STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

May 19, 2023

Victoria Masse
Northeast Site Solutions
420 Main Street, Unit 1, Box 2
Sturbridge, MA 01566-1359
victoria@northeastsitesolutions.com

RE: **PETITION NO. 1569 –** Dish Wireless, LLC petition for a declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for proposed modifications to an existing telecommunications facility located at St. Matthew Lutheran Church, 224 Lovely Street, Avon, Connecticut.

Dear Victoria Masse:

The Connecticut Siting Council (Council) requests your responses to the enclosed questions no later than June 9, 2023.

Please submit an original and 15 copies to the Council's office and an electronic copy to siting.council@ct.gov. In accordance with the State Solid Waste Management Plan and in accordance with Section 16-50j-12 of the Regulations of Connecticut State Agencies, the Council requests all filings be submitted on recyclable paper, primarily regular weight white office paper. Please avoid using heavy stock paper, colored paper, and metal or plastic binders and separators. Fewer copies of bulk material may be provided as appropriate.

Please be advised that the original and 15 copies are required to be submitted to the Council's office on or before the June 9, 2023 deadline.

Copies of your responses are required to be provided to all parties and intervenors listed in the service list, which can be found on the Council's website under the "Pending Matters" link.

Any request for an extension of time to submit responses to interrogatories shall be submitted to the Council in writing pursuant to §16-50j-22a of the Regulations of Connecticut State Agencies.

Sincerely,

Melanie Bachman
Executive Director

MB/rm

Petition No. 1569
Dish Wireless LLC
224 Lovely Street, Avon, Connecticut

Interrogatories
May 19, 2023

Notice

1. Referencing Section V, p. 3 and Attachment 7 of the Petition, has the Town of Avon and/or any abutting property owners provided comments to Dish since the Petition filing? If so, please summarize the comments.
   No, we have not received any abutting notice responses.

Project Development

2. Is the project, or any portion of the project, proposed to be undertaken by state departments, institutions or agencies, or to be funded in whole or in part by the state through any contract or grant?
   No.

3. Would the proposed antenna installation at the existing facility be needed for coverage or capacity? What areas in the vicinity of the existing facility would benefit from the proposed installation?
   This site will provide coverage along Routes 177 and 167 and to nearby residents of Avon, CT.

Existing Facility

4. Referencing Attachment 1 to the Petition, SRR Towers, LLC owns the existing facility. Council records for the existing facility indicate the Certificate was issued to New Cingular Wireless PCS, LLC (AT&T), but there is no record of any subsequent transfer of the Certificate to SRR Towers, LLC in accordance with the requirements of Certificate Condition No. 15. Explain how SRR Towers, LLC acquired the Certificate.
   SRR Towers, LLC purchased this facility from AT&T Wireless on March 31, 2022. Please find attached Omnibus assignment and assumption of ground lease.

5. Revise Sheet A-2 (Proposed East Elevation) to include all carriers located on the tower.
   Please find attached revised plans prepared by Infinigy, dated 7/17/2023.

Proposed Modifications

6. Referring to Petition p. 1, define "normal business hours" for construction.
   No construction restrictions on lease. Will not complete any construction work during Church events or normal hours.

7. Petition p. 2 states the canister will extend five feet. Petition p. 3 refers to "the 8-foot replacement of the existing stealth pole." Sheet A-2 shows a canister extension of eight feet. Clarify.
   This was a typo; the canister will extend a total of 8 feet. Please see attached revised cover letter.

8. Is the proposed compound expansion within the existing lease area for the facility? Submit a depiction of the existing facility lease area.
   The total lease area is 50x50. Please find attached Letter of Acknowledgement from the St. Matthew Lutheran Church of Avon.

9. How will the proposed equipment platform and radio cabinets be installed? What construction equipment will be used and how will it access the construction area?
Dish's equipment will be installed by hand and brought to the site via a towable trailer.

10. Referring to Petition p. 2 and Sheet A-1, if the native tree on the north side of the existing compound needs to be removed, would the stump also be removed? What equipment would be required for tree trimming or removal?
The tree would be trimmed or removed by hand. Dish does not usually remove stumps unless leaving would impact our equipment.

11. Will excavation and/or filling be required to accommodate the compound expansion area and swing gate?
The area would be graded, and stone will be brought in to match existing conditions. Stone will be installed over weed barrier mat.

12. Post-construction, how will DISH access the swing gate and radio equipment? What route from the parking area would be used?
Dish will utilize the main gate to the compound to access their equipment. The swing gate being installed by Dish will be used for additional accessibility.

13. Would the landscape plantings along the east and/or west sides of the existing compound fence be removed to facilitate construction and/or post-construction site access? If yes, would the landscape plantings be replaced? Explain.
No, Dish will not be removing existing landscape from the east or west side.

14. Provide photographs of the compound expansion area, construction and tree removal access areas.
Please see attached photos.

Environmental

15. The record for Docket No. 373 indicates the nearest wetland/watercourse is Roaring Brook, approximately 20 feet east of the site. Would erosion and sedimentation (E&S) controls be installed to protect this resource? If yes, Provide details.
Dish is prepared to install E&S control measures encompassing; the compound, access road and construction staging area. Please see attached plans prepared by Infinigy, dated 7/17/2023.

16. The record for Docket No. 373 indicates the site is within the range of the eastern box turtle (Petition Attachment 2, Council Decision and Order item 2f.) What measures are proposed to reduce potential construction related impacts to the eastern box turtle?
Although the Eastern Box Turtle was not identified on the Connecticut Natural Diversity Data Base, the possibility exists for the Eastern Box Turtle to be located at the Project Site.

Dish will work with an Environmental consultant prior to construction. Additionally, work crews will be notified that if the Eastern Box Turtle is located at the Project Site, work will cease until the turtle has cleared the area.

17. Provide a construction site plan that depicts E&S controls, eastern box turtle mitigation measures, grading, construction site access, vegetation removal/trimming and restoration.
Please see page A-1.2 of the attached plans prepared by Infinigy, dated 7/17/2023.

Public Safety

18. Identify the applicable safety standards and/or codes for the proposed equipment, machinery or technology that would be used or operated at the facility.
    We will be following all building codes, OSHA, and FCC requirements.

19. Would any lighting be installed on Dish's equipment? If so, what would it be used for? Would it be on all the time, have a motion sensor or work on a preset timer?
    No, Dish will not be installing any lighting.

20. Provide a detailed structural analysis that includes all carrier equipment on the existing tower in addition to the proposed equipment. The structural analysis provided as Petition Attachment 4 refers to a previous structural analysis dated January 27, 2023 that was not included.
    Please see attached Structural Analysis prepared by BST Management LLC, dated 6/22/2023.

21. Referring to Sheet A-3, "Platform Equipment Plan," a proposed generator plug is depicted. Would DISH obtain emergency backup power from a temporary mobile generator? If power is lost to DISH's equipment, can DISH still provide wireless services from the site through a network sharing agreement with another wireless carrier located at the site?
    We will be utilizing our network sharing agreements in the short-term, but we reserve the right to use a portable generator in the future.

22. Provide a rigorous cumulative far-field Radio Frequency Power Density Analysis that accounts for Dish's proposed equipment and all other entities' equipment on the tower, accounting for a 6-foot tall person at ground level and the actual antenna patterns for the facility with a cumulative %MPE at or below 100%. Identify the distance from the tower with the highest cumulative %MPE.
    Please find attached revised Radio Frequency report prepared by Fox Hill Telecom, dated 12/30/2022.

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

IN RE:	:	
	:	
A PETITION FOR A DECLARATORY RULING ON THE NEED TO OBTAIN A SITING COUNCIL CERTIFICATE FOR THE PROPOSED MODIFICATION OF AN EXISTING WIRELESS TELECOMMUNICATIONS FACILITY AT 224 LOVELY STREET, AVON, CONNECTICUT	:	PETITION NO. ____
	:	September 6, 2023

PETITION FOR A DECLARATORY RULING:
INSTALLATION HAVING NO
SUBSTANTIAL ADVERSE ENVIRONMENTAL EFFECT

I. Introduction

Pursuant to Sections 16-50j-38 and 16-50j-39 of the Regulations of Connecticut State Agencies ("R.C.S.A."), Dish Wireless LLC ("Dish") hereby petitions the Connecticut Siting Council (the "Council") for a declaratory ruling ("Petition") that no Certificate of Environmental Compatibility and Public Need ("Certificate") is required under Section 16-50k(a) of the Connecticut General Statutes ("C.G.S.") for the modification of an existing wireless telecommunications facility at 224 Lovely Street, Avon, Connecticut (the "Existing Facility").

II. Existing Facility

The Existing Facility is located on an approximately 5.24-acre parcel owned by St Matthews Lutheran Church of Collinsville. The Facility consists of a 110-foot stealth monopole tower. **Attachment 1** contains the owner's authorization permitting Dish to file this Petition. The Facility was originally approved for use by the Council on October 7, 2010, Docket No. 373A as documented in **Attachment 2**.

III. Dish Facility

Dish's proposed modification to its facility is illustrated on the plans submitted as **Attachment 3**. Dish proposes to replace the existing 36inch stealth canister with a new 48inch canister from approximately the 63-foot level to the 71-foot level of the existing stealth monopole. Additionally, Dish will expand the compound an additional 87.60sqft (14.6x6ft) which includes a proposed gate to easily access the 5x7 steel platform that will hold the proposed cabinets. The proposed new fence will match the existing compound fence. No Generator or backup power is proposed at this time. Installation of Dish's facility will take approximately three (3) weeks to complete. Construction will occur during normal business hours, or as allowed by the tower and/or property owner.

Dish Planned Installation:

Install New:

(3) Commscope FVV-65B-R3 antenna @ 67ft RAD
(6) Commscope CDX623T-DS-T Diplexers @ 60ft RAD
(12) 0.875" Coax

Installation of Dish's facility will cost approximately $48,000.

Dish has confirmed that the Modified Facility is capable of supporting the additional antennas and other changes to the tower mounted equipment, as documented in the Structural Analysis Report annexed hereto as **Attachment 4.**

IV. The Proposed Modification Will Not Have A Substantial Adverse Environmental Effect

1. Physical Environmental Effects

The modification of Dish's Facility will not involve a significant alteration to the physical and environmental characteristics of the Property. One native tree will be removed or cut back to provide space for the proposed gate installation. No on-site or off-site wetlands or watercourses will be impacted by the proposed facility expansion.

2. Visual Effects

Given the overall height of the existing stealth cannister is 110-feet AGL, Dish's proposed cannister extension of *8-feet* at the 67-foot RAD would have a minimal visual impact. The extended cannister will be disguised in the same manner as the existing cannister structure and will have a minimal visual impact when viewed from the public right-of-way or adjacent private properties.

3. FCC Compliance

Radio frequency ("RF") emissions resulting from Dish's proposed modification of the Existing Facility will be well below the standards adopted by the Federal Communications Commission ("FCC"). Included in **Attachment 6** is a Radio Frequency Emissions Analysis Report prepared by Fox Hill Telecom. This report confirms that the modified facility will operate well within the RF emission standards established by the FCC.

V. Notice to the Municipality, Property Owner and Abutting Landowners

On April 26, 2023, a copy of this Petition was sent to Brandon Robertson, Town Manager and Hiram Peck III, AICP, CFM, ZEO, Director of Planning and Community Development for the Town of Avon. A notice of Dish's intent to file this Petition was also sent to the owners of land that may be considered to abut the Property or they are within 200-feet. Included in **Attachment 5** is a sample abutter's letter and the list of those abutting landowners who were sent notice.

VI. Conclusion

Based on the information provided above, the Petitioners respectfully requests that the Council issue a determination in the form of a declaratory ruling that the 8-foot replacement of the existing stealth pole and the new facility compound at the Property will not have a substantial adverse environmental effect and does not require the issuance of a Certificate of Environmental Compatibility and Public Need pursuant to § 16-50k of the General Statutes.

Respectfully submitted,

Victoria Masse
Northeast Site Solutions
Agent for Dish Wireless
(860) 306- 2326
victoria@northeastsitesolutions.com

Attachments

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

Hiram Peck III, Director of Planning and Community Development
Avon Town Hall
60 West Main Street
Avon, CT 06001

DISH Wireless L.L.C. SITE ID:

BOBDL00030A

DISH Wireless L.L.C. SITE ADDRESS:

224 LOVELY STREET
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 OF THE 2022 CONNECTICUT STATE BUILDING CODE
MECHANICAL	2021 IMC OF THE 2022 CONNECTICUT STATE BUILDING CODE
ELECTRICAL	2020 NFPA 70 OF THE 2022 CONNECTICUT STATE BUILDING CODE

SHEET INDEX

SCOPE OF WORK

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PARTS 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 PROPOSED JUMPERS
- INSTALL (12) PROPOSED 7/8"ø COAX CABLES (96FT LENGTH APPROX.)
- INSTALL (6) DIPLEXERS (2 PER SECTOR)
- INSTALL (1) PROPOSED CANISTER (DESIGNED BY RAYCAP)

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 (6) PROPOSED RRUs (2 PER SECTOR, GROUND MOUNTED ON H-FRAME)
- INSTALL (6) DIPLEXERS
- INSTALL (1) PROPOSED POWER CONDUIT
- INSTALL (1) PROPOSED TELCO CONDUIT
- INSTALL (1) PROPOSED TELCO-FIBER BOX
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED SAFETY SWITCH (IF REQUIRED)
- INSTALL (1) PROPOSED CIENA BOX (IF REQUIRED)
- INSTALL (1) PROPOSED METER SOCKET (VERIFY IF EXISTING METER SOCKET WITH DISCONNECT CAN BE USED)
- INSTALL (1) PROPOSED H-FRAME

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:	ST. MATTHEWS LUTHERAN CHURCH
ADDRESS:	224 LOVELY STREET AVON, CT 06001
TOWER TYPE:	STEALTH CANNISTER
TOWER CO SITE ID:	CT-1239
TOWER APP NUMBER:	TBD
COUNTY:	HARTFORD
LATITUDE (NAD 83):	41° 47' 58.0" N 41.799452 N
LONGITUDE (NAD 83):	-72° 53' 16.3" W -72.887874 W
ZONING JURISDICTION:	CT SITING COUNSEL
ZONING DISTRICT:	R30
PARCEL NUMBER:	3060224
OCCUPANCY GROUP:	U
CONSTRUCTION TYPE:	V-B
POWER COMPANY:	EVERSOURCE
TELEPHONE COMPANY:	CROWN FIBER

PROJECT DIRECTORY

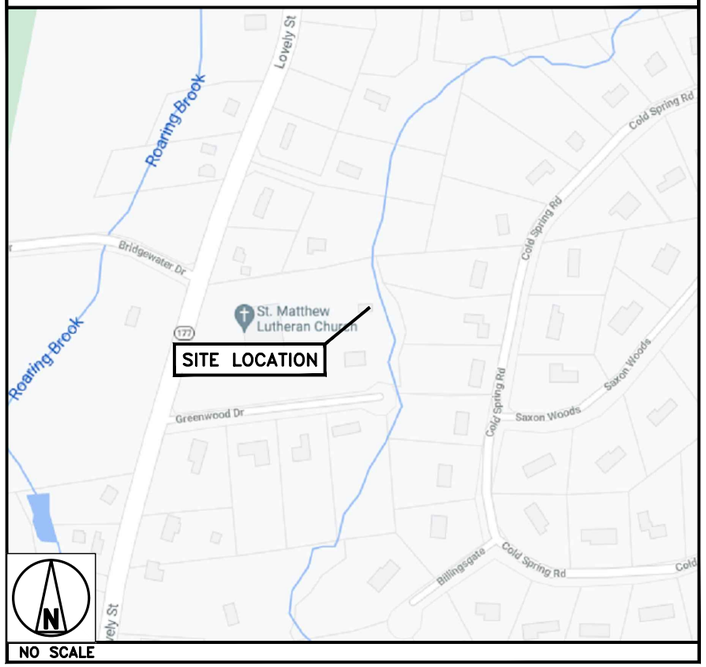
APPLICANT:	DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER OWNER:	SRR TOWERS
SITE DESIGNER:	INFINIGY 2500 W. HIGGINS RD. STE. 500 HOFFMAN ESTATES, IL 60169 (847) 648-4068
SITE ACQUISITION:	DAVID GOODFELLOW DAVID.GOODFELLOW@DISH.COM (860) 573-2758
CONSTRUCTION MANAGER:	CHAD WILCOX CHAD WILCOX@DISH.COM (860) 634-9600
RF ENGINEER:	DIPESH PARIKH DIPESH.PARIKH@DISH.COM (312) 929-9086

DIRECTIONS

DIRECTIONS FROM TOURS OF DISTINCTION AIRPORT:

DEPART AND HEAD TOWARD MASSACO ST, TURN RIGHT ONTO MASSACO ST, TURN RIGHT ONTO US-202 W / CT-10 / HOPMEADOW ST, TURN RIGHT ONTO CT-167 / WEST ST, TURN LEFT TO STAY ON CT-167 / BUSHY HILL RD, TURN RIGHT ONTO CANTON RD, KEEP RIGHT TO GET ONTO WILDWOOD RD, BEAR LEFT ONTO NOTCH RD, ROAD NAME CHANGES TO WASHBURN RD, BEAR LEFT ONTO LAWTON RD, ROAD NAME CHANGES TO CT-177 / LOVELY ST, ARRIVE AT, 224 LOVELY STREET, AVON CT 06001.

VICINITY MAP



NO SCALE

dish wireless

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
LICENSED
PROFESSIONAL ENGINEER
9/7/23

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	07/07/22	ISSUED FOR CONSTRUCTION
1	07/13/22	ISSUED FOR CONSTRUCTION
2	11/29/22	ISSUED FOR CONSTRUCTION
3	01/17/23	ISSUED FOR CONSTRUCTION
4	03/13/23	ISSUED FOR CONSTRUCTION
5	05/15/23	UPDATED SA & MA INFORMATION
6	05/31/23	ISSUED FOR CONSTRUCTION
7	09/07/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

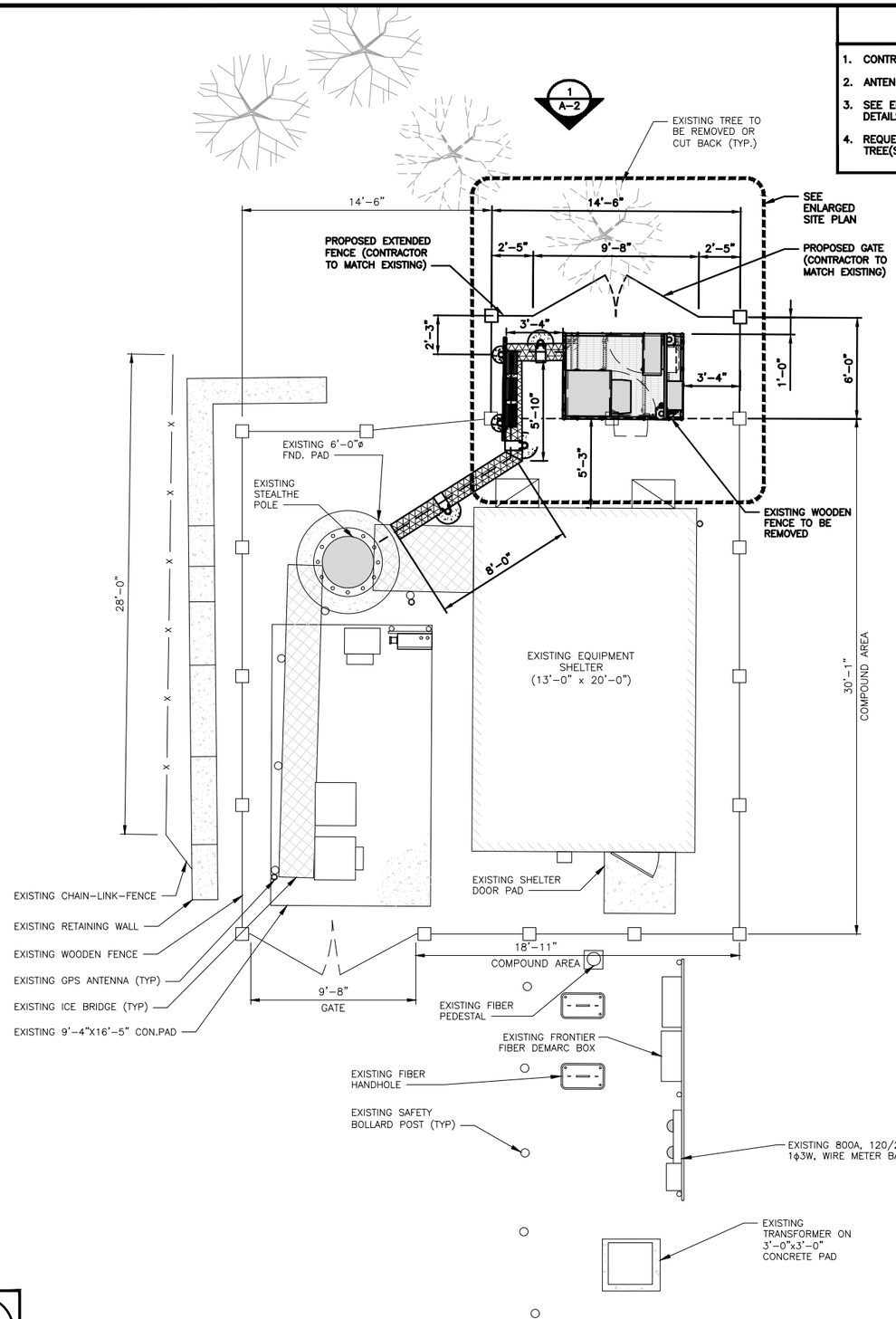
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00030A
224 LOVELY STREET
AVON, CT 06001

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. SEE ENLARGED SITE PLAN FOR EQUIPMENT AREA DETAILS
4. REQUEST PROPERTY OWNER APPROVAL TO REMOVE TREE(S) PRIOR TO THE START OF CONSTRUCTION.



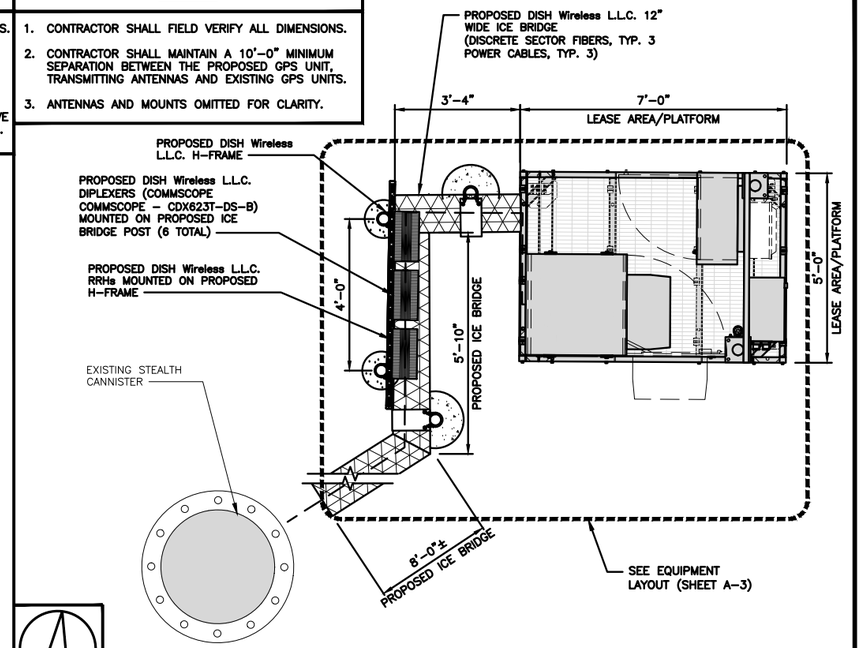
COMPOUND PLAN

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

1

NOTES

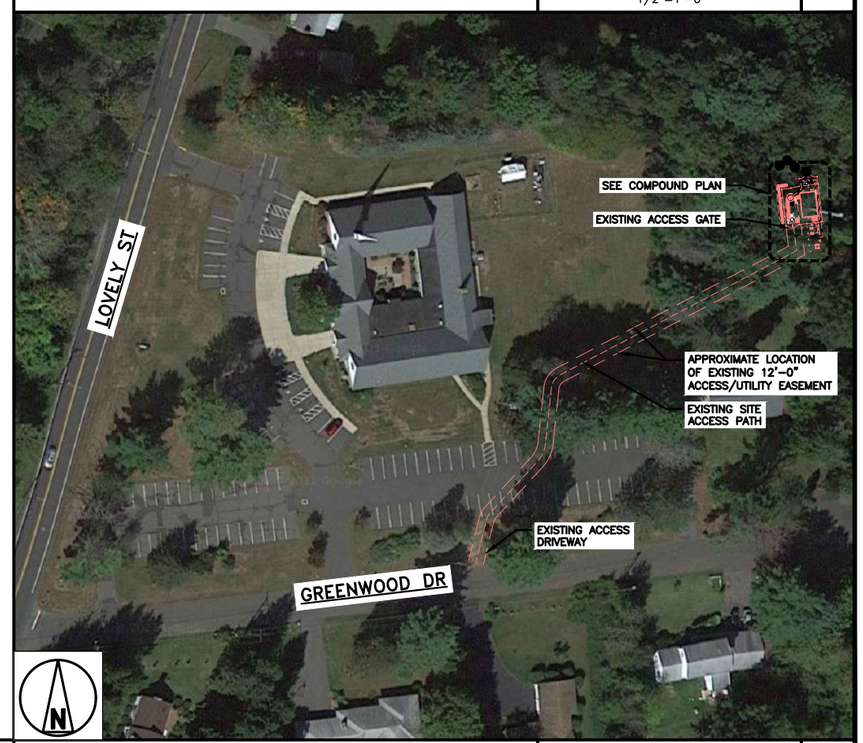
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



ENLARGED SITE PLAN

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

2



SITE PLAN

60' 30' 0 60' 120'
1"=60'

3

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
LICENSED
PROFESSIONAL ENGINEER
9/7/23

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

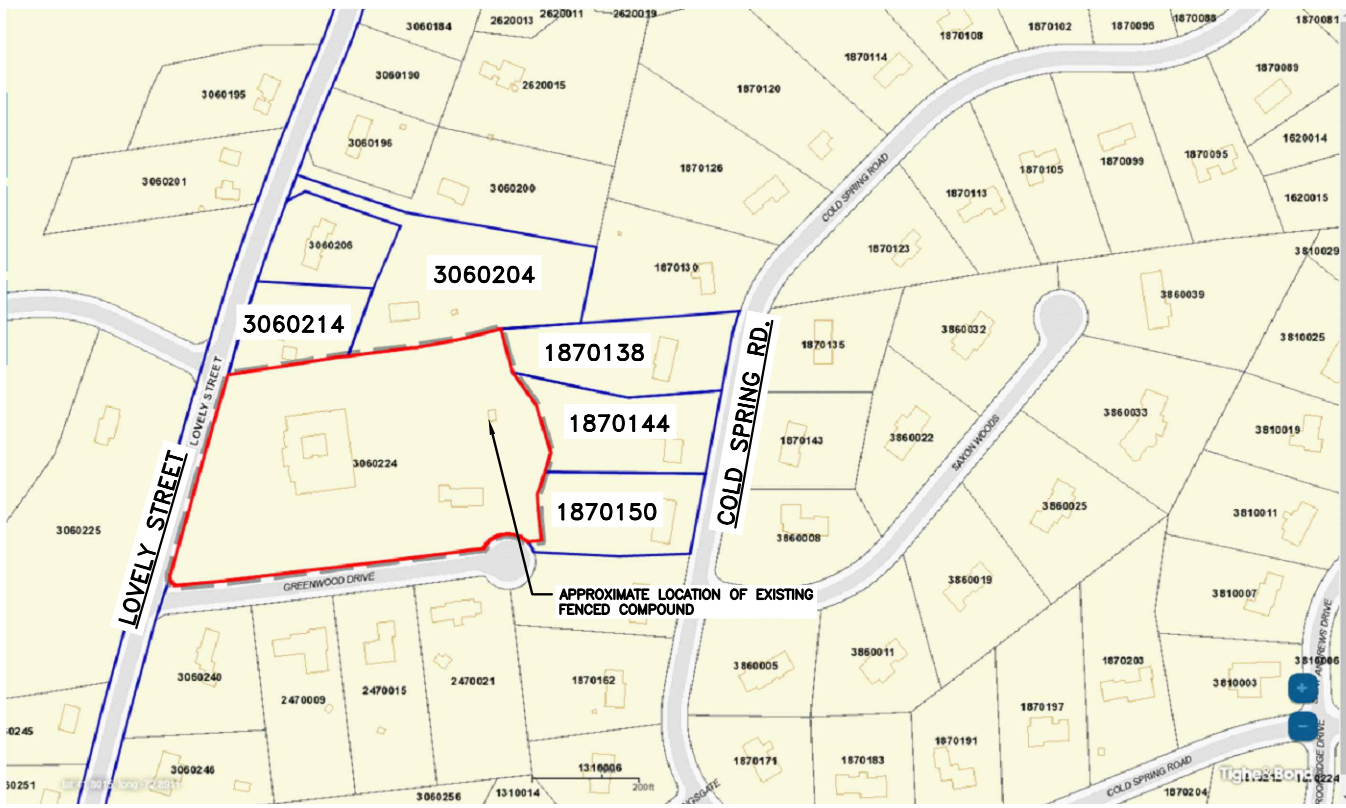
REV	DATE	DESCRIPTION
0	07/07/22	ISSUED FOR CONSTRUCTION
1	07/13/22	ISSUED FOR CONSTRUCTION
2	11/29/22	ISSUED FOR CONSTRUCTION
3	01/17/23	ISSUED FOR CONSTRUCTION
4	03/13/23	ISSUED FOR CONSTRUCTION
5	05/15/23	UPDATED SA & MA INFORMATION
6	05/31/23	ISSUED FOR CONSTRUCTION
7	09/07/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00030A
224 LOVELY STREET
AVON, CT 06001

SHEET TITLE
OVERALL AND ENLARGED SITE PLAN

SHEET NUMBER
A-1



SITE PLAN | NO SCALE | 1

ABUTTERS LIST:

MAP/LOT	LOCATION	OWNER	ADDRESS
3060214	LOVELY ST	NORRIS DAVID E	214 LOVELY STREET AVON, CT 06001
3060204	LOVELY ST	RAMOS JOSE M	204 LOVELY STREET AVON, CT 06001
1870138	COLD SPRING RD	DAVIS G ERIC & MARGARET G TTEES	138 COLD SPRING RD AVON, CT 06001
1870144	COLD SPRING RD	PROBECK MARK & JENNIFER	144 COLD SPRING RD AVON, CT 06001
1870150	COLD SPRING RD	HWANG SUEGI	150 COLD SPRING RD AVON, CT 06001

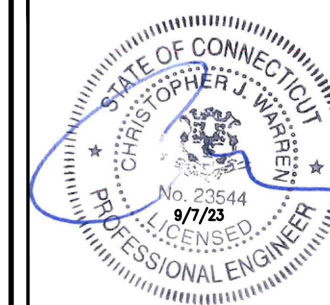
ABUTTERS LIST | NO SCALE | 2

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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



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:
RCD	SS	CJW

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	07/07/22	ISSUED FOR CONSTRUCTION
1	07/13/22	ISSUED FOR CONSTRUCTION
2	11/29/22	ISSUED FOR CONSTRUCTION
3	01/17/23	ISSUED FOR CONSTRUCTION
4	03/13/23	ISSUED FOR CONSTRUCTION
5	05/15/23	UPDATED SA & MA INFORMATION
6	05/31/23	ISSUED FOR CONSTRUCTION
7	09/07/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00030A
224 LOVELY STREET
AVON, CT 06001

SHEET TITLE
SITE PLAN AND ABUTTERS

SHEET NUMBER
A-1.1

SILTATION FENCING PLAN

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

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
LICENSED
PROFESSIONAL ENGINEER
9/7/23

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	07/07/22	ISSUED FOR CONSTRUCTION
1	07/13/22	ISSUED FOR CONSTRUCTION
2	11/29/22	ISSUED FOR CONSTRUCTION
3	01/17/23	ISSUED FOR CONSTRUCTION
4	03/13/23	ISSUED FOR CONSTRUCTION
5	05/15/23	UPDATED SA & MA INFORMATION
6	05/31/23	ISSUED FOR CONSTRUCTION
7	09/07/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00030A
224 LOVELY STREET
AVON, CT 06001

SHEET TITLE
SEDIMENTATION BARRIER PLAN

SHEET NUMBER
A-1.2

GRADING & EXCAVATING NOTES:

1. ALL EXCAVATIONS ON WHICH CONCRETE IS TO BE PLACED SHALL BE SUBSTANTIALLY HORIZONTAL ON UNDISTURBED AND UNFROZEN SOIL AND BE FREE FROM LOOSE MATERIAL AND EXCESS GROUNDWATER. DEWATERING FOR EXCESS GROUNDWATER SHALL BE PROVIDED IF REQUIRED.

2. CONCRETE FOUNDATIONS SHALL NOT BE PLACED ON ORGANIC MATERIAL. IF SOUND 2. SOIL IS NOT REACHED AT THE DESIGNATED EXCAVATION DEPTH, THE UNSATISFACTORY SOIL SHALL BE EXCAVATED TO ITS FULL DEPTH AND EITHER BE REPLACED WITH MECHANICALLY COMPACTED GRANULAR MATERIAL OR THE EXCAVATION BE FILLED WITH CONCRETE OF THE SAME QUALITY SPECIFIED FOR THE FOUNDATION.

3. ANY EXCAVATION OVER THE REQUIRED DEPTH SHALL BE FILLED WITH EITHER MECHANICALLY COMPACTED GRANULAR MATERIAL OR CONCRETE OF THE SAME QUALITY SPECIFIED FOR THE FOUNDATION. CRUSHED STONE MAY BE USED TO STABILIZE THE BOTTOM OF THE EXCAVATION. STONE, IF USED, SHALL NOT BE USED AS COMPILING CONCRETE THICKNESS.

4. AFTER COMPLETION OF THE FOUNDATION AND OTHER CONSTRUCTION BELOW GRADE, AND BEFORE BACKFILLING, ALL EXCAVATIONS SHALL BE CLEAN OF UNSUITABLE MATERIAL SUCH AS VEGETATION, TRASH, DEBRIS, AND SO FORTH.

5. –USE APPROVED MATERIALS CONSISTING OF EARTH, LOAM, SANDY CLAY, SAND
   –BE FREE FROM CLODS OR STONES OVER 2–1/2" MAXIMUM DIMENSIONS
   –BE PLACED IN 6" LAYERS AND COMPACTED TO 95% STANDARD PROCTOR EXCEPT IN GRASSED/LANDSCAPED AREAS, WHERE 90% STANDARD PROCTOR.

6. REMOVE ALL VEGETATION, TOPSOIL, DEBRIS, WET AND UNSATISFACTORY SOIL MATERIALS, OBSTRUCTIONS, AND DELETERIOUS MATERIALS FROM GROUND SURFACE PRIOR TO PLACING FILLS. PLOW, STRIP, OR BREAK UP SLOPED SURFACES STEEPER THAN THAN 1 VERTICAL TO 4 HORIZONTAL SO FILL MATERIAL WILL BOND WITH EXISTING SURFACE. WHEN SUBGRADE OR EXISTING GROUND SURFACE TO RECEIVE FILL HAS A DENSITY LESS THAN THAT REQUIRED FOR FILL, BREAK UP GROUND SURFACE TO DEPTH REQUIRED, PULVERIZE, MOISTURE–CONDITION OR AERATE SOIL AND RECOMPACT TO REQUIRED DENSITY.

7. PROTECT EXISTING GRAVEL SURFACING AND SUBGRADE IN AREAS WHERE EQUIPMENT LOADS WILL OPERATE. USE PLANKING OR OTHER SUITABLE MATERIALS DESIGNED TO SPREAD EQUIPMENT LOADS. REPAIR DAMAGE TO EXISTING GRAVEL SURFACING OR SUBGRADE WHERE SUCH DAMAGE IS DUE TO THE CONTRACTOR'S OPERATIONS. DAMAGED GRAVEL SURFACING SHALL BE RESTORED TO MATCH THE ADJACENT UNDAMAGED GRAVEL SURFACING AND SHALL BE OF THE SAME THICKNESS.

8. REPLACE EXISTING GRAVEL SURFACING ON AREAS FROM WHICH GRAVEL SURFACING IS REMOVED DURING CONSTRUCTION OPERATIONS. GRAVEL SURFACING SHALL BE REPLACED TO MATCH EXISTING ADJACENT GRAVEL SURFACING AND SHALL BE OF THE SAME THICKNESS. SURFACES OF GRAVEL SURFACING SHALL BE FREE FROM CORRUGATIONS AND WAVES. EXISTING GRAVEL SURFACING MAY BE EXCAVATED SEPARATELY AND REUSED IF INJURIOUS AMOUNTS OF EARTH, ORGANIC MATTER, OR OTHER DELETERIOUS MATERIALS ARE REMOVED PRIOR TO REUSE. FURNISH ALL ADDITIONAL GRAVEL RESURFACING MATERIAL AS REQUIRED. BEFORE GRAVEL SURFACING IS REPLACED, SUBGRADE SHALL BE GRADED TO CONFORM TO REQUIRED SUBGRADE ELEVATIONS, AND LOOSE OR DISTURBED MATERIALS SHALL BE THOROUGHLY COMPACTED. DEPRESSIONS IN THE SUBGRADE SHALL BE FILLED AND COMPACTED WITH APPROVED SELECTED MATERIAL. GRAVEL SURFACING MATERIAL MAY BE USED FOR FILLING DEPRESSIONS IN THE SUBGRADE, SUBJECT TO ENGINEER'S APPROVAL.

9. DAMAGE TO EXISTING STRUCTURES AND UTILITIES RESULTING FROM CONTRACTOR'S NEGLIGENCE SHALL BE REPAIRED/REPLACED TO OWNER'S SATISFACTION AT CONTRACTOR'S EXPENSE
10. CONTRACTOR SHALL COORDINATE THE CONSTRUCTION SCHEDULE WITH PROPERTY OWNER SO AS TO AVOID INTERRUPTIONS TO PROPERTY OWNER'S OPERATIONS.

11. ENSURE POSITIVE DRAINAGE DURING AND AFTER COMPLETION OF CONSTRUCTION.

12. ALL CUT AND FILL SLOPES SHALL BE MAXIMUM 2 HORIZONTAL TO 1 VERTICAL.

13. CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING SITE VEHICLE TRAFFIC AS TO NOT ALLOW VEHICLES LEAVING THE SITE TO TRACK MUD ONTO PUBLIC STREETS. THE CONTRACTOR IS RESPONSIBLE FOR CLEANING PUBLIC STREETS DUE TO MUDDY VEHICLES LEAVING THE SITE.

GENERAL EROSION & SEDIMENT CONTROL NOTES:

1. THE SOIL EROSION AND SEDIMENT CONTROL MEASURES AND DETAILS AS SHOWN HEREIN AND STIPULATED WITHIN STATE STANDARDS SHALL BE FOLLOWED AND INSTALLED IN A MANNER SO AS TO MINIMIZE SEDIMENT LEAVING THE SITE.

2. PRIOR TO COMMENCING LAND DISTURBANCE ACTIVITY, THE LIMITS OF LAND DISTURBANCE SHALL BE CLEARLY AND ACCURATELY DEMARCATED WITH STAKES, RIBBONS, OR OTHER APPROPRIATE MEANS.

3. EROSION CONTROL DEVICES SHALL BE INSTALLED BEFORE GROUND DISTURBANCE OCCURS. THE LOCATION OF SOME OF THE EROSION CONTROL DEVICES MAY HAVE TO BE ALTERED FROM SHOWN ON THE APPROVED PLANS IF DRAINAGE PATTERNS DURING CONSTRUCTION ARE DIFFERENT FROM THE FINAL PROPOSED DRAINAGE PATTERNS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION CONTROL FOR ALL DRAINAGE PATTERNS CREATED AT VARIOUS STAGES DURING CONSTRUCTION. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.

4. THE LOCATION OF SOME OF THE EROSION CONTROL DEVICES MAY HAVE TO BE ALTERED FROM THAT SHOWN ON THE PLANS IF DRAINAGE PATTERNS DURING CONSTRUCTION ARE DIFFERENT FROM THE FINAL PROPOSED DRAINAGE PATTERNS. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.

5. CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL MEASURES UNTIL PERMANENT VEGETATION HAS BEEN ESTABLISHED. CONTRACTOR SHALL CLEAN OUT ALL SEDIMENT PONDS WHEN REQUIRED BY THE ENGINEER OR THE LOCAL JURISDICTION INSPECTOR. CONTRACTOR SHALL INSPECT EROSION CONTROL MEASURES AT THE END OF EACH WORKING DAY TO ENSURE MEASURES ARE FUNCTIONING PROPERLY.

6. THE CONTRACTOR SHALL REMOVE ACCUMULATED SILT WHEN THE SILT IS WITHIN 12" OF THE TOP OF THE SILT FENCE.

7. FAILURE TO INSTALL, OPERATE OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE JOB SITE UNTIL SUCH MEASURES ARE CORRECTED.

8. SILT BARRIERS TO BE PLACED AT DOWNSTREAM TOE OF ALL CUT AND FILL SLOPES.

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

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
LICENSED
PROFESSIONAL ENGINEER
9/7/23

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	07/07/22	ISSUED FOR CONSTRUCTION
1	07/13/22	ISSUED FOR CONSTRUCTION
2	11/29/22	ISSUED FOR CONSTRUCTION
3	01/17/23	ISSUED FOR CONSTRUCTION
4	03/13/23	ISSUED FOR CONSTRUCTION
5	05/15/23	UPDATED SA & MA INFORMATION
6	05/31/23	ISSUED FOR CONSTRUCTION
7	09/07/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039–Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00030A
224 LOVELY STREET
AVON, CT 06001

SHEET TITLE
SEDIMENTATION NOTES

SHEET NUMBER
A-1.3

CONTINUED

9. ALL CUT AND FILL SLOPES MUST BE SURFACED ROUGHENED AND VEGETATED WITHIN SEVEN (7) DAYS OF THEIR CONSTRUCTION.

10. CONTRACTOR SHALL REMOVE ALL EROSION & SEDIMENT CONTROL MEASURES AFTER COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER.

11. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, LAND–DISTURBING ACTIVITIES.

SEEDING GUIDELINES:

FINAL STABILIZATION OF ALL DISTURBED AREAS, UNLESS OTHERWISE NOTED, SHALL BE LOAMED AND SEEDED. LOAM SHALL BE PLACED AT A MINIMUM COMPACTED DEPTH OF 4". RECOMMENDED SEEDING DATES FOR PERMANENT VEGETATION SHALL BE BETWEEN JUNE 15 THROUGH AUGUST 1 AND SEPTEMBER 15 THROUGH OCTOBER 15. TEMPORARY VEGETATIVE MEASURES SHALL CONSIST OF AN ANNUAL OR PERENNIAL RYE GRASS WITH RECOMMENDED SEEDING DATES BEING FROM JUNE 1 THROUGH AUGUST 15 AND SEPTEMBER 30 THROUGH NOVEMBER 30.

