Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

June 11, 2020

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

RE: **Notice of Exempt Modification for T-Mobile:**
870800 - T-Mobile Site ID: CT11376A
376 Deercliff Road, Avon, CT 06001
Latitude: 41° 46′ 29.95″ / Longitude: -72° 48′ 2.07″

Dear Ms. Bachman:

T-Mobile currently maintains two (2) antennas at the 239-foot mount on the existing 560-foot Guyed Tower, located at 376 Deercliff Road, Avon, CT. The tower is owned by Crown Castle and the property is owned by the Three Seventy Six Deercliff Road LLC. T-Mobile now intends to add four new (4) antennas,one (1) new 1900/2100 MHz antenna and three (3) new 600/700 MHz antennas. The new antennas will be installed at the 239-ft level of the tower. T-Mobile is also proposing tower mount modifications. As shown on the enclosed mount analysis.

Planned Modifications:
Tower:

Install New:
(3) 1 5/8" Hybrid Fiber Line
(3) RFS-APXVAARR24_43-U-NA20 Antenna 600/700 MHz
(1) APX16DWV-16DWV-S-E-A20 Antenna 1900/2100 MHz
(3) Radio 4449 B12/B71
(3) Radio 4415 B66A
(3) Radio 4415 B25

Existing to Remain:
(2) APX16DWV-16DWV-S-E-A20 Antenna 1900/2100 MHz

Remove:
(8) Coax
(4) TMAs
(2) Diplexers

Ground:
Upgrade to existing ground cabinet. (Internally)

The facility was approved by the Town of Avon Planning and Zoning Commission on November 19, 1985 via Special Exception. This approval was given with conditions which this exempt modification complies with.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Brandon Robertson, Town Manager, Hiram Peck III, Director of Planning and Community Development, Three Seventy Six Deercliff Road LLC as the property owner, and Crown Castle is the tower owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Anne Marie Zsamba.

Sincerely,

Anne Marie Zsamba
Site Acquisition Specialist
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
(201) 236-9224
AnneMarie.Zsamba@crowncastle.com

Attachments
cc:

Brandon Robertson, Town Manager *(via email only to brobertson@avonct.gov & jworsman@avonct.gov)*
Town of Avon
60 West Main Street

Avon, CT 06001

Hiam Peck, III, Director of Planning *(via email only to 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

From: Zsamba, Anne Marie
To: hpeck@avonct.gov
Subject: Notice of Exempt Modification - 376 Deercliff Road, Avon
Date: Thursday, June 11, 2020 2:59:00 PM
Attachments: EM-T-MOBILE-870800-CT11376A-376 Deercliff Rd Avon_notice.pdf

---

Dear Mr. Peck:

Attached please find T-Mobile's exempt modification application that is being submitted to the Connecticut Siting Council, today June 11, 2020.

In light of the present circumstances with Covid-19, The Council has advised that electronic notification of this filing is acceptable. If you could kindly confirm receipt. Thank you.

Best,
Anne Marie Zsamba

ANNE MARIE ZSAMBA
Site Acquisition Specialist
T: (201) 236-9224
M: (518) 350-3639
F: (724) 416-6112

CROWN CASTLE
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
CrownCastle.com

From: Zsamba, Anne Marie
To: brobertson@avonct.gov
Cc: jworsman@avonct.gov
Subject: Notice of Exempt Modification - 376 Deercliff Road, Avon
Date: Thursday, June 11, 2020 2:59:00 PM
Attachments: EM-T-MOBILE-870800-CT11376A-376 Deercliff Rd Avon_notice.pdf

---

Dear Town Manager Robertson:

Attached please find T-Mobile's exempt modification application that is being submitted to the Connecticut Siting Council, today June 11, 2020.

In light of the present circumstances with Covid-19, The Council has advised that electronic notification of this filing is acceptable. If you could kindly confirm receipt. Thank you.

Best,
Anne Marie Zsamba

ANNE MARIE ZSAMBA
Site Acquisition Specialist
T: (201) 236-9224
M: (518) 350-3639
F: (724) 416-6112

CROWN CASTLE
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065
CrownCastle.com

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

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.

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.

7. As recommended by the Town Health Director, a maximum power density level is established at 0.01 mW (or 10μW) 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.

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

TOWN OF AVON

P.O. BOX 578
60 WEST MAIN ST.
AVON, CT 06001
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

Card 01 of 01 card — Town of Avon Residential 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

Location Information

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

Assessments

Assmt category	Qty	Amount
Resident Land	2.00	140,000
Resident Outbldg	2.00	2,570
Resident Excess	.22	1,140

Summary

Total assessments	143,710
Total exemptions	
Net assessment	143,710

Exemptions

Exempt	Cat	Amount

Utilities

Water	None
Sewer	None
Gas	None

Last sale

Sale date: 23-Sep-2016
Sale price: 530,000
Sale valid: 14

Values

Mkt value :
Cost value: 205,300

Sales ratios

Cost/sale : .3874
Mkt/sale :
Assmt/sale: .2712

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
Style	17	Old style
Exterior Walls	04	Vinyl Siding
Roof Material	01	Asphalt Shingles
Roof Type	01	Gable
Foundation	01	Poured Concrete
Interior Walls	01	Plaster
Floors		Unknown
Heating System	02	Forced Hot Air
Fuel	01	Oil
Attic	02	Unfinished
Grade	33	C+
Garage	32	Detached 2 car
Area Over Gar.	99	None
Basement	01	Full
Bsmt Fin Qual	01	Unfinished
Air Condition	01	Central Air
Interior Cond	05	Good
Exterior Cond	05	Good

Condominium

Story Height 2.0

Total Rooms	8	Garage cars	2
Bedrooms	4	Unfinished area	
Family Rooms		Dormer linear f	
Full Baths	2	Masonry trim sf	
Half Baths		Finish bsmt sz	
Addtn'l fixtures		Rec Room Size	
Whirlpools		Living area	1,630
Saunas		# Living Units	1
M/F stacks			
W/B stacks	1		
W/B openings	1		

Actual Year Built: 1807

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%		

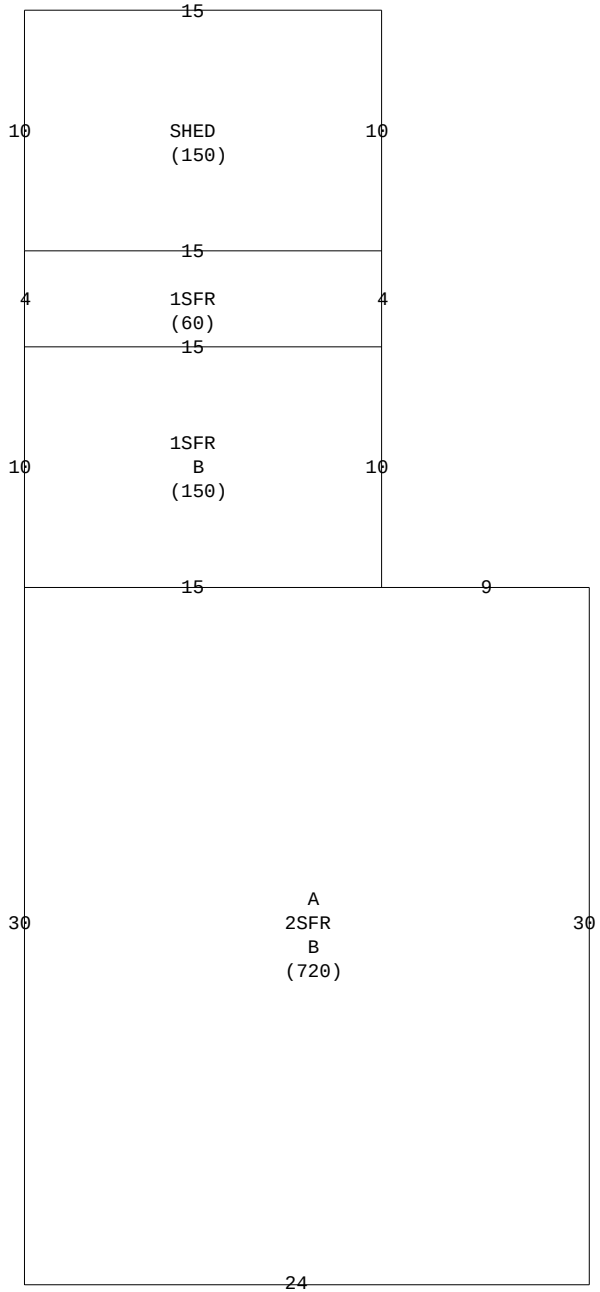
Building additions

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

Outbuilding Information

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

Property at 00376 DEERCLIFF ROAD LOT1 Prop ID 2090376 Card 01 Scale: 1" = 8.14 feet



CERT FORECLOSURE 5-3-10 VOL 605 PG 986-988
SALE 9-23-16 $530,000 5 LOTS-340,350,360,370,376 DEERCLIFF ROAD

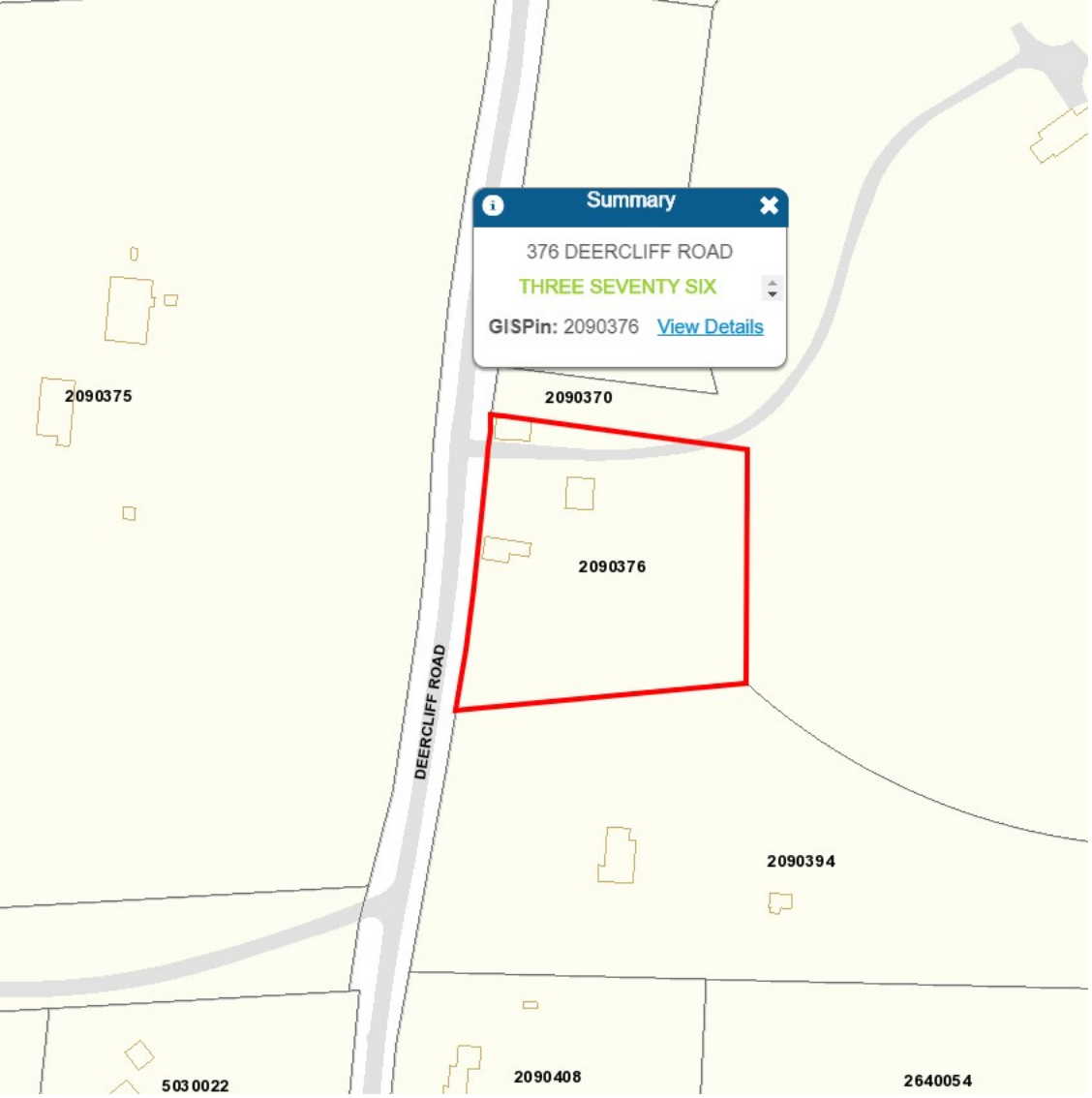

Summary
376 DEERCLIFF ROAD
THREE SEVENTY SIX
GISPin: 2090376 View Details
2090375
2090370
2090376
DEERCLIFF ROAD
2090394
5030022
2090408
2640054

Exhibit C

Construction Drawings

T-MOBILE SITE NAME:

FARMINGTON1/RT10

T-MOBILE SITE NUMBER:

CT11376A

CROWN BU: 870800 / APP#: 495742

67D97C CONFIGURATION

376 DEERCLIFF ROAD
AVON, CT 06001

EXISTING 557'-0" GUYED TOWER

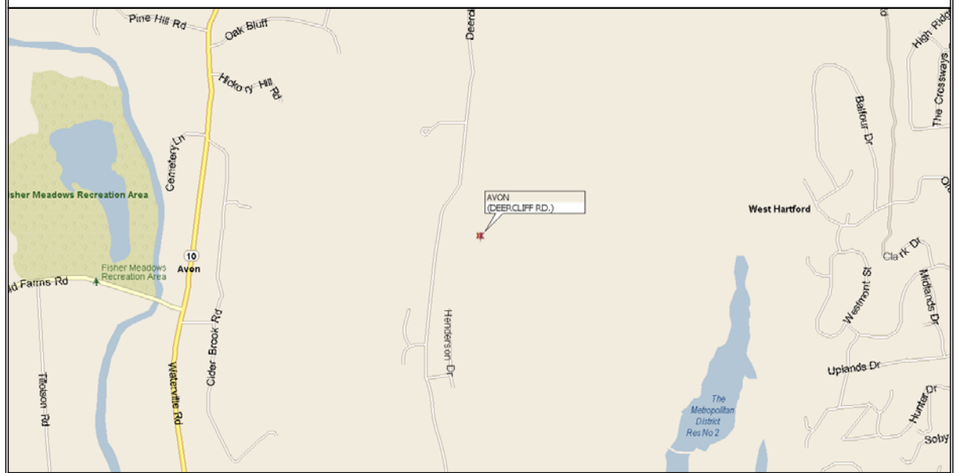
PROJECT SUMMARY

SITE TYPE:	EXISTING EQUIPMENT UPGRADE
SITE ADDRESS:	376 DEERCLIFF ROAD AVON, CT 06001
JURISDICTION:	HARTFORD COUNTY

NAD83

LATITUDE:	41.774972° N
LONGITUDE:	72.800750° W
TOWER OWNER:	CROWN CASTLE 3200 HORIZON DRIVE, SUITE 150 KING OF PRUSSIA, PA 19406 JASON SMITH (610) 635-3225
CUSTOMER/APPLICANT:	T-MOBILE 4 SYLVAN WAY PARSIPPANY, NJ 07054 (973) 397-4800
OCCUPANCY TYPE:	UNMANNED
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION

LOCATION MAP



NO SCALE

DRAWING INDEX

SHEET #	SHEET DESCRIPTION	REV. #
T-1	TITLE SHEET	1
A-1	OVERALL SITE PLAN	1
A-2	ANTENNA/CABLE SCHEDULE AND AZIMUTH PLANS	1
A-3	TOWER ELEVATION	1
A-4	ANTENNA AND RRU DETAILS	1
A-4.1	ANTENNA AND CABLING SCHEMATIC	1
E-1	PANEL SCEHDULE AND ONE-LINE DIAGRAM	1

CONTACT INFORMATION

A&E FIRM:	B+T GROUP 1717 S. BOULDER, STE. 300 TULSA, OK 74119	ELECTRIC PROVIDER:	P&L ELECTRIC LLC 860-547-1992
CONTACT:	MIKE OAKES	TELCO PROVIDER:	COMCAST PHONE 800-934-6489
PHONE:	(918) 587-4630		

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/DWELLING	2018 CONNECTICUT STATE BUILDING CODE
STRUCTURAL	2018 CONNECTICUT STATE BUILDING CODE
MECHANICAL	2018 CONNECTICUT STATE BUILDING CODE
ELECTRICAL	NEC 2017

DRIVING DIRECTIONS

DEPART FROM 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. TURN LEFT ONTO LOCAL ROAD(S) AND ARRIVE AT AVON (DEERCLIFF RD.).

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES:

- REMOVE (4) EXISTING TMAs AT 240'-0".
- REMOVE (2) EXISTING DIPLEXERs AT 240'-0".
- REMOVE RBS 6201 ENCLOSURE.
- REMOVE (1) DUS41.
- REMOVE (8) 7/8" COAX LINES.
- REMOVE (8) RRUs FROM CABINET.
- INSTALL (4) NEW ANTENNAS AT 240'-0".
- INSTALL (9) NEW RRUS AT 240'-0".
- INSTALL (3) NEW 6x12 HCS FIBER.
- INSTALL NEW RBS 6102 MU AC ENCLOSURE.
- INSTALL (2) BB 6630s, (1) PDU 0104 & (6) SPDs.
- MODIFY MOUNTS PER RECOMMENDATIONS IN MOUNT ANALYSIS BY INFINIGY ENGINEERING, PLLC DATED 7/10/19.

DO NOT SCALE DRAWINGS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 11X17. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

A/E DOCUMENT REVIEW STATUS

TITLE	SIGNATURE	DATE
T-MOBILE PROP:		
T-MOBILE R.F. MGR.:		
T-MOBILE NetOps:		
T-MOBILE CONST. MGR.:		
INTERCONNECT:		
T-MOBILE SITE DEV. MGR.:		
PROPERTY OWNER:		
PLANNING:		

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AND MAY IMPOSE CHANGES OR MODIFICATIONS.

CALL CONNECTICUT ONE CALL
(800) 922-4455
CALL 3 WORKING DAYS
BEFORE YOU DIG!

811

B+T GRP

CROWN CASTLE

T-Mobile

CT11376A
BU #: 870800
FARMINGTON1/RT10
376 DEERCLIFF ROAD
AVON, CT 06001
EXISTING 557'-0" GUYED TOWER

PROJECT NO:	083041.006.01
CHECKED BY:	RMC

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	8/15/19	RFC	CONSTRUCTION
1	9/25/19	JJD	CONSTRUCTION

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/20

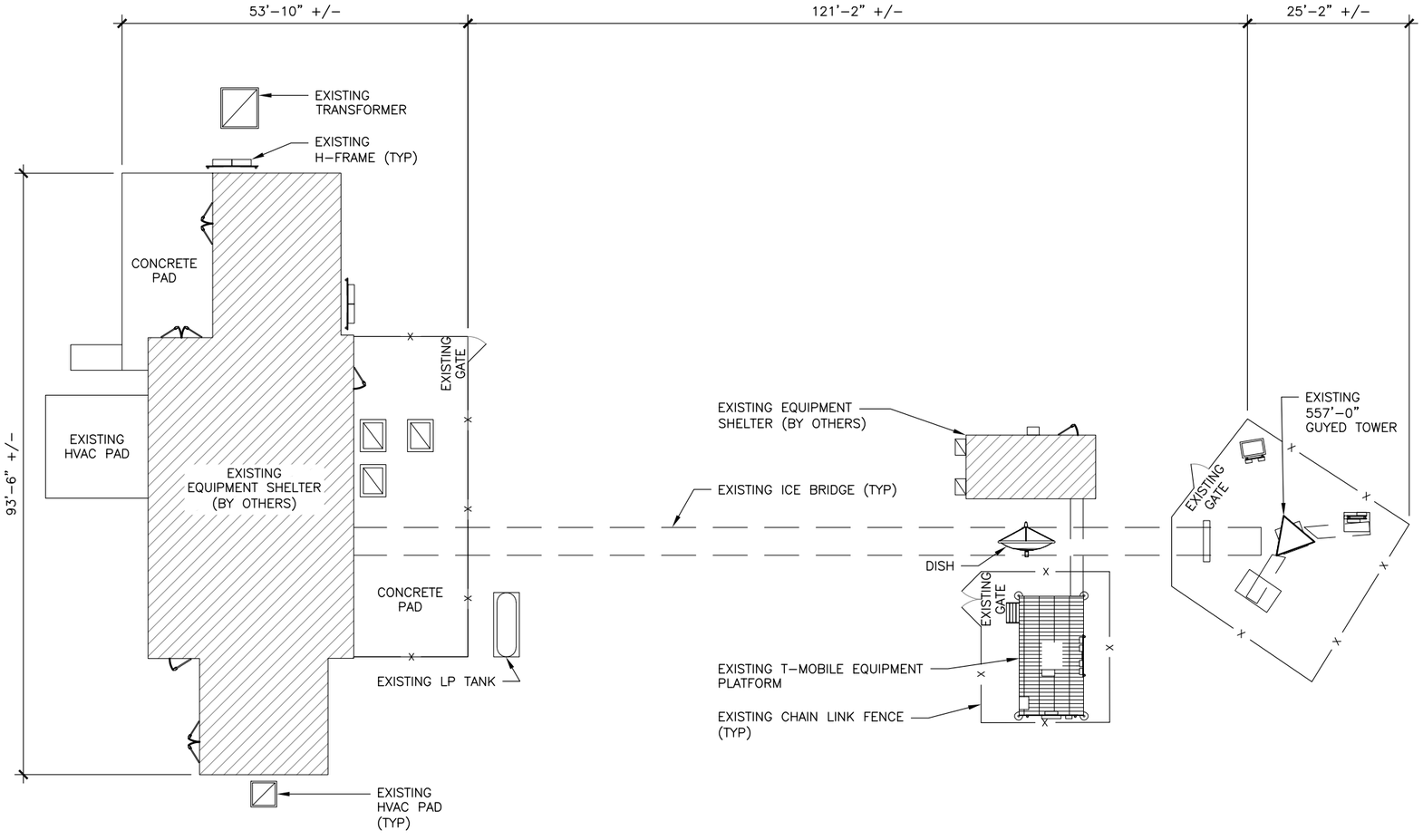
STATE OF CONNECTICUT
31627
LICENSED
PROFESSIONAL ENGINEER

9/25/19

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.

SHEET NUMBER: T-1

REVISION: 1



1 OVERALL SITE PLAN

SCALE: 0' 8' 16' 32' 64'

N

GENERAL NOTES:

1. SUBJECT PROPERTY IS SITUATED AT 376 DEERCLIFF ROAD, AVON, CT 06001.
2. APPLICANT: T-MOBILE
   A DELAWARE LIMITED LIABILITY COMPANY
   4 SYLVAN WAY
   PARSIPPANY, NEW JERSEY 07054
   (973) 397-4800

   TOWER OWNER: CROWN CASTLE INTERNATIONAL

- THE APPLICANT IS TO UPDATE THEIR NETWORK BY INSTALLING FOUR (4) NEW PANEL ANTENNAS, NINE (9) RRUS, AND THREE (3) ADDITIONAL CABLES MOUNTED ON AN EXISTING GUYED TOWER.

3. THIS FACILITY SHALL BE VISITED ON THE AVERAGE OF ONCE A MONTH FOR MAINTENANCE AND SHALL BE MONITORED FROM A REMOTE FACILITY.
4. THE EXISTING SITE IS LOCATED AT LATITUDE OF 41.774972° N± AND LONGITUDE OF 72.800750° W±. THE HORIZONTAL DATUM ARE IN TERMS OF NORTH AMERICAN DATUM OF 1983 (NAD 83).
5. THIS SET OF PLANS HAS BEEN PREPARED FOR THE PURPOSES OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL. THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL CONDITIONS OF APPROVAL HAVE BEEN SATISFIED AND EACH OF THE DRAWINGS HAVE BEEN REVISED TO INDICATED "ISSUED FOR CONSTRUCTION"
6. ALL MATERIALS, WORKMANSHIP, AND CONSTRUCTION FOR THE SITE IMPROVEMENTS SHOWN HEREON SHALL BE IN ACCORDANCE WITH:

   6.A. CURRENT PREVAILING MUNICIPAL AND/OR COUNTY SPECIFICATIONS, STANDARDS, AND REQUIREMENTS.
   6.B. CURRENT PREVAILING UTILITY COMPANY AUTHORITY SPECIFICATIONS, STANDARDS AND REQUIREMENTS.

7. THE CONTRACTOR SHALL NOTIFY B+T GROUP, P.A. IMMEDIATELY IF ANY FIELD-CONDITIONS ENCOUNTERED DIFFER FROM THOSE REPRESENTED HEREON, AND/OR IF SUCH CONDITIONS WOULD OR COULD RENDER THE DESIGNS SHOWN HEREON INAPPROPRIATE AND/OR INEFFECTIVE.
8. THE CONTRACTOR IS RESPONSIBLE TO PROTECT, REPAIR AND/OR REPLACE ANY DAMAGED STRUCTURES, UTILITIES OR LANDSCAPED AREA WHICH MAY BE DISTURBED DURING THE CONSTRUCTION OF THIS FACILITY.
9. THE CONSTRUCTION CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ALL CONSTRUCTION MEANS AND METHODS. THE CONSTRUCTION CONTRACTOR IS ALSO RESPONSIBLE FOR ALL JOB SITE SAFETY.
10. SITE INFORMATION SHOWN TAKEN FROM CROWN SITE PLANS AND FROM CROWN INSPECTION PHOTOS.
11. NO GUARANTEE IS MADE NOR SHOULD BE ASSUMED AS TO THE COMPLETENESS OR ACCURACY OF THE HORIZONTAL OR VERTICAL LOCATIONS. ALL PARTIES UTILIZING THIS INFORMATION SHALL FIELD VERIFY THE ACCURACY AND COMPLETENESS OF THE INFORMATION SHOWN PRIOR TO CONSTRUCTION ACTIVITIES.
12. ALL IMPROVEMENTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE TOWNSHIP ENGINEER WHO WILL BE GIVEN PROPER NOTIFICATION PRIOR TO THE START OF ANY CONSTRUCTION.

B+T GRP

CROWN CASTLE

T···Mobile

CT11376A
BU #: 870800
FARMINGTON1/RT10
376 DEERCLIFF ROAD
AVON, CT 06001
EXISTING 557'-0" GUYED TOWER

PROJECT NO:	083041.006.01
CHECKED BY:	RMC

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	8/15/19	RFC	CONSTRUCTION
1	9/25/19	JJD	CONSTRUCTION

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/20

STATE OF CONNECTICUT
31627
LICENSED PROFESSIONAL ENGINEER
9/25/19

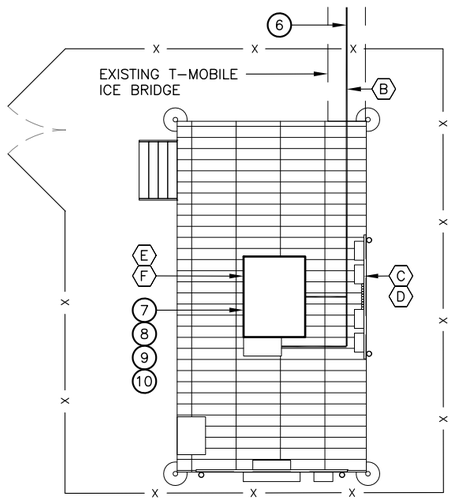
SHEET NUMBER:	REVISION:
A-1	1

LEGEND

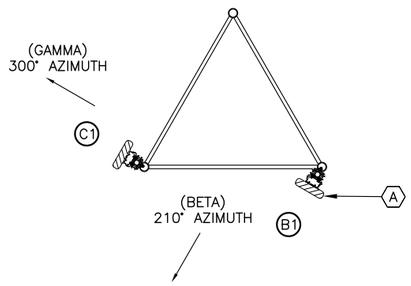
EXISTING/DEMOLITION NOTES		INSTALLATION NOTES	
A	EXISTING RFS APX16DWV_16DWV-S-E-A20 ANTENNA TO REMAIN (TOTAL OF 2)	1	INSTALL RFS APXVAARR24_43-U-NA20 (8 FT) ANTENNAS ON EXISTING MOUNT. PROVIDE NEW 2 7/8" OD SCH.40 PIPE MAST (LENGTH TO BE V.I.F) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
B	EXISTING 7/8" COAX LINES TO BE REMOVED (TOTAL OF 8)	2	INSTALL RFS APX16DWV_16DWV-S-E-A20 ANTENNA (TOTAL OF 1)
C	EXISTING TMAs TO BE REMOVED (TOTAL OF 4)	3	INSTALL RADIO 4449 B12/B71 (TYP. OF 1 PER SECTOR, TOTAL OF 3)
D	EXISTING DIPLEXERs TO BE REMOVED (TOTAL OF 2)	4	INSTALL RADIO 4415 B66A (TYP. OF 1 PER SECTOR, TOTAL OF 3)
E	REMOVE RBS 6201	5	INSTALL RADIO 4415 B25 (TYP. OF 1 PER SECTOR, TOTAL OF 3)
F	REMOVE (1) DUS41	6	INSTALL (3) 6x12 HCS FIBER. RUN FROM EQUIPMENT TO ANTENNAS FOLLOWING EXISTING ROUTING
		7	INSTALL NEW RBS 6102 MU AC
		8	INSTALL (2) BB 6630s
		9	INSTALL (1) PDU 0104
		10	INSTALL (6) SPDs
		11	PER MOUNT MODIFICATION REPORT BY INFINIGY ENGINEERING, PLLC DATED 7/10/19 ADD 2.0" STD SCH 40 PIPE MOUNT BY 96" LONG 6" TO THE LEFT CENTER OF SECTOR FRAME.

