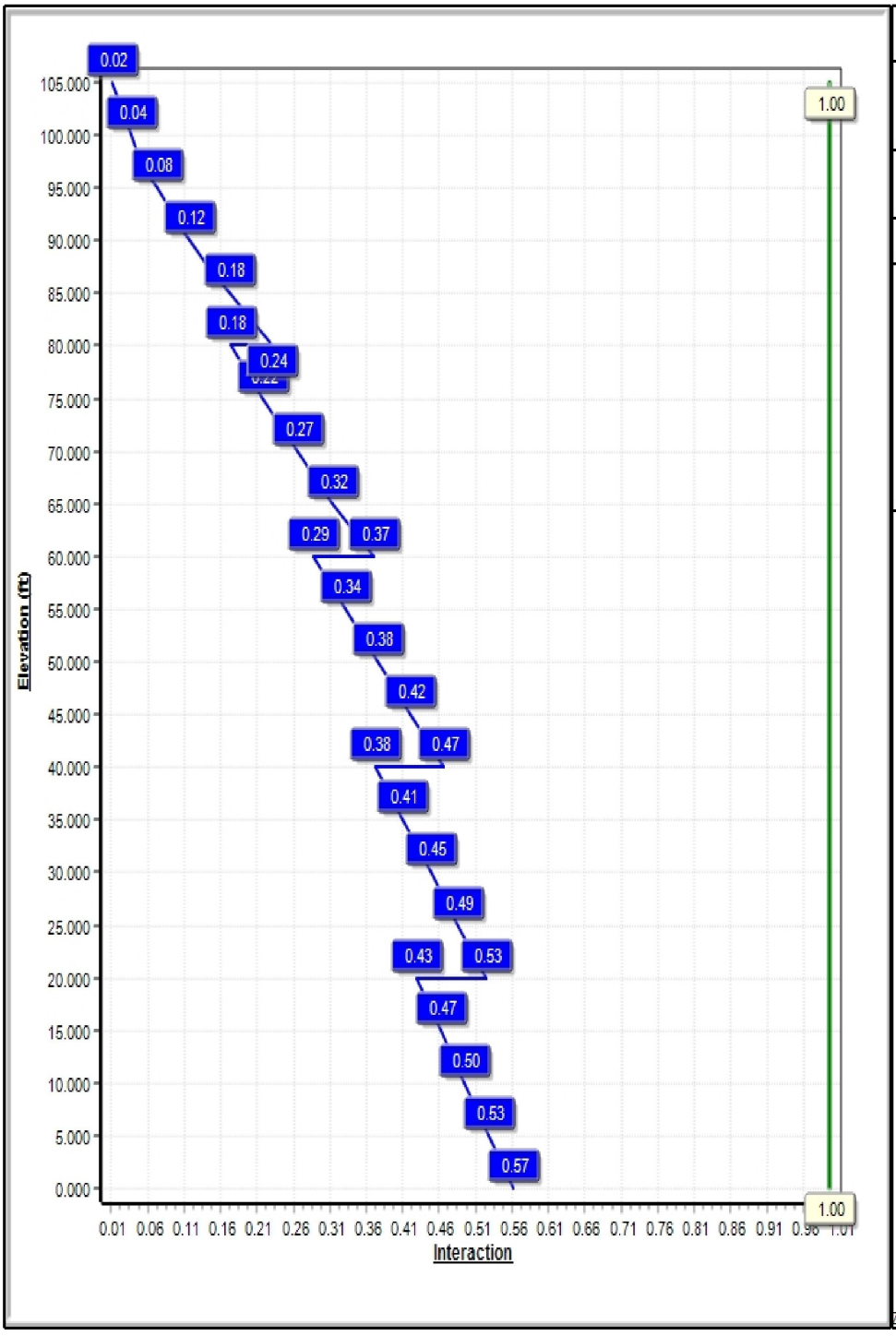
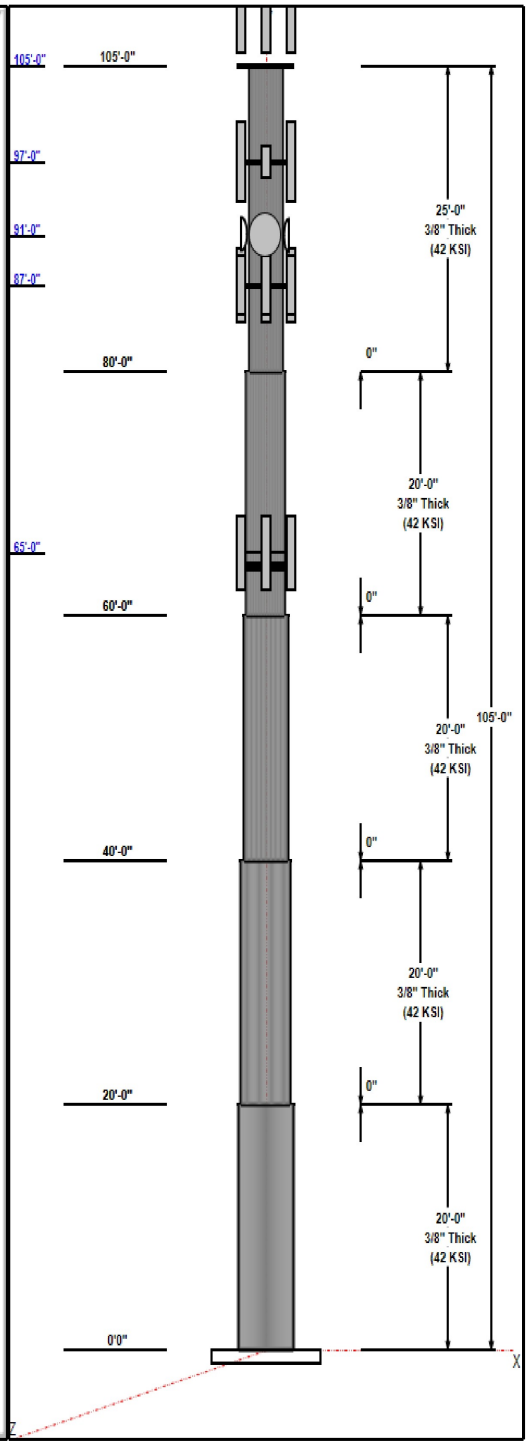
Dead Load Factor:	1.20
Wind Load Factor:	1.00

Load Case : 1.2D + 1.0W 120 mph Wind

Iterations: 16





Structure: CT01498-S-SBA

Type: Stepped
Site Name: Avon
Height: 105.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: Round
Taper: 0.00000

