



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

March 2, 2022

G. Scott Shepherd
Senior Property Specialist
SBA Communications
134 Flanders Road, Suite 125
Westborough, MA 01581
gshepherd@sbsite.com

RE: TS-DISH-089-211203 – Dish Wireless LLC request for an order to approve tower sharing at an existing telecommunications facility located at 723 Farmington Avenue, New Britain, Connecticut.

Dear Mr. Shepherd:

The Connecticut Siting Council (Council) is in receipt of your correspondence of February 18, 2022 submitted in response to the Council's January 19, 2022 notification of an incomplete request for tower sharing with regard to the above-referenced matter.

The submission renders the request for tower sharing complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/IN/emr

From: Glenn Shepherd <GShepherd@sbsite.com>
Sent: Friday, February 18, 2022 3:50 PM
To: Robidoux, Evan <Evan.Robidoux@ct.gov>; CSC-DL Siting Council <Siting.Council@ct.gov>
Cc: Jeff Steinberg <JSteinberg@sbsite.com>; Kri Pelletier <KPelletier@sbsite.com>; Chris Stouffer <CStouffer@sbsite.com>; John Morrison <JoMorrison@sbsite.com>; Elizabeth Jamieson <EJamieson@sbsite.com>
Subject: RE: TS-DISH-089-211223 Council Incomplete Letter for TS-DISH-089-211223 (Farmington Avenue, New Britain)

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TS-DISH-089-211223

Evan, et al,

Attached, are the revised requested documents according to and in compliance with **Docket No. 303 dated June 28, 2005 and TS-DISH-089-211223 Letter of Incomplete dated January 19, 2022**, as summarized below and attached for your reference.

TS-DISH-089-211223: On January 19, 2022, Council issued a Letter of Incomplete due to the following reason: "Panel antennas shall be installed on the monopole using a flush or T-arm mounting configuration." The enclosed Notice of Intent to Allow Shared Use of the Existing SBA Telecommunications Site Application has been revised to now reflect the use of T-Arms in compliance with Council's Docket No. 303 requirements.

1. Mount Analysis conducted by B+T Group dated 2/14/22
 2. Structural Analysis conducted by TES dated 2/17/22
 3. Construction Drawings conducted by B+T Group dated 2/7/22
- **Please make note that the attached, revised Structural Analysis shows existing equipment, even though this equipment is not actually on the tower. What is currently showing as existing equipment is actually equipment that was initially proposed by Dish and used for the original Structural Analysis and is not installed on the tower. The revised Structural Analysis has since been re-run to include the revised T-Arm mounts. To reiterate, the equipment shown on the Structural Analysis as existing equipment was never installed on the Tower and therefore is not being removed.**

One hard copy of this revised and corrected Tower Share Application is being sent via overnight FedEx in accordance to the above referenced **Letter of Incomplete - TS-DISH-089-211223**.

Please let me know if you have any questions regarding this correction to the tower share application and if this satisfies Council's requirements, which would render this tower share filing complete.

Thank you in advance for your cooperation,

G. Scott Shepherd
Site Development Specialist II

508.251.0720 Ext.3807 + **T**
508.366.2610 + F + **F**
508.868.6000 + C + **C**



Tower Engineering Solutions

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

Structural Analysis Report

Existing 119 ft SABRE Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT08558-B

Customer Site Name: New Britain 3, CT

Carrier Name: Dish Wireless (App#: 188754-1)

Carrier Site ID / Name: BOBDL00123A / 0

Site Location: 723 Farmington Ave

New Britain, Connecticut

Hartford County

Latitude: 41.698414

Longitude: -72.785944

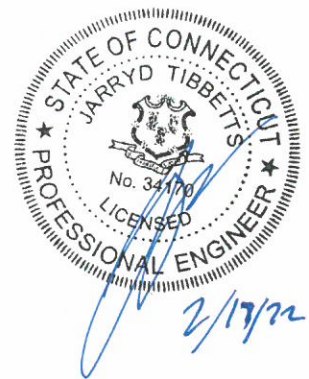
Analysis Result:

Max Structural Usage: 94.6% [Pass]

Max Foundation Usage: 95.0% [Pass]

Additional Usage Caused by New Mount: +0.0%

Report Prepared By: Kevin Azisllari





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Hartford County

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Longitude: -72.785944

Analysis Result:

Max Structural Usage: 94.6% [Pass]

Max Foundation Usage: 95.0% [Pass]

Additional Usage Caused by New Mount: +0.0%

Report Prepared By: Kevin Azisllari

Introduction

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

Sources of Information

Tower Drawings	Original Tower drawings by Sabre, Job# 06-08008, dated 08/1/2005
Foundation Drawing	Original Foundation drawings by Sabre, Job# 06-08008, dated 08/1/2005
Geotechnical Report	Geotechnical Report prepared by DR. Clarence Welti, dated 07/7/2005
Modification Drawings	TES 121631, dated 01/31/2022
Mount Analysis	N/A

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the TIA-222-G-2. In accordance with this standard, the structure was analyzed using **TESPoles**, a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed $V_{ult} = 125.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 97.0$ mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	$S_5 = 0.192, S_1 = 0.055$

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	118.0	6	Commscope NHH-65B-R2B – Panel	(3) Modified T-Arms W/ (3) Valmont Site Pro VZWSMART-SFK4 (T-Arm kit), (3) Commscope BASMNT-SBS-1-2 (side-by-side mounts), (1) Valmont Site Pro VZWSMART-PLK7 (Collar Mount), (12) Valmont Site Pro VZWSMART-MSK2 (Crossover Plates) (3) Site Pro P30150 (P3.0 STD pipe)	(11) 1 5/8" (2) 1 5/8" Hybrid	Verizon
2		3	Samsung MT6407-77A – Panel			
3		3	Amphenol BXA-70063-6BF- Panel			
4		3	Samsung B5/B13 RRH-BR04C (RFV01U-D2A)			
5		3	Samsung B2/B66A RRH-BR049 (RFV01U-D1A)			
6		1	Raycap RVZDC-6627-PF-48-OVP			
7	108.0	2	RFS APXVSP18-C-A20 Panels	(3) T-Arm	(4) 1-1/4" Hybrid (3) 1/2" (6) 5/16"	Clearwire
8		3	RFS APXVTM14-C-120 Panels			
9		1	Powerwave P40-16-XLPP-RR-A Panels			
10		3	Kathrein 840 10054 Panels			
11		4	RFS ACU-A20-N RET's			
12		3	ALU 1900MHz RRU's			
13		3	ALU 800 MHz Filters			
14		3	ALU 800 MHz RRU's			
15		2	DragonwaveHorizon ODU Radios			
16		3	ALU TD-RRH8x20-25 RRU's			
17	2	Andrew VHLP2.5 Dishes				
18	98.0	3	Cci TPA-65R-BU6DA - Panel	DUAL LEVEL ULTRA LOW PROFILE RIGID T-ARM [(1) ULPD14-H10-2120]	(6) 1 5/8" (6) 3/4" DC Power (2) 3/8" Fiber	AT&T
19		3	Cci DMP65R-BU6DA - Panel			
20		3	Ericsson Air6449 - Panel			
21		3	Ericsson Air6419 N77G - Panel			
22		3	Ericsson RRUS 4478 B14 RRU			
23		3	Ericsson RRUS 4449 B5/B12 RRU			
24		3	Ericsson RRUS 8843 B25/B66A RRU			
25		3	Ericsson RRUS 32 RRU			
26	3	Raycap DC6-48-60-0-8F COVP				
27	88.0	3	Ericsson AIR6449 B41 - Panel	(3) T-Arm w/ mod	(11) 1 5/8" Coax (3) 1-1/4" Hybrid	T-Mobile
28		3	Ericsson AIR32 KRD901146-1_B66A (Octa) - Panel			
29		3	RFS APXVAARR24_43-U-NA20 (Octa) - Panel			
30		3	Ericsson KRY 112 144/2			
31		3	Commscope SDX1926Q-43			
32		3	Ericsson 4415 B25			
33		3	Ericsson 4449 B71 + B85			

Continued...

34	78.0	3	JMA Wireless MX08FRO665-21 - Panel	Platform w/ Handrails [MC-PK8-DSH]	(1) 1.411" Hybrid	Dish Wireless
35		3	Fujitsu TA08025-B605 - RRU			
36		3	Fujitsu TA08025-B604 - RRU			
37		1	Raycap RDIDC-9181-PF-48 - COVP			

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
1	78.0	3	JMA Wireless MX08FRO665-21 - Panel	Commscope MC-K6MHDX-9-96MC-K6M-6-96 (T-Arm)	(1) 1.411" Hybrid	Dish Wireless
2		3	Fujitsu TA08025-B605			
3		3	Fujitsu TA08025-B604			
4		1	Raycap RDIDC-9181-PF-48			

See the attached coax layout for the line placement considered in the analysis.

Analysis Results

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

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	94.6%	86.0%	72.0%
Pass/Fail	Pass	Pass	Pass

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	2921.8	32.0	36.7

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 1.1467 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 94.57% at 53.3ft

Structure: CT08558-B-SBA
Site Name: New Britain 3, CT
Height: 119.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-G
Exposure: C
Gh: 1.1

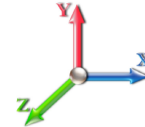
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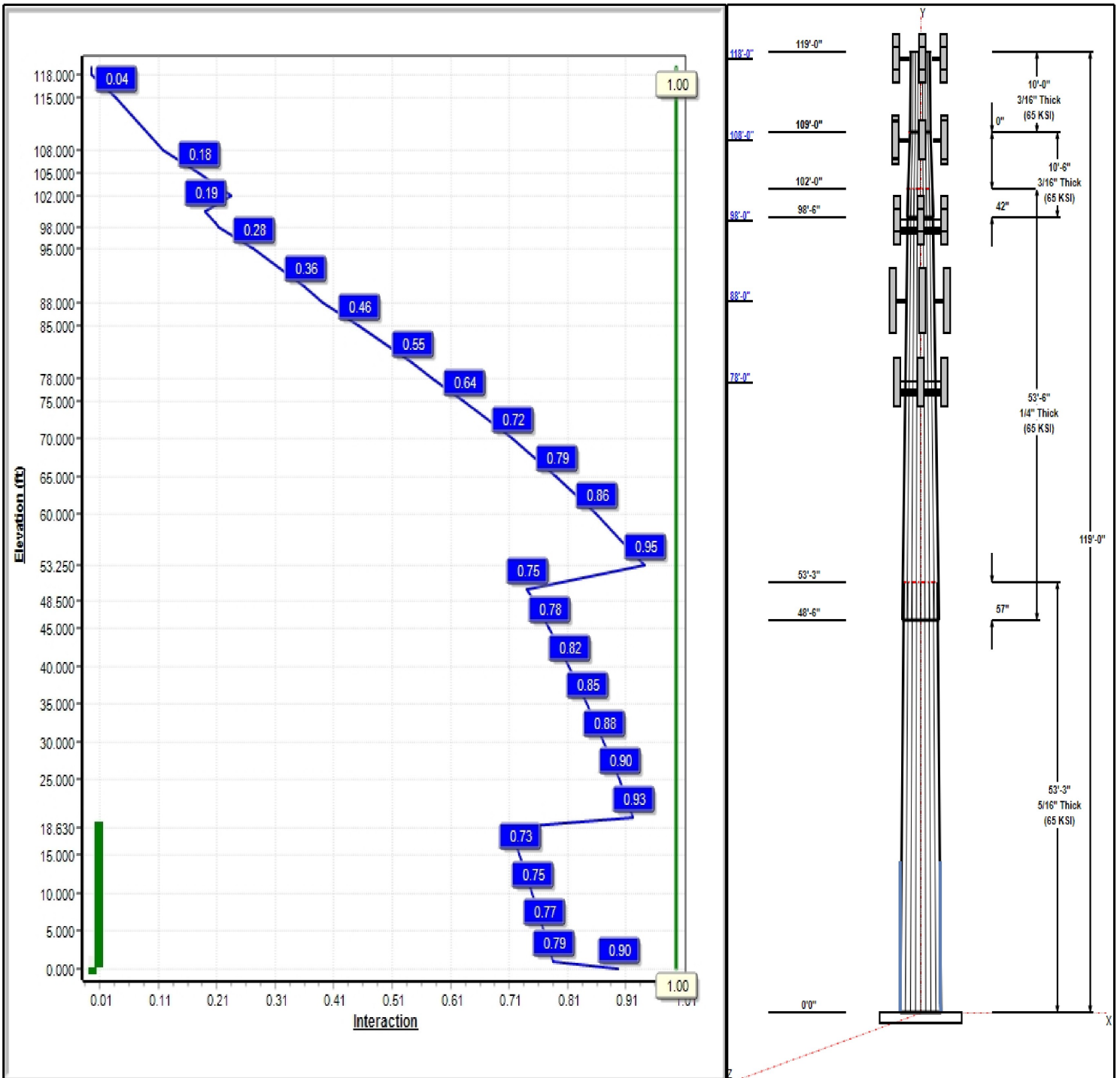
Dead Load Factor: 1.20
 Wind Load Factor: 1.60

Load Case : 1.2D + 1.6W 97 mph Wind



Iterations: 23

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Structure: CT08558-B-SBA

Type: Tapered
Site Name: New Britain 3, CT
Height: 119.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.22164

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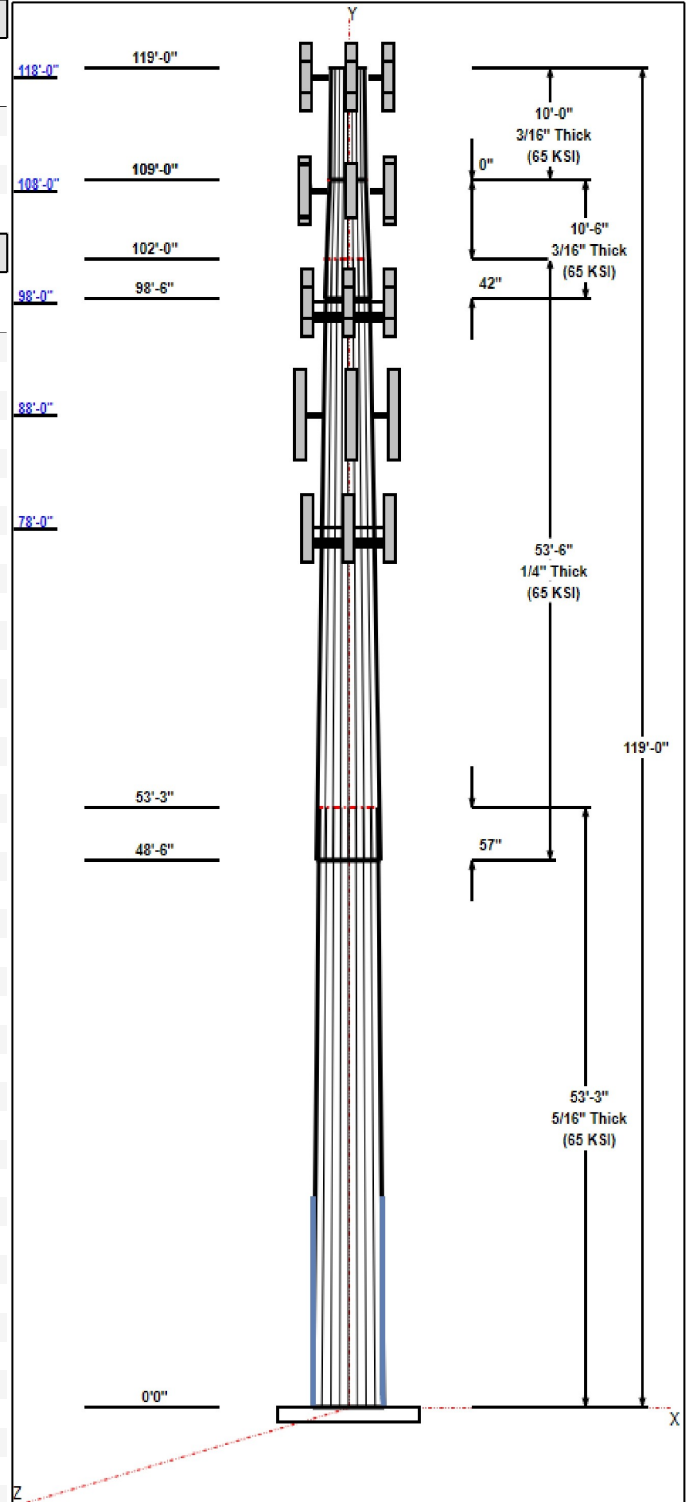


Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.25	35.70	47.50	0.313		0.22164	65
2	53.50	25.39	37.25	0.250	Slip	0.22164	65
3	10.50	24.22	26.54	0.188	Slip	0.22164	65
4	10.00	22.00	24.22	0.188	Butt	0.22164	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
118.00	118.00	3	BXA-70063-6BF	Verizon
118.00	118.00	3	T-Arm	Verizon
118.00	118.00	6	Commscope	Verizon
118.00	118.00	3	Samsung MT6407-77A	Verizon
118.00	118.00	1	(3) T-Arm Kit	Verizon
118.00	118.00	3	BSAMNT-SBS-1-2	Verizon
118.00	118.00	1	Collar	Verizon
118.00	118.00	3	Samsung B5/B13	Verizon
118.00	118.00	1	Raycap	Verizon
118.00	118.00	3	B2/B66A RRH-BR049	Verizon
108.00	108.00	3	1900MHz RRH	Clearwire
108.00	108.00	3	800 MHz Filters	Clearwire
108.00	108.00	3	800 MHz	Clearwire
108.00	108.00	3	840 10054	Clearwire
108.00	108.00	4	ACU-A20-N	Clearwire
108.00	108.00	2	APXVSP18-C-A20	Clearwire
108.00	108.00	3	APXVTM14-C-120	Clearwire
108.00	108.00	2	Horizon	Clearwire
108.00	108.00	1	P40-16-XLPP-RR-A	Clearwire
108.00	108.00	3	TD-RRH8x20-25	Clearwire
108.00	108.00	2	VHLP2.5	Clearwire
108.00	108.00	3	T-Arm	Clearwire
98.00	98.00	3	Raycap DC6-48-60-0-8F	AT&T
98.00	98.00	3	Ericsson RRUS 8843	AT&T
98.00	98.00	3	Ericsson RRUS 32	AT&T
98.00	98.00	3	Cci TPA-65R-BU6DA	AT&T
98.00	98.00	3	Cci DMP65R-BU6DA	AT&T
98.00	98.00	3	Ericsson Air6449	AT&T
98.00	98.00	3	Ericsson Air6419 N77G	AT&T
98.00	98.00	3	Ericsson RRUS 4478 B14	AT&T
98.00	98.00	3	Ericsson RRUS 4449	AT&T
98.00	98.00	1	ULPD14	AT&T
88.00	88.00	3	AIR6449 B41	T-Mobile
88.00	88.00	3	SDX1926Q-43	T-Mobile
88.00	88.00	3	RRUS 4415 B25	T-Mobile
88.00	88.00	3	APXVAARR24_43-U-NA20	T-Mobile
88.00	88.00	3	KRY 112 144/2	T-Mobile
88.00	88.00	3	4449 B71 + B85	T-Mobile
88.00	88.00	3	T-Arm w/ mod	T-Mobile
88.00	88.00	3	AIR32	T-Mobile
78.00	78.00	3	JMA Wireless	Dish Wireless
78.00	78.00	3	Fujitsu TA08025-B605	Dish Wireless
78.00	78.00	3	Fujitsu TA08025-B604	Dish Wireless
78.00	78.00	1	Raycap	Dish Wireless
78.00	78.00	1	MC-K6M-6-96 (3 Sectors)	Dish Wireless



Structure: CT08558-B-SBA

Type: Tapered
Site Name: New Britain 3, CT
Height: 119.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.22164

2/17/2022

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Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	118.00	Inside	1 5/8" Coax	Verizon
0.00	118.00	Outside	1 5/8" Hybrid	Verizon
0.00	108.00	Inside	1-1/4" Hybrid	Clearwire/Sprint
0.00	108.00	Inside	1/2" Coax	Clearwire/Sprint
0.00	108.00	Inside	5/16" Coax	Clearwire/Sprint
0.00	98.00	Inside	1 5/8" Coax	AT&T
0.00	98.00	Inside	3/4" DC Power	AT&T
0.00	98.00	Inside	3/8" Fiber	AT&T
0.00	88.00	Inside	1 5/8" Coax	T-Mobile
0.00	88.00	Inside	1-1/4" Hybrid	T-Mobile
0.00	78.00	Outside	1.411" Hybrid	Dish Wireless
0.00	20.00	Outside	1" Reinforcing plate	

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	52.0	60.0	Clipped

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 97 mph Wind	2921.8	32.0	36.7
0.9D + 1.6W 97 mph Wind	2890.5	32.0	27.5
1.2D + 1.0Di + 1.0Wi 50 mph Wind	869.0	9.2	71.5
1.2D + 1.0E	156.5	1.5	36.7
0.9D + 1.0E	154.7	1.5	27.5
1.0D + 1.0W 60 mph Wind	694.8	7.6	30.6

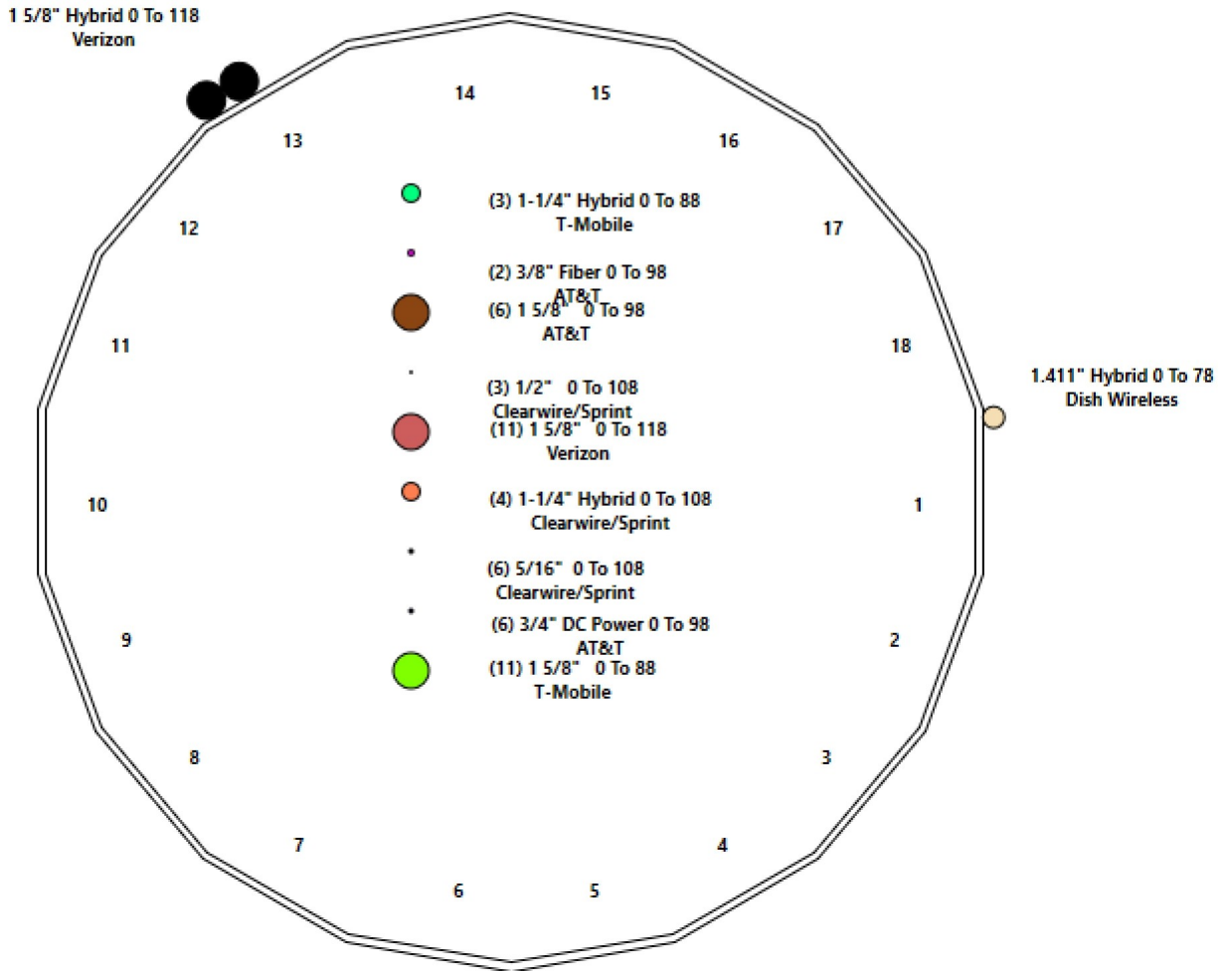
Structure: CT08558-B-SBA - Coax Line Placement

Type: Monopole
Site Name: New Britain 3, CT
Height: 119.00 (ft)

2/17/2022



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Shaft Properties

Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	53.250	0.3125	65		0.00	7,420
2	18	53.500	0.2500	65	Slip	57.00	4,488
3	18	10.500	0.1875	65	Slip	42.00	536
4	18	10.000	0.1875	65	Flange	0.00	464
Total Shaft Weight:							12,908

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	47.50	0.00	46.80	13166.65	25.39	152.00	35.70	53.25	35.10	5552.15	18.73	114.2	0.221639
2	37.25	48.50	29.36	5078.18	24.86	149.00	25.39	102.00	19.95	1593.41	16.50	101.5	0.221639
3	26.54	98.50	15.68	1376.54	23.55	141.57	24.22	109.00	14.30	1043.15	21.36	129.1	0.221639
4	24.22	109.0	14.30	1043.15	21.36	129.15	22.00	119.00	12.98	780.30	19.28	117.3	0.221639

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Fu (ksi)	Offset (in)	Intermediate Connectors			Termination Connectors		
							Spacing (in)	Description	Spacing (in)	Lower Qty	Upper Qty	
0.00	1.00	4	SOL 1 3/4" William R71	128	150	0.00	5/8" Hollo Bolt	12.00	5/8" Hollo Bolt	3.00		
1.00	18.63	4	LNP LP6X100-B-20T	65	80	0.00	5/8" Hollo Bolt	24.00	5/8" Hollo Bolt	3.00		10

Load Summary

Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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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	118.00	BXA-70063-6BF	3	17.00	7.57	0.70	201.47	11.168	0.70	0.00	0.00
2	118.00	T-Arm	3	350.00	10.00	0.75	668.05	21.359	0.75	0.00	0.00
3	118.00	Commscope NHH-65B-R2B	6	43.70	8.08	0.83	321.49	9.797	0.83	0.00	0.00
4	118.00	Samsung MT6407-77A	3	79.40	4.69	0.70	245.05	5.940	0.70	0.00	0.00
5	118.00	(3) T-Arm Kit VZWSMART-SFK4	1	500.00	16.50	1.00	1272.41	37.491	1.00	0.00	0.00
6	118.00	BSAMNT-SBS-1-2	3	25.35	0.00	1.00	48.39	0.000	1.00	0.00	0.00
7	118.00	Collar Mount-VZWSMART-PLK7	1	150.60	2.50	1.00	424.30	5.908	1.00	0.00	0.00
8	118.00	Samsung B5/B13 RRH-BR04C	3	70.30	1.88	0.67	133.61	2.598	0.67	0.00	0.00
9	118.00	Raycap RVZDC-6627-PF-48-OVP	1	32.00	3.79	1.00	206.22	4.867	1.00	0.00	0.00
10	118.00	B2/B66A RRH-BR049	3	84.40	1.87	0.67	191.50	2.638	0.67	0.00	0.00
11	108.00	1900MHz RRH	3	44.00	3.80	0.67	184.85	5.593	0.67	0.00	0.00
12	108.00	800 MHz Filters	3	64.00	2.40	0.67	163.61	3.844	0.67	0.00	0.00
13	108.00	800 MHz	3	53.00	2.49	0.67	148.43	3.966	0.67	0.00	0.00
14	108.00	840 10054	3	35.00	4.59	0.61	143.73	6.748	0.61	0.00	0.00
15	108.00	ACU-A20-N	4	1.00	0.14	0.67	6.54	0.523	0.67	0.00	0.00
16	108.00	APXVSP18-C-A20	2	57.00	8.02	0.83	280.02	11.625	0.83	0.00	0.00
17	108.00	APXVTM14-C-120	3	56.00	6.34	0.79	275.27	7.803	0.79	0.00	0.00
18	108.00	Horizon	2	10.60	0.43	1.00	39.67	1.090	1.00	0.00	0.00
19	108.00	P40-16-XLPP-RR-A	1	53.00	9.08	1.00	336.69	10.719	1.00	0.00	0.00
20	108.00	TD-RRH8x20-25	3	70.00	4.05	0.67	221.31	5.123	0.67	0.00	0.00
21	108.00	VHLP2.5	2	47.60	8.43	1.00	270.41	10.632	1.00	0.00	0.00
22	108.00	T-Arm	3	350.00	8.00	0.75	665.25	17.007	0.75	0.00	0.00
23	98.00	Raycap DC6-48-60-0-8F	3	31.80	0.92	1.00	110.80	1.480	1.00	0.00	0.00
24	98.00	Ericsson RRUS 8843 B25/B66A	3	75.00	1.65	0.67	177.07	2.358	0.67	0.00	0.00
25	98.00	Ericsson RRUS 32	3	53.00	2.74	0.67	173.05	3.691	0.67	0.00	0.00
26	98.00	Cci TPA-65R-BU6DA	3	52.60	12.87	0.72	349.88	14.753	0.72	0.00	0.00
27	98.00	Cci DMP65R-BU6DA	3	79.40	12.71	0.72	455.76	14.581	0.72	0.00	0.00
28	98.00	Ericsson Air6449	3	103.00	5.65	0.71	278.21	6.865	0.71	0.00	0.00
29	98.00	Ericsson Air6419 N77G	3	55.40	3.80	0.76	158.43	4.817	0.76	0.00	0.00
30	98.00	Ericsson RRUS 4478 B14	3	59.40	1.65	0.67	112.38	2.312	0.67	0.00	0.00
31	98.00	Ericsson RRUS 4449 B5/B12	3	71.00	1.97	0.67	139.21	2.669	0.67	0.00	0.00
32	98.00	ULPD14	1	2419.26	45.00	1.00	6735.18	17.251	1.00	0.00	0.00
33	88.00	AIR6449 B41	3	103.00	5.65	0.71	276.33	6.852	0.71	0.00	0.00
34	88.00	SDX1926Q-43	3	5.50	0.23	0.67	15.22	0.695	0.67	0.00	0.00
35	88.00	RRUS 4415 B25	3	46.00	1.64	0.67	97.96	2.291	0.67	0.00	0.00
36	88.00	APXVAARR24_43-U-NA20	3	128.00	20.24	0.70	674.18	22.666	0.75	0.00	0.00
37	88.00	KRY 112 144/2	3	11.00	0.41	0.70	24.63	1.011	0.75	0.00	0.00
38	88.00	4449 B71 + B85	3	74.00	2.57	0.67	195.46	3.386	0.67	0.00	0.00
39	88.00	T-Arm w/ mod	3	350.00	14.00	0.75	658.86	29.443	0.75	0.00	0.00
40	88.00	AIR32 KRD901146-1_B66A	3	132.20	6.51	0.87	376.67	8.012	0.87	0.00	0.00
41	78.00	JMA Wireless MX08FRO665-21	3	64.50	12.49	0.74	427.78	14.319	0.74	0.00	0.00
42	78.00	Fujitsu TA08025-B605	3	75.00	1.96	0.80	140.32	2.661	0.80	0.00	0.00
43	78.00	Fujitsu TA08025-B604	3	63.90	1.96	0.76	127.13	2.661	0.76	0.00	0.00
44	78.00	Raycap RDIDC-9181-PF-48	1	21.90	2.01	1.00	88.40	2.720	1.00	0.00	0.00
45	78.00	MC-K6M-6-96 (3 Sectors)	1	860.00	20.95	0.75	1909.72	53.828	0.75	0.00	0.00
Totals:			122	13,329.81			38,887.72				

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		

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	118.00	(11) 1 5/8" Coax	0.00	Inside
0.00	118.00	(2) 1 5/8" Hybrid	1.63	Outside
0.00	108.00	(4) 1-1/4" Hybrid	0.00	Inside
0.00	108.00	(3) 1/2" Coax	0.00	Inside
0.00	108.00	(6) 5/16" Coax	0.00	Inside
0.00	98.00	(6) 1 5/8" Coax	0.00	Inside
0.00	98.00	(6) 3/4" DC Power	0.00	Inside
0.00	98.00	(2) 3/8" Fiber	0.00	Inside
0.00	88.00	(11) 1 5/8" Coax	0.00	Inside
0.00	88.00	(3) 1-1/4" Hybrid	0.00	Inside
0.00	78.00	(1) 1.411" Hybrid	1.41	Outside
0.00	20.00	(4) 1" Reinforcing plate	0.00	Outside

Shaft Section Properties

Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 8

Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)	Additional Reinforcing			
											Area (in^2)	Ixp (in^4)	Iyp (in^4)	Weight (lb)
0.00	RB1	0.3125	47.500	46.802	13166.7	25.39	152.00	65	72	0.0	10.40	4731.7	1578.5	
1.00	RT1 RB2	0.3125	47.278	46.583	12982.0	25.27	151.29	65	72	158.9	24.00	10508.1	3550.7	81.7
5.00		0.3125	46.392	45.703	12260.6	24.77	148.45	65	72	628.1	24.00	10126.4	3423.5	326.7
10.00		0.3125	45.284	44.604	11397.1	24.14	144.91	65	73	768.2	24.00	9659.3	3267.8	408.3
15.00		0.3125	44.175	43.505	10575.2	23.52	141.36	65	74	749.5	24.00	9203.2	3115.7	408.3
18.63	RT2	0.3125	43.371	42.707	10003.9	23.06	138.79	65	74	532.4	24.00	8879.0	3007.7	296.4
20.00		0.3125	43.067	42.406	9793.7	22.89	137.82	65	74	198.4				
25.00		0.3125	41.959	41.307	9051.7	22.26	134.27	65	75	712.1				
30.00		0.3125	40.851	40.208	8348.2	21.64	130.72	65	76	693.4				
35.00		0.3125	39.743	39.108	7682.1	21.01	127.18	65	77	674.7				
40.00		0.3125	38.634	38.009	7052.4	20.39	123.63	65	77	656.0				
45.00		0.3125	37.526	36.910	6458.1	19.76	120.08	65	78	637.3				
48.50	Bot - Section 2	0.3125	36.751	36.141	6062.6	19.33	117.60	65	79	435.0				
50.00		0.3125	36.418	35.811	5898.2	19.14	116.54	65	79	332.8				
53.25	Top - Section 1	0.2500	36.198	28.524	4656.9	24.12	144.79	65	73	710.7				
55.00		0.2500	35.810	28.216	4507.8	23.85	143.24	65	73	168.9				
60.00		0.2500	34.702	27.336	4099.4	23.06	138.81	65	74	472.6				
65.00		0.2500	33.593	26.457	3716.4	22.28	134.37	65	75	457.6				
70.00		0.2500	32.485	25.578	3358.0	21.50	129.94	65	76	442.7				
75.00		0.2500	31.377	24.698	3023.4	20.72	125.51	65	77	427.7				
78.00		0.2500	30.712	24.171	2833.8	20.25	122.85	65	78	249.4				
80.00		0.2500	30.269	23.819	2711.9	19.94	121.08	65	78	163.3				
85.00		0.2500	29.161	22.940	2422.5	19.16	116.64	65	79	397.8				
88.00		0.2500	28.496	22.412	2259.2	18.69	113.98	65	79	231.5				
90.00		0.2500	28.053	22.061	2154.5	18.38	112.21	65	80	151.3				
95.00		0.2500	26.944	21.181	1907.0	17.59	107.78	65	81	367.9				
98.00		0.2500	26.279	20.654	1768.0	17.12	105.12	65	81	213.5				
98.50	Bot - Section 3	0.2500	26.169	20.566	1745.5	17.05	104.67	65	81	35.1				
100.00		0.2500	25.836	20.302	1679.2	16.81	103.34	65	82	183.8				
102.00	Top - Section 2	0.1875	25.768	15.223	1258.5	22.82	137.43	65	75	241.5				
105.00		0.1875	25.103	14.827	1162.9	22.20	133.88	65	75	153.4				
108.00		0.1875	24.438	14.432	1072.3	21.57	130.34	65	76	149.3				
109.00	Top - Section 3	0.1875	24.216	14.300	1043.1	21.36	129.15	65	76	48.9				
109.00	Bot - Section 4	0.1875	24.216	14.300	1043.1	21.36	129.15	65	76					
110.00		0.1875	23.995	14.168	1014.5	21.15	127.97	65	77	48.4				
115.00		0.1875	22.887	13.508	879.4	20.11	122.06	65	78	235.4				
118.00		0.1875	22.222	13.113	804.3	19.49	118.52	65	78	135.9				
119.00		0.1875	22.000	12.981	780.3	19.28	117.33	65	79	44.4				
Total Weight										12908.1				1521.4

Wind Loading - Shaft

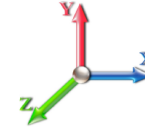
Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.2D + 1.6W 97 mph Wind

Iterations 23

Dead Load Factor 1.20
Wind Load Factor 1.60



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	RB1	1.00	0.85	19.450	21.40	359.45	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
1.00	RT1 RB2	1.00	0.85	19.450	21.40	357.78	0.650	0.000	1.00	4.010	2.61	89.2	0.0	190.7
5.00		1.00	0.85	19.450	21.40	351.07	0.650	0.000	4.00	15.853	10.30	352.7	0.0	753.7
10.00		1.00	0.85	19.450	21.40	342.68	0.650	0.000	5.00	19.394	12.61	431.5	0.0	921.9
15.00		1.00	0.85	19.450	21.40	334.29	0.650	0.000	5.00	18.925	12.30	421.1	0.0	899.4
18.63	RT2	1.00	0.89	20.332	22.36	335.56	0.650	0.000	3.63	13.446	8.74	312.7	0.0	638.9
20.00		1.00	0.90	20.638	22.70	335.71	0.650	0.000	1.37	5.010	3.26	118.3	0.0	238.1
25.00		1.00	0.95	21.630	23.79	334.84	0.650	0.000	5.00	17.987	11.69	445.1	0.0	854.6
30.00		1.00	0.98	22.477	24.72	332.32	0.650	0.000	5.00	17.518	11.39	450.4	0.0	832.1
35.00		1.00	1.01	23.218	25.54	328.59	0.650	0.000	5.00	17.049	11.08	452.9	0.0	809.7
40.00		1.00	1.04	23.880	26.27	323.95	0.650	0.000	5.00	16.580	10.78	453.0	0.0	787.2
45.00		1.00	1.07	24.479	26.93	318.58	0.650	0.000	5.00	16.112	10.47	451.2	0.0	764.8
48.50	Bot - Section 2	1.00	1.09	24.869	27.36	314.47	0.650	0.000	3.50	10.999	7.15	312.9	0.0	522.0
50.00		1.00	1.09	25.029	27.53	312.62	0.650	0.000	1.50	4.707	3.06	134.8	0.0	399.4
53.25	Top - Section 1	1.00	1.11	25.363	27.90	308.48	0.650	0.000	3.25	10.054	6.53	291.7	0.0	852.8
55.00		1.00	1.12	25.536	28.09	310.50	0.650	0.000	1.75	5.332	3.47	155.8	0.0	202.7
60.00		1.00	1.14	26.008	28.61	303.66	0.650	0.000	5.00	14.917	9.70	443.8	0.0	567.1
65.00		1.00	1.16	26.450	29.09	296.45	0.650	0.000	5.00	14.448	9.39	437.2	0.0	549.1
70.00		1.00	1.17	26.866	29.55	288.92	0.650	0.000	5.00	13.979	9.09	429.6	0.0	531.2
75.00		1.00	1.19	27.259	29.98	281.09	0.650	0.000	5.00	13.510	8.78	421.3	0.0	513.2
78.00	Appurtenance(s)	1.00	1.20	27.485	30.23	276.28	0.650	0.000	3.00	7.881	5.12	247.8	0.0	299.3
80.00		1.00	1.21	27.632	30.39	273.01	0.650	0.000	2.00	5.160	3.35	163.1	0.0	196.0
85.00		1.00	1.22	27.987	30.79	264.70	0.650	0.000	5.00	12.572	8.17	402.5	0.0	477.3
88.00	Appurtenance(s)	1.00	1.23	28.192	31.01	259.61	0.650	0.000	3.00	7.318	4.76	236.0	0.0	277.8
90.00		1.00	1.24	28.325	31.16	256.18	0.650	0.000	2.00	4.785	3.11	155.1	0.0	181.6
95.00		1.00	1.25	28.650	31.51	247.46	0.650	0.000	5.00	11.634	7.56	381.3	0.0	441.4
98.00	Appurtenance(s)	1.00	1.26	28.838	31.72	242.15	0.650	0.000	3.00	6.756	4.39	222.9	0.0	256.2
98.50	Bot - Section 3	1.00	1.26	28.869	31.76	241.26	0.650	0.000	0.50	1.110	0.72	36.6	0.0	42.1
100.00		1.00	1.27	28.961	31.86	238.57	0.650	0.000	1.50	3.348	2.18	110.9	0.0	220.6
102.00	Top - Section 2	1.00	1.27	29.082	31.99	234.97	0.650	0.000	2.00	4.398	2.86	146.3	0.0	289.8
105.00		1.00	1.28	29.260	32.19	232.99	0.650	0.000	3.00	6.457	4.20	216.1	0.0	184.1
108.00	Appurtenance(s)	1.00	1.29	29.434	32.38	227.50	0.650	0.000	3.00	6.288	4.09	211.7	0.0	179.2
109.00	Top - Section 3	1.00	1.29	29.491	32.44	225.65	0.650	0.000	1.00	2.059	1.34	69.5	0.0	58.7
110.00		1.00	1.29	29.548	32.50	223.80	0.650	0.000	1.00	2.040	1.33	69.0	0.0	58.1
115.00		1.00	1.30	29.826	32.81	214.47	0.650	0.000	5.00	9.918	6.45	338.4	0.0	282.5
118.00	Appurtenance(s)	1.00	1.31	29.988	32.99	208.80	0.650	0.000	3.00	5.726	3.72	196.4	0.0	163.1
119.00		1.00	1.31	30.041	33.05	206.90	0.650	0.000	1.00	1.871	1.22	64.3	0.0	53.3
Totals:									119.00			9,873.2		15,489.7

