



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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

E-Mail: siting.council@ct.gov

Web Site: www.ct.gov/csc

VIA ELECTRONIC MAIL

June 11, 2020

Patricia Nowak
Site Acquisition Consultant
Centerline Communication, LLC
750 West Center Street, Suite 301
West Bridgewater, MA 02379

RE: **EM-CING-043-200428** – New Cingular Wireless PCS, LLC (AT&T) notice of intent to modify an existing telecommunications facility located at 100 Sunset Ridge, East Hartford, Connecticut.

Dear Ms. Nowak:

The Connecticut Siting Council (Council) is in receipt of your correspondence of June 5, 2020 submitted in response to the Council's May 20, 2020 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

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

Thank you for your attention and cooperation.

Sincerely,

s/ Melanie A. Bachman

Melanie A. Bachman
Executive Director

MAB/IN/emr

From: Patricia Nowak <pnowak@clinellc.com>
Sent: Friday, June 5, 2020 1:11 PM
To: Robidoux, Evan <Evan.Robidoux@ct.gov>; CSC-DL Siting Council <Siting.Council@ct.gov>
Cc: David Ford <dford@clinellc.com>
Subject: RE: Council Incomplete Letter for EM-CING-043-200428 (Sunset Ridge Road, East Hartford) - CT3438

Good afternoon,

In response to the Council's letter dated May 20, 2020 regarding the above referenced exempt modification identification number, please find attached a response letter and copy of an updated Structural Analysis Report dated June 4, 2020 and prepared by Centerline Communications which includes T-Mobile's equipment.

Please let me know if the attached documents are sufficient to complete the exempt modification request for the above referenced site.

Thank you,
Trish



Patricia Nowak | Site Acquisition Consultant - NE
750 W Center St, Floor 3
West Bridgewater, MA 02379 | Phone: 508.265.5599
pnowak@clinellc.com | www.centerlinecommunications.com



June 5, 2020

VIA ELECTRONIC MAIL

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

Regarding: EM-CING-043-200428 -Notice of Exempt Modification
AT&T Site: CT3438
Address: 100 Sunset Ridge, East Hartford, Connecticut

Dear Ms. Bachman:

In response to the Council's letter dated May 20, 2020 regarding the above referenced exempt modification identification number, please find enclosed a copy of an updated Structural Analysis Report dated June 4, 2020 and prepared by Centerline Communications which includes T-Mobile's equipment.

Please let me know if the enclosed document is sufficient to complete the exempt modification request for the above referenced AT&T site.

Thank you for your time and consideration.

Sincerely,

s/ Patricia Nowak

Patricia Nowak
Site Acquisition Consultant
Centerline Communications, LLC
750 West Center Street, Suite 301
West Bridgewater, MA 02379
pnowak@clinellc.com

Enclosures: Structural Analysis Report dated June 4, 2020

Structural Analysis Report

SITE NUMBER	CT3438
FA NUMBER	10578403
SITE NAME	EAST HARTFORD SUNSET RIDGE
PROJECT	LTE 5C, 6C, 7C, 4TX4RX, 5G NR & BWE
SITE ADDRESS	100 SUNSET RIDGE EAST HARTFORD, CT 06108
Design Codes	TIA-222-G Standard International Building Code 2015 2018 Connecticut State Building Code
Tower Classification	Self Support Tower

	Stress Ratio	Overall Result
Structure Rating	87.5%	PASS

Client:

at&t Mobility Corp.
500 Enterprise Drive
Rocky Hill, CT 06067



Date: 6/4/2020



1) INTRODUCTION

Centerline Communications was authorized by AT&T to perform a structural analysis of the existing 140 ft self support tower to determine the capacity to support the proposed and existing AT&T equipment listed in this report. This tower was analyzed using TNX Tower version 8.0.

2) ANALYSIS CRITERIA

Design Codes	TIA-222-G Standard International Building Code 2015 2018 Connecticut State Building Code
Wind Speed	97 mph
Wind Speed with Ice	50 mph
Ice Thickness	1.0 in.
Exposure Category	B
Topographic Category	1
Structure Class	II
Importance Factor	1.0

Existing & Proposed Antenna and Cable Information

Carrier	Center Line Elevation (ft)	Number of Antennas	Antenna Model	Feed Lines	Note
	138	1	Lightning Rod	(7) 7/8"	1
	138	3	Omni 2"x7'		1
	135	1	1' Dish		1
	130	3	Omni 3"x20'		1
T-Mobile	120	3	AIR 21 B2A B4P Antennas	(6) 1 5/8" (1) 6X12 Hybrid	1
		3	AIR 32 B66Aa/B2a Antennas		1
		3	APXVAARR24_43-U Antennas		1
		3	TMA		1
		3	Radio 4449 B71+B12		1
AT&T	110	3	800 10799 Antennas	(4) DC Power Cables	1
		3	4415 B25		1
		3	RRUS-32		1
		3	OPA65R-BU8DA Antennas	(5) DC Power Cables (3) Fiber Cables	2
		3	DMP65R-BU8DA Antennas		2
		3	RRUS-E2		2
		3	8843 B2/B66A		2
		3	4478 B14		2
		3	4449 B5/B12		2
		3	DC9-48-60-24-8C-EV		2

Existing & Proposed Antenna and Cable Information

Carrier	Center Line Elevation (ft)	Number of Antennas	Antenna Model	Feed Lines	Note
	100	3	6' Panel Antennas	(3) 3" Conduits	1
		3	9442 RRH 700		1
		1	1' Dish		1
		1	2' Dish		1
	95	2	1' Dish		1

Notes:

1. Existing Equipment
2. Proposed Equipment

3) ANALYSIS PROCEDURE

Documents Provided

Source	Document	Reference
AT&T	RFDS	11/23/2019
DESTEK ENGINEERING, LLC	Structural Analysis Report	6/25/2018
FORESITE, LLC	Construction Drawings	7/3/2018
CENTERLINE COMMUNICATIONS	Construction Drawings	4/10/2020

3.1) Analysis Method

tnxTower (version 8.0.), 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 input/output from the tower analysis is included in Appendix A.

3.2) Assumptions and Limitations:

- 1) Tower and structures were built in accordance with the manufacturer's specifications.
- 2) Tower and 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 Existing & Proposed Antenna and Cable Information in this report.
- 4) All connections of the members are assumed to have been designed to meet or exceed the load carrying capacity of the connected members.

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

4) ANALYSIS RESULTS

Section Capacity (Summary)

Component Type	Controlling Elevation (ft)	% Capacity	Pass / Fail	Comment
Leg (T4)	60 - 80	63.9	Pass	
Diagonal (T2)	100 - 120	87.5	Pass	
Top Girt (T1)	120 - 140	1.6	Pass	

Structure Rating (max from all components) =	87.5%
-----------------------------------------------------	--------------

4.1) Conclusion & Recommendations

The tower has sufficient capacity to carry the existing and proposed loadings. No modifications are required at this time.