1/4/2023

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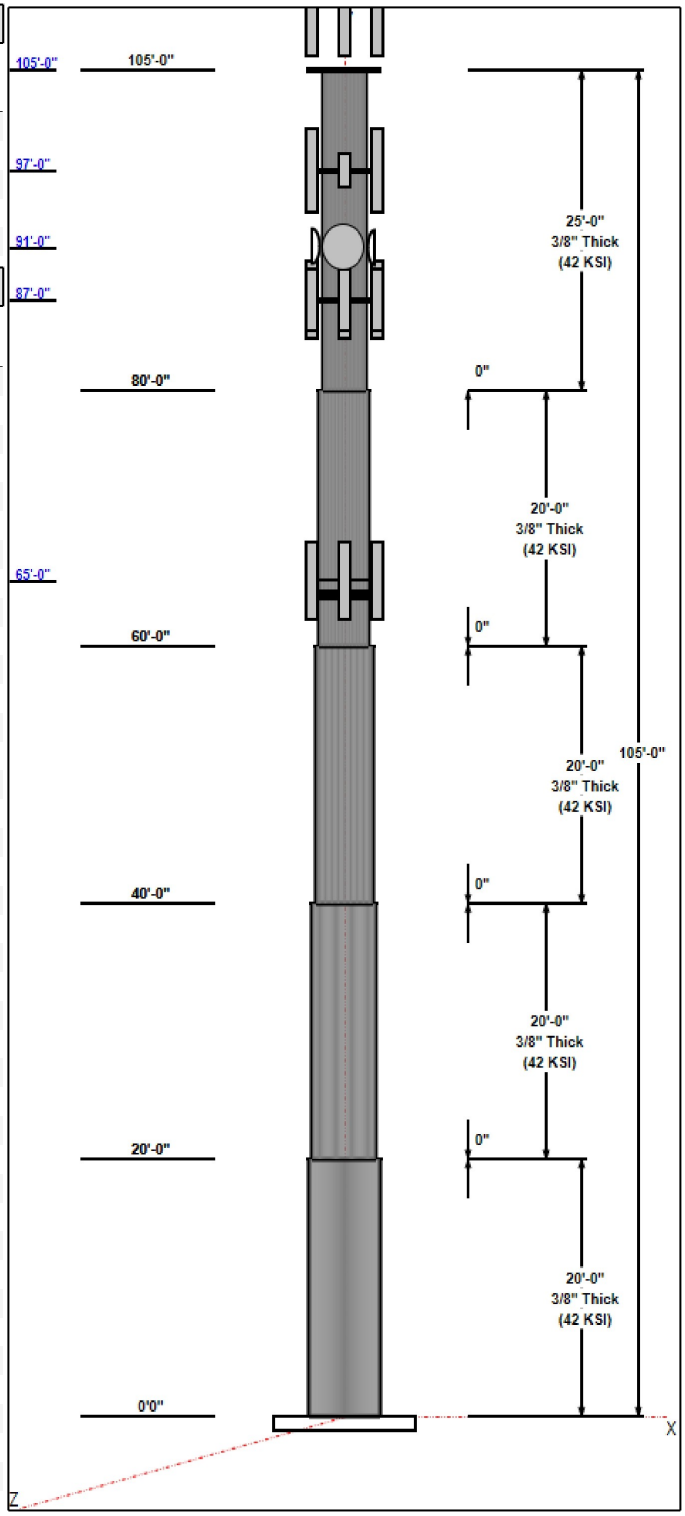
Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	20.00	60.00	60.00	0.375		0.00000	42
2	20.00	54.00	54.00	0.375		0.00000	42
3	20.00	48.00	48.00	0.375		0.00000	42
4	20.00	42.00	42.00	0.375		0.00000	42
5	25.00	36.00	36.00	0.375		0.00000	42

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
105.00	116.00	1	20' Omni	Farmington Woods
105.00	110.00	3	APXVAARR24_43-U-NA20	T-Mobile
105.00	110.00	3	AIR32	T-Mobile
105.00	110.00	3	AIR6449 B41	T-Mobile
105.00	110.00	3	KRY 112 144/2	T-Mobile
105.00	110.00	3	SDX1926Q-43	T-Mobile
105.00	110.00	3	4449 B71 + B85	T-Mobile
105.00	110.00	3	Radio 4415 Protruding w/o	T-Mobile
105.00	106.00	1	MS-HRECP	T-Mobile
105.00	106.00	1	Kicker kit	T-Mobile
105.00	106.00	1	Collar Mount	T-Mobile
105.00	106.00	1	Low Profile	T-Mobile
97.00	97.00	1	Low Profile Platformw/	AT&T
97.00	97.00	1	Ring Mount	AT&T
97.00	97.00	6	860 10025	AT&T
97.00	97.00	1	HRK14	AT&T
97.00	97.00	1	PRK-1245 (kicker kit)	AT&T
97.00	97.00	6	Kathrein 800 10965	AT&T
97.00	97.00	3	B2 B66A 8843	AT&T
97.00	97.00	3	4449 B5/B12	AT&T
97.00	97.00	3	DC6-48-60-18-8F	AT&T
97.00	97.00	6	LGP21401	AT&T
97.00	97.00	6	782 10250	AT&T
97.00	97.00	3	AIR 6419 B77G	AT&T
97.00	97.00	3	AIR 6449 B77D	AT&T
97.00	97.00	3	B14 4478	AT&T
91.00	91.00	3	VHLP2.5	Clearwire
91.00	91.00	3	Horizon DUO Radios	Clearwire
91.00	91.00	3	RRU	Clearwire
91.00	91.00	3	Dish Mount	Clearwire
87.00	87.00	1	Low Profile	Sprint
87.00	87.00	3	APXVSPP18-C-A20	Sprint
87.00	87.00	3	APXVTM14-C-120	Sprint
87.00	87.00	3	800MHz Filter	Sprint
87.00	87.00	3	TD-RRH8x20-25	Sprint
87.00	87.00	3	RRUS-11 1900 MHz	Sprint
87.00	87.00	3	RRUS-11 800 MHz	Sprint
87.00	87.00	4	ACU-A20-N	Sprint
75.00	75.00	1	GPS	Sprint
75.00	75.00	1	Standoff Mount	Sprint
65.00	65.00	3	MX08FRO665-21	Dish Wireless
65.00	65.00	3	TA08025-B605	Dish Wireless
65.00	65.00	3	TA08025-B604	Dish Wireless
65.00	65.00	1	RDIDC-9181-OF-48	Dish Wireless



65.00	65.00	1	MC-PK8-DSH	Dish Wireless

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	105.00	Inside	1 1/4" Hybrid	T-Mobile
0.00	105.00	Inside	1 5/8" Coax	T-Mobile
0.00	105.00	Inside	1 5/8" Fiber	T-Mobile
0.00	105.00	Inside	7/8" Coax	Farmington Woods
0.00	105.00	Outside	Step bolts (ladder)	
0.00	97.00	Inside	1 5/8" Coax	AT&T
0.00	97.00	Inside	1/2" Fiber	AT&T
0.00	97.00	Inside	3" Conduit	AT&T
0.00	97.00	Inside	3/4" DC	AT&T
0.00	91.00	Inside	1/2" Coax	Clearwire
0.00	91.00	Inside	5/16" Coax	Clearwire
0.00	87.00	Inside	1-1/4" Hybrid	Sprint
0.00	75.00	Outside	1/2" Coax	Sprint
0.00	65.00	Outside	1.411" Hybrid	Dish Wireless

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
48	1.00" A687	105.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
1.0000	66.1	36.0	Round

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.0W 120 mph Wind	1946.7	23.6	45.3
0.9D + 1.0W 120 mph Wind	1938.9	23.6	34.0
1.2D + 1.0Di + 1.0Wi 50 mph Wind	554.7	7.0	70.9
1.2D + 1.0Ev + 1.0Eh	122.8	1.3	46.8
0.9D + 1.0Ev + 1.0Eh	122.7	1.3	35.4
1.0D + 1.0W 60 mph Wind	434.3	5.3	37.7

Structure: CT01498-S-SBA - Coax Line Placement

Type: Monopole
Site Name: Avon
Height: 105.00 (ft)