Discrete Appurtenance Forces

Structure: CT08558-B-SBA
Site Name: New Britain 3, CT
Height: 119.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

Code: TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: D - Stiff Soil
Struct Class: II

2/17/2022

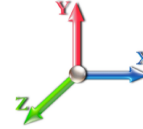
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Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60

Iterations 23



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	118.00	(3) T-Arm Kit	1	29.988	32.986	0.75	0.75	12.38	600.00	0.000	0.000	653.13	0.00	0.00
2	118.00	BXA-70063-6BF	3	29.988	32.986	0.56	0.80	12.72	61.20	0.000	0.000	671.21	0.00	0.00
3	118.00	T-Arm	3	29.988	32.986	0.56	0.75	16.88	1260.00	0.000	0.000	890.63	0.00	0.00
4	118.00	Commscope	6	29.988	32.986	0.66	0.80	32.19	314.64	0.000	0.000	1698.97	0.00	0.00
5	118.00	Samsung MT6407-77A	3	29.988	32.986	0.56	0.80	7.88	285.84	0.000	0.000	415.85	0.00	0.00
6	118.00	B2/B66A RRH-BR049	3	29.988	32.986	0.54	0.80	3.01	303.84	0.000	0.000	158.70	0.00	0.00
7	118.00	BSAMNT-SBS-1-2	3	29.988	32.986	0.75	0.75	0.00	91.26	0.000	0.000	0.00	0.00	0.00
8	118.00	Collar	1	29.988	32.986	0.75	0.75	1.88	180.72	0.000	0.000	98.96	0.00	0.00
9	118.00	Samsung B5/B13	3	29.988	32.986	0.54	0.80	3.02	253.08	0.000	0.000	159.55	0.00	0.00
10	118.00	Raycap	1	29.988	32.986	0.80	0.80	3.03	38.40	0.000	0.000	160.02	0.00	0.00
11	108.00	840 10054	3	29.434	32.377	0.49	0.80	6.72	126.00	0.000	0.000	348.11	0.00	0.00
12	108.00	800 MHz	3	29.434	32.377	0.54	0.80	4.00	190.80	0.000	0.000	207.42	0.00	0.00
13	108.00	ACU-A20-N	4	29.434	32.377	0.54	0.80	0.30	4.80	0.000	0.000	15.55	0.00	0.00
14	108.00	APXVSP18-C-A20	2	29.434	32.377	0.66	0.80	10.65	136.80	0.000	0.000	551.74	0.00	0.00
15	108.00	800 MHz Filters	3	29.434	32.377	0.54	0.80	3.86	230.40	0.000	0.000	199.92	0.00	0.00
16	108.00	1900MHz RRH	3	29.434	32.377	0.54	0.80	6.11	158.40	0.000	0.000	316.54	0.00	0.00
17	108.00	T-Arm	3	29.434	32.377	0.56	0.75	13.50	1260.00	0.000	0.000	699.35	0.00	0.00
18	108.00	APXVTM14-C-120	3	29.434	32.377	0.63	0.80	12.02	201.60	0.000	0.000	622.71	0.00	0.00
19	108.00	Horizon	2	29.434	32.377	0.80	0.80	0.69	25.44	0.000	0.000	35.64	0.00	0.00
20	108.00	P40-16-XLPP-RR-A	1	29.434	32.377	0.80	0.80	7.26	63.60	0.000	0.000	376.30	0.00	0.00
21	108.00	TD-RRH8x20-25	3	29.434	32.377	0.54	0.80	6.51	252.00	0.000	0.000	337.37	0.00	0.00
22	108.00	VHLP2.5	2	29.434	32.377	1.00	1.00	16.86	114.24	0.000	0.000	873.41	0.00	0.00
23	98.00	ULPD14	1	28.838	31.722	1.00	1.00	45.00	2903.11	0.000	0.000	2283.96	0.00	0.00
24	98.00	Cci TPA-65R-BU6DA	3	28.838	31.722	0.58	0.80	22.24	189.36	0.000	0.000	1128.75	0.00	0.00
25	98.00	Raycap DC6-48-60-0-8F	3	28.838	31.722	0.80	0.80	2.21	114.48	0.000	0.000	112.07	0.00	0.00
26	98.00	Ericsson RRUS 8843	3	28.838	31.722	0.54	0.80	2.65	270.00	0.000	0.000	134.66	0.00	0.00
27	98.00	Ericsson RRUS 32	3	28.838	31.722	0.54	0.80	4.41	190.80	0.000	0.000	223.62	0.00	0.00
28	98.00	Ericsson RRUS 4449	3	28.838	31.722	0.54	0.80	3.17	255.60	0.000	0.000	160.78	0.00	0.00
29	98.00	Cci DMP65R-BU6DA	3	28.838	31.722	0.58	0.80	21.96	285.84	0.000	0.000	1114.72	0.00	0.00
30	98.00	Ericsson Air6449	3	28.838	31.722	0.57	0.80	9.63	370.80	0.000	0.000	488.65	0.00	0.00
31	98.00	Ericsson Air6419 N77G	3	28.838	31.722	0.61	0.80	6.93	199.44	0.000	0.000	351.79	0.00	0.00
32	98.00	Ericsson RRUS 4478 B14	3	28.838	31.722	0.54	0.80	2.65	213.84	0.000	0.000	134.66	0.00	0.00
33	88.00	RRUS 4415 B25	3	28.192	31.011	0.54	0.80	2.64	165.60	0.000	0.000	130.85	0.00	0.00
34	88.00	SDX1926Q-43	3	28.192	31.011	0.54	0.80	0.37	19.80	0.000	0.000	18.35	0.00	0.00
35	88.00	APXVAARR24_43-U-NA2	3	28.192	31.011	0.56	0.80	34.00	460.80	0.000	0.000	1687.15	0.00	0.00
36	88.00	AIR6449 B41	3	28.192	31.011	0.57	0.80	9.63	370.80	0.000	0.000	477.70	0.00	0.00
37	88.00	T-Arm w/ mod	3	28.192	31.011	0.56	0.75	23.63	1260.00	0.000	0.000	1172.21	0.00	0.00
38	88.00	KRY 112 144/2	3	28.192	31.011	0.56	0.80	0.69	39.60	0.000	0.000	34.18	0.00	0.00
39	88.00	4449 B71 + B85	3	28.192	31.011	0.54	0.80	4.13	266.40	0.000	0.000	205.05	0.00	0.00
40	88.00	AIR32	3	28.192	31.011	0.70	0.80	13.59	475.92	0.000	0.000	674.44	0.00	0.00
41	78.00	MC-K6M-6-96 (3 Sectors)	1	27.485	30.233	0.56	0.75	11.78	1032.00	0.000	0.000	570.05	0.00	0.00
42	78.00	Raycap	1	27.485	30.233	0.80	0.80	1.61	26.28	0.000	0.000	77.78	0.00	0.00
43	78.00	Fujitsu TA08025-B604	3	27.485	30.233	0.61	0.80	3.58	230.04	0.000	0.000	172.94	0.00	0.00
44	78.00	Fujitsu TA08025-B605	3	27.485	30.233	0.64	0.80	3.76	270.00	0.000	0.000	182.04	0.00	0.00
45	78.00	JMA Wireless	3	27.485	30.233	0.59	0.80	22.18	232.20	0.000	0.000	1073.03	0.00	0.00

Totals: 15,995.77

22,100.50

Total Applied Force Summary

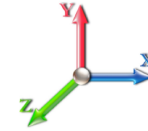
Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 23

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
1.00		89.23	241.81	0.00	0.00
5.00		352.74	958.28	0.00	0.00
10.00		431.53	1177.66	0.00	0.00
15.00		421.10	1155.21	0.00	0.00
18.63		312.74	824.63	0.00	0.00
20.00		118.29	308.15	0.00	0.00
25.00		445.09	1110.33	0.00	0.00
30.00		450.45	1087.89	0.00	0.00
35.00		452.85	1065.45	0.00	0.00
40.00		452.96	1043.01	0.00	0.00
45.00		451.20	1020.57	0.00	0.00
48.50		312.92	701.05	0.00	0.00
50.00		134.78	476.10	0.00	0.00
53.25		291.71	1019.07	0.00	0.00
55.00		155.75	292.24	0.00	0.00
60.00		443.81	822.86	0.00	0.00
65.00		437.17	804.91	0.00	0.00
70.00		429.63	786.96	0.00	0.00
75.00		421.29	769.00	0.00	0.00
78.00	(11) attachments	2323.63	2243.31	0.00	0.00
80.00		163.12	295.51	0.00	0.00
85.00		402.52	726.20	0.00	0.00
88.00	(24) attachments	4635.95	3486.02	0.00	0.00
90.00		155.06	246.82	0.00	0.00
95.00		381.32	604.48	0.00	0.00
98.00	(28) attachments	6356.52	5347.34	0.00	0.00
98.50		36.64	53.13	0.00	0.00
100.00		110.92	253.77	0.00	0.00
102.00		146.33	333.96	0.00	0.00
105.00		216.13	250.36	0.00	0.00
108.00	(32) attachments	4795.78	3009.59	0.00	0.00
109.00		69.45	75.03	0.00	0.00
110.00		68.95	74.49	0.00	0.00
115.00		338.39	364.37	0.00	0.00
118.00	(27) attachments	5103.46	3601.14	0.00	0.00
119.00		64.30	53.27	0.00	0.00
Totals:		31,973.71	36,683.96	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 97 mph Wind

Iterations 23

Dead Load Factor 1.20

Wind Load Factor 1.60



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
1.00	1 5/8" Hybrid	Yes	1.00	0.000	1.63	0.14	0.00	0.063	0.000	19.450	0.00	2.64
1.00	1.411" Hybrid	Yes	1.00	0.000	1.41	0.12	0.00	0.063	0.000	19.450	0.00	1.38
1.00	1" Reinforcing plate	Yes	1.00	0.000	0.00	0.00	0.00	0.063	0.000	19.450	0.00	0.00
5.00	1 5/8" Hybrid	Yes	4.00	0.000	1.63	0.54	0.00	0.064	0.000	19.450	0.00	10.56
5.00	1.411" Hybrid	Yes	4.00	0.000	1.41	0.47	0.00	0.064	0.000	19.450	0.00	5.52
5.00	1" Reinforcing plate	Yes	4.00	0.000	0.00	0.00	0.00	0.064	0.000	19.450	0.00	0.00
10.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.065	0.000	19.450	0.00	13.20
10.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.065	0.000	19.450	0.00	6.90
10.00	1" Reinforcing plate	Yes	5.00	0.000	0.00	0.00	0.00	0.065	0.000	19.450	0.00	0.00
15.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.067	0.000	19.450	0.00	13.20
15.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.067	0.000	19.450	0.00	6.90
15.00	1" Reinforcing plate	Yes	5.00	0.000	0.00	0.00	0.00	0.067	0.000	19.450	0.00	0.00
18.63	1 5/8" Hybrid	Yes	3.63	0.000	1.63	0.49	0.00	0.068	0.000	20.332	0.00	9.58
18.63	1.411" Hybrid	Yes	3.63	0.000	1.41	0.43	0.00	0.068	0.000	20.332	0.00	5.01
18.63	1" Reinforcing plate	Yes	3.63	0.000	0.00	0.00	0.00	0.068	0.000	20.332	0.00	0.00
20.00	1 5/8" Hybrid	Yes	1.37	0.000	1.63	0.19	0.00	0.069	0.000	20.638	0.00	3.62
20.00	1.411" Hybrid	Yes	1.37	0.000	1.41	0.16	0.00	0.069	0.000	20.638	0.00	1.89
20.00	1" Reinforcing plate	Yes	1.37	0.000	0.00	0.00	0.00	0.069	0.000	20.638	0.00	0.00
25.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.070	0.000	21.630	0.00	13.20
25.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.070	0.000	21.630	0.00	6.90
30.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.072	0.000	22.477	0.00	13.20
30.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.072	0.000	22.477	0.00	6.90
35.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.074	0.000	23.218	0.00	13.20
35.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.074	0.000	23.218	0.00	6.90
40.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.076	0.000	23.880	0.00	13.20
40.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.076	0.000	23.880	0.00	6.90
45.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.079	0.000	24.479	0.00	13.20
45.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.079	0.000	24.479	0.00	6.90
48.50	1 5/8" Hybrid	Yes	3.50	0.000	1.63	0.48	0.00	0.081	0.000	24.869	0.00	9.24
48.50	1.411" Hybrid	Yes	3.50	0.000	1.41	0.41	0.00	0.081	0.000	24.869	0.00	4.83
50.00	1 5/8" Hybrid	Yes	1.50	0.000	1.63	0.20	0.00	0.082	0.000	25.029	0.00	3.96
50.00	1.411" Hybrid	Yes	1.50	0.000	1.41	0.18	0.00	0.082	0.000	25.029	0.00	2.07
53.25	1 5/8" Hybrid	Yes	3.25	0.000	1.63	0.44	0.00	0.083	0.000	25.363	0.00	8.58
53.25	1.411" Hybrid	Yes	3.25	0.000	1.41	0.38	0.00	0.083	0.000	25.363	0.00	4.48
55.00	1 5/8" Hybrid	Yes	1.75	0.000	1.63	0.24	0.00	0.083	0.000	25.536	0.00	4.62
55.00	1.411" Hybrid	Yes	1.75	0.000	1.41	0.21	0.00	0.083	0.000	25.536	0.00	2.42
60.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.085	0.000	26.008	0.00	13.20
60.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.085	0.000	26.008	0.00	6.90
65.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.088	0.000	26.450	0.00	13.20
65.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.088	0.000	26.450	0.00	6.90
70.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.091	0.000	26.866	0.00	13.20
70.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.091	0.000	26.866	0.00	6.90
75.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.094	0.000	27.259	0.00	13.20
75.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.094	0.000	27.259	0.00	6.90
78.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	0.41	0.00	0.096	0.000	27.485	0.00	7.92
78.00	1.411" Hybrid	Yes	3.00	0.000	1.41	0.35	0.00	0.096	0.000	27.485	0.00	4.14
80.00	1 5/8" Hybrid	Yes	2.00	0.000	1.63	0.27	0.00	0.053	0.000	27.632	0.00	5.28

Linear Appurtenance Segment Forces (Factored)

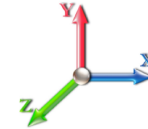
Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
85.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.054	0.000	27.987	0.00	13.20
88.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	0.41	0.00	0.056	0.000	28.192	0.00	7.92
90.00	1 5/8" Hybrid	Yes	2.00	0.000	1.63	0.27	0.00	0.057	0.000	28.325	0.00	5.28
95.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.058	0.000	28.650	0.00	13.20
98.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	0.41	0.00	0.060	0.000	28.838	0.00	7.92
98.50	1 5/8" Hybrid	Yes	0.50	0.000	1.63	0.07	0.00	0.061	0.000	28.869	0.00	1.32
100.00	1 5/8" Hybrid	Yes	1.50	0.000	1.63	0.20	0.00	0.062	0.000	28.961	0.00	3.96
102.00	1 5/8" Hybrid	Yes	2.00	0.000	1.63	0.27	0.00	0.063	0.000	29.082	0.00	5.28
105.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	0.41	0.00	0.063	0.000	29.260	0.00	7.92
108.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	0.41	0.00	0.065	0.000	29.434	0.00	7.92
109.00	1 5/8" Hybrid	Yes	1.00	0.000	1.63	0.14	0.00	0.066	0.000	29.491	0.00	2.64
110.00	1 5/8" Hybrid	Yes	1.00	0.000	1.63	0.14	0.00	0.067	0.000	29.548	0.00	2.64
115.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.068	0.000	29.826	0.00	13.20
118.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	0.41	0.00	0.071	0.000	29.988	0.00	7.92
Totals:											0.0	419.2

Calculated Forces

Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 97 mph Wind

Iterations 23

Dead Load Factor 1.20
Wind Load Factor 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	-36.67	-31.99	0.00	-2921.8	0.00	2921.80	3013.27	1506.63	5849.73	2929.21	0.00	0.000	0.000	0.901
1.00	-36.36	-31.98	0.00	-2889.8	0.00	2889.81	3005.28	1502.64	5806.64	2907.64	0.01	-0.056	0.000	0.789
5.00	-35.28	-31.76	0.00	-2761.8	0.00	2761.88	2972.75	1486.38	5634.65	2821.52	0.14	-0.251	0.000	0.773
10.00	-33.97	-31.47	0.00	-2603.0	0.00	2603.08	2930.78	1465.39	5420.60	2714.33	0.53	-0.494	0.000	0.753
15.00	-32.70	-31.16	0.00	-2445.7	0.00	2445.74	2887.35	1443.68	5207.78	2607.76	1.18	-0.739	0.000	0.732
18.63	-31.82	-30.90	0.00	-2332.6	0.00	2332.64	2854.92	1427.46	5054.16	2530.83	1.81	-0.919	0.000	0.716
18.63	-31.82	-30.90	0.00	-2332.6	0.00	2332.64	2854.92	1427.46	5054.16	2530.83	1.81	-0.919	0.000	0.716
20.00	-31.40	-30.89	0.00	-2290.3	0.00	2290.31	2842.47	1421.24	4996.39	2501.91	2.08	-0.988	0.000	0.927
25.00	-30.13	-30.59	0.00	-2135.8	0.00	2135.89	2796.14	1398.07	4786.62	2396.87	3.29	-1.310	0.000	0.902
30.00	-28.88	-30.27	0.00	-1982.9	0.00	1982.95	2748.35	1374.17	4578.69	2292.75	4.84	-1.633	0.000	0.876
35.00	-27.66	-29.95	0.00	-1831.5	0.00	1831.58	2699.10	1349.55	4372.78	2189.64	6.72	-1.958	0.000	0.847
40.00	-26.47	-29.61	0.00	-1681.8	0.00	1681.86	2648.40	1324.20	4169.10	2087.65	8.95	-2.284	0.000	0.816
45.00	-25.33	-29.23	0.00	-1533.8	0.00	1533.83	2596.25	1298.12	3967.85	1986.88	11.52	-2.608	0.000	0.782
48.50	-24.56	-28.96	0.00	-1431.5	0.00	1431.52	2558.87	1279.44	3828.53	1917.11	13.51	-2.837	0.000	0.757
50.00	-24.01	-28.86	0.00	-1388.0	0.00	1388.09	2542.63	1271.32	3769.24	1887.42	14.42	-2.936	0.000	0.745
53.25	-22.93	-28.58	0.00	-1294.2	0.00	1294.28	1874.80	937.40	2771.76	1387.94	16.49	-3.146	0.000	0.946
55.00	-22.53	-28.51	0.00	-1244.2	0.00	1244.27	1862.74	931.37	2724.01	1364.03	17.67	-3.260	0.000	0.925
60.00	-21.55	-28.15	0.00	-1101.7	0.00	1101.73	1827.31	913.65	2588.34	1296.09	21.28	-3.630	0.000	0.863
65.00	-20.61	-27.79	0.00	-960.97	0.00	960.97	1790.42	895.21	2453.92	1228.78	25.28	-3.988	0.000	0.795
70.00	-19.70	-27.42	0.00	-822.03	0.00	822.03	1752.08	876.04	2320.96	1162.21	29.64	-4.329	0.000	0.720
75.00	-18.85	-27.02	0.00	-684.94	0.00	684.94	1712.28	856.14	2189.66	1096.46	34.34	-4.648	0.000	0.637
78.00	-16.74	-24.56	0.00	-603.88	0.00	603.88	1687.70	843.85	2111.76	1057.45	37.32	-4.830	0.000	0.582
80.00	-16.38	-24.43	0.00	-554.76	0.00	554.76	1671.02	835.51	2060.22	1031.64	39.37	-4.947	0.000	0.548
85.00	-15.61	-24.02	0.00	-432.62	0.00	432.62	1628.32	814.16	1932.84	967.86	44.68	-5.206	0.000	0.457
88.00	-12.53	-19.10	0.00	-360.57	0.00	360.57	1601.99	801.00	1857.49	930.12	48.00	-5.345	0.000	0.396
90.00	-12.25	-18.96	0.00	-322.36	0.00	322.36	1584.15	792.08	1807.72	905.20	50.25	-5.431	0.000	0.364
95.00	-11.64	-18.55	0.00	-227.58	0.00	227.58	1538.53	769.27	1685.06	843.78	56.04	-5.613	0.000	0.278
98.00	-6.94	-11.70	0.00	-171.94	0.00	171.94	1510.46	755.23	1612.73	807.56	59.59	-5.702	0.000	0.218
98.50	-6.88	-11.66	0.00	-166.09	0.00	166.09	1505.73	752.87	1600.77	801.57	60.19	-5.716	0.000	0.212
100.00	-6.63	-11.53	0.00	-148.60	0.00	148.60	1491.46	745.73	1565.06	783.69	61.98	-5.754	0.000	0.194
102.00	-6.31	-11.36	0.00	-125.55	0.00	125.55	1021.50	510.75	1074.26	537.93	64.40	-5.801	0.000	0.240
105.00	-6.07	-11.12	0.00	-91.48	0.00	91.48	1004.76	502.38	1028.99	515.26	68.06	-5.859	0.000	0.184
108.00	-3.56	-6.04	0.00	-58.11	0.00	58.11	987.50	493.75	984.13	492.79	71.76	-5.914	0.000	0.122
109.00	-3.49	-5.97	0.00	-52.07	0.00	52.07	981.63	490.81	969.27	485.35	72.99	-5.928	0.000	0.111
109.00	-3.49	-5.97	0.00	-52.07	0.00	52.07	981.63	490.81	969.27	485.35	72.99	-5.928	0.000	0.111
110.00	-3.42	-5.89	0.00	-46.10	0.00	46.10	975.70	487.85	954.46	477.94	74.24	-5.942	0.000	0.100
115.00	-3.09	-5.52	0.00	-16.63	0.00	16.63	945.18	472.59	881.23	441.27	80.47	-5.986	0.000	0.041
118.00	-0.05	-0.07	0.00	-0.07	0.00	0.07	926.18	463.09	838.01	419.63	84.23	-5.994	0.000	0.000
119.00	0.00	-0.06	0.00	0.00	0.00	0.00	919.72	459.86	823.73	412.48	85.49	-5.994	0.000	0.000

Wind Loading - Shaft

Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

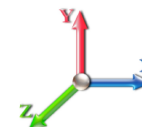


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Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

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	RB1	1.00	0.85	19.450	21.40	359.45	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
1.00	RT1 RB2	1.00	0.85	19.450	21.40	357.78	0.650	0.000	1.00	4.010	2.61	89.2	0.0	143.0
5.00		1.00	0.85	19.450	21.40	351.07	0.650	0.000	4.00	15.853	10.30	352.7	0.0	565.3
10.00		1.00	0.85	19.450	21.40	342.68	0.650	0.000	5.00	19.394	12.61	431.5	0.0	691.4
15.00		1.00	0.85	19.450	21.40	334.29	0.650	0.000	5.00	18.925	12.30	421.1	0.0	674.6
18.63	RT2	1.00	0.89	20.332	22.36	335.56	0.650	0.000	3.63	13.446	8.74	312.7	0.0	479.2
20.00		1.00	0.90	20.638	22.70	335.71	0.650	0.000	1.37	5.010	3.26	118.3	0.0	178.6
25.00		1.00	0.95	21.630	23.79	334.84	0.650	0.000	5.00	17.987	11.69	445.1	0.0	640.9
30.00		1.00	0.98	22.477	24.72	332.32	0.650	0.000	5.00	17.518	11.39	450.4	0.0	624.1
35.00		1.00	1.01	23.218	25.54	328.59	0.650	0.000	5.00	17.049	11.08	452.9	0.0	607.3
40.00		1.00	1.04	23.880	26.27	323.95	0.650	0.000	5.00	16.580	10.78	453.0	0.0	590.4
45.00		1.00	1.07	24.479	26.93	318.58	0.650	0.000	5.00	16.112	10.47	451.2	0.0	573.6
48.50	Bot - Section 2	1.00	1.09	24.869	27.36	314.47	0.650	0.000	3.50	10.999	7.15	312.9	0.0	391.5
50.00		1.00	1.09	25.029	27.53	312.62	0.650	0.000	1.50	4.707	3.06	134.8	0.0	299.5
53.25	Top - Section 1	1.00	1.11	25.363	27.90	308.48	0.650	0.000	3.25	10.054	6.53	291.7	0.0	639.6
55.00		1.00	1.12	25.536	28.09	310.50	0.650	0.000	1.75	5.332	3.47	155.8	0.0	152.0
60.00		1.00	1.14	26.008	28.61	303.66	0.650	0.000	5.00	14.917	9.70	443.8	0.0	425.3
65.00		1.00	1.16	26.450	29.09	296.45	0.650	0.000	5.00	14.448	9.39	437.2	0.0	411.9
70.00		1.00	1.17	26.866	29.55	288.92	0.650	0.000	5.00	13.979	9.09	429.6	0.0	398.4
75.00		1.00	1.19	27.259	29.98	281.09	0.650	0.000	5.00	13.510	8.78	421.3	0.0	384.9
78.00	Appurtenance(s)	1.00	1.20	27.485	30.23	276.28	0.650	0.000	3.00	7.881	5.12	247.8	0.0	224.5
80.00		1.00	1.21	27.632	30.39	273.01	0.650	0.000	2.00	5.160	3.35	163.1	0.0	147.0
85.00		1.00	1.22	27.987	30.79	264.70	0.650	0.000	5.00	12.572	8.17	402.5	0.0	358.0
88.00	Appurtenance(s)	1.00	1.23	28.192	31.01	259.61	0.650	0.000	3.00	7.318	4.76	236.0	0.0	208.3
90.00		1.00	1.24	28.325	31.16	256.18	0.650	0.000	2.00	4.785	3.11	155.1	0.0	136.2
95.00		1.00	1.25	28.650	31.51	247.46	0.650	0.000	5.00	11.634	7.56	381.3	0.0	331.1
98.00	Appurtenance(s)	1.00	1.26	28.838	31.72	242.15	0.650	0.000	3.00	6.756	4.39	222.9	0.0	192.2
98.50	Bot - Section 3	1.00	1.26	28.869	31.76	241.26	0.650	0.000	0.50	1.110	0.72	36.6	0.0	31.6
100.00		1.00	1.27	28.961	31.86	238.57	0.650	0.000	1.50	3.348	2.18	110.9	0.0	165.5
102.00	Top - Section 2	1.00	1.27	29.082	31.99	234.97	0.650	0.000	2.00	4.398	2.86	146.3	0.0	217.3
105.00		1.00	1.28	29.260	32.19	232.99	0.650	0.000	3.00	6.457	4.20	216.1	0.0	138.0
108.00	Appurtenance(s)	1.00	1.29	29.434	32.38	227.50	0.650	0.000	3.00	6.288	4.09	211.7	0.0	134.4
109.00	Top - Section 3	1.00	1.29	29.491	32.44	225.65	0.650	0.000	1.00	2.059	1.34	69.5	0.0	44.0
110.00		1.00	1.29	29.548	32.50	223.80	0.650	0.000	1.00	2.040	1.33	69.0	0.0	43.6
115.00		1.00	1.30	29.826	32.81	214.47	0.650	0.000	5.00	9.918	6.45	338.4	0.0	211.9
118.00	Appurtenance(s)	1.00	1.31	29.988	32.99	208.80	0.650	0.000	3.00	5.726	3.72	196.4	0.0	122.3
119.00		1.00	1.31	30.041	33.05	206.90	0.650	0.000	1.00	1.871	1.22	64.3	0.0	40.0
Totals:									119.00			9,873.2		11,617.3

Discrete Appurtenance Forces

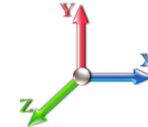
Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 23

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	118.00	(3) T-Arm Kit	1	29.988	32.986	0.75	0.75	12.38	450.00	0.000	0.000	653.13	0.00	0.00
2	118.00	BXA-70063-6BF	3	29.988	32.986	0.56	0.80	12.72	45.90	0.000	0.000	671.21	0.00	0.00
3	118.00	T-Arm	3	29.988	32.986	0.56	0.75	16.88	945.00	0.000	0.000	890.63	0.00	0.00
4	118.00	Commscope	6	29.988	32.986	0.66	0.80	32.19	235.98	0.000	0.000	1698.97	0.00	0.00
5	118.00	Samsung MT6407-77A	3	29.988	32.986	0.56	0.80	7.88	214.38	0.000	0.000	415.85	0.00	0.00
6	118.00	B2/B66A RRH-BR049	3	29.988	32.986	0.54	0.80	3.01	227.88	0.000	0.000	158.70	0.00	0.00
7	118.00	BSAMNT-SBS-1-2	3	29.988	32.986	0.75	0.75	0.00	68.45	0.000	0.000	0.00	0.00	0.00
8	118.00	Collar	1	29.988	32.986	0.75	0.75	1.88	135.54	0.000	0.000	98.96	0.00	0.00
9	118.00	Samsung B5/B13	3	29.988	32.986	0.54	0.80	3.02	189.81	0.000	0.000	159.55	0.00	0.00
10	118.00	Raycap	1	29.988	32.986	0.80	0.80	3.03	28.80	0.000	0.000	160.02	0.00	0.00
11	108.00	840 10054	3	29.434	32.377	0.49	0.80	6.72	94.50	0.000	0.000	348.11	0.00	0.00
12	108.00	800 MHz	3	29.434	32.377	0.54	0.80	4.00	143.10	0.000	0.000	207.42	0.00	0.00
13	108.00	ACU-A20-N	4	29.434	32.377	0.54	0.80	0.30	3.60	0.000	0.000	15.55	0.00	0.00
14	108.00	APXVSP18-C-A20	2	29.434	32.377	0.66	0.80	10.65	102.60	0.000	0.000	551.74	0.00	0.00
15	108.00	800 MHz Filters	3	29.434	32.377	0.54	0.80	3.86	172.80	0.000	0.000	199.92	0.00	0.00
16	108.00	1900MHz RRH	3	29.434	32.377	0.54	0.80	6.11	118.80	0.000	0.000	316.54	0.00	0.00
17	108.00	T-Arm	3	29.434	32.377	0.56	0.75	13.50	945.00	0.000	0.000	699.35	0.00	0.00
18	108.00	APXVTM14-C-120	3	29.434	32.377	0.63	0.80	12.02	151.20	0.000	0.000	622.71	0.00	0.00
19	108.00	Horizon	2	29.434	32.377	0.80	0.80	0.69	19.08	0.000	0.000	35.64	0.00	0.00
20	108.00	P40-16-XLPP-RR-A	1	29.434	32.377	0.80	0.80	7.26	47.70	0.000	0.000	376.30	0.00	0.00
21	108.00	TD-RRH8x20-25	3	29.434	32.377	0.54	0.80	6.51	189.00	0.000	0.000	337.37	0.00	0.00
22	108.00	VHLP2.5	2	29.434	32.377	1.00	1.00	16.86	85.68	0.000	0.000	873.41	0.00	0.00
23	98.00	ULPD14	1	28.838	31.722	1.00	1.00	45.00	2177.33	0.000	0.000	2283.96	0.00	0.00
24	98.00	Cci TPA-65R-BU6DA	3	28.838	31.722	0.58	0.80	22.24	142.02	0.000	0.000	1128.75	0.00	0.00
25	98.00	Raycap DC6-48-60-0-8F	3	28.838	31.722	0.80	0.80	2.21	85.86	0.000	0.000	112.07	0.00	0.00
26	98.00	Ericsson RRUS 8843	3	28.838	31.722	0.54	0.80	2.65	202.50	0.000	0.000	134.66	0.00	0.00
27	98.00	Ericsson RRUS 32	3	28.838	31.722	0.54	0.80	4.41	143.10	0.000	0.000	223.62	0.00	0.00
28	98.00	Ericsson RRUS 4449	3	28.838	31.722	0.54	0.80	3.17	191.70	0.000	0.000	160.78	0.00	0.00
29	98.00	Cci DMP65R-BU6DA	3	28.838	31.722	0.58	0.80	21.96	214.38	0.000	0.000	1114.72	0.00	0.00
30	98.00	Ericsson Air6449	3	28.838	31.722	0.57	0.80	9.63	278.10	0.000	0.000	488.65	0.00	0.00
31	98.00	Ericsson Air6419 N77G	3	28.838	31.722	0.61	0.80	6.93	149.58	0.000	0.000	351.79	0.00	0.00
32	98.00	Ericsson RRUS 4478 B14	3	28.838	31.722	0.54	0.80	2.65	160.38	0.000	0.000	134.66	0.00	0.00
33	88.00	RRUS 4415 B25	3	28.192	31.011	0.54	0.80	2.64	124.20	0.000	0.000	130.85	0.00	0.00
34	88.00	SDX1926Q-43	3	28.192	31.011	0.54	0.80	0.37	14.85	0.000	0.000	18.35	0.00	0.00
35	88.00	APXVAARR24_43-U-NA2	3	28.192	31.011	0.56	0.80	34.00	345.60	0.000	0.000	1687.15	0.00	0.00
36	88.00	AIR6449 B41	3	28.192	31.011	0.57	0.80	9.63	278.10	0.000	0.000	477.70	0.00	0.00
37	88.00	T-Arm w/ mod	3	28.192	31.011	0.56	0.75	23.63	945.00	0.000	0.000	1172.21	0.00	0.00
38	88.00	KRY 112 144/2	3	28.192	31.011	0.56	0.80	0.69	29.70	0.000	0.000	34.18	0.00	0.00
39	88.00	4449 B71 + B85	3	28.192	31.011	0.54	0.80	4.13	199.80	0.000	0.000	205.05	0.00	0.00
40	88.00	AIR32	3	28.192	31.011	0.70	0.80	13.59	356.94	0.000	0.000	674.44	0.00	0.00
41	78.00	MC-K6M-6-96 (3 Sectors)	1	27.485	30.233	0.56	0.75	11.78	774.00	0.000	0.000	570.05	0.00	0.00
42	78.00	Raycap	1	27.485	30.233	0.80	0.80	1.61	19.71	0.000	0.000	77.78	0.00	0.00
43	78.00	Fujitsu TA08025-B604	3	27.485	30.233	0.61	0.80	3.58	172.53	0.000	0.000	172.94	0.00	0.00
44	78.00	Fujitsu TA08025-B605	3	27.485	30.233	0.64	0.80	3.76	202.50	0.000	0.000	182.04	0.00	0.00
45	78.00	JMA Wireless	3	27.485	30.233	0.59	0.80	22.18	174.15	0.000	0.000	1073.03	0.00	0.00

Totals: 11,996.83

22,100.50

Total Applied Force Summary

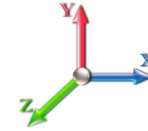
Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 23

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
1.00		89.23	181.36	0.00	0.00
5.00		352.74	718.71	0.00	0.00
10.00		431.53	883.24	0.00	0.00
15.00		421.10	866.41	0.00	0.00
18.63		312.74	618.47	0.00	0.00
20.00		118.29	231.11	0.00	0.00
25.00		445.09	832.75	0.00	0.00
30.00		450.45	815.92	0.00	0.00
35.00		452.85	799.09	0.00	0.00
40.00		452.96	782.26	0.00	0.00
45.00		451.20	765.43	0.00	0.00
48.50		312.92	525.78	0.00	0.00
50.00		134.78	357.07	0.00	0.00
53.25		291.71	764.30	0.00	0.00
55.00		155.75	219.18	0.00	0.00
60.00		443.81	617.15	0.00	0.00
65.00		437.17	603.68	0.00	0.00
70.00		429.63	590.22	0.00	0.00
75.00		421.29	576.75	0.00	0.00
78.00	(11) attachments	2323.63	1682.48	0.00	0.00
80.00		163.12	221.63	0.00	0.00
85.00		402.52	544.65	0.00	0.00
88.00	(24) attachments	4635.95	2614.52	0.00	0.00
90.00		155.06	185.11	0.00	0.00
95.00		381.32	453.36	0.00	0.00
98.00	(28) attachments	6356.52	4010.51	0.00	0.00
98.50		36.64	39.85	0.00	0.00
100.00		110.92	190.33	0.00	0.00
102.00		146.33	250.47	0.00	0.00
105.00		216.13	187.77	0.00	0.00
108.00	(32) attachments	4795.78	2257.19	0.00	0.00
109.00		69.45	56.27	0.00	0.00
110.00		68.95	55.87	0.00	0.00
115.00		338.39	273.27	0.00	0.00
118.00	(27) attachments	5103.46	2700.85	0.00	0.00
119.00		64.30	39.96	0.00	0.00
	Totals:	31,973.71	27,512.97	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



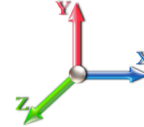
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Load Case: 0.9D + 1.6W 97 mph Wind