ANTENNA AND CABLE SCHEDULE

SECTOR	POSITION	EXISTING ANTENNAS	PROPOSED ANTENNA CONFIGURATION		E-TILT	M-TILT	ANTENNA CENTERLINE	TMA/RRU	CABLES	JUMPER TYPE	CABLE LENGTH
90° – ALPHA	**A1**	**RFS APX16DWV_16DWV-S-E-A20**	**UMTS LTE GSM**	**B66A B25**	**2°/2°/0°/0°**	**2°**	**240'-0"**	**0/2**	**(1) 6x12 HCS FIBER (SHARED)**	**DC/FIBER & 1/2" COAX**	**290'-0"**
	A2	**RFS APXVAARR24_43-U-NA20**	**LTE**	**B71 B12**	**2°/2°**	**2°**		**0/1**	**(1) 6x12 HCS FIBER**	**DC/FIBER & 1/2" COAX**	**290'-0"**
210° – BETA	B1	RFS APX16DWV_16DWV-S-E-A20	**UMTS LTE GSM**	**B66A B25**	**2°/2°/0°/0°**	0°	240'-0"	**0/2**	**(1) 6x12 HCS FIBER (SHARED)**	**DC/FIBER & 1/2" COAX**	290'-0"
	B2	**RFS APXVAARR24_43-U-NA20**	**LTE**	**B71 B12**	**2°/2°**	**0°**		**0/1**	**(1) 6x12 HCS FIBER**	**DC/FIBER & 1/2" COAX**	**290'-0"**
300° – GAMMA	C1	RFS APX16DWV_16DWV-S-E-A20	**UMTS LTE GSM**	**B66A B25**	**2°/2°/0°/0°**	0°	240'-0"	**0/2**	**(1) 6x12 HCS FIBER (SHARED)**	**DC/FIBER & 1/2" COAX**	290'-0"
	C2	**RFS APXVAARR24_43-U-NA20**	**LTE**	**B71 B12**	**2°/2°**	**0°**		**0/1**	**(1) 6x12 HCS FIBER**	**DC/FIBER & 1/2" COAX**	**290'-0"**

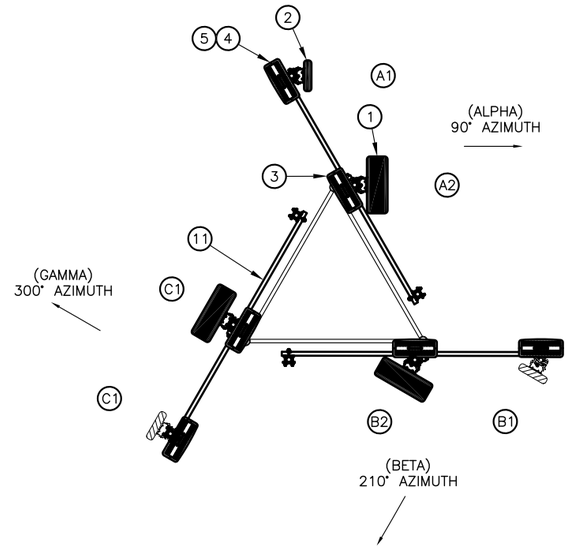


1 ENLARGED AREA PLAN
SCALE: 0' 1' 4' 8' 20'



2 EXISTING ANTENNA ORIENTATION
SCALE: 0' 1' 4' 8' 16'

N



3 PROPOSED ANTENNA ORIENTATION
SCALE: 0' 1' 4' 8' 16'

N

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CT11376A
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376 DEERCLIFF ROAD
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EXISTING 557'-0" GUYED TOWER

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B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/20

STATE OF CONNECTICUT 31627 LICENSED PROFESSIONAL ENGINEER
9/25/19

SHEET NUMBER:	REVISION:
A-2	1

LEGEND

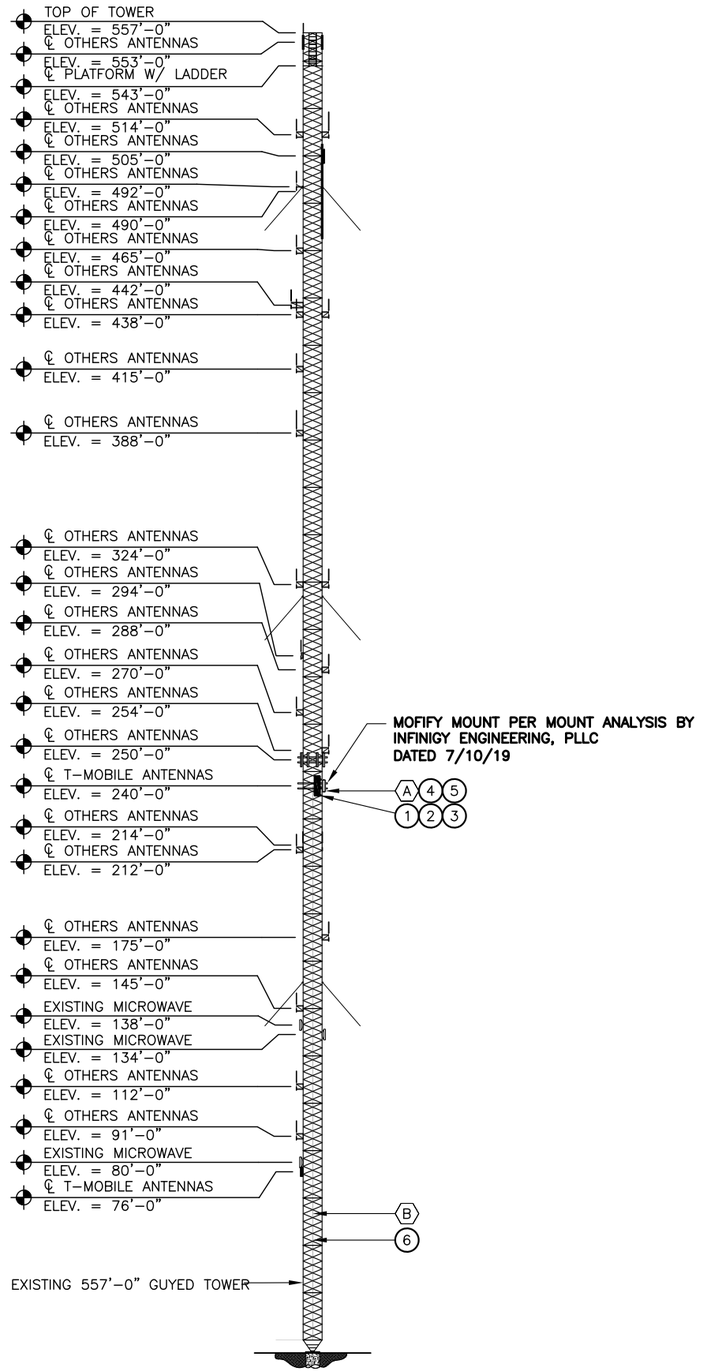
EXISTING/DEMOLITION NOTES		INSTALLATION NOTES	
A	EXISTING RFS APX16DWV_16DWV-S-E-A20 ANTENNA TO REMAIN (TOTAL OF 2)	1	INSTALL RFS APXVAARR24_43-U-NA20 (8 FT) ANTENNAS ON EXISTING MOUNT. PROVIDE NEW 2 7/8" OD SCH.40 PIPE MAST (LENGTH TO BE V.I.F) (TYP. OF 1 PER SECTOR, TOTAL OF 3)
B	EXISTING 7/8" COAX LINES TO BE REMOVED (TOTAL OF 8)	2	INSTALL RFS APX16DWV_16DWV-S-E-A20 ANTENNA (TOTAL OF 1)
		3	INSTALL RADIO 4449 B12/B71 (TYP. OF 1 PER SECTOR, TOTAL OF 3)
		4	INSTALL RADIO 4415 B66A (TYP. OF 1 PER SECTOR, TOTAL OF 3)
		5	INSTALL RADIO 4415 B25 (TYP. OF 1 PER SECTOR, TOTAL OF 3)
		6	INSTALL (3) 6x12 HCS FIBER. RUN FROM EQUIPMENT TO ANTENNAS FOLLOWING EXISTING ROUTING

EXISTING TOWER IS SUFFICIENT PER STRUCTURAL ANALYSIS BY PIER STRUCTURAL ENGINEERING CORP. DATED 7/30/19.

EXISTING MOUNT TO BE MODIFIED PER MOUNT ANALYSIS BY INFINIGY ENGINEERING, PLLC DATED 7/10/19.

LEGEND:

- **NEW**
- EXISTING
- FUTURE



1 TOWER ELEVATION

SCALE: 0' 8' 16' 32' 48'

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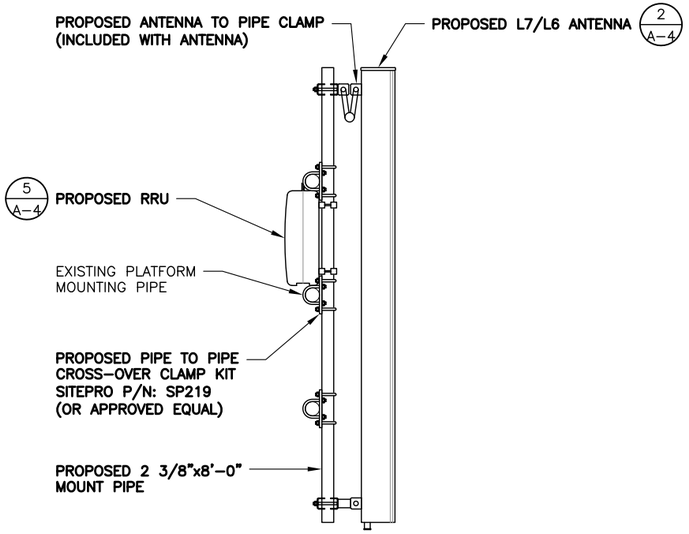
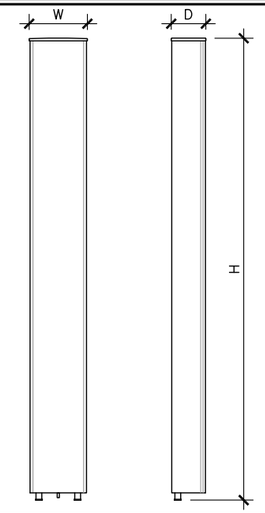


1 PROPOSED L7/L6 ANTENNA & RRU MOUNTING DETAIL

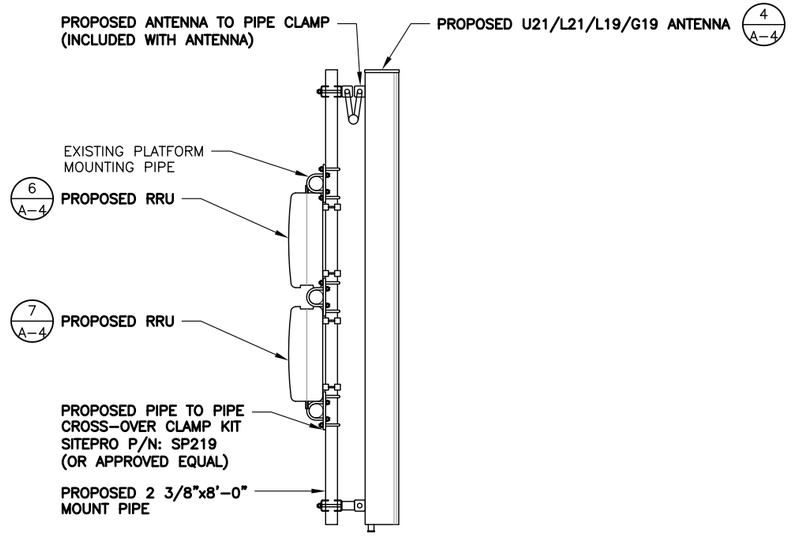
SCALE: 3/8" = 1'-0"



ANTENNA SPECS	
MANUFACTURER	RFS
MODEL #	APXVAARR24_43-U-NA20
WIDTH	24.0"
DEPTH	8.7"
HEIGHT	95.9"
WEIGHT	128.0 LBS

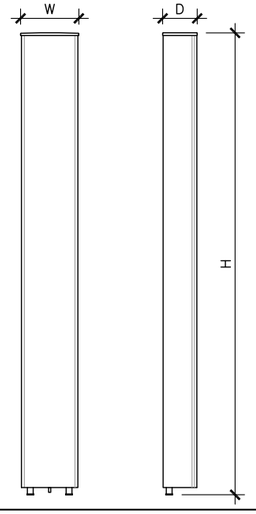
2 L7/L6 ANTENNA DETAIL

SCALE: 3/8" = 1'-0"



3 PROPOSED U21/L21/L19/G19 ANTENNA & RRU MOUNTING DETAIL

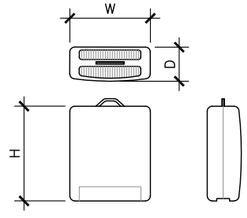
SCALE: 3/8" = 1'-0"



ANTENNA SPECS	
MANUFACTURER	RFS
MODEL #	APX16DWV_16DWV -S-E-A20
WIDTH	13.0"
DEPTH	3.5"
HEIGHT	59.9"
WEIGHT	41.8 LBS

4 U21/L21/L19/G19 ANTENNA DETAIL

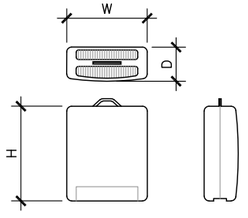
SCALE: 3/8" = 1'-0"



RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	4449
WIDTH	13.2"
DEPTH	10.4"
HEIGHT	14.9"
WEIGHT	74 LBS

5 REMOTE RADIO UNIT (RRU)

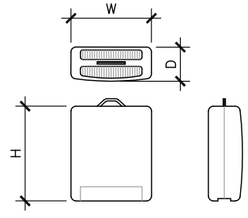
SCALE: 3/8" = 1'-0"



RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	4415 B66A
WIDTH	13.5"
DEPTH	6.3"
HEIGHT	16.5"
WEIGHT	49.6 LBS

6 REMOTE RADIO UNIT (RRU)

SCALE: 3/8" = 1'-0"



RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	4415 B25
WIDTH	13.2"
DEPTH	5.4"
HEIGHT	14.9"
WEIGHT	44.0 LBS

7 REMOTE RADIO UNIT (RRU)

SCALE: 3/8" = 1'-0"

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T-Mobile

CT11376A
BU #: 870800

FARMINGTON1/RT10

376 DEERCLIFF ROAD
AVON, CT 06001

EXISTING 557'-0" GUYED TOWER

PROJECT NO:	083041.006.01
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31627
LICENSED
PROFESSIONAL ENGINEER
9/25/19

SHEET NUMBER:	REVISION:
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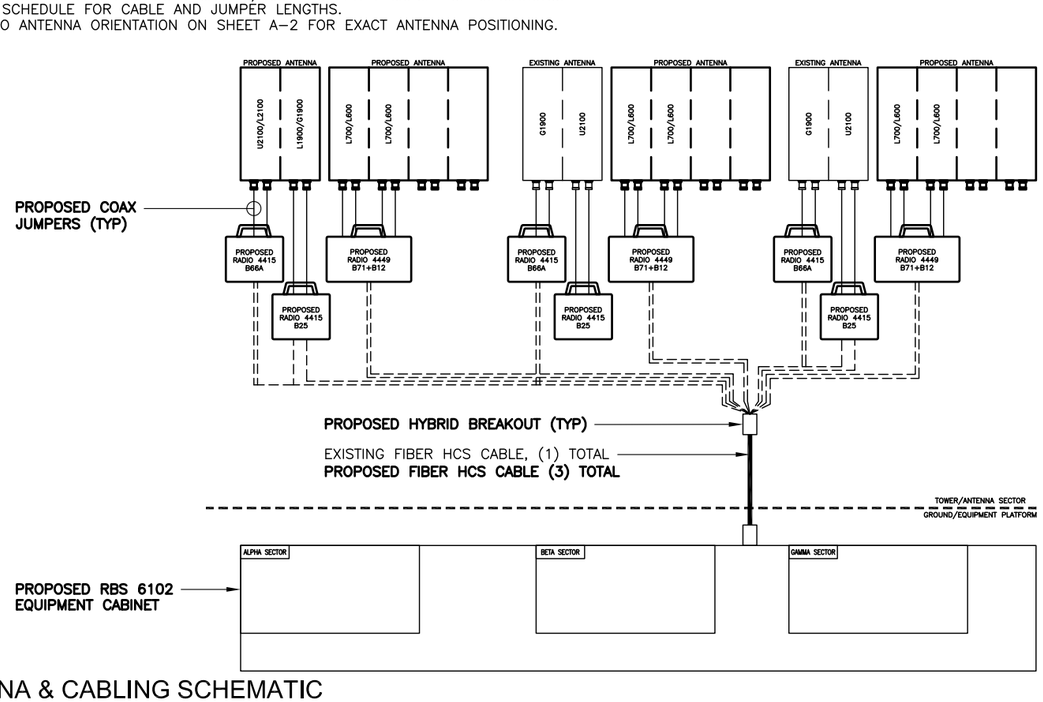
NOTES:
1. TAG ALL EXISTING AND PROPOSED CABLES/JUMPERS PER T-MOBILE SPECIFICATIONS.
2. SEE RF SCHEDULE FOR CABLE AND JUMPER LENGTHS.
3. REFER TO ANTENNA ORIENTATION ON SHEET A-2 FOR EXACT ANTENNA POSITIONING.



1 ANTENNA & CABLING SCHEMATIC
SCALE: N.T.S.

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CT11376A
BU #: 870800

FARMINGTON1/RT10

376 DEERCLIFF ROAD
AVON, CT 06001

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9/25/19

SHEET NUMBER:	REVISION:
A4.1	1

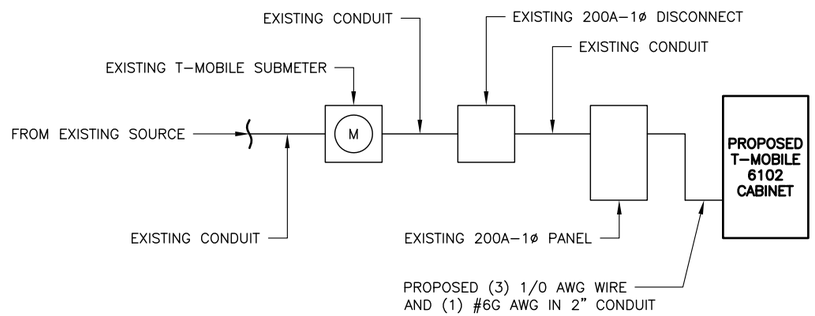
FINAL PANEL SCHEDULE							
LOAD	POLES	AMPS	BUS L1	BUS L2	AMPS	POLES	LOAD
			1	2	20A	1	GFI
BTS	1	15A	3	4	20A	1	PDU
RBS 6102 MU AC	2	**100A**	5	6			
			7	8			

RATED VOLTAGE: ■120/240 ☐_____. 1 PHASE, 3 WIRE		BRANCH POLES: ☐12 ☐24 ■30 ☐42	APPROVED MF'RS
RATED AMPS: ☐100 ■200 ☐400 ☐_____.		CABINET: ■SURFACE ☐FLUSH	NEMA ☐1 ■3R ☐4X
☐MAIN LUGS ONLY	MAIN 200 AMPS ■BREAKER ☐FUSED SWITCH	■HINGED DOOR	■KEYED DOOR LATCH
☐FUSED ■CIRCUIT BREAKER	BRANCH DEVICES	☐_____ TO BE GFCI BREAKERS	FULL NEUTRAL BUS / GROUND BAR
ALL BREAKERS MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 10,000 AMPS SYMMETRICAL			

REPLACE EXISTING BREAKER IN POSITION 5 AND 7 WITH A NEW 2P 100A BREAKER
REPLACE EXISTING WIRES FOR EXISTING 6102 CABINET WITH (3) 1/0 AWG THWN (COPPER) AND (1) #6G AWG. MINIMUM CONDUIT SIZE TO BE 2".
IF 100A BREAKER WILL NOT PROPERLY FIT IN EXISTING PANEL, REPLACE (E) PANEL WITH SQUARE D PANEL QO12040M200RB (OR APPROVED EQUAL).
UPGRADE FEEDER WIRES TO MEET AMPACITY IF NEW PANEL IS REQUIRED.
FINAL PANEL DESIGN AND CALCULATIONS FOR WIRE SIZE WERE BASED OFF OF EXISTING PHOTOS

1 FINAL T-MOBILE PANEL DETAIL

SCALE: N.T.S.



2 ONE-LINE DIAGRAM

SCALE: N.T.S.

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CROWN CASTLE

T···Mobile

CT11376A
BU #: 870800
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31627
LICENSED
PROFESSIONAL ENGINEER
9/25/19

SHEET NUMBER:	REVISION:
E-1	1

Exhibit D

Structural Analysis Report

Pier Structural Engineering Corp.
55 Northfield Drive E, Suite 198
Waterloo, ON N2K 3T6
Tel: 519-885-3806
Fax: 519-884-3806
www.p-sec.ca

July 31, 2019

Heather Simeone, Tower Structural Analyst
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Subject:	**Structural Analysis Report**	
Carrier Designation:	Carrier Co-Locate:	**T-Mobile**
	Carrier Site Number:	**CT11376A**
	Carrier Site Name:	**FARMINGTON1/RT10**
Crown Castle Designation:	Crown Castle BU Number:	**870800**
	Crown Castle Site Name:	**Avon (Deercliff Rd.)**
	Crown Castle JDE Job Number:	**578333**
	Crown Castle WO Number:	**1755585**
	Crown Castle Order Number:	**495742 Rev. 0**
Engineering Firm Designation:	P-SEC Project Number:	**20588**
Site Data:	**376 Deercliff Road, AVON, Hartford County, CT** **Latitude *41° 46' 29.95"*, Longitude *-72° 48' 2.07"*** **560-ft Guyed Tower**	

Dear Heather Simeone,

Pier Structural Engineering Corp. (P-SEC) is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1424056, in accordance with order 495742, revision 0.

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:

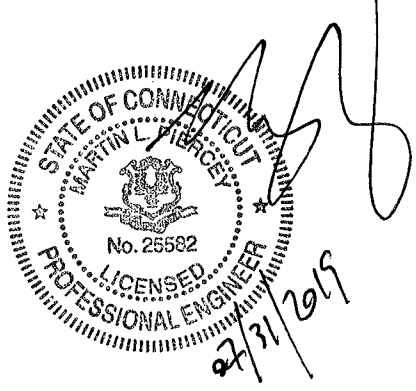
LC5: Proposed Equipment Configuration **Sufficient Capacity – 65.4%**

This analysis has been performed in accordance with the 2018 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 120 mph. Exposure Category B and Risk Category II were used in this analysis

We at P-SEC appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Tariq Hasan, E.I.T.

Respectfully submitted by:



Martin Piercey, P.E., P.Eng.
CT PE# 25582

tnxTower Report - version 8.0.5.0

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2) ANALYSIS CRITERIA
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3.2) Assumptions

4) ANALYSIS RESULTS
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Table 5 - Tower Component Stresses vs. Capacity
4.1) Recommendations

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tnxTower Output

6) APPENDIX B
Base Level Drawing

7) APPENDIX C
Additional Calculations

1) INTRODUCTION

This tower is a 560-ft Guyed tower originally designed by STAINLESS INC. in November of 1986 for a wind speed of 50 mph per EIA-222-C.

The tower has been modified per reinforcement drawings prepared by GPD, in October of 2007. Reinforcement consists of replacing horizontal members between elevations 360' and 385', replacing horizontal bolts between 335' and 360', and replacing diagonal bolts between 335' and 385'.

2) ANALYSIS CRITERIA

The following design parameters have been used in our analysis:

Design Standard:		TIA-222-H Standard
County/State:		Hartford County, CT
Wind Speeds:	*CASE 1*	120 mph (3-second gust)
	CASE 2	50 mph (3-second gust) with 2" radial solid ice
	CASE 3	60 mph (3-second gust) for serviceability
Exposure Category:		B
Topographic Category:		1
Risk Category:		II

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)
239	240	3	rfs celwave	APX16DWV-16DWVS-E-A20	3	1-5/8
		3	rfs celwave	APXVAARR24_43-U-NA20		
		3	ericsson	RADIO 4415 B66A		
		3	ericsson	RADIO 4449 B12/B71		
		3	ericsson	RRUS 4415 B25		
	239	3	--	11.2 ft Sector Frame		
		3	--	96'' 2.0'' STD Sch.40 Pipe Mount		
76	76	1	trimble	Acutime 2000	1	1/2
		1	--	Side Arm Mount [SO 301-1]		

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	553	3	kathrein	AP19-1670/090D/DT2	1	1-5/8
		1	rfs celwave	PDS3DE-698/2700		
		1	--	Pipe Mount [PM 601-3]		
545	545	1	--	Platform w/ Handrail	--	--
514	528	1	telewave	ANT150F6	1	1-5/8
	519	1	andrew	PG1NOF-0093-8	1	1-1/4
	514	2	--	Side Arm Mount [SO 312-1]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
505	505	1	--	Flush Mount	--	--
492	500	1	tx rx systems	101-68-10-0-03N	1	1-1/4
	492	1	--	Side Arm Mount [SO 308-1]		
490	490	1	andrew	ATW25HS3-HSO-46H	1	4-1/16
465	475	1	telewave	ANT150F6	1	7/8
	465	1	--	Side Arm Mount [SO 312-1]		
442	450	1	tx rx systems	101-68-10-0-03N	1	1-1/4
	442	1	--	Side Arm Mount [SO 308-1]		
438	448	2	telewave	ANT150F6	2	7/8
	438	1	--	Side Arm Mount [SO 308-1]		
415	425	1	tx rx systems	101D-90-06-0-03	1	1-5/8
		1	telewave	TPRD-1554	1	1/2
	415	1	--	Side Arm Mount [SO 308-1]		
388	402	1	sinclair	SC233	1	1-5/8
	388	1	--	Side Arm Mount [SO 306-1]		
324	329	2	decibel	DB636-C	2	1-5/8
	324	2	--	Side Arm Mount [SO 601-1]	1	1/2
294	303	1	decibel	DB540K-E	1	1/2
	294	1	--	Side Arm Mount [SO 306-1]		
288	293	1	decibel	DB636-C	1	1-5/8
	288	1	andrew	P2F-52	1	1/2
		1	--	Side Arm Mount [SO 601-1]		
270	273	1	tx rx systems	CC806-06	1	1-5/8
	270	1	--	Side Arm Mount [SO 306-1]		
254	258	1	decibel	DB806-XC	--	--
	254	1	--	Side Arm Mount [SO 306-1]		
250	251	3	andrew	DB844H90E-A	8	1-5/8
		3	decibel	844G65VTZASX		
		2	rfs celwave	AP859012-42T0		
	250	2	--	Sector Mount [SM 502-1]		
214	214	3	kathrein	742 213	6	1-5/8
212	222	1	telewave	ANT150F6	1	7/8
	212	1	--	Side Arm Mount [SO 306-1]		
175	185	1	telewave	ANT150F6	1	7/8
	175	1	--	Side Arm Mount [SO 602-1]		
145	146	1	--	Side Arm Mount [SO 202-1]	1	EW52
138	138	1	radiowaves	SPD2-5.8	1	1/2
		1	--	Pipe Mount [PM 601-1]		
		1	--	Side Arm Mount [SO 201-1]		
134	134	1	radiowaves	SPD2-5.8	2	1/2
		1	cci antennas	TMADB7821VG12A		
		1	--	Side Arm Mount [SO 601-1]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
112	116	1	rfs celwave	201-8	1	3/8
	112	1	--	Flush Mount		
91	94	1	telewave	ANT150F2	1	1/2
	91	1	--	Flush Mount		
80	81	1	dragonwave	A-ANT-11G-4-C	2	3/8
	80	1	--	Side Arm Mount [SO 301-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-TOWER MANUFACTURER DRAWINGS	Stainless, Report No. 3290, dated 11/5/86	1579694	CCISITES
4-GEOTECHNICAL REPORTS	United Consulting Project #: 20004476-01, dated 2/8/01	1579662	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	GPD Associates Project No. 2007282.88, dated 10/11/07	2124272	CCISITES
4-FOUNDATION MAPPING	Pinnacle Tower, Project No. 0263-001, dated 7/30/1999	1341932	CCISITES
4-POST-MODIFICATION INSPECTION	GPD, Project No. 2007287.82, dated 4/3/2008	2236822	CCISITES
APPLICATION	T-Mobile, Revision No. 0 dated 6/10/2019.	495742	CCISITES

3.1) Analysis Method

tnxTower (8.0.5.0), 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.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower\structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) P-SEC did not analyze antenna supporting mounts as part of this analysis report and assumed they are structurally sufficient. It is the carrier's responsibility to ensure structural compliance of their existing and/or proposed antenna supporting mounts.
5) All equipment model numbers, quantities, and centerline elevations are as provided in the CCI CAD package dated 6/12/2019.

