



**NSS** **NORTHEAST**  
SITE SOLUTIONS  
*Turnkey Wireless Development*

Northeast Site Solutions  
Denise Sabo  
4 Angela's Way, Burlington CT 06013  
203-435-3640  
denise@northeastsitesolutions.com

June 30, 2022

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

RE: Tower Share Application  
71 Pleasant View Road, Derby, CT 06418  
Latitude: 41.315000  
Longitude: -73.064444  
Site #: CT13616-A\_BOHVN00049A\_SBA\_DISH

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless LLC. Dish Wireless LLC plans to install antennas and related equipment to the tower site located at 71 Pleasant View Road, Derby, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900 MHz 5G antennas at the 97-foot level of the existing 120-foot monopole tower, one (1) Fiber cable will also be installed. Dish Wireless LLC equipment cabinets will be placed within a 7' x 5' lease area within the fenced compound. Included are plans by B+T, dated May 12, 2022, Exhibit C. Also included is a structural analysis prepared by TES, dated May 31, 2022 confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. The facility was approved by the Connecticut Siting Council, Docket No. 307 on April 27, 2006. Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Mayor Richard Dziekan, and Kevin White, Acting Zoning Enforcement Officer for the City of Derby, as well as the tower owner (SBA) and property owner (Our Lady, Queen of the Apostles Parish Church).

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the existing tower is 120-feet and the Dish Wireless LLC antennas will be located at a center line height of 97-feet.
2. The proposed modifications will not result in an increase of the site boundary as depicted on the attached site plan.



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

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. The combined site operations will result in a total power density of 22.71% as evidenced by Exhibit F.

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

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

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

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish Wireless LLC equipment at the 97-foot level of the existing 120-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

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

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

Sincerely,

*Denise Sabo*

Denise Sabo

Mobile: 203-435-3640

Fax: 413-521-0558

Office: 4 Angela's Way, Burlington CT 06013

Email: [denise@northeastsitesolutions.com](mailto:denise@northeastsitesolutions.com)



**NSS**

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Attachments

Cc: Mayor Richard Dziekan  
Derby City Hall  
1 Elizabeth Street, 2nd Floor  
Derby, CT 06418

Kevin White, Acting Zoning Enforcement Officer  
Derby City Hall  
1 Elizabeth Street  
Derby, CT 06418

Our Lady, Queen of the Apostles Parish Church – Property Owner  
212 Elizabeth Street  
Derby, CT 06418

SBA - Tower Owner

# Exhibit A

## **Original Facility Approval**



# Exhibit B

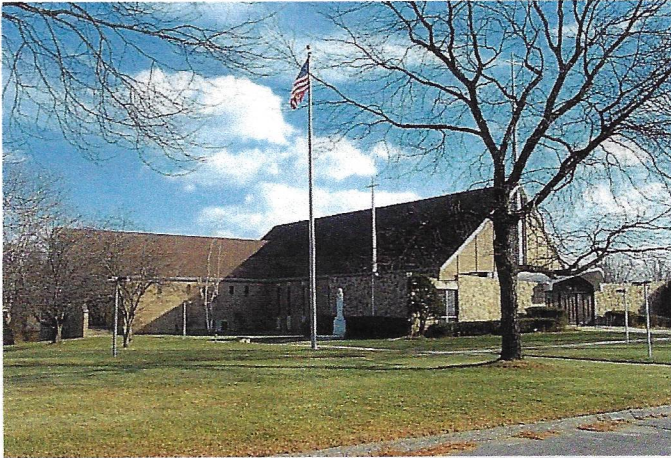
## Property Card



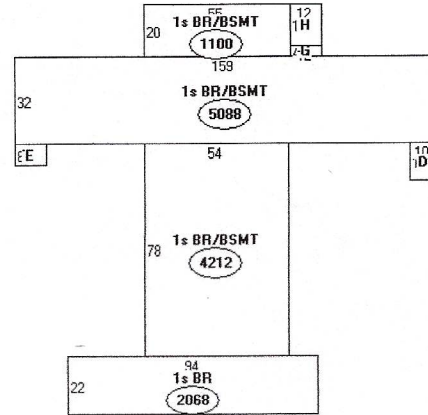
### Property Information

Owner	OUR LADY, QUEEN OF THE APOSTLES PARISH C
Address	71 PLEASANT VIEW RD
Mailing Address	212 ELIZABETH ST DERBY CT 06418-0000
Land Use	
Land Class	E E

Neighborhood	103
Zoning	P
Acreage	15.88
Utilities	ALL PUBLIC ALL PUBLIC
Lot Description	ROLLING
Census Tract	1201



### Sketch



- Descriptor/Area
- A: 1s BR/BSMT 4212 sqft
  - B: 1s BR 2068 sqft
  - C: 1s BR/BSMT 5088 sqft
  - D: ENCLOSED E 140 sqft
  - E: COVERED PO 96 sqft
  - F: 1s BR/BSMT 1100 sqft
  - G: OFF 48 sqft
  - H: GARAGE 192 sqft

### Construction Details

Year Built	1970
Stories	
Building Style	
Building Condition	GOOD
Total Rooms	
Bedrooms	
Bathrooms	
Roof Style	
Primary Ext. Wall	
Heating Type	
Heating System	
Heating Fuel	
First Floor Area	
Total Living Area	

### Parcel Valuations

(Assessed value = 70% of Appraised Value)

	Appraised	Assessed
Buildings	2645450	
Land	923500	
<b>Total</b>	<b>3568950</b>	<b>2498260</b>

### Sales History:

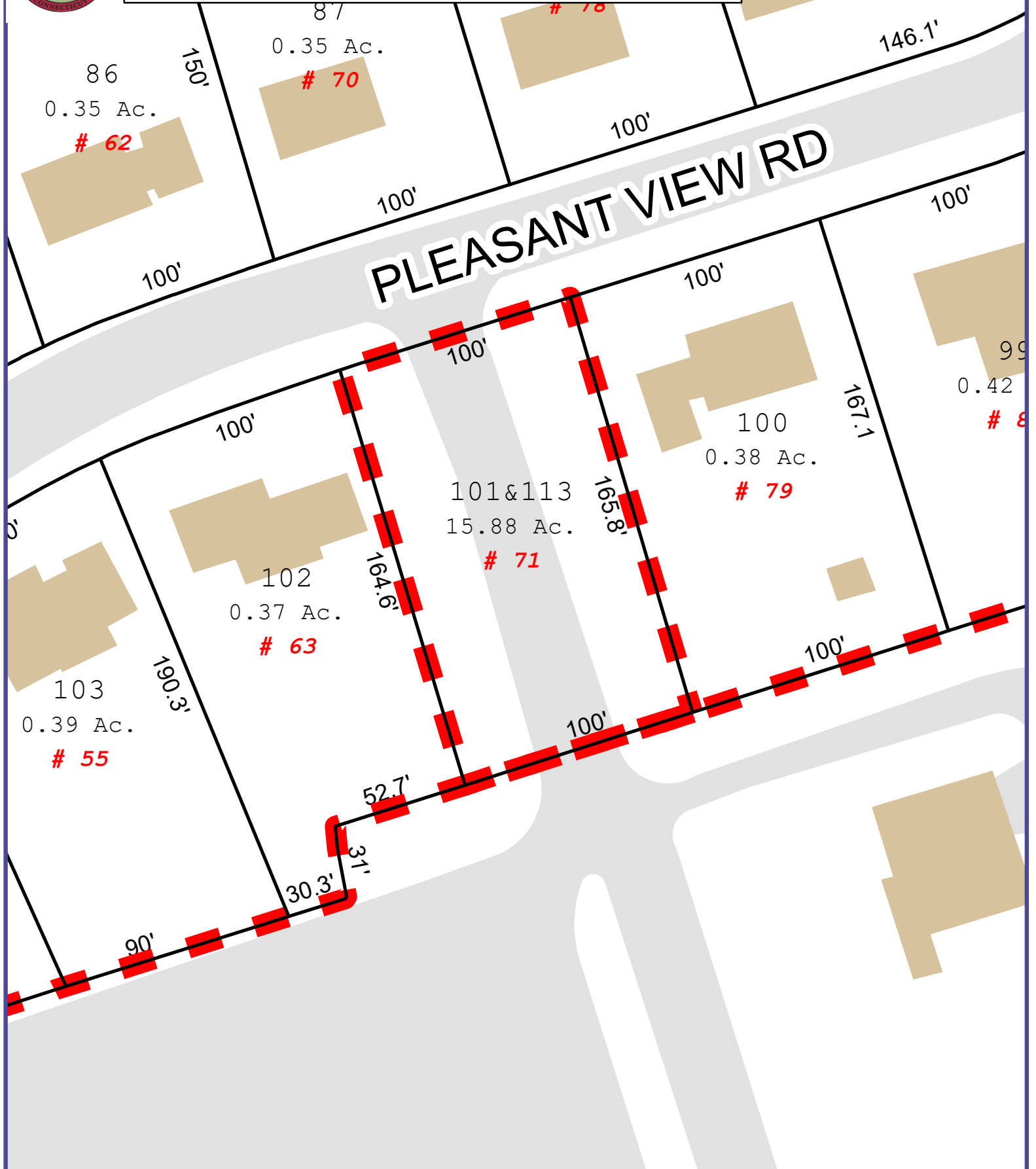
Sale Date	20180924
Sale Price	0
Book/ Page	784 132



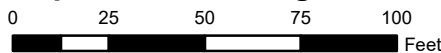
**Town of Derby, Ct.-Assessment Parcel Map**

**Parcel: 5-6-101-113**

**Address: 71 PLEASANT VIEW RD**



**Map Produced: August 2021**



**Disclaimer:**

This map is for informational purposes only. All information is subject to verification by any user. The Town of Derby and its mapping contractors assume no legal responsibility for the information contained herein.

# Exhibit C

## **Construction Drawings**



DISH Wireless L.L.C. SITE ID:

**BOHVN00049A**

DISH Wireless L.L.C. SITE ADDRESS:

**71 PLEASANT VIEW ROAD  
DERBY, CT 06418**

**SCOPE OF WORK**

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

- TOWER SCOPE OF WORK:
- INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
  - INSTALL (3) PROPOSED ANTENNA PIPE MOUNTS
  - INSTALL PROPOSED JUMPERS
  - INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP)
  - INSTALL (1) PROPOSED HYBRID CABLE
  - INSTALL (1) PROPOSED CABLE CLAMP

- GROUND SCOPE OF WORK:
- INSTALL (1) PROPOSED METAL PLATFORM
  - INSTALL (1) PROPOSED ICE BRIDGE
  - INSTALL (1) PROPOSED PPC CABINET
  - INSTALL (1) PROPOSED EQUIPMENT CABINET
  - INSTALL (1) PROPOSED POWER CONDUIT
  - INSTALL (1) PROPOSED TELCO CONDUIT
  - INSTALL (1) PROPOSED TELCO-FIBER BOX
  - INSTALL (1) PROPOSED GPS UNIT
  - INSTALL (1) PROPOSED FIBER NID (IF REQUIRED)
  - INSTALL (6) PROPOSED RRU's

**SITE INFORMATION**

PROPERTY OWNER: OUR LADY, QUEEN OF THE APOSTLES PARISH C  
ADDRESS: 212 ELIZABETH ST  
DERBY, CT 06418

TOWER TYPE: STEALTH POLE

TOWER CO SITE ID: CT13616-A

TOWER APP NUMBER: 173334

COUNTY: NEW HAVEN

LATITUDE (NAD 83): 41° 18' 54.15" N  
41.31504167

LONGITUDE (NAD 83): 73° 3' 51.53" W  
-73.0643138899

ZONING JURISDICTION: CITY OF DERBY

ZONING DISTRICT: P

PARCEL NUMBER: 5-6 101&113

OCCUPANCY GROUP: U

CONSTRUCTION TYPE: II-B

POWER COMPANY: UNITED ILLUMINATIONS

TELEPHONE COMPANY: VERIZON

**PROJECT DIRECTORY**

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

TOWER OWNER: SBA COMMUNICATIIONS CORP.  
8051 CONGRESS AVENUE  
BOCA RATON, FL 33487  
(800) 487-7483

SITE DESIGNER: B+T GROUP  
1717 S. BOULDER AVE, SUITE 300  
TULSA, OK 74119  
(918) 587-4630

SITE ACQUISITION: DAVE EVANS  
devans@sbasite.com

CONST. MANAGER: CHAD WILCOX  
chad.wilcox@dish.com

RF ENGINEER: DIPESH PARIKH  
dipesh.parikh@dish.com



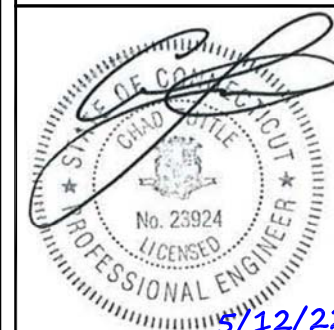
5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



8051 CONGRESS AVENUE  
BOCA RATON, FL 33487



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



B&T ENGINEERING, INC.  
PEC.0001564  
Expires 2/10/22

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DRAWN BY: NGN CHECKED BY: RMC APPROVED BY: BLJ

RFDS REV #: 4

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
A	11/24/21	ISSUED FOR REVIEW
0	3/24/22	ISSUED FOR CONSTRUCTION
1	5/12/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
**149474.001.01**

DISH Wireless L.L.C.  
PROJECT INFORMATION  
**BOHVN00049A**  
**71 PLEASANT VIEW ROAD**  
**DERBY, CT 06418**

SHEET TITLE  
**TITLE SHEET**

SHEET NUMBER  
**T-1**

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

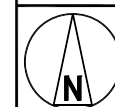
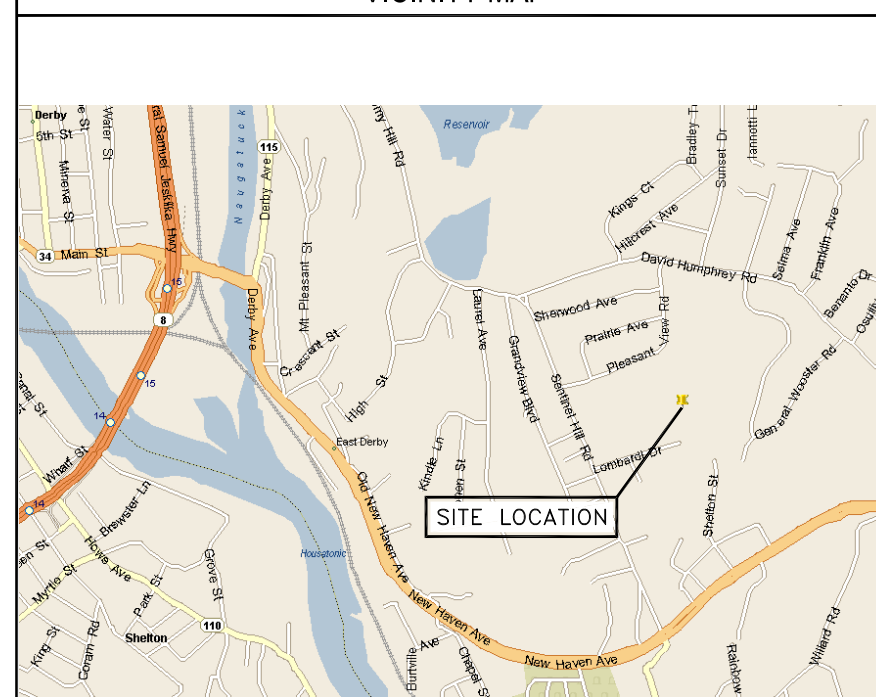
**SITE PHOTO**



**DIRECTIONS**

**DIRECTIONS FROM BRADLEY INTERNATIONAL AIRPORT:**  
HEAD NORTH TOWARD BRADLEY INTERNATIONAL AIRPORT. SLIGHT LEFT ONTO BRADLEY INTERNATIONAL AIRPORT. CONTINUE STRAIGHT. CONTINUE ONTO BRADLEY INTERNATIONAL AIRPORT CON. CONTINUE ONTO CT-20 E/ BRADLEY INTERNATIONAL AIRPORT CON. TAKE THE EXIT ONTO I-91 S TOWARD HARTFORD. KEEP RIGHT TO STAY ON I-91 S. TAKE EXIT 17 TO MERGE ONTO CT-15 S. TAKE EXIT 58 TO MERGE ONTO CT-34 W/DERBY AVE/ DERBY TURNPIKE TOWARD DERBY. MERGE ONTO CT-34 W/DERBY AVE/DERBY TURNPIKE. TURN RIGHT ONTO SENTINEL HILL RD. TURN RIGHT AT TURNER AVE TOWARD ST JUDE CHURCH. DESTINATION WILL BE ON THE RIGHT. ARRIVE AT BOHVN00049A.

**VICINITY MAP**



NO SCALE



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



CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

**GENERAL NOTES**

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

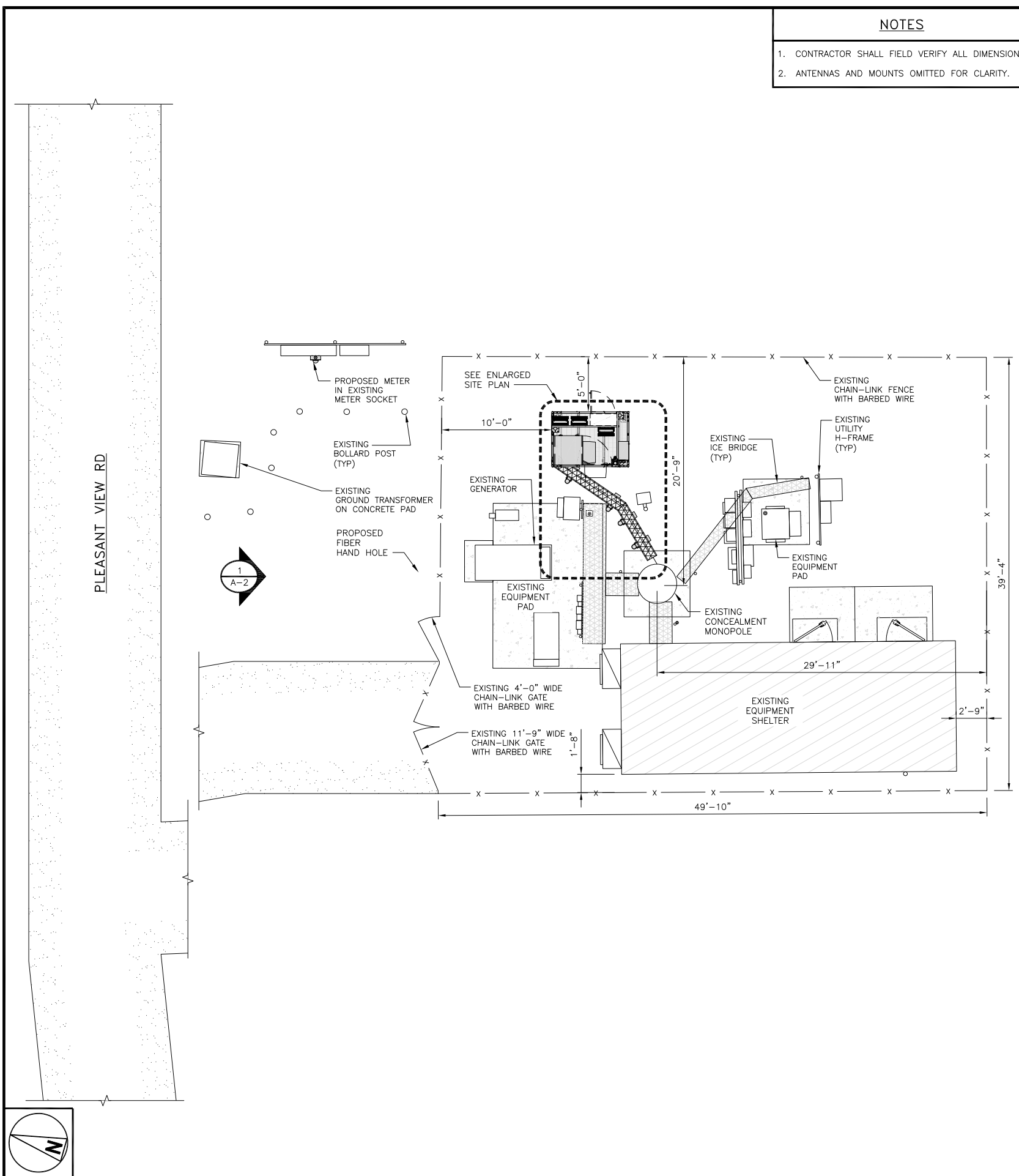
**11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED**

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

**SHEET INDEX**

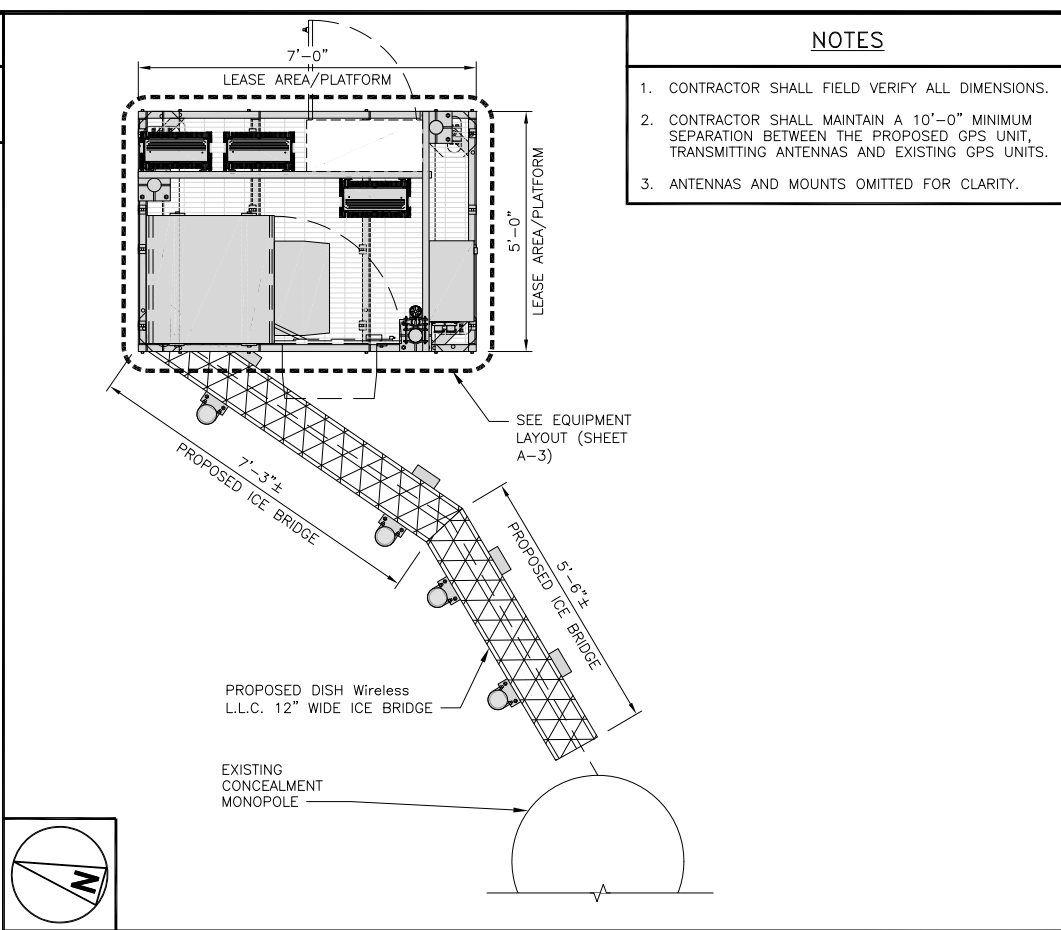
SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
A-1	OVERALL AND ENLARGED SITE PLAN
A-2	ELEVATION, ANTENNA LAYOUT AND SCHEDULE
A-3	EQUIPMENT PLATFORM AND H-FRAME DETAILS
A-4	EQUIPMENT DETAILS
A-5	EQUIPMENT DETAILS
A-6	EQUIPMENT DETAILS
E-1	ELECTRICAL/FIBER ROUTE PLAN AND NOTES
E-2	ELECTRICAL DETAILS
E-3	ELECTRICAL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





**NOTES**

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



**NOTES**

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

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



**NOT USED** NO SCALE 3

**dish wireless.**

5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120

**SBA**

8051 CONGRESS AVENUE  
BOCA RATON, FL 33487

**B+T GRP**

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

STATE OF CONNECTICUT  
CHAD STILLE  
No. 23924  
LICENSED PROFESSIONAL ENGINEER  
5/12/22

B&T ENGINEERING, INC.  
PEC.0001564  
Expires 2/10/22

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DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	RMC	BLJ

RFDS REV #: 4

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
A	11/24/21	ISSUED FOR REVIEW
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A&E PROJECT NUMBER  
**149474.001.01**

DISH Wireless L.L.C.  
PROJECT INFORMATION

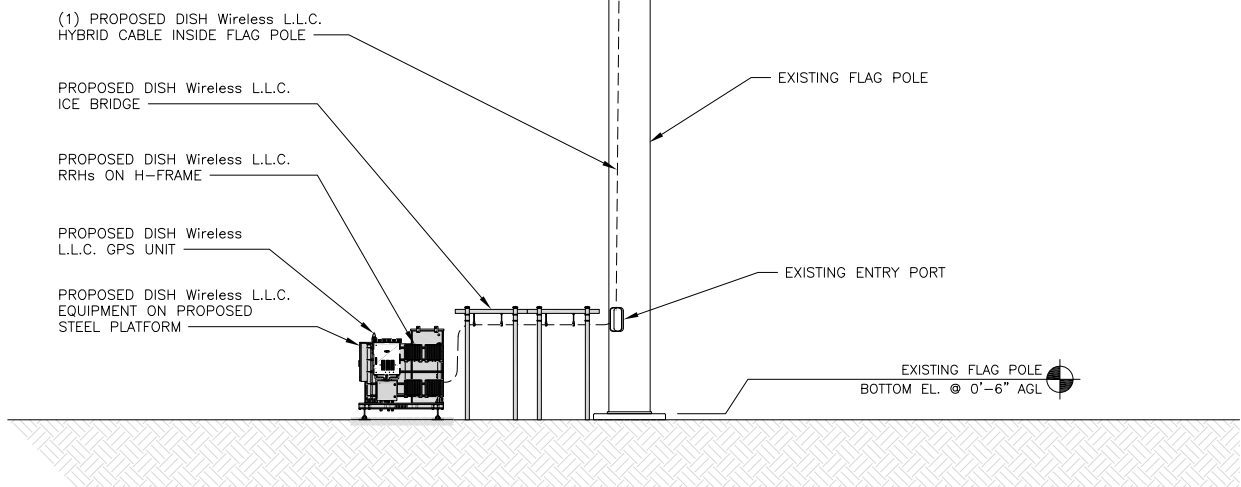
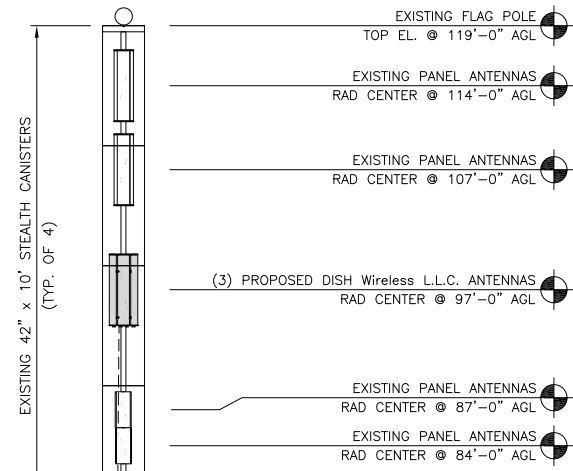
**BOHVN00049A**  
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SHEET TITLE  
**OVERALL AND ENLARGED SITE PLAN**

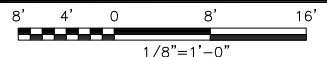
SHEET NUMBER  
**A-1**

**NOTES**

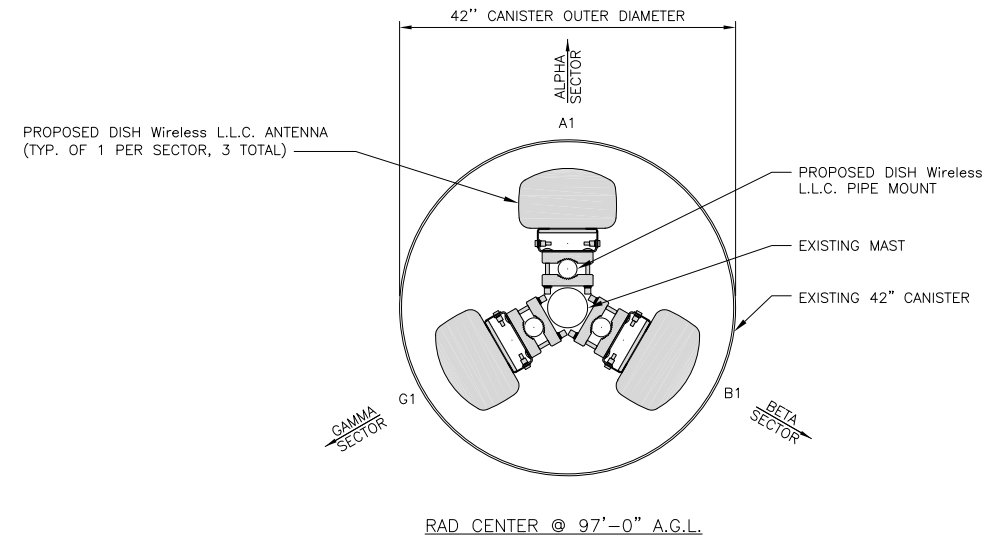
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



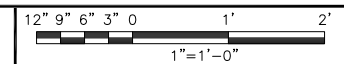
**PROPOSED NORTH ELEVATION**



1



**ANTENNA LAYOUT**



2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	
ALPHA	A1	PROPOSED	COMMSCOPE - FFV-65B-R3	5G	72.0" x 25.2"	0°	97'-0"	(1) HIGH-CAPACITY HYBRID CABLE (135' LONG)
BETA	B1	PROPOSED	COMMSCOPE - FFV-65B-R3	5G	72.0" x 25.2"	120°	97'-0"	
GAMMA	G1	PROPOSED	COMMSCOPE - FFV-65B-R3	5G	72.0" x 25.2"	240°	97'-0"	

SECTOR	POSITION	RRH		NOTES
		MANUFACTURER - MODEL NUMBER	TECHNOLOGY	
ALPHA	CABINET	FUJITSU - TA08025-B605	5G	1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS. 2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.
	CABINET	FUJITSU - TA08025-B604	5G	
BETA	CABINET	FUJITSU - TA08025-B605	5G	
	CABINET	FUJITSU - TA08025-B604	5G	
GAMMA	CABINET	FUJITSU - TA08025-B605	5G	
	CABINET	FUJITSU - TA08025-B604	5G	

**ANTENNA SCHEDULE**

NO SCALE

3



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



8051 CONGRESS AVENUE  
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**CONSTRUCTION DOCUMENTS**

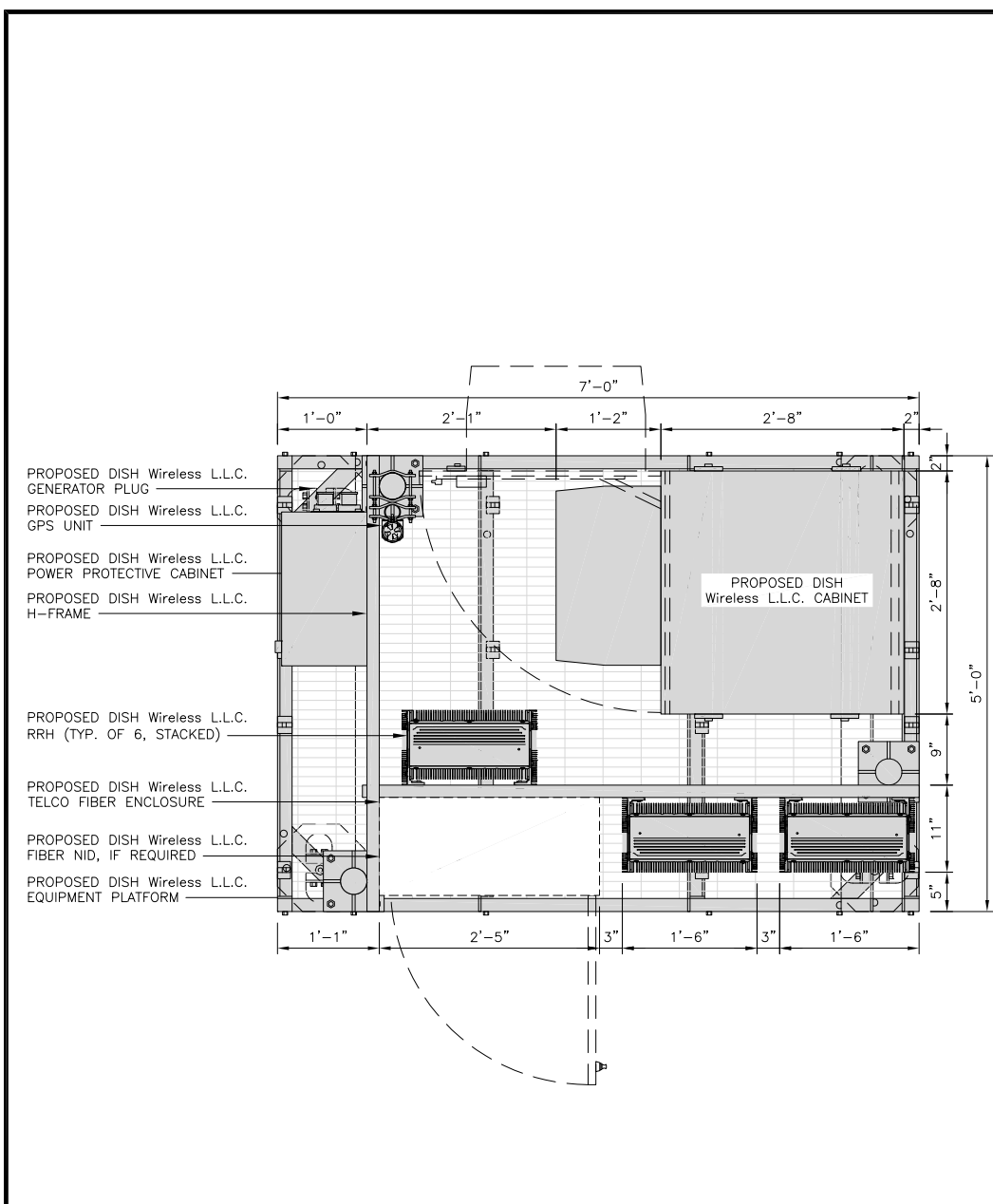
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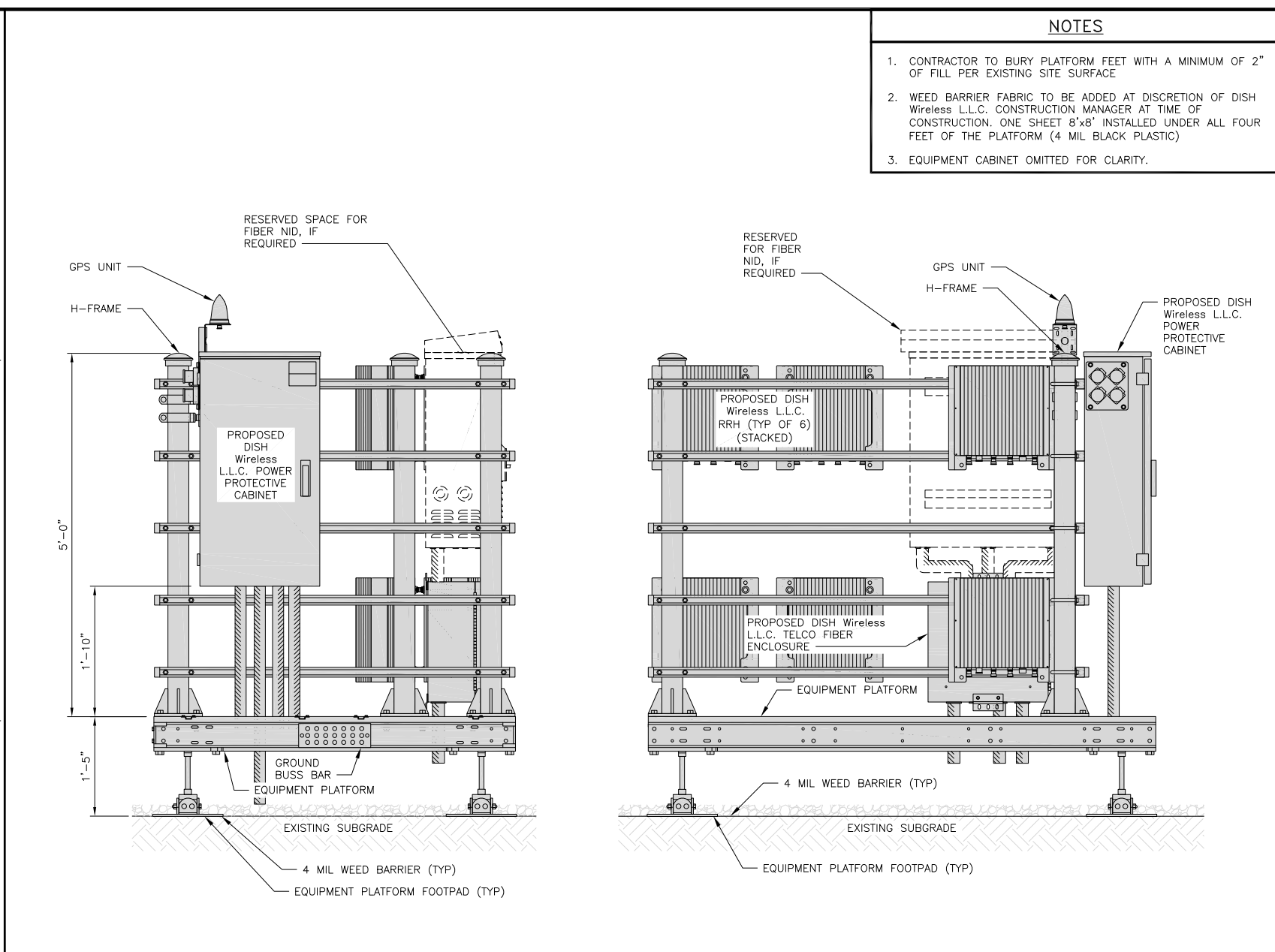
SHEET TITLE  
**ELEVATION, ANTENNA LAYOUT AND SCHEDULE**