1/4/2023

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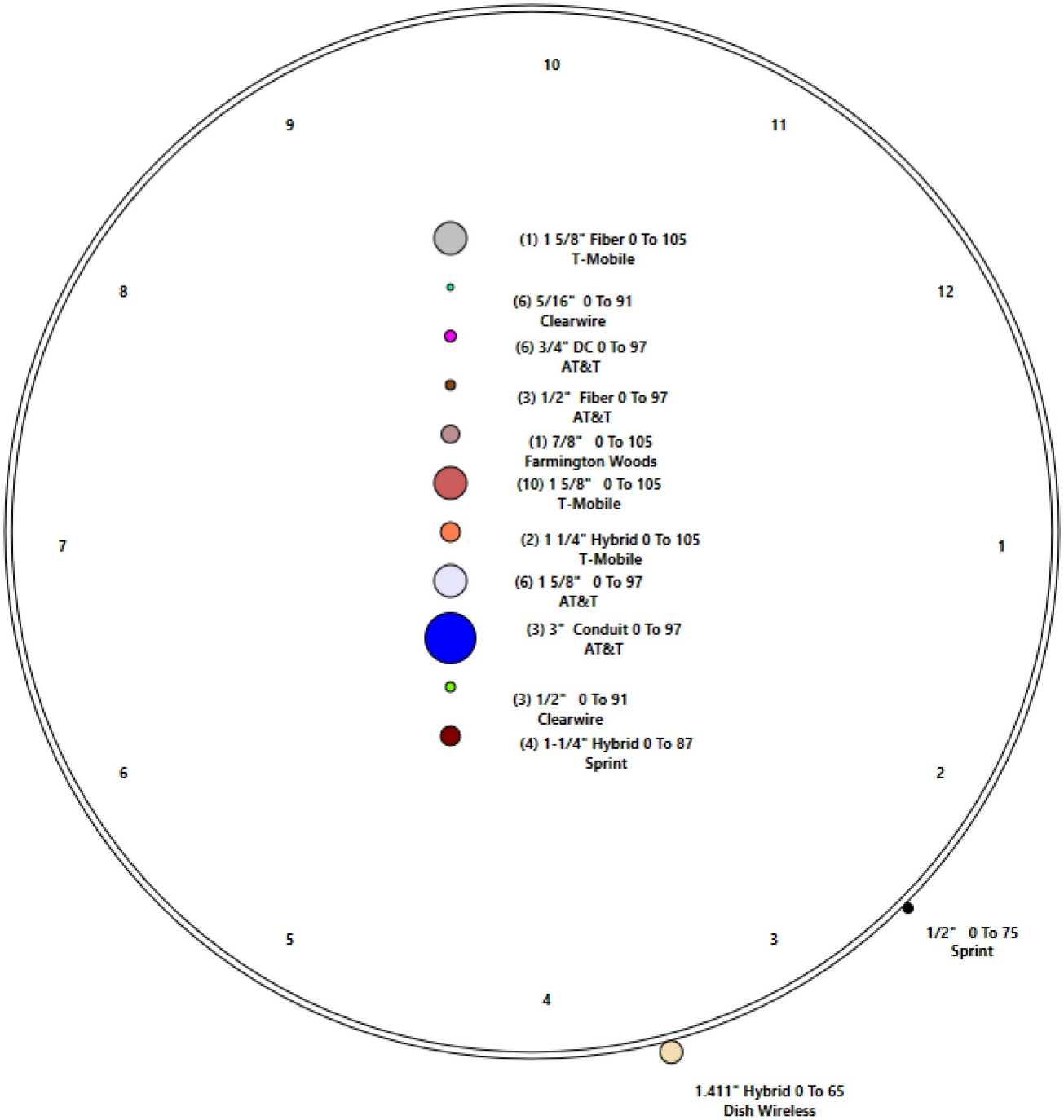

Final Analysis Summary

Structure:	CT01498-S-SBA	**Code:**	TIA-222-H	1/4/2023	
Site Name:	Avon	**Exposure:**	B		
Height:	105.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 37	

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Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.0W 120 mph Wind	23.6	0.00	45.28	0.00	0.71	1946.74
0.9D + 1.0W 120 mph Wind	23.6	0.00	33.96	0.00	0.71	1938.95
1.2D + 1.0Di + 1.0Wi 50 mph Wind	7.0	0.00	70.89	0.00	0.15	554.75
1.2D + 1.0Ev + 1.0Eh	1.3	0.00	46.78	0.00	0.00	122.80
0.9D + 1.0Ev + 1.0Eh	1.3	0.00	35.41	0.00	0.00	122.73
1.0D + 1.0W 60 mph Wind	5.3	0.00	37.75	0.00	0.16	434.30

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.0W 120 mph Wind	-45.28	-23.63	-0.71	-1946.7	0.00	-1946.7	2204.43	796.57	334636.	3573.20	0.00	0.566
0.9D + 1.0W 120 mph Wind	-33.96	-23.63	-0.71	-1938.9	0.00	-1938.9	2204.43	796.57	334636.	3573.20	0.00	0.559
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-70.89	-6.98	-0.15	-554.75	0.00	-554.75	2204.43	796.57	334636.	3573.20	0.00	0.187
1.2D + 1.0Ev + 1.0Eh	-46.78	-1.35	0.00	-122.80	0.00	-122.80	2204.43	796.57	334636.	3573.20	0.00	0.056
0.9D + 1.0Ev + 1.0Eh	-35.41	-1.35	0.00	-122.73	0.00	-122.73	2204.43	796.57	334636.	3573.20	0.00	0.050
1.0D + 1.0W 60 mph Wind	-37.75	-5.28	-0.16	-434.30	0.00	-434.30	2204.43	796.57	334636.	3573.20	0.00	0.139

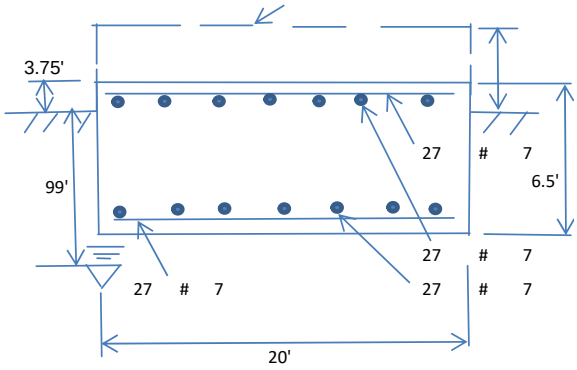
Monopole Mat Foundation Design

				Date
				1/3/2023
Customer Name:		**TIA Standard:**	EIA-222-H
Site Name:		**Structure Height (Ft.):**	105
Site Number:	CT01498-S-SBA	**Engineer Name:**	J. Tibbetts
Engr. Number:		**Engineer Login ID:**	

Foundation Info Obtained from: Mapping Operation

Structure Type: Monopole

Analysis or Design? Analysis

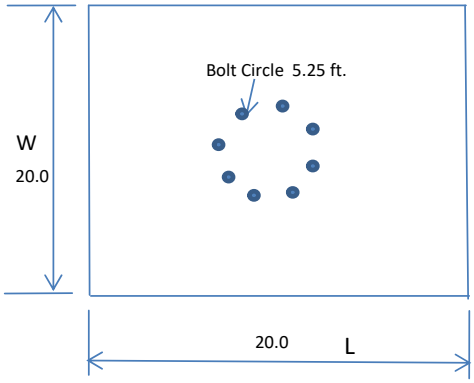


Base Reactions (Factored):

Axial Load (Kips):	41.1	Shear Force (Kips):	21.0
Uplift Force (Kips):	0.0	Moment (Kips-ft):	2204.1
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Anchor Bolt Circle (ft.):	5.25	Depth of Base BG (ft.):	2.75
Thickness of Pad (ft):	6.50		
Length of Pad (ft.):	20	Width of Pad (ft.):	20
Final Length of pad (ft)	20.0	Final width of pad (ft):	20.0



Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Pad Rebar Yield (Ksi):	60	Tie Spacing (in):	12.0	
Pad Steel Rebar Size (#):	7			
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	27	Qty. of Rebar in Pad (W):	27	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	27	Qty. of Rebar in Pad (W):	27	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	60000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	Yes	Reduction factor on the maximum soil bearing pressure:	1.00			

Foundation Analysis and Design: Uplift Strength Reduction Factor: 0.75 — Compression Strength Reduction Factor: 0.75

Total Dry Soil Volume (cu. Ft.):	0.00	Total Dry Soil Weight (Kips):	0.00
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	0.00	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	2600.00	Total Dry Concrete Weight (Kips):	390.00
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	390.00	Total Vertical Load on Base (Kips):	431.10

Check Soil Capacities:

				Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	3501	<	Allowable Factored Soil Bearing (psf): 45000	0.08	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	3921.0	>	Design Factored Momont (kips-ft): 2172	0.55	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.80	OK!			

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compresion):	0.65	Wind Load Factor on Concrete Design:	1.00		

Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):	1697.7	>	One-Way Factored Shear (L-D. Kips):	48.5	0.03	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1697.7	>	One-Way Factored Shear (W-D., Kips)	48.5	0.03	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	1912.8	>	One-Way Factored Shear (C-C, Kips):	426.0	0.22	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0009	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0009		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	5392.2	>	Moment at Bottom (L-Direct. K-Ft):	22.1	0.00	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	5392.2	>	Moment at Bottom (W-Direct. K-Ft):	22.1	0.00	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	7610.0	>	Moment at Bottom (C-C Dir. K-Ft):	31.2	0.00	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0009	OK!	Upper Steel Reinf. Ratio (W-Direct.):	0.0009		
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	5392.2	>	Moment at the top (L-Dir Kips-Ft):	38.5	0.01	OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	5392.2	>	Moment at the top (W-Dir Kips-Ft):	38.5	0.01	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	7610.0	>	Moment at the top (C-C Direc. K-Ft):	257.6	0.03	OK!