This analysis may be affected if any assumptions are not valid or have been made in error. P-SEC 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	-0.898	374.804	0.2	Pass
T2	553.75 - 547.5	Leg	4	17	-2.784	374.804	0.7	Pass
T3	547.5 - 541.25	Leg	4	31	-7.159	393.544	1.8	Pass
T4	541.25 - 535	Leg	4	43	-11.710	393.544	3.0	Pass
T5	535 - 510	Leg	4	55	-36.492	393.544	9.3	Pass
T6	510 - 485	Leg	4 1/2	94	-75.638	542.982	13.9	Pass
T7	485 - 460	Leg	4 1/2	135	-87.455	542.982	16.1	Pass
T8	460 - 435	Leg	4 3/4	174	-103.229	625.480	16.5	Pass
T9	435 - 410	Leg	4 3/4	211	-110.319	625.480	17.6 18.6 (b)	Pass
T10	410 - 385	Leg	4 3/4	252	-111.689	625.480	17.9 19.5 (b)	Pass
T11	385 - 360	Leg	4 3/4	289	-110.669	625.480	17.7 19.5 (b)	Pass
T12	360 - 335	Leg	4 3/4	328	-109.767	625.480	17.5 18.1 (b)	Pass
T13	335 - 310	Leg	5 1/4	367	-156.668	805.605	19.4	Pass
T14	310 - 285	Leg	5	406	-157.697	713.043	22.1	Pass
T15	285 - 260	Leg	4 3/4	447	-176.746	625.480	28.3 28.5 (b)	Pass
T16	260 - 235	Leg	4 3/4	484	-193.710	625.480	31.0 31.9 (b)	Pass
T17	235 - 210	Leg	4 3/4	523	-195.912	625.480	31.3 34.3 (b)	Pass
T18	210 - 185	Leg	5	562	-195.155	713.043	27.4 34.3 (b)	Pass
T19	185 - 160	Leg	5 1/4	602	-205.399	805.605	25.5	Pass
T20	160 - 135	Leg	5 1/2	640	-226.499	903.111	25.1	Pass
T21	135 - 110	Leg	5 1/4	679	-230.699	805.605	28.6	Pass
T22	110 - 85	Leg	5 1/4	719	-247.890	805.605	30.8	Pass
T23	85 - 60	Leg	5 1/4	758	-257.707	805.605	32.0	Pass
T24	60 - 35	Leg	5 1/4	797	-260.700	805.605	32.4	Pass
T25	35 - 10	Leg	5 1/4	836	-260.395	805.605	32.3	Pass
T26	10 - 0	Leg	5 1/4	876	-275.867	809.289	34.1 36.1 (b)	Pass
T1	560 - 553.75	Diagonal	2L3x3x1/4x3/8	7	-0.519	84.577	0.6	Pass
T2	553.75 - 547.5	Diagonal	2L2 1/2x2x3/16x3/8	20	-1.322	41.352	3.2 3.9 (b)	Pass
T3	547.5 - 541.25	Diagonal	1	38	2.748	26.719	10.3	Pass
T4	541.25 - 535	Diagonal	1	50	3.532	26.719	13.2	Pass
T5	535 - 510	Diagonal	1	65	6.124	26.719	22.9	Pass
T6	510 - 485	Diagonal	1 1/4	101	10.095	41.749	24.2	Pass
T7	485 - 460	Diagonal	1	167	9.749	26.719	36.5	Pass
T8	460 - 435	Diagonal	3/4	206	6.169	15.030	41.0	Pass
T9	435 - 410	Diagonal	5/8	244	2.615	10.437	25.1	Pass
T10	410 - 385	Diagonal	5/8	260	5.151	10.437	49.3	Pass
T11	385 - 360	Diagonal	3/4	299	7.780	15.030	51.8	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T12	360 - 335	Diagonal	1	338	10.550	26.719	39.5	Pass
T13	335 - 310	Diagonal	1 1/4	373	13.432	41.749	32.2	Pass
T14	310 - 285	Diagonal	1	439	13.505	26.719	50.5	Pass
T15	285 - 260	Diagonal	3/4	478	9.836	15.030	65.4	Pass
T16	260 - 235	Diagonal	5/8	517	6.747	10.437	64.6	Pass
T17	235 - 210	Diagonal	5/8	529	5.502	10.437	52.7	Pass
T18	210 - 185	Diagonal	7/8	568	9.761	20.457	47.7	Pass
T19	185 - 160	Diagonal	1	607	14.114	26.719	52.8	Pass
T20	160 - 135	Diagonal	1 1/4	673	13.925	41.749	33.4	Pass
T21	135 - 110	Diagonal	1	716	9.076	26.719	34.0	Pass
T22	110 - 85	Diagonal	7/8	755	6.149	20.457	30.1	Pass
T23	85 - 60	Diagonal	7/8	795	3.083	20.457	15.1	Pass
T24	60 - 35	Diagonal	7/8	804	5.238	20.457	25.6	Pass
T25	35 - 10	Diagonal	7/8	841	7.243	20.457	35.4	Pass
T26	10 - 0	Diagonal	L3x3 1/2x5/16	882	-2.726	40.474	6.7	Pass
T2	553.75 - 547.5	Horizontal	2L3x2 1/2x1/4x3/8	19	0.791	72.966	1.1 1.6 (b)	Pass
T5	535 - 510	Horizontal	2L3x2 1/2x1/4x3/8	69	-4.393	73.222	6.0	Pass
T6	510 - 485	Horizontal	2L3x2 1/2x1/4x3/8	107	16.400	75.107	21.8 35.0 (b)	Pass
T7	485 - 460	Horizontal	2L3x2 1/2x1/4x3/8	163	-7.479	73.524	10.2	Pass
T8	460 - 435	Horizontal	2L2 1/2x2x3/16x3/8	202	-4.724	38.325	12.3	Pass
T9	435 - 410	Horizontal	2L2 1/2x2x3/16x3/8	223	-1.911	38.325	5.0 6.3 (b)	Pass
T10	410 - 385	Horizontal	2L2 1/2x2x3/16x3/8	264	-3.834	38.325	10.0	Pass
T11	385 - 360	Horizontal	2L2x2x1/4	303	-5.996	31.677	18.9	Pass
T12	360 - 335	Horizontal	2L3x2 1/2x1/4x3/8	342	-8.161	73.222	11.1 14.1 (b)	Pass
T13	335 - 310	Horizontal	2L3x2 1/2x1/4x3/8	381	19.021	75.107	25.3 40.6 (b)	Pass
T14	310 - 285	Horizontal	2L3x2 1/2x1/4x3/8	436	-10.517	73.825	14.2	Pass
T15	285 - 260	Horizontal	2L2 1/2x2x3/16x3/8	475	-7.676	38.325	20.0	Pass
T16	260 - 235	Horizontal	2L2 1/2x2x3/16x3/8	515	-4.843	38.325	12.6	Pass
T17	235 - 210	Horizontal	2L2 1/2x2x3/16x3/8	535	-4.080	38.325	10.6 11.2 (b)	Pass
T18	210 - 185	Horizontal	2L2 1/2x2x3/16x3/8	574	-7.357	38.458	19.1	Pass
T19	185 - 160	Horizontal	2L3x2 1/2x1/4x3/8	613	-10.969	73.974	14.8	Pass
T20	160 - 135	Horizontal	2L3x2 1/2x1/4x3/8	672	20.528	75.107	27.3 43.8 (b)	Pass
T21	135 - 110	Horizontal	2L3x2 1/2x1/4x3/8	711	-6.975	73.974	9.4	Pass
T22	110 - 85	Horizontal	2L2 1/2x2x3/16x3/8	750	-4.677	38.589	12.1 14.2 (b)	Pass
T23	85 - 60	Horizontal	2L2 1/2x2x3/16x3/8	769	-4.464	38.589	11.6 14.8 (b)	Pass
T24	60 - 35	Horizontal	2L2 1/2x2x3/16x3/8	817	-4.515	38.589	11.7 15.0 (b)	Pass
T25	35 - 10	Horizontal	2L2 1/2x2x3/16x3/8	857	-5.457	38.589	14.1 14.9 (b)	Pass
T26	10 - 0	Horizontal	L3x5x1/2	883	-5.128	110.162	4.7	Pass
T1	560 - 553.75	Top Girt	C10x20	4	-0.091	158.520	0.3	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T3	547.5 - 541.25	Top Girt	2C6x8.2x0.375	36	-1.079	141.477	0.9 1.9 (b)	Pass
T4	541.25 - 535	Top Girt	2L3x2 1/2x1/4x3/8	46	-2.470	73.222	3.4	Pass
T5	535 - 510	Top Girt	2L3x2 1/2x1/4x3/8	58	-2.980	73.222	4.1	Pass
T6	510 - 485	Top Girt	2L3x2 1/2x1/4x3/8	99	-5.277	73.222	7.2	Pass
T7	485 - 460	Top Girt	2L3x2 1/2x1/4x3/8	136	-7.698	73.524	10.5	Pass
T8	460 - 435	Top Girt	2L2 1/2x2x3/16x3/8	175	-5.345	38.193	14.0	Pass
T9	435 - 410	Top Girt	2L2 1/2x2x3/16x3/8	214	-2.682	38.325	7.0	Pass
T10	410 - 385	Top Girt	2L2 1/2x2x3/16x3/8	255	-2.115	38.325	5.5	Pass
T11	385 - 360	Top Girt	2L2x2x1/4x3/8	294	-4.515	31.677	14.3	Pass
T12	360 - 335	Top Girt	2L3x2 1/2x1/4x3/8	333	-6.647	73.675	9.0	Pass
T13	335 - 310	Top Girt	2L3x2 1/2x1/4x3/8	372	-8.742	73.675	11.9	Pass
T14	310 - 285	Top Girt	2L3x2 1/2x1/4x3/8	409	-10.418	73.974	14.1	Pass
T15	285 - 260	Top Girt	2L2 1/2x2x3/16x3/8	448	-8.330	38.458	21.7	Pass
T16	260 - 235	Top Girt	2L2 1/2x2x3/16x3/8	488	-5.793	38.325	15.1	Pass
T17	235 - 210	Top Girt	2L2 1/2x2x3/16x3/8	526	-1.714	38.325	4.5	Pass
T18	210 - 185	Top Girt	2L2 1/2x2x3/16x3/8	565	-5.095	38.325	13.3	Pass
T19	185 - 160	Top Girt	2L3x2 1/2x1/4x3/8	604	-8.254	73.825	11.2	Pass
T20	160 - 135	Top Girt	2L3x2 1/2x1/4x3/8	643	-10.823	73.974	14.6	Pass
T21	135 - 110	Top Girt	2L3x2 1/2x1/4x3/8	684	-7.687	74.123	10.4	Pass
T22	110 - 85	Top Girt	2L2 1/2x2x3/16x3/8	723	-5.211	38.589	13.5	Pass
T23	85 - 60	Top Girt	2L2 1/2x2x3/16x3/8	762	-2.878	38.589	7.5	Pass
T24	60 - 35	Top Girt	2L2 1/2x2x3/16x3/8	799	-2.354	38.589	6.1	Pass
T25	35 - 10	Top Girt	2L2 1/2x2x3/16x3/8	839	-4.463	38.589	11.6	Pass
T26	10 - 0	Top Girt	2L4x3x1/2	879	66.071	210.600	31.4	Pass
T1	560 - 553.75	Inner Bracing	L3x3x1/4	14	-0.002	37.131	0.3	Pass
T2	553.75 - 547.5	Inner Bracing	L3x3x1/4	29	-0.003	37.131	0.3	Pass
T26	10 - 0	Inner Bracing	L3x3x5/16	889	-0.340	51.063	0.7	Pass
T6	510 - 485	Guy A@491.25	1 3/4	900	82.685	236.875	34.9	Pass
T13	335 - 310	Guy A@316.25	1 1/2	897	65.960	173.877	37.9	Pass
T20	160 - 135	Guy A@153.75	1 1/4	894	46.354	120.958	38.3	Pass
T6	510 - 485	Guy B@491.25	1 3/4	899	81.530	236.875	34.4	Pass
T13	335 - 310	Guy B@316.25	1 1/2	896	65.379	173.877	37.6	Pass
T20	160 - 135	Guy B@153.75	1 1/4	893	46.736	120.958	38.6	Pass
T6	510 - 485	Guy C@491.25	1 3/4	898	83.542	236.875	35.3	Pass
T13	335 - 310	Guy C@316.25	1 1/2	895	65.325	173.877	37.6	Pass
T20	160 - 135	Guy C@153.75	1 1/4	892	46.275	120.958	38.3	Pass
							Summary	
						Leg (T26)	36.1	Pass
						Diagonal (T15)	65.4	Pass
						Horizontal (T20)	43.8	Pass
						Top Girt (T26)	31.4	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
						Inner Bracing (T26)	0.7	Pass
						Guy A (T20)	38.3	Pass
						Guy B (T20)	38.6	Pass
						Guy C (T20)	38.3	Pass
						Bolt Checks	43.8	Pass
						RATING =	**65.4**	**Pass**

Table 5 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
2	Base Foundation - Soil	--	40.7	Pass
2	Base Foundation - Structural	--	45.1	Pass
2	Guy Anchor Block	--	34.2	Pass
Structure Rating (max from all components) =				**65.4%**

Notes: 1) See full member breakdown and section capacities in Appendix A.
2) See additional documentation in Appendix C for supporting calculations.

4.1) Recommendations

The tower and its base and anchor foundations have sufficient capacity to carry the proposed loading configuration.

No modifications are required at this time.

Should you have any questions, please call us anytime at 519-885-3806.

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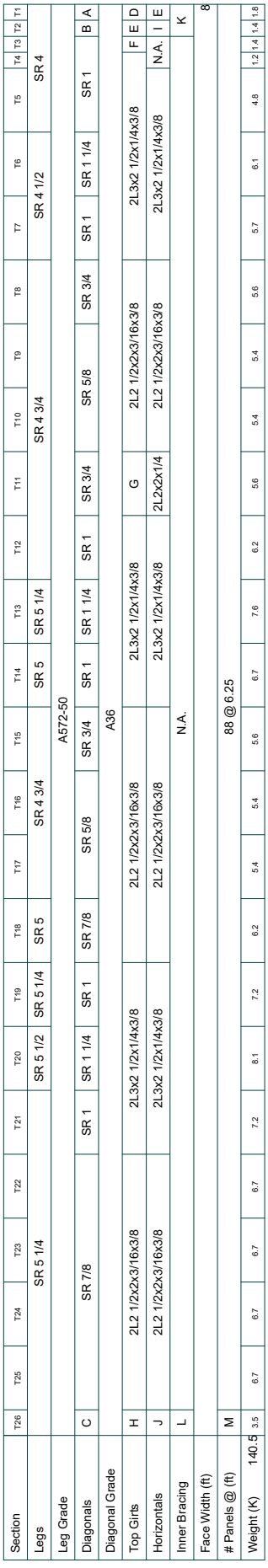
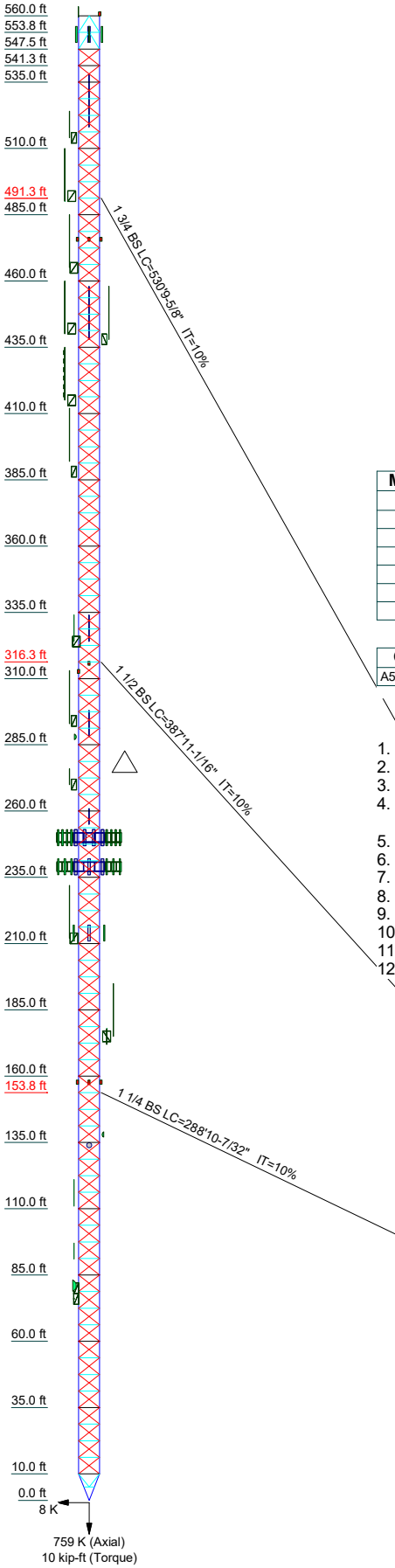
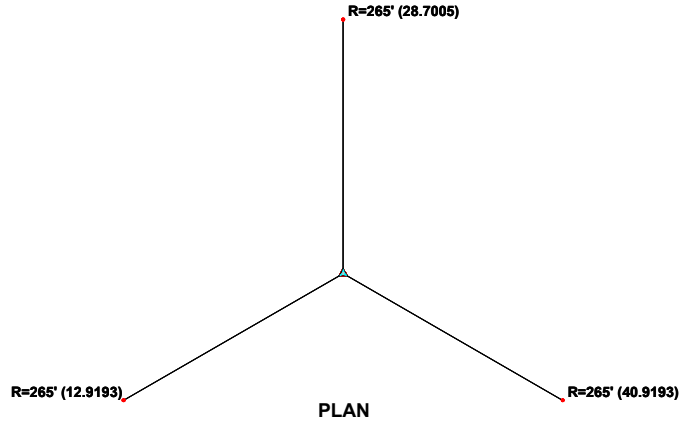
APPENDIX A

TNXTOWER OUTPUT







SYMBOL LIST

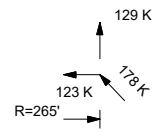
MARK	SIZE	MARK	SIZE
A	2L3x3x1/4x3/8	H	2L4x3x1/2
B	2L2 1/2x2x3/16x3/8	I	2L3x2 1/2x1/4x3/8
C	L3x3 1/2x5/16	J	L3x5x1/2
D	C10x20	K	L3x3x1/4
E	N.A.	L	L3x3x5/16
F	2C6x8.2x0.375	M	2 @ 5
G	2L2x2x1/4x3/8		

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'
8. TheTIA-222-H Annex S
9. ----------
10. E - Existing, R/MLA - Reserved, P - Proposed
11. Proposed loading at 239ft elevation
12. TOWER RATING: 65.4%



ALL REACTIONS ARE FACTORED

Pier Structural Engineering
198-55 Northfield Drive East
Waterloo, Ontario, N2K 3T6
Phone: (519)885-3806
FAX: (519)884-3806

Job: ***PSEC 20588 (For T-Mobile)***			
Project: ***BU 870800 - Avon (Deercliff Rd.)***			
Client: CROWN CASTLE	Drawn by: thasan	App'd:	
Code: TIA-222-H	Date: 07/31/19	Scale: NTS	
Path: H:\PROJECTS\JOB 20000 - 29999\20500 - 20599\20588 - CCI - 870800 - Avon (Deercliff Rd.)\870800_LCS_20190731.eri		Dwg No. E-1	

Tower Input Data

The main tower is a 3x guyed tower with an overall height of 560' above the ground line.
The base of the tower is set at an elevation of 0' above the ground line.
The face width of the tower is 8' 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: 686'1-3/16".
- 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'.
- 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.
- TheTIA-222-H Annex S.
- -.
- E - Existing, R/MLA - Reserved, P - Proposed.
- Proposed loading at 239ft elevation.
- Pressures are calculated at each section.
- Safety factor used in guy design is 0.9524.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Stress ratio used in tower member design is 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	560'-553'9"			8'	1	6'3"
T2	553'9"-547'6"			8'	1	6'3"
T3	547'6"-541'3"			8'	1	6'3"
T4	541'3"-535'			8'	1	6'3"
T5	535'-510'			8'	1	25'
T6	510'-485'			8'	1	25'
T7	485'-460'			8'	1	25'
T8	460'-435'			8'	1	25'
T9	435'-410'			8'	1	25'
T10	410'-385'			8'	1	25'
T11	385'-360'			8'	1	25'
T12	360'-335'			8'	1	25'
T13	335'-310'			8'	1	25'
T14	310'-285'			8'	1	25'
T15	285'-260'			8'	1	25'
T16	260'-235'			8'	1	25'
T17	235'-210'			8'	1	25'
T18	210'-185'			8'	1	25'
T19	185'-160'			8'	1	25'
T20	160'-135'			8'	1	25'
T21	135'-110'			8'	1	25'
T22	110'-85'			8'	1	25'
T23	85'-60'			8'	1	25'
T24	60'-35'			8'	1	25'
T25	35'-10'			8'	1	25'
T26	10'-0'			8'	1	10'

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'-553'9"	6'3"	K Brace Down	No	Yes	0.000	0.000
T2	553'9"-547'6"	6'3"	K Brace Down	No	Yes	0.000	0.000
T3	547'6"-541'3"	6'3"	TX Brace	No	Yes	0.000	0.000
T4	541'3"-535'	6'3"	TX Brace	No	Yes	0.000	0.000
T5	535'-510'	6'3"	TX Brace	No	Yes	0.000	0.000
T6	510'-485'	6'3"	TX Brace	No	Yes	0.000	0.000
T7	485'-460'	6'3"	TX Brace	No	Yes	0.000	0.000
T8	460'-435'	6'3"	TX Brace	No	Yes	0.000	0.000
T9	435'-410'	6'3"	TX Brace	No	Yes	0.000	0.000
T10	410'-385'	6'3"	TX Brace	No	Yes	0.000	0.000
T11	385'-360'	6'3"	TX Brace	No	Yes	0.000	0.000
T12	360'-335'	6'3"	TX Brace	No	Yes	0.000	0.000
T13	335'-310'	6'3"	TX Brace	No	Yes	0.000	0.000
T14	310'-285'	6'3"	TX Brace	No	Yes	0.000	0.000
T15	285'-260'	6'3"	TX Brace	No	Yes	0.000	0.000
T16	260'-235'	6'3"	TX Brace	No	Yes	0.000	0.000
T17	235'-210'	6'3"	TX Brace	No	Yes	0.000	0.000
T18	210'-185'	6'3"	TX Brace	No	Yes	0.000	0.000
T19	185'-160'	6'3"	TX Brace	No	Yes	0.000	0.000
T20	160'-135'	6'3"	TX Brace	No	Yes	0.000	0.000
T21	135'-110'	6'3"	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
T22	110'-85'	6'3"	TX Brace	No	Yes	0.000	0.000
T23	85'-60'	6'3"	TX Brace	No	Yes	0.000	0.000
T24	60'-35'	6'3"	TX Brace	No	Yes	0.000	0.000
T25	35'-10'	6'3"	TX Brace	No	Yes	0.000	0.000
T26	10'-0'	5'	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'-553'9"	Solid Round	4	A572-50 (50 ksi)	Double Angle	2L3x3x1/4x3/8	A36 (36 ksi)
T2 553'9"-547'6"	Solid Round	4	A572-50 (50 ksi)	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)
T3 547'6"-541'3"	Solid Round	4	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T4 541'3"-535'	Solid Round	4	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T5 535'-510'	Solid Round	4	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T6 510'-485'	Solid Round	4 1/2	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T7 485'-460'	Solid Round	4 1/2	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T8 460'-435'	Solid Round	4 3/4	A572-50 (50 ksi)	Solid Round	3/4	A36 (36 ksi)
T9 435'-410'	Solid Round	4 3/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T10 410'-385'	Solid Round	4 3/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T11 385'-360'	Solid Round	4 3/4	A572-50 (50 ksi)	Solid Round	3/4	A36 (36 ksi)
T12 360'-335'	Solid Round	4 3/4	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T13 335'-310'	Solid Round	5 1/4	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T14 310'-285'	Solid Round	5	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T15 285'-260'	Solid Round	4 3/4	A572-50 (50 ksi)	Solid Round	3/4	A36 (36 ksi)
T16 260'-235'	Solid Round	4 3/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T17 235'-210'	Solid Round	4 3/4	A572-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T18 210'-185'	Solid Round	5	A572-50 (50 ksi)	Solid Round	7/8	A36 (36 ksi)
T19 185'-160'	Solid Round	5 1/4	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T20 160'-135'	Solid Round	5 1/2	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T21 135'-110'	Solid Round	5 1/4	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T22 110'-85'	Solid Round	5 1/4	A572-50 (50 ksi)	Solid Round	7/8	A36 (36 ksi)
T23 85'-60'	Solid Round	5 1/4	A572-50 (50 ksi)	Solid Round	7/8	A36 (36 ksi)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T24 60'-35'	Solid Round	5 1/4	A572-50 (50 ksi)	Solid Round	7/8	A36 (36 ksi)
T25 35'-10'	Solid Round	5 1/4	A572-50 (50 ksi)	Solid Round	7/8	A36 (36 ksi)
T26 10'-0'	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 547'6"-541'3"	Double Channel	2C6x8.2x0.375	A36 (36 ksi)	Double Equal Angle		A36 (36 ksi)
T4 541'3"-535'	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T5 535'-510'	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T6 510'-485'	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T7 485'-460'	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T8 460'-435'	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T9 435'-410'	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T10 410'-385'	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T11 385'-360'	Double Angle	2L2x2x1/4x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T12 360'-335'	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T13 335'-310'	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T14 310'-285'	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T15 285'-260'	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T16 260'-235'	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T17 235'-210'	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T18 210'-185'	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T19 185'-160'	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T20 160'-135'	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T21 135'-110'	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T22 110'-85'	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T23 85'-60'	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T24 60'-35'	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)
T25 35'-10'	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)	Double Angle		A36 (36 ksi)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T26 10'-0'	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'-553'9"	None	Flat Bar		A36 (36 ksi)	Channel	C10x20	A36 (36 ksi)
T2 553'9"-547'6"	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)
T3 547'6"-541'3"	None	Flat Bar		A36 (36 ksi)	Double Channel	2C6x8.2x0.375	A36 (36 ksi)
T4 541'3"-535'	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)
T5 535'-510'	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)
T6 510'-485'	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)
T7 485'-460'	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)
T8 460'-435'	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)
T9 435'-410'	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)
T10 410'-385'	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)
T11 385'-360'	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2x2x1/4	A36 (36 ksi)
T12 360'-335'	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)
T13 335'-310'	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)
T14 310'-285'	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)
T15 285'-260'	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)
T16 260'-235'	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)
T17 235'-210'	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)
T18 210'-185'	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)
T19 185'-160'	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)
T20 160'-135'	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)
T21 135'-110'	None	Flat Bar		A36 (36 ksi)	Double Angle	2L3x2 1/2x1/4x3/8	A36 (36 ksi)
T22 110'-85'	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)
T23 85'-60'	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)
T24 60'-35'	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2x3/16x3/8	A36 (36 ksi)
T25 35'-10'	None	Flat Bar		A36	Double Angle	2L2 1/2x2x3/16x3/8	A36

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T26 10'-0'	None	Flat Bar		(36 ksi) A36 (36 ksi)	Single Angle	L3x5x1/2	(36 ksi) 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'-553'9"	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T2 553'9"-547'6"	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T3 547'6"-541'3"	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T4 541'3"-535'	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T5 535'-510'	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T6 510'-485'	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T7 485'-460'	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T8 460'-435'	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T9 435'-410'	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T10 410'-385'	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T11 385'-360'	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T12 360'-335'	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T13 335'-310'	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T14 310'-285'	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T15 285'-260'	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T16 260'-235'	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T17 235'-210'	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T18 210'-185'	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T19 185'-160'	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T20 160'-135'	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T21 135'-110'	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T22 110'-85'	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T23 85'-60'	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T24 60'-35'	Solid Round		A572-50	Equal Angle	L3x3x1/4	A36

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T25 35'-10'	Solid Round		(50 ksi) A572-50 (50 ksi)	Equal Angle	L3x3x1/4	(36 ksi) A36 (36 ksi)
T26 10'-0'	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 560'-553'9"	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T2 553'9"-547'6"	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T3 547'6"-541'3"	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T4 541'3"-535'	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T5 535'-510'	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T6 510'-485'	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T7 485'-460'	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T8 460'-435'	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T9 435'-410'	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T10 410'-385'	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T11 385'-360'	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T12 360'-335'	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T13 335'-310'	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T14 310'-285'	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T15 285'-260'	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T16 260'-235'	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T17 235'-210'	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T18 210'-185'	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T19 185'-160'	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T20 160'-135'	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T21 135'-110'	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T22 110'-85'	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T23 85'-60'	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T24 60'-35'	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T25 35'-10'	0.000	0.000	A36 (36 ksi)	1.025	1.025	1.025	0.000	0.000	36.000
T26 10'-0'	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 ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	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
T1	Yes	Yes	1	1	1	1	1	1	1	1
560'-553'9"				1	1	1	1	1	1	1
T2	Yes	Yes	1	1	1	1	1	1	1	1
553'9"-547'6"				1	1	1	1	1	1	1
T3	Yes	Yes	1	1	1	1	1	1	1	1
547'6"-541'3"				1	1	1	0.5	0.5	1	1
T4	Yes	Yes	1	1	1	1	1	1	1	1
541'3"-535'				1	1	1	0.5	0.5	1	1
T5 535'-510'	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	0.5	0.5	1	1
T6 510'-485'	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	0.5	0.5	1	1
T7 485'-460'	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	0.5	0.5	1	1
T8 460'-435'	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	0.5	0.5	1	1
T9 435'-410'	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	0.5	0.5	1	1
T10 410'-385'	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	0.5	0.5	1	1
T11 385'-360'	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	0.5	0.5	1	1
T12 360'-335'	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	0.5	0.5	1	1
T13 335'-310'	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	0.5	0.5	1	1
T14 310'-285'	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	0.5	0.5	1	1
T15 285'-260'	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	0.5	0.5	1	1
T16 260'-235'	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	0.5	0.5	1	1
T17 235'-210'	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	0.5	0.5	1	1
T18 210'-185'	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	0.5	0.5	1	1
T19 185'-160'	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	0.5	0.5	1	1
T20 160'-135'	Yes	Yes	1	1	1	1	1	1	1	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	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
				1	1	1	0.5	0.5	1	1
T21 135'-110'	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	0.5	0.5	1	1
T22 110'-85'	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	0.5	0.5	1	1
T23 85'-60'	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	0.5	0.5	1	1
T24 60'-35'	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	0.5	0.5	1	1
T25 35'-10'	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	0.5	0.5	1	1
T26 10'-0'	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1 560'-553'9"	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 553'9"-547'6"	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 547'6"-541'3"	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 541'3"-535'	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'-510'	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'-485'	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'-460'	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'-435'	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'-410'	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'-385'	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'-360'	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'-335'	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'-310'	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'-285'	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'-260'	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'-235'	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'-210'	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'-185'	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'-160'	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'-135'	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'-110'	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'-85'	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'-60'	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'-35'	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'-10'	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'-0'	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 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'-553'9"	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
T2 553'9"-547'6"	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 547'6"-541'3"	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 541'3"-535'	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'-510'	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'-485'	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'-460'	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'-435'	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'-410'	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'-385'	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'-360'	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'-335'	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'-310'	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'-285'	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'-260'	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'-235'	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'-210'	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'-185'	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'-160'	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'-135'	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'-110'	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'-85'	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'-60'	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'-35'	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'-10'	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'-0'	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