Iterations 23

Dead Load Factor 0.90

Wind Load Factor 1.60



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
1.00	1 5/8" Hybrid	Yes	1.00	0.000	1.63	0.14	0.00	0.063	0.000	19.450	0.00	1.98
1.00	1.411" Hybrid	Yes	1.00	0.000	1.41	0.12	0.00	0.063	0.000	19.450	0.00	1.03
1.00	1" Reinforcing plate	Yes	1.00	0.000	0.00	0.00	0.00	0.063	0.000	19.450	0.00	0.00
5.00	1 5/8" Hybrid	Yes	4.00	0.000	1.63	0.54	0.00	0.064	0.000	19.450	0.00	7.92
5.00	1.411" Hybrid	Yes	4.00	0.000	1.41	0.47	0.00	0.064	0.000	19.450	0.00	4.14
5.00	1" Reinforcing plate	Yes	4.00	0.000	0.00	0.00	0.00	0.064	0.000	19.450	0.00	0.00
10.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.065	0.000	19.450	0.00	9.90
10.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.065	0.000	19.450	0.00	5.17
10.00	1" Reinforcing plate	Yes	5.00	0.000	0.00	0.00	0.00	0.065	0.000	19.450	0.00	0.00
15.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.067	0.000	19.450	0.00	9.90
15.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.067	0.000	19.450	0.00	5.17
15.00	1" Reinforcing plate	Yes	5.00	0.000	0.00	0.00	0.00	0.067	0.000	19.450	0.00	0.00
18.63	1 5/8" Hybrid	Yes	3.63	0.000	1.63	0.49	0.00	0.068	0.000	20.332	0.00	7.19
18.63	1.411" Hybrid	Yes	3.63	0.000	1.41	0.43	0.00	0.068	0.000	20.332	0.00	3.76
18.63	1" Reinforcing plate	Yes	3.63	0.000	0.00	0.00	0.00	0.068	0.000	20.332	0.00	0.00
20.00	1 5/8" Hybrid	Yes	1.37	0.000	1.63	0.19	0.00	0.069	0.000	20.638	0.00	2.71
20.00	1.411" Hybrid	Yes	1.37	0.000	1.41	0.16	0.00	0.069	0.000	20.638	0.00	1.42
20.00	1" Reinforcing plate	Yes	1.37	0.000	0.00	0.00	0.00	0.069	0.000	20.638	0.00	0.00
25.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.070	0.000	21.630	0.00	9.90
25.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.070	0.000	21.630	0.00	5.17
30.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.072	0.000	22.477	0.00	9.90
30.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.072	0.000	22.477	0.00	5.17
35.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.074	0.000	23.218	0.00	9.90
35.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.074	0.000	23.218	0.00	5.17
40.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.076	0.000	23.880	0.00	9.90
40.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.076	0.000	23.880	0.00	5.17
45.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.079	0.000	24.479	0.00	9.90
45.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.079	0.000	24.479	0.00	5.17
48.50	1 5/8" Hybrid	Yes	3.50	0.000	1.63	0.48	0.00	0.081	0.000	24.869	0.00	6.93
48.50	1.411" Hybrid	Yes	3.50	0.000	1.41	0.41	0.00	0.081	0.000	24.869	0.00	3.62
50.00	1 5/8" Hybrid	Yes	1.50	0.000	1.63	0.20	0.00	0.082	0.000	25.029	0.00	2.97
50.00	1.411" Hybrid	Yes	1.50	0.000	1.41	0.18	0.00	0.082	0.000	25.029	0.00	1.55
53.25	1 5/8" Hybrid	Yes	3.25	0.000	1.63	0.44	0.00	0.083	0.000	25.363	0.00	6.44
53.25	1.411" Hybrid	Yes	3.25	0.000	1.41	0.38	0.00	0.083	0.000	25.363	0.00	3.36
55.00	1 5/8" Hybrid	Yes	1.75	0.000	1.63	0.24	0.00	0.083	0.000	25.536	0.00	3.47
55.00	1.411" Hybrid	Yes	1.75	0.000	1.41	0.21	0.00	0.083	0.000	25.536	0.00	1.81
60.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.085	0.000	26.008	0.00	9.90
60.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.085	0.000	26.008	0.00	5.17
65.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.088	0.000	26.450	0.00	9.90
65.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.088	0.000	26.450	0.00	5.17
70.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.091	0.000	26.866	0.00	9.90
70.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.091	0.000	26.866	0.00	5.17
75.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.094	0.000	27.259	0.00	9.90
75.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.094	0.000	27.259	0.00	5.17
78.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	0.41	0.00	0.096	0.000	27.485	0.00	5.94
78.00	1.411" Hybrid	Yes	3.00	0.000	1.41	0.35	0.00	0.096	0.000	27.485	0.00	3.10
80.00	1 5/8" Hybrid	Yes	2.00	0.000	1.63	0.27	0.00	0.053	0.000	27.632	0.00	3.96

Linear Appurtenance Segment Forces (Factored)

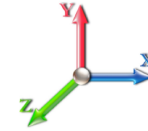
Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
85.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.054	0.000	27.987	0.00	9.90
88.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	0.41	0.00	0.056	0.000	28.192	0.00	5.94
90.00	1 5/8" Hybrid	Yes	2.00	0.000	1.63	0.27	0.00	0.057	0.000	28.325	0.00	3.96
95.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.058	0.000	28.650	0.00	9.90
98.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	0.41	0.00	0.060	0.000	28.838	0.00	5.94
98.50	1 5/8" Hybrid	Yes	0.50	0.000	1.63	0.07	0.00	0.061	0.000	28.869	0.00	0.99
100.00	1 5/8" Hybrid	Yes	1.50	0.000	1.63	0.20	0.00	0.062	0.000	28.961	0.00	2.97
102.00	1 5/8" Hybrid	Yes	2.00	0.000	1.63	0.27	0.00	0.063	0.000	29.082	0.00	3.96
105.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	0.41	0.00	0.063	0.000	29.260	0.00	5.94
108.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	0.41	0.00	0.065	0.000	29.434	0.00	5.94
109.00	1 5/8" Hybrid	Yes	1.00	0.000	1.63	0.14	0.00	0.066	0.000	29.491	0.00	1.98
110.00	1 5/8" Hybrid	Yes	1.00	0.000	1.63	0.14	0.00	0.067	0.000	29.548	0.00	1.98
115.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.068	0.000	29.826	0.00	9.90
118.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	0.41	0.00	0.071	0.000	29.988	0.00	5.94
Totals:											0.0	314.4

Calculated Forces

Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

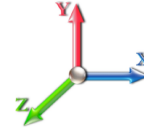


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Load Case: 0.9D + 1.6W 97 mph Wind

Iterations 23

Dead Load Factor 0.90
Wind Load Factor 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	-27.50	-31.99	0.00	-2890.5	0.00	2890.50	3013.27	1506.63	5849.73	2929.21	0.00	0.000	0.000	0.889
1.00	-27.25	-31.96	0.00	-2858.5	0.00	2858.52	3005.28	1502.64	5806.64	2907.64	0.01	-0.055	0.000	0.778
5.00	-26.41	-31.70	0.00	-2730.6	0.00	2730.69	2972.75	1486.38	5634.65	2821.52	0.14	-0.248	0.000	0.763
10.00	-25.40	-31.37	0.00	-2572.1	0.00	2572.18	2930.78	1465.39	5420.60	2714.33	0.52	-0.488	0.000	0.743
15.00	-24.42	-31.03	0.00	-2415.3	0.00	2415.32	2887.35	1443.68	5207.78	2607.76	1.17	-0.730	0.000	0.721
18.63	-23.74	-30.76	0.00	-2302.6	0.00	2302.68	2854.92	1427.46	5054.16	2530.83	1.79	-0.908	0.000	0.705
18.63	-23.74	-30.76	0.00	-2302.6	0.00	2302.68	2854.92	1427.46	5054.16	2530.83	1.79	-0.908	0.000	0.705
20.00	-23.41	-30.72	0.00	-2260.5	0.00	2260.53	2842.47	1421.24	4996.39	2501.91	2.06	-0.976	0.000	0.912
25.00	-22.42	-30.38	0.00	-2106.9	0.00	2106.94	2796.14	1398.07	4786.62	2396.87	3.25	-1.294	0.000	0.888
30.00	-21.44	-30.03	0.00	-1955.0	0.00	1955.03	2748.35	1374.17	4578.69	2292.75	4.78	-1.613	0.000	0.861
35.00	-20.49	-29.67	0.00	-1804.8	0.00	1804.88	2699.10	1349.55	4372.78	2189.64	6.64	-1.933	0.000	0.832
40.00	-19.56	-29.30	0.00	-1656.5	0.00	1656.54	2648.40	1324.20	4169.10	2087.65	8.84	-2.254	0.000	0.801
45.00	-18.68	-28.90	0.00	-1510.0	0.00	1510.05	2596.25	1298.12	3967.85	1986.88	11.37	-2.573	0.000	0.768
48.50	-18.09	-28.62	0.00	-1408.8	0.00	1408.89	2558.87	1279.44	3828.53	1917.11	13.34	-2.798	0.000	0.742
50.00	-17.67	-28.51	0.00	-1365.9	0.00	1365.97	2542.63	1271.32	3769.24	1887.42	14.24	-2.896	0.000	0.731
53.25	-16.84	-28.23	0.00	-1273.3	0.00	1273.30	1874.80	937.40	2771.76	1387.94	16.28	-3.103	0.000	0.927
55.00	-16.51	-28.13	0.00	-1223.9	0.00	1223.91	1862.74	931.37	2724.01	1364.03	17.44	-3.215	0.000	0.907
60.00	-15.75	-27.75	0.00	-1083.2	0.00	1083.26	1827.31	913.65	2588.34	1296.09	21.00	-3.579	0.000	0.845
65.00	-15.01	-27.36	0.00	-944.52	0.00	944.52	1790.42	895.21	2453.92	1228.78	24.94	-3.930	0.000	0.778
70.00	-14.30	-26.97	0.00	-807.70	0.00	807.70	1752.08	876.04	2320.96	1162.21	29.24	-4.266	0.000	0.704
75.00	-13.64	-26.57	0.00	-672.83	0.00	672.83	1712.28	856.14	2189.66	1096.46	33.87	-4.579	0.000	0.623
78.00	-12.10	-24.15	0.00	-593.13	0.00	593.13	1687.70	843.85	2111.76	1057.45	36.81	-4.758	0.000	0.569
80.00	-11.81	-24.00	0.00	-544.84	0.00	544.84	1671.02	835.51	2060.22	1031.64	38.82	-4.872	0.000	0.536
85.00	-11.22	-23.59	0.00	-424.82	0.00	424.82	1628.32	814.16	1932.84	967.86	44.06	-5.127	0.000	0.447
88.00	-9.00	-18.76	0.00	-354.05	0.00	354.05	1601.99	801.00	1857.49	930.12	47.33	-5.264	0.000	0.387
90.00	-8.79	-18.61	0.00	-316.53	0.00	316.53	1584.15	792.08	1807.72	905.20	49.55	-5.348	0.000	0.356
95.00	-8.33	-18.20	0.00	-223.51	0.00	223.51	1538.53	769.27	1685.06	843.78	55.24	-5.527	0.000	0.271
98.00	-4.95	-11.49	0.00	-168.90	0.00	168.90	1510.46	755.23	1612.73	807.56	58.74	-5.614	0.000	0.213
98.50	-4.91	-11.45	0.00	-163.16	0.00	163.16	1505.73	752.87	1600.77	801.57	59.33	-5.628	0.000	0.207
100.00	-4.72	-11.33	0.00	-145.98	0.00	145.98	1491.46	745.73	1565.06	783.69	61.10	-5.666	0.000	0.190
102.00	-4.48	-11.16	0.00	-123.32	0.00	123.32	1021.50	510.75	1074.26	537.93	63.48	-5.711	0.000	0.234
105.00	-4.30	-10.93	0.00	-89.84	0.00	89.84	1004.76	502.38	1028.99	515.26	67.08	-5.768	0.000	0.179
108.00	-2.54	-5.93	0.00	-57.05	0.00	57.05	987.50	493.75	984.13	492.79	70.72	-5.822	0.000	0.118
109.00	-2.49	-5.86	0.00	-51.12	0.00	51.12	981.63	490.81	969.27	485.35	71.94	-5.837	0.000	0.108
109.00	-2.49	-5.86	0.00	-51.12	0.00	51.12	981.63	490.81	969.27	485.35	71.94	-5.837	0.000	0.108
110.00	-2.43	-5.79	0.00	-45.26	0.00	45.26	975.70	487.85	954.46	477.94	73.16	-5.850	0.000	0.097
115.00	-2.20	-5.42	0.00	-16.33	0.00	16.33	945.18	472.59	881.23	441.27	79.30	-5.893	0.000	0.039
118.00	-0.03	-0.07	0.00	-0.07	0.00	0.07	926.18	463.09	838.01	419.63	83.00	-5.901	0.000	0.000
119.00	0.00	-0.06	0.00	0.00	0.00	0.00	919.72	459.86	823.73	412.48	84.24	-5.901	0.000	0.000

Wind Loading - Shaft

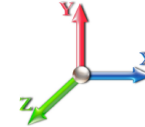
Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 23

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	RB1	1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
1.00	RT1 RB2	1.00	0.85	5.168	5.68	0.00	1.200	1.410	1.00	4.245	5.09	29.0	86.0	276.7
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.656	4.00	16.957	20.35	115.7	398.7	1152.4
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.775	5.00	20.873	25.05	142.4	523.1	1445.0
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.848	5.00	20.465	24.56	139.6	532.8	1432.2
18.63	RT2	1.00	0.89	5.402	5.94	0.00	1.200	1.889	3.63	14.588	17.51	104.0	388.7	1027.6
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.902	1.37	5.445	6.53	39.4	146.8	384.9
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.945	5.00	19.608	23.53	148.8	534.8	1389.4
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.981	5.00	19.169	23.00	151.1	531.4	1363.5
35.00		1.00	1.01	6.169	6.79	0.00	1.200	2.012	5.00	18.726	22.47	152.5	526.0	1335.7
40.00		1.00	1.04	6.345	6.98	0.00	1.200	2.039	5.00	18.279	21.94	153.1	519.3	1306.5
45.00		1.00	1.07	6.504	7.15	0.00	1.200	2.063	5.00	17.831	21.40	153.1	511.4	1276.2
48.50	Bot - Section 2	1.00	1.09	6.608	7.27	0.00	1.200	2.079	3.50	12.212	14.65	106.5	353.7	875.8
50.00		1.00	1.09	6.650	7.32	0.00	1.200	2.085	1.50	5.228	6.27	45.9	152.7	552.1
53.25	Top - Section 1	1.00	1.11	6.739	7.41	0.00	1.200	2.098	3.25	11.190	13.43	99.5	327.0	1179.8
55.00		1.00	1.12	6.785	7.46	0.00	1.200	2.105	1.75	5.945	7.13	53.2	174.9	377.6
60.00		1.00	1.14	6.910	7.60	0.00	1.200	2.123	5.00	16.686	20.02	152.2	489.5	1056.6
65.00		1.00	1.16	7.028	7.73	0.00	1.200	2.140	5.00	16.231	19.48	150.6	478.8	1028.0
70.00		1.00	1.17	7.138	7.85	0.00	1.200	2.156	5.00	15.776	18.93	148.6	467.6	998.8
75.00		1.00	1.19	7.243	7.97	0.00	1.200	2.171	5.00	15.319	18.38	146.5	456.0	969.2
78.00	Appurtenance(s)	1.00	1.20	7.303	8.03	0.00	1.200	2.180	3.00	8.971	10.76	86.5	269.3	568.6
80.00		1.00	1.21	7.342	8.08	0.00	1.200	2.185	2.00	5.889	7.07	57.1	177.6	373.5
85.00		1.00	1.22	7.436	8.18	0.00	1.200	2.198	5.00	14.404	17.29	141.4	431.6	908.9
88.00	Appurtenance(s)	1.00	1.23	7.491	8.24	0.00	1.200	2.206	3.00	8.421	10.11	83.3	254.4	532.2
90.00		1.00	1.24	7.526	8.28	0.00	1.200	2.211	2.00	5.522	6.63	54.9	167.5	349.1
95.00		1.00	1.25	7.612	8.37	0.00	1.200	2.223	5.00	13.487	16.18	135.5	405.9	847.3
98.00	Appurtenance(s)	1.00	1.26	7.662	8.43	0.00	1.200	2.230	3.00	7.871	9.44	79.6	238.8	495.0
98.50	Bot - Section 3	1.00	1.26	7.671	8.44	0.00	1.200	2.231	0.50	1.295	1.55	13.1	39.7	81.7
100.00		1.00	1.27	7.695	8.46	0.00	1.200	2.234	1.50	3.907	4.69	39.7	119.4	340.0
102.00	Top - Section 2	1.00	1.27	7.727	8.50	0.00	1.200	2.239	2.00	5.145	6.17	52.5	157.0	446.7
105.00		1.00	1.28	7.774	8.55	0.00	1.200	2.245	3.00	7.580	9.10	77.8	230.6	414.7
108.00	Appurtenance(s)	1.00	1.29	7.821	8.60	0.00	1.200	2.252	3.00	7.414	8.90	76.5	225.7	404.9
109.00	Top - Section 3	1.00	1.29	7.836	8.62	0.00	1.200	2.254	1.00	2.434	2.92	25.2	74.7	133.3
110.00		1.00	1.29	7.851	8.64	0.00	1.200	2.256	1.00	2.416	2.90	25.0	74.1	132.2
115.00		1.00	1.30	7.925	8.72	0.00	1.200	2.266	5.00	11.806	14.17	123.5	356.7	639.2
118.00	Appurtenance(s)	1.00	1.31	7.968	8.76	0.00	1.200	2.272	3.00	6.861	8.23	72.2	208.9	372.0
119.00		1.00	1.31	7.982	8.78	0.00	1.200	2.274	1.00	2.250	2.70	23.7	69.1	122.3
Totals:									119.00			3,399.0		26,589.8

Discrete Appurtenance Forces

Structure: CT08558-B-SBA
Site Name: New Britain 3, CT
Height: 119.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

Code: TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: D - Stiff Soil
Struct Class: II

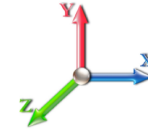
2/17/2022

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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 23

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	118.00	(3) T-Arm Kit	1	7.968	8.765	0.75	0.75	28.12	1222.41	0.000	0.000	246.45	0.00	0.00
2	118.00	BXA-70063-6BF	3	7.968	8.765	0.56	0.80	18.76	492.80	0.000	0.000	164.44	0.00	0.00
3	118.00	T-Arm	3	7.968	8.765	0.56	0.75	36.04	1824.15	0.000	0.000	315.90	0.00	0.00
4	118.00	Commscope	6	7.968	8.765	0.66	0.80	39.03	1981.40	0.000	0.000	342.09	0.00	0.00
5	118.00	Samsung MT6407-77A	3	7.968	8.765	0.56	0.80	9.98	782.78	0.000	0.000	87.47	0.00	0.00
6	118.00	B2/B66A RRH-BR049	3	7.968	8.765	0.54	0.80	4.24	625.15	0.000	0.000	37.18	0.00	0.00
7	118.00	BSAMNT-SBS-1-2	3	7.968	8.765	0.75	0.75	0.00	156.92	0.000	0.000	0.00	0.00	0.00
8	118.00	Collar	1	7.968	8.765	0.75	0.75	4.43	388.12	0.000	0.000	38.83	0.00	0.00
9	118.00	Samsung B5/B13	3	7.968	8.765	0.54	0.80	4.18	408.20	0.000	0.000	36.61	0.00	0.00
10	118.00	Raycap	1	7.968	8.765	0.80	0.80	3.89	212.62	0.000	0.000	34.12	0.00	0.00
11	108.00	840 10054	3	7.821	8.603	0.49	0.80	9.88	379.88	0.000	0.000	84.99	0.00	0.00
12	108.00	800 MHz	3	7.821	8.603	0.54	0.80	6.38	413.78	0.000	0.000	54.86	0.00	0.00
13	108.00	ACU-A20-N	4	7.821	8.603	0.54	0.80	1.12	21.77	0.000	0.000	9.64	0.00	0.00
14	108.00	APXVSP18-C-A20	2	7.821	8.603	0.66	0.80	15.44	483.84	0.000	0.000	132.80	0.00	0.00
15	108.00	800 MHz Filters	3	7.821	8.603	0.54	0.80	6.18	462.93	0.000	0.000	53.17	0.00	0.00
16	108.00	1900MHz RRH	3	7.821	8.603	0.54	0.80	8.99	487.34	0.000	0.000	77.38	0.00	0.00
17	108.00	T-Arm	3	7.821	8.603	0.56	0.75	28.70	1995.74	0.000	0.000	246.89	0.00	0.00
18	108.00	APXVTM14-C-120	3	7.821	8.603	0.63	0.80	14.79	859.41	0.000	0.000	127.28	0.00	0.00
19	108.00	Horizon	2	7.821	8.603	0.80	0.80	1.74	70.78	0.000	0.000	15.00	0.00	0.00
20	108.00	P40-16-XLPP-RR-A	1	7.821	8.603	0.80	0.80	8.57	347.29	0.000	0.000	73.77	0.00	0.00
21	108.00	TD-RRH8x20-25	3	7.821	8.603	0.54	0.80	8.24	705.92	0.000	0.000	70.86	0.00	0.00
22	108.00	VHLP2.5	2	7.821	8.603	1.00	1.00	21.26	461.07	0.000	0.000	182.93	0.00	0.00
23	98.00	ULPD14	1	7.662	8.429	1.00	1.00	117.25	6138.30	0.000	0.000	988.26	0.00	0.00
24	98.00	Cci TPA-65R-BU6DA	3	7.662	8.429	0.58	0.80	25.49	831.59	0.000	0.000	214.87	0.00	0.00
25	98.00	Raycap DC6-48-60-0-8F	3	7.662	8.429	0.80	0.80	3.55	298.37	0.000	0.000	29.93	0.00	0.00
26	98.00	Ericsson RRUS 8843	3	7.662	8.429	0.54	0.80	3.79	576.21	0.000	0.000	31.96	0.00	0.00
27	98.00	Ericsson RRUS 32	3	7.662	8.429	0.54	0.80	5.94	550.96	0.000	0.000	50.03	0.00	0.00
28	98.00	Ericsson RRUS 4449	3	7.662	8.429	0.54	0.80	4.29	419.42	0.000	0.000	36.18	0.00	0.00
29	98.00	Cci DMP65R-BU6DA	3	7.662	8.429	0.58	0.80	25.20	1213.02	0.000	0.000	212.36	0.00	0.00
30	98.00	Ericsson Air6449	3	7.662	8.429	0.57	0.80	11.70	801.32	0.000	0.000	98.59	0.00	0.00
31	98.00	Ericsson Air6419 N77G	3	7.662	8.429	0.61	0.80	8.79	408.34	0.000	0.000	74.05	0.00	0.00
32	98.00	Ericsson RRUS 4478 B14	3	7.662	8.429	0.54	0.80	3.72	344.59	0.000	0.000	31.34	0.00	0.00
33	88.00	RRUS 4415 B25	3	7.491	8.240	0.54	0.80	3.68	293.27	0.000	0.000	30.36	0.00	0.00
34	88.00	SDX1926Q-43	3	7.491	8.240	0.54	0.80	1.12	42.36	0.000	0.000	9.21	0.00	0.00
35	88.00	APXVAARR24_43-U-NA2	3	7.491	8.240	0.60	0.80	40.80	2099.33	0.000	0.000	336.16	0.00	0.00
36	88.00	AIR6449 B41	3	7.491	8.240	0.57	0.80	11.68	795.69	0.000	0.000	96.20	0.00	0.00
37	88.00	T-Arm w/ mod	3	7.491	8.240	0.56	0.75	49.68	1976.57	0.000	0.000	409.39	0.00	0.00
38	88.00	KRY 112 144/2	3	7.491	8.240	0.60	0.80	1.82	71.19	0.000	0.000	14.99	0.00	0.00
39	88.00	4449 B71 + B85	3	7.491	8.240	0.54	0.80	5.45	659.28	0.000	0.000	44.87	0.00	0.00
40	88.00	AIR32	3	7.491	8.240	0.70	0.80	16.73	1209.32	0.000	0.000	137.84	0.00	0.00
41	78.00	MC-K6M-6-96 (3 Sectors)	1	7.303	8.033	0.56	0.75	30.28	1941.72	0.000	0.000	243.23	0.00	0.00
42	78.00	Raycap	1	7.303	8.033	0.80	0.80	2.18	80.08	0.000	0.000	17.48	0.00	0.00
43	78.00	Fujitsu TA08025-B604	3	7.303	8.033	0.61	0.80	4.85	383.44	0.000	0.000	38.98	0.00	0.00
44	78.00	Fujitsu TA08025-B605	3	7.303	8.033	0.64	0.80	5.11	428.17	0.000	0.000	41.04	0.00	0.00
45	78.00	JMA Wireless	3	7.303	8.033	0.59	0.80	25.43	1120.44	0.000	0.000	204.29	0.00	0.00

Totals: 37,467.30

5,824.26

Total Applied Force Summary

Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



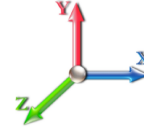
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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 23

Dead Load Factor 1.20

Wind Load Factor 1.00



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
1.00		28.96	346.58	0.00	0.00
5.00		115.67	1450.34	0.00	0.00
10.00		142.39	1829.30	0.00	0.00
15.00		139.61	1824.07	0.00	0.00
18.63		104.03	1315.21	0.00	0.00
20.00		39.41	493.79	0.00	0.00
25.00		148.75	1736.49	0.00	0.00
30.00		151.11	1713.04	0.00	0.00
35.00		152.49	1687.42	0.00	0.00
40.00		153.10	1660.14	0.00	0.00
45.00		153.09	1631.55	0.00	0.00
48.50		106.51	1125.27	0.00	0.00
50.00		45.89	659.19	0.00	0.00
53.25		99.54	1412.43	0.00	0.00
55.00		53.25	503.03	0.00	0.00
60.00		152.20	1416.32	0.00	0.00
65.00		150.57	1388.91	0.00	0.00
70.00		148.65	1360.93	0.00	0.00
75.00		146.46	1332.44	0.00	0.00
78.00	(11) attachments	631.49	4740.78	0.00	0.00
80.00		57.07	499.69	0.00	0.00
85.00		141.39	1224.84	0.00	0.00
88.00	(24) attachments	1162.29	7868.94	0.00	0.00
90.00		54.86	441.41	0.00	0.00
95.00		135.52	1078.45	0.00	0.00
98.00	(28) attachments	1847.17	12215.99	0.00	0.00
98.50		13.12	99.63	0.00	0.00
100.00		39.68	393.70	0.00	0.00
102.00		52.47	518.46	0.00	0.00
105.00		77.78	522.40	0.00	0.00
108.00	(32) attachments	1206.11	7202.55	0.00	0.00
109.00		25.18	163.59	0.00	0.00
110.00		25.04	162.52	0.00	0.00
115.00		123.50	790.99	0.00	0.00
118.00	(27) attachments	1375.26	8557.75	0.00	0.00
119.00		23.71	122.35	0.00	0.00
	Totals:	9,223.30	71,490.48	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

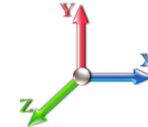
Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
1.00	1 5/8" Hybrid	Yes	1.00	0.000	1.63	0.37	0.00	0.063	0.000	5.168	0.00	10.12
1.00	1.411" Hybrid	Yes	1.00	0.000	1.41	0.35	0.00	0.063	0.000	5.168	0.00	5.52
1.00	1" Reinforcing plate	Yes	1.00	0.000	0.00	0.00	0.00	0.063	0.000	5.168	0.00	7.15
5.00	1 5/8" Hybrid	Yes	4.00	0.000	1.63	1.65	0.00	0.064	0.000	5.168	0.00	47.24
5.00	1.411" Hybrid	Yes	4.00	0.000	1.41	1.57	0.00	0.064	0.000	5.168	0.00	26.85
5.00	1" Reinforcing plate	Yes	4.00	0.000	0.00	0.00	0.00	0.064	0.000	5.168	0.00	35.35
10.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	2.16	0.00	0.065	0.000	5.168	0.00	63.39
10.00	1.411" Hybrid	Yes	5.00	0.000	1.41	2.07	0.00	0.065	0.000	5.168	0.00	36.71
10.00	1" Reinforcing plate	Yes	5.00	0.000	0.00	0.00	0.00	0.065	0.000	5.168	0.00	48.52
15.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	2.22	0.00	0.067	0.000	5.168	0.00	66.16
15.00	1.411" Hybrid	Yes	5.00	0.000	1.41	2.13	0.00	0.067	0.000	5.168	0.00	38.73
15.00	1" Reinforcing plate	Yes	5.00	0.000	0.00	0.00	0.00	0.067	0.000	5.168	0.00	51.29
18.63	1 5/8" Hybrid	Yes	3.63	0.000	1.63	1.64	0.00	0.068	0.000	5.402	0.00	49.16
18.63	1.411" Hybrid	Yes	3.63	0.000	1.41	1.57	0.00	0.068	0.000	5.402	0.00	28.95
18.63	1" Reinforcing plate	Yes	3.63	0.000	0.00	0.00	0.00	0.068	0.000	5.402	0.00	38.37
20.00	1 5/8" Hybrid	Yes	1.37	0.000	1.63	0.62	0.00	0.069	0.000	5.483	0.00	18.70
20.00	1.411" Hybrid	Yes	1.37	0.000	1.41	0.60	0.00	0.069	0.000	5.483	0.00	11.03
20.00	1" Reinforcing plate	Yes	1.37	0.000	0.00	0.00	0.00	0.069	0.000	5.483	0.00	14.62
25.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	2.30	0.00	0.070	0.000	5.747	0.00	69.91
25.00	1.411" Hybrid	Yes	5.00	0.000	1.41	2.21	0.00	0.070	0.000	5.747	0.00	41.51
30.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	2.33	0.00	0.072	0.000	5.972	0.00	71.33
30.00	1.411" Hybrid	Yes	5.00	0.000	1.41	2.24	0.00	0.072	0.000	5.972	0.00	42.57
35.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	2.36	0.00	0.074	0.000	6.169	0.00	72.56
35.00	1.411" Hybrid	Yes	5.00	0.000	1.41	2.26	0.00	0.074	0.000	6.169	0.00	43.48
40.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	2.38	0.00	0.076	0.000	6.345	0.00	73.65
40.00	1.411" Hybrid	Yes	5.00	0.000	1.41	2.29	0.00	0.076	0.000	6.345	0.00	44.30
45.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	2.40	0.00	0.079	0.000	6.504	0.00	74.63
45.00	1.411" Hybrid	Yes	5.00	0.000	1.41	2.31	0.00	0.079	0.000	6.504	0.00	45.04
48.50	1 5/8" Hybrid	Yes	3.50	0.000	1.63	1.69	0.00	0.081	0.000	6.608	0.00	52.68
48.50	1.411" Hybrid	Yes	3.50	0.000	1.41	1.62	0.00	0.081	0.000	6.608	0.00	31.86
50.00	1 5/8" Hybrid	Yes	1.50	0.000	1.63	0.72	0.00	0.082	0.000	6.650	0.00	22.66
50.00	1.411" Hybrid	Yes	1.50	0.000	1.41	0.70	0.00	0.082	0.000	6.650	0.00	13.71
53.25	1 5/8" Hybrid	Yes	3.25	0.000	1.63	1.58	0.00	0.083	0.000	6.739	0.00	49.44
53.25	1.411" Hybrid	Yes	3.25	0.000	1.41	1.52	0.00	0.083	0.000	6.739	0.00	29.98
55.00	1 5/8" Hybrid	Yes	1.75	0.000	1.63	0.85	0.00	0.083	0.000	6.785	0.00	26.72
55.00	1.411" Hybrid	Yes	1.75	0.000	1.41	0.82	0.00	0.083	0.000	6.785	0.00	16.22
60.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	2.45	0.00	0.085	0.000	6.910	0.00	77.10
60.00	1.411" Hybrid	Yes	5.00	0.000	1.41	2.36	0.00	0.085	0.000	6.910	0.00	46.91
65.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	2.46	0.00	0.088	0.000	7.028	0.00	77.81
65.00	1.411" Hybrid	Yes	5.00	0.000	1.41	2.37	0.00	0.088	0.000	7.028	0.00	47.45
70.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	2.48	0.00	0.091	0.000	7.138	0.00	78.48
70.00	1.411" Hybrid	Yes	5.00	0.000	1.41	2.38	0.00	0.091	0.000	7.138	0.00	47.95
75.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	2.49	0.00	0.094	0.000	7.243	0.00	79.11
75.00	1.411" Hybrid	Yes	5.00	0.000	1.41	2.40	0.00	0.094	0.000	7.243	0.00	48.43
78.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	1.50	0.00	0.096	0.000	7.303	0.00	47.68
78.00	1.411" Hybrid	Yes	3.00	0.000	1.41	1.44	0.00	0.096	0.000	7.303	0.00	29.22
80.00	1 5/8" Hybrid	Yes	2.00	0.000	1.63	1.00	0.00	0.053	0.000	7.342	0.00	31.88

Linear Appurtenance Segment Forces (Factored)

Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



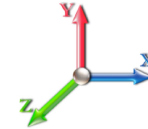
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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 23

Dead Load Factor 1.20

Wind Load Factor 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
85.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	2.51	0.00	0.054	0.000	7.436	0.00	80.26
88.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	1.51	0.00	0.056	0.000	7.491	0.00	48.35
90.00	1 5/8" Hybrid	Yes	2.00	0.000	1.63	1.01	0.00	0.057	0.000	7.526	0.00	32.32
95.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	2.53	0.00	0.058	0.000	7.612	0.00	81.31
98.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	1.52	0.00	0.060	0.000	7.662	0.00	48.96
98.50	1 5/8" Hybrid	Yes	0.50	0.000	1.63	0.25	0.00	0.061	0.000	7.671	0.00	8.17
100.00	1 5/8" Hybrid	Yes	1.50	0.000	1.63	0.76	0.00	0.062	0.000	7.695	0.00	24.54
102.00	1 5/8" Hybrid	Yes	2.00	0.000	1.63	1.02	0.00	0.063	0.000	7.727	0.00	32.79
105.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	1.53	0.00	0.063	0.000	7.774	0.00	49.36
108.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	1.53	0.00	0.065	0.000	7.821	0.00	49.52
109.00	1 5/8" Hybrid	Yes	1.00	0.000	1.63	0.51	0.00	0.066	0.000	7.836	0.00	16.53
110.00	1 5/8" Hybrid	Yes	1.00	0.000	1.63	0.51	0.00	0.067	0.000	7.851	0.00	16.54
115.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	2.57	0.00	0.068	0.000	7.925	0.00	83.15
118.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	1.54	0.00	0.071	0.000	7.968	0.00	50.04
Totals:											0.0	2,654.0

Calculated Forces

Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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

Iterations 23

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	-71.49	-9.23	0.00	-868.98	0.00	868.98	3013.27	1506.63	5849.73	2929.21	0.00	0.000	0.000	0.284
1.00	-71.14	-9.25	0.00	-859.75	0.00	859.75	3005.28	1502.64	5806.64	2907.64	0.00	-0.017	0.000	0.248
5.00	-69.68	-9.21	0.00	-822.74	0.00	822.74	2972.75	1486.38	5634.65	2821.52	0.04	-0.075	0.000	0.243
10.00	-67.84	-9.15	0.00	-776.67	0.00	776.67	2930.78	1465.39	5420.60	2714.33	0.16	-0.147	0.000	0.237
15.00	-66.00	-9.08	0.00	-730.90	0.00	730.90	2887.35	1443.68	5207.78	2607.76	0.35	-0.220	0.000	0.231
18.63	-64.68	-9.01	0.00	-697.93	0.00	697.93	2854.92	1427.46	5054.16	2530.83	0.54	-0.274	0.000	0.227
18.63	-64.68	-9.01	0.00	-697.93	0.00	697.93	2854.92	1427.46	5054.16	2530.83	0.54	-0.274	0.000	0.227
20.00	-64.18	-9.04	0.00	-685.59	0.00	685.59	2842.47	1421.24	4996.39	2501.91	0.62	-0.295	0.000	0.297
25.00	-62.43	-8.99	0.00	-640.39	0.00	640.39	2796.14	1398.07	4786.62	2396.87	0.98	-0.391	0.000	0.290
30.00	-60.70	-8.92	0.00	-595.47	0.00	595.47	2748.35	1374.17	4578.69	2292.75	1.44	-0.488	0.000	0.282
35.00	-59.00	-8.86	0.00	-550.85	0.00	550.85	2699.10	1349.55	4372.78	2189.64	2.01	-0.586	0.000	0.273
40.00	-57.33	-8.78	0.00	-506.57	0.00	506.57	2648.40	1324.20	4169.10	2087.65	2.67	-0.684	0.000	0.264
45.00	-55.68	-8.69	0.00	-462.66	0.00	462.66	2596.25	1298.12	3967.85	1986.88	3.44	-0.782	0.000	0.254
48.50	-54.55	-8.61	0.00	-432.25	0.00	432.25	2558.87	1279.44	3828.53	1917.11	4.04	-0.851	0.000	0.247
50.00	-53.89	-8.60	0.00	-419.33	0.00	419.33	2542.63	1271.32	3769.24	1887.42	4.31	-0.881	0.000	0.243
53.25	-52.47	-8.52	0.00	-391.37	0.00	391.37	1874.80	937.40	2771.76	1387.94	4.94	-0.944	0.000	0.310
55.00	-51.96	-8.53	0.00	-376.46	0.00	376.46	1862.74	931.37	2724.01	1364.03	5.29	-0.979	0.000	0.304
60.00	-50.53	-8.45	0.00	-333.81	0.00	333.81	1827.31	913.65	2588.34	1296.09	6.37	-1.091	0.000	0.285
65.00	-49.13	-8.36	0.00	-291.56	0.00	291.56	1790.42	895.21	2453.92	1228.78	7.58	-1.199	0.000	0.265
70.00	-47.75	-8.27	0.00	-249.74	0.00	249.74	1752.08	876.04	2320.96	1162.21	8.89	-1.303	0.000	0.242
75.00	-46.42	-8.15	0.00	-208.41	0.00	208.41	1712.28	856.14	2189.66	1096.46	10.31	-1.400	0.000	0.217
78.00	-41.69	-7.43	0.00	-183.95	0.00	183.95	1687.70	843.85	2111.76	1057.45	11.20	-1.455	0.000	0.199
80.00	-41.18	-7.41	0.00	-169.08	0.00	169.08	1671.02	835.51	2060.22	1031.64	11.82	-1.491	0.000	0.189
85.00	-39.95	-7.27	0.00	-132.05	0.00	132.05	1628.32	814.16	1932.84	967.86	13.43	-1.570	0.000	0.161
88.00	-32.11	-5.91	0.00	-110.23	0.00	110.23	1601.99	801.00	1857.49	930.12	14.43	-1.612	0.000	0.139
90.00	-31.67	-5.87	0.00	-98.40	0.00	98.40	1584.15	792.08	1807.72	905.20	15.11	-1.638	0.000	0.129
95.00	-30.59	-5.72	0.00	-69.06	0.00	69.06	1538.53	769.27	1685.06	843.78	16.86	-1.694	0.000	0.102
98.00	-18.44	-3.52	0.00	-51.89	0.00	51.89	1510.46	755.23	1612.73	807.56	17.93	-1.721	0.000	0.076
98.50	-18.34	-3.50	0.00	-50.13	0.00	50.13	1505.73	752.87	1600.77	801.57	18.11	-1.725	0.000	0.075
100.00	-17.94	-3.46	0.00	-44.87	0.00	44.87	1491.46	745.73	1565.06	783.69	18.65	-1.737	0.000	0.069
102.00	-17.43	-3.39	0.00	-37.96	0.00	37.96	1021.50	510.75	1074.26	537.93	19.38	-1.751	0.000	0.088
105.00	-16.91	-3.30	0.00	-27.78	0.00	27.78	1004.76	502.38	1028.99	515.26	20.49	-1.768	0.000	0.071
108.00	-9.74	-1.88	0.00	-17.87	0.00	17.87	987.50	493.75	984.13	492.79	21.61	-1.785	0.000	0.046
109.00	-9.58	-1.85	0.00	-15.99	0.00	15.99	981.63	490.81	969.27	485.35	21.98	-1.789	0.000	0.043
109.00	-9.58	-1.85	0.00	-15.99	0.00	15.99	981.63	490.81	969.27	485.35	21.98	-1.789	0.000	0.043
110.00	-9.42	-1.82	0.00	-14.14	0.00	14.14	975.70	487.85	954.46	477.94	22.36	-1.794	0.000	0.039
115.00	-8.63	-1.67	0.00	-5.04	0.00	5.04	945.18	472.59	881.23	441.27	24.24	-1.807	0.000	0.021
118.00	-0.12	-0.03	0.00	-0.03	0.00	0.03	926.18	463.09	838.01	419.63	25.38	-1.809	0.000	0.000
119.00	0.00	-0.02	0.00	0.00	0.00	0.00	919.72	459.86	823.73	412.48	25.76	-1.809	0.000	0.000

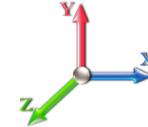
Seismic Segment Forces (Factored)

Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0E						Iterations 21
Gust Response Factor	1.10			Sds	0.20	Ss 0.19
Dead Load Factor	1.20	Seismic Load Factor	1.00	Sd1	0.09	S1 0.06
Wind Load Factor	0.00	Structure Frequency (f1)	0.36	SA	0.03	Seismic Importance Factor 1.00



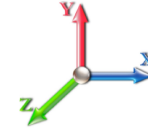
Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00	RB1	0.00	0.00	0.00	0.00	0.00	
1.00	RT1 RB2	158.88	0.00	0.01	0.01	1.22	
5.00		628.06	0.00	0.04	0.02	15.49	
10.00		768.24	0.01	0.06	0.03	25.60	
15.00		749.54	0.03	0.07	0.04	27.63	
18.63	RT2	532.45	0.05	0.07	0.04	20.32	
20.00		198.39	0.05	0.07	0.04	7.65	
25.00		712.14	0.08	0.07	0.04	28.32	
30.00		693.44	0.12	0.07	0.03	28.43	
35.00		674.74	0.16	0.07	0.03	28.38	
40.00		656.04	0.21	0.06	0.02	27.66	
45.00		637.33	0.27	0.05	0.01	25.46	
48.50	Bot - Section 2	435.01	0.31	0.04	0.01	15.65	
50.00		332.81	0.33	0.04	0.01	11.13	
53.25	Top - Section 1	710.69	0.38	0.02	0.01	18.48	
55.00		168.94	0.40	0.02	0.01	3.52	
60.00		472.58	0.48	-0.01	0.01	0.99	
65.00		457.62	0.56	-0.04	0.01	-8.56	
70.00		442.66	0.65	-0.07	0.02	-15.70	
75.00		427.70	0.75	-0.10	0.04	-18.87	
78.00	Appurtenance(s)	1741.5	0.81	-0.11	0.06	-78.19	
80.00		163.30	0.85	-0.12	0.07	-7.12	
85.00		397.78	0.96	-0.12	0.11	-13.60	
88.00	Appurtenance(s)	2780.5	1.03	-0.10	0.15	-68.03	
90.00		151.33	1.08	-0.08	0.18	-2.47	
95.00		367.85	1.20	0.01	0.26	3.65	
98.00	Appurtenance(s)	4374.5	1.28	0.10	0.32	129.75	
98.50	Bot - Section 3	35.06	1.29	0.11	0.33	1.17	
100.00		183.85	1.33	0.17	0.37	8.18	
102.00	Top - Section 2	241.47	1.39	0.26	0.42	14.67	
105.00		153.38	1.47	0.43	0.51	13.45	
108.00	Appurtenance(s)	2452.7	1.56	0.65	0.61	288.95	
109.00	Top - Section 3	48.88	1.59	0.73	0.65	6.28	
110.00		48.43	1.61	0.83	0.69	6.77	
115.00		235.44	1.77	1.38	0.92	47.27	
118.00	Appurtenance(s)	2960.0	1.86	1.82	1.08	716.05	
119.00		44.39	1.89	1.98	1.14	11.38	
Totals:		26,237.9				1,321.0	Total Wind: 31,973.7

Calculated Forces

Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.2D + 1.0E		Iterations 21
Gust Response Factor 1.10	Sds 0.20	Ss 0.19
Dead Load Factor 1.20	Seismic Load Factor 1.00	S1 0.06
Wind Load Factor 0.00	Structure Frequency (f1) 0.36	SA 0.03
		Seismic Importance 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	-36.68	-1.53	0.00	-156.52	0.00	156.52	3013.27	1506.63	5849.73	2929.21	0.00	0.00	0.00	0.058
1.00	-36.44	-1.54	0.00	-154.99	0.00	154.99	3005.28	1502.64	5806.64	2907.64	0.00	0.00	0.00	0.050
5.00	-35.48	-1.53	0.00	-148.84	0.00	148.84	2972.75	1486.38	5634.65	2821.52	0.01	-0.01	0.049	0.049
10.00	-34.31	-1.51	0.00	-141.20	0.00	141.20	2930.78	1465.39	5420.60	2714.33	0.03	-0.03	0.048	0.048
15.00	-33.15	-1.49	0.00	-133.65	0.00	133.65	2887.35	1443.68	5207.78	2607.76	0.06	-0.04	0.047	0.047
18.63	-32.33	-1.47	0.00	-128.24	0.00	128.24	2854.92	1427.46	5054.16	2530.83	0.10	-0.05	0.046	0.046
18.63	-32.33	-1.47	0.00	-128.24	0.00	128.24	2854.92	1427.46	5054.16	2530.83	0.10	-0.05	0.046	0.046
20.00	-32.02	-1.47	0.00	-126.23	0.00	126.23	2842.47	1421.24	4996.39	2501.91	0.11	-0.05	0.062	0.062
25.00	-30.91	-1.45	0.00	-118.88	0.00	118.88	2796.14	1398.07	4786.62	2396.87	0.18	-0.07	0.061	0.061
30.00	-29.82	-1.43	0.00	-111.63	0.00	111.63	2748.35	1374.17	4578.69	2292.75	0.26	-0.09	0.060	0.060
35.00	-28.75	-1.41	0.00	-104.48	0.00	104.48	2699.10	1349.55	4372.78	2189.64	0.37	-0.11	0.058	0.058
40.00	-27.71	-1.39	0.00	-97.43	0.00	97.43	2648.40	1324.20	4169.10	2087.65	0.49	-0.13	0.057	0.057
45.00	-26.69	-1.37	0.00	-90.49	0.00	90.49	2596.25	1298.12	3967.85	1986.88	0.63	-0.15	0.056	0.056
48.50	-25.99	-1.35	0.00	-85.71	0.00	85.71	2558.87	1279.44	3828.53	1917.11	0.74	-0.16	0.055	0.055
50.00	-25.51	-1.35	0.00	-83.67	0.00	83.67	2542.63	1271.32	3769.24	1887.42	0.80	-0.17	0.054	0.054
53.25	-24.49	-1.33	0.00	-79.30	0.00	79.30	1874.80	937.40	2771.76	1387.94	0.91	-0.18	0.070	0.070
55.00	-24.20	-1.33	0.00	-76.97	0.00	76.97	1862.74	931.37	2724.01	1364.03	0.98	-0.18	0.069	0.069
60.00	-23.37	-1.34	0.00	-70.32	0.00	70.32	1827.31	913.65	2588.34	1296.09	1.18	-0.21	0.067	0.067
65.00	-22.57	-1.34	0.00	-63.63	0.00	63.63	1790.42	895.21	2453.92	1228.78	1.42	-0.23	0.064	0.064
70.00	-21.78	-1.35	0.00	-56.92	0.00	56.92	1752.08	876.04	2320.96	1162.21	1.67	-0.25	0.061	0.061
75.00	-21.01	-1.35	0.00	-50.18	0.00	50.18	1712.28	856.14	2189.66	1096.46	1.95	-0.28	0.058	0.058
78.00	-18.77	-1.34	0.00	-46.13	0.00	46.13	1687.70	843.85	2111.76	1057.45	2.13	-0.29	0.055	0.055
80.00	-18.47	-1.35	0.00	-43.44	0.00	43.44	1671.02	835.51	2060.22	1031.64	2.25	-0.30	0.053	0.053
85.00	-17.75	-1.35	0.00	-36.70	0.00	36.70	1628.32	814.16	1932.84	967.86	2.58	-0.32	0.049	0.049
88.00	-14.26	-1.33	0.00	-32.66	0.00	32.66	1601.99	801.00	1857.49	930.12	2.78	-0.33	0.044	0.044
90.00	-14.01	-1.33	0.00	-29.99	0.00	29.99	1584.15	792.08	1807.72	905.20	2.92	-0.34	0.042	0.042
95.00	-13.41	-1.33	0.00	-23.33	0.00	23.33	1538.53	769.27	1685.06	843.78	3.29	-0.36	0.036	0.036
98.00	-8.06	-1.17	0.00	-19.35	0.00	19.35	1510.46	755.23	1612.73	807.56	3.52	-0.37	0.029	0.029
98.50	-8.01	-1.16	0.00	-18.76	0.00	18.76	1505.73	752.87	1600.77	801.57	3.56	-0.37	0.029	0.029
100.00	-7.75	-1.16	0.00	-17.02	0.00	17.02	1491.46	745.73	1565.06	783.69	3.67	-0.37	0.027	0.027
102.00	-7.42	-1.14	0.00	-14.70	0.00	14.70	1021.50	510.75	1074.26	537.93	3.83	-0.38	0.035	0.035
105.00	-7.17	-1.13	0.00	-11.29	0.00	11.29	1004.76	502.38	1028.99	515.26	4.07	-0.39	0.029	0.029
108.00	-4.16	-0.82	0.00	-7.91	0.00	7.91	987.50	493.75	984.13	492.79	4.32	-0.39	0.020	0.020
109.00	-4.09	-0.81	0.00	-7.09	0.00	7.09	981.63	490.81	969.27	485.35	4.40	-0.40	0.019	0.019
109.00	-4.09	-0.81	0.00	-7.09	0.00	7.09	981.63	490.81	969.27	485.35	4.40	-0.40	0.019	0.019
110.00	-4.01	-0.80	0.00	-6.28	0.00	6.28	975.70	487.85	954.46	477.94	4.48	-0.40	0.017	0.017
115.00	-3.65	-0.75	0.00	-2.27	0.00	2.27	945.18	472.59	881.23	441.27	4.90	-0.40	0.009	0.009
118.00	-0.05	-0.01	0.00	-0.01	0.00	0.01	926.18	463.09	838.01	419.63	5.16	-0.40	0.000	0.000
119.00	0.00	-0.01	0.00	0.00	0.00	0.00	919.72	459.86	823.73	412.48	5.24	-0.40	0.000	0.000

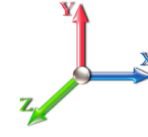
Seismic Segment Forces (Factored)

Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Page: 29

Load Case: 0.9D + 1.0E				Iterations 21
Gust Response Factor	1.10	Sds	0.20	Ss 0.19
Dead Load Factor	0.90	Seismic Load Factor	1.00	S1 0.06
Wind Load Factor	0.00	Structure Frequency (f1)	0.36	SA 0.03
				Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00	RB1	0.00	0.00	0.00	0.00	0.00	
1.00	RT1 RB2	158.88	0.00	0.01	0.01	1.22	
5.00		628.06	0.00	0.04	0.02	15.49	
10.00		768.24	0.01	0.06	0.03	25.60	
15.00		749.54	0.03	0.07	0.04	27.63	
18.63	RT2	532.45	0.05	0.07	0.04	20.32	
20.00		198.39	0.05	0.07	0.04	7.65	
25.00		712.14	0.08	0.07	0.04	28.32	
30.00		693.44	0.12	0.07	0.03	28.43	
35.00		674.74	0.16	0.07	0.03	28.38	
40.00		656.04	0.21	0.06	0.02	27.66	
45.00		637.33	0.27	0.05	0.01	25.46	
48.50	Bot - Section 2	435.01	0.31	0.04	0.01	15.65	
50.00		332.81	0.33	0.04	0.01	11.13	
53.25	Top - Section 1	710.69	0.38	0.02	0.01	18.48	
55.00		168.94	0.40	0.02	0.01	3.52	
60.00		472.58	0.48	-0.01	0.01	0.99	
65.00		457.62	0.56	-0.04	0.01	-8.56	
70.00		442.66	0.65	-0.07	0.02	-15.70	
75.00		427.70	0.75	-0.10	0.04	-18.87	
78.00	Appurtenance(s)	1741.5	0.81	-0.11	0.06	-78.19	
80.00		163.30	0.85	-0.12	0.07	-7.12	
85.00		397.78	0.96	-0.12	0.11	-13.60	
88.00	Appurtenance(s)	2780.5	1.03	-0.10	0.15	-68.03	
90.00		151.33	1.08	-0.08	0.18	-2.47	
95.00		367.85	1.20	0.01	0.26	3.65	
98.00	Appurtenance(s)	4374.5	1.28	0.10	0.32	129.75	
98.50	Bot - Section 3	35.06	1.29	0.11	0.33	1.17	
100.00		183.85	1.33	0.17	0.37	8.18	
102.00	Top - Section 2	241.47	1.39	0.26	0.42	14.67	
105.00		153.38	1.47	0.43	0.51	13.45	
108.00	Appurtenance(s)	2452.7	1.56	0.65	0.61	288.95	
109.00	Top - Section 3	48.88	1.59	0.73	0.65	6.28	
110.00		48.43	1.61	0.83	0.69	6.77	
115.00		235.44	1.77	1.38	0.92	47.27	
118.00	Appurtenance(s)	2960.0	1.86	1.82	1.08	716.05	
119.00		44.39	1.89	1.98	1.14	11.38	
Totals:		26,237.9				1,321.0	Total Wind: 31,973.7

Calculated Forces

Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 0.9D + 1.0E							Iterations 21
Gust Response Factor	1.10			Sds	0.20		Ss 0.19
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.09		S1 0.06
Wind Load Factor	0.00	Structure Frequency (f1)	0.36	SA	0.03	Seismic Importance 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	-27.51	-1.53	0.00	-154.67	0.00	154.67	3013.27	1506.63	5849.73	2929.21	0.00	0.00	0.00	0.055
1.00	-27.33	-1.54	0.00	-153.13	0.00	153.13	3005.28	1502.64	5806.64	2907.64	0.00	0.00	0.00	0.047
5.00	-26.61	-1.53	0.00	-146.99	0.00	146.99	2972.75	1486.38	5634.65	2821.52	0.01	-0.01	0.00	0.047
10.00	-25.73	-1.51	0.00	-139.37	0.00	139.37	2930.78	1465.39	5420.60	2714.33	0.03	-0.03	0.00	0.046
15.00	-24.86	-1.48	0.00	-131.84	0.00	131.84	2887.35	1443.68	5207.78	2607.76	0.06	-0.04	0.00	0.045
18.63	-24.24	-1.46	0.00	-126.46	0.00	126.46	2854.92	1427.46	5054.16	2530.83	0.10	-0.05	0.00	0.044
18.63	-24.24	-1.46	0.00	-126.46	0.00	126.46	2854.92	1427.46	5054.16	2530.83	0.10	-0.05	0.00	0.044
20.00	-24.01	-1.46	0.00	-124.45	0.00	124.45	2842.47	1421.24	4996.39	2501.91	0.11	-0.05	0.00	0.058
25.00	-23.18	-1.44	0.00	-117.15	0.00	117.15	2796.14	1398.07	4786.62	2396.87	0.18	-0.07	0.00	0.057
30.00	-22.36	-1.42	0.00	-109.95	0.00	109.95	2748.35	1374.17	4578.69	2292.75	0.26	-0.09	0.00	0.056
35.00	-21.56	-1.39	0.00	-102.87	0.00	102.87	2699.10	1349.55	4372.78	2189.64	0.36	-0.11	0.00	0.055
40.00	-20.78	-1.37	0.00	-95.91	0.00	95.91	2648.40	1324.20	4169.10	2087.65	0.48	-0.12	0.00	0.054
45.00	-20.01	-1.35	0.00	-89.05	0.00	89.05	2596.25	1298.12	3967.85	1986.88	0.62	-0.14	0.00	0.053
48.50	-19.49	-1.34	0.00	-84.33	0.00	84.33	2558.87	1279.44	3828.53	1917.11	0.73	-0.16	0.00	0.052
50.00	-19.13	-1.33	0.00	-82.33	0.00	82.33	2542.63	1271.32	3769.24	1887.42	0.78	-0.16	0.00	0.051
53.25	-18.37	-1.31	0.00	-78.01	0.00	78.01	1874.80	937.40	2771.76	1387.94	0.90	-0.18	0.00	0.066
55.00	-18.15	-1.31	0.00	-75.72	0.00	75.72	1862.74	931.37	2724.01	1364.03	0.97	-0.18	0.00	0.065
60.00	-17.53	-1.31	0.00	-69.18	0.00	69.18	1827.31	913.65	2588.34	1296.09	1.17	-0.21	0.00	0.063
65.00	-16.93	-1.32	0.00	-62.61	0.00	62.61	1790.42	895.21	2453.92	1228.78	1.40	-0.23	0.00	0.060
70.00	-16.33	-1.32	0.00	-56.02	0.00	56.02	1752.08	876.04	2320.96	1162.21	1.65	-0.25	0.00	0.058
75.00	-15.76	-1.32	0.00	-49.41	0.00	49.41	1712.28	856.14	2189.66	1096.46	1.92	-0.27	0.00	0.054
78.00	-14.08	-1.32	0.00	-45.44	0.00	45.44	1687.70	843.85	2111.76	1057.45	2.10	-0.29	0.00	0.051
80.00	-13.85	-1.32	0.00	-42.80	0.00	42.80	1671.02	835.51	2060.22	1031.64	2.22	-0.30	0.00	0.050
85.00	-13.31	-1.32	0.00	-36.20	0.00	36.20	1628.32	814.16	1932.84	967.86	2.54	-0.32	0.00	0.046
88.00	-10.69	-1.31	0.00	-32.23	0.00	32.23	1601.99	801.00	1857.49	930.12	2.74	-0.33	0.00	0.041
90.00	-10.51	-1.31	0.00	-29.61	0.00	29.61	1584.15	792.08	1807.72	905.20	2.88	-0.34	0.00	0.039
95.00	-10.05	-1.31	0.00	-23.06	0.00	23.06	1538.53	769.27	1685.06	843.78	3.24	-0.35	0.00	0.034
98.00	-6.04	-1.15	0.00	-19.14	0.00	19.14	1510.46	755.23	1612.73	807.56	3.47	-0.36	0.00	0.028
98.50	-6.00	-1.15	0.00	-18.57	0.00	18.57	1505.73	752.87	1600.77	801.57	3.51	-0.36	0.00	0.027
100.00	-5.81	-1.14	0.00	-16.84	0.00	16.84	1491.46	745.73	1565.06	783.69	3.62	-0.37	0.00	0.025
102.00	-5.56	-1.13	0.00	-14.56	0.00	14.56	1021.50	510.75	1074.26	537.93	3.78	-0.37	0.00	0.033
105.00	-5.38	-1.11	0.00	-11.18	0.00	11.18	1004.76	502.38	1028.99	515.26	4.01	-0.38	0.00	0.027
108.00	-3.12	-0.81	0.00	-7.84	0.00	7.84	987.50	493.75	984.13	492.79	4.26	-0.39	0.00	0.019
109.00	-3.06	-0.80	0.00	-7.03	0.00	7.03	981.63	490.81	969.27	485.35	4.34	-0.39	0.00	0.018
109.00	-3.06	-0.80	0.00	-7.03	0.00	7.03	981.63	490.81	969.27	485.35	4.34	-0.39	0.00	0.018
110.00	-3.01	-0.80	0.00	-6.23	0.00	6.23	975.70	487.85	954.46	477.94	4.42	-0.39	0.00	0.016
115.00	-2.74	-0.75	0.00	-2.25	0.00	2.25	945.18	472.59	881.23	441.27	4.83	-0.40	0.00	0.008
118.00	-0.04	-0.01	0.00	-0.01	0.00	0.01	926.18	463.09	838.01	419.63	5.08	-0.40	0.00	0.000
119.00	0.00	-0.01	0.00	0.00	0.00	0.00	919.72	459.86	823.73	412.48	5.17	-0.40	0.00	0.000

Wind Loading - Shaft

Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Page: 31
	Struct Class: II	

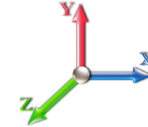


Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 22

Dead Load Factor 1.00

Wind Load Factor 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	RB1	1.00	0.85	7.442	8.19	222.34	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
1.00	RT1 RB2	1.00	0.85	7.442	8.19	221.30	0.650	0.000	1.00	4.010	2.61	21.3	0.0	158.9
5.00		1.00	0.85	7.442	8.19	217.15	0.650	0.000	4.00	15.853	10.30	84.4	0.0	628.1
10.00		1.00	0.85	7.442	8.19	211.97	0.650	0.000	5.00	19.394	12.61	103.2	0.0	768.2
15.00		1.00	0.85	7.442	8.19	206.78	0.650	0.000	5.00	18.925	12.30	100.7	0.0	749.5
18.63	RT2	1.00	0.89	7.779	8.56	207.56	0.650	0.000	3.63	13.446	8.74	74.8	0.0	532.4
20.00		1.00	0.90	7.896	8.69	207.65	0.650	0.000	1.37	5.010	3.26	28.3	0.0	198.4
25.00		1.00	0.95	8.276	9.10	207.12	0.650	0.000	5.00	17.987	11.69	106.4	0.0	712.1
30.00		1.00	0.98	8.600	9.46	205.56	0.650	0.000	5.00	17.518	11.39	107.7	0.0	693.4
35.00		1.00	1.01	8.883	9.77	203.25	0.650	0.000	5.00	17.049	11.08	108.3	0.0	674.7
40.00		1.00	1.04	9.137	10.05	200.38	0.650	0.000	5.00	16.580	10.78	108.3	0.0	656.0
45.00		1.00	1.07	9.366	10.30	197.06	0.650	0.000	5.00	16.112	10.47	107.9	0.0	637.3
48.50	Bot - Section 2	1.00	1.09	9.515	10.47	194.52	0.650	0.000	3.50	10.999	7.15	74.8	0.0	435.0
50.00		1.00	1.09	9.576	10.53	193.37	0.650	0.000	1.50	4.707	3.06	32.2	0.0	332.8
53.25	Top - Section 1	1.00	1.11	9.704	10.67	190.81	0.650	0.000	3.25	10.054	6.53	69.8	0.0	710.7
55.00		1.00	1.12	9.770	10.75	192.06	0.650	0.000	1.75	5.332	3.47	37.2	0.0	168.9
60.00		1.00	1.14	9.951	10.95	187.83	0.650	0.000	5.00	14.917	9.70	106.1	0.0	472.6
65.00		1.00	1.16	10.120	11.13	183.37	0.650	0.000	5.00	14.448	9.39	104.5	0.0	457.6
70.00		1.00	1.17	10.279	11.31	178.71	0.650	0.000	5.00	13.979	9.09	102.7	0.0	442.7
75.00		1.00	1.19	10.430	11.47	173.87	0.650	0.000	5.00	13.510	8.78	100.7	0.0	427.7
78.00	Appurtenance(s)	1.00	1.20	10.516	11.57	170.89	0.650	0.000	3.00	7.881	5.12	59.3	0.0	249.4
80.00		1.00	1.21	10.572	11.63	168.88	0.650	0.000	2.00	5.160	3.35	39.0	0.0	163.3
85.00		1.00	1.22	10.708	11.78	163.73	0.650	0.000	5.00	12.572	8.17	96.3	0.0	397.8
88.00	Appurtenance(s)	1.00	1.23	10.787	11.87	160.59	0.650	0.000	3.00	7.318	4.76	56.4	0.0	231.5
90.00		1.00	1.24	10.838	11.92	158.46	0.650	0.000	2.00	4.785	3.11	37.1	0.0	151.3
95.00		1.00	1.25	10.962	12.06	153.07	0.650	0.000	5.00	11.634	7.56	91.2	0.0	367.9
98.00	Appurtenance(s)	1.00	1.26	11.034	12.14	149.78	0.650	0.000	3.00	6.756	4.39	53.3	0.0	213.5
98.50	Bot - Section 3	1.00	1.26	11.046	12.15	149.23	0.650	0.000	0.50	1.110	0.72	8.8	0.0	35.1
100.00		1.00	1.27	11.081	12.19	147.57	0.650	0.000	1.50	3.348	2.18	26.5	0.0	183.8
102.00	Top - Section 2	1.00	1.27	11.127	12.24	145.34	0.650	0.000	2.00	4.398	2.86	35.0	0.0	241.5
105.00		1.00	1.28	11.195	12.31	144.12	0.650	0.000	3.00	6.457	4.20	51.7	0.0	153.4
108.00	Appurtenance(s)	1.00	1.29	11.262	12.39	140.72	0.650	0.000	3.00	6.288	4.09	50.6	0.0	149.3
109.00	Top - Section 3	1.00	1.29	11.284	12.41	139.58	0.650	0.000	1.00	2.059	1.34	16.6	0.0	48.9
110.00		1.00	1.29	11.305	12.44	138.43	0.650	0.000	1.00	2.040	1.33	16.5	0.0	48.4
115.00		1.00	1.30	11.412	12.55	132.66	0.650	0.000	5.00	9.918	6.45	80.9	0.0	235.4
118.00	Appurtenance(s)	1.00	1.31	11.474	12.62	129.16	0.650	0.000	3.00	5.726	3.72	47.0	0.0	135.9
119.00		1.00	1.31	11.494	12.64	127.98	0.650	0.000	1.00	1.871	1.22	15.4	0.0	44.4
Totals:									119.00			2,361.0		12,908.1

Discrete Appurtenance Forces

Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



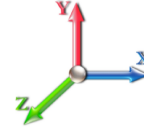
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Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 22

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	118.00	(3) T-Arm Kit	1	11.474	12.621	0.75	0.75	12.38	500.00	0.000	0.000	156.19	0.00	0.00
2	118.00	BXA-70063-6BF	3	11.474	12.621	0.56	0.80	12.72	51.00	0.000	0.000	160.51	0.00	0.00
3	118.00	T-Arm	3	11.474	12.621	0.56	0.75	16.88	1050.00	0.000	0.000	212.98	0.00	0.00
4	118.00	Commscope	6	11.474	12.621	0.66	0.80	32.19	262.20	0.000	0.000	406.28	0.00	0.00
5	118.00	Samsung MT6407-77A	3	11.474	12.621	0.56	0.80	7.88	238.20	0.000	0.000	99.44	0.00	0.00
6	118.00	B2/B66A RRH-BR049	3	11.474	12.621	0.54	0.80	3.01	253.20	0.000	0.000	37.95	0.00	0.00
7	118.00	BSAMNT-SBS-1-2	3	11.474	12.621	0.75	0.75	0.00	76.05	0.000	0.000	0.00	0.00	0.00
8	118.00	Collar	1	11.474	12.621	0.75	0.75	1.88	150.60	0.000	0.000	23.66	0.00	0.00
9	118.00	Samsung B5/B13	3	11.474	12.621	0.54	0.80	3.02	210.90	0.000	0.000	38.15	0.00	0.00
10	118.00	Raycap	1	11.474	12.621	0.80	0.80	3.03	32.00	0.000	0.000	38.27	0.00	0.00
11	108.00	840 10054	3	11.262	12.388	0.49	0.80	6.72	105.00	0.000	0.000	83.24	0.00	0.00
12	108.00	800 MHz	3	11.262	12.388	0.54	0.80	4.00	159.00	0.000	0.000	49.60	0.00	0.00
13	108.00	ACU-A20-N	4	11.262	12.388	0.54	0.80	0.30	4.00	0.000	0.000	3.72	0.00	0.00
14	108.00	APXVSP18-C-A20	2	11.262	12.388	0.66	0.80	10.65	114.00	0.000	0.000	131.94	0.00	0.00
15	108.00	800 MHz Filters	3	11.262	12.388	0.54	0.80	3.86	192.00	0.000	0.000	47.81	0.00	0.00
16	108.00	1900MHz RRH	3	11.262	12.388	0.54	0.80	6.11	132.00	0.000	0.000	75.70	0.00	0.00
17	108.00	T-Arm	3	11.262	12.388	0.56	0.75	13.50	1050.00	0.000	0.000	167.24	0.00	0.00
18	108.00	APXVTM14-C-120	3	11.262	12.388	0.63	0.80	12.02	168.00	0.000	0.000	148.91	0.00	0.00
19	108.00	Horizon	2	11.262	12.388	0.80	0.80	0.69	21.20	0.000	0.000	8.52	0.00	0.00
20	108.00	P40-16-XLPP-RR-A	1	11.262	12.388	0.80	0.80	7.26	53.00	0.000	0.000	89.99	0.00	0.00
21	108.00	TD-RRH8x20-25	3	11.262	12.388	0.54	0.80	6.51	210.00	0.000	0.000	80.68	0.00	0.00
22	108.00	VHLP2.5	2	11.262	12.388	1.00	1.00	16.86	95.20	0.000	0.000	208.86	0.00	0.00
23	98.00	ULPD14	1	11.034	12.137	1.00	1.00	45.00	2419.26	0.000	0.000	546.17	0.00	0.00
24	98.00	Cci TPA-65R-BU6DA	3	11.034	12.137	0.58	0.80	22.24	157.80	0.000	0.000	269.92	0.00	0.00
25	98.00	Raycap DC6-48-60-0-8F	3	11.034	12.137	0.80	0.80	2.21	95.40	0.000	0.000	26.80	0.00	0.00
26	98.00	Ericsson RRUS 8843	3	11.034	12.137	0.54	0.80	2.65	225.00	0.000	0.000	32.20	0.00	0.00
27	98.00	Ericsson RRUS 32	3	11.034	12.137	0.54	0.80	4.41	159.00	0.000	0.000	53.48	0.00	0.00
28	98.00	Ericsson RRUS 4449	3	11.034	12.137	0.54	0.80	3.17	213.00	0.000	0.000	38.45	0.00	0.00
29	98.00	Cci DMP65R-BU6DA	3	11.034	12.137	0.58	0.80	21.96	238.20	0.000	0.000	266.57	0.00	0.00
30	98.00	Ericsson Air6449	3	11.034	12.137	0.57	0.80	9.63	309.00	0.000	0.000	116.85	0.00	0.00
31	98.00	Ericsson Air6419 N77G	3	11.034	12.137	0.61	0.80	6.93	166.20	0.000	0.000	84.12	0.00	0.00
32	98.00	Ericsson RRUS 4478 B14	3	11.034	12.137	0.54	0.80	2.65	178.20	0.000	0.000	32.20	0.00	0.00
33	88.00	RRUS 4415 B25	3	10.787	11.865	0.54	0.80	2.64	138.00	0.000	0.000	31.29	0.00	0.00
34	88.00	SDX1926Q-43	3	10.787	11.865	0.54	0.80	0.37	16.50	0.000	0.000	4.39	0.00	0.00
35	88.00	APXVAARR24_43-U-NA2	3	10.787	11.865	0.56	0.80	34.00	384.00	0.000	0.000	403.45	0.00	0.00
36	88.00	AIR6449 B41	3	10.787	11.865	0.57	0.80	9.63	309.00	0.000	0.000	114.23	0.00	0.00
37	88.00	T-Arm w/ mod	3	10.787	11.865	0.56	0.75	23.63	1050.00	0.000	0.000	280.31	0.00	0.00
38	88.00	KRY 112 144/2	3	10.787	11.865	0.56	0.80	0.69	33.00	0.000	0.000	8.17	0.00	0.00
39	88.00	4449 B71 + B85	3	10.787	11.865	0.54	0.80	4.13	222.00	0.000	0.000	49.03	0.00	0.00
40	88.00	AIR32	3	10.787	11.865	0.70	0.80	13.59	396.60	0.000	0.000	161.28	0.00	0.00
41	78.00	MC-K6M-6-96 (3 Sectors)	1	10.516	11.568	0.56	0.75	11.78	860.00	0.000	0.000	136.32	0.00	0.00
42	78.00	Raycap	1	10.516	11.568	0.80	0.80	1.61	21.90	0.000	0.000	18.60	0.00	0.00
43	78.00	Fujitsu TA08025-B604	3	10.516	11.568	0.61	0.80	3.58	191.70	0.000	0.000	41.35	0.00	0.00
44	78.00	Fujitsu TA08025-B605	3	10.516	11.568	0.64	0.80	3.76	225.00	0.000	0.000	43.53	0.00	0.00
45	78.00	JMA Wireless	3	10.516	11.568	0.59	0.80	22.18	193.50	0.000	0.000	256.60	0.00	0.00

Totals: 13,329.81

5,284.95

Total Applied Force Summary

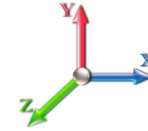
Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 22

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
1.00		21.34	201.51	0.00	0.00
5.00		84.35	798.57	0.00	0.00
10.00		103.19	981.38	0.00	0.00
15.00		100.70	962.68	0.00	0.00
18.63		74.79	687.19	0.00	0.00
20.00		28.29	256.79	0.00	0.00
25.00		106.44	925.28	0.00	0.00
30.00		107.72	906.58	0.00	0.00
35.00		108.29	887.88	0.00	0.00
40.00		108.32	869.18	0.00	0.00
45.00		107.90	850.47	0.00	0.00
48.50		74.83	584.20	0.00	0.00
50.00		32.23	396.75	0.00	0.00
53.25		69.76	849.23	0.00	0.00
55.00		37.25	243.54	0.00	0.00
60.00		106.13	685.72	0.00	0.00
65.00		104.54	670.76	0.00	0.00
70.00		102.74	655.80	0.00	0.00
75.00		100.75	640.84	0.00	0.00
78.00	(11) attachments	555.66	1869.42	0.00	0.00
80.00		39.01	246.26	0.00	0.00
85.00		96.26	605.17	0.00	0.00
88.00	(24) attachments	1108.61	2905.02	0.00	0.00
90.00		37.08	205.68	0.00	0.00
95.00		91.19	503.73	0.00	0.00
98.00	(28) attachments	1520.05	4456.12	0.00	0.00
98.50		8.76	44.27	0.00	0.00
100.00		26.53	211.47	0.00	0.00
102.00		34.99	278.30	0.00	0.00
105.00		51.68	208.63	0.00	0.00
108.00	(32) attachments	1146.83	2507.99	0.00	0.00
109.00		16.61	62.52	0.00	0.00
110.00		16.49	62.07	0.00	0.00
115.00		80.92	303.64	0.00	0.00
118.00	(27) attachments	1220.40	3000.95	0.00	0.00
119.00		15.38	44.39	0.00	0.00
	Totals:	7,645.96	30,569.97	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

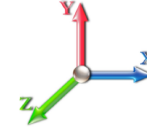


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Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 22

Dead Load Factor 1.00
Wind Load Factor 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
1.00	1 5/8" Hybrid	Yes	1.00	0.000	1.63	0.14	0.00	0.063	0.000	7.442	0.00	2.20
1.00	1.411" Hybrid	Yes	1.00	0.000	1.41	0.12	0.00	0.063	0.000	7.442	0.00	1.15
1.00	1" Reinforcing plate	Yes	1.00	0.000	0.00	0.00	0.00	0.063	0.000	7.442	0.00	0.00
5.00	1 5/8" Hybrid	Yes	4.00	0.000	1.63	0.54	0.00	0.064	0.000	7.442	0.00	8.80
5.00	1.411" Hybrid	Yes	4.00	0.000	1.41	0.47	0.00	0.064	0.000	7.442	0.00	4.60
5.00	1" Reinforcing plate	Yes	4.00	0.000	0.00	0.00	0.00	0.064	0.000	7.442	0.00	0.00
10.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.065	0.000	7.442	0.00	11.00
10.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.065	0.000	7.442	0.00	5.75
10.00	1" Reinforcing plate	Yes	5.00	0.000	0.00	0.00	0.00	0.065	0.000	7.442	0.00	0.00
15.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.067	0.000	7.442	0.00	11.00
15.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.067	0.000	7.442	0.00	5.75
15.00	1" Reinforcing plate	Yes	5.00	0.000	0.00	0.00	0.00	0.067	0.000	7.442	0.00	0.00
18.63	1 5/8" Hybrid	Yes	3.63	0.000	1.63	0.49	0.00	0.068	0.000	7.779	0.00	7.99
18.63	1.411" Hybrid	Yes	3.63	0.000	1.41	0.43	0.00	0.068	0.000	7.779	0.00	4.17
18.63	1" Reinforcing plate	Yes	3.63	0.000	0.00	0.00	0.00	0.068	0.000	7.779	0.00	0.00
20.00	1 5/8" Hybrid	Yes	1.37	0.000	1.63	0.19	0.00	0.069	0.000	7.896	0.00	3.01
20.00	1.411" Hybrid	Yes	1.37	0.000	1.41	0.16	0.00	0.069	0.000	7.896	0.00	1.58
20.00	1" Reinforcing plate	Yes	1.37	0.000	0.00	0.00	0.00	0.069	0.000	7.896	0.00	0.00
25.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.070	0.000	8.276	0.00	11.00
25.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.070	0.000	8.276	0.00	5.75
30.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.072	0.000	8.600	0.00	11.00
30.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.072	0.000	8.600	0.00	5.75
35.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.074	0.000	8.883	0.00	11.00
35.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.074	0.000	8.883	0.00	5.75
40.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.076	0.000	9.137	0.00	11.00
40.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.076	0.000	9.137	0.00	5.75
45.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.079	0.000	9.366	0.00	11.00
45.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.079	0.000	9.366	0.00	5.75
48.50	1 5/8" Hybrid	Yes	3.50	0.000	1.63	0.48	0.00	0.081	0.000	9.515	0.00	7.70
48.50	1.411" Hybrid	Yes	3.50	0.000	1.41	0.41	0.00	0.081	0.000	9.515	0.00	4.02
50.00	1 5/8" Hybrid	Yes	1.50	0.000	1.63	0.20	0.00	0.082	0.000	9.576	0.00	3.30
50.00	1.411" Hybrid	Yes	1.50	0.000	1.41	0.18	0.00	0.082	0.000	9.576	0.00	1.72
53.25	1 5/8" Hybrid	Yes	3.25	0.000	1.63	0.44	0.00	0.083	0.000	9.704	0.00	7.15
53.25	1.411" Hybrid	Yes	3.25	0.000	1.41	0.38	0.00	0.083	0.000	9.704	0.00	3.74
55.00	1 5/8" Hybrid	Yes	1.75	0.000	1.63	0.24	0.00	0.083	0.000	9.770	0.00	3.85
55.00	1.411" Hybrid	Yes	1.75	0.000	1.41	0.21	0.00	0.083	0.000	9.770	0.00	2.01
60.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.085	0.000	9.951	0.00	11.00
60.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.085	0.000	9.951	0.00	5.75
65.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.088	0.000	10.120	0.00	11.00
65.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.088	0.000	10.120	0.00	5.75
70.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.091	0.000	10.279	0.00	11.00
70.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.091	0.000	10.279	0.00	5.75
75.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.094	0.000	10.430	0.00	11.00
75.00	1.411" Hybrid	Yes	5.00	0.000	1.41	0.59	0.00	0.094	0.000	10.430	0.00	5.75
78.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	0.41	0.00	0.096	0.000	10.516	0.00	6.60
78.00	1.411" Hybrid	Yes	3.00	0.000	1.41	0.35	0.00	0.096	0.000	10.516	0.00	3.45
80.00	1 5/8" Hybrid	Yes	2.00	0.000	1.63	0.27	0.00	0.053	0.000	10.572	0.00	4.40

Linear Appurtenance Segment Forces (Factored)

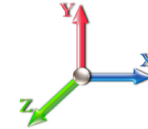
Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
85.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.054	0.000	10.708	0.00	11.00
88.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	0.41	0.00	0.056	0.000	10.787	0.00	6.60
90.00	1 5/8" Hybrid	Yes	2.00	0.000	1.63	0.27	0.00	0.057	0.000	10.838	0.00	4.40
95.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.058	0.000	10.962	0.00	11.00
98.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	0.41	0.00	0.060	0.000	11.034	0.00	6.60
98.50	1 5/8" Hybrid	Yes	0.50	0.000	1.63	0.07	0.00	0.061	0.000	11.046	0.00	1.10
100.00	1 5/8" Hybrid	Yes	1.50	0.000	1.63	0.20	0.00	0.062	0.000	11.081	0.00	3.30
102.00	1 5/8" Hybrid	Yes	2.00	0.000	1.63	0.27	0.00	0.063	0.000	11.127	0.00	4.40
105.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	0.41	0.00	0.063	0.000	11.195	0.00	6.60
108.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	0.41	0.00	0.065	0.000	11.262	0.00	6.60
109.00	1 5/8" Hybrid	Yes	1.00	0.000	1.63	0.14	0.00	0.066	0.000	11.284	0.00	2.20
110.00	1 5/8" Hybrid	Yes	1.00	0.000	1.63	0.14	0.00	0.067	0.000	11.305	0.00	2.20
115.00	1 5/8" Hybrid	Yes	5.00	0.000	1.63	0.68	0.00	0.068	0.000	11.412	0.00	11.00
118.00	1 5/8" Hybrid	Yes	3.00	0.000	1.63	0.41	0.00	0.071	0.000	11.474	0.00	6.60
Totals:											0.0	349.3