Exhibit E

Mount Analysis

January 9, 2023

Sherri Knapik
SBA Network Services, LLC.
134 Flanders Road, Suite 125
Westborough, MA 01581
(508) 251-0720 x 3805

MTS Engineering, P.L.L.C.
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
btwo@btgrp.com

Subject:	**Appurtenance Mount Analysis Report**	
Carrier Designation:	***Dish Wireless* Co-Locate**	
	Site Number:	BOBDL00107B
	Site Name:	N/A
SBA Network Services Designation:	**Site Number:**	CT01498-S
	Site Name:	Avon
	Application Number:	210365, v1
Engineering Firm Designation:	**Project Number:**	165630.001.01.0002 Rev 1
Site Data:	**10 Redwood Lane, Avon, CT, 06001, Hartford County** **Latitude *41.77249*°, Longitude *-72.87999*°** **Monopole** **8 ft. Platform Mount**	

Dear Ms. Knapik,

We are pleased to submit this **"Appurtenance Mount Analysis Report"** to determine the structural integrity of the antenna mount on the above-mentioned structure.

The purpose of the analysis is to determine acceptability of the mount's stress level. Based on our analysis we have determined the stress level for the mount under the following load case to be:

Proposed Equipment Note: See Table 1 for the final loading configuration	**Sufficient Capacity** **(Passing at 49.1%)**

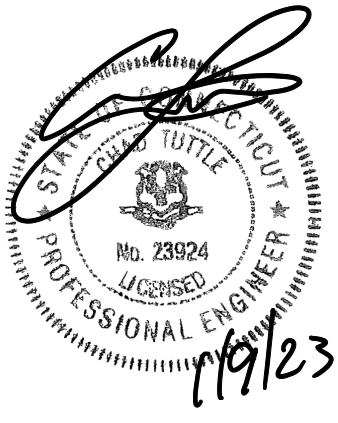
This analysis utilizes an ultimate 3-second gust wind speed of 116 mph as required by the 2022 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

All the equipment proposed in this report shall be installed in accordance with the drawings for the determined available structural capacity to be effective.

We appreciate the opportunity of providing our continuing professional services to you and *SBA Network Services, LLC*. If you have any questions or need further assistance on this or any other projects, please give us a call.

Mount structural analysis prepared by: Erik Perez

Respectfully submitted by: MTS Engineering, P.L.L.C
COA: BER:2386985 Expires: 03/31/2023



Chad E. Tuttle, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA
Table 1 - Proposed Equipment Information
Table 2 - Documents Provided

3) ANALYSIS PROCEDURE
3.1) Analysis Method
3.2) Assumptions

4) ANALYSIS RESULTS
Table 3 – Mount Component Stresses vs. Capacity

5) RECOMMENDATIONS

6) APPENDIX A
RISA-3D Output

7) APPENDIX B
Additional Calculations

1) INTRODUCTION

The appurtenance mount consists of Commscope Platform mount (Part # MC-PK8-DSH) at 65 ft., attached to Monopole at 10 Redwood Lane, Avon, CT, 06001, Hartford County. The proposed antenna loading information was obtained from SBA Network Services, LLC. All information provided to us assumed accurate and complete.

2) ANALYSIS CRITERIA

The structural analysis was performed for this mount in accordance with the ANSI/TIA-222-H-2017 Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Support Structures using a 3 - second gust wind speed of 116 mph with no ice and 50 mph with 1.5-inch escalated ice thickness. Exposure category B, Topographic Category 1 and Risk Category II were used in the analysis. In addition, the platform mount has been analyzed for various live loading conditions consisting of a 250-lb man live load applied individually at the midpoint and cantilevered ends of horizontal members as well as a 500-pound man live load applied individually at mount pipe locations using a 3-second gust of 30mph. The mount was analyzed under 30º increments in the wind direction. The analyzed loading is detailed in Table 1.

Table 1 – Proposed Equipment Information

Loading	RAD Center Elev. (ft.)	Position	Qty.	Description	Note
Proposed	65	1	3	JMA Wireless MX08FRO665-21	1
			3	Fujitsu TA08025-B605	2
			3	Fujitsu TA08025-B604	
		-	1	Raycap RDIDC-9181-PF-48	3

Note:
1) Proposed Antenna to be installed on the Proposed Mount Pipe.
2) Proposed Equipment to be installed directly behind the Antenna
3) Proposed Equipment to be installed on the Mount.

Table 2 - Documents Provided

Documents	Remarks	Reference	Source
SBA Application	Proposed Loading	Date: 09/07/2022	SBA Network Services, LLC.
RFDS		Date: 08/19/2022	

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 20.0.3), a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses and deflections for various loading cases. Selected output from the analysis is included in Appendix A.

Manufacturer's drawings were used to create the model.

3.2) Assumptions

1. The mount was built in accordance with the manufacturer's specifications.
2. The mount has been maintained in accordance with the manufacturer's specifications and is free of damage.
3. The configuration of antennas and other appurtenances are as specified in Table 1.
4. All mount components have been assumed to be in sufficient condition to carry their full design capacity for the analysis.

5. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.
6. Serviceability with respect to antenna twist, tilt, roll, or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
7. All prior structural modifications if any are assumed to be correctly installed and fully effective.
8. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
9. The following material grades were assumed (Unless Noted Otherwise):
   a) Connection Bolts : ASTM A325
   b) Steel Pipe : ASTM A53 (GR. 35)
   c) HSS (Round) : ASTM 500 (GR. B-42)
   d) HSS (Rectangular) : ASTM 500 (GR. B-46)
   e) Channel : ASTM A36 (GR. 36)
   f) Steel Solid Rod : ASTM A36 (GR. 36)
   g) Steel Plate : ASTM A36 (GR. 36)
   h) Steel Angle : ASTM A36 (GR. 36)
   i) UNISTRUT : ASTM A570 (GR. 33)

This analysis may be affected if any assumptions are not valid or have been made in error. MTS Engineering, P.L.L.C. should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 – Mount Component Stresses vs. Capacity

Notes	Component	Elevation (ft.)	% Capacity	Pass / Fail
-	Main Horizontals	65	8.0	Pass
-	Support Rail	65	9.4	Pass
-	Support Tube	65	49.1	Pass
-	Support Channel	65	40.6	Pass
-	Support Angle	65	22.8	Pass
-	Mount Pipe	65	9.7	Pass
-	Connection Plate	65	23.4	Pass
-	Connection Angle	65	14.2	Pass

5) RECOMMENDATIONS

The Commscope Platform mount (Part # MC-PK8-DSH) has sufficient capacity to carry the proposed loads and is in compliance with the ANSI/TIA-222-H standard for the proposed loading. (Refer to the RISA output for the specific members).