EVALUATE PROPOSED COVER MATERIAL

BEFORE SPREADING COVER MATERIAL OVER THE DESIGNATED AREA, OBTAIN A REPRESENTATIVE SOIL SAMPLE AND SUBMIT TO A REPUTABLE SOIL TESTING LABORATORY FOR CHEMICAL AND PHYSICAL ANALYSIS. THE PRELIMINARY TEST IS NECESSARY TO DETERMINE THE REQUIRED INORGANIC AND/OR ORGANIC AMENDMENTS THAT ARE NEEDED TO ASSIST IN ESTABLISHING THE SEED MIXTURE IN AN ENVIRONMENTALLY AND ECONOMICALLY SOUND MANNER. THE RESULTS WILL GIVE THE COVER MATERIAL CHARACTERISTICS SUCH AS pH AND FERTILIZATION NEEDS. THESE RESULTS SHALL BE KEPT ON–SITE B THE CONTRACTOR AND AVAILABLE FOR REVIEW BY THE COUNTY.

SEED BED PREPARATION

PROPOSED COVER MATERIAL SHOULD BE SPREAD EVENLY OVER THE SITE AREA IN A MINIMUM 4" LIFT VIA BULLDOZER/BUCKET LOADER. USING THE INFORMATION FROM THE SOIL ANALYSIS, CAREFULLY CALCULATE THE QUANTITIES OF LIMESTONE AND PRE–PLANT FERTILIZER NEEDED PRIOR TO APPLYING. PRE–PLANT AMENDMENTS CAN BE APPLIED WITH A BROADCAST AND/OR DROP SEEDER AND INCORPORATED WITH AN OFFSET DISK, YORK RAKE, AND/OR HAND RAKE. AFTER INCORPORATION THE PRE–PLANT SOIL AMENDMENTS, THE SEED BED SHOULD BE SMOOTH AND FIRM PRIOR TO SEEDING. THE FOLLOWING SEED MIXTURES SHALL BE USED AS NOTED:

SEED MIXTURE

SPECIES/VARIETY	LBS/ACRE
CREEPING RED FESCUE	20
KENTUCKY BLUEGRASS	20
PERENNIAL RYEGRASS	5

SEED TIME AND METHOD

THE PREFERRED TIME FOR SEEDING THE COOL SEASON MIXTURE IS LATE SUMMER. SOIL AND AIR TEMPERATURES ARE IDEAL FOR SEED GERMINATION AND SEEDING GROWTH. WEED COMPETITION IS REDUCED BECAUSE SEEDS OF MANY WEED SPECIES GERMINATE EARLIER IN THE GROWING SEASON. ADDITIONALLY, HERBICIDE USE IS GREATLY REDUCED. HOWEVER, SEEDING MAY BE DONE AT ANY OF THE ABOVE NOTED TIMES.

MULCHING

NEWLY SEEDED AREAS SHOULD BE MULCHED TO INSURE ADEQUATE MOISTURE FOR SUCCESSFUL TURF ESTABLISHMENT AND TO PROTECT AGAINST SURFACE MOVEMENT OF SEDIMENT–BOUND AGROCHEMICALS AND SOIL EROSION. IF MULCHING PROCEDURES ARE NOT SPECIFIED ON PLANS, APPLY GOOD QUALITY STRAW OR HAY AT A RATE OF 2 BALES/1000 SQ. FT. OTHER COMMERCIALLY AVAILABLE MULCHES CAN BE USED.

CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY FENCE POSTS WITH WIRE TIES OR STAPLES. — POSTS: STEEL EITHER T OR U TO TYPE.

2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. — FENCE: WOVEN WIRE, 14 GA. 6" MAX. MESH OPENING.

3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER–LAPPED BY SIX INCHES AND FOLDED. — FILTER CLOTH: FILTER X, MIRAFI 100X' STABILINKA T140N OR APPROVED EQUAL.

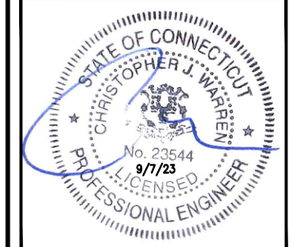
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE. — PREFABRICATED UNIT: GEOFAB, ENVIROFENCE OR APPROVED EQUAL.

5. ALL SILT FENCE MATERIALS MUST BE LISTED ON THE CURRENT STATES. D.O.T. QUALIFIED PRODUCTS LIST.

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

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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



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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	07/07/22	ISSUED FOR CONSTRUCTION
1	07/13/22	ISSUED FOR CONSTRUCTION
2	11/29/22	ISSUED FOR CONSTRUCTION
3	01/17/23	ISSUED FOR CONSTRUCTION
4	03/13/23	ISSUED FOR CONSTRUCTION
5	05/15/23	UPDATED SA & MA INFORMATION
6	05/31/23	ISSUED FOR CONSTRUCTION
7	09/07/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039–Z5555C

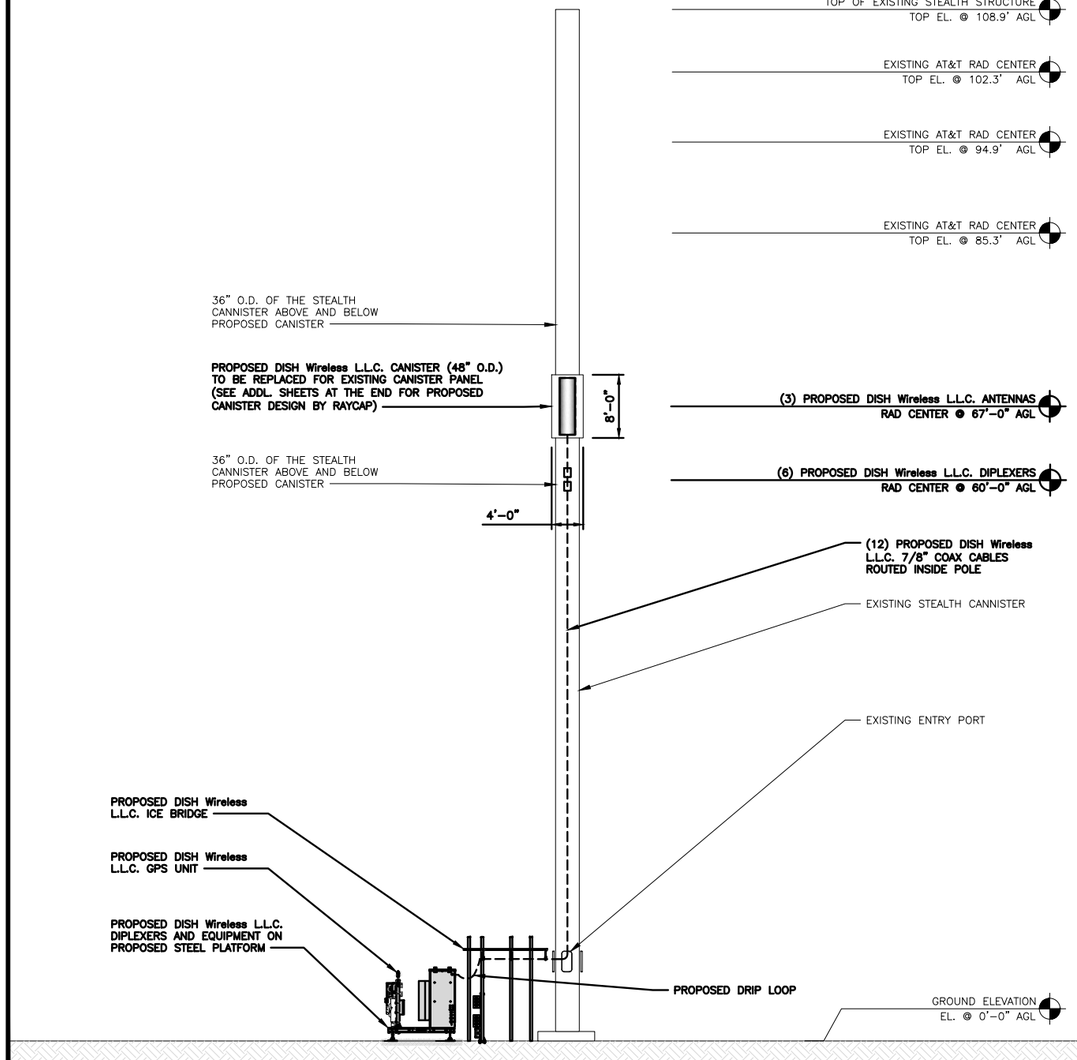
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00030A
224 LOVELY STREET
AVON, CT 06001

SHEET TITLE
SEDIMENTATION NOTES

SHEET NUMBER
A-1.4

NOTES

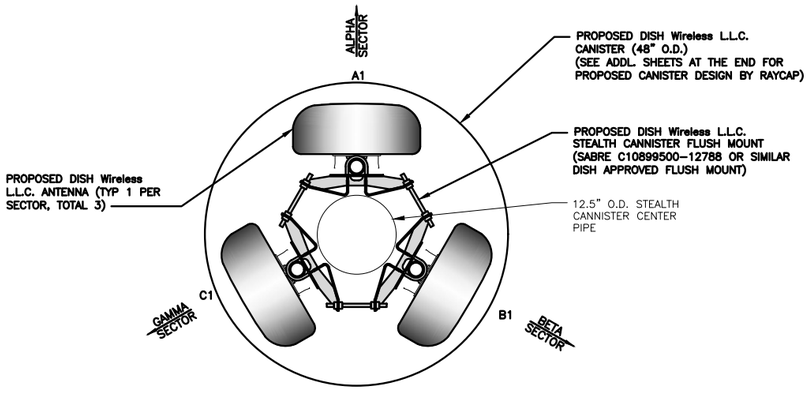
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.
4. SEE MOUNT ANALYSIS DATED 04/24/2023 BY INFINIGY AND SEE RAYCAP STRUCTURAL DESIGN SHEETS FOR MORE STRUCTURAL INFORMATION AND DETAILS
5. SEE STRUCTURAL ANALYSIS BY CELLSITE SOLUTIONS, LLC DATED 04/10/2023. CONTRACTOR TO REFER TO STRUCTURAL ANALYSIS PRIOR TO CONSTRUCTION.



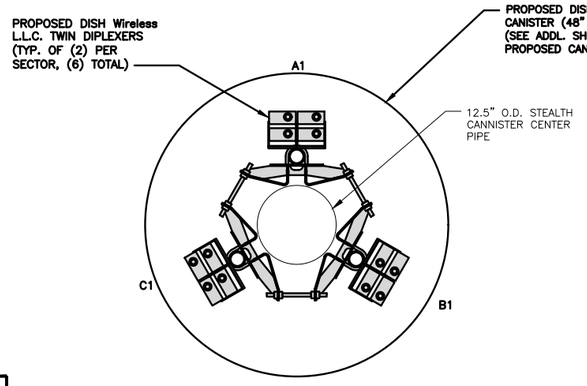
PROPOSED EAST ELEVATION

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

1



ANTENNA LAYOUT
RAD CENTER @ 67'-0" A.G.L.



DIPLEXER LAYOUT
RAD CENTER @ 60'-0" A.G.L.

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.
4. DIPLEXERS TO BE GROUND MOUNTED ON THE PROPOSED ICE BRIDGE POST.
5. SEE MOUNT ANALYSIS DATED 03/24/2023 BY INFINIGY
6. FOR ADDITIONAL INFORMATION ON THE PROPOSED CANISTER DESIGN, SEE ADDL. SHEETS AT THE END AND SEE VECTOR ENGINEERS STRUCTURAL CALCULATIONS DATED 05/02/2022
7. SEE STRUCTURAL ANALYSIS BY CELLSITE SOLUTIONS, LLC DATED 04/10/23. CONTRACTOR TO REFER TO STRUCTURAL ANALYSIS PRIOR TO CONSTRUCTION.

ANTENNA AND DIPLEXER LAYOUT

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

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER – MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZMUITH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	COMMSCOPE – FVV-65B-R3	5G	72.0" x 11.8"	0°	67'-0"	(12) 7/8" COAX (96' LONG)
BETA	B1	PROPOSED	COMMSCOPE – FVV-65B-R3	5G	72.0" x 11.8"	120°	67'-0"	
GAMMA	C1	PROPOSED	COMMSCOPE – FVV-65B-R3	5G	72.0" x 11.8"	240°	67'-0"	

NOTES
1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.
2. ANTENNA OR 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.

SECTOR	POSITION	DIPLEXERS	
		MANUFACTURER – MODEL NUMBER	AMOUNT
ALPHA	A1	COMMSCOPE – CDX623T-DS-T	2
BETA	B1	COMMSCOPE – CDX623T-DS-T	2
GAMMA	C1	COMMSCOPE – CDX623T-DS-T	2
GROUND	--	COMMSCOPE – CDX623T-DS-B	6

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

ANTENNA SCHEDULE

NO SCALE

3

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

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
LICENSED
PROFESSIONAL ENGINEER
9/7/23

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

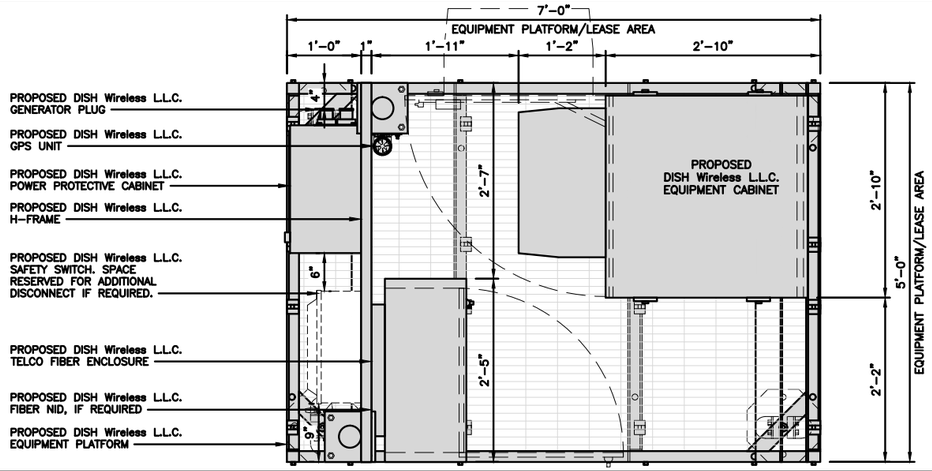
REV	DATE	DESCRIPTION
0	07/07/22	ISSUED FOR CONSTRUCTION
1	07/13/22	ISSUED FOR CONSTRUCTION
2	11/29/22	ISSUED FOR CONSTRUCTION
3	01/17/23	ISSUED FOR CONSTRUCTION
4	03/13/23	ISSUED FOR CONSTRUCTION
5	05/15/23	UPDATED SA & MA INFORMATION
6	05/31/23	ISSUED FOR CONSTRUCTION
7	09/07/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00030A
224 LOVELY STREET
AVON, CT 06001

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
A-2



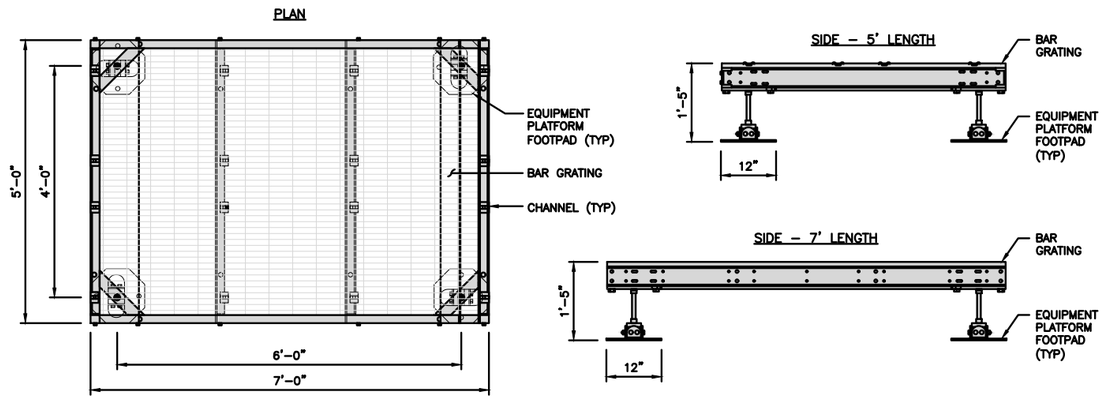
PLATFORM EQUIPMENT PLAN

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"

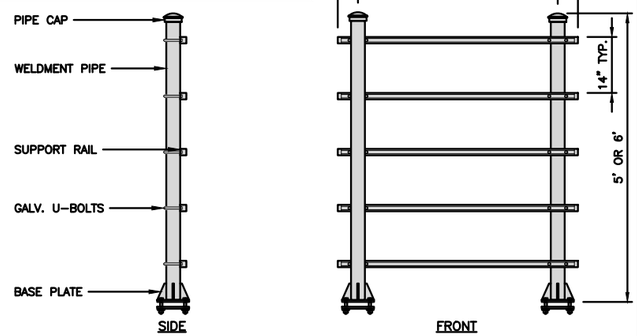


PLATFORM DETAIL

NO SCALE

2

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



H-FRAME DETAIL

NO SCALE

3

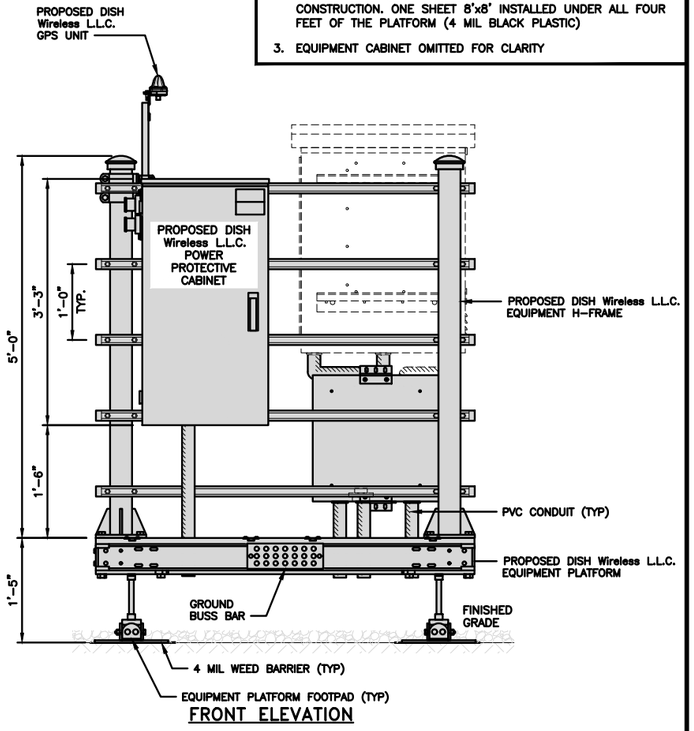
NOT USED

NO SCALE

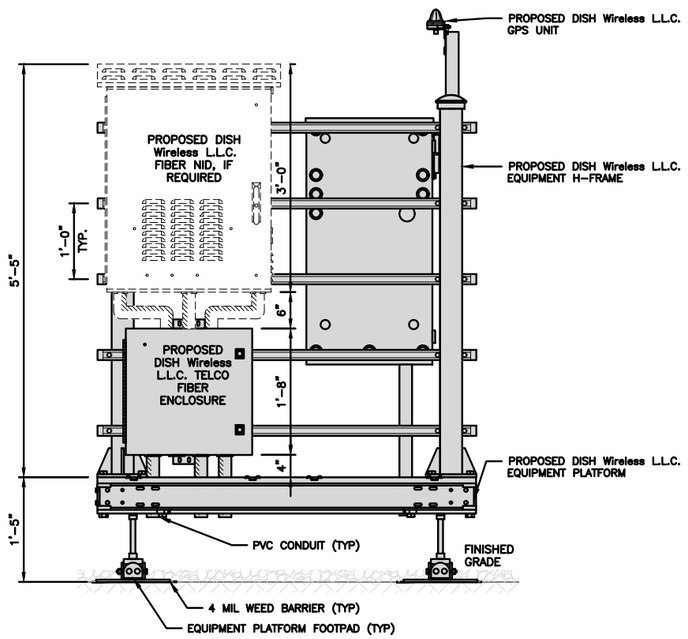
4

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

H-FRAME EQUIPMENT ELEVATION

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

5

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

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
LICENSED
PROFESSIONAL ENGINEER
9/7/23

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	07/07/22	ISSUED FOR CONSTRUCTION
1	07/13/22	ISSUED FOR CONSTRUCTION
2	11/29/22	ISSUED FOR CONSTRUCTION
3	01/17/23	ISSUED FOR CONSTRUCTION
4	03/13/23	ISSUED FOR CONSTRUCTION
5	05/15/23	UPDATED SA & MA INFORMATION
6	05/31/23	ISSUED FOR CONSTRUCTION
7	09/07/23	ISSUED FOR CONSTRUCTION

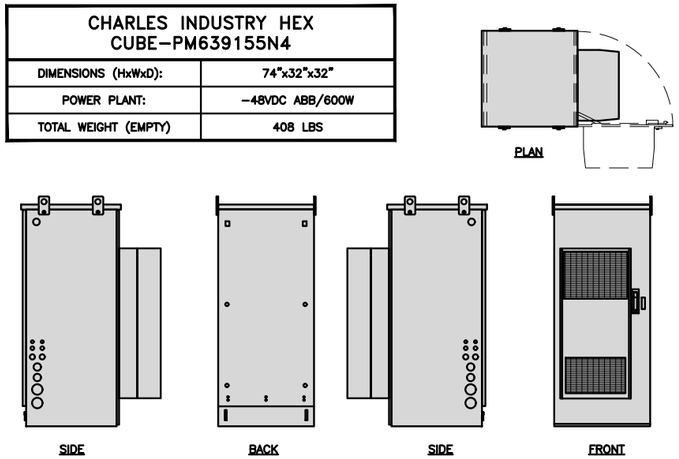
A&E PROJECT NUMBER
2039-Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00030A
224 LOVELY STREET
AVON, CT 06001

SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

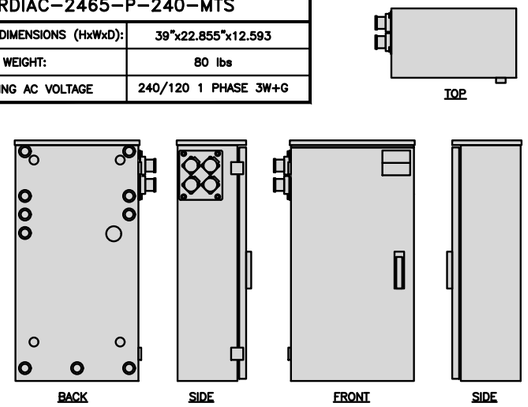
SHEET NUMBER
A-3

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



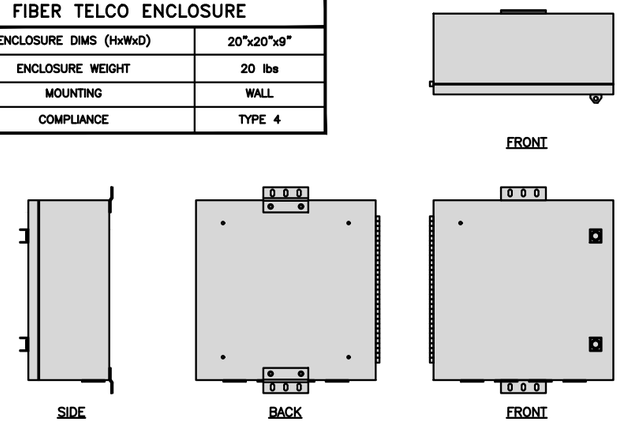
CABINET DETAIL | NO SCALE | 1

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



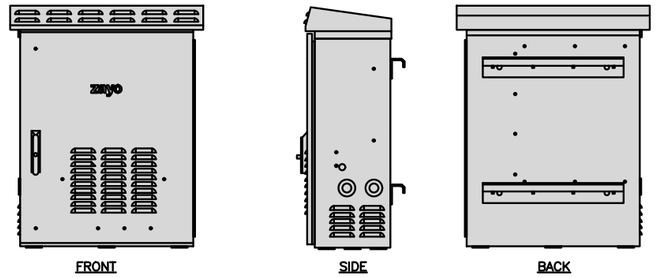
POWER PROTECTION CABINET (PPC) DETAIL | NO SCALE | 2

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



FIBER TELCO ENCLOSURE DETAIL | NO SCALE | 3

ZAYO 5RU CABINET ("LIT" SITES)	
DIMENSIONS (HxWxD)	36.115"x29"x12.9"
WEIGHT	85 LBS
POWER INPUT	20A, –48VDC

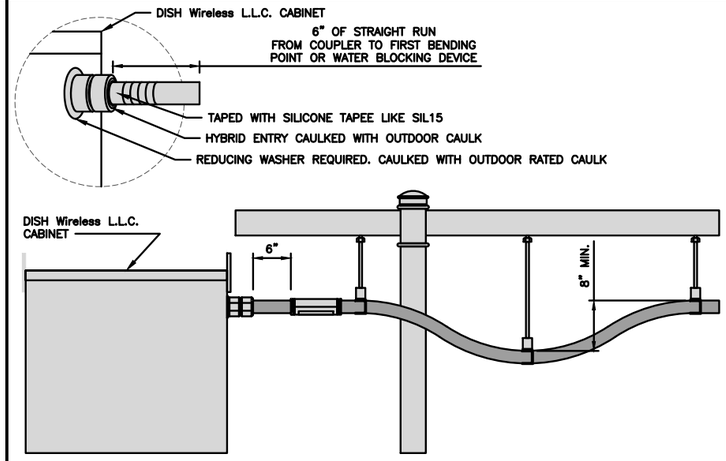


NETWORK INTERFACE UNIT DETAIL | NO SCALE | 4

NOTE:

CONTRACTOR SHALL NOT LOOP EXCESS HYBRID OUTSIDE CABINET. EXCESS HYBRID LENGTH IS TO BE ADJUSTED BY STRIPPING JACKET AND SHIELDING AND TERMINATING DC CABLE TO LENGTH. FIBER EXCESS IS TO BE COILED IN FIBER SLACK TRAY INSIDE NETWORK CABINET.

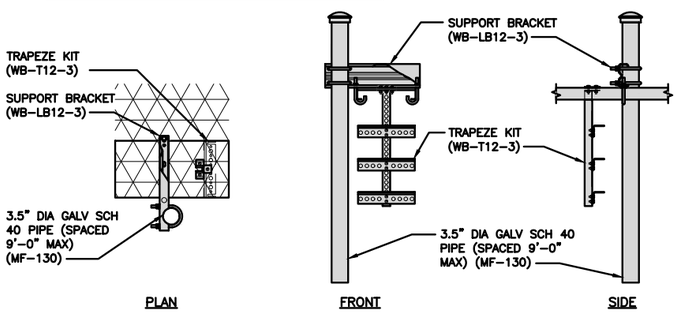
HYBRID CABLE INSTALLATION NOTE | NO SCALE | 5



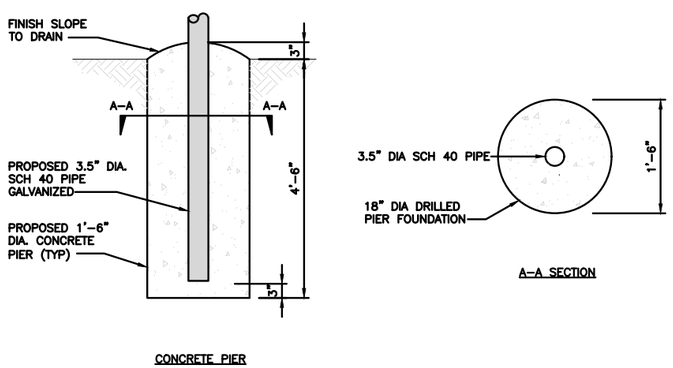
HYBRID CABLE INSTALLATION DETAIL | NO SCALE | 6

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

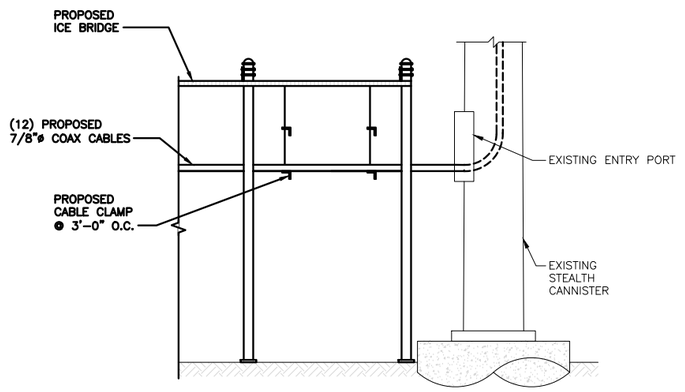
INCLUDED PRODUCTS:	
	WB–T12–3 TRAPEZE KIT, 3 RUNGS
	WB–LB12–3 SUPPORT BRACKET
	MF–130 DIRECT BURIAL PIPE COLUMN, 13'–4"



ICE BRIDGE DETAIL | NO SCALE | 7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL | NO SCALE | 8



HYBRID CABLE RUN | NO SCALE | 9

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
LICENSED PROFESSIONAL ENGINEER
9/7/23

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	07/07/22	ISSUED FOR CONSTRUCTION
1	07/13/22	ISSUED FOR CONSTRUCTION
2	11/29/22	ISSUED FOR CONSTRUCTION
3	01/17/23	ISSUED FOR CONSTRUCTION
4	03/13/23	ISSUED FOR CONSTRUCTION
5	05/15/23	UPDATED SA & MA INFORMATION
6	05/31/23	ISSUED FOR CONSTRUCTION
7	09/07/23	ISSUED FOR CONSTRUCTION

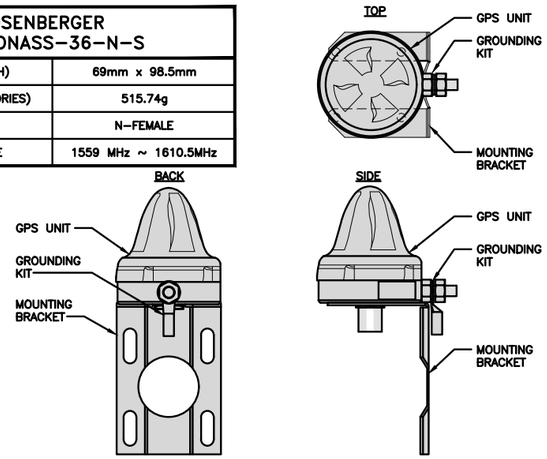
A&E PROJECT NUMBER
2039–Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00030A
224 LOVELY STREET
AVON, CT 06001

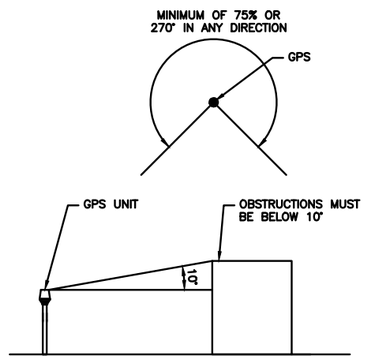
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

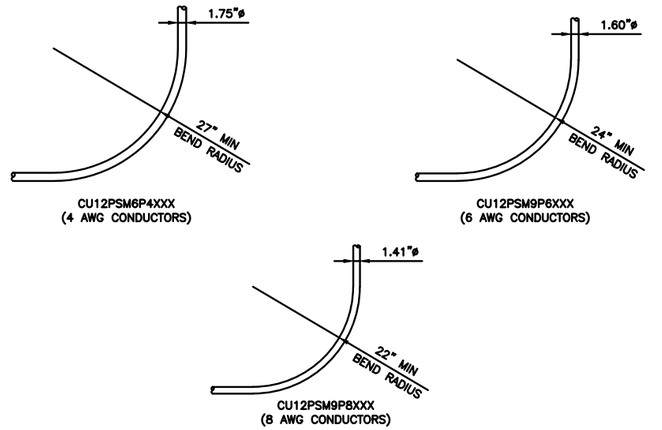
ROSENBERGER GPSGLONASS-36-N-S	
DIMENSION (DIA x H)	69mm x 98.5mm
WEIGHT (WITH ACCESSORIES)	515.74g
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1559 MHz ~ 1610.5MHz



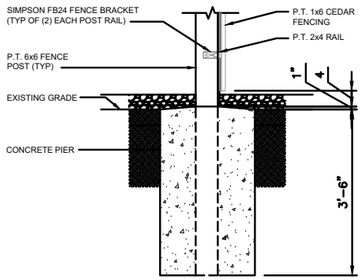
GPS ANTENNA DETAIL — NO SCALE — 1



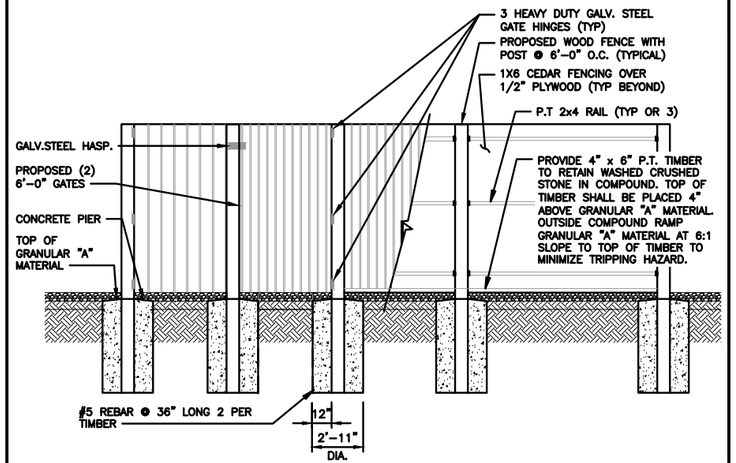
GPS MINIMUM SKY VIEW REQUIREMENTS — NO SCALE — 2



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



FENCE/GATE FOUNDATION — NO SCALE — 4



FENCE DETAIL — NO SCALE — 5

FENCE NOTES:

1. CONTRACTOR CALL BEFORE YOU DIG FOR LOCATION OF ALL UNDERGROUND SERVICES PRIOR TO CONSTRUCTION.
2. ALL FENCING MATERIAL SHALL BE AS FOLLOWS:
   - NO. 1 CEDAR FOR:
   1" x 6" CEDAR SLATS STAINED AND SEALED WITH LONG TERM PROTECTOR/SEALANT, 2" x 6" RAILS, 6" x 6" POSTS, 3. HEAVY DUTY GALV SIMPSON RAIL TO POST ANCHORS, 1/2" PT PLY WOOD
4. ALL NAILS AND HARDWARE TO BE GALVANIZED OR ALUMINUM.
5. COLOR OF STAIN FOR FENCING MUST BE APPROVED BY THE CONSTRUCTION MANAGER AND BLEND WITH EXISTING LANDSCAPE OR ADJOINING BUILDINGS.
6. PLYWOOD SHALL BE STRUCTURAL GRADE PRESSURE TREATED.
7. MINIMUM CONCRETE STRENGTH SHALL BE 2,500 PSI, 5-1/2 SACK MIX AT 28 DAYS.

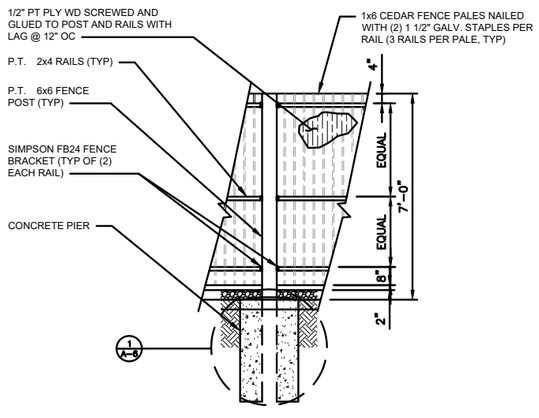
ACOUSTICAL MATERIAL NOTES:

MATERIAL OPTIONS:
- 1-INCH THICK WOVEN POLYESTER WITH MINIMUM 1/2-INCH AIR GAP OR FURRING
- 1.5-INCH THICK ENCAPSULATED FIBERGLASS WITH PERFORATED METAL OR WOOD LATTICE,
- 2-INCH THICK ARPRO POROUS EPP BEAD BOARD, OR
- 2-INCH THICK QUILTED FIBERGLASS ABSORBER (QFA-11 SILICONE-COATED-FIBERGLASS-CLOTH FACED).

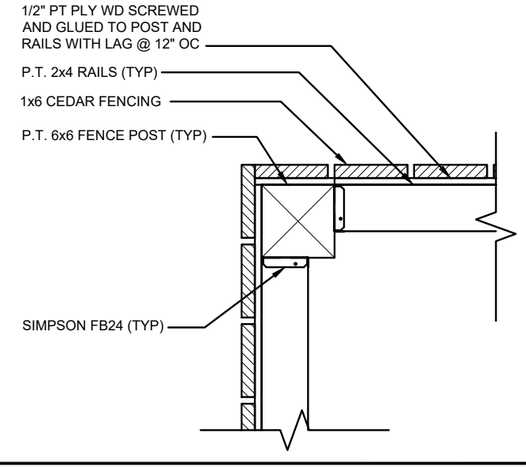
NOTE:

MARINE GRADE PLYWOOD INNER FACING SHOULD EXTEND FULL HEIGHT (7 FT) AND EXTEND TO GRADE. WHERE LOCATED OVER CONCRETE SLAB, THE FENCE SHOULD COME TO WITHIN 1/2" OF SLAB. WHERE FENCE IS OVER GRADE (GRAVEL) BRING FENCE TO GRADE.

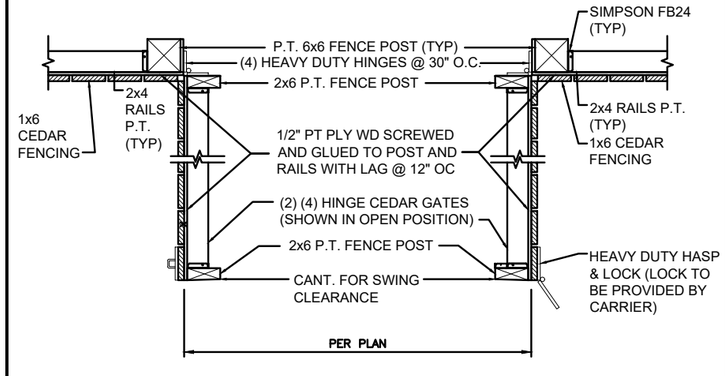
FENCE NOTES — NO SCALE — 6



FENCE POST DETAIL — NO SCALE — 7



FENCE FOUNDATION — NO SCALE — 8



GATE CONNECTION — NO SCALE — 9

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
LICENSED
9/7/23
PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	07/07/22	ISSUED FOR CONSTRUCTION
1	07/13/22	ISSUED FOR CONSTRUCTION
2	11/29/22	ISSUED FOR CONSTRUCTION
3	01/17/23	ISSUED FOR CONSTRUCTION
4	03/13/23	ISSUED FOR CONSTRUCTION
5	05/15/23	UPDATED SA & MA INFORMATION
6	05/31/23	ISSUED FOR CONSTRUCTION
7	09/07/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00030A
224 LOVELY STREET
AVON, CT 06001

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-5

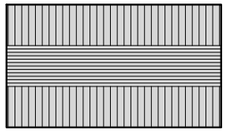
NOT USED

NO SCALE | 1

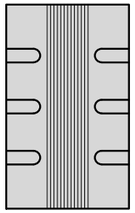
REMOTE RADIO HEAD DETAIL

NO SCALE | 2

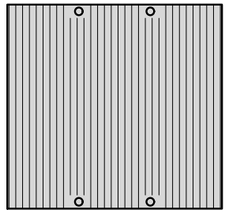
FUJITSU TA08025-B605 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x230/14.9"x15.7"x9.0"
WEIGHT(KG,LB)/ VOLUME	34kg,74.9lb/ 35L
POWER SUPPLY	DC-58~-36V



PLAN



SIDE



FRONT

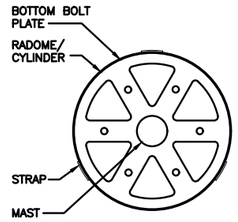
NOTES

FINAL RRH SPECIFICATIONS TO BE CONFIRMED BY GC

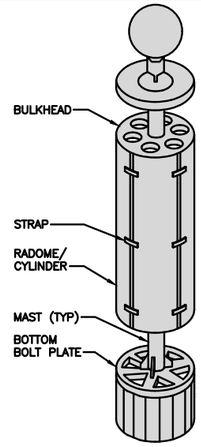
RADOME MOUNT DETAIL

NO SCALE | 3

RAYCAP STEALTH SMOOTH MULTI-PART	
RADOME OUTSIDE DIAMETERS	24"-60" DIA.
APPROX. MATERIAL THICKNESS	3/16"
MAX. HEIGHT	12'-0"
CONNECTION	BOLTS OR STRAPS



PLAN

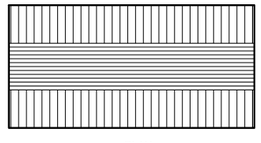


ISOMETRIC

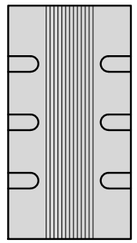
REMOTE RADIO HEAD DETAIL

NO SCALE | 4

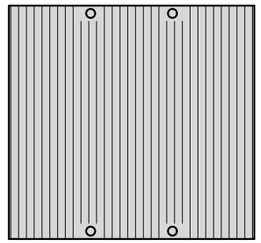
FUJITSU TA08025-B604 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x200/14.9"x15.7"x7.8"
WEIGHT(KG,LB)/ VOLUME	29kg,63.9lb/ 30L
POWER SUPPLY	DC-58~-36V



PLAN



SIDE



FRONT

NOTES

FINAL RRH SPECIFICATIONS TO BE CONFIRMED BY GC

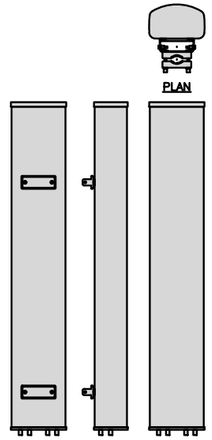
ANTENNA DETAIL

NO SCALE | 5

COMMSCOPE FVV-65B-R3	
DIMENSIONS (HxWxD)(MM/IN)	1828x300x181 71.9"x11.8"x7.1"
RF CONNECTOR INTERFACE	4.3-10 FEMALE
WEIGHT	43.8 lbs
WEIGHT WITH BRACKETS	70.9 lbs

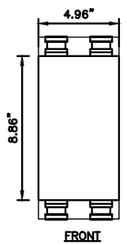
NOTES

FINAL ANTENNA SPECIFICATIONS TO BE CONFIRMED BY GC

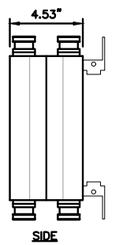


DIPLEXER DETAIL

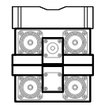
NO SCALE | 6



FRONT



SIDE



PLAN

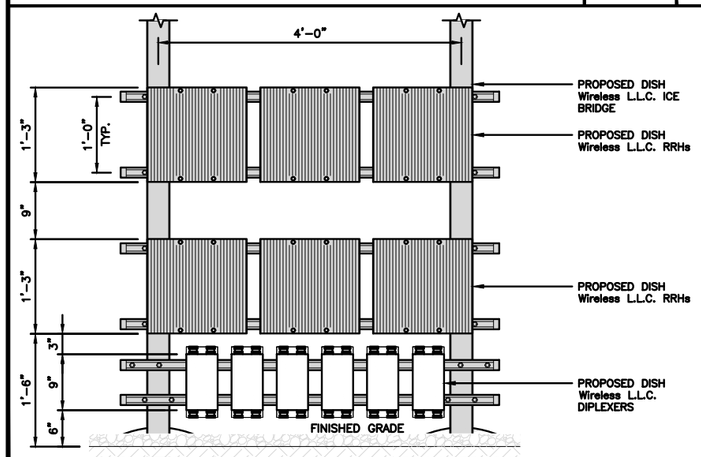
COMMSCOPE CDX623T-DS-T/E15V95P63	
DIMENSIONS (HxWxD)	8.86"x4.96"x4.53"
TOTAL WEIGHT	10.14 LB

COMMSCOPE CDX623T-DS-B/E15V95P62	
DIMENSIONS (HxWxD)	8.86"x4.96"x4.53"
TOTAL WEIGHT	10.14 LB

ICE BRIDGE WITH EQUIPMENT DETAIL

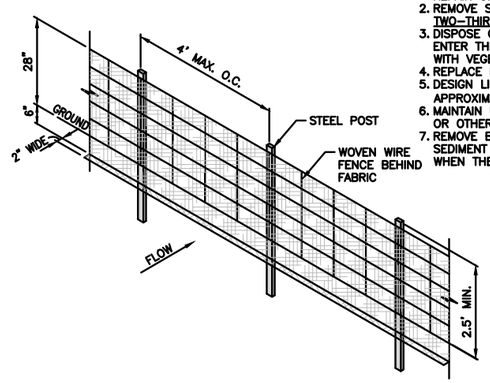
12" 9" 6" 3" 0 1' 2"
1"=1'-0"

7



SD1 TYPE C SEDIMENTATION BARRIER DETAIL

NO SCALE | 8



MAINTENANCE:

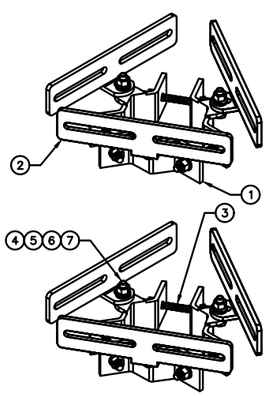
1. INSPECT BARRIERS AT THE END OF EACH WORKING DAY, OR AFTER EACH RAIN, AND REPAIR OR CLEAN AS NECESSARY.
2. REMOVE SEDIMENT FROM BARRIER WHEN TWO-THIRDS FULL.
3. DISPOSE OF SEDIMENT SO THAT IT WILL NOT ENTER THE BARRIER AGAIN AND STABILIZE WITH VEGETATION.
4. REPLACE FILTER FABRIC WHEN DETERIORATED.
5. DESIGN LIFE OF A SYNTHETIC SILT FENCE IS APPROXIMATELY 6 (SIX) MONTHS.
6. MAINTAIN UNTIL THE PROJECT IS VEGETATED OR OTHERWISE STABILIZED.
7. REMOVE BARRIERS AND ACCUMULATED SEDIMENT AND STABILIZE THE EXPOSED AREA WHEN THE PROJECT IS STABILIZED.