APPENDIX A
TNX Tower Input/Output

DESIGNED APPURTENANCE LOADING

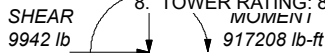
TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 2"x15'	138	4415 B25	110
3' Side Mount Standoff	138	4415 B25	110
3' Side Mount Standoff	138	RRUS-32 B30	110
3' Side Mount Standoff	138	RRUS-32 B30	110
Omni 2"x7'	138	RRUS-32 B30	110
Omni 2"x7'	138	OPA65R-BU8DA w/mount pipe (ATI - proposed)	110
3' Side Mount Standoff	135	OPA65R-BU8DA w/mount pipe	110
Andrew VHLP1	135	OPA65R-BU8DA w/mount pipe	110
Omni 3"x20'	130	DMP65R-BU8DA w/mount pipe	110
Omni 3"x20'	130	DMP65R-BU8DA w/mount pipe	110
Omni 3"x20'	130	DMP65R-BU8DA w/mount pipe	110
PIROD 12' T-Frame	120	RRUS-E2 B29	110
PIROD 12' T-Frame	120	RRUS-E2 B29	110
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	120	RRUS-E2 B29	110
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	120	8843 B2/B66A	110
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	120	8843 B2/B66A	110
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	120	8843 B2/B66A	110
AIR 32 B66Aa/B2a w/mount pipe	120	4478 B14	110
AIR 32 B66Aa/B2a w/mount pipe	120	4478 B14	110
AIR 32 B66Aa/B2a w/mount pipe	120	4478 B14	110
APXVAARR24_43-U-NA20	120	4449 B5/B12	110
APXVAARR24_43-U-NA20	120	4449 B5/B12	110
APXVAARR24_43-U-NA20	120	4449 B5/B12	110
APXVAARR24_43-U-NA20	120	DC9-48-60-24-8C-EV	110
Gen. TMA	120	DC9-48-60-24-8C-EV	110
Gen. TMA	120	DC9-48-60-24-8C-EV	110
Gen. TMA	120	Sabre 12' V-Boom (ATI - existing)	110
Radio 4449 B71+B12	120	SO 101-1	100
Radio 4449 B71+B12	120	SO 101-1	100
Radio 4449 B71+B12	120	Panel Antenna 72"x12" w/mount pipe	100
2"x6" pipe	120	Panel Antenna 72"x12" w/mount pipe	100
2"x6" pipe	120	Panel Antenna 72"x12" w/mount pipe	100
2"x6" pipe	120	9442 RRRH 700	100
PIROD 12' T-Frame (T-MOBILE)	120	9442 RRRH 700	100
Sabre 12' V-Boom	110	9442 RRRH 700	100
Sabre 12' V-Boom	110	SO 101-1	100
800 10799 w/ Mount Pipe	110	Andrew VHLP2-11	100
800 10799 w/ Mount Pipe	110	Andrew VHLP1	100
800 10799 w/ Mount Pipe	110	Andrew VHLP1	95
4415 B25	110	Andrew VHLP1	95

MATERIAL STRENGTH

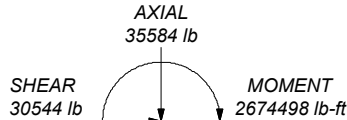
ALL RE ARE FA	GRADE	Fy	Fu	GRADE	Fy	Fu
	A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

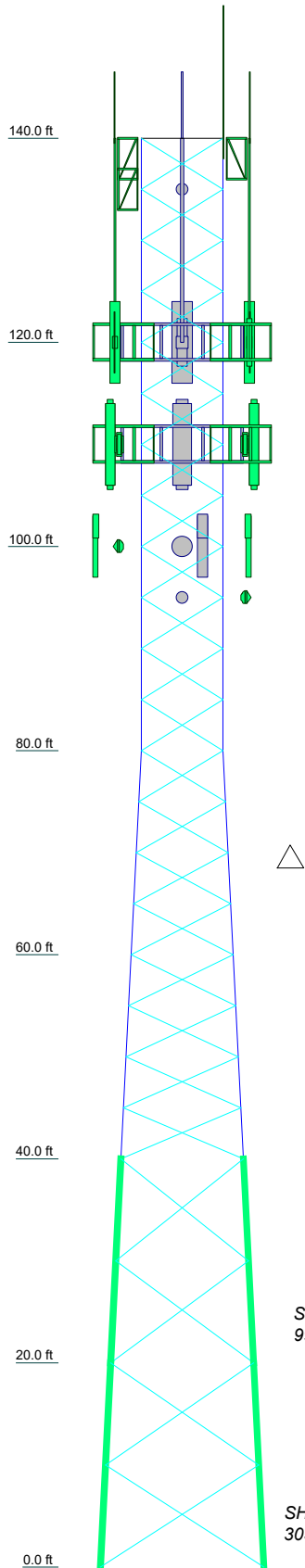
- MAX. C**
DOV
SHE1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
UPL3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
SHE4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
A5. Deflections are based upon a 60 mph wind.
11.6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 87.5%



TORQUE 7216 lb-ft
50 mph WIND - 1.0000 in ICE



TORQUE 19192 lb-ft
REACTIONS - 97 mph WIND



T1	SR 2 1/4	L1 3/4x1 3/4x1/8	L3x3x3/8	1309.1
T2	SR 2 3/4	L1 3/4x1 3/4x1/4		1437.8
T3	SR 2 3/4	A572-50		2337.5
T4	SR 3	L2 1/2x2 1/2x5/16	A36	2673.7
T5	SR 3 1/4	N.A.		3137.6
T6	Pirod 105218	L3x3x5/16		3351.8
T7	Pirod 105219			4013.0
8		20 @ 5		
10				
12				
14		4 @ 10		
16				
18260.6				

CENTERLINE COMMUNICATIONS

750 West Center Street, Suite 301
West Bridgewater, MA 02379
Phone: 781.713.4725
FAX:

Job: **CT3438**

Project: **140 ft Self Supporting Tower**

Client: AT&T

Drawn by: TC

App'd:

Code: TIA-222-G

Date: 06/04/20

Scale: NTS

Path:

Dwg No. E-1

tnxTower CENTERLINE COMMUNICATIONS 750 West Center Street, Suite 301 West Bridgewater, MA 02379 Phone: 781.713.4725 FAX:	Job CT3438	Page 1 of 12
	Project 140 ft Self Supporting Tower	Date 09:22:04 06/04/20
	Client AT&T	Designed by TC

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 140.00 ft above the ground line.

The base of the tower is set at an elevation of 0.00 ft above the ground line.

The face width of the tower is 8.00 ft at the top and 16.00 ft at the base.

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in Hartford County, Connecticut.

Basic wind speed of 97 mph.

Structure Class II.

Exposure Category B.

Topographic Category 1.

Crest Height 0.00 ft.