SHEET NUMBER  
**A-2**



PLATFORM EQUIPMENT PLAN

NO SCALE 1

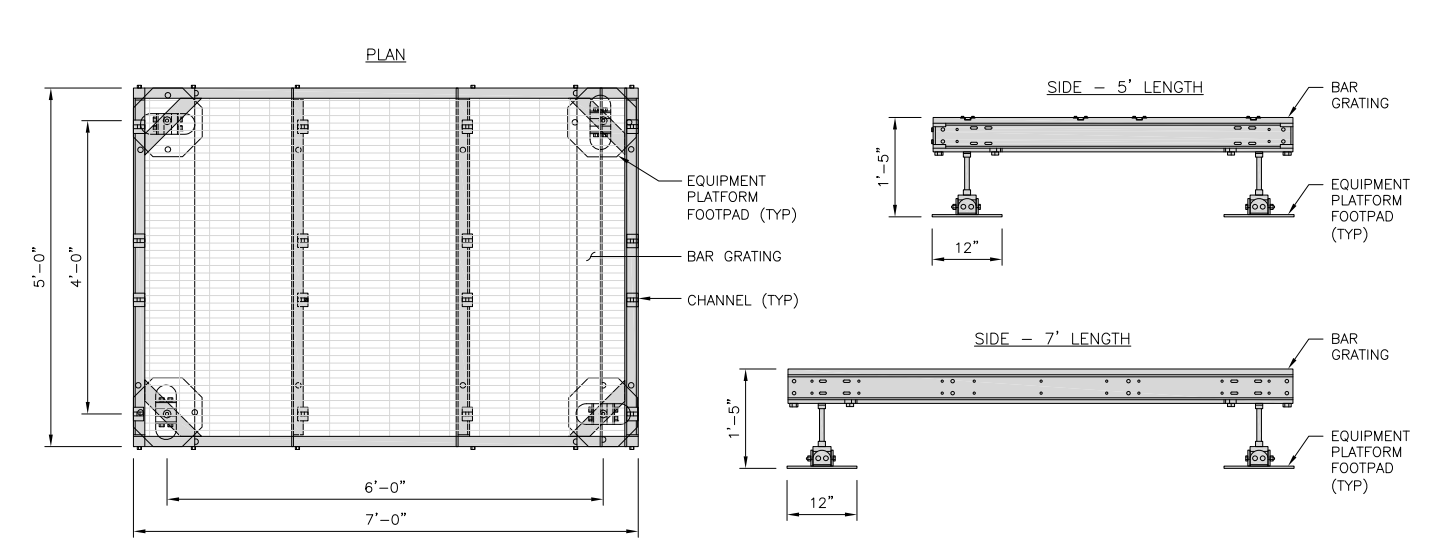


H-FRAME EQUIPMENT ELEVATION

NO SCALE 2

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

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

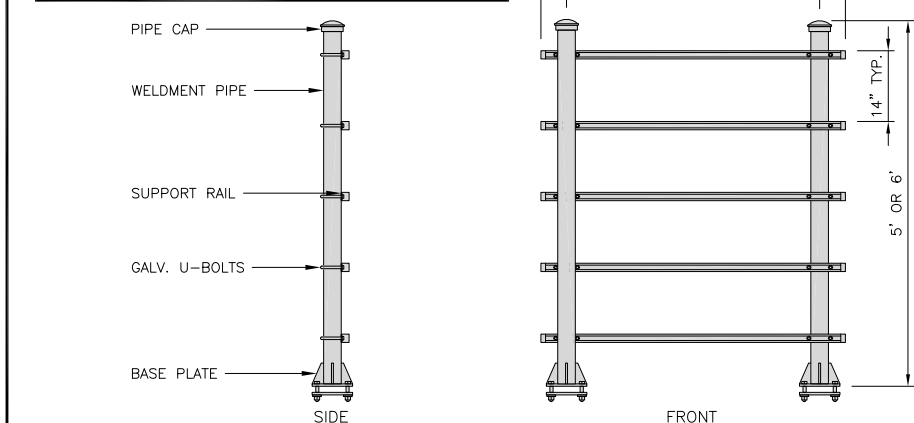


PLATFORM DETAIL

NO SCALE 3

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

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



H-FRAME DETAIL

NO SCALE 4

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



5701 SOUTH SANTA FE DRIVE  
LITTLETON, CO 80120



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BOCA RATON, FL 33487



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1	5/12/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
**149474.001.01**

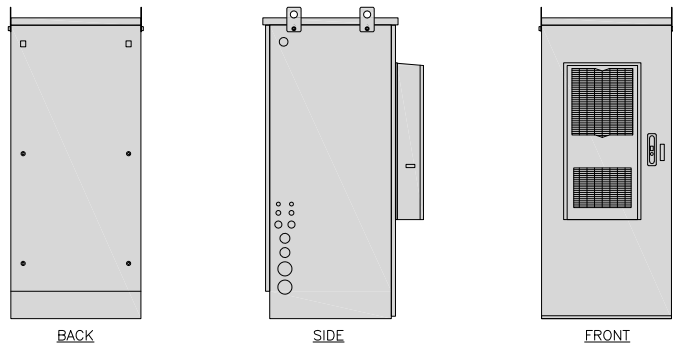
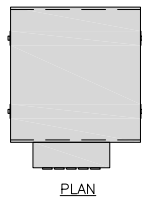
DISH Wireless L.L.C. PROJECT INFORMATION  
**BOHVN00049A**  
71 PLEASANT VIEW ROAD  
DERBY, CT 06418

SHEET TITLE  
**EQUIPMENT PLATFORM AND H-FRAME DETAILS**

SHEET NUMBER  
**A-3**



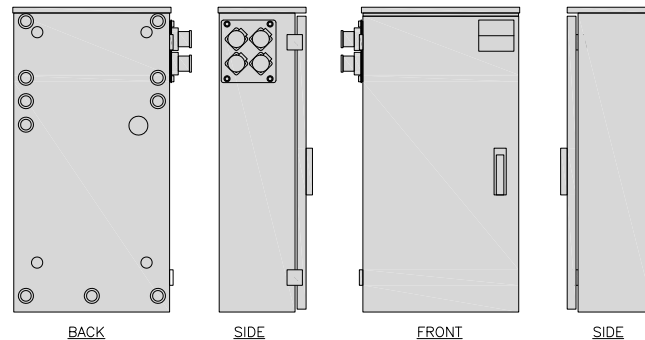
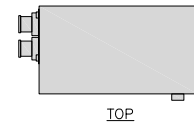
CHARLES INDUSTRY HVAC CUBE-PM63915IN4	
DIMENSIONS (HxWxD)	74"x32"x32"
POWER PLANT	-48VDC ABB/600W
TOTAL WEIGHT (EMPTY)	383 lbs



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



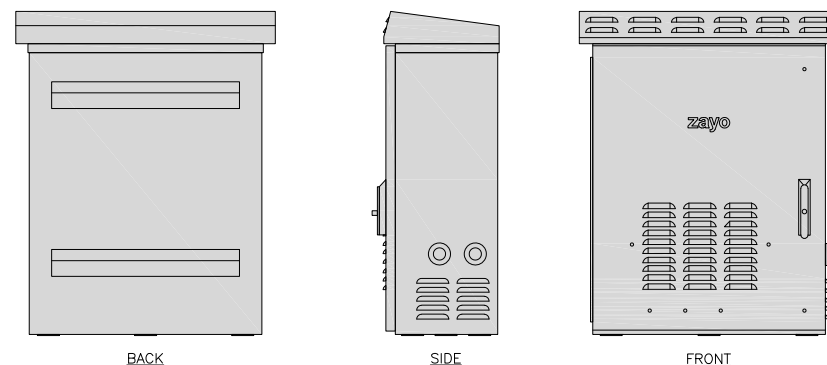
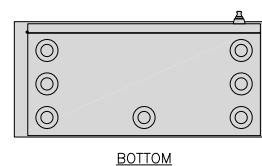
POWER PROTECTION CABINET (PPC) DETAIL

NO SCALE 2

NOT USED

NO SCALE 3

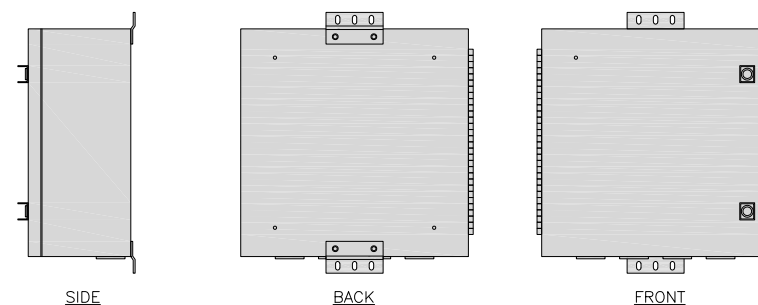
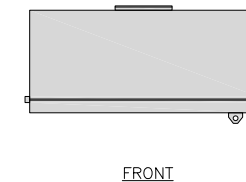
ZAYO 5RU (LEFT SWING DOOR) FIBER NID ENCLOSURE	
DIMENSIONS (HxWxD)	36.1"x29"x12.9"
WEIGHT	85 lbs



FIBER NID ENCLOSURE DETAIL

NO SCALE 5

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

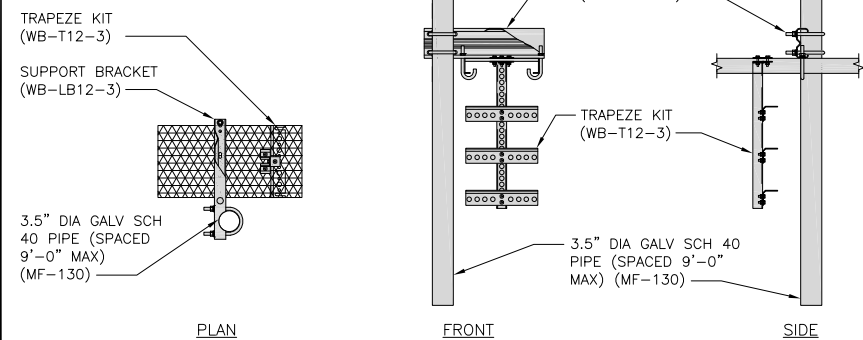


FIBER TELCO ENCLOSURE DETAIL

NO SCALE 6

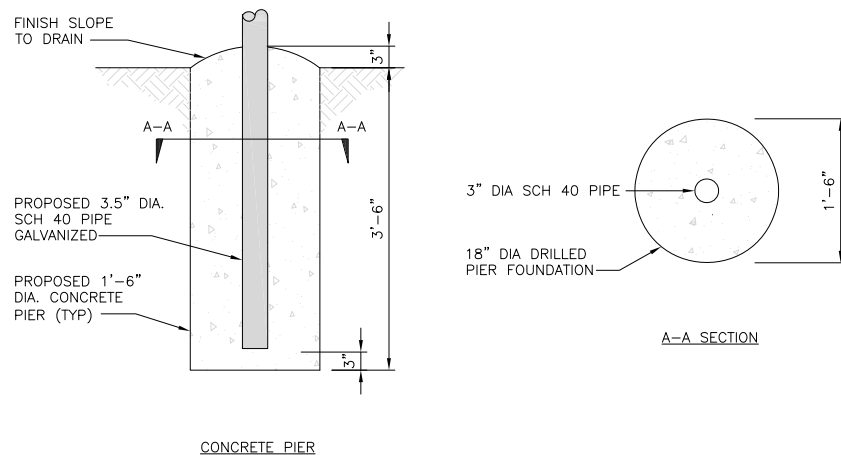
COMMSCOPE WB-K110-B WAVEGUIDE BRIDGE KIT	
DIMENSIONS (HxL)	160"x10'
WEIGHT/ VOLUME	325.0 LBS
CABLE RUN (QTY)	12

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



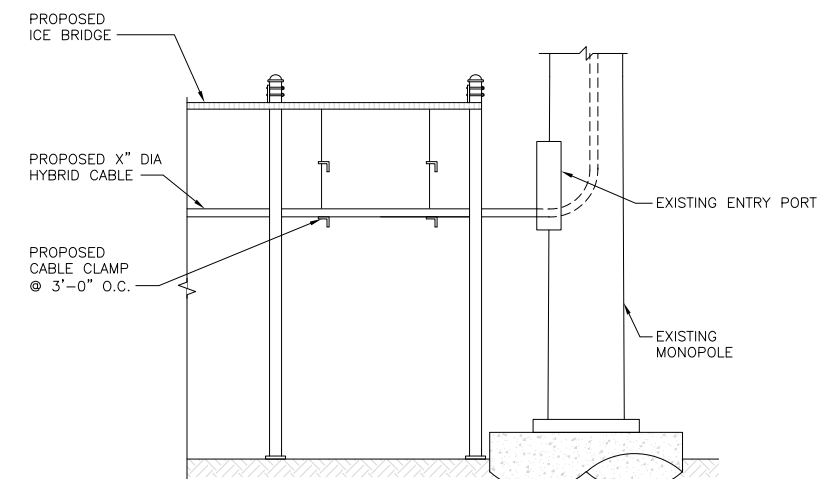
ICE BRIDGE DETAIL

NO SCALE 7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL

NO SCALE 8



HYBRID CABLE RUN

NO SCALE 9

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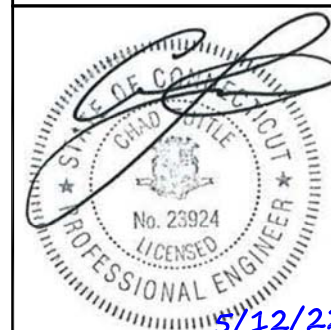
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APPROVED BY: BLJ

RFDS REV #: 4

CONSTRUCTION DOCUMENTS

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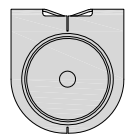
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SHEET TITLE  
EQUIPMENT DETAILS

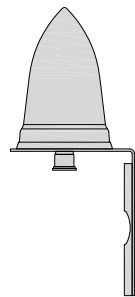
SHEET NUMBER

**A-4**

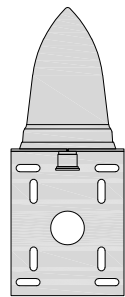
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



TOP



BACK

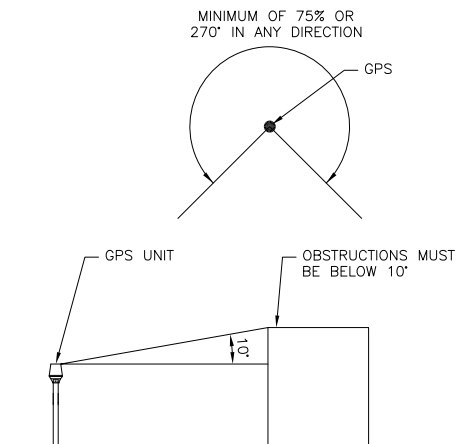


SIDE

GPS DETAIL

NO SCALE

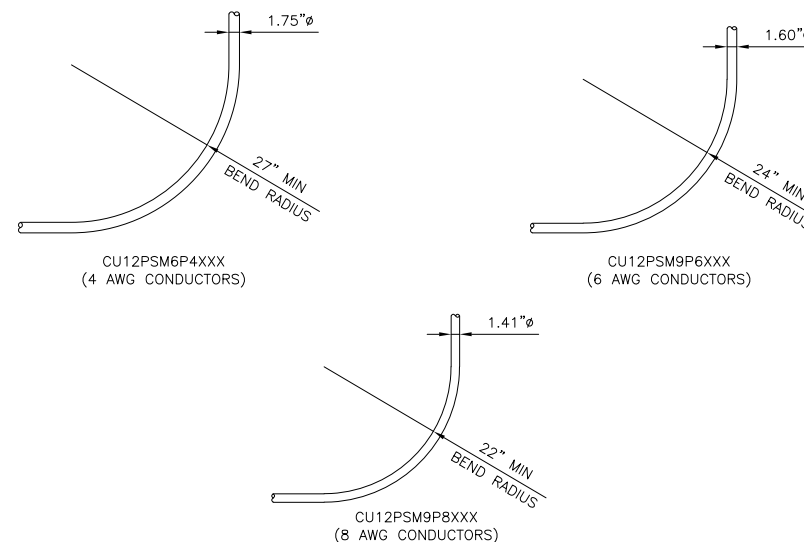
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GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE

2



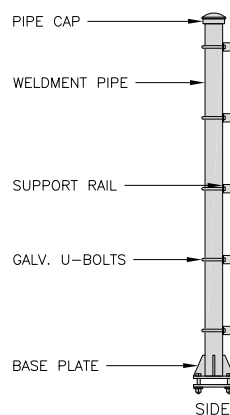
CABLES UNLIMITED HYBRID CABLE  
MINIMUM BEND RADIUSES

NO SCALE

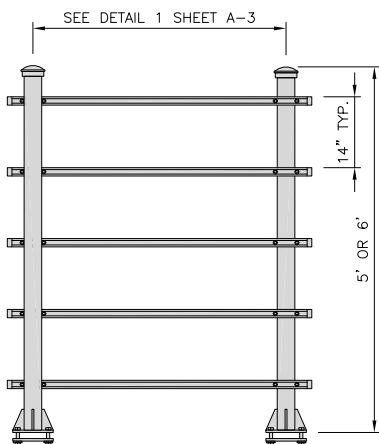
3

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

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



SIDE



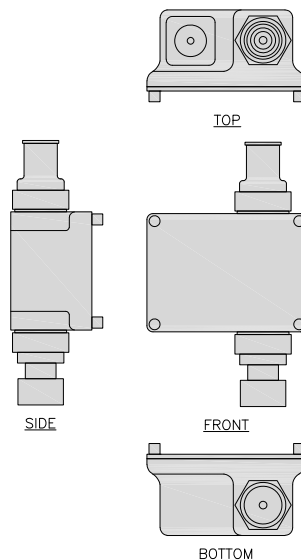
FRONT

H-FRAME DETAIL

NO SCALE

4

KAELUS SMART BIAS TEE SBT0003F1V1 (BOTTOM OF TOWER)	
DIMENSIONS (HxWxD)	5.41"x3.27"x1.88"
WEIGHT	0.88 lbs
RF TO RF+AISG	
PASSBAND	555-3800 MHz
INSERTION LOSS	0.1dB MAX
RETURN LOSS	20dB MIN
MAX INPUT POWER	750W CW/5kW PEP
INTERMODULATION PRODUCTS	-160dBc(IM3)MAX @ 2x20W CW CARRIERS
RF IMPEDANCE	50 Ohms



SMART BIAS TEE DETAIL

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9

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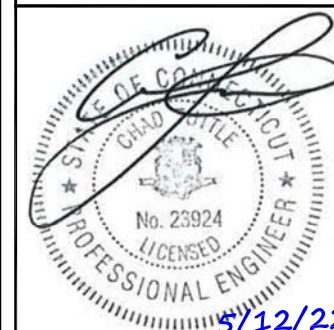
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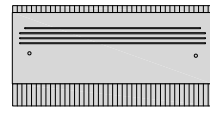
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SHEET TITLE  
EQUIPMENT DETAILS

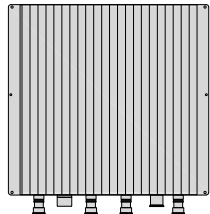
SHEET NUMBER

**A-5**

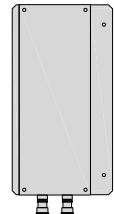
FUJITSU DUAL BAND TA08025-B604	
DIMENSIONS (HxWxD)	14.9"x15.7"x7.8"
WEIGHT	63.9 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



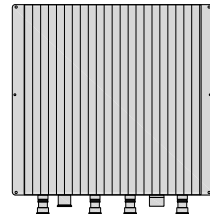
PLAN



BACK



SIDE



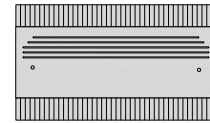
FRONT

RRH DETAIL

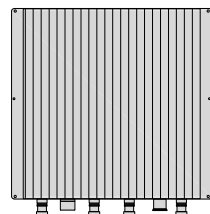
NO SCALE

1

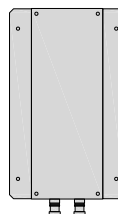
FUJITSU TRIPLE BAND TA08025-B605	
DIMENSIONS (HxWxD)	14.9"x15.7"x9"
WEIGHT	74.95 lbs
CONNECTOR TYPE	4.3-10 RF CONNECTOR
POWER SUPPLY	DC -58~-36V



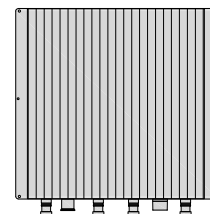
PLAN



BACK



SIDE

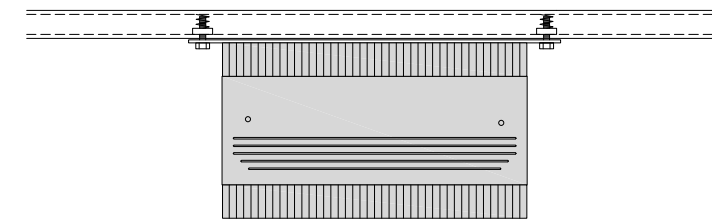


FRONT

RRH DETAIL

NO SCALE

2



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

RRH UNISTRUT MOUNT DETAIL

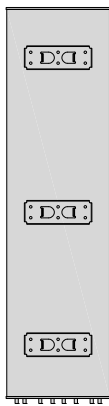
NO SCALE

3

COMMSCOPE FFV-65B-R3-V1	
DIMENSIONS (HxWxD)(MM/IN)	1828x640x235 72.0"x25.2"x9.3"
RF CONNECTOR INTERFACE	4.3-10 FEMALE
WEIGHT	100.310 lbs
WEIGHT WITH BRACKETS	159.173 lbs



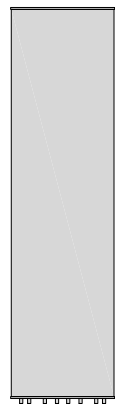
PLAN



BACK



SIDE



FRONT

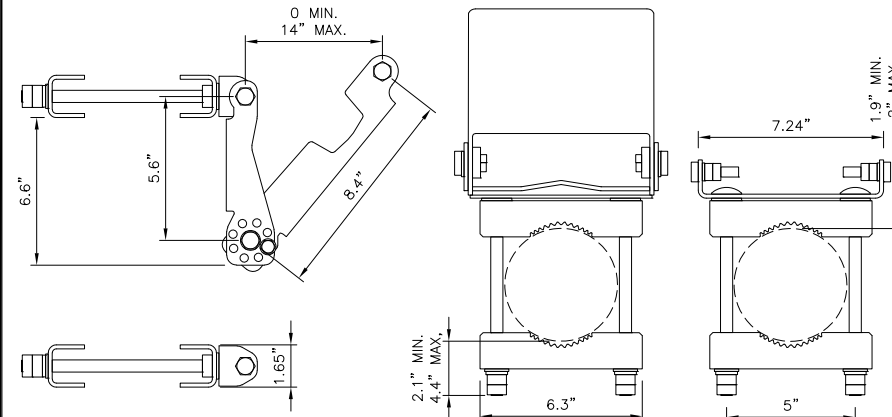
ANTENNA DETAIL

NO SCALE

4

COMMSCOPE ANTENNA BRACKET BSAMNT-3	
DIAMETER COMPATIBILITY	2.362" - 4.528"
NET WEIGHT	13.669 lbs

NOTE:  
OR DISH Wireless L.L.C.  
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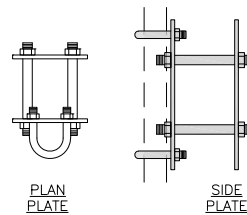
ANTENNA BRACKET DETAIL

NO SCALE

6

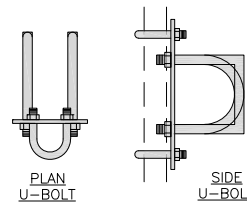
COMMSCOPE XP-2040 CROSSOVER PLATE	
DIMENSIONS (HxW)	10"x12"
WEIGHT	11 lbs

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



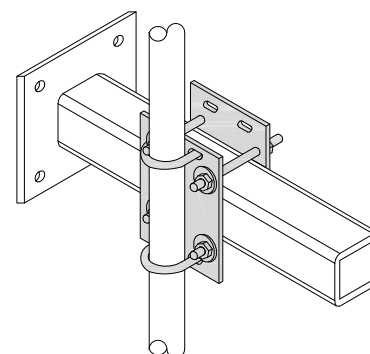
PLAN PLATE

SIDE PLATE



PLAN U-BOLT

SIDE U-BOLT

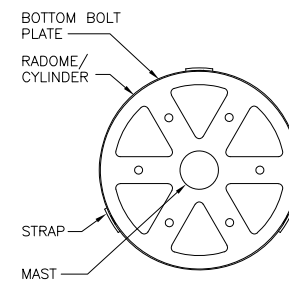


RRH/OVP MOUNT DETAIL

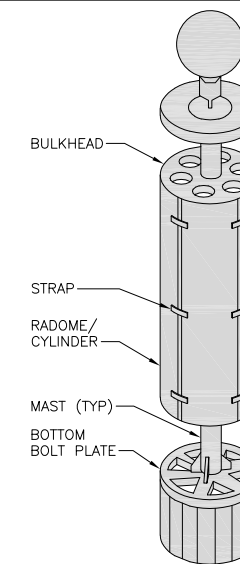
NO SCALE

8

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

RADOME CANISTER DETAIL

NO SCALE

9

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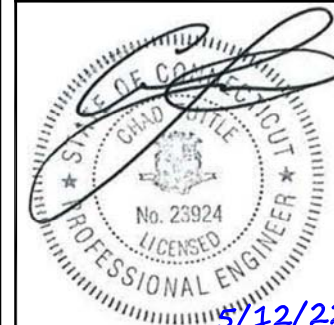
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SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER

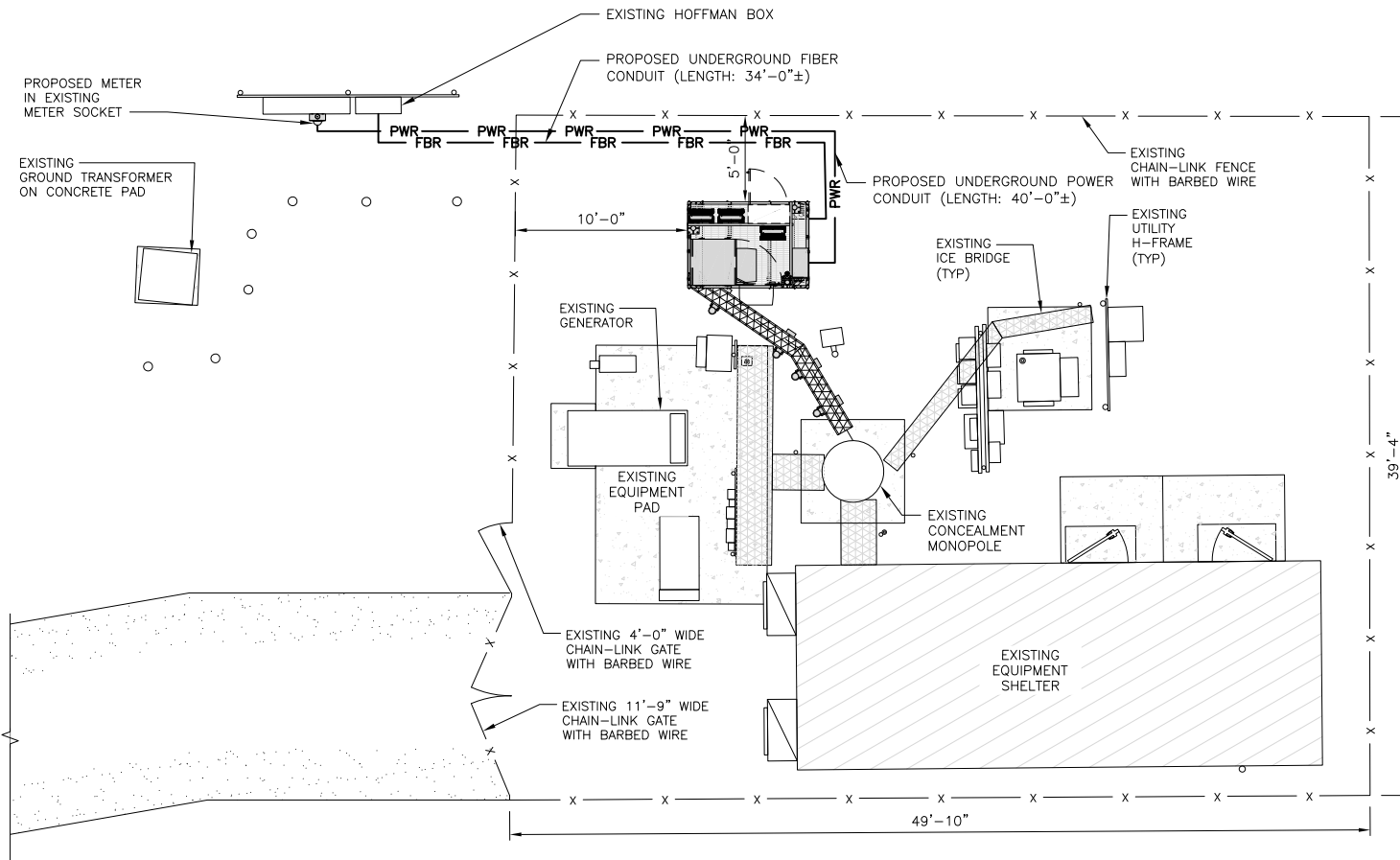
**A-6**

**NOTES**

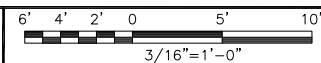
1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. THE GROUND LEASE PROVIDES BROAD/BLANKET UTILITY RIGHTS. "PWR" AND "FBR" PATH DEPICTED ON A-1 AND E-1 ARE BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO FIELD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

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

1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
2. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL STATE AND LOCAL CODES, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC STANDARDS.
3. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.
4. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH THE MECHANICAL EQUIPMENT CONTRACTOR AND COMPLY AS REQUIRED.
5. CONTRACTOR SHALL PROVIDE ALL BREAKERS, CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETE SYSTEM.
6. CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED BY THE NEC ARTICLE 314.
7. CONTRACTOR SHALL PROVIDE ALL STRAIN RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
8. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES INDICATING EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM.
9. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC 250. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, AND EQUIPMENT CABINETS.
10. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
11. PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.
13. ALL TRENCHES IN COMPOUND TO BE HAND DUG



UTILITY ROUTE PLAN



1

ELECTRICAL NOTES

NO SCALE

2



5701 SOUTH SANTA FE DRIVE  
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DERBY, CT 06418

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ELECTRICAL/FIBER ROUTE  
PLAN AND NOTES