APPENDIX B

(Additional Calculations)

PROJECT	**165630.001.01.0002 - Avon, CT**	**KSC**
SUBJECT	**Platform Mount Analysis**	
DATE	**09/21/22**	

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

Tower Type		:	Monopole		
Ground Elevation	z_s	:	440	ft	[ASCE7 Hazard Tool]
Tower Height		:	105.00	ft	
Mount Elevation		:	65.00	ft	
Antenna Elevation		:	65.00	ft	
Crest Height		:	0	ft	
Risk Category		:	II		[Table 2-1]
Exposure Category		:	B		[Sec. 2.6.5.1.2]
Topography Category		:	1.00		[Sec. 2.6.6.2]
Wind Velocity	V	:	116	mph	[ASCE7 Hazard Tool]
Ice wind Velocity	V_i	:	50	mph	[ASCE7 Hazard Tool]
Service Velocity	V_s	:	30	mph	[ASCE7 Hazard Tool]
Base Ice thickness	t_i	:	1.50	in	[ASCE7 Hazard Tool]
Seismic Design Cat.		:	B		[ASCE7 Hazard Tool]
	S_S	:	0.18		
	S_1	:	0.05		
	S_{DS}	:	0.19		
	S_{D1}	:	0.09		
Gust Factor	G_h	:	1.00		[Sec. 16.6]
Pressure Coefficient	K_z	:	0.87		[Sec. 2.6.5.2]
Topography Facto	K_{zt}	:	2.34		[Sec. 2.6.6]
Elevation Factor	K_e	:	0.98		[Sec. 2.6.8]
Directionality Factor	K_d	:	0.95		[Sec. 16.6]
Shielding Factor	K_a	:	0.90		[Sec. 16.6]
Design Ice Thickness	t_{iz}	:	1.61	in	[Sec. 2.6.10]
Importance Factor	I_e	:	1		[Table 2-3]
Response Coefficient	C_s	:	0.097		[Sec. 2.7.7.1]
Amplification	A_s	:	1.47619		[Sec. 16.7]
	q_z	:	28.14	psf	

PROJECT	**165630.001.01.0002 - Avon, CT**	**KSC**
SUBJECT	**Platform Mount Analysis**	
DATE	**09/21/22**	

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

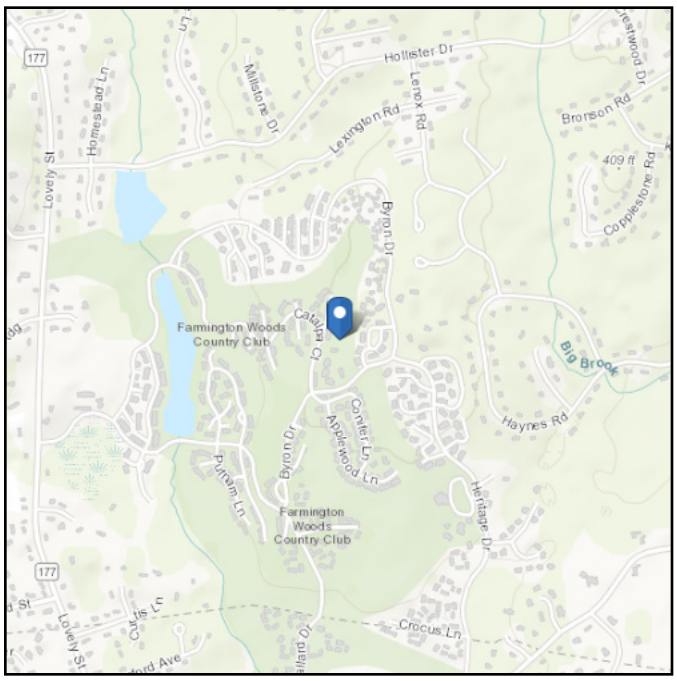
Manufacturer	Model	Qty	Height (in^2)	Width (in^2)	Depth (in^2)	Weight (lbs)	C_aA_a (N) (ft^2)	C_aA_a (T) (ft^2)	C_aA_a (N) Ice (ft^2)	C_aA_a (T) Ice (ft^2)	$F_{A\,(N)}$ (k)	$F_{A\,(T)}$ (k)	$F_{A\,(N)}$ Ice (k)	$F_{A\,(T)}$ Ice (k)
JMA Wireless	MX08FRO665-21	0.5	72.0	20.0	8.0	64.5	4.01	1.61	4.80	2.30	0.11	0.05	0.03	0.01
JMA Wireless	MX08FRO665-21	0.5					4.01	1.61	4.80	2.30	0.11	0.05	0.03	0.01
Fujitsu	TA08025-B605	1	15.0	15.8	7.9	75.0	1.96	0.98	2.87	1.68	0.05	0.02	0.01	0.00
Fujitsu	TA08025-B604	1	15.0	15.8	7.9	63.9	1.96	0.98	2.87	1.68	0.05	0.02	0.01	0.00
JMA Wireless	MX08FRO665-21	0.5	72.0	20.0	8.0	64.5	4.01	1.61	4.80	2.30	0.11	0.05	0.03	0.01
JMA Wireless	MX08FRO665-21	0.5					4.01	1.61	4.80	2.30	0.11	0.05	0.03	0.01
Fujitsu	TA08025-B605	1	15.0	15.8	7.9	75.0	1.96	0.98	2.87	1.68	0.05	0.02	0.01	0.00
Fujitsu	TA08025-B604	1	15.0	15.8	7.9	63.9	1.96	0.98	2.87	1.68	0.05	0.02	0.01	0.00
JMA Wireless	MX08FRO665-21	0.5	72.0	20.0	8.0	64.5	4.01	1.61	4.80	2.30	0.11	0.05	0.03	0.01
JMA Wireless	MX08FRO665-21	0.5					4.01	1.61	4.80	2.30	0.11	0.05	0.03	0.01
Fujitsu	TA08025-B605	1	15.0	15.8	7.9	75.0	1.96	0.98	2.87	1.68	0.05	0.02	0.01	0.00
Fujitsu	TA08025-B604	1	15.0	15.8	7.9	63.9	1.96	0.98	2.87	1.68	0.05	0.02	0.01	0.00
Raycap	RDIDC-9181-PF-48	1	19.0	16.2	9.6	21.9	2.56	1.52	3.59	2.38	0.06	0.04	0.01	0.01

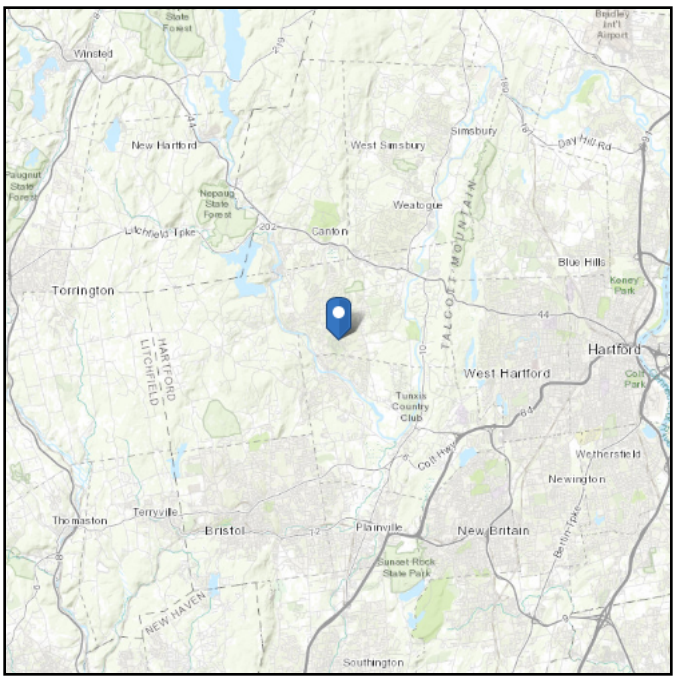
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 439.99 ft (NAVD 88)
Latitude: 41.772499
Longitude: -72.879999





Wind

Results:

Wind Speed	116 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	96 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: Sat Sep 17 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.