Nominal ice thickness of 1.0000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in tower member design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Tower Section Geometry

Tower Section	Tower Elevation <i>ft</i>	Assembly Database	Description	Section Width <i>ft</i>	Number of Sections	Section Length <i>ft</i>
T1	140.00-120.00			8.00	1	20.00
T2	120.00-100.00			8.00	1	20.00
T3	100.00-80.00			8.00	1	20.00
T4	80.00-60.00			8.00	1	20.00
T5	60.00-40.00			10.00	1	20.00
T6	40.00-20.00			12.00	1	20.00
T7	20.00-0.00			14.00	1	20.00

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation <i>ft</i>	Diagonal Spacing <i>ft</i>	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset <i>in</i>	Bottom Girt Offset <i>in</i>
T1	140.00-120.00	5.00	X Brace	No	No	0.0000	0.0000
T2	120.00-100.00	5.00	X Brace	No	No	0.0000	0.0000
T3	100.00-80.00	5.00	X Brace	No	No	0.0000	0.0000
T4	80.00-60.00	5.00	X Brace	No	No	0.0000	0.0000
T5	60.00-40.00	5.00	X Brace	No	No	0.0000	0.0000

tnxTower CENTERLINE COMMUNICATIONS 750 West Center Street, Suite 301 West Bridgewater, MA 02379 Phone: 781.713.4725 FAX:	Job	CT3438	Page	2 of 12
	Project	140 ft Self Supporting Tower	Date	09:22:04 06/04/20
	Client	AT&T	Designed by	TC

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
T6	40.00-20.00	10.00	X Brace	No	No	0.0000	0.0000
T7	20.00-0.00	10.00	X Brace	No	No	0.0000	0.0000

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 140.00-120.00	Solid Round	2 1/4	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x1/8	A36 (36 ksi)
T2 120.00-100.00	Solid Round	2 1/4	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x1/4	A36 (36 ksi)
T3 100.00-80.00	Solid Round	2 3/4	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x5/16	A36 (36 ksi)
T4 80.00-60.00	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x5/16	A36 (36 ksi)
T5 60.00-40.00	Solid Round	3 1/4	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x5/16	A36 (36 ksi)
T6 40.00-20.00	Truss Leg	Pirol 105218	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)
T7 20.00-0.00	Truss Leg	Pirol 105219	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	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
T1 140.00-120.00	Equal Angle	L3x3x3/8	A36 (36 ksi)	Equal Angle		A36 (36 ksi)

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 plf
1 5/8	C	No	No	Ar (CaAa)	120.00 - 6.00	-2.0000	0.45	6	6	1.9800	1.9800		1.04
6X12 Fiber Cable	C	No	No	Ar (CaAa)	120.00 - 6.00	-3.0000	0.47	1	1	1.1100	1.1100		0.54
Feedline Ladder (Af) 7/8	C	No	No	Af (CaAa)	120.00 - 6.00	-2.0000	0.46	1	1	3.0000	3.0000		8.40
7/8	C	No	No	Ar (CaAa)	140.00 - 6.00	-3.0000	-0.4	7	4	1.1100	1.1100		0.54
3" conduit	C	No	No	Ar (CaAa)	100.00 - 6.00	0.0000	0.45	3	3	3.5000	3.5000		3.00
***** WR-VG122S T-BRDA	B	No	No	Ar (CaAa)	110.00 - 6.00	0.0000	0.2	4	4	0.0000	0.4000		0.25

tnxTower CENTERLINE COMMUNICATIONS 750 West Center Street, Suite 301 West Bridgewater, MA 02379 Phone: 781.713.4725 FAX:	Job	CT3438	Page	3 of 12
	Project	140 ft Self Supporting Tower	Date	09:22:04 06/04/20
	Client	AT&T	Designed by	TC

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 plf
(AT&T - existing) *****													
WR-VG122S T-BRDA (AT&T - proposed)	B	No	No	Ar (CaAa)	110.00 - 6.00	0.0000	0.1	5	5	0.0000	0.4000		0.25
FB-L98B-002	B	No	No	Ar (CaAa)	110.00 - 6.00	0.0000	0	3	3	0.0000	0.4000		0.25

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight lb	
Lightning Rod 2"x15'	B	From Leg	0.00	0.0000	138.00	No Ice	3.00	3.00	80.00
			0.00			1/2" Ice	4.53	4.53	103.14
			7.50			1" Ice	6.07	6.07	135.79
3' Side Mount Standoff	A	From Leg	1.50	0.0000	138.00	No Ice	1.50	1.50	45.00
			0.00			1/2" Ice	2.20	2.20	70.00
			0.00			1" Ice	2.90	2.90	95.00
3' Side Mount Standoff	B	From Leg	1.50	0.0000	138.00	No Ice	1.50	1.50	45.00
			0.00			1/2" Ice	2.20	2.20	70.00
			0.00			1" Ice	2.90	2.90	95.00
3' Side Mount Standoff	C	From Leg	1.50	0.0000	138.00	No Ice	1.50	1.50	45.00
			0.00			1/2" Ice	2.20	2.20	70.00
			0.00			1" Ice	2.90	2.90	95.00
Omni 2"x7'	A	From Leg	3.00	0.0000	138.00	No Ice	1.40	1.40	30.00
			0.00			1/2" Ice	2.13	2.13	40.92
			5.00			1" Ice	2.68	2.68	56.47
Omni 2"x7'	B	From Leg	3.00	0.0000	138.00	No Ice	1.40	1.40	30.00
			0.00			1/2" Ice	2.13	2.13	40.92
			5.00			1" Ice	2.68	2.68	56.47
Omni 2"x7'	C	From Leg	3.00	0.0000	138.00	No Ice	1.40	1.40	30.00
			0.00			1/2" Ice	2.13	2.13	40.92
			5.00			1" Ice	2.68	2.68	56.47

3' Side Mount Standoff	C	From Leg	1.50	0.0000	135.00	No Ice	1.50	1.50	45.00
			0.00			1/2" Ice	2.20	2.20	70.00
			0.00			1" Ice	2.90	2.90	95.00
Omni 3"x20'	A	From Leg	3.00	0.0000	130.00	No Ice	6.00	6.00	50.00
			0.00			1/2" Ice	8.03	8.03	93.17
			0.00			1" Ice	10.08	10.08	149.01
Omni 3"x20'	B	From Leg	3.00	0.0000	130.00	No Ice	6.00	6.00	50.00
			0.00			1/2" Ice	8.03	8.03	93.17
			0.00			1" Ice	10.08	10.08	149.01
Omni 3"x20'	C	From Leg	3.00	0.0000	130.00	No Ice	6.00	6.00	50.00
			0.00			1/2" Ice	8.03	8.03	93.17
			0.00			1" Ice	10.08	10.08	149.01

PIROD 12' T-Frame (T-MOBILE)	A	From Leg	2.00	0.0000	120.00	No Ice	12.20	12.20	360.00
			0.00			1/2" Ice	17.60	17.60	490.00

tnxTower CENTERLINE COMMUNICATIONS 750 West Center Street, Suite 301 West Bridgewater, MA 02379 Phone: 781.713.4725 FAX:	Job	CT3438	Page	4 of 12
	Project	140 ft Self Supporting Tower	Date	09:22:04 06/04/20
	Client	AT&T	Designed by	TC