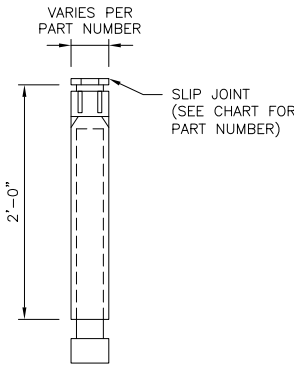
SHEET NUMBER

E-1



**CARLON EXPANSION FITTINGS**

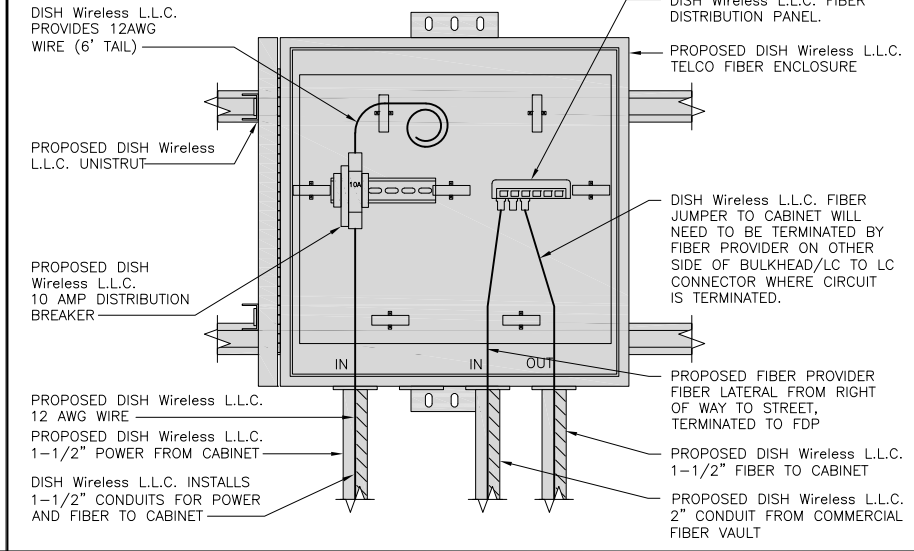
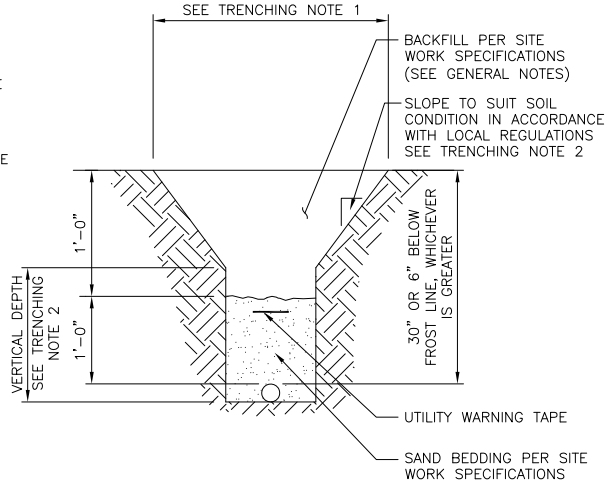
COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"
E945M	E945MX	3 1/2"	5	8"
E945N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

**TRENCHING NOTES**

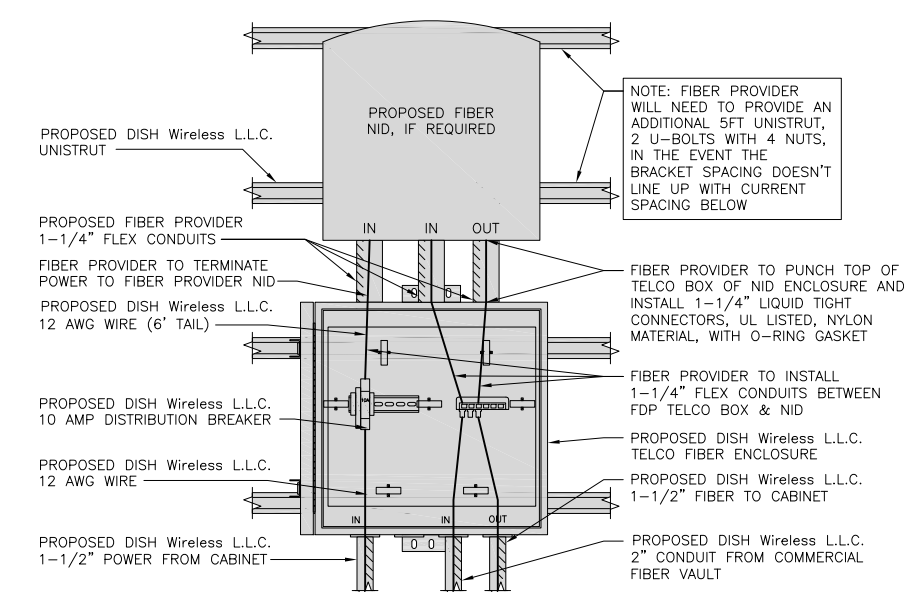
- CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
- TRENCHING SAFETY; INCLUDING, BUT NOT LIMITED TO SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT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



EXPANSION JOINT DETAIL NO SCALE 1

TYPICAL UNDERGROUND TRENCH DETAIL NO SCALE 2

DARK TELCO BOX – INTERIOR WIRING LAYOUT NO SCALE 3



NOT USED

NOT USED

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

NOT USED NO SCALE 5

NOT USED NO SCALE 6

NOT USED

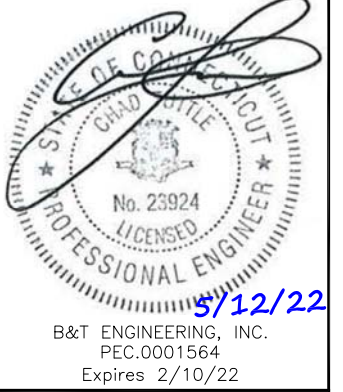
NOT USED

NOT USED

NOT USED NO SCALE 7

NOT USED NO SCALE 8

NOT USED NO SCALE 9



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NGN	RMC	BLJ
RFDS REV #:	4	

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A&E PROJECT NUMBER  
**149474.001.01**

DISH Wireless L.L.C.  
PROJECT INFORMATION  
**BOHVN00049A**  
71 PLEASANT VIEW ROAD  
DERBY, CT 06418

SHEET TITLE  
**ELECTRICAL DETAILS**

SHEET NUMBER  
**E-2**





8051 CONGRESS AVENUE  
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5/12/22

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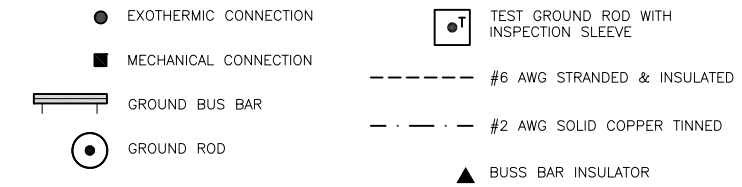
DISH Wireless L.L.C.  
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BOHVN00049A  
71 PLEASANT VIEW ROAD  
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SHEET TITLE  
GROUNDING PLANS  
AND NOTES

SHEET NUMBER

G-1



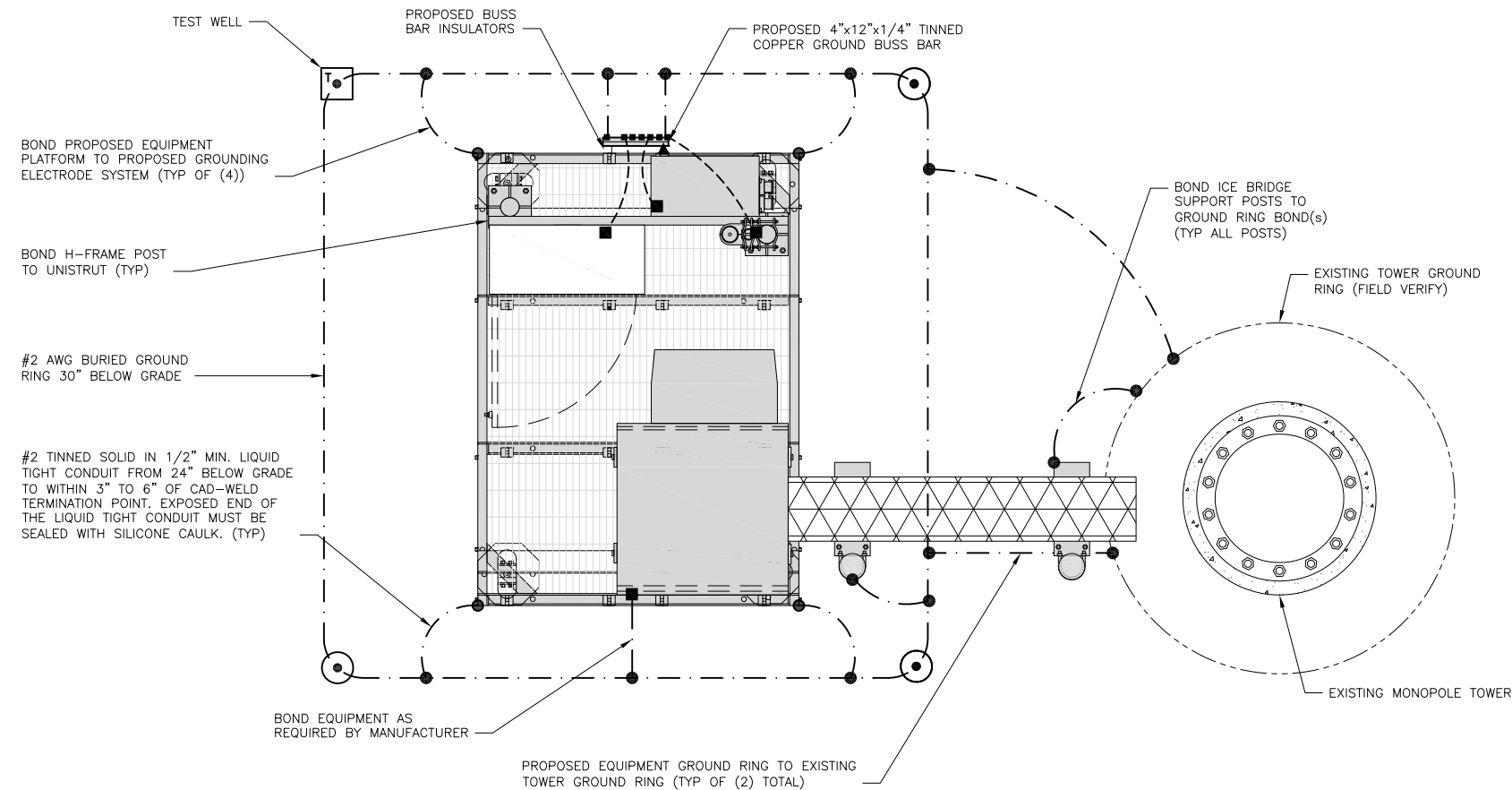
### GROUNDING LEGEND

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

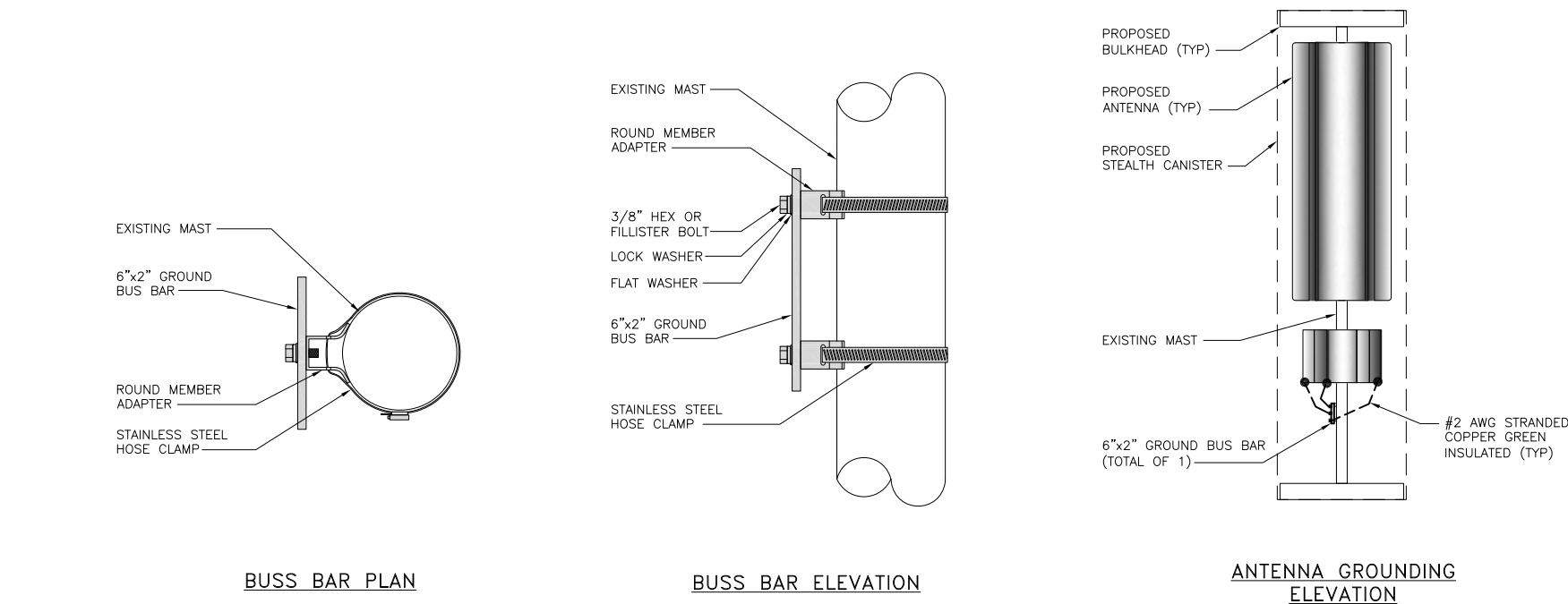
- EXTERIOR GROUND RING:** #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.
- TOWER GROUND RING:** THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY 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.
- 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.
- 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.
- GROUND ROD:** UL LISTED COPPER CLAD STEEL. MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.
- 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.
- 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.
- 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.
- TELCO GROUND BAR:** BOND TO BOTH CELL REFERENCE GROUND BAR AND EXTERIOR GROUND RING.
- FRAME BONDING:** THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.
- 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.
- 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.
- 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
- 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.
- 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**
- TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT.**

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



TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1



TYPICAL ANTENNA GROUNDING DETAIL

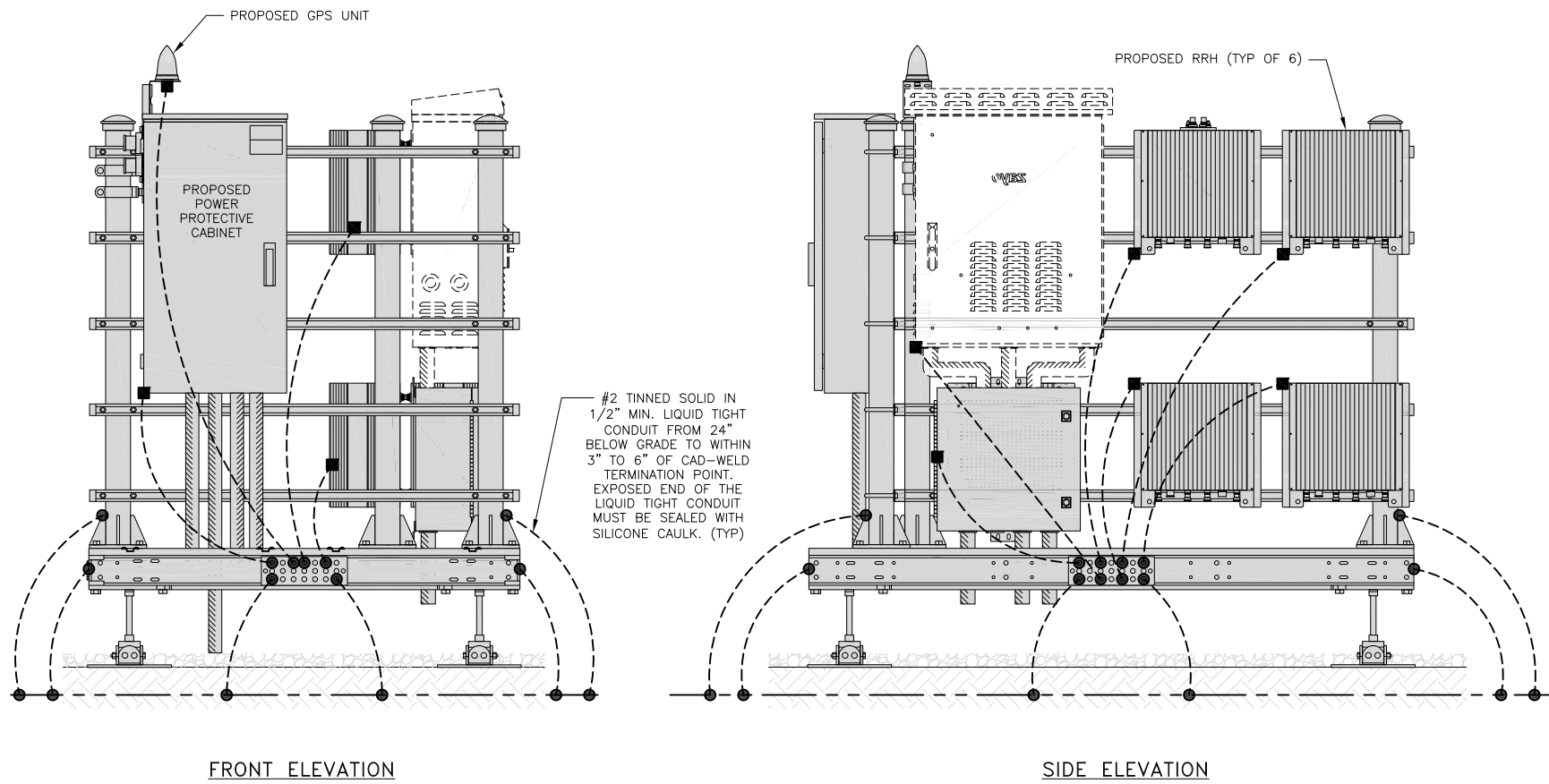
NO SCALE 2

### GROUNDING KEY NOTES

NO SCALE 3



NOTES  
EQUIPMENT CABINET OMITTED FOR CLARITY



**dish**  
wireless.

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APPROVED BY: BLJ

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DISH Wireless L.L.C.  
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**BOHVN00049A**  
71 PLEASANT VIEW ROAD  
DERBY, CT 06418

SHEET TITLE  
**GROUNDING DETAILS**

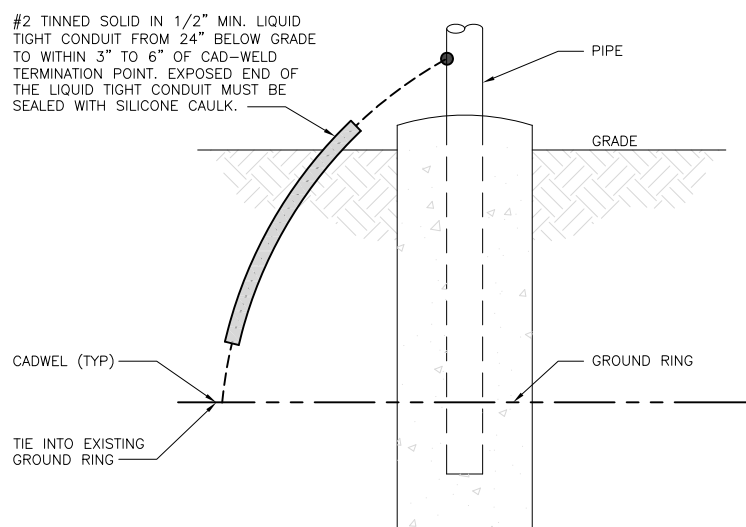
SHEET NUMBER  
**G-2**

NOT USED

NO SCALE 1

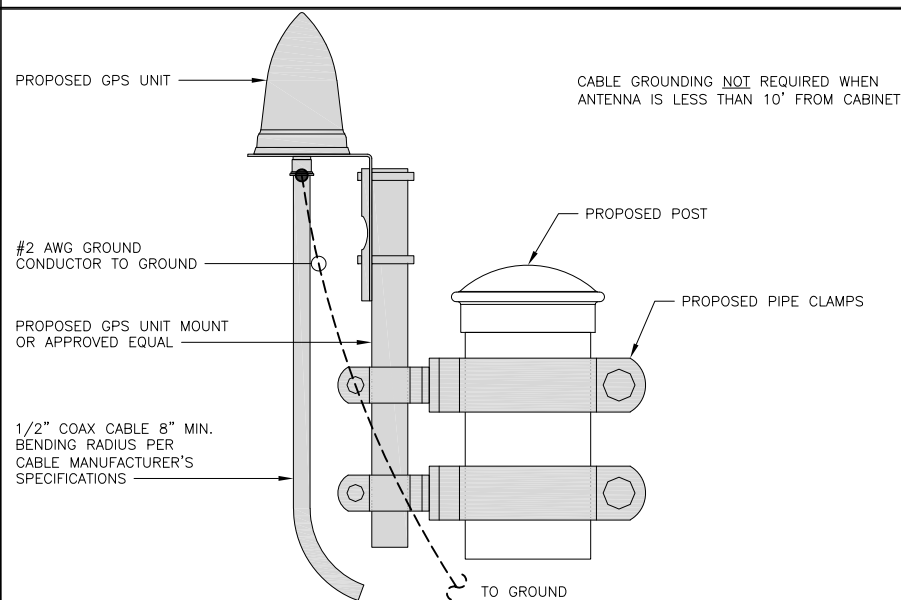
H-FRAME GROUNDING DETAIL

NO SCALE 4



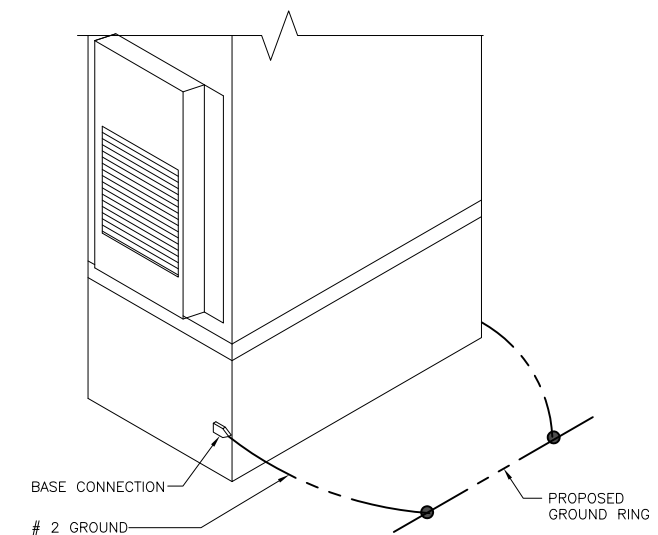
TRANSITIONING GROUND DETAIL

NO SCALE 5



TYPICAL GPS UNIT GROUNDING

NO SCALE 6

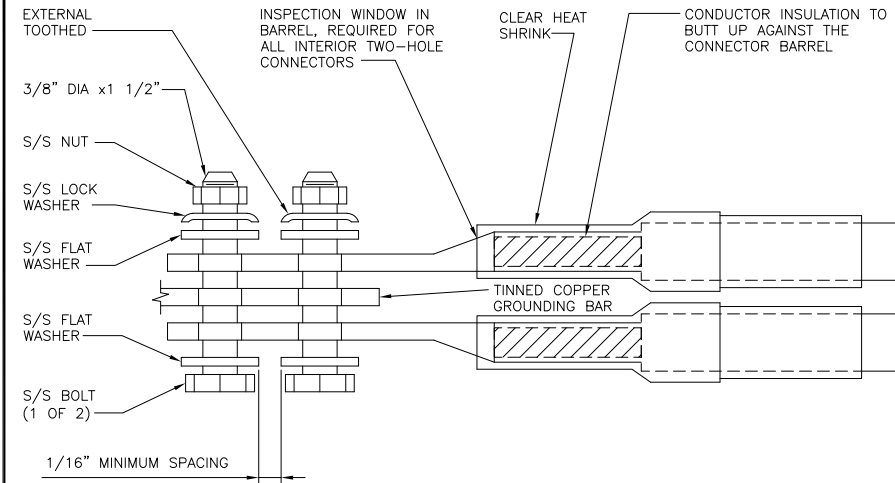
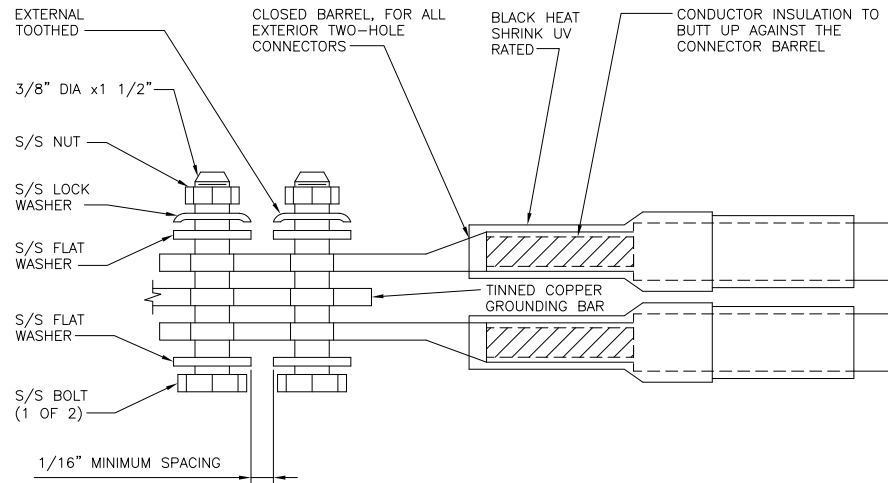


OUTDOOR CABINET GROUNDING

NO SCALE 7



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



TYPICAL GROUNDING NOTES

NO SCALE

1

TYPICAL EXTERIOR TWO HOLE LUG

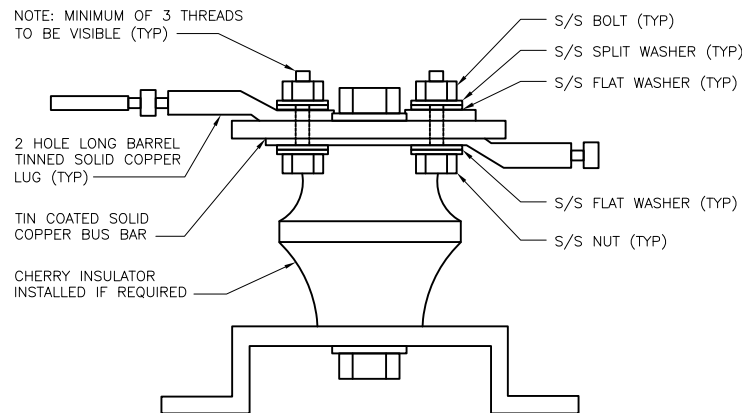
NO SCALE

2

TYPICAL INTERIOR TWO HOLE LUG

NO SCALE

3



LUG DETAIL

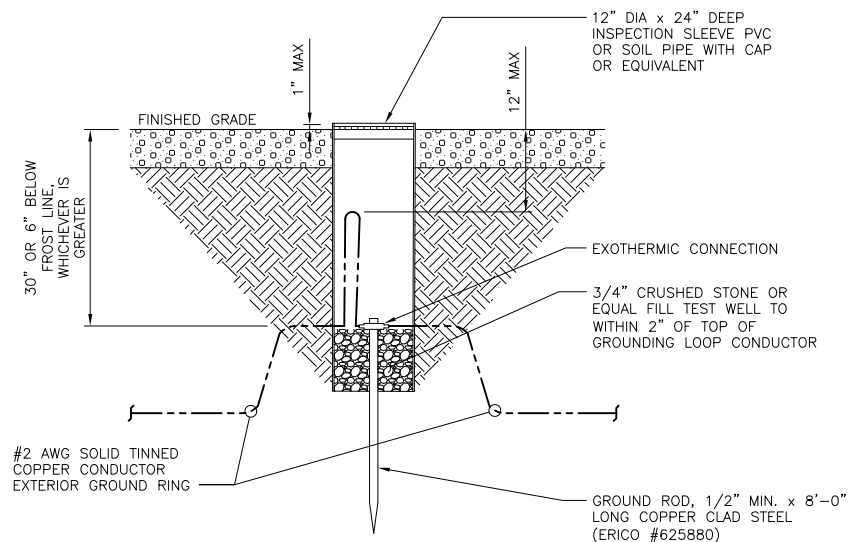
NO SCALE

4

TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE

NO SCALE

5



NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9



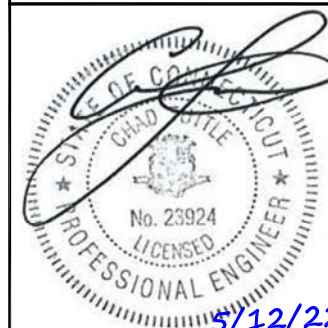
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DISH Wireless L.L.C.  
PROJECT INFORMATION  
BOHVN00049A  
71 PLEASANT VIEW ROAD  
DERBY, CT 06418

SHEET TITLE  
GROUNDING DETAILS

SHEET NUMBER

G-3

HYBRID/DISCREET CABLES												3/4" TAPE WIDTHS WITH 3/4" SPACING																																			
<p>LOW-BAND RRH (600 MHz N71 BASEBAND) + (850 MHz N26 BAND) + (700 MHz N29 BAND) - OPTIONAL PER MARKET</p> <p>ADD FREQUENCY COLOR TO SECTOR BAND (CBRS WILL USE YELLOW BAND)</p>												<b>ALPHA RRH</b>			<b>BETA RRH</b>				<b>GAMMA RRH</b>																												
PORT 1 + SLANT		PORT 2 - SLANT		PORT 3 + SLANT		PORT 4 - SLANT		PORT 1 + SLANT		PORT 2 - SLANT		PORT 3 + SLANT		PORT 4 - SLANT		PORT 1 + SLANT		PORT 2 - SLANT		PORT 3 + SLANT																											
RED		RED		RED		RED		BLUE		BLUE		BLUE		BLUE		GREEN		GREEN		GREEN																											
ORANGE		ORANGE		ORANGE		ORANGE		ORANGE		ORANGE		ORANGE		ORANGE		ORANGE		ORANGE		ORANGE																											
(-) WHITE PORT		(-) WHITE PORT		ORANGE		ORANGE		(-) WHITE PORT		(-) WHITE PORT		ORANGE		ORANGE		(-) WHITE PORT		ORANGE		ORANGE																											
(-) WHITE PORT		(-) WHITE PORT		(-) WHITE PORT		(-) WHITE PORT		(-) WHITE PORT		(-) WHITE PORT		(-) WHITE PORT		(-) WHITE PORT		(-) WHITE PORT		(-) WHITE PORT		(-) WHITE PORT																											
<p>MID-BAND RRH (AWS BANDS N66+N70)</p> <p>ADD FREQUENCY COLOR TO SECTOR BAND (CBRS WILL USE YELLOW BANDS)</p>												RED			RED			RED			RED			BLUE			BLUE			BLUE			BLUE			GREEN			GREEN			GREEN			GREEN		
PURPLE			PURPLE			RED			RED			PURPLE			PURPLE			BLUE			BLUE			PURPLE			PURPLE			GREEN			GREEN			GREEN											
(-) WHITE PORT			PURPLE			PURPLE			(-) WHITE PORT			PURPLE			PURPLE			(-) WHITE PORT			PURPLE			PURPLE			(-) WHITE PORT			PURPLE			PURPLE														
(-) WHITE PORT			(-) WHITE PORT			(-) WHITE PORT			(-) WHITE PORT			(-) WHITE PORT			(-) WHITE PORT			(-) WHITE PORT			(-) WHITE PORT			(-) WHITE PORT			(-) WHITE PORT			(-) WHITE PORT			(-) WHITE PORT														

HYBRID/DISCREET CABLES				EXAMPLE 1		EXAMPLE 2		EXAMPLE 3		CANISTER COAX #1 (ALPHA)		CANISTER COAX #2 (ALPHA)	
INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS.				RED		RED		RED		RED		RED	
EXAMPLE 1 - HYBRID, OR DISCREET, SUPPORTS ALL SECTORS, BOTH LOW-BANDS AND MID-BANDS.				BLUE		BLUE		RED		RED		RED	
EXAMPLE 2 - HYBRID, OR DISCREET, SUPPORTS CBRS ONLY, ALL SECTORS.				GREEN		GREEN		RED		RED		RED	
EXAMPLE 3 - MAIN COAX WITH GROUND MOUNTED RRHs.				ORANGE		YELLOW		RED		RED		RED	
				PURPLE									
				(-) WHITE PORT		(-) WHITE PORT		(-) WHITE PORT		(-) WHITE PORT		(-) WHITE PORT	

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

FIBER JUMPERS TO RRHs					
LOW BAND RRH		MID BAND RRH		MID BAND RRH	
RED		RED		RED	
ORANGE		PURPLE		PURPLE	

POWER CABLES TO RRHs					
LOW BAND RRH		MID BAND RRH		MID BAND RRH	
RED		RED		RED	
ORANGE		PURPLE		PURPLE	

RET MOTORS AT ANTENNAS							
ANTENNA 1 MID BAND		ANTENNA 1 LOW BAND		ANTENNA 1 MID BAND		ANTENNA 1 LOW BAND	
IN		IN		IN		IN	
RED		RED		RED		RED	
PURPLE		ORANGE		ORANGE		ORANGE	

MICROWAVE RADIO LINKS					
FORWARD AZIMUTH OF 0-120 DEGREES		FORWARD AZIMUTH OF 120-240 DEGREES		FORWARD AZIMUTH OF 240-359 DEGREES	
PRIMARY	SECONDARY	PRIMARY	SECONDARY	PRIMARY	SECONDARY
WHITE		WHITE		WHITE	
RED		RED		RED	
ORANGE		ORANGE		ORANGE	
ORANGE		ORANGE		ORANGE	
ORANGE		ORANGE		ORANGE	

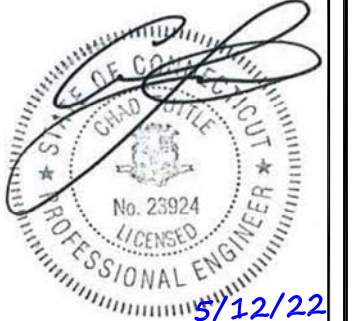
LOW BANDS (N71+N26) OPTIONAL - (N29) <b>ORANGE</b>	AWS (N66+N70+H-BLOCK) <b>PURPLE</b>
CBRS TECH (3 GHz) <b>YELLOW</b>	NEGATIVE SLANT PORT ON ANT/RRH <b>WHITE</b>

ALPHA SECTOR <b>RED</b>	BETA SECTOR <b>BLUE</b>	GAMMA SECTOR <b>GREEN</b>
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COLOR IDENTIFIER	NO SCALE	2
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NOT USED	NO SCALE	3
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RF CABLE COLOR CODES	NO SCALE	1	NOT USED	NO SCALE	4
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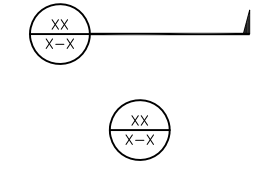
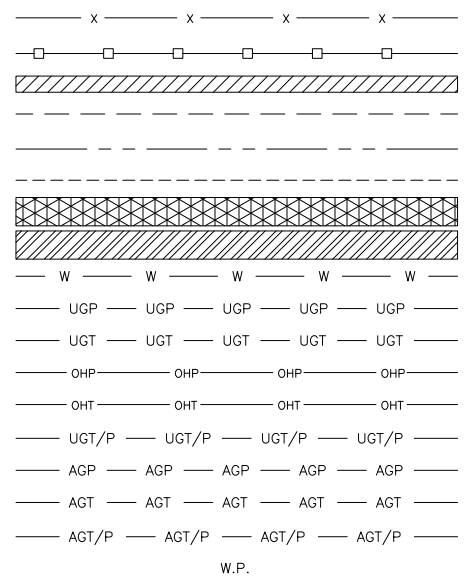
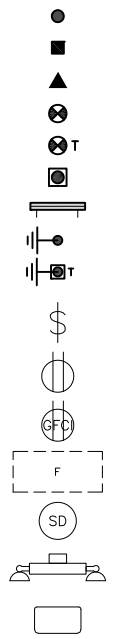
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PROJECT INFORMATION  
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71 PLEASANT VIEW ROAD  
DERBY, CT 06418

SHEET TITLE  
RF  
CABLE COLOR CODE

SHEET NUMBER  
**RF-1**

EXOTHERMIC CONNECTION  
 MECHANICAL CONNECTION  
 BUSS BAR INSULATOR  
 CHEMICAL ELECTROLYTIC GROUNDING SYSTEM  
 TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM  
 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 UNINTERRUPTIBLE POWER SYSTEM (DC POWER PLANT)  
 VIF VERIFIED IN FIELD  
 W WIDE  
 W/ WITH  
 WD WOOD  
 WP WEATHERPROOF  
 WT WEIGHT

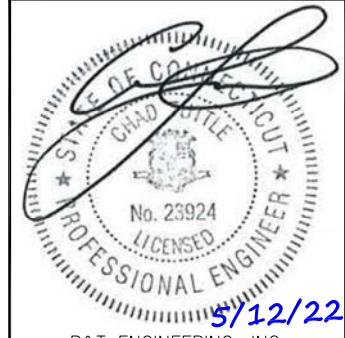
**ABBREVIATIONS**



5701 SOUTH SANTA FE DRIVE  
 LITTLETON, CO 80120



8051 CONGRESS AVENUE  
 BOCA RATON, FL 33487



B&T ENGINEERING, INC.  
 PEC.0001564  
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 TO ALTER THIS DOCUMENT.

DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	RMC	BLJ
RFDS REV #:		4

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
A	11/24/21	ISSUED FOR REVIEW
0	3/24/22	ISSUED FOR CONSTRUCTION
1	5/12/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
**149474.001.01**

DISH Wireless L.L.C.  
 PROJECT INFORMATION  
**BOHVN00049A**  
 71 PLEASANT VIEW ROAD  
 DERBY, CT 06418

SHEET TITLE  
**LEGEND AND ABBREVIATIONS**

SHEET NUMBER  
**GN-1**

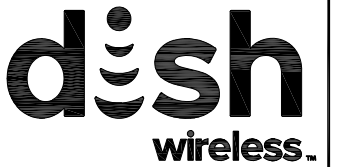


SITE ACTIVITY REQUIREMENTS:

- NOTICE TO PROCEED – NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE DISH Wireless L.L.C. AND TOWER OWNER NOC & THE DISH Wireless L.L.C. AND TOWER OWNER CONSTRUCTION MANAGER.
- "LOOK UP" – DISH Wireless L.L.C. AND TOWER OWNER SAFETY CLIMB REQUIREMENT:  
THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR DISH Wireless L.L.C. AND DISH Wireless L.L.C. AND TOWER OWNER POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
- PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
- ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND DISH Wireless L.L.C. AND TOWER OWNER STANDARDS, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA-322 (LATEST EDITION).
- ALL SITE WORK TO COMPLY WITH DISH Wireless L.L.C. AND TOWER OWNER INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON DISH Wireless L.L.C. AND TOWER OWNER TOWER SITE AND LATEST VERSION OF ANSI/TIA-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
- IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY DISH Wireless L.L.C. AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES INCLUDING PRIVATE LOCATES SERVICES PRIOR TO THE START OF CONSTRUCTION.
- ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
- ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND DISH PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
- CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
- ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF DISH Wireless L.L.C. AND TOWER OWNER, AND/OR LOCAL UTILITIES.
- THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
- THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
- CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
- THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
- CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS AND RADIOS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
- NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

- FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:  
CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION  
CARRIER:DISH Wireless L.L.C.  
TOWER OWNER:TOWER OWNER
- THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
- THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
- NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
- SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
- PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CARRIER POC AND TOWER OWNER.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND TOWER OWNER PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
- CONTRACTOR IS TO PERFORM A SITE INVESTIGATION, BEFORE SUBMITTING BIDS, TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
- THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF DISH Wireless L.L.C. AND TOWER OWNER
- CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
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Expires 2/10/22

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NGN	RMC	BLJ

RFDS REV #: 4

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
A	11/24/21	ISSUED FOR REVIEW
0	3/24/22	ISSUED FOR CONSTRUCTION
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A&E PROJECT NUMBER  
**149474.001.01**

DISH Wireless L.L.C.  
PROJECT INFORMATION  
**BOHVN00049A**  
71 PLEASANT VIEW ROAD  
DERBY, CT 06418

SHEET TITLE  
**GENERAL NOTES**

SHEET NUMBER  
**GN-2**

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

ELECTRICAL INSTALLATION NOTES:

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

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



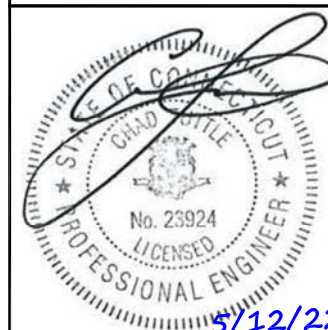
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8051 CONGRESS AVENUE  
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1717 S. BOULDER  
SUITE 300  
TULSA, OK 74119  
PH: (918) 587-4630  
www.btgrp.com



5/12/22

B&T ENGINEERING, INC.  
PEC.0001564  
Expires 2/10/22

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DRAWN BY:	CHECKED BY:	APPROVED BY:
NGN	RMC	BLJ

RFDS REV #: 4

**CONSTRUCTION DOCUMENTS**

SUBMITTALS		
REV	DATE	DESCRIPTION
A	11/24/21	ISSUED FOR REVIEW
0	3/24/22	ISSUED FOR CONSTRUCTION
1	5/12/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER  
**149474.001.01**

DISH Wireless L.L.C.  
PROJECT INFORMATION  
**BOHVN00049A**  
71 PLEASANT VIEW ROAD  
DERBY, CT 06418

SHEET TITLE  
**GENERAL NOTES**

SHEET NUMBER  
**GN-3**

**GROUNDING NOTES:**

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



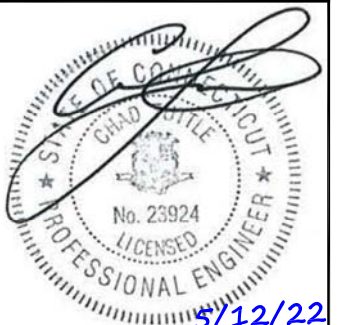
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**CONSTRUCTION DOCUMENTS**

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DISH Wireless L.L.C.  
PROJECT INFORMATION  
**BOHVN00049A**  
71 PLEASANT VIEW ROAD  
DERBY, CT 06418

SHEET TITLE  
**GENERAL NOTES**

SHEET NUMBER  
**GN-4**

# Exhibit D

## **Structural Analysis Report**





**Tower Engineering Solutions**

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

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## Structural Analysis Report

**Existing 119 ft PennSummit Monopole**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT13616-A**

**Customer Site Name: St. Judes**

**Carrier Name: Dish Wireless (App#: 173334, V#2)**

**Carrier Site ID / Name: BOHVN00049A / 0**

**Site Location: 71 Pleasantview Road**

**Derby, Connecticut**

**New Haven County**

**Latitude: 41.315042**

**Longitude: -73.064314**

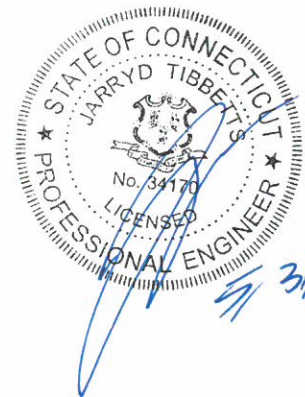
**Analysis Result:**

**Max Structural Usage: 47.1% [Pass]**

**Max Foundation Usage: 18% [Pass]**

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

**Report Prepared By : Mariana Franco**







**Tower Engineering Solutions**

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1320 Greenway Drive, Suite 600, Irving, Texas 75038

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### **Analysis Result:**

**Max Structural Usage: 47.1% [Pass]**

**Max Foundation Usage: 18% [Pass]**

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

**Report Prepared By : Mariana Franco**

## Introduction

The purpose of this report is to summarize the analysis results on the 119 ft PennSummit Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

## Sources of Information

<b>Tower Drawings</b>	Original structural design report prepared by PennSummit Tubular, LLC & Paul J. Ford and Company. Dated 08-17-2006. Design No 26805. Job No 29206-0266. / Original antenna concealment cylinder fabrication drawings prepared by Stealth Concealment Solutions, Inc. Dated 03-17-2003. Job No. FOUR-4C-100-40. Previous structural report prepared by Tower Engineering Solutions. Dated 01-21-2016. TES Project No 20131.
<b>Foundation Drawing</b>	Original foundation design prepared by PennSummit Tubular, LLC & Paul J. Ford and Company. Dated 08-17-2006. Design No 26805. Job No 29206-0266.
<b>Geotechnical Report</b>	Geotechnical report prepared by JGI Eastern, Inc. Dated 07-31-2006. Project No 06496G.
<b>Modification Drawings</b>	N/A
<b>Mount Analysis</b>	N/A

## Analysis Criteria

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

<b>Wind Speed Used in the Analysis:</b>	Ultimate Design Wind Speed $V_{ult} = 125.0$ mph (3-Sec. Gust)
<b>(Based on IBC 2015)</b>	Nominal Design Wind Speed $V_{asd} = 97.0$ mph (3-Sec. Gust)
<b>Wind Speed with Ice:</b>	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
<b>Operational Wind Speed:</b>	60 mph + 0" Radial ice
<b>Standard/Codes:</b>	ANSI/TIA/EIA 222-G, 2015 IBC & 2018 Connecticut State Building Code
<b>Exposure Category:</b>	B
<b>Structure Class:</b>	II
<b>Topographic Category:</b>	3
<b>Crest Height:</b>	101 ft.
<b>Seismic Parameters:</b>	$S_5 = 0.194$ , $S_1 = 0.063$

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

## Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft.)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	114.0	3	RFS V18-209014 - Panel	Inside 27" existing concealment canister from 109' to 119'	(6) 1 5/8"	T-Mobile
2		3	RFS Twin PCS TMAs			
3		3	RFS Twin AWS TMAs			
4	113.0	1	Flag (12'x18')	Direct	-	-
5	107.0	3	Andrew SBNHH-1D65B - Panel	Inside 28" existing concealment canister from 99' to 109'	(12) 1 5/8"	Verizon
8	87.0	3	Commscope DHHTT65B-3XR - Panel	Inside 30" existing concealment canister from 79' to 99'	(12) 7/8"; (2) 1/2"; (3) 3/8" RET Line; (3) 5/8" DC; (3) 1/4" Fiber	Sprint Nextel
9		2	Andrew FPA5250D06-N			
10		6	RFS KIT-FD9R6004/1C-DL Diplexrs			
11		3	Redconnex AN-80i			
12	84.0	3	Argus LLPX310R - Panel	Inside 30" existing concealment canister from 79' to 99'	(2) 1/2"; (3) 5/8"; (3) 1/4"	Clearwire
13		1	Andrew FPA5250D06-N			
14		3	Redconnex AN-80i BTSs			

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

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

Items	Elevation (ft.)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
6	97.0	3	FFVV-65B-R3 - Panel	Inside 30" existing concealment canister from 79' to 99'	(1) 1.60" Hybrid	Dish Wireless
7		1	Raycap RDIDC-9181-PF-48			

All transmission lines are considered running inside of the pole shafts.

## **Analysis Results**

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

	Pole shafts	Anchor Bolts	Base Plate	Spoked Connection
Max. Usage:	<b>44.0%</b>	<b>21.6%</b>	<b>22.6%</b>	<b>47.1%</b>
Pass/Fail	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>

## **Foundations**

	Moment (Kip-Ft)	Shear (Kips)
Original Design Reactions	1550.0	23.0
Analysis Reactions	619.6	10.6
Factored Reactions*	2092.5	31.1
% of Design Reactions	29.6%	34.1%

\* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

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

## **Operational Condition (Rigidity):**

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.6745 degrees under the operational wind speed as specified in the Analysis Criteria.

## **Conclusions**

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

## Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.
3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the ANSI/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

# Usage Diagram - Max Ratio 43.96% at 79.0ft

**Structure:** CT13616-A-SBA  
**Site Name:** St. Judes  
**Height:** 119.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-G  
**Exposure:** B  
**Gh:** 1.1

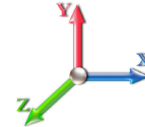
5/31/2022



Page: 1

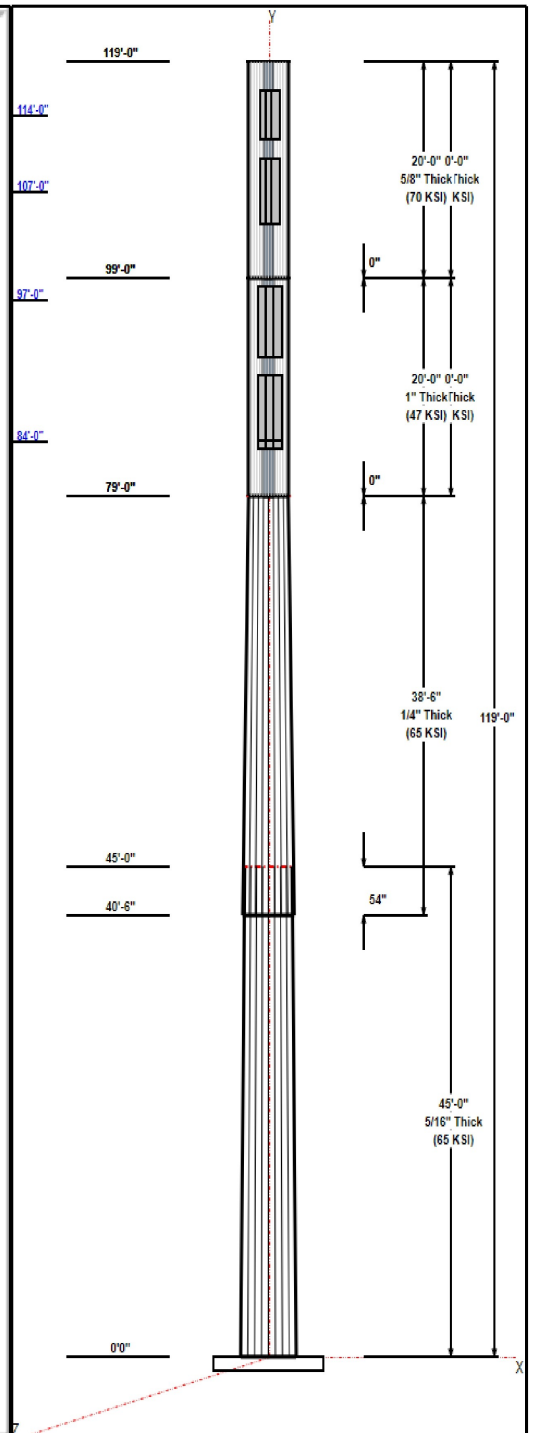
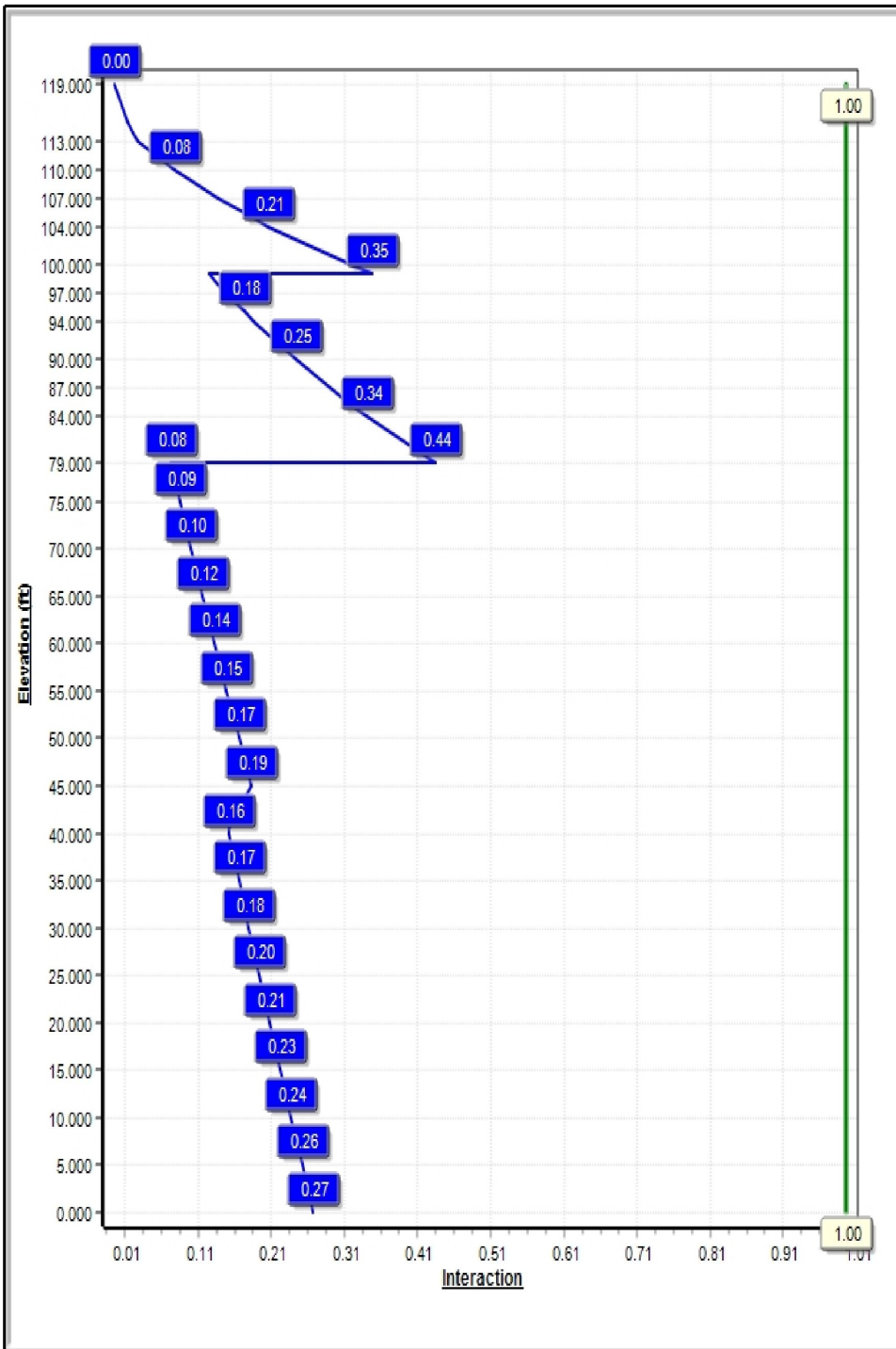
**Dead Load Factor:** 1.20  
**Wind Load Factor:** 1.60

**Load Case : 1.2D + 1.6W 97 mph Wind**



**Iterations:** 28

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## Structure: CT13616-A-SBA

**Type:** Custom  
**Site Name:** St. Judes  
**Height:** 119.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 18 Sided  
**Taper:** 0.15000

5/31/2022

Page: 2



### Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	45.00	34.60	41.35	0.313		0.15000	65
2	38.50	30.00	35.77	0.250	Slip	0.15000	65
3	20.00	8.00	8.00	1.000	Butt	0.00000	47
4	20.00	5.00	5.00	0.625	Butt	0.00000	70

### Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
114.00	114.00	1	27" Canister at 114.0'	---
114.00	114.00	3	V18-209014	T-Mobile
114.00	114.00	3	RFS Twin PCS TMAs	T-Mobile
114.00	114.00	3	RFS Twin AWS TMAs	T-Mobile
113.00	113.00	1	Flag (12'x18')	---
107.00	107.00	3	Andrew SBNHH-1D65B	Verizon
104.00	104.00	1	28" Canister at 104.0'	---
97.00	95.00	3	FFV-65B-R3	Dish Wireless
97.00	97.00	1	Raycap	Dish Wireless
94.00	94.00	1	29" Canister at 94.0'	---
87.00	87.00	3	Commscope	Sprint Nextel
87.00	87.00	2	Andrew FPA5250D06-N	Sprint Nextel
87.00	87.00	6	RFS	Sprint Nextel
87.00	87.00	3	Redconnex AN-80i	Sprint Nextel
84.00	84.00	1	30" Canister at 84.0'	---
84.00	84.00	3	Argus LLPX310R	Clearwire
84.00	84.00	1	Andrew FPA5250D06-N	Clearwire
84.00	84.00	3	Redconnex AN-80i BTSs	Clearwire

### Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
3.00	114.00	Inside	1 5/8" Coax	T-Mobile
3.00	107.00	Inside	1 5/8" Coax	Verizon
3.00	97.00	Inside	1.60" Hybrid	Dish Wireless
3.00	87.00	Inside	1/2" Coax	Sprint Nextel
3.00	87.00	Inside	1/4" Fiber	Sprint Nextel
3.00	87.00	Inside	3/8" RET Line	Sprint Nextel
3.00	87.00	Inside	5/8" DC	Sprint Nextel
3.00	87.00	Inside	7/8" Coax	Sprint Nextel
3.00	84.00	Inside	1/2" Coax	Clearwire
3.00	84.00	Inside	1/4" Coax	Clearwire
3.00	84.00	Inside	5/8" Coax	Clearwire

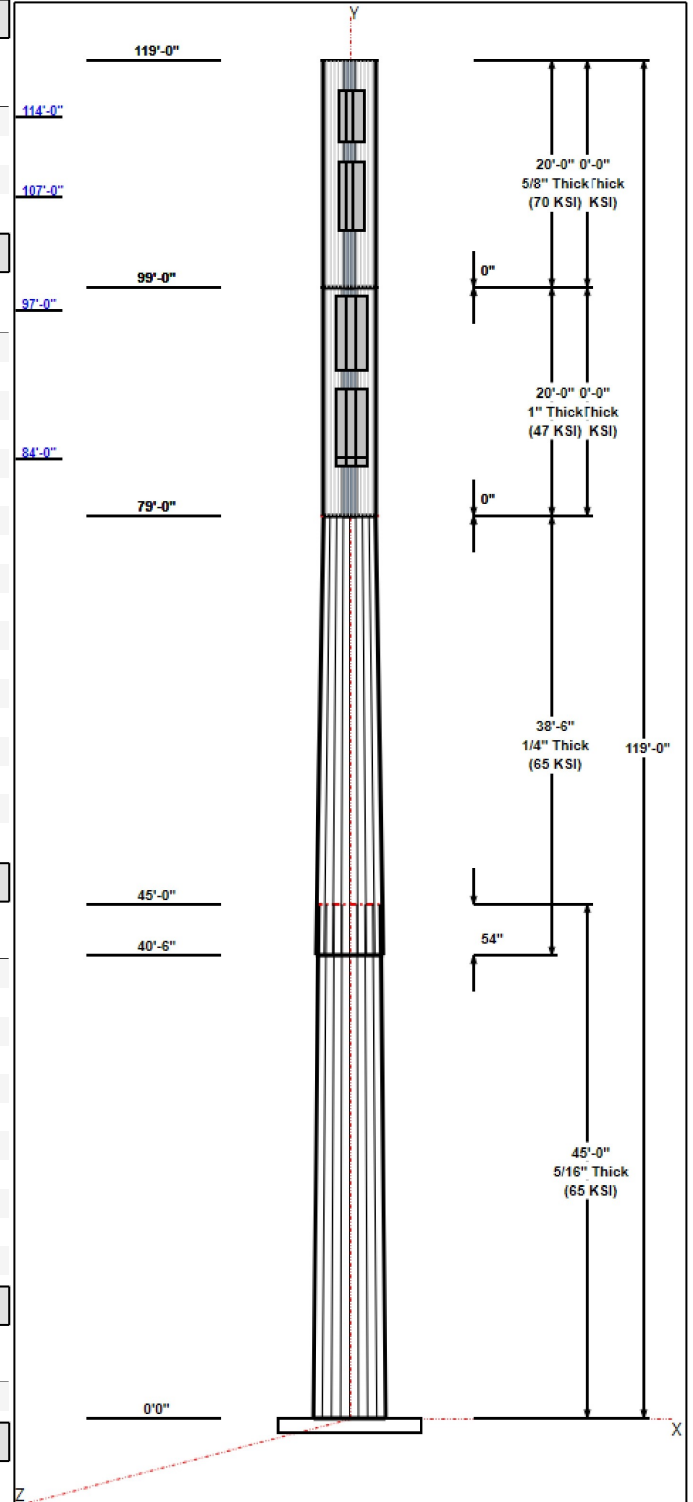
### Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
12	2.25" 18J	75.0	Cluster

### Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.7500	46.0	50.0	Clipped

### Reactions



## Structure: CT13616-A-SBA

**Type:** Custom  
**Site Name:** St. Judes  
**Height:** 119.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 18 Sided  
**Taper:** 0.00000

5/31/2022

Page: 3



Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 97 mph Wind	619.6	10.6	19.0
0.9D + 1.6W 97 mph Wind	616.2	10.6	14.3
1.2D + 1.0Di + 1.0Wi 50 mph Wind	267.1	4.1	32.7
1.2D + 1.0E	33.0	0.4	19.1
0.9D + 1.0E	32.8	0.4	14.3
1.0D + 1.0W 60 mph Wind	147.6	2.5	15.9



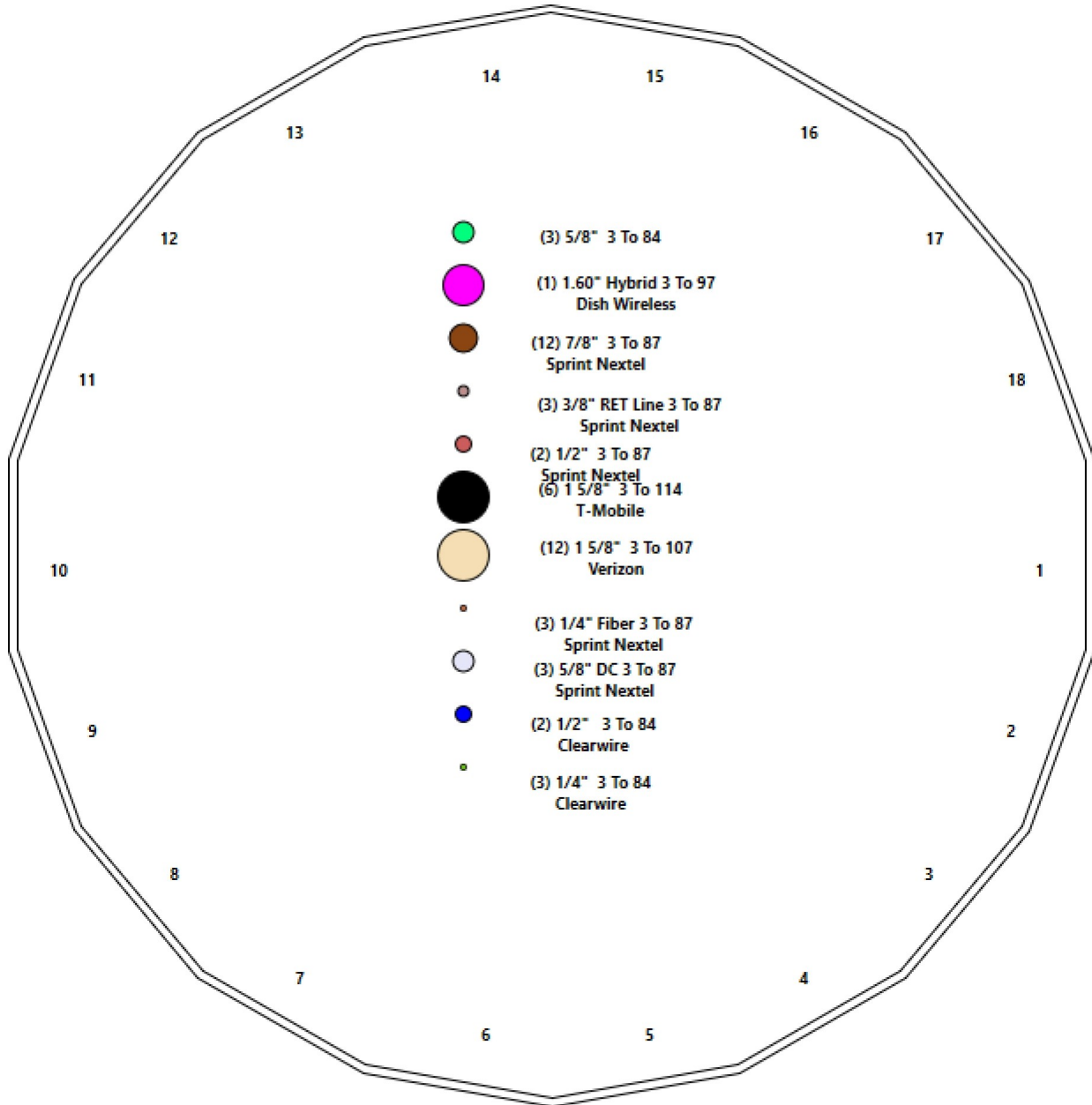
# Structure: CT13616-A-SBA - Coax Line Placement

Type: Monopole  
Site Name: St. Judes  
Height: 119.00 (ft)

5/31/2022



Page: 4



## Shaft Properties

<b>Structure:</b> CT13616-A-SBA	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II



Page: 5

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	45.000	0.3125	65		0.00	5,720
2	18	38.500	0.2500	65	Slip	54.00	3,393
3	R	20.000	1.0000	47	Flange	0.00	1,497
4	R	20.000	0.6250	70	Flange	0.00	585
<b>Total Shaft Weight:</b>							<b>11,194</b>

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Taper	Canister Diam (in)
1	41.35	0.00	40.70	8660.38	21.92	132.32	34.60	45.00	34.01	5051.28	18.11	110.7	0.150000	0.00
2	35.77	40.50	28.19	4494.55	23.82	143.10	30.00	79.00	23.61	2639.64	19.75	120.0	0.150000	0.00
3	8.00	79.00	21.99	134.80	0.00	8.00	8.00	99.00	21.99	134.80	0.00	8.00	0.000000	30.00
4	5.00	99.00	8.59	20.57	0.00	8.00	5.00	119.00	8.59	20.57	0.00	8.00	0.000000	30.00

## Load Summary

<b>Structure:</b> CT13616-A-SBA	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II



Page: 6

### Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	114.00	27" Canister at 114.0'	1	150.00	0.00	1.00	1089.01	0.000	1.00	0.00	0.00
2	114.00	V18-209014	3	18.70	0.00	0.00	108.14	4.519	0.00	0.00	0.00
3	114.00	RFS Twin PCS TMAs	3	11.00	0.00	0.00	21.67	0.000	0.00	0.00	0.00
4	114.00	RFS Twin AWS TMAs	3	17.60	0.00	0.00	34.94	0.000	0.00	0.00	0.00
5	113.00	Flag (12'x18')	1	100.00	7.92	1.00	107.03	8.476	1.00	0.00	0.00
6	107.00	Andrew SBNHH-1D65B	3	40.00	0.00	1.00	242.44	0.000	1.00	0.00	0.00
7	104.00	28" Canister at 104.0'	1	150.00	0.00	1.00	1087.30	0.000	1.00	0.00	0.00
8	97.00	FFVV-65B-R3	3	125.70	0.00	0.00	623.75	21.132	0.00	0.00	-2.00
9	97.00	Raycap RDIDC-9181-PF-48	1	21.90	0.00	0.00	75.35	0.000	0.00	0.00	0.00
10	94.00	29" Canister at 94.0'	1	150.00	0.00	1.00	1086.02	0.000	1.00	0.00	0.00
11	87.00	Commscope DHHTT65B-3XR	3	45.40	0.00	1.00	245.90	0.000	1.00	0.00	0.00
12	87.00	Andrew FPA5250D06-N	2	2.00	0.00	1.00	29.54	0.000	1.00	0.00	0.00
13	87.00	RFS KIT-FD9R6004/1C-DL Diplexrs	6	6.40	0.00	1.00	17.01	0.000	1.00	0.00	0.00
14	87.00	Redconnex AN-80i	3	4.50	0.00	1.00	89.71	0.000	1.00	0.00	0.00
15	84.00	30" Canister at 84.0'	1	150.00	0.00	1.00	1085.32	0.000	1.00	0.00	0.00
16	84.00	Argus LLPX310R	3	28.60	0.00	1.00	119.14	0.000	1.00	0.00	0.00
17	84.00	Andrew FPA5250D06-N	1	14.00	0.00	1.00	35.99	0.714	1.00	0.00	0.00
18	84.00	Redconnex AN-80i BTSs	3	4.50	0.83	1.00	21.01	1.507	1.00	0.00	0.00
<b>Totals:</b>			<b>42</b>	<b>1,666.30</b>			<b>9,247.27</b>				

### Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
3.00	114.00	(6) 1 5/8" Coax	0.00	Inside
3.00	107.00	(12) 1 5/8" Coax	0.00	Inside
3.00	97.00	(1) 1.60" Hybrid	0.00	Inside
3.00	87.00	(2) 1/2" Coax	0.00	Inside
3.00	87.00	(3) 1/4" Fiber	0.00	Inside
3.00	87.00	(3) 3/8" RET Line	0.00	Inside
3.00	87.00	(3) 5/8" DC	0.00	Inside
3.00	87.00	(12) 7/8" Coax	0.00	Inside
3.00	84.00	(2) 1/2" Coax	0.00	Inside
3.00	84.00	(3) 1/4" Coax	0.00	Inside
3.00	84.00	(3) 5/8" Coax	0.00	Inside

## Shaft Section Properties

<b>Structure:</b> CT13616-A-SBA	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II



