



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

August 14, 2021

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

RE: Tower Share Application
376 Deercliff Ave, Avon CT 06001
Latitude: 41.77498611
Longitude: -72.8005749999
Site# 870800_Crown_Dish

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Dish Wireless LLC. Dish Wireless LLC plans to install antennas and related equipment to the tower site located at 376 Deercliff Road in Avon, Connecticut.

Dish Wireless LLC proposes to install three (3) 600/1900/2100 MHz antenna and six (6) RRUs, at the 202-foot level of the existing 560-foot guyed tower, one (1) Fiber cables will also be installed. Dish Wireless LLC equipment cabinets will be placed within 7x5 lease area. Included are plans by Infinigy, dated June 30, 2021 Exhibit C. Also included is a structural analysis prepared by Crown Castle, dated May 21, 2021, confirming that the existing tower is structurally capable of supporting the proposed equipment. Attached as Exhibit D. This facility was approved by the Town of Avon Planning and Zoning on November 20, 1985. Please see attached Exhibit A.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of Dish Wireless LLC intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Brandon Robertson, Town Manager for the Town of Avon, Hiam Peck, III, Director of Planning, as well as the tower owner (Crown Castle) and property owner (Three Seventy Six Deercliff Road LLC).

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

1. The proposed modification will not result in an increase in the height of the existing structure. The top of the tower is 560-feet; Dish Wireless LLC proposed antennas will be located at a center line height of 202-feet.
2. The proposed modifications will not result in the increase of the site boundary as depicted on the attached site plan.



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

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, the combined site operations will result in a total power density of 13.67% as evidenced by Exhibit F.

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

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

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

C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental impact. The installation of Dish Wireless LLC equipment at the 202-foot level of the existing 560-foot tower would have an insignificant visual impact on the area around the tower. Dish Wireless LLC ground equipment would be installed within the existing facility compound. Dish Wireless LLC shared use would therefore not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by Exhibit F, the proposed antennas would not increase radio frequency emissions to a level at or above the Federal Communications Commission safety standard.

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

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

Sincerely,

Denise Sabo

Denise Sabo
Mobile: 203-435-3640
Fax: 413-521-0558
Office: 4 Angela's Way, Burlington CT 06013
Email: denise@northeastitesolutions.com



NSS **NORTHEAST**
SITE SOLUTIONS
Turnkey Wireless Development

Attachments cc:

Brandon Robertson, Town Manager (brobertson@avonct.gov & jworsman@avonct.gov)
Town of Avon
60 West Main Street, Avon, CT 06001

Hiam Peck, III, Director of Planning (hpeck@avonct.gov)
Town of Avon
60 West Main Street Avon, CT 06001

Three Seventy Six Deercliff Road LLC
1897 Berlin Turnpike Berlin, CT 06037

Crown Castle, Tower Owner

Exhibit A

Original Facility Approval

TOWN
OF
AVON



P.O. BOX 578
60 WEST MAIN ST.
AVON, CT 06001
TEL (203) 677-2634

November 20, 1985

CERTIFIED MAIL

Mr. Richard P. Ramirez, Managing General Partner
Astroline Communications Company Limited Partnership
18 Garden Street
Hartford, CT

Dear Mr. Ramirez:

At a Special Meeting held on Tuesday, November 19, 1985, the Planning and Zoning Commission of the Town of Avon voted as follows:

App. #1430 - Astroline Communications Company Limited Partnership, owner/applicant, request for Special Exception under Section IV.A.4.a. of the Avon Zoning Regulations, to permit communication transmission station and tower; and under Section III.B.2.a. for waiver of height provisions, 376 Deercliff Road, 30.343 acres, Parcel Nos. 24, 25, and 26 on Assessor's Map 15, in a RU-2A Zone - APPROVED WITH CONDITIONS.

App. #1431 - Astroline Communications Company Limited Partnership, owner/applicant, request for Special Exception under Section IV.A.4.a. of the Avon Zoning Regulations, to permit a satellite dish as part of a Communication Transmission Station, and under Section III.B.2.a. for a waiver of the height provisions, 376 Deercliff Road, 30.343 acres, Parcel Nos. 24, 25, and 26 on Assessor's Map 15, in a RU-2A Zone - APPROVED WITH CONDITIONS.

App. #1432 - Astroline Communications Company Limited Partnership, owner/applicant, request for Site Plan Approval, communication tower and building and residence, 376 Deercliff Road, 30.343 acres, Parcel Nos. 24, 25, and 26 on Assessor's Map 15, in a RU-2A Zone - APPROVED WITH CONDITIONS.

The Commission granted approval of App. #1430, #1431 and #1432 (above) subject to the following conditions:

1. No part or portion of any tower, antenna, or other structure shall exceed a height of 750 feet above ground; and no part or portion of any tower, antenna, or other structure shall exceed a height of 1425 feet above mean sea level.
2. As proposed by the applicant in a September 30, 1985 letter, the tower shall be restricted to the use of standard red lights only. No other color lights shall be installed or illuminated and no strobe lights shall be installed or illuminated.

COPY

As proposed by the applicant in a September 30, 1985 letter, should the FAA require any other type of lighting system on the tower, the tower shall not be built. If after the tower is constructed, the FAA requires the addition of any other type of lighting system, the owner shall decrease the height of the tower to a level which would be approved for red lighting or remove the tower completely.

3. As proposed by the applicant in a September 4, 1985 letter, the existing tower, all buildings, structures and transmission facilities presently located at 580 Deercliff Road will be completely dismantled and removed from the site within 90 days of the time when broadcasting operations begin from the new tower. Further, all pavement and debris will be removed from the 580 Deercliff Road site and the disturbed area will be loamed and seeded. Prior to the issuance of any building permit to construct any portion of the tower or building, a cash bond or letter of credit in a form acceptable to the Town Attorney and in an amount acceptable to the Town Engineer shall be submitted. The Town Engineer shall determine an amount sufficient to cover all costs associated with the work required by this condition. Failure of the owner to strictly adhere to this condition will be considered a violation of this permit, and will result in appropriate enforcement action by the Town to whatever degree is necessary to eliminate the violation. This condition shall be recorded on the land records with reference to 580 Deercliff Road.
4. The building will contain no living quarters or studio facilities. No employees shall be employed at the site on a daily basis. Except for unusual occasions, such as the construction period and periods of replacement, repair or maintenance of facilities and equipment, only occasional visits by employees shall be permitted.
5. Prior to the issuance of a building permit, construction plans for the tower shall be submitted to the Town Engineer by a structural engineer. Upon completion of the tower and prior to any broadcasting or transmission, the Town Engineer shall select an independent structural engineer who shall, at the expense of the owner, conduct an inspection and structural evaluation of the tower and submit a report to the Town Engineer.
6. Noise levels from the tower and equipment, as measured at any point on the property line of the nearest abutting residence, shall not exceed the maximum allowable noise level for commercial and industrial uses at residential zone boundaries as stated in Section V of the Avon Zoning Regulations. The owner shall provide to the Town Engineer a report showing acoustic readings taken at a time when the transmission equipment, cooling equipment and all other equipment operated during normal broadcasting is in full operation. Noise levels in excess of the prescribed standards shall be considered a violation of this permit and shall require zoning enforcement action by the Town, to whatever degree is necessary to eliminate the violation.

COPY

7. As recommended by the Town Health Director, a maximum power density level is established at 0.01 mW (or 10 μ W) per square centimeter which cannot be exceeded at any frequency by any radiation source on the tower or building or equipment on the site, singly or in combination with other sources on the tower, as measured at the nearest part of the nearest abutting residential property.

The owner shall submit reports of field measurements of this radiation level in order to verify compliance with this condition. An initial report is required within 30 days after the transmission facility begins operation, and subsequent reports shall be filed with the Town on a quarterly basis.

Failure to file the required reports shall be considered a violation of this permit and shall require zoning enforcement action by the Town.

Measurements in excess of the established level shall be considered a violation and shall require zoning enforcement action by the Town to whatever degree necessary to eliminate the violation.

8. The owner shall provide from beginning of construction forward a convenient means of access acceptable to the Chief of Police. That access shall allow police, fire, ambulance and other emergency vehicles to drive up to the building and tower base. It shall also allow police and fire personnel and other emergency personnel access to all parts of the building, tower base and guy anchors.

9. All deliveries to the site of materials and equipment associated with construction shall occur between 9:00 AM and 4:00 PM on Mondays through Fridays which are not legal holidays in order not to conflict with heavy traffic. All construction work shall occur between the hours of 7:00 AM and 5:00 PM on the same days, so as not to unduly inconvenience neighbors.

10. The owner shall provide reasonable space on the tower and in the building for such communications equipment that the Town determines is appropriate for the public safety of the residents.

11. These approvals shall take effect upon December 1, 1985, unless before that date the Town Attorney notifies the Commission that one of the above conditions is illegal or unenforceable.

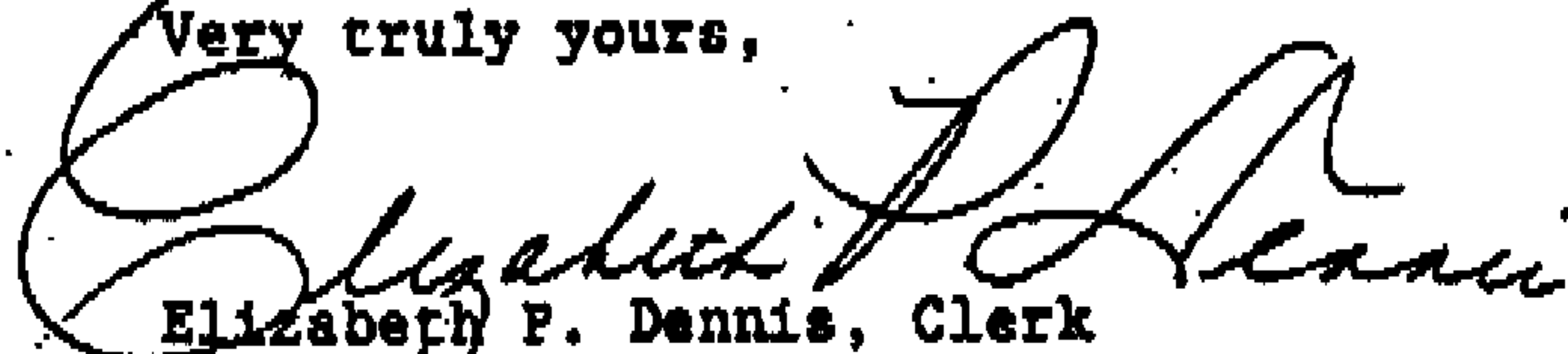
Please note, additionally, that prior to your Special Exception Applications (App. #1430 and #1431) becoming effective, a certified copy must be filed with the Town Clerk. The filing fee is \$5 per page. Please fill in the enclosed form and return it to this office for the Chairman's signature.

COPY

Mr. Richard P. Ramirez
November 20, 1985
Page Four

Upon compliance with the above conditions, the Chairman of the Planning and Zoning Commission has been authorized to sign the mylar maps for filing. The mylar maps must be signed and on file prior to the issuance of any building permits for the above construction.

Very truly yours,



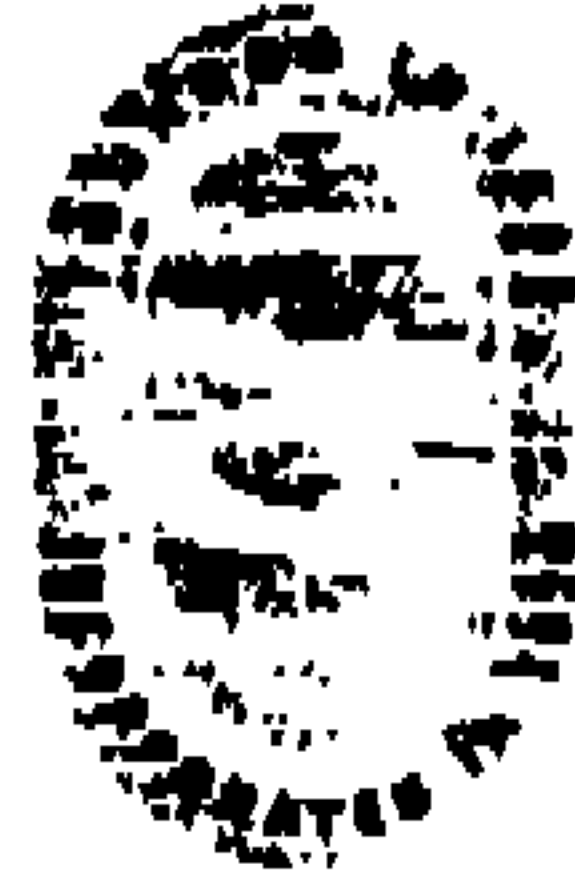
Elizabeth P. Dennis, Clerk
Planning and Zoning Commission

cc: Mark Oland, Esq.
William Richter
Robert C. Hunt, Jr., Esq.

Enclosure

COPY

TOWN
OF
AVON



P.O. BOX 578
60 WEST MAIN ST.
AVON, CT 08001
TEL. (203) 677-2634

December 15, 1986

CERTIFIED MAIL

Mr. Richard P. Ramirez, Managing General Partner
Astroline Communications Company Limited Partnership
18 Garden Street
Hartford, CT

Dear Mr. Ramirez:

At a meeting held on Tuesday, December 9, 1986, the Planning and Zoning Commission of the Town of Avon voted as follows:

App. #1525 - Astroline Company, owner, Astroline Communications Company Limited Partnership, applicant, request for Special Exception under Sections IV.A.4.a. and III.B.2.a. of the Avon Zoning Regulations to permit modification of condition No. 1 of the approval of Applications #1430 and #1431 to provide: the total height of any tower, antenna, or other structure shall be no less than 625 feet above ground nor any higher than 750 feet above ground; ~~the total height of any tower, antenna, or other structure shall be no less than 1300 feet above mean sea level nor any higher than 1425 feet above mean sea level.~~ 376 Deercliff Road, 30.343 acres, in a RU-2A Zone - APPROVED.

App. #1526 - Astroline Company, owner, Astroline Communications Company, Limited Partnership, applicant, request for Modification to Site Plan Approval (App. #1432) communication tower, building and residence, 376 Deercliff Road, 30.343 acres, in a RU-2A Zone - APPROVED.

Please note that prior to your Special Exception becoming effective, a certified copy must be filed with the Town Clerk. The fee is \$5. Please fill in the enclosed form and return it to this office for the Chairman's signature.

Very truly yours,

Elizabeth P. Dennis, Clerk
Planning and Zoning Commission

Enclosure

cc: Building Dept.
Assessor
M. Oland, Esq.

COPY

Exhibit B

Property Card

Property at 00376 DEERCLIFF ROAD LOT1 Prop ID 2090376 Printed 14-Feb-2019 4:02 PM Design and Layout (C) Right/Angles

Administrative Information
 Owner name: THREE SEVENTY SIX DEERCLIFF
 Second name: ROAD LLC
 Address: 1897 BERLIN TPKE
 City/state: BERLIN CT Zip: 06037

Building Valuation Summary

		Area	
Dwelling	Frame 2 story w/bsmt	720	165,970
Basement	Full		
Heating	Yes A/C Yes		5,030
Plumbing	2 F/B H/B Add'l fix. Wh/p Saunas		3,600
Attic	Unfinished Attic size: 720		9,184
Additions			23,368
Other Features	WB Stks		5,000
Sub-Total			212,152
Grade	C+ Factor 1.0800		229,124
CDU	C&D Factor 1.00		229,124
Depreciation	100 %		
			Computed cost value @ 70%

Location Information
 Map: 027 Clerk map: 16 016
 Lot: 2090376 Neigh.: Zone: RU2A Vol: 702 Page: 149

Assessments		Exemptions		Last sale	
Assmt category	Qty	Amount	Exempt Cat	Amount	Sale date: 23-Sep-2016
Resident Land	2.00	140,000			Sale price: 530,000
					Sale valid: 14
Resident Outbldg	2.00	2,570			Values
Resident Excess	.22	1,140			Mkt value :
					Cost value: 205,300
Summary		Utilities		Sales ratios	
Total assessments		143,710	Water	None	Cost/sale : .3874
Total exemptions			Sewer	None	Mkt/sale :
Net assessment		143,710	Gas	None	Assmt/sale: .2712

Building additions

Category	Type	Area	Value
L Living Area	FRFF Frame first floor	150	12,720
L Living Area	BSMT Basement addition	150	2,048
L Living Area	FRFF Frame first floor	60	5,088
P Porches, Patios, Decks	UTIL Utility building	150	3,174
L Living Area	AIR Air conditioning	150	338
Total additions			23,368

Land Information

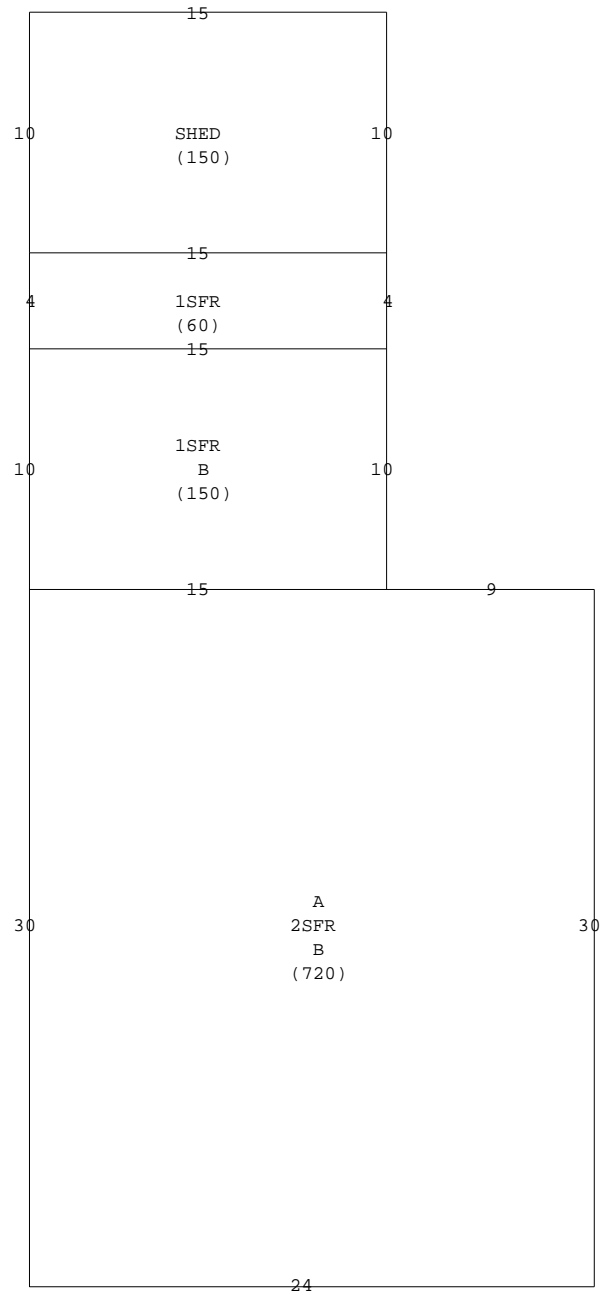
Type	Use	Acres/SqFt	Rate	Total	Infl Fact	Value	70% Value
PRIM	11	2.000	200,000	200,000		200,000	140,000
Primary Site		87,120					
RES	12	.217	7,500	1,628		1,628	1,140
Residual		9,453					
		2.217 acres		Total land value		201,628	141,140

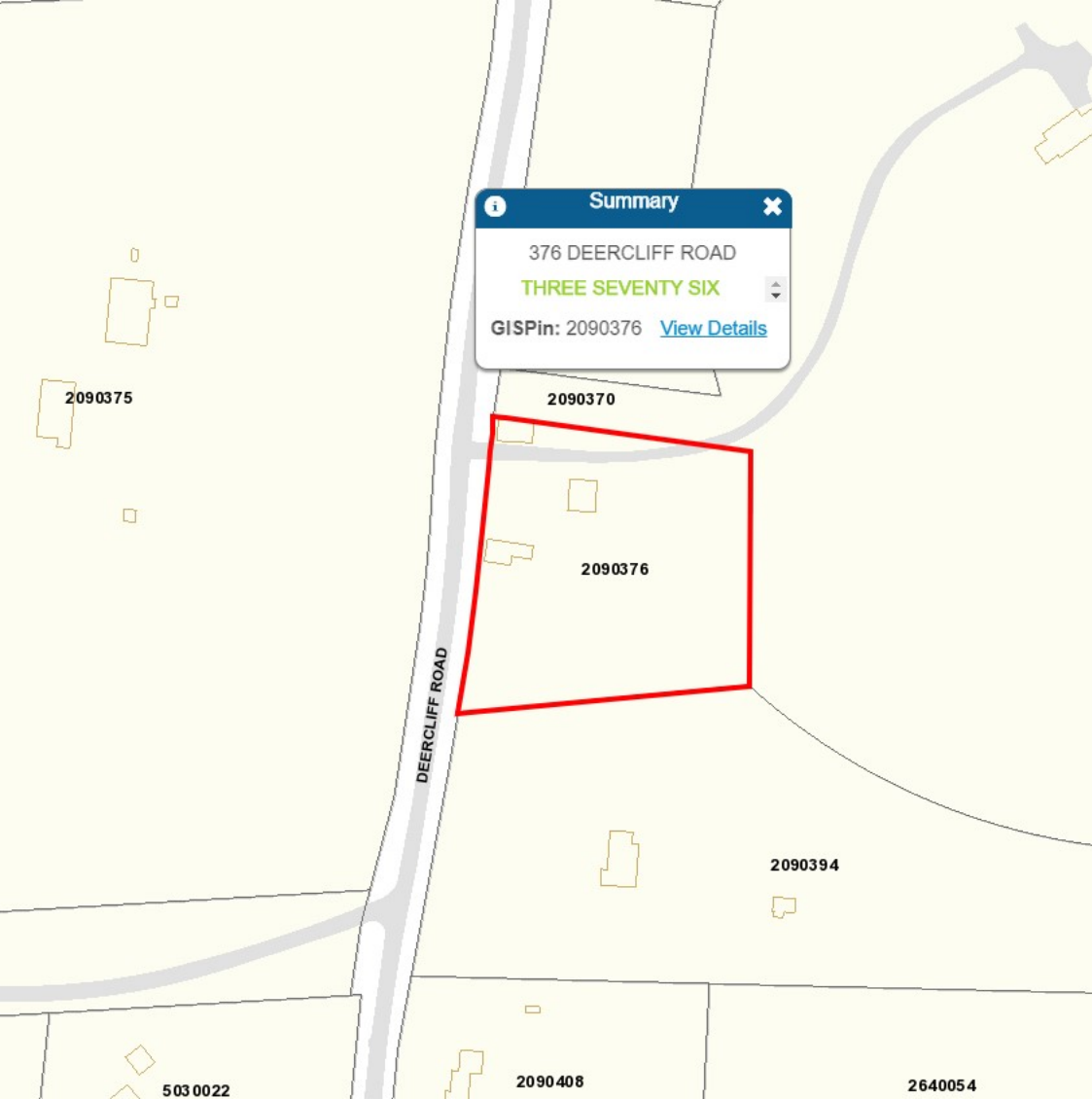
Residential Dwelling Information

Subject	Code	Description	Condominium	
Style	17	Old style		
Exterior Walls	04	Vinyl Siding		
Roof Material	01	Asphalt Shingles	Story Height 2.0	
Roof Type	01	Gable		
Foundation	01	Poured Concrete	Total Rooms	8
Interior Walls	01	Plaster	Garage cars	2
Floors		Unknown	Bedrooms	4
Heating System	02	Forced Hot Air	Family Rooms	
Fuel	01	Oil	Full Baths	2
Attic	02	Unfinished	Half Baths	
Grade	33	C+	Addtn'l fixtures	
Garage	32	Detached 2 car	Whirlpools	
Area Over Gar.	99	None	Saunas	
Basement	01	Full	# Living Units	1
Bsmt Fin Qual	01	Unfinished	M/F stacks	
Air Condition	01	Central Air	W/B stacks	1
Interior Cond	05	Good	W/B openings	1
Exterior Cond	05	Good	Actual Year Built: 1807	

Outbuilding Information

Description	Wid	Len	Area	Rate	Year	Cnd	RCN	Depr	Value	
RG1 Frame or Con	24	40	960	29.01		C	27,850	90	2,790	
Block Detach Garage										
RS1 Frame	20	22	440	20.00		C	8,800	90	880	
Utility Shed										
			1							
Value at 70%			2,569	Value at 100%				3,670		





Summary

376 DEERCLIFF ROAD

THREE SEVENTY SIX

GISPin: 2090376 [View Details](#)

2090375

2090370

2090376

2090394

5030022

2090408

2640054

DEERCLIFF ROAD

Exhibit C

Construction Drawings



DISH WIRELESS L.L.C. SITE ID:

BOBDL00075A

DISH WIRELESS L.L.C. SITE ADDRESS:

**376 DEERCLIFF ROAD
AVON, CT 06001**

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 (3) PROPOSED TOWER SECTOR FRAMES • INSTALL PROPOSED JUMPERS • INSTALL (2) PROPOSED RRU'S (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 FIBER NID (IF REQUIRED)

SITE INFORMATION	PROJECT DIRECTORY
PROPERTY OWNER: THREE SEVENTY SIX DEERCLIFF	APPLICANT: DISH WIRELESS L.L.C. 5701 SOUTH SANTA FE DRIVE LITTLETON, CO 80120
ADDRESS: 1897 BERLIN TPKE BERLIN, CT 06037	TOWER OWNER: CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317 (877) 486-9377
TOWER TYPE: GUY TOWER	SITE DESIGNER: B+T GROUP 1717 S. BOULDER AVE, SUITE 300 TULSA, OK 74119 (918) 587-4630
TOWER CO SITE ID: 870800	SITE ACQUISITION: NICHOLAS CURRY NICHOLAS.CURRY@CROWNCastle.COM
TOWER APP NUMBER: 556618	CONSTRUCTION MANAGER: JAVIER SOTO JAVIER.SOTO@DISH.COM
COUNTY: HARTFORD	RF ENGINEER: BOSSENER CHARLES BOSSENER.CHARLES@DISH.COM
LATITUDE (NAD 83): 41° 46' 29.95" N 41.77498611 N	
LONGITUDE (NAD 83): 72° 48' 2.07" W 72.8005749999 W	
ZONING JURISDICTION: CONNECTICUT SITING COUNCIL	
ZONING DISTRICT: RU2A	
PARCEL NUMBER: 2090376	
OCCUPANCY GROUP: U	
CONSTRUCTION TYPE: V-B	
POWER COMPANY: CONNECTICUT LIGHT & POWER	
TELEPHONE COMPANY: XFINITY	



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



2000 CORPORATE DRIVE
CANONSBURG, PA 15317



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



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

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: JP
---------------	-----------------	-----------------

RFDS REV #: ---

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	5/21/21	ISSUED FOR REVIEW
0	6/30/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
83041.008.01

DISH WIRELESS L.L.C.
PROJECT INFORMATION

BOBDL00075A
376 DEERCLIFF ROAD
AVON, CT 06001

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1



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

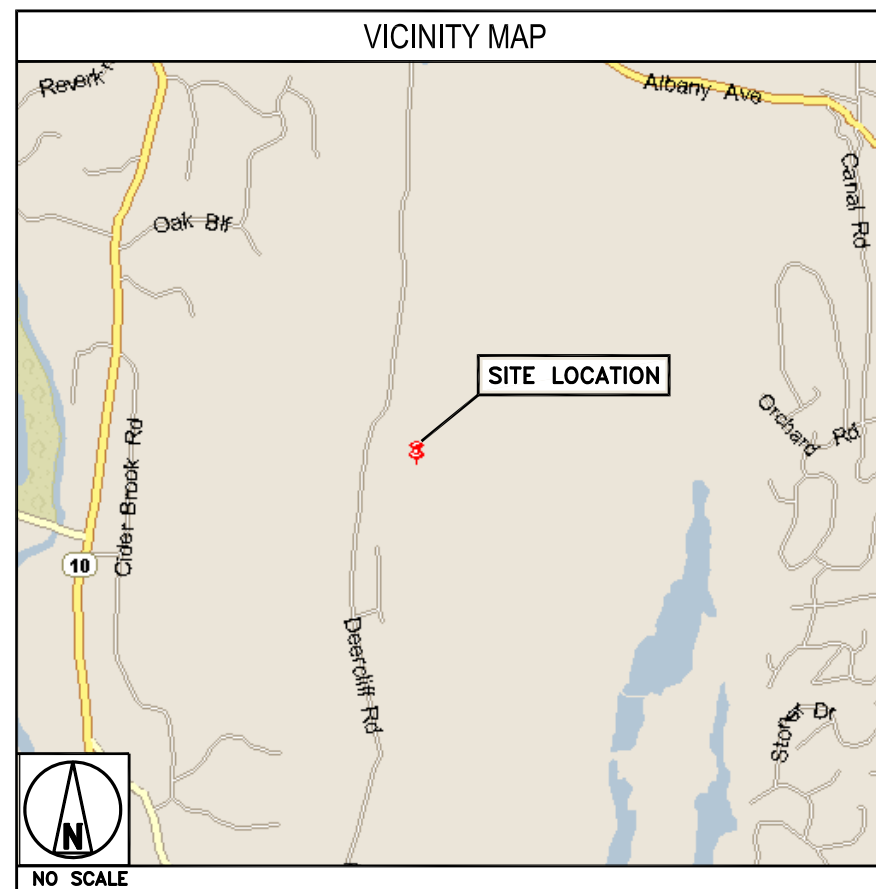
THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE, NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE 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 BRADLEY INTERNATIONAL AIRPORT:
DEPART BRADLEY INTERNATIONAL AIRPORT ON TERMINAL RD. ROAD NAME CHANGES TO BRADLEY FIELD CONNECTOR. ROAD NAME CHANGES TO CT-20 [BRADLEY FIELD CONNECTOR]. TAKE RAMP (RIGHT) ONTO I-91 [RICHARD P HORAN MEMORIAL HWY]. AT EXIT 35B, TURN LEFT ONTO RAMP. TURN RIGHT ONTO CT-218 [PUTNAM HWY]. KEEP STRAIGHT ONTO CT-218 [W WOLCOTT AVE]. KEEP STRAIGHT ONTO CT-218 [COTTAGE GROVE RD]. KEEP STRAIGHT ONTO CT-218 [HALL BLVD]. KEEP STRAIGHT ONTO CT-218 [N MAIN ST]. TURN RIGHT ONTO US-44 [ALBANY AVE]. TURN LEFT ONTO DEERCLIFF RD. ARRIVE 376 DEERCLIFF RD, AVON, CT 06001.



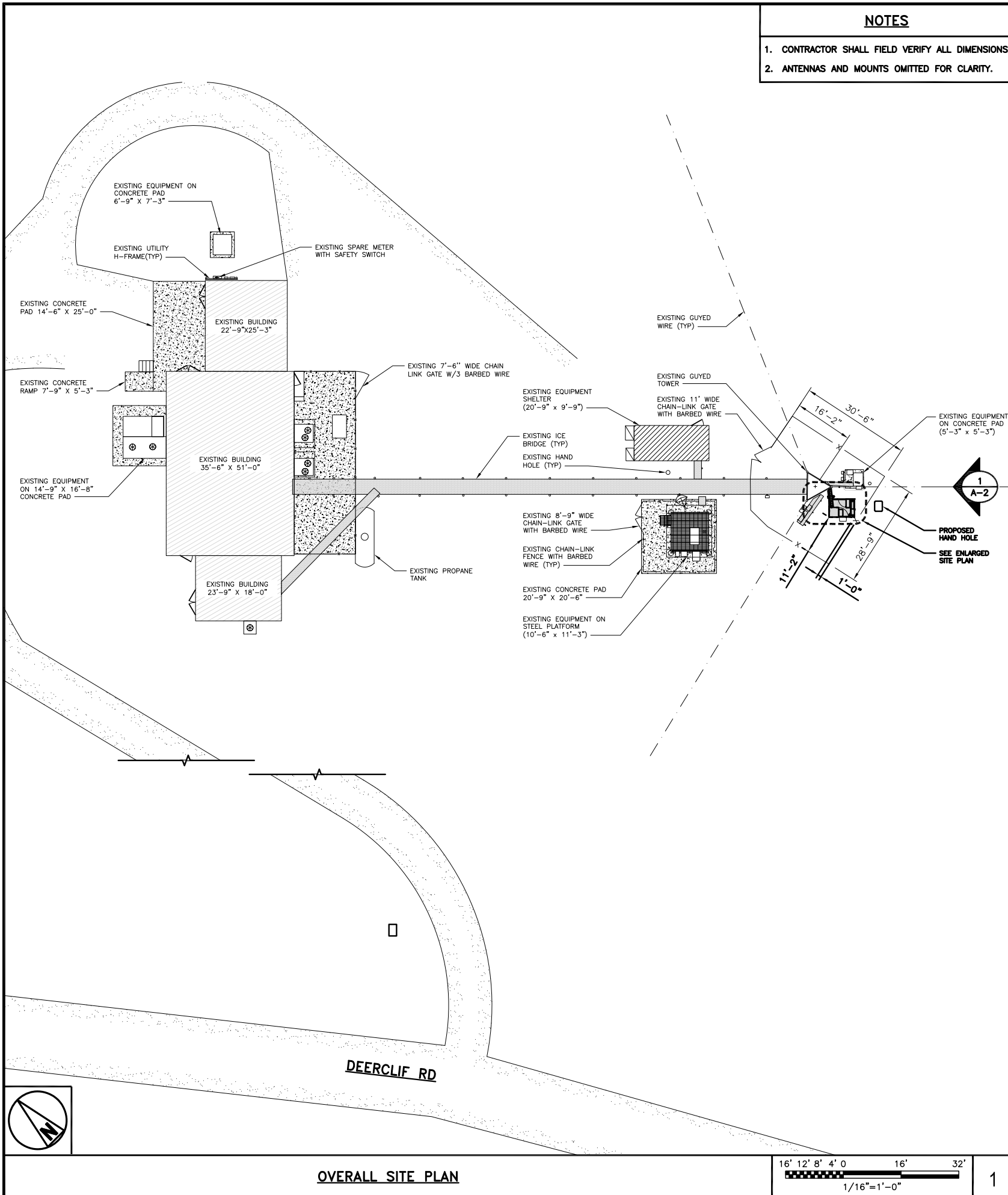
CONNECTICUT CODE COMPLIANCE

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

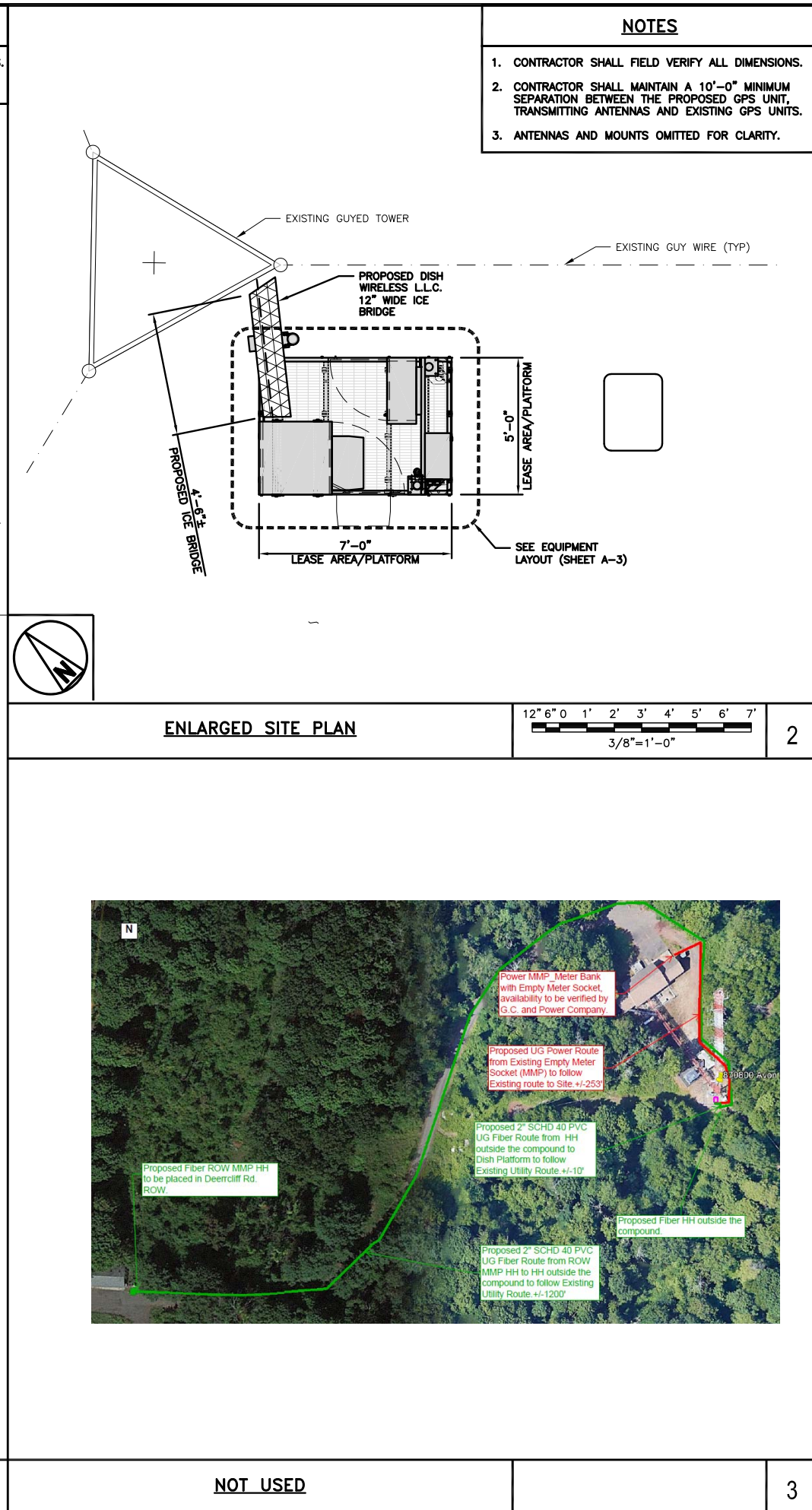
CODE TYPE	CODE
BUILDING	2018 CT STATE BUILDING CODE/2015 IBC W/ CT AMENDMENTS
MECHANICAL	2018 CT STATE BUILDING CODE/2015 IMC W/ CT AMENDMENTS
ELECTRICAL	2018 CT STATE BUILDING CODE/2017 NEC W/ CT AMENDMENTS

SHEET INDEX

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



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

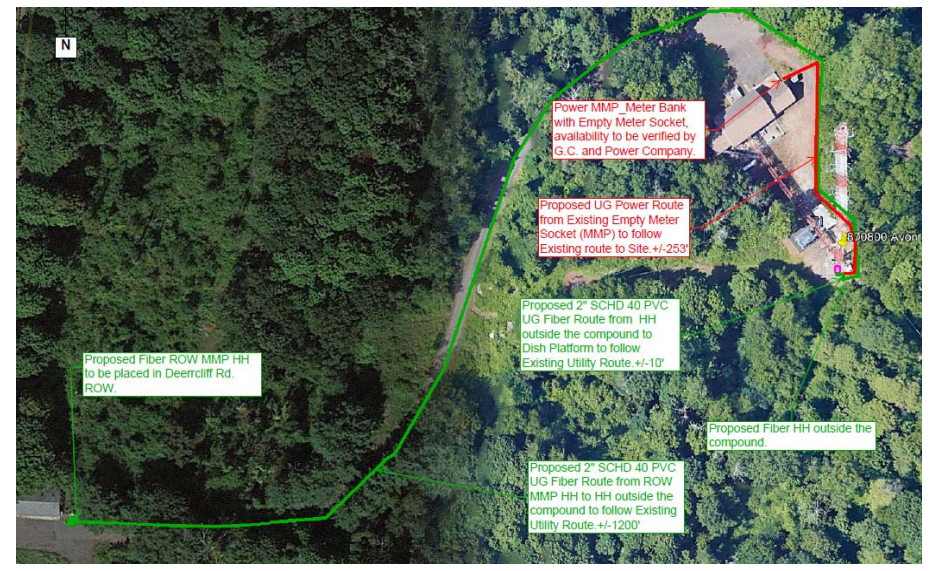


- NOTES**
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
 2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
 3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.



NOT USED

3



5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120



2000 CORPORATE DRIVE
CANONSBURG, PA 15317



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



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

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

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

RFDS REV #:

CONSTRUCTION DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	5/21/21	ISSUED FOR REVIEW
0	6/30/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
83041.008.01

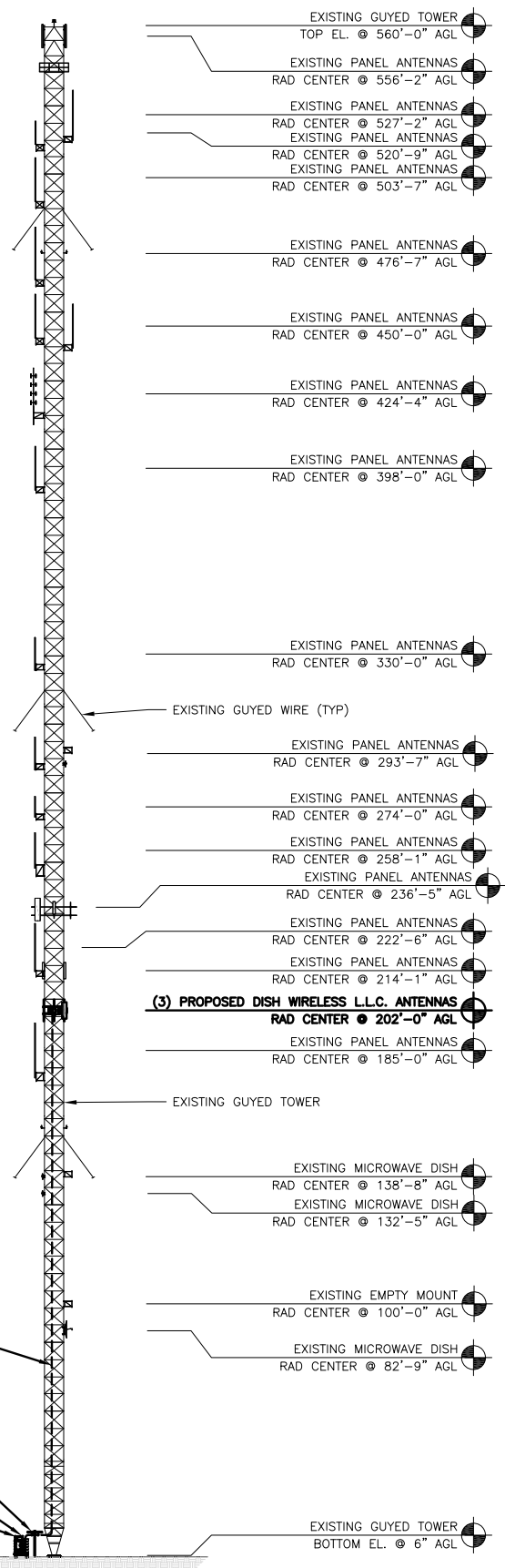
DISH WIRELESS L.L.C.
PROJECT INFORMATION
BOBDL00075A
376 DEERCLIFF ROAD
AVON, CT 06001

SHEET TITLE
OVERALL AND ENLARGED
SITE PLAN

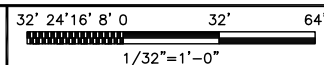
SHEET NUMBER
A-1

NOTES

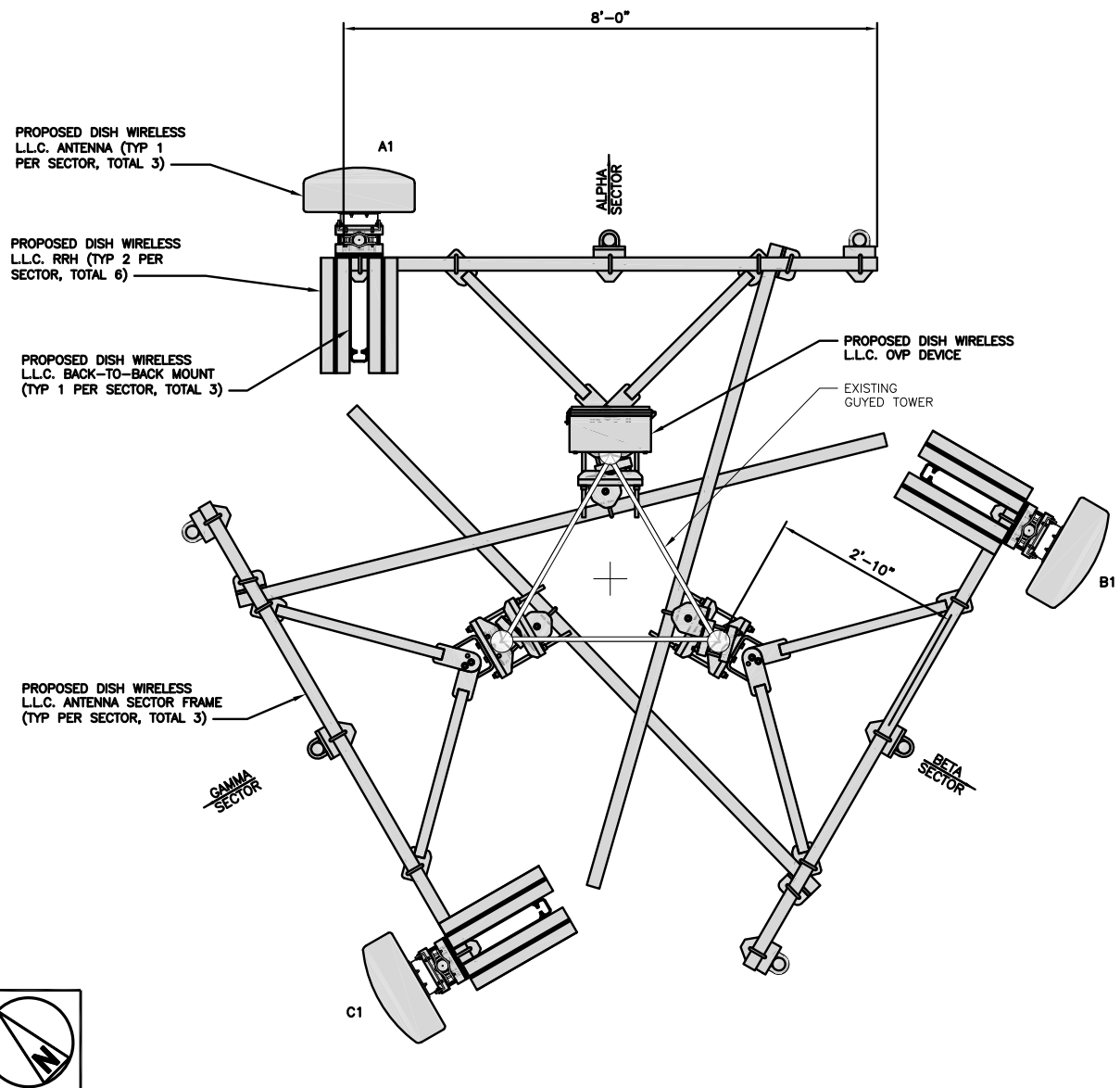
1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. ANTENNA AND MW DISH SPECIFICATIONS REFER TO ANTENNA SCHEDULE AND TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS
3. EXISTING EQUIPMENT AND FENCE OMITTED FOR CLARITY.



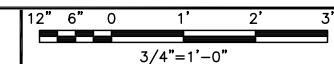
PROPOSED SOUTHEAST ELEVATION



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-MX08FRO665-21	5G	72" x 20"	0°	202'-0"	(1) HIGH-CAPACITY HYBRID CABLE (230' LONG)
BETA	B1	PROPOSED	JMA WIRELESS-MX08FRO665-21	5G	72" x 20"	120°	202'-0"	
GAMMA	C1	PROPOSED	JMA WIRELESS-MX08FRO665-21	5G	72" x 20"	240°	202'-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



2000 CORPORATE DRIVE
CANONSBURG, PA 15317



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

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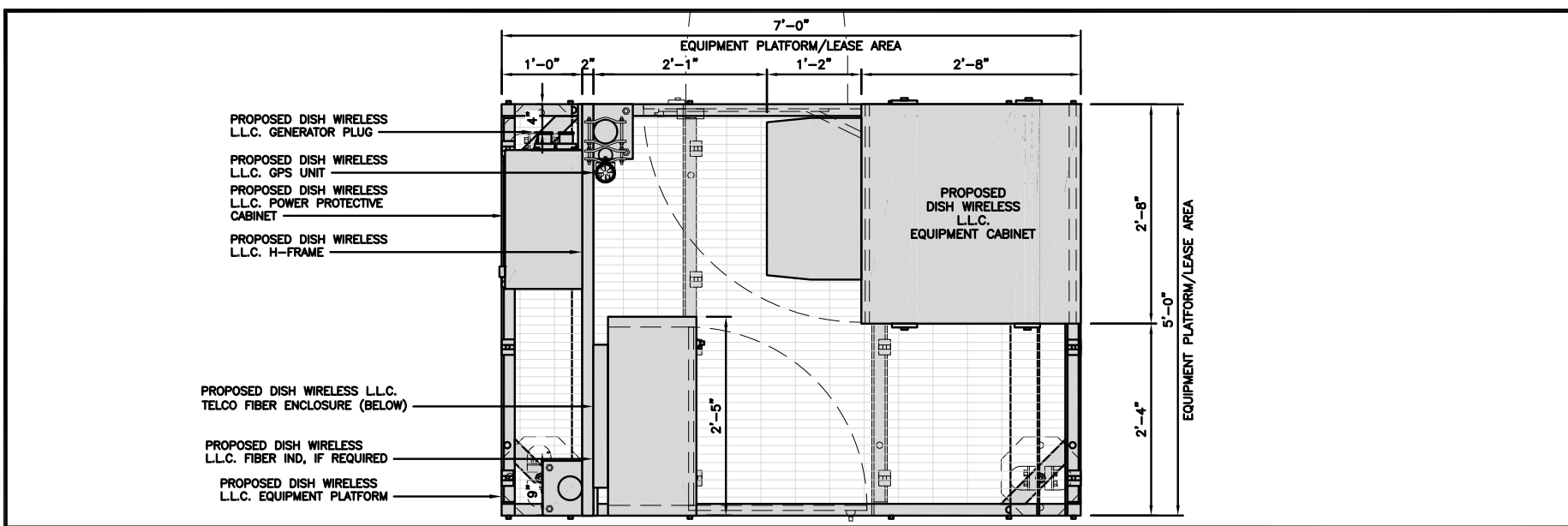
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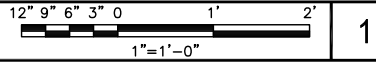
SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER

A-2



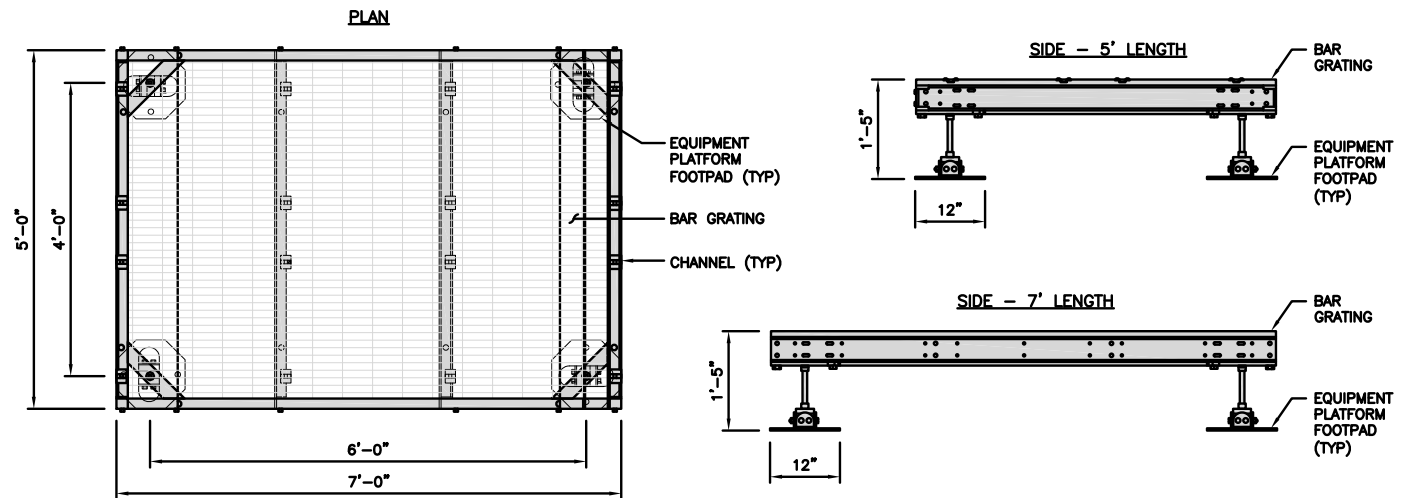
PLATFORM EQUIPMENT PLAN



1

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

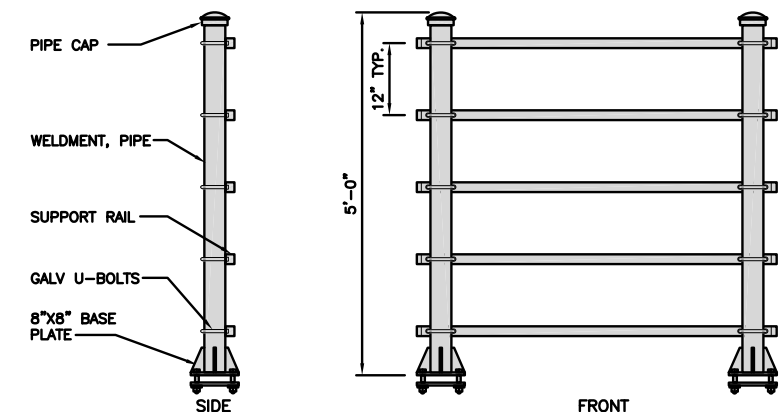
NOTE:
GC TO PROVIDE EXTENDED
THREAD FOR PLATFORM IF
REQUIRED HEIGHT EXCEEDS 17"



PLATFORM DETAIL

NO SCALE 2

KENWOOD T1701KT5-5S H-FRAME	
UNISTRUT/SUPPORT RAIL	5
WEIGHT/ VOLUME	173.6 LBS



H-FRAME DETAIL

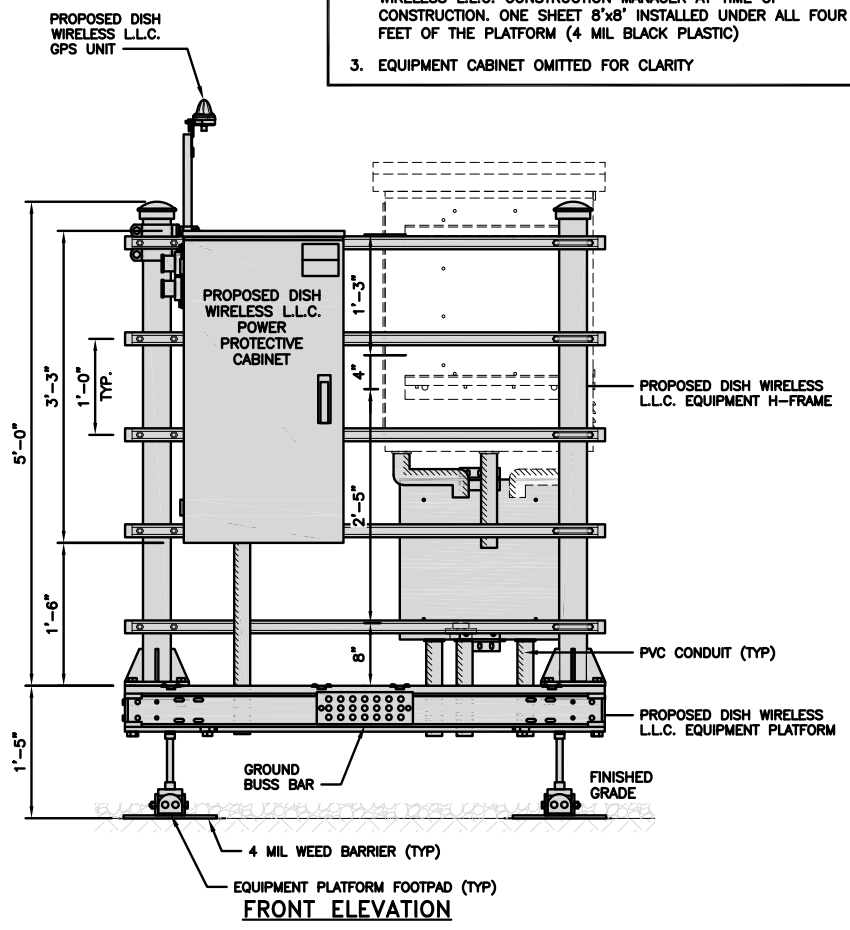
NO SCALE 3

NOT USED

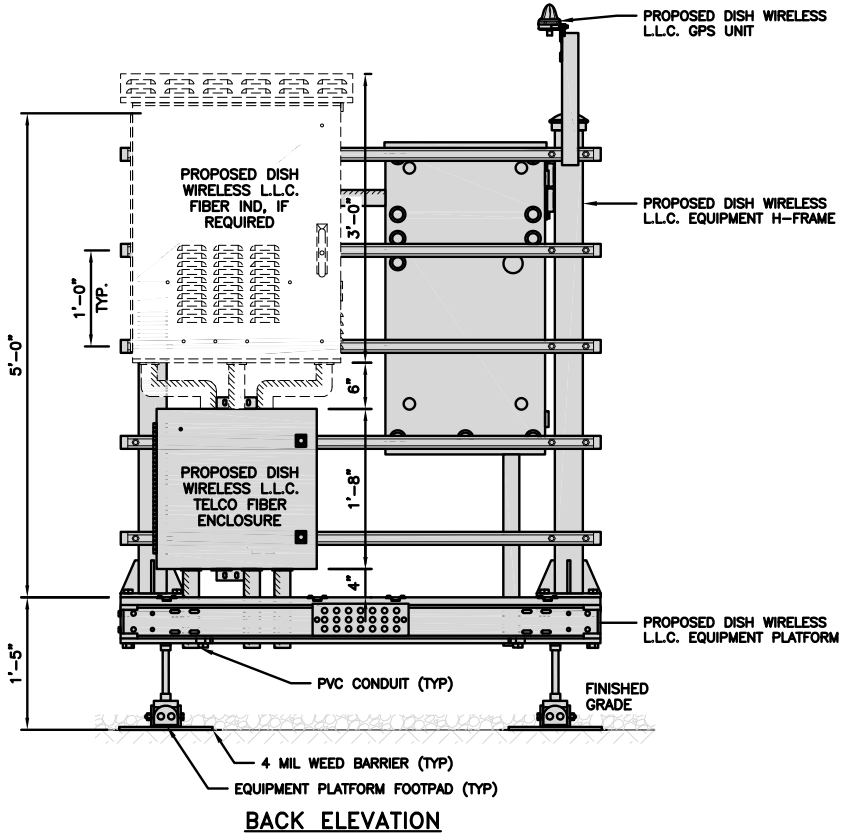
NO SCALE 4

NOTES

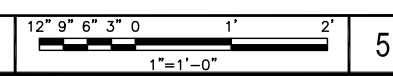
- CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE
- WEED BARRIER FABRIC TO BE ADDED AT DISCRETION OF DISH WIRELESS L.L.C. CONSTRUCTION MANAGER AT TIME OF CONSTRUCTION. ONE SHEET 8'x8' INSTALLED UNDER ALL FOUR FEET OF THE PLATFORM (4 MIL BLACK PLASTIC)
- EQUIPMENT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