Calculated Forces

Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind	Iterations 22
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	-30.57	-7.65	0.00	-694.80	0.00	694.80	3013.27	1506.63	5849.73	2929.21	0.00	0.000	0.000	0.220
1.00	-30.36	-7.64	0.00	-687.15	0.00	687.15	3005.28	1502.64	5806.64	2907.64	0.00	-0.013	0.000	0.192
5.00	-29.56	-7.59	0.00	-656.57	0.00	656.57	2972.75	1486.38	5634.65	2821.52	0.03	-0.060	0.000	0.188
10.00	-28.57	-7.51	0.00	-618.65	0.00	618.65	2930.78	1465.39	5420.60	2714.33	0.13	-0.117	0.000	0.183
15.00	-27.60	-7.43	0.00	-581.10	0.00	581.10	2887.35	1443.68	5207.78	2607.76	0.28	-0.176	0.000	0.178
18.63	-26.91	-7.37	0.00	-554.12	0.00	554.12	2854.92	1427.46	5054.16	2530.83	0.43	-0.218	0.000	0.174
18.63	-26.91	-7.37	0.00	-554.12	0.00	554.12	2854.92	1427.46	5054.16	2530.83	0.43	-0.218	0.000	0.174
20.00	-26.65	-7.36	0.00	-544.03	0.00	544.03	2842.47	1421.24	4996.39	2501.91	0.50	-0.235	0.000	0.227
25.00	-25.71	-7.28	0.00	-507.23	0.00	507.23	2796.14	1398.07	4786.62	2396.87	0.78	-0.311	0.000	0.221
30.00	-24.80	-7.20	0.00	-470.81	0.00	470.81	2748.35	1374.17	4578.69	2292.75	1.15	-0.388	0.000	0.214
35.00	-23.90	-7.12	0.00	-434.79	0.00	434.79	2699.10	1349.55	4372.78	2189.64	1.60	-0.465	0.000	0.207
40.00	-23.02	-7.04	0.00	-399.19	0.00	399.19	2648.40	1324.20	4169.10	2087.65	2.13	-0.542	0.000	0.200
45.00	-22.17	-6.94	0.00	-364.01	0.00	364.01	2596.25	1298.12	3967.85	1986.88	2.74	-0.619	0.000	0.192
48.50	-21.58	-6.88	0.00	-339.70	0.00	339.70	2558.87	1279.44	3828.53	1917.11	3.21	-0.674	0.000	0.186
50.00	-21.18	-6.85	0.00	-329.39	0.00	329.39	2542.63	1271.32	3769.24	1887.42	3.43	-0.697	0.000	0.183
53.25	-20.32	-6.79	0.00	-307.11	0.00	307.11	1874.80	937.40	2771.76	1387.94	3.92	-0.747	0.000	0.232
55.00	-20.07	-6.77	0.00	-295.23	0.00	295.23	1862.74	931.37	2724.01	1364.03	4.20	-0.774	0.000	0.227
60.00	-19.38	-6.68	0.00	-261.39	0.00	261.39	1827.31	913.65	2588.34	1296.09	5.06	-0.862	0.000	0.212
65.00	-18.70	-6.59	0.00	-227.99	0.00	227.99	1790.42	895.21	2453.92	1228.78	6.01	-0.947	0.000	0.196
70.00	-18.04	-6.50	0.00	-195.02	0.00	195.02	1752.08	876.04	2320.96	1162.21	7.04	-1.028	0.000	0.178
75.00	-17.39	-6.41	0.00	-162.50	0.00	162.50	1712.28	856.14	2189.66	1096.46	8.16	-1.104	0.000	0.158
78.00	-15.53	-5.83	0.00	-143.28	0.00	143.28	1687.70	843.85	2111.76	1057.45	8.87	-1.147	0.000	0.145
80.00	-15.28	-5.79	0.00	-131.63	0.00	131.63	1671.02	835.51	2060.22	1031.64	9.35	-1.174	0.000	0.137
85.00	-14.67	-5.70	0.00	-102.65	0.00	102.65	1628.32	814.16	1932.84	967.86	10.62	-1.236	0.000	0.115
88.00	-11.79	-4.53	0.00	-85.56	0.00	85.56	1601.99	801.00	1857.49	930.12	11.41	-1.269	0.000	0.099
90.00	-11.58	-4.50	0.00	-76.50	0.00	76.50	1584.15	792.08	1807.72	905.20	11.94	-1.289	0.000	0.092
95.00	-11.08	-4.40	0.00	-54.02	0.00	54.02	1538.53	769.27	1685.06	843.78	13.32	-1.332	0.000	0.071
98.00	-6.66	-2.78	0.00	-40.82	0.00	40.82	1510.46	755.23	1612.73	807.56	14.16	-1.354	0.000	0.055
98.50	-6.62	-2.77	0.00	-39.43	0.00	39.43	1505.73	752.87	1600.77	801.57	14.30	-1.357	0.000	0.054
100.00	-6.40	-2.74	0.00	-35.28	0.00	35.28	1491.46	745.73	1565.06	783.69	14.73	-1.366	0.000	0.049
102.00	-6.13	-2.70	0.00	-29.81	0.00	29.81	1021.50	510.75	1074.26	537.93	15.31	-1.377	0.000	0.061
105.00	-5.92	-2.64	0.00	-21.72	0.00	21.72	1004.76	502.38	1028.99	515.26	16.18	-1.391	0.000	0.048
108.00	-3.44	-1.43	0.00	-13.79	0.00	13.79	987.50	493.75	984.13	492.79	17.05	-1.404	0.000	0.031
109.00	-3.38	-1.42	0.00	-12.36	0.00	12.36	981.63	490.81	969.27	485.35	17.35	-1.407	0.000	0.029
109.00	-3.38	-1.42	0.00	-12.36	0.00	12.36	981.63	490.81	969.27	485.35	17.35	-1.407	0.000	0.029
110.00	-3.32	-1.40	0.00	-10.94	0.00	10.94	975.70	487.85	954.46	477.94	17.64	-1.410	0.000	0.026
115.00	-3.01	-1.31	0.00	-3.95	0.00	3.95	945.18	472.59	881.23	441.27	19.13	-1.421	0.000	0.012
118.00	-0.04	-0.02	0.00	-0.02	0.00	0.02	926.18	463.09	838.01	419.63	20.02	-1.423	0.000	0.000
119.00	0.00	-0.02	0.00	0.00	0.00	0.00	919.72	459.86	823.73	412.48	20.32	-1.423	0.000	0.000

Final Analysis Summary

Structure: CT08558-B-SBA	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 97 mph Wind	32.0	0.00	36.67	0.00	0.00	2921.80
0.9D + 1.6W 97 mph Wind	32.0	0.00	27.50	0.00	0.00	2890.50
1.2D + 1.0Di + 1.0Wi 50 mph Wind	9.2	0.00	71.49	0.00	0.00	868.98
1.2D + 1.0E	1.5	0.00	36.68	0.00	0.00	156.52
0.9D + 1.0E	1.5	0.00	27.51	0.00	0.00	154.67
1.0D + 1.0W 60 mph Wind	7.6	0.00	30.57	0.00	0.00	694.80

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	-22.93	-28.58	0.00	-1294.2	0.00	-1294.2	1874.80	937.40	2771.76	1387.94	53.25	0.946
0.9D + 1.6W 97 mph Wind	-16.84	-28.23	0.00	-1273.3	0.00	-1273.3	1874.80	937.40	2771.76	1387.94	53.25	0.927
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-52.47	-8.52	0.00	-391.37	0.00	-391.37	1874.80	937.40	2771.76	1387.94	53.25	0.310
1.2D + 1.0E	-24.49	-1.33	0.00	-79.30	0.00	-79.30	1874.80	937.40	2771.76	1387.94	53.25	0.070
0.9D + 1.0E	-18.37	-1.31	0.00	-78.01	0.00	-78.01	1874.80	937.40	2771.76	1387.94	53.25	0.066
1.0D + 1.0W 60 mph Wind	-20.32	-6.79	0.00	-307.11	0.00	-307.11	1874.80	937.40	2771.76	1387.94	53.25	0.232

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors			Lower Termination				Upper Termination				Max Member			
			VQ/I (lb/in)	Vu (kips)	phi Vn (kips)	MQ/I (kips)	phi Vn (kips)	Num Reqd	Num Actual	MQ/I (kips)	phi Vn (kips)	Num Reqd	Num Actual	Pu (kips)	phi Pn (kips)	phi Tn (kips)	Ratio
0.0	1.0	(4) SOL-1 3/4" William R71	220.9	2.65	25.3	132.6	25.3	6	0	239.5	25.3			132.64	288.5	298.82	0.460
1.0	18.6	(4) LNP-LP6X100-B-20T	246.1	5.91	25.3	239.5	25.3			222.9	25.3	9	10	239.50	297.8	288.75	0.829

Base Plate Summary

Structure: CT08558-B-SB	Code: TIA-222-G	2/17/2022
Site Name: New Britain 3, CT	Exposure: C	
Height: 119.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Reactions	Base Plate	Anchor Bolts
Original Design	Yield (ksi): 60.00	Bolt Circle: 54.00
Moment (kip-ft): 2356.00	Width (in): 52.00	Number Bolts: 12.00
Axial (kip): 27.50	Style: Clipped	Bolt Type: 2.25" 18J
Shear (kip): 24.70	Polygon Sides: 4.00	Bolt Diameter (in): 2.25
Analysis (1.2D + 1.6W)	Clip Length (in): 9.00	Yield (ksi): 75.00
Moment (kip-ft): 2921.80	Effective Len (in): 9.84	Ultimate (ksi): 100.00
Axial (kip): 36.67	Moment (kip-in): 722.76	Arrangement: Clustered
Shear (kip): 31.99	Allow Stress (ksi): 81.00	Cluster Dist (in): 6.00
	Applied Stress (ksi): 58.32	Start Angle (deg): 45.00
	Stress Ratio: 0.72	Compression
		Force (kip): 222.39
		Allowable (kip): 260.00
		Ratio: 0.88
		Tension
		Force (kip): 210.47
		Allowable (kip): 260.00
		Ratio: 0.83



Pier Foundation Design For Monopole			Date
			2/17/2022
Customer Name:	Dish Wireless	EIA/TIA Standard:	TIA-222-G
Site Name:		Structure Height (Ft.):	119
Site Number:	CT08558-B-SBA	Engineer Name:	K. Azisllari
Engr. Number:	124478	Engineer Login ID:	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	36.7	Shear Force (Kips):	32.0
Uplift Force (Kips):	0.0	Moment (Kips-ft):	2921.8

Foundation Geometries:

Diameter of Pier (ft.):	6.0	Depth of Base B. G. S. :	24.0 ft.
Pier Height A. G. (ft.):	1.00		

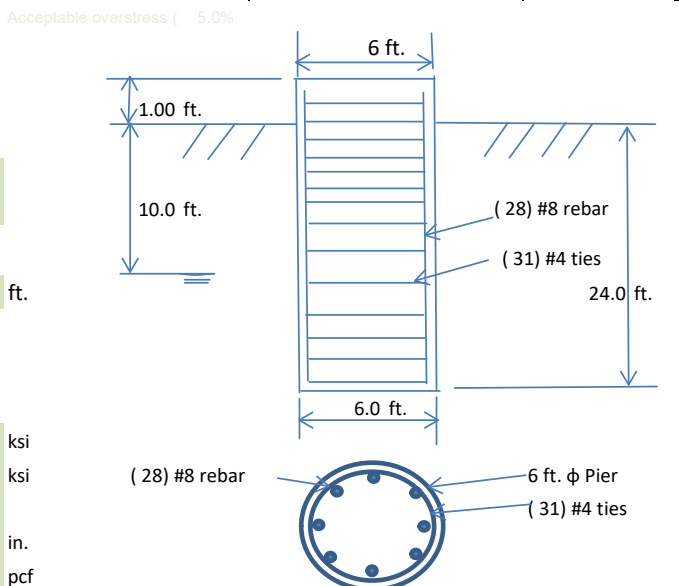
Material Properties and Rebar Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000 ksi
Vertical bar yield (ksi)	60	Tie steel yield strength:	40 ksi
Vertical Rebar Size #:	8	Tie / Stirrup Size #:	4
Qty. of Vertical Rebars:	28	Tie Spacing:	12.0 in.
Concrete Cover (in.):	3	Concrete unit weight:	150.0 pcf

Soil Design Parameters:

Water Table B.G.S. (ft):	10.0	Unit weight of water:	62.4 psf
Ratio of Uplift/Axial Skin Friction:	1.0	Pullout failure Angle:	30 (°)

Skin Frictions are to be obtained from: Soil Report



Monopole Pier Foundation

Depth of Layers (ft)		γ_{soil} (pcf)	ϕ (°)	Cohesion (psf)	Ultimate Skin Friction (psf)	Ultimate Bearing (psf)	Soil Types					
Top	Bottom											
0.0	2.0	135	0	0			Sand					
2.0	10.0	135	34	0			Sand					
10.0	25.0	137	34	0			Sand					
25.0	30.0	137	34	0			Sand					

Soil weight Increase Factor for bouyant soils (1.0 to 1.15): 1.1

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Soil Bearing Strength Reduction Factor:	0.75
Total Dry Soil Volume from Conical Failure (cu. Ft.):	5907	Dry Soil Weight from Conical Failure:	797 Kips
Total Buoyant Soil Volume from Conical Failure (cu. Ft.):	2024	Buoyant Soil Weight from Conical Failure (Kips):	193 Kips
Total Dry Concrete Volume (cu. Ft.):	311	Total Dry Concrete Weight:	46.7 Kips
Total Buoyant Concrete Volume (cu. Ft.):	395.8	Total Buoyant Concrete Weight:	34.68 Kips
Total Effective Concrete Weight (Kips):	81.3	Total Effective Soil Weight:	990.1 Kips
Total Effective Vertical Load on Base (Kips):	42.2		

Check Soil Capacities:

Allowable Foundation Overturning Resistance (kips-ft.):	6317.2	>	Design Factored Moment (kips-ft):	3451	Usage	0.55	OK!
Factor of Safety of Passive Soil Resistance against Moment:	1.83	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

Reinforcing Concrete Pier:

Vertical Steel Rebar Area (sq. in./each):	0.79	Tie / Stirrup Area (sq. in./each):	0.20	Usage	
Calculated Moment Capacity (Mn, Kips-Ft):	3222.1	>	Design Factored Moment (Mu, K-Ft):	3062.8	0.95 OK!
Calculated Shear Capacity (Kips):	740.0	>	Design Factored Shear (Kips):	280.0	0.38 OK!
Calculated Tension Capacity (Tn, Kips):	1194.5	>	Design Factored Tension (Tu Kips):	0.0	0.00 OK!
Calculated Compression Capacity (Pn, Kips):	7159	>	Design Factored Axial Load (Pu Kips):	36.7	0.01 OK!
Moment & Axial Strength Combination:	0.95	OK!	Max. Allowable Tie/Stirrup Spacing:	12.00	in.
Pier Reinforcement Ratio:	0.005	Reinforcement Ratio is satisfied per ACI			

February 14, 2022

Ms. 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: BOBDL00123A
Site Name: SBA - Farmington Ave.

SBA Network Services Designation: **Site Number:** CT08558-B
Site Name: New Britain 3, CT
Application Number: 169643, v1

Engineering Firm Designation: **B+T Group Project Number:** 149449.004.01

Site Data: 723 Farmington Ave., New Britain, CT 06051. Hartford County
Latitude 41.69841°, Longitude -72.78594°
Monopole
7.0 ft. T-Arm Mount

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

Note: See Table 1 for the final loading configuration

Sufficient Capacity

32.5% [PASS]

This analysis utilizes an ultimate 3-second gust wind speed of 117 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.

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

We 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: Khup Hatzaw, P.E.

Respectfully submitted by: B&T Engineering, Inc.

COA #: PEC.0001564, Expires: 02/10/2022.

Chad E. Tuttle, P.E.
Engineer of Record

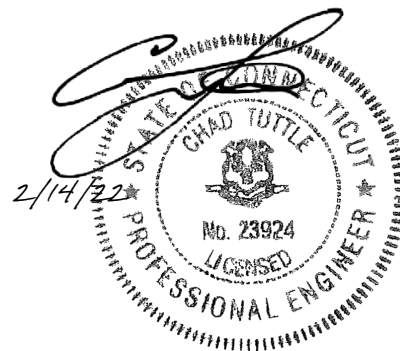


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Additional Calculations

1) INTRODUCTION

The proposed appurtenance mount consists of T-Arm Mount designed by Commscope (Part #MC-K6MHDX-9-96) at attached at the elevation of 78.0 ft. to the monopole located at 723 Farmington Ave., New Britain, CT 06051 in Hartford 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 117 mph with no ice and 50 mph with 1.5 inch escalated ice thickness. Exposure Category C, Topographic Category 1 and Risk Category II were used in this analysis.

In addition, the T-Arm mount has been analyzed for various live loading conditions consisting of a 250-lb man live load applied individually at the midpoint and cantilevered ends of horizontal members as well as a 500-pound man live load applied individually at mount pipe locations using a 3-second gust of 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 Elevation	Position	Qty.	Description	Note
Proposed	78.0'	2	3	JMA Wireless MX08FRO665-21	1
			3	Fujitsu TA08025-B605	2
			3	Fujitsu TA08025-B604	
		--	1	Raycap RDIDC-9181-PF-48	3

Note:

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

Table 2 - Documents Provided

Documents	Remarks	Reference	Source
SBA Application	Proposed Loading	Date: 08/15/2021	SBA Network Services, LLC
RFDS		Date: 08/11/2021	

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 19.0.3), a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses and deflections for various loading cases. Selected output from the analysis is included in Appendix A. Manufacturers' drawings were used to create the model.

3.2) Assumptions

1. The mount was built in accordance with the manufacturer's specifications.
2. The mount has been maintained in accordance with the manufacturer's specifications and is free of damage.
3. The configuration of antennas and other appurtenances are as specified in Table 1.

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

This analysis may be affected if any assumptions are not valid or have been made in error. 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 (T-Arm, Typical All Sectors)

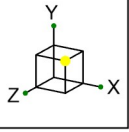
Notes	Component	Elevation	Capacity	Pass / Fail
-	Antenna Mount – Pipes	78.0'	14.8%	Pass
-	Face Horizontal – Pipes	78.0'	32.5%	Pass
-	Standoff Support – Tube	78.0'	31.2%	Pass
-	Tower Attachment – Bolts	78.0'	20.8%	Pass
-	Tower Attachment – Plates	78.0'	9.3%	Pass

5) RECOMMENDATIONS

The proposed T-Arm Mount, designed by Commscope (Part #MC-K6MHDX-9-96) has sufficient capacity to carry the proposed loads and is in compliance with the ANSI/TIA-222-H standard for the proposed loading. (Refer to the RISA output for the specific members).

APPENDIX A

(RISA-3D Output)



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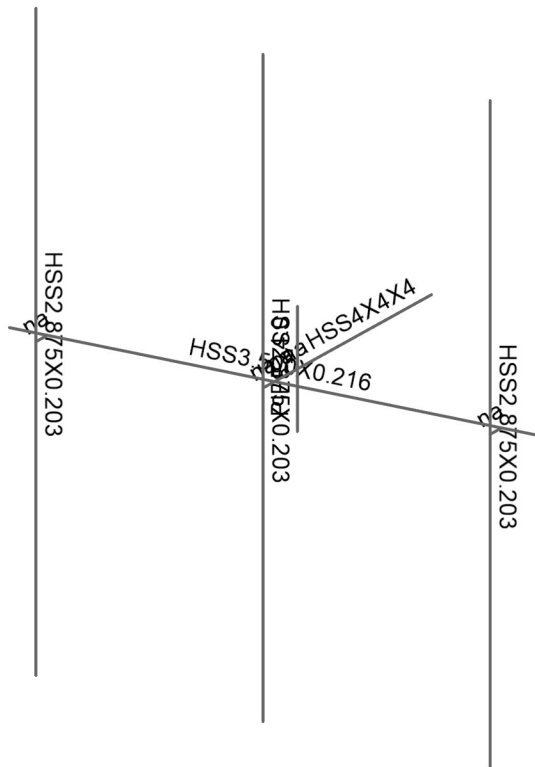
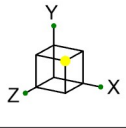
CT08558-B - NEW BRITAIN 3, CT

T-ARM MOUNT

SK-1

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149449.004.01-T-Arm.r3d



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SK-2

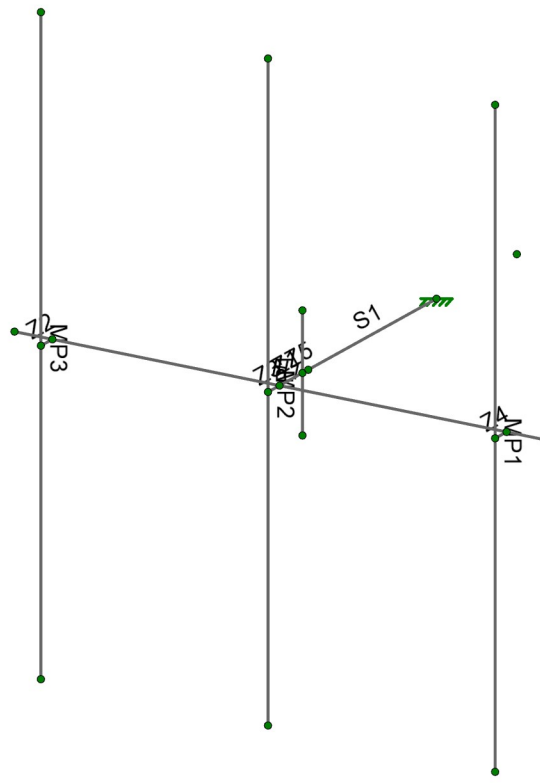
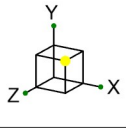
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T-ARM MOUNT

149449.004.01-T-Arm.r3d



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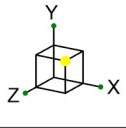
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T-ARM MOUNT

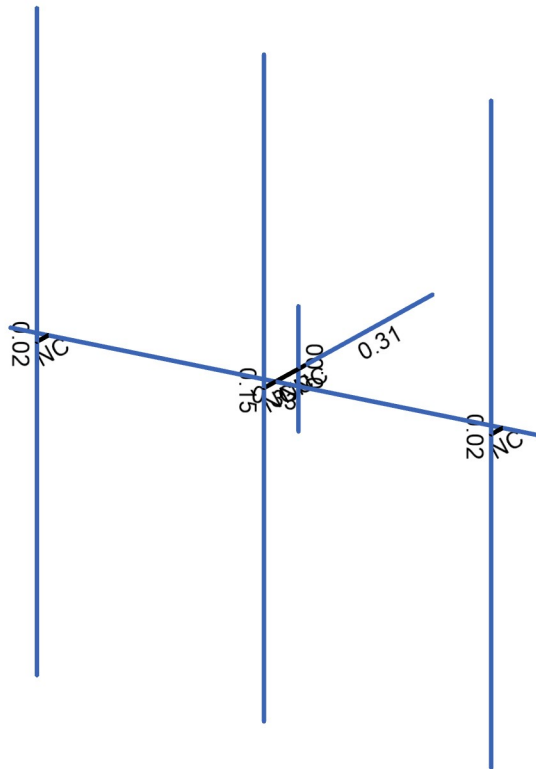
SK-3

Feb 14, 2022

149449.004.01-T-Arm.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)
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SK-4

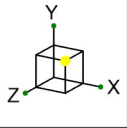
KH

Feb 14, 2022

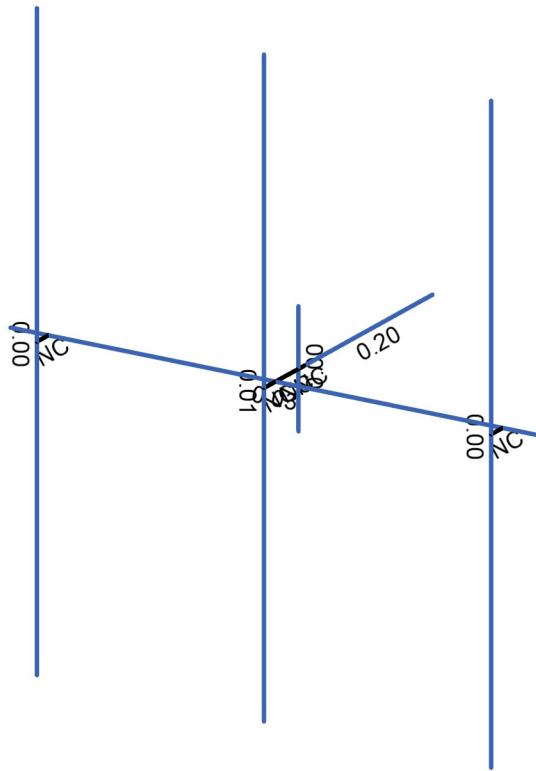
149449.004.01

T-ARM MOUNT

149449.004.01-T-Arm.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)
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T-ARM MOUNT

SK-5
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Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
1	MP-Pipe	HSS2.875X0.203	Column	Pipe	A500 Gr.C	Typical	1.59	1.45	1.45	2.89
2	FH-Pipe	HSS3.500X0.216	Beam	Pipe	A500 Gr.C	Typical	2.08	2.84	2.84	5.69
3	FM-Pipe	PIPE 4.0	Column	Pipe	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
4	SH-Tube	HSS4X4X4	Beam	Tube	A500 Gr.B Rect	Typical	3.37	7.8	7.8	12.8

Member Primary Data

	Label	I Node	J Node	Section/Shape	Type	Design List	Material	Design Rule
1	H1	N2	N3	FH-Pipe	Beam	Pipe	A500 Gr.C	Typical
2	MP1	N16	N15	MP-Pipe	Column	Pipe	A500 Gr.C	Typical
3	MP2	N12	N11	MP-Pipe	Column	Pipe	A500 Gr.C	Typical
4	MP3	N7	N6	MP-Pipe	Column	Pipe	A500 Gr.C	Typical
5	P1	N4	N5	FM-Pipe	Column	Pipe	A53 Gr.B	Typical
6	S1	R1	N19	SH-Tube	Beam	Tube	A500 Gr.B Rect	Typical
7	Z1	N8	N13	RIGID	None	None	RIGID	Typical
8	Z2	N9	N10	RIGID	None	None	RIGID	Typical
9	Z3	N13	N14	RIGID	None	None	RIGID	Typical
10	Z4	N17	N18	RIGID	None	None	RIGID	Typical
11	Z5	N8	N19	RIGID	None	None	RIGID	Typical

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed
1	Dead Load	DL	-1		10	
2	Wind Load (Front)	WLZ			10	6
3	Wind Load (Side)	WLX			10	6
4	Wind Load (Ice/Front)	WLZ			10	6
5	Wind Load (Ice/Side)	WLX			10	6
6	Wind Load (Service/Front)	WLZ			10	6
7	Wind Load (Service/Side)	WLX			10	6
8	Ice Load	OL1			10	6
9	Seismic Load (Front)	ELZ			10	6
10	Seismic Load (Side)	ELX			10	6
11	Live Load a	LL		1		
12	Live Load b	LL		1		
13	Live Load c	LL		1		
14	Live Load d	LL				
15	Maint LL 1	LL			1	
16	Maint LL 2	LL			1	
17	Maint LL 3	LL			1	
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
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



Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
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											
91											
92											
93											
94											
95											
96											
97											
98											
99											
100											

Member Point Loads (BLC 1 : Dead Load)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	MP2	Y	-0.032	%15
2	MP2	Y	-0.032	%85
3	MP2	Y	-0.075	%75
4	MP2	Y	-0.064	%20
5	MP2	Y	0	0
6	S1	Y	-0.022	%50
7	S1	Y	0	0
8	S1	Y	0	0
9	S1	Y	0	0
10	S1	Y	0	0



Company : B+T GROUP
Designer : KH
Job Number : 149449.004.01
Model Name : CT08558-B - NEW BRITAIN 3...

2/14/2022
4:04:47 PM
Checked By : (SUP)

Member Point Loads (BLC 1 : Dead Load) (Continued)

Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
--------------	-----------	---------------------	--------------------



Member Point Loads (BLC 2 : Wind Load (Front))

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	MP2	Z	-0.158	%15
2	MP2	Z	-0.158	%85
3	MP2	Z	-0.07	%75
4	MP2	Z	-0.07	%20
5	MP2	Z	0	0
6	S1	Z	-0.072	%50
7	S1	Z	0	0
8	S1	Z	0	0
9	S1	Z	0	0
10	S1	Z	0	0

Member Point Loads (BLC 3 : Wind Load (Side))

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	MP2	X	-0.064	%15
2	MP2	X	-0.064	%85
3	MP2	X	-0.042	%75
4	MP2	X	-0.037	%20
5	MP2	X	0	0
6	S1	X	-0.042	%50
7	S1	X	0	0
8	S1	X	0	0
9	S1	X	0	0
10	S1	X	0	0

Member Point Loads (BLC 4 : Wind Load (Ice/Front))

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	MP2	Z	-0.035	%15
2	MP2	Z	-0.035	%85
3	MP2	Z	-0.013	%75
4	MP2	Z	-0.013	%20
5	MP2	Z	0	0
6	S1	Z	-0.013	%50
7	S1	Z	0	0
8	S1	Z	0	0
9	S1	Z	0	0
10	S1	Z	0	0

Member Point Loads (BLC 5 : Wind Load (Ice/Side))

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	MP2	X	-0.017	%15
2	MP2	X	-0.017	%85
3	MP2	X	-0.008	%75
4	MP2	X	-0.007	%20
5	MP2	X	0	0
6	S1	X	-0.008	%50
7	S1	X	0	0
8	S1	X	0	0
9	S1	X	0	0
10	S1	X	0	0

Member Point Loads (BLC 6 : Wind Load (Service/Front))

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	MP2	Z	-0.01	%15
2	MP2	Z	-0.01	%85
3	MP2	Z	-0.005	%75
4	MP2	Z	-0.005	%20
5	MP2	Z	0	0
6	S1	Z	-0.005	%50
7	S1	Z	0	0
8	S1	Z	0	0
9	S1	Z	0	0
10	S1	Z	0	0

Member Point Loads (BLC 7 : Wind Load (Service/Side))

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	MP2	X	-0.004	%15
2	MP2	X	-0.004	%85
3	MP2	X	-0.003	%75
4	MP2	X	-0.002	%20
5	MP2	X	0	0
6	S1	X	-0.003	%50
7	S1	X	0	0
8	S1	X	0	0
9	S1	X	0	0
10	S1	X	0	0

Member Point Loads (BLC 8 : Ice Load)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	MP2	Y	-0.164	%15
2	MP2	Y	-0.164	%85
3	MP2	Y	-0.05	%75
4	MP2	Y	-0.049	%20
5	MP2	Y	0	0
6	S1	Y	-0.051	%50
7	S1	Y	0	0
8	S1	Y	0	0
9	S1	Y	0	0
10	S1	Y	0	0

Member Point Loads (BLC 9 : Seismic Load (Front))

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	MP2	Z	-0.011	%15
2	MP2	Z	-0.011	%85
3	MP2	Z	-0.013	%75
4	MP2	Z	-0.011	%20
5	MP2	Z	0	0
6	S1	Z	-0.004	%50
7	S1	Z	0	0
8	S1	Z	0	0
9	S1	Z	0	0
10	S1	Z	0	0

Member Point Loads (BLC 10 : Seismic Load (Side))

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	MP2	X	-0.011	%15
2	MP2	X	-0.011	%85
3	MP2	X	-0.013	%75
4	MP2	X	-0.011	%20
5	MP2	X	0	0
6	S1	X	-0.004	%50
7	S1	X	0	0
8	S1	X	0	0
9	S1	X	0	0
10	S1	X	0	0

Member Point Loads (BLC 15 : Maint LL 1)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	H1	Y	-0.25	%5

Member Point Loads (BLC 16 : Maint LL 2)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	H1	Y	-0.25	%95

Member Point Loads (BLC 17 : Maint LL 3)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	S1	Y	-0.25	%95

Node Loads and Enforced Displacements (BLC 11 : Live Load a)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s ² /ft, k*s ² *ft)]
1	N9	L	Y	-0.5

Node Loads and Enforced Displacements (BLC 12 : Live Load b)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s ² /ft, k*s ² *ft)]
1	N13	L	Y	-0.5

Node Loads and Enforced Displacements (BLC 13 : Live Load c)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s ² /ft, k*s ² *ft)]
1	N17	L	Y	-0.5

Member Distributed Loads (BLC 2 : Wind Load (Front))

	Member Label	Direction	Start Magnitude [k/ft, F, psf, k-ft/ft]	End Magnitude [k/ft, F, psf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	H1	Z	-0.012	-0.012	0	%100
2	MP1	Z	-0.01	-0.01	0	%100
3	MP2	Z	-0.01	-0.01	0	%100
4	MP3	Z	-0.01	-0.01	0	%100
5	P1	Z	-0.009	-0.009	0	%100
6	S1	Z	-0.017	-0.017	0	%100

Member Distributed Loads (BLC 3 : Wind Load (Side))

Member Label	Direction	Start Magnitude [k/ft, F, psf, k-ft/ft]	End Magnitude [k/ft, F, psf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	H1	X	-0.012	-0.012	0 %100
2	MP1	X	-0.01	-0.01	0 %100
3	MP2	X	-0.01	-0.01	0 %100
4	MP3	X	-0.01	-0.01	0 %100
5	P1	X	-0.009	-0.009	0 %100
6	S1	X	-0.017	-0.017	0 %100

Member Distributed Loads (BLC 4 : Wind Load (Ice/Front))

Member Label	Direction	Start Magnitude [k/ft, F, psf, k-ft/ft]	End Magnitude [k/ft, F, psf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	H1	Z	-0.002	-0.002	0 %100
2	MP1	Z	-0.002	-0.002	0 %100
3	MP2	Z	-0.002	-0.002	0 %100
4	MP3	Z	-0.002	-0.002	0 %100
5	P1	Z	-0.003	-0.003	0 %100
6	S1	Z	-0.006	-0.006	0 %100

Member Distributed Loads (BLC 5 : Wind Load (Ice/Side))

Member Label	Direction	Start Magnitude [k/ft, F, psf, k-ft/ft]	End Magnitude [k/ft, F, psf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	H1	X	-0.002	-0.002	0 %100
2	MP1	X	-0.002	-0.002	0 %100
3	MP2	X	-0.002	-0.002	0 %100
4	MP3	X	-0.002	-0.002	0 %100
5	P1	X	-0.003	-0.003	0 %100
6	S1	X	-0.006	-0.006	0 %100

Member Distributed Loads (BLC 6 : Wind Load (Service/Front))

Member Label	Direction	Start Magnitude [k/ft, F, psf, k-ft/ft]	End Magnitude [k/ft, F, psf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	H1	Z	-0.0004	-0.0004	0 %100
2	MP1	Z	-0.0003	-0.0003	0 %100
3	MP2	Z	-0.0003	-0.0003	0 %100
4	MP3	Z	-0.0003	-0.0003	0 %100
5	P1	Z	-0.0005	-0.0005	0 %100
6	S1	Z	-0.001	-0.001	0 %100

Member Distributed Loads (BLC 7 : Wind Load (Service/Side))

Member Label	Direction	Start Magnitude [k/ft, F, psf, k-ft/ft]	End Magnitude [k/ft, F, psf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	H1	X	-0.0004	-0.0004	0 %100
2	MP1	X	-0.0003	-0.0003	0 %100
3	MP2	X	-0.0003	-0.0003	0 %100
4	MP3	X	-0.0003	-0.0003	0 %100
5	P1	X	-0.0005	-0.0005	0 %100
6	S1	X	-0.001	-0.001	0 %100

Member Distributed Loads (BLC 8 : Ice Load)

Member Label	Direction	Start Magnitude [k/ft, F, psf, k-ft/ft]	End Magnitude [k/ft, F, psf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	H1	Y	-0.01	-0.01	0 %100
2	MP1	Y	-0.009	-0.009	0 %100
3	MP2	Y	-0.009	-0.009	0 %100
4	MP3	Y	-0.009	-0.009	0 %100

Member Distributed Loads (BLC 8 : Ice Load) (Continued)

Member Label	Direction	Start Magnitude [k/ft, F, psf, k-ft/ft]	End Magnitude [k/ft, F, psf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
5 P1	Y	-0.012	-0.012	0	%100
6 S1	Y	-0.015	-0.015	0	%100

Member Distributed Loads (BLC 9 : Seismic Load (Front))

Member Label	Direction	Start Magnitude [k/ft, F, psf, k-ft/ft]	End Magnitude [k/ft, F, psf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1 H1	Z	-0.001	-0.001	0	%100
2 MP1	Z	-0.001	-0.001	0	%100
3 MP2	Z	-0.001	-0.001	0	%100
4 MP3	Z	-0.001	-0.001	0	%100
5 P1	Z	-0.002	-0.002	0	%100
6 S1	Z	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 10 : Seismic Load (Side))

Member Label	Direction	Start Magnitude [k/ft, F, psf, k-ft/ft]	End Magnitude [k/ft, F, psf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1 H1	X	-0.001	-0.001	0	%100
2 MP1	X	-0.001	-0.001	0	%100
3 MP2	X	-0.001	-0.001	0	%100
4 MP3	X	-0.001	-0.001	0	%100
5 P1	X	-0.002	-0.002	0	%100
6 S1	X	-0.002	-0.002	0	%100

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

Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	H1	HSS3.500X0.216	0.325	3.5	47	0.034	3.5	48	60.826	86.112	7.555	7.555	1.595	H1-1b
2	MP1	HSS2.875X0.203	0.018	4	8	0.002	4	8	33.355	65.826	4.727	4.727	1.316	H1-1b
3	MP2	HSS2.875X0.203	0.148	4	8	0.014	4	8	33.355	65.826	4.727	4.727	1	H1-1b
4	MP3	HSS2.875X0.203	0.018	4	8	0.002	4	8	33.355	65.826	4.727	4.727	1.316	H1-1b
5	P1	PIPE 4.0	0	0.75	14	0	0.75	8	92.571	93.24	10.631	10.631	1	H1-1b*
6	S1	HSS4X4X4	0.312	0	23	0.198	0	y 72	135.041	139.518	16.181	16.181	1.479	H1-1b

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	R1	max	0.638	5	1.368	20	0.918	2	-1.792	2	2.107	5	2.25	71
2		min	-0.638	11	0.545	2	-0.918	8	-4.597	20	-2.107	11	-2.25	41
3	Totals:	max	0.638	5	1.368	20	0.918	2						
4		min	-0.638	11	0.545	2	-0.918	8						

APPENDIX B

(Additional Calculations)

PROJECT	149449.004.01 - CT08558-B, NEW BRITAIN CT		
SUBJECT	T-ARM Mount Analysis		
DATE	02/14/22	PAGE	OF



KH

Tower Type	:	Monopole	
Ground Elevation	Z_g	: 313.5 ft	[ASCE7 Hazard Tool]
Tower Height	:	119.0 ft	
Mount Elevation	:	78.0 ft	
Antenna Elevation	:	78.0 ft	
Crest Height	:	0 ft	
Risk Category	:	II	[Table 2-1]
Exposure Category	:	C	[Sec. 2.6.5.1.2]
Topography Category	:	1	[Sec. 2.6.6.2]
Wind Velocity	V	: 117 mph	[ASCE7 Hazard Tool]
Ice wind Velocity	V_i	: 50 mph	[ASCE7 Hazard Tool]
Service Velocity	V_s	: 30 mph	[ASCE7 Hazard Tool]
Base Ice thickness	t_i	: 1.50 in	[ASCE7 Hazard Tool]
Seismic Design Cat.	:	B	[ASCE7 Hazard Tool]
	S_S	: 0.19	
	S_1	: 0.06	
	S_{DS}	: 0.21	
	S_{D1}	: 0.09	
Gust Factor	G_H	: 1.00	[Sec. 16.6]
Pressure Coefficient	K_z	: 1.20	[Sec. 2.6.5.2]
Topography Factor	K_{zt}	: 1.00	[Sec. 2.6.6]
Elevation Factor	K_e	: 0.99	[Sec. 2.6.8]
Directionality Factor	K_d	: 0.95	[Sec. 16.6]
Shielding Factor	K_a	: 0.90	[Sec. 16.6]
Design Ice Thickness	t_{iz}	: 1.63 in	[Sec. 2.6.10]
Importance Factor	I_e	: 1	[Table 2-3]
Response Coefficient	C_s	: 0.10	[Sec. 2.7.7.1]
Amplification	A_s	: 1.62	[Sec. 16.7]
	q_z	: 39.54 psf	