Page: 7

**Increment Length:** 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in <sup>3</sup> )	Weight (lb)
0.00		0.3125	41.350	40.703	8660.4	21.92	132.32	75.6	412.5	0.0
5.00		0.3125	40.600	39.959	8194.2	21.50	129.92	76.1	397.5	686.2
10.00		0.3125	39.850	39.215	7745.0	21.07	127.52	76.6	382.8	673.5
15.00		0.3125	39.100	38.471	7312.6	20.65	125.12	77.1	368.4	660.9
20.00		0.3125	38.350	37.727	6896.5	20.23	122.72	77.6	354.2	648.2
25.00		0.3125	37.600	36.983	6496.6	19.81	120.32	78.1	340.3	635.6
30.00		0.3125	36.850	36.239	6112.4	19.38	117.92	78.6	326.7	622.9
35.00		0.3125	36.100	35.495	5743.7	18.96	115.52	79.1	313.4	610.2
40.00		0.3125	35.350	34.752	5390.1	18.54	113.12	79.6	300.3	597.6
40.50	Bot - Section 2	0.3125	35.275	34.677	5355.5	18.49	112.88	79.6	299.0	59.1
45.00	Top - Section 1	0.2500	35.100	27.652	4243.2	23.35	140.40	0.0	0.0	953.4
50.00		0.2500	34.350	27.057	3975.1	22.82	137.40	74.6	227.9	465.4
55.00		0.2500	33.600	26.462	3718.5	22.29	134.40	75.2	218.0	455.3
60.00		0.2500	32.850	25.867	3473.3	21.76	131.40	75.8	208.2	445.2
65.00		0.2500	32.100	25.272	3239.0	21.23	128.40	76.4	198.7	435.0
70.00		0.2500	31.350	24.677	3015.5	20.70	125.40	77.1	189.5	424.9
75.00		0.2500	30.600	24.082	2802.6	20.17	122.40	77.7	180.4	414.8
79.00	Top - Section 2	0.2500	30.000	23.606	2639.6	19.75	120.00	78.2	173.3	324.5
79.00	Bot - Section 3	1.0000	8.000	21.991	134.8	4.94	30.00	47.0	33.7	
80.00		1.0000	8.000	21.991	134.8	0.00	8.00	47.0	33.7	74.8
84.00		1.0000	8.000	21.991	134.8	0.00	8.00	47.0	33.7	299.3
85.00		1.0000	8.000	21.991	134.8	0.00	8.00	47.0	33.7	74.8
87.00		1.0000	8.000	21.991	134.8	0.00	8.00	47.0	33.7	149.7
90.00		1.0000	8.000	21.991	134.8	0.00	8.00	47.0	33.7	224.5
94.00		1.0000	8.000	21.991	134.8	0.00	8.00	47.0	33.7	299.3
95.00		1.0000	8.000	21.991	134.8	0.00	8.00	47.0	33.7	74.8
97.00		1.0000	8.000	21.991	134.8	0.00	8.00	47.0	33.7	149.7
99.00	Top - Section 3	1.0000	8.000	21.991	134.8	0.00	8.00	47.0	33.7	149.7
99.00	Bot - Section 4	0.6250	5.000	8.590	20.6	0.00	12.80	70.0	8.2	
100.00		0.6250	5.000	8.590	20.6	0.00	8.00	70.0	8.2	29.2
104.00		0.6250	5.000	8.590	20.6	0.00	8.00	70.0	8.2	116.9
105.00		0.6250	5.000	8.590	20.6	0.00	8.00	70.0	8.2	29.2
107.00		0.6250	5.000	8.590	20.6	0.00	8.00	70.0	8.2	58.5
110.00		0.6250	5.000	8.590	20.6	0.00	8.00	70.0	8.2	87.7
113.00		0.6250	5.000	8.590	20.6	0.00	8.00	70.0	8.2	87.7
114.00		0.6250	5.000	8.590	20.6	0.00	8.00	70.0	8.2	29.2
115.00		0.6250	5.000	8.590	20.6	0.00	8.00	70.0	8.2	29.2
119.00		0.6250	5.000	8.590	20.6	0.00	8.00	70.0	8.2	116.9

**11193.9**

## Wind Loading - Shaft

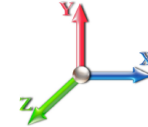
<b>Structure:</b> CT13616-A-SBA	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II



Page: 8

**Load Case:** 1.2D + 1.6W 97 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 28

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		2.18	0.70	34.943	38.44	419.42	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		2.05	0.70	32.848	36.13	399.27	0.650	0.000	5.00	17.336	11.27	651.5	0.0	823.4
10.00		1.94	0.70	31.007	34.11	380.75	0.650	0.000	5.00	17.019	11.06	603.7	0.0	808.2
15.00		1.83	0.70	29.385	32.32	363.68	0.650	0.000	5.00	16.702	10.86	561.4	0.0	793.0
20.00		1.75	0.70	27.953	30.75	347.91	0.650	0.000	5.00	16.384	10.65	523.9	0.0	777.9
25.00		1.67	0.70	26.687	29.36	333.29	0.650	0.000	5.00	16.067	10.44	490.5	0.0	762.7
30.00		1.60	0.70	25.587	28.15	319.84	0.650	0.000	5.00	15.750	10.24	461.0	0.0	747.5
35.00		1.53	0.73	25.699	28.27	314.02	0.650	0.000	5.00	15.432	10.03	453.7	0.0	732.3
40.00		1.48	0.76	25.738	28.31	307.72	0.650	0.000	5.00	15.115	9.82	445.0	0.0	717.1
40.50	Bot - Section 2	1.47	0.76	25.739	28.31	307.08	0.650	0.000	0.50	1.494	0.97	44.0	0.0	70.9
45.00	Top - Section 1	1.43	0.79	25.735	28.31	301.18	0.650	0.000	4.50	13.494	8.77	397.3	0.0	1144.1
50.00		1.39	0.81	25.709	28.28	298.85	0.650	0.000	5.00	14.692	9.55	432.1	0.0	558.5
55.00		1.35	0.83	25.674	28.24	292.13	0.650	0.000	5.00	14.375	9.34	422.2	0.0	546.3
60.00		1.31	0.85	25.639	28.20	285.41	0.650	0.000	5.00	14.057	9.14	412.3	0.0	534.2
65.00		1.28	0.87	25.608	28.17	278.73	0.650	0.000	5.00	13.740	8.93	402.5	0.0	522.0
70.00		1.25	0.89	25.585	28.14	272.09	0.650	0.000	5.00	13.423	8.72	392.9	0.0	509.9
75.00		1.23	0.91	25.573	28.13	265.52	0.650	0.000	5.00	13.105	8.52	383.4	0.0	497.7
79.00	Top - Section 2	1.21	0.92	25.571	28.13	260.31	0.650	0.000	4.00	10.256	6.67	300.0	0.0	389.4
80.00		1.21	0.93	25.572	28.13	256.36	0.600	0.000	1.00	2.500	1.50	67.5	0.0	99.4
84.00	Appurtenance(s)	1.19	0.94	25.580	28.14	256.40	0.600	0.000	4.00	10.000	6.00	270.1	0.0	397.6
85.00		1.19	0.94	25.584	28.14	256.41	0.600	0.000	1.00	2.500	1.50	67.5	0.0	99.4
87.00	Appurtenance(s)	1.18	0.95	25.592	28.15	256.45	0.600	0.000	2.00	5.000	3.00	135.1	0.0	198.8
90.00		1.17	0.96	25.607	28.17	256.53	0.600	0.000	3.00	7.500	4.50	202.8	0.0	298.2
94.00	Appurtenance(s)	1.15	0.97	25.635	28.20	256.67	0.600	0.000	4.00	10.000	6.00	270.7	0.0	397.6
95.00		1.15	0.97	25.643	28.21	256.71	0.600	0.000	1.00	2.500	1.50	67.7	0.0	99.4
97.00	Appurtenance(s)	1.14	0.98	25.660	28.23	256.80	0.600	0.000	2.00	5.000	3.00	135.5	0.0	198.8
99.00	Top - Section 3	1.14	0.99	25.680	28.25	256.89	0.600	0.000	2.00	5.000	3.00	135.6	0.0	198.8
100.00		1.14	0.99	25.690	28.26	256.95	0.600	0.000	1.00	2.500	1.50	67.8	0.0	44.7
104.00	Appurtenance(s)	1.13	1.00	25.736	28.31	257.17	0.600	0.000	4.00	10.000	6.00	271.8	0.0	178.7
105.00		1.12	1.00	25.748	28.32	257.24	0.600	0.000	1.00	2.500	1.50	68.0	0.0	44.7
107.00	Appurtenance(s)	1.12	1.01	25.774	28.35	257.37	0.600	0.000	2.00	5.000	3.00	136.1	0.0	89.4
110.00		1.11	1.02	25.816	28.40	257.58	0.600	0.000	3.00	7.500	4.50	204.5	0.0	134.0
113.00	Appurtenance(s)	1.10	1.02	25.862	28.45	257.80	0.600	0.000	3.00	7.500	4.50	204.8	0.0	134.0
114.00	Appurtenance(s)	1.10	1.03	25.878	28.47	257.88	0.600	0.000	1.00	2.500	1.50	68.3	0.0	44.7
115.00		1.10	1.03	25.894	28.48	257.97	0.600	0.000	1.00	2.500	1.50	68.4	0.0	44.7
119.00		1.09	1.04	25.963	28.56	258.31	0.600	0.000	4.00	10.000	6.00	274.2	0.0	178.7
<b>Totals:</b>									<b>119.00</b>			<b>10,094.0</b>		<b>13,816.7</b>

## Discrete Appurtenance Forces

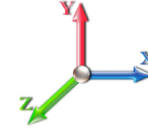
<b>Structure:</b> CT13616-A-SBA	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II



Page: 9

**Load Case:** 1.2D + 1.6W 97 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 28

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	114.00	27" Canister at 114.0'	1	25.878	28.466	1.00	1.00	0.00	180.00	0.000	0.000	0.00	0.00	0.00
2	114.00	RFS Twin AWS TMAs	3	25.878	28.466	0.00	1.00	0.00	63.36	0.000	0.000	0.00	0.00	0.00
3	114.00	RFS Twin PCS TMAs	3	25.878	28.466	0.00	1.00	0.00	39.60	0.000	0.000	0.00	0.00	0.00
4	114.00	V18-209014	3	25.878	28.466	0.00	1.00	0.00	67.32	0.000	0.000	0.00	0.00	0.00
5	113.00	Flag (12'x18')	1	25.862	28.448	1.00	1.00	7.92	120.00	0.000	0.000	360.50	0.00	0.00
6	107.00	Andrew SBNHH-1D65B	3	25.774	28.352	1.00	1.00	0.00	144.00	0.000	0.000	0.00	0.00	0.00
7	104.00	28" Canister at 104.0'	1	25.736	28.309	1.00	1.00	0.00	180.00	0.000	0.000	0.00	0.00	0.00
8	97.00	FFVV-65B-R3	3	25.643	28.207	0.00	1.00	0.00	452.52	0.000	-2.000	0.00	0.00	0.00
9	97.00	Raycap	1	25.660	28.227	0.00	1.00	0.00	26.28	0.000	0.000	0.00	0.00	0.00
10	94.00	29" Canister at 94.0'	1	25.635	28.198	1.00	1.00	0.00	180.00	0.000	0.000	0.00	0.00	0.00
11	87.00	Redconnex AN-80i	3	25.592	28.151	1.00	1.00	0.00	16.20	0.000	0.000	0.00	0.00	0.00
12	87.00	RFS	6	25.592	28.151	1.00	1.00	0.00	46.08	0.000	0.000	0.00	0.00	0.00
13	87.00	Andrew FPA5250D06-N	2	25.592	28.151	1.00	1.00	0.00	4.80	0.000	0.000	0.00	0.00	0.00
14	87.00	Commscope	3	25.592	28.151	1.00	1.00	0.00	163.44	0.000	0.000	0.00	0.00	0.00
15	84.00	Redconnex AN-80i BTSs	3	25.580	28.139	1.00	1.00	2.49	16.20	0.000	0.000	112.10	0.00	0.00
16	84.00	Andrew FPA5250D06-N	1	25.580	28.139	1.00	1.00	0.00	16.80	0.000	0.000	0.00	0.00	0.00
17	84.00	Argus LLPX310R	3	25.580	28.139	1.00	1.00	0.00	102.96	0.000	0.000	0.00	0.00	0.00
18	84.00	30" Canister at 84.0'	1	25.580	28.139	1.00	1.00	0.00	180.00	0.000	0.000	0.00	0.00	0.00
<b>Totals:</b>									<b>1,999.56</b>			<b>472.60</b>		



## Total Applied Force Summary

<b>Structure:</b> CT13616-A-SBA	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II



Page: 10

**Load Case:** 1.2D + 1.6W 97 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



**Iterations** 28

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		651.47	888.60	0.00	0.00
10.00		603.69	971.19	0.00	0.00
15.00		561.44	956.00	0.00	0.00
20.00		523.94	940.82	0.00	0.00
25.00		490.52	925.63	0.00	0.00
30.00		461.02	910.44	0.00	0.00
35.00		453.71	895.25	0.00	0.00
40.00		445.05	880.06	0.00	0.00
40.50		43.99	87.17	0.00	0.00
45.00		397.27	1290.74	0.00	0.00
50.00		432.11	721.46	0.00	0.00
55.00		422.21	709.31	0.00	0.00
60.00		412.31	697.16	0.00	0.00
65.00		402.52	685.01	0.00	0.00
70.00		392.88	672.86	0.00	0.00
75.00		383.40	660.71	0.00	0.00
79.00		300.02	519.82	0.00	0.00
80.00		67.51	131.99	0.00	0.00
84.00	(8) attachments	382.23	843.92	0.00	0.00
85.00		67.54	130.90	0.00	0.00
87.00	(14) attachments	135.12	492.33	0.00	0.00
90.00		202.81	366.12	0.00	0.00
94.00	(1) attachments	270.70	668.16	0.00	0.00
95.00		67.70	122.04	0.00	0.00
97.00	(4) attachments	135.49	722.88	0.00	0.00
99.00		135.59	243.72	0.00	0.00
100.00		67.82	67.14	0.00	0.00
104.00	(1) attachments	271.77	448.56	0.00	0.00
105.00		67.98	67.14	0.00	0.00
107.00	(3) attachments	136.09	278.28	0.00	0.00
110.00		204.47	156.50	0.00	0.00
113.00	(1) attachments	565.33	276.50	0.00	0.00
114.00	(10) attachments	68.32	402.45	0.00	0.00
115.00		68.36	44.68	0.00	0.00
119.00		274.17	178.71	0.00	0.00
	Totals:	10,566.56	19,054.23	0.00	0.00

## Calculated Forces

<b>Structure:</b> CT13616-A-SBA	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II



Page: 11

<b>Load Case:</b> 1.2D + 1.6W 97 mph Wind	<b>Iterations</b> 28
<b>Dead Load Factor</b> 1.20	
<b>Wind Load Factor</b> 1.60	

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-19.04	-10.58	0.00	-619.62	0.00	619.62	2770.05	1385.03	4672.11	2339.53	0.00	0.000	0.000	0.272
5.00	-18.14	-9.96	0.00	-566.71	0.00	566.71	2737.33	1368.66	4531.89	2269.31	0.05	-0.097	0.000	0.256
10.00	-17.16	-9.38	0.00	-516.90	0.00	516.90	2703.94	1351.97	4392.63	2199.58	0.21	-0.191	0.000	0.241
15.00	-16.19	-8.84	0.00	-469.99	0.00	469.99	2669.88	1334.94	4254.38	2130.35	0.46	-0.282	0.000	0.227
20.00	-15.24	-8.34	0.00	-425.78	0.00	425.78	2635.15	1317.58	4117.21	2061.66	0.80	-0.369	0.000	0.212
25.00	-14.30	-7.86	0.00	-384.10	0.00	384.10	2599.76	1299.88	3981.17	1993.54	1.23	-0.453	0.000	0.198
30.00	-13.39	-7.41	0.00	-344.81	0.00	344.81	2563.70	1281.85	3846.33	1926.02	1.75	-0.533	0.000	0.184
35.00	-12.49	-6.96	0.00	-307.76	0.00	307.76	2526.98	1263.49	3712.75	1859.13	2.35	-0.609	0.000	0.171
40.00	-11.61	-6.51	0.00	-272.96	0.00	272.96	2489.59	1244.79	3580.49	1792.91	3.02	-0.680	0.000	0.157
40.50	-11.52	-6.48	0.00	-269.70	0.00	269.70	2485.81	1242.91	3567.34	1786.32	3.10	-0.688	0.000	0.156
45.00	-10.23	-6.07	0.00	-240.55	0.00	240.55	1840.21	920.11	2636.97	1320.44	3.77	-0.749	0.000	0.188
50.00	-9.50	-5.64	0.00	-210.18	0.00	210.18	1815.76	907.88	2545.53	1274.66	4.59	-0.812	0.000	0.170
55.00	-8.80	-5.22	0.00	-181.96	0.00	181.96	1790.64	895.32	2454.70	1229.18	5.48	-0.882	0.000	0.153
60.00	-8.10	-4.81	0.00	-155.86	0.00	155.86	1764.86	882.43	2364.54	1184.03	6.44	-0.947	0.000	0.136
65.00	-7.42	-4.40	0.00	-131.83	0.00	131.83	1738.40	869.20	2275.11	1139.25	7.46	-1.006	0.000	0.120
70.00	-6.75	-4.00	0.00	-109.83	0.00	109.83	1711.29	855.64	2186.47	1094.86	8.55	-1.059	0.000	0.104
75.00	-6.09	-3.61	0.00	-89.83	0.00	89.83	1683.50	841.75	2098.69	1050.90	9.68	-1.106	0.000	0.089
79.00	-5.58	-3.30	0.00	-75.39	0.00	75.39	1660.79	830.40	2029.12	1016.07	10.62	-1.139	0.000	0.078
79.00	-5.58	-3.30	0.00	-75.39	0.00	75.39	930.23	465.11	237.26	173.90	10.62	-1.139	0.000	0.440
80.00	-5.43	-3.26	0.00	-72.09	0.00	72.09	930.23	465.11	237.26	173.90	10.86	-1.147	0.000	0.420
84.00	-4.58	-2.88	0.00	-59.06	0.00	59.06	930.23	465.11	237.26	173.90	12.06	-1.701	0.000	0.345
85.00	-4.44	-2.82	0.00	-56.17	0.00	56.17	930.23	465.11	237.26	173.90	12.43	-1.823	0.000	0.328
87.00	-3.94	-2.69	0.00	-50.53	0.00	50.53	930.23	465.11	237.26	173.90	13.24	-2.048	0.000	0.295
90.00	-3.57	-2.49	0.00	-42.46	0.00	42.46	930.23	465.11	237.26	173.90	14.63	-2.342	0.000	0.248
94.00	-2.91	-2.20	0.00	-32.49	0.00	32.49	930.23	465.11	237.26	173.90	16.73	-2.659	0.000	0.190
95.00	-2.79	-2.13	0.00	-30.29	0.00	30.29	930.23	465.11	237.26	173.90	17.29	-2.725	0.000	0.177
97.00	-2.07	-1.97	0.00	-26.02	0.00	26.02	930.23	465.11	237.26	173.90	18.46	-2.844	0.000	0.152
99.00	-1.83	-1.82	0.00	-22.09	0.00	22.09	930.23	465.11	237.26	173.90	19.67	-2.945	0.000	0.129
99.00	-1.83	-1.82	0.00	-22.09	0.00	22.09	541.19	270.59	86.27	63.23	19.67	-2.945	0.000	0.353
100.00	-1.75	-1.77	0.00	-20.27	0.00	20.27	541.19	270.59	86.27	63.23	20.29	-2.990	0.000	0.324
104.00	-1.30	-1.48	0.00	-13.20	0.00	13.20	541.19	270.59	86.27	63.23	23.21	-3.916	0.000	0.211
105.00	-1.24	-1.41	0.00	-11.72	0.00	11.72	541.19	270.59	86.27	63.23	24.05	-4.088	0.000	0.188
107.00	-0.96	-1.26	0.00	-8.90	0.00	8.90	541.19	270.59	86.27	63.23	25.82	-4.373	0.000	0.143
110.00	-0.82	-1.05	0.00	-5.12	0.00	5.12	541.19	270.59	86.27	63.23	28.67	-4.664	0.000	0.082
113.00	-0.59	-0.46	0.00	-1.98	0.00	1.98	541.19	270.59	86.27	63.23	31.65	-4.811	0.000	0.032
114.00	-0.19	-0.36	0.00	-1.51	0.00	1.51	541.19	270.59	86.27	63.23	32.65	-4.835	0.000	0.024
115.00	-0.15	-0.29	0.00	-1.15	0.00	1.15	541.19	270.59	86.27	63.23	33.67	-4.854	0.000	0.019
119.00	0.00	-0.27	0.00	0.00	0.00	0.00	541.19	270.59	86.27	63.23	37.75	-4.886	0.000	0.000

## Wind Loading - Shaft

<b>Structure:</b> CT13616-A-SBA	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II



Page: 12

**Load Case:** 0.9D + 1.6W 97 mph Wind

**Dead Load Factor** 0.90

**Wind Load Factor** 1.60



**Iterations** 27

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		2.18	0.70	34.943	38.44	419.42	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		2.05	0.70	32.848	36.13	399.27	0.650	0.000	5.00	17.336	11.27	651.5	0.0	617.6
10.00		1.94	0.70	31.007	34.11	380.75	0.650	0.000	5.00	17.019	11.06	603.7	0.0	606.2
15.00		1.83	0.70	29.385	32.32	363.68	0.650	0.000	5.00	16.702	10.86	561.4	0.0	594.8
20.00		1.75	0.70	27.953	30.75	347.91	0.650	0.000	5.00	16.384	10.65	523.9	0.0	583.4
25.00		1.67	0.70	26.687	29.36	333.29	0.650	0.000	5.00	16.067	10.44	490.5	0.0	572.0
30.00		1.60	0.70	25.587	28.15	319.84	0.650	0.000	5.00	15.750	10.24	461.0	0.0	560.6
35.00		1.53	0.73	25.699	28.27	314.02	0.650	0.000	5.00	15.432	10.03	453.7	0.0	549.2
40.00		1.48	0.76	25.738	28.31	307.72	0.650	0.000	5.00	15.115	9.82	445.0	0.0	537.8
40.50	Bot - Section 2	1.47	0.76	25.739	28.31	307.08	0.650	0.000	0.50	1.494	0.97	44.0	0.0	53.2
45.00	Top - Section 1	1.43	0.79	25.735	28.31	301.18	0.650	0.000	4.50	13.494	8.77	397.3	0.0	858.1
50.00		1.39	0.81	25.709	28.28	298.85	0.650	0.000	5.00	14.692	9.55	432.1	0.0	418.9
55.00		1.35	0.83	25.674	28.24	292.13	0.650	0.000	5.00	14.375	9.34	422.2	0.0	409.8
60.00		1.31	0.85	25.639	28.20	285.41	0.650	0.000	5.00	14.057	9.14	412.3	0.0	400.6
65.00		1.28	0.87	25.608	28.17	278.73	0.650	0.000	5.00	13.740	8.93	402.5	0.0	391.5
70.00		1.25	0.89	25.585	28.14	272.09	0.650	0.000	5.00	13.423	8.72	392.9	0.0	382.4
75.00		1.23	0.91	25.573	28.13	265.52	0.650	0.000	5.00	13.105	8.52	383.4	0.0	373.3
79.00	Top - Section 2	1.21	0.92	25.571	28.13	260.31	0.650	0.000	4.00	10.256	6.67	300.0	0.0	292.1
80.00		1.21	0.93	25.572	28.13	256.36	0.600	0.000	1.00	2.500	1.50	67.5	0.0	74.5
84.00	Appurtenance(s)	1.19	0.94	25.580	28.14	256.40	0.600	0.000	4.00	10.000	6.00	270.1	0.0	298.2
85.00		1.19	0.94	25.584	28.14	256.41	0.600	0.000	1.00	2.500	1.50	67.5	0.0	74.5
87.00	Appurtenance(s)	1.18	0.95	25.592	28.15	256.45	0.600	0.000	2.00	5.000	3.00	135.1	0.0	149.1
90.00		1.17	0.96	25.607	28.17	256.53	0.600	0.000	3.00	7.500	4.50	202.8	0.0	223.6
94.00	Appurtenance(s)	1.15	0.97	25.635	28.20	256.67	0.600	0.000	4.00	10.000	6.00	270.7	0.0	298.2
95.00		1.15	0.97	25.643	28.21	256.71	0.600	0.000	1.00	2.500	1.50	67.7	0.0	74.5
97.00	Appurtenance(s)	1.14	0.98	25.660	28.23	256.80	0.600	0.000	2.00	5.000	3.00	135.5	0.0	149.1
99.00	Top - Section 3	1.14	0.99	25.680	28.25	256.89	0.600	0.000	2.00	5.000	3.00	135.6	0.0	149.1
100.00		1.14	0.99	25.690	28.26	256.95	0.600	0.000	1.00	2.500	1.50	67.8	0.0	33.5
104.00	Appurtenance(s)	1.13	1.00	25.736	28.31	257.17	0.600	0.000	4.00	10.000	6.00	271.8	0.0	134.0
105.00		1.12	1.00	25.748	28.32	257.24	0.600	0.000	1.00	2.500	1.50	68.0	0.0	33.5
107.00	Appurtenance(s)	1.12	1.01	25.774	28.35	257.37	0.600	0.000	2.00	5.000	3.00	136.1	0.0	67.0
110.00		1.11	1.02	25.816	28.40	257.58	0.600	0.000	3.00	7.500	4.50	204.5	0.0	100.5
113.00	Appurtenance(s)	1.10	1.02	25.862	28.45	257.80	0.600	0.000	3.00	7.500	4.50	204.8	0.0	100.5
114.00	Appurtenance(s)	1.10	1.03	25.878	28.47	257.88	0.600	0.000	1.00	2.500	1.50	68.3	0.0	33.5
115.00		1.10	1.03	25.894	28.48	257.97	0.600	0.000	1.00	2.500	1.50	68.4	0.0	33.5
119.00		1.09	1.04	25.963	28.56	258.31	0.600	0.000	4.00	10.000	6.00	274.2	0.0	134.0
<b>Totals:</b>									<b>119.00</b>			<b>10,094.0</b>		<b>10,362.5</b>

## Discrete Appurtenance Forces

<b>Structure:</b> CT13616-A-SBA	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II



Page: 13

**Load Case:** 0.9D + 1.6W 97 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 27

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	114.00	27" Canister at 114.0'	1	25.878	28.466	1.00	1.00	0.00	135.00	0.000	0.000	0.00	0.00	0.00
2	114.00	RFS Twin AWS TMAs	3	25.878	28.466	0.00	1.00	0.00	47.52	0.000	0.000	0.00	0.00	0.00
3	114.00	RFS Twin PCS TMAs	3	25.878	28.466	0.00	1.00	0.00	29.70	0.000	0.000	0.00	0.00	0.00
4	114.00	V18-209014	3	25.878	28.466	0.00	1.00	0.00	50.49	0.000	0.000	0.00	0.00	0.00
5	113.00	Flag (12'x18')	1	25.862	28.448	1.00	1.00	7.92	90.00	0.000	0.000	360.50	0.00	0.00
6	107.00	Andrew SBNHH-1D65B	3	25.774	28.352	1.00	1.00	0.00	108.00	0.000	0.000	0.00	0.00	0.00
7	104.00	28" Canister at 104.0'	1	25.736	28.309	1.00	1.00	0.00	135.00	0.000	0.000	0.00	0.00	0.00
8	97.00	FFVV-65B-R3	3	25.643	28.207	0.00	1.00	0.00	339.39	0.000	-2.000	0.00	0.00	0.00
9	97.00	Raycap	1	25.660	28.227	0.00	1.00	0.00	19.71	0.000	0.000	0.00	0.00	0.00
10	94.00	29" Canister at 94.0'	1	25.635	28.198	1.00	1.00	0.00	135.00	0.000	0.000	0.00	0.00	0.00
11	87.00	Redconnex AN-80i	3	25.592	28.151	1.00	1.00	0.00	12.15	0.000	0.000	0.00	0.00	0.00
12	87.00	RFS	6	25.592	28.151	1.00	1.00	0.00	34.56	0.000	0.000	0.00	0.00	0.00
13	87.00	Andrew FPA5250D06-N	2	25.592	28.151	1.00	1.00	0.00	3.60	0.000	0.000	0.00	0.00	0.00
14	87.00	Commscope	3	25.592	28.151	1.00	1.00	0.00	122.58	0.000	0.000	0.00	0.00	0.00
15	84.00	Redconnex AN-80i BTSs	3	25.580	28.139	1.00	1.00	2.49	12.15	0.000	0.000	112.10	0.00	0.00
16	84.00	Andrew FPA5250D06-N	1	25.580	28.139	1.00	1.00	0.00	12.60	0.000	0.000	0.00	0.00	0.00
17	84.00	Argus LLPX310R	3	25.580	28.139	1.00	1.00	0.00	77.22	0.000	0.000	0.00	0.00	0.00
18	84.00	30" Canister at 84.0'	1	25.580	28.139	1.00	1.00	0.00	135.00	0.000	0.000	0.00	0.00	0.00
<b>Totals:</b>									<b>1,499.67</b>			<b>472.60</b>		

## Total Applied Force Summary

<b>Structure:</b> CT13616-A-SBA	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II



Page: 14

**Load Case:** 0.9D + 1.6W 97 mph Wind

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



**Iterations** 27

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		651.47	666.45	0.00	0.00
10.00		603.69	728.39	0.00	0.00
15.00		561.44	717.00	0.00	0.00
20.00		523.94	705.61	0.00	0.00
25.00		490.52	694.22	0.00	0.00
30.00		461.02	682.83	0.00	0.00
35.00		453.71	671.44	0.00	0.00
40.00		445.05	660.05	0.00	0.00
40.50		43.99	65.38	0.00	0.00
45.00		397.27	968.06	0.00	0.00
50.00		432.11	541.09	0.00	0.00
55.00		422.21	531.98	0.00	0.00
60.00		412.31	522.87	0.00	0.00
65.00		402.52	513.75	0.00	0.00
70.00		392.88	504.64	0.00	0.00
75.00		383.40	495.53	0.00	0.00
79.00		300.02	389.86	0.00	0.00
80.00		67.51	98.99	0.00	0.00
84.00	(8) attachments	382.23	632.94	0.00	0.00
85.00		67.54	98.18	0.00	0.00
87.00	(14) attachments	135.12	369.24	0.00	0.00
90.00		202.81	274.59	0.00	0.00
94.00	(1) attachments	270.70	501.12	0.00	0.00
95.00		67.70	91.53	0.00	0.00
97.00	(4) attachments	135.49	542.16	0.00	0.00
99.00		135.59	182.79	0.00	0.00
100.00		67.82	50.36	0.00	0.00
104.00	(1) attachments	271.77	336.42	0.00	0.00
105.00		67.98	50.36	0.00	0.00
107.00	(3) attachments	136.09	208.71	0.00	0.00
110.00		204.47	117.37	0.00	0.00
113.00	(1) attachments	565.33	207.37	0.00	0.00
114.00	(10) attachments	68.32	301.83	0.00	0.00
115.00		68.36	33.51	0.00	0.00
119.00		274.17	134.03	0.00	0.00
	Totals:	10,566.56	14,290.67	0.00	0.00



## Calculated Forces

<b>Structure:</b> CT13616-A-SBA	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II



Page: 15

<b>Load Case:</b> 0.9D + 1.6W 97 mph Wind	<b>Iterations</b> 27
<b>Dead Load Factor</b> 0.90	
<b>Wind Load Factor</b> 1.60	

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-14.28	-10.58	0.00	-616.16	0.00	616.16	2770.05	1385.03	4672.11	2339.53	0.00	0.000	0.000	0.269
5.00	-13.60	-9.95	0.00	-563.27	0.00	563.27	2737.33	1368.66	4531.89	2269.31	0.05	-0.097	0.000	0.253
10.00	-12.86	-9.36	0.00	-513.52	0.00	513.52	2703.94	1351.97	4392.63	2199.58	0.20	-0.190	0.000	0.238
15.00	-12.13	-8.82	0.00	-466.70	0.00	466.70	2669.88	1334.94	4254.38	2130.35	0.45	-0.280	0.000	0.224
20.00	-11.41	-8.31	0.00	-422.61	0.00	422.61	2635.15	1317.58	4117.21	2061.66	0.79	-0.367	0.000	0.209
25.00	-10.71	-7.83	0.00	-381.08	0.00	381.08	2599.76	1299.88	3981.17	1993.54	1.22	-0.450	0.000	0.195
30.00	-10.02	-7.37	0.00	-341.94	0.00	341.94	2563.70	1281.85	3846.33	1926.02	1.74	-0.529	0.000	0.181
35.00	-9.35	-6.93	0.00	-305.07	0.00	305.07	2526.98	1263.49	3712.75	1859.13	2.33	-0.604	0.000	0.168
40.00	-8.69	-6.48	0.00	-270.45	0.00	270.45	2489.59	1244.79	3580.49	1792.91	3.00	-0.675	0.000	0.154
40.50	-8.62	-6.44	0.00	-267.21	0.00	267.21	2485.81	1242.91	3567.34	1786.32	3.07	-0.683	0.000	0.153
45.00	-7.65	-6.04	0.00	-238.23	0.00	238.23	1840.21	920.11	2636.97	1320.44	3.75	-0.743	0.000	0.185
50.00	-7.11	-5.61	0.00	-208.04	0.00	208.04	1815.76	907.88	2545.53	1274.66	4.56	-0.806	0.000	0.167
55.00	-6.58	-5.18	0.00	-180.01	0.00	180.01	1790.64	895.32	2454.70	1229.18	5.44	-0.875	0.000	0.150
60.00	-6.06	-4.77	0.00	-154.09	0.00	154.09	1764.86	882.43	2364.54	1184.03	6.39	-0.939	0.000	0.134
65.00	-5.54	-4.36	0.00	-130.23	0.00	130.23	1738.40	869.20	2275.11	1139.25	7.41	-0.997	0.000	0.118
70.00	-5.04	-3.97	0.00	-108.41	0.00	108.41	1711.29	855.64	2186.47	1094.86	8.48	-1.050	0.000	0.102
75.00	-4.55	-3.58	0.00	-88.57	0.00	88.57	1683.50	841.75	2098.69	1050.90	9.61	-1.096	0.000	0.087
79.00	-4.17	-3.27	0.00	-74.26	0.00	74.26	1660.79	830.40	2029.12	1016.07	10.54	-1.129	0.000	0.076
79.00	-4.17	-3.27	0.00	-74.26	0.00	74.26	930.23	465.11	237.26	173.90	10.54	-1.129	0.000	0.432
80.00	-4.05	-3.22	0.00	-70.99	0.00	70.99	930.23	465.11	237.26	173.90	10.78	-1.137	0.000	0.413
84.00	-3.41	-2.84	0.00	-58.10	0.00	58.10	930.23	465.11	237.26	173.90	11.97	-1.682	0.000	0.338
85.00	-3.31	-2.78	0.00	-55.26	0.00	55.26	930.23	465.11	237.26	173.90	12.33	-1.802	0.000	0.321
87.00	-2.93	-2.65	0.00	-49.69	0.00	49.69	930.23	465.11	237.26	173.90	13.13	-2.023	0.000	0.289
90.00	-2.65	-2.45	0.00	-41.74	0.00	41.74	930.23	465.11	237.26	173.90	14.50	-2.313	0.000	0.243
94.00	-2.16	-2.17	0.00	-31.94	0.00	31.94	930.23	465.11	237.26	173.90	16.57	-2.624	0.000	0.186
95.00	-2.07	-2.10	0.00	-29.78	0.00	29.78	930.23	465.11	237.26	173.90	17.13	-2.689	0.000	0.173
97.00	-1.53	-1.94	0.00	-25.58	0.00	25.58	930.23	465.11	237.26	173.90	18.28	-2.806	0.000	0.149
99.00	-1.35	-1.80	0.00	-21.71	0.00	21.71	930.23	465.11	237.26	173.90	19.47	-2.905	0.000	0.126
99.00	-1.35	-1.80	0.00	-21.71	0.00	21.71	541.19	270.59	86.27	63.23	19.47	-2.905	0.000	0.346
100.00	-1.29	-1.74	0.00	-19.91	0.00	19.91	541.19	270.59	86.27	63.23	20.09	-2.949	0.000	0.317
104.00	-0.96	-1.45	0.00	-12.97	0.00	12.97	541.19	270.59	86.27	63.23	22.97	-3.859	0.000	0.207
105.00	-0.90	-1.39	0.00	-11.51	0.00	11.51	541.19	270.59	86.27	63.23	23.79	-4.028	0.000	0.184
107.00	-0.70	-1.24	0.00	-8.74	0.00	8.74	541.19	270.59	86.27	63.23	25.54	-4.308	0.000	0.140
110.00	-0.59	-1.03	0.00	-5.02	0.00	5.02	541.19	270.59	86.27	63.23	28.34	-4.594	0.000	0.081
113.00	-0.43	-0.45	0.00	-1.94	0.00	1.94	541.19	270.59	86.27	63.23	31.28	-4.738	0.000	0.031
114.00	-0.14	-0.36	0.00	-1.49	0.00	1.49	541.19	270.59	86.27	63.23	32.27	-4.762	0.000	0.024
115.00	-0.11	-0.28	0.00	-1.14	0.00	1.14	541.19	270.59	86.27	63.23	33.27	-4.780	0.000	0.018
119.00	0.00	-0.27	0.00	0.00	0.00	0.00	541.19	270.59	86.27	63.23	37.29	-4.812	0.000	0.000