MAST MOUNT DETAIL

NO SCALE | 9

EEI FPS-AB TRIAD FLUH MOUNT	
DESCRIPTION	PART # - QTY
TRIAD-FPS - 1/4" BRACKET ASSEMBLY	PART 1 - QTY: 6
TRIAD-AB - 1/4" HRPO GUSSET ASSEMBLY	PART 2 - QTY: 6
3/8"x5-1/2" A36 THREADED ROD	PART 3 - QTY: 6
3/8"x1-1/4" A307 BOLT	PART 4 - QTY: 6
3/8" HEX NUT	PART 5 - QTY: 6
3/8" FLAT WASHER	PART 6 - QTY: 6
3/8" LOCK WASHER	PART 7 - QTY: 6
TOTAL WEIGHT	±8 lbs

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



dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
LICENSED PROFESSIONAL ENGINEER
9/7/23

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

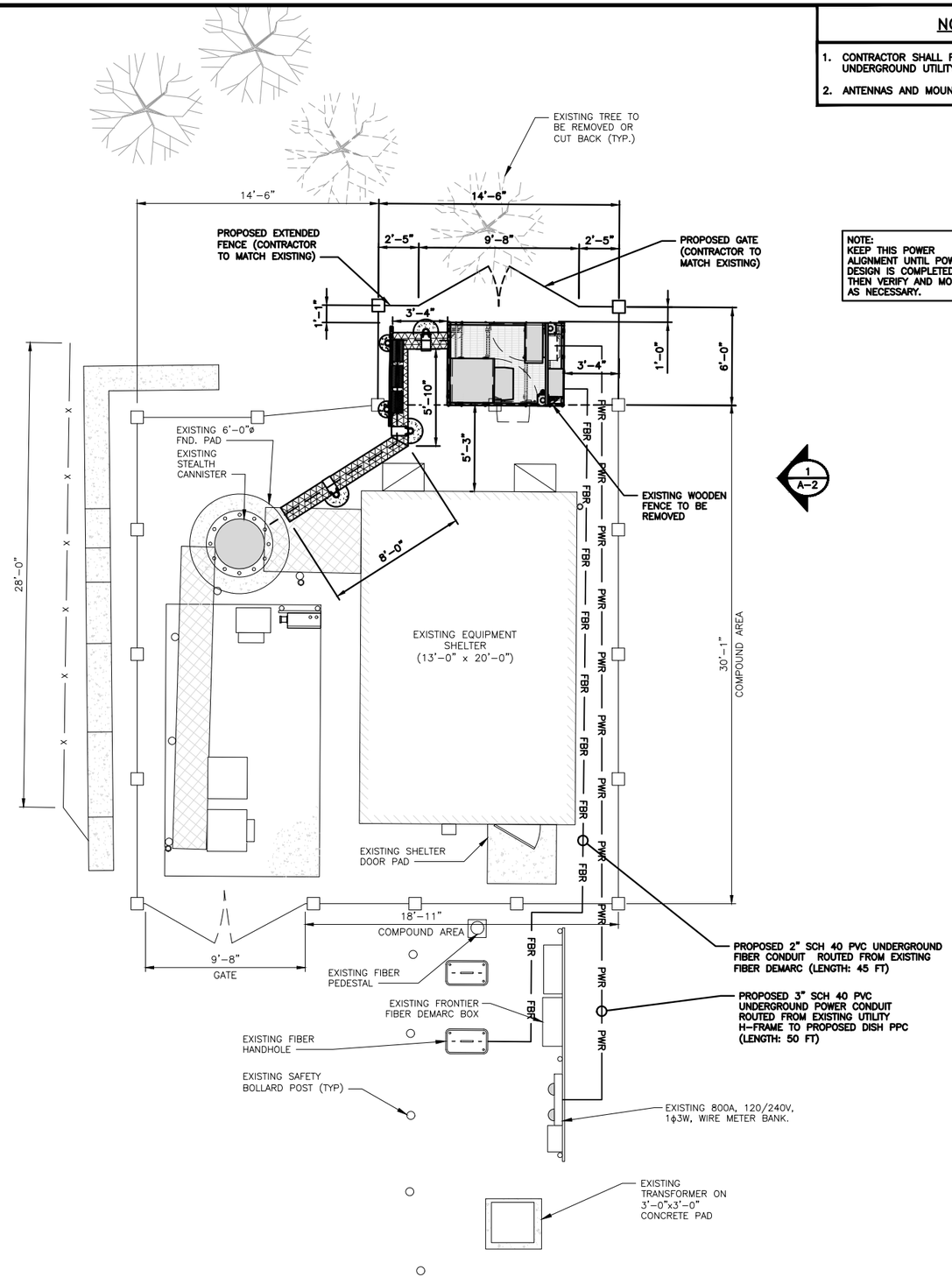
REV	DATE	DESCRIPTION
0	07/07/22	ISSUED FOR CONSTRUCTION
1	07/13/22	ISSUED FOR CONSTRUCTION
2	11/29/22	ISSUED FOR CONSTRUCTION
3	01/17/23	ISSUED FOR CONSTRUCTION
4	03/13/23	ISSUED FOR CONSTRUCTION
5	05/15/23	UPDATED SA & MA INFORMATION
6	05/31/23	ISSUED FOR CONSTRUCTION
7	09/07/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00030A
224 LOVELY STREET
AVON, CT 06001

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-6



UTILITY ROUTE PLAN

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

1

NOTES

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

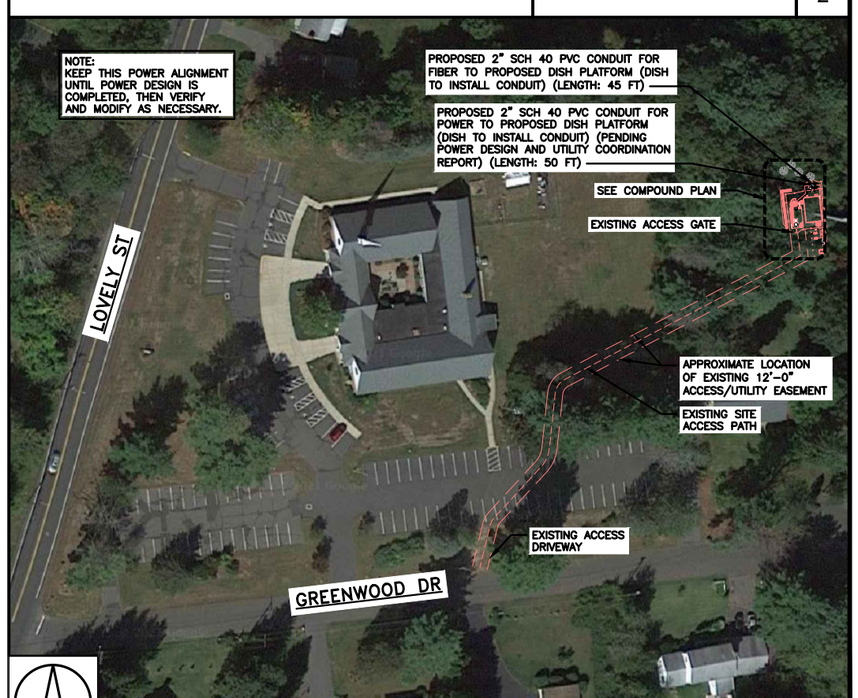
NOTE:
KEEP THIS POWER ALIGNMENT UNTIL POWER DESIGN IS COMPLETED, THEN VERIFY AND MODIFY AS NECESSARY.

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. POWER ROUTE IS PRELIMINARY, FINAL POWER ROUTE TO BE DETERMINED ONCE UCR (UTILITY COORDINATION REPORT) HAS BEEN FINALIZED.

ELECTRICAL NOTES

2



OVERALL UTILITY ROUTE PLAN

60' 30' 0 60' 120'
1"=60'

3

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

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
LICENSED
PROFESSIONAL ENGINEER
9/7/23

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	07/07/22	ISSUED FOR CONSTRUCTION
1	07/13/22	ISSUED FOR CONSTRUCTION
2	11/29/22	ISSUED FOR CONSTRUCTION
3	01/17/23	ISSUED FOR CONSTRUCTION
4	03/13/23	ISSUED FOR CONSTRUCTION
5	05/15/23	UPDATED SA & MA INFORMATION
6	05/31/23	ISSUED FOR CONSTRUCTION
7	09/07/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

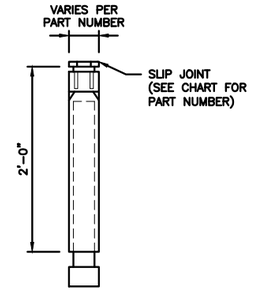
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00030A
224 LOVELY STREET
AVON, CT 06001

SHEET TITLE
ELECTRICAL/FIBER ROUTE PLAN AND NOTES

SHEET NUMBER
E-1

CARLON EXPANSION FITTINGS

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

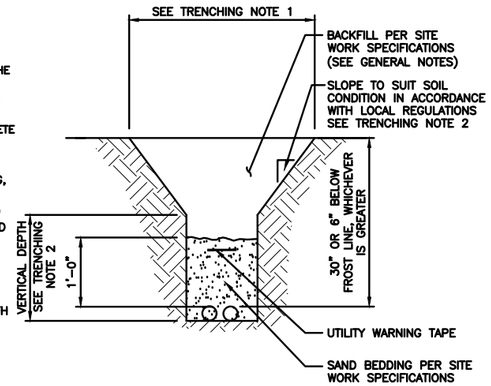


NOTE:
CONTRACTOR TO INSTALL EXPANSION FITTING SLIP JOINT AT METER CENTER CONDUIT TERMINATION, AS PER LOCAL UTILITY POLICY, ORDINANCE AND/OR SPECIFIED REQUIREMENT.

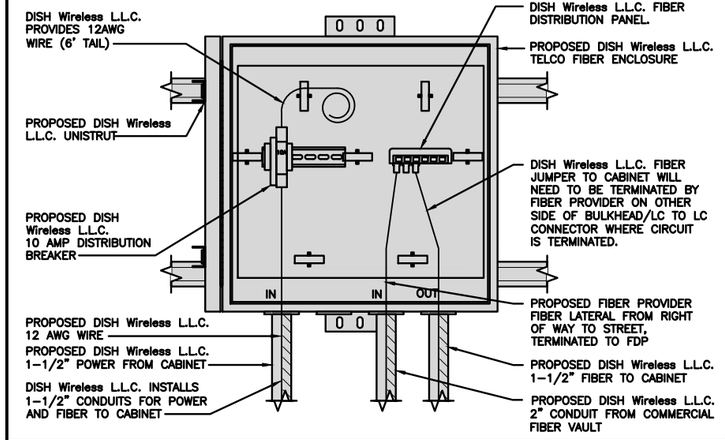
EXPANSION JOINT DETAIL | NO SCALE | 1

TRENCHING NOTES

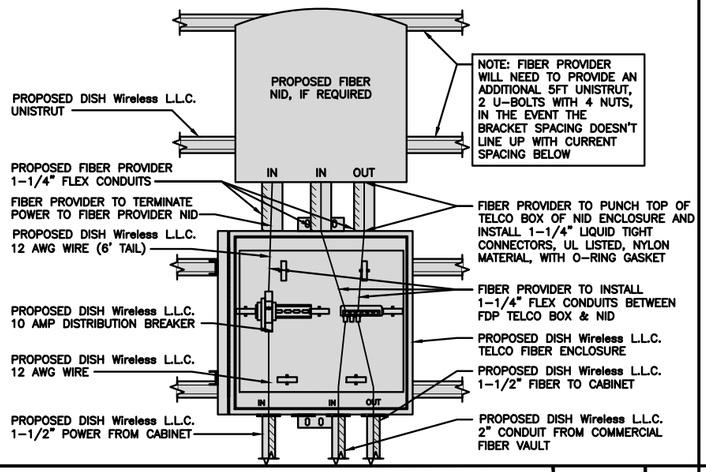
1. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
2. TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT 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

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
LICENSED
PROFESSIONAL ENGINEER
9/7/23

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

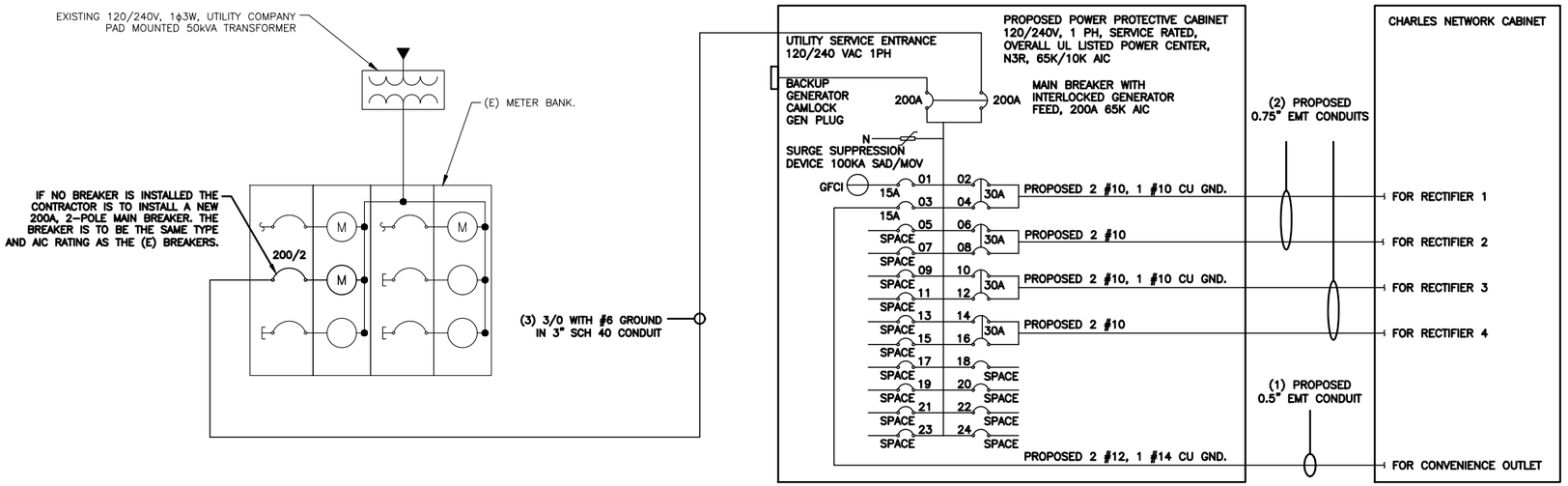
REV	DATE	DESCRIPTION
0	07/07/22	ISSUED FOR CONSTRUCTION
1	07/13/22	ISSUED FOR CONSTRUCTION
2	11/29/22	ISSUED FOR CONSTRUCTION
3	01/17/23	ISSUED FOR CONSTRUCTION
4	03/13/23	ISSUED FOR CONSTRUCTION
5	05/15/23	UPDATED SA & MA INFORMATION
6	05/31/23	ISSUED FOR CONSTRUCTION
7	09/07/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00030A
224 LOVELY STREET
AVON, CT 06001

SHEET TITLE
ELECTRICAL/FIBER 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
(2) 15A, 1P BREAKER - SQUARE D P/N:QO115

NOTES

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

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

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

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

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

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

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

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

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

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

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

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

PPC ONE-LINE DIAGRAM

NO SCALE | 1

PROPOSED CHARLES PANEL SCHEDULE

LOAD SERVED	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS) L1	VOLT AMPS (WATTS) L2	LOAD SERVED
PPC GFCI OUTLET	180		15A	1	A	2	30A	2880		ABB/GE INFINITY RECTIFIER 1
CHARLES GFCI OUTLET		180	15A	3	B	4			2880	
-SPACE-				5	A	6	30A	2880		ABB/GE INFINITY RECTIFIER 2
-SPACE-				7	B	8			2880	
-SPACE-				9	A	10	30A	2880		ABB/GE INFINITY RECTIFIER 3
-SPACE-				11	B	12			2880	
-SPACE-				13	A	14	30A	2880		ABB/GE INFINITY RECTIFIER 4
-SPACE-				15	B	16			2880	
-SPACE-				17	A	18				-SPACE-
-SPACE-				19	B	20				-SPACE-
-SPACE-				21	A	22				-SPACE-
-SPACE-				23	B	24				-SPACE-
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

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

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
9/7/23
LICENSED PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

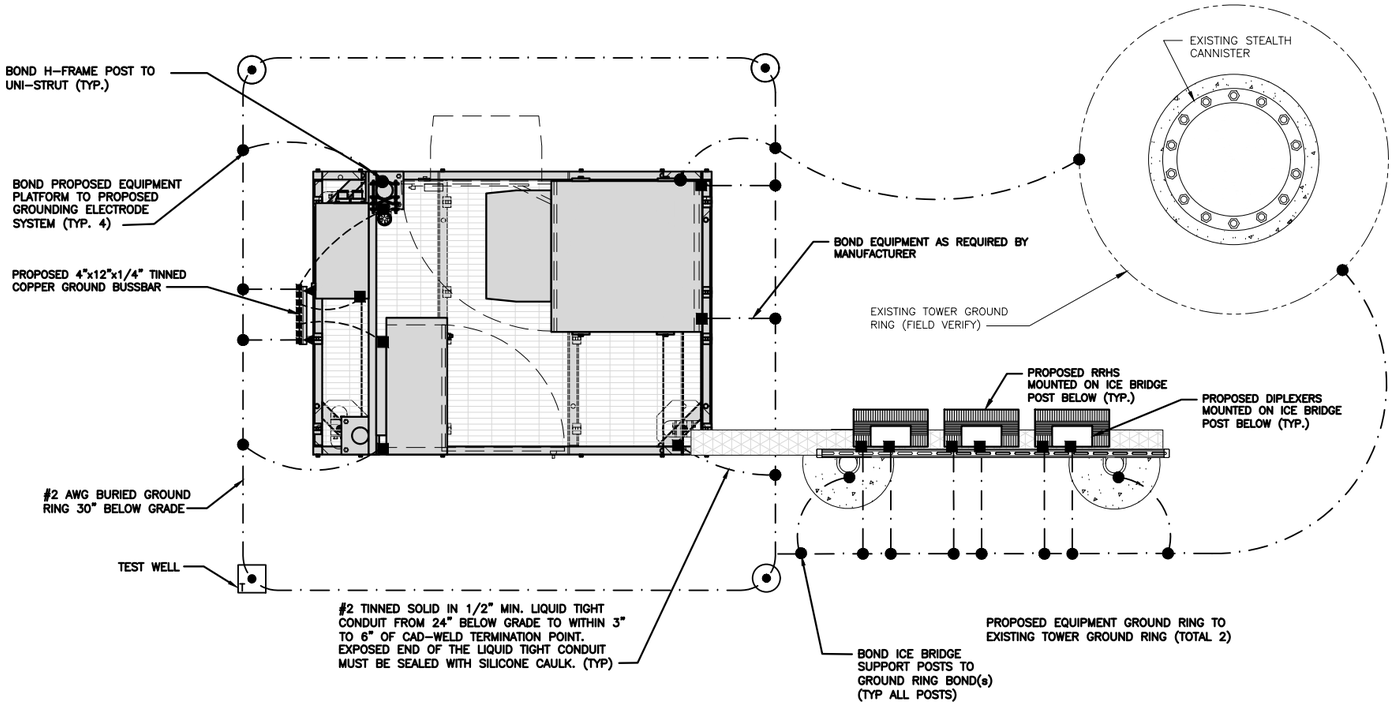
REV	DATE	DESCRIPTION
0	07/07/22	ISSUED FOR CONSTRUCTION
1	07/13/22	ISSUED FOR CONSTRUCTION
2	11/29/22	ISSUED FOR CONSTRUCTION
3	01/17/23	ISSUED FOR CONSTRUCTION
4	03/13/23	ISSUED FOR CONSTRUCTION
5	05/15/23	UPDATED SA & MA INFORMATION
6	05/31/23	ISSUED FOR CONSTRUCTION
7	09/07/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00030A
224 LOVELY STREET
AVON, CT 06001

SHEET TITLE
ELECTRICAL ONE-LINE & PANEL SCHEDULE

SHEET NUMBER
E-3

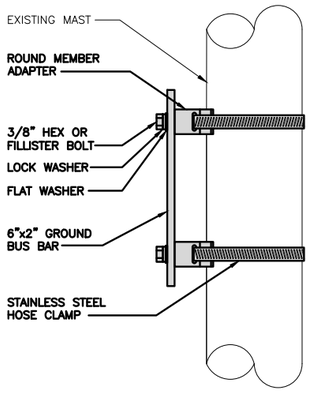


TYPICAL EQUIPMENT GROUNDING PLAN

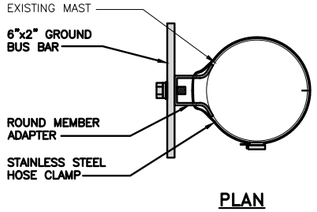
NO SCALE | 1

NOTES

- ANTENNAS AND OVP SHOWN ARE GENERIC AND NOT REFERENCING TO A SPECIFIC MANUFACTURER. THIS LAYOUT IS FOR REFERENCE PURPOSES ONLY
- SECTOR BUSSBARS SHALL BE INSTALLED WITH INSULATORS
- UPPER TOWER BUSSBAR SHALL BE INSTALLED WITH OUT INSULATORS



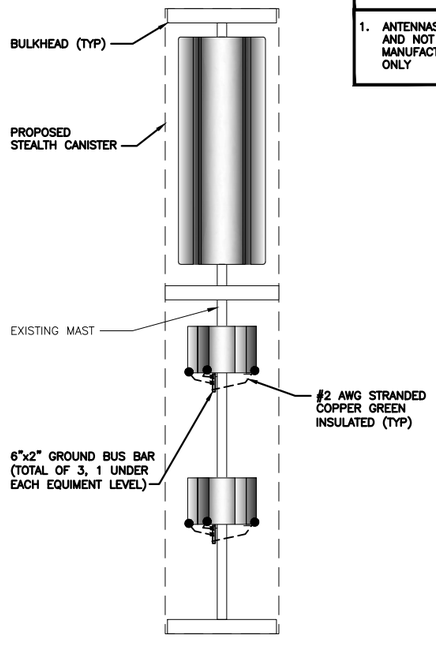
ELEVATION



PLAN

NOTES

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



ANTENNA AND DIPLEXER GROUNDING ELEVATION

TYPICAL ANTENNA, RRH & OVP GROUNDING DETAIL

NO SCALE | 2

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

GROUNDING LEGEND

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

GROUNDING KEY NOTES

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

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

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

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

(E) **GROUND ROD:** UL LISTED COPPER CLAD STEEL, MINIMUM 5/8" DIAMETER BY TEN 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

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

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
LICENSED
PROFESSIONAL ENGINEER
9/7/23

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	07/07/22	ISSUED FOR CONSTRUCTION
1	07/13/22	ISSUED FOR CONSTRUCTION
2	11/29/22	ISSUED FOR CONSTRUCTION
3	01/17/23	ISSUED FOR CONSTRUCTION
4	03/13/23	ISSUED FOR CONSTRUCTION
5	05/15/23	UPDATED SA & MA INFORMATION
6	05/31/23	ISSUED FOR CONSTRUCTION
7	09/07/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

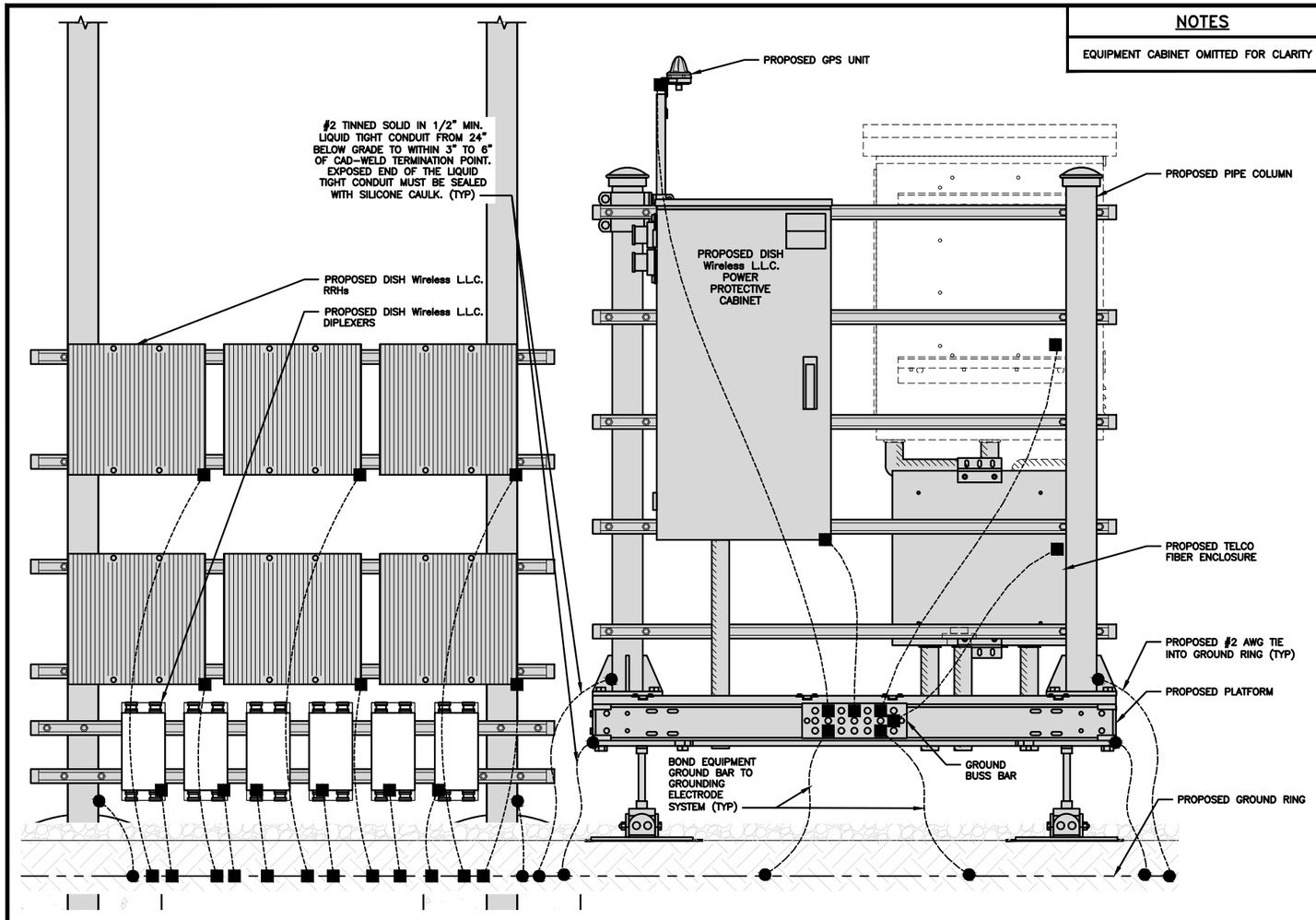
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00030A
224 LOVELY STREET
AVON, CT 06001

SHEET TITLE
GROUNDING PLANS AND NOTES

SHEET NUMBER
G-1

NOTES

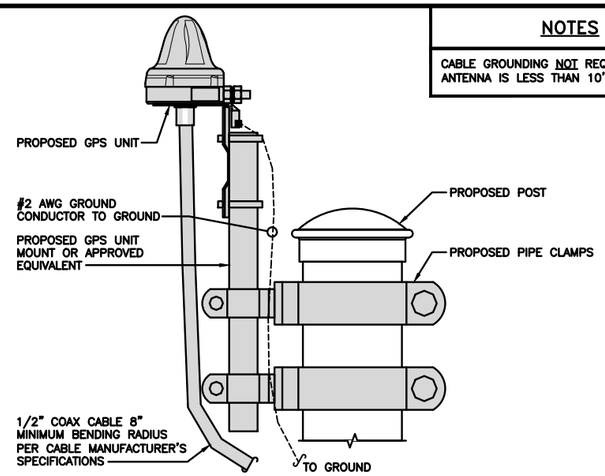
EQUIPMENT CABINET OMITTED FOR CLARITY



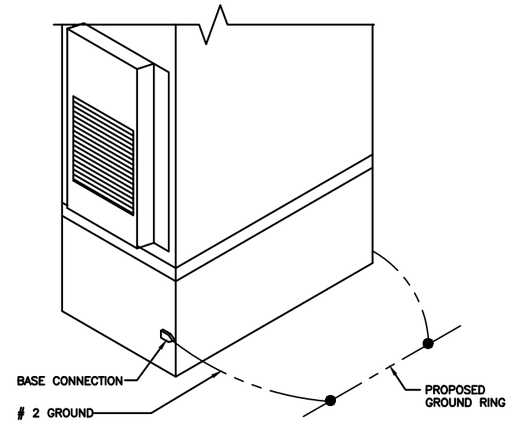
H-FRAME GROUNDING DETAIL | NO SCALE | 1

NOTES

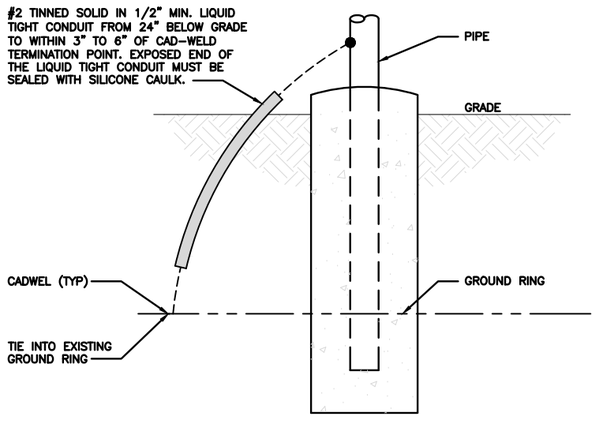
CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET



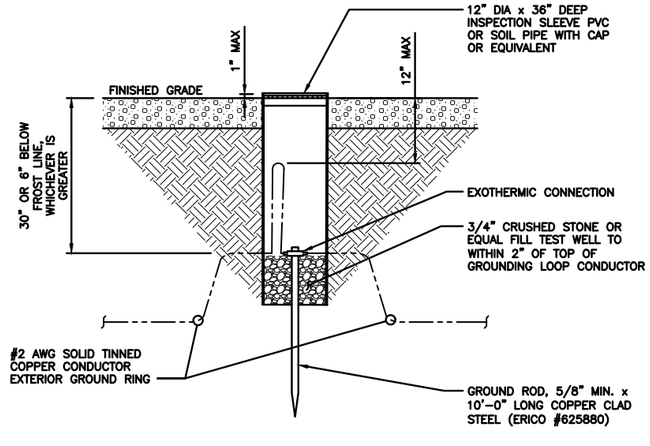
TYPICAL GPS UNIT GROUNDING | NO SCALE | 2



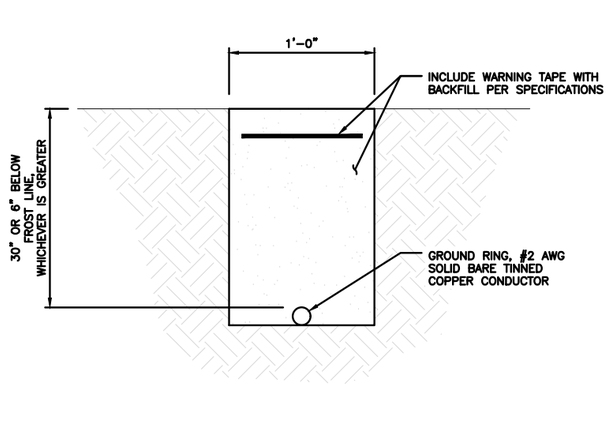
OUTDOOR CABINET GROUNDING | NO SCALE | 3



TRANSITIONING GROUND DETAIL | NO SCALE | 4



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



TYPICAL GROUND RING TRENCH | NO SCALE | 6

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
9/7/23
LICENSED PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	07/07/22	ISSUED FOR CONSTRUCTION
1	07/13/22	ISSUED FOR CONSTRUCTION
2	11/29/22	ISSUED FOR CONSTRUCTION
3	01/17/23	ISSUED FOR CONSTRUCTION
4	03/13/23	ISSUED FOR CONSTRUCTION
5	05/15/23	UPDATED SA & MA INFORMATION
6	05/31/23	ISSUED FOR CONSTRUCTION
7	09/07/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

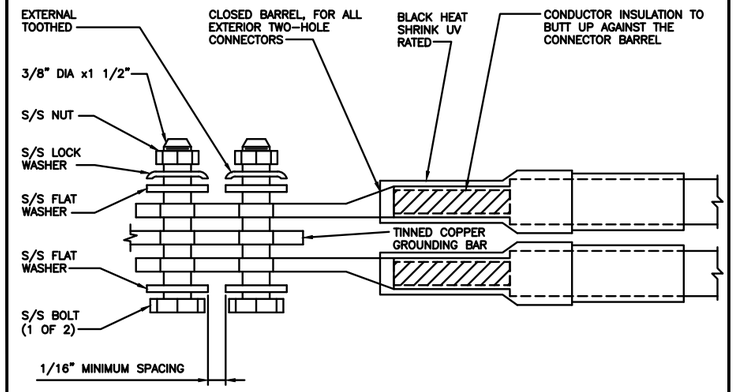
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00030A
224 LOVELY STREET
AVON, CT 06001

SHEET TITLE
GROUNDING DETAILS

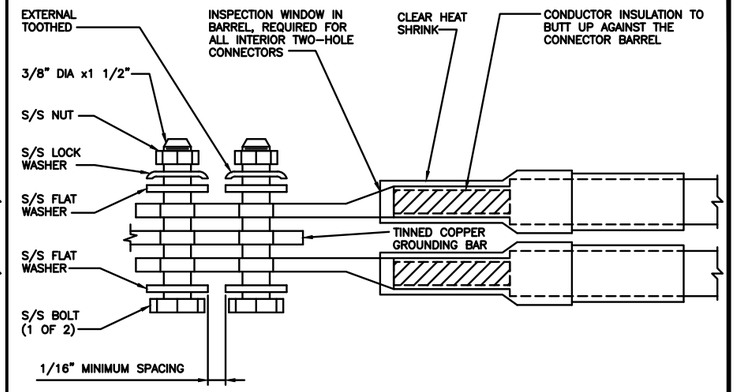
SHEET NUMBER
G-2

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 SHALL BE 18–8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI–OXIDANT COMPOUND BEFORE MATING.
3. FOR GROUND BOND TO STEEL ONLY: COAT ALL SURFACES WITH AN ANTI–OXIDANT COMPOUND BEFORE MATING.
4. DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUNDING BUS.
5. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE.
6. ALL GROUNDING PARTS AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED.
9. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).

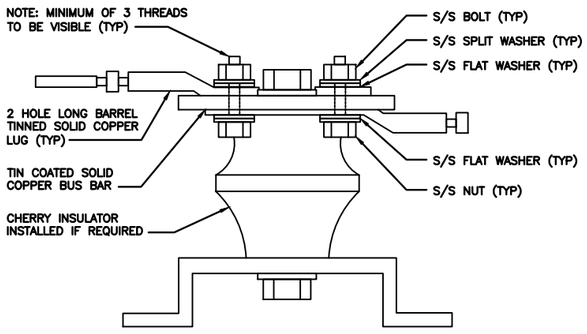
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

| NO SCALE | 5

| NO SCALE | 6

NOT USED | NO SCALE | 7

| NO SCALE | 8

| NO SCALE | 9

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

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
9/7/23
LICENSED PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	07/07/22	ISSUED FOR CONSTRUCTION
1	07/13/22	ISSUED FOR CONSTRUCTION
2	11/29/22	ISSUED FOR CONSTRUCTION
3	01/17/23	ISSUED FOR CONSTRUCTION
4	03/13/23	ISSUED FOR CONSTRUCTION
5	05/15/23	UPDATED SA & MA INFORMATION
6	05/31/23	ISSUED FOR CONSTRUCTION
7	09/07/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039–Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00030A
224 LOVELY STREET
AVON, CT 06001

SHEET TITLE
GROUNDING DETAILS

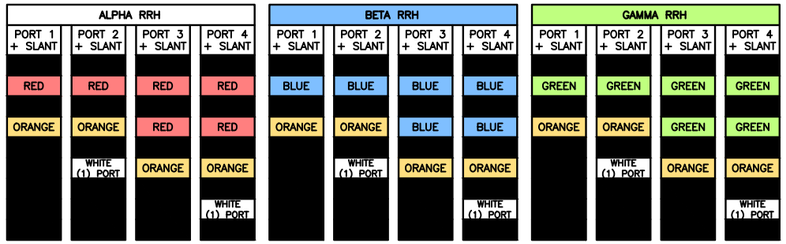
SHEET NUMBER
G-3

RF JUMPER COLOR CODING

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

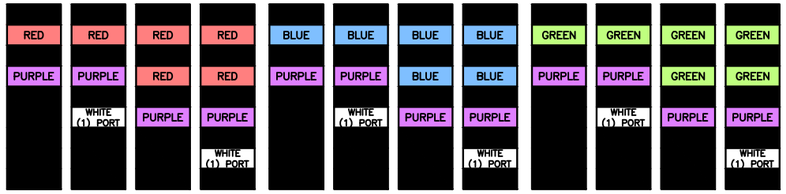
LOW-BAND RRH –
(600MHz N71 BASEBAND) +
(850MHz N26 BAND) +
(700MHz N29 BAND) – OPTIONAL PER MARKET

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



MID-BAND RRH –
(AWS BANDS N66+N70)

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

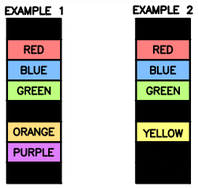


HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED AM LONG WITH FREQUENCY BANDS

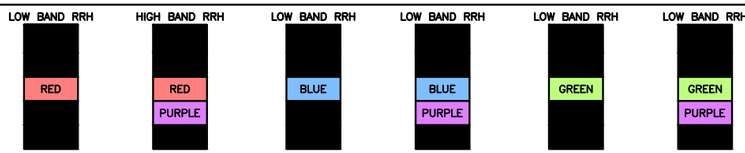
EXAMPLE 1 – HYBRID, OR DISCREET, SUPPORTS ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS

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



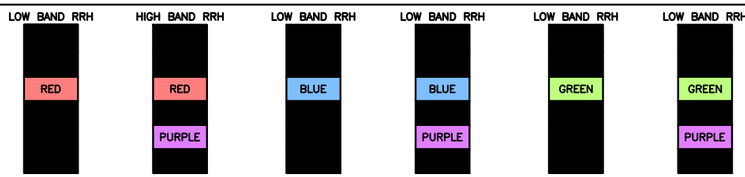
HYBRID/DISCREET CABLES

LOW-BAND RRH FIBER CABLES HAVE SECTOR STRIPE ONLY

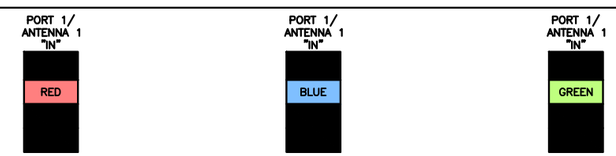


POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY



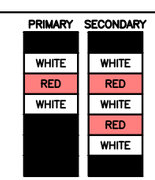
RET MOTORS AT ANTENNAS



MICROWAVE RADIO LINKS

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

MICROWAVE CABINETS 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–N28)
OPTIONAL – (N29)
ORANGE

AWS
(N65+N70+H-BLOCK)
PURPLE

CBRS TECH
(3 GHz)
YELLOW

NEGATIVE SLANT PORT
ON ANTRRH
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

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
LICENSED
PROFESSIONAL ENGINEER
9/7/23

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	07/07/22	ISSUED FOR CONSTRUCTION
1	07/13/22	ISSUED FOR CONSTRUCTION
2	11/29/22	ISSUED FOR CONSTRUCTION
3	01/17/23	ISSUED FOR CONSTRUCTION
4	03/13/23	ISSUED FOR CONSTRUCTION
5	05/15/23	UPDATED SA & MA INFORMATION
6	05/31/23	ISSUED FOR CONSTRUCTION
7	09/07/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00030A
224 LOVELY STREET
AVON, CT 06001

SHEET TITLE
RF
CABLE COLOR CODES

SHEET NUMBER
RF-1

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE

SINGLE POLE SWITCH

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE

FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48–T8

SMOKE DETECTION (DC)

EMERGENCY LIGHTING (DC)

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

CHAIN LINK FENCE

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE

UNDERGROUND POWER

UNDERGROUND TELCO

OVERHEAD POWER

OVERHEAD TELCO

UNDERGROUND TELCO/POWER

ABOVE GROUND POWER

ABOVE GROUND TELCO

ABOVE GROUND TELCO/POWER

WORKPOINT

SECTION REFERENCE

DETAIL REFERENCE

LEGEND

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

ABBREVIATIONS

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
9/7/23
LICENSED PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	07/07/22	ISSUED FOR CONSTRUCTION
1	07/13/22	ISSUED FOR CONSTRUCTION
2	11/29/22	ISSUED FOR CONSTRUCTION
3	01/17/23	ISSUED FOR CONSTRUCTION
4	03/13/23	ISSUED FOR CONSTRUCTION
5	05/15/23	UPDATED SA & MA INFORMATION
6	05/31/23	ISSUED FOR CONSTRUCTION
7	09/07/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039–Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00030A
224 LOVELY STREET
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.