FRONT ELEVATION



BACK ELEVATION



H-FRAME EQUIPMENT ELEVATION

5



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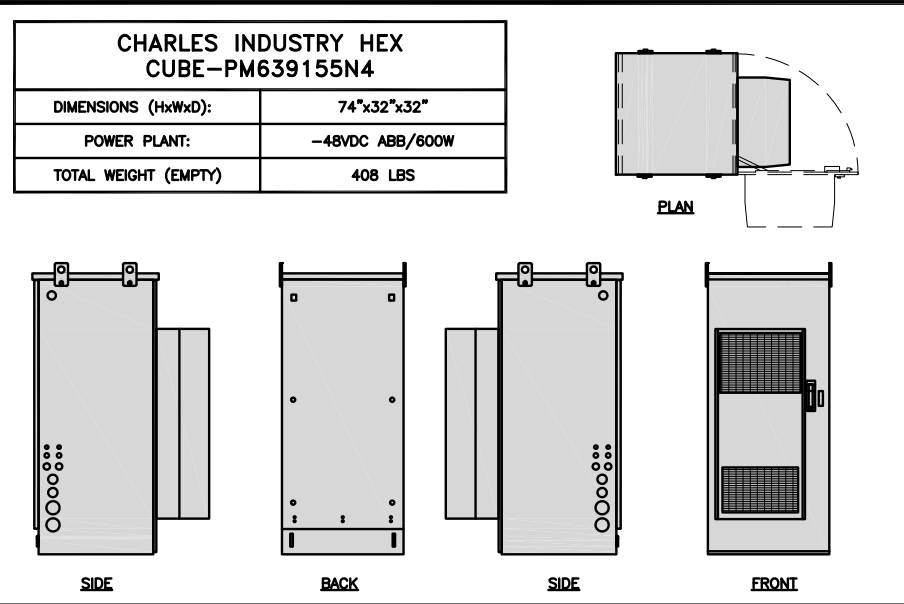
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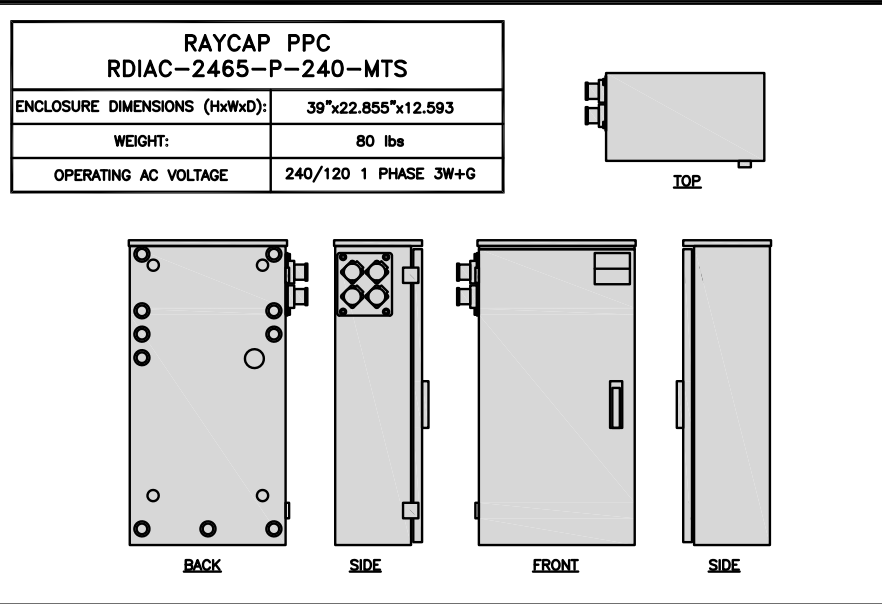
SHEET TITLE
EQUIPMENT PLATFORM AND
H-FRAME DETAILS

SHEET NUMBER

A-3



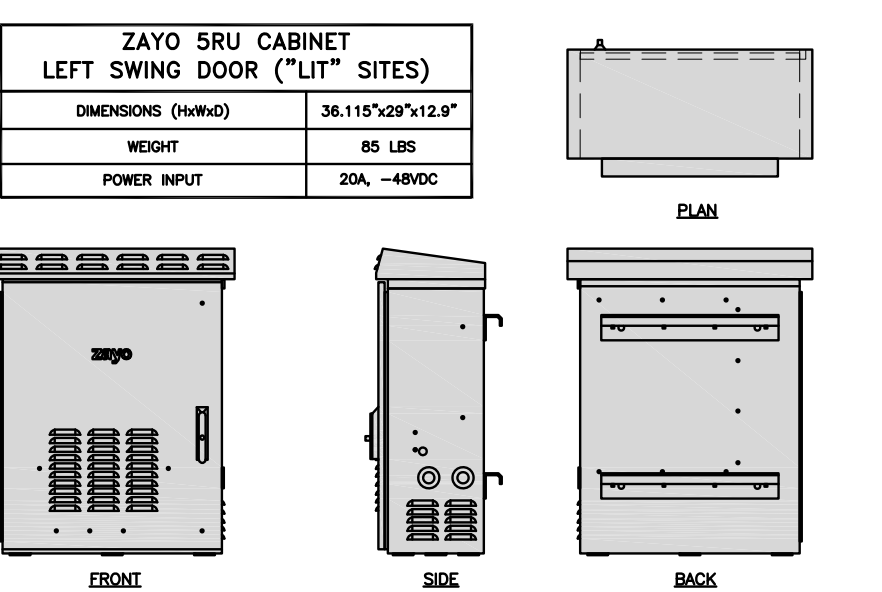
CABINET DETAIL NO SCALE 1



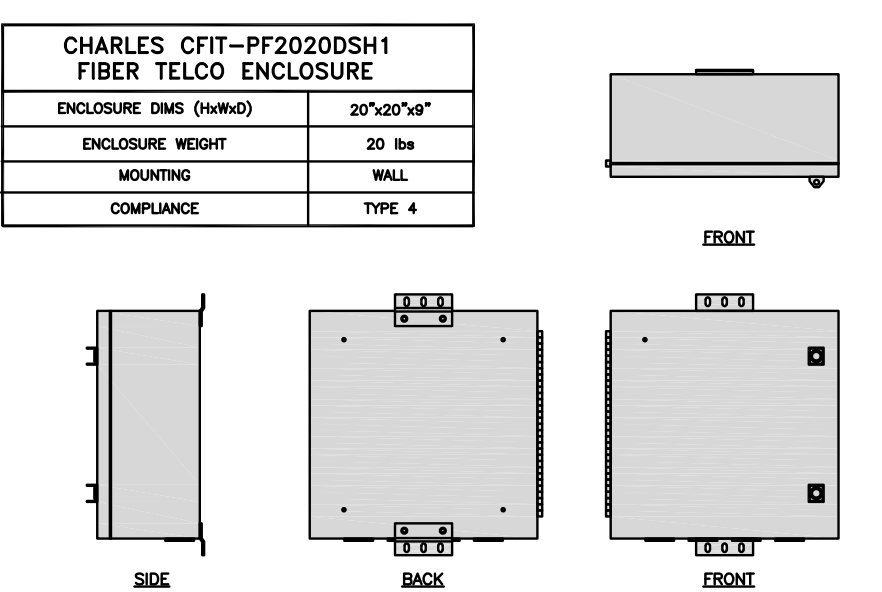
POWER PROTECTION CABINET (PPC) DETAIL NO SCALE 2

NOT USED NO SCALE 3

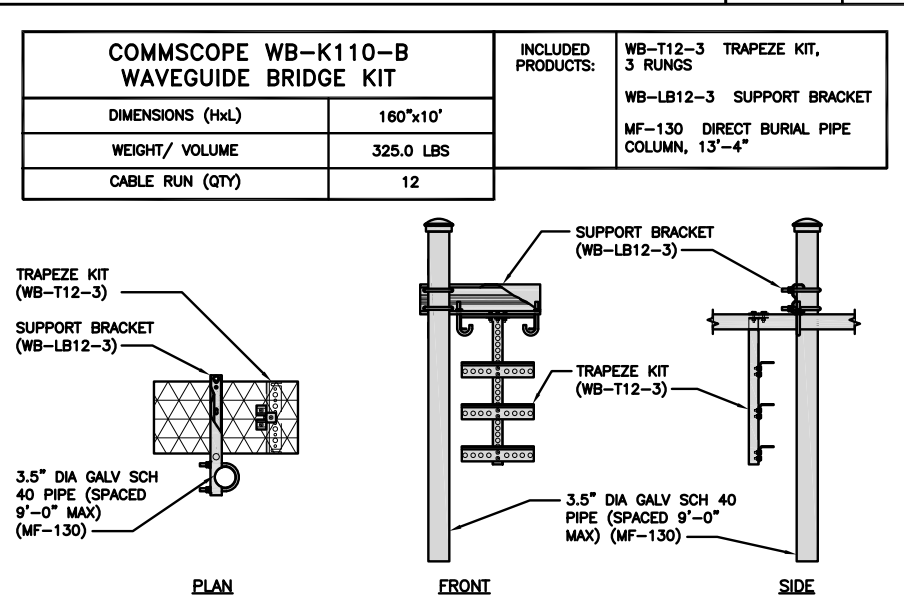
NO SCALE 4



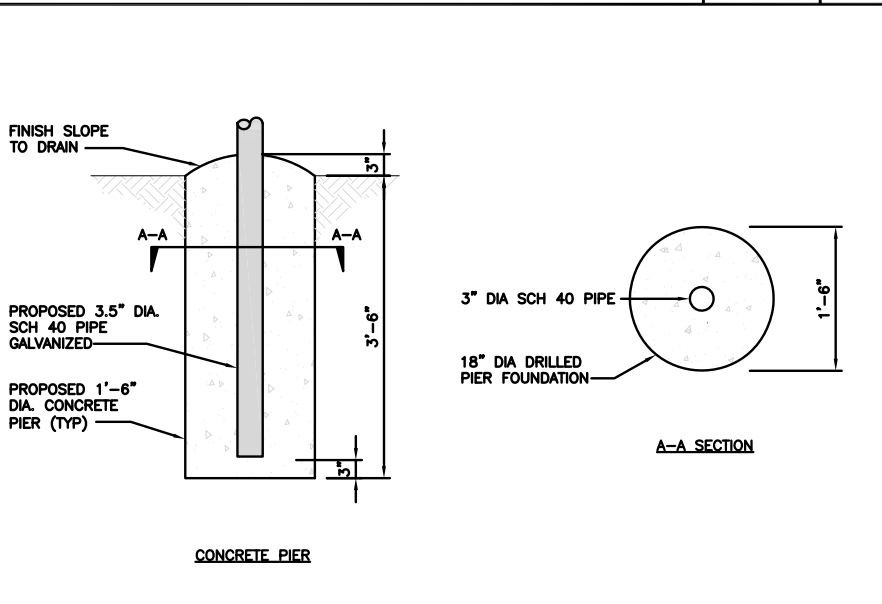
NETWORK INTERFACE UNIT DETAIL NO SCALE 5



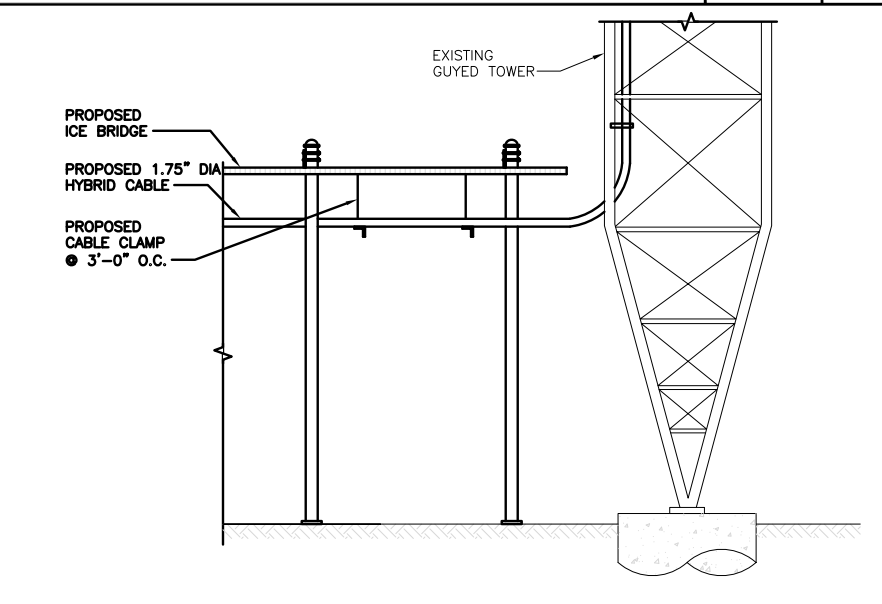
FIBER TELCO ENCLOSURE DETAIL NO SCALE 6



ICE BRIDGE DETAIL NO SCALE 7



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL NO SCALE 8



HYBRID CABLE RUN NO SCALE 9

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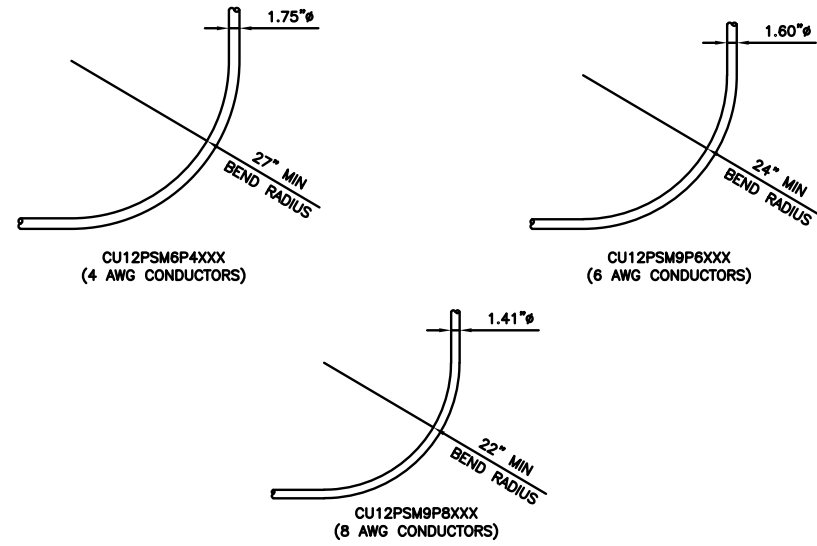
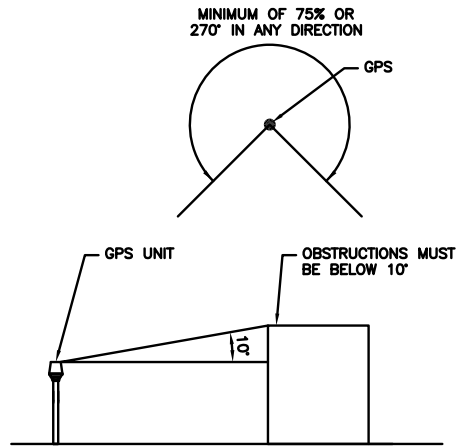
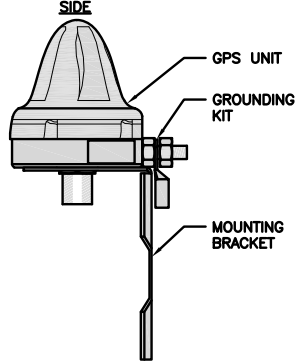
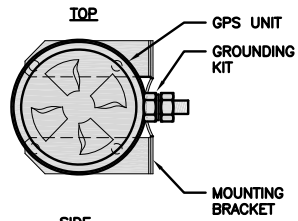
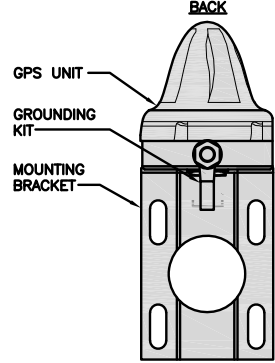
A&E PROJECT NUMBER
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DISH WIRELESS L.L.C.
PROJECT INFORMATION
BOBDL00075A
376 DEERCLIFF ROAD
AVON, CT 06001

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-4

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



GPS ANTENNA DETAIL

NO SCALE 1

GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE 2

CABLES UNLIMITED HYBRID CABLE
MINIMUM BEND RADIUS

NO SCALE 3

NOT USED

NO SCALE 4

NOT USED

NO SCALE 5

NOT USED

NO SCALE 6

NOT USED

NO SCALE 7

NOT USED

NO SCALE 8

NOT USED

NO SCALE 9



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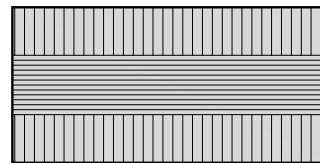
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376 DEERCLIFF ROAD
AVON, CT 06001

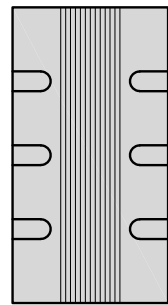
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
A-5

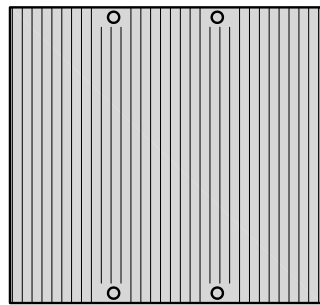
FUJITSU TA08025-B604 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x200/14.9"x15.7"x7.8"
WEIGHT(KG,LB)/ VOLUME	29kg,63.9lb/ 30L
POWER SUPPLY	DC-58~-36V



PLAN



SIDE



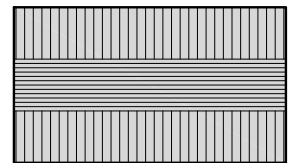
FRONT

REMOTE RADIO HEAD DETAIL

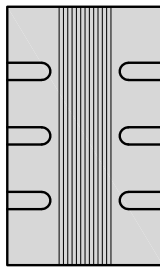
NO SCALE

1

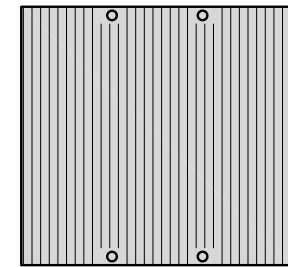
FUJITSU TA08025-B605 RRH	
DIMENSIONS (HxWxD) (KG/IN)	380x400x230/14.9"x15.7"x9.0"
WEIGHT(KG,LB)/ VOLUME	34kg,74.9lb/ 35L
POWER SUPPLY	DC-58~-36V



PLAN



SIDE



FRONT

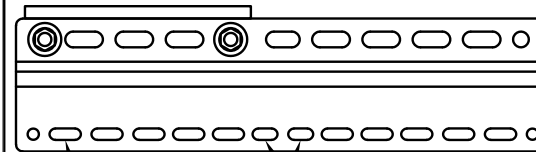
REMOTE RADIO HEAD DETAIL

NO SCALE

2

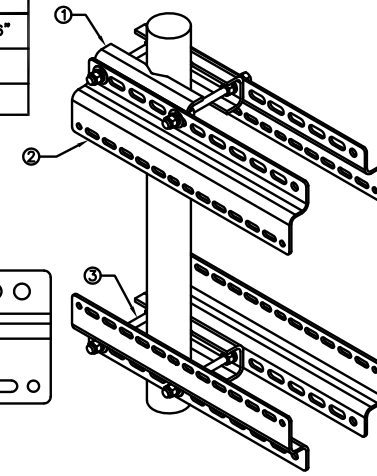
SABRE INDUSTRIES RRU BRACKET MOUNT C10123155	
DIMENSIONS (HxWxD) (1 BRACKET)	5"x20"x1-13/16"
WEIGHT (FULL ASSEMBLY)	35.79 lbs
PACKAGE QUANTITY	4

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



11MM x 30MM SLOTS
40MM ON CENTER

11MM x 24MM SLOTS

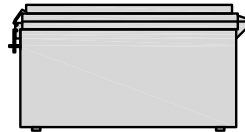


REMOTE RADIO MOUNT DETAIL

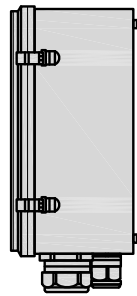
NO SCALE

3

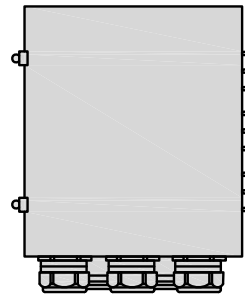
RAYCAP RDIDC-9181-PF-48 DC SURGE PROTECTION (OVP)	
DIMENSIONS (HxWxD)	18.98"x14.39"x8.15"
WEIGHT	21.82 LBS



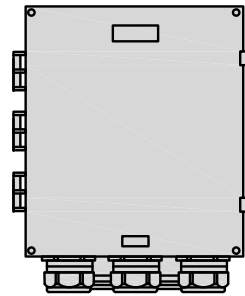
PLAN



SIDE



BACK



FRONT

SURGE SUPPRESSION DETAIL (OVP)

NO SCALE

4

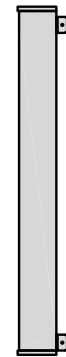
JMA WIRELESS MX08FRO665-21 ANTENNA	
DIMENSIONS (HxWxD)	72.0"x20.0"x8.0"
TOTAL WEIGHT	64.5 LB
RF PORTS, CONNECTOR TYPE	8 x 4.3-10 FEMALE



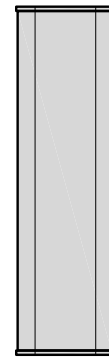
PLAN



BACK



SIDE



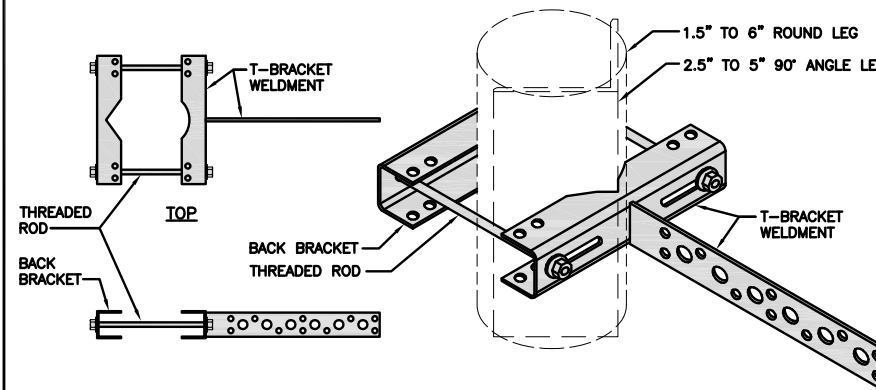
FRONT

ANTENNA DETAIL

NO SCALE

5

SITEPRO1 T600 UNIVERSAL T-BRACKET	
DIMENSIONS (HxWxL)	2.25"x10.0"x15.25"
WEIGHT/ VOLUME	5.60 LBS



SIDE

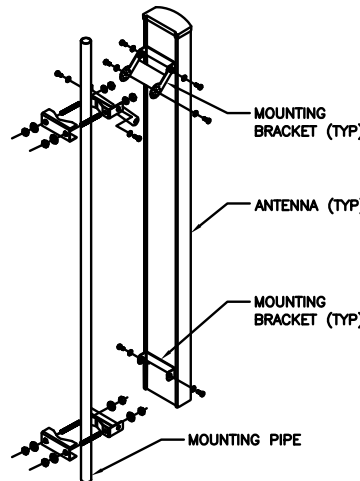
ISOMETRIC

VERTICAL CABLE SUPPORT DETAIL

NO SCALE

9

M04 MOUNTING BRACKET HPA-33R-BUU-H4-K	
WIDTH	5" (135mm)
DEPTH	2" (51mm)
HEIGHT	8" (213mm)
TOTAL WEIGHT (WITH BRACKETS)	1.5 LBS (15.50 Kg)
HOUSING MATERIAL	ASA/ABS/ALUMINUM
RADOME COLOR	LIGHT GRAY
CONNECTOR	1X8-PIN DAISY CHAIN

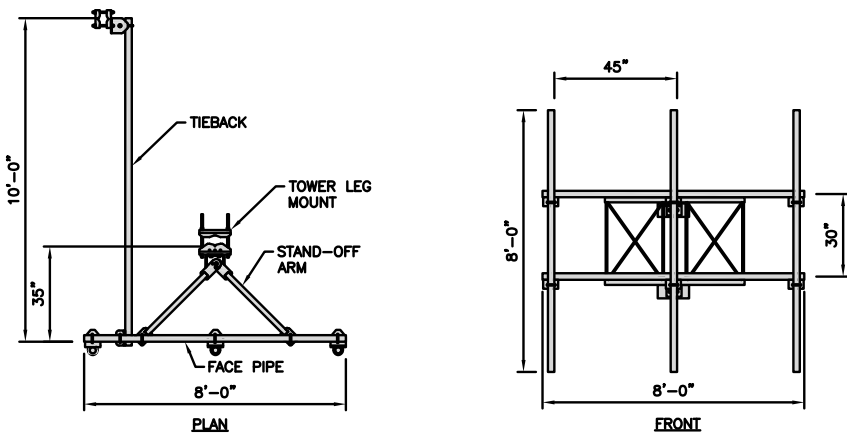


ANTENNA MOUNTING DETAIL

NO SCALE

7

COMMSCOPE V-FRAME MTC3975083	
FACE SIZE	8'-0"
WEIGHT	352.136 lbs



ANTENNA FRAME DETAIL

NO SCALE

8

dish
wireless.

5701 SOUTH SANTA FE DRIVE
LITTLETON, CO 80120

CROWN
CASTLE

2000 CORPORATE DRIVE
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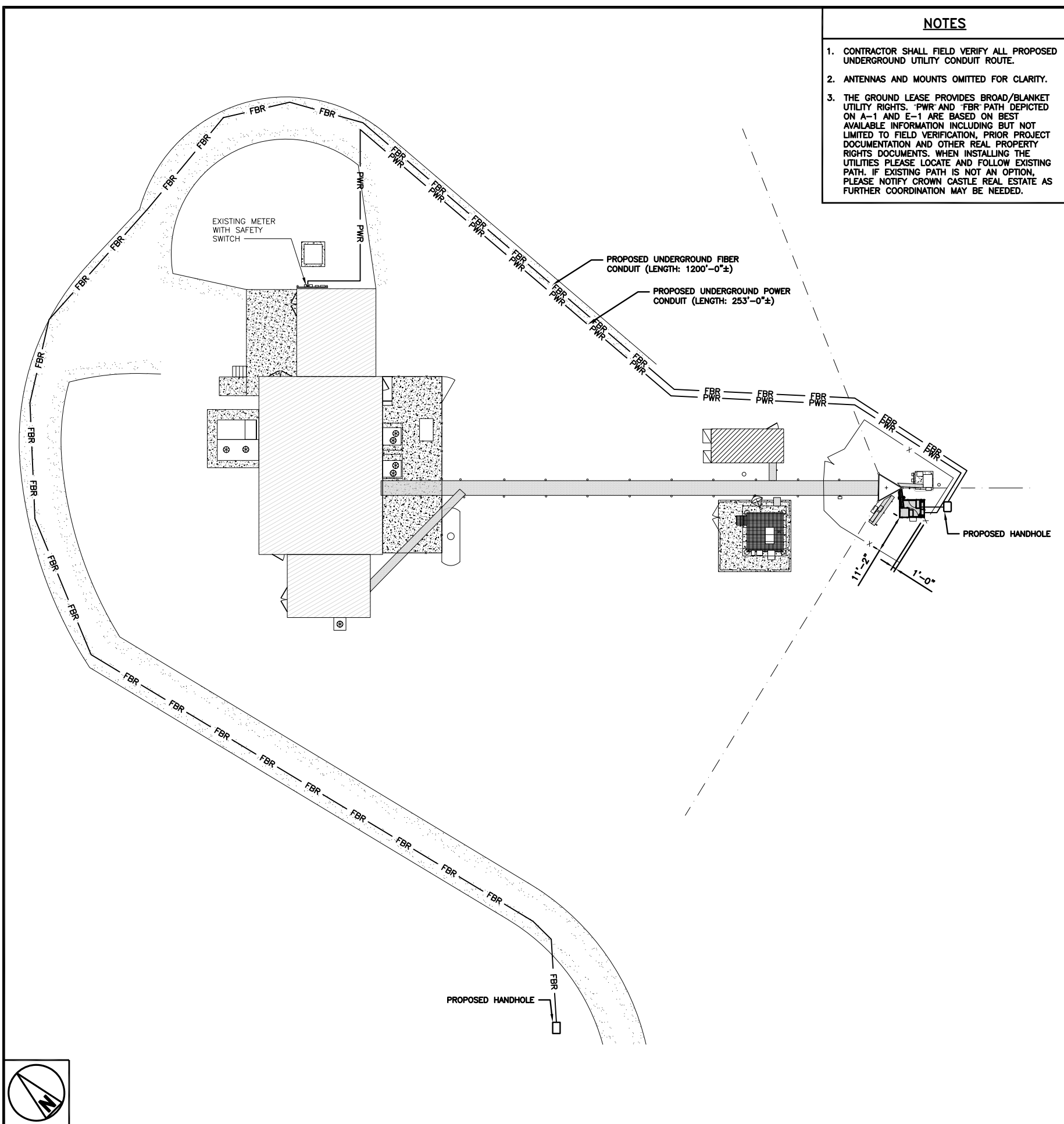
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376 DEERCLIFF ROAD
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SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER

A-6



NOTES

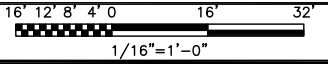
1. CONTRACTOR SHALL FIELD VERIFY ALL PROPOSED UNDERGROUND UTILITY CONDUIT ROUTE.
2. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
3. THE GROUND LEASE PROVIDES BROAD/BLANKET UTILITY RIGHTS. PWR AND FBR PATH DEPICTED ON A-1 AND E-1 ARE BASED ON BEST AVAILABLE INFORMATION INCLUDING BUT NOT LIMITED TO FIELD VERIFICATION,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

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

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



UTILITY ROUTE PLAN



ELECTRICAL NOTES



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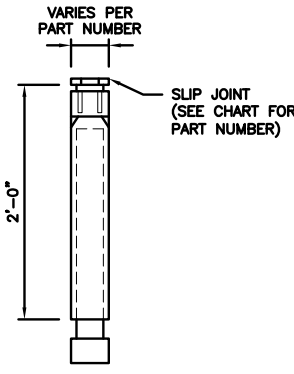
DISH WIRELESS L.L.C.
PROJECT INFORMATION
BOBDL00075A
376 DEERCLIFF ROAD
AVON, CT 06001

SHEET TITLE
ELECTRICAL/FIBER ROUTE
PLAN AND NOTES

SHEET NUMBER
E-1

CARLON EXPANSION FITTINGS

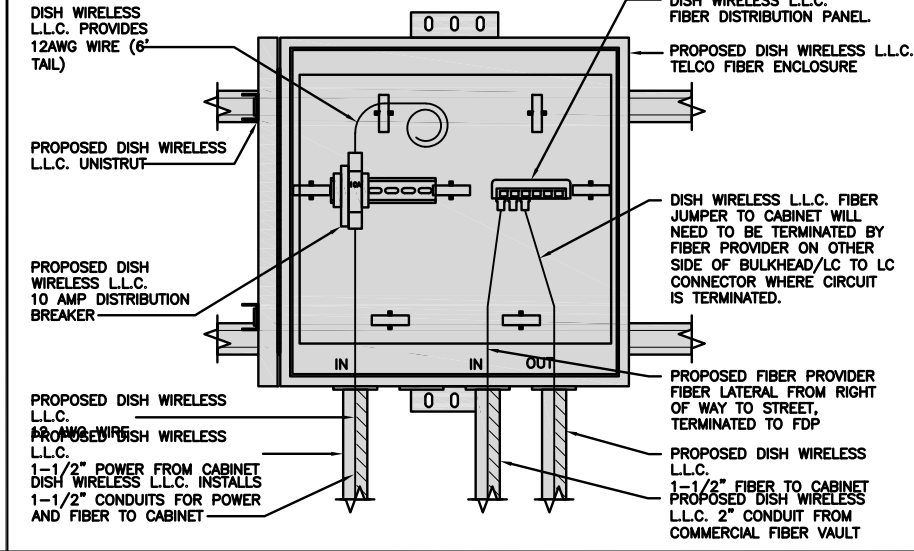
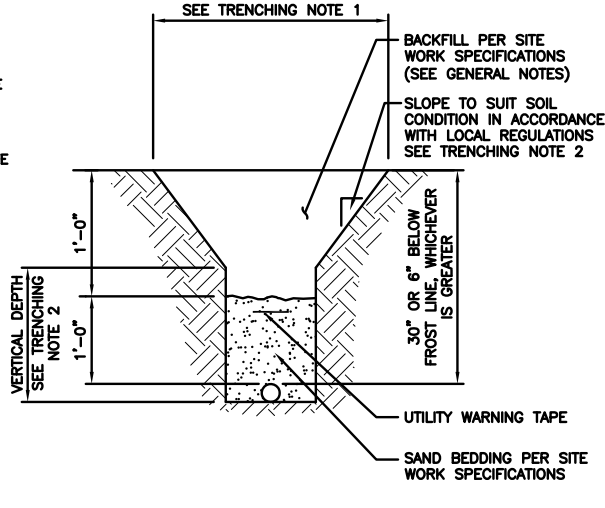
COUPLING END PART#	MALE TERMINAL ADAPTER END PART#	SIZE	STD CTN QTY.	TRAVEL LENGTH
E945D	E945DX	1/2"	20	4"
E945E	E945EX	3/4"	15	4"
E945F	E945FX	1"	10	4"
E945G	E945GX	1 1/4"	5	4"
E945H	E945HX	1 1/2"	5	4"
E945J	E945JX	2"	15	8"
E945K	E945KX	2 1/2"	10	8"
E945L	E945LX	3"	10	8"
E945M	E945MX	3 1/2"	5	8"
E945N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



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

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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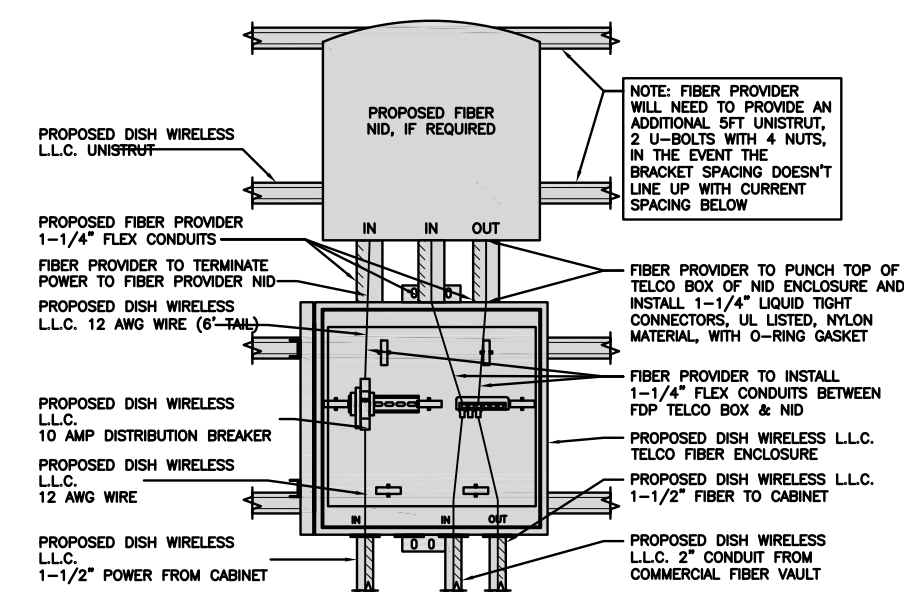
SHEET TITLE
ELECTRICAL
DETAILS

SHEET NUMBER
E-2

EXPANSION JOINT DETAIL NO SCALE 1

TYPICAL UNDERGROUND TRENCH DETAIL NO SCALE 2

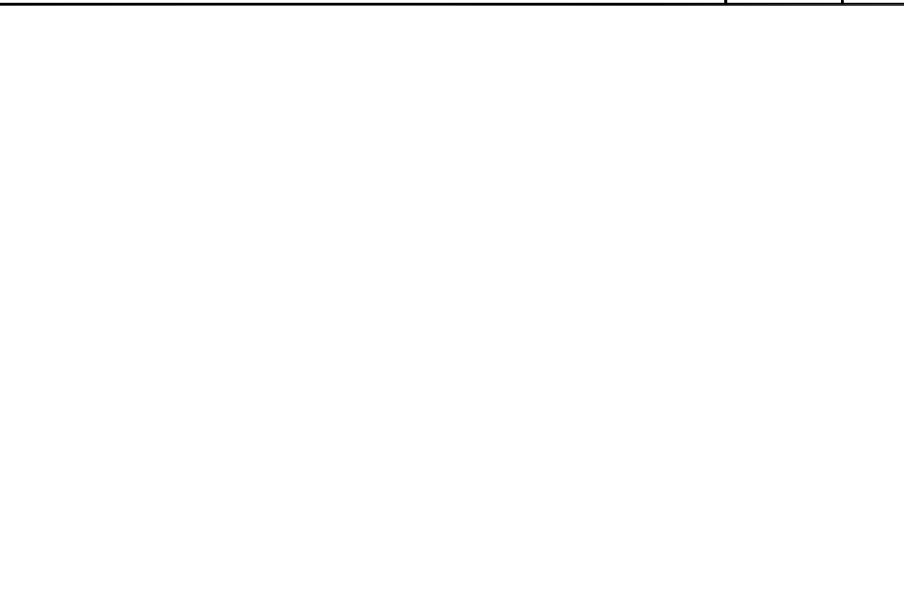
DARK TELCO BOX – INTERIOR WIRING LAYOUT NO SCALE 3



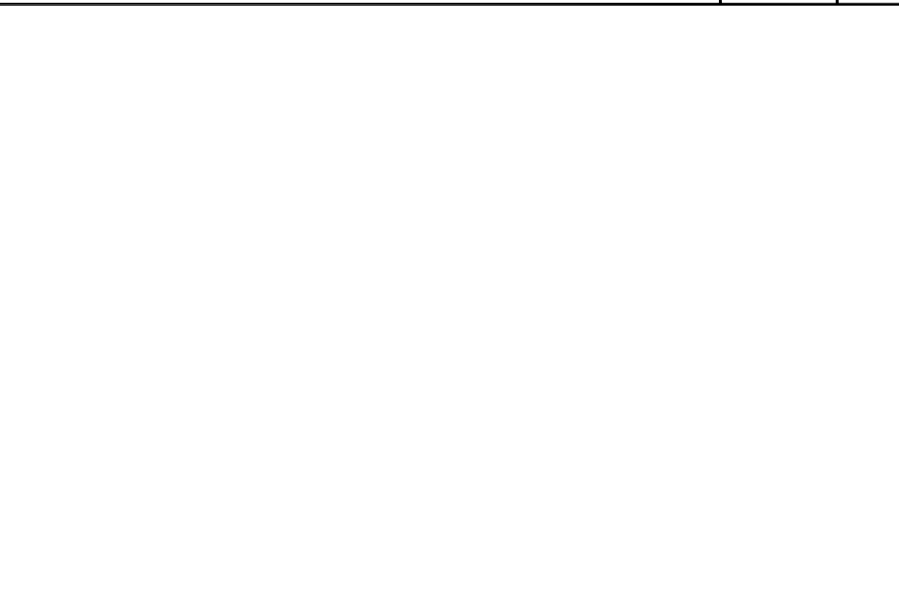
LIT TELCO BOX – INTERIOR WIRING LAYOUT (OPTIONAL) NO SCALE 4

NOT USED NO SCALE 5

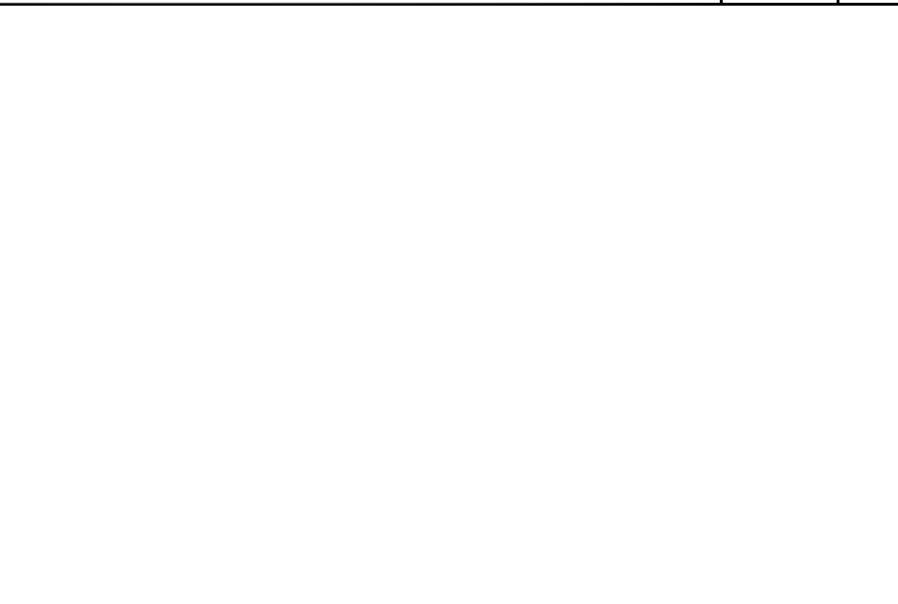
NOT USED NO SCALE 6



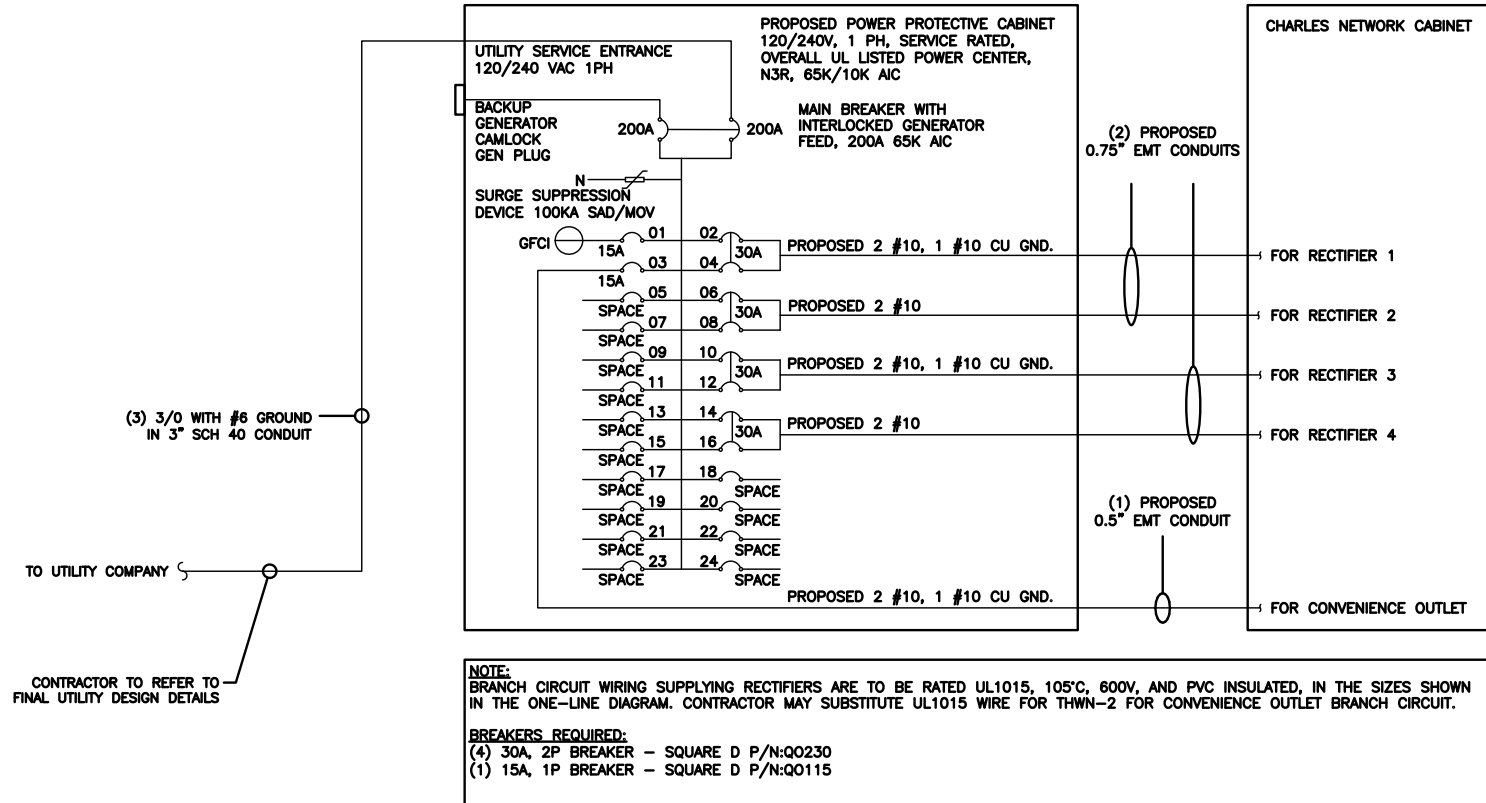
NOT USED NO SCALE 7



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)(g) 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.



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PROJECT INFORMATION
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376 DEERCLIFF ROAD
AVON, CT 06001

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

SHEET NUMBER
E-3

PPC ONE-LINE DIAGRAM

NO SCALE 1

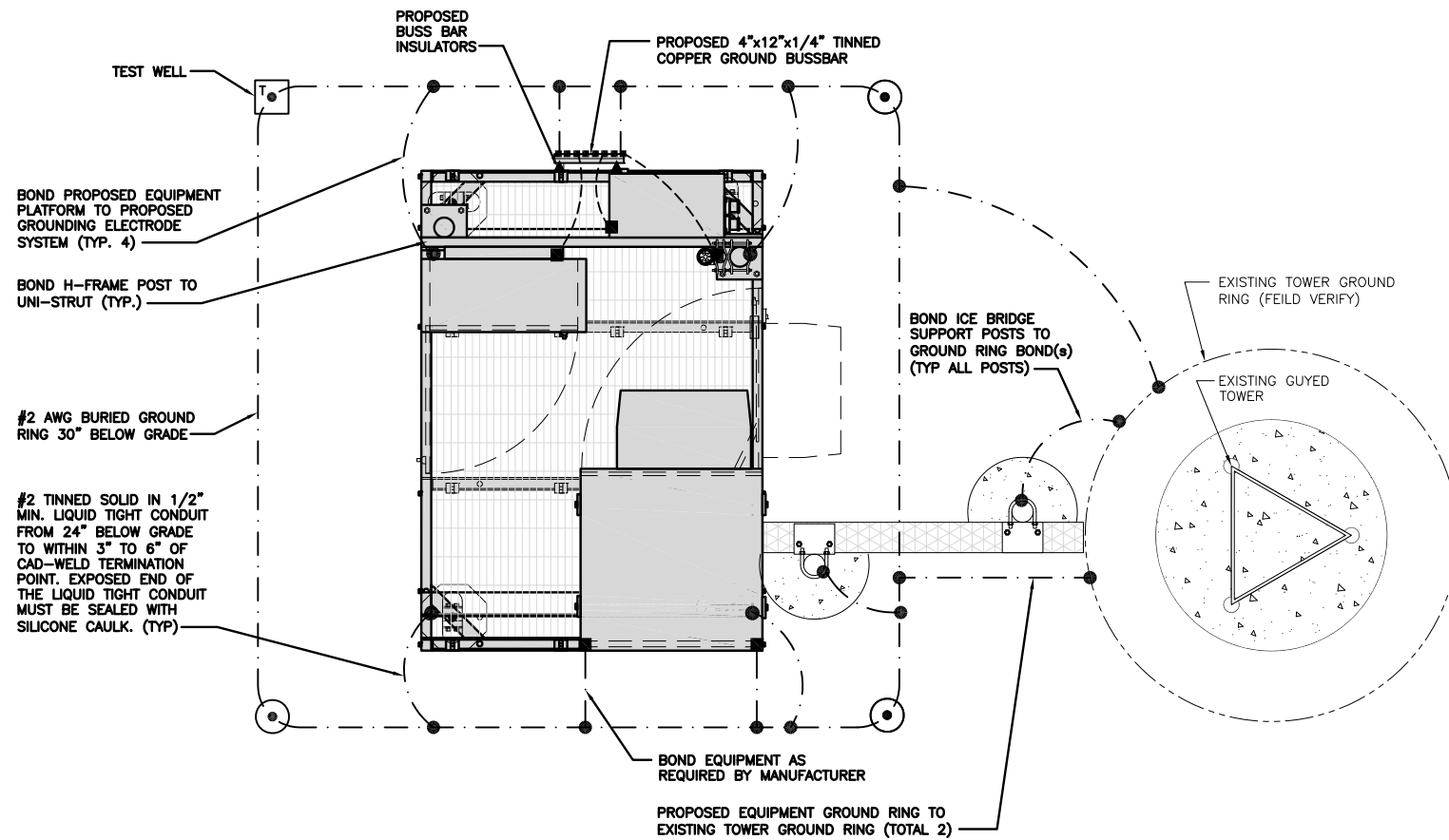
PROPOSED CHARLES PANEL SCHEDULE											
LOAD SERVED	VOLT AMPS (WATTS)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPS (WATTS)		LOAD SERVED	
	L1	L2						L1	L2		
PPC GFCI OUTLET	180	180	15A	1	A	2	30A	2880	2880	ABB/GE INFINITY RECTIFIER 1	
CHARLES GFCI OUTLET			15A	3	B	4	30A	2880	2880	ABB/GE INFINITY RECTIFIER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

PANEL SCHEDULE

NO SCALE 2

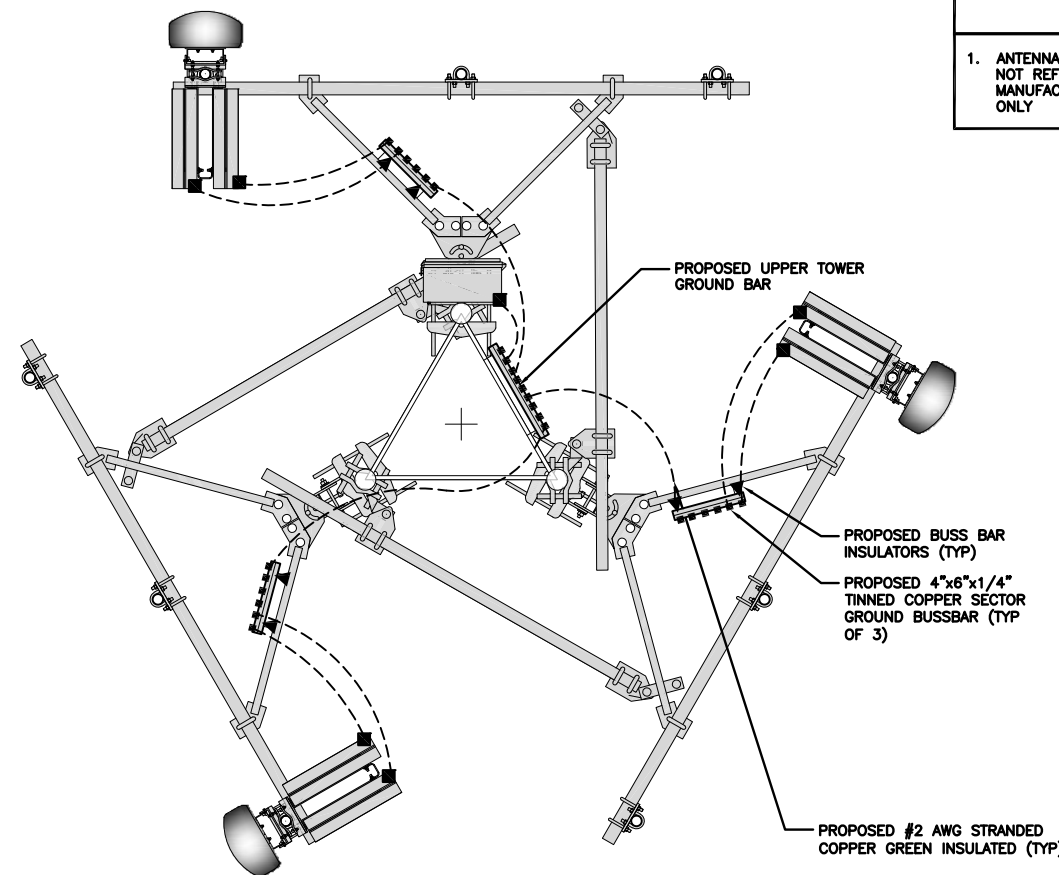
NOT USED

NO SCALE 3



TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE 2

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

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

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

GROUNDING KEY NOTES

NO SCALE 3



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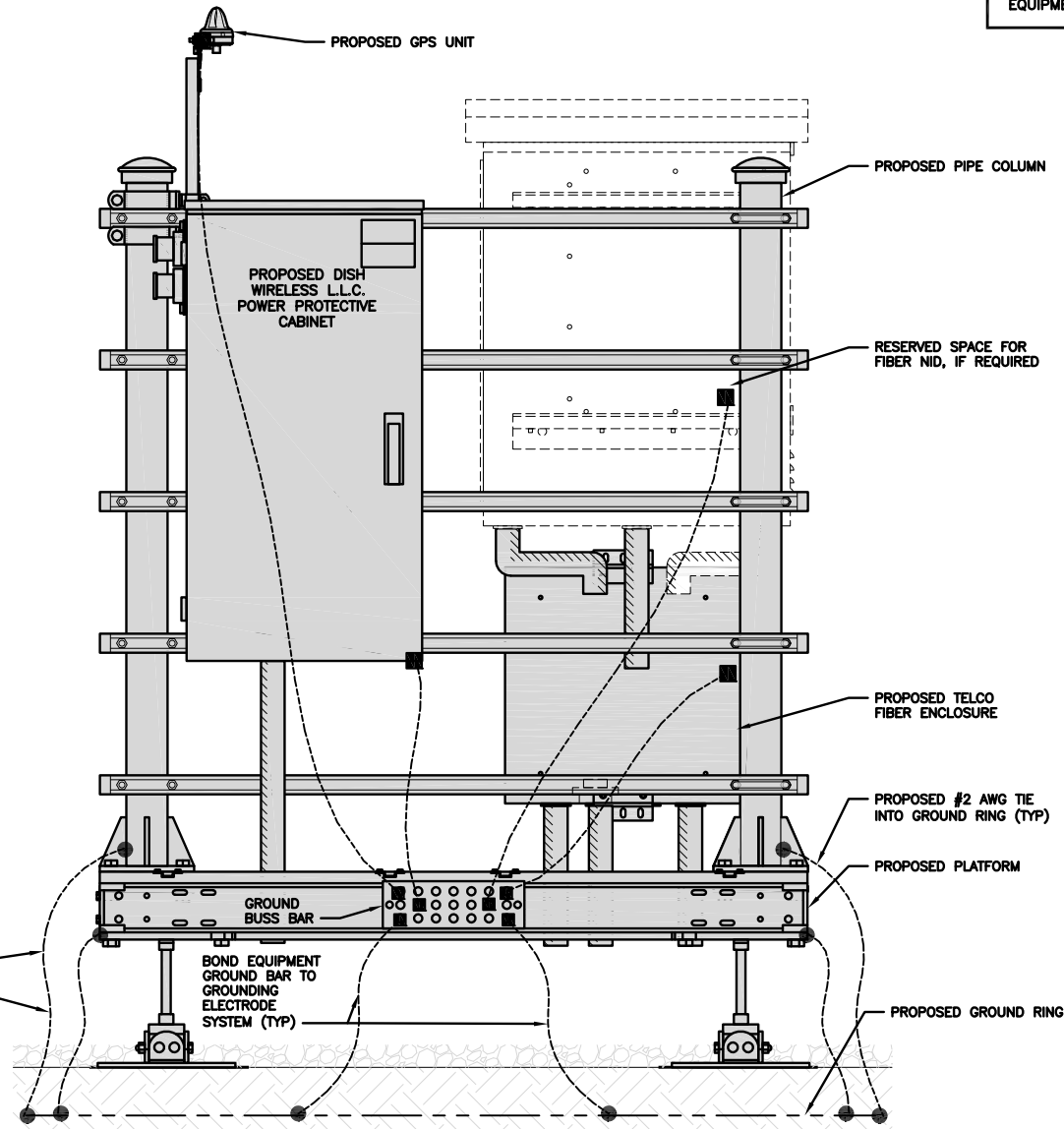
SHEET TITLE
GROUNDING PLANS
AND NOTES

SHEET NUMBER

G-1

NOTES

EQUIPMENT CABINET OMITTED FOR CLARITY

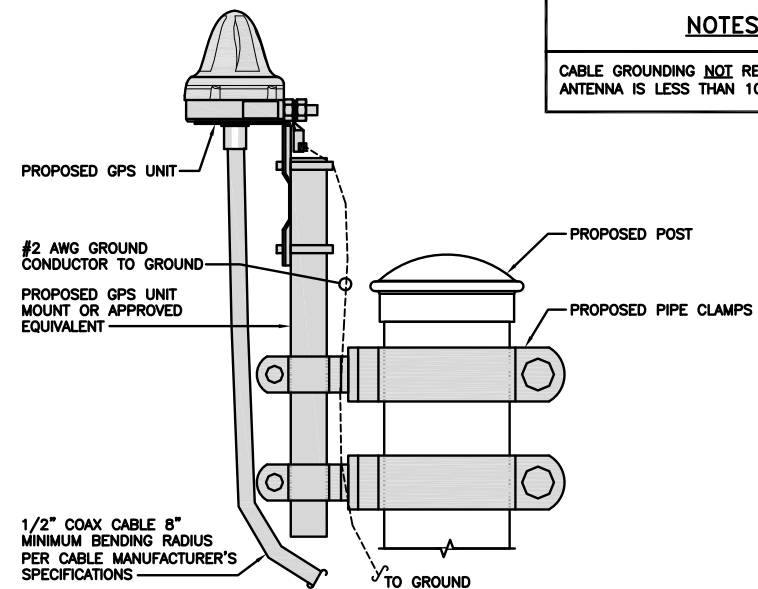


H-FRAME GROUNDING DETAIL

NO SCALE 1

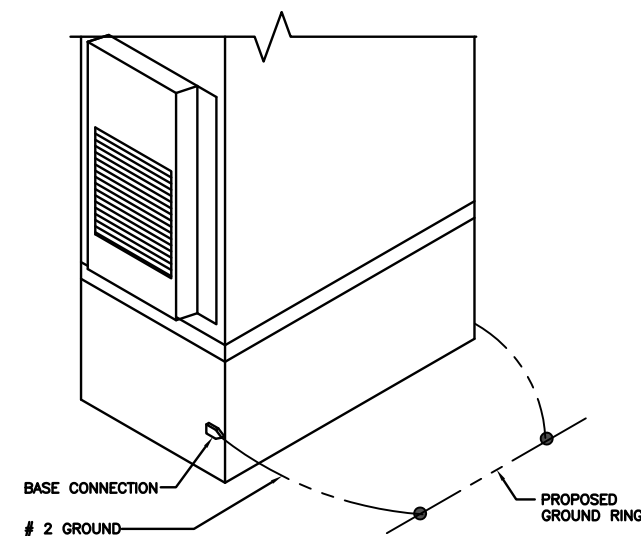
NOTES

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



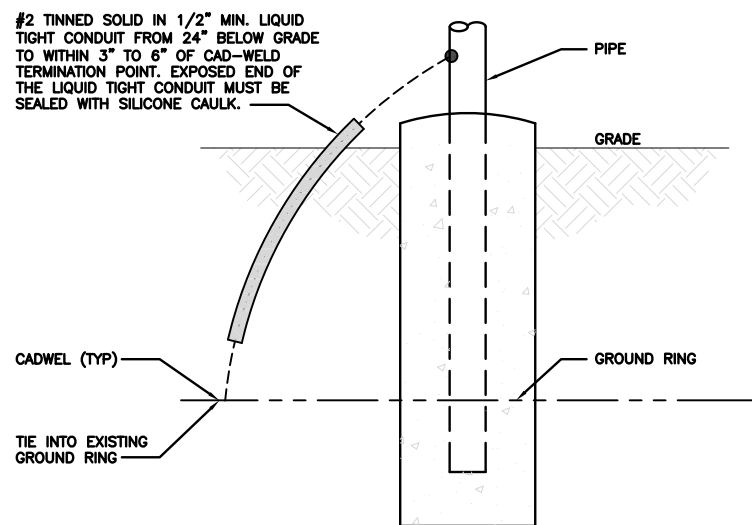
TYPICAL GPS UNIT GROUNDING

NO SCALE 2



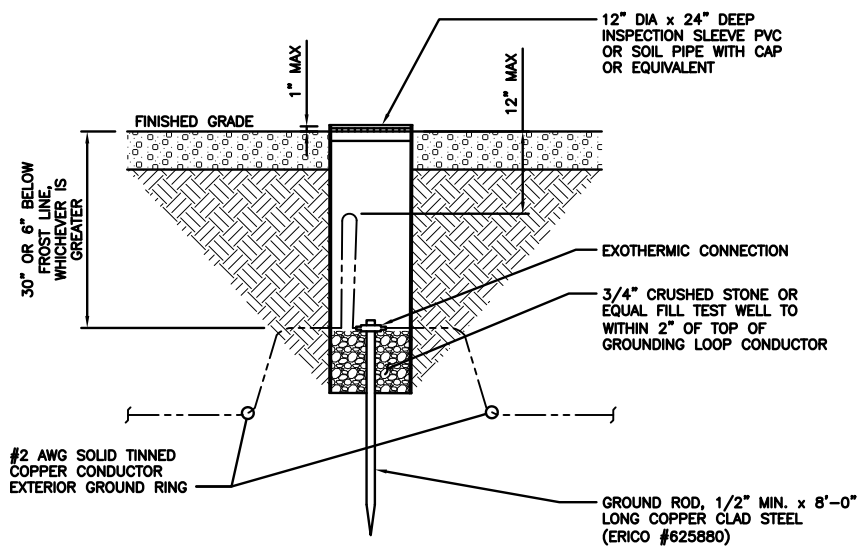
OUTDOOR CABINET GROUNDING

NO SCALE 3



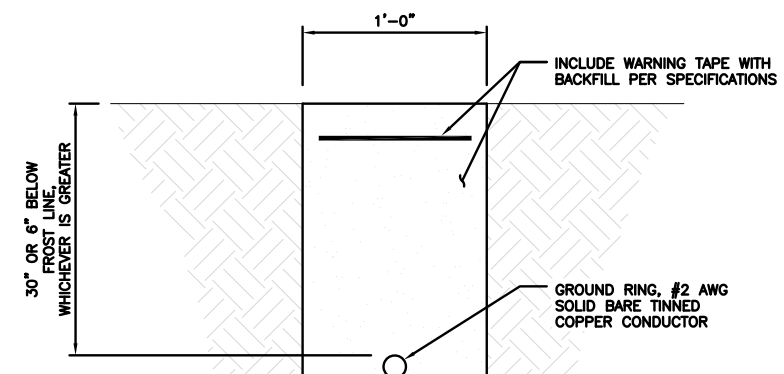
TRANSITIONING GROUND DETAIL

NO SCALE 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE

NO SCALE 5



TYPICAL GROUND RING TRENCH

NO SCALE 6

dish wireless.