## Wind Loading - Shaft

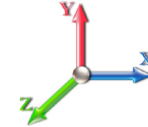
<b>Structure:</b> CT13616-A-SBA	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II



Page: 16

**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 27

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		2.18	0.70	9.285	10.21	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		2.05	0.70	8.728	9.60	0.00	1.200	1.597	5.00	18.667	22.40	215.1	417.8	1241.2
10.00		1.94	0.70	8.239	9.06	0.00	1.200	1.677	5.00	18.417	22.10	200.3	431.8	1240.0
15.00		1.83	0.70	7.808	8.59	0.00	1.200	1.714	5.00	18.130	21.76	186.8	433.7	1226.8
20.00		1.75	0.70	7.427	8.17	0.00	1.200	1.734	5.00	17.829	21.39	174.8	430.8	1208.6
25.00		1.67	0.70	7.091	7.80	0.00	1.200	1.744	5.00	17.521	21.02	164.0	425.4	1188.1
30.00		1.60	0.70	6.799	7.48	0.00	1.200	1.750	5.00	17.208	20.65	154.4	418.7	1166.2
35.00		1.53	0.73	6.828	7.51	0.00	1.200	1.753	5.00	16.893	20.27	152.3	411.2	1143.5
40.00		1.48	0.76	6.839	7.52	0.00	1.200	1.754	5.00	16.576	19.89	149.6	403.3	1120.4
40.50	Bot - Section 2	1.47	0.76	6.839	7.52	0.00	1.200	1.754	0.50	1.640	1.97	14.8	40.2	111.1
45.00	Top - Section 1	1.43	0.79	6.838	7.52	0.00	1.200	1.753	4.50	14.809	17.77	133.7	360.5	1504.6
50.00		1.39	0.81	6.831	7.51	0.00	1.200	1.753	5.00	16.153	19.38	145.6	392.2	950.7
55.00		1.35	0.83	6.822	7.50	0.00	1.200	1.752	5.00	15.835	19.00	142.6	383.9	930.2
60.00		1.31	0.85	6.812	7.49	0.00	1.200	1.751	5.00	15.517	18.62	139.5	375.6	909.8
65.00		1.28	0.87	6.804	7.48	0.00	1.200	1.750	5.00	15.199	18.24	136.5	367.2	889.3
70.00		1.25	0.89	6.798	7.48	0.00	1.200	1.750	5.00	14.881	17.86	133.5	359.0	868.9
75.00		1.23	0.91	6.795	7.47	0.00	1.200	1.750	5.00	14.563	17.48	130.6	350.8	848.5
79.00	Top - Section 2	1.21	0.92	6.794	7.47	0.00	1.200	1.750	4.00	11.422	13.71	102.4	275.4	664.9
80.00		1.21	0.93	6.795	7.47	0.00	1.200	1.750	1.00	2.500	3.00	22.4	51.9	151.3
84.00	Appurtenance(s)	1.19	0.94	6.797	7.48	0.00	1.200	1.750	4.00	10.000	12.00	89.7	207.4	605.0
85.00		1.19	0.94	6.798	7.48	0.00	1.200	1.750	1.00	2.500	3.00	22.4	51.9	151.3
87.00	Appurtenance(s)	1.18	0.95	6.800	7.48	0.00	1.200	1.750	2.00	5.000	6.00	44.9	103.7	302.5
90.00		1.17	0.96	6.804	7.48	0.00	1.200	1.750	3.00	7.500	9.00	67.4	155.6	453.8
94.00	Appurtenance(s)	1.15	0.97	6.811	7.49	0.00	1.200	1.751	4.00	10.000	12.00	89.9	207.5	605.1
95.00		1.15	0.97	6.813	7.49	0.00	1.200	1.751	1.00	2.500	3.00	22.5	51.9	151.3
97.00	Appurtenance(s)	1.14	0.98	6.818	7.50	0.00	1.200	1.752	2.00	5.000	6.00	45.0	103.8	302.6
99.00	Top - Section 3	1.14	0.99	6.823	7.51	0.00	1.200	1.752	2.00	5.000	6.00	45.0	103.8	302.6
100.00		1.14	0.99	6.826	7.51	0.00	1.200	1.752	1.00	2.500	3.00	22.5	45.5	90.1
104.00	Appurtenance(s)	1.13	1.00	6.838	7.52	0.00	1.200	1.753	4.00	10.000	12.00	90.3	181.9	360.6
105.00		1.12	1.00	6.841	7.53	0.00	1.200	1.754	1.00	2.500	3.00	22.6	45.5	90.2
107.00	Appurtenance(s)	1.12	1.01	6.848	7.53	0.00	1.200	1.754	2.00	5.000	6.00	45.2	91.0	180.3
110.00		1.11	1.02	6.860	7.55	0.00	1.200	1.755	3.00	7.500	9.00	67.9	136.5	270.5
113.00	Appurtenance(s)	1.10	1.02	6.872	7.56	0.00	1.200	1.756	3.00	7.500	9.00	68.0	136.5	270.6
114.00	Appurtenance(s)	1.10	1.03	6.876	7.56	0.00	1.200	1.757	1.00	2.500	3.00	22.7	45.5	90.2
115.00		1.10	1.03	6.880	7.57	0.00	1.200	1.757	1.00	2.500	3.00	22.7	45.5	90.2
119.00		1.09	1.04	6.898	7.59	0.00	1.200	1.759	4.00	10.000	12.00	91.1	182.1	360.9
<b>Totals:</b>									<b>119.00</b>			<b>3,378.8</b>		<b>22,041.7</b>

## Discrete Appurtenance Forces

<b>Structure:</b> CT13616-A-SBA	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II



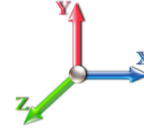
Page: 17

**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 27

**Dead Load Factor** 1.20

**Wind Load Factor** 1.00



No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	114.00	27" Canister at 114.0'	1	6.876	7.563	1.00	1.00	0.00	460.41	0.000	0.000	0.00	0.00	0.00
2	114.00	RFS Twin AWS TMAs	3	6.876	7.563	0.00	1.00	0.00	103.68	0.000	0.000	0.00	0.00	0.00
3	114.00	RFS Twin PCS TMAs	3	6.876	7.563	0.00	1.00	0.00	64.40	0.000	0.000	0.00	0.00	0.00
4	114.00	V18-209014	3	6.876	7.563	0.00	1.00	13.56	335.65	0.000	0.000	102.53	0.00	0.00
5	113.00	Flag (12'x18')	1	6.872	7.559	1.00	1.00	8.48	127.03	0.000	0.000	64.07	0.00	0.00
6	107.00	Andrew SBNHH-1D65B	3	6.848	7.533	1.00	1.00	0.00	611.53	0.000	0.000	0.00	0.00	0.00
7	104.00	28" Canister at 104.0'	1	6.838	7.522	1.00	1.00	0.00	458.70	0.000	0.000	0.00	0.00	0.00
8	97.00	FFVV-65B-R3	3	6.813	7.495	0.00	1.00	63.40	1946.68	0.000	-2.000	475.14	0.00	-950.28
9	97.00	Raycap	1	6.818	7.500	0.00	1.00	0.00	67.03	0.000	0.000	0.00	0.00	0.00
10	94.00	29" Canister at 94.0'	1	6.811	7.492	1.00	1.00	0.00	889.10	0.000	0.000	0.00	0.00	0.00
11	87.00	Redconnex AN-80i	3	6.800	7.480	1.00	1.00	0.00	257.72	0.000	0.000	0.00	0.00	0.00
12	87.00	RFS	6	6.800	7.480	1.00	1.00	0.00	100.73	0.000	0.000	0.00	0.00	0.00
13	87.00	Andrew FPA5250D06-N	2	6.800	7.480	1.00	1.00	0.00	63.89	0.000	0.000	0.00	0.00	0.00
14	87.00	Commscope	3	6.800	7.480	1.00	1.00	0.00	626.35	0.000	0.000	0.00	0.00	0.00
15	84.00	Redconnex AN-80i BTSs	3	6.797	7.476	1.00	1.00	4.52	51.63	0.000	0.000	33.80	0.00	0.00
16	84.00	Andrew FPA5250D06-N	1	6.797	7.476	1.00	1.00	0.71	38.79	0.000	0.000	5.34	0.00	0.00
17	84.00	Argus LLPX310R	3	6.797	7.476	1.00	1.00	0.00	296.87	0.000	0.000	0.00	0.00	0.00
18	84.00	30" Canister at 84.0'	1	6.797	7.476	1.00	1.00	0.00	888.40	0.000	0.000	0.00	0.00	0.00

**Totals: 7,388.59**

**680.87**

## Total Applied Force Summary

<b>Structure:</b> CT13616-A-SBA	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II



Page: 18

**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



**Iterations** 27

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		215.06	1306.37	0.00	0.00
10.00		200.28	1403.01	0.00	0.00
15.00		186.85	1389.72	0.00	0.00
20.00		174.79	1371.60	0.00	0.00
25.00		163.99	1351.04	0.00	0.00
30.00		154.43	1329.14	0.00	0.00
35.00		152.26	1306.47	0.00	0.00
40.00		149.63	1283.35	0.00	0.00
40.50		14.81	127.42	0.00	0.00
45.00		133.67	1651.23	0.00	0.00
50.00		145.65	1113.70	0.00	0.00
55.00		142.59	1093.21	0.00	0.00
60.00		139.53	1072.71	0.00	0.00
65.00		136.51	1052.25	0.00	0.00
70.00		133.53	1031.84	0.00	0.00
75.00		130.62	1011.49	0.00	0.00
79.00		102.44	795.23	0.00	0.00
80.00		22.42	183.84	0.00	0.00
84.00	(8) attachments	128.85	2011.08	0.00	0.00
85.00		22.43	182.76	0.00	0.00
87.00	(14) attachments	44.88	1414.22	0.00	0.00
90.00		67.36	521.72	0.00	0.00
94.00	(1) attachments	89.91	1584.76	0.00	0.00
95.00		22.48	173.92	0.00	0.00
97.00	(4) attachments	520.14	2361.56	0.00	-950.28
99.00		45.03	347.50	0.00	0.00
100.00		22.53	112.61	0.00	0.00
104.00	(1) attachments	90.26	909.19	0.00	0.00
105.00		22.58	112.63	0.00	0.00
107.00	(3) attachments	45.20	836.79	0.00	0.00
110.00		67.91	293.00	0.00	0.00
113.00	(1) attachments	132.10	420.06	0.00	0.00
114.00	(10) attachments	125.22	1061.82	0.00	0.00
115.00		22.70	90.20	0.00	0.00
119.00		91.06	360.86	0.00	0.00
	<b>Totals:</b>	<b>4,059.71</b>	<b>32,668.28</b>	<b>0.00</b>	<b>-950.28</b>

## Calculated Forces

<b>Structure:</b> CT13616-A-SBA	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II



Page: 19

**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 27

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-32.67	-4.07	0.00	-267.13	0.00	267.13	2770.05	1385.03	4672.11	2339.53	0.00	0.000	0.000	0.126
5.00	-31.36	-3.88	0.00	-246.77	0.00	246.77	2737.33	1368.66	4531.89	2269.31	0.02	-0.042	0.000	0.120
10.00	-29.95	-3.70	0.00	-227.37	0.00	227.37	2703.94	1351.97	4392.63	2199.58	0.09	-0.083	0.000	0.114
15.00	-28.56	-3.53	0.00	-208.88	0.00	208.88	2669.88	1334.94	4254.38	2130.35	0.20	-0.123	0.000	0.109
20.00	-27.19	-3.37	0.00	-191.24	0.00	191.24	2635.15	1317.58	4117.21	2061.66	0.35	-0.162	0.000	0.103
25.00	-25.83	-3.22	0.00	-174.40	0.00	174.40	2599.76	1299.88	3981.17	1993.54	0.54	-0.200	0.000	0.097
30.00	-24.50	-3.07	0.00	-158.31	0.00	158.31	2563.70	1281.85	3846.33	1926.02	0.77	-0.236	0.000	0.092
35.00	-23.20	-2.93	0.00	-142.95	0.00	142.95	2526.98	1263.49	3712.75	1859.13	1.03	-0.272	0.000	0.086
40.00	-21.91	-2.78	0.00	-128.30	0.00	128.30	2489.59	1244.79	3580.49	1792.91	1.34	-0.305	0.000	0.080
40.50	-21.78	-2.77	0.00	-126.91	0.00	126.91	2485.81	1242.91	3567.34	1786.32	1.37	-0.308	0.000	0.080
45.00	-20.13	-2.64	0.00	-114.45	0.00	114.45	1840.21	920.11	2636.97	1320.44	1.67	-0.337	0.000	0.098
50.00	-19.02	-2.50	0.00	-101.26	0.00	101.26	1815.76	907.88	2545.53	1274.66	2.04	-0.368	0.000	0.090
55.00	-17.93	-2.36	0.00	-88.78	0.00	88.78	1790.64	895.32	2454.70	1229.18	2.45	-0.402	0.000	0.082
60.00	-16.85	-2.22	0.00	-77.00	0.00	77.00	1764.86	882.43	2364.54	1184.03	2.89	-0.433	0.000	0.075
65.00	-15.80	-2.08	0.00	-65.91	0.00	65.91	1738.40	869.20	2275.11	1139.25	3.36	-0.463	0.000	0.067
70.00	-14.77	-1.95	0.00	-55.50	0.00	55.50	1711.29	855.64	2186.47	1094.86	3.85	-0.489	0.000	0.059
75.00	-13.76	-1.81	0.00	-45.78	0.00	45.78	1683.50	841.75	2098.69	1050.90	4.38	-0.513	0.000	0.052
79.00	-12.96	-1.70	0.00	-38.53	0.00	38.53	1660.79	830.40	2029.12	1016.07	4.82	-0.530	0.000	0.046
79.00	-12.96	-1.70	0.00	-38.53	0.00	38.53	930.23	465.11	237.26	173.90	4.82	-0.530	0.000	0.236
80.00	-12.78	-1.71	0.00	-36.83	0.00	36.83	930.23	465.11	237.26	173.90	4.93	-0.534	0.000	0.226
84.00	-10.76	-1.59	0.00	-29.98	0.00	29.98	930.23	465.11	237.26	173.90	5.50	-0.816	0.000	0.184
85.00	-10.58	-1.58	0.00	-28.39	0.00	28.39	930.23	465.11	237.26	173.90	5.68	-0.878	0.000	0.175
87.00	-9.16	-1.53	0.00	-25.23	0.00	25.23	930.23	465.11	237.26	173.90	6.07	-0.991	0.000	0.155
90.00	-8.64	-1.48	0.00	-20.62	0.00	20.62	930.23	465.11	237.26	173.90	6.74	-1.136	0.000	0.128
94.00	-7.05	-1.37	0.00	-14.70	0.00	14.70	930.23	465.11	237.26	173.90	7.76	-1.285	0.000	0.092
95.00	-6.88	-1.35	0.00	-13.33	0.00	13.33	930.23	465.11	237.26	173.90	8.03	-1.315	0.000	0.084
97.00	-4.53	-0.77	0.00	-10.64	0.00	10.64	930.23	465.11	237.26	173.90	8.59	-1.366	0.000	0.066
99.00	-4.18	-0.72	0.00	-9.09	0.00	9.09	930.23	465.11	237.26	173.90	9.17	-1.407	0.000	0.057
99.00	-4.18	-0.72	0.00	-9.09	0.00	9.09	541.19	270.59	86.27	63.23	9.17	-1.407	0.000	0.152
100.00	-4.07	-0.71	0.00	-8.37	0.00	8.37	541.19	270.59	86.27	63.23	9.47	-1.426	0.000	0.140
104.00	-3.16	-0.61	0.00	-5.52	0.00	5.52	541.19	270.59	86.27	63.23	10.84	-1.810	0.000	0.093
105.00	-3.04	-0.59	0.00	-4.91	0.00	4.91	541.19	270.59	86.27	63.23	11.22	-1.882	0.000	0.083
107.00	-2.21	-0.52	0.00	-3.73	0.00	3.73	541.19	270.59	86.27	63.23	12.04	-2.002	0.000	0.063
110.00	-1.92	-0.44	0.00	-2.18	0.00	2.18	541.19	270.59	86.27	63.23	13.34	-2.124	0.000	0.038
113.00	-1.50	-0.30	0.00	-0.85	0.00	0.85	541.19	270.59	86.27	63.23	14.69	-2.187	0.000	0.016
114.00	-0.45	-0.13	0.00	-0.55	0.00	0.55	541.19	270.59	86.27	63.23	15.15	-2.197	0.000	0.010
115.00	-0.36	-0.10	0.00	-0.42	0.00	0.42	541.19	270.59	86.27	63.23	15.61	-2.203	0.000	0.007
119.00	0.00	-0.09	0.00	0.00	0.00	0.00	541.19	270.59	86.27	63.23	17.47	-2.215	0.000	0.000



## Seismic Segment Forces (Factored)

<b>Structure:</b> CT13616-A-SBA	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II



Page: 20

<b>Load Case:</b> 1.2D + 1.0E							<b>Iterations</b> 24
<b>Gust Response Factor</b>	1.10				<b>Sds</b>	0.21	<b>Ss</b> 0.19
<b>Dead Load Factor</b>	1.20	<b>Seismic Load Factor</b>	1.00	<b>Sd1</b>	0.10		<b>S1</b> 0.06
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.54	<b>SA</b>	0.05	<b>Seismic Importance Factor</b>	1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		686.18	0.00	0.04	0.02	12.23	
10.00		673.53	0.01	0.06	0.03	17.26	
15.00		660.87	0.03	0.07	0.04	19.30	
20.00		648.21	0.05	0.07	0.04	20.13	
25.00		635.56	0.08	0.07	0.04	20.56	
30.00		622.90	0.12	0.07	0.03	20.88	
35.00		610.24	0.16	0.07	0.03	21.04	
40.00		597.59	0.21	0.06	0.02	20.73	
40.50	Bot - Section 2	59.06	0.22	0.06	0.02	2.05	
45.00	Top - Section 1	953.40	0.27	0.05	0.01	31.83	
50.00		465.41	0.33	0.04	0.01	13.77	
55.00		455.29	0.40	0.02	0.01	10.25	
60.00		445.16	0.48	-0.01	0.01	5.41	
65.00		435.04	0.56	-0.04	0.01	-0.11	
70.00		424.91	0.65	-0.07	0.02	-5.15	
75.00		414.79	0.75	-0.10	0.04	-8.43	
79.00	Top - Section 2	324.54	0.83	-0.12	0.06	-7.27	
80.00		74.83	0.85	-0.12	0.07	-1.66	
84.00	Appurtenance(s)	562.62	0.94	-0.12	0.10	-10.12	
85.00		74.83	0.96	-0.12	0.11	-1.20	
87.00	Appurtenance(s)	341.76	1.01	-0.11	0.14	-3.85	
90.00		224.49	1.08	-0.08	0.18	-0.30	
94.00	Appurtenance(s)	449.32	1.18	-0.01	0.24	7.59	
95.00		74.83	1.20	0.01	0.26	1.67	
97.00	Appurtenance(s)	548.66	1.26	0.06	0.30	18.85	
99.00	Top - Section 3	149.66	1.31	0.13	0.34	7.16	
100.00		29.23	1.33	0.17	0.37	1.61	
104.00	Appurtenance(s)	266.92	1.44	0.37	0.48	23.47	
105.00		29.23	1.47	0.43	0.51	2.84	
107.00	Appurtenance(s)	178.46	1.53	0.57	0.58	20.79	
110.00		87.69	1.61	0.83	0.69	13.01	
113.00	Appurtenance(s)	187.69	1.70	1.14	0.82	34.48	
114.00	Appurtenance(s)	321.13	1.73	1.26	0.87	63.03	
115.00		29.23	1.77	1.38	0.92	6.12	
119.00		116.92	1.89	1.98	1.14	30.97	
<b>Totals:</b>		<b>12,860.2</b>				<b>408.9</b>	<b>Total Wind: 10,566.6</b>

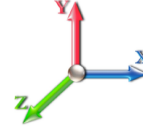
## Calculated Forces

<b>Structure:</b> CT13616-A-SBA	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II



Page: 21

<b>Load Case:</b> 1.2D + 1.0E						<b>Iterations</b> 24
<b>Gust Response Factor</b>	1.10			<b>Sds</b>	0.21	<b>Ss</b> 0.19
<b>Dead Load Factor</b>	1.20	<b>Seismic Load Factor</b>	1.00	<b>Sd1</b>	0.10	<b>S1</b> 0.06
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.54	<b>SA</b>	0.05	<b>Seismic Importance Factor</b> 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-19.05	-0.45	0.00	-33.01	0.00	33.01	2770.05	1385.03	4672.11	2339.53	0.00	0.00	0.00	0.021
5.00	-18.17	-0.44	0.00	-30.77	0.00	30.77	2737.33	1368.66	4531.89	2269.31	0.00	-0.01	-0.01	0.020
10.00	-17.19	-0.42	0.00	-28.59	0.00	28.59	2703.94	1351.97	4392.63	2199.58	0.01	-0.01	-0.01	0.019
15.00	-16.24	-0.40	0.00	-26.49	0.00	26.49	2669.88	1334.94	4254.38	2130.35	0.02	-0.02	-0.02	0.019
20.00	-15.30	-0.38	0.00	-24.47	0.00	24.47	2635.15	1317.58	4117.21	2061.66	0.04	-0.02	-0.02	0.018
25.00	-14.37	-0.36	0.00	-22.56	0.00	22.56	2599.76	1299.88	3981.17	1993.54	0.07	-0.03	-0.03	0.017
30.00	-13.46	-0.34	0.00	-20.74	0.00	20.74	2563.70	1281.85	3846.33	1926.02	0.10	-0.03	-0.03	0.016
35.00	-12.57	-0.32	0.00	-19.02	0.00	19.02	2526.98	1263.49	3712.75	1859.13	0.13	-0.03	-0.03	0.015
40.00	-11.69	-0.30	0.00	-17.40	0.00	17.40	2489.59	1244.79	3580.49	1792.91	0.17	-0.04	-0.04	0.014
40.50	-11.60	-0.30	0.00	-17.25	0.00	17.25	2485.81	1242.91	3567.34	1786.32	0.17	-0.04	-0.04	0.014
45.00	-10.31	-0.27	0.00	-15.90	0.00	15.90	1840.21	920.11	2636.97	1320.44	0.21	-0.04	-0.04	0.018
50.00	-9.59	-0.26	0.00	-14.56	0.00	14.56	1815.76	907.88	2545.53	1274.66	0.26	-0.05	-0.05	0.017
55.00	-8.88	-0.24	0.00	-13.28	0.00	13.28	1790.64	895.32	2454.70	1229.18	0.31	-0.05	-0.05	0.016
60.00	-8.18	-0.24	0.00	-12.06	0.00	12.06	1764.86	882.43	2364.54	1184.03	0.37	-0.06	-0.06	0.015
65.00	-7.50	-0.24	0.00	-10.86	0.00	10.86	1738.40	869.20	2275.11	1139.25	0.43	-0.06	-0.06	0.014
70.00	-6.82	-0.24	0.00	-9.66	0.00	9.66	1711.29	855.64	2186.47	1094.86	0.50	-0.07	-0.07	0.013
75.00	-6.16	-0.24	0.00	-8.47	0.00	8.47	1683.50	841.75	2098.69	1050.90	0.57	-0.07	-0.07	0.012
79.00	-5.64	-0.24	0.00	-7.51	0.00	7.51	1660.79	830.40	2029.12	1016.07	0.64	-0.07	-0.07	0.011
79.00	-5.64	-0.24	0.00	-7.51	0.00	7.51	930.23	465.11	237.26	173.90	0.64	-0.07	-0.07	0.049
80.00	-5.51	-0.24	0.00	-7.27	0.00	7.27	930.23	465.11	237.26	173.90	0.65	-0.08	-0.08	0.048
84.00	-4.67	-0.24	0.00	-6.31	0.00	6.31	930.23	465.11	237.26	173.90	0.74	-0.13	-0.13	0.041
85.00	-4.53	-0.24	0.00	-6.07	0.00	6.07	930.23	465.11	237.26	173.90	0.77	-0.15	-0.15	0.040
87.00	-4.04	-0.24	0.00	-5.58	0.00	5.58	930.23	465.11	237.26	173.90	0.83	-0.17	-0.17	0.036
90.00	-3.68	-0.25	0.00	-4.85	0.00	4.85	930.23	465.11	237.26	173.90	0.95	-0.20	-0.20	0.032
94.00	-3.01	-0.24	0.00	-3.87	0.00	3.87	930.23	465.11	237.26	173.90	1.14	-0.24	-0.24	0.025
95.00	-2.89	-0.23	0.00	-3.63	0.00	3.63	930.23	465.11	237.26	173.90	1.19	-0.25	-0.25	0.024
97.00	-2.16	-0.21	0.00	-3.16	0.00	3.16	930.23	465.11	237.26	173.90	1.30	-0.26	-0.26	0.021
99.00	-1.92	-0.21	0.00	-2.73	0.00	2.73	930.23	465.11	237.26	173.90	1.41	-0.27	-0.27	0.018
99.00	-1.92	-0.21	0.00	-2.73	0.00	2.73	541.19	270.59	86.27	63.23	1.41	-0.27	-0.27	0.047
100.00	-1.85	-0.21	0.00	-2.53	0.00	2.53	541.19	270.59	86.27	63.23	1.47	-0.28	-0.28	0.043
104.00	-1.40	-0.18	0.00	-1.71	0.00	1.71	541.19	270.59	86.27	63.23	1.75	-0.40	-0.40	0.030
105.00	-1.34	-0.18	0.00	-1.53	0.00	1.53	541.19	270.59	86.27	63.23	1.84	-0.42	-0.42	0.027
107.00	-1.06	-0.16	0.00	-1.17	0.00	1.17	541.19	270.59	86.27	63.23	2.02	-0.46	-0.46	0.020
110.00	-0.90	-0.14	0.00	-0.70	0.00	0.70	541.19	270.59	86.27	63.23	2.32	-0.50	-0.50	0.013
113.00	-0.62	-0.11	0.00	-0.27	0.00	0.27	541.19	270.59	86.27	63.23	2.64	-0.52	-0.52	0.005
114.00	-0.22	-0.04	0.00	-0.17	0.00	0.17	541.19	270.59	86.27	63.23	2.75	-0.52	-0.52	0.003
115.00	-0.18	-0.03	0.00	-0.13	0.00	0.13	541.19	270.59	86.27	63.23	2.86	-0.52	-0.52	0.002
119.00	0.00	-0.03	0.00	0.00	0.00	0.00	541.19	270.59	86.27	63.23	3.30	-0.52	-0.52	0.000

## Seismic Segment Forces (Factored)

<b>Structure:</b> CT13616-A-SBA	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II



Page: 22

<b>Load Case:</b> 0.9D + 1.0E				<b>Iterations</b> 24
<b>Gust Response Factor</b>	1.10	<b>Sds</b>	0.21	<b>Ss</b> 0.19
<b>Dead Load Factor</b>	0.90	<b>Seismic Load Factor</b>	1.00	<b>S1</b> 0.06
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.54	<b>SA</b> 0.05
				<b>Seismic Importance Factor</b> 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		686.18	0.00	0.04	0.02	12.23	
10.00		673.53	0.01	0.06	0.03	17.26	
15.00		660.87	0.03	0.07	0.04	19.30	
20.00		648.21	0.05	0.07	0.04	20.13	
25.00		635.56	0.08	0.07	0.04	20.56	
30.00		622.90	0.12	0.07	0.03	20.88	
35.00		610.24	0.16	0.07	0.03	21.04	
40.00		597.59	0.21	0.06	0.02	20.73	
40.50	Bot - Section 2	59.06	0.22	0.06	0.02	2.05	
45.00	Top - Section 1	953.40	0.27	0.05	0.01	31.83	
50.00		465.41	0.33	0.04	0.01	13.77	
55.00		455.29	0.40	0.02	0.01	10.25	
60.00		445.16	0.48	-0.01	0.01	5.41	
65.00		435.04	0.56	-0.04	0.01	-0.11	
70.00		424.91	0.65	-0.07	0.02	-5.15	
75.00		414.79	0.75	-0.10	0.04	-8.43	
79.00	Top - Section 2	324.54	0.83	-0.12	0.06	-7.27	
80.00		74.83	0.85	-0.12	0.07	-1.66	
84.00	Appurtenance(s)	562.62	0.94	-0.12	0.10	-10.12	
85.00		74.83	0.96	-0.12	0.11	-1.20	
87.00	Appurtenance(s)	341.76	1.01	-0.11	0.14	-3.85	
90.00		224.49	1.08	-0.08	0.18	-0.30	
94.00	Appurtenance(s)	449.32	1.18	-0.01	0.24	7.59	
95.00		74.83	1.20	0.01	0.26	1.67	
97.00	Appurtenance(s)	548.66	1.26	0.06	0.30	18.85	
99.00	Top - Section 3	149.66	1.31	0.13	0.34	7.16	
100.00		29.23	1.33	0.17	0.37	1.61	
104.00	Appurtenance(s)	266.92	1.44	0.37	0.48	23.47	
105.00		29.23	1.47	0.43	0.51	2.84	
107.00	Appurtenance(s)	178.46	1.53	0.57	0.58	20.79	
110.00		87.69	1.61	0.83	0.69	13.01	
113.00	Appurtenance(s)	187.69	1.70	1.14	0.82	34.48	
114.00	Appurtenance(s)	321.13	1.73	1.26	0.87	63.03	
115.00		29.23	1.77	1.38	0.92	6.12	
119.00		116.92	1.89	1.98	1.14	30.97	
<b>Totals:</b>		<b>12,860.2</b>				<b>408.9</b>	<b>Total Wind: 10,566.6</b>

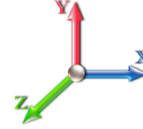
## Calculated Forces

<b>Structure:</b> CT13616-A-SBA	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II



Page: 23

<b>Load Case:</b> 0.9D + 1.0E						<b>Iterations</b> 24
<b>Gust Response Factor</b>	1.10			<b>Sds</b>	0.21	<b>Ss</b> 0.19
<b>Dead Load Factor</b>	0.90	<b>Seismic Load Factor</b>	1.00	<b>Sd1</b>	0.10	<b>S1</b> 0.06
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.54	<b>SA</b>	0.05	<b>Seismic Importance Factor</b> 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-14.29	-0.45	0.00	-32.78	0.00	32.78	2770.05	1385.03	4672.11	2339.53	0.00	0.00	0.00	0.019
5.00	-13.62	-0.44	0.00	-30.54	0.00	30.54	2737.33	1368.66	4531.89	2269.31	0.00	-0.01	0.018	
10.00	-12.90	-0.42	0.00	-28.36	0.00	28.36	2703.94	1351.97	4392.63	2199.58	0.01	-0.01	0.018	
15.00	-12.18	-0.40	0.00	-26.26	0.00	26.26	2669.88	1334.94	4254.38	2130.35	0.02	-0.02	0.017	
20.00	-11.47	-0.38	0.00	-24.26	0.00	24.26	2635.15	1317.58	4117.21	2061.66	0.04	-0.02	0.016	
25.00	-10.78	-0.36	0.00	-22.35	0.00	22.35	2599.76	1299.88	3981.17	1993.54	0.07	-0.03	0.015	
30.00	-10.10	-0.34	0.00	-20.54	0.00	20.54	2563.70	1281.85	3846.33	1926.02	0.10	-0.03	0.015	
35.00	-9.42	-0.32	0.00	-18.83	0.00	18.83	2526.98	1263.49	3712.75	1859.13	0.13	-0.03	0.014	
40.00	-8.76	-0.30	0.00	-17.22	0.00	17.22	2489.59	1244.79	3580.49	1792.91	0.17	-0.04	0.013	
40.50	-8.70	-0.30	0.00	-17.07	0.00	17.07	2485.81	1242.91	3567.34	1786.32	0.17	-0.04	0.013	
45.00	-7.73	-0.27	0.00	-15.73	0.00	15.73	1840.21	920.11	2636.97	1320.44	0.21	-0.04	0.016	
50.00	-7.19	-0.25	0.00	-14.40	0.00	14.40	1815.76	907.88	2545.53	1274.66	0.26	-0.05	0.015	
55.00	-6.66	-0.24	0.00	-13.13	0.00	13.13	1790.64	895.32	2454.70	1229.18	0.31	-0.05	0.014	
60.00	-6.14	-0.24	0.00	-11.92	0.00	11.92	1764.86	882.43	2364.54	1184.03	0.37	-0.06	0.014	
65.00	-5.62	-0.24	0.00	-10.73	0.00	10.73	1738.40	869.20	2275.11	1139.25	0.43	-0.06	0.013	
70.00	-5.12	-0.24	0.00	-9.55	0.00	9.55	1711.29	855.64	2186.47	1094.86	0.50	-0.07	0.012	
75.00	-4.62	-0.24	0.00	-8.36	0.00	8.36	1683.50	841.75	2098.69	1050.90	0.57	-0.07	0.011	
79.00	-4.23	-0.24	0.00	-7.41	0.00	7.41	1660.79	830.40	2029.12	1016.07	0.63	-0.07	0.010	
79.00	-4.23	-0.24	0.00	-7.41	0.00	7.41	930.23	465.11	237.26	173.90	0.63	-0.07	0.047	
80.00	-4.13	-0.24	0.00	-7.18	0.00	7.18	930.23	465.11	237.26	173.90	0.64	-0.07	0.046	
84.00	-3.50	-0.24	0.00	-6.22	0.00	6.22	930.23	465.11	237.26	173.90	0.73	-0.13	0.040	
85.00	-3.40	-0.24	0.00	-5.98	0.00	5.98	930.23	465.11	237.26	173.90	0.76	-0.14	0.038	
87.00	-3.03	-0.24	0.00	-5.50	0.00	5.50	930.23	465.11	237.26	173.90	0.83	-0.17	0.035	
90.00	-2.76	-0.24	0.00	-4.78	0.00	4.78	930.23	465.11	237.26	173.90	0.94	-0.20	0.030	
94.00	-2.26	-0.23	0.00	-3.81	0.00	3.81	930.23	465.11	237.26	173.90	1.13	-0.24	0.024	
95.00	-2.16	-0.23	0.00	-3.58	0.00	3.58	930.23	465.11	237.26	173.90	1.18	-0.24	0.023	
97.00	-1.62	-0.21	0.00	-3.12	0.00	3.12	930.23	465.11	237.26	173.90	1.28	-0.26	0.020	
99.00	-1.44	-0.20	0.00	-2.70	0.00	2.70	930.23	465.11	237.26	173.90	1.39	-0.27	0.017	
99.00	-1.44	-0.20	0.00	-2.70	0.00	2.70	541.19	270.59	86.27	63.23	1.39	-0.27	0.045	
100.00	-1.39	-0.20	0.00	-2.49	0.00	2.49	541.19	270.59	86.27	63.23	1.45	-0.28	0.042	
104.00	-1.05	-0.18	0.00	-1.68	0.00	1.68	541.19	270.59	86.27	63.23	1.73	-0.39	0.029	
105.00	-1.00	-0.18	0.00	-1.50	0.00	1.50	541.19	270.59	86.27	63.23	1.82	-0.41	0.026	
107.00	-0.79	-0.15	0.00	-1.15	0.00	1.15	541.19	270.59	86.27	63.23	2.00	-0.45	0.020	
110.00	-0.68	-0.14	0.00	-0.69	0.00	0.69	541.19	270.59	86.27	63.23	2.30	-0.49	0.012	
113.00	-0.47	-0.10	0.00	-0.27	0.00	0.27	541.19	270.59	86.27	63.23	2.61	-0.51	0.005	
114.00	-0.17	-0.04	0.00	-0.17	0.00	0.17	541.19	270.59	86.27	63.23	2.72	-0.51	0.003	
115.00	-0.13	-0.03	0.00	-0.13	0.00	0.13	541.19	270.59	86.27	63.23	2.83	-0.51	0.002	
119.00	0.00	-0.03	0.00	0.00	0.00	0.00	541.19	270.59	86.27	63.23	3.26	-0.52	0.000	