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
153.75	BS	A	1 1/4	19.200	10%	24000.000	3.280	288'7-17/32"	265'	0.000	28'8-13/32"	100%
		B	1 1/4	19.200	10%	24000.000	3.280	283'6-21/32"	265'	0.000	40'11-1/32"	100%
		C	1 1/4	19.200	10%	24000.000	3.280	295'9-17/32"	265'	0.000	12'11-1/32"	100%
316.25	BS	A	1 1/2	27.600	10%	24000.000	4.730	387'7-3/8"	265'	0.000	28'8-13/32"	100%
		B	1 1/2	27.600	10%	24000.000	4.730	378'7-27/32"	265'	0.000	40'11-1/32"	100%
		C	1 1/2	27.600	10%	24000.000	4.730	399'5-5/16"	265'	0.000	12'11-1/32"	100%
491.25	BS	A	1 3/4	37.600	10%	24000.000	6.430	530'4-15/32"	265'	0.000	28'8-13/32"	100%
		B	1 3/4	37.600	10%	24000.000	6.430	519'9-7/32"	265'	0.000	40'11-1/32"	100%
		C	1 3/4	37.600	10%	24000.000	6.430	544'2-1/32"	265'	0.000	12'11-1/32"	100%

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
153'9"	A572-50 (50 ksi)	Solid Round				A36 (36 ksi)	Equal Angle	
316'3"	A572-50 (50 ksi)	Solid Round				A36 (36 ksi)	Equal Angle	
491'3"	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		7'9/16" 4.6 sec/pulse	6'9-23/32" 4.5 sec/pulse	7'4-23/32" 4.7 sec/pulse	
316.25	1.833	1.791	1.889		12'6-15/16" 6.1 sec/pulse	12'3/16" 6.0 sec/pulse	13'4-3/32" 6.3 sec/pulse	
491.25	3.410	3.342	3.499		23'1-15/16" 8.3 sec/pulse	22'3-7/32" 8.1 sec/pulse	24'4-7/32" 8.5 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal 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 Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal 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	91'2-11/16"	0.028	0.005	1.882
	B	97'4-1/32"	0.028	0.005	1.894
	C	83'4-1/32"	0.027	0.005	1.865
316.25	A	172'5-11/16"	0.034	0.006	2.006
	B	178'7-1/32"	0.034	0.006	2.013
	C	164'7-1/32"	0.033	0.006	1.996
491.25	A	259'11-11/16"	0.038	0.007	2.090
	B	266'1-1/32"	0.038	0.007	2.095
	C	252'1-1/32"	0.037	0.006	2.083

Guy-Tensioning Information

Guy Elevation ft		H ft	V ft	Temperature At Time Of Tensioning 0 F Initial Tension K	0 F Intercept ft	20 F Initial Tension K	20 F Intercept ft	40 F Initial Tension K	40 F Intercept ft	60 F Initial Tension K	60 F Intercept ft	80 F Initial Tension K	80 F Intercept ft	100 F Initial Tension K	100 F Intercept ft	120 F Initial Tension K	120 F Intercept 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) (To Top)	C	No	No	Af (CaAa)	560' - 8'	-10.000	0.3	1	1	0.500	2.340		0.005
Safety Line 3/8 (To Top)	C	No	No	Ar (CaAa)	560' - 8'	-10.000	0.3	1	1	0.375	0.375		0.000
8188(3/4") (Conduit)	B	No	No	Ar (CaAa)	560' - 8'	-5.000	0.3	2	1	1.500	0.750		0.000
1/2" Grouding wire (To 212')	B	No	No	Ar (CaAa)	212' - 0'	0.000	0	1	1	0.630	0.630		0.000
Coax-Brackets (Af) (To 465')	A	No	No	Af (CaAa)	465' - 8'	-1.000	0.35	1	1	1.000	1.000		0.008
8188(3/4") (Lighting)	A	No	No	Ar (CaAa)	557' - 8'	-1.500	0.1	1	1	0.750	0.750		0.000
8188(3/4") (conduit)	C	No	No	Ar (CaAa)	475' - 8'	-1.000	0.4	1	1	0.750	0.750		0.000
8188(3/4") (Conduit) ***	B	No	No	Ar (CaAa)	315' - 8'	-1.000	-0.09	1	1	0.750	0.750		0.000
D-Tuner (Carrier 476' E)	A	No	No	Ar (CaAa)	476' - 160'	12.000	0	1	1	0.000	0.500		0.000
D-Tuner (Carrier 476' E)	B	No	No	Ar (CaAa)	476' - 160'	12.000	0	1	1	0.000	0.500		0.000
D-Tuner (Carrier 476' E) ***	C	No	No	Ar (CaAa)	476' - 160'	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' - 8'	-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' - 8'	-7.000	0.325	1	1	1.980	1.980		0.001
T-Brackets (Af) (Carrier 514' E) ***	C	No	No	Af (CaAa)	514' - 8'	-10.000	-0.35	1	1	1.000	1.000		0.008
LDF6-50A(1-1/4") (Carrier 514' E)	B	No	No	Ar (CaAa)	514' - 492'	-10.000	0.375	1	1	0.500	1.550		0.001
LDF6-50A(1-1/4") (Carrier 514+492' E)	B	No	No	Ar (CaAa)	492' - 442'	-10.000	0.375	2	2	0.500	1.550		0.001
LDF6-50A(1-1/4") (Carrier	B	No	No	Ar (CaAa)	442' - 8'	-10.000	0.375	3	3	0.500	1.550		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
514+492+442' E) ***													
MACX450-1(4-1/16) (Carrier 490' E) ***	B	No	No	Ar (CaAa)	490' - 8'	-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' - 175'	-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' - 8'	-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' - 8'	-6.000	-0.23	1	1	1.090	1.090		0.000
LDF5-50A(7/ 8") (Carrier 438' E)	A	No	No	Ar (CaAa)	438' - 212'	-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' - 8'	-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' - 388'	-16.000	0.3	1	1	0.500	1.980		0.001
LDF7-50A(1- 5/8") (Carrier 415+388' E)	B	No	No	Ar (CaAa)	388' - 324'	-16.000	0.3	2	1	0.500	1.980		0.001
LDF7-50A(1- 5/8") (Carrier 415+388+324' E)	B	No	No	Ar (CaAa)	324' - 288'	-16.000	0.3	4	1	0.500	1.980		0.001
LDF7-50A(1- 5/8") (Carrier 415+388+324 +288' E)	B	No	No	Ar (CaAa)	288' - 270'	-16.000	0.3	5	1	0.500	1.980		0.001
LDF7-50A(1- 5/8") (Carrier 415+388+324 +288+270' E) ***	B	No	No	Ar (CaAa)	270' - 8'	-16.000	0.3	6	1	0.500	1.980		0.001
LDF4P-50A(1 /2") (Carrier 415' E)	C	No	No	Ar (CaAa)	415' - 294'	-1.500	0.4	1	1	0.630	0.630		0.000
LDF4-75A(1/	C	No	No	Ar (CaAa)	294' - 91'	-1.500	0.4	2	2	0.630	0.630		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
2") (Carrier 415+294' E)													
LDF4P-50A(1/2") (Carrier 415+294+91' E) ***	C	No	No	Ar (CaAa)	91' - 8'	-1.500	0.4	3	3	0.630	0.630		0.000
LDF4P-50A(1/2") (Carrier 138' E)	B	No	No	Ar (CaAa)	138' - 134'	-7.500	0.43	1	1	0.630	0.630		0.000
LDF4-50A(1/2") (Carrier 138+134' E) ***	B	No	No	Ar (CaAa)	134' - 8'	-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' - 8'	-1.500	0.45	1	1	0.630	0.630		0.000
T-Brackets (Af) (Carrier 250' E)	A	No	No	Af (CaAa)	250' - 8'	-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' - 8'	-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' - 8'	-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' - 8'	-5.000	0.375	6	3	0.500	1.980		0.001
EW52(ELLIPTICAL) (Carrier 145' E) ***	C	No	No	Ar (CaAa)	145' - 8'	-1.000	0.4	1	1	2.250	0.870		0.001
LDF2-50(3/8") (Carrier 112' E) ***	C	No	No	Ar (CaAa)	112' - 8'	-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' - 8'	-1.500	-0.38	2	2	0.440	0.440		0.000
LCF12-50J(1/2") (Carrier 288' E)	A	No	No	Ar (CaAa)	288' - 76'	-1.500	-0.41	1	1	0.640	0.640		0.000
LCF12-50J(1/	A	No	No	Ar (CaAa)	76' - 8'	-1.500	-0.41	2	2	0.640	0.640		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
2") (Carrier 288+76' E) ***													

Feed Line/Linear Appurtenances - Entered As Area

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

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Lightning Rod 5/8" x 3' (Carrier 560' E)	C	From Leg	0.000 0' 1'6"	0.000	560'	No Ice 1/2" Ice 1" Ice 2" Ice	0.188 0.480 0.669 1.075	0.188 0.480 0.669 1.075	0.004 0.006 0.010 0.025
Flash Beacon Lighting (Carrier 560' E)	B	From Leg	0.000 0' 0'	0.000	560'	No Ice 1/2" Ice 1" Ice 2" Ice	1.563 2.411 2.644 3.140	1.563 2.411 2.644 3.140	0.050 0.080 0.114 0.191
Side Light (Carrier 475' E)	A	From Leg	0.500 0' 0'	0.000	475'	No Ice 1/2" Ice 1" Ice 2" Ice	0.790 1.040 1.320 1.980	0.790 1.040 1.320 1.980	0.029 0.039 0.053 0.090
Side Light (Carrier 475' E)	B	From Leg	0.500 0' 0'	0.000	475'	No Ice 1/2" Ice 1" Ice 2" Ice	0.790 1.040 1.320 1.980	0.790 1.040 1.320 1.980	0.029 0.039 0.053 0.090
Side Light (Carrier 475' E)	C	From Leg	0.500 0' 0'	0.000	475'	No Ice 1/2" Ice 1" Ice 2" Ice	0.790 1.040 1.320 1.980	0.790 1.040 1.320 1.980	0.029 0.039 0.053 0.090
Flash Beacon Lighting (Carrier 315' E)	A	From Leg	0.000 0' 0'	0.000	315'	No Ice 1/2" Ice 1" Ice 2" Ice	1.563 2.411 2.644 3.140	1.563 2.411 2.644 3.140	0.050 0.080 0.114 0.191
Flash Beacon Lighting (Carrier 312' E)	C	From Leg	0.000 0' 0'	0.000	312'	No Ice 1/2" Ice 1" Ice 2" Ice	1.563 2.411 2.644 3.140	1.563 2.411 2.644 3.140	0.050 0.080 0.114 0.191
Side Light (Carrier 157' E)	A	From Leg	0.500 0' 0'	0.000	157'	No Ice 1/2" Ice 1" Ice 2" Ice	0.790 1.040 1.320 1.980	0.790 1.040 1.320 1.980	0.029 0.039 0.053 0.090

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Side Light (Carrier 157' E)	B	From Leg	0.500 0' 0'	0.000	157'	No Ice 1/2" Ice 1" Ice 2" Ice	0.790 1.040 1.320 1.980	0.790 1.040 1.320 1.980	0.029 0.039 0.053 0.090
Side Light (Carrier 157' E)	C	From Leg	0.500 0' 0'	0.000	157'	No Ice 1/2" Ice 1" Ice 2" Ice	0.790 1.040 1.320 1.980	0.790 1.040 1.320 1.980	0.029 0.039 0.053 0.090
***									
AP19-1670/090D/DT2 (Carrier 553' E)	A	From Leg	1.000 0' 0'	0.000	553'	No Ice 1/2" Ice 1" Ice 2" Ice	7.440 8.058 8.684 9.958	3.184 4.155 5.138 6.696	0.020 0.052 0.091 0.191
AP19-1670/090D/DT2 (Carrier 553' E)	B	From Leg	1.000 0' 0'	0.000	553'	No Ice 1/2" Ice 1" Ice 2" Ice	7.440 8.058 8.684 9.958	3.184 4.155 5.138 6.696	0.020 0.052 0.091 0.191
AP19-1670/090D/DT2 (Carrier 553' E)	C	From Leg	1.000 0' 0'	0.000	553'	No Ice 1/2" Ice 1" Ice 2" Ice	7.440 8.058 8.684 9.958	3.184 4.155 5.138 6.696	0.020 0.052 0.091 0.191
PDS3DE-698/2700 (Carrier 553' E)	A	From Leg	1.000 0' 0'	0.000	553'	No Ice 1/2" Ice 1" Ice 2" Ice	0.215 0.284 0.359 0.535	0.109 0.171 0.239 0.397	0.018 0.020 0.022 0.032
Pipe Mount [PM 601-3] (Carrier 553' E)	C	None		0.000	553'	No Ice 1/2" Ice 1" Ice 2" Ice	3.170 3.790 4.420 5.760	3.170 3.790 4.420 5.760	0.195 0.232 0.279 0.401
***									
Platform w/ Handrail (Carrier 545' E)	B	From Face	0.000 0' 0'	0.000	545'	No Ice 1/2" Ice 1" Ice 2" Ice	12.000 17.000 22.000 32.000	6.000 7.500 9.000 12.000	0.050 0.080 0.110 0.170
***									
ANT150F6 (Carrier 514' E)	A	From Leg	4.000 0' 14'	0.000	514'	No Ice 1/2" Ice 1" Ice 2" Ice	4.800 6.828 8.873 13.013	4.800 6.828 8.873 13.013	0.030 0.066 0.114 0.249
PG1NOF-0093-8 (Carrier 514' E)	C	From Leg	4.000 0' 5'	0.000	514'	No Ice 1/2" Ice 1" Ice 2" Ice	2.985 4.013 4.991 6.216	2.985 4.013 4.991 6.216	0.028 0.050 0.078 0.155
Side Arm Mount [SO 312-1] (Carrier 514' E)	A	From Leg	2.000 0' 0'	0.000	514'	No Ice 1/2" Ice 1" Ice 2" Ice	1.670 2.430 3.210 4.850	5.150 7.240 9.380 13.940	0.062 0.103 0.159 0.312
Side Arm Mount [SO 312-1] (Carrier 514' E)	C	From Leg	2.000 0' 0'	0.000	514'	No Ice 1/2" Ice 1" Ice 2" Ice	1.670 2.430 3.210 4.850	5.150 7.240 9.380 13.940	0.062 0.103 0.159 0.312
***									
Flush Mount (Carrier 505' E)	A	From Leg	2.000 0' 0'	0.000	505'	No Ice 1/2" Ice 1" Ice 2" Ice	1.000 2.000 3.000 5.000	1.000 2.000 3.000 5.000	0.100 0.150 0.200 0.300
***									

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
101-68-10-0-03N (Carrier 492' E)	C	From Leg	6.000 0' 8'	0.000	492'	No Ice 1/2" Ice 1" Ice 2" Ice	4.956 7.087 8.708 12.000	4.956 7.087 8.708 12.000	0.070 0.109 0.158 0.286
Side Arm Mount [SO 308-1] (Carrier 492' E)	C	From Leg	3.000 0' 0'	0.000	492'	No Ice 1/2" Ice 1" Ice 2" Ice	0.410 0.810 1.230 2.090	3.060 5.100 7.200 11.960	0.053 0.080 0.122 0.246
***									
ATW25HS3-HSO-46H (Carrier 490' E)	A	From Leg	1.000 0' 0'	0.000	490'	No Ice 1/2" Ice 1" Ice 2" Ice	36.157 40.417 44.694 53.299	36.157 40.417 44.694 53.299	0.480 0.716 0.979 1.584
10' x 2" Mount Pipe (Carrier 505' E)	B	From Face	1.000 0' 0'	0.000	505'	No Ice 1/2" Ice 1" Ice 2" Ice	2.375 3.403 4.448 5.911	2.375 3.403 4.448 5.911	0.037 0.054 0.079 0.148
10' x 2" Mount Pipe (Carrier 495' E)	B	From Face	1.000 0' 0'	0.000	495'	No Ice 1/2" Ice 1" Ice 2" Ice	2.375 3.403 4.448 5.911	2.375 3.403 4.448 5.911	0.037 0.054 0.079 0.148
10' x 2" Mount Pipe (Carrier 485' E)	B	From Face	1.000 0' 0'	0.000	485'	No Ice 1/2" Ice 1" Ice 2" Ice	2.375 3.403 4.448 5.911	2.375 3.403 4.448 5.911	0.037 0.054 0.079 0.148
10' x 2" Mount Pipe (Carrier 475' E)	B	From Face	1.000 0' 0'	0.000	475'	No Ice 1/2" Ice 1" Ice 2" Ice	2.375 3.403 4.448 5.911	2.375 3.403 4.448 5.911	0.037 0.054 0.079 0.148
Side Arm Mount (Carrier 475' E)	A	From Leg	0.500 0' 0'	0.000	475'	No Ice 1/2" Ice 1" Ice 2" Ice	0.850 1.140 1.430 2.010	1.670 2.340 3.010 4.350	0.065 0.079 0.093 0.121
Side Arm Mount (Carrier 485' E)	A	From Leg	0.500 0' 0'	0.000	485'	No Ice 1/2" Ice 1" Ice 2" Ice	0.850 1.140 1.430 2.010	1.670 2.340 3.010 4.350	0.065 0.079 0.093 0.121
Side Arm Mount (Carrier 485' E)	A	From Leg	0.500 0' 0'	0.000	495'	No Ice 1/2" Ice 1" Ice 2" Ice	0.850 1.140 1.430 2.010	1.670 2.340 3.010 4.350	0.065 0.079 0.093 0.121
Side Arm Mount (Carrier 485' E)	A	From Leg	0.500 0' 0'	0.000	505'	No Ice 1/2" Ice 1" Ice 2" Ice	0.850 1.140 1.430 2.010	1.670 2.340 3.010 4.350	0.065 0.079 0.093 0.121
***									
ANT150F6 (Carrier 465' E)	C	From Leg	4.000 0' 10'	0.000	465'	No Ice 1/2" Ice 1" Ice 2" Ice	4.800 6.828 8.873 13.013	4.800 6.828 8.873 13.013	0.030 0.066 0.114 0.249
Side Arm Mount [SO 312-1] (Carrier 465' E)	C	From Leg	2.000 0' 0'	0.000	465'	No Ice 1/2" Ice 1" Ice 2" Ice	1.670 2.430 3.210 4.850	5.150 7.240 9.380 13.940	0.062 0.103 0.159 0.312
***									
101-68-10-0-03N (Carrier 442' E)	C	From Leg	6.000 0'	0.000	442'	No Ice 1/2" Ice	5.033 7.087	5.033 7.087	0.070 0.109

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			8'			1" Ice	8.708	8.708	0.158
						2" Ice	12.000	12.000	0.286
Side Arm Mount [SO 308-1]	C	From Leg	3.000	0.000	442'	No Ice	0.410	3.060	0.053
(Carrier 442' E)			0'			1/2" Ice	0.810	5.100	0.080
			0'			1" Ice	1.230	7.200	0.122
						2" Ice	2.090	11.960	0.246
***									
ANT150F6	A	From Leg	4.000	0.000	438'	No Ice	4.800	4.800	0.030
(Carrier 438' E)			0'			1/2" Ice	6.828	6.828	0.066
			10'			1" Ice	8.873	8.873	0.114
						2" Ice	13.013	13.013	0.249
ANT150F6	B	From Leg	4.000	0.000	438'	No Ice	4.800	4.800	0.030
(Carrier 438' E)			0'			1/2" Ice	6.828	6.828	0.066
			10'			1" Ice	8.873	8.873	0.114
						2" Ice	13.013	13.013	0.249
13' x 2" Pipe Mount	A	From Face	0.500	0.000	438'	No Ice	3.087	3.087	0.048
(Carrier 438' E)			0'			1/2" Ice	4.416	4.416	0.071
			0'			1" Ice	5.760	5.760	0.102
						2" Ice	8.500	8.500	0.191
13' x 2" Pipe Mount	B	From Face	0.500	0.000	438'	No Ice	3.087	3.087	0.048
(Carrier 438' E)			0'			1/2" Ice	4.416	4.416	0.071
			0'			1" Ice	5.760	5.760	0.102
						2" Ice	8.500	8.500	0.191
Side Arm Mount [SO 308-1]	A	From Leg	2.000	0.000	438'	No Ice	0.410	3.060	0.053
(Carrier 438' E)			0'			1/2" Ice	0.810	5.100	0.080
			0'			1" Ice	1.230	7.200	0.122
						2" Ice	2.090	11.960	0.246
Side Arm Mount [SO 308-1]	B	From Leg	2.000	0.000	438'	No Ice	0.410	3.060	0.053
(Carrier 438' E)			0'			1/2" Ice	0.810	5.100	0.080
			0'			1" Ice	1.230	7.200	0.122
						2" Ice	2.090	11.960	0.246
***									
101D-90-06-0-03	C	From Leg	6.000	0.000	415'	No Ice	3.241	3.241	0.043
(Carrier 415' E)			0'			1/2" Ice	4.537	4.537	0.068
			10'			1" Ice	5.300	5.300	0.100
						2" Ice	6.535	6.535	0.183
TPRD-1554	C	From Leg	6.000	0.000	415'	No Ice	4.433	2.571	0.019
(Carrier 415' E)			0'			1/2" Ice	4.698	2.787	0.055
			10'			1" Ice	4.970	3.015	0.095
						2" Ice	5.537	3.493	0.187
Side Arm Mount [SO 308-1]	C	From Leg	3.000	0.000	415'	No Ice	0.410	3.060	0.053
(Carrier 415' E)			0'			1/2" Ice	0.810	5.100	0.080
			0'			1" Ice	1.230	7.200	0.122
						2" Ice	2.090	11.960	0.246
***									
SC233	C	From Leg	4.000	0.000	388'	No Ice	1.813	1.813	0.004
(Carrier 388' E)			0'			1/2" Ice	3.042	3.042	0.018
			14'			1" Ice	4.287	4.287	0.041
						2" Ice	6.829	6.829	0.110
Side Arm Mount [SO 306-1]	C	From Leg	2.000	0.000	388'	No Ice	0.410	2.260	0.042
(Carrier 388' E)			0'			1/2" Ice	0.810	3.830	0.062
			0'			1" Ice	1.230	5.480	0.094
						2" Ice	2.080	9.370	0.187
***									
DB636-C	A	From Leg	2.000	0.000	324'	No Ice	2.512	2.512	0.030
(Carrier 324' E)			0'			1/2" Ice	3.587	3.587	0.049
			5'			1" Ice	4.679	4.679	0.074

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	6.304	6.304	0.147
DB636-C	C	From Leg	2.000	0.000	324'	No Ice	2.512	2.512	0.030
(Carrier 324' E)			0'			1/2" Ice	3.587	3.587	0.049
			5'			1" Ice	4.679	4.679	0.074
						2" Ice	6.304	6.304	0.147
Side Arm Mount [SO 601-1]	A	From Leg	1.000	0.000	324'	No Ice	1.040	5.320	0.159
(Carrier 324' E)			0'			1/2" Ice	1.410	6.430	0.196
			0'			1" Ice	1.780	7.670	0.241
						2" Ice	2.520	10.670	0.359
Side Arm Mount [SO 601-1]	C	From Leg	1.000	0.000	324'	No Ice	1.040	5.320	0.159
(Carrier 324' E)			0'			1/2" Ice	1.410	6.430	0.196
			0'			1" Ice	1.780	7.670	0.241
						2" Ice	2.520	10.670	0.359
***									
DB540K-E	C	From Leg	4.000	0.000	294'	No Ice	4.500	4.500	0.066
(Carrier 294' E)			0'			1/2" Ice	6.329	6.329	0.099
			9'			1" Ice	8.175	8.175	0.144
						2" Ice	11.917	11.917	0.268
Side Arm Mount [SO 306-1]	C	From Leg	2.000	0.000	294'	No Ice	0.410	2.260	0.042
(Carrier 294' E)			0'			1/2" Ice	0.810	3.830	0.062
			0'			1" Ice	1.230	5.480	0.094
						2" Ice	2.080	9.370	0.187
***									
DB636-C	A	From Leg	3.000	0.000	288'	No Ice	2.512	2.512	0.030
(Carrier 288' E)			0'			1/2" Ice	3.587	3.587	0.049
			5'			1" Ice	4.679	4.679	0.074
						2" Ice	6.304	6.304	0.147
Side Arm Mount [SO 601-1]	A	From Leg	1.500	0.000	288'	No Ice	1.040	5.320	0.159
(Carrier 288' E)			0'			1/2" Ice	1.410	6.430	0.196
			0'			1" Ice	1.780	7.670	0.241
						2" Ice	2.520	10.670	0.359
***									
CC806-06	C	From Leg	4.000	0.000	270'	No Ice	1.802	1.802	0.016
(Carrier 270' E)			0'			1/2" Ice	2.170	2.170	0.029
			3'			1" Ice	2.546	2.546	0.047
						2" Ice	3.327	3.327	0.095
Side Arm Mount [SO 306-1]	C	From Leg	2.000	0.000	270'	No Ice	0.410	2.260	0.042
(Carrier 270' E)			0'			1/2" Ice	0.810	3.830	0.062
			0'			1" Ice	1.230	5.480	0.094
						2" Ice	2.080	9.370	0.187
***									
DB806-XC	A	From Leg	4.000	0.000	254'	No Ice	1.140	1.140	0.021
(Carrier 254' E)			0'			1/2" Ice	1.675	1.675	0.030
			4'			1" Ice	2.025	2.025	0.043
						2" Ice	2.753	2.753	0.080
Side Arm Mount [SO 306-1]	A	From Leg	2.000	0.000	254'	No Ice	0.410	2.260	0.042
(Carrier 254' E)			0'			1/2" Ice	0.810	3.830	0.062
			0'			1" Ice	1.230	5.480	0.094
						2" Ice	2.080	9.370	0.187
***									
(3) 844G65VTZASX w/ Mount Pipe	B	From Leg	4.000	10.000	250'	No Ice	5.548	5.041	0.034
(Carrier 250' E)			0'			1/2" Ice	5.941	5.667	0.087
			1'			1" Ice	6.342	6.298	0.145
						2" Ice	7.168	7.611	0.283
(3) DB844H90E-A w/ Mount Pipe	C	From Leg	4.000	10.000	250'	No Ice	3.299	4.802	0.032
(Carrier 250' E)			0'			1/2" Ice	3.667	5.416	0.072
			1'			1" Ice	4.035	6.040	0.117