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CROWN CASTLE

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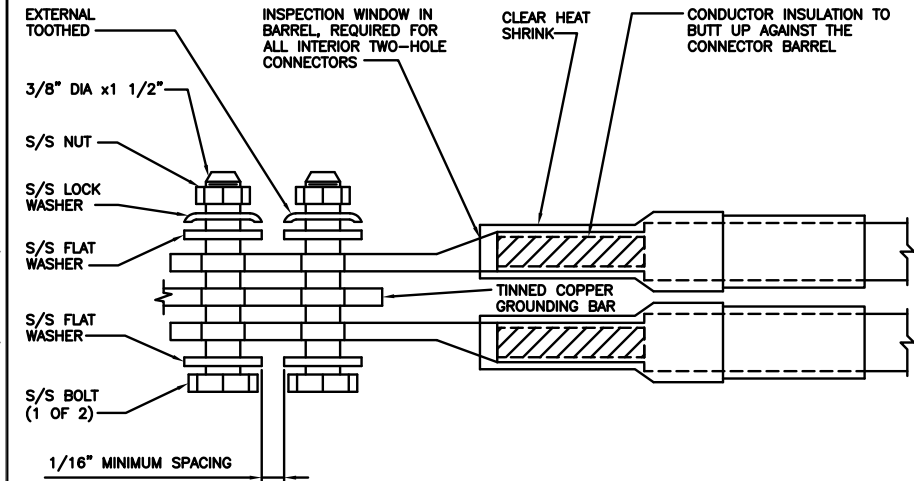
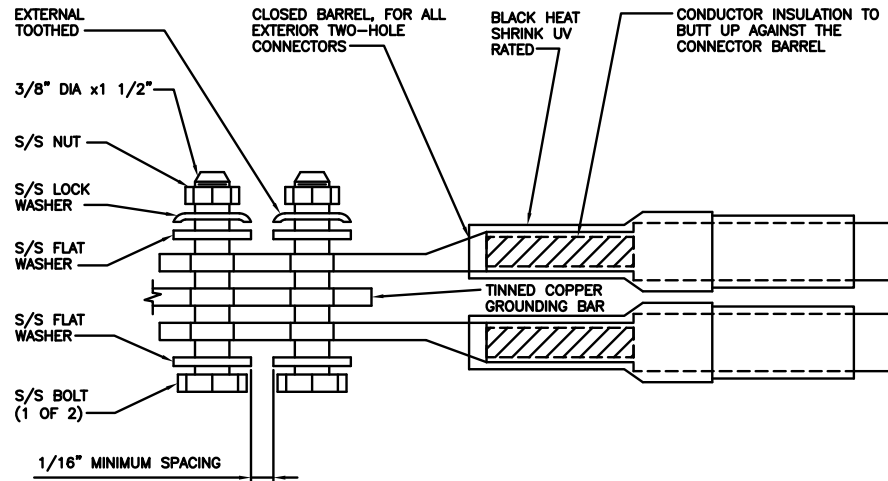
BOBDL00075A
376 DEERCLIFF ROAD
AVON, CT 06001

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER

G-2

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



TYPICAL GROUNDING NOTES

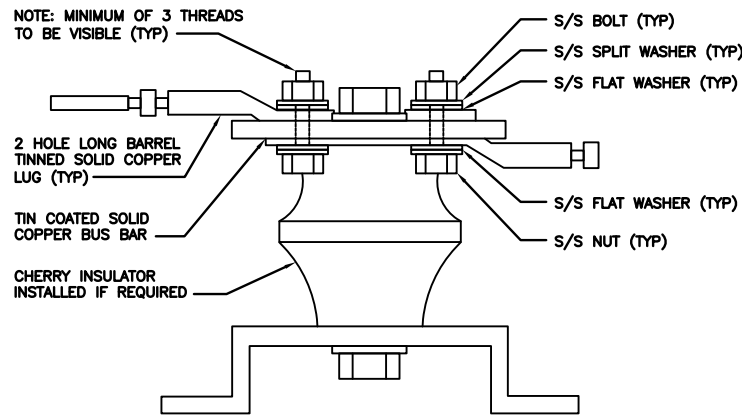
NO SCALE 1

TYPICAL EXTERIOR TWO HOLE LUG

NO SCALE 2

TYPICAL INTERIOR TWO HOLE LUG

NO SCALE 3



LUG DETAIL

NO SCALE 4

NOT USED

NO SCALE 5

NOT USED

NO SCALE 6

NOT USED

NO SCALE 7

NOT USED

NO SCALE 8

NOT USED

NO SCALE 9

dish
wireless.

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CROWN
CASTLE

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RFDS REV #: ---

CONSTRUCTION
DOCUMENTS

SUBMITTALS		
REV	DATE	DESCRIPTION
A	5/21/21	ISSUED FOR REVIEW
0	6/30/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
83041.008.01

DISH WIRELESS L.L.C.
PROJECT INFORMATION
BOBDL0075A
376 DEERCLIFF ROAD
AVON, CT 06001

SHEET TITLE
GROUNDING DETAILS

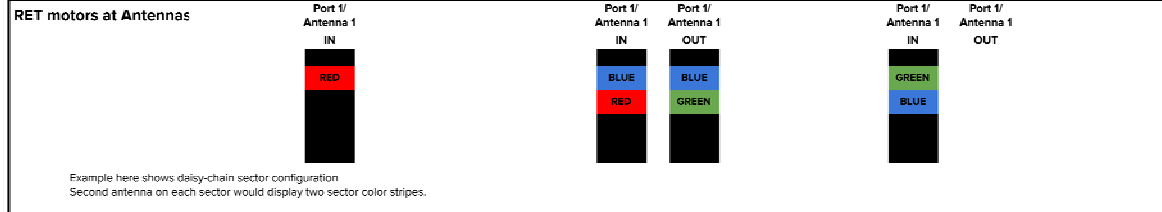
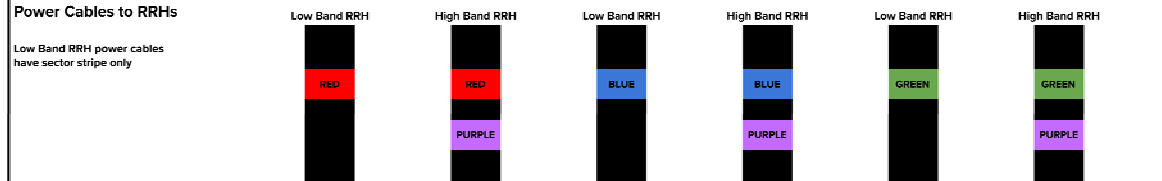
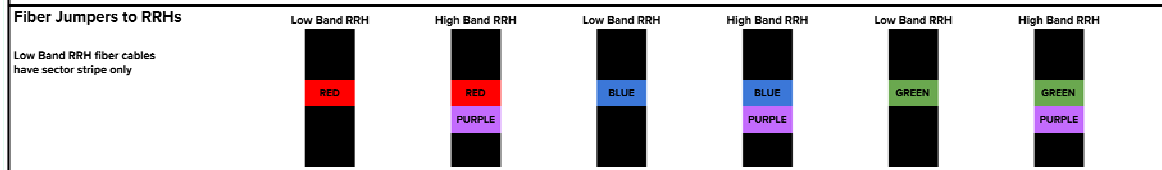
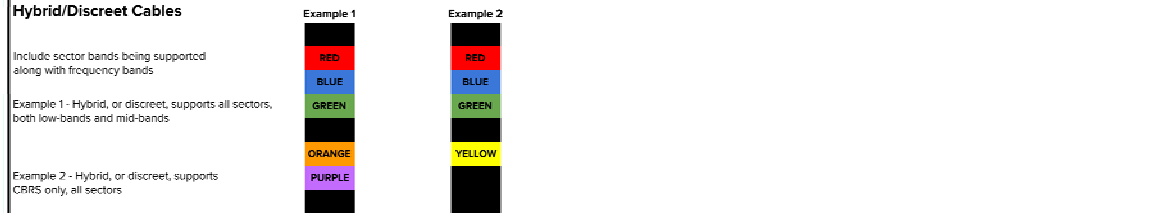
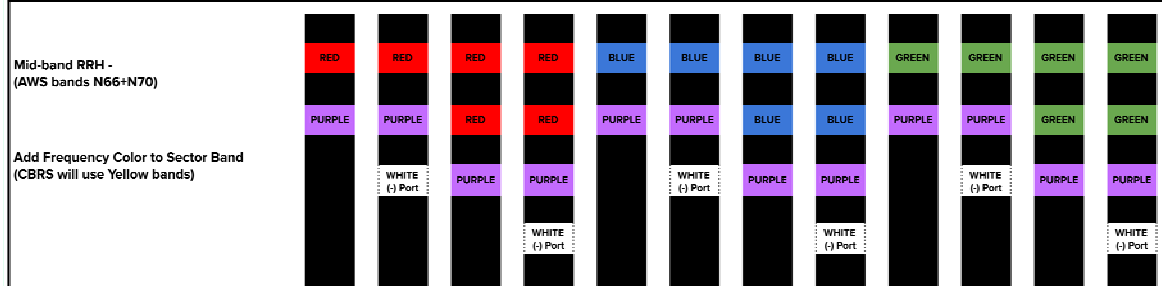
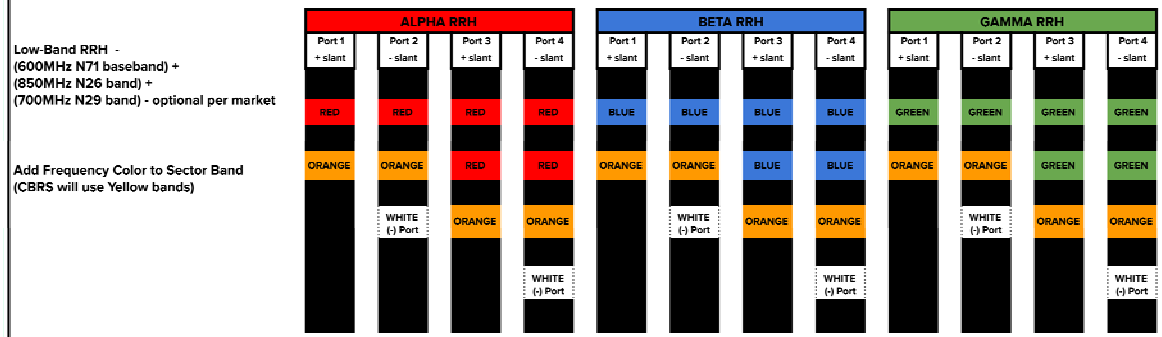
SHEET NUMBER
G-3

RF Cable Color Codes



RF Jumper Color Coding

3/4" tape widths with 3/4" spacing



NOTES

1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS. FINAL RFDS IS IN NEXYSONE.

LOW BANDS (N71-N28) OPTIONAL - (N29)



AWS (N65+N70+H-BLOCK)



CBRS TECH (3 GHz)



NEGATIVE SLANT PORT ON ANTRRH



ALPHA SECTOR



BETA SECTOR



GAMMA SECTOR



COLOR IDENTIFIER

NO SCALE

2

NOT USED

NO SCALE

3

NOT USED

NO SCALE

4

RF CABLE COLOR CODES

NO SCALE

1



5701 SOUTH SANTA FE DRIVE
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2000 CORPORATE DRIVE
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B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

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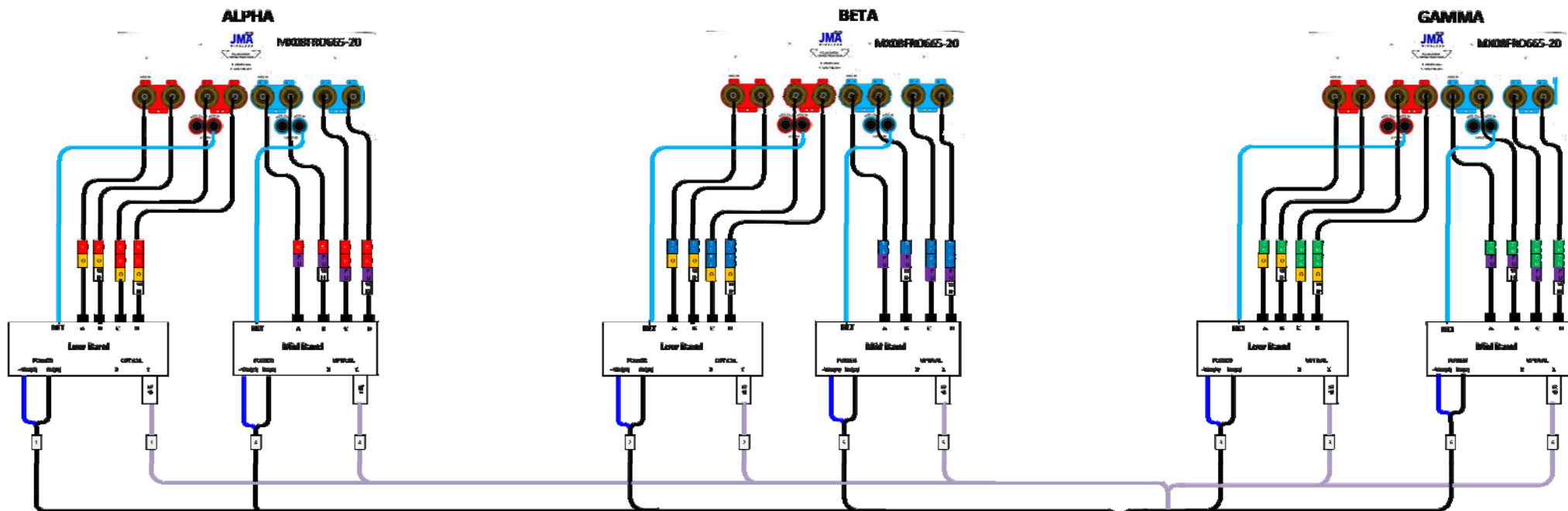
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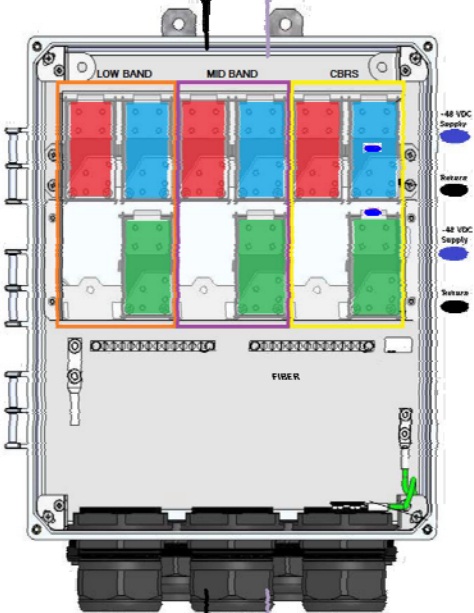
SHEET TITLE
RF
CABLE COLOR CODE

SHEET NUMBER
RF-1



Fiber Patch Panel

Bottom Row	Pair 1	Pair 2	Pair 3	Pair 10	Open	Open
Middle Row	Pair 4	Pair 5	Pair 6	Pair 11	Open	Open
Top Row	Pair 7	Pair 8	Pair 9	Pair 12	Open	Open



CSR NC540

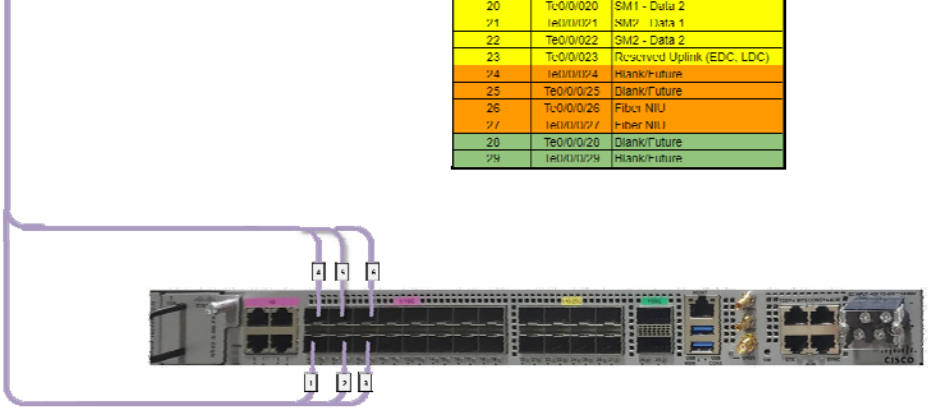
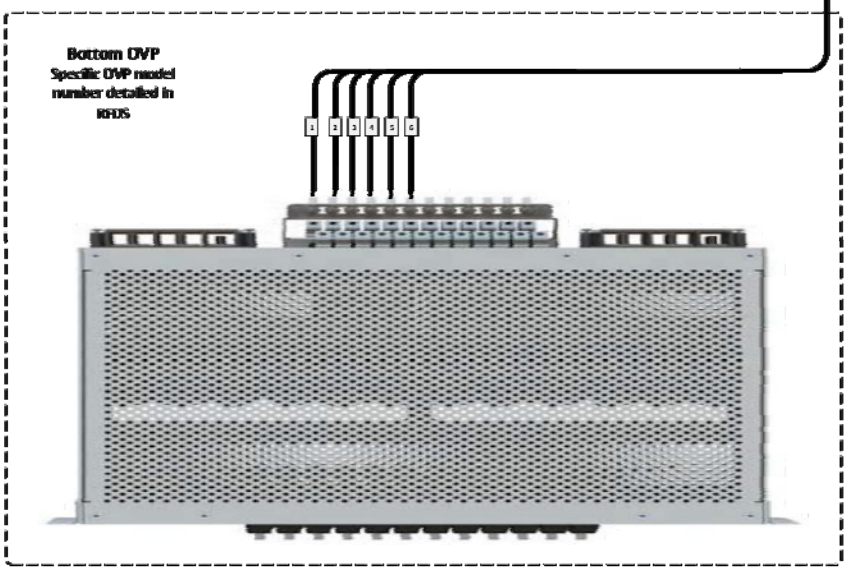
Port	Interface	Description
0	C0/0/0	Silo Boss
1	G0/0/0/1	CHRS - Alpha
2	G0/0/0/2	CDRS - Beta
3	C0/0/0/3	CBRS - Gamma
4	Te0/0/0/4	Fujitsu Low Band RU - Alpha
5	Te0/0/0/5	Fujitsu Mid-Band RU - Alpha
6	Te0/0/0/6	Fujitsu Low-Band RU - Beta
7	Te0/0/0/7	Fujitsu Mid-Band RU - Beta
8	Te0/0/0/8	Fujitsu Low Band RU - Gamma
9	Te0/0/0/9	Fujitsu Mid-Band RU - Gamma
10	Te0/0/0/10	Fixed Wifi
11	Te0/0/0/11	Fixed Wifi
12	Te0/0/0/12	Fixed Wifi
13	Te0/0/0/13	Fixed Wifi
14	Te0/0/0/14	CHRS1
15	Te0/0/0/15	CDRS2
16	Te0/0/0/16	CBRS3
17	G0/0/0/17	SM1 - HMC
18	G0/0/0/18	SM2 - DMC
19	Te0/0/0/19	SM1 - Data 1
20	Te0/0/0/20	SM1 - Data 2
21	Te0/0/0/21	SM2 - Data 1
22	Te0/0/0/22	SM2 - Data 2
23	Te0/0/0/23	Reserved Uplink (EDC, LDC)
24	Te0/0/0/24	Hawk/Future
25	Te0/0/0/25	Danki/Future
26	Te0/0/0/26	Fiber NIU
27	Te0/0/0/27	Fiber NIU
28	Te0/0/0/28	Danki/Future
29	Te0/0/0/29	Hawk/Future

top

bottom

Bottom OVP Layout

Circuit 1	Alpha Low Band
Circuit 2	Beta Low Band
Circuit 3	Gamma Low Band
Circuit 4	Alpha Mid Band
Circuit 5	Beta Mid Band
Circuit 6	Gamma Mid Band
Circuit 7	Alpha CBR5
Circuit 8	Beta CDRS
Circuit 9	Gamma CBR5
Circuit 10	Open
Circuit 11	Open
Circuit 12	Open



5G planning diagram JMA MDD8FR065-20 2-2-2(LB+MB)

Client List	Rev	Project	Site ID	Rev
5-Rev-2021				



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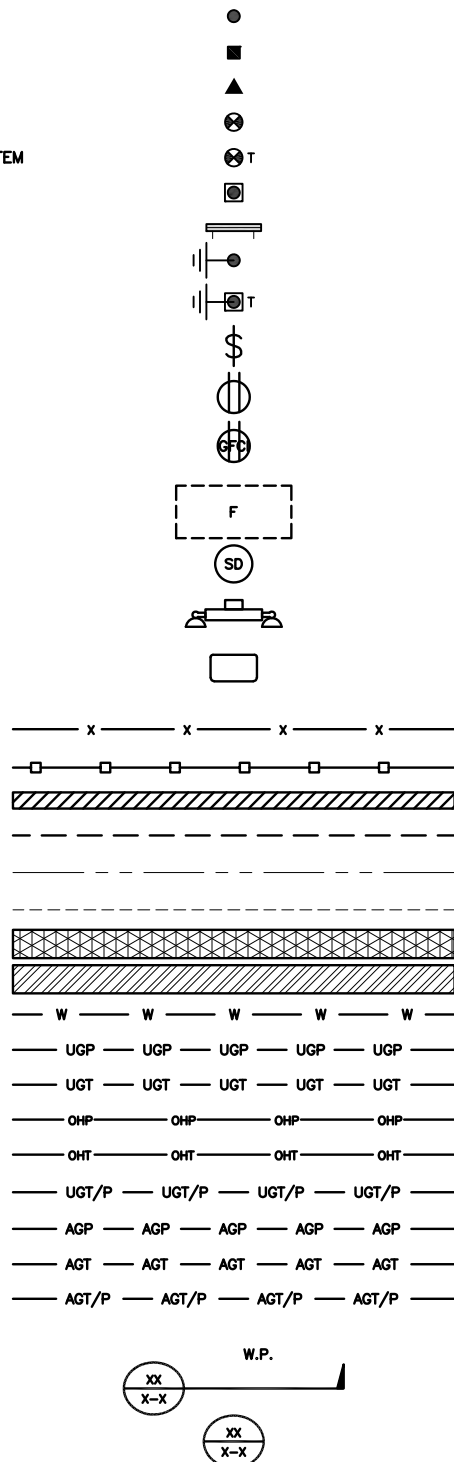
DISH WIRELESS L.L.C.
PROJECT INFORMATION
BOBDL00075A
376 DEERCLIFF ROAD
AVON, CT 06001

SHEET TITLE
RF
PLUMBING DIAGRAM

SHEET NUMBER

RF-2

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-DBTDX



SECTION REFERENCE
 DETAIL REFERENCE

LEGEND

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

ABBREVIATIONS



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 PROJECT INFORMATION
 BOBDL00075A
 376 DEERCLIFF ROAD
 AVON, CT 06001

SHEET TITLE
 LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

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

GENERAL NOTES:

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



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A&E PROJECT NUMBER
83041.008.01

DISH WIRELESS L.L.C.
PROJECT INFORMATION

BOBDL00075A
376 DEERCLIFF ROAD
AVON, CT 06001

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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0	6/30/21	ISSUED FOR CONSTRUCTION

A&E PROJECT NUMBER
83041.008.01

DISH WIRELESS L.L.C.
PROJECT INFORMATION

BOBDL00075A
376 DEERCLIFF ROAD
AVON, CT 06001

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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DISH WIRELESS L.L.C.
PROJECT INFORMATION

BOBDL00075A
376 DEERCLIFF ROAD
AVON, CT 06001

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-4

Exhibit D

Structural Analysis Report

Date: **May 21, 2021**



Crown Castle
2000 Corporate Drive
Canonsburg, PA
(724) 416-2000

Subject: **Structural Analysis Report**

Carrier Designation: **DISH Network Co-Locate**
Site Number: BOBDL00075A
Site Name: CT-CCI-T-870800

Crown Castle Designation: **BU Number:** 870800
Site Name: Avon (Deercliff Rd.)
JDE Job Number: 650065
Work Order Number: 1962709
Order Number: 556618 Rev. 0

Engineering Firm Designation: **Crown Castle Project Number:** 1962709

Site Data: **376 Deercliff Road, AVON, HARTFORD County, CT**
Latitude 41° 46' 29.95", Longitude -72° 48' 2.07"
560 Foot - Guyed Tower

Crown Castle is pleased to submit this “**Structural Analysis Report**” to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC5: Proposed Equipment Configuration

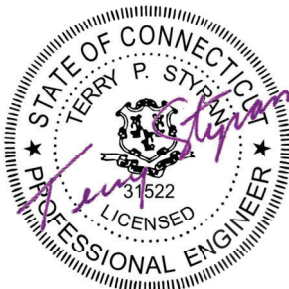
Sufficient Capacity - 77.4%

This analysis utilizes an ultimate 3-second gust wind speed of 120 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Mishka Stueber

Respectfully submitted by:

Terry P. Styran, P.E.
Senior Project Engineer



Terry P Styran
2021.05.25
15:32:01 -04'00'

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1) INTRODUCTION

This tower is a 560 ft Guyed tower designed by STAINLESS INC. The tower has been modified to accommodate additional loading.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	120 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	2 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
202.0	202.0	3	fujitsu	TA08025-B604	1	1-3/4
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MTC3975083 (3)		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
553.0	553.0	3	kathrein	AP19-1670/090D/DT2	2	1-5/8
		1	rfs celwave	PDS3DE-698/2700		
		1	tower mounts	Pipe Mount [PM 601-3]		
514.0	528.0	1	telewave	ANT150F6	1	1-5/8 1-1/4
	519.0	1	andrew	PG1NOF-0093-8		
	514.0	2	tower mounts	Side Arm Mount [SO 312-1]		
505.0	505.0	1	tower mounts	Side Arm Mount	-	-
		1	tower mounts	Flush Mount		
495.0	495.0	1	tower mounts	Side Arm Mount	-	-
492.0	500.0	1	tx rx systems	101-68-10-0-03N	1	1-1/4
	492.0	1	tower mounts	Side Arm Mount [SO 308-1]		
490.0	490.0	1	Andrew	ATW25HS3-HSO-46H	1	4-1/16
485.0	485.0	1	tower mounts	Side Arm Mount	-	-
475.0	475.0	1	tower mounts	Side Arm Mount	-	-
465.0	475.0	1	Telewave	ANT150F6	1	7/8
	465.0	1	tower mounts	Side Arm Mount [SO 312-1]		
442.0	450.0	1	tx rx systems	101-68-10-0-03N	1	1-1/4
	442.0	1	tower mounts	Side Arm Mount [SO 308-1]		
438.0	448.0	2	Telewave	ANT150F6	2	7/8

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
	438.0	1	tower mounts	Side Arm Mount [SO 308-1]		
415.0	425.0	1	telewave	TPRD-1554	1	1-5/8 1/2
		1	tx rx systems	101D-90-06-0-03		
	415.0	1	tower mounts	Side Arm Mount [SO 308-1]		
388.0	402.0	1	sinclair	SC233	1	1-5/8
	388.0	1	tower mounts	Side Arm Mount [SO 306-1]		
324.0	329.0	2	decibel	DB636-C	2	1-5/8 1/2
	324.0	2	tower mounts	Side Arm Mount [SO 601-1]	1	
294.0	303.0	1	decibel	DB540K-E	1	1/2
	294.0	1	tower mounts	Side Arm Mount [SO 306-1]		
288.0	293.0	1	decibel	DB636-C	1	1/2 1-5/8
		1	andrew	P2F-52	1	
	288.0	1	tower mounts	Side Arm Mount [SO 601-1]		
270.0	273.0	1	tx rx systems	CC806-06	1	1-5/8
	270.0	1	tower mounts	Side Arm Mount [SO 306-1]		
254.0	258.0	1	decibel	DB809KT6E-XT	-	-
	254.0	1	tower mounts	Side Arm Mount [SO 306-1]		
250.0	251.0	3	andrew	DB844H90E-A w/ Mount Pipe	8	1-5/8
		3	decibel	844G65VTZASX w/ Mount Pipe		
		2	rfs celwave	AP859012-42T0 w/ Mount Pipe		
	250.0	2	tower mounts	Sector Mount [SM 504-1]		
239.0	240.0	3	ericsson	RADIO 4415 B66A	3	1-5/8
		3	ericsson	RADIO 4449 B12/B71		
		3	ericsson	RRUS 4415 B25		
		3	rfs celwave	APX16DWV-16DWVS-E-A20 w/ Mount Pipe		
	3	rfs celwave	APXVAALL24_43-U-NA20 w/ Mount Pipe			
239.0	1	tower mounts	Sector Mount [SM 201-3]			
214.0	214.0	3	kathrein	742 213 w/ Mount Pipe	6	1-5/8
212.0	222.0	1	telewave	ANT150F6	1	7/8
	212.0	1	tower mounts	Side Arm Mount [SO 306-1]		
175.0	185.0	1	telewave	ANT150F6	1	7/8
	175.0	1	tower mounts	Side Arm Mount [SO 602-1]		
145.0	146.0	1	tower mounts	Side Arm Mount [SO 202-1]	1	EW52
138.0	138.0	1	cci antennas	TMADB7821VG12A	1	1/2
		1	radiowaves	SPD2-5.8		
		1	tower mounts	Pipe Mount [PM 601-1]		
		1	tower mounts	Side Arm Mount [SO 201-1]		
134.0	134.0	1	cci antennas	TMADB7821VG12A	2	1/2
		1	radiowaves	SPD2-5.8		
		1	tower mounts	Side Arm Mount [SO 601-1]		
112.0	116.0	1	rfs celwave	201-8	1	3/8

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
	112.0	1	tower mounts	Flush Mount		
91.0	94.0	1	telewave	ANT150F2	1	1/2
	91.0	1	tower mounts	Flush Mount		
80.0	81.0	1	dragonwave	A-ANT-11G-4-C	1	3/8
	80.0	1	tower mounts	Side Arm Mount [SO 301-1]		
76.0	76.0	1	tower mounts	Side Arm Mount [SO 301-1]	1	1/2
		1	trimble	Acutime 2000		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	1579662	CCISITES
4-POST-MODIFICATION INSPECTION	2236822	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1341932	CCISITES
4-TOWER MANUFACTURER DRAWINGS	1579694	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	2124272	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.9.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

- 1) Tower and structures were maintained in accordance with the TIA-222 Standard.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	560 - 553.75	Leg	4	2	-0.806	393.544	0.2	Pass
T2	553.75 - 547.5	Leg	4	16	-2.785	393.544	0.7	Pass
T3	547.5 - 541.25	Leg	4	32	-6.796	393.544	1.7	Pass
T4	541.25 - 535	Leg	4	45	-10.883	393.544	2.8	Pass
T5	535 - 510	Leg	4	57	-34.385	393.544	8.7	Pass
T6	510 - 485	Leg	4 1/2	94	-74.246	542.982	13.7	Pass
T7	485 - 460	Leg	4 1/2	135	-89.036	542.982	16.4	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T8	460 - 435	Leg	4 3/4	172	-106.461	625.480	17.0	Pass
T9	435 - 410	Leg	4 3/4	211	-111.746	625.480	17.9	Pass
T10	410 - 385	Leg	4 3/4	250	-113.054	625.480	18.1	Pass
T11	385 - 360	Leg	4 3/4	289	-112.003	625.480	17.9	Pass
T12	360 - 335	Leg	4 3/4	330	-111.268	625.480	17.8	Pass
T13	335 - 310	Leg	5 1/4	369	-156.677	805.605	19.4	Pass
T14	310 - 285	Leg	5	406	-158.611	713.043	22.2	Pass
T15	285 - 260	Leg	4 3/4	445	-180.480	625.480	28.9	Pass
T16	260 - 235	Leg	4 3/4	484	-197.685	625.480	31.6	Pass
T17	235 - 210	Leg	4 3/4	523	-200.202	625.480	32.0	Pass
T18	210 - 185	Leg	5	562	-199.972	713.043	28.0	Pass
T19	185 - 160	Leg	5 1/4	602	-206.625	805.605	25.6	Pass
T20	160 - 135	Leg	5 1/2	640	-227.846	903.111	25.2	Pass
T21	135 - 110	Leg	5 1/4	679	-234.004	805.605	29.0	Pass
T22	110 - 85	Leg	5 1/4	718	-251.220	805.605	31.2	Pass
T23	85 - 60	Leg	5 1/4	757	-260.936	805.605	32.4	Pass
T24	60 - 35	Leg	5 1/4	796	-263.481	805.605	32.7	Pass
T25	35 - 10	Leg	5 1/4	835	-263.008	805.605	32.6	Pass
T26	10 - 0	Leg	5 1/4	874	-284.991	849.753	33.5	Pass
T1	560 - 553.75	Diagonal	2L3x3x1/4x3/8	7	-0.527	84.577	0.6	Pass
T2	553.75 - 547.5	Diagonal	2L2 1/2x2x3/16x3/8	21	-1.273	41.352	3.1	Pass
T3	547.5 - 541.25	Diagonal	1	37	2.470	26.719	9.2	Pass
T4	541.25 - 535	Diagonal	1	49	3.127	26.719	11.7	Pass
T5	535 - 510	Diagonal	1	66	5.900	26.719	22.1	Pass
T6	510 - 485	Diagonal	1 1/4	101	9.646	41.749	23.1	Pass
T7	485 - 460	Diagonal	1	167	9.316	26.719	34.9	Pass
T8	460 - 435	Diagonal	3/4	206	5.896	15.030	39.2	Pass
T9	435 - 410	Diagonal	5/8	244	2.633	10.437	25.2	Pass
T10	410 - 385	Diagonal	5/8	261	5.568	10.437	53.4	Pass
T11	385 - 360	Diagonal	3/4	300	8.559	15.030	56.9	Pass
T12	360 - 335	Diagonal	1	339	11.700	26.719	43.8	Pass
T13	335 - 310	Diagonal	1 1/4	373	15.017	41.749	36.0	Pass
T14	310 - 285	Diagonal	1	439	14.912	26.719	55.8	Pass
T15	285 - 260	Diagonal	3/4	478	11.244	15.030	74.8	Pass
T16	260 - 235	Diagonal	5/8	517	8.082	10.437	77.4	Pass
T17	235 - 210	Diagonal	5/8	534	5.354	10.437	51.3	Pass
T18	210 - 185	Diagonal	7/8	573	10.974	20.457	53.6	Pass
T19	185 - 160	Diagonal	1	607	15.039	26.719	56.3	Pass
T20	160 - 135	Diagonal	1 1/4	673	14.787	41.749	35.4	Pass
T21	135 - 110	Diagonal	1	716	9.116	26.719	34.1	Pass
T22	110 - 85	Diagonal	7/8	755	5.679	20.457	27.8	Pass
T23	85 - 60	Diagonal	7/8	768	2.848	20.457	13.9	Pass
T24	60 - 35	Diagonal	7/8	807	5.477	20.457	26.8	Pass
T25	35 - 10	Diagonal	7/8	846	7.358	20.457	36.0	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T26	10 - 0	Diagonal	L3x3 1/2x5/16	888	-2.235	40.474	5.5	Pass
T2	553.75 - 547.5	Horizontal	2L3x2 1/2x1/4x3/8	19	0.757	72.966	1.0	Pass
T5	535 - 510	Horizontal	2L3x2 1/2x1/4x3/8	69	-4.216	73.222	5.8	Pass
T6	510 - 485	Horizontal	2L3x2 1/2x1/4x3/8	107	16.408	75.107	21.8	Pass
T7	485 - 460	Horizontal	2L3x2 1/2x1/4x3/8	163	-7.150	73.524	9.7	Pass
T8	460 - 435	Horizontal	2L2 1/2x2x3/16x3/8	202	-4.496	38.325	11.7	Pass
T9	435 - 410	Horizontal	2L2 1/2x2x3/16x3/8	241	-1.980	38.325	5.2	Pass
T10	410 - 385	Horizontal	2L2 1/2x2x3/16x3/8	264	-4.143	38.325	10.8	Pass
T11	385 - 360	Horizontal	2L2x2x1/4	303	-6.589	31.677	20.8	Pass
T12	360 - 335	Horizontal	2L3x2 1/2x1/4x3/8	342	-9.049	73.222	12.4	Pass
T13	335 - 310	Horizontal	2L3x2 1/2x1/4x3/8	380	19.452	75.107	25.9	Pass
T14	310 - 285	Horizontal	2L3x2 1/2x1/4x3/8	436	-11.656	73.825	15.8	Pass
T15	285 - 260	Horizontal	2L2 1/2x2x3/16x3/8	475	-8.803	38.325	23.0	Pass
T16	260 - 235	Horizontal	2L2 1/2x2x3/16x3/8	514	-5.858	38.325	15.3	Pass
T17	235 - 210	Horizontal	2L2 1/2x2x3/16x3/8	537	-3.939	38.325	10.3	Pass
T18	210 - 185	Horizontal	2L2 1/2x2x3/16x3/8	576	-8.361	38.458	21.7	Pass
T19	185 - 160	Horizontal	2L3x2 1/2x1/4x3/8	613	-11.668	73.974	15.8	Pass
T20	160 - 135	Horizontal	2L3x2 1/2x1/4x3/8	671	20.927	75.107	27.9	Pass
T21	135 - 110	Horizontal	2L3x2 1/2x1/4x3/8	711	-6.960	73.974	9.4	Pass
T22	110 - 85	Horizontal	2L2 1/2x2x3/16x3/8	750	-4.351	38.589	11.3	Pass
T23	85 - 60	Horizontal	2L2 1/2x2x3/16x3/8	771	-4.520	38.589	11.7	Pass
T24	60 - 35	Horizontal	2L2 1/2x2x3/16x3/8	810	-4.564	38.589	11.8	Pass
T25	35 - 10	Horizontal	2L2 1/2x2x3/16x3/8	856	-5.596	38.589	14.5	Pass
T26	10 - 0	Horizontal	L3x5x1/2	886	-5.298	115.670	4.6	Pass
T1	560 - 553.75	Top Girt	C10x20	4	-0.122	158.520	0.2	Pass
T3	547.5 - 541.25	Top Girt	2C6x8.2x0.375	35	-0.990	92.005	1.1	Pass
T4	541.25 - 535	Top Girt	2L3x2 1/2x1/4x3/8	46	-2.189	73.222	3.0	Pass
T5	535 - 510	Top Girt	2L3x2 1/2x1/4x3/8	58	-2.673	73.222	3.7	Pass
T6	510 - 485	Top Girt	2L3x2 1/2x1/4x3/8	99	-5.113	73.524	7.0	Pass
T7	485 - 460	Top Girt	2L3x2 1/2x1/4x3/8	136	-7.351	73.524	10.0	Pass
T8	460 - 435	Top Girt	2L2 1/2x2x3/16x3/8	175	-5.109	38.325	13.3	Pass
T9	435 - 410	Top Girt	2L2 1/2x2x3/16x3/8	214	-2.635	38.325	6.9	Pass
T10	410 - 385	Top Girt	2L2 1/2x2x3/16x3/8	255	-2.195	38.325	5.7	Pass
T11	385 - 360	Top Girt	2L2x2x1/4x3/8	294	-4.910	31.677	15.5	Pass
T12	360 - 335	Top Girt	2L3x2 1/2x1/4x3/8	333	-7.338	73.675	10.0	Pass
T13	335 - 310	Top Girt	2L3x2 1/2x1/4x3/8	372	-9.719	73.974	13.1	Pass
T14	310 - 285	Top Girt	2L3x2 1/2x1/4x3/8	409	-11.595	73.825	15.7	Pass
T15	285 - 260	Top Girt	2L2 1/2x2x3/16x3/8	448	-9.470	38.325	24.7	Pass
T16	260 - 235	Top Girt	2L2 1/2x2x3/16x3/8	487	-6.903	38.325	18.0	Pass
T17	235 - 210	Top Girt	2L2 1/2x2x3/16x3/8	528	-3.468	38.325	9.0	Pass
T18	210 - 185	Top Girt	2L2 1/2x2x3/16x3/8	567	-4.962	38.458	12.9	Pass
T19	185 - 160	Top Girt	2L3x2 1/2x1/4x3/8	606	-9.220	73.974	12.5	Pass
T20	160 - 135	Top Girt	2L3x2 1/2x1/4x3/8	643	-11.524	74.123	15.5	Pass
T21	135 - 110	Top Girt	2L3x2 1/2x1/4x3/8	684	-7.781	73.974	10.5	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail	
T22	110 - 85	Top Girt	2L2 1/2x2x3/16x3/8	723	-4.891	38.589	12.7	Pass	
T23	85 - 60	Top Girt	2L2 1/2x2x3/16x3/8	762	-4.520	38.589	11.7	Pass	
T24	60 - 35	Top Girt	2L2 1/2x2x3/16x3/8	801	-4.564	38.589	11.8	Pass	
T25	35 - 10	Top Girt	2L2 1/2x2x3/16x3/8	840	-4.632	38.589	12.0	Pass	
T26	10 - 0	Top Girt	2L4x3x1/2	878	67.608	221.130	30.6	Pass	
T1	560 - 553.75	Inner Bracing	L3x3x1/4	14	-0.001	37.131	0.3	Pass	
T2	553.75 - 547.5	Inner Bracing	L3x3x1/4	28	-0.004	37.131	0.3	Pass	
T26	10 - 0	Inner Bracing	L3x3x5/16	890	-0.351	53.617	0.7	Pass	
T6	510 - 485	Guy A@491.25	1-3/4 (ECP - 24000)	900	82.927	236.880	35.0	Pass	
T13	335 - 310	Guy A@316.25	1-1/2 (ECP - 24000)	897	65.903	173.880	37.9	Pass	
T20	160 - 135	Guy A@153.75	1-1/4 (ECP - 24000)	894	47.656	120.960	39.4	Pass	
T6	510 - 485	Guy B@491.25	1-3/4 (ECP - 24000)	899	81.756	236.880	34.5	Pass	
T13	335 - 310	Guy B@316.25	1-1/2 (ECP - 24000)	896	65.264	173.880	37.5	Pass	
T20	160 - 135	Guy B@153.75	1-1/4 (ECP - 24000)	893	47.987	120.960	39.7	Pass	
T6	510 - 485	Guy C@491.25	1-3/4 (ECP - 24000)	898	83.449	236.880	35.2	Pass	
T13	335 - 310	Guy C@316.25	1-1/2 (ECP - 24000)	895	68.300	173.880	39.3	Pass	
T20	160 - 135	Guy C@153.75	1-1/4 (ECP - 24000)	892	50.130	120.960	41.4	Pass	
							Summary		
							Leg (T26)	33.5	Pass
							Diagonal (T16)	77.4	Pass
							Horizontal (T20)	27.9	Pass
							Top Girt (T26)	30.6	Pass
							Inner Bracing (T26)	0.7	Pass
							Guy A (T20)	39.4	Pass
							Guy B (T20)	39.7	Pass
							Guy C (T20)	41.4	Pass
							Bolt Checks	44.7	Pass
							Rating =	77.4	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Base Foundation (Structure)	0	44.9	Pass
1	Base Foundation (Soil Interaction)	0	41.9	Pass
1	Guy Anchor Foundation (Comp. w/ Design Loads)	0	34.4	Pass

Structure Rating (max from all components) =	77.4%
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Notes:

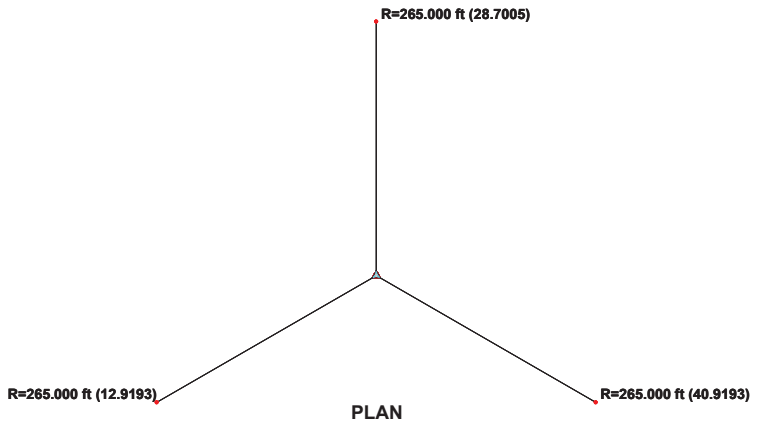
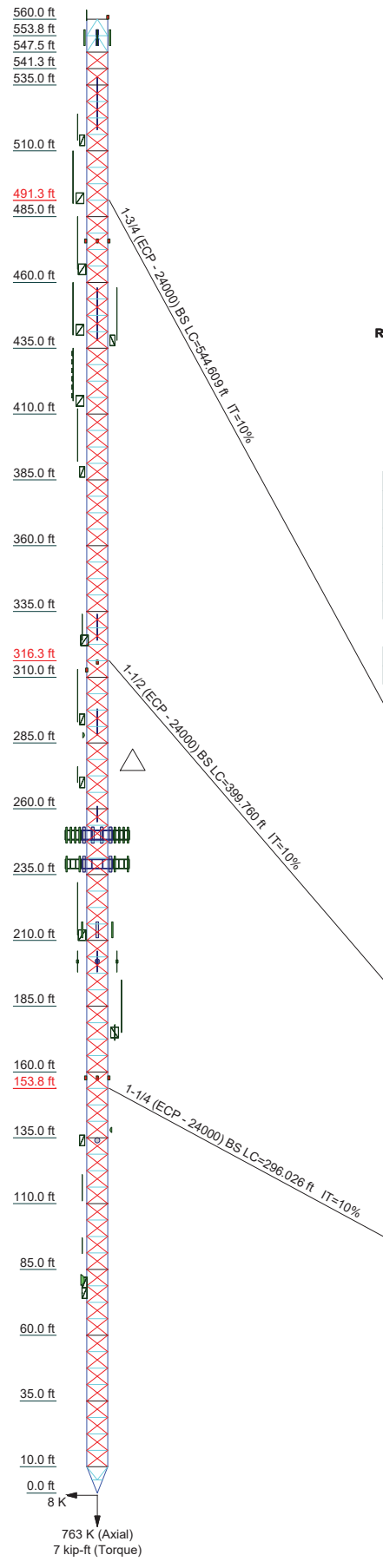
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A
TNXTOWER OUTPUT

Section	T26	T25	T24	T23	T22	T21	T20	T19	T18	T17	T16	T15	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	SR 5 1/4		SR 5 1/4		SR 5 1/4		SR 5 1/2		SR 5		SR 4 3/4		SR 4 3/4		SR 5 1/4		SR 4 3/4		SR 1 1/4		SR 4 1/2		SR 4			
Leg Grade	SR 7/8		SR 7/8		SR 1		SR 1 1/4		SR 1		SR 5/8		SR 4 3/4		SR 1 1/4		SR 5/8		SR 3/4		SR 1 1/4		SR 1			
Diagonals	SR 7/8		SR 7/8		SR 1		SR 1 1/4		SR 1		SR 5/8		SR 4 3/4		SR 1 1/4		SR 5/8		SR 3/4		SR 1 1/4		SR 1			
Diagonal Grade	SR 7/8		SR 7/8		SR 1		SR 1 1/4		SR 1		SR 5/8		SR 4 3/4		SR 1 1/4		SR 5/8		SR 3/4		SR 1 1/4		SR 1			
Top Girts	2L2 1/2x2x3/16x3/8		2L2 1/2x2x3/16x3/8		2L2 1/2x2x3/16x3/8		2L2 1/2x2x3/16x3/8		2L2 1/2x2x3/16x3/8		2L2 1/2x2x3/16x3/8		2L3x2 1/2x1/4x3/8		2L3x2 1/2x1/4x3/8		2L3x2 1/2x2x3/16x3/8		2L3x2 1/2x1/4x3/8		2L3x2 1/2x1/4x3/8		2L3x2 1/2x1/4x3/8			
Horizontals	2L2 1/2x2x3/16x3/8		2L2 1/2x2x3/16x3/8		2L2 1/2x2x3/16x3/8		2L2 1/2x2x3/16x3/8		2L2 1/2x2x3/16x3/8		2L2 1/2x2x3/16x3/8		2L3x2 1/2x1/4x3/8		2L3x2 1/2x1/4x3/8		2L2 1/2x2x3/16x3/8		2L2 1/2x2x3/16x3/8		2L3x2 1/2x1/4x3/8		2L3x2 1/2x1/4x3/8			
Inner Bracing	L		L		L		L		L		L		L		L		L		L		L		L			
Face Width (ft)	M		M		M		M		M		M		M		M		M		M		M		M			
# Panels @ (ft)	140.5		3.5		6.7		6.7		6.7		6.7		6.7		6.7		6.7		6.7		6.7		6.7			
Weight (K)	140.5		3.5		6.7		6.7		6.7		6.7		6.7		6.7		6.7		6.7		6.7		6.7			



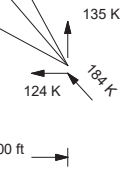
SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	2L3x3x1/4x3/8	H	2L4x3x1/2
B	2L2 1/2x2x3/16x3/8	I	2L3x2 1/2x1/4x3/8
C	L3x3 1/2x5/16	J	L3x5x1/2
D	C10x20	K	L3x3x1/4
E	N.A.	L	L3x3x5/16
F	2C6x8.2x0.375	M	2 @ 5
G	2L2x2x1/4x3/8		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

- ### TOWER DESIGN NOTES
1. Tower is located in Hartford County, Connecticut.
 2. Tower designed for Exposure B to the TIA-222-H Standard.
 3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
 4. Tower is also designed for a 50 mph basic wind with 2.00 in ice. Ice is considered to increase in thickness with height.
 5. Deflections are based upon a 60 mph wind.
 6. Tower Risk Category II.
 7. Topographic Category 1 with Crest Height of 0.000 ft
 8. TOWER RATING: 77.4%



ALL REACTIONS ARE FACTORED

Crown Castle		Job: 870800	
2000 Corporate Drive		Project:	
Canonsburg, PA		Client: CROWN CASTLE	Drawn by: Mishka Stueber
The Pathway to Possible		Code: TIA-222-H	Date: 05/20/21
Phone: (724) 416-2000		Path:	Scale: NTS
FAX:		Dwg No. E-1	

C:\Users\mstueber\OneDrive - Crown Castle USA Inc\Desktop\Working\870800\WO 1962709 - SA\Prod\870800.dwg

Tower Input Data

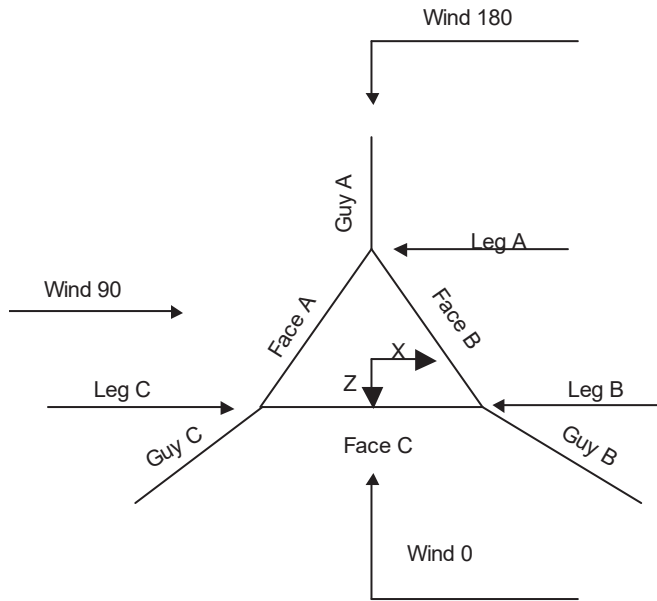
The main tower is a 3x guyed tower with an overall height of 560.000 ft above the ground line.
 The base of the tower is set at an elevation of 0.000 ft above the ground line.
 The face width of the tower is 8.000 ft at the top and tapered at the base.
 This tower is designed using the TIA-222-H standard.