## Wind Loading - Shaft

<b>Structure:</b> CT13616-A-SBA	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II



Page: 24

<b>Load Case:</b> 1.0D + 1.0W 60 mph Wind	<b>Iterations</b> 26
<b>Dead Load Factor</b> 1.00	
<b>Wind Load Factor</b> 1.00	

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		2.18	0.70	13.370	14.71	259.43	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		2.05	0.70	12.568	13.83	246.97	0.650	0.000	5.00	17.336	11.27	155.8	0.0	686.2
10.00		1.94	0.70	11.864	13.05	235.52	0.650	0.000	5.00	17.019	11.06	144.4	0.0	673.5
15.00		1.83	0.70	11.243	12.37	224.96	0.650	0.000	5.00	16.702	10.86	134.3	0.0	660.9
20.00		1.75	0.70	10.695	11.76	215.20	0.650	0.000	5.00	16.384	10.65	125.3	0.0	648.2
25.00		1.67	0.70	10.211	11.23	206.16	0.650	0.000	5.00	16.067	10.44	117.3	0.0	635.6
30.00		1.60	0.70	9.790	10.77	197.84	0.650	0.000	5.00	15.750	10.24	110.2	0.0	622.9
35.00		1.53	0.73	9.833	10.82	194.24	0.650	0.000	5.00	15.432	10.03	108.5	0.0	610.2
40.00		1.48	0.76	9.848	10.83	190.34	0.650	0.000	5.00	15.115	9.82	106.4	0.0	597.6
40.50	Bot - Section 2	1.47	0.76	9.848	10.83	189.95	0.650	0.000	0.50	1.494	0.97	10.5	0.0	59.1
45.00	Top - Section 1	1.43	0.79	9.846	10.83	186.29	0.650	0.000	4.50	13.494	8.77	95.0	0.0	953.4
50.00		1.39	0.81	9.837	10.82	184.86	0.650	0.000	5.00	14.692	9.55	103.3	0.0	465.4
55.00		1.35	0.83	9.823	10.81	180.70	0.650	0.000	5.00	14.375	9.34	101.0	0.0	455.3
60.00		1.31	0.85	9.810	10.79	176.54	0.650	0.000	5.00	14.057	9.14	98.6	0.0	445.2
65.00		1.28	0.87	9.798	10.78	172.41	0.650	0.000	5.00	13.740	8.93	96.3	0.0	435.0
70.00		1.25	0.89	9.789	10.77	168.31	0.650	0.000	5.00	13.423	8.72	93.9	0.0	424.9
75.00		1.23	0.91	9.785	10.76	164.24	0.650	0.000	5.00	13.105	8.52	91.7	0.0	414.8
79.00	Top - Section 2	1.21	0.92	9.784	10.76	161.01	0.650	0.000	4.00	10.256	6.67	71.7	0.0	324.5
80.00		1.21	0.93	9.784	10.76	158.57	0.600	0.000	1.00	2.500	1.50	16.1	0.0	82.8
84.00	Appurtenance(s)	1.19	0.94	9.787	10.77	158.60	0.600	0.000	4.00	10.000	6.00	64.6	0.0	331.3
85.00		1.19	0.94	9.789	10.77	158.61	0.600	0.000	1.00	2.500	1.50	16.2	0.0	82.8
87.00	Appurtenance(s)	1.18	0.95	9.792	10.77	158.63	0.600	0.000	2.00	5.000	3.00	32.3	0.0	165.7
90.00		1.17	0.96	9.798	10.78	158.68	0.600	0.000	3.00	7.500	4.50	48.5	0.0	248.5
94.00	Appurtenance(s)	1.15	0.97	9.808	10.79	158.76	0.600	0.000	4.00	10.000	6.00	64.7	0.0	331.3
95.00		1.15	0.97	9.811	10.79	158.79	0.600	0.000	1.00	2.500	1.50	16.2	0.0	82.8
97.00	Appurtenance(s)	1.14	0.98	9.818	10.80	158.84	0.600	0.000	2.00	5.000	3.00	32.4	0.0	165.7
99.00	Top - Section 3	1.14	0.99	9.825	10.81	158.90	0.600	0.000	2.00	5.000	3.00	32.4	0.0	165.7
100.00		1.14	0.99	9.829	10.81	158.94	0.600	0.000	1.00	2.500	1.50	16.2	0.0	37.2
104.00	Appurtenance(s)	1.13	1.00	9.847	10.83	159.08	0.600	0.000	4.00	10.000	6.00	65.0	0.0	148.9
105.00		1.12	1.00	9.852	10.84	159.11	0.600	0.000	1.00	2.500	1.50	16.3	0.0	37.2
107.00	Appurtenance(s)	1.12	1.01	9.862	10.85	159.20	0.600	0.000	2.00	5.000	3.00	32.5	0.0	74.5
110.00		1.11	1.02	9.878	10.87	159.33	0.600	0.000	3.00	7.500	4.50	48.9	0.0	111.7
113.00	Appurtenance(s)	1.10	1.02	9.895	10.88	159.47	0.600	0.000	3.00	7.500	4.50	49.0	0.0	111.7
114.00	Appurtenance(s)	1.10	1.03	9.901	10.89	159.52	0.600	0.000	1.00	2.500	1.50	16.3	0.0	37.2
115.00		1.10	1.03	9.908	10.90	159.57	0.600	0.000	1.00	2.500	1.50	16.3	0.0	37.2
119.00		1.09	1.04	9.934	10.93	159.78	0.600	0.000	4.00	10.000	6.00	65.6	0.0	148.9
<b>Totals:</b>									<b>119.00</b>			<b>2,413.8</b>		<b>11,513.9</b>



## Discrete Appurtenance Forces

<b>Structure:</b> CT13616-A-SBA	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II



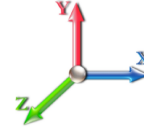
Page: 25

**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 26

**Dead Load Factor** 1.00

**Wind Load Factor** 1.00



No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	114.00	27" Canister at 114.0'	1	9.901	10.891	1.00	1.00	0.00	150.00	0.000	0.000	0.00	0.00	0.00
2	114.00	RFS Twin AWS TMAs	3	9.901	10.891	0.00	1.00	0.00	52.80	0.000	0.000	0.00	0.00	0.00
3	114.00	RFS Twin PCS TMAs	3	9.901	10.891	0.00	1.00	0.00	33.00	0.000	0.000	0.00	0.00	0.00
4	114.00	V18-209014	3	9.901	10.891	0.00	1.00	0.00	56.10	0.000	0.000	0.00	0.00	0.00
5	113.00	Flag (12'x18')	1	9.895	10.885	1.00	1.00	7.92	100.00	0.000	0.000	86.21	0.00	0.00
6	107.00	Andrew SBNHH-1D65B	3	9.862	10.848	1.00	1.00	0.00	120.00	0.000	0.000	0.00	0.00	0.00
7	104.00	28" Canister at 104.0'	1	9.847	10.831	1.00	1.00	0.00	150.00	0.000	0.000	0.00	0.00	0.00
8	97.00	FFVV-65B-R3	3	9.811	10.792	0.00	1.00	0.00	377.10	0.000	-2.000	0.00	0.00	0.00
9	97.00	Raycap	1	9.818	10.800	0.00	1.00	0.00	21.90	0.000	0.000	0.00	0.00	0.00
10	94.00	29" Canister at 94.0'	1	9.808	10.789	1.00	1.00	0.00	150.00	0.000	0.000	0.00	0.00	0.00
11	87.00	Redconnex AN-80i	3	9.792	10.771	1.00	1.00	0.00	13.50	0.000	0.000	0.00	0.00	0.00
12	87.00	RFS	6	9.792	10.771	1.00	1.00	0.00	38.40	0.000	0.000	0.00	0.00	0.00
13	87.00	Andrew FPA5250D06-N	2	9.792	10.771	1.00	1.00	0.00	4.00	0.000	0.000	0.00	0.00	0.00
14	87.00	Commscope	3	9.792	10.771	1.00	1.00	0.00	136.20	0.000	0.000	0.00	0.00	0.00
15	84.00	Redconnex AN-80i BTSs	3	9.787	10.766	1.00	1.00	2.49	13.50	0.000	0.000	26.81	0.00	0.00
16	84.00	Andrew FPA5250D06-N	1	9.787	10.766	1.00	1.00	0.00	14.00	0.000	0.000	0.00	0.00	0.00
17	84.00	Argus LLPX310R	3	9.787	10.766	1.00	1.00	0.00	85.80	0.000	0.000	0.00	0.00	0.00
18	84.00	30" Canister at 84.0'	1	9.787	10.766	1.00	1.00	0.00	150.00	0.000	0.000	0.00	0.00	0.00

**Totals: 1,666.30**

**113.01**

## Total Applied Force Summary

<b>Structure:</b> CT13616-A-SBA	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II



Page: 26

**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 26

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		155.79	740.50	0.00	0.00
10.00		144.36	809.33	0.00	0.00
15.00		134.26	796.67	0.00	0.00
20.00		125.29	784.01	0.00	0.00
25.00		117.30	771.36	0.00	0.00
30.00		110.25	758.70	0.00	0.00
35.00		108.50	746.04	0.00	0.00
40.00		106.43	733.39	0.00	0.00
40.50		10.52	72.64	0.00	0.00
45.00		95.00	1075.62	0.00	0.00
50.00		103.33	601.21	0.00	0.00
55.00		100.96	591.09	0.00	0.00
60.00		98.60	580.96	0.00	0.00
65.00		96.26	570.84	0.00	0.00
70.00		93.95	560.71	0.00	0.00
75.00		91.68	550.59	0.00	0.00
79.00		71.74	433.18	0.00	0.00
80.00		16.14	109.99	0.00	0.00
84.00	(8) attachments	91.40	703.26	0.00	0.00
85.00		16.15	109.09	0.00	0.00
87.00	(14) attachments	32.31	410.27	0.00	0.00
90.00		48.50	305.10	0.00	0.00
94.00	(1) attachments	64.73	556.80	0.00	0.00
95.00		16.19	101.70	0.00	0.00
97.00	(4) attachments	32.40	602.40	0.00	0.00
99.00		32.42	203.10	0.00	0.00
100.00		16.22	55.95	0.00	0.00
104.00	(1) attachments	64.99	373.80	0.00	0.00
105.00		16.26	55.95	0.00	0.00
107.00	(3) attachments	32.54	231.90	0.00	0.00
110.00		48.89	130.41	0.00	0.00
113.00	(1) attachments	135.19	230.41	0.00	0.00
114.00	(10) attachments	16.34	335.37	0.00	0.00
115.00		16.35	37.23	0.00	0.00
119.00		65.56	148.92	0.00	0.00
	Totals:	2,526.81	15,878.53	0.00	0.00

## Calculated Forces

**Structure:** CT13616-A-SBA

**Code:** TIA-222-G

5/31/2022

**Site Name:** St. Judes

**Exposure:** B

**Height:** 119.00 (ft)

**Crest Height:** 101.00

**Base Elev:** 0.000 (ft)

**Site Class:** D - Stiff Soil

**Gh:** 1.1

**Topography:** 3

**Struct Class:** II

Page: 27

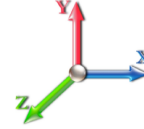


**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 26

**Dead Load Factor** 1.00

**Wind Load Factor** 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-15.88	-2.53	0.00	-147.62	0.00	147.62	2770.05	1385.03	4672.11	2339.53	0.00	0.000	0.000	0.069
5.00	-15.14	-2.38	0.00	-134.98	0.00	134.98	2737.33	1368.66	4531.89	2269.31	0.01	-0.023	0.000	0.065
10.00	-14.33	-2.24	0.00	-123.08	0.00	123.08	2703.94	1351.97	4392.63	2199.58	0.05	-0.046	0.000	0.061
15.00	-13.53	-2.11	0.00	-111.87	0.00	111.87	2669.88	1334.94	4254.38	2130.35	0.11	-0.067	0.000	0.058
20.00	-12.74	-1.99	0.00	-101.32	0.00	101.32	2635.15	1317.58	4117.21	2061.66	0.19	-0.088	0.000	0.054
25.00	-11.97	-1.87	0.00	-91.38	0.00	91.38	2599.76	1299.88	3981.17	1993.54	0.29	-0.108	0.000	0.050
30.00	-11.21	-1.77	0.00	-82.01	0.00	82.01	2563.70	1281.85	3846.33	1926.02	0.42	-0.127	0.000	0.047
35.00	-10.47	-1.66	0.00	-73.18	0.00	73.18	2526.98	1263.49	3712.75	1859.13	0.56	-0.145	0.000	0.044
40.00	-9.73	-1.55	0.00	-64.88	0.00	64.88	2489.59	1244.79	3580.49	1792.91	0.72	-0.162	0.000	0.040
40.50	-9.66	-1.54	0.00	-64.11	0.00	64.11	2485.81	1242.91	3567.34	1786.32	0.74	-0.164	0.000	0.040
45.00	-8.59	-1.45	0.00	-57.17	0.00	57.17	1840.21	920.11	2636.97	1320.44	0.90	-0.178	0.000	0.048
50.00	-7.98	-1.34	0.00	-49.93	0.00	49.93	1815.76	907.88	2545.53	1274.66	1.09	-0.193	0.000	0.044
55.00	-7.39	-1.24	0.00	-43.22	0.00	43.22	1790.64	895.32	2454.70	1229.18	1.30	-0.210	0.000	0.039
60.00	-6.81	-1.14	0.00	-37.00	0.00	37.00	1764.86	882.43	2364.54	1184.03	1.53	-0.225	0.000	0.035
65.00	-6.24	-1.05	0.00	-31.28	0.00	31.28	1738.40	869.20	2275.11	1139.25	1.78	-0.239	0.000	0.031
70.00	-5.68	-0.95	0.00	-26.05	0.00	26.05	1711.29	855.64	2186.47	1094.86	2.03	-0.252	0.000	0.027
75.00	-5.13	-0.86	0.00	-21.30	0.00	21.30	1683.50	841.75	2098.69	1050.90	2.30	-0.263	0.000	0.023
79.00	-4.70	-0.78	0.00	-17.86	0.00	17.86	1660.79	830.40	2029.12	1016.07	2.53	-0.271	0.000	0.020
79.00	-4.70	-0.78	0.00	-17.86	0.00	17.86	930.23	465.11	237.26	173.90	2.53	-0.271	0.000	0.108
80.00	-4.59	-0.77	0.00	-17.08	0.00	17.08	930.23	465.11	237.26	173.90	2.58	-0.273	0.000	0.103
84.00	-3.88	-0.68	0.00	-13.98	0.00	13.98	930.23	465.11	237.26	173.90	2.87	-0.404	0.000	0.085
85.00	-3.77	-0.67	0.00	-13.30	0.00	13.30	930.23	465.11	237.26	173.90	2.96	-0.433	0.000	0.081
87.00	-3.36	-0.64	0.00	-11.96	0.00	11.96	930.23	465.11	237.26	173.90	3.15	-0.486	0.000	0.072
90.00	-3.06	-0.59	0.00	-10.05	0.00	10.05	930.23	465.11	237.26	173.90	3.48	-0.556	0.000	0.061
94.00	-2.50	-0.52	0.00	-7.69	0.00	7.69	930.23	465.11	237.26	173.90	3.98	-0.631	0.000	0.047
95.00	-2.40	-0.50	0.00	-7.17	0.00	7.17	930.23	465.11	237.26	173.90	4.11	-0.646	0.000	0.044
97.00	-1.80	-0.47	0.00	-6.16	0.00	6.16	930.23	465.11	237.26	173.90	4.39	-0.674	0.000	0.037
99.00	-1.59	-0.43	0.00	-5.23	0.00	5.23	930.23	465.11	237.26	173.90	4.67	-0.699	0.000	0.032
99.00	-1.59	-0.43	0.00	-5.23	0.00	5.23	541.19	270.59	86.27	63.23	4.67	-0.699	0.000	0.086
100.00	-1.54	-0.42	0.00	-4.80	0.00	4.80	541.19	270.59	86.27	63.23	4.82	-0.709	0.000	0.079
104.00	-1.16	-0.35	0.00	-3.13	0.00	3.13	541.19	270.59	86.27	63.23	5.51	-0.928	0.000	0.052
105.00	-1.11	-0.33	0.00	-2.78	0.00	2.78	541.19	270.59	86.27	63.23	5.71	-0.969	0.000	0.046
107.00	-0.88	-0.30	0.00	-2.11	0.00	2.11	541.19	270.59	86.27	63.23	6.13	-1.037	0.000	0.035
110.00	-0.75	-0.25	0.00	-1.21	0.00	1.21	541.19	270.59	86.27	63.23	6.81	-1.106	0.000	0.021
113.00	-0.52	-0.11	0.00	-0.47	0.00	0.47	541.19	270.59	86.27	63.23	7.52	-1.141	0.000	0.008
114.00	-0.18	-0.09	0.00	-0.36	0.00	0.36	541.19	270.59	86.27	63.23	7.76	-1.146	0.000	0.006
115.00	-0.15	-0.07	0.00	-0.27	0.00	0.27	541.19	270.59	86.27	63.23	8.00	-1.151	0.000	0.005
119.00	0.00	-0.07	0.00	0.00	0.00	0.00	541.19	270.59	86.27	63.23	8.97	-1.158	0.000	0.000

## Final Analysis Summary

<b>Structure:</b> CT13616-A-SBA	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II



Page: 28

### Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 97 mph Wind	10.6	0.00	19.04	0.00	0.00	619.62
0.9D + 1.6W 97 mph Wind	10.6	0.00	14.28	0.00	0.00	616.16
1.2D + 1.0Di + 1.0Wi 50 mph Wind	4.1	0.00	32.67	0.00	0.00	267.13
1.2D + 1.0E	0.4	0.00	19.05	0.00	0.00	33.01
0.9D + 1.0E	0.4	0.00	14.29	0.00	0.00	32.78
1.0D + 1.0W 60 mph Wind	2.5	0.00	15.88	0.00	0.00	147.62

### Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 97 mph Wind	-5.58	-3.30	0.00	-75.39	0.00	-75.39	1660.79	830.40	2029.12	1016.07	79.00	0.440
0.9D + 1.6W 97 mph Wind	-4.17	-3.27	0.00	-74.26	0.00	-74.26	1660.79	830.40	2029.12	1016.07	79.00	0.432
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-12.96	-1.70	0.00	-38.53	0.00	-38.53	1660.79	830.40	2029.12	1016.07	79.00	0.236
1.2D + 1.0E	-5.64	-0.24	0.00	-7.51	0.00	-7.51	1660.79	830.40	2029.12	1016.07	79.00	0.049
0.9D + 1.0E	-4.23	-0.24	0.00	-7.41	0.00	-7.41	1660.79	830.40	2029.12	1016.07	79.00	0.047
1.0D + 1.0W 60 mph Wind	-4.70	-0.78	0.00	-17.86	0.00	-17.86	1660.79	830.40	2029.12	1016.07	79.00	0.108

## Base Plate Summary

<b>Structure:</b> CT13616-A-SB	<b>Code:</b> TIA-222-G	5/31/2022
<b>Site Name:</b> St. Judes	<b>Exposure:</b> B	
<b>Height:</b> 119.00 (ft)	<b>Crest Height:</b> 101.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 3	<b>Struct Class:</b> II
		<b>Page:</b> 29



Reactions	Base Plate	Anchor Bolts
Original Design	<b>Yield (ksi):</b> 50.00	<b>Bolt Circle:</b> 48.00
<b>Moment (kip-ft):</b> 1550.00	<b>Width (in):</b> 46.00	<b>Number Bolts:</b> 12.00
<b>Axial (kip):</b> 19.00	<b>Style:</b> Clipped	<b>Bolt Type:</b> 2.25" 18J
<b>Shear (kip):</b> 23.00	<b>Polygon Sides:</b> 0.00	<b>Bolt Diameter (in):</b> 2.25
Analysis (1.2D + 1.6W)	<b>Clip Length (in):</b> 6.00	<b>Yield (ksi):</b> 75.00
<b>Moment (kip-ft):</b> 619.62	<b>Effective Len (in):</b> 9.38	<b>Ultimate (ksi):</b> 100.00
<b>Axial (kip):</b> 19.04	<b>Moment (kip-in):</b> 180.74	<b>Arrangement:</b> Clustered
<b>Shear (kip):</b> 10.58	<b>Allow Stress (ksi):</b> 67.50	<b>Cluster Dist (in):</b> 6.00
	<b>Applied Stress (ksi):</b> 15.53	<b>Start Angle (deg):</b> 45.00
	<b>Stress Ratio:</b> 0.23	Compression
		<b>Force (kip):</b> 54.36
		<b>Allowable (kip):</b> 260.00
		<b>Ratio:</b> 0.22
		Tension
		<b>Force (kip):</b> 48.91
		<b>Allowable (kip):</b> 260.00
		<b>Ratio:</b> 0.19



# Monopole Mat Foundation Design

Date

5/31/2022

<b>Customer Name:</b>	Dish Wireless	<b>EIA/TIA Standard:</b>	TIA-222-G
<b>Site Name:</b>		<b>Structure Height (Ft.):</b>	119
<b>Site Number:</b>	CT13616-A-SBA	<b>Engineer Name:</b>	D. Colahan
<b>Engr. Number:</b>	129781	<b>Engineer Login ID:</b>	

**Foundation Info Obtained from:**

Drawings/Calculations
Monopole
Analysis

**Structure Type:**

**Analysis or Design?**

**Base Reactions (Factored):**

Axial Load (Kips):	19.0	Shear Force (Kips):	10.6
Uplift Force (Kips):	0.0	Moment (Kips-ft):	619.6

Allowable overstress %: 5.0%

**Foundation Geometries:**

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	6.0	Depth of Base BG (ft.):	6.0
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	3.00
Length of Pad (ft.):	20	Width of Pad (ft.):	20

Final Length of pad (ft)	20.0	Final width of pad (ft):	20.0
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**Material Properties and Rebar Info:**

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	40	
Vertical Rebar Size #:	8	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	34	Tie Spacing (in):	6.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	8	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf

Rebar at the bottom of the concrete pad:			
Qty. of Rebar in Pad (L):	20	Qty. of Rebar in Pad (W):	20

Rebar at the top of the concrete pad:			
Qty. of Rebar in Pad (L):	20	Qty. of Rebar in Pad (W):	20

Apply 1.35 factor for e/w Per G: 1.35

**Soil Design Parameters:**

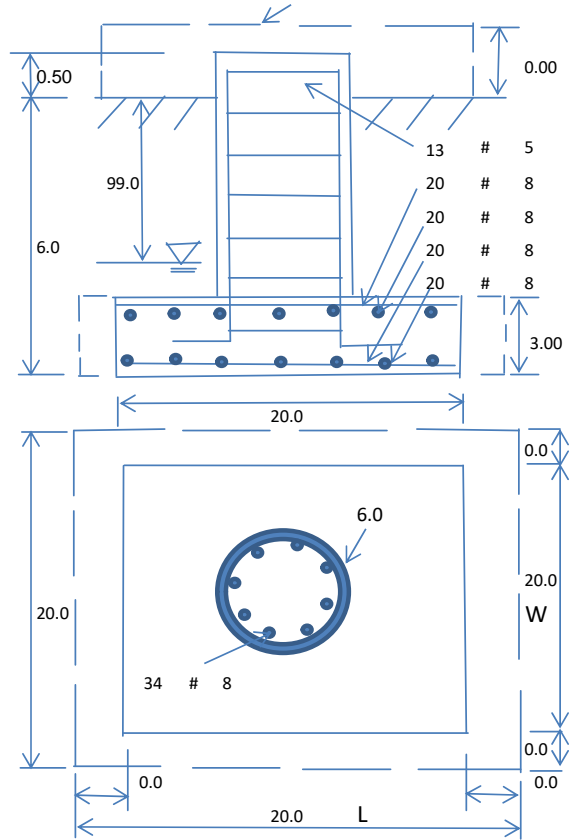
Soil Unit Weight (pcf):	120.0	Soil Buoyant Weight:	47.6	Pcf		
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	12000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	Yes	Reduction factor on the maximum soil bearing pressure:	1.00			

**Foundation Analysis and Design:**

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	1115.18	Total Dry Soil Weight (Kips):	133.82
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	133.82	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	1298.96	Total Dry Concrete Weight (Kips):	194.84
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	194.84	Total Vertical Load on Base (Kips):	347.67

**Check Soil Capacities:**

Calculated Maxium Net Soil Pressure under the base (psf):	1017	< Allowable Factored Soil Bearing (psf):	9000	0.11	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	3148.0	> Design Factored Momont (kips-ft):	566	0.18	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	5.56				OK!





**Check the capacities of Reinforcing Concrete:**

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compression):	0.65	Wind Load Factor on Concrete Design:	1.00		
<b>(1) Concrete Pier:</b>					
Vertical Steel Rebar Area (sq. in./each):	0.79	Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	3716.1	> Design Factored Moment (Mu, Kips-F	656.7	0.18	OK!
Calculated Shear Capacity (Kips):	572.6	> Design Factored Shear (Kips):	10.6	0.02	OK!
Calculated Tension Capacity (Tn, Kips):	1450.4	> Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	5363.2	> Design Factored Axial Load (Pu Kips):	19.0	0.00	OK!
Moment & Axial Strength Combination:	0.18	OK! Check Tie Spacing (Design/Required):	0.5		OK!
Pier Reinforcement Ratio:	0.007	Reinforcement Ratio is satisfied per ACI			
<b>(2).Concrete Pad:</b>					
One-Way Design Shear Capacity (L-Direction, Kips):	640.8	> One-Way Factored Shear (L-D. Kips):	60.5	0.09	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	640.8	> One-Way Factored Shear (W-D., Kips)	60.5	0.09	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	540.5	> One-Way Factored Shear (C-C, Kips):	47.8	0.09	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct. ):	0.0020	OK! Lower Steel Pad Reinf. Ratio (W-Direc	0.0020		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	2255.7	> Moment at Bottom ( L-Dir. K-Ft):	292.3	0.13	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	2255.7	> Moment at Bottom ( W-Dir. K-Ft):	292.3	0.13	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	3169.0	> Moment at Bottom ( C-C Dir. K-Ft):	413.4	0.13	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct. ):	0.0020	OK! Upper Steel Reinf. Ratio (W-Dir. ):	0.0020		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	2255.7	> Moment at the top (L-Dir K-Ft):	85.7	0.04	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	2255.7	> Moment at the top (W-Dir K-Ft):	85.7	0.04	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	3169.0	> Moment at the top (C-C Dir. K-Ft):	80.6	0.03	OK!
<b>(3).Check Punching Shear Capacity due to Moment in the Pier:</b>					
Moment transferred by punching shear:	247.8	k-ft. Max. factored shear stress $v_{u,CD}$ :	0.3	Psi	
Max. factored shear stress $v_{u,AB}$ :	3.0	Psi Factored shear Strength $\phi v_n$ :	164.3	Psi	
Max. factored shear stress $v_u$ :	3.0	Psi Check Usage of Punching Shear Capacity:	0.02		OK!

# Exhibit E

## **Mount Analysis**



April 11, 2022

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

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

**Subject:** **Appurtenance Mount Analysis Report**

**Carrier Designation:** **Dish Wireless Co-Locate**  
**Site Number:** BOHVN00049A  
**Site Name:** N/A

**SBA Network Services Designation:** **Site Number:** CT13616-A  
**Site Name:** St. Judes  
**Application Number:** 173334, v1

**Engineering Firm Designation:** **B+T Group Project Number:** 149474.003.01

**Site Data:** **71 Pleasantview Road, Derby, CT, 06418, New Haven County**  
**Latitude 41.31504°, Longitude -73.06431°**  
**Monopole**  
**Pipe Mounts within 30" concealed canister**

Dear Ms. Knapik,

B+T Group is pleased to submit this “**Appurtenance Mount Analysis Report**” to determine the structural integrity of the antenna mount on the above-mentioned structure.

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

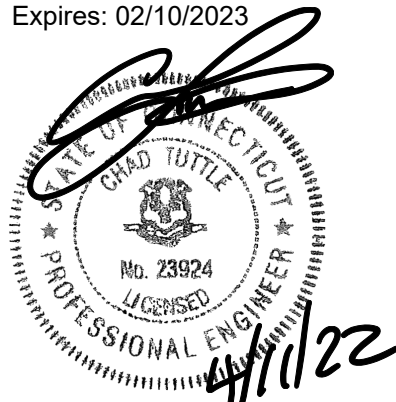
Proposed Equipment	<b>Sufficient Capacity</b>
Note: See Table 1 for the final loading configuration	<b>(Passing at 5.3%)</b>

This analysis utilizes an ultimate 3-second gust wind speed of 119 mph as required by the 2018 Connecticut State Building Code(2018 IBC). Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

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

Mount structural analysis prepared by: Chris Guidry

Respectfully submitted by: B&T Engineering, Inc.  
COA: PEC.0001564 Expires: 02/10/2023



Chad E. Tuttle, P.E.

## TABLE OF CONTENTS

### 1) INTRODUCTION

### 2) ANALYSIS CRITERIA

Table 1 - Proposed Equipment Information

Table 2 - Documents Provided

### 3) ANALYSIS PROCEDURE

3.1) Analysis Method

3.2) Assumptions

### 4) ANALYSIS RESULTS

Table 3 – Mount Component Stresses vs. Capacity

### 5) RECOMMENDATIONS

### 6) APPENDIX A

RISA-3D Output

### 7) APPENDIX B

Additional Calculations

## 1) INTRODUCTION

The appurtenance mount consists of Pipe Mounts within 30" concealed canister at 97 ft., attached to monopole at 71 Pleasantview Road, Derby, CT, 06418, New Haven County. The proposed antenna loading information was obtained from SBA Network Services, LLC. All information provided to B+T Group was assumed accurate and complete.

## 2) ANALYSIS CRITERIA

The structural analysis was performed for this mount in accordance with the ANSI/TIA-222-H-2017 Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Support Structures using a 3-second gust wind speed of 119 mph with no ice and 50 mph with 1 inch escalated ice thickness. Exposure Category B, Topographic Category 1 and Risk Category II were used in this analysis. In addition, the pipe mount has been analyzed for various live loading conditions consisting of a 0-lb man live load applied individually at the midpoint and cantilevered ends of horizontal members as well as a 0-pound man live load applied individually at mount pipe locations using a 3-second gust of 30 mph. The mount was analyzed under 30° increments in the wind direction. The analyzed loading is detailed in Table 1.

**Table 1 – Proposed Equipment Information**

Loading	RAD Center Elev. (ft.)	Position	Qty.	Description	Note
Proposed	97	1	3	JMA Wireless MX08FRO665-21	1
			3	Fujitsu TA08025-B605	2
			3	Fujitsu TA08025-B604	
		--	1	Raycap RDIDC-9181-PF-48	3

Note:

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

**Table 2 - Documents Provided**

Documents	Remarks	Reference	Source
Collo App	Proposed Loading	Date: 09/21/2021	SBA Network Services, LLC.
RFDS		Date: 08/11/2021	

## 3) ANALYSIS PROCEDURE

### 3.1) Analysis Method

RISA-3D (Version 19.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses and deflections for various loading cases. Selected output from the analysis is included in Appendix A.

### 3.2) Assumptions

1. The mount was built in accordance with the manufacturer's specifications.
2. The mount has been maintained in accordance with the manufacturer's specifications and is free of damage.
3. The configuration of antennas and other appurtenances are as specified in Table 1.
4. All mount components have been assumed to be in sufficient condition to carry their full design capacity for the analysis.
5. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.
6. Serviceability with respect to antenna twist, tilt, roll or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
7. All prior structural modifications, if any are assumed to be correctly installed and fully effective.
8. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
9. The following material grades were assumed (Unless Noted Otherwise):
  - a) Connection Bolts : ASTM A325
  - b) Steel Pipe : ASTM A53 (GR. 35)
  - c) HSS (Round) : ASTM 500 (GR. B-42)
  - d) HSS (Rectangular) : ASTM 500 (GR. B-46)
  - e) Channel : ASTM A36 (GR. 36)
  - f) Steel Solid Rod : ASTM A36 (GR. 36)
  - g) Steel Plate : ASTM A36 (GR. 36)
  - h) Steel Angle : ASTM A36 (GR. 36)
  - i) UNISTRUT : ASTM A570 (GR. 33)

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the antenna mounting system.

### 4) ANALYSIS RESULTS

**Table 3 – Mount Component Stresses vs. Capacity**

Notes	Component	Elevation (ft.)	% Capacity	Pass / Fail
-	Mount Pipes	97	5.3	Pass

### 5) RECOMMENDATIONS

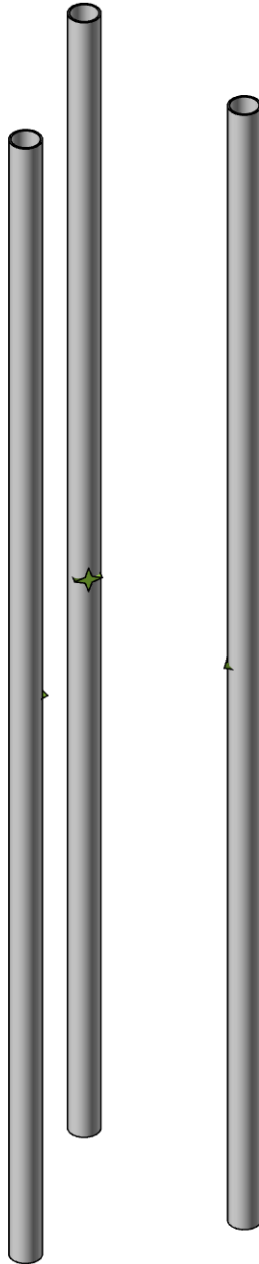
The mount has sufficient capacity to carry the existing and proposed loads and is in compliance with the ANSI/TIA-222-H standard for the proposed loading. (Refer to the RISA output for the specific members).