PROJECT	149449.004.01 - CT08558-B, NEW BRITAIN CT			
SUBJECT	T-ARM Mount Analysis			
DATE	02/14/22	PAGE	1	OF 1



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

B+T GRP

KH

[REF: AISC 360-05]

Reactions at Bolted Connection

Tension	:	0.918	k
Vertical Shear	:	1.368	k
Horizontal Shear	:	0.638	k
Torsion	:	2.25	k.ft
Moment from Horizontal Forces	:	2.107	k.ft
Moment from Vertical Forces	:	-1.792	k.ft

Bolt Parameters

Bolt Grade	:	A325	
Bolt Diameter	:	0.625	in
Nominal Bolt Area	:	0.307	in ²
Bolt spacing, Horizontal	:	5	in
Bolt spacing, Vertical	:	5	in
Bolt edge distance, plate height	:	1.5	in
Bolt edge distance, plate width	:	1.5	in
Total Number of Bolts	:	4	bolts

Summary of Forces

Shear Resultant Force	:	1.51	k
Force from Horz. Moment	:	4.49	k
Force from Vert. Moment	:	-3.82	k
Shear Load / Bolt	:	0.38	k
Tension Load / Bolt	:	0.23	k
Resultant from Moments / Bolt	:	2.95	k

Bolt Checks

Nominal Tensile Stress, F_{nt}	:	90.00	ksi	[AISC Table J3.2]
Available Tensile Stress, ϕR_{nt}	:	20.72	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	15.3%		OKAY
Nominal Shear Stress, F_{nv}	:	48.00	ksi	[AISC Table J3.2]
Available Shear Stress, ϕR_{nv}	:	11.05	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	5.5%		OKAY
Unity Check, Combined	:	20.8%		OKAY
Available Bearing Strength, ϕR_n	:	34.66	k/bolt	
Unity Check, Bolt Bearing	:	1.1%		OKAY

PROJECT	149449.004.01 - CT08558-B, NEW BRITAIN CT			
SUBJECT	T-ARM Mount Analysis			
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[REF: AISC 360-05]

Connecting Member Parameters

Plate Yield Strength, F_y	:	36.00	ksi	[AISC Table 2-5]
Plate Tensile Strength, F_u	:	58.00	ksi	[AISC Table 2-5]
Plate Height	:	8.00	in	
Plate Width	:	8.00	in	
Plate Thickness	:	0.50	in	
Edge Distance	:	1.06	in	
Gross Tension Area, A_{gt}	:	4.00	in ²	
Gross Shear Area, A_{gv}	:	0.75	in ²	
Net Area for tension, A_{nt}	:	3.66	in ²	
Net Area for shear, A_{nt}	:	2.50	in ²	

Plate Check

Available Tensile Yield	:	129.60	k	[Eq. J4-1]
Available Tensile Rupture	:	159.05	k	[Eq. J4-2]
Unity Check, Plate Tension	:	2.5%		OKAY
Available Shear Yield	:	16.20	k	[Eq. J4-3]
Available Shear Rupture	:	87.00	k	[Eq. J4-4]
Unity Check, Plate Shear	:	9.3%		OKAY
Available Block Shear, ϕR_n	:	66.53	k	[Eq. J4-5]
Unity Check, Block Shear	:	2.3%		OKAY



DISH Wireless L.L.C. SITE ID:

BOBDL00123A

DISH Wireless L.L.C. SITE ADDRESS:

**723 FARMINGTON AVE
NEW BRITAIN, CT 06051**

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:	
<ul style="list-style-type: none"> • INSTALL (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR) • INSTALL (1) PROPOSED ANTENNA T-ARM MOUNT • INSTALL PROPOSED JUMPERS • INSTALL (6) PROPOSED RRUs (2 PER SECTOR) • INSTALL (1) PROPOSED OVER VOLTAGE PROTECTION DEVICE (OVP) • INSTALL (1) PROPOSED HYBRID CABLE 	
GROUND SCOPE OF WORK:	
<ul style="list-style-type: none"> • INSTALL (1) PROPOSED METAL PLATFORM • INSTALL (1) PROPOSED ICE BRIDGE • INSTALL (1) PROPOSED PPC CABINET • INSTALL (1) PROPOSED EQUIPMENT CABINET • INSTALL (1) PROPOSED POWER CONDUIT • INSTALL (1) PROPOSED TELCO CONDUIT • INSTALL (1) PROPOSED TELCO-FIBER BOX • INSTALL (1) PROPOSED GPS UNIT • INSTALL (1) PROPOSED SAFETY SWITCH (IF REQUIRED) • INSTALL (1) PROPOSED FIBER NID (IF REQUIRED) • INSTALL (1) PROPOSED METER SOCKET 	

SITE INFORMATION	PROJECT DIRECTORY
PROPERTY OWNER: FALCONS ACADEMIC + ATHLETIC ASSOC INC ADDRESS: 201 WASHINGTON ST NEW BRITAIN, CT 06051	APPLICANT: DISH Wireless L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
TOWER TYPE: MONOPOLE	TOWER OWNER: SBA COMMUNICATAIONS CORP. 8051 CONGRESS AVENUE BOCA RATON, FL 33487 (800) 487-7483
TOWER CO SITE ID: CT08558-B	SITE DESIGNER: B+T GROUP 1717 S. BOULDER AVE, SUITE 300 TULSA, OK 74119 (918) 587-4630
TOWER APP NUMBER: 169643	SITE ACQUISITION: RYAN LYNCH RYAN.LYNCH@DISH.COM
COUNTY: HARTFORD	CONST. MANAGER: JAVIER SOTO JAVIER.SOTO@DISH.COM
LATITUDE (NAD 83): 41° 41' 54.29" N 41.69841356 N	RF ENGINEER: BOSSENER CHARLES BOSSENER.CHARLES@DISH.COM
LONGITUDE (NAD 83): 72° 47' 9.4" W 72.78594411 W	
ZONING JURISDICTION: CITY OF HARTFORD	
ZONING DISTRICT: T	
PARCEL NUMBER: 09003089-C3A1	
OCCUPANCY GROUP: U	
CONSTRUCTION TYPE: II-B	
POWER COMPANY: CONNECTICUT LIGHT & POWER CO	
TELEPHONE COMPANY: XFINITY	



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



8051 CONGRESS AVENUE
BOCA RATON, FL 33487



2/7/22

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

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

DRAWN BY: BLJ CHECKED BY: BLJ APPROVED BY: BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	9/14/21	ISSUED FOR REVIEW
0	10/19/21	ISSUED FOR CONSTRUCTION
1	2/7/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
149449.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

**BOBDL00123A
723 FARMINGTON AVE
NEW BRITAIN, CT 06051**

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

SHEET INDEX

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

SITE PHOTO



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

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

GENERAL NOTES

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

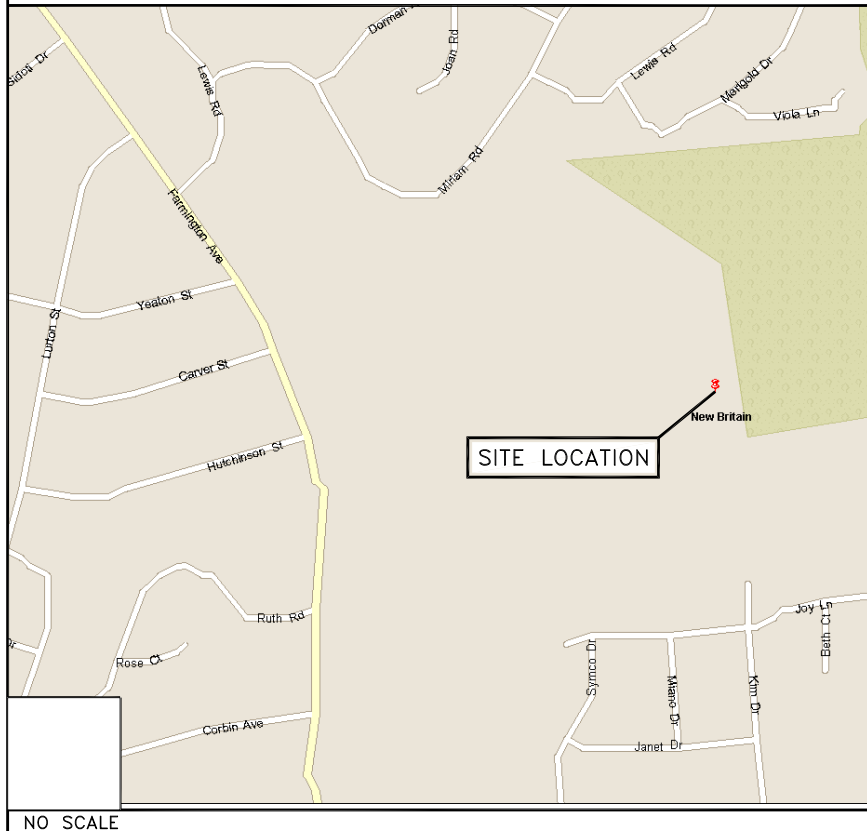
11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED

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

DIRECTIONS

DIRECTIONS FROM ROBERTSON AIRPORT:
HEAD NORTH TURN LEFT ONTO JOHNSON AVE TURN RIGHT AT THE 1ST CROSS STREET ONTO PERRON RD TURN RIGHT ONTO NORTHWEST DR TAKE HYDE RD TO US-6 E IN FARMINGTON TURN LEFT ONTO JOHNSON AVE TURN RIGHT ONTO HYDE RD CONTINUE ON US-6 E TO NEW BRITAIN TURN RIGHT ONTO US-6 E TURN RIGHT ONTO FIENEMANN RD CONTINUE ONTO FARMINGTON AVE TURN LEFT ARRIVE AT BOBDL00123A

VICINITY MAP

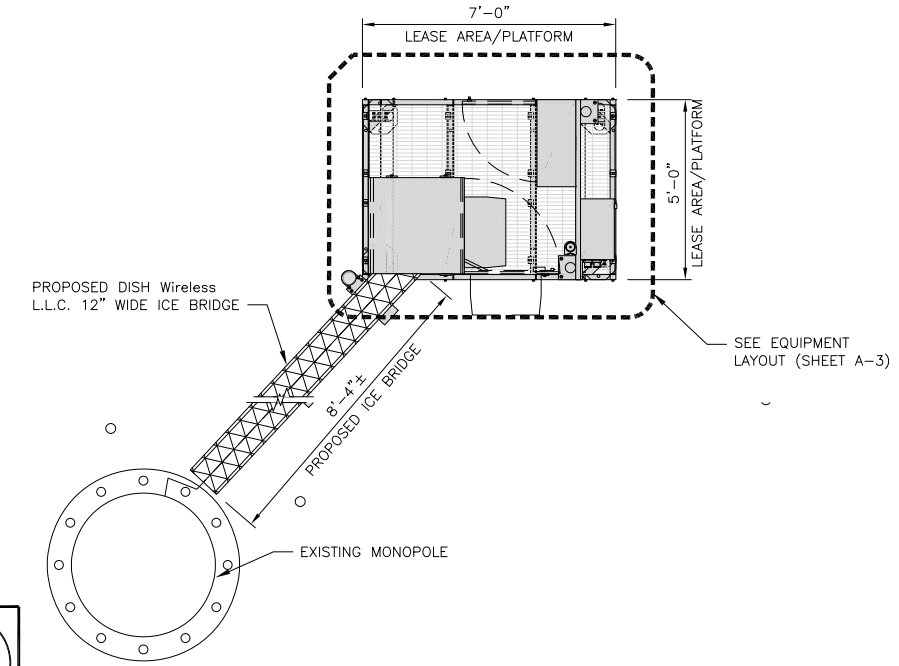
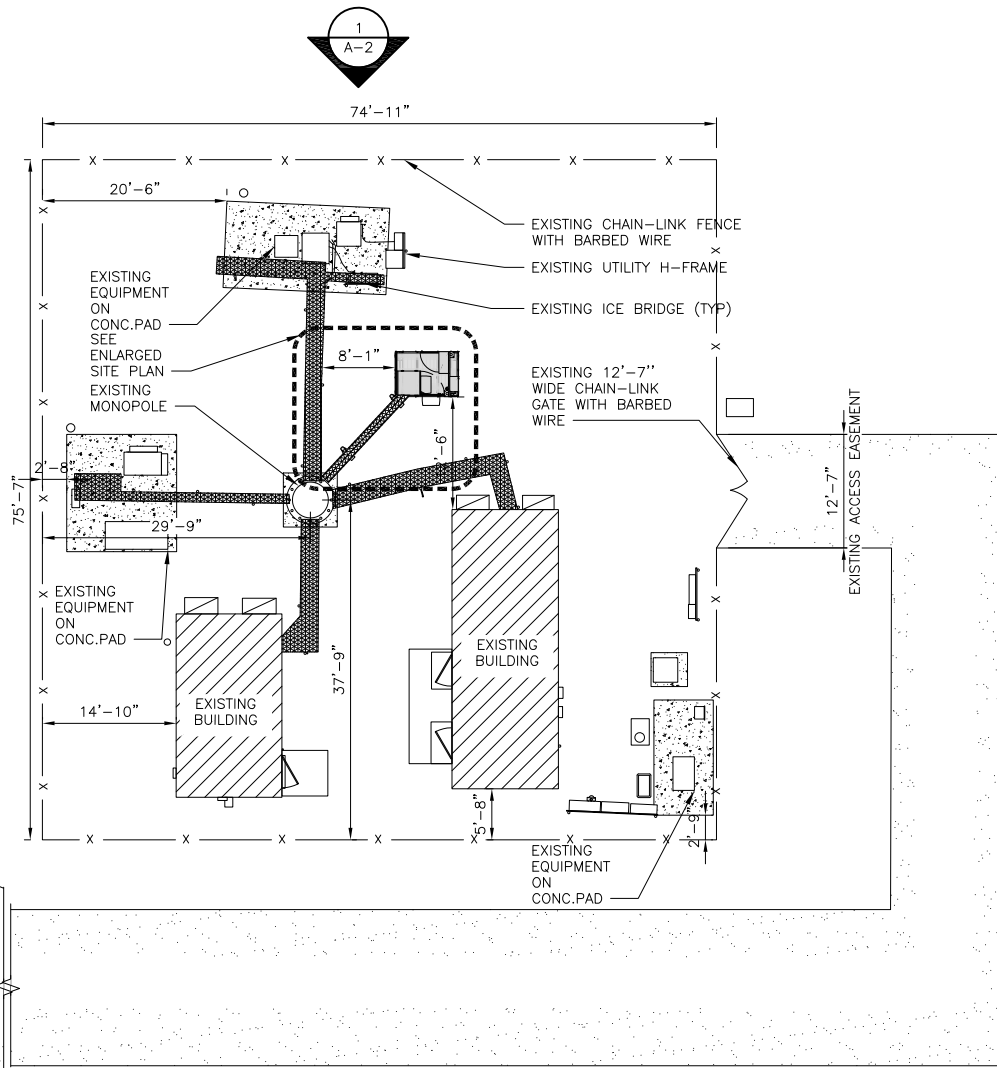


NOTES

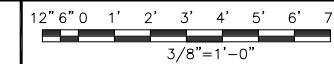
1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.

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.

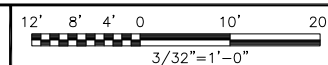


ENLARGED SITE PLAN



2

OVERALL SITE PLAN



1

NOT USED

3



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



2/7/22

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

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BLJ BLJ BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	9/14/21	ISSUED FOR REVIEW
0	10/19/21	ISSUED FOR CONSTRUCTION
1	2/7/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
149449.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00123A
723 FARMINGTON AVE
NEW BRITAIN, CT 06051

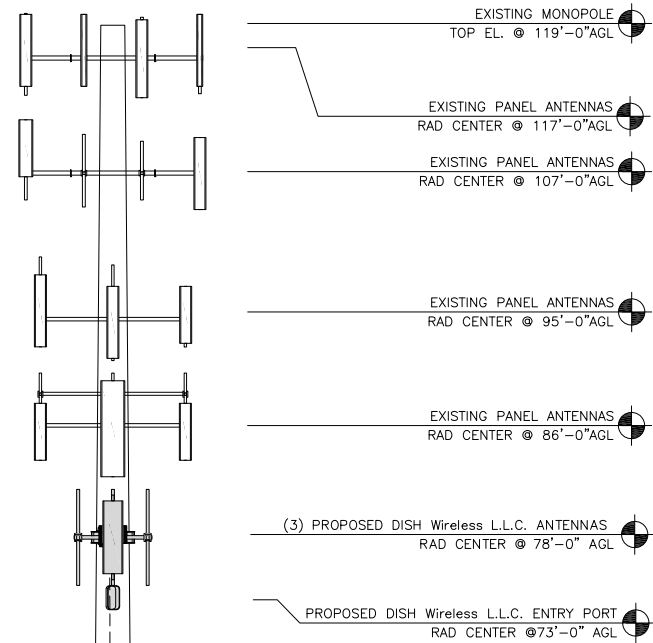
SHEET TITLE
OVERALL AND ENLARGED
SITE PLAN

SHEET NUMBER

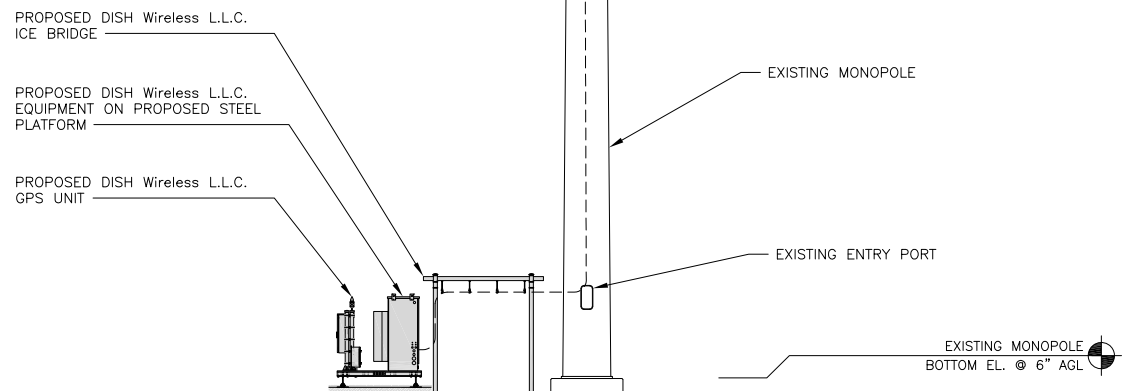
A-1

NOTES

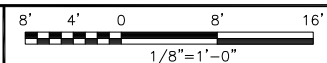
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



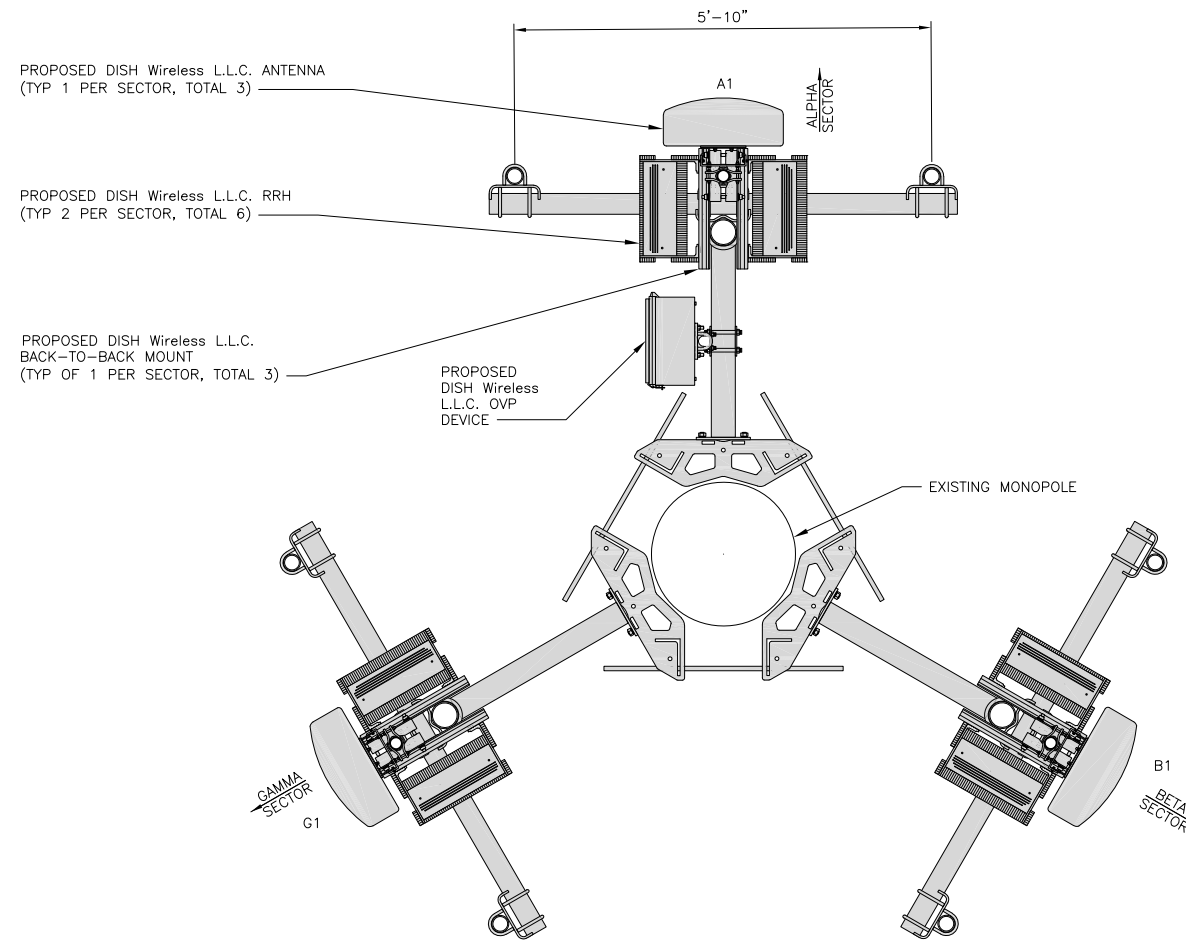
(1) PROPOSED DISH Wireless L.L.C. HYBRID CABLE ROUTED INSIDE POLE



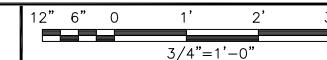
PROPOSED NORTH ELEVATION



1



ANTENNA LAYOUT



2

SECTOR	POSITION	ANTENNA					TRANSMISSION CABLE	
		EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECHNOLOGY	SIZE (HxW)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	JMA WIRELESS-MX08FR0665-21	5G	72" x 20"	0°	78'-0"	(1) HIGH-CAPACITY HYBRID CABLE (109' LONG)
BETA	B1	PROPOSED	JMA WIRELESS-MX08FR0665-21	5G	72" x 20"	120°	78'-0"	
GAMMA	C1	PROPOSED	JMA WIRELESS-MX08FR0665-21	5G	72" x 20"	240°	78'-0"	

SECTOR	POSITION	RRH		NOTES
		MANUFACTURER - MODEL NUMBER	TECHNOLOGY	
ALPHA	A1	FUJITSU - TA08025-B604	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.
	A1	FUJITSU - TA08025-B605	5G	
BETA	B1	FUJITSU - TA08025-B604	5G	
	B1	FUJITSU - TA08025-B605	5G	
GAMMA	C1	FUJITSU - TA08025-B604	5G	
	C1	FUJITSU - TA08025-B605	5G	

ANTENNA SCHEDULE

NO SCALE

3



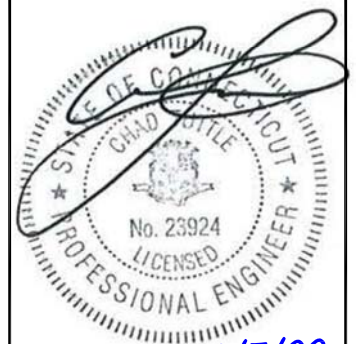
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



8051 CONGRESS AVENUE
BOCA RATON, FL 33487



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



2/7/22

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Expires 2/10/22

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RFDS REV #: 0

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DISH Wireless L.L.C. PROJECT INFORMATION
BOBDL00123A
723 FARMINGTON AVE
NEW BRITAIN, CT 06051

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



5701 SOUTH SANTA FE DRIVE
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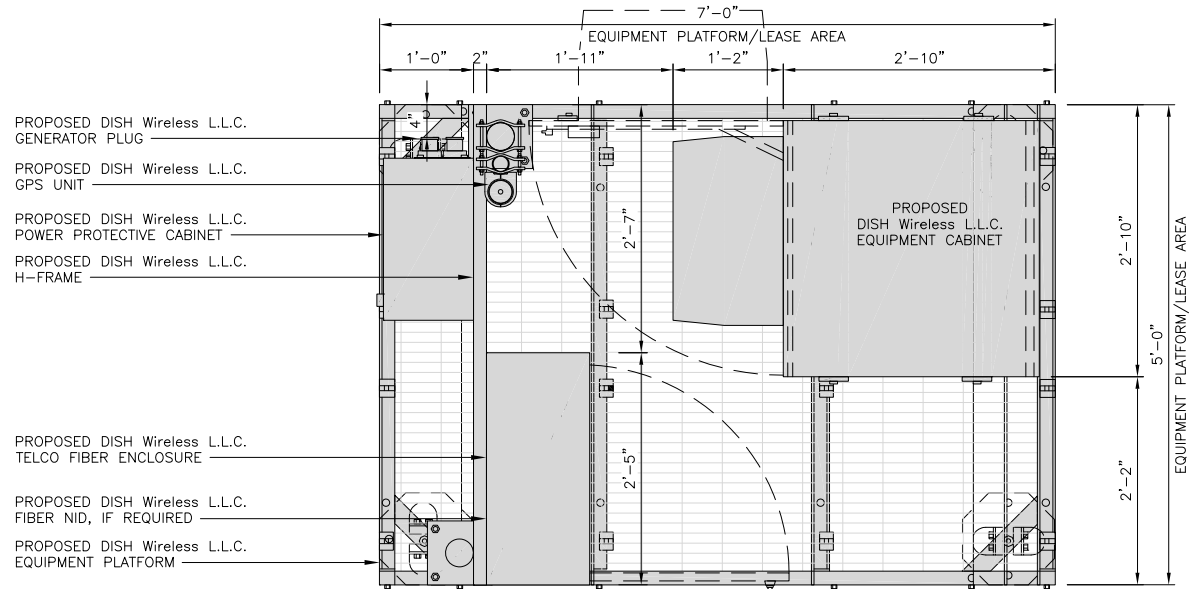
SHEET TITLE
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER

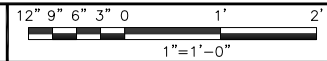
A-3

NOTES

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



PLATFORM EQUIPMENT PLAN

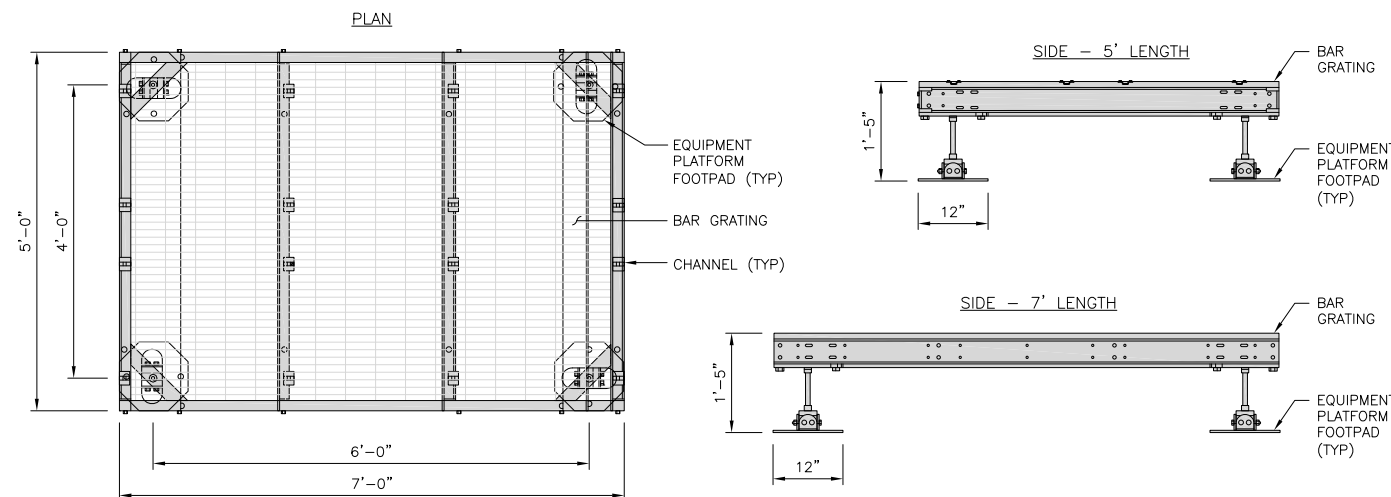


1

**COMMSCOPE MTC4045LP
5X7 PLATFORM**

DIMENSIONS (HxWxD)	16"x84"x60"
TOTAL WEIGHT	423 LBS

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



PLATFORM DETAIL

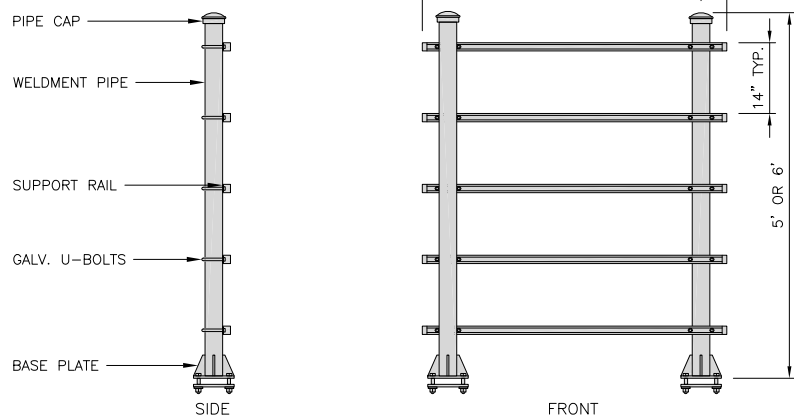
NO SCALE

2

**COMMSCOPE MTC4045HFLD
H-FRAME**

UNISTRUT/SUPPORT RAILS QTY	5
WEIGHT	59.74 lbs

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



H-FRAME DETAIL

NO SCALE

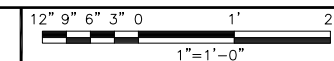
3

NOT USED

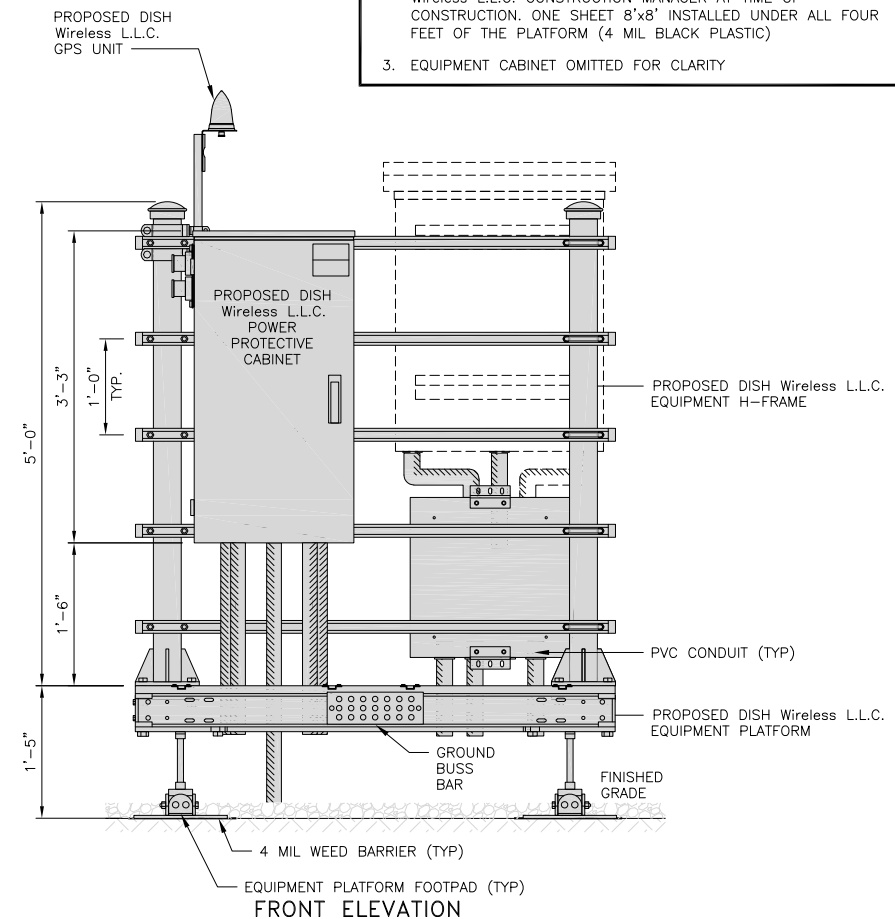
NO SCALE

4

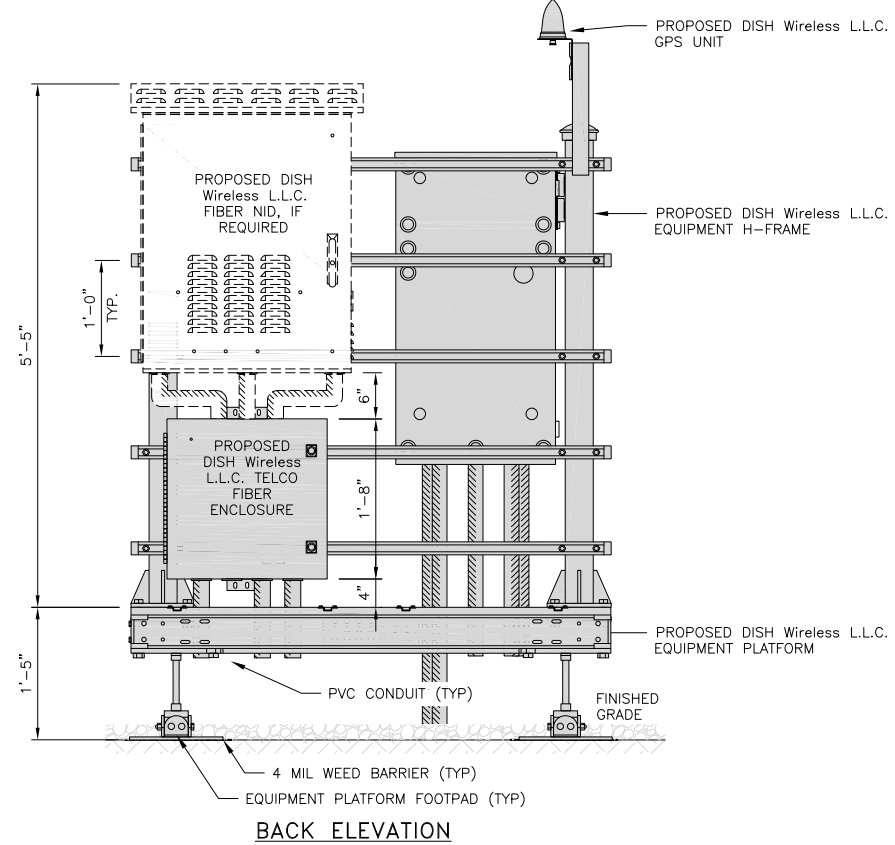
H-FRAME EQUIPMENT ELEVATION



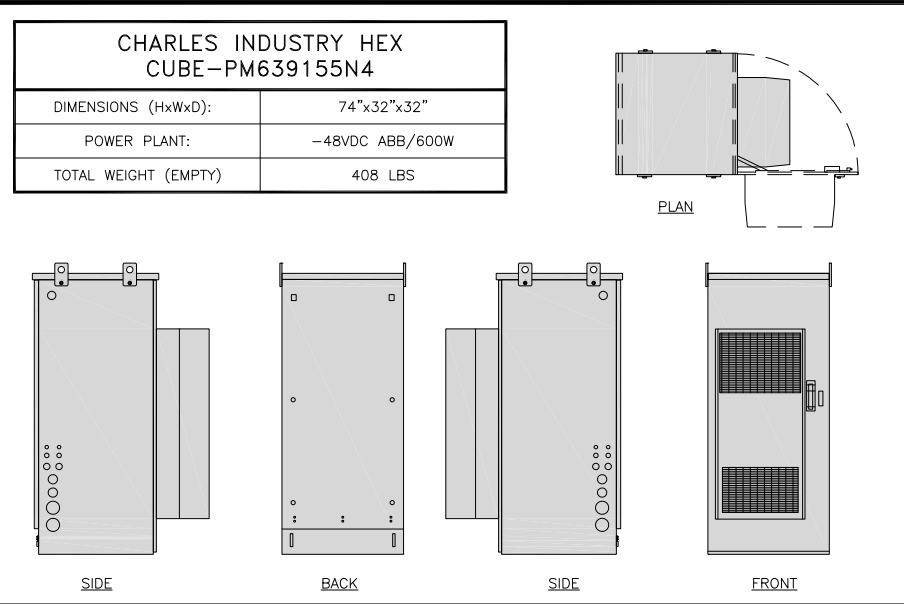
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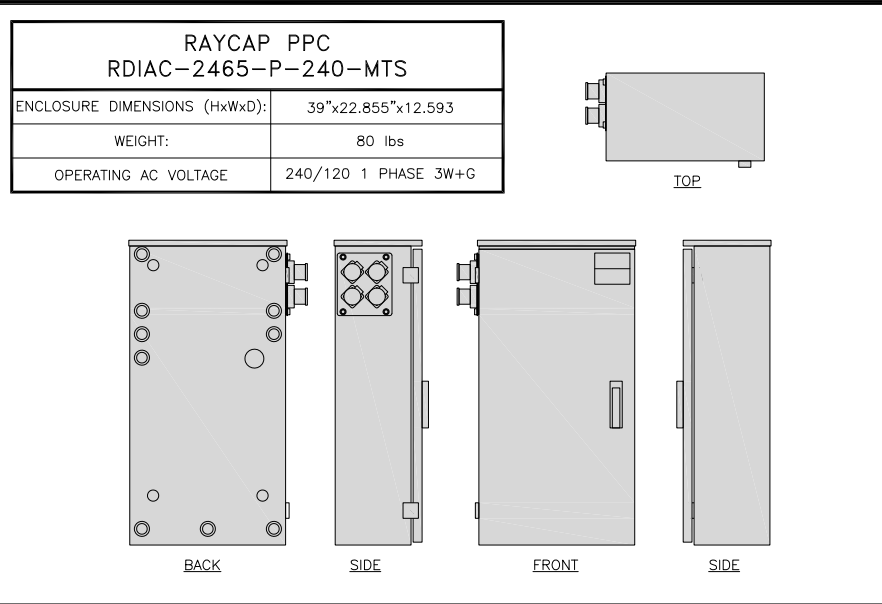
FRONT ELEVATION