The following design criteria apply:

- Tower is located in Hartford County, Connecticut.
- Tower base elevation above sea level: 686.000 ft.
- Basic wind speed of 120 mph.
- Risk Category II.
- Exposure Category B.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.000 ft.
- Nominal ice thickness of 2.000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56.000 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50.000 °F.
- Deflections calculated using a wind speed of 60 mph.
- Pressures are calculated at each section.
- Stress ratio used in tower member design is 1.
- Safety factor used in guy design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification ✓ Use Code Stress Ratios ✓ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity ✓ Leg Bolts Are At Top Of Section ✓ Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area ✓ Use Clear Spans For KL/r ✓ Retension Guys To Initial Tension Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt. ✓ Autocalc Torque Arm Areas Add IBC .6D+W Combination ✓ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs	Use ASCE 10 X-Brace Ly Rules ✓ Calculate Redundant Bracing Forces Ignore Redundant Members in FEA ✓ SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feed Line Torque ✓ Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <div style="background-color: #e0e0e0; text-align: center; padding: 2px;">Poles</div> Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known
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Corner & Starmount Guyed Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	<i>ft</i>			<i>ft</i>		<i>ft</i>
T1	560.000-553.750			8.000	1	6.250
T2	553.750-547.500			8.000	1	6.250
T3	547.500-541.250			8.000	1	6.250
T4	541.250-535.000			8.000	1	6.250
T5	535.000-510.000			8.000	1	25.000
T6	510.000-485.000			8.000	1	25.000
T7	485.000-460.000			8.000	1	25.000
T8	460.000-435.000			8.000	1	25.000
T9	435.000-410.000			8.000	1	25.000
T10	410.000-385.000			8.000	1	25.000
T11	385.000-360.000			8.000	1	25.000
T12	360.000-335.000			8.000	1	25.000
T13	335.000-310.000			8.000	1	25.000
T14	310.000-285.000			8.000	1	25.000
T15	285.000-260.000			8.000	1	25.000

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T16	260.000-235.000			8.000	1	25.000
T17	235.000-210.000			8.000	1	25.000
T18	210.000-185.000			8.000	1	25.000
T19	185.000-160.000			8.000	1	25.000
T20	160.000-135.000			8.000	1	25.000
T21	135.000-110.000			8.000	1	25.000
T22	110.000-85.000			8.000	1	25.000
T23	85.000-60.000			8.000	1	25.000
T24	60.000-35.000			8.000	1	25.000
T25	35.000-10.000			8.000	1	25.000
T26	10.000-0.000			8.000	1	10.000

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	560.000-553.750	6.250	K Brace Down	No	Yes	0.000	0.000
T2	553.750-547.500	6.250	K Brace Down	No	Yes	0.000	0.000
T3	547.500-541.250	6.250	TX Brace	No	Yes	0.000	0.000
T4	541.250-535.000	6.250	TX Brace	No	Yes	0.000	0.000
T5	535.000-510.000	6.250	TX Brace	No	Yes	0.000	0.000
T6	510.000-485.000	6.250	TX Brace	No	Yes	0.000	0.000
T7	485.000-460.000	6.250	TX Brace	No	Yes	0.000	0.000
T8	460.000-435.000	6.250	TX Brace	No	Yes	0.000	0.000
T9	435.000-410.000	6.250	TX Brace	No	Yes	0.000	0.000
T10	410.000-385.000	6.250	TX Brace	No	Yes	0.000	0.000
T11	385.000-360.000	6.250	TX Brace	No	Yes	0.000	0.000
T12	360.000-335.000	6.250	TX Brace	No	Yes	0.000	0.000
T13	335.000-310.000	6.250	TX Brace	No	Yes	0.000	0.000
T14	310.000-285.000	6.250	TX Brace	No	Yes	0.000	0.000
T15	285.000-260.000	6.250	TX Brace	No	Yes	0.000	0.000
T16	260.000-235.000	6.250	TX Brace	No	Yes	0.000	0.000
T17	235.000-210.000	6.250	TX Brace	No	Yes	0.000	0.000
T18	210.000-185.000	6.250	TX Brace	No	Yes	0.000	0.000
T19	185.000-160.000	6.250	TX Brace	No	Yes	0.000	0.000
T20	160.000-135.000	6.250	TX Brace	No	Yes	0.000	0.000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T21	135.000-110.000	6.250	TX Brace	No	Yes	0.000	0.000
T22	110.000-85.000	6.250	TX Brace	No	Yes	0.000	0.000
T23	85.000-60.000	6.250	TX Brace	No	Yes	0.000	0.000
T24	60.000-35.000	6.250	TX Brace	No	Yes	0.000	0.000
T25	35.000-10.000	6.250	TX Brace	No	Yes	0.000	0.000
T26	10.000-0.000	5.000	K Brace Up	No	Yes	0.000	0.000

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 560.000-553.750	Solid Round	4	A572-50 (50 ksi)	Double Angle	2L3x3x1/4x3/8	A36 (36 ksi)
T2 553.750-547.500	Solid Round	4	A572-50 (50 ksi)	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)
T3 547.500-541.250	Solid Round	4	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T4 541.250-535.000	Solid Round	4	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T5 535.000-510.000	Solid Round	4	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T6 510.000-485.000	Solid Round	4 1/2	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T7 485.000-460.000	Solid Round	4 1/2	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T8 460.000-435.000	Solid Round	4 3/4	A572-50 (50 ksi)	Solid Round	3/4	A36 (36 ksi)
T9 435.000-410.000	Solid Round	4 3/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T10 410.000-385.000	Solid Round	4 3/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T11 385.000-360.000	Solid Round	4 3/4	A572-50 (50 ksi)	Solid Round	3/4	A36 (36 ksi)
T12 360.000-335.000	Solid Round	4 3/4	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T13 335.000-310.000	Solid Round	5 1/4	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T14 310.000-285.000	Solid Round	5	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T15 285.000-260.000	Solid Round	4 3/4	A572-50 (50 ksi)	Solid Round	3/4	A36 (36 ksi)
T16 260.000-235.000	Solid Round	4 3/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T17 235.000-210.000	Solid Round	4 3/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T18 210.000-185.000	Solid Round	5	A572-50 (50 ksi)	Solid Round	7/8	A36 (36 ksi)
T19 185.000-160.000	Solid Round	5 1/4	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T20 160.000-135.000	Solid Round	5 1/2	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T21 135.000-110.000	Solid Round	5 1/4	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T22 110.000-85.000	Solid Round	5 1/4	A572-50 (50 ksi)	Solid Round	7/8	A36 (36 ksi)
T23 85.000-60.000	Solid Round	5 1/4	A572-50 (50 ksi)	Solid Round	7/8	A36 (36 ksi)
T24 60.000-35.000	Solid Round	5 1/4	A572-50 (50 ksi)	Solid Round	7/8	A36 (36 ksi)
T25 35.000-10.000	Solid Round	5 1/4	A572-50 (50 ksi)	Solid Round	7/8	A36 (36 ksi)
T26 10.000-0.000	Solid Round	5 1/4	A572-50 (50 ksi)	Single Angle	L3x3 1/2x5/16	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T3 547.500-541.250	Double Channel	2C6x8.2x0.375	A36 (36 ksi)	Double Equal Angle		A36 (36 ksi)
T4 541.250-535.000	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T5 535.000-510.000	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T6 510.000-485.000	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T7 485.000-460.000	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T8 460.000-435.000	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T9 435.000-410.000	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T10 410.000-385.000	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T11 385.000-360.000	Double Angle	2L2x2x1/4x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T12 360.000-335.000	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T13 335.000-310.000	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T14 310.000-285.000	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T15 285.000-260.000	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T16 260.000-235.000	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T17 235.000-210.000	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T18 210.000-185.000	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T19 185.000-160.000	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T20 160.000-135.000	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T21 135.000-110.000	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T22 110.000-85.000	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T23 85.000-60.000	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T24 60.000-35.000	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T25 35.000-10.000	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T26 10.000-0.000	Double Angle	2L4x3x1/2	A36 (36 ksi)	Flat Bar	12x1/2	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 560.000-553.750	None	Flat Bar		A36 (36 ksi)	Channel	C10x20	A36 (36 ksi)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T2 553.750-547.500	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)
T3 547.500-541.250	None	Flat Bar		A36 (36 ksi)	Double Channel	2C6x8.2x0.375	A36 (36 ksi)
T4 541.250-535.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)
T5 535.000-510.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)
T6 510.000-485.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)
T7 485.000-460.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)
T8 460.000-435.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)
T9 435.000-410.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)
T10 410.000-385.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)
T11 385.000-360.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2x2x1/4	A36 (36 ksi)
T12 360.000-335.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)
T13 335.000-310.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)
T14 310.000-285.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)
T15 285.000-260.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)
T16 260.000-235.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)
T17 235.000-210.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)
T18 210.000-185.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)
T19 185.000-160.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)
T20 160.000-135.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)
T21 135.000-110.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)
T22 110.000-85.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)
T23 85.000-60.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)
T24 60.000-35.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)
T25 35.000-10.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)
T26 10.000-0.000	None	Flat Bar		A36 (36 ksi)	Single Angle	L3x5x1/2	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T1 560.000-553.750	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T2 553.750-547.500	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T3 547.500-541.250	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)

Tower Elevation	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
<i>ft</i>						
T4 541.250-535.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T5 535.000-510.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T6 510.000-485.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T7 485.000-460.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T8 460.000-435.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T9 435.000-410.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T10 410.000-385.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T11 385.000-360.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T12 360.000-335.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T13 335.000-310.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T14 310.000-285.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T15 285.000-260.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T16 260.000-235.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T17 235.000-210.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T18 210.000-185.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T19 185.000-160.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T20 160.000-135.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T21 135.000-110.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T22 110.000-85.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T23 85.000-60.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T24 60.000-35.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T25 35.000-10.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T26 10.000-0.000	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_r	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
<i>ft</i>	<i>ft²</i>	<i>in</i>					<i>in</i>	<i>in</i>	<i>in</i>
T1 560.000-553.750	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T2 553.750-547.500	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T3 547.500-541.250	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T4 541.250-535.000	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T5 535.000-510.000	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_r	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
T6 510.000-485.000	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T7 485.000-460.000	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T8 460.000-435.000	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T9 435.000-410.000	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T10 410.000-385.000	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T11 385.000-360.000	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T12 360.000-335.000	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T13 335.000-310.000	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T14 310.000-285.000	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T15 285.000-260.000	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T16 260.000-235.000	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T17 235.000-210.000	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T18 210.000-185.000	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T19 185.000-160.000	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T20 160.000-135.000	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T21 135.000-110.000	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T22 110.000-85.000	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T23 85.000-60.000	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T24 60.000-35.000	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T25 35.000-10.000	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T26 10.000-0.000	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000

Tower Section Geometry (cont'd)

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors ¹						
				X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
				X Y	X Y	X Y	X Y	X Y	X Y	X Y
ft										
T1 560.000-553.750	Yes	Yes	1	1	1	1	1	1	1	1
T2 553.750-547.500	Yes	Yes	1	1	1	1	1	1	1	1
T3 547.500-541.250	Yes	Yes	1	1	1	1	1	1	1	1
T4 541.250-535.000	Yes	Yes	1	1	1	1	1	1	1	1
T5 535.000-510.000	Yes	Yes	1	1	1	1	1	1	1	1
T6 510.000-485.000	Yes	Yes	1	1	1	1	1	1	1	1

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors ¹							
				X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y	
ft											
T7 485.000-460.000	Yes	Yes	1	1	1	1	1	1	1	1	1
T8 460.000-435.000	Yes	Yes	1	1	1	1	1	1	1	1	1
T9 435.000-410.000	Yes	Yes	1	1	1	1	1	1	1	1	1
T10 410.000-385.000	Yes	Yes	1	1	1	1	1	1	1	1	1
T11 385.000-360.000	Yes	Yes	1	1	1	1	1	1	1	1	1
T12 360.000-335.000	Yes	Yes	1	1	1	1	1	1	1	1	1
T13 335.000-310.000	Yes	Yes	1	1	1	1	1	1	1	1	1
T14 310.000-285.000	Yes	Yes	1	1	1	1	1	1	1	1	1
T15 285.000-260.000	Yes	Yes	1	1	1	1	1	1	1	1	1
T16 260.000-235.000	Yes	Yes	1	1	1	1	1	1	1	1	1
T17 235.000-210.000	Yes	Yes	1	1	1	1	1	1	1	1	1
T18 210.000-185.000	Yes	Yes	1	1	1	1	1	1	1	1	1
T19 185.000-160.000	Yes	Yes	1	1	1	1	1	1	1	1	1
T20 160.000-135.000	Yes	Yes	1	1	1	1	1	1	1	1	1
T21 135.000-110.000	Yes	Yes	1	1	1	1	1	1	1	1	1
T22 110.000-85.000	Yes	Yes	1	1	1	1	1	1	1	1	1
T23 85.000-60.000	Yes	Yes	1	1	1	1	1	1	1	1	1
T24 60.000-35.000	Yes	Yes	1	1	1	1	1	1	1	1	1
T25 35.000-10.000	Yes	Yes	1	1	1	1	1	1	1	1	1
T26 10.000-0.000	Yes	Yes	1	1	1	1	1	1	1	1	1

¹Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 560.000-553.750	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T2 553.750-547.500	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T3 547.500-541.250	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T4 541.250-535.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T5 535.000-510.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T6 510.000-485.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T7 485.000-460.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T8 460.000-435.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T9 435.000-410.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T10 410.000-385.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T11 385.000-360.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T12 360.000-335.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T13 335.000-310.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T14 310.000-285.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T15 285.000-260.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T16 260.000-235.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T17 235.000-210.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T18 210.000-185.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T19 185.000-160.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T20 160.000-135.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T21 135.000-110.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T22 110.000-85.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T23 85.000-60.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T24 60.000-35.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T25 35.000-10.000	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T26 10.000-0.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 560.000-553.750	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T2 553.750-547.500	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T3 547.500-541.250	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T4 541.250-535.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T5 535.000-510.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T6 510.000-485.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T7 485.000-460.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T8 460.000-435.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T9 435.000-410.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T10 410.000-385.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T11 385.000-360.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T12 360.000-335.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T13 335.000-310.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T14 310.000-285.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T15 285.000-260.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T16 260.000-235.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T17 235.000-210.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T18 210.000-185.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T19 185.000-160.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T20 160.000-135.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T21 135.000-110.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T22 110.000-85.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T23 85.000-60.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T24 60.000-35.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T25 35.000-10.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T26 10.000-0.000	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 560.000-553.750	Flange	0.000 A325N	0	1.000 A325N	2	0.000 A325N	2	0.000 A325N	0	0.625 A325N	0	0.625 A325N	2	0.625 A325N	0

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T2 553.750-547.500	Flange	0.000 A325N	0	0.625 A325N	2	0.000 A325N	2	0.000 A325N	0	0.625 A325N	0	0.875 A325N	2	0.625 A325N	0
T3 547.500-541.250	Flange	0.000 A325N	0	0.875 A325N	2	0.625 A325N	2*	0.000 A325N	0*	0.625 A325N	0	0.625 A325N	2*	0.625 A325N	0
T4 541.250-535.000	Flange	0.000 A325N	0	0.875 A325N	2	0.750 A325N	2*	0.000 A325N	0*	0.625 A325N	0	0.750 A325N	2*	0.625 A325N	0
T5 535.000-510.000	Flange	0.750 A325N	6	0.875 A325N	2	0.750 A325N	2*	0.000 A325N	0*	0.625 A325N	0	0.750 A325N	2*	0.625 A325N	0
T6 510.000-485.000	Flange	0.750 A325N	6	1.000 A325N	2	0.750 A325N	2*	0.000 A325N	0*	0.625 A325N	0	0.750 A325N	2*	0.625 A325N	0
T7 485.000-460.000	Flange	0.750 A325N	6	0.875 A325N	2	0.750 A325N	2*	0.000 A325N	0*	0.625 A325N	0	0.750 A325N	2*	0.625 A325N	0
T8 460.000-435.000	Flange	0.750 A325N	6	0.625 A325N	2	0.625 A325N	2*	0.000 A325N	0*	0.625 A325N	0	0.625 A325N	2*	0.625 A325N	0
T9 435.000-410.000	Flange	0.750 A325N	6	0.625 A325N	2	0.625 A325N	2*	0.000 A325N	0*	0.625 A325N	0	0.625 A325N	2*	0.625 A325N	0
T10 410.000-385.000	Flange	0.750 A325N	6	0.625 A325N	2	0.625 A325N	2*	0.000 A325N	0*	0.625 A325N	0	0.625 A325N	2*	0.625 A325N	0
T11 385.000-360.000	Flange	0.750 A325N	6	0.625 A325N	2	0.625 A325N	2*	0.000 A325N	0*	0.625 A325N	0	0.625 A325N	2*	0.625 A325N	0
T12 360.000-335.000	Flange	0.750 A325N	6	0.625 A325N	2	0.750 A325N	2*	0.000 A325N	0*	0.625 A325N	0	0.625 A325N	2*	0.625 A325N	0
T13 335.000-310.000	Flange	1.000 A325N	6	1.000 A325N	2	0.750 A325N	2*	0.000 A325N	0*	0.625 A325N	0	0.750 A325N	2*	0.625 A325N	0
T14 310.000-285.000	Flange	1.000 A325N	6	0.875 A325N	2	0.750 A325N	2*	0.000 A325N	0*	0.625 A325N	0	0.750 A325N	2*	0.625 A325N	0
T15 285.000-260.000	Flange	0.750 A325N	6	0.625 A325N	2	0.625 A325N	2*	0.000 A325N	0*	0.625 A325N	0	0.625 A325N	2*	0.625 A325N	0
T16 260.000-235.000	Flange	0.750 A325N	6	0.625 A325N	2	0.625 A325N	2*	0.000 A325N	0*	0.625 A325N	0	0.625 A325N	2*	0.625 A325N	0
T17 235.000-210.000	Flange	0.750 A325N	6	0.625 A325N	2	0.625 A325N	2*	0.000 A325N	0*	0.625 A325N	0	0.625 A325N	2*	0.625 A325N	0
T18 210.000-185.000	Flange	0.750 A325N	6	0.750 A325N	2	0.625 A325N	2*	0.000 A325N	0*	0.625 A325N	0	0.625 A325N	2*	0.625 A325N	0
T19 185.000-160.000	Flange	1.000 A325N	6	0.875 A325N	2	0.750 A325N	2*	0.000 A325N	0*	0.625 A325N	0	0.750 A325N	2*	0.625 A325N	0
T20 160.000-135.000	Flange	1.000 A325N	6	1.000 A325N	2	0.750 A325N	2*	0.000 A325N	0*	0.625 A325N	0	0.750 A325N	2*	0.625 A325N	0
T21 135.000-110.000	Flange	1.000 A325N	6	0.875 A325N	2	0.750 A325N	2*	0.000 A325N	0*	0.625 A325N	0	0.750 A325N	2*	0.625 A325N	0
T22 110.000-85.000	Flange	1.000 A325N	6	0.750 A325N	2	0.625 A325N	2*	0.000 A325N	0*	0.625 A325N	0	0.625 A325N	2*	0.625 A325N	0
T23 85.000-60.000	Flange	1.000 A325N	6	0.750 A325N	2	0.625 A325N	2*	0.000 A325N	0*	0.625 A325N	0	0.625 A325N	2*	0.625 A325N	0
T24 60.000-35.000	Flange	1.000 A325N	6	0.750 A325N	2	0.625 A325N	2*	0.000 A325N	0*	0.625 A325N	0	0.625 A325N	2*	0.625 A325N	0
T25 35.000-10.000	Flange	1.000 A325N	6	0.750 A325N	2	0.625 A325N	2*	0.000 A325N	0*	0.625 A325N	0	0.625 A325N	2*	0.625 A325N	0
T26 10.000-0.000	Flange	0.750 A325N	8	0.750 A325N	0	0.750 A325N	0	0.000 A325N	0	0.625 A325N	0	0.750 A325N	0	0.625 A325N	0

* Out-of-plane partial restraint assumed

Guy Data											
Guy Elevation	Guy Grade	Guy Size	Initial Tension	%	Guy Modulus	Guy Weight	L_u	Anchor Radius	Anchor Azimuth Adj.	Anchor Elevation	End Fitting Efficiency
ft			K		ksi	plf	ft	ft	°	ft	%

153.75	BS	A 1-1/4 (ECP	19.200	10%	24000.00	3.280	288.627	265.000	0.000	28.701	100%
		B - 24000)	19.200	10%	0	3.280	283.555	265.000	0.000	40.919	100%
		C 1-1/4 (ECP	19.200	10%	24000.00	3.280	295.795	265.000	0.000	12.919	100%
		- 24000)			0						
316.25	BS	A 1-1/2 (ECP	27.600	10%	24000.00	4.730	387.614	265.000	0.000	28.701	100%
		B - 24000)	27.600	10%	0	4.730	378.653	265.000	0.000	40.919	100%
		C 1-1/2 (ECP	27.600	10%	24000.00	4.730	399.442	265.000	0.000	12.919	100%
		- 24000)			0						
491.25	BS	A 1-3/4 (ECP	37.600	10%	24000.00	6.430	530.373	265.000	0.000	28.701	100%
		B - 24000)	37.600	10%	0	6.430	519.769	265.000	0.000	40.919	100%
		C 1-3/4 (ECP	37.600	10%	24000.00	6.430	544.168	265.000	0.000	12.919	100%
		- 24000)			0						
		1-3/4 (ECP			24000.00						
		- 24000)			0						

Guy Data(cont'd)

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
153.75	Corner						
316.25	Corner						
491.25	Corner						

Guy Data (cont'd)

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
153.750	A572-50 (50 ksi)	Solid Round				A36 (36 ksi)	Equal Angle	
316.250	A572-50 (50 ksi)	Solid Round				A36 (36 ksi)	Equal Angle	
491.250	A572-50 (50 ksi)	Solid Round				A36 (36 ksi)	Equal Angle	

Guy Data (cont'd)

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
153.75	0.947	0.930	0.970		7.048	6.809	7.392	
					4.6	4.5	4.7	sec/pulse
316.25	1.833	1.791	1.889		12.578	12.015	13.340	
					6.1	6.0	6.3	sec/pulse
491.25	3.410	3.342	3.499		23.162	22.268	24.351	
					8.3	8.1	8.5	sec/pulse
					sec/pulse	sec/pulse		

Guy Data (cont'd)

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm		Pull Off		Diagonal	
			K _x	K _y	K _x	K _y	K _x	K _y
153.75	No	No			1	1	1	1
316.25	No	No			1	1	1	1
491.25	No	No			1	1	1	1

Guy Data (cont'd)

Guy Elevation ft	Torque-Arm				Pull Off				Diagonal			
	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U
153.75	0.625 A325N	0	0.000	0.75	0.000 A325N	0	0.000	0.75	0.000 A325N	0	0.000	1
316.25	0.625 A325N	0	0.000	0.75	0.000 A325N	0	0.000	0.75	0.000 A325N	0	0.000	1
491.25	0.625 A325N	0	0.000	0.75	0.000 A325N	0	0.000	0.75	0.000 A325N	0	0.000	1

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q _z ksf	q _z Ice ksf	Ice Thickness in
153.75	A	91.225	0.028	0.005	1.882
	B	97.335	0.028	0.005	1.894
	C	83.335	0.027	0.005	1.865
316.25	A	172.475	0.034	0.006	2.006
	B	178.585	0.034	0.006	2.013
	C	164.585	0.033	0.006	1.996
491.25	A	259.975	0.038	0.007	2.090
	B	266.085	0.038	0.007	2.095
	C	252.085	0.037	0.006	2.083

Guy-Mast Forces (Excluding Wind) - No Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top Bottom K	F _x K	F _y K	F _z K	M _x kip-ft	M _y kip-ft	M _z kip-ft
153.75	A	25.653	19.610 19.200	0.000	8.873	-17.487	-40.984	0.000	0.000
	B	23.428	19.570 19.200	15.400	8.172	8.891	18.872	0.000	-32.688
	C	28.407	19.662 19.200	-14.797	9.728	8.543	22.467	-0.000	38.913
316.25	A	47.839	Sum: 28.959 27.600	0.603 0.000	26.774 21.877	-0.053 -18.974	0.354 -101.047	0.000 0.000	6.226 0.000
	B	46.598	28.901 27.600	16.804	21.419	9.702	49.466	0.000	-85.678
	C	49.357	29.034 27.600	-15.966	22.429	9.218	51.798	-0.000	89.717
			Sum:	0.838	65.726	-0.054	0.217	0.000	4.039

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	K	K	K	K	kip-ft	kip-ft	kip-ft
491.25	A	60.624	40.572 37.600	0.000	35.763	-19.160	-165.180	0.000	0.000
	B	59.964	40.493 37.600	16.915	35.471	9.766	81.918	0.000	-141.885
	C	61.438	40.673 37.600	-16.193	36.121	9.349	83.417	-0.000	144.482
			Sum:	0.722	107.354	-0.045	0.154	0.000	2.597

Guy-Mast Forces (Excluding Wind) - Ice

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	K	K	K	K	kip-ft	kip-ft	kip-ft
153.75	A	25.653	32.484 31.175	0.000	15.288	-28.662	-70.612	0.000	0.000
	B	23.428	32.476 31.286	25.307	14.169	14.611	32.722	0.000	-56.675
	C	28.407	32.487 31.027	-24.164	16.638	13.951	38.424	-0.000	66.552
			Sum:	1.143	46.095	-0.099	0.534	0.000	9.877
316.25	A	47.839	46.417 42.591	0.000	35.562	-29.831	-164.255	0.000	0.000
	B	46.598	46.362 42.685	26.459	34.872	15.276	80.532	0.000	-139.486
	C	49.357	46.443 42.425	-25.029	36.355	14.450	83.958	-0.000	145.419
			Sum:	1.430	106.789	-0.105	0.235	0.000	5.933
491.25	A	60.624	63.183 55.682	0.000	56.084	-29.097	-259.043	0.000	0.000
	B	59.964	63.086 55.768	25.712	55.663	14.845	128.549	0.000	-222.653
	C	61.438	63.306 55.572	-24.561	56.598	14.180	130.708	-0.000	226.394
			Sum:	1.151	168.346	-0.072	0.214	0.000	3.741

Guy-Mast Forces (Excluding Wind) - Service

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	K	K	K	K	kip-ft	kip-ft	kip-ft
153.75	A	25.653	19.610 19.200	0.000	8.873	-17.487	-40.984	0.000	0.000
	B	23.428	19.570 19.200	15.400	8.172	8.891	18.872	0.000	-32.688
	C	28.407	19.662 19.200	-14.797	9.728	8.543	22.467	-0.000	38.913
			Sum:	0.603	26.774	-0.053	0.354	0.000	6.226
316.25	A	47.839	28.959 27.600	0.000	21.877	-18.974	-101.047	0.000	0.000
	B	46.598	28.901 27.600	16.804	21.419	9.702	49.466	0.000	-85.678
	C	49.357	29.034 27.600	-15.966	22.429	9.218	51.798	-0.000	89.717
			Sum:	0.838	65.726	-0.054	0.217	0.000	4.039

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom	F _x	F _y	F _z	M _x	M _y	M _z
ft		°	K	K	K	K	kip-ft	kip-ft	kip-ft
491.25	A	60.624	40.572 37.600	0.000	35.763	-19.160	-165.180	0.000	0.000
	B	59.964	40.493 37.600	16.915	35.471	9.766	81.918	0.000	-141.885
	C	61.438	40.673 37.600	-16.193	36.121	9.349	83.417	-0.000	144.482
			Sum:	0.722	107.354	-0.045	0.154	0.000	2.597

Guy-Tensioning Information

Temperature At Time Of Tensioning																	
Guy Elevation	H	V	0 F		20 F		40 F		60 F		80 F		100 F		120 F		
			Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	
ft	ft	ft	K	ft	K	ft	K	ft	K	ft	K	ft	K	ft	K	ft	
153.75	A	260.38	125.05	25.557	5.31	23.375	5.80	21.250	6.37	19.200	7.05	17.249	7.84	15.425	8.75	13.756	9.80
	B	260.38	112.83	25.794	5.08	23.529	5.56	21.324	6.14	19.200	6.81	17.182	7.60	15.301	8.53	13.590	9.59
	C	260.38	140.83	25.243	5.64	23.171	6.14	21.151	6.72	19.200	7.39	17.339	8.18	15.590	9.08	13.980	10.11
316.25	A	260.38	287.55	32.593	10.69	30.896	11.26	29.230	11.89	27.600	12.58	26.013	13.33	24.476	14.14	22.995	15.03
	B	260.38	275.33	32.839	10.13	31.057	10.70	29.308	11.33	27.600	12.02	25.939	12.77	24.332	13.59	22.789	14.49
	C	260.38	303.33	32.296	11.44	30.701	12.02	29.134	12.65	27.600	13.34	26.104	14.09	24.651	14.90	23.247	15.77
491.25	A	260.38	462.55	41.204	21.20	39.989	21.82	38.787	22.48	37.600	23.16	36.429	23.88	35.276	24.63	34.141	25.42
	B	260.38	450.33	41.354	20.31	40.087	20.93	38.836	21.58	37.600	22.27	36.382	22.99	35.183	23.74	34.004	24.54
	C	260.38	478.33	41.023	22.38	39.869	23.01	38.728	23.67	37.600	24.35	36.487	25.07	35.389	25.82	34.308	26.60

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
Climbing Ladder (Round) (Carrier 560' E)	C	No	No	Af (CaAa)	560.000 - 8.000	-	0.3	1	1	0.500	2.340		0.005
Safety Line 3/8 (Carrier 560' E)	C	No	No	Ar (CaAa)	560.000 - 8.000	-	0.3	1	1	0.375	0.375		0.000
8188(3/4") (Conduit)	B	No	No	Ar (CaAa)	560.000 - 8.000	-7.000	0.16	2	1	1.500	0.750		0.000
1/2" Grouding wire (Carrier 212' E)	B	No	No	Ar (CaAa)	212.000 - 0.000	0.000	0	1	1	0.630	0.630		0.000
Coax- Brackets (Af) (Carrier 465' E)	A	No	No	Af (CaAa)	465.000 - 8.000	-1.000	0.35	1	1	1.000	1.000		0.008
8188(3/4") (Lighting)	A	No	No	Ar (CaAa)	557.000 - 8.000	-1.500	0.1	1	1	0.750	0.750		0.000
8188(3/4") (conduit)	C	No	No	Ar (CaAa)	475.000 - 8.000	-1.000	0.4	1	1	0.750	0.750		0.000
8188(3/4") (Conduit) ***	B	No	No	Ar (CaAa)	315.000 - 8.000	-1.000	-0.09	1	1	0.750	0.750		0.000
D-Tuner (Carrier 476' E)	A	No	No	Ar (CaAa)	476.000 - 160.000	12.000	0	1	1	0.000	0.500		0.000

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
D-Tuner (Carrier 476' E)	B	No	No	Ar (CaAa)	476.000 - 160.000	12.000	0	1	1	0.000	0.500		0.000
D-Tuner (Carrier 476' E)	C	No	No	Ar (CaAa)	476.000 - 160.000	12.000	0	1	1	0.000	0.500		0.000
FXL 1873 PE (1-5/8") (Carrier 553' E)	C	No	No	Ar (CaAa)	553.000 - 8.000	-1.000	0.4	1	1	1.000	1.980		0.001
LDF7-50A(1-5/8") (Carrier 514' E)	B	No	No	Ar (CaAa)	514.000 - 8.000	-7.000	0.17	1	1	1.980	1.980		0.001
T-Brackets (Af) (Carrier 514' E)	C	No	No	Af (CaAa)	514.000 - 8.000	-	-0.35	1	1	1.000	1.000		0.008
LDF6-50A(1-1/4") (Carrier 514' E)	B	No	No	Ar (CaAa)	514.000 - 492.000	-	-0.4	1	1	0.500	1.550		0.001
LDF6-50A(1-1/4") (Carrier 514+492' E)	B	No	No	Ar (CaAa)	492.000 - 442.000	-	-0.4	2	2	0.500	1.550		0.001
LDF6-50A(1-1/4") (Carrier 514+492+44' E)	B	No	No	Ar (CaAa)	442.000 - 8.000	-	-0.4	3	3	0.500	1.550		0.001
MACX450-1(4-1/16) (Carrier 490' E)	B	No	No	Ar (CaAa)	490.000 - 8.000	-1.000	-0.2	1	1	4.062	4.062		0.004
FLC 78-50J(7/8") (Carrier 465' E)	B	No	No	Ar (CaAa)	465.000 - 175.000	-1.000	0.4	1	1	1.112	1.112		0.000
LDF5-50A(7/8") (Carrier 465+175' E)	C	No	No	Ar (CaAa)	175.000 - 8.000	-1.000	0.4	2	2	1.090	1.090		0.000
LDF5-50A(7/8") (Carrier 438' E)	C	No	No	Ar (CaAa)	438.000 - 8.000	-	0.18	1	1	1.090	1.090		0.000
LDF5-50A(7/8") (Carrier 438' E)	A	No	No	Ar (CaAa)	438.000 - 212.000	-1.500	-0.46	1	1	0.500	1.090		0.000
FLC 78-50J(7/8") (Carrier 438+212' E)	A	No	No	Ar (CaAa)	212.000 - 8.000	-1.500	-0.46	2	2	1.112	1.112		0.000
LDF7-50A(1-5/8") (Carrier 415' E)	A	No	No	Ar (CaAa)	415.000 - 388.000	-	0.3	2	2	0.500	1.980		0.001
LDF7-50A(1-	B	No	No	Ar (CaAa)	388.000 -	-	0.3	3	3	0.500	1.980		0.001

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
5/8") (Carrier 415+388' E)					324.000	13.000							
LDF7-50A(1-5/8") (Carrier 415+388+32 4' E)	B	No	No	Ar (CaAa)	324.000 - 288.000	- 13.000	0.3	5	5	0.500	1.980		0.001
LDF7-50A(1-5/8") (Carrier 415+388+32 4+288' E)	B	No	No	Ar (CaAa)	288.000 - 270.000	- 13.000	0.3	6	6	0.500	1.980		0.001
LDF7-50A(1-5/8") (Carrier 415+388+32 4+288+270' E) ***	B	No	No	Ar (CaAa)	270.000 - 8.000	- 13.000	0.3	7	7	0.500	1.980		0.001
LDF4P-50A(1/2") (Carrier 415' E)	C	No	No	Ar (CaAa)	415.000 - 294.000	-1.500	0.4	1	1	0.630	0.630		0.000
LDF4-75A(1/2") (Carrier 415+294' E)	C	No	No	Ar (CaAa)	294.000 - 91.000	-1.500	0.4	2	2	0.630	0.630		0.000
LDF4P-50A(1/2") (Carrier 415+294+91' E) ***	C	No	No	Ar (CaAa)	91.000 - 8.000	-1.500	0.4	3	3	0.630	0.630		0.000
LDF4P-50A(1/2") (Carrier 138' E)	A	No	No	Ar (CaAa)	138.000 - 134.000	-7.500	0.43	1	1	0.630	0.630		0.000
LDF4-50A(1/2") (Carrier 138+134' E) ***	A	No	No	Ar (CaAa)	134.000 - 8.000	-7.500	0.43	2	1	0.630	0.630		0.000
LDF4-75A(1/2") (Carrier 324' E) ***	C	No	No	Ar (CaAa)	324.000 - 8.000	-1.500	0.32	1	1	0.630	0.630		0.000
T-Brackets (Af) (Carrier 250' E)	A	No	No	Af (CaAa)	250.000 - 8.000	-5.000	0.38	1	1	1.000	1.000		0.008
LDF7-50A(1-5/8") (Carrier 250' E) ***	A	No	No	Ar (CaAa)	250.000 - 8.000	-5.000	0.38	8	4	0.500	1.980		0.001
HCS 6X12 4AWG(1-5/8) (Carrier 239' P) ***	A	No	No	Ar (CaAa)	239.000 - 8.000	-1.500	-0.35	3	3	0.500	1.660		0.002
LDF7-50A(1-5/8") (Carrier 214' E) ***	B	No	No	Ar (CaAa)	214.000 - 8.000	-5.000	0.4	6	3	0.500	1.980		0.001
EW52(ELLIP	C	No	No	Ar (CaAa)	145.000 -	-1.000	0.4	1	1	2.250	0.870		0.001

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight kif
TICAL) (Carrier 145' E) *** ***					8.000								
LDF2-50(3/8") (Carrier 112' E) ***	C	No	No	Ar (CaAa)	112.000 - 8.000	-1.000	0.4	1	1	0.440	0.440		0.000
FLC38-50J(3/8") (Carrier 80' E) ***	A	No	No	Ar (CaAa)	80.000 - 8.000	-1.500	-0.38	1	1	0.440	0.440		0.000
LCF12-50J(1/2") (Carrier 288' E) ***	A	No	No	Ar (CaAa)	288.000 - 76.000	-1.500	-0.41	1	1	0.640	0.640		0.000
LCF12-50J(1/2") (Carrier 288+76' E) ***	A	No	No	Ar (CaAa)	76.000 - 8.000	-1.500	-0.41	2	2	0.640	0.640		0.000
LDF7-50A(1-5/8") ***	A	No	No	Ar (CaAa)	553.000 - 415.000	-	0.3	1	1	0.500	1.980		0.001
CU12PSM6P4XXX(1-3/4) ***** ***	C	No	No	Ar (CaAa)	202.000 - 0.000	0.000	0.5	1	1	1.750	1.750		0.003

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	CAAA ft ² /ft	Weight kif
*** ***** ***								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	CAAA In Face ft ²	CAAA Out Face ft ²	Weight K
T1	560.000-553.750	A	0.000	0.000	0.244	0.000	0.001
		B	0.000	0.000	0.938	0.000	0.004
		C	0.000	0.000	2.672	0.000	0.034
T2	553.750-547.500	A	0.000	0.000	1.558	0.000	0.007
		B	0.000	0.000	0.938	0.000	0.004
		C	0.000	0.000	3.761	0.000	0.038
T3	547.500-541.250	A	0.000	0.000	1.706	0.000	0.007
		B	0.000	0.000	0.938	0.000	0.004
		C	0.000	0.000	3.909	0.000	0.038
T4	541.250-535.000	A	0.000	0.000	1.706	0.000	0.007
		B	0.000	0.000	0.938	0.000	0.004

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
T5	535.000-510.000	C	0.000	0.000	3.909	0.000	0.038
		A	0.000	0.000	6.825	0.000	0.029
		B	0.000	0.000	5.162	0.000	0.023
T6	510.000-485.000	C	0.000	0.000	16.304	0.000	0.187
		A	0.000	0.000	6.825	0.000	0.029
		B	0.000	0.000	15.244	0.000	0.080
T7	485.000-460.000	C	0.000	0.000	19.804	0.000	0.364
		A	0.000	0.000	8.458	0.000	0.075
		B	0.000	0.000	25.761	0.000	0.181
T8	460.000-435.000	C	0.000	0.000	21.729	0.000	0.373
		A	0.000	0.000	12.569	0.000	0.246
		B	0.000	0.000	29.582	0.000	0.195
T9	435.000-410.000	C	0.000	0.000	23.256	0.000	0.379
		A	0.000	0.000	15.957	0.000	0.257
		B	0.000	0.000	32.438	0.000	0.207
T10	410.000-385.000	C	0.000	0.000	25.969	0.000	0.387
		A	0.000	0.000	18.729	0.000	0.269
		B	0.000	0.000	34.291	0.000	0.214
T11	385.000-360.000	C	0.000	0.000	27.229	0.000	0.390
		A	0.000	0.000	10.017	0.000	0.233
		B	0.000	0.000	47.435	0.000	0.269
T12	360.000-335.000	C	0.000	0.000	27.229	0.000	0.390
		A	0.000	0.000	10.017	0.000	0.233
		B	0.000	0.000	47.517	0.000	0.269
T13	335.000-310.000	C	0.000	0.000	27.229	0.000	0.390
		A	0.000	0.000	10.017	0.000	0.233
		B	0.000	0.000	53.525	0.000	0.293
T14	310.000-285.000	C	0.000	0.000	28.111	0.000	0.392
		A	0.000	0.000	10.209	0.000	0.233
		B	0.000	0.000	60.072	0.000	0.321
T15	285.000-260.000	C	0.000	0.000	29.371	0.000	0.396
		A	0.000	0.000	11.617	0.000	0.236
		B	0.000	0.000	66.515	0.000	0.347
T16	260.000-235.000	C	0.000	0.000	30.379	0.000	0.398
		A	0.000	0.000	39.869	0.000	0.489
		B	0.000	0.000	69.605	0.000	0.359
T17	235.000-210.000	C	0.000	0.000	30.379	0.000	0.398
		A	0.000	0.000	68.060	0.000	0.791
		B	0.000	0.000	74.616	0.000	0.379
T18	210.000-185.000	C	0.000	0.000	30.379	0.000	0.398
		A	0.000	0.000	70.668	0.000	0.802
		B	0.000	0.000	101.165	0.000	0.486
T19	185.000-160.000	C	0.000	0.000	33.354	0.000	0.444
		A	0.000	0.000	70.668	0.000	0.802
		B	0.000	0.000	99.673	0.000	0.480
T20	160.000-135.000	C	0.000	0.000	38.024	0.000	0.476
		A	0.000	0.000	69.607	0.000	0.797
		B	0.000	0.000	97.519	0.000	0.470
T21	135.000-110.000	C	0.000	0.000	39.824	0.000	0.483
		A	0.000	0.000	72.505	0.000	0.804
		B	0.000	0.000	97.772	0.000	0.470
T22	110.000-85.000	C	0.000	0.000	41.217	0.000	0.492
		A	0.000	0.000	72.568	0.000	0.804
		B	0.000	0.000	98.091	0.000	0.470
T23	85.000-60.000	C	0.000	0.000	42.607	0.000	0.495
		A	0.000	0.000	74.472	0.000	0.808
		B	0.000	0.000	98.280	0.000	0.470
T24	60.000-35.000	C	0.000	0.000	43.804	0.000	0.497
		A	0.000	0.000	75.268	0.000	0.810
		B	0.000	0.000	98.280	0.000	0.470
T25	35.000-10.000	C	0.000	0.000	43.804	0.000	0.497
		A	0.000	0.000	75.268	0.000	0.810
		B	0.000	0.000	98.280	0.000	0.470
T26	10.000-0.000	C	0.000	0.000	43.804	0.000	0.497
		A	0.000	0.000	6.021	0.000	0.065
		B	0.000	0.000	8.366	0.000	0.039
		C	0.000	0.000	4.904	0.000	0.062

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section n	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
T1	560.000-553.750	A	2.255	0.000	0.000	1.710	0.000	0.028
		B		0.000	0.000	7.163	0.000	0.108
		C		0.000	0.000	8.310	0.000	0.167
T2	553.750-547.500	A	2.253	0.000	0.000	6.851	0.000	0.122
		B		0.000	0.000	7.158	0.000	0.108
		C		0.000	0.000	11.870	0.000	0.234
T3	547.500-541.250	A	2.250	0.000	0.000	7.331	0.000	0.132
		B		0.000	0.000	7.152	0.000	0.107
		C		0.000	0.000	12.347	0.000	0.243
T4	541.250-535.000	A	2.247	0.000	0.000	7.325	0.000	0.131
		B		0.000	0.000	7.147	0.000	0.107
		C		0.000	0.000	12.337	0.000	0.243
T5	535.000-510.000	A	2.241	0.000	0.000	29.233	0.000	0.523
		B		0.000	0.000	33.526	0.000	0.521
		C		0.000	0.000	51.709	0.000	1.044
T6	510.000-485.000	A	2.230	0.000	0.000	29.124	0.000	0.519
		B		0.000	0.000	68.408	0.000	1.144
		C		0.000	0.000	64.401	0.000	1.440
T7	485.000-460.000	A	2.218	0.000	0.000	39.959	0.000	0.732
		B		0.000	0.000	107.613	0.000	1.812
		C		0.000	0.000	79.851	0.000	1.678
T8	460.000-435.000	A	2.206	0.000	0.000	58.020	0.000	1.201
		B		0.000	0.000	124.199	0.000	2.086
		C		0.000	0.000	90.771	0.000	1.845
T9	435.000-410.000	A	2.194	0.000	0.000	73.439	0.000	1.422
		B		0.000	0.000	127.572	0.000	2.153
		C		0.000	0.000	104.943	0.000	2.071
T10	410.000-385.000	A	2.180	0.000	0.000	83.498	0.000	1.472
		B		0.000	0.000	131.935	0.000	2.205
		C		0.000	0.000	114.444	0.000	2.206
T11	385.000-360.000	A	2.166	0.000	0.000	53.342	0.000	1.074
		B		0.000	0.000	166.923	0.000	2.697
		C		0.000	0.000	113.879	0.000	2.187
T12	360.000-335.000	A	2.151	0.000	0.000	53.042	0.000	1.064
		B		0.000	0.000	166.237	0.000	2.672
		C		0.000	0.000	113.280	0.000	2.166
T13	335.000-310.000	A	2.135	0.000	0.000	52.722	0.000	1.054
		B		0.000	0.000	175.892	0.000	2.844
		C		0.000	0.000	119.500	0.000	2.247
T14	310.000-285.000	A	2.118	0.000	0.000	53.842	0.000	1.064
		B		0.000	0.000	192.134	0.000	3.111
		C		0.000	0.000	128.541	0.000	2.324
T15	285.000-260.000	A	2.100	0.000	0.000	64.106	0.000	1.210
		B		0.000	0.000	200.585	0.000	3.256
		C		0.000	0.000	135.499	0.000	2.335
T16	260.000-235.000	A	2.079	0.000	0.000	108.344	0.000	2.153
		B		0.000	0.000	204.018	0.000	3.301
		C		0.000	0.000	134.518	0.000	2.304
T17	235.000-210.000	A	2.057	0.000	0.000	165.156	0.000	3.221
		B		0.000	0.000	210.862	0.000	3.398
		C		0.000	0.000	133.444	0.000	2.271
T18	210.000-185.000	A	2.033	0.000	0.000	178.111	0.000	3.288
		B		0.000	0.000	256.947	0.000	4.161
		C		0.000	0.000	142.142	0.000	2.441
T19	185.000-160.000	A	2.006	0.000	0.000	176.722	0.000	3.243
		B		0.000	0.000	247.520	0.000	3.975
		C		0.000	0.000	161.996	0.000	2.676
T20	160.000-135.000	A	1.975	0.000	0.000	165.041	0.000	3.057
		B		0.000	0.000	229.445	0.000	3.672
		C		0.000	0.000	164.859	0.000	2.660
T21	135.000-110.000	A	1.938	0.000	0.000	184.643	0.000	3.290
		B		0.000	0.000	227.494	0.000	3.598
		C		0.000	0.000	170.681	0.000	2.718
T22	110.000-85.000	A	1.895	0.000	0.000	182.833	0.000	3.221
		B		0.000	0.000	225.147	0.000	3.511

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
T23	85.000-60.000	C		0.000	0.000	178.431	0.000	2.778
		A	1.839	0.000	0.000	195.283	0.000	3.266
		B		0.000	0.000	222.180	0.000	3.401
T24	60.000-35.000	C		0.000	0.000	177.156	0.000	2.713
		A	1.763	0.000	0.000	196.589	0.000	3.174
		B		0.000	0.000	218.099	0.000	3.253
T25	35.000-10.000	C		0.000	0.000	172.031	0.000	2.572
		A	1.636	0.000	0.000	188.561	0.000	2.952
		B		0.000	0.000	211.304	0.000	3.013
T26	10.000-0.000	C		0.000	0.000	163.492	0.000	2.345
		A	1.408	0.000	0.000	13.931	0.000	0.206
		B		0.000	0.000	18.684	0.000	0.238
		C		0.000	0.000	15.503	0.000	0.223

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
T1	560.000-553.750	-0.740	0.416	-1.253	1.139
T2	553.750-547.500	-2.159	0.228	-3.504	0.674
T3	547.500-541.250	-2.339	0.201	-3.314	0.559
T4	541.250-535.000	-2.943	0.248	-3.744	0.626
T5	535.000-510.000	-2.614	0.120	-3.241	0.462
T6	510.000-485.000	-0.784	-1.376	-0.770	-0.873
T7	485.000-460.000	-0.107	-4.036	-0.719	-2.215
T8	460.000-435.000	0.079	-4.513	-0.473	-2.362
T9	435.000-410.000	-0.943	-4.640	-2.162	-1.589
T10	410.000-385.000	-0.988	-4.630	-2.701	-1.189
T11	385.000-360.000	0.340	-1.454	-1.709	1.218
T12	360.000-335.000	0.321	-1.369	-1.645	1.174
T13	335.000-310.000	0.514	-0.691	-1.768	1.557
T14	310.000-285.000	0.669	-0.265	-1.886	1.688
T15	285.000-260.000	0.516	0.495	-2.895	2.405
T16	260.000-235.000	0.277	-2.661	-2.988	0.157
T17	235.000-210.000	-0.660	-3.444	-3.661	-0.497
T18	210.000-185.000	0.724	-1.258	-2.548	0.868
T19	185.000-160.000	-0.340	-1.029	-4.040	1.162
T20	160.000-135.000	-0.959	-0.957	-5.259	1.394
T21	135.000-110.000	-1.113	-1.312	-5.525	0.737
T22	110.000-85.000	-1.319	-1.299	-6.087	1.083
T23	85.000-60.000	-2.120	-0.491	-6.756	1.384
T24	60.000-35.000	-2.225	-0.429	-6.864	1.466
T25	35.000-10.000	-2.215	-0.427	-6.739	1.414
T26	10.000-0.000	-1.048	0.249	-2.240	0.752

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T1	1	Climbing Ladder (Round)	553.75 - 560.00	0.6000	0.4909
T1	2	Safety Line 3/8	553.75 - 560.00	0.6000	0.4909
T1	3	8188(3/4")	553.75 - 560.00	0.6000	0.4909
T1	6	8188(3/4")	553.75 - 557.00	0.6000	0.4909

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T2	1	Climbing Ladder (Round)	547.50 - 553.75	0.6000	0.5865
T2	2	Safety Line 3/8	547.50 - 553.75	0.6000	0.5865
T2	3	8188(3/4")	547.50 - 553.75	0.6000	0.5865
T2	6	8188(3/4")	547.50 - 553.75	0.6000	0.5865
T2	14	FXL 1873 PE (1-5/8")	547.50 - 553.00	0.6000	0.5865
T2	65	LDF7-50A(1-5/8")	547.50 - 553.00	0.6000	0.5865
T3	1	Climbing Ladder (Round)	541.25 - 547.50	0.6000	0.5390
T3	2	Safety Line 3/8	541.25 - 547.50	0.6000	0.5390
T3	3	8188(3/4")	541.25 - 547.50	0.6000	0.5390
T3	6	8188(3/4")	541.25 - 547.50	0.6000	0.5390
T3	14	FXL 1873 PE (1-5/8")	541.25 - 547.50	0.6000	0.5390
T3	65	LDF7-50A(1-5/8")	541.25 - 547.50	0.6000	0.5390
T4	1	Climbing Ladder (Round)	535.00 - 541.25	0.6000	0.5754
T4	2	Safety Line 3/8	535.00 - 541.25	0.6000	0.5754
T4	3	8188(3/4")	535.00 - 541.25	0.6000	0.5754
T4	6	8188(3/4")	535.00 - 541.25	0.6000	0.5754
T4	14	FXL 1873 PE (1-5/8")	535.00 - 541.25	0.6000	0.5754
T4	65	LDF7-50A(1-5/8")	535.00 - 541.25	0.6000	0.5754
T5	1	Climbing Ladder (Round)	510.00 - 535.00	0.6000	0.5761
T5	2	Safety Line 3/8	510.00 - 535.00	0.6000	0.5761
T5	3	8188(3/4")	510.00 - 535.00	0.6000	0.5761
T5	6	8188(3/4")	510.00 - 535.00	0.6000	0.5761
T5	14	FXL 1873 PE (1-5/8")	510.00 - 535.00	0.6000	0.5761
T5	16	LDF7-50A(1-5/8")	510.00 - 514.00	0.6000	0.5761
T5	17	T-Brackets (Af)	510.00 - 514.00	0.6000	0.5761
T5	19	LDF6-50A(1-1/4")	510.00 - 514.00	0.6000	0.5761
T5	65	LDF7-50A(1-5/8")	510.00 - 535.00	0.6000	0.5761
T6	1	Climbing Ladder (Round)	485.00 - 510.00	0.6000	0.5635
T6	2	Safety Line 3/8	485.00 - 510.00	0.6000	0.5635
T6	3	8188(3/4")	485.00 - 510.00	0.6000	0.5635
T6	6	8188(3/4")	485.00 - 510.00	0.6000	0.5635
T6	14	FXL 1873 PE (1-5/8")	485.00 - 510.00	0.6000	0.5635
T6	16	LDF7-50A(1-5/8")	485.00 - 510.00	0.6000	0.5635
T6	17	T-Brackets (Af)	485.00 - 510.00	0.6000	0.5635
T6	19	LDF6-50A(1-1/4")	492.00 -	0.6000	0.5635

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			510.00		
T6	20	LDF6-50A(1-1/4")	485.00 - 492.00	0.6000	0.5635
T6	23	MACX450-1(4-1/16)	485.00 - 490.00	1.0000	0.5635
T6	65	LDF7-50A(1-5/8")	485.00 - 510.00	0.6000	0.5635
T7	1	Climbing Ladder (Round)	460.00 - 485.00	0.6000	0.5724
T7	2	Safety Line 3/8	460.00 - 485.00	0.6000	0.5724
T7	3	8188(3/4")	460.00 - 485.00	0.6000	0.5724
T7	5	Coax-Brackets (Af)	460.00 - 465.00	0.6000	0.5724
T7	6	8188(3/4")	460.00 - 485.00	0.6000	0.5724
T7	7	8188(3/4")	460.00 - 475.00	0.6000	0.5724
T7	10	D-Tuner	460.00 - 476.00	0.6000	0.5724
T7	11	D-Tuner	460.00 - 476.00	0.6000	0.5724
T7	12	D-Tuner	460.00 - 476.00	0.6000	0.5724
T7	14	FXL 1873 PE (1-5/8")	460.00 - 485.00	0.6000	0.5724
T7	16	LDF7-50A(1-5/8")	460.00 - 485.00	0.6000	0.5724
T7	17	T-Brackets (Af)	460.00 - 485.00	0.6000	0.5724
T7	20	LDF6-50A(1-1/4")	460.00 - 485.00	0.6000	0.5724
T7	23	MACX450-1(4-1/16)	460.00 - 485.00	1.0000	0.5724
T7	25	FLC 78-50J(7/8")	460.00 - 465.00	0.6000	0.5724
T7	65	LDF7-50A(1-5/8")	460.00 - 485.00	0.6000	0.5724
T8	1	Climbing Ladder (Round)	435.00 - 460.00	0.6000	0.5840
T8	2	Safety Line 3/8	435.00 - 460.00	0.6000	0.5840
T8	3	8188(3/4")	435.00 - 460.00	0.6000	0.5840
T8	5	Coax-Brackets (Af)	435.00 - 460.00	0.6000	0.5840
T8	6	8188(3/4")	435.00 - 460.00	0.6000	0.5840
T8	7	8188(3/4")	435.00 - 460.00	0.6000	0.5840
T8	10	D-Tuner	435.00 - 460.00	0.6000	0.5840
T8	11	D-Tuner	435.00 - 460.00	0.6000	0.5840
T8	12	D-Tuner	435.00 - 460.00	0.6000	0.5840
T8	14	FXL 1873 PE (1-5/8")	435.00 - 460.00	0.6000	0.5840
T8	16	LDF7-50A(1-5/8")	435.00 - 460.00	0.6000	0.5840
T8	17	T-Brackets (Af)	435.00 - 460.00	0.6000	0.5840
T8	20	LDF6-50A(1-1/4")	442.00 - 460.00	0.6000	0.5840
T8	21	LDF6-50A(1-1/4")	435.00 - 442.00	0.6000	0.5840
T8	23	MACX450-1(4-1/16)	435.00 - 460.00	1.0000	0.5840

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T8	25	FLC 78-50J(7/8")	435.00 - 460.00	0.6000	0.5840
T8	28	LDF5-50A(7/8")	435.00 - 438.00	0.6000	0.5840
T8	30	LDF5-50A(7/8")	435.00 - 438.00	0.6000	0.5840
T8	65	LDF7-50A(1-5/8")	435.00 - 460.00	0.6000	0.5840
T9	1	Climbing Ladder (Round)	410.00 - 435.00	0.6000	0.5892
T9	2	Safety Line 3/8	410.00 - 435.00	0.6000	0.5892
T9	3	8188(3/4")	410.00 - 435.00	0.6000	0.5892
T9	5	Coax-Brackets (Af)	410.00 - 435.00	0.6000	0.5892
T9	6	8188(3/4")	410.00 - 435.00	0.6000	0.5892
T9	7	8188(3/4")	410.00 - 435.00	0.6000	0.5892
T9	10	D-Tuner	410.00 - 435.00	0.6000	0.5892
T9	11	D-Tuner	410.00 - 435.00	0.6000	0.5892
T9	12	D-Tuner	410.00 - 435.00	0.6000	0.5892
T9	14	FXL 1873 PE (1-5/8")	410.00 - 435.00	0.6000	0.5892
T9	16	LDF7-50A(1-5/8")	410.00 - 435.00	0.6000	0.5892
T9	17	T-Brackets (Af)	410.00 - 435.00	0.6000	0.5892
T9	21	LDF6-50A(1-1/4")	410.00 - 435.00	0.6000	0.5892
T9	23	MACX450-1(4-1/16)	410.00 - 435.00	1.0000	0.5892
T9	25	FLC 78-50J(7/8")	410.00 - 435.00	0.6000	0.5892
T9	28	LDF5-50A(7/8")	410.00 - 435.00	0.6000	0.5892
T9	30	LDF5-50A(7/8")	410.00 - 435.00	0.6000	0.5892
T9	33	LDF7-50A(1-5/8")	410.00 - 415.00	0.6000	0.5892
T9	39	LDF4P-50A(1/2")	410.00 - 415.00	0.6000	0.5892
T9	65	LDF7-50A(1-5/8")	415.00 - 435.00	0.6000	0.5892
T10	1	Climbing Ladder (Round)	385.00 - 410.00	0.6000	0.5908
T10	2	Safety Line 3/8	385.00 - 410.00	0.6000	0.5908
T10	3	8188(3/4")	385.00 - 410.00	0.6000	0.5908
T10	5	Coax-Brackets (Af)	385.00 - 410.00	0.6000	0.5908
T10	6	8188(3/4")	385.00 - 410.00	0.6000	0.5908
T10	7	8188(3/4")	385.00 - 410.00	0.6000	0.5908
T10	10	D-Tuner	385.00 - 410.00	0.6000	0.5908
T10	11	D-Tuner	385.00 - 410.00	0.6000	0.5908
T10	12	D-Tuner	385.00 - 410.00	0.6000	0.5908
T10	14	FXL 1873 PE (1-5/8")	385.00 - 410.00	0.6000	0.5908
T10	16	LDF7-50A(1-5/8")	385.00 -	0.6000	0.5908