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

WARNING

Transmitting Antenna(s)

Radio frequency fields beyond this point *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

RF SIGNAGE

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
9/7/23
LICENSED PROFESSIONAL ENGINEER

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	07/07/22	ISSUED FOR CONSTRUCTION
1	07/13/22	ISSUED FOR CONSTRUCTION
2	11/29/22	ISSUED FOR CONSTRUCTION
3	01/17/23	ISSUED FOR CONSTRUCTION
4	03/13/23	ISSUED FOR CONSTRUCTION
5	05/15/23	UPDATED SA & MA INFORMATION
6	05/31/23	ISSUED FOR CONSTRUCTION
7	09/07/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00030A
224 LOVELY STREET
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.

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
LICENSED
PROFESSIONAL ENGINEER
9/7/23

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	07/07/22	ISSUED FOR CONSTRUCTION
1	07/13/22	ISSUED FOR CONSTRUCTION
2	11/29/22	ISSUED FOR CONSTRUCTION
3	01/17/23	ISSUED FOR CONSTRUCTION
4	03/13/23	ISSUED FOR CONSTRUCTION
5	05/15/23	UPDATED SA & MA INFORMATION
6	05/31/23	ISSUED FOR CONSTRUCTION
7	09/07/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039–Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00030A
224 LOVELY STREET
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 60 ksi

#5 BARS AND LARGER 60 ksi

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

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

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

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

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

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

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

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

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

8. TIE WRAPS ARE NOT ALLOWED.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
LICENSED
PROFESSIONAL ENGINEER
9/7/23

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
0	07/07/22	ISSUED FOR CONSTRUCTION
1	07/13/22	ISSUED FOR CONSTRUCTION
2	11/29/22	ISSUED FOR CONSTRUCTION
3	01/17/23	ISSUED FOR CONSTRUCTION
4	03/13/23	ISSUED FOR CONSTRUCTION
5	05/15/23	UPDATED SA & MA INFORMATION
6	05/31/23	ISSUED FOR CONSTRUCTION
7	09/07/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00030A
224 LOVELY STREET
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.

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

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

STATE OF CONNECTICUT
CHRISTOPHER J. WARREN
No. 23544
LICENSED
PROFESSIONAL ENGINEER
9/7/23

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

RFDS REV #: N/A

CONSTRUCTION DOCUMENTS

SUBMITTALS

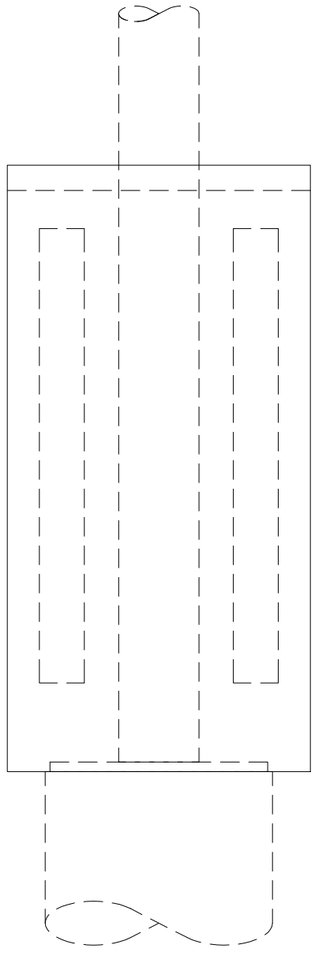
REV	DATE	DESCRIPTION
0	07/07/22	ISSUED FOR CONSTRUCTION
1	07/13/22	ISSUED FOR CONSTRUCTION
2	11/29/22	ISSUED FOR CONSTRUCTION
3	01/17/23	ISSUED FOR CONSTRUCTION
4	03/13/23	ISSUED FOR CONSTRUCTION
5	05/15/23	UPDATED SA & MA INFORMATION
6	05/31/23	ISSUED FOR CONSTRUCTION
7	09/07/23	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
2039-Z5555C

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00030A
224 LOVELY STREET
AVON, CT 06001

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-5



Raycap

7555-A PALMETTO COMMERCE PARKWAY

NORTH CHARLESTON, SC 29420 USA

P: (800)-755-0689 / F: (843)-207-0207

WWW.RAYCAP.COM

PROJECT MANAGER: AUSTIN BELL ; (843)-473-6631

FINAL ENGINEERING

NORTHEAST SITE SOLUTIONS

SITE #: BOBDL00030A; 224 LOVELY STREET

224 LOVELY STREET

AVON, CT 06001

RAYCAP #: DW22-00175W-17R1

DRAWING INDEX

STATE OF CONNECTICUT
TREVOR P. HAWKES
No. 0032101
LICENSED
PROFESSIONAL ENGINEER

05/02/2022

VECTOR ENGINEERS
651 W. GALENA PARK BLVD., SUITE 101
DRAPER, UT 84020
P: (801) 990-1775 F: (801) 990-1776
VECTOR PROJECT: U0142-1402-221
CT FIRM LICENSE NUMBER: PEC 0001229

T1

05/02/22

REVISION B

DESIGN NOTES

STRUCTURAL DESIGN IS BASED ON THE CONNECTICUT STATE BUILDING CODE, 2018 EDITION (2015 IBC) & THE TIA-222-G STANDARD.

DESIGN LOADS

WIND:

BASIC WIND SPEED: 120 MPH (3-SEC GUST) PER ASCE 7-10 STANDARD
RISK CATEGORY/STRUCTURE CLASS: II
EXPOSURE: B
TOPOGRAPHIC CATEGORY: 1
CREST HEIGHT: 0 FT
ELEVATION: 294 FT ABOVE SEA LEVEL

ICE: 1" RADIAL ICE THICKNESS @ 50 MPH (3-SEC GUST)

REACTIONS

SHEAR, V = 345 lbs (1.0 WIND)
AXIAL, R = 845 lbs (1.2 DEAD + 1.0 ICE)

THE REACTION V LISTED ABOVE SHALL BE CONSIDERED TO ACT IN ANY HORIZONTAL DIRECTION. ANALYSIS OF THE SUPPORTING STRUCTURE TO RESIST THE DESIGN REACTIONS LISTED ABOVE IS THE RESPONSIBILITY OF OTHERS.

SPECIAL INSPECTIONS & STRUCTURAL OBSERVATION

1. STEEL FABRICATION SHALL BE DONE ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED AS REQUIRED BY THE BUILDING CODE TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION. ALTERNATIVELY, SPECIAL INSPECTION OF MATERIALS, WELDING, AND FABRICATION PROCEDURES SHALL BE REQUIRED FOR FABRICATION BY AN UNAPPROVED FABRICATOR.
2. NO FIELD WELDING SHALL BE PERMITTED.
3. THE FOLLOWING SPECIAL INSPECTIONS (WHERE APPLICABLE) SHALL BE REQUIRED PER CHAPTER 17 OF THE BUILDING CODE.
   - SPECIAL INSPECTION OF HIGH-STRENGTH BOLTING (WHEN APPLICABLE):
     - PERIODIC SPECIAL INSPECTION IF BOLTS ARE PRETENSIONED WITH MATCH-MARKING TECHNIQUES.
     - CONTINUOUS SPECIAL INSPECTION OF ALL OTHER HIGH-STRENGTH BOLTING.
4. SPECIAL INSPECTION IS NOT REQUIRED FOR WORK OF A MINOR NATURE OR AS WARRANTED BY CONDITIONS IN THE JURISDICTION AS APPROVED BY THE BUILDING OFFICIAL. THUS, SPECIAL INSPECTION ITEMS ABOVE MAY BE WAIVED AS DEEMED APPROPRIATE BY THE BUILDING OFFICIAL.
5. NO STRUCTURAL OBSERVATION IS REQUIRED.

COAX NOTE

ROUTING THE LARGE QUANTITY OF COAX CABLES THROUGH THE CONCEALMENT BULKHEADS IS POSSIBLE (WHEN LAID OUT ON PAPER), BUT WILL BE VERY DIFFICULT IN REAL WORLD FIELD CONDITIONS. WHILE THE CABLES MAY PHYSICALLY FIT THROUGH THE BASE FLANGE ON TOP OF THE MONOPOLE AND THE SUBSEQUENT STEEL BULKHEADS ABOVE, ROUTING THEM PAST THE ANTENNAS IS UNPREDICTABLE, DEPENDING ON THE ANTENNA MOUNTING HARDWARE EMPLOYED, COAX CONNECTOR TYPE(S) USED, COAX ROUTING, AND RELATIVE AZIMUTH DIRECTIONS OF THE ANTENNAS IN THE POLE. RAYCAP, INC. CAN NOT GUARANTEE THAT ALL OF THE COAX CAN BE ROUTED WITHOUT INTERFERENCE TO SOME OR ALL ANTENNAS. IT IS HIGHLY RECOMMENDED THAT THE INSTALLER MOCK UP THE COAX RUNS WITHIN THE CONCEALMENT AND DEVELOP A COAX ROUTING PLAN PRIOR TO INSTALLATION.

DESIGN

1. ENGINEERING AND DESIGN CALCULATIONS FOR RAYCAP, INC. POLE AND TOWER PRODUCTS ARE PREPARED IN ACCORDANCE WITH ADOPTED TIA STANDARDS. OTHER STRUCTURES ARE DESIGNED IN ACCORDANCE WITH APPLICABLE LOCAL OR NATIONAL STANDARDS AND PER CLIENT INPUT.

DISCLAIMERS

1. ALL STRUCTURAL COMPONENTS TO BE CONNECTED TOGETHER SHALL BE COMPLETELY FIT UP ON THE GROUND OR OTHERWISE VERIFIED FOR COMPATIBILITY PRIOR TO LIFTING ANY COMPONENT INTO PLACE. REPAIRS REQUIRED DUE TO FIT-UP OR CONNECTION COMPATIBILITY PROBLEMS AFTER PARTIAL ERECTION ARE THE FINANCIAL RESPONSIBILITY OF THE CONTRACTOR.
2. SOME TELECOMMUNICATION STRUCTURES ARE SUSCEPTIBLE TO WIND-INDUCED OSCILLATIONS. OSCILLATIONS MAY OCCUR AT LOW OR MODERATE WIND SPEEDS AND MAY CAUSE STRUCTURAL DAMAGE. TIA PROVIDES NO PRACTICAL ANALYTICAL METHOD TO PREDICT AND PREVENT WIND-INDUCED STRUCTURAL OSCILLATIONS. RAYCAP, INC. RECOMMENDS FREQUENT MONITORING TO IDENTIFY WIND-INDUCED OSCILLATION AND REGULAR CONDITION ASSESSMENTS TO IDENTIFY FATIGUE CRACKING, LOOSE OR MISSING BOLTS, AND ANY OTHER STRUCTURAL DEFECTS. ANY OSCILLATION OR DEFECTS OBSERVED SHALL BE IMMEDIATELY REPORTED TO RAYCAP, INC. FOR FURTHER EVALUATION AND POSSIBLE REPAIRS OR MODIFICATIONS WHICH MAY BE REQUIRED AT THE OWNERS EXPENSE.
3. WHERE EFFECTIVE PROJECTED AREAS (EPA) ARE USED, IT IS THE RESPONSIBILITY OF OTHERS TO VERIFY INSTALLED EQUIPMENT DOES NOT EXCEED LISTED EPA.

GENERAL

1. THIS PRODUCT IS SOLD PURSUANT TO RAYCAP, INC. TERMS AND CONDITIONS, WHICH ARE INCORPORATED HEREIN BY REFERENCE.
2. THESE SHALL APPLY FOR ALL CASES UNLESS NOTED OTHERWISE (U.N.O.).
3. ANY ITEMS REFERENCED AS BEING ON "HOLD" ARE TO BE INCLUDED IN THE WORK AS SHOWN. HOWEVER, CONSTRUCTION OR FABRICATION IS NOT TO BEGIN UNTIL THE "HOLD" REFERENCE IS REMOVED.
4. IN THE CASE WHERE DIMENSIONS CONTAINED WITHIN ARE LABELED TO BE VERIFIED IN FIELD (V.I.F.), THEY MUST BE FIELD VERIFIED AND/OR CUSTOMER APPROVED PRIOR TO FABRICATION OF MATERIALS.
5. IN THE CASE THAT THE PROPOSED IS TO BE PLACED ON AN EXISTING STRUCTURE, THE MODIFICATIONS DEPICTED IN THESE DRAWINGS ARE INTENDED TO PROVIDE STRUCTURAL SUPPORT FOR THE ADDITION OF THE TELECOM STRUCTURE OUTLINED WITHIN. THE EXISTING STRUCTURE, WHETHER IT BE A FOUNDATION, POLE, OR BUILDING (IF APPLICABLE) SHALL BE ANALYZED AND RETROFITTED AS REQUIRED, BY OTHERS, TO WITHSTAND THE LOADS IMPOSED BY THE NEW RAYCAP STRUCTURE SHOWN ON THE DRAWINGS.
6. TELECOM PRODUCTS SHALL BE INSTALLED BY A CONTRACTOR EXPERIENCED IN SIMILAR WORK. CARE SHALL BE TAKEN IN THE INSTALLATION OF ANY AND ALL MEMBERS IN ACCORDANCE WITH RECOGNIZED INDUSTRY STANDARDS AND PROCEDURES. ALL APPLICABLE OSHA SAFETY GUIDELINES ARE TO BE FOLLOWED. RAYCAP IS NOT PROVIDING FIELD INSTALLATION SUPERVISION.
7. NOTES FOR CONTRACTOR/INSTALLER: ALL BIDS FOR THE INSTALLATION/ERECTION OF THIS PRODUCT SHALL INCLUDE, BUT NOT LIMITED TO THE FOLLOWING MINIMUM REQUIRED TRADES: RIGGING, STEEL ERECTION, STEEL FABRICATION/MODIFICATION, WELDING, ELECTRICAL, CONCRETE, EXCAVATION AND WATERPROOFING. CONTRACTOR MAY, IN CONTRACTOR'S SOLE AND ABSOLUTE DISCRETION, DETERMINE ADDITIONAL TRADES ARE NECESSARY TO INSTALL/ERECT THE PRODUCT.
8. THESE DRAWINGS INDICATE THE MAJOR OPERATIONS TO BE PERFORMED, BUT DO NOT SHOW EVERY FIELD CONDITION THAT MAY BE ENCOUNTERED. THEREFORE, PRIOR TO BEGINNING OF WORK THE CONTRACTOR SHOULD SURVEY THE JOB SITE THOROUGHLY TO MINIMIZE FIELD PROBLEMS.
9. PROTECTION OF EXISTING STRUCTURES DURING THE COURSE OF THE CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
10. THE STRUCTURAL INTEGRITY OF THIS STRUCTURE IS DESIGNED TO BE ATTAINED IN ITS COMPLETED STATE. WHILE UNDER CONSTRUCTION ANY TEMPORARY BRACING OR SHORING WHICH MAY BE REQUIRED TO MAINTAIN STABILITY PRIOR TO COMPLETION SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
11. THE PLANS AND DETAILS WITHIN DO NOT INCLUDE DETAILS OR DESIGN FOR DRAINAGE FROM OR WATERPROOFING OF EXTERIOR OR INTERIOR SURFACES OF THE STRUCTURE. THESE DETAILS MUST BE COMPLETED BY OTHERS.
12. CONTRACTOR TO SHIM BASE PLATES AND MATING FLANGES AS REQUIRED TO ENSURE LEVEL SURFACE.

MATERIAL NOTES

1. ALL OTHER STRUCTURAL STEEL SHAPES & PLATES SHALL CONFORM TO ASTM A36, U.N.O.
2. ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS AND PROCEDURES OF THE AMERICAN WELDING SOCIETY (AWS) BY CERTIFIED WELDERS PER AWS D1.1 FOR STEEL AND AWS D1.2 FOR ALUMINUM. ALL WELDING SHALL BE PERFORMED IN A SHOP APPROVED BY THE BUILDING OFFICIAL. STEEL WELDS SHALL BE PERFORMED WITH MINIMUM E70XX LOW-HYDROGEN ELECTRODE EXCEPT WHERE HIGHER STRENGTH ELECTRODE IS REQUIRED BY AWS D1.1. ALUMINUM WELDS SHALL UTILIZE 4043 FILLER OR APPROVED ALTERNATIVES. VERIFY FILLER MATERIAL IS COMPATIBLE WITH BASE METAL FOR EACH WELDED JOINT.
3. ALL STEEL SURFACES SHALL BE GALVANIZED PER ASTM A123, U.N.O.
4. ALL BOLTS FOR STEEL-TO-STEEL CONNECTIONS SHALL CONFORM TO ASTM F3125 GRADE A325 SPECIFICATIONS, U.N.O. A325N AND A325X ALLOWED.
   4.1. ASTM A193 GR. B7 THREADED RODS MAY BE SUBSTITUTED FOR ASTM F3125 GR. A325 BOLTS. ALL REQUIREMENTS FOR BOLTS SHALL APPLY TO THREADED ROD SUBSTITUTES.
5. ALL BOLTS SHALL BE GALVANIZED IN ACCORDANCE w/ ASTM F2329 SPECIFICATIONS.
6. ALL STRUCTURAL BOLTS SHALL BE TIGHTENED PER AN APPROVED PRETENSIONING METHOD AS DEFINED BY AISC. FOR EASE OF INSPECTION, THE "TURN-OF-NUT" METHOD AS DEFINED BY AISC WITH MATCH-MARKING TECHNIQUES IS RECOMMENDED.
7. ALL BOLT HOLES SHALL BE STANDARD SIZE PER TABLE J3.3 OF AISC U.N.O. WASHERS ARE REQUIRED FOR ANY CONNECTION THAT HAS LARGER THAN STANDARD SIZED BOLT HOLES.
8. ALL HEAVY HEX NUTS SHALL BE ASTM A563 GR. C OR DH OR EQUIVALENT.
9. ALL HARDENED WASHERS SHALL BE ASTM F436 OR EQUIVALENT.

STEALTHSKIN PANELS

1. FASTENER HOLES IN STEALTHSKIN FOAM COMPOSITE PANELS ARE NOT FACTORY DRILLED AND MUST BE DRILLED IN THE FIELD.
2. PANEL FASTENERS TO BE SPACED 12" O.C. MAX. AND LOCATED 6" MAX. HORIZONTALLY FROM EACH EDGE AT TOP AND BOTTOM OF PANEL, UNLESS NOTED OTHERWISE. MAINTAIN 1 ½" MIN. EDGE DISTANCE FROM ALL EDGES. 4' WIDE PANELS REQUIRE (4) FASTENERS TOP AND BOTTOM. 5' WIDE PANELS REQUIRE (5) FASTENERS TOP AND BOTTOM.
3. WHEN FASTENER BOLT HEAD OR NUT BEARS DIRECTLY ON SURFACE OF STEALTHSKIN PANEL, TIGHTEN PANEL BOLTS ONLY ½ TURN PAST SNUG. APPLY THREAD LOCK COMPOUND TO THE THREADS OF METAL BOLTS. USE THIN BEAD OF EPOXY TO LOCK THE NUTS OF FRP BOLTS AND STEALTH} STAINLESS STEEL PANEL BOLTS. USE WASHER OR FLANGED HEAD BOLT, OR FASTENER WITH LARGE BEARING SURFACE.
4. PANELS WILL EXPAND AND CONTRACT DUE TO TEMPERATURE. WHEN INSTALLING PANELS IN COLD TEMPERATURES, EVENLY SPACE PANELS ALONG LENGTH OF SCREEN WALL WITH EQUAL GAPS BETWEEN PANELS TO ALLOW FOR EXPANSION DURING WARM TEMPERATURES.
5. ADJACENT FLAT PANELS ARE JOINED BY A VERTICAL FOAM SPLINE THAT IS INSERTED INTO GROOVES CUT INTO THE SIDE OF EACH PANEL. DO NOT LIFT PANELS BY GROOVES. PANELS MUST BE LIFTED WITH FORCE DIRECTED ONTO PANEL SURFACE.
6. ADJACENT RADIUS PANELS ARE JOINED BY A VERTICAL H-CHANNEL. INSERT PANELS INTO EACH SIDE OF H-CHANNEL.
7. RADIUS PANELS MUST BE EVENLY SPACED ALONG RADIUS SUPPORT. CONTRACTOR TO MEASURE LENGTH OF RADIUS SUPPORT AND DIVIDE BY THE NUMBER OF RADIUS PANELS TO DETERMINE PROPER SPACING. H-CHANNEL CONNECTORS ARE USED TO COVER THE GAP BETWEEN PANELS AND TO ALLOW FOR PANEL EXPANSION AND CONTRACTION.
8. SURFACES OF PANELS SHALL BE COATED WITH SUITABLE PAINT FOR UV PROTECTION. TOP EDGE OF PANEL MUST BE COVERED TO PREVENT WATER TRAVEL BETWEEN PANELS. USE SHERWIN WILLIAMS "COROTHANE II" OR PRE APPROVED EQUIVALENT.
9. EXPOSED TOP AND SIDE FOAM EDGES OF PANELS MUST BE COVERED OR COATED FOR UV PROTECTION. RAYCAP, INC. WILL PROVIDE PANEL EDGE CAPS (VERTICAL AND HORIZONTAL) TO BE FIELD APPLIED FOR THIS PURPOSE FOR MOST APPLICATIONS. HORIZONTAL AND VERTICAL PANEL EDGE CAPS TO BE SECURED TO THE EXPOSED EDGES OF THE PANELS WITH PROVIDED TEK SCREWS INSTALLED @ 12" MAXIMUM SPACING ON THE INSIDE FACE OF THE PANEL. IN RF SENSITIVE LOCATIONS,CONTRACTOR WILL APPLY (2) BEADS OF ADHESIVE TO EACH INSIDE CORNER OF THE EDGE CAP AND SECURE CAP TO PANEL WITH TAPE WHILE ADHESIVE CURES.
10. AT CORNER APPLICATIONS, VERTICAL PANEL EDGE CAPS ARE TO BE USED TO CAP BOTH EXPOSED EDGES (1 PER CUT EDGE OF PANELS). THESE EDGE CAPS ARE TO BE CUT 1" SHORTER THAN THE PANEL AND LEAVE 1" GAP AT THE TOP TO ALLOW ROOM FOR THE THE HORIZONTAL PANEL EDGE CAP AT THE TOP. CONTRACTOR TO APPLY (2) BEADS OF ADHESIVE TO EACH EDGE CAP (INSIDE CORNERS OF CAP), AND SECURE WITH TAPE AND/OR PROVIDED SCREWS (16 TOTAL PER CORNER) WHILE THE ADHESIVE CURES. IF CORNERS ARE IN NON-RF AREAS, EDGE CAP SCREWS CAN BE LEFT IN PLACE.
11. AT CORNER APPLICATIONS WITH SSV PANEL ONLY, CORNER CHANNELS ARE TO BE USED TO JOIN PANELS TOGETHER. BOTH ADJOINING PANELS WILL BE INSERTED INTO THE CORNER CHANNEL AND SECURED USING PROVIDED NYLON PUSHPINS. THE PUSHPINS ARE TO BE PLACED ON THE INSIDE OF ONE OF THE PANELS ONLY @ 12" MAXIMUM SPACING.

STATE OF CONNECTICUT
TREVOR P. HAWKES
No. 0032101
LICENSED
PROFESSIONAL ENGINEER

05/02/2022

VECTOR ENGINEERS
651 W. GALENA PARK BLVD., SUITE 101
DRAPER, UT 84020
P: (801) 990-1775 F: (801) 990-1776
VECTOR PROJECT: U0142-1402-221
CT FIRM LICENSE NUMBER: PEC 0001229

DRAWN	CTF-VSE
DESIGNED	CTF-VSE
REVISED	

DRAWING NOT TO SCALE.
ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED

TOLERANCES:
DECIMAL: .X ± 0.1, .XX ±0.03, .XXX ±0.01, ANGLES ±.5°
FRACTIONAL: X/X ± 1/16

ALL BENDING TOLERANCES: ± 1.0°

THIRD ANGLE PROJECTION

Raycap
7555-A PALMETTO COMMERCE PARKWAY NORTH
CHARLESTON, SC 29420 USA

NORTHEAST SITE SOLUTIONS
SITE #: BOBDL00030A; 224 LOVELY STREET
224 LOVELY STREET
AVON, CT 06001

NOTES & SPECIFICATIONS

SHEET #	REVISION
N1	B

RAYCAP #: DW22-00175W-17R1 | DATE: 05/02/22

REVISION TABLE			
REVISION	DESIGNER	DATE	SCOPE OF REVISION
A	CTF-VSE	03/22/22	FINAL ENGINEERING
B	CTF-VSE	05/02/22	REVISED FINAL ENGINEERING

VECTOR ENGINEERS
651 W. GALENA PARK BLVD., SUITE 101
DRAPER, UT 84020
P: (801) 990-1775 F: (801) 990-1776
VECTOR PROJECT: U0142-1402-221
CT FIRM LICENSE NUMBER: PEC 0001229

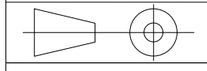
DRAWN	CTF-VSE
DESIGNED	CTF-VSE
REVISED	

DRAWING NOT TO SCALE.
ALL DIMENSIONS ARE IN INCHES
UNLESS OTHERWISE SPECIFIED

TOLERANCES:
DECIMAL: FRACTIONAL:
.X ± 0.1 X/X ± 1/16
.XX ±0.03
.XXX ±0.01
ANGLES ±.5°

ALL BENDING TOLERANCES:
± 1.0°

THIRD ANGLE PROJECTION



Raycap
7555-A PALMETTO COMMERCE PARKWAY NORTH
CHARLESTON, SC 29420 USA

NORTHEAST SITE SOLUTIONS
SITE #: BOBDL00030A; 224 LOVELY STREET
224 LOVELY STREET
AVON, CT 06001

NOTES & SPECIFICATIONS

SHEET #	REVISION
N2	B

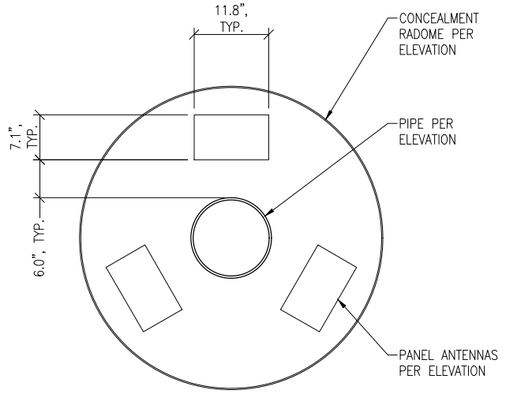
RAYCAP #: DW22-00175W-17R1

DATE: 05/02/22

NOTE: CONTRACTOR TO FIELD VERIFY AND ENSURE THAT THE (N) CLAMP-ON BULKHEADS ARE FULLY CONTACTED WITH EXISTING FLANGE/SPINE PRIOR TO INSTALLATION OF (N) RADOMES

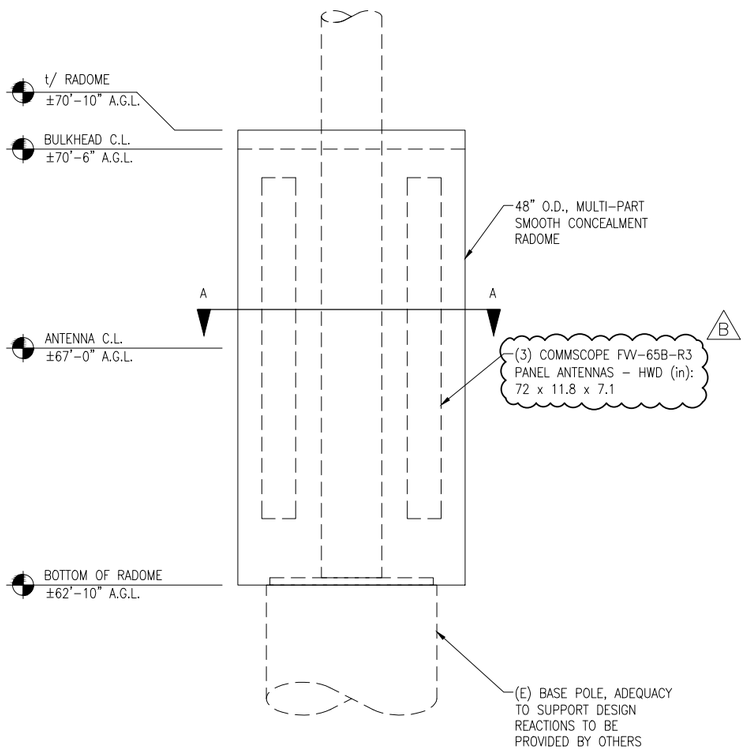
NOTE: CONTRACTOR TO FIELD DRILL MIN. (12) EQ. SPACED HOLES TOP & BOTTOM IN RADOMES FOR ATTACHMENT TO (N) STRUCTURE

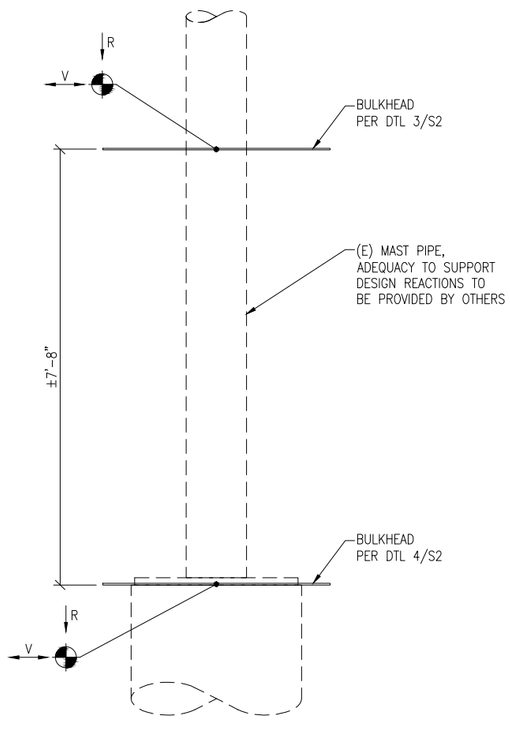
NOTE: ANTENNAS ARE SHOWN FOR ILLUSTRATIVE PURPOSES & ARE NOT NECESSARILY SHOWN TO SCALE



SECTION A-A

NOTE: SEE SHEET N1 FOR DESIGN REACTIONS





ELEVATION VIEWS
N.T.S.
1

STATE OF CONNECTICUT
TREVOR P. HAWKES
No. 0032101
LICENSED
PROFESSIONAL ENGINEER

05/02/2022

VECTOR ENGINEERS
651 W. GALENA PARK BLVD., SUITE 101
DRAPER, UT 84020
P: (801) 990-1775 F: (801) 990-1776
VECTOR PROJECT: U0142-1402-221
CT FIRM LICENSE NUMBER: PEC 0001229

DRAWN	CTF-VSE
DESIGNED	CTF-VSE
REVISED	

DRAWING NOT TO SCALE.
ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED

TOLERANCES:
DECIMAL: .X ± 0.1, .XX ±0.03, .XXX ±0.01, ANGLES ±.5°
FRACTIONAL: X/X ± 1/16

ALL BENDING TOLERANCES: ± 1.0°

THIRD ANGLE PROJECTION

Raycap
7555-A PALMETTO COMMERCE PARKWAY NORTH
CHARLESTON, SC 29420 USA

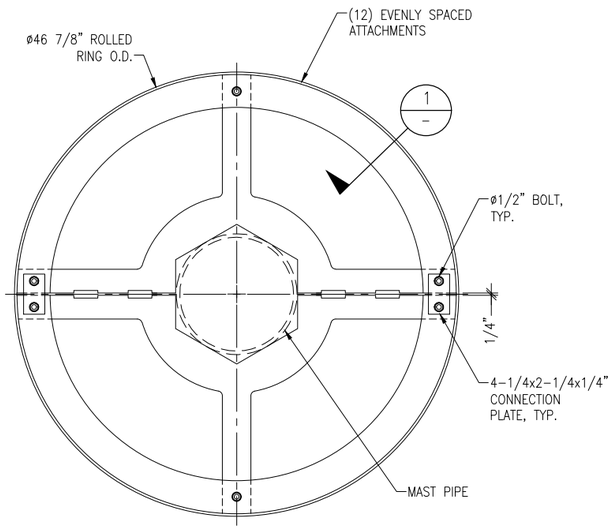
NORTHEAST SITE SOLUTIONS
SITE #: BOBDL00030A; 224 LOVELY STREET
224 LOVELY STREET
AVON, CT 06001

ELEVATIONS

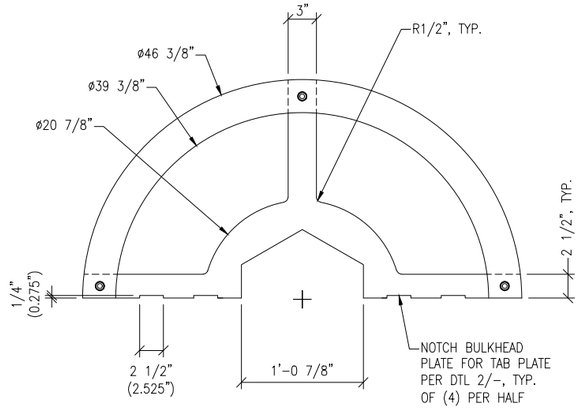
SHEET #	REVISION
S1	B

RAYCAP #: DW22-00175W-17R1 | DATE: 05/02/22

NOTE: BULKHEAD DESIGNED TO FIT 12" (12.75" O.D.) PIPE. ANY DEVIATION IN PIPE SIZE WILL CAUSE BULKHEAD NOT TO FIT. PIPE SIZE MUST BE VERIFIED PRIOR TO FABRICATION.

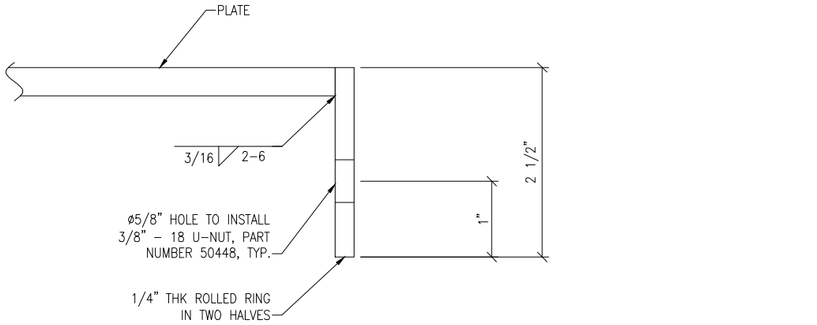


PLAN VIEW – BOTH HALVES

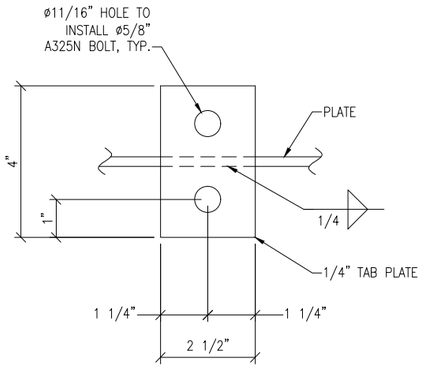


PLAN VIEW – ONE HALF

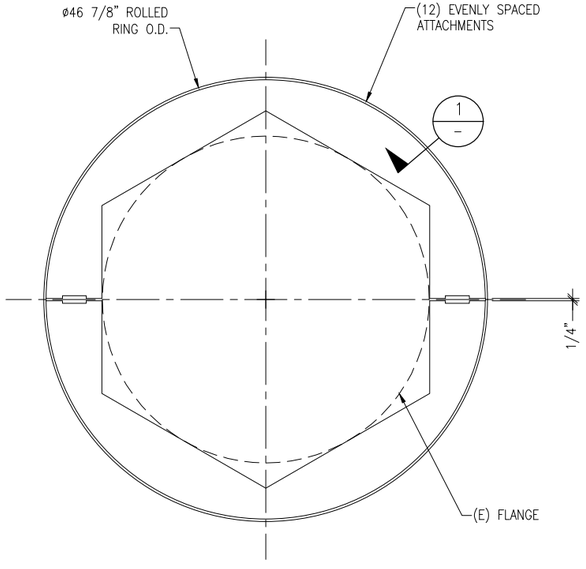
BULKHEAD
N.T.S.
3



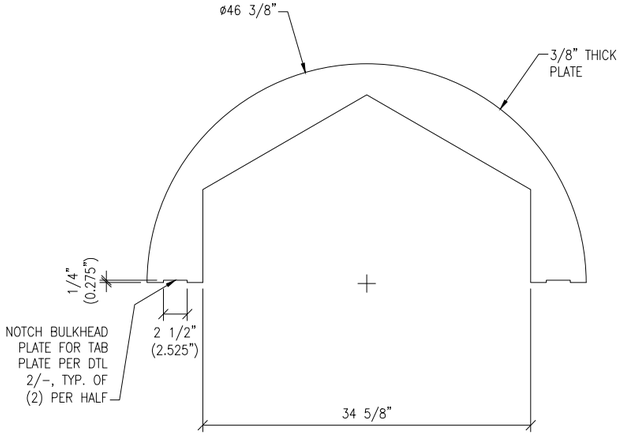
N.T.S.
1



N.T.S.
2



PLAN VIEW – BOTH HALVES



PLAN VIEW – ONE HALF

NOTE: BULKHEAD DESIGNED TO FIT 34.5" O.D. FLANGE. ANY DEVIATION IN FLANGE SIZE WILL CAUSE BULKHEAD NOT TO FIT. FLANGE SIZE MUST BE VERIFIED PRIOR TO FABRICATION.

BULKHEAD
N.T.S.
4

STATE OF CONNECTICUT
TREVOR P. HAWKES
No. 0032101
LICENSED
PROFESSIONAL ENGINEER

05/02/2022

VECTOR ENGINEERS
651 W. GALENA PARK BLVD., SUITE 101
DRAPER, UT 84020
P: (801) 990-1775 F: (801) 990-1776
VECTOR PROJECT: U0142-1402-221
CT FIRM LICENSE NUMBER: PEC 0001229

DRAWN	CTF-VSE
DESIGNED	CTF-VSE
REVISED	

DRAWING NOT TO SCALE.
ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED

TOLERANCES:
DECIMAL: .X ± 0.1, .XX ±0.03, .XXX ±0.01, ANGLES ±.5°
FRACTIONAL: X/X ± 1/16

ALL BENDING TOLERANCES: ± 1.0°

THIRD ANGLE PROJECTION

Raycap
7555-A PALMETTO COMMERCE PARKWAY NORTH
CHARLESTON, SC 29420 USA

NORTHEAST SITE SOLUTIONS
SITE #: BOBDL00030A; 224 LOVELY STREET
224 LOVELY STREET
AVON, CT 06001

DETAILS

SHEET #	REVISION
S2	B

RAYCAP #: DW22-00175W-17R1 | DATE: 05/02/22

OMNIBUS ASSIGNMENT AND ASSUMPTION OF GROUND LEASES

THIS OMNIBUS ASSIGNMENT AND ASSUMPTION OF GROUND LEASES (this "Assignment") is made effective as of March 31, 2020 ("Effective Date"), by and between each Affiliate of AT&T, Inc. ("AT&T") signing this Assignment as an "Assignor" on the signature pages hereto (each, an "Assignor" and collectively, the "Assignors"), on the one hand, and each Affiliate of Octagon Towers, LLC ("Octagon") signing this Assignment as an "Assignee" on the signature pages hereto (each an "Assignee" and collectively, the "Assignees"), on the other hand.

BACKGROUND RECITALS

A. This Assignment is made pursuant to that certain Asset Purchase Agreement dated as of October 22, 2019 between AT&T and certain of its Tower Site Subsidiaries (including the other Assignors), as sellers, and Octagon and certain other Buyers, as buyers (the "Purchase Agreement").

B. Capitalized terms used herein but not otherwise defined herein, shall have the meanings ascribed to them in the Purchase Agreement.

C. Assignors, as tenants, lessees, grantees or licensees, as applicable, are a party to certain Ground Leases for the Assignable Sites transferred at the Subsequent Site Closing taking place on the Effective Date (the "Transferred Ground Leases"), as set forth on Exhibits A - L attached hereto and incorporated herein by reference. Exhibits A - L indicate the particular Assignor and Assignee for each Assignable Site and the related Transferred Ground Leases thereto.