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	4.796	7.337	0.228
AP859012-42T0 w/ Mount Pipe	B	From Leg	4.000 0' 1'	10.000	250'	No Ice 1/2" Ice 1" Ice 2" Ice	3.104 3.476 3.848 4.604	4.802 5.416 6.040 7.337	0.025 0.064 0.108 0.217
(Carrier 250' E)									
AP859012-42T0 w/ Mount Pipe	C	From Leg	4.000 0' 1'	10.000	250'	No Ice 1/2" Ice 1" Ice 2" Ice	3.104 3.476 3.848 4.604	4.802 5.416 6.040 7.337	0.025 0.064 0.108 0.217
(Carrier 250' E)									
Sector Mount [SM 504-1]	B	From Leg	2.000 0' 0'	0.000	250'	No Ice 1/2" Ice 1" Ice 2" Ice	16.490 22.610 28.650 40.600	11.110 16.350 21.520 31.650	0.569 0.775 1.048 1.786
(Carrier 250' E)									
Sector Mount [SM 504-1]	C	From Leg	2.000 0' 0'	0.000	250'	No Ice 1/2" Ice 1" Ice 2" Ice	16.490 22.610 28.650 40.600	11.110 16.350 21.520 31.650	0.569 0.775 1.048 1.786
(Carrier 250' E)									
***									
APXVAARR24_43-U-NA20	A	From Leg	4.000 0' 1'	0.000	239'	No Ice 1/2" Ice 1" Ice 2" Ice	20.243 20.890 21.544 22.874	8.889 9.487 10.092 11.326	0.128 0.241 0.362 0.630
(Carrier 239' P)									
APXVAARR24_43-U-NA20	B	From Leg	4.000 0' 1'	0.000	239'	No Ice 1/2" Ice 1" Ice 2" Ice	20.243 20.890 21.544 22.874	8.889 9.487 10.092 11.326	0.128 0.241 0.362 0.630
(Carrier 239' P)									
APXVAARR24_43-U-NA20	C	From Leg	4.000 0' 1'	0.000	239'	No Ice 1/2" Ice 1" Ice 2" Ice	20.243 20.890 21.544 22.874	8.889 9.487 10.092 11.326	0.128 0.241 0.362 0.630
(Carrier 239' P)									
APX16DWV-16DWVS-E-A20	A	From Leg	4.000 0' 1'	0.000	239'	No Ice 1/2" Ice 1" Ice 2" Ice	6.996 7.391 7.794 8.620	2.359 2.722 3.092 3.855	0.042 0.077 0.117 0.214
(Carrier 239' P)									
RADIO 4415 B66A	A	From Leg	4.000 0' 1'	0.000	239'	No Ice 1/2" Ice 1" Ice 2" Ice	1.856 2.027 2.204 2.582	0.870 0.997 1.134 1.432	0.050 0.064 0.081 0.124
(Carrier 239' P)									
RADIO 4415 B66A	B	From Leg	4.000 0' 1'	0.000	239'	No Ice 1/2" Ice 1" Ice 2" Ice	1.856 2.027 2.204 2.582	0.870 0.997 1.134 1.432	0.050 0.064 0.081 0.124
(Carrier 239' P)									
RADIO 4415 B66A	C	From Leg	4.000 0' 1'	0.000	239'	No Ice 1/2" Ice 1" Ice 2" Ice	1.856 2.027 2.204 2.582	0.870 0.997 1.134 1.432	0.050 0.064 0.081 0.124
(Carrier 239' P)									
RRUS 4415 B25	A	From Leg	4.000 0' 1'	0.000	239'	No Ice 1/2" Ice 1" Ice 2" Ice	1.644 1.804 1.972 2.329	0.679 0.791 0.913 1.183	0.044 0.056 0.071 0.109
(Carrier 239' P)									
RRUS 4415 B25	B	From Leg	4.000 0' 1'	0.000	239'	No Ice 1/2" Ice 1" Ice 2" Ice	1.644 1.804 1.972 2.329	0.679 0.791 0.913 1.183	0.044 0.056 0.071 0.109
(Carrier 239' P)									
RRUS 4415 B25	C	From Leg	4.000 0' 1'	0.000	239'	No Ice 1/2" Ice 1" Ice	1.644 1.804 1.972	0.679 0.791 0.913	0.044 0.056 0.071
(Carrier 239' P)									

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	2.329	1.183	0.109
RADIO 4449 B12/B71	A	From Leg	4.000	0.000	239'	No Ice	1.650	1.163	0.074
(Carrier 239' P)			0'			1/2" Ice	1.810	1.301	0.090
			1'			1" Ice	1.978	1.447	0.109
						2" Ice	2.336	1.762	0.155
RADIO 4449 B12/B71	B	From Leg	4.000	0.000	239'	No Ice	1.650	1.163	0.074
(Carrier 239' P)			0'			1/2" Ice	1.810	1.301	0.090
			1'			1" Ice	1.978	1.447	0.109
						2" Ice	2.336	1.762	0.155
RADIO 4449 B12/B71	C	From Leg	4.000	0.000	239'	No Ice	1.650	1.163	0.074
(Carrier 239' P)			0'			1/2" Ice	1.810	1.301	0.090
			1'			1" Ice	1.978	1.447	0.109
						2" Ice	2.336	1.762	0.155
8'x2" Antenna Mount Pipe	A	From Leg	4.000	0.000	239'	No Ice	1.900	1.900	0.030
(2-3/8")			0'			1/2" Ice	2.728	2.728	0.044
(Carrier 239' P)			0'			1" Ice	3.401	3.401	0.064
						2" Ice	4.396	4.396	0.120
8'x2" Antenna Mount Pipe	B	From Leg	4.000	0.000	239'	No Ice	1.900	1.900	0.030
(2-3/8")			0'			1/2" Ice	2.728	2.728	0.044
(Carrier 239' P)			0'			1" Ice	3.401	3.401	0.064
						2" Ice	4.396	4.396	0.120
8'x2" Antenna Mount Pipe	C	From Leg	4.000	0.000	239'	No Ice	1.900	1.900	0.030
(2-3/8")			0'			1/2" Ice	2.728	2.728	0.044
(Carrier 239' P)			0'			1" Ice	3.401	3.401	0.064
						2" Ice	4.396	4.396	0.120
Sector Mount [SM 201-1]	A	From Leg	2.000	0.000	239'	No Ice	17.060	4.950	0.361
(Carrier 239' P)			0'			1/2" Ice	22.640	7.480	0.508
			0'			1" Ice	28.130	10.090	0.699
						2" Ice	39.060	15.550	1.213
APX16DWV-16DWVS-E-A	B	From Leg	4.000	0.000	239'	No Ice	6.996	2.359	0.042
20			0'			1/2" Ice	7.391	2.722	0.077
(Carrier 239' E)			1'			1" Ice	7.794	3.092	0.117
						2" Ice	8.620	3.855	0.214
APX16DWV-16DWVS-E-A	C	From Leg	4.000	0.000	239'	No Ice	6.996	2.359	0.042
20			0'			1/2" Ice	7.391	2.722	0.077
(Carrier 239' E)			1'			1" Ice	7.794	3.092	0.117
						2" Ice	8.620	3.855	0.214
Sector Mount [SM 201-1]	B	From Leg	2.000	0.000	239'	No Ice	17.060	4.950	0.361
(Carrier 239' E)			0'			1/2" Ice	22.640	7.480	0.508
			0'			1" Ice	28.130	10.090	0.699
						2" Ice	39.060	15.550	1.213
Sector Mount [SM 201-1]	C	From Leg	2.000	0.000	239'	No Ice	17.060	4.950	0.361
(Carrier 239' E)			0'			1/2" Ice	22.640	7.480	0.508
			0'			1" Ice	28.130	10.090	0.699
						2" Ice	39.060	15.550	1.213
***									
742 213 w/ Mount Pipe	A	From Leg	2.000	0.000	214'	No Ice	3.540	2.980	0.049
(Carrier 214' E)			0'			1/2" Ice	4.130	3.570	0.087
			0'			1" Ice	4.740	4.170	0.136
						2" Ice	6.010	5.420	0.267
742 213 w/ Mount Pipe	B	From Leg	2.000	0.000	214'	No Ice	3.540	2.980	0.049
(Carrier 214' E)			0'			1/2" Ice	4.130	3.570	0.087
			0'			1" Ice	4.740	4.170	0.136
						2" Ice	6.010	5.420	0.267
742 213 w/ Mount Pipe	C	From Leg	2.000	0.000	214'	No Ice	3.540	2.980	0.049
(Carrier 214' E)			0'			1/2" Ice	4.130	3.570	0.087
			0'			1" Ice	4.740	4.170	0.136

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	6.010	5.420	0.267
***									
ANT150F6 (Carrier 212' E)	C	From Leg	4.000 0' 10'	0.000	212'	No Ice 1/2" Ice 1" Ice 2" Ice	4.800 6.828 8.873 13.013	4.800 6.828 8.873 13.013	0.030 0.066 0.114 0.249
Side Arm Mount [SO 306-1] (Carrier 212' E)	C	From Leg	2.000 0' 0'	0.000	212'	No Ice 1/2" Ice 1" Ice 2" Ice	0.410 0.810 1.230 2.080	2.260 3.830 5.480 9.370	0.042 0.062 0.094 0.187
***									
ANT150F6 (Carrier 175' E)	B	From Leg	6.000 0' 10'	0.000	175'	No Ice 1/2" Ice 1" Ice 2" Ice	4.800 6.828 8.873 13.013	4.800 6.828 8.873 13.013	0.030 0.066 0.114 0.249
Side Arm Mount [SO 602-1] (Carrier 175' E)	B	From Leg	3.000 0' 0'	0.000	175'	No Ice 1/2" Ice 1" Ice 2" Ice	2.580 3.390 4.180 5.700	10.830 13.160 15.840 22.980	0.146 0.221 0.314 0.549
6' x 2" Mount Pipe (Carrier 175' E)	B	From Leg	3.000 0' 0'	0.000	175'	No Ice 1/2" Ice 1" Ice 2" Ice	1.425 1.925 2.294 3.060	1.425 1.925 2.294 3.060	0.022 0.033 0.048 0.090
***									
Side Arm Mount [SO 202-1] (Carrier 145' E)	C	From Face	1.000 0' 1'	0.000	145'	No Ice 1/2" Ice 1" Ice 2" Ice	1.780 2.240 2.750 3.890	2.970 3.570 4.190 5.550	0.110 0.133 0.163 0.249
***									
Pipe Mount [PM 601-1] (Carrier 138' E)	B	From Leg	1.000 0' 0'	0.000	138'	No Ice 1/2" Ice 1" Ice 2" Ice	1.320 1.580 1.840 2.400	1.320 1.580 1.840 2.400	0.065 0.077 0.093 0.134
Side Arm Mount [SO 201-1] (Carrier 138' E)	B	From Leg	1.000 0' 0'	0.000	138'	No Ice 1/2" Ice 1" Ice 2" Ice	1.780 2.240 2.750 3.890	2.610 3.150 3.730 4.990	0.096 0.116 0.144 0.221
***									
TMADB7821VG12A (Carrier 134' E)	A	From Leg	0.000 0' 0'	0.000	134'	No Ice 1/2" Ice 1" Ice 2" Ice	1.065 1.195 1.333 1.629	0.323 0.401 0.490 0.691	0.022 0.030 0.039 0.065
Side Arm Mount [SO 601-1] (Carrier 134' E)	A	From Leg	2.000 0' 0'	0.000	134'	No Ice 1/2" Ice 1" Ice 2" Ice	1.040 1.410 1.780 2.520	5.320 6.430 7.670 10.670	0.159 0.196 0.241 0.359
***									
201-8 (Carrier 112' E)	C	From Leg	2.000 0' 4'	0.000	112'	No Ice 1/2" Ice 1" Ice 2" Ice	1.058 1.886 2.730 3.972	1.058 1.886 2.730 3.972	0.004 0.013 0.027 0.072
Flush Mount (Carrier 112' E)	C	From Leg	1.000 0' 0'	0.000	112'	No Ice 1/2" Ice 1" Ice 2" Ice	1.000 2.000 3.000 5.000	1.000 2.000 3.000 5.000	0.100 0.150 0.200 0.300
***									
ANT150F2	C	From Leg	2.000	0.000	91'	No Ice	1.227	1.227	0.013

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(Carrier 91' E)			0' 3'			1/2" Ice 1" Ice 2" Ice	1.530 1.842 2.494	1.530 1.842 2.494	0.022 0.035 0.072
Flush Mount (Carrier 91' E)	C	From Leg	1.000 0' 0'	0.000	91'	No Ice 1/2" Ice 1" Ice 2" Ice	1.000 2.000 3.000 5.000	1.000 2.000 3.000 5.000	0.100 0.150 0.200 0.300
***									
Side Arm Mount [SO 301-1] (Carrier 80' E)	C	From Leg	1.000 0' 0'	0.000	80'	No Ice 1/2" Ice 1" Ice 2" Ice	0.460 0.650 0.870 1.410	0.910 1.300 1.710 2.620	0.023 0.033 0.047 0.091
***									
Acutime 2000 (Carrier 76' E)	C	From Leg	2.000 0' 0'	0.000	76'	No Ice 1/2" Ice 1" Ice 2" Ice	0.255 0.320 0.393 0.561	0.255 0.320 0.393 0.561	0.001 0.005 0.010 0.025
Side Arm Mount [SO 301-1] (Carrier 76' E)	C	From Leg	1.000 0' 0'	0.000	76'	No Ice 1/2" Ice 1" Ice 2" Ice	0.460 0.650 0.870 1.410	0.910 1.300 1.710 2.620	0.023 0.033 0.047 0.091
***									

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		Aperture Area ft^2	Weight K
P2F-52 (Carrier 288' E)	C	Paraboloid w/o Radome	From Leg	1.000 0' 0'	0.000		288'	2.092	No Ice 1/2" Ice 1" Ice 2" Ice	3.440 3.720 3.990 4.550	0.015 0.034 0.053 0.091
***											
SPD2-5.8 (Carrier 138' E)	B	Paraboloid w/o Radome	From Leg	1.000 0' 0'	30.000		138'	2.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.140 3.410 3.680 4.210	0.022 0.040 0.060 0.090
***											
SPD2-5.8 (Carrier 134' E)	A	Paraboloid w/o Radome	From Leg	1.000 0' 0'	-10.000		134'	2.000	No Ice 1/2" Ice 1" Ice 2" Ice	3.140 3.410 3.680 4.210	0.022 0.040 0.060 0.090
***											
A-ANT-11G-4-C (Carrier 80' E)	C	Paraboloid w/o Radome	From Leg	1.000 0' 1'	-50.000		80'	4.233	No Ice 1/2" Ice 1" Ice 2" Ice	14.080 14.630 15.190 16.310	0.121 0.200 0.270 0.420
***											

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
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

Comb. No.	Description
60	Dead+Wind 270 deg - Service+Guy
61	Dead+Wind 300 deg - Service+Guy
62	Dead+Wind 330 deg - Service+Guy

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Mast	Max. Vert	43	759.364	-1.703	-0.868
	Max. H_x	30	435.221	6.920	-0.344
	Max. H_z	3	435.746	0.086	7.747
	Max. M_x	1	0.000	-0.011	-0.010
	Max. M_z	1	0.000	-0.011	-0.010
	Max. Torsion	24	9.616	3.404	-5.437
	Min. Vert	1	373.152	-0.011	-0.010
	Min. H_x	15	438.554	-7.007	-4.132
	Min. H_z	20	437.611	-0.095	-6.642
	Min. M_x	1	0.000	-0.011	-0.010
	Min. M_z	1	0.000	-0.011	-0.010
	Min. Torsion	6	-8.601	-2.896	5.778
Guy C @ 265 ft Elev 12.9193 ft Azimuth 240 deg	Max. Vert	26	-10.002	-8.116	4.686
	Max. H_x	26	-10.002	-8.116	4.686
	Max. H_z	10	-131.918	-103.092	59.505
	Min. Vert	8	-133.211	-100.575	58.062
	Min. H_x	10	-131.918	-103.092	59.505
	Min. H_z	26	-10.002	-8.116	4.686
Guy B @ 265 ft Elev 40.9193 ft Azimuth 120 deg	Max. Vert	14	-6.865	6.694	3.866
	Max. H_x	34	-124.726	108.435	62.591
	Max. H_z	34	-124.726	108.435	62.591
	Min. Vert	32	-126.275	105.783	61.066
	Min. H_x	14	-6.865	6.694	3.866
	Min. H_z	14	-6.865	6.694	3.866
Guy A @ 265 ft Elev 28.7005 ft Azimuth 0 deg	Max. Vert	2	-7.839	-0.001	-8.090
	Max. H_x	29	-71.280	2.885	-65.167
	Max. H_z	2	-7.839	-0.001	-8.090
	Min. Vert	20	-130.293	-0.002	-120.347
	Min. H_x	11	-69.217	-2.900	-63.541
	Min. H_z	22	-128.898	-0.006	-123.349

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	560 - 553.75	3.258	53	0.017	0.209
T2	553.75 - 547.5	3.235	53	0.017	0.209
T3	547.5 - 541.25	3.212	53	0.017	0.209
T4	541.25 - 535	3.184	53	0.017	0.209

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T5	535 - 510	3.155	53	0.017	0.208
T6	510 - 485	3.035	53	0.013	0.206
T7	485 - 460	2.970	53	0.008	0.203
T8	460 - 435	3.012	53	0.009	0.230
T9	435 - 410	3.033	53	0.014	0.250
T10	410 - 385	2.948	53	0.020	0.266
T11	385 - 360	2.744	53	0.025	0.235
T12	360 - 335	2.505	54	0.027	0.209
T13	335 - 310	2.284	54	0.024	0.202
T14	310 - 285	2.155	54	0.017	0.215
T15	285 - 260	2.247	55	0.015	0.259
T16	260 - 235	2.354	55	0.019	0.327
T17	235 - 210	2.354	55	0.027	0.383
T18	210 - 185	2.091	55	0.034	0.369
T19	185 - 160	1.772	55	0.039	0.345
T20	160 - 135	1.433	55	0.037	0.308
T21	135 - 110	1.297	55	0.034	0.314
T22	110 - 85	1.225	55	0.036	0.330
T23	85 - 60	1.115	55	0.042	0.318
T24	60 - 35	0.883	55	0.049	0.196
T25	35 - 10	0.526	55	0.055	0.120
T26	10 - 0	0.123	55	0.058	0.054

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
560'	Lightning Rod 5/8" x 3'	53	3.258	0.017	0.209	867599
553'	AP19-1670/090D/DT2	53	3.233	0.017	0.209	311333
545'	Platform w/ Handrail	53	3.201	0.017	0.209	115374
514'	ANT150F6	53	3.053	0.014	0.206	180793
505'	Flush Mount	53	3.015	0.012	0.206	93241
495'	10' x 2" Mount Pipe	53	2.983	0.010	0.204	56449
492'	101-68-10-0-03N	53	2.977	0.009	0.203	50474
491'3"	Guy	53	2.976	0.009	0.203	49173
490'	ATW25HS3-HSO-46H	53	2.974	0.009	0.202	47147
485'	10' x 2" Mount Pipe	53	2.970	0.008	0.203	43273
475'	Side Light	53	2.979	0.008	0.212	79302
465'	ANT150F6	53	3.001	0.008	0.224	Inf
442'	101-68-10-0-03N	53	3.035	0.012	0.245	74139
438'	ANT150F6	53	3.035	0.013	0.248	66873
415'	101D-90-06-0-03	53	2.976	0.018	0.266	49946
388'	SC233	53	2.773	0.024	0.240	111078
324'	DB636-C	54	2.206	0.021	0.207	44896
316'3"	Guy	54	2.169	0.018	0.210	30897
315'	Flash Beacon Lighting	54	2.165	0.018	0.211	29418
312'	Flash Beacon Lighting	54	2.158	0.017	0.213	26780
294'	DB540K-E	55	2.201	0.015	0.239	85135
288'	P2F-52	55	2.232	0.015	0.252	660004
270'	CC806-06	55	2.317	0.017	0.299	160670
254'	DB806-XC	55	2.372	0.021	0.343	56158
250'	(3) 844G65VTZASX w/ Mount Pipe	55	2.379	0.022	0.353	39101
239'	APXVAARR24_43-U-NA20	55	2.372	0.026	0.377	21192
214'	742 213 w/ Mount Pipe	55	2.141	0.033	0.374	329442
212'	ANT150F6	55	2.116	0.034	0.371	271542
175'	ANT150F6	55	1.626	0.039	0.329	121853

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
157'	Side Light	55	1.405	0.037	0.306	24747
153'9"	Guy	55	1.380	0.036	0.306	28508
145'	Side Arm Mount [SO 202-1]	55	1.331	0.035	0.308	49705
138'	SPD2-5.8	55	1.306	0.034	0.312	113612
134'	SPD2-5.8	55	1.294	0.034	0.315	238213
112'	201-8	55	1.231	0.036	0.328	306639
91'	ANT150F2	55	1.150	0.040	0.331	63403
81'	A-ANT-11G-4-C	55	1.087	0.043	0.303	50845
80'	Side Arm Mount [SO 301-1]	55	1.080	0.043	0.299	50971
76'	Acutime 2000	55	1.048	0.044	0.280	51535

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	0.260	55.680	0.005	1.05	Member Bearing
T2	553.75	Diagonal	A325N	0.625	2	0.584	14.375	0.041	1.05	Member Block Shear
		Horizontal	A325N	0.875	2	0.396	24.061	0.016	1.05	Member Block Shear
T3	547.5	Diagonal	A325N	0.875	2	1.374	27.059	0.051	1.05	Bolt Shear
		Top Girt	A325N	0.625	2	0.560	27.612	0.020	1.05	Bolt Shear
T4	541.25	Diagonal	A325N	0.875	2	1.766	27.059	0.065	1.05	Bolt Shear
		Top Girt	A325N	0.750	2	1.235	39.761	0.031	1.05	Bolt Shear
T5	535	Leg	A325N	0.750	6	0.942	30.101	0.031	1.05	Bolt Tension
		Diagonal	A325N	0.875	2	3.062	27.059	0.113	1.05	Bolt Shear
		Horizontal	A325N	0.750	2	2.197	39.761	0.055	1.05	Bolt Shear
		Top Girt	A325N	0.750	2	1.490	39.761	0.037	1.05	Bolt Shear
T6	510	Leg	A325N	0.750	6	4.033	30.101	0.134	1.05	Bolt Tension
		Diagonal	A325N	1.000	2	5.047	35.343	0.143	1.05	Bolt Shear
		Horizontal	A325N	0.750	2	8.200	22.294	0.368	1.05	Member Block Shear
		Top Girt	A325N	0.750	2	2.639	39.761	0.066	1.05	Bolt Shear
T7	485	Leg	A325N	0.750	6	3.960	30.101	0.132	1.05	Bolt Tension
		Diagonal	A325N	0.875	2	4.874	27.059	0.180	1.05	Bolt Shear
		Horizontal	A325N	0.750	2	3.739	39.761	0.094	1.05	Bolt Shear
		Top Girt	A325N	0.750	2	3.849	39.761	0.097	1.05	Bolt Shear
T8	460	Leg	A325N	0.750	6	5.103	30.101	0.170	1.05	Bolt Tension
		Diagonal	A325N	0.625	2	3.084	13.806	0.223	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	2.362	26.100	0.091	1.05	Member Bearing
		Top Girt	A325N	0.625	2	2.673	26.100	0.102	1.05	Member Bearing
T9	435	Leg	A325N	0.750	6	5.866	30.101	0.195	1.05	Bolt Tension
		Diagonal	A325N	0.625	2	1.307	13.806	0.095	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	0.955	14.375	0.066	1.05	Member Block Shear
		Top Girt	A325N	0.625	2	1.341	26.100	0.051	1.05	Member Bearing
T10	410	Leg	A325N	0.750	6	6.176	30.101	0.205	1.05	Bolt Tension
		Diagonal	A325N	0.625	2	2.575	13.806	0.187	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	1.917	26.100	0.073	1.05	Member Bearing
		Top Girt	A325N	0.625	2	1.058	26.100	0.041	1.05	Member Bearing
T11	385	Leg	A325N	0.750	6	6.148	30.101	0.204	1.05	Bolt Tension
		Diagonal	A325N	0.625	2	3.890	13.806	0.282	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	2.998	27.612	0.109	1.05	Bolt Shear
		Top Girt	A325N	0.625	2	2.258	27.612	0.082	1.05	Bolt Shear
T12	360	Leg	A325N	0.750	6	5.722	30.101	0.190	1.05	Bolt Tension
		Diagonal	A325N	0.625	2	5.275	13.806	0.382	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
		Horizontal	A325N	0.625	2	4.080	27.612	0.148	1.05	Bolt Shear
		Top Girt	A325N	0.750	2	3.323	39.761	0.084	1.05	Bolt Shear
T13	335	Leg	A325N	1.000	6	6.658	54.517	0.122	1.05	Bolt Tension
		Diagonal	A325N	1.000	2	6.716	35.343	0.190	1.05	Bolt Shear
		Horizontal	A325N	0.750	2	9.511	22.294	0.427	1.05	Member Block Shear
		Top Girt	A325N	0.750	2	4.371	39.761	0.110	1.05	Bolt Shear
T14	310	Leg	A325N	1.000	6	8.470	54.517	0.155	1.05	Bolt Tension
		Diagonal	A325N	0.875	2	6.752	27.059	0.250	1.05	Bolt Shear
		Horizontal	A325N	0.750	2	5.259	39.761	0.132	1.05	Bolt Shear
		Top Girt	A325N	0.750	2	5.209	39.761	0.131	1.05	Bolt Shear
T15	285	Leg	A325N	0.750	6	9.001	30.101	0.299	1.05	Bolt Tension
		Diagonal	A325N	0.625	2	4.918	13.806	0.356	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	3.838	26.100	0.147	1.05	Member Bearing
		Top Girt	A325N	0.625	2	4.165	26.100	0.160	1.05	Member Bearing
T16	260	Leg	A325N	0.750	6	10.083	30.101	0.335	1.05	Bolt Tension
		Diagonal	A325N	0.625	2	3.373	13.806	0.244	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	1.678	14.375	0.117	1.05	Member Block Shear
		Top Girt	A325N	0.625	2	2.897	26.100	0.111	1.05	Member Bearing
T17	235	Leg	A325N	0.750	6	10.849	30.101	0.360	1.05	Bolt Tension
		Diagonal	A325N	0.625	2	2.751	13.806	0.199	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	1.697	14.375	0.118	1.05	Member Block Shear
		Top Girt	A325N	0.625	2	0.857	26.100	0.033	1.05	Member Bearing
T18	210	Leg	A325N	0.750	6	10.842	30.101	0.360	1.05	Bolt Tension
		Diagonal	A325N	0.750	2	4.881	19.880	0.246	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	3.678	26.100	0.141	1.05	Member Bearing
		Top Girt	A325N	0.625	2	2.548	26.100	0.098	1.05	Member Bearing
T19	185	Leg	A325N	1.000	6	10.101	54.517	0.185	1	Bolt Tension
		Diagonal	A325N	0.875	2	7.057	27.059	0.261	1.05	Bolt Shear
		Horizontal	A325N	0.750	2	5.485	39.761	0.138	1.05	Bolt Shear
		Top Girt	A325N	0.750	2	4.127	39.761	0.104	1.05	Bolt Shear
T20	160	Leg	A325N	1.000	6	11.899	54.517	0.218	1.05	Bolt Tension
		Diagonal	A325N	1.000	2	6.962	35.343	0.197	1.05	Bolt Shear
		Horizontal	A325N	0.750	2	10.264	22.294	0.460	1.05	Member Block Shear
		Top Girt	A325N	0.750	2	5.412	39.761	0.136	1.05	Bolt Shear
T21	135	Leg	A325N	1.000	6	11.821	54.517	0.217	1	Bolt Tension
		Diagonal	A325N	0.875	2	4.538	27.059	0.168	1.05	Bolt Shear
		Horizontal	A325N	0.750	2	1.998	22.294	0.090	1.05	Member Block Shear
		Top Girt	A325N	0.750	2	3.843	39.761	0.097	1.05	Bolt Shear
T22	110	Leg	A325N	1.000	6	13.088	54.517	0.240	1.05	Bolt Tension
		Diagonal	A325N	0.750	2	3.074	19.880	0.155	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	2.147	14.375	0.149	1.05	Member Block Shear
		Top Girt	A325N	0.625	2	2.606	26.100	0.100	1.05	Member Bearing
T23	85	Leg	A325N	1.000	6	13.934	54.517	0.256	1.05	Bolt Tension
		Diagonal	A325N	0.750	2	1.541	19.880	0.078	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	2.232	14.375	0.155	1.05	Member Block Shear
		Top Girt	A325N	0.625	2	1.439	26.100	0.055	1.05	Member Bearing
T24	60	Leg	A325N	1.000	6	14.385	54.517	0.264	1.05	Bolt Tension
		Diagonal	A325N	0.750	2	2.619	19.880	0.132	1.05	Bolt Shear
		Horizontal	A325N	0.625	2	2.258	14.375	0.157	1.05	Member Block Shear
		Top Girt	A325N	0.625	2	1.177	26.100	0.045	1.05	Member Bearing
T25	35	Leg	A325N	1.000	6	14.466	54.517	0.265	1.05	Bolt Tension
		Diagonal	A325N	0.750	2	3.622	19.880	0.182	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
		Horizontal	A325N	0.625	2	2.255	14.375	0.157	1.05	Member Block Shear
		Top Girt	A325N	0.625	2	2.231	26.100	0.085	1.05	Member Bearing
T26	10	Leg	A325N	0.750	8	11.415	30.101	0.379	1	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	491'3" (A) (900)	1 3/4 BS	37.600	376.000	82.685	236.875	0.952	2.728
	491'3" (B) (899)	1 3/4 BS	37.600	376.000	81.530	236.875	0.952	2.767
	491'3" (C) (898)	1 3/4 BS	37.600	376.000	83.542	236.875	0.952	2.700
T13	316'3" (A) (897)	1 1/2 BS	27.600	275.999	65.960	173.877	0.952	2.511
	316'3" (B) (896)	1 1/2 BS	27.600	275.999	65.379	173.877	0.952	2.533
	316'3" (C) (895)	1 1/2 BS	27.600	275.999	65.325	173.877	0.952	2.535
T20	153'9" (A) (894)	1 1/4 BS	19.200	192.000	46.354	120.958	0.952	2.485
	153'9" (B) (893)	1 1/4 BS	19.200	192.000	46.736	120.958	0.952	2.465
	153'9" (C) (892)	1 1/4 BS	19.200	192.000	46.275	120.958	0.952	2.489

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 P_u / ϕP_n
T1	560 - 553.75	4	6'3"	6'3"	75.0 K=1.00	12.566	1.00	-0.898	374.804	0.002 *1
T2	553.75 - 547.5	4	6'3"	6'3"	75.0 K=1.00	12.566	1.00	-2.784	374.804	0.007 *1
T3	547.5 - 541.25	4	6'3"	6'3"	75.0 K=1.00	12.566	1.00	-7.159	374.804	0.019 1
T4	541.25 - 535	4	6'3"	6'3"	75.0 K=1.00	12.566	1.00	-11.710	374.804	0.031 1
T5	535 - 510	4	25'	6'3"	75.0 K=1.00	12.566	1.00	-36.492	374.804	0.097 1
T6	510 - 485	4 1/2	25'	6'3"	66.7 K=1.00	15.904	1.00	-75.638	517.126	0.146 1
T7	485 - 460	4 1/2	25'	6'3"	66.7	15.904	1.00	-87.455	517.126	0.169 1