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
			410.00		
T10	17	T-Brackets (Af)	385.00 - 410.00	0.6000	0.5908
T10	21	LDF6-50A(1-1/4")	385.00 - 410.00	0.6000	0.5908
T10	23	MACX450-1(4-1/16)	385.00 - 410.00	1.0000	0.5908
T10	25	FLC 78-50J(7/8")	385.00 - 410.00	0.6000	0.5908
T10	28	LDF5-50A(7/8")	385.00 - 410.00	0.6000	0.5908
T10	30	LDF5-50A(7/8")	385.00 - 410.00	0.6000	0.5908
T10	33	LDF7-50A(1-5/8")	388.00 - 410.00	0.6000	0.5908
T10	34	LDF7-50A(1-5/8")	385.00 - 388.00	0.6000	0.5908
T10	39	LDF4P-50A(1/2")	385.00 - 410.00	0.6000	0.5908
T11	1	Climbing Ladder (Round)	360.00 - 385.00	0.6000	0.5946
T11	2	Safety Line 3/8	360.00 - 385.00	0.6000	0.5946
T11	3	8188(3/4")	360.00 - 385.00	0.6000	0.5946
T11	5	Coax-Brackets (Af)	360.00 - 385.00	0.6000	0.5946
T11	6	8188(3/4")	360.00 - 385.00	0.6000	0.5946
T11	7	8188(3/4")	360.00 - 385.00	0.6000	0.5946
T11	10	D-Tuner	360.00 - 385.00	0.6000	0.5946
T11	11	D-Tuner	360.00 - 385.00	0.6000	0.5946
T11	12	D-Tuner	360.00 - 385.00	0.6000	0.5946
T11	14	FXL 1873 PE (1-5/8")	360.00 - 385.00	0.6000	0.5946
T11	16	LDF7-50A(1-5/8")	360.00 - 385.00	0.6000	0.5946
T11	17	T-Brackets (Af)	360.00 - 385.00	0.6000	0.5946
T11	21	LDF6-50A(1-1/4")	360.00 - 385.00	0.6000	0.5946
T11	23	MACX450-1(4-1/16)	360.00 - 385.00	1.0000	0.5946
T11	25	FLC 78-50J(7/8")	360.00 - 385.00	0.6000	0.5946
T11	28	LDF5-50A(7/8")	360.00 - 385.00	0.6000	0.5946
T11	30	LDF5-50A(7/8")	360.00 - 385.00	0.6000	0.5946
T11	34	LDF7-50A(1-5/8")	360.00 - 385.00	0.6000	0.5946
T11	39	LDF4P-50A(1/2")	360.00 - 385.00	0.6000	0.5946
T12	1	Climbing Ladder (Round)	335.00 - 360.00	0.6000	0.5769
T12	2	Safety Line 3/8	335.00 - 360.00	0.6000	0.5769
T12	3	8188(3/4")	335.00 - 360.00	0.6000	0.5769
T12	5	Coax-Brackets (Af)	335.00 - 360.00	0.6000	0.5769
T12	6	8188(3/4")	335.00 - 360.00	0.6000	0.5769
T12	7	8188(3/4")	335.00 - 360.00	0.6000	0.5769

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T12	10	D-Tuner	335.00 - 360.00	0.6000	0.5769
T12	11	D-Tuner	335.00 - 360.00	0.6000	0.5769
T12	12	D-Tuner	335.00 - 360.00	0.6000	0.5769
T12	14	FXL 1873 PE (1-5/8")	335.00 - 360.00	0.6000	0.5769
T12	16	LDF7-50A(1-5/8")	335.00 - 360.00	0.6000	0.5769
T12	17	T-Brackets (Af)	335.00 - 360.00	0.6000	0.5769
T12	21	LDF6-50A(1-1/4")	335.00 - 360.00	0.6000	0.5769
T12	23	MACX450-1(4-1/16)	335.00 - 360.00	1.0000	0.5769
T12	25	FLC 78-50J(7/8")	335.00 - 360.00	0.6000	0.5769
T12	28	LDF5-50A(7/8")	335.00 - 360.00	0.6000	0.5769
T12	30	LDF5-50A(7/8")	335.00 - 360.00	0.6000	0.5769
T12	34	LDF7-50A(1-5/8")	335.00 - 360.00	0.6000	0.5769
T12	39	LDF4P-50A(1/2")	335.00 - 360.00	0.6000	0.5769
T13	1	Climbing Ladder (Round)	310.00 - 335.00	0.6000	0.5649
T13	2	Safety Line 3/8	310.00 - 335.00	0.6000	0.5649
T13	3	8188(3/4")	310.00 - 335.00	0.6000	0.5649
T13	5	Coax-Brackets (Af)	310.00 - 335.00	0.6000	0.5649
T13	6	8188(3/4")	310.00 - 335.00	0.6000	0.5649
T13	7	8188(3/4")	310.00 - 335.00	0.6000	0.5649
T13	8	8188(3/4")	310.00 - 315.00	0.6000	0.5649
T13	10	D-Tuner	310.00 - 335.00	0.6000	0.5649
T13	11	D-Tuner	310.00 - 335.00	0.6000	0.5649
T13	12	D-Tuner	310.00 - 335.00	0.6000	0.5649
T13	14	FXL 1873 PE (1-5/8")	310.00 - 335.00	0.6000	0.5649
T13	16	LDF7-50A(1-5/8")	310.00 - 335.00	0.6000	0.5649
T13	17	T-Brackets (Af)	310.00 - 335.00	0.6000	0.5649
T13	21	LDF6-50A(1-1/4")	310.00 - 335.00	0.6000	0.5649
T13	23	MACX450-1(4-1/16)	310.00 - 335.00	1.0000	0.5649
T13	25	FLC 78-50J(7/8")	310.00 - 335.00	0.6000	0.5649
T13	28	LDF5-50A(7/8")	310.00 - 335.00	0.6000	0.5649
T13	30	LDF5-50A(7/8")	310.00 - 335.00	0.6000	0.5649
T13	34	LDF7-50A(1-5/8")	324.00 - 335.00	0.6000	0.5649
T13	35	LDF7-50A(1-5/8")	310.00 - 324.00	0.6000	0.5649
T13	39	LDF4P-50A(1/2")	310.00 - 335.00	0.6000	0.5649
T13	46	LDF4-75A(1/2")	310.00 -	0.6000	0.5649

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
			324.00		
T14	1	Climbing Ladder (Round)	285.00 - 310.00	0.6000	0.5775
T14	2	Safety Line 3/8	285.00 - 310.00	0.6000	0.5775
T14	3	8188(3/4")	285.00 - 310.00	0.6000	0.5775
T14	5	Coax-Brackets (Af)	285.00 - 310.00	0.6000	0.5775
T14	6	8188(3/4")	285.00 - 310.00	0.6000	0.5775
T14	7	8188(3/4")	285.00 - 310.00	0.6000	0.5775
T14	8	8188(3/4")	285.00 - 310.00	0.6000	0.5775
T14	10	D-Tuner	285.00 - 310.00	0.6000	0.5775
T14	11	D-Tuner	285.00 - 310.00	0.6000	0.5775
T14	12	D-Tuner	285.00 - 310.00	0.6000	0.5775
T14	14	FXL 1873 PE (1-5/8")	285.00 - 310.00	0.6000	0.5775
T14	16	LDF7-50A(1-5/8")	285.00 - 310.00	0.6000	0.5775
T14	17	T-Brackets (Af)	285.00 - 310.00	0.6000	0.5775
T14	21	LDF6-50A(1-1/4")	285.00 - 310.00	0.6000	0.5775
T14	23	MACX450-1(4-1/16)	285.00 - 310.00	1.0000	0.5775
T14	25	FLC 78-50J(7/8")	285.00 - 310.00	0.6000	0.5775
T14	28	LDF5-50A(7/8")	285.00 - 310.00	0.6000	0.5775
T14	30	LDF5-50A(7/8")	285.00 - 310.00	0.6000	0.5775
T14	35	LDF7-50A(1-5/8")	288.00 - 310.00	0.6000	0.5775
T14	36	LDF7-50A(1-5/8")	285.00 - 288.00	0.6000	0.5775
T14	39	LDF4P-50A(1/2")	294.00 - 310.00	0.6000	0.5775
T14	40	LDF4-75A(1/2")	285.00 - 294.00	0.6000	0.5775
T14	46	LDF4-75A(1/2")	285.00 - 310.00	0.6000	0.5775
T14	62	LCF12-50J(1/2")	285.00 - 288.00	0.6000	0.5775
T15	1	Climbing Ladder (Round)	260.00 - 285.00	0.6000	0.5963
T15	2	Safety Line 3/8	260.00 - 285.00	0.6000	0.5963
T15	3	8188(3/4")	260.00 - 285.00	0.6000	0.5963
T15	5	Coax-Brackets (Af)	260.00 - 285.00	0.6000	0.5963
T15	6	8188(3/4")	260.00 - 285.00	0.6000	0.5963
T15	7	8188(3/4")	260.00 - 285.00	0.6000	0.5963
T15	8	8188(3/4")	260.00 - 285.00	0.6000	0.5963
T15	10	D-Tuner	260.00 - 285.00	0.6000	0.5963
T15	11	D-Tuner	260.00 - 285.00	0.6000	0.5963
T15	12	D-Tuner	260.00 - 285.00	0.6000	0.5963

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T15	14	FXL 1873 PE (1-5/8")	260.00 - 285.00	0.6000	0.5963
T15	16	LDF7-50A(1-5/8")	260.00 - 285.00	0.6000	0.5963
T15	17	T-Brackets (Af)	260.00 - 285.00	0.6000	0.5963
T15	21	LDF6-50A(1-1/4")	260.00 - 285.00	0.6000	0.5963
T15	23	MACX450-1(4-1/16)	260.00 - 285.00	1.0000	0.5963
T15	25	FLC 78-50J(7/8")	260.00 - 285.00	0.6000	0.5963
T15	28	LDF5-50A(7/8")	260.00 - 285.00	0.6000	0.5963
T15	30	LDF5-50A(7/8")	260.00 - 285.00	0.6000	0.5963
T15	36	LDF7-50A(1-5/8")	270.00 - 285.00	0.6000	0.5963
T15	37	LDF7-50A(1-5/8")	260.00 - 270.00	0.6000	0.5963
T15	40	LDF4-75A(1/2")	260.00 - 285.00	0.6000	0.5963
T15	46	LDF4-75A(1/2")	260.00 - 285.00	0.6000	0.5963
T15	62	LCF12-50J(1/2")	260.00 - 285.00	0.6000	0.5963
T16	1	Climbing Ladder (Round)	235.00 - 260.00	0.6000	0.6000
T16	2	Safety Line 3/8	235.00 - 260.00	0.6000	0.6000
T16	3	8188(3/4")	235.00 - 260.00	0.6000	0.6000
T16	5	Coax-Brackets (Af)	235.00 - 260.00	0.6000	0.6000
T16	6	8188(3/4")	235.00 - 260.00	0.6000	0.6000
T16	7	8188(3/4")	235.00 - 260.00	0.6000	0.6000
T16	8	8188(3/4")	235.00 - 260.00	0.6000	0.6000
T16	10	D-Tuner	235.00 - 260.00	0.6000	0.6000
T16	11	D-Tuner	235.00 - 260.00	0.6000	0.6000
T16	12	D-Tuner	235.00 - 260.00	0.6000	0.6000
T16	14	FXL 1873 PE (1-5/8")	235.00 - 260.00	0.6000	0.6000
T16	16	LDF7-50A(1-5/8")	235.00 - 260.00	0.6000	0.6000
T16	17	T-Brackets (Af)	235.00 - 260.00	0.6000	0.6000
T16	21	LDF6-50A(1-1/4")	235.00 - 260.00	0.6000	0.6000
T16	23	MACX450-1(4-1/16)	235.00 - 260.00	1.0000	0.6000
T16	25	FLC 78-50J(7/8")	235.00 - 260.00	0.6000	0.6000
T16	28	LDF5-50A(7/8")	235.00 - 260.00	0.6000	0.6000
T16	30	LDF5-50A(7/8")	235.00 - 260.00	0.6000	0.6000
T16	37	LDF7-50A(1-5/8")	235.00 - 260.00	0.6000	0.6000
T16	40	LDF4-75A(1/2")	235.00 - 260.00	0.6000	0.6000
T16	46	LDF4-75A(1/2")	235.00 - 260.00	0.6000	0.6000
T16	48	T-Brackets (Af)	235.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T16	49	LDF7-50A(1-5/8")	250.00 235.00 - 250.00	0.6000	0.6000
T16	51	HCS 6X12 4AWG(1-5/8)	235.00 - 239.00	0.6000	0.6000
T16	62	LCF12-50J(1/2")	235.00 - 260.00	0.6000	0.6000
T17	1	Climbing Ladder (Round)	210.00 - 235.00	0.6000	0.6000
T17	2	Safety Line 3/8	210.00 - 235.00	0.6000	0.6000
T17	3	8188(3/4")	210.00 - 235.00	0.6000	0.6000
T17	4	1/2" Grouding wire	210.00 - 212.00	0.6000	0.6000
T17	5	Coax-Brackets (Af)	210.00 - 235.00	0.6000	0.6000
T17	6	8188(3/4")	210.00 - 235.00	0.6000	0.6000
T17	7	8188(3/4")	210.00 - 235.00	0.6000	0.6000
T17	8	8188(3/4")	210.00 - 235.00	0.6000	0.6000
T17	10	D-Tuner	210.00 - 235.00	0.6000	0.6000
T17	11	D-Tuner	210.00 - 235.00	0.6000	0.6000
T17	12	D-Tuner	210.00 - 235.00	0.6000	0.6000
T17	14	FXL 1873 PE (1-5/8")	210.00 - 235.00	0.6000	0.6000
T17	16	LDF7-50A(1-5/8")	210.00 - 235.00	0.6000	0.6000
T17	17	T-Brackets (Af)	210.00 - 235.00	0.6000	0.6000
T17	21	LDF6-50A(1-1/4")	210.00 - 235.00	0.6000	0.6000
T17	23	MACX450-1(4-1/16)	210.00 - 235.00	1.0000	0.6000
T17	25	FLC 78-50J(7/8")	210.00 - 235.00	0.6000	0.6000
T17	28	LDF5-50A(7/8")	210.00 - 235.00	0.6000	0.6000
T17	30	LDF5-50A(7/8")	212.00 - 235.00	0.6000	0.6000
T17	31	FLC 78-50J(7/8")	210.00 - 212.00	0.6000	0.6000
T17	37	LDF7-50A(1-5/8")	210.00 - 235.00	0.6000	0.6000
T17	40	LDF4-75A(1/2")	210.00 - 235.00	0.6000	0.6000
T17	46	LDF4-75A(1/2")	210.00 - 235.00	0.6000	0.6000
T17	48	T-Brackets (Af)	210.00 - 235.00	0.6000	0.6000
T17	49	LDF7-50A(1-5/8")	210.00 - 235.00	0.6000	0.6000
T17	51	HCS 6X12 4AWG(1-5/8)	210.00 - 235.00	0.6000	0.6000
T17	53	LDF7-50A(1-5/8")	210.00 - 214.00	0.6000	0.6000
T17	62	LCF12-50J(1/2")	210.00 - 235.00	0.6000	0.6000
T18	1	Climbing Ladder (Round)	185.00 - 210.00	0.6000	0.5969
T18	2	Safety Line 3/8	185.00 - 210.00	0.6000	0.5969
T18	3	8188(3/4")	185.00 - 210.00	0.6000	0.5969

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T18	4	1/2" Grouding wire	185.00 - 210.00	0.6000	0.5969
T18	5	Coax-Brackets (Af)	185.00 - 210.00	0.6000	0.5969
T18	6	8188(3/4")	185.00 - 210.00	0.6000	0.5969
T18	7	8188(3/4")	185.00 - 210.00	0.6000	0.5969
T18	8	8188(3/4")	185.00 - 210.00	0.6000	0.5969
T18	10	D-Tuner	185.00 - 210.00	0.6000	0.5969
T18	11	D-Tuner	185.00 - 210.00	0.6000	0.5969
T18	12	D-Tuner	185.00 - 210.00	0.6000	0.5969
T18	14	FXL 1873 PE (1-5/8")	185.00 - 210.00	0.6000	0.5969
T18	16	LDF7-50A(1-5/8")	185.00 - 210.00	0.6000	0.5969
T18	17	T-Brackets (Af)	185.00 - 210.00	0.6000	0.5969
T18	21	LDF6-50A(1-1/4")	185.00 - 210.00	0.6000	0.5969
T18	23	MACX450-1(4-1/16)	185.00 - 210.00	1.0000	0.5969
T18	25	FLC 78-50J(7/8")	185.00 - 210.00	0.6000	0.5969
T18	28	LDF5-50A(7/8")	185.00 - 210.00	0.6000	0.5969
T18	31	FLC 78-50J(7/8")	185.00 - 210.00	0.6000	0.5969
T18	37	LDF7-50A(1-5/8")	185.00 - 210.00	0.6000	0.5969
T18	40	LDF4-75A(1/2")	185.00 - 210.00	0.6000	0.5969
T18	46	LDF4-75A(1/2")	185.00 - 210.00	0.6000	0.5969
T18	48	T-Brackets (Af)	185.00 - 210.00	0.6000	0.5969
T18	49	LDF7-50A(1-5/8")	185.00 - 210.00	0.6000	0.5969
T18	51	HCS 6X12 4AWG(1-5/8)	185.00 - 210.00	0.6000	0.5969
T18	53	LDF7-50A(1-5/8")	185.00 - 210.00	0.6000	0.5969
T18	62	LCF12-50J(1/2")	185.00 - 210.00	0.6000	0.5969
T18	67	CU12PSM6P4XXX(1-3/4)	185.00 - 202.00	0.6000	0.5969
T19	1	Climbing Ladder (Round)	160.00 - 185.00	0.6000	0.5872
T19	2	Safety Line 3/8	160.00 - 185.00	0.6000	0.5872
T19	3	8188(3/4")	160.00 - 185.00	0.6000	0.5872
T19	4	1/2" Grouding wire	160.00 - 185.00	0.6000	0.5872
T19	5	Coax-Brackets (Af)	160.00 - 185.00	0.6000	0.5872
T19	6	8188(3/4")	160.00 - 185.00	0.6000	0.5872
T19	7	8188(3/4")	160.00 - 185.00	0.6000	0.5872
T19	8	8188(3/4")	160.00 - 185.00	0.6000	0.5872
T19	10	D-Tuner	160.00 - 185.00	0.6000	0.5872
T19	11	D-Tuner	160.00 - 185.00	0.6000	0.5872

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T19	12	D-Tuner	185.00 160.00 -	0.6000	0.5872
T19	14	FXL 1873 PE (1-5/8")	185.00 160.00 -	0.6000	0.5872
T19	16	LDF7-50A(1-5/8")	185.00 160.00 -	0.6000	0.5872
T19	17	T-Brackets (Af)	185.00 160.00 -	0.6000	0.5872
T19	21	LDF6-50A(1-1/4")	185.00 160.00 -	0.6000	0.5872
T19	23	MACX450-1(4-1/16)	185.00 160.00 -	1.0000	0.5872
T19	25	FLC 78-50J(7/8")	185.00 175.00 -	0.6000	0.5872
T19	26	LDF5-50A(7/8")	160.00 - 175.00	0.6000	0.5872
T19	28	LDF5-50A(7/8")	160.00 - 185.00	0.6000	0.5872
T19	31	FLC 78-50J(7/8")	160.00 - 185.00	0.6000	0.5872
T19	37	LDF7-50A(1-5/8")	160.00 - 185.00	0.6000	0.5872
T19	40	LDF4-75A(1/2")	160.00 - 185.00	0.6000	0.5872
T19	46	LDF4-75A(1/2")	160.00 - 185.00	0.6000	0.5872
T19	48	T-Brackets (Af)	160.00 - 185.00	0.6000	0.5872
T19	49	LDF7-50A(1-5/8")	160.00 - 185.00	0.6000	0.5872
T19	51	HCS 6X12 4AWG(1-5/8)	160.00 - 185.00	0.6000	0.5872
T19	53	LDF7-50A(1-5/8")	160.00 - 185.00	0.6000	0.5872
T19	62	LCF12-50J(1/2")	160.00 - 185.00	0.6000	0.5872
T19	67	CU12PSM6P4XXX(1-3/4)	160.00 - 185.00	0.6000	0.5872
T20	1	Climbing Ladder (Round)	135.00 - 160.00	0.6000	0.5800
T20	2	Safety Line 3/8	135.00 - 160.00	0.6000	0.5800
T20	3	8188(3/4")	135.00 - 160.00	0.6000	0.5800
T20	4	1/2" Grouding wire	135.00 - 160.00	0.6000	0.5800
T20	5	Coax-Brackets (Af)	135.00 - 160.00	0.6000	0.5800
T20	6	8188(3/4")	135.00 - 160.00	0.6000	0.5800
T20	7	8188(3/4")	135.00 - 160.00	0.6000	0.5800
T20	8	8188(3/4")	135.00 - 160.00	0.6000	0.5800
T20	14	FXL 1873 PE (1-5/8")	135.00 - 160.00	0.6000	0.5800
T20	16	LDF7-50A(1-5/8")	135.00 - 160.00	0.6000	0.5800
T20	17	T-Brackets (Af)	135.00 - 160.00	0.6000	0.5800
T20	21	LDF6-50A(1-1/4")	135.00 - 160.00	0.6000	0.5800
T20	23	MACX450-1(4-1/16)	135.00 - 160.00	1.0000	0.5800
T20	26	LDF5-50A(7/8")	135.00 - 160.00	0.6000	0.5800
T20	28	LDF5-50A(7/8")	135.00 - 160.00	0.6000	0.5800

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T20	31	FLC 78-50J(7/8")	135.00 - 160.00	0.6000	0.5800
T20	37	LDF7-50A(1-5/8")	135.00 - 160.00	0.6000	0.5800
T20	40	LDF4-75A(1/2")	135.00 - 160.00	0.6000	0.5800
T20	43	LDF4P-50A(1/2")	135.00 - 138.00	0.6000	0.5800
T20	46	LDF4-75A(1/2")	135.00 - 160.00	0.6000	0.5800
T20	48	T-Brackets (Af)	135.00 - 160.00	0.6000	0.5800
T20	49	LDF7-50A(1-5/8")	135.00 - 160.00	0.6000	0.5800
T20	51	HCS 6X12 4AWG(1-5/8)	135.00 - 160.00	0.6000	0.5800
T20	53	LDF7-50A(1-5/8")	135.00 - 160.00	0.6000	0.5800
T20	55	EW52(ELLIPTICAL)	135.00 - 145.00	0.6000	0.5800
T20	62	LCF12-50J(1/2")	135.00 - 160.00	0.6000	0.5800
T20	67	CU12PSM6P4XXX(1-3/4)	135.00 - 160.00	0.6000	0.5800
T21	1	Climbing Ladder (Round)	110.00 - 135.00	0.6000	0.5949
T21	2	Safety Line 3/8	110.00 - 135.00	0.6000	0.5949
T21	3	8188(3/4")	110.00 - 135.00	0.6000	0.5949
T21	4	1/2" Grouding wire	110.00 - 135.00	0.6000	0.5949
T21	5	Coax-Brackets (Af)	110.00 - 135.00	0.6000	0.5949
T21	6	8188(3/4")	110.00 - 135.00	0.6000	0.5949
T21	7	8188(3/4")	110.00 - 135.00	0.6000	0.5949
T21	8	8188(3/4")	110.00 - 135.00	0.6000	0.5949
T21	14	FXL 1873 PE (1-5/8")	110.00 - 135.00	0.6000	0.5949
T21	16	LDF7-50A(1-5/8")	110.00 - 135.00	0.6000	0.5949
T21	17	T-Brackets (Af)	110.00 - 135.00	0.6000	0.5949
T21	21	LDF6-50A(1-1/4")	110.00 - 135.00	0.6000	0.5949
T21	23	MACX450-1(4-1/16)	110.00 - 135.00	1.0000	0.5949
T21	26	LDF5-50A(7/8")	110.00 - 135.00	0.6000	0.5949
T21	28	LDF5-50A(7/8")	110.00 - 135.00	0.6000	0.5949
T21	31	FLC 78-50J(7/8")	110.00 - 135.00	0.6000	0.5949
T21	37	LDF7-50A(1-5/8")	110.00 - 135.00	0.6000	0.5949
T21	40	LDF4-75A(1/2")	110.00 - 135.00	0.6000	0.5949
T21	43	LDF4P-50A(1/2")	134.00 - 135.00	0.6000	0.5949
T21	44	LDF4-50A(1/2")	110.00 - 134.00	0.6000	0.5949
T21	46	LDF4-75A(1/2")	110.00 - 135.00	0.6000	0.5949
T21	48	T-Brackets (Af)	110.00 - 135.00	0.6000	0.5949
T21	49	LDF7-50A(1-5/8")	110.00 -	0.6000	0.5949

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			135.00		
T21	51	HCS 6X12 4AWG(1-5/8)	110.00 -	0.6000	0.5949
			135.00		
T21	53	LDF7-50A(1-5/8")	110.00 -	0.6000	0.5949
			135.00		
T21	55	EW52(ELLIPTICAL)	110.00 -	0.6000	0.5949
			135.00		
T21	58	LDF2-50(3/8")	110.00 -	0.6000	0.5949
			112.00		
T21	62	LCF12-50J(1/2")	110.00 -	0.6000	0.5949
			135.00		
T21	67	CU12PSM6P4XXX(1-3/4)	110.00 -	0.6000	0.5949
			135.00		
T22	1	Climbing Ladder (Round)	85.00 -	0.6000	0.6000
			110.00		
T22	2	Safety Line 3/8	85.00 -	0.6000	0.6000
			110.00		
T22	3	8188(3/4")	85.00 -	0.6000	0.6000
			110.00		
T22	4	1/2" Grouding wire	85.00 -	0.6000	0.6000
			110.00		
T22	5	Coax-Brackets (Af)	85.00 -	0.6000	0.6000
			110.00		
T22	6	8188(3/4")	85.00 -	0.6000	0.6000
			110.00		
T22	7	8188(3/4")	85.00 -	0.6000	0.6000
			110.00		
T22	8	8188(3/4")	85.00 -	0.6000	0.6000
			110.00		
T22	14	FXL 1873 PE (1-5/8")	85.00 -	0.6000	0.6000
			110.00		
T22	16	LDF7-50A(1-5/8")	85.00 -	0.6000	0.6000
			110.00		
T22	17	T-Brackets (Af)	85.00 -	0.6000	0.6000
			110.00		
T22	21	LDF6-50A(1-1/4")	85.00 -	0.6000	0.6000
			110.00		
T22	23	MACX450-1(4-1/16)	85.00 -	1.0000	0.6000
			110.00		
T22	26	LDF5-50A(7/8")	85.00 -	0.6000	0.6000
			110.00		
T22	28	LDF5-50A(7/8")	85.00 -	0.6000	0.6000
			110.00		
T22	31	FLC 78-50J(7/8")	85.00 -	0.6000	0.6000
			110.00		
T22	37	LDF7-50A(1-5/8")	85.00 -	0.6000	0.6000
			110.00		
T22	40	LDF4-75A(1/2")	91.00 -	0.6000	0.6000
			110.00		
T22	41	LDF4P-50A(1/2")	85.00 -	0.6000	0.6000
			91.00		
T22	44	LDF4-50A(1/2")	85.00 -	0.6000	0.6000
			110.00		
T22	46	LDF4-75A(1/2")	85.00 -	0.6000	0.6000
			110.00		
T22	48	T-Brackets (Af)	85.00 -	0.6000	0.6000
			110.00		
T22	49	LDF7-50A(1-5/8")	85.00 -	0.6000	0.6000
			110.00		
T22	51	HCS 6X12 4AWG(1-5/8)	85.00 -	0.6000	0.6000
			110.00		
T22	53	LDF7-50A(1-5/8")	85.00 -	0.6000	0.6000
			110.00		
T22	55	EW52(ELLIPTICAL)	85.00 -	0.6000	0.6000
			110.00		
T22	58	LDF2-50(3/8")	85.00 -	0.6000	0.6000
			110.00		
T22	62	LCF12-50J(1/2")	85.00 -	0.6000	0.6000
			110.00		

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T22	67	CU12PSM6P4XXX(1-3/4)	85.00 - 110.00	0.6000	0.6000
T23	1	Climbing Ladder (Round)	60.00 - 85.00	0.6000	0.6000
T23	2	Safety Line 3/8	60.00 - 85.00	0.6000	0.6000
T23	3	8188(3/4")	60.00 - 85.00	0.6000	0.6000
T23	4	1/2" Grouding wire	60.00 - 85.00	0.6000	0.6000
T23	5	Coax-Brackets (Af)	60.00 - 85.00	0.6000	0.6000
T23	6	8188(3/4")	60.00 - 85.00	0.6000	0.6000
T23	7	8188(3/4")	60.00 - 85.00	0.6000	0.6000
T23	8	8188(3/4")	60.00 - 85.00	0.6000	0.6000
T23	14	FXL 1873 PE (1-5/8")	60.00 - 85.00	0.6000	0.6000
T23	16	LDF7-50A(1-5/8")	60.00 - 85.00	0.6000	0.6000
T23	17	T-Brackets (Af)	60.00 - 85.00	0.6000	0.6000
T23	21	LDF6-50A(1-1/4")	60.00 - 85.00	0.6000	0.6000
T23	23	MACX450-1(4-1/16)	60.00 - 85.00	0.6000	0.6000
T23	26	LDF5-50A(7/8")	60.00 - 85.00	0.6000	0.6000
T23	28	LDF5-50A(7/8")	60.00 - 85.00	0.6000	0.6000
T23	31	FLC 78-50J(7/8")	60.00 - 85.00	0.6000	0.6000
T23	37	LDF7-50A(1-5/8")	60.00 - 85.00	0.6000	0.6000
T23	41	LDF4P-50A(1/2")	60.00 - 85.00	0.6000	0.6000
T23	44	LDF4-50A(1/2")	60.00 - 85.00	0.6000	0.6000
T23	46	LDF4-75A(1/2")	60.00 - 85.00	0.6000	0.6000
T23	48	T-Brackets (Af)	60.00 - 85.00	0.6000	0.6000
T23	49	LDF7-50A(1-5/8")	60.00 - 85.00	0.6000	0.6000
T23	51	HCS 6X12 4AWG(1-5/8)	60.00 - 85.00	0.6000	0.6000
T23	53	LDF7-50A(1-5/8")	60.00 - 85.00	0.6000	0.6000
T23	55	EW52(ELLIPTICAL)	60.00 - 85.00	0.6000	0.6000
T23	58	LDF2-50(3/8")	60.00 - 85.00	0.6000	0.6000
T23	60	FLC38-50J(3/8")	60.00 - 80.00	0.6000	0.6000
T23	62	LCF12-50J(1/2")	76.00 - 85.00	0.6000	0.6000
T23	63	LCF12-50J(1/2")	60.00 - 76.00	0.6000	0.6000
T23	67	CU12PSM6P4XXX(1-3/4)	60.00 - 85.00	0.6000	0.6000
T24	1	Climbing Ladder (Round)	35.00 - 60.00	0.6000	0.6000
T24	2	Safety Line 3/8	35.00 - 60.00	0.6000	0.6000
T24	3	8188(3/4")	35.00 - 60.00	0.6000	0.6000
T24	4	1/2" Grouding wire	35.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
			60.00		
T24	5	Coax-Brackets (Af)	35.00 -	0.6000	0.6000
			60.00		
T24	6	8188(3/4")	35.00 -	0.6000	0.6000
			60.00		
T24	7	8188(3/4")	35.00 -	0.6000	0.6000
			60.00		
T24	8	8188(3/4")	35.00 -	0.6000	0.6000
			60.00		
T24	14	FXL 1873 PE (1-5/8")	35.00 -	0.6000	0.6000
			60.00		
T24	16	LDF7-50A(1-5/8")	35.00 -	0.6000	0.6000
			60.00		
T24	17	T-Brackets (Af)	35.00 -	0.6000	0.6000
			60.00		
T24	21	LDF6-50A(1-1/4")	35.00 -	0.6000	0.6000
			60.00		
T24	23	MACX450-1(4-1/16)	35.00 -	0.6000	0.6000
			60.00		
T24	26	LDF5-50A(7/8")	35.00 -	0.6000	0.6000
			60.00		
T24	28	LDF5-50A(7/8")	35.00 -	0.6000	0.6000
			60.00		
T24	31	FLC 78-50J(7/8")	35.00 -	0.6000	0.6000
			60.00		
T24	37	LDF7-50A(1-5/8")	35.00 -	0.6000	0.6000
			60.00		
T24	41	LDF4P-50A(1/2")	35.00 -	0.6000	0.6000
			60.00		
T24	44	LDF4-50A(1/2")	35.00 -	0.6000	0.6000
			60.00		
T24	46	LDF4-75A(1/2")	35.00 -	0.6000	0.6000
			60.00		
T24	48	T-Brackets (Af)	35.00 -	0.6000	0.6000
			60.00		
T24	49	LDF7-50A(1-5/8")	35.00 -	0.6000	0.6000
			60.00		
T24	51	HCS 6X12 4AWG(1-5/8)	35.00 -	0.6000	0.6000
			60.00		
T24	53	LDF7-50A(1-5/8")	35.00 -	0.6000	0.6000
			60.00		
T24	55	EW52(ELLIPTICAL)	35.00 -	0.6000	0.6000
			60.00		
T24	58	LDF2-50(3/8")	35.00 -	0.6000	0.6000
			60.00		
T24	60	FLC38-50J(3/8")	35.00 -	0.6000	0.6000
			60.00		
T24	63	LCF12-50J(1/2")	35.00 -	0.6000	0.6000
			60.00		
T24	67	CU12PSM6P4XXX(1-3/4)	35.00 -	0.6000	0.6000
			60.00		
T25	1	Climbing Ladder (Round)	10.00 -	0.6000	0.6000
			35.00		
T25	2	Safety Line 3/8	10.00 -	0.6000	0.6000
			35.00		
T25	3	8188(3/4")	10.00 -	0.6000	0.6000
			35.00		
T25	4	1/2" Grouding wire	10.00 -	0.6000	0.6000
			35.00		
T25	5	Coax-Brackets (Af)	10.00 -	0.6000	0.6000
			35.00		
T25	6	8188(3/4")	10.00 -	0.6000	0.6000
			35.00		
T25	7	8188(3/4")	10.00 -	0.6000	0.6000
			35.00		
T25	8	8188(3/4")	10.00 -	0.6000	0.6000
			35.00		
T25	14	FXL 1873 PE (1-5/8")	10.00 -	0.6000	0.6000
			35.00		

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T25	16	LDF7-50A(1-5/8")	10.00 - 35.00	0.6000	0.6000
T25	17	T-Brackets (Af)	10.00 - 35.00	0.6000	0.6000
T25	21	LDF6-50A(1-1/4")	10.00 - 35.00	0.6000	0.6000
T25	23	MACX450-1(4-1/16)	10.00 - 35.00	0.6000	0.6000
T25	26	LDF5-50A(7/8")	10.00 - 35.00	0.6000	0.6000
T25	28	LDF5-50A(7/8")	10.00 - 35.00	0.6000	0.6000
T25	31	FLC 78-50J(7/8")	10.00 - 35.00	0.6000	0.6000
T25	37	LDF7-50A(1-5/8")	10.00 - 35.00	0.6000	0.6000
T25	41	LDF4P-50A(1/2")	10.00 - 35.00	0.6000	0.6000
T25	44	LDF4-50A(1/2")	10.00 - 35.00	0.6000	0.6000
T25	46	LDF4-75A(1/2")	10.00 - 35.00	0.6000	0.6000
T25	48	T-Brackets (Af)	10.00 - 35.00	0.6000	0.6000
T25	49	LDF7-50A(1-5/8")	10.00 - 35.00	0.6000	0.6000
T25	51	HCS 6X12 4AWG(1-5/8)	10.00 - 35.00	0.6000	0.6000
T25	53	LDF7-50A(1-5/8")	10.00 - 35.00	0.6000	0.6000
T25	55	EW52(ELLIPTICAL)	10.00 - 35.00	0.6000	0.6000
T25	58	LDF2-50(3/8")	10.00 - 35.00	0.6000	0.6000
T25	60	FLC38-50J(3/8")	10.00 - 35.00	0.6000	0.6000
T25	63	LCF12-50J(1/2")	10.00 - 35.00	0.6000	0.6000
T25	67	CU12PSM6P4XXX(1-3/4)	10.00 - 35.00	0.6000	0.6000
T26	1	Climbing Ladder (Round)	8.00 - 10.00	0.6000	0.4184
T26	2	Safety Line 3/8	8.00 - 10.00	0.6000	0.4184
T26	3	8188(3/4")	8.00 - 10.00	0.6000	0.4184
T26	4	1/2" Grouding wire	0.00 - 10.00	0.6000	0.4184
T26	5	Coax-Brackets (Af)	8.00 - 10.00	0.6000	0.4184
T26	6	8188(3/4")	8.00 - 10.00	0.6000	0.4184
T26	7	8188(3/4")	8.00 - 10.00	0.6000	0.4184
T26	8	8188(3/4")	8.00 - 10.00	0.6000	0.4184
T26	14	FXL 1873 PE (1-5/8")	8.00 - 10.00	0.6000	0.4184
T26	16	LDF7-50A(1-5/8")	8.00 - 10.00	0.6000	0.4184
T26	17	T-Brackets (Af)	8.00 - 10.00	0.6000	0.4184
T26	21	LDF6-50A(1-1/4")	8.00 - 10.00	0.6000	0.4184
T26	23	MACX450-1(4-1/16)	8.00 - 10.00	0.6000	0.4184
T26	26	LDF5-50A(7/8")	8.00 - 10.00	0.6000	0.4184
T26	28	LDF5-50A(7/8")	8.00 - 10.00	0.6000	0.4184
T26	31	FLC 78-50J(7/8")	8.00 - 10.00	0.6000	0.4184
T26	37	LDF7-50A(1-5/8")	8.00 - 10.00	0.6000	0.4184
T26	41	LDF4P-50A(1/2")	8.00 - 10.00	0.6000	0.4184
T26	44	LDF4-50A(1/2")	8.00 - 10.00	0.6000	0.4184
T26	46	LDF4-75A(1/2")	8.00 - 10.00	0.6000	0.4184
T26	48	T-Brackets (Af)	8.00 - 10.00	0.6000	0.4184
T26	49	LDF7-50A(1-5/8")	8.00 - 10.00	0.6000	0.4184
T26	51	HCS 6X12 4AWG(1-5/8)	8.00 - 10.00	0.6000	0.4184
T26	53	LDF7-50A(1-5/8")	8.00 - 10.00	0.6000	0.4184
T26	55	EW52(ELLIPTICAL)	8.00 - 10.00	0.6000	0.4184
T26	58	LDF2-50(3/8")	8.00 - 10.00	0.6000	0.4184
T26	60	FLC38-50J(3/8")	8.00 - 10.00	0.6000	0.4184
T26	63	LCF12-50J(1/2")	8.00 - 10.00	0.6000	0.4184
T26	67	CU12PSM6P4XXX(1-3/4)	0.00 - 10.00	0.6000	0.4184

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
Lightning Rod 5/8" x 3' (Carrier 560' E)	C	From Leg	0.000 0.000 1.500	0.000	560.000
Flash Beacon Lighting (Carrier 560' E)	B	From Leg	0.000 0.000 0.000	0.000	560.000
Side Light (Carrier 475' E)	A	From Leg	0.500 0.000 0.000	0.000	475.000
Side Light (Carrier 475' E)	B	From Leg	0.500 0.000 0.000	0.000	475.000
Side Light (Carrier 475' E)	C	From Leg	0.500 0.000 0.000	0.000	475.000
Flash Beacon Lighting (Carrier 315' E)	A	From Leg	0.000 0.000 0.000	0.000	315.000
Flash Beacon Lighting (Carrier 312' E)	C	From Leg	0.000 0.000 0.000	0.000	312.000
Side Light (Carrier 157' E)	A	From Leg	0.500 0.000 0.000	0.000	157.000
Side Light (Carrier 157' E)	B	From Leg	0.500 0.000 0.000	0.000	157.000
Side Light (Carrier 157' E)	C	From Leg	0.500 0.000 0.000	0.000	157.000

AP19-1670/090D/DT2 (Carrier 553' E)	A	From Leg	1.000 0.000 0.000	0.000	553.000
AP19-1670/090D/DT2 (Carrier 553' E)	B	From Leg	1.000 0.000 0.000	0.000	553.000
AP19-1670/090D/DT2 (Carrier 553' E)	C	From Leg	1.000 0.000 0.000	0.000	553.000
PDS3DE-698/2700 (Carrier 553' E)	A	From Leg	1.000 0.000 0.000	0.000	553.000
Pipe Mount [PM 601-3] (Carrier 553' E)	C	None		0.000	553.000

ANT150F6 (Carrier 514' E)	A	From Leg	4.000 0.000 14.000	0.000	514.000
PG1NOF-0093-8 (Carrier 514' E)	C	From Leg	4.000 0.000 5.000	0.000	514.000
Side Arm Mount [SO 312-1] (Carrier 514' E)	A	From Leg	2.000 0.000 0.000	0.000	514.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
Side Arm Mount [SO 312-1] (Carrier 514' E)	C	From Leg	2.000 0.000 0.000	0.000	514.000

Flush Mount (Carrier 505' E)	A	From Leg	2.000 0.000 0.000	0.000	505.000

101-68-10-0-03N (Carrier 492' E)	C	From Leg	6.000 0.000 8.000	0.000	492.000
Side Arm Mount [SO 308-1] (Carrier 492' E)	C	From Leg	3.000 0.000 0.000	0.000	492.000

ATW25HS3-HSO-46H (Carrier 490' E)	A	From Leg	1.000 0.000 0.000	0.000	490.000
10' x 2" Mount Pipe (Carrier 505' E)	B	From Face	1.000 0.000 0.000	0.000	505.000
10' x 2" Mount Pipe (Carrier 495' E)	B	From Face	1.000 0.000 0.000	0.000	495.000
10' x 2" Mount Pipe (Carrier 485' E)	B	From Face	1.000 0.000 0.000	0.000	485.000
10' x 2" Mount Pipe (Carrier 475' E)	B	From Face	1.000 0.000 0.000	0.000	475.000
Side Arm Mount (Carrier 475' E)	A	From Leg	0.500 0.000 0.000	0.000	475.000
Side Arm Mount (Carrier 485' E)	A	From Leg	0.500 0.000 0.000	0.000	485.000
Side Arm Mount (Carrier 485' E)	A	From Leg	0.500 0.000 0.000	0.000	495.000
Side Arm Mount (Carrier 485' E)	A	From Leg	0.500 0.000 0.000	0.000	505.000

ANT150F6 (Carrier 465' E)	C	From Leg	4.000 0.000 10.000	0.000	465.000
Side Arm Mount [SO 312-1] (Carrier 465' E)	C	From Leg	2.000 0.000 0.000	0.000	465.000

101-68-10-0-03N (Carrier 442' E)	C	From Leg	6.000 0.000 8.000	0.000	442.000
Side Arm Mount [SO 308-1] (Carrier 442' E)	C	From Leg	3.000 0.000 0.000	0.000	442.000

ANT150F6 (Carrier 438' E)	A	From Leg	4.000 0.000 10.000	0.000	438.000
ANT150F6 (Carrier 438' E)	B	From Leg	4.000 0.000 10.000	0.000	438.000
13' x 2" Pipe Mount (Carrier 438' E)	A	From Face	0.500 0.000	0.000	438.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
13' x 2" Pipe Mount (Carrier 438' E)	B	From Face	0.000 0.500 0.000 0.000	0.000	456.000
Side Arm Mount [SO 308-1] (Carrier 438' E)	B	From Leg	2.000 0.000 0.000	0.000	438.000

101D-90-06-0-03 (Carrier 415' E)	C	From Leg	6.000 0.000 10.000	0.000	415.000
TPRD-1554 (Carrier 415' E)	C	From Leg	6.000 0.000 10.000	0.000	415.000
Side Arm Mount [SO 308-1] (Carrier 415' E)	C	From Leg	3.000 0.000 0.000	0.000	415.000

SC233 (Carrier 388' E)	C	From Leg	4.000 0.000 14.000	0.000	388.000
Side Arm Mount [SO 306-1] (Carrier 388' E)	C	From Leg	2.000 0.000 0.000	0.000	388.000

DB636-C (Carrier 324' E)	A	From Leg	2.000 0.000 5.000	0.000	324.000
DB636-C (Carrier 324' E)	C	From Leg	2.000 0.000 5.000	0.000	324.000
Side Arm Mount [SO 601-1] (Carrier 324' E)	A	From Leg	1.000 0.000 0.000	0.000	324.000
Side Arm Mount [SO 601-1] (Carrier 324' E)	C	From Leg	1.000 0.000 0.000	0.000	324.000

DB540K-E (Carrier 294' E)	C	From Leg	4.000 0.000 9.000	0.000	294.000
Side Arm Mount [SO 306-1] (Carrier 294' E)	C	From Leg	2.000 0.000 0.000	0.000	294.000

DB636-C (Carrier 288' E)	A	From Leg	3.000 0.000 5.000	0.000	288.000
Side Arm Mount [SO 601-1] (Carrier 288' E)	A	From Leg	1.500 0.000 0.000	0.000	288.000

CC806-06 (Carrier 270' E)	C	From Leg	4.000 0.000 3.000	0.000	270.000
Side Arm Mount [SO 306-1] (Carrier 270' E)	C	From Leg	2.000 0.000 0.000	0.000	270.000

DB809KT6E-XT (Carrier 254' E)	A	From Leg	4.000 0.000 4.000	0.000	254.000
Side Arm Mount [SO 306-1] (Carrier 254' E)	A	From Leg	2.000 0.000 0.000	0.000	254.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft

(3) 844G65VTZASX w/ Mount Pipe (Carrier 250' E)	B	From Leg	4.000 0.000 1.000	10.000	250.000
(3) DB844H90E-A w/ Mount Pipe (Carrier 250' E)	C	From Leg	4.000 0.000 1.000	10.000	250.000
AP859012-42T0 w/ Mount Pipe (Carrier 250' E)	B	From Leg	4.000 0.000 1.000	10.000	250.000
AP859012-42T0 w/ Mount Pipe (Carrier 250' E)	C	From Leg	4.000 0.000 1.000	10.000	250.000
Sector Mount [SM 504-1] (Carrier 250' E)	B	From Leg	2.000 0.000 0.000	0.000	250.000
Sector Mount [SM 504-1] (Carrier 250' E)	C	From Leg	2.000 0.000 0.000	0.000	250.000

APXVAALL24_43-U-NA20 w/ Mount Pipe (Carrier 239' P)	A	From Leg	4.000 0.000 1.000	0.000	239.000
APXVAALL24_43-U-NA20 w/ Mount Pipe (Carrier 239' P)	B	From Leg	4.000 0.000 1.000	0.000	239.000
APXVAALL24_43-U-NA20 w/ Mount Pipe (Carrier 239' P)	C	From Leg	4.000 0.000 1.000	0.000	239.000
APX16DWV-16DWVS-E-A20 w/ Mount Pipe (Carrier 239' P)	A	From Leg	4.000 0.000 1.000	0.000	239.000
RADIO 4415 B66A (Carrier 239' P)	A	From Leg	4.000 0.000 1.000	0.000	239.000
RADIO 4415 B66A (Carrier 239' P)	B	From Leg	4.000 0.000 1.000	0.000	239.000
RADIO 4415 B66A (Carrier 239' P)	C	From Leg	4.000 0.000 1.000	0.000	239.000
RRUS 4415 B25 (Carrier 239' P)	A	From Leg	4.000 0.000 1.000	0.000	239.000
RRUS 4415 B25 (Carrier 239' P)	B	From Leg	4.000 0.000 1.000	0.000	239.000
RRUS 4415 B25 (Carrier 239' P)	C	From Leg	4.000 0.000 1.000	0.000	239.000
RADIO 4449 B12/B71 (Carrier 239' P)	A	From Leg	4.000 0.000 1.000	0.000	239.000
RADIO 4449 B12/B71 (Carrier 239' P)	B	From Leg	4.000 0.000 1.000	0.000	239.000
RADIO 4449 B12/B71 (Carrier 239' P)	C	From Leg	4.000 0.000 1.000	0.000	239.000
APX16DWV-16DWVS-E-A20 w/ Mount Pipe (Carrier 239' E)	B	From Leg	2.000 0.000 1.000	0.000	239.000
APX16DWV-16DWVS-E-A20 w/ Mount Pipe (Carrier 239' E)	C	From Leg	2.000 0.000 1.000	0.000	239.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
Sector Mount [SM 201-3] (Carrier 239' E) ***	C	None		0.000	239.000
742 213 w/ Mount Pipe (Carrier 214' E)	A	From Leg	2.000 0.000 0.000	0.000	214.000
742 213 w/ Mount Pipe (Carrier 214' E)	B	From Leg	2.000 0.000 0.000	0.000	214.000
742 213 w/ Mount Pipe (Carrier 214' E) ***	C	From Leg	2.000 0.000 0.000	0.000	214.000
ANT150F6 (Carrier 212' E)	C	From Leg	4.000 0.000 10.000	0.000	212.000
Side Arm Mount [SO 306-1] (Carrier 212' E) ***	C	From Leg	2.000 0.000 0.000	0.000	212.000
ANT150F6 (Carrier 175' E)	B	From Leg	6.000 0.000 10.000	0.000	175.000
Side Arm Mount [SO 602-1] (Carrier 175' E)	B	From Leg	3.000 0.000 0.000	0.000	175.000
6' x 2" Mount Pipe (Carrier 175' E) ***	B	From Leg	3.000 0.000 0.000	0.000	175.000
Side Arm Mount [SO 202-1] (Carrier 145' E) ***	C	From Face	1.000 0.000 1.000	0.000	145.000
TMADB7821VG12A	C	From Leg	1.000 0.000 0.000	0.000	138.000
Pipe Mount [PM 601-1] (Carrier 138' E)	B	From Leg	1.000 0.000 0.000	0.000	138.000
Side Arm Mount [SO 201-1] (Carrier 138' E) ***	B	From Leg	1.000 0.000 0.000	0.000	138.000
TMADB7821VG12A (Carrier 134' E)	C	From Leg	0.000 0.000 0.000	0.000	134.000
Side Arm Mount [SO 601-1] (Carrier 134' E) ***	C	From Leg	2.000 0.000 0.000	0.000	134.000
201-8 (Carrier 112' E)	C	From Leg	2.000 0.000 4.000	0.000	112.000
Flush Mount (Carrier 112' E) ***	C	From Leg	1.000 0.000 0.000	0.000	112.000
ANT150F2 (Carrier 91' E)	C	From Leg	2.000 0.000 3.000	0.000	91.000
Flush Mount (Carrier 91' E) ***	C	From Leg	1.000 0.000 0.000	0.000	91.000

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
Side Arm Mount [SO 301-1] (Carrier 80' E)	C	From Leg	1.000 0.000 0.000	0.000	80.000
*** Acutime 2000 (Carrier 76' E)	C	From Leg	2.000 0.000 0.000	0.000	76.000
Side Arm Mount [SO 301-1] (Carrier 76' E)	C	From Leg	1.000 0.000 0.000	0.000	76.000
*** 202 P *** MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	202.000
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	202.000
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	202.000
TA08025-B605	A	From Leg	4.000 0.000 0.000	0.000	202.000
TA08025-B605	B	From Leg	4.000 0.000 0.000	0.000	202.000
TA08025-B605	C	From Leg	4.000 0.000 0.000	0.000	202.000
TA08025-B604	A	From Leg	4.000 0.000 0.000	0.000	202.000
TA08025-B604	B	From Leg	4.000 0.000 0.000	0.000	202.000
TA08025-B604	C	From Leg	4.000 0.000 0.000	0.000	202.000
RDIDC-9181-PF-48	A	From Leg	4.000 0.000 0.000	0.000	202.000
(2) 8' x 2" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	202.000
(2) 8' x 2" Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	202.000
(2) 8' x 2" Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	202.000
Commscope MTC3975083 (3) (SST/GT PRIMARY Opt 1 (Sector)) ***** ***	C	None		0.000	202.000

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft
P2F-52 (Carrier 288' E)	C	Paraboloid w/o Radome	From Leg	1.000 0.000 0.000	0.000		288.000	2.000
*** SPD2-5.8 (Carrier 138' E)	B	Paraboloid w/o Radome	From Leg	1.000 0.000 0.000	30.000		138.000	2.000
*** SPD2-5.8 (Carrier 134' E)	A	Paraboloid w/o Radome	From Leg	1.000 0.000 0.000	-10.000		134.000	2.000
*** A-ANT-11G-4-C (Carrier 80' E)	C	Paraboloid w/o Radome	From Leg	1.000 0.000 1.000	-50.000		80.000	4.233
***** ***								

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2D+1.0W (pattern 1) 0 deg - No Ice+1.0 Guy
3	1.2D+1.0W (pattern 2) 0 deg - No Ice+1.0 Guy
4	1.2D+1.0W (pattern 3) 0 deg - No Ice+1.0 Guy
5	1.2D+1.0W (pattern 1) 30 deg - No Ice+1.0 Guy
6	1.2D+1.0W (pattern 2) 30 deg - No Ice+1.0 Guy
7	1.2D+1.0W (pattern 3) 30 deg - No Ice+1.0 Guy
8	1.2D+1.0W (pattern 1) 60 deg - No Ice+1.0 Guy
9	1.2D+1.0W (pattern 2) 60 deg - No Ice+1.0 Guy
10	1.2D+1.0W (pattern 3) 60 deg - No Ice+1.0 Guy
11	1.2D+1.0W (pattern 1) 90 deg - No Ice+1.0 Guy
12	1.2D+1.0W (pattern 2) 90 deg - No Ice+1.0 Guy
13	1.2D+1.0W (pattern 3) 90 deg - No Ice+1.0 Guy
14	1.2D+1.0W (pattern 1) 120 deg - No Ice+1.0 Guy
15	1.2D+1.0W (pattern 2) 120 deg - No Ice+1.0 Guy
16	1.2D+1.0W (pattern 3) 120 deg - No Ice+1.0 Guy
17	1.2D+1.0W (pattern 1) 150 deg - No Ice+1.0 Guy
18	1.2D+1.0W (pattern 2) 150 deg - No Ice+1.0 Guy
19	1.2D+1.0W (pattern 3) 150 deg - No Ice+1.0 Guy
20	1.2D+1.0W (pattern 1) 180 deg - No Ice+1.0 Guy
21	1.2D+1.0W (pattern 2) 180 deg - No Ice+1.0 Guy
22	1.2D+1.0W (pattern 3) 180 deg - No Ice+1.0 Guy
23	1.2D+1.0W (pattern 1) 210 deg - No Ice+1.0 Guy
24	1.2D+1.0W (pattern 2) 210 deg - No Ice+1.0 Guy
25	1.2D+1.0W (pattern 3) 210 deg - No Ice+1.0 Guy
26	1.2D+1.0W (pattern 1) 240 deg - No Ice+1.0 Guy
27	1.2D+1.0W (pattern 2) 240 deg - No Ice+1.0 Guy
28	1.2D+1.0W (pattern 3) 240 deg - No Ice+1.0 Guy
29	1.2D+1.0W (pattern 1) 270 deg - No Ice+1.0 Guy
30	1.2D+1.0W (pattern 2) 270 deg - No Ice+1.0 Guy
31	1.2D+1.0W (pattern 3) 270 deg - No Ice+1.0 Guy
32	1.2D+1.0W (pattern 1) 300 deg - No Ice+1.0 Guy
33	1.2D+1.0W (pattern 2) 300 deg - No Ice+1.0 Guy
34	1.2D+1.0W (pattern 3) 300 deg - No Ice+1.0 Guy
35	1.2D+1.0W (pattern 1) 330 deg - No Ice+1.0 Guy
36	1.2D+1.0W (pattern 2) 330 deg - No Ice+1.0 Guy
37	1.2D+1.0W (pattern 3) 330 deg - No Ice+1.0 Guy
38	1.2 Dead+1.0 Ice+1.0 Temp+Guy
39	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
40	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
41	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
42	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy

Comb. No.	Description
43	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
44	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
45	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
46	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
47	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
48	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
49	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
50	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
51	Dead+Wind 0 deg - Service+Guy
52	Dead+Wind 30 deg - Service+Guy
53	Dead+Wind 60 deg - Service+Guy
54	Dead+Wind 90 deg - Service+Guy
55	Dead+Wind 120 deg - Service+Guy
56	Dead+Wind 150 deg - Service+Guy
57	Dead+Wind 180 deg - Service+Guy
58	Dead+Wind 210 deg - Service+Guy
59	Dead+Wind 240 deg - Service+Guy
60	Dead+Wind 270 deg - Service+Guy
61	Dead+Wind 300 deg - Service+Guy
62	Dead+Wind 330 deg - Service+Guy