D. Pursuant to the Purchase Agreement, Assignors have agreed, among other things, to transfer and assign to the applicable Assignee all of the Assignors' right, title and interest in and to the Transferred Ground Leases and each Assignee has agreed to accept an assignment thereof.

E. The terms of the Purchase Agreement, including, but not limited to, the representations, warranties, covenants, agreements and indemnities relating to the Transferred Ground Leases, are incorporated herein by this reference. The Assignors and Assignees acknowledge and agree that the representations, warranties, covenants, agreements and indemnities contained in the Purchase Agreement shall not be superseded hereby, but shall remain in full force and effect to the full extent provided therein. In the event of any conflict or inconsistency between the terms of the Purchase Agreement and the terms hereof, the terms of the Purchase Agreement shall govern and control.

OPERATIVE PROVISIONS

NOW, THEREFORE, in consideration of the mutual covenants and conditions contained herein, as well as other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

1. The Background Recitals are true and correct and are incorporated herein by this reference.

2. Assignors hereby assign, grant, convey and transfer to the applicable Assignees as of the Effective Date and as set forth on Exhibits A - L all of the Assignors' right, title and interest in and to the Transferred Ground Leases, together with any amendments, modifications, supplements, assignments, guarantees, side letters and other documents related thereto, and each Assignee hereby accepts the aforesaid assignment, as applicable, and assumes and agrees to be bound by and timely perform, observe and discharge, all of the Assignors' obligations, as applicable, under the Transferred Ground Leases arising from and after the Effective Date and relating to periods after the Effective Date upon the terms and conditions set forth in the Transferred Ground Leases.

3. Except as expressly set forth herein, the terms of the Transferred Ground Leases shall remain in full force and effect, unaltered by this Assignment.

4. Assignors hereby confirm that all of the representations made in the Purchase Agreement regarding the Transferred Ground Leases as of the Site Closing applicable to such Transferred Ground Leases are true and correct as of the date of this Assignment. Assignors and the Assignees acknowledge and agree that nothing in this Assignment shall be deemed to contravene or supersede the terms of the Purchase Agreement.

5. Each of the parties hereto shall execute and deliver, at the reasonable request of any other party hereto, such additional documents, instruments, conveyances and assurances, and take such further actions as such other party may reasonably request, to carry out the provisions hereof and give effect to the transactions contemplated by the Purchase Agreement and this Assignment with respect to the Assignable Sites set forth on Exhibits A - L.

6. This Assignment shall bind and inure to the benefit of Assignors, the Assignees, and their respective successors and assigns.

7. This Assignment may be executed in multiple counterparts, each of which will be deemed an original document, but all of which will constitute a single document.

** * * Remainder of Page Blank – Signature Pages Follow * * **

** * * Assignor's Signature Page for Ground Lease Assignment * * **

IN WITNESS WHEREOF, the parties hereto have caused this Assignment to be duly executed as of the date first above written.

ASSIGNOR:

AT&T MOBILITY II LLC

By: AT&T Mobility Corporation, its Manager

By: _____
Name: Thomas H. Lowe
Title: Vice President – Corporate Development

** * * Assignor's Signature Page for Ground Lease Assignment * * **

IN WITNESS WHEREOF, the parties hereto have caused this Assignment to be duly executed as of the date first above written.

ASSIGNOR:

AT&T MOBILITY WIRELESS
OPERATIONS HOLDINGS INC.

By: _____
Name: Jackie A. Begue
Title: Secretary

** * * Assignor's Signature Page for Ground Lease Assignment * * **

IN WITNESS WHEREOF, the parties hereto have caused this Assignment to be duly executed as of the date first above written.

ASSIGNOR:

LAKE MOBILITY LLC

By: AT&T Mobility Corporation, its Manager

By: _____
Name: Thomas H. Lowe
Title: Vice President – Corporate Development

** * * Assignor's Signature Page for Ground Lease Assignment * * **

IN WITNESS WHEREOF, the parties hereto have caused this Assignment to be duly executed as of the date first above written.

ASSIGNOR:

NEW CINGULAR WIRELESS PCS, LLC

By: AT&T Mobility Corporation, its Manager

By: _____
Name: Thomas H. Lowe
Title: Vice President – Corporate Development

** * * Assignor's Signature Page for Ground Lease Assignment * * **

IN WITNESS WHEREOF, the parties hereto have caused this Assignment to be duly executed as of the date first above written.

ASSIGNOR:

ORLANDO SMSA LIMITED PARTNERSHIP

By: New Cingular Wireless PCS, LLC, its General Partner

By: AT&T Mobility Corporation, its Manager

By: _____
Name: Thomas H. Lowe
Title: Vice President – Corporate Development

** * * Assignor's Signature Page for Ground Lease Assignment * * **

IN WITNESS WHEREOF, the parties hereto have caused this Assignment to be duly executed as of the date first above written.

ASSIGNOR:

SANTA BARBARA CELLULAR SYSTEMS, LTD.

By: Santa Barbara Holding, Ltd., its General Partner

By: New Cingular Wireless PCS, LLC, its General Partner

By: AT&T Mobility Corporation, its Manager

By: _____

Name: Thomas H. Lowe
Title: Vice President – Corporate Development

** * * Assignee's Signature Page for Ground Lease Assignment * * **

IN WITNESS WHEREOF, the parties hereto have caused this Assignment to be duly executed as of the date first above written.

ASSIGNEE:

[redacted]RS[redacted]

By: F. Howard Mandel
Title: Co-President

** * * Assignee's Signature Page for Ground Lease Assignment * * **

IN WITNESS WHEREOF, the parties hereto have caused this Assignment to be duly executed as of the date first above written.

ASSIGNEE:

[redacted]

By:_____
Name: F. Howard Mandel
Title: Co-President

** * * Assignee's Signature Page for Ground Lease Assignment * * **

IN WITNESS WHEREOF, the parties hereto have caused this Assignment to be duly executed as of the date first above written.

ASSIGNEE:

[redacted]

By:_____
Name: F. Howard Mandel
Title: Co-President

** * * Assignee's Signature Page for Ground Lease Assignment * * **

IN WITNESS WHEREOF, the parties hereto have caused this Assignment to be duly executed as of the date first above written.

ASSIGNEE:

[redacted]

By:_____
Name: F. Howard Mandel
Title: Co-President

** * * Assignee's Signature Page for Ground Lease Assignment * * **

IN WITNESS WHEREOF, the parties hereto have caused this Assignment to be duly executed as of the date first above written.

ASSIGNEE:

[redacted]

By:_____
Name: F. Howard Mandel
Title: Co-President

* * * *Assignee's Signature Page for Ground Lease Assignment* * * *

IN WITNESS WHEREOF, the parties hereto have caused this Assignment to be duly executed as of the date first above written.

ASSIGNEE:

[redacted]

By:_____
Name: F. Howard Mandel
Title: Co-President

** * * Assignee's Signature Page for Ground Lease Assignment * * **

IN WITNESS WHEREOF, the parties hereto have caused this Assignment to be duly executed as of the date first above written.

ASSIGNEE:

[redacted]

By:_____
Name: F. Howard Mandel
Title: Co-President

** * * Assignee's Signature Page for Ground Lease Assignment * * **

IN WITNESS WHEREOF, the parties hereto have caused this Assignment to be duly executed as of the date first above written.

ASSIGNEE:

[redacted]

By:_____
Name: F. Howard Mandel
Title: Co-President

** * * Assignee's Signature Page for Ground Lease Assignment * * **

IN WITNESS WHEREOF, the parties hereto have caused this Assignment to be duly executed as of the date first above written.

ASSIGNEE:

[redacted]

By:_____
Name: F. Howard Mandel
Title: Co-President

** * * Assignee's Signature Page for Ground Lease Assignment * * **

IN WITNESS WHEREOF, the parties hereto have caused this Assignment to be duly executed as of the date first above written.

ASSIGNEE:

[redacted]

By:_____
Name: F. Howard Mandel
Title: Co-President

** * * Assignee's Signature Page for Ground Lease Assignment * * **

IN WITNESS WHEREOF, the parties hereto have caused this Assignment to be duly executed as of the date first above written.

ASSIGNEE:

[redacted]

By:_____
Name: F. Howard Mandel
Title: Co-President

* * * *Assignee's Signature Page for Ground Lease Assignment* * * *

IN WITNESS WHEREOF, the parties hereto have caused this Assignment to be duly executed as of the date first above written.

ASSIGNEE:

SRR TOWERS, LLC

By:_____
Name: F. Howard Mandel
Title: Co-President

EXHIBIT A

[redacted]

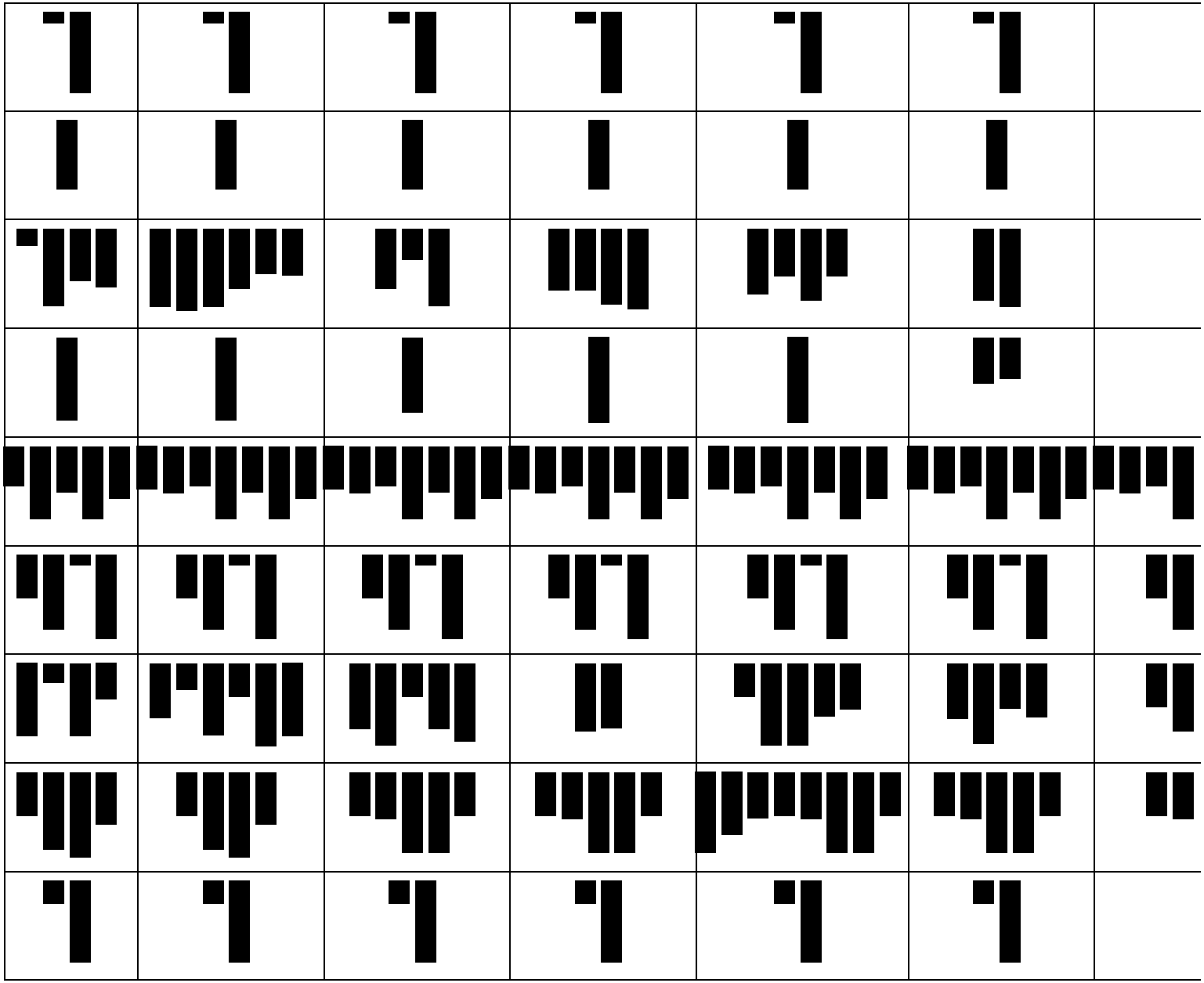
AT&T FA #	USID	Site Name	Buyer Site ID	Assignor	Assignee	Ground Lessor (or its successor in interest) Name	Ground Lessee Name	LEASE DATE
[redacted]								

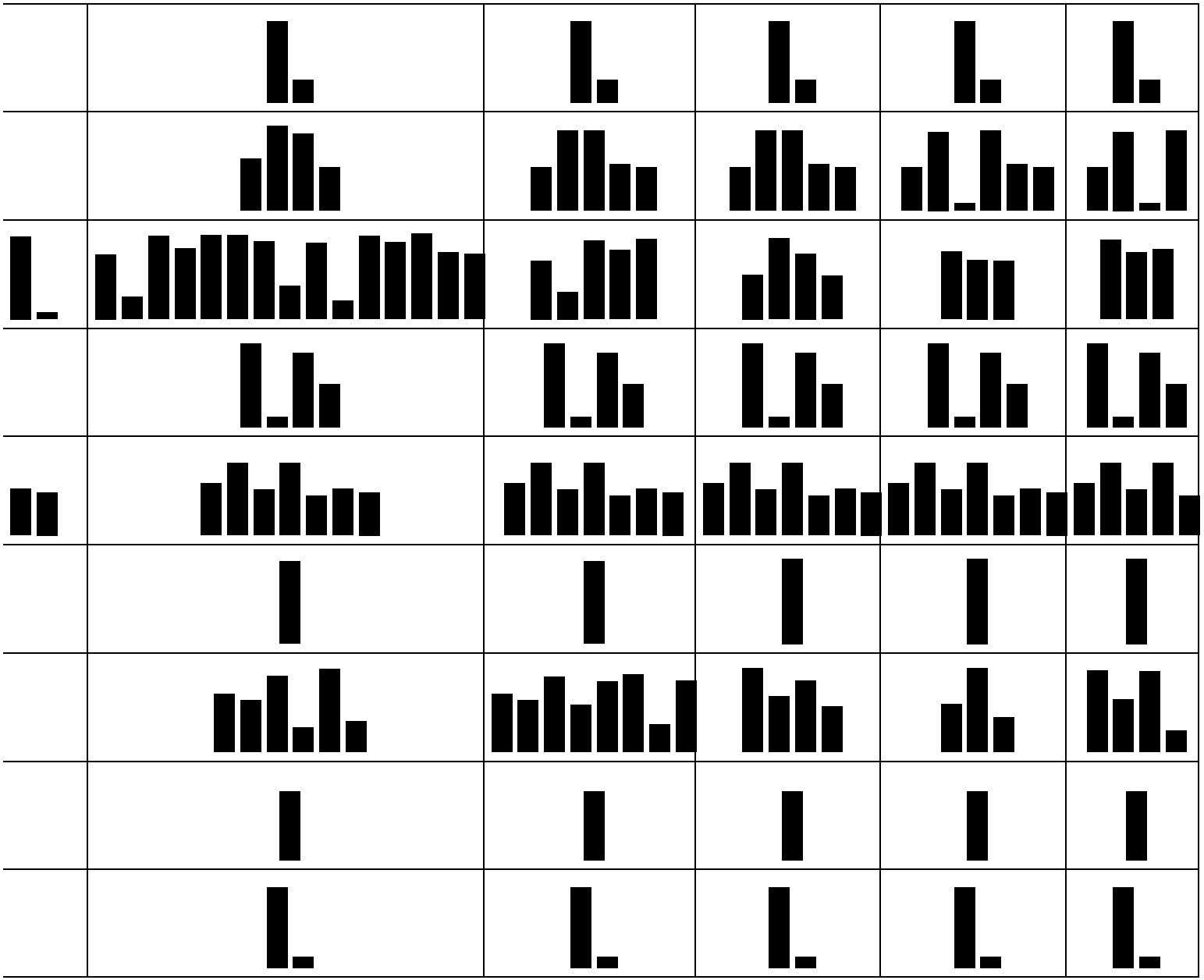
		[redacted]		[redacted]		[redacted]	[redacted]	
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

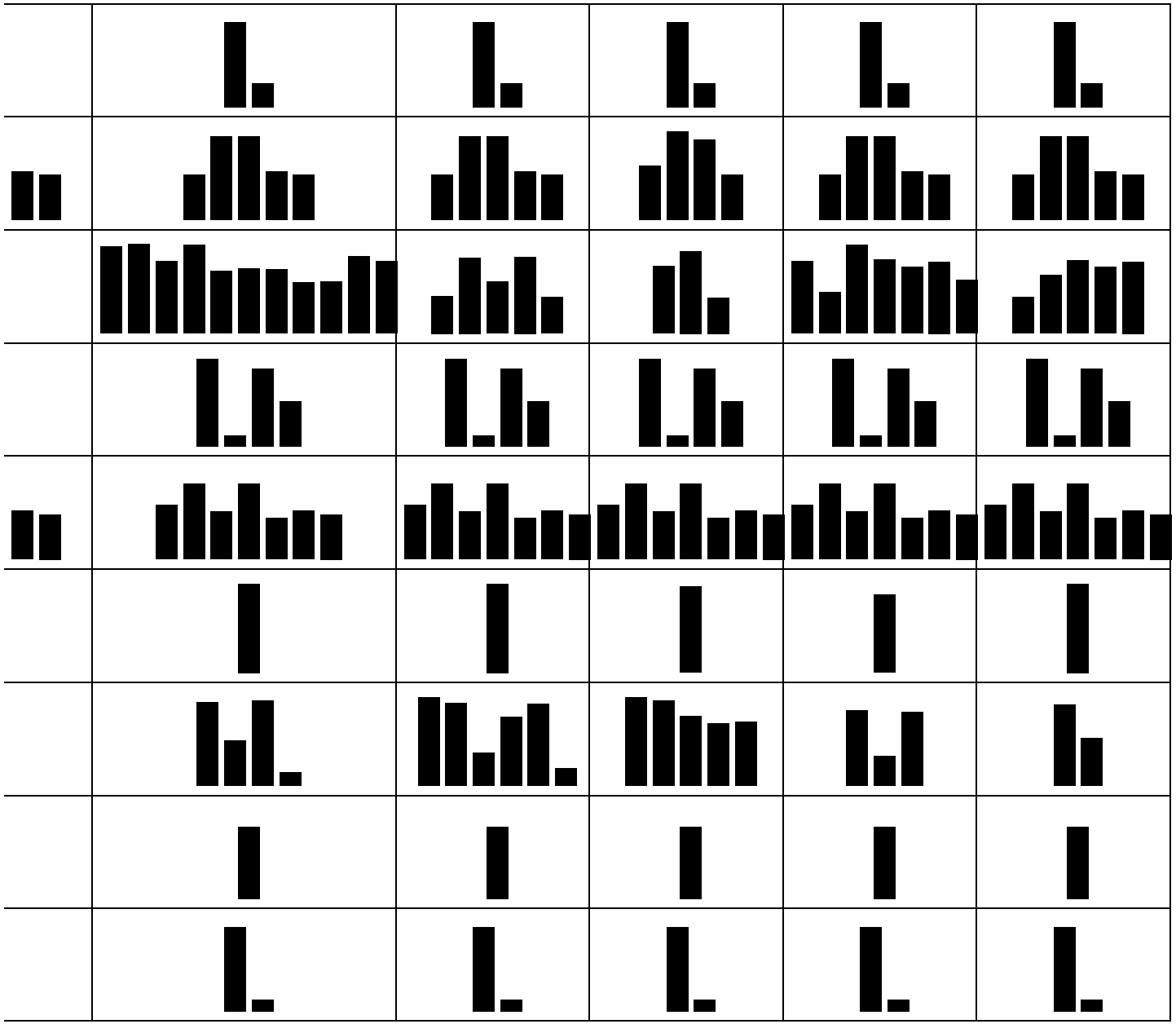
EXHIBIT B

[redacted]

AT&T FA #	USID	Site Name	Buyer Site ID	Assignor	Assignee	Ground Lessor (or its successor in interest) Name	Ground Lessee Name	LEASE DATE
[redacted]								







[redacted]

EXHIBIT C

[redacted]

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted] Lessor (or its successor in interest) Name	Ground Lessee Name	LEASE DATE
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

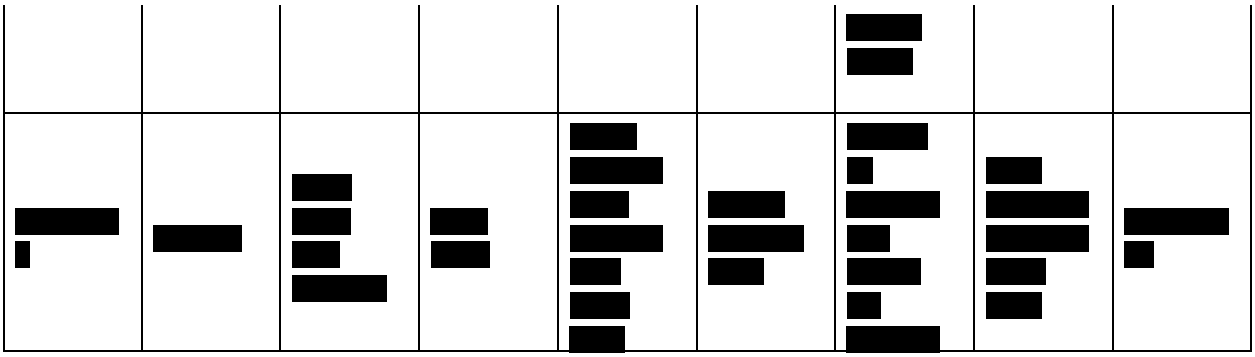
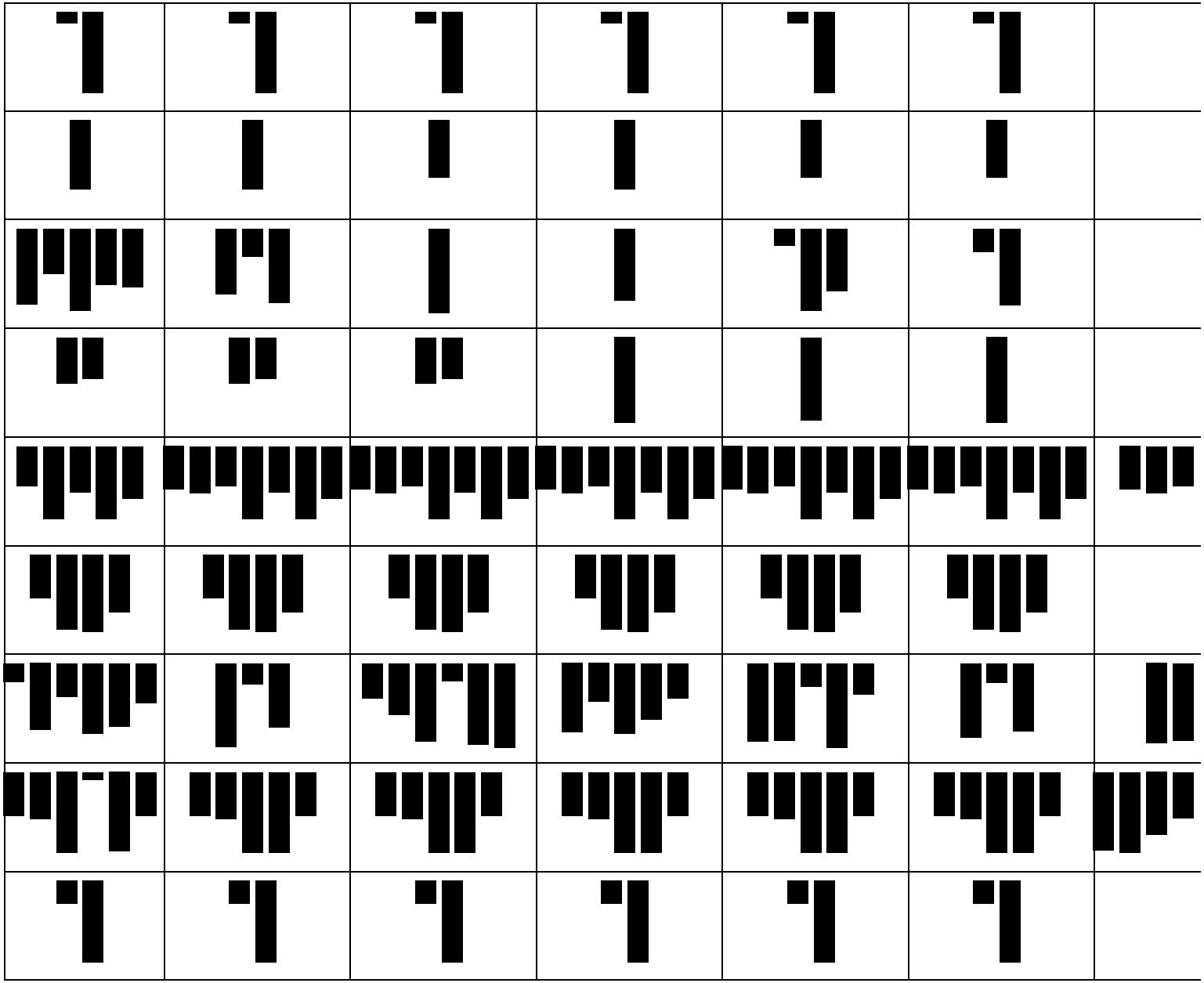
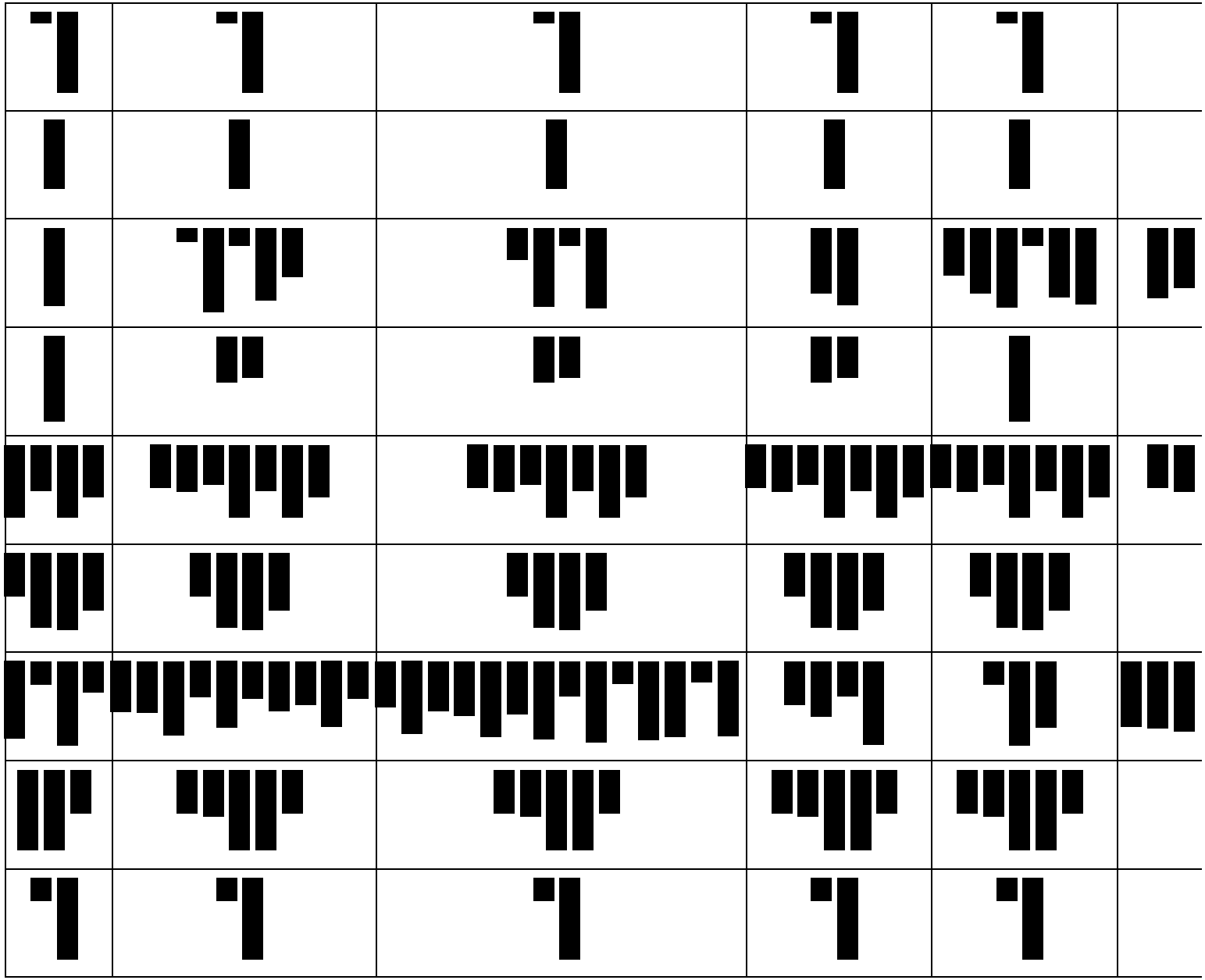


EXHIBIT D

[redacted]

AT&T FA #	USID	Site Name	Buyer Site ID	Assignor	Assignee	Ground Lessor (or its successor in interest) Name	Ground Lessee Name	LEASE DATE
[redacted]								



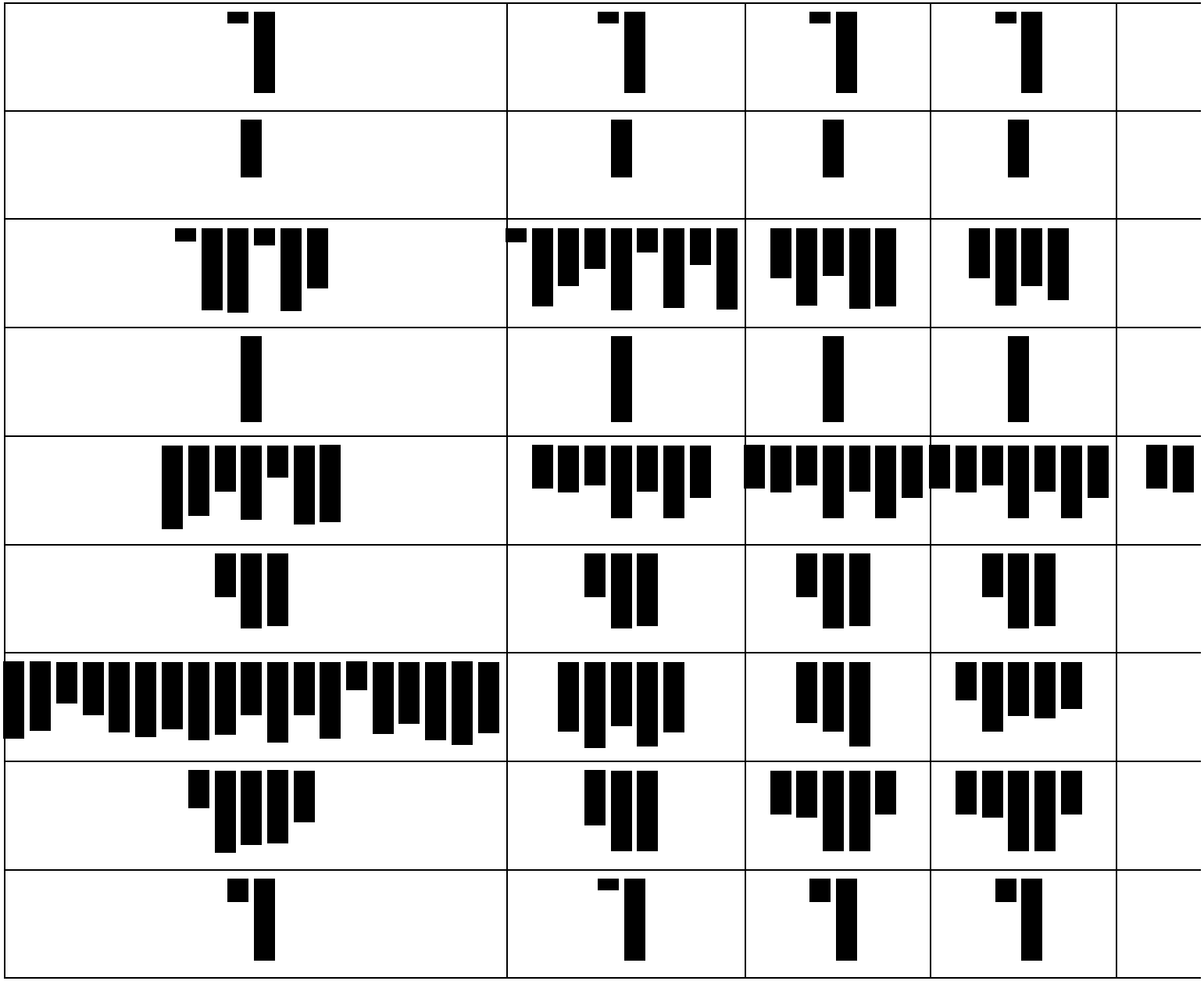


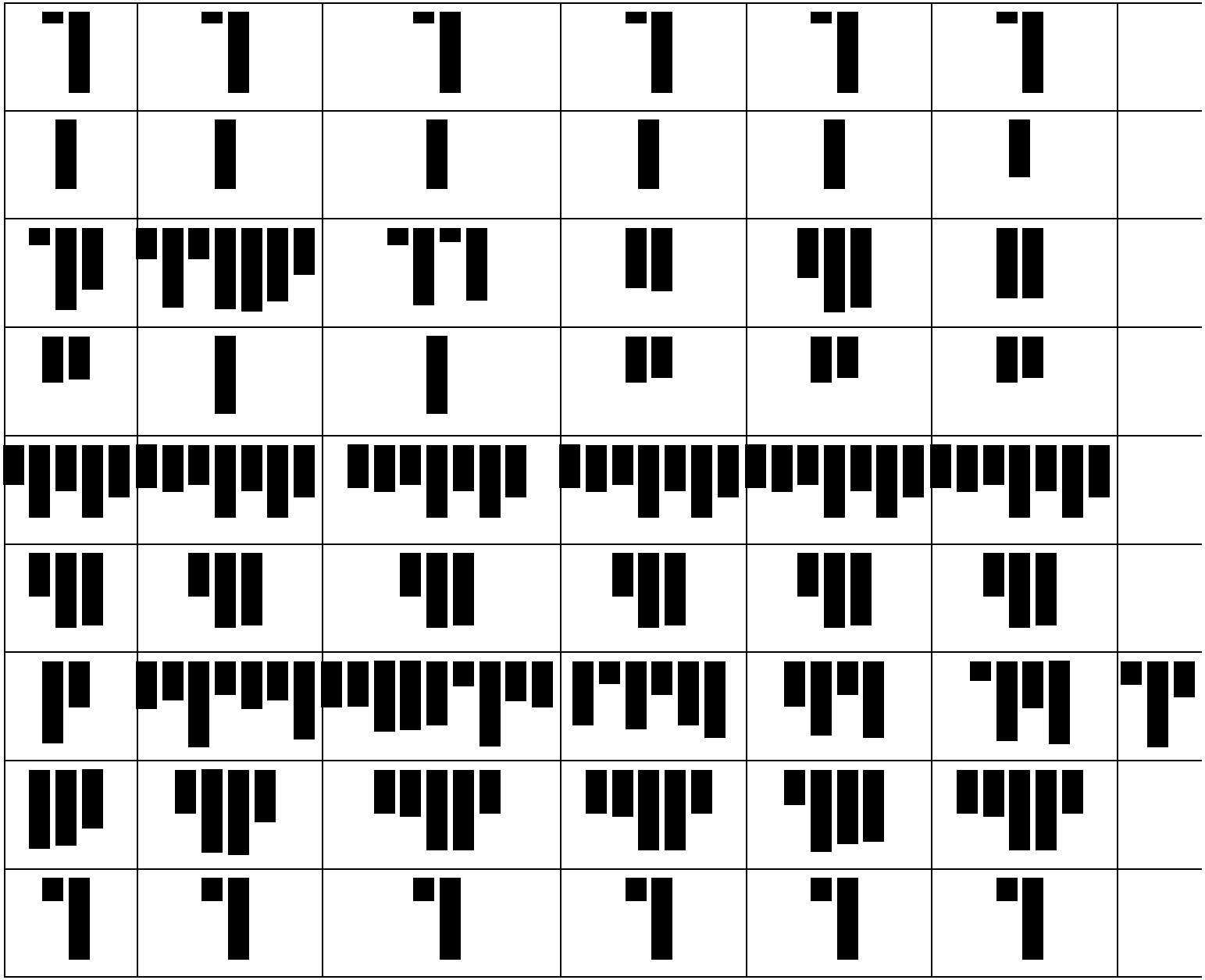
[redacted]

EXHIBIT E

[redacted]

AT&T FA #	USID	Site Name	Buyer Site ID	Assignor	Assignee	Ground Lessor (or its successor in interest) Name	Ground Lessee Name	LEASE DATE
[redacted]								





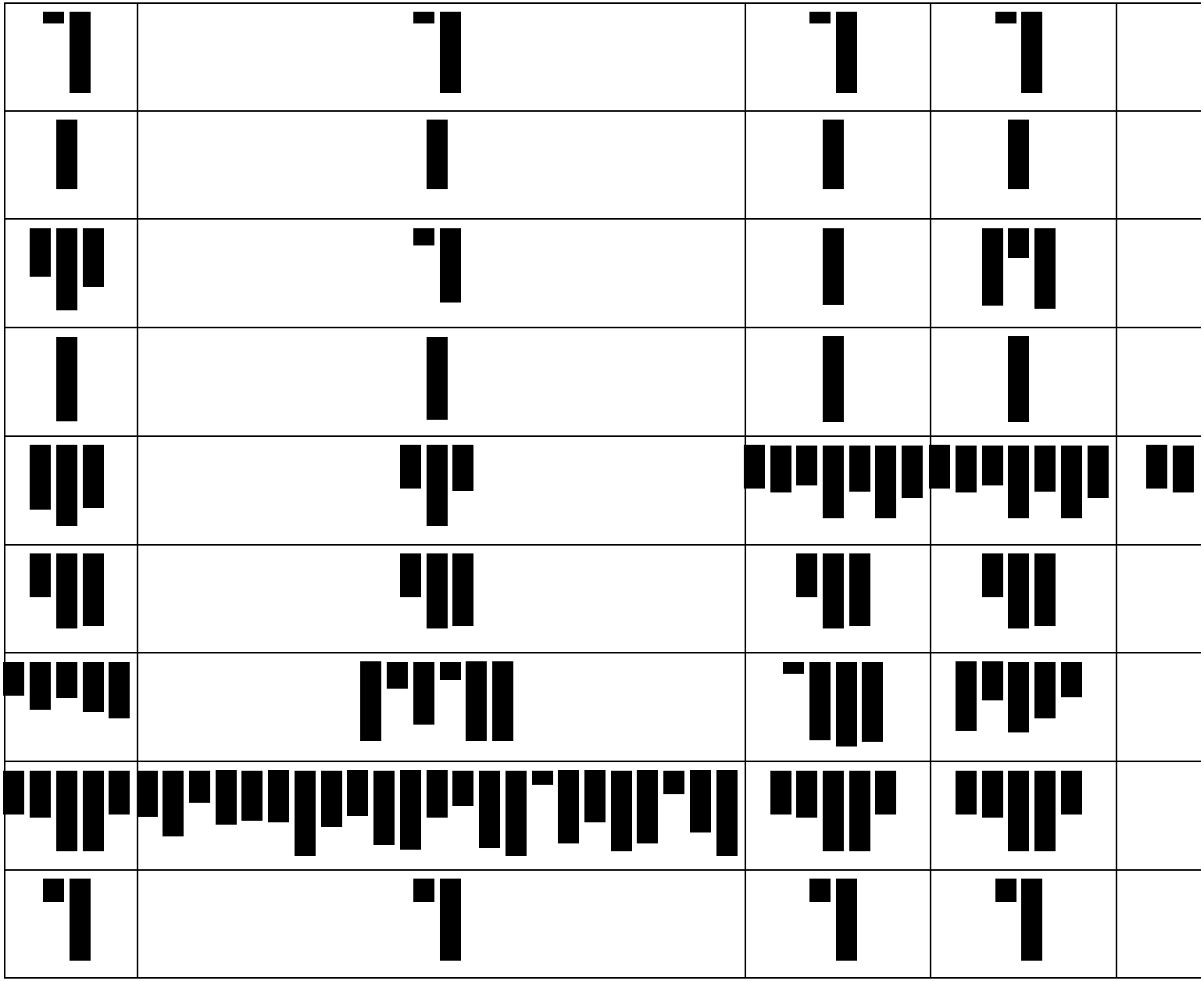


EXHIBIT F

[redacted]

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted] Lessor (or its successor in interest) Name	Ground Lessee Name	LEASE DATE
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

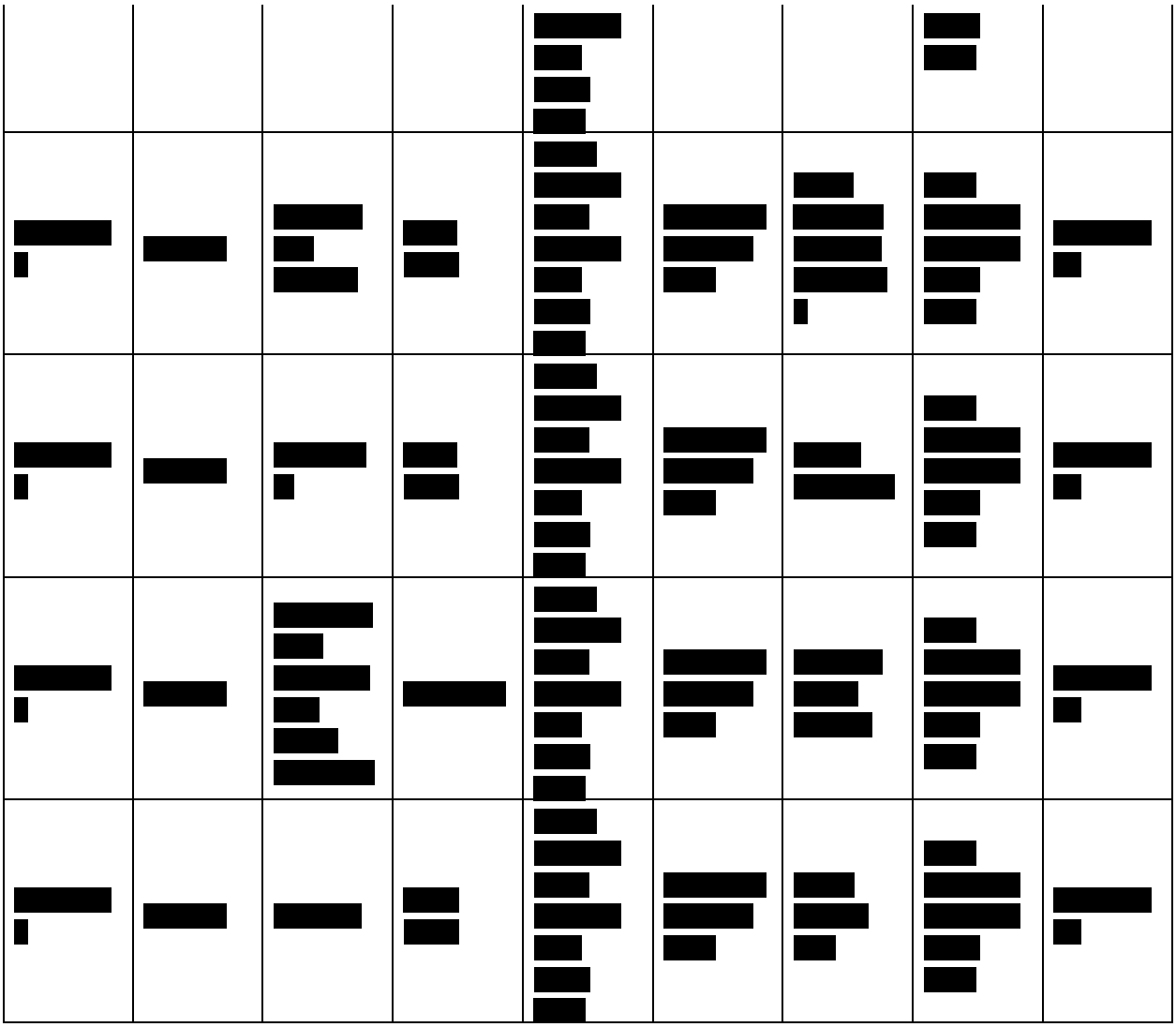


EXHIBIT G

[redacted]