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft ²	ft ²	lb	
PiROD 12' T-Frame	B	From Leg	0.00		0.0000	120.00	1" Ice	23.00	23.00	620.00
			2.00				No Ice	12.20	12.20	360.00
			0.00				1/2" Ice	17.60	17.60	490.00
			0.00				1" Ice	23.00	23.00	620.00
PiROD 12' T-Frame	C	From Leg	2.00		0.0000	120.00	No Ice	12.20	12.20	360.00
			0.00				1/2" Ice	17.60	17.60	490.00
			0.00				1" Ice	23.00	23.00	620.00
			0.00				No Ice	12.20	12.20	360.00
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	3.00		0.0000	120.00	No Ice	6.37	5.78	129.90
			0.00				1/2" Ice	6.85	6.63	187.69
			0.00				1" Ice	7.30	7.35	252.28
			0.00				No Ice	6.37	5.78	129.90
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	3.00		0.0000	120.00	No Ice	6.37	5.78	129.90
			0.00				1/2" Ice	6.85	6.63	187.69
			0.00				1" Ice	7.30	7.35	252.28
			0.00				No Ice	6.37	5.78	129.90
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	3.00		0.0000	120.00	No Ice	6.37	5.78	129.90
			0.00				1/2" Ice	6.85	6.63	187.69
			0.00				1" Ice	7.30	7.35	252.28
			0.00				No Ice	6.37	5.78	129.90
AIR 32 B66Aa/B2a w/mount pipe	A	From Leg	3.00		0.0000	120.00	No Ice	6.81	6.14	153.90
			0.00				1/2" Ice	7.30	6.99	215.61
			0.00				1" Ice	7.76	7.73	284.26
			0.00				No Ice	6.81	6.14	153.90
AIR 32 B66Aa/B2a w/mount pipe	B	From Leg	3.00		0.0000	120.00	No Ice	6.81	6.14	153.90
			0.00				1/2" Ice	7.30	6.99	215.61
			0.00				1" Ice	7.76	7.73	284.26
			0.00				No Ice	6.81	6.14	153.90
AIR 32 B66Aa/B2a w/mount pipe	C	From Leg	3.00		0.0000	120.00	No Ice	6.81	6.14	153.90
			0.00				1/2" Ice	7.30	6.99	215.61
			0.00				1" Ice	7.76	7.73	284.26
			0.00				No Ice	6.81	6.14	153.90
APXVAARR24_43-U-NA20	A	From Leg	3.00		0.0000	120.00	No Ice	20.24	8.89	128.00
			0.00				1/2" Ice	20.89	9.49	240.59
			0.00				1" Ice	21.54	10.09	361.72
			0.00				No Ice	20.24	8.89	128.00
APXVAARR24_43-U-NA20	B	From Leg	3.00		0.0000	120.00	No Ice	20.24	8.89	128.00
			0.00				1/2" Ice	20.89	9.49	240.59
			0.00				1" Ice	21.54	10.09	361.72
			0.00				No Ice	20.24	8.89	128.00
APXVAARR24_43-U-NA20	C	From Leg	3.00		0.0000	120.00	No Ice	20.24	8.89	128.00
			0.00				1/2" Ice	20.89	9.49	240.59
			0.00				1" Ice	21.54	10.09	361.72
			0.00				No Ice	20.24	8.89	128.00
Gen. TMA	A	From Leg	3.00		0.0000	120.00	No Ice	0.58	0.40	13.20
			0.00				1/2" Ice	0.69	0.49	18.38
			0.00				1" Ice	0.80	0.59	25.16
			0.00				No Ice	0.58	0.40	13.20
Gen. TMA	B	From Leg	3.00		0.0000	120.00	No Ice	0.58	0.40	13.20
			0.00				1/2" Ice	0.69	0.49	18.38
			0.00				1" Ice	0.80	0.59	25.16
			0.00				No Ice	0.58	0.40	13.20
Gen. TMA	C	From Leg	3.00		0.0000	120.00	No Ice	0.58	0.40	13.20
			0.00				1/2" Ice	0.69	0.49	18.38
			0.00				1" Ice	0.80	0.59	25.16
			0.00				No Ice	0.58	0.40	13.20
Radio 4449 B71+B12	A	From Leg	3.00		0.0000	120.00	No Ice	1.64	1.14	74.00
			0.00				1/2" Ice	1.80	1.28	89.99
			0.00				1" Ice	1.97	1.42	108.60
			0.00				No Ice	1.64	1.14	74.00
Radio 4449 B71+B12	B	From Leg	3.00		0.0000	120.00	No Ice	1.64	1.14	74.00
			0.00				1/2" Ice	1.80	1.28	89.99
			0.00				1" Ice	1.97	1.42	108.60
			0.00				No Ice	1.64	1.14	74.00
Radio 4449 B71+B12	C	From Leg	3.00		0.0000	120.00	No Ice	1.64	1.14	74.00
			0.00				1/2" Ice	1.80	1.28	89.99
			0.00				1" Ice	1.97	1.42	108.60
			0.00				No Ice	1.64	1.14	74.00
2"x6' pipe	A	From Leg	3.00		0.0000	120.00	No Ice	1.43	1.43	22.00
			0.00				1/2" Ice	1.93	1.93	32.85
			0.00				1" Ice	2.30	2.30	47.75
			0.00				No Ice	1.43	1.43	22.00
2"x6' pipe	B	From Leg	3.00		0.0000	120.00	No Ice	1.43	1.43	22.00
			0.00				1/2" Ice	1.93	1.93	32.85

tnxTower CENTERLINE COMMUNICATIONS 750 West Center Street, Suite 301 West Bridgewater, MA 02379 Phone: 781.713.4725 FAX:	Job	CT3438	Page	5 of 12
	Project	140 ft Self Supporting Tower	Date	09:22:04 06/04/20
	Client	AT&T	Designed by	TC

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Vert	Lateral						ft
2"x6' pipe	C	From Leg		0.00		0.0000	120.00	1" Ice	2.30	2.30	47.75
				3.00				No Ice	1.43	1.43	22.00
				0.00				1/2" Ice	1.93	1.93	32.85
				0.00				1" Ice	2.30	2.30	47.75

Sabre 12' V-Boom (AT&T - existing)	A	From Leg		2.00		0.0000	110.00	No Ice	15.40	14.00	558.00
				0.00				1/2" Ice	21.30	20.81	741.00
				0.00				1" Ice	27.20	27.62	924.00
Sabre 12' V-Boom	B	From Leg		2.00		0.0000	110.00	No Ice	15.40	14.00	558.00
				0.00				1/2" Ice	21.30	20.81	741.00
				0.00				1" Ice	27.20	27.62	924.00
Sabre 12' V-Boom	C	From Leg		2.00		0.0000	110.00	No Ice	15.40	14.00	558.00
				0.00				1/2" Ice	21.30	20.81	741.00
				0.00				1" Ice	27.20	27.62	924.00
800 10799 w/ Mount Pipe	A	From Leg		3.50		0.0000	110.00	No Ice	15.36	10.94	165.11
				0.00				1/2" Ice	16.05	12.52	274.28
				0.00				1" Ice	16.73	13.92	395.35
800 10799 w/ Mount Pipe	B	From Leg		3.50		0.0000	110.00	No Ice	15.36	10.94	165.11
				0.00				1/2" Ice	16.05	12.52	274.28
				0.00				1" Ice	16.73	13.92	395.35
800 10799 w/ Mount Pipe	C	From Leg		3.50		0.0000	110.00	No Ice	15.36	10.94	165.11
				0.00				1/2" Ice	16.05	12.52	274.28
				0.00				1" Ice	16.73	13.92	395.35
4415 B25	A	From Leg		2.50		0.0000	110.00	No Ice	1.84	0.82	46.00
				0.00				1/2" Ice	2.01	0.94	60.07
				0.00				1" Ice	2.19	1.07	76.66
4415 B25	B	From Leg		2.50		0.0000	110.00	No Ice	1.84	0.82	46.00
				0.00				1/2" Ice	2.01	0.94	60.07
				0.00				1" Ice	2.19	1.07	76.66
4415 B25	C	From Leg		2.50		0.0000	110.00	No Ice	1.84	0.82	46.00
				0.00				1/2" Ice	2.01	0.94	60.07
				0.00				1" Ice	2.19	1.07	76.66
RRUS-32 B30	A	From Leg		2.50		0.0000	110.00	No Ice	2.72	1.67	53.00
				0.00				1/2" Ice	2.94	1.86	74.00
				0.00				1" Ice	3.17	2.05	98.19
RRUS-32 B30	B	From Leg		2.50		0.0000	110.00	No Ice	2.72	1.67	53.00
				0.00				1/2" Ice	2.94	1.86	74.00
				0.00				1" Ice	3.17	2.05	98.19
RRUS-32 B30	C	From Leg		2.50		0.0000	110.00	No Ice	2.72	1.67	53.00
				0.00				1/2" Ice	2.94	1.86	74.00
				0.00				1" Ice	3.17	2.05	98.19