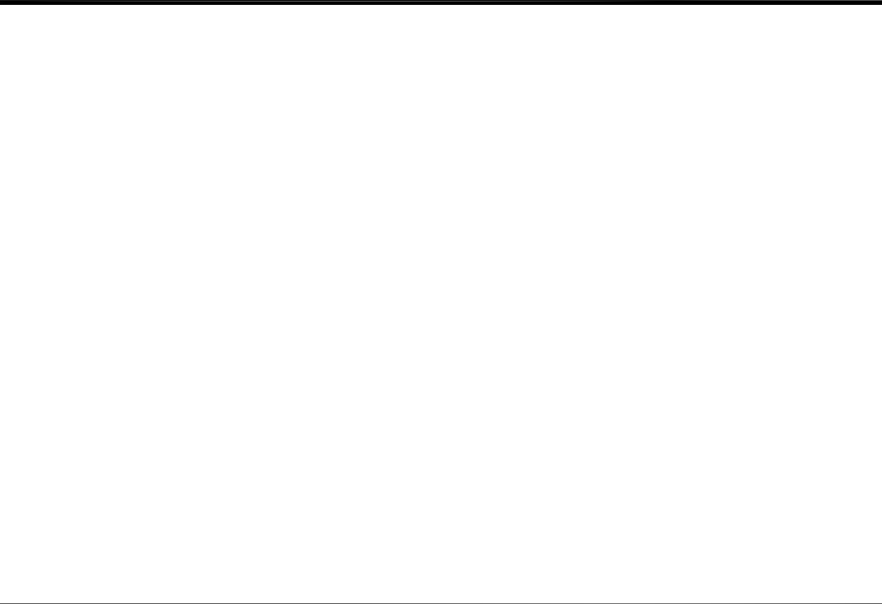
BACK ELEVATION



CABINET DETAIL NO SCALE **1**



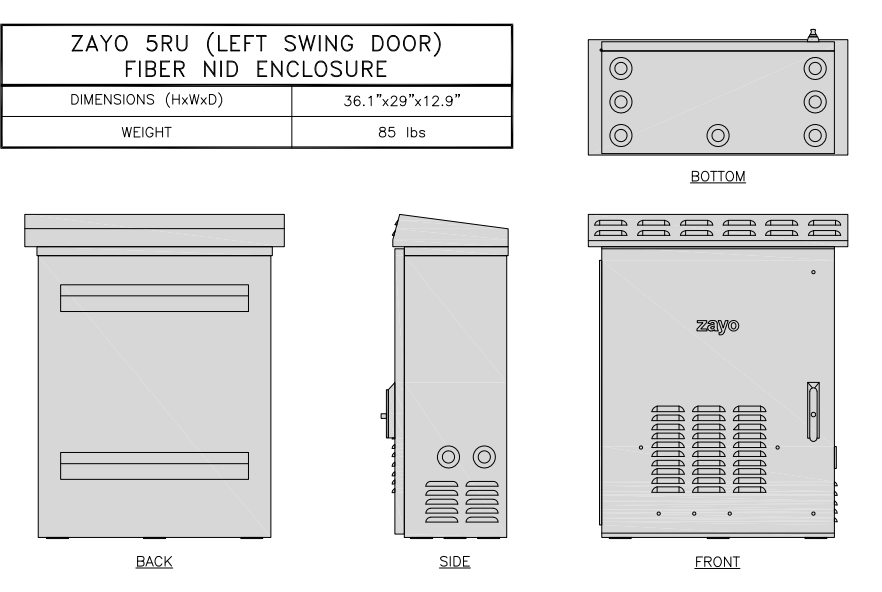
POWER PROTECTION CABINET (PPC) DETAIL NO SCALE **2**



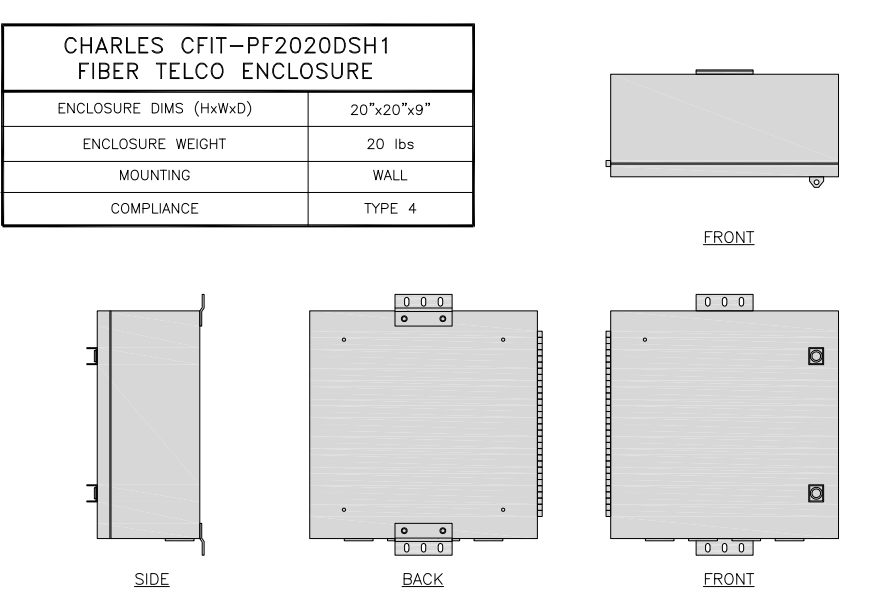
NOT USED NO SCALE **3**



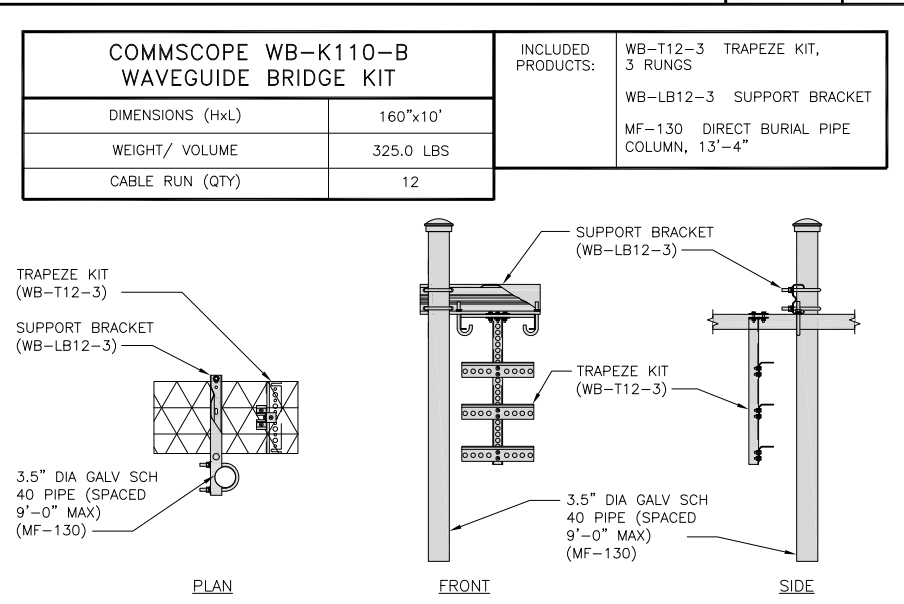
NOT USED NO SCALE **4**



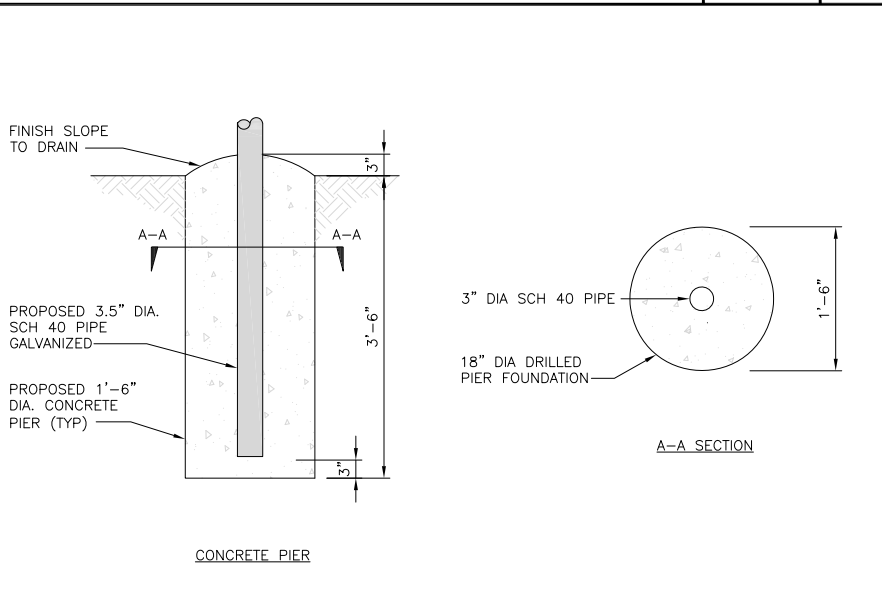
FIBER NID ENCLOSURE DETAIL NO SCALE **5**



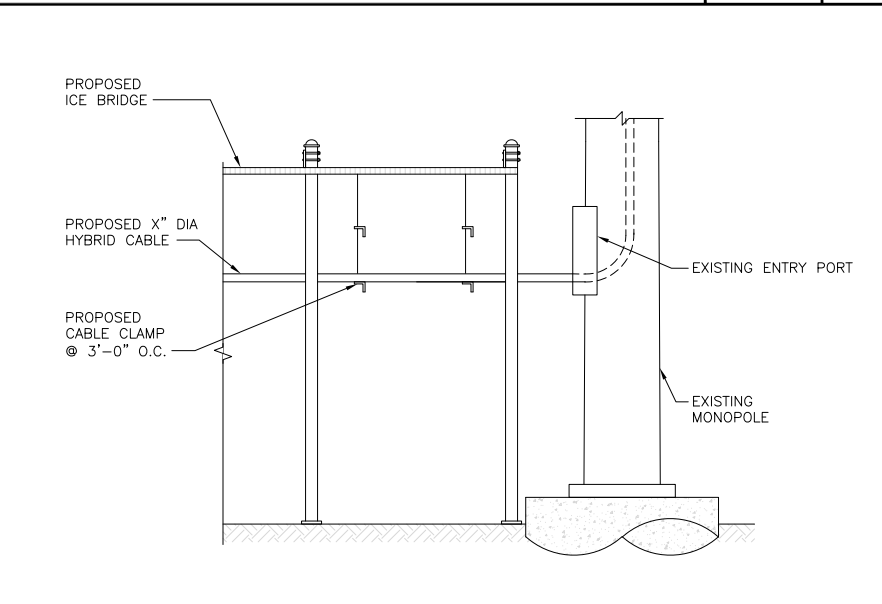
FIBER TELCO ENCLOSURE DETAIL NO SCALE **6**



ICE BRIDGE DETAIL NO SCALE **7**



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL NO SCALE **8**



HYBRID CABLE RUN NO SCALE **9**

dish wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

SBA

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BOCA RATON, FL 33487

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Expires 2/10/22

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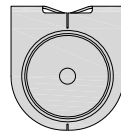
DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00123A
723 FARMINGTON AVE
NEW BRITAIN, CT 06051

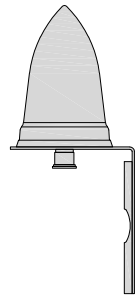
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

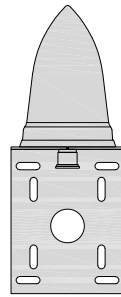
PCTEL GPSGL-TMG-SPI-40NCB	
DIMENSIONS (DIAxH) MM/INCH	81x184mm 3.2"x7.25"
WEIGHT W/ACCESSORIES	075 lbs
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1590 ± 30MHz



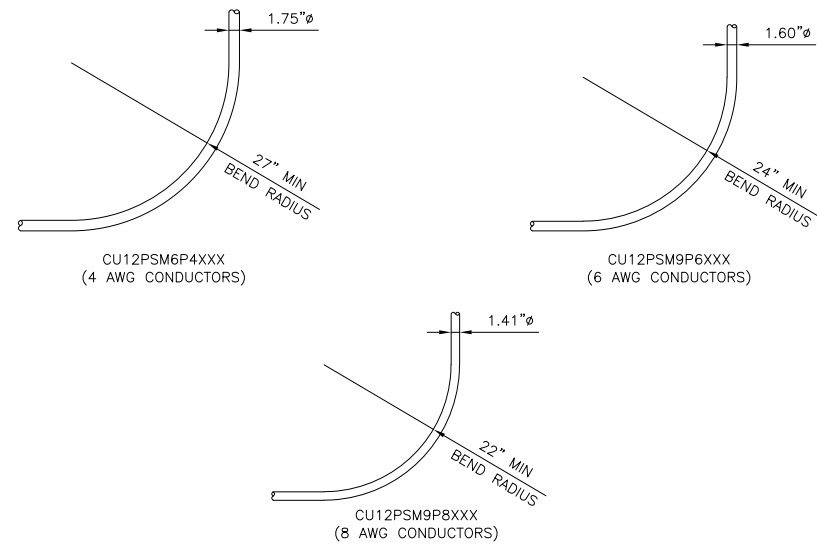
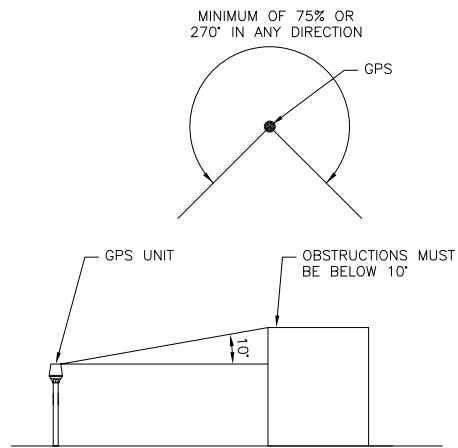
TOP



BACK



SIDE



GPS DETAIL

NO SCALE

1

GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE

2

CABLES UNLIMITED HYBRID CABLE
MINIMUM BEND RADIUSES

NO SCALE

3

NOT USED

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9

dish
wireless.

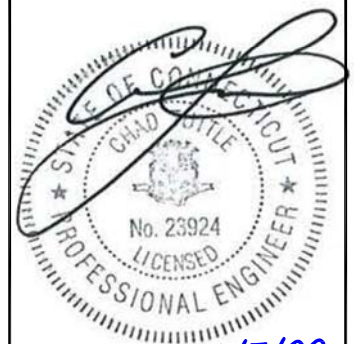
5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



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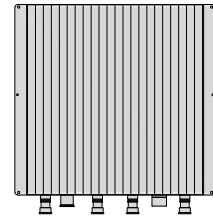
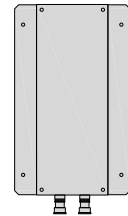
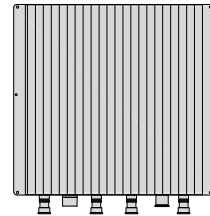
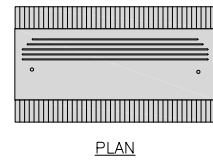
DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00123A
723 FARMINGTON AVE
NEW BRITAIN, CT 06051

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER

A-5

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

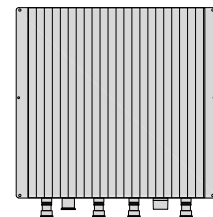
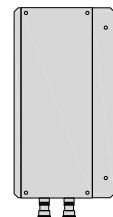
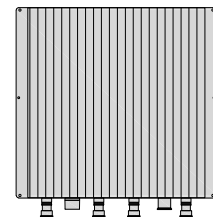
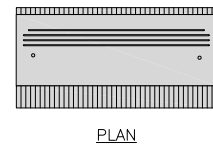


BACK

SIDE

FRONT

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



BACK

SIDE

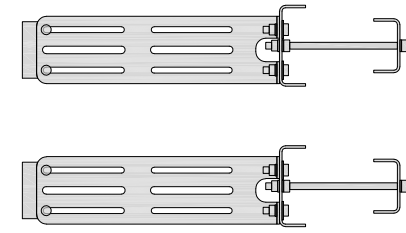
FRONT

COMMSCOPE RR-FA2 LARGE STABILIZER	
DIMENSIONS (HxWxD)	16.4"x8.5"x18"
WEIGHT	39.2 lbs

DESIGN NOTES:
MOUNT WILL FIT LEGS UP TO:
- 5.6" ROUND
- 6.0" 60° ANGLE
- 4.5" 90° ANGLE



PLAN



SIDE

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

RRH DETAIL

NO SCALE

1

RRH DETAIL

NO SCALE

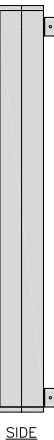
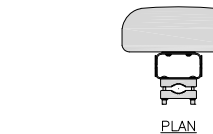
2

RRH MOUNT DETAIL

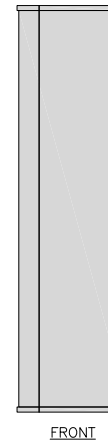
NO SCALE

3

JMA MX08FRO665-21	
DIMENSIONS (HxWxD)	72"x20.0"x8.0"
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE
WEIGHT	64.5 lbs
WEIGHT WITH BRACKETS	82.5 lbs



SIDE



FRONT

ANTENNA DETAIL

NO SCALE

4

NOT USED

NO SCALE

5

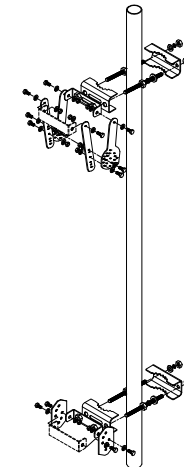
ANTENNA BRACKET DETAIL

NO SCALE

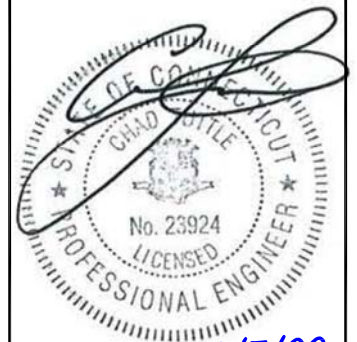
6

JMA ANTENNA MOUNT BRACKET #91900318	
TOTAL WEIGHT (WITH BRACKETS)	18 lbs (8.18 Kg)
POLE DIAMETER RANGE	2.5" TO 4.5"

NOTE:
KIT #91900318: TOP AND BOTTOM BRACKETS
FOR 4-, 6-, AND 8-FOOT ANTENNAS
ANTENNA BRACKET NOT PART OF KIT



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



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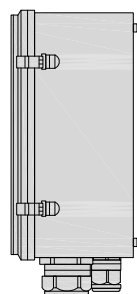
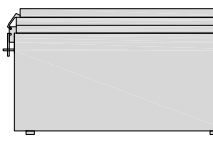
BOBDL00123A
723 FARMINGTON AVE
NEW BRITAIN, CT 06051

SHEET TITLE
EQUIPMENT DETAILS

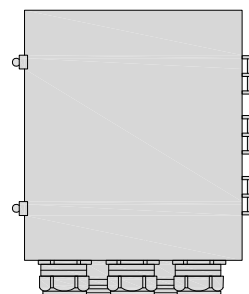
SHEET NUMBER

A-6

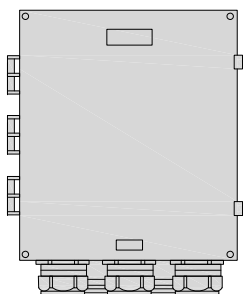
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



SIDE



BACK



FRONT

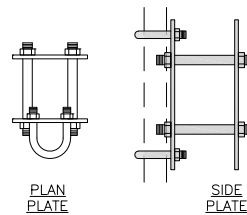
SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

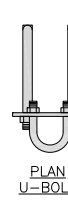
7

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

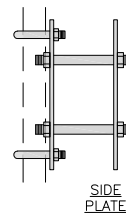
NOTE:
OR DISH Wireless L.L.C.
APPROVED EQUIVALENT



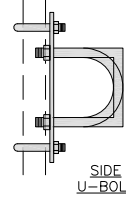
PLAN
U-BOLT



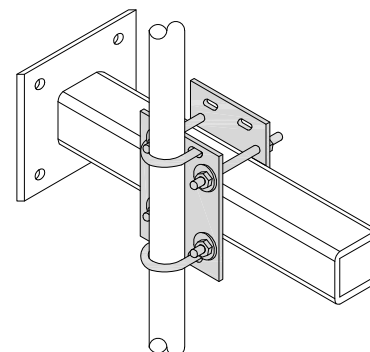
PLAN
U-BOLT



SIDE
U-BOLT



SIDE
U-BOLT



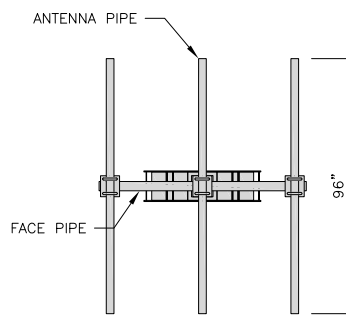
RRH/OVP MOUNT DETAIL

NO SCALE

8

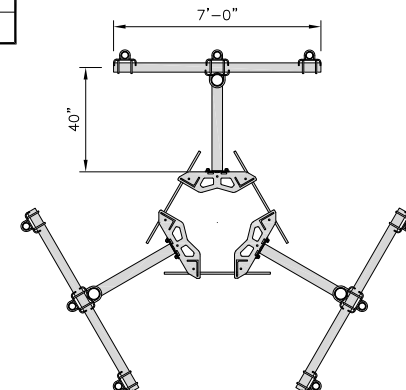
COMMSCOPE MC-K6MHDX-9-96	
FACE WIDTH	7'-0"
WEIGHT	1203.31 lbs
NOTE: 15" TO 50" O.D.	

NOTE:
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APPROVED EQUIVALENT



ANTENNA PIPE

FACE PIPE



T-ARM MOUNT DETAIL

NO SCALE

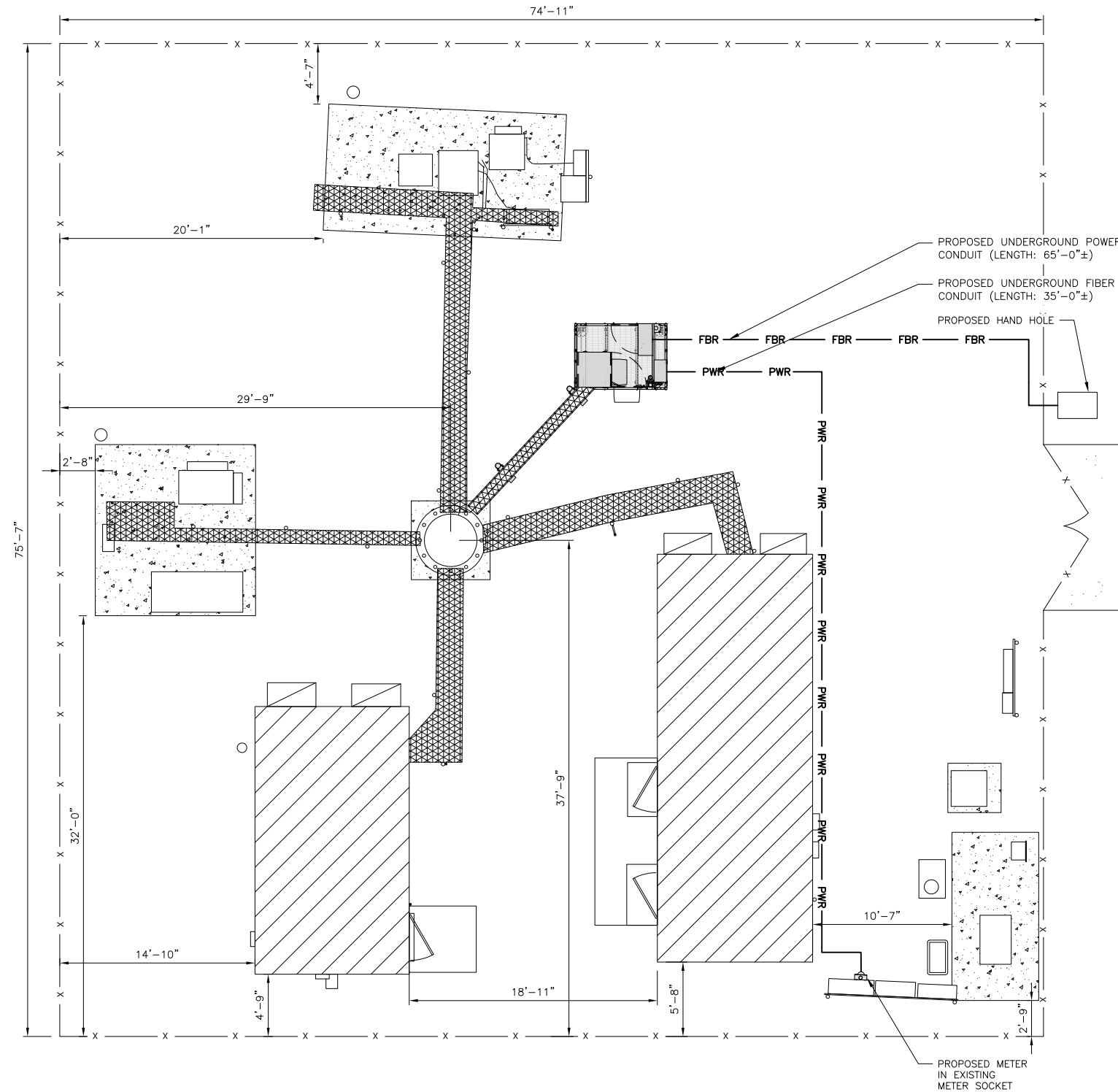
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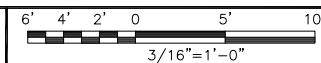
1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.

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
LITTLETON, CO 80120



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2/7/22

B&T ENGINEERING, INC.
PEC.0001564
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BLJ	BLJ	BLJ

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CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
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1	2/7/22	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
149449.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00123A
723 FARMINGTON AVE
NEW BRITAIN, CT 06051

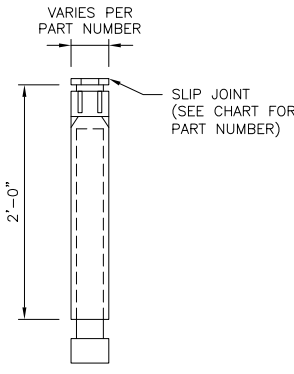
SHEET TITLE
ELECTRICAL/FIBER ROUTE
PLAN AND NOTES

SHEET NUMBER

E-1

CARLON EXPANSION FITTINGS

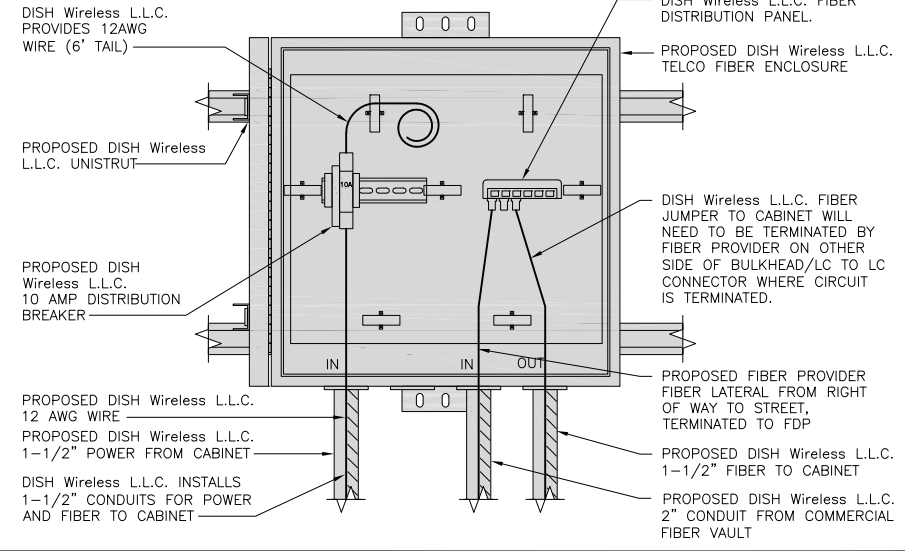
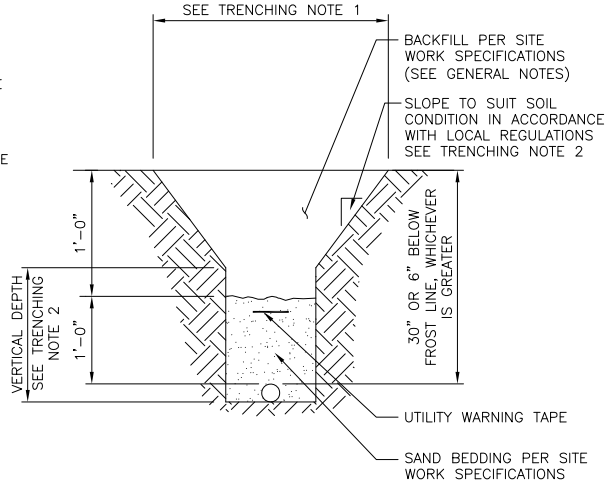
COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"
E945M	E945MX	3 1/2"	5	8"
E945N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



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

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.



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BOBDL00123A
723 FARMINGTON AVE
NEW BRITAIN, CT 06051

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E-2

EXPANSION JOINT DETAIL

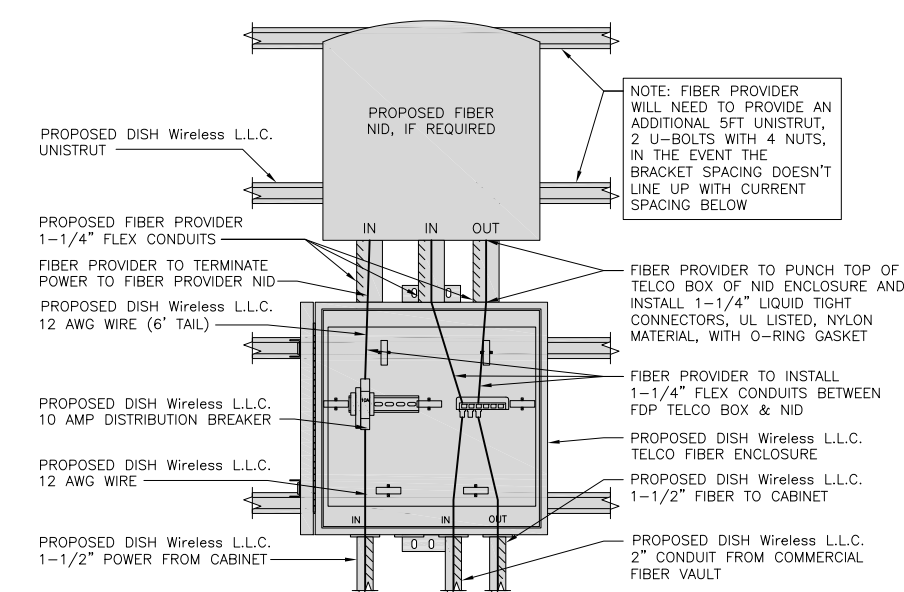
NO SCALE 1

TYPICAL UNDERGROUND TRENCH DETAIL

NO SCALE 2

DARK TELCO BOX – INTERIOR WIRING LAYOUT

NO SCALE 3



LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL)

NO SCALE 4

NOT USED

NO SCALE 5

NOT USED

NO SCALE 6

NOT USED

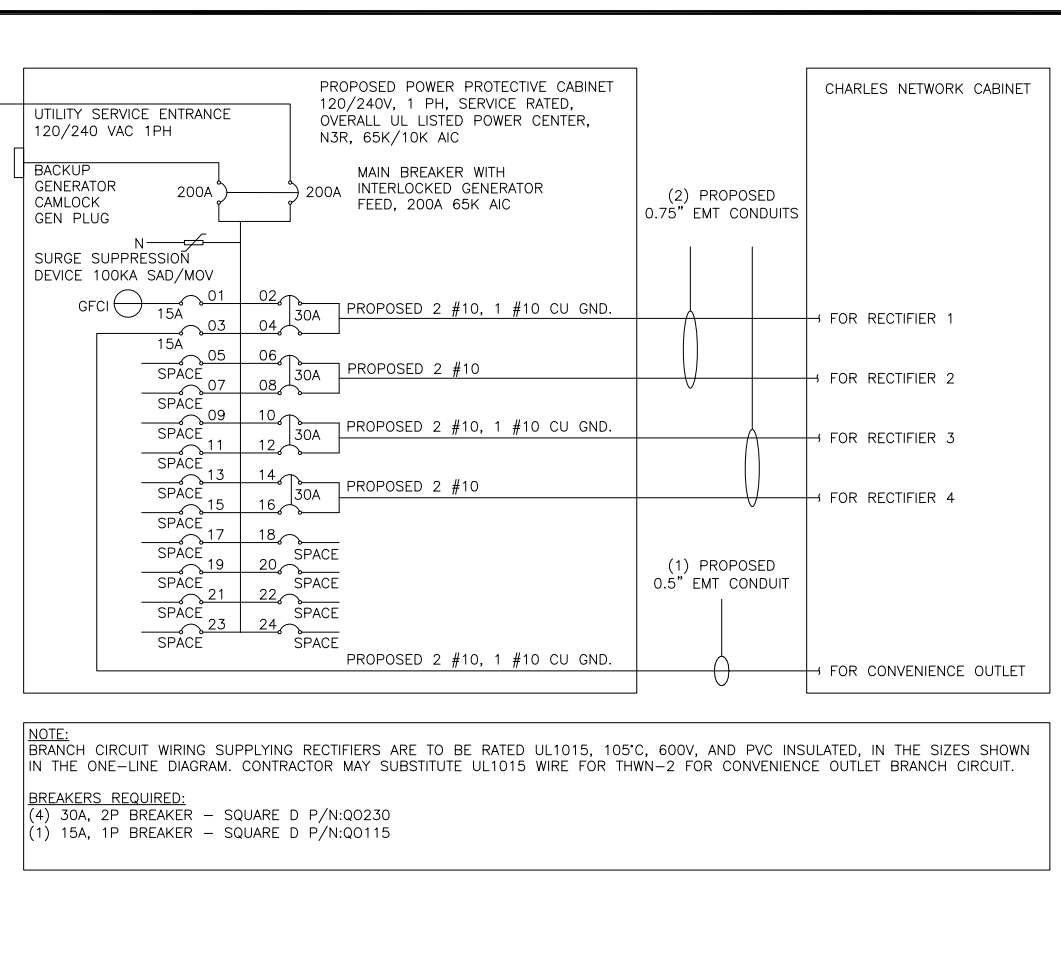
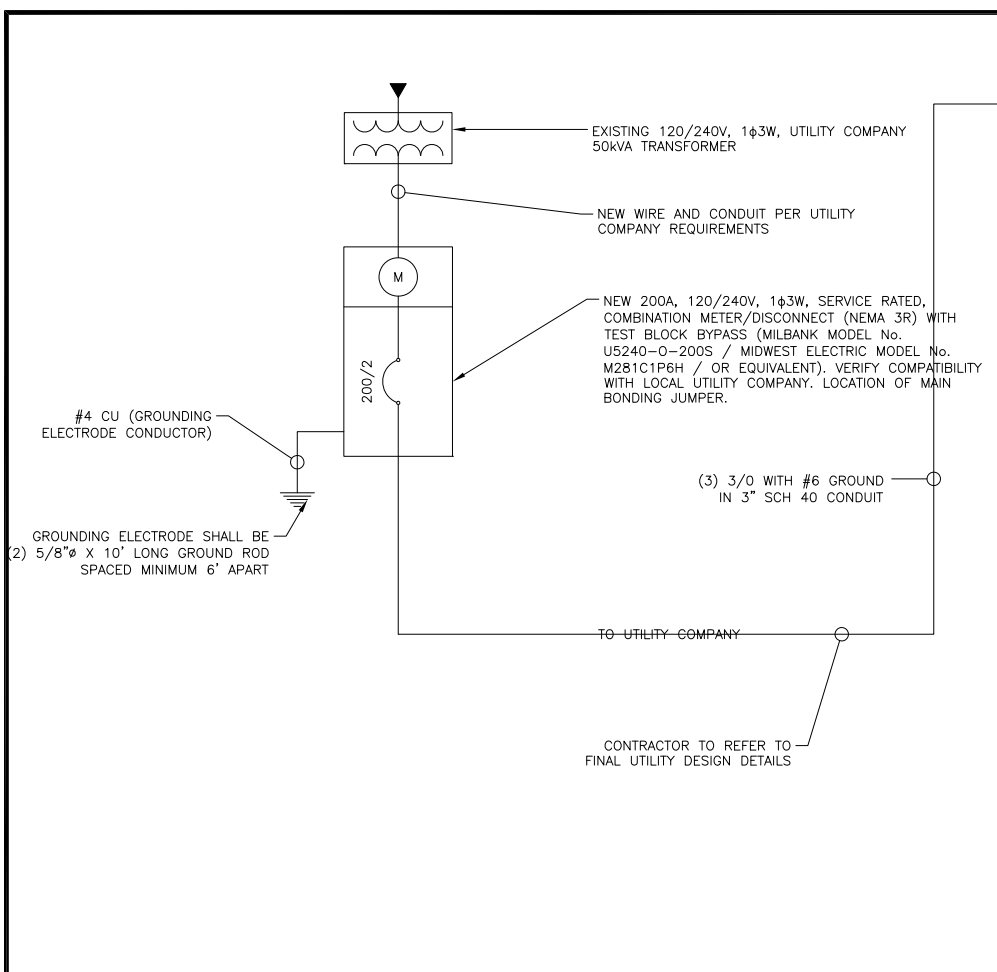
NO SCALE 7

NOT USED

NO SCALE 8

NOT USED

NO SCALE 9



NOTES

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

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

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

CABINET CONVENIENCE OUTLET CONDUCTORS (1 CONDUIT): USING THWN-2, CU.
 #10 - 0.0211 SQ. IN X 2 = 0.0422 SQ. IN
 #10 - 0.0211 SQ. IN X 1 = 0.0211 SQ. IN <GROUND
 TOTAL = 0.0633 SQ. IN

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

RECTIFIER CONDUCTORS (2 CONDUITS): USING UL1015, CU.
 #10 - 0.0266 SQ. IN X 4 = 0.1064 SQ. IN
 #10 - 0.0082 SQ. IN X 1 = 0.0082 SQ. IN <BARE GROUND
 TOTAL = 0.1146 SQ. IN

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

PPC FEED CONDUCTORS (1 CONDUIT): USING THWN, CU.
 3/0 - 0.2679 SQ. IN X 3 = 0.8037 SQ. IN
 #6 - 0.0507 SQ. IN X 1 = 0.0507 SQ. IN <GROUND
 TOTAL = 0.8544 SQ. IN

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

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

BREAKERS REQUIRED:
 (4) 30A, 2P BREAKER - SQUARE D P/N:Q0230
 (1) 15A, 1P BREAKER - SQUARE D P/N:Q0115

PPC ONE-LINE DIAGRAM

NO SCALE 1

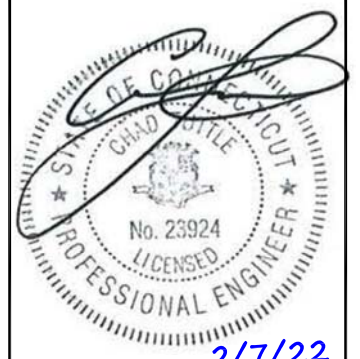
PROPOSED CHARLES PANEL SCHEDULE											
LOAD SERVED	VOLT AMPS (WATTS)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS)		LOAD SERVED	
	L1	L2						L1	L2		
PPC GFCI OUTLET	180	180	15A	1	A	2	30A	2880	2880	ABB/GE INFINITY RECTIFIER 1	
CHARLES GFCI OUTLET			15A	3	B	4	30A	2880	2880	ABB/GE INFINITY RECTIFIER 2	
--SPACE--				5	A	6	30A	2880	2880	ABB/GE INFINITY RECTIFIER 3	
--SPACE--				7	B	8	30A	2880	2880	ABB/GE INFINITY RECTIFIER 4	
--SPACE--				9	A	10				--SPACE--	
--SPACE--				11	B	12				--SPACE--	
--SPACE--				13	A	14				--SPACE--	
--SPACE--				15	B	16				--SPACE--	
--SPACE--				17	A	18				--SPACE--	
--SPACE--				19	B	20				--SPACE--	
--SPACE--				21	A	22				--SPACE--	
--SPACE--				23	B	24				--SPACE--	
VOLTAGE AMPS		180	180					11520	11520		
200A MCB, 1φ, 24 SPACE, 120/240V				L1	L2						
MB RATING: 65,000 AIC				11700	11700						
				98	98						
				98							
				123							