AT&T FA #	USID	Site Name	Buyer Site ID	Assignor	Assignee	Ground Lessor (or its successor in interest) Name	Ground Lessee Name	LEASE DATE
[redacted]								

[redacted]

EXHIBIT H

[redacted]

AT&T FA #	USID	Site Name	Buyer Site ID	Assignor	Assignee	Ground Lessor (or its successor in interest) Name	Ground Lessee Name	LEASE DATE
[redacted]								

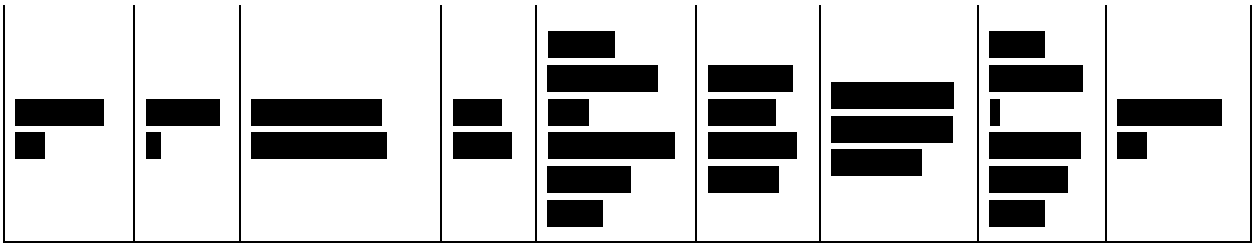


EXHIBIT I

[redacted]

AT&T FA #	USID	Site Name	Buyer Site ID	Assignor	Assignee	Ground Lessor (or its successor in interest) Name	Ground Lessee Name	LEASE DATE
[redacted]								

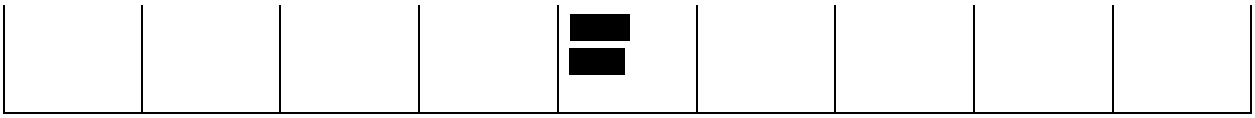
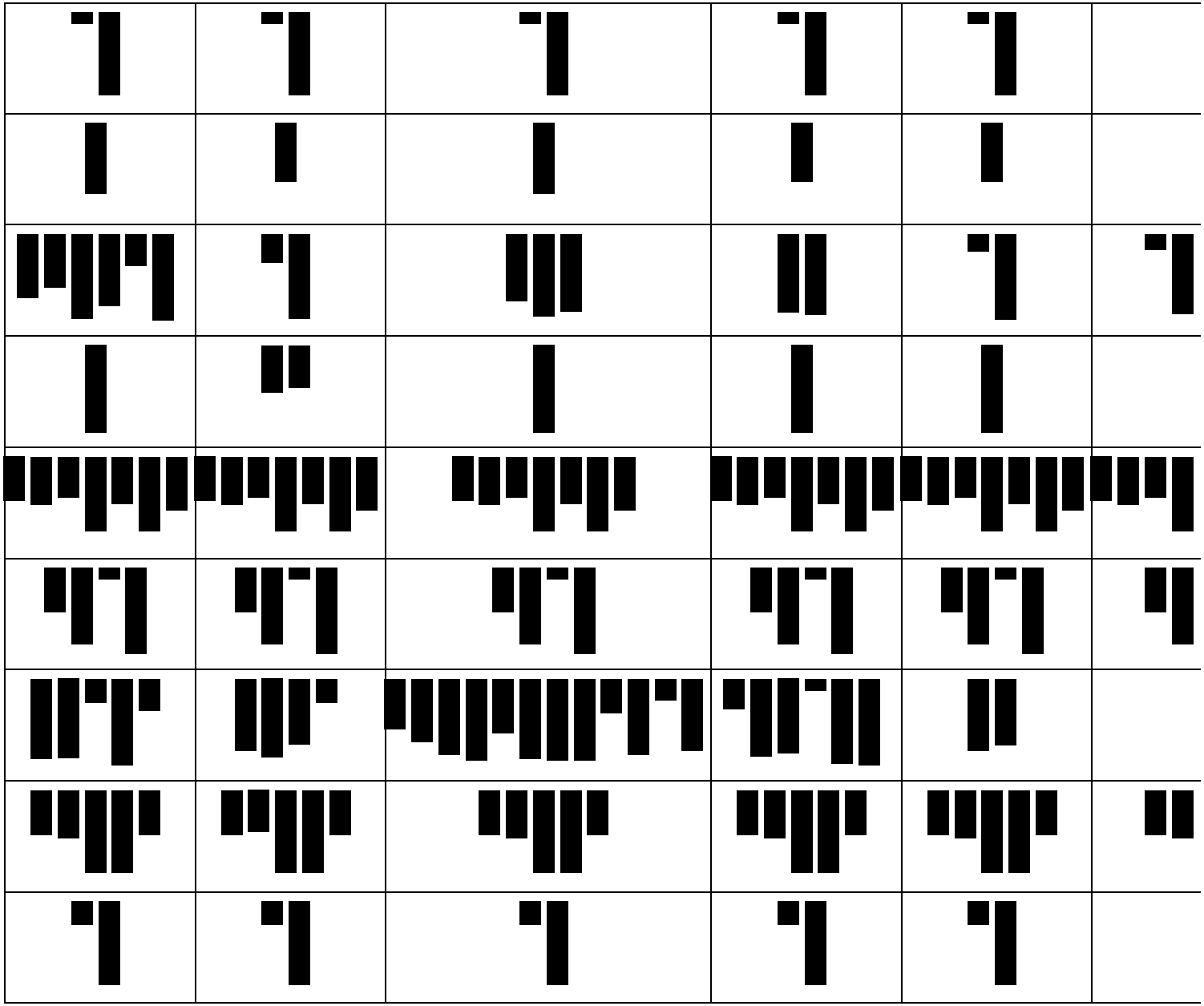
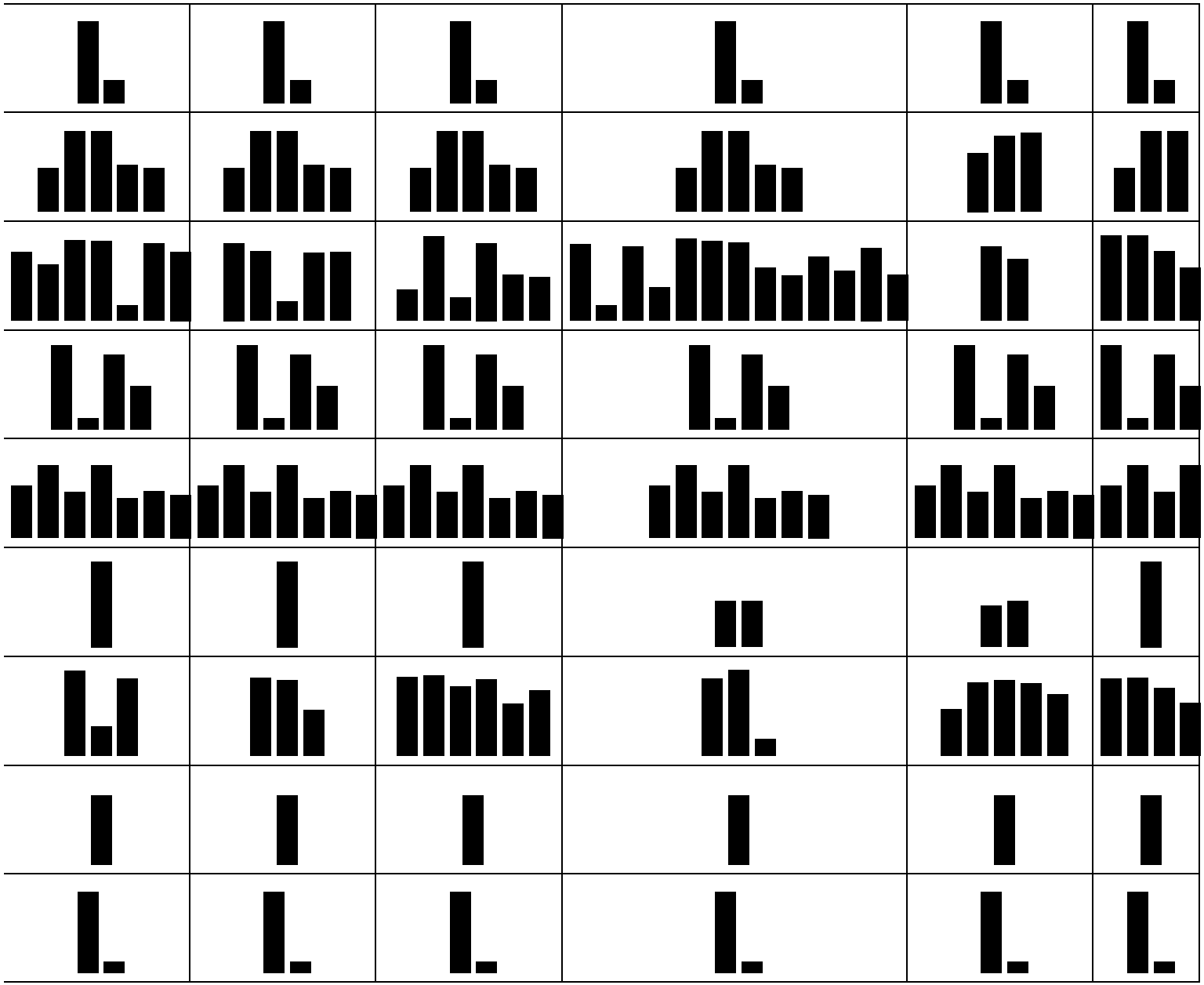


EXHIBIT J

[redacted]

AT&T FA #	USID	Site Name	Buyer Site ID	Assignor	Assignee	Ground Lessor (or its successor in interest) Name	Ground Lessee Name	LEASE DATE
[redacted]								





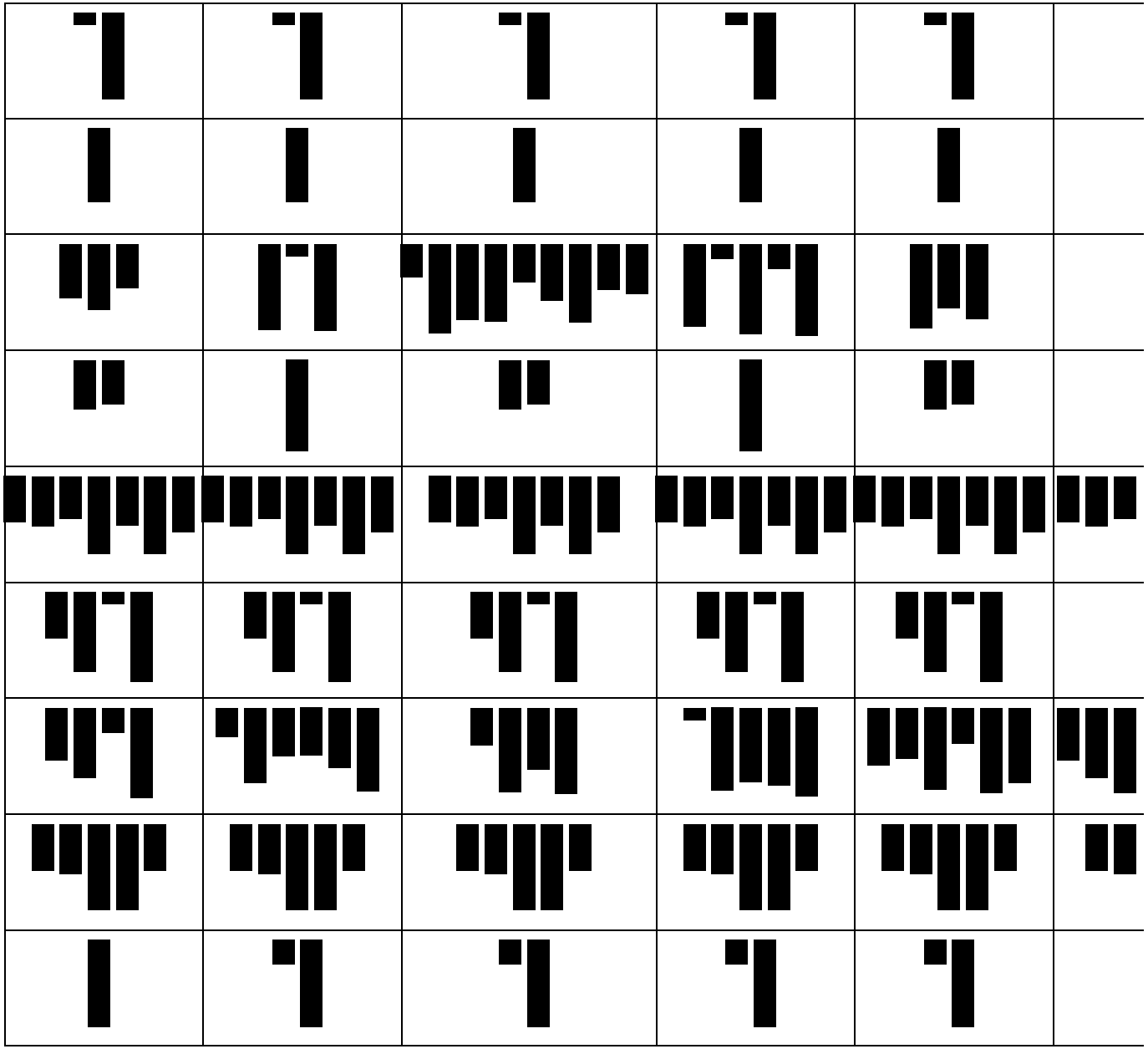
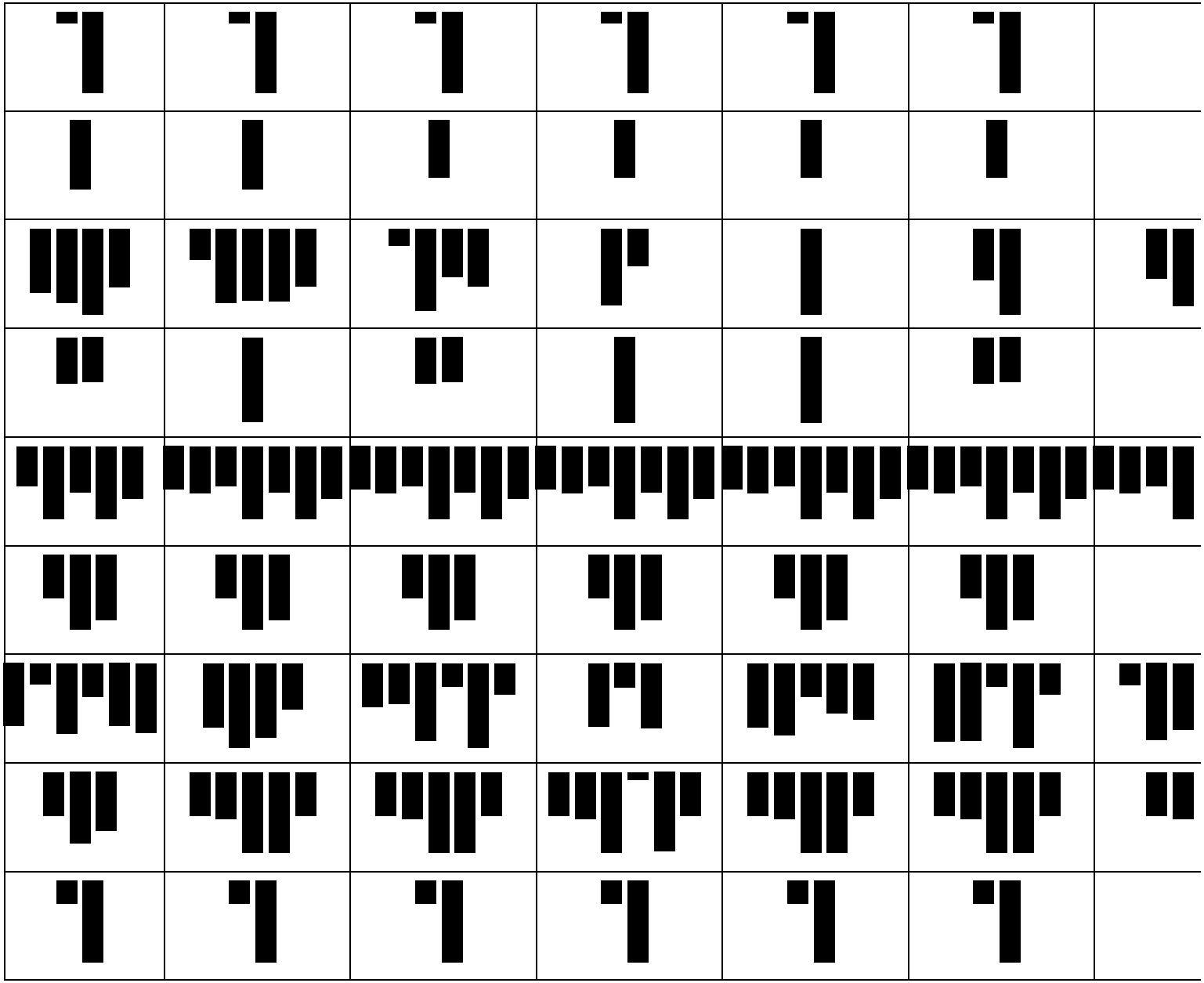
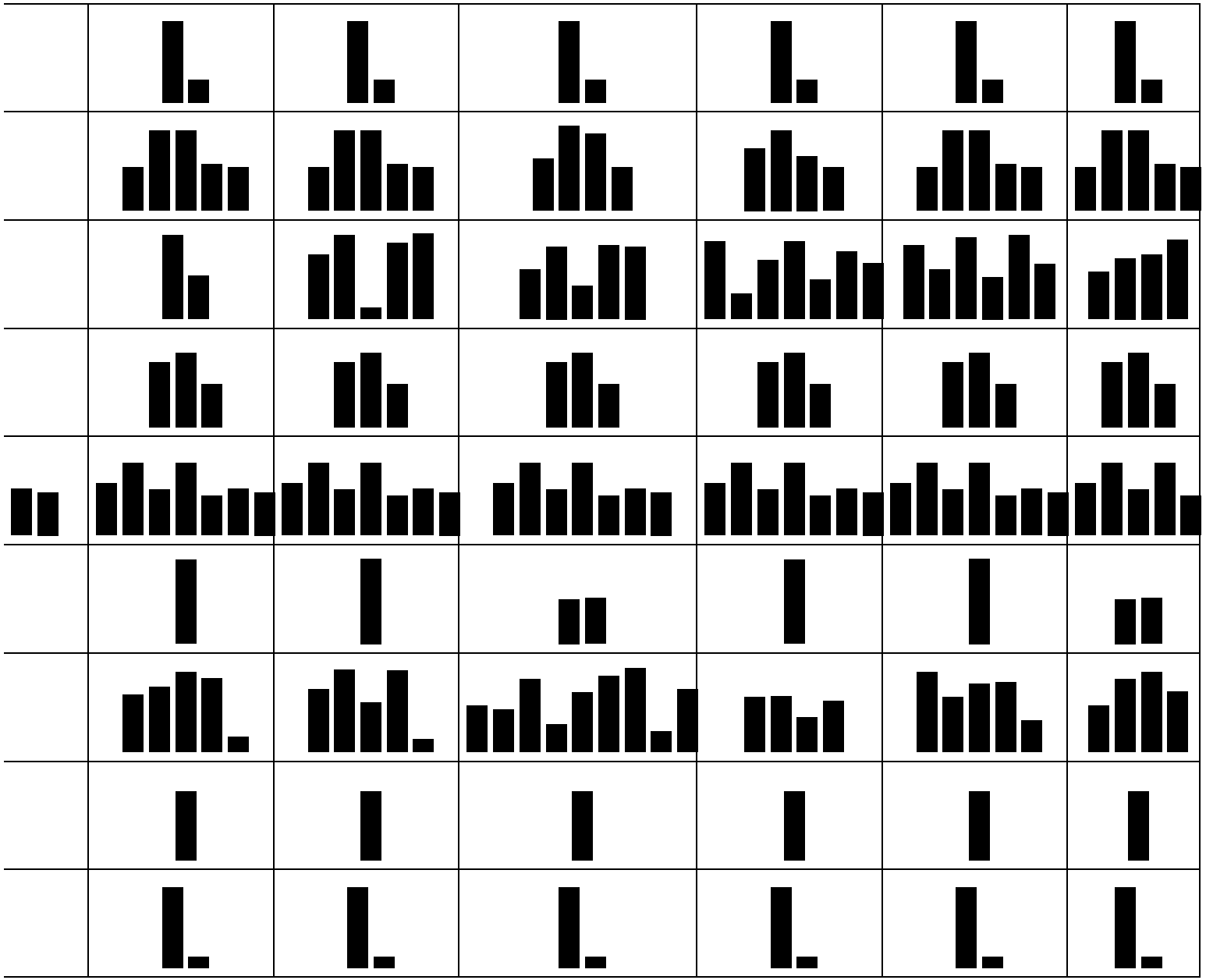


EXHIBIT K

[redacted]

AT&T FA #	USID	Site Name	Buyer Site ID	Assignor	Assignee	Ground Lessor (or its successor in interest) Name	Ground Lessee Name	LEASE DATE
[redacted]								





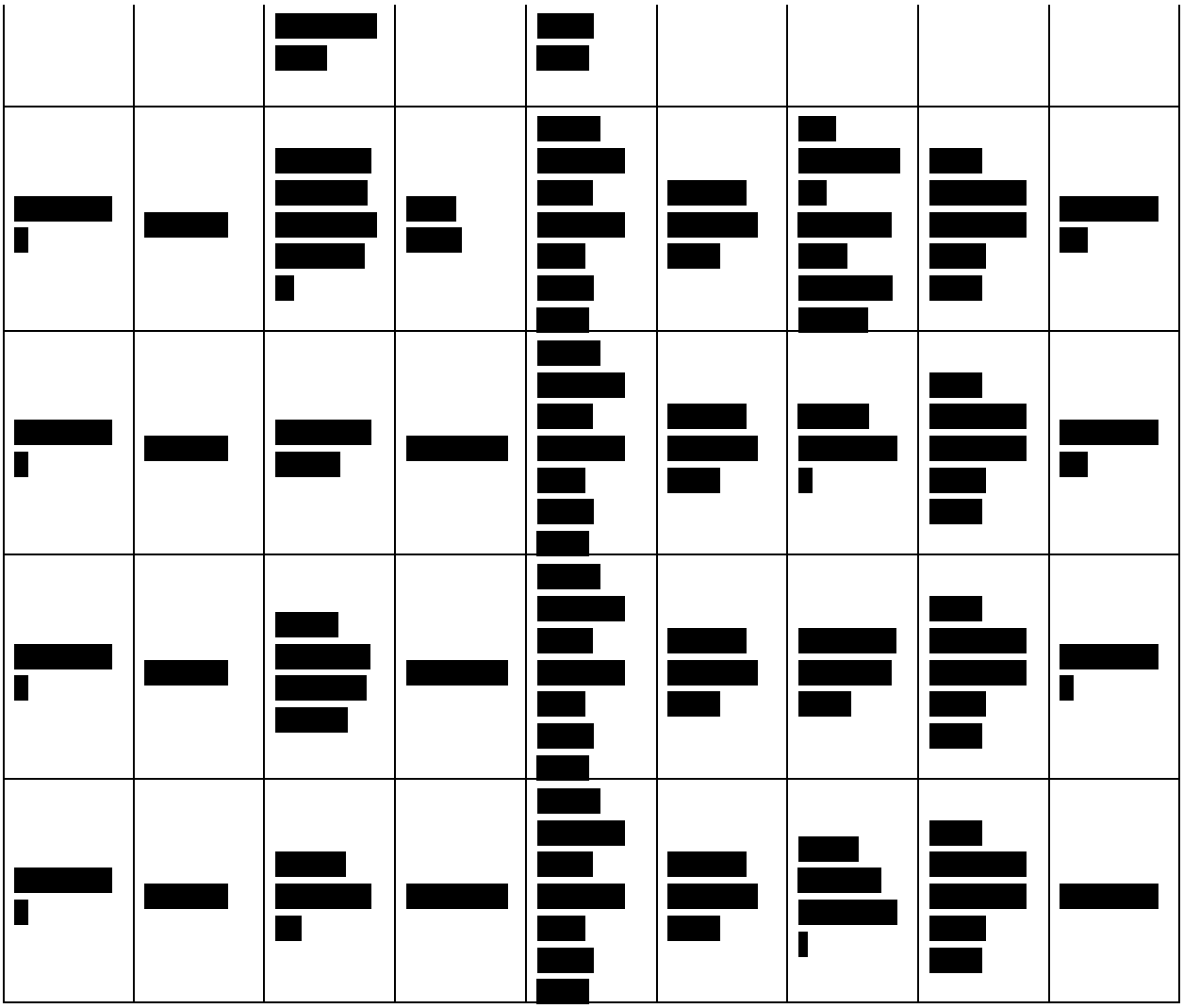


EXHIBIT L

SRR Towers, LLC Assignable Sites

AT&T FA #	USID	Site Name	Buyer Site ID	Assignor	Assignee	Ground Lessor (or its successor in interest) Name	Ground Lessee Name	LEASE DATE
10086077	11830	SUN VALLEY III OVLY - C309	CA-1209	NEW CINGULAR WIRELESS PCS, LLC	SRR Towers, LLC	YS & YL Partnership	Los Angeles Cellular Telephone Company	10/05/1990
10086868	17333	EL RIO	CA-1212	NEW CINGULAR WIRELESS PCS, LLC	SRR Towers, LLC	M & H Realty Partners IV L.P.	New Cingular Wireless, PCS, LLC	10/22/2001
10110408	83397	QWEST BILTMORE	AZ-1235	NEW CINGULAR WIRELESS PCS, LLC	SRR Towers, LLC	Biltmore Church of Nazarene	New Cingular Wireless PCS, LLC	8/15/2005
10117744	97421	AVON LOVELY ST	CT-1239	NEW CINGULAR WIRELESS PCS, LLC	SRR Towers, LLC	St. Matthew Lutheran Church of Avon, Connecticut	New Cingular Wireless PCS, LLC	06/12/2012
10127009	97431	PELHAM NH ROCKY	NH-1246	NEW CINGULAR WIREL	SRR Towers, LLC	Geoffrey & Nora Detellis	AT&T Mobility, Inc. manager	11/17/2008

		HILL RD		ESS PCS, LLC			of New Cingular Wireless PCS, LLC*	
10128097	98607	WINCHESTER NH MICHIGAN STREET	NH-1251	NEW CINGULAR WIRELESS PCS, LLC	SRR Towers, LLC	Town of Winchester	New Cingular Wireless PCS, LLC	08/05/2009
10128412	101397	FB1040 - DIPPER	AK-1252	NEW CINGULAR WIRELESS PCS, LLC	SRR Towers, LLC	Foundation Health, LLC	New Cingular Wireless PCS, LLC	11/04/2009
10133875	105130	NE CT S MDSX SE CS	CT-1263	NEW CINGULAR WIRELESS PCS, LLC	SRR Towers, LLC	Wilcox Family, LLC	New Cingular Wireless PCS, LLC	09/08/2009
10550150	125760	GEIST & LOFTUS	AK-1315	NEW CINGULAR WIRELESS PCS, LLC	SRR Towers, LLC	APAN, LLC	New Cingular Wireless PCS, LLC	07/21/2011
10552185	125887	DEERE & PEGER	AK-1316	NEW CINGULAR WIRELESS PCS, LLC	SRR Towers, LLC	Rochelleau Properties, Inc.	New Cingular Wireless PCS, LLC	7/25/2011

SRR Towers, LLC
352 Park Street
Suite 108
North Reading, MA 01864

June 6, 2023

St. Matthew Lutheran Church of Avon
Benjamin Wright
Property Committee Chair
224-228 Lovely Street
Avon, CT 06001

RE: Letter of Acknowledgement, Lease Agreement for Wireless Facility at 224 Lovely Street, Avon

Dear Mr. Wright,

St. Matthew Lutheran Church of Avon (the "Church") and SRR Towers, LLC, successor-in-interest to New Cingular Wireless PCS, LLC, are parties to that certain Lease Agreement dated June 4, 2008. The Lease Agreement provides for a lease area measuring 50' x 50'. The lease area currently includes a wireless facility and equipment for T-Mobile and AT&T Wireless.

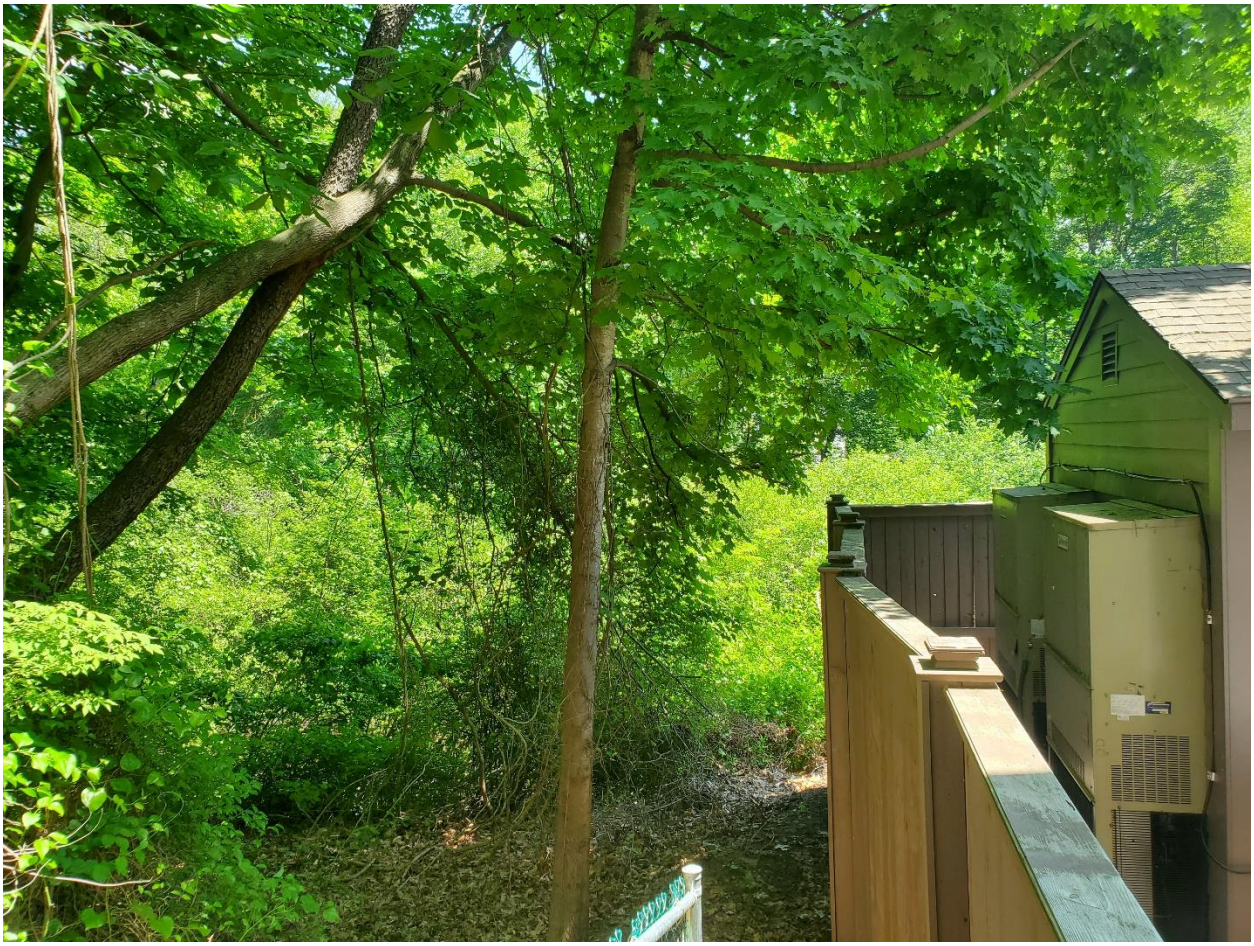
Dish Network has entered into a lease agreement with SRR Towers, LLC to install additional equipment on the ground within the lease area.

By signing below, the Church is in agreement that the proposed Dish Network equipment is within the 50' x 50' lease area provided in the Lease Agreement between the Church and SRR Towers, LLC and that no lease area expansion is necessary.

SRR Towers, LLC
DocuSigned by:
Jim Rech
0749F6B9E0943E...
Jim Rech
President and CEO
SRR Towers, LLC
617-549-2800
8/15/2023

St. Matthew Lutheran Church of Avon

John F. Pietrick
John F. Pietrick
President Church Council



Structural Analysis Report

Structure	**:** 108.9’ Stealth Monopole
BlueSky Site Name	**:** Avalon Lovely Street
BlueSky Site Number	**:** CT-1239
Proposed Carrier	**:** Dish Wireless LLC
Carrier Site Name	**:** BOBDL00030A
Carrier Site Number	**:** BOBDL00030A
Site Location	**:** 224 Lovely Street Avon, CT 06001 (Hartford County) 41.7996, -72.8896
Date	**:** June 22, 2023
Max Member Stress Level	**: 66.7% (Tower)** **: 22.5% (Foundation)** **: 49.7% (Base Plate / Anchor Bolts)**
Result	**: PASS**

Prepared by:

06/22/2023

Table of Contents

Introduction

We have completed our structural analysis of the proposed equipment installation on the foregoing tower to determine its ability to support the new loads proposed by **Dish Wireless LLC**. The objective of the analysis was to determine if the tower meets the current structural codes and standards with the proposed equipment installation.

Existing Structural Information

The following documents for the existing structure were made available for our structural analysis.

Tower Information	Monopole Mapping Report completed by Structural Components, dated September 1, 2021.
Foundation Information	Monopole Mapping Report completed by Structural Components, dated September 1, 2021.
Geotechnical Information	Not available at time of analysis.
Existing Equipment Information	BlueSky Towers colocation application. Monopole Mapping Report completed by Structural Components, dated September 1, 2021.
Tower Reinforcement Information	Tower has not been previously modified.

Final Proposed Equipment Loading

The following proposed loading was obtained from the BlueSky Towers Collocation Application:

Antenna/Equipment					Coax	
Mount (Ft.)	RAD (Ft.)	Qty.	Antenna	Type	Qty.	Size/Type
103.0	-	1	Stealth Canister	Mount	6	1.625” Coax
	102.3	3	Powerwave P65-16-XLH-RR	Panel		
	100.4	3	TTAW-07BP111-001	TMA		
93.0	-	1	Stealth Canister	Mount	6	1.625” Coax
	94.9	3	Powerwave P65-16-XLH-RR	Panel		
	90.4	3	TTAW-07BP111-001	TMA		
83.0	-	1	Stealth Canister	Mount	6	1.625” Coax
	85.3	3	Powerwave P65-16-XLH-RR	Panel		
	80.3	3	TTAW-07BP111-001	TMA		
67.0	**-**	**1**	**48” Rapcap Stealth Canister**	**Mount**	**12**	**0.875” Coax**
	67.0	**3**	**Commscope FVV-65B-R3**	**Panel**		
	60.0	**6**	**Commscope CDX623T-DS-T / E15V95P63**	**Diplexer**		

Note: Other existing loading can be found on the tower profile attached.
Note: Proposed equipment is in Bold print.
Note: Proposed RRU’s will be ground mounted.

Design Criteria

The tower was analyzed using tnxTower (Version 8.1.1.0) tower analysis software using the following design criteria.

State	Connecticut
City/County Building Code	Harford County 2022 Connecticut State Building Code
TIA/EIA Standard Code	TIA-222-H
Basic Wind Speed	116 MPH (Vult)
Basic Wind Speed w/ Ice	50 MPH w/ 1.50" Ice
Steel Grade	Pole Shaft A53-B-35 (35 KSI) / Base Plate A572 GR 50 (50 KSI) / Anchor Bolts A615-75 (75 KSI) / Splice Bolts A325
Exposure Category	B
Topographic Cat. (Height)	1 (0)
Risk Category	II
S_s	0.179
Seismic design Category	B

Analysis Results

Based on the foregoing information, our structural analysis determined that **the existing tower is structurally capable of supporting the proposed equipment loads without modification.** The existing tower foundation, splice plates, base plate, splice bolts and anchor bolts have also been evaluated. The foundation, splice plates, base plate, splice bolts and anchor bolts **were found to be structurally capable** of supporting the proposed loads. A seismic analysis has been performed on this site and is not controlling.

Assumptions

The below assumptions are true, complete, and accurate.

1. The existing tower has been maintained to manufacturer's specifications and is in good condition.
2. Foundations are considered to have been properly designed for the original design loads.
3. All member connections are considered to have been designed to meet the load carrying capacity of the connected member.
4. Antenna mount loads have been estimated based on generally accepted industry standards.
5. The mounts for the proposed antennas have been analyzed and designed by others.
6. See additional assumptions contained in the report attached.
7. Tower is within acceptable engineering tolerance at 105%.
8. Foundations are within acceptable engineering tolerance at 110%.

Conclusions

The existing tower described above **has sufficient capacity** to support the proposed loading based on the governing Building Code. The tower foundation, splice plates, base plate, splice bolts and anchor bolts have also been evaluated and **are acceptable**. A seismic analysis has been performed on this site and is not controlling.

We appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance, please call us anytime at 941-400-2206.

Sincerely,

Analysis by:

Michael T De Boer, PE
Vice President of Engineering
Cellsite Solutions, LLC

06/22/2023

Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but not necessarily limited, to:

- Information supplied by the client regarding the structure itself, the antenna and transmission line loading on the structure and it components, or relevant information.

- Information from drawings in possession of Cellsite Solutions, LLC, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Cellsite Solutions, LLC and used in the performance of our engineering services is correct and complete. In the absence of information contrary, we consider that all structures were constructed in accordance with the drawings and specifications and are in a un-corroded condition and have not deteriorated; and we, therefore consider that their capacity has not significantly changed from the original design condition.

All services will be performed to the codes and standards specified by the client, and we do not imply to meet any other code and standard requirements unless explicitly agreed to in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes and standards, the client shall specify the exact requirements. In the absence of information to the contrary, all work will be performed in accordance with the revision of ANSI/TIA/EIA-222-H requested.

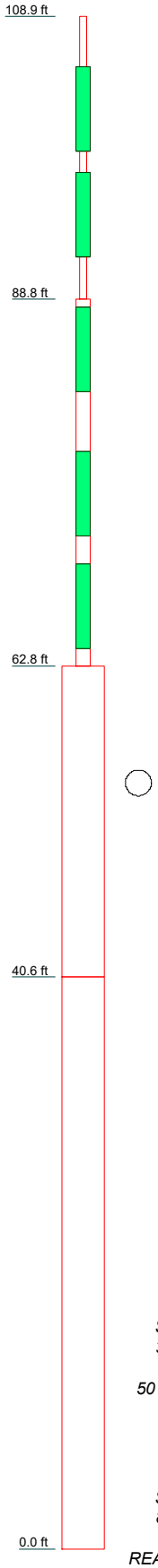
All services are performed, results obtained, and recommendations made in accordance with the generally accepted engineering principles and practices. Cellsite Solutions LLC is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

Disclaimer of Warranties

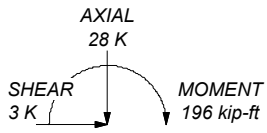
Cellsite Solutions, LLC makes no warranties, express or implied, in connection with this report and disclaims any liability arising from the ability of the existing structure to support the design loads for which it was originally designed. Cellsite Solutions, LLC will not be responsible whatsoever for or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of Cellsite Solutions, LLC pursuant to this report will be limited to the total fee received for preparation of this report.