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 $\frac{P_u}{\phi P_n}$
T8	460 - 435	4 3/4	25'	6'3"	63.2 K=1.00	17.721	1.00	-103.229	595.695	0.173 [1]
T9	435 - 410	4 3/4	25'	6'3"	63.2 K=1.00	17.721	1.00	-110.319	595.695	0.185 [1]
T10	410 - 385	4 3/4	25'	6'3"	63.2 K=1.00	17.721	1.00	-111.689	595.695	0.187 [1]
T11	385 - 360	4 3/4	25'	6'3"	63.2 K=1.00	17.721	1.00	-110.669	595.695	0.186 [1]
T12	360 - 335	4 3/4	25'	6'3"	63.2 K=1.00	17.721	1.00	-109.767	595.695	0.184 [1]
T13	335 - 310	5 1/4	25'	6'3"	57.1 K=1.00	21.647	1.00	-156.668	767.243	0.204 [1]
T14	310 - 285	5	25'	6'3"	60.0 K=1.00	19.635	1.00	-157.697	679.089	0.232 [1]
T15	285 - 260	4 3/4	25'	6'3"	63.2 K=1.00	17.721	1.00	-176.746	595.695	0.297 [1]
T16	260 - 235	4 3/4	25'	6'3"	63.2 K=1.00	17.721	1.00	-193.710	595.695	0.325 [1]
T17	235 - 210	4 3/4	25'	6'3"	63.2 K=1.00	17.721	1.00	-195.912	595.695	0.329 [1]
T18	210 - 185	5	25'	6'3"	60.0 K=1.00	19.635	1.00	-195.155	679.089	0.287 [1]
T19	185 - 160	5 1/4	25'	6'3"	57.1 K=1.00	21.647	1.00	-205.399	767.243	0.268 [1]
T20	160 - 135	5 1/2	25'	6'3"	54.5 K=1.00	23.758	1.00	-226.499	860.106	0.263 [1]
T21	135 - 110	5 1/4	25'	6'3"	57.1 K=1.00	21.647	1.00	-230.699	767.243	0.301 [1]
T22	110 - 85	5 1/4	25'	6'3"	57.1 K=1.00	21.647	1.00	-247.890	767.243	0.323 [1]
T23	85 - 60	5 1/4	25'	6'3"	57.1 K=1.00	21.647	1.00	-257.707	767.243	0.336 [1]
T24	60 - 35	5 1/4	25'	6'3"	57.1 K=1.00	21.647	1.00	-260.700	767.243	0.340 [1]
T25	35 - 10	5 1/4	25'	6'3"	57.1 K=1.00	21.647	1.00	-260.395	767.243	0.339 [1]
T26	10 - 0	5 1/4	11'3/16"	5'6-3/32"	50.4 K=1.00	21.647	1.00	-275.867	809.289	0.341 [*1]

Diagonal 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	2L3x3x1/4x3/8	7'5-1/32"	6'6-11/32"	84.2 K=1.00	2.880	-0.519	80.550	0.006 [1]
T2	553.75 - 547.5	2L2 1/2x2x3/16x3/8	7'5-1/32"	6'8-19/32"	101.6 K=1.00	1.620	-1.322	39.383	0.034 [1]
T26	10 - 0	L3x3 1/2x5/16	6'6-1/16"	6'1-31/32"	119.0 K=1.01	1.930	-2.726	38.546	0.071 [1]

Horizontal 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 $\frac{P_u}{\phi P_n}$
T2	553.75 - 547.5	2L3x2 1/2x1/4x3/8	8'	3'6-7/8"	45.4 K=1.00	2.630	-0.727	88.552	0.008 [1]
T5	535 - 510	2L3x2 1/2x1/4x3/8	8'	7'2-1/2"	91.5 K=1.00	2.630	-4.393	69.736	0.063 [1]
T6	510 - 485	2L3x2 1/2x1/4x3/8	8'	7'2"	91.0 K=1.00	2.630	-6.218	70.023	0.089 [1]
T7	485 - 460	2L3x2 1/2x1/4x3/8	8'	7'2"	91.0 K=1.00	2.630	-7.479	70.023	0.107 [1]
T8	460 - 435	2L2 1/2x2x3/16x3/8	8'	7'2-1/2"	109.1 K=1.00	1.620	-4.724	36.500	0.129 [1]
T9	435 - 410	2L2 1/2x2x3/16x3/8	8'	7'2-1/2"	109.1 K=1.00	1.620	-1.911	36.500	0.052 [1]
T10	410 - 385	2L2 1/2x2x3/16x3/8	8'	7'2-1/2"	109.1 K=1.00	1.620	-3.834	36.500	0.105 [1]
T11	385 - 360	2L2x2x1/4	8'	7'2-1/2"	133.6 K=0.94	1.880	-5.996	30.169	0.199 [1]
T12	360 - 335	2L3x2 1/2x1/4x3/8	8'	7'2-1/2"	91.5 K=1.00	2.630	-8.161	69.736	0.117 [1]
T13	335 - 310	2L3x2 1/2x1/4x3/8	8'	7'1-1/4"	90.2 K=1.00	2.630	-9.554	70.451	0.136 [1]
T14	310 - 285	2L3x2 1/2x1/4x3/8	8'	7'1-1/2"	90.5 K=1.00	2.630	-10.517	70.309	0.150 [1]
T15	285 - 260	2L2 1/2x2x3/16x3/8	8'	7'2-1/2"	109.1 K=1.00	1.620	-7.676	36.500	0.210 [1]
T16	260 - 235	2L2 1/2x2x3/16x3/8	8'	7'2-1/2"	109.1 K=1.00	1.620	-4.843	36.500	0.133 [1]
T17	235 - 210	2L2 1/2x2x3/16x3/8	8'	7'2-1/2"	109.1 K=1.00	1.620	-4.080	36.500	0.112 [1]
T18	210 - 185	2L2 1/2x2x3/16x3/8	8'	7'2-1/4"	108.8 K=1.00	1.620	-7.357	36.626	0.201 [1]
T19	185 - 160	2L3x2 1/2x1/4x3/8	8'	7'1-1/4"	90.2 K=1.00	2.630	-10.969	70.451	0.156 [1]
T20	160 - 135	2L3x2 1/2x1/4x3/8	8'	7'1"	89.9 K=1.00	2.630	-8.612	70.593	0.122 [1]
T21	135 - 110	2L3x2 1/2x1/4x3/8	8'	7'1-1/4"	90.2 K=1.00	2.630	-6.975	70.451	0.099 [1]
T22	110 - 85	2L2 1/2x2x3/16x3/8	8'	7'2"	108.4 K=1.00	1.620	-4.677	36.752	0.127 [1]
T23	85 - 60	2L2 1/2x2x3/16x3/8	8'	7'2"	108.4 K=1.00	1.620	-4.464	36.752	0.121 [1]
T24	60 - 35	2L2 1/2x2x3/16x3/8	8'	7'2"	108.4 K=1.00	1.620	-4.515	36.752	0.123 [1]
T25	35 - 10	2L2 1/2x2x3/16x3/8	8'	7'2"	108.4 K=1.00	1.620	-5.457	36.752	0.148 [1]
T26	10 - 0	L3x5x1/2	4'	1'9-3/8"	76.5 K=2.32	3.750	-5.128	110.162	0.047*[1]

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'	3'10"	66.5	5.880	-0.091	150.971	0.001 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	547.5 - 541.25	2C6x8.2x0.375	8'	7'8"	K=1.00 52.2	4.800	-1.120	134.740	0.008 [1]
T4	541.25 - 535	2L3x2 1/2x1/4x3/8	8'	7'2-1/2"	K=0.50 91.5	2.630	-2.470	69.736	0.035 [1]
T5	535 - 510	2L3x2 1/2x1/4x3/8	8'	7'2-1/2"	K=1.00 91.5	2.630	-2.980	69.736	0.043 [1]
T6	510 - 485	2L3x2 1/2x1/4x3/8	8'	7'2-1/2"	K=1.00 91.5	2.630	-5.277	69.736	0.076 [1]
T7	485 - 460	2L3x2 1/2x1/4x3/8	8'	7'2"	K=1.00 91.0	2.630	-7.698	70.023	0.110 [1]
T8	460 - 435	2L2 1/2x2x3/16x3/8	8'	7'2-3/4"	K=1.00 109.4	1.620	-5.345	36.374	0.147 [1]
T9	435 - 410	2L2 1/2x2x3/16x3/8	8'	7'2-1/2"	K=1.00 109.1	1.620	-2.682	36.500	0.073 [1]
T10	410 - 385	2L2 1/2x2x3/16x3/8	8'	7'2-1/2"	K=1.00 109.1	1.620	-2.115	36.500	0.058 [1]
T11	385 - 360	2L2x2x1/4x3/8	8'	7'2-1/2"	K=1.00 133.6	1.880	-4.515	30.169	0.150 [1]
T12	360 - 335	2L3x2 1/2x1/4x3/8	8'	7'1-3/4"	K=0.94 90.7	2.630	-6.647	70.166	0.095 [1]
T13	335 - 310	2L3x2 1/2x1/4x3/8	8'	7'1-3/4"	K=1.00 90.7	2.630	-8.742	70.166	0.125 [1]
T14	310 - 285	2L3x2 1/2x1/4x3/8	8'	7'1-1/4"	K=1.00 90.2	2.630	-10.418	70.451	0.148 [1]
T15	285 - 260	2L2 1/2x2x3/16x3/8	8'	7'2-1/4"	K=1.00 108.8	1.620	-8.330	36.626	0.227 [1]
T16	260 - 235	2L2 1/2x2x3/16x3/8	8'	7'2-1/2"	K=1.00 109.1	1.620	-5.793	36.500	0.159 [1]
T17	235 - 210	2L2 1/2x2x3/16x3/8	8'	7'2-1/2"	K=1.00 109.1	1.620	-1.714	36.500	0.047 [1]
T18	210 - 185	2L2 1/2x2x3/16x3/8	8'	7'2-1/2"	K=1.00 109.1	1.620	-5.095	36.500	0.140 [1]
T19	185 - 160	2L3x2 1/2x1/4x3/8	8'	7'1-1/2"	K=1.00 90.5	2.630	-8.254	70.309	0.117 [1]
T20	160 - 135	2L3x2 1/2x1/4x3/8	8'	7'1-1/4"	K=1.00 90.2	2.630	-10.823	70.451	0.154 [1]
T21	135 - 110	2L3x2 1/2x1/4x3/8	8'	7'1"	K=1.00 89.9	2.630	-7.687	70.593	0.109 [1]
T22	110 - 85	2L2 1/2x2x3/16x3/8	8'	7'2"	K=1.00 108.4	1.620	-5.211	36.752	0.142 [1]
T23	85 - 60	2L2 1/2x2x3/16x3/8	8'	7'2"	K=1.00 108.4	1.620	-2.878	36.752	0.078 [1]
T24	60 - 35	2L2 1/2x2x3/16x3/8	8'	7'2"	K=1.00 108.4	1.620	-2.354	36.752	0.064 [1]
T25	35 - 10	2L2 1/2x2x3/16x3/8	8'	7'2"	K=1.00 108.4	1.620	-4.463	36.752	0.121 [1]
					K=1.00				

Inner Bracing 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	L3x3x1/4	4'	4'	100.5 K=1.24	1.440	-0.002	35.362	0.000 [1]
T2	553.75 - 547.5	L3x3x1/4	4'	4'	100.5	1.440	-0.004	35.362	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 $\frac{P_u}{\phi P_n}$
T26	10 - 0	L3x3x5/16	2'	2'	K=1.24 80.4 K=1.97	1.780	-0.340	51.063	0.007[*1]

Tension Checks

Leg 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 $\frac{P_u}{\phi P_n}$
T3	547.5 - 541.25	4	6'3"	6'3"	75.0	12.566	0.245	565.487	0.000 [1]
T4	541.25 - 535	4	6'3"	6'3"	75.0	12.566	2.510	565.487	0.004 [1]
T5	535 - 510	4	25'	6'3"	75.0	12.566	18.328	565.487	0.032 [1]
T6	510 - 485	4 1/2	25'	6'3"	66.7	15.904	37.755	715.694	0.053 [1]
T8	460 - 435	4 3/4	25'	6'3"	63.2	17.721	5.941	797.425	0.007 [1]
T9	435 - 410	4 3/4	25'	6'3"	63.2	17.721	10.511	797.425	0.013 [1]
T10	410 - 385	4 3/4	25'	6'3"	63.2	17.721	8.247	797.425	0.010 [1]
T13	335 - 310	5 1/4	25'	6'3"	57.1	21.647	2.488	974.139	0.003 [1]

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 $\frac{P_u}{\phi P_n}$
T1	560 - 553.75	2L3x3x1/4x3/8	7'5-1/32''	6'6-11/32"	91.8	1.738	0.036	75.608	0.000 [1]
T2	553.75 - 547.5	2L2 1/2x2x3/16x3/8	7'5-1/32''	6'8-19/32"	107.6	1.004	1.167	43.677	0.027 [1]
T3	547.5 - 541.25	1	10'1-13/16"	9'8-3/4"	467.0	0.785	2.748	25.447	0.108 [1]
T4	541.25 - 535	1	10'1-13/16"	9'8-3/4"	467.0	0.785	3.532	25.447	0.139 [1]
T5	535 - 510	1	10'1-13/16"	9'8-3/4"	467.0	0.785	6.124	25.447	0.241 [1]
T6	510 - 485	1 1/4	10'1-13/16"	9'8-1/8"	371.6	1.227	10.095	39.761	0.254 [1]
T7	485 - 460	1	10'1-13/16"	9'8-1/8"	464.5	0.785	9.749	25.447	0.383 [1]
T8	460 - 435	3/4	10'1-13/16"	9'7-13/16"	617.6	0.442	6.169	14.314	0.431 [1]
T9	435 - 410	5/8	10'1-13/16"	9'7-13/16"	741.1	0.307	2.615	9.940	0.263 [1]
T10	410 - 385	5/8	10'1-13/16"	9'7-13/16"	741.1	0.307	5.151	9.940	0.518 [1]
T11	385 - 360	3/4	10'1-13/16"	9'7-13/16"	617.6	0.442	7.780	14.314	0.544 [1]
T12	360 - 335	1	10'1-13/16"	9'7-13/16"	463.2	0.785	10.550	25.447	0.415 [1]
T13	335 - 310	1 1/4	10'1-13/	9'7-5/32'	368.5	1.227	13.432	39.761	0.338 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T14	310 - 285	1	10'1-13/16"	9'7-15/32"	461.9	0.785	13.505	25.447	0.531 [1]
T15	285 - 260	3/4	10'1-13/16"	9'7-13/16"	617.6	0.442	9.836	14.314	0.687 [1]
T16	260 - 235	5/8	10'1-13/16"	9'7-13/16"	741.1	0.307	6.747	9.940	0.679 [1]
T17	235 - 210	5/8	10'1-13/16"	9'7-13/16"	741.1	0.307	5.502	9.940	0.553 [1]
T18	210 - 185	7/8	10'1-13/16"	9'7-15/32"	527.9	0.601	9.761	19.483	0.501 [1]
T19	185 - 160	1	10'1-13/16"	9'7-5/32"	460.6	0.785	14.114	25.447	0.555 [1]
T20	160 - 135	1 1/4	10'1-13/16"	9'6-27/32"	367.5	1.227	13.925	39.761	0.350 [1]
T21	135 - 110	1	10'1-13/16"	9'7-5/32"	460.6	0.785	9.076	25.447	0.357 [1]
T22	110 - 85	7/8	10'1-13/16"	9'7-5/32"	526.5	0.601	6.149	19.483	0.316 [1]
T23	85 - 60	7/8	10'1-13/16"	9'7-5/32"	526.5	0.601	3.083	19.483	0.158 [1]
T24	60 - 35	7/8	10'1-13/16"	9'7-5/32"	526.5	0.601	5.238	19.483	0.269 [1]
T25	35 - 10	7/8	10'1-13/16"	9'7-5/32"	526.5	0.601	7.243	19.483	0.372 [1]
T26	10 - 0	L3x3 1/2x5/16	6'6-1/16"	6'1-31/32"	81.8	1.930	2.207	62.532	0.035 [1]

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 $\frac{P_u}{\phi P_n}$
T2	553.75 - 547.5	2L3x2 1/2x1/4x3/8	8'	3'6-7/8"	48.7	1.597	0.791	69.491	0.011 [1]
T5	535 - 510	2L3x2 1/2x1/4x3/8	8'	7'2-1/2"	97.4	1.644	0.632	71.530	0.009 [1]
T6	510 - 485	2L3x2 1/2x1/4x3/8	8'	7'2"	96.8	1.644	16.400	71.530	0.229 [1]
T7	485 - 460	2L3x2 1/2x1/4x3/8	8'	7'2"	96.8	1.644	1.515	71.530	0.021 [1]
T8	460 - 435	2L2 1/2x2x3/16x3/8	8'	7'2-1/2"	115.1	1.004	1.788	43.677	0.041 [1]
T9	435 - 410	2L2 1/2x2x3/16x3/8	8'	7'2-1/2"	115.1	1.004	1.911	43.677	0.044 [1]
T10	410 - 385	2L2 1/2x2x3/16x3/8	8'	7'2-1/2"	115.1	1.004	1.935	43.677	0.044 [1]
T11	385 - 360	2L2x2x1/4	8'	7'2-1/2"	149.8	1.129	1.917	49.101	0.039 [1]
T12	360 - 335	2L3x2 1/2x1/4x3/8	8'	7'2-1/2"	96.6	1.691	1.901	73.569	0.026 [1]
T13	335 - 310	2L3x2 1/2x1/4x3/8	8'	7'1-1/4"	96.0	1.644	19.021	71.530	0.266 [1]
T14	310 - 285	2L3x2 1/2x1/4x3/8	8'	7'1-1/2"	96.3	1.644	2.731	71.530	0.038 [1]
T15	285 - 260	2L2 1/2x2x3/16x3/8	8'	7'2-1/2"	115.1	1.004	3.061	43.677	0.070 [1]
T16	260 - 235	2L2 1/2x2x3/16x3/8	8'	7'2-1/2"	115.1	1.004	3.355	43.677	0.077 [1]
T17	235 - 210	2L2 1/2x2x3/16x3/8	8'	7'2-1/2"	115.1	1.004	3.393	43.677	0.078 [1]
T18	210 - 185	2L2 1/2x2x3/16x3/8	8'	7'2-1/4"	114.8	1.004	3.380	43.677	0.077 [1]
T19	185 - 160	2L3x2 1/2x1/4x3/8	8'	7'1-1/4"	96.0	1.644	3.558	71.530	0.050 [1]
T20	160 - 135	2L3x2 1/2x1/4x3/8	8'	7'1"	95.8	1.644	20.528	71.530	0.287 [1]
T21	135 - 110	2L3x2 1/2x1/4x3/8	8'	7'1-1/4"	96.0	1.644	3.996	71.530	0.056 [1]
T22	110 - 85	2L2 1/2x2x3/16x3/8	8'	7'2"	114.4	1.004	4.294	43.677	0.098 [1]
T23	85 - 60	2L2 1/2x2x3/16x3/8	8'	7'2"	114.4	1.004	4.464	43.677	0.102 [1]
T24	60 - 35	2L2 1/2x2x3/16x3/8	8'	7'2"	114.4	1.004	4.515	43.677	0.103 [1]
T25	35 - 10	2L2 1/2x2x3/16x3/8	8'	7'2"	114.4	1.004	4.296	43.677	0.098 [*1]
T26	10 - 0	L3x5x1/2	4'	1'9-3/8"	25.8	3.750	5.128	121.500	0.042 [*1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$

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'	3'10"	66.5	5.880	0.084	190.512	0.000 [1]
T3	547.5 - 541.25	2C6x8.2x0.375	8'	7'8"	104.4	3.375	0.303	146.813	0.002 [1]
T4	541.25 - 535	2L3x2 1/2x1/4x3/8	8'	7'2-1/2"	97.4	1.644	0.157	71.530	0.002 [1]
T5	535 - 510	2L3x2 1/2x1/4x3/8	8'	7'2-1/2"	97.4	1.644	0.061	71.530	0.001 [1]
T6	510 - 485	2L3x2 1/2x1/4x3/8	8'	7'2-1/2"	97.4	1.644	0.111	71.530	0.002 [1]
T7	485 - 460	2L3x2 1/2x1/4x3/8	8'	7'2"	96.8	1.644	0.069	71.530	0.001 [*1]
T8	460 - 435	2L2 1/2x2x3/16x3/8	8'	7'2-3/4"	115.4	1.004	0.067	43.677	0.002 [1]
T9	435 - 410	2L2 1/2x2x3/16x3/8	8'	7'2-1/2"	115.1	1.004	0.118	43.677	0.003 [1]
T10	410 - 385	2L2 1/2x2x3/16x3/8	8'	7'2-1/2"	115.1	1.004	0.088	43.677	0.002 [1]
T11	385 - 360	2L2x2x1/4x3/8	8'	7'2-1/2"	149.8	1.129	0.229	49.101	0.005 [1]
T12	360 - 335	2L3x2 1/2x1/4x3/8	8'	7'1-3/4"	96.6	1.644	0.185	71.530	0.003 [1]
T13	335 - 310	2L3x2 1/2x1/4x3/8	8'	7'1-3/4"	96.6	1.644	0.200	71.530	0.003 [1]
T14	310 - 285	2L3x2 1/2x1/4x3/8	8'	7'1-1/4"	96.0	1.644	0.115	71.530	0.002 [*1]
T15	285 - 260	2L2 1/2x2x3/16x3/8	8'	7'2-1/4"	114.8	1.004	0.076	43.677	0.002 [1]
T16	260 - 235	2L2 1/2x2x3/16x3/8	8'	7'2-1/2"	115.1	1.004	0.178	43.677	0.004 [1]
T17	235 - 210	2L2 1/2x2x3/16x3/8	8'	7'2-1/2"	115.1	1.004	0.313	43.677	0.007 [1]
T18	210 - 185	2L2 1/2x2x3/16x3/8	8'	7'2-1/2"	115.1	1.004	0.200	43.677	0.005 [1]
T19	185 - 160	2L3x2 1/2x1/4x3/8	8'	7'1-1/2"	96.3	1.644	0.243	71.530	0.003 [1]
T20	160 - 135	2L3x2 1/2x1/4x3/8	8'	7'1-1/4"	96.0	1.644	0.132	71.530	0.002 [*1]
T21	135 - 110	2L3x2 1/2x1/4x3/8	8'	7'1"	95.8	1.644	0.406	71.530	0.006 [1]
T22	110 - 85	2L2 1/2x2x3/16x3/8	8'	7'2"	114.4	1.004	0.122	43.677	0.003 [1]
T23	85 - 60	2L2 1/2x2x3/16x3/8	8'	7'2"	114.4	1.004	0.240	43.677	0.005 [1]
T24	60 - 35	2L2 1/2x2x3/16x3/8	8'	7'2"	114.4	1.004	0.125	43.677	0.003 [1]
T26	10 - 0	2L4x3x1/2	8'	7'6-3/4"	72.6	6.500	66.071	210.600	0.314 [*1]

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'	4'	51.6	1.440	0.002	46.656	0.000 [1]
T2	553.75 - 547.5	L3x3x1/4	4'	4'	51.6	1.440	0.003	46.656	0.000 [1]

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	-0.898	374.804	0.2	Pass
T2	553.75 - 547.5	Leg	4	17	-2.784	374.804	0.7	Pass
T3	547.5 - 541.25	Leg	4	31	-7.159	393.544	1.8	Pass
T4	541.25 - 535	Leg	4	43	-11.710	393.544	3.0	Pass
T5	535 - 510	Leg	4	55	-36.492	393.544	9.3	Pass