Maximum Member Forces

Sectio n No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	560 - 553.75	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	50	-0.806	0.022	0.028
			Max. Mx	11	-0.444	-0.105	0.002
			Max. My	3	-0.442	-0.001	0.114
			Max. Vy	26	0.083	-0.000	-0.000
		Diagonal	Max. Vx	2	0.102	-0.000	0.000
			Max Tension	26	0.089	0.000	0.000
			Max. Compression	47	-0.527	0.000	0.000
			Max. Mx	42	-0.254	0.133	0.000
			Max. My	45	-0.270	0.000	-0.002
		Top Girt	Max. Vy	42	-0.072	0.000	0.000
			Max. Vx	45	-0.001	0.000	0.000
			Max Tension	9	0.114	-0.001	0.000
			Max. Compression	26	-0.122	-0.030	-0.000
			Max. Mx	43	0.017	0.118	0.000
		Inner Bracing	Max. My	8	-0.009	-0.043	-0.000
			Max. Vy	45	0.125	-0.023	-0.000
			Max. Vx	8	0.000	-0.043	-0.000
			Max Tension	20	0.001	0.000	0.000
			Max. Compression	16	-0.001	0.000	0.000
T2	553.75 - 547.5	Leg	Max. Mx	49	0.000	-0.048	0.000
			Max. My	16	-0.001	0.000	0.000
			Max. Vy	49	0.048	0.000	0.000
			Max. Vx	16	-0.000	0.000	0.000
			Max Tension	1	0.000	0.000	0.000
		Diagonal	Max. Compression	47	-2.785	-0.024	0.012
			Max. Mx	29	-0.965	-0.113	-0.003
			Max. My	2	-0.981	-0.006	-0.122
			Max. Vy	29	0.207	0.102	-0.003
			Max. Vx	2	0.219	-0.001	0.114
		Horizontal	Max Tension	11	1.118	0.000	0.000
			Max. Compression	11	-1.273	0.000	0.000
			Max. Mx	42	-0.353	0.103	0.000
			Max. My	45	-0.503	0.000	-0.001
			Max. Vy	42	-0.056	0.000	0.000
			Max. Vx	45	-0.001	0.000	0.000
			Max Tension	8	0.757	-0.023	0.003
			Max. Compression	26	-0.700	-0.024	-0.004
			Max. Mx	43	0.322	-0.069	-0.002
			Max. My	2	0.407	-0.022	0.007

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft		
T3	547.5 - 541.25	Inner Bracing	Max. Vy	43	0.087	-0.069	-0.002		
			Max. Vx	2	-0.002	-0.022	0.007		
			Max Tension	2	0.004	0.000	0.000		
			Max. Compression	8	-0.004	0.000	0.000		
			Max. Mx	49	-0.001	-0.048	0.000		
			Max. My	16	0.002	0.000	0.000		
		Leg	Max. Vy	49	0.048	0.000	0.000		
			Max. Vx	16	-0.000	0.000	0.000		
		T4	541.25 - 535	Leg	Max Tension	20	0.226	0.006	0.034
					Max. Compression	14	-6.796	-0.046	-0.024
				Diagonal Top Girt	Max. Mx	29	-5.417	-0.085	0.003
					Max. My	2	-6.471	-0.006	-0.095
					Max. Vy	29	-0.064	0.047	0.000
					Max. Vx	2	-0.071	-0.003	0.052
Max Tension	11				2.470	0.000	0.000		
Max Tension	14				0.251	0.000	0.000		
Max. Compression	2				-0.990	0.000	0.000		
Max. Mx	41				-0.085	0.477	0.000		
Max. My	8				-0.654	0.000	0.000		
Max. Vy	41				-0.239	0.000	0.000		
Leg	Max. Vx			8	-0.000	0.000	0.000		
	Max Tension			20	2.265	0.004	-0.029		
	Max. Compression	2	-10.883	-0.003	0.033				
	Max. Mx	30	-8.737	0.047	0.000				
	Max. My	2	-10.562	-0.003	0.052				
	Max. Vy	29	0.050	0.047	0.000				
	Max. Vx	2	-0.056	0.003	0.041				
	Diagonal Top Girt	Max Tension	11	3.127	0.000	0.000			
Max Tension		14	0.133	0.000	0.000				
Max. Compression		11	-2.189	0.000	0.000				
Max. Mx		43	0.035	0.277	0.000				
T5	535 - 510	Leg	Max. My	8	-1.723	0.000	0.000		
			Max. Vy	43	0.139	0.000	0.000		
			Max. Vx	8	-0.000	0.000	0.000		
			Max Tension	20	16.808	0.038	-0.089		
			Max. Compression	2	-34.385	-0.066	0.323		
			Max. Mx	30	-6.770	0.387	0.022		
		Diagonal Horizontal	Max. My	3	6.296	0.065	0.384		
			Max. Vy	26	0.217	0.134	-0.037		
			Max. Vx	20	0.201	-0.055	-0.378		
			Max Tension	5	5.900	0.000	0.000		
			Max Tension	28	0.056	0.000	0.000		
			Max. Compression	5	-4.216	0.000	0.000		
			Max. Mx	43	0.034	0.277	0.000		
			Max. My	8	-2.539	0.000	0.000		
Top Girt	Max. Vy	43	0.138	0.000	0.000				
	Max. Vx	8	-0.000	0.000	0.000				
	Max Tension	15	0.082	0.000	0.000				
	Max. Compression	11	-2.673	0.000	0.000				
	Max. Mx	43	0.020	0.277	0.000				
	Max. My	8	-2.152	0.000	0.000				
T6	510 - 485	Leg	Max. Vy	43	0.138	0.000	0.000		
			Max. Vx	8	-0.000	0.000	0.000		
			Max Tension	20	35.349	-0.010	0.241		
			Max. Compression	27	-74.246	0.214	-0.130		
			Max. Mx	29	30.632	1.570	0.280		
			Max. My	20	35.111	0.165	-1.681		
		Diagonal Horizontal	Max. Vy	11	-0.984	-1.230	-0.540		
			Max. Vx	5	0.810	-0.811	1.619		
			Max Tension	13	9.646	0.000	0.000		
			Max Tension	26	16.408	0.000	0.000		
			Max. Compression	24	-6.150	0.000	0.000		
			Max. Mx	43	15.128	0.276	0.000		
			Max. My	28	4.310	0.000	0.000		
			Max. Vy	43	-0.138	0.000	0.000		
Top Girt	Max. Vx	28	-0.000	0.000	0.000				
	Max Tension	43	0.107	0.000	0.000				
	Max. Compression	23	-5.113	0.000	0.000				

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft		
T7	485 - 460	Guy A	Max. Mx	43	0.107	0.276	0.000		
			Max. My	8	-4.198	0.000	0.000		
			Max. Vy	43	-0.138	0.000	0.000		
			Max. Vx	8	-0.000	0.000	0.000		
			Bottom Tension	20	79.963				
			Top Tension	20	82.927				
			Top Cable Vert	20	73.146				
			Top Cable Norm	20	39.070				
			Top Cable Tan	20	0.016				
			Bot Cable Vert	20	-68.628				
			Bot Cable Norm	20	41.038				
			Bot Cable Tan	20	0.016				
			Guy B	Bottom Tension	32	78.870			
				Top Tension	32	81.756			
				Top Cable Vert	32	71.667			
		Top Cable Norm		32	39.343				
		Top Cable Tan		32	0.006				
		Bot Cable Vert		32	-67.224				
		Bot Cable Norm		32	41.247				
		Bot Cable Tan		32	0.006				
		Guy C		Bottom Tension	8	80.383			
				Top Tension	8	83.449			
			Top Cable Vert	8	74.167				
			Top Cable Norm	8	38.248				
			Top Cable Tan	8	0.019				
			Bot Cable Vert	8	-69.553				
			Bot Cable Norm	8	40.298				
			Bot Cable Tan	8	0.019				
		Leg	Max Tension	1	0.000	0.000	0.000		
			Max. Compression	45	-89.036	0.063	-0.157		
			Max. Mx	29	-53.165	0.558	0.323		
			Max. My	17	-53.193	0.029	-0.600		
			Max. Vy	13	0.172	-0.463	0.065		
			Max. Vx	2	0.203	0.011	-0.027		
			Diagonal	Max Tension	13	9.316	0.000	0.000	
				Max Tension	47	0.105	0.000	0.000	
				Max. Compression	13	-7.150	0.000	0.000	
			Horizontal	Max. Mx	43	-0.483	0.274	0.000	
				Max. My	28	-6.537	0.000	0.000	
				Max. Vy	43	0.137	0.000	0.000	
				Max. Vx	28	-0.000	0.000	0.000	
				Top Girt	Max Tension	38	0.061	0.000	0.000
					Max. Compression	13	-7.351	0.000	0.000
					Max. Mx	43	-0.322	0.274	0.000
					Max. My	28	-6.816	0.000	0.000
T8	460 - 435			Leg	Max. Vy	43	0.137	0.000	0.000
					Max. Vx	28	-0.000	0.000	0.000
			Max Tension		16	9.351	0.208	0.014	
		Max. Compression	10		-106.461	0.136	-0.074		
		Max. Mx	13		-56.436	0.631	-0.172		
		Diagonal	Max. My	22	-28.086	0.067	0.555		
			Max. Vy	11	-0.209	0.046	0.022		
			Max. Vx	35	-0.256	-0.113	-0.193		
			Max Tension	13	5.896	0.000	0.000		
			Max Tension	2	0.238	0.000	0.000		
			Max. Compression	13	-4.496	0.000	0.000		
			Horizontal	Max. Mx	43	-0.393	0.218	0.000	
				Max. My	8	-1.210	0.000	0.000	
				Max. Vy	43	-0.109	0.000	0.000	
				Max. Vx	8	-0.000	0.000	0.000	
Top Girt	Max Tension	3		0.087	0.000	0.000			
	Max. Compression	13	-5.109	0.000	0.000				
	Max. Mx	43	-0.332	0.218	0.000				
	Max. My	28	-4.944	0.000	0.000				
	Max. Vy	43	-0.109	0.000	0.000				
T9	435 - 410	Leg	Max. Vx	28	-0.000	0.000	0.000		
			Max Tension	16	14.118	0.210	0.264		
			Max. Compression	41	-111.746	0.096	-0.068		
			Max. Mx	34	-31.266	-0.632	-0.307		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft		
T10	410 - 385	Diagonal	Max. My	19	-58.712	0.277	0.865		
			Max. Vy	16	-0.203	0.260	0.040		
			Max. Vx	20	-0.257	0.067	0.277		
			Max Tension	28	2.633	0.000	0.000		
			Horizontal	Max Tension	4	0.198	0.000	0.000	
				Max. Compression	28	-1.980	0.000	0.000	
				Max. Mx	43	-0.282	0.217	0.000	
				Max. My	20	-0.636	0.000	0.000	
				Max. Vy	43	-0.108	0.000	0.000	
				Max. Vx	20	-0.000	0.000	0.000	
			Top Girt	Max Tension	2	0.258	0.000	0.000	
				Max. Compression	28	-2.635	0.000	0.000	
		Max. Mx		47	0.048	0.217	0.000		
		Max. My		8	-0.405	0.000	0.000		
		Max. Vy		47	-0.108	0.000	0.000		
		Max. Vx		8	-0.000	0.000	0.000		
		Leg	Max Tension	16	11.754	0.338	0.056		
			Max. Compression	41	-113.054	0.110	-0.063		
			Max. Mx	13	-0.958	0.405	-0.057		
			Max. My	23	-57.595	-0.087	0.417		
			Max. Vy	26	-0.156	0.372	-0.130		
			Max. Vx	2	-0.197	0.050	0.345		
			Diagonal	Max Tension	5	5.568	0.000	0.000	
				Horizontal	Max Tension	23	0.095	0.000	0.000
					Max. Compression	5	-4.143	0.000	0.000
				Max. Mx	38	-0.017	0.215	0.000	
				Max. My	20	-3.219	0.000	0.000	
				Max. Vy	38	-0.108	0.000	0.000	
			Top Girt	Max. Vx	20	-0.000	0.000	0.000	
				Max Tension	39	0.120	0.000	0.000	
				Max. Compression	5	-2.195	0.000	0.000	
				Max. Mx	40	-0.323	0.215	0.000	
Max. My	20			-1.526	0.000	0.000			
Max. Vy	40			-0.108	0.000	0.000			
T11	385 - 360		Leg	Max. Vx	20	-0.000	0.000	0.000	
				Max Tension	1	0.000	0.000	0.000	
				Max. Compression	41	-112.003	0.108	-0.060	
				Max. Mx	26	-64.342	0.754	-0.343	
				Max. My	2	-63.962	0.054	0.770	
				Max. Vy	11	0.195	-0.741	-0.015	
		Diagonal	Max. Vx	2	-0.200	0.054	0.770		
			Max Tension	5	8.559	0.000	0.000		
			Horizontal	Max Tension	14	0.107	0.000	0.000	
				Max. Compression	5	-6.589	0.000	0.000	
			Max. Mx	42	-1.393	0.194	0.000		
			Max. My	20	-4.527	0.000	0.000		
		Top Girt	Max. Vy	42	0.097	0.000	0.000		
			Max. Vx	20	-0.000	0.000	0.000		
			Max Tension	14	0.162	0.000	0.000		
			Max. Compression	5	-4.910	0.000	0.000		
			Max. Mx	43	0.107	0.201	0.000		
			Max. My	20	-3.856	0.000	0.000		
T12	360 - 335	Leg	Max. Vy	43	-0.101	0.000	0.000		
			Max. Vx	20	-0.000	0.000	0.000		
			Max Tension	1	0.000	0.000	0.000		
			Max. Compression	50	-111.268	0.113	0.291		
			Max. Mx	26	-60.871	0.754	-0.343		
			Max. My	2	-60.521	0.054	0.770		
		Diagonal	Max. Vy	11	-0.191	-0.741	-0.015		
			Max. Vx	2	0.194	0.054	0.770		
			Horizontal	Max Tension	5	11.700	0.000	0.000	
				Max Tension	14	0.075	0.000	0.000	
			Max. Compression	5	-9.049	0.000	0.000		
			Max. Mx	43	-0.084	0.267	0.000		
Top Girt	Max. My	20	-6.524	0.000	0.000				
	Max. Vy	43	-0.134	0.000	0.000				
	Max. Vx	20	-0.000	0.000	0.000				
	Max Tension	14	0.191	0.000	0.000				
	Max. Compression	5	-7.338	0.000	0.000				

Sectio n No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T13	335 - 310	Leg	Max. Mx	43	0.054	0.267	0.000
			Max. My	20	-5.875	0.000	0.000
			Max. Vy	43	-0.134	0.000	0.000
			Max. Vx	20	-0.000	0.000	0.000
			Max Tension	20	1.222	-0.032	0.476
			Max. Compression	39	-156.677	0.017	0.639
			Max. Mx	31	-21.899	3.867	0.411
			Max. My	22	-12.811	0.176	-3.827
			Max. Vy	31	-0.769	3.867	0.411
			Max. Vx	22	0.762	0.176	-3.827
		Diagonal	Max Tension	30	15.017	0.000	0.000
			Max Tension	28	19.452	0.000	0.000
			Max. Compression	5	-10.617	0.000	0.000
			Max. Mx	43	17.996	0.266	0.000
		Horizontal	Max. My	20	-8.655	0.000	0.000
			Max. Vy	43	-0.133	0.000	0.000
			Max. Vx	20	-0.000	0.000	0.000
			Max Tension	14	0.145	0.000	0.000
		Top Girt	Max. Compression	5	-9.719	0.000	0.000
			Max. Mx	43	0.010	0.266	0.000
			Max. My	20	-7.839	0.000	0.000
			Max. Vy	43	-0.133	0.000	0.000
		Guy A	Max. Vx	20	-0.000	0.000	0.000
			Bottom Tension	22	64.547		
			Top Tension	22	65.903		
			Top Cable Vert	22	49.505		
		Guy B	Top Cable Norm	22	43.503		
			Top Cable Tan	22	0.011		
			Bot Cable Vert	22	-47.060		
			Bot Cable Norm	22	44.178		
			Bot Cable Tan	22	0.011		
			Bottom Tension	34	63.966		
			Top Tension	34	65.264		
			Top Cable Vert	34	48.075		
		Guy C	Top Cable Norm	34	44.139		
			Top Cable Tan	34	0.000		
			Bot Cable Vert	34	-45.691		
			Bot Cable Norm	34	44.766		
			Bot Cable Tan	34	0.000		
			Bottom Tension	10	66.870		
Top Tension	10		68.300				
Top Cable Vert	10		52.469				
T14	310 - 285	Leg	Top Cable Norm	10	43.725		
			Top Cable Tan	10	0.005		
			Bot Cable Vert	10	-49.948		
			Bot Cable Norm	10	44.461		
			Bot Cable Tan	10	0.005		
		Max Tension	1	0.000	0.000	0.000	
		Max. Compression	42	-158.611	-0.384	-0.014	
		Max. Mx	30	-82.995	1.154	0.094	
		Max. My	24	-99.680	0.094	-1.218	
		Max. Vy	12	0.321	-0.790	0.026	
Diagonal	Max. Vx	3	-0.297	0.079	1.068		
	Max Tension	30	14.912	0.000	0.000		
	Max Tension	4	0.151	0.000	0.000		
	Max. Compression	30	-11.656	0.000	0.000		
Horizontal	Max. Mx	43	-0.467	0.264	0.000		
	Max. My	20	-4.721	0.000	0.000		
	Max. Vy	43	0.132	0.000	0.000		
	Max. Vx	20	-0.000	0.000	0.000		
Top Girt	Max Tension	38	0.127	0.000	0.000		
	Max. Compression	30	-11.595	0.000	0.000		
	Max. Mx	43	-0.377	0.264	0.000		
	Max. My	20	-4.537	0.000	0.000		
T15	285 - 260	Leg	Max. Vy	43	0.132	0.000	0.000
			Max. Vx	20	-0.000	0.000	0.000
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	41	-180.480	-0.101	0.008
Max. Mx	30	-71.930	1.154	0.094			

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T16	260 - 235	Diagonal	Max. My	3	-67.515	0.079	1.068	
			Max. Vy	30	0.285	1.154	0.094	
			Max. Vx	3	0.272	0.079	1.068	
			Max Tension	30	11.244	0.000	0.000	
			Max Tension	3	0.137	0.000	0.000	
			Max. Compression	30	-8.803	0.000	0.000	
			Max. Mx	43	-0.516	0.208	0.000	
			Max. My	44	-2.439	0.000	-0.000	
			Max. Vy	43	-0.104	0.000	0.000	
			Max. Vx	44	0.000	0.000	0.000	
			Max Tension	3	0.348	0.000	0.000	
			Max. Compression	30	-9.470	0.000	0.000	
			Max. Mx	43	-0.381	0.208	0.000	
			Max. My	44	-3.247	0.000	-0.000	
			Max. Vy	43	-0.104	0.000	0.000	
		Max. Vx	44	0.000	0.000	0.000		
		Leg	Max Tension	1	0.000	0.000	0.000	
			Max. Compression	41	-197.685	0.168	0.026	
			Max. Mx	13	-114.780	1.802	-0.144	
			Max. My	22	-72.176	-0.032	1.563	
			Max. Vy	12	-0.611	0.285	0.044	
			Max. Vx	21	-0.567	0.023	0.167	
			Diagonal	Max Tension	30	8.082	0.000	0.000
				Max Tension	16	0.372	0.000	0.000
				Max. Compression	27	-5.858	0.000	0.000
				Max. Mx	41	-0.230	0.206	0.000
				Max. My	44	-0.484	0.000	-0.000
				Max. Vy	41	-0.103	0.000	0.000
			Top Girt	Max. Vx	44	0.000	0.000	0.000
				Max Tension	3	0.028	0.000	0.000
Max. Compression	27			-6.903	0.000	0.000		
Max. Mx	43	-0.329		0.206	0.000			
Max. My	44	-2.114		0.000	-0.000			
Max. Vy	43	-0.103		0.000	0.000			
T17	235 - 210	Leg	Max. Vx	44	0.000	0.000	0.000	
			Max Tension	1	0.000	0.000	0.000	
			Max. Compression	41	-200.202	-0.270	0.176	
			Max. Mx	48	-167.864	-0.978	-0.062	
			Max. My	45	-151.788	0.042	0.735	
			Max. Vy	13	0.274	-0.478	0.150	
		Diagonal	Max. Vx	4	-0.349	0.098	0.604	
			Max Tension	7	5.354	0.000	0.000	
			Max Tension	14	0.153	0.000	0.000	
			Max. Compression	7	-3.939	0.000	0.000	
			Max. Mx	38	-0.179	0.204	0.000	
			Max. My	44	-1.298	0.000	-0.000	
		Top Girt	Max. Vy	38	-0.102	0.000	0.000	
			Max. Vx	44	0.000	0.000	0.000	
			Max Tension	43	0.201	0.000	0.000	
Max. Compression	7		-1.435	0.000	0.000			
Max. Mx	41		-0.329	0.204	0.000			
Max. My	44		-0.173	0.000	-0.000			
T18	210 - 185	Leg	Max. Vy	41	-0.102	0.000	0.000	
			Max. Vx	44	0.000	0.000	0.000	
			Max Tension	1	0.000	0.000	0.000	
			Max. Compression	41	-199.972	0.033	-0.016	
			Max. Mx	13	-123.657	1.066	0.039	
			Max. My	4	-141.354	0.003	-1.026	
		Diagonal	Max. Vy	30	0.433	-0.316	0.023	
			Max. Vx	3	0.430	-0.008	-0.272	
			Max Tension	7	10.974	0.000	0.000	
			Max Tension	16	0.229	0.000	0.000	
			Max. Compression	7	-8.361	0.000	0.000	
			Max. Mx	41	-0.299	0.201	0.000	
		Top Girt	Max. My	44	-2.185	0.000	-0.000	
			Max. Vy	41	-0.101	0.000	0.000	
			Max. Vx	44	0.000	0.000	0.000	
Max Tension	16		0.203	0.000	0.000			
Max. Compression	7		-4.962	0.000	0.000			

Sectio n No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft			
T19	185 - 160	Leg	Max. Mx	41	-0.328	0.201	0.000			
			Max. My	44	-1.671	0.000	-0.000			
			Max. Vy	41	-0.101	0.000	0.000			
			Max. Vx	44	0.000	0.000	0.000			
			Max Tension	1	0.000	0.000	0.000			
			Max. Compression	43	-206.625	-0.806	-0.402			
			Max. Mx	7	-131.880	-1.183	0.659			
			Max. My	25	-130.214	-0.014	-1.328			
			Max. Vy	13	0.268	-1.131	0.694			
			Max. Vx	25	0.307	-0.070	-0.029			
		Diagonal	Max Tension	13	15.039	0.000	0.000			
			Max Tension	15	0.292	0.000	0.000			
			Max. Compression	13	-11.668	0.000	0.000			
			Max. Mx	38	-0.123	0.252	0.000			
		Horizontal	Max. My	44	-3.843	0.000	-0.000			
			Max. Vy	38	-0.126	0.000	0.000			
			Max. Vx	44	0.000	0.000	0.000			
			Max Tension	16	0.343	0.000	0.000			
		Top Girt	Max. Compression	7	-9.220	0.000	0.000			
			Max. Mx	41	-0.139	0.252	0.000			
Max. My	44		-3.484	0.000	-0.000					
Max. Vy	41		-0.126	0.000	0.000					
T20	160 - 135	Leg	Max. Vx	44	0.000	0.000	0.000			
			Max Tension	1	0.000	0.000	0.000			
			Max. Compression	47	-227.846	0.350	-0.208			
			Max. Mx	13	-87.232	-4.900	0.573			
			Max. My	22	-73.152	0.090	-4.733			
			Max. Vy	13	-0.976	-4.900	0.573			
			Max. Vx	22	-0.939	0.090	-4.733			
			Diagonal	Max Tension	13	14.787	0.000	0.000		
				Max Tension	28	20.927	0.000	0.000		
				Max. Compression	29	-8.900	0.000	0.000		
		Max. Mx		41	11.894	0.249	0.000			
		Horizontal	Max. My	44	11.649	0.000	-0.000			
			Max. Vy	41	-0.125	0.000	0.000			
			Max. Vx	44	0.000	0.000	0.000			
			Max Tension	38	0.133	0.000	0.000			
		Top Girt	Max. Compression	13	-11.524	0.000	0.000			
			Max. Mx	41	-0.212	0.249	0.000			
			Max. My	44	-4.382	0.000	-0.000			
			Max. Vy	41	-0.125	0.000	0.000			
		Guy A			Max. Vx	44	0.000	0.000	0.000	
Bottom Tension	25				47.247					
Top Tension	25				47.656					
Top Cable Vert	25				21.076					
Top Cable Norm	25				42.742					
Top Cable Tan	25				0.085					
Bot Cable Vert	25				-19.948					
Bot Cable Norm	25				42.829					
Bot Cable Tan	25				0.183					
Guy B						Bottom Tension	31	47.618		
		Top Tension	31	47.987						
		Top Cable Vert	31	19.525						
		Top Cable Norm	31	43.836						
		Top Cable Tan	31	0.073						
		Bot Cable Vert	31	-18.430						
		Bot Cable Norm	31	43.907						
		Bot Cable Tan	31	0.187						
		Guy C				Bottom Tension	13	49.670		
						Top Tension	13	50.130		
Top Cable Vert	13				24.288					
Top Cable Norm	13				43.854					
Top Cable Tan	13				0.076					
Bot Cable Vert	13				-23.116					
Bot Cable Norm	13				43.962					
Bot Cable Tan	13				0.201					
T21	135 - 110				Leg	Max Tension	1	0.000	0.000	0.000
						Max. Compression	42	-234.004	-0.030	0.026
		Max. Mx	10	-133.367		-0.669	0.262			

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T22	110 - 85	Diagonal Horizontal	Max. My	22	-134.995	-0.010	-0.617	
			Max. Vy	29	0.205	0.579	0.031	
			Max. Vx	20	-0.272	-0.010	-0.577	
			Max Tension	7	9.116	0.000	0.000	
			Max Tension	28	0.197	0.000	0.000	
			Max. Compression	7	-6.960	0.000	0.000	
			Max. Mx	41	-0.315	0.246	0.000	
			Max. My	44	-2.662	0.000	-0.000	
			Max. Vy	41	-0.123	0.000	0.000	
			Max. Vx	44	0.000	0.000	0.000	
			Max Tension	27	0.384	0.000	0.000	
			Max. Compression	7	-7.781	0.000	0.000	
			Max. Mx	41	-0.371	0.246	0.000	
			Max. My	44	-3.395	0.000	-0.000	
		Max. Vy	41	-0.123	0.000	0.000		
		Max. Vx	44	0.000	0.000	0.000		
		Leg	Max Tension	1	0.000	0.000	0.000	
			Max. Compression	41	-251.220	0.111	-0.062	
			Max. Mx	44	-212.179	0.678	-0.279	
			Max. My	44	-231.912	0.286	0.835	
			Max. Vy	19	-0.128	0.070	0.198	
			Max. Vx	36	0.156	-0.123	-0.198	
			Diagonal Horizontal	Max Tension	7	5.679	0.000	0.000
				Max Tension	3	0.218	0.000	0.000
				Max. Compression	7	-4.236	0.000	0.000
				Max. Mx	49	-0.383	0.189	0.000
				Max. My	44	-1.600	0.000	-0.000
				Max. Vy	49	-0.094	0.000	0.000
Top Girt	Max. Vx		44	0.000	0.000	0.000		
	Max Tension		2	0.199	0.000	0.000		
	Max. Compression	7	-4.891	0.000	0.000			
	Max. Mx	49	-0.154	0.189	0.000			
	Max. My	44	-2.349	0.000	-0.000			
	Max. Vy	49	-0.094	0.000	0.000			
	Max. Vx	44	0.000	0.000	0.000			
	Max Tension	7	-4.891	0.000	0.000			
T23	85 - 60	Leg	Max. Compression	41	-260.936	0.057	-0.031	
			Max. Mx	42	-235.635	1.040	0.011	
			Max. My	4	-166.766	0.024	-1.068	
			Max. Vy	37	0.200	-0.125	-0.122	
			Max. Vx	36	-0.286	-0.642	-0.453	
			Max Tension	3	2.848	0.000	0.000	
		Diagonal Horizontal	Max Tension	24	0.228	0.000	0.000	
			Max. Compression	3	-2.071	0.000	0.000	
			Max. Mx	49	-0.631	0.184	0.000	
			Max. My	44	-1.224	0.000	-0.000	
			Max. Vy	49	-0.092	0.000	0.000	
			Max. Vx	44	0.000	0.000	0.000	
		Top Girt	Max Tension	16	0.223	0.000	0.000	
			Max. Compression	7	-2.099	0.000	0.000	
Max. Mx	49		-0.485	0.184	0.000			
Max. My	44		-1.458	0.000	-0.000			
Max. Vy	49		-0.092	0.000	0.000			
Max. Vx	44		0.000	0.000	0.000			
Max Tension	7		-2.099	0.000	0.000			
Max. Compression	49		-0.485	0.184	0.000			
T24	60 - 35	Leg	Max Tension	1	0.000	0.000	0.000	
			Max. Compression	41	-263.481	0.097	-0.055	
			Max. Mx	48	-238.357	-0.993	-0.039	
			Max. My	46	-238.578	-0.521	0.838	
			Max. Vy	39	-0.107	-0.584	-0.484	
			Max. Vx	40	-0.126	0.035	-0.065	
		Diagonal Horizontal	Max Tension	3	5.477	0.000	0.000	
			Max Tension	47	0.079	0.000	0.000	
			Max. Compression	3	-4.138	0.000	0.000	
			Max. Mx	47	-0.190	0.177	0.000	
			Max. My	44	-0.098	0.000	-0.000	
			Max. Vy	47	-0.089	0.000	0.000	
		Top Girt	Max. Vx	44	0.000	0.000	0.000	
			Max Tension	47	0.150	0.000	0.000	
Max. Compression	3		-2.602	0.000	0.000			

Sectio n No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T25	35 - 10	Leg	Max. Mx	47	0.150	0.177	0.000	
			Max. My	44	-0.433	0.000	-0.000	
			Max. Vy	47	-0.089	0.000	0.000	
			Max. Vx	44	0.000	0.000	0.000	
			Max Tension	1	0.000	0.000	0.000	
			Max. Compression	41	-263.008	0.129	-0.076	
			Max. Mx	12	-164.517	-3.001	0.817	
			Max. My	21	-162.332	-0.437	-2.911	
			Max. Vy	12	0.628	-3.001	0.817	
			Max. Vx	21	0.618	-0.437	-2.911	
		Diagonal	Max Tension	3	7.358	0.000	0.000	
			Max Tension	47	0.261	0.000	0.000	
			Max. Compression	27	-5.596	0.000	0.000	
			Max. Mx	41	0.124	0.166	0.000	
		Horizontal	Max. My	44	-0.983	0.000	-0.000	
			Max. Vy	41	0.083	0.000	0.000	
			Max. Vx	44	-0.000	0.000	0.000	
			Max Tension	1	0.000	0.000	0.000	
		Top Girt	Max. Compression	3	-4.632	0.000	0.000	
			Max. Mx	47	-0.208	0.166	0.000	
Max. My	44		-0.819	0.000	-0.000			
Max. Vy	47		0.083	0.000	0.000			
T26	10 - 0	Leg	Max. Vx	44	-0.000	0.000	0.000	
			Max Tension	1	0.000	0.000	0.000	
			Max. Compression	41	-284.991	-0.441	0.068	
			Max. Mx	9	-172.852	3.108	-0.107	
			Max. My	37	-172.382	-0.312	-5.076	
			Max. Vy	41	0.922	-1.482	-0.009	
			Max. Vx	37	1.056	-0.242	-4.881	
			Diagonal	Max Tension	36	1.716	0.000	0.000
				Max. Compression	36	-2.235	0.000	0.000
				Max. Mx	39	0.837	-0.059	0.000
		Max. My		44	-1.815	0.000	0.022	
		Horizontal	Max. Vy	39	0.036	0.000	0.000	
			Max. Vx	44	0.014	0.000	0.000	
			Max Tension	50	1.839	0.000	0.000	
			Max. Compression	36	-0.578	0.000	0.000	
		Top Girt	Max. Mx	43	0.450	-0.773	-0.625	
			Max. My	39	1.715	-0.762	-0.637	
			Max. Vy	43	0.414	0.000	0.000	
			Max. Vx	39	0.325	0.000	0.000	
		Inner Bracing	Max Tension	47	67.608	0.000	0.000	
Max. Compression	1		0.000	0.000	0.000			
Max. Mx	39		67.347	0.338	0.000			
Max. My	39		65.230	0.000	0.078			
Max. Vy	39		-0.169	0.000	0.000			
Max. Vx	39		-0.039	0.000	0.000			
Max Tension	1		0.000	0.000	0.000			
Max. Compression	39		-0.351	0.000	0.000			
Max. Mx	38		-0.341	-0.009	0.000			
Max. My	39		-0.351	0.000	-0.000			
Max. Vy	38	0.017	0.000	0.000				
Max. Vx	39	-0.000	0.000	0.000				

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Mast	Max. Vert	43	763.274	-1.838	-0.946
	Max. H _x	30	438.478	7.733	-0.480
	Max. H _z	3	434.524	-0.043	7.787
	Max. M _x	1	0.000	-0.017	-0.018
	Max. M _z	1	0.000	-0.017	-0.018
	Max. Torsion	37	7.272	2.684	5.475

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Guy C @ 265 ft Elev 12.9193 ft Azimuth 240 deg	Min. Vert	1	376.353	-0.017	-0.018
	Min. H _x	12	441.803	-7.844	-0.395
	Min. H _z	20	439.864	-0.054	-6.530
	Min. M _x	1	0.000	-0.017	-0.018
	Min. M _z	1	0.000	-0.017	-0.018
	Min. Torsion	19	-6.997	-3.225	-5.123
	Max. Vert	26	-10.238	-8.285	4.780
	Max. H _x	28	-12.563	-8.153	4.704
	Max. H _z	10	-135.374	-107.651	62.173
	Min. Vert	10	-135.374	-107.651	62.173
Guy B @ 265 ft Elev 40.9193 ft Azimuth 120 deg	Min. H _x	10	-135.374	-107.651	62.173
	Min. H _z	28	-12.563	-8.153	4.704
	Max. Vert	14	-7.757	7.859	4.537
	Max. H _x	34	-123.895	108.016	62.368
	Max. H _z	34	-123.895	108.016	62.368
Guy A @ 265 ft Elev 28.7005 ft Azimuth 0 deg	Min. Vert	34	-123.895	108.016	62.368
	Min. H _x	16	-10.041	7.751	4.476
	Min. H _z	16	-10.041	7.751	4.476
	Max. Vert	2	-8.818	-0.004	-9.487
	Max. H _x	31	-73.002	2.914	-68.870
	Max. H _z	4	-11.020	-0.005	-9.209
	Min. Vert	22	-128.106	0.028	-122.994
	Min. H _x	13	-71.383	-2.935	-67.653
	Min. H _z	22	-128.106	0.028	-122.994

Tower Mast Reaction Summary

Load Combination	Vertical	Shear _x	Shear _z	Overturning Moment, M _x	Overturning Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead Only	376.353	0.017	0.018	0.000	0.000	-0.001
1.2D+1.0W (pattern 1) 0 deg - No Ice+1.0 Guy	436.492	0.008	-7.198	0.000	0.000	-4.673
1.2D+1.0W (pattern 2) 0 deg - No Ice+1.0 Guy	434.524	0.043	-7.787	0.000	0.000	-4.265
1.2D+1.0W (pattern 3) 0 deg - No Ice+1.0 Guy	445.613	0.014	-6.750	0.000	0.000	-4.358
1.2D+1.0W (pattern 1) 30 deg - No Ice+1.0 Guy	441.429	3.371	-6.225	0.000	0.000	1.694
1.2D+1.0W (pattern 2) 30 deg - No Ice+1.0 Guy	440.115	3.279	-6.678	0.000	0.000	2.758
1.2D+1.0W (pattern 3) 30 deg - No Ice+1.0 Guy	448.684	2.942	-5.828	0.000	0.000	2.422
1.2D+1.0W (pattern 1) 60 deg - No Ice+1.0 Guy	440.515	6.127	-3.650	0.000	0.000	0.039
1.2D+1.0W (pattern 2) 60 deg - No Ice+1.0 Guy	439.235	6.075	-3.620	0.000	0.000	0.913
1.2D+1.0W (pattern 3) 60 deg - No Ice+1.0 Guy	443.036	5.447	-3.269	0.000	0.000	0.665
1.2D+1.0W (pattern 1) 90 deg - No Ice+1.0 Guy	442.349	7.505	0.066	0.000	0.000	-2.480
1.2D+1.0W (pattern 2) 90 deg - No Ice+1.0 Guy	441.803	7.844	0.395	0.000	0.000	-1.139
1.2D+1.0W (pattern 3) 90 deg - No Ice+1.0 Guy	450.776	6.933	0.241	0.000	0.000	-1.264
1.2D+1.0W (pattern 1) 120 deg - No Ice+1.0 Guy	438.265	6.481	3.808	0.000	0.000	0.471
1.2D+1.0W (pattern 2) 120 deg - No Ice+1.0 Guy	437.155	7.004	4.115	0.000	0.000	1.105

Load Combination	Vertical	Shear _x	Shear _z	Overturning Moment, M _x	Overturning Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2D+1.0W (pattern 3) 120 deg - No Ice+1.0 Guy	448.596	6.093	3.595	0.000	0.000	1.115
1.2D+1.0W (pattern 1) 150 deg - No Ice+1.0 Guy	438.809	3.356	5.666	0.000	0.000	6.838
1.2D+1.0W (pattern 2) 150 deg - No Ice+1.0 Guy	437.020	3.732	5.751	0.000	0.000	6.892
1.2D+1.0W (pattern 3) 150 deg - No Ice+1.0 Guy	443.996	3.225	5.123	0.000	0.000	6.997
1.2D+1.0W (pattern 1) 180 deg - No Ice+1.0 Guy	439.864	0.054	6.530	0.000	0.000	4.068
1.2D+1.0W (pattern 2) 180 deg - No Ice+1.0 Guy	437.801	0.044	6.451	0.000	0.000	3.729
1.2D+1.0W (pattern 3) 180 deg - No Ice+1.0 Guy	441.101	0.038	5.778	0.000	0.000	3.883
1.2D+1.0W (pattern 1) 210 deg - No Ice+1.0 Guy	439.961	-3.555	6.087	0.000	0.000	-2.691
1.2D+1.0W (pattern 2) 210 deg - No Ice+1.0 Guy	438.357	-3.945	6.164	0.000	0.000	-3.730
1.2D+1.0W (pattern 3) 210 deg - No Ice+1.0 Guy	446.009	-3.409	5.492	0.000	0.000	-3.336
1.2D+1.0W (pattern 1) 240 deg - No Ice+1.0 Guy	435.346	-6.794	3.893	0.000	0.000	-1.483
1.2D+1.0W (pattern 2) 240 deg - No Ice+1.0 Guy	434.868	-7.255	4.134	0.000	0.000	-2.414
1.2D+1.0W (pattern 3) 240 deg - No Ice+1.0 Guy	446.071	-6.364	3.598	0.000	0.000	-2.129
1.2D+1.0W (pattern 1) 270 deg - No Ice+1.0 Guy	439.610	-7.517	0.152	0.000	0.000	2.255
1.2D+1.0W (pattern 2) 270 deg - No Ice+1.0 Guy	438.478	-7.733	0.480	0.000	0.000	0.931
1.2D+1.0W (pattern 3) 270 deg - No Ice+1.0 Guy	445.910	-6.905	0.337	0.000	0.000	1.085
1.2D+1.0W (pattern 1) 300 deg - No Ice+1.0 Guy	439.462	-5.887	-3.584	0.000	0.000	-0.910
1.2D+1.0W (pattern 2) 300 deg - No Ice+1.0 Guy	437.301	-5.759	-3.526	0.000	0.000	-1.695
1.2D+1.0W (pattern 3) 300 deg - No Ice+1.0 Guy	440.374	-5.202	-3.205	0.000	0.000	-1.652
1.2D+1.0W (pattern 1) 330 deg - No Ice+1.0 Guy	437.941	-3.106	-5.863	0.000	0.000	-7.138
1.2D+1.0W (pattern 2) 330 deg - No Ice+1.0 Guy	435.997	-2.958	-6.198	0.000	0.000	-7.231
1.2D+1.0W (pattern 3) 330 deg - No Ice+1.0 Guy	442.346	-2.684	-5.475	0.000	0.000	-7.272
1.2 Dead+1.0 Ice+1.0 Temp+Guy	754.783	0.087	-0.037	0.000	0.000	-0.256
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	762.183	0.112	-1.996	0.000	0.000	-4.071
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	761.208	1.041	-1.758	0.000	0.000	-1.519
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	760.392	1.831	-1.008	0.000	0.000	0.174
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	761.897	2.108	-0.026	0.000	0.000	1.055
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	763.274	1.838	0.946	0.000	0.000	3.241
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	761.377	1.069	1.617	0.000	0.000	5.249
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	759.671	0.088	1.855	0.000	0.000	3.409
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0	760.235	-0.897	1.667	0.000	0.000	1.359

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Guy						
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0	761.335	-1.727	0.937	0.000	0.000	0.085
Guy						
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0	759.942	-1.941	-0.021	0.000	0.000	-0.977
Guy						
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0	759.060	-1.606	-1.012	0.000	0.000	-2.913
Guy						
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0	760.453	-0.831	-1.738	0.000	0.000	-5.332
Dead+Wind 0 deg - Service+Guy	377.857	0.008	-1.736	0.000	0.000	-1.117
Dead+Wind 30 deg - Service+Guy	377.492	0.846	-1.540	0.000	0.000	0.617
Dead+Wind 60 deg - Service+Guy	377.220	1.559	-0.867	0.000	0.000	0.297
Dead+Wind 90 deg - Service+Guy	377.554	1.879	0.032	0.000	0.000	-0.376
Dead+Wind 120 deg - Service+Guy	377.885	1.590	0.939	0.000	0.000	0.308
Dead+Wind 150 deg - Service+Guy	377.532	0.852	1.425	0.000	0.000	1.832
Dead+Wind 180 deg - Service+Guy	377.370	0.040	1.644	0.000	0.000	0.829
Dead+Wind 210 deg - Service+Guy	377.675	-0.880	1.524	0.000	0.000	-0.819
Dead+Wind 240 deg - Service+Guy	378.044	-1.655	0.905	0.000	0.000	-0.520
Dead+Wind 270 deg - Service+Guy	377.744	-1.850	0.057	0.000	0.000	0.344
Dead+Wind 300 deg - Service+Guy	377.437	-1.452	-0.878	0.000	0.000	-0.391
Dead+Wind 330 deg - Service+Guy	377.583	-0.754	-1.447	0.000	0.000	-1.911

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.000	-195.346	0.000	0.000	195.346	-0.001	0.000%
2	-0.148	-231.139	-91.801	0.149	231.138	91.785	0.006%
3	-0.028	-231.139	-92.838	0.034	231.138	92.813	0.010%
4	-0.055	-231.139	-100.654	0.058	231.138	100.618	0.014%
5	45.783	-230.733	-80.099	-45.785	230.732	80.075	0.010%
6	46.681	-230.733	-81.488	-46.684	230.732	81.457	0.012%
7	50.660	-230.733	-88.465	-50.662	230.732	88.428	0.015%
8	79.145	-230.320	-46.035	-79.141	230.320	46.035	0.001%
9	80.863	-230.320	-47.042	-80.848	230.320	47.041	0.006%
10	87.685	-230.320	-51.000	-87.674	230.320	51.002	0.004%
11	93.361	-230.766	0.085	-93.347	230.766	-0.075	0.007%
12	95.488	-230.766	-0.011	-95.470	230.766	0.024	0.009%
13	103.444	-230.766	0.015	-103.423	230.766	0.000	0.011%
14	80.031	-231.200	46.503	-80.012	231.200	-46.494	0.008%
15	81.357	-231.200	47.146	-81.328	231.200	-47.131	0.013%
16	88.020	-231.200	51.043	-87.984	231.200	-51.024	0.016%
17	43.987	-230.727	76.036	-43.966	230.727	-76.029	0.009%
18	44.455	-230.727	76.874	-44.431	230.727	-76.867	0.010%
19	48.153	-230.727	83.313	-48.124	230.727	-83.303	0.012%
20	0.267	-230.248	88.951	-0.253	230.248	-88.945	0.006%
21	0.200	-230.248	90.080	-0.196	230.248	-90.076	0.002%
22	0.226	-230.248	97.807	-0.218	230.248	-97.803	0.004%
23	-45.819	-230.655	79.861	45.797	230.654	-79.852	0.010%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
24	-46.676	-230.655	81.249	46.656	230.654	-81.241	0.009%
25	-50.655	-230.655	88.227	50.632	230.654	-88.217	0.010%
26	-81.464	-231.067	47.024	81.445	231.067	-47.014	0.009%
27	-83.066	-231.067	47.964	83.035	231.067	-47.945	0.015%
28	-89.964	-231.067	51.967	89.940	231.067	-51.951	0.011%
29	-93.346	-230.621	-0.308	93.329	230.620	0.323	0.009%
30	-95.451	-230.621	-0.247	95.435	230.621	0.261	0.008%
31	-103.407	-230.621	-0.273	103.389	230.620	0.289	0.010%
32	-77.657	-230.187	-45.481	77.657	230.187	45.471	0.004%
33	-79.037	-230.187	-46.216	79.031	230.186	46.196	0.008%
34	-85.624	-230.187	-50.068	85.620	230.186	50.044	0.010%
35	-43.831	-230.660	-76.310	43.835	230.659	76.294	0.007%
36	-44.300	-230.660	-77.148	44.306	230.660	77.128	0.008%
37	-47.998	-230.660	-83.587	48.004	230.659	83.563	0.010%
38	0.000	-529.977	0.000	0.001	529.977	0.000	0.000%
39	-0.120	-530.263	-50.052	0.122	530.263	50.042	0.002%
40	25.008	-530.000	-43.655	-25.006	529.999	43.642	0.002%
41	43.828	-529.732	-25.353	-43.817	529.732	25.348	0.002%
42	50.589	-530.019	0.129	-50.575	530.019	-0.123	0.003%
43	43.552	-530.300	25.291	-43.541	530.300	-25.285	0.002%
44	24.831	-529.997	42.934	-24.818	529.997	-42.928	0.003%
45	0.159	-529.691	49.619	-0.154	529.691	-49.610	0.002%
46	-25.004	-529.955	43.607	24.995	529.955	-43.600	0.002%
47	-44.162	-530.222	25.479	44.155	530.222	-25.472	0.002%
48	-50.580	-529.935	-0.186	50.571	529.935	0.191	0.002%
49	-43.188	-529.654	-25.167	43.179	529.654	25.157	0.003%
50	-24.801	-529.957	-42.988	24.802	529.957	42.976	0.002%
51	-0.027	-195.463	-28.421	0.028	195.463	28.420	0.001%
52	14.256	-195.357	-24.886	-14.255	195.357	24.883	0.001%
53	24.647	-195.248	-14.317	-24.648	195.248	14.316	0.001%
54	29.072	-195.365	0.016	-29.070	195.365	-0.016	0.001%
55	24.835	-195.480	14.400	-24.830	195.480	-14.397	0.003%
56	13.616	-195.355	23.540	-13.615	195.355	-23.539	0.001%
57	0.072	-195.229	27.583	-0.072	195.229	-27.582	0.000%
58	-14.255	-195.336	24.823	14.253	195.336	-24.821	0.001%
59	-25.325	-195.445	14.616	25.327	195.445	-14.611	0.003%
60	-29.063	-195.327	-0.084	29.061	195.327	0.085	0.001%
61	-24.126	-195.213	-14.099	24.125	195.213	14.097	0.001%
62	-13.575	-195.337	-23.612	13.575	195.337	23.610	0.001%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	21	0.00000001	0.00009328
2	Yes	24	0.00027310	0.00010899
3	Yes	19	0.00034961	0.00012767
4	Yes	20	0.00035979	0.00011264
5	Yes	22	0.00036028	0.00015379
6	Yes	19	0.00036954	0.00008588
7	Yes	20	0.00039416	0.00010486
8	Yes	19	0.00034494	0.00024066
9	Yes	16	0.00033721	0.00010453
10	Yes	17	0.00026166	0.00006840
11	Yes	23	0.00027672	0.00011592
12	Yes	20	0.00026777	0.00006334
13	Yes	21	0.00028521	0.00007684
14	Yes	24	0.00034715	0.00013367
15	Yes	19	0.00034531	0.00012027
16	Yes	20	0.00038856	0.00013759
17	Yes	22	0.00037294	0.00014958
18	Yes	19	0.00037601	0.00009263
19	Yes	20	0.00037652	0.00009132
20	Yes	17	0.00034953	0.00011000
21	Yes	17	0.00031712	0.00014293

22	Yes	17	0.00033247	0.00006573
23	Yes	21	0.00039293	0.00016314
24	Yes	19	0.00028958	0.00007149
25	Yes	20	0.00029620	0.00007887
26	Yes	22	0.00035192	0.00013609
27	Yes	18	0.00039718	0.00012230
28	Yes	20	0.00027936	0.00009162
29	Yes	21	0.00036527	0.00014673
30	Yes	19	0.00028617	0.00006881
31	Yes	20	0.00028640	0.00007293
32	Yes	16	0.00025935	0.00010326
33	Yes	14	0.00025651	0.00009519
34	Yes	14	0.00032390	0.00006786
35	Yes	22	0.00029893	0.00011941
36	Yes	19	0.00032830	0.00008449
37	Yes	20	0.00031794	0.00007812
38	Yes	28	0.00040000	0.00005623
39	Yes	21	0.00027065	0.00004508
40	Yes	20	0.00030670	0.00005189
41	Yes	19	0.00027947	0.00005608
42	Yes	20	0.00033596	0.00005242
43	Yes	21	0.00030654	0.00005124
44	Yes	20	0.00033857	0.00005529
45	Yes	19	0.00024444	0.00004700
46	Yes	20	0.00026665	0.00005006
47	Yes	21	0.00030556	0.00006257
48	Yes	20	0.00026014	0.00003978
49	Yes	18	0.00034619	0.00006131
50	Yes	20	0.00031724	0.00004955
51	Yes	18	0.00037312	0.00002719
52	Yes	17	0.00028241	0.00002277
53	Yes	28	0.00035784	0.00004219
54	Yes	17	0.00000001	0.00002038
55	Yes	16	0.00029915	0.00003516
56	Yes	17	0.00000001	0.00002435
57	Yes	19	0.00000001	0.00005826
58	Yes	17	0.00033858	0.00001862
59	Yes	19	0.00033963	0.00024141
60	Yes	17	0.00000001	0.00001730
61	Yes	16	0.00035403	0.00004361
62	Yes	17	0.00000001	0.00001993

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	560 - 553.75	3.212	53	0.013	0.482
T2	553.75 - 547.5	3.201	53	0.013	0.482
T3	547.5 - 541.25	3.188	53	0.013	0.482
T4	541.25 - 535	3.171	53	0.013	0.482
T5	535 - 510	3.154	53	0.013	0.483
T6	510 - 485	3.078	53	0.009	0.483
T7	485 - 460	3.054	53	0.006	0.477
T8	460 - 435	3.136	53	0.005	0.485
T9	435 - 410	3.190	53	0.009	0.475
T10	410 - 385	3.135	53	0.015	0.459
T11	385 - 360	2.948	53	0.021	0.418
T12	360 - 335	2.712	53	0.023	0.379
T13	335 - 310	2.487	53	0.021	0.347
T14	310 - 285	2.358	54	0.014	0.330
T15	285 - 260	2.451	54	0.013	0.339
T16	260 - 235	2.557	54	0.018	0.360
T17	235 - 210	2.558	54	0.028	0.356
T18	210 - 185	2.274	54	0.037	0.298
T19	185 - 160	1.917	54	0.043	0.249
T20	160 - 135	1.535	54	0.041	0.213
T21	135 - 110	1.383	54	0.038	0.225

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T22	110 - 85	1.303	54	0.040	0.253
T23	85 - 60	1.186	54	0.045	0.274
T24	60 - 35	0.940	54	0.052	0.178
T25	35 - 10	0.556	54	0.058	0.107
T26	10 - 0	0.130	54	0.061	0.046

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
560.000	Lightning Rod 5/8" x 3'	53	3.212	0.013	0.482	872749
553.000	AP19-1670/090D/DT2	53	3.199	0.013	0.482	329286
514.000	ANT150F6	53	3.089	0.010	0.483	194306
505.000	Flush Mount	53	3.066	0.008	0.483	96672
495.000	10' x 2" Mount Pipe	53	3.051	0.006	0.481	56880
492.000	101-68-10-0-03N	53	3.049	0.006	0.480	50586
491.250	Guy	53	3.049	0.006	0.480	49225
490.000	ATW25HS3-HSO-46H	53	3.050	0.006	0.480	47111
485.000	10' x 2" Mount Pipe	53	3.054	0.006	0.477	43086
475.000	Side Light	53	3.079	0.006	0.472	81202
465.000	ANT150F6	53	3.117	0.005	0.482	577708
456.000	13' x 2" Pipe Mount	53	3.149	0.005	0.485	112168
442.000	101-68-10-0-03N	53	3.183	0.007	0.480	69738
438.000	ANT150F6	53	3.188	0.008	0.477	62872
415.000	101D-90-06-0-03	53	3.157	0.014	0.464	48052
388.000	SC233	53	2.975	0.020	0.424	102024
324.000	DB636-C	53	2.408	0.018	0.339	42890
316.250	Guy	53	2.370	0.015	0.334	29232
315.000	Flash Beacon Lighting	53	2.366	0.015	0.333	27804
312.000	Flash Beacon Lighting	54	2.359	0.014	0.331	25267
294.000	DB540K-E	54	2.404	0.012	0.331	83632
288.000	P2F-52	54	2.435	0.013	0.337	761830
270.000	CC806-06	54	2.520	0.016	0.350	151954
254.000	DB809KT6E-XT	54	2.576	0.020	0.364	56560
250.000	(3) 844G65VTZASX w/ Mount Pipe	54	2.584	0.022	0.365	38755
239.000	APXVAALL24_43-U-NA20 w/ Mount Pipe	54	2.576	0.026	0.361	20595
214.000	742 213 w/ Mount Pipe	54	2.329	0.036	0.308	126280
212.000	ANT150F6	54	2.302	0.037	0.302	227848
202.000	MX08FRO665-21 w/ Mount Pipe	54	2.165	0.040	0.280	189162
175.000	ANT150F6	54	1.752	0.043	0.231	108363
157.000	Side Light	54	1.504	0.041	0.212	22850
153.750	Guy	54	1.476	0.040	0.212	26348
145.000	Side Arm Mount [SO 202-1]	54	1.421	0.039	0.216	46178
138.000	SPD2-5.8	54	1.393	0.038	0.222	110668
134.000	SPD2-5.8	54	1.379	0.038	0.226	242939
112.000	201-8	54	1.310	0.040	0.249	245750
91.000	ANT150F2	54	1.223	0.044	0.279	62493
81.000	A-ANT-11G-4-C	54	1.156	0.046	0.265	50206
80.000	Side Arm Mount [SO 301-1]	54	1.148	0.047	0.262	50244
76.000	Acutime 2000	54	1.114	0.048	0.248	50443

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	560 - 553.75	15.435	5	0.144	1.573
T2	553.75 - 547.5	15.261	5	0.144	1.573

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T3	547.5 - 541.25	15.082	5	0.144	1.574
T4	541.25 - 535	14.890	5	0.145	1.575
T5	535 - 510	14.693	5	0.146	1.577
T6	510 - 485	13.892	5	0.155	1.576
T7	485 - 460	13.282	5	0.166	1.550
T8	460 - 435	13.043	5	0.148	1.495
T9	435 - 410	12.714	5	0.123	1.410
T10	410 - 385	12.149	13	0.145	1.339
T11	385 - 360	11.991	13	0.163	1.197
T12	360 - 335	11.574	13	0.170	1.072
T13	335 - 310	11.121	13	0.158	0.997
T14	310 - 285	11.029	16	0.128	0.960
T15	285 - 260	11.483	16	0.109	0.941
T16	260 - 235	11.873	16	0.104	0.988
T17	235 - 210	11.793	16	0.111	0.978
T18	210 - 185	10.872	16	0.156	0.862
T19	185 - 160	9.589	16	0.187	0.753
T20	160 - 135	8.132	16	0.193	0.661
T21	135 - 110	7.245	16	0.191	0.686
T22	110 - 85	6.478	16	0.207	0.744
T23	85 - 60	5.513	16	0.233	0.759
T24	60 - 35	4.165	16	0.263	0.507
T25	35 - 10	2.502	16	0.288	0.335
T26	10 - 0	0.639	16	0.301	0.174

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
560.000	Lightning Rod 5/8" x 3'	5	15.435	0.144	1.573	218901
553.000	AP19-1670/090D/DT2	5	15.240	0.144	1.573	87303
514.000	ANT150F6	5	14.016	0.152	1.577	53144
505.000	Flush Mount	5	13.744	0.158	1.573	27803
495.000	10' x 2" Mount Pipe	5	13.481	0.163	1.563	17315
492.000	101-68-10-0-03N	5	13.413	0.165	1.560	15555
491.250	Guy	5	13.397	0.165	1.559	15169
490.000	ATW25HS3-HSO-46H	5	13.372	0.165	1.557	14568
485.000	10' x 2" Mount Pipe	5	13.282	0.166	1.550	13474
475.000	Side Light	5	13.161	0.162	1.531	26683
465.000	ANT150F6	5	13.082	0.153	1.509	75998
456.000	13' x 2" Pipe Mount	5	13.007	0.144	1.484	29276
442.000	101-68-10-0-03N	5	12.834	0.126	1.431	21170
438.000	ANT150F6	5	12.769	0.120	1.413	19453
415.000	101D-90-06-0-03	5	12.215	0.140	1.360	14094
388.000	SC233	13	12.029	0.162	1.214	23574
324.000	DB636-C	16	11.020	0.145	0.977	15364
316.250	Guy	16	11.001	0.135	0.967	10404
315.000	Flash Beacon Lighting	16	11.003	0.134	0.965	9872
312.000	Flash Beacon Lighting	16	11.015	0.130	0.962	8933
294.000	DB540K-E	16	11.290	0.114	0.943	24842
288.000	P2F-52	16	11.420	0.111	0.934	63064
270.000	CC806-06	16	11.753	0.104	0.977	24564
254.000	DB809KT6E-XT	16	11.916	0.104	0.987	13612
250.000	(3) 844G65VTASX w/ Mount Pipe	16	11.928	0.105	0.991	11031
239.000	APXVAALL24_43-U-NA20 w/ Mount Pipe	16	11.863	0.107	0.986	7146
214.000	742 213 w/ Mount Pipe	16	11.055	0.150	0.883	18926
212.000	ANT150F6	16	10.964	0.153	0.872	22337
202.000	MX08FRO665-21 w/ Mount Pipe	16	10.492	0.169	0.825	22465
175.000	ANT150F6	16	8.982	0.191	0.708	39599
157.000	Side Light	16	7.994	0.193	0.658	7912
153.750	Guy	16	7.858	0.192	0.658	9120
145.000	Side Arm Mount [SO 202-1]	16	7.547	0.191	0.666	15952