Attachment 1:
Calculations

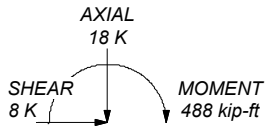
Section	Size	Length (ft)	Grade	Weight (K)
1	P6.625x0.34875	20.08	A53-B-35	0.5
2	P12.75x0.349	26.06		1.2
3	P36x0.34875	22.13		2.9
4	P36x0.34875	40.63		5.4
				10.0



ALL REACTIONS ARE FACTORED



50 mph WIND - 1.500 in ICE



REACTIONS - 116 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Shroud Support at 108.9375'	108.94	(3) TMAT1921B68-21-43 (T-Mobile)	75
(3) Powerwave P65-16-XLH-RR (ATT)	102.3	(3) APVSPP18-C-A20 (T-Mobile)	75
(3) TTAW-07BP111-001 (ATT)	100.4	Shroud Support at 70.75	70.75
Shroud Support at 98.895833	98.9	(3) Commscope FVV-65B-R3 (Dish)	67
(3) Powerwave P65-16-XLH-RR (ATT)	94.85	Shroud Support at 62.7916667	62.79
(3) TTAW-07BP111-001 (ATT)	90.44	(3) Commscope E15V95P63 Diplexer (Dish)	60
Shroud Support at 88.8541667	88.85		
(3) Powerwave P65-16-XLH-RR (ATT)	85.25	(3) Commscope CDX623T-DS-T Diplexer (Dish)	60
(3) TTAW-07BP111-001 (ATT)	80.25		
Shroud Support at 78.75	78.75		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	63 ksi			

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 116 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. Weld together tower sections have flange connections.
9. Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications.
10. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
11. Welds are fabricated with ER-70S-6 electrodes.
12. TOWER RATING: 66.7%

Cellsite Solutions, LLC
4150 C Street SW
Cedar Rapids, IA 52404
Phone: 319-826-3404
FAX:

Job: ***CT-1239 (Avon CT)***			
Project: ***108.9' Stealth Monopole Analysis***			
Client: Blue Sky (Dish)	Drawn by: mike.deboer	App'd:	
Code: TIA-222-H	Date: 04/06/23	Scale: NTS	
Path:		Dwg No. E-1	

Feed Line Plan

Round Flat App In Face App Out Face

Cellsite Solutions, LLC
4150 C Street SW
Cedar Rapids, IA 52404
Phone: 319-826-3404
FAX:

Job:	***CT-1239 (Avon CT)***		
Project:	***108.9' Stealth Monopole Analysis***		
Client: Blue Sky (Dish)	Drawn by: mike.deboer		App'd:
Code: TIA-222-H	Date: 04/06/23		Scale: NTS
Path:			Dwg No. E-7

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

- Tower is located in Hartford County, Connecticut.
- Tower base elevation above sea level: 298.00 ft.
- Basic wind speed of 116 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.500 in.
- Ice thickness is considered to increase with height.
- Ice density of 56.00 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50.00 °F.
- Deflections calculated using a wind speed of 60 mph.
- Weld together tower sections have flange connections..
- Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications..
- Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards..
- Welds are fabricated with ER-70S-6 electrodes..
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known

Pole Section Geometry

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	108.90-88.82	20.08	P6.625x0.34875	A53-B-35 (35 ksi)	
L2	88.82-62.76	26.06	P12.75x0.349	A53-B-35 (35 ksi)	
L3	62.76-40.63	22.13	P36x0.34875	A53-B-35 (35 ksi)	
L4	40.63-0.00	40.63	P36x0.34875	A53-B-35 (35 ksi)	

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 108.90-88.82				1	1	1			
L2 88.82-62.76				1	1	1			
L3 62.76-40.63				1	1	1			
L4 40.63-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
*****											

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
****ATT****									
LDF7-50A (1-5/8 FOAM) (ATT)	C	No	No	Inside Pole	102.30 - 0.00	6	No Ice	0.00	0.00
							1/2" Ice	0.00	0.00
							1" Ice	0.00	0.00
							2" Ice	0.00	0.00
LDF7-50A (1-5/8 FOAM) (ATT)	C	No	No	Inside Pole	94.90 - 0.00	6	No Ice	0.00	0.00
							1/2" Ice	0.00	0.00
							1" Ice	0.00	0.00
							2" Ice	0.00	0.00
LDF7-50A (1-5/8 FOAM)	C	No	No	Inside Pole	85.30 - 0.00	6	No Ice	0.00	0.00
							1/2" Ice	0.00	0.00

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
(ATT)							1" Ice	0.00	0.00
							2" Ice	0.00	0.00
****T-Mobile****									
LDF5-50A (7/8 FOAM)	B	No	No	Inside Pole	75.00 - 0.00	12	No Ice	0.00	0.00
							1/2" Ice	0.00	0.00
(T-Mobile)							1" Ice	0.00	0.00
							2" Ice	0.00	0.00
****Dish****									
LDF5-50A (7/8 FOAM)	A	No	No	Inside Pole	67.00 - 0.00	12	No Ice	0.00	0.00
							1/2" Ice	0.00	0.00
(Dish)							1" Ice	0.00	0.00
							2" Ice	0.00	0.00
*****									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	108.90-88.82	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.10
L2	88.82-62.76	A	0.000	0.000	0.000	0.000	0.02
		B	0.000	0.000	0.000	0.000	0.05
		C	0.000	0.000	0.000	0.000	0.37
L3	62.76-40.63	A	0.000	0.000	0.000	0.000	0.09
		B	0.000	0.000	0.000	0.000	0.09
		C	0.000	0.000	0.000	0.000	0.33
L4	40.63-0.00	A	0.000	0.000	0.000	0.000	0.16
		B	0.000	0.000	0.000	0.000	0.16
		C	0.000	0.000	0.000	0.000	0.60

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	108.90-88.82	A	1.674	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.10
L2	88.82-62.76	A	1.630	0.000	0.000	0.000	0.000	0.02
		B		0.000	0.000	0.000	0.000	0.05
		C		0.000	0.000	0.000	0.000	0.37
L3	62.76-40.63	A	1.569	0.000	0.000	0.000	0.000	0.09
		B		0.000	0.000	0.000	0.000	0.09
		C		0.000	0.000	0.000	0.000	0.33
L4	40.63-0.00	A	1.429	0.000	0.000	0.000	0.000	0.16
		B		0.000	0.000	0.000	0.000	0.16
		C		0.000	0.000	0.000	0.000	0.60

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	108.90-88.82	0.000	0.000	0.000	0.000
L2	88.82-62.76	0.000	0.000	0.000	0.000
L3	62.76-40.63	0.000	0.000	0.000	0.000
L4	40.63-0.00	0.000	0.000	0.000	0.000

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

User Defined Loads

Description	Elevation	Offset From Centroid	Azimuth Angle		Weight	F_x	F_z	Wind Force	C_AA_C
	ft	ft	°		K	K	K	K	ft^2
Shroud Support at 108.9375'	108.94	0.00	0.00	No Ice	0.31	0.00	0.00	**0.33**	9.04
				Ice	1.36	0.00	0.00	**0.14**	20.33
				Service	0.31	0.00	0.00	**0.08**	9.04
Shroud Support at 98.895833	98.90	0.00	0.00	No Ice	0.31	0.00	0.00	**0.63**	18.08
				Ice	1.35	0.00	0.00	**0.26**	40.63
				Service	0.31	0.00	0.00	**0.15**	18.08
Shroud Support at 88.8541667	88.85	0.00	0.00	No Ice	0.31	0.00	0.00	**0.62**	18.13
				Ice	1.35	0.00	0.00	**0.26**	40.71
				Service	0.31	0.00	0.00	**0.15**	18.13
Shroud Support at 78.75	78.75	0.00	0.00	No Ice	0.29	0.00	0.00	**0.54**	16.29
				Ice	1.10	0.00	0.00	**0.22**	36.54
				Service	0.29	0.00	0.00	**0.13**	16.29
Shroud Support at 70.75	70.75	0.00	0.00	No Ice	0.27	0.00	0.00	**0.57**	17.74
				Ice	1.33	0.00	0.00	**0.22**	37.29
				Service	0.27	0.00	0.00	**0.14**	17.74
Shroud Support at 62.7916667	62.79	0.00	0.00	No Ice	0.00	0.00	0.00	**0.32**	10.54
				Ice	0.00	0.00	0.00	**0.12**	21.16
				Service	0.00	0.00	0.00	**0.08**	10.54

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement		C_AA_A Front	C_AA_A Side	Weight
			ft ft ft	°	ft		ft^2	ft^2	K
****ATT****									
(3) Powerwave P65-16-XLH-RR (ATT)	C	None		0.00	102.30	No Ice	0.00	0.00	0.07
						1/2" Ice	0.00	0.00	0.00
						1" Ice	0.00	0.00	0.00
						2" Ice	0.00	0.00	0.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(3) TTAW-07BP111-001 (ATT)	C	None		0.00	100.40	No Ice	0.00	0.00	0.02
						1/2" Ice	0.00	0.00	0.00
						1" Ice	0.00	0.00	0.00
						2" Ice	0.00	0.00	0.00
(3) Powerwave P65-16-XLH-RR (ATT)	C	None		0.00	94.85	No Ice	0.00	0.00	0.07
						1/2" Ice	0.00	0.00	0.00
						1" Ice	0.00	0.00	0.00
						2" Ice	0.00	0.00	0.00
(3) TTAW-07BP111-001 (ATT)	C	None		0.00	90.44	No Ice	0.00	0.00	0.02
						1/2" Ice	0.00	0.00	0.00
						1" Ice	0.00	0.00	0.00
						2" Ice	0.00	0.00	0.00
(3) Powerwave P65-16-XLH-RR (ATT)	C	None		0.00	85.25	No Ice	0.00	0.00	0.07
						1/2" Ice	0.00	0.00	0.00
						1" Ice	0.00	0.00	0.00
						2" Ice	0.00	0.00	0.00
(3) TTAW-07BP111-001 (ATT)	C	None		0.00	80.25	No Ice	0.00	0.00	0.02
						1/2" Ice	0.00	0.00	0.00
						1" Ice	0.00	0.00	0.00
						2" Ice	0.00	0.00	0.00
****T-Mobile****									
(3) APVSPP18-C-A20 (T-Mobile)	C	None		0.00	75.00	No Ice	0.00	0.00	0.06
						1/2" Ice	0.00	0.00	0.00
						1" Ice	0.00	0.00	0.00
						2" Ice	0.00	0.00	0.00
(3) TMAT1921B68-21-43 (T-Mobile)	C	None		0.00	75.00	No Ice	0.00	0.00	0.02
						1/2" Ice	0.00	0.00	0.00
						1" Ice	0.00	0.00	0.00
						2" Ice	0.00	0.00	0.00
****Dish****									
(3) Commscope FVV-65B-R3 (Dish)	C	None		0.00	67.00	No Ice	8.25	5.50	0.04
						1/2" Ice	8.48	5.79	0.09
						1" Ice	8.94	6.24	0.14
						2" Ice	9.86	7.14	0.24
(3) Commscope CDX623T-DS-T Diplexer (Dish)	C	None		0.00	60.00	No Ice	0.37	0.33	0.03
						1/2" Ice	0.48	0.44	0.04
						1" Ice	0.60	0.56	0.05
						2" Ice	0.84	0.80	0.07
(3) Commscope E15V95P63 Diplexer (Dish)	C	None		0.00	60.00	No Ice	0.38	0.34	0.03
						1/2" Ice	0.49	0.45	0.04
						1" Ice	0.61	0.57	0.05
						2" Ice	0.85	0.81	0.07
****									

Tower Pressures - No Ice

$G_H = 1.100$

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	98.86	0.985	0.03	11.086	A	0.000	11.086	11.086	100.00	0.000	0.000
108.90-88.82					B	0.000	11.086		100.00	0.000	0.000
					C	0.000	11.086		100.00	0.000	0.000
L2 88.82-62.76	75.79	0.913	0.03	27.689	A	0.000	27.689	27.689	100.00	0.000	0.000
					B	0.000	27.689		100.00	0.000	0.000
					C	0.000	27.689		100.00	0.000	0.000
L3 62.76-40.63	51.70	0.818	0.03	66.390	A	0.000	66.390	66.390	100.00	0.000	0.000
					B	0.000	66.390		100.00	0.000	0.000
					C	0.000	66.390		100.00	0.000	0.000
L4 40.63-0.00	20.34	0.7	0.02	121.890	A	0.000	121.890	121.890	100.00	0.000	0.000
					B	0.000	121.890		100.00	0.000	0.000
					C	0.000	121.890		100.00	0.000	0.000

Tower Pressure - With Ice

$G_H = 1.100$

Section Elevation ft	z ft	K_Z	q_z ksf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 108.90-88.82	98.86	0.985	0.01	1.674	16.688	A	0.000	16.688	16.688	100.00	0.000	0.000
						B	0.000	16.688		100.00	0.000	0.000
						C	0.000	16.688		100.00	0.000	0.000
L2 88.82-62.76	75.79	0.913	0.01	1.630	34.769	A	0.000	34.769	34.769	100.00	0.000	0.000
						B	0.000	34.769		100.00	0.000	0.000
						C	0.000	34.769		100.00	0.000	0.000
L3 62.76-40.63	51.70	0.818	0.00	1.569	72.176	A	0.000	72.176	72.176	100.00	0.000	0.000
						B	0.000	72.176		100.00	0.000	0.000
						C	0.000	72.176		100.00	0.000	0.000
L4 40.63-0.00	20.34	0.7	0.00	1.429	131.568	A	0.000	131.568	131.568	100.00	0.000	0.000
						B	0.000	131.568		100.00	0.000	0.000
						C	0.000	131.568		100.00	0.000	0.000

Tower Pressure - Service

$G_H = 1.100$

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	98.86	0.985	0.01	11.086	A	0.000	11.086	11.086	100.00	0.000	0.000
108.90-88.82					B	0.000	11.086		100.00	0.000	0.000
					C	0.000	11.086		100.00	0.000	0.000
L2 88.82-62.76	75.79	0.913	0.01	27.689	A	0.000	27.689	27.689	100.00	0.000	0.000
					B	0.000	27.689		100.00	0.000	0.000
					C	0.000	27.689		100.00	0.000	0.000
L3 62.76-40.63	51.70	0.818	0.01	66.390	A	0.000	66.390	66.390	100.00	0.000	0.000
					B	0.000	66.390		100.00	0.000	0.000
					C	0.000	66.390		100.00	0.000	0.000
L4 40.63-0.00	20.34	0.7	0.01	121.890	A	0.000	121.890	121.890	100.00	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z ksf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
					B	0.000	121.890		100.00	0.000	0.000
					C	0.000	121.890		100.00	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.10	0.47	A	1	0.74	0.03	1	1	11.086	0.29	0.01	C
108.90-88.82			B	1	0.74		1	1	11.086			
			C	1	0.74		1	1	11.086			
L2	0.43	1.21	A	1	0.6	0.03	1	1	27.689	0.54	0.02	C
88.82-62.76			B	1	0.6		1	1	27.689			
			C	1	0.6		1	1	27.689			
L3	0.50	2.94	A	1	0.6	0.03	1	1	66.390	1.16	0.05	C
62.76-40.63			B	1	0.6		1	1	66.390			
			C	1	0.6		1	1	66.390			
L4 40.63-0.00	0.92	5.40	A	1	0.6	0.02	1	1	121.890	1.83	0.04	C
			B	1	0.6		1	1	121.890			
			C	1	0.6		1	1	121.890			
Sum Weight:	1.95	10.02						OTM	166.60 kip-ft	3.82		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.10	0.47	A	1	0.74	0.03	1	1	11.086	0.29	0.01	C
108.90-88.82			B	1	0.74		1	1	11.086			
			C	1	0.74		1	1	11.086			
L2	0.43	1.21	A	1	0.6	0.03	1	1	27.689	0.54	0.02	C
88.82-62.76			B	1	0.6		1	1	27.689			
			C	1	0.6		1	1	27.689			
L3	0.50	2.94	A	1	0.6	0.03	1	1	66.390	1.16	0.05	C
62.76-40.63			B	1	0.6		1	1	66.390			
			C	1	0.6		1	1	66.390			
L4 40.63-0.00	0.92	5.40	A	1	0.6	0.02	1	1	121.890	1.83	0.04	C
			B	1	0.6		1	1	121.890			
			C	1	0.6		1	1	121.890			
Sum Weight:	1.95	10.02						OTM	166.60 kip-ft	3.82		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.10	0.47	A	1	0.74	0.03	1	1	11.086	0.29	0.01	C
108.90-88.82			B	1	0.74		1	1	11.086			
			C	1	0.74		1	1	11.086			
L2	0.43	1.21	A	1	0.6	0.03	1	1	27.689	0.54	0.02	C
88.82-62.76			B	1	0.6		1	1	27.689			
			C	1	0.6		1	1	27.689			
L3	0.50	2.94	A	1	0.6	0.03	1	1	66.390	1.16	0.05	C
62.76-40.63			B	1	0.6		1	1	66.390			
			C	1	0.6		1	1	66.390			
L4 40.63-0.00	0.92	5.40	A	1	0.6	0.02	1	1	121.890	1.83	0.04	C
			B	1	0.6		1	1	121.890			
			C	1	0.6		1	1	121.890			
Sum Weight:	1.95	10.02						OTM	166.60 kip-ft	3.82		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.10	0.81	A	1	1.2	0.01	1	1	16.688	0.13	0.01	C
108.90-88.82			B	1	1.2		1	1	16.688			
			C	1	1.2		1	1	16.688			
L2	0.43	1.95	A	1	1.2	0.01	1	1	34.769	0.25	0.01	C
88.82-62.76			B	1	1.2		1	1	34.769			
			C	1	1.2		1	1	34.769			
L3	0.50	4.53	A	1	1.2	0.00	1	1	72.176	0.47	0.02	C
62.76-40.63			B	1	1.2		1	1	72.176			
			C	1	1.2		1	1	72.176			
L4 40.63-0.00	0.92	8.06	A	1	1.2	0.00	1	1	131.568	0.73	0.02	C
			B	1	1.2		1	1	131.568			
			C	1	1.2		1	1	131.568			
Sum Weight:	1.95	15.35						OTM	71.16 kip-ft	1.58		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.10	0.81	A	1	1.2	0.01	1	1	16.688	0.13	0.01	C
108.90-88.82			B	1	1.2		1	1	16.688			
			C	1	1.2		1	1	16.688			
L2	0.43	1.95	A	1	1.2	0.01	1	1	34.769	0.25	0.01	C
88.82-62.76			B	1	1.2		1	1	34.769			
			C	1	1.2		1	1	34.769			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L3	0.50	4.53	A	1	1.2	0.00	1	1	72.176	0.47	0.02	C
62.76-40.63			B	1	1.2		1	1	72.176			
			C	1	1.2		1	1	72.176			
L4 40.63-0.00	0.92	8.06	A	1	1.2	0.00	1	1	131.568	0.73	0.02	C
			B	1	1.2		1	1	131.568			
			C	1	1.2		1	1	131.568			
Sum Weight:	1.95	15.35						OTM	71.16 kip-ft	1.58		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.10	0.81	A	1	1.2	0.01	1	1	16.688	0.13	0.01	C
108.90-88.82			B	1	1.2		1	1	16.688			
			C	1	1.2		1	1	16.688			
L2	0.43	1.95	A	1	1.2	0.01	1	1	34.769	0.25	0.01	C
88.82-62.76			B	1	1.2		1	1	34.769			
			C	1	1.2		1	1	34.769			
L3	0.50	4.53	A	1	1.2	0.00	1	1	72.176	0.47	0.02	C
62.76-40.63			B	1	1.2		1	1	72.176			
			C	1	1.2		1	1	72.176			
L4 40.63-0.00	0.92	8.06	A	1	1.2	0.00	1	1	131.568	0.73	0.02	C
			B	1	1.2		1	1	131.568			
			C	1	1.2		1	1	131.568			
Sum Weight:	1.95	15.35						OTM	71.16 kip-ft	1.58		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft²	F K	w klf	Ctrl. Face
L1	0.10	0.47	A	1	1.2	0.01	1	1	11.086	0.11	0.01	C
108.90-88.82			B	1	1.2		1	1	11.086			
			C	1	1.2		1	1	11.086			
L2	0.43	1.21	A	1	0.772	0.01	1	1	27.689	0.17	0.01	C
88.82-62.76			B	1	0.772		1	1	27.689			
			C	1	0.772		1	1	27.689			
L3	0.50	2.94	A	1	0.6	0.01	1	1	66.390	0.28	0.01	C
62.76-40.63			B	1	0.6		1	1	66.390			
			C	1	0.6		1	1	66.390			
L4 40.63-0.00	0.92	5.40	A	1	0.6	0.01	1	1	121.890	0.44	0.01	C
			B	1	0.6		1	1	121.890			
			C	1	0.6		1	1	121.890			
Sum Weight:	1.95	10.02						OTM	46.93	0.99		

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
									kip-ft			

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.10	0.47	A	1	1.2	0.01	1	1	11.086	0.11	0.01	C
108.90-88.82			B	1	1.2		1	1	11.086			
			C	1	1.2		1	1	11.086			
L2	0.43	1.21	A	1	0.772	0.01	1	1	27.689	0.17	0.01	C
88.82-62.76			B	1	0.772		1	1	27.689			
			C	1	0.772		1	1	27.689			
L3	0.50	2.94	A	1	0.6	0.01	1	1	66.390	0.28	0.01	C
62.76-40.63			B	1	0.6		1	1	66.390			
			C	1	0.6		1	1	66.390			
L4 40.63-0.00	0.92	5.40	A	1	0.6	0.01	1	1	121.890	0.44	0.01	C
			B	1	0.6		1	1	121.890			
			C	1	0.6		1	1	121.890			
Sum Weight:	1.95	10.02						OTM	46.93 kip-ft	0.99		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z ksf	D_F	D_R	A_E ft^2	F K	w klf	Ctrl. Face
L1	0.10	0.47	A	1	1.2	0.01	1	1	11.086	0.11	0.01	C
108.90-88.82			B	1	1.2		1	1	11.086			
			C	1	1.2		1	1	11.086			
L2	0.43	1.21	A	1	0.772	0.01	1	1	27.689	0.17	0.01	C
88.82-62.76			B	1	0.772		1	1	27.689			
			C	1	0.772		1	1	27.689			
L3	0.50	2.94	A	1	0.6	0.01	1	1	66.390	0.28	0.01	C
62.76-40.63			B	1	0.6		1	1	66.390			
			C	1	0.6		1	1	66.390			
L4 40.63-0.00	0.92	5.40	A	1	0.6	0.01	1	1	121.890	0.44	0.01	C
			B	1	0.6		1	1	121.890			
			C	1	0.6		1	1	121.890			
Sum Weight:	1.95	10.02						OTM	46.93 kip-ft	0.99		

Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	10.02					
Bracing Weight	0.00					
Total Member Self-Weight	10.02			0.00	0.00	
Total Weight	14.74			0.00	0.00	
Wind 0 deg - No Ice		0.00	-7.67	-478.37	0.00	0.00
Wind 30 deg - No Ice		3.83	-6.64	-414.28	-239.19	0.00
Wind 60 deg - No Ice		6.64	-3.83	-239.19	-414.28	0.00
Wind 90 deg - No Ice		7.67	0.00	0.00	-478.37	0.00
Wind 120 deg - No Ice		6.64	3.83	239.19	-414.28	0.00
Wind 150 deg - No Ice		3.83	6.64	414.28	-239.19	0.00
Wind 180 deg - No Ice		0.00	7.67	478.37	0.00	0.00
Wind 210 deg - No Ice		-3.83	6.64	414.28	239.19	0.00
Wind 240 deg - No Ice		-6.64	3.83	239.19	414.28	0.00
Wind 270 deg - No Ice		-7.67	0.00	0.00	478.37	0.00
Wind 300 deg - No Ice		-6.64	-3.83	-239.19	414.28	0.00
Wind 330 deg - No Ice		-3.83	-6.64	-414.28	239.19	0.00
Member Ice	5.34					
Total Weight Ice	24.78			0.00	0.00	
Wind 0 deg - Ice		0.00	-3.00	-188.52	0.00	0.00
Wind 30 deg - Ice		1.50	-2.60	-163.26	-94.26	0.00
Wind 60 deg - Ice		2.60	-1.50	-94.26	-163.26	0.00
Wind 90 deg - Ice		3.00	0.00	0.00	-188.52	0.00
Wind 120 deg - Ice		2.60	1.50	94.26	-163.26	0.00
Wind 150 deg - Ice		1.50	2.60	163.26	-94.26	0.00
Wind 180 deg - Ice		0.00	3.00	188.52	0.00	0.00
Wind 210 deg - Ice		-1.50	2.60	163.26	94.26	0.00
Wind 240 deg - Ice		-2.60	1.50	94.26	163.26	0.00
Wind 270 deg - Ice		-3.00	0.00	0.00	188.52	0.00
Wind 300 deg - Ice		-2.60	-1.50	-94.26	163.26	0.00
Wind 330 deg - Ice		-1.50	-2.60	-163.26	94.26	0.00
Total Weight	14.74			0.00	0.00	
Wind 0 deg - Service		0.00	-1.91	-121.56	0.00	0.00
Wind 30 deg - Service		0.96	-1.66	-105.27	-60.78	0.00
Wind 60 deg - Service		1.66	-0.96	-60.78	-105.27	0.00
Wind 90 deg - Service		1.91	0.00	0.00	-121.56	0.00
Wind 120 deg - Service		1.66	0.96	60.78	-105.27	0.00
Wind 150 deg - Service		0.96	1.66	105.27	-60.78	0.00
Wind 180 deg - Service		0.00	1.91	121.56	0.00	0.00
Wind 210 deg - Service		-0.96	1.66	105.27	60.78	0.00
Wind 240 deg - Service		-1.66	0.96	60.78	105.27	0.00
Wind 270 deg - Service		-1.91	0.00	0.00	121.56	0.00
Wind 300 deg - Service		-1.66	-0.96	-60.78	105.27	0.00
Wind 330 deg - Service		-0.96	-1.66	-105.27	60.78	0.00

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice

Comb. No.	Description
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	108.9 - 88.82	Pole	Max Tension	8	0.00	0.00	0.00
			Max. Compression	26	-5.37	0.00	0.00
			Max. Mx	8	-2.32	-16.99	0.00
			Max. My	2	-2.32	0.00	16.99
			Max. Vy	8	1.96	-16.99	0.00
			Max. Vx	2	-1.96	0.00	16.99
			Max. Torque	4			-0.00
L2	88.82 - 62.76	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	26	-11.36	0.00	0.00
			Max. Mx	8	-5.69	-91.87	0.00
			Max. My	2	-5.69	0.00	91.87
			Max. Vy	8	4.69	-91.87	0.00
			Max. Vx	2	-4.69	0.00	91.87
			Max. Torque	4			-0.00
L3	62.76 - 40.63	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-17.49	0.00	0.00
			Max. Mx	8	-10.04	-210.22	0.00
			Max. My	2	-10.04	0.00	210.22
			Max. Vy	8	5.95	-210.22	0.00
			Max. Vx	2	-5.95	0.00	210.22
			Max. Torque	4			-0.00
L4	40.63 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.73	0.00	0.00
			Max. Mx	8	-17.69	-487.85	0.00
			Max. My	2	-17.69	0.00	487.85
			Max. Vy	8	7.67	-487.85	0.00
			Max. Vx	2	-7.67	0.00	487.85
			Max. Torque	4			-0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	27.73	0.00	3.00
	Max. H_x	20	17.69	7.67	0.00
	Max. H_z	2	17.69	0.00	7.67
	Max. M_x	2	487.85	0.00	7.67
	Max. M_z	8	487.85	-7.67	0.00
	Max. Torsion	12	0.00	-3.83	-6.64
	Min. Vert	7	13.27	-6.64	3.83
	Min. H_x	8	17.69	-7.67	0.00
	Min. H_z	14	17.69	0.00	-7.67
	Min. M_x	14	-487.85	0.00	-7.67
	Min. M_z	20	-487.85	7.67	0.00
	Min. Torsion	4	-0.00	-3.83	6.64

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	14.74	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	17.69	0.00	-7.67	-487.85	0.00	0.00
0.9 Dead+1.0 Wind 0 deg - No Ice	13.27	0.00	-7.67	-485.41	0.00	0.00
1.2 Dead+1.0 Wind 30 deg - No Ice	17.69	3.83	-6.64	-422.49	-243.93	0.00
0.9 Dead+1.0 Wind 30 deg - No Ice	13.27	3.83	-6.64	-420.38	-242.71	0.00

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 60 deg - No Ice	17.69	6.64	-3.83	-243.93	-422.49	-0.00
0.9 Dead+1.0 Wind 60 deg - No Ice	13.27	6.64	-3.83	-242.71	-420.38	-0.00
1.2 Dead+1.0 Wind 90 deg - No Ice	17.69	7.67	0.00	0.00	-487.85	0.00
0.9 Dead+1.0 Wind 90 deg - No Ice	13.27	7.67	0.00	0.00	-485.41	0.00
1.2 Dead+1.0 Wind 120 deg - No Ice	17.69	6.64	3.83	243.93	-422.49	0.00
0.9 Dead+1.0 Wind 120 deg - No Ice	13.27	6.64	3.83	242.71	-420.38	0.00
1.2 Dead+1.0 Wind 150 deg - No Ice	17.69	3.83	6.64	422.49	-243.93	-0.00
0.9 Dead+1.0 Wind 150 deg - No Ice	13.27	3.83	6.64	420.38	-242.71	-0.00
1.2 Dead+1.0 Wind 180 deg - No Ice	17.69	0.00	7.67	487.85	0.00	0.00
0.9 Dead+1.0 Wind 180 deg - No Ice	13.27	0.00	7.67	485.41	0.00	0.00
1.2 Dead+1.0 Wind 210 deg - No Ice	17.69	-3.83	6.64	422.49	243.93	0.00
0.9 Dead+1.0 Wind 210 deg - No Ice	13.27	-3.83	6.64	420.38	242.71	0.00
1.2 Dead+1.0 Wind 240 deg - No Ice	17.69	-6.64	3.83	243.93	422.49	-0.00
0.9 Dead+1.0 Wind 240 deg - No Ice	13.27	-6.64	3.83	242.71	420.38	-0.00
1.2 Dead+1.0 Wind 270 deg - No Ice	17.69	-7.67	0.00	0.00	487.85	0.00
0.9 Dead+1.0 Wind 270 deg - No Ice	13.27	-7.67	0.00	0.00	485.41	0.00
1.2 Dead+1.0 Wind 300 deg - No Ice	17.69	-6.64	-3.83	-243.93	422.49	0.00
0.9 Dead+1.0 Wind 300 deg - No Ice	13.27	-6.64	-3.83	-242.71	420.38	0.00
1.2 Dead+1.0 Wind 330 deg - No Ice	17.69	-3.83	-6.64	-422.49	243.93	-0.00
0.9 Dead+1.0 Wind 330 deg - No Ice	13.27	-3.83	-6.64	-420.38	242.71	-0.00
1.2 Dead+1.0 Ice+1.0 Temp	27.73	0.00	0.00	0.00	0.00	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	27.73	0.00	-3.00	-195.97	0.00	0.00
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	27.73	1.50	-2.60	-169.72	-97.99	0.00
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	27.73	2.60	-1.50	-97.99	-169.72	-0.00
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	27.73	3.00	0.00	0.00	-195.97	0.00
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	27.73	2.60	1.50	97.99	-169.72	0.00
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	27.73	1.50	2.60	169.72	-97.99	-0.00
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	27.73	0.00	3.00	195.97	0.00	0.00
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	27.73	-1.50	2.60	169.72	97.99	0.00
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	27.73	-2.60	1.50	97.99	169.72	-0.00
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	27.73	-3.00	0.00	0.00	195.97	0.00

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	27.73	-2.60	-1.50	-97.99	169.72	0.00
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	27.73	-1.50	-2.60	-169.72	97.99	-0.00
Dead+Wind 0 deg - Service	14.74	0.00	-1.91	-123.59	0.00	0.00
Dead+Wind 30 deg - Service	14.74	0.96	-1.66	-107.03	-61.80	0.00
Dead+Wind 60 deg - Service	14.74	1.66	-0.96	-61.80	-107.03	-0.00
Dead+Wind 90 deg - Service	14.74	1.91	0.00	0.00	-123.59	0.00
Dead+Wind 120 deg - Service	14.74	1.66	0.96	61.80	-107.03	0.00
Dead+Wind 150 deg - Service	14.74	0.96	1.66	107.03	-61.80	-0.00
Dead+Wind 180 deg - Service	14.74	0.00	1.91	123.59	0.00	0.00
Dead+Wind 210 deg - Service	14.74	-0.96	1.66	107.03	61.80	0.00
Dead+Wind 240 deg - Service	14.74	-1.66	0.96	61.80	107.03	-0.00
Dead+Wind 270 deg - Service	14.74	-1.91	0.00	0.00	123.59	0.00
Dead+Wind 300 deg - Service	14.74	-1.66	-0.96	-61.80	107.03	0.00
Dead+Wind 330 deg - Service	14.74	-0.96	-1.66	-107.03	61.80	-0.00

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-14.74	0.00	0.00	14.74	0.00	0.000%
2	0.00	-17.69	-7.67	0.00	17.69	7.67	0.000%
3	0.00	-13.27	-7.67	0.00	13.27	7.67	0.000%
4	3.83	-17.69	-6.64	-3.83	17.69	6.64	0.000%
5	3.83	-13.27	-6.64	-3.83	13.27	6.64	0.000%
6	6.64	-17.69	-3.83	-6.64	17.69	3.83	0.000%
7	6.64	-13.27	-3.83	-6.64	13.27	3.83	0.000%
8	7.67	-17.69	0.00	-7.67	17.69	0.00	0.000%
9	7.67	-13.27	0.00	-7.67	13.27	0.00	0.000%
10	6.64	-17.69	3.83	-6.64	17.69	-3.83	0.000%
11	6.64	-13.27	3.83	-6.64	13.27	-3.83	0.000%
12	3.83	-17.69	6.64	-3.83	17.69	-6.64	0.000%
13	3.83	-13.27	6.64	-3.83	13.27	-6.64	0.000%
14	0.00	-17.69	7.67	0.00	17.69	-7.67	0.000%
15	0.00	-13.27	7.67	0.00	13.27	-7.67	0.000%
16	-3.83	-17.69	6.64	3.83	17.69	-6.64	0.000%
17	-3.83	-13.27	6.64	3.83	13.27	-6.64	0.000%
18	-6.64	-17.69	3.83	6.64	17.69	-3.83	0.000%
19	-6.64	-13.27	3.83	6.64	13.27	-3.83	0.000%
20	-7.67	-17.69	0.00	7.67	17.69	0.00	0.000%
21	-7.67	-13.27	0.00	7.67	13.27	0.00	0.000%
22	-6.64	-17.69	-3.83	6.64	17.69	3.83	0.000%
23	-6.64	-13.27	-3.83	6.64	13.27	3.83	0.000%
24	-3.83	-17.69	-6.64	3.83	17.69	6.64	0.000%
25	-3.83	-13.27	-6.64	3.83	13.27	6.64	0.000%
26	0.00	-27.73	0.00	0.00	27.73	0.00	0.000%
27	0.00	-27.73	-3.00	0.00	27.73	3.00	0.000%
28	1.50	-27.73	-2.60	-1.50	27.73	2.60	0.000%
29	2.60	-27.73	-1.50	-2.60	27.73	1.50	0.000%
30	3.00	-27.73	0.00	-3.00	27.73	0.00	0.000%
31	2.60	-27.73	1.50	-2.60	27.73	-1.50	0.000%
32	1.50	-27.73	2.60	-1.50	27.73	-2.60	0.000%
33	0.00	-27.73	3.00	0.00	27.73	-3.00	0.000%
34	-1.50	-27.73	2.60	1.50	27.73	-2.60	0.000%
35	-2.60	-27.73	1.50	2.60	27.73	-1.50	0.000%
36	-3.00	-27.73	0.00	3.00	27.73	0.00	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
37	-2.60	-27.73	-1.50	2.60	27.73	1.50	0.000%
38	-1.50	-27.73	-2.60	1.50	27.73	2.60	0.000%
39	0.00	-14.74	-1.91	0.00	14.74	1.91	0.000%
40	0.96	-14.74	-1.66	-0.96	14.74	1.66	0.000%
41	1.66	-14.74	-0.96	-1.66	14.74	0.96	0.000%
42	1.91	-14.74	0.00	-1.91	14.74	0.00	0.000%
43	1.66	-14.74	0.96	-1.66	14.74	-0.96	0.000%
44	0.96	-14.74	1.66	-0.96	14.74	-1.66	0.000%
45	0.00	-14.74	1.91	0.00	14.74	-1.91	0.000%
46	-0.96	-14.74	1.66	0.96	14.74	-1.66	0.000%
47	-1.66	-14.74	0.96	1.66	14.74	-0.96	0.000%
48	-1.91	-14.74	0.00	1.91	14.74	0.00	0.000%
49	-1.66	-14.74	-0.96	1.66	14.74	0.96	0.000%
50	-0.96	-14.74	-1.66	0.96	14.74	1.66	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00007455
3	Yes	4	0.00000001	0.00003050
4	Yes	4	0.00000001	0.00081483
5	Yes	4	0.00000001	0.00054698
6	Yes	4	0.00000001	0.00081483
7	Yes	4	0.00000001	0.00054698
8	Yes	4	0.00000001	0.00007455
9	Yes	4	0.00000001	0.00003050
10	Yes	4	0.00000001	0.00081483
11	Yes	4	0.00000001	0.00054698
12	Yes	4	0.00000001	0.00081483
13	Yes	4	0.00000001	0.00054698
14	Yes	4	0.00000001	0.00007455
15	Yes	4	0.00000001	0.00003050
16	Yes	4	0.00000001	0.00081483
17	Yes	4	0.00000001	0.00054698
18	Yes	4	0.00000001	0.00081483
19	Yes	4	0.00000001	0.00054698
20	Yes	4	0.00000001	0.00007455
21	Yes	4	0.00000001	0.00003050
22	Yes	4	0.00000001	0.00081483
23	Yes	4	0.00000001	0.00054698
24	Yes	4	0.00000001	0.00081483
25	Yes	4	0.00000001	0.00054698
26	Yes	4	0.00000001	0.00000001
27	Yes	5	0.00000001	0.00018942
28	Yes	5	0.00000001	0.00019757
29	Yes	5	0.00000001	0.00019757
30	Yes	5	0.00000001	0.00018942
31	Yes	5	0.00000001	0.00019757
32	Yes	5	0.00000001	0.00019757
33	Yes	5	0.00000001	0.00018942
34	Yes	5	0.00000001	0.00019757
35	Yes	5	0.00000001	0.00019757
36	Yes	5	0.00000001	0.00018942
37	Yes	5	0.00000001	0.00019757

38	Yes	5	0.00000001	0.00019757
39	Yes	4	0.00000001	0.00000001
40	Yes	4	0.00000001	0.00001848
41	Yes	4	0.00000001	0.00001848
42	Yes	4	0.00000001	0.00000001
43	Yes	4	0.00000001	0.00001848
44	Yes	4	0.00000001	0.00001848
45	Yes	4	0.00000001	0.00000001
46	Yes	4	0.00000001	0.00001848
47	Yes	4	0.00000001	0.00001848
48	Yes	4	0.00000001	0.00000001
49	Yes	4	0.00000001	0.00001848
50	Yes	4	0.00000001	0.00001848

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection ft	Gov. Load Comb.	Tilt °	Twist °
L1	108.9 - 88.82	0.60	39	0.84	0.00
L2	88.82 - 62.76	0.33	39	0.56	0.00
L3	62.76 - 40.63	0.14	39	0.20	0.00
L4	40.63 - 0	0.07	39	0.16	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection ft	Tilt °	Twist °	Radius of Curvature ft
108.94	Shroud Support at 108.9375'	39	0.60	0.84	0.00	11938
102.30	(3) Powerwave P65-16-XLH-RR	39	0.50	0.75	0.00	9044
100.40	(3) TTAW-07BP111-001	39	0.48	0.73	0.00	7022
98.90	Shroud Support at 98.895833	39	0.46	0.71	0.00	5969
94.85	(3) Powerwave P65-16-XLH-RR	39	0.40	0.65	0.00	4248
90.44	(3) TTAW-07BP111-001	39	0.35	0.59	0.00	3298
88.85	Shroud Support at 88.8541667	39	0.33	0.56	0.00	3158
85.25	(3) Powerwave P65-16-XLH-RR	39	0.29	0.51	0.00	3206
80.25	(3) TTAW-07BP111-001	39	0.25	0.43	0.00	3588
78.75	Shroud Support at 78.75	39	0.24	0.40	0.00	3722
75.00	(3) APVSPP18-C-A20	39	0.21	0.34	0.00	4109
70.75	Shroud Support at 70.75	39	0.18	0.28	0.00	4656
67.00	(3) Commscope FVV-65B-R3	39	0.16	0.24	0.00	5277
62.79	Shroud Support at 62.7916667	39	0.14	0.20	0.00	6153
60.00	(3) Commscope CDX623T-DS-T Diplexer	39	0.12	0.18	0.00	6798

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection ft	Gov. Load Comb.	Tilt °	Twist °

Section No.	Elevation ft	Horz. Deflection ft	Gov. Load Comb.	Tilt °	Twist °
L1	108.9 - 88.82	2.32	2	3.23	0.00
L2	88.82 - 62.76	1.29	2	2.17	0.00
L3	62.76 - 40.63	0.54	2	0.79	0.00
L4	40.63 - 0	0.26	2	0.64	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection ft	Tilt °	Twist °	Radius of Curvature ft
108.94	Shroud Support at 108.9375'	2	2.32	3.23	0.00	3143
102.30	(3) Powerwave P65-16-XLH-RR	2	1.95	2.90	0.00	2381
100.40	(3) TTAW-07BP111-001	2	1.85	2.80	0.00	1848
98.90	Shroud Support at 98.895833	2	1.77	2.72	0.00	1571
94.85	(3) Powerwave P65-16-XLH-RR	2	1.57	2.51	0.00	1118
90.44	(3) TTAW-07BP111-001	2	1.36	2.26	0.00	867
88.85	Shroud Support at 88.8541667	2	1.29	2.17	0.00	830
85.25	(3) Powerwave P65-16-XLH-RR	2	1.14	1.95	0.00	842
80.25	(3) TTAW-07BP111-001	2	0.97	1.64	0.00	942
78.75	Shroud Support at 78.75	2	0.92	1.55	0.00	977
75.00	(3) APVSPP18-C-A20	2	0.81	1.33	0.00	1078
70.75	Shroud Support at 70.75	2	0.70	1.11	0.00	1221
67.00	(3) Commscope FVV-65B-R3	2	0.62	0.94	0.00	1383
62.79	Shroud Support at 62.7916667	2	0.54	0.79	0.00	1611
60.00	(3) Commscope CDX623T-DS-T Diplexer	2	0.49	0.73	0.00	1777

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	108.9 - 88.82 (1)	P6.625x0.34875	20.08	0.00	0.0	6.876	-2.32	216.61	0.011
L2	88.82 - 62.76 (2)	P12.75x0.349	26.06	0.00	0.0	13.597	-5.69	428.30	0.013
L3	62.76 - 40.63 (3)	P36x0.34875	22.13	0.00	0.0	39.061	-10.04	1194.58	0.008
L4	40.63 - 0 (4)	P36x0.34875	40.63	0.00	0.0	39.061	-17.69	1194.58	0.015

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	108.9 - 88.82 (1)	P6.625x0.34875	16.99	36.10	0.471	0.00	36.10	0.000
L2	88.82 - 62.76 (2)	P12.75x0.349	91.87	140.92	0.652	0.00	140.92	0.000
L3	62.76 - 40.63 (3)	P36x0.34875	210.22	1055.48	0.199	0.00	1055.48	0.000
L4	40.63 - 0 (4)	P36x0.34875	487.85	1055.48	0.462	0.00	1055.48	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	108.9 - 88.82 (1)	P6.625x0.34875	1.96	64.98	0.030	0.00	35.86	0.000
L2	88.82 - 62.76 (2)	P12.75x0.349	4.69	128.49	0.037	0.00	140.09	0.000
L3	62.76 - 40.63 (3)	P36x0.34875	5.95	369.12	0.016	0.00	991.33	0.000
L4	40.63 - 0 (4)	P36x0.34875	7.67	369.12	0.021	0.00	991.33	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	108.9 - 88.82 (1)	0.011	0.471	0.000	0.030	0.000	0.482 ✔	1.000	4.8.2 ✔
L2	88.82 - 62.76 (2)	0.013	0.652	0.000	0.037	0.000	0.667 ✔	1.000	4.8.2 ✔
L3	62.76 - 40.63 (3)	0.008	0.199	0.000	0.016	0.000	0.208 ✔	1.000	4.8.2 ✔
L4	40.63 - 0 (4)	0.015	0.462	0.000	0.021	0.000	0.477 ✔	1.000	4.8.2 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	108.9 - 88.82	Pole	P6.625x0.34875	1	-2.32	216.61	48.2	Pass
L2	88.82 - 62.76	Pole	P12.75x0.349	2	-5.69	428.30	66.7	Pass
L3	62.76 - 40.63	Pole	P36x0.34875	3	-10.04	1194.58	20.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L4	40.63 - 0	Pole	P36x0.34875	4	-17.69	1194.58	47.7	Pass
							Summary	
						Pole (L2)	66.7	Pass
						RATING =	**66.7**	**Pass**

Monopole Flange Plate Connection

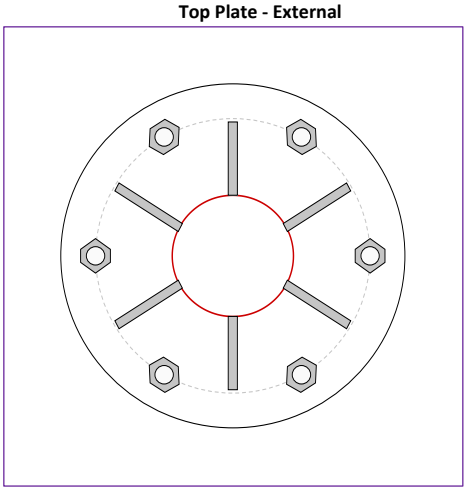
Elevation = 88.82 ft.