**This mount is analyzed only for the dead loads and seismic loads. Due to the Shielding present around the mount, there are NO Wind loads acting on the mount and equipment. Results will not be valid if the entire mount is not shielded.**



# APPENDIX A

(RISA-3D Output)



Envelope Only Solution

B+T Group

VP

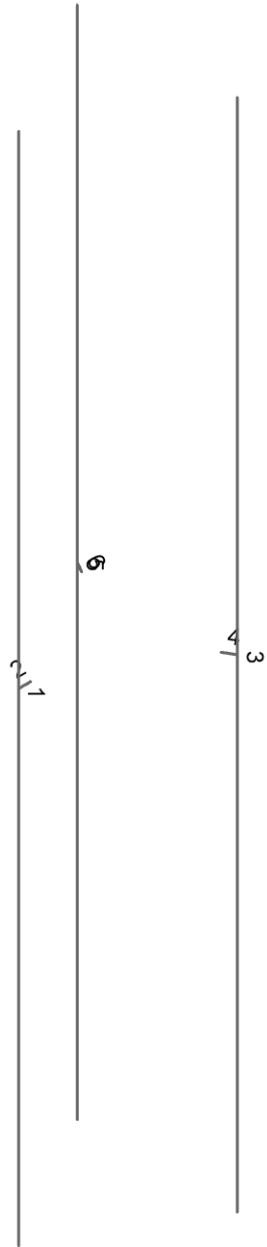
149474.003.01

CT13616-A - St. Judes

SK-1

Nov 18, 2021

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CT13616-A - St. Judes

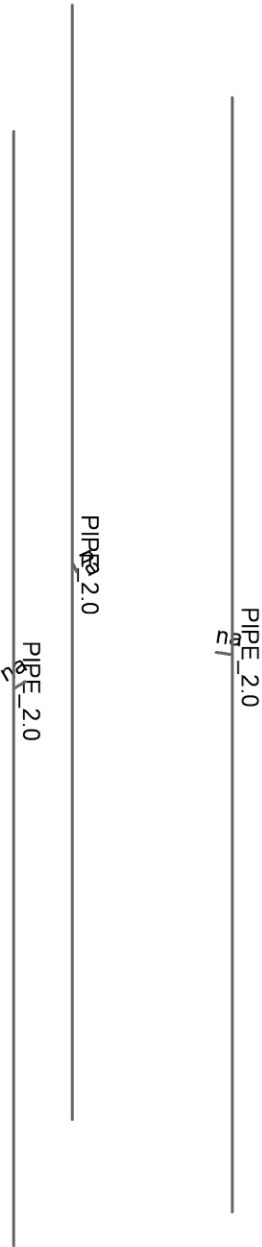
SK-2

VP

Nov 18, 2021

149474.003.01

149474\_003\_01\_St Judes\_CT.R3D



Envelope Only Solution

B+T Group

VP

149474.003.01

CT13616-A - St. Judes

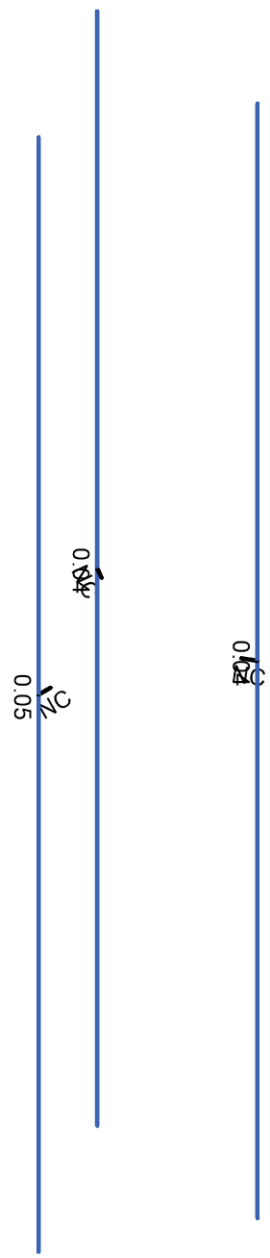
SK-3

Nov 18, 2021

149474\_003\_01\_St Judes\_CT.R3D



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

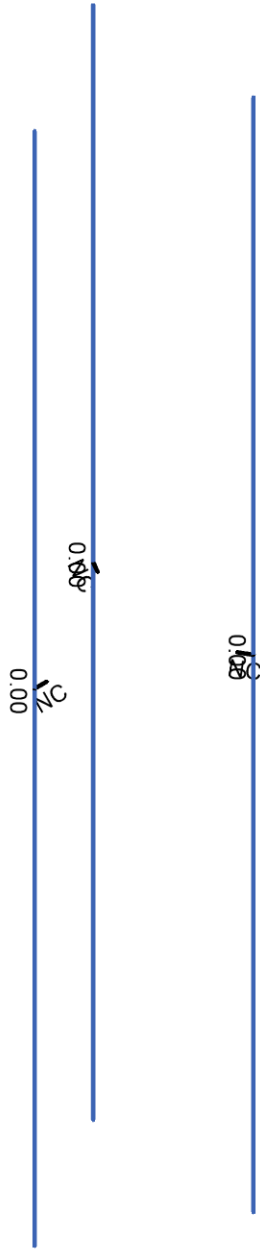


Member Code Checks Displayed (Enveloped)  
Envelope Only Solution

B+T Group	CT13616-A - St. Judes	SK-4
VP		Nov 18, 2021
149474.003.01		149474_003_01_St Judes_CT.R3D



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



Member Shear Checks Displayed (Enveloped)  
Envelope Only Solution

B+T Group	CT13616-A - St. Judes	SK-5
VP		Nov 18, 2021
149474.003.01		149474_003_01_St Judes_CT.R3D



**Node Coordinates**

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	0	0	0.000004	
2	2	0	0	0.76562	
3	3	0	4	0.76562	
4	4	0	-4	0.76562	
5	5	0	0	0.66666	
6	6	0.663046	0	-0.38281	
7	7	0.663046	4	-0.38281	
8	8	0.663046	-4	-0.38281	
9	9	0.577344	0	-0.33333	
10	10	-0.663046	0	-0.38281	
11	11	-0.663046	4	-0.38281	
12	12	-0.663046	-4	-0.38281	
13	13	-0.577344	0	-0.33333	

**Node Boundary Conditions**

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	1						
2	5	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	9	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	13	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

**Hot Rolled Steel Properties**

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e <sup>5</sup> F <sup>-1</sup> ]	Density [k/ft <sup>3</sup> ]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3

**Cold Formed Steel Properties**

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e <sup>5</sup> F <sup>-1</sup> ]	Density [k/ft <sup>3</sup> ]	Yield [ksi]	Fu [ksi]
1	A653 SS Gr33	29500	11346	0.3	0.65	0.49	33	45
2	A653 SS Gr50/1	29500	11346	0.3	0.65	0.49	50	65

**Hot Rolled Steel Section Sets**

	Label	Shape	Type	Design List	Material	Design Rule	Area [in <sup>2</sup> ]	Iyy [in <sup>4</sup> ]	Izz [in <sup>4</sup> ]	J [in <sup>4</sup> ]
1	MF-P1	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25

**Cold Formed Steel Section Sets**

	Label	Shape	Type	Design List	Material	Design Rule	Area [in <sup>2</sup> ]	Iyy [in <sup>4</sup> ]	Izz [in <sup>4</sup> ]	J [in <sup>4</sup> ]
1	CF1	8CU1.25X057	Beam	None	A653 SS Gr33	Typical	0.581	0.057	4.41	0.00063

**Member Primary Data**

	Label	I Node	J Node	Section/Shape	Type	Design List	Material	Design Rule
1	1	3	4	MF-P1	Column	Pipe	A53 Gr.B	Typical
2	2	2	5	RIGID	None	None	RIGID	Typical
3	3	7	8	MF-P1	Column	Pipe	A53 Gr.B	Typical
4	4	6	9	RIGID	None	None	RIGID	Typical
5	5	11	12	MF-P1	Column	Pipe	A53 Gr.B	Typical
6	6	10	13	RIGID	None	None	RIGID	Typical

**Member Advanced Data**

	Label	Physical	Deflection Ratio Options	Seismic DR
1	1	Yes	** NA **	None
2	2	Yes	** NA **	None
3	3	Yes	** NA **	None
4	4	Yes	** NA **	None
5	5	Yes	** NA **	None
6	6	Yes	** NA **	None

**Hot Rolled Steel Design Parameters**

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
1	1	MF-P1	8	Lbyy	Lateral
2	3	MF-P1	8	Lbyy	Lateral
3	5	MF-P1	8	Lbyy	Lateral

**Cold Formed Steel Design Parameters**

No Data to Print...				
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**Member Point Loads (BLC 1 : Dead)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	1	Y	-0.032	%15
2	1	Y	-0.032	%85
3	1	Y	-0.064	%35
4	1	Y	-0.075	%70
5	1	Y	0	0
6	5	Y	-0.032	%15
7	5	Y	-0.032	%85
8	5	Y	-0.064	%35
9	5	Y	-0.075	%70
10	5	Y	0	0
11	3	Y	-0.032	%15
12	3	Y	-0.032	%85
13	3	Y	-0.064	%35
14	3	Y	-0.075	%70
15	3	Y	0	0
16	1	Y	-0.022	%5
17	1	Y	0	0
18	1	Y	0	0
19	1	Y	0	0
20	1	Y	0	0

**Member Point Loads (BLC 8 : Ice)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	1	Y	-0.118	%15
2	1	Y	-0.118	%85
3	1	Y	-0.032	%35
4	1	Y	-0.033	%70
5	1	Y	0	0
6	5	Y	-0.118	%15
7	5	Y	-0.118	%85
8	5	Y	-0.032	%35
9	5	Y	-0.033	%70
10	5	Y	0	0
11	3	Y	-0.118	%15
12	3	Y	-0.118	%85
13	3	Y	-0.032	%35
14	3	Y	-0.033	%70
15	3	Y	0	0
16	1	Y	-0.034	%5
17	1	Y	0	0
18	1	Y	0	0
19	1	Y	0	0
20	1	Y	0	0

**Member Point Loads (BLC 9 : 0 Seismic)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	1	Z	-0.016	%15
2	1	Z	-0.016	%85
3	1	Z	-0.016	%35
4	1	Z	-0.018	%70
5	1	Z	0	0
6	5	Z	-0.016	%15
7	5	Z	-0.016	%85
8	5	Z	-0.016	%35
9	5	Z	-0.018	%70
10	5	Z	0	0
11	3	Z	-0.016	%15
12	3	Z	-0.016	%85
13	3	Z	-0.016	%35
14	3	Z	-0.018	%70
15	3	Z	0	0
16	1	Z	-0.005	%5
17	1	Z	0	0
18	1	Z	0	0
19	1	Z	0	0
20	1	Z	0	0

**Member Point Loads (BLC 10 : 90 Seismic)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	1	X	-0.016	%15
2	1	X	-0.016	%85
3	1	X	-0.016	%35
4	1	X	-0.018	%70
5	1	X	0	0
6	5	X	-0.016	%15

**Member Point Loads (BLC 10 : 90 Seismic) (Continued)**

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
7	5	X	-0.016	%85
8	5	X	-0.016	%35
9	5	X	-0.018	%70
10	5	X	0	0
11	3	X	-0.016	%15
12	3	X	-0.016	%85
13	3	X	-0.016	%35
14	3	X	-0.018	%70
15	3	X	0	0
16	1	X	-0.005	%5
17	1	X	0	0
18	1	X	0	0
19	1	X	0	0
20	1	X	0	0

**Member Distributed Loads (BLC 8 : Ice)**

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.005	-0.005	0	%100
2	3	Y	-0.005	-0.005	0	%100
3	5	Y	-0.005	-0.005	0	%100

**Member Distributed Loads (BLC 9 : 0 Seismic)**

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.0009	-0.0009	0	%100
2	3	Z	-0.0009	-0.0009	0	%100
3	5	Z	-0.0009	-0.0009	0	%100

**Member Distributed Loads (BLC 10 : 90 Seismic)**

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.0009	-0.0009	0	%100
2	3	X	-0.0009	-0.0009	0	%100
3	5	X	-0.0009	-0.0009	0	%100

**Basic Load Cases**

	BLC Description	Category	Y Gravity	Point	Distributed
1	Dead	DL	-1	20	
2	0 Wind - No Ice	WLZ			
3	90 Wind - No Ice	WLX			
4	0 Wind - Ice	WLZ			
5	90 Wind - Ice	WLX			
6	0 Wind - Service	WLZ			
7	90 Wind - Service	WLX			
8	Ice	OL1		20	3
9	0 Seismic	ELZ		20	3
10	90 Seismic	ELX		20	3
11	Live Load a	LL			
12	Live Load b	LL			
13	Live Load c	LL			
14	Live Load d	LL			
15	Maint LL 1	LL			



**Basic Load Cases (Continued)**

	BLC Description	Category	Y Gravity	Point	Distributed
16	Maint LL 2	LL			
17	Maint LL 3	LL			
18	Maint LL 4	LL			
19	Maint LL 5	LL			
20	Maint LL 6	LL			
21	Maint LL 7	LL			
22	Maint LL 8	LL			
23	Maint LL 9	LL			
24	Maint LL 10	LL			
25	Maint LL 11	LL			
26	Maint LL 12	LL			
27	Maint LL 13	LL			
28	Maint LL 14	LL			
29	Maint LL 15	LL			

**Load Combinations**

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4 Dead	Yes	Y	1	1.4						
2	1.2 D + 1.0 - 0 W	Yes	Y	1	1.2	2	1				
3	1.2 D + 1.0 - 30 W	Yes	Y	1	1.2	2	0.866	3	0.5		
4	1.2 D + 1.0 - 60 W	Yes	Y	1	1.2	3	0.866	2	0.5		
5	1.2 D + 1.0 - 90 W	Yes	Y	1	1.2	3	1				
6	1.2 D + 1.0 - 120 W	Yes	Y	1	1.2	3	0.866	2	-0.5		
7	1.2 D + 1.0 - 150 W	Yes	Y	1	1.2	2	-0.866	3	0.5		
8	1.2 D + 1.0 - 180 W	Yes	Y	1	1.2	2	-1				
9	1.2 D + 1.0 - 210 W	Yes	Y	1	1.2	2	-0.866	3	-0.5		
10	1.2 D + 1.0 - 240 W	Yes	Y	1	1.2	3	-0.866	2	-0.5		
11	1.2 D + 1.0 - 270 W	Yes	Y	1	1.2	3	-1				
12	1.2 D + 1.0 - 300 W	Yes	Y	1	1.2	3	-0.866	2	0.5		
13	1.2 D + 1.0 - 330 W	Yes	Y	1	1.2	2	0.866	3	-0.5		
14	1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
15	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
16	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
17	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
18	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1
19	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
20	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
21	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
22	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
23	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
24	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
25	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
26	1.2 D + 1.0 E - 0	Yes	Y	1	1.2	9	1				
27	1.2 D + 1.0 E - 30	Yes	Y	1	1.2	9	0.866	10	0.5		
28	1.2 D + 1.0 E - 60	Yes	Y	1	1.2	10	0.866	9	0.5		
29	1.2 D + 1.0 E - 90	Yes	Y	1	1.2	10	1				
30	1.2 D + 1.0 E - 120	Yes	Y	1	1.2	10	0.866	9	-0.5		
31	1.2 D + 1.0 E - 150	Yes	Y	1	1.2	9	-0.866	10	0.5		
32	1.2 D + 1.0 E - 180	Yes	Y	1	1.2	9	-1				
33	1.2 D + 1.0 E - 210	Yes	Y	1	1.2	9	-0.866	10	-0.5		
34	1.2 D + 1.0 E - 240	Yes	Y	1	1.2	10	-0.866	9	-0.5		
35	1.2 D + 1.0 E - 270	Yes	Y	1	1.2	10	-1				
36	1.2 D + 1.0 E - 300	Yes	Y	1	1.2	10	-0.866	9	0.5		
37	1.2 D + 1.0 E - 330	Yes	Y	1	1.2	9	0.866	10	-0.5		
38	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5

**Load Combinations (Continued)**

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
39	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
40	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
41	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5
42	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
43	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
44	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
45	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
46	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
47	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
48	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
49	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
50	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
51	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
52	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
53	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
54	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
55	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
56	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
57	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
58	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
59	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
60	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
61	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
62	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			13	1.5
63	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	13	1.5
64	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	13	1.5
65	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			13	1.5
66	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	13	1.5
67	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	13	1.5
68	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			13	1.5
69	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	13	1.5
70	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	13	1.5
71	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			13	1.5
72	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	13	1.5
73	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	13	1.5
74	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			14	1.5
75	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	14	1.5
76	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	14	1.5
77	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			14	1.5
78	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	14	1.5
79	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	14	1.5
80	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			14	1.5
81	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	14	1.5
82	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	14	1.5
83	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			14	1.5
84	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	14	1.5
85	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	14	1.5
86	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					15	1.5
87	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					16	1.5
88	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					17	1.5
89	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					18	1.5
90	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					19	1.5
91	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					20	1.5
92	1.2 D + 1.5 LL Maint (7)	Yes	Y	1	1.2					21	1.5
93	1.2 D + 1.5 LL Maint (8)	Yes	Y	1	1.2					22	1.5





**Load Combinations (Continued)**

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
94	1.2 D + 1.5 LL Maint (9)	Yes	Y	1	1.2					23	1.5
95	1.2 D + 1.5 LL Maint (10)	Yes	Y	1	1.2					24	1.5
96	1.2 D + 1.5 LL Maint (11)	Yes	Y	1	1.2					25	1.5
97	1.2 D + 1.5 LL Maint (12)	Yes	Y	1	1.2					26	1.5
98	1.2 D + 1.5 LL Maint (13)	Yes	Y	1	1.2					27	1.5
99	1.2 D + 1.5 LL Maint (14)	Yes	Y	1	1.2					28	1.5
100	1.2 D + 1.5 LL Maint (15)	Yes	Y	1	1.2					29	1.5

**Frequencies and Participation**

No Data to Print...

**Envelope Node Reactions**

Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC	
1	5	max	0.078	29	0.68	25	0.078	26	-0.021	26	0.008	29	0.009	35
2		min	-0.078	35	0.304	32	-0.078	32	-0.067	14	-0.008	35	-0.009	29
3	9	max	0.072	29	0.62	25	0.072	26	0.031	25	0.007	33	0.053	25
4		min	-0.072	35	0.278	33	-0.072	32	0.004	26	-0.007	27	0.014	35
5	13	max	0.072	29	0.62	25	0.072	26	0.031	25	0.007	37	-0.014	29
6		min	-0.072	35	0.278	31	-0.072	32	0.004	26	-0.007	31	-0.053	14
7	Totals:	max	0.222	29	1.919	25	0.222	26						
8		min	-0.222	35	0.859	32	-0.222	32						

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

Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	1	PIPE 2.0	0.053	4	32	0.004	4	32	14.916	32.13	1.872	1.872	1 H1-1b
2	3	PIPE 2.0	0.045	4	35	0.004	4	35	14.916	32.13	1.872	1.872	1.65 H1-1b
3	5	PIPE 2.0	0.045	4	29	0.004	4	29	14.916	32.13	1.872	1.872	1.65 H1-1b

**Envelope NONE Member Cold Formed Steel Code Checks**

No Data to Print...

**Envelope NONE Member Wood Code Checks**

No Data to Print...

**Envelope Concrete Beam Design Results**

No Data to Print...

**Envelope Concrete Column Design Results**

No Data to Print...

**Envelope NONE - BUILDING Member Aluminum Code Checks**

No Data to Print...

**Envelope NONE Member Stainless Steel Code Checks**

No Data to Print...

## APPENDIX B

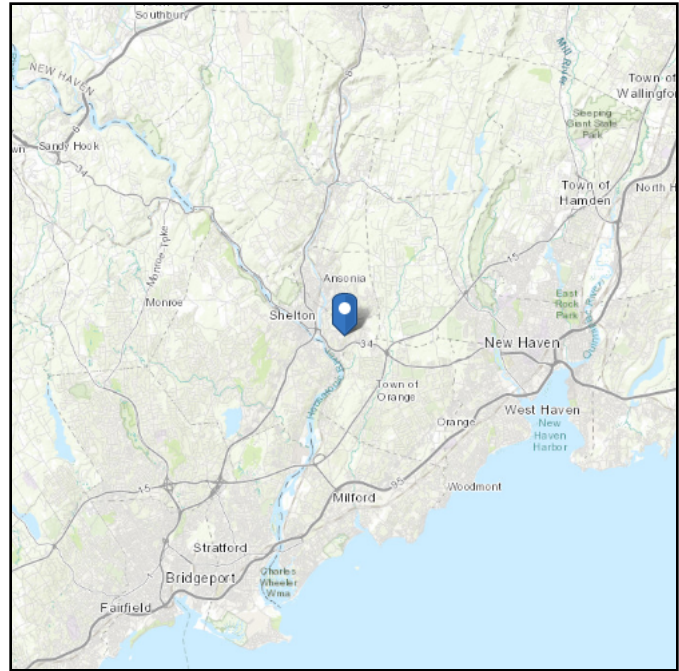
(Additional Calculations)

# ASCE 7 Hazards Report

**Address:**  
No Address at This Location

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

**Elevation:** 365.39 ft (NAVD 88)  
**Latitude:** 41.315042  
**Longitude:** -73.064314



## Wind

**Results:**

Wind Speed:	119 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	98 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2  
Date Accessed: Wed Nov 17 2021

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

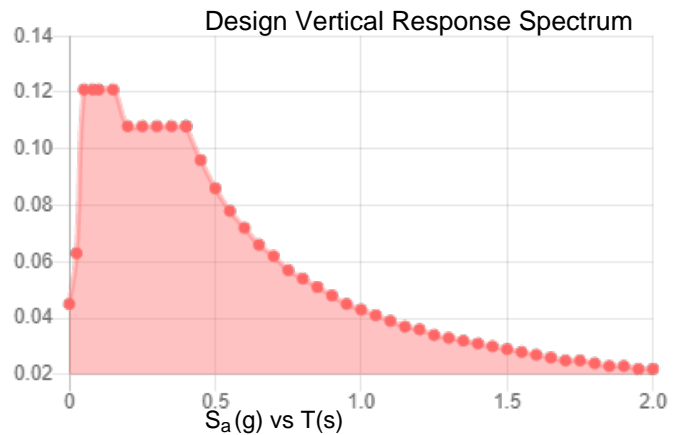
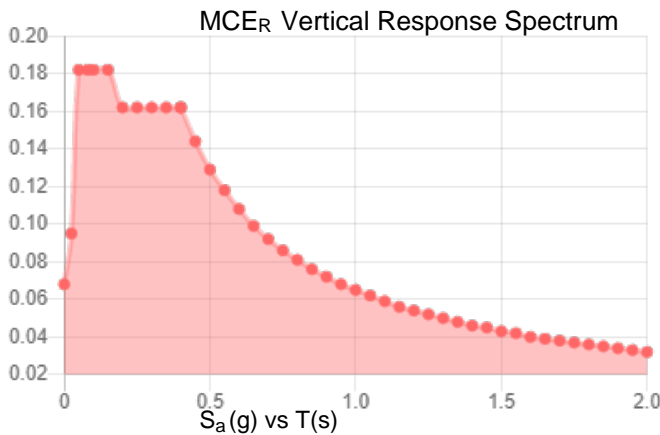
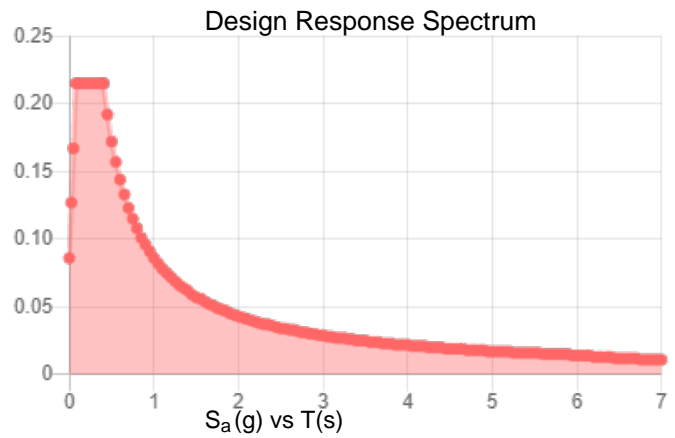
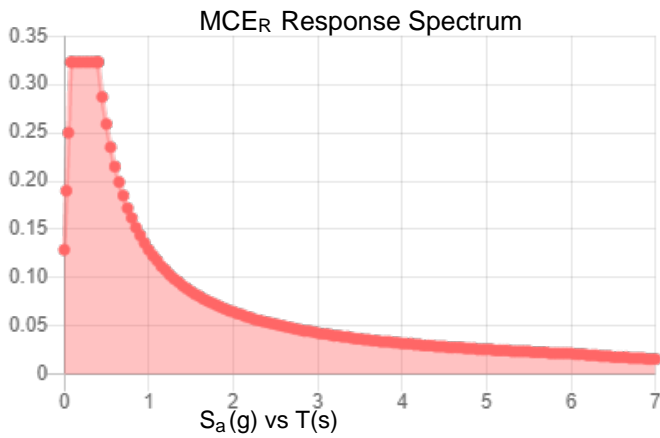
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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

**Results:**

$S_s$ :	0.202	$S_{D1}$ :	0.086
$S_1$ :	0.054	$T_L$ :	6
$F_a$ :	1.6	PGA :	0.113
$F_v$ :	2.4	PGA <sub>M</sub> :	0.178
$S_{MS}$ :	0.323	$F_{PGA}$ :	1.573
$S_{M1}$ :	0.129	$I_e$ :	1
$S_{DS}$ :	0.215	$C_v$ :	0.704

**Seismic Design Category** B



**Data Accessed:**

Wed Nov 17 2021

**Date Source:**

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

## Ice

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**Results:**

Ice Thickness: 1.00 in.

Concurrent Temperature: 15 F

Gust Speed: 50 mph

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

**Date Accessed:** Wed Nov 17 2021

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

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

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The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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# Exhibit F

## **Power Density/RF Emissions Report**



# Radio Frequency Emissions Analysis Report



**Site ID: BOHVN00049A**

SBA - Pleasantview Road  
71 Pleasantview Road  
Derby, CT 06418

**May 2, 2022**

**Fox Hill Telecom Project Number: 220969**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>22.71 %</b>





May 2, 2022

Dish Wireless  
5701 South Santa Fe Drive  
Littleton, CO 80120

Emissions Analysis for Site: **BOHVN00049A – SBA - Pleasantview Road**

Fox Hill Telecom, Inc (“Fox Hill”) was directed to analyze the proposed radio installation for Dish Wireless, LLC (Dish) facility located at **71 Pleasantview Road, Derby, 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The number of  $\mu\text{W}/\text{cm}^2$  calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

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



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

Additional details can be found in FCC OET 65.



## CALCULATIONS

Calculations were performed for the proposed radio system installation for **Dish** on the subject site located at **71 Pleasantview Road, Derby, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since **Dish** is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

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

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

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

*Table 1: Channel Data Table*



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

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Commscope FVV-65B-R3	97
B	1	Commscope FVV-65B-R3	97
C	1	Commscope FVV-65B-R3	97

*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	Commscope FVV-65B-R3	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	12.15 / 15.95 / 16.25	12	566	17,079.80	10.04
Sector A Composite MPE%							<b>10.04</b>
Antenna B1	Commscope FVV-65B-R3	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	12.15 / 15.95 / 16.25	12	566	17,079.80	10.04
Sector B Composite MPE%							<b>10.04</b>
Antenna C1	Commscope FVV-65B-R3	n71 (600 MHz) / n70 (AWS-4 / 1995-2020) / n66 (AWS-4 / 2180-2200)	12.15 / 15.95 / 16.25	12	566	17,079.80	10.04
Sector C Composite MPE%							<b>10.04</b>

*Table 3: Dish Emissions Levels*



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

<b>Site Composite MPE%</b>	
<b>Carrier</b>	<b>MPE%</b>
Dish – Max Per Sector Value	<b>10.04 %</b>
T-Mobile	0.70 %
Sprint	7.00 %
Sprint / Clearwire	0.12 %
MetroPCS	0.82 %
Verizon Wireless	4.03 %
<b>Site Total MPE %:</b>	<b>22.71 %</b>

*Table 4: All Carrier MPE Contributions*

Dish Sector A Total:	10.04 %
Dish Sector B Total:	10.04 %
Dish Sector C Total:	10.04 %
Site Total:	22.71 %

*Table 5: Site MPE Summary*



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

Dish _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
Dish n71 (600 MHz) 5G	4	1,008.96	97	17.52	n71 (600 MHz)	400	4.38%
Dish n70 (AWS-4 / 1995-2020) 5G	4	1,574.20	97	27.34	n70 (AWS-4 / 1995-2020)	1000	2.73%
Dish n66 (AWS-4 / 2180-2200) 5G	4	1,686.79	97	29.29	n66 (AWS-4 / 2180-2200)	1000	2.93%
						<b>Total:</b>	<b>10.04%</b>

*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:	10.04 %
Sector B:	10.04 %
Sector C:	10.04 %
Dish Maximum Total (per sector):	10.04 %
Site Total:	22.71 %
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **22.71 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

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

# Exhibit G

## **Letter of Authorization**

SBA Letter of Authorization

CT - CONNECTICUT SITING COUNCIL

Melanie A. Bachman

Executive Director

Connecticut Siting Council

10 Franklin Square

New Britain, CT 06051

Re: Tower Share Application

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

Kri Pelletier

Site Development Manager

SBA COMMUNICATIONS CORPORATION

134 Flanders Road, Suite 125

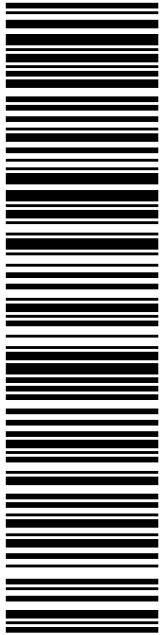
Westboro, MA 01581

SBA

By: \_\_\_\_\_ Date: \_\_\_\_\_

# Exhibit H

## Recipient Mailings



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**9405 5036 9930 0254 4619 15**

Electronic Rate Approved #038555749

**SHIP TO:** SBA COMMUNICATIONS CORPORATION  
13 FLANDERS RD  
STE 125  
WESTBOROUGH MA 01581

**R005**

**P**

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Expected Delivery Date: 05/21/22  
Ref#: SBDS-00049  
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Trans. #: 563979674	Priority Mail® Postage: <b>\$8.95</b>
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Ship Date: 05/20/2022	
Expected Delivery Date: 05/21/2022	

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


Ref#: SBDS-00049

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

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**0006**

SHIP TO: RICHARD DZIEKAN  
 MAYOR- TOWN OF DERBY  
 1 ELIZABETH ST  
 # 2  
 DERBY CT 06418-1801

**USPS TRACKING #**



**9405 5036 9930 0254 4619 22**

Electronic Rate Approved #038555749



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## Instructions

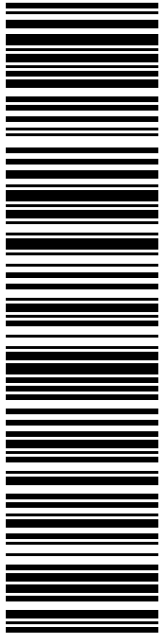
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Print Date: 05/20/2022	Total: <b>\$8.95</b>
Ship Date: 05/20/2022	
Expected Delivery Date: 05/23/2022	
<p><b>From:</b> DEBORAH CHASE                  NORTHEAST SITE SOLUTIONS                  420 MAIN ST                  STE 1                  STURBRIDGE MA 01566-1359</p> <p style="text-align: right;">Ref#: SBDS-00049</p> <p><b>To:</b> RICHARD DZIEKAN                  MAYOR- TOWN OF DERBY                  1 ELIZABETH ST                  # 2                  DERBY CT 06418-1801</p>	
<p><small>* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.</small></p>	



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**SHIP TO:** KEVIN WHITE  
 ACTING ZONING ENFORCEMENT OFFICER  
 1 ELIZABETH ST  
 # 2  
 DERBY CT 06418-1801

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

**Expected Delivery Date: 05/23/22**  
**Ref#: SBDS-00049**  
**0006**

**C005**

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Print Date: 05/20/2022	Total: <b>\$8.95</b>
Ship Date: 05/20/2022	
Expected Delivery Date: 05/23/2022	

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

Ref#: SBDS-00049

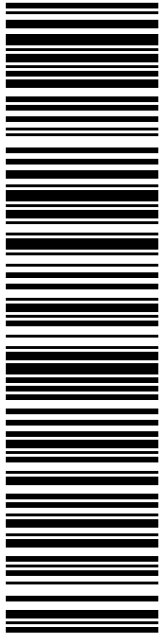
**To:** KEVIN WHITE  
 ACTING ZONING ENFORCEMENT OFFICER  
 1 ELIZABETH ST  
 # 2  
 DERBY CT 06418-1801

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DERBY CT 06418

**P**

05/20/2022 Mailed from 01566

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**C005**

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420 MAIN ST  
STE 1  
STURBRIDGE MA 01566-1359



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**9405 5036 9930 0254 4619 46**

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Print Date: 05/20/2022	Total: <b>\$8.95</b>
Ship Date: 05/20/2022	
Expected Delivery Date: 05/23/2022	

**From:** DEBORAH CHASE Ref#: SBDS-00049  
NORTHEAST SITE SOLUTIONS  
420 MAIN ST  
STE 1  
STURBRIDGE MA 01566-1359

**To:** OUR LADY, QUEEN OF THE APOSTLES PARISH  
21 ELIZABETH ST  
DERBY CT 06418

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FARMINGTON, CT 06032-9998  
(800)275-8777

07/01/2022

08:47 AM

Product	Qty	Unit Price	Price
Prepaid Mail Westborough, MA 01581 Weight: 0 lb 2.00 oz Acceptance Date: Fri 07/01/2022 Tracking #: 9405 5036 9930 0254 4619 15	1		\$0.00
Prepaid Mail Derby, CT 06418 Weight: 0 lb 10.90 oz Acceptance Date: Fri 07/01/2022 Tracking #: 9405 5036 9930 0254 4619 39	1		\$0.00
Prepaid Mail Derby, CT 06418 Weight: 1 lb 3.70 oz Acceptance Date: Fri 07/01/2022 Tracking #: 9405 5036 9930 0254 4619 22	1		\$0.00
Prepaid Mail Derby, CT 06418 Weight: 0 lb 8.90 oz Acceptance Date: Fri 07/01/2022 Tracking #: 9405 5036 9930 0254 4619 46	1		\$0.00
Grand Total:			\$0.00

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