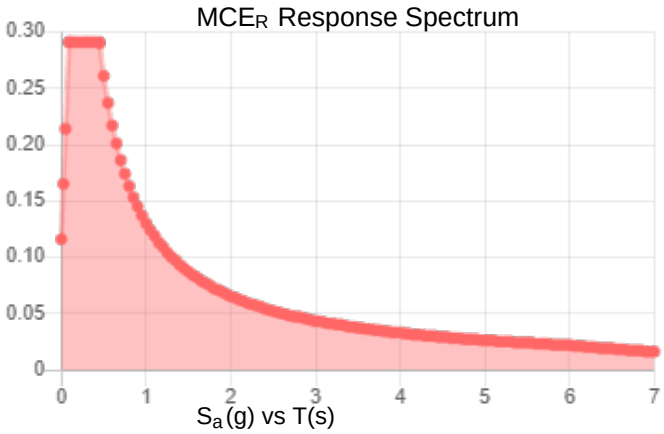
Seismic

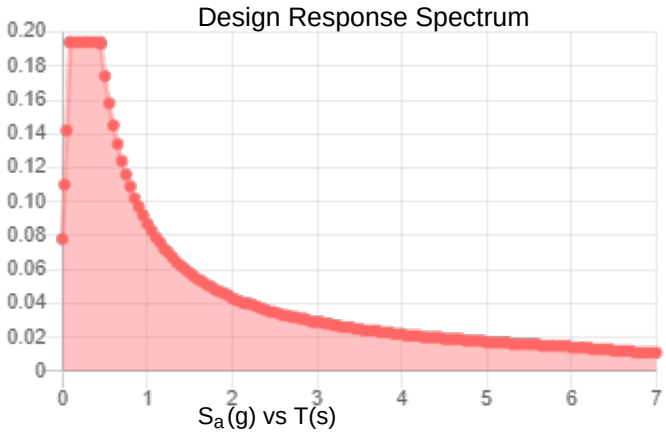
Site Soil Class: D - Default (see Section 11.4.3)

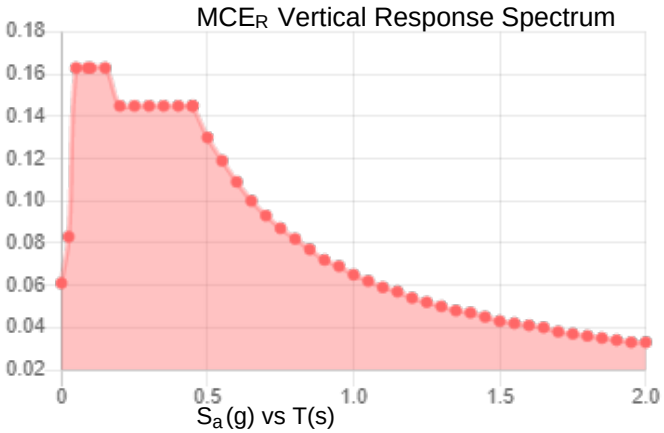
Results:

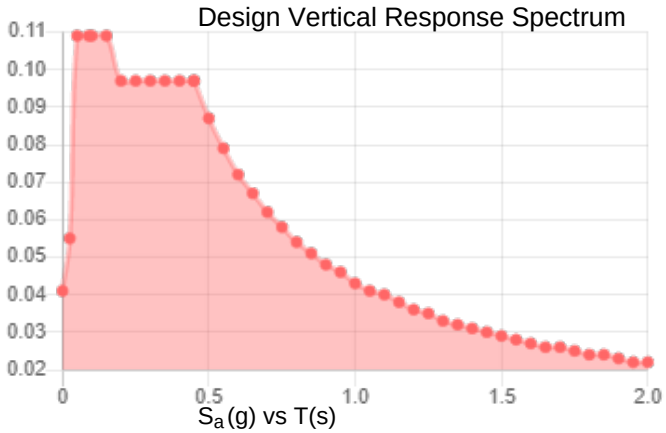
S_S :	0.182	S_{D1} :	0.087
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.097
F_v :	2.4	PGA_M :	0.156
S_{MS} :	0.291	F_{PGA} :	1.6
S_{M1} :	0.13	I_e :	1
S_{DS} :	0.194	C_v :	0.7

Seismic Design Category B









Data Accessed: **Sat Sep 17 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:	1.50 in.
Concurrent Temperature:	5 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Sat Sep 17 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

Site ID: BOBDL00107B

SBA Avon
10 Redwood Lane
Avon, CT 06001

December 13, 2022

Fox Hill Telecom Project Number: 222023

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**18.40 %**

Fox Hill Telecom

December 13, 2022

Dish Wireless
5701 South Santa Fe Drive
Littleton, CO 80120

Emissions Analysis for Site: **BOBDL00107B – SBA Avon**

Fox Hill Telecom, Inc ("Fox Hill") was directed to analyze the proposed radio installation for Dish Wireless, LLC (Dish) facility located at **10 Redwood Lane, Avon, 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 limit for the 600 MHz frequency band is approximately 400 $\mu W/cm^2$. 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 upgrades to the T-MOBILE antenna facility located at **10 Redwood Lane, Avon, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65 for far field modeling calculations.

In OET-65, plane wave power densities in the Far Field of an antenna are calculated by considering antenna gain and reflective waves that would contribute to exposure.

Since the radiation pattern of an antenna has developed in the **Far Field** region the power gain in specific directions needs to be considered in exposure predictions to yield an Effective Radiated Power (ERP) in each specific direction from the antenna. Also, since the vertical radiation pattern of the antenna is considered, the exposure calculations would most likely be reduced significantly at ground level, resulting in a more realistic estimate of the actual exposure levels. To determine a worst-case scenario at each point along the calculation radials, each point was calculated using the antenna gain value at each angle of incident and compared against the result using an isotropic radiator at the antenna height with the greater of the two used to yield the more pessimistic far field value for each point along the calculation radial.

Additionally, to model a truly "worst case" prediction of exposure levels at or near a surface, such as at ground-level or on a rooftop, reflection off the surface of antenna radiation power can be assumed, resulting in a potential 1.6 times increase in power density in calculating far field power density values.

With these factors Considered, the worst case **Far Field prediction model** utilized in this analysis is determined by the following equation:

Equation 9 per FCC OET65 for Far Field Modeling

$$S = \frac{33.4\ ERP}{R^2}$$

S = Power Density (in μw/cm^2)
ERP = Effective Radiated Power from antenna (watts)
R = Distance from the antenna (meters)

Predicted far field power density values for all carriers identified in this report were calculated 6 feet above the ground level and are displayed as a percentage of the applicable FCC standards. All emissions values for other carriers were calculated using the same Far Field model outlined above, using industry standard radio configurations and frequency band selection based upon available licenses in this geographic area for emissions contribution estimates.

For each Dish 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 **Dish** 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 Dish regarding anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	JMA MX08FRO665-21	65
B	1	JMA MX08FRO665-21	65
C	1	JMA MX08FRO665-21	65

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	3.39
						Sector A Composite MPE%	**3.39**
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	3.39
						Sector B Composite MPE%	**3.39**
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	3.39
						Sector C Composite MPE%	**3.39**

Table 3: Dish Emissions Levels

The Following table (*Table 4*) shows all additional carriers on site and their emissions contribution estimates, along with the newly calculated **Dish** far field emissions 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 emissions 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 emissions value for the site.

Site Composite MPE%	
Carrier	**MPE%**
Dish – Max Per Sector Value	**3.39 %**
Farmington Woods	1.20 %
T-Mobile	2.60 %
AT&T	7.64 %
Clearwire MW	0.11 %
Sprint	3.46 %
Site Total MPE %:	**18.40 %**

Table 4: All Carrier MPE Contributions

Dish Sector A Total:	3.39 %
Dish Sector B Total:	3.39 %
Dish Sector C Total:	3.39 %
Site Total:	18.40 %

Table 5: Site MPE Summary

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 n71 (600 MHz) 5G	4	858.77	65	6.60	n71 (600 MHz)	400	1.65%
Dish n70 (AWS-4 / 1995-2020) 5G	4	1,648.39	65	8.70	n70 (AWS-4 / 1995-2020)	1000	0.87%
Dish n66 (AWS-4 / 2180-2200) 5G	4	1,849.52	65	8.70	n66 (AWS-4 / 2180-2200)	1000	0.87%
						Total:	**3.39%**

Table 6: Dish Maximum Sector MPE Power Values

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:	3.39 %
Sector B:	3.39 %
Sector C:	3.39 %
Dish Maximum Total (per sector):	3.39 %
Site Total:	18.40 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite emissions value for this site, assuming all carriers present, is **18.40 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon the far field calculations performed for all carriers identified in this report.