PANEL SCHEDULE

NO SCALE 2

NOT USED

NO SCALE 3



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CONSTRUCTION DOCUMENTS

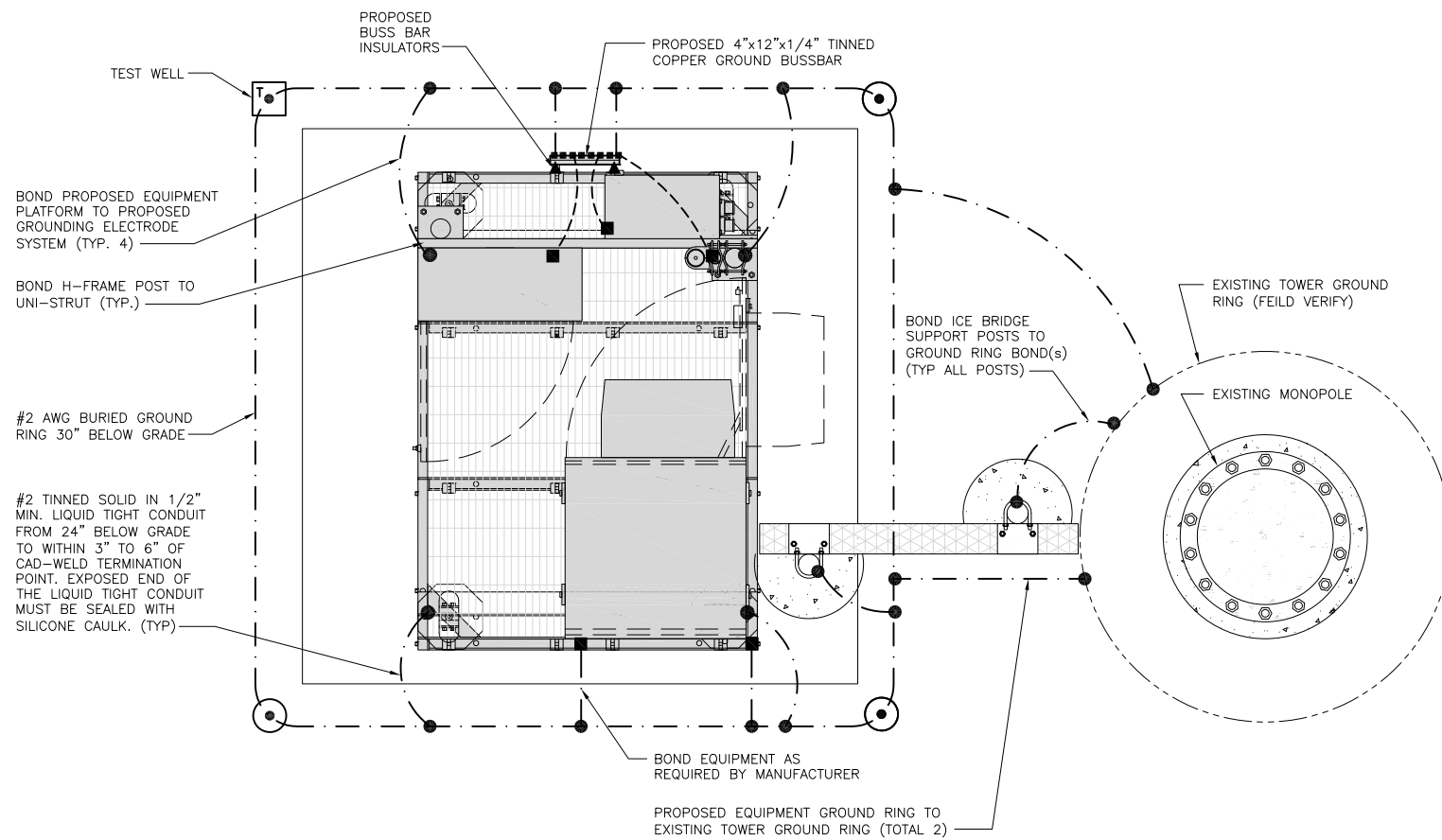
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149449.001.01

DISH Wireless L.L.C.
 PROJECT INFORMATION
BOBDL00123A
 723 FARMINGTON AVE
 NEW BRITAIN, CT 06051

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

SHEET NUMBER
E-3

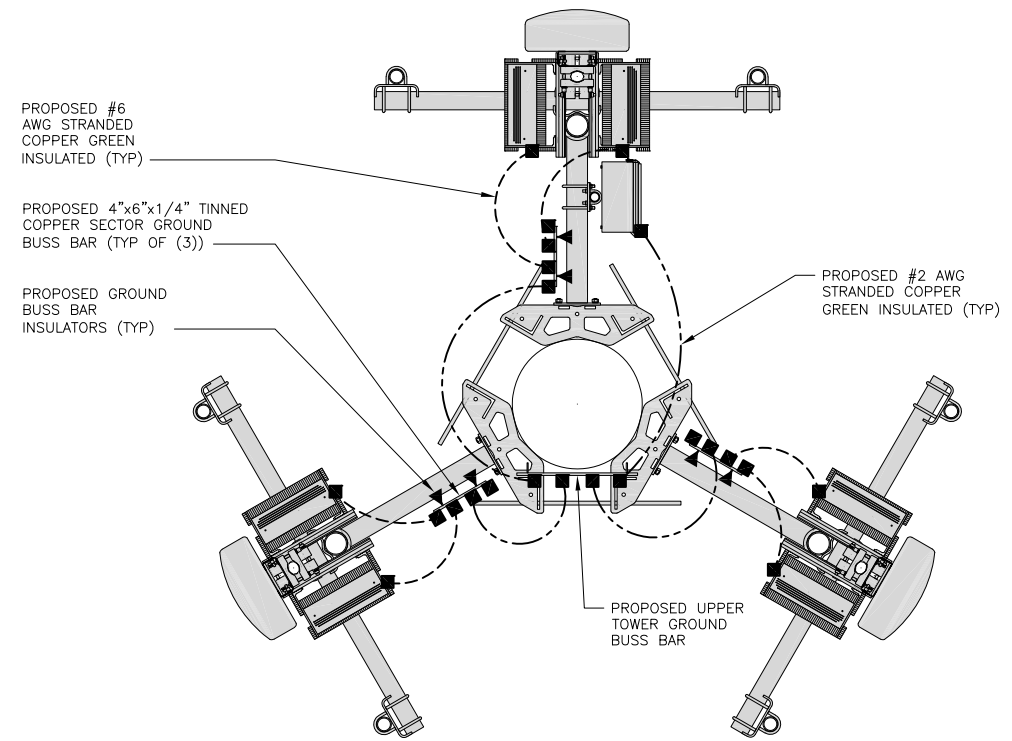


TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1

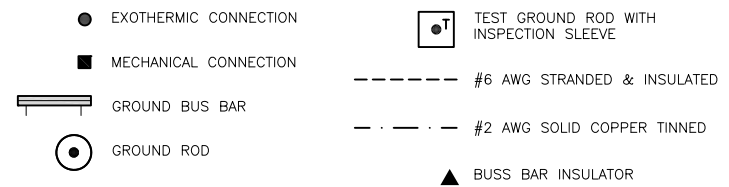
NOTES

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



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2



GROUNDING LEGEND

- GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
- 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.
- ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.

GROUNDING KEY NOTES

- (A) EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.
- (B) TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.
- (C) INTERIOR GROUND RING: #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTOR EXTENDED AROUND THE PERIMETER OF THE EQUIPMENT AREA. ALL NON-TELECOMMUNICATIONS RELATED METALLIC OBJECTS FOUND WITHIN A SITE SHALL BE GROUND TO THE INTERIOR GROUND RING WITH #6 AWG STRANDED GREEN INSULATED CONDUCTOR.
- (D) BOND TO INTERIOR GROUND RING: #2 AWG SOLID TINNED COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE BUILDING.
- (E) GROUND ROD: UL LISTED COPPER CLAD STEEL. MINIMUM 1/2" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.
- (F) CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG UNLESS NOTED OTHERWISE STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.
- (G) HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CRGB MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) TWO #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS EACH.
- (H) EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE.
- (I) TELCO GROUND BAR: BOND TO BOTH CELL REFERENCE GROUND BAR OR EXTERIOR GROUND RING.
- (J) FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.
- (K) INTERIOR UNIT BONDS: METAL FRAMES, CABINETS AND INDIVIDUAL METALLIC UNITS LOCATED WITH THE AREA OF THE INTERIOR GROUND RING REQUIRE A #6 AWG STRANDED GREEN INSULATED COPPER BOND TO THE INTERIOR GROUND RING.
- (L) FENCE AND GATE GROUNDING: METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.
- (M) EXTERIOR UNIT BONDS: METALLIC OBJECTS, EXTERNAL TO OR MOUNTED TO THE BUILDING, SHALL BE BONDED TO THE EXTERIOR GROUND RING. USING #2 TINNED SOLID COPPER WIRE
- (N) ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.
- (O) DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICE CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH A MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR
- (P) TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT COLLAR. REFER TO DISH Wireless L.L.C. GROUNDING NOTES.

GROUNDING KEY NOTES

NO SCALE 3



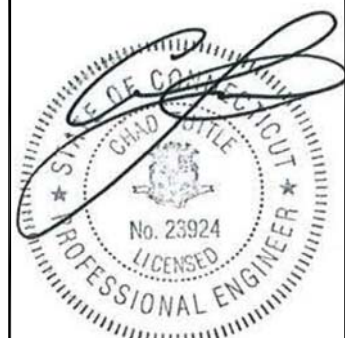
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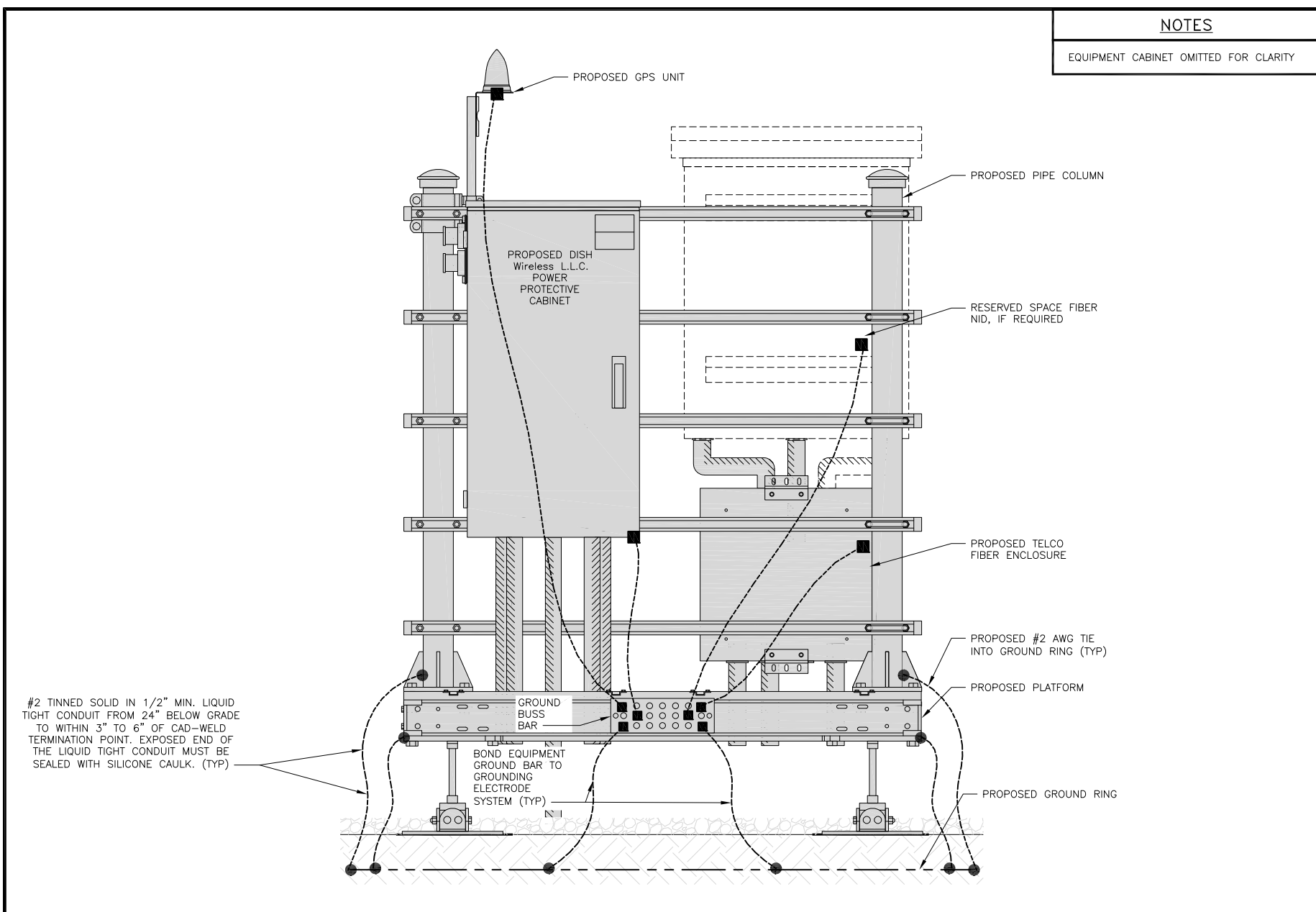
DISH Wireless L.L.C.
PROJECT INFORMATION

BOBDL00123A
723 FARMINGTON AVE
NEW BRITAIN, CT 06051

SHEET TITLE
GROUNDING PLANS
AND NOTES

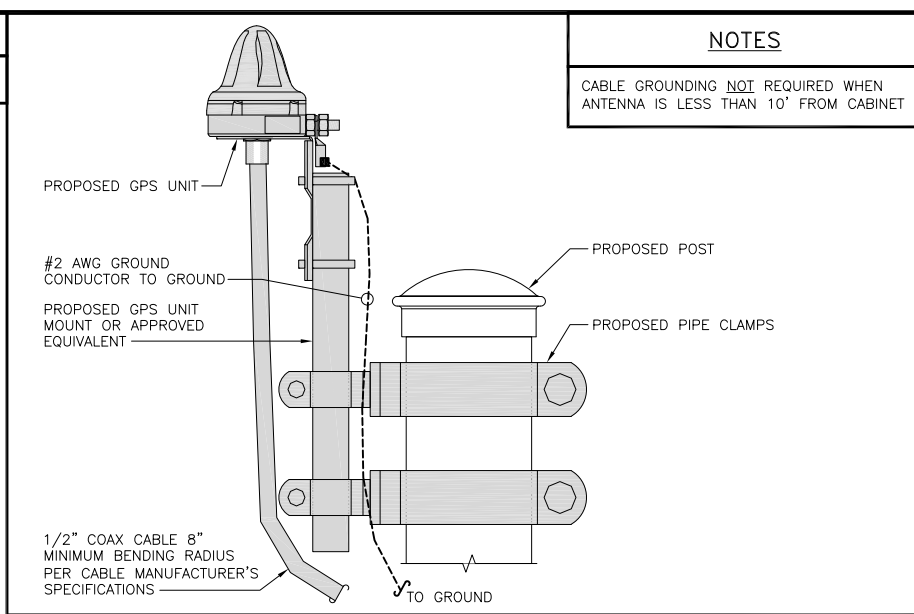
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G-1



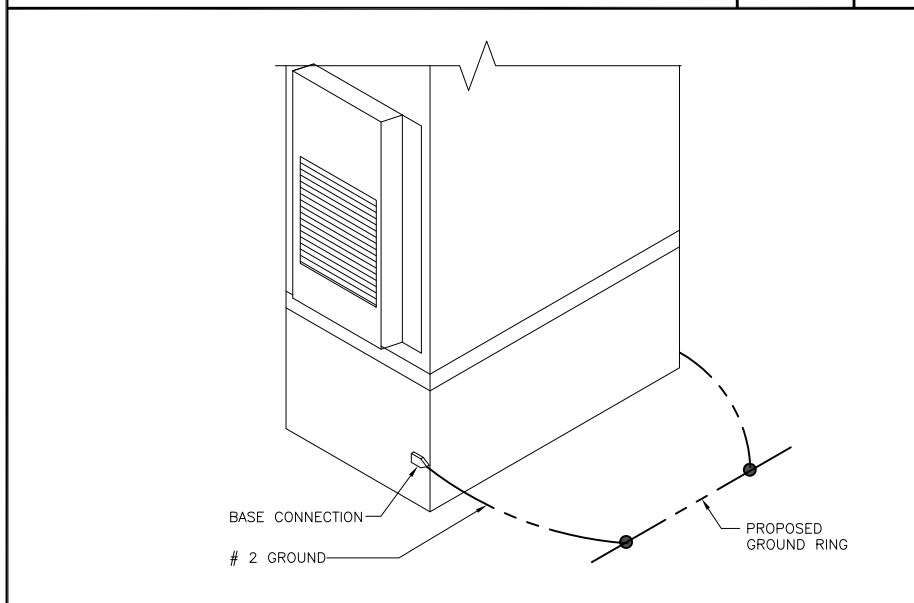
H-FRAME GROUNDING DETAIL

NO SCALE 1



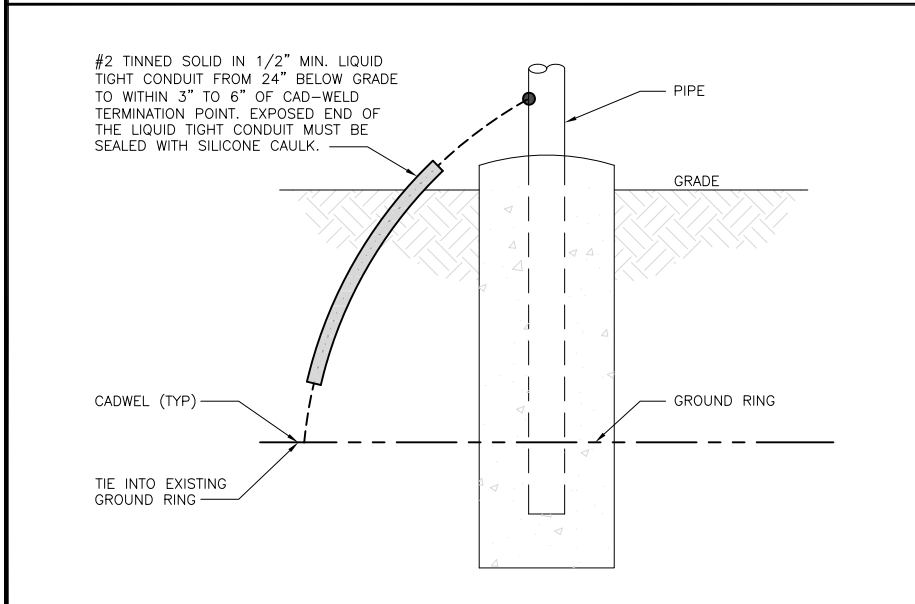
TYPICAL GPS UNIT GROUNDING

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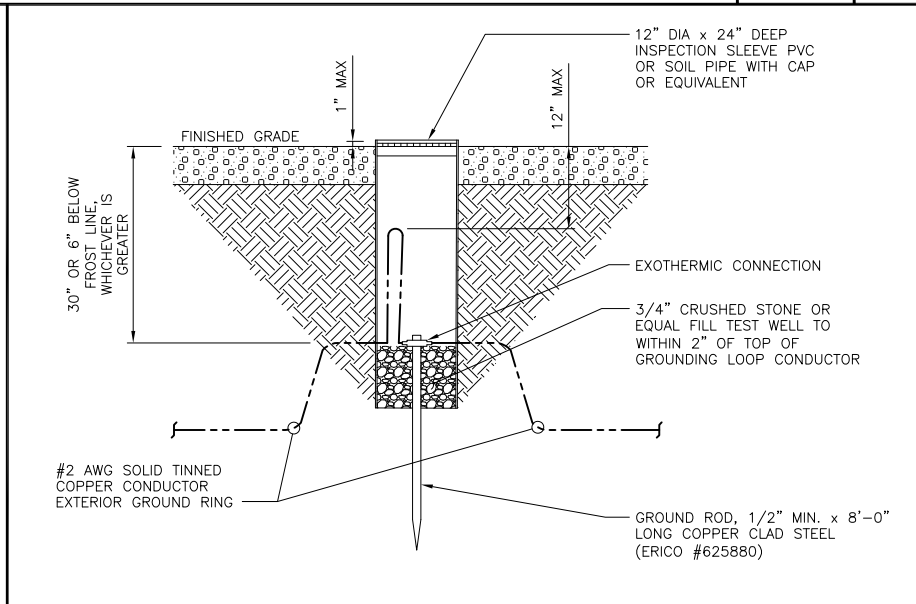
OUTDOOR CABINET GROUNDING

NO SCALE 3



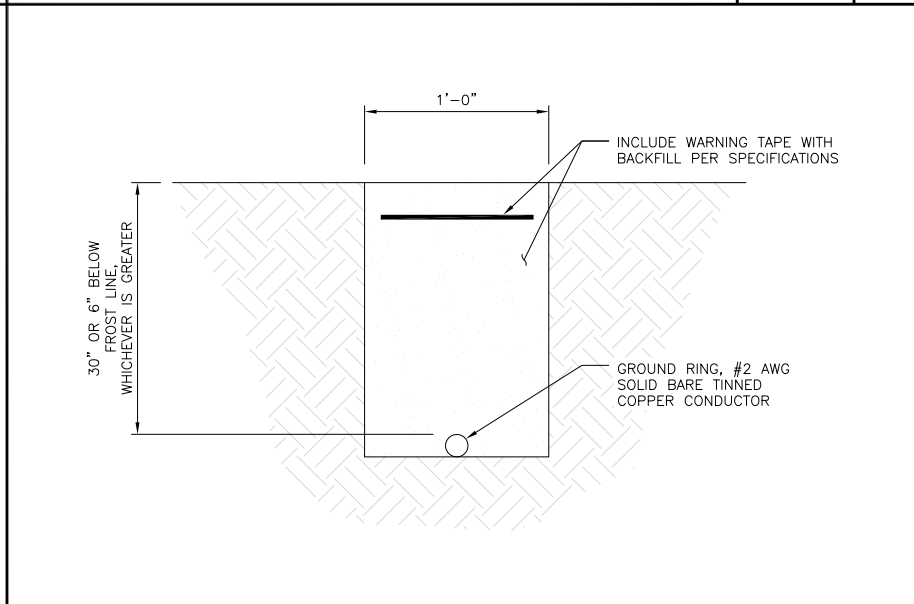
TRANSITIONING GROUND DETAIL

NO SCALE 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE

NO SCALE 5



TYPICAL GROUND RING TRENCH

NO SCALE 6



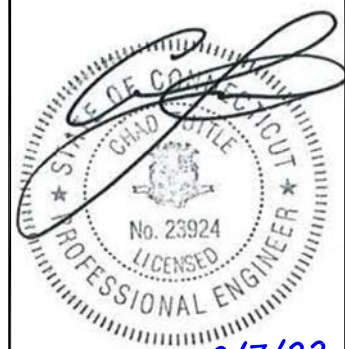
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LITTLETON, CO 80120



8051 CONGRESS AVENUE
BOCA RATON, FL 33487



1717 S. BOULDER
SUITE 300
TULSA, OK 74119
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2/7/22

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APPROVED BY: BLJ

RFDS REV #: 0

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	9/14/21	ISSUED FOR REVIEW
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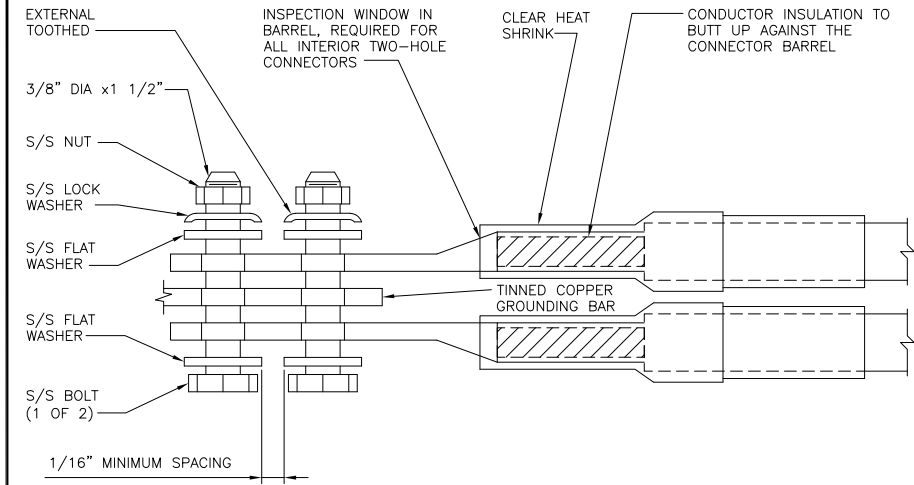
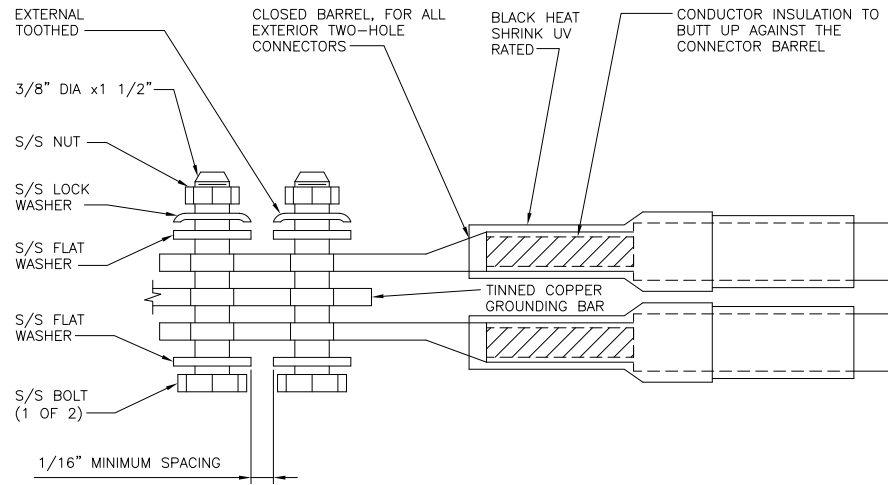
A&E PROJECT NUMBER
149449.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00123A
723 FARMINGTON AVE
NEW BRITAIN, CT 06051

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-2

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



TYPICAL GROUNDING NOTES

NO SCALE

1

TYPICAL EXTERIOR TWO HOLE LUG

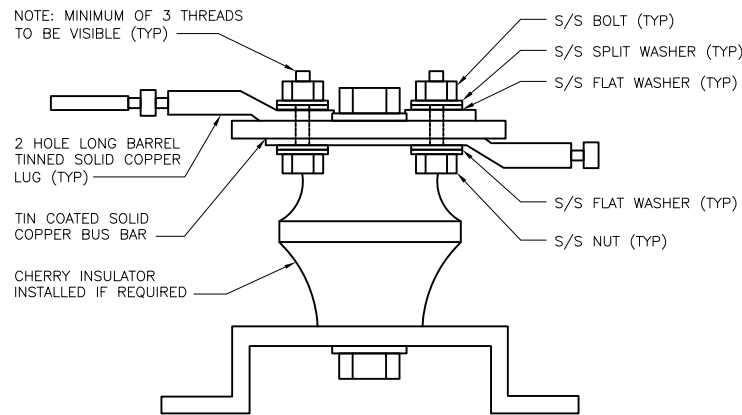
NO SCALE

2

TYPICAL INTERIOR TWO HOLE LUG

NO SCALE

3



LUG DETAIL

NO SCALE

4

NOT USED

NO SCALE

5

NOT USED

NO SCALE

6

NOT USED

NO SCALE

7

NOT USED

NO SCALE

8

NOT USED

NO SCALE

9

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NEW BRITAIN, CT 06051

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-3

RF JUMPER COLOR CODING

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

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

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

ALPHA RRH				BETA RRH				GAMMA RRH			
PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT	PORT 1 + SLANT	PORT 2 - SLANT	PORT 3 + SLANT	PORT 4 - SLANT
RED	RED	RED	RED	BLUE	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN	GREEN
ORANGE	ORANGE	RED	RED	ORANGE	ORANGE	BLUE	BLUE	ORANGE	ORANGE	GREEN	GREEN
	WHITE (-) PORT	ORANGE	ORANGE		WHITE (-) PORT	ORANGE	ORANGE		WHITE (-) PORT	ORANGE	ORANGE
			WHITE (-) PORT				WHITE (-) PORT				WHITE (-) PORT

MID-BAND RRH - (AWS BANDS N66+N70)

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

RED	RED	RED	RED	BLUE	BLUE	BLUE	BLUE	GREEN	GREEN	GREEN	GREEN
PURPLE	PURPLE	RED	RED	PURPLE	PURPLE	BLUE	BLUE	PURPLE	PURPLE	GREEN	GREEN
	WHITE (-) PORT	PURPLE	PURPLE		WHITE (-) PORT	PURPLE	PURPLE		WHITE (-) PORT	PURPLE	PURPLE
			WHITE (-) PORT				WHITE (-) PORT				WHITE (-) PORT

HYBRID/DISCREET CABLES

INCLUDE SECTOR BANDS BEING SUPPORTED ALONG WITH FREQUENCY BANDS

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

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

EXAMPLE 1	EXAMPLE 2	EXAMPLE 3
RED	RED	RED
BLUE	BLUE	
GREEN	GREEN	ORANGE
ORANGE	YELLOW	PURPLE
PURPLE		

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

FIBER JUMPERS TO RRHs

LOW-BAND RRH FIBER CABLES HAVE SECTOR STRIPE ONLY

LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH
RED	RED	BLUE	BLUE	GREEN	GREEN
	PURPLE		PURPLE		PURPLE

POWER CABLES TO RRHs

LOW-BAND RRH POWER CABLES HAVE SECTOR STRIPE ONLY

LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH	LOW BAND RRH	HIGH BAND RRH
RED	RED	BLUE	BLUE	GREEN	GREEN
	PURPLE		PURPLE		PURPLE

RET MOTORS AT ANTENNAS

ANTENNA 1 LOW BAND/ "IN"	ANTENNA 1 HIGH BAND/ "IN"	ANTENNA 1 LOW BAND/ "IN"	ANTENNA 1 HIGH BAND/ "IN"	ANTENNA 1 LOW BAND/ "IN"	ANTENNA 1 HIGH BAND/ "IN"
RED	RED	BLUE	BLUE	GREEN	GREEN
	PURPLE		PURPLE		PURPLE

MICROWAVE RADIO LINKS

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

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

FORWARD AZIMUTH OF 0-120 DEGREES		FORWARD AZIMUTH OF 120-240 DEGREES		FORWARD AZIMUTH OF 240-360 DEGREES	
PRIMARY	SECONDARY	PRIMARY	SECONDARY	PRIMARY	SECONDARY
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
RED	RED	BLUE	BLUE	GREEN	GREEN
WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
	RED		BLUE		GREEN
	WHITE		WHITE		WHITE

LOW BANDS (N71+N26) OPTIONAL - (N29)



CBRS TECH (3 GHz)



AWS (N66+N70+H-BLOCK)



NEGATIVE SLANT PORT ON ANT/RRH



ALPHA SECTOR



BETA SECTOR



GAMMA SECTOR



COLOR IDENTIFIER

NO SCALE

2

NOT USED

NO SCALE

3

RF CABLE COLOR CODES

NO SCALE

1

NOT USED

NO SCALE

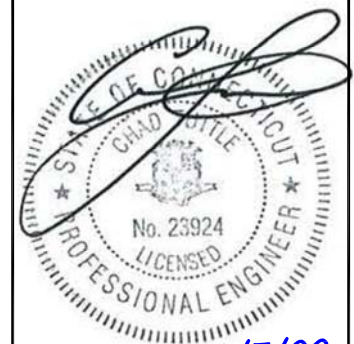
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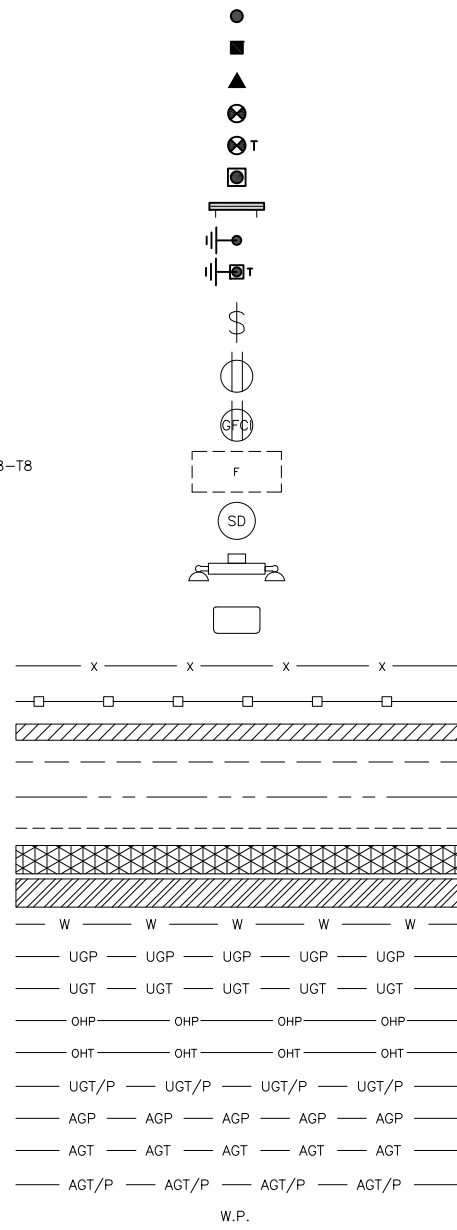
BOBDL00123A
723 FARMINGTON AVE
NEW BRITAIN, CT 06051

SHEET TITLE
RF
CABLE COLOR CODES

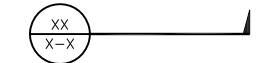
SHEET NUMBER

RF-1

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



SECTION REFERENCE



DETAIL REFERENCE



LEGEND

AB ANCHOR BOLT
 ABV ABOVE
 AC ALTERNATING CURRENT
 ADDL ADDITIONAL
 AFF ABOVE FINISHED FLOOR
 AFG ABOVE FINISHED GRADE
 AGL ABOVE GROUND LEVEL
 AIC AMPERAGE INTERRUPTION CAPACITY
 ALUM ALUMINUM
 ALT ALTERNATE
 ANT ANTENNA
 APPROX APPROXIMATE
 ARCH ARCHITECTURAL
 ATS AUTOMATIC TRANSFER SWITCH
 AWG AMERICAN WIRE GAUGE
 BATT BATTERY
 BLDG BUILDING
 BLK BLOCK
 BLKG BLOCKING
 BM BEAM
 BTC BARE TINNED COPPER CONDUCTOR
 BOF BOTTOM OF FOOTING
 CAB CABINET
 CANT CANTILEVERED
 CHG CHARGING
 CLG CEILING
 CLR CLEAR
 COL COLUMN
 COMM COMMON
 CONC CONCRETE
 CONSTR CONSTRUCTION
 DBL DOUBLE
 DC DIRECT CURRENT
 DEPT DEPARTMENT
 DF DOUGLAS FIR
 DIA DIAMETER
 DIAG DIAGONAL
 DIM DIMENSION
 DWG DRAWING
 DWL DOWEL
 EA EACH
 EC ELECTRICAL CONDUCTOR
 EL ELEVATION
 ELEC ELECTRICAL
 EMT ELECTRICAL METALLIC TUBING
 ENG ENGINEER
 EQ EQUAL
 EXP EXPANSION
 EXT EXTERIOR
 EW EACH WAY
 FAB FABRICATION
 FF FINISH FLOOR
 FG FINISH GRADE
 FIF FACILITY INTERFACE FRAME
 FIN FINISH(ED)
 FLR FLOOR
 FDN FOUNDATION
 FOC FACE OF CONCRETE
 FOM FACE OF MASONRY
 FOS FACE OF STUD
 FOW FACE OF WALL
 FS FINISH SURFACE
 FT FOOT
 FTG FOOTING
 GA GAUGE
 GEN GENERATOR
 GFCI GROUND FAULT CIRCUIT INTERRUPTER
 GLB GLUE LAMINATED BEAM
 GLV GALVANIZED
 GPS GLOBAL POSITIONING SYSTEM
 GND GROUND
 GSM GLOBAL SYSTEM FOR MOBILE
 HDG HOT DIPPED GALVANIZED
 HDR HEADER
 HGR HANGER
 HVAC HEAT/VENTILATION/AIR CONDITIONING
 HT HEIGHT
 IGR INTERIOR GROUND RING

IN INCH
 INT INTERIOR
 LB(S) POUND(S)
 LF LINEAR FEET
 LTE LONG TERM EVOLUTION
 MAS MASONRY
 MAX MAXIMUM
 MB MACHINE BOLT
 MECH MECHANICAL
 MFR MANUFACTURER
 MGB MASTER GROUND BAR
 MIN MINIMUM
 MISC MISCELLANEOUS
 MTL METAL
 MTS MANUAL TRANSFER SWITCH
 MW MICROWAVE
 NEC NATIONAL ELECTRIC CODE
 NM NEWTON METERS
 NO. NUMBER
 # NUMBER
 NTS NOT TO SCALE
 OC ON-CENTER
 OSHA OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
 OPNG OPENING
 P/C PRECAST CONCRETE
 PCS PERSONAL COMMUNICATION SERVICES
 PCU PRIMARY CONTROL UNIT
 PRC PRIMARY RADIO CABINET
 PP POLARIZING PRESERVING
 PSF POUNDS PER SQUARE FOOT
 PSI POUNDS PER SQUARE INCH
 PT PRESSURE TREATED
 PWR POWER CABINET
 QTY QUANTITY
 RAD RADIUS
 RECT RECTIFIER
 REF REFERENCE
 REINF REINFORCEMENT
 REQ'D REQUIRED
 RET REMOTE ELECTRIC TILT
 RF RADIO FREQUENCY
 RMC RIGID METALLIC CONDUIT
 RRH REMOTE RADIO HEAD
 RRU REMOTE RADIO UNIT
 RWY RACEWAY
 SCH SCHEDULE
 SHT SHEET
 SIAD SMART INTEGRATED ACCESS DEVICE
 SIM SIMILAR
 SPEC SPECIFICATION
 SQ SQUARE
 SS STAINLESS STEEL
 STD STANDARD
 STL STEEL
 TEMP TEMPORARY
 THK THICKNESS
 TMA TOWER MOUNTED AMPLIFIER
 TN TOE NAIL
 TOA TOP OF ANTENNA
 TOC TOP OF CURB
 TOF TOP OF FOUNDATION
 TOP TOP OF PLATE (PARAPET)
 TOS TOP OF STEEL
 TOW TOP OF WALL
 TVSS TRANSIENT VOLTAGE SURGE SUPPRESSION
 TYP TYPICAL
 UG UNDERGROUND
 UL UNDERWRITERS LABORATORY
 UNO UNLESS NOTED OTHERWISE
 UMTS UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
 UPS UNINTERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
 VIF VERIFIED IN FIELD
 W WIDE
 W/ WITH
 WD WOOD
 WP WEATHERPROOF
 WT WEIGHT

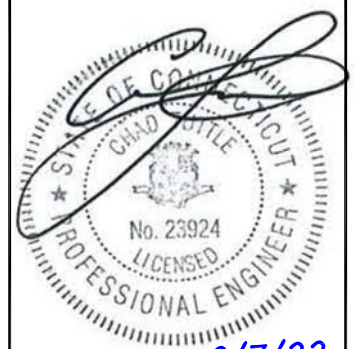
ABBREVIATIONS



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149449.001.01

DISH Wireless L.L.C.
 PROJECT INFORMATION
BOBDL00123A
 723 FARMINGTON AVE
 NEW BRITAIN, CT 06051

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



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2/7/22

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A&E PROJECT NUMBER
149449.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00123A
723 FARMINGTON AVE
NEW BRITAIN,CT 06051

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.

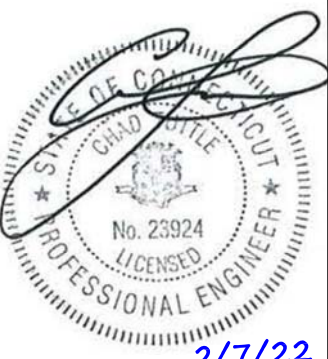
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL 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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A&E PROJECT NUMBER
149449.001.01

DISH Wireless L.L.C.
PROJECT INFORMATION
BOBDL00123A
723 FARMINGTON AVE
NEW BRITAIN, CT 06051

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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GENERAL NOTES

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