OPA65R-BU8DA w/mount pipe (AT&T - proposed)	A	From Leg		3.50		0.0000	110.00	No Ice	18.38	10.79	132.11
				0.00				1/2" Ice	19.11	12.31	259.03
				0.00				1" Ice	19.84	13.66	397.67
OPA65R-BU8DA w/mount pipe	B	From Leg		3.50		0.0000	110.00	No Ice	18.38	10.79	132.11
				0.00				1/2" Ice	19.11	12.31	259.03
				0.00				1" Ice	19.84	13.66	397.67
OPA65R-BU8DA w/mount pipe	C	From Leg		3.50		0.0000	110.00	No Ice	18.38	10.79	132.11
				0.00				1/2" Ice	19.11	12.31	259.03
				0.00				1" Ice	19.84	13.66	397.67
DMP65R-BU8DA w/mount pipe	A	From Leg		3.50		0.0000	110.00	No Ice	18.16	10.71	148.11
				0.00				1/2" Ice	18.89	12.24	273.63
				0.00				1" Ice	19.61	13.58	410.85
DMP65R-BU8DA w/mount pipe	B	From Leg		3.50		0.0000	110.00	No Ice	18.16	10.71	148.11
				0.00				1/2" Ice	18.89	12.24	273.63
				0.00				1" Ice	19.61	13.58	410.85

tnxTower CENTERLINE COMMUNICATIONS 750 West Center Street, Suite 301 West Bridgewater, MA 02379 Phone: 781.713.4725 FAX:	Job	CT3438	Page	6 of 12
	Project	140 ft Self Supporting Tower	Date	09:22:04 06/04/20
	Client	AT&T	Designed by	TC

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Vert					
			ft	ft	°	ft	ft ²	ft ²	lb
DMP65R-BU8DA w/mount pipe	C	From Leg	3.50	0.0000	110.00	No Ice	18.16	10.71	148.11
			0.00			1/2" Ice	18.89	12.24	273.63
			0.00			1" Ice	19.61	13.58	410.85
RRUS-E2 B29	A	From Leg	2.50	0.0000	110.00	No Ice	3.15	1.29	53.00
			0.00			1/2" Ice	3.36	1.44	76.22
			0.00			1" Ice	3.59	1.60	102.64
RRUS-E2 B29	B	From Leg	2.50	0.0000	110.00	No Ice	3.15	1.29	53.00
			0.00			1/2" Ice	3.36	1.44	76.22
			0.00			1" Ice	3.59	1.60	102.64
RRUS-E2 B29	C	From Leg	2.50	0.0000	110.00	No Ice	3.15	1.29	53.00
			0.00			1/2" Ice	3.36	1.44	76.22
			0.00			1" Ice	3.59	1.60	102.64
8843 B2/B66A	A	From Leg	2.50	0.0000	110.00	No Ice	1.64	1.35	74.00
			0.00			1/2" Ice	1.80	1.50	91.60
			0.00			1" Ice	1.97	1.65	111.91
8843 B2/B66A	B	From Leg	2.50	0.0000	110.00	No Ice	1.64	1.35	74.00
			0.00			1/2" Ice	1.80	1.50	91.60
			0.00			1" Ice	1.97	1.65	111.91
8843 B2/B66A	C	From Leg	2.50	0.0000	110.00	No Ice	1.64	1.35	74.00
			0.00			1/2" Ice	1.80	1.50	91.60
			0.00			1" Ice	1.97	1.65	111.91
4478 B14	A	From Leg	2.50	0.0000	110.00	No Ice	2.02	1.25	59.40
			0.00			1/2" Ice	2.20	1.40	77.06
			0.00			1" Ice	2.39	1.56	97.48
4478 B14	B	From Leg	2.50	0.0000	110.00	No Ice	2.02	1.25	59.40
			0.00			1/2" Ice	2.20	1.40	77.06
			0.00			1" Ice	2.39	1.56	97.48
4478 B14	C	From Leg	2.50	0.0000	110.00	No Ice	2.02	1.25	59.40
			0.00			1/2" Ice	2.20	1.40	77.06
			0.00			1" Ice	2.39	1.56	97.48
4449 B5/B12	A	From Leg	2.50	0.0000	110.00	No Ice	1.64	1.29	74.00
			0.00			1/2" Ice	1.80	1.44	91.12
			0.00			1" Ice	1.97	1.59	110.94
4449 B5/B12	B	From Leg	2.50	0.0000	110.00	No Ice	1.64	1.29	74.00
			0.00			1/2" Ice	1.80	1.44	91.12
			0.00			1" Ice	1.97	1.59	110.94
4449 B5/B12	C	From Leg	2.50	0.0000	110.00	No Ice	1.64	1.29	74.00
			0.00			1/2" Ice	1.80	1.44	91.12
			0.00			1" Ice	1.97	1.59	110.94
DC9-48-60-24-8C-EV	A	From Leg	2.50	0.0000	110.00	No Ice	0.81	0.81	33.00
			0.00			1/2" Ice	1.30	1.30	48.38
			0.00			1" Ice	1.48	1.48	66.11
DC9-48-60-24-8C-EV	B	From Leg	2.50	0.0000	110.00	No Ice	0.81	0.81	33.00
			0.00			1/2" Ice	1.30	1.30	48.38
			0.00			1" Ice	1.48	1.48	66.11
DC9-48-60-24-8C-EV	C	From Leg	2.50	0.0000	110.00	No Ice	0.81	0.81	33.00
			0.00			1/2" Ice	1.30	1.30	48.38
			0.00			1" Ice	1.48	1.48	66.11