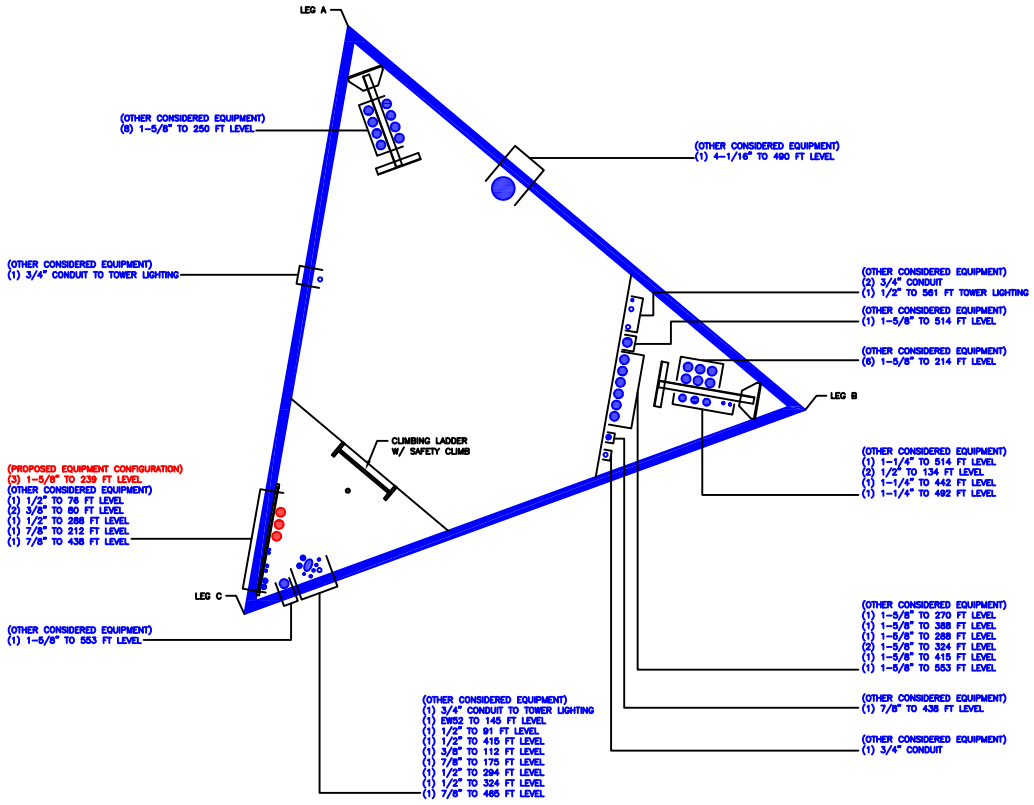
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T6	510 - 485	Leg	4 1/2	94	-75.638	542.982	13.9	Pass
T7	485 - 460	Leg	4 1/2	135	-87.455	542.982	16.1	Pass
T8	460 - 435	Leg	4 3/4	174	-103.229	625.480	16.5	Pass
T9	435 - 410	Leg	4 3/4	211	-110.319	625.480	17.6	Pass
							18.6 (b)	
T10	410 - 385	Leg	4 3/4	252	-111.689	625.480	17.9	Pass
							19.5 (b)	
T11	385 - 360	Leg	4 3/4	289	-110.669	625.480	17.7	Pass
							19.5 (b)	
T12	360 - 335	Leg	4 3/4	328	-109.767	625.480	17.5	Pass
							18.1 (b)	
T13	335 - 310	Leg	5 1/4	367	-156.668	805.605	19.4	Pass
T14	310 - 285	Leg	5	406	-157.697	713.043	22.1	Pass
T15	285 - 260	Leg	4 3/4	447	-176.746	625.480	28.3	Pass
							28.5 (b)	
T16	260 - 235	Leg	4 3/4	484	-193.710	625.480	31.0	Pass
							31.9 (b)	
T17	235 - 210	Leg	4 3/4	523	-195.912	625.480	31.3	Pass
							34.3 (b)	
T18	210 - 185	Leg	5	562	-195.155	713.043	27.4	Pass
							34.3 (b)	
T19	185 - 160	Leg	5 1/4	602	-205.399	805.605	25.5	Pass
T20	160 - 135	Leg	5 1/2	640	-226.499	903.111	25.1	Pass
T21	135 - 110	Leg	5 1/4	679	-230.699	805.605	28.6	Pass
T22	110 - 85	Leg	5 1/4	719	-247.890	805.605	30.8	Pass
T23	85 - 60	Leg	5 1/4	758	-257.707	805.605	32.0	Pass
T24	60 - 35	Leg	5 1/4	797	-260.700	805.605	32.4	Pass
T25	35 - 10	Leg	5 1/4	836	-260.395	805.605	32.3	Pass
T26	10 - 0	Leg	5 1/4	876	-275.867	809.289	34.1	Pass
							36.1 (b)	
T1	560 - 553.75	Diagonal	2L3x3x1/4x3/8	7	-0.519	84.577	0.6	Pass
T2	553.75 - 547.5	Diagonal	2L2 1/2x2x3/16x3/8	20	-1.322	41.352	3.2	Pass
							3.9 (b)	
T3	547.5 - 541.25	Diagonal	1	38	2.748	26.719	10.3	Pass
T4	541.25 - 535	Diagonal	1	50	3.532	26.719	13.2	Pass
T5	535 - 510	Diagonal	1	65	6.124	26.719	22.9	Pass
T6	510 - 485	Diagonal	1 1/4	101	10.095	41.749	24.2	Pass
T7	485 - 460	Diagonal	1	167	9.749	26.719	36.5	Pass
T8	460 - 435	Diagonal	3/4	206	6.169	15.030	41.0	Pass
T9	435 - 410	Diagonal	5/8	244	2.615	10.437	25.1	Pass
T10	410 - 385	Diagonal	5/8	260	5.151	10.437	49.3	Pass
T11	385 - 360	Diagonal	3/4	299	7.780	15.030	51.8	Pass
T12	360 - 335	Diagonal	1	338	10.550	26.719	39.5	Pass
T13	335 - 310	Diagonal	1 1/4	373	13.432	41.749	32.2	Pass
T14	310 - 285	Diagonal	1	439	13.505	26.719	50.5	Pass
T15	285 - 260	Diagonal	3/4	478	9.836	15.030	65.4	Pass
T16	260 - 235	Diagonal	5/8	517	6.747	10.437	64.6	Pass
T17	235 - 210	Diagonal	5/8	529	5.502	10.437	52.7	Pass
T18	210 - 185	Diagonal	7/8	568	9.761	20.457	47.7	Pass
T19	185 - 160	Diagonal	1	607	14.114	26.719	52.8	Pass
T20	160 - 135	Diagonal	1 1/4	673	13.925	41.749	33.4	Pass
T21	135 - 110	Diagonal	1	716	9.076	26.719	34.0	Pass
T22	110 - 85	Diagonal	7/8	755	6.149	20.457	30.1	Pass
T23	85 - 60	Diagonal	7/8	795	3.083	20.457	15.1	Pass
T24	60 - 35	Diagonal	7/8	804	5.238	20.457	25.6	Pass
T25	35 - 10	Diagonal	7/8	841	7.243	20.457	35.4	Pass
T26	10 - 0	Diagonal	L3x3 1/2x5/16	882	-2.726	40.474	6.7	Pass
T2	553.75 - 547.5	Horizontal	2L3x2 1/2x1/4x3/8	19	0.791	72.966	1.1	Pass
							1.6 (b)	
T5	535 - 510	Horizontal	2L3x2 1/2x1/4x3/8	69	-4.393	73.222	6.0	Pass
T6	510 - 485	Horizontal	2L3x2 1/2x1/4x3/8	107	16.400	75.107	21.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
							35.0 (b)	
T7	485 - 460	Horizontal	2L3x2 1/2x1/4x3/8	163	-7.479	73.524	10.2	Pass
T8	460 - 435	Horizontal	2L2 1/2x2x3/16x3/8	202	-4.724	38.325	12.3	Pass
T9	435 - 410	Horizontal	2L2 1/2x2x3/16x3/8	223	-1.911	38.325	5.0	Pass
							6.3 (b)	
T10	410 - 385	Horizontal	2L2 1/2x2x3/16x3/8	264	-3.834	38.325	10.0	Pass
T11	385 - 360	Horizontal	2L2x2x1/4	303	-5.996	31.677	18.9	Pass
T12	360 - 335	Horizontal	2L3x2 1/2x1/4x3/8	342	-8.161	73.222	11.1	Pass
							14.1 (b)	
T13	335 - 310	Horizontal	2L3x2 1/2x1/4x3/8	381	19.021	75.107	25.3	Pass
							40.6 (b)	
T14	310 - 285	Horizontal	2L3x2 1/2x1/4x3/8	436	-10.517	73.825	14.2	Pass
T15	285 - 260	Horizontal	2L2 1/2x2x3/16x3/8	475	-7.676	38.325	20.0	Pass
T16	260 - 235	Horizontal	2L2 1/2x2x3/16x3/8	515	-4.843	38.325	12.6	Pass
T17	235 - 210	Horizontal	2L2 1/2x2x3/16x3/8	535	-4.080	38.325	10.6	Pass
							11.2 (b)	
T18	210 - 185	Horizontal	2L2 1/2x2x3/16x3/8	574	-7.357	38.458	19.1	Pass
T19	185 - 160	Horizontal	2L3x2 1/2x1/4x3/8	613	-10.969	73.974	14.8	Pass
T20	160 - 135	Horizontal	2L3x2 1/2x1/4x3/8	672	20.528	75.107	27.3	Pass
							43.8 (b)	
T21	135 - 110	Horizontal	2L3x2 1/2x1/4x3/8	711	-6.975	73.974	9.4	Pass
T22	110 - 85	Horizontal	2L2 1/2x2x3/16x3/8	750	-4.677	38.589	12.1	Pass
							14.2 (b)	
T23	85 - 60	Horizontal	2L2 1/2x2x3/16x3/8	769	-4.464	38.589	11.6	Pass
							14.8 (b)	
T24	60 - 35	Horizontal	2L2 1/2x2x3/16x3/8	817	-4.515	38.589	11.7	Pass
							15.0 (b)	
T25	35 - 10	Horizontal	2L2 1/2x2x3/16x3/8	857	-5.457	38.589	14.1	Pass
							14.9 (b)	
T26	10 - 0	Horizontal	L3x5x1/2	883	-5.128	110.162	4.7	Pass
T1	560 - 553.75	Top Girt	C10x20	4	-0.091	158.520	0.3	Pass
T3	547.5 - 541.25	Top Girt	2C6x8.2x0.375	36	-1.079	141.477	0.9	Pass
							1.9 (b)	
T4	541.25 - 535	Top Girt	2L3x2 1/2x1/4x3/8	46	-2.470	73.222	3.4	Pass
T5	535 - 510	Top Girt	2L3x2 1/2x1/4x3/8	58	-2.980	73.222	4.1	Pass
T6	510 - 485	Top Girt	2L3x2 1/2x1/4x3/8	99	-5.277	73.222	7.2	Pass
T7	485 - 460	Top Girt	2L3x2 1/2x1/4x3/8	136	-7.698	73.524	10.5	Pass
T8	460 - 435	Top Girt	2L2 1/2x2x3/16x3/8	175	-5.345	38.193	14.0	Pass
T9	435 - 410	Top Girt	2L2 1/2x2x3/16x3/8	214	-2.682	38.325	7.0	Pass
T10	410 - 385	Top Girt	2L2 1/2x2x3/16x3/8	255	-2.115	38.325	5.5	Pass
T11	385 - 360	Top Girt	2L2x2x1/4x3/8	294	-4.515	31.677	14.3	Pass
T12	360 - 335	Top Girt	2L3x2 1/2x1/4x3/8	333	-6.647	73.675	9.0	Pass
T13	335 - 310	Top Girt	2L3x2 1/2x1/4x3/8	372	-8.742	73.675	11.9	Pass
T14	310 - 285	Top Girt	2L3x2 1/2x1/4x3/8	409	-10.418	73.974	14.1	Pass
T15	285 - 260	Top Girt	2L2 1/2x2x3/16x3/8	448	-8.330	38.458	21.7	Pass
T16	260 - 235	Top Girt	2L2 1/2x2x3/16x3/8	488	-5.793	38.325	15.1	Pass
T17	235 - 210	Top Girt	2L2 1/2x2x3/16x3/8	526	-1.714	38.325	4.5	Pass
T18	210 - 185	Top Girt	2L2 1/2x2x3/16x3/8	565	-5.095	38.325	13.3	Pass
T19	185 - 160	Top Girt	2L3x2 1/2x1/4x3/8	604	-8.254	73.825	11.2	Pass
T20	160 - 135	Top Girt	2L3x2 1/2x1/4x3/8	643	-10.823	73.974	14.6	Pass
T21	135 - 110	Top Girt	2L3x2 1/2x1/4x3/8	684	-7.687	74.123	10.4	Pass
T22	110 - 85	Top Girt	2L2 1/2x2x3/16x3/8	723	-5.211	38.589	13.5	Pass
T23	85 - 60	Top Girt	2L2 1/2x2x3/16x3/8	762	-2.878	38.589	7.5	Pass
T24	60 - 35	Top Girt	2L2 1/2x2x3/16x3/8	799	-2.354	38.589	6.1	Pass
T25	35 - 10	Top Girt	2L2 1/2x2x3/16x3/8	839	-4.463	38.589	11.6	Pass
T26	10 - 0	Top Girt	2L4x3x1/2	879	66.071	210.600	31.4	Pass
T1	560 - 553.75	Inner Bracing	L3x3x1/4	14	-0.002	37.131	0.3	Pass
T2	553.75 - 547.5	Inner Bracing	L3x3x1/4	29	-0.003	37.131	0.3	Pass
T26	10 - 0	Inner Bracing	L3x3x5/16	889	-0.340	51.063	0.7	Pass
T6	510 - 485	Guy A@491.25	1 3/4	900	82.685	236.875	34.9	Pass
T13	335 - 310	Guy A@316.25	1 1/2	897	65.960	173.877	37.9	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$øP_{allow}$ K	% Capacity	Pass Fail
T20	160 - 135	Guy A@153.75	1 1/4	894	46.354	120.958	38.3	Pass
T6	510 - 485	Guy B@491.25	1 3/4	899	81.530	236.875	34.4	Pass
T13	335 - 310	Guy B@316.25	1 1/2	896	65.379	173.877	37.6	Pass
T20	160 - 135	Guy B@153.75	1 1/4	893	46.736	120.958	38.6	Pass
T6	510 - 485	Guy C@491.25	1 3/4	898	83.542	236.875	35.3	Pass
T13	335 - 310	Guy C@316.25	1 1/2	895	65.325	173.877	37.6	Pass
T20	160 - 135	Guy C@153.75	1 1/4	892	46.275	120.958	38.3	Pass
							Summary	
						Leg (T26)	36.1	Pass
						Diagonal (T15)	65.4	Pass
						Horizontal (T20)	43.8	Pass
						Top Girt (T26)	31.4	Pass
						Inner Bracing (T26)	0.7	Pass
						Guy A (T20)	38.3	Pass
						Guy B (T20)	38.6	Pass
						Guy C (T20)	38.3	Pass
						Bolt Checks	43.8	Pass
						RATING =	**65.4**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



Clients

CROWN CASTLE

Professional Stamp

Revisions

No.	Description	Date
A	ISSUED FOR REVIEW	7.29.19

Engineering Firm

P-SEC
ph: 519-885-3806
fx: 519-886-0076
www.p-sec.ca
PIER STRUCTURAL ENGINEERING CORP
55 NORTHFIELD DR. E, SUITE 198
WATERLOO, ON N2K 3T6

PSEC Job No.

20588

Site Name

870800
AVON (DEERCLIFF RD.)

Site Design

Sheet Title

TX LINES

Drawn by	TH	Sheet
Checked by		A-1
Approved By		

APPENDIX C

ADDITIONAL CALCULATIONS

Pier and Pad Foundation

BU # :	870800
Site Name:	Avon (Deercliff Rd.
App. Number:	495742 Rev 0

TIA-222 Revision:	H
Tower Type:	Guyed

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

Superstructure Analysis Reactions		
Compression, P_{comp}:	759	kips
Base Shear, Vu_comp:	8	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

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**:	15	ft
Pad Thickness, **T**:	2.5	ft
Pad Rebar Size (Bottom), **Sp**:	9	
Pad Rebar Quantity (Bottom), **mp**:	23	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	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 Net Bearing, Qnet:	16.000	ksf
Cohesion, **Cu**:	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

Foundation Analysis Checks	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	244.26	8.00	**3.1%**	**Pass**
Bearing Pressure (ksf)	9.95	4.25	**40.7%**	**Pass**
*Overturning (kip*ft)*	3288.38	50.00	**1.5%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	1780.59	28.00	**1.5%**	**Pass**
Pier Compression (kip)	7637.76	769.08	**9.6%**	**Pass**
*Pad Flexure (kip*ft)*	2463.79	785.16	**30.4%**	**Pass**
Pad Shear - 1-way (kips)	374.27	176.11	**44.8%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.078	**45.1%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	3763.52	16.80	**0.4%**	**Pass**

**Rating per TIA-222-H Section 15.5*

Soil Rating*:	**40.7%**
Structural Rating*:	**45.1%**

Version 3.2.0

PROJECT No:	20588	ENG:	TH
PROJECT NAME:	870800 - AVON (DEERCLIFF RD.)	CHK:	JA
	CROWN CASTLE		
DATE:	July 31, 2019	PAGE:	1 of 1

FOUNDATION COMAPRISON CALCULATIONS

a) Governing Standards Used

Tower Type	GUYED TOWER
Current Standard	TIA-222-H
Original Standard	TIA-222-C

b) Foundation Loads from "Current Analysis"

	Factored		
i) VERTICAL (TB)		kips	(INPUT values from TNX Tower results)
ii) UPLIFT (GA)	129.0	kips	
iii) HORIZONTAL (GA)	123.0	kips	

c) Foundation Capacity from "Original Design"

	Factored		
i) VERTICAL (TB)		kips	(INPUT values from Central Tower dwg no. SS-1076-1)
ii) UPLIFT (GA)	360.0	kips	
iii) HORIZONTAL (GA)	254.0	kips	

d) Foundation Capacity Increase

	Factored		
i) VERTICAL (TB)	0.0	kips	(multiply by 1.35 per Rev H Clause 15.6.2)
ii) UPLIFT (GA)	486.0	kips	
iii) HORIZONTAL (GA)	342.9	kips	

e) Foundation Capacities

i) VERTICAL (TB)	0 kips / 0 kips	[0.0%]
ii) UPLIFT (GA)	129 kips / 486 kips	[25.3%]
iii) HORIZONTAL (GA)	123 kips / 342.9 kips	[34.2%]

f) OVERALL FOUNDATION CAPACITY

** Note: TB means Tower Base, GA means Guy Anchor.*

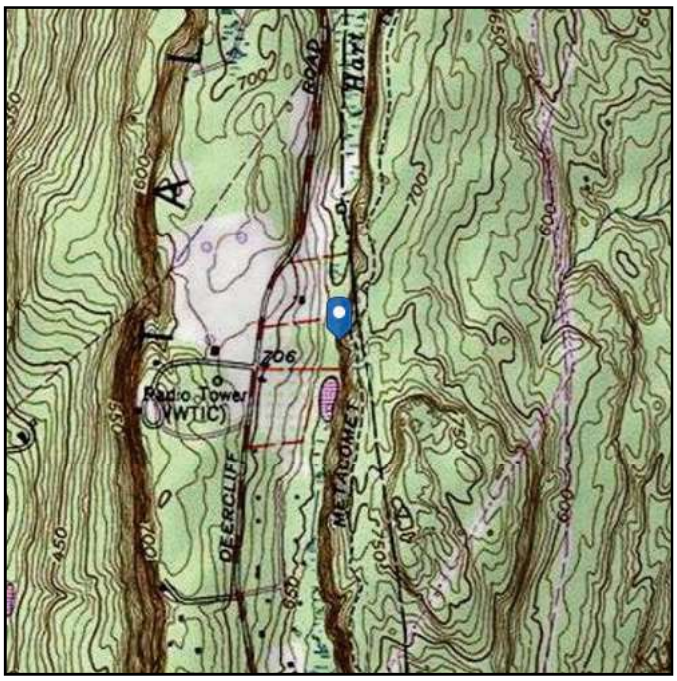
FOUNDATION CAPACITY **34.2%**

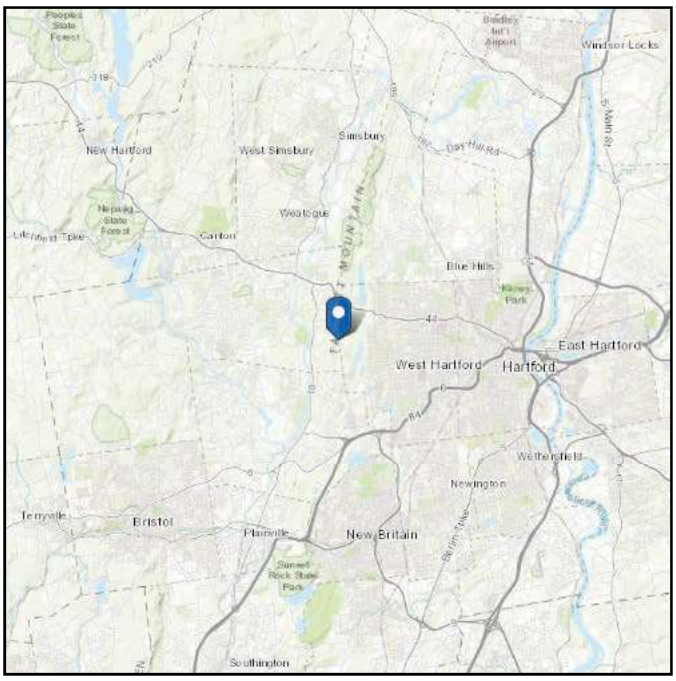
ASCE 7 Hazards Report

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:	121 Vmph
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	92 Vmph
100-year MRI	99 Vmph

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

Date Accessed: Thu Jul 25 2019

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.

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

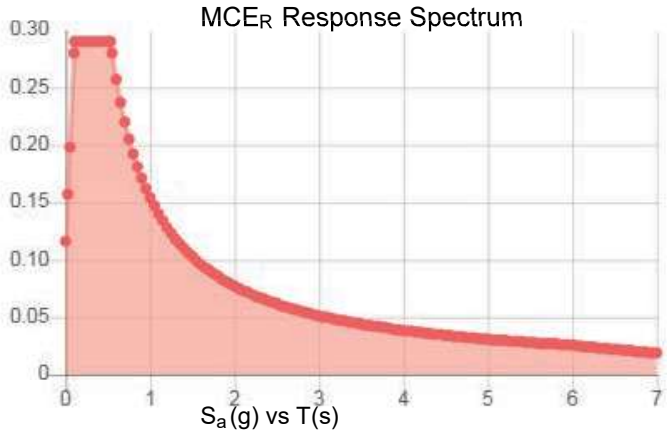
Seismic

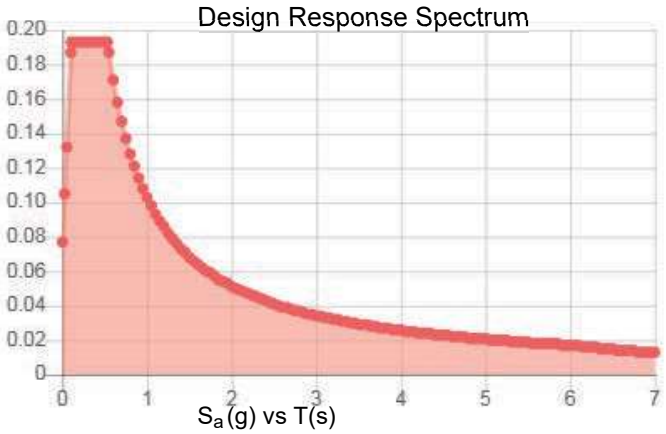
Site Soil Class: D - Stiff Soil

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 Jul 25 2019

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 Jul 25 2019

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.

870800 - Avon (Deercliff Rd.)
Exposure B, Topographic Category 1

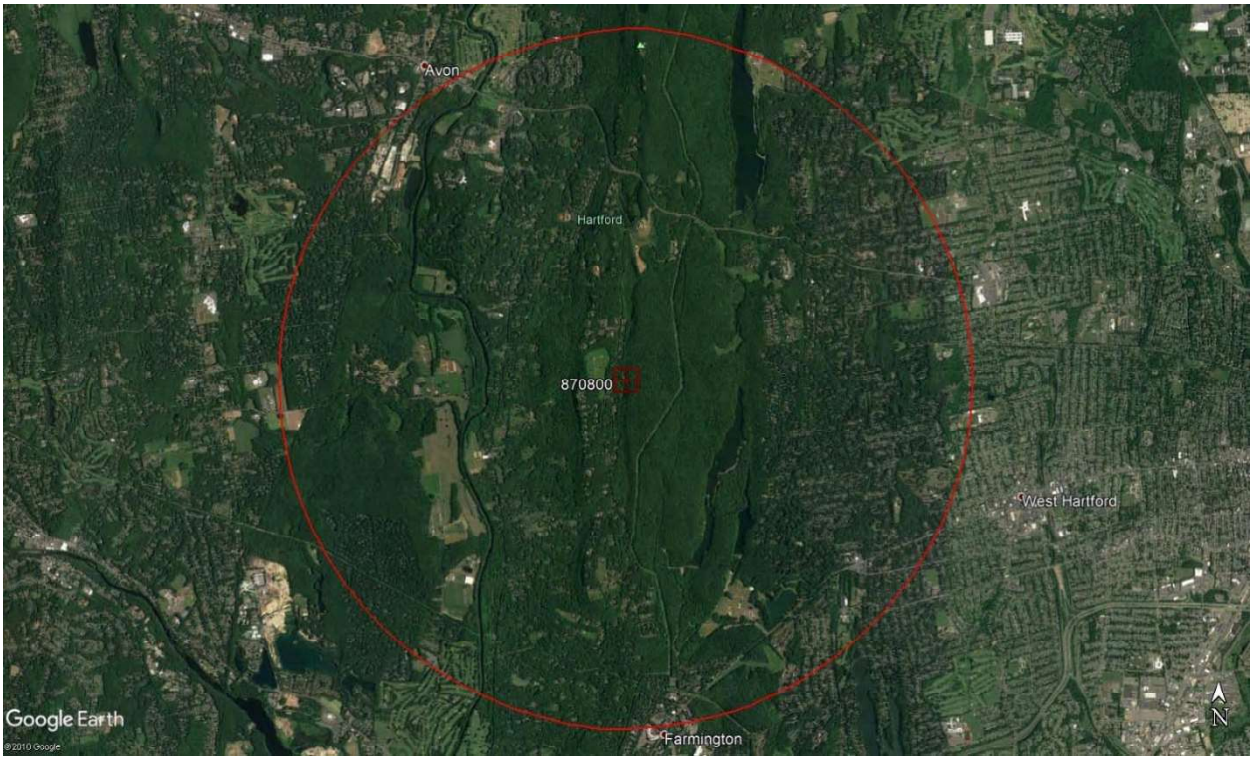


Exhibit E

Mount Analysis

Date: **July 10, 2019**

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Kevin Morrow
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277
704-405-6619

Infinigy Engineering, PLLC
1033 Watervliet Shaker Road
Albany, NY 12205
518-690-0790
structural@infinigy.com

Subject:	**Mount Analysis Report**	
Carrier Designation:	**T-Mobile L600**	
	Carrier Site Number:	CT11376A
	Carrier Site Name:	Farmington1/RT10
Crown Castle Designation:	**Crown Castle BU Number:**	870800
	Crown Castle Site Name:	Avon (Deercliff Rd.)
	Crown Castle JDE Job Number:	578333
	Crown Castle Order Number:	495742 Rev. 0
Engineering Firm Designation:	**Infinigy Engineering, PLLC Report Designation:** 1039-C0002-B	
Site Data:	**376 Deercliff Road, Avon, Hartford County, CT, 06001** **Latitude 41°46'29.95" Longitude -72°48'2.07"**	
Structure Information:	**Tower Height & Type:**	**560.0 ft Guyed Tower**
	Mount Elevation:	**239.0 ft**
	Mount Type:	**11.2 ft Sector Frame**

Dear Kevin Morrow,

Infinigy Engineering, PLLC is pleased to submit this **"Mount Analysis Report"** to determine the structural integrity of T-Mobile'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.

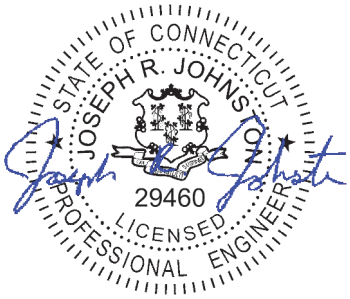
The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

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 2018 Conneticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Steven Youssef, E.I.T.

Respectfully Submitted by:
Joe Johnston, P.E.
VP Structural Engineering/Principal
518-690-0790
jjohnston@infinigy.com
CT PE License No. PEN.0029460



07/10/2019

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Additional Calculations

1) INTRODUCTION

This is a 11.2 ft Sector Frame, mapped by Infinigy Engineering, PLLC.

2) ANALYSIS CRITERIA

Building Code:	2015 IBC / 2018 Conneticut State Building Code
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 S_1:	0.064
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
239.0	240.0	3	RFS/Celwave	APX16DWV-16DWVS-E-A20	11.2 ft Sector Frame
		3	RFS/Celwave	APXVAARR24_43-U-NA20	
		3	Ericsson	Radio 4415 B66A	
		3	Ericsson	Radio 4449 B12/B71	
		3	Ericsson	Radio 4415 B25	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Crown Application	T-Mobile Application	495742 Rev. 0	CCI Sites
Mount Mapping	Infinigy Engineering, PLLC	8504342	CCI Sites

3.1) Analysis Method

RISA-3D (Version 17.0.3), 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.

Infinigy Mount Analysis Tool 4.0.5, a tool internally developed by Infinigy, was used to calculate wind loading on all appurtenances, dishes and mount members for various loading cases. Selected output from the analysis is included in Appendix B “Software Input Calculations”.

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) 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. Infinigy Engineering, PLLC 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, All Sectors)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,2	Mount Pipe(s)	MP3	239.0	50.9	Pass
	Horizontal(s)	M1		67.8	Pass
	Vertical Standoff(s)	M11		40.2	Pass
	Mount Connection(s)	--		18.7	Pass

Structure Rating (max from all components) =	67.8%

Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) All sectors are typical

4.1) Recommendations

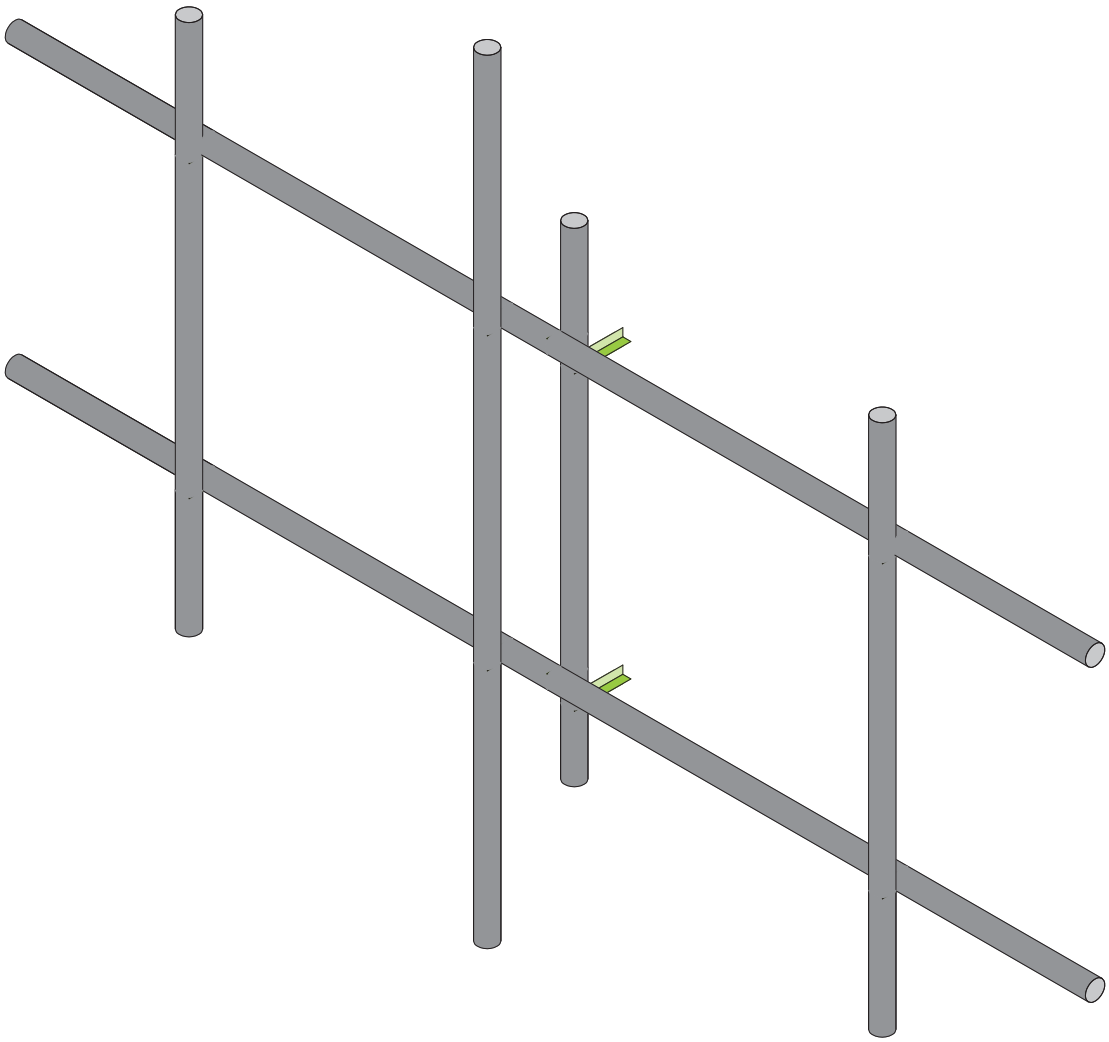
The mount has sufficient capacity to carry the proposed loading configuration. In order for the results of the analysis to be considered valid, the loading modification listed below must be completed.