BU #	CT-1239
Site Name	Avon CT
Order #	
TIA-222 Revision	H

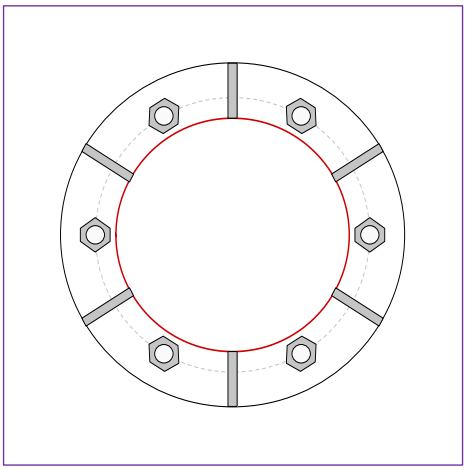
Applied Loads	
Moment (kip-ft)	16.99
Axial Force (kips)	2.32
Shear Force (kips)	1.96

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(6) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 15" BC

Top Plate Data

18.8" OD x 1" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Bottom Plate Data

18.8" OD x 1" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Top Stiffener Data

(6) 6.5"H x 4"W x 0.5"T, Notch: 0.5"
plate: Fy= 50 ksi ; weld: Fy= 60 ksi
horiz. weld: 0.25" fillet
vert. weld: 0.25" fillet

Bottom Stiffener Data

(6) 6.5"H x 3"W x 0.5"T, Notch: 0.5"
plate: Fy= 50 ksi ; weld: Fy= 60 ksi
horiz. weld: 0.25" fillet
vert. weld: 0.25" fillet

Top Pole Data

6.625" x 0.34875" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Bottom Pole Data

12.75" x 0.349" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	8.66	
Allowable (kips)	54.54	
Stress Rating:	**15.1%**	Pass

Top Plate Capacity

Max Stress (ksi):	15.55	(Flexural)	
Allowable Stress (ksi):	45.00		
Stress Rating:	**32.9%**	Pass	
Tension Side Stress Rating:	**35.4%**	Pass	

Bottom Plate Capacity

Max Stress (ksi):	5.37	(Flexural (b/Le>2))
Allowable Stress (ksi):	45.00	
Stress Rating:	**11.4%**	Pass
Tension Side Stress Rating:	**3.5%**	Pass

Top Stiffener Capacity

Horizontal Weld:	**32.3%**	Pass
Vertical Weld:	**23.2%**	Pass
Plate Flexure+Shear:	**8.0%**	Pass
Plate Tension+Shear:	**13.1%**	Pass
Plate Compression:	**23.2%**	Pass

Bottom Stiffener Capacity

Horizontal Weld:	**18.0%**	Pass
Vertical Weld:	**8.7%**	Pass
Plate Flexure+Shear:	**2.4%**	Pass
Plate Tension+Shear:	**7.3%**	Pass
Plate Compression:	**9.5%**	Pass

Top Pole Capacity

Punching Shear:	**10.5%**	Pass

Bottom Pole Capacity

Punching Shear:	**3.4%**	Pass

Monopole Flange Plate Connection

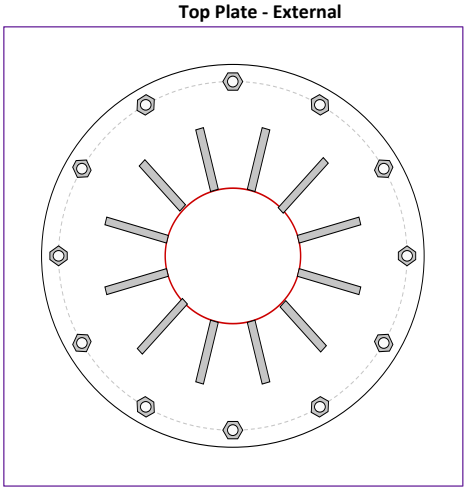
Elevation = 62.76 ft.

BU #	CT-1239
Site Name	Avon CT
Order #	
TIA-222 Revision	H

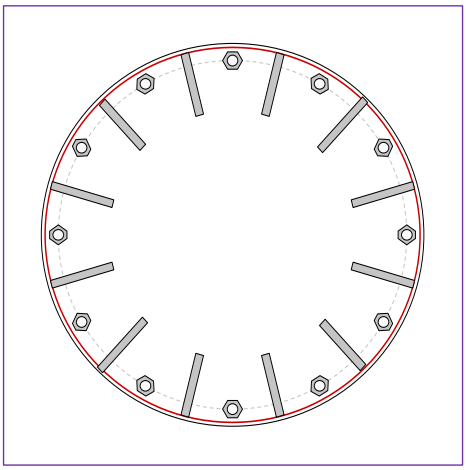
Applied Loads	
Moment (kip-ft)	91.87
Axial Force (kips)	5.69
Shear Force (kips)	4.69

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(12) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 32.8" BC

Top Plate Data

36" OD x 1.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Bottom Plate Data

36" ID x 1.5" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Top Stiffener Data

(12) 11.5"H x 6"W x 0.75"T, Notch: 0.75"
plate: Fy= 50 ksi ; weld: Fy= 60 ksi
horiz. weld: 0.25" fillet
vert. weld: 0.25" fillet

Bottom Stiffener Data

(12) 11.5"H x 6"W x 0.75"T, Notch: 0.75"
plate: Fy= 50 ksi ; weld: Fy= 60 ksi
horiz. weld: 0.25" fillet
vert. weld: 0.25" fillet

Top Pole Data

12.75" x 0.349" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Bottom Pole Data

36" x 0.34875" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	10.73	
Allowable (kips)	54.54	
Stress Rating:	**18.7%**	Pass

Top Plate Capacity

Max Stress (ksi):	17.73	(Flexural)	
Allowable Stress (ksi):	45.00		
Stress Rating:	**37.5%**	Pass	
Tension Side Stress Rating:	**52.6%**	Pass	

Bottom Plate Capacity

Max Stress (ksi):	4.32	(Flexural)	
Allowable Stress (ksi):	45.00		
Stress Rating:	**9.2%**	Pass	
Tension Side Stress Rating:	**N/A**		

Top Stiffener Capacity

Horizontal Weld:	**35.0%**	Pass
Vertical Weld:	**20.3%**	Pass
Plate Flexure+Shear:	**4.1%**	Pass
Plate Tension+Shear:	**9.4%**	Pass
Plate Compression:	**14.4%**	Pass

Bottom Stiffener Capacity

Horizontal Weld:	**32.1%**	Pass
Vertical Weld:	**3.3%**	Pass
Plate Flexure+Shear:	**0.1%**	Pass
Plate Tension+Shear:	**-0.4%**	Pass
Plate Compression:	**3.0%**	Pass

Top Pole Capacity

Punching Shear:	**8.4%**	Pass

Bottom Pole Capacity

Punching Shear:	**0.1%**	Pass

Monopole Flange Plate Connection

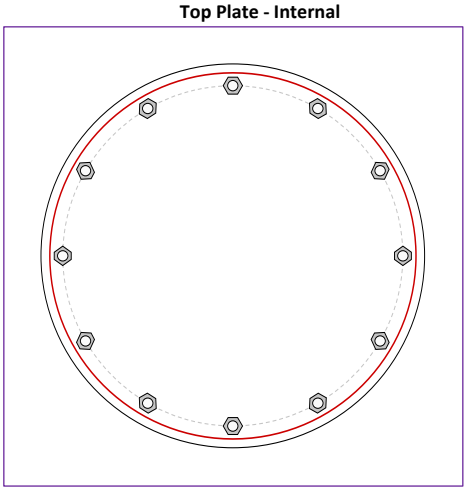
Elevation = 40.63 ft.

BU #	CT-1239
Site Name	Avon CT
Order #	
TIA-222 Revision	H

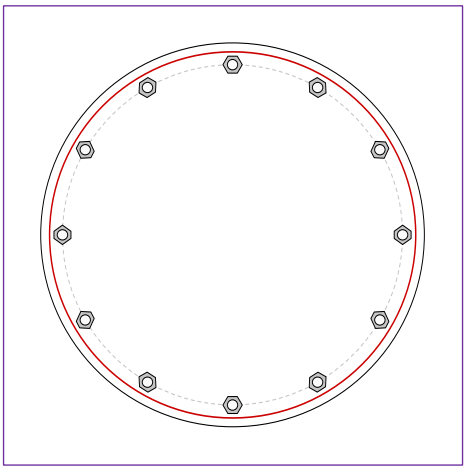
Applied Loads	
Moment (kip-ft)	210.22
Axial Force (kips)	10.04
Shear Force (kips)	5.95

**TIA-222-H Section 15.5 Applied*

Top Plate - Internal



Bottom Plate - Internal



Connection Properties

Bolt Data

(12) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 32.8" BC

Top Plate Data

37" ID x 1.25" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Bottom Plate Data

37" ID x 1.25" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

36" x 0.34875" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Bottom Pole Data

36" x 0.34875" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	24.79	
Allowable (kips)	54.53	
Stress Rating:	**43.3%**	Pass

Top Plate Capacity

Max Stress (ksi):	14.12	(Flexural)
Allowable Stress (ksi):	45.00	
Stress Rating:	**29.9%**	Pass
Tension Side Stress Rating:	**12.9%**	Pass

Bottom Plate Capacity

Max Stress (ksi):	14.12	(Flexural)
Allowable Stress (ksi):	45.00	
Stress Rating:	**29.9%**	Pass
Tension Side Stress Rating:	**12.9%**	Pass

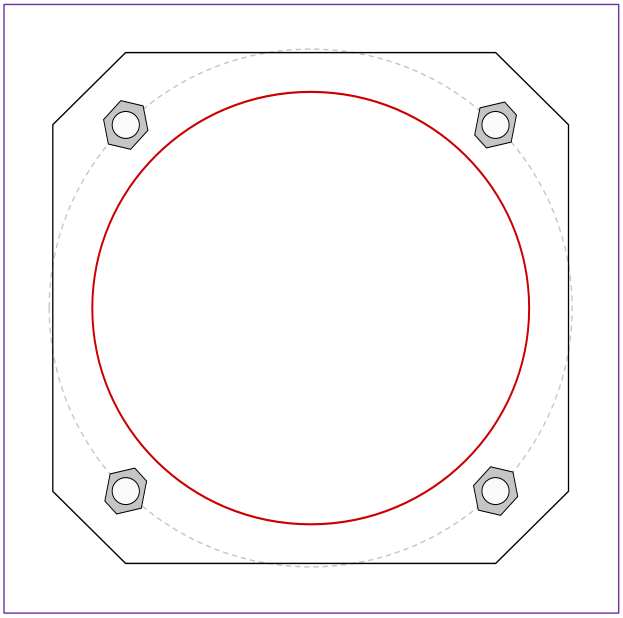
Monopole Base Plate Connection

Site Info	
BU #	CT-1239
Site Name	Avon CT
Order #	

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0

Applied Loads	
Moment (kip-ft)	487.85
Axial Force (kips)	17.69
Shear Force (kips)	7.67

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(4) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 43.1" BC

Base Plate Data

42.5" W x 2.75" Plate (A572-50; Fy=50 ksi, Fu=65 ksi); Clip: 6 in

Stiffener Data

N/A

Pole Data

36" x 0.34875" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

Pu_c = 140.1	ϕPn_c = 268.39	**Stress Rating**
Vu = 1.92	ϕVn = 120.77	**49.7%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	11.1	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**23.5%**	**Pass**

Drilled Pier Foundation

BU # :	CT-1239
Site Name:	Avon CT
Order Number:	
TIA-222 Revison:	H
Tower Type:	Monopole

Applied Loads	Comp.	Uplift
Moment (kip-ft)	488	
Axial Force (kips)	18	
Shear Force (kips)	8	

Material Properties		
Concrete Strength, f'c:	3	ksi
Rebar Strength, Fy:	60	ksi
Tie Yield Strength, Fyt:	40	ksi

Pier Design Data		
Depth	20.25	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 20.25' below grade		
Pier Diameter	5.5	ft
Rebar Quantity	22	
Rebar Size	8	
Clear Cover to Ties	3	in
Tie Size	4	
Tie Spacing	12	in

Rebar & Pier Options

Embedded Pole Inputs

Belled Pier Inputs

Analysis Results		
Soil Lateral Check	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	5.14	-
Soil Safety Factor	7.25	-
Max Moment (kip-ft)	516.86	-
Rating*	*17.5%*	-
Soil Vertical Check	*Compression*	*Uplift*
Skin Friction (kips)	131.21	-
End Bearing (kips)	427.65	-
Weight of Concrete (kips)	88.74	-
Total Capacity (kips)	558.86	-
Axial (kips)	106.74	-
Rating*	*18.2%*	-
Reinforced Concrete Flexure	*Compression*	*Uplift*
Critical Depth (ft from TOC)	4.89	-
Critical Moment (kip-ft)	516.75	-
Critical Moment Capacity	2188.09	-
Rating*	*22.5%*	-
Reinforced Concrete Shear	*Compression*	*Uplift*
Critical Depth (ft from TOC)	14.89	-
Critical Shear (kip)	69.31	-
Critical Shear Capacity	358.50	-
Rating*	*18.4%*	-

Structural Foundation Rating*	**22.5%**
Soil Interaction Rating*	**18.2%**

*Rating per TIA-222-H Section 15.5

Check Limitation	
Apply TIA-222-H Section 15.5:	☑
N/A	☐
Additional Longitudinal Rebar	
Input Effective Depths (else Actual):	☐
Shear Design Options	
Check Shear along Depth of Pier:	☑
Utilize Shear-Friction Methodology:	☐
Override Critical Depth:	☐

Go to Soil Calculations

Soil Profile

Groundwater Depth	N/A	# of Layers	1

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	20.25	20.25	110	150	0	30	0.000	0.000	0.50	0.50	24		Cohesionless

BU:	CT-1239	Structure:	A
WO:			
Order:		Rev:	

Location

	Decimal Degrees		Deg	Min	Sec
Lat:	41.799600	+	41	47	58.56
Long:	-72.889600	-	72	53	22.56

Code and Site Parameters

Seismic Design Code:	TIA-222-H	
Site Soil:	D (Default)	Default
Risk Category:	II	

USGS Seismic Reference		
S_S:	0.1790	g
S_1:	0.0540	g
T_L:	6	s

Seismic Design Category Determination

Importance Factor, I_e:	1
Acceleration-based site coefficient, F_a:	1.6000
Velocity-based site coefficient, F_v:	2.4000

Design spectral response acceleration short period, S_{DS}:	0.1909	g
Design spectral response acceleration 1 s period, S_{D1}:	0.0864	g

Seismic Design Category Based on S_{DS}:	B
Seismic Design Category Based on S_{D1}:	B
Seismic Design Category Based on S_1:	N/A
Controlling Seismic Design Category:	B

BU:	CT-1239	Structure:	A
WO:			
Order:		Rev:	

Tower Details

Tower Type:	Stepped Monopole		
Height, h:	109	ft	
Effective Seismic Weight, W:	12.56	kips	
Amplification Factor, A_s:	1.0		2.7.8.1

Seismic Base Shear

Response Modification Factor, R:	1.5		
Discrete Appurtenance Weight in Top 1/3 of Structure, W_u:	0.972	kips	
W_L:	11.58635415	kips	
E:	29000.0	ksi	
g:	386.088	in/s^2	
Average Moment of Inertia, I_{avg}:	3645.66123	in^4	
F_a:	0.611539483	hz	
Approximate Fundamental Period Monopole, T_a:	1.6352	s	2.7.7.1.3.3
Seismic Response Coefficient, C_s	0.1273		2.7.7.1.1
Seismic Response Coefficient Max 1, C_{smax}	0.0352		2.7.7.1.1
Seismic Response Coefficient Max 2, C_{smax}	N/A		2.7.7.1.1
Seismic Response Coefficient Min 1, C_{smin}	0.0300		2.7.7.1.1
Seismic Response Coefficient Min 2, C_{smin}	N/A		2.7.7.1.1
Controlling Seismic Response Coefficient, C_{sc}	0.0352		
Seismic Base Shear, V	0.442	kips	2.7.7.1.1

Vertical Distribution Factors

Period Related Exponent, k:	1.568	2.7.7.1.2
Sum of $w_i h_i^k$	5864.99	2.7.7.1.2

Tower Section Loads								
Section Number	Length	Top Height	Mid Height, h_x	Section Weight, w_x	$w_x h_x^k$	C_{vx}	F_{xh}	F_{xv}
1 - 1	0.08	108.90	108.86	0.0019	2.92	0.0005	0.0002	0.0001
1 - 2	10.00	108.82	103.82	0.2340	338.80	0.0578	0.0256	0.0089
1 - 3	10.00	98.82	93.82	0.2340	289.06	0.0493	0.0218	0.0089
2 - 1	6.06	88.82	85.79	0.2804	301.03	0.0513	0.0227	0.0107
2 - 2	10.00	82.76	77.76	0.4627	425.83	0.0726	0.0321	0.0177
2 - 3	10.00	72.76	67.76	0.4627	343.17	0.0585	0.0259	0.0177
3 - 1	2.13	62.76	61.70	0.2831	181.29	0.0309	0.0137	0.0108
3 - 2	10.00	60.63	55.63	1.3291	723.66	0.1234	0.0546	0.0508
3 - 3	10.00	50.63	45.63	1.3291	530.43	0.0904	0.0400	0.0508
4 - 1	0.63	40.63	40.32	0.0837	27.52	0.0047	0.0021	0.0032
4 - 2	10.00	40.00	35.00	1.3291	350.00	0.0597	0.0264	0.0508
4 - 3	10.00	30.00	25.00	1.3291	206.54	0.0352	0.0156	0.0508
4 - 4	10.00	20.00	15.00	1.3291	92.73	0.0158	0.0070	0.0508
4 - 5	10.00	10.00	5.00	1.3291	16.57	0.0028	0.0012	0.0508
			Sum	10.0173	3829.53			

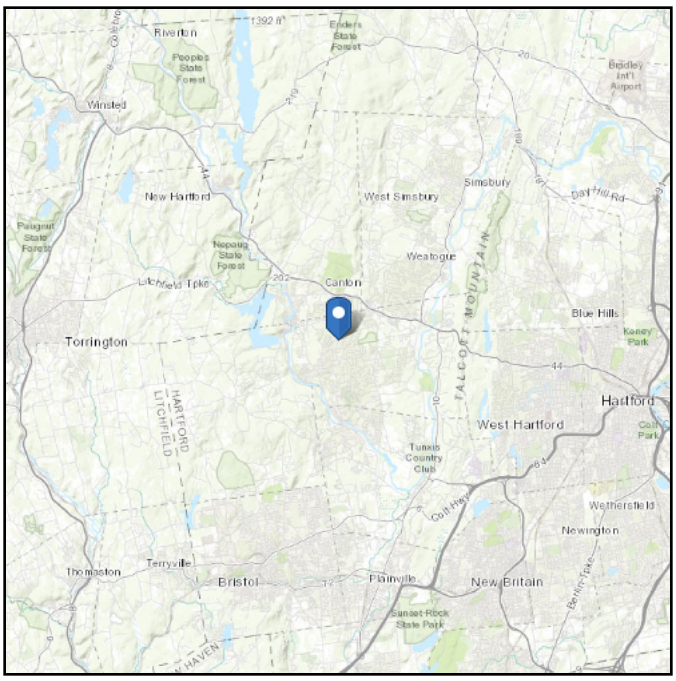
Discrete Loads						
Name	h_x	w_x	$w_x h_x^k$	C_{vx}	F_{xh}	F_{xv}
(3) Powerwave P65-16-XLH-RR	102.30	0.1950	275.89	0.0470	0.0208	0.0074
(3) TTAW-07BP111-001	100.40	0.0540	74.19	0.0126	0.0056	0.0021
(3) Powerwave P65-16-XLH-RR	94.85	0.1950	245.05	0.0418	0.0185	0.0074
(3) TTAW-07BP111-001	90.44	0.0540	62.98	0.0107	0.0048	0.0021
(3) Powerwave P65-16-XLH-RR	85.25	0.1950	207.30	0.0353	0.0156	0.0074
(3) TTAW-07BP111-001	80.25	0.0540	52.22	0.0089	0.0039	0.0021
(3) APVSPP18-C-A20	75.00	0.1710	148.72	0.0254	0.0112	0.0065
(3) TMAT1921B68-21-43	75.00	0.0540	46.96	0.0080	0.0035	0.0021
(3) Commscope FVV-65B-R3	67.00	0.1320	96.19	0.0164	0.0073	0.0050
(3) cellsite1 Fujitsu TA08025-B604	67.00	0.1800	131.17	0.0224	0.0099	0.0069
(3) cellsite1 Fujitsu TA08025-B605	67.00	0.2400	174.90	0.0298	0.0132	0.0092
	Sum	1.5240	1515.57			

Linear Loads								
Name	Start Height	End Height	h_x	w_x	$w_x h_x^k$	C_{vx}	F_{xh}	F_{xv}
(6) andrew (cci) LDF7-50A (1-5/8 FOAM) From 0 to 102.3	99.00	102.30	100.65	0.0162	22.39	0.0038	0.0017	0.0006
(6) andrew (cci) LDF7-50A (1-5/8 FOAM) From 0 to 102.3	89.00	99.00	94.00	0.0492	60.96	0.0104	0.0046	0.0019
(6) andrew (cci) LDF7-50A (1-5/8 FOAM) From 0 to 102.3	79.00	89.00	84.00	0.0492	51.11	0.0087	0.0039	0.0019
(6) andrew (cci) LDF7-50A (1-5/8 FOAM) From 0 to 102.3	69.00	79.00	74.00	0.0492	41.90	0.0071	0.0032	0.0019
(6) andrew (cci) LDF7-50A (1-5/8 FOAM) From 0 to 102.3	59.00	69.00	64.00	0.0492	33.37	0.0057	0.0025	0.0019
(6) andrew (cci) LDF7-50A (1-5/8 FOAM) From 0 to 102.3	49.00	59.00	54.00	0.0492	25.57	0.0044	0.0019	0.0019
(6) andrew (cci) LDF7-50A (1-5/8 FOAM) From 0 to 102.3	39.00	49.00	44.00	0.0492	18.55	0.0032	0.0014	0.0019
(6) andrew (cci) LDF7-50A (1-5/8 FOAM) From 0 to 102.3	29.00	39.00	34.00	0.0492	12.38	0.0021	0.0009	0.0019
(6) andrew (cci) LDF7-50A (1-5/8 FOAM) From 0 to 102.3	19.00	29.00	24.00	0.0492	7.17	0.0012	0.0005	0.0019
(6) andrew (cci) LDF7-50A (1-5/8 FOAM) From 0 to 102.3	9.00	19.00	14.00	0.0492	3.08	0.0005	0.0002	0.0019
(6) andrew (cci) LDF7-50A (1-5/8 FOAM) From 0 to 102.3	0.00	9.00	4.50	0.0443	0.47	0.0001	0.0000	0.0017
(6) andrew (cci) LDF7-50A (1-5/8 FOAM) From 0 to 94.9	89.00	94.90	91.95	0.0290	34.75	0.0059	0.0026	0.0011
(6) andrew (cci) LDF7-50A (1-5/8 FOAM) From 0 to 94.9	79.00	89.00	84.00	0.0492	51.11	0.0087	0.0039	0.0019
(6) andrew (cci) LDF7-50A (1-5/8 FOAM) From 0 to 94.9	69.00	79.00	74.00	0.0492	41.90	0.0071	0.0032	0.0019
(6) andrew (cci) LDF7-50A (1-5/8 FOAM) From 0 to 94.9	59.00	69.00	64.00	0.0492	33.37	0.0057	0.0025	0.0019
(6) andrew (cci) LDF7-50A (1-5/8 FOAM) From 0 to 94.9	49.00	59.00	54.00	0.0492	25.57	0.0044	0.0019	0.0019
(6) andrew (cci) LDF7-50A (1-5/8 FOAM) From 0 to 94.9	39.00	49.00	44.00	0.0492	18.55	0.0032	0.0014	0.0019
(6) andrew (cci) LDF7-50A (1-5/8 FOAM) From 0 to 94.9	29.00	39.00	34.00	0.0492	12.38	0.0021	0.0009	0.0019
(6) andrew (cci) LDF7-50A (1-5/8 FOAM) From 0 to 94.9	19.00	29.00	24.00	0.0492	7.17	0.0012	0.0005	0.0019
(6) andrew (cci) LDF7-50A (1-5/8 FOAM) From 0 to 94.9	9.00	19.00	14.00	0.0492	3.08	0.0005	0.0002	0.0019
(6) andrew (cci) LDF7-50A (1-5/8 FOAM) From 0 to 94.9	0.00	9.00	4.50	0.0443	0.47	0.0001	0.0000	0.0017
****Dish**** From 0 to 75	69.00	75.00	72.00	0.0020	1.62	0.0003	0.0001	0.0001
****Dish**** From 0 to 75	59.00	69.00	64.00	0.0033	2.24	0.0004	0.0002	0.0001
****Dish**** From 0 to 75	49.00	59.00	54.00	0.0033	1.71	0.0003	0.0001	0.0001
****Dish**** From 0 to 75	39.00	49.00	44.00	0.0033	1.24	0.0002	0.0001	0.0001
****Dish**** From 0 to 75	29.00	39.00	34.00	0.0033	0.83	0.0001	0.0001	0.0001
****Dish**** From 0 to 75	19.00	29.00	24.00	0.0033	0.48	0.0001	0.0000	0.0001
****Dish**** From 0 to 75	9.00	19.00	14.00	0.0033	0.21	0.0000	0.0000	0.0001
****Dish**** From 0 to 75	0.00	9.00	4.50	0.0030	0.03	0.0000	0.0000	0.0001
***** From 0 to 67	59.00	67.00	63.00	0.0026	1.75	0.0003	0.0001	0.0001
***** From 0 to 67	49.00	59.00	54.00	0.0033	1.71	0.0003	0.0001	0.0001
***** From 0 to 67	39.00	49.00	44.00	0.0033	1.24	0.0002	0.0001	0.0001
***** From 0 to 67	29.00	39.00	34.00	0.0033	0.83	0.0001	0.0001	0.0001
***** From 0 to 67	19.00	29.00	24.00	0.0033	0.48	0.0001	0.0000	0.0001
***** From 0 to 67	9.00	19.00	14.00	0.0033	0.21	0.0000	0.0000	0.0001
***** From 0 to 67	0.00	9.00	4.50	0.0030	0.03	0.0000	0.0000	0.0001
			Sum	1.0171	519.89			

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Latitude:**	41.7996
Risk Category:	II	**Longitude:**	-72.8896
Soil Class:	D - Default (see Section 11.4.3)	**Elevation:**	0 ft (NAVD 88)



Wind

Results:

Wind Speed	116 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	89 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:	Mon Mar 06 2023

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

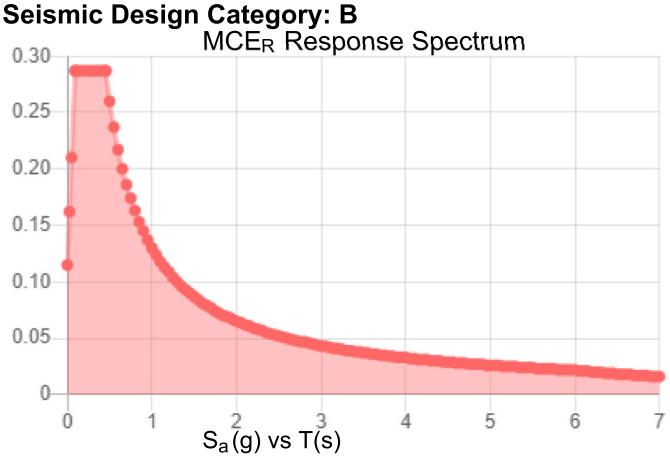
D - Default (see Section 11.4.3)

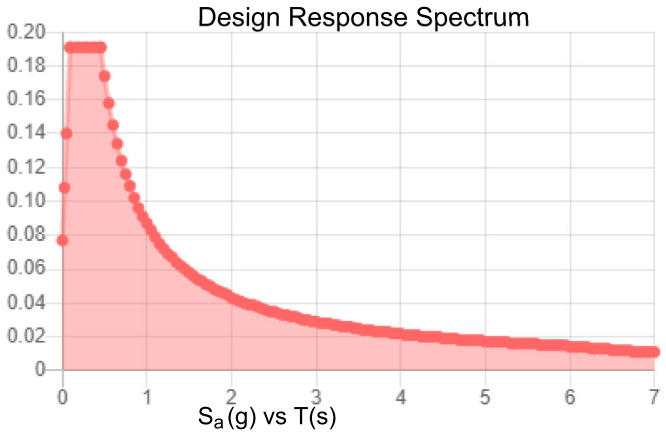
Site Soil Class:

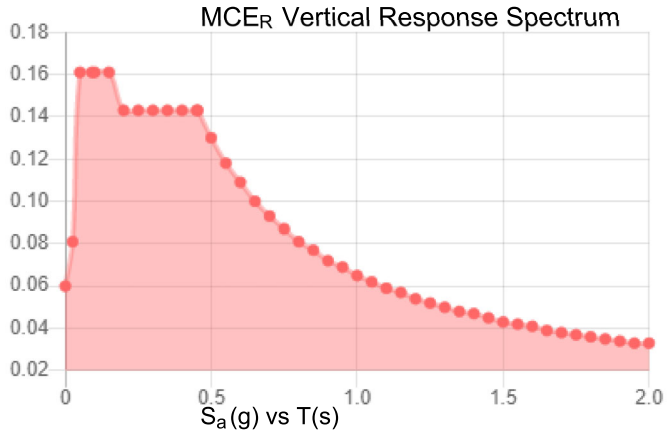
Results:

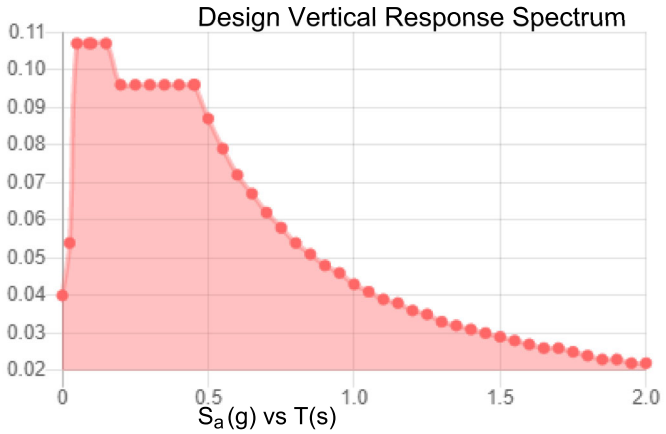
S_S :	0.179	S_{D1} :	0.087
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.096
F_v :	2.4	PGA_M :	0.153
S_{MS} :	0.287	F_{PGA} :	1.6
S_{M1} :	0.13	I_e :	1
S_{DS} :	0.191	C_v :	0.7

Seismic Design Category: B









Data Accessed: **Mon Mar 06 2023**

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:	Mon Mar 06 2023

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.

Attachment 2:
Collocation Application

SRR Towers Collocation Application

Installation Type: Anchor ☐ Collocation ☑ Add to Existing ☐

Contact:	James Burgess	Site Number:	CT-1239
Email	jamesb@blueskytower.com	Site Name:	
Office:	617-549-2800	Submittal Date	
Fax:		Revision Date(s)	

PLEASE SUBMIT THIS APPLICATION VIA E-MAIL. Include Drawings, Specification Sheets, RFDS, Antenna Data Sheets

Applicant Information

Applicant Name:	DISH Wireless LLC	Primary Contact/Agent Name:	Phillip Sipe
Applicant Site Name:	BOBDL00030A	Contact/Agent Company Name:	Northeast Site Solutions
Applicant Site Number:	BOBDL00030A	Contact/Agent Number:	860-305-3841
Proposed ON AIR Date:		Contact Email:	Phillip @Northeastsitesolutions.com

Applicant Contact Information

Leasing Contact Name:	Jeanne Conttrell	Email:	jean.cottrell@dish.com	Number:	203-927-4317
RF Contact Name:	Jared Robinson	Email:	jared.robinson@dish.com	Number:	978-855-5870
Construction Contact Name:	Javier Soto	Email:	javier.soto@dish.com	Number:	617-839-6514
Emergency Contact Name:		Email:		Number:	
Account Payable Contact Name:		Email:		Number:	

Tower Information

Latitude:	41.7996	N	Structure Type:	Stealth	
Longitude:	-72.8896	W	Structure Height:		
AMSL:		FT	Site Address:	224 Lovely Street, Avon, CT	

EQUIPMENT SPECIFICATIONS

Summary of Work to be Completed:	Dish proposes to place (3) antennas, 12 coax cable(s) at the 67 foot RAD. Six Diplexors will be mounted at the 60' level. RRUs are ground mounted.

EXISTING CONDITIONS - List all installed equipment prior to proposed modification. If this is a new installation, proceed to FINAL CONFIGURATION.

	SECTOR 1	SECTOR 2	SECTOR 3	SECTOR 4 (if necessary)
Current RAD Center (Ft AGL)				
Tower Mount Height (if different than RAD ctr)				
Mount Type (Label "Existing" if no change)				
Mount Model #				
Antenna Manufacturer				
Antenna Model# (Attach Specs)				
Antenna Dimensions (WxHxD in inches)				
Antenna Weight (Lbs.)				
Antenna Quantity				
Dish Manufacturer				
Dish Model# (attach Specs)				
Dish Diameter (Ft)				
Dish Weight (Lbs.)				
Dish Mount Height				
Azimuths				
Total # of Coax Lines per Sector				
Diameter Of Coax Cables (In)				
Total # of Hybrid Cables per Sector				
Diameter Of Hybrid Cables (In)				
Total # of other Cables per Sector				
Diameter Of Other Cables (In)				
Quantity of RRUs per Sector				
Manufacturer				
Model				
Dimensions				
Weight (Lbs.)				
Quantity of TMAs per Sector				
Manufacturer				
Model				
Dimensions				
Weight (Lbs.)				
Quantity of Surge Arrestors per Sector				
Manufacturer				
Model				
Antenna Model & Quantity to be Removed per Sector (If Applicable)				
RRU Model & Quantity to be Removed per Sector (If Applicable)				
Line/Cable Type, Size & Quantity to be Removed (If Applicable)				
List Any Other Equipment to be Removed (If Applicable)				

FINAL CONFIGURATION - List all installed equipment after proposed modification or initial installation.

	SECTOR 1	SECTOR 2	SECTOR 3	SECTOR 4 (if necessary)
Current/Proposed RAD Center (Ft AGL)	67'	67'	67'	
Tower Mount Height (if different than RAD ctr)				
Mount Type (Label "Existing" if no change)	Sabre	Sabre	Sabre	
Mount Model #	C10899500-12788	C10899500-12788	C10899500-12788	
Antenna Manufacturer	Commscope	Commscope	Commscope	
Antenna Model# (Attach Specs)	FVV-65B-R3	FVV-65B-R3	FVV-65B-R3	
Antenna Dimensions (WxHxD in inches)	72.0" x 11.8" x 7.1"	72.0" x 11.8" x 7.1"	72.0" x 11.8" x 7.1"	
Antenna Weight (Lbs.)	43.9	43.9	43.9	
Antenna Quantity	1	1	1	
Dish Manufacturer				
Dish Model# (attach Specs)				
Dish Diameter (Ft)				
Dish Weight (Lbs.)				
Dish Mount Height				
Azimuths	0/120/240	0/120/240	0/120/240	
Total # of Coax Lines per Sector	4	4	4	
Diameter Of Coax Cables (In)	7/8"	7/8"	7/8"	
Total # of Hybrid Cables per Sector	0			
Diameter Of Hybrid Cables (In)				
Total # of other Cables per Sector				
Diameter Of Other Cables (In)				

Quantity of RRUs per Sector	2 @ 60'	2 @ 60'	2 @ 60'	
Manufacturer	Commscope (Diplexor)	Commscope (Diplexor)	Commscope (Diplexor)	
Model	CDX623T-DS-T | E15V95P63	CDX623T-DS-T | E15V95P63	CDX623T-DS-T | E15V95P63	
Quantity of RRUs per Sector				
Manufacturer				
Model				
Quantity of Surge Arrestors per Sector				
Manufacturer				
Model				
Transmit Frequency (MHz)				
Receive Frequency (MHz)				
Antenna Gain (Db)				
Type of Technology				
TX Power Output	40000	40000	40000	
ERP (Watts)	76.02	76.02	76.02	
Electric Service Required (Amps/Volts)				

GROUND SPACE REQUIREMENTS

Existing Lease Area: DIMS: L(ft) _____ W(ft) _____ OR _____ Square footage

New/Add 'l Lease Area being requested: DIMS: L(ft) 5'x 7' W(ft) _____ OR _____ Square footage

Shelter: DIMS: L(ft) _____ W(ft) _____ H(ft) _____

Concrete Pad for Shelter/Cabinets: DIMS: L(ft) 5'x 7' W(ft)

POWER REQUIREMENTS

Power Provided by: _____ Electrical Service Provider: _____ Electrical Service Telephone Number: _____

Average Monthly Power Consumption: _____ KWH units

Is a multi-tenant meter rack present: Yes How many, if any, empty meter banks are present: _____

Telco/Interconnect Requirements: POTS ☐ T1 ☐ MICROWAVE ☐ FIBER OPTICS ☑

Fiber Provider: _____

BACK-UP POWER INFORMATION

Generator Required: No Generation Location: _____

Generator Ground Space Requirement: DIMS: L(ft) _____ W(ft) _____ H(ft) _____ **Fuel Type:** _____

BST Generator: _____ Generator Owner: _____ Shared Generator Peak Usage: _____ KW

Generator Capacity: _____ KW Generator Make: _____ Generator Model: _____

Fuel Tank Location: _____ Fuel Tank Size: DIMS: L(f _____ W(ft) _____ Fuel Tank $ _____ Gallons

Pad for Fuel Tank (if required) DIMS: L(ft _____ W(ft) _____

Comments: _____

Comments: List any pertinent information that was not included above.

Comments: List any pertinent information that was not included above.

be
installed
at cabinet*
Alpha
Sector: (2)
Commscope
CDX623T-DS-
T |
E15V95P63
Top

(2)
Commscope
CDX623T-DS-
B |
E15V95P62
Bottom
Beta
Sector: (2)
Commscope
CDX623T-DS-
T |
E15V95P63
Top

(2)
Commscope
CDX623T-DS-
B |
E15V95P62
Bottom
Gamma
Sector :
(2)

Fox Hill Telecom

Radio Frequency Emissions Analysis Report

Site ID: BOBDL00030A

224 Lovely Street
Avon, CT 06001

December 30, 2022

Fox Hill Telecom Project Number: 222145

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**21.67 %**

Fox Hill Telecom

December 30, 2022

Dish Wireless
5701 South Santa Fe Drive
Littleton, CO 80120

Emissions Analysis for Site: **BOBDL00030A**

Fox Hill Telecom, Inc ("Fox Hill") was directed to analyze the proposed radio installation for Dish Wireless, LLC (Dish) facility located at **224 Lovely Street, 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 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 Dish Wireless antenna facility located at **224 Lovely Street, 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 MX08FRO665-20	66
B	1	JMA MX08FRO665-20	66
C	1	JMA MX08FRO665-20	66

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 MX08FRO665-20	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	9.44
						Sector A Composite MPE%	**9.44**
Antenna B1	JMA MX08FRO665-20	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	9.44
						Sector B Composite MPE%	**9.44**
Antenna C1	JMA MX08FRO665-20	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	11.45 / 16.15 / 16.65	12	566	17,426.72	9.44
						Sector C Composite MPE%	**9.44**

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	**9.44 %**
AT&T	6.34 %
T-Mobile	5.89 %
Site Total MPE %:	**21.67 %**

Table 4: All Carrier MPE Contributions

Dish Sector A Total:	9.44 %
Dish Sector B Total:	9.44 %
Dish Sector C Total:	9.44 %
Site Total:	21.67 %

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	66	24.96	n71 (600 MHz)	400	6.24%
Dish n70 (AWS-4 / 1995-2020) 5G	4	1,648.39	66	16.00	n70 (AWS-4 / 1995-2020)	1000	1.60%
Dish n66 (AWS-4 / 2180-2200) 5G	4	1,849.52	66	16.00	n66 (AWS-4 / 2180-2200)	1000	1.60%
						Total:	**9.44 %**

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:	9.44 %
Sector B:	9.44 %
Sector C:	9.44 %
Dish Maximum Total (per sector):	9.44 %
Site Total:	21.67 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite emissions value for this site, assuming all carriers present, is **21.67 %** 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