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
Worcester, MA 01609
(978)660-3998

Exhibit G

Letter of Authorization

SBA Letter of Authorization

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

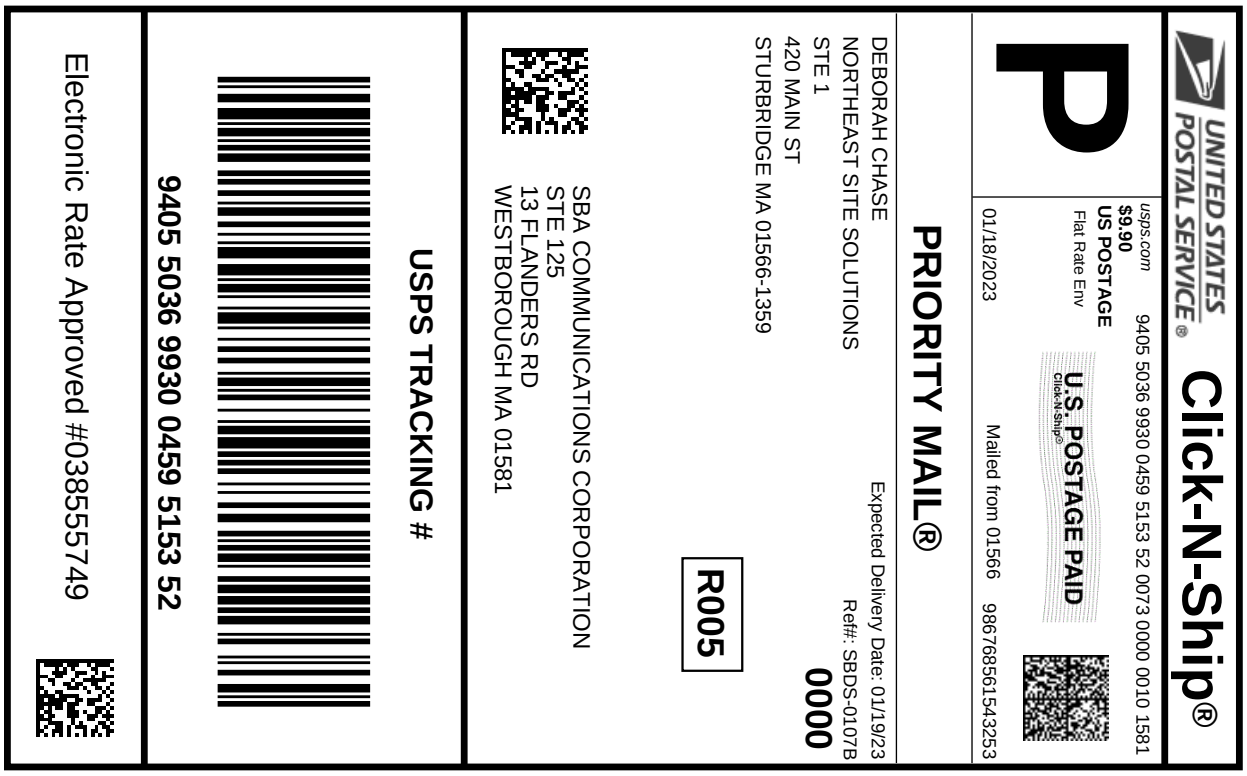
Re: Tower Share Application

SBA COMMUNICATIONS CORPORATION hereby authorizes DISH Wireless LLC, including their Agent, to act as our Agent in the processing of all zoning applications, building permits and approvals through the CONNECTICUT SITING COUNCIL for existing wireless communications towers.

SBA COMMUNICATIONS CORPORATION
134 Flanders Road, Suite 125
Westboro, MA 01581

Exhibit H

Recipient Mailings



Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0459 5153 52

Trans. #:	580822772
Print Date:	01/18/2023
Ship Date:	01/18/2023
Expected Delivery Date:	01/19/2023

Priority Mail® Postage:	**$9.90**
Total:	**$9.90**

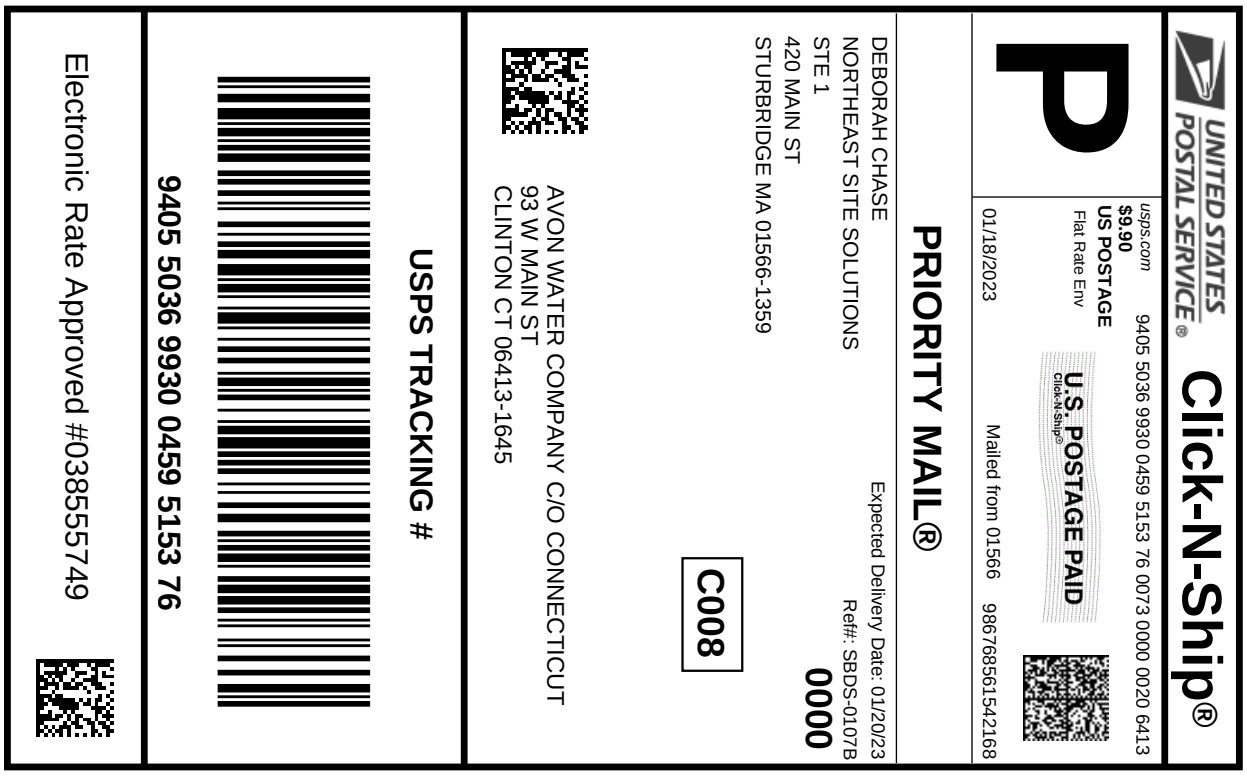
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: SBDS-0107B

To: SBA COMMUNICATIONS CORPORATION
STE 125
13 FLANDERS RD
WESTBOROUGH MA 01581

* 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.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



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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 0459 5153 76

Trans. #:	580822772
Print Date:	01/18/2023
Ship Date:	01/18/2023
Expected Delivery Date:	01/20/2023