1. Add 2.0” std sch 40 pipe mount by 96” long 6” to the left center of sector frame.

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

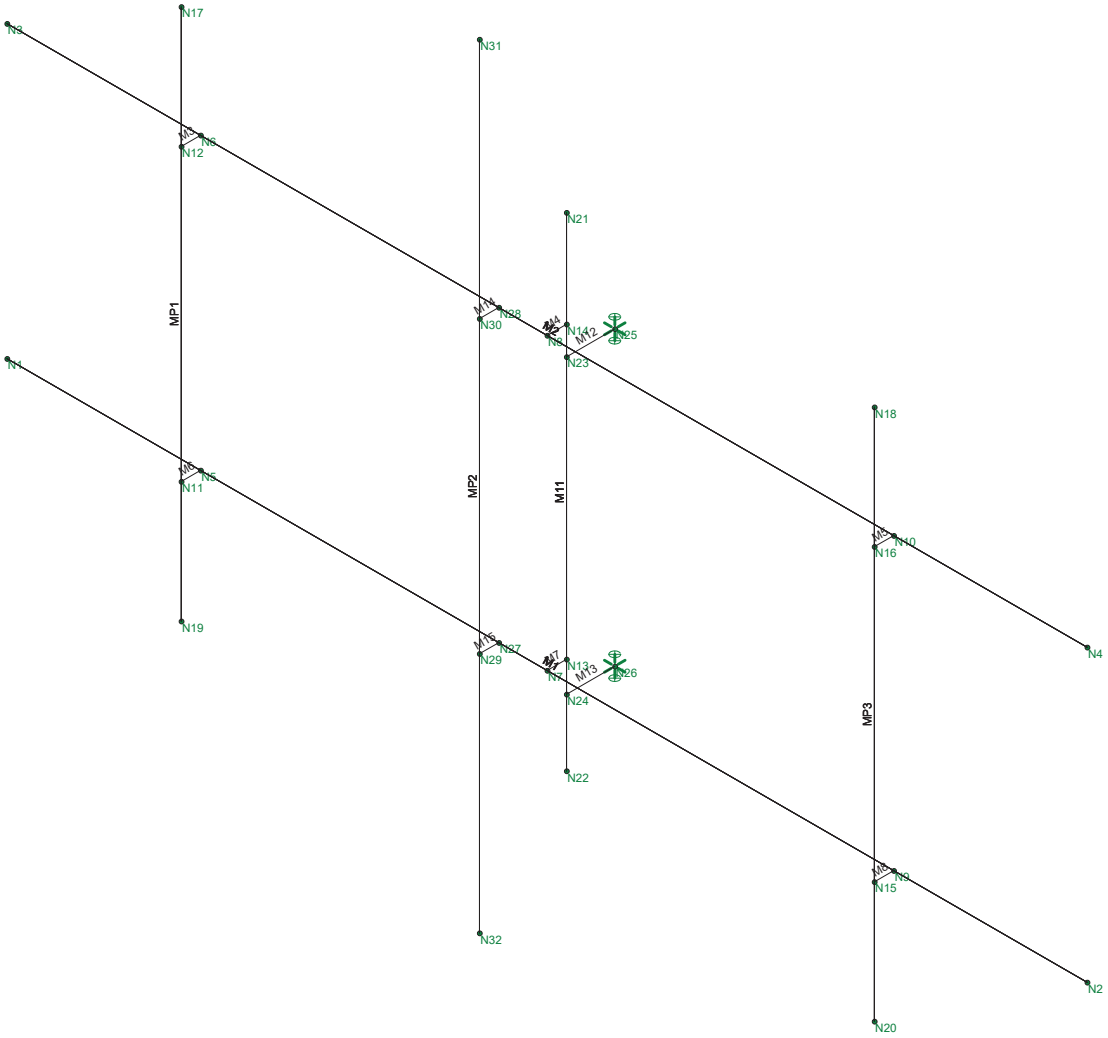
APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

Infinigy Engineering, PLLC	Avon (Deercliff Rd.)	Rendered
Steven Youssef, E.I.T.		July 10, 2019 at 1:58 PM
1039-C0002-B		870800_loaded.r3d



Envelope Only Solution

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Steven Youssef, E.I.T.		July 10, 2019 at 1:59 PM
1039-C0002-B		870800_loaded.r3d

APPENDIX B

SOFTWARE INPUT CALCULATIONS

Site Name:	870800
Client:	Crown Castle
Carrier:	T-Mobile
Engineer:	SY
Date:	7/10/2019

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INFINIGY WIND LOAD CALCULATOR 4.0.5

Site Information Inputs:

Adopted Building Code:	2018 Connecticut
Structure Load Standard:	TIA-222-H
Antenna Load Standard:	TIA-222-H
Structure Risk Category:	II
Structure Type:	Mount - Sector
Number of Sectors:	3
Main Structure Shape:	Round

Rooftop Inputs:

Rooftop Wind Speed-Up?:	No

Wind Loading Inputs:

Design Wind Velocity:	120	mph (ultimate 3-second gust)
Wind Centerline 1 (z_1):	239.0	ft
Side Face Angle (θ):	90	degrees
Exposure Category:	B	
Topographic Category:	1	

Wind with No Ice		
q_z (psf)	Gh	F_{ST} (psf)
43.30	1.00	**51.96**

Wind with Ice		
q_z (psf)	Gh	F_{ST} (psf)
7.52	1.00	**27.54**

Ice Loading Inputs:

Is Ice Loading Needed?:	Yes	
Ice Wind Velocity:	50	mph (ultimate 3-second gust)
Base Ice Thickness:	2.00	in

Appurtenances	Elevation (ft)	Total Quantity	Ka	Front Shape	Side Shape	q_z (psf)	EPA (ft^2)	Fz (lbs)	Fx (lbs)	Fz(90) (lbs)	Fx(0) (lbs)
/CELWAVE APX16DWV-16DWVS-E-	240.0	3	1.00	Flat	Flat	43.35	7.00	303.29	102.28	102.28	303.29
S/CELWAVE APXVAARR24_43-U-NA	240.0	3	1.00	Flat	Flat	43.35	14.69	637.03	297.99	297.99	637.03
ERICSSON RADIO 4415 B66A	240.0	3	1.00	Flat	Flat	43.35	1.86	80.48	37.72	37.72	80.48
ERICSSON RADIO 4449 B12/B71	240.0	3	1.00	Flat	Flat	43.35	1.64	71.24	49.96	49.96	71.24
ERICSSON RRUS 4415 B25	240.0	3	1.00	Flat	Flat	43.35	1.64	71.29	29.43	29.43	71.29

Site Name:	870800
Client:	Crown Castle
Carrier:	T-Mobile
Engineer:	SY
Date:	7/10/2019

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INFINIGY SEISMIC LOAD CALCULATOR 4.0.5

Site Information Inputs:

Adopted Building Code:	2018 Connecticut
Structure Load Standard:	TIA-222-H
Antenna Load Standard:	TIA-222-H
Structure Risk Category:	II
Site Class:	D - Stiff Soil
Structure Type:	Mount - Sector
Number of Sectors:	3

Seismic Loading Inputs:

S_s:	0.181	g
S_1:	0.064	g
Mount Centerline:	239.0	ft
a_p:	1.0	
R_p:	2.5	
Ωo:	1.0	
F_a:	1.600	
F_v:	2.400	
S_{DS}:	0.193	g
S_{D1}:	0.102	g

Appurtenance Name	Attachment Elevation (ft)	Total Quantity	Front Shape	Side Shape	Weight (lbs)	F_p Max (lb)	Fp Min (lb)	Fp Design (lb)	Fz (lbs)	Fx (lbs)
/CELWAVE APX16DWV-16DWVS-E-	240.0	3	Flat	Flat	41.80	12.91	2.42	3.88	3.88	3.88
S/CELWAVE APXVAARR24_43-U-NA	240.0	3	Flat	Flat	128.00	39.54	7.41	11.90	11.90	11.90
ERICSSON RADIO 4415 B66A	240.0	3	Flat	Flat	49.60	15.32	2.87	4.61	4.61	4.61
ERICSSON RADIO 4449 B12/B71	240.0	3	Flat	Flat	75.00	23.17	4.34	6.97	6.97	6.97
ERICSSON RRUS 4415 B25	240.0	3	Flat	Flat	44.00	13.59	2.55	4.09	4.09	4.09

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design ...
1	M1	N1	N2			Horizontal Face	Beam	Pipe	A53 G...	Typical
2	M2	N3	N4			Horizontal Face	Beam	Pipe	A53 G...	Typical
3	M3	N6	N12			RIGID	None	None	RIGID	Typical
4	M4	N8	N14			RIGID	None	None	RIGID	Typical
5	M5	N10	N16			RIGID	None	None	RIGID	Typical
6	M6	N5	N11			RIGID	None	None	RIGID	Typical
7	M7	N7	N13			RIGID	None	None	RIGID	Typical
8	M8	N9	N15			RIGID	None	None	RIGID	Typical
9	MP1	N17	N19			Pipe Mount	Colu...	Pipe	A53 G...	Typical
10	MP3	N18	N20			Pipe Mount	Colu...	Pipe	A53 G...	Typical
11	M11	N21	N22			Vertical Standoff	Colu...	Pipe	A53 G...	Typical
12	M12	N23	N25			RIGID	None	None	RIGID	Typical
13	M13	N24	N26			RIGID	None	None	RIGID	Typical
14	M14	N28	N30			RIGID	None	None	RIGID	Typical
15	M15	N27	N29			RIGID	None	None	RIGID	Typical
16	MP2	N31	N32			Pipe Mount	Colu...	Pipe	A53 G...	Typical

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[LB]
1	General				
2	RIGID		10	31.2	0
3	Total General		10	31.2	0
4					
5	Hot Rolled Steel				
6	A53 Gr.B	PIPE_2.0	6	556	160.815
7	Total HR Steel		6	556	160.815

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Self Weight	DL		-1			7			
2	Wind Load AZI 000	WLZ					7	16		
3	Wind Load AZI 090	WLX					7	16		
4	Ice Weight	OL1					7	16		
5	Wind + Ice Load AZI ...	OL2					7	16		
6	Wind + Ice Load AZI ...	OL3					7	16		
7	Service Live 1	LL				1				
8	Seismic Load AZI 000	ELZ			-.093		7			
9	Seismic Load AZI 090	ELX	-.093				7			
10	Maintenance Load 1	None				1				
11	Maintenance Load 2	None				1				
12	Maintenance Load 3	None				1				

Load Combinations

	Description	Solve	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.4DL	Yes	Y		DL	1.4																		
2	1.2DL + 1WL AZI 0	Yes	Y		DL	1.2	W...	1	W...															
3	1.2DL + 1WL AZI 30	Yes	Y		DL	1.2	W...	.866	W...	.5														
4	1.2DL + 1WL AZI 60	Yes	Y		DL	1.2	W...	.5	W...	.866														
5	1.2DL + 1WL AZI 90	Yes	Y		DL	1.2	W...		W...	1														
6	1.2DL + 1WL AZI 120	Yes	Y		DL	1.2	W...	-.5	W...	.866														
7	1.2DL + 1WL AZI 150	Yes	Y		DL	1.2	W...	-.8...	W...	.5														

Load Combinations (Continued)

	Description	Solve	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
8	1.2DL + 1WL AZI 180	Yes	Y		DL	1.2	W...	-1	W...																	
9	1.2DL + 1WL AZI 210	Yes	Y		DL	1.2	W...	-.8...	W...	-.5																
10	1.2DL + 1WL AZI 240	Yes	Y		DL	1.2	W...	-.5	W...	-.8...																
11	1.2DL + 1WL AZI 270	Yes	Y		DL	1.2	W...		W...	-1																
12	1.2DL + 1WL AZI 300	Yes	Y		DL	1.2	W...	.5	W...	-.8...																
13	1.2DL + 1WL AZI 330	Yes	Y		DL	1.2	W...	.866	W...	-.5																
14	0.9DL + 1WL AZI 0	Yes	Y		1	.9	W...	1	W...																	
15	0.9DL + 1WL AZI 30	Yes	Y		1	.9	W...	.866	W...	.5																
16	0.9DL + 1WL AZI 60	Yes	Y		1	.9	W...	.5	W...	.866																
17	0.9DL + 1WL AZI 90	Yes	Y		1	.9	W...		W...	1																
18	0.9DL + 1WL AZI 120	Yes	Y		1	.9	W...	-.5	W...	.866																
19	0.9DL + 1WL AZI 150	Yes	Y		1	.9	W...	-.8...	W...	.5																
20	0.9DL + 1WL AZI 180	Yes	Y		1	.9	W...	-1	W...																	
21	0.9DL + 1WL AZI 210	Yes	Y		1	.9	W...	-.8...	W...	-.5																
22	0.9DL + 1WL AZI 240	Yes	Y		1	.9	W...	-.5	W...	-.8...																
23	0.9DL + 1WL AZI 270	Yes	Y		1	.9	W...		W...	-1																
24	0.9DL + 1WL AZI 300	Yes	Y		1	.9	W...	.5	W...	-.8...																
25	0.9DL + 1WL AZI 330	Yes	Y		1	.9	W...	.866	W...	-.5																
26	1.2D + 1.0Di	Yes	Y		DL	1.2	O...	1																		
27	1.2D + 1.0Di +1.0Wi AZI 0	Yes	Y		DL	1.2	O...	1	O...	1	O...															
28	1.2D + 1.0Di +1.0Wi AZI 30	Yes	Y		DL	1.2	O...	1	O...	.866	O...	.5														
29	1.2D + 1.0Di +1.0Wi AZI 60	Yes	Y		DL	1.2	O...	1	O...	.5	O...	.866														
30	1.2D + 1.0Di +1.0Wi AZI 90	Yes	Y		DL	1.2	O...	1	O...		O...	1														
31	1.2D + 1.0Di +1.0Wi AZI 120	Yes	Y		DL	1.2	O...	1	O...	-.5	O...	.866														
32	1.2D + 1.0Di +1.0Wi AZI 150	Yes	Y		DL	1.2	O...	1	O...	-.8...	O...	.5														
33	1.2D + 1.0Di +1.0Wi AZI 180	Yes	Y		DL	1.2	O...	1	O...	-1	O...															
34	1.2D + 1.0Di +1.0Wi AZI 210	Yes	Y		DL	1.2	O...	1	O...	-.8...	O...	-.5														
35	1.2D + 1.0Di +1.0Wi AZI 240	Yes	Y		DL	1.2	O...	1	O...	-.5	O...	-.8...														
36	1.2D + 1.0Di +1.0Wi AZI 270	Yes	Y		DL	1.2	O...	1	O...		O...	-1														
37	1.2D + 1.0Di +1.0Wi AZI 300	Yes	Y		DL	1.2	O...	1	O...	.5	O...	-.8...														
38	1.2D + 1.0Di +1.0Wi AZI 330	Yes	Y		DL	1.2	O...	1	O...	.866	O...	-.5														
39	(1.2 + 0.2Sds)DL + 1.0E AZI 0	Yes	Y		DL	1....	E...	1	E...																	
40	(1.2 + 0.2Sds)DL + 1.0E AZI 30	Yes	Y		DL	1....	E...	.866	E...	.5																
41	(1.2 + 0.2Sds)DL + 1.0E AZI 60	Yes	Y		DL	1....	E...	.5	E...	.866																
42	(1.2 + 0.2Sds)DL + 1.0E AZI 90	Yes	Y		DL	1....	E...		E...	1																
43	(1.2 + 0.2Sds)DL + 1.0E AZI 120	Yes	Y		DL	1....	E...	-.5	E...	.866																
44	(1.2 + 0.2Sds)DL + 1.0E AZI 150	Yes	Y		DL	1....	E...	-.8...	E...	.5																
45	(1.2 + 0.2Sds)DL + 1.0E AZI 180	Yes	Y		DL	1....	E...	-1	E...																	
46	(1.2 + 0.2Sds)DL + 1.0E AZI 210	Yes	Y		DL	1....	E...	-.8...	E...	-.5																
47	(1.2 + 0.2Sds)DL + 1.0E AZI 240	Yes	Y		DL	1....	E...	-.5	E...	-.8...																
48	(1.2 + 0.2Sds)DL + 1.0E AZI 270	Yes	Y		DL	1....	E...		E...	-1																
49	(1.2 + 0.2Sds)DL + 1.0E AZI 300	Yes	Y		DL	1....	E...	.5	E...	-.8...																
50	(1.2 + 0.2Sds)DL + 1.0E AZI 330	Yes	Y		DL	1....	E...	.866	E...	-.5																
51	(0.9 - 0.2Sds)DL + 1.0E AZI 0	Yes	Y		DL	.861	E...	1	E...																	
52	(0.9 - 0.2Sds)DL + 1.0E AZI 30	Yes	Y		DL	.861	E...	.866	E...	.5																
53	(0.9 - 0.2Sds)DL + 1.0E AZI 60	Yes	Y		DL	.861	E...	.5	E...	.866																
54	(0.9 - 0.2Sds)DL + 1.0E AZI 90	Yes	Y		DL	.861	E...		E...	1																
55	(0.9 - 0.2Sds)DL + 1.0E AZI 120	Yes	Y		DL	.861	E...	-.5	E...	.866																
56	(0.9 - 0.2Sds)DL + 1.0E AZI 150	Yes	Y		DL	.861	E...	-.8...	E...	.5																
57	(0.9 - 0.2Sds)DL + 1.0E AZI 180	Yes	Y		DL	.861	E...	-1	E...																	
58	(0.9 - 0.2Sds)DL + 1.0E AZI 210	Yes	Y		DL	.861	E...	-.8...	E...	-.5																
59	(0.9 - 0.2Sds)DL + 1.0E AZI 240	Yes	Y		DL	.861	E...	-.5	E...	-.8...																
60	(0.9 - 0.2Sds)DL + 1.0E AZI 270	Yes	Y		DL	.861	E...		E...	-1																
61	(0.9 - 0.2Sds)DL + 1.0E AZI 300	Yes	Y		DL	.861	E...	.5	E...	-.8...																
62	(0.9 - 0.2Sds)DL + 1.0E AZI 330	Yes	Y		DL	.861	E...	.866	E...	-.5																
63	1.2DL + 1.5LV	Yes	Y		DL	1.2	LL	1.5																		
64	1.2DL + 1.5LM (LM-1) + 1SWL (3...	Yes	Y		DL	1.2	10	1.5	W...	.063	W...															

Load Combinations (Continued)

	Description	Solve	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
65	1.2DL + 1.5LM (LM-1) + 1SWL (3...	Yes	Y		DL	1.2	10	1.5	W...	.054	W...	.031												
66	1.2DL + 1.5LM (LM-1) + 1SWL (3...	Yes	Y		DL	1.2	10	1.5	W...	.031	W...	.054												
67	1.2DL + 1.5LM (LM-1) + 1SWL (3...	Yes	Y		DL	1.2	10	1.5	W...		W...	.063												
68	1.2DL + 1.5LM (LM-1) + 1SWL (3...	Yes	Y		DL	1.2	10	1.5	W...	-.0...	W...	.054												
69	1.2DL + 1.5LM (LM-1) + 1SWL (3...	Yes	Y		DL	1.2	10	1.5	W...	-.0...	W...	.031												
70	1.2DL + 1.5LM (LM-1) + 1SWL (3...	Yes	Y		DL	1.2	10	1.5	W...	-.0...	W...													
71	1.2DL + 1.5LM (LM-1) + 1SWL (3...	Yes	Y		DL	1.2	10	1.5	W...	-.0...	W...	-.0...												
72	1.2DL + 1.5LM (LM-1) + 1SWL (3...	Yes	Y		DL	1.2	10	1.5	W...	-.0...	W...	-.0...												
73	1.2DL + 1.5LM (LM-1) + 1SWL (3...	Yes	Y		DL	1.2	10	1.5	W...		W...	-.0...												
74	1.2DL + 1.5LM (LM-1) + 1SWL (3...	Yes	Y		DL	1.2	10	1.5	W...	.031	W...	-.0...												
75	1.2DL + 1.5LM (LM-1) + 1SWL (3...	Yes	Y		DL	1.2	10	1.5	W...	.054	W...	-.0...												
76	1.2DL + 1.5LM (LM-2) + 1SWL (3...	Yes	Y		DL	1.2	11	1.5	W...	.063	W...													
77	1.2DL + 1.5LM (LM-2) + 1SWL (3...	Yes	Y		DL	1.2	11	1.5	W...	.054	W...	.031												
78	1.2DL + 1.5LM (LM-2) + 1SWL (3...	Yes	Y		DL	1.2	11	1.5	W...	.031	W...	.054												
79	1.2DL + 1.5LM (LM-2) + 1SWL (3...	Yes	Y		DL	1.2	11	1.5	W...		W...	.063												
80	1.2DL + 1.5LM (LM-2) + 1SWL (3...	Yes	Y		DL	1.2	11	1.5	W...	-.0...	W...	.054												
81	1.2DL + 1.5LM (LM-2) + 1SWL (3...	Yes	Y		DL	1.2	11	1.5	W...	-.0...	W...	.031												
82	1.2DL + 1.5LM (LM-2) + 1SWL (3...	Yes	Y		DL	1.2	11	1.5	W...	-.0...	W...													
83	1.2DL + 1.5LM (LM-2) + 1SWL (3...	Yes	Y		DL	1.2	11	1.5	W...	-.0...	W...	-.0...												
84	1.2DL + 1.5LM (LM-2) + 1SWL (3...	Yes	Y		DL	1.2	11	1.5	W...	-.0...	W...	-.0...												
85	1.2DL + 1.5LM (LM-2) + 1SWL (3...	Yes	Y		DL	1.2	11	1.5	W...		W...	-.0...												
86	1.2DL + 1.5LM (LM-2) + 1SWL (3...	Yes	Y		DL	1.2	11	1.5	W...	.031	W...	-.0...												
87	1.2DL + 1.5LM (LM-2) + 1SWL (3...	Yes	Y		DL	1.2	11	1.5	W...	.054	W...	-.0...												
88	1.2DL + 1.5LM (LM-3) + 1SWL (3...	Yes	Y		DL	1.2	12	1.5	W...	.063	W...													
89	1.2DL + 1.5LM (LM-3) + 1SWL (3...	Yes	Y		DL	1.2	12	1.5	W...	.054	W...	.031												
90	1.2DL + 1.5LM (LM-3) + 1SWL (3...	Yes	Y		DL	1.2	12	1.5	W...	.031	W...	.054												
91	1.2DL + 1.5LM (LM-3) + 1SWL (3...	Yes	Y		DL	1.2	12	1.5	W...		W...	.063												
92	1.2DL + 1.5LM (LM-3) + 1SWL (3...	Yes	Y		DL	1.2	12	1.5	W...	-.0...	W...	.054												
93	1.2DL + 1.5LM (LM-3) + 1SWL (3...	Yes	Y		DL	1.2	12	1.5	W...	-.0...	W...	.031												
94	1.2DL + 1.5LM (LM-3) + 1SWL (3...	Yes	Y		DL	1.2	12	1.5	W...	-.0...	W...													
95	1.2DL + 1.5LM (LM-3) + 1SWL (3...	Yes	Y		DL	1.2	12	1.5	W...	-.0...	W...	-.0...												
96	1.2DL + 1.5LM (LM-3) + 1SWL (3...	Yes	Y		DL	1.2	12	1.5	W...	-.0...	W...	-.0...												
97	1.2DL + 1.5LM (LM-3) + 1SWL (3...	Yes	Y		DL	1.2	12	1.5	W...		W...	-.0...												
98	1.2DL + 1.5LM (LM-3) + 1SWL (3...	Yes	Y		DL	1.2	12	1.5	W...	.031	W...	-.0...												
99	1.2DL + 1.5LM (LM-3) + 1SWL (3...	Yes	Y		DL	1.2	12	1.5	W...	.054	W...	-.0...												

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N25	max	405.842	17	1402.72	28	895.055	14	0	99	632.09	19	0	99
2		min	-768.789	63	-294.028	21	-1191.35	8	0	1	-708.097	13	0	1
3	N26	max	768.788	63	1344.89	34	903.148	27	0	99	532.912	7	0	99
4		min	-388.155	73	-305.498	15	-491.283	20	0	1	-451.533	25	0	1
5	Totals:	max	764.199	17	2427.295	32	1639.791	2						
6		min	-764.199	11	430.017	52	-1639.789	20						

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

	Member	Shape	Code Che...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pn...	phi*Pnt...	phi*Mn...	phi*Mn...	Cb	Eqn
1	M1	PIPE_2.0	.678	67	8	.436	67		8	7888.5...	32130	1871.6...	1871.6...	1...	H3-6
2	M2	PIPE_2.0	.666	67	2	.341	67		2	7888.5...	32130	1871.6...	1871.6...	1...	H3-6
3	MP3	PIPE_2.0	.509	50.875	63	.080	15.125		63	22356....	32130	1871.6...	1871.6...	1...	H1-1b
4	MP2	PIPE_2.0	.494	30	8	.047	30		8	14916....	32130	1871.6...	1871.6...	2...	H1-1b
5	M11	PIPE_2.0	.402	15	2	.391	15		8	23808....	32130	1871.6...	1871.6...	1...	H3-6
6	MP1	PIPE_2.0	.177	15.125	71	.024	15.125		65	22356....	32130	1871.6...	1871.6...	1...	H1-1b

APPENDIX D

ADDITIONAL CALCUATIONS

Date:	7/10/2019
Client	Crown Castle
Carrier	T-Mobile
Engineer:	SY
Site:	870800
Job #:	1039-C0002-B

Code:	LRFD
Bolt Diameter	0.500
Bolt Grade:	A307
Threads Excluded?:	N
Axial (lbs):	1191.35
Shear (lbs):	1424.00

Bolt Info:

Yield Strength (F_{yb})	36.0 ksi
Ultimate Strength (F_{ub})	60.0 ksi
Threads/in (n)	13
Gross Area (A_{gb})	0.196 in²
Net Area (A_{nb})	0.142 in²

Bolt Capacity (0.5" A307 U-Bolt), per Connection				
	Ult Load / Bolt	Factored Load (ϕ=0.75)	# of Bolts	Factor Joint Capacity
Axial (lb)	8513.9	6385.4	1	6385
Shear(lb)	5301.4	3976.1	2	7952

Interaction Check	
$T/\phi T_n$	18.7%
$V/\phi Vn$	17.9%
≤1.0	6.7%
	OK

Exhibit F

Power Density/RF Emissions Report

Radio Frequency Emissions Analysis Report

T-MOBILE Existing Facility

Site ID: CT11376A

Farmington 1_RT10
376 Deercliff Road
Avon, CT 06001

June 13, 2019

Transcom Engineering Project Number: 737001-0180

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**9.34 %**

June 13, 2019

T-MOBILE
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 6009

Emissions Analysis for Site: **CT11376A – Farmington 1_RT10**

Transcom Engineering, Inc ("Transcom") was directed to analyze the proposed upgrades to the T-MOBILE facility located at **376 Deercliff Road, Avon, CT**, for the purpose of determining whether the emissions from the Proposed T-MOBILE Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed upgrades to the T-MOBILE antenna facility located at **376 Deercliff Road, Avon, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-MOBILE is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
LTE	1900 MHz (PCS)	4	40
LTE	2100 MHz (AWS)	2	60
GSM	1900 MHz (PCS)	1	15
UMTS	2100 MHz (AWS)	1	40
LTE / 5G NR	600 MHz	2	40
LTE	700 MHz	2	20

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz, 700 MHz, 1900 MHz (PCS) and 2100 MHz (AWS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	RFS APX16DWV-16DWV-S-E-ACU	240
A	2	RFS APXVAARR24_43-U-NA20	240
B	1	RFS APX16DWV-16DWV-S-E-ACU	240
B	2	RFS APXVAARR24_43-U-NA20	240
C	1	RFS APX16DWV-16DWV-S-E-ACU	240
C	2	RFS APXVAARR24_43-U-NA20	240

Table 2: Antenna Data

All calculations were done with respect to uncontrolled / general population threshold limits.

RESULTS

Per the calculations completed for the proposed T-MOBILE configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	RFS APX16DWV-16DWV-S-E-ACU	1900 MHz (PCS) / 2100 MHz (AWS)	15.9 / 15.9	8	335	13,033.01	0.86
Antenna A2	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	0.38
						Sector A Composite MPE%	**1.24**
Antenna B1	RFS APX16DWV-16DWV-S-E-ACU	1900 MHz (PCS) / 2100 MHz (AWS)	15.9 / 15.9	8	335	13,033.01	0.86
Antenna B2	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	0.38
						Sector B Composite MPE%	**1.24**
Antenna C1	RFS APX16DWV-16DWV-S-E-ACU	1900 MHz (PCS) / 2100 MHz (AWS)	15.9 / 15.9	8	335	13,033.01	0.86
Antenna C2	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	0.38
						Sector C Composite MPE%	**1.24**

Table 3: T-MOBILE Emissions Levels

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

Site Composite MPE%	
Carrier	**MPE%**
T-MOBILE – Max Per Sector Value	**1.24 %**
Marcus	0.05 %
LightSquared	0.02 %
MetroPCS	0.16 %
Arch Communications	0.32 %
Hartford Data Dispatch	0.67 %
Pagemart	0.61 %
Pagenet	0.41 %
Preferred Network	0.81 %
Roamer One	0.17 %
Nationwide	0.09 %
WHCT TV (Ch 18)	4.29 %
Nextel	0.09 %
AT&T	0.41 %
Site Total MPE %:	**9.34 %**

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	1.24 %
T-MOBILE Sector B Total:	1.24 %
T-MOBILE Sector C Total:	1.24 %
Site Total:	9.34 %

Table 5: Site MPE Summary

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

T-MOBILE _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 1900 MHz (PCS) LTE	4	1,556.18	240	4.09	1900 MHz (PCS)	1000	0.41%
T-Mobile 2100 MHz (AWS) LTE	2	2,334.27	240	3.07	2100 MHz (AWS)	1000	0.31%
T-Mobile 1900 MHz (PCS) GSM	1	583.57	240	0.38	1900 MHz (PCS)	1000	0.04%
T-Mobile 2100 MHz (AWS) UMTS	1	1,556.18	240	1.02	2100 MHz (AWS)	1000	0.10%
T-Mobile 600 MHz LTE / 5G NR	2	788.97	240	1.04	600 MHz	400	0.26%
T-Mobile 700 MHz LTE	2	432.54	240	0.57	700 MHz	467	0.12%
						Total:	**1.24%**

Table 6: T-MOBILE Maximum Sector MPE Power Values

Summary

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

The anticipated maximum composite contributions from the T-MOBILE 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:

T-MOBILE Sector	Power Density Value (%)
Sector A:	1.24 %
Sector B:	1.24 %
Sector C:	1.24 %
T-MOBILE Maximum Total (per sector):	1.24 %
Site Total:	9.34 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **9.34 %** 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.

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