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
138.000	SPD2-5.8	16	7.333	0.190	0.680	39447
134.000	SPD2-5.8	16	7.216	0.191	0.688	95782
112.000	201-8	16	6.544	0.205	0.738	36358
91.000	ANT150F2	16	5.776	0.225	0.778	16665
81.000	A-ANT-11G-4-C	16	5.323	0.240	0.734	15688
80.000	Side Arm Mount [SO 301-1]	16	5.274	0.241	0.726	16061
76.000	Acutime 2000	16	5.070	0.248	0.690	17612

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T1	560	Diagonal	A325N	1.000	2	0.263	55.680	0.005	1.05	Member Bearing
T2	553.75	Diagonal	A325N	0.625	2	0.559	14.375	0.039	1.05	Member Block Shear
		Horizontal	A325N	0.875	2	0.379	24.061	0.016	1.05	Member Block Shear
T3	547.5	Diagonal	A325N	0.875	2	1.235	27.059	0.046	1.05	Bolt Shear
		Top Girt	A325N	0.625	2	0.495	27.612	0.018	1.05	Bolt Shear
T4	541.25	Diagonal	A325N	0.875	2	1.564	27.059	0.058	1.05	Bolt Shear
		Top Girt	A325N	0.750	2	1.095	39.761	0.028	1.05	Bolt Shear
T5	535	Leg	A325N	0.750	6	0.867	30.101	0.029	1.05	Bolt Tension
		Diagonal	A325N	0.875	2	2.950	27.059	0.109	1.05	Bolt Shear
		Horizontal	A325N	0.750	2	2.108	39.761	0.053	1.05	Bolt Shear
		Top Girt	A325N	0.750	2	1.336	39.761	0.034	1.05	Bolt Shear
T6	510	Leg	A325N	0.750	6	3.736	30.101	0.124	1.05	Bolt Tension
		Diagonal	A325N	1.000	2	4.823	35.343	0.136	1.05	Bolt Shear
		Horizontal	A325N	0.750	2	8.204	22.294	0.368	1.05	Member Block Shear
		Top Girt	A325N	0.750	2	2.557	39.761	0.064	1.05	Bolt Shear
T7	485	Leg	A325N	0.750	6	4.036	30.101	0.134	1.05	Bolt Tension
		Diagonal	A325N	0.875	2	4.658	27.059	0.172	1.05	Bolt Shear
		Horizontal	A325N	0.750	2	3.575	39.761	0.090	1.05	Bolt Shear
		Top Girt	A325N	0.750	2	3.676	39.761	0.092	1.05	Bolt Shear
T8	460	Leg	A325N	0.750	6	5.253	30.101	0.174	1.05	Bolt Tension
		Diagonal	A325N	0.625	2	2.948	13.806	0.214	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	2.248	26.100	0.086	1.05	Member Bearing
		Top Girt	A325N	0.625	2	2.554	26.100	0.098	1.05	Member Bearing
T9	435	Leg	A325N	0.750	6	6.016	30.101	0.200	1.05	Bolt Tension
		Diagonal	A325N	0.625	2	1.316	13.806	0.095	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	0.968	14.375	0.067	1.05	Member Block Shear
		Top Girt	A325N	0.625	2	0.968	14.375	0.067	1.05	Member Block Shear
T10	410	Leg	A325N	0.750	6	6.260	30.101	0.208	1.05	Bolt Tension
		Diagonal	A325N	0.625	2	2.784	13.806	0.202	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	2.072	26.100	0.079	1.05	Member Bearing
		Top Girt	A325N	0.625	2	0.979	14.375	0.068	1.05	Member Block Shear
T11	385	Leg	A325N	0.750	6	6.222	30.101	0.207	1.05	Bolt Tension
		Diagonal	A325N	0.625	2	4.279	13.806	0.310	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	3.295	27.612	0.119	1.05	Bolt Shear
		Top Girt	A325N	0.625	2	2.455	27.612	0.089	1.05	Bolt Shear
T12	360	Leg	A325N	0.750	6	5.774	30.101	0.192	1.05	Bolt Tension
		Diagonal	A325N	0.625	2	5.850	13.806	0.424	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	4.524	27.612	0.164	1.05	Bolt Shear
		Top Girt	A325N	0.750	2	3.669	39.761	0.092	1.05	Bolt Shear
T13	335	Leg	A325N	1.000	6	6.656	54.517	0.122	1.05	Bolt Tension
		Diagonal	A325N	1.000	2	7.508	35.343	0.212	1.05	Bolt Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T14	310	Horizontal	A325N	0.750	2	9.726	22.294	0.436	1.05	Member Block Shear
		Top Girt	A325N	0.750	2	4.859	39.761	0.122	1.05	Bolt Shear
		Leg	A325N	1.000	6	8.491	54.517	0.156	1.05	Bolt Tension
		Diagonal	A325N	0.875	2	7.456	27.059	0.276	1.05	Bolt Shear
T15	285	Horizontal	A325N	0.750	2	5.828	39.761	0.147	1.05	Bolt Shear
		Top Girt	A325N	0.750	2	5.798	39.761	0.146	1.05	Bolt Shear
		Leg	A325N	0.750	6	9.119	30.101	0.303	1.05	Bolt Tension
		Diagonal	A325N	0.625	2	5.622	13.806	0.407	1.05	Bolt Shear
T16	260	Horizontal	A325N	0.625	2	4.402	26.100	0.169	1.05	Member Bearing
		Top Girt	A325N	0.625	2	4.735	26.100	0.181	1.05	Member Bearing
		Leg	A325N	0.750	6	10.254	30.101	0.341	1.05	Bolt Tension
		Diagonal	A325N	0.625	2	4.041	13.806	0.293	1.05	Bolt Shear
T17	235	Horizontal	A325N	0.625	2	1.712	14.375	0.119	1.05	Member Block Shear
		Top Girt	A325N	0.625	2	3.452	26.100	0.132	1.05	Member Bearing
		Leg	A325N	0.750	6	11.074	30.101	0.368	1.05	Bolt Tension
		Diagonal	A325N	0.625	2	2.677	13.806	0.194	1.05	Bolt Shear
T18	210	Horizontal	A325N	0.625	2	1.734	14.375	0.121	1.05	Member Block Shear
		Top Girt	A325N	0.625	2	1.734	14.375	0.121	1.05	Member Block Shear
		Leg	A325N	0.750	6	11.075	30.101	0.368	1.05	Bolt Tension
		Diagonal	A325N	0.750	2	5.487	19.880	0.276	1.05	Bolt Shear
T19	185	Horizontal	A325N	0.625	2	4.180	26.100	0.160	1.05	Member Bearing
		Top Girt	A325N	0.625	2	1.732	14.375	0.120	1.05	Member Block Shear
		Leg	A325N	1.000	6	10.652	54.517	0.195	1.05	Bolt Tension
		Diagonal	A325N	0.875	2	7.519	27.059	0.278	1.05	Bolt Shear
T20	160	Horizontal	A325N	0.750	2	5.834	39.761	0.147	1.05	Bolt Shear
		Top Girt	A325N	0.750	2	4.610	39.761	0.116	1.05	Bolt Shear
		Leg	A325N	1.000	6	11.982	54.517	0.220	1.05	Bolt Tension
		Diagonal	A325N	1.000	2	7.393	35.343	0.209	1.05	Bolt Shear
T21	135	Horizontal	A325N	0.750	2	10.463	22.294	0.469	1.05	Member Block Shear
		Top Girt	A325N	0.750	2	5.762	39.761	0.145	1.05	Bolt Shear
		Leg	A325N	1.000	6	12.257	54.517	0.225	1.05	Bolt Tension
		Diagonal	A325N	0.875	2	4.558	27.059	0.168	1.05	Bolt Shear
T22	110	Horizontal	A325N	0.750	2	2.027	22.294	0.091	1.05	Member Block Shear
		Top Girt	A325N	0.750	2	3.891	39.761	0.098	1.05	Bolt Shear
		Leg	A325N	1.000	6	13.265	54.517	0.243	1.05	Bolt Tension
		Diagonal	A325N	0.750	2	2.840	19.880	0.143	1.05	Bolt Shear
T23	85	Horizontal	A325N	0.625	2	2.176	14.375	0.151	1.05	Member Block Shear
		Top Girt	A325N	0.625	2	2.176	14.375	0.151	1.05	Member Block Shear
		Leg	A325N	1.000	6	14.148	54.517	0.260	1.05	Bolt Tension
		Diagonal	A325N	0.750	2	1.424	19.880	0.072	1.05	Bolt Shear
T24	60	Horizontal	A325N	0.625	2	2.260	14.375	0.157	1.05	Member Block Shear
		Top Girt	A325N	0.625	2	2.260	14.375	0.157	1.05	Member Block Shear
		Leg	A325N	1.000	6	14.576	54.517	0.267	1.05	Bolt Tension
		Diagonal	A325N	0.750	2	2.738	19.880	0.138	1.05	Bolt Shear
T25	35	Horizontal	A325N	0.625	2	2.282	14.375	0.159	1.05	Member Block Shear
		Top Girt	A325N	0.625	2	2.282	14.375	0.159	1.05	Member Block Shear
		Leg	A325N	1.000	6	14.612	54.517	0.268	1.05	Bolt Tension
		Diagonal	A325N	0.750	2	3.679	19.880	0.185	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	2.278	14.375	0.158	1.05	Member Block Shear
		Top Girt	A325N	0.625	2	2.278	14.375	0.158	1.05	Member Block Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T26	10	Leg	A325N	0.750	8	11.787	30.101	0.392	1.05	Shear Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T6	491.250 (A)	1-3/4 (ECP - 24000) BS	37.600	376.000	82.927	236.880	0.952	2.720
	491.250 (B)	1-3/4 (ECP - 24000) BS	37.600	376.000	81.756	236.880	0.952	2.759
	491.250 (C)	1-3/4 (ECP - 24000) BS	37.600	376.000	83.449	236.880	0.952	2.703
T13	316.250 (A)	1-1/2 (ECP - 24000) BS	27.600	275.999	65.903	173.880	0.952	2.513
	316.250 (B)	1-1/2 (ECP - 24000) BS	27.600	275.999	65.264	173.880	0.952	2.537
	316.250 (C)	1-1/2 (ECP - 24000) BS	27.600	275.999	68.300	173.880	0.952	2.425
T20	153.750 (A)	1-1/4 (ECP - 24000) BS	19.200	192.000	47.656	120.960	0.952	2.417
	153.750 (B)	1-1/4 (ECP - 24000) BS	19.200	192.000	47.987	120.960	0.952	2.401
	153.750 (C)	1-1/4 (ECP - 24000) BS	19.200	192.000	50.130	120.960	0.952	2.298

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	Mast Stability Index	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	560 - 553.75	4	6.250	6.250	75.0	12.566	1.00	-0.806	374.804	0.002 ¹
T2	553.75 - 547.5	4	6.250	6.250	75.0	12.566	1.00	-2.785	374.804	0.007 ¹
T3	547.5 - 541.25	4	6.250	6.250	75.0	12.566	1.00	-6.796	374.804	0.018 ¹
T4	541.25 - 535	4	6.250	6.250	75.0	12.566	1.00	-10.883	374.804	0.029 ¹
T5	535 - 510	4	25.000	6.250	75.0	12.566	1.00	-34.385	374.804	0.092 ¹
T6	510 - 485	4 1/2	25.000	6.250	66.7	15.904	1.00	-74.246	517.126	0.144 ¹
T7	485 - 460	4 1/2	25.000	6.250	66.7	15.904	1.00	-89.036	517.126	0.172 ¹
T8	460 - 435	4 3/4	25.000	6.250	63.2	17.721	1.00	-106.461	595.695	0.179 ¹
T9	435 - 410	4 3/4	25.000	6.250	63.2	17.721	1.00	-111.746	595.695	0.188 ¹
T10	410 - 385	4 3/4	25.000	6.250	63.2	17.721	1.00	-113.054	595.695	0.190 ¹
T11	385 - 360	4 3/4	25.000	6.250	63.2	17.721	1.00	-112.003	595.695	0.188 ¹

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	Mast Stability Index	P _u K	φP _n K	Ratio P _u / φP _n
T12	360 - 335	4 3/4	25.000	6.250	K=1.00 63.2	17.721	1.00	-111.268	595.695	0.187 ¹
T13	335 - 310	5 1/4	25.000	6.250	K=1.00 57.1	21.647	1.00	-156.677	767.243	0.204 ¹
T14	310 - 285	5	25.000	6.250	K=1.00 60.0	19.635	1.00	-158.611	679.089	0.234 ¹
T15	285 - 260	4 3/4	25.000	6.250	K=1.00 63.2	17.721	1.00	-180.480	595.695	0.303 ¹
T16	260 - 235	4 3/4	25.000	6.250	K=1.00 63.2	17.721	1.00	-197.685	595.695	0.332 ¹
T17	235 - 210	4 3/4	25.000	6.250	K=1.00 63.2	17.721	1.00	-200.202	595.695	0.336 ¹
T18	210 - 185	5	25.000	6.250	K=1.00 60.0	19.635	1.00	-199.972	679.089	0.294 ¹
T19	185 - 160	5 1/4	25.000	6.250	K=1.00 57.1	21.647	1.00	-206.625	767.243	0.269 ¹
T20	160 - 135	5 1/2	25.000	6.250	K=1.00 54.5	23.758	1.00	-227.846	860.106	0.265 ¹
T21	135 - 110	5 1/4	25.000	6.250	K=1.00 57.1	21.647	1.00	-234.004	767.243	0.305 ¹
T22	110 - 85	5 1/4	25.000	6.250	K=1.00 57.1	21.647	1.00	-251.220	767.243	0.327 ¹
T23	85 - 60	5 1/4	25.000	6.250	K=1.00 57.1	21.647	1.00	-260.936	767.243	0.340 ¹
T24	60 - 35	5 1/4	25.000	6.250	K=1.00 57.1	21.647	1.00	-263.481	767.243	0.343 ¹
T25	35 - 10	5 1/4	25.000	6.250	K=1.00 57.1	21.647	1.00	-263.008	767.243	0.343 ¹
T26	10 - 0	5 1/4	11.015	5.508	K=1.00 50.4	21.647	1.00	-284.991	809.289	0.352 ¹

¹ P_u / φP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
T1	560 - 553.75	2L3x3x1/4x3/8	7.420	6.528	84.2	2.880	-0.527	80.550	0.007 ¹
T2	553.75 - 547.5	2L2 1/2x2x3/16x3/8	7.420	6.715	K=1.00 101.6	1.620	-1.273	39.383	0.032 ¹
T26	10 - 0	L3x3 1/2x5/16	6.506	6.165	K=1.00 119.0	1.930	-2.235	38.546	0.058 ¹

¹ P_u / φP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
T2	553.75 - 547.5	2L3x2 1/2x1/4x3/8	8.000	3.573	45.4	2.630	-0.700	84.470	0.008 ¹
T5	535 - 510	2L3x2 1/2x1/4x3/8	8.000	7.208	K=1.00 91.5	2.630	-4.216	69.736	0.060 ¹
T6	510 - 485	2L3x2 1/2x1/4x3/8	8.000	7.167	K=1.00 91.0	2.630	-6.150	70.023	0.088 ¹
T7	485 - 460	2L3x2 1/2x1/4x3/8	8.000	7.167	K=1.00 91.0	2.630	-7.150	70.023	0.102 ¹

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T8	460 - 435	2L2 1/2x2x3/16x3/8	8.000	7.208	K=1.00 109.1	1.620	-4.496	36.500	0.123 ¹
T9	435 - 410	2L2 1/2x2x3/16x3/8	8.000	7.208	K=1.00 109.1	1.620	-1.980	36.500	0.054 ¹
T10	410 - 385	2L2 1/2x2x3/16x3/8	8.000	7.208	K=1.00 109.1	1.620	-4.143	36.500	0.114 ¹
T11	385 - 360	2L2x2x1/4	8.000	7.208	K=1.00 133.6	1.880	-6.589	30.169	0.218 ¹
T12	360 - 335	2L3x2 1/2x1/4x3/8	8.000	7.208	K=0.94 91.5	2.630	-9.049	69.736	0.130 ¹
T13	335 - 310	2L3x2 1/2x1/4x3/8	8.000	7.104	K=1.00 90.2	2.630	-10.617	70.451	0.151 ¹
T14	310 - 285	2L3x2 1/2x1/4x3/8	8.000	7.125	K=1.00 90.5	2.630	-11.656	70.309	0.166 ¹
T15	285 - 260	2L2 1/2x2x3/16x3/8	8.000	7.208	K=1.00 109.1	1.620	-8.803	36.500	0.241 ¹
T16	260 - 235	2L2 1/2x2x3/16x3/8	8.000	7.208	K=1.00 109.1	1.620	-5.858	36.500	0.160 ¹
T17	235 - 210	2L2 1/2x2x3/16x3/8	8.000	7.208	K=1.00 109.1	1.620	-3.939	36.500	0.108 ¹
T18	210 - 185	2L2 1/2x2x3/16x3/8	8.000	7.188	K=1.00 108.8	1.620	-8.361	36.626	0.228 ¹
T19	185 - 160	2L3x2 1/2x1/4x3/8	8.000	7.104	K=1.00 90.2	2.630	-11.668	70.451	0.166 ¹
T20	160 - 135	2L3x2 1/2x1/4x3/8	8.000	7.083	K=1.00 89.9	2.630	-8.900	70.593	0.126 ¹
T21	135 - 110	2L3x2 1/2x1/4x3/8	8.000	7.104	K=1.00 90.2	2.630	-6.960	70.451	0.099 ¹
T22	110 - 85	2L2 1/2x2x3/16x3/8	8.000	7.167	K=1.00 108.4	1.620	-4.351	36.752	0.118 ¹
T23	85 - 60	2L2 1/2x2x3/16x3/8	8.000	7.167	K=1.00 108.4	1.620	-4.520	36.752	0.123 ¹
T24	60 - 35	2L2 1/2x2x3/16x3/8	8.000	7.167	K=1.00 108.4	1.620	-4.564	36.752	0.124 ¹
T25	35 - 10	2L2 1/2x2x3/16x3/8	8.000	7.167	K=1.00 108.4	1.620	-5.596	36.752	0.152 ¹
T26	10 - 0	L3x5x1/2	4.000	1.781	K=1.00 76.5 K=2.32	3.750	-5.298	110.162	0.048 ¹

¹ P_u / φP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	560 - 553.75	C10x20	8.000	3.833	66.5	5.880	-0.122	150.971	0.001 ¹
T3	547.5 - 541.25	2C6x8.2x0.375	8.000	7.667	K=1.00 104.4	4.800	-0.990	87.624	0.011 ¹
T4	541.25 - 535	2L3x2 1/2x1/4x3/8	8.000	7.208	K=1.00 91.5	2.630	-2.189	69.736	0.031 ¹
T5	535 - 510	2L3x2 1/2x1/4x3/8	8.000	7.208	K=1.00 91.5	2.630	-2.673	69.736	0.038 ¹
T6	510 - 485	2L3x2 1/2x1/4x3/8	8.000	7.167	K=1.00 91.0	2.630	-5.113	70.023	0.073 ¹
T7	485 - 460	2L3x2 1/2x1/4x3/8	8.000	7.167	K=1.00 91.0	2.630	-7.351	70.023	0.105 ¹
T8	460 - 435	2L2 1/2x2x3/16x3/8	8.000	7.208	K=1.00 109.1	1.620	-5.109	36.500	0.140 ¹
T9	435 - 410	2L2 1/2x2x3/16x3/8	8.000	7.208	K=1.00 109.1	1.620	-2.635	36.500	0.072 ¹
T10	410 - 385	2L2 1/2x2x3/16x3/8	8.000	7.208	K=1.00 109.1	1.620	-2.195	36.500	0.060 ¹

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
T11	385 - 360	2L2x2x1/4x3/8	8.000	7.208	K=1.00 133.6	1.880	-4.910	30.169	0.163 ¹
T12	360 - 335	2L3x2 1/2x1/4x3/8	8.000	7.146	K=0.94 90.7	2.630	-7.338	70.166	0.105 ¹
T13	335 - 310	2L3x2 1/2x1/4x3/8	8.000	7.104	K=1.00 90.2	2.630	-9.719	70.451	0.138 ¹
T14	310 - 285	2L3x2 1/2x1/4x3/8	8.000	7.125	K=1.00 90.5	2.630	-11.595	70.309	0.165 ¹
T15	285 - 260	2L2 1/2x2x3/16x3/8	8.000	7.208	K=1.00 109.1	1.620	-9.470	36.500	0.259 ¹
T16	260 - 235	2L2 1/2x2x3/16x3/8	8.000	7.208	K=1.00 109.1	1.620	-6.903	36.500	0.189 ¹
T17	235 - 210	2L2 1/2x2x3/16x3/8	8.000	7.208	K=1.00 109.1	1.620	-3.468	36.500	0.095 ¹
T18	210 - 185	2L2 1/2x2x3/16x3/8	8.000	7.188	K=1.00 108.8	1.620	-4.962	36.626	0.135 ¹
T19	185 - 160	2L3x2 1/2x1/4x3/8	8.000	7.104	K=1.00 90.2	2.630	-9.220	70.451	0.131 ¹
T20	160 - 135	2L3x2 1/2x1/4x3/8	8.000	7.083	K=1.00 89.9	2.630	-11.524	70.593	0.163 ¹
T21	135 - 110	2L3x2 1/2x1/4x3/8	8.000	7.104	K=1.00 90.2	2.630	-7.781	70.451	0.110 ¹
T22	110 - 85	2L2 1/2x2x3/16x3/8	8.000	7.167	K=1.00 108.4	1.620	-4.891	36.752	0.133 ¹
T23	85 - 60	2L2 1/2x2x3/16x3/8	8.000	7.167	K=1.00 108.4	1.620	-4.520	36.752	0.123 ¹
T24	60 - 35	2L2 1/2x2x3/16x3/8	8.000	7.167	K=1.00 108.4	1.620	-4.564	36.752	0.124 ¹
T25	35 - 10	2L2 1/2x2x3/16x3/8	8.000	7.167	K=1.00 108.4	1.620	-4.632	36.752	0.126 ¹
T26	10 - 0	2L4x3x1/2	8.000	7.563	K=1.00 72.6 K=1.00	6.500	-5.298	195.218	0.027 ¹

¹ P_u / φP_n controls

Inner Bracing Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
T1	560 - 553.75	L3x3x1/4	4.000	4.000	100.5	1.440	-0.001	35.362	0.000 ¹
T2	553.75 - 547.5	L3x3x1/4	4.000	4.000	K=1.24 100.5	1.440	-0.004	35.362	0.000 ¹
T26	10 - 0	L3x3x5/16	2.000	2.000	K=1.24 80.4 K=1.97	1.780	-0.351	51.063	0.007 ¹

¹ P_u / φP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
T3	547.5 - 541.25	4	6.250	6.250	75.0	12.566	0.226	565.487	0.000 ¹
T4	541.25 - 535	4	6.250	6.250	75.0	12.566	2.265	565.487	0.004 ¹
T5	535 - 510	4	25.000	6.250	75.0	12.566	16.808	565.487	0.030 ¹
T6	510 - 485	4 1/2	25.000	6.250	66.7	15.904	35.349	715.694	0.049 ¹
T8	460 - 435	4 3/4	25.000	6.250	63.2	17.721	9.351	797.425	0.012 ¹
T9	435 - 410	4 3/4	25.000	6.250	63.2	17.721	14.118	797.425	0.018 ¹
T10	410 - 385	4 3/4	25.000	6.250	63.2	17.721	11.754	797.425	0.015 ¹
T13	335 - 310	5 1/4	25.000	6.250	57.1	21.647	1.222	974.139	0.001 ¹

¹ P_u / φP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
T1	560 - 553.75	2L3x3x1/4x3/8	7.420	6.528	91.8	1.738	0.089	75.608	0.001 ¹
T2	553.75 - 547.5	2L2 1/2x2x3/16x3/8	7.420	6.715	107.6	1.004	1.118	43.677	0.026 ¹
T3	547.5 - 541.25	1	10.152	9.729	467.0	0.785	2.470	25.447	0.097 ¹
T4	541.25 - 535	1	10.152	9.729	467.0	0.785	3.127	25.447	0.123 ¹
T5	535 - 510	1	10.152	9.729	467.0	0.785	5.900	25.447	0.232 ¹
T6	510 - 485	1 1/4	10.152	9.676	371.6	1.227	9.646	39.761	0.243 ¹
T7	485 - 460	1	10.152	9.676	464.5	0.785	9.316	25.447	0.366 ¹
T8	460 - 435	3/4	10.152	9.650	617.6	0.442	5.896	14.314	0.412 ¹
T9	435 - 410	5/8	10.152	9.650	741.1	0.307	2.633	9.940	0.265 ¹
T10	410 - 385	5/8	10.152	9.650	741.1	0.307	5.568	9.940	0.560 ¹
T11	385 - 360	3/4	10.152	9.650	617.6	0.442	8.559	14.314	0.598 ¹
T12	360 - 335	1	10.152	9.650	463.2	0.785	11.700	25.447	0.460 ¹
T13	335 - 310	1 1/4	10.152	9.597	368.5	1.227	15.017	39.761	0.378 ¹
T14	310 - 285	1	10.152	9.623	461.9	0.785	14.912	25.447	0.586 ¹
T15	285 - 260	3/4	10.152	9.650	617.6	0.442	11.244	14.314	0.786 ¹
T16	260 - 235	5/8	10.152	9.650	741.1	0.307	8.082	9.940	0.813 ¹
T17	235 - 210	5/8	10.152	9.650	741.1	0.307	5.354	9.940	0.539 ¹
T18	210 - 185	7/8	10.152	9.623	527.9	0.601	10.974	19.483	0.563 ¹
T19	185 - 160	1	10.152	9.597	460.6	0.785	15.039	25.447	0.591 ¹
T20	160 - 135	1 1/4	10.152	9.570	367.5	1.227	14.787	39.761	0.372 ¹
T21	135 - 110	1	10.152	9.597	460.6	0.785	9.116	25.447	0.358 ¹
T22	110 - 85	7/8	10.152	9.597	526.5	0.601	5.679	19.483	0.292 ¹
T23	85 - 60	7/8	10.152	9.597	526.5	0.601	2.848	19.483	0.146 ¹
T24	60 - 35	7/8	10.152	9.597	526.5	0.601	5.477	19.483	0.281 ¹
T25	35 - 10	7/8	10.152	9.597	526.5	0.601	7.358	19.483	0.378 ¹
T26	10 - 0	L3x3 1/2x5/16	6.506	6.165	81.8	1.930	1.716	62.532	0.027 ¹

¹ P_u / φP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
T2	553.75 - 547.5	2L3x2 1/2x1/4x3/8	8.000	3.573	48.7	1.597	0.757	69.491	0.011 ¹
T5	535 - 510	2L3x2 1/2x1/4x3/8	8.000	7.208	97.4	1.644	0.596	71.530	0.008 ¹
T6	510 - 485	2L3x2 1/2x1/4x3/8	8.000	7.167	96.8	1.644	16.408	71.530	0.229 ¹
T7	485 - 460	2L3x2 1/2x1/4x3/8	8.000	7.167	96.8	1.644	1.542	71.530	0.022 ¹
T8	460 - 435	2L2 1/2x2x3/16x3/8	8.000	7.208	115.1	1.004	1.844	43.677	0.042 ¹
T9	435 - 410	2L2 1/2x2x3/16x3/8	8.000	7.208	115.1	1.004	1.935	43.677	0.044 ¹

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	410 - 385	2L2 1/2x2x3/16x3/8	8.000	7.208	115.1	1.004	1.958	43.677	0.045 ¹
T11	385 - 360	2L2x2x1/4	8.000	7.208	149.8	1.129	1.940	49.101	0.040 ¹
T12	360 - 335	2L3x2 1/2x1/4x3/8	8.000	7.208	96.6	1.691	1.927	73.569	0.026 ¹
T13	335 - 310	2L3x2 1/2x1/4x3/8	8.000	7.104	96.0	1.644	19.452	71.530	0.272 ¹
T14	310 - 285	2L3x2 1/2x1/4x3/8	8.000	7.125	96.3	1.644	2.747	71.530	0.038 ¹
T15	285 - 260	2L2 1/2x2x3/16x3/8	8.000	7.208	115.1	1.004	3.126	43.677	0.072 ¹
T16	260 - 235	2L2 1/2x2x3/16x3/8	8.000	7.208	115.1	1.004	3.424	43.677	0.078 ¹
T17	235 - 210	2L2 1/2x2x3/16x3/8	8.000	7.208	115.1	1.004	3.468	43.677	0.079 ¹
T18	210 - 185	2L2 1/2x2x3/16x3/8	8.000	7.188	114.8	1.004	3.464	43.677	0.079 ¹
T19	185 - 160	2L3x2 1/2x1/4x3/8	8.000	7.104	96.0	1.644	3.579	71.530	0.050 ¹
T20	160 - 135	2L3x2 1/2x1/4x3/8	8.000	7.083	95.8	1.644	20.927	71.530	0.293 ¹
T21	135 - 110	2L3x2 1/2x1/4x3/8	8.000	7.104	96.0	1.644	4.053	71.530	0.057 ¹
T22	110 - 85	2L2 1/2x2x3/16x3/8	8.000	7.167	114.4	1.004	4.351	43.677	0.100 ¹
T23	85 - 60	2L2 1/2x2x3/16x3/8	8.000	7.167	114.4	1.004	4.520	43.677	0.103 ¹
T24	60 - 35	2L2 1/2x2x3/16x3/8	8.000	7.167	114.4	1.004	4.564	43.677	0.104 ¹
T25	35 - 10	2L2 1/2x2x3/16x3/8	8.000	7.167	114.4	1.004	4.555	43.677	0.104 ¹
T26	10 - 0	L3x5x1/2	4.000	1.781	25.8	3.750	5.298	121.500	0.044 ¹

¹ $P_u / \phi P_n$ controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	560 - 553.75	C10x20	8.000	3.833	66.5	5.880	0.114	190.512	0.001 ¹
T3	547.5 - 541.25	2C6x8.2x0.375	8.000	7.667	104.4	3.375	0.251	146.813	0.002 ¹
T4	541.25 - 535	2L3x2 1/2x1/4x3/8	8.000	7.208	97.4	1.644	0.188	71.530	0.003 ¹
T5	535 - 510	2L3x2 1/2x1/4x3/8	8.000	7.208	97.4	1.644	0.596	71.530	0.008 ¹
T6	510 - 485	2L3x2 1/2x1/4x3/8	8.000	7.167	96.8	1.644	1.286	71.530	0.018 ¹
T7	485 - 460	2L3x2 1/2x1/4x3/8	8.000	7.167	96.8	1.644	1.542	71.530	0.022 ¹
T8	460 - 435	2L2 1/2x2x3/16x3/8	8.000	7.208	115.1	1.004	1.844	43.677	0.042 ¹
T9	435 - 410	2L2 1/2x2x3/16x3/8	8.000	7.208	115.1	1.004	1.935	43.677	0.044 ¹
T10	410 - 385	2L2 1/2x2x3/16x3/8	8.000	7.208	115.1	1.004	1.958	43.677	0.045 ¹
T11	385 - 360	2L2x2x1/4x3/8	8.000	7.208	149.8	1.129	1.940	49.101	0.040 ¹
T12	360 - 335	2L3x2 1/2x1/4x3/8	8.000	7.146	96.6	1.644	1.927	71.530	0.027 ¹
T13	335 - 310	2L3x2 1/2x1/4x3/8	8.000	7.104	96.0	1.644	2.714	71.530	0.038 ¹
T14	310 - 285	2L3x2 1/2x1/4x3/8	8.000	7.125	96.3	1.644	2.747	71.530	0.038 ¹
T15	285 - 260	2L2 1/2x2x3/16x3/8	8.000	7.208	115.1	1.004	3.126	43.677	0.072 ¹
T16	260 - 235	2L2 1/2x2x3/16x3/8	8.000	7.208	115.1	1.004	3.424	43.677	0.078 ¹
T17	235 - 210	2L2 1/2x2x3/16x3/8	8.000	7.208	115.1	1.004	3.468	43.677	0.079 ¹
T18	210 - 185	2L2 1/2x2x3/16x3/8	8.000	7.188	114.8	1.004	3.464	43.677	0.079 ¹
T19	185 - 160	2L3x2 1/2x1/4x3/8	8.000	7.104	96.0	1.644	3.579	71.530	0.050 ¹
T20	160 - 135	2L3x2 1/2x1/4x3/8	8.000	7.083	95.8	1.644	3.946	71.530	0.055 ¹
T21	135 - 110	2L3x2 1/2x1/4x3/8	8.000	7.104	96.0	1.644	4.053	71.530	0.057 ¹
T22	110 - 85	2L2 1/2x2x3/16x3/8	8.000	7.167	114.4	1.004	4.351	43.677	0.100 ¹
T23	85 - 60	2L2 1/2x2x3/16x3/8	8.000	7.167	114.4	1.004	4.520	43.677	0.103 ¹
T24	60 - 35	2L2 1/2x2x3/16x3/8	8.000	7.167	114.4	1.004	4.564	43.677	0.104 ¹
T25	35 - 10	2L2 1/2x2x3/16x3/8	8.000	7.167	114.4	1.004	4.555	43.677	0.104 ¹
T26	10 - 0	2L4x3x1/2	8.000	7.563	72.6	6.500	67.608	210.600	0.321 ¹

¹ $P_u / \phi P_n$ controls

Inner Bracing Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	560 - 553.75	L3x3x1/4	4.000	4.000	51.6	1.440	0.001	46.656	0.000 ¹

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	553.75 - 547.5	L3x3x1/4	4.000	4.000	51.6	1.440	0.004	46.656	0.000 ¹

¹ $P_u / \phi P_n$ controls

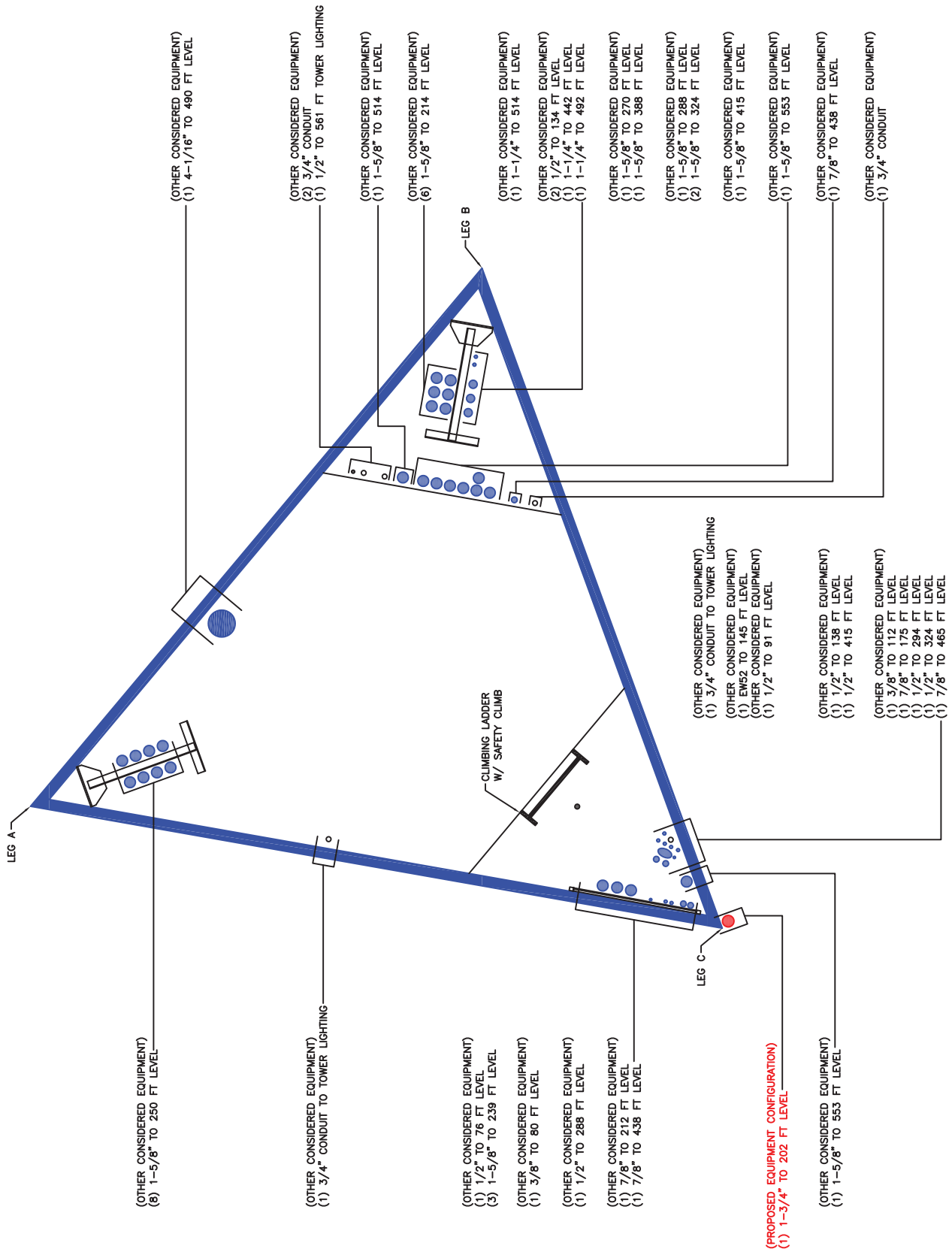
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	560 - 553.75	Leg	4	2	-0.806	393.544	0.2	Pass
T2	553.75 - 547.5	Leg	4	16	-2.785	393.544	0.7	Pass
T3	547.5 - 541.25	Leg	4	32	-6.796	393.544	1.7	Pass
T4	541.25 - 535	Leg	4	45	-10.883	393.544	2.8	Pass
T5	535 - 510	Leg	4	57	-34.385	393.544	8.7	Pass
T6	510 - 485	Leg	4 1/2	94	-74.246	542.982	13.7	Pass
T7	485 - 460	Leg	4 1/2	135	-89.036	542.982	16.4	Pass
T8	460 - 435	Leg	4 3/4	172	-106.461	625.480	17.0	Pass
T9	435 - 410	Leg	4 3/4	211	-111.746	625.480	17.9	Pass
T10	410 - 385	Leg	4 3/4	250	-113.054	625.480	18.1	Pass
T11	385 - 360	Leg	4 3/4	289	-112.003	625.480	17.9	Pass
T12	360 - 335	Leg	4 3/4	330	-111.268	625.480	17.8	Pass
T13	335 - 310	Leg	5 1/4	369	-156.677	805.605	19.4	Pass
T14	310 - 285	Leg	5	406	-158.611	713.043	22.2	Pass
T15	285 - 260	Leg	4 3/4	445	-180.480	625.480	28.9	Pass
T16	260 - 235	Leg	4 3/4	484	-197.685	625.480	31.6	Pass
T17	235 - 210	Leg	4 3/4	523	-200.202	625.480	32.0	Pass
T18	210 - 185	Leg	5	562	-199.972	713.043	28.0	Pass
T19	185 - 160	Leg	5 1/4	602	-206.625	805.605	25.6	Pass
T20	160 - 135	Leg	5 1/2	640	-227.846	903.111	25.2	Pass
T21	135 - 110	Leg	5 1/4	679	-234.004	805.605	29.0	Pass
T22	110 - 85	Leg	5 1/4	718	-251.220	805.605	31.2	Pass
T23	85 - 60	Leg	5 1/4	757	-260.936	805.605	32.4	Pass
T24	60 - 35	Leg	5 1/4	796	-263.481	805.605	32.7	Pass
T25	35 - 10	Leg	5 1/4	835	-263.008	805.605	32.6	Pass
T26	10 - 0	Leg	5 1/4	874	-284.991	849.753	33.5	Pass
T1	560 - 553.75	Diagonal	2L3x3x1/4x3/8	7	-0.527	84.577	0.6	Pass
T2	553.75 - 547.5	Diagonal	2L2 1/2x2x3/16x3/8	21	-1.273	41.352	3.1	Pass
T3	547.5 - 541.25	Diagonal	1	37	2.470	26.719	9.2	Pass
T4	541.25 - 535	Diagonal	1	49	3.127	26.719	11.7	Pass
T5	535 - 510	Diagonal	1	66	5.900	26.719	22.1	Pass
T6	510 - 485	Diagonal	1 1/4	101	9.646	41.749	23.1	Pass
T7	485 - 460	Diagonal	1	167	9.316	26.719	34.9	Pass
T8	460 - 435	Diagonal	3/4	206	5.896	15.030	39.2	Pass
T9	435 - 410	Diagonal	5/8	244	2.633	10.437	25.2	Pass
T10	410 - 385	Diagonal	5/8	261	5.568	10.437	53.4	Pass
T11	385 - 360	Diagonal	3/4	300	8.559	15.030	56.9	Pass
T12	360 - 335	Diagonal	1	339	11.700	26.719	43.8	Pass
T13	335 - 310	Diagonal	1 1/4	373	15.017	41.749	36.0	Pass
T14	310 - 285	Diagonal	1	439	14.912	26.719	55.8	Pass
T15	285 - 260	Diagonal	3/4	478	11.244	15.030	74.8	Pass
T16	260 - 235	Diagonal	5/8	517	8.082	10.437	77.4	Pass
T17	235 - 210	Diagonal	5/8	534	5.354	10.437	51.3	Pass
T18	210 - 185	Diagonal	7/8	573	10.974	20.457	53.6	Pass
T19	185 - 160	Diagonal	1	607	15.039	26.719	56.3	Pass
T20	160 - 135	Diagonal	1 1/4	673	14.787	41.749	35.4	Pass
T21	135 - 110	Diagonal	1	716	9.116	26.719	34.1	Pass
T22	110 - 85	Diagonal	7/8	755	5.679	20.457	27.8	Pass
T23	85 - 60	Diagonal	7/8	768	2.848	20.457	13.9	Pass
T24	60 - 35	Diagonal	7/8	807	5.477	20.457	26.8	Pass
T25	35 - 10	Diagonal	7/8	846	7.358	20.457	36.0	Pass
T26	10 - 0	Diagonal	L3x3 1/2x5/16	888	-2.235	40.474	5.5	Pass
T2	553.75 - 547.5	Horizontal	2L3x2 1/2x1/4x3/8	19	0.757	72.966	1.0	Pass
T5	535 - 510	Horizontal	2L3x2 1/2x1/4x3/8	69	-4.216	73.222	5.8	Pass
T6	510 - 485	Horizontal	2L3x2 1/2x1/4x3/8	107	16.408	75.107	21.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail	
T7	485 - 460	Horizontal	2L3x2 1/2x1/4x3/8	163	-7.150	73.524	9.7	Pass	
T8	460 - 435	Horizontal	2L2 1/2x2x3/16x3/8	202	-4.496	38.325	11.7	Pass	
T9	435 - 410	Horizontal	2L2 1/2x2x3/16x3/8	241	-1.980	38.325	5.2	Pass	
T10	410 - 385	Horizontal	2L2 1/2x2x3/16x3/8	264	-4.143	38.325	10.8	Pass	
T11	385 - 360	Horizontal	2L2x2x1/4	303	-6.589	31.677	20.8	Pass	
T12	360 - 335	Horizontal	2L3x2 1/2x1/4x3/8	342	-9.049	73.222	12.4	Pass	
T13	335 - 310	Horizontal	2L3x2 1/2x1/4x3/8	380	19.452	75.107	25.9	Pass	
T14	310 - 285	Horizontal	2L3x2 1/2x1/4x3/8	436	-11.656	73.825	15.8	Pass	
T15	285 - 260	Horizontal	2L2 1/2x2x3/16x3/8	475	-8.803	38.325	23.0	Pass	
T16	260 - 235	Horizontal	2L2 1/2x2x3/16x3/8	514	-5.858	38.325	15.3	Pass	
T17	235 - 210	Horizontal	2L2 1/2x2x3/16x3/8	537	-3.939	38.325	10.3	Pass	
T18	210 - 185	Horizontal	2L2 1/2x2x3/16x3/8	576	-8.361	38.458	21.7	Pass	
T19	185 - 160	Horizontal	2L3x2 1/2x1/4x3/8	613	-11.668	73.974	15.8	Pass	
T20	160 - 135	Horizontal	2L3x2 1/2x1/4x3/8	671	20.927	75.107	27.9	Pass	
T21	135 - 110	Horizontal	2L3x2 1/2x1/4x3/8	711	-6.960	73.974	9.4	Pass	
T22	110 - 85	Horizontal	2L2 1/2x2x3/16x3/8	750	-4.351	38.589	11.3	Pass	
T23	85 - 60	Horizontal	2L2 1/2x2x3/16x3/8	771	-4.520	38.589	11.7	Pass	
T24	60 - 35	Horizontal	2L2 1/2x2x3/16x3/8	810	-4.564	38.589	11.8	Pass	
T25	35 - 10	Horizontal	2L2 1/2x2x3/16x3/8	856	-5.596	38.589	14.5	Pass	
T26	10 - 0	Horizontal	L3x5x1/2	886	-5.298	115.670	4.6	Pass	
T1	560 - 553.75	Top Girt	C10x20	4	-0.122	158.520	0.2	Pass	
T3	547.5 - 541.25	Top Girt	2C6x8.2x0.375	35	-0.990	92.005	1.1	Pass	
T4	541.25 - 535	Top Girt	2L3x2 1/2x1/4x3/8	46	-2.189	73.222	3.0	Pass	
T5	535 - 510	Top Girt	2L3x2 1/2x1/4x3/8	58	-2.673	73.222	3.7	Pass	
T6	510 - 485	Top Girt	2L3x2 1/2x1/4x3/8	99	-5.113	73.524	7.0	Pass	
T7	485 - 460	Top Girt	2L3x2 1/2x1/4x3/8	136	-7.351	73.524	10.0	Pass	
T8	460 - 435	Top Girt	2L2 1/2x2x3/16x3/8	175	-5.109	38.325	13.3	Pass	
T9	435 - 410	Top Girt	2L2 1/2x2x3/16x3/8	214	-2.635	38.325	6.9	Pass	
T10	410 - 385	Top Girt	2L2 1/2x2x3/16x3/8	255	-2.195	38.325	5.7	Pass	
T11	385 - 360	Top Girt	2L2x2x1/4x3/8	294	-4.910	31.677	15.5	Pass	
T12	360 - 335	Top Girt	2L3x2 1/2x1/4x3/8	333	-7.338	73.675	10.0	Pass	
T13	335 - 310	Top Girt	2L3x2 1/2x1/4x3/8	372	-9.719	73.974	13.1	Pass	
T14	310 - 285	Top Girt	2L3x2 1/2x1/4x3/8	409	-11.595	73.825	15.7	Pass	
T15	285 - 260	Top Girt	2L2 1/2x2x3/16x3/8	448	-9.470	38.325	24.7	Pass	
T16	260 - 235	Top Girt	2L2 1/2x2x3/16x3/8	487	-6.903	38.325	18.0	Pass	
T17	235 - 210	Top Girt	2L2 1/2x2x3/16x3/8	528	-3.468	38.325	9.0	Pass	
T18	210 - 185	Top Girt	2L2 1/2x2x3/16x3/8	567	-4.962	38.458	12.9	Pass	
T19	185 - 160	Top Girt	2L3x2 1/2x1/4x3/8	606	-9.220	73.974	12.5	Pass	
T20	160 - 135	Top Girt	2L3x2 1/2x1/4x3/8	643	-11.524	74.123	15.5	Pass	
T21	135 - 110	Top Girt	2L3x2 1/2x1/4x3/8	684	-7.781	73.974	10.5	Pass	
T22	110 - 85	Top Girt	2L2 1/2x2x3/16x3/8	723	-4.891	38.589	12.7	Pass	
T23	85 - 60	Top Girt	2L2 1/2x2x3/16x3/8	762	-4.520	38.589	11.7	Pass	
T24	60 - 35	Top Girt	2L2 1/2x2x3/16x3/8	801	-4.564	38.589	11.8	Pass	
T25	35 - 10	Top Girt	2L2 1/2x2x3/16x3/8	840	-4.632	38.589	12.0	Pass	
T26	10 - 0	Top Girt	2L4x3x1/2	878	67.608	221.130	30.6	Pass	
T1	560 - 553.75	Inner Bracing	L3x3x1/4	14	-0.001	37.131	0.3	Pass	
T2	553.75 - 547.5	Inner Bracing	L3x3x1/4	28	-0.004	37.131	0.3	Pass	
T26	10 - 0	Inner Bracing	L3x3x5/16	890	-0.351	53.617	0.7	Pass	
T6	510 - 485	Guy A@491.25	1-3/4 (ECP - 24000)	900	82.927	236.880	35.0	Pass	
T13	335 - 310	Guy A@316.25	1-1/2 (ECP - 24000)	897	65.903	173.880	37.9	Pass	
T20	160 - 135	Guy A@153.75	1-1/4 (ECP - 24000)	894	47.656	120.960	39.4	Pass	
T6	510 - 485	Guy B@491.25	1-3/4 (ECP - 24000)	899	81.756	236.880	34.5	Pass	
T13	335 - 310	Guy B@316.25	1-1/2 (ECP - 24000)	896	65.264	173.880	37.5	Pass	
T20	160 - 135	Guy B@153.75	1-1/4 (ECP - 24000)	893	47.987	120.960	39.7	Pass	
T6	510 - 485	Guy C@491.25	1-3/4 (ECP - 24000)	898	83.449	236.880	35.2	Pass	
T13	335 - 310	Guy C@316.25	1-1/2 (ECP - 24000)	895	68.300	173.880	39.3	Pass	
T20	160 - 135	Guy C@153.75	1-1/4 (ECP - 24000)	892	50.130	120.960	41.4	Pass	
							Summary		
							Leg (T26)	33.5	Pass
							Diagonal (T16)	77.4	Pass
							Horizontal (T20)	27.9	Pass
							Top Girt (T26)	30.6	Pass
							Inner Bracing (T26)	0.7	Pass
							Guy A (T20)	39.4	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
						Guy B (T20)	39.7	Pass
						Guy C (T20)	41.4	Pass
						Bolt Checks	44.7	Pass
RATING =							77.4	Pass

APPENDIX B
BASE LEVEL DRAWING



APPENDIX C
ADDITIONAL CALCULATIONS

Pier and Pad Foundation



BU #: 870800
Site Name: Avon (Deercliff Rd.)
App. Number: 556618 Rev. 0

TIA-222 Revision: H
Tower Type: Guyed

Top & Bot. Pad Rein. Different?:
Block Foundation?:
Rectangular Pad?:

Superstructure Analysis Reactions		
Compression, P_{comp} :	763.27	kips
Base Shear, V_u _{comp} :	2.07	kips
Moment, M_u :	0	ft-kips
Tower Height, H :	560	ft
BP Dist. Above Fdn, bp_{dist} :	3	in
Bolt Circle / Bearing Plate Width, BC :	0	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	245.17	2.07	0.8%	Pass
<i>Bearing Pressure (ksf)</i>	9.60	4.22	41.9%	Pass
<i>Overtuning (kip*ft)</i>	3214.46	12.94	0.4%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	1783.99	7.25	0.4%	Pass
<i>Pier Compression (kip)</i>	7637.76	773.35	9.6%	Pass
<i>Pad Flexure (kip*ft)</i>	2463.79	778.17	30.1%	Pass
<i>Pad Shear - 1-way (kips)</i>	374.27	174.49	44.4%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.164	0.078	44.9%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	3763.52	4.35	0.1%	Pass

*Rating per TIA-222-H Section 15.5

Soil Rating*: 41.9%
Structural Rating*: 44.9%

Pier Properties		
Pier Shape:	Square	
Pier Diameter, $dpier$:	4	ft
Ext. Above Grade, E :	1	ft
Pier Rebar Size, Sc :	9	
Pier Rebar Quantity, mc :	12	
Pier Tie/Spiral Size, St :	3	
Pier Tie/Spiral Quantity, mt :	6	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

Pad Properties		
Depth, D :	5	ft
Pad Width, W_1 :	15	ft
Pad Thickness, T :	2.5	ft
Pad Rebar Size (Bottom dir. 2), Sp_2 :	9	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	23	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	3	ksi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	115	pcf
Ultimate Gross Bearing, Q_{ult} :	16.000	ksf
Cohesion, C_u :	0.900	ksf
Friction Angle, ϕ :	0	degrees
SPT Blow Count, N_{blows} :		
Base Friction, μ :	0.38	
Neglected Depth, N :	3.33	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw :	N/A	ft

<-- Toggle between Gross and Net

Guyed Tower Anchor Reaction Comparison Test



BU # :	870800
Site Name:	Avon (Deercliff Rd.)
Order Number:	556618 Rev. 0
Design TIA:	TIA-222-C
Current TIA:	TIA-222-H
Component:	Guyed Tower Anchor
Reference Doc ID:	StainlessInc., Report #3290 09/11/86

TIA-222-C Compared To TIA-222-H

GUYED TOWER OUTER ANCHOR FOUNDATION

REACTIONS PER ANCHOR	DESIGN REACTIONS	*MODIFIED DESIGN REACTIONS	CURRENT REACTIONS	% CAPACITY
UPLIFT (kips)	360.0	486.0	135.0	26.5%
SHEAR (kips)	254.0	342.9	124.0	34.4%

Design loads from: CCIsites Doc #StainlessInc., Report #3290 09/11/86

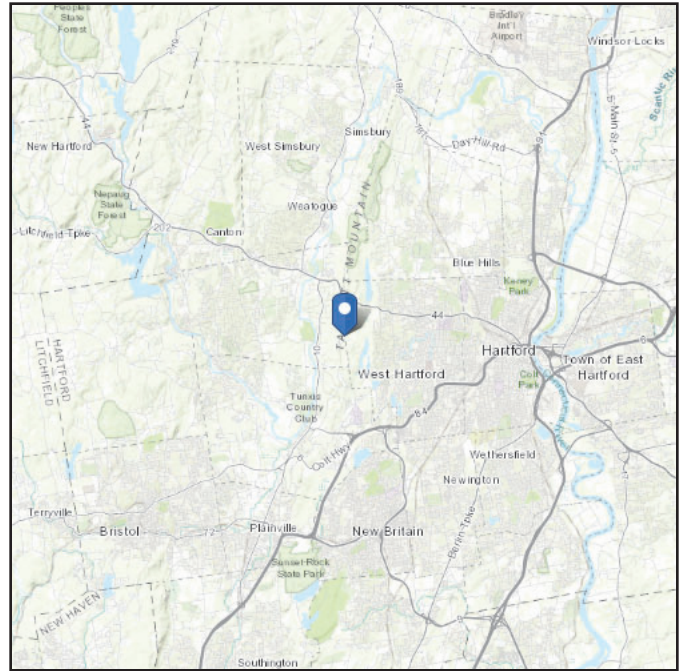
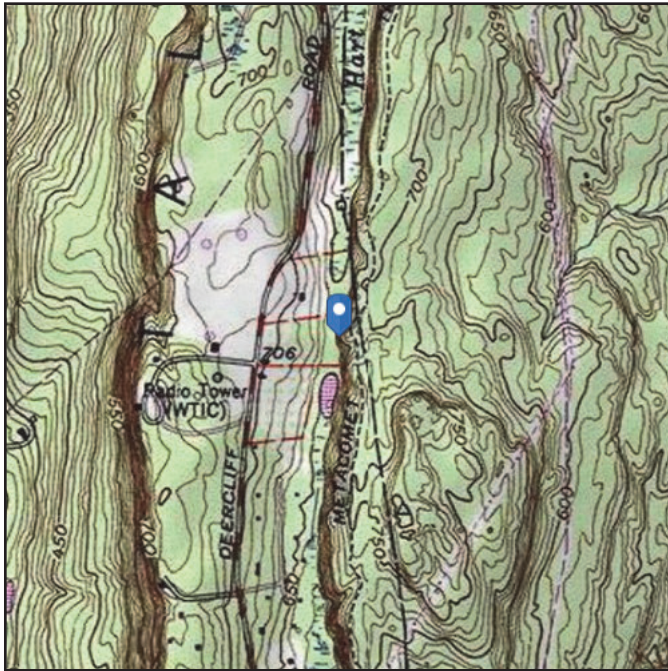
*Design loads were multiplied by 1.35 for comparison as allowed by TIA-222-H, Section 15.6.