SO 101-1	A	From Leg	2.00	0.0000	100.00	No Ice	3.75	1.28	84.00
			0.00			1/2" Ice	4.45	1.39	111.00
			0.00			1" Ice	5.15	1.50	138.00
SO 101-1	B	From Leg	2.00	0.0000	100.00	No Ice	3.75	1.28	84.00
			0.00			1/2" Ice	4.45	1.39	111.00
			0.00			1" Ice	5.15	1.50	138.00
SO 101-1	C	From Leg	2.00	0.0000	100.00	No Ice	3.75	1.28	84.00
			0.00			1/2" Ice	4.45	1.39	111.00

tnxTower CENTERLINE COMMUNICATIONS 750 West Center Street, Suite 301 West Bridgewater, MA 02379 Phone: 781.713.4725 FAX:	Job	CT3438	Page	7 of 12
	Project	140 ft Self Supporting Tower	Date	09:22:04 06/04/20
	Client	AT&T	Designed by	TC

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Lateral						
			ft	ft	°	ft	ft ²	ft ²	lb	
Panel Antenna 72"x12" w/mount pipe	A	From Leg	0.00		0.0000	100.00	1" Ice	5.15	1.50	138.00
			4.00				No Ice	8.37	7.53	65.55
			2.00				1/2" Ice	8.93	8.72	136.83
			0.00				1" Ice	9.46	9.62	216.16
Panel Antenna 72"x12" w/mount pipe	B	From Leg	4.00		0.0000	100.00	No Ice	8.37	7.53	65.55
			2.00				1/2" Ice	8.93	8.72	136.83
			0.00				1" Ice	9.46	9.62	216.16
			4.00				No Ice	8.37	7.53	65.55
Panel Antenna 72"x12" w/mount pipe	C	From Leg	2.00		0.0000	100.00	1/2" Ice	8.93	8.72	136.83
			0.00				1" Ice	9.46	9.62	216.16
			4.00				No Ice	8.37	7.53	65.55
			2.00				1/2" Ice	8.93	8.72	136.83
9442 RRH 700	A	From Leg	0.00		0.0000	100.00	1" Ice	9.46	9.62	216.16
			4.00				No Ice	3.02	1.50	44.00
			2.00				1/2" Ice	3.26	1.69	64.97
			2.00				1" Ice	3.50	1.88	89.18
9442 RRH 700	B	From Leg	4.00		0.0000	100.00	No Ice	3.02	1.50	44.00
			2.00				1/2" Ice	3.26	1.69	64.97
			2.00				1" Ice	3.50	1.88	89.18
			4.00				No Ice	3.02	1.50	44.00
9442 RRH 700	C	From Leg	2.00		0.0000	100.00	1/2" Ice	3.26	1.69	64.97
			2.00				1" Ice	3.50	1.88	89.18
			4.00				No Ice	3.02	1.50	44.00
			2.00				1/2" Ice	3.26	1.69	64.97
			2.00				1" Ice	3.50	1.88	89.18

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets:		Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight	
				Horz	Lateral							
				ft	ft	°	°	ft	ft	ft ²	lb	
Andrew VHLP1	A	Paraboloid w/Radome	From Leg	2.00		0.0000		135.00	1.25	No Ice	1.23	14.00
				0.00						1/2" Ice	1.40	27.00
				0.00						1" Ice	1.58	40.00
				4.00						No Ice	3.14	31.00
Andrew VHLP2-11	A	Paraboloid w/Radome	From Leg	0.00		0.0000		100.00	2.00	1/2" Ice	3.41	41.00
				0.00						1" Ice	3.69	51.00
				2.00						No Ice	1.23	14.00
				0.00						1/2" Ice	1.40	27.00
Andrew VHLP1	A	Paraboloid w/Radome	From Leg	0.00		0.0000		95.00	1.25	1" Ice	1.58	40.00
				2.00						No Ice	1.23	14.00
				0.00						1/2" Ice	1.40	27.00
				0.00						1" Ice	1.58	40.00
Andrew VHLP1	B	Paraboloid w/Radome	From Leg	2.00		0.0000		95.00	1.25	No Ice	1.23	14.00
				0.00						1/2" Ice	1.40	27.00
				0.00						1" Ice	1.58	40.00
				2.00						No Ice	1.23	14.00
Andrew VHLP1	C	Paraboloid w/Radome	From Leg	0.00		0.0000		100.00	1.25	1/2" Ice	1.40	27.00
				2.00						1" Ice	1.58	40.00
				0.00						No Ice	1.23	14.00
				0.00						1/2" Ice	1.40	27.00
									1" Ice	1.58	40.00	

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice

tnxTower CENTERLINE COMMUNICATIONS 750 West Center Street, Suite 301 West Bridgewater, MA 02379 Phone: 781.713.4725 FAX:	Job	CT3438	Page	8 of 12
	Project	140 ft Self Supporting Tower	Date	09:22:04 06/04/20
	Client	AT&T	Designed by	TC

<i>Comb. No.</i>	<i>Description</i>
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Reactions

<i>Location</i>	<i>Condition</i>	<i>Gov. Load Comb.</i>	<i>Vertical lb</i>	<i>Horizontal, X lb</i>	<i>Horizontal, Z lb</i>
Leg C	Max. Vert	18	203032.75	17687.35	-9966.24
	Max. H _x	18	203032.75	17687.35	-9966.24
	Max. H _z	7	-172365.29	-15380.51	8635.64
	Min. Vert	7	-172365.29	-15380.51	8635.64
	Min. H _x	7	-172365.29	-15380.51	8635.64

tnxTower CENTERLINE COMMUNICATIONS 750 West Center Street, Suite 301 West Bridgewater, MA 02379 Phone: 781.713.4725 FAX:	Job	CT3438	Page	9 of 12
	Project	140 ft Self Supporting Tower	Date	09:22:04 06/04/20
	Client	AT&T	Designed by	TC

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Leg B	Min. H _z	18	203032.75	17687.35	-9966.24
	Max. Vert	10	200215.12	-17710.89	-9483.32
	Max. H _x	23	-171974.85	15439.22	8198.75
	Max. H _z	23	-171974.85	15439.22	8198.75
	Min. Vert	23	-171974.85	15439.22	8198.75
Leg A	Min. H _x	10	200215.12	-17710.89	-9483.32
	Min. H _z	10	200215.12	-17710.89	-9483.32
	Max. Vert	2	204874.99	-466.71	20666.45
	Max. H _x	15	-177816.11	445.66	-18117.93
	Max. H _z	2	204874.99	-466.71	20666.45
	Min. Vert	15	-177816.11	445.66	-18117.93
	Min. H _x	2	204874.99	-466.71	20666.45
	Min. H _z	15	-177816.11	445.66	-18117.93