Priority Mail® Postage:	**$9.90**
Total:	**$9.90**

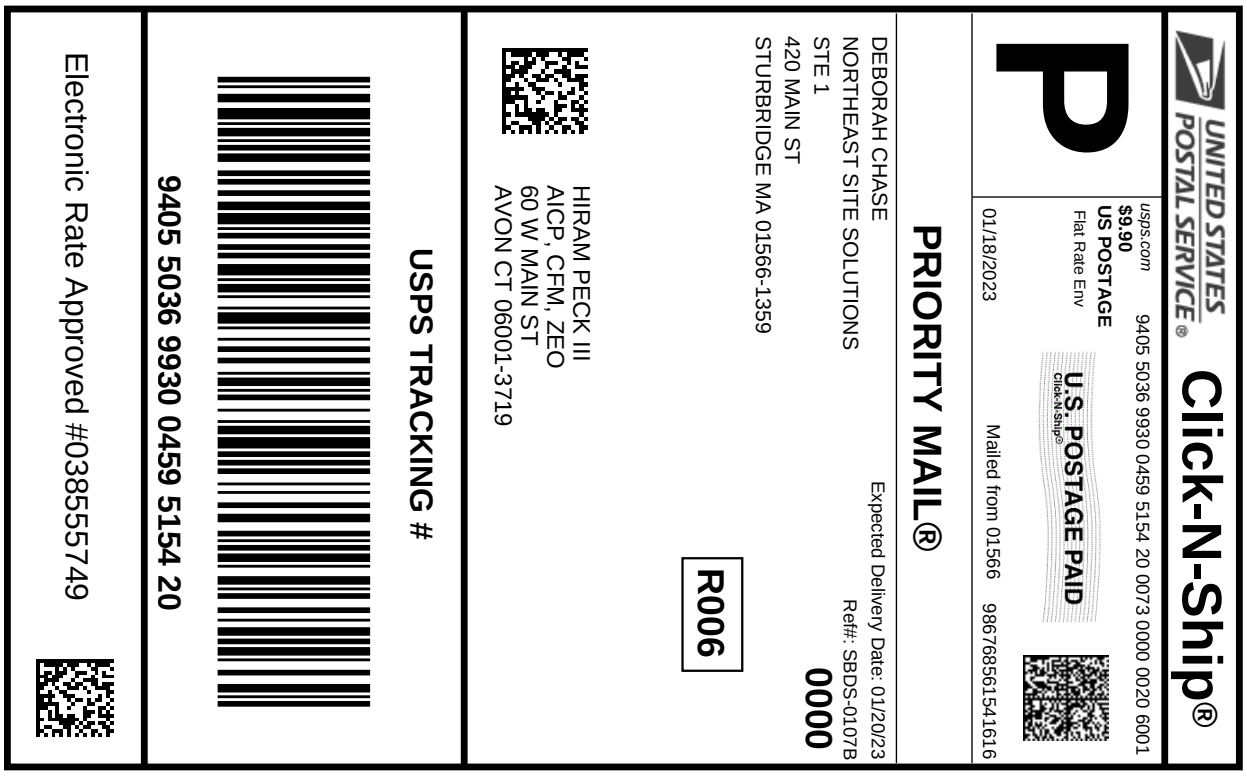
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: SBDS-0107B

To: AVON WATER COMPANY C/O CONNECTICUT WATER COMPANY
93 W MAIN ST
CLINTON CT 06413-1645

* 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.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0459 5154 20

Trans. #:	580822772
Print Date:	01/18/2023
Ship Date:	01/18/2023
Expected Delivery Date:	01/20/2023

Priority Mail® Postage:	**$9.90**
Total:	**$9.90**

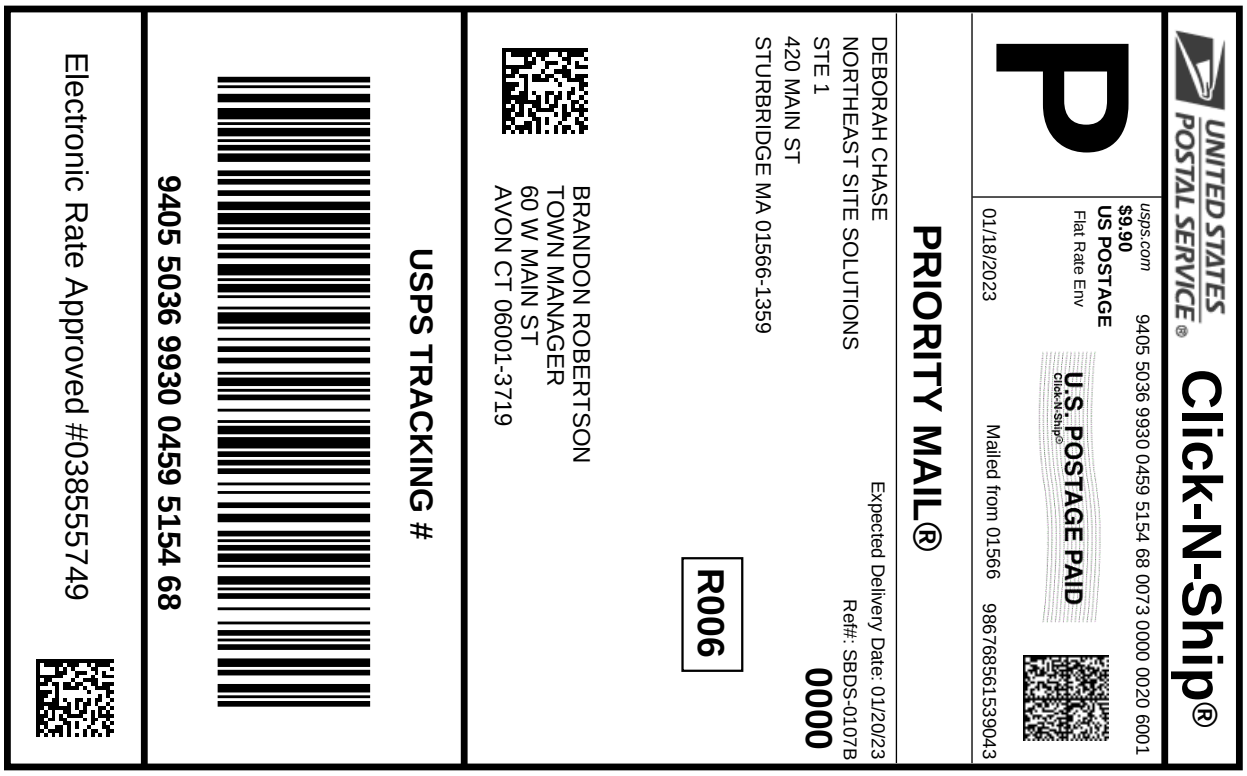
From: DEBORAH CHASE
NORTHEAST SITE SOLUTIONS
STE 1
420 MAIN ST
STURBRIDGE MA 01566-1359

Ref#: SBDS-0107B

To: HIRAM PECK III
AICP, CFM, ZEO
60 W MAIN ST
AVON CT 06001-3719

* 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.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

Instructions

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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 0459 5154 68

Trans. #:	580822772
Print Date:	01/18/2023
Ship Date:	01/18/2023
Expected Delivery Date:	01/20/2023

Priority Mail® Postage:	**$9.90**
Total:	**$9.90**

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

Ref#: SBDS-0107B

To: BRANDON ROBERTSON
TOWN MANAGER
60 W MAIN ST
AVON CT 06001-3719

* 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.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com

Bobbi 082678

UNITED STATES POSTAL SERVICE.

FARMINGTON
210 MAIN ST
FARMINGTON, CT 06032-9998
(800)275-8777

01/20/2023 04:34 PM

Product	Qty	Unit Price	Price
Prepaid Mail Avon, CT 06001 Weight: 0 lb 7.60 oz Acceptance Date: Fri 01/20/2023 Tracking #: 9405 5036 9930 0459 5154 68	1		$0.00
Prepaid Mail Westborough, MA 01581 Weight: 0 lb 2.00 oz Acceptance Date: Fri 01/20/2023 Tracking #: 9405 5036 9930 0459 5153 52	1		$0.00
Prepaid Mail Avon, CT 06001 Weight: 0 lb 7.70 oz Acceptance Date: Fri 01/20/2023 Tracking #: 9405 5036 9930 0459 5154 20	1		$0.00
Prepaid Mail Clinton, CT 06413 Weight: 0 lb 7.70 oz Acceptance Date: Fri 01/20/2023 Tracking #: 9405 5036 9930 0459 5153 76	1		$0.00
Grand Total:			$0.00

Text your tracking number to 28777 (2USPS) to get the latest status. Standard Message and Data rates may apply. You may also visit www.usps.com USPS Tracking or call 1-800-222-1811.

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Track your Packages
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https://informeddelivery.usps.com

All sales final on stamps and postage.
Refunds for guaranteed services only.
Thank you for your business.

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or scan this code with your mobile device,

or call 1-800-410-7420.

UFN: 082618-0132
Receipt #: 840-50600020-1-5244968-1
Clerk: 2