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 686.16 ft (NAVD 88)
Latitude: 41.774986
Longitude: -72.800575



Wind

Results:

Wind Speed:	120 Vmph per jurisdiction requirement
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	92 Vmph
100-year MRI	99 Vmph

Data Source: ASCE 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, and Section 26.5.2, incorporating errata of March 12, 2014

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

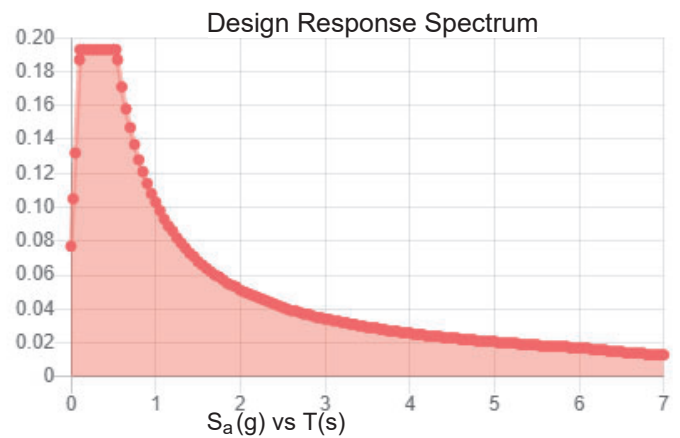
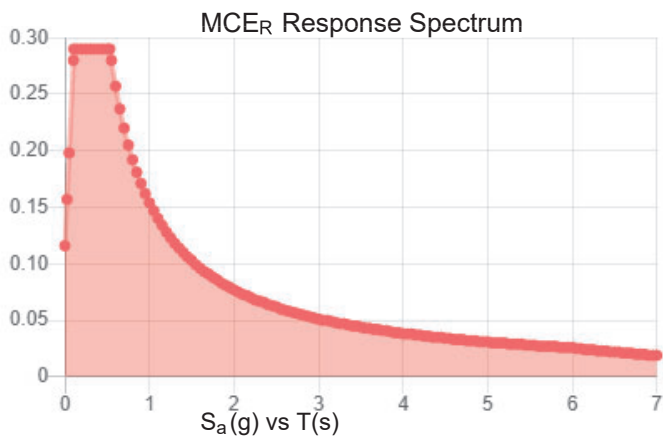
Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.181	S_{DS} :	0.193
S_1 :	0.064	S_{D1} :	0.103
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.091
S_{MS} :	0.29	PGA_M :	0.146
S_{M1} :	0.154	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Thu Apr 29 2021

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 1.00 in.
Concurrent Temperature: 5 F
Gust Speed: 50 mph

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

Date Accessed: Thu Apr 29 2021

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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Exhibit E

Mount Analysis

Date: **July 30, 2021**

Darcy Tarr
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277
(704) 405-6589



Trylon
1825 W. Walnut Hill Lane,
Suite 302
Irving, TX 75038
214-930-1730

Subject: **Mount Replacement Analysis Report**

Carrier Designation: **DISH Network Equipment Change Out**
Carrier Site Number: BOBDL00075A
Carrier Site Name: CT-CCI-T-870800

Crown Castle Designation: **Crown Castle BU Number:** 870800
Crown Castle Site Name: Avon (Deercliff Rd.)
Crown Castle JDE Job Number: 650065
Crown Castle Order Number: 556618 Rev. 0

Engineering Firm Designation: **Trylon Report Designation:** 189197

Site Data: **376 Deercliff Road, Avon, Hartford County, CT, 06001**
Latitude 41°46'39.95" Longitude -72°48'2.07"

Structure Information: **Tower Height & Type:** **560.0 ft Guyed Tower**
Mount Elevation: **202.0 ft**
Mount Type: **8.0 ft Sector Frame**

Dear Darcy Tarr,

Trylon is pleased to submit this "**Mount Replacement Analysis Report**" to determine the structural integrity of DISH Network's antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

Sector Frame

Sufficient

***Sufficient upon completion of the changes listed in the 'Recommendations' section of this report.**

This analysis utilizes an ultimate 3-second gust wind speed of 120 mph as required by the 2015 International Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Bryan P. Mawhinney

Respectfully Submitted by:
Cliff Abernathy, P.E.



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Supplemental Drawings

1) INTRODUCTION

This is a proposed sector 8.0 ft Sector Frame, designed by Commscope.

2) ANALYSIS CRITERIA

Building Code:	2015 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	120 mph
Exposure Category:	B
Topographic Factor at Base:	1.0
Topographic Factor at Mount:	1.0
Ice Thickness:	2.0 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.181
Seismic S₁:	0.064
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
202.0	202.0	3	JMA WIRELESS	MX08FRO665-21	8.0 ft Sector Frame [Commscope MTC397508]
		3	FUJITSU	TA08025-B604	
		3	FUJITSU	TA08025-B605	
		1	RAYCAP	RDIDC-9181-PF-48	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	Dish Network Application	556618 Rev. 0	CCI Sites
Tower Structural Analysis Reports	Crown Castle	9784473	CCI Sites
Mount Manufacturer Drawings	Commscope	MTC397508	TSA

3.1) Analysis Method

RISA-3D (Version 17.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

A tool internally developed, using Microsoft Excel, by Trylon was used to calculate wind loading on all appurtenances, dishes, and mount members for various load cases. Selected output from the analysis is included in Appendix B.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision B).

3.2) Assumptions

- 1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
- 2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
- 3) 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.
- 4) The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
- 5) Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
- 6) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM A500 (GR B-46)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325

This analysis may be affected if any assumptions are not valid or have been made in error. Tylon 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 (Sector Frame, Worst Case Sector)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1, 2	Mount Pipe(s)	MP2	202.0	19.2	Pass
	Horizontal(s)	H1		12.0	Pass
	Standoff(s)	M1		16.1	Pass
	Bracing(s)	M23		31.8	Pass
	Tieback(s)	M31A		10.6	Pass
	Mount Connection(s)	--		15.1	Pass

Structure Rating (max from all components) =	31.8%
---	--------------

Notes:

- 1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
- 2) Rating per TIA-222-H, Section 15.5

Table 4 - Tieback Connection Data Table

Tower Connection Node No.	Existing / Proposed	Resultant End Reaction (lb)	Connected Member Type	Connected Member Size	Member Compressive Capacity (lb) ³	Notes
N52A	Proposed	458.2	Leg	PIPE 5	33,954	1

Notes:

- 1) Tieback connection point is within 25% of either end of the connected tower member
- 2) Tieback connection point is NOT within 25% of either end of the connected tower member
- 3) Reduced member compressive capacity according to CED-STD-10294 *Standard for Installation of Mounts and Appurtenances*

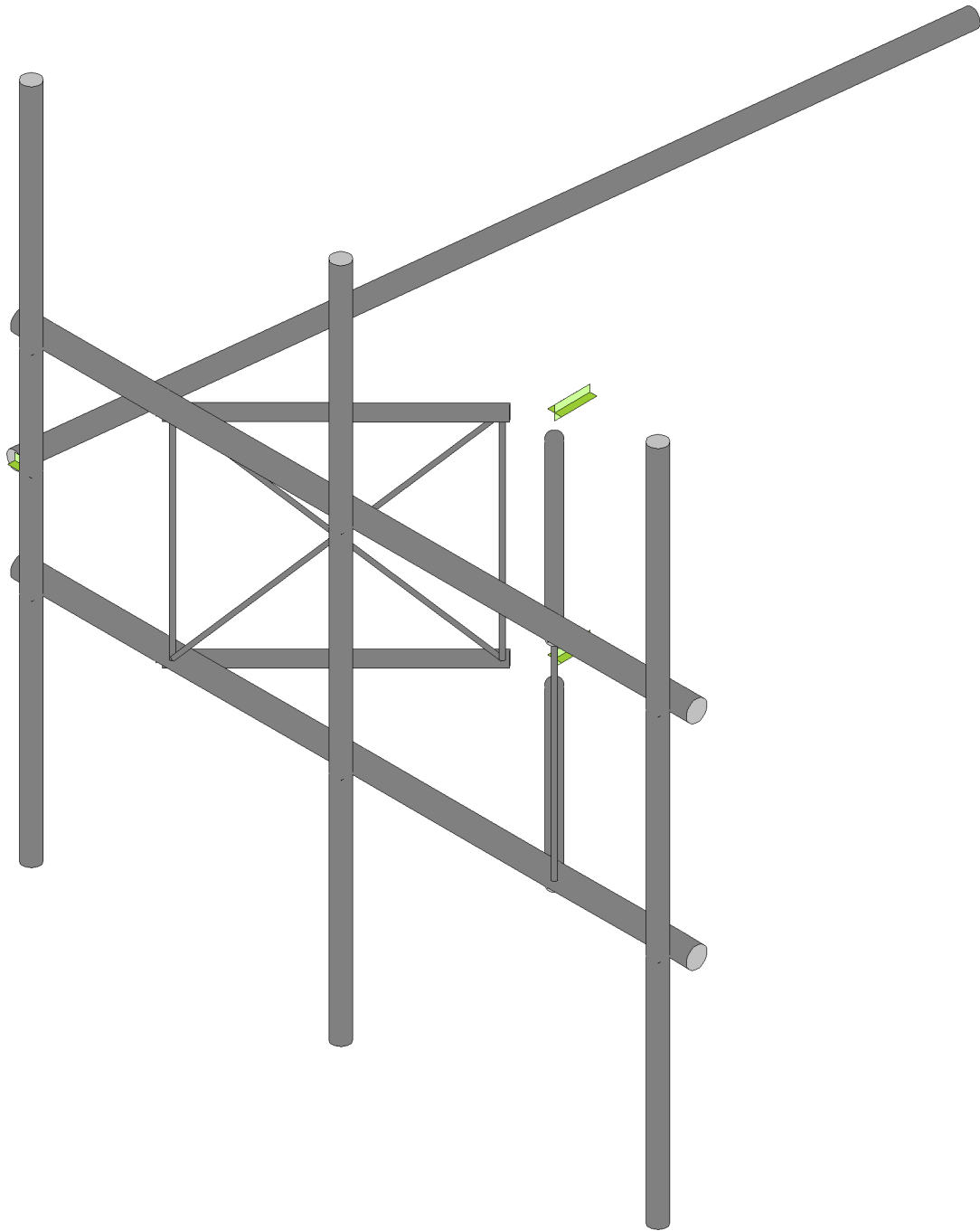
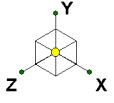
4.1) Recommendations

The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the proposed mount listed below must be installed.

1. Commscope MTC397508

No structural modifications are required at this time, provided that the above-listed changes are implemented.

APPENDIX A
WIRE FRAME AND RENDERED MODELS



Trylon

JE

MTC3975083

SK - 1

July 30, 2021 at 12:19 PM

MTC3975083_loaded.r3d

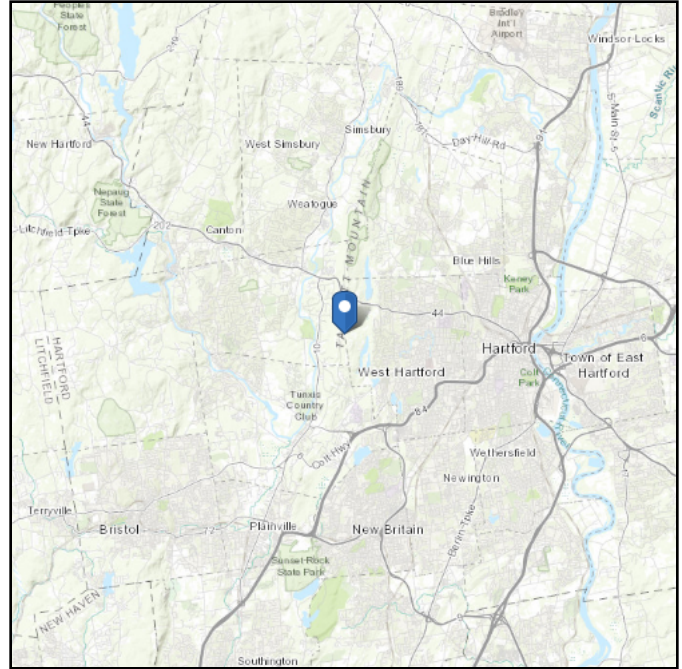
APPENDIX B
SOFTWARE INPUT CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This
Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 686.16 ft (NAVD 88)
Latitude: 41.774986
Longitude: -72.800575

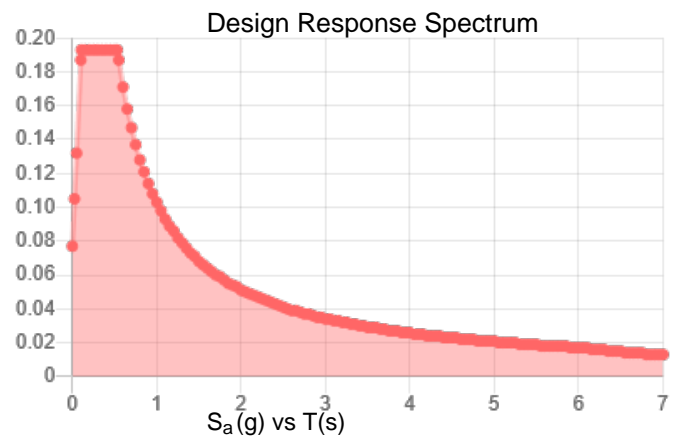
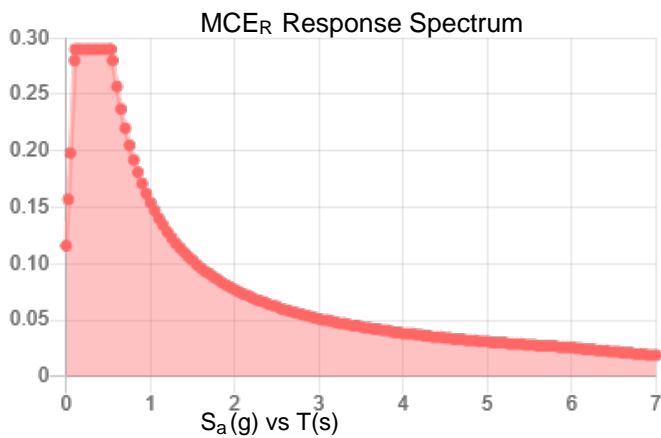


Site Soil Class: D - Stiff Soil

Results:

S_S :	0.181	S_{DS} :	0.193
S_1 :	0.064	S_{D1} :	0.103
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.091
S_{MS} :	0.29	PGA _M :	0.146
S_{M1} :	0.154	F _{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Fri Jul 30 2021

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 1.00 in.

Concurrent Temperature: 5 F

Gust Speed: 50 mph

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

Date Accessed: Fri Jul 30 2021

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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Trylon

1825 W. Walnut Hill Lane Suite 120
Irving, TX 75038

TIA LOAD CALCULATOR 2.0

PROJECT DATA	
Job Code:	189197
Carrier Site ID:	BOBDL00075A
Carrier Site Name:	CT-CCI-T-870800

CODES AND STANDARDS	
Building Code:	2015 IBC
Local Building Code:	Connecticut State Building
Design Standard:	TIA-222-H

STRUCTURE DETAILS		
Mount Type:	Sector Frame	--
Mount Elevation:	202.0	ft.
Number of Sectors:	3	--
Structure Type:	Guyed Tower	--
Structure Height:	560.0	ft.

ANALYSIS CRITERIA		
Structure Risk Category:	II	--
Exposure Category:	B	--
Site Class:	D - Default	--
Ground Elevation:	686	ft.

TOPOGRAPHIC DATA		
Topographic Category:	1.00	--
Topographic Feature:	N/A	--
Crest Point Elevation:	0.00	ft.
Base Point Elevation:	0.00	ft.
Crest to Mid-Height (L/2):	0.00	ft.
Distance from Crest (x):	0.00	ft.
Base Topo Factor (K_{zt}):	1.00	--
Mount Topo Factor (K_{zt}):	1.00	--

WIND PARAMETERS		
Design Wind Speed:	120	mph
Wind Escalation Factor (K_s):	1.00	--
Velocity Coefficient (K_z):	1.21	--
Directionality Factor (K_d):	0.95	--
Gust Effect Factor (G _h):	1.00	--
Shielding Factor (K_a):	0.90	--
Velocity Pressure (q_z):	41.27	psf

ICE PARAMETERS		
Design Ice Wind Speed:	50	mph
Design Ice Thickness (t_i):	2.00	in
Importance Factor (I_i):	1.00	--
Ice Velocity Pressure (q_{zi}):	41.27	psf
Mount Ice Thickness (t_{iz}):	2.40	in

WIND STRUCTURE CALCULATIONS		
Flat Member Pressure:	74.29	psf
Round Member Pressure:	44.57	psf
Ice Wind Pressure:	7.68	psf

SEISMIC PARAMETERS		
Importance Factor (I_e):	1.00	--
Short Period Accel. (S_s):	0.18	g
1 Second Accel. (S_1):	0.06	g
Short Period Des. (S_{DS}):	0.19	g
1 Second Des. (S_{D1}):	0.10	g
Short Period Coeff. (F_a):	1.60	--
1 Second Coeff. (F_v):	2.40	--
Response Coefficient (C_s):	0.10	--
Amplification Factor (A_S):	3.00	--

LOAD COMBINATIONS [LRFD]

#	Description
1	1.4DL
2	1.2DL + 1WL 0 AZI
3	1.2DL + 1WL 30 AZI
4	1.2DL + 1WL 45 AZI
5	1.2DL + 1WL 60 AZI
6	1.2DL + 1WL 90 AZI
7	1.2DL + 1WL 120 AZI
8	1.2DL + 1WL 135 AZI
9	1.2DL + 1WL 150 AZI
10	1.2DL + 1WL 180 AZI
11	1.2DL + 1WL 210 AZI
12	1.2DL + 1WL 225 AZI
13	1.2DL + 1WL 240 AZI
14	1.2DL + 1WL 270 AZI
15	1.2DL + 1WL 300 AZI
16	1.2DL + 1WL 315 AZI
17	1.2DL + 1WL 330 AZI
18	0.9DL + 1WL 0 AZI
19	0.9DL + 1WL 30 AZI
20	0.9DL + 1WL 45 AZI
21	0.9DL + 1WL 60 AZI
22	0.9DL + 1WL 90 AZI
23	0.9DL + 1WL 120 AZI
24	0.9DL + 1WL 135 AZI
25	0.9DL + 1WL 150 AZI
26	0.9DL + 1WL 180 AZI
27	0.9DL + 1WL 210 AZI
28	0.9DL + 1WL 225 AZI
29	0.9DL + 1WL 240 AZI
30	0.9DL + 1WL 270 AZI
31	0.9DL + 1WL 300 AZI
32	0.9DL + 1WL 315 AZI
33	0.9DL + 1WL 330 AZI
34	1.2DL + 1DLi + 1WLi 0 AZI
35	1.2DL + 1DLi + 1WLi 30 AZI
36	1.2DL + 1DLi + 1WLi 45 AZI
37	1.2DL + 1DLi + 1WLi 60 AZI
38	1.2DL + 1DLi + 1WLi 90 AZI
39	1.2DL + 1DLi + 1WLi 120 AZI
40	1.2DL + 1DLi + 1WLi 135 AZI
41	1.2DL + 1DLi + 1WLi 150 AZI

#	Description
42	1.2DL + 1DLi + 1WLi 180 AZI
43	1.2DL + 1DLi + 1WLi 210 AZI
44	1.2DL + 1DLi + 1WLi 225 AZI
45	1.2DL + 1DLi + 1WLi 240 AZI
46	1.2DL + 1DLi + 1WLi 270 AZI
47	1.2DL + 1DLi + 1WLi 300 AZI
48	1.2DL + 1DLi + 1WLi 315 AZI
49	1.2DL + 1DLi + 1WLi 330 AZI
50	(1.2+0.2Sds) + 1.0E 0 AZI
51	(1.2+0.2Sds) + 1.0E 30 AZI
52	(1.2+0.2Sds) + 1.0E 45 AZI
53	(1.2+0.2Sds) + 1.0E 60 AZI
54	(1.2+0.2Sds) + 1.0E 90 AZI
55	(1.2+0.2Sds) + 1.0E 120 AZI
56	(1.2+0.2Sds) + 1.0E 135 AZI
57	(1.2+0.2Sds) + 1.0E 150 AZI
58	(1.2+0.2Sds) + 1.0E 180 AZI
59	(1.2+0.2Sds) + 1.0E 210 AZI
60	(1.2+0.2Sds) + 1.0E 225 AZI
61	(1.2+0.2Sds) + 1.0E 240 AZI
62	(1.2+0.2Sds) + 1.0E 270 AZI
63	(1.2+0.2Sds) + 1.0E 300 AZI
64	(1.2+0.2Sds) + 1.0E 315 AZI
65	(1.2+0.2Sds) + 1.0E 330 AZI
66	(0.9-0.2Sds) + 1.0E 0 AZI
67	(0.9-0.2Sds) + 1.0E 30 AZI
68	(0.9-0.2Sds) + 1.0E 45 AZI
69	(0.9-0.2Sds) + 1.0E 60 AZI
70	(0.9-0.2Sds) + 1.0E 90 AZI
71	(0.9-0.2Sds) + 1.0E 120 AZI
72	(0.9-0.2Sds) + 1.0E 135 AZI
73	(0.9-0.2Sds) + 1.0E 150 AZI
74	(0.9-0.2Sds) + 1.0E 180 AZI
75	(0.9-0.2Sds) + 1.0E 210 AZI
76	(0.9-0.2Sds) + 1.0E 225 AZI
77	(0.9-0.2Sds) + 1.0E 240 AZI
78	(0.9-0.2Sds) + 1.0E 270 AZI
79	(0.9-0.2Sds) + 1.0E 300 AZI
80	(0.9-0.2Sds) + 1.0E 315 AZI
81	(0.9-0.2Sds) + 1.0E 330 AZI
82-88	1.2D + 1.5 Lv1

#	Description
89	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP1
90	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP1
91	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP1
92	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP1
93	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP1
94	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP1
95	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP1
96	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP1
97	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP1
98	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP1
99	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP1
100	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP1
101	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP1
102	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP1
103	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP1
104	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP1
105	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP2
106	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP2
107	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP2
108	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP2
109	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP2
110	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP2
111	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP2
112	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP2
113	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP2
114	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP2
115	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP2
116	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP2
117	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP2
118	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP2
119	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP2
120	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP2

#	Description
121	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP3
122	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP3
123	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP3
124	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP3
125	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP3
126	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP3
127	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP3
128	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP3
129	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP3
130	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP3
131	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP3
132	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP3
133	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP3
134	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP3
135	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP3
136	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP3
137	1.2D + 1.5Lm + 1.0Wm 0 AZI - MP4
138	1.2D + 1.5Lm + 1.0Wm 30 AZI - MP4
139	1.2D + 1.5Lm + 1.0Wm 45 AZI - MP4
140	1.2D + 1.5Lm + 1.0Wm 60 AZI - MP4
141	1.2D + 1.5Lm + 1.0Wm 90 AZI - MP4
142	1.2D + 1.5Lm + 1.0Wm 120 AZI - MP4
143	1.2D + 1.5Lm + 1.0Wm 135 AZI - MP4
144	1.2D + 1.5Lm + 1.0Wm 150 AZI - MP4
145	1.2D + 1.5Lm + 1.0Wm 180 AZI - MP4
146	1.2D + 1.5Lm + 1.0Wm 210 AZI - MP4
147	1.2D + 1.5Lm + 1.0Wm 225 AZI - MP4
148	1.2D + 1.5Lm + 1.0Wm 240 AZI - MP4
149	1.2D + 1.5Lm + 1.0Wm 270 AZI - MP4
150	1.2D + 1.5Lm + 1.0Wm 300 AZI - MP4
151	1.2D + 1.5Lm + 1.0Wm 315 AZI - MP4
152	1.2D + 1.5Lm + 1.0Wm 330 AZI - MP4

*This page shows an example of maintenance loads for (4) pipes, the number of mount pipe LCs may vary per site

APPENDIX C
SOFTWARE ANALYSIS OUTPUT

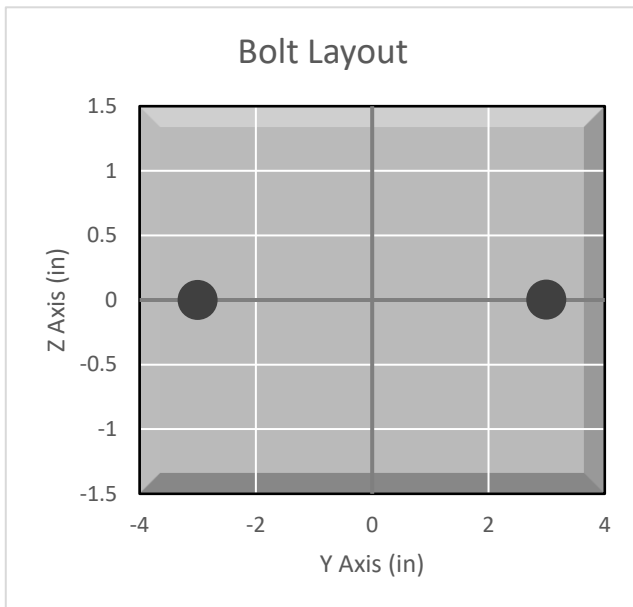
APPENDIX D
ADDITIONAL CALCUATIONS

BOLT TOOL 1.5.2

Project Data	
Job Code:	189197
Carrier Site ID:	BOBDL00075A
Carrier Site Name:	CT-CCI-T-870800

Code	
Design Standard:	TIA-222-H
Slip Check:	Yes
Pretension Standard:	TIA-222-H

Bolt Properties		
Connection Type:	Threaded Rod	
Diameter:	0.75	in
Grade:	A529	--
Yield Strength (Fy):	50	ksi
Ultimate Strength (Fu):	65	ksi
Number of Bolts:	2	--
Threads Included:	Yes	--
Double Shear:	No	--
Connection Pipe Size:	6	in



Connection Description
Mount Standoff to Tower Leg

Bolt Check*		
Tensile Capacity (ϕT_n):	16304.9	lbs
Shear Capacity (ϕV_n):	10768.5	lbs
Tension Force (T_u):	588.6	lbs
Shear Force (V_u):	1712.8	lbs
Tension Usage:	3.4%	--
Shear Usage:	15.1%	--
Interaction:	15.1%	Pass
Controlling Member:	M31	--
Controlling LC:	90	--

*Rating per TIA-222-H Section 15.5

Slip Check*		
Sliding Capacity (ϕR_{ns}):	9888.6	lbs
Torsion Capacity (ϕR_{nr}):	2472.2	lb-ft
Sliding Force (V_{us}):	1272.2	lbs
Torsional Force (T_{ur}):	0.0	lb-ft
Sliding Usage:	12.3%	--
Torsion Usage:	0.0%	--
Interaction:	12.3%	Pass
Controlling Member:	M31	--
Controlling LC:	93	--

*Rating per TIA-222-H Section 15.5

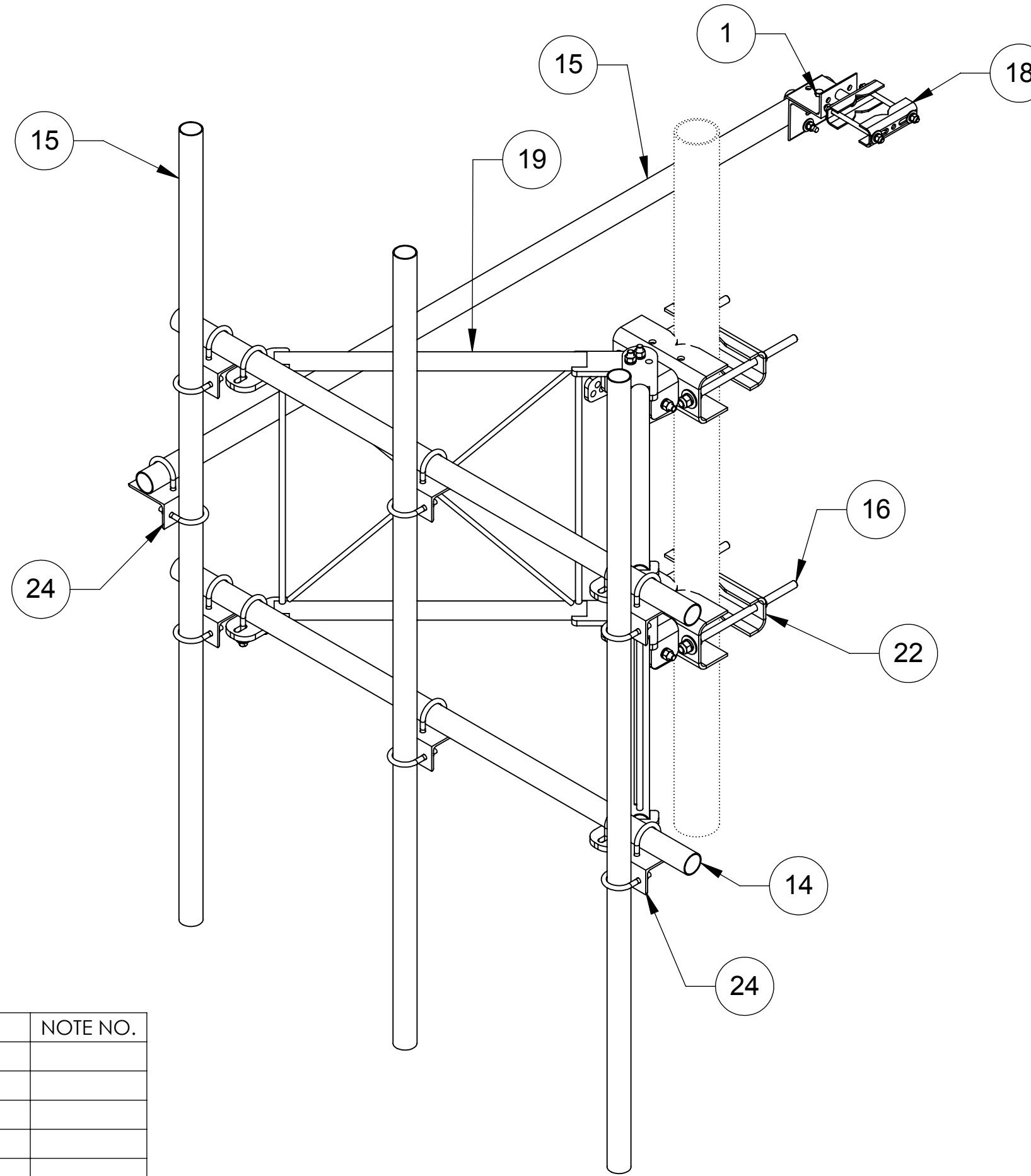
APPENDIX E
SUPPLEMENTAL DRAWINGS

NOTES:
1.0 ALL METRIC DIMENSIONS ARE IN BRACKETS.

www.Talleycom.com | Sales@Talleycom.com | 800.949.7079



REVISIONS				
REV.	ECN	DESCRIPTION	BY	DATE
PRE		REVIEW	DRH	01/28/21



ITEM	PART NO.	DESCRIPTION	QTY.	WEIGHT	NOTE NO.
1	GB-04125	1/2" X 1-1/4" GALV BOLT KIT	1	0.12 LBS	
2	GB-04265	1/2" X 2-3/4" GALV BOLT KIT	1	0.20 LBS	
3	GB-05225	5/8" X 2-1/4" GALV BOLT KIT	8	0.28 LBS	
4	GB-05305	5/8" X 3" GALV BOLT KIT	4	0.35 LBS	
5	GN-04	1/2" GALV HEX NUT	4	0.04 LBS	
6	GN-06	3/4" GALV HEX NUT	12	0.15 LBS	
7	GUB-4240	1/2" X 2-1/2" X 4" GALV U-BOLT	19	0.56 LBS	
8	GWF-04	1/2" GALV FLAT WASHER	4	0.03 LBS	
9	GWF-05	5/8" GALV FLAT WASHER	4	0.06 LBS	
10	GWF-06	3/4" GALV FLAT WASHER	8	0.10 LBS	
11	GWL-04	1/2" GALV LOCK WASHER	4	0.01 LBS	
12	GWL-06	3/4" GALV LOCK WASHER	8	0.04 LBS	
13	MT-379-8	1/2" X 8" GALV THREADED ROD	2	0.44 LBS	
14	MT-651-96	2.375" OD x 96" PIPE	2	17.29 LBS	
15	MT-651-96	Ø 2.375" OD X 96" PIPE	4	23.05 LBS	
16	MT38416	Threaded Rod Galv 3/4" x 16"	4	1.99 LBS	
17	OS15034	3/4" X 1-1/2" OFFSET COLLAR	1	0.14 LBS	
18	SAB01	FORMED CLAMP	2	1.35 LBS	
19	SFV01	WELDMENT, SF-V STANDOFF ARM	2	36.81 LBS	
20	SFV02	SFV AZIMUTH BRACKET	3	6.70 LBS	
21	SFV03	SFV TAPER BRACKET	1	7.49 LBS	
22	SMU2080.06	CLAMP PLATE	2	6.96 LBS	
23	SMU208004	MOUNT	2	12.15 LBS	
24	XA2020.01	ANTENNA MOUNT ANGLE	9	2.65 LBS	

DENSITY	0.28	lbs/in ³
MASS	400.61	lbs
VOLUME	1421.66	in ³
SURFACE AREA		in ²
HEIGHT		
LENGTH		
WIDTH		

COMMSCOPE, INC. OF NORTH CAROLINA				
TOLERANCES		SAP MATERIAL MASTER		
0 PLACE X ± .25	2 PLACE .XX ± .06	MTC3975083		
1 PLACE .X ± .12	ANGLES ± 2°			
FINISH		MATERIAL		
GALV A123		A1011/A1018, A500, A529		
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS INTERPRET PER ISO STANDARDS HANDBOOK TECHNICAL DRAWINGS VOLUMES 1 & 2, THIRD EDITION (2002)	NAME	DATE	TITLE	
	CE RDLS	7/14/17	SECTOR FRAME, 8' FACE, (3) 96" PIPES	
	RW			
	RV			
	AD			
RE TP	7/14/17	SCALE	DOCUMENT NO.	
ECN		1:12	MTC3975083	
SIZE	WORK AREA	MODEL		DRAWING
C		VERSION	STATUS	REVISION
				REVISION
				PRE
				SHEET
				1 OF 2

4

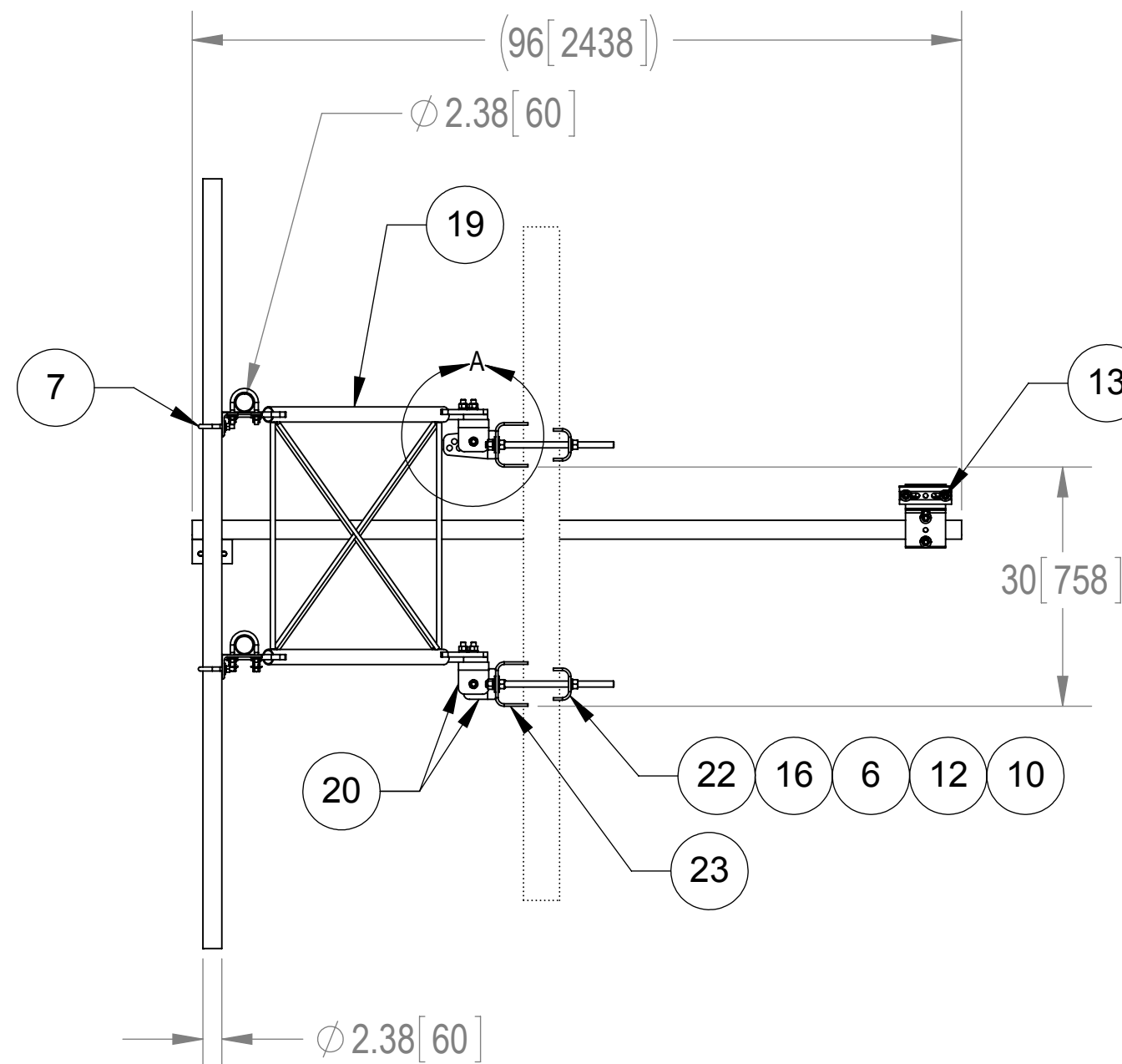
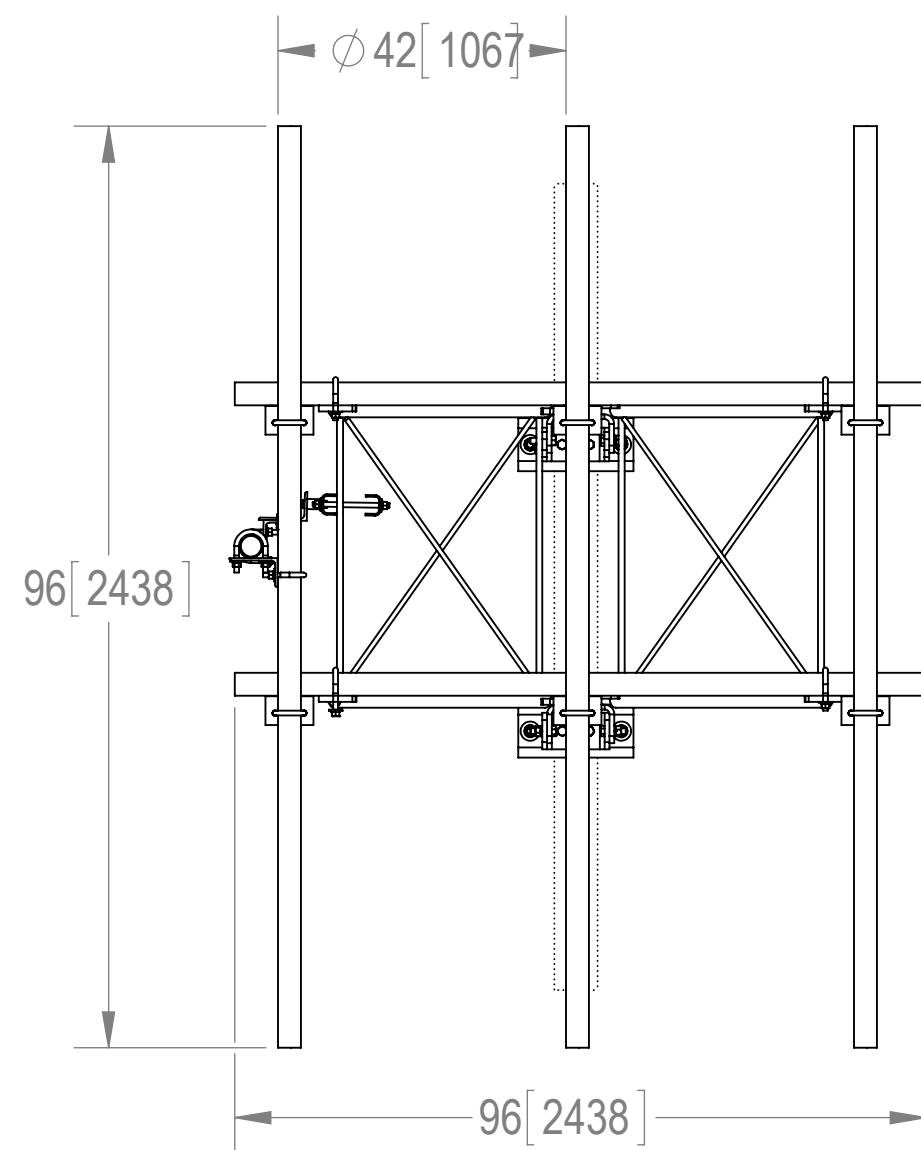
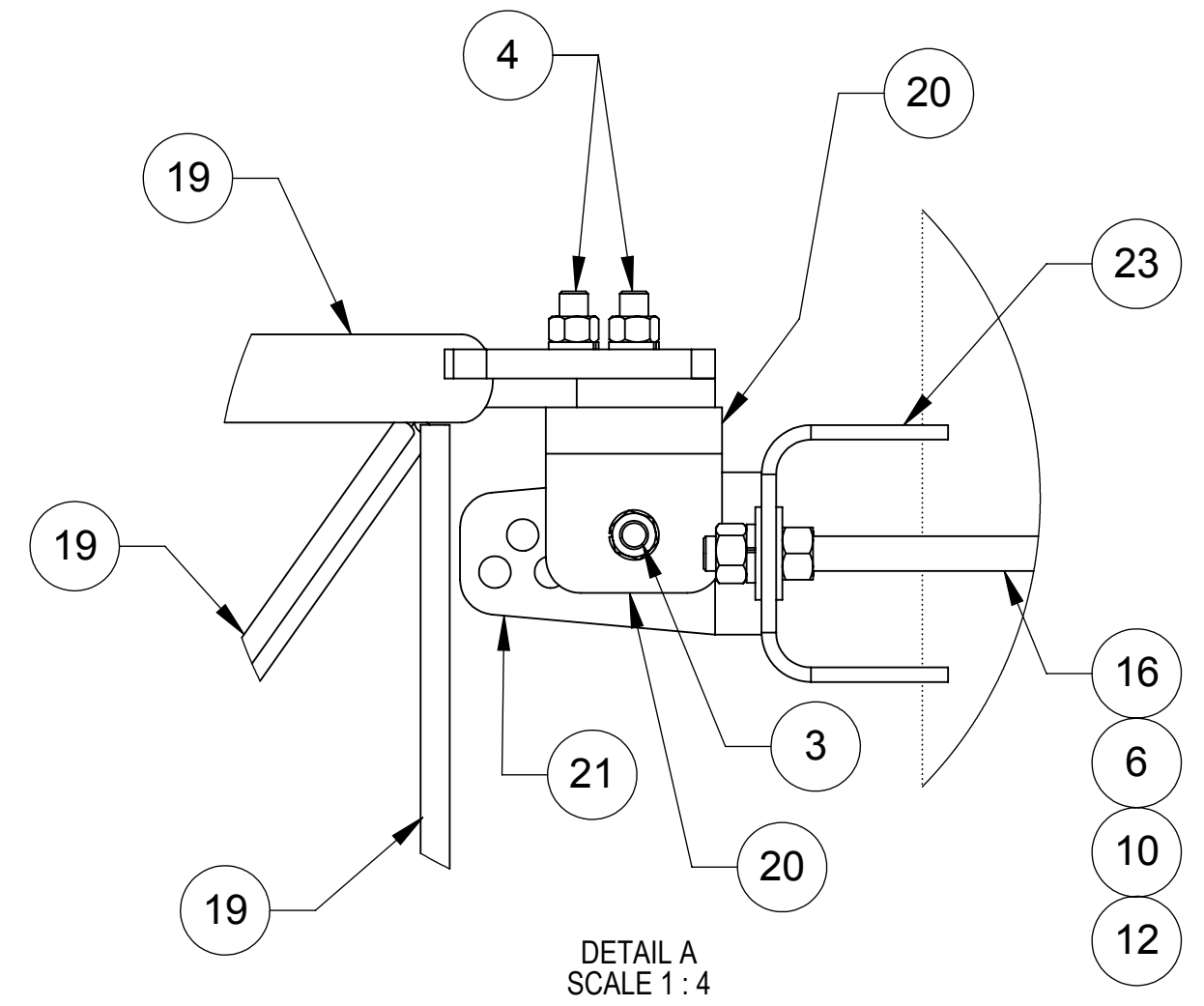
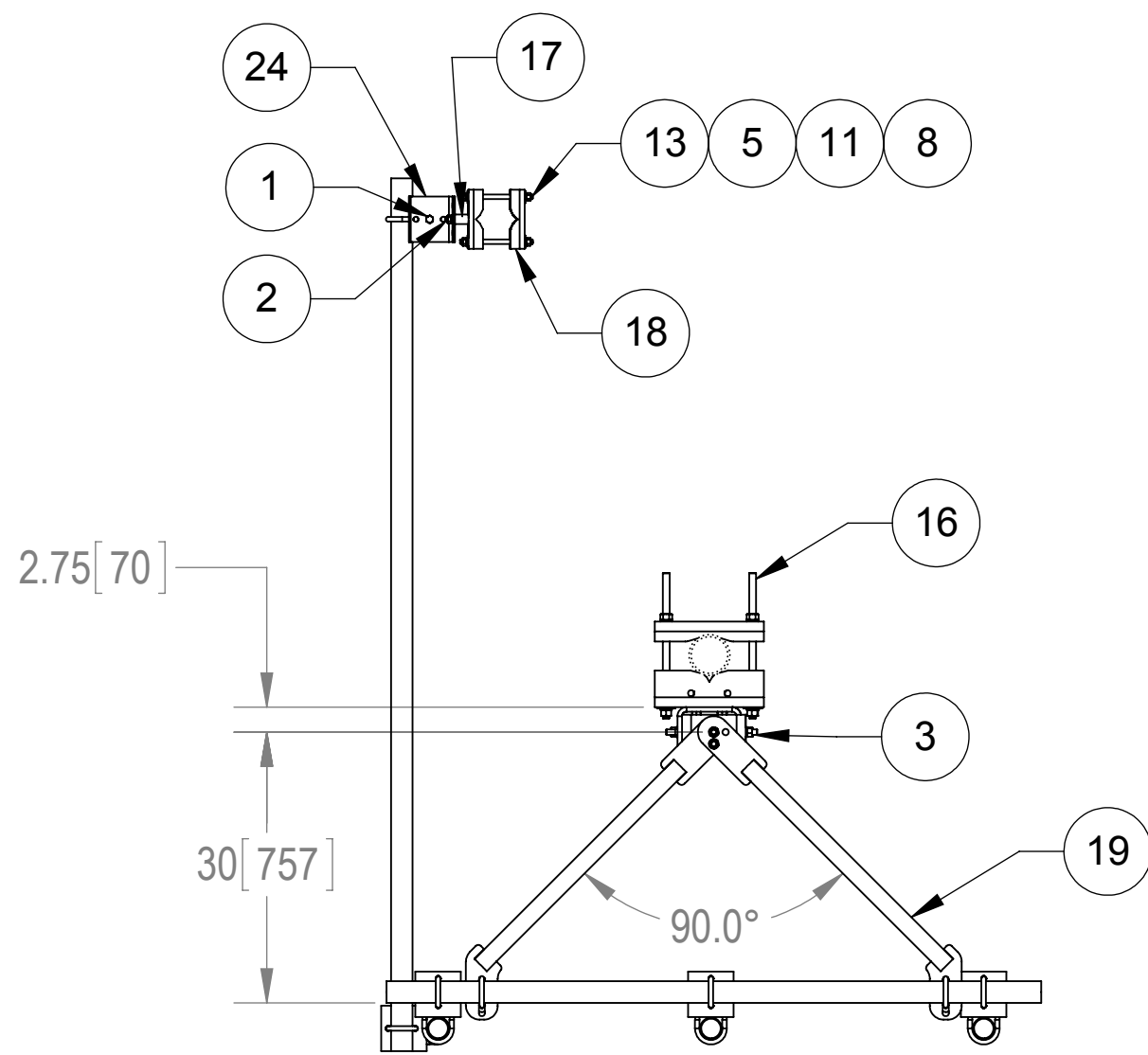
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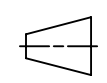
2

1

NOTES:

1.0 ALL METRIC DIMENSIONS ARE IN BRACKETS.



COMMSCOPE, INC. OF NORTH CAROLINA			
TITLE			
SECTOR FRAME, 8' FACE, (3) 96" PIPES			
SIZE	SCALE	DOCUMENT NO.	
C	1:20	MTC3975083	
DRAWING		VERSION	REVISION
 		PRE	SHEET
			2 OF 2

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4

3

2

1

Exhibit F

Power Density/RF Emissions Report

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL
TO NON-IONIZING EMISSIONS

Dish Wireless Existing Facility

Site ID: 870800

BOBDL00075A
376 Deercliff Road
Avon, Connecticut 06001

June 24, 2021

EBI Project Number: 6221003218

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	13.67%

June 24, 2021

Dish Wireless

Emissions Analysis for Site: 870800 - BOBDL00075A

EBI Consulting was directed to analyze the proposed Dish Wireless facility located at **376 Deercliff Road in Avon, Connecticut** for the purpose of determining whether the emissions from the Proposed Dish Wireless Antenna Installation located on this property are within specified federal limits.

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

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately $400 \mu\text{W}/\text{cm}^2$ and $467 \mu\text{W}/\text{cm}^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed Dish Wireless Wireless antenna facility located at 376 Deercliff Road in Avon, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since Dish Wireless is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

- 1) 4 5G channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 4 5G channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 3) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 4) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

- 5) The antennas used in this modeling are the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz channel(s) in Sector A, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz channel(s) in Sector B, the JMA MX08FRO665-21 for the 600 MHz / 1900 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 6) The antenna mounting height centerline of the proposed antennas is 202 feet above ground level (AGL).
- 7) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 8) All calculations were done with respect to uncontrolled / general population threshold limits.

Dish Wireless Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	I	Antenna #:	I	Antenna #:	I
Make / Model:	JMA MX08FRO665-2I	Make / Model:	JMA MX08FRO665-2I	Make / Model:	JMA MX08FRO665-2I
Frequency Bands:	600 MHz / 1900 MHz	Frequency Bands:	600 MHz / 1900 MHz	Frequency Bands:	600 MHz / 1900 MHz
Gain:	17.45 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd	Gain:	17.45 dBd / 22.65 dBd
Height (AGL):	202 feet	Height (AGL):	202 feet	Height (AGL):	202 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	280 Watts	Total TX Power (W):	280 Watts	Total TX Power (W):	280 Watts
ERP (W):	36,123.20	ERP (W):	36,123.20	ERP (W):	36,123.20
Antenna AI MPE %:	4.32%	Antenna BI MPE %:	4.32%	Antenna CI MPE %:	4.32%

Site Composite MPE %	
Carrier	MPE %
Dish Wireless (Max at Sector A):	4.32%
Marcus	0.05%
LightSquared	0.02%
Metro PCS	0.16%
T-Mobile	1.24%
Various Others	7.38%
Nextel	0.09%
AT&T	0.41%
Site Total MPE % :	13.67%

Dish Wireless MPE % Per Sector	
Dish Wireless Sector A Total:	4.32%
Dish Wireless Sector B Total:	4.32%
Dish Wireless Sector C Total:	4.32%
Site Total MPE % :	13.67%

Dish Wireless Maximum MPE Power Values (Sector A)							
Dish Wireless Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
Dish Wireless 600 MHz 5G	4	1667.71	202.0	6.24	600 MHz 5G	400	1.56%
Dish Wireless 1900 MHz 5G	4	7363.09	202.0	27.56	1900 MHz 5G	1000	2.76%
						Total:	4.32%

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the Dish Wireless facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

Dish Wireless Sector	Power Density Value (%)
Sector A:	4.32%
Sector B:	4.32%
Sector C:	4.32%
Dish Wireless Maximum MPE % (Sector A):	4.32%
Site Total:	13.67%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **13.67%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Exhibit G

Letter of Authorization



4545 E River Rd, Suite 320
West Henrietta, NY 14586

Phone: (585) 445-5896
Fax: (724) 416-4461
www.crowncastle.com

Crown Castle Letter of Authorization

CT - CONNECTICUT SITING COUNCIL

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

Re: Tower Share Application
Crown Castle telecommunications site at:
376 DEERCLIFF ROAD, AVON, CT 06001

AIRCOMM OF AVON LLC ("Crown Castle") hereby authorizes DISH WIRELESS, LLC, including their Agent, to act as our Agent in the processing of all zoning applications, building permits and approvals through the CT - CONNECTICUT SITING COUNCIL for the existing wireless communications site described below:


Crown Site ID/Name: 870800/Avon (Deercliff Rd.)
Customer Site ID: BOBDL00075A/CT-CCI-T-870800
Site Address: 376 Deercliff Road, AVON, CT 06001

Crown Castle

By:  Date: 7/29/2021
Richard Zajac
Site Acquisition Specialist

Exhibit H

Recipient Mailings



**UNITED STATES
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Click-N-Ship®

P

usps.com 9405 5036 9930 0483 5933 40 0079 5000 0010 6001
US POSTAGE
 Flat Rate Envoy

U.S. POSTAGE PAID
Click-N-Ship®

08/24/2021 Mailed from 01566

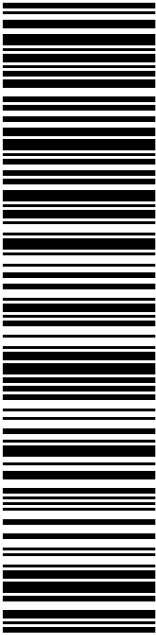
PRIORITY MAIL 2-DAY™

Expected Delivery Date: 08/27/21
 Re#: DS-870800
0006

R006

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

USPS TRACKING #



9405 5036 9930 0483 5933 40

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Instructions

1. Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.
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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0483 5933 40

Trans. #: 541625589	Priority Mail® Postage: \$7.95
Print Date: 08/24/2021	Total: \$7.95
Ship Date: 08/24/2021	
Expected Delivery Date: 08/27/2021	

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


Re#: DS-870800

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

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usps.com 9405 5036 9930 0483 5933 64 0079 5000 0010 6001
US POSTAGE
 Flat Rate Env
 08/24/2021

U.S. POSTAGE PAID
 Click-N-Ship®

Mailed from 01566

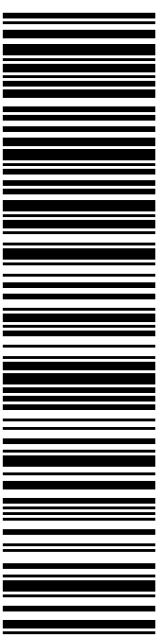
PRIORITY MAIL 2-DAY™

Expected Delivery Date: 08/27/21
 Re#: DS-870800
0006

R006

SHIP TO: HIAM PECK
 DIRECTOR OF PLANNING
 60 W MAIN ST
 AVON CT 06001-3719

USPS TRACKING #



9405 5036 9930 0483 5933 64

Electronic Rate Approved #038555749



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Ship Date: 08/24/2021	
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From: DEBORAH CHASE
 NORTHEAST SITE SOLUTIONS
 420 MAIN ST
 STE 1
 STURBRIDGE MA 01566-1359

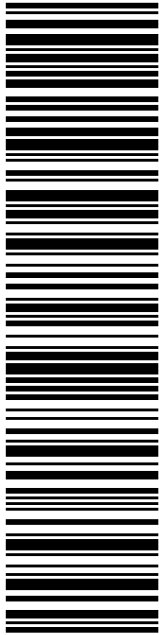
Re#: DS-870800

To: HIAM PECK
 DIRECTOR OF PLANNING
 60 W MAIN ST
 AVON CT 06001-3719

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USPS TRACKING #

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Electronic Rate Approved #038555749

SHIP TO:

THREE SEVENTY SIX DEERCLIFF ROAD LLC
1897 BERLIN TPKE
BERLIN CT 06037-3679

C009

P

08/24/2021

PRIORITY MAIL 2-DAY™

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

Expected Delivery Date: 08/27/21
Re#: DS-870800
0006

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Click-N-Ship®

U.S. POSTAGE
Flat Rate Env
\$7.95
usps.com 9405 5036 9930 0483 5933 95 0079 5000 0010 6037

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Trans. #: 541625589	Priority Mail® Postage: \$7.95
Print Date: 08/24/2021	Total: \$7.95
Ship Date: 08/24/2021	
Expected Delivery Date: 08/27/2021	

From: DEBORAH CHASE Re#: DS-870800
NORTHEAST SITE SOLUTIONS
420 MAIN ST
STE 1
STURBRIDGE MA 01566-1359


To: THREE SEVENTY SIX DEERCLIFF ROAD LLC
1897 BERLIN TPKE
BERLIN CT 06037-3679

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usps.com 9405 5036 9930 0483 5934 18 0079 5000 0031 4586
US POSTAGE
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08/24/2021 Mailed from 01566

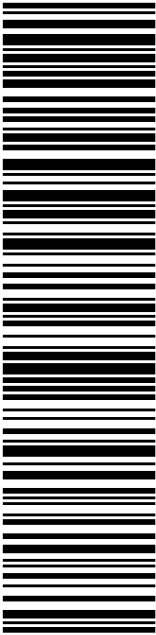
PRIORITY MAIL 2-DAY™

Expected Delivery Date: 08/27/21
 Re#: DS-870800
0006

R013

SHIP TO: RICH ZAJAC
 CROWN CASTLE
 4545 E RIVER RD
 STE 320
 W HENRIETTA NY 14586-9024

USPS TRACKING #



9405 5036 9930 0483 5934 18

Electronic Rate Approved #038555749



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 420 MAIN ST
 STE 1
 STURBRIDGE MA 01566-1359

Re#: DS-870800

To: RICH ZAJAC
 CROWN CASTLE
 4545 E RIVER RD
 STE 320
 W HENRIETTA NY 14586-9024

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870800



**UNITED STATES
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FISKDALE
458 MAIN ST
FISKDALE, MA 01518-9998
(800)275-8777

08/25/2021

02:26 PM

Product	Qty	Unit Price	Price
Prepaid Mail	1		\$0.00
Avon, CT 06001			
Weight: 1 lb 15.30 oz			
Acceptance Date:			
Wed 08/25/2021			
Tracking #:			
9405 5036 9930 0483 5933 64			
Prepaid Mail	1		\$0.00
Avon, CT 06001			
Weight: 1 lb 15.20 oz			
Acceptance Date:			
Wed 08/25/2021			
Tracking #:			
9405 5036 9930 0483 5933 40			
Prepaid Mail	1		\$0.00
West Henrietta, NY 14586			
Weight: 0 lb 2.00 oz			
Acceptance Date:			
Wed 08/25/2021			
Tracking #:			
9405 5036 9930 0483 5934 18			
Prepaid Mail	1		\$0.00
Berlin, CT 06037			
Weight: 1 lb 15.20 oz			
Acceptance Date:			
Wed 08/25/2021			
Tracking #:			
9405 5036 9930 0483 5933 95			

Grand Total:

\$0.00