Tower Mast Reaction Summary

Load Combination	Vertical lb	Shear _x lb	Shear _z lb	Overturning Moment, M _x lb-ft	Overturning Moment, M _z lb-ft	Torque lb-ft
Dead Only	29653.50	-0.00	0.00	8667.72	9237.20	-0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	35584.20	0.06	-30543.53	-2674474.70	11132.36	-12593.36
0.9 Dead+1.6 Wind 0 deg - No Ice	26688.15	0.06	-30543.53	-2674243.26	8342.00	-12580.98
1.2 Dead+1.6 Wind 30 deg - No Ice	35584.20	14870.35	-25770.50	-2263147.69	-1300694.79	-2312.67
0.9 Dead+1.6 Wind 30 deg - No Ice	26688.15	14870.34	-25770.51	-2263353.67	-1302094.78	-2306.25
1.2 Dead+1.6 Wind 60 deg - No Ice	35584.20	24591.32	-14193.29	-1251896.12	-2176212.34	5918.53
0.9 Dead+1.6 Wind 60 deg - No Ice	26688.15	24591.32	-14193.29	-1253167.04	-2176665.04	5914.31
1.2 Dead+1.6 Wind 90 deg - No Ice	35584.20	27485.79	20.70	12690.08	-2451893.34	9798.08
0.9 Dead+1.6 Wind 90 deg - No Ice	26688.15	27485.79	20.70	10068.07	-2452042.55	9789.44
1.2 Dead+1.6 Wind 120 deg - No Ice	35584.20	25604.91	14798.88	1318944.79	-2252166.41	17363.53
0.9 Dead+1.6 Wind 120 deg - No Ice	26688.15	25604.91	14798.88	1314929.65	-2252543.43	17345.84
1.2 Dead+1.6 Wind 150 deg - No Ice	35584.20	14654.25	25379.41	2260892.36	-1288228.32	19091.91
0.9 Dead+1.6 Wind 150 deg - No Ice	26688.15	14654.25	25379.42	2255875.28	-1289632.74	19080.85
1.2 Dead+1.6 Wind 180 deg - No Ice	35584.20	0.02	29098.92	2592532.88	11144.72	12590.67
0.9 Dead+1.6 Wind 180 deg - No Ice	26688.15	0.02	29098.92	2587159.59	8355.30	12578.93
1.2 Dead+1.6 Wind 210 deg - No Ice	35584.20	-14894.64	25795.91	2286878.24	1325511.32	2412.39
0.9 Dead+1.6 Wind 210 deg - No Ice	26688.15	-14894.64	25795.91	2281845.44	1321324.75	2406.00
1.2 Dead+1.6 Wind 240 deg - No Ice	35584.20	-25879.34	14957.39	1328825.81	2291543.64	-5803.43
0.9 Dead+1.6 Wind 240 deg - No Ice	26688.15	-25879.34	14957.39	1324805.61	2286329.05	-5798.97

tnxTower CENTERLINE COMMUNICATIONS 750 West Center Street, Suite 301 West Bridgewater, MA 02379 Phone: 781.713.4725 FAX:	Job CT3438	Page 10 of 12
	Project 140 ft Self Supporting Tower	Date 09:22:04 06/04/20
	Client AT&T	Designed by TC

Load Combination	Vertical lb	Shear _x lb	Shear _z lb	Overturning Moment, M _x lb-ft	Overturning Moment, M _z lb-ft	Torque lb-ft
1.2 Dead+1.6 Wind 270 deg - No Ice	35584.20	-27485.65	20.72	12697.93	2474086.91	-9797.54
0.9 Dead+1.6 Wind 270 deg - No Ice	26688.15	-27485.65	20.72	10076.59	2468656.56	-9788.92
1.2 Dead+1.6 Wind 300 deg - No Ice	35584.20	-24316.67	-14034.74	-1241950.98	2181268.89	-17474.66
0.9 Dead+1.6 Wind 300 deg - No Ice	26688.15	-24316.67	-14034.74	-1243229.11	2176155.76	-17459.03
1.2 Dead+1.6 Wind 330 deg - No Ice	35584.20	-14629.76	-25353.96	-2237091.41	1307921.01	-19192.00
0.9 Dead+1.6 Wind 330 deg - No Ice	26688.15	-14629.76	-25353.96	-2237315.31	1303748.91	-19180.96
1.2 Dead+1.0 Ice+1.0 Temp	111992.61	0.00	-0.00	57627.11	50886.24	0.79
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	111992.61	0.02	-9942.11	-804756.91	50965.24	-5428.80
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	111992.61	4819.57	-8351.56	-670414.16	-369200.48	-1125.01
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	111992.61	7959.24	-4594.14	-346296.97	-649045.16	2413.66
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	111992.61	8998.44	5.29	58300.24	-744126.53	4229.49
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	111992.61	8054.17	4654.03	466731.47	-656696.28	5976.29
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	111992.61	4785.02	8287.01	782114.11	-367308.02	7190.86
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	111992.61	0.01	9761.47	907412.45	50958.64	5427.18
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	111992.61	-4825.85	8357.76	786562.49	471795.29	1149.38
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	111992.61	-8124.88	4694.88	469295.18	763062.58	-2385.67
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	111992.61	-8998.39	5.30	58296.72	846034.64	-4229.13
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	111992.61	-7888.45	-4553.28	-343723.53	746503.70	-6002.64
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	111992.61	-4778.68	-8280.79	-665953.77	468550.50	-7215.52
Dead+Wind 0 deg - Service	29653.50	0.01	-7303.96	-632924.23	9265.37	-3010.36
Dead+Wind 30 deg - Service	29653.50	3555.99	-6162.57	-534609.72	-304211.34	-553.82
Dead+Wind 60 deg - Service	29653.50	5880.59	-3394.08	-292960.68	-513430.27	1414.70
Dead+Wind 90 deg - Service	29653.50	6572.75	4.95	9231.34	-579302.38	2343.49
Dead+Wind 120 deg - Service	29653.50	6122.97	3538.90	321386.98	-531597.51	4150.16
Dead+Wind 150 deg - Service	29653.50	3504.31	6069.05	546475.14	-301241.53	4561.78
Dead+Wind 180 deg - Service	29653.50	0.00	6958.50	625728.41	9266.36	3009.09
Dead+Wind 210 deg - Service	29653.50	-3561.80	6168.65	552683.69	323357.75	577.64
Dead+Wind 240 deg - Service	29653.50	-6188.60	3576.80	323753.57	554223.40	-1387.84
Dead+Wind 270 deg - Service	29653.50	-6572.72	4.96	9233.32	597821.74	-2343.34
Dead+Wind 300 deg - Service	29653.50	-5814.91	-3356.17	-290587.31	527851.49	-4176.45
Dead+Wind 330 deg - Service	29653.50	-3498.46	-6062.96	-528391.58	319150.50	-4585.72

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
1	-0.00	-29653.50	0.00	0.00	29653.50	-0.00	0.000%
2	0.06	-35584.20	-30543.53	-0.06	35584.20	30543.53	0.000%

tnxTower CENTERLINE COMMUNICATIONS 750 West Center Street, Suite 301 West Bridgewater, MA 02379 Phone: 781.713.4725 FAX:	Job	CT3438	Page	11 of 12
	Project	140 ft Self Supporting Tower	Date	09:22:04 06/04/20
	Client	AT&T	Designed by	TC

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
3	0.06	-26688.15	-30543.53	-0.06	26688.15	30543.53	0.000%
4	14870.34	-35584.20	-25770.51	-14870.35	35584.20	25770.50	0.000%
5	14870.34	-26688.15	-25770.51	-14870.34	26688.15	25770.51	0.000%
6	24591.32	-35584.20	-14193.29	-24591.32	35584.20	14193.29	0.000%
7	24591.32	-26688.15	-14193.29	-24591.32	26688.15	14193.29	0.000%
8	27485.79	-35584.20	20.70	-27485.79	35584.20	-20.70	0.000%
9	27485.79	-26688.15	20.70	-27485.79	26688.15	-20.70	0.000%
10	25604.91	-35584.20	14798.88	-25604.91	35584.20	-14798.88	0.000%
11	25604.91	-26688.15	14798.88	-25604.91	26688.15	-14798.88	0.000%
12	14654.25	-35584.20	25379.41	-14654.25	35584.20	-25379.41	0.000%
13	14654.25	-26688.15	25379.41	-14654.25	26688.15	-25379.42	0.000%
14	0.02	-35584.20	29098.91	-0.02	35584.20	-29098.92	0.000%
15	0.02	-26688.15	29098.91	-0.02	26688.15	-29098.92	0.000%
16	-14894.65	-35584.20	25795.91	14894.64	35584.20	-25795.91	0.000%
17	-14894.65	-26688.15	25795.91	14894.64	26688.15	-25795.91	0.000%
18	-25879.35	-35584.20	14957.39	25879.34	35584.20	-14957.39	0.000%
19	-25879.35	-26688.15	14957.39	25879.34	26688.15	-14957.39	0.000%
20	-27485.66	-35584.20	20.72	27485.65	35584.20	-20.72	0.000%
21	-27485.66	-26688.15	20.72	27485.65	26688.15	-20.72	0.000%
22	-24316.67	-35584.20	-14034.74	24316.67	35584.20	14034.74	0.000%
23	-24316.67	-26688.15	-14034.74	24316.67	26688.15	14034.74	0.000%
24	-14629.76	-35584.20	-25353.96	14629.76	35584.20	25353.96	0.000%
25	-14629.76	-26688.15	-25353.96	14629.76	26688.15	25353.96	0.000%
26	0.00	-111992.61	0.00	-0.00	111992.61	0.00	0.000%
27	0.02	-111992.61	-9942.13	-0.02	111992.61	9942.11	0.000%
28	4819.57	-111992.61	-8351.58	-4819.57	111992.61	8351.56	0.000%
29	7959.25	-111992.61	-4594.15	-7959.24	111992.61	4594.14	0.000%
30	8998.45	-111992.61	5.30	-8998.44	111992.61	-5.29	0.000%
31	8054.18	-111992.61	4654.04	-8054.17	111992.61	-4654.03	0.000%
32	4785.03	-111992.61	8287.02	-4785.02	111992.61	-8287.01	0.000%
33	0.01	-111992.61	9761.48	-0.01	111992.61	-9761.47	0.000%
34	-4825.86	-111992.61	8357.77	4825.85	111992.61	-8357.76	0.000%
35	-8124.90	-111992.61	4694.89	8124.88	111992.61	-4694.88	0.000%
36	-8998.40	-111992.61	5.30	8998.39	111992.61	-5.30	0.000%
37	-7888.46	-111992.61	-4553.28	7888.45	111992.61	4553.28	0.000%
38	-4778.68	-111992.61	-8280.81	4778.68	111992.61	8280.79	0.000%
39	0.01	-29653.50	-7303.96	-0.01	29653.50	7303.96	0.000%
40	3555.99	-29653.50	-6162.57	-3555.99	29653.50	6162.57	0.000%
41	5880.59	-29653.50	-3394.08	-5880.59	29653.50	3394.08	0.000%
42	6572.75	-29653.50	4.95	-6572.75	29653.50	-4.95	0.000%
43	6122.97	-29653.50	3538.90	-6122.97	29653.50	-3538.90	0.000%
44	3504.31	-29653.50	6069.05	-3504.31	29653.50	-6069.05	0.000%
45	0.00	-29653.50	6958.50	-0.00	29653.50	-6958.50	0.000%
46	-3561.80	-29653.50	6168.65	3561.80	29653.50	-6168.65	0.000%
47	-6188.60	-29653.50	3576.80	6188.60	29653.50	-3576.80	0.000%
48	-6572.72	-29653.50	4.96	6572.72	29653.50	-4.96	0.000%
49	-5814.91	-29653.50	-3356.17	5814.91	29653.50	3356.17	0.000%
50	-3498.46	-29653.50	-6062.96	3498.46	29653.50	6062.96	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	140 - 120	2.473	47	0.1324	0.0126
T2	120 - 100	1.916	47	0.1316	0.0124
T3	100 - 80	1.353	47	0.1223	0.0119
T4	80 - 60	0.858	47	0.1001	0.0103

tnxTower CENTERLINE COMMUNICATIONS 750 West Center Street, Suite 301 West Bridgewater, MA 02379 Phone: 781.713.4725 FAX:	Job CT3438	Page 12 of 12
	Project 140 ft Self Supporting Tower	Date 09:22:04 06/04/20
	Client AT&T	Designed by TC

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T5	60 - 40	0.481	47	0.0727	0.0076
T6	40 - 20	0.210	47	0.0486	0.0045
T7	20 - 0	0.054	39	0.0208	0.0022

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
138.00	Lightning Rod 2"x15'	47	2.418	0.1325	0.0126	648564
135.00	Andrew VHLPI	47	2.335	0.1326	0.0126	648564
130.00	Omni 3"x20'	47	2.196	0.1326	0.0125	324281
120.00	PiROD 12' T-Frame	47	1.916	0.1316	0.0124	199824
110.00	Sabre 12' V-Boom	47	1.632	0.1285	0.0123	197518
100.00	Andrew VHLPI	47	1.353	0.1223	0.0119	63952
95.00	Andrew VHLPI	47	1.220	0.1179	0.0116	52880

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail	
T1	140 - 120	Leg	2 1/4	2	-4641.13	77870.40	6.0	Pass	
T2	120 - 100	Leg	2 1/4	33	-36434.70	77870.40	46.8	Pass	
T3	100 - 80	Leg	2 3/4	60	-90118.70	153147.00	58.8	Pass	
T4	80 - 60	Leg	3	87	-127017.00	198902.00	63.9	Pass	
T5	60 - 40	Leg	3 1/4	114	-155239.00	250223.00	62.0	Pass	
T6	40 - 20	Leg	Pirod 105218	141	-175593.00	300681.00	58.4	Pass	
T7	20 - 0	Leg	Pirod 105219	156	-198057.00	399868.00	49.5	Pass	
T1	140 - 120	Diagonal	L1 3/4x1 3/4x1/8	10	-1344.59	3751.65	35.8	Pass	
T2	120 - 100	Diagonal	L1 3/4x1 3/4x1/4	39	-6127.53	6999.86	87.5	Pass	
T3	100 - 80	Diagonal	L2 1/2x2 1/2x5/16	66	-7873.01	23771.20	33.1	Pass	
T4	80 - 60	Diagonal	L2 1/2x2 1/2x5/16	92	-4576.00	18244.10	25.1	Pass	
T5	60 - 40	Diagonal	L2 1/2x2 1/2x5/16	122	-4873.96	14501.70	33.6	Pass	
T6	40 - 20	Diagonal	L3x3x5/16	146	-5837.89	14801.00	39.4	Pass	
T7	20 - 0	Diagonal	L3x3x5/16	161	-7050.19	12157.80	58.0	Pass	
T1	140 - 120	Top Girt	L3x3x3/8	5	-289.86	18687.70	1.6	Pass	
							Summary		
							Leg (T4)	63.9	Pass
							Diagonal (T2)	87.5	Pass
							Top Girt (T1)	1.6	Pass
							RATING =	87